

SITE NAME: MINNISALE HOMES CORP		LOT 6		DATE: Oct-18		WINTER NATURAL AIR CHANGE RATE 0.314		HEAT LOSS AT °F. 74		CSA-F280-12	
BUILDER: GREENPARK HOMES		TYPE: MILLWOOD 2		GFA: 2654		LOW 80548		SUMMER NATURAL AIR CHANGE RATE 0.102		HEAT GAIN AT °F. 11	
ROOM USE		MBR		ENS		BED-2		BED-3		BED-4	
EXP. WALL		34		39		28		33		11	
CLG. HT.		10		9		9		10		9	
FACTORS											
GRS.WALL AREA		340		281		234		330		99	
GLAZING		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN	
NORTH		20.8 15.5		0 0 0		0 0 0		0 0 0		0 0 0	
EAST		20.8 41.0		0 0 0		20 414 821		36 823 1231		0 0 0	
SOUTH		20.8 24.4		0 0 0		0 0 0		0 0 0		0 0 0	
WEST		20.8 41.0		32 685 1314		0 0 0		12 249 293		8 166 195	
SKYL.T.		36.4 100.7		0 0 0		0 0 0		0 0 0		0 0 0	
DOORS		24.7 3.7		0 0 0		0 0 0		0 0 0		0 0 0	
NET EXPOSED WALL		4.4 0.6		308 1342 199		214 932 138		306 1307 194		87 379 96	
NET EXPOSED BSMT WALL ABOVE GR		3.5 0.5		0 0 0		0 0 0		0 0 0		0 0 0	
EXPOSED CLG		1.3 0.6		280 351 156		165 207 92		190 244 109		220 276 123	
NO ATTIC EXPOSED CLG		2.7 1.2		0 0 0		0 0 0		40 107 48		0 0 0	
EXPOSED FLOOR		2.5 0.4		0 0 0		160 411 61		0 0 0		0 0 0	
BASEMENT CRAWL HEAT LOSS		0		0		0		0		0	
SLAB ON GRADE HEAT LOSS		0		0		0		0		0	
SUBTOTAL HT LOSS		2308		1754		1968		2282		954	
SUB TOTAL HT GAIN		1689		1005		1112		1582		472	
LEVEL FACTOR / MULTIPLIER		0.20 0.23		0.20 0.23		0.20 0.23		0.20 0.23		0.20 0.23	
AIR CHANGE HEAT LOSS		541		403		401		824		208	
AIR CHANGE HEAT GAIN		111		67		74		105		31	
DUCT LOSS		0		0		242		0		0	
DUCT GAIN		0		0		205		6		0	
HEAT GAIN PEOPLE		240		480		1		240		1	
HEAT GAIN APPLIANCES/LIGHTS		627		627		627		627		627	
TOTAL HT LOSS BTU/H		2899		2157		2658		2806		1112	
TOTAL HT GAIN x 1.3 BTU/H		2752		2208		2936		3320		1781	

ROOM USE		LIV		KITCHEN		LAUN		W/R		FOY	
EXP. WALL		38		78		8		12		27	
CLG. HT.		10		10		9		11		10	
FACTORS											
GRS.WALL AREA		380		780		72		132		279	
GLAZING		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN	
NORTH		20.8 15.5		0 0 0		0 0 0		0 0 0		0 0 0	
EAST		20.8 41.0		0 0 0		10 208 410		0 0 0		6 125 246	
SOUTH		20.8 24.4		0 0 0		0 0 0		10 208 244		0 0 0	
WEST		20.8 41.0		72 1496 2955		0 0 0		0 0 0		0 0 0	
SKYL.T.		36.4 100.7		0 0 0		0 0 0		0 0 0		0 0 0	
DOORS		24.7 3.7		0 0 0		0 0 0		0 0 0		0 0 0	
NET EXPOSED WALL		4.4 0.6		340 1401 220		62 270 40		122 532 79		224 976 145	
NET EXPOSED BSMT WALL ABOVE GR		3.5 0.5		0 0 0		0 0 0		0 0 0		0 0 0	
EXPOSED CLG		1.3 0.6		0 0 0		128 160 71		0 0 0		0 0 0	
NO ATTIC EXPOSED CLG		2.7 1.2		36 97 43		0 0 0		0 0 0		0 0 0	
EXPOSED FLOOR		2.5 0.4		0 0 0		128 319 47		0 0 0		0 0 0	
BASEMENT CRAWL HEAT LOSS		0		0		0		0		0	
SLAB ON GRADE HEAT LOSS		0		0		0		0		0	
SUBTOTAL HT LOSS		2312		5083		957		738		2087	
SUB TOTAL HT GAIN		1195		3018		569		323		537	
LEVEL FACTOR / MULTIPLIER		0.30 0.37		0.30 0.37		0.20 0.23		0.30 0.37		0.30 0.37	
AIR CHANGE HEAT LOSS		857		1844		320		274		773	
AIR CHANGE HEAT GAIN		79		233		38		21		36	
DUCT LOSS		0		0		118		0		0	
DUCT GAIN		0		0		123		0		0	
HEAT GAIN PEOPLE		240		0		0		0		0	
HEAT GAIN APPLIANCES/LIGHTS		627		627		627		627		627	
TOTAL HT LOSS BTU/H		3169		6967		1294		1013		2850	
TOTAL HT GAIN x 1.3 BTU/H		2473		5689		1765		447		745	

TOTAL HEAT GAIN BTU/H: 29605 TONS: 2.47 LOSS DUE TO VENTILATION LOAD BTU/H: 1893 STRUCTURAL HEAT LOSS: 46432 TOTAL COMBINED HEAT LOSS BTU/H: 48025

SITE NAME: MINNISALE HOMES CORP
 BUILDER: GREENPARK HOMES

 LOT 6
 TYPE: MILLWOOD 2

DATE: Oct-18

GFA: 2654 LO# 80548

 HEATING CFM 1131 COOLING CFM 1131
 TOTAL HEAT LOSS 46,432 TOTAL HEAT GAIN 29,369
 AIR FLOW RATE CFM 24.36 AIR FLOW RATE CFM 38.51

 furnace pressure 0.6
 furnace filter 0.05
 a/c coil pressure 0.2
 available pressure
 for s/a & r/a 0.35

 #GOODMAN
 GMCE960603BNA 60
 FAN SPEED
 LOW
 MEDLOW
 MEDIUM
 MEDIUM HIGH
 HIGH 1131

 AFUE = 98 %
 INPUT (BTU/H) = 60,000
 OUTPUT (BTU/H) = 57,600
 DESIGN CFM = 1131
 CFM @ 8" E.S.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	11	7	4
R/A	0	0	4	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	4	5	6	7	8	9	10	11	12	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	BED-2	BED-3	BED-4	BATH	BED-2	BED-3	M3R	ENS-2	LIV	KT/FM	KT/FM	KT/FM	LAUN	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.45	2.16	1.33	1.40	1.11	0.91	1.33	1.40	1.45	1.82	3.17	2.32	2.32	2.32	1.29	1.01	2.86	1.67	3.77	3.77	3.77	3.77
CFM PER RUN HEAT	35	53	32	34	27	22	32	34	35	44	77	57	57	57	32	25	70	41	92	92	92	92
RM GAIN MBH	1.88	2.21	1.47	1.66	1.78	1.30	1.47	1.66	1.88	0.86	2.47	1.90	1.90	1.90	1.76	0.45	0.74	1.07	0.31	0.31	0.31	0.31
CFM PER RUN COOLING	72	85	57	64	69	50	57	64	72	25	95	73	73	73	68	17	29	41	12	12	12	12
ADJUSTED PRESSURE	0.17	0.16	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	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	55	54	46	33	15	37	47	47	45	38	15	48	44	49	39	39	29	32	39	61	20	10
EQUIVALENT LENGTH	190	160	140	140	160	110	140	160	150	140	120	130	110	140	130	140	90	160	150	190	110	150
TOTAL EFFECTIVE LENGTH	245	214	186	173	175	147	187	207	185	178	135	178	154	189	169	179	119	192	189	251	130	160
ADJUSTED PRESSURE	0.07	0.08	0.09	0.1	0.1	0.12	0.09	0.08	0.09	0.1	0.12	0.1	0.11	0.09	0.1	0.1	0.14	0.09	0.09	0.06	0.12	0.1
ROUND DUCT SIZE	6	6	5	5	4	5	5	5	6	4	8	5	5	5	5	5	4	6	6	6	6	6
HEATING VELOCITY (ft/min)	178	270	235	250	198	252	235	250	178	505	393	419	419	419	235	287	514	470	469	469	469	469
COOLING VELOCITY (ft/min)	367	433	419	470	507	574	419	470	367	287	484	536	536	536	499	195	213	470	61	61	61	61
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	A	B	D	C	B	D	D	C	A	D	C	A	A	A	D	B	C	B	A	A	C	B

 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

 CITY OF BRAMPTON
 BUILDING DIVISION
 REVIEWED BY: S. HANNA
 NOV 27 2018
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SUPPLY AIR TRUNK SIZE

TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	425	0.06	10.9	14	8
TRUNK B	663	0.06	12.9	20	8
TRUNK C	307	0.08	9	10	8
TRUNK D	469	0.08	10.6	14	8
TRUNK E	0	0.00	0	0	8
TRUNK F	0	0.00	0	0	8

RETURN AIR

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	BR
AIR VOLUME	160	155	95	95	135	310	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	181
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	58	43	42	48	38	15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17
EQUIVALENT LENGTH	150	135	175	175	145	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	145
TOTAL EFFECTIVE LH	208	178	217	223	183	150	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	182
ADJUSTED PRESSURE	0.07	0.08	0.07	0.07	0.08	0.10	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	14.80	14.80	14.80	14.80	14.80	0.09
ROUND DUCT SIZE	7.3	7	6	6	6.6	8.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.2
INLET GRILL SIZE	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14

RETURN AIR TRUNK SIZE

TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK O	0	0.07	0	0	8
TRUNK P	0	0.07	0	0	8
TRUNK Q	0	0.07	0	0	8
TRUNK R	0	0.07	0	0	8
TRUNK S	0	0.07	0	0	8
TRUNK T	0	0.07	0	0	8
TRUNK U	0	0.07	0	0	8
TRUNK V	0	0.07	0	0	8
TRUNK W	0	0.07	0	0	8
TRUNK X	1131	0.07	15.2	30	8
TRUNK Y	295	0.07	9.2	10	8
TRUNK Z	0	0.07	0	0	8
DROP	1131	0.07	15.2	24	8

TYPE: MILLWOOD 2
SITE NAME: MINNISALE HOMES CORP

LO #: 80548
LOT 6

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	6	@ 10.6 cfm	63.6	cfm
Table 9.32.3.A.		TOTAL	190.8	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	190.8	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	111.3	cfm

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

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM	ΔT °F	FACTOR	% LOSS
79.5 CFM	74 F	1.08	0.25

SUPPLEMENTAL FANS PANASONIC

Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	50	✓	0.3
BATH	FV-05-11VK1	50	✓	0.3
ENS-2	FV-05-11VK1	50	✓	0.3
W/R	FV-05-11VK1	50	✓	0.3

HEAT RECOVERY VENTILATOR 9.32.3.11.
Model: VANE 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 #:

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: *Michael O'Rourke*
HRAI #: 001820
Date: October-18

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* MICHAEL O'ROURKE

CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventilation Calculation)

LO#: 80548

Model: MILLWOOD 2

Builder: GREENPARK HOMES

Date: 10/31/2018

Volume Calculation

House Volume

Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)
Bsmt	1148	9	10332
First	1148	10	11480
Second	1506	8	12048
Third	0	9	0
Fourth	0	9	0
Total:			33,860.0 ft ³
Total:			958.8 m ³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.314
SUMMER NATURAL AIR CHANGE RATE	0.102

Design Temperature Difference

	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-19	41	74
Summer DTDc	24	30	6	11

5.2.3.1 Heat Loss due to Air Leakage

$$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$$

0.314 x 266.34 x 41 °C x 1.2 = 4143 W

= 14134 Btu/h

6.2.6 Sensible Gain due to Air Leakage

$$HG_{satb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

0.102 x 266.34 x 6 °C x 1.2 = 199 W

= 680 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

$$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

80 CFM x 74 °F x 1.08 x 0.25 = 1593 Btu/h

6.2.7 Sensible heat Gain due to Ventilation

$$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

80 CFM x 11 °F x 1.08 x 0.25 = 236 Btu/h

5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)

$$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times ((HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel}))$$

Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HL _{clevel})
1	0.5	14,134	8,018	0.881
2	0.3		11,442	0.371
3	0.2		12,313	0.230
4	0		0	0.000
5	0		0	0.000

*HLairbv = Air leakage heat loss + ventilation heat loss

*For a balanced or supply only ventilation system HLairbv = 0

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: MILLWOOD 2	LOT 6	BUILDER: GREENPARK HOMES
SFQT: 2654	LO# 80548	SITE: MINNISALE HOMES CORP

DESIGN ASSUMPTIONS

HEATING	*F	COOLING	*F
OUTDOOR DESIGN TEMP.	-2	OUTDOOR DESIGN TEMP.	86
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	SOUTH	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 (ft³):	33860.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.65	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 46.0 ft	WIDTH: 31.0 ft	EXPOSED PERIMETER:	138.0 ft

2012 OBC - COMPLIANCE PACKAGE**Component**

Ceiling with Attic Space Minimum RSI (R)-Value
 Ceiling Without Attic Space Minimum RSI (R)-Value
 Exposed Floor Minimum RSI (R)-Value
 Walls Above Grade Minimum RSI (R)-Value
 Basement Walls Minimum RSI (R)-Value
 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
 Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value
 Windows and Sliding Glass Doors Maximum U-Value
 Skylights Maximum U-Value
 Space Heating Equipment Minimum AFUE
 HRV Minimum Efficiency
 Domestic Hot Water Heater Minimum EF

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Compliance Package**A1**

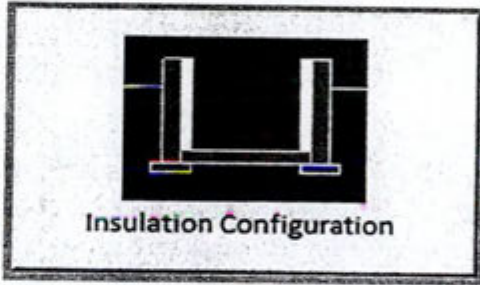
Nominal	Min. Eff.
60	59.22
31	27.65
31	29.80
22	17.03
20 ci	21.12
-	-
10	10
10	11.13
0.28	-
0.49	-
0.96	-
75%	-
0.8	-

INDIVIDUAL BCIN: 19669
 MICHAEL O'ROURKE

Michael O'Rourke

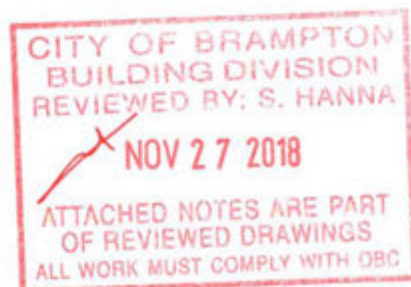
Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Brampton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	14.0	 Insulation Configuration
Floor Width (m):	9.4	
Exposed Perimeter (m):	42.1	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.4	
Door Area (m ²):	3.7	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):	1354 ✓	

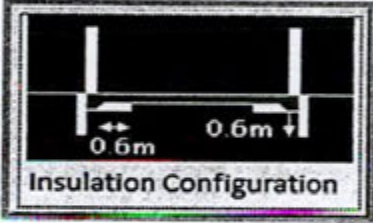
TYPE: MILLWOOD 2
LO# 80548

LOT 6



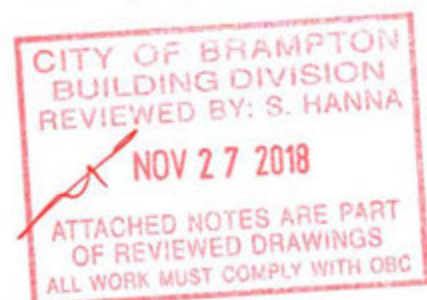
Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Brampton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Length (m):	0.3	
Width (m):	4.6	
Exposed Perimeter (m):	4.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		37 ✓

TYPE: MILLWOOD 2
LO# 80548

LOT 6



Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description			
Province:	Ontario		
Region:	Brampton		
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):	6.40		
Building Configuration			
Type:	Detached		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m ³):	958.8		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1278.1 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
Diameter (mm):	0	0	0
Natural Infiltration Rates			
Heating Air Leakage Rate (ACH/H):	0.314		
Cooling Air Leakage Rate (ACH/H):	0.102		

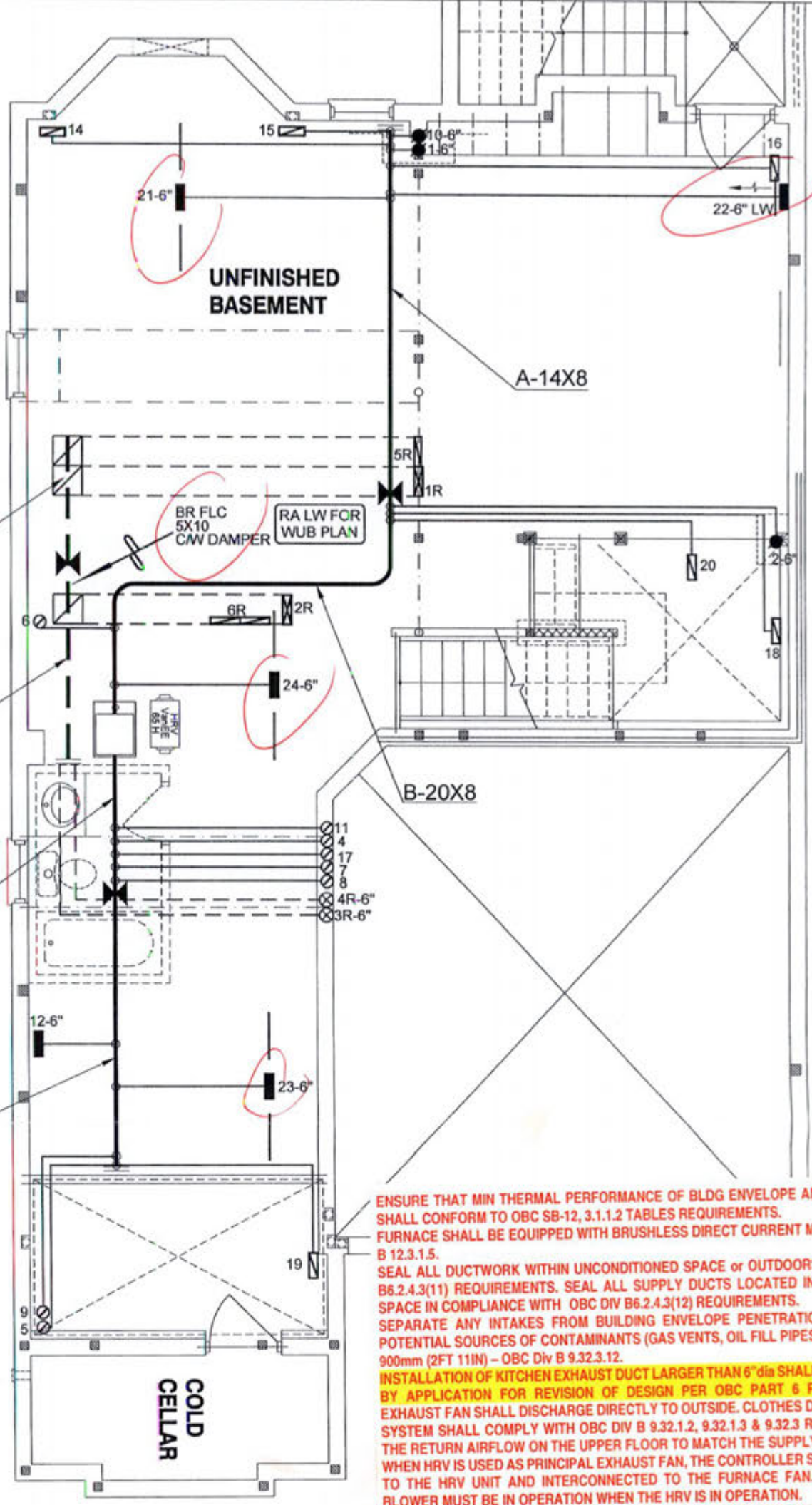
TYPE: MILLWOOD 2
LO# 80548

LOT 6



MECHANICAL VENTILATION SHALL BE PROVIDED IN CONFORMANCE WITH OBC DIV. B, 9.32.3 REQUIREMENTS.

THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH OBC DIV. B, 9.33.4 REQUIREMENTS.



ENSURE THAT MIN THERMAL PERFORMANCE OF BLDG ENVELOPE AND EQUIPMENT SHALL CONFORM TO OBC SB-12, 3.1.1.2 TABLES REQUIREMENTS. FURNACE SHALL BE EQUIPPED WITH BRUSHLESS DIRECT CURRENT MOTOR OBC DIV B 12.3.1.5. SEAL ALL DUCTWORK WITHIN UNCONDITIONED SPACE or OUTDOORS PER OBC DIV B6.2.4.3(11) REQUIREMENTS. SEAL ALL SUPPLY DUCTS LOCATED IN CONDITIONED SPACE IN COMPLIANCE WITH OBC DIV B6.2.4.3(12) REQUIREMENTS. SEPARATE ANY INTAKES FROM BUILDING ENVELOPE PENETRATIONS THAT ARE POTENTIAL SOURCES OF CONTAMINANTS (GAS VENTS, OIL FILL PIPES, etc. BY MIN 900mm (2FT 11IN) - OBC Div B 9.32.3.12. INSTALLATION OF KITCHEN EXHAUST DUCT LARGER THAN 6" dia SHALL BE PRECEDED BY APPLICATION FOR REVISION OF DESIGN PER OBC PART 6 REQUIREMENTS. EXHAUST FAN SHALL DISCHARGE DIRECTLY TO OUTSIDE. CLOTHES DRYER EXHAUST SYSTEM SHALL COMPLY WITH OBC DIV B 9.32.1.2, 9.32.1.3 & 9.32.3 REQ'S. BALANCE THE RETURN AIRFLOW ON THE UPPER FLOOR TO MATCH THE SUPPLY. WHEN HRV IS USED AS PRINCIPAL EXHAUST FAN, THE CONTROLLER SHALL BE WIRED TO THE HRV UNIT AND INTERCONNECTED TO THE FURNACE FAN. THE FURNACE BLOWER MUST BE IN OPERATION WHEN THE HRV IS IN OPERATION. INSTALL ADDITIONAL S/A REGISTER AS REQUIRED IN ORDER TO ENSURE MIN 72degF - OBC DIV B 9.33.3.1(1). UNDERCUT BY MIN 1" THE DOOR TO ANY ROOM WITHOUT RETURN AIR GRILLE. ENSURE RETURN AIR INTAKE SHALL BE CONNECTED TO THE MAIN R/A DUCT AT A HORIZONTAL DISTANCE OF MIN 6FT FROM THE CASING OF THE UNIT (HRAI DIGEST).

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. HANNA
NOV 27 2018
ATTACHED NOTES ARE PART
OF REVIEWED DRAWINGS
ALL WORK MUST COMPLY WITH OBC

INSTALLATION OF HVAC EQUIPMENT
SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS
AND MANUALS

LOT 6
CSA-F280-12
WUB PACKAGE A1

I MICHAEL OROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 12.3 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	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

**MINNISALE HOMES CORP.
BRAMPTON, ONTARIO**

LOT 6
MILLWOOD 2 2654 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@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 48025 BTU/H	# OF RUNS	S/A	R/A	FANS
UNIT DATA	3RD FLOOR			
MAKE GOODMAN	2ND FLOOR	11	4	3
MODEL GMEC950603BNA	1ST FLOOR	7	2	2
INPUT 60 MBTUH	BASEMENT	4	1	0
OUTPUT 57.6 MBTUH	ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5'x8" UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A			
COOLING 2.5 TONS				
FAN SPEED 1131 cfm @ 0.6" w.c.				

Sheet Title

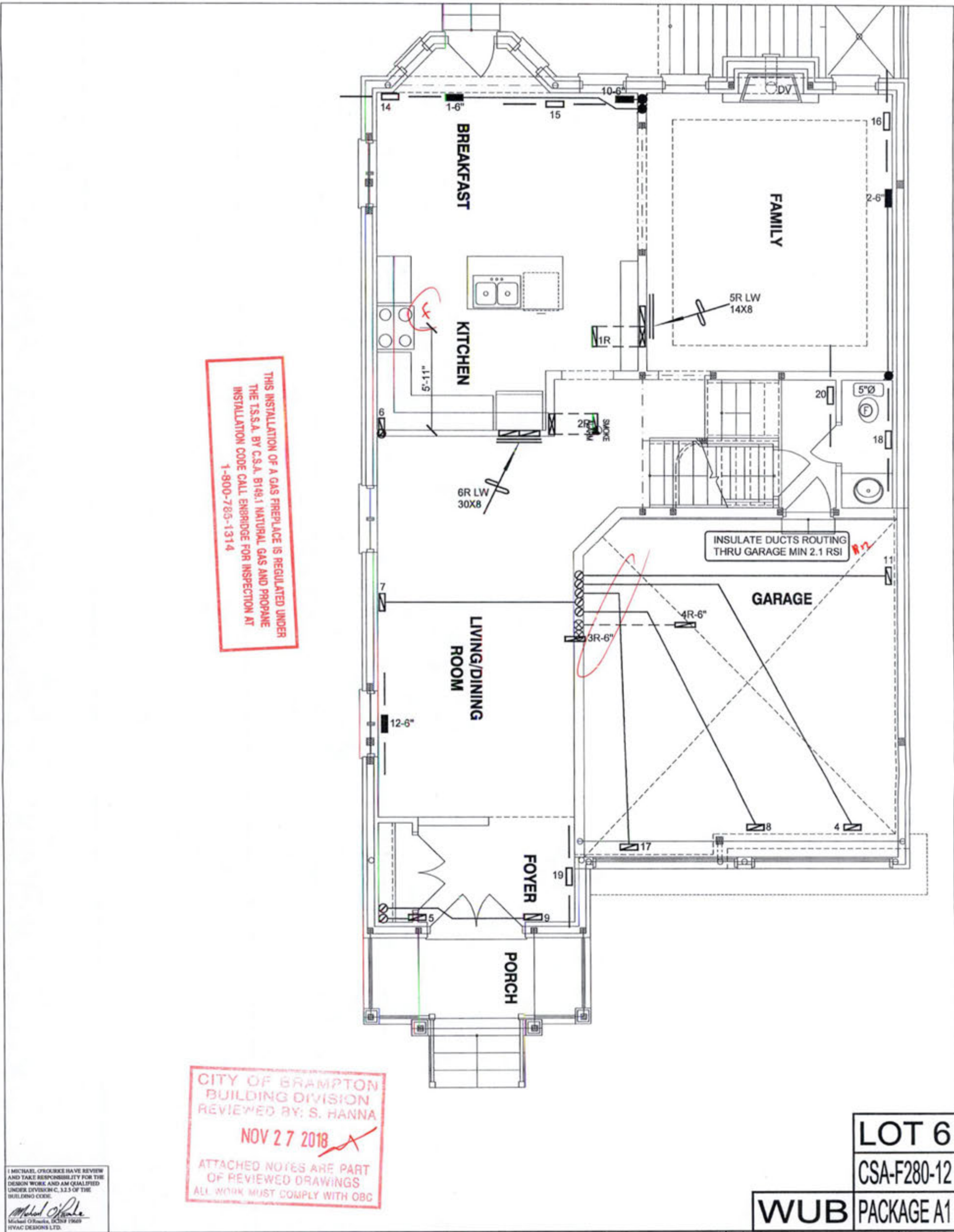
BASEMENT HEATING LAYOUT

Date OCT/2018

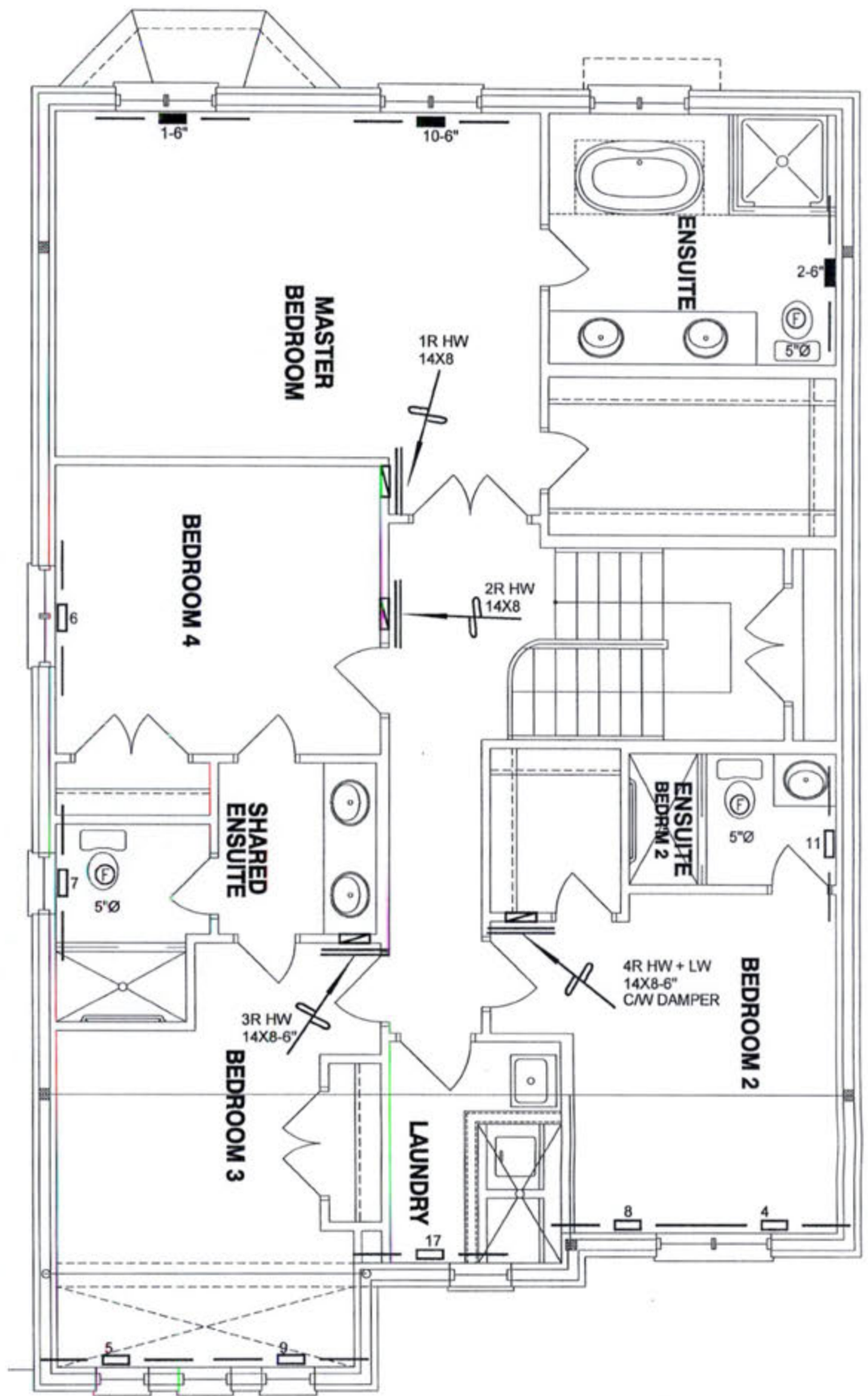
Scale 3/16" = 1'-0"

BCIN# 19669

LO# 80548



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		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 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 MINNISALE HOMES CORP. BRAMPTON, ONTARIO						Date OCT/2018				
LOT 6 MILLWOOD 2						Scale 3/16" = 1'-0"				
2654 sqft						BCIN# 19669				
						LO# 80548				



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, UENM 19669
HVAC DESIGNS LTD.

LOT 6
CSA-F280-12
WUB PACKAGE A1

HVAC LEGEND							REVISIONS	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	DATE
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	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	
							No.	Description
								Date

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GREENPARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	OCT/2018
MINNISALE HOMES CORP. BRAMPTON, ONTARIO			Scale	3/16" = 1'-0"
LOT 6 MILLWOOD 2		BCIN# 19669		
2654 sqft		LO#	80548	