Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information

Building number, street name			Unit no.	Lot/con.
Municipality	**Postal code**	**Plan number/ other description**		
RICHMOND HILL				

B. Individual who reviews and takes responsibility for design activities

Name		Firm		
MICHAEL O'ROURKE		**HVAC DESIGNS LTD.**		
Street address			Unit no.	Lot/con.
375 FINLEY AVE			**202**	**N/A**
Municipality	Postal code	Province	E-mail	
AJAX	**L1S 2E2**	**ONTARIO**	**info@hvacdesigns.ca**	
Telephone number	Fax number		Cell number	
(**905**) **619-2300**	(**905**) **619-2375**		( )	

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]

❑ House	☒ HVAC – House	❑ Building Structural
❑ Small Buildings	❑ Building Services	❑ Plumbing – House
❑ Large Buildings	❑ Detection, Lighting and Power	❑ Plumbing – All Buildings
❑ Complex Buildings	❑ Fire Protection	❑ On-site Sewage Systems

Description of designer's work	
HEAT LOSS / GAIN CALCULATIONS **DUCT SIZING** **RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY** **RESIDENTIAL SYSTEM DESIGN per CSA-F280-12**	**Model:** 2007 OPT 2ND **Project:** CENTREFIELD (WEST GORMLEY)

D. Declaration of Designer

I **MICHAEL O'ROURKE** declare that (choose one as appropriate):
(print name)

❑ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4.of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: _____
Firm BCIN: _____

☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5.of Di vision C, of the Building Code.

Individual BCIN: 19669
Basis for exemption from registration and qualification: O.B.C SENTENCE 3.2.4.1 (4)

❑ The design work is exempt from the registration and qualification requirements of the Building Code.
Basis for exemption from registration and qualification: _____

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have submitted this application with the knowledge and consent of the firm.

April 20, 2021
Date

Michael O'Rourke
Signature of Designer

NOTE:

1. For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d).of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
2. Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

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SITE NAME: CENTREFIELD (WEST GORMLEY) | OPT 2ND | DATE: Apr-21 | WINTER NATURAL AIR CHANGE RATE 0.236 | HEAT LOSS ΔT °F. 78 | CSA-F280-12
BUILDER: ROYAL PINE HOMES | TYPE: 2007 | GFA: 1662 | LO# 87526 | SUMMER NATURAL AIR CHANGE RATE 0.072 | HEAT GAIN ΔT °F. 13 | SB-12 PERFORMANCE

ROOM USE			MBR			ENS				BED-2			BED-3				BATH							
EXP. WALL			14			6				10			16				0							
CLG. HT.			9			9				9			10				9							
FACTORS																								
GRS.WALL AREA	LOSS	GAIN	126			54				90			160				0							
GLAZING				LOSS	GAIN		LOSS	GAIN			LOSS	GAIN		LOSS	GAIN			LOSS	GAIN					
NORTH	21.8	16.0	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0					
EAST	21.8	41.6	0	0	0	0	0	0		29	632	1205	36	784	1496		0	0	0					
SOUTH	21.8	24.9	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0					
WEST	21.8	41.6	28	610	1163	8	174	332		0	0	0	0	0	0		0	0	0					
SKYLT.	35.8	101.2	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0					
DOORS	25.8	4.3	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0					
NET EXPOSED WALL	4.2	0.7	98	412	68	46	193	32		61	257	42	124	521	86		0	0	0					
NET EXPOSED BSMT WALL ABOVE GR	3.7	0.6	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0					
EXPOSED CLG	1.3	0.6	295	388	173	138	181	81		245	322	144	166	218	98		63	83	37					
NO ATTIC EXPOSED CLG	2.8	1.3	0	0	0	0	0	0		0	0	0	26	73	33		0	0	0					
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0		239	624	103	25	65	11		0	0	0					
BASEMENT/CRAWL HEAT LOSS				0			0				0			0				0						
SLAB ON GRADE HEAT LOSS				0			0				0			0				0						
SUBTOTAL HT LOSS				1410			549				1834			1662				83						
SUB TOTAL HT GAIN					1405			445				1494			1723				37					
LEVEL FACTOR / MULTIPLIER			0.20	0.27		0.20	0.27			0.20	0.27		0.20	0.27			0.20	0.27						
AIR CHANGE HEAT LOSS				386			150				503			456				23						
AIR CHANGE HEAT GAIN					77			24				82			94				2					
DUCT LOSS				0			0				234			212				0						
DUCT GAIN					0			0				289			313				0					
HEAT GAIN PEOPLE	240		2		480	0		0		1		240	1		240		0		0					
HEAT GAIN APPLIANCES/LIGHTS					1077			0				1077			1077				0					
TOTAL HT LOSS BTU/H				1796			700				2571			2329				105						
TOTAL HT GAIN x 1.3 BTU/H					3950			611				4136			4481				51					

ROOM USE					K/G/B						FOY			MUD					BAS		
EXP. WALL					23						32			12					68		
CLG. HT.					10						11			11					10		
FACTORS																					
GRS.WALL AREA	LOSS	GAIN			232						355			133					476		
GLAZING						LOSS	GAIN					LOSS	GAIN		LOSS	GAIN				LOSS	GAIN
NORTH	21.8	16.0			0	0	0				0	0	0	0	0	0			0	0	0
EAST	21.8	41.6			0	0	0				30	654	1247	0	0	0			0	0	0
SOUTH	21.8	24.9			8	174	199				0	0	0	0	0	0			0	0	0
WEST	21.8	41.6			78	1699	3241				0	0	0	0	0	0			7	152	291
SKYLT.	35.8	101.2			0	0	0				0	0	0	0	0	0			0	0	0
DOORS	25.8	4.3			0	0	0				35	905	149	20	517	85			20	517	85
NET EXPOSED WALL	4.2	0.7			146	615	101				290	1220	201	113	476	78			0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.7	0.6			0	0	0				0	0	0	0	0	0			204	751	124
EXPOSED CLG	1.3	0.6			0	0	0				0	0	0	0	0	0			0	0	0
NO ATTIC EXPOSED CLG	2.8	1.3			30	84	38				0	0	0	0	0	0			0	0	0
EXPOSED FLOOR	2.6	0.4			0	0	0				0	0	0	0	0	0			0	0	0
BASEMENT/CRAWL HEAT LOSS						0						0			0					2208	
SLAB ON GRADE HEAT LOSS						0						0			0						
SUBTOTAL HT LOSS						2573						2779			993					3629	
SUB TOTAL HT GAIN							3579						1596			163					500
LEVEL FACTOR / MULTIPLIER					0.30	0.36					0.30	0.36		0.30	0.36				0.50	1.05	
AIR CHANGE HEAT LOSS						923						997			356					3794	
AIR CHANGE HEAT GAIN							196						87			9					27
DUCT LOSS						0						0			0					0	
DUCT GAIN							0						0			0					0
HEAT GAIN PEOPLE	240				0		0				0		0	0		0			0		0
HEAT GAIN APPLIANCES/LIGHTS							1077						0			0					0
TOTAL HT LOSS BTU/H						3496						3776			1349					7423	
TOTAL HT GAIN x 1.3 BTU/H							6307						2188			224					685

TOTAL HEAT GAIN BTU/H: 22853 TONS: 1.90 LOSS DUE TO VENTILATION LOAD BTU/H: 1336 STRUCTURAL HEAT LOSS: 23545 TOTAL COMBINED HEAT LOSS BTU/H: 24881

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: CENTREFIELD (WEST GORMLEY) OPT 2ND
BUILDER: ROYAL PINE HOMES TYPE: 2007 DATE: Apr-21 GFA: 1662 LO# 87526

				furnace pressure	0.6				
HEATING CFM	820	COOLING CFM	820	furnace filter	0.05			**CARRIER	AFUE = 97 %
TOTAL HEAT LOSS	23,545	TOTAL HEAT GAIN	22,633	a/c coil pressure	0.2			**59TN6A-060-14V 60**	INPUT (BTU/H) = 60,000
AIR FLOW RATE CFM	34.83	AIR FLOW RATE CFM	36.23	available pressure				FAN SPEED	OUTPUT (BTU/H) = **58,000**
				for s/a & r/a	0.35			LOW 820	
								MEDLOW 0	DESIGN CFM = 820
				plenum pressure s/a	0.18	r/a pressure	0.17	MEDIUM 0	CFM @ .6 " E.S.P.
				max s/a dif press. loss	0.03	r/a grille press. Loss	0.02	MEDIUM HIGH 0	
				min adjusted pressure s/a	0.15	adjusted pressure r/a	0.15	HIGH 1520	TEMPERATURE RISE 65 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	8	5	3
R/A	0	0	4	1	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	10	14	15	18	19	20	21	23	24
ROOM NAME	MBR	ENS	BED-2	BED-2	BED-3	BED-3	BATH	MBR	K/G/B	K/G/B	FOY	FOY	MUD	BAS	BAS	BAS
RM LOSS MBH.	0.90	0.70	1.29	1.29	1.16	1.16	0.11	0.90	1.75	1.75	1.89	1.89	1.35	2.47	2.47	2.47
CFM PER RUN HEAT	31	24	45	45	41	41	4	31	61	61	66	66	47	86	86	86
RM GAIN MBH.	1.97	0.61	2.07	2.07	2.24	2.24	0.05	1.97	3.15	3.15	1.09	1.09	0.22	0.23	0.23	0.23
CFM PER RUN COOLING	72	22	75	75	81	81	2	72	114	114	40	40	8	8	8	8
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.15	0.15	0.17	0.17	0.17	0.16	0.16	0.16
ACTUAL DUCT LGH.	40	56	43	45	33	30	15	36	35	39	19	24	26	55	36	10
EQUIVALENT LENGTH	120	150	160	170	120	140	150	150	120	150	100	80	110	170	140	110
TOTAL EFFECTIVE LENGTH	160	206	203	215	153	170	165	186	155	189	119	104	136	225	176	120
ADJUSTED PRESSURE	0.11	0.08	0.08	0.08	0.11	0.1	0.1	0.09	0.1	0.08	0.14	0.17	0.13	0.07	0.09	0.14
ROUND DUCT SIZE	5	4	**6**	**6**	5	5	4	5	**6**	**6**	5	5	4	**6**	**6**	**6**
HEATING VELOCITY (ft/min)	228	275	229	229	301	301	46	228	311	311	485	485	539	438	438	438
COOLING VELOCITY (ft/min)	529	252	382	382	595	595	23	529	581	581	294	294	92	41	41	41
OUTLET GRILL SIZE	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10
TRUNK	A	B	B	B	C	C	C	A	A	A	C	C	B	A	A	C

RUN #	
ROOM NAME	
RM LOSS MBH.	
CFM PER RUN HEAT	
RM GAIN MBH.	
CFM PER RUN COOLING	
ADJUSTED PRESSURE	
ACTUAL DUCT LGH.	
EQUIVALENT LENGTH	
TOTAL EFFECTIVE LENGTH	
ADJUSTED PRESSURE	
ROUND DUCT SIZE	
HEATING VELOCITY (ft/min)	
COOLING VELOCITY (ft/min)	
OUTLET GRILL SIZE	
TRUNK	

SUPPLY AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK A	356	0.07	9.8	12	x	8	534
TRUNK B	517	0.07	11.3	16	x	8	582
TRUNK C	304	0.10	8.5	8	x	8	684
TRUNK D	0	0.00	0	0	x	8	0
TRUNK E	0	0.00	0	0	x	8	0
TRUNK F	0	0.00	0	0	x	8	0
TRUNK G	0	0.00	0	0	x	8	0
TRUNK H	0	0.00	0	0	x	8	0
TRUNK I	0	0.00	0	0	x	8	0
TRUNK J	0	0.00	0	0	x	8	0
TRUNK K	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	820	0.05	14.6	24	x	8	615
TRUNK Y	0	0.05	0	0	x	8	0
TRUNK Z	0	0.05	0	0	x	8	0
DROP	820	0.05	14.6	24	x	10	492

RETURN AIR #	1	2	3	4	5											**BR**
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	95	120	75	95	320	0	0	0	0	0	0	0	0	0	0	115
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.	48	34	36	40	22	1	1	1	1	1	1	1	1	1	1	40
EQUIVALENT LENGTH	175	205	245	165	220	0	0	0	0	0	0	0	0	0	0	160
TOTAL EFFECTIVE LH	223	239	281	205	242	1	1	1	1	1	1	1	1	1	1	200
ADJUSTED PRESSURE	0.07	0.06	0.05	0.07	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.07
ROUND DUCT SIZE	6	6.8	6	6	9.8	0	0	0	0	0	0	0	0	0	0	6.5
INLET GRILL SIZE	8	8	8	8	6	0	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	24	0	0	0	0	0	0	0	0	0	0	14

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. INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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TYPE: 2007 LO # 87526
SITE NAME: CENTREFIELD (WEST GORMLEY) OPT 2ND

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	5	@ 10.6 cfm	53	cfm
Other Rooms	2	@ 10.6 cfm	21.2	cfm
Table 9.32.3.A.		TOTAL	137.8	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	137.8	cfm
Less Principal Ventil. Capacity	63.6	cfm
Required Supplemental Capacity	74.2	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE 65H Location: BSMT

63.6 cfm [✓] HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM		ΔT °F		FACTOR		% LOSS
63.6 CFM	X	78 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
PWD	BY INSTALLING CONTRACTOR	50	✓	3.5

HEAT RECOVERY VENTILATOR 9.32.3.11.

Model: VANEE 65H

155 cfm high 64 cfm low

75 % Sensible Efficiency @ 32 deg F (0 deg C) [✓] HVI Approved

LOCATION OF INSTALLATION

Lot: Concession

Township Plan:

Address

Roll # Building Permit #

BUILDER: ROYAL PINE 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

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#: 87526 Model: 2007 Builder: ROYAL PINE HOMES Date: 4/20/2021

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	731	10	7310
First	731	10	7383.1
Second	931	9	8379
Third	0	9	0
Fourth	0	9	0
		Total:	23,072.1 ft³
		Total:	653.3 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.236
SUMMER NATURAL AIR CHANGE RATE	0.072

Design Temperature Difference

	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-21	43	78
Summer DTDc	24	31	7	13

5.2.3.1 Heat Loss due to Air Leakage

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

0.236 x 181.48 x 43 °C x 1.2 = 2224 W

= **7588 Btu/h**

6.2.6 Sensible Gain due to Air Leakage

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

= 0.072 x 181.48 x 7 °C x 1.2 = 111 W

= **378 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 78 °F x 1.08 x 0.25 = **1336 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	7,588	3,629	1.046
2	0.3		6,345	0.359
3	0.2		5,538	0.274
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

375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 2007 OPT 2ND **BUILDER:** ROYAL PINE HOMES
SFQT: 1662 **LO#** 87526 **SITE:** CENTREFIELD (WEST GORMLEY)

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-6	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75

BUILDING DATA

ATTACHMENT:	ATTACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	2.50	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	TIGHT	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft^3):	23072.1	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft^2):	1.80	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 52.0 ft	WIDTH: 20.0 ft	EXPOSED PERIMETER:	68.0 ft

2012 OBC - COMPLIANCE PACKAGE **Component**	**Compliance Package SB-12 PERFORMANCE**	
	Nominal	**Min. Eff.**
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.70
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22+1.5	18.50
Basement Walls Minimum RSI (R)-Value	20	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	1.6	-
Skylights Maximum U-Value	2.6	-
Space Heating Equipment Minimum AFUE	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	TE=94%	-

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE

HVAC Designs Ltd.
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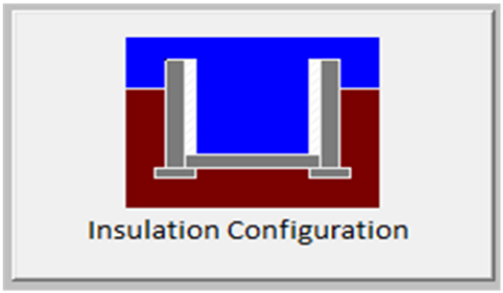
905-619-2300

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

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

Foundation Dimensions		
Floor Length (m):	**15.8**	 Insulation Configuration
Floor Width (m):	**6.1**	
Exposed Perimeter (m):	**20.7**	
Wall Height (m):	**3.0**	
Depth Below Grade (m):	**2.13**	
Window Area (m^2):	**0.7**	
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):	**647**	

TYPE: 2007 OPT 2ND
LO# 87526

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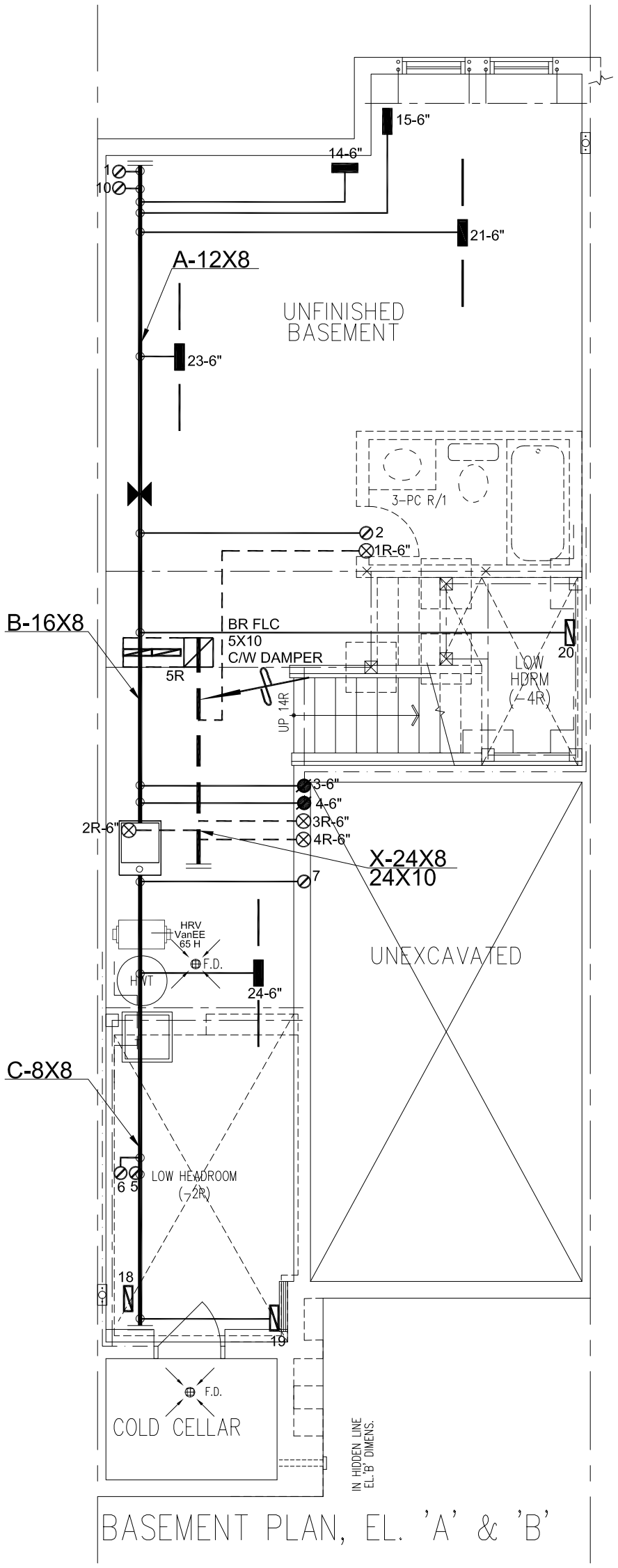
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description	
Province:	Ontario
Region:	Richmond Hill
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):	6.74
Building Configuration	
Type:	Semi
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	653.3
Air Leakage/Ventilation	
Air Tightness Type:	Energy Star Detached (2.5 ACH)
Custom BDT Data:	ELA @ 10 Pa. 609.9 cm^2
	2.50 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):	**0.236**
Cooling Air Leakage Rate (ACH/H):	**0.072**

TYPE: 2007 OPT 2ND

LO# 87526



BASEMENT PLAN, EL. 'A' & 'B'

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

SB-12 PERFORMANCE

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.	REVISED AS PER ARCHITECTURALS	APR/2021
1.	REVISED TO PERFORMANCE	SEPT/2020

REVISIONS

Client
ROYAL PINE HOMES

Project Name
CENTREFIELD (WEST GORMLEY)
RICHMOND HILL, ONTARIO

OPT 2ND
2007 1662 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.

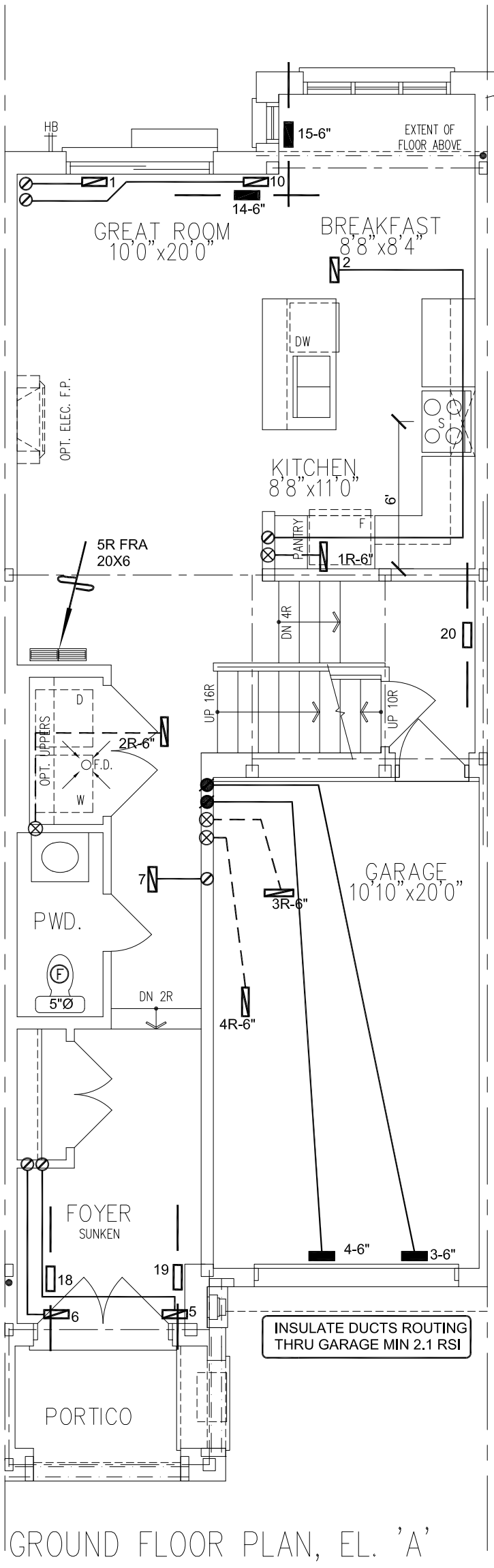
HEAT LOSS 24881 BTU/H	
UNIT DATA	
MAKE	CARRIER
MODEL	59TN6A-060-14V
INPUT	60 MBTU/H
OUTPUT	58 MBTU/H
COOLING	2.0 TONS
FAN SPEED	820 cfm @ 0.6" w.c.

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

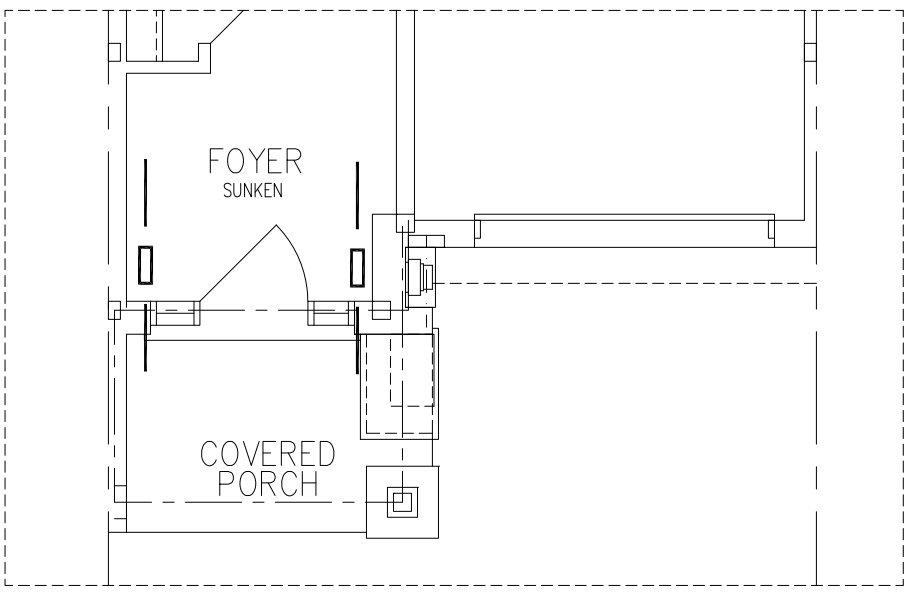
ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

Sheet Title
BASEMENT HEATING LAYOUT

Date SEPT/2020
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 87526



GROUND FLOOR PLAN, EL. 'A'



GROUND FLOOR PLAN, EL. 'B'

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.

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HVAC DESIGNS LTD.

CSA-F280-12

SB-12 PERFORMANCE

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
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▰	SUPPLY AIR BOOT ABOVE	●	6" SUPPLY AIR STACK 2nd FLOOR	▤	FRA- FLOOR RETURN AIR GRILLE	⧗	REDUCER

No.	Description	Date
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1.	REVISED TO PERFORMANCE	SEPT/2020

REVISIONS

Client

ROYAL PINE HOMES

Project Name

CENTREFIELD (WEST GORMLEY)
RICHMOND HILL, ONTARIO

OPT 2ND
2007 1662 sqft

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Sheet Title

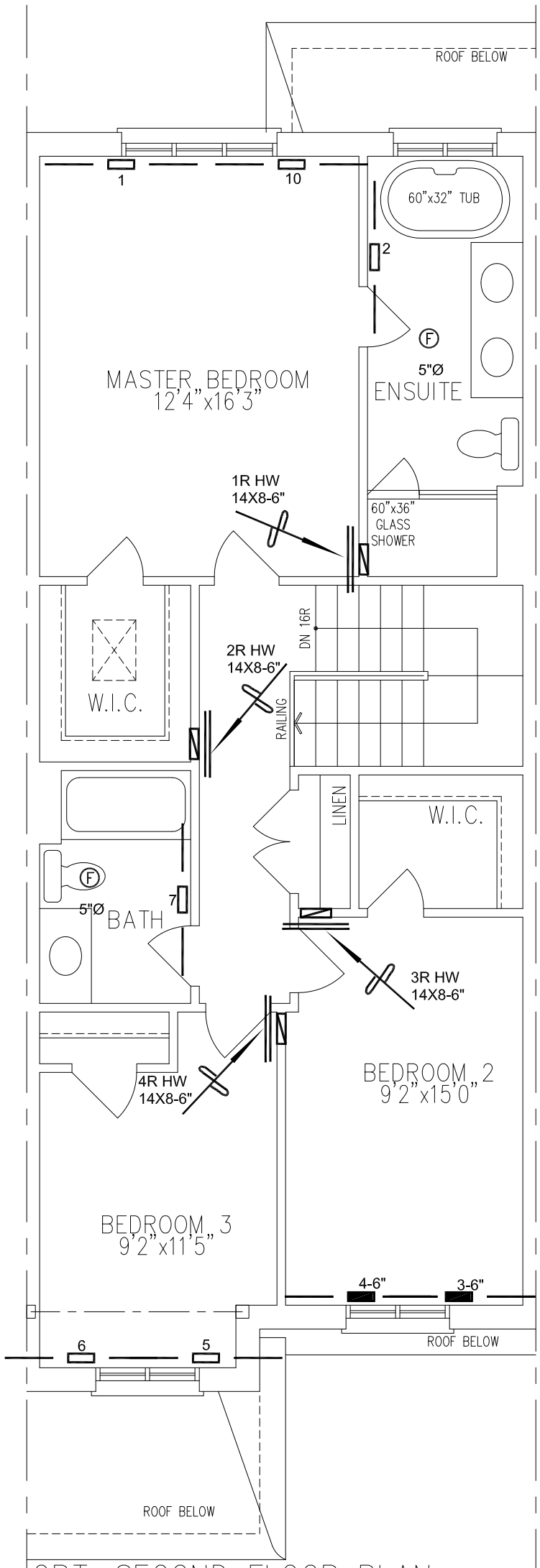
FIRST FLOOR HEATING LAYOUT

Date SEPT/2020

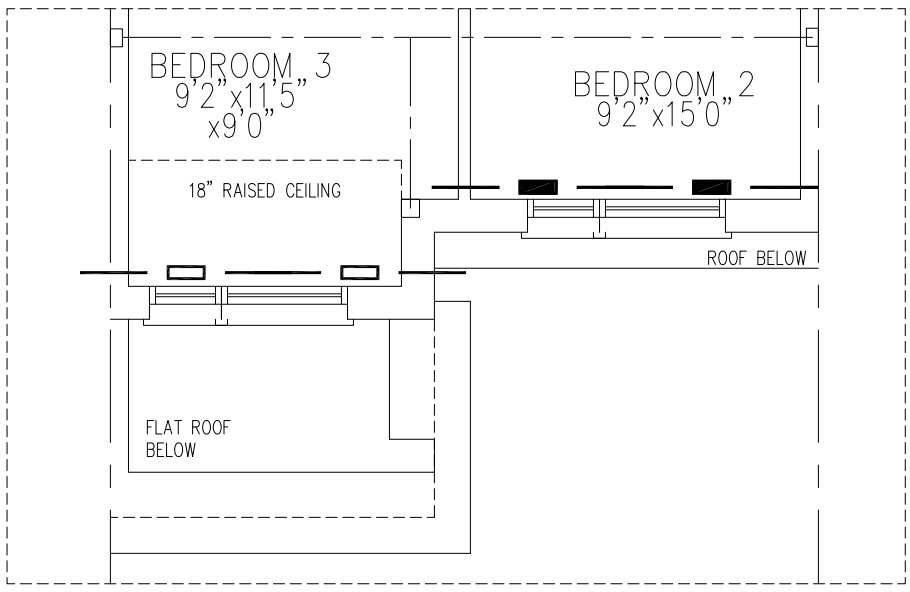
Scale 3/16" = 1'-0"

BCIN# 19669

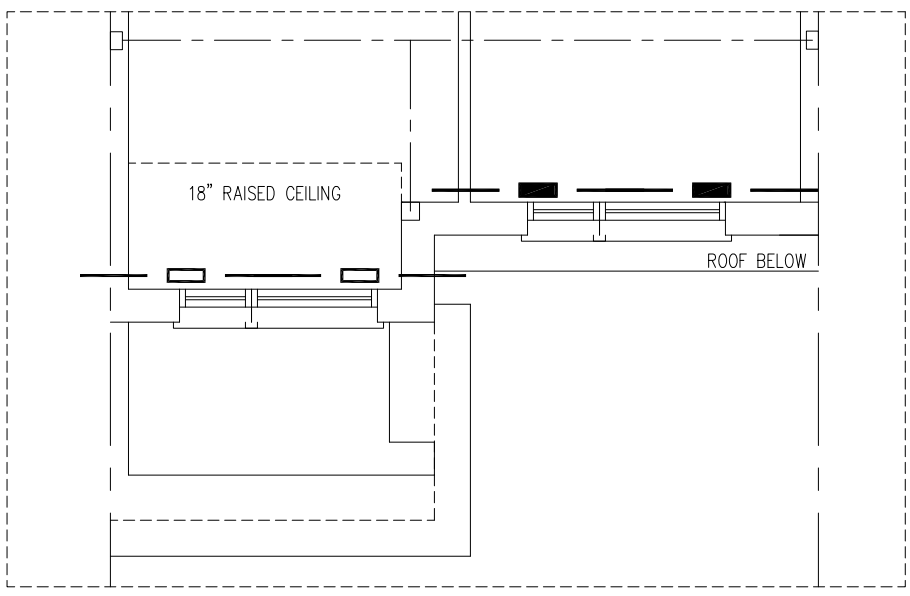
LO# 87526



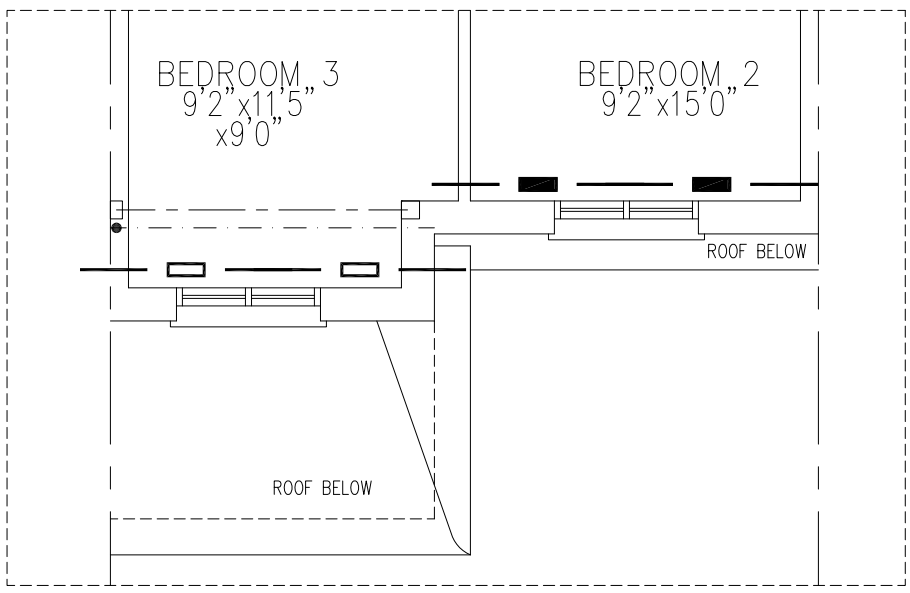
OPT. SECOND FLOOR PLAN,
EL. 'A1'



PART. SECOND FLOOR PLAN,
EL. 'B2'



SECOND FLOOR PLAN, EL. 'B1'



PART. SECOND FLOOR PLAN,
EL. 'A2'

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CSA-F280-12

SB-12 PERFORMANCE

HVAC LEGEND

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Sheet Title
SECOND FLOOR HEATING LAYOUT

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LO# 87526