

Elev 2 - Lot specific

SITE NAME: RUSSEL GARDENS PHASE 3				LOT 256				DATE: Oct-20				WINTER NATURAL AIR CHANGE RATE 0.319				HEAT LOSS AT °F. 71				CSA-F280-12							
BUILDER: GREENPARK HOMES				TYPE: MOUNTAINASH 12				GFA: 3134				LO# 87978				SUMMER NATURAL AIR CHANGE RATE 0.114				HEAT GAIN AT °F. 13				SB-12 PACKAGE A1			
ROOM USE				MBR		ENS		WIC		BED-2		BED-3		BED-4		S-ENS		WIC-3		FLEX		ENS-3					
EXP. WALL				42		25		8		10		26		29		6		5		16		5					
CLG. HT.				9		9		9		9		9		9		9		9		9		9					
FACTORS																											
GRS.WALL AREA				378		225		72		90		234		261		54		45		144		45					
GLAZING				LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN					
NORTH				19.8	16.0	0	0	0	0	0	0	18	356	288	0	0	0	7	133	112	0	0	0	0	0	0	
EAST				19.8	41.6	0	0	0	0	0	0	0	0	45	890	1870	30	593	1247	0	0	0	10	198	416	0	
SOUTH				19.8	24.9	0	0	0	27	534	672	0	0	0	0	0	0	13	257	324	0	0	0	0	0	0	
WEST				19.8	41.6	42	830	1745	24	474	997	0	0	0	0	0	0	0	0	0	0	0	42	830	1046	12	
SKYLT.				34.5	101.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
DOORS				23.5	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NET EXPOSED WALL				4.1	0.6	336	1393	253	174	721	131	72	238	54	72	238	54	189	784	142	218	804	164	47	185	35	
NET EXPOSED BSMT WALL ABOVE GR				3.3	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
EXPOSED CLG				1.2	0.6	348	415	204	150	179	88	105	125	62	210	250	123	155	185	91	180	215	106	111	132	65	
NO ATTIC EXPOSED CLG				2.6	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
EXPOSED FLOOR				2.4	0.4	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	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	0	0	0	0	0	0	0	
SUBTOTAL HT LOSS						2638		1908	424	1092	2304	2040	729	507													
SUB TOTAL HT GAIN						2202		1888	116	499	2197	1875	260	489													
LEVEL FACTOR / MULTIPLIER				0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25	
AIR CHANGE HEAT LOSS						549		470	104	269	567	502	179														
AIR CHANGE HEAT GAIN							133		114	7	30	132	113														
DUCT LOSS						0		0	0		136	287	0														
DUCT GAIN						0		0	0		129	309	0														
HEAT GAIN PEOPLE				240		2	480	0	0	0	1	240	1	240	1	240	0	0	0	0	0	0	0	0	0	0	
HEAT GAIN APPLIANCES/LIGHTS							522		0	0	522	522	522	522													
TOTAL HT LOSS BTU/H						3287		2378	528	1497	3158	2542	999	694													
TOTAL HT GAIN x 1.3 BTU/H						4338		2603	160	1847	4420	3575	394	741													

ROOM USE			FAM		DIN		K/D		L/H		LND		W/R		FOY								WUB		BAS			
EXP. WALL			36		19		37		26		0		40		21								15		161...			
CLG. HT.			11		11		11		11		9		12		11								8		8			
FACTORS																												
GRS.WALL AREA	LOSS GAIN		396		209		407		285		0		480		231								120		805			
GLAZING			LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN								LOSS GAIN		LOSS GAIN			
NORTH	19.8	16.0	0	0	0	0	0	0	0	0	0	0	0	7	138	112	0	0	0	0	0	0	0	0	5	99	80	
EAST	19.8	41.6	0	0	0	0	0	0	0	36	712	1496	0	0	0	0	0	0	0	0	0	0	0	0	5	39	208	
SOUTH	19.8	24.9	32	633	797	58	1147	1444	0	0	0	16	316	358	0	0	0	0	0	6	119	149	0	0	0	10	198	249
WEST	19.8	41.6	28	654	1163	0	0	0	73	1443	3033	0	0	0	0	0	0	0	0	0	0	0	0	0	10	198	416	
SKYLT.	34.6	101.6	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	
DOORS	23.5	4.3	0	0	0	0	0	0	0	0	0	0	0	0	20	469	25	40	938	170	20	459	85	20	459	85		
NET EXPOSED WALL	4.1	0.8	336	1393	253	151	626	113	334	1385	251	234	970	176	0	0	0	453	1878	340	185	767	139	100	416	75	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	483	1615	293	
EXPOSED CLG	1.2	0.6	0	0	0	0	0	0	0	0	0	0	0	73	87	43	0	0	0	0	0	0	0	0	0	0	0	
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0	0	0	24	61	30	0	0	0	0	0	0	0	0	0	0	0	0	0	
EXPOSED FLOOR	2.4	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	
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	
SUBTOTAL HT LOSS				2579		1773	2828	2059	87	2485	1924												108					
SUB TOTAL HT GAIN				2213		1558	3284	2100	43	537	459											992			7915			
LEVEL FACTOR / MULTIPLIER	0.30	0.38			0.30	0.38		0.30	0.38		0.20	0.25		0.30	0.38		0.30	0.38					160			1330		
AIR CHANGE HEAT LOSS				970		665	1063	774	21	934	686														0.50	0.95		
AIR CHANGE HEAT GAIN					133		94	198	126	3	32															8489		
DUCT LOSS				0		0		0		0			0					0								0		
DUCT GAIN				0		0		0		0			0					0								0		
HEAT GAIN PEOPLE	240		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
HEAT GAIN APPLIANCES/LIGHTS				522		522	522	522	522	522	522							0					0	0	0	0		
TOTAL HT LOSS BTU/H				3549		2439	3891	2833	108	3420	2509												992			16403		
TOTAL HT GAIN x 1.3 BTU/H				3723		2826	5206	3574	738	741	632												208			2525		

TOTAL HEAT GAIN BTU/H:

41505

TONS: 3.46

LOSS DUE TO VENTILATION LOAD BTU/H: 1515

STRUCTURAL HEAT LOSS: 53810

TOTAL COMBINED HEAT LOSS BTU/H: 55325

Michael O'Rourke

SITE NAME: RUSSEL GARDENS PHASE 3
BUILDER: GREENPARK HOMES

LOT 256
TYPE: MOUNTAINASH 12

DATE: Oct-20

GFA: 3134 LO# 87978

HEATING CFM 1504 COOLING CFM 1504
TOTAL HEAT LOSS 53,810 TOTAL HEAT GAIN 41,231
AIR FLOW RATE CFM 27.95 AIR FLOW RATE CFM 36.48

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

#*GOODMAN
GMEC960804CNA 80
FAN SPEED LOW 868
MEDLOW 978
MEDIUM 1112
MEDIUM HIGH 1504
HIGH 1615

AFUE = 96 %
INPUT (BTU/H) = 80,000
OUTPUT (BTU/H) = 76,800
DESIGN CFM = 1504
CFM @ .6" E.S.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	15	9	5
R/A	0	0	6	2	1

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

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

plenum pressure s/a 0.18 r/a pressure 0.17
max s/a dif press. loss 0.02 r/a grille press. Loss 0.02
min adjusted pressure s/a 0.16 adjusted pressure r/a 0.15

TEMPERATURE RISE 47 °F

RUN #	1	2	3	4	5	6	7	8	9	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	S-ENS	WIC-3	FLEX	MBR	ENS-3	FAM	DIN	K/D	K/D	L/H	LND	W/R	FOY	L/H	BAS	BAS	BAS	BAS
RM LOSS MBH	1.84	2.38	0.53	1.50	1.58	1.27	0.50	0.69	2.02	1.64	0.56	1.77	2.44	1.95	1.95	1.42	0.11	3.42	2.51	1.42	3.48	3.48	3.48	3.48
CFM PER RUN HEAT	46	66	15	42	44	36	14	19	57	46	16	50	68	54	54	40	3	96	70	40	97	97	97	97
RM GAIN MBH	2.17	2.60	0.16	1.85	2.21	1.79	0.20	0.74	2.48	2.17	0.50	1.86	2.83	2.60	2.60	1.79	0.74	0.74	0.63	1.79	0.65	0.55	0.55	0.55
CFM PER RUN COOLING	79	95	6	67	81	65	7	27	90	79	18	68	103	95	95	65	27	27	23	65	20	20	20	20
ADJUSTED PRESSURE	0.17	0.16	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.16	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	37	41	31	31	54	57	46	48	41	28	57	32	30	23	16	49	19	19	42	35	20	45	31	35
EQUIVALENT LENGTH	170	120	190	190	140	180	170	130	150	120	210	140	130	120	110	130	110	160	180	130	130	150	150	180
TOTAL EFFECTIVE LENGTH	207	161	221	221	194	237	216	178	191	148	267	172	160	143	126	179	129	179	222	165	150	175	181	215
ADJUSTED PRESSURE	0.08	0.1	0.08	0.08	0.08	0.07	0.08	0.1	0.08	0.12	0.06	0.1	0.1	0.11	0.13	0.1	0.13	0.09	0.08	0.1	0.11	0.09	0.09	0.08
ROUND DUCT SIZE	6	6	4	6	6	6	4	4	6	6	4	5	6	6	6	5	4	6	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	235	337	172	214	224	184	161	218	291	235	184	367	347	275	275	294	34	489	514	294	495	495	495	495
COOLING VELOCITY (ft/min)	403	484	69	342	413	331	80	310	459	403	207	499	525	484	484	477	310	138	169	477	102	102	102	102
OUTLET GRILL SIZE	4X10	4X10	3X10	4X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	D	C	C	B	A	A	B	B	C	D	A	C	C	D	D	A	E	B	A	A	D	C	C	A

RUN #	25	26	27	28	29
ROOM NAME	BAS	BED-3	BED-4	S-ENS	FAM
RM LOSS MBH	3.48	1.58	1.27	0.50	1.77
CFM PER RUN HEAT	97	44	36	14	50
RM GAIN MBH	0.55	2.21	1.79	0.20	1.86
CFM PER RUN COOLING	20	81	65	7	68
ADJUSTED PRESSURE	0.16	0.16	0.17	0.17	0.17
ACTUAL DUCT LGH	45	49	55	46	29
EQUIVALENT LENGTH	120	170	200	110	150
TOTAL EFFECTIVE LENGTH	165	219	255	156	179
ADJUSTED PRESSURE	0.1	0.07	0.07	0.11	0.1
ROUND DUCT SIZE	6	6	6	4	5
HEATING VELOCITY (ft/min)	495	224	184	161	367
COOLING VELOCITY (ft/min)	102	413	331	80	499
OUTLET GRILL SIZE	4X10	4X10	4X10	3X10	3X10
TRUNK	A	B	A	B	C

SUPPLY AIR TRUNK SIZE															RETURN AIR TRUNK SIZE														
	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)									
TRUNK A	432	0.06	11	14	X	8	555	TRUNK G	0	0.00	0	0	X	8	0	TRUNK O	0	0.05	0	0	X	8	0	0					
TRUNK B	705	0.06	13.2	20	X	8	635	TRUNK H	0	0.00	0	0	X	8	0	TRUNK P	0	0.05	0	0	X	8	0	0					
TRUNK C	500	0.08	10.8	14	X	8	643	TRUNK I	0	0.00	0	0	X	8	0	TRUNK Q	0	0.05	0	0	X	8	0	0					
TRUNK D	297	0.08	8.9	10	X	8	535	TRUNK J	0	0.00	0	0	X	8	0	TRUNK R	0	0.05	0	0	X	8	0	0					
TRUNK E	800	0.08	12.9	20	X	8	720	TRUNK K	0	0.00	0	0	X	8	0	TRUNK S	0	0.05	0	0	X	8	0	0					
TRUNK F	0	0.00	0	0	X	8	0	TRUNK L	0	0.00	0	0	X	8	0	TRUNK T	0	0.05	0	0	X	8	0	0					
																TRUNK U	0	0.05	0	0	X	8	0	0					
																TRUNK V	0	0.05	0	0	X	8	0	0					
																TRUNK W	0	0.05	0	0	X	8	0	0					
																TRUNK X	1504	0.05	18.4	32	X	10	677						
																TRUNK Y	935	0.05	15.4	28	X	8	601						
																TRUNK Z	590	0.05	12.9	20	X	8	531						
																DROP	1504	0.05	18.4	24	X	14	645						

RETURN AIR #	1	2	3	4	5	6	7	8							BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	95	260	85	75	75	85	155	435	0	0	0	0	0	0	239
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
ACTUAL DUCT LGH.	34	49	56	57	63	64	33	31	1	1	1	1	1	1	15
EQUIVALENT LENGTH	155	225	175	220	215	195	200	195	0	0	0	0	0	0	160
TOTAL EFFECTIVE LH	189	274	231	277	278	259	233	226	1	1	1	1	1	1	175
ADJUSTED PRESSURE	0.08	0.05	0.06	0.05	0.05	0.06	0.06	0.07	14.80	14.80	14.80	14.80	14.80	14.80	0.08
ROUND DUCT SIZE	5.8	9.5	6	6	6	6	7.5	10.6	0	0	0	0	0	0	8.2
INLET GRILL SIZE	8	8	8	8	8	8	8	8	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	30	14	14	14	14	14	30	0	0	0	0	0	0	24

TYPE: MOUNTAINASH 12
SITE NAME: RUSSEL GARDENS PHASE 3

LO # 87978
LOT 266

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 71 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		PANASONIC	
Location	Model	cfm	HVI
ENS	FV-05-11VK1	60	☒
S-ENS	FV-05-11VK1	50	☒
ENS-3	FV-05-11VK1	50	☒
W/R	FV-05-11VK1	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:	October-20

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: 19869 *Michael O'Rourke* MICHAEL O'ROURKE

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

LO#: 87978

Model: MOUNTAINASH 12

Builder: GREENPARK HOMES

Date: 28/10/2020

Volume Calculation
House Volume

Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)
Bsmt	1390	8	11120
First	1390	11	15290
Second	1744	9	15696
Third	0	9	0
Fourth	0	9	0
Total:			42,106.0 ft ³
Total:			1192.3 m ³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.319
SUMMER NATURAL AIR CHANGE RATE	0.114

Design Temperature Difference

	T _{in} °C	T _{out} °C	ΔT °C	ΔT °F
Winter DTD _h	22	-17	39	71
Summer DTD _c	24	31	7	13

5.2.3.1 Heat Loss due to Air Leakage

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

0.319 x 331.20 x 39 °C x 1.2 = 4976 W

= 16978 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.114 x 331.20 x 7 °C x 1.2 = 323 W

= 1102 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 71 °F x 1.08 x 0.25 = 1515 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 13 °F x 1.08 x 0.25 = 275 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)	HL _{airve} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{clevel})
1	0.5	16,978	8,907	0.953
2	0.3		13,548	0.376
3	0.2		13,801	0.246
4	0		0	0.000
5	0		0	0.000

*HL_{airbv} = Air leakage heat loss + ventilation heat loss

*For a balanced or supply only ventilation system HL_{airve} = 0

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL:	MOUNTAINASH 12	LOT 256	BUILDER:	GREENPARK HOMES
SFQT:	3134	LO#	87978	SITE: RUSSEL GARDENS PHASE 3

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	1	OUTDOOR DESIGN TEMP.	88
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):	42106.0	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:	5.0 ft
LENGTH:	51.0 ft	WIDTH:	37.0 ft
		EXPOSED PERIMETER:	161.0 ft

2012 OBC - COMPLIANCE PACKAGE		
Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	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	0.28	-
Skylights Maximum U-Value	0.49	-
Space Heating Equipment Minimum AFUE	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

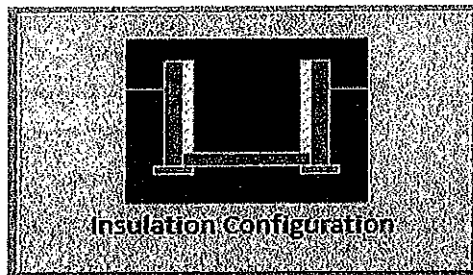
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

Michael O'Rourke

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

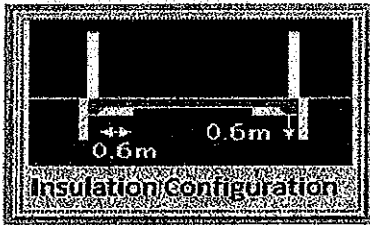
Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m; 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	15.5	
Floor Width (m):	11.3	
Exposed Perimeter (m):	49.1	
Wall Height (m):	2.4	
Depth Below Grade (m):	1.52	
Window Area (m ²):	2.8	
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):	1535	

TYPE: MOUNTAINASH 12
LO# 87978

LOT 256

Residential Slab on Grade Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Length (m):	1.8	
Width (m):	2.7	
Exposed Perimeter (m):	4.6	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		32

TYPE: MOUNTAINASH 12
LO# 87978

LOT 256

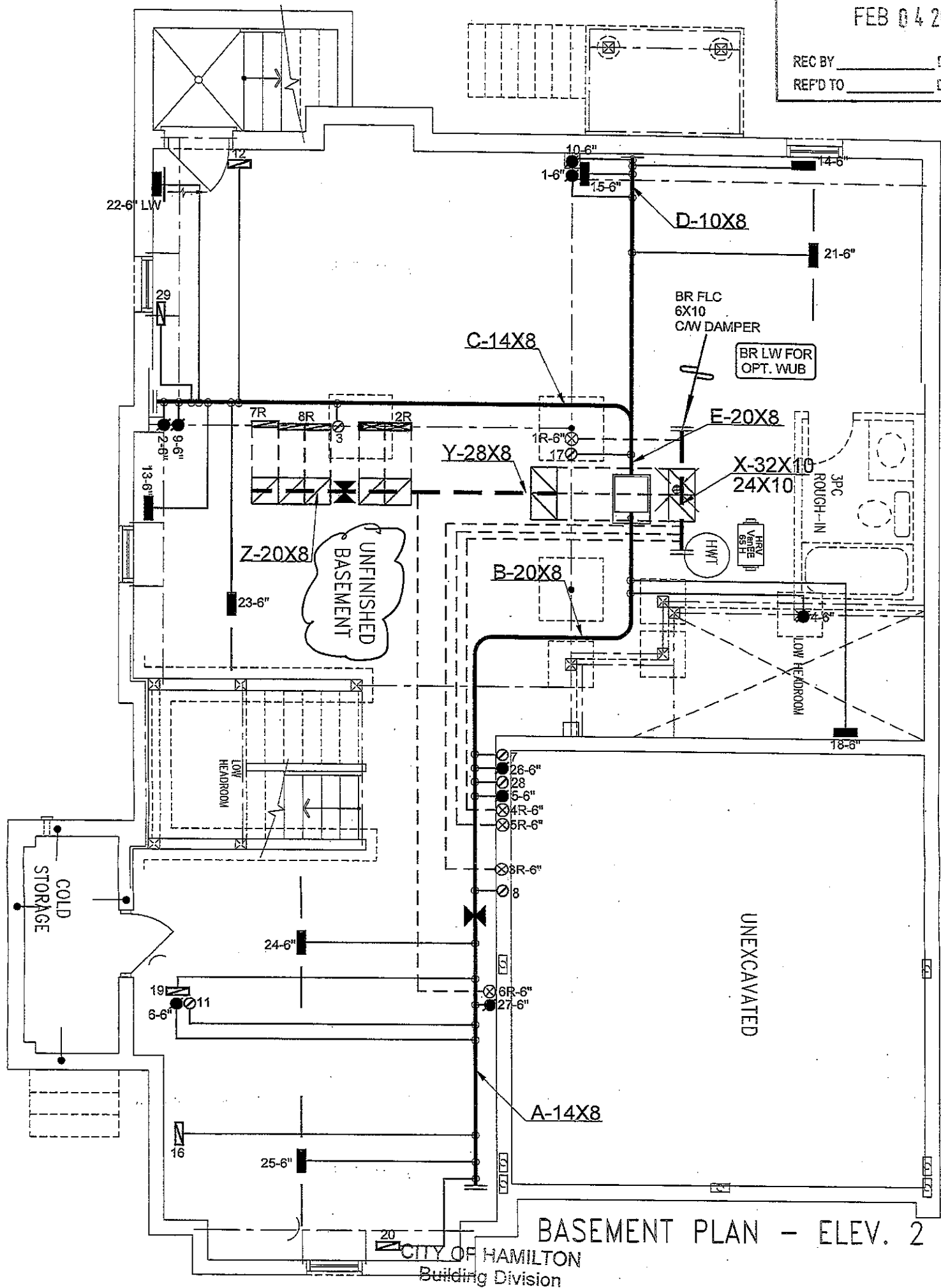
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description			
Province:	Ontario		
Region:	Hamilton		
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):	7.01		
Building Configuration			
Type:	Detached		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m ³):	1192.3		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1589.4 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):	0.319		
Cooling Air Leakage Rate (ACH/H):	0.114		

TYPE: MOUNTAINASH 12
LO# 87978

LOT 256



BASEMENT PLAN - ELEV. 2

Permit No. 21-105990

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW
These drawings and/or specifications have been reviewed by
[Signature] FEB 26 2021
FOR CHIEF BUILDING OFFICIAL

I, MICHAEL O'DRISCOLL, HAVE REVIEWED
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C, 3.2.5 OF THE
BUILDING CODE.
[Signature]
MICHAEL O'DRISCOLL, BCIN# 19669
HVAC DESIGNS LTD.

LOT 256
WUB
CSA-F280-12
PACKAGE A1

HVAC LEGEND						REVISIONS	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	No.	Date
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE	3.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE	2.	
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA - FLOOR RETURN AIR GRILLE	1.	
					REDUCER	No.	Description

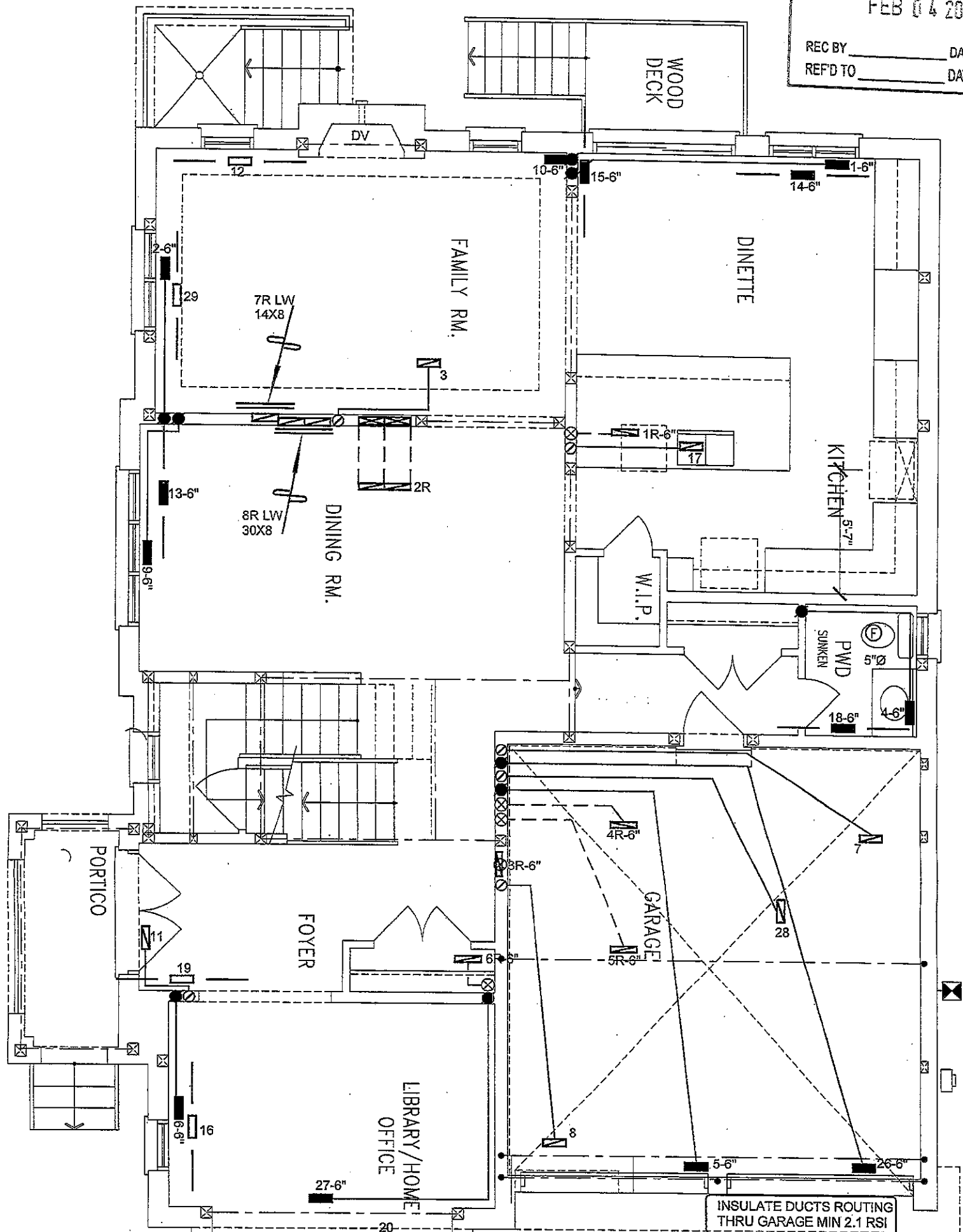
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Client GREENPARK HOMES Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO LOT 256 MOUNTAINASH 12 3134 sqft	HVAC DESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services 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 55325 BTU/H UNIT DATA MAKE GOODMAN MODEL GMEC960804CNA INPUT 80 MBTU/H OUTPUT 76.8 MBTU/H COOLING 3.5 TONS FAN SPEED 1504 cfm @ 0.5" w.c.	# OF RUNS S/A R/A FANS 3RD FLOOR 2ND FLOOR 15 6 4 1ST FLOOR 9 2 2 BASEMENT 5 1 0 ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5" UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A	Sheet Title BASEMENT HEATING LAYOUT Date OCT/2020 Scale 3/16" = 1'-0" BCIN# 19669 LO# 87978

CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department

FEB 04 2021

REC BY _____ DATE _____
REFD TO _____ DATE _____



GROUND FLOOR PLAN – ELEV. 2

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.

Permit No. 21-105990

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE

THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAWS

These drawings and/or specifications have been reviewed by

[Signature] FEB 26 2021

FOR CHIEF BUILDING OFFICIAL

LOT 256
WUB
CSA-F280-12
PACKAGE A1

HVAC LEGEND							3.	
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	2.
	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

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Client

GREENPARK HOMES

Project Name

RUSSEL GARDENS PHASE 3
HAMILTON, ONTARIO

LOT 256
MOUNTAINASH 12 3134 sqft

375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
Email: info@hvacdsgns.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

Date

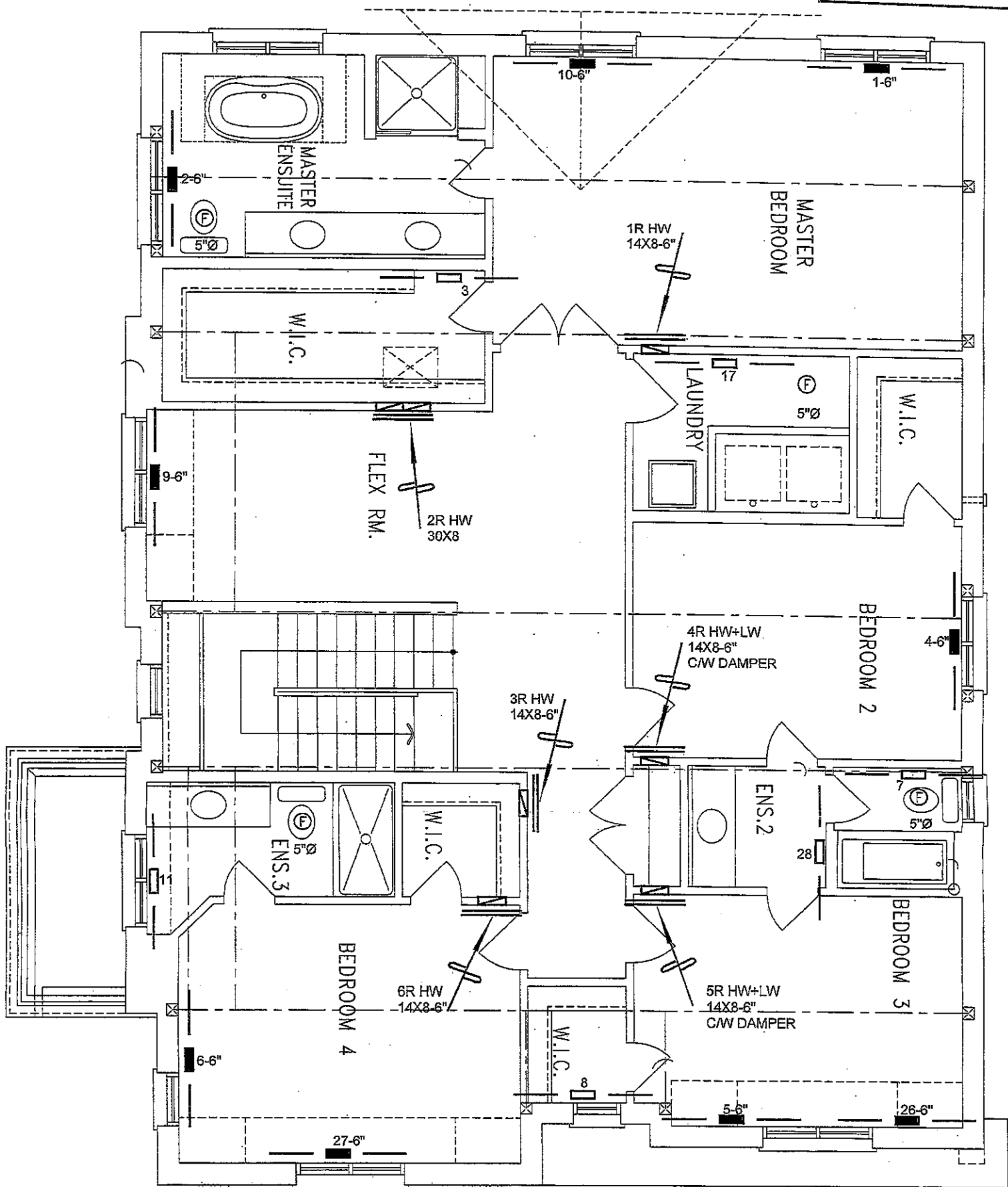
OCT/2020

Scale

3/16" = 1'-0"

BCIN# 19669

LO# 87978



SECOND FLOOR PLAN - ELEV. 2

CITY OF HAMILTON
Building Division

Permit No. 21-105990

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THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW

These drawings and/or specifications have been reviewed by

FEB 26 2021

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.

LOT 256
WUB
CSA-F280-12
PACKAGE A1

FOR CLIENT BUILDING OFFICIAL				HVAC LEGEND				3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description
	SUPPLY AIR BOOT ABOVE		8" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	Date	
								REVISIONS	

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Client

GREENPARK HOMES

Project Name

RUSSEL GARDENS PHASE 3
HAMILTON, ONTARIO

LOT 256
MOUNTAINASH 12 3134 sqft

375 Finley Ave. Suite 202 - Ajax, Ontario
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Ductwork which passes through the garage or unheated spaces shall be
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Sheet Title

SECOND FLOOR
HEATING
LAYOUT

Date

OCT/2020

Scale

3/16" = 1'-0"

BCIN# 19669

LO#

87978