

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@hvacdesigns.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: 4504 OPT. GROUND & OPT 2ND 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.				
June 7, 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

HEAT LOSS $\Delta T^{\circ}\text{F.}$ 78 CSA-F280-12

ROOM USE	EXP. WALL CLG. HT.	FACTORS		LIV	DIN	KT/GT	LAUN	W/R	FOY	MUD	BAS
		LOSS	GAIN	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS
GRS.WALL AREA		250		250		920		60	230	176	996
GLAZING											
NORTH	21.8	16.0	0	0	0	0	0	0	0	0	4
EAST	21.8	41.6	40	0	0	0	0	0	25	545	87
SOUTH	21.8	24.9	0	0	28	610	0	9	196	224	0
WEST	21.8	41.6	0	0	0	0	0	0	0	0	0
SKYLT.	35.8	101.2	0	0	0	0	0	0	0	0	8
DOORS	25.8	4.3	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.2	0.7	210	883	145	777	3268	538	20	517	85
NET EXPOSED ISMT WALL ABOVE OR	3.7	0.6	0	0	0	0	0	0	185	778	128
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.8	1.3	0	0	0	0	106	139	62	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	38	99	16	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	5591
SUBTOTAL HT LOSS		1754		1544		6383	239	411	1840	1173	8378
SUB TOTAL HT GAIN						6213	79	269	1252	193	
LEVEL FACTOR / MULTIPLIER	0.30	0.29		0.30	0.29	0.30	0.20	0.29	0.30	0.29	0.80
AIR CHANGE HEAT LOSS	511			449		1858	42	120	536	342	0.76
AIR CHANGE HEAT GAIN		78			37	268	3	11	54	8	6359
DUCT LOSS		0		0		0	28	0	0	0	42
DUCT GAIN		0		0	0	0	74	0	0	0	0
HEAT GAIN PEOPLE	240	0		0	0	0	0	0	0	0	0
HEAT GAIN APPLANCES/LIGHTS		655		655		655	655	0	0	0	0
TOTAL HT LOSS BTU/H	2265			1993		8241	308	530	2375	1615	655
TOTAL HT GAIN x 1.3 BTU/H		3302		2005		9276	1053	352	1697	282	14737

1. *Journal of the American Medical Association*, 2000; 283: 2689-2694.

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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

OPT. GROUND & OPT 2ND

DATE: Jun-21

GFA: 3223 LO# 90464

HEATING CFM 1370 COOLING CFM 1370
TOTAL HEAT LOSS 49,195 TOTAL HEAT GAIN 41,955
AIR FLOW RATE CFM 27.85 AIR FLOW RATE CFM 32.65furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure
for s/a & r/a 0.35**CARRIER
59TNA-060-14V
FAN SPEED 60AFUE = 97 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 58,000

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	14	10	5
R/A	0	0	5	3	1

plenum pressure s/a 0.18
max s/a dif press. loss 0.02
min adjusted pressure s/a 0.16r/a pressure 0.17
r/a grille press. loss 0.02
adjusted pressure r/a 0.15DESIGN CFM = 1370
CFM @ .6" E.S.P.

All S/A diffusers 4"x10" unless noted otherwise on layout.

All R/A runs 5"Ø unless noted otherwise on layout.

ROOM NAME	WIC	MBR	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
RM LOSS MBH	0.33	1.39	1.39	1.38	1.92	1.19	0.54	2.15	1.92	1.35	1.35	1.13	1.13	2.06	2.06	2.06	0.31	0.53	2.38	1.51	2.95	2.95	2.95	2.95
CFM PER RUN HEAT	9	39	39	38	54	33	15	60	54	38	38	32	32	57	57	57	9	15	66	42	82	82	82	82
RM GAIN MBH	0.10	2.00	2.00	2.30	2.68	1.96	0.35	1.60	2.68	1.59	1.59	1.65	1.65	2.32	2.32	2.32	1.05	0.35	1.70	0.26	0.44	0.44	0.44	0.44
CFM PER RUN COOLING	3	65	65	75	88	64	11	52	88	52	52	54	54	76	76	76	34	11	55	9	14	14	14	14
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	47	69	67	54	81	76	66	72	76	70	66	71	65	43	30	38	55	59	59	51	30	16	27	48
EQUIVALENT LENGTH	140	150	160	120	160	170	170	140	150	140	170	170	170	130	120	140	130	120	160	190	120	120	120	110
TOTAL EFFECTIVE LENGTH	187	219	227	174	241	246	236	212	226	210	236	241	235	173	150	178	185	179	219	241	120	136	147	158
ADJUSTED PRESSURE	0.09	0.08	0.08	0.1	0.07	0.07	0.07	0.07	0.08	0.07	0.08	0.07	0.07	0.1	0.11	0.1	0.09	0.1	0.08	0.07	0.14	0.12	0.11	0.1
ROUND DUCT SIZE	4	5	5	5	6	6	4	5	6	5	5	5	5	5	5	5	4	4	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	103	286	286	279	275	168	172	441	275	279	279	235	235	419	419	419	103	172	485	308	418	418	418	418
COOLING VELOCITY (ft/min)	34	477	477	551	449	326	126	382	449	382	382	396	396	558	558	558	390	126	404	66	71	71	71	71
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	D	E	E	C	A	B	B	C	A	E	D	A	A	D	D	D	C	B	A	C	E	E	C	B

ROOM NAME	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
BAS	DIN	DIN	KT/GT	ENS	BED-3	BED-4	BED-5	ENS-4/5	ENS-3	BED-4	BED-5	BED-2	LIV	KT/GT	KT/GT	KT/GT	LAUN	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	2.95	1.99	2.06	0.95	1.38	1.38	1.19	0.54	2.15	1.92	1.35	1.35	1.13	2.06	2.06	2.06	0.31	0.53	2.38	1.51	2.95	2.95	2.95	2.95
CFM PER RUN HEAT	82	56	57	26	38	38	33	15	60	54	38	38	32	57	57	57	9	15	66	42	82	82	82	82
RM GAIN MBH	0.44	2.00	2.32	0.68	2.30	2.30	1.96	0.35	1.60	2.68	1.59	1.59	1.65	2.32	2.32	2.32	1.05	0.35	1.70	0.26	0.44	0.44	0.44	0.44
CFM PER RUN COOLING	14	65	76	22	75	75	64	11	52	88	52	52	54	76	76	76	34	11	55	9	14	14	14	14
ADJUSTED PRESSURE	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	57	49	44	43	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
EQUIVALENT LENGTH	150	140	150	180	180	180	170	170	140	150	140	170	170	130	120	140	130	120	160	190	120	120	120	110
TOTAL EFFECTIVE LENGTH	207	189	194	223	220	220	212	226	210	236	210	236	241	173	150	178	185	179	219	241	120	136	147	158
ADJUSTED PRESSURE	0.08	0.09	0.09	0.08	0.08	0.08	0.07	0.07	0.08	0.07	0.08	0.07	0.07	0.1	0.11	0.1	0.09	0.1	0.08	0.07	0.14	0.12	0.11	0.1
ROUND DUCT SIZE	6	6	5	4	6	6	6	4	5	6	5	5	5	5	5	5	4	4	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	418	286	419	298	194	194	172	441	275	279	279	235	235	419	419	419	103	172	485	308	418	418	418	418
COOLING VELOCITY (ft/min)	71	331	558	252	382	382	126	382	449	382	382	396	396	558	558	558	390	126	404	66	71	71	71	71
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	A	B	D	C	C	C	B	B	C	A	E	D	A	A	D	D	C	B	A	C	E	E	C	B

SUPPLY AIR TRUNK SIZE	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	STATIC PRESS.	TRUNK CFM	VELOCITY (ft/min)	RECT DUCT	ROUND DUCT	STATIC PRESS.	TRUNK CFM	VELOCITY (ft/min)	RECT DUCT	ROUND DUCT	STATIC PRESS.	TRUNK CFM	VELOCITY (ft/min)
TRUNK A	320	0.07	9.5	10	0.00	0	576	0	0	0.00	0	8	0	0	0.05	0	8
TRUNK B	521	0.07	11.4	16	0.00	0	586	0	0	0.00	0	8	0	0	0.05	0	8
TRUNK C	816	0.07	13.4	20	0.00	0	734	0	0	0.00	0	8	0	0	0.05	0	8
TRUNK D	275	0.07	8.9	10	0.00	0	495	0	0	0.00	0	8	0	0	0.05	0	8
TRUNK E	555	0.07	11.6	16	0.00	0	624	0	0	0.00	0	8	0	0	0.05	0	8
TRUNK F	1370	0.07	16.3	26	0.00	0	759	0	0	0.00	0	8	0	0	0.05	0	8
RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
AIR VOLUME	115	115	115	115	130	130	305	140	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
ACTUAL DUCT LGH.	95	65	98	88	60	67	47	18	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	195	245	215	235	205	190	245	145	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LENGTH	290	310	313	323	265	257	292	163	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.05	0.05	0.05	0.05	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
ROUND DUCT SIZE	7	7	7	7	7	7	10.1	6.5	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
INLET GRILL SIZE	14	14	14	14	14	14	30	14	0	0	0	0	0	0	0	0	0

TYPE: 4504
SITE NAME: CENTREFIELD (WEST GORMLEY)

LO # 90464
OPT. GROUND & OPT 2ND

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	4 @ 10.6 cfm	42.4 cfm
Kitchen & Bathrooms	5 @ 10.6 cfm	53 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	95.4	cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	190.8	cfm
Less Principal Ventil. Capacity	95.4	cfm
Required Supplemental Capacity	95.4	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
95.4 cfm	☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	ΔT °F	FACTOR	% LOSS	
95.4 CFM	X 78 F	X 1.08	X	0.25

SUPPLEMENTAL FANS		BY INSTALLING CONTRACTOR	
Location	Model	cfm	HVI
ENS	BY INSTALLING CONTRACTOR	50	✓
ENS-4/5	BY INSTALLING CONTRACTOR	50	✓
ENS 3	BY INSTALLING CONTRACTOR	50	✓
W/R	BY INSTALLING CONTRACTOR	50	✓

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 65H		
155 cfm high	64 cfm low	
75 % Sensible Efficiency	☒ HVI Approved	
@ 32 deg F (0 deg C)		

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:	June-21

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																														
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																														
LO#: 90464	Model: 4504	Builder: ROYAL PINE HOMES	Date: 6/7/2021																																																											
Volume Calculation		Air Change & Delta T Data																																																												
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="3">House Volume</th> </tr> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> </tr> <tr> <td>Bsmt</td> <td>1453</td> <td>9</td> </tr> <tr> <td>First</td> <td>1453</td> <td>10</td> </tr> <tr> <td>Second</td> <td>1770</td> <td>8</td> </tr> <tr> <td>Third</td> <td>0</td> <td>9</td> </tr> <tr> <td>Fourth</td> <td>0</td> <td>9</td> </tr> <tr> <td colspan="2">Total:</td> <td>41,767.0 ft³</td> </tr> <tr> <td colspan="2">Total:</td> <td>1182.7 m³</td> </tr> </table>		House Volume			Level	Floor Area (ft²)	Floor Height (ft)	Bsmt	1453	9	First	1453	10	Second	1770	8	Third	0	9	Fourth	0	9	Total:		41,767.0 ft³	Total:		1182.7 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="3">WINTER NATURAL AIR CHANGE RATE</th> </tr> <tr> <td></td> <td></td> <td>0.219</td> </tr> <tr> <th colspan="3">SUMMER NATURAL AIR CHANGE RATE</th> </tr> <tr> <td></td> <td></td> <td>0.068</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Design Temperature Difference</th> </tr> <tr> <th></th> <th>T_{in} °C</th> <th>T_{out} °C</th> <th>ΔT °C</th> </tr> <tr> <td>Winter DTDh</td> <td>22</td> <td>-21</td> <td>43</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>31</td> <td>7</td> </tr> <tr> <td></td> <td></td> <td></td> <td>13</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE					0.219	SUMMER NATURAL AIR CHANGE RATE					0.068	Design Temperature Difference					T _{in} °C	T _{out} °C	ΔT °C	Winter DTDh	22	-21	43	Summer DTDc	24	31	7				13
House Volume																																																														
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Bsmt	1453	9																																																												
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6.2.6 Sensible Gain due to Air Leakage																																																														
$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$																																																														
0.219	x	328.53	x																																																											
		7 °C	x																																																											
		1.2	=																																																											
			191 W																																																											
			=																																																											
			652 Btu/h																																																											
6.2.7 Sensible heat Gain due to Ventilation																																																														
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																																														
95 CFM	x	13 °F	x																																																											
		1.08	x																																																											
		0.25	=																																																											
			330 Btu/h																																																											
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																														
$HL_{airrr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																														
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HL_{airbv} Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{level})</th> <th>Air Leakage Heat Loss Multiplier (LF x HL_{airbv} / HL_{level})</th> </tr> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">12,718</td> <td>8,378</td> <td>0.759</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>13,104</td> <td>0.291</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>14,521</td> <td>0.175</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> </table>				Level	Level Factor (LF)	HL _{airbv} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{level})	1	0.5	12,718	8,378	0.759	2	0.3	13,104	0.291	3	0.2	14,521	0.175	4	0	0	0.000	5	0	0	0.000																																	
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5	0		0	0.000																																																										
*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: 4504	OPT. GROUND & OPT 2ND	BUILDER: ROYAL PINE HOMES
SFQT: 3223	LO# 90464	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 (ft³):	41767.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.40	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 46.0 ft	WIDTH: 37.0 ft	EXPOSED PERIMETER:	166.0 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%	-

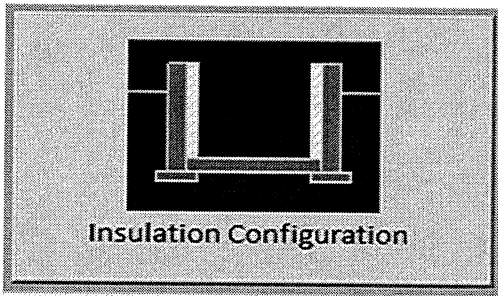
INDIVIDUAL BCIN: 19669

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):	14.0	
Floor Width (m):	11.3	
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):	1638	

TYPE: 4504
LO# 90464

OPT. GROUND & OPT 2ND

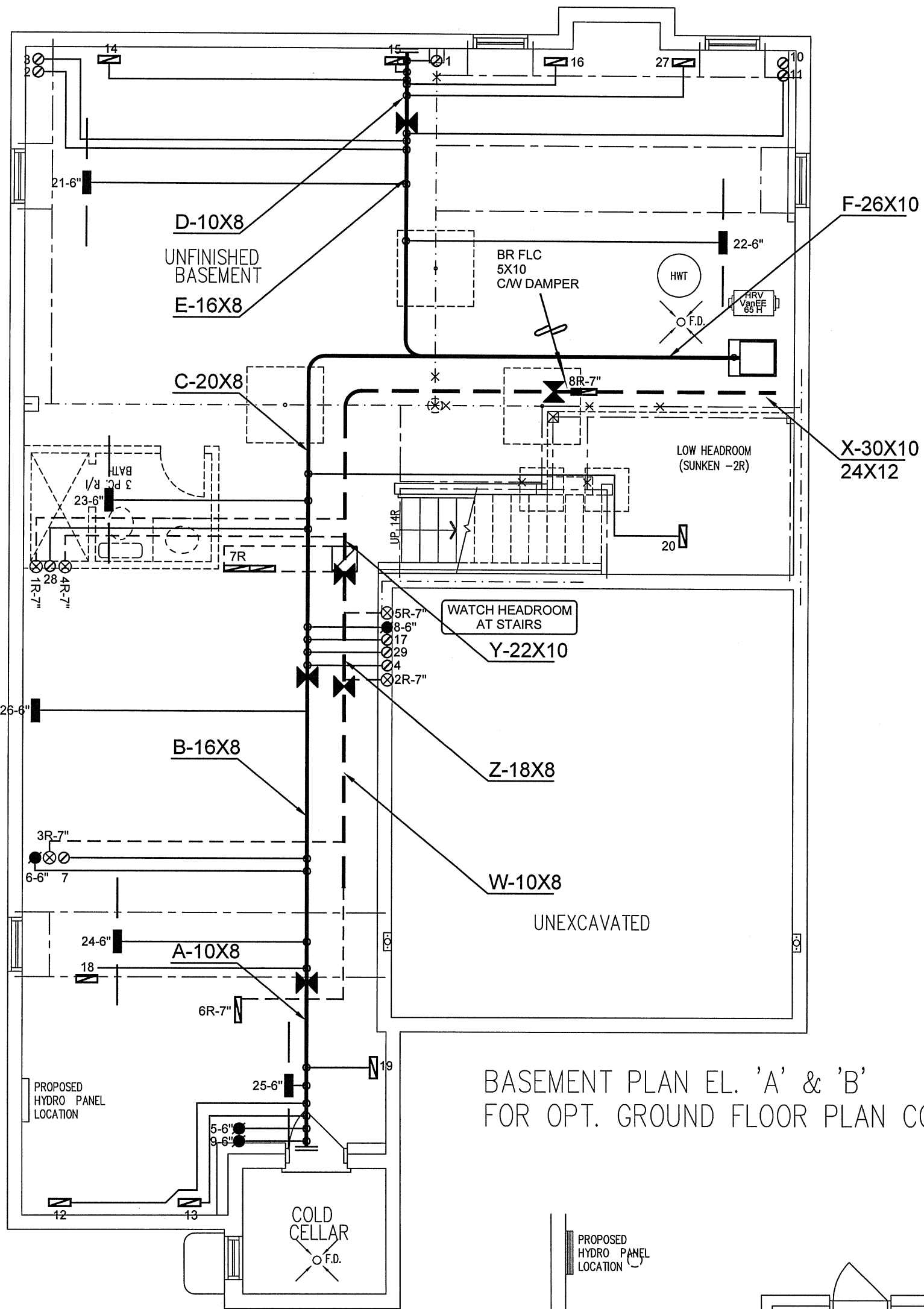
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

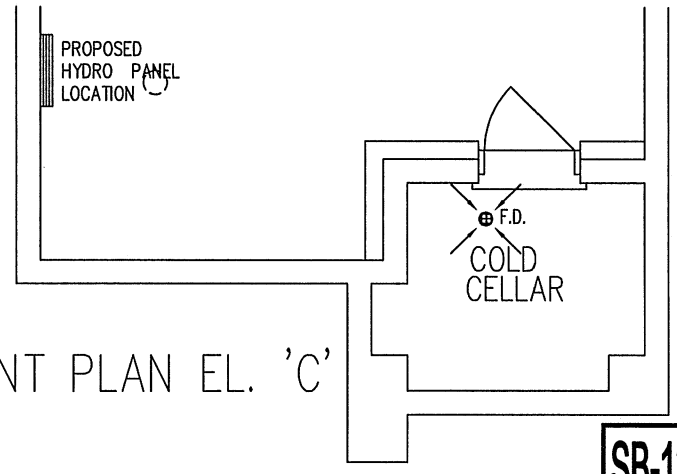
Weather Station Description				
Province:	Ontario			
Region:	Richmond Hill			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	6.40			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1182.7			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1104.1 cm ²		
	2.50	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	45.0	45.0		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.219			
Cooling Air Leakage Rate (ACH/H):	0.068			

TYPE: 4504
LO# 90464

OPT. GROUND & OPT 2ND



BASEMENT PLAN EL. 'A' & 'B'
FOR OPT. GROUND FLOOR PLAN COND.



BASEMENT PLAN EL. 'C'

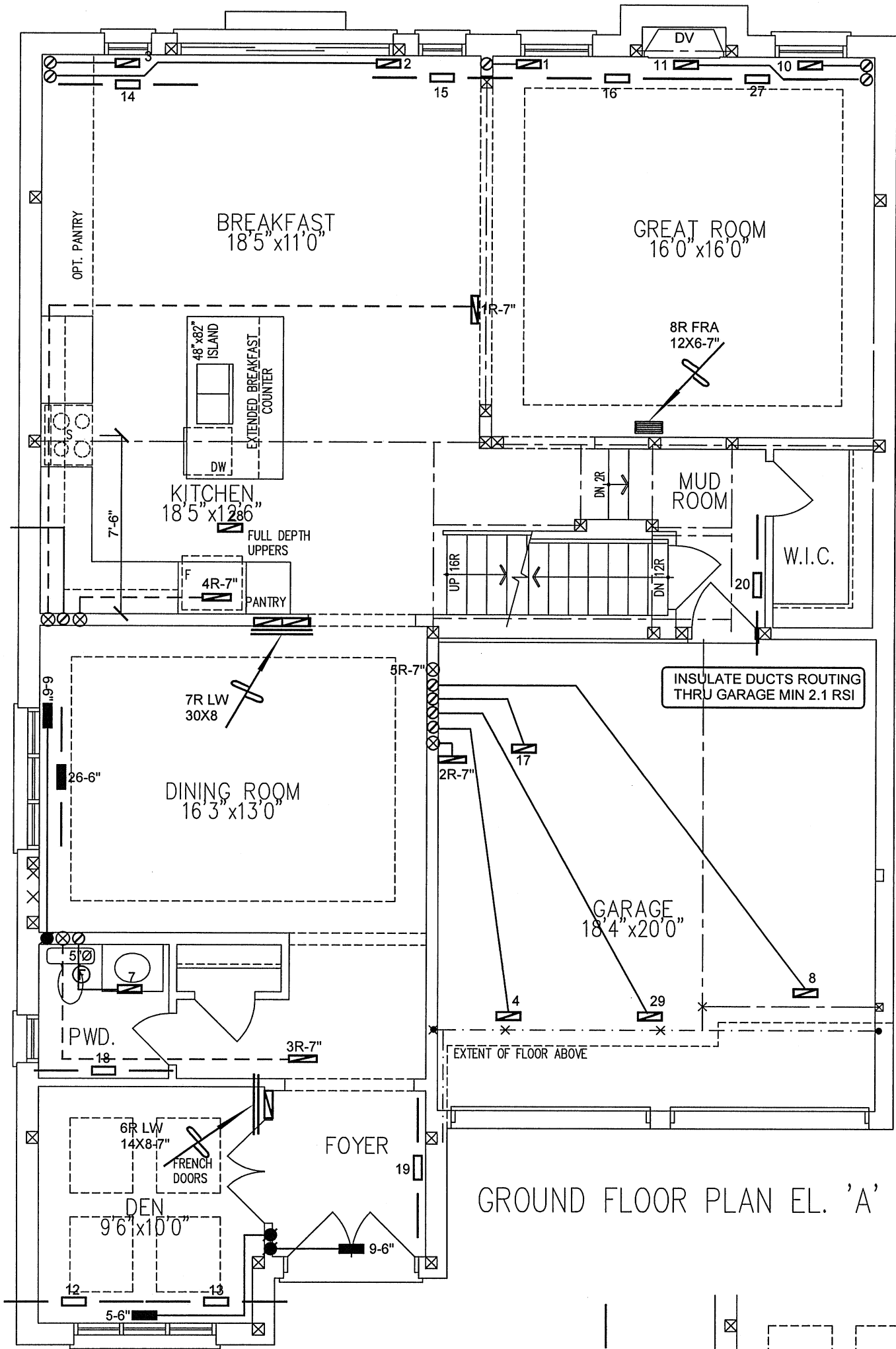
CSA-F280-12
SB-12 PERFORMANCE

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.

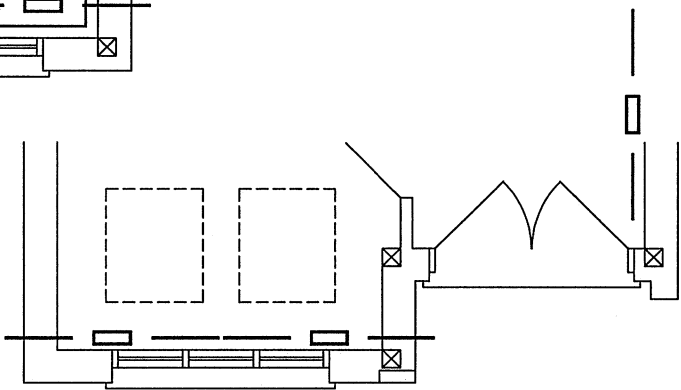
HVAC LEGEND							3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	REVISED AS PER CAD
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE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

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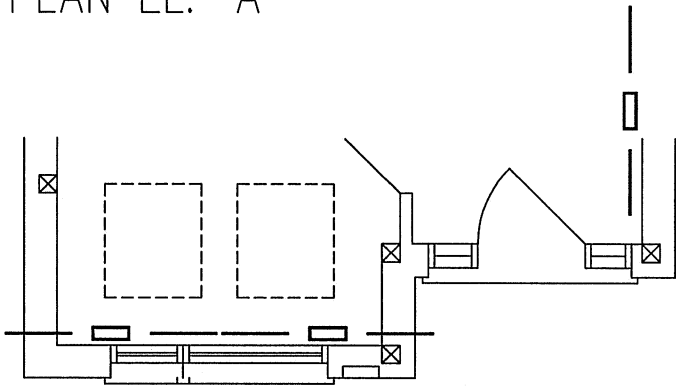
Client		HVACDESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services		HEAT LOSS 51199 BTU/H		# OF RUNS S/A R/A FANS			Sheet Title BASEMENT HEATING LAYOUT		
ROYAL PINE HOMES				UNIT DATA		3RD FLOOR					
Project Name CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO		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.		MAKE CARRIER		2ND FLOOR	14	5	4	Date APR/2021	
				MODEL 59TN6A-060-14V		1ST FLOOR	10	3	2		
OPT. GROUND & OPT 2ND 4504 3223 sqft				INPUT 60 MBTU/H		BASEMENT	5	1	0	Scale 3/16" = 1'-0"	
				OUTPUT 58 MBTU/H		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					
				COOLING 3.5 TONS		BCIN# 19669					
				FAN SPEED 1370 cfm @ 0.6" w.c.		LO# 90464					



GROUND FLOOR PLAN EL. 'A'



GROUND FLOOR PLAN EL. 'B'



GROUND FLOOR PLAN EL. '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, BCIN# 19669
HVAC DESIGNS LTD.

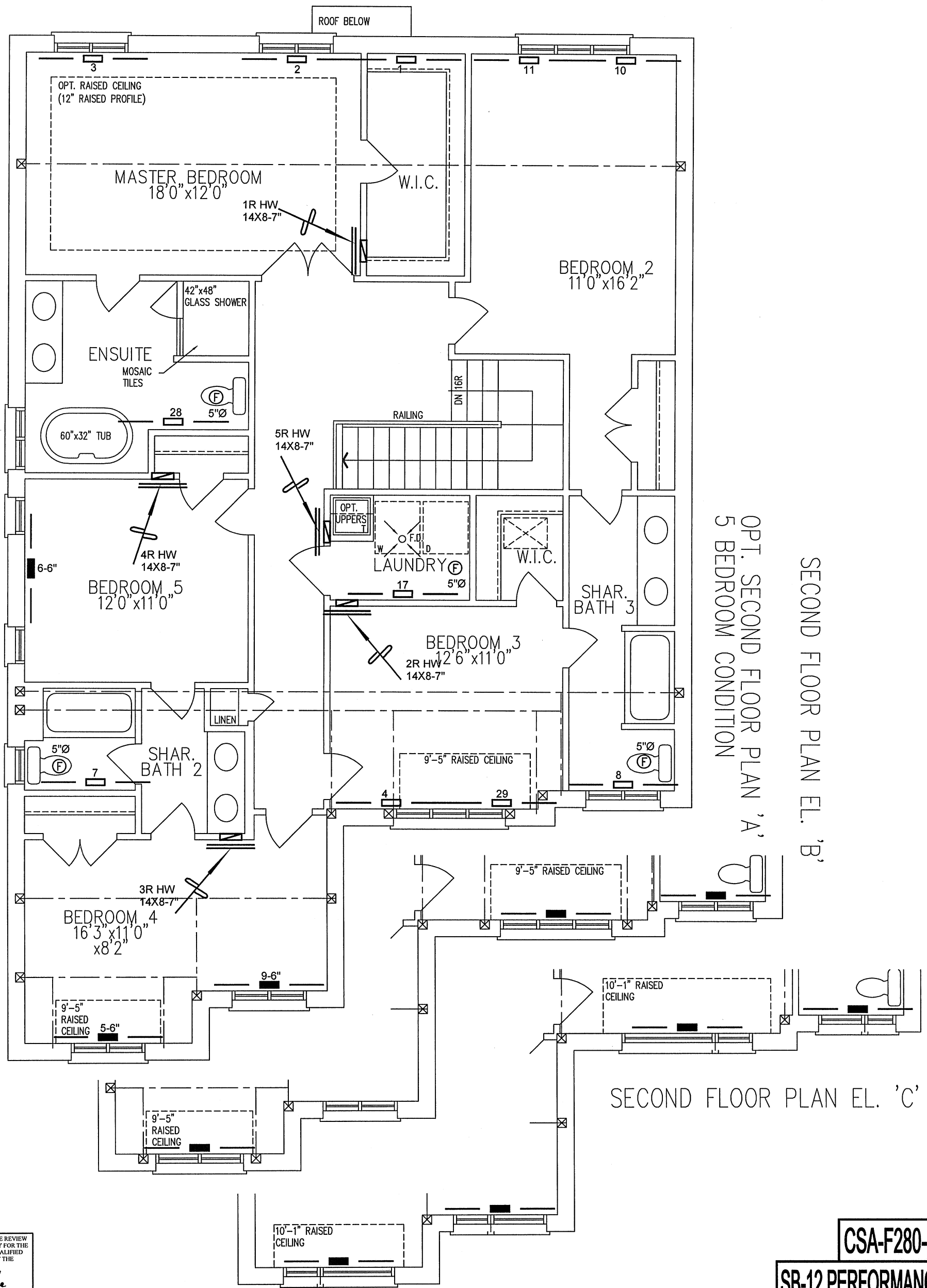
CSA-F280-12

SB-12 PERFORMANCE

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.	REVISED AS PER CAD
	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		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	Date	

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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	Sheet Title FIRST FLOOR HEATING LAYOUT	
Project Name CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			Date APR/2021	Scale 3/16" = 1'-0"
OPT. GROUND & OPT 2ND 4504 3223 sqft		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.	BCIN# 19669	
			LO#	90464



SECOND FLOOR PLAN EL. 'B'
OPT. SECOND FLOOR PLAN 'A'
5 BEDROOM CONDITION

SECOND FLOOR PLAN EL. '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
SB-12 PERFORMANCE

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.
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	
REVISIONS								

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Client ROYAL PINE 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	Sheet Title SECOND FLOOR HEATING LAYOUT	
Project Name CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			Date APR/2021	
OPT. GROUND & OPT 2ND 4504 3223 sqft		Scale 3/16" = 1'-0"		
		BCIN# 19669		
		LO#	90464	