

SITE NAME: RESSEL GARDENS PHASE 3

BUILDER: GREENPARK HOMES

TYPE: VALLEYCREEK 1

GFA: 2481

 DATE: Mar-20
 LO# 85744

WINTER NATURAL AIR CHANGE RATE 0.338

HEAT LOSS AT °F. 71

CSA-F280-12

SUMMER NATURAL AIR CHANGE RATE 0.121

HEAT GAIN AT °F. 13

SB-12 PACKAGE A1

ROOM USE			MBR		ENS		BED-2		BED-3		BED-4		BATH		HEAT LOSS AT °F. 71		HEAT GAIN AT °F. 13		CSA-F280-12		
EXP. WALL			31		29		11		32		43		12								
CLG. HT.			9		9		9		9		9		9								
FACTORS																					
GRS.WALL AREA			279		261																
LOSS GAIN																					
GLAZING							99		288		387		108								
			LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN								
NORTH			19.8	15.4	0	0	0	178	139	18	368	278	0	0	0	0	0	0	0	0	0
EAST			19.8	39.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH			19.8	24.0	0	0	0	0	0	0	0	47	928	1576	34	672	1357	0	0	0	0
WEST			19.8	39.9	35	712	1437	9	178	359	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
DOORS			23.5	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL			4.1	0.8	243	1007	183	243	1007	183	81	336	61	244	999	181	337	1397	253	92	381
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
EXPOSED CLG			1.2	0.6	297	354	176	148	176	87	214	255	126	223	256	131	264	315	155	145	173
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
EXPOSED FLOOR			2.4	0.4	0	0	0	0	0	0	128	303	55	223	528	96	4	9	2	0	0
BASEMENT/CRAWL HEAT LOSS					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS					2073		1540			1260		520		2722		2710		871			
SUB TOTAL HT GAIN						1794		758					2284		2151				538		
LEVEL FACTOR / MULTIPLIER			0.20	0.25		0.20	0.26		0.20	0.26		0.20	0.26		0.20	0.26					
AIR CHANGE HEAT LOSS					542		493		327		712		709		228						
AIR CHANGE HEAT GAIN						138		59		40		175		185		41					
DUCT LOSS					0		0		158		343		342		0						
DUCT GAIN					0		0														
HEAT GAIN PEOPLE			240	2		480	0	0	1	132		322		307		0					
HEAT GAIN APPLIANCES/LIGHTS						518	0	0	1	240		240		240		0					
TOTAL HT LOSS BTU/H					2616		1943			518		518		518		0					
TOTAL HT GAIN x 1.3 BTU/H						3809		1075			1786		3778		3761		1098				

ROOM USE	EXP. WALL	CLG. HT.	DIN	FAM	KT/BF	LAUN	WR	FOY	MUD						
			37	16	49	17	14	20	19						
			10	10	10	10	11	11	11						
GRS.WALL AREA	LOSS	GAIN	370	150	490	170	164	220	209						
GLAZING	LOSS	GAIN													
NORTH	19.8	15.4	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	19.8	39.9	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	19.8	24.0	20	395	480	0	0	0	0	0	0	0	0	0	0
WEST	19.8	39.9	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
DOORS	23.5	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	350	1451	253	138	538	98	389	1613	292	154	638	116	145
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	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	0	0
NO ATTIC EXPOSED CLG	2.6	1.3	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
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			1846	939	3628	955	779	1781	1253						
SUB TOTAL HT GAIN				743	580	755	468	323	227						
LEVEL FACTOR / MULTIPLIER	0.30	0.39		0.30	0.39	0.30	0.39	0.30	0.39						
AIR CHANGE HEAT LOSS			724	368	1422	374	305	698	491						
AIR CHANGE HEAT GAIN				57	45	58	36	25	17						
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						
HEAT GAIN APPLIANCES/LIGHTS			518	518	518	518	518	518	518						
TOTAL HT LOSS BTU/H			2570	1307	5050	1329	1084	2473	1744						
TOTAL HT GAIN x 1.3 BTU/H			1713	1485	6364	1730	656	452	318						

TOTAL HEAT GAIN BTU/H:

31182

TONS: 2.60

LOSS DUE TO VENTILATION LOAD BTU/H: 1515

STRUCTURAL HEAT LOSS: 45273

TOTAL COMBINED HEAT LOSS BTU/H: 47788

SITE NAME: RESSEL GARDENS PHASE 3
 BUILDER: GREENPARK HOMES

TYPE: VALLEYCREEK 1

DATE: Mar-20

GFA: 2481 LO# 85744

 HEATING CFM 928
 TOTAL HEAT LOSS 46,273
 AIR FLOW RATE CFM 20.05
 COOLING CFM 928
 TOTAL HEAT GAIN 30,907
 AIR FLOW RATE CFM 30.03

 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
 MEDLOW
 MEDIUM 928
 MEDIUM HIGH 1017
 HIGH 1131

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

 DESIGN CFM = 928
 CFM @ .8" E.S.P.

TEMPERATURE RISE 57 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	10	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"x10" unless noted otherwise on layout.

 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

RUN #	1	2	3	4	5	6	7	8	9	10	12	13	14	15	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	BED-3	BED-2	BED-3	BED-4	BATH	BATH	BED-4	MBR	DIN	FAM	KT/BF	KT/BF	LAUN	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.31	1.94	1.89	1.73	1.89	1.88	0.55	0.55	1.88	1.31	2.57	1.31	2.53	2.53	1.33	1.08	2.48	1.74	3.94	3.94	3.94	3.94
CFM PER RUN HEAT	26	39	38	35	38	38	11	11	38	26	52	26	51	51	27	22	50	35	79	79	79	79
RM GAIN MBH	1.90	1.07	2.30	1.88	2.30	2.20	0.38	0.38	2.20	1.90	1.71	1.49	3.18	3.18	1.73	0.66	0.45	0.32	0.42	0.42	0.42	0.42
CFM PER RUN COOLING	57	32	69	57	69	66	11	11	66	57	51	45	96	96	52	20	14	10	13	13	13	13
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	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	61	33	43	40	49	53	29	39	58	69	24	28	28	19	32	43	36	7	23	22	13	35
EQUIVALENT LENGTH	200	160	180	130	200	120	160	140	160	220	130	130	90	110	110	130	100	160	100	120	140	140
TOTAL EFFECTIVE LENGTH	261	193	223	170	249	173	189	179	218	289	154	158	118	129	142	173	136	167	123	142	153	175
ADJUSTED PRESSURE	0.07	0.09	0.08	0.1	0.07	0.1	0.09	0.1	0.08	0.06	0.11	0.11	0.14	0.13	0.12	0.1	0.13	0.1	0.14	0.12	0.11	0.1
ROUND DUCT SIZE	6	4	6	6	6	5	4	4	5	6	5	5	6	6	4	4	4	4	5	5	5	5
HEATING VELOCITY (ft/min)	133	447	194	178	194	279	126	126	279	133	382	191	260	260	310	252	574	402	580	580	580	580
COOLING VELOCITY (ft/min)	291	367	352	291	352	485	126	126	485	291	374	330	489	489	597	229	161	115	95	95	95	95
OUTLET GRILL SIZE	4X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	A	C	A	B	A	A	B	B	A	A	B	C	C	C	C	A	A	B	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 A	355	0.06	10.2	14	8
TRUNK B	578	0.06	12.3	18	8
TRUNK C	352	0.09	9.2	10	8
TRUNK D	0	0.00	0	0	8
TRUNK E	0	0.00	0	0	8
TRUNK F	0	0.00	0	0	8
TRUNK G	0	0.00	0	0	8
TRUNK H	0	0.00	0	0	8
TRUNK I	0	0.00	0	0	8
TRUNK J	0	0.00	0	0	8
TRUNK K	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 O	0	0.05	0	0	8
TRUNK P	0	0.05	0	0	8
TRUNK Q	0	0.05	0	0	8
TRUNK R	0	0.05	0	0	8
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	928	0.05	15.3	28	8
TRUNK Y	555	0.05	12.7	18	8
TRUNK Z	0	0.05	0	0	8
DROP	928	0.05	15.3	24	10

RETURN AIR

	1	2	3	4	5	6																		
AIR VOLUME	105	85	75	280	115	125	0	0	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	0.15
ACTUAL DUCT LGH.	35	55	64	56	80	25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	135	185	225	270	265	110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	170	240	289	326	325	135	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.09	0.08	0.05	0.05	0.05	0.11	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	14.80	14.80
ROUND DUCT SIZE	5.9	6	6	9.8	7	5.9	0	0	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	0	0	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	X
INLET GRILL SIZE	14	14	14	30	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: VALLEYCREEK 1
SITE NAME: RESSEL GARDENS PHASE 3

LO # 85744

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	4	@ 10.6 cfm	42.4	cfm
Other Rooms	4	@ 10.6 cfm	42.4	cfm
Table 9.32.3.A.			TOTAL	159.0 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	159	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	79.5	cfm

PRINCIPAL EXHAUST FAN CAPACITY
Model: VANE 65H Location: BSMT
79.5 cfm 3.0 sones ☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM	ΔT °F	FACTOR	% LOSS
79.5 CFM	71 F	1.08	0.25

SUPPLEMENTAL FANS PANASONIC

Location	Model	cfm	HVI	Sop's
ENS	FV-05-11VK1	50	☒	0.3
BATH	FV-05-11VK1	50	☒	0.3
PWD	FV-05-11VK1	50	☒	0.3

HEAT RECOVERY VENTILATOR 9.32.3.11.
Model: VANE 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: March-20

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

LO#: 85744

Model: VALLEYCREEK 1

Builder: GREENPARK HOMES

Date: 3/25/2020

Volume Calculation
House Volume

Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)
Bsmt	1190	9	10710
First	1190	10	11900
Second	1291	9	11619
Third	0	9	0
Fourth	0	9	0
Total:			34,229.0 ft ³
Total:			969.3 m ³

Air Change & Delta T Data

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

Design Temperature Difference				
	T _{in} °C	T _{out} °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

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

$$0.338 \times 269.24 \times 39^\circ\text{C} \times 1.2 = 4281 \text{ W}$$

$$= 14608 \text{ Btu/h}$$

6.2.6 Sensible Gain due to Air Leakage

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

$$= 0.121 \times 269.24 \times 7^\circ\text{C} \times 1.2 = 278 \text{ W}$$

$$= 948 \text{ Btu/h}$$

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

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

6.2.7 Sensible heat Gain due to Ventilation

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

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

5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)

$$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agcleve} + HL_{bgcleve})\}$$

Level	Level Factor (LF)	HL _{airv} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{cleve})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{level})
1	0.5	14,608	8,476	0.862
2	0.3		11,181	0.392
3	0.2		11,165	0.262
4	0		0	0.000
5	0		0	0.000

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

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

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** VALLEYCREEK 1 ✓**BUILDER:** GREENPARK HOMES**SFQT:** 2481**LO#** 85744**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 (ft³):	34229.0	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: 53.0 ft	WIDTH: 33.0 ft	EXPOSED PERIMETER:	172.0 ft

2012 OBC - COMPLIANCE PACKAGE**Component****Compliance Package
A1 ✓****Nominal Min. Eff.**

Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	0.28	-
Skylights Maximum U-Value	0.49	-
Space Heating Equipment Minimum AFUE	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

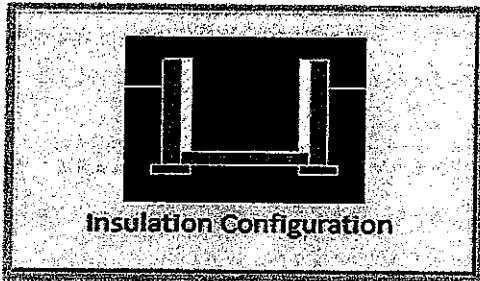
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

Michael O'Rourke

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280 ✓

Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	16.2	 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):	0.8	
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):	1665	

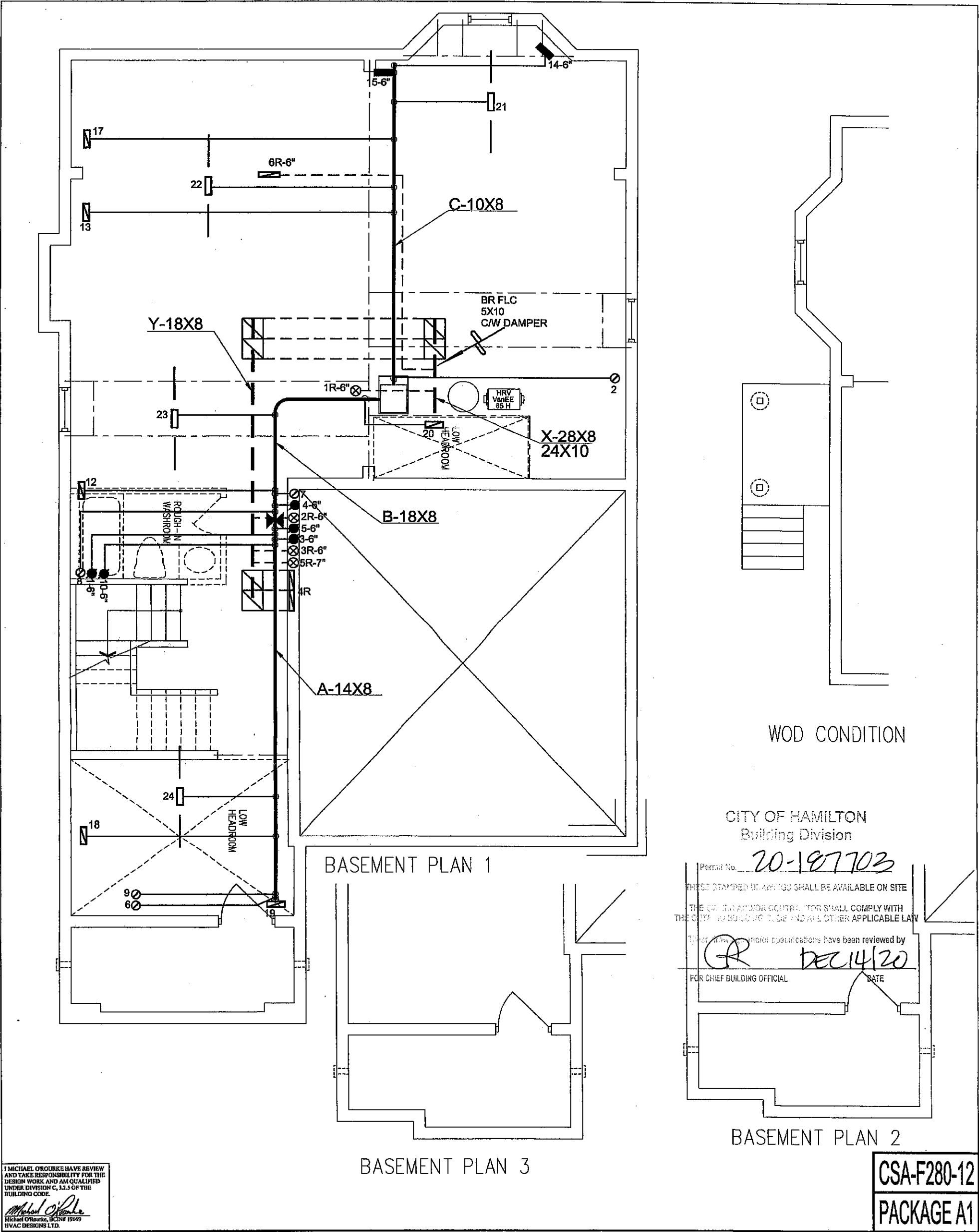
TYPE: VALLEYCREEK 1
LO# 85744

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):	969.3		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1292.0 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
Diameter (mm):	0	0	0
	#4	0	
Natural Infiltration Rates			
Heating Air Leakage Rate (ACH/H):	0.338		
Cooling Air Leakage Rate (ACH/H):	0.121		

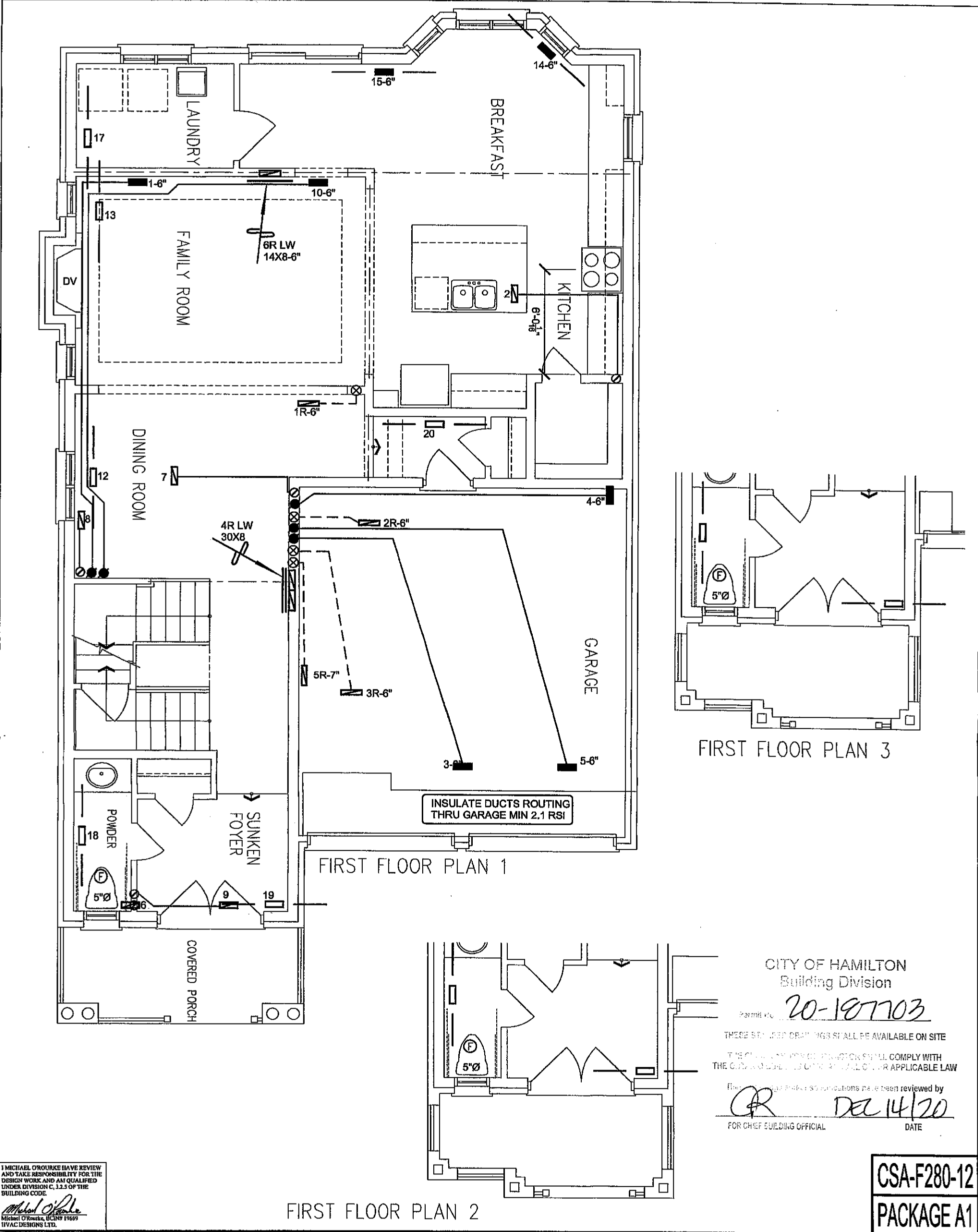
TYPE: VALLEYCREEK 1
LO# 85744



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.

HVAC LEGEND								3.			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.			
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.			
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date	
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS			
ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.® AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.											
Client GREENPARK HOMES			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 47788 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS		Sheet Title	
Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO						MAKE GOODMAN		3RD FLOOR		BASEMENT HEATING LAYOUT	
						MODEL GMEC980603BNA		2ND FLOOR			
						INPUT 60 MBTU/H		1ST FLOOR			
						OUTPUT 57.6 MBTU/H		BASEMENT			
VALLEYCREEK 1 2481 sqft			COOLING 2.5 TONS		ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 6"x8" UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A		Data MAR/2020				
			FAN SPEED 928 cfm @ 0.6" w.g.				Scale 3/16" = 1'-0"				
							BCIN# 19669				
							LO#		85774		



I MICHAEL O'Rourke HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 12.3 OF THE BUILDING CODE.

Michael O'Rourke, UCN# 19669
HVAC DESIGNS LTD.

CITY OF HAMILTON
Building Division

20-1987703

THESE SETS OF DRAWINGS SHALL BE AVAILABLE ON SITE
THE CONTRACTOR SHALL COMPLY WITH THE CITY OF HAMILTON ACT AND/OR APPLICABLE LAW

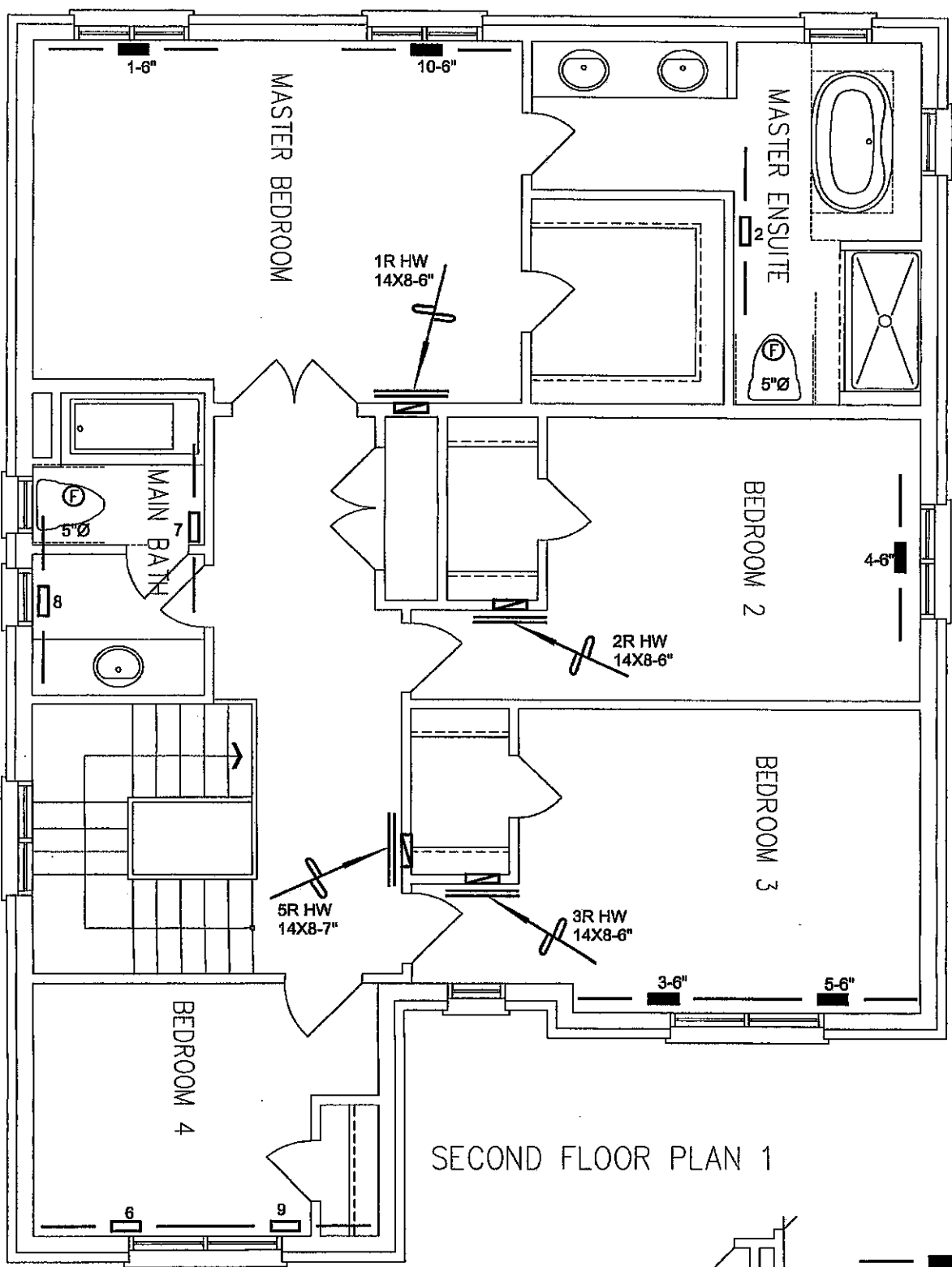
FOR CHIEF BUILDING OFFICIAL
DATE
DEC 14/20

CSA-F280-12
PACKAGE A1

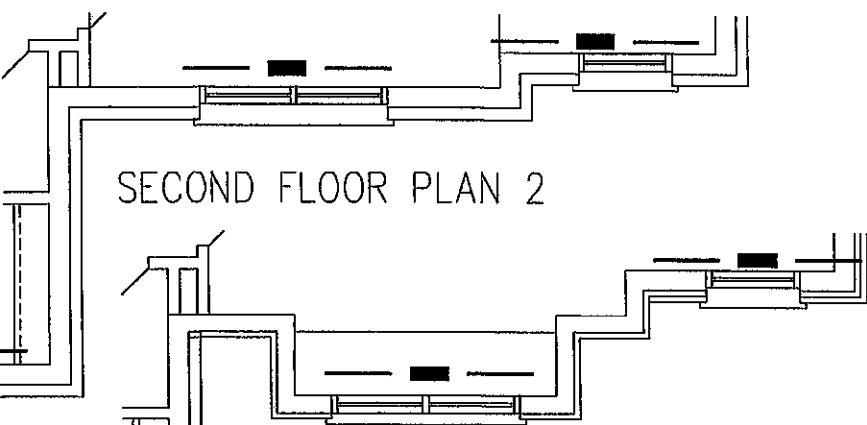
HVAC LEGEND								3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK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

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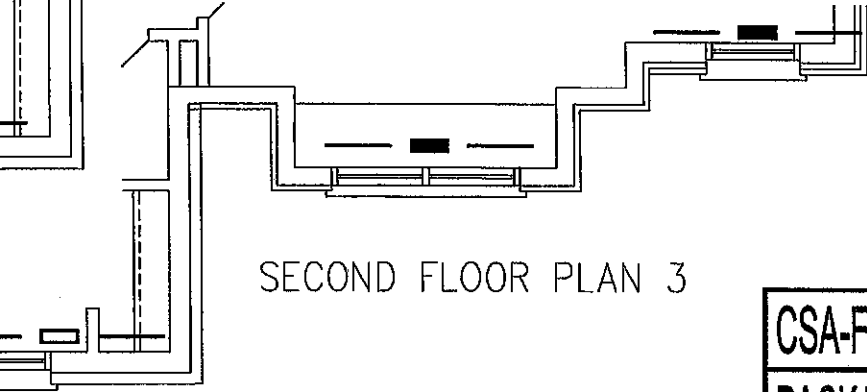
Client GREENPARK HOMES		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply 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 RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO			Date MAR/2020	
VALLEYCREEK 1 2481 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO#	85774



SECOND FLOOR PLAN 1



SECOND FLOOR PLAN 2



SECOND FLOOR PLAN 3

CITY OF HAMILTON
Building Division

Permit No. 20-187703

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE

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

These drawings and specifications have been reviewed by

[Signature] DEC 14/20
FOR CHIEF BUILDING OFFICIAL DATE

I MICHAEL O'Rourke HAVE REVIEWED
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C, 12.5 OF THE
BUILDING CODE.
[Signature]
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

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 8" 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

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Client
GREENPARK HOMES
Project Name
**RUSSEL GARDENS PHASE 3
HAMILTON, ONTARIO**
VALLEYCREEK 1 2481 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
MAR/2020
Scale
3/16" = 1'-0"
BCIN# 19669
LO# 85774