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: RUSSELL GARDENS PH 4 — DATE: Apr-21 — WINTER NATURAL AIR CHANGE RATE 0.338 — HEAT LOSS ΔT °F. 71 — CSA-F280-12
BUILDER: GREENPARK HOMES — TYPE: VALLEYCREEK 10 — GFA: 2608 — LO# 90225 — SUMMER NATURAL AIR CHANGE RATE 0.121 — HEAT GAIN ΔT °F. 13 — SB-12 PACKAGE A1

ROOM USE			MBR			ENS				BED-2			BED-3			BED-4			BATH			ENS-4		
EXP. WALL			35			29				12			13			29			21			7		
CLG. HT.			9			9				9			9			10			9			10		
	FACTORS																							
GRS.WALL AREA	LOSS	GAIN	315			261				108			117			276			189			67		
GLAZING			LOSS	GAIN		LOSS	GAIN			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN	
NORTH	19.8	16.0	0	0	0	9	178	144		16	316	256	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	39	771	1621	30	593	1247	12	237	498	0	0	0
SOUTH	19.8	24.9	30	593	747	0	0	0		0	0	0	0	0	0	30	593	747	0	0	0	26	514	647
WEST	19.8	41.6	24	474	997	16	316	665		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
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	0.8	261	1082	196	236	978	177		92	381	69	78	323	59	216	893	162	177	734	133	41	168	30
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	304	362	179	208	248	122		240	286	141	208	248	122	139	166	82	98	117	58	55	66	32
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	36	92	45
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0		60	142	26	208	493	89	0	0	0	98	232	42	0	0	0
BASEMENT/CRAWL HEAT LOSS				0			0				0			0			0			0			0	
SLAB ON GRADE HEAT LOSS				0			0				0			0			0			0			0	
SUBTOTAL HT LOSS				2512			1721				1126			1835			2322			1320			839	
SUB TOTAL HT GAIN					2119			1108				492			1891			2275			731			755
LEVEL FACTOR / MULTIPLIER			0.20	0.23		0.20	0.23			0.20	0.23		0.20	0.23		0.20	0.23		0.20	0.23		0.20	0.23	
AIR CHANGE HEAT LOSS				573			392				257			418			529			301			191	
AIR CHANGE HEAT GAIN					126			66				29			113			136			44			45
DUCT LOSS				0			0				138			225			0			162			0	
DUCT GAIN					0			0				144			292			0			77			0
HEAT GAIN PEOPLE	240		2		480	0		0		1		240	1		240	1		240	0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS					677			0				677			677			677			0			0
TOTAL HT LOSS BTU/H				3085			2113				1521			2479			2851			1783			1031	
TOTAL HT GAIN x 1.3 BTU/H					4422			1527				2055			4176			4325			1108			1041

ROOM USE			LIV/DIN				KIT/FM				LAUN			W/R			FOY			MUD			WOD			BAS		
EXP. WALL			56				67				12			13			15			14			43			164		
CLG. HT.			11				11				10			10			10			12			9			9		
	FACTORS																											
GRS.WALL AREA	LOSS	GAIN	616				737				114			130			160			168			387			1113		
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		0	0	0		0	0	0	12	237	192	0	0	0	0	0	0	0	0	0	4	79	64
EAST	19.8	41.6	46	909	1911		0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	79	166
SOUTH	19.8	24.9	61	1206	1519		46	909	1145		39	771	971	0	0	0	0	0	0	0	0	0	0	0	0	8	158	199
WEST	19.8	41.6	0	0	0		76	1384	2909		0	0	0	0	0	0	0	0	0	0	0	0	4	79	166	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		20	469	86		0	0	0	0	0	0	45	1055	191	20	469	86	0	0	0	20	469	86
NET EXPOSED WALL	4.1	0.8	509	2110	383		601	2492	452		75	311	56	118	489	89	105	435	79	148	614	111	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	254	849	154	363	1213	220
EXPOSED CLG	1.2	0.6	0	0	0		0	0	0		126	150	74	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		10	26	13		30	77	38	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
BASEMENT/CRAWL HEAT LOSS				0				0				0			0			0			0					5331	
SLAB ON GRADE HEAT LOSS				0				0				0			0			0			0			0				
SUBTOTAL HT LOSS				4225				5279				1309			726			1491			1083			928			7329	
SUB TOTAL HT GAIN					3813				4603				1139			280			270			196				320			734
LEVEL FACTOR / MULTIPLIER			0.30	0.35			0.30	0.35			0.20	0.23		0.30	0.35		0.30	0.35		0.30	0.35					0.50	0.90		
AIR CHANGE HEAT LOSS				1465				1831				298			252			517			375						7400		
AIR CHANGE HEAT GAIN					227				274				68			17			16			12							63
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	
HEAT GAIN APPLIANCES/LIGHTS					677				677				677			0			0			0			0				0
TOTAL HT LOSS BTU/H				5691				7110				1607			978			2008			1458			928			14730	
TOTAL HT GAIN x 1.3 BTU/H					6132				7221				2449			386			372			270				416			1036

TOTAL HEAT GAIN BTU/H: 37212 — TONS: 3.10 — LOSS DUE TO VENTILATION LOAD BTU/H: 1515 — STRUCTURAL HEAT LOSS: 49372 — TOTAL COMBINED HEAT LOSS BTU/H: 50887

CITY OF HAMILTON
Building Division
Permit No. 21 150626
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
OCT 04 2021
DATE
FOR CHIEF BUILDING OFFICIAL

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: RUSSELL GARDENS PH 4
BUILDER: GREENPARK HOMES

TYPE: VALLEYCREEK 10 DATE: Apr-21 GFA: 2608 LO# 90225

HEATING CFM	1131	COOLING CFM	1131
TOTAL HEAT LOSS	49,372	TOTAL HEAT GAIN	36,937
AIR FLOW RATE CFM	22.91	AIR FLOW RATE CFM	30.62

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	11	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	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	BED-3	BED-2	BED-3	BED-4	BATH	ENS-4	BED-4	MBR	LIV/DIN	LIV/DIN	KIT/FM	KIT/FM	KIT/FM	LAUN	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.54	2.11	1.24	1.52	1.24	1.43	1.78	1.03	1.43	1.54	2.85	2.85	2.37	2.37	2.37	1.61	0.98	2.01	1.46	3.91	3.91	3.91	3.91
CFM PER RUN HEAT	35	48	28	35	28	33	41	24	33	35	65	65	54	54	54	37	22	46	33	90	90	90	90
RM GAIN MBH.	2.21	1.53	2.09	2.06	2.09	2.16	1.11	1.04	2.16	2.21	3.07	3.07	2.41	2.41	2.41	2.45	0.39	0.37	0.27	0.36	0.36	0.36	0.36
CFM PER RUN COOLING	68	47	64	63	64	66	34	32	66	68	94	94	74	74	74	75	12	11	8	11	11	11	11
ADJUSTED PRESSURE	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	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	50	44	69	69	67	73	72	65	71	56	52	33	19	13	20	30	25	17	17	13	11	10	44
EQUIVALENT LENGTH	190	140	170	140	160	170	180	180	160	190	110	170	130	180	130	150	80	120	140	100	120	150	120
TOTAL EFFECTIVE LENGTH	240	184	239	209	227	243	252	245	231	246	162	203	149	193	150	180	105	137	157	113	131	160	164
ADJUSTED PRESSURE	0.07	0.09	0.07	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.1	0.08	0.12	0.09	0.11	0.1	0.16	0.13	0.11	0.14	0.12	0.1	0.1
ROUND DUCT SIZE	6	5	6	6	6	6	5	4	6	6	6	6	5	5	5	5	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	178	352	143	178	143	168	301	275	168	178	331	331	396	396	396	272	252	338	379	459	459	459	459
COOLING VELOCITY (ft/min)	347	345	326	321	326	337	250	367	337	347	479	479	543	543	543	551	138	81	92	56	56	56	56
OUTLET GRILL SIZE	4X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	B	C	A	B	A	A	A	A	A	B	A	A	B	B	C	B	C	B	C	C	C	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	407	0.07	10.4	14	x	8	523	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	793	0.07	13.3	22	x	8	649	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	337	0.09	9.1	10	x	8	607	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	0	0.00	0	0	x	8	0	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	585	0.05	12.9	20	x	8	527
TRUNK Z	305	0.05	10.1	12	x	8	458
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	145	75	115	115	135	310	85	0	0	0	0	0	0	0	0	151
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	72	65	71	44	17	51	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	185	205	245	250	235	135	205	0	0	0	0	0	0	0	0	175
TOTAL EFFECTIVE LH	227	277	310	321	279	152	256	1	1	1	1	1	1	1	1	189
ADJUSTED PRESSURE	0.07	0.05	0.05	0.05	0.05	0.10	0.08	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.08
ROUND DUCT SIZE	7	6	7	7	7.5	8.6	6	0	0	0	0	0	0	0	0	6.9
INLET GRILL SIZE	8	8	8	8	8	6	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.

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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TYPE: VALLEYCREEK 10 LO # 90225
SITE NAME: RUSSELL GARDENS PH 4

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES 9.32.3.1(1)

- a) [✓] Direct vent (sealed combustion) only
- b) [ ] Positive venting induced draft (except fireplaces)
- c) [ ] Natural draft, B-vent or induced draft gas fireplace
- d) [ ] Solid Fuel (including fireplaces)
- e) [ ] No Combustion Appliances

HEATING SYSTEM

[✓] Forced Air [ ] Non Forced Air

[ ] Electric Space Heat

HOUSE TYPE 9.32.1(2)

- [✓] I Type a) or b) appliance only, no solid fuel
- [ ] II Type I except with solid fuel (including fireplaces)
- [ ] III Any Type c) appliance
- [ ] IV Type I, or II with electric space heat
- [ ] Other: Type I, II or IV no forced air

SYSTEM DESIGN OPTIONS O.N.H.W.P.

- [ ] 1 Exhaust only/Forced Air System
- [ ] 2 HRV with Ducting/Forced Air System
- [✓] 3 HRV Simplified/connected to forced air system
- [ ] 4 HRV with Ducting/non forced air system
- [ ] Part 6 Design

TOTAL VENTILATION CAPACITY 9.32.3.3(1)

Basement + Master Bedroom	2	@ 21.2 cfm	42.4	cfm
Other Bedrooms	3	@ 10.6 cfm	31.8	cfm
Kitchen & Bathrooms	5	@ 10.6 cfm	53	cfm
Other Rooms	4	@ 10.6 cfm	42.4	cfm
Table 9.32.3.A.		TOTAL	169.6	cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED 9.32.3.4.(1)

1	Bedroom	31.8	cfm
2	Bedroom	47.7	cfm
3	Bedroom	63.6	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	169.6	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	90.1	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE V150H Location: BSMT

79.5 cfm [✓] 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 BY INSTALLING CONTRACTOR

Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	✓	3.5
BATH	BY INSTALLING CONTRACTOR	50	✓	3.5
W/R	BY INSTALLING CONTRACTOR	50	✓	3.5

HEAT RECOVERY VENTILATOR 9.32.3.11.

Model: VANEE V150H

150 cfm high 35 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: April-21

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 / Ventiliation Calculation)

LO#: 90225 Model: VALLEYCREEK 10 Builder: GREENPARK HOMES Date: 08/04/2021

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1121	9	10089
First	1121	10	11210
Second	1487	9	13383
Third	0	9	0
Fourth	0	9	0
		Total:	34,682.0 ft³
		Total:	982.1 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.338
SUMMER NATURAL AIR CHANGE RATE	0.121

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

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

0.338 x 272.80 x 39 °C x 1.2 = 4338 W

= 14801 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.121 x 272.80 x 7 °C x 1.2 = 282 W

= 961 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	14,801	8,258	0.896
2	0.3		12,804	0.347
3	0.2		12,983	0.228
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 10 **BUILDER:** GREENPARK HOMES
SFQT: 2608 **LO#** 90225 **SITE:** RUSSELL GARDENS PH 4

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):	34682.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 49.0 ft	WIDTH: 33.0 ft	EXPOSED PERIMETER:	164.0 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	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.
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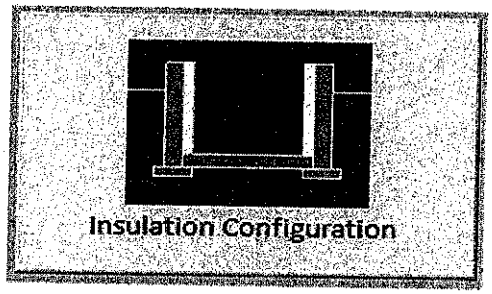
Ajax ON, L1S 2E2
905-619-2300

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):	14.9	 Insulation Configuration
Floor Width (m):	10.1	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m^2):	1.9	
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):	**1562**

TYPE: VALLEYCREEK 10
LO# 90225

HVAC Designs Ltd.
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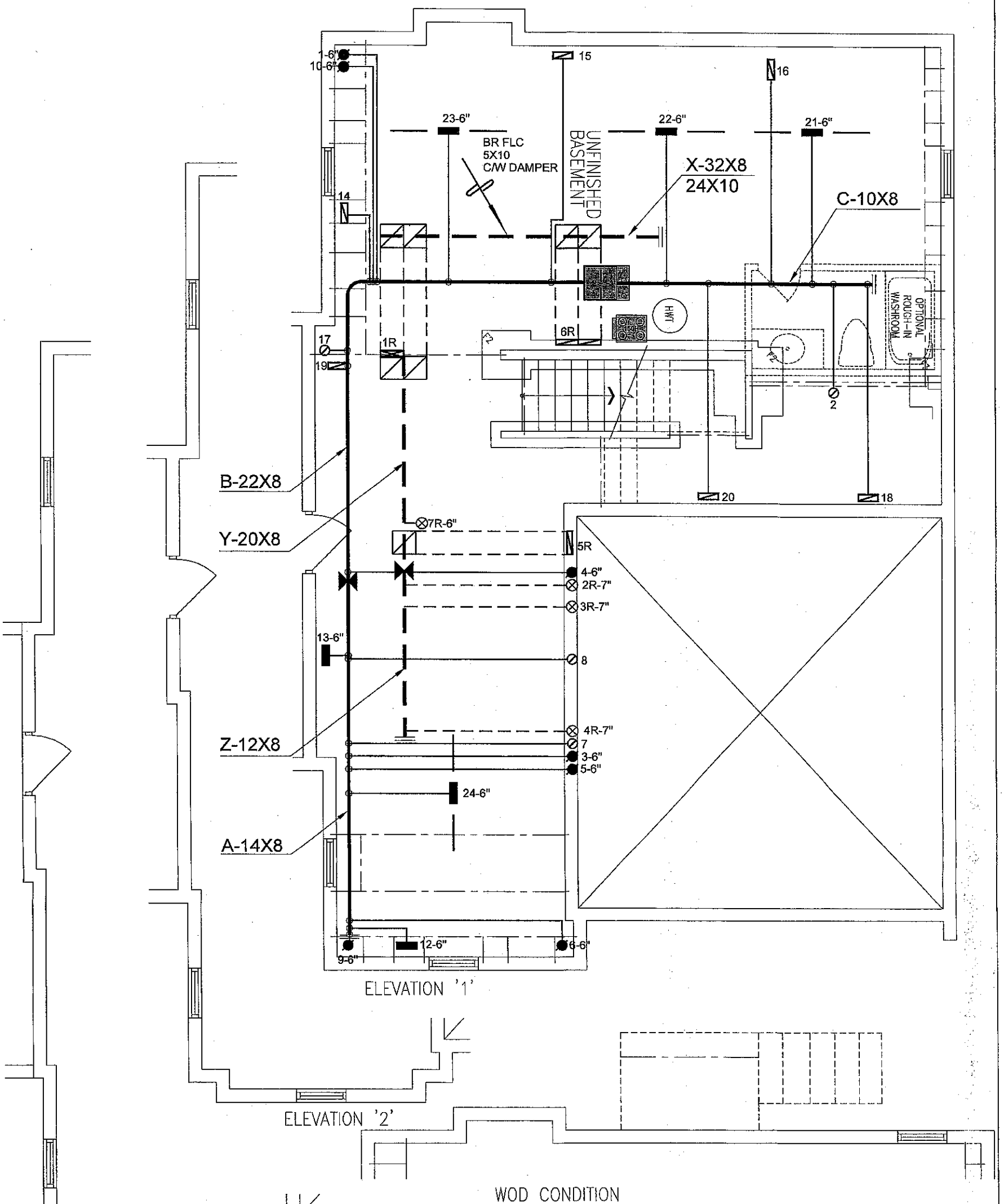
Ajax ON, L1S 2E2
905-619-2300

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):	7.62				
Building Configuration					
Type:	Detached				
Number of Stories:	Two				
Foundation:	Full				
House Volume (m^3):	982.1				
Air Leakage/Ventilation					
Air Tightness Type:	Present (1961-) (3.57 ACH)				
Custom BDT Data:	ELA @ 10 Pa.				1309.1 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):	**0.338**				
Cooling Air Leakage Rate (ACH/H):	**0.121**				

TYPE: VALLEYCREEK 10
LO# 90225



WOD

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
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client

GREENPARK HOMES

Project Name

RUSSELL GARDENS PH 4
HAMILTON, ONTARIO

VALLEYCREEK 10 2608 sqft

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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 50887 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 @ 0.5" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	11	5	3
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

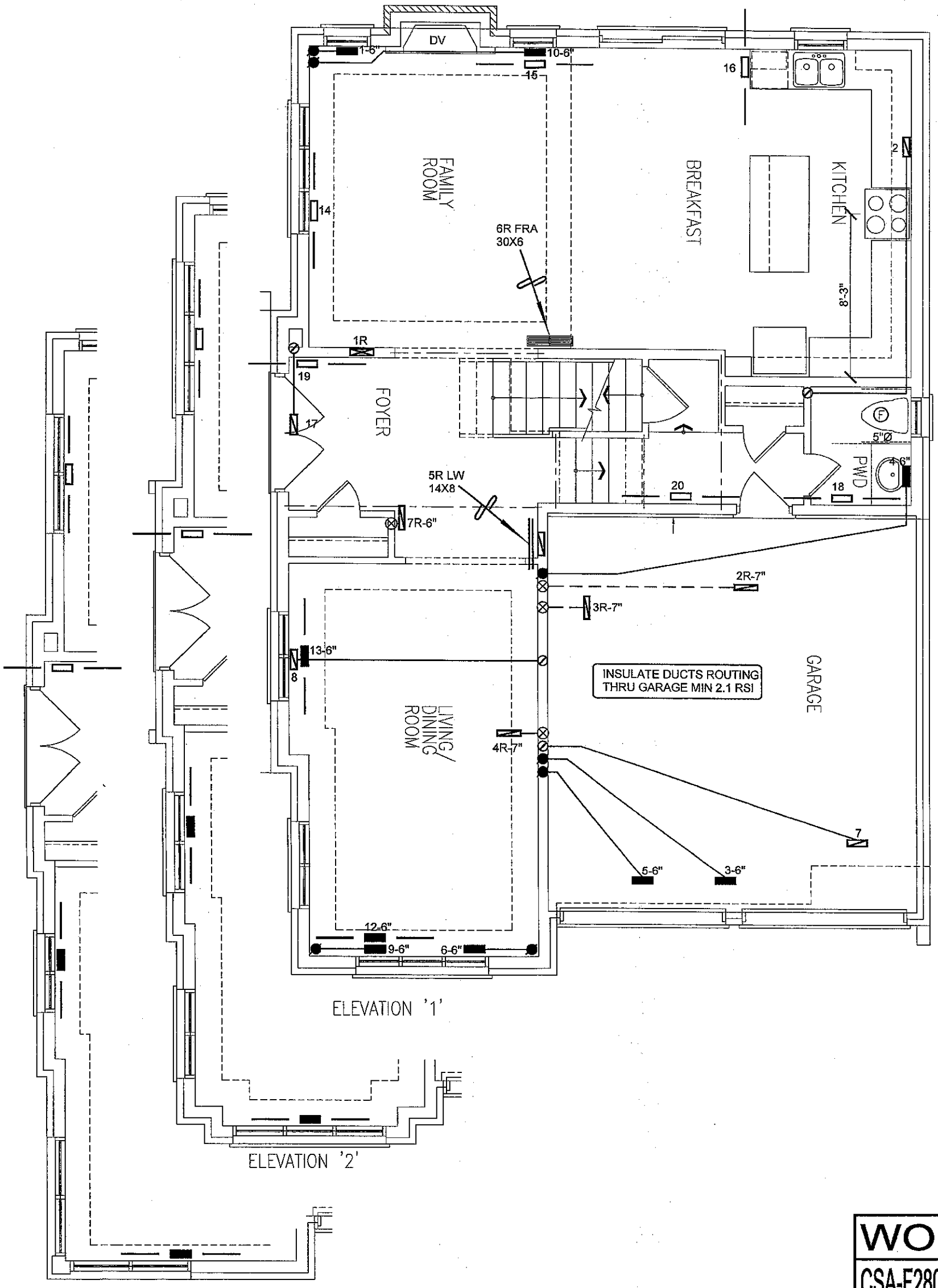
BASEMENT HEATING LAYOUT

Date APR/2021

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 90225



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WOD
CSA-F280-12
PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

No.	Description	Date
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REVISIONS

Client
GREENPARK HOMES

Project Name
RUSSELL GARDENS PH 4
HAMILTON, ONTARIO

VALLEYCREEK 10 2608 sqft

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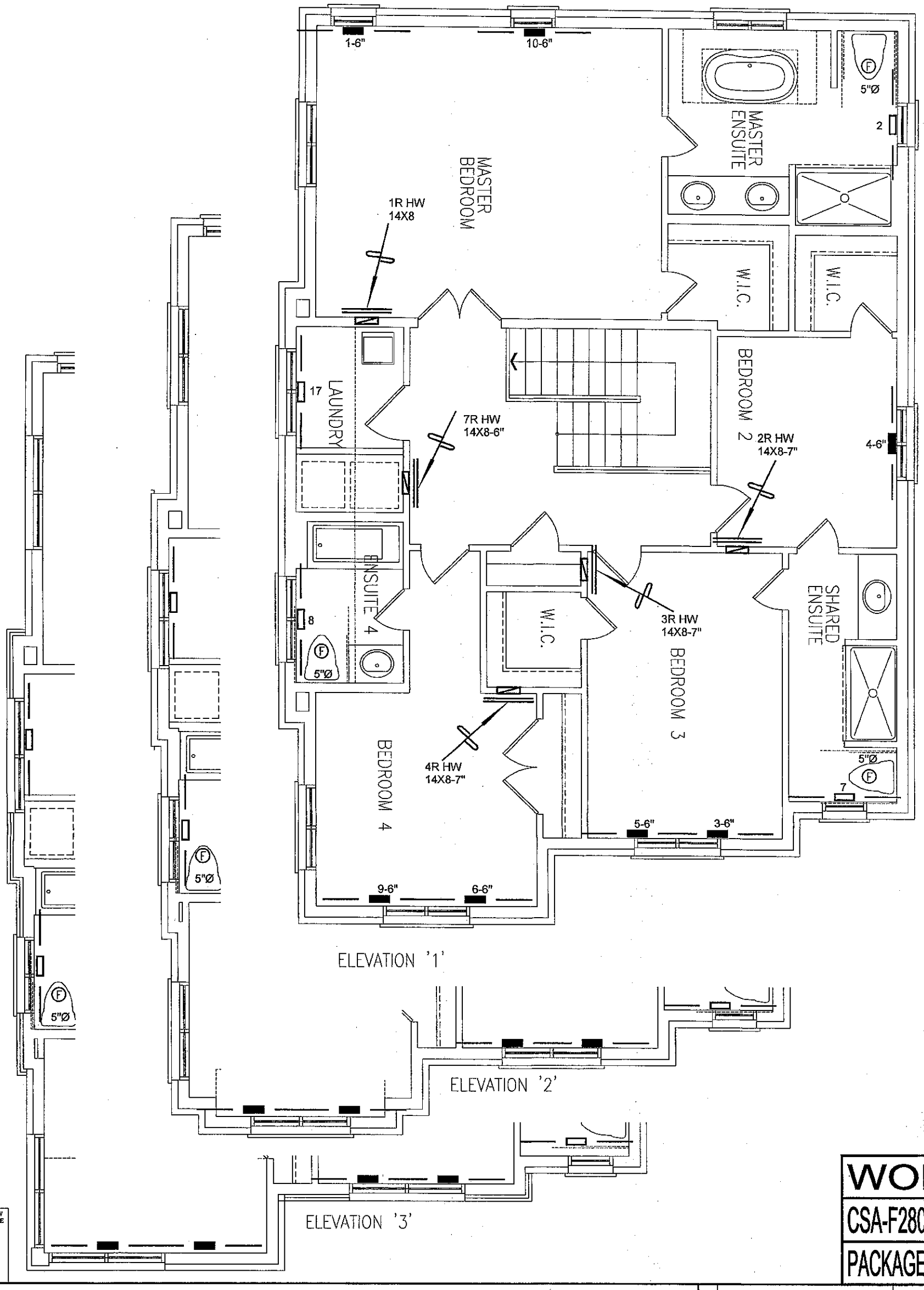
Sheet Title
FIRST FLOOR HEATING LAYOUT

Date APR/2021
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 90225



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WOD

CSA-F280-12

PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
—▭—	FLOOR SUPPLY AIR GRILLE	▬	6" SUPPLY AIR BOOT ABOVE	▭	14"x8" RETURN AIR GRILLE	▭	RETURN AIR STACK ABOVE
—▬—	FLOOR SUPPLY AIR GRILLE 6" BOOT	⊘	SUPPLY AIR STACK FROM 2nd FLOOR	▭	30"x8" RETURN AIR GRILLE	▭	RETURN AIR STACK 2nd FLOOR
▭	SUPPLY AIR BOOT ABOVE	●	6" SUPPLY AIR STACK 2nd FLOOR	▭	FRA- FLOOR RETURN AIR GRILLE	⧗	REDUCER

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client

GREENPARK HOMES

Project Name

RUSSELL GARDENS PH 4
HAMILTON, ONTARIO

VALLEYCREEK 10 2608 sqft

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Sheet Title

SECOND FLOOR HEATING LAYOUT

Date APR/2021

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 90225