HVAC DESIGNS LTD.

375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

Block 120 Units 19 to 24

SITE NAME: BARLASSINA | DATE: Aug-22 | WINTER NATURAL AIR CHANGE RATE 0.319 | HEAT LOSS ΔT °F. 72 | CSA-F280-12
BUILDER: GREENPARK HOMES | TYPE: CHERRY 1 | GFA: 1946 | LO# 98649 | SUMMER NATURAL AIR CHANGE RATE 0.085 | HEAT GAIN ΔT °F. 9 | SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BATH			FLEX								
EXP. WALL			11			14			0			10			10			0			0								
CLG. HT.			9			9			9			9			9			9			9								
	FACTORS																												
GRS.WALL AREA	LOSS	GAIN	99			126			0			90			90			0			0								
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	0	0						
EAST	20.3	40.5	0	0	0	0	0	0	0	0	0	18	365	730	16	324	649	0	0	0	0	0	0						
SOUTH	20.3	23.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
WEST	20.3	40.5	27	547	1095	24	487	973	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						
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						
NET EXPOSED WALL	4.3	0.5	72	306	39	102	434	55	0	0	0	72	306	39	74	315	40	0	0	0	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	0	0	0						
EXPOSED CLG	1.2	0.5	300	367	158	160	196	84	60	73	32	170	208	90	180	220	95	130	159	68	190	232	100						
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	176	428	54	0	0	0	24	58	7	0	0	0	72	175	22	48	117	15	0	0	0						
BASEMENT/CRAWL HEAT LOSS				0			0			0			0			0			0			0						
SLAB ON GRADE HEAT LOSS				0			0			0			0			0			0			0						
SUBTOTAL HT LOSS				1648			1116			132			879			1034			276			232						
SUB TOTAL HT GAIN					1346			1112			39			858			806			83			100						
LEVEL FACTOR / MULTIPLIER			0.20	0.40		0.20	0.40		0.20	0.40		0.20	0.40		0.20	0.40		0.20	0.40		0.20	0.40						
AIR CHANGE HEAT LOSS				659			446			53			351			413			110			93						
AIR CHANGE HEAT GAIN					87			72			3			55			52			5			6						
DUCT LOSS				231			0			18			0			145			39			0						
DUCT GAIN					250			0			4			0			168			9			0						
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	0		0	0		0						
HEAT GAIN APPLIANCES/LIGHTS					585			0			0			585			585			0			685						
TOTAL HT LOSS BTU/H				2537			1562			203			1230			1592			424			325						
TOTAL HT GAIN x 1.3 BTU/H					3571			1540			59			2260			2406			127			899						

ROOM USE					K/L/D					PWD			FOY						BAS		
EXP. WALL					48					15			30						91		
CLG. HT.					10					10			10						9		
	FACTORS																				
GRS.WALL AREA	LOSS	GAIN			480					150			300						546		
GLAZING					LOSS	GAIN				LOSS	GAIN		LOSS	GAIN					LOSS	GAIN	
NORTH	20.3	15.0			0	0				0	0	0	0	0	0				0	0	0
EAST	20.3	40.5			56	1135	2270			0	0	0	0	0	0				4	81	162
SOUTH	20.3	23.9			0	0	0			0	0	0	0	0	0				0	0	0
WEST	20.3	40.6			0	0	0			0	0	0	11	223	446				0	0	0
SKYLT.	35.5	99.8			0	0	0			0	0	0	0	0	0				0	0	0
DOORS	19.1	2.4			10	191	24			0	0	0	56	1070	136				21	401	51
NET EXPOSED WALL	4.3	0.5			414	1760	224			150	638	81	233	991	126				0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.4	0.4			0	0	0			0	0	0	0	0	0				273	936	119
EXPOSED CLG	1.2	0.5			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
EXPOSED FLOOR	2.4	0.3			0	0	0			0	0	0	0	0	0				0	0	0
BASEMENT/CRAWL HEAT LOSS						0					0			0						2758	
SLAB ON GRADE HEAT LOSS						0					0			0							
SUBTOTAL HT LOSS						3086					638			2283						4176	
SUB TOTAL HT GAIN							2518					81			708						332
LEVEL FACTOR / MULTIPLIER					0.30	0.53				0.30	0.53		0.30	0.53					0.50	1.27	
AIR CHANGE HEAT LOSS						1637					338			1211						5311	
AIR CHANGE HEAT GAIN							163					5			46						21
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							585					0			0						585
TOTAL HT LOSS BTU/H						4724					976			3495						9487	
TOTAL HT GAIN x 1.3 BTU/H							4245					112			980						1220

TOTAL HEAT GAIN BTU/H: 17576 | TONS: 1.46 | LOSS DUE TO VENTILATION LOAD BTU/H: 1243 | STRUCTURAL HEAT LOSS: 26554 | TOTAL COMBINED HEAT LOSS BTU/H: 27798

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: BARLASSINA
BUILDER: GREENPARK HOMES

TYPE: CHERRY 1 DATE: Aug-22 GFA: 1946 LO# 98649

HEATING CFM	614	COOLING CFM	614
TOTAL HEAT LOSS	26,554	TOTAL HEAT GAIN	17,418
AIR FLOW RATE CFM	23.12	AIR FLOW RATE CFM	35.25

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
GMEC960302BNA 30
FAN SPEED
LOW
MEDLOW
MEDIUM 614
MEDIUM HIGH
HIGH 895

AFUE = 96 %
INPUT (BTU/H) = 30,000
OUTPUT (BTU/H) = 28,800
DESIGN CFM = 614
CFM @ .6 " E S.P.
TEMPERATURE RISE 43 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	9	5	3
R/A	0	0	3	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	10	14	15	16	18	19	21	22	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BATH	BATH	FLEX	MBR	K/L/D	K/L/D	K/L/D	PWD	FOY	BAS	BAS	BAS
RM LOSS MBH.	1.27	1.56	0.20	1.23	1.59	0.21	0.21	0.33	1.27	1.57	1.57	1.57	0.98	3.49	3.16	3.16	3.16
CFM PER RUN HEAT	29	36	5	28	37	5	5	8	29	36	36	36	23	81	73	73	73
RM GAIN MBH.	1.79	1.54	0.06	2.26	2.41	0.06	0.06	0.90	1.79	1.42	1.42	1.42	0.11	0.98	0.41	0.41	0.41
CFM PER RUN COOLING	63	54	2	80	85	2	2	32	63	50	50	50	4	35	14	14	14
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17
ACTUAL DUCT LGH.	51	42	18	54	45	26	24	45	55	45	40	12	6	28	44	31	22
EQUIVALENT LENGTH	180	160	170	160	130	150	170	170	200	120	120	90	90	120	120	130	140
TOTAL EFFECTIVE LENGTH	231	202	188	214	175	176	194	215	255	165	160	102	96	148	164	161	162
ADJUSTED PRESSURE	0.07	0.09	0.09	0.08	0.09	0.1	0.09	0.08	0.07	0.1	0.11	0.17	0.18	0.11	0.1	0.11	0.11
ROUND DUCT SIZE	6	5	4	6	6	4	4	5	6	5	4	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	148	264	57	143	189	57	57	59	148	264	413	264	264	595	536	536	536
COOLING VELOCITY (ft/min)	321	396	23	408	433	23	23	235	321	367	574	367	46	257	103	103	103
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	C	C	B	A	A	B	B	B	C	A	A	B	C	C	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	

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.

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	283	0.08	8.7	10	x	8	509	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	342	0.08	9.4	14	x	8	440	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	271	0.07	8.9	10	x	8	488	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	0	0.00	0	0	x	8	0	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	0.07	0	0	x	8	0
TRUNK P	0	0.07	0	0	x	8	0
TRUNK Q	0	0.07	0	0	x	8	0
TRUNK R	0	0.07	0	0	x	8	0
TRUNK S	0	0.07	0	0	x	8	0
TRUNK T	0	0.07	0	0	x	8	0
TRUNK U	0	0.07	0	0	x	8	0
TRUNK V	0	0.07	0	0	x	8	0
TRUNK W	0	0.07	0	0	x	8	0
TRUNK X	614	0.07	12.1	18	x	8	614
TRUNK Y	85	0.07	5.8	8	x	8	191
TRUNK Z	0	0.07	0	0	x	8	0
DROP	614	0.07	12.1	24	x	10	368

RETURN AIR #	1		3	4	5												BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	85		85	85	270	0	0	0	0	0	0	0	0	0	0	0	89
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	0.15
ACTUAL DUCT LGH.	55	1	28	27	14	1	1	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	145	0	175	140	180	0	0	0	0	0	0	0	0	0	0	0	180
TOTAL EFFECTIVE LH	200	1	203	167	194	1	1	1	1	1	1	1	1	1	1	1	194
ADJUSTED PRESSURE	0.07	14.80	0.07	0.09	0.08	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.08
ROUND DUCT SIZE	5.8	0	5.8	5.4	8.6	0	0	0	0	0	0	0	0	0	0	0	5.7
INLET GRILL SIZE	8	0	8	8	8	0	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	X
INLET GRILL SIZE	14	0	14	14	30	0	0	0	0	0	0	0	0	0	0	0	14

I REVIEW AND TAKE RESPONSIBILITY FDR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CDDE.

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

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TYPE: CHERRY 1 LO # 98649
SITE NAME: BARLASSINA

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	4	@ 10.6 cfm	42.4	cfm
Table 9.32.3.A.		TOTAL	148.4	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	148.4	cfm
Less Principal Ventil. Capacity	63.6	cfm
Required Supplemental Capacity	84.8	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	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
BATH	BY INSTALLING CONTRACTOR	50	✓	3.5
LAUN	BY INSTALLING CONTRACTOR	50	✓	3.5
PWD	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

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CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 98649 Model: CHERRY 1 Builder: GREENPARK HOMES Date: 2022-08-22

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	816	9	7344
First	816	10	8160
Second	1130	9	10170
Third	0	9	0
Fourth	0	9	0
		Total:	25,674.0 ft³
		Total:	727.0 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.319
SUMMER NATURAL AIR CHANGE RATE	0.085

Design Temperature Difference

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

S.2.3.1 Heat Loss due to Air Leakage

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

0.319 x 201.95 x 40 °C x 1.2 = 3113 W

= **10623 Btu/h**

6.2.6 Sensible Gain due to Air Leakage

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

= 0.085 x 201.95 x 5 °C x 1.2 = 105 W

= **358 Btu/h**

S.2.3.2 Heat Loss due to Mechanical Ventilation

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

64 CFM x 72 °F x 1.08 x 0.25 = **1243 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 9 °F x 1.08 x 0.25 = **158 Btu/h**

S.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	10,623	4,176	1.272
2	0.3		6,007	0.530
3	0.2		5,316	0.400
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

Michael O'Rourke
BCIN# 19669

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: CHERRY 1 **BUILDER:** GREENPARK HOMES
SFQT: 1946 **LO#** 98649 **SITE:** BARLASSINA

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	0	OUTDOOR DESIGN TEMP.	84
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 7S°F)	7S
		WINDOW SHGC	0.S0

BUILDING DATA

ATTACHMENT:	ATTACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.S7	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft^3):	2S674.0	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:	6.0 ft
LENGTH: S7.0 ft	WIDTH: 17.0 ft	EXPOSED PERIMETER:	91.0 ft

2012 OBC - COMPLIANCE PACKAGE Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	S9.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.6S
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	7S%	-
Domestic Hot Water Heater Minimum EF	0.8	-

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE

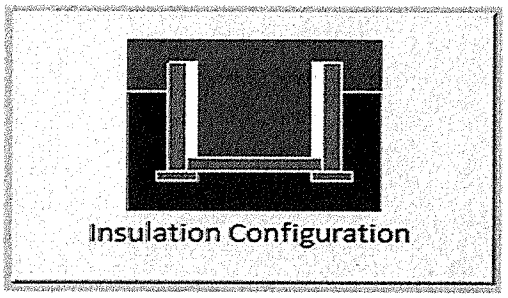
Michael O'Rourke.

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:	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):	17.4	 Insulation Configuration
Floor Width (m):	5.2	
Exposed Perimeter (m):	27.7	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m^2):	0.4	
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):	**808**	

TYPE: CHERRY 1
LO# 98649

Michael O'Rourke BCIN #19669

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905-619-2300

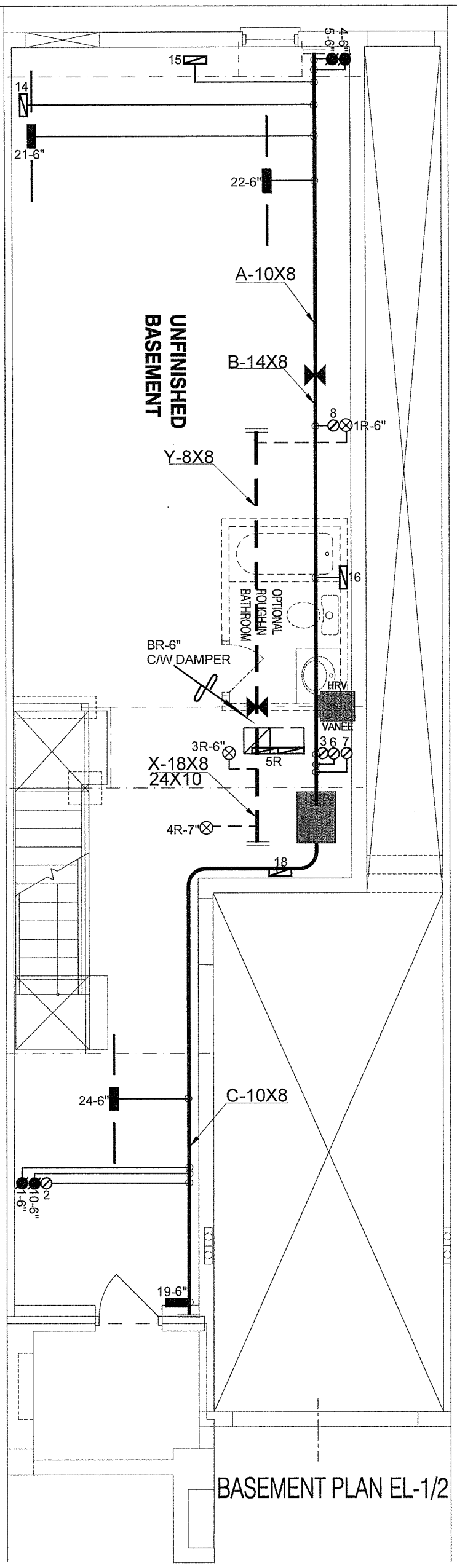
Air Infiltration Residential Load Calculator

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):	6.71
Building Configuration	
Type:	Semi
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	727.0
Air Leakage/Ventilation	
Air Tightness Type:	Present (1961-) (3.57 ACH)
Custom BDT Data:	ELA @ 10 Pa. 969.1 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):	**0.319**
Cooling Air Leakage Rate (ACH/H):	**0.085**

TYPE: CHERRY 1
LO# 98649

Michael O'Rourke BCIN# 19669



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
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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
BARLASSINA
CAMBRIDGE, ONTARIO

Block 120 Units 19 to 24

CHERRY 1 1946 sqft

HVAC DESIGNS LTD.
375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
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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 27798 BTU/H

UNIT DATA

MAKE	GOODMAN
MODEL	GMEC960302BNA
INPUT	30 MBTU/H
OUTPUT	29 MBTU/H
COOLING	1.5 TONS
FAN SPEED	735 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	9	3	3
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

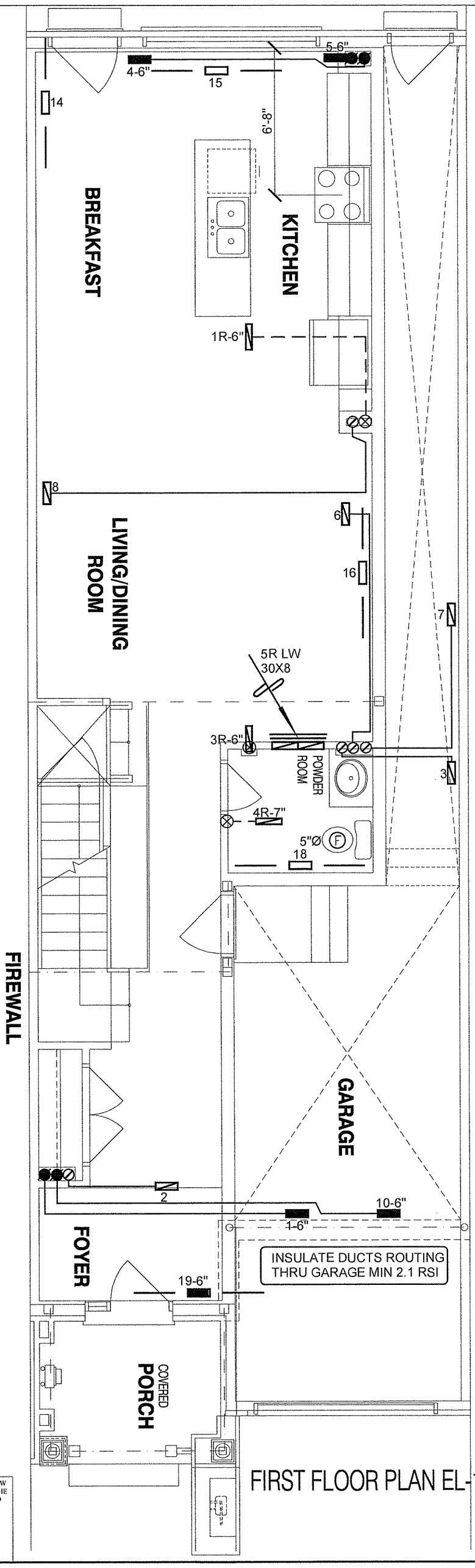
Sheet Title
BASEMENT HEATING LAYOUT

Date AUG/2022

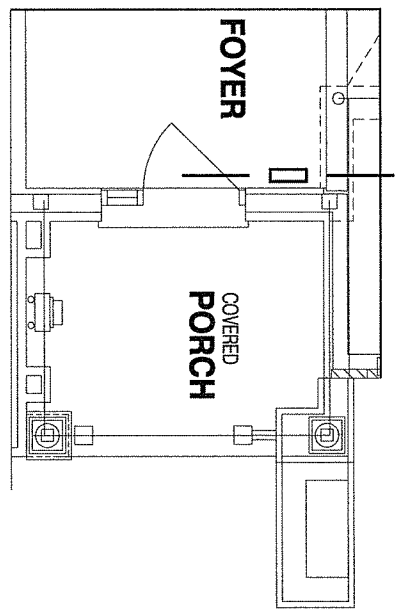
Scale 3/16" = 1'-0"

BCIN# 19669

LO# 98649



FIRST FLOOR PLAN EL-1



FIRST FLOOR PLAN EL-2

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CSA-F280-12

PACKAGE A1

HVAC LEGEND

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— ▬ —	SUPPLY AIR GRILLE 6" BOOT	⊘	SUPPLY AIR STACK FROM 2nd FLOOR	▱	30"x8" RETURN AIR GRILLE	⊠	RETURN AIR STACK 2nd FLOOR
▨	SUPPLY AIR BOOT ABOVE	●	6" SUPPLY AIR STACK 2nd FLOOR	▤	FRA- FLOOR RETURN AIR GRILLE	⧗	REDUCER

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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.

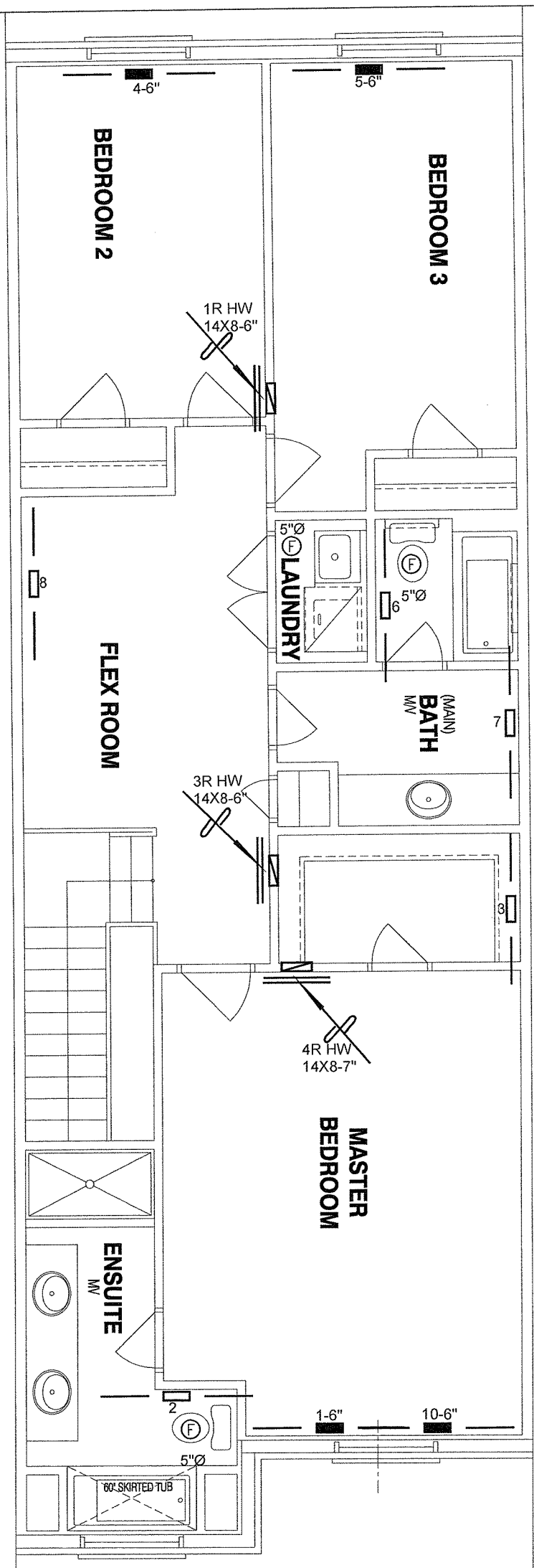
Sheet Title
FIRST FLOOR HEATING LAYOUT

Date AUG/2022

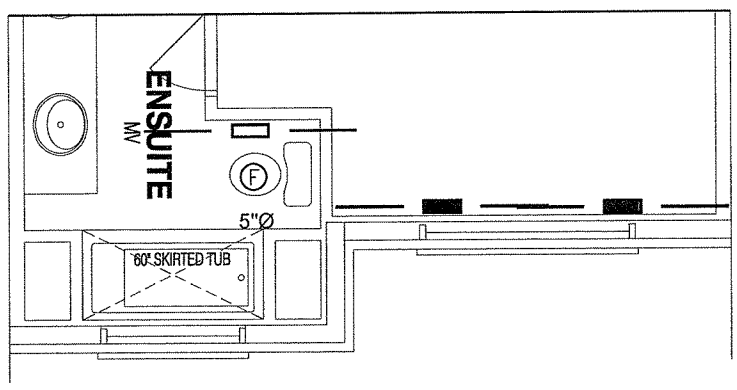
Scale 3/16" = 1'-0"

BCIN# 19669

LO# 98649



SEC. FLOOR PLAN EL-1



SEC. FLOOR PLAN EL-2

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CSA-F280-12

PACKAGE A1

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Sheet Title

SECOND FLOOR HEATING LAYOUT

Date AUG/2022

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 98649