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	**Postal code**	**Plan number/ other description**		
VAUGHAN (WOODBRIDGE)				

B. Individual who reviews and takes responsibility for design activities

Name		Firm		
MICHAEL O'ROURKE		**HVAC DESIGNS LTD.**		
Street address			Unit no.	Lot/con.
375 FINLEY AVE			**202**	**N/A**
Municipality	Postal code	Province	E-mail	
AJAX	**L1S 2E2**	**ONTARIO**	**info@hvacdesigns.ca**	
Telephone number	Fax number		Cell number	
(**905**) **619-2300**	(**905**) **619-2375**		( )	

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]

❑ House	☒ HVAC – House	❑ Building Structural
❑ Small Buildings	❑ Building Services	❑ Plumbing – House
❑ Large Buildings	❑ Detection, Lighting and Power	❑ Plumbing – All Buildings
❑ Complex Buildings	❑ Fire Protection	❑ 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 **MICHAEL O'ROURKE** 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 Di vision C, of the Building Code.

Individual BCIN: 19669
Basis for exemption from registration and qualification: O.B.C SENTENCE 3.2.4.1 (4)

❑ 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 12, 2022
Date

Michael O'Rourke
Signature of Designer

NOTE:

1. 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.
2. 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.

HVAC DESIGNS LTD.
375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

SITE NAME: PINE VALLEY PH 2 | TIMBERLAND - LOTS 72 & 101 | DATE Jul-22 | WINTER NATURAL AIR CHANGE RATE 0.340 | HEAT LOSS ΔT °F. 76 | CSA-F280-12
BUILDER: GOLD PARK HOMES | TYPE: 5011 | GFA: 4238 | LO# 98030 | SUMMER NATURAL AIR CHANGE RATE 0.114 | HEAT GAIN ΔT °F. 13 | SB-12 PACKAGE A1

ROOM USE			PBR			ENS			WIC			BED-2			BED-3			BED-4			ENS-2			ENS-3			WIC-E			ENS-4				
EXP. WALL			40			15			8			13			15			44			10			16			12			10				
CLG. HT.			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	0	0	18	383	288	0	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	0	0	0	0	0	25	532	1039	64	1362	2659	0	0	0	12	255	499	0	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	21	447	523	0	0	0	0	0	0	6	128	149	9	192	224		
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	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	8	279	762	0	0	0	0	0	0	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	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	132	589	99	102	455	77	81	361	61		
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	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	72	92	42	90	116	53	175	225	103		
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	0	0	0	0	0	0	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	122	311	52	0	0	0	0	0	0		
BASEMENT/CRAWL HEAT LOSS				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				
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		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	0		0	1		240	1		240	1		240	0		0	0		0	0		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			GRT			DIN			KT/BF			LIB			LND						FOY			MUD						BAS		
EXP. WALL			46			35			67			24			10						22			28						216		
CLG. HT.			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		GAIN
NORTH	21.3	16.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0				0	0	0
EAST	21.3	41.6	0	0	0	0	0	0	0	0	0	30	638	1247	0	0	0				25	532	1039	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				0	0	0	0	0	0				12	255	299
WEST	21.3	41.6	121	2575	5028	0	0	0	106	2256	4405	0	0	0	0	0	0				0	0	0	0	0	0				6	128	249
SKYLT.	37.2	101.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0				0	0	0
DOORS	25.2	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				30	757	128	20	505	85				20	505	85
NET EXPOSED WALL	4.5	0.8	799	3566	601	335	1495	252	592	2642	445	207	924	156	81	361	61				187	835	141	288	1285	216				0	0	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	0	0	0	0	0				648	2332	393
EXPOSED CLG	1.3	0.6	303	389	178	0	0	0	0	0	0	0	0	0	180	231	106				0	0	0	0	0	0				0	0	0
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0				0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0				0	0	0
BASEMENT/CRAWL HEAT LOSS				0			0			0			0			0						0			0						7542		
SLAB ON GRADE HEAT LOSS				0			0			0			0			0						0			0								
SUBTOTAL HT LOSS				6529			2559			5728			2137			784						2124			1790						10762		
SUB TOTAL HT GAIN					5806			1497			5821			2074			391						1307			302								1026
LEVEL FACTOR / MULTIPLIER			0.30	0.46		0.30	0.46		0.30	0.46		0.30	0.46		0.20	0.34					0.30	0.46		0.30	0.46					0.50	1.48			
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				0		0	0		0				0		0		
HEAT GAIN APPLIANCES/LIGHTS					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

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.

Michael O'Rourke

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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SITE NAME: PINE VALLEY PH 2 — TIMBERLAND - LOTS 72 & 101
BUILDER: GOLD PARK HOMES — TYPE: 5011 — DATE: Jul-22 — 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	0.6
furnace filter	0.05
a/c coil pressure	0.2
available pressure for s/a & r/a	0.35
plenum pressure s/a	0.18
max s/a dif press. loss	0.02
min adjusted pressure s/a	0.16

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

r/a pressure	0.17
r/a grille press. Loss	0.02
adjusted pressure r/a	0.15

$LENNOX
ML196UH070XE36B **70**

FAN SPEED	
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 @ .6 " E.S.P.
TEMPERATURE RISE 60 °F

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	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	53	62	58	52
EQUIVALENT LENGTH	150	120	120	150
TOTAL EFFECTIVE LENGTH	203	182	178	202
ADJUSTED PRESSURE	0.08	0.09	0.09	0.08
ROUND DUCT SIZE	**6**	**6**	**6**	**6**
HEATING VELOCITY (ft/min)	270	280	280	280
COOLING VELOCITY (ft/min)	454	515	515	515
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10
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	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	18	45	34	7	53	57	45	29	40	54	41	48
EQUIVALENT LENGTH	170	160	110	120	185	170	160	120	170	130	200	180
TOTAL EFFECTIVE LENGTH	188	205	144	127	238	227	205	149	210	184	241	228
ADJUSTED PRESSURE	0.09	0.08	0.11	0.13	0.07	0.08	0.08	0.11	0.08	0.09	0.07	0.07
ROUND DUCT SIZE	**6**	**6**	**6**	**6**	5	5	4	**6**	**6**	**6**	**6**	**6**
HEATING VELOCITY (ft/min)	326	245	245	245	198	198	516	469	469	469	469	469
COOLING VELOCITY (ft/min)	500	520	520	520	463	463	161	51	51	51	51	51
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10
TRUNK	E	D	E	E	E	E	D	E	D	D	D	E

SUPPLY 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 A	0	0.00	0	0	x	8	0	TRUNK G	0	0.00	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 C	0	0.00	0	0	x	8	0	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	534	0.07	11.5	16	x	8	601	TRUNK J	0	0.00	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 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	475	0.05	11.9	16	x	8	534
TRUNK X	985	0.05	15.7	28	x	8	633
TRUNK Y	0	0.05	0	0	x	8	0
TRUNK Z	0	0.05	0	0	x	8	0
DROP	985	0.05	15.7	24	x	10	591

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	0.15	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.	1	1	1	1	1	1	47	32	49	1	1	1	1	1	1	14
EQUIVALENT LENGTH	0	0	0	0	0	0	195	175	235	0	0	0	0	0	0	185
TOTAL EFFECTIVE LH	1	1	1	1	1	1	242	207	284	1	1	1	1	1	1	199
ADJUSTED PRESSURE	14.80	14.80	14.80	14.80	14.80	14.80	0.06	0.07	0.05	14.80	14.80	14.80	14.80	14.80	14.80	0.07
ROUND DUCT SIZE	0	0	0	0	0	0	10.3	9.1	7	0	0	0	0	0	0	8.2
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

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.

Michael O'Rourke - INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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SITE NAME: PINE VALLEY PH 2 — TIMBERLAND - LOTS 72 & 101
BUILDER: GOLD PARK HOMES — TYPE: 5011 — DATE: Jul-22 — GFA: 4238 — LO# 98030 — **FURNACE 2**

HEATING CFM	980	COOLING CFM	980	furnace pressure	0.6
TOTAL HEAT LOSS	25,965	TOTAL HEAT GAIN	30,791	furnace filter	0.05
AIR FLOW RATE CFM	37.74	AIR FLOW RATE CFM	31.83	a/c coil pressure	0.2
				available pressure for s/a & r/a	0.35

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

$LENNOX — AFUE = 96 %
ML196UH045XE36B **45** — INPUT (BTU/H) = 44,000
FAN SPEED — 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

plenum pressure s/a	0.18	r/a pressure	0.17
max s/a dif press. loss	0.01	r/a grille press. Loss	0.02
min adjusted pressure s/a	0.17	adjusted pressure r/a	0.15

LOW	620
MEDLOW	685
MEDIUM	980
MEDIUM HIGH	1110
HIGH	0

DESIGN CFM = **980** CFM @ .6 " 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	0.17	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.	75	63	51	61	20	69	22	62	67	61	55	54	75	50	66	61	54
EQUIVALENT LENGTH	200	160	130	170	90	140	80	180	190	160	150	180	190	220	160	200	180
TOTAL EFFECTIVE LENGTH	275	223	181	231	110	209	102	242	257	221	205	234	265	270	226	261	234
ADJUSTED PRESSURE	0.06	0.08	0.1	0.07	0.16	0.08	0.17	0.07	0.07	0.08	0.08	0.07	0.06	0.06	0.08	0.07	0.07
ROUND DUCT SIZE	**6**	**6**	5	4	4	5	4	5	5	**6**	**6**	**6**	**6**	5	5	5	5
HEATING VELOCITY (ft/min)	311	311	448	367	367	463	402	389	389	337	337	347	347	323	514	286	294
COOLING VELOCITY (ft/min)	372	372	536	195	195	257	424	382	382	367	367	393	393	250	441	301	308
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10
TRUNK	C	C		C		C		B	B	B	B	A	A	B	B	A	C

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	0.17
ACTUAL DUCT LGH.	72
EQUIVALENT LENGTH	210
TOTAL EFFECTIVE LENGTH	282
ADJUSTED PRESSURE	0.06
ROUND DUCT SIZE	**6**
HEATING VELOCITY (ft/min)	347
COOLING VELOCITY (ft/min)	393
OUTLET GRILL SIZE	4X10
TRUNK	A

SUPPLY 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 A	243	0.06	8.9	12	x	8	365	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	595	0.06	12.4	18	x	8	595	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	852	0.06	14.2	26	x	8	590	TRUNK I	0	0.00	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 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	980	0.05	15.7	28	x	8	630
TRUNK Y	480	0.05	12	16	x	8	540
TRUNK Z	330	0.05	10.4	12	x	8	495
DROP	980	0.05	15.7	24	x	10	588

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	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
ACTUAL DUCT LGH.	74	67	63	49	48	57	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	215	215	190	225	205	195	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	289	282	253	274	253	252	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.05	0.05	0.06	0.05	0.06	0.06	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	9.3	6	5.7	6	9	9	0	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	0
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	30	14	14	14	30	30	0	0	0	0	0	0	0	0	0	0	0

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.

Michael O'Rourke — INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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TYPE: 5011 LO # 98030
SITE NAME: PINE VALLEY PH 2 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	2	@ 21.2 cfm	42.4	cfm
Other Bedrooms	3	@ 10.6 cfm	31.8	cfm
Kitchen & Bathrooms	6	@ 10.6 cfm	63.6	cfm
Other Rooms	4	@ 10.6 cfm	42.4	cfm
Table 9.32.3.A.		TOTAL	180.2	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	180.2	cfm
Less Principal Ventil. Capacity	150	cfm
Required Supplemental Capacity	30.2	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	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

150 cfm high 35 cfm low

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

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: Michael O'Rourke.

HRAI # 001820

Date: July-22

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

INDIVIDUAL BCIN: 19669 Michael O'Rourke. MICHAEL O'ROURKE

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CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 98030 Model: 5011 Builder: GOLD PARK HOMES Date: 2022-07-12

Volume Calculation

House Volume

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

Air Change & Delta T Data

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

5.2.3.1 Heat Loss 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**

6.2.6 Sensible Gain due to Air Leakage

$$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

= 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

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

x 2 HRV / ERV's

300 CFM x 76 °F x 1.08 x 0.25 = **6156 Btu/h**

6.2.7 Sensible heat Gain due to Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

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 / HLlevel)
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
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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 (ft^3):	68841.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft^2):	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

Michael O'Rourke

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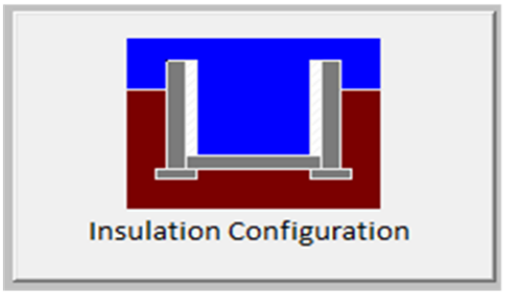
Residential Foundation Thermal Load Calculator

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

HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

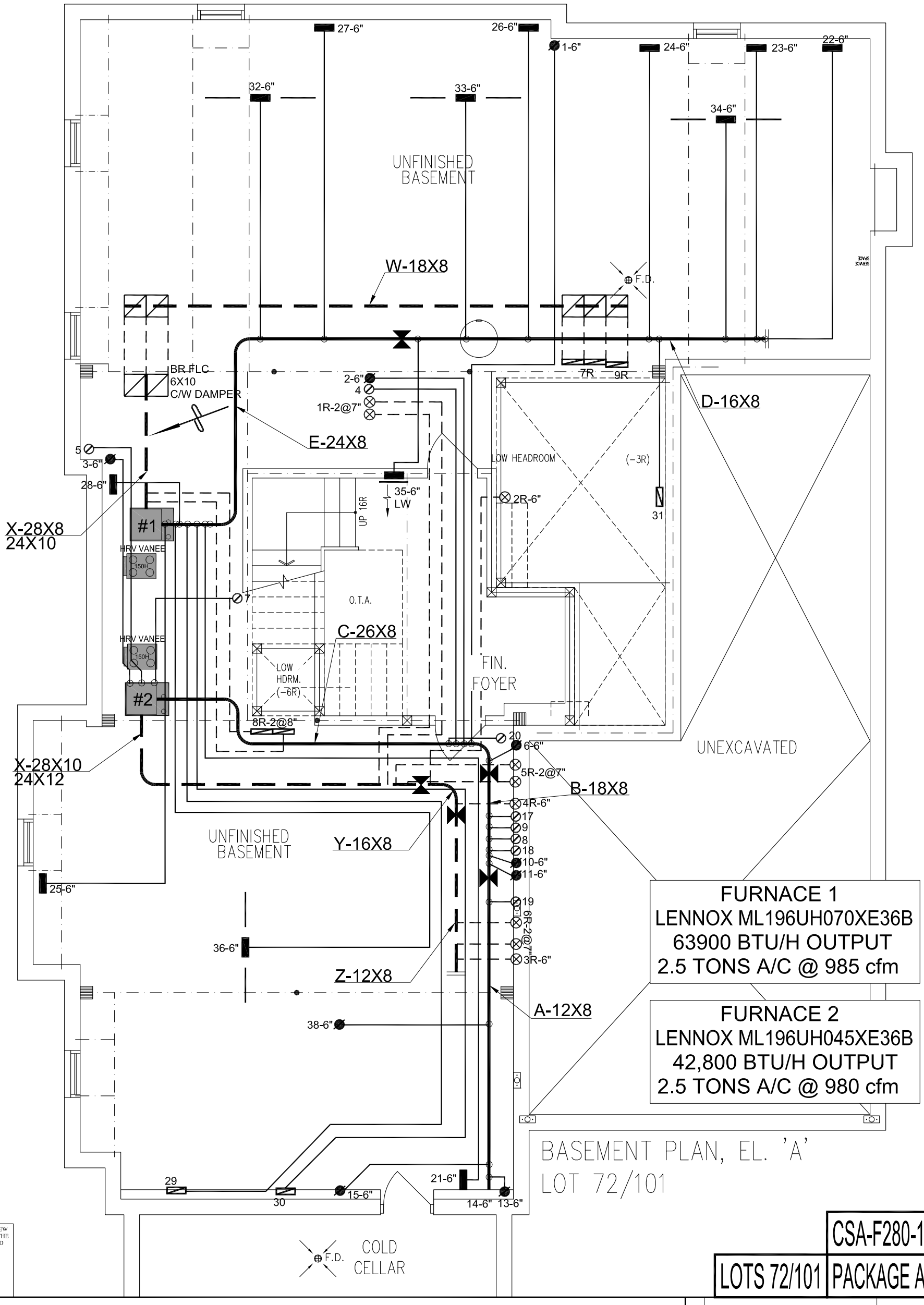
Air Infiltration Residential Load Calculator

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 70.8 / Total Exhaust 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 TIMBERLAND - LOTS 72 & 101

LO# 98030



FURNACE 1
LENNOX ML196UH070XE36B
63900 BTU/H OUTPUT
2.5 TONS A/C @ 985 cfm

FURNACE 2
LENNOX ML196UH045XE36B
42,800 BTU/H OUTPUT
2.5 TONS A/C @ 980 cfm

BASEMENT PLAN, EL. 'A'
LOT 72/101

CSA-F280-12

LOTS 72/101 | PACKAGE A1

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

Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	SUPPLY AIR GRILLE 6" BOOT	⊘	SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client
GOLD PARK HOMES

Project Name
PINE VALLEY PH 2
VAUGHAN, ONTARIO
LOTS 72 & 101
TIMBERLAND
5011 4238 sqft

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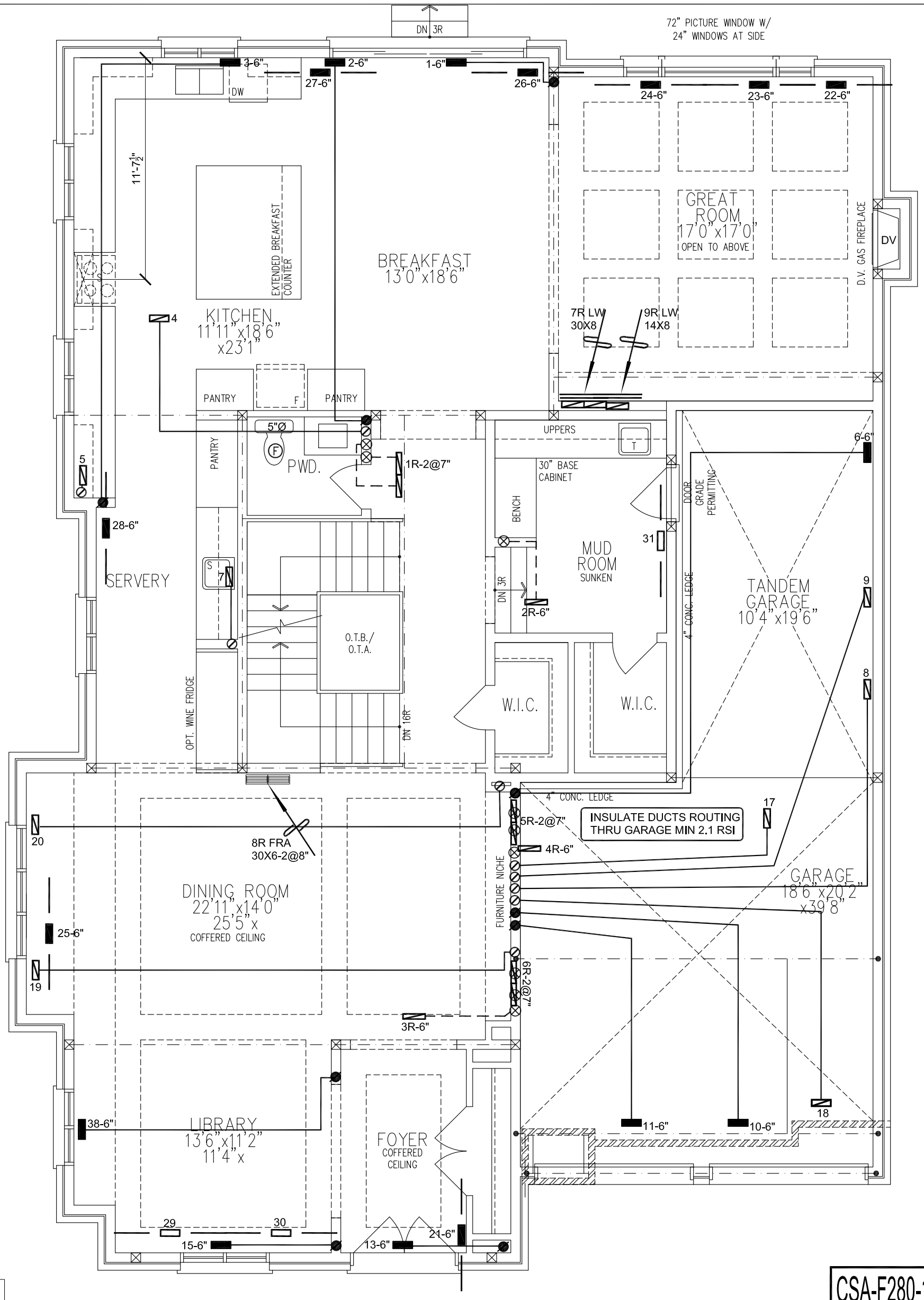
Email: info@hvacdesigns.ca
Web: www.hvacdesigns.ca
Specializing in Residential Mechanical Design Services

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

	S/A	R/A	FANS
2ND	18	6	5
1ST	11	3	2
BAS	5	1	0

Sheet Title
BASEMENT HEATING LAYOUT

Date JULY/2022
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 98030



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HVAC DESIGNS LTD.

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

CSA-F280-12

LOTS 72/101 | PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
— ▭ —	SUPPLY AIR GRILLE	▬	6" SUPPLY AIR BOOT ABOVE	▱	14"x8" RETURN AIR GRILLE	▱	RETURN AIR STACK ABOVE
— ▬ —	SUPPLY AIR GRILLE 6" BOOT	⊘	SUPPLY AIR STACK FROM 2nd FLOOR	▱	30"x8" RETURN AIR GRILLE	▱	RETURN AIR STACK 2nd FLOOR
▱	SUPPLY AIR BOOT ABOVE	⊘	6" SUPPLY AIR STACK 2nd FLOOR	▤	FRA- FLOOR RETURN AIR GRILLE	⧗	REDUCER

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client
GOLD PARK HOMES

Project Name
PINE VALLEY PH 2
VAUGHAN, ONTARIO
LOTS 72 & 101
TIMBERLAND
5011 4238 sqft

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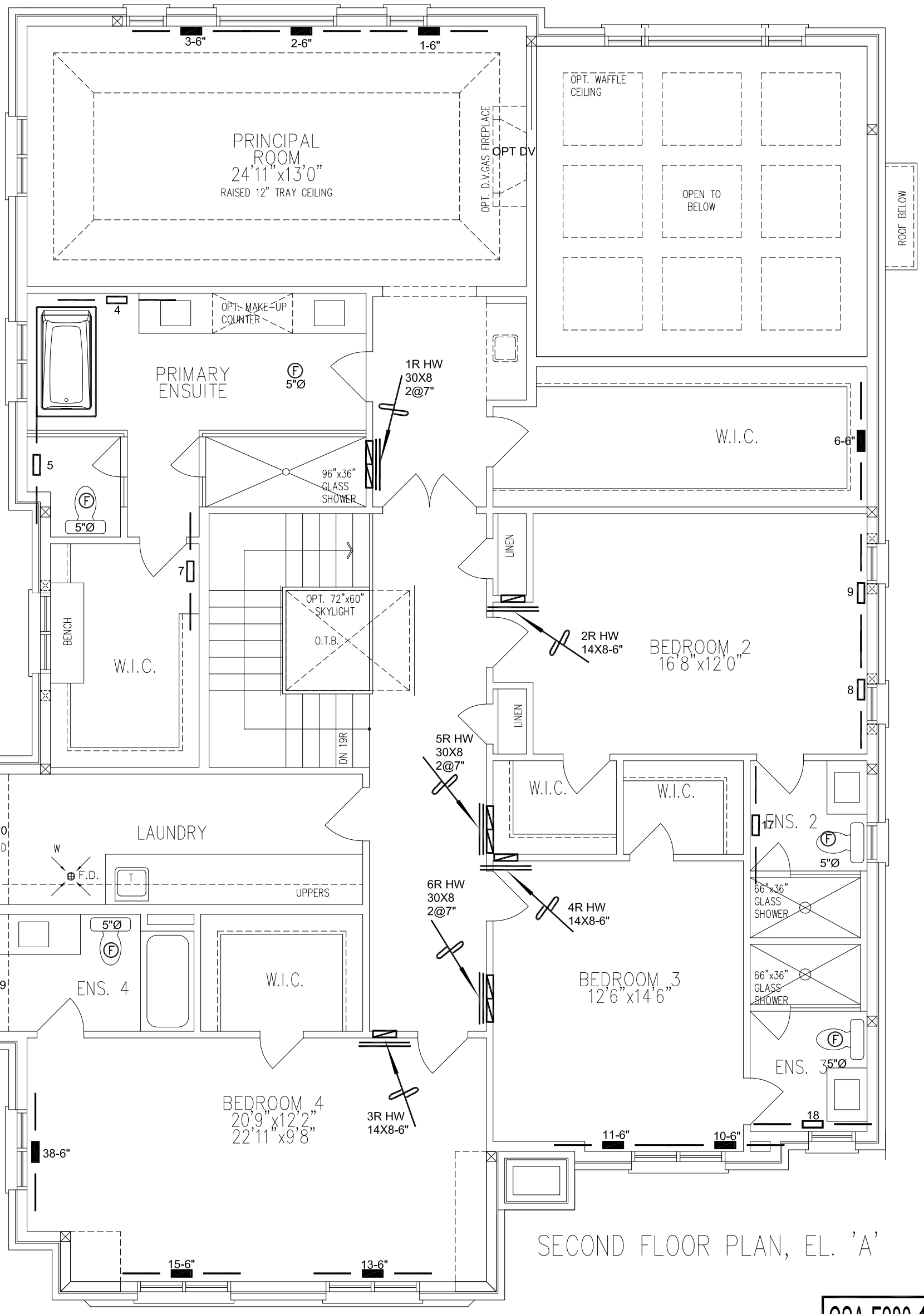
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

Sheet Title
FIRST FLOOR HEATING LAYOUT

Date JULY/2022
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 98030



SECOND FLOOR PLAN, EL. 'A'

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HVAC DESIGNS LTD.

CSA-F280-12

LOTS 72/101 | PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
— ▭ —	SUPPLY AIR GRILLE	▬	6" SUPPLY AIR BOOT ABOVE	▱	14"x8" RETURN AIR GRILLE	▱	RETURN AIR STACK ABOVE
— ▬ —	SUPPLY AIR GRILLE 6" BOOT	⊘	SUPPLY AIR STACK FROM 2nd FLOOR	▱	30"x8" RETURN AIR GRILLE	▱	RETURN AIR STACK 2nd FLOOR
▱	SUPPLY AIR BOOT ABOVE	⊘	6" SUPPLY AIR STACK 2nd FLOOR	▤	FRA- FLOOR RETURN AIR GRILLE	⧗	REDUCER

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client
GOLD PARK HOMES

Project Name
PINE VALLEY PH 2
VAUGHAN, ONTARIO
LOTS 72 & 101
TIMBERLAND
5011 4238 sqft

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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
SECOND FLOOR HEATING LAYOUT

Date JULY/2022
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 98030