

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 - WOB 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.			
May 6, 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: PINE VALLEY PH 2										TIMBERLAND - WOB										DATE May-22										WINTER NATURAL AIR CHANGE RATE 0.407										HEAT LOSS ΔT °F. 76										CSA-F280-12																			
BUILDER: GOLD PARK HOMES										TYPE: 5011										GFA: 4238										LO# 96516										SUMMER NATURAL AIR CHANGE RATE 0.137										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		13		8		13		15		44		10		16		12		7																																																	
CLG. HT.		9		9		9		9		9		9		9		9		9		9																																																	
FACTORS																																																																					
GRS.WALL AREA		LOSS GAIN		360		117		72		117		135		396		90		144		108		63																																															
GLAZING		LOSS GAIN		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	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	0	0	0	0	0	0	0	0	0	0																																												
SOUTH		21.3	24.9	0	0	0	17	362	423	0	0	0	0	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																																												
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	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																																												
NET EXPOSED WALL		4.5	0.8	307	1370	231	100	446	75	72	321	54	99	442	74	52	232	39	272	1214	204	90	402	68	111	495	83	102	455	77	54	241	41																																				
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																																					
EXPOSED CLG		1.3	0.6	393	504	231	205	263	120	204	262	120	330	423	194	203	260	119	232	297	136	67	86	39	72	92	42	90	116	53	154	198	90																																				
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																																					
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		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				3281		1071		772		1887		3327		4657		786		1601		698		630																																															
SUB TOTAL HT GAIN				3425		619		206		1378		4310		6359		157		1549		279		355																																															
LEVEL FACTOR / MULTIPLIER		0.20	0.36			0.20	0.36			0.20	0.36			0.20	0.36			0.20	0.36			0.20	0.36																																														
AIR CHANGE HEAT LOSS		1197				391		281		688		1213		1698		287		584		255		230																																															
AIR CHANGE HEAT GAIN				219		40		13		88		276		407		10		99		18		23																																															
DUCT LOSS		0				0		105		257		454		0		107		219		0		0																																															
DUCT GAIN		0				0		22		253		565		0		17		165		0		0																																															
HEAT GAIN PEOPLE		240	2	480	0	0	0	0	0	1	240	1	240	1	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																					
HEAT GAIN APPLIANCES/LIGHTS				820	0		0		0		820	820		820		820		820		0		0																																															
TOTAL HT LOSS BTU/H		4477				1462		1159		2832		4995		6356		1180		2404		953		860																																															
TOTAL HT GAIN x 1.3 BTU/H				6427		856		313		3612		8072		10173		239		2357		386		491																																															

ROOM USE		GRT		DIN		KT/BF		LIB		LND		FOY		MUD				WOB		BAS	
EXP. WALL		46		28		63		24		8		22		28				53		163	
CLG. HT.		20		11		11		11		9		11		11				10		10	
FACTORS																					
GRS.WALL AREA	LOSS GAIN	920		308		693		264		72		242		308				530		1141	
GLAZING	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				46 979 735		0 0 0	
EAST	21.3 41.6	0 0 0		0 0 0		0 0 0		71 1511 2950		0 0 0		25 532 1039		0 0 0				0 0 0		0 0 0	
SOUTH	21.3 24.9	0 0 0		50 1064 1245		10 213 249		0 0 0		9 192 224		0 0 0		0 0 0				5 106 124		3 64 75	
WEST	21.3 41.6	121 2575 5028		0 0 0		96 2043 3989		0 0 0		0 0 0		0 0 0		0 0 0				47 1000 1953		0 0 0	
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		0 0 0	
DOORS	25.2 4.3	0 0 0		0 0 0		10 252 43		0 0 0		0 0 0		30 757 128		20 505 85				20 505 85		20 505 85	
NET EXPOSED WALL	4.5 0.8	799 3566 601		258 1151 194		577 2575 434		193 861 145		63 281 47		187 835 141		288 1285 216				412 1839 310		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				0 0 0		489 1760 296	
EXPOSED CLG	1.3 0.6	303 389 178		0 0 0		0 0 0		0 0 0		163 209 96		0 0 0		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		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		0 0 0	
BASEMENT/CRAWL HEAT LOSS		0		0		0		0		0		0		0				0		2965	
SLAB ON GRADE HEAT LOSS		0		0		0		0		0		0		0				0		0	
SUBTOTAL HT LOSS		6529		2215		5083		2372		682		2124		1790				763		5294	
SUB TOTAL HT GAIN			5806		1439		4714		3095		367		1307		302			5192		456	
LEVEL FACTOR / MULTIPLIER	0.30 0.53			0.30 0.53		0.30 0.53		0.30 0.53		0.20 0.36		0.30 0.53		0.30 0.53						0.50 1.69	
AIR CHANGE HEAT LOSS		3444		1168		2681		1251		249		1120		944						17681	
AIR CHANGE HEAT GAIN			372		92		302		198		23		84		19					234	
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	0	0
HEAT GAIN APPLIANCES/LIGHTS			820		820		820		820		820		0		0						
TOTAL HT LOSS BTU/H		9973		3384		7764		3623		931		3244		2734				5955		22975	
TOTAL HT GAIN x 1.3 BTU/H			9097		3056		7586		5347		1574		1808		417			4169		898	

TOTAL HEAT GAIN BTU/H: 67398

TONS: 5.62

LOSS DUE TO VENTILATION LOAD BTU/H: 6156

STRUCTURAL HEAT LOSS: 87261

TOTAL COMBINED HEAT LOSS BTU/H: 93417



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

TIMBERLAND - WOB
TYPE: 5011

DATE: May-22

GFA: 4238 LO# 96516

FURNACE 1

HEATING CFM 1070 COOLING CFM 1070
TOTAL HEAT LOSS 59,653 TOTAL HEAT GAIN 32,378
AIR FLOW RATE CFM 17.94 AIR FLOW RATE CFM 33.05

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
= 62731 BTUH

\$*LENNOX
ML196UH070XE48B
FAN SPEED 70
LOW 0
MEDLOW 1070
MEDIUM 1270
MEDIUM HIGH 1515
HIGH 1595

AFUE = 96 %
INPUT (BTU/H) = 66,000
OUTPUT (BTU/H) = **63,900**

DESIGN CFM = **1070**
CFM @ .6" E.S.P.

TEMPERATURE RISE 55 °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.	3.24	3.32	3.32	3.32
CFM PER RUN HEAT	58	60	60	60
RM GAIN MBH.	1.81	3.03	3.03	3.03
CFM PER RUN COOLING	60	100	100	100
ADJUSTED PRESSURE	0.17	0.16	0.16	0.16
ACTUAL DUCT LGH.	53	62	58	52
EQUIVALENT LENGTH	150	140	120	150
TOTAL EFFECTIVE LENGTH	203	202	178	202
ADJUSTED PRESSURE	0.08	0.08	0.09	0.08
ROUND DUCT SIZE	5	6	6	6
HEATING VELOCITY (ft/min)	426	306	306	306
COOLING VELOCITY (ft/min)	441	510	510	510
OUTLET GRILL SIZE	3X10	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.	3.38	2.59	2.59	2.59	1.81	1.81	2.73	5.79	5.79	5.79	5.79	5.79
CFM PER RUN HEAT	61	46	46	46	33	33	49	104	104	104	104	104
RM GAIN MBH.	3.06	2.53	2.53	2.53	2.67	2.67	0.42	1.01	1.01	1.01	1.01	1.01
CFM PER RUN COOLING	101	84	84	84	88	88	14	33	33	33	33	33
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.16	0.16	0.17	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	18	45	34	7	53	57	45	49	40	75	41	48
EQUIVALENT LENGTH	170	160	110	120	185	170	160	130	170	130	200	180
TOTAL EFFECTIVE LENGTH	188	205	144	127	238	227	205	179	210	205	241	228
ADJUSTED PRESSURE	0.09	0.08	0.11	0.13	0.07	0.07	0.08	0.09	0.08	0.08	0.07	0.07
ROUND DUCT SIZE	6	6	6	6	6	6	5	6	6	6	6	6
HEATING VELOCITY (ft/min)	311	235	235	235	168	168	360	530	530	530	530	530
COOLING VELOCITY (ft/min)	515	428	428	428	449	449	103	168	168	168	168	168
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	4X10	4X10	3X10	4X10	4X10	4X10	4X10	4X10
TRUNK	E	D	E	E	E	E	D	E	D	D	D	E

SUPPLY AIR TRUNK SIZE

	TRUNK	STATIC	ROUND	RECT			VELOCITY		TRUNK	STATIC	ROUND	RECT			VELOCITY	
	CFM	PRESS.	DUCT	DUCT			(ft/min)		CFM	PRESS.	DUCT	DUCT			(ft/min)	
TRUNK A	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	587	0.07	11.9	16	x	8	660		TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	1072	0.07	14.9	26	x	8	742		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	STATIC	ROUND	RECT		VELOCITY	
	CFM	PRESS.	DUCT	DUCT		(ft/min)	
TRUNK O	0	0.05	0	0	x	8	0
TRUNK P	0	0.05	0	0	x	8	0
TRUNK Q	0	0.05	0	0	x	8	0
TRUNK R	0	0.05	0	0	x	8	0
TRUNK S	0	0.05	0	0	x	8	0
TRUNK T	0	0.05	0	0	x	8	0
TRUNK U	0	0.05	0	0	x	8	0
TRUNK V	0	0.05	0	0	x	8	0
TRUNK W	530	0.05	12.4	18	x	8	530
TRUNK X	1070	0.05	16.2	30	x	8	642
TRUNK Y	0	0.05	0	0	x	8	0
TRUNK Z	0	0.05	0	0	x	8	0
DROP	1070	0.05	16.2	24	x	10	642

RETURN AIR

AIR VOLUME	0	0	0	0	0	0	400	300	130	0	0	0	0	0	0	240
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	10.7	9.2	7.3	0	0	0	0	0	0	8.5
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
TIMBERLAND - WOB

DATE: May-22

GFA: 4238 LO# 96516

FURNACE 2

HEATING CFM 1270 COOLING CFM 1270
TOTAL HEAT LOSS 27,608 TOTAL HEAT GAIN 34,502
AIR FLOW RATE CFM 46 AIR FLOW RATE CFM 36.81

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
= 30686 BTUH**
**\$*LENNOX
ML196UH070XE48B
FAN SPEED 70**

AFUE = 96 %
INPUT (BTU/H) = 66,000
OUTPUT (BTU/H) = **63,900**

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	23	0	0
R/A	0	0	6	0	0

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

LOW 0
MEDLOW 1070
MEDIUM 1270
MEDIUM HIGH 1515
HIGH 1595

DESIGN CFM = **1270**
CFM @ .6" E.S.P.

TEMPERATURE RISE 47 °F

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

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

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
ROOM NAME	PBR	PBR	PBR	ENS	ENS	WIC	WIC-E	BED-2	BED-2	BED-3	BED-3	BED-3	BED-4	BED-4	BED-4	BED-4	ENS-2	ENS-3	ENS-4	LND
RM LOSS MBH.	1.49	1.49	1.49	0.73	0.73	1.16	0.95	1.42	1.42	1.25	1.25	1.25	1.27	1.27	1.27	1.27	1.18	1.20	0.86	0.93
CFM PER RUN HEAT	69	69	69	34	34	53	44	65	65	57	57	57	58	58	58	58	54	55	40	43
RM GAIN MBH.	2.14	2.14	2.14	0.43	0.43	0.31	0.39	1.81	1.81	2.02	2.02	2.02	2.03	2.03	2.03	2.03	0.24	1.18	0.49	1.57
CFM PER RUN COOLING	79	79	79	16	16	12	14	66	66	74	74	74	75	75	75	75	9	43	18	58
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	75	63	51	61	20	69	15	62	67	61	55	50	54	70	75	80	50	66	61	54
EQUIVALENT LENGTH	200	160	130	170	90	140	80	180	190	160	150	200	180	160	190	200	220	160	200	180
TOTAL EFFECTIVE LENGTH	275	223	181	231	110	209	95	242	257	221	205	250	234	230	265	280	270	226	261	234
ADJUSTED PRESSURE	0.06	0.08	0.1	0.07	0.16	0.08	0.18	0.07	0.07	0.08	0.08	0.07	0.07	0.07	0.06	0.06	0.06	0.08	0.07	0.07
ROUND DUCT SIZE	6	6	5	4	4	5	4	6	6	6	6	6	6	6	6	6	5	5	5	5
HEATING VELOCITY (ft/min)	352	352	507	390	390	389	505	331	331	291	291	291	296	296	296	296	396	404	294	316
COOLING VELOCITY (ft/min)	403	403	580	184	184	88	161	337	337	377	377	377	382	382	382	382	66	316	132	426
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10
TRUNK	C	C		C		C		B	B	B	B	A	A	A	A	A	B	B	A	C

RUN #	37	38	39
ROOM NAME	BED-3	BED-4	ENS-3
RM LOSS MBH.	1.25	1.27	1.20
CFM PER RUN HEAT	57	58	55
RM GAIN MBH.	2.02	2.03	1.18
CFM PER RUN COOLING	74	75	43
ADJUSTED PRESSURE	0.17	0.17	0.17
ACTUAL DUCT LGH.	58	72	64
EQUIVALENT LENGTH	210	210	210
TOTAL EFFECTIVE LENGTH	268	282	274
ADJUSTED PRESSURE	0.06	0.06	0.06
ROUND DUCT SIZE	6	6	5
HEATING VELOCITY (ft/min)	291	296	404
COOLING VELOCITY (ft/min)	377	382	316
OUTLET GRILL SIZE	4X10	4X10	3X10
TRUNK	A	A	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	499	0.06	11.6	18	x	8	499	TRUNK G	0	0.00	0	0	8
TRUNK B	852	0.06	14.2	24	x	8	639	TRUNK H	0	0.00	0	0	8
TRUNK C	1120	0.06	15.7	30	x	8	672	TRUNK I	0	0.00	0	0	8
TRUNK D	0	0.00	0	0	x	8	0	TRUNK J	0	0.00	0	0	8
TRUNK E	0	0.00	0	0	x	8	0	TRUNK K	0	0.00	0	0	8
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	8

RETURN AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)
TRUNK O	0	0.05	0	0	x	8
TRUNK P	0	0.05	0	0	x	8
TRUNK Q	0	0.05	0	0	x	8
TRUNK R	0	0.05	0	0	x	8
TRUNK S	0	0.05	0	0	x	8
TRUNK T	0	0.05	0	0	x	8
TRUNK U	0	0.05	0	0	x	8
TRUNK V	0	0.05	0	0	x	8
TRUNK W	0	0.05	0	0	x	8
TRUNK X	1270	0.05	17.3	28	x	10
TRUNK Y	660	0.05	13.5	22	x	8
TRUNK Z	430	0.05	11.5	16	x	8
DROP	1270	0.05	17.3	24	x	12

RETURN AIR #	1	2	3	4	5	6										BR
AIR VOLUME	310	115	130	115	300	300	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	
ACTUAL DUCT LGH.	74	67	63	49	48	57	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	
TOTAL EFFECTIVE LH	289	282	253	274	253	252	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	
ROUND DUCT SIZE	10.2	7	7	7	9.6	9.6	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	
	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	

TYPE: 5011
SITE NAME: PINE VALLEY PH 2

LO # 96516
TIMBERLAND - WOB

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 @ 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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	May-22

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
INDIVIDUAL BCIN: 19669 *Michael O'Rourke* MICHAEL O'ROURKE

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																	
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																	
LO#: 96516		Model: 5011		Builder: GOLD PARK HOMES				Date: 2022-05-06																																																									
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>1940</td> <td>10</td> <td>19400</td> </tr> <tr> <td>First</td> <td>1940</td> <td>11</td> <td>21340</td> </tr> <tr> <td>Second</td> <td>2575</td> <td>9</td> <td>23175</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>63,915.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1809.9 m³</td> </tr> </tbody> </table>					Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1940	10	19400	First	1940	11	21340	Second	2575	9	23175	Third	0	9	0	Fourth	0	9	0	Total:			63,915.0 ft³	Total:			1809.9 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%;">0.407</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.137</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>22</td> <td>-20</td> <td>42</td> <td>76</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>31</td> <td>7</td> <td>13</td> </tr> </table>					WINTER NATURAL AIR CHANGE RATE	0.407	SUMMER NATURAL AIR CHANGE RATE	0.137	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																																																												
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.407 x 502.74 x 42 °C x 1.2 = 10364 W = 35362 Btu/h					$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.137 x 502.74 x 7 °C x 1.2 = 586 W = 1998 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)																																																																	
$HL_{airr} = Level \ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																																	
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*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 - WOB	BUILDER: GOLD PARK HOMES
SFQT: 4238	LO# 96516	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):	63915.0	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:	163.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	53.0 ft

2012 OBC - COMPLIANCE PACKAGE		Compliance Package A1	
Component		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	-

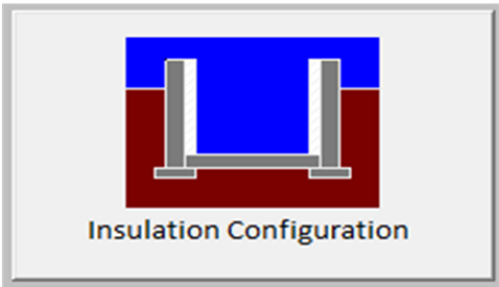
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

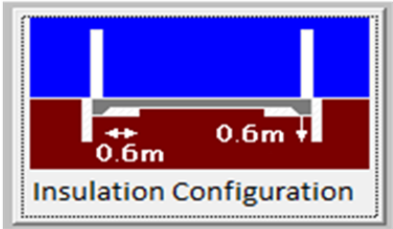
Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	13.1	
Exposed Perimeter (m):	49.7	
Wall Height (m):	3.0	
Depth Below Grade (m):	1.84	
Window Area (m ²):	0.3	
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):		869

TYPE: 5011
LO# 96516

TIMBERLAND - WOB

Residential Slab on Grade 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		
Length (m):	1.5	
Width (m):	13.1	
Exposed Perimeter (m):	16.2	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		224

TYPE: 5011
LO# 96516

TIMBERLAND - WOB

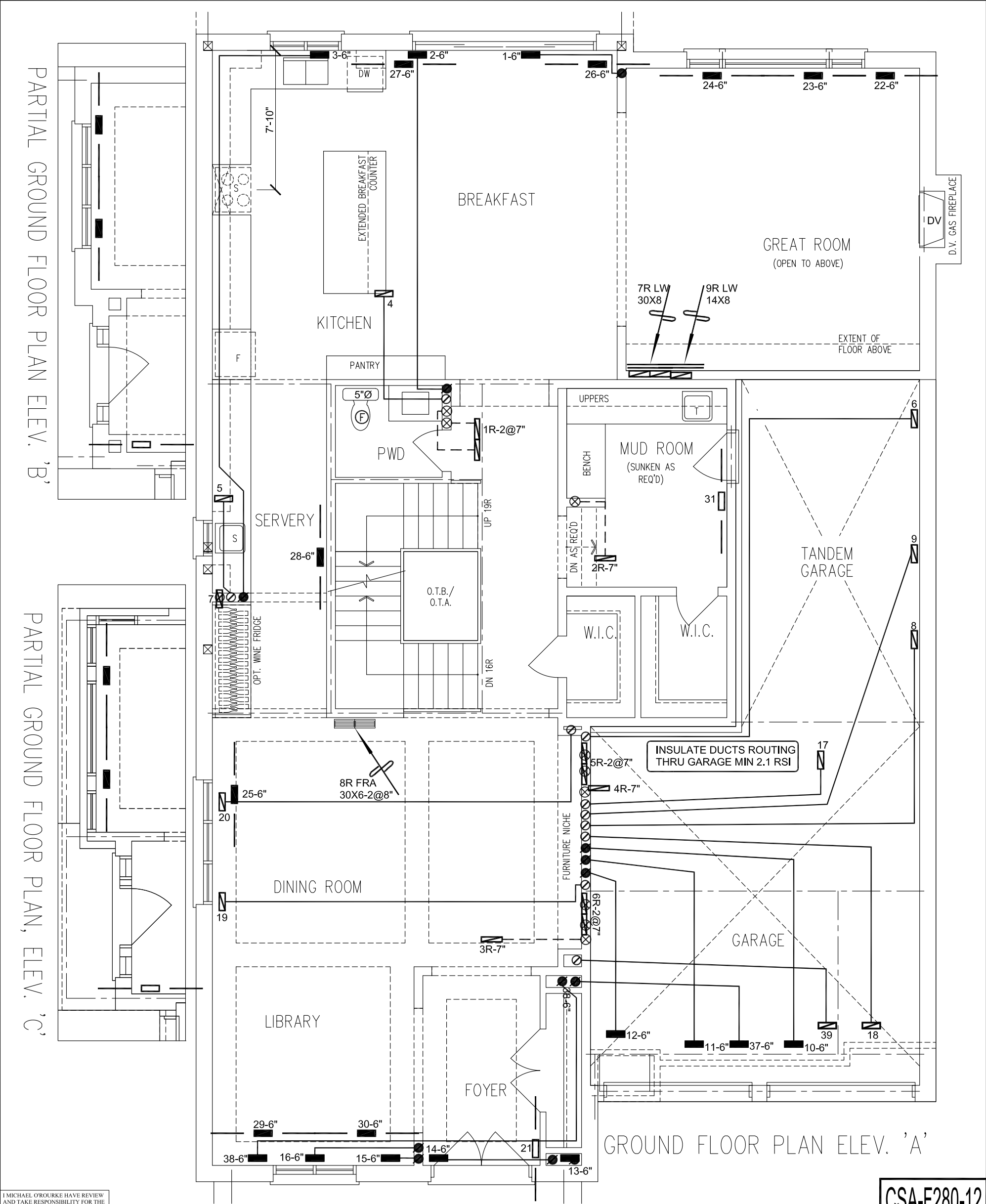
Air Infiltration Residential Load Calculator

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):	9.14			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1809.9			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2412.6 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):	0.407			
Cooling Air Leakage Rate (ACH/H):	0.137			

TYPE: 5011
LO# 96516

TIMBERLAND - WOB



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.

CSA-F280-12

WOB PACKAGE A1

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.	
	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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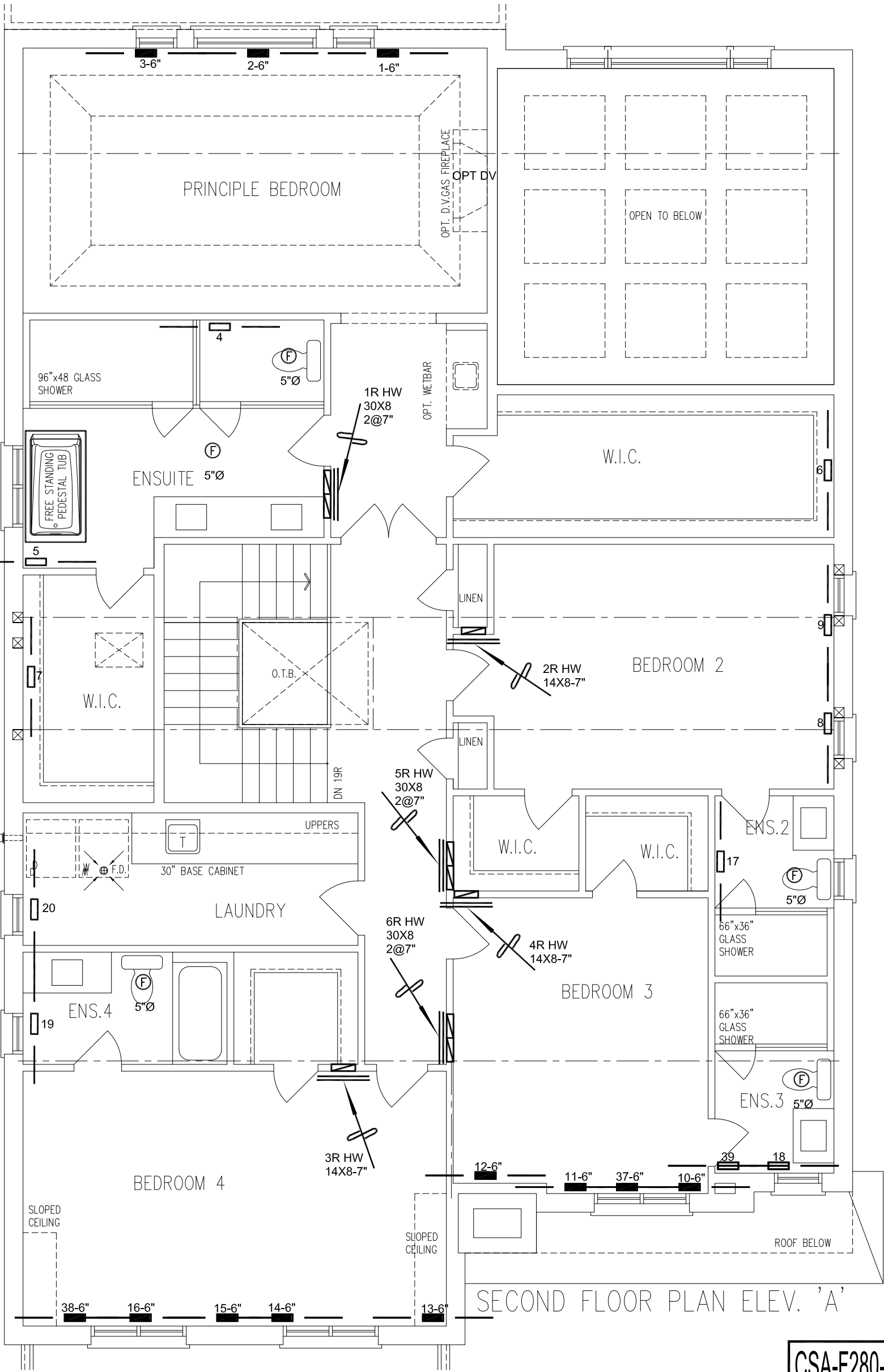
Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets 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.	Sheet Title	
GOLD PARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	MAY/2022
PINE VALLEY PH 2 VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
TIMBERLAND - WOB			BCIN# 19669	
5011			LO#	96516
4238 sqft				

PARTIAL SECOND FLOOR PLAN, ELEV. 'C'

PARTIAL SECOND FLOOR PLAN ELEV. 'B'

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, BCIN# 19669
HVAC DESIGNS LTD.



SECOND FLOOR PLAN ELEV. 'A'

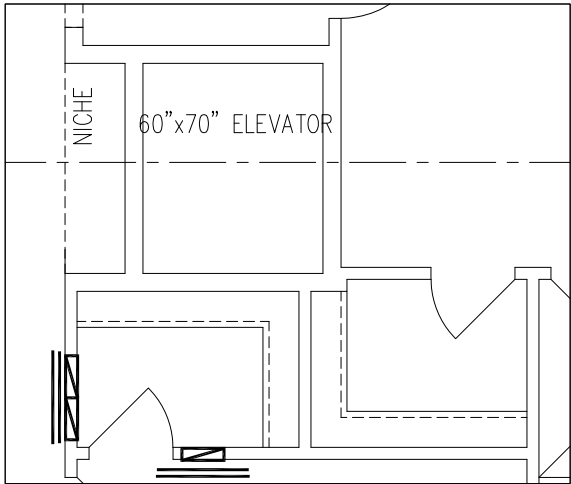
CSA-F280-12

WOB PACKAGE A1

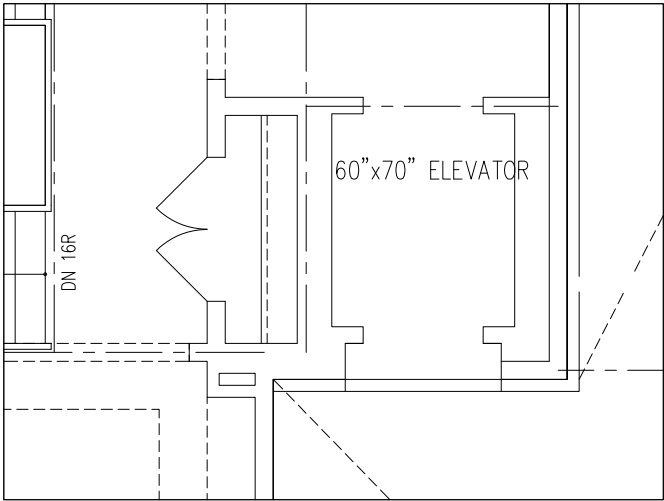
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR 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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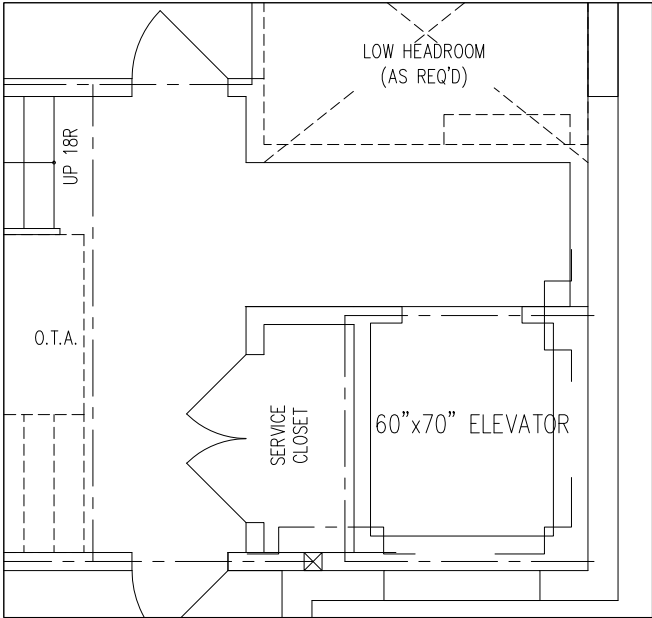
Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets 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.	Sheet Title	
GOLD PARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	MAY/2022
PINE VALLEY PH 2 VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
TIMBERLAND - WOB			BCIN# 19669	
5011	4238 sqft		LO#	96516



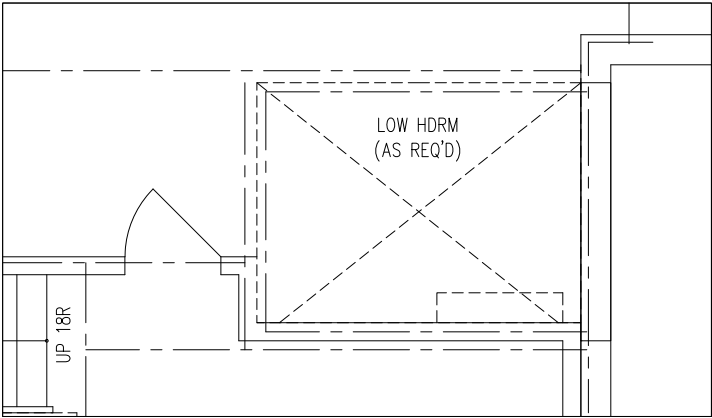
PARTIAL SECOND FLOOR PLAN
(W/ ELEVATOR) ELEV. 'A', 'B'&'C'



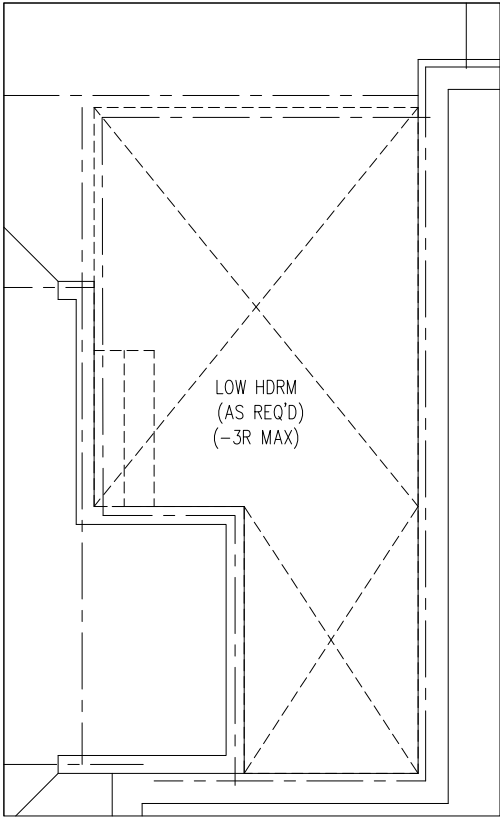
PARTIAL GROUND FLOOR PLAN
(W/ ELEVATOR) ELEV. 'A', 'B'&'C'



PARTIAL BASEMENT PLAN
(W/ ELEVATOR) ELEV. 'A', 'B'&'C'



PARTIAL BASEMENT PLAN
(W/ ELEVATOR) ELEV. 'A', 'B'&'C'
(OPT. SUNKEN MUD RM)



PARTIAL BASEMENT PLAN ELEV.
'A', 'B'&'C'
(OPT. SUNKEN MUD RM)

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

CSA-F280-12

WOB

PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
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GOLD PARK HOMES			STRIP PLAN HEATING LAYOUT	
Project Name			Date	MAY/2022
PINE VALLEY PH 2 VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
TIMBERLAND - WOB			BCIN# 19669	
5011	4238 sqft		LO#	96516