

SITE NAME: SECONDINO BUILDERS: GREENPARK HOMES TYPE: HOLLAND BE DATE: Nov-17 LO# 76859 WINTER NATURAL AIR CHANGE RATE 0.286 HEAT LOSS AT °F. 81 CSA F280-12 ENERGY STAR

ROOM USE	EXP. WALL CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BATH	WINTER NATURAL AIR CHANGE RATE	HEAT LOSS AT °F.	HEAT GAIN AT °F.	ENERGY STAR
GRS.WALL AREA	252	28	6	7	13	29	6				
GLAZING	0	9	9	9	9	10	9				
NORTH	20.4	0	0	0	0	0	0				
EAST	20.4	0	0	0	0	0	0				
SOUTH	20.4	0	0	0	0	0	0				
WEST	20.4	0	0	0	0	0	0				
SKYLIT.	34.2	11	224	456	0	0	0				
DOORS	27.0	0	0	0	0	0	0				
NET EXPOSED WALL	5.4	222	1195	206	43	232	40				
NET EXPOSED BSMT WALL ABOVE GR	3.9	0.7	0	0	0	0	0				
EXPOSED CLG	1.6	0.7	195	313	138	78	125				
NO ATTIC EXPOSED CLG	4.0	1.8	0	0	0	0	0				
EXPOSED FLOOR	3.3	0.6	0	0	0	0	0				
BASEMENT/CRAWL HEAT LOSS											
SLAB ON GRADE HEAT LOSS											
SUBTOTAL HT LOSS	2119	1588	551	83	1168	2217	583				
SUB TOTAL HT GAIN	0.20	0.29	0.20	0.29	0.20	0.29	0.20				
LEVEL FACTOR / MUL TIPLIER	618	164	57	9	338	646	170				
AIR CHANGE HEAT LOSS	0	0	0	0	0	0	0				
AIR CHANGE HEAT GAIN	0	0	0	0	0	0	0				
DUCT LOSS	0	0	0	0	0	0	0				
DUCT GAIN	0	0	0	0	0	0	0				
HEAT GAIN PEOPLE	240	480	0	0	1	240	0				
HEAT GAIN APPLANCES/LIGHTS	582	582	0	0	582	582	0				
TOTAL HT LOSS BTU/H	2736	750	611	119	1496	2863	753				
TOTAL HT GAIN x 1.3 BTU/H	3657	791	119	119	2337	3067	405				

ROOM USE	EXP. WALL CLG. HT.	LVDN	KTGR	LAUN	FOY	BAS	WINTER NATURAL AIR CHANGE RATE	HEAT LOSS AT °F.	HEAT GAIN AT °F.	ENERGY STAR
GRS.WALL AREA	330	33	55	0	6	9				
GLAZING	0	10	10	9	11	9				
NORTH	20.4	0	0	0	0	0				
EAST	20.4	0	0	0	0	0				
SOUTH	20.4	0	0	0	0	0				
WEST	20.4	0	0	0	0	0				
SKYLIT.	34.2	101.2	0	0	0	0				
DOORS	27.0	0	0	0	0	0				
NET EXPOSED WALL	5.4	0.9	272	1465	252	20				
NET EXPOSED BSMT WALL ABOVE GR	3.9	0.7	0	0	0	0				
EXPOSED CLG	1.6	0.7	0	0	0	0				
NO ATTIC EXPOSED CLG	4.0	1.8	0	0	0	0				
EXPOSED FLOOR	3.3	0.6	0	0	0	0				
BASEMENT/CRAWL HEAT LOSS										
SLAB ON GRADE HEAT LOSS										
SUBTOTAL HT LOSS	2945	4398	2934	180	893	4933				
SUB TOTAL HT GAIN	0.30	0.40	0.30	0.29	0.30	0.50				
LEVEL FACTOR / MUL TIPLIER	1054	1752	302	52	356	5270				
AIR CHANGE HEAT LOSS	0	0	0	0	0	0				
AIR CHANGE HEAT GAIN	0	0	0	0	0	0				
DUCT LOSS	0	0	0	0	0	0				
DUCT GAIN	0	0	0	0	0	0				
HEAT GAIN PEOPLE	240	480	0	0	0	0				
HEAT GAIN APPLANCES/LIGHTS	582	582	0	0	0	0				
TOTAL HT LOSS BTU/H	3699	6150	4953	232	1249	10203				
TOTAL HT GAIN x 1.3 BTU/H	4160	4953	4953	870	601	1360				

TOTAL HEAT GAIN BTU/H: 22916 TONS: 1.91 LOSS DUE TO VENTILATION LOAD BTU/H: 3407 STRUCTURAL HEAT LOSS: 30642 TOTAL COMBINED HEAT LOSS BTU/H: 34048
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. MICHAEL O'ROURKE

GFA: 1794 LO# 76859

DATE: Nov-17

TYPE: HOLLAND 8E

furnace pressure	0.05
a/c coil pressure	0.2
available pressure	

#GOODMAN 40
GMEC960402BNA
FAN SPEED

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

101 s/a & 1/a	0.33
num pressure s/a	0.18
/a dif press. loss	0.02

All S/A diffusers 4"x10" unless noted otherwise on layout.
All S/A runs 5"Ø unless noted otherwise on layout.

10
MBR
1.37

| TRUNK | |
| CFM | |

TYPE: HOLLAND 8E
SITE NAME: SECONDO

LO # 76859

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	4 @ 10.6 cfm	42.4 cfm
Table 9.32.3.A.	TOTAL	148.4 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		63.6 cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	148.4	cfm
Less Principal Ventil. Capacity	155	cfm
Required Supplemental Capacity	-6.6	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	FACTOR	% LOSS
155.0 CFM	X 81 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 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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	November-17

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** HOLLAND 8E**BUILDER:** GREENPARK HOMES**SFQT:** 1794**LO#** 76859**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:	ATTACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.00	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	TIGHT	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	25338.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.50	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:	93.0 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	-

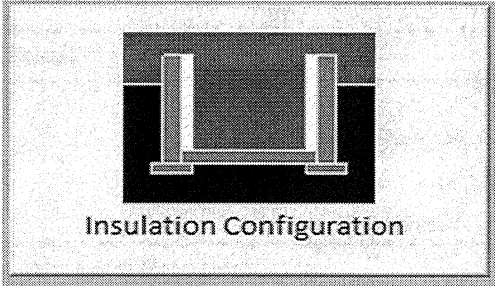
INDIVIDUAL BCIN: 19669

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):	14.9	 Insulation Configuration
Floor Width (m):	6.4	
Exposed Perimeter (m):	28.3	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	0.8	
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):		918

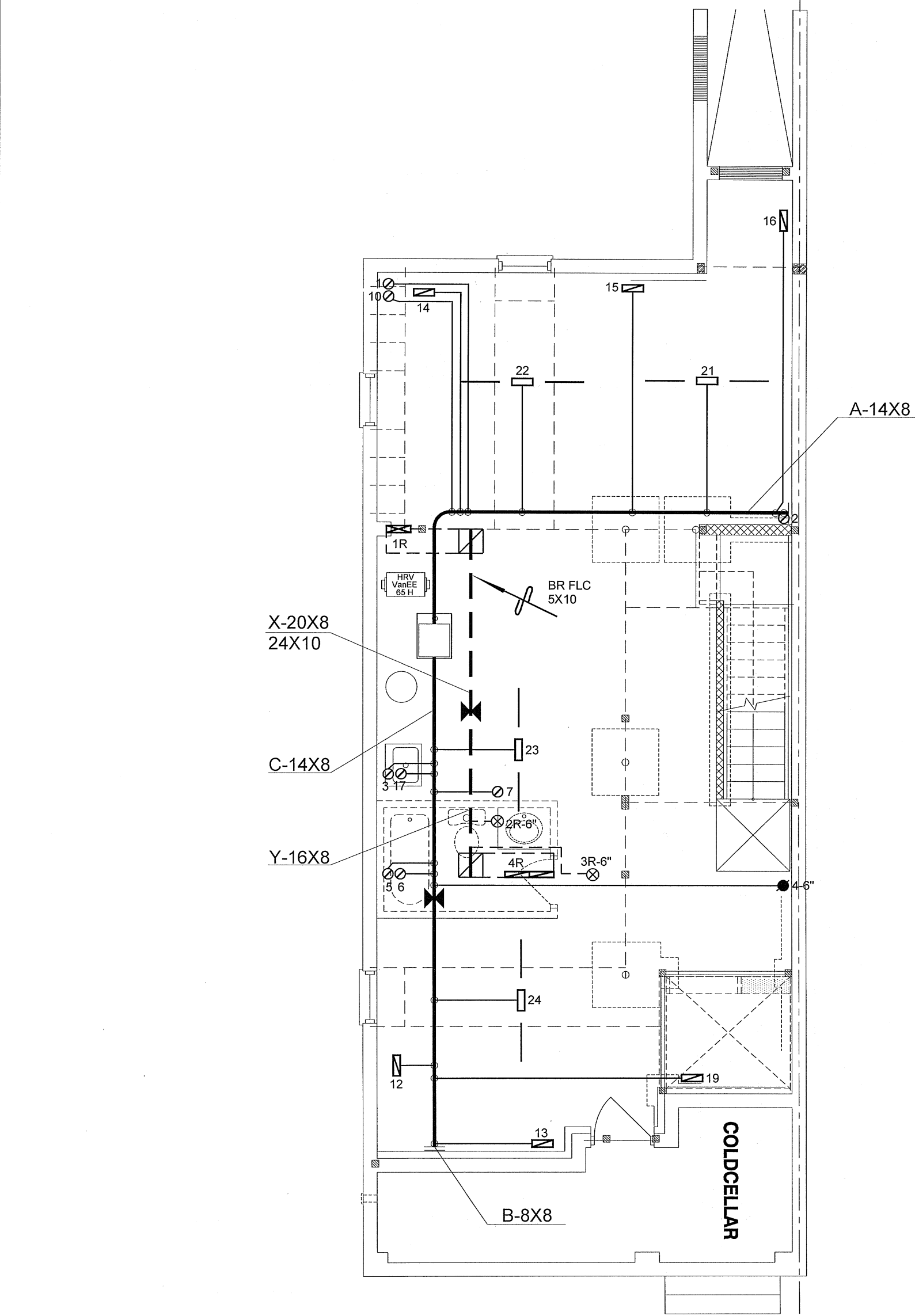
TYPE: HOLLAND 8E
LO# 76859

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:	Semi			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	717.5			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Attached (3.0 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	803.7 cm ²		
	3.00	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):	0.286			
Cooling Air Leakage Rate (ACH/H):	0.086			

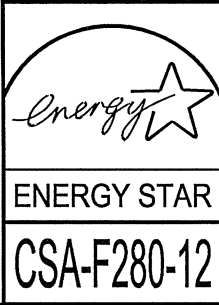
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Michael O'Rourke, BCIN# 19669
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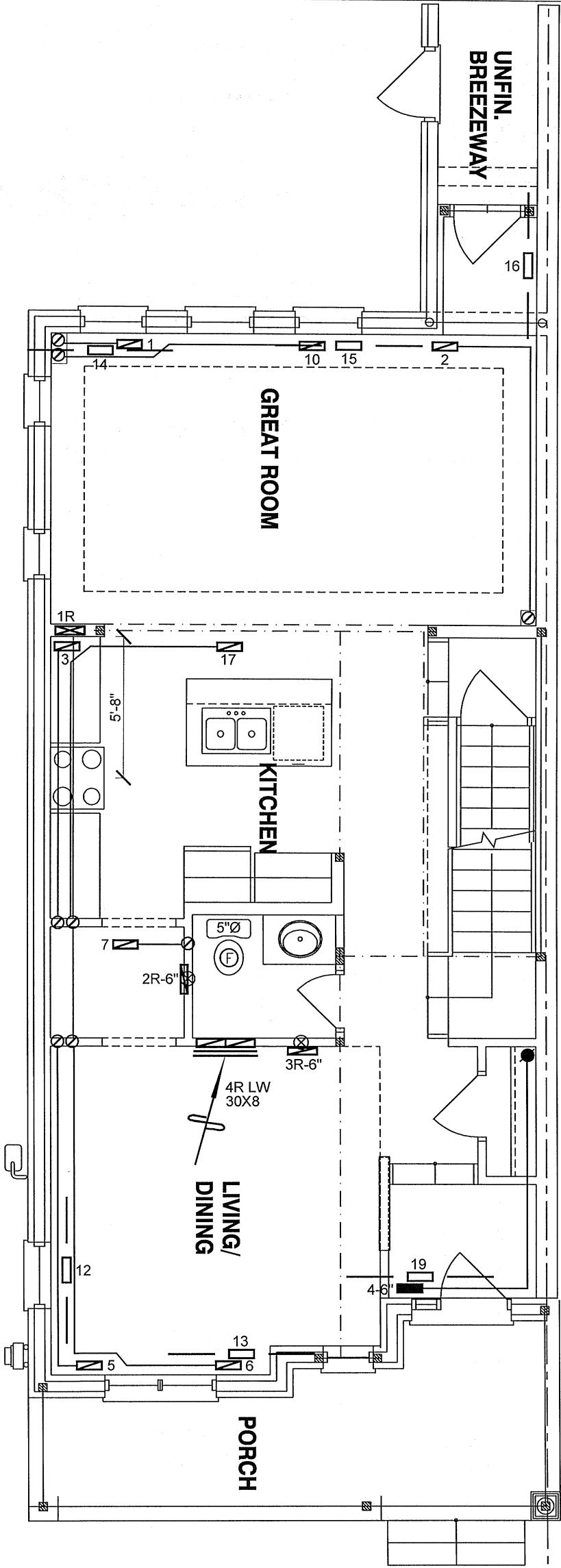
HOLLAND 8E
ELEV-1
TH 51-4



HVAC LEGEND						3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	2.
	FLOOR 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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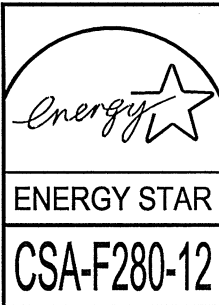
Client GREENPARK HOMES		HVACDESIGNSLTD. 375 Finley Ave - Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	HEAT LOSS 34048 BTU/H UNIT DATA		# OF RUNS	S/A	R/A	FANS	Sheet Title BASEMENT HEATING LAYOUT
Project Name SECONDO EAST GWILLIMBURY, ONTARIO			MAKE GOODMAN	3RD FLOOR					
HOLLAND 8E		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.	MODEL GMEC960402BNA	2ND FLOOR	9	3	3	Date NOV/2017	
1794 sqft			INPUT 40 MBTU/H	1ST FLOOR	6	1	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# 76859	
			FAN SPEED 890 cfm @ 0.6" w.c.						



HOLLAND 8E
ELEV-1
TH 51-4

I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.3 OF THE BUILDING CODE.

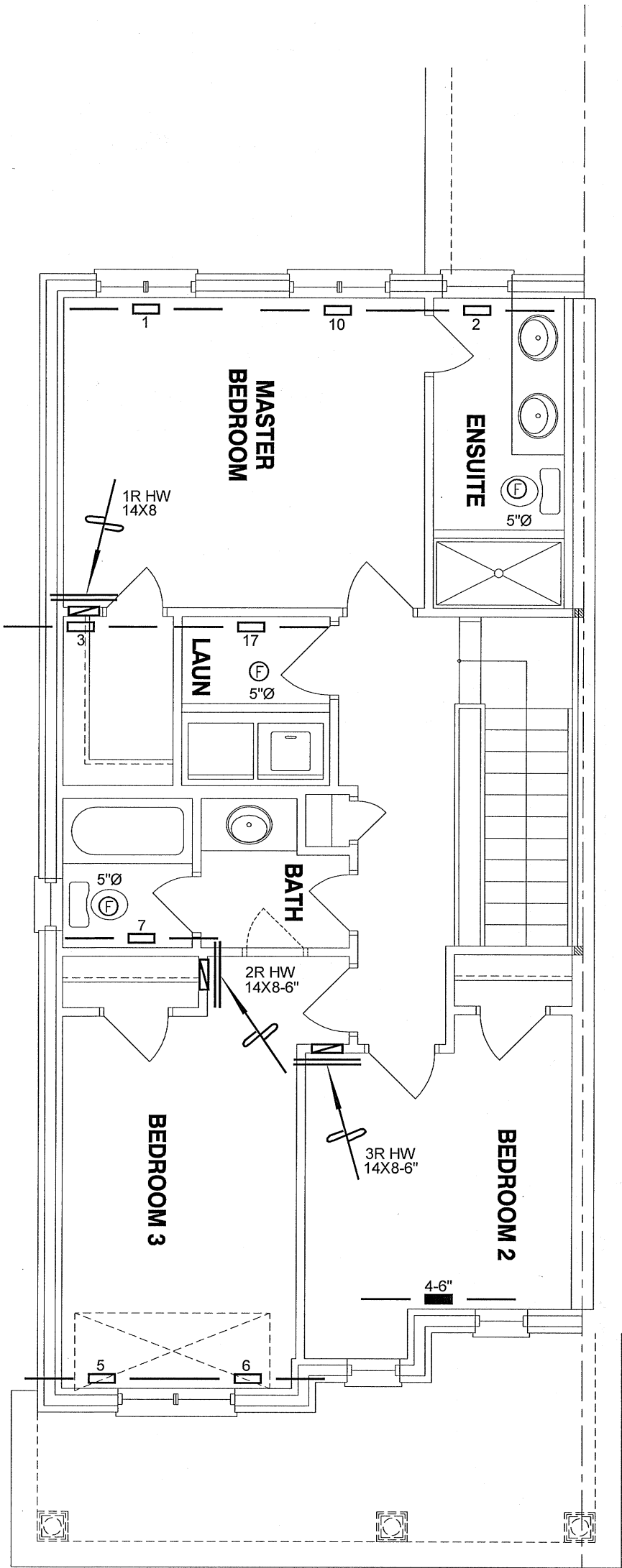
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.



HVAC LEGEND						3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	2.
	FLOOR 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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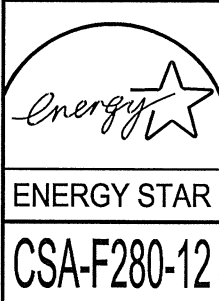
Client		 375 Finley Ave - Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets 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			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	NOV/2017
SECONDO EAST GWILLIMBURY, ONTARIO			Scale	3/16" = 1'-0"
HOLLAND 8E 1794 sqft			BCIN# 19669	
		LO#	76859	



HOLLAND 8E
ELEV-1
TH 51-4

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HVAC LEGEND								3.		
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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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Project Name SECONDO EAST GWILLIMBURY, ONTARIO			Date NOV/2017	
HOLLAND 8E			Scale 3/16" = 1'-0"	
1794 sqft			BCIN# 19669	
			LO# 76859	