

SITE NAME: MHNISALE HOMES CORP
 BUILDER: GREENPARK HOMES

 LOT 10
 TYPE: MILLWOOD 4

GFA: 2928

 DATE: Oct-18
 LWB: 80863

 WINTER NATURAL AIR CHANGE RATE 0.325
 SUMMER NATURAL AIR CHANGE RATE 0.108

 HEAT LOSS ΔT °F. 74
 HEAT GAIN ΔT °F. 11

 CSA-F280-12
 SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	HALL	ENS-2
EXP. WALL	36		22		5	12	26	18	8	32	5
CLG. HT.	9		9		9	9	9	9	9	9	9
FACTORS											
GRS.WALL AREA	324		198		45	108	234	162	72	288	45
GLAZING	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	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	0 0 0	0 0 0	0 0 0	0 125 93	0 0 0	0 0 0
EAST	20.8 41.0	0 0 0	0 0 0	0 0 0	10 208 410	0 0 0	40 821 1642	0 0 0	0 0 0	27 561 1108	0 0 0
SOUTH	20.8 24.4	0 0 0	16 332 390	0 0 0	16 332 390	0 0 0	16 332 390	0 0 0	0 0 0	16 332 390	6 125 146
WEST	20.8 41.0	32 685 1314	16 332 657	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	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	0 0 0	0 0 0	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	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
NET EXPOSED WALL	4.4 0.6	292 1272 189	166 723 107	35 182 23	92 401 99	194 845 125	146 636 94	66 288 43	245 1067 158	39 170 25	0 0 0
NET EXPOSED BMT WALL ABOVE GR	3.5 0.5	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
EXPOSED CLG	1.3 0.6	323 405 180	121 152 67	60 63 28	144 150 50	156 195 87	306 363 171	96 120 53	265 332 148	80 100 45	0 0 0
NO ATTIC EXPOSED CLG	2.7 1.2	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	6 16 7	0 0 0	0 0 0
EXPOSED FLOOR	2.6 0.4	0 0 0	0 0 0	0 0 0	50 124 18	0 0 0	156 388 58	0 0 0	24 60 9	6 18 2	0 0 0
BASEMENT CRAWL HEAT LOSS		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
SUBTOTAL HT LOSS		2342	1540	547	914	2260	1382	592	2324	295	216
SUB TOTAL HT GAIN			1682	1222	478	530	1912	655	188	1814	216
LEVEL FACTOR / MULTIPLIER	0.20 0.28		0.20 0.28		0.20 0.28		0.20 0.28		0.20 0.28		0.20 0.28
AIR CHANGE HEAT LOSS		659		433	154	257	828	381	167	684	111
AIR CHANGE HEAT GAIN			192		74	29	32	116	40	110	12
DUCT LOSS		0		0	70	0	290	0	76	298	0
DUCT GAIN		0		0	51	0	291	0	21	192	0
HEAT GAIN PEOPLE	240	2	480	0	0	1	240	1	240	0	0
HEAT GAIN APPLIANCES/LIGHTS			645	0	0	645	645	645	0	0	0
TOTAL HT LOSS BTU/H		3001		1973	772	1171	3185	1732	835	3278	606
TOTAL HT GAIN x 1.3 BTU/H		3782		1685	727	1881	4165	2054	300	2791	298

 CITY OF BRAMPTON
 BUILDING DIVISION
 REVIEWED BY: S. DESAI
 NOV 30 2018
 ATTACHED NOTES ARE PART
 OF REVIEWED DRAWINGS
 ALL WORK MUST COMPLY WITH OBC

ROOM USE	EXP. WALL	CLG. HT.	LIV	KIT	FAM	LAUN	WIR	FOY	LIBR	WUB	BAS
EXP. WALL	21		36		30		25		36		156
CLG. HT.	10		10		10		10		10		9
FACTORS											
GRS.WALL AREA	210		360		300		250		360		144
GLAZING	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN
NORTH	20.8 15.6	0 0 0	0 0 0	11 229 170	0 0 0	8 125 93	0 0 0	0 0 0	21 438 325	0 0 0	10 208 155
EAST	20.8 41.0	0 0 0	0 0 0	0 0 0	28 582 1148	0 0 0	13 270 534	20 416 821	0 0 0	0 0 0	0 0 0
SOUTH	20.8 24.4	42 873 1028	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	10 208 244
WEST	20.8 41.0	0 0 0	68 1413 2791	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	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	0 0 0	0 0 0	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	20 483 73	0 0 0	20 483 73	0 0 0	20 483 73	20 483 73
NET EXPOSED WALL	4.4 0.6	168 732 109	281 1224 182	272 1165 178	234 976 145	87 379 56	320 1394 207	79 344 51	124 540 80	0 0 0	0 0 0
NET EXPOSED BMT WALL ABOVE GR	3.5 0.5	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	488 1644 244
EXPOSED CLG	1.3 0.6	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
NO ATTIC EXPOSED CLG	2.7 1.2	0 0 0	36 97 43	10 27 12	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
EXPOSED FLOOR	2.6 0.4	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
BASEMENT CRAWL HEAT LOSS		0	0	0	0	0	0	0	0	0	5304
SLAB ON GRADE HEAT LOSS		0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS		1609	2962	1794	1894	548	2303	781	1159	7857	715
SUB TOTAL HT GAIN			3186	1337	311	890	1101	375	183		
LEVEL FACTOR / MULTIPLIER	0.30 0.44		0.30 0.44		0.30 0.44		0.30 0.44		0.30 0.44		0.30 0.96
AIR CHANGE HEAT LOSS		711		1313	795	706	288	1021	346		8632
AIR CHANGE HEAT GAIN			69		81	19	36	67	23		53
DUCT LOSS		0		0	0	0	0	0	0		0
DUCT GAIN		0		0	0	0	0	0	0		0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS			645	645	645	645	645	645	645	0	645
TOTAL HT LOSS BTU/H		2316	4276	2589	2300	937	3323	1126	1159	16488	1837
TOTAL HT GAIN x 1.3 BTU/H		2601	5221	2682	1287	813	1518	1357	199		

TOTAL HEAT GAIN BTU/H

35182

TONS: 2.92

LOSS DUE TO VENTILATION LOAD BTU/H: 1693

STRUCTURAL HEAT LOSS: 50968

TOTAL COMBINED HEAT LOSS BTU/H: 52558

SITE NAME: MINNISSALE HOMES CORP
BUILDER: GREENPARK HOMES

LOT 10
TYPE: MILLWOOD 4

DATE: Oct-18

GFA: 2938 LO# 80553

HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 50,965 TOTAL HEAT GAIN 34,946
AIR FLOW RATE CFM 22.19 AIR FLOW RATE CFM 32.36

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	12	9	4
R/A	0	0	4	3	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	9	10	11	12	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	HALL	HALL	MBR	ENS-2	LIV	KIT	KIT	FAM	LAUN	W/R	FOY	FAM	BAS	BAS	BAS	BAS
RM LOSS MBH	1.50	1.97	0.77	1.17	1.59	1.73	0.83	1.84	1.84	1.50	0.51	2.32	2.14	2.14	1.29	2.30	0.94	3.32	1.29	4.41	4.41	4.41	4.41
CFM PER RUN HEAT	33	44	17	26	35	38	19	38	38	33	11	51	47	47	29	51	21	74	29	98	98	98	98
RM GAIN MBH	1.89	1.68	0.73	1.88	2.08	2.05	0.30	1.38	1.38	1.89	0.30	2.40	2.62	2.62	1.34	1.27	0.81	1.52	1.34	0.51	0.51	0.51	0.51
CFM PER RUN COOLING	61	55	24	61	67	66	10	45	45	61	10	78	85	85	43	41	26	48	43	16	16	16	16
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	39	50	43	32	54	33	42	49	54	46	24	14	29	38	32	24	38	29	43	57	31	11	30
EQUIVALENT LENGTH	160	140	160	180	180	120	170	140	180	160	190	170	120	110	130	160	140	110	110	150	140	120	120
TOTAL EFFECTIVE LENGTH	199	190	203	212	234	153	212	189	234	206	214	184	149	148	162	184	176	139	153	207	171	131	150
ADJUSTED PRESSURE	0.09	0.09	0.08	0.08	0.07	0.11	0.08	0.09	0.07	0.08	0.08	0.09	0.11	0.11	0.11	0.09	0.1	0.12	0.11	0.08	0.09	0.12	0.11
ROUND DUCT SIZE	5	5	4	5	5	5	4	4	5	5	4	5	6	6	5	4	4	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	242	323	195	191	257	279	218	413	264	242	126	374	240	240	213	585	241	543	213	500	500	500	500
COOLING VELOCITY (ft/min)	448	404	275	448	492	485	115	516	330	448	115	573	433	433	316	470	298	360	316	82	82	82	82
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	E	D	B	F	B	F	B	B	B	E	F	F	E	E	D	F	A	A	D	D	E	F	A

RUN #	25	26
ROOM NAME	BED-3	LIBR
RM LOSS MBH	1.59	1.13
CFM PER RUN HEAT	35	25
RM GAIN MBH	2.08	1.36
CFM PER RUN COOLING	67	44
ADJUSTED PRESSURE	0.17	0.17
ACTUAL DUCT LGH	47	13
EQUIVALENT LENGTH	170	140
TOTAL EFFECTIVE LENGTH	217	153
ADJUSTED PRESSURE	0.08	0.11
ROUND DUCT SIZE	5	4
HEATING VELOCITY (ft/min)	257	287
COOLING VELOCITY (ft/min)	492	505
OUTLET GRILL SIZE	3X10	3X10
TRUNK	B	F

CITY OF BRAMPTON
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SUPPLY AIR TRUNK SIZE

TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	193	0.10	7.2	6	8
TRUNK B	371	0.07	10	12	8
TRUNK C	0	0.00	0	0	8
TRUNK D	200	0.08	7.7	8	8
TRUNK E	258	0.08	8.4	10	8
TRUNK F	758	0.08	12.6	20	8

RETURN AIR TRUNK SIZE

TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK G	0	0.00	0	0	8
TRUNK H	0	0.00	0	0	8
TRUNK I	0	0.00	0	0	8
TRUNK J	0	0.00	0	0	8
TRUNK K	0	0.00	0	0	8
TRUNK L	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
AIR VOLUME	135	135	155	75	135	175	135	0	0	0	0	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	0.15	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	50	30	34	61	33	12	16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	195	215	175	165	200	135	225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LENGTH	245	245	209	226	233	147	241	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.06	0.06	0.07	0.07	0.06	0.10	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	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	7.1	7.1	7.2	5.5	7.1	6.9	7.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	14	14	14	14	14	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: MILLWOOD 4
SITE NAME: MINNISSALE HOMES CORP

LO # 80553
LOT 10

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: 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	X 74 F	X 1.08	X 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 #:	

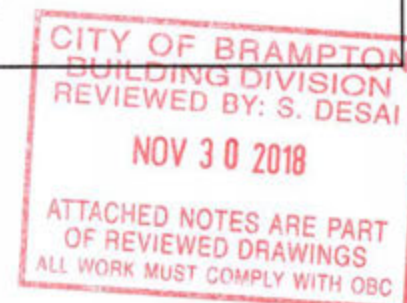
INSTALLING CONTRACTOR	
Name:	
Address:	
City:	
Telephone #:	Fax #:

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	October-18

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																							
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																							
LO#: 80553	Model: MILLWOOD 4	Builder: GREENPARK HOMES	Date: 10/31/2018																																																				
Volume Calculation			Air Change & Delta T Data																																																				
<table border="1" style="width:100%; border-collapse: collapse;"> <caption>House Volume</caption> <thead> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr><td>Bsmt</td><td>1361</td><td>9</td><td>12249</td></tr> <tr><td>First</td><td>1361</td><td>10</td><td>13610</td></tr> <tr><td>Second</td><td>1577</td><td>9</td><td>14193</td></tr> <tr><td>Third</td><td>0</td><td>9</td><td>0</td></tr> <tr><td>Fourth</td><td>0</td><td>9</td><td>0</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>40,052.0 ft³</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>1134.1 m³</td></tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1361	9	12249	First	1361	10	13610	Second	1577	9	14193	Third	0	9	0	Fourth	0	9	0	Total:			40,052.0 ft³	Total:			1134.1 m³	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width:20%;">0.325</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.106</td> </tr> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <caption>Design Temperature Difference</caption> <thead> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> </thead> <tbody> <tr> <td>Winter DTDh</td> <td>22</td> <td>-19</td> <td>41</td> <td>74</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>30</td> <td>6</td> <td>11</td> </tr> </tbody> </table>		WINTER NATURAL AIR CHANGE RATE	0.325	SUMMER NATURAL AIR CHANGE RATE	0.106		Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-19	41	74	Summer DTDc	24	30	6	11
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																				
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.325 x 315.04 x 41 °C x 1.2 = 5060 W = 17263 Btu/h			$HG_{sairb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ 0.106 x 315.04 x 6 °C x 1.2 = 244 W = 832 Btu/h																																																				
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to 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			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 11 °F x 1.08 x 0.25 = 236 Btu/h																																																				
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*HLairbv = Air leakage heat loss + ventilation heat loss

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



HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: MILLWOOD 4	LOT 10	BUILDER: GREENPARK HOMES
SFQT: 2938	LO# 80553	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):	40052.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
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: 56.0 ft	WIDTH: 30.0 ft	EXPOSED PERIMETER:	156.0 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

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI

NOV 30 2018

ATTACHED NOTES ARE PART
OF REVIEWED DRAWINGS
ALL WORK MUST COMPLY WITH OBC

**Compliance Package
A1**

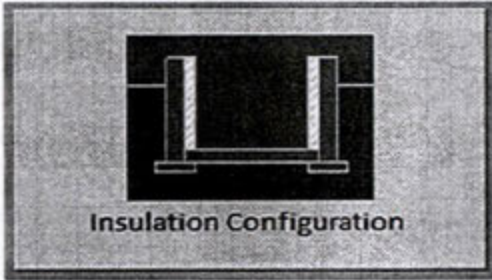
Nominal	Min. Eff.
60	59.22
31	27.65
31	29.80
22	17.03
20 ci	21.12
-	-
10	10
10	11.13
0.28	-
0.49	-
0.96	-
75%	-
0.8	-

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE

Michael O'Rourke

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

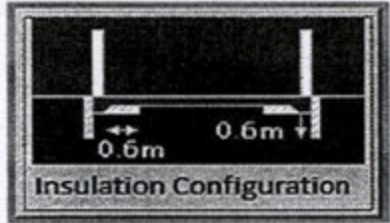
Weather Station Description		
Province:	Ontario	
Region:	Brampton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	17.1	 Insulation Configuration
Floor Width (m):	9.1	
Exposed Perimeter (m):	47.5	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.9	
Door Area (m ²):	3.7	
Radiant Slab		
Heated Fraction of the Slab:	0	CITY OF BRAMPTON BUILDING DIVISION REVIEWED BY: S. DESAI NOV 30 2018 ATTACHED NOTES ARE PART OF REVIEWED DRAWINGS ALL WORK MUST COMPLY WITH O.C.
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):	1554	

TYPE: MILLWOOD 4
LO# 80553

LOT 10

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	CITY OF BRAMPTON BUILDING DIVISION REVIEWED BY: S. DESAI NOV 30 2018 ATTACHED NOTES ARE PART OF REVIEWED DRAWINGS ALL WORK MUST COMPLY WITH OBC
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		37

TYPE: MILLWOOD 4
LO# 80553

LOT 10

Air Infiltration Residential Load Calculator

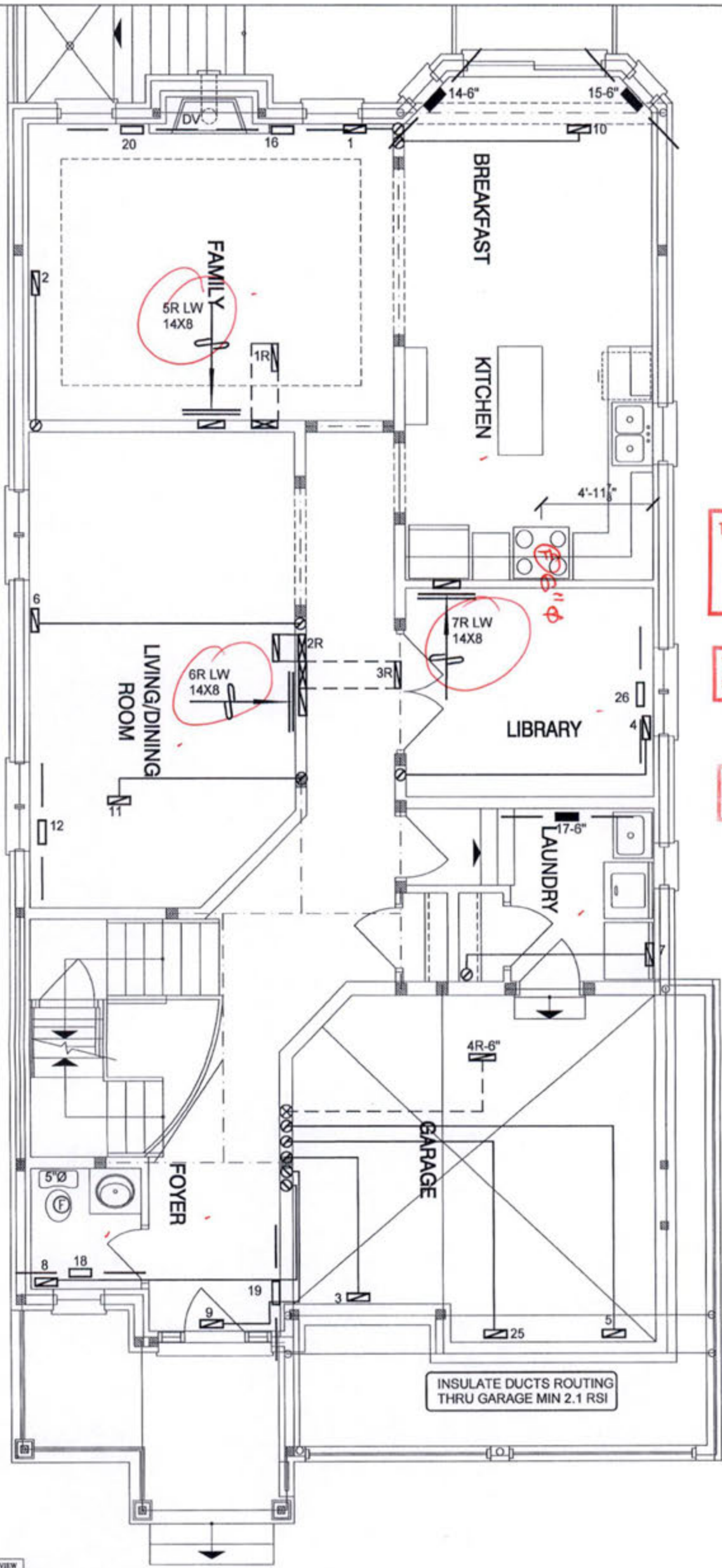
Supplemental tool for CAN/CSA-F280

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):	1134.1		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1511.9 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 #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		

CITY OF BRAMPTON
BUILDING DIVISION
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NOV 30 2016
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TYPE: MILLWOOD 4
LO# 80553

LOT 10



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

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

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

CITY OF BRAMPTON
BUILDING DIVISION
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NOV 30 2018
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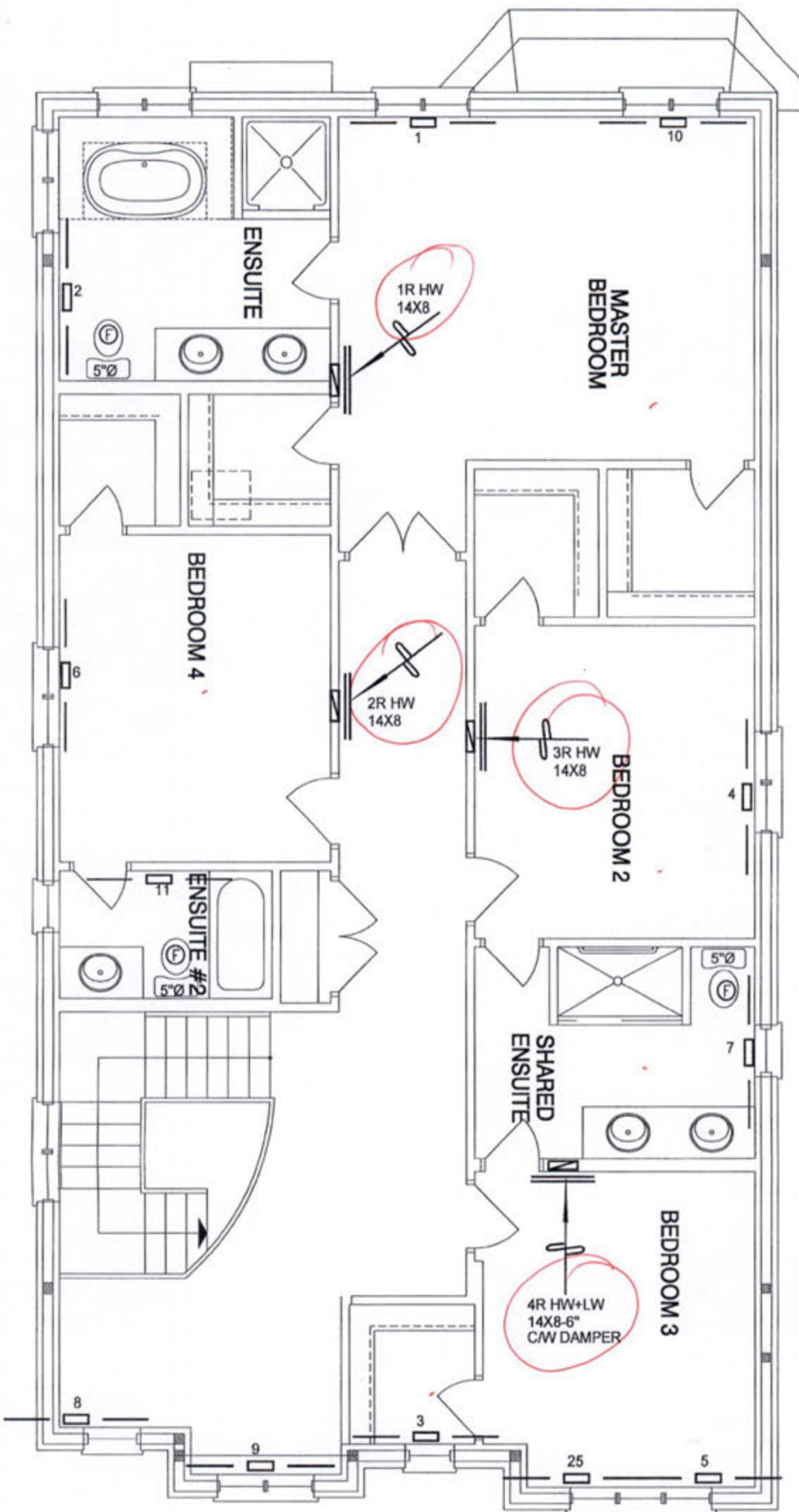
I MICHAEL O'BROCKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
Michael O'Brocke
Michael O'Brocke, OCTM 19669
HVAC DESIGNS LTD.

LOT 10
CSA-F280-12
WUB PACKAGE A1

HVAC LEGEND							
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	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

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD. AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

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 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 10 MILLWOOD 4			Scale 3/16" = 1'-0"	
2938 sqft			BCIN# 19669	
			LO#	80553



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

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

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
NOV 30 2018
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LOT 10
CSA-F280-12
WUB PACKAGE A1

I MICHAEL OZBOLKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.1.3 OF THE BUILDING CODE.
Michael Ozbolke
Michael Ozbolke, BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND							
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
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Project Name MINNISALE HOMES CORP BRAMPTON, ONTARIO			Date OCT/2018	Scale 3/16" = 1'-0"
LOT 10 MILLWOOD 4 2938 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#	80553