

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 BRAMPTON	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: 7001 OPT IN-LAW Project: VALES OF HUMBER SOUTH	
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.			
July 9, 2024 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: VALES OF HUMBER SOUTH										OPT IN-LAW						DATE Jul-24			WINTER NATURAL AIR CHANGE RATE 0.241						HEAT LOSS ΔT °F. 74		CSA-F280-12				
BUILDER: ROYAL PINE HOMES										TYPE: 7001						GFA: 5543			LO# 95296			SUMMER NATURAL AIR CHANGE RATE 0.078						HEAT GAIN AT °F. 11		SB-12 PERFORMANCE	
ROOM USE				GREAT		KIT		PANT		DIN		LIV		FOY		IN-LAW		PWD-1		PWD-2		MD/LN									
EXP. WALL				48		32		20		26		30		20		22		3		8		33									
CLG. HT.				21		11		11		11		11		23		11		11		11		12									
FACTORS																															
GRS.WALL AREA		LOSS GAIN		1008		352		220		286		330		460		242		33		88		396									
GLAZING				LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN									
NORTH		20.8	15.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	519	387							
EAST		20.8	41.0	0	0	0	0	0	0	0	0	41	852	1683	56	1163	2299	41	852	1683	0	0	0	0	0	0	0	0			
SOUTH		20.8	24.4	0	0	0	0	0	0	0	39	810	951	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
WEST		20.8	41.0	192	3989	7881	107	2223	4392	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
SKYLT.		34.1	100.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
DOORS		24.7	3.7	0	0	0	20	493	73	0	0	0	0	0	45	1109	164	0	0	0	0	40	986	146							
NET EXPOSED WALL		3.5	0.5	816	2829	419	225	780	116	220	763	113	247	856	127	289	1002	149	359	1245	185	201	697	103	33	114	17				
NET EXPOSED BSMT WALL ABOVE GR		3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
EXPOSED CLG		1.3	0.6	503	630	280	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
NO ATTIC EXPOSED CLG		2.7	1.2	10	27	12	0	0	0	0	0	0	0	0	80	215	95	0	0	0	0	0	0	0	0	0	0				
EXPOSED FLOOR		2.5	0.4	0	0	0	0	0	0	0	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					
SLAB ON GRADE HEAT LOSS				0		0		0		0		0		0		0		0		0		0		0		0					
SUBTOTAL HT LOSS				7475		3496		763		1667		1854		3732		1549		114		305		2653									
SUB TOTAL HT GAIN				8593		4581		113		1078		1832		2743		1786		17		45		703									
LEVEL FACTOR / MULTIPLIER		0.30	0.37			0.30	0.37	0.30		0.37	0.30	0.37	0.30		0.37	0.30	0.37	0.30		0.37	0.30	0.37	0.30		0.37						
AIR CHANGE HEAT LOSS				2735		1279		279		610		678		1365		567		42		112		971									
AIR CHANGE HEAT GAIN				422		225		6		53		90		135		88		1		2		35									
DUCT LOSS				0		0		0		0		0		0		0		0		0		0									
DUCT GAIN				0		0		0		0		0		0		0		0		0		0									
HEAT GAIN PEOPLE		240		0	0	0	0	0	0	0	0	0	0	0	0	1	240	0	0	0	0	0	0	0	0	0	0				
HEAT GAIN APPLIANCES/LIGHTS				1035		1035		0		1035		1035		0		1035		0		0		1035									
TOTAL HT LOSS BTU/H				10210		4775		1042		2276		2532		5098		2115		156		417		3624									
TOTAL HT GAIN x 1.3 BTU/H				13065		7593		154		2816		3843		3741		4093		23		62		2304									

ROOM USE																							
EXP. WALL																							
CLG. HT.																							
FACTORS																							
GRS.WALL AREA	LOSS	GAIN																					
GLAZING																							
NORTH	20.8	15.5	0	0	0																		
EAST	20.8	41.0	0	0	0																		
SOUTH	20.8	24.4	0	0	0																		
WEST	20.8	41.0	0	0	0																		
SKYLT.	34.1	100.3	0	0	0																		
DOORS	24.7	3.7	0	0	0																		
NET EXPOSED WALL	3.5	0.5	121	420	62																		
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0																		
EXPOSED CLG	1.3	0.6	0	0	0																		
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0																		
EXPOSED FLOOR	2.5	0.4	0	0	0																		
BASEMENT/CRAWL HEAT LOSS			0																				
SLAB ON GRADE HEAT LOSS			0																				
SUBTOTAL HT LOSS				420																			
SUB TOTAL HT GAIN					62																		
LEVEL FACTOR / MULTIPLIER	0.30	0.37																					
AIR CHANGE HEAT LOSS					153																		
AIR CHANGE HEAT GAIN						3																	
DUCT LOSS					0																		
DUCT GAIN					0																		
HEAT GAIN PEOPLE	240		0		0																		
HEAT GAIN APPLIANCES/LIGHTS					0																		
TOTAL HT LOSS BTU/H					573																		
TOTAL HT GAIN x 1.3 BTU/H						85																	

TOTAL HEAT GAIN BTU/H: 71792

TONS: 5.98

LOSS DUE TO VENTILATION LOAD BTU/H: 6010

STRUCTURAL HEAT LOSS: 85758

TOTAL COMBINED HEAT LOSS BTU/H: 91769



SITE NAME: VALES OF HUMBER SOUTH										OPT IN-LAW						DATE Jul-24				WINTER NATURAL AIR CHANGE RATE 0.241								HEAT LOSS ΔT °F. 74				CSA-F280-12							
BUILDER: ROYAL PINE HOMES										TYPE: 7001						GFA: 5543				LO# 95296				SUMMER NATURAL AIR CHANGE RATE 0.078								HEAT GAIN ΔT °F. 11				SB-12 PERFORMANCE			
ROOM USE			PRI		ENS			DRESS			BED-2			BED-3			BED-4			BED-5			RETR			ENS-2			ENS-3										
EXP. WALL			25		27			11			13			35			24			30			10			6			8										
CLG. HT.			10		10			10			10			11			10			10			10			10			10										
FACTORS																																							
GRS.WALL AREA			LOSS		GAIN		250		270		110		130		385		240		300		100		60		80														
GLAZING							LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN										
NORTH			20.8	15.5	0	0	0	0	0	0	0	0	0	27	561	418	0	0	0	0	0	0	0	9	187	139	0	0	0	0									
EAST			20.8	41.0	0	0	0	0	0	0	0	0	0	0	0	83	1724	3407	40	831	1642	40	831	1642	0	0	0	0	0	0									
SOUTH			20.8	24.4	0	0	0	32	665	781	8	166	195	0	0	0	0	0	0	0	0	0	18	374	439	0	0	0	0	0									
WEST			20.8	41.0	54	1122	2217	23	478	944	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									
SKYLT.			34.1	100.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									
DOORS			24.7	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									
NET EXPOSED WALL			3.5	0.5	196	680	101	215	745	111	102	354	52	103	357	53	302	1047	155	200	693	103	260	901	134	82	284	42	51	177	26								
NET EXPOSED BSMT WALL ABOVE GR			3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									
EXPOSED CLG			1.3	0.6	546	684	304	180	226	100	165	207	92	325	407	181	368	461	205	394	494	220	216	271	120	310	388	173	66	83	37								
NO ATTIC EXPOSED CLG			2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	50	134	60	0	0	0	0	0	0	0	0	0	0	0	0									
EXPOSED FLOOR			2.5	0.4	0	0	0	0	0	0	0	0	0	20	50	7	418	1041	154	30	75	11	0	0	0	0	66	164	24	66	164	24							
BASEMENT/CRAWL HEAT LOSS																																							
SLAB ON GRADE HEAT LOSS																																							
SUBTOTAL HT LOSS					2486				2114				1375				4408				2093				2003				1047										
SUB TOTAL HT GAIN							2622				1936				340				659				1975				1896												
LEVEL FACTOR / MULTIPLIER			0.20	0.31			0.20	0.31			0.20	0.31			0.20	0.31			0.20	0.31			0.20	0.31			0.20	0.31											
AIR CHANGE HEAT LOSS					781				664				228				432				657				629				329										
AIR CHANGE HEAT GAIN							129				95				17				32				97				93												
DUCT LOSS					0				0				0				181				579				275				0										
DUCT GAIN					0				0				0				197				545				335				0										
HEAT GAIN PEOPLE			240		2	480	0	0	0	0	0	0	1	240	1	240	1	240	1	240	1	240	1	240	0	0	0	0	0	0									
HEAT GAIN APPLIANCES/LIGHTS					1035				0				0				1035				1035				1035				1035										
TOTAL HT LOSS BTU/H					3266				2778				955				1988				6371				3025				2632										
TOTAL HT GAIN x 1.3 BTU/H					5544				2640				463				2812				7796				4786				4243										

ROOM USE			ENS-4			SHARED			STUDY			HALL																		
EXP. WALL			0			6			0			0																		
CLG. HT.			10			10			10			10																		
FACTORS			0			60			0			0																		
GRS.WALL AREA	LOSS	GAIN	LOSS			GAIN			LOSS			GAIN			LOSS			GAIN												
GLAZING																														
NORTH	20.8	15.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	20.8	41.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	20.8	24.4	0	0	0	9	187	220	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST	20.8	41.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SKYLT.	34.1	100.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	24.7	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	3.5	0.5	0	0	0	51	177	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	70	88	39	90	113	50	86	108	48	397	497	221																
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	40	100	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS																														
SLAB ON GRADE HEAT LOSS																														
SUBTOTAL HT LOSS					187			477			108			497																
SUB TOTAL HT GAIN						54			296			48			221															
LEVEL FACTOR / MULTIPLIER			0.20		0.31			0.20		0.31			0.20		0.31															
AIR CHANGE HEAT LOSS					59			150			34			156																
AIR CHANGE HEAT GAIN						3			15			2		11																
DUCT LOSS					25			0			0			0																
DUCT GAIN						6			0			0		0																
HEAT GAIN PEOPLE	240		0		0		0		0		0		0		0															
HEAT GAIN APPLIANCES/LIGHTS					0				0			0		0																
TOTAL HT LOSS BTU/H					271			626			142			654																
TOTAL HT GAIN x 1.3 BTU/H						81			404			65		302																

TOTAL HEAT GAIN BTU/H: 71792

TONS: 5.98

LOSS DUE TO VENTILATION LOAD BTU/H: 6010

STRUCTURAL HEAT LOSS: 85758

TOTAL COMBINED HEAT LOSS BTU/H: 91769

SITE NAME: VALES OF HUMBER SOUTH
BUILDER: ROYAL PINE HOMES

TYPE: 7001
OPT IN-LAW

DATE: Jul-24

GFA: 5543 LO# 95296

FURNACE 1

HEATING CFM 1265
TOTAL HEAT LOSS 60,034
AIR FLOW RATE CFM 21.07

COOLING CFM 1265
TOTAL HEAT GAIN 39,482
AIR FLOW RATE CFM 32.04

FACTORY
INSTALLED

furnace pressure 0.6
furnace filter 0
a/c coil pressure 0.27
available pressure for s/a & r/a 0.33

FURNACE HEAT LOSS +
HRV / ERV HEAT LOSS
= 63039 BTUH

CARRIER

59SC6A080M17--16

FAN SPEED 80

LOW 0

MEDLOW 1105

MEDIUM 1265

MEDIUM HIGH 0

HIGH 0

AFUE = 97 %
INPUT (BTU/H) = 80,000
OUTPUT (BTU/H) = 78,000

DESIGN CFM = 1265
CFM @ .6" E.S.P.

TEMPERATURE RISE 57 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	0	21	8
R/A	0	0	0	5	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	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	GREAT	GREAT	GREAT	GREAT	GREAT	KIT	KIT	KIT	PANT	DIN	DIN	LIV	LIV	FOY	FOY	IN-LAW	IN-LAW	PWD-1	PWD-2	MD/LN	BAS	BAS	BAS	BAS
RM LOSS MBH	2.04	2.04	2.04	2.04	2.04	1.59	1.59	1.59	1.04	1.14	1.14	1.27	1.27	2.55	2.55	1.06	1.06	0.16	0.42	3.62	3.40	3.40	3.40	3.40
CFM PER RUN HEAT	43	43	43	43	43	34	34	34	22	24	24	27	27	54	54	22	22	3	9	76	72	72	72	72
RM GAIN MBH	2.61	2.61	2.61	2.61	2.61	2.53	2.53	2.53	0.15	1.41	1.41	1.92	1.92	1.87	1.87	2.05	2.05	0.02	0.06	2.30	0.21	0.21	0.21	0.21
CFM PER RUN COOLING	84	84	84	84	84	81	81	81	5	45	45	62	62	60	60	66	66	1	2	74	7	7	7	7
ADJUSTED PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	31	25	21	23	28	35	47	53	55	50	62	78	74	78	82	81	87	31	11	18	53	38	21	25
EQUIVALENT LENGTH	100	100	120	140	120	110	90	110	100	120	110	100	120	150	130	120	130	120	170	140	110	100	130	130
TOTAL EFFECTIVE LENGTH	131	125	141	163	148	145	137	163	155	170	172	178	194	228	212	201	217	151	181	158	163	138	151	155
ADJUSTED PRESSURE	0.12	0.12	0.11	0.09	0.1	0.1	0.11	0.09	0.1	0.1	0.09	0.08	0.08	0.07	0.08	0.08	0.07	0.11	0.09	0.1	0.1	0.12	0.11	0.1
ROUND DUCT SIZE	6	6	6	6	6	6	6	6	4	4	5	5	5	5	5	6	6	4	4	6	5	5	5	5
HEATING VELOCITY (ft/min)	219	219	219	219	219	173	173	173	252	275	176	198	198	396	396	112	112	34	103	388	529	529	529	529
COOLING VELOCITY (ft/min)	428	428	428	428	428	413	413	413	57	516	330	455	455	441	441	337	337	11	23	377	51	51	51	51
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10
TRUNK	F	F	F	E	E	E	E	D	D	C	C	A	A	A	B	B	B	E	E	F	D	E	E	F

RUN #	25	26	27	28	29
ROOM NAME	BAS	BAS	BAS	BAS	I-ENS
RM LOSS MBH	3.40	3.40	3.40	3.40	0.57
CFM PER RUN HEAT	72	72	72	72	12
RM GAIN MBH	0.21	0.21	0.21	0.21	0.08
CFM PER RUN COOLING	7	7	7	7	3
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	52	58	71	78	60
EQUIVALENT LENGTH	110	110	110	100	120
TOTAL EFFECTIVE LENGTH	162	168	181	178	180
ADJUSTED PRESSURE	0.1	0.1	0.09	0.09	0.09
ROUND DUCT SIZE	5	5	5	5	4
HEATING VELOCITY (ft/min)	529	529	529	529	138
COOLING VELOCITY (ft/min)	51	51	51	51	34
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10
TRUNK	C	C	A	B	B

SUPPLY AIR TRUNK SIZE										RETURN AIR TRUNK SIZE									
TRUNK	STATIC	ROUND	RECT	VELOCITY						TRUNK	STATIC	ROUND	RECT	VELOCITY					
CFM	PRESS.	DUCT	DUCT							CFM	PRESS.	DUCT	DUCT						
TRUNK A	180	0.07	7.6	8	x	8	405			TRUNK G	0	0.00	0	0	x	8	0		
TRUNK B	182	0.07	7.7	8	x	8	410			TRUNK H	0	0.00	0	0	x	8	0		
TRUNK C	554	0.07	11.6	16	x	8	623			TRUNK I	0	0.00	0	0	x	8	0		
TRUNK D	128	0.09	6.3	8	x	8	288			TRUNK J	0	0.00	0	0	x	8	0		
TRUNK E	992	0.07	14.5	24	x	8	744			TRUNK K	0	0.00	0	0	x	8	0		
TRUNK F	277	0.10	8.2	10	x	8	499			TRUNK L	0	0.00	0	0	x	8	0		

RETURN AIR #	1	2	3	4	5	BR													
AIR VOLUME	330	155	360	130	130	0	0	0	0	0	0	0	0	0	0	0	0	160	
PLENUM PRESSURE	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14		
ACTUAL DUCT LGH	15	55	55	63	60	1	1	1	1	1	1	1	1	1	1	1	16		
EQUIVALENT LENGTH	145	205	200	205	165	0	0	0	0	0	0	0	0	0	0	0	185		
TOTAL EFFECTIVE LH	160	260	255	268	225	1	1	1	1	1	1	1	1	1	1	1	201		
ADJUSTED PRESSURE	0.09	0.05	0.05	0.05	0.06	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	0.07		
ROUND DUCT SIZE	9	7.8	10.8	7.3	7	0	0	0	0	0	0	0	0	0	0	0	7.3		
INLET GRILL SIZE	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	8		
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
INLET GRILL SIZE	30	24	30	14	14	0	0	0	0	0	0	0	0	0	0	0	14		

SITE NAME: VALES OF HUMBER SOUTH
BUILDER: ROYAL PINE HOMES

OPT IN-LAW
TYPE: 7001

DATE: Jul-24

GFA: 5543 LO# 95296

FURNACE 2

HEATING CFM 925
TOTAL HEAT LOSS 25,724
AIR FLOW RATE CFM 35.96
COOLING CFM 925
TOTAL HEAT GAIN 31,865
AIR FLOW RATE CFM 29.03

**FACTORY
INSTALLED**

furnace pressure 0.6
furnace filter 0
a/c coil pressure 0.26
available pressure for s/a & r/a 0.34

**FURNACE HEAT LOSS +
HRV / ERV HEAT LOSS
= 28729 BTUH**
59SC6A040M14--10
CARRIER

AFUE = 96 %

INPUT (BTU/H) = 40,000
OUTPUT (BTU/H) = **39,000**

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	23	0	0
R/A	0	0	7	0	0

plenum pressure s/a 0.18
max s/a dif press. loss 0.01
min adjusted pressure s/a 0.17
r/a pressure 0.16
r/a grille press. Loss 0.02
adjusted pressure r/a 0.14

FAN SPEED 40
LOW 0
MEDLOW 545
MEDIUM 770
MEDIUM HIGH 925
HIGH 0

DESIGN CFM = **925**
CFM @ .6" E.S.P.

TEMPERATURE RISE 39 °F

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	11	12	13	14	15	16	17	18	19	20	21
ROOM NAME	PRI	PRI	PRI	ENS	ENS	DRESS	BED-2	BED-2	ENS-2	BED-3	BED-3	BED-3	BED-3	ENS-3	BED-4	BED-4	ENS-4	BED-5	BED-5	SHARED	RETR
RM LOSS MBH.	1.09	1.09	1.09	2.08	0.69	0.95	0.99	0.99	0.88	1.59	1.59	1.59	1.59	0.76	1.51	1.51	0.27	1.32	1.32	0.63	1.38
CFM PER RUN HEAT	39	39	39	75	25	34	36	36	32	57	57	57	57	27	54	54	10	47	47	23	49
RM GAIN MBH.	1.85	1.85	1.85	1.98	0.66	0.46	1.41	1.41	0.34	1.95	1.95	1.95	1.95	0.15	2.39	2.39	0.08	2.12	2.12	0.40	2.24
CFM PER RUN COOLING	54	54	54	57	19	13	41	41	10	57	57	57	57	4	69	69	2	62	62	12	65
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	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	84	69	63	90	85	85	43	38	33	41	37	42	49	39	64	58	39	94	88	80	92
EQUIVALENT LENGTH	190	200	210	160	170	200	180	180	110	110	120	130	130	120	190	220	110	170	170	170	190
TOTAL EFFECTIVE LENGTH	274	269	273	250	255	285	223	218	143	151	157	172	179	159	254	278	149	264	258	250	282
ADJUSTED PRESSURE	0.06	0.06	0.06	0.07	0.07	0.06	0.07	0.08	0.12	0.11	0.11	0.1	0.09	0.1	0.07	0.06	0.11	0.06	0.06	0.07	0.06
ROUND DUCT SIZE	5	5	5	6	4	5	4	4	4	5	5	5	5	4	6	6	4	6	6	4	6
HEATING VELOCITY (ft/min)	286	286	286	382	287	250	413	413	367	419	419	419	419	310	275	275	115	240	240	264	250
COOLING VELOCITY (ft/min)	396	396	396	291	218	95	470	470	115	419	419	419	419	46	352	352	23	316	316	138	331
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	4X10	4X10	3X10	4X10
TRUNK	A	A	A	A	A	A	B	B	B	D	D	B	B	B	C	C	D	C	C	C	C

RUN #	40	42
ROOM NAME	STUDY	HALL
RM LOSS MBH.	0.14	0.65
CFM PER RUN HEAT	5	24
RM GAIN MBH.	0.07	0.30
CFM PER RUN COOLING	2	9
ADJUSTED PRESSURE	0.17	0.17
ACTUAL DUCT LGH.	55	54
EQUIVALENT LENGTH	170	180
TOTAL EFFECTIVE LENGTH	225	234
ADJUSTED PRESSURE	0.07	0.07
ROUND DUCT SIZE	4	4
HEATING VELOCITY (ft/min)	57	275
COOLING VELOCITY (ft/min)	23	103
OUTLET GRILL SIZE	3X10	3X10
TRUNK	C	C

SUPPLY AIR TRUNK SIZE

	TRUNK	STATIC	ROUND	RECT			VELOCITY		TRUNK	STATIC	ROUND	RECT		VELOCITY	
	CFM	PRESS.	DUCT	DUCT			(ft/min)		CFM	PRESS.	DUCT	DUCT		(ft/min)	
TRUNK A	251	0.06	9	10	x	8	452	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	496	0.06	11.6	16	x	8	558	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	303	0.06	9.6	12	x	8	455	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	427	0.06	11	18	x	8	427	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	0	0.00	0	0	x	8	0	TRUNK K	0	0.00	0	0	x	8	0
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0

RETURN AIR TRUNK SIZE

TYPE	TRUNK	STATIC	ROUND	RECT	VELOCITY		
	CFM	PRESS.	DUCT	DUCT			(ft/min)
TRUNK O	0	0.05	0	0	x	8	0
TRUNK P	0	0.05	0	0	x	8	0
TRUNK Q	0	0.05	0	0	x	8	0
TRUNK R	0	0.05	0	0	x	8	0
TRUNK S	0	0.05	0	0	x	8	0
TRUNK T	0	0.05	0	0	x	8	0
TRUNK U	0	0.05	0	0	x	8	0
TRUNK V	0	0.05	0	0	x	8	0
TRUNK W	0	0.05	0	0	x	8	0
TRUNK X	925	0.05	15.3	28	x	8	595
TRUNK Y	510	0.05	12.3	18	x	8	510
TRUNK Z	210	0.05	8.8	10	x	8	378
DROP	925	0.05	15.3	24	x	10	555

RETURN AIR #	1	2	3	4	5	6	7									BR
AIR VOLUME	225	95	200	105	105	75	120	0	0	0	0	0	0	0	0	0
PLENUM PRESSURE	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
ACTUAL DUCT LGH.	46	42	54	66	89	60	53	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	175	165	245	205	210	215	205	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	221	207	299	271	299	275	258	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.06	0.07	0.05	0.05	0.05	0.05	0.06	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32
ROUND DUCT SIZE	8.6	6	8.6	6.8	6.8	6	6.8	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
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	30	14	30	14	14	14	14	0	0	0	0	0	0	0	0	0

TYPE: 7001
SITE NAME: VALES OF HUMBER SOUTH

LO # 95296
OPT IN-LAW

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>5</u> @ 10.6 cfm	<u>53</u> cfm
Kitchen & Bathrooms	<u>9</u> @ 10.6 cfm	<u>95.4</u> cfm
Other Rooms	<u>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Table 9.32.3.A.	TOTAL	<u>254.4</u> cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED		9.32.3.4.(1)
6 Bedrooms		
As Per Ashrea 62.2 Dwelling- Unit Ventilation		
4.1.1 Total Ventilation Rate		
$Q_{tot}=0.03A_{floor}+7.5(N_{br}+1)$		
TOTAL		<u>218.8</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>254.4</u>	cfm
Less Principal Ventil. Capacity	<u>150</u>	cfm
Required Supplemental Capacity	<u>104.4</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model:	VANEE V150H
Location:	BSMT
<u>150.0</u> cfm	☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	ΔT °F	FACTOR	% LOSS	
150.0 CFM	X 74 F	X 1.08	X	0.25

SUPPLEMENTAL FANS		BY INSTALLING CONTRACTOR		
Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-2	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-3	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-4	BY INSTALLING CONTRACTOR	50	☒	3.5

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model:	VANEE V150H	INSTALL 2 HRV / ERV's
<u>150</u>	cfm high	<u>35</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:	July-24

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

Michael O'Rourke

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 95296	Model: 7001	Builder: ROYAL PINE HOMES	Date: 7/9/2024																																																									
Volume Calculation			Air Change & Delta T Data																																																									
House Volume <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Bsmt</td> <td>2786</td> <td>10</td> <td>27860</td> </tr> <tr> <td>First</td> <td>2786</td> <td>11</td> <td>30646</td> </tr> <tr> <td>Second</td> <td>3296</td> <td>10</td> <td>32960</td> </tr> <tr> <td>Third</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td>Fourth</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>91,466.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>2590.0 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2786	10	27860	First	2786	11	30646	Second	3296	10	32960	Third	0	9	0	Fourth	0	9	0	Total:			91,466.0 ft³	Total:			2590.0 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%; text-align: center;">0.241</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.078</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td style="text-align: center;">22</td> <td style="text-align: center;">-19</td> <td style="text-align: center;">41</td> <td style="text-align: center;">74</td> </tr> <tr> <td>Summer DTDc</td> <td style="text-align: center;">24</td> <td style="text-align: center;">30</td> <td style="text-align: center;">6</td> <td style="text-align: center;">11</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.241	SUMMER NATURAL AIR CHANGE RATE	0.078	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-19	41	74	Summer DTDc	24	30	6	11
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.241 x 719.45 x 41 °C x 1.2 = 8587 W = 29300 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.078 x 719.45 x 6 °C x 1.2 = 414 W = 1412 Btu/h																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E) \times 2 \text{ HRV / ERV's}$ 300 CFM x 74 °F x 1.08 x 0.25 = 6010 Btu/h			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 300 CFM x 11 °F x 1.08 x 0.25 = 891 Btu/h																																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
$HL_{airr} = Level \ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																																								
1	0.5	29,300	12,566	1.166																																																								
2	0.3		24,028	0.366																																																								
3	0.2		18,656	0.314																																																								
4	0		0	0.000																																																								
5	0		0	0.000																																																								
*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0																																																												
				Michael O'Rourke BCIN# 19669 																																																								

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 7001	OPT IN-LAW	BUILDER: ROYAL PINE HOMES
SFQT: 5543	LO# 95296	SITE: VALES OF HUMBER SOUTH

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-2	OUTDOOR DESIGN TEMP.	86
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75
		WINDOW SHGC	0.60

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):	91466.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	7
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.40	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 63.0 ft	WIDTH: 62.0 ft	EXPOSED PERIMETER:	250.0 ft

2012 OBC - COMPLIANCE PACKAGE**Component****Compliance Package
SB-12 PERFORMANCE****Nominal Min. Eff.**

Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
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+1.5	21.40
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	0.9	-

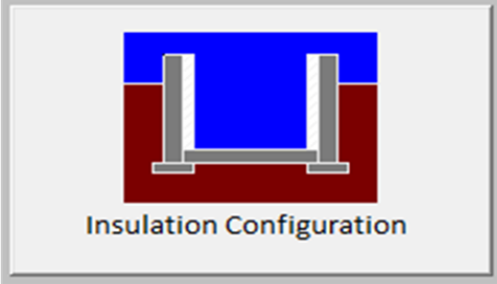
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Brampton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	19.2	 Insulation Configuration
Floor Width (m):	18.9	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	2.2	
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):		2619

TYPE: 7001
LO# 95296

OPT IN-LAW

Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Brampton			
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):	7.32			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	2590.0			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2417.8 cm ²		
	2.50	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	70.8	70.8		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.241			
Cooling Air Leakage Rate (ACH/H):	0.078			

TYPE: 7001
LO# 95296

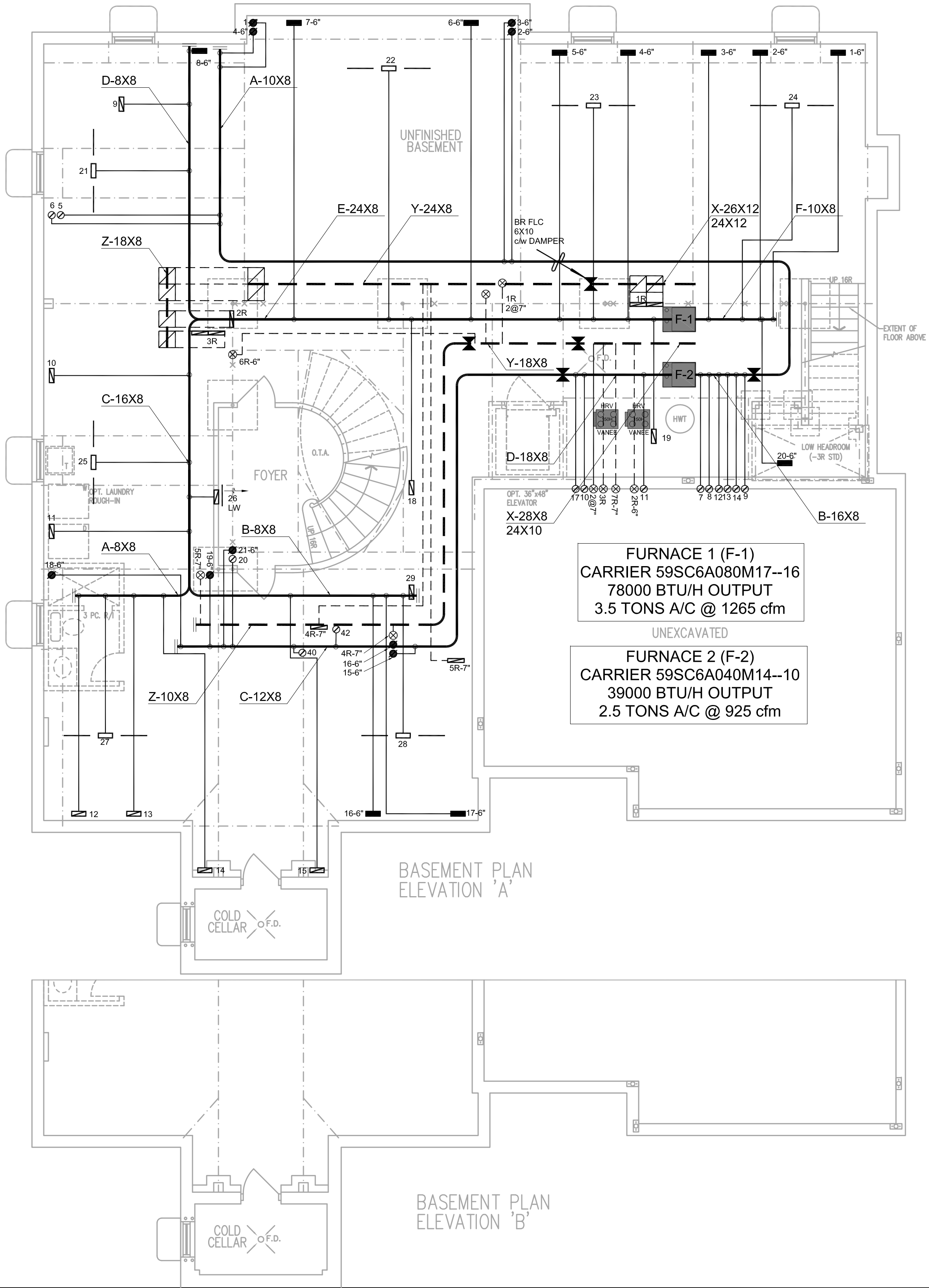
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ALL S/A DIFFUSERS "4x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

SUPPLEMENTAL EXHAUST FAN (MINIMUM 100 CFM) DISCHARGING DIRECTLY TO THE EXTERIOR WILL BE PROVIDED IN THE KITCHEN. EXHAUST DUCTS SERVING THE KITCHEN SHALL NOT BE SMALLER THAN RECOMMENDED BY THE MANUFACTURER OF THE FANS AND MUST AT LEAST MEET O.B.C. STATED MINIMUMS.



HVAC LEGEND	
	SUPPLY AIR GRILLE
	SUPPLY AIR GRILLE 6" BOOT
	LINEAR BAR or LINEAR SLOT GRILLE
	SUPPLY AIR BOOT ABOVE
	6" SUPPLY AIR BOOT ABOVE
	SUPPLY AIR STACK
	6" SUPPLY AIR STACK
	14X8 RETURN AIR GRILLE
	30X8 RETURN AIR GRILLE
	FLOOR RETURN AIR GRILLE
	RETURN STACK ABOVE
	RETURN AIR STACK
	REDUCER
	SUPPLY DUCTWORK
	RETURN DUCTWORK
	FLEX DUCT
	EXHAUST FAN
	LINT TRAP by REVERSOMATIC
	DIRECT VENT
	LOW WALL
	HIGH WALL
	CEILING
	MOTORIZED ZONE DAMPER
	MOTORIZED DAMPER
	EXHAUST PIPE
	CONCENTRIC VENT KIT
	CONCENTRIC HRV or ERV VENT KIT
	SINGLE WALL BOX by REVERSOMATIC
	DOUBLE WALL BOX by REVERSOMATIC
	TRIPLE WALL BOX by REVERSOMATIC
	DRYER BOOSTER FAN

3	UPDATED EQUIPMENT	JUL/2024	JW
2	REVISED TO PERFORMANCE PATH	APR/2022	KB
1	ISSUED FOR PERMIT	MAR/2022	EG
No.	Revision	Date	By

SB-12 PERFORMANCE PACKAGE

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# 19689
HVAC Designs Ltd.

	S/A	R/A	FANS
2ND	23	7	6
1ST	21	5	5
BAS	8	1	0

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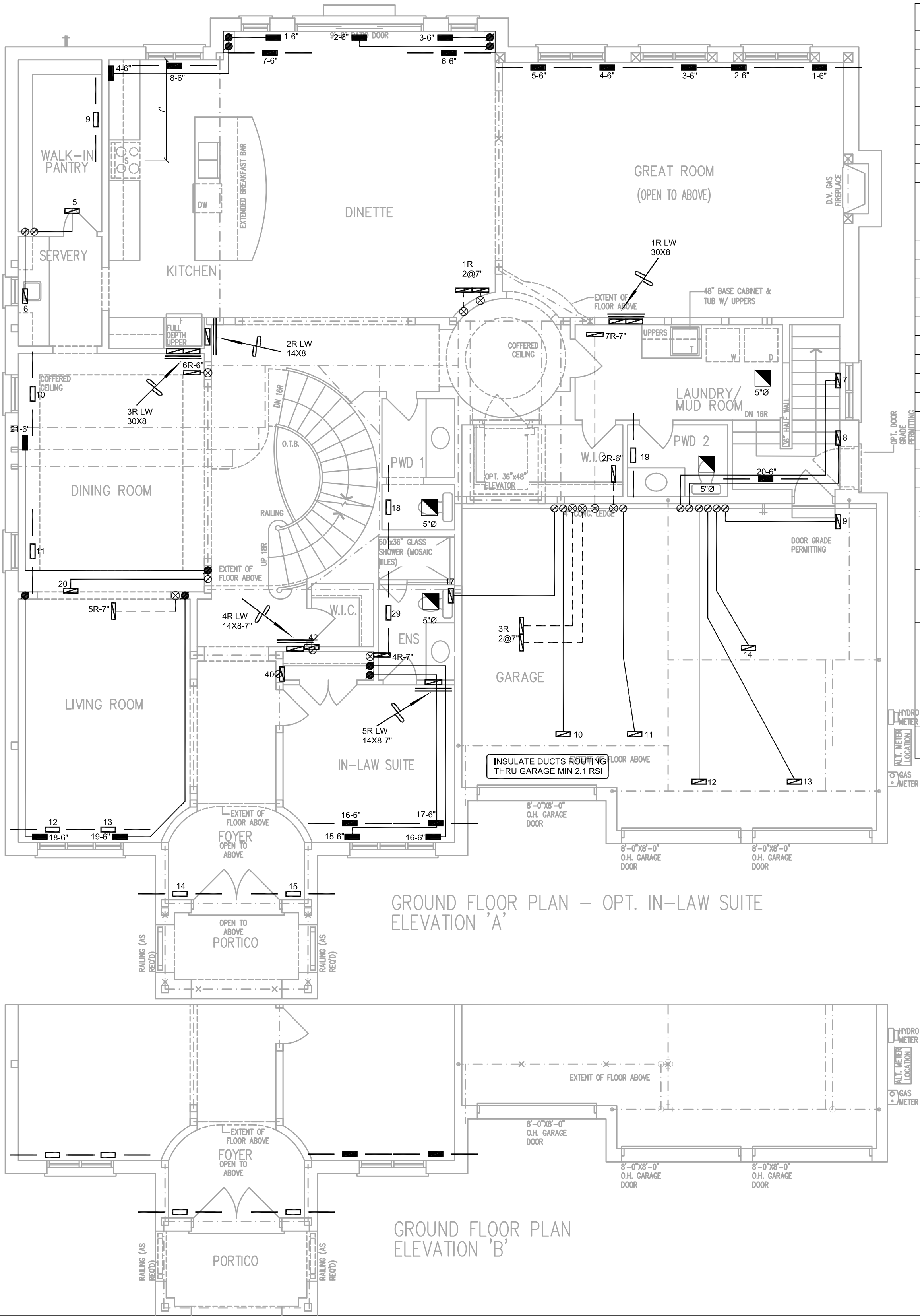
Client	ROYAL PINE HOMES		
Project Name	VALES OF HUMBER SOUTH BRAMPTON, ONTARIO		
	7001 OPT IN-LAW		
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Sheet Title	BASEMENT		HEATING LAYOUT
Drawn By	EG	Checked By	MO
Scale	3/16"=1'-0"		Sheet No.
Date	MARCH 2022		1
LO #	95296		3

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Michael O'Rourke BCIN# 19689
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	S/A	R/A	FANS
2ND	23	7	6
1ST	21	5	5
BAS	8	1	0

HVACDESIGNS LTD.

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Specializing in Residential Mechanical Design Services

Client ROYAL PINE HOMES

Project Name VALES OF HUMBER SOUTH BRAMPTON, ONTARIO

7001
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Sheet Title FIRST FLOOR HEATING LAYOUT

Drawn By EG Checked By MO

Scale 3/16"=1'-0" Sheet No.

Date MARCH 2022

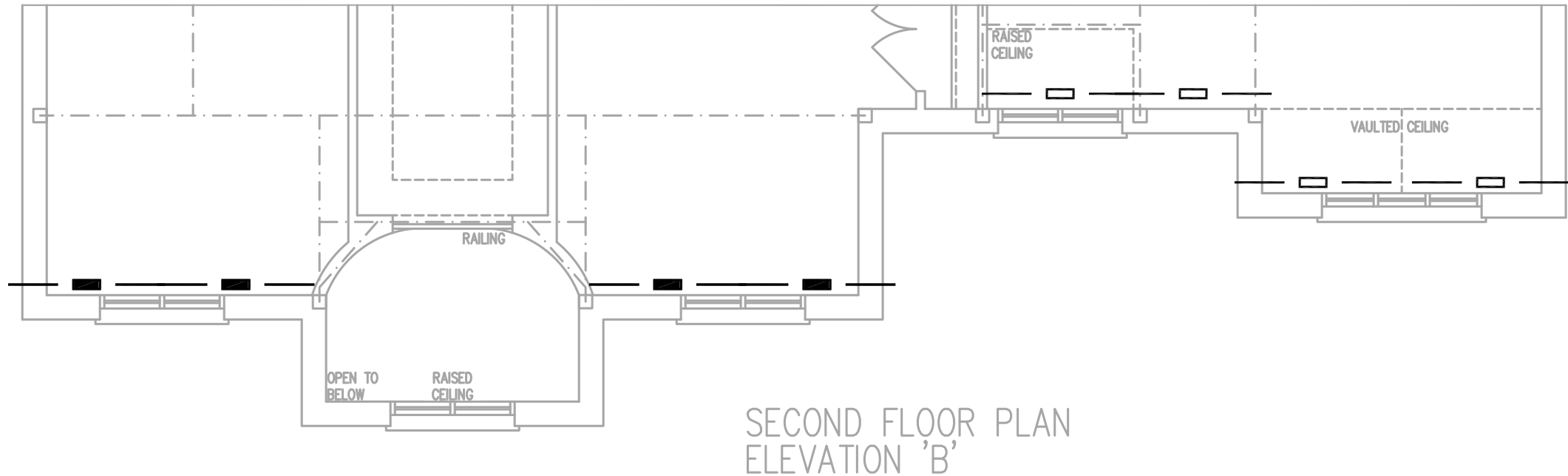
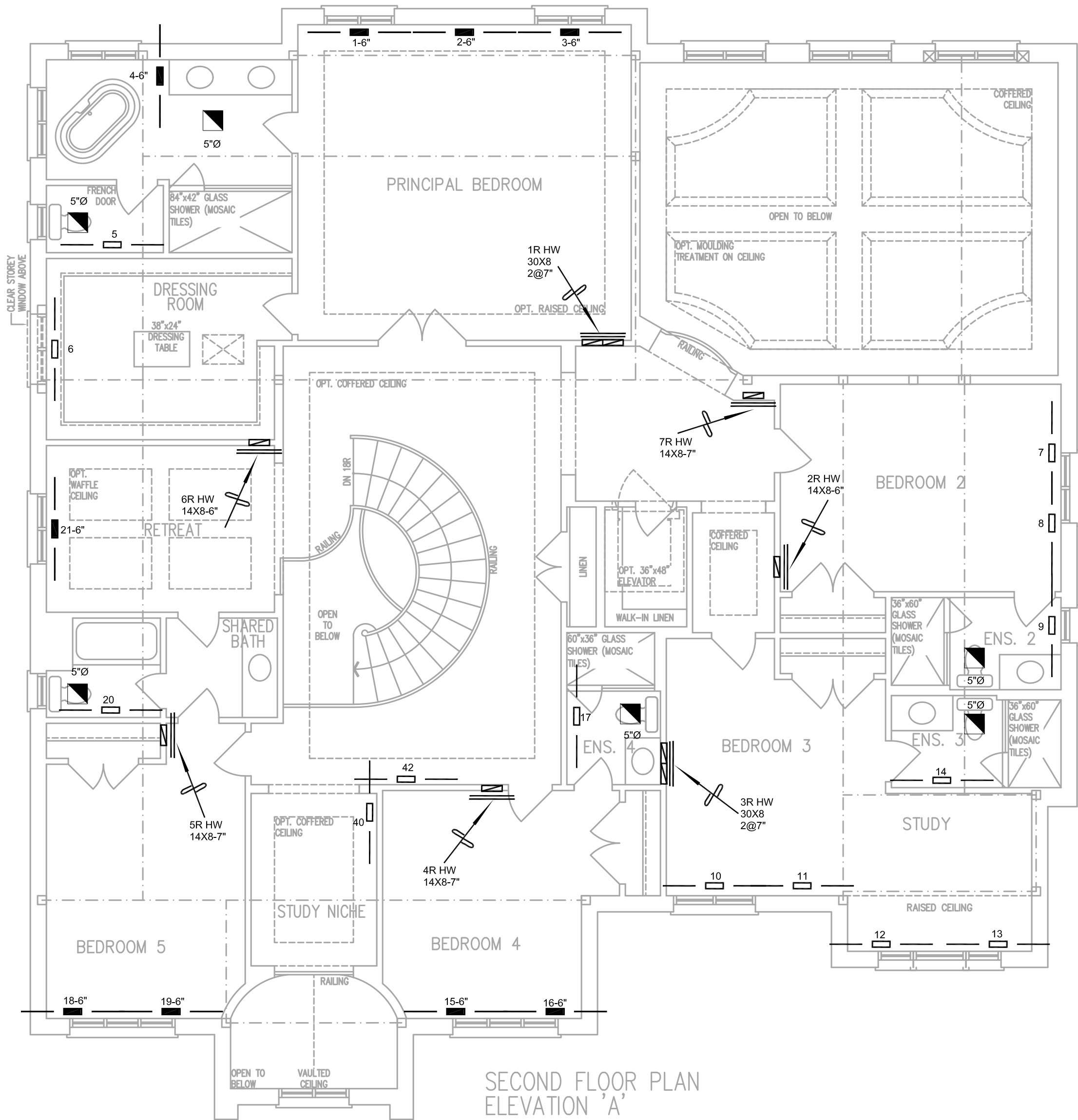
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Client **ROYAL PINE HOMES**

Project Name **VALES OF HUMBER SOUTH
BRAMPTON, ONTARIO**

**7001
OPT IN-LAW**

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Sheet Title **SECOND FLOOR HEATING LAYOUT**

Drawn By **EG** Checked By **MO**

Scale **3/16"=1'-0"** Sheet No. **3**

Date **MARCH 2022**

LO # **95296**