


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]			
<input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings			
<input checked="" type="checkbox"/> HVAC – House <input type="checkbox"/> Building Services <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Fire Protection			
<input type="checkbox"/> Building Structural <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> 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 Project: VALES OF HUMBER SOUTH	
D. Declaration of Designer			
I, <u>MICHAEL O'ROURKE</u>		declare that (choose one as appropriate):	
(print name)			
<input type="checkbox"/> 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: _____			
<input checked="" type="checkbox"/> 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>			
<input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification: _____			
I certify that:			
1. The information contained _____ in this schedule is true to the best of my knowledge. 2. I have submitted this application with the knowledge and consent of the firm.			
April 7, 2022			
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
 BUILDER: ROYAL PINE HOMES

TYPE: 7001 - ELEV C

GFA: 5590

DATE Apr-22
 LO# 95344

WINTER NATURAL AIR CHANGE RATE 0.241
 SUMMER NATURAL AIR CHANGE RATE 0.078

HEAT LOSS ΔT °F. 74
 HEAT GAIN ΔT °F. 11

CSA-F280-12
 SB-12 PERFORMANCE

ROOM USE	GREAT		KIT		PANT		DIN		LIV		FOY		LIBR		PWD-1		PWD-2		MD/LN				
EXP. WALL	48		32		20		26		30		20		33		3		8		33				
CLG. HT.	21		11		11		11		11		23		11		11		11		12				
FACTORS	LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN				
GRS.WALL AREA	1008		352		220		286		330		460		363		33		88		396				
GLAZING																							
NORTH	20.8	15.5	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	0	34	706	1396	0	0	0	0	0	0	0	0	
SOUTH	20.8	24.4	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	192	3989	7881	107	2223	4392	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	
DOORS	24.7	3.7	0	0	0	20	493	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NET EXPOSED WALL	3.5	0.5	816	2829	419	225	780	116	220	763	113	247	856	127	296	1026	152	367	1272	189	329	1141	169
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	
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	
NO ATTIC EXPOSED CLG	2.7	1.2	10	27	12	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	
BASEMENT/CRAWL HEAT LOSS																							
SLAB ON GRADE HEAT LOSS																							
SUBTOTAL HT LOSS			7475		3496		763		1667		1733		3652		1847		114		305		2653		
SUB TOTAL HT GAIN			8593		4581		113		1078		1548		1858		1565		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	0.30	0.37	0.30	0.37	
AIR CHANGE HEAT LOSS			2788		1304		285		622		646		1362		689		43		114		990		
AIR CHANGE HEAT GAIN			466		248		6		58		84		101		85		1		2		38		
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	0	0	0	0	0	0	0	0	0	
HEAT GAIN APPLIANCES/LIGHTS			1636		1636		0		1636		1636		0		1636		0		0		1636		
TOTAL HT LOSS BTU/H			10264		4800		1047		2288		2379		5014		2536		157		419		3643		
TOTAL HT GAIN x 1.3 BTU/H			13903		8404		155		3604		4248		2546		4271		23		62		3090		

ROOM USE	GREAT		KIT		PANT		DIN		LIV		FOY		LIBR		PWD-1		PWD-2		MD/LN				
EXP. WALL	48		32		20		26		30		20		33		3		8		33				
CLG. HT.	21		11		11		11		11		23		11		11		11		12				
FACTORS	LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN				
GRS.WALL AREA	1008		352		220		286		330		460		363		33		88		396				
GLAZING																							
NORTH	20.8	15.5	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	0	34	706	1396	0	0	0	0	0	0	0	0	
SOUTH	20.8	24.4	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	192	3989	7881	107	2223	4392	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	
DOORS	24.7	3.7	0	0	0	20	493	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NET EXPOSED WALL	3.5	0.5	816	2829	419	225	780	116	220	763	113	247	856	127	296	1026	152	367	1272	189	329	1141	169
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	
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	
NO ATTIC EXPOSED CLG	2.7	1.2	10	27	12	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	
BASEMENT/CRAWL HEAT LOSS																							
SLAB ON GRADE HEAT LOSS																							
SUBTOTAL HT LOSS			7475		3496		763		1667		1733		3652		1847		114		305		2653		
SUB TOTAL HT GAIN			8593		4581		113		1078		1548		1858		1565		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	0.30	0.37	0.30	0.37	
AIR CHANGE HEAT LOSS			2788		1304		285		622		646		1362		689		43		114		990		
AIR CHANGE HEAT GAIN			466		248		6		58		84		101		85		1		2		38		
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	0	0	0	0	0	0	0	0	0	
HEAT GAIN APPLIANCES/LIGHTS			1636		1636		0		1636		1636		0		1636		0		0		1636		
TOTAL HT LOSS BTU/H			10264		4800		1047		2288		2379		5014		2536		157		419		3643		
TOTAL HT GAIN x 1.3 BTU/H			13903		8404		155		3604		4248		2546		4271		23		62		3090		

TOTAL HEAT GAIN BTU/H: 76521 TONS: 6.38 LOSS DUE TO VENTILATION LOAD BTU/H: 6010 STRUCTURAL HEAT LOSS: 83912 TOTAL COMBINED HEAT LOSS BTU/H: 89922



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

TYPE: 7001 - ELEV C

GFA: 5590

DATE Apr-22
 LO# 95344

WINTER NATURAL AIR CHANGE RATE 0.241
 SUMMER NATURAL AIR CHANGE RATE 0.078

HEAT LOSS AT °F. 74
 HEAT GAIN AT °F. 11

CSA-F280-12
 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													
FACTORS																																
GRS.WALL AREA	LOSS	GAIN	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	0	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	0	0	0	0	0	0	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	0	18	374	439	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	51	177	26	172	596	88
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	0	
EXPOSED CLG	1.3	0.6	546	684	304	180	226	100	165	207	92	325	407	181	211	264	118	352	441	196	216	271	120	310	388	173	66	83	37	91	114	51
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	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	0	0	0	66	164	24	91	227	34
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			2486		2114		727		1375		2094		1902		1865		1047		611		1519											
SUB TOTAL HT GAIN			2622		1936		340		659		1050		1628		1572		654		227		1322											
LEVEL FACTOR / MULTIPLIER	0.20		0.35		0.20		0.35		0.20		0.35		0.20		0.35		0.20		0.35		0.20		0.35									
AIR CHANGE HEAT LOSS			860		731		251		476		724		658		645		362		211		525											
AIR CHANGE HEAT GAIN			142		105		18		36		57		88		85		35		12		72											
DUCT LOSS			0		0		0		185		282		256		0		0		82		204											
DUCT GAIN			0		0		0		257		298		359		0		0		24		139											
HEAT GAIN PEOPLE	240	2	480	0	0	0	0	0	1	240	1	240	1	240	1	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS			1636		0		0		1636		1636		1636		1636		1636		1636		0		0									
TOTAL HT LOSS BTU/H			3345		2845		978		2036		3101		2815		2510		1409		904		2248											
TOTAL HT GAIN x 1.3 BTU/H			6343		2653		465		3676		4265		5136		4592		3023		342		1993											

ROOM USE	ENS-4		SHARED		WIC-4															
EXP. WALL	0		6		6															
CLG. HT.	10		10		10															
FACTORS																				
GRS.WALL AREA	LOSS	GAIN	0		60		60													
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
EAST	20.8	41.0	0	0	0	0	16	332	657	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
WEST	20.8	41.0	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
DOORS	24.7	3.7	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	44	153	23	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
EXPOSED CLG	1.3	0.6	70	88	39	90	113	50	42	53	23	0	0	0	0	0	0	0	0	0
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
EXPOSED FLOOR	2.5	0.4	40	100	15	0	0	0	42	105	16	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			187		477		642													
SUB TOTAL HT GAIN			54		296		718													
LEVEL FACTOR / MULTIPLIER	0.20		0.35		0.20		0.35		0.20		0.35									
AIR CHANGE HEAT LOSS			65		165		222													
AIR CHANGE HEAT GAIN			3		16		39													
DUCT LOSS			25		0		86													
DUCT GAIN			6		0		76													
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS			0		0		0													
TOTAL HT LOSS BTU/H			277		641		951													
TOTAL HT GAIN x 1.3 BTU/H			81		406		1083													

TOTAL HEAT GAIN BTU/H: 76521 TONS: 6.38 LOSS DUE TO VENTILATION LOAD BTU/H: 6010 STRUCTURAL HEAT LOSS: 83912 TOTAL COMBINED HEAT LOSS BTU/H: 89922



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

TYPE: 7001 - ELEV C

DATE: Apr-22

GFA: 5590

LO# 95344

FURNACE 1

HEATING CFM 1370 COOLING CFM 1370
 TOTAL HEAT LOSS 59,851 TOTAL HEAT GAIN 42,018
 AIR FLOW RATE CFM 22.89 AIR FLOW RATE CFM 32.61

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

FURNACE HEAT LOSS +
 HRV / ERV HEAT LOSS
 = 62857 BTUH

#CARRIER 59SP5A-80-16
 FAN SPEED LOW 0
 MEDLOW 975
 MEDIUM 1200
 MEDIUM HIGH 1370
 HIGH 1540

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

DESIGN CFM = 1370
 CFM @ 6" E.S.P.

TEMPERATURE RISE 53 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	0	20	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	LIBR	LIBR	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	2.51	2.51	1.27	1.27	0.16	0.42	3.64	3.41	3.41	3.41	3.41
CFM PER RUN HEAT	47	47	47	47	47	37	37	37	24	26	26	27	27	57	57	29	29	4	10	83	78	78	78	78
RM GAIN MBH.	2.78	2.78	2.78	2.78	2.78	2.80	2.80	2.80	0.15	1.80	1.80	2.12	2.12	1.27	1.27	2.14	2.14	0.02	0.06	3.09	0.21	0.21	0.21	0.21
CFM PER RUN COOLING	91	91	91	91	91	91	91	91	5	59	59	69	69	42	42	70	70	1	2	101	7	7	7	7
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	31	25	21	23	28	35	47	53	55	50	62	78	74	82	81	87	31	11	18	53	38	21	25	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	0.13	0.11	0.1	0.11	0.11	0.12	0.1	0.11	0.1	0.1	0.1	0.09	0.08	0.08	0.09	0.08	0.11	0.1	0.1	0.11	0.12	0.11	0.11
ROUND DUCT SIZE	6	6	6	6	6	6	6	6	4	5	5	5	5	5	5	5	5	4	4	6	5	5	5	5
HEATING VELOCITY (ft/min)	240	240	240	240	240	189	189	189	275	191	191	198	198	419	419	213	213	46	115	423	573	573	573	573
COOLING VELOCITY (ft/min)	464	464	464	464	464	464	464	464	57	433	433	507	507	308	308	514	514	11	23	515	51	51	51	51
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	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
ROOM NAME	BAS	BAS	BAS	BAS
RM LOSS MBH.	3.41	3.41	3.41	3.41
CFM PER RUN HEAT	78	78	78	78
RM GAIN MBH.	0.21	0.21	0.21	0.21
CFM PER RUN COOLING	7	7	7	7
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	52	58	71	78
EQUIVALENT LENGTH	110	110	110	100
TOTAL EFFECTIVE LENGTH	162	168	181	178
ADJUSTED PRESSURE	0.11	0.1	0.1	0.1
ROUND DUCT SIZE	5	5	5	5
HEATING VELOCITY (ft/min)	573	573	573	573
COOLING VELOCITY (ft/min)	51	51	51	51
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10
TRUNK	C	C	A	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	189	0.08	7.5	8	x	8	425	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.06	0	0	x	8	0
TRUNK B	193	0.08	7.6	8	x	8	434	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.06	0	0	x	8	0
TRUNK C	590	0.08	11.5	16	x	8	664	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.06	0	0	x	8	0
TRUNK D	139	0.10	6.3	8	x	8	313	TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.06	0	0	x	8	0
TRUNK E	1067	0.08	14.4	24	x	8	800	TRUNK K	0	0.00	0	0	x	8	0	TRUNK S	0	0.06	0	0	x	8	0
TRUNK F	302	0.10	8.5	10	x	8	544	TRUNK L	0	0.00	0	0	x	8	0	TRUNK T	0	0.06	0	0	x	8	0
																TRUNK U	0	0.06	0	0	x	8	0
																TRUNK V	0	0.06	0	0	x	8	0
																TRUNK W	0	0.06	0	0	x	8	0
																TRUNK X	1370	0.06	17	26	x	12	632
																TRUNK Y	775	0.06	13.7	22	x	8	634
																TRUNK Z	515	0.06	11.8	16	x	8	579
																DROP	1370	0.06	17	24	x	12	685

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	0	0	0	0	0	0	0	265
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	15	55	55	63	60	1	1	1	1	1	1	1	1	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	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	1	1	1	1	1	1	1	1	201
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	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	0	0	0	0	0	0	0	0	8.8
INLET GRILL SIZE	8	8	8	8	8	0	0	0	0	0	0	0	0	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	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	0	0	0	0	0	0	0	0	30

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

TYPE: 7001 - ELEV C

DATE: Apr-22

GFA: 5590

LO# 95344

FURNACE 2

HEATING CFM 1040 COOLING CFM 1040
 TOTAL HEAT LOSS 24,060 TOTAL HEAT GAIN 34,057
 AIR FLOW RATE CFM 43.22 AIR FLOW RATE CFM 30.54

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

FURNACE HEAT LOSS +
 HRV / ERV HEAT LOSS
 = 27065 BTUH

#*CARRIER
59SP5A-40-12
 FAN SPEED
 LOW 0
 MEDLOW 0
 MEDIUM 0
 MEDIUM HIGH 770
 HIGH 1040

AFUE = 97 %
 INPUT (BTU/H) = 40,000
 OUTPUT (BTU/H) = **39,000**

DESIGN CFM = **1040**
 CFM @ .6" E.S.P.

TEMPERATURE RISE 35 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	20	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
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
RM LOSS MBH.	1.12	1.12	1.12	2.13	0.71	0.98	1.02	1.02	0.90	0.95	1.55	1.55	2.25	1.41	1.41	0.28	1.25	1.25	0.64	1.41
CFM PER RUN HEAT	48	48	48	92	31	42	44	44	39	41	67	67	97	61	61	12	54	54	28	61
RM GAIN MBH.	2.11	2.11	2.11	1.99	0.66	0.47	1.84	1.84	0.34	1.08	2.13	2.13	1.99	2.57	2.57	0.08	2.30	2.30	0.41	3.02
CFM PER RUN COOLING	65	65	65	61	20	14	56	56	10	33	65	65	61	78	78	2	70	70	12	92
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16
ACTUAL DUCT LGH.	84	69	63	90	85	85	43	38	33	41	37	42	49	64	58	39	94	88	80	92
EQUIVALENT LENGTH	190	200	210	160	170	200	180	180	110	110	120	130	130	190	220	110	170	170	170	190
TOTAL EFFECTIVE LENGTH	274	269	273	250	255	285	223	218	143	151	157	172	179	254	278	149	264	258	250	282
ADJUSTED PRESSURE	0.06	0.06	0.06	0.06	0.07	0.06	0.08	0.08	0.12	0.11	0.11	0.1	0.09	0.07	0.06	0.12	0.07	0.07	0.07	0.06
ROUND DUCT SIZE	6	6	6	6	4	5	5	5	4	4	6	6	6	6	6	4	6	6	4	6
HEATING VELOCITY (ft/min)	245	245	245	469	356	308	323	323	447	470	342	342	495	311	311	138	275	275	321	311
COOLING VELOCITY (ft/min)	331	331	331	311	229	103	411	411	115	379	331	331	311	398	398	23	357	357	138	469
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	3X10	4X10	4X10	3X10	4X10
TRUNK	A	A	A	A	A	A	B	B	B	D	D	B	B	C	C	D	C	C	C	C

ROOM NAME	
RM LOSS MBH.	
CFM PER RUN HEAT	
RM GAIN MBH.	
CFM PER RUN COOLING	
ADJUSTED PRESSURE	
ACTUAL DUCT LGH.	
EQUIVALENT LENGTH	
TOTAL EFFECTIVE LENGTH	
ADJUSTED PRESSURE	
ROUND DUCT SIZE	
HEATING VELOCITY (ft/min)	
COOLING VELOCITY (ft/min)	
OUTLET GRILL SIZE	
TRUNK	

SUPPLY AIR TRUNK SIZE										RETURN 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	309	0.06	9.7	10	x	8	556	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0
TRUNK B	600	0.06	12.4	18	x	8	600	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0
TRUNK C	319	0.06	9.8	14	x	8	410	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0
TRUNK D	439	0.06	11.1	18	x	8	439	TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.05	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 S	0	0.05	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	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

RETURN AIR #	1	2	3	4	5	6	7	BR																
AIR VOLUME	280	95	230	115	115	75	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	46	42	54	66	89	60	53	1	1	1	1	1	1	1	1	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	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	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.07	0.07	0.05	0.05	0.05	0.05	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	9	6	9.1	7	7	6	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	X	X	X	X	X	X	X	X	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	0	0	0	0	0	0	0	0

TYPE: 7001 - ELEV C
 SITE NAME: VALES OF HUMBER SOUTH

LO # 95344

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>8</u>	@ 10.6 cfm	<u>84.8</u>	cfm
Other Rooms	<u>7</u>	@ 10.6 cfm	<u>74.2</u>	cfm
Table 9.32.3.A.		TOTAL	<u>243.8</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	95.4	cfm

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.

Total Ventilation Capacity	<u>243.8</u>	cfm
Less Principal Ventil. Capacity	<u>150</u>	cfm
Required Supplemental Capacity	<u>93.8</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE V150H Location: BSMT

150.0 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	<input checked="" type="checkbox"/>	3.5
ENS-2	BY INSTALLING CONTRACTOR	50	<input checked="" type="checkbox"/>	3.5
ENS-3	BY INSTALLING CONTRACTOR	50	<input checked="" type="checkbox"/>	3.5
ENS-4	BY INSTALLING CONTRACTOR	50	<input checked="" type="checkbox"/>	3.5

HEAT RECOVERY VENTILATOR 9.32.3.11.

Model: VANEE V150H INSTALL 2 HRV / ERV's

150 cfm high 35 cfm low

75 % Sensible Efficiency HVI Approved
 @ 32 deg F (0 deg C)

LOCATION OF INSTALLATION

Lot: Concession

Township: Plan:

Address:

Roll # Building Permit #

BUILDER: ROYAL PINE HOMES

Name:

Address:

City:

Telephone #: Fax #:

INSTALLING CONTRACTOR

Name:

Address:

City:

Telephone #: Fax #:

DESIGNER CERTIFICATION

I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.

Name: HVAC Designs Ltd.

Signature: *Michael O'Rourke*

HRAI # 001820

Date: April-22

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																
LO#: 95344	Model: 7001 - ELEV C	Builder: ROYAL PINE HOMES	Date: 2022-04-07																																																													
Volume Calculation			Air Change & Delta T Data																																																													
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4">House Volume</th> </tr> <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="3" style="text-align: right;">Total:</td> <td>92,013.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>2605.5 m³</td> </tr> </tbody> </table>			House Volume				Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)	Bsmt	2793	10	27930	First	2793	11	30723	Second	3336	10	33360	Third	0	9	0	Fourth	0	9	0	Total:			92,013.0 ft ³	Total:			2605.5 m ³	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 30%;">0.241</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.078</td> </tr> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="5">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> </thead> <tbody> <tr> <td>Winter DTDh</td> <td>22</td> <td>-19</td> <td>41</td> <td>74</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>30</td> <td>6</td> <td>11</td> </tr> </tbody> </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																																																													
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ <p>0.241 x 723.76 x 41°C x 1.2 = 8639 W = 29475 Btu/h</p>			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>= 0.078 x 723.76 x 6°C x 1.2 = 416 W = 1421 Btu/h</p>																																																													
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																													
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E) \times 2 \text{ HRV / ERV's}$ <p>300 CFM x 74°F x 1.08 x 0.25 = 6010 Btu/h</p>			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>300 CFM x 11°F x 1.08 x 0.25 = 891 Btu/h</p>																																																													
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 _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																																												
1	0.5	29,475	12,566	1.173																																																												
2	0.3		23,705	0.373																																																												
3	0.2		17,044	0.346																																																												
4	0		0	0.000																																																												
5	0		0	0.000																																																												
<p>*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0</p>																																																																
				Michael O'Rourke BCIN# 19669 																																																												

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 7001 - ELEV C	BUILDER: ROYAL PINE HOMES
SFQT: 5590	LO# 95344
	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):	92013.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	2.20	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

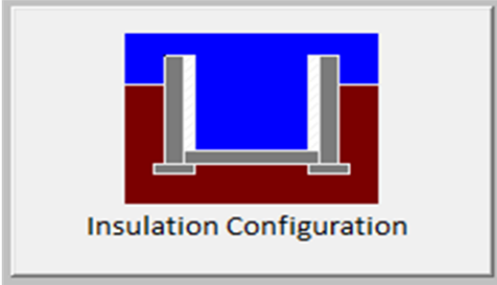
2012 OBC - COMPLIANCE PACKAGE

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	 <p>Insulation Configuration</p>
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# 95344

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# 95344