

MHP 23035

SITE NAME: ZADORRA ESTATES INC CHIEF BUILDING OFFICIAL
BUILDER: GREENPARK HOMES TYPE: VILLA 3

DATE: Jul-23
LO# 101808

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

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	HALL	ENS-2
			30	29	5	29	33	11	5	13	6
			9	9	9	9	9	9	9	9	9
FACTORS											
GRS.WALL AREA	LOSS	GAIN	273	264	46	264	300	100	46	118	55
GLAZING	LOSS	GAIN									
NORTH	20.8	15.5	0	0	0	0	0	0	0	0	0
EAST	20.8	41.0	0	0	0	52	1080	2134	41	852	1683
SOUTH	20.8	24.4	0	0	0	0	0	0	18	374	439
WEST	20.8	41.0	18	374	739	16	332	657	0	0	0
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	255	1111	165	233	1015	150	46	198	29
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	274	343	153	168	210	94	41	51	23
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	36	97	43
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	181	451	67
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			1828		1869	250	2733	2350	409	1291	415
SUB TOTAL HT GAIN				1056	1267	52	2462	1977	86	678	229
LEVEL FACTOR / MULTIPLIER	0.20	0.27		0.20	0.27	0.20	0.27	0.20	0.27	0.20	0.27
AIR CHANGE HEAT LOSS			491		502	67	734	631	110	347	112
AIR CHANGE HEAT GAIN				61	73	3	141	113	5	39	13
DUCT LOSS			0		0		347	298	52	164	0
DUCT GAIN			0		0		338	286	9	72	0
HEAT GAIN PEOPLE	240		2	480	0	0	1	240	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				533	0	0	533	533	0	0	0
TOTAL HT LOSS BTU/H			2319		2371	317	3813	3279	571	1802	527
TOTAL HT GAIN x 1.3 BTU/H				2769	1741	72	4828	4095	130	1025	315

ROOM USE	EXP. WALL	CLG. HT.	DIN	KT/BF	FAM	LAUN	PWD	FOY	MUD	WOB	BAS
			21	36	36	9	7	49	22	38	132
			10	10	10	9	10	10	10	9	9
FACTORS											
GRS.WALL AREA	LOSS	GAIN	212	364	364	82	71	495	222	323	726
GLAZING	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	22	457	903	0
SOUTH	20.8	24.4	25	519	610	0	0	0	0	0	0
WEST	20.8	41.0	0	0	0	61	1267	2504	22	457	903
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	22	431	64
NET EXPOSED WALL	4.4	0.6	187	815	121	303	1318	195	451	1965	291
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			1335		2586	1945	465	308	2852	1288	191
SUB TOTAL HT GAIN				731	2699	1124	101	46	1258	1083	460
LEVEL FACTOR / MULTIPLIER	0.30	0.49		0.30	0.49	0.30	0.49	0.30	0.49	0.30	0.49
AIR CHANGE HEAT LOSS			655		1269	955	125	151	1400	632	8435
AIR CHANGE HEAT GAIN				42	155	64	6	3	72	11	89
DUCT LOSS			0		0	0	0	0	0	0	0
DUCT GAIN			0		0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240		0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				533	533	533	533	0	0	0	533
TOTAL HT LOSS BTU/H			1989		3855	2900	589	459	4252	1920	2833
TOTAL HT GAIN x 1.3 BTU/H				1698	4404	2238	832	63	1729	262	1408

TOTAL HEAT GAIN BTU/H:

31072

TONS: 2.59

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

STRUCTURAL HEAT LOSS: 47671

TOTAL COMBINED HEAT LOSS BTU/H: 49264

Nov 04 2023



MHP 23035

SITE NAME: ZACORRA
BUILDER: GREENPARK HOMES INC. (PENDING OFFICIAL)WOB
TYPE: VILLA 3

DATE: Jul-23

GFA: 2613 LO# 101808

HEATING CFM	928	COOLING CFM	928
TOTAL HEAT LOSS	47,671	TOTAL HEAT GAIN	30,836
AIR FLOW RATE CFM	19.47	AIR FLOW RATE CFM	30.1

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

plenum pressure s/a 0.18
max s/a dif press. loss 0.02
min adjusted pressure s/a 0.16

r/a pressure 0.17
r/a grille press. Loss 0.02
adjusted pressure r/a 0.15

#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.

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 COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	14	8	5
R/A	0	0	5	1	1

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	BATH	HALL	BED-2	MBR	ENS-2	BED-3	DIN	KT/BF	KT/BF	FAM	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.16	1.19	0.32	1.91	1.64	1.22	0.57	1.80	1.91	1.16	0.53	1.64	1.99	1.93	1.93	1.45	0.59	0.46	4.25	1.92	3.10	3.10	3.10	3.10
CFM PER RUN HEAT	23	23	6	37	32	24	11	35	37	23	10	32	39	38	38	28	11	9	83	37	60	60	60	60
RM GAIN MBH.	1.38	0.87	0.07	2.41	2.05	1.82	0.13	1.02	2.41	1.38	0.32	2.05	1.70	2.20	2.20	1.12	0.83	0.06	1.73	0.26	0.56	0.56	0.56	0.56
CFM PER RUN COOLING	42	26	2	73	62	55	4	31	73	42	9	62	51	66	66	34	25	2	52	8	17	17	17	17
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	0.16	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	35	48	30	48	56	38	44	36	51	39	34	60	18	23	30	36	36	20	37	12	45	19	16	33
EQUIVALENT LENGTH	180	210	150	130	170	170	170	120	140	180	180	200	90	130	130	160	140	150	100	130	120	100	80	130
TOTAL EFFECTIVE LENGTH	215	258	180	178	226	208	214	156	191	219	214	260	108	153	160	196	176	170	137	142	165	119	96	163
ADJUSTED PRESSURE	0.08	0.07	0.1	0.1	0.08	0.08	0.08	0.11	0.09	0.08	0.08	0.07	0.16	0.11	0.11	0.09	0.1	0.1	0.12	0.12	0.1	0.14	0.18	0.11
ROUND DUCT SIZE	4	4	4	6	6	6	4	4	6	4	4	6	5	5	5	4	4	4	6	4	5	5	5	5
HEATING VELOCITY (ft/min)	264	264	69	189	163	122	126	402	189	264	115	163	286	279	279	321	126	103	423	424	441	441	441	441
COOLING VELOCITY (ft/min)	482	298	23	372	316	280	46	356	372	482	103	316	374	485	485	390	287	23	265	92	125	125	125	125
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10
TRUNK	A	A	C	E	D	B	E	E	E	A	B	D	C	A	A	A	C	E	D	C	B	B	C	D

RUN #	25	26	27
ROOM NAME	BAS	FAM	ENS
RM LOSS MBH.	3.10	1.45	1.19
CFM PER RUN HEAT	60	28	23
RM GAIN MBH.	0.56	1.12	0.87
CFM PER RUN COOLING	17	34	26
ADJUSTED PRESSURE	0.17	0.17	0.17
ACTUAL DUCT LGH.	38	27	36
EQUIVALENT LENGTH	140	150	160
TOTAL EFFECTIVE LENGTH	178	177	196
ADJUSTED PRESSURE	0.1	0.1	0.09
ROUND DUCT SIZE	5	4	4
HEATING VELOCITY (ft/min)	441	321	264
COOLING VELOCITY (ft/min)	125	390	298
OUTLET GRILL SIZE	3X10	3X10	3X10
TRUNK	B	A	B

SUPPLY AIR TRUNK SIZE

	TRUNK	STATIC	ROUND	RECT		VELOCITY		TRUNK	STATIC	ROUND	RECT		VELOCITY
	CFM	PRESS.	DUCT	DUCT		(ft/min)		CFM	PRESS.	DUCT	DUCT		(ft/min)
TRUNK A	201	0.07	8	10	x	8	362	TRUNK G	0	0.00	0	0	8
TRUNK B	438	0.07	10.6	16	x	8	493	TRUNK H	0	0.00	0	0	8
TRUNK C	591	0.07	11.9	18	x	8	591	TRUNK I	0	0.00	0	0	8
TRUNK D	207	0.07	8	8	x	8	466	TRUNK J	0	0.00	0	0	8
TRUNK E	336	0.07	9.6	12	x	8	504	TRUNK K	0	0.00	0	0	8
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	8

RETURN AIR TRUNK SIZE

	TRUNK	STATIC	ROUND	RECT		VELOCITY
	CFM	PRESS.	DUCT	DUCT		(ft/min)
TRUNK O	0	0.06	0	0	x	8
TRUNK P	0	0.06	0	0	x	8
TRUNK Q	0	0.06	0	0	x	8
TRUNK R	0	0.06	0	0	x	8
TRUNK S	0	0.06	0	0	x	8
TRUNK T	0	0.06	0	0	x	8
TRUNK U	0	0.06	0	0	x	8
TRUNK V	0	0.06	0	0	x	8
TRUNK W	0	0.06	0	0	x	8
TRUNK X	928	0.06	14.7	26	x	8
TRUNK Y	588	0.06	12.4	18	x	8
TRUNK Z	170	0.06	7.8	8	x	8
DROP	928	0.06	14.7	24	x	10

RETURN AIR #	1	2	3	4	5	6										BR
AIR VOLUME	90	85	85	100	85	333	0	0	0	0	0	0	0	0	0	150
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
ACTUAL DUCT LGH.	49	61	60	31	61	33	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	135	195	200	135	190	185	0	0	0	0	0	0	0	0	0	140
TOTAL EFFECTIVE LH	184	256	260	166	251	218	1	1	1	1	1	1	1	1	1	154
ADJUSTED PRESSURE	0.08	0.06	0.06	0.09	0.06	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.10
ROUND DUCT SIZE	5.7	6	6	5.7	6	9.6	0	0	0	0	0	0	0	0	0	6.5
INLET GRILL SIZE	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	30	0	0	0	0	0	0	0	0	0	14

TYPE:
SITE NAME:

LO # 101808
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	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	4	@ 10.6 cfm	42.4	cfm
Table 9.32.3.A.	TOTAL			169.6 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	169.6	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	90.1	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	74 F	1.08	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-2	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:

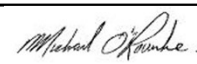
City:

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: 

HRAI # 001820

Date: July-23

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 101808	Model: VILLA 3	Builder: GREENPARK HOMES	Date: 2023-07-14																																																									
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>1147</td><td>9</td><td>9749.5</td></tr> <tr><td>First</td><td>1147</td><td>10</td><td>11584.7</td></tr> <tr><td>Second</td><td>1484</td><td>9</td><td>13504.4</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>34,838.6 ft³</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>986.5 m³</td></tr> </tbody> </table>			Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)	Bsmt	1147	9	9749.5	First	1147	10	11584.7	Second	1484	9	13504.4	Third	0	9	0	Fourth	0	9	0	Total:			34,838.6 ft ³	Total:			986.5 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%;">0.365</td> </tr> <tr> <td>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" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>T_{in} °C</th> <th>T_{out} °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTD_h</td> <td>22</td> <td>-19</td> <td>41</td> <td>74</td> </tr> <tr> <td>Summer DTD_c</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						T _{in} °C	T _{out} °C	ΔT °C	ΔT °F	Winter DTD _h	22	-19	41	74	Summer DTD _c	24	30	6	11
Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)																																																									
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Winter DTD _h	22	-19	41	74																																																								
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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 274.03 x 41 °C x 1.2 = 4944 W = 16869 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.100 x 274.03 x 6 °C x 1.2 = 201 W = 687 Btu/h																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 74 °F x 1.08 x 0.25 = 1593 Btu/h			$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 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)	HL _{airve} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{clevel})																																																								
1	0.5	16,869	7,059	1.195																																																								
2	0.3		10,314	0.491																																																								
3	0.2		12,569	0.268																																																								
4	0		0	0.000																																																								
5	0		0	0.000																																																								
*HL_{airbv} = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HL_{airve} = 0																																																												
				Michael O'Rourke BCIN# 19669 																																																								

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: VILLA 3 **WOB** **BUILDER:** GREENPARK HOMES
SFQT: 2613 **LO#** 101808 **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):	34838.6	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	5.5 ft
LENGTH: 56.0 ft	WIDTH: 29.0 ft	EXPOSED PERIMETER:	132.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	38.0 ft

2012 OBC - COMPLIANCE PACKAGE

Component

Compliance Package A1

Nominal Min. Eff.

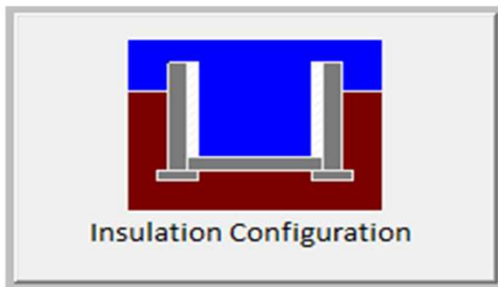
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 600 mm below 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

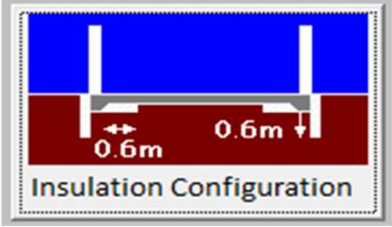
Weather Station Description		
Province:	Ontario	
Region:	Oshawa	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	8.8	
Exposed Perimeter (m):	40.2	
Wall Height (m):	2.6	
Depth Below Grade (m):	1.39	
Window Area (m ²):	0.8	
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):		655

TYPE: VILLA 3
LO# 101808

WOB

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):	8.5	
Exposed Perimeter (m):	11.6	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		134

TYPE: VILLA 3
LO# 101808

WOB

Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

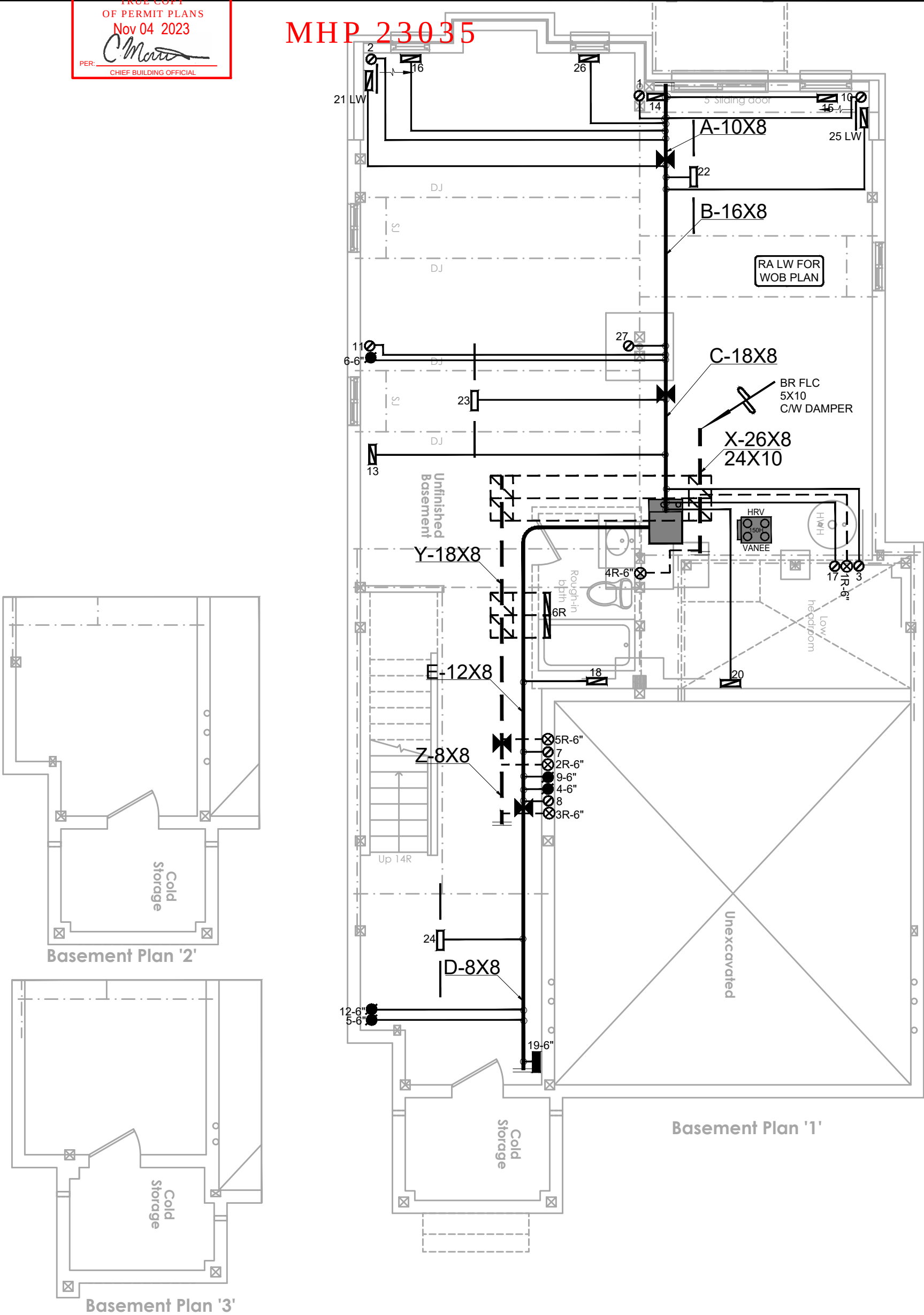
Weather Station Description				
Province:	Ontario			
Region:	Oshawa			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	8.44			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	986.5			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1315.1 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: VILLA 3
LO# 101808

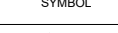
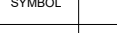
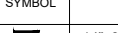
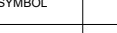
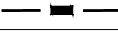
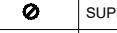
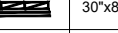
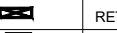
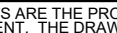
WOB

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

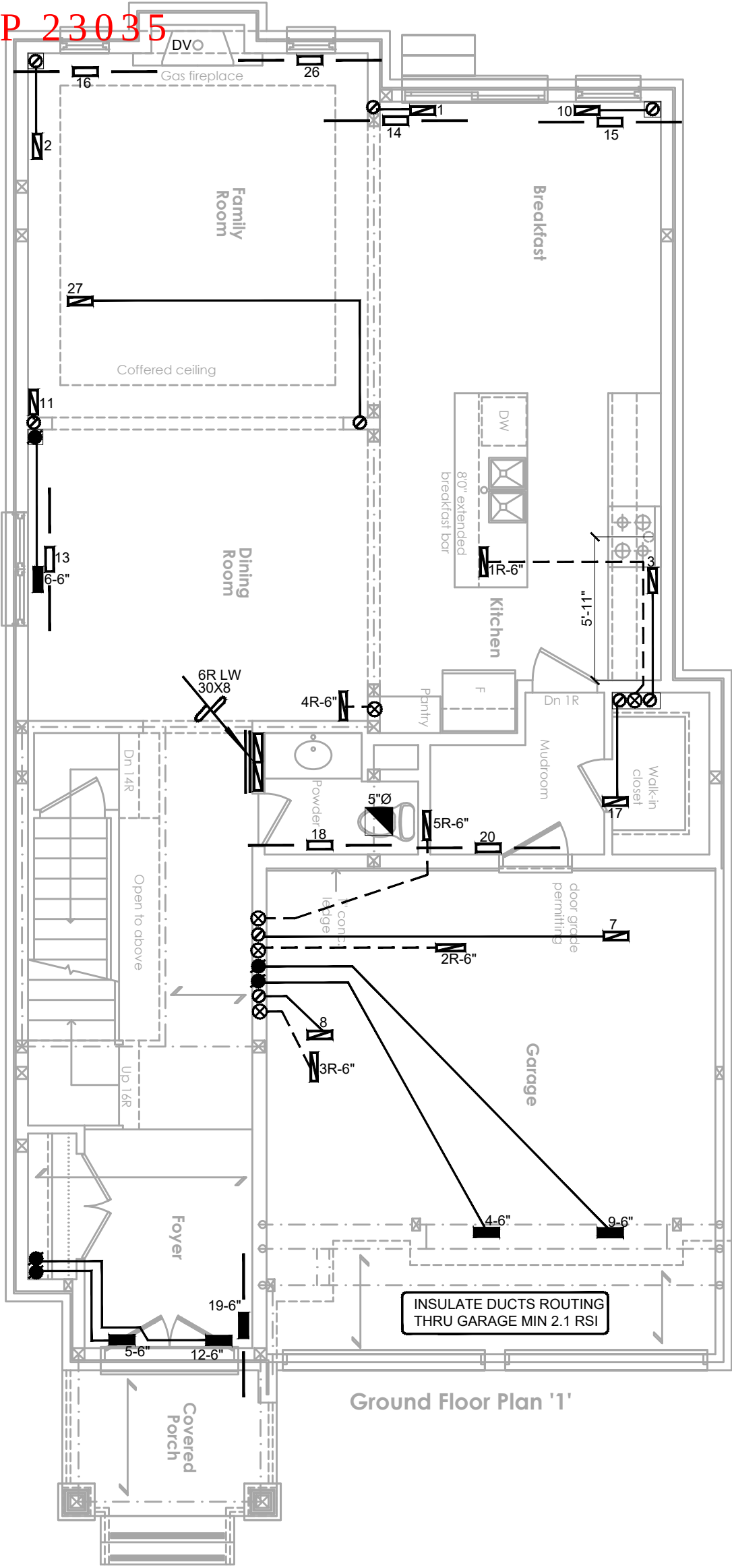
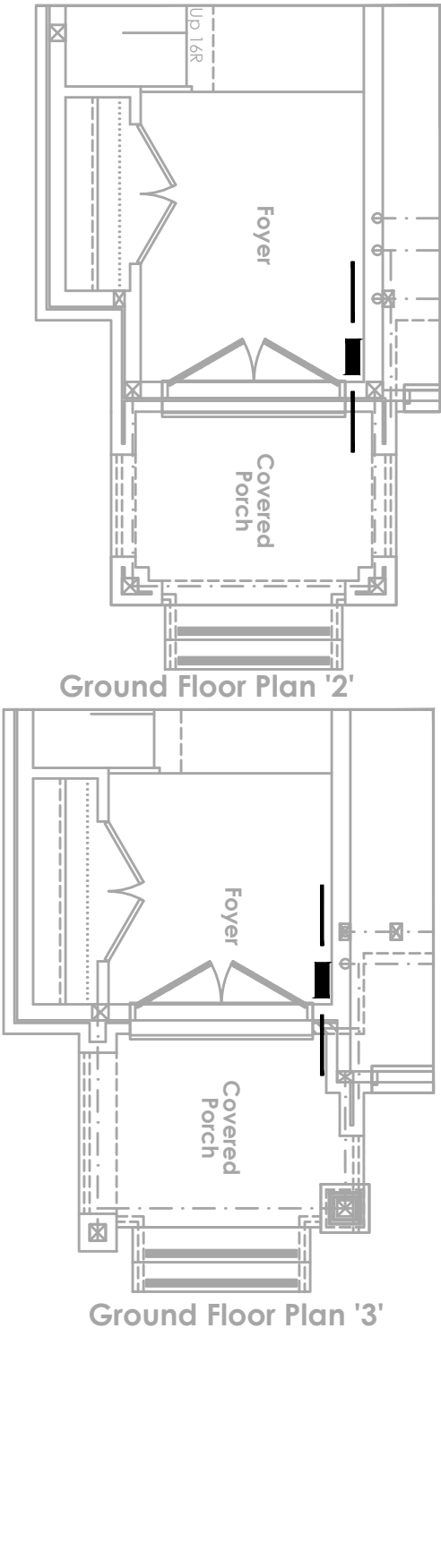
MHP 23035



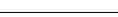
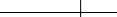
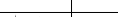
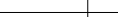
WOB

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								 Michael O'Rourke BCIN # 19669 HVAC Designs Ltd.		
Project Name								PACKAGE A1		
GREENPARK HOMES								Sheet Title		
ZADORRA OSHAWA, ONTARIO								BASEMENT HEATING LAYOUT		
WOB VILLA 3								Date JULY/2023		
2613 sqft								Scale 3/16" = 1'-0"		
								BCIN# 19669		
								LO# 101808		

MHP 23035



WOB

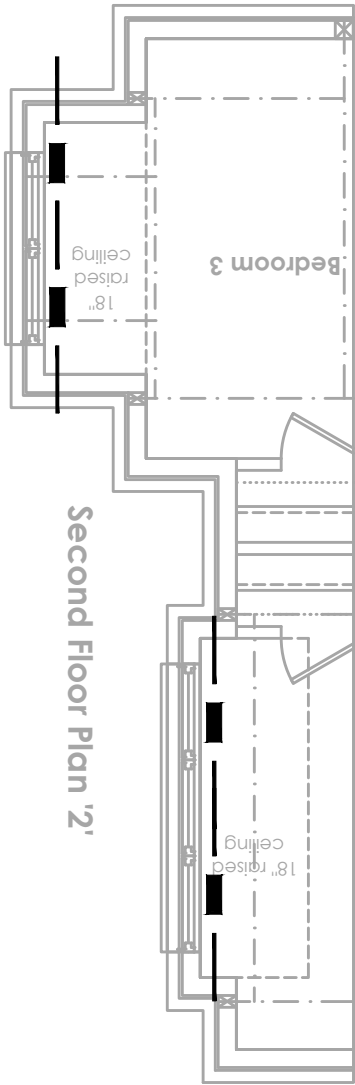
HVAC LEGEND								3.			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.			
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Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdsgns.ca Web: www.hvacdsgns.ca Specializing in Residential Mechanical Design Services								Sheet Title	
Project Name										FIRST FLOOR HEATING LAYOUT	
ZADORRA OSHAWA, ONTARIO										Date JULY/2023	
WOB VILLA 3										Scale 3/16" = 1'-0"	
2613 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.				BCIN# 19669					
						LO#		101808			



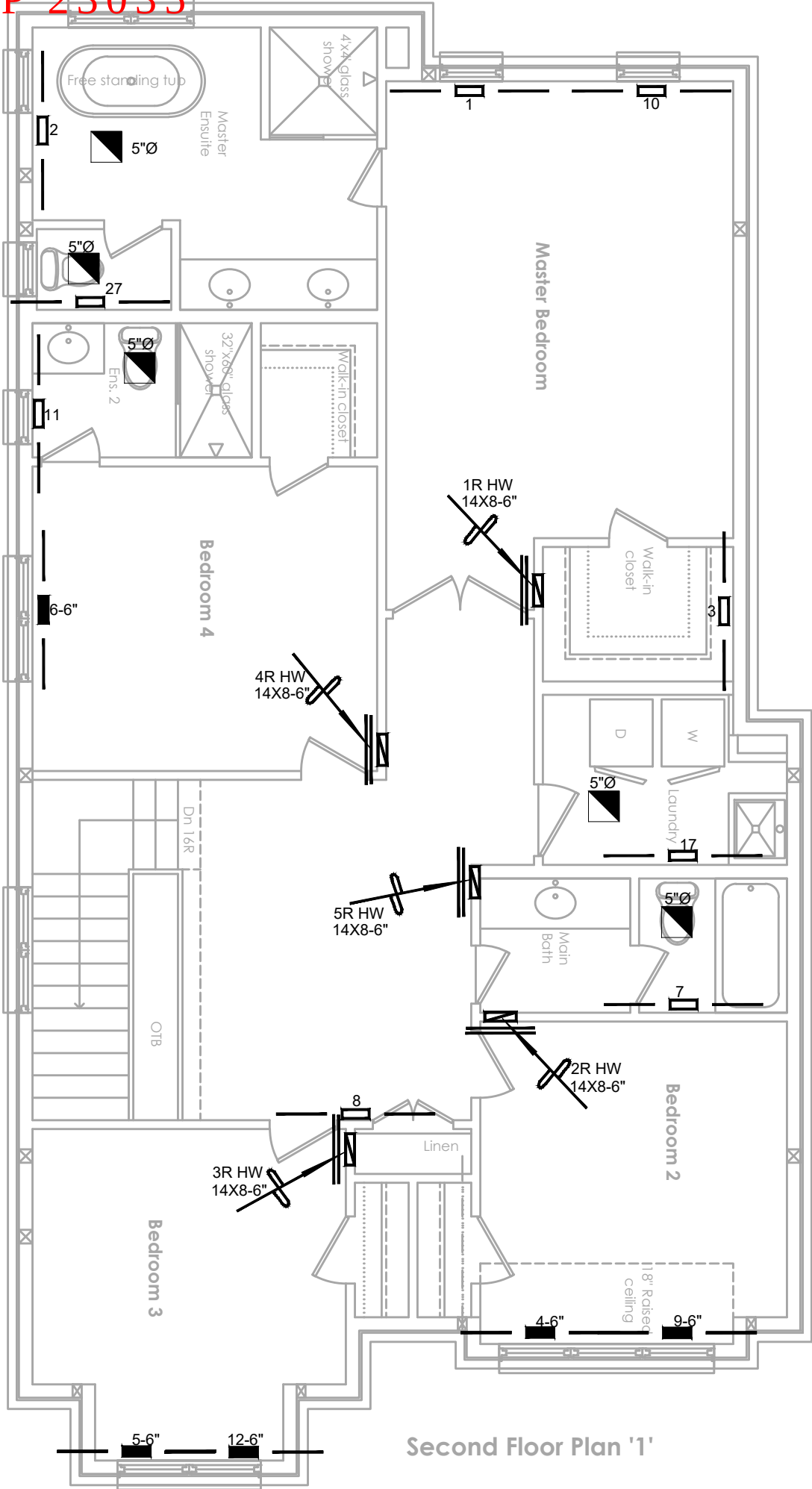
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Specializing in Residential Mechanical Design Services

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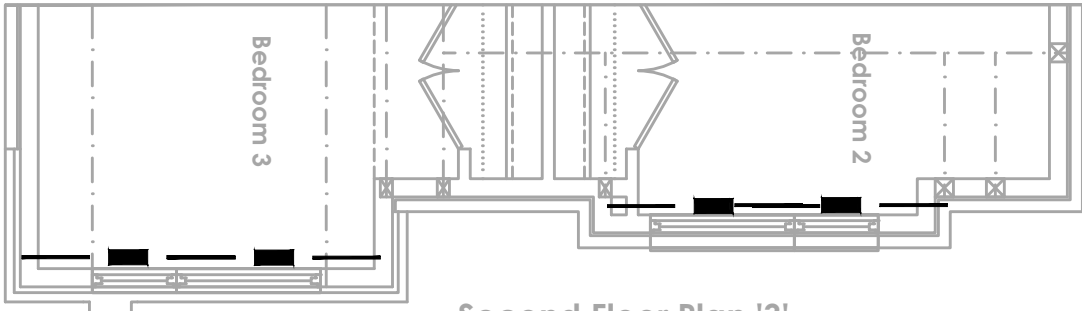
MHP 23035



Second Floor Plan '2'

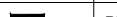
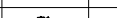
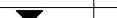


Second Floor Plan '1'



Second Floor Plan '3'

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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GREENPARK HOMES										SECOND FLOOR	
Project Name										HEATING LAYOUT	
ZADORRA										Date	
OSHAWA, ONTARIO										JULY/2023	
WOB		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.				Scale					
VILLA 3						3/16" = 1'-0"					
2613 sqft						BCIN# 19669					
						LO#		101808			