

SITE NAME: RUSSEL GARDENS
BUILDER: GREENPARK HOMES
TYPE: HIGHGROVE 3
DATE: JUL-17
LO# 75023
GFA: 1920
WINTER NATURAL AIR CHANGE RATE 0.409
SUMMER NATURAL AIR CHANGE RATE 0.165
HEAT LOSS AT °F. 71
HEAT GAIN AT °F. 16
CSA-F280-12
SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	GRS.WALL AREA	GLAZING	NET EXPOSED WALL ABOVE GR	NET EXPOSED WALL	DOORS	SKYLT.	NO A TTC	EXPOSED FLOOR	BASEMENT/CRAWL	SUB TOTAL HT LOSS	LEVEL FACTOR / MULTIPUER	AIR CHANGE HEAT LOSS	AIR CHANGE HEAT GAIN	DUCT LOSS	DUCT GAIN	HEAT GAIN PEOPLE	HEAT GAIN APPLIANCES/LIGHTS	TOTAL HT LOSS BTU/H	TOTAL HT GAIN X 1.3 BTU/H
EXP. WALL	29	9		261	0	0	0	0	0	0	0	0	2008	1797	866	261	0	0	2	390	2873	3806
CLG. HT.	9	9		72	0	0	0	0	0	0	0	0	739	802	319	117	106	92	480	390	2873	3806
FACTORS				18.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8
GRS.WALL AREA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GLAZING	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SKYLT.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	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 ABOVE GR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO A TTC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB TOTAL HT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL FACTOR / MULTIPUER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR CHANGE HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR CHANGE HEAT GAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DUCT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DUCT GAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL HT LOSS BTU/H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL HT GAIN X 1.3 BTU/H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	GRS.WALL AREA	GLAZING	NET EXPOSED WALL ABOVE GR	NET EXPOSED WALL	DOORS	SKYLT.	NO A TTC	EXPOSED FLOOR	BASEMENT/CRAWL	SUB TOTAL HT LOSS	LEVEL FACTOR / MULTIPUER	AIR CHANGE HEAT LOSS	AIR CHANGE HEAT GAIN	DUCT LOSS	DUCT GAIN	HEAT GAIN PEOPLE	HEAT GAIN APPLIANCES/LIGHTS	TOTAL HT LOSS BTU/H	TOTAL HT GAIN X 1.3 BTU/H
EXP. WALL	29	9		261	0	0	0	0	0	0	0	0	2008	1797	866	261	0	0	2	390	2873	3806
CLG. HT.	9	9		72	0	0	0	0	0	0	0	0	739	802	319	117	106	92	480	390	2873	3806
FACTORS				18.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8
GRS.WALL AREA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GLAZING	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SKYLT.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	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 ABOVE GR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO A TTC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB TOTAL HT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL FACTOR / MULTIPUER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR CHANGE HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR CHANGE HEAT GAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DUCT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DUCT GAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL HT LOSS BTU/H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL HT GAIN X 1.3 BTU/H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TOTAL HEAT GAIN BTU/H: 24551
TONS: 2.06
LOSS DUE TO VENTILATION LOAD BTU/H: 2650
STRUCTURAL HEAT LOSS: 31127
TOTAL COMBINED HEAT LOSS BTU/H: 33777
MICHAEL O'ROURKE
INDIVIDUAL BCIN: 19669

SITE NAME: RUSSEL GARDENS
BUILDER: GREENPARK HOMES

TYPE: HIGHGROVE 3

DATE: Jul-17

GFA: 1920

LO# 75023

HEATING CFM 890 COOLING CFM 890
TOTAL HEAT LOSS 31,127 TOTAL HEAT GAIN 23,958
AIR FLOW RATE CFM 28.59 AIR FLOW RATE CFM 37.15

#GOODMAN

AFUE = 96 %
INPUT (BTU/H) = 40,000
OUTPUT (BTU/H) = 38,400

RUN COUNT	4th	3rd	2nd	1st	Bas
SIA	0	0	11	6	4
R/A	0	0	4	2	1

MELOW MEDIUM HIGH
MEDIUM HIGH
MEDIUM HIGH

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

DESIGN CFM = 890
CFM @ 0.1" E.S.P.

All SIA diffusers 4"x10" unless noted otherwise on layout.

All SIA runs 5'Ø unless noted otherwise on layout.

RUN #	1	2	3	4	5	6	7	8	9	10	13	14	15	16	17	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	LOUN	BATH	BED-2	BED-3	MBR	LV/DN	KT/FM	KT/FM	KT/FM	LAUN	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.44	1.16	0.15	0.79	0.63	0.28	1.61	0.79	0.63	1.44	1.40	1.66	1.66	1.66	0.31	2.34	1.73	2.86	2.86	2.86	2.86
CFM PER RUN HEAT	41	33	4	23	18	8	46	23	18	41	40	47	47	47	9	67	49	82	82	82	82
RM GAIN MBH	1.90	1.31	0.09	1.23	1.23	0.66	1.81	1.23	1.23	1.90	2.44	1.45	1.45	1.45	26	1.16	0.86	0.46	0.46	0.46	0.46
CFM PER RUN COOLING	71	49	3	46	46	25	67	46	46	71	90	54	54	54	26	43	32	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	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
EQUIVALENT LENGTH	41	42	25	37	30	15	38	40	36	50	19	28	38	31	37	24	19	32	20	12	19
EQUIVALENT LENGTH	170	160	170	180	160	180	140	190	160	170	140	110	120	160	160	100	150	130	90	160	130
TOTAL EFFECTIVE LENGTH	211	202	195	217	190	195	178	230	196	220	159	138	158	191	197	124	169	162	110	172	149
ADJUSTED PRESSURE	0.08	0.09	0.09	0.08	0.09	0.09	0.1	0.07	0.09	0.08	0.1	0.12	0.11	0.11	0.09	0.14	0.1	0.15	0.15	0.09	0.11
ROUND DUCT SIZE	5	4	4	4	4	4	5	5	4	5	5	4	4	5	4	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	301	379	46	264	207	92	338	169	207	301	284	539	539	345	103	492	562	602	602	602	602
COOLING VELOCITY (ft/min)	521	562	34	528	528	287	492	338	528	521	661	620	620	396	298	316	367	125	125	125	125
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	A	B	B	C	C	B	C	C	C	A	C	A	A	A	B	C	B	A	B	C	C

RUN #	ROOM NAME	RM LOSS MBH	CFM PER RUN HEAT	RM GAIN MBH	CFM PER RUN COOLING	ADJUSTED PRESSURE	EQUIVALENT LENGTH	ADJUSTED PRESSURE	ROUND DUCT SIZE	HEATING VELOCITY (ft/min)	COOLING VELOCITY (ft/min)	OUTLET GRILL SIZE	TRUNK
1	TRUNK A	305	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	A
2	TRUNK B	490	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	B
3	TRUNK C	399	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	C
4	TRUNK D	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	D
5	TRUNK E	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	E
6	TRUNK F	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	F

SUPPLY AIR TRUNK SIZE											RETURN AIR TRUNK SIZE										
TRUNK	STATIC	ROUND	RECT	VELOCITY	TRUNK	STATIC	ROUND	RECT	VELOCITY	TRUNK	STATIC	ROUND	RECT	VELOCITY	TRUNK	STATIC	ROUND	RECT	VELOCITY		
CFM	PRESS.	DUCT	DUCT	(ft/min)	CFM	PRESS.	DUCT	DUCT	(ft/min)	CFM	PRESS.	DUCT	DUCT	(ft/min)	CFM	PRESS.	DUCT	DUCT	(ft/min)		
TRUNK A	305	0.08	9	10	8	549	0	0.00	0	0	0.00	0	0	8	0	0.05	0	0	8		
TRUNK B	490	0.08	10.7	14	8	630	0	0.00	0	0	0.00	0	0	8	0	0.05	0	0	8		
TRUNK C	399	0.07	10.3	12	8	599	0	0.00	0	0	0.00	0	0	8	0	0.05	0	0	8		
TRUNK D	0	0.00	0	0	8	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8		
TRUNK E	0	0.00	0	0	8	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8		
TRUNK F	0	0.00	0	0	8	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8		
RETURN AIR #	1	2	3	4	5	6	BR														
AIR VOLUME	130	95	100	75	175	155	0	0	0	0	0	0	0	0	0	0	0	0	0		
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0	0	0	0	0	0	0	0	0	0	0	0	0		
ACTUAL DUCT LGH.	46	35	43	51	28	17	1	1	1	1	1	1	1	1	1	1	1	1	1		
EQUIVALENT LENGTH	135	185	145	230	140	225	0	0	0	0	0	0	0	0	0	0	0	0	0		
TOTAL EFFECTIVE LH	181	220	188	281	168	242	1	1	1	1	1	1	1	1	1	1	1	1	1		
ADJUSTED PRESSURE	0.08	0.07	0.08	0.05	0.09	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80		
ROUND DUCT SIZE	6.5	8	5.9	6	7.1	7.5	0	0	0	0	0	0	0	0	0	0	0	0	0		
INLET GRILL SIZE	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0		
INLET GRILL SIZE	14	14	14	14	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0		

TYPE: HIGHGROVE 3
SITE NAME: RUSSEL GARDENS

LO # 75023

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	2 @ 10.6 cfm	21.2 cfm
Kitchen & Bathrooms	4 @ 10.6 cfm	42.4 cfm
Other Rooms	5 @ 10.6 cfm	63.6 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	63.6	cfm

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

PRINCIPAL EXHAUST FAN CAPACITY			
Model: VANEE 60H-V+	Location: BSMT		
139.0 cfm	3.0 sones		
☒ HVI Approved			
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °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	☒

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 60H-V+		
139 cfm high	50 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:	July-17

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** HIGHGROVE 3**BUILDER:** GREENPARK HOMES**SFQT:** 1920**LO#** 75023**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):	25700.0	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: 49.0 ft	WIDTH: 21.0 ft	EXPOSED PERIMETER:	90.0 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	-

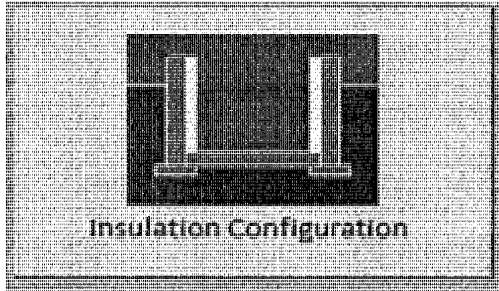
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

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):	14.9	
Floor Width (m):	6.4	
Exposed Perimeter (m):	27.4	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.1	
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):		820

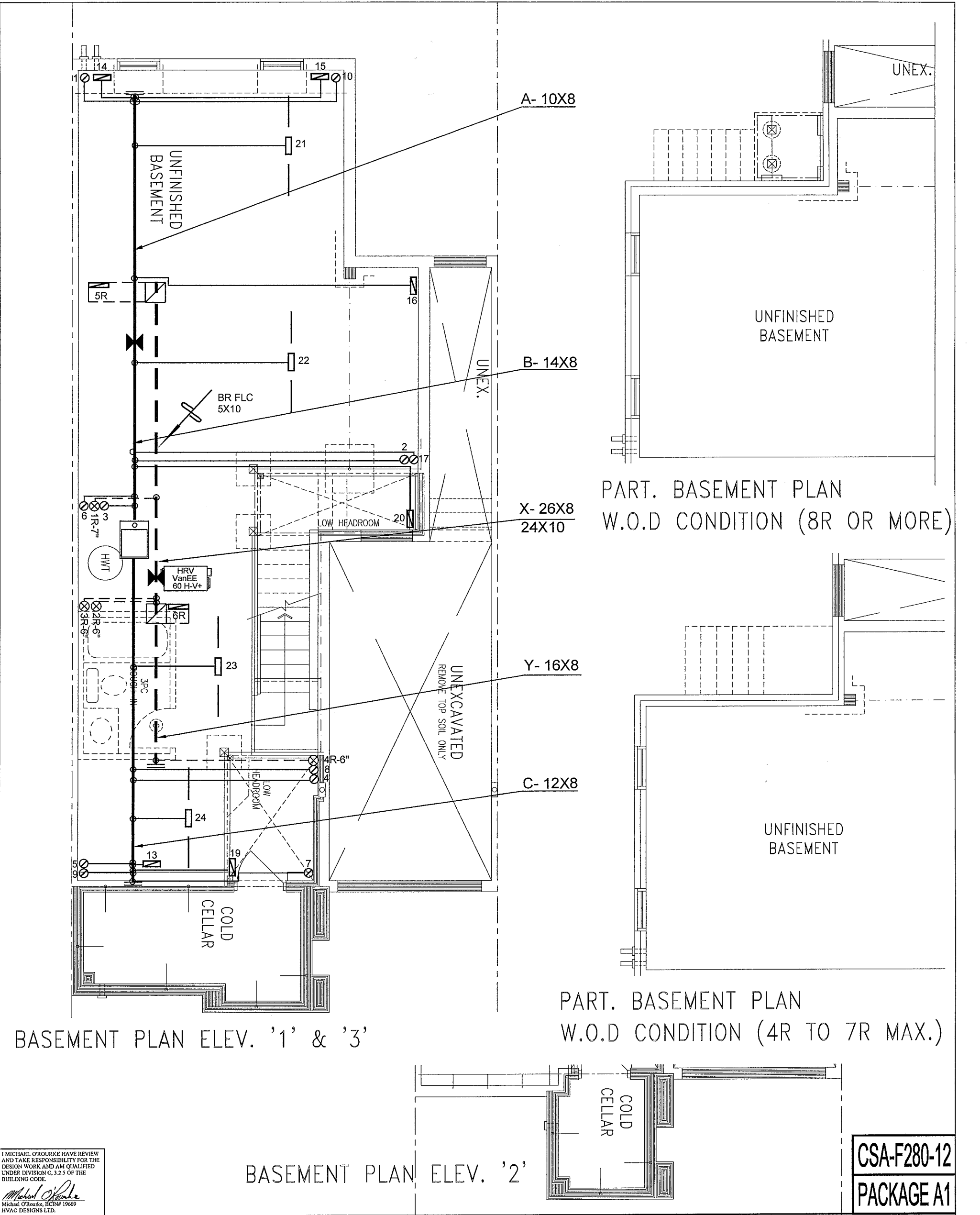
TYPE: HIGHGROVE 3
LO# 75023

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):	6.71			
Building Configuration				
Type:	Semi			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	727.7			
Air Leakage/Ventilation				
Air Tightness Type:	Average (1946-1960) (4.55 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1236.4 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):	0.409			
Cooling Air Leakage Rate (ACH/H):	0.155			

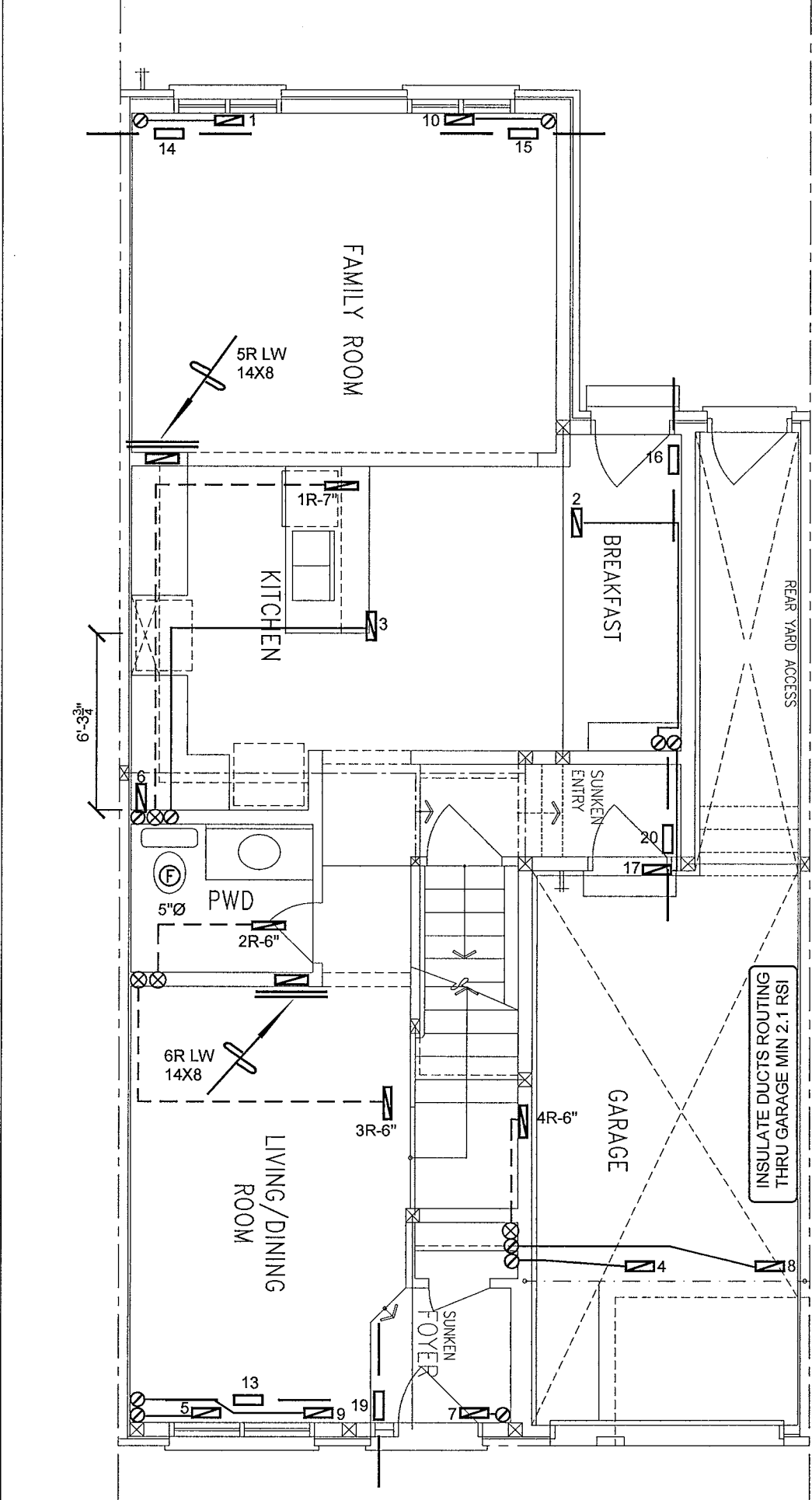
TYPE: HIGHGROVE 3
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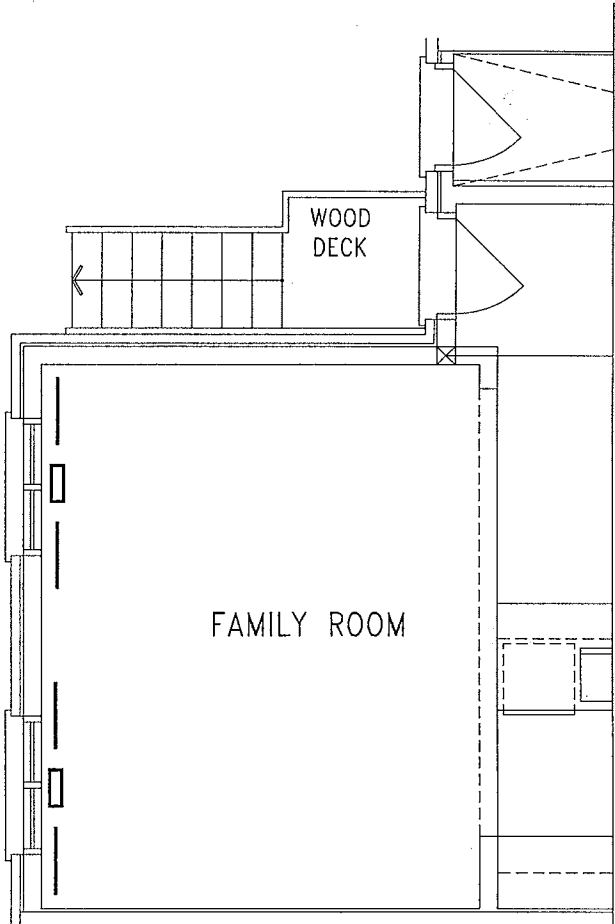
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

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

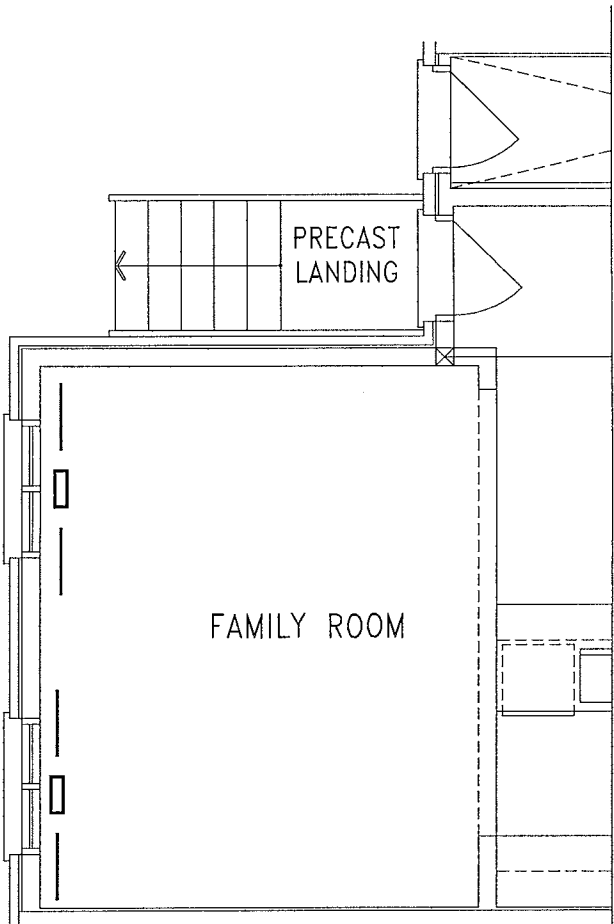
HVAC LEGEND							3.				
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.			
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.			
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN 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		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 33777 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS		Sheet Title	
GREENPARK HOMES						MAKE GOODMAN		3RD FLOOR		BASEMENT HEATING LAYOUT	
Project Name						MODEL GMEC960402BNA-40		2ND FLOOR 11 4 3		Date JULY/2017	
RUSSEL GARDENS HAMILTON, ONTARIO						INPUT 40 MBTU/H		1ST FLOOR 6 2 2		Scale 3/16" = 1'-0"	
HIGHGROVE 3 1920 sqft						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# 75023					
		FAN SPEED 890 cfm @ 0.6" w.c.									



GROUND FLOOR PLAN ELEV. '1', '2' & '3'



PART. GROUND FLOOR PLAN W.O.D CONDITION (8R OR MORE)



PART. GROUND FLOOR PLAN W.O.D CONDITION (4R TO 7R MAX.)

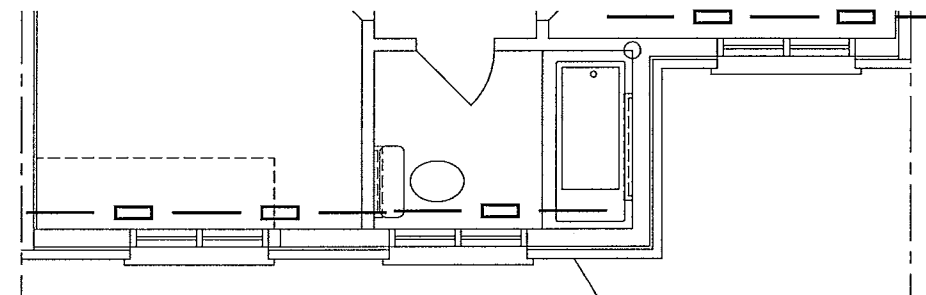
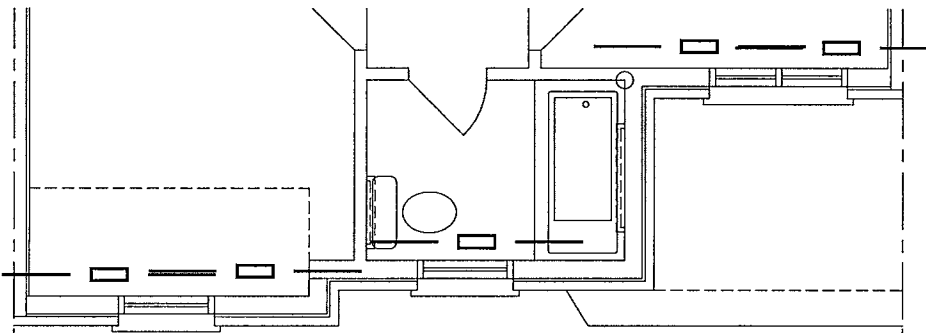
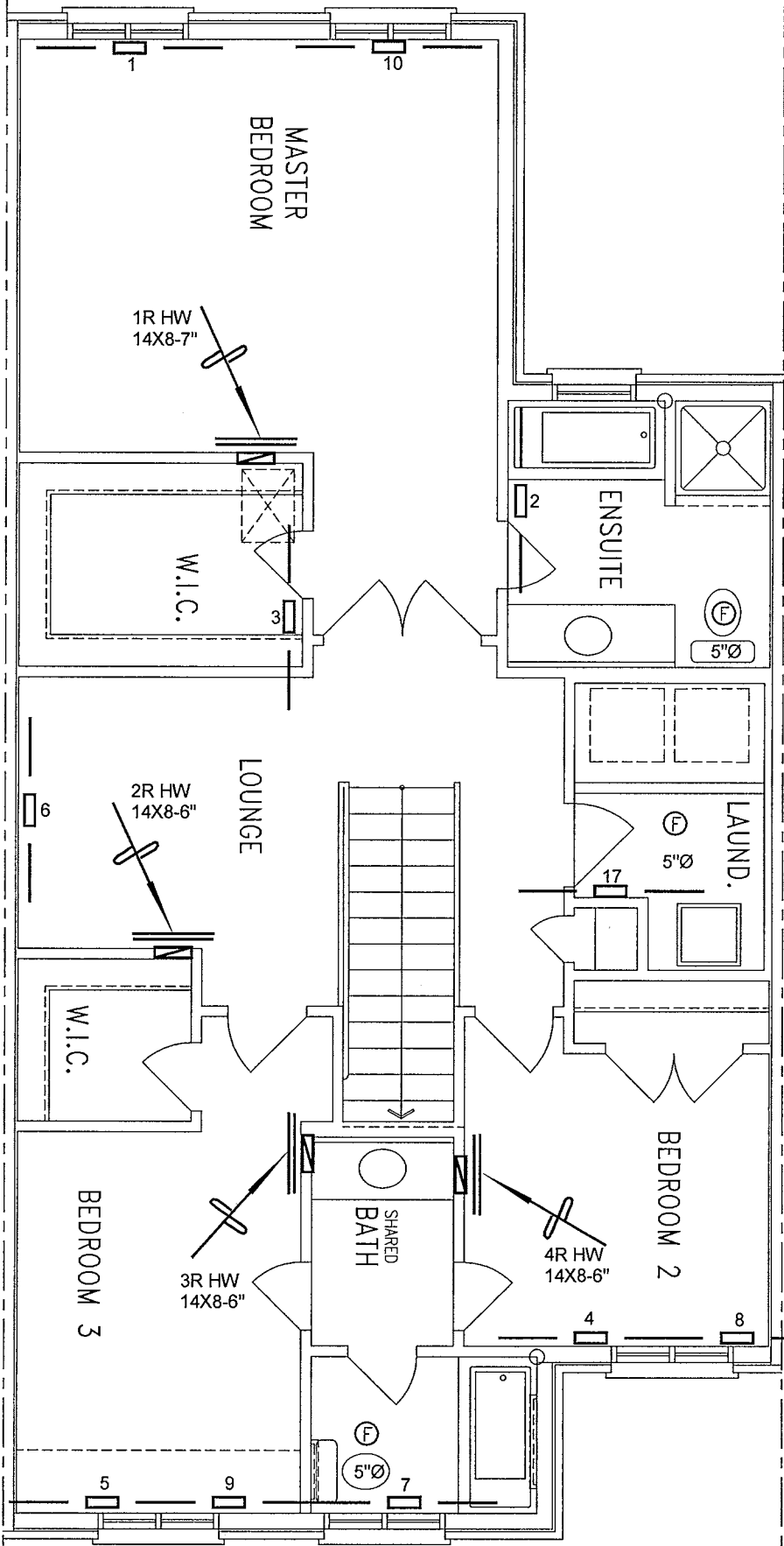
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Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

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	Sheet Title FIRST FLOOR HEATING LAYOUT	
Project Name RUSSEL GARDENS HAMILTON, ONTARIO			Date JULY/2017	Scale 3/16" = 1'-0"
HIGHGROVE 3 1920 sqft		BCIN# 19669		
		LO# 75023		
		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.		



SECOND FLOOR PLAN ELEV. '1'

SECOND FLOOR PLAN ELEV. '2'

SECOND FLOOR PLAN ELEV. '3'

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.

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.		
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	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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Client
GREENPARK HOMES

Project Name
**RUSSEL GARDENS
HAMILTON, ONTARIO**

HIGHGROVE 3 1920 sqft

HVACDESIGNS 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.

Sheet Title
**SECOND FLOOR
HEATING
LAYOUT**

Date **JULY/2017**

Scale **3/16" = 1'-0"**

BCIN# 19669

LO# **75023**