

SITE NAME: MINNISCALLE HOMES CORP		LOT 21		DATE: Nov-18		WINTER NATURAL AIR CHANGE RATE 0.325		HEAT LOSS ΔT °F. 74		C54-P280-12	
BUILDER: GREENPARK HOMES		TYPE: MILLWOOD 12		GFA: 2817		LO# 80711		SUMMER NATURAL AIR CHANGE RATE 0.165		HEAT GAIN ΔT °F. 11	
ROOM USE		MBR		ENS		WIC		BED-2		BED-3	
EXP. WALL		37		24		9		27		34	
CLQ. HT.		9		9		9		9		9	
FACTORS											
GRS.WALL AREA		333		216		81		243		306	
GLAZING		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN	
NORTH		20.8 15.6		0 0 0		0 0 0		0 0 0		0 0 0	
EAST		20.8 41.0		0 0 0		0 0 0		20 416 821		0 0 0	
SOUTH		20.8 24.4		26 540 634		0 0 0		0 0 0		23 478 561	
WEST		20.8 41.0		26 540 1067		18 374 739		0 0 0		0 0 0	
SKYL.T.		24.4 100.7		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		281 1224 182		188 863 128		81 353 82		223 972 144	
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		284 356 158		144 180 80		108 135 80		166 208 93	
NO ATTIC EXPOSED CLG		2.7 1.2		36 97 43		0 0 0		0 0 0		28 75 33	
EXPOSED FLOOR		2.5 0.4		0 0 0		0 0 0		166 413 61		18 40 6	
BASEMENT CRAWL HEAT LOSS		0		0		0		0		0	
SLAB ON GRADE HEAT LOSS		0		0		0		0		0	
SUBTOTAL HT LOSS		2757		1417		488		2808		2261	
SUB TOTAL HT GAIN		2084		947		113		1119		1679	
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		842		330		114		468		548	
AIR CHANGE HEAT GAIN		111		51		6		60		50	
DUCT LOSS		0		0		0		248		290	
DUCT GAIN		0		0		0		225		284	
HEAT GAIN PEOPLE		240		2		480		0		1	
HEAT GAIN APPLIANCES/LIGHTS		833		0		0		833		833	
TOTAL HT LOSS BTUH		3399		1747		602		2724		3189	
TOTAL HT GAIN x 1.3 BTUH		4865		1297		164		3219		4062	

ROOM USE		LYON		KT/PM		LAUN		W/R		FOY	
EXP. WALL		64		69		9		13		11	
CLQ. HT.		10		10		9		10		10	
FACTORS											
GRS.WALL AREA		660		690		81		130		110	
GLAZING		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN	
NORTH		20.8 15.6		0 0 0		0 0 0		0 0 0		0 0 0	
EAST		20.8 41.0		42 873 1724		0 0 0		0 0 0		0 0 0	
SOUTH		20.8 24.4		67 1392 1634		32 869 781		0 0 0		6 125 145	
WEST		20.8 41.0		67 1392 1634		37 1808 3571		0 0 0		0 0 0	
SKYL.T.		24.4 100.7		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		40 986 145	
NET EXPOSED WALL		4.4 0.6		551 2401 356		571 2488 368		81 353 82		130 566 84	
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		0 0 0		153 192 85		0 0 0	
NO ATTIC EXPOSED CLG		2.7 1.2		0 0 0		10 27 12		0 0 0		0 0 0	
EXPOSED FLOOR		2.5 0.4		0 0 0		0 0 0		68 169 26		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		4685		4887		714		568		1380	
SUB TOTAL HT GAIN		3714		4733		163		84		334	
LEVEL FACTOR / MULTIPLIER		0.30 0.36		0.30 0.36		0.20 0.23		0.30 0.36		0.30 0.36	
AIR CHANGE HEAT LOSS		1677		1793		166		204		500	
AIR CHANGE HEAT GAIN		198		252		9		4		18	
DUCT LOSS		0		0		88		0		0	
DUCT GAIN		0		0		100		0		0	
HEAT GAIN PEOPLE		240		0		0		0		0	
HEAT GAIN APPLIANCES/LIGHTS		833		833		833		833		833	
TOTAL HT LOSS BTUH		6343		6780		968		770		1889	
TOTAL HT GAIN x 1.3 BTUH		6169		7863		1436		116		487	

TOTAL HEAT GAIN BTUH: 35228

TONS: 2.94

LOSS DUE TO VENTILATION LOAD BTUH: 1693

STRUCTURAL HEAT LOSS: 80387

TOTAL COMBINED HEAT LOSS BTUH: 81889

Michael O'Rourke

SITE NAME: MINNISSALE HOMES CORP
 BUILDER: GREENPARK HOMES

 LOT 21
 TYPE: MILLWOOD 12

DATE: Nov-18

GFA: 2617 LO# 80711

 HEATING CFM 1131 COOLING CFM 1131
 TOTAL HEAT LOSS 50,397 TOTAL HEAT GAIN 34,990
 AIR FLOW RATE CFM 22.44 AIR FLOW RATE CFM 32.32

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

 #GOODMAN
 GMEC960603BNA 60
 FAN SPEED LOW
 MEDLOW
 MEDIUM
 MEDIUM HIGH
 HIGH 1131

 AFUE = 96 %
 INPUT (BTU/H) = 60,000
 OUTPUT (BTU/H) = 57,600

 DESIGN CFM = 1131
 CFM @ 8" E.S.P.

TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	11	8	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	3	4	5	6	7	8	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	BED-3	MBR	ENS-2	LV/DN	LV/DN	KT/FM	KT/FM	KT/FM	LAUN	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.70	1.75	0.60	2.72	1.59	2.08	0.85	1.59	1.70	1.34	3.17	3.17	2.26	2.26	2.26	0.97	0.77	1.89	1.32	4.10	4.10	4.10	4.10
CFM PER RUN HEAT	38	39	14	61	36	47	19	36	38	30	71	71	51	51	51	22	17	42	30	92	92	92	92
RM GAIN MBH	2.28	1.30	0.15	3.22	2.03	3.05	0.53	2.03	2.28	0.87	3.08	3.08	2.52	2.52	2.52	1.44	0.11	0.48	0.20	0.33	0.33	0.33	0.33
CFM PER RUN COOLING	74	42	5	104	66	99	17	66	74	28	100	100	81	81	81	48	4	15	6	11	11	11	11
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.17	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	46	32	15	77	82	73	45	78	38	74	42	60	16	31	45	69	13	25	11	42	13	45	52
EQUIVALENT LENGTH	150	120	190	170	160	150	200	170	140	170	150	160	190	150	190	180	140	140	170	200	140	190	170
TOTAL EFFECTIVE LENGTH	196	152	205	247	242	223	245	248	178	244	192	220	206	181	235	249	153	165	181	242	153	235	222
ADJUSTED PRESSURE	0.09	0.11	0.08	0.07	0.07	0.07	0.07	0.07	0.1	0.07	0.08	0.07	0.08	0.09	0.07	0.07	0.11	0.1	0.1	0.07	0.11	0.07	0.07
ROUND DUCT SIZE	5	4	4	6	5	6	4	5	5	4	6	6	6	6	6	5	4	4	4	6	6	6	6
HEATING VELOCITY (ft/min)	279	447	181	311	264	240	218	264	279	344	362	362	260	260	260	162	195	482	344	469	469	469	469
COOLING VELOCITY (ft/min)	543	482	57	530	485	505	195	485	543	321	510	510	413	413	413	338	46	172	69	56	56	56	56
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	C	D	C	B	A	B	B	A	C	B	B	A	C	C	C	B	D	C	C	C	D	B	A

RUN #	1	2	3	4	5	6	7	8	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	BED-3	MBR	ENS-2	LV/DN	LV/DN	KT/FM	KT/FM	KT/FM	LAUN	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.70	1.75	0.60	2.72	1.59	2.08	0.85	1.59	1.70	1.34	3.17	3.17	2.26	2.26	2.26	0.97	0.77	1.89	1.32	4.10	4.10	4.10	4.10
CFM PER RUN HEAT	38	39	14	61	36	47	19	36	38	30	71	71	51	51	51	22	17	42	30	92	92	92	92
RM GAIN MBH	2.28	1.30	0.15	3.22	2.03	3.05	0.53	2.03	2.28	0.87	3.08	3.08	2.52	2.52	2.52	1.44	0.11	0.48	0.20	0.33	0.33	0.33	0.33
CFM PER RUN COOLING	74	42	5	104	66	99	17	66	74	28	100	100	81	81	81	48	4	15	6	11	11	11	11
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.17	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	46	32	15	77	82	73	45	78	38	74	42	60	16	31	45	69	13	25	11	42	13	45	52
EQUIVALENT LENGTH	150	120	190	170	160	150	200	170	140	170	150	160	190	150	190	180	140	140	170	200	140	190	170
TOTAL EFFECTIVE LENGTH	196	152	205	247	242	223	245	248	178	244	192	220	206	181	235	249	153	165	181	242	153	235	222
ADJUSTED PRESSURE	0.09	0.11	0.08	0.07	0.07	0.07	0.07	0.07	0.1	0.07	0.08	0.07	0.08	0.09	0.07	0.07	0.11	0.1	0.1	0.07	0.11	0.07	0.07
ROUND DUCT SIZE	5	4	4	6	5	6	4	5	5	4	6	6	6	6	6	5	4	4	4	6	6	6	6
HEATING VELOCITY (ft/min)	279	447	181	311	264	240	218	264	279	344	362	362	260	260	260	162	195	482	344	469	469	469	469
COOLING VELOCITY (ft/min)	543	482	57	530	485	505	195	485	543	321	510	510	413	413	413	338	46	172	69	56	56	56	56
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	C	D	C	B	A	B	B	A	C	B	B	A	C	C	C	B	D	C	C	C	D	B	A

CITY OF BRAMPTON
 BUILDING DIVISION
 REVIEWED BY: S. HANNA
 JAN 26 2019
 ATTACHED NOTES ARE PART
 OF REVIEWED DRAWINGS
 ALL WORK MUST COMPLY WITH OBC

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
CFM	PRESS.	DUCT	DUCT	CFM	FT/MIN	INCH	FT/MIN	CFM	PRESS.	DUCT	DUCT	FT/MIN	CFM	PRESS.	DUCT	DUCT	CFM	FT/MIN	INCH	FT/MIN	CFM	PRESS.	DUCT	DUCT
TRUNK A	235	0.07	8.4	8	x	8	529	TRUNK G	0	0.00	0	0	x	8	0	0	TRUNK O	0	0.05	0	0	x	8	0
TRUNK B	577	0.07	11.8	18	x	8	577	TRUNK H	0	0.00	0	0	x	8	0	0	TRUNK P	0	0.05	0	0	x	8	0
TRUNK C	984	0.07	14.4	26	x	8	681	TRUNK I	0	0.00	0	0	x	8	0	0	TRUNK Q	0	0.05	0	0	x	8	0
TRUNK D	148	0.11	6.3	8	x	8	333	TRUNK J	0	0.00	0	0	x	8	0	0	TRUNK R	0	0.05	0	0	x	8	0
TRUNK E	0	0.00	0	0	x	8	0	TRUNK K	0	0.00	0	0	x	8	0	0	TRUNK S	0	0.05	0	0	x	8	0
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0	0	TRUNK T	0	0.05	0	0	x	8	0
																	TRUNK U	0	0.05	0	0	x	8	0
																	TRUNK V	0	0.05	0	0	x	8	0
																	TRUNK W	0	0.05	0	0	x	8	0
																	TRUNK X	1131	0.05	16.5	32	x	8	636
																	TRUNK Y	440	0.05	11.8	16	x	8	495
																	TRUNK Z	0	0.05	0	0	x	8	0
																	DROP	1131	0.05	16.5	24	x	10	679

RETURN AIR #	1	2	3	4	5	6																			B
AIR VOLUME	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17
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	20	52	82	78	24	47	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.1
EQUIVALENT LENGTH	185	195	235	240	205	235	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
TOTAL EFFECTIVE LH	185	247	317	318	229	282	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14
ADJUSTED PRESSURE	0.08	0.08	0.05	0.05	0.08	0.05	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	0.4
ROUND DUCT SIZE	7.5	7.5	6	6	10	7.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
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
	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	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: MILLWOOD 12
SITE NAME: MINNISALE HOMES CORP

LO # 80711
LOT 21

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	4	@ 10.6 cfm	42.4	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	63.8	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	169.6	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	90.1	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE 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: 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: *Michael O'Rourke*

HRAI #: 001820

Date: November-18

CSA F280-12 Residential Heat Loss and Heat Gain Calculations
Formula Sheet (For Air Leakage / Ventilation Calculation)

LO#: 80711

Model: MILLWOOD 12

Builder: GREENPARK HOMES

Date: 11/9/2018

Volume Calculation
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1143	9	10287
First	1143	10	11430
Second	1474	9	13266
Third	0	9	0
Fourth	0	9	0
Total:			34,983.0 ft³
Total:			990.6 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.325
SUMMER NATURAL AIR CHANGE RATE	0.106

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

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

0.325 x 275.17 x 41 °C x 1.2 = 4419 W

= 15078 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

0.106 x 275.17 x 6 °C x 1.2 = 213 W

= 726 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

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

6.2.7 Sensible heat Gain due to Ventilation

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

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

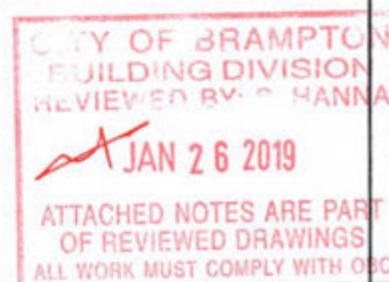
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)

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

Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HL _{level})
1	0.5	15,078	8,857	0.851
2	0.3		12,581	0.360
3	0.2		12,944	0.233
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



HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: MILLWOOD 12	LOT 21	BUILDER: GREENPARK HOMES
SFQT: 2617	LO# 80711	SITE: MINNISSALE 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:	EAST	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):	34983.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.55	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 51.0 ft	WIDTH: 32.0 ft	EXPOSED PERIMETER:	124.0 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

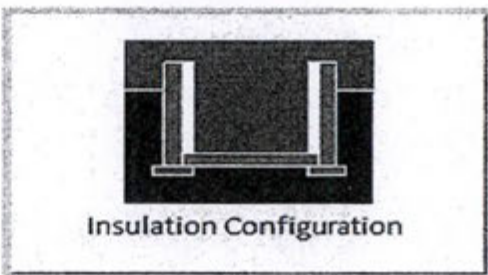

Compliance Package
A1

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

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):	15.5	 Insulation Configuration
Floor Width (m):	9.8	
Exposed Perimeter (m):	37.8	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.1	
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):	1235 ✓	

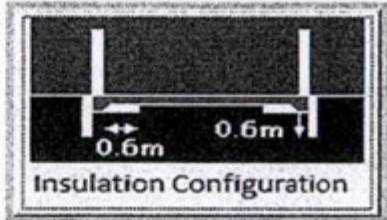
TYPE: MILLWOOD 12
LO# 80711

LOT 21



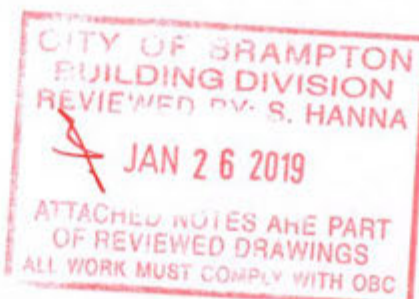
Residential Foundation Thermal Load Calculator

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):	1.5	
Width (m):	9.8	
Exposed Perimeter (m):	12.8	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):	165 ✓	

TYPE: MILLWOOD 12
LO# 80711

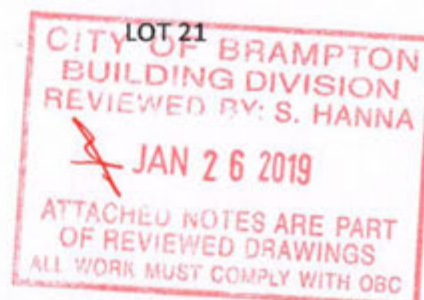
LOT 21



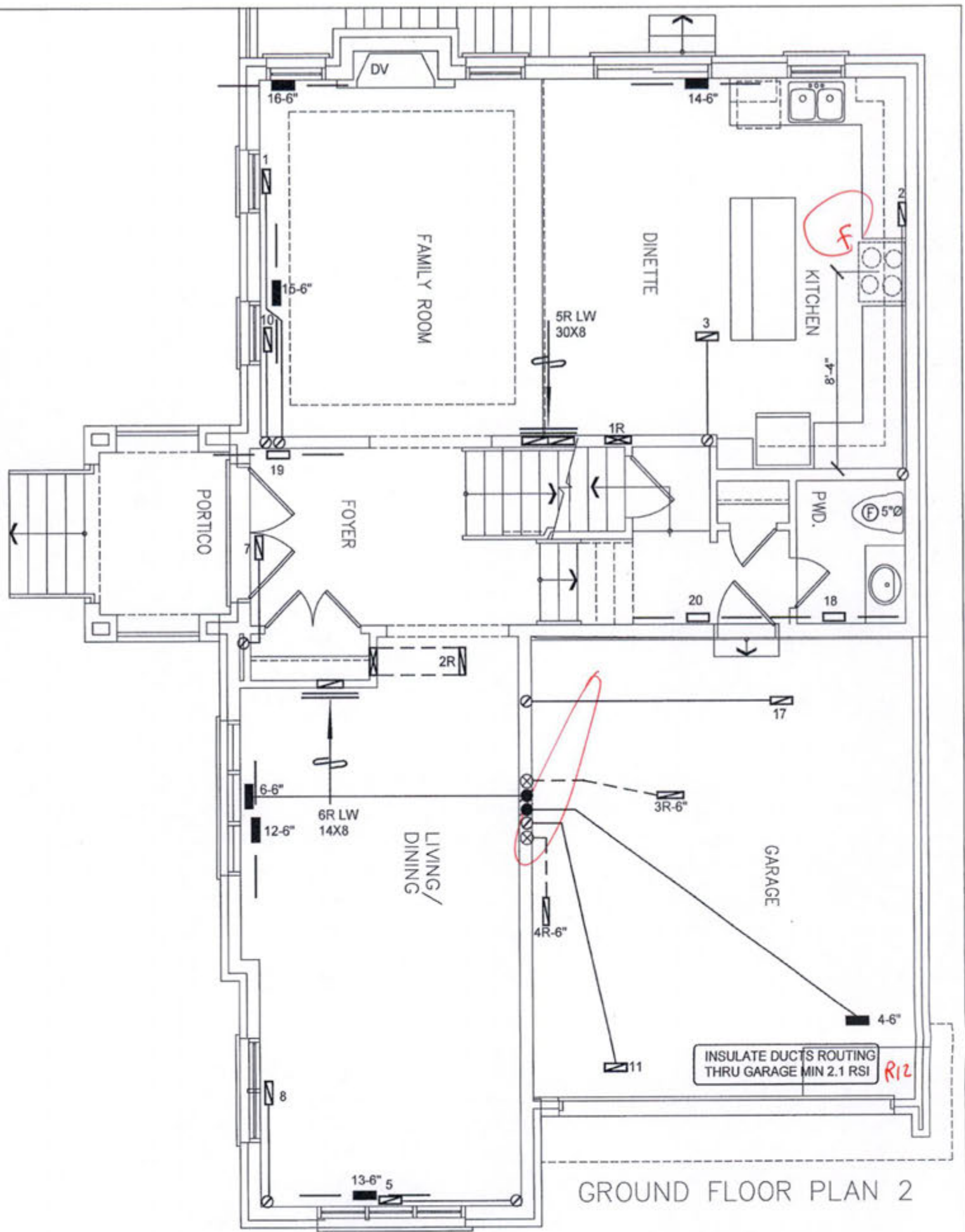
Air Infiltration Residential Load Calculator

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):	6.71			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	990.6			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH) ✓			
Custom BDT Data:	ELA @ 10 Pa. 3.57	1320.5 cm ² ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply 37.5	Total Exhaust 37.5		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):		0.325 ✓		
Cooling Air Leakage Rate (ACH/H):		0.106		

TYPE: MILLWOOD 12
LO# 80711

THIS INSTALLATION OF A GAS FIREPLACE IS REGULATED UNDER THE T.S.S.A. BY C.S.A. B149.1 NATURAL GAS AND PROPANE INSTALLATION CODE CALL ENBRIDGE FOR INSPECTION AT 1-800-785-1314



GROUND FLOOR PLAN 2

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. HANNA
JAN 26 2019
ATTACHED NOTES ARE PART
OF REVIEWED DRAWINGS
ALL WORK MUST COMPLY WITH OBC

LOT 21

CSA-F280-12

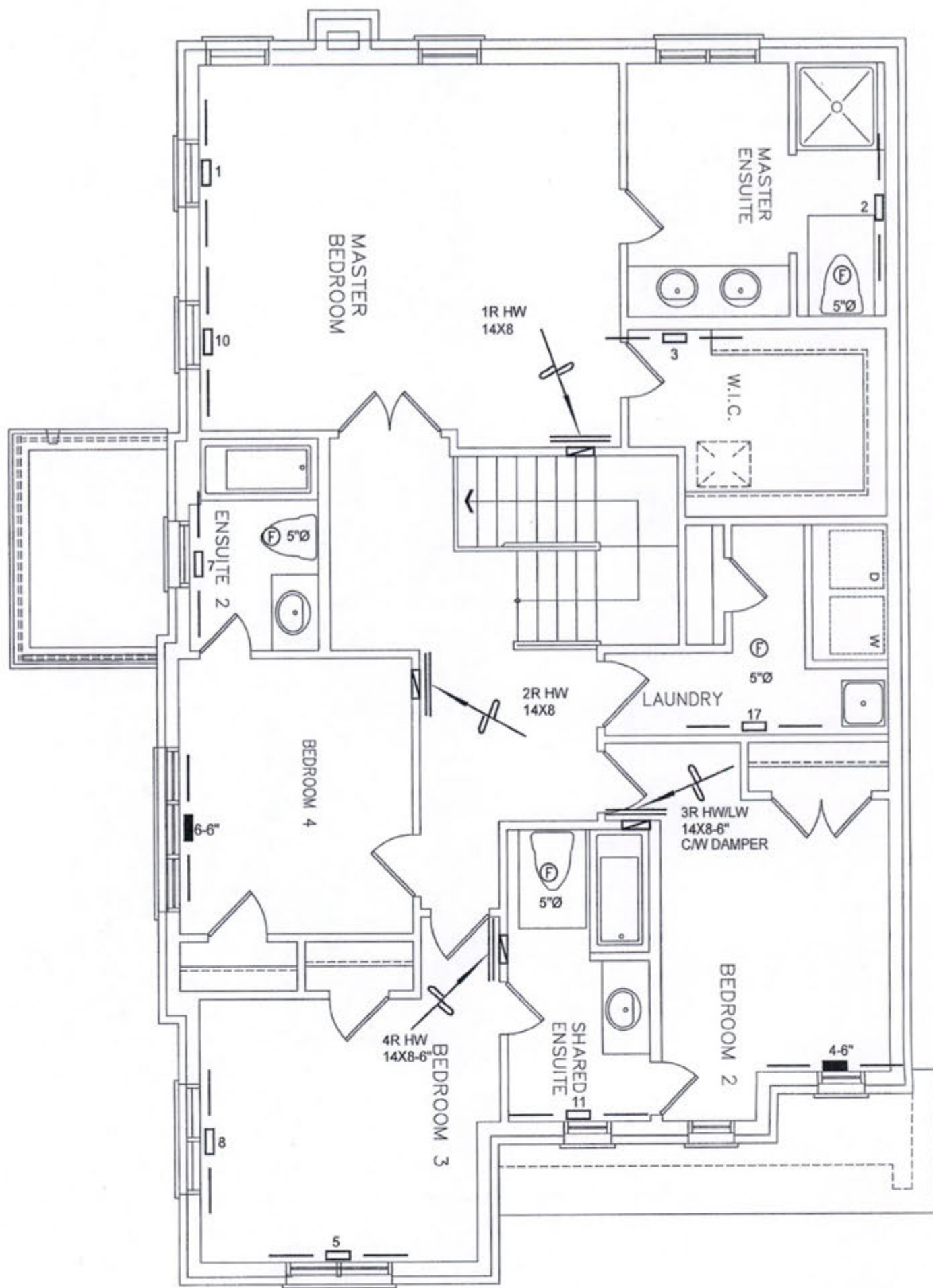
WUB PACKAGE A1

I MICHAEL O'BRIEN HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.3 OF THE BUILDING CODE.
Michael O'Brien, BCIN 19669
HVAC DESIGNS LTD.

HVAC LEGEND								
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	3.
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	2.
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	1.
							No.	Description
							REVISIONS	
							Date	

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Client GREENPARK HOMES		HVAC DESIGNS 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	Sheet Title FIRST FLOOR HEATING LAYOUT	
Project Name MINNISALE HOMES CORP BRAMPTON, ONTARIO			Date NOV/2018	Scale 3/16" = 1'-0"
LOT 21 MILLWOOD 12 2617 sqft		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.	BCIN# 19669	
			LO#	80711



CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. HANNA
JAN 26 2019
ATTACHED NOTES ARE PART
OF REVIEWED DRAWINGS
ALL WORK MUST COMPLY WITH OBC

I HEREBY CERTIFY THAT I HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.3 OF THE BUILDING CODE.
Michael O'Sullivan
Michael O'Sullivan, B.Sc. 1989
HVAC DESIGNS LTD.

LOT 21
CSA-F280-12
WUB PACKAGE A1

HVAC LEGEND							
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
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

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Client GREENPARK HOMES		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	Sheet Title SECOND FLOOR HEATING LAYOUT	
Project Name MINNISALE HOMES CORP BRAMPTON, ONTARIO			Date NOV/2018	Scale 3/16" = 1'-0"
LOT 21 MILLWOOD 12 2617 sqft		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.	BCIN# 19669	
			LO#	80711