

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.
Municipality BRAMPTON			Postal code
Plan number/ other description			Lot/con.
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: 7001 - ELEV C OPT IN-LAW - LAUN 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 10, 2024		 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

	ROOM USE							BAS
	EXP. WALL	11						250
	CLG. HT.	11						10
	FACTORS							
	GRS.WALL AREA	LOSS	GAIN	121				1750
	GLAZING			LOSS	GAIN			LOSS GAIN
	NORTH	20.8	15.5	0	0	0		0 0 0
	EAST	20.8	41.0	0	0	0		0 0 0
	SOUTH	20.8	24.4	0	0	0		12 249 293
	WEST	20.8	41.0	0	0	0		12 249 493
	SKYLT.	34.1	100.3	0	0	0		0 0 0
	DOORS	24.7	3.7	0	0	0		20 493 73
	NET EXPOSED WALL	3.5	0.5	121	420	62		0 0 0
	NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0		750 2635 391
	EXPOSED CLG	1.3	0.6	0	0	0		0 0 0
	NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0		0 0 0
	EXPOSED FLOOR	2.5	0.4	0	0	0		0 0 0
	BASEMENT/CRAWL HEAT LOSS	0						8939
	SLAB ON GRADE HEAT LOSS	0						
	SUBTOTAL HT LOSS	420						12566
	SUB TOTAL HT GAIN	62						1249
	LEVEL FACTOR / MULTIPLIER	0.30	0.37					0.50 1.17
	AIR CHANGE HEAT LOSS	157						14738
	AIR CHANGE HEAT GAIN	3						67
	DUCT LOSS	0						0
	DUCT GAIN	0						0
	HEAT GAIN PEOPLE	240	0	0				0
	HEAT GAIN APPLIANCES/LIGHTS	0						0
	TOTAL HT LOSS BTU/H	576						27304
	TOTAL HT GAIN x 1.3 BTU/H	85						1710

TOTAL HEAT GAIN BTU/H:	66515	TONS: 5.54	LOSS DUE TO VENTILATION LOAD BTU/H: 6010	STRUCTURAL HEAT LOSS: 84349	TOTAL COMBINED HEAT LOSS BTU/H: 90360
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Michael Lounsbury

SITE NAME: VALES OF HUMBER SOUTH

OPT IN-LAW - LAUN

DATE Jul-24

WINTER NATURAL AIR CHANGE RATE 0.241

HEAT LOSS AT °F. 74

CSA-F280-12

BUILDER: ROYAL PINE HOMES

TYPE: 7001 - ELEV C

GFA: 5590

LO# 95347

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		20		24		30		10		6		20					
CLG. HT.			10		10		10		10		11		10		10		10		10		10					
GRS.WALL AREA	FACTORS		250		270		110		130		220		240		300		100		60		200					
GLAZING	LOSS	GAIN	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	561	418	0	0	0	0	0	0	0	0	9	187	139	0	0	0	
EAST	20.8	41.0	0	0	0	0	0	0	0	0	0	16	340	672	32	665	1314	0	0	0	0	0	28	582	1149	
SOUTH	20.8	24.4	0	0	0	32	665	781	8	166	195	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	
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	
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	
NET EXPOSED WALL	3.5	0.5	196	680	101	215	745	111	102	354	52	103	357	53	204	706	105	208	721	107	268	929	138	82	284	42
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	
EXPOSED CLG	1.3	0.6	546	684	304	180	226	100	165	207	92	325	407	181	211	264	118	275	345	153	216	271	120	310	388	173
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0	50	134	60	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	261	650	96	30	75	11	0	0	0	66	164	24
BASEMENT/CRAWL HEAT LOSS			0			0			0			0			0			0		0			0			
SLAB ON GRADE HEAT LOSS			0			0			0			0			0			0		0			0			
SUBTOTAL HT LOSS			2486			2114			727			1375			2094			1805			1865			1047		
SUB TOTAL HT GAIN					2622			1936	340			659		1050		1585		1572		654		227		1322		
LEVEL FACTOR / MULTIPLIER			0.20	0.34		0.20	0.34		0.20	0.34		0.20	0.34		0.20	0.34		0.20	0.34		0.20	0.34		0.20	0.34	
AIR CHANGE HEAT LOSS			835			710			244			462			704			607			627			352		
AIR CHANGE HEAT GAIN					140			103	18			35			56			84			84			35		
DUCT LOSS			0			0			0			184			280			241			0			82		
DUCT GAIN			0			0			0			181			222			278			0			24		
HEAT GAIN PEOPLE	240		2	480		0	0	0	0	1	240	1	240		1	240		1	240		0	0		0	0	
HEAT GAIN APPLIANCES/LIGHTS			872			0			0			872			872			872			872			0		
TOTAL HT LOSS BTU/H			3321			2824			971			2021			3078			2653			2491			1398		
TOTAL HT GAIN x 1.3 BTU/H			5347			2650			465			2582			3171			3977			3597			2029		

ROOM USE	EXP. WALL	CLG. HT.	ENS-4	SHARED	WIC-4	LAUN	HALL										
			0	6	6	0	0										
			10	10	10	10	10										
GRS.WALL AREA	LOSS	GAIN	0	60	60	0	0										
GLAZING	LOSS	GAIN															
NORTH	20.8	15.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	20.8	41.0	0	0	0	16	332	657	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
WEST	20.8	41.0	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
DOORS	24.7	3.7	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	44	153	23	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
EXPOSED CLG	1.3	0.6	70	88	39	90	113	50	42	53	23	77	96	43	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
EXPOSED FLOOR	2.5	0.4	40	100	15	0	0	0	42	105	16	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
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			187		477	642	96	497									
SUB TOTAL HT GAIN				54	296	718	43	221									
LEVEL FACTOR / MULTIPLIER			0.20	0.34	0.20	0.34	0.20	0.34	0.20	0.34	0.20	0.34					
AIR CHANGE HEAT LOSS			63		160	216	32	167									
AIR CHANGE HEAT GAIN				3	16	38	2	12									
DUCT LOSS			25		0	86	0	0									
DUCT GAIN				6	0	76	0	0									
HEAT GAIN PEOPLE	240		0	0	0	0	0	0									
HEAT GAIN APPLIANCES/LIGHTS				0	0	0	872	0									
TOTAL HT LOSS BTU/H			275		637	944	129	665									
TOTAL HT GAIN x 1.3 BTU/H				81	405	1082	1192	303									

TOTAL HEAT GAIN BTU/H:

66515

TONS: 5.54

LOSS DUE TO VENTILATION LOAD BTU/H: 6010

STRUCTURAL HEAT LOSS: 84349

TOTAL COMBINED HEAT LOSS BTU/H: 90360



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

OPT IN-LAW - LAUN
TYPE: 7001 - ELEV C

DATE: Jul-24

GFA: 5590

LO# 95347

FURNACE 1

HEATING CFM 1105
TOTAL HEAT LOSS 59,813
AIR FLOW RATE CFM 18.47

COOLING CFM 1105
TOTAL HEAT GAIN 36,857
AIR FLOW RATE CFM 29.98

**FACTORY
INSTALLED**

furnace pressure 0.6
furnace filter 0
a/c coil pressure 0.25
available pressure for s/a & r/a 0.35

**FURNACE HEAT LOSS +
HRV / ERV HEAT LOSS
= 62818 BTUH**
CARRIER
59SC6A080M17--16
FAN SPEED

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 = **1105**
CFM @ .6" E.S.P.

TEMPERATURE RISE 65 °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.	2.05	2.05	2.05	2.05	2.05	1.60	1.60	1.60	1.05	1.14	1.14	1.19	1.19	2.48	2.48	0.98	0.98	0.16	0.42	3.64	3.41	3.41	3.41	3.41
CFM PER RUN HEAT	38	38	38	38	38	30	30	30	19	21	21	22	22	46	46	18	18	3	8	67	63	63	63	63
RM GAIN MBH.	2.58	2.58	2.58	2.58	2.58	2.47	2.47	2.47	0.15	1.30	1.30	1.63	1.63	1.53	1.53	1.75	1.75	0.02	0.06	2.10	0.21	0.21	0.21	0.21
CFM PER RUN COOLING	77	77	77	77	77	74	74	74	5	39	39	49	49	46	46	53	53	1	2	63	6	6	6	6
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	0.17	0.17	0.17
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	0.13	0.14	0.12	0.11	0.12	0.12	0.13	0.11	0.11	0.1	0.1	0.1	0.09	0.08	0.08	0.09	0.08	0.11	0.1	0.11	0.11	0.12	0.11	0.11
ROUND DUCT SIZE	6	6	6	6	6	6	6	6	4	4	4	5	5	5	5	5	5	4	4	5	5	5	5	5
HEATING VELOCITY (ft/min)	194	194	194	194	194	153	153	153	218	241	241	162	162	338	338	132	132	34	92	492	463	463	463	463
COOLING VELOCITY (ft/min)	393	393	393	393	393	377	377	377	57	447	447	360	360	338	338	389	389	11	23	463	44	44	44	44
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	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.	3.41	3.41	3.41	3.41	0.58
CFM PER RUN HEAT	63	63	63	63	11
RM GAIN MBH.	0.21	0.21	0.21	0.21	0.09
CFM PER RUN COOLING	6	6	6	6	3
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17
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	0.11	0.1	0.1	0.1	0.1
ROUND DUCT SIZE	5	5	5	5	4
HEATING VELOCITY (ft/min)	463	463	463	463	126
COOLING VELOCITY (ft/min)	44	44	44	44	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		TRUNK	STATIC	ROUND	RECT			VELOCITY		
	CFM	PRESS.	DUCT	DUCT			(ft/min)		CFM	PRESS.	DUCT	DUCT			(ft/min)		CFM	PRESS.	DUCT	DUCT			(ft/min)		
TRUNK A	153	0.08	6.9	8	x	8	344	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.06	0	0	x	8	0		
TRUNK B	156	0.08	7	8	x	8	351	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.06	0	0	x	8	0		
TRUNK C	477	0.08	10.6	14	x	8	613	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.06	0	0	x	8	0		
TRUNK D	112	0.11	5.7	8	x	8	252	TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.06	0	0	x	8	0		
TRUNK E	862	0.08	13.3	20	x	8	776	TRUNK K	0	0.00	0	0	x	8	0	TRUNK S	0	0.06	0	0	x	8	0		
TRUNK F	244	0.11	7.6	10	x	8	439	TRUNK L	0	0.00	0	0	x	8	0	TRUNK T	0	0.06	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	TRUNK W	0	0.06	0	0	x	8	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	TRUNK X	1105	0.06	15.6	26	x	10	612
ACTUAL DUCT LGH.	15	55	55	63	60	1	1	1	1	1	1	1	1	1	1	16	TRUNK Y	775	0.06	13.7	22	x	8	634
EQUIVALENT LENGTH	145	205	200	205	165	0	0	0	0	0	0	0	0	0	0	185	TRUNK Z	515	0.06	11.8	16	x	8	579
TOTAL EFFECTIVE LH	160	260	255	268	225	1	1	1	1	1	1	1	1	1	1	201	DROP	1105	0.06	15.6	24	x	10	663
ADJUSTED PRESSURE	0.09	0.06	0.06	0.06	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.07								
ROUND DUCT SIZE	9	7.5	10.3	7	6.8	0	0	0	0	0	0	0	0	0	0	0								
INLET GRILL SIZE	8	8	8	8	8	0	0	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	0	0	0	0	0	0	0	0	0	0	0								

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

OPT IN-LAW - LAUN
TYPE: 7001 - ELEV C

DATE: Jul-24

GFA: 5590

LO# 95347

FURNACE 2

HEATING CFM 925
TOTAL HEAT LOSS 24,537
AIR FLOW RATE CFM 37.7
COOLING CFM 925
TOTAL HEAT GAIN 29,213
AIR FLOW RATE CFM 31.66

**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
= 27542 BTUH**
CARRIER
59SC6A040M14--10
FAN SPEED LOW
MEDLOW 545
MEDIUM 770
MEDIUM HIGH 925
HIGH 0

AFUE = 96 %
INPUT (BTU/H) = 40,000
OUTPUT (BTU/H) = **39,000**

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

TEMPERATURE RISE 39 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	22	0	0
R/A	0	0	7	0	0

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	15	16	17	18	19	20	21	22
ROOM NAME	PRI	PRI	PRI	ENS	ENS	DRESS	BED-2	BED-2	ENS-2	WIC-4	BED-3	BED-3	ENS-3	BED-4	BED-4	ENS-4	BED-5	BED-5	SHARED	RETR	LAUN
RM LOSS MBH.	1.11	1.11	1.11	2.12	0.71	0.97	1.01	1.01	0.90	0.94	1.54	1.54	2.23	1.33	1.33	0.28	1.25	1.25	0.64	1.40	0.13
CFM PER RUN HEAT	42	42	42	80	27	37	38	38	34	36	58	58	84	50	50	10	47	47	24	53	5
RM GAIN MBH.	1.78	1.78	1.78	1.99	0.66	0.46	1.29	1.29	0.34	1.08	1.59	1.59	1.99	1.99	1.99	0.08	1.80	1.80	0.41	2.03	1.19
CFM PER RUN COOLING	56	56	56	63	21	15	41	41	11	34	50	50	63	63	63	3	57	57	13	64	38
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	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	64	58	39	94	88	80	92	62
EQUIVALENT LENGTH	190	200	210	160	170	200	180	180	110	110	120	130	130	190	220	110	170	170	170	190	220
TOTAL EFFECTIVE LENGTH	274	269	273	250	255	285	223	218	143	151	157	172	179	254	278	149	264	258	250	282	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	0.07	0.06	0.11	0.06	0.06	0.07	0.06	0.06
ROUND DUCT SIZE	5	5	5	6	4	5	4	4	4	4	5	5	5	6	6	4	5	5	4	6	4
HEATING VELOCITY (ft/min)	308	308	308	408	310	272	436	436	390	413	426	426	617	255	255	115	345	345	275	270	57
COOLING VELOCITY (ft/min)	411	411	411	321	241	110	470	470	126	390	367	367	463	321	321	34	419	419	149	326	436
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	3X10
TRUNK	A	A	A	A	A	A	B	B	B	D	D	B	B	C	C	D	C	C	C	C	C

RUN #	42
ROOM NAME	HALL
RM LOSS MBH.	0.66
CFM PER RUN HEAT	25
RM GAIN MBH.	0.30
CFM PER RUN COOLING	10
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH.	54
EQUIVALENT LENGTH	180
TOTAL EFFECTIVE LENGTH	234
ADJUSTED PRESSURE	0.07
ROUND DUCT SIZE	4
HEATING VELOCITY (ft/min)	287
COOLING VELOCITY (ft/min)	115
OUTLET GRILL SIZE	3X10
TRUNK	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	270	0.06	9.2	10	x	8	486	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	522	0.06	11.8	16	x	8	587	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	301	0.06	9.6	12	x	8	452	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	405	0.06	10.7	18	x	8	405	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

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (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 - ELEV C
SITE NAME: VALES OF HUMBER SOUTH

LO # 95347
OPT IN-LAW - LAUN

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>7</u> @ 10.6 cfm	<u>74.2</u> cfm
Table 9.32.3.A.	TOTAL	<u>265.0</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>220.2</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>265</u>	cfm
Less Principal Ventil. Capacity	<u>150</u>	cfm
Required Supplemental Capacity	<u>115.0</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

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																													
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																													
LO#: 95347		Model: 7001 - ELEV C		Builder: ROYAL PINE HOMES																																																									
				Date: 7/10/2024																																																									
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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>2793</td> <td>10</td> <td>27930</td> </tr> <tr> <td>First</td> <td>2793</td> <td>11</td> <td>30723</td> </tr> <tr> <td>Second</td> <td>3336</td> <td>10</td> <td>33360</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>92,013.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>2605.5 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2793	10	27930	First	2793	11	30723	Second	3336	10	33360	Third	0	9	0	Fourth	0	9	0	Total:			92,013.0 ft³	Total:			2605.5 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 723.76 x 41 °C x 1.2 = 8639 W = 29475 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.078 x 723.76 x 6 °C x 1.2 = 416 W = 1421 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	29,475	12,566	1.173																																																									
2	0.3		23,667	0.374																																																									
3	0.2		17,542	0.336																																																									
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 - ELEV C	OPT IN-LAW - LAUN	BUILDER: ROYAL PINE HOMES
SFQT: 5590	LO# 95347	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 (ft³):	92013.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	7
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	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	-

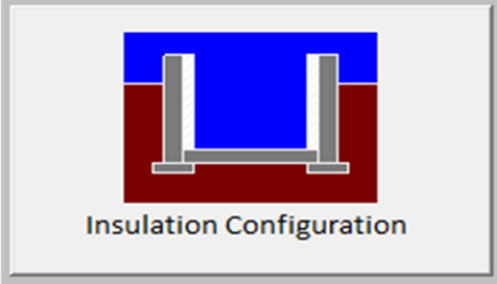
INDIVIDUAL BCIN: 19669

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 - ELEV C
LO# 95347

OPT IN-LAW - LAUN

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):	2605.5			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.		2432.2 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 - ELEV C
LO# 95347

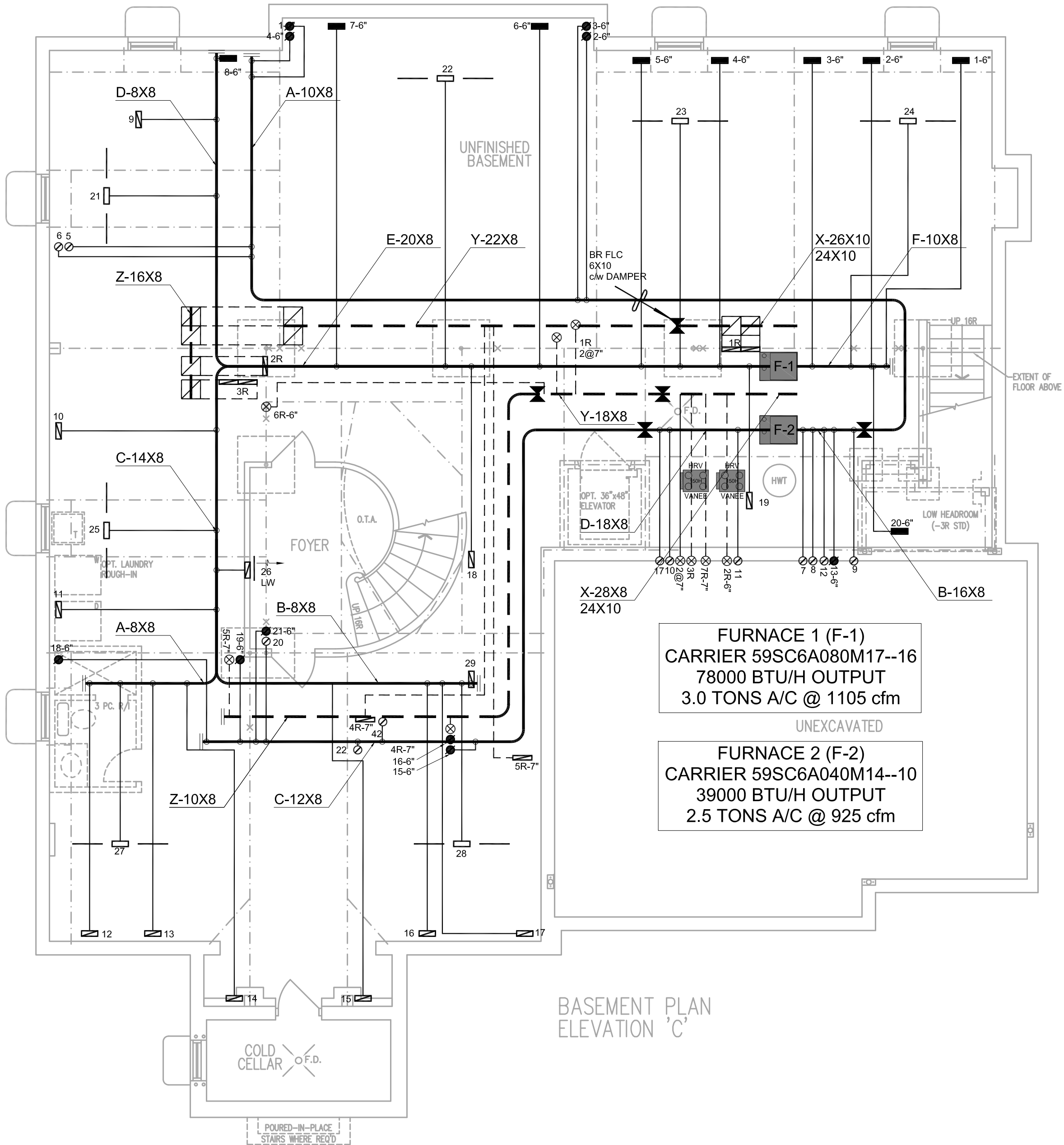
OPT IN-LAW - LAUN

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INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE. ALL SUPPLY BRANCH OUTLETS SHALL BE EQUIPPED WITH MANUAL BALANCING DAMPER. DUCTWORK WHICH PASSES THROUGH THE GARAGE OR UNHEATED SPACES SHALL BE ADEQUATELY INSULATED AND GAS-PROOFED

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 C3.2.5 of the building code.

Michael O'Rourke BCIN # 15689
HVAC Designs Ltd.

	S/A	R/A	FANS
2ND	22	7	7
1ST	21	5	5
BAS	8	1	0

HVACDESIGNS LTD.

375 Finley Ave - Unit 202 - Ajax, Ontario L1S 2E2
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Email: info@hvacdesigns.ca
Web: www.hvacdesigns.ca

Specializing in Residential Mechanical Design Services

Client ROYAL PINE HOMES

Project Name VALES OF HUMBER SOUTH
BRAMPTON, ONTARIO

7001 - ELEV C
OPT IN-LAW - LAUN

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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

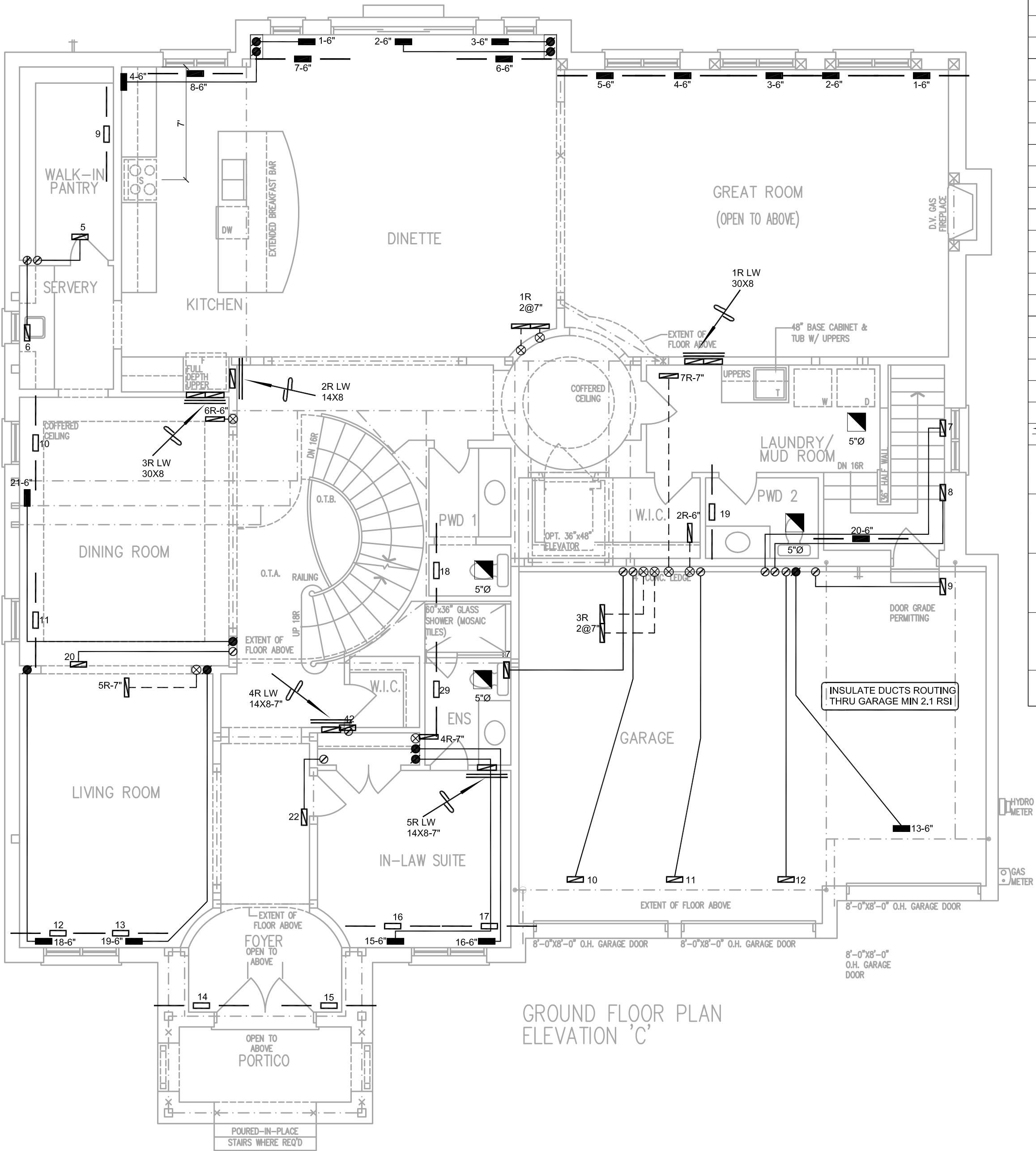
LO # 95347 3

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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
	Z.D. MOTORIZED ZONE DAMPER
	M.D. 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 C3.2.5 of the building code.

Michael O'Rourke BCIN # 15689
HVAC Designs Ltd.

	S/A	R/A	FANS
2ND	22	7	7
1ST	21	5	5
BAS	8	1	0

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375 Finley Ave - Unit 202 - Ajax, Ontario L1S 2E2
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Web: www.hvacadesigns.ca

Specializing in Residential Mechanical Design Services

Client **ROYAL PINE HOMES**

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

7001 - ELEV C
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Sheet Title **FIRST FLOOR HEATING LAYOUT**

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

Scale **3/16"=1'-0"** Sheet No. **2**

Date **MARCH 2022**

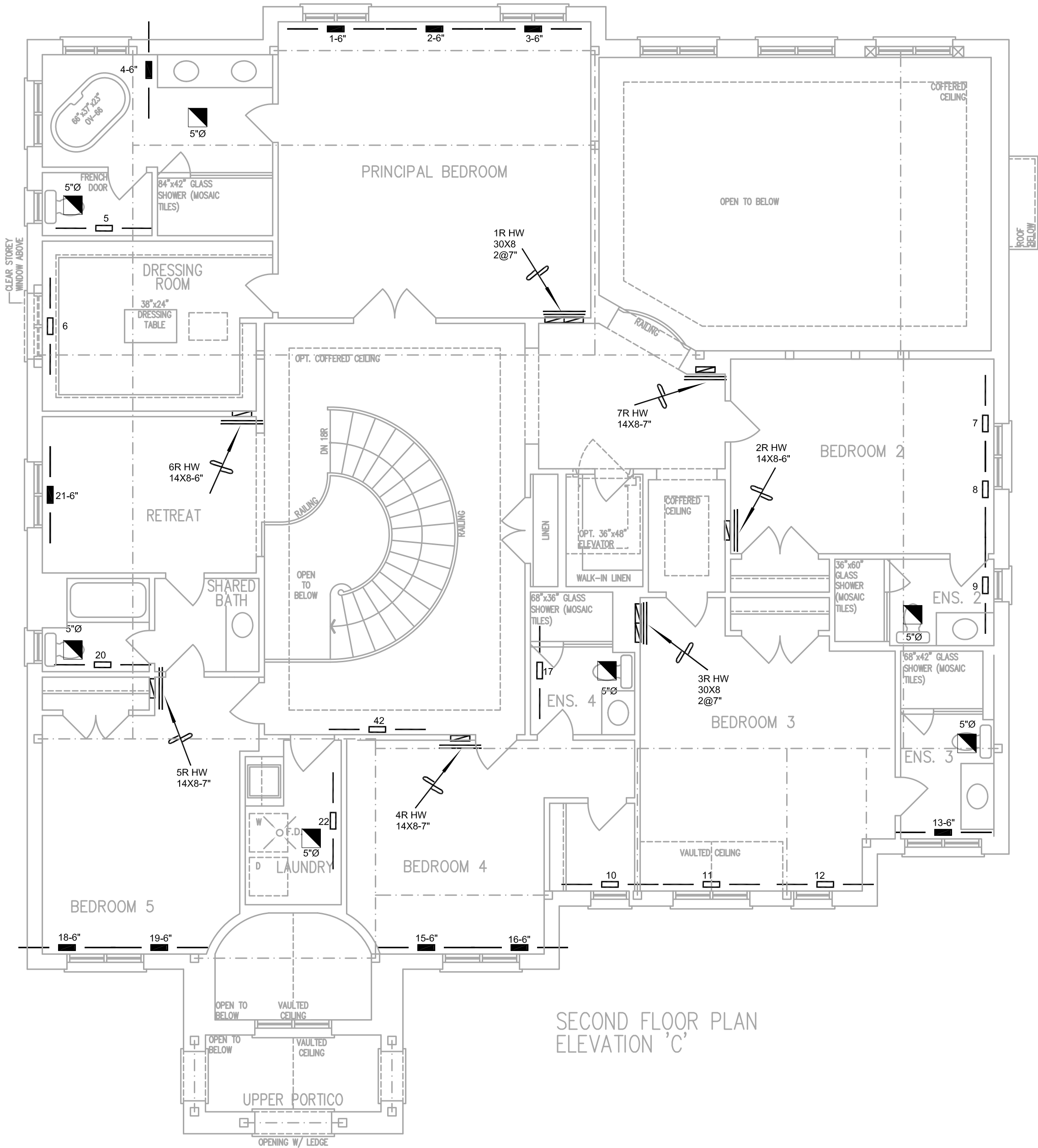
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Michael O'Rourke BCIN # 15689 HVAC Designs Ltd.

	S/A	R/A	FANS
2ND	22	7	7
1ST	21	5	5
BAS	8	1	0

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Client ROYAL PINE HOMES

Project Name VALES OF HUMBER SOUTH BRAMPTON, ONTARIO

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Sheet Title SECOND FLOOR HEATING LAYOUT

Drawn By EG Checked By MO

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

Date MARCH 2022

LO # 95347

3