

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.

Block 122 Units 55 to 60

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: WILLOW 1				LO# 98653				SUMMER NATURAL AIR CHANGE RATE 0.085				HEAT GAIN ΔT °F. 9			
ROOM USE				MBR				BED-2				BED-3				FLEX			
EXP. WALL				20				10				16				0			
CLG. HT.				9				9				9				9			
FACTORS				180				0				0				0			
GRS.WALL AREA				LOSS GAIN				90				144				0			
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	0	0	0
EAST				20.3	40.5	0	0	0	0	0	0	23	466	933	24	487	973	0	0
SOUTH				20.3	23.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST				20.3	40.5	24	487	973	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
DOORS				19.1	2.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL				4.3	0.5	156	663	84	0	0	0	67	285	36	120	510	65	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
EXPOSED CLG				1.2	0.5	280	342	148	110	134	58	170	208	90	120	147	63	260	318
NO ATTIC EXPOSED CLG				2.6	1.1	0	0	0	0	0	0	0	0	0	12	31	14	0	0
EXPOSED FLOOR				2.4	0.3	52	126	16	40	97	12	170	413	52	18	44	6	12	29
BASEMENT/CRAWL HEAT LOSS																			
SLAB ON GRADE HEAT LOSS																			
SUBTOTAL HT LOSS						1618									1372				
SUB TOTAL HT GAIN							1221				70			1111				1120	
LEVEL FACTOR / MULTIPLIER				0.20	0.37			0.20	0.37			0.20	0.37			0.20	0.37		
AIR CHANGE HEAT LOSS						604									512			455	
AIR CHANGE HEAT GAIN							84				5				76			77	
DUCT LOSS						222									188			167	
DUCT GAIN							249				8					213		214	
HEAT GAIN PEOPLE				240		2		480	0		0	1			1		240	0	
HEAT GAIN APPLIANCES/LIGHTS							701				0				701		701		
TOTAL HT LOSS BTU/H						2445					350				2073		1841		524
TOTAL HT GAIN x 1.3 BTU/H							3554				107				3043		3057		1217

ROOM USE				K/L/D				MUD				FOY				BAS			
EXP. WALL				44				13				29				86			
CLG. HT.				10				10				10				9			
FACTORS				440				130				290				516			
GRS.WALL AREA				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN			
GLAZING				20.3	15.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH				20.3	40.5	0	0	0	0	0	0	14	284	568	0	0	0	0	0
EAST				20.3	23.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH				20.3	40.5	42	851	1703	0	0	0	0	0	0	0	0	0	0	0
WEST				35.5	99.8	0	0	0	0	0	0	0	0	0	0	4	81	162	0
SKYLT.				19.1	2.4	10	191	24	0	0	0	0	0	0	0	0	0	0	0
DOORS				4.3	0.5	388	1650	210	20	382	49	11	210	27	0	20	382	49	0
NET EXPOSED WALL				3.4	0.4	0	0	0	110	468	59	265	1127	143	0	0	0	0	0
NET EXPOSED BSMT WALL ABOVE GR				1.2	0.5	0	0	0	0	0	0	0	0	0	258	884	112	0	0
EXPOSED CLG				2.6	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG				2.4	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR									0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS									0	0	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS									0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS							2692				850			1621				2563	
SUB TOTAL HT GAIN											108			737				3911	
LEVEL FACTOR / MULTIPLIER				0.30	0.54				0.30	0.54		0.30	0.54			0.50	1.18		323
AIR CHANGE HEAT LOSS							1445				456			870				4618	
AIR CHANGE HEAT GAIN											7			51				22	
DUCT LOSS							0				0			0				0	
DUCT GAIN							0				0			0				0	
HEAT GAIN PEOPLE				240			0		0		0		0	0		0		0	
HEAT GAIN APPLIANCES/LIGHTS							701		0		0		0	0		0		0	
TOTAL HT LOSS BTU/H							4137				1306			2490				8529	
TOTAL HT GAIN x 1.3 BTU/H							3602				150			1025				1360	

TOTAL HEAT GAIN BTU/H:

17351

TONS: 1.45

LOSS DUE TO VENTILATION LOAD BTU/H: 1243

STRUCTURAL HEAT LOSS: 23938

TOTAL COMBINED HEAT LOSS BTU/H: 25181

Michael O'Rourke

GFA: 1696 LO# 98653

#GOODMAN
GMEC960302BNA 30
FAN SPEED
LOW

AFUE = 96 %
INPUT (BTU/H) = 30,000
OUTPUT (BTU/H) = **28,800**

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

MEDLOW	
MEDIUM	614
MEDIUM HIGH	
HIGH	895

DESIGN CFM = 614
CFM @ .6" E.S.P.

TEMPERATURE RISE 43 °F

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	15	16	18	19	21	22	23
ROOM NAME	MBR	ENS	BED-2	BED-2	BED-3	FLEX	BATH	BED-3	MBR	K/L/D	K/L/D	MUD	FOY	BAS	BAS	BAS
RM LOSS MBH.	1.22	0.35	1.04	1.04	0.92	0.52	0.24	0.92	1.22	2.07	2.07	1.31	2.49	2.84	2.84	2.84
CFM PER RUN HEAT	31	9	27	27	24	13	6	24	31	53	53	33	64	73	73	73
RM GAIN MBH.	1.78	0.11	1.52	1.52	1.53	1.22	0.08	1.53	1.78	1.80	1.80	0.15	1.02	0.45	0.45	0.45
CFM PER RUN COOLING	63	4	54	54	55	43	3	55	63	64	64	5	37	16	16	16
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
ACTUAL DUCT LGH.	41	30	54	51	46	33	48	51	36	30	24	15	34	31	16	30
EQUIVALENT LENGTH	210	150	160	190	150	160	180	190	180	110	110	170	110	110	90	140
TOTAL EFFECTIVE LENGTH	251	180	214	241	196	193	228	241	216	140	134	185	144	141	106	170
ADJUSTED PRESSURE	0.07	0.1	0.08	0.07	0.09	0.09	0.08	0.07	0.08	0.12	0.13	0.09	0.12	0.12	0.16	0.1
ROUND DUCT SIZE	5	4	5	5	5	5	4	5	5	5	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	228	103	198	198	176	95	69	176	228	389	389	379	470	536	536	536
COOLING VELOCITY (ft/min)	463	46	396	396	404	316	34	404	463	470	470	57	272	117	117	117
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	A	B	C	C	C	B	B	C	A	A	A	C	C	A	B	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	

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SUPPLY AIR TRUNK SIZE																				RETURN AIR TRUNK SIZE													
	TRUNK	STATIC	ROUND	RECT	VELOCITY						TRUNK	STATIC	ROUND	RECT	VELOCITY						TRUNK	STATIC	ROUND	RECT	VELOCITY								
	CFM	PRESS.	DUCT	DUCT				(ft/min)		CFM	PRESS.	DUCT	DUCT				(ft/min)		CFM	PRESS.	DUCT	DUCT							(ft/min)				
TRUNK A	241	0.07	8.5	10	x	8	434		TRUNK G	0	0.00	0	0	x	8	0		TRUNK O	0	0.05	0	0	x	8	0								
TRUNK B	342	0.07	9.7	14	x	8	440		TRUNK H	0	0.00	0	0	x	8	0		TRUNK P	0	0.05	0	0	x	8	0								
TRUNK C	272	0.07	8.9	10	x	8	490		TRUNK I	0	0.00	0	0	x	8	0		TRUNK Q	0	0.05	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 R	0	0.05	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 S	0	0.05	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		TRUNK T	0	0.05	0	0	x	8	0								
RETURN AIR #	1	2	3	4	5												BR	TRUNK U	0	0.05	0	0	x	8	0								
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		TRUNK V	0	0.05	0	0	x	8	0								
AIR VOLUME	75	75	65	65	250	0	0	0	0	0	0	0	0	0	0	0	84	TRUNK W	0	0.05	0	0	x	8	0								
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		TRUNK X	614	0.05	13.1	20	x	8	553								
ACTUAL DUCT LGH.	51	61	64	58	25	1	1	1	1	1	1	1	1	1	1	1	14	TRUNK Y	205	0.05	8.7	10	x	8	369								
EQUIVALENT LENGTH	215	185	230	225	175	0	0	0	0	0	0	0	0	0	0	0	220	TRUNK Z	0	0.05	0	0	x	8	0								
TOTAL EFFECTIVE LH	266	246	294	283	200	1	1	1	1	1	1	1	1	1	1	1	234	DROP	614	0.05	13.1	24	x	10	368								
ADJUSTED PRESSURE	0.06	0.06	0.05	0.05	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.06																
ROUND DUCT SIZE	5.7	5.7	5.7	5.7	8.6	0	0	0	0	0	0	0	0	0	0	0	6																
INLET GRILL SIZE	8	8	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	14	14	14	30	0	0	0	0	0	0	0	0	0	0	0	14																

TYPE: WILLOW 1
SITE NAME: BARLASSINA

LO # 98653

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	72 F	1.08	0.25

SUPPLEMENTAL FANS BY INSTALLING CONTRACTOR

Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	<input checked="" type="checkbox"/>	3.5
BATH	BY INSTALLING CONTRACTOR	50	<input checked="" type="checkbox"/>	3.5
LAUN	BY INSTALLING CONTRACTOR	50	<input checked="" type="checkbox"/>	3.5
PWD	BY INSTALLING CONTRACTOR	50	<input checked="" type="checkbox"/>	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

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 98653		Model: WILLOW 1		Date: 2022-08-30																																																								
Volume Calculation			Air Change & Delta T Data																																																									
House Volume <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Bsmt</td> <td>706</td> <td>9</td> <td>6354</td> </tr> <tr> <td>First</td> <td>706</td> <td>10</td> <td>7060</td> </tr> <tr> <td>Second</td> <td>990</td> <td>9</td> <td>8910</td> </tr> <tr> <td>Third</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td>Fourth</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>22,324.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>632.1 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	706	9	6354	First	706	10	7060	Second	990	9	8910	Third	0	9	0	Fourth	0	9	0	Total:			22,324.0 ft³	Total:			632.1 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%;">0.319</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.085</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td>22</td> <td>-18</td> <td>40</td> <td>72</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>29</td> <td>5</td> <td>9</td> </tr> </table>		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
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5.2.3.1 Heat Loss due to Air Leakage $HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ <p>0.319 x 175.60 x 40 °C x 1.2 = 2707 W</p> <p>= 9237 Btu/h</p>			6.2.6 Sensible Gain due to Air Leakage $HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>= 0.085 x 175.60 x 5 °C x 1.2 = 91 W</p> <p>= 311 Btu/h</p>																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation $HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>64 CFM x 72 °F x 1.08 x 0.25 = 1243 Btu/h</p>			6.2.7 Sensible heat Gain due to Ventilation $HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>64 CFM x 9 °F x 1.08 x 0.25 = 158 Btu/h</p>																																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairve Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{clevel})</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center;">9,237</td> <td>3,911</td> <td>1.181</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>5,162</td> <td>0.537</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>4,949</td> <td>0.373</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> </tbody> </table>					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	9,237	3,911	1.181	2	0.3	5,162	0.537	3	0.2	4,949	0.373	4	0	0	0.000	5	0	0	0.000																														
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5	0		0	0.000																																																								
<p>*HLairbv = Air leakage heat loss + ventilation heat loss</p> <p>*For a balanced or supply only ventilation system HLairve = 0</p> <div style="text-align: right;"> <p>Michael O'Rourke BCIN# 19669</p> </div>																																																												

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: WILLOW 1	BUILDER: GREENPARK HOMES
SFQT: 1696	LO# 98653
	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:	ATTACHED	# 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 (ft³):	22324.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.75	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 52.0 ft	WIDTH: 16.0 ft	EXPOSED PERIMETER:	86.0 ft

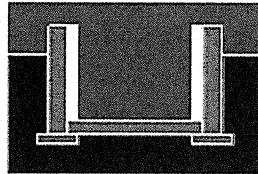
2012 OBC - COMPLIANCE PACKAGE		Compliance Package A1		
Component				
NOT THE GRANTING OF A PERMIT NOR REVIEWING OF SPECS & DRAWINGS NOR INSPECTIONS MADE DURING INSTALLATION BY THE OFFICIAL HAVING JURISDICTION SHALL RELIEVE THE OWNER FROM REQUIREMENTS OF THE ONTARIO BUILDING CODE AND ANY OTHER REFERENCED REQUIREMENTS.		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



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):	15.8	 Insulation Configuration
Floor Width (m):	4.9	
Exposed Perimeter (m):	26.2	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	0.4	
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):		751

TYPE: WILLOW 1
LO# 98653

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.

Air Infiltration Residential Load Calculator

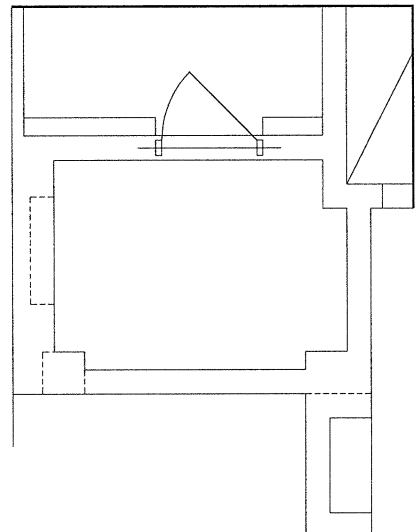
Supplemental tool for CAN/CSA-F280

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):	632.1			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa. 3.57	842.7 cm ² 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		

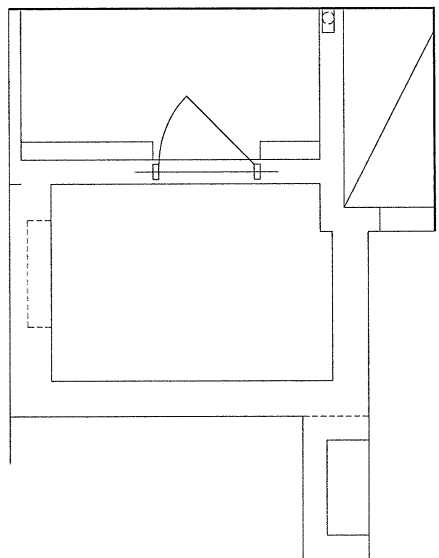
TYPE: WILLOW 1
LO# 98653



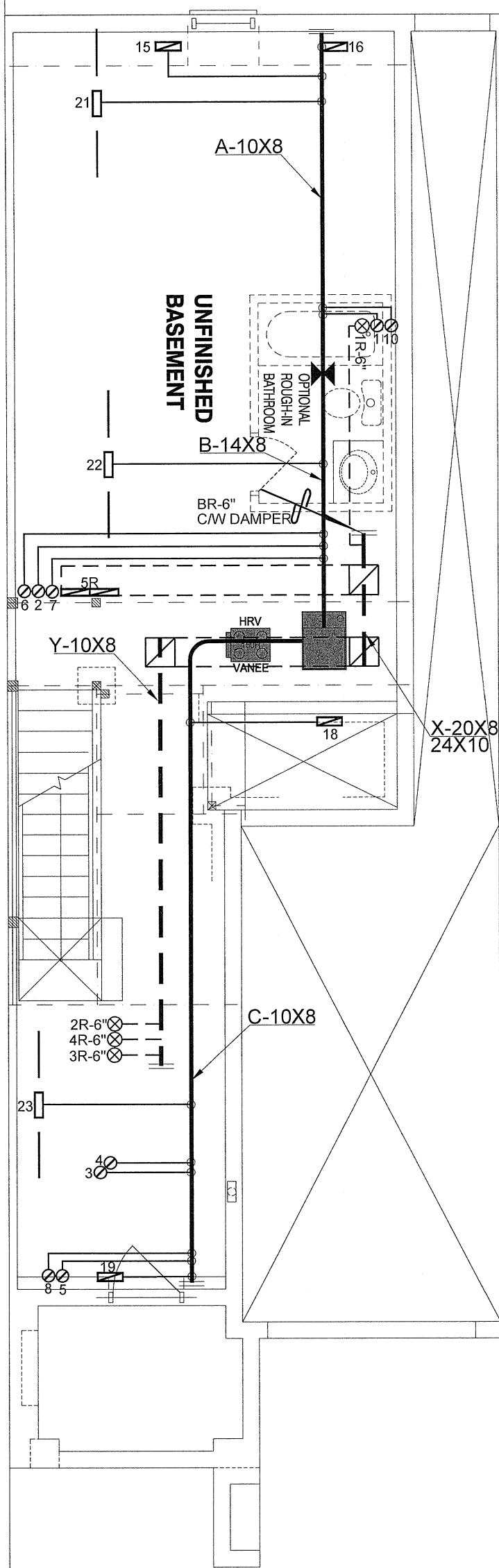
OPTIONAL
COLDCELLAR



OPTIONAL
COLDCELLAR



BASEMENT PLAN EL-2



BASEMENT PLAN EL-1

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

PACKAGE A1

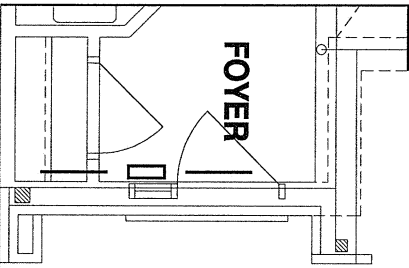
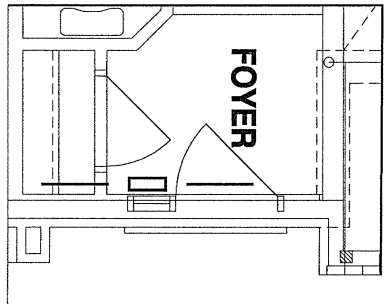
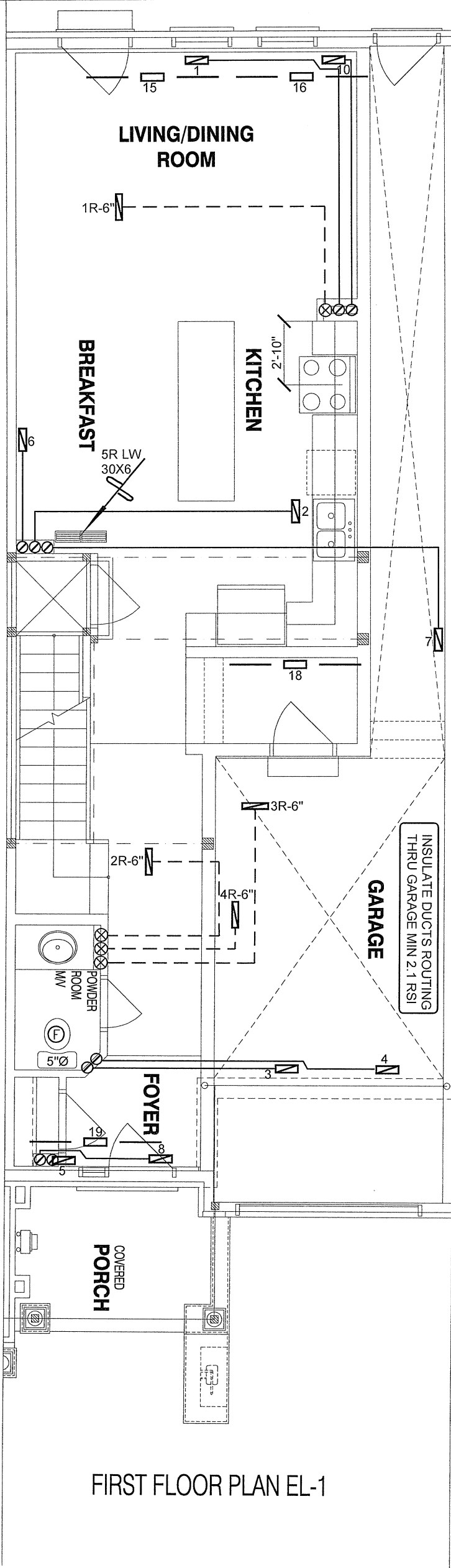
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1696 sqft

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 25181 BTU/H		# OF RUNS S/A R/A FANS				Sheet Title BASEMENT HEATING LAYOUT	
UNIT DATA		3RD FLOOR					
MAKE	GOODMAN	2ND FLOOR	9	4	3		
MODEL	GMEC960302BNA	1ST FLOOR	4	1	2		
INPUT	30 MBTU/H	BASEMENT	3	1	0		
OUTPUT	28.8 MBTU/H	ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. NOTED S/A RUNS 5'Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A				Date	AUG/2022
COOLING	1.5 TONS					Scale	3/16" = 1'-0"
FAN SPEED	614 cfm @ 0.6" w.c.					BCIN# 19669	
		LO#		98653			

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FIRST FLOOR PLAN EL-1

FIRST FLOOR PLAN EL-3

FIRST FLOOR PLAN EL-2

I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C. 3.2.5 OF THE BUILDING CODE.

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

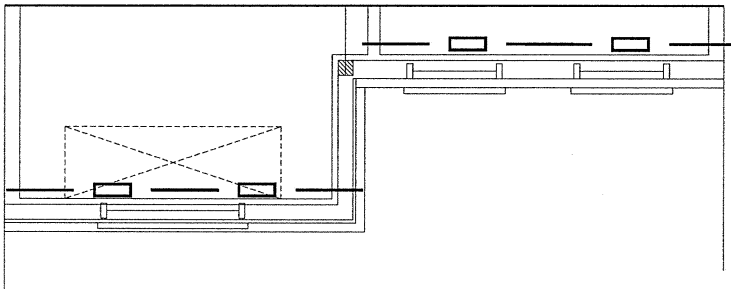
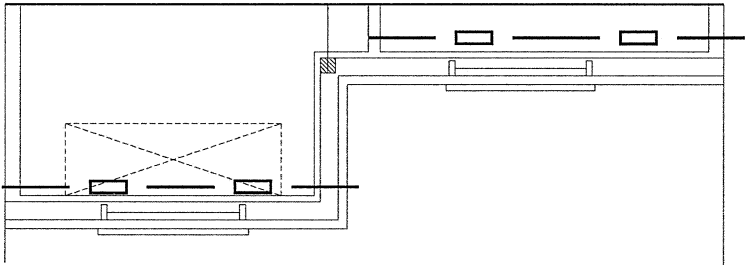
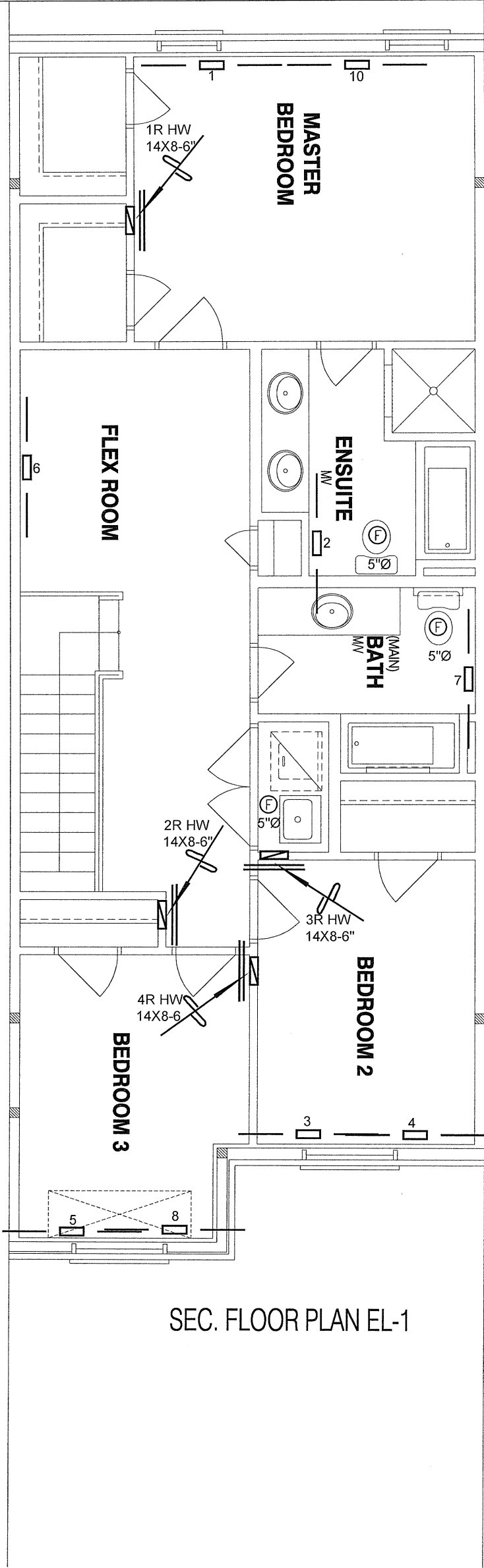
CSA-F280-12
PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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Client		<div></div> <div>375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services</div> <div>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.</div>	Sheet Title	
GREENPARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name BARLASSINA CAMBRIDGE, ONTARIO			Date	AUG/2022
Block 122 Units 55 to 60			Scale	3/16" = 1'-0"
WILLOW 1			BCIN# 19669	
1696 sqft	LO#		98653	

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SEC. FLOOR PLAN EL-1

SEC. FLOOR PLAN EL-3

SEC. FLOOR PLAN EL-2

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

CSA-F280-12
PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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GREENPARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	AUG/2022
BARLASSINA CAMBRIDGE, ONTARIO			Scale	3/16" = 1'-0"
Block 122 Units 55 to 60			BCIN# 19669	
WILLOW 1	1696 sqft		LO#	98653