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: RUSSEL GARDENS PHASE 3 | LOT 96 | DATE: Dec-20 | WINTER NATURAL AIR CHANGE RATE 0.310 | HEAT LOSS ΔT °F. 71 | CSA-F280-12
BUILDER: GREENPARK HOMES | TYPE: VALLEYCREEK 5 | GFA: 2933 | LO# 88616 | SUMMER NATURAL AIR CHANGE RATE 0.111 | HEAT GAIN ΔT °F. 13 | SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			S- ENS			WIC-4				ENS-4				
EXP. WALL			35			26			17			12			29			35			6			7				6				
CLG. HT.			9			9			9			9			9			9			9			9				9				
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	315			252			153			108			261			324			54			63				54				
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	15	297	240	0	0	0	15	297	240	0	0	0	0	0	0	7	138	112	0	0	0		0	0	0		
EAST	19.8	41.6	0	0	0	0	0	0	0	0	0	0	0	0	39	771	1621	45	890	1870	0	0	0	13	257	540		0	0	0		
SOUTH	19.8	24.9	0	0	0	0	0	0	19	376	473	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		7	138	174		
WEST	19.8	41.6	35	692	1454	15	297	623	0	0	0	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		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		0	0	0		
NET EXPOSED WALL	4.1	0.8	280	1161	210	222	920	167	134	556	101	93	386	70	222	920	167	279	1157	210	47	195	35	50	207	38		47	195	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	0	0	0		0	0	0		
EXPOSED CLG	1.2	0.6	309	368	182	197	235	116	229	273	135	213	254	125	274	327	161	212	253	125	124	148	73	39	46	23		57	68	33		
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	274	649	118	0	0	0	87	206	37	39	92	17		0	0	0		
BASEMENT/CRAWL HEAT LOSS			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			2221			1748			1204			936			2667			2299			687			603				401				
SUB TOTAL HT GAIN					1846			1146			708			435			2066			2204			257			617			243		
LEVEL FACTOR / MULTIPLIER			0.20	0.24		0.20	0.24		0.20	0.24		0.20	0.24		0.20	0.24		0.20	0.24		0.20	0.24		0.20	0.24			0.20	0.24			
AIR CHANGE HEAT LOSS			533			419			289			225			640			552			165			145				96				
AIR CHANGE HEAT GAIN					135			84			52			32			151			151			19			45			18		
DUCT LOSS			0			0			0			0			331			0			85			75				0				
DUCT GAIN					0			0			0			0			309			0			28			66			0		
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0	0		0		0		0		
HEAT GAIN APPLIANCES/LIGHTS					631			0			0			631			631			631			0			0			0		
TOTAL HT LOSS BTU/H			2754			2168			1493			1161			3638			2850			937			823				497				
TOTAL HT GAIN x 1.3 BTU/H					4020			1598			988			1739			4417			4208			395			947			339		

ROOM USE			FAM			DIN			KT/BF			LIB			LAUN			W/R			FOY						WUB			BAS		
EXP. WALL			34			12			36			19			26			3			30						24			156		
CLG. HT.			10			10			10			10			11			11			11						9			9		
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	340			120			360			190			286			33			330						216			936		
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	7	138	112	0	0	0	0	0	0				0	0	0	0	0	0
EAST	19.8	41.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	119	249				0	0	0	0	0	0
SOUTH	19.8	24.9	0	0	0	17	336	423	0	0	0	12	237	299	0	0	0	7	138	174	0	0	0				0	0	0	6	119	149
WEST	19.8	41.6	30	593	1247	0	0	0	65	1285	2701	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	20	469	85	0	0	0	40	938	170				20	469	85	20	469	85
NET EXPOSED WALL	4.1	0.8	310	1285	233	103	427	77	295	1223	222	178	738	134	259	1074	195	26	108	20	284	1177	213				183	759	138	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				0	0	0	468	1564	284
EXPOSED CLG	1.2	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
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									5080		
SLAB ON GRADE HEAT LOSS			0			0			0			0			0			0			0						193					
SUBTOTAL HT LOSS			1878			783			2508			975			1681			246			2234						1678			7232		
SUB TOTAL HT GAIN					1480			501			2923			433			392			194			633					763			518
LEVEL FACTOR / MULTIPLIER			0.30	0.45		0.30	0.45		0.30	0.45		0.30	0.45		0.30	0.45		0.30	0.45		0.30	0.45								0.50	0.86		
AIR CHANGE HEAT LOSS			839			341			1120			436			751			110			998									7658		
AIR CHANGE HEAT GAIN					106			37			214			32			29			14			46									94
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					631			631			631			631			631			0			0						0			631
TOTAL HT LOSS BTU/H			2717			1104			3628			1411			2432			356			3232						1678			14889		
TOTAL HT GAIN x 1.3 BTU/H					2885			1519			4898			1424			1367			270			883					992			1616

TOTAL HEAT GAIN BTU/H: 34780 TONS: 2.90 LOSS DUE TO VENTILATION LOAD BTU/H: 1515 STRUCTURAL HEAT LOSS: 47768 TOTAL COMBINED HEAT LOSS BTU/H: 49284

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

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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SITE NAME: RUSSEL GARDENS PHASE 3 — LOT 96
BUILDER: GREENPARK HOMES — TYPE: VALLEYCREEK 5 — DATE: Dec-20 — GFA: 2933 — LO# 88616

HEATING CFM	1131	COOLING CFM	1131	furnace pressure	0.6				#GOODMAN		AFUE =	96 %	
TOTAL HEAT LOSS	47,768	TOTAL HEAT GAIN	34,505	furnace filter	0.05				GMEC960603BNA	60	INPUT (BTU/H) =	60,000	
AIR FLOW RATE CFM	23.68	AIR FLOW RATE CFM	32.78	a/c coil pressure	0.2				FAN SPEED		OUTPUT (BTU/H) =	57,600	
				avallable pressure for s/a & r/a	0.35				LOW				
									MEDLOW		DESIGN CFM =	1131	
				plenum pressure s/a	0.18	r/a pressure	0.17		MEDIUM	928	CFM @ .5" E.S.P.		
				max s/a dif press. loss	0.02	r/a grille press. Loss	0.02		MEDIUM HIGH	1017			
				min adjusted pressure s/a	0.16	adjusted pressure r/a	0.15		HIGH	1131	TEMPERATURE RISE	47	°F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	14	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	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-4	BED-3	MBR	ENS-4	FAM	DIN	KT/BF	KT/BF	LIB	LAUN	W/R	FOY	BED-4	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.38	1.08	1.49	1.16	1.82	1.43	0.47	0.82	1.82	1.38	0.50	2.72	1.10	1.81	1.81	1.41	2.43	0.36	3.23	1.43	4.14	4.14	4.14	4.14
CFM PER RUN HEAT	33	26	35	27	43	34	11	19	43	33	12	64	26	43	43	33	58	8	77	34	98	98	98	98
RM GAIN MBH.	2.01	0.80	0.99	1.74	2.21	2.10	0.20	0.95	2.21	2.01	0.34	2.88	1.52	2.45	2.45	1.42	1.37	0.27	0.88	2.10	0.65	0.65	0.65	0.65
CFM PER RUN COOLING	66	26	32	57	72	69	6	31	72	66	11	95	50	80	80	47	45	9	29	69	21	21	21	21
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	50	36	31	27	44	58	36	39	49	36	44	27	19	26	32	37	20	37	44	47	39	19	13	34
EQUIVALENT LENGTH	190	150	170	130	130	160	150	120	140	120	200	130	130	120	140	150	130	150	120	130	90	100	160	140
TOTAL EFFECTIVE LENGTH	240	186	201	157	174	218	186	159	189	156	244	157	149	146	172	187	150	187	164	177	129	119	173	174
ADJUSTED PRESSURE	0.07	0.09	0.09	0.11	0.1	0.08	0.09	0.11	0.09	0.11	0.07	0.1	0.12	0.12	0.1	0.09	0.11	0.09	0.1	0.1	0.13	0.14	0.09	0.09
ROUND DUCT SIZE	6	4	4	6	5	6	4	4	5	6	4	6	5	5	5	5	5	4	5	6	6	6	6	6
HEATING VELOCITY (ft/min)	168	298	402	138	316	173	126	218	316	168	138	326	191	316	316	242	426	92	565	173	500	500	500	500
COOLING VELOCITY (ft/min)	337	298	367	291	529	352	69	356	529	337	126	484	367	587	587	345	330	103	213	352	107	107	107	107
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10
TRUNK	A	A	D	B	D	C	D	D	D	A	C	A	B	A	A	C	B	C	C	C	B	B	D	C

RUN #	25	26
ROOM NAME	ENS	S- ENS
RM LOSS MBH.	1.08	0.47
CFM PER RUN HEAT	26	11
RM GAIN MBH.	0.80	0.20
CFM PER RUN COOLING	26	6
ADJUSTED PRESSURE	0.17	0.17
ACTUAL DUCT LGH.	58	32
EQUIVALENT LENGTH	190	180
TOTAL EFFECTIVE LENGTH	248	212
ADJUSTED PRESSURE	0.07	0.08
ROUND DUCT SIZE	4	4
HEATING VELOCITY (ft/min)	298	126
COOLING VELOCITY (ft/min)	298	69
OUTLET GRILL SIZE	3X10	3X10
TRUNK	A	D

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	268	0.07	8.9	14	x	8	345	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	575	0.07	11.8	18	x	8	575	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	296	0.07	9.2	10	x	8	533	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	556	0.07	11.6	16	x	8	626	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	0	0.05	0	0	x	8	0
TRUNK X	1131	0.05	16.5	32	x	8	636
TRUNK Y	355	0.05	10.7	14	x	8	456
TRUNK Z	410	0.05	11.3	14	x	8	527
DROP	1131	0.05	16.5	24	x	10	679

RETURN AIR #	1	2	3	4	5	6										BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	175	180	85	75	180	250	0	0	0	0	0	0	0	0	0	186
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.	38	36	53	57	25	40	1	1	1	1	1	1	1	1	1	16
EQUIVALENT LENGTH	150	135	185	225	145	230	0	0	0	0	0	0	0	0	0	140
TOTAL EFFECTIVE LH	188	171	238	282	170	270	1	1	1	1	1	1	1	1	1	156
ADJUSTED PRESSURE	0.08	0.09	0.06	0.05	0.09	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.09
ROUND DUCT SIZE	7.3	7.2	6	6	7.2	9.4	0	0	0	0	0	0	0	0	0	7.3
INLET GRILL SIZE	8	8	8	8	8	8	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
INLET GRILL SIZE	14	14	14	14	14	30	0	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.

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

HVAC DESIGNS LTD.

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TYPE: VALLEYCREEK 5 LO # 88616
SITE NAME: RUSSEL GARDENS PHASE 3 LOT 98

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	5	@ 10.6 cfm	53.0	cfm
Table 9.32.3.A.		TOTAL	180.2	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	180.2	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	100.7	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
S- ENS	FV-05-11VK1	50	✓	0.3
ENS-4	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: December-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

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CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventilation Calculation)

LO#: 88616 Model: VALLEYCREEK 5 Builder: GREENPARK HOMES Date: 14/12/2020

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1276	9	11484
First	1276	10	12760
Second	1657	9	14913
Third	0	9	0
Fourth	0	9	0
		Total:	39,157.0 ft³
		Total:	1108.8 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.310
SUMMER NATURAL AIR CHANGE RATE	0.111

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

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

0.310 x 308.00 x 39 °C x 1.2 = 4489 W

= 15315 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.111 x 308.00 x 7 °C x 1.2 = 291 W

= 994 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	15,315	8,910	0.859
2	0.3		10,286	0.447
3	0.2		12,767	0.240
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

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL:	VALLEYCREEK 5		LOT 96	**BUILDER:**	GREENPARK HOMES
SFQT:	2933	**LO#**	88616	**SITE:**	RUSSEL GARDENS PHASE 3

CITY OF HAMILTON
Building Division
Permit No. 21-103582
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FOR CHIEF BUILDING OFFICIAL
FEB 2 2 2021
DATE

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):	39157.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 57.0 ft	WIDTH: 33.0 ft	EXPOSED PERIMETER:	156.0 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

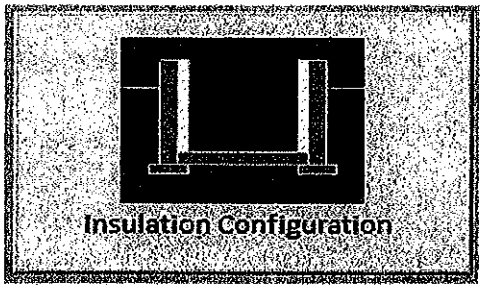
Michael O'Rourke

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):	17.4
Floor Width (m):	10.1
Exposed Perimeter (m):	47.5
Wall Height (m):	2.7
Depth Below Grade (m):	1.83
Window Area (m^2):	1.8
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):	**1488**

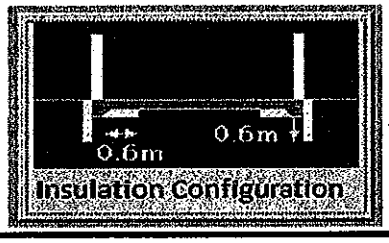


TYPE: VALLEYCREEK 5 LOT 96
LO# 88616

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

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):	3.7	
Exposed Perimeter (m):	7.3	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):	**57**	

TYPE: VALLEYCREEK 5 LOT 96
LO# 88616

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):	6.71
Building Configuration	
Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	1108.8
Air Leakage/Ventilation	
Air Tightness Type:	Present (1961-) (3.57 ACH)
Custom BDT Data:	ELA @ 10 Pa. 1478.1 cm^2
	3.57 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):	**0.310**
Cooling Air Leakage Rate (ACH/H):	**0.111**

TYPE: VALLEYCREEK 5 LOT 96

LO# 88616

CITY OF HAMILTON
Building Division

Permit No. 21-103587

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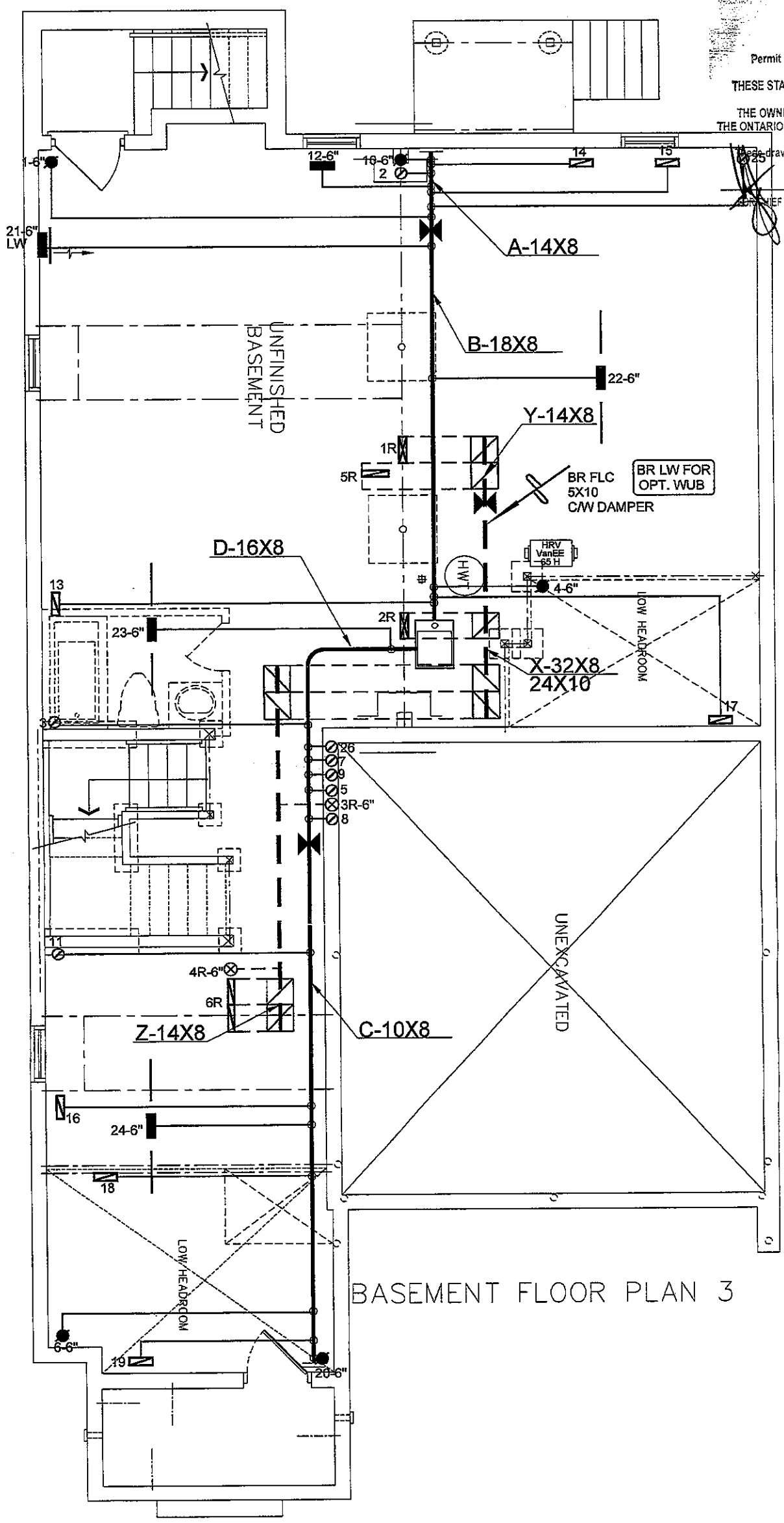
FEB 2 2 2021

CHIEF BUILDING OFFICIAL — DATE



BASEMENT FLOOR PLAN 3

LOT 96
WUB
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 96
VALLEYCREEK 5 2933 sqft

HVAC DESIGNS LTD.
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L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
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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 49284 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	14	4	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 DEC/2020
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 88616

CITY OF HAMILTON
Building Division
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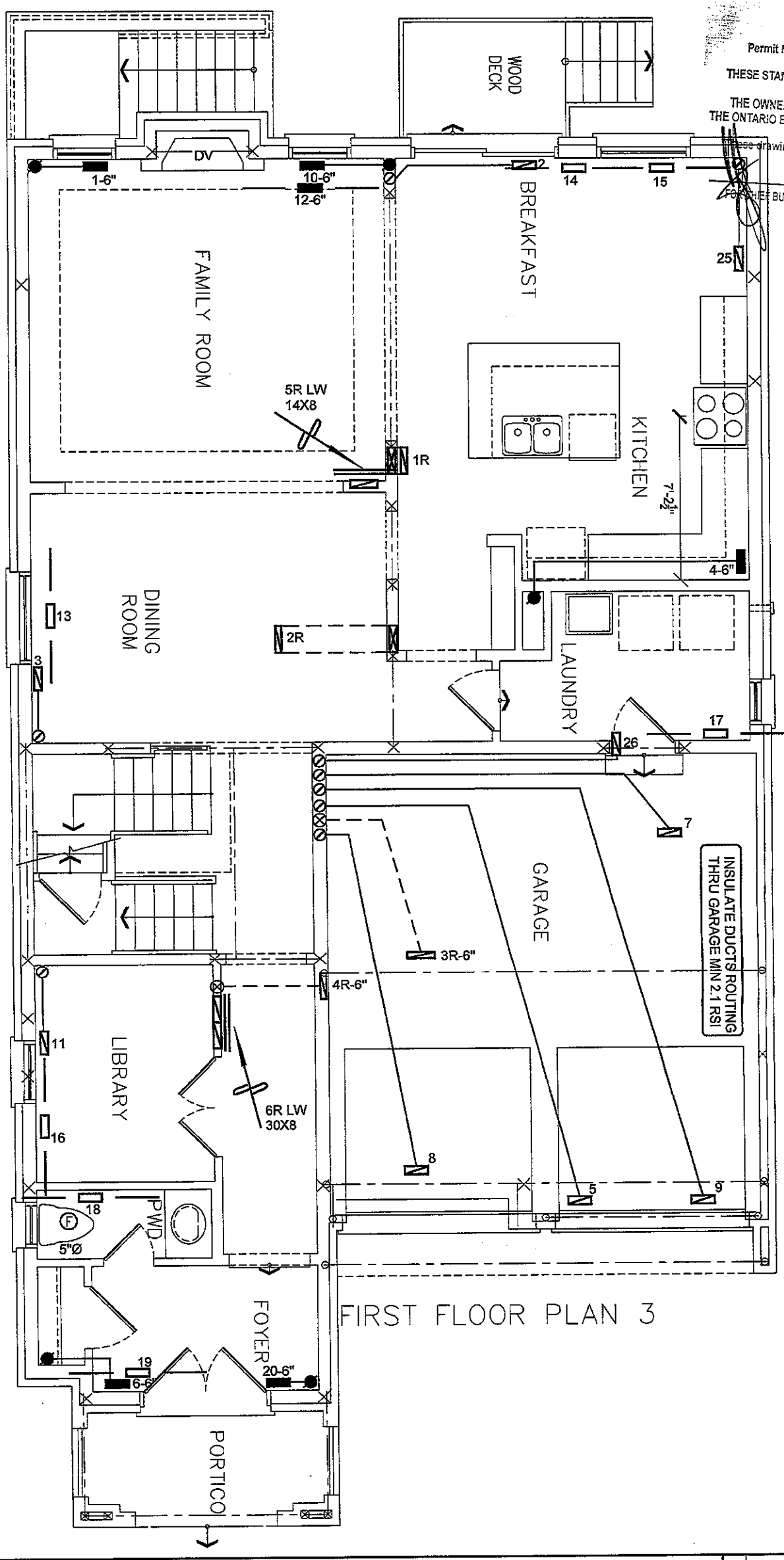

FIRST FLOOR PLAN 3

LOT 96
WUB
CSA-F280-12
PACKAGE A1

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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

No.	Description	Date
3.		
2.		
1.		
REVISIONS		

Client
GREENPARK HOMES

Project Name
RUSSEL GARDENS PHASE 3
HAMILTON, ONTARIO

LOT 96
VALLEYCREEK 5 2933 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.

Sheet Title
FIRST FLOOR HEATING LAYOUT

Date DEC/2020
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 88616

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Building Division
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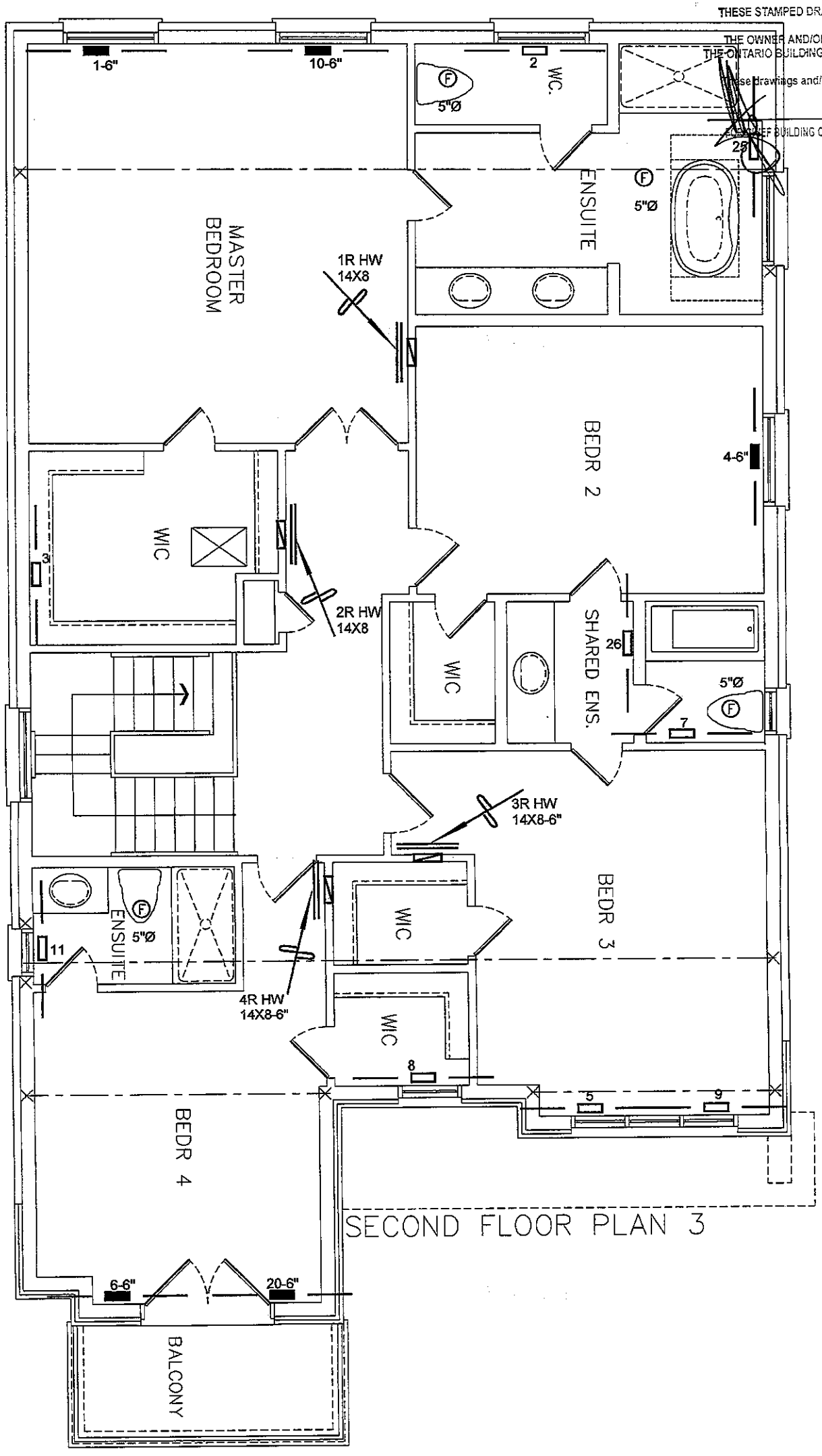

SECOND FLOOR PLAN 3

LOT 96
WUB
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

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