

SITE NAME: RUSSELL GARDENS PH 4										WUB:										DATE: Apr-21										WINTER NATURAL AIR CHANGE RATE 0.310										HEAT LOSS AT °F. 71										CSA-F250-12																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
BUILDER: GREENPARK HOMES										TYPE: VALLEYCREEK 10										GFA: 2608										LO# 90226										SUMMER NATURAL AIR CHANGE RATE 0.111										HEAT GAIN AT °F. 13										SB-12 PACKAGE A1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
ROOM USE		MBR		ENS		BED-2		BED-3		BED-4		BATH		ENS-4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												</	

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LOSS	GAIN	LIV/DIN	KIT/FM	LAUN	WVR	FOY	MUD	WUB	BAS
						56	67	12	13	15	14	19	145
						11	11	10	10	10	12	9	9
GRS.WALL AREA						616	737	114	130	150	168		
GLAZING						LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
NORTH	19.8	16.0	0	0	0	0	0	0	0	0	0	0	0
EAST	19.8	41.6	46	908	1911	0	0	0	0	0	0	0	0
SOUTH	19.8	24.9	61	1206	1519	46	909	1145	39	771	971	0	0
WEST	19.8	41.6	0	0	0	70	1384	2909	0	0	0	0	0
SKYL.T.	34.6	101.5	0	0	0	0	0	0	0	0	0	0	0
DOORS	23.5	4.3	0	0	0	20	469	85	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	509	2110	383	601	2492	462	76	311	56	118	489
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.2	0.6	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
EXPOSED FLOOR	2.4	0.4	0	0	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						4225	5279	1309	726	1491	1083	160	
SUB TOTAL HT GAIN						3813	4603	1139	280	270	196	1245	
LEVEL FACTOR / MULTIPLIER			0.30	0.32			0.30	0.32		0.30	0.32	199	
AIR CHANGE HEAT LOSS						1343	1978	273	231	474	344		
AIR CHANGE HEAT GAIN						213	268	64	16	15	11		
DUCT LOSS						0	0	0	0	0	0		
DUCT GAIN						0	0	0	0	0	0		
HEAT GAIN PEOPLE	240		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						5568	6957	1682	957	1955	1427	1245	
TOTAL HT GAIN x 1.3 BTU/H						6113	7199	2443	385	371	269	258	

TOTAL HEAT GAIN BTU/H:

37004

TONS: 3.08

LOSS DUE TO VENTILATION LOAD BTU/H: 1515

STRUCTURAL HEAT LOSS: 48008

TOTAL COMBINED HEAT LOSS BTU/H: 49523

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

SITE NAME: RUSSELL GARDENS PH 4
BUILDING: GREENPARK HOMES

WUB
TYPE: VALLEYCREEK 10

DATE: Apr-21

GFA: 2608 LO# 90226

HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 48,008 TOTAL HEAT GAIN 36,729
AIR FLOW RATE CFM 23.56 AIR FLOW RATE CFM 30.79

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

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

AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600

DESIGN CFM = 1131
CFM @ .8" E.S.P.

TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	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	1.52	2.08	1.22	1.50	1.22	1.40	1.76	1.01	1.40	1.52	2.78	2.78	2.32	2.32	2.32	1.58	0.96	1.96	1.43	3.73	3.73	3.73	3.73
CFM PER RUN HEAT	36	49	29	35	29	33	41	24	33	36	66	66	55	55	55	37	23	46	34	88	88	88	88
RM GAIN MBH	2.21	1.52	2.08	2.05	2.08	2.16	1.10	1.04	2.16	2.21	3.06	3.06	2.40	2.40	2.40	2.44	0.38	0.37	0.27	0.34	0.34	0.34	0.34
CFM PER RUN COOLING	68	47	64	63	64	66	34	32	66	68	94	94	74	74	74	75	12	11	8	10	10	10	10
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	67	67	73	72	65	71	56	52	33	19	13	20	30	25	17	17	13	11	34	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	184	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	0.09	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	8	6	6
HEATING VELOCITY (ft/min)	184	360	148	178	148	168	301	275	168	184	337	337	404	404	404	272	264	338	390	449	449	449	449
COOLING VELOCITY (ft/min)	347	345	326	321	326	337	250	367	337	347	479	479	543	543	543	551	138	81	92	51	51	51	51
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
1	MBR	1.52	36	2.21	68	0.17	50	190	240	0.07	6	184	347	4X10	B
2	ENS	2.08	49	1.52	47	0.17	44	140	184	0.09	5	360	345	3X10	C
3	BED-3	1.22	29	2.08	64	0.17	69	170	239	0.07	6	148	326	4X10	A
4	BED-2	1.50	35	2.05	63	0.17	67	140	209	0.08	6	178	321	4X10	B
5	BED-3	1.22	29	2.08	64	0.17	67	160	227	0.08	6	148	326	4X10	A
6	BED-4	1.40	33	2.16	66	0.17	73	170	243	0.07	6	168	337	4X10	A
7	BATH	1.76	41	1.10	34	0.17	72	180	252	0.07	5	301	250	3X10	A
8	ENS-4	1.01	24	1.04	32	0.17	65	180	245	0.07	4	275	367	3X10	A
9	BED-4	1.40	33	2.16	66	0.17	71	160	231	0.07	6	168	337	4X10	A
10	MBR	1.52	36	2.21	68	0.17	56	190	246	0.07	6	184	347	4X10	B
12	LIV/DIN	2.78	66	3.06	94	0.16	52	110	162	0.1	6	337	479	4X10	A
13	LIV/DIN	2.78	66	3.06	94	0.16	33	170	203	0.08	6	337	479	4X10	A
14	KIT/FM	2.32	55	2.40	74	0.17	19	130	149	0.12	5	404	543	3X10	B
15	KIT/FM	2.32	55	2.40	74	0.17	13	180	193	0.09	5	404	543	3X10	B
16	KIT/FM	2.32	55	2.40	74	0.17	20	130	150	0.11	5	404	543	3X10	C
17	LAUN	1.58	37	2.44	75	0.17	30	150	180	0.1	5	272	551	3X10	B
18	W/R	0.96	23	0.38	12	0.17	25	80	105	0.16	4	264	138	3X10	C
19	FOY	1.96	46	0.37	11	0.17	17	120	137	0.13	5	338	81	3X10	B
20	MUD	1.43	34	0.27	8	0.17	13	100	157	0.11	4	390	92	3X10	C
21	BAS	3.73	88	0.34	10	0.16	11	120	171	0.14	6	449	51	4X10	C
22	BAS	3.73	88	0.34	10	0.16	11	120	171	0.12	8	449	51	4X10	C
23	BAS	3.73	88	0.34	10	0.16	11	120	171	0.09	6	449	51	4X10	B
24	BAS	3.73	88	0.34	10	0.16	11	120	171	0.1	6	449	51	4X10	A

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	409	0.07	10.4	14	8	TRUNK G	0	0.00	0	0	8
TRUNK B	797	0.07	13.3	22	8	TRUNK H	0	0.00	0	0	8
TRUNK C	337	0.09	9.1	10	8	TRUNK I	0	0.00	0	0	8
TRUNK D	0	0.00	0	0	8	TRUNK J	0	0.00	0	0	8
TRUNK E	0	0.00	0	0	8	TRUNK K	0	0.00	0	0	8
TRUNK F	0	0.00	0	0	8	TRUNK L	0	0.00	0	0	8

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 O	0	0.05	0	0	8	TRUNK X	1131	0.05	16.5	32	8
TRUNK P	0	0.05	0	0	8	TRUNK Y	585	0.05	12.9	20	8
TRUNK Q	0	0.05	0	0	8	TRUNK Z	305	0.05	10.1	12	8
TRUNK R	0	0.05	0	0	8	DROP	1131	0.05	16.5	24	10
TRUNK S	0	0.05	0	0	8						
TRUNK T	0	0.05	0	0	8						
TRUNK U	0	0.05	0	0	8						
TRUNK V	0	0.05	0	0	8						
TRUNK W	0	0.05	0	0	8						
TRUNK X	1131	0.05	16.5	32	8						
TRUNK Y	585	0.05	12.9	20	8						
TRUNK Z	305	0.05	10.1	12	8						
DROP	1131	0.05	16.5	24	10						

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	12	13	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	145	75	115	115	135	310	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	42	72	65	71	44	17	51	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	185	205	245	250	235	205	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	227	277	310	321	279	152	256	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.07	0.05	0.05	0.05	0.05	0.10	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	7	6	7	7	7.5	8.6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	X	X	X	X	X	X	X	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	0	0	0	0	0	0	0	0

TYPE: VALLEYCREEK 10
 SITE NAME: RUSSELL GARDENS PH 4

 LO # 90226
 WUB

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	$\Delta T \cdot F$
79.5 CFM X	71 F X
	FACTOR 1.08 X
	% LOSS 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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	April-21

 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#: 90226

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	0.310
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

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

$$0.310 \times 272.80 \times 39^\circ\text{C} \times 1.2 = 3976 \text{ W}$$

$$= 13565 \text{ Btu/h}$$

6.2.6 Sensible Gain due to Air Leakage

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

$$0.111 \times 272.80 \times 7^\circ\text{C} \times 1.2 = 258 \text{ W}$$

$$= 880 \text{ Btu/h}$$

5.2.3.2 Heat Loss due to Mechanical Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

$$80 \text{ CFM} \times 71^\circ\text{F} \times 1.08 \times 0.25 = 1515 \text{ Btu/h}$$

6.2.7 Sensible heat Gain due to Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

$$80 \text{ CFM} \times 13^\circ\text{F} \times 1.08 \times 0.25 = 275 \text{ Btu/h}$$

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)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HL _{level})
1	0.5	13,565	8,138	0.833
2	0.3		12,804	0.318
3	0.2		12,983	0.209
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

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: VALLEYCREEK 10	WUB	BUILDER: GREENPARK HOMES
SFQT: 2608	LO# 90226	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 (ft³):	34682.0	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:	6.0 ft
LENGTH: 49.0 ft	WIDTH: 33.0 ft	EXPOSED PERIMETER:	145.0 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	-

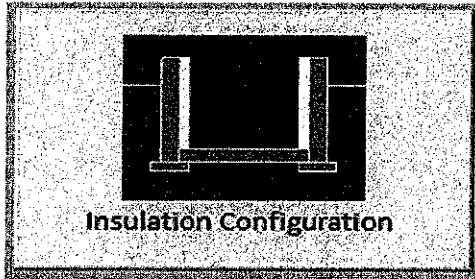
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

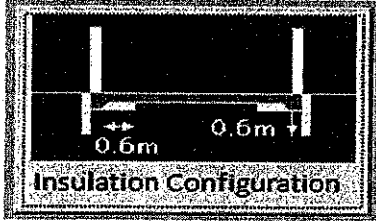
Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	14.9	 Insulation Configuration
Floor Width (m):	10.1	
Exposed Perimeter (m):	44.2	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.5	
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):		1363

TYPE: VALLEYCREEK 10
LO# 90226

WUB

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):	0.6	
Width (m):	4.6	
Exposed Perimeter (m):	5.8	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		44

TYPE: VALLEYCREEK 10
LO# 90226

WUB

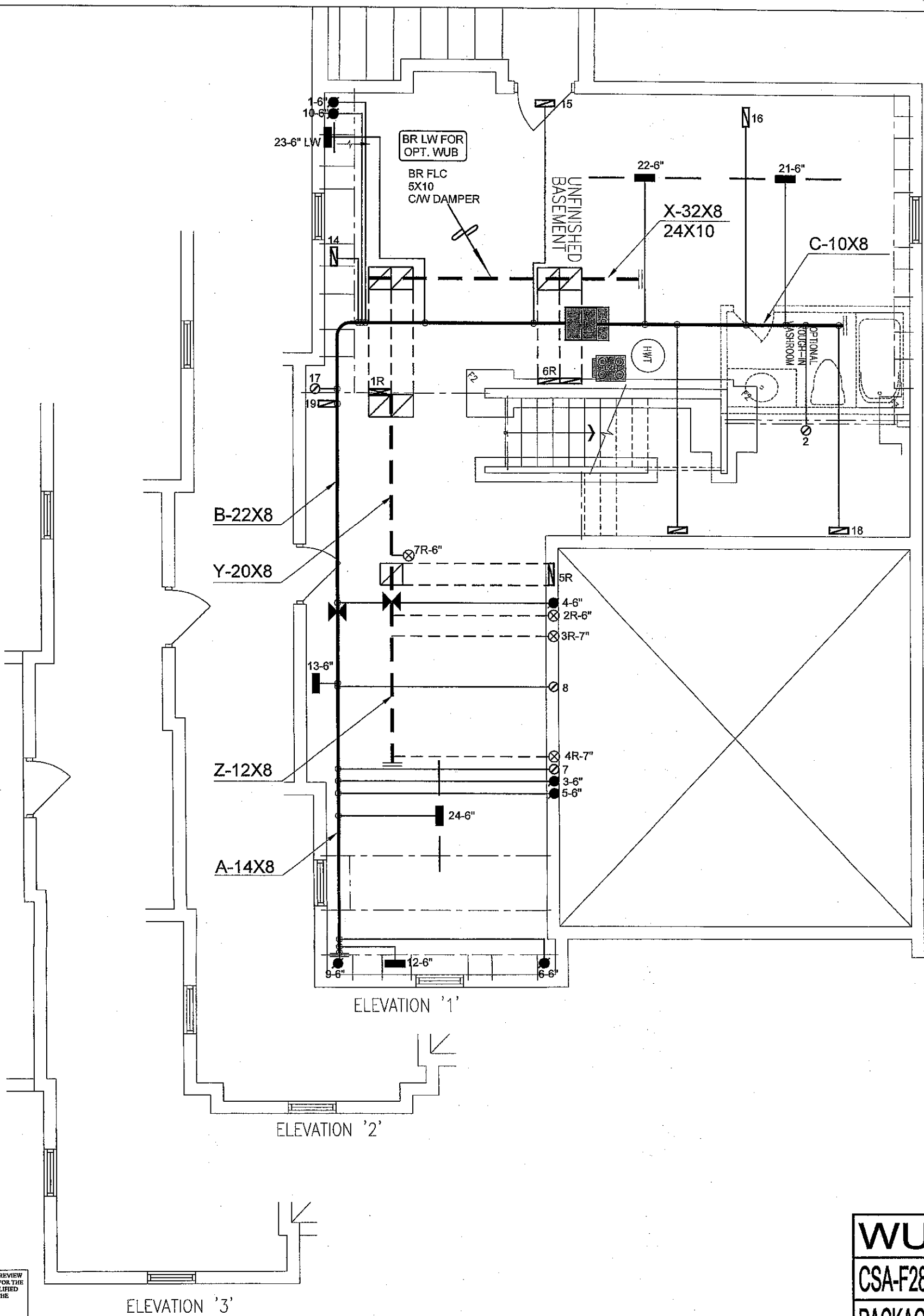
Air Infiltration Residential Load Calculator

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):	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):	0.310			
Cooling Air Leakage Rate (ACH/H):	0.111			

TYPE: VALLEYCREEK 10
LO# 90226

WUB



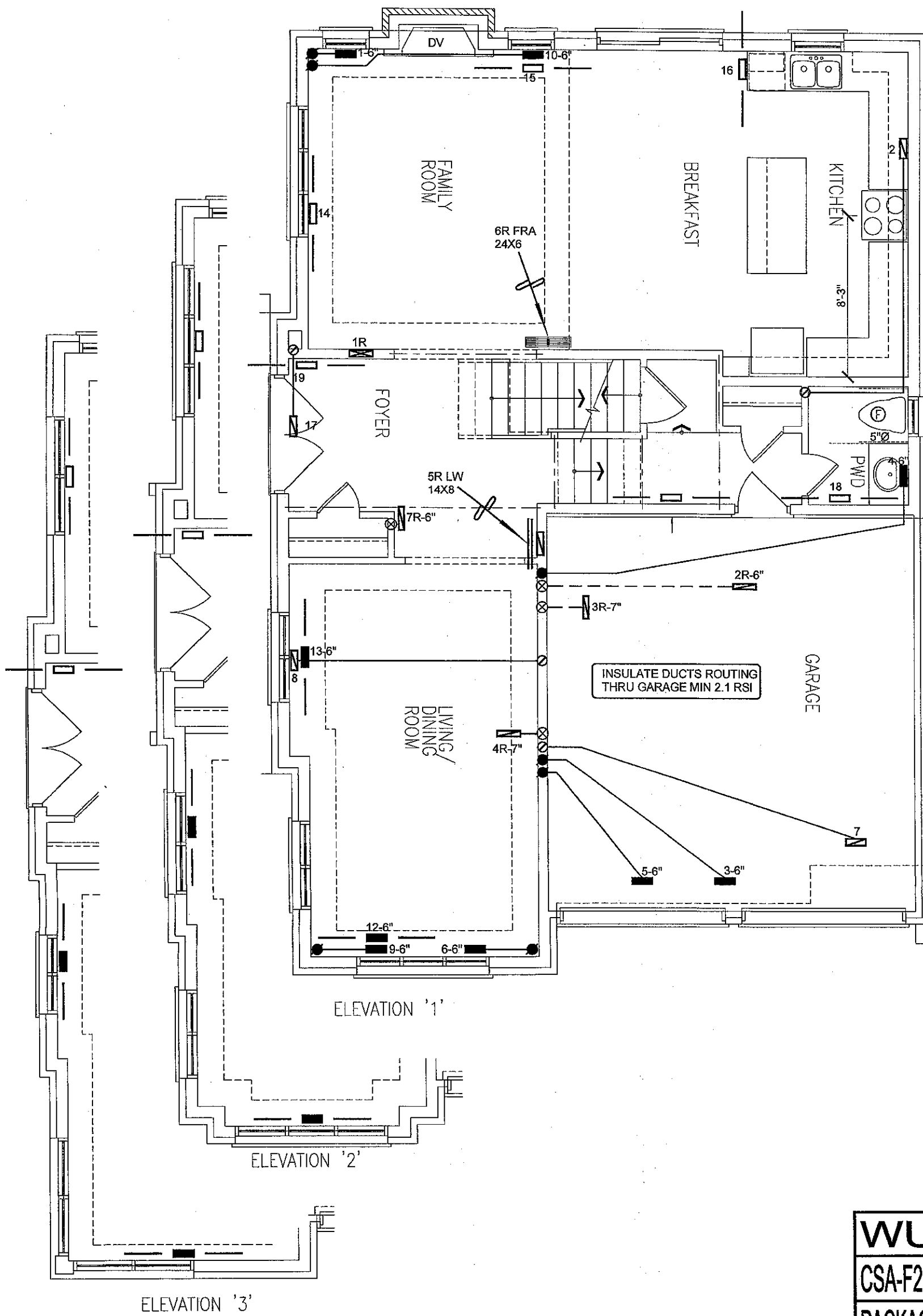
WUB
CSA-F280-12
PACKAGE A1

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

HVAC LEGEND						3.	
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
						REVISIONS	
						No.	Description
						Date	

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Client	 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 49523 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS				Sheet Title				
GREENPARK HOMES		MAKE GOODMAN	MODEL GMEC960603BNA	INPUT 60 MBTU/H	OUTPUT 57.6 MBTU/H	COOLING 3.0 TONS	FAN SPEED 1131 cfm @ 0.5" w.g.	3RD FLOOR			BASEMENT HEATING LAYOUT	
Project Name								2ND FLOOR	11	5		3
RUSSELL GARDENS PH 4 HAMILTON, ONTARIO								1ST FLOOR	8	2		2
WUB VALLEYCREEK 10 2608 sqft								BASEMENT	4	1	0	Date APR/2021
											Scale 3/16" = 1'-0"	
											BCIN# 19669	
											LO# 90226	



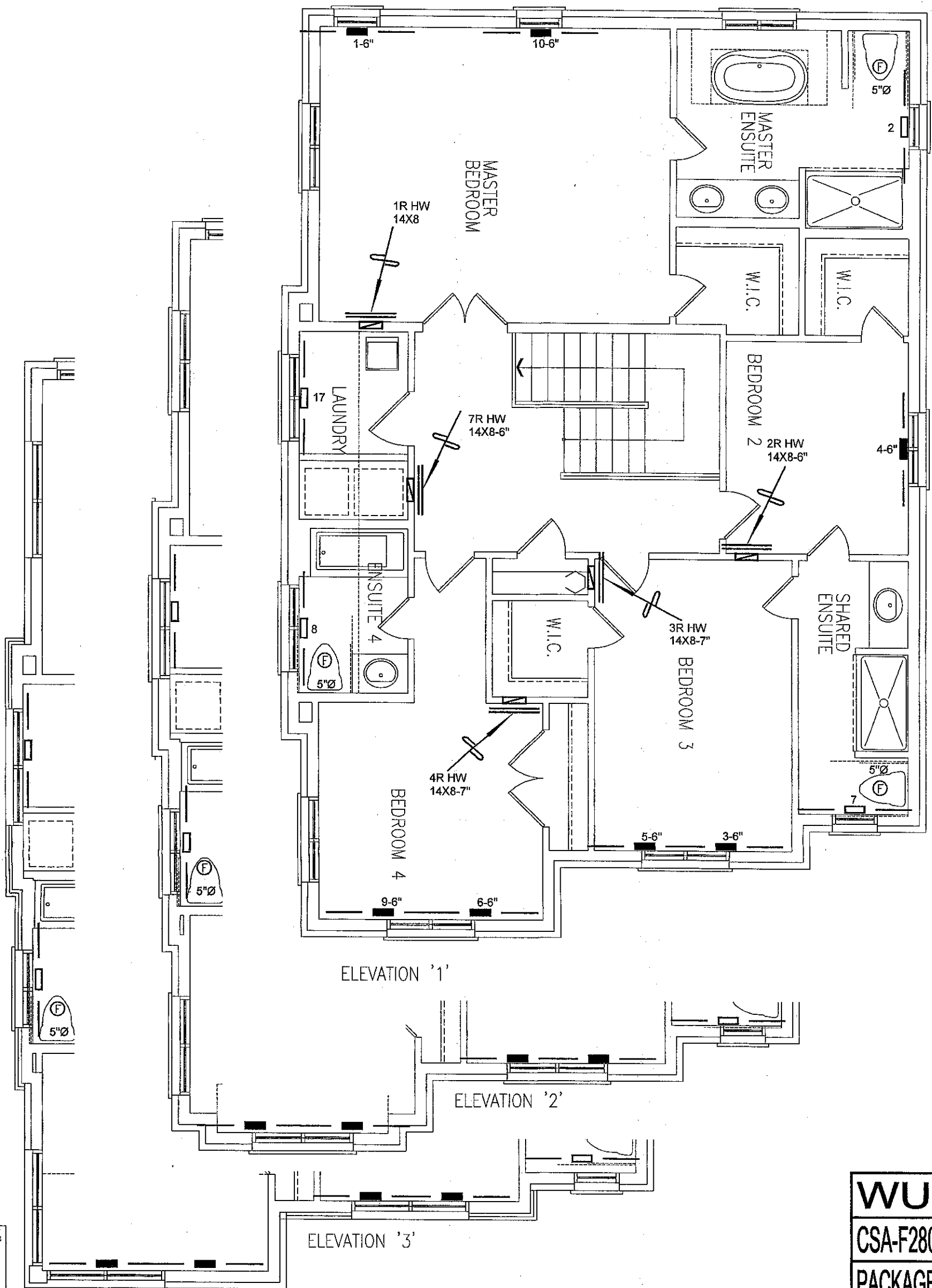
I MICHAEL O'Rourke HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.32.5 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

WUB
CSA-F280-12
PACKAGE A1

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

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Client GREENPARK HOMES		HVACDESIGNS 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.	Sheet Title FIRST FLOOR HEATING LAYOUT	
Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO			Date APR/2021	
WUB VALLEYCREEK 10 2608 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO#	90226



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.

WUB
CSA-F280-12
PACKAGE A1

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

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Client
GREENPARK HOMES

Project Name
**RUSSELL GARDENS PH 4
HAMILTON, ONTARIO**

**WUB
VALLEYCREEK 10 2608 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@hvacdsgns.ca
Web: www.hvacdsgns.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
**SECOND FLOOR
HEATING
LAYOUT**

Date **APR/2021**

Scale **3/16" = 1'-0"**

BCIN# 19669

LO# **90226**