

## Block 119 Units 31 to 36

SITE NAME: BARLASSINA										DATE: Aug-22		WINTER NATURAL AIR CHANGE RATE 0.319		HEAT LOSS ΔT °F. 72		CSA-F280-12	
BUILDER: GREENPARK HOMES										LO# 98650		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		13		7		0		11		13		0		0			
CLG. HT.		9		9		9		9		9		9		9			
FACTORS																	
GRS.WALL AREA		117		63		0		99		117		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
EAST		20.3	40.5	18	365	730	16	324	649	0	0	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
WEST		20.3	40.5	0	0	0	0	0	0	27	547	1095	24	487	973	0	0
SKYL.T.		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	99	421	53	47	200	25	0	0	0	72	306	39	93	395
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	286	350	151	144	176	76	80	98	42	176	215	93	155	189
NO ATTIC EXPOSED CLG		2.6	1.1	0	0	0	0	0	0	0	0	0	0	0	0	15	39
EXPOSED FLOOR		2.4	0.3	42	102	13	79	192	24	60	146	19	176	428	54	13	32
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				1237		892		244		1496		1142		230		599	
SUB TOTAL HT GAIN				947		774		61		1281		1126		53		218	
LEVEL FACTOR / MULTIPLIER		0.20	0.37			0.20	0.37	0.20	0.37	0.20	0.37	0.20	0.37	0.20	0.37		
AIR CHANGE HEAT LOSS				463		334		91		559		427		86		224	
AIR CHANGE HEAT GAIN				76		62		5		103		91		4		18	
DUCT LOSS				170		123		33		206		157		32		82	
DUCT GAIN				231		84		7		243		226		6		24	
HEAT GAIN PEOPLE		240	2	480		0		0		1		240		0		0	
HEAT GAIN APPLIANCES/LIGHTS				805		0		0		805		805		0		0	
TOTAL HT LOSS BTU/H				1870		1348		368		2261		1726		348		906	
TOTAL HT GAIN x 1.3 BTU/H				3301		1197		94		3474		3235		81		336	

ROOM USE					K/L/B			W/R	FOY						BAS					
EXP. WALL					61			13	25						100					
CLG. HT.					10			10	10						9					
FACTORS																				
GRS.WALL AREA	LOSS	GAIN			610			130	250						600					
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			24	487	973	0	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	0			
WEST	20.3	40.5			0	0	0	0	0	0	15	304	608	0	0	0	0			
SKYLT.	35.5	99.8			0	0	0	0	0	0	0	0	0	0	0	0	0			
DOORS	19.1	2.4			20	382	49	0	0	0	40	764	97	0	20	382	49			
NET EXPOSED WALL	4.3	0.5			566	2406	306	130	553	70	195	829	105	0	0	0	0			
NET EXPOSED BSMT WALL ABOVE GR	3.4	0.4			0	0	0	0	0	0	0	0	0	300	1028	131	0			
EXPOSED CLG	1.2	0.5			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			
EXPOSED FLOOR	2.4	0.3			0	0	0	0	0	0	0	0	0	0	0	0	0			
BASEMENT/CRAWL HEAT LOSS					0			0									3048			
SLAB ON GRADE HEAT LOSS					0			0												
SUBTOTAL HT LOSS					3275			553			1897							4540		
SUB TOTAL HT GAIN					1327		70		811								341			
LEVEL FACTOR / MULTIPLIER	0.30	0.57					0.30		0.57	0.30		0.57	0.50		1.20					
AIR CHANGE HEAT LOSS					1874			316			1086							5459		
AIR CHANGE HEAT GAIN					107		6		65								28			
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					805		0		0				0				805			
TOTAL HT LOSS BTU/H					5149			869	2983				9999							
TOTAL HT GAIN x 1.3 BTU/H					2911		99		1139								1526			

SITE NAME: BARLASSINA  
BUILDER: GREENPARK HOMES

TYPE: CHERRY 2

DATE: Aug-22

GFA: 2030

LO# 98650

HEATING CFM 695 COOLING CFM 695  
TOTAL HEAT LOSS 27,827 TOTAL HEAT GAIN 17,393  
AIR FLOW RATE CFM 24.98 AIR FLOW RATE CFM 39.96

furnace pressure 0.6  
furnace filter 0.05  
a/c coil pressure 0.2  
available pressure  
for s/a & r/a 0.35

#GOODMAN  
GMEC960402BNA 40  
FAN SPEED LOW  
MEDLOW  
MEDIUM 695  
MEDIUM HIGH 890

AFUE = 96 %  
INPUT (BTU/H) = 40,000  
OUTPUT (BTU/H) = 38,400

DESIGN CFM = 695  
CFM @ .6" E.S.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	10	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.

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

TEMPERATURE RISE 51 °F

RUN #	1	2	3	4	5	6	7	8	9	10	14	15	16	18	19	21	22	23
ROOM NAME	MBR	ENS	WIC	BED-3	BED-2	BED-2	BATH	FLEX	BED-3	MBR	K/L/B	K/L/B	K/L/B	W/R	FOY	BAS	BAS	BAS
RM LOSS MBH.	0.94	1.35	0.37	0.86	1.13	1.13	0.35	0.91	0.86	0.94	1.72	1.72	1.72	0.87	2.98	3.33	3.33	3.33
CFM PER RUN HEAT	23	34	9	22	28	28	9	23	22	23	43	43	43	22	75	83	83	83
RM GAIN MBH.	1.65	1.20	0.09	1.62	1.74	1.74	0.08	0.34	1.62	1.65	0.97	0.97	0.97	0.10	1.14	0.51	0.51	0.51
CFM PER RUN COOLING	66	48	4	65	69	69	3	13	65	66	39	39	39	4	46	20	20	20
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	0.16	0.16	0.16
ACTUAL DUCT LGH.	46	45	36	65	62	69	69	41	51	39	17	32	24	34	47	27	25	13
EQUIVALENT LENGTH	180	150	160	180	160	180	190	170	140	140	110	130	130	140	110	80	90	110
TOTAL EFFECTIVE LENGTH	226	195	196	245	222	249	259	211	191	179	127	162	154	174	157	107	115	123
ADJUSTED PRESSURE	0.08	0.09	0.09	0.07	0.08	0.07	0.07	0.08	0.09	0.1	0.14	0.11	0.11	0.1	0.11	0.15	0.14	0.13
ROUND DUCT SIZE	5	5	4	6	6	6	4	4	6	5	4	4	4	4	5	6	6	6
HEATING VELOCITY (ft/min)	169	250	103	112	143	143	103	264	112	169	493	493	493	252	551	423	423	423
COOLING VELOCITY (ft/min)	485	352	46	331	352	352	34	149	331	485	447	447	447	46	338	102	102	102
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10
TRUNK	A	A	B	C	C	C	C	C	C	A	B	A	A	C	C	B	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
1	MBR	0.94	23	1.65	66	0.17	46	180	226	0.08	5	169	485	3X10	A
2	ENS	1.35	34	1.20	48	0.17	45	150	195	0.09	5	250	352	3X10	A
3	WIC	0.37	9	0.09	4	0.17	36	160	196	0.09	4	103	46	3X10	B
4	BED-3	0.86	22	1.62	65	0.17	65	180	245	0.07	6	112	331	4X10	C
5	BED-2	1.13	28	1.74	69	0.17	62	160	222	0.08	6	143	352	4X10	C
6	BED-2	1.13	28	1.74	69	0.17	69	180	249	0.07	6	143	352	4X10	C
7	BATH	0.35	9	0.08	3	0.17	41	190	259	0.07	4	103	34	3X10	C
8	FLEX	0.91	23	0.34	13	0.17	51	170	211	0.08	4	264	149	3X10	C
9	BED-3	0.86	22	1.62	65	0.17	39	140	191	0.09	6	112	331	4X10	C
10	MBR	0.94	23	1.65	66	0.17	39	140	179	0.1	5	169	485	3X10	A
14	K/L/B	1.72	43	0.97	39	0.17	17	110	127	0.14	4	493	447	3X10	B
15	K/L/B	1.72	43	0.97	39	0.17	32	130	162	0.11	4	493	447	3X10	A
16	K/L/B	1.72	43	0.97	39	0.17	24	130	154	0.11	4	493	447	3X10	A
18	W/R	0.87	22	0.10	4	0.17	34	140	174	0.1	4	252	46	3X10	C
19	FOY	2.98	75	1.14	46	0.17	47	110	157	0.11	5	551	338	3X10	C
21	BAS	3.33	83	0.51	20	0.16	27	80	107	0.15	6	423	102	4X10	B
22	BAS	3.33	83	0.51	20	0.16	25	90	115	0.14	6	423	102	4X10	B
23	BAS	3.33	83	0.51	20	0.16	13	110	123	0.13	6	423	102	4X10	C

SUPPLY AIR TRUNK SIZE															RETURN 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 CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)			
TRUNK A	166	0.08	7.2	8	x	8	374		TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0
TRUNK B	384	0.08	9.8	12	x	8	576		TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0
TRUNK C	312	0.07	9.4	12	x	8	468		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
															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	695	0.05	13.8	22	x	8	569		
															TRUNK Y	495	0.05	12.1	18	x	8	495		
															TRUNK Z	235	0.05	9.2	10	x	8	423		
															DROP	695	0.05	13.8	24	x	10	417		

RETURN AIR #	1	2	3	4	5										BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	95	75	75	85	260	0	0	0	0	0	0	0	0	0	105
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
ACTUAL DUCT LGH.	44	41	26	27	36	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	100	270	265	225	185	0	0	0	0	0	0	0	0	0	135
TOTAL EFFECTIVE LH	144	311	291	252	221	1	1	1	1	1	1	1	1	1	149
ADJUSTED PRESSURE	0.10	0.05	0.05	0.06	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.10
ROUND DUCT SIZE	5.5	6	6	6	8.8	0	0	0	0	0	0	0	0	0	5.7
INLET GRILL SIZE	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
INLET GRILL SIZE	14	14	14	14	30	0	0	0	0	0	0	0	0	0	14

TYPE: CHERRY 2  
SITE NAME: BARLASSINA

LO # 98650

### 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	4	@ 10.6 cfm	42.4	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
	<b>TOTAL</b>	<b>79.5</b>	<b>cfm</b>

**SUPPLEMENTAL VENTILATION CAPACITY** 9.32.3.5.

Total Ventilation Capacity	137.8	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	58.3	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	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
W/R	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 ☒ HVI Approved  
@ 32 deg F ( 0 deg C)

**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#: 98650	Model: CHERRY 2	Builder: GREENPARK HOMES	Date: 2022-08-24																																																									
<b>Volume Calculation</b>			<b>Air Change &amp; Delta T Data</b>																																																									
<b>House Volume</b> <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>812</td><td>9</td><td>7308</td></tr> <tr><td>First</td><td>812</td><td>10</td><td>8120</td></tr> <tr><td>Second</td><td>1218</td><td>9</td><td>10962</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>26,390.0 ft³</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>747.3 m³</td></tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	812	9	7308	First	812	10	8120	Second	1218	9	10962	Third	0	9	0	Fourth	0	9	0	Total:			26,390.0 ft³	Total:			747.3 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%; text-align: center;">0.319</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">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 style="text-align: center;">22</td> <td style="text-align: center;">-18</td> <td style="text-align: center;">40</td> <td style="text-align: center;">72</td> </tr> <tr> <td>Summer DTDc</td> <td style="text-align: center;">24</td> <td style="text-align: center;">29</td> <td style="text-align: center;">5</td> <td style="text-align: center;">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
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																									
Bsmt	812	9	7308																																																									
First	812	10	8120																																																									
Second	1218	9	10962																																																									
Third	0	9	0																																																									
Fourth	0	9	0																																																									
Total:			26,390.0 ft³																																																									
Total:			747.3 m³																																																									
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																																																								
<b>5.2.3.1 Heat Loss due to Air Leakage</b>			<b>6.2.6 Sensible Gain due to Air Leakage</b>																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ <p>0.319 x 207.58 x 40 °C x 1.2 = 3200 W</p> <p style="text-align: right;">= 10919 Btu/h</p>			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>= 0.085 x 207.58 x 5 °C x 1.2 = 108 W</p> <p style="text-align: right;">= 367 Btu/h</p>																																																									
<b>5.2.3.2 Heat Loss due to Mechanical Ventilation</b>			<b>6.2.7 Sensible heat Gain due to Ventilation</b>																																																									
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>80 CFM x 72 °F x 1.08 x 0.25 = 1554 Btu/h</p>			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>80 CFM x 9 °F x 1.08 x 0.25 = 197 Btu/h</p>																																																									
<b>5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)</b>																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL <sub>clevel</sub> )	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																																								
1	0.5	10,919	4,540	1.203																																																								
2	0.3		5,725	0.572																																																								
3	0.2		5,841	0.374																																																								
4	0		0	0.000																																																								
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>																																																												
				<p>Michael O'Rourke BCIN# 19669</p> <p><i>Michael O'Rourke</i></p>																																																								



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.

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

## HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: CHERRY 2  
SFQT: 2030

LO# 98650

BUILDER: GREENPARK HOMES  
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):	26390.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.70	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 62.0 ft	WIDTH: 17.0 ft	EXPOSED PERIMETER:	100.0 ft

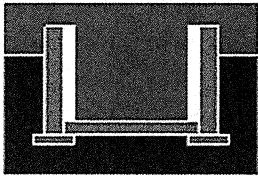
### 2012 OBC - COMPLIANCE PACKAGE

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

## 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):	18.9	 Insulation Configuration
Floor Width (m):	5.2	
Exposed Perimeter (m):	30.5	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m <sup>2</sup> ):	0.4	
Door Area (m <sup>2</sup> ):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		893

TYPE: CHERRY 2

LO# 98650



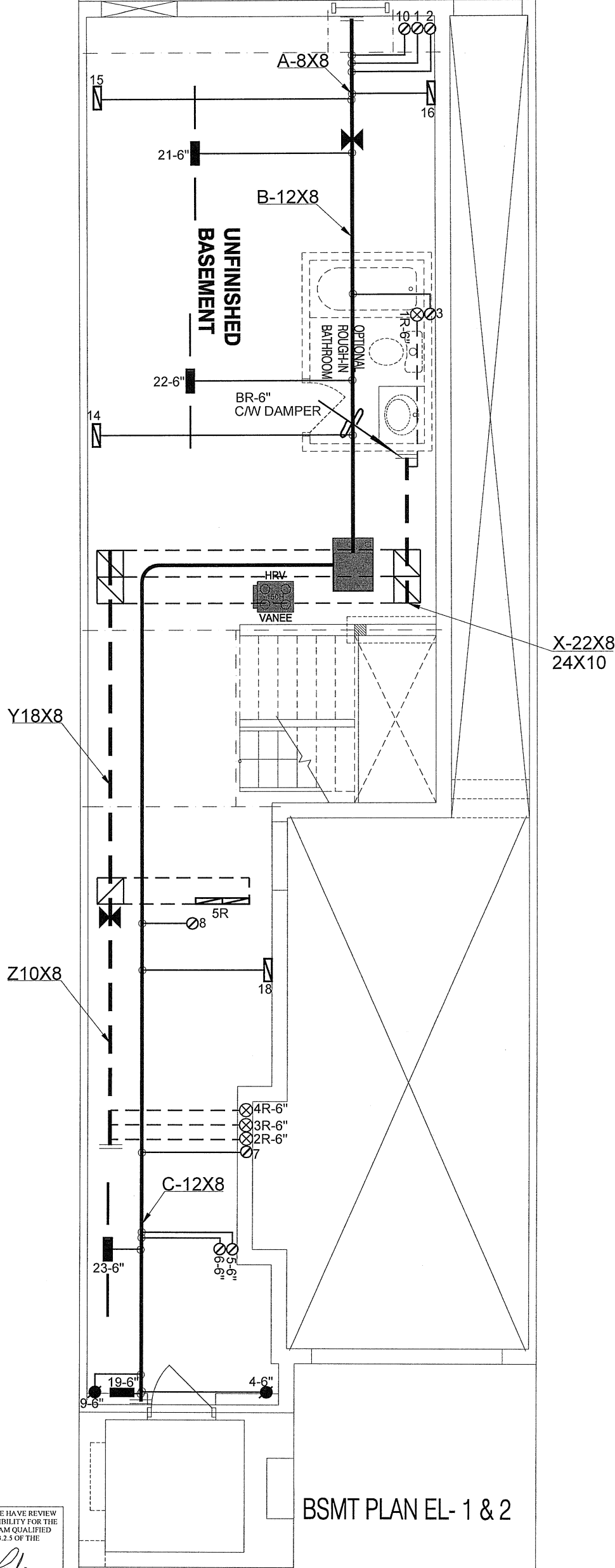
# Air Infiltration Residential Load Calculator

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 <sup>3</sup> ):	747.3			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	996.1 cm <sup>2</sup>		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	37.5	37.5		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.319			
Cooling Air Leakage Rate (ACH/H):	0.085			

TYPE: CHERRY 2  
LO# 98650













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.



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

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

CSA-F280-12  
PACKAGE A1

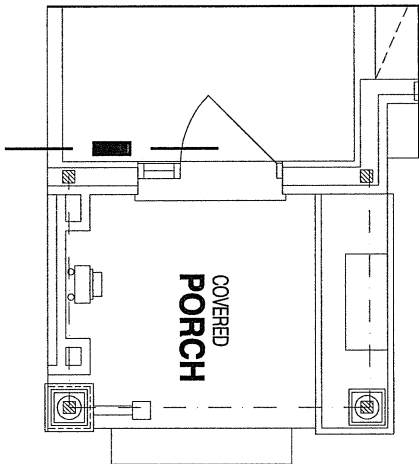
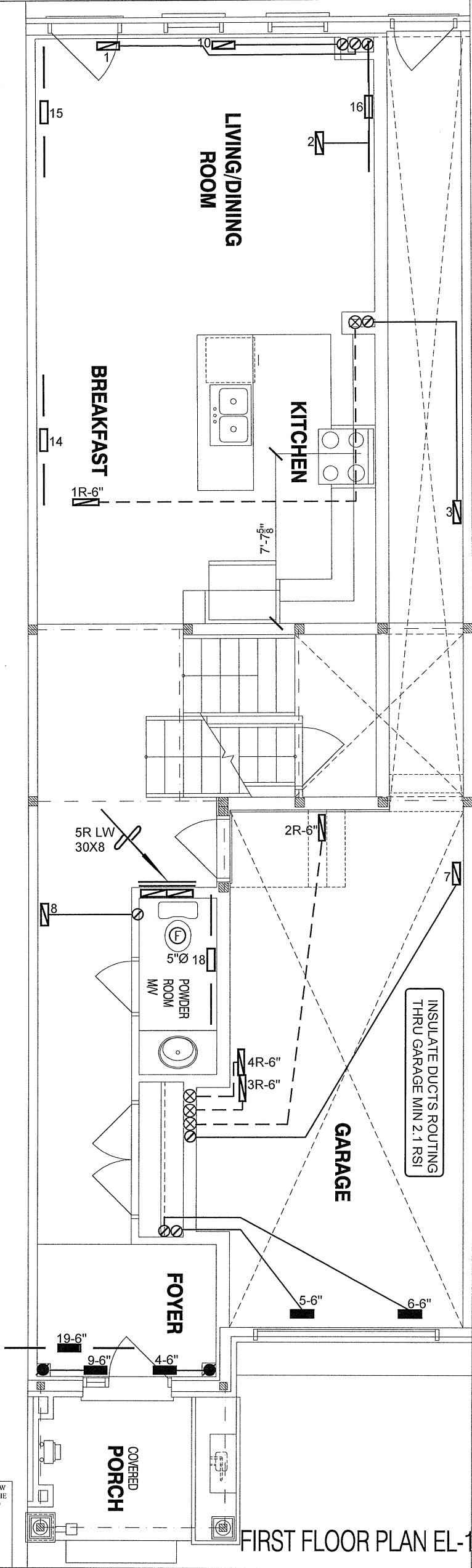
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR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

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

Client		<div><div><div>HVAC</div><div>DESIGNS LTD.</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>		HEAT LOSS 29381 BTU/H		# OF RUNS S/A R/A FANS				Sheet Title	
GREENPARK HOMES				UNIT DATA		3RD FLOOR				BASEMENT HEATING LAYOUT	
Project Name		MAKE		2ND FLOOR							
BARLASSINA CAMBRIDGE, ONTARIO		GOODMAN		9 4 3							
		MODEL		1ST FLOOR				Date			
Block 119 Units 31 to 36		GMEC960402BNA		5 1 2				AUG/2022			
CHERRY 2		INPUT		BASEMENT				Scale			
2030 sqft		40 MBTU/H		3 1 0				3/16" = 1'-0"			
		OUTPUT		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				BCIN# 19669			
		38.4 MBTU/H						LO#		98650	
		COOLING									
		1.5 TONS									
		FAN SPEED									
		695 cfm @ 0.6" w.c.									



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.



FIRST FLOOR PLAN EL-2

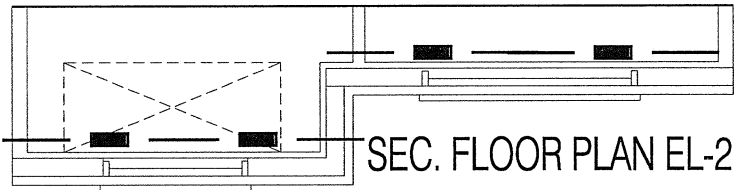
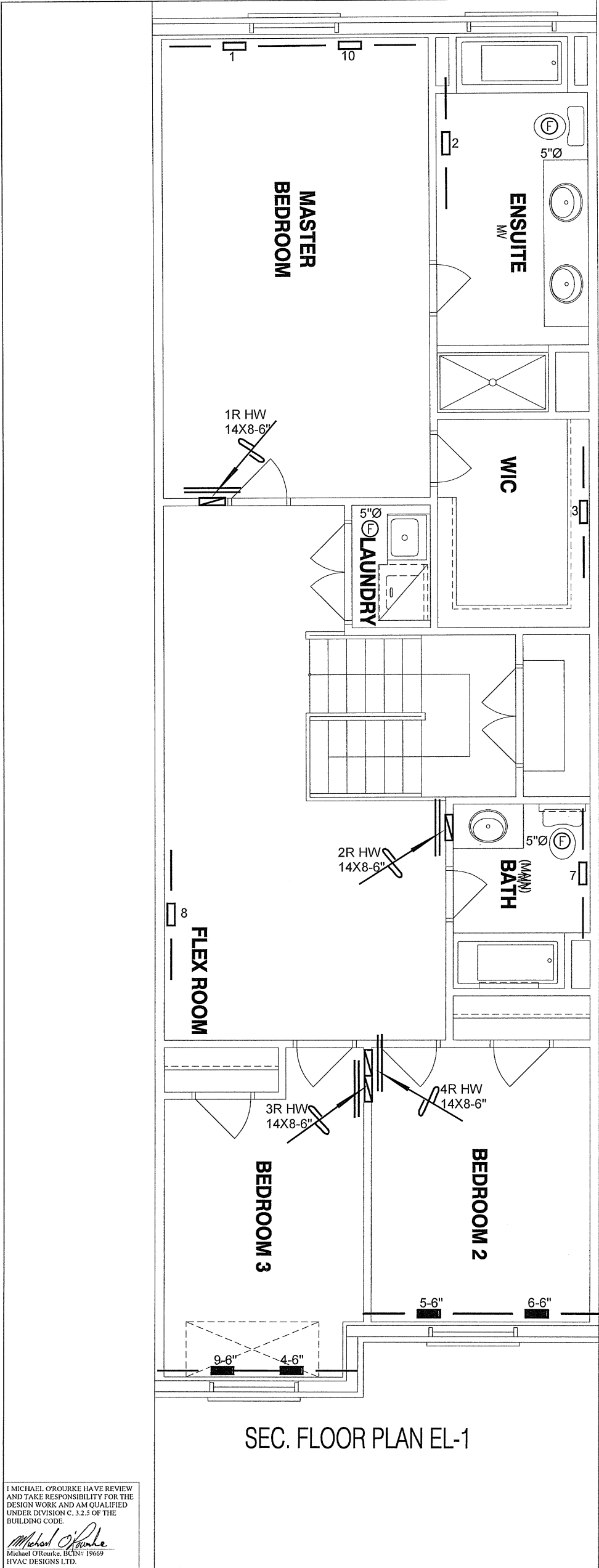
FIRST FLOOR PLAN EL-1

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		

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

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			Date	AUG/2022
BARLASSINA CAMBRIDGE, ONTARIO			Scale	3/16" = 1'-0"
Block 119 Units 31 to 36			BCIN# 19669	
CHERRY 2	2030 sqft		LO#	98650



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.

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*  
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		

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

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			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	AUG/2022
BARLASSINA CAMBRIDGE, ONTARIO			Scale	3/16" = 1'-0"
Block 119 Units 31 to 36			BCIN# 19669	
CHERRY 2	2030 sqft		LO#	98650