

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 VAUGHAN (WOODBIDGE)	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: 5011 TIMBERLAND - LOTS 72 & 101 Project: PINE VALLEY PH 2	
D. Declaration of Designer			
I, <u>MICHAEL O'ROURKE</u> declare that (choose one as appropriate): (print name)			
☐ 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.			
March 26, 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: PINE VALLEY PH 2				TIMBERLAND - LOTS 72 & 101				DATE Mar-24				WINTER NATURAL AIR CHANGE RATE 0.340				HEAT LOSS AT °F. 76				CSA-F280-12			
BUILDER: GOLD PARK HOMES				TYPE: 5011				GFA: 4238				LO# 98030				SUMMER NATURAL AIR CHANGE RATE 0.114				HEAT GAIN AT °F. 13			
ROOM USE	EXP. WALL	CLG. HT.		PBR		ENS		WIC		BED-2		BED-3		BED-4		ENS-2		ENS-3		WIC-E		ENS-4	
				40		15		8		13		15		44		10		16		12		10	
				9		9		9		9		9		9		9		9		9		9	
FACTORS																							
GRS.WALL AREA	LOSS	GAIN		360		135		72		117		135		396		90		144		108		90	
GLAZING	LOSS	GAIN				LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
NORTH	21.3	16.0	0	0	0	0	0	0	0	18	383	288	0	0	0	0	0	0	0	0	0	0	0
EAST	21.3	41.6	0	0	0	0	0	0	0	0	0	0	25	532	1039	64	1362	2659	0	0	0	0	0
SOUTH	21.3	24.9	21	447	523	21	447	523	21	447	523	0	0	0	0	0	0	0	0	6	128	149	9
WEST	21.3	41.6	53	1128	2202	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SKYLT.	37.2	101.5	8	279	762	0	0	0	0	0	0	8	279	762	8	279	762	0	0	0	0	0	0
DOORS	25.2	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.5	0.8	286	1276	215	114	509	86	51	228	38	99	442	74	110	491	83	311	1388	234	90	402	68
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	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	393	504	231	245	314	144	204	262	120	330	423	194	203	260	119	265	339	155	67	86	39
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	0	0	0	0	0	0	0	0	0	48	132	60	83	228	104	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	74	189	32	141	360	61	258	658	111	0	0	0	117	298	50
BASEMENT/CRAWL HEAT LOSS			0			0			0			0			0			0		0			
SLAB ON GRADE HEAT LOSS			0			0			0			0			0			0		0			
SUBTOTAL HT LOSS				3634		1270		1125		1887		2352		4044		786		1248		698		778	
SUB TOTAL HT GAIN					3932		753		713		1378		2173		4437		157		693		279		388
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	
AIR CHANGE HEAT LOSS				1244		435		385		646		805		1384		269		427		239		266	
AIR CHANGE HEAT GAIN					275		53		50		97		152		311		11		49		20		27
DUCT LOSS				0		0		151		253		316		0		105		168		0		0	
DUCT GAIN				0		0		76		230		315		0		76		133		0		0	
HEAT GAIN PEOPLE	240		2	480		0		0	1	240		1	240		1	240		0		0		0	
HEAT GAIN APPLIANCES/LIGHTS				588		0		0		588		588		588		588		588		588		588	
TOTAL HT LOSS BTU/H				4878		1705		1661		2785		3472		5427		1160		1843		937		1044	
TOTAL HT GAIN x 1.3 BTU/H				6858		1047		1091		3292		4509		7249		1081		1900		1152		1304	

ROOM USE	EXP. WALL	CLG. HT.		GRT		DIN		KT/BF		LIB		LND		FOY		MUD						BAS
				46		35		67		24		10		22		28						216
				20		11		11		11		9		11		11						10
FACTORS																						
GRS.WALL AREA	LOSS	GAIN		920		385		737		264		90		242		308						1512
GLAZING	LOSS	GAIN				LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN					LOSS
NORTH	21.3	16.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					0
EAST	21.3	41.6	0	0	0	0	0	0	0	30	638	1247	0	0	0	0	0					0
SOUTH	21.3	24.9	0	0	0	50	1064	1245	39	830	971	27	575	672	9	192	224					12
WEST	21.3	41.6	121	2575	5028	0	0	0	106	2256	4405	0	0	0	0	0	0					6
SKYLT.	37.2	101.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					128
DOORS	25.2	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					249
NET EXPOSED WALL	4.5	0.8	799	3566	601	335	1495	252	592	2642	445	207	924	156	81	361	61					0
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					0
EXPOSED CLG	1.3	0.6	303	389	178	0	0	0	0	0	0	0	0	0	180	231	106					648
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					2332
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					393
BASEMENT/CRAWL HEAT LOSS			0			0			0			0			0							0
SLAB ON GRADE HEAT LOSS			0			0			0			0			0							0
SUBTOTAL HT LOSS				6529		2559		5728		2137		784		2124		1790						7542
SUB TOTAL HT GAIN					5806		1497		5821		2074		391		1307		302					10762
LEVEL FACTOR / MULTIPLIER	0.30	0.46				0.30	0.46		0.30	0.46		0.20	0.34		0.30	0.46						1026
AIR CHANGE HEAT LOSS				2988		1171		2621		978		268		972		819						15916
AIR CHANGE HEAT GAIN					407		105		408		145		27		92		21					72
DUCT LOSS				0		0		0		0		0		0		0						0
DUCT GAIN				0		0		0		0		0		0		0						0
HEAT GAIN PEOPLE	240		0	0		0		0	0	0		0		0		0						0
HEAT GAIN APPLIANCES/LIGHTS				588		588		588		588		588		588		588						0
TOTAL HT LOSS BTU/H				9518		3730		8349		3115		1052		3096		2610						26678
TOTAL HT GAIN x 1.3 BTU/H				8841		2846		8861		3650		1308		2582		419						1427

TOTAL HEAT GAIN BTU/H: 59936 TONS: 4.99 LOSS DUE TO VENTILATION LOAD BTU/H: 6156 STRUCTURAL HEAT LOSS: 83059 TOTAL COMBINED HEAT LOSS BTU/H: 89215

SITE NAME: PINE VALLEY PH 2
BUILDER: GOLD PARK HOMES

TIMBERLAND - LOTS 72 & 101
TYPE: 5011

DATE: Mar-24

GFA: 4238 LO# 98030

FURNACE 1

HEATING CFM 985 COOLING CFM 985
TOTAL HEAT LOSS 57,094 TOTAL HEAT GAIN 28,627
AIR FLOW RATE CFM 17.25 AIR FLOW RATE CFM 34.41

furnace pressure 0.7
furnace filter 0.14
a/c coil pressure 0.16
available pressure for s/a & r/a 0.40

FURNACE HEAT LOSS +
HRV / ERV HEAT LOSS
= 60172 BTUH

\$LENNOX
ML196UH070XE36B
FAN SPEED 70
LOW 0
MEDLOW 0
MEDIUM 985
MEDIUM HIGH 1110
HIGH 1275

AFUE = 96 %
INPUT (BTU/H) = 66,000
OUTPUT (BTU/H) = 63,900
DESIGN CFM = 985
CFM @ .7" E.S.P.

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

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

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

RUN #	21	22	23	24
ROOM NAME	FOY	GRT	GRT	GRT
RM LOSS MBH.	3.10	3.17	3.17	3.17
CFM PER RUN HEAT	53	55	55	55
RM GAIN MBH.	2.58	2.95	2.95	2.95
CFM PER RUN COOLING	89	101	101	101
ADJUSTED PRESSURE	0.19	0.19	0.19	0.19
ACTUAL DUCT LGH.	104	15	16	21
EQUIVALENT LENGTH	140	200	170	130
TOTAL EFFECTIVE LENGTH	244	215	186	151
ADJUSTED PRESSURE	0.08	0.09	0.1	0.12
ROUND DUCT SIZE	6	6	6	5
HEATING VELOCITY (ft/min)	270	280	280	404
COOLING VELOCITY (ft/min)	454	515	515	742
OUTLET GRILL SIZE	4X10	4X10	4X10	3X10
TRUNK	E	D	D	D

RUN #	25	26	27	28	29	30	31	32	33	34	35	36
ROOM NAME	DIN	KT/BF	KT/BF	KT/BF	LIB	LIB	MUD	BAS	BAS	BAS	BAS	BAS
RM LOSS MBH.	3.73	2.78	2.78	2.78	1.56	1.56	2.61	5.34	5.34	5.34	5.34	5.34
CFM PER RUN HEAT	64	48	48	48	27	27	45	92	92	92	92	92
RM GAIN MBH.	2.85	2.95	2.95	2.95	1.82	1.82	0.42	0.29	0.29	0.29	0.29	0.29
CFM PER RUN COOLING	98	102	102	102	63	63	14	10	10	10	10	10
ADJUSTED PRESSURE	0.19	0.19	0.19	0.19	0.20	0.20	0.20	0.19	0.19	0.19	0.19	0.19
ACTUAL DUCT LGH.	74	29	40	50	92	95	22	39	29	13	44	90
EQUIVALENT LENGTH	160	120	160	150	180	130	160	160	110	150	100	140
TOTAL EFFECTIVE LENGTH	234	149	200	200	272	225	182	199	139	163	144	230
ADJUSTED PRESSURE	0.08	0.13	0.09	0.09	0.07	0.09	0.11	0.09	0.14	0.12	0.13	0.08
ROUND DUCT SIZE	6	5	6	6	5	5	4	6	5	5	5	6
HEATING VELOCITY (ft/min)	326	352	245	245	198	198	516	469	675	675	675	469
COOLING VELOCITY (ft/min)	500	749	520	520	463	463	161	51	73	73	73	51
OUTLET GRILL SIZE	4X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10
TRUNK	E	D	E	E	E	E	D	E	D	D	D	E

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	0	0.00	0	0	x	8	0			TRUNK G	0	0.00	0	0	x	8	0		TRUNK O	0	0.06	0	0	x	8	0
TRUNK B	0	0.00	0	0	x	8	0			TRUNK H	0	0.00	0	0	x	8	0		TRUNK P	0	0.06	0	0	x	8	0
TRUNK C	0	0.00	0	0	x	8	0			TRUNK I	0	0.00	0	0	x	8	0		TRUNK Q	0	0.06	0	0	x	8	0
TRUNK D	534	0.09	10.8	14	x	8	687			TRUNK J	0	0.00	0	0	x	8	0		TRUNK R	0	0.06	0	0	x	8	0
TRUNK E	985	0.07	14.4	24	x	8	739			TRUNK K	0	0.00	0	0	x	8	0		TRUNK S	0	0.06	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	0.06	0	0	x	8	0

RETURN AIR #	7	8	9													BR
AIR VOLUME	0	0	0	0	0	0	360	290	115	0	0	0	0	0	0	220
PLENUM 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
ACTUAL DUCT LGH.	1	1	1	1	1	1	78	30	29	1	1	1	1	1	1	14
EQUIVALENT LENGTH	0	0	0	0	0	0	190	185	145	0	0	0	0	0	0	185
TOTAL EFFECTIVE LH	1	1	1	1	1	1	268	215	174	1	1	1	1	1	1	199
ADJUSTED PRESSURE	17.20	17.20	17.20	17.20	17.20	17.20	0.06	0.08	0.10	17.20	17.20	17.20	17.20	17.20	17.20	0.09
ROUND DUCT SIZE	0	0	0	0	0	0	10.3	8.8	5.9	0	0	0	0	0	0	7.7
INLET GRILL SIZE	0	0	0	0	0	0	8	8	8	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	0	0	0	0	0	0	30	30	14	0	0	0	0	0	0	24

SITE NAME: PINE VALLEY PH 2
BUILDER: GOLD PARK HOMES

TYPE: 5011
DATE: Mar-24

GFA: 4238 LO# 98030

FURNACE 2

HEATING CFM 980 COOLING CFM 980
TOTAL HEAT LOSS 25,965 TOTAL HEAT GAIN 30,791
AIR FLOW RATE CFM 37.74 AIR FLOW RATE CFM 31.83

furnace pressure 0.7
furnace filter 0.14
a/c coil pressure 0.16
available pressure
for s/a & r/a 0.40

FURNACE HEAT LOSS +
HRV / ERV HEAT LOSS
= 29043 BTUH

\$LENNOX
ML196UH045XE36B

AFUE = 96 %
INPUT (BTU/H) = 44,000
OUTPUT (BTU/H) = 42,800

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	18	0	0
R/A	0	0	6	0	0

plenium pressure s/a 0.21
max s/a dif press. loss 0.01
min adjusted pressure s/a 0.20
r/a pressure 0.19
r/a grille press. Loss 0.02
adjusted pressure r/a 0.17

FAN SPEED 45
LOW 620
MEDLOW 685
MEDIUM 980
MEDIUM HIGH 1110
HIGH 0

DESIGN CFM = 980
CFM @ .7" E.S.P.

TEMPERATURE RISE 40 °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	13	15	17	18	19	20
ROOM NAME	PBR	PBR	PBR	ENS	ENS	WIC	WIC-E	BED-2	BED-2	BED-3	BED-3	BED-4	BED-4	ENS-2	ENS-3	ENS-4	LND
RM LOSS MBH.	1.63	1.63	1.63	0.85	0.85	1.66	0.94	1.39	1.39	1.74	1.74	1.81	1.81	1.16	1.84	1.04	1.05
CFM PER RUN HEAT	61	61	61	32	32	63	35	53	53	66	66	68	68	44	70	39	40
RM GAIN MBH.	2.29	2.29	2.29	0.52	0.52	1.09	1.15	1.65	1.65	2.25	2.25	2.42	2.42	1.08	1.90	1.30	1.31
CFM PER RUN COOLING	73	73	73	17	17	35	37	52	52	72	72	77	77	34	60	41	42
ADJUSTED PRESSURE	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
ACTUAL DUCT LGH.	42	53	80	50	52	14	64	29	25	111	105	110	103	38	114	84	71
EQUIVALENT LENGTH	180	150	160	170	150	120	140	140	110	160	170	190	190	140	150	220	220
TOTAL EFFECTIVE LENGTH	222	203	240	220	202	134	204	169	135	271	275	300	293	178	264	304	291
ADJUSTED PRESSURE	0.09	0.1	0.08	0.09	0.1	0.15	0.1	0.12	0.15	0.07	0.07	0.07	0.07	0.11	0.08	0.07	0.07
ROUND DUCT SIZE	6	6	6	4	4	4	4	4	4	6	6	6	6	4	5	5	5
HEATING VELOCITY (ft/min)	311	311	311	367	367	723	402	608	608	337	337	347	347	505	514	286	294
COOLING VELOCITY (ft/min)	372	372	372	195	195	402	424	597	597	367	367	393	393	390	441	301	308
OUTLET GRILL SIZE	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10
TRUNK	B	B	B	B	B	C	B	C	C	A	A	A	A	C	A	A	A

RUN #	38
ROOM NAME	BED-4
RM LOSS MBH.	1.81
CFM PER RUN HEAT	68
RM GAIN MBH.	2.42
CFM PER RUN COOLING	77
ADJUSTED PRESSURE	0.20
ACTUAL DUCT LGH.	72
EQUIVALENT LENGTH	210
TOTAL EFFECTIVE LENGTH	282
ADJUSTED PRESSURE	0.07
ROUND DUCT SIZE	6
HEATING VELOCITY (ft/min)	347
COOLING VELOCITY (ft/min)	393
OUTLET GRILL SIZE	4X10
TRUNK	A

SUPPLY AIR TRUNK SIZE														RETURN AIR TRUNK SIZE													
	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)				
TRUNK A	485	0.07	11.1	14	x	8	624	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0				
TRUNK B	767	0.07	13.1	20	x	8	690	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0				
TRUNK C	213	0.11	7.3	8	x	8	479	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0				
TRUNK D	0	0.00	0	0	x	8	0	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				

RETURN AIR #	1	2	3	4	5	6										BR
AIR VOLUME	245	75	75	75	255	255	0	0	0	0	0	0	0	0	0	0
PLENUM 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
ACTUAL DUCT LGH.	58	58	116	104	104	110	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	165	145	195	255	240	215	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	223	203	311	359	344	325	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.08	0.08	0.06	0.05	0.05	0.05	17.20	17.20	17.20	17.20	17.20	17.20	17.20	17.20	17.20	17.20
ROUND DUCT SIZE	8.3	5.3	5.7	6	9.5	9.5	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	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	24	14	14	14	30	30	0	0	0	0	0	0	0	0	0	0

TYPE: 5011
SITE NAME: PINE VALLEY PH 2

LO # 98030
TIMBERLAND - LOTS 72 & 101

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>3</u> @ 10.6 cfm	<u>31.8</u> cfm
Kitchen & Bathrooms	<u>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Other Rooms	<u>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Table 9.32.3.A.	TOTAL	<u>180.2</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	79.5	cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>180.2</u>	cfm
Less Principal Ventil. Capacity	<u>150</u>	cfm
Required Supplemental Capacity	<u>30.2</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 76 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	☒ HVI Approved	
@ 32 deg F (0 deg C)		

LOCATION OF INSTALLATION	
Lot:	Concession
Township	Plan:
Address	
Roll #	Building Permit #

BUILDER: GOLD PARK 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:	March-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

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 98030	Model: 5011	Builder: GOLD PARK HOMES	Date: 3/26/2024																																																									
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>2121</td> <td>10</td> <td>21210</td> </tr> <tr> <td>First</td> <td>2121</td> <td>11</td> <td>23331</td> </tr> <tr> <td>Second</td> <td>2700</td> <td>9</td> <td>24300</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>68,841.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>1949.4 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2121	10	21210	First	2121	11	23331	Second	2700	9	24300	Third	0	9	0	Fourth	0	9	0	Total:			68,841.0 ft³	Total:			1949.4 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;">0.340</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.114</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;">-20</td> <td style="text-align: center;">42</td> <td style="text-align: center;">76</td> </tr> <tr> <td>Summer DTDc</td> <td style="text-align: center;">24</td> <td style="text-align: center;">31</td> <td style="text-align: center;">7</td> <td style="text-align: center;">13</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.340	SUMMER NATURAL AIR CHANGE RATE	0.114	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-20	42	76	Summer DTDc	24	31	7	13
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.340 x 541.49 x 42 °C x 1.2 = 9329 W = 31832 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.114 x 541.49 x 7 °C x 1.2 = 528 W = 1802 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 76 °F x 1.08 x 0.25 = 6156 Btu/h			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 300 CFM x 13 °F x 1.08 x 0.25 = 1,037 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 / HL _{clevel})																																																								
1	0.5	31,832	10,762	1.479																																																								
2	0.3		20,867	0.458																																																								
3	0.2		18,605	0.342																																																								
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: 5011	TIMBERLAND - LOTS 72 & 101	BUILDER: GOLD PARK HOMES
SFQT: 4238	LO# 98030	SITE: PINE VALLEY PH 2

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-4	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75
		WINDOW SHGC	0.50

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	68841.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
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: 65.0 ft	WIDTH: 43.0 ft	EXPOSED PERIMETER:	216.0 ft

2012 OBC - COMPLIANCE PACKAGE**Component****Compliance Package
A1****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	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	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	0.28	-
Skylights Maximum U-Value	0.49	-
Space Heating Equipment Minimum AFUE	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

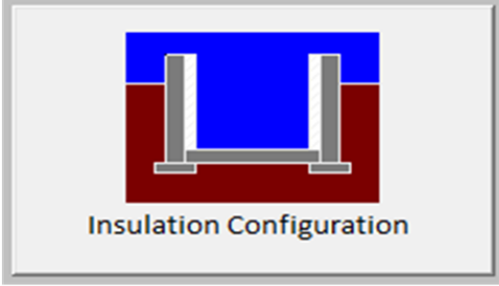
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	19.8	 Insulation Configuration
Floor Width (m):	13.1	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	1.7	
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):		2210

TYPE: 5011
LO# 98030

TIMBERLAND - LOTS 72 & 101

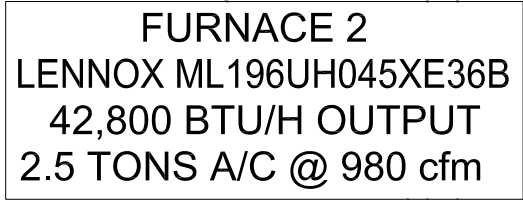
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Vaughan (Woodbridge)			
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):	7.01			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1949.4			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2598.6 cm ²		
	3.57	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):	0.340			
Cooling Air Leakage Rate (ACH/H):	0.114			

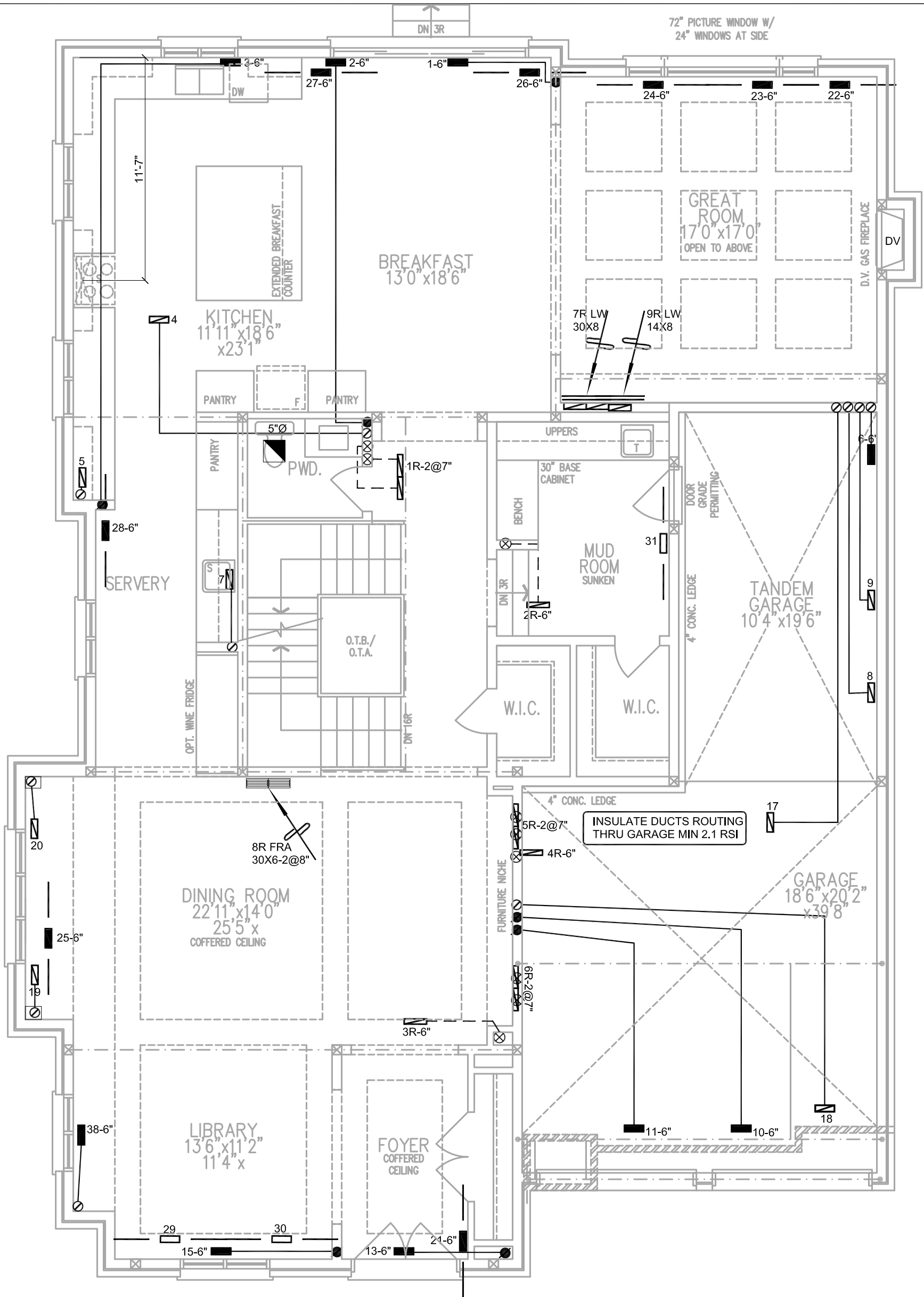
TYPE: 5011
LO# 98030

TIMBERLAND - LOTS 72 & 101



PACKAGE A1

Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacadesigns.ca Web: www.hvacadesigns.ca Specializing in Residential Mechanical Design Services	<table><tr><td></td><td>S/A</td><td>R/A</td><td>FANS</td></tr><tr><td>2ND</td><td>18</td><td>6</td><td>5</td></tr><tr><td>1ST</td><td>11</td><td>3</td><td>2</td></tr><tr><td>BAS</td><td>5</td><td>1</td><td>0</td></tr></table>					S/A	R/A	FANS	2ND	18	6	5	1ST	11	3	2	BAS	5	1	0	Sheet Title	
	S/A						R/A	FANS																
2ND	18						6	5																
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GOLD PARK HOMES		BASEMENT HEATING LAYOUT																						
Project Name		Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.		Date JULY/2022																				
PINE VALLEY PH 2 VAUGHAN, ONTARIO				Scale 3/16" = 1'-0"																				
LOTS 72 & 101 TIMBERLAND				BCIN# 19669																				
5011	4238 sqft			LO#	98030																			



GROUND FLOOR PLAN, EL. 'A' – LOT 72/101

LOTS 72/101

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	REVISED AS PER CAD	MAR 2024
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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I Michael O'Rourke have reviewed and take responsibility for the design work and am qualified under division C.3.2.5 of the building code.

Michael O'Rourke
Michael O'Rourke BCIN # 19669
HVAC Designs Ltd.

PACKAGE A1

Client
GOLD PARK HOMES

Project Name
**PINE VALLEY PH 2
VAUGHAN, ONTARIO
LOTS 72 & 101
TIMBERLAND
5011**

4238 sqft

375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
Email: info@hvacdsgns.ca
Web: www.hvacdsgns.ca
Specializing in Residential Mechanical Design Services

Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

Sheet Title
**FIRST FLOOR
HEATING
LAYOUT**

Date
JULY/2022

Scale
3/16" = 1'-0"

BCIN# 19669

LO# **98030**

