

SITE NAME: RUSSEL GARDENS
BUILDER: GREENPARK HOMES
WOB TYPE: HIGHGROVE 1
DATE: JUL-17
LO# 75020
GFA: 1694
WINTER NATURAL AIR CHANGE RATE 0.482
HEAT LOSS AT °F. 71
HEAT GAIN AT °F. 18
CSA-F280-12
SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LOSS GAIN	ENS	WIC	BED-2	BED-3	BATH	SUMMER NATURAL AIR CHANGE RATE	WINTER NATURAL AIR CHANGE RATE	HEAT LOSS AT °F.	HEAT GAIN AT °F.
GRS.WALL AREA	182			162	64	0	90	124	0				
GLAZING	0	0	0	0	0	0	0	0	0				
NORTH	19.8	16.8	0	0	0	0	0	0	0				
EAST	19.8	42.4	0	0	0	0	23	456	975	39	771	1853	
SOUTH	19.8	25.7	0	0	0	0	0	0	0	0	0	0	0
WEST	19.8	42.4	28	554	1187	14	277	693	0	0	0	0	0
SKYLIT.	34.6	103.0	0	0	0	0	0	0	0	0	0	0	0
DOORS	23.6	5.2	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.9	134	556	124	40	166	37	0	0	0	0	0
NET EXPOSED SMT WALL ABOVE GR	3.3	0.7	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.2	0.8	234	279	149	90	107	67	60	72	38	145	173
NO A T T C EXPOSED CLG	2.6	1.4	0	0	0	0	0	0	0	0	0	27	69
EXPOSED FLOOR	2.4	0.5	62	123	28	0	0	0	50	118	27	110	281
BASEMENT/CRAWL HEAT LOSS	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
SUBTOTAL HT LOSS	1511			1488	550	190	1166	1328	86	45			
SUB TOTAL HT GAIN	0.20	0.66		0.20	0.66	0.20	0.66	0.20	0.56	0.20	0.56	0.20	0.56
LEVEL FACTOR / MULTIPLIER	839			305	106	106	648	738	48	7			
AIR CHANGE HEAT LOSS	236			0	107	30	181	287	0	0			
DUCT LOSS	263			0	0	7	204	0	0	0			
DUCT GAIN	480			0	0	0	1	240	0	0			
HEAT GAIN PEOPLE	429			0	0	0	429	429	0	0			
HEAT GAIN APPLIANCES/LIGHTS	2588			855	1034	325	1995	2066	134	69			
TOTAL HT LOSS BTU/H													
TOTAL HT GAIN x 1.3 BTU/H													

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LOSS GAIN	LVDN	KT/HR	PWD	FOY	MUD	WOB	BA\$
GRS.WALL AREA	370			370	37	25	80	300	100	405	612
GLAZING	0	0	0	0	10	10	0	0	0	0	102
NORTH	19.8	16.8	0	0	0	0	0	0	0	0	9
EAST	19.8	42.4	0	0	0	0	0	18	356	763	593
SOUTH	19.8	25.7	8	168	206	0	0	0	0	0	0
WEST	19.8	42.4	45	890	1908	0	0	0	0	0	0
SKYLIT.	34.6	103.0	0	0	0	0	0	0	0	0	0
DOORS	23.6	5.2	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.9	317	1314	234	80	332	74	282	1086	243
NET EXPOSED SMT WALL ABOVE GR	3.3	0.7	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.2	0.8	0	0	0	0	0	0	0	0	0
NO A T T C EXPOSED CLG	2.6	1.4	143	385	186	0	0	0	0	0	0
EXPOSED FLOOR	2.4	0.5	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	2727			2727	2603	1423	332	1911	801	520	2310
SUB TOTAL HT GAIN	0.30	0.66		0.30	0.66	0.30	0.66	0.30	0.66	0.30	0.66
LEVEL FACTOR / MULTIPLIER	1626			796	50	185	1069	1069	448	1025	3960
AIR CHANGE HEAT LOSS	406			0	0	0	0	0	0	0	0
DUCT LOSS	0			0	0	0	0	0	0	0	0
DUCT GAIN	0			0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	429			0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	4253			4253	4469	2219	517	2981	1249	3960	16569
TOTAL HT LOSS BTU/H											
TOTAL HT GAIN x 1.3 BTU/H											

TOTAL HEAT GAIN BTU/H: 23035 TONS: 1.92 LOSS DUE TO VENTILATION LOAD BTU/H: 2650 STRUCTURAL HEAT LOSS: 33808 TOTAL COMBINED HEAT LOSS BTU/H: 36458

SITE NAME: RUSSEL GARDENS
BUILDER: GREENPARK HOMESTYPE: HIGHGROVE 1
WOB

GFA: 1594 LO# 75020

DATE: JUN-17

HEATING CFM 890 COOLING CFM 890
TOTAL HEAT LOSS 33,808 TOTAL HEAT GAIN 22,442
AIR FLOW RATE CFM 26.33 AIR FLOW RATE CFM 39.66#GOODMAN
GMCC960402BNA 40
FAN SPEED
LOW
MEDIUM
HIGH
DESIGN CFM = 890
CFM @ 6" E.S.P.
AFUE = 96 %
INPUT (BTU/H) = 40,000
OUTPUT (BTU/H) = 38,400

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	9	7	4
R/A	0	0	3	2	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	10	12	13	14	15	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-3	BED-2	BED-3	BATH	BED-3	MBR	LV/DN	LV/DN	KT/BR	KT/BR	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.29	0.86	0.33	1.00	1.03	1.03	1.00	1.03	1.29	2.13	2.13	1.11	1.11	0.52	2.98	1.25	3.66	3.66	3.66	3.66
CFM PER RUN HEAT	34	23	9	26	27	26	4	27	34	56	56	29	29	14	78	33	96	96	96	96
RM GAIN MBH	1.88	1.03	0.11	1.46	1.82	1.82	1.46	1.82	1.88	2.23	2.23	0.52	0.52	0.11	1.67	0.83	0.70	0.70	0.70	0.70
CFM PER RUN COOLING	75	41	4	58	72	72	58	72	75	89	89	21	21	4	66	33	28	28	28	28
ADJUSTED PRESSURE	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	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	37	24	21	24	46	34	35	42	46	27	36	16	14	23	35	18	27	13	29	15
EQUIVALENT LENGTH	190	180	170	150	130	160	130	120	200	120	120	150	130	120	140	190	120	170	110	170
TOTAL EFFECTIVE LENGTH	227	204	191	174	176	194	165	162	246	147	156	166	144	143	175	208	147	183	139	185
ADJUSTED PRESSURE	0.08	0.08	0.09	0.1	0.1	0.09	0.1	0.11	0.07	0.11	0.11	0.1	0.12	0.12	0.1	0.08	0.11	0.09	0.12	0.09
ROUND DUCT SIZE	5	4	4	5	5	5	4	5	5	5	5	4	4	4	5	4	5	6	5	6
HEATING VELOCITY (ft/min)	250	264	103	191	198	191	46	198	250	411	411	333	333	161	573	379	705	489	705	489
COOLING VELOCITY (ft/min)	551	470	46	426	529	529	34	529	551	653	653	241	241	46	485	379	206	143	206	143
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10
TRUNK	A	C	C	C	B	B	C	B	A	A	A	A	A	B	B	A	A	A	B	A

RUN #	1	2	3	4	5	6	7	8	10	12	13	14	15	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-3	BED-2	BED-3	BATH	BED-3	MBR	LV/DN	LV/DN	KT/BR	KT/BR	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.29	0.86	0.33	1.00	1.03	1.03	1.00	1.03	1.29	2.13	2.13	1.11	1.11	0.52	2.98	1.25	3.66	3.66	3.66	3.66
CFM PER RUN HEAT	34	23	9	26	27	26	4	27	34	56	56	29	29	14	78	33	96	96	96	96
RM GAIN MBH	1.88	1.03	0.11	1.46	1.82	1.82	1.46	1.82	1.88	2.23	2.23	0.52	0.52	0.11	1.67	0.83	0.70	0.70	0.70	0.70
CFM PER RUN COOLING	75	41	4	58	72	72	58	72	75	89	89	21	21	4	66	33	28	28	28	28
ADJUSTED PRESSURE	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	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	37	24	21	24	46	34	35	42	46	27	36	16	14	23	35	18	27	13	29	15
EQUIVALENT LENGTH	190	180	170	150	130	160	130	120	200	120	120	150	130	120	140	190	120	170	110	170
TOTAL EFFECTIVE LENGTH	227	204	191	174	176	194	165	162	246	147	156	166	144	143	175	208	147	183	139	185
ADJUSTED PRESSURE	0.08	0.08	0.09	0.1	0.1	0.09	0.1	0.11	0.07	0.11	0.11	0.1	0.12	0.12	0.1	0.08	0.11	0.09	0.12	0.09
ROUND DUCT SIZE	5	4	4	5	5	5	4	5	5	5	5	4	4	4	5	4	5	6	5	6
HEATING VELOCITY (ft/min)	250	264	103	191	198	191	46	198	250	411	411	333	333	161	573	379	705	489	705	489
COOLING VELOCITY (ft/min)	551	470	46	426	529	529	34	529	551	653	653	241	241	46	485	379	206	143	206	143
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10
TRUNK	A	C	C	C	B	B	C	B	A	A	A	A	A	B	B	A	A	A	B	A

RUN #	1	2	3	4	5	6	7	8	10	12	13	14	15	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-3	BED-2	BED-3	BATH	BED-3	MBR	LV/DN	LV/DN	KT/BR	KT/BR	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.29	0.86	0.33	1.00	1.03	1.03	1.00	1.03	1.29	2.13	2.13	1.11	1.11	0.52	2.98	1.25	3.66	3.66	3.66	3.66
CFM PER RUN HEAT	34	23	9	26	27	26	4	27	34	56	56	29	29	14	78	33	96	96	96	96
RM GAIN MBH	1.88	1.03	0.11	1.46	1.82	1.82	1.46	1.82	1.88	2.23	2.23	0.52	0.52	0.11	1.67	0.83	0.70	0.70	0.70	0.70
CFM PER RUN COOLING	75	41	4	58	72	72	58	72	75	89	89	21	21	4	66	33	28	28	28	28
ADJUSTED PRESSURE	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	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	37	24	21	24	46	34	35	42	46	27	36	16	14	23	35	18	27	13	29	15
EQUIVALENT LENGTH	190	180	170	150	130	160	130	120	200	120	120	150	130	120	140	190	120	170	110	170
TOTAL EFFECTIVE LENGTH	227	204	191	174	176	194	165	162	246	147	156	166	144	143	175	208	147	183	139	185
ADJUSTED PRESSURE	0.08	0.08	0.09	0.1	0.1	0.09	0.1	0.11	0.07	0.11	0.11	0.1	0.12	0.12	0.1	0.08	0.11	0.09	0.12	0.09
ROUND DUCT SIZE	5	4	4	5	5	5	4	5	5	5	5	4	4	4	5	4	5	6	5	6
HEATING VELOCITY (ft/min)	250	264	103	191	198	191	46	198	250	411	411	333	333	161	573	379	705	489	705	489
COOLING VELOCITY (ft/min)	551	470	46	426	529	529	34	529	551	653	653	241	241	46	485	379	206	143	206	143
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10
TRUNK	A	C	C	C	B	B	C	B	A	A	A	A	A	B	B	A	A	A	B	A

RUN #	1	2	3	4	5	6	7	8	10	12	13	14	15	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-3	BED-2	BED-3	BATH	BED-3	MBR	LV/DN	LV/DN	KT/BR	KT/BR	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.29	0.86	0.33	1.00	1.03	1.03	1.00	1.03	1.29	2.13	2.13	1.11	1.11	0.52	2.98	1.25	3.66	3.66	3.66	3.66
CFM PER RUN HEAT	34	23	9	26	27	26	4	27	34	56	56	29	29	14	78	33	96	96	96	96
RM GAIN MBH	1.88	1.03	0.11	1.46	1.82	1.82	1.46	1.82	1.88	2.23	2.23	0.52	0.52	0.11	1.67	0.83	0.70	0.70	0.70	0.70
CFM PER RUN COOLING	75	41	4	58	72	72	58	72	75	89	89	21	21	4	66	33	28	28	28	28
ADJUSTED PRESSURE	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	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	37	24	21	24	46	34	35	42	46	27	36	16	14	23	35	18	27	13	29	15
EQUIVALENT LENGTH	190	180	170	150	130	160	130	120	200	120	120	150	130	120	140	190	120	170	110	170
TOTAL EFFECTIVE LENGTH	227	204	191	174	176	194	165	162	246	147	156	166	144	143	175	208	147	183	139	185
ADJUSTED PRESSURE	0.08	0.08	0.09	0.1	0.1	0.09	0.1	0.11	0.07	0.11	0.11	0.1	0.12	0.12	0.1	0.08	0.11	0.09	0.12	0.09
ROUND DUCT SIZE	5	4	4	5	5	5	4	5	5	5	5	4	4	4	5	4	5	6	5	6
HEATING VELOCITY (ft/min)	250	264	103	191	198	191	46	198	250	411	411	333	333	161	573	379	705	489	705	489
COOLING VELOCITY (ft/min)	551	470	46	426	529	529	34	529	551	653	653	241	241	46	485	379	206	143	206	143
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10
TRUNK	A	C	C	C	B	B	C	B	A	A	A	A	A	B	B	A	A	A	B	A

TYPE: HIGHGROVE 1
SITE NAME: RUSSEL GARDENS

LO # 75020
WOB

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES		9.32.3.1(1)
a)	☒ Direct vent (sealed combustion) only	
b)	☐ Positive venting induced draft (except fireplaces)	
c)	☐ Natural draft, B-vent or induced draft gas fireplace	
d)	☐ Solid Fuel (including fireplaces)	
e)	☐ No Combustion Appliances	

HEATING SYSTEM	
☒ Forced Air	☐ Non Forced Air
☐ Electric Space Heat	

HOUSE TYPE		9.32.1(2)
☒ I	Type a) or b) appliance only, no solid fuel	
☐ II	Type I except with solid fuel (including fireplaces)	
☐ III	Any Type c) appliance	
☐ IV	Type I, or II with electric space heat	
☐	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
☐ 1	Exhaust only/Forced Air System	
☐ 2	HRV with Ducting/Forced Air System	
☒ 3	HRV Simplified/connected to forced air system	
☐ 4	HRV with Ducting/non forced air system	
☐	Part 6 Design	

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	<u>2</u> @ 21.2 cfm	<u>42.4</u> cfm
Other Bedrooms	<u>2</u> @ 10.6 cfm	<u>21.2</u> cfm
Kitchen & Bathrooms	<u>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Other Rooms	<u>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Table 9.32.3.A.	TOTAL	<u>169.6</u> 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		<u>63.6</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>169.6</u>	cfm
Less Principal Ventil. Capacity	<u>139</u>	cfm
Required Supplemental Capacity	<u>30.6</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANE 60H-V+	Location: BSMT
<u>139.0</u> cfm	<u>3.0</u> sones
☒ HVI Approved	

PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	AT °F	FACTOR	% LOSS
139.0 CFM	X 71 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		NUTONE	
Location	Model	cfm	HVI
ENS	QTXEN050C	50	☒
BATH	QTXEN050C	50	☒
PWD	QTXEN050C	50	☒

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANE 60H-V+		
<u>139</u> cfm high	<u>50</u> cfm low	
<u>75</u> % 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:	July-17

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: HIGHGROVE 1	WOB	BUILDER: GREENPARK HOMES
SFQT: 1594	LO# 75020	SITE: RUSSEL GARDENS

DESIGN ASSUMPTIONS

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

BUILDING DATA

ATTACHMENT:	ATTACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	4.55	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	22046.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 48.0 ft	WIDTH: 21.0 ft	EXPOSED PERIMETER:	102.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	45.0 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	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

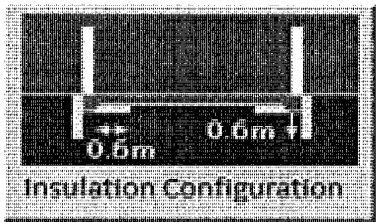
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

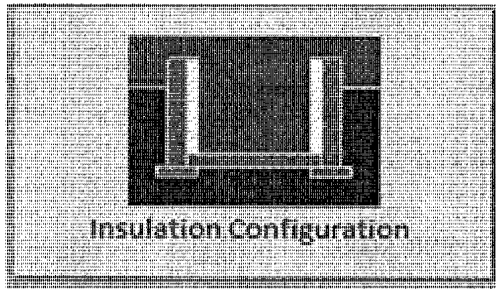
Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Length (m):	3.7	 Insulation Configuration
Width (m):	6.4	
Exposed Perimeter (m):	13.7	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		152

TYPE: HIGHGROVE 1
LO# 75020

WOB

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):	6.7	 Insulation Configuration
Floor Width (m):	6.4	
Exposed Perimeter (m):	31.1	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.55	
Window Area (m ²):	-2.0	
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):		677

TYPE: HIGHGROVE 1
LO# 75020

WOB

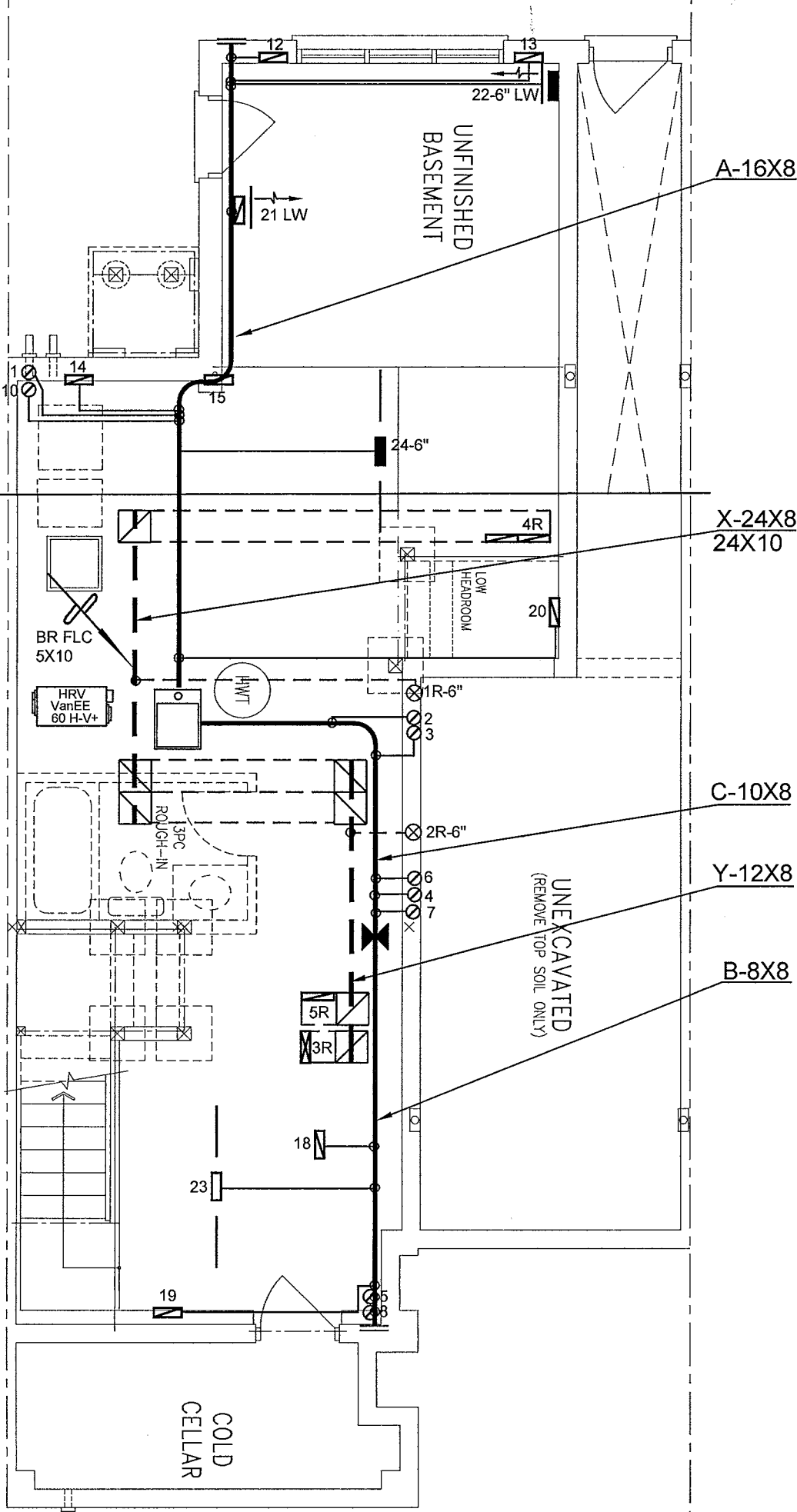
Air Infiltration Residential Load Calculator

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):	8.53			
Building Configuration				
Type:	Semi			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	624.3			
Air Leakage/Ventilation				
Air Tightness Type:	Average (1946-1960) (4.55 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1060.6 cm ²		
	4.55	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	65.6	65.6		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.482			
Cooling Air Leakage Rate (ACH/H):	0.182			

TYPE: HIGHGROVE 1
LO# 75020

WOB



BASEMENT PLAN – ELEV. 1, 2, &3

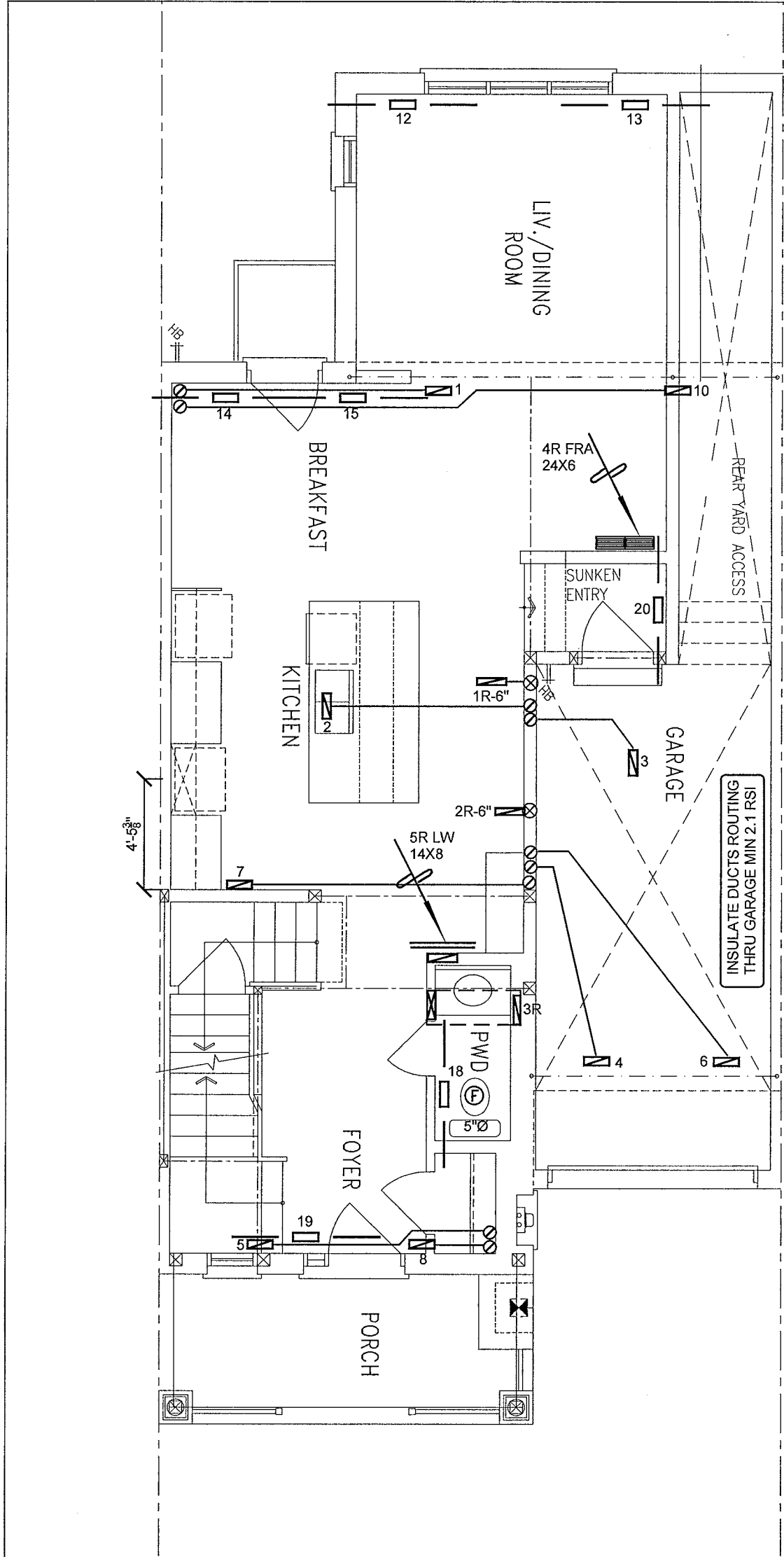
WOB
CSA-F280-12
PACKAGE A1

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
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

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		HVACDESIGNS LTD. 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 36458 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title	
GREENPARK HOMES			MAKE GOODMAN	3RD FLOOR				BASEMENT HEATING LAYOUT	
Project Name RUSSEL GARDENS HAMILTON, ONTARIO			MODEL GMEC960402BNA-40	2ND FLOOR	9	3	2	Date JULY/2017	
WOB HIGHGROVE 1 1594 sqft			INPUT 40 MBTU/H	1ST FLOOR	7	2	2	Scale 3/16" = 1'-0"	
			OUTPUT 38.4 MBTU/H	BASEMENT	4	1	0	BCIN# 19669	
		COOLING 2.0 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			LO# 75020	
FAN SPEED 890 cfm @ 0.6" w.c.									



GROUND FLOOR PLAN – ELEV. 1, 2 & 3

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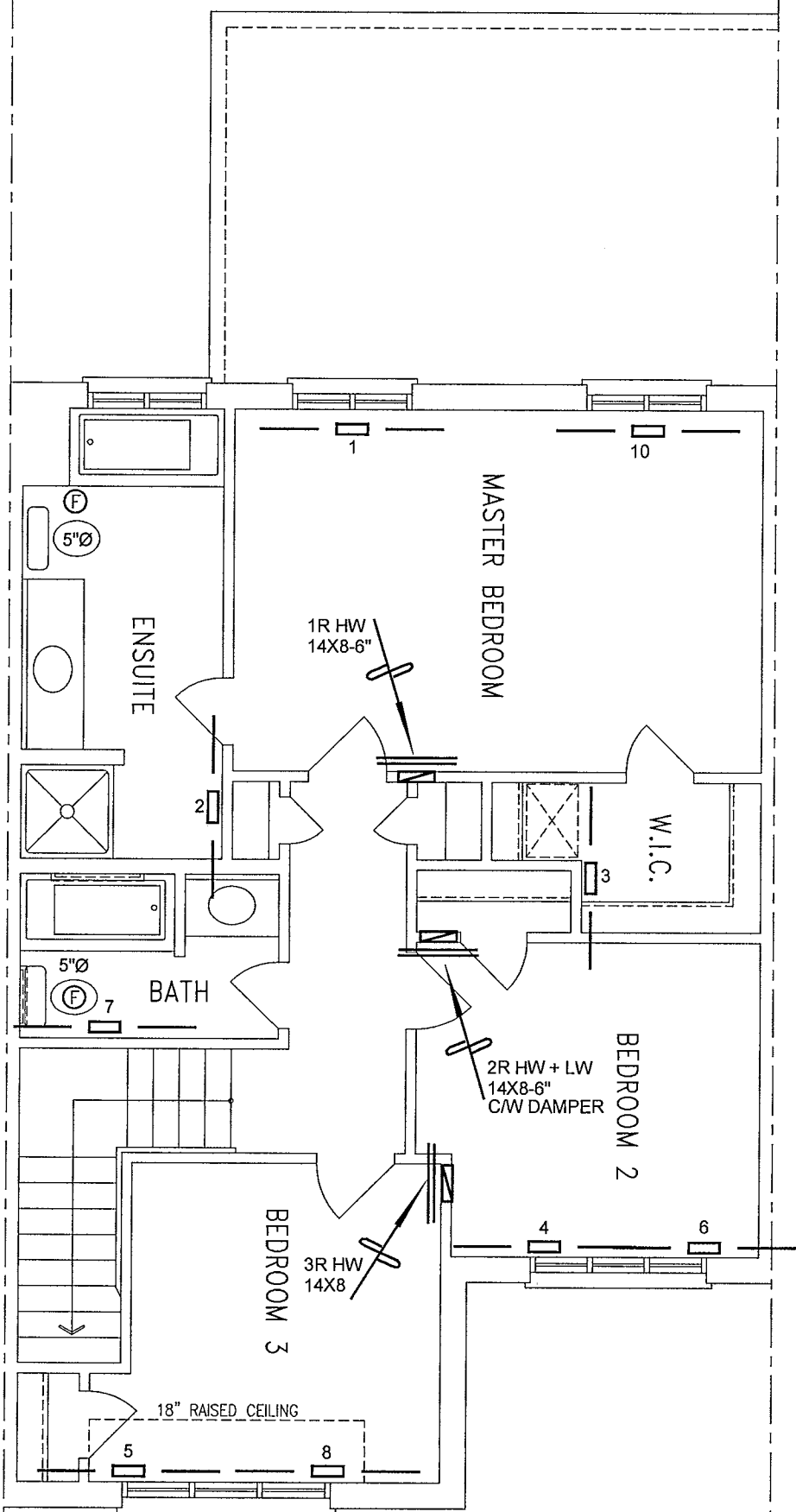
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

WOB
CSA-F280-12
PACKAGE A1

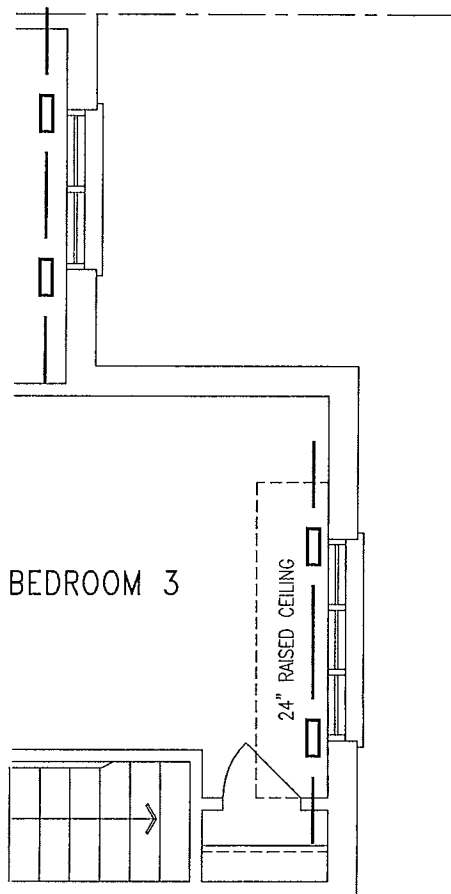
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR 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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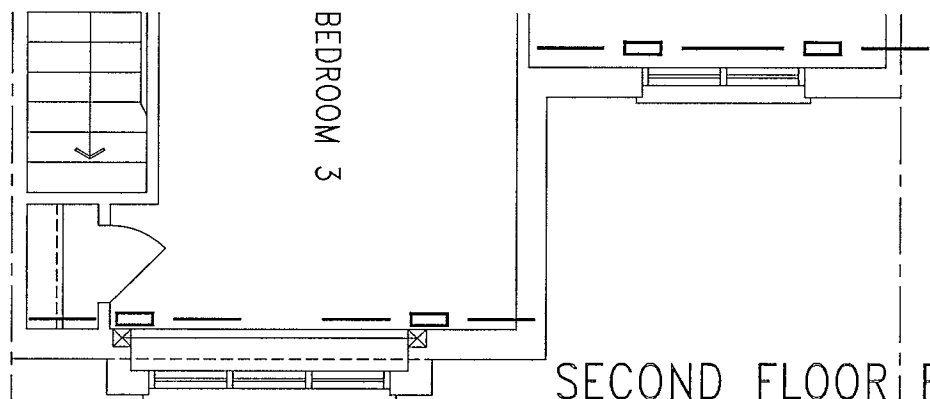
Client GREENPARK HOMES		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply 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	
Project Name RUSSEL GARDENS HAMILTON, ONTARIO			Date JULY/2017	
WOB HIGHGROVE 1 1594 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO#	75020



SECOND FLOOR PLAN - ELEV. 1



SECOND FLOOR PLAN - ELEV. 2



SECOND FLOOR PLAN - ELEV. 3

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Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

WOB
CSA-F280-12
PACKAGE A1

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
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Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.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	
GREENPARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	JULY/2017
RUSSEL GARDENS HAMILTON, ONTARIO			Scale	3/16" = 1'-0"
WOB			BCIN# 19669	
HIGHGROVE 1	1594 sqft	LO#	75020	