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

SITE NAME: RUSSEL GARDENS PH 4 — DATE: Sep-21 — WINTER NATURAL AIR CHANGE RATE 0.312 — HEAT LOSS ΔT °F. 71 — CSA-F280-12
BUILDER: GREENPARK HOMES — TYPE: RH -574 — GFA: 2890 — LO# 92708 — SUMMER NATURAL AIR CHANGE RATE 0.112 — HEAT GAIN ΔT °F. 13 — SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			STOR			BATH			LOFT		
EXP. WALL			31			22			10			33			36			18			6			33		
CLG. HT.			10			10			10			9			9			9			9			9		
	FACTORS																									
GRS.WALL AREA	LOSS	GAIN	316			224			102			297			324			162			54			297		
GLAZING				LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN
NORTH	19.8	16.0	0	0	0	22	435	351	0	0	0	23	455	367	0	0	0	0	0	0	8	158	128	0	0	0
EAST	19.8	41.6	24	474	997	0	0	0	0	0	0	0	0	0	24	474	997	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	0	0	0	0	0	0	0	0	0	0	23	455	573
WEST	19.8	41.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SKYLT.	34.6	101.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
NET EXPOSED WALL	4.1	0.8	292	1211	220	202	839	152	102	423	77	274	1136	206	300	1244	225	162	672	122	46	191	35	274	1136	206
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
EXPOSED CLG	1.2	0.6	0	0	0	0	0	0	0	0	0	293	349	172	313	373	184	77	92	45	90	107	53	303	361	178
NO ATTIC EXPOSED CLG	2.6	1.3	60	153	76	0	0	0	36	92	45	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	86	204	37	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS				0			0			0			0			0			0			0			0	
SLAB ON GRADE HEAT LOSS				0			0			0			0			0			0			0			0	
SUBTOTAL HT LOSS				1839			1274			515			2144			2091			763			456			1962	
SUB TOTAL HT GAIN					1292			504			122			782			1407			167			215			957
LEVEL FACTOR / MULTIPLIER			0.30	0.28		0.30	0.28		0.30	0.28		0.20	0.47		0.20	0.47		0.20	0.47		0.20	0.47		0.20	0.47	
AIR CHANGE HEAT LOSS				517			358			145			1015			991			362			216			925	
AIR CHANGE HEAT GAIN					95			37			9			58			104			12			16			71
DUCT LOSS				0			0			0			316			0			0			0			0	
DUCT GAIN					0			0			0			181			0			0			0			0
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	0		0	0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS					734			0			0			734			734			0			0			734
TOTAL HT LOSS BTU/H				2356			1632			660			3475			3082			1125			672			2876	
TOTAL HT GAIN x 1.3 BTU/H					3383			703			170			2595			3230			233			300			2290

ROOM USE			FAM			DEN			KIT/BR				LAUN			W/R			FOY						BAS		
EXP. WALL			32			27			32				7			9			50						192		
CLG. HT.			13			11			10				12			10			19						10		
	FACTORS																										
GRS.WALL AREA	LOSS	GAIN	422			302			326				85			92			960						1248		
GLAZING				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	0	0	0	0	0	0				0	0	0
EAST	19.8	41.6	105	2076	4363	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0				5	99	208
SOUTH	19.8	24.9	0	0	0	0	0	0	32	633	797		0	0	0	11	217	274	0	0	0				10	198	249
WEST	19.8	41.6	0	0	0	41	810	1704	0	0	0		0	0	0	0	0	0	63	1245	2618				0	0	0
SKYLT.	34.6	101.6	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	10	235	43	0	0	0	0	0	0		0	0	0	0	0	0	20	469	85				20	469	85
NET EXPOSED WALL	4.1	0.8	307	1274	231	261	1084	196	294	1220	221		85	354	64	81	335	61	877	3636	659				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				576	1925	349
EXPOSED CLG	1.2	0.6	0	0	0	0	0	0	0	0	0		0	0	0	99	118	58	115	137	68				0	0	0
NO ATTIC EXPOSED CLG	2.6	1.3	247	631	311	157	401	198	0	0	0		0	0	0	0	0	0	84	214	106				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
BASEMENT/CRAWL HEAT LOSS				0			0			0				0			0			0					6450		
SLAB ON GRADE HEAT LOSS				0			0			0				0			0			0							
SUBTOTAL HT LOSS				4215			2295			1853				354			670			5702					9151		
SUB TOTAL HT GAIN					4947			2088			1018				64			393			3535						891	
LEVEL FACTOR / MULTIPLIER			0.30	0.28		0.30	0.28		0.30	0.28			0.30	0.28		0.30	0.28		0.30	0.28					0.50	0.96	
AIR CHANGE HEAT LOSS				1185			645			521				100			189			1603					8771		
AIR CHANGE HEAT GAIN					365			155			75				5			29			261						66	
DUCT LOSS				0			0			0				0			0			0					0		
DUCT GAIN					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
HEAT GAIN APPLIANCES/LIGHTS					734			734			734				734			0			0						0
TOTAL HT LOSS BTU/H				5400			2940			2374				454			859			7305					17922		
TOTAL HT GAIN x 1.3 BTU/H					7861			3883			2376				1044			548			4935						1244	

TOTAL HEAT GAIN BTU/H: 35016 — TONS: 2.92 — LOSS DUE TO VENTILATION LOAD BTU/H: 1212 — STRUCTURAL HEAT LOSS: 53133 — TOTAL COMBINED HEAT LOSS BTU/H: 54345

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

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SITE NAME: RUSSEL GARDENS PH 4
BUILDER: GREENPARK HOMES

TYPE: RH -574 DATE: Sep-21 GFA: 2890 LO# 92708

HEATING CFM	1131	COOLING CFM	1131	furnace pressure	0.6	
TOTAL HEAT LOSS	53,133	TOTAL HEAT GAIN	34,796	furnace filter	0.05	
AIR FLOW RATE CFM	21.29	AIR FLOW RATE CFM	32.5	a/c coil pressure	0.2	
				available pressure for s/a & r/a	0.35	
				plenum pressure s/a	0.18	r/a pressure 0.17
				max s/a dif press. loss	0.02	r/a grille press. Loss 0.02
				min adjusted pressure s/a	0.16	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	5	14	5
R/A	0	0	3	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	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	STOR	BATH	LOFT	MBR	FAM	FAM	DEN	DEN	KIT/BR	FAM	LAUN	W/R	FOY	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.18	1.63	0.66	3.48	3.08	1.13	0.67	2.88	1.18	1.80	1.80	1.47	1.47	2.37	1.80	0.45	0.86	3.65	3.65	3.58	3.58	3.58	3.58
CFM PER RUN HEAT	25	35	14	74	66	24	14	61	25	38	38	31	31	51	38	10	18	78	78	76	76	76	76
RM GAIN MBH.	1.69	0.70	0.17	2.59	3.23	0.23	0.30	2.29	1.69	2.62	2.62	1.94	1.94	2.38	2.62	1.04	0.55	2.47	2.47	0.25	0.25	0.25	0.25
CFM PER RUN COOLING	55	23	6	84	105	8	10	74	55	85	85	63	63	77	85	34	18	80	80	8	8	8	8
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	42	19	27	55	49	40	40	49	36	28	40	43	48	25	49	7	32	39	35	44	30	32	20
EQUIVALENT LENGTH	140	160	150	170	160	180	160	150	100	130	140	140	150	130	140	130	110	130	130	150	130	130	140
TOTAL EFFECTIVE LENGTH	182	179	177	225	209	220	200	199	136	158	180	183	198	155	189	137	142	169	165	194	160	162	160
ADJUSTED PRESSURE	0.09	0.1	0.1	0.07	0.08	0.08	0.09	0.09	0.13	0.1	0.09	0.09	0.09	0.11	0.09	0.13	0.12	0.1	0.1	0.09	0.11	0.11	0.11
ROUND DUCT SIZE	5	4	4	6	6	4	4	5	4	6	6	5	5	5	6	4	4	5	5	5	5	5	5
HEATING VELOCITY (ft/min)	184	402	161	377	337	275	161	448	287	194	194	228	228	374	194	115	207	573	573	558	558	558	558
COOLING VELOCITY (ft/min)	404	264	69	428	535	92	115	543	631	433	433	463	463	565	433	390	207	587	587	59	59	59	59
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	E	E	F	E	E	B	E	B	F	C	C	A	A	C	C	F	B	A	A	E	F	C	B

RUN #	25
ROOM NAME	BAS
RM LOSS MBH.	3.58
CFM PER RUN HEAT	76
RM GAIN MBH.	0.25
CFM PER RUN COOLING	8
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH.	39
EQUIVALENT LENGTH	150
TOTAL EFFECTIVE LENGTH	189
ADJUSTED PRESSURE	0.09
ROUND DUCT SIZE	5
HEATING VELOCITY (ft/min)	558
COOLING VELOCITY (ft/min)	59
OUTLET GRILL SIZE	3X10
TRUNK	A

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	294	0.09	8.6	8	x	8	662	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	473	0.08	10.6	14	x	8	608	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	241	0.09	8	8	x	8	542	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	714	0.08	12.4	18	x	8	714	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	290	0.07	9.1	10	x	8	522	TRUNK K	0	0.00	0	0	x	8	0
TRUNK F	415	0.07	10.4	14	x	8	534	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	490	0.05	12.1	18	x	8	490
TRUNK Z	0	0.05	0	0	x	8	0
DROP	1131	0.05	16.5	24	x	10	679

RETURN AIR #	1	2	3	4	5	6										BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	130	75	95	155	360	130	0	0	0	0	0	0	0	0	0	186
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	39	51	24	32	38	1	1	1	1	1	1	1	1	1	18
EQUIVALENT LENGTH	195	235	155	220	190	185	0	0	0	0	0	0	0	0	0	185
TOTAL EFFECTIVE LH	233	274	206	244	222	223	1	1	1	1	1	1	1	1	1	203
ADJUSTED PRESSURE	0.06	0.05	0.07	0.06	0.07	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.07
ROUND DUCT SIZE	7	6	6	7.5	9.9	6.8	0	0	0	0	0	0	0	0	0	7.7
INLET GRILL SIZE	8	8	8	8	8	8	0	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	30	14	0	0	0	0	0	0	0	0	0	24

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Michael O'Rourke - INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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TYPE: RH -574 LO # 92708
SITE NAME: RUSSEL GARDENS PH 4

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	2	@ 10.6 cfm	21.2	cfm
Kitchen & Bathrooms	4	@ 10.6 cfm	42.4	cfm
Other Rooms	6	@ 10.6 cfm	63.6	cfm
Table 9.32.3.A.		TOTAL	169.6	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	63.6	cfm

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.

Total Ventilation Capacity	169.6	cfm
Less Principal Ventil. Capacity	63.6	cfm
Required Supplemental Capacity	106.0	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE V150H Location: BSMT

63.6 cfm [✓] HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM		ΔT °F		FACTOR		% LOSS
63.6 CFM	X	71 F	X	1.08	X	0.25

SUPPLEMENTAL FANS BY INSTALLING CONTRACTOR

Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	✓	3.5
BATH	BY INSTALLING CONTRACTOR	50	✓	3.5
W/R	BY INSTALLING CONTRACTOR	50	✓	3.5

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 # 001620

Date: September-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.

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CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 92708 Model: RH -574 Builder: GREENPARK HOMES Date: 9/27/2021

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1735	10	16482.5
First	1735	10	17697
Second	1155	9	10395
Third	0	9	0
Fourth	0	9	0
		Total:	44,574.5 ft³
		Total:	1262.2 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.312
SUMMER NATURAL AIR CHANGE RATE	0.112

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

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

0.312 x 350.61 x 39 °C x 1.2 = **5141 W**

= **17543 Btu/h**

6.2.6 Sensible Gain due to Air Leakage

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

= 0.112 x 350.61 x 7 °C x 1.2 = **334 W**

= **1139 Btu/h**

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

64 CFM x 71 °F x 1.08 x 0.25 = **1212 Btu/h**

6.2.7 Sensible heat Gain due to Ventilation

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

64 CFM x 13 °F x 1.08 x 0.25 = **220 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	17,543	9,151	0.959
2	0.3		18,717	0.281
3	0.2		7,406	0.474
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

HVAC DESIGNS LTD.
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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: RH -574 **BUILDER:** GREENPARK HOMES
SFQT: 2890 **LO#** 92708 **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:	WEST	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):	44574.5	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.5 ft
LENGTH: 57.0 ft	WIDTH: 39.0 ft	EXPOSED PERIMETER:	192.0 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

Michael O'Rourke

HVAC Designs Ltd.
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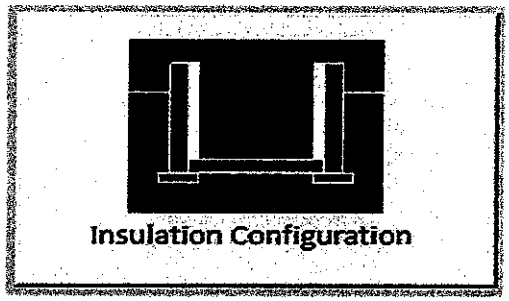
Ajax ON, L1S 2E2
905-619-2300

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):	17.4	
Floor Width (m):	11.9	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.9	
Depth Below Grade (m):	1.98	
Window Area (m^2):	1.4	
Door Area (m^2):	1.9	


Insulation Configuration

Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):	**1893**	

TYPE: RH -574
LO# 92708

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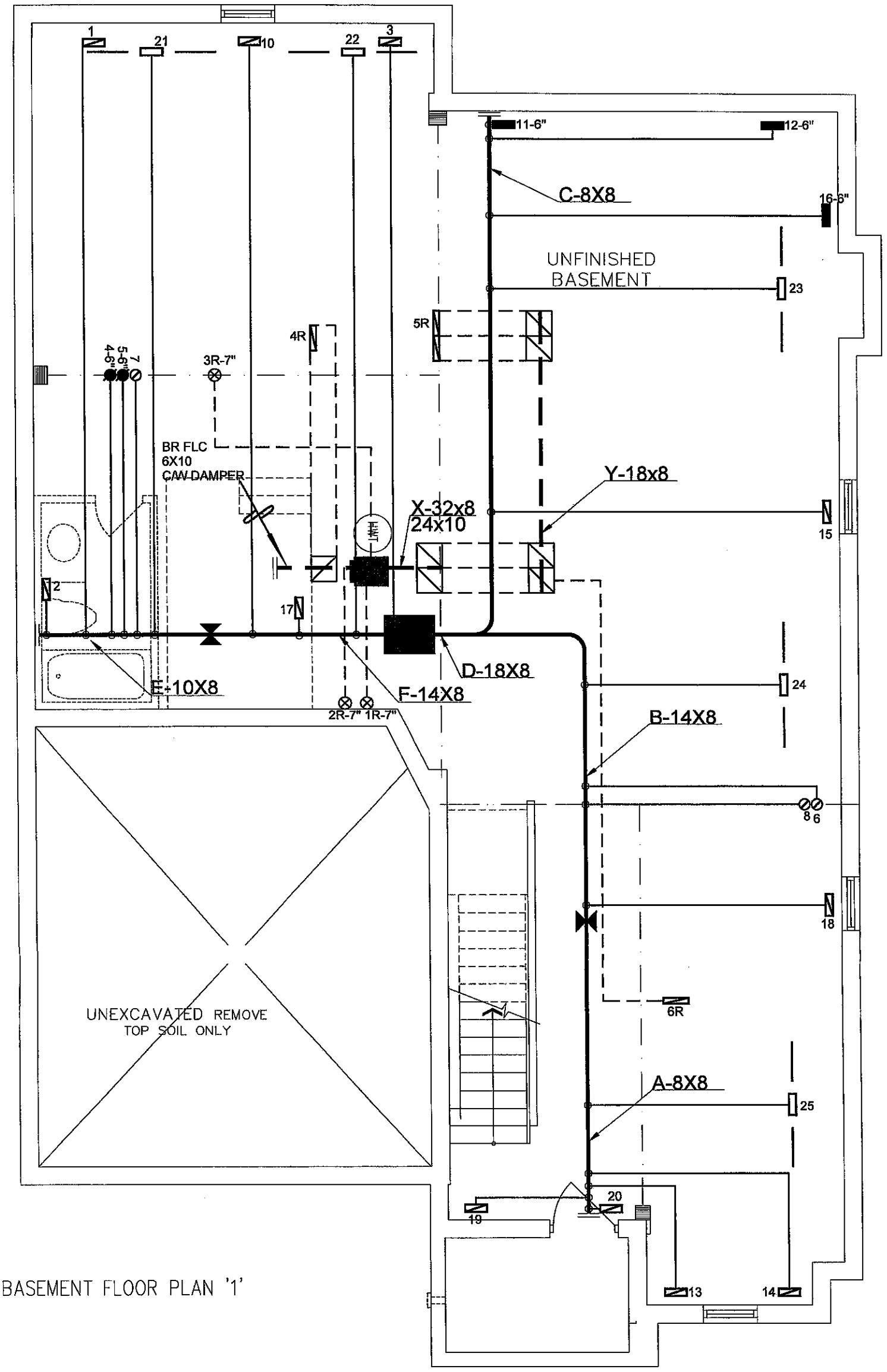
Ajax ON, L1S 2E2
905-619-2300

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):	6.77
Building Configuration	
Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	1262.2
Air Leakage/Ventilation	
Air Tightness Type:	Present (1961-) (3.57 ACH)
Custom BDT Data:	ELA @ 10 Pa. 1682.6 cm^2
	3.57 ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply 30.0 / Total Exhaust 30.0
Flue Size	
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Natural Infiltration Rates	
Heating Air Leakage Rate (ACH/H):	**0.312**
Cooling Air Leakage Rate (ACH/H):	**0.112**

TYPE: RH -574
LO# 92708



BASEMENT FLOOR PLAN '1'

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.

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.		

REVISIONS

Client
GREENPARK HOMES

Project Name
RUSSELL GARDENS PH 4
HAMILTON, ONTARIO

RH-574 2890 sqft

HVAC DESIGNS LTD.
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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 54345 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	5	3	2
1ST FLOOR	14	3	4
BASEMENT	5	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

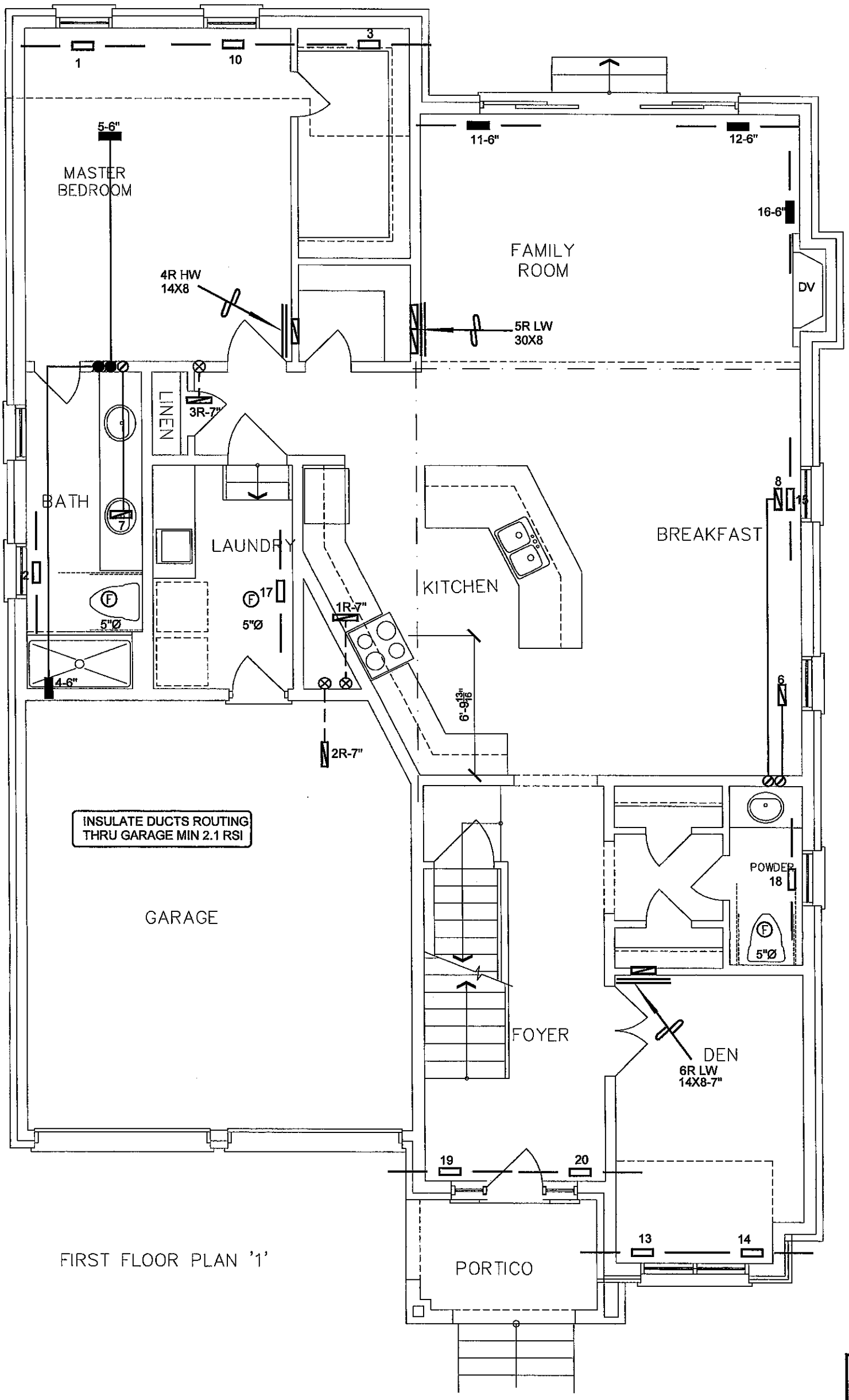
Sheet Title
BASEMENT HEATING LAYOUT

Date APR/2021

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 92708



FIRST FLOOR PLAN '1'

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CSA-F280-12

PACKAGE A1

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

No.	Description	Date
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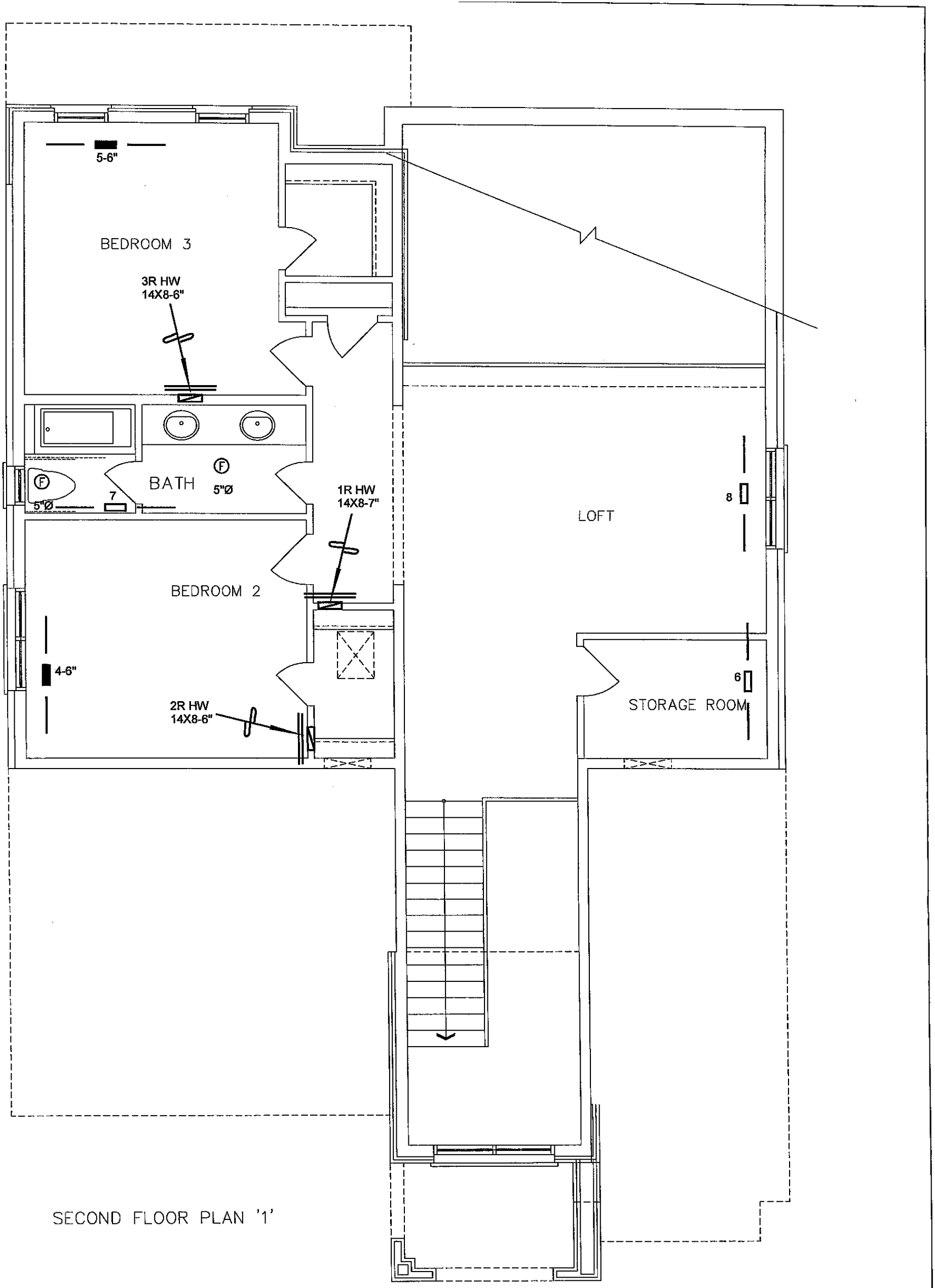
Sheet Title
FIRST FLOOR HEATING LAYOUT

Date APR/2021
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 92708



SECOND FLOOR PLAN '1'

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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

No.	Description	Date
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REVISIONS

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Sheet Title
SECOND FLOOR HEATING LAYOUT

Date APR/2021

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 92708