

CORPORATION OF THE CITY OF OSHAWA

TRUE COPY

OF PERMIT PLANS

Nov 04 2023

MHP 23024

SITE NAME: ZADORRA ESTATES INC

BUILDER: GREENPARK HOMES

TY

CHIEF BUILDING OFFICIAL

GFA: 2485

DATE: May-23

LO# 101255

WINTER NATURAL AIR CHANGE RATE 0.312

SUMMER NATURAL AIR CHANGE RATE 0.086

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-2	ENS-3	BED-2	BED-3	BED-4	ENS-3	S-ENS
			36	9	9	9	32	11	8	7
			9	9	9	9	9	9	9	9
FACTORS										
GRS.WALL AREA	LOSS	GAIN	324	216	54	225	288	99	72	63
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
NORTH	20.8	15.5	0	0	0	0	0	0	0	0
EAST	20.8	41.0	0	0	0	0	0	0	0	0
SOUTH	20.8	24.4	0	0	0	11	229	268	0	0
WEST	20.8	41.0	24	499	985	12	249	493	0	0
SKYLT.	36.4	100.7	0	0	0	0	0	0	0	0
DOORS	19.6	2.9	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.4	0.6	300	1307	194	193	841	125	54	235
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	214	268	119	166	208	93	100	125
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	10	27
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			2074		1527	361	2108	2005	849	579
SUB TOTAL HT GAIN				1298	978	91	1408	1513	447	296
LEVEL FACTOR / MULTIPLIER	0.20	0.25								
AIR CHANGE HEAT LOSS			521		384	91	530	504	213	146
AIR CHANGE HEAT GAIN				79	59	6	86	92	27	18
DUCT LOSS			0		0		264	0	0	0
DUCT GAIN			0		0		246	0	0	0
HEAT GAIN PEOPLE	240	2	480	0	0	0	1	240	1	240
HEAT GAIN APPLIANCES/LIGHTS			724		0		724	724	724	724
TOTAL HT LOSS BTU/H			2595		1910	451	2901	2509	1062	725
TOTAL HT GAIN x 1.3 BTU/H			3355		1349	125	3514	3339	1869	408

ROOM USE	EXP. WALL	CLG. HT.	L/D	FML	KT/BT	OFFICE	LAUN	PWD	FOY	MUD	BAS
			19	29	46	26	17	9	26	11	166
			10	10	10	10	9	10	10	10	9
FACTORS											
GRS.WALL AREA	LOSS	GAIN	190	290	460	260	153	90	260	110	996
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
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	21	436	862
SOUTH	20.8	24.4	24	499	585	0	0	0	0	0	0
WEST	20.8	41.0	0	0	0	29	603	1190	50	1039	2052
SKYLT.	36.4	100.7	0	0	0	0	0	0	0	0	0
DOORS	19.6	2.9	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.4	0.6	166	723	107	261	1137	169	410	1786	265
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	100	125	56
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	100	249	37
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			1222		1740	2825	1330	1041	523	1782	479
SUB TOTAL HT GAIN				693	1359	2317	453	191	248	1062	71
LEVEL FACTOR / MULTIPLIER	0.30	0.42									
AIR CHANGE HEAT LOSS			517		735	1194	562	262	221	753	203
AIR CHANGE HEAT GAIN				42	83	141	28	12	15	65	4
DUCT LOSS			0		0		0	130	0	0	0
DUCT GAIN			0		0		0	20	0	0	0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS			724		724		724	724	724	724	724
TOTAL HT LOSS BTU/H			1738		2475	4019	1892	1433	745	2535	682
TOTAL HT GAIN x 1.3 BTU/H			1896		2815	4136	1565	290	342	1464	1039

TOTAL HEAT GAIN BTU/H:

29804

TONS: 2.48

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

STRUCTURAL HEAT LOSS: 43095

TOTAL COMBINED HEAT LOSS BTU/H: 44688

Nov 04 2023

MHP 23024

SITE NAME: ZADORRA ESTATES INC
BUILDER: GREENPARK HOMES

DATE: May-23

GFA: 2485 LO# 101255

HEATING CFM 928 COOLING CFM 928
TOTAL HEAT LOSS 43,095 TOTAL HEAT GAIN 43,568
AIR FLOW RATE CFM 21.53 AIR FLOW RATE CFM 31.39

RIVER 5
pressure 0.6
face filter 0.05
coil pressure 0.2
available pressure
for s/a & r/a 0.35

#GOODMAN
GMCC960603BNA 60

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	8	4
R/A	0	0	5	3	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 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

FAN SPEED LOW
MEDLOW
MEDIUM 928
MEDIUM HIGH 1017
HIGH 1131

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

TEMPERATURE RISE 57 °F

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	WIC	BED-2	BED-3	BED-4	ENS-3	BED-2	BED-3	MBR	S-ENS	L/D	FML	KT/BT	KT/BT	OFFICE	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.30	1.91	0.45	1.45	1.25	1.06	0.72	1.45	1.25	1.30	0.70	1.74	2.48	2.01	2.01	1.89	1.43	0.74	2.54	0.68	3.68	3.68	3.68	3.68
CFM PER RUN HEAT	28	41	10	31	27	23	16	31	27	28	15	37	53	43	43	41	31	16	55	15	79	79	79	79
RM GAIN MBH.	1.68	1.35	0.12	1.76	1.67	1.87	0.41	1.76	1.67	1.68	0.41	1.90	2.81	2.07	2.07	1.57	0.29	0.34	1.46	1.04	0.41	0.41	0.41	0.41
CFM PER RUN COOLING	53	42	4	55	52	59	13	55	52	53	13	60	88	65	65	49	9	11	46	33	13	13	13	13
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	0.16	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.	42	39	12	55	61	52	58	59	69	35	42	21	21	17	24	36	66	45	44	30	16	13	21	44
EQUIVALENT LENGTH	140	180	190	180	170	170	140	190	170	120	140	150	130	90	110	100	210	150	120	150	140	150	140	130
TOTAL EFFECTIVE LENGTH	182	219	202	235	231	222	198	249	239	155	182	171	151	107	134	136	276	195	164	180	156	163	161	174
ADJUSTED PRESSURE	0.09	0.08	0.09	0.07	0.07	0.08	0.09	0.07	0.07	0.11	0.09	0.1	0.11	0.16	0.13	0.13	0.06	0.09	0.1	0.1	0.11	0.11	0.11	0.1
ROUND DUCT SIZE	5	4	4	5	5	5	4	5	5	5	4	5	6	5	5	4	4	4	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	206	470	115	228	198	169	184	228	198	206	172	272	270	316	316	470	356	184	404	172	580	580	580	580
COOLING VELOCITY (ft/min)	389	482	46	404	382	433	149	404	382	389	149	441	449	477	477	562	103	126	338	379	95	95	95	95
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	C	C	B	A	A	B	B	A	A	C	B	B	C	C	C	B	A	A	A	B	C	C	B	A

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	WIC	BED-2	BED-3	BED-4	ENS-3	BED-2	BED-3	MBR	S-ENS	L/D	FML	KT/BT	KT/BT	OFFICE	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.30	1.91	0.45	1.45	1.25	1.06	0.72	1.45	1.25	1.30	0.70	1.74	2.48	2.01	2.01	1.89	1.43	0.74	2.54	0.68	3.68	3.68	3.68	3.68
CFM PER RUN HEAT	28	41	10	31	27	23	16	31	27	28	15	37	53	43	43	41	31	16	55	15	79	79	79	79
RM GAIN MBH.	1.68	1.35	0.12	1.76	1.67	1.87	0.41	1.76	1.67	1.68	0.41	1.90	2.81	2.07	2.07	1.57	0.29	0.34	1.46	1.04	0.41	0.41	0.41	0.41
CFM PER RUN COOLING	53	42	4	55	52	59	13	55	52	53	13	60	88	65	65	49	9	11	46	33	13	13	13	13
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	0.16	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.	42	39	12	55	61	52	58	59	69	35	42	21	21	17	24	36	66	45	44	30	16	13	21	44
EQUIVALENT LENGTH	140	180	190	180	170	170	140	190	170	120	140	150	130	90	110	100	210	150	120	150	140	150	140	130
TOTAL EFFECTIVE LENGTH	182	219	202	235	231	222	198	249	239	155	182	171	151	107	134	136	276	195	164	180	156	163	161	174
ADJUSTED PRESSURE	0.09	0.08	0.09	0.07	0.07	0.08	0.09	0.07	0.07	0.11	0.09	0.1	0.11	0.16	0.13	0.13	0.06	0.09	0.1	0.1	0.11	0.11	0.11	0.1
ROUND DUCT SIZE	5	4	4	5	5	5	4	5	5	5	4	5	6	5	5	4	4	4	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	206	470	115	228	198	169	184	228	198	206	172	272	270	316	316	470	356	184	404	172	580	580	580	580
COOLING VELOCITY (ft/min)	389	482	46	404	382	433	149	404	382	389	149	441	449	477	477	562	103	126	338	379	95	95	95	95
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	C	C	B	A	A	B	B	A	A	C	B	B	C	C	C	B	A	A	A	B	C	C	B	A

SUPPLY AIR TRUNK SIZE	TRUNK	STATIC	ROUND	RECT	VELOCITY	TRUNK	STATIC	ROUND	RECT	VELOCITY	RETURN AIR TRUNK SIZE	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	297	0.06	9.6	10	x 8	535	0	0.00	0	0	x 8	0	0.05	0	0	x 8
TRUNK B	533	0.06	11.9	16	x 8	600	0	0.00	0	0	x 8	0	0.05	0	0	x 8
TRUNK C	394	0.08	9.9	12	x 8	591	0	0.00	0	0	x 8	0	0.05	0	0	x 8
TRUNK D	0	0.00	0	0	x 8	0	0	0.00	0	0	x 8	0	0.05	0	0	x 8
TRUNK E	0	0.00	0	0	x 8	0	0	0.00	0	0	x 8	0	0.05	0	0	x 8
TRUNK F	0	0.00	0	0	x 8	0	0	0.00	0	0	x 8	0	0.05	0	0	x 8

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	95	85	85	85	85	115	115	105	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.	28	82	77	80	65	15	40	51	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	195	240	245	215	255	160	240	205	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	223	322	322	295	320	175	280	256	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.07	0.05	0.05	0.05	0.05	0.08	0.05	0.06	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	6	6	6	6	7	6.5	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	8	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	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: RIVER 5
SITE NAME: ZADORRA ESTATES INC

CORPORATION OF THE CITY OF OSHAWA

**TRUE COPY
OF PERMIT PLANS**

Nov 04 2023

MHP 23024

LO# 101255

RESIDENTIAL MECHANICAL DESIGN SUMMARY

PER: *Michael O'Rourke*
CHIEF BUILDING OFFICIAL
9.32.3.1(1)

COMBUSTION APPLIANCES

- 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>	<u>cfm</u>

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

79.5 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
ENS-3	BY INSTALLING CONTRACTOR	50	☒	3.5
S-ENS	BY INSTALLING CONTRACTOR	50	☒	3.5
PWD	BY INSTALLING CONTRACTOR	50	☒	3.5

HEAT RECOVERY VENTILATOR

9.32.3.11.

Model: VANEE V150H

150 cfm high 35 cfm low

75 % Sensible Efficiency ☒ 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:

May-23

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.

INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

Michael O'Rourke

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 101255	Model: RIVER 5	Builder: GREENPARK HOMES	Date: 5/17/2023																																																									
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>1133</td><td>9</td><td>10197</td></tr> <tr><td>First</td><td>1133</td><td>10</td><td>11330</td></tr> <tr><td>Second</td><td>1352</td><td>9</td><td>12168</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>33,695.0 ft³</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>954.1 m³</td></tr> </tbody> </table>		Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1133	9	10197	First	1133	10	11330	Second	1352	9	12168	Third	0	9	0	Fourth	0	9	0	Total:			33,695.0 ft³	Total:			954.1 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%;">0.312</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.086</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <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> </thead> <tbody> <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> </tbody> </table>			WINTER NATURAL AIR CHANGE RATE	0.312	SUMMER NATURAL AIR CHANGE RATE	0.086	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-19	41	74	Summer DTDc	24	30	6	11
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																									
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5.2.3.1 Heat Loss due to Air Leakage		6.2.6 Sensible Gain due to Air Leakage																																																										
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.312 x 265.04 x 41 °C x 1.2 = 4089 W = 13952 Btu/h		$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.086 x 265.04 x 6 °C x 1.2 = 167 W = 569 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 / HL _{clevel})																																																								
1	0.5	13,952	7,742	0.901																																																								
2	0.3		9,901	0.423																																																								
3	0.2		11,105	0.251																																																								
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 SUMMARY SHEET
MHP 23024
MODEL: RIVER 5

SFQT: 2485

LO#
PER: *C. Martin*
101255 OFFICIAL BUILDING OFFICIAL
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):	33695.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	2.00	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 59.0 ft	WIDTH: 24.0 ft	EXPOSED PERIMETER:	166.0 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	-

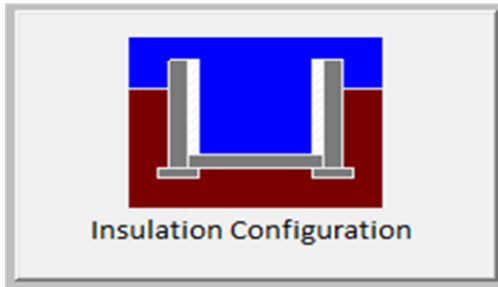
INDIVIDUAL BCIN: 19669

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):	18.0	 Insulation Configuration
Floor Width (m):	7.3	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	0.7	
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):		1592

TYPE: RIVER 5

LO# 101255

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):	6.71			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	954.1			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1271.9 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):	0.312			
Cooling Air Leakage Rate (ACH/H):	0.086			

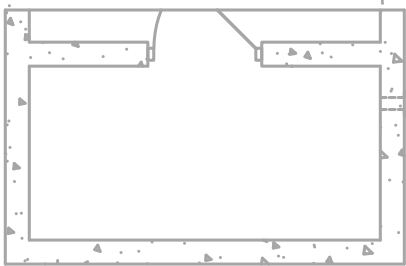
TYPE: RIVER 5

LO# 101255

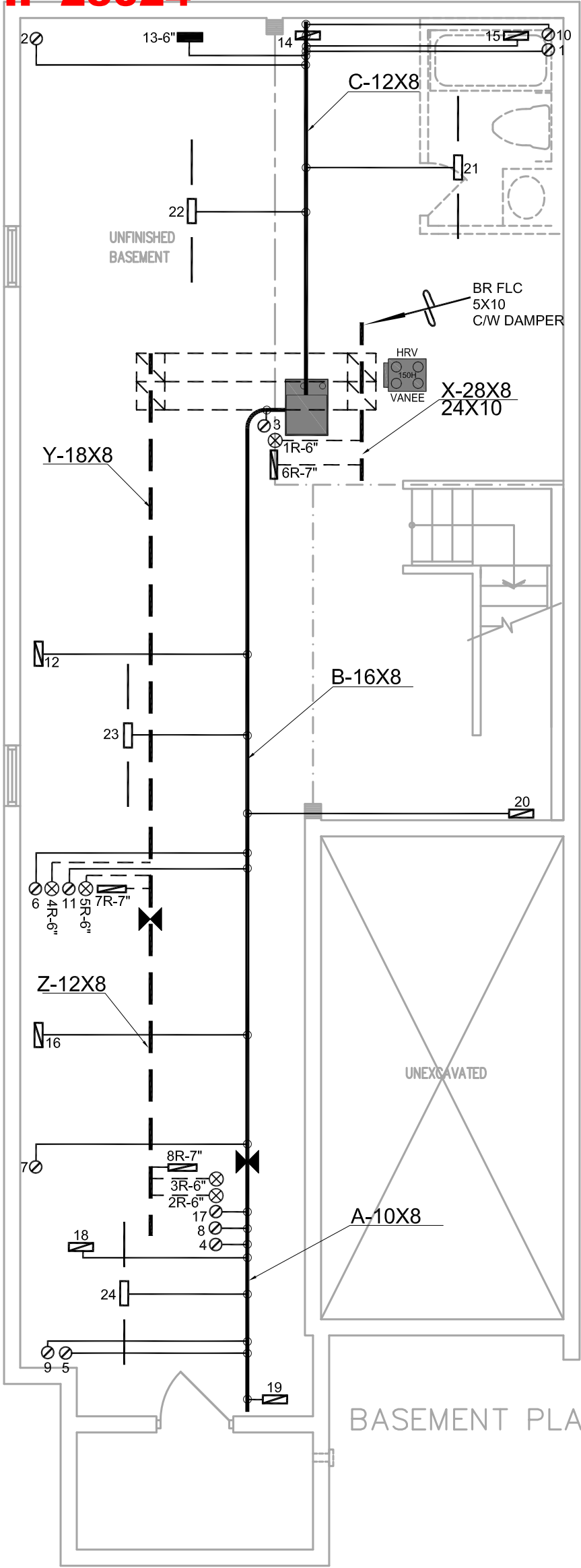
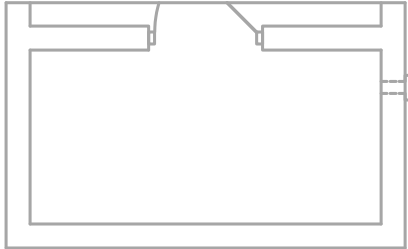
CORPORATION OF THE CITY OF OSHAWA
TRUE COPY
OF PERMIT PLANS
Nov 04 2023
PER: *C. Morris*
CHIEF BUILDING OFFICIAL

MHP 23024

BASEMENT PLAN '3'



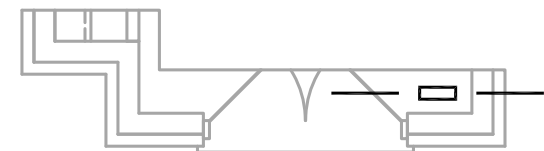
BASEMENT PLAN '2'



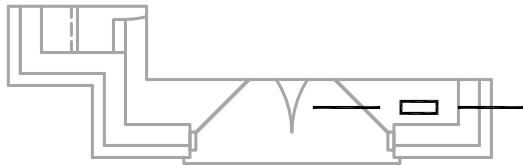
HVAC LEGEND							3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 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.	
Client		GREENPARK HOMES		Project Name		ZADORRA ESTATES INC OSHAWA, ONTARIO		RIVER 5	
2485 sqft		HVAACDESIGNS LTD.		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 44688 BTU/H UNIT DATA	
MAKE		GOODMAN		MODEL		GMEC960603BNA		INPUT	
60		MBTU/H		OUTPUT		57.6		COOLING	
2.5		TONS		FAN SPEED		928		# OF RUNS S/A R/A FANS	
3RD FLOOR		2ND FLOOR		1ST FLOOR		BASEMENT		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	
12		5		3		2		4	
8		1		0		0		0	
Date		MAY/2023		Scale		3/16" = 1'-0"		BCIN# 19669	
LO#		101255		PACKAGE A1		Sheet Title		BASEMENT HEATING LAYOUT	

CORPORATION OF THE CITY OF OSHAWA
TRUE COPY
OF PERMIT PLANS
Nov 04 2023
PER: *C. Morris*
CHIEF BUILDING OFFICIAL

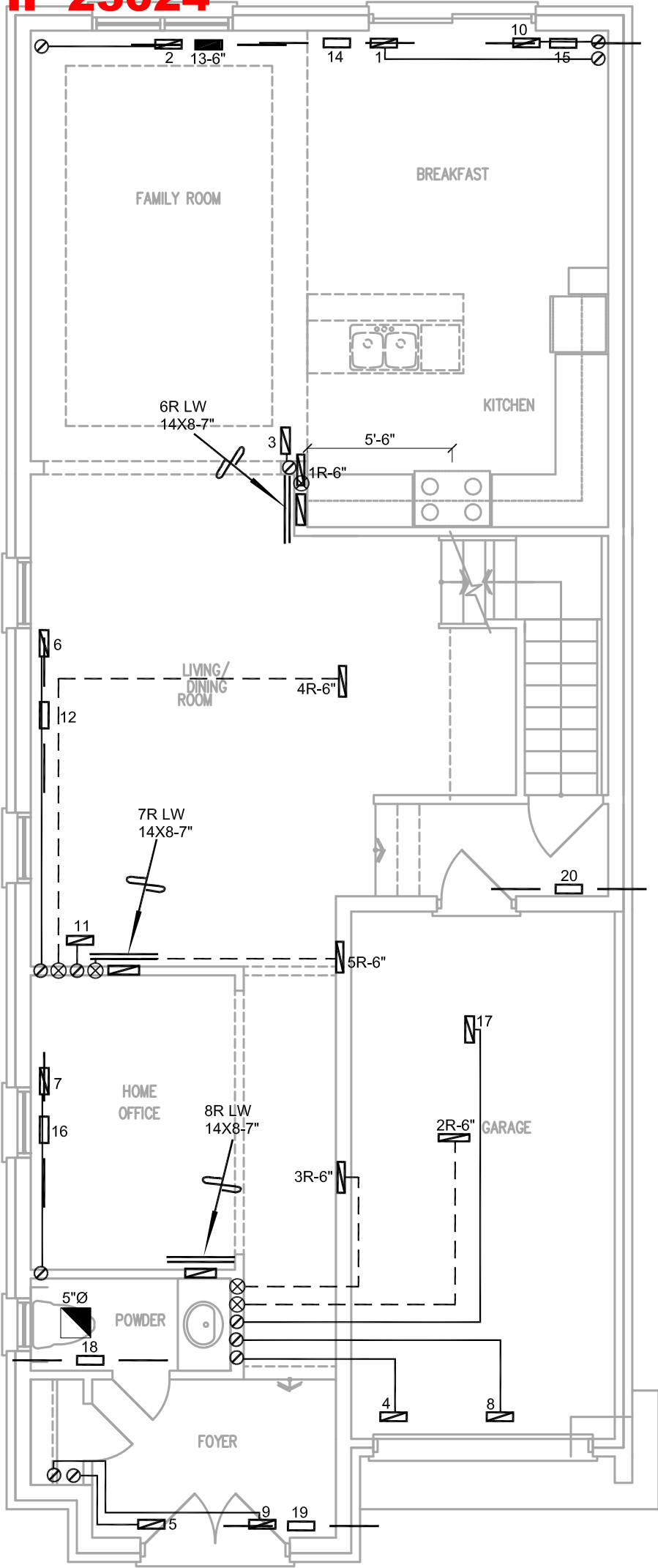
MHP 23024



FIRST FLOOR PLAN 2



FIRST FLOOR PLAN 3



FIRST FLOOR PLAN 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.			
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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@hvacdsgns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services								Sheet Title	
GREENPARK HOMES										FIRST FLOOR HEATING LAYOUT	
Project Name											
ZADORRA ESTATES INC OSHAWA, ONTARIO										Date	MAY/2023
										Scale	3/16" = 1'-0"
										BCIN# 19669	
RIVER 5		2485 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.				LO#		101255	



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