

SITE NAME: RESSEL GARDENS PHASE 3

BUILDER: GREENPARK HOMES

TYPE: VALLEYCREEK

GFA: 2568

DATE: Mar-20

LO# 85777

WINTER NATURAL AIR CHANGE RATE 0.338

SUMMER NATURAL AIR CHANGE RATE 0.121

HEAT LOSS AT °F, 71

HEAT GAIN AT °F, 13

CSA-F280-12

S6-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	BED-2	BED-3	BED-4	S-ENS	ENS-2
FACTORS	37	22	9	9	10	32	15	6	10
GRS.WALL AREA	333	198			80	288	135	54	90
GLAZING	LOSS GAIN	LOSS GAIN			LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN
NORTH	19.8 15.4	0 0 0	0 0 0	15 297 232	0 0 0	0 0 0	0 0 0	7 138 108	0 0 0
EAST	19.8 39.9	0 0 0	0 0 0	0 0 0	54 1057 2166	0 0 0	0 0 0	0 0 0	0 0 0
SOUTH	19.8 24.0	0 0 0	9 178 216	0 0 0	0 0 0	15 297 360	0 0 0	0 0 0	0 0 0
WEST	19.8 39.9	34 672 1357	15 297 599	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	9 178 216
SKYLT.	34.6 104.5	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
DOORS	23.5 4.3	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	4.1 0.6	289 1240 225	174 721 131	75 311 55	234 970 176	120 497 99	47 185 35	81 336 61	0 0 0
NET EXPOSED BSMT WALL ABOVE GR	3.3 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
EXPOSED CLG	1.2 0.6	346 412 203	121 144 71	204 243 120	228 272 134	193 230 113	118 144 69	122 145 72	0 0 0
NO ATTIC EXPOSED CLG	2.6 1.3	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	2.4 0.4	0 0 0	0 0 0	27 54 12	228 540 98	0 0 0	118 280 51	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		2324	1340	915	2850	1024	753	659	348
SUB TOTAL HT GAIN		1785	1017	419	2564	563	263	263	263
LEVEL FACTOR / MULTIPLIER	0.20	0.31	0.20	0.31	0.20	0.31	0.20	0.31	0.20
AIR CHANGE HEAT LOSS		727	419	286	892	320	236	206	206
AIR CHANGE HEAT GAIN		144	82	34	207	46	21	21	21
DUCT LOSS		0	0	120	374	0	99	0	0
DUCT GAIN		0	0	124	356	0	28	0	0
HEAT GAIN PEOPLE	240	2	480	0	1	240	1	240	0
HEAT GAIN APPLANCES/LIGHTS		548	0	548	548	548	0	0	0
TOTAL HT LOSS BTU/H		3951	1759	1321	4115	1344	1088	855	855
TOTAL HT GAIN x 1.3 BTU/H		3845	1425	1775	5089	1816	497	490	490

ROOM USE	EXP. WALL	CLG. HT.	DIN	FAM	BF/KT	LAUN	FOY	WDD	BAS
FACTORS	29	34	36	10	25	49	19	44	172
GRS.WALL AREA	290	340	360		250	931		396	1164
GLAZING	LOSS GAIN	LOSS GAIN	LOSS GAIN		LOSS GAIN	LOSS GAIN		LOSS GAIN	LOSS GAIN
NORTH	19.8 15.4	0 0 0	0 0 0	0 0 0	7 138 108	0 0 0	0 0 0	0 0 0	4 79 62
EAST	19.8 39.9	0 0 0	0 0 0	0 0 0	0 0 0	30 593 1188	0 0 0	0 0 0	0 0 0
SOUTH	19.8 24.0	28 514 624	0 0 0	0 0 0	0 0 0	19 378 458	0 0 0	0 0 0	4 79 96
WEST	19.8 39.9	0 0 0	44 870 1757	45 880 1797	0 0 0	0 0 0	12 237 479	0 0 0	0 0 0
SKYLT.	34.6 104.5	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
DOORS	23.5 4.3	0 0 0	0 0 0	16 352 64	20 469 95	59 1173 213	0 0 0	0 0 0	0 0 0
NET EXPOSED WALL	4.1 0.6	284 1094 188	286 1227 222	300 1244 225	223 924 168	632 3449 625	0 0 0	0 0 0	20 469 85
NET EXPOSED BSMT WALL ABOVE GR	3.3 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
EXPOSED CLG	1.2 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
NO ATTIC EXPOSED CLG	2.6 1.3	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	2.4 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
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		1608	2097	2485	1532	6591	2491	1080	7556
SUB TOTAL HT GAIN		822	1979	2968	361	2491	2491	632	475
LEVEL FACTOR / MULTIPLIER	0.30	0.35	0.30	0.35	0.30	0.35	0.30	0.35	0.50
AIR CHANGE HEAT LOSS		559	729	854	533	1944	281	7716	89
AIR CHANGE HEAT GAIN		66	160	168	28	0	0	0	0
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
HEAT GAIN APPLANCES/LIGHTS		548	548	548	548	548	0	0	0
TOTAL HT LOSS BTU/H		2168	2826	3349	2065	7536	2491	1080	15272
TOTAL HT GAIN x 1.3 BTU/H		1887	3493	3543	1219	3500	821	15272	1447

TOTAL HEAT GAIN BTU/H:

31116

TONS: 2.59

LOSS DUE TO VENTILATION LOAD BTU/H: 1515

STRUCTURAL HEAT LOSS: 47839

TOTAL COMBINED HEAT LOSS BTU/H: 49355

SITE NAME: RESSEL GARDENS PHASE 3
BUILDER: GREENPARK HOMES

TYPE: VALLEYCREEK 3

DATE: Mar-20

GFA: 2668 LO# 85777

HEATING CFM 928 COOLING CFM 928
TOTAL HEAT LOSS 47,839 TOTAL HEAT GAIN 30,841
AIR FLOW RATE CFM 19.4 AIR FLOW RATE CFM 30.08

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 0.01
min adjusted pressure s/a 0.17

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

#GOODMAN
GMEC960803BNA
FAN SPEED 80
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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	10	8	4
R/A	0	0	3	1	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	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	BED-2	BED-3	BED-4	S-ENS	S-ENS	BED-3	MBR	ENS-2	DIN	FAM	BF/KT	BF/KT	FAM	LAUN	FOY	FOY	BAS	BAS	BAS	BAS	
RM LOSS MBH	1.53	1.76	1.32	2.06	1.34	0.54	0.54	2.06	1.53	0.87	2.17	1.41	1.67	1.67	1.41	2.06	3.77	3.77	4.09	4.09	4.09	4.09	
CFM PER RUN HEAT	30	34	26	40	26	11	11	40	30	17	42	27	32	32	27	40	73	73	79	79	79	79	
RM GAIN MBH	1.92	1.43	1.78	2.54	1.82	0.20	0.20	2.54	1.92	0.49	1.87	1.75	1.82	1.82	1.75	1.22	1.75	1.75	0.57	0.57	0.57	0.57	
CFM PER RUN COOLING	58	43	53	77	55	6	6	77	58	15	56	53	55	55	53	37	53	53	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	0.17	0.17	0.17	0.17	
ACTUAL DUCT LGH	32	42	42	40	44	37	31	45	38	32	19	30	21	24	26	10	43	36	24	25	22	37	
EQUIVALENT LENGTH	120	190	170	170	160	140	140	120	140	170	160	140	150	130	120	150	180	100	90	100	140	120	
TOTAL EFFECTIVE LENGTH	152	232	212	210	204	177	171	165	178	202	179	170	171	154	146	160	223	136	114	125	162	157	
ADJUSTED PRESSURE	0.11	0.07	0.08	0.08	0.08	0.1	0.1	0.1	0.1	0.09	0.1	0.1	0.1	0.11	0.12	0.11	0.08	0.13	0.15	0.14	0.11	0.11	
ROUND DUCT SIZE	5	5	6	6	6	4	4	6	5	4	5	5	5	5	5	4	5	5	5	5	5	5	
HEATING VELOCITY (ft/min)	220	250	133	204	133	126	126	204	220	195	308	198	235	235	198	459	536	536	580	580	580	580	
COOLING VELOCITY (ft/min)	426	316	270	393	280	69	69	393	426	172	411	389	404	404	389	424	389	389	125	125	125	125	
OUTLET GRILL SIZE	3X10	3X10	4X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	
TRUNK	A	B	D	C	C	D	D	D	A	B	D	A	B	A	A	D	C	C	B	B	C	C	

RUN #	ROOM NAME	RM LOSS MBH	CFM PER RUN HEAT	RM GAIN MBH	CFM PER RUN COOLING	ADJUSTED PRESSURE	ACTUAL DUCT LGH	EQUIVALENT LENGTH	TOTAL EFFECTIVE LENGTH	ADJUSTED PRESSURE	ROUND DUCT SIZE	HEATING VELOCITY (ft/min)	COOLING VELOCITY (ft/min)	OUTLET GRILL SIZE	TRUNK
1	MBR	1.53	30	1.82	58	0.17	32	120	152	0.11	5	220	426	3X10	A
2	ENS	1.76	34	1.43	43	0.17	42	190	232	0.07	5	250	316	3X10	B
4	BED-2	1.32	26	1.78	53	0.17	42	170	212	0.08	6	133	270	4X10	D
5	BED-3	2.06	40	2.54	77	0.17	40	170	210	0.08	6	204	393	4X10	C
6	BED-4	1.34	26	1.82	55	0.17	44	160	204	0.08	6	133	280	4X10	C
7	S-ENS	0.54	11	0.20	6	0.17	37	140	177	0.1	4	126	69	3X10	D
8	S-ENS	0.54	11	0.20	6	0.17	31	140	171	0.1	4	126	69	3X10	D
9	BED-3	2.06	40	2.54	77	0.17	45	120	165	0.1	6	204	393	4X10	D
10	MBR	1.53	30	1.82	58	0.17	38	140	178	0.1	5	220	426	3X10	A
11	ENS-2	0.87	17	0.49	15	0.17	32	170	202	0.09	4	195	172	3X10	B
12	DIN	2.17	42	1.87	56	0.17	19	160	179	0.1	5	308	411	3X10	D
13	FAM	1.41	27	1.75	53	0.17	30	140	170	0.1	5	198	389	3X10	A
14	BF/KT	1.67	32	1.82	55	0.17	21	150	171	0.1	5	235	404	3X10	B
15	BF/KT	1.67	32	1.82	55	0.17	24	130	154	0.11	5	235	404	3X10	A
16	FAM	1.41	27	1.75	53	0.17	26	120	146	0.12	5	198	389	3X10	A
17	LAUN	2.06	40	1.22	37	0.17	10	150	160	0.11	4	459	424	3X10	D
18	FOY	3.77	73	1.75	53	0.17	43	180	223	0.08	5	536	389	3X10	C
19	FOY	3.77	73	1.75	53	0.17	36	100	136	0.13	5	536	389	3X10	C
21	BAS	4.09	79	0.57	17	0.17	24	90	114	0.15	5	580	125	3X10	B
22	BAS	4.09	79	0.57	17	0.17	25	100	125	0.14	5	580	125	3X10	B
23	BAS	4.09	79	0.57	17	0.17	22	140	162	0.11	5	580	125	3X10	C
24	BAS	4.09	79	0.57	17	0.17	37	120	157	0.11	5	580	125	3X10	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)	RETURN AIR TRUNK SIZE	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	146	0.10	6.4	8	329	TRUNK G	0	0.00	0	0	TRUNK O	0	0.06	0	0	8
TRUNK B	387	0.07	10.2	12	581	TRUNK H	0	0.00	0	0	TRUNK P	0	0.06	0	0	8
TRUNK C	370	0.08	9.7	12	555	TRUNK I	0	0.00	0	0	TRUNK Q	0	0.06	0	0	8
TRUNK D	540	0.08	11.1	16	608	TRUNK J	0	0.00	0	0	TRUNK R	0	0.06	0	0	8
TRUNK E	0	0.00	0	0	0	TRUNK K	0	0.00	0	0	TRUNK S	0	0.06	0	0	8
TRUNK F	0	0.00	0	0	0	TRUNK L	0	0.00	0	0	TRUNK T	0	0.06	0	0	8
RETURN AIR #	1	2	3	4	0	0	0	0	0	0	TRUNK U	0	0.06	0	0	8
AIR VOLUME	125	195	105	380	0	0	0	0	0	0	TRUNK V	0	0.06	0	0	8
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	TRUNK W	0	0.06	0	0	8
ACTUAL DUCT LGH	41	31	56	25	1	1	1	1	1	1	TRUNK X	928	0.06	14.7	26	8
EQUIVALENT LENGTH	215	135	135	175	0	0	0	0	0	0	TRUNK Y	0	0.06	0	0	8
TOTAL EFFECTIVE LH	256	166	191	200	1	1	1	1	1	1	TRUNK Z	0	0.06	0	0	8
ADJUSTED PRESSURE	0.08	0.09	0.08	0.07	14.80	14.80	14.80	14.80	14.80	14.80	DROP	928	0.06	14.7	24	10
ROUND DUCT SIZE	6.9	7.4	6	10.1	0	0	0	0	0	0						
INLET GRILL SIZE	8	8	8	8	0	0	0	0	0	0						
	X	X	X	X	X	X	X	X	X	X						
INLET GRILL SIZE	14	14	14	30	0	0	0	0	0	0						

TYPE: VALLEYCREEK 3
 SITE NAME: RESSEL GARDENS PHASE 3

LO # 85777

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 65H
Location:	BSMT
79.5 cfm	3.0 sones
☒ HVI Approved	

PRINCIPAL EXHAUST HEAT LOSS CALCULATION	
CFM	ΔT °F
79.5 CFM	71 F
X	X
FACTOR	% LOSS
1.08	0.25
X	X

SUPPLEMENTAL FANS		PANASONIC	
Location	Model	cfm	HVI
ENS	FV-05-11VK1	50	✓
S-ENS	FV-05-11VK1	50	✓
ENS-2	FV-05-11VK1	50	✓

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model:	VANEE 65H	
155 cfm high	84 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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	March-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
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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>1215</td><td>9</td><td>10935</td></tr> <tr><td>First</td><td>1215</td><td>10</td><td>12150</td></tr> <tr><td>Second</td><td>1453</td><td>9</td><td>13077</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>36,162.0 ft³</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>1024.0 m³</td></tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1215	9	10935	First	1215	10	12150	Second	1453	9	13077	Third	0	9	0	Fourth	0	9	0	Total:			36,162.0 ft³	Total:			1024.0 m³	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>WINTER NATURAL AIR CHANGE RATE</td> <td>0.338</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.121</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>-17</td> <td>39</td> <td>71</td> </tr> <tr> <td>Summer DTD_c</td> <td>24</td> <td>31</td> <td>7</td> <td>13</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.338	SUMMER NATURAL AIR CHANGE RATE	0.121	Design Temperature Difference						T _{in} °C	T _{out} °C	ΔT °C	ΔT °F	Winter DTD _h	22	-17	39	71	Summer DTD _c	24	31	7	13
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																									
Bsmt	1215	9	10935																																																									
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Summer DTD _c	24	31	7	13																																																								
5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.338 x 284.44 x 39 °C x 1.2 = 4523 W = 15432 Btu/h			$HG_{sairb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.121 x 284.44 x 7 °C x 1.2 = 294 W = 1002 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 71 °F x 1.08 x 0.25 = 1515 Btu/h			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 13 °F x 1.08 x 0.25 = 275 Btu/h																																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{ (HL_{agcr} + HL_{bgcr}) \div (HL_{agcleval} + HL_{bgcleval}) \}$																																																												
Level	Level Factor (LF)	HL _{airve} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{cleval})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{level})																																																								
1	0.5	15,432	8,636	0.894																																																								
2	0.3		13,313	0.348																																																								
3	0.2		9,865	0.313																																																								
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																																																												

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** VALLEYCREEK 3**BUILDER:** GREENPARK HOMES**SFQT:** 2668**LO#** 85777**SITE:** RESSEL GARDENS PHASE 3**DESIGN ASSUMPTIONS**

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	1	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75

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):	36162.0	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: 52.0 ft	WIDTH: 34.0 ft	EXPOSED PERIMETER:	172.0 ft

2012 OBC - COMPLIANCE PACKAGE		Compliance Package	
Component		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		0.96	-
HRV Minimum Efficiency		75%	-
Domestic Hot Water Heater Minimum EF		0.8	-

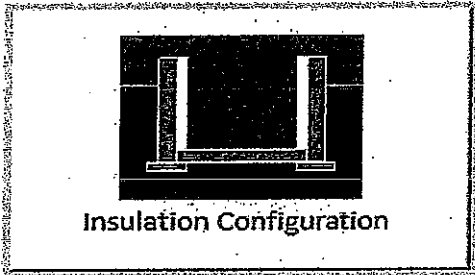
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	15.8	 Insulation Configuration
Floor Width (m):	10.4	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.9	
Door Area (m ²):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):	1654	

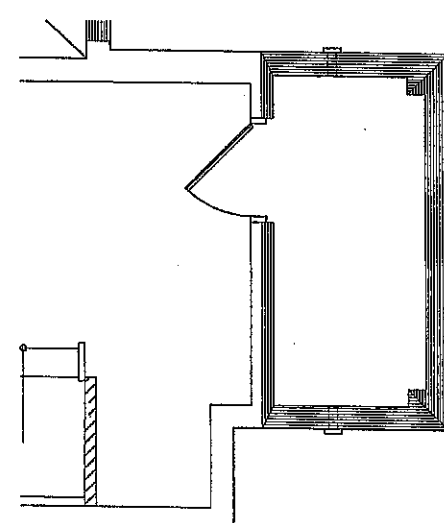
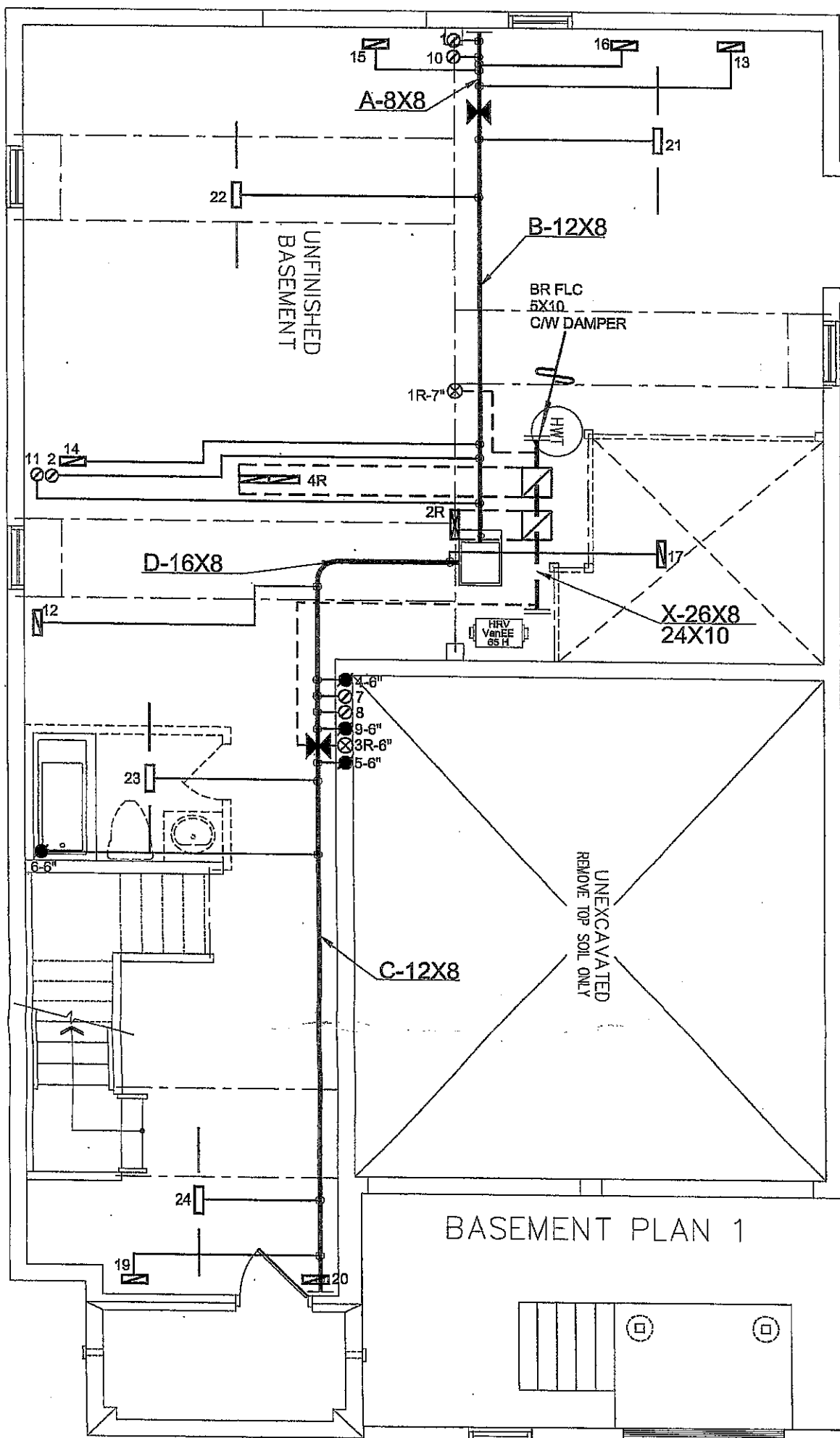
TYPE: VALLEYCREEK 3
LO# 85777

Air Infiltration Residential Load Calculator

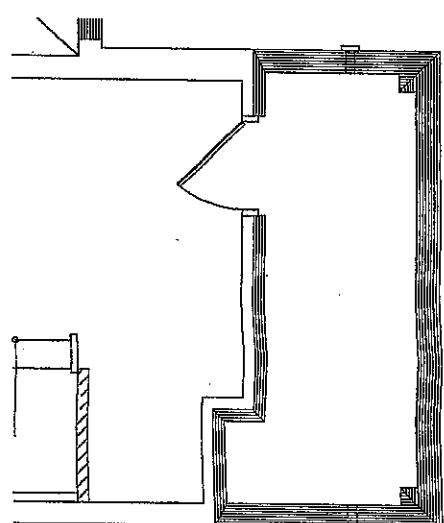
Supplemental tool for CAN/CSA-F280

Weather Station Description			
Province:	Ontario		
Region:	Hamilton		
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):	1024.0		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1365.0 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):	0.338		
Cooling Air Leakage Rate (ACH/H):	0.121		

TYPE: VALLEYCREEK 3
LO# 85777



BASEMENT PLAN 2



BASEMENT PLAN 3

CITY OF HAMILTON
Building Division

Permit No. 887710

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW

These drawings and/or specifications have been reviewed by
JDL FOR CHIEF BUILDING OFFICIAL
Dec 10/20 DATE

CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department
OCT 6 6 2020
REC BY _____ DATE _____
REF'D TO _____ DATE _____

BASEMENT PLAN 1

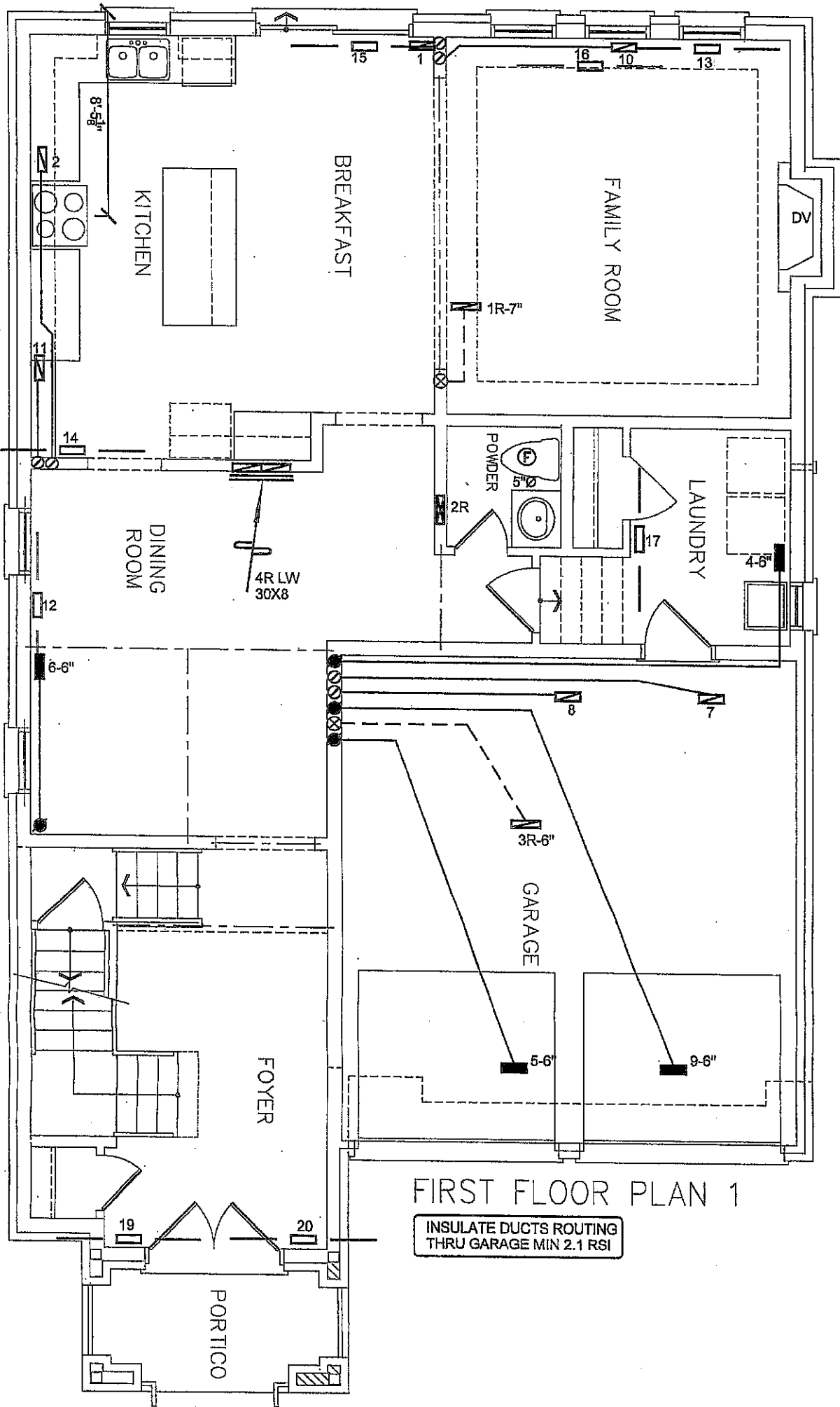
PARTIAL BASEMENT PLAN
FOR DECK CONDITION 1, 2
& 3

CSA-F280-12
PACKAGE A1

HVAC LEGEND							3.	
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	2.
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	1.
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	No. Description Date

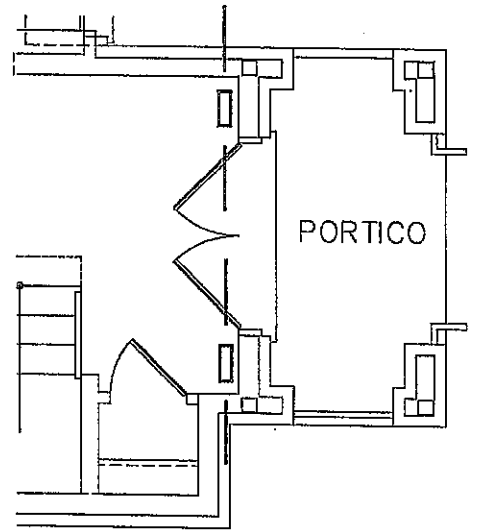
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Client GREENPARK HOMES		HVACDESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacadesigns.ca Web: www.hvacadesigns.ca Specializing in Residential Mechanical Design Services	HEAT LOSS 49355 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS				Sheet Title BASEMENT HEATING LAYOUT		
Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO			MAKE GOODMAN		3RD FLOOR					Date MAR/2020	
VALLEYCREEK 3 2668 sqft			MODEL GMEC960603BNA		2ND FLOOR		10	3	3		
			INPUT 60 MBTU/H		1ST FLOOR		8	1	2		
			OUTPUT 57.6 MBTU/H		BASEMENT		4	1	0	Scale 3/16" = 1'-0"	
			COOLING 2.5 TONS		ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A						BCIN# 19669
			FAN SPEED 928 cfm @ 0.8" w.c.								LO#

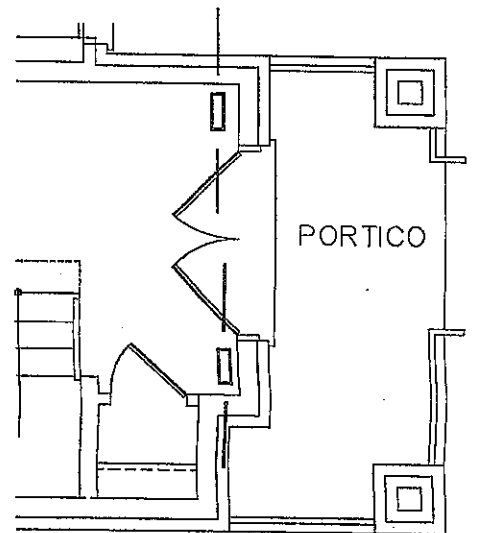


FIRST FLOOR PLAN 1

INSULATE DUCTS ROUTING THRU GARAGE MIN 2.1 RSI



FIRST FLOOR PLAN 2



FIRST FLOOR PLAN 3

CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department

OCT 6 2020

REC BY _____ DATE _____
REFD TO _____ DATE _____

CITY OF HAMILTON
Building Division

Permit No. 1857711

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These drawings and/or specifications have been reviewed by

JDC Dec 10/20
FOR CHIEF BUILDING OFFICIAL DATE

CSA-F280-12
PACKAGE A1

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
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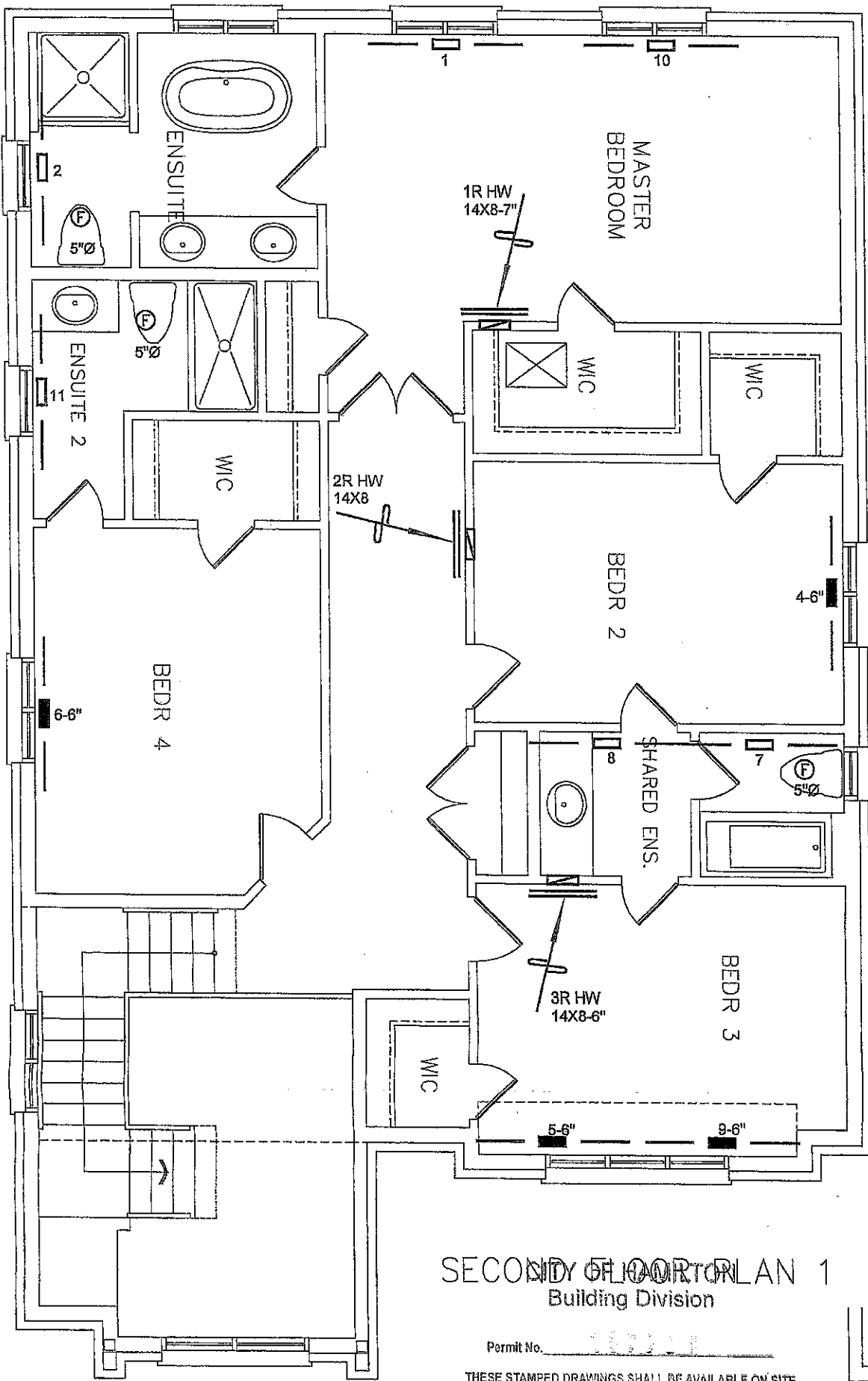
No.	Description	Date
3.		
2.		
1.		

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Client
GREENPARK HOMES
Project Name
**RUSSEL GARDENS PHASE 3
HAMILTON, ONTARIO**
VALLEYCREEK 3 2668 sqft

HVACDESIGNS LTD.
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
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper.
Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

Sheet Title
**FIRST FLOOR
HEATING
LAYOUT**
Date
MAR/2020
Scale
3/16" = 1'-0"
BCIN# 19669
LO# **85777**



SECOND FLOOR PLAN 1
Building Division

Permit No. 1022-1

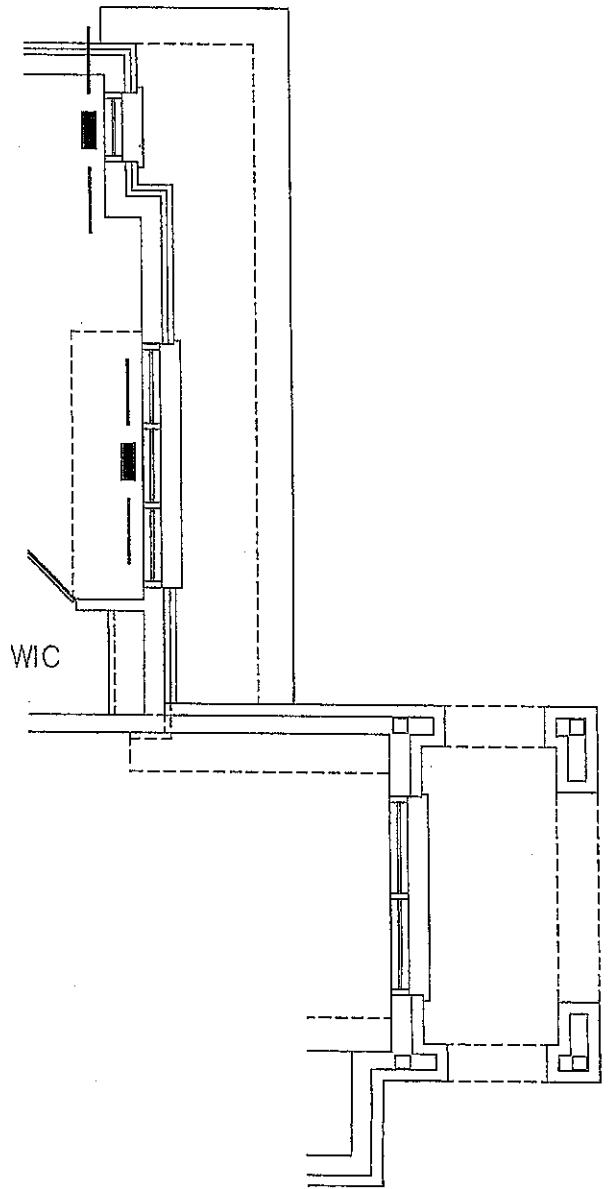
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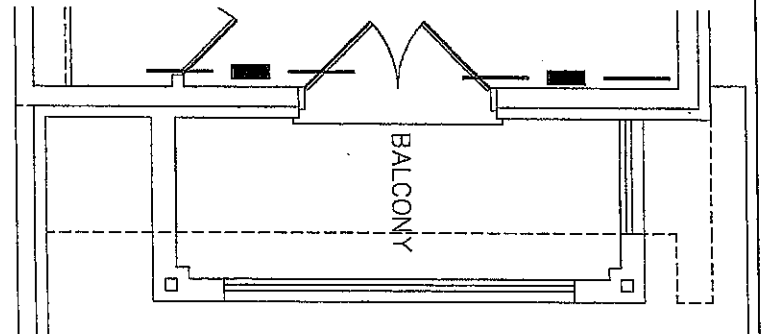
JDC Dec 10/20
FOR CHIEF BUILDING OFFICIAL DATE

CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department
10/10/2020
REC BY _____ DATE _____
REF'D TO _____ DATE _____

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.



SECOND FLOOR PLAN 2



SECOND FLOOR PLAN 3

CSA-F280-12
PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	3.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	2.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	1.	
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	No.	Description Date

REVISIONS

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VALLEYCREEK 3 2668 sqft

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HEATING
LAYOUT**
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