

SITE NAME: SECONDO

OMES

TYPE: PINEBROOK 3

GFA: 3171

DATE: Nov-17
LO# 76866

WINTER
SUMMER

CHANGE RATE 0.227

81 14
=, =,

CSA-F280-12
ENERGYSTAR

BUILDER, GREENPARK HOMES		1TYPE: PINEWOOD 3		G.F.A. 3711		L.O.F. 16666		SUMMER NATURAL AIR CHANGE RATE 0.070		HEAT GAIN AT P. 14		ENERGY STATE		
ROOM USE	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	COMP	ENS-2	CLG. HT.	EXP. WALL			
FACTORS	37	27	5	15	29	14	7	42	7					
	9	9	9	9	9	9	9	9	9					
	333	243	45	135	261	126	63	378	63					
	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN					
	0	0	0	20	407	0	20	0	0					
	0	0	10	204	415	0	0	0	0					
	0	0	0	0	0	0	0	56	1140	2322	0	0		
	0	13	265	323	0	0	0	0	0	0	8	163	199	
	32	651	1327	14	285	581	0	0	0	0	0	0	0	
	SKYLT.	34.2	101.2	0	0	0	0	0	0	0	0	0	0	
DOORS	27.0	4.7	0	0	0	0	0	0	0	0	0	0		
NET EXPOSED WALL	5.4	301	1621	279	216	1163	200	35	188	32	115	619	107	
NET EXPOSED BSMT WALL ABOVE GR	3.9	0.7	0	0	0	0	0	0	0	0	0	0	0	
EXPOSED CLG	1.6	0.7	336	539	238	170	273	121	75	120	53	255	409	181
NO ATTIC EXPOSED CLG	4.0	1.8	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	3.3	0.6	0	0	0	0	0	0	198	656	113	0	0	0
BASEMENT/CRAWL HEAT LOSS	0	0	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	0	0
SUBTOTAL HT LOSS	2811	1885	761	1436	2828	1255	830	3432	975					
SUB TOTAL HT GAIN	1844	1224	543	605	1711	648	442	2867	384					
LEVEL FACTOR MULTIPLIER	0.20	0.17	0.20	0.17	0.20	0.17	0.20	0.17	0.20	0.17				
AIR CHANGE HEAT LOSS	488	345	132	249	491	218	144	596	169					
AIR CHANGE HEAT GAIN	138	92	41	45	128	49	33	215	29					
DUCT LOSS	0	0	89	0	332	0	0	0	114					
DUCT GAIN	0	0	58	0	257	0	0	0	90					
HEAT GAIN PEOPLE	240	0	0	1	240	1	0	0	0					
HEAT GAIN APPLIANCES/LIGHTS	488	0	0	488	488	488	0	488	488					
TOTAL HT LOSS BTU/H	3300	2330	982	1685	3651	1473	974	4028	1259					
TOTAL HT GAIN x 1.3 BTU/H	3835	1710	835	1792	3671	1851	618	4641	1267					

[illegible]

TOTAL HEAT GAIN BTU/H:

TONS: 2.94

LOSS DUE TO VENTILATION LOAD BTU/H:3407

STRUCTURAL HEAT LOSS: 55730

TOTAL COMBINED HEAT LOSS BTU/H: 59136

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

TYPE: PINEBROOK 3
SITE NAME: SECONDO

LO # 76866

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	4 @ 10.6 cfm	42.4 cfm
Other Rooms	8 @ 10.6 cfm	84.8 cfm
Table 9.32.3.A. TOTAL		201.4 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	201.4	cfm
Less Principal Ventil. Capacity	155	cfm
Required Supplemental Capacity	46.4	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
155.0 cfm	3.0 sones ☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION	
CFM	ΔT °F
155.0 CFM	81 F
X	X
FACTOR	% LOSS
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 65H		
155 cfm high	64 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:	
HRAI #	001820
Date:	November-17

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** PINEBROOK 3**BUILDER:** GREENPARK HOMES**SFQT:** 3171**LO#** 76866**SITE:** SECONDO**DESIGN ASSUMPTIONS**

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-9	OUTDOOR DESIGN TEMP.	86
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	72

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	2.50	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	TIGHT	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	42899.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
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: 62.0 ft	WIDTH: 32.0 ft	EXPOSED PERIMETER:	188.0 ft

2012 OBC - COMPLIANCE PACKAGE**Component****Compliance Package
ENERGYSTAR****Nominal Min. Eff.**

Ceiling with Attic Space Minimum RSI (R)-Value	50	50.72
Ceiling Without Attic Space Minimum RSI (R)-Value	31	20.54
Exposed Floor Minimum RSI (R)-Value	31	24.58
Walls Above Grade Minimum RSI (R)-Value	20 + 5	15.12
Basement Walls Minimum RSI (R)-Value	20	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	ZONE 2	-
Skylights Maximum U-Value	ZONE 2	-
Space Heating Equipment Minimum AFUE	0.95	-
HRV Minimum Efficiency	65%	-
Domestic Hot Water Heater Minimum EF	0.75	-

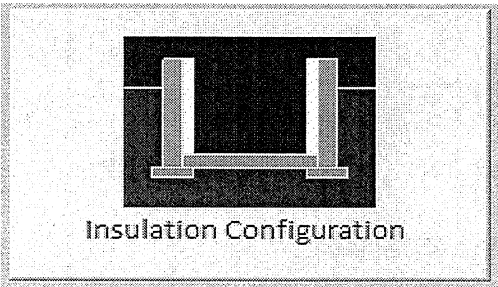
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Bradford	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	18.9	 Insulation Configuration
Floor Width (m):	9.8	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.4	
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):	1986	

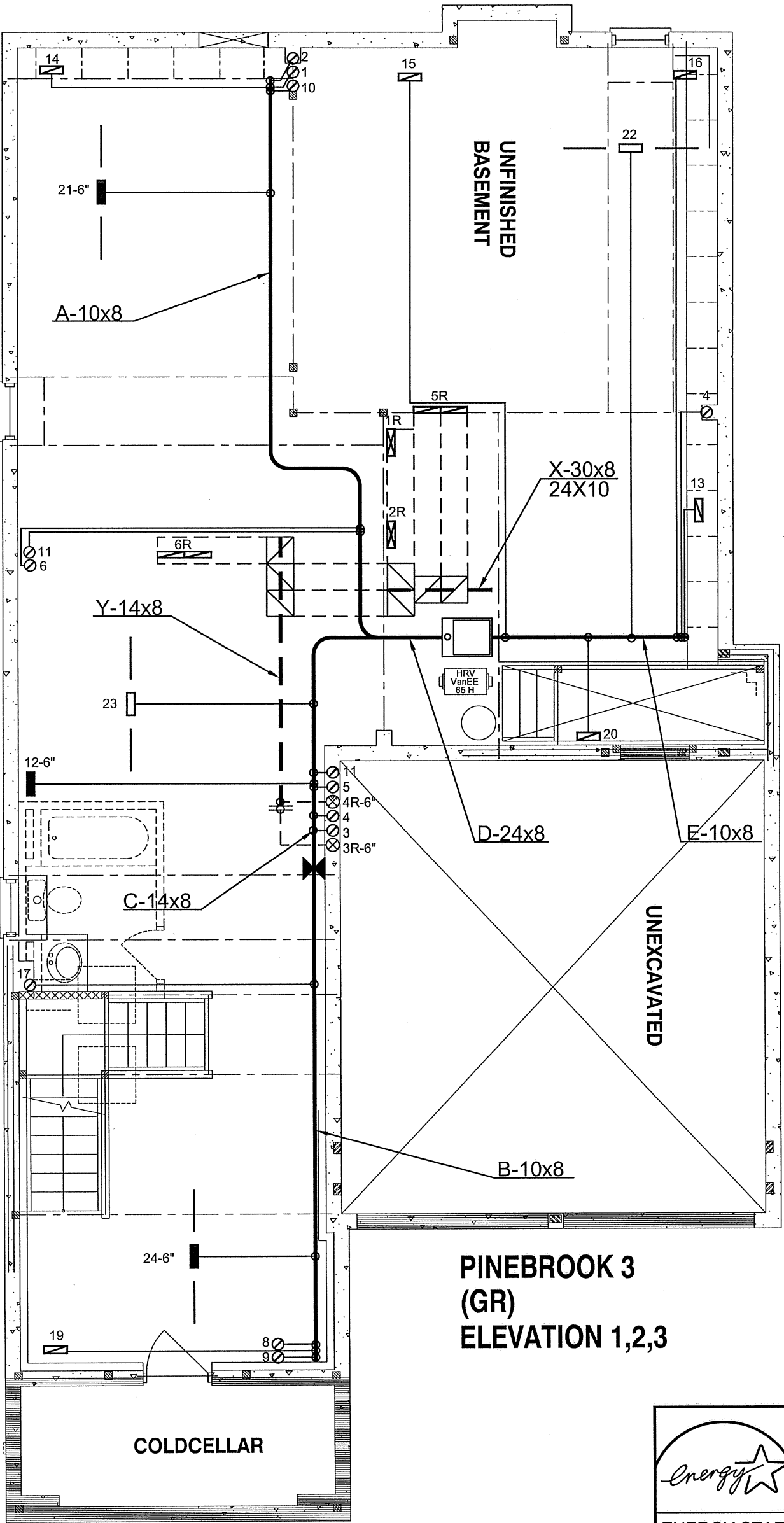
TYPE: PINEBROOK 3
LO# 76866

Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Bradford			
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:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1214.8			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1134.0 cm ²		
	2.50	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	73.2	73.2		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.227			
Cooling Air Leakage Rate (ACH/H):	0.070			

TYPE: PINEBROOK 3
LO# 76866



PINEBROOK 3
(GR)
ELEVATION 1,2,3



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.

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	FLOOR 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

Project Name
**SECONDO
EAST GWILLIMBURY,
ONTARIO**

PINEBROOK 3 **3194 sqft**

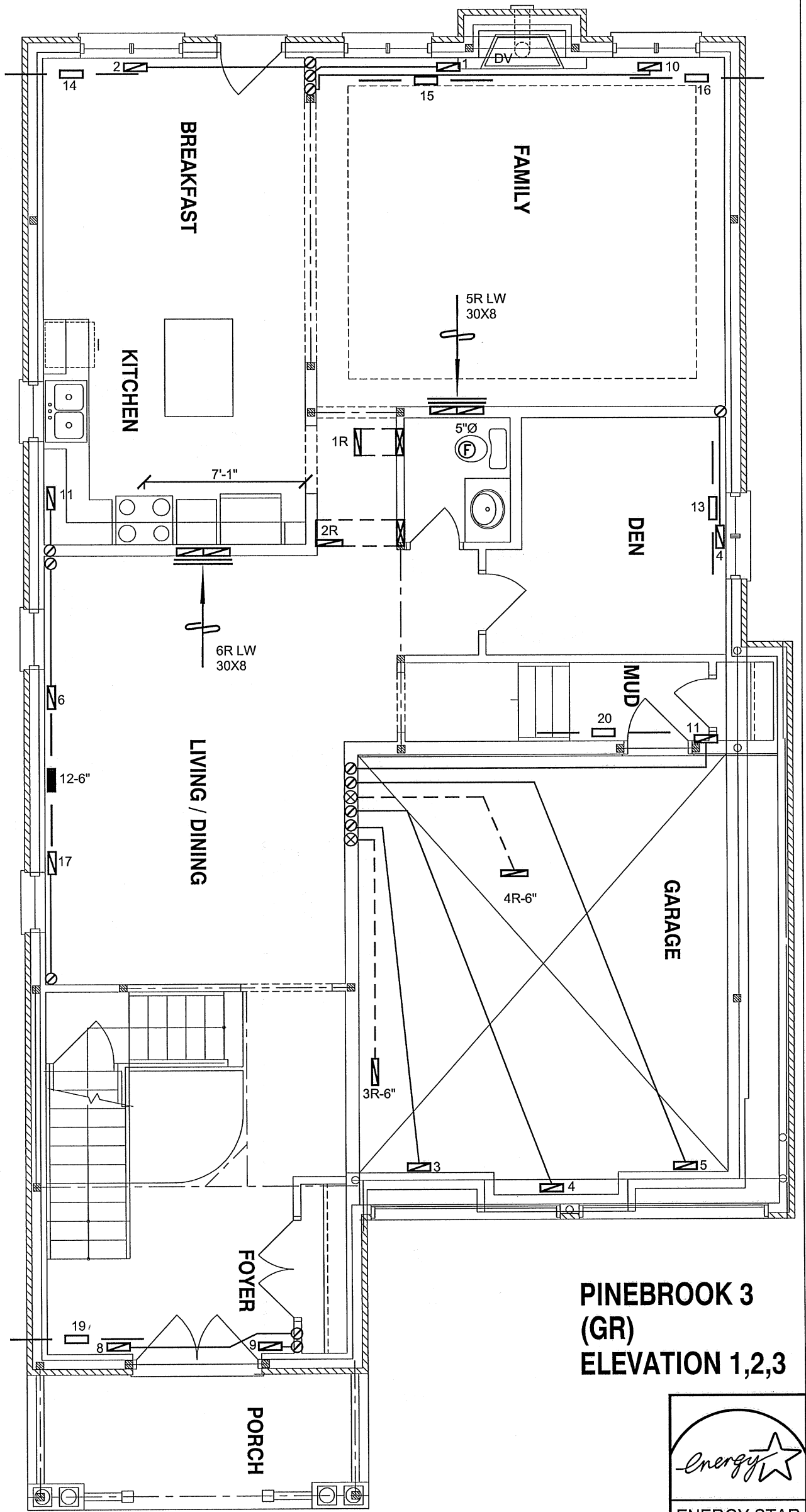
HVACDESIGNS LTD.

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Email: info@hvacdesigns.ca
Web: www.hvacdesigns.ca
Specializing in Residential Mechanical Design Services

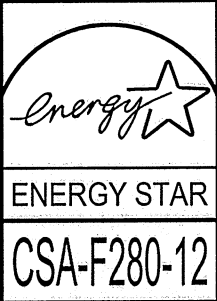
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

HEAT LOSS 59136 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			
MAKE	goodman	3RD FLOOR			
MODEL	GMEC960803BNA-80	2ND FLOOR	12	4	3
INPUT	80 MBTU/H	1ST FLOOR	8	2	2
OUTPUT	76.8 MBTU/H	BASEMENT	4	1	0
COOLING	3.0 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			
FAN SPEED	1122 cfm @ 0.6" w.c.				

Sheet Title	
BASEMENT HEATING LAYOUT	
Date	NOV/2017
Scale	3/16" = 1'-0"
BCIN# 19669	
LO#	76866



PINEBROOK 3
(GR)
ELEVATION 1,2,3



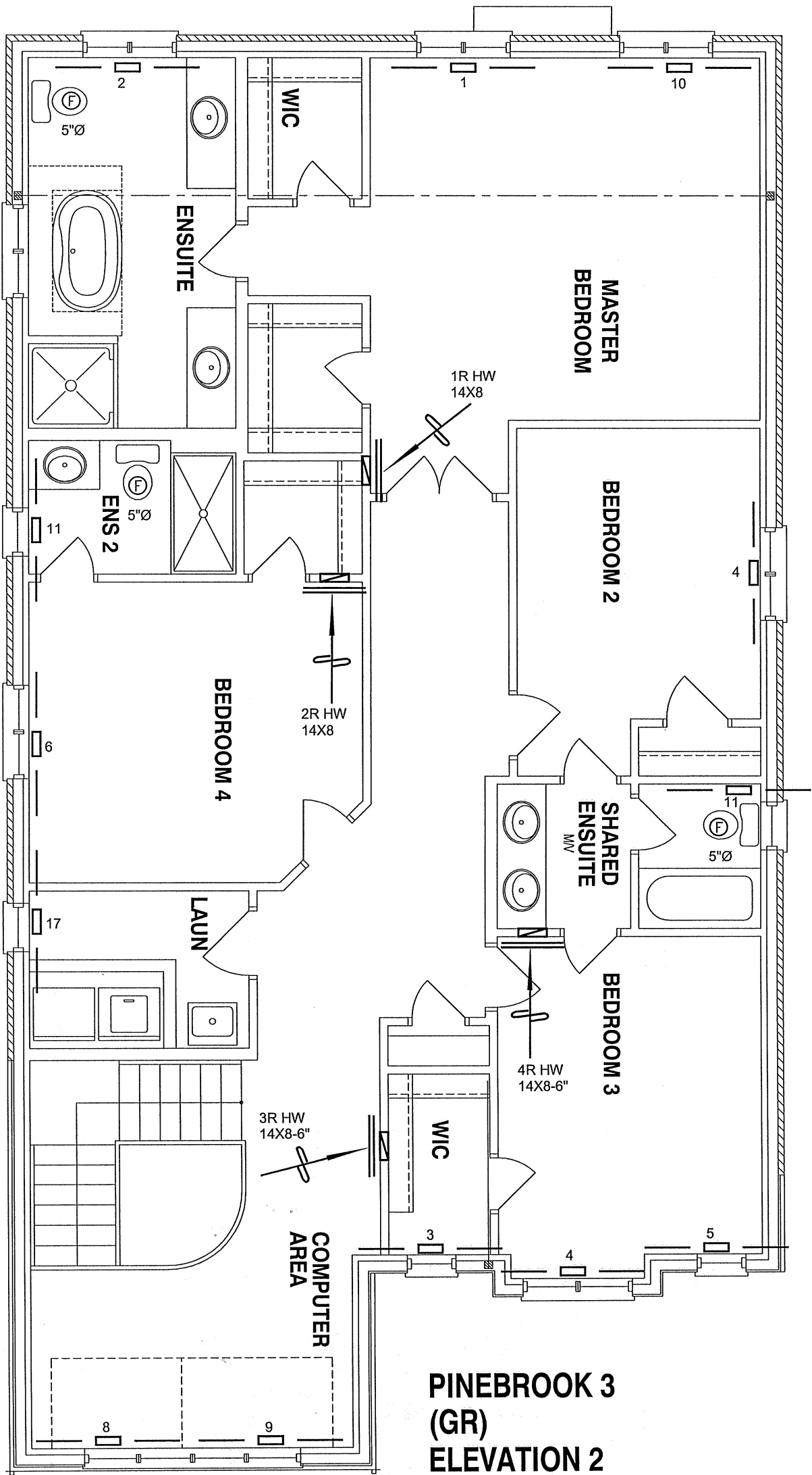
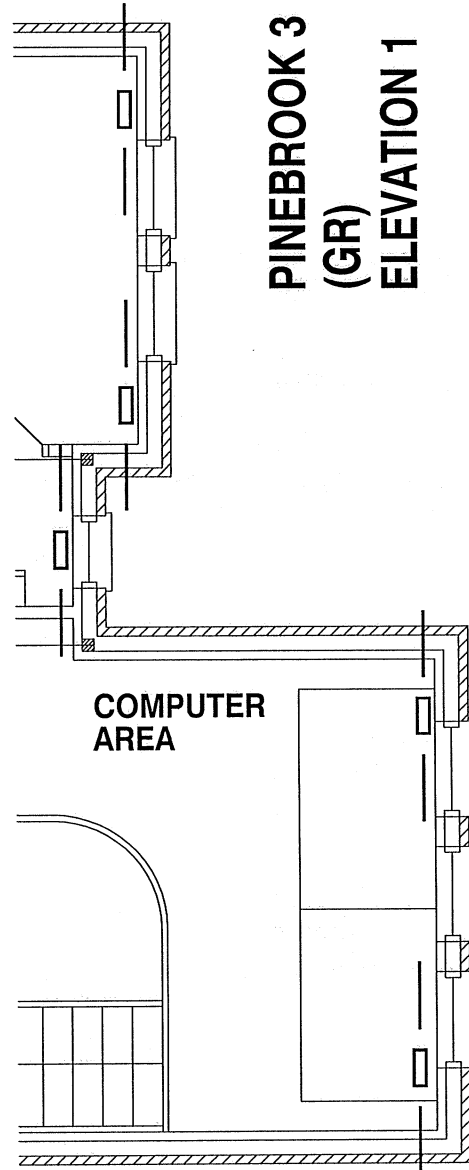
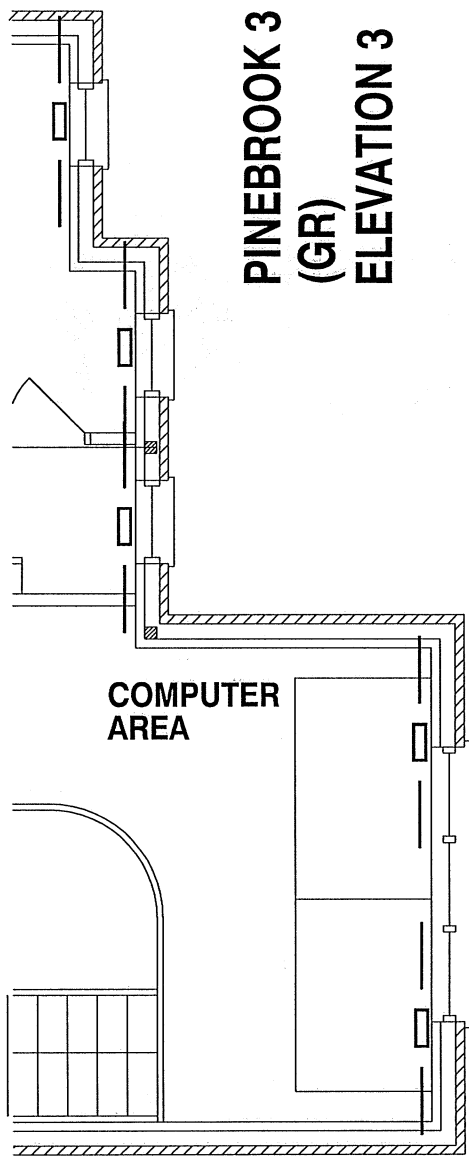
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Client GREENPARK HOMES		 375 Finley Ave - Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	Sheet Title FIRST FLOOR HEATING LAYOUT	
Project Name SECONDO EAST GWILLIMBURY, ONTARIO			Date NOV/2017	
PINEBROOK 3		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.	Scale 3/16" = 1'-0"	BCIN# 19669
3194 sqft			LO#	76866



ENERGY STAR

CSA-F280-12

I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.32.3 OF THE BUILDING CODE.

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

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Project Name SECONDO EAST GWILLIMBURY, ONTARIO			Date NOV/2017	
PINEBROOK 3		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.	Scale 3/16" = 1'-0"	
3194 sqft			BCIN# 19669	
			LO#	76866