HVAC DESIGNS ltd.

375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

SITE NAME: RESSEL GARDENS PHASE 3 | LOT 248 | DATE: Oct-20 | WINTER NATURAL AIR CHANGE RATE 0.347 | HEAT LOSS AT °F. 71 | CSA-F280-12
BUILDER: GREENPARK HOMES | TYPE: VALLEYCREEK 6 | GFA: 2836 | LO# 87977 | SUMMER NATURAL AIR CHANGE RATE 0.124 | HEAT GAIN AT °F. 13 | SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC-3			BED-2			BED-3			BED-4			ENS-2					ENS-3				
EXP. WALL			31			32			12			10			33			28			8					22				
CLG. HT.			9			9			9			9			9			9			9					9				
	FACTORS																													
GRS.WALL AREA	LOSS	GAIN	279			288			108			99			297			252			72					198				
GLAZING				LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN				LOSS	GAIN		
NORTH	19.8	16.0	0	0	0	7	138	112	0	0	0	16	316	256	0	0	0	0	0	0	7	138	112			0	0	0		
EAST	19.8	41.6	0	0	0	0	0	0	12	237	499	0	0	0	42	830	1745	0	0	0	0	0	0			18	356	748		
SOUTH	19.8	24.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	316	398	0	0	0			0	0	0		
WEST	19.8	41.6	32	633	1330	19	376	789	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0		
SKYLT.	34.6	101.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0		
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			0	0	0		
NET EXPOSED WALL	4.1	0.8	247	1024	186	262	1086	197	96	398	72	74	307	56	255	1057	192	236	978	177	65	269	49			180	746	135		
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	0	0		
EXPOSED CLG	1.2	0.6	254	303	149	255	304	150	54	64	32	200	238	118	242	289	142	207	247	122	160	191	94			120	143	71		
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0	0	0	0	0	0	30	77	38	0	0	0	0	0	0			0	0	0		
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0	0	0	0	200	474	86	230	545	99	0	0	0	0	0	0			0	0	0		
BASEMENT/CRAWL HEAT LOSS				0			0			0			0			0			0			0					0			
SLAB ON GRADE HEAT LOSS				0			0			0			0			0			0			0					0			
SUBTOTAL HT LOSS				1959			1904			700			1335			2797			1541			599					1245			
SUB TOTAL HT GAIN					1665			1248			603			515			2216			697			255					954		
LEVEL FACTOR / MULTIPLIER			0.20	0.27		0.20	0.27		0.20	0.27		0.20	0.27		0.20	0.27		0.20	0.27		0.20	0.27				0.20	0.27			
AIR CHANGE HEAT LOSS				528			513			189			360			754			416			161					336			
AIR CHANGE HEAT GAIN					134			100			48			41			176			56			20					77		
DUCT LOSS				0			0			0			170			355			0			0					0			
DUCT GAIN					0			0			0			158			342			0			0					0		
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0			0		0		
HEAT GAIN APPLIANCES/LIGHTS					788			0			0			788			788			788			0					0		
TOTAL HT LOSS BTU/H				2488			2417			888			1865			3907			1957			760					1581			
TOTAL HT GAIN x 1.3 BTU/H					3986			1753			846			2265			4892			2315			358					1339		

ROOM USE			D/L/H			FAM			K/B				LAUND			W/R			FOY			MUD					WOD			BAS		
EXP. WALL			53			37			35				9			6			18			28					62			176		
CLG. HT.			11			11			11				9			11			11			12					9			9		
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	583			407			385				81			66			198			336					558			1242		
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	0	0	0	0	0	0	0	7	138	112			0	0	0	3	59	48
EAST	19.8	41.6	24	474	997	0	0	0	0	0	0		0	0	0	0	0	0	6	119	249	0	0	0			0	0	0	0	0	0
SOUTH	19.8	24.9	20	395	498	0	0	0	0	0	0		7	138	174	7	138	174	0	0	0	0	0	0			0	0	0	6	119	149
WEST	19.8	41.6	0	0	0	24	474	997	70	1384	2909		0	0	0	0	0	0	0	0	0	0	0	0			13	257	540	0	0	0
SKYLT.	34.6	101.5	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
DOORS	23.5	4.3	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	40	938	170	20	469	85			0	0	0	20	469	85
NET EXPOSED WALL	4.1	0.8	539	2234	405	383	1588	288	315	1306	237		74	307	56	59	245	44	152	630	114	309	1281	232			0	0	0	0	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			359	1200	218	342	1143	207
EXPOSED CLG	1.2	0.6	0	0	0	0	0	0	0	0	0		99	118	58	0	0	0	0	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		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			0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS				0			0			0				0			0			0			0							5810		
SLAB ON GRADE HEAT LOSS				0			0			0				0			0			0			0					0				
SUBTOTAL HT LOSS				3104			2062			2690				563			383			1687			1888					1457			7601	
SUB TOTAL HT GAIN					1900			1285			3145				288			219			534			429						758			490
LEVEL FACTOR / MULTIPLIER			0.30	0.43		0.30	0.43		0.30	0.43			0.20	0.27		0.30	0.43		0.30	0.43		0.30	0.43							0.50	0.94	
AIR CHANGE HEAT LOSS				1343			892			1164				152			166			730			817								8521	
AIR CHANGE HEAT GAIN					153			103			253				23			18			43			34									100
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	0		0	0		0			0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS					788			788			788				788			0			0			0						0			788
TOTAL HT LOSS BTU/H				4448			2955			3854				715			549			2417			2706					1457			16122	
TOTAL HT GAIN x 1.3 BTU/H					3693			2829			5441				1429			307			749			603						985			1791

TOTAL HEAT GAIN BTU/H: 35856 | TONS: 2.99 | LOSS DUE TO VENTILATION LOAD BTU/H: 1515 | STRUCTURAL HEAT LOSS: 51084 | TOTAL COMBINED HEAT LOSS BTU/H: 52599

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Michael O'Rourke

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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SITE NAME: RESSEL GARDENS PHASE 3 LOT 248
BUILDER: GREENPARK HOMES TYPE: VALLEYCREEK 6 DATE: Oct-20 GFA: 2836 LO# 87977

HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 51,084 TOTAL HEAT GAIN 35,581
AIR FLOW RATE CFM 22.14 AIR FLOW RATE CFM 31.79

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

plenum pressure s/a 0.18
max s/a dif press. loss 0.02
min adjusted pressure s/a 0.16

r/a pressure 0.17
r/a grille press. Loss 0.02
adjusted pressure r/a 0.15

#GOODMAN
GMEC960603BNA 60
FAN SPEED
LOW
MEDLOW
MEDIUM 928
MEDIUM HIGH 1017
HIGH 1131

AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600
DESIGN CFM = 1131
CFM @ .6 " E.S.P.
TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	8	4
R/A	0	0	5	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	9	10	11	12
ROOM NAME	MBR	ENS	WIC-3	BED-2	BED-3	BED-4	ENS-2	ENS	BED-3	MBR	ENS-3	D/L/H
RM LOSS MBH.	1.24	1.21	0.89	1.86	1.95	1.96	0.76	1.21	1.95	1.24	1.58	2.22
CFM PER RUN HEAT	28	27	20	41	43	43	17	27	43	28	35	49
RM GAIN MBH.	1.99	0.88	0.85	2.26	2.45	2.32	0.36	0.88	2.45	1.99	1.34	1.85
CFM PER RUN COOLING	63	28	27	72	78	74	11	28	78	63	43	59
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
ACTUAL DUCT LGH.	53	35	57	51	61	59	43	43	38	37	68	39
EQUIVALENT LENGTH	190	190	180	150	140	190	140	120	130	170	160	160
TOTAL EFFECTIVE LENGTH	243	225	237	201	201	249	183	163	168	207	228	199
ADJUSTED PRESSURE	0.07	0.08	0.07	0.09	0.09	0.07	0.09	0.11	0.1	0.08	0.08	0.09
ROUND DUCT SIZE	6	4	4	6	6	6	4	4	5	6	5	5
HEATING VELOCITY (ft/min)	143	310	229	209	219	219	195	310	316	143	257	360
COOLING VELOCITY (ft/min)	321	321	310	367	398	377	126	321	573	321	316	433
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10
TRUNK	B	C	A	B	B	A	C	C	B	C	A	A

RUN #	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	FAM	K/B	K/B	D/L/H	LAUND	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	2.95	1.93	1.93	2.22	0.71	0.55	2.42	2.71	4.39	4.39	4.39	4.39
CFM PER RUN HEAT	65	43	43	49	16	12	54	60	97	97	97	97
RM GAIN MBH.	2.83	2.72	2.72	1.85	1.43	0.31	0.75	0.60	0.69	0.69	0.69	0.69
CFM PER RUN COOLING	90	86	86	59	45	10	24	19	22	22	22	22
ADJUSTED PRESSURE	0.16	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.	38	24	13	52	21	27	39	36	33	12	33	47
EQUIVALENT LENGTH	120	160	100	120	110	140	100	120	130	90	140	130
TOTAL EFFECTIVE LENGTH	158	184	113	172	131	167	139	156	163	102	173	177
ADJUSTED PRESSURE	0.1	0.09	0.14	0.1	0.13	0.1	0.12	0.11	0.1	0.16	0.09	0.09
ROUND DUCT SIZE	6	6	6	5	4	4	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	331	219	219	360	184	138	396	441	495	495	495	495
COOLING VELOCITY (ft/min)	459	438	438	433	516	115	176	140	112	112	112	112
OUTLET GRILL SIZE	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	C	C	D	A	D	B	A	C	C	D	B	A

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

SUPPLY 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 A	347	0.07	9.8	12	x	8	521	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	611	0.07	12.1	18	x	8	611	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	364	0.08	9.6	10	x	8	655	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	1131	0.07	15.2	26	x	8	783	TRUNK J	0	0.00	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
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0

RETURN AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK O	0	0.05	0	0	x	8	0
TRUNK P	0	0.05	0	0	x	8	0
TRUNK Q	0	0.05	0	0	x	8	0
TRUNK R	0	0.05	0	0	x	8	0
TRUNK S	0	0.05	0	0	x	8	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	345	0.05	10.6	14	x	8	444
TRUNK X	1131	0.05	16.5	32	x	8	636
TRUNK Y	950	0.05	15.5	28	x	8	611
TRUNK Z	495	0.05	12.1	18	x	8	495
DROP	1131	0.05	16.5	24	x	10	679

RETURN AIR #	1	2	3	4	5	6	7									BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	155	75	135	75	75	300	135	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
ACTUAL DUCT LGH.	42	52	53	90	57	37	48	1	1	1	1	1	1	1	1	15
EQUIVALENT LENGTH	195	225	245	235	225	235	250	0	0	0	0	0	0	0	0	145
TOTAL EFFECTIVE LH	237	277	298	325	282	272	298	1	1	1	1	1	1	1	1	160
ADJUSTED PRESSURE	0.06	0.05	0.05	0.05	0.05	0.05	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.09
ROUND DUCT SIZE	7.5	6	7.5	6	6	10.1	7.5	0	0	0	0	0	0	0	0	7.2
INLET GRILL SIZE	8	8	8	8	8	8	8	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
INLET GRILL SIZE	14	14	14	14	14	30	14	0	0	0	0	0	0	0	0	14

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Michael O'Rourke INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

HVAC DESIGNS LTD.

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TYPE: VALLEYCREEK 6 LO # 87977
SITE NAME: RESSEL GARDENS PHASE 3 LOT 248

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	Sones
ENS	FV-05-11VK1	50	✓	0.3
ENS-2	FV-05-11VK1	50	✓	0.3
ENS-3	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 @ 32 deg F (0 deg C) [✓] HVI Approved

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: October-20

I REVIEW AND TAKE RESPONIBILITY 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

HVAC DESIGNS LTD.

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CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventilation Calculation)

LO#: 87977 Model: VALLEYCREEK 6 Builder: GREENPARK HOMES Date: 28/10/2020

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1215	9	10935
First	1215	11	13365
Second	1621	9	14589
Third	0	9	0
Fourth	0	9	0
		Total:	38,889.0 ft³
		Total:	1101.2 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.347
SUMMER NATURAL AIR CHANGE RATE	0.124

Design Temperature Difference

	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-17	39	71
Summer DTDc	24	31	7	13

5.2.3.1 Heat Loss due to Air Leakage

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

0.347 x 305.89 x 39 °C x 1.2 = 4995 W

= 17043 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.124 x 305.89 x 7 °C x 1.2 = 324 W

= 1106 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)

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

Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL_{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5	17,043	9,058	0.941
2	0.3		11,815	0.433
3	0.2		12,644	0.270
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 HLairve = 0

HVAC DESIGNS LTD.
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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL:	VALLEYCREEK 6		LOT 248	**BUILDER:**	GREENPARK HOMES
SFQT:	2836	**LO#**	87977	**SITE:**	RESSEL 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:	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 (ft^3):	38889.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	1.75	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 50.0 ft	WIDTH: 38.0 ft	EXPOSED PERIMETER:	176.0 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

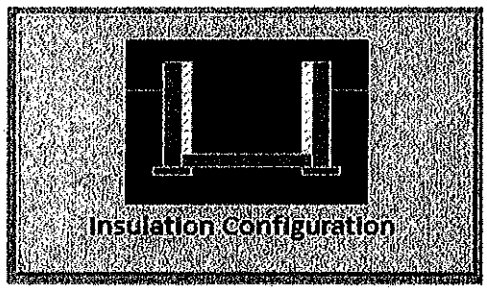
Michael O'Rourke.

HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

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):	15.2	 Insulation Configuration
Floor Width (m):	11.6	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m^2):	2.0	
Door Area (m^2):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):	**1702**	

TYPE: VALLEYCREEK 6 LOT 248
LO# 87977

HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

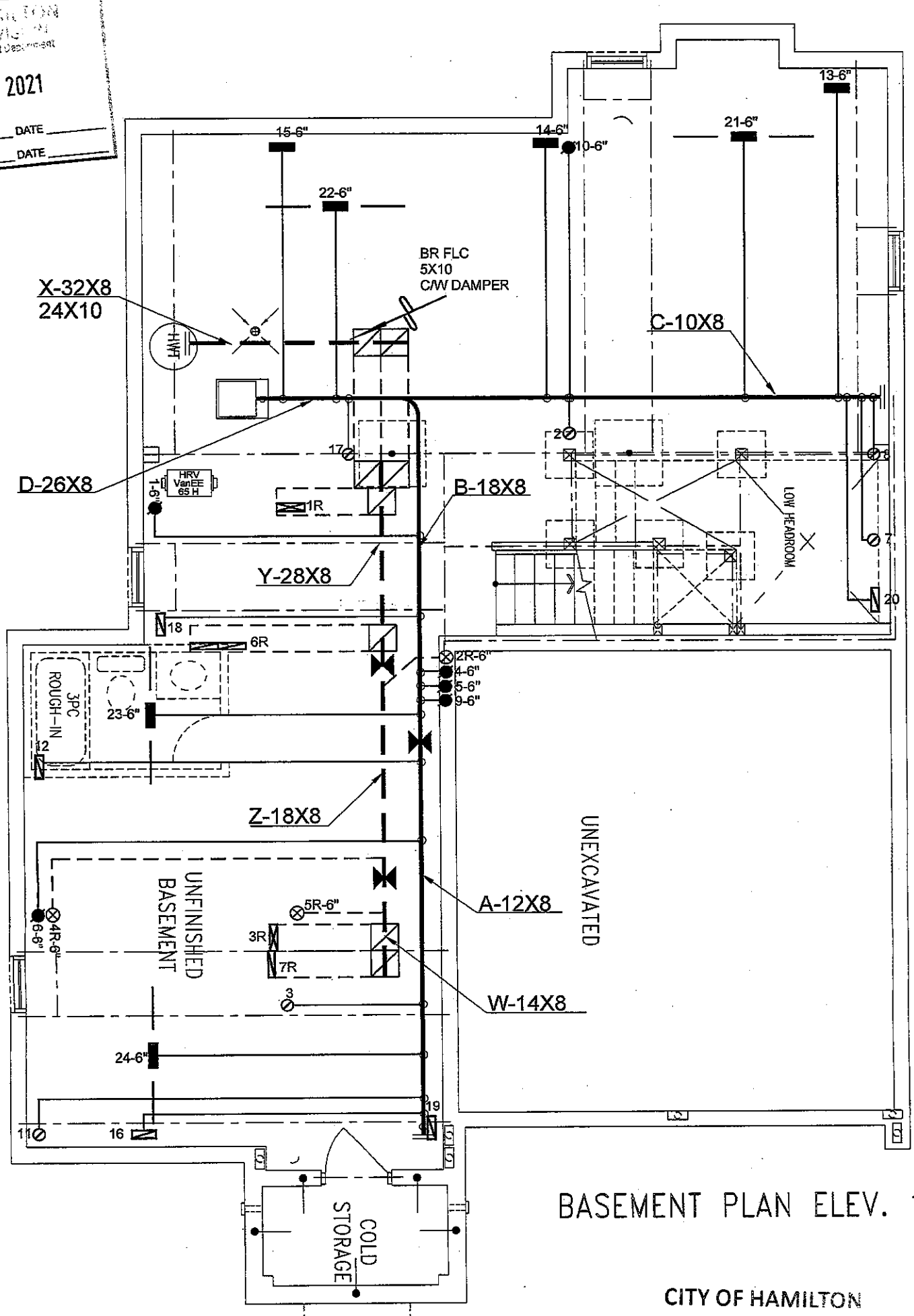
Weather Station Description					
Province:	Ontario				
Region:	Hamilton				
Weather Station Location:	Open flat terrain, grass				
Anemometer height (m):	10				
Local Shielding					
Building Site:	Suburban, forest				
Walls:	Heavy				
Flue:	Heavy				
Highest Ceiling Height (m):	7.92				
Building Configuration					
Type:	Detached				
Number of Stories:	Two				
Foundation:	Full				
House Volume (m^3):	1101.2				
Air Leakage/Ventilation					
Air Tightness Type:	Present (1961-) (3.57 ACH)				
Custom BDT Data:	ELA @ 10 Pa.				1468.0 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):	**0.347**				
Cooling Air Leakage Rate (ACH/H):	**0.124**				

TYPE: VALLEYCREEK 6 LOT 248
LO# 87977

CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department

FEB 04 2021

REC'D BY _____ DATE _____
REF'D TO _____ DATE _____



BASEMENT PLAN ELEV. 1

CITY OF HAMILTON
Building Division

Permit No. 21-105908

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

FOR CHIEF BUILDING OFFICIAL — DATE 2/19/21

LOT 248
CSA-F280-12
PACKAGE A1

I MICHAEL O'ROURKE HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

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

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client
GREENPARK HOMES

Project Name
RUSSEL GARDENS PHASE 3
HAMILTON, ONTARIO

LOT 248
VALLEYCREEK 6 2836 sqft

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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.

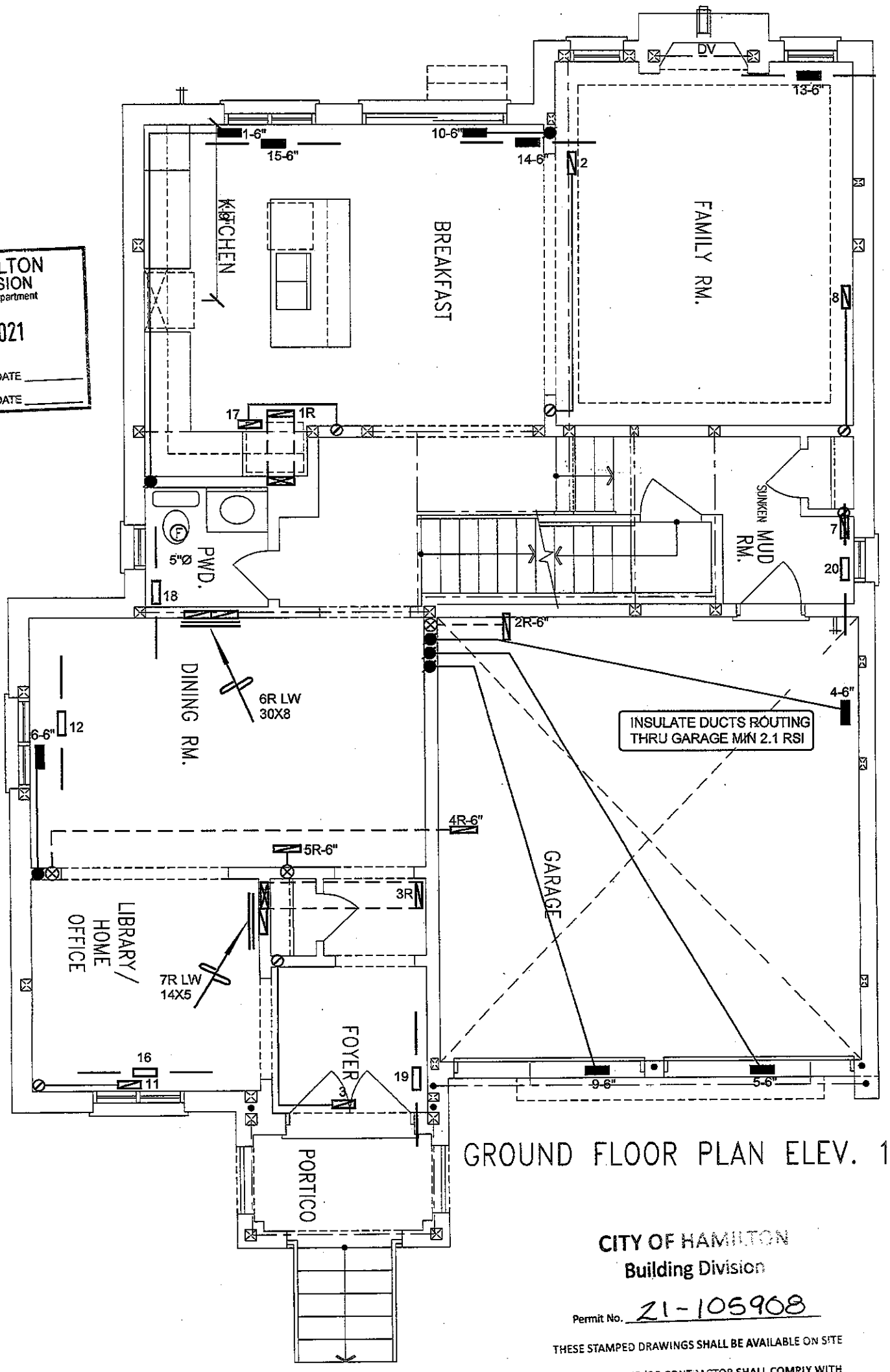
HEAT LOSS 52599 BTU/H	
UNIT DATA	
MAKE	GOODMAN
MODEL	GMEC960603BNA
INPUT	60 MBTU/H
OUTPUT	57.6 MBTU/H
COOLING	3.0 TONS
FAN SPEED	1131 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	12	5	4
1ST FLOOR	8	2	2
BASEMENT	4	1	0

ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

Sheet Title
BASEMENT HEATING LAYOUT

Date OCT/2020
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 87977



GROUND FLOOR PLAN ELEV. 1

CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department
FEB 04 2021
REC'D BY _____ DATE _____
REF'D TO _____ DATE _____

CITY OF HAMILTON
Building Division
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FOR CHIEF BUILDING OFFICIAL 2/19/21 DATE

LOT 248
CSA-F280-12
PACKAGE A1

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HVAC LEGEND

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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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2.		
1.		
REVISIONS		

Client
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Project Name
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HAMILTON, ONTARIO

LOT 248
VALLEYCREEK 6 2836 sqft

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Sheet Title
FIRST FLOOR HEATING LAYOUT

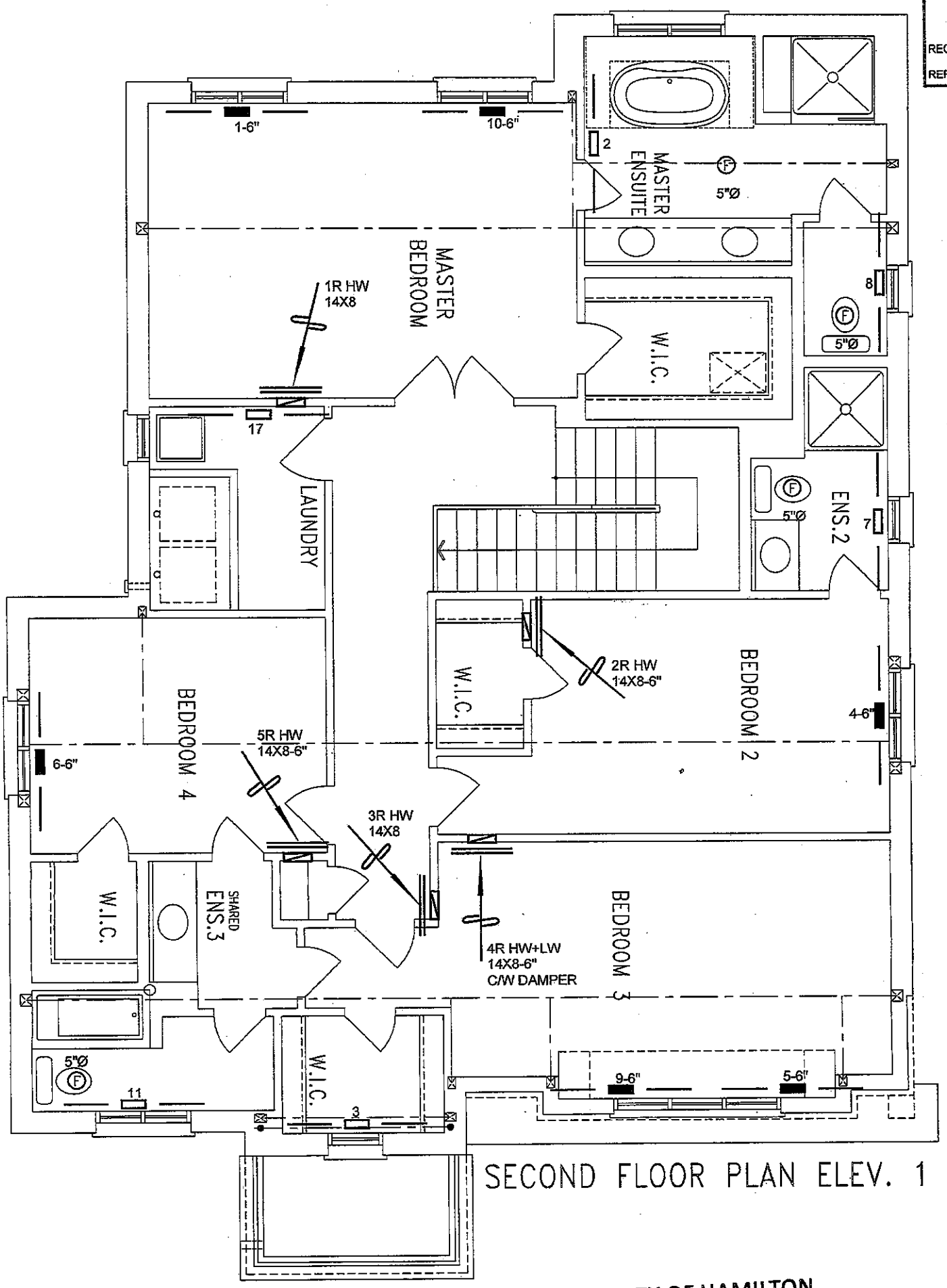
Date OCT/2020
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 87977

CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department

FEB 04 2021

REC'D BY _____ DATE _____

REF'D TO _____ DATE _____



SECOND FLOOR PLAN ELEV. 1

CITY OF HAMILTON
Building Division

Permit No. 21-105908

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	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x6" 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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Sheet Title
SECOND FLOOR HEATING LAYOUT

Date OCT/2020

Scale 3/16" = 1'-0"

BCIN# 19669

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