

Nov 21 2023



PER: CHIEF BUILDING OFFICIAL

MHP 23040

SITE NAME: ZADORRA STATES INC

BUILDER: GREENPARK HOMES

TYPE: VILLA 12A

GFA: 2828

DATE: 10/3

LO# 101815

WINTER NATURAL AIR CHANGE RATE 0.342

SUMMER NATURAL AIR CHANGE RATE 0.094

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	S-BATH	HALL	ENS-4
	33	9	33	24	6	29	34	17	7	8	11
	9	9	9	9	9	9	9	9	9	9	9
FACTORS											
GRS.WALL AREA	LOSS	GAIN	300	218	55	264	309	155	64	73	100
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	20.8	15.5	0	0	0	0	0	0	0	0	0
EAST	20.8	41.0	0	0	0	44	914	1806	40	831	1642
SOUTH	20.8	24.4	24	499	585	0	0	0	44	914	1073
WEST	20.8	41.0	24	499	985	35	727	1437	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	252	1099	163	183	799	118	55	238	35
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	290	363	162	149	187	83	71	89	40
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	205	510	76
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			2460		1713	327	2640	3044	1635	730	719
SUB TOTAL HT GAIN				1895	1638	75	2138	2982	1251	516	196
LEVEL FACTOR / MULTIPLIER	0.20	0.24		0.20	0.24		0.20	0.24		0.20	0.24
AIR CHANGE HEAT LOSS			587		409	78	630	726	390	174	171
AIR CHANGE HEAT GAIN				78	68	3	88	123	52	21	8
DUCT LOSS			0		0		327	377	0	90	89
DUCT GAIN			0		0		308	396	0	54	20
HEAT GAIN PEOPLE	240	2	480	0	0	1	240	1	240	0	0
HEAT GAIN APPLIANCES/LIGHTS			612		0		612	612	612	0	0
TOTAL HT LOSS BTU/H			3047		2122	405	3596	4147	2025	994	979
TOTAL HT GAIN x 1.3 BTU/H			3986		2218	101	4403	5660	2801	769	292

ROOM USE	EXP. WALL	CLG. HT.	H-OFF	DIN	KT/BF	FAM	LAUN	PWD	FOY	MUD	WOD	BAS
	35	10	35	17	37	35	6	9	28	19	39	176
	10	10	10	10	10	10	9	10	10	10	9	9
FACTORS												
GRS.WALL AREA	LOSS	GAIN	354	172	374	354	55	91	283	192	332	1085
GLAZING	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	0
EAST	20.8	41.0	42	873	1724	0	0	0	0	0	0	3
SOUTH	20.8	24.4	44	914	1073	48	997	1171	0	0	0	9
WEST	20.8	41.0	0	0	0	63	1309	2586	32	665	1314	0
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	22	431	64	21
NET EXPOSED WALL	4.4	0.6	268	1166	173	124	539	80	311	1354	201	290
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	72	90	40	0
NO ATTIC EXPOSED CLG	2.7	1.2	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
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			2952		1536	2663	2591	328	659	1928	1156	822
SUB TOTAL HT GAIN				2970	1251	2787	2281	75	439	755	171	618
LEVEL FACTOR / MULTIPLIER	0.30	0.38		0.30	0.38		0.30	0.38		0.30	0.38	0.50
AIR CHANGE HEAT LOSS			1123		585	1013	986	78	251	734	440	8552
AIR CHANGE HEAT GAIN				123	52	115	94	3	18	31	7	31
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
HEAT GAIN APPLIANCES/LIGHTS			612		612		612	612	0	0	0	612
TOTAL HT LOSS BTU/H			4076		2121	3676	3577	406	909	2662	1596	822
TOTAL HT GAIN x 1.3 BTU/H			4817		2490	4569	3884	898	594	1022	232	158

TOTAL HEAT GAIN BTU/H:

41331

TONS: 3.44

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

STRUCTURAL HEAT LOSS: 54631

TOTAL COMBINED HEAT LOSS BTU/H: 56223



Nov 21 2023

C. Morris

SITE NAME: ZADORA

BUILDER: GREENPARK HOMES

MHP 23040

DATE: Jul-23

GFA: 2828

LO#

101815

HEATING CFM 1504 COOLING CFM 1504
TOTAL HEAT LOSS 54,631 TOTAL HEAT GAIN 41,095
AIR FLOW RATE CFM 27.53 AIR FLOW RATE CFM 36.6

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
GMEC960804CNA 80
FAN SPEED
LOW 868
MEDLOW 978
MEDIUM 1112
MEDIUM HIGH 1504
HIGH 1615

AFUE = 96 %
INPUT (BTU/H) = 80,000
OUTPUT (BTU/H) = **76,800**

DESIGN CFM = **1504**
CFM @ .6" E.S.P.

TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	14	10	5
R/A	0	0	5	3	1

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

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

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	S-BATH	HALL	BED-2	MBR	ENS-4	H-OFF	DIN	KT/BF	KT/BF	FAM	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.52	1.06	0.40	1.80	2.07	2.02	0.99	0.98	1.80	1.52	0.92	2.04	2.12	1.84	1.84	1.79	0.41	0.91	2.66	1.60	3.47	3.47	3.47	3.47
CFM PER RUN HEAT	42	29	11	50	57	56	27	27	50	42	25	56	58	51	51	49	11	25	73	44	96	96	96	96
RM GAIN MBH.	1.99	1.11	0.10	2.20	2.83	2.80	0.77	0.29	2.20	1.99	0.56	2.41	2.49	2.28	2.28	1.94	0.90	0.59	1.02	0.23	0.36	0.36	0.36	0.36
CFM PER RUN COOLING	73	41	4	81	104	103	28	11	81	73	21	88	91	84	84	71	33	22	37	8	13	13	13	13
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.16	0.17	0.17	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	32	46	20	56	59	28	49	43	58	28	47	47	19	18	24	21	42	39	26	38	24	17	13	26
EQUIVALENT LENGTH	140	150	130	160	0	150	150	150	170	120	160	130	140	110	110	80	140	160	100	110	140	150	120	90
TOTAL EFFECTIVE LENGTH	172	196	150	216	59	178	199	193	228	148	207	177	159	128	134	101	182	199	126	148	164	167	133	116
ADJUSTED PRESSURE	0.1	0.09	0.11	0.08	0.27	0.09	0.09	0.09	0.07	0.12	0.08	0.09	0.1	0.13	0.12	0.17	0.09	0.09	0.14	0.12	0.1	0.1	0.12	0.14
ROUND DUCT SIZE	5	4	4	6	6	6	4	4	6	5	4	6	6	6	6	5	4	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	308	333	126	255	291	286	310	310	255	308	287	286	296	260	260	360	126	287	536	505	489	489	489	489
COOLING VELOCITY (ft/min)	536	470	46	413	530	525	321	126	413	536	241	449	464	428	428	521	379	252	272	92	66	66	66	66
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	E	D	E	B	A	C	B	B	B	E	B	A	C	D	D	E	C	A	C	C	D	D	E	C

RUN #	25	26	27	28	29
ROOM NAME	BAS	BED-3	ENS	H-OFF	FAM
RM LOSS MBH.	3.47	2.07	1.06	2.04	1.79
CFM PER RUN HEAT	96	57	29	56	49
RM GAIN MBH.	0.36	2.83	1.11	2.41	1.94
CFM PER RUN COOLING	13	104	41	88	71
ADJUSTED PRESSURE	0.16	0.16	0.17	0.16	0.17
ACTUAL DUCT LGH.	46	52	39	48	29
EQUIVALENT LENGTH	120	0	180	130	120
TOTAL EFFECTIVE LENGTH	166	52	219	178	149
ADJUSTED PRESSURE	0.1	0.31	0.08	0.09	0.12
ROUND DUCT SIZE	6	6	4	6	5
HEATING VELOCITY (ft/min)	489	291	333	286	360
COOLING VELOCITY (ft/min)	66	530	470	449	521
OUTLET GRILL SIZE	4X10	4X10	3X10	4X10	3X10
TRUNK	A	A	D	A	D

SUPPLY AIR TRUNK SIZE										RETURN 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	347	0.09	9.2	10	x	8	625	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0
TRUNK B	526	0.07	11.4	16	x	8	592	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0
TRUNK C	864	0.07	13.7	22	x	8	707	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0
TRUNK D	401	0.08	10	12	x	8	602	TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.05	0	0	x	8	0
TRUNK E	641	0.08	11.9	16	x	8	721	TRUNK K	0	0.00	0	0	x	8	0	TRUNK S	0	0.05	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	TRUNK T	0	0.05	0	0	x	8	0

RETURN AIR #	1	2	3	4	5	6	7	8								BR
AIR VOLUME	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	240
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.	31	63	61	37	36	16	48	42	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	135	185	265	180	175	135	270	225	0	0	0	0	0	0	0	140
TOTAL EFFECTIVE LH	166	248	326	217	211	151	318	267	1	1	1	1	1	1	1	154
ADJUSTED PRESSURE	0.09	0.06	0.05	0.07	0.07	0.10	0.05	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.10
ROUND DUCT SIZE	6.5	6.8	7	6.6	6.6	9.4	7	6.8	0	0	0	0	0	0	0	7.8
INLET GRILL SIZE	8	8	8	8	8	8	8	8	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	14	14	0	0	0	0	0	0	0	24

TYPE:
SITE NAME:

MHP 23040

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	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: 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
S-BATH	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

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

MHP 23040

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																			
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																			
LO#: 101815		Model: VILLA 12A		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>1255</td> <td>9</td> <td>10667.5</td> </tr> <tr> <td>First</td> <td>1255</td> <td>10</td> <td>12675.5</td> </tr> <tr> <td>Second</td> <td>1573</td> <td>9</td> <td>14314.3</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="2"></td> <td>Total:</td> <td>37,657.3 ft³</td> </tr> <tr> <td colspan="2"></td> <td>Total:</td> <td>1066.3 m³</td> </tr> </tbody> </table>					Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)	Bsmt	1255	9	10667.5	First	1255	10	12675.5	Second	1573	9	14314.3	Third	0	9	0	Fourth	0	9	0			Total:	37,657.3 ft ³			Total:	1066.3 m ³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">WINTER NATURAL AIR CHANGE RATE</td> <td>0.342</td> </tr> <tr> <td colspan="2">SUMMER NATURAL AIR CHANGE RATE</td> <td>0.094</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>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		0.342	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
Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)																																																																
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5.2.3.1 Heat Loss due to Air Leakage					6.2.6 Sensible Gain due to Air Leakage																																																														
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.342 x 296.20 x 41 °C x 1.2 = 5013 W = 17104 Btu/h					$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.094 x 296.20 x 6 °C x 1.2 = 204 W = 697 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)																																																																			
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agcleve} + HL_{bgcleve})\}$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HL_{airve} Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{cleve})</th> <th>Air Leakage Heat Loss Multiplier (LF x HL_{airbv} / HL_{level})</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5">17,104</td> <td>8,820</td> <td>0.970</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>13,485</td> <td>0.381</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>14,338</td> <td>0.239</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> *HL_{airbv} = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HL_{airve} = 0										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	17,104	8,820	0.970	2	0.3	13,485	0.381	3	0.2	14,338	0.239	4	0	0	0.000	5	0	0	0.000																																
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					Michael O'Rourke BCIN# 19669 																																																														

MODEL: VILLA 12A

SFQT: 2828

LO# 101815

BUILDER: GREENPARK HOMES

SITE: ZADORRA ESTATES INC

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-2	OUTDOOR DESIGN TEMP.	86
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75
		WINDOW SHGC	0.50

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	37657.3	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	5.5 ft
LENGTH: 58.0 ft	WIDTH: 30.0 ft	EXPOSED PERIMETER:	176.0 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

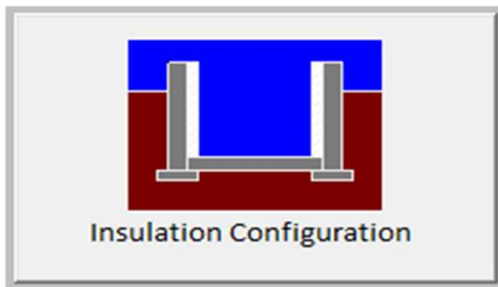
MICHAEL O'ROURKE



MHP 23040

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):	17.7	 Insulation Configuration
Floor Width (m):	9.1	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.6	
Depth Below Grade (m):	1.68	
Window Area (m ²):	1.1	
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):		1727 ✓

TYPE: VILLA 12A
 LO# 101815

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):	1066.3		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1421.5 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
Natural Infiltration Rates			
Heating Air Leakage Rate (ACH/H):	0.342 ✓		
Cooling Air Leakage Rate (ACH/H):	0.094		

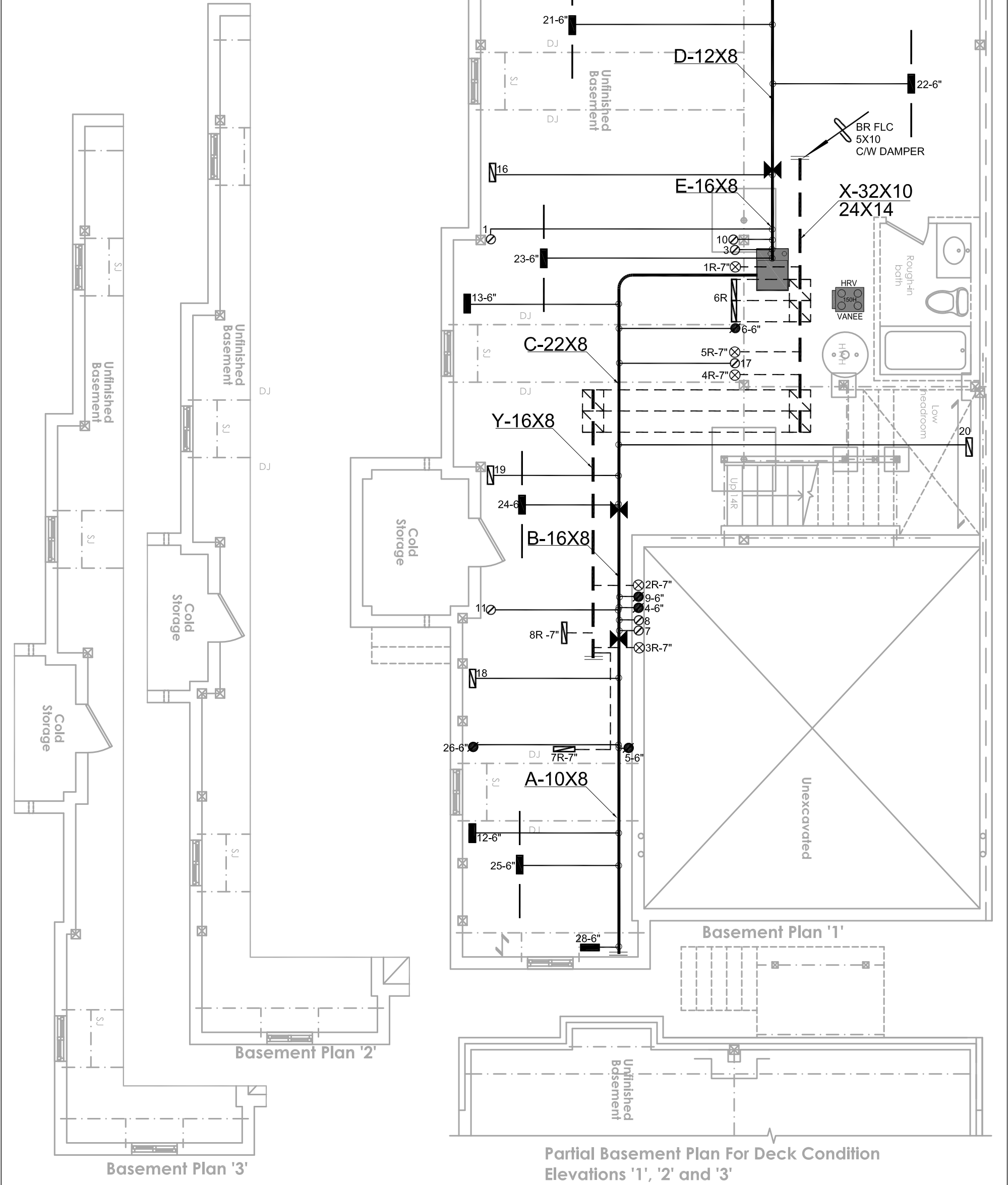
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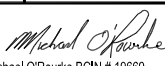
LO# 101815

Michael O'Rourke BCIN# 19669

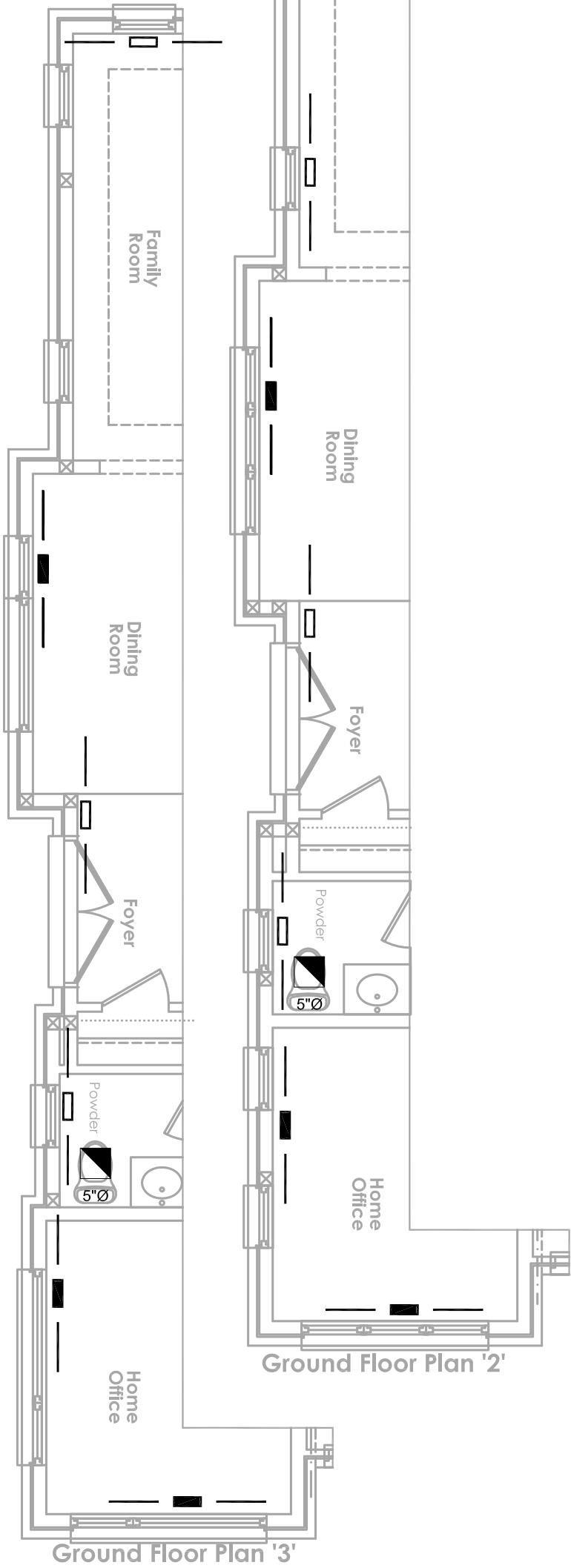


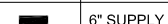
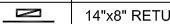
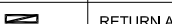
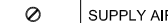
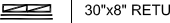
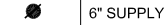
MHP 23040

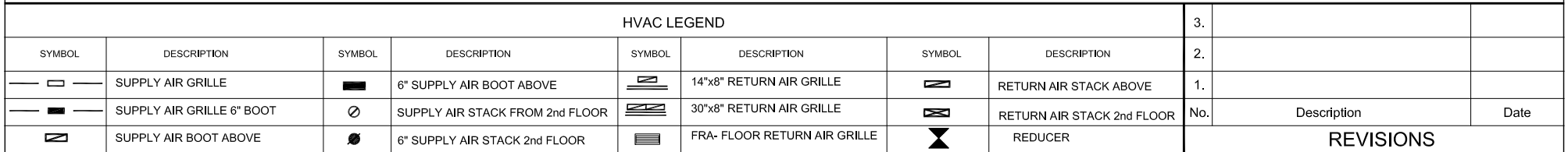


HVAC LEGEND							3.				
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.			
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.			
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description Date		
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS			
ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.							I Michael O'Rourke have reviewed and take responsibility for the design work and am qualified under division C.3.2.5 of the building code.  Michael O'Rourke BCIN # 19669 HVAC Designs Ltd.		PACKAGE A1		
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				HEAT LOSS 56223 BTU/H		# OF RUNS S/A R/A FANS		Sheet Title	
GREENPARK HOMES						UNIT DATA		3RD FLOOR		BASEMENT HEATING LAYOUT	
Project Name						GOODMAN		2ND FLOOR 14 5 5		Date	
ZADORRA						MODEL		1ST FLOOR 10 3 2		JULY/2023	
OSHAWA, ONTARIO						GMEC960804CNA		BASEMENT 5 1 0		Scale	
		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.				80.0 MBTU/H		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		BCIN# 19669	
						OUTPUT 76.8 MBTU/H				LO# 101815	
						COOLING 3.5 TONS					
						FAN SPEED 1504 cfm @ 0.6" w.c.					
VILLA 12A											
2828 sqft											

MHP 23040



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
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS	
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Project Name		GREENPARK HOMES				Sheet Title			
ZADORRA		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.				FIRST FLOOR			
OSHAWA, ONTARIO						HEATING			
						LAYOUT			
VILLA 12A		2828 sqft				Date			
						JULY/2023			
						Scale			
						3/16" = 1'-0"			
						BCIN# 19669			
						LO#		101815	



PACKAGE A1

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GREENPARK HOMES		SECOND FLOOR HEATING LAYOUT	
Project Name		Date	JULY/2023
ZADORRA OSHAWA, ONTARIO		Scale	3/16" = 1'-0"
		BCIN# 19669	
VILLA 12A	2828 sqft	LO# 101815	