HVAC DESIGNS LTD.
375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
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Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

MHP 23037

CORPORATION OF THE CITY OF OSHAWA
TRUE COPY
OF PERMIT PLANS
Nov 11 2023
PER:
CHIEF BUILDING OFFICIAL

SITE NAME: ZADORRA ESTATES INC | DATE: Jul-23 | WINTER NATURAL AIR CHANGE RATE 0.340 ✓ | HEAT LOSS ΔT °F. 74 | CSA-F280-12
BUILDER: GREENPARK HOMES | TYPE: VILLA 7 | GFA: 2741 | LO# 101811 | SUMMER NATURAL AIR CHANGE RATE 0.094 | HEAT GAIN ΔT °F. 11 | SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			ENS2/3			HALL				ENS-4				
EXP. WALL			33			25			7			13			31			31			8			14				4				
CLG. HT.			9			9			9			9			9			9			9			9				9				
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	297			117			279			279			72			126			36											
GLAZING			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN			LOSS	GAIN			
NORTH	20.8	15.5	0	0	0	0	0	0	0	0	0	20	416	309	0	0	0	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	41	852	1683	39	810	1601	0	0	0	0	0	0		10	208	410			
SOUTH	20.8	24.4	0	0	0	7	145	171	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	395	464		0	0	0			
WEST	20.8	41.0	20	416	821	16	332	657	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			
DOORS	19.6	2.9	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			
NET EXPOSED WALL	4.4	0.6	277	1207	179	202	880	130	63	274	41	97	423	63	238	1037	154	240	1046	155	72	314	47	107	466	69		26	113	17			
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	310	388	173	159	199	89	72	90	40	153	192	85	148	185	82	136	170	76	90	113	50	256	321	143		59	74	33			
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0	54	145	64	45	121	54	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	202	503	75	33	82	12	13	32	5	34	85	13		59	147	22			
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				2011			1557			365			1030			2722			2229			459			1266			542				
SUB TOTAL HT GAIN					1173			1047			81			457			2058			1898			101			688			482			
LEVEL FACTOR / MULTIPLIER			0.20	0.26		0.20	0.26		0.20	0.26		0.20	0.26		0.20	0.26		0.20	0.26		0.20	0.26		0.20	0.26			0.20	0.26			
AIR CHANGE HEAT LOSS				533			413			97			273			721			591			122			335			144				
AIR CHANGE HEAT GAIN					69			62			5			27			121			112			6			41			28			
DUCT LOSS				0			0			0			0			344			282			58			160			69				
DUCT GAIN					0			0			0			0			305			288			11			73			51			
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0	0		0		0		0		
HEAT GAIN APPLIANCES/LIGHTS					631			0			0			631			631			631			0			0			0			
TOTAL HT LOSS BTU/H				2544			1970			461			1303			3788			3102			638			1762			754				
TOTAL HT GAIN x 1.3 BTU/H					3058			1441			111			1762			4362			4119			154			1042			730			

ROOM USE				DIN			KT/BF			FAM			LAUN			PWD			FOY			MUD					WOD			BAS		
EXP. WALL				13			49			33			6			12			39			27					38			172		
CLG. HT.				10			10			10			9			10			10			10					9			9		
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN		130			490			330			54			120			390			270					342			1146		
GLAZING				LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN				LOSS	GAIN		LOSS	GAIN	
NORTH	20.8	15.5		25	519	387	0	0	0	0	0	0	0	0	0	0	0	0	22	457	340	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	0	22	457	903	0	0	0			0	0	0	0	0	0
SOUTH	20.8	24.4		0	0	0	25	519	610	0	0	0	7	145	171	7	145	171	0	0	0	0	0	0			0	0	0	6	125	146
WEST	20.8	41.0		0	0	0	58	1205	2381	22	457	903	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
DOORS	19.6	2.9		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	411	61			0	0	0	21	411	61
NET EXPOSED WALL	4.4	0.6		105	457	68	407	1773	263	308	1342	199	47	205	30	113	492	73	346	1508	223	249	1085	161			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			228	801	119	402	1412	209
EXPOSED CLG	1.3	0.6		0	0	0	0	0	0	0	0	0	62	78	35	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
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
BASEMENT/CRAWL HEAT LOSS					0			0			0			0			0			0			0							5744 ✓		
SLAB ON GRADE HEAT LOSS					0			0			0			0			0			0			0					0				
SUBTOTAL HT LOSS					977			3498			1799			428			638			2422			1496					801			7755		
SUB TOTAL HT GAIN						455			3254			1102			236			244			1467			222						119			463
LEVEL FACTOR / MULTIPLIER				0.30	0.46		0.30	0.46		0.30	0.46		0.20	0.26		0.30	0.46		0.30	0.46		0.30	0.46							0.50	0.98	
AIR CHANGE HEAT LOSS					452			1618			832			113			295			1120			692								8351		
AIR CHANGE HEAT GAIN						27			192			65			14			14			87			13									34
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		0	0		0	0		0				0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS						631			631			0			631			0			0			0						0			631
TOTAL HT LOSS BTU/H					1429			5116			2631			541			933			3542			2188					801			16106		
TOTAL HT GAIN x 1.3 BTU/H						1446			5299			1517			1144			336			2019			305						154			1467

TOTAL HEAT GAIN BTU/H: 30701 TONS: 2.56 LOSS DUE TO VENTILATION LOAD BTU/H: 1593 STRUCTURAL HEAT LOSS: 49608 TOTAL COMBINED HEAT LOSS BTU/H: 51201

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.

Michael O'Rourke INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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SITE NAME: ZADORRA ESTATES INC
BUILDER: GREENPARK HOMES TYPE: VILLA 7 DATE: Jul-23 GFA: 2741 LO# 101811

HEATING CFM	928	COOLING CFM	928	furnace pressure	0.6
TOTAL HEAT LOSS	49,608	TOTAL HEAT GAIN	30,465	furnace filter	0.05
AIR FLOW RATE CFM	18.71	AIR FLOW RATE CFM	30[illegible]	a/c coil pressure	0.2
				available pressure for s/a & r/a	0.35

RUN COUNT	4th	3rd	2nd	1st	[illegible]
S/A	0	0	14	7	[illegible]
R/A	0	0	5	1	1

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

#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 #	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	ENS2/3	HALL	BED-3	MBR	ENS-4	BED-4	DIN	KT/BF	KT/BF	FAM	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.27	0.98	0.46	1.30	1.89	1.55	0.64	1.76	1.89	1.27	0.75	1.55	1.43	2.56	2.56	2.63	0.54	0.93	3.54	2.19	4.23	4.23	4.23	4.23
CFM PER RUN HEAT	24	18	9	24	35	29	12	33	35	24	14	29	27	48	48	49	10	17	66	41	79	79	79	79
RM GAIN MBH.	1.53	0.72	0.11	1.76	2.18	2.06	0.15	1.04	2.18	1.53	0.73	2.06	1.45	2.65	2.65	1.52	1.14	0.34	2.02	0.31	0.41	0.41	0.41	0.41
CFM PER RUN COOLING	47	22	3	54	66	63	5	32	66	47	22	63	44	81	81	46	35	10	62	9	12	12	12	12
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	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	38	52	34	40	45	46	41	31	48	51	42	51	24	40	30	45	18	29	30	16	38	34	24	32
EQUIVALENT LENGTH	130	180	180	140	140	140	160	120	150	170	130	190	130	120	120	120	160	160	110	160	150	140	80	120
TOTAL EFFECTIVE LENGTH	168	232	214	180	185	186	201	151	198	221	172	241	154	160	150	165	178	189	140	176	188	174	104	152
ADJUSTED PRESSURE	0.1	0.07	0.08	0.1	0.09	0.09	0.09	0.11	0.09	0.08	0.1	0.07	0.11	0.1	0.11	0.1	0.1	0.09	0.12	0.1	0.09	0.1	0.17	0.11
ROUND DUCT SIZE	4	4	4	**6**	5	**6**	4	4	5	5	4	**6**	4	5	5	4	4	4	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	275	207	103	122	257	148	138	379	257	176	161	148	310	352	352	562	115	195	485	470	580	580	580	580
COOLING VELOCITY (ft/min)	539	252	34	275	485	321	57	367	485	345	252	321	505	595	595	528	402	115	455	103	88	88	88	88
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	D	C	D	D	B	A	B	B	B	D	B	A	D	C	C	C	D	A	A	D	C	C	D	A

RUN #	26
ROOM NAME	ENS
RM LOSS MBH.	0.98
CFM PER RUN HEAT	18
RM GAIN MBH.	0.72
CFM PER RUN COOLING	22
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH.	65
EQUIVALENT LENGTH	160
TOTAL EFFECTIVE LENGTH	225
ADJUSTED PRESSURE	0.08
ROUND DUCT SIZE	4
HEATING VELOCITY (ft/min)	207
COOLING VELOCITY (ft/min)	252
OUTLET GRILL SIZE	3X10
TRUNK	C

SUPPLY AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK A	220	0.07	8.2	8	x	8	495	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	349	0.07	9.8	12	x	8	524	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	339	0.07	9.7	12	x	8	509	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	577	0.07	11.8	16	x	8	649	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	0	0.00	0	0	x	8	0	TRUNK K	0	0.00	0	0	x	8	0
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0

RETURN AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK O	0	0.06	0	0	x	8	0
TRUNK P	0	0.06	0	0	x	8	0
TRUNK Q	0	0.06	0	0	x	8	0
TRUNK R	0	0.06	0	0	x	8	0
TRUNK S	0	0.06	0	0	x	8	0
TRUNK T	0	0.06	0	0	x	8	0
TRUNK U	0	0.06	0	0	x	8	0
TRUNK V	0	0.06	0	0	x	8	0
TRUNK W	0	0.06	0	0	x	8	0
TRUNK X	928	0.06	14.7	26	x	8	642
TRUNK Y	430	0.06	11	14	x	8	553
TRUNK Z	160	0.06	7.6	8	x	8	360
DROP	928	0.06	14.7	24	x	10	557

RETURN AIR #	1	2	3	4	5	6										**BR**
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	90	80	80	80	100	340	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
ACTUAL DUCT LGH.	39	36	48	49	35	23	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	145	175	185	190	135	150	0	0	0	0	0	0	0	0	0	180
TOTAL EFFECTIVE LH	184	211	233	239	170	173	1	1	1	1	1	1	1	1	1	194
ADJUSTED PRESSURE	0.08	0.07	0.06	0.06	0.09	0.09	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.08
ROUND DUCT SIZE	5.7	5.6	5.9	5.9	5.7	9.1	0	0	0	0	0	0	0	0	0	7
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

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

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MHP 23037

TYPE: VILLA 7
SITE NAME: ZADORRA ESTATES INC
LO # 101811

CORPORATION OF THE CITY OF OSHAWA
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OF PERMIT PLANS
Nov 11 2023
PER:
CHIEF BUILDING OFFICIAL

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

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	4	@ 10.6 cfm	42.4	cfm
Other Rooms	3	@ 10.6 cfm	31.8	cfm
Table 9.32.3.A.		TOTAL	148.4 ✓	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	148.4	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	68.9 ✓	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
ENS2/3	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 @ 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: Michael O'Rourke
HRAI # 001820
Date: July-23

I REVIEW AND TAKE RESPONIBILITY 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

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CORPORATION OF THE CITY OF OSHAWA
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OF PERMIT PLANS
Nov 11 2023
PER: CHIEF BUILDING OFFICIAL

F280-12 Residential Heat Loss and Heat Gain Calculations

rmula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 101811 Model: VILLA 7 Builder: GREENPARK HOMES Date: 2023-07-12

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1213	9	10917
First	1213	10	12130
Second	1547	9	13923
Third	0	9	0
Fourth	0	9	0
		Total:	36,970.0 ft³
		Total:	1046.9 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.340
SUMMER NATURAL AIR CHANGE RATE	0.094

Design Temperature Difference

	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-19	41	74
Summer DTDc	24	30	6	11

5.2.3.1 Heat Loss due to Air Leakage

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

0.340 x 290.80 x 41 °C x 1.2 = 4895 W

= **16702 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 x 290.80 x 6 °C x 1.2 = 200 W

= **681 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 CFM x 74 °F x 1.08 x 0.25 = **1593 Btu/h**

6.2.7 Sensible heat Gain due to Ventilation

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

80 CFM x 11 °F x 1.08 x 0.25 = **236 Btu/h**

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

$$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$$

Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL_{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5	16,702	8,556	0.976
2	0.3		10,829	0.463
3	0.2		12,609	0.265
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
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MHP 23037

HEAT LOSS AND GAIN SUMMARY SHEET

CORPORATION OF THE CITY OF OSHAWA
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Nov 11 2023
PER:
CHIEF BUILDING OFFICIAL

MODEL: VILLA 7 **BUILDER:** GREENPARK HOMES
SFQT: 2741 **LO#** 101811 **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):	36970.0	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:	6.0 ft
LENGTH: 57.0 ft	WIDTH: 29.0 ft	EXPOSED PERIMETER:	172.0 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

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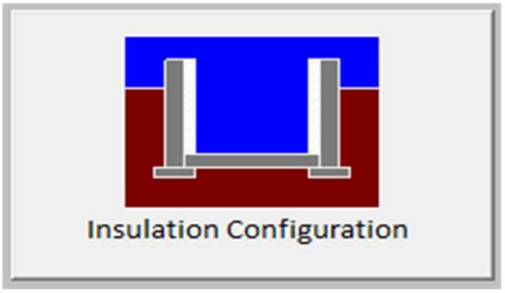
Residential Fo Thermal Load Calculator

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):	**17.4**	 Insulation Configuration
Floor Width (m):	**8.8**	
Exposed Perimeter (m):	**0.0**	
Wall Height (m):	**2.7**	
Depth Below Grade (m):	**1.83**	
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):	**1683**	

TYPE: VILLA 7
LO# 101811

Michael O'Rourke BCIN #19669

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Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description	
Province:	Ontario
Region:	Oshawa
Weather Station Location:	Open flat terrain, grass
Anemometer height (m):	10
Local Shielding	
Building Site:	Suburban, forest
Walls:	Heavy
Flue:	Heavy
Highest Ceiling Height (m):	7.62
Building Configuration	
Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	1046.9
Air Leakage/Ventilation	
Air Tightness Type:	Present (1961-) (3.57 ACH)
Custom BDT Data:	ELA @ 10 Pa. 1395.5 cm^2
	3.57 ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply 37.5 / Total Exhaust 37.5
Flue Size	
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Natural Infiltration Rates	
Heating Air Leakage Rate (ACH/H):	**0.340**
Cooling Air Leakage Rate (ACH/H):	**0.094**

TYPE: VILLA 7
LO# 101811

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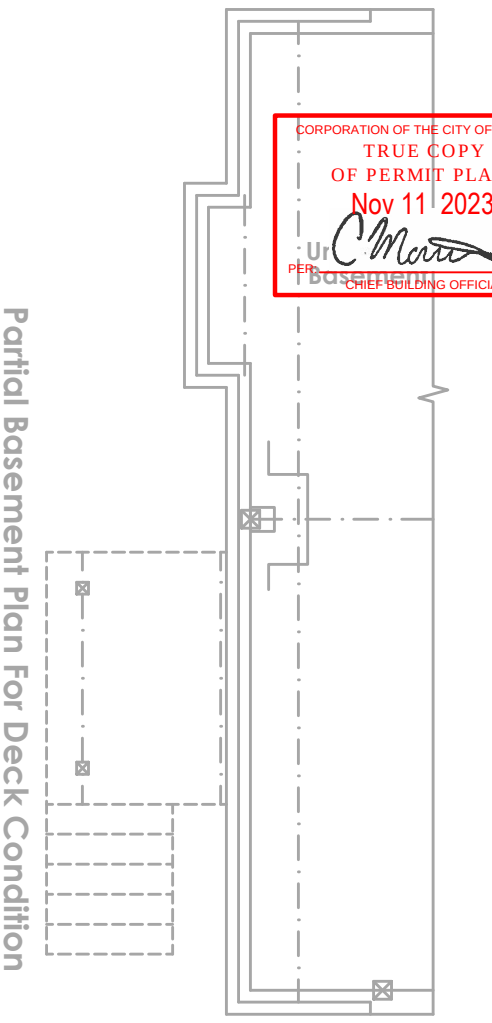
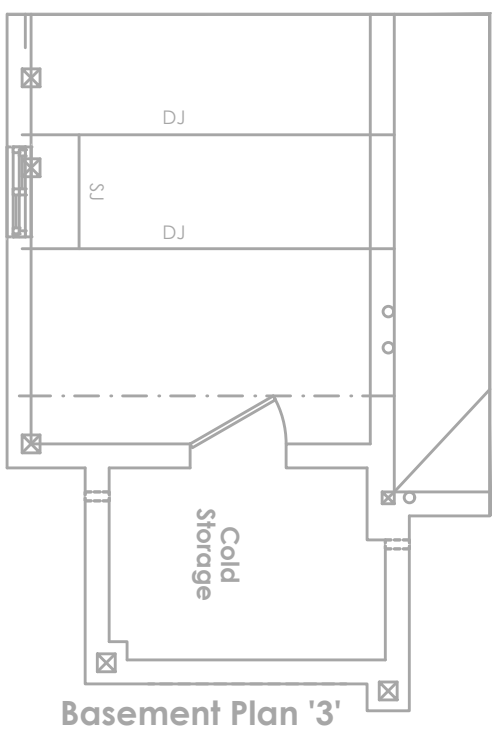
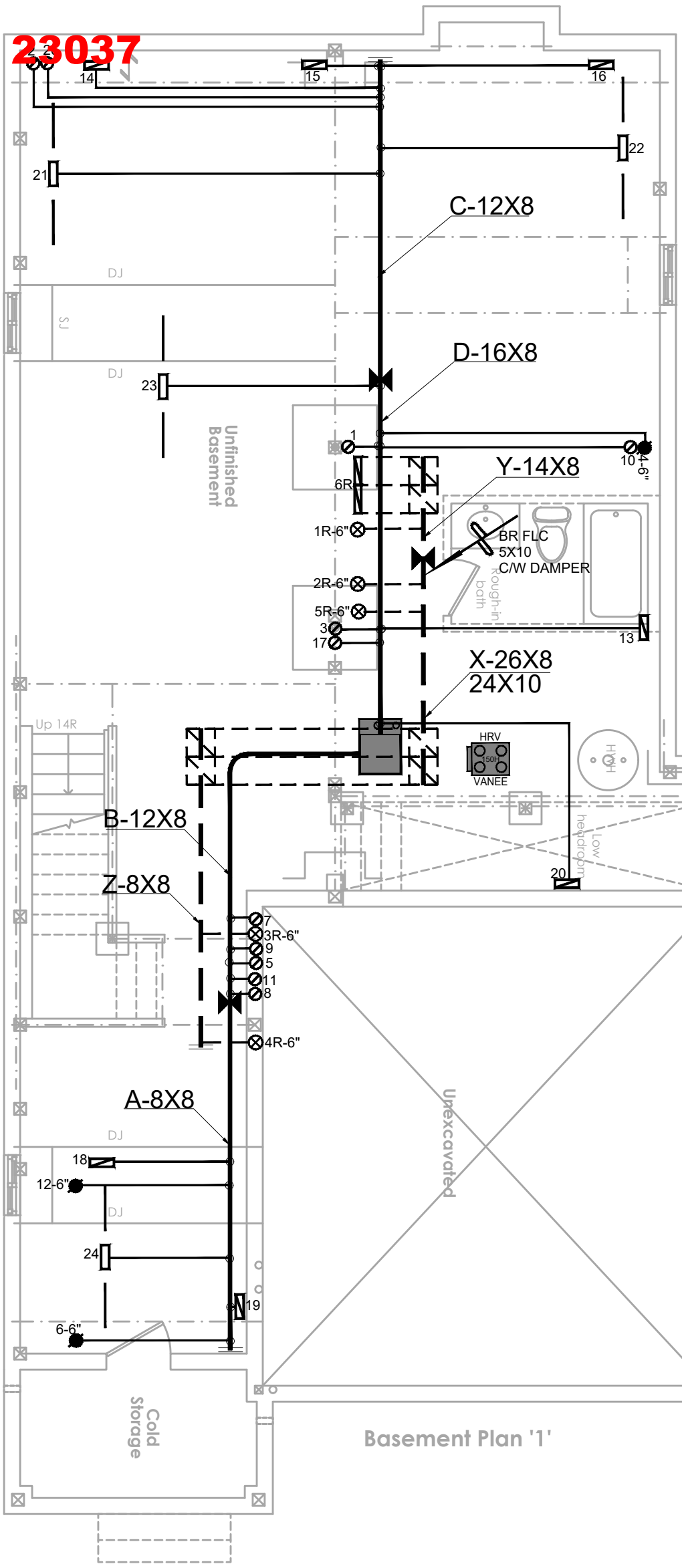
Partial Basement Plan For Deck Condition
Elevation 1, 2 and 3



Basement Plan '2'



Basement Plan '3'



Basement Plan '1'

HVAC LEGEND							
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

No.	Description	Date
3.		
2.		
1.		

REVISIONS

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I Michael O'Rourke have reviewed and take responsibility for the design work and am qualified under division C,3.2.5 of the building code.

Michael O'Rourke BCIN # 19669
HVAC Designs Ltd.

PACKAGE A1

Client
GREENPARK HOMES

Project Name
ZADORRA
OSHAWA, ONTARIO

VILLA 7 2741 sqft

HVAC DESIGNS LTD.
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L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
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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 51201 BTU/H

UNIT DATA

MAKE	GOODMAN
MODEL	GMEC960603BNA
INPUT	60.0 MBTU/H
OUTPUT	57.6 MBTU/H
COOLING	2.5 TONS
FAN SPEED	928 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	14	5	4
1ST FLOOR	7	1	2
BASEMENT	4	1	0

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

Sheet Title
BASEMENT HEATING LAYOUT

Date JULY/2023

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 101811

MHP 23037

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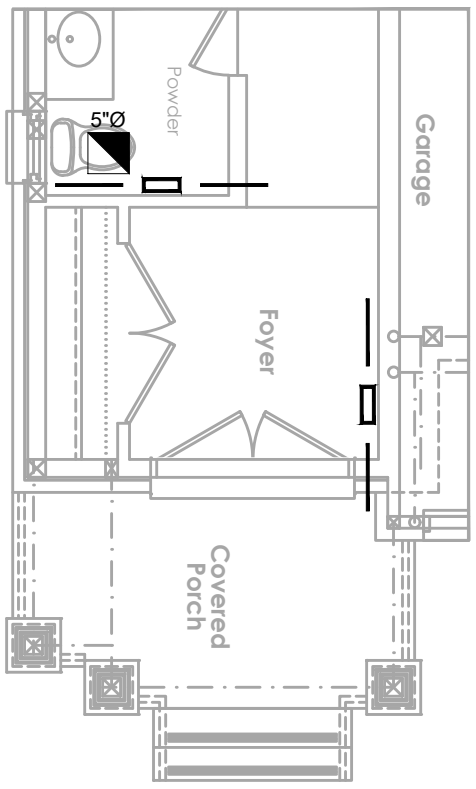
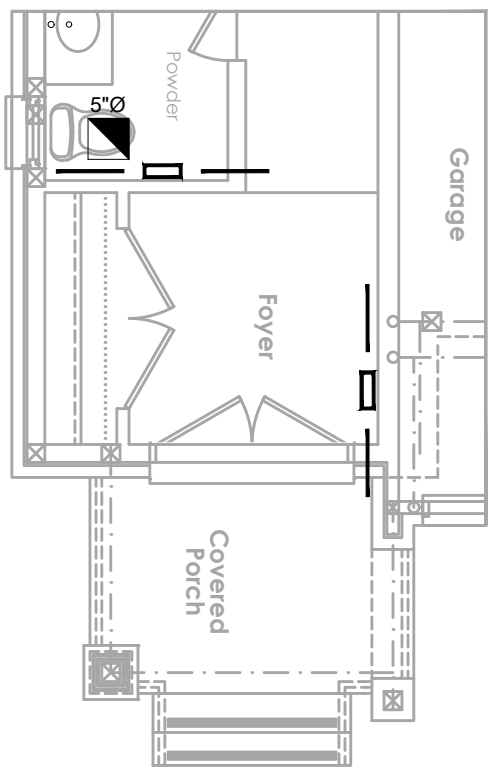
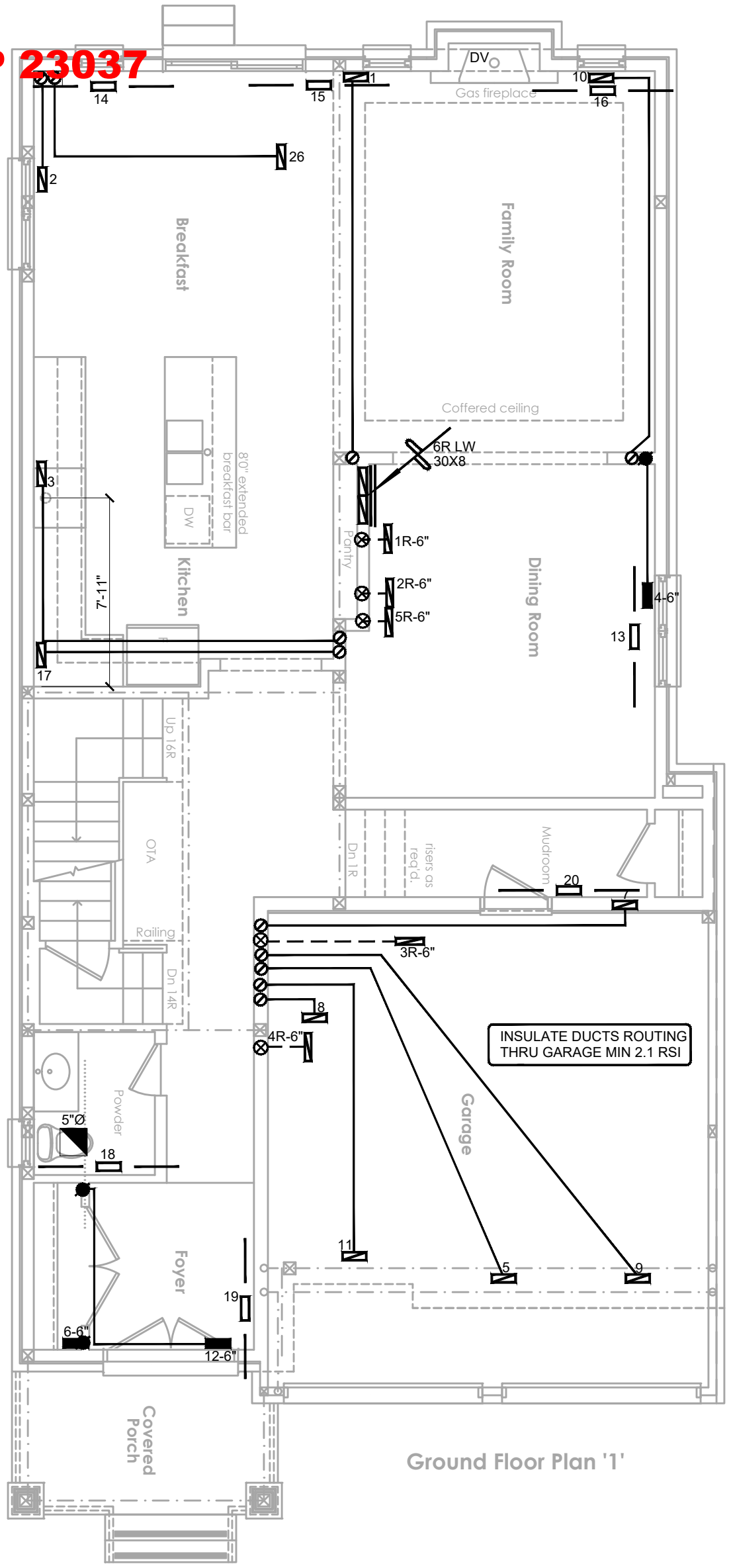


Ground Floor Plan '2'



Ground Floor Plan '3'



Ground Floor Plan '1'

HVAC LEGEND

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Sheet Title
FIRST FLOOR HEATING LAYOUT

Date JULY/2023
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 101811

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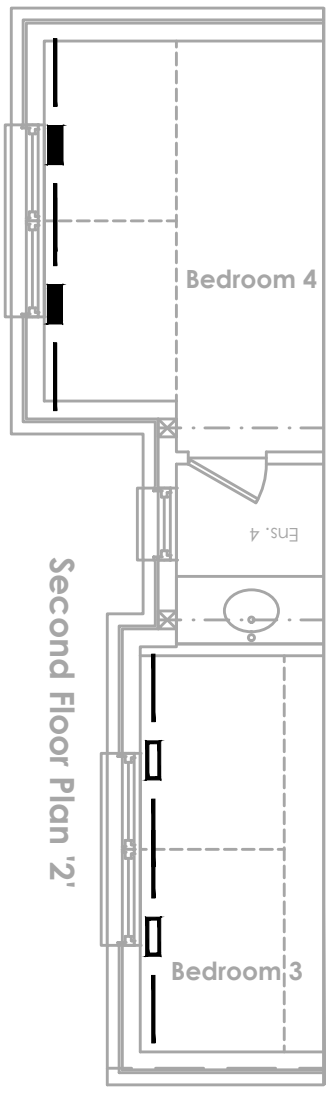
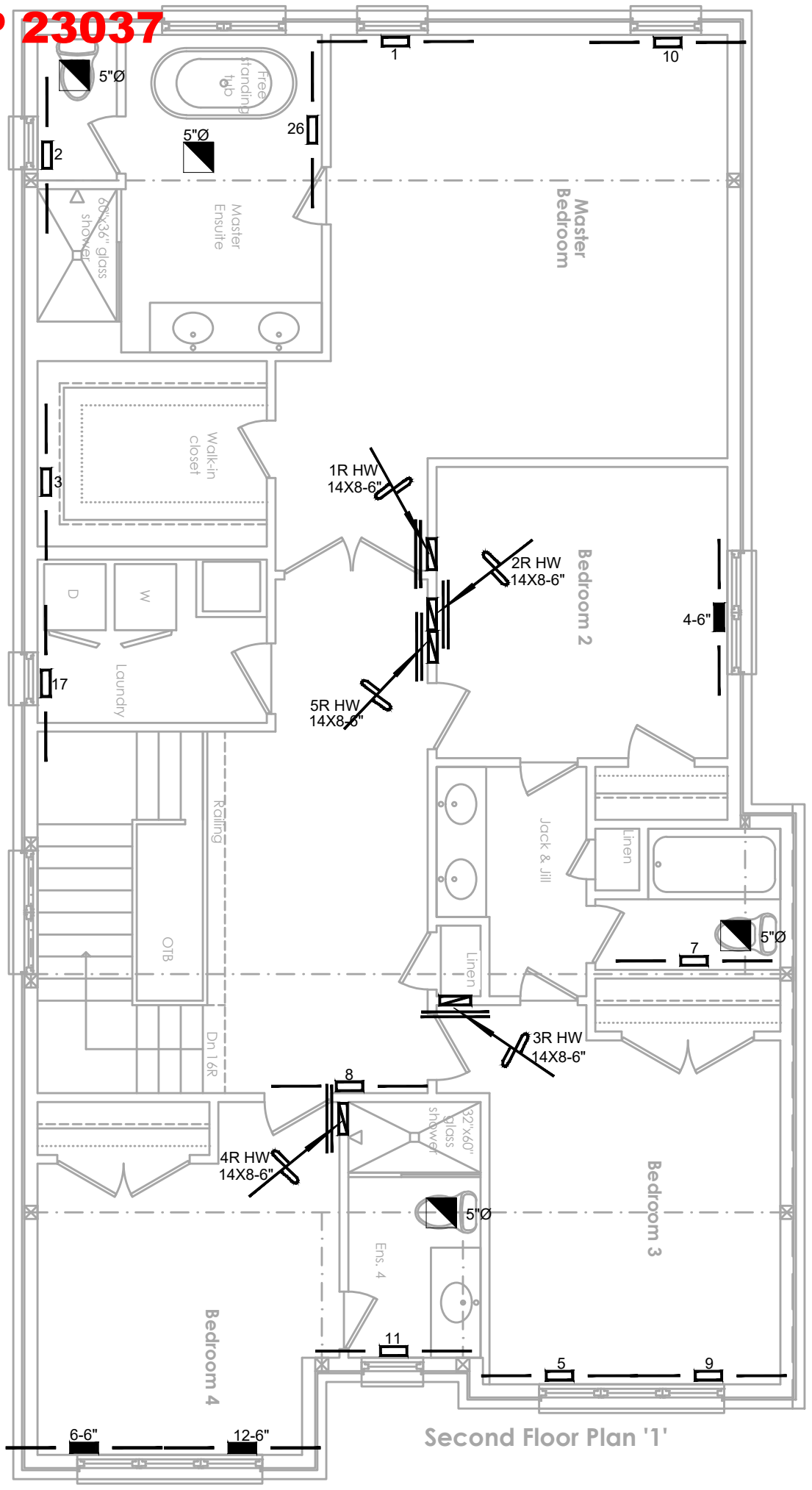
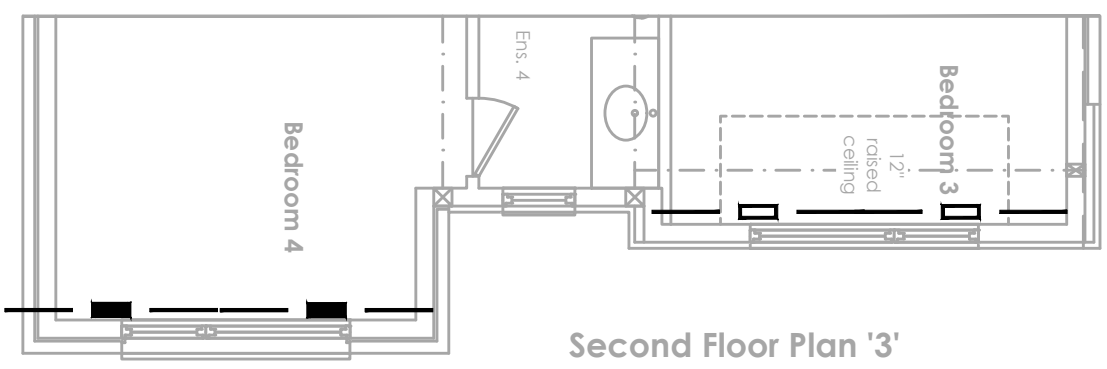


Second Floor Plan '2'



Second Floor Plan '1'



Second Floor Plan '3'

HVAC LEGEND							
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Sheet Title
SECOND FLOOR HEATING LAYOUT

Date JULY/2023
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 101811