

Oct 30 2023

PER: 

SITE NAME: ZADORRA ESTATES INC

BUILDER: GREENPARK HOMES

OPT 5 BED - WOB

TYPE: ROSE 6

GFA: 3175

DATE: Jul-23

LO# 101741

WINTER NATURAL AIR CHANGE RATE 0.365

SUMMER NATURAL AIR CHANGE RATE 0.100

HEAT LOSS ΔT °F. 74

HEAT GAIN ΔT °F. 11

CSA-F280-12

SB-12 PACKAGE A1

MHP 23030

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BED-4	S-ENS	ENS-5	BED-5	ENS-4	WIC-2	HALL
			35	27	5	12	24	31	3	7	13	8	12	11
			9	9	9	9	9	9	9	9	9	9	10	9
FACTORS														
GRS.WALL AREA	LOSS	GAIN	319	246	46	109	218	282	27	64	118	73	121	100
GLAZING	LOSS	GAIN							LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
NORTH	20.8	15.5	0	0	0	0	0	0	0	0	0	0	0	0
EAST	20.8	41.0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	20.8	24.4	0	0	0	0	0	0	0	0	0	0	0	0
WEST	20.8	41.0	22	457	903	26	540	1067	0	0	0	0	0	0
SKYLT.	36.4	100.7	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	19.6	2.9	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.4	0.6	297	1292	192	220	957	142	46	198	29	93	406	60
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	350	439	195	202	253	113	50	63	28	141	177	79
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	14	35	5	189	471	70
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			2187		1751	261	950	2381	460	468	1036	748	791	1193
SUB TOTAL HT GAIN			1290	1322	57	391	2094	2186	106	241	571	626	725	630
LEVEL FACTOR / MULTIPLIER	0.20	0.30		0.20	0.30	0.20	0.30	0.20	0.30	0.20	0.30	0.20	0.30	0.20
AIR CHANGE HEAT LOSS			655	524	78	285	713	672	138	140	310	224	411	357
AIR CHANGE HEAT GAIN			67	68	3	20	108	113	5	12	30	32	37	33
DUCT LOSS			0	0	0	123	309	292	60	0	0	97	0	155
DUCT GAIN			0	0	0	123	302	312	11	0	0	66	0	66
HEAT GAIN PEOPLE	240	2	480	0	0	1	240	1	240	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS			583	0	0	583	583	583	0	0	583	0	0	0
TOTAL HT LOSS BTU/H			2843		2275	339	1358	3404	657	608	1347	1069	1202	1705
TOTAL HT GAIN x 1.3 BTU/H			3144	1807	78	1765	4325	4464	159	329	1538	941	991	948

ROOM USE	EXP. WALL	CLG. HT.	DN/LV	H-OFF	KT/BF	FAM	PWD	FOY	MUD				WOB	BAS
			21	24	40	31	11	35	5				41	137
			10	10	10	10	10	10	10				9	9
FACTORS														
GRS.WALL AREA	LOSS	GAIN	212	242	404	313	111	354	51				349	754
GLAZING	LOSS	GAIN					LOSS	GAIN	LOSS	GAIN			LOSS	GAIN
NORTH	20.8	15.5	0	0	0	0	0	0	0	0			0	0
EAST	20.8	41.0	0	0	0	0	0	0	0	0			0	0
SOUTH	20.8	24.4	30	623	732	0	0	0	0	0			0	0
WEST	20.8	41.0	0	0	0	62	1288	2545	30	623	1231		6	125
SKYLT.	36.4	100.7	0	0	0	0	0	0	0	0			0	0
DOORS	19.6	2.9	0	0	0	0	0	0	0	0			0	0
NET EXPOSED WALL	4.4	0.6	182	793	118	220	960	142	331	1442	214	283	1231	182
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	0	0	0	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	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0	0			0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0			0	0
SUBTOTAL HT LOSS			1417	1417	2959	1857	599	2236	540				515	2325
SUB TOTAL HT GAIN			849	483	2929	1414	238	1167	80				3117	4305
LEVEL FACTOR / MULTIPLIER	0.30	0.52		0.30	0.52	0.30	0.52	0.30	0.52	0.30	0.52		0.50	1.38
AIR CHANGE HEAT LOSS			737	737	1539	966	312	1163	281				10241	171
AIR CHANGE HEAT GAIN			44	25	151	73	12	60	4				0	0
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			583	583	583	583	0	0	0				0	583
TOTAL HT LOSS BTU/H			2153	2154	4498	2822	911	3399	820				3117	14547
TOTAL HT GAIN x 1.3 BTU/H			1919	1417	4762	2691	325	1595	109				3759	1528

TOTAL HEAT GAIN BTU/H:

38833

TONS: 3.24

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

STRUCTURAL HEAT LOSS: 54435

TOTAL COMBINED HEAT LOSS BTU/H: 56028



PER: 

CHIEF BUILDING OFFICER

RR#

ESTATES INC

BUILDER: GREENPARK HOMES

TYPE: ROSE 6

DATE: Jul-23

GFA: 3175

LO# 101741

HEATING CFM 1122

TOTAL HEAT LOSS 54,435

AIR FLOW RATE CFM 20.61

COOLING CFM 1122

TOTAL HEAT GAIN 38,596

AIR FLOW RATE CFM 29.07

furnace pressure 0.6

furnace filter 0.05

a/c coil pressure 0.2

available pressure for s/a & r/a 0.35

GMCC960803BNA 80

FAN SPEED LOW

MEDLOW

MEDIUM 885

MEDIUM HIGH 1005

HIGH 1122

#GOODMAN

AFUE = 96 %

INPUT (BTU/H) = 80,000

OUTPUT (BTU/H) = 76,800

DESIGN CFM = 1122

CFM @ .6" E.S.P.

TEMPERATURE RISE 63 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	15	10	6
R/A	0	0	6	2	1

All S/A diffusers 4"x10" unless noted otherwise on layout.

plenum pressure s/a 0.18

max s/a dif press. loss 0.01

min adjusted pressure s/a 0.17

r/a pressure 0.17

r/a grille press. Loss 0.02

adjusted pressure r/a 0.15

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	WIC	BED-3	BED-4	ENS-5	S-ENS	ENS-4	BED-5	MBR	BED-5	DN/LV	H-OFF	KT/BF	KT/BF	FAM	BED-2	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.42	1.14	0.34	1.70	1.60	0.61	0.66	1.07	0.67	1.42	0.67	2.15	2.15	2.25	2.25	1.41	1.36	0.91	3.40	0.82	2.94	2.94	2.94	2.94
CFM PER RUN HEAT	29	23	7	35	33	13	14	22	14	29	14	44	44	46	46	29	28	19	70	17	61	61	61	61
RM GAIN MBH.	1.57	0.90	0.08	2.16	2.23	0.33	0.16	0.94	0.77	1.57	0.77	1.92	1.42	2.38	2.38	1.35	1.76	0.33	1.60	0.11	0.88	0.88	0.88	0.88
CFM PER RUN COOLING	46	26	2	63	65	10	5	27	22	46	22	56	41	69	69	39	51	9	46	3	26	26	26	26
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	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	35	55	25	46	61	44	44	46	30	46	34	19	17	24	32	35	29	39	38	21	23	38	41	5
EQUIVALENT LENGTH	150	190	180	130	160	200	150	120	170	180	200	100	170	120	140	100	180	150	100	130	150	150	160	80
TOTAL EFFECTIVE LENGTH	185	245	205	176	221	244	194	166	200	226	234	119	187	144	172	135	209	189	138	151	173	188	201	85
ADJUSTED PRESSURE	0.09	0.07	0.08	0.1	0.08	0.07	0.09	0.1	0.09	0.08	0.07	0.14	0.09	0.12	0.1	0.13	0.08	0.09	0.12	0.11	0.1	0.09	0.09	0.2
ROUND DUCT SIZE	4	4	4	5	6	4	4	4	4	5	6	5	4	5	5	4	6	4	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	333	264	80	257	168	149	161	252	161	213	71	323	505	338	338	333	143	218	514	195	448	448	448	448
COOLING VELOCITY (ft/min)	528	298	23	463	331	115	57	310	252	338	112	411	470	507	507	447	260	103	338	34	191	191	191	191
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	A	B	C	E	D	B	E	E	E	A	B	C	C	A	A	B	C	D	D	E	A	B	B	C

RUN #	25	26	27	28	29	30	31
ROOM NAME	BAS	BED-3	BED-4	ENS	FAM	WIC-2	BAS
RM LOSS MBH.	2.94	1.70	1.60	1.14	1.41	1.20	2.94
CFM PER RUN HEAT	61	35	33	23	29	25	61
RM GAIN MBH.	0.88	2.16	2.23	0.90	1.35	0.99	0.88
CFM PER RUN COOLING	26	63	65	26	39	29	26
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	15	50	55	49	26	46	40
EQUIVALENT LENGTH	90	140	180	160	160	130	140
TOTAL EFFECTIVE LENGTH	105	190	235	209	186	176	180
ADJUSTED PRESSURE	0.16	0.09	0.07	0.08	0.09	0.1	0.1
ROUND DUCT SIZE	5	5	6	4	4	4	5
HEATING VELOCITY (ft/min)	448	257	168	264	333	287	448
COOLING VELOCITY (ft/min)	191	463	331	298	447	333	191
OUTLET GRILL SIZE	3X10	3X10	4X10	3X10	3X10	3X10	3X10
TRUNK	C	E	D	B	A	D	D

SUPPLY AIR TRUNK SIZE										RETURN AIR TRUNK SIZE									
TRUNK	STATIC	ROUND	RECT	VELOCITY						TRUNK	STATIC	ROUND	RECT	VELOCITY					
CFM	PRESS.	DUCT	DUCT							CFM	PRESS.	DUCT	DUCT						
TRUNK A	240	0.08	8.2	8	x	8	540			TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0
TRUNK B	464	0.07	10.9	14	x	8	597			TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0
TRUNK C	709	0.07	12.7	18	x	8	709			TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0
TRUNK D	241	0.07	8.5	10	x	8	434			TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0
TRUNK E	378	0.07	10.1	14	x	8	486			TRUNK K	0	0.00	0	0	x	8	0	TRUNK S	0
TRUNK F	0	0.00	0	0	x	8	0			TRUNK L	0	0.00	0	0	x	8	0	TRUNK T	0
																		TRUNK U	0
																		TRUNK V	0
																		TRUNK W	0
																		TRUNK X	1122
																		TRUNK Y	581
																		TRUNK Z	255
																		DROP	1122

RETURN AIR #	1	2	3	4	5	6	7	8	BR
AIR VOLUME	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
ACTUAL DUCT LGH.	28	56	75	52	48	30	14	48	1
EQUIVALENT LENGTH	215	235	240	195	175	185	135	215	0
TOTAL EFFECTIVE LH	243	291	315	247	223	215	149	263	1
ADJUSTED PRESSURE	0.06	0.05	0.05	0.06	0.07	0.07	0.10	0.06	14.80
ROUND DUCT SIZE	6	6	6	6	5.8	9.5	5.5	6	0
INLET GRILL SIZE	8	8	8	8	8	8	8	8	0
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	30	14	14	0

LO # 101741
OPT 5 BED - WOB

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	<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>6</u> @ 10.6 cfm <u>63.6</u> cfm	
Other Rooms	<u>6</u> @ 10.6 cfm <u>63.6</u> cfm	
Table 9.32.3.A.	TOTAL <u>201.4</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		79.5 cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>201.4</u> cfm	
Less Principal Ventil. Capacity	<u>79.5</u> cfm	
Required Supplemental Capacity	<u>121.9</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

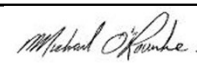
SUPPLEMENTAL FANS		BY INSTALLING CONTRACTOR		
Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	☒	3.5
S-ENS	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-4	BY INSTALLING CONTRACTOR	50	☒	3.5
PWD	BY INSTALLING CONTRACTOR	50	☒	3.5

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	☒ 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:	
HRAI #	001820
Date:	July-23

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																			
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																			
LO#: 101741		Model: ROSE 6		Builder: GREENPARK HOMES			Date: 2023-07-06																																																												
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>1399</td> <td>9</td> <td>11891.5</td> </tr> <tr> <td>First</td> <td>1399</td> <td>10</td> <td>14129.9</td> </tr> <tr> <td>Second</td> <td>1789</td> <td>9</td> <td>16279.9</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>42,301.3 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1197.8 m³</td> </tr> </tbody> </table>					Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1399	9	11891.5	First	1399	10	14129.9	Second	1789	9	16279.9	Third	0	9	0	Fourth	0	9	0	Total:			42,301.3 ft³	Total:			1197.8 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">WINTER NATURAL AIR CHANGE RATE</td> <td>0.365</td> </tr> <tr> <td colspan="2">SUMMER NATURAL AIR CHANGE RATE</td> <td>0.100</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5">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		0.365	SUMMER NATURAL AIR CHANGE RATE		0.100	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)																																																																
Bsmt	1399	9	11891.5																																																																
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5.2.3.1 Heat Loss due to Air Leakage					6.2.6 Sensible Gain due to Air Leakage																																																														
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.365 x 332.73 x 41 °C x 1.2 = 6003 W = 20483 Btu/h					$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.100 x 332.73 x 6 °C x 1.2 = 245 W = 834 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)																																																																			
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairve Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{clevel})</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5">20,483</td> <td>7,422</td> <td>1.380</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>11,815</td> <td>0.520</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>13,678</td> <td>0.299</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> </tbody> </table> *HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0										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	20,483	7,422	1.380	2	0.3	11,815	0.520	3	0.2	13,678	0.299	4	0	0	0.000	5	0	0	0.000																																
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375 Finley Ave. Suite 202 Ajax, ON L1S 2E2

TEL: 905-399-5500 FAX: 905-399-1576

Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: ROSE 6 **OPT 5 BED - WOB** **BUILDER:** GREENPARK HOMES
SFQT: 3175 **LO#** 101741 **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 (ft ³):	42301.3	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:	5.5 ft
LENGTH: 58.0 ft	WIDTH: 31.0 ft	EXPOSED PERIMETER:	137.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	41.0 ft

2012 OBC - COMPLIANCE PACKAGE

Component

Compliance Package A1

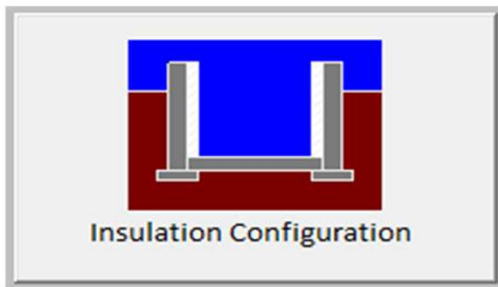
Nominal Min. Eff.

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:	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):	4.6	 Insulation Configuration
Floor Width (m):	9.4	
Exposed Perimeter (m):	41.8	
Wall Height (m):	2.6	
Depth Below Grade (m):	1.40	
Window Area (m ²):	0.6	
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):		681

TYPE: ROSE 6
 LO# 101741

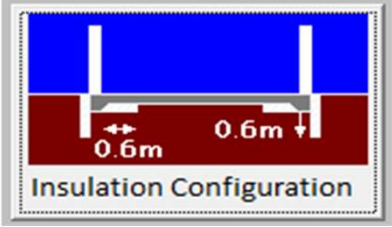
OPT 5 BED - WOB

Michael O'Rourke BCIN #19669

[Signature]

Residential Slab on Grade 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		
Length (m):	1.5	
Width (m):	9.4	
Exposed Perimeter (m):	12.5	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		151

TYPE: ROSE 6
 LO# 101741

OPT 5 BED - WOB



MHP 23030 HVA Design Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

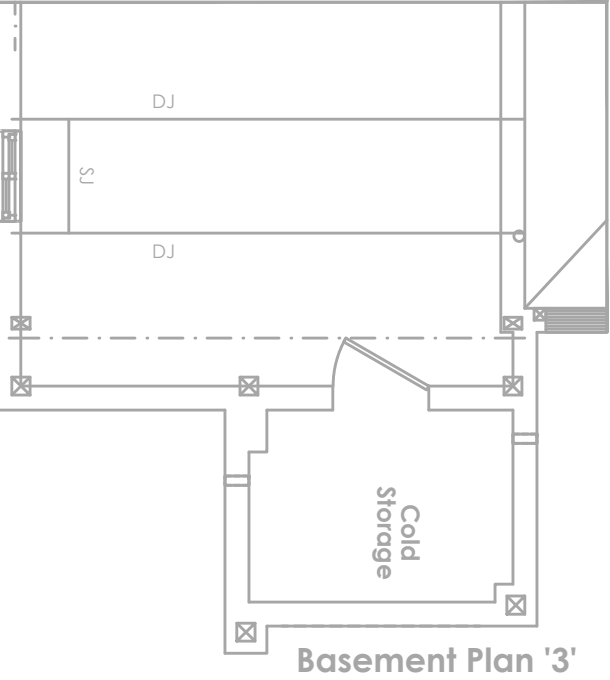
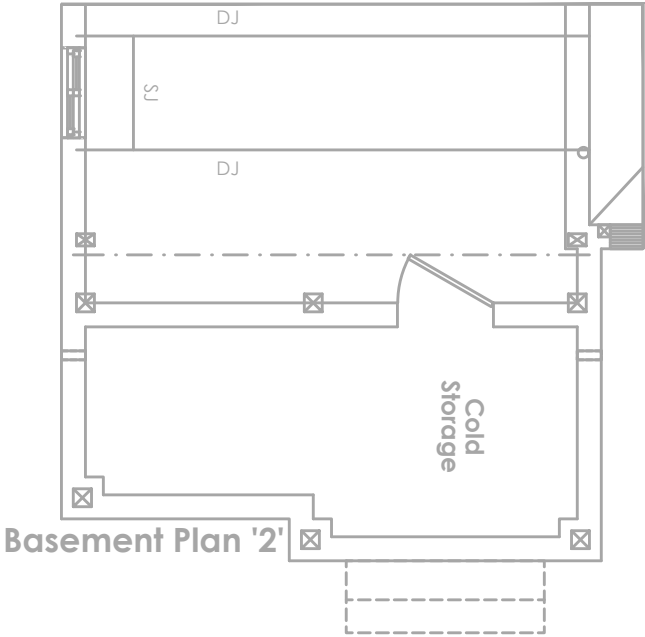
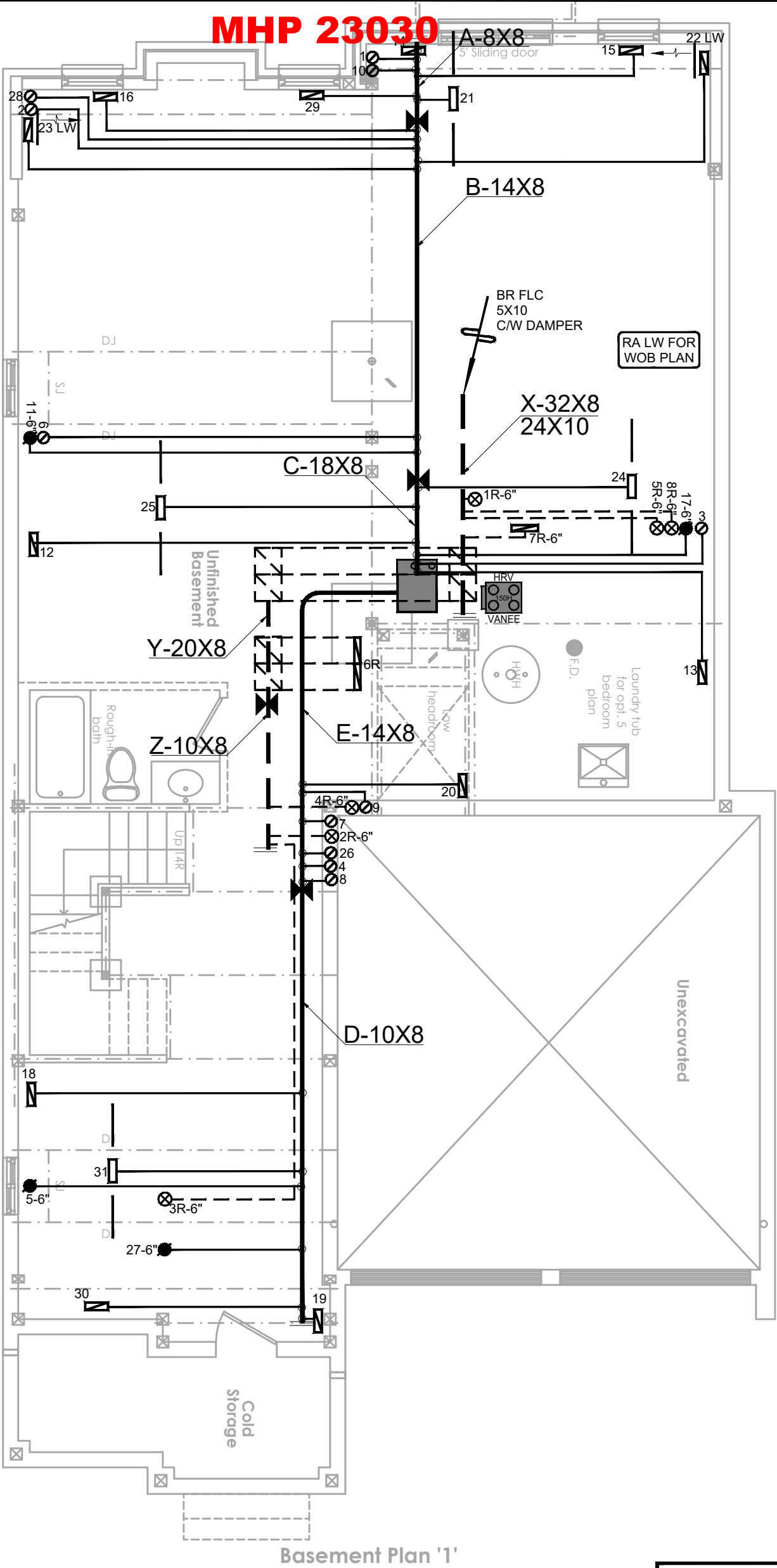
Weather Station Description				
Province:	Ontario			
Region:	Oshawa			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	8.44			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1197.8			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1596.8 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):	0.365			
Cooling Air Leakage Rate (ACH/H):	0.100			

TYPE: ROSE 6
LO# 101741

OPT 5 BED - WOB

Michael O'Rourke BCIN# 19669

MHP 23030



Basement Plan '2'

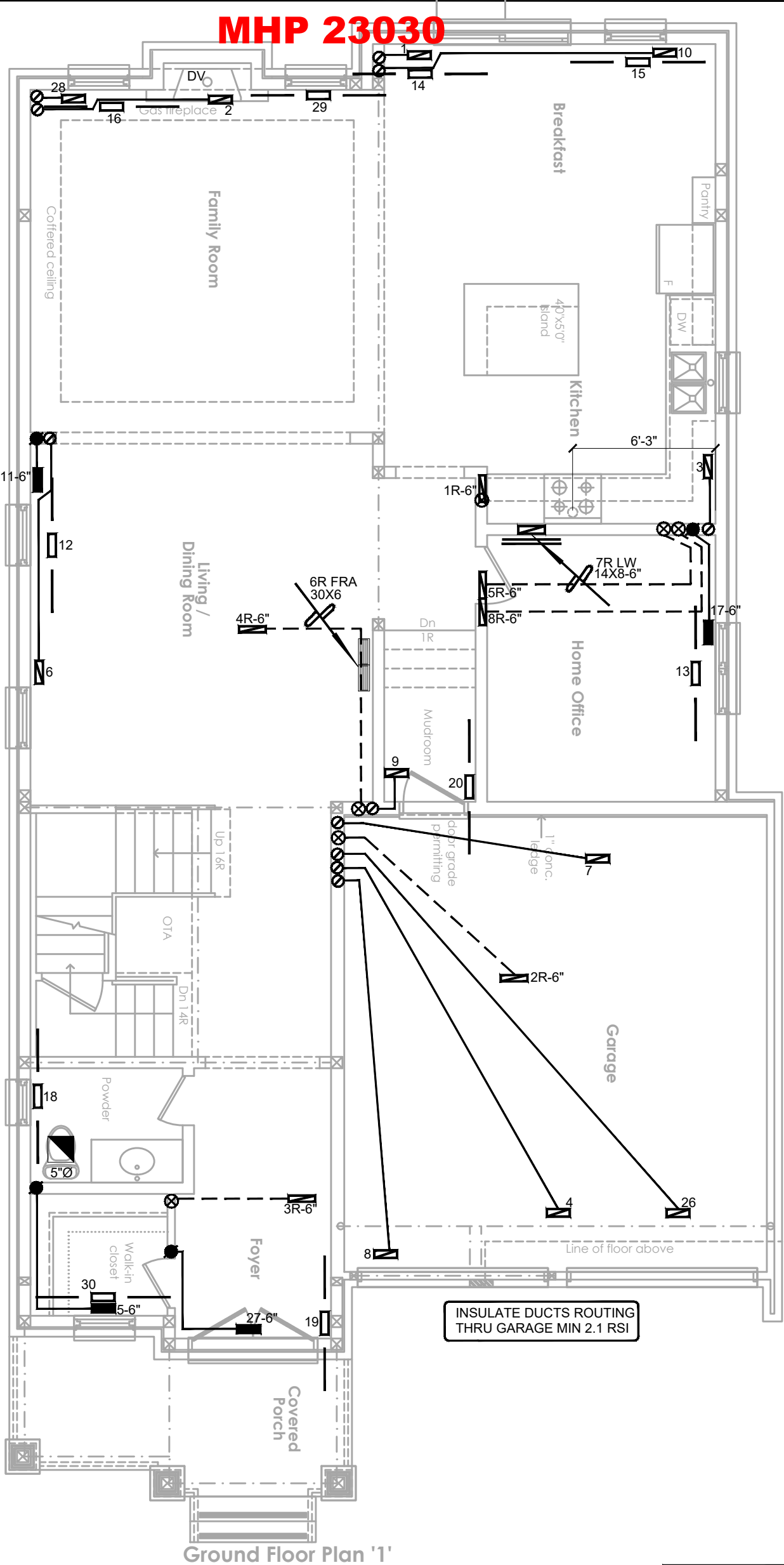
Basement Plan '3'

Basement Plan '1'

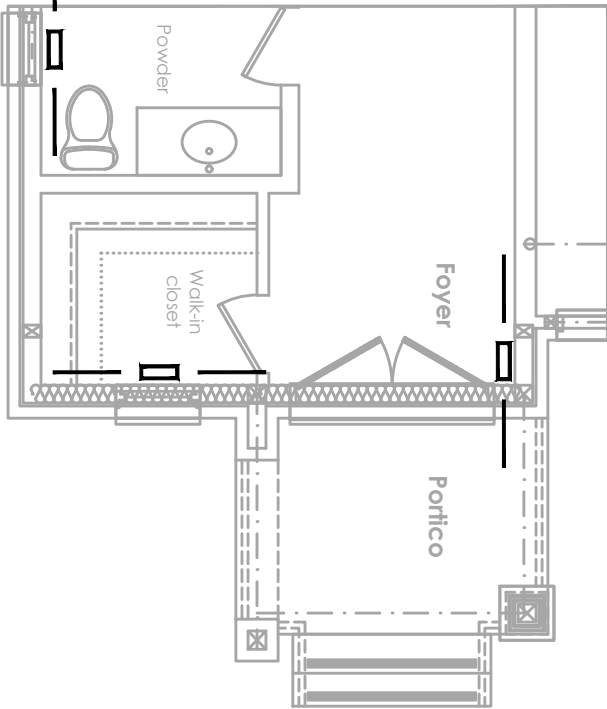
WOB

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		
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Client				HEAT LOSS 56028 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS		Sheet Title		
GREENPARK HOMES		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.hvacdsgns.ca Specializing in Residential Mechanical Design Services		MAKE GOODMAN		3RD FLOOR		BASEMENT HEATING LAYOUT		
Project Name		ZADORRA OSHAWA, ONTARIO		MODEL GMEC960803BNA		2ND FLOOR 15 6 5		Date JULY/2023		
OPT 5 BED WOB ROSE 6		3175 sqft		INPUT 80.0 MBTU/H		1ST FLOOR 10 2 2		Scale 3/16" = 1'-0"		
		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.		OUTPUT 76.8 MBTU/H		BASEMENT 6 1 0		BCIN# 19669		
				COOLING 3.0 TONS		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		LO# 101741		
				FAN SPEED 1122 cfm @ 0.6" w.c.						

MHP 23030



Ground Floor Plan '2'

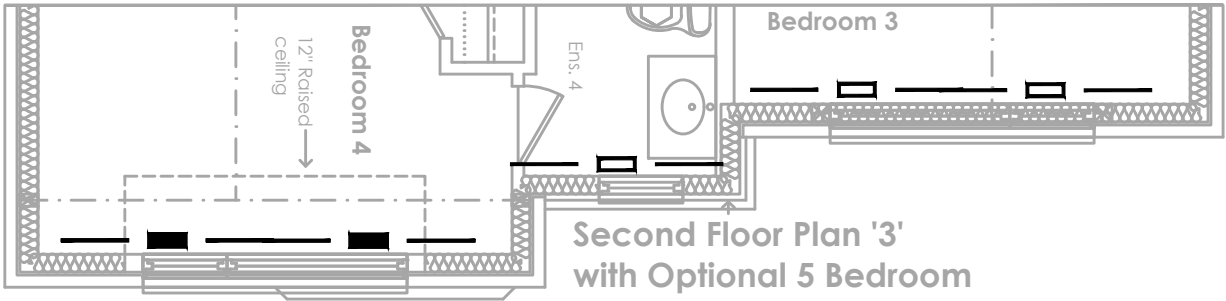
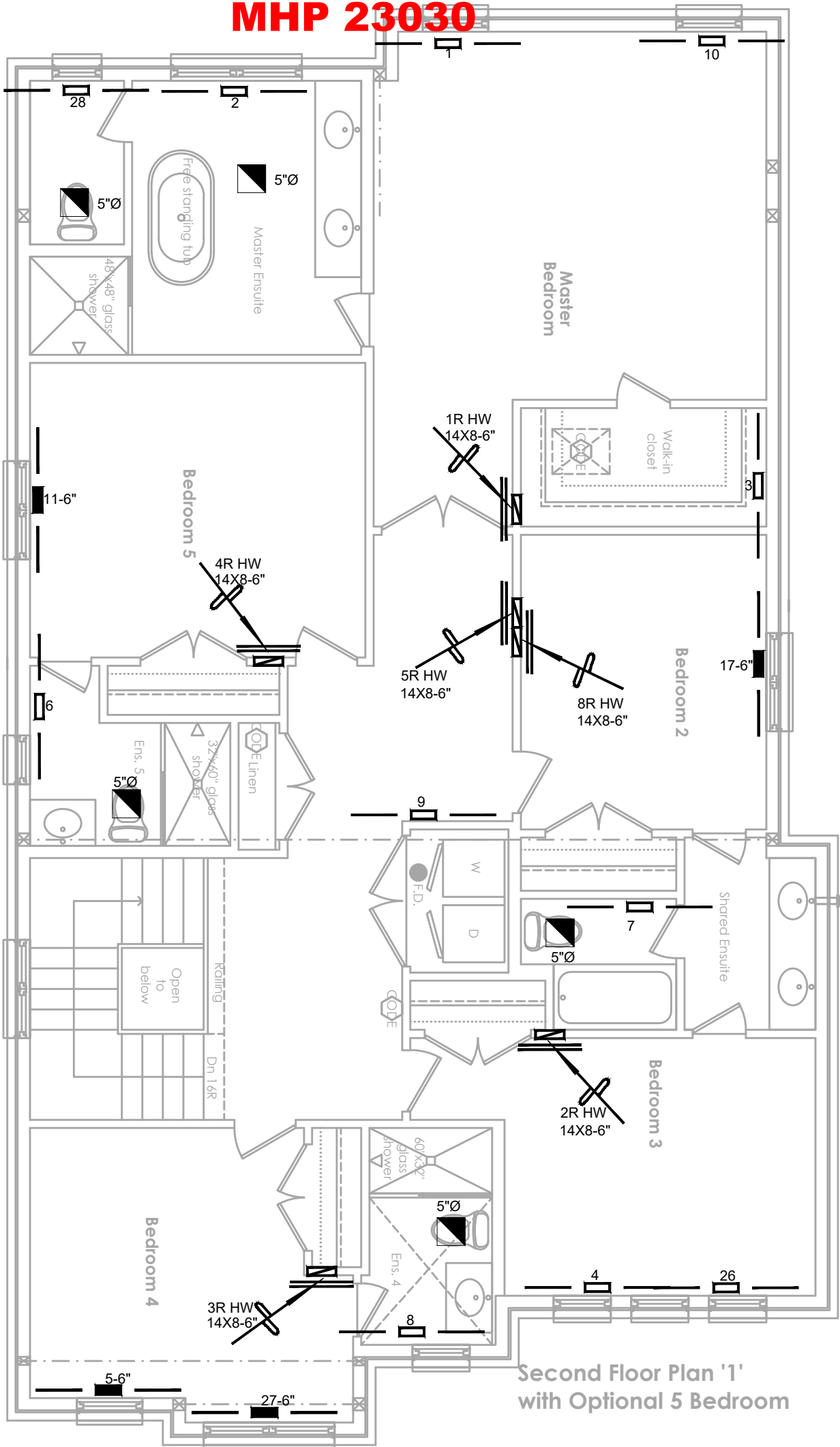
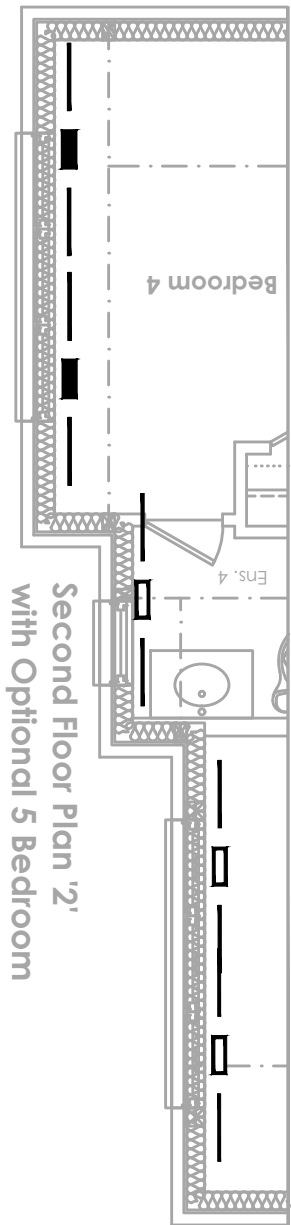


Ground Floor Plan '3'

Ground Floor Plan '1'

WOB

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
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	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		
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Client		 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		FIRST FLOOR HEATING LAYOUT		
Project Name						Date		JULY/2023		
ZADORRA OSHAWA, ONTARIO						Scale		3/16" = 1'-0"		
OPT 5 BED WOB ROSE 6						BCIN# 19669		LO# 101741		
3175 sqft										



WOB

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
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Client GREENPARK HOMES								 Michael O'Rourke BCIN # 19669 HVAC Designs Ltd.		
Project Name ZADORRA OSHAWA, ONTARIO								PACKAGE A1		
OPT 5 BED WOB ROSE 6								Sheet Title SECOND FLOOR HEATING LAYOUT		
3175 sqft								Date JULY/2023		
								Scale 3/16" = 1'-0"		
								BCIN# 19669		
								LO# 101741		