Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

SITE NAME: RUSSELL GARDENS PH 4 — WOB
BUILDER: GREENPARK HOMES — TYPE: VALLEYCREEK 5A — GFA: 2922 — DATE: Oct-21 — LO# 93027

WINTER NATURAL AIR CHANGE RATE 0.365 — HEAT LOSS ΔT °F. 71 — CSA-F280-12
SUMMER NATURAL AIR CHANGE RATE 0.130 — HEAT GAIN ΔT °F. 13 — SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			S- ENS			WIC-4						ENS-4					
EXP. WALL				35			28			17			12			29			36			6			7						6					
CLG. HT.				9			9			9			9			9			9			9			9						9					
	FACTORS																																			
GRS.WALL AREA	LOSS	GAIN		315			262			153			108			261			324			54			63						54					
GLAZING				LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN					LOSS	GAIN			
NORTH	19.8	16.0	0	0	0	15	297	240	0	0	0	15	297	240	0	0	0	0	0	0	7	138	112	0	0	0				0	0	0			
EAST	19.8	41.6	0	0	0	0	0	0	0	0	0	0	0	0	45	890	1870	45	890	1870	0	0	0	13	257	540				0	0	0			
SOUTH	19.8	24.9	0	0	0	0	0	0	19	376	473	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				7	138	174			
WEST	19.8	41.6	35	692	1454	15	297	623	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0			
SKYLT.	34.6	101.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0			
NET EXPOSED WALL	4.1	0.8	280	1161	210	222	920	167	134	556	101	93	386	70	216	895	162	279	1157	210	47	195	35	50	207	38				47	195	35			
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0			
EXPOSED CLG	1.2	0.6	309	368	182	197	235	116	229	273	135	213	254	125	274	327	161	162	193	95	124	148	73	39	46	23				57	68	33			
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	128	63	0	0	0	0	0	0				0	0	0			
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0	0	0	0	0	0	0	274	649	118	0	0	0	87	206	37	39	92	17				0	0	0			
BASEMENT/CRAWL HEAT LOSS				0			0			0			0			0			0			0			0						0					
SLAB ON GRADE HEAT LOSS				0			0			0			0			0			0			0			0						0					
SUBTOTAL HT LOSS				2221			1748			1204			936			2761			2367			687			603						401					
SUB TOTAL HT GAIN					1846			1146			708			435			2311			2238			257			617						243			
LEVEL FACTOR / MULTIPLIER			0.20	0.28		0.20	0.28		0.20	0.28		0.20	0.28		0.20	0.28		0.20	0.28		0.20	0.28		0.20	0.28					0.20	0.28				
AIR CHANGE HEAT LOSS				618			487			335			261			768			659			191			168						112					
AIR CHANGE HEAT GAIN					155			96			59			36			194			187			22			52						20			
DUCT LOSS				0			0			0			0			353			0			88			77						0					
DUCT GAIN					0			0			0			0			344			0			28			67						0				
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0	0		0				0		0			
HEAT GAIN APPLIANCES/LIGHTS					700			0			0			700			700			700			0			0						0			
TOTAL HT LOSS BTU/H				2839			2235			1539			1197			3882			3026			966			848						613				
TOTAL HT GAIN x 1.3 BTU/H					4135			1614			998			1834			4925			4374			399			957						343			

ROOM USE			FAM			DIN			KT/BF			LIB			LAUN			W/R			FOY									WOB			BAS		
EXP. WALL				34			12			36			19			26			3			30									20			160		
CLG. HT.				10			10			10			10			11			11			11									9			9		
	FACTORS																																			
GRS.WALL AREA	LOSS	GAIN		340			120			360			190			286			33			330									180			960		
GLAZING				LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		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	0	0	7	138	112	0	0	0	0	0	0							0	0	0	4	79	64
EAST	19.8	41.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	138	291							0	0	0	0	0	0
SOUTH	19.8	24.9	0	0	0	17	336	423	0	0	0	12	237	299	0	0	0	7	138	174	0	0	0							0	0	0	7	138	174
WEST	19.8	41.6	30	593	1247	0	0	0	65	1285	2701	0	0	0	0	0	0	0	0	0	0	0	0							0	0	0	0	0	0
SKYLT.	34.6	101.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							0	0	0	0	0	0
DOORS	23.5	4.3	0	0	0	0	0	0	0	0	0	0	0	0	20	469	85	0	0	0	40	938	170							20	469	85	20	469	85
NET EXPOSED WALL	4.1	0.8	310	1285	233	103	427	77	295	1223	222	178	738	134	259	1074	195	26	108	20	283	1173	213							160	663	120	0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							0	0	0	480	1605	291
EXPOSED CLG	1.2	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							0	0	0	0	0	0
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS				0			0			0			0			0			0			0												2854		
SLAB ON GRADE HEAT LOSS				0			0			0			0			0			0			0									174			5145		
SUBTOTAL HT LOSS				1878			763			2508			975			1681			246			2250									1306					614
SUB TOTAL HT GAIN					1480			501			2923			433			392			194			674									205			0.50	1.39
LEVEL FACTOR / MULTIPLIER			0.30	0.52		0.30	0.52		0.30	0.62		0.30	0.52		0.30	0.52		0.30	0.52		0.30	0.52												8997	
AIR CHANGE HEAT LOSS				984			400			1314			511			881			129			1179													69	
AIR CHANGE HEAT GAIN					124			42			245			36			33			16			56												0	
DUCT LOSS				0			0			0			0			0			0			0													0	
DUCT GAIN					0			0			0			0			0			0			0													0	
HEAT GAIN PEOPLE	240		0		0	0		0	0		0	0		0	0		0	0		0	0		0							0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS					700			700			700			700			700			0			0									0			14142	
TOTAL HT LOSS BTU/H				2862			1163			3822			1486			2562			375			3429									1306					888
TOTAL HT GAIN x 1.3 BTU/H					2994			1615			5027			1519			1461			273			949									267				

CITY OF HAMILTON
Building Division
Permit No. 21-150182
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
FOR CHIEF BUILDING OFFICIAL
DATE Oct 27/21

TOTAL HEAT GAIN BTU/H: 34846 — TONS: 2.90 — LOSS DUE TO VENTILATION LOAD BTU/H: 1515 — STRUCTURAL HEAT LOSS: 48192 — TOTAL COMBINED HEAT LOSS BTU/H: 49708

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: 19669 MICHAEL O'ROURKE

HVAC DESIGNS LTD.

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SITE NAME: RUSSELL GARDENS PH 4
BUILDER: GREENPARK HOMES

WUB
TYPE: VALLEYCREEK 5A DATE: Oct-21 GFA: 2922 LO# 93027

HEATING CFM	1131	COOLING CFM	1131
TOTAL HEAT LOSS	48,192	TOTAL HEAT GAIN	34,572
AIR FLOW RATE CFM	23.47	AIR FLOW RATE CFM	32.71

furnace pressure	0.6
furnace filter	0.05
a/c coil pressure	0.2
available pressure for s/a & r/a	0.35
plenum pressure s/a	0.18
max s/a dif press. loss	0.02
min adjusted pressure s/a	0.16
r/a pressure	0.17
r/a grille press. Loss	0.02
adjusted pressure r/a	0.15

#GOODMAN
GMEC960603BNA 60

FAN SPEED	
LOW	
MEDLOW	
MEDIUM	928
MEDIUM HIGH	1017
HIGH	1131

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

DESIGN CFM = **1131**
CFM @ .6 " E.S.P.

TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	14	8	4
R/A	0	0	5	2	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	WIC	BED-2	BED-3	BED-4	S- ENS	WIC-4	BED-3	MBR	ENS-4	FAM	DIN	KT/BF	KT/BF	LIB	LAUN	W/R	FOY	BED-4	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.42	1.12	1.54	1.20	1.94	1.51	0.48	0.85	1.94	1.42	0.51	2.86	1.16	1.91	1.91	1.49	2.56	0.38	3.43	1.51	3.86	3.86	3.86	3.86
CFM PER RUN HEAT	33	26	36	28	46	36	11	20	46	33	12	67	27	45	45	35	60	9	80	36	91	91	91	91
RM GAIN MBH.	2.07	0.81	1.00	1.83	2.46	2.19	0.20	0.96	2.46	2.07	0.34	2.99	1.61	2.51	2.51	1.52	1.46	0.27	0.95	2.19	0.29	0.29	0.29	0.29
CFM PER RUN COOLING	68	26	33	60	81	72	7	31	81	68	11	98	53	82	82	50	48	9	31	72	9	9	9	9
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.17	0.17	0.16	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	50	36	31	27	44	58	36	39	50	36	44	27	19	26	32	37	20	37	44	47	44	43	13	34
EQUIVALENT LENGTH	190	150	170	130	130	160	150	120	140	120	200	130	130	120	140	150	130	150	120	130	90	130	160	140
TOTAL EFFECTIVE LENGTH	240	186	201	157	174	218	186	159	190	156	244	157	149	146	172	187	150	187	164	177	134	173	173	174
ADJUSTED PRESSURE	0.07	0.09	0.09	0.11	0.09	0.08	0.09	0.11	0.09	0.11	0.07	0.1	0.12	0.11	0.09	0.09	0.11	0.09	0.1	0.1	0.12	0.09	0.09	0.09
ROUND DUCT SIZE	6	4	4	6	6	6	4	4	6	6	4	6	5	6	6	5	5	4	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	168	298	413	143	235	184	126	229	235	168	138	342	198	229	229	257	441	103	587	264	464	464	464	464
COOLING VELOCITY (ft/min)	347	298	379	306	413	367	80	356	413	347	126	500	389	418	418	367	352	103	228	529	46	46	46	46
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10	4X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	A	A	D	B	D	C	D	D	D	A	C	A	B	A	A	C	B	C	C	C	B	B	D	C

RUN #	25	26
ROOM NAME	ENS	S- ENS
RM LOSS MBH.	1.12	0.48
CFM PER RUN HEAT	26	11
RM GAIN MBH.	0.81	0.20
CFM PER RUN COOLING	26	7
ADJUSTED PRESSURE	0.17	0.17
ACTUAL DUCT LGH.	58	32
EQUIVALENT LENGTH	190	180
TOTAL EFFECTIVE LENGTH	248	212
ADJUSTED PRESSURE	0.07	0.08
ROUND DUCT SIZE	4	4
HEATING VELOCITY (ft/min)	298	126
COOLING VELOCITY (ft/min)	298	80
OUTLET GRILL SIZE	3X10	3X10
TRUNK	A	D

SUPPLY 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	275	0.07	8.9	14	x	8	354	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	572	0.07	11.8	18	x	8	572	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	299	0.07	9.2	10	x	8	538	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	560	0.07	11.7	16	x	8	630	TRUNK J	0	0.00	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 F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0

RETURN AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK O	0	0.05	0	0	x	8	0
TRUNK P	0	0.05	0	0	x	8	0
TRUNK Q	0	0.05	0	0	x	8	0
TRUNK R	0	0.05	0	0	x	8	0
TRUNK S	0	0.05	0	0	x	8	0
TRUNK T	0	0.05	0	0	x	8	0
TRUNK U	0	0.05	0	0	x	8	0
TRUNK V	0	0.05	0	0	x	8	0
TRUNK W	0	0.05	0	0	x	8	0
TRUNK X	1131	0.05	16.5	32	x	8	636
TRUNK Y	325	0.05	10.4	12	x	8	488
TRUNK Z	395	0.05	11.1	14	x	8	508
DROP	1131	0.05	16.5	24	x	10	679

RETURN AIR #	1	2	3	4	5	6	7									BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	155	170	85	75	170	235	85	0	0	0	0	0	0	0	0	156
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	38	36	53	57	25	40	34	1	1	1	1	1	1	1	1	16
EQUIVALENT LENGTH	150	135	185	225	145	230	205	0	0	0	0	0	0	0	0	225
TOTAL EFFECTIVE LH	188	171	238	282	170	270	239	1	1	1	1	1	1	1	1	241
ADJUSTED PRESSURE	0.08	0.09	0.06	0.05	0.09	0.05	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.06
ROUND DUCT SIZE	7	7	6	6	7	9.2	6	0	0	0	0	0	0	0	0	7.5
INLET GRILL SIZE	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	8
	X	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	0	0	0	0	0	0	0	0	14

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TYPE: VALLEYCREEK 5A
SITE NAME: RUSSELL GARDENS PH 4

LO # 93027
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	3	@ 10.6 cfm	31.8	cfm
Kitchen & Bathrooms	5	@ 10.6 cfm	53	cfm
Other Rooms	5	@ 10.6 cfm	53.0	cfm
Table 9.32.3.A.		TOTAL	180.2	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	180.2	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	100.7	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE V150H 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- ENS	FV-05-11VK1	50	✓	0.3
ENS-4	FV-05-11VK1	50	✓	0.3
W/R	FV-05-11VK1	50	✓	0.3

HEAT RECOVERY VENTILATOR — 9.32.3.11.

Model: VANEE V150H

150 cfm high 35 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: Michael O'Rourke
HRAI # 001820
Date: October-21

I REVIEW AND TAKE RESPONIBILITY 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: 19669 MICHAEL O'ROURKE
Michael O'Rourke

HVAC DESIGNS LTD.

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CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 93027 Model: VALLEYCREEK 5A Builder: GREENPARK HOMES Date: 2021-10-19

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1276	9	11484
First	1276	10	12760
Second	1646	9	14814
Third	0	9	0
Fourth	0	9	0
		Total:	39,058.0 ft³
		Total:	1106.0 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.365
SUMMER NATURAL AIR CHANGE RATE	0.130

Design Temperature Difference

	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-17	39	71
Summer DTDc	24	31	7	13

5.2.3.1 Heat Loss due to Air Leakage

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

0.365 x 307.22 x 39 °C x 1.2 = 5273 W

= **17993 Btu/h**

6.2.6 Sensible Gain due to Air Leakage

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

= 0.130 x 307.22 x 7 °C x 1.2 = 342 W

= **1167 Btu/h**

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

80 CFM x 71 °F x 1.08 x 0.25 = **1515 Btu/h**

6.2.7 Sensible heat Gain due to Ventilation

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

80 CFM x 13 °F x 1.08 x 0.25 = **275 Btu/h**

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

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

Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL_{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5	17,993	6,451	1.395
2	0.3		10,301	0.524
3	0.2		12,929	0.278
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

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: VALLEYCREEK 5A WUB
SFQT: 2922 **LO#** 93027
BUILDER: GREENPARK HOMES
SITE: RUSSELL GARDENS PH 4

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	1	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft^3):	39058.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 57.0 ft WIDTH:	33.0 ft	EXPOSED PERIMETER:	160.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	20.0 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

Michael O'Rourke.

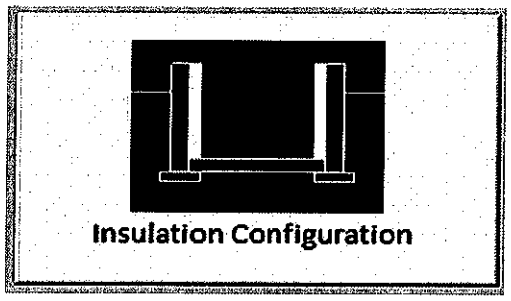
HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description	
Province:	Ontario
Region:	Hamilton
Site Description	
Soil Conductivity:	Normal conductivity: dry sand, loam, clay
Water Table:	Normal (7-10 m, 23-33 ft)

Foundation Dimensions		
Floor Length (m):	4.6	
Floor Width (m):	10.1	
Exposed Perimeter (m):	48.8	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.42	
Window Area (m^2):	1.0	
Door Area (m^2):	1.9	



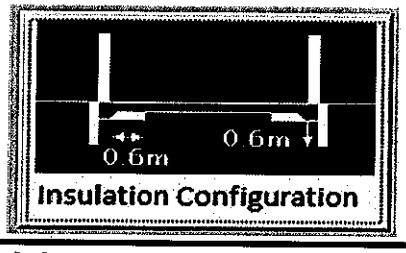
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):	**836**	

TYPE: VALLEYCREEK 5A WUB
LO# 93027

HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

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):	4.6	
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):	**51**	

TYPE: VALLEYCREEK 5A WUB
LO# 93027

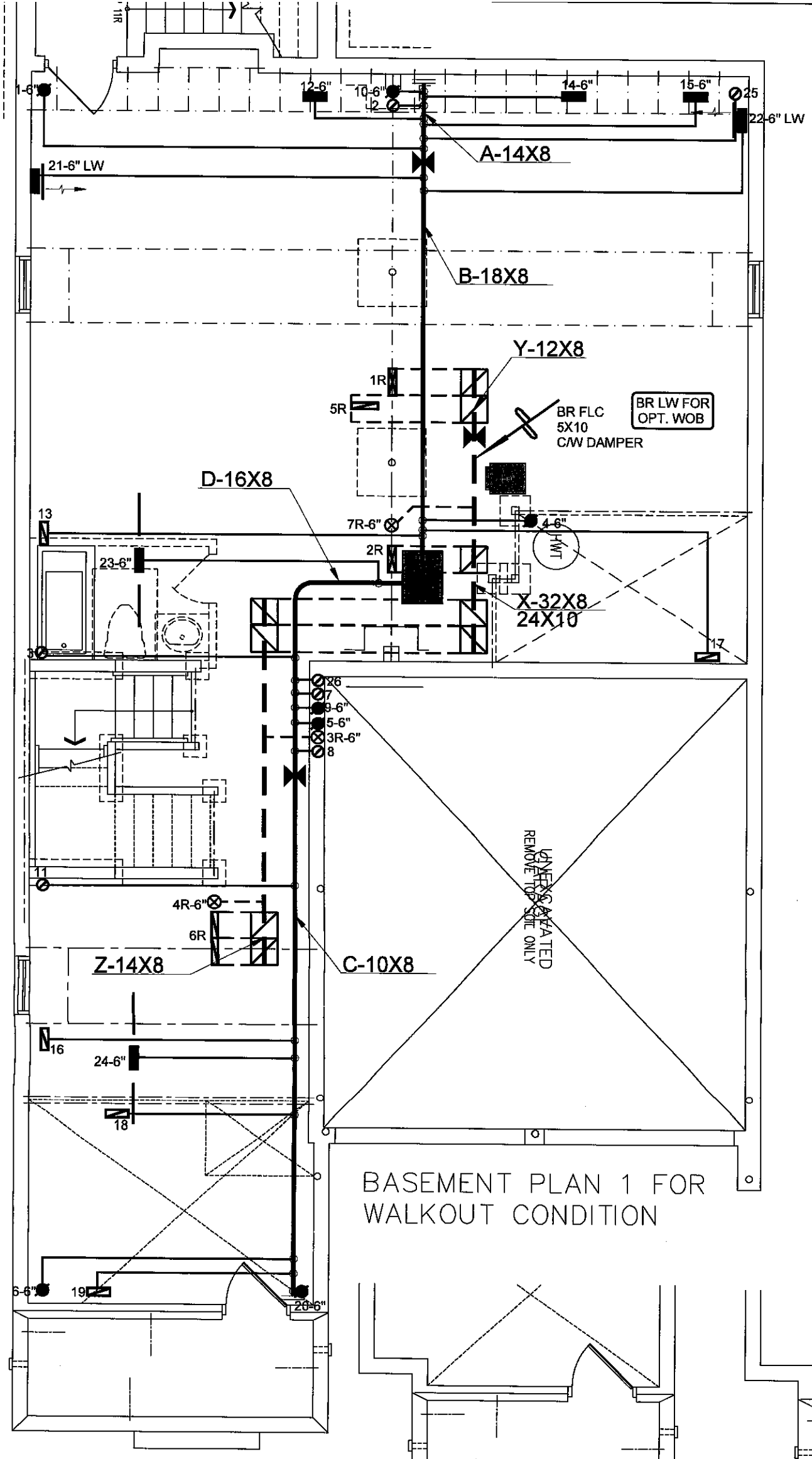
HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

Air Infiltration Residential Load Calculator

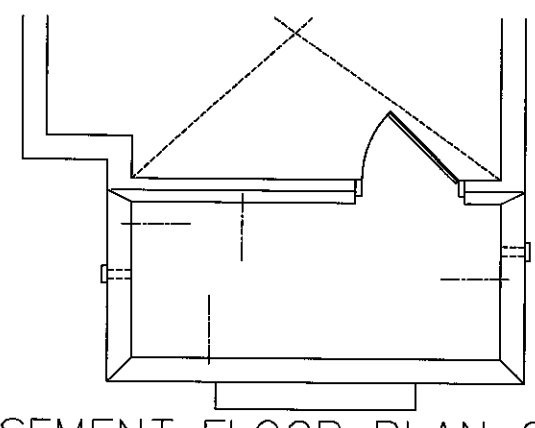
Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Weather Station Location:	Open flat terrain, grass	
Anemometer height (m):	10	
Local Shielding		
Building Site:	Suburban, forest	
Walls:	Heavy	
Flue:	Heavy	
Highest Ceiling Height (m):	8.53	
Building Configuration		
Type:	Detached	
Number of Stories:	Two	
Foundation:	Full	
House Volume (m^3):	1106.0	
Air Leakage/Ventilation		
Air Tightness Type:	Present (1961-) (3.57 ACH)	
Custom BDT Data:	ELA @ 10 Pa.	1474.3 cm^2
	3.57	ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust
	37.5	37.5
Flue Size		
Flue #:	#1 #2 #3 #4	
Diameter (mm):	0 0 0 0	
Natural Infiltration Rates		
Heating Air Leakage Rate (ACH/H):	**0.365**	
Cooling Air Leakage Rate (ACH/H):	**0.130**	

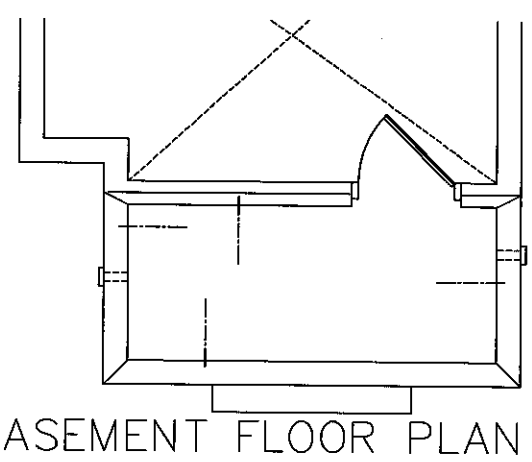
TYPE: VALLEYCREEK 5A WUB
LO# 93027



BASEMENT PLAN 1 FOR WALKOUT CONDITION



BASEMENT FLOOR PLAN 2



BASEMENT FLOOR PLAN 3

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, BCIN# 19669
HVAC DESIGNS LTD.

WUB

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

No.	Description	Date
3.		
2.		
1.		

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Client
GREENPARK HOMES

Project Name
RUSSELL GARDENS PH 4
HAMILTON, ONTARIO

WUB
VALLEYCREEK 5A 2922 sqft

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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 49708 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 @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	14	5	4
1ST FLOOR	8	2	2
BASEMENT	4	1	0

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

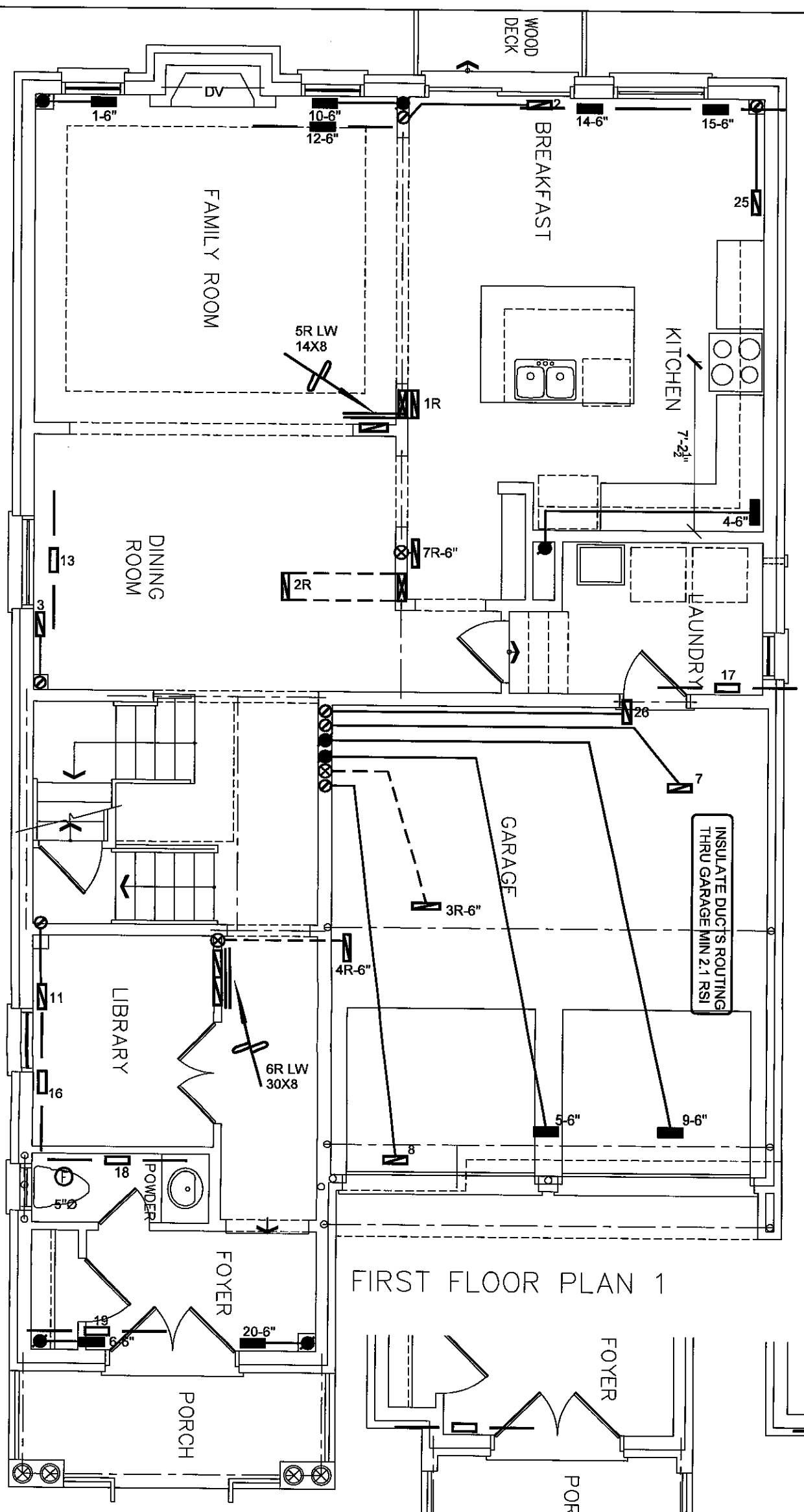
Sheet Title
BASEMENT HEATING LAYOUT

Date OCT/2021

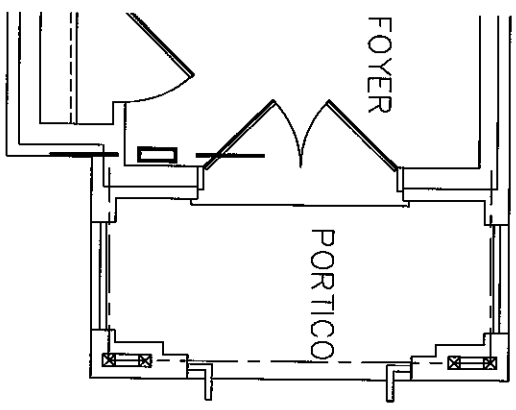
Scale 3/16" = 1'-0"

BCIN# 19669

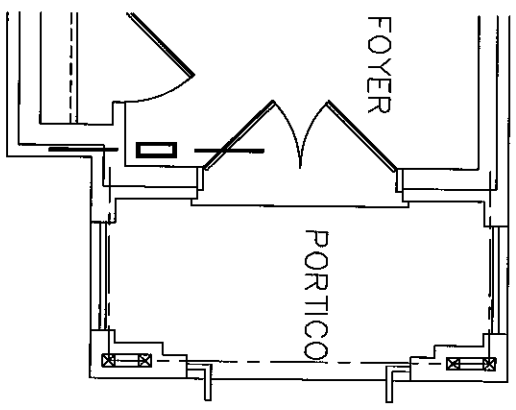
LO# 93027



FIRST FLOOR PLAN 1



FIRST FLOOR PLAN 2



FIRST FLOOR PLAN 3

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

WUB

CSA-F280-12

PACKAGE A1

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Project Name
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WUB
VALLEYCREEK 5A 2922 sqft

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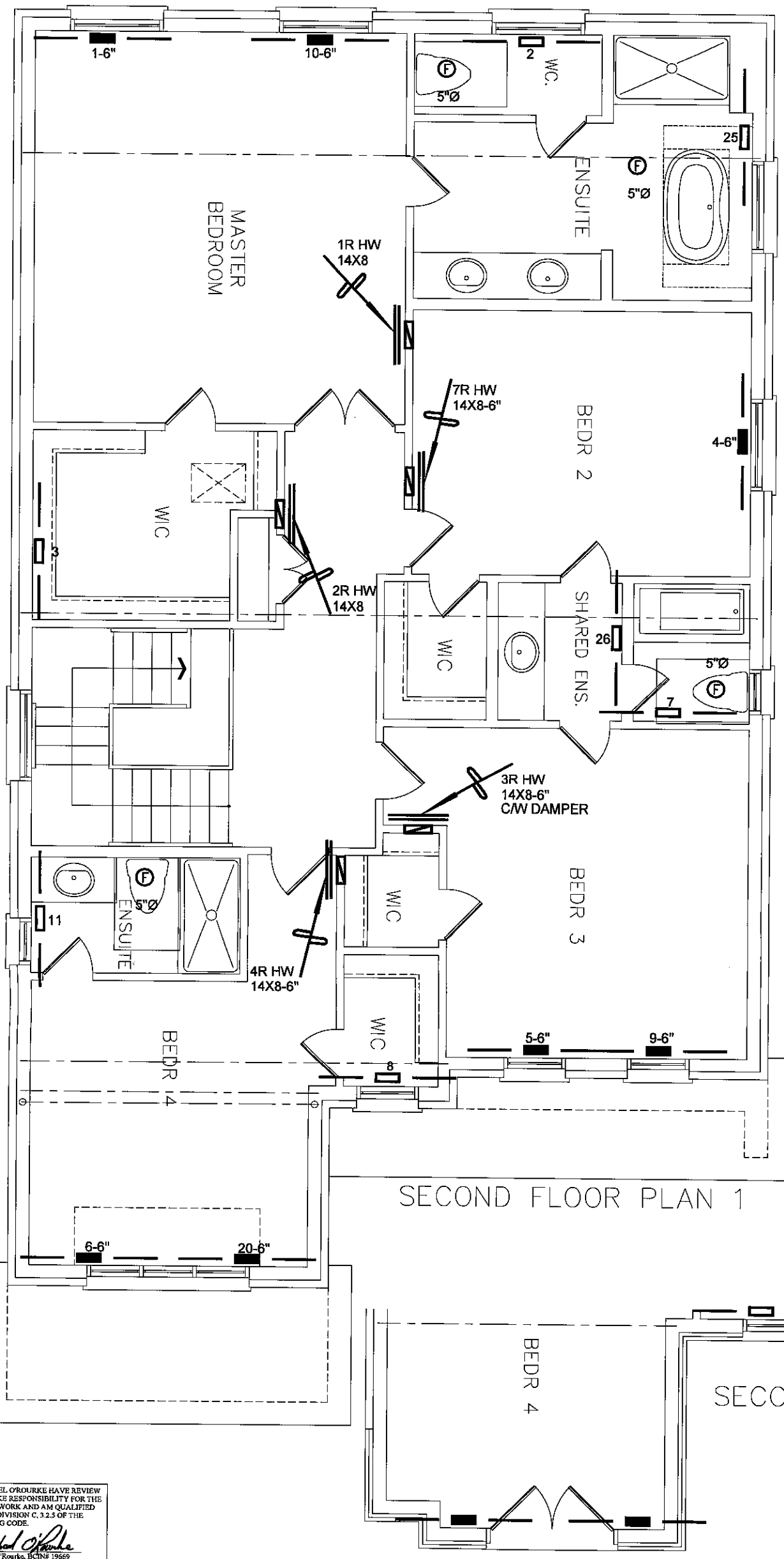
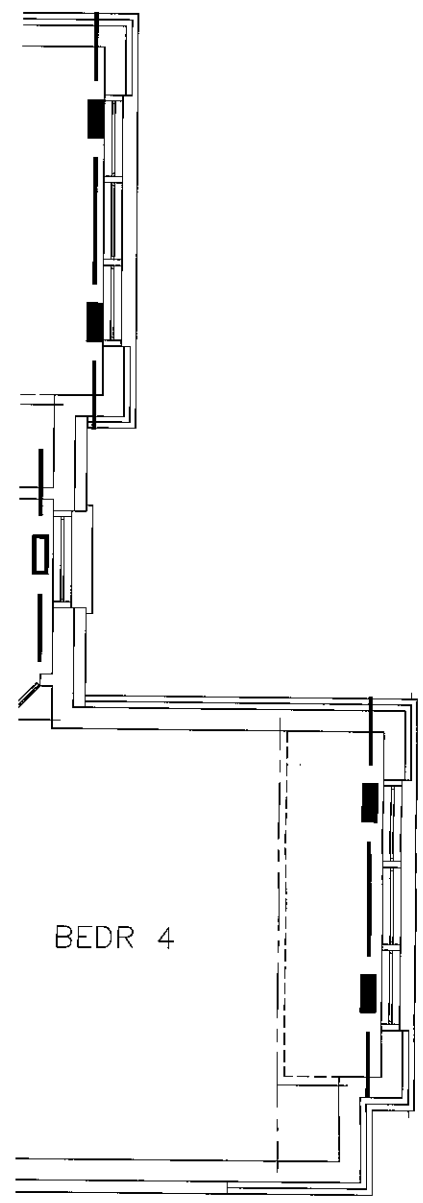
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

Sheet Title
FIRST FLOOR HEATING LAYOUT

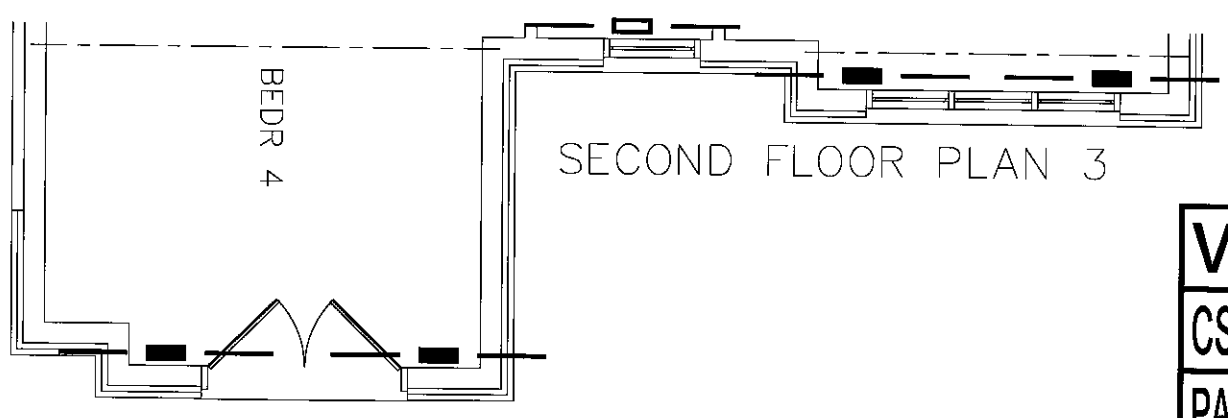
Date	OCT/2021
Scale	3/16" = 1'-0"
BCIN# 19669	
LO#	93027



SECOND FLOOR PLAN 1



SECOND FLOOR PLAN 2



SECOND FLOOR PLAN 3

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WUB

CSA-F280-12

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Sheet Title
SECOND FLOOR HEATING LAYOUT

Date	OCT/2021
Scale	3/16" = 1'-0"
	BCIN# 19669
LO#	93027