

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: 4502 OPT GROUND - 5 BED 4 BATH 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 4, 2021		 Signature of Designer	
Date			

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										DATE: Jun-21 LO# 9145		WINTER NATURAL AIR CHANGE RATE 0.219 SUMMER NATURAL AIR CHANGE RATE 0.068		HEAT LOSS AT °F. 78 HEAT GAIN AT °F. 13		CSA-F280-12 SB-12 PERFORMANCE	
TYPE: 4502 OPT GROUND - 5 BED 4 BATH										GFA: 2342		BATH-1		BED-5		BATH-2	
ROOM USE EXP. WALL CLG. HT.	MBR	ENS	BATH-3	BED-4	BED-2	BED-3	BATH-1	BED-5	BATH-2	BATH-1		BED-5		BATH-2		BATH-2	
FACTORS	32	11	14	11	33	33	8	264	72	9	8	25	8	9	8		
LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN		
GRS.WALL AREA	288	88	112	88	264	264	8	264	72	72	72	200	200	72	72		
GLAZING	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
NORTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
EAST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
SOUTH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
WEST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
SKYLT.	1064	17	370	696	0	0	0	0	0	0	0	0	0	0	0		
DOORS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
NET EXPOSED WALL	4.2	71	299	49	112	471	77	294	48	208	875	144	155	63	265	44	183
NET EXPOSED BMT WALL ABOVE GR	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	255	335	150	187	246	110	266	350	156	154	202	91	252	331	148
NO ATTIC EXPOSED CLG	2.8	1.3	0	0	0	0	0	0	28	79	35	24	67	30	0	0	0
EXPOSED FLOOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS	0	0	0	0	0	0	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	2003	915	1108	889	3235	2739	581	0.20	0.18	0.20	0.18	0.20	0.18	0.20	0.18	0.20	0.18
SUB TOTAL HT GAIN	1395	855	281	281	581	2739	581	0.20	0.18	0.20	0.18	0.20	0.18	0.20	0.18	0.20	0.18
LEVEL FACTOR / MULTIPLIER	0.20	0.18	0.20	0.18	0.20	0.18	0.20	0.20	0.18	0.20	0.18	0.20	0.18	0.20	0.18	0.20	0.18
AIR CHANGE HEAT LOSS	359	164	199	159	580	382	91	0.20	0.18	0.20	0.18	0.20	0.18	0.20	0.18	0.20	0.18
AIR CHANGE HEAT GAIN	65	40	27	27	128	0	0	0	0	0	0	0	0	0	0	0	0
DUCT LOSS	0	0	131	0	382	0	0	0	0	0	0	0	0	0	0	0	0
DUCT GAIN	0	0	29	0	360	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240	0	0	1	240	1	240	1	240	0	0	1	240	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	480	0	0	0	480	0	480	0	480	0	0	0	480	0	0	0	0
TOTAL HT LOSS BTU/H	2362	1079	1437	1048	4197	2516	833	0.20	0.18	0.20	0.18	0.20	0.18	0.20	0.18	0.20	0.18
TOTAL HT GAIN x 1.3 BTU/H	3160	1163	421	1740	5145	3582	711	1583	2192	711	711	1583	2192	711	711	319	319

TOTAL HEAT GAIN BTU/H: 36542										TONS: 3.05		LOSS DUE TO VENTILATION LOAD BTU/H: 2004		STRUCTURAL HEAT LOSS: 45486		TOTAL COMBINED HEAT LOSS BTU/H: 47490	
ROOM USE EXP. WALL CLG. HT.	DEN	GRT	KT/BR	DIN	LAUN	PWD	FOY	MUD	BAS	BATH-1		BED-5		BATH-2		BATH-2	
FACTORS	30	34	37	17	16	6	18	11	172	9	8	25	8	9	8		
LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN		
GRS.WALL AREA	300	340	370	170	176	60	180	121	1032								
GLAZING	0	0	0	0	0	0	0	0	0								
NORTH	0	0	0	0	0	0	0	0	0								
EAST	34	741	1391	0	0	0	0	0	0								
SOUTH	0	0	0	0	0	0	0	0	0								
WEST	0	0	0	0	0	0	0	0	0								
SKYLT.	0	0	87	1895	3560	0	0	0	0								
DOORS	0	0	0	0	0	0	0	0	0								
NET EXPOSED WALL	4.2	289	1190	150	631	223	146	614	101								
NET EXPOSED BMT WALL ABOVE GR	3.7	0	0	0	0	0	0	0	0								
EXPOSED CLG	1.3	0.6	15	20	9	0	0	0	0								
NO ATTIC EXPOSED CLG	2.8	1.3	0	0	0	0	0	0	0								
EXPOSED FLOOR	0	0	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	1859	2326	3105	1066	1314	375	1435	509	8498								
SUB TOTAL HT GAIN	1575	2287	3765	595	314	208	759	84	668								
LEVEL FACTOR / MULTIPLIER	0.30	0.29	0.30	0.29	0.30	0.30	0.30	0.30	0.50								
AIR CHANGE HEAT LOSS	537	672	896	308	379	108	414	147	5769								
AIR CHANGE HEAT GAIN	74	107	176	28	15	0	0	0	31								
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	240	0	0	0	0	0	0	0	0								
HEAT GAIN APPLIANCES/LIGHTS	490	490	490	490	490	0	0	0	490								
TOTAL HT LOSS BTU/H	2396	2998	4001	1374	1693	484	1850	656	14267								
TOTAL HT GAIN x 1.3 BTU/H	2781	3750	5761	1447	1064	284	1033	114	1546								

Michael O'Rourke

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

TYPE: 4502
furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure for s/a & r/a 0.35

plenum pressure s/a 0.18
max s/a dif press. loss 0.02
min adjusted pressure s/a 0.16

HEATING CFM 1145
TOTAL HEAT LOSS 45,486
AIR FLOW RATE CFM 31,62

COOLING CFM 1145
TOTAL HEAT GAIN 36,213
AIR FLOW RATE CFM 31,62

GFA: 2942LO# 91145DATE: Jun-21OPT GROUND - 5 BED 4 BATH

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	11	10	4
R/A	0	0	5	3	1

All S/A diffusers 4"x10" unless noted otherwise on layout.
All S/A runs 5'x9" unless noted otherwise on layout.

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	BED-5	ENS	BED-2	MBR	BED-2	BED-3	BATH-1	BATH-3	BED-3	BATH-2	BED-4	DEN	GRT	KT/BR	KT/BR	DIN	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.58	1.08	2.10	2.36	2.10	1.26	0.83	1.44	1.26	0.71	1.05	2.40	1.50	2.00	2.00	1.37	1.69	0.48	1.85	0.66	3.57	3.57	3.57	3.57
CFM PER RUN HEAT	40	27	53	59	53	32	21	36	32	18	26	60	38	50	50	35	43	12	47	17	90	90	90	90
RM GAIN MBH	2.19	1.16	2.57	3.16	2.57	1.79	0.71	0.42	1.79	0.32	1.74	2.78	1.87	2.88	2.88	1.45	1.06	0.28	1.03	0.11	0.39	0.39	0.39	0.39
CFM PER RUN COOLING	69	37	81	100	81	57	22	13	57	10	55	88	59	91	91	46	34	9	33	4	12	12	12	12
ADJUSTED PRESSURE	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	27	51	56	65	51	45	43	45	38	19	26	30	40	25	35	5	39	16	35	40	19	42	10	30
EQUIVALENT LENGTH	150	130	140	140	130	160	200	140	190	200	110	110	150	130	120	140	140	140	130	150	130	140	130	110
TOTAL EFFECTIVE LENGTH	177	181	196	205	181	205	243	185	228	219	136	140	190	155	155	145	179	156	165	190	149	182	140	140
ADJUSTED PRESSURE	0.1	0.1	0.08	0.08	0.09	0.08	0.07	0.09	0.08	0.08	0.13	0.12	0.09	0.1	0.1	0.12	0.1	0.11	0.1	0.09	0.11	0.09	0.12	0.12
ROUND DUCT SIZE	6	4	6	6	6	5	4	4	5	4	6	6	5	6	6	4	4	4	4	4	6	6	6	6
HEATING VELOCITY (ft/min)	204	310	270	301	270	235	241	413	235	207	133	306	279	255	255	402	493	138	539	195	459	459	459	459
COOLING VELOCITY (ft/min)	352	424	413	510	413	419	252	149	419	115	280	449	433	464	464	528	390	103	379	46	61	61	61	61
OUTLET GRILL SIZE	4X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10
TRUNK	B	B	D	A	D	C	C	D	C	B	D	C	A	B	B	D	A	C	C	A	B	A	D	C

RUN #	25	GRT	RM LOSS MBH	1.50	38	CFM PER RUN HEAT	1.87	59	CFM PER RUN COOLING	0.17	47	ACTUAL DUCT LGH	110	157	TOTAL EFFECTIVE LENGTH	0.11	5	ROUND DUCT SIZE	279	433	HEATING VELOCITY (ft/min)	3X10	4X10	OUTLET GRILL SIZE	A
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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	0.08	8.8	10	513	0	0.00	0	0	8	0	0.00	0	0	8
TRUNK B	0.08	11.3	16	630	0	0.00	0	0	8	0	0.00	0	0	8
TRUNK C	0.07	9.2	10	529	0	0.00	0	0	8	0	0.00	0	0	8
TRUNK D	0.07	11.9	16	660	0	0.00	0	0	8	0	0.00	0	0	8
TRUNK E	0	0	0	0	0	0.00	0	0	8	0	0.00	0	0	8
TRUNK F	0	0	0	0	0	0.00	0	0	8	0	0.00	0	0	8

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	0.08	8.8	10	513	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK B	0.08	11.3	16	630	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK C	0.07	9.2	10	529	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK D	0.07	11.9	16	660	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK E	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK F	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8

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	0.08	8.8	10	513	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK B	0.08	11.3	16	630	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK C	0.07	9.2	10	529	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK D	0.07	11.9	16	660	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK E	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK F	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8

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	0.08	8.8	10	513	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK B	0.08	11.3	16	630	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK C	0.07	9.2	10	529	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK D	0.07	11.9	16	660	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK E	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK F	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8

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	0.08	8.8	10	513	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK B	0.08	11.3	16	630	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK C	0.07	9.2	10	529	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK D	0.07	11.9	16	660	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK E	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK F	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8

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	0.08	8.8	10	513	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK B	0.08	11.3	16	630	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK C	0.07	9.2	10	529	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK D	0.07	11.9	16	660	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK E	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK F	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8

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	0.08	8.8	10	513	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK B	0.08	11.3	16	630	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK C	0.07	9.2	10	529	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK D	0.07	11.9	16	660	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK E	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK F	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8

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	0.08	8.8	10	513	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK B	0.08	11.3	16	630	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK C	0.07	9.2	10	529	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK D	0.07	11.9	16	660	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK E	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK F	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8

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)
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TRUNK B	0.08	11.3	16	630	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK C	0.07	9.2	10	529	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK D	0.07	11.9	16	660	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK E	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK F	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8

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	0.08	8.8	10	513	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK B	0.08	11.3	16	630	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK C	0.07	9.2	10	529	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK D	0.07	11.9	16	660	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK E	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK F	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8

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)
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TRUNK E	0	0	0	0	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK F	0	0	0	0	0	0.00	0	0	8	0				

TYPE: 4502
SITE NAME: CENTREFIELD (WEST GORMLEY)

LO # 91145
OPT GROUND - 5 BED 4 BATH

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	<u>2</u> @ 21.2 cfm	<u>42.4</u> cfm
Other Bedrooms	<u>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Kitchen & Bathrooms	<u>5</u> @ 10.6 cfm	<u>53</u> cfm
Other Rooms	<u>5</u> @ 10.6 cfm	<u>53.0</u> cfm
Table 9.32.3.A.	TOTAL	<u>190.8</u> 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		<u>95.4</u> cfm

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

PRINCIPAL EXHAUST FAN CAPACITY			
Model: VANEE 65H	Location: BSMT		
<u>95.4</u> 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	Sones
ENS	BY INSTALLING CONTRACTOR	50	☒	3.5
BATH-1	BY INSTALLING CONTRACTOR	50	☒	3.5
BATH-2	BY INSTALLING CONTRACTOR	50	☒	3.5
PWD	BY INSTALLING CONTRACTOR	50	☒	3.5

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 65H		
<u>155</u>	cfm high	<u>64</u> cfm low
<u>75</u>	% 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:	June-21

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																							
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																							
LO#: 91145		Model: 4502		Builder: ROYAL PINE HOMES		Date: 2021-06-04																																																																	
Volume Calculation				Air Change & Delta T Data																																																																			
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5.2.3.1 Heat Loss due to Air Leakage				6.2.6 Sensible Gain due to Air Leakage																																																																			
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$				$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$																																																																			
0.219 x 298.04 x 43 °C x 1.2 = 3382 W				= 0.068 x 298.04 x 7 °C x 1.2 = 173 W																																																																			
= 11538 Btu/h				= 592 Btu/h																																																																			
5.2.3.2 Heat Loss due to Mechanical Ventilation				6.2.7 Sensible heat Gain due to Ventilation																																																																			
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$				$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																																																			
95 CFM x 78 °F x 1.08 x 0.25 = 2004 Btu/h				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)																																																																							
$HL_{airrr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																																							
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*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: 4502	OPT GROUND - 5 BED 4 BATH	BUILDER: ROYAL PINE HOMES
SFQT: 2942	LO# 91145	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):	37891.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
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: 48.0 ft	WIDTH: 38.0 ft	EXPOSED PERIMETER:	172.0 ft

2012 OBC - COMPLIANCE PACKAGE

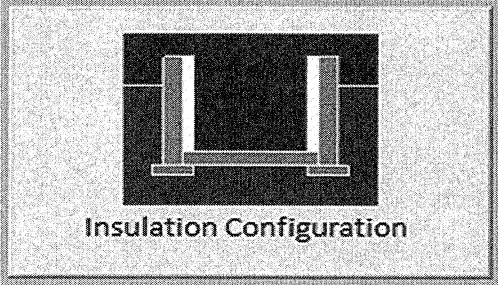
Component	Compliance Package SB-12 PERFORMANCE	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.70
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22+1.5	18.50
Basement Walls Minimum 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):	14.6	 Insulation Configuration
Floor Width (m):	11.6	
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):		1724

TYPE: 4502
LO# 91145

OPT GROUND - 5 BED 4 BATH

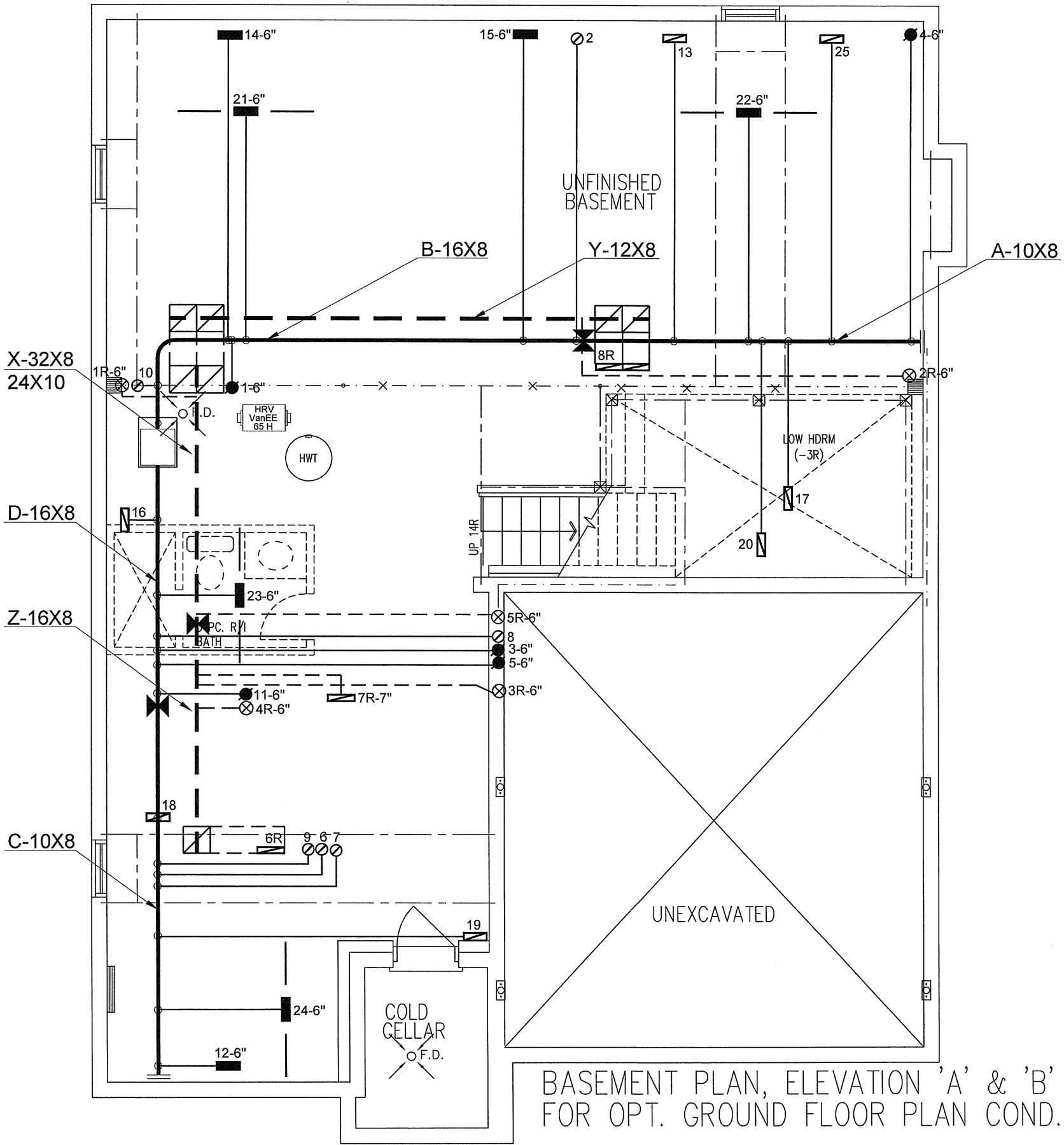
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

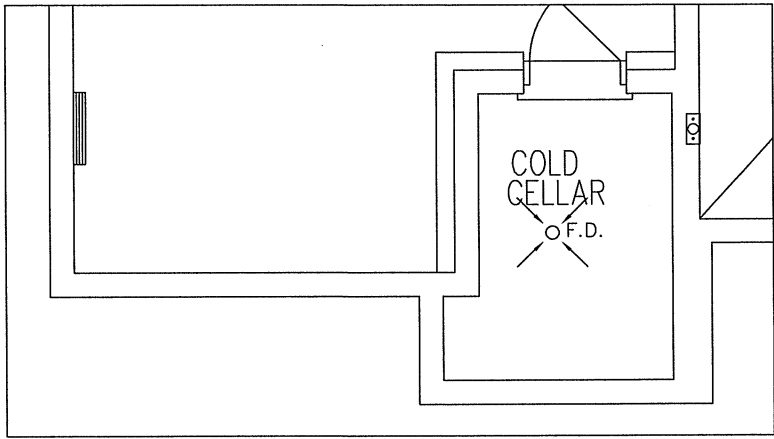
Weather Station Description				
Province:	Ontario			
Region:	Richmond Hill			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	6.40			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1073.0			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1001.6 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: 4502
LO# 91145

OPT GROUND - 5 BED 4 BATH



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



BASEMENT PLAN, ELEVATION 'C'
FOR OPT. GROUND FLOOR PLAN COND.

CSA-F280-12

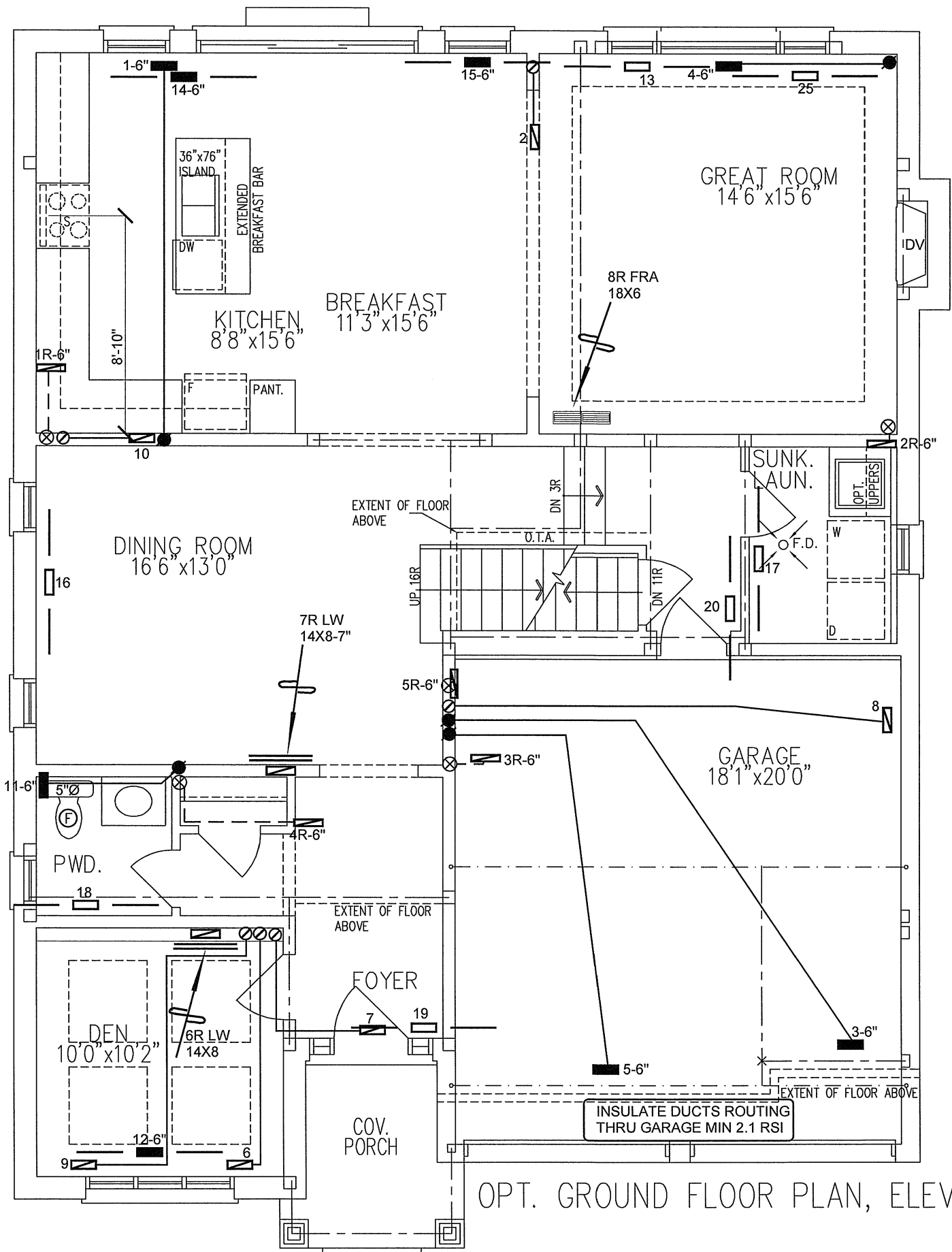
SB-12 PERFORMANCE

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

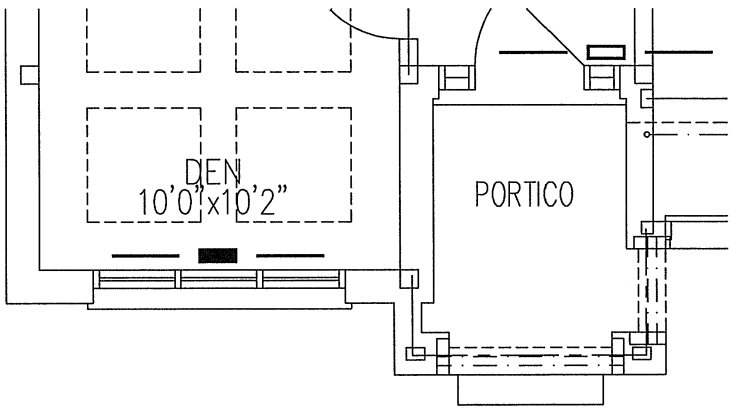
HVAC LEGEND							3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK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

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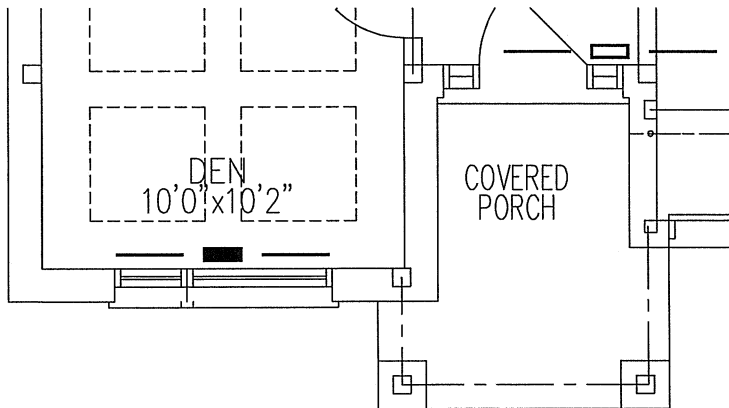
Client		HVACDESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services		HEAT LOSS 47490 BTU/H		# OF RUNS			S/A			R/A			FANS			Sheet Title															
ROYAL PINE HOMES				UNIT DATA		MAKE		CARRIER		MODEL		59TN6A-060-14V		INPUT		60		MBTU/H		3RD FLOOR						BASEMENT		HEATING LAYOUT					
Project Name		CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO		OUTPUT		58		MBTU/H		COOLING		3.0		TONS		FAN SPEED		1145		cfm @ 0.6" w.c.		2ND FLOOR		11		5		4		Date		JUNE/2021	
OPT GROUND - 5 BED 4 BATH 4502 2942 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.		BASEMENT		4		1		0		ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A		Scale		3/16" = 1'-0"		BCIN# 19669		LO#		91145									



OPT. GROUND FLOOR PLAN, ELEVATION 'A'



OPT. GROUND FLOOR PLAN, ELEVATION 'B'



OPT. GROUND FLOOR PLAN, ELEVATION 'C'

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

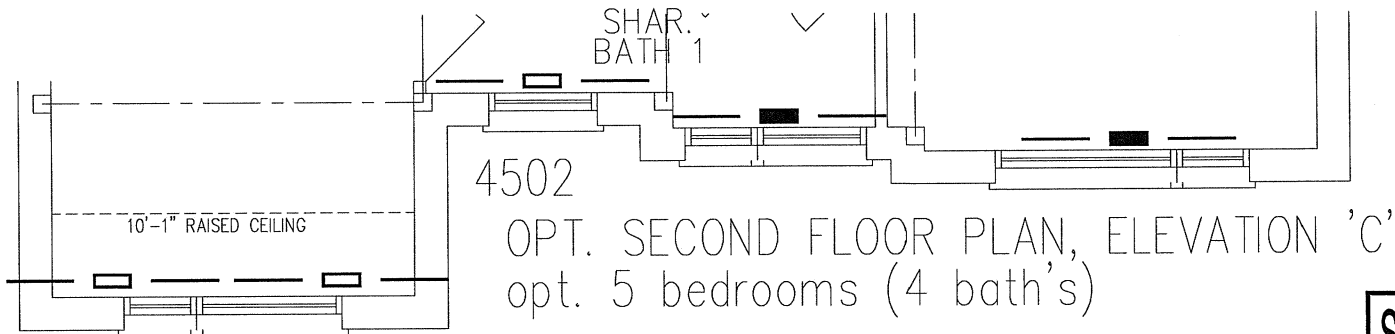
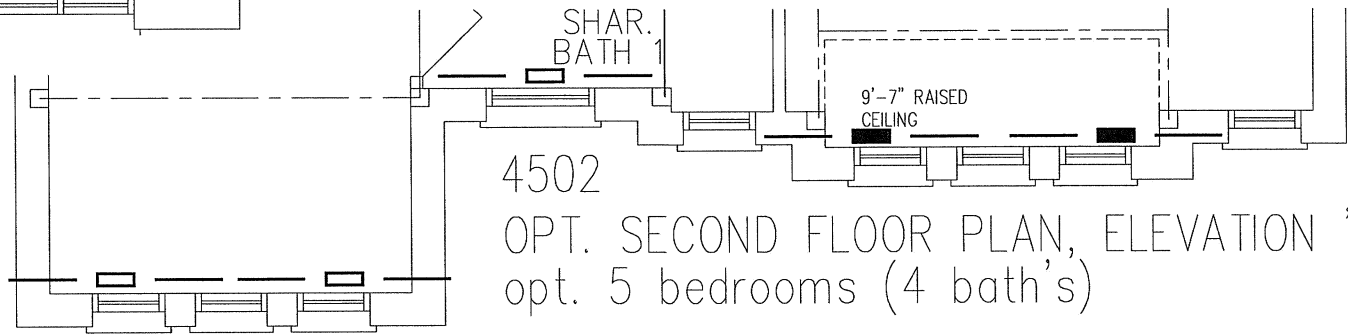
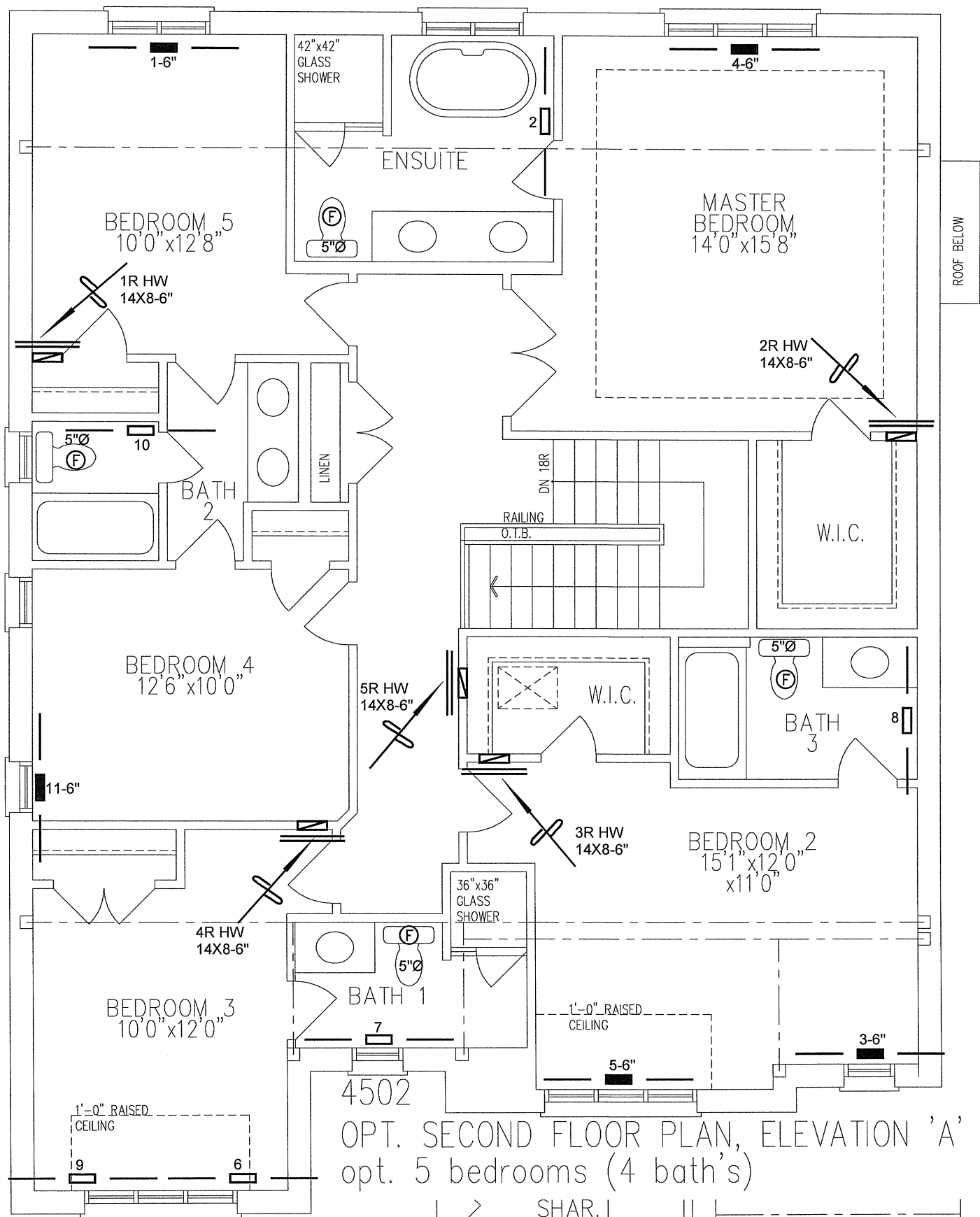
CSA-F280-12

SB-12 PERFORMANCE

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
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	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 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 FIRST FLOOR HEATING LAYOUT	
Project Name CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			Date JUNE/2021	
OPT GROUND - 5 BED 4 BATH 4502 2942 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO# 91145	



I MICHAEL O'ROURKE HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Michael O'Rourke

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		

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ROYAL PINE HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	JUNE/2021
CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			Scale	3/16" = 1'-0"
OPT GROUND - 5 BED 4 BATH 4502 2942 sqft			BCIN# 19669	
		LO#	91145	