HVAC DESIGNS LTD.
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Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

Garden 4 - Elevation 2

SITE NAME: BARLASSINA | WOB | DATE: Aug-22 | WINTER NATURAL AIR CHANGE RATE 0.352 | HEAT LOSS ΔT °F. 72 | CSA-F280-12
BUILDER: GREENPARK HOMES | TYPE: GARDEN 4 | GFA: 2615 | LO# 98643 | SUMMER NATURAL AIR CHANGE RATE 0.096 | HEAT GAIN ΔT °F. 9 | SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			ENS-3						BATH					
EXP. WALL			33			23			8			30			34			18			10						16					
CLG. HT.			9			9			9			9			9			9			9						9					
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	297			207			72			270			306			162			90						144					
GLAZING			LOSS		GAIN	LOSS		GAIN	LOSS		GAIN	LOSS		GAIN	LOSS		GAIN	LOSS		GAIN	LOSS		GAIN				LOSS		GAIN			
NORTH	20.3	15.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0			
EAST	20.3	40.5	0	0	0	0	0	0	0	0	0	27	547	1095	42	851	1703	0	0	0	0	0	0				0	0	0			
SOUTH	20.3	23.9	0	0	0	9	182	215	0	0	0	0	0	0	0	0	0	24	487	573	15	304	358				0	0	0			
WEST	20.3	40.5	20	405	811	9	182	365	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0			
SKYLT.	35.5	99.8	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	19.1	2.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0			
NET EXPOSED WALL	4.3	0.5	277	1178	150	189	803	102	72	306	39	243	1033	131	264	1122	143	138	587	75	75	319	41				144	612	78			
NET EXPOSED BSMT WALL ABOVE GR	3.4	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			
EXPOSED CLG	1.2	0.5	260	318	137	142	174	75	104	127	55	228	279	120	267	326	141	231	282	122	75	92	40				144	176	76			
NO ATTIC EXPOSED CLG	2.6	1.1	0	0	0	0	0	0	0	0	0	14	37	16	18	47	20	0	0	0	0	0	0				0	0	0			
EXPOSED FLOOR	2.4	0.3	0	0	0	0	0	0	0	0	0	242	588	75	0	0	0	0	0	0	0	0	0				49	119	15			
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			1901			1342			433			2484			2347			1356			715						907					
SUB TOTAL HT GAIN					1098			757			94			1437			2006			770			438					169				
LEVEL FACTOR / MULTIPLIER			0.20	0.27		0.20	0.27		0.20	0.27		0.20	0.27		0.20	0.27		0.20	0.27		0.20	0.27					0.20	0.27				
AIR CHANGE HEAT LOSS				517			365			118			676			639			369			194					247					
AIR CHANGE HEAT GAIN					48			33			4			63			88			34			19					7				
DUCT LOSS				0			0			0			316			0			0			0					115					
DUCT GAIN					0			0			0			234			0			0			0					18				
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0			0		0			
HEAT GAIN APPLIANCES/LIGHTS					604			0			0			604			604			604			0					0			
TOTAL HT LOSS BTU/H				2418			1707			551			3476			2986			1725			909					1270					
TOTAL HT GAIN x 1.3 BTU/H					2899			1027			127			3352			3820			2142			595					252				

ROOM USE				LIV/D			K/B/F/D				LAUN			W/R			FOY						WOB			BAS		
EXP. WALL				38			90				20			13			19						34			140		
CLG. HT.				10			10				11			10			11						8			8		
	FACTORS																											
GRS.WALL AREA	LOSS	GAIN		380			900				220			130			209						272			700		
GLAZING				LOSS	GAIN		LOSS	GAIN			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN					LOSS	GAIN		LOSS	GAIN	
NORTH	20.3	15.0		0	0	0	0	0			0	0	0	0	0	0	0	0					0	0	0	0	0	0
EAST	20.3	40.5		0	0	0	0	0			0	0	0	9	182	365	30	608	1216				0	0	0	0	0	0
SOUTH	20.3	23.9		28	568	669	14	284	334		0	0	0	0	0	0	0	0	0				0	0	0	10	203	239
WEST	20.3	40.5		0	0	0	81	1642	3284		0	0	0	0	0	0	0	0	0				64	1297	2595	0	0	0
SKYLT.	35.5	99.8		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0				0	0	0	0	0	0
DOORS	19.1	2.4		0	0	0	0	0	0		21	401	51	0	0	0	18	344	44				0	0	0	21	401	51
NET EXPOSED WALL	4.3	0.5		352	1496	190	805	3422	435		199	846	108	121	514	65	161	684	87				208	884	112	0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.4	0.4		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0				0	0	0	420	1440	183
EXPOSED CLG	1.2	0.5		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	1.1		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	0.3		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									1970		
SLAB ON GRADE HEAT LOSS				0			0				0			0			0						375					
SUBTOTAL HT LOSS				2064			5348				1247			697			1636						2556			4014		
SUB TOTAL HT GAIN					859			4053				158			430			1347							2707			473
LEVEL FACTOR / MULTIPLIER				0.30	0.43		0.30	0.43			0.30	0.43		0.30	0.43		0.30	0.43								0.50	1.19	
AIR CHANGE HEAT LOSS					880			2281				532			297			698									7814	
AIR CHANGE HEAT GAIN						38			179				7			19			59									140
DUCT LOSS					0			0				0			0			0									0		
DUCT GAIN						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						604			604				604			0			0						0			604
TOTAL HT LOSS BTU/H					2944			7629				1779			994			2334						2556			11828	
TOTAL HT GAIN x 1.3 BTU/H						1951			6287				1000			584			1828						3519			1582

TOTAL HEAT GAIN BTU/H: 31163 TONS: 2.60 LOSS DUE TO VENTILATION LOAD BTU/H: 1554 STRUCTURAL HEAT LOSS: 45107 TOTAL COMBINED HEAT LOSS BTU/H: 46662

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.

NOT THE GRANTING OF A PERMIT NOR REVIEWING OF SPECS & DRAWINGS NOR INSPECTIONS MADE DURING INSTALLATION BY THE OFFICIAL HAVING JURISDICTION SHALL RELIEVE THE OWNER FROM REQUIREMENTS OF THE ONTARIO BUILDING CODE AND ANY OTHER REFERENCED REQUIREMENTS.

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SITE NAME: BARLASSINA
BUILDER: GREENPARK HOMES
WOB
TYPE: GARDEN 4
DATE: Aug-22
GFA: 2615
LO# 98643

HEATING CFM	928	COOLING CFM	928
TOTAL HEAT LOSS	45,107	TOTAL HEAT GAIN	30,966
AIR FLOW RATE CFM	20.57	AIR FLOW RATE CFM	29.97

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	0.01
min adjusted pressure s/a	0.17

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 = **928**
CFM @ .6 " E.S.P.
TEMPERATURE RISE 57 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	11	7	4
R/A	0	0	5	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	8	9	10	11	13	14	15	16	17	18	19	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-3	BED-2	BED-3	MBR	BATH	LIV/D	K/B/F/D	K/B/F/D	K/B/F/D	LAUN	W/R	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.21	1.71	0.55	1.74	1.49	1.72	0.91	1.74	1.49	1.21	1.27	2.94	2.54	2.54	2.54	1.78	0.99	2.33	3.60	3.60	3.60	3.60
CFM PER RUN HEAT	25	35	11	36	31	35	19	36	31	25	26	61	52	52	52	37	20	48	74	74	74	74
RM GAIN MBH.	1.45	1.03	0.13	1.68	1.91	2.14	0.60	1.68	1.91	1.45	0.25	1.95	2.10	2.10	2.10	1.00	0.58	1.83	1.28	1.28	1.28	1.28
CFM PER RUN COOLING	43	31	4	50	57	64	18	50	57	43	8	58	63	63	63	30	18	55	38	38	38	38
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	0.17	0.17
ACTUAL DUCT LGH.	61	43	21	62	65	33	71	67	70	44	37	41	37	36	20	29	57	48	34	39	17	40
EQUIVALENT LENGTH	160	200	120	180	150	200	210	180	140	160	180	110	130	120	170	140	140	120	140	130	130	100
TOTAL EFFECTIVE LENGTH	221	243	141	242	215	233	281	247	210	204	217	151	167	156	190	169	197	168	174	169	147	140
ADJUSTED PRESSURE	0.08	0.07	0.12	0.07	0.08	0.07	0.06	0.07	0.08	0.08	0.08	0.11	0.1	0.11	0.09	0.1	0.09	0.1	0.1	0.1	0.12	0.12
ROUND DUCT SIZE	5	4	4	5	5	**6**	4	5	5	5	4	5	5	5	5	4	4	5	5	5	5	5
HEATING VELOCITY (ft/min)	184	402	126	264	228	178	218	264	228	184	298	448	382	382	382	424	229	352	543	543	543	543
COOLING VELOCITY (ft/min)	316	356	46	367	419	326	207	367	419	316	92	426	463	463	463	344	207	404	279	279	279	279
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	C	C	D	A	A	C	A	A	A	C	B	B	C	C	C	B	A	A	C	C	B	B

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 CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK A	221	0.06	8.6	10	x	8	398	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	493	0.06	11.6	16	x	8	555	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	424	0.07	10.5	14	x	8	545	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	928	0.06	14.7	26	x	8	642	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	928	0.05	15.3	28	x	8	597
TRUNK Y	515	0.05	12.3	18	x	8	515
TRUNK Z	0	0.05	0	0	x	8	0
DROP	928	0.05	15.3	24	x	10	557

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	115	115	75	85	95	325	0	0	0	0	0	0	0	0	0	118
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.	40	73	72	43	38	36	1	1	1	1	1	1	1	1	1	17
EQUIVALENT LENGTH	245	225	255	215	185	250	0	0	0	0	0	0	0	0	0	215
TOTAL EFFECTIVE LH	285	298	327	258	223	286	1	1	1	1	1	1	1	1	1	232
ADJUSTED PRESSURE	0.05	0.05	0.05	0.06	0.07	0.05	14.80	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	6	10.4	0	0	0	0	0	0	0	0	0	6.8
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	14	30	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.

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

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TYPE: GARDEN 4 LO # 98643
SITE NAME: BARLASSINA WOB

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 [✓] HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM		ΔT °F		FACTOR		% LOSS
79.5 CFM	X	72 F	X	1.08	X	0.25

SUPPLEMENTAL FANS BY INSTALLING CONTRACTOR

Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	✓	3.5
ENS-3	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 # 001820

Date: August-22

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#: 98643 Model: GARDEN 4 Builder: GREENPARK HOMES Date: 8/25/2022

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1189	8	9512
First	1189	10	11890
Second	1426	9	12834
Third	0	9	0
Fourth	0	9	0
		Total:	34,236.0 ft³
		Total:	969.5 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.352
SUMMER NATURAL AIR CHANGE RATE	0.096

Design Temperature Difference

	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-18	40	72
Summer DTDc	24	29	5	9

5.2.3.1 Heat Loss due to Air Leakage

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

0.352 x 269.29 x 40 °C x 1.2 = 4580 W

= **15628 Btu/h**

6.2.6 Sensible Gain due to Air Leakage

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

= 0.096 x 269.29 x 5 °C x 1.2 = 159 W

= **543 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 72 °F x 1.08 x 0.25 = **1554 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 9 °F x 1.08 x 0.25 = **197 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	15,628	6,570	1.189
2	0.3		10,993	0.427
3	0.2		11,485	0.272
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: GARDEN 4 WOB **BUILDER:** GREENPARK HOMES
SFQT: 2615 **LO#** 98643 **SITE:** BARLASSINA

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	0	OUTDOOR DESIGN TEMP.	84
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75
		WINDOW SHGC	0.50

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):	34236.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft^2):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	5.0 ft
LENGTH: 63.0 ft	WIDTH: 24.0 ft	EXPOSED PERIMETER:	140.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	34.0 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/ERV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE

Michael O'Rourke

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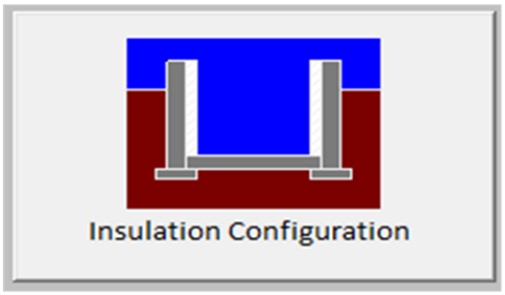
Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description	
Province:	Ontario
Region:	Cambridge
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**	 Insulation Configuration
Floor Width (m):	**7.3**	
Exposed Perimeter (m):	**42.7**	
Wall Height (m):	**2.4**	
Depth Below Grade (m):	**1.24**	
Window Area (m^2):	**0.9**	
Door Area (m^2):	**2.0**	
Radiant Slab		
Heated Fraction of the Slab:	**0**	
Fluid Temperature (°C):	**33**	
Design Months		
Heating Month	**1**	
Foundation Loads		
Heating Load (Watts):	**577**	

TYPE: GARDEN 4 WOB
LO# 98643

Michael O'Rourke BCIN #19669

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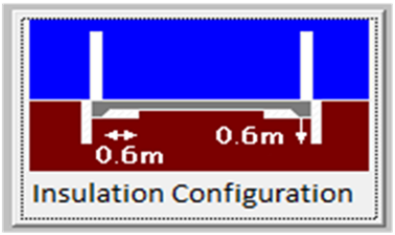
Residential Slab on Grade Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Cambridge	
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):	**7.3**	
Exposed Perimeter (m):	**10.4**	
Radiant Slab		
Heated Fraction of the Slab:	**0**	
Fluid Temperature (°C):	**33**	
Design Months		
Heating Month	**1**	
Results		
Heating Load (Watts):	**110**	

TYPE: GARDEN 4 WOB
LO# 98643

Michael O'Rourke BCIN# 19669

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375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

Air Infiltration Residential Load Calculator

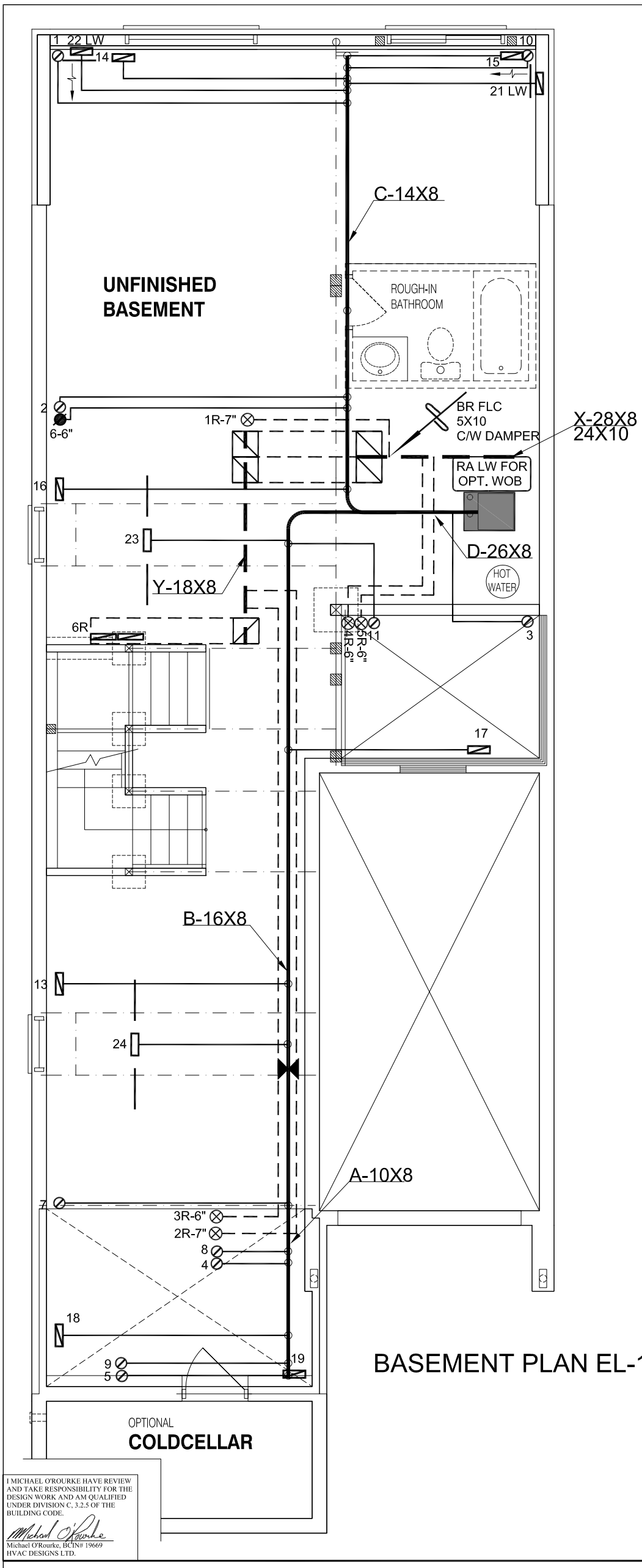
Supplemental tool for CAN/CSA-F280

Weather Station Description	
Province:	Ontario
Region:	Cambridge
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):	8.23
Building Configuration	
Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	969.5
Air Leakage/Ventilation	
Air Tightness Type:	Present (1961-) (3.57 ACH)
Custom BDT Data:	ELA @ 10 Pa. 1292.3 cm^2
	3.57 ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply 37.5 / Total Exhaust 37.5
Flue Size	
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Natural Infiltration Rates	
Heating Air Leakage Rate (ACH/H):	**0.352**
Cooling Air Leakage Rate (ACH/H):	**0.096**

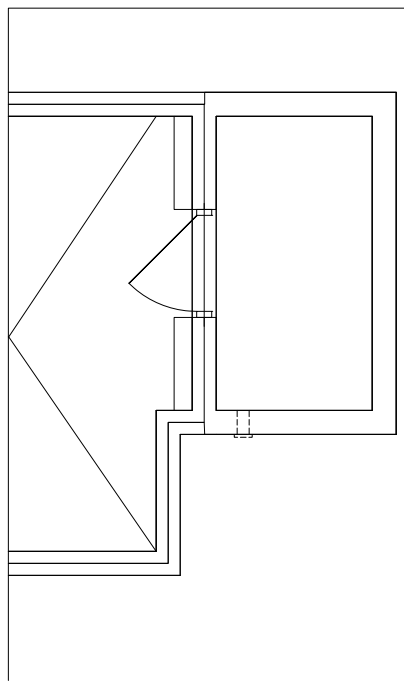
TYPE: GARDEN 4 WOB

LO# 98643

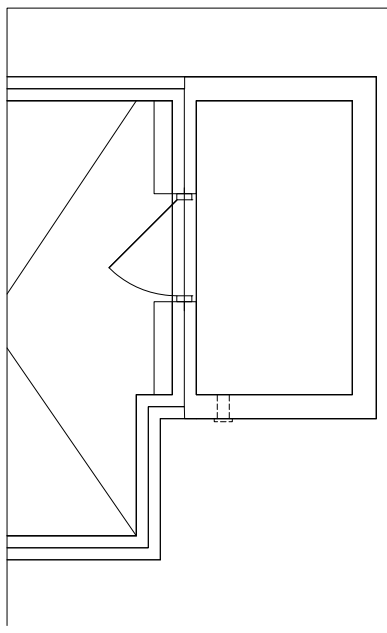
Michael O'Rourke BCIN# 19669



BASEMENT PLAN EL-2



BASEMENT PLAN EL-3



BASEMENT PLAN EL-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

WOB | **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
BARLASSINA
CAMBRIDGE, ONTARIO

Garden 4 - Elevation 2

GARDEN 4 WOB 2615 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 46662 BTU/H

UNIT DATA

MAKE	GOODMAN
MODEL	GMEC960603BNA
INPUT	60 MBTU/H
OUTPUT	57.6 MBTU/H
COOLING	2.5 TONS
FAN SPEED	928 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	11	5	3
1ST FLOOR	7	1	3
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

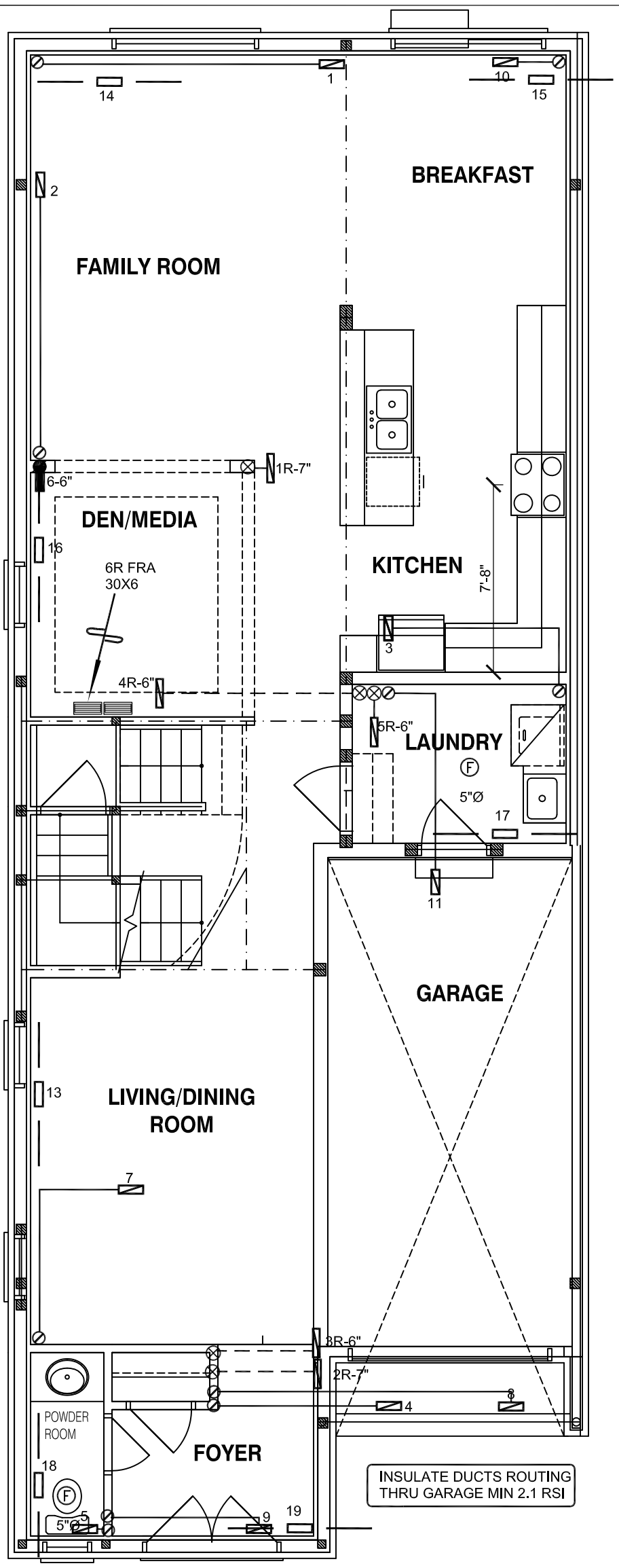
Sheet Title
BASEMENT HEATING LAYOUT

Date AUG/2022

Scale 3/16" = 1'-0"

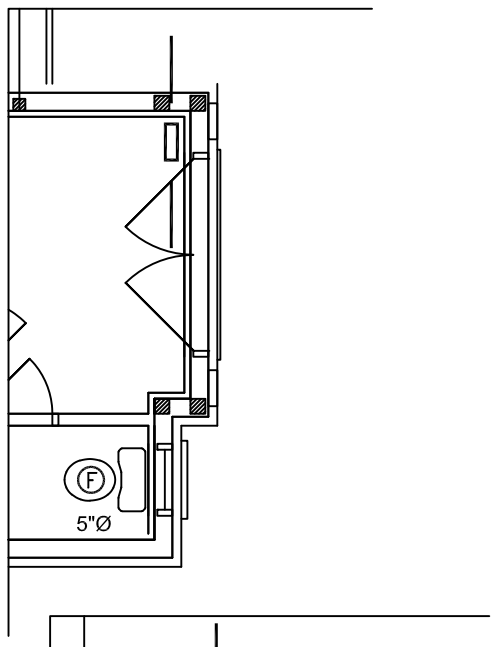
BCIN# 19669

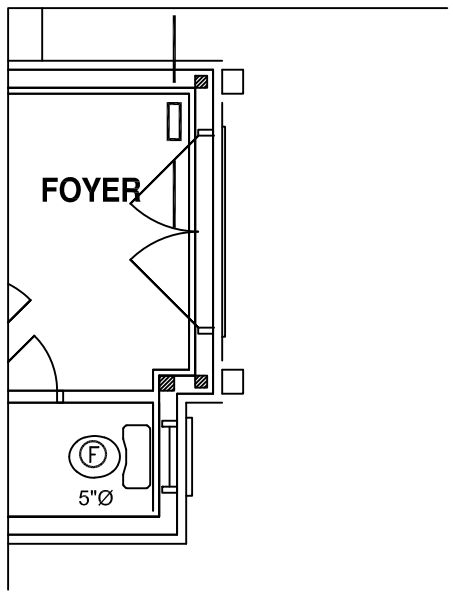
LO# 98643



FIRST FLOOR PLAN EL-1

FIRST FLOOR PLAN EL-2





FIRST FLOOR PLAN EL-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.

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CSA-F280-12

WOB | PACKAGE A1

HVAC LEGEND

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CAMBRIDGE, ONTARIO

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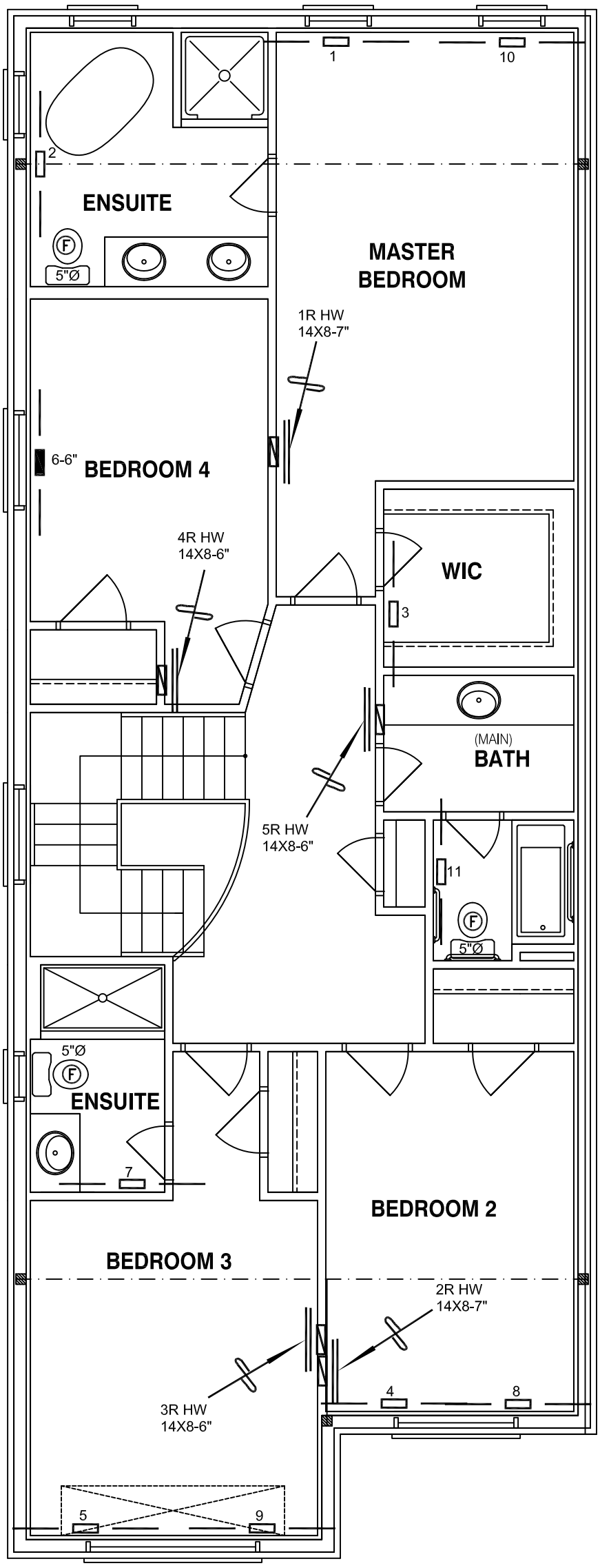
Sheet Title
FIRST FLOOR HEATING LAYOUT

Date AUG/2022

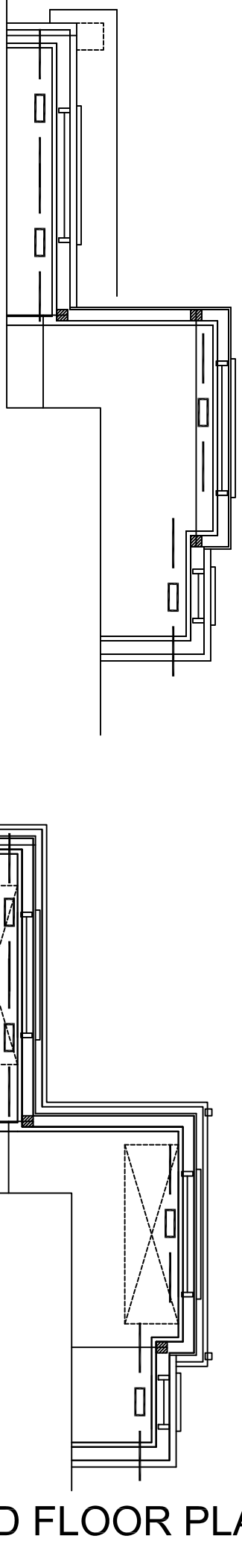
Scale 3/16" = 1'-0"

BCIN# 19669

LO# 98643



SECOND FLOOR PLAN EL-1



SECOND FLOOR PLAN EL-3

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CSA-F280-12

WOB | PACKAGE A1

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