

SITE NAME: BARLASSINA

BUILDER: GREENPARK HOMES

TYPE: CHERRY 12

GFA: 2354

DATE: Aug-22

LO# 98652

WINTER NATURAL AIR CHANGE RATE 0.319

SUMMER NATURAL AIR CHANGE RATE 0.085

HEAT LOSS AT °F. 72

HEAT GAIN AT °F 9

CSA-F280-12

SR-12 PACKAGE A1

OWNER: GREEN PARK HOMES						TYPE: CHERRY 12						GFA: 2354						LO# 98652						SUMMER NATURAL AIR CHANGE RATE 0.085						HEAT GAIN AT °F.		9		SB-12 PACKAGE A	
ROOM USE				MBR		ENS		BED-2		BED-3		BED-4		BATH								ENS-3													
EXP. WALL				13		21		11		37		14		9								11													
CLG. HT.				9		9		9		9		9		9								9													
FACTORS																																			
GRS.WALL AREA		LOSS GAIN		117		189		99		333		126		81								99													
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	0	0	0								
EAST		20.3	40.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
SOUTH		20.3	23.9	0	0	0	12	243	287	30	608	1216	25	507	1014	0	0	0	0	0	0	0	0	0	0	0	0								
WEST		20.3	40.5	24	487	973	10	203	405	0	0	0	24	487	573	12	243	287	12	243	287	24	487	573	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									
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									
NET EXPOSED WALL		4.3	0.5	93	395	50	167	710	90	69	293	37	284	1207	153	114	485	62	69	293	37	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	75	319	41	0	0									
EXPOSED CLG		1.2	0.5	390	477	205	108	132	57	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	184	225	97	231	282	122	156	191	82	99	121	52	120	147	63	0	0									
EXPOSED FLOOR		2.4	0.3	0	0	0	0	0	0	24	63	27	0	0	0	0	0	0	0	0	0	12	31	14	0	0									
BASEMENT/CRAWL HEAT LOSS				0		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		0									
SUBTOTAL HT LOSS				1359		1288		1636		2629		919		658								984		691											
SUB TOTAL HT GAIN						1229		839		1434		1881		430		376																			
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											
AIR CHANGE HEAT LOSS				371		351		446		717		251		179								268		29											
AIR CHANGE HEAT GAIN				51		35		60		79		18		16																					
DUCT LOSS				0		0		208		335		0		0								0		29											
DUCT GAIN				0		0		222		268		0		0								0		0											
HEAT GAIN PEOPLE		240		2		480	0	0	1	240	1	240	1	240	1	240	0	0	0	0	0	0	0	0	0	0	0								
HEAT GAIN APPLIANCES/LIGHTS				481		0		481		481		481		481		481		481		481		0		0		0									
TOTAL HT LOSS BTU/H				1729		1639		2291		3681		1169		837								1252		935											
TOTAL HT GAIN x 1.3 BTU/H				2913		1137		3168		3833		1520		509																					

ROOM USE		EXP. WALL		CLG. HT.		FACTORS		GRS.WALL AREA		GLAZING		NORTH		EAST		SOUTH		WEST		SKYL.T.		DOORS		NET EXPOSED WALL		NET EXPOSED BSMT WALL ABOVE GR		EXPOSED CLG		NO ATTIC EXPOSED CLG		EXPOSED FLOOR		BASEMENT/CRAWL HEAT LOSS		SLAB ON GRADE HEAT LOSS		SUBTOTAL HT LOSS		SUB TOTAL HT GAIN		LEVEL FACTOR / MULTIPLIER		AIR CHANGE HEAT LOSS		AIR CHANGE DUCT GAIN		DUCT LOSS		DUCT GAIN		HEAT GAIN PEOPLE		HEAT GAIN APPLIANCES/LIGHTS		TOTAL HT LOSS BTU/H		TOTAL HT GAIN x 1.3 BTU/H		BAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
						LIB		DIN		KT/FM		LAUN		PWD		FOY																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										</	

TOTAL HEAT GAIN BTU/H:

28814

TONS: 2.40

LOSS DUE TO VENTILATION LOAD BTU/H: 1554

STRUCTURAL HEAT LOSS: 39793

TOTAL COMBINED HEAT LOSS BTU/H: 41347

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

SITE NAME: BARLASSINA
BUILDER: GREENPARK HOMES

TYPE: CHERRY 12

DATE: Aug-22

GFA: 2354

LO# 98652

HEATING CFM 928 COOLING CFM 928
TOTAL HEAT LOSS 39,793 TOTAL HEAT GAIN 28,616
AIR FLOW RATE CFM 23.32 AIR FLOW RATE CFM 32.43

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

#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.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	11	8	3
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	12	13	14	15	16	17	18	19	21	22	23
ROOM NAME	MBR	ENS	BED-2	BED-2	BED-3	BED-4	BATH	BED-3	LIB	MBR	ENS-3	LIB	DIN	KT/FM	KT/FM	KT/FM	LAUN	PWD	FOY	BAS	BAS	BAS
RM LOSS MBH.	0.86	1.64	1.15	1.15	1.84	1.17	0.84	1.84	1.59	0.86	1.25	1.59	2.32	1.71	1.71	1.71	0.21	0.69	2.86	4.27	4.27	4.27
CFM PER RUN HEAT	20	38	27	27	43	27	20	43	37	20	29	37	54	40	40	40	5	16	67	100	100	100
RM GAIN MBH.	1.46	1.14	1.58	1.58	1.92	1.52	0.51	1.92	1.50	1.46	0.94	1.50	1.87	2.11	2.11	2.11	0.74	0.52	0.64	0.50	0.50	0.50
CFM PER RUN COOLING	47	37	51	51	62	49	17	62	49	47	30	49	61	69	69	69	24	17	21	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	0.17	0.17	0.17	0.16	0.16	0.16
ACTUAL DUCT LGH.	35	43	57	60	64	35	42	54	52	36	37	44	27	27	29	21	46	39	26	29	16	39
EQUIVALENT LENGTH	150	200	180	120	180	140	150	160	130	160	150	130	140	80	130	110	130	110	140	130	120	140
TOTAL EFFECTIVE LENGTH	185	243	237	180	244	175	192	214	182	196	187	174	167	107	159	131	176	149	166	159	136	179
ADJUSTED PRESSURE	0.09	0.07	0.07	0.1	0.07	0.1	0.09	0.08	0.09	0.09	0.09	0.1	0.1	0.16	0.11	0.13	0.1	0.12	0.1	0.1	0.12	0.09
ROUND DUCT SIZE	5	4	5	5	6	6	4	6	5	5	4	5	5	5	5	5	4	4	5	6	6	6
HEATING VELOCITY (ft/min)	147	436	198	198	219	138	229	219	272	147	333	272	396	294	294	294	57	184	492	510	510	510
COOLING VELOCITY (ft/min)	345	424	374	374	316	250	195	316	360	345	344	360	448	507	507	507	275	195	154	82	82	82
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10
TRUNK	C	D	A	B	A	D	D	A	A	C	B	A	B	D	C	C	B	B	B	C	D	A

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	0.86	20	1.46	47	0.17	35	150	185	0.09	5	147	345	3X10	C
2	ENS	1.64	38	1.14	37	0.17	43	200	243	0.07	4	436	424	3X10	D
3	BED-2	1.15	27	1.58	51	0.17	57	180	237	0.07	5	198	374	3X10	A
4	BED-2	1.15	27	1.58	51	0.17	60	120	180	0.1	5	198	374	3X10	B
5	BED-3	1.84	43	1.92	62	0.17	64	180	244	0.07	6	219	316	4X10	A
6	BED-4	1.17	27	1.52	49	0.17	35	140	175	0.1	6	138	250	4X10	D
7	BATH	0.84	20	0.51	17	0.17	42	150	192	0.09	4	229	195	3X10	D
8	BED-3	1.84	43	1.92	62	0.17	54	160	214	0.08	6	219	316	4X10	A
9	LIB	1.59	37	1.50	49	0.17	52	130	182	0.09	5	272	360	3X10	A
10	MBR	0.86	20	1.46	47	0.17	36	160	196	0.09	5	147	345	3X10	C
11	ENS-3	1.25	29	0.94	30	0.17	37	150	187	0.09	4	333	344	3X10	B
12	LIB	1.59	37	1.50	49	0.17	44	130	174	0.1	5	272	360	3X10	A
13	DIN	2.32	54	1.87	61	0.17	27	140	167	0.1	5	396	448	3X10	B
14	KT/FM	1.71	40	2.11	69	0.17	27	80	107	0.16	5	294	507	3X10	D
15	KT/FM	1.71	40	2.11	69	0.17	29	130	159	0.11	5	294	507	3X10	C
16	KT/FM	1.71	40	2.11	69	0.17	21	110	131	0.13	5	294	507	3X10	C
17	LAUN	0.21	5	0.74	24	0.17	46	130	176	0.1	4	57	275	3X10	B
18	PWD	0.69	16	0.52	17	0.17	39	110	149	0.12	4	184	195	3X10	B
19	FOY	2.86	67	0.64	21	0.17	26	140	166	0.1	5	492	154	3X10	B
21	BAS	4.27	100	0.50	16	0.16	29	130	159	0.1	6	510	82	4X10	C
22	BAS	4.27	100	0.50	16	0.16	16	120	136	0.12	6	510	82	4X10	D
23	BAS	4.27	100	0.50	16	0.16	39	140	179	0.09	6	510	82	4X10	A

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	287	0.07	9.1	10	x	8	517	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0		
TRUNK B	485	0.07	11.1	14	x	8	624	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0		
TRUNK C	220	0.09	7.7	8	x	8	495	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0		
TRUNK D	445	0.07	10.7	14	x	8	572	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		
RETURN AIR #	1	2	3	4	5	6									BR	TRUNK X	928	0.05	15.3	28	x	8	597		
AIR VOLUME	135	95	85	75	75	360	0	0	0	0	0	0	0	0	103	TRUNK Y	615	0.05	13.1	20	x	8	554		
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	TRUNK Z	255	0.05	9.5	10	x	8	459		
ACTUAL DUCT LGH.	45	36	64	68	69	38	1	1	1	1	1	1	1	1	14	DROP	928	0.05	15.3	24	x	10	557		
EQUIVALENT LENGTH	175	140	195	235	240	150	0	0	0	0	0	0	0	0	180										
TOTAL EFFECTIVE LH	220	176	259	303	309	188	1	1	1	1	1	1	1	1	194										
ADJUSTED PRESSURE	0.07	0.08	0.06	0.05	0.05	0.08	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.08										
ROUND DUCT SIZE	6.8	5.8	6	6	6	9.6	0	0	0	0	0	0	0	0	6										
INLET GRILL SIZE	8	8	8	8	8	8	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	14	30	0	0	0	0	0	0	0	0	14										

TYPE: CHERRY 12
SITE NAME: BARLASSINA

LO # 98652

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: VANE 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
BATH	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-3	BY INSTALLING CONTRACTOR	50	☒	3.5
PWD	BY INSTALLING CONTRACTOR	50	☒	3.5

HEAT RECOVERY VENTILATOR 9.32.3.11.

Model: VANE 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#: 98652		Model: CHERRY 12		Date: 2022-08-30																																																								
Builder: GREENPARK HOMES																																																												
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>1054</td> <td>9</td> <td>9486</td> </tr> <tr> <td>First</td> <td>1054</td> <td>10</td> <td>10540</td> </tr> <tr> <td>Second</td> <td>1300</td> <td>9</td> <td>11700</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>31,726.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>898.4 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)	Bsmt	1054	9	9486	First	1054	10	10540	Second	1300	9	11700	Third	0	9	0	Fourth	0	9	0	Total:			31,726.0 ft ³	Total:			898.4 m ³	<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
Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)																																																									
Bsmt	1054	9	9486																																																									
First	1054	10	10540																																																									
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Third	0	9	0																																																									
Fourth	0	9	0																																																									
Total:			31,726.0 ft ³																																																									
Total:			898.4 m ³																																																									
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																																																								
5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.319 x 249.55 x 40 °C x 1.2 = 3847 W = 13127 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.085 x 249.55 x 5 °C x 1.2 = 129 W = 442 Btu/h																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to 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			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 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	13,127	6,251	1.050																																																								
2	0.3		10,228	0.385																																																								
3	0.2		9,625	0.273																																																								
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 																																																								

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** CHERRY 12**BUILDER:** GREENPARK HOMES**SFQT:** 2354**LO#** 98652**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 (ft ³):	31726.0	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:	6.0 ft
LENGTH: 57.0 ft	WIDTH: 25.0 ft	EXPOSED PERIMETER:	132.0 ft

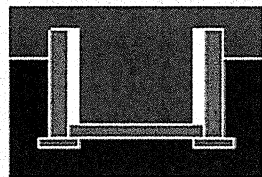
2012 OBC - COMPLIANCE PACKAGE

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'ROURKENOT THE GRANTING OF A PERMIT NOR REVIEWING OF SPECS
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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):	17.4	 Insulation Configuration
Floor Width (m):	7.6	
Exposed Perimeter (m):	40.2	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.1	
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):		1250

TYPE: CHERRY 12
LO# 98652NOT THE GRANTING OF A PERMIT NOR REVIEWING OF SPECS
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Michael O'Rourke BCIN #19669

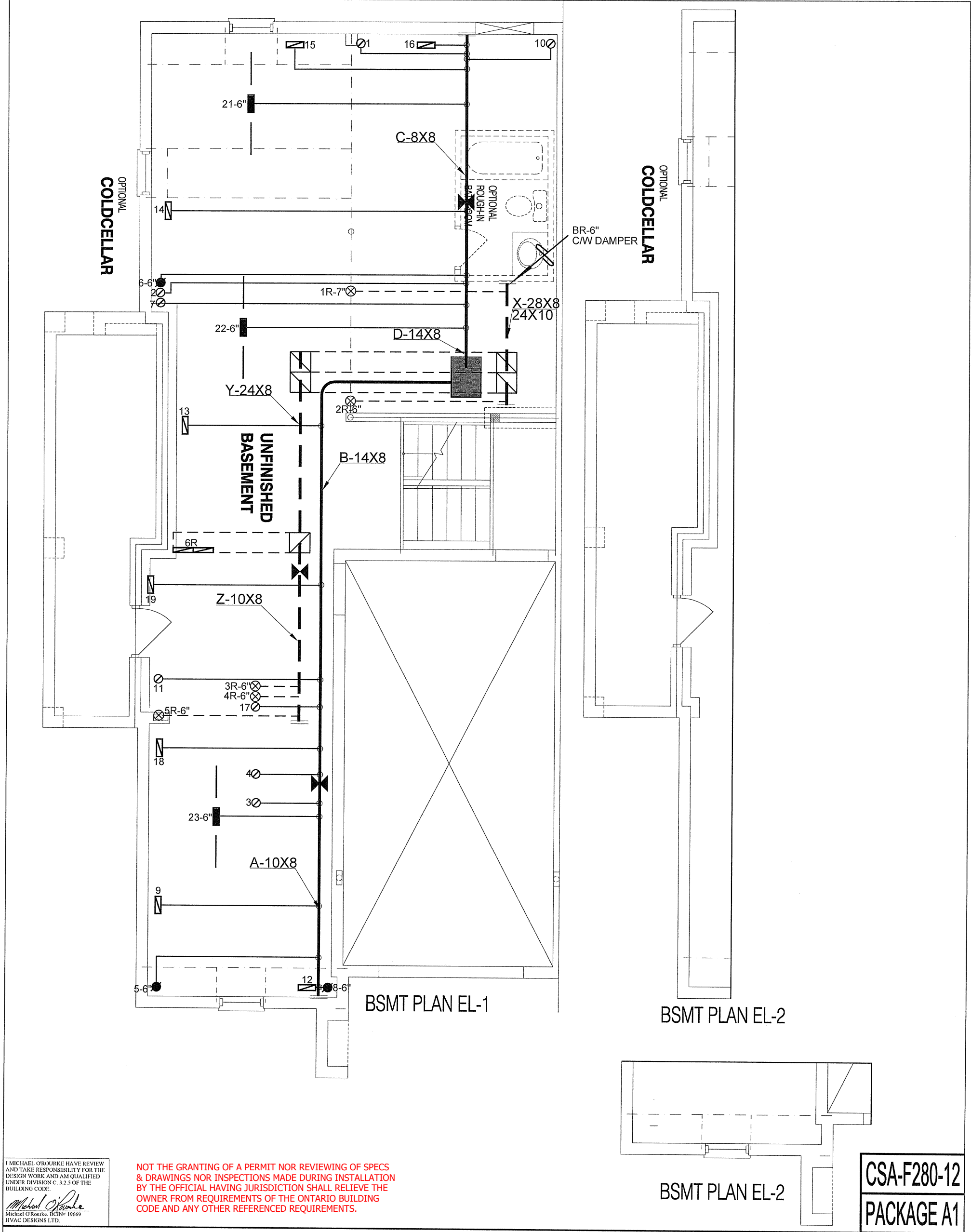


Air Infiltration Residential Load Calculator

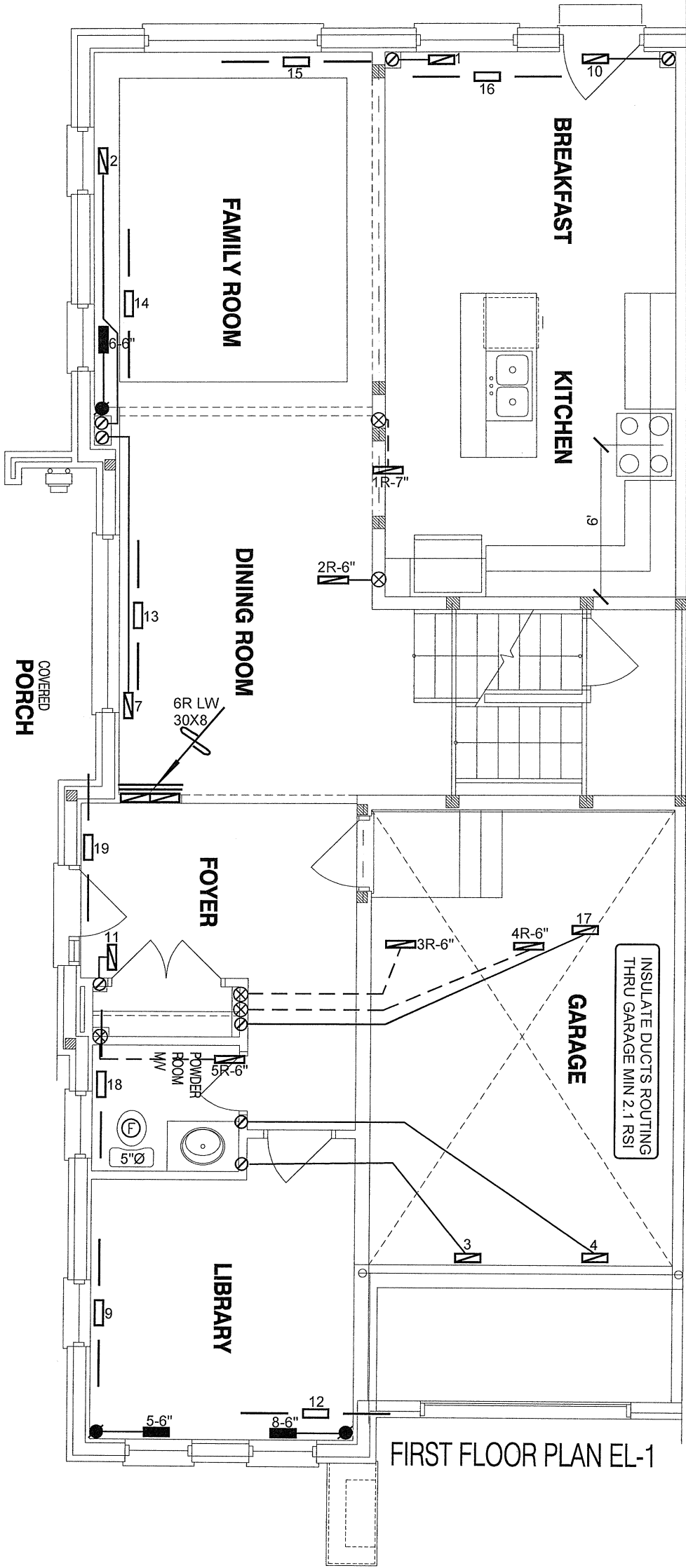
Supplemental tool for CAN/CSA-F280

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):	898.4			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa. 3.57	1197.6 cm ² 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):		0.319		
Cooling Air Leakage Rate (ACH/H):		0.085		

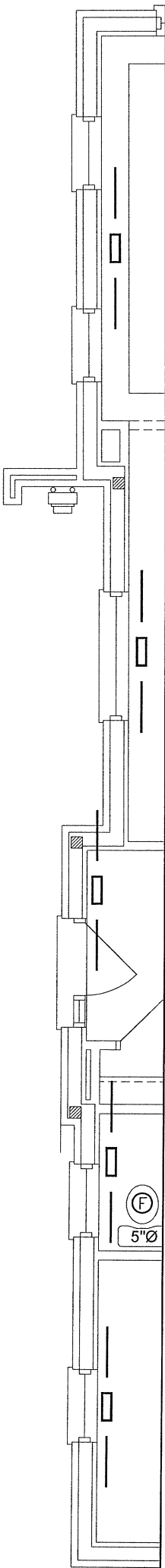
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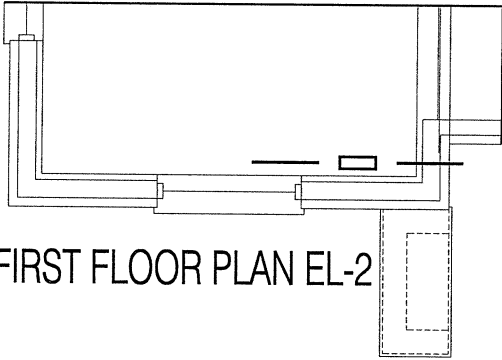
MICHAEL O'ROURKE HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.  Michael O'Rourke, BCIN# 19669 HVAC DESIGNS LTD.		NOT THE GRANTING OF A PERMIT NOR REVIEWING OF SPECS & DRAWINGS NOR INSPECTIONS MADE DURING INSTALLATION BY THE OFFICIAL HAVING JURISDICTION SHALL RELIEVE THE OWNER FROM REQUIREMENTS OF THE ONTARIO BUILDING CODE AND ANY OTHER REFERENCED REQUIREMENTS.		BSMT PLAN EL-2 		CSA-F280-12 PACKAGE A1																																			
HVAC LEGEND <table><tr><td>SYMBOL</td><td>DESCRIPTION</td><td>SYMBOL</td><td>DESCRIPTION</td><td>SYMBOL</td><td>DESCRIPTION</td><td>SYMBOL</td><td>DESCRIPTION</td></tr><tr><td></td><td>SUPPLY AIR GRILLE</td><td></td><td>6" SUPPLY AIR BOOT ABOVE</td><td></td><td>14"x8" RETURN AIR GRILLE</td><td></td><td>RETURN AIR STACK ABOVE</td></tr><tr><td></td><td>SUPPLY AIR GRILLE 6" BOOT</td><td></td><td>SUPPLY AIR STACK FROM 2nd FLOOR</td><td></td><td>30"x8" RETURN AIR GRILLE</td><td></td><td>RETURN AIR STACK 2nd FLOOR</td></tr><tr><td></td><td>SUPPLY AIR BOOT ABOVE</td><td></td><td>6" SUPPLY AIR STACK 2nd FLOOR</td><td></td><td>FRA- FLOOR RETURN AIR GRILLE</td><td></td><td>REDUCER</td></tr></table>								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	3. 2. 1. No. Description Date	
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Client GREENPARK HOMES Project Name BARLASSINA CAMBRIDGE, ONTARIO Block 120 Units 19 to 24 CHERRY 12 2354 sqft		 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 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 41347 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 <table><tr><td>3RD FLOOR</td><td></td><td></td><td></td></tr><tr><td>2ND FLOOR</td><td>11</td><td>5</td><td>4</td></tr><tr><td>1ST FLOOR</td><td>8</td><td>1</td><td>2</td></tr><tr><td>BASEMENT</td><td>3</td><td>1</td><td>0</td></tr></table> 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		3RD FLOOR				2ND FLOOR	11	5	4	1ST FLOOR	8	1	2	BASEMENT	3	1	0	Sheet Title BASEMENT HEATING LAYOUT Date AUG/2022 Scale 3/16" = 1'-0" BCIN# 19669 LO# 98652																	
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FIRST FLOOR PLAN EL-1



FIRST FLOOR PLAN EL-2



FIRST FLOOR PLAN EL-2

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

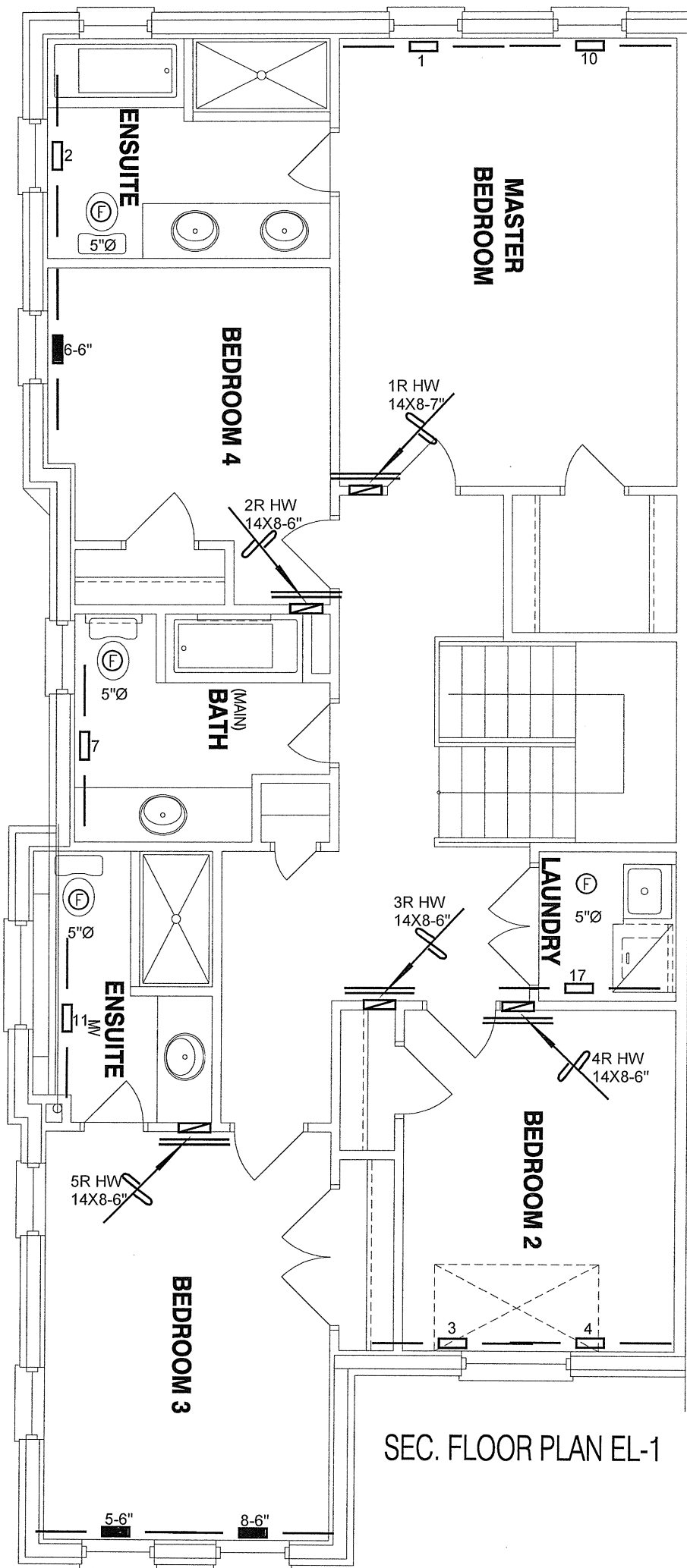
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CSA-F280-12
PACKAGE A1

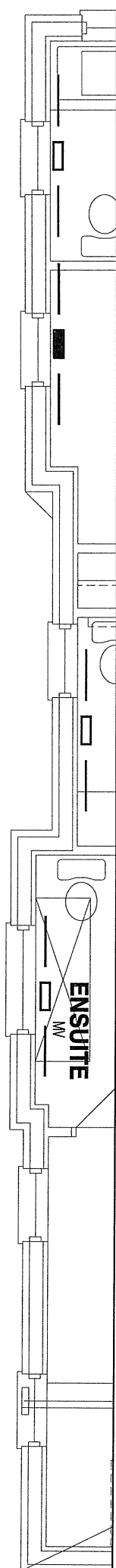
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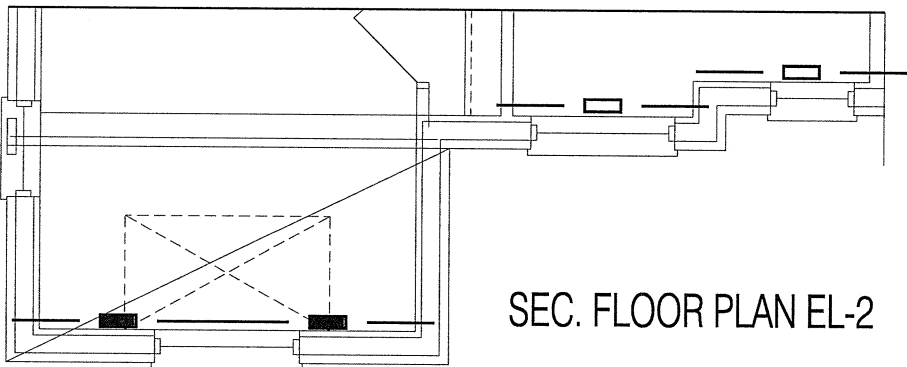
Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets 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	
GREENPARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name BARLASSINA CAMBRIDGE, ONTARIO			Date	AUG/2022
Block 120 Units 19 to 24			Scale	3/16" = 1'-0"
CHERRY 12 2354 sqft			BCIN# 19669	
			LO#	98652



SEC. FLOOR PLAN EL-1



SEC. FLOOR PLAN EL-2



SEC. FLOOR PLAN EL-2

CSA-F280-12
PACKAGE A1

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

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GREENPARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name BARLASSINA CAMBRIDGE, ONTARIO			Date	AUG/2022
Block 120 Units 19 to 24			Scale	3/16" = 1'-0"
CHERRY 12			BCIN# 19669	
2354 sqft			LO#	98652