

MHP 23034

SITE NAME: ZADORRA ESTATES INC				CORPORATION OF THE CITY OF OSHAWA				DATE: Jul-23				WINTER NATURAL AIR CHANGE RATE 0.342				HEAT LOSS ΔT °F. 74				CSA-F280-12			
BUILDER: GREENPARK HOMES				TYPE: RESIDENTIAL				LO# 101805				SUMMER NATURAL AIR CHANGE RATE 0.094				HEAT GAIN ΔT °F. 11				SB-12 PACKAGE A1			
ROOM USE				ENS-1				BED-2				BED-3				BED-4				BATH			
EXP. WALL				24				12				26				34				6			
CLG. HT.				9				9				9				9				9			
FACTORS				211				109				237				309				55			
GRS.WALL AREA				291				109				237				309				73			
LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN			
GLAZING				16 332 248				16 332 248				40 831 1642				35 727 1437				7 145 171			
NORTH				0 0 0				0 0 0				0 0 0				0 0 0				0 0 0			
EAST				0 0 0				0 0 0				0 0 0				0 0 0				10 208 410			
SOUTH				0 0 0				0 0 0				0 0 0				0 0 0				0 0 0			
WEST				0 0 0				0 0 0				0 0 0				0 0 0				0 0 0			
SKYLT.				0 0 0				0 0 0				0 0 0				0 0 0				0 0 0			
DOORS				0 0 0				0 0 0				0 0 0				0 0 0				0 0 0			
NET EXPOSED WALL				4.4 0.6 263 1147 170				195 851 126 46 198 29				93 406 60 197 857 127				274 1196 177 48 207 31				62 269 40 36 155 23			
NET EXPOSED BSMT WALL ABOVE GR				3.5 0.5 0 0 0				0 0 0 0 0 0				0 0 0 0 0 0				0 0 0 0 0 0				0 0 0 0 0 0			
EXPOSED CLG				1.3 0.6 257 322 143				148 185 82 39 49 22				148 185 82 168 210 94				130 163 72 64 80 36				276 346 154 26 33 14			
NO ATTIC EXPOSED CLG				2.7 1.2 0 0 0				0 0 0 0 0 0				0 0 0 0 0 0				41 110 49 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 0 168 418 62				9 22 3 4 10 1				27 67 10 26 65 10			
BASEMENT/CRAWL HEAT LOSS				0 0 0				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				0 0 0			
SUBTOTAL HT LOSS				2051				1515				247				924				2316			
SUB TOTAL HT GAIN				1463				744				51				390				1925			
LEVEL FACTOR / MULTIPLIER				0.20 0.26				0.20 0.26				0.20 0.26				0.20 0.26				0.20 0.26			
AIR CHANGE HEAT LOSS				539				398				65				243				608			
AIR CHANGE HEAT GAIN				87				44				3				23				114			
DUCT LOSS				0				0				0				292				56			
DUCT GAIN				0				0				0				293				25			
HEAT GAIN PEOPLE				240				0				1				240				0			
HEAT GAIN APPLIANCES/LIGHTS				648				0				648				648				0			
TOTAL HT LOSS BTU/H				2589				1912				312				1167				3217			
TOTAL HT GAIN x 1.3 BTU/H				3480				1024				70				1691				4185			

ROOM USE			DN/LV			KT/BF			FAM			LAUN			PWD			FOY			MUD									WOD			BAS					
EXP. WALL			34			34			36			11			32			5			15									37			166					
CLG. HT.			10			10			10			10			10			10			10									9			9					
FACTORS																																						
GRS.WALL AREA			LOSS			GAIN																																
GLAZING			343			343			364			111			323			51			152									315			1024					
			LOSS			GAIN			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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	62	46						
EAST	20.8	41.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	332	657	0	0	0	0	0	0	0	0	0	0	0	0	0						
SOUTH	20.8	24.4	44	914	1073	0	0	0	0	0	0	0	0	0	0	7	145	171	0	0	0	0	0	0	0	0	0	0	6	125	146							
WEST	20.8	41.0	0	0	0	56	1163	2299	22	457	903	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
SKYLT.	36.4	100.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
DOORS	19.6	2.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	548	81	21	411	61	0	0	0	0	21	411	61	0	0	0						
NET EXPOSED WALL	4.4	0.6	299	1304	193	287	1252	186	342	1488	221	111	484	72	316	1378	204	7	28	4	131	569	84	0	0	0	0	0	0	0	0	0						
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	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			2219			2416			1945			484			1523			909			980			0														
SUB TOTAL HT GAIN				1267		2484				1124			72		375			742			145																	
LEVEL FACTOR / MULTIPLIER			0.30	0.44		0.30	0.44		0.30	0.44		0.30	0.44		0.30	0.44		0.30	0.44		0.30	0.44																
AIR CHANGE HEAT LOSS				970		1056			850			212			666			397			428																	
AIR CHANGE HEAT GAIN					75		148			67		4		22		44					9																	
DUCT LOSS				0		0			0			0			0			0			0																	
DUCT GAIN				0		0			0			0			0			0			0																	
HEAT GAIN PEOPLE	240			0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
HEAT GAIN APPLIANCES/LIGHTS					648		648			648		648		648		0			0		0																	
TOTAL HT LOSS BTU/H				3189		3472			2796			696		2189		1306			1408																			
TOTAL HT GAIN x 1.3 BTU/H					2587		4263			2390		941		516		1022			200																			

MHP 23034SITE NAME: ZADORRA ESTATES INC
BUILDER: GREENPARK HOMES

CORPORATION OF THE CITY OF OSHWATHE VILLA 2

DATE: Jul-23

GFA: 2487 LO# 101805

HEATING CFM 928
TOTAL HEAT LOSS 46,426
AIR FLOW RATE CFM 19.99COOLING CFM 928
TOTAL HEAT GAIN 29,928
AIR FLOW RATE CFM 31**TRUE COPY**
2023 PERMIT PLANS
Nov 14 2023furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
table pressure
for s/a & r/a 0.35

RUN COUNT	4th	3rd	2nd	1st	E
S/A	0	0	14	9	PER-4
R/A	0	0	5	1	4

CHIEF BUILDING OFFICIAL

max s/a diff

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

All S/A runs 5"Ø unless noted otherwise on layout.

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#GOODMAN
GMEC960603BNA 60
FAN SPEED
LOW
MEDLOW
MEDIUM 928
MEDIUM HIGH 1017
HIGH 1131AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600DESIGN 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	BATH	FLEX	WIC-2	MBR	ENS-2	ENS	DN/LV	KT/BF	KT/BF	FAM	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.29	0.96	0.31	1.17	1.61	1.54	0.62	1.27	0.64	1.29	0.68	0.96	3.19	1.74	1.74	1.40	0.70	2.19	1.31	1.41	3.97	3.97	3.97	3.97
CFM PER RUN HEAT	26	19	6	23	32	31	12	25	13	26	14	19	64	35	35	28	14	44	26	28	79	79	79	79
RM GAIN MBH.	1.74	0.51	0.07	1.69	2.09	1.95	0.36	0.72	0.69	1.74	0.26	0.51	2.59	2.13	2.13	1.19	0.94	0.52	1.02	0.20	0.41	0.41	0.41	0.41
CFM PER RUN COOLING	54	16	2	52	65	61	11	22	21	54	8	16	80	66	66	37	29	16	32	6	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	0.17	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.	48	45	30	28	48	54	53	37	44	30	26	37	24	20	26	34	10	39	38	41	28	23	17	37
EQUIVALENT LENGTH	190	180	140	170	140	180	190	160	130	130	190	220	150	110	120	130	120	150	110	150	90	80	100	140
TOTAL EFFECTIVE LENGTH	238	225	170	198	188	234	243	197	174	160	216	257	174	130	146	164	130	189	148	191	118	103	117	177
ADJUSTED PRESSURE	0.07	0.08	0.1	0.09	0.09	0.07	0.07	0.09	0.1	0.11	0.08	0.07	0.1	0.13	0.12	0.1	0.13	0.09	0.12	0.09	0.15	0.17	0.15	0.1
ROUND DUCT SIZE	5	4	4	6	5	6	4	4	4	5	4	4	5	5	5	4	4	4	4	4	5	5	5	5
HEATING VELOCITY (ft/min)	191	218	69	117	235	158	138	287	149	191	161	218	470	257	257	321	161	505	298	321	580	580	580	580
COOLING VELOCITY (ft/min)	396	184	23	265	477	311	126	252	241	396	92	184	587	485	485	424	333	184	367	69	95	95	95	95
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	C	D	C	C	B	A	B	C	B	C	C	C	B	D	D	D	E	A	A	B	E	E	E	A

RUN #	25	26	27
ROOM NAME	BED-3	BED-4	FAM
RM LOSS MBH.	1.61	1.54	1.40
CFM PER RUN HEAT	32	31	28
RM GAIN MBH.	2.09	1.95	1.19
CFM PER RUN COOLING	65	61	37
ADJUSTED PRESSURE	0.17	0.17	0.17
ACTUAL DUCT LGH.	52	58	22
EQUIVALENT LENGTH	150	210	110
TOTAL EFFECTIVE LENGTH	202	268	132
ADJUSTED PRESSURE	0.09	0.06	0.13
ROUND DUCT SIZE	5	6	4
HEATING VELOCITY (ft/min)	235	158	321
COOLING VELOCITY (ft/min)	477	311	424
OUTLET GRILL SIZE	3X10	4X10	3X10
TRUNK	B	A	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	211	0.06	8.4	8	x	8	475			TRUNK G	0	0.00	0	0	x	8	0	0	0
TRUNK B	392	0.06	10.6	14	x	8	504			TRUNK H	0	0.00	0	0	x	8	0	0	0
TRUNK C	531	0.06	11.9	18	x	8	531			TRUNK I	0	0.00	0	0	x	8	0	0	0
TRUNK D	145	0.08	6.8	8	x	8	326			TRUNK J	0	0.00	0	0	x	8	0	0	0
TRUNK E	396	0.08	9.9	12	x	8	594			TRUNK K	0	0.00	0	0	x	8	0	0	0
TRUNK F	0	0.00	0	0	x	8	0			TRUNK L	0	0.00	0	0	x	8	0	0	0

RETURN AIR #	1	2	3	4	5	6	BR													
AIR VOLUME	85	95	85	80	80	345	0	0	0	0	0	0	0	0	0	0	0	0	0	158
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
ACTUAL DUCT LGH.	53	29	66	61	60	49	1	1	1	1	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	185	135	235	195	190	240	0	0	0	0	0	0	0	0	0	0	0	0	0	140
TOTAL EFFECTIVE LH	238	164	301	256	250	289	1	1	1	1	1	1	1	1	1	1	1	1	1	154
ADJUSTED PRESSURE	0.06	0.09	0.05	0.06	0.06	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	0.10
ROUND DUCT SIZE	6	5.6	6	5.9	5.9	10.6	0	0	0	0	0	0	0	0	0	0	0	0	0	6.6
INLET GRILL SIZE	8	8	8	8	8	8	0	0	0	0	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	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	30	0	0	0	0	0	0	0	0	0	0	0	0	0	14

TYPE: VILLA 2
SITE NAME: ZADORRA ESTATES INC

LO # 101805

MHP 23034

CORPORATION OF THE CITY OF OSHAWA
TRUE COPY
RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY
Nov 14 2023PER: 
CHIEF BUILDING OFFICIAL

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	2	@ 21.2 cfm	42.4	cfm
Other Bedrooms	3	@ 10.6 cfm	31.8	cfm
Kitchen & Bathrooms	5	@ 10.6 cfm	53	cfm
Other Rooms	5	@ 10.6 cfm	53.0	cfm
Table 9.32.3.A.		TOTAL	180.2	cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED

9.32.3.4.(1)

1	Bedroom	31.8	cfm
2	Bedroom	47.7	cfm
3	Bedroom	63.6	cfm
4	Bedroom	79.5	cfm
5	Bedroom	95.4	cfm
	TOTAL	79.5	cfm

SUPPLEMENTAL VENTILATION CAPACITY

9.32.3.5.

Total Ventilation Capacity	180.2	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	100.7	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANE V150H Location: BSMT

79.5 cfm ☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM		ΔT °F		FACTOR		% LOSS
79.5 CFM	X	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-2	BY INSTALLING CONTRACTOR	50	✓	3.5
PWD	BY INSTALLING CONTRACTOR	50	✓	3.5

HEAT RECOVERY VENTILATOR

9.32.3.11.

Model: VANE V150H

150 cfm high 35 cfm low

75 % Sensible Efficiency @ 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:



HRAI #

001820

Date:

July-23

MHP 23034CORPORATION OF THE CITY OF OSHAWA
TRUE COPY
OF PERMIT PLANS
Nov 14 2023PERMIT
CHIEF BUILDING OFFICIAL30-12 Residential Heat Loss and Heat Gain Calculations
ula Sheet (For Air Leakage / Ventilation Calculation)

LO#: 101805

Model: VILLA 2

Builder: GREENPARK HOMES

Date: 2023-07-11

Volume Calculation**House Volume**

Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)
Bsmt	1144	9	9724
First	1144	10	11554.4
Second	1355	9	12330.5
Third	0	9	0
Fourth	0	9	0
Total:			33,608.9 ft ³
Total:			951.7 m ³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.342
SUMMER NATURAL AIR CHANGE RATE	0.094

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

5.2.3.1 Heat Loss due to Air Leakage

$$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$$

$$0.342 \times 264.36 \times 41^\circ\text{C} \times 1.2 = 4474 \text{ W}$$

$$= 15266 \text{ Btu/h}$$

6.2.6 Sensible Gain due to Air Leakage

$$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

$$0.094 \times 264.36 \times 6^\circ\text{C} \times 1.2 = 182 \text{ W}$$

$$= 622 \text{ Btu/h}$$

5.2.3.2 Heat Loss due to Mechanical Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

$$80 \text{ CFM} \times 74^\circ\text{F} \times 1.08 \times 0.25 = 1593 \text{ Btu/h}$$

6.2.7 Sensible heat Gain due to Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

$$80 \text{ CFM} \times 11^\circ\text{F} \times 1.08 \times 0.25 = 236 \text{ Btu/h}$$

5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)

$$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agcleve} + HL_{bgcleve})\}$$

Level	Level Factor (LF)	HL _{airve} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{cleve})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{level})
1	0.5	15,266	8,259	0.924
2	0.3		10,476	0.437
3	0.2		11,624	0.263
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} = 0Michael O'Rourke
BCIN# 19669*Michael O'Rourke*

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: VILLA 2

SFQT: 2487

LD#

TRUE COPY
OF PERMIT PLANS
101805
NOV 14 2023

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 (ft ³):	33608.9	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.60	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	5.5 ft
LENGTH: 54.0 ft	WIDTH: 29.0 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	-

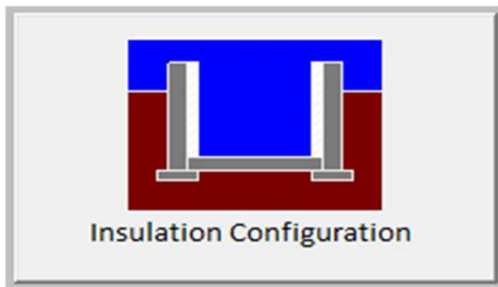
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

Michael O'Rourke

MHP 23034**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):	16.5	 Insulation Configuration
Floor Width (m):	8.8	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.6	
Depth Below Grade (m):	1.68	
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):		1618

TYPE: VILLA 2
LO# 101805



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):	7.68		
Building Configuration			
Type:	Detached		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m ³):	951.7		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1268.6 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
Diameter (mm):	0	0	0
			#4
			0
Natural Infiltration Rates			
Heating Air Leakage Rate (ACH/H):	0.342 ✓		
Cooling Air Leakage Rate (ACH/H):	0.094		

TYPE: VILLA 2
LO# 101805

CORPORATION OF THE CITY OF OSHAWA
TRUE COPY
OF PERMIT PLANS
Nov 14 2023
C. Mann
PER: _____
CHIEF BUILDING OFFICIAL

Unfinished Basement

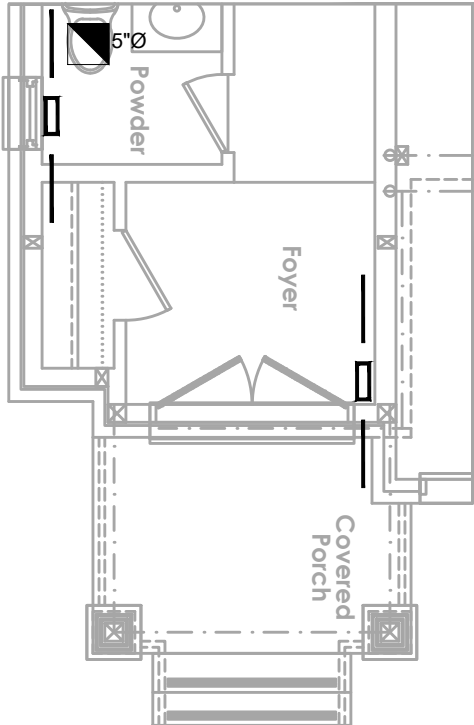
Cold Storage

Cold Storage

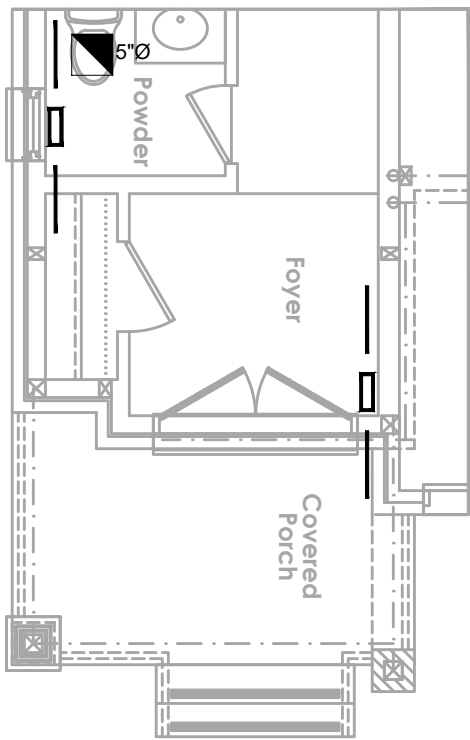


HVAC LEGEND								3.				
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.				
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.				
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN 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 GREENPARK HOMES		 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				HEAT LOSS 48018 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS		Sheet Title BASEMENT HEATING LAYOUT		
Project Name ZADORRA OSHAWA, ONTARIO						MAKE GOODMAN		3RD FLOOR				
						MODEL GMCE960603BNA		2ND FLOOR		14	5	4
						INPUT 60.0 MBTU/H		1ST FLOOR		9	1	3
		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 57.6 MBTU/H		Date JULY/2023				
						COOLING 2.5 TONS		Scale 3/16" = 1'-0"				
						FAN SPEED 928 cfm @ 0.6" w.c.		BCIN# 19669				
VILLA 2 2487 sqft								LO# 101805				
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												

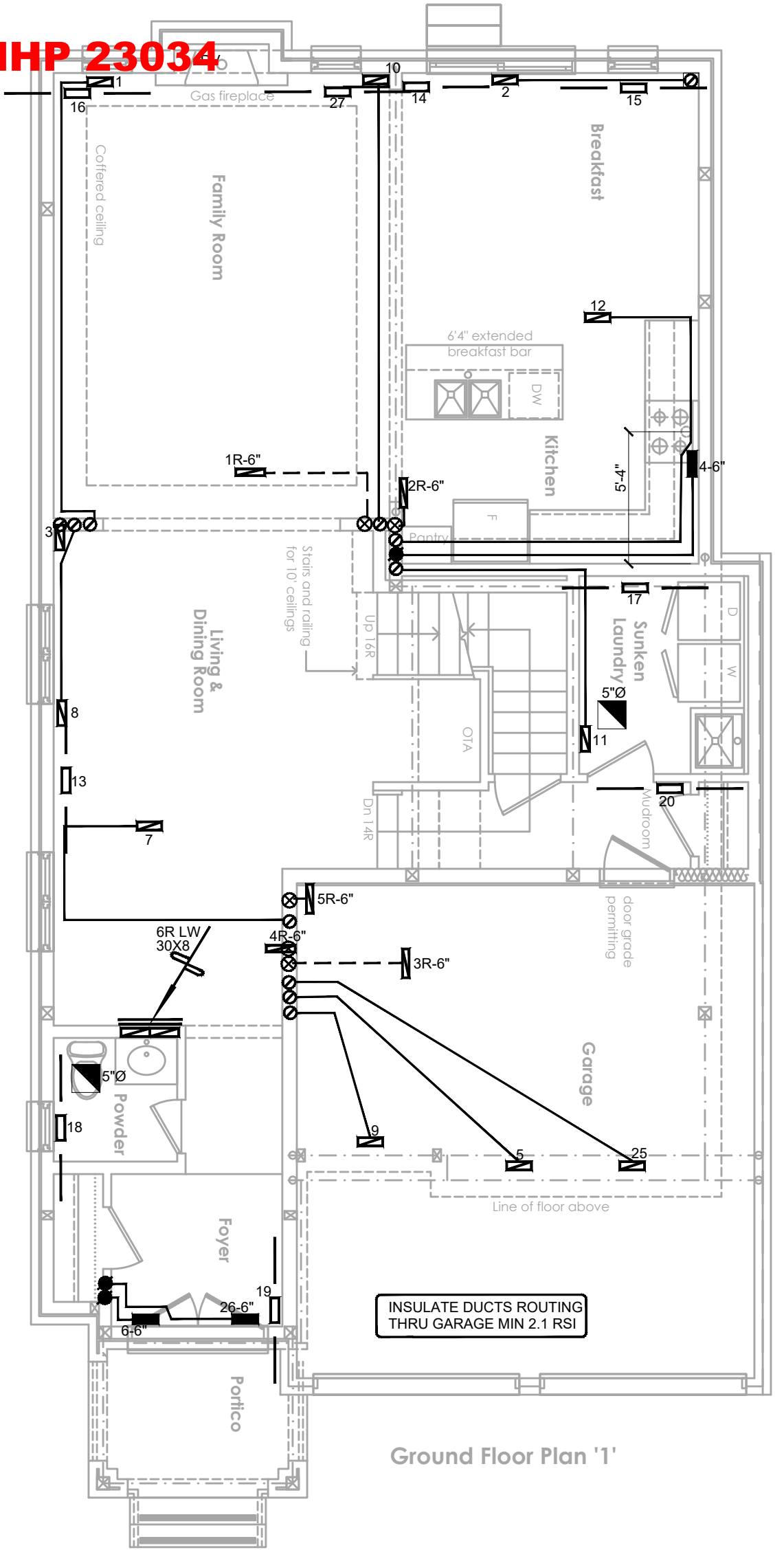
MHP 23034



Ground Floor Plan '2'



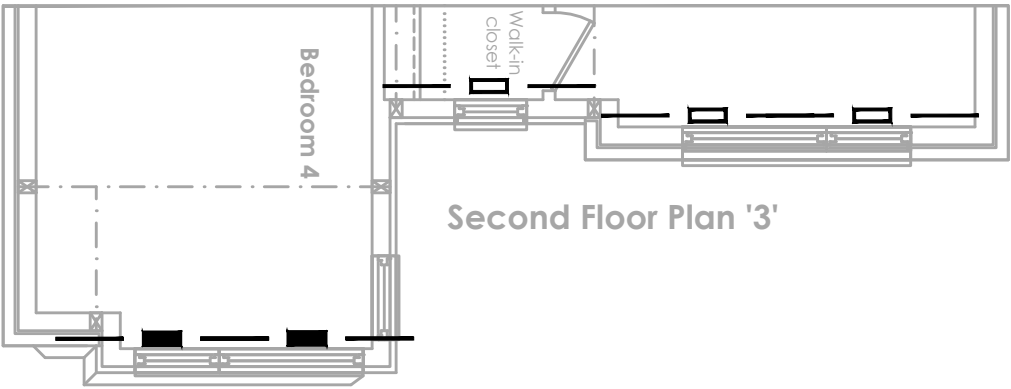
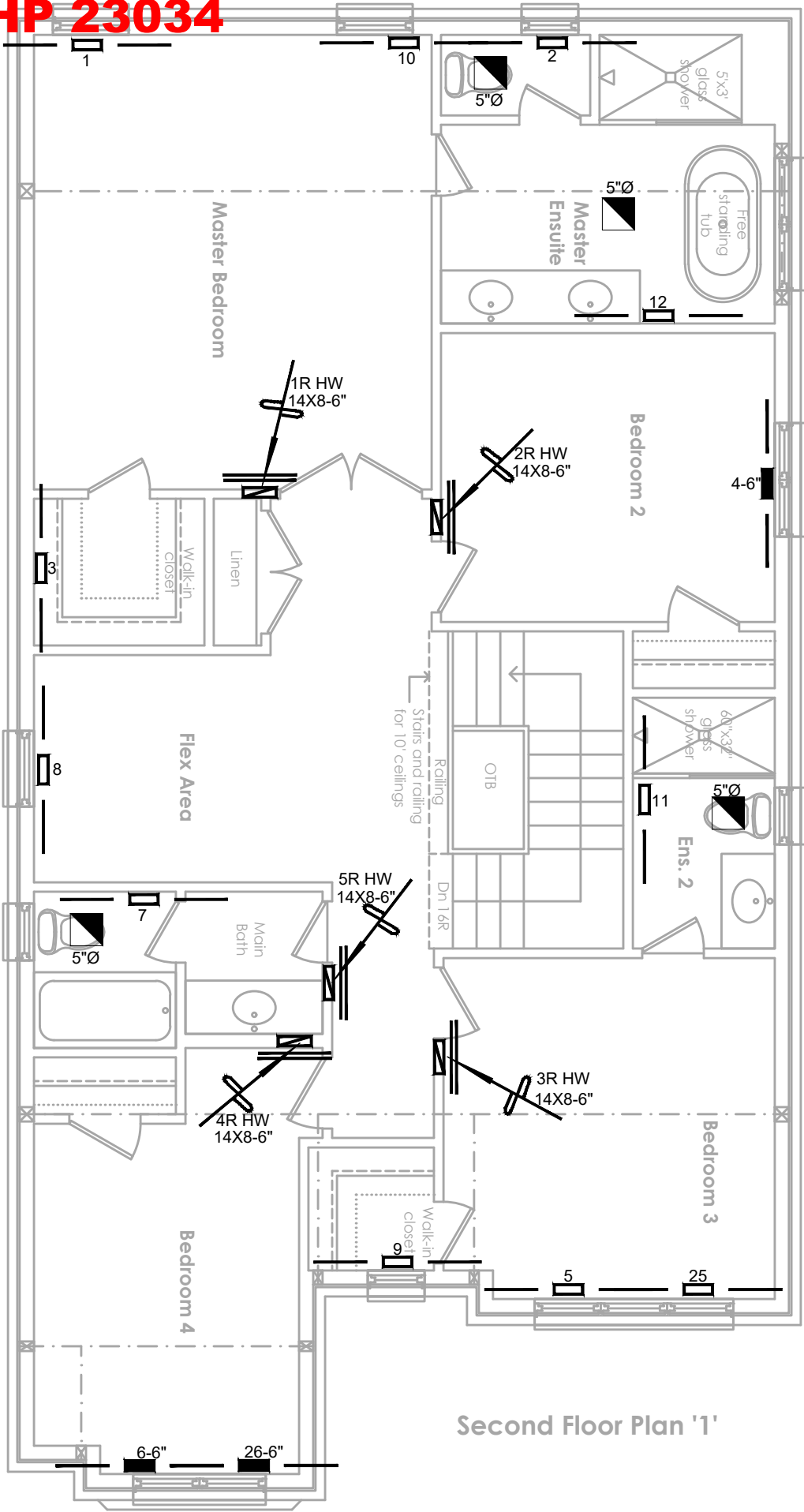
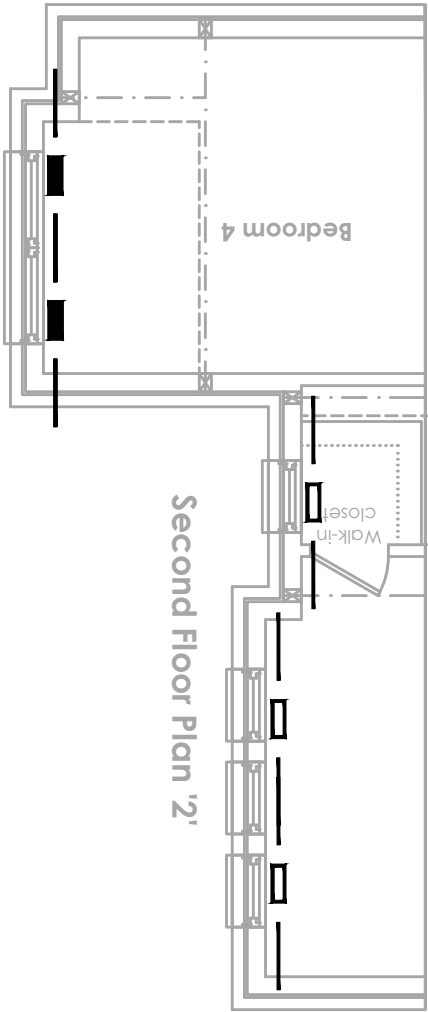
Ground Floor Plan '3'



Ground 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.		
	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 GREENPARK HOMES								 Michael O'Rourke BCIN # 19669 HVAC Designs Ltd.		
Project Name ZADORRA OSHAWA, ONTARIO								PACKAGE A1		
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 FIRST FLOOR HEATING LAYOUT		
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.								Date JULY/2023		
VILLA 2 2487 sqft								Scale 3/16" = 1'-0"		
								BCIN# 19669		
								LO# 101805		

MHP 23034



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 GREENPARK HOMES								 Michael O'Rourke BCIN # 19669 HVAC Designs Ltd.		
Project Name ZADORRA OSHAWA, ONTARIO								PACKAGE A1		
VILLA 2								Sheet Title SECOND FLOOR HEATING LAYOUT		
2487 sqft								Date JULY/2023		
								Scale 3/16" = 1'-0"		
								BCIN# 19669		
								LO# 101805		