

Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information				
Building number, street name			Unit no.	Lot/con.
Municipality RICHMOND HILL	Postal code	Plan number/ other description		
B. Individual who reviews and takes responsibility for design activities				
Name MICHAEL O'ROURKE		Firm HVAC DESIGNS LTD.		
Street address 375 FINLEY AVE		Unit no. 202	Lot/con. N/A	
Municipality AJAX	Postal code L1S 2E2	Province ONTARIO	E-mail info@hvacdsgns.ca	
Telephone number (905) 619-2300	Fax number (905) 619-2375	Cell number ()		
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]				
☐ House ☐ Small Buildings ☐ Large Buildings ☐ Complex Buildings ☒ HVAC – House ☐ Building Services ☐ Detection, Lighting and Power ☐ Fire Protection ☐ Building Structural ☐ Plumbing – House ☐ Plumbing – All Buildings ☐ On-site Sewage Systems				
Description of designer's work HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12		Model: 38-10 OPT 2ND - FIN BSMT - WUB Project: CENTREFIELD (WEST GORMLEY)		
D. Declaration of Designer				
I, <u>MICHAEL O'ROURKE</u> (print name)		declare that (choose one as appropriate):		
☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: _____ Firm BCIN: _____				
☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code. Individual BCIN: <u>19669</u> Basis for exemption from registration and qualification: <u>O.B.C SENTENCE 3.2.4.1 (4)</u>				
☐ The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification: _____				
I certify that:				
1. The information contained in this schedule is true to the best of my knowledge. 2. I have submitted this application with the knowledge and consent of the firm.				
April 22, 2021 Date		 Signature of Designer		

NOTE:

- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d) of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

Application for a Permit Construct or Demolish – Effective January 1, 2015

SITE NAME: CENTREFIELD (WEST GORMLEY) BUILDER: ROYAL PINE HOMES TYPE: 38-10 OPT 2ND - FIN BSMT - WUB DATE: Apr-21 LO# 90461 WINTER NATURAL AIR CHANGE RATE 0.227 SUMMER NATURAL AIR CHANGE RATE 0.071 HEAT LOSS AT °F. 78 HEAT GAIN AT °F. 13 CSA-F280-12 SB-12 PERFORMANCE

ROOM USE	EXP. WALL CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	B-BATH	B-BATH
EXP. WALL CLG. HT.	37	9	9	14	40	33	18	0	0	9
FACTORS										
GRS.WALL AREA	333	207	126	126	360	287	162	0	0	63
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
NORTH	0	0	0	0	0	0	11	240	176	0
EAST	0	0	0	0	0	0	0	0	0	0
WEST	0	0	0	0	0	0	0	0	0	0
SKYL.	0	0	0	0	0	0	0	0	0	0
DOORS	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.2	0.7	289	1215	200	181	761	125	530	87
NET EXPOSED BSMT WALL ABOVE GR	3.7	0.6	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	276	353	162	126	166	74	112	147
NO ATTIC EXPOSED CLG	2.8	1.3	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS	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
SUBTOTAL HT LOSS	2537	1493	677	153	2817	3124	1144	432	356	16
SUB TOTAL HT GAIN	2190	1130	153	0.20	0.18	0.20	0.18	0.20	0.18	0.50
LEVEL FACTOR / MULTIPLIER	0.20	0.18	0.20	0.18	0.20	0.18	0.20	0.18	0.20	0.65
AIR CHANGE HEAT LOSS	462	272	123	8	513	569	208	79	239	1
AIR CHANGE HEAT GAIN	116	60	0	0	129	139	21	51	0	0
DUCT LOSS	0	0	0	0	0	359	0	12	0	0
DUCT GAIN	0	0	0	0	0	352	0	0	0	0
HEAT GAIN PEOPLE	2	480	0	0	1	240	1	240	0	0
HEAT GAIN APPLIANCES/LIGHTS	517	0	0	0	517	517	1352	517	0	0
TOTAL HT LOSS BTU/H	2999	1765	800	209	3330	4063	1532	561	605	0
TOTAL HT GAIN x 1.3 BTU/H	4295	1547	1040	263	4310	5034	1533	169	786	22

ROOM USE	EXP. WALL CLG. HT.	FAM	KT/BR	LV/DN	LAUN	FOY	MUD	WUB	BAS
EXP. WALL CLG. HT.	39	10	35	41	15	15	10	17	136
FACTORS									
GRS.WALL AREA	394	354	354	414	167	152	111	170	962
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	0	0	0	0	0	0	0	0	0
EAST	0	0	0	0	0	0	0	0	0
WEST	0	0	0	0	0	0	0	0	0
SKYL.	0	0	0	0	0	0	0	0	0
DOORS	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	358	1505	248	291	1222	201	402	1691	278
NET EXPOSED BSMT WALL ABOVE GR	3.7	0.6	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.8	1.3	0	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	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	2269	2594	2819	1952	700	1714	900	136	6807
SUB TOTAL HT GAIN	1477	2819	2819	577	115	738	148	311	681
LEVEL FACTOR / MULTIPLIER	0.30	0.33	0.30	0.33	0.30	0.33	0.30	0.33	0.50
AIR CHANGE HEAT LOSS	753	853	853	642	230	564	296	1336	5326
AIR CHANGE HEAT GAIN	78	150	150	31	6	39	8	0	53
DUCT LOSS	0	0	0	0	0	0	0	0	0
DUCT GAIN	0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	517	517	517	517	517	2278	1196	1336	12133
TOTAL HT LOSS BTU/H	3043	3448	4531	2595	931	1010	203	405	1626
TOTAL HT GAIN x 1.3 BTU/H	2694	4531	4531	1462	830	1336	263	405	1626

TOTAL HEAT GAIN BTU/H: 30154 TONS: 2.51 LOSS DUE TO VENTILATION LOAD BTU/H: 1670 STRUCTURAL HEAT LOSS: 42433 TOTAL COMBINED HEAT LOSS BTU/H: 44103

Michael O'Rourke

SITE NAME: CENTREFIELD (WEST GORMLEY)
BUILDER: ROYAL PINE HOMES

OPT 2ND - FIN BSMT - WUB

DATE: Apr-21

GFA: 2554 LO# 90461

HEATING CFM 970 COOLING CFM 970
TOTAL HEAT LOSS 42,433 TOTAL HEAT GAIN 29,879
AIR FLOW RATE CFM 22.86 AIR FLOW RATE CFM 32.46

**CARRIER

AFUE = 97 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 58,000

59TNA-060-14V 60

FAN SPEED

LOW 820

MEDIUM 970

HIGH 1520

DESIGN CFM = 970
CFM @ .8" E.S.P.

TEMPERATURE RISE 55 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	11	7	5
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	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	BED-2	BED-3	MBR	BATH	FAM	KT/BR	KT/BR	LV/DN	LAUN	FOY	MUD	BAS	BAS	B-BATH	BAS
RM LOSS MBH	1.50	1.77	0.80	1.67	2.03	1.35	0.28	1.67	2.03	1.50	0.28	3.04	1.72	1.72	2.59	0.93	2.28	1.20	3.37	3.37	0.60	3.37
CFM PER RUN HEAT	34	40	18	38	46	31	6	38	46	34	6	70	39	39	59	21	52	27	77	77	14	77
RM GAIN MBH	2.15	1.55	0.21	2.16	2.52	1.53	0.08	2.16	2.52	2.15	0.08	2.69	2.27	2.27	1.46	0.83	1.01	0.20	0.51	0.51	0.02	0.51
CFM PER RUN COOLING	70	50	7	70	82	50	3	70	82	70	3	87	74	74	47	27	33	7	16	16	1	16
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH	55	47	26	43	34	44	23	43	44	38	30	33	36	29	35	37	28	31	38	29	18	30
EQUIVALENT LENGTH	150	140	130	170	160	190	150	160	170	140	170	120	140	160	120	110	110	150	110	130	100	120
TOTAL EFFECTIVE LENGTH	205	187	156	213	194	234	173	203	214	178	200	153	176	189	155	147	138	181	148	159	118	150
ADJUSTED PRESSURE	0.08	0.09	0.11	0.08	0.08	0.07	0.1	0.08	0.08	0.1	0.09	0.11	0.1	0.09	0.11	0.12	0.12	0.1	0.12	0.11	0.15	0.11
ROUND DUCT SIZE	6	5	4	5	6	6	4	5	6	6	4	6	5	5	5	4	5	4	5	5	4	5
HEATING VELOCITY (ft/min)	173	294	207	279	235	158	69	279	235	173	69	357	286	286	433	241	382	310	565	565	161	565
COOLING VELOCITY (ft/min)	357	367	80	514	418	255	34	514	418	357	34	444	543	543	345	310	242	80	117	117	11	117
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	B	A	C	E	E	B	E	E	E	A	E	A	B	B	D	B	D	B	B	A	E	D

25	RUN #
BAS	ROOM NAME
3.37	RM LOSS MBH
77	CFM PER RUN HEAT
0.51	RM GAIN MBH
16	CFM PER RUN COOLING
0.17	ADJUSTED PRESSURE
29	ACTUAL DUCT LGH
130	EQUIVALENT LENGTH
159	TOTAL EFFECTIVE LENGTH
0.11	ADJUSTED PRESSURE
5	ROUND DUCT SIZE
565	HEATING VELOCITY (ft/min)
117	COOLING VELOCITY (ft/min)
3X10	OUTLET GRILL SIZE
C	TRUNK

SUPPLY AIR TRUNK SIZE												RETURN AIR TRUNK SIZE											
TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)							
TRUNK A	221	0.09	7.7	8	X	8	497	0	0.00	0	X	8	0	0.05	0	0	0						
TRUNK B	268	0.07	8.9	10	X	8	482	0	0.00	0	X	8	0	0.05	0	0	0						
TRUNK C	584	0.07	11.9	16	X	8	657	0	0.00	0	X	8	0	0.05	0	0	0						
TRUNK D	188	0.11	6.9	8	X	8	423	0	0.00	0	X	8	0	0.05	0	0	0						
TRUNK E	382	0.08	9.8	12	X	8	573	0	0.00	0	X	8	0	0.05	0	0	0						
TRUNK F	966	0.07	14.3	24	X	8	725	0	0.00	0	X	8	0	0.05	0	0	0						
RETURN AIR #																							
BR																							
AIR VOLUME	1	2	3	4	5	6	7											8	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						
ACTUAL DUCT LGH	50	46	41	37	31	23	28	1	1	1	1	1	1	1	1	1	1						
EQUIVALENT LENGTH	155	255	235	235	255	150	215	0	0	0	0	0	0	0	0	0	0						
TOTAL EFFECTIVE LH	205	301	276	272	286	173	243	1	1	1	1	1	1	1	1	1	1						
ADJUSTED PRESSURE	0.07	0.05	0.05	0.05	0.05	0.09	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80						
ROUND DUCT SIZE	6	6	6	6	6	9.1	6	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						
INLET GRILL SIZE	14	14	14	14	14	30	14	0	0	0	0	0	0	0	0	0	0						

TYPE: 38-10
SITE NAME: CENTREFIELD (WEST GORMLEY)

LO # 90461
OPT 2ND - FIN BSMT - 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	6 @ 10.6 cfm	63.6 cfm
Other Rooms	5 @ 10.6 cfm	53.0 cfm
Table 9.32.3.A.	TOTAL	190.8 cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED		9.32.3.4.(1)
1 Bedroom	31.8	cfm
2 Bedroom	47.7	cfm
3 Bedroom	63.6	cfm
4 Bedroom	79.5	cfm
5 Bedroom	95.4	cfm
TOTAL	79.5	cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	190.8	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	111.3	cfm

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

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	ΔT °F	FACTOR	% LOSS	
79.5 CFM	78 F	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
0	BY INSTALLING CONTRACTOR	50	☒	3.5

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: ROYAL PINE 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

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																		
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																		
LO#: 90461	Model: 38-10	Builder: ROYAL PINE HOMES	Date: 4/22/2021																																																															
Volume Calculation		Air Change & Delta T Data																																																																
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6.2.6 Sensible Gain due to Air Leakage																																																																		
$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$																																																																		
0.227	x	277.63	x	7 °C	x	1.2	=	167 W																																																										
								=	571 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)																																																																		
$HL_{airrr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{aglevel} + HL_{bglevel})\}$																																																																		
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*HL_{airbv} = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HL_{airve} = 0																																																																		

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 38-10	OPT 2ND - FIN BSMT - WUB	BUILDER: ROYAL PINE HOMES
SFQT: 2554	LO# 90461	SITE: CENTREFIELD (WEST GORMLEY)

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-6	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:	2.50	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	TIGHT	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft ³):	35295.9	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:	7.0 ft
LENGTH: 49.0 ft	WIDTH: 32.0 ft	EXPOSED PERIMETER:	145.0 ft

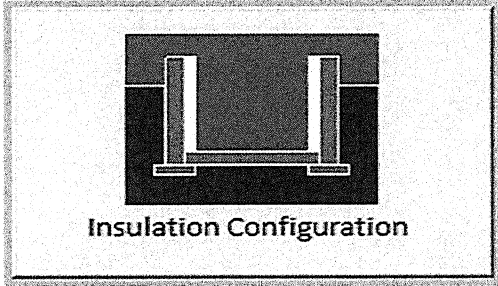
2012 OBC - COMPLIANCE PACKAGE		
Component	Compliance Package SB-12 PERFORMANCE	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.70
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22+1.5	18.50
Basement Walls Minimum RSI (R)-Value	20	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	1.6	-
Skylights Maximum U-Value	2.6	-
Space Heating Equipment Minimum AFUE	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	TE=94%	-

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

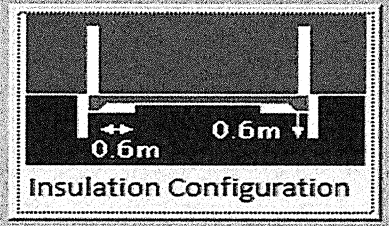
Weather Station Description		
Province:	Ontario	
Region:	Richmond Hill	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	14.9	 Insulation Configuration
Floor Width (m):	9.8	
Exposed Perimeter (m):	44.2	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	1.4	
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):		1404

TYPE: 38-10
LO# 90461

OPT 2ND - FIN BSMT - WUB

Residential Slab on Grade Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Richmond Hill	
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	 Insulation Configuration
Width (m):	4.6	
Exposed Perimeter (m):	5.2	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		40

TYPE: 38-10
LO# 90461

OPT 2ND - FIN BSMT - WUB

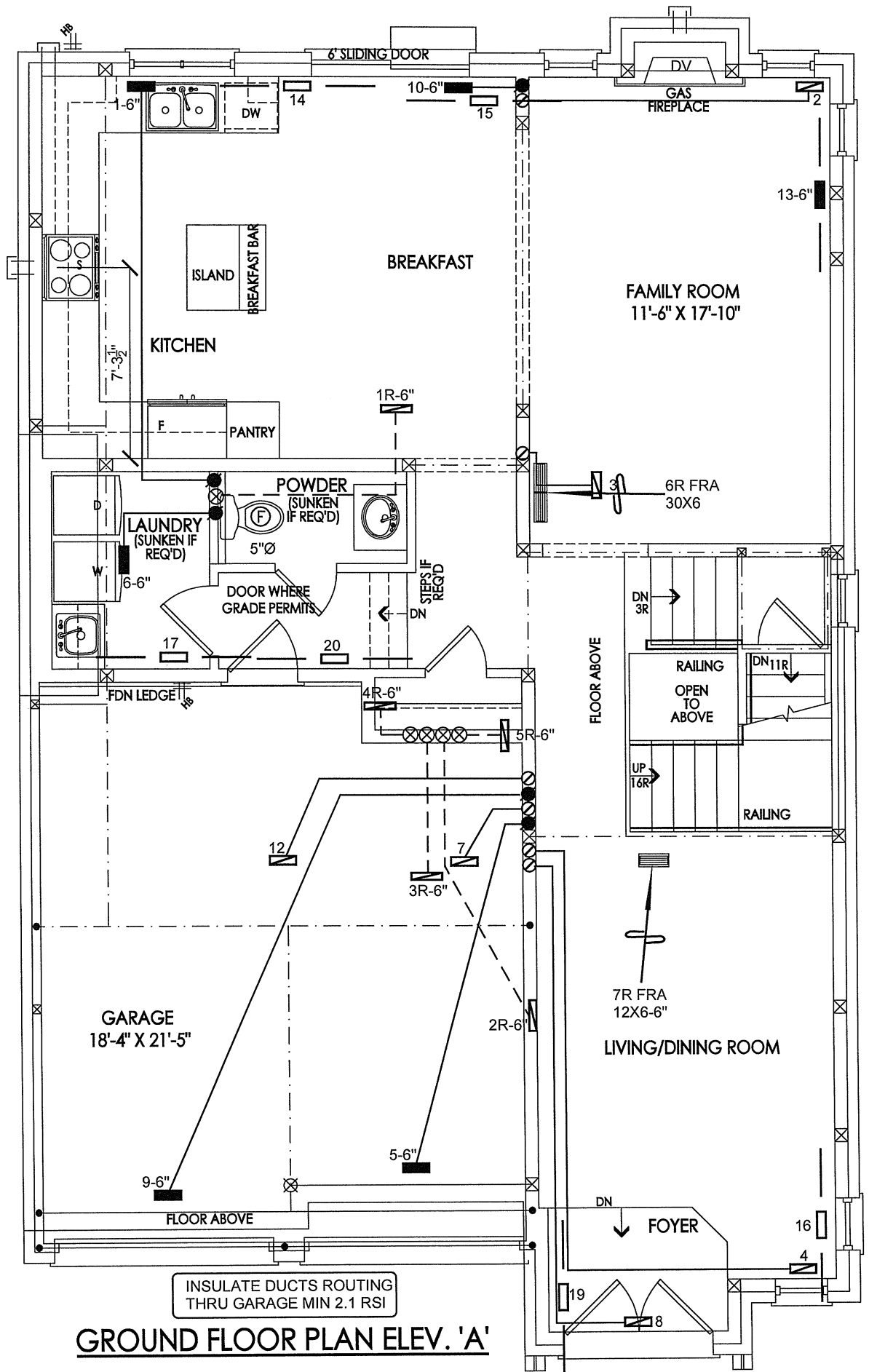
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

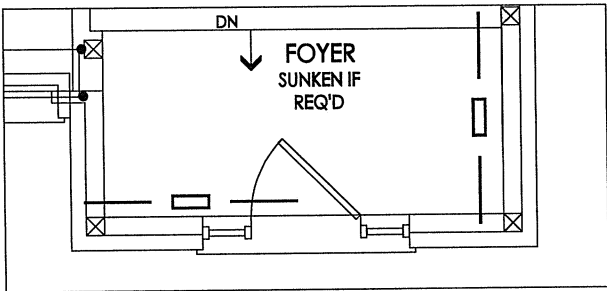
Weather Station Description				
Province:	Ontario			
Region:	Richmond Hill			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	6.74			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	999.5			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	933.0 cm ²		
	2.50	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):	0.227			
Cooling Air Leakage Rate (ACH/H):	0.071			

TYPE: 38-10
LO# 90461

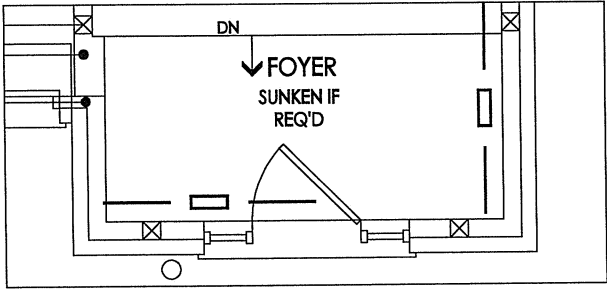
OPT 2ND - FIN BSMT - WUB



GROUND FLOOR PLAN ELEV. 'A'



GROUND FLOOR PLAN ELEV. 'B'



GROUND FLOOR PLAN ELEV. 'C'

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

CSA-F280-12

WUB SB-12 PERFORMANCE

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

REVISIONS

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Client
ROYAL PINE HOMES

Project Name
**CENTREFIELD (WEST GORMLEY)
RICHMOND HILL, ONTARIO**

**FIN BSMT - WUB
38-10 - OPT 2ND 2554 sqft**

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.

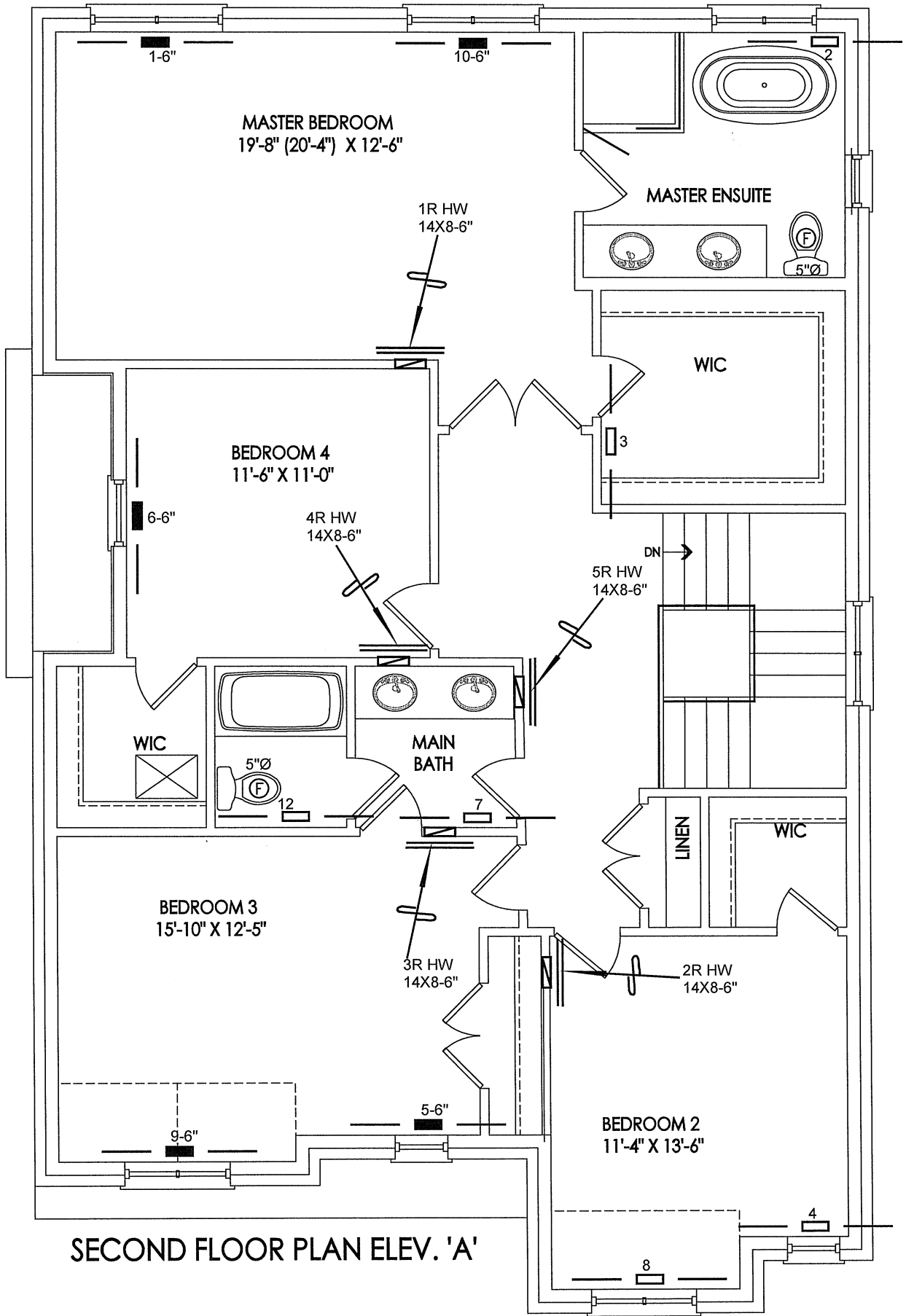
Sheet Title
**FIRST FLOOR
HEATING
LAYOUT**

Date **APR/2021**

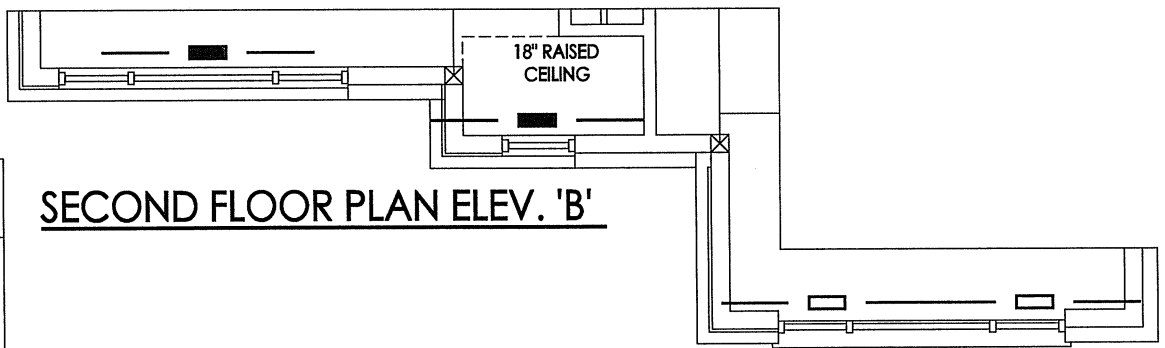
Scale **3/16" = 1'-0"**

BCIN# 19669

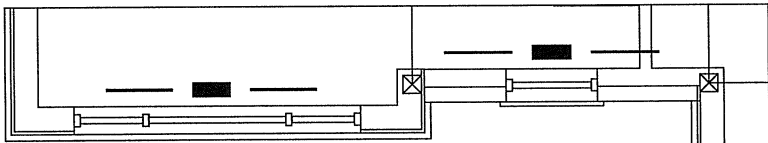
LO# **90461**



SECOND FLOOR PLAN ELEV. 'A'



SECOND FLOOR PLAN ELEV. 'B'



SECOND FLOOR PLAN ELEV. 'C'

CSA-F280-12

WUB SB-12 PERFORMANCE

I MICHAEL O'ROURKE HAVE REVIEW
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C, 3.2.3 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.	
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Client ROYAL PINE 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 SECOND FLOOR HEATING LAYOUT	
Project Name CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			Date APR/2021	
FIN BSMT - WUB 38-10 - OPT 2ND 2554 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO# 90461	