

CORPORATION OF THE CITY OF OSHAWA

TRUE COPY
OF PERMIT PLANS

Nov 04 2023

MHP 23025

SITE NAME: ZADORRA ESTATES INC

BUILDER: GREENPARK HOMES

PER:

CHIEF BUILDING OFFICIAL

TYPE: RIVER 6

GFA: 2615

DATE: May-23

LO# 101238

WINTER NATURAL AIR CHANGE RATE 0.340

SUMMER NATURAL AIR CHANGE RATE 0.094

HEAT LOSS ΔT °F. 74

HEAT GAIN ΔT °F. 11

CSA-F280-12

SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	BED-2	BED-3	BED-4	BATH	ENS-3
			40	22	30	32	22	12	15
			9	9	9	9	9	9	9
FACTORS									
GRS.WALL AREA	LOSS	GAIN	364	200	273	291	200	109	137
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	20.8	15.5	0	0	0	0	0	0	0
EAST	20.8	41.0	0	0	0	0	0	0	0
SOUTH	20.8	24.4	0	0	0	0	0	0	0
WEST	20.8	41.0	22	457	903	9	187	369	15
SKYLT.	36.4	100.7	0	0	0	0	0	0	312
DOORS	19.6	2.9	0	0	0	0	0	0	366
NET EXPOSED WALL	4.4	0.6	342	1490	221	182	794	118	122
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	529
EXPOSED CLG	1.3	0.6	356	446	198	123	154	69	78
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0	0	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			2393	1322	1322	2545	2296	1542	969
SUB TOTAL HT GAIN						1499	2002	822	501
LEVEL FACTOR / MULTIPLIER	0.20	0.27	0.20	0.27	0.20	0.27	0.20	0.27	0.20
AIR CHANGE HEAT LOSS			635	351	676	610	409	189	257
AIR CHANGE HEAT GAIN			81	48	92	123	50	9	31
DUCT LOSS			0	0	322	0	0	90	0
DUCT GAIN			0	0	240	0	0	16	0
HEAT GAIN PEOPLE	240	2	480	0	1	240	1	240	0
HEAT GAIN APPLIANCES/LIGHTS			571	0	571	571	571	0	0
TOTAL HT LOSS BTU/H			3029	1673	3542	2906	1951	991	1226
TOTAL HT GAIN x 1.3 BTU/H			3190	1070	3434	3816	2188	226	692

ROOM USE	EXP. WALL	CLG. HT.	DN/MD	FAM	KT/BF	LIV/DIN	LAUN	PWD	FOY	WOD	BAS
			15	31	37	41	18	13	17	34	174
			10	10	10	10	10	10	10	8	8
FACTORS											
GRS.WALL AREA	LOSS	GAIN	149	307	366	406	178	129	168	282	1024
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	LOSS	GAIN
NORTH	20.8	15.5	0	0	0	0	0	0	0	0	0
EAST	20.8	41.0	0	0	0	0	0	0	0	0	0
SOUTH	20.8	24.4	15	312	366	0	0	0	0	0	0
WEST	20.8	41.0	0	0	0	33	686	1355	33	686	1355
SKYLT.	36.4	100.7	0	0	0	0	0	0	0	0	0
DOORS	19.6	2.9	0	0	0	10	196	29	0	0	0
NET EXPOSED WALL	4.4	0.6	134	582	86	274	1193	177	323	1409	209
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			893	1879	2290	2261	1096	774	1442	820	7768
SUB TOTAL HT GAIN						1592	975	162	608	349	524
LEVEL FACTOR / MULTIPLIER	0.30	0.44	0.30	0.44	0.30	0.44	0.30	0.44	0.30	0.44	0.50
AIR CHANGE HEAT LOSS			394	829	1010	997	483	342	636	60	7819
AIR CHANGE HEAT GAIN			28	94	98	60	10	37	60	0	54
DUCT LOSS			0	0	0	0	0	0	0	0	0
DUCT GAIN			0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS			571	571	571	571	571	571	0	0	571
TOTAL HT LOSS BTU/H			1287	2708	3300	3258	1580	1116	2078	820	15587
TOTAL HT GAIN x 1.3 BTU/H			1366	2855	2939	2087	966	839	1343	454	1492

TOTAL HEAT GAIN BTU/H:

29192

TONS: 2.43

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

STRUCTURAL HEAT LOSS: 47054

TOTAL COMBINED HEAT LOSS BTU/H: 48646

Michael O'Rourke

Nov 04 2023

MHP 23025

SITE NAME: ZADORRA ESTATES IN
BUILDER: GREENPARK HOMES

TYPE: RIVER 6

DATE: May-23

GFA: 2615

LO# 101238

HEATING CFM 928 COOLING CFM 928
TOTAL HEAT LOSS 47,054 TOTAL HEAT GAIN 28,956
AIR FLOW RATE CFM 19.72 AIR FLOW RATE CFM 32.05

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

AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	11	9	4
R/A	0	0	5	2	1

plenum pressure s/a 0.18 r/a pressure 0.17
max s/a dif press. loss 0.02 r/a grille press. Loss 0.02
min adjusted pressure s/a 0.16 adjusted pressure r/a 0.15

MEDLOW 928
MEDIUM 1017
MEDIUM HIGH 1131
HIGH 1131

DESIGN CFM = 928
CFM @ .6" E.S.P.

TEMPERATURE RISE 57 °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	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	BATH	BED-2	BED-3	BED-4	BATH	BED-2	BED-3	MBR	ENS-3	DN/MD	FAM	KT/BF	KT/BF	LIV/DIN	LAUN	PWD	FOY	FAM	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.51	1.67	0.50	1.77	1.45	1.95	0.50	1.77	1.45	1.51	1.23	1.29	1.35	1.65	1.65	3.26	1.58	1.12	2.08	1.35	4.10	4.10	4.10	4.10
CFM PER RUN HEAT	30	33	10	35	29	38	10	35	29	30	24	25	27	33	33	64	31	22	41	27	81	81	81	81
RM GAIN MBH.	1.60	1.07	0.11	1.72	1.91	2.19	0.11	1.72	1.91	1.60	0.69	1.37	1.43	1.47	1.47	2.09	0.97	0.84	1.34	1.43	0.49	0.49	0.49	0.49
CFM PER RUN COOLING	51	34	4	55	61	70	4	55	61	51	22	44	46	47	47	67	31	27	43	46	16	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	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	62	57	1	61	63	35	17	65	65	56	57	20	39	36	41	37	6	53	47	24	37	20	22	42
EQUIVALENT LENGTH	220	210	140	160	140	150	140	180	180	190	190	110	120	100	160	100	80	130	110	100	100	100	120	90
TOTAL EFFECTIVE LENGTH	282	267	141	221	203	185	157	245	245	246	247	130	159	136	201	137	86	183	157	124	137	120	142	132
ADJUSTED PRESSURE	0.06	0.06	0.12	0.08	0.08	0.09	0.11	0.07	0.07	0.07	0.07	0.13	0.11	0.13	0.09	0.13	0.2	0.09	0.11	0.14	0.12	0.14	0.11	0.12
ROUND DUCT SIZE	5	5	4	5	5	6	4	5	5	5	4	4	4	4	5	5	4	4	4	4	5	5	5	5
HEATING VELOCITY (ft/min)	220	242	115	257	213	194	115	257	213	220	275	287	310	379	242	470	356	252	470	310	595	595	595	595
COOLING VELOCITY (ft/min)	374	250	46	404	448	357	46	404	448	374	252	505	528	539	345	492	356	310	493	528	117	117	117	117
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	C	C	B	A	A	D	E	A	A	C	B	B	C	C	C	B	E	A	A	C	D	D	D	B

RUN #	ROOM NAME	RM LOSS MBH.	CFM PER RUN HEAT	RM GAIN MBH.	CFM PER RUN COOLING	ADJUSTED PRESSURE	ACTUAL DUCT LGH.	EQUIVALENT LENGTH	TOTAL EFFECTIVE LENGTH	ADJUSTED PRESSURE	ROUND DUCT SIZE	HEATING VELOCITY (ft/min)	COOLING VELOCITY (ft/min)	OUTLET GRILL SIZE	TRUNK
1	MBR	1.51	30	1.60	51	0.17	62	220	282	0.06	5	220	374	3X10	C
2	ENS	1.67	33	1.07	34	0.17	57	210	267	0.06	5	242	250	3X10	C
3	BATH	0.50	10	0.11	4	0.17	1	140	141	0.12	4	115	46	3X10	B
4	BED-2	1.77	35	1.72	55	0.17	61	160	221	0.08	5	257	404	3X10	A
5	BED-3	1.45	29	1.91	61	0.17	63	140	203	0.08	5	213	448	3X10	A
6	BED-4	1.95	38	2.19	70	0.17	35	150	185	0.09	6	194	357	4X10	D
7	BATH	0.50	10	0.11	4	0.17	17	140	157	0.11	4	115	46	3X10	E
8	BED-2	1.77	35	1.72	55	0.17	65	180	245	0.07	5	257	404	3X10	A
9	BED-3	1.45	29	1.91	61	0.17	65	180	245	0.07	5	213	448	3X10	A
10	MBR	1.51	30	1.60	51	0.17	56	190	246	0.07	5	220	374	3X10	C
11	ENS-3	1.23	24	0.69	22	0.17	57	190	247	0.07	4	275	252	3X10	B
12	DN/MD	1.29	25	1.37	44	0.17	20	110	130	0.13	4	287	505	3X10	B
13	FAM	1.35	27	1.43	46	0.17	39	120	159	0.11	4	310	528	3X10	C
14	KT/BF	1.65	33	1.47	47	0.17	41	100	136	0.13	5	379	539	3X10	C
15	KT/BF	1.65	33	1.47	47	0.17	41	100	201	0.09	5	242	345	3X10	C
16	LIV/DIN	3.26	64	2.09	67	0.17	37	160	137	0.13	5	470	492	3X10	B
17	LAUN	1.58	31	0.97	31	0.17	6	80	86	0.2	4	356	356	3X10	E
18	PWD	1.12	22	0.84	27	0.17	53	130	157	0.09	4	252	310	3X10	A
19	FOY	2.08	41	1.34	43	0.17	47	110	124	0.11	4	470	493	3X10	A
20	FAM	1.35	27	1.43	46	0.17	24	100	137	0.14	4	310	528	3X10	C
21	BAS	4.10	81	0.49	16	0.16	37	100	137	0.12	5	595	117	3X10	D
22	BAS	4.10	81	0.49	16	0.16	20	100	120	0.14	5	595	117	3X10	D
23	BAS	4.10	81	0.49	16	0.16	22	120	142	0.11	5	595	117	3X10	D
24	BAS	4.10	81	0.49	16	0.16	42	90	132	0.12	5	595	117	3X10	B

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	191	0.07	7.8	8	x 8 430	TRUNK G	0	0.00	0	0 x 8 0
TRUNK B	395	0.07	10.2	14	x 8 508	TRUNK H	0	0.00	0	0 x 8 0
TRUNK C	213	0.06	8.4	10	x 8 383	TRUNK I	0	0.00	0	0 x 8 0
TRUNK D	494	0.06	11.6	16	x 8 556	TRUNK J	0	0.00	0	0 x 8 0
TRUNK E	930	0.06	14.7	26	x 8 644	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 #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	115	105	90	91	90	160	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	37	67	80	54	46	36	56	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	135	195	235	180	185	135	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	172	262	315	234	231	171	296	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.09	0.06	0.05	0.06	0.06	0.09	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	6	6.5	6.4	6	6	6.9	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

RETURN AIR TRUNK SIZE	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK O	0	0.05	0	0	x 8 0
TRUNK P	0	0.05	0	0	x 8 0
TRUNK Q	0	0.05	0	0	x 8 0
TRUNK R	0	0.05	0	0	x 8 0
TRUNK S	0	0.05	0	0	x 8 0
TRUNK T	0	0.05	0	0	x 8 0
TRUNK U	0	0.05	0	0	x 8 0
TRUNK V	0	0.05	0	0	x 8 0
TRUNK W	310	0.05	10.2	12	x 8 465
TRUNK X	928	0.05	15.3	28	x 8 597
TRUNK Y	160	0.05	7.9	8	x 8 360
TRUNK Z	491	0.05	12.1	18	x 8 491
DROP	928	0.05	15.3	24	x 10 557

Nov 04 2023

RESIDENTIAL MECHANICAL
CHIEF BUILDING OFFICIALTYPE: RIVER 6
SITE NAME: ZADORRA ESTATES I

MHP 23025

LO # 101238

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	<u>2</u> @ 21.2 cfm <u>42.4</u> cfm	
Other Bedrooms	<u>3</u> @ 10.6 cfm <u>31.8</u> cfm	
Kitchen & Bathrooms	<u>5</u> @ 10.6 cfm <u>53</u> cfm	
Other Rooms	<u>6</u> @ 10.6 cfm <u>63.6</u> cfm	
Table 9.32.3.A.	TOTAL <u>190.8</u> 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 <u>79.5</u> cfm		

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>190.8</u> cfm	
Less Principal Ventil. Capacity	<u>79.5</u> cfm	
Required Supplemental Capacity	<u>111.3</u> cfm	

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE V150H	Location: BSMT
<u>79.5</u> cfm	☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	ΔT °F	FACTOR	% LOSS	
79.5 CFM	X 74 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: VANEE V150H		
<u>150</u> cfm high	<u>35</u> cfm low	
<u>75</u> % 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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	May-23

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 101238	Model: RIVER 6	Builder: GREENPARK HOMES	Date: 2023-05-16																																																									
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>1189</td> <td>8</td> <td>9868.7</td> </tr> <tr> <td>First</td> <td>1189</td> <td>10</td> <td>11771.1</td> </tr> <tr> <td>Second</td> <td>1426</td> <td>9</td> <td>12976.6</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="2" style="text-align: right;">Total:</td> <td></td> <td>34,616.4 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>980.2 m³</td> </tr> </tbody> </table>		Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1189	8	9868.7	First	1189	10	11771.1	Second	1426	9	12976.6	Third	0	9	0	Fourth	0	9	0	Total:			34,616.4 ft³	Total:			980.2 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 30%;">0.340</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.094</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>-19</td> <td>41</td> <td>74</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>30</td> <td>6</td> <td>11</td> </tr> </table>			WINTER NATURAL AIR CHANGE RATE	0.340	SUMMER NATURAL AIR CHANGE RATE	0.094	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-19	41	74	Summer DTDc	24	30	6	11
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5.2.3.1 Heat Loss due to Air Leakage		6.2.6 Sensible Gain due to Air Leakage																																																										
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.340 x 272.29 x 41 °C x 1.2 = 4583 W = 15638 Btu/h		$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.094 x 272.29 x 6 °C x 1.2 = 187 W = 637 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 74 °F x 1.08 x 0.25 = 1593 Btu/h		$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 11 °F x 1.08 x 0.25 = 236 Btu/h																																																										
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																																								
1	0.5	15,638	8,588	0.910																																																								
2	0.3		10,636	0.441																																																								
3	0.2		11,779	0.266																																																								
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 																																																								

MAIN SUMMARY SHEET

MODEL: RIVER 6

SFQT: 2615

LO# 101238

BUILDER: GREENPARK HOMES

SITE: ZADORRA ESTATES INC

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-2	OUTDOOR DESIGN TEMP.	86
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75
		WINDOW SHGC	0.50

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	34616.4	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	5.3 ft
LENGTH: 63.0 ft	WIDTH: 24.0 ft	EXPOSED PERIMETER:	174.0 ft

2012 OBC - COMPLIANCE PACKAGE

Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	0.28	-
Skylights Maximum U-Value	0.49	-
Space Heating Equipment Minimum AFUE	96%	-
HRV/ERV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

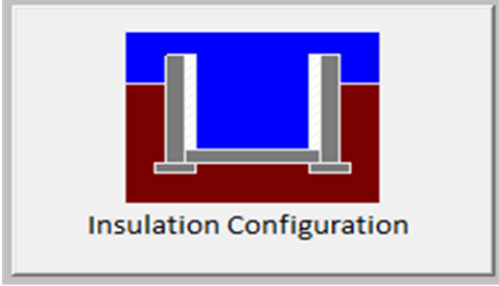
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

Michael O'Rourke

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Oshawa	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	19.2	 Insulation Configuration
Floor Width (m):	7.3	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.5	
Depth Below Grade (m):	1.62	
Window Area (m ²):	1.5	
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):		1662

TYPE: RIVER 6

LO# 101238

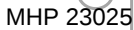
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Oshawa			
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):	7.62			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	980.2			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1306.7 cm ²		
	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):	0.340			
Cooling Air Leakage Rate (ACH/H):	0.094			

TYPE: RIVER 6

LO# 101238



PACKAGE A1

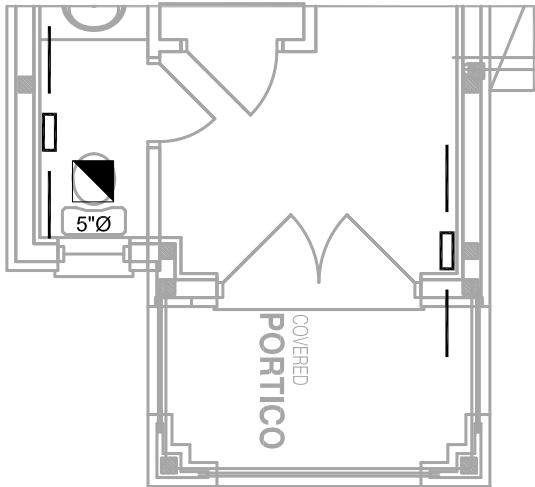
Sheet Title

BASEMENT
HEATING
LAYOUT

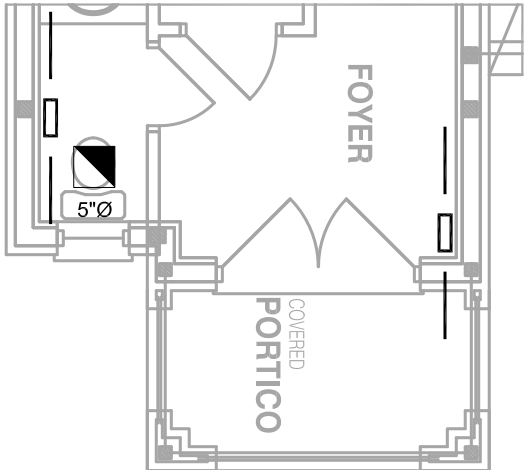
Date MAY/2023

BCIN# 19669

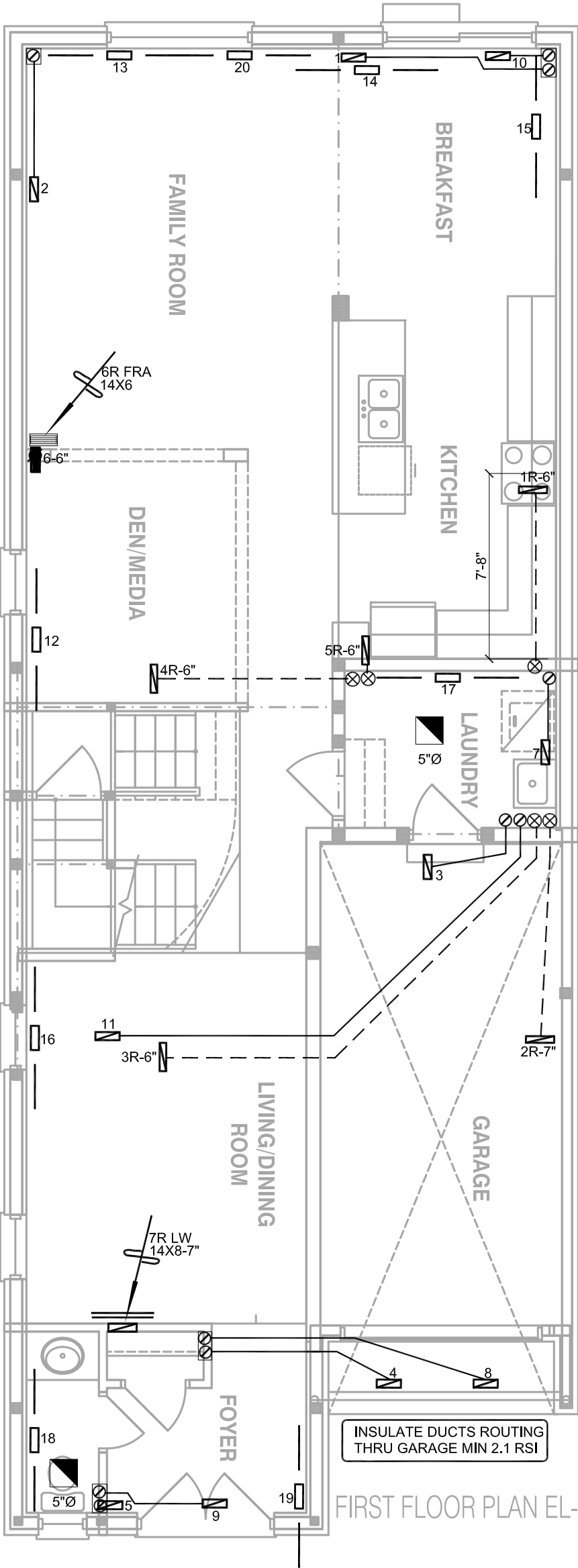
LO#	101238
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FIRST FLOOR PLAN EL-3

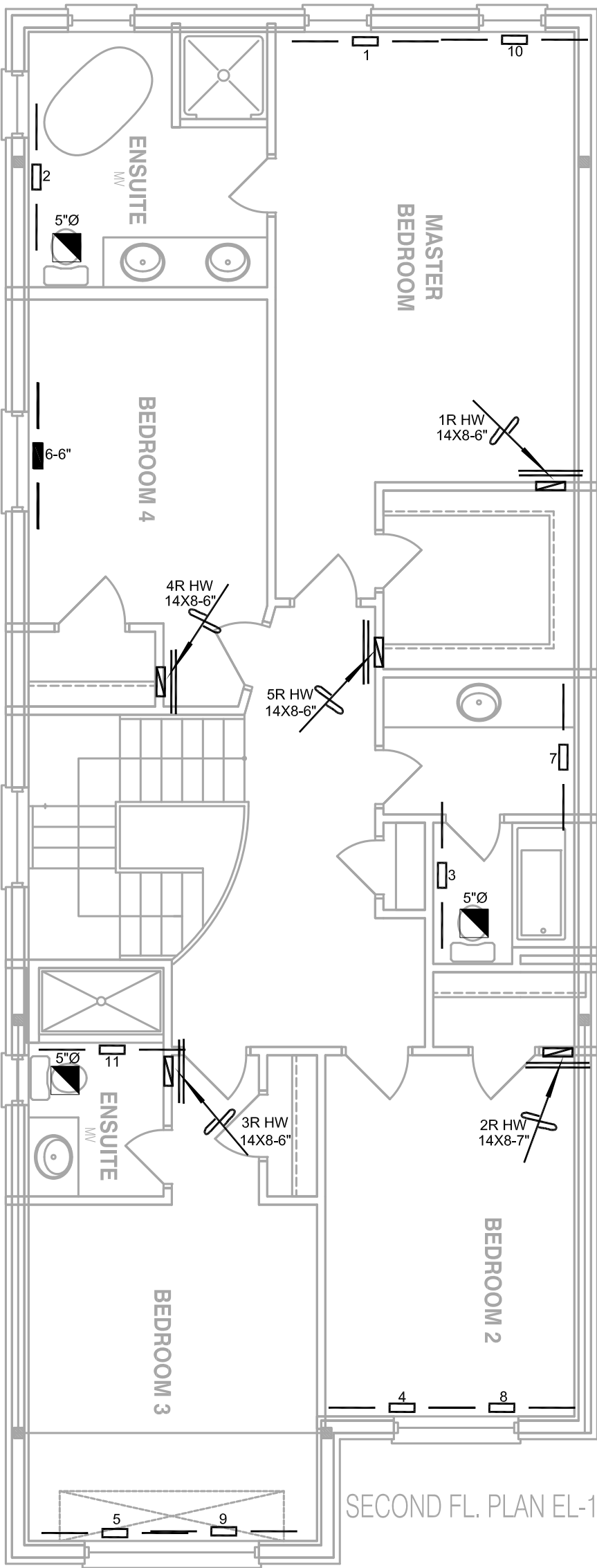
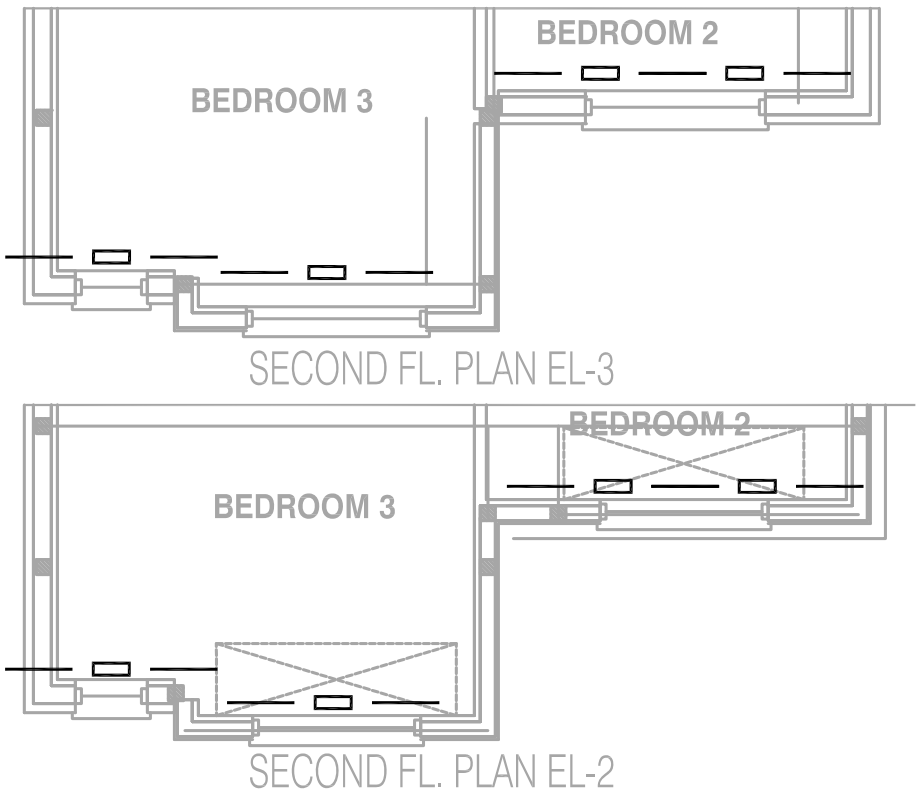


FIRST FLOOR PLAN EL-2



FIRST FLOOR PLAN EL-1

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.						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 BCIN # 19669 HVAC Designs Ltd.		PACKAGE A1	
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.				 Michael O'Rourke BCIN # 19669 HVAC Designs Ltd.				Sheet Title	
GREENPARK HOMES										FIRST FLOOR HEATING LAYOUT	
Project Name										Date MAY/2023	
ZADORRA ESTATES INC OSHAWA, ONTARIO										Scale 3/16" = 1'-0"	
RIVER 6		2615 sqft						BCIN# 19669		LO# 101238	



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Project Name								Date	
ZADORRA ESTATES INC OSHAWA, ONTARIO								MAY/2023	
						Scale		3/16" = 1'-0"	
								BCIN# 19669	
RIVER 6						LO#		101238	
2615 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.							