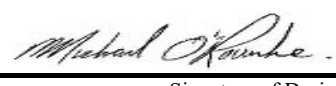


Schedule 1: Designer Information

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 - OPT 5 BED - WOB Project: PINE VALLEY PH 2	
D. Declaration of Designer			
I, <u>MICHAEL O'ROURKE</u> (print name)		declare that (choose one as appropriate):	
☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: _____ Firm BCIN: _____			
☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code. Individual BCIN: <u>19669</u> Basis for exemption from registration and qualification: <u>O.B.C SENTENCE 3.2.4.1 (4)</u>			
☐ The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification: _____			
I certify that:			
1. The information contained in this schedule is true to the best of my knowledge. 2. I have submitted this application with the knowledge and consent of the firm.			
May 6, 2022		 Signature of Designer	
Date			

NOTE:

- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d) of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

Application for a Permit Construct or Demolish – Effective January 1, 2015

SITE NAME: PINE VALLEY PH 2

TIMBERLAND - OPT 5 BED - 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# 96517

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		ENS-5		ENS-4		BED-5												
EXP. WALL			40		13		8		13		15		29		10		16		10		15		13												
CLG. HT.			9		9		9		9		9		9		9		9		9		9		9												
FACTORS																																			
GRS.WALL AREA	LOSS	GAIN	360		117		72		117		135		261		90		144		90		135		117												
GLAZING	LOSS	GAIN	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	18	383	288	9	192	144	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	74	1575	3075	73	1553	3033	0	0	0	33	702	1371	0									
SOUTH	21.3	24.9	0	0	0	27	575	672	0	0	0	0	0	0	0	0	0	0	0	0	9	192	224	0	18	383	448								
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									
SKYLT.	37.2	101.5	8	279	762	0	0	0	0	0	8	279	762	8	279	762	8	279	762	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									
NET EXPOSED WALL	4.5	0.8	307	1370	231	90	402	68	72	321	54	99	442	74	52	232	39	188	839	141	90	402	68	111	495	83	81	361	61	84	375	63	99	442	74
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	0		
EXPOSED CLG	1.3	0.6	343	440	201	189	243	111	204	262	120	280	359	164	203	260	119	141	180	83	67	86	39	72	92	42	80	103	47	91	117	53	282	362	166
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	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	0	0	0
BASEMENT/CRAWL HEAT LOSS																																			
SLAB ON GRADE HEAT LOSS																																			
SUBTOTAL HT LOSS			3217		1219		772		1822		3327		3080		786		1601		656		1577		1187												
SUB TOTAL HT GAIN			3396		851		206		1348		4310		4123		157		1549		332		2236		688												
LEVEL FACTOR / MULTIPLIER	0.20	0.37			0.20	0.37		0.20	0.37		0.20	0.37		0.20	0.37		0.20	0.37		0.20	0.37		0.20	0.37		0.20	0.37		0.20	0.37		0.20	0.37		
AIR CHANGE HEAT LOSS			1177		446		282		667		1217		1127		288		586		240		577		434												
AIR CHANGE HEAT GAIN			214		54		13		85		272		260		10		98		21		141		43												
DUCT LOSS			0		0		105		249		454		0		107		219		0		0		0												
DUCT GAIN			0		0		22		242		557		0		17		165		0		0		0												
HEAT GAIN PEOPLE	240		2	480	0	0	0	0	1	240		1	240		1	240		0	0	0	0	0	0	1	240										
HEAT GAIN APPLIANCES/LIGHTS				745	0	0	0	0		745			745			745			0		0	0			745										
TOTAL HT LOSS BTU/H			4393		1665		1160		2738		4999		4207		1181		2405		895		2154		1621												
TOTAL HT GAIN x 1.3 BTU/H			6286		1176		313		3459		7960		6979		239		2355		459		3090		2232												

ROOM USE			GRT		DIN		KT/BF		LIB		LND		FOY		MUD						WOB		BAS				
EXP. WALL			46		28		63		24		0		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		0		242		308						530		1141				
GLAZING	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	46	979	735	0	0	0	0		
EAST	21.3	41.6	0	0	0	0	0	0	0	0	0	71	1511	2950	0	0	0	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	0	0	0	0	0	5	106	124	3	64	75	75	
WEST	21.3	41.6	121	2575	5028	0	0	0	106	2256	4405	0	0	0	0	0	0	0	0	47	1000	1953	0	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	
DOORS	25.2	4.3	0	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	258	1151	194	577	2575	434	193	861	145	0	0	0	0	187	835	141	288	1285	216	412	1839	310
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	489	1760	296	0	0
EXPOSED CLG	1.3	0.6	303	389	178	0	0	0	0	0	0	0	0	0	71	91	42	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
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
BASEMENT/CRAWL HEAT LOSS																											
SLAB ON GRADE HEAT LOSS																											
SUBTOTAL HT LOSS																											
SUB TOTAL HT GAIN																											
LEVEL FACTOR / MULTIPLIER	0.30	0.53				0.30	0.53		0.30	0.53		0.30	0.53		0.20	0.37			0.30	0.53					0.50	1.69	
AIR CHANGE HEAT LOSS																											
AIR CHANGE HEAT GAIN																											
DUCT LOSS																											
DUCT GAIN																											
HEAT GAIN PEOPLE	240																										
HEAT GAIN APPLIANCES/LIGHTS																											
TOTAL HT LOSS BTU/H																											
TOTAL HT GAIN x 1.3 BTU/H																											

TOTAL HEAT GAIN BTU/H:

68571

TONS: 5.71

LOSS DUE TO VENTILATION LOAD BTU/H: 6156

STRUCTURAL HEAT LOSS: 87156

TOTAL COMBINED HEAT LOSS BTU/H: 93312



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

TIMBERLAND - OPT 5 BED - WOB
TYPE: 5011

DATE: May-22

GFA: 4238

LO# 96517

FURNACE 1

HEATING CFM 1070 COOLING CFM 1070
TOTAL HEAT LOSS 59,614 TOTAL HEAT GAIN 32,480
AIR FLOW RATE CFM 17.95 AIR FLOW RATE CFM 32.94

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
= 62692 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.	3.25	3.33	3.33	3.33
CFM PER RUN HEAT	58	60	60	60
RM GAIN MBH.	1.81	3.00	3.00	3.00
CFM PER RUN COOLING	59	99	99	99
ADJUSTED PRESSURE	0.17	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	5	6	6	6
HEATING VELOCITY (ft/min)	426	306	306	306
COOLING VELOCITY (ft/min)	433	505	505	505
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.	3.39	2.57	2.57	2.57	1.81	1.81	2.74	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.	2.96	2.67	2.67	2.67	2.62	2.62	0.42	1.01	1.01	1.01	1.01	1.01
CFM PER RUN COOLING	97	88	88	88	86	86	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)	495	449	449	449	438	438	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 A THROUGH F								TRUNK G THROUGH L								
	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	0
TRUNK B	0	0.00	0	0	x	8	0	TRUNK H	0	0.00	0	0	x	8	0	0
TRUNK C	0	0.00	0	0	x	8	0	TRUNK I	0	0.00	0	0	x	8	0	0
TRUNK D	587	0.07	11.9	16	x	8	660	TRUNK J	0	0.00	0	0	x	8	0	0
TRUNK E	1072	0.07	14.9	26	x	8	742	TRUNK K	0	0.00	0	0	x	8	0	0
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0	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	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
DATE: May-22

GFA: 4238 LO# 96517

FURNACE 2

HEATING CFM 1270 COOLING CFM 1270
TOTAL HEAT LOSS 27,542 TOTAL HEAT GAIN 35,573
AIR FLOW RATE CFM 46.11 AIR FLOW RATE CFM 35.7

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
= 30620 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	24	0	0
R/A	0	0	6	0	0

plenum pressure s/a 0.18
max s/a dif press. loss 0.02
min adjusted pressure s/a 0.16
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	ENS-5	BED-2	BED-2	BED-3	BED-3	BED-3	ENS-4	ENS-4	BED-4	BED-4	ENS-2	ENS-3	BED-5	BED-5
RM LOSS MBH.	1.46	1.46	1.46	0.83	0.83	1.16	0.90	1.37	1.37	1.25	1.25	1.25	1.08	1.08	1.40	1.40	1.18	1.20	0.81	0.81
CFM PER RUN HEAT	68	68	68	38	38	53	41	63	63	58	58	58	50	50	65	65	54	55	37	37
RM GAIN MBH.	2.10	2.10	2.10	0.59	0.59	0.31	0.46	1.73	1.73	1.99	1.99	1.99	1.54	1.54	2.33	2.33	0.24	1.18	1.12	1.12
CFM PER RUN COOLING	75	75	75	21	21	11	16	62	62	71	71	71	55	55	83	83	9	42	40	40
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	0.16	0.16	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	75	63	51	61	20	69	15	62	67	61	55	50	60	70	75	80	50	66	61	54
EQUIVALENT LENGTH	200	160	130	170	90	140	80	180	190	160	150	150	210	160	190	200	220	160	200	180
TOTAL EFFECTIVE LENGTH	275	223	181	231	110	209	95	242	257	221	205	200	270	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	0.09	0.06	0.07	0.06	0.06	0.06	0.08	0.07	0.07
ROUND DUCT SIZE	6	6	5	5	4	5	4	5	5	6	6	6	5	5	6	6	5	5	5	5
HEATING VELOCITY (ft/min)	347	347	499	279	436	389	470	463	463	296	296	296	367	367	331	331	396	404	272	272
COOLING VELOCITY (ft/min)	382	382	551	154	241	81	184	455	455	362	362	362	404	404	423	423	66	308	294	294
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10
TRUNK	C	C		C		C		B	B	B	B	B	A	A	A	A	B	B	A	C

RUN #	37	38	39	40
ROOM NAME	BED-3	BED-4	ENS-3	LND
RM LOSS MBH.	1.25	1.40	1.20	0.12
CFM PER RUN HEAT	58	65	55	6
RM GAIN MBH.	1.99	2.33	1.18	1.03
CFM PER RUN COOLING	71	83	42	37
ADJUSTED PRESSURE	0.17	0.16	0.17	0.17
ACTUAL DUCT LGH.	58	72	64	42
EQUIVALENT LENGTH	210	210	210	220
TOTAL EFFECTIVE LENGTH	268	282	274	262
ADJUSTED PRESSURE	0.06	0.06	0.06	0.07
ROUND DUCT SIZE	6	6	5	4
HEATING VELOCITY (ft/min)	296	331	404	69
COOLING VELOCITY (ft/min)	362	423	308	424
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10
TRUNK	A	A	A	A

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	451	0.06	11.2	16	x	8	507	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	860	0.06	14.2	26	x	8	595	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	1124	0.06	15.7	30	x	8	674	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	1270	0.05	17.3	28	x	10	653
TRUNK Y	660	0.05	13.5	22	x	8	540
TRUNK Z	430	0.05	11.5	16	x	8	484
DROP	1270	0.05	17.3	24	x	12	635

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	65	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	260	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 # 96517
TIMBERLAND - OPT 5 BED - 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>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Kitchen & Bathrooms	<u>7</u> @ 10.6 cfm	<u>74.2</u> cfm
Other Rooms	<u>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Table 9.32.3.A.	TOTAL	<u>201.4</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		<u>95.4</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>201.4</u>	cfm
Less Principal Ventil. Capacity	<u>150</u>	cfm
Required Supplemental Capacity	<u>51.4</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:	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

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 96517	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="2" style="text-align: right;">Total:</td> <td></td> <td>63,915.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></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: 70%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 30%;">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)																																																												
$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairve Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{clevel})</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HL_{clevel})</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">35,362</td> <td>10,486</td> <td>1.686</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>20,075</td> <td>0.528</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>19,335</td> <td>0.366</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> </tbody> </table> *HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0					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	35,362	10,486	1.686	2	0.3	20,075	0.528	3	0.2	19,335	0.366	4	0	0	0.000	5	0	0	0.000																														
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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 5011	TIMBERLAND - OPT 5 BED - WOB	BUILDER: GOLD PARK HOMES
SFQT: 4238	LO# 96517	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:	6
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**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	-

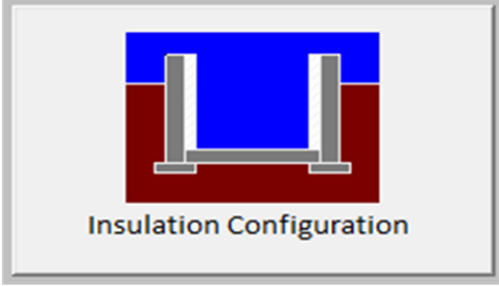
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

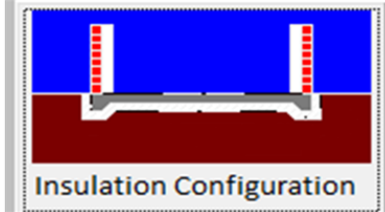
Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	13.1	
Exposed 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# 96517

TIMBERLAND - OPT 5 BED - WOB

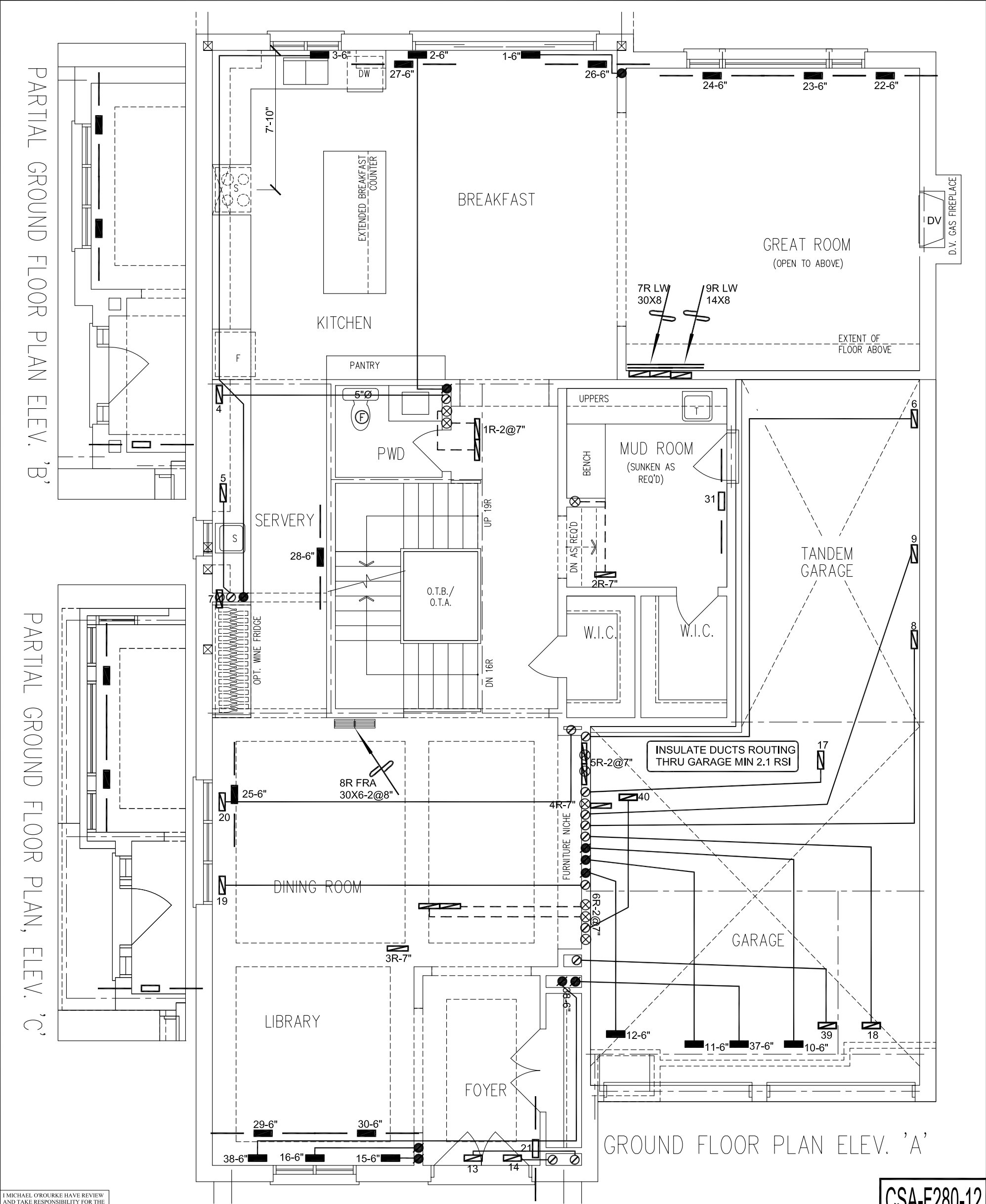
Residential Slab on Grade Thermal Load Calculator

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# 96517

TIMBERLAND - OPT 5 BED - 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	

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

Client

GOLD PARK HOMES

Project Name

PINE VALLEY PH 2
VAUGHAN, ONTARIO

TIMBERLAND - OPT 5 BED
5011 - WOB 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.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

FIRST FLOOR
HEATING
LAYOUT

Date

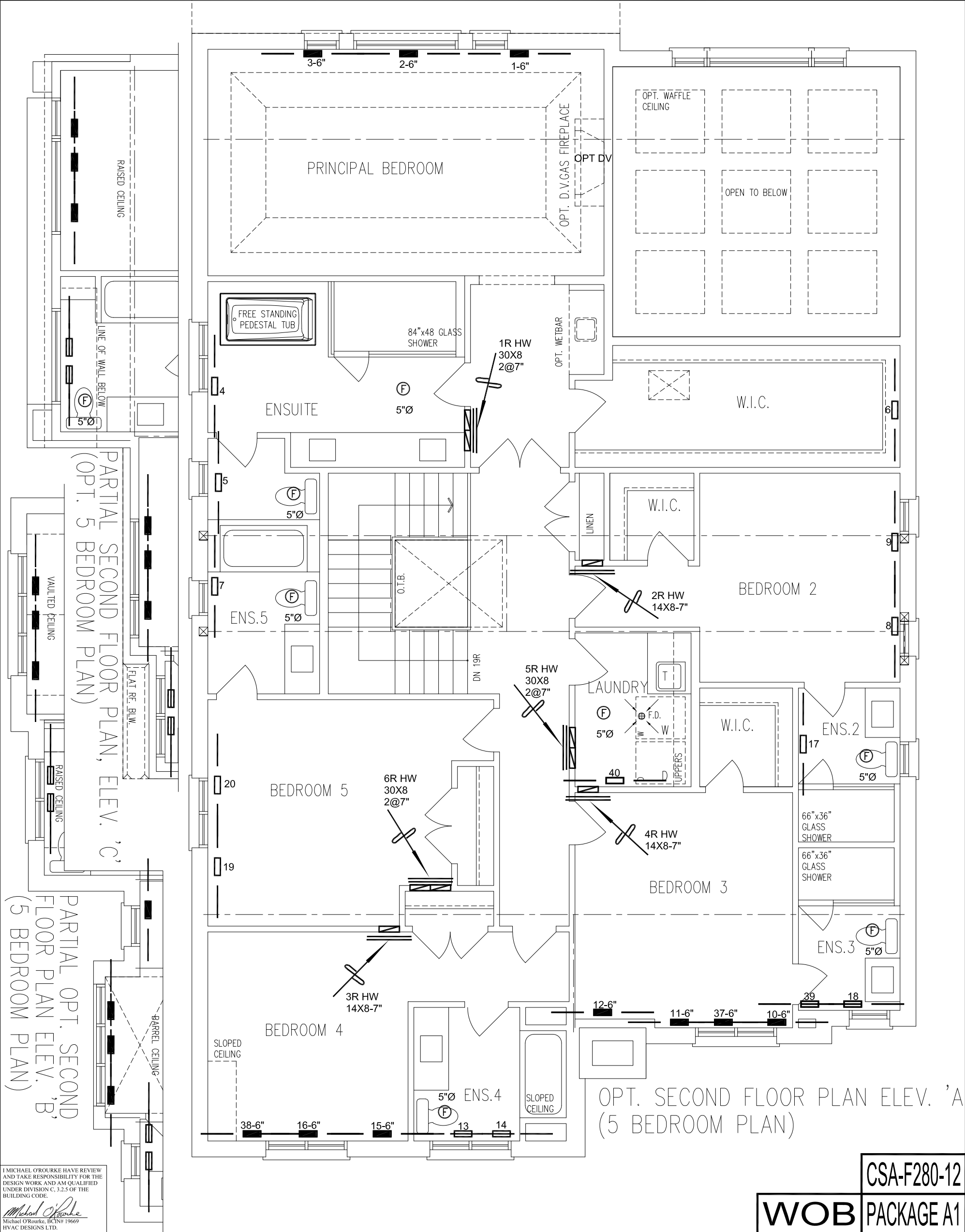
MAY/2022

Scale

3/16" = 1'-0"

BCIN# 19669

LO# 96517



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.		
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	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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Client

GOLD PARK HOMES

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PINE VALLEY PH 2
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TIMBERLAND - OPT 5 BED
5011 - WOB 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

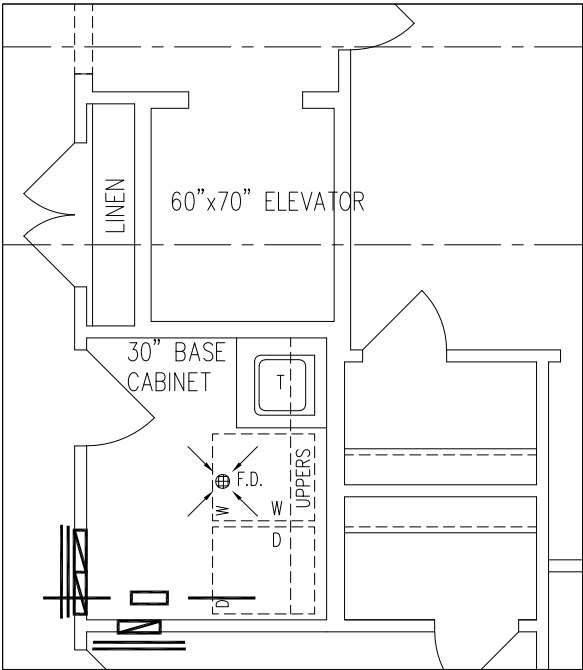
MAY/2022

Scale

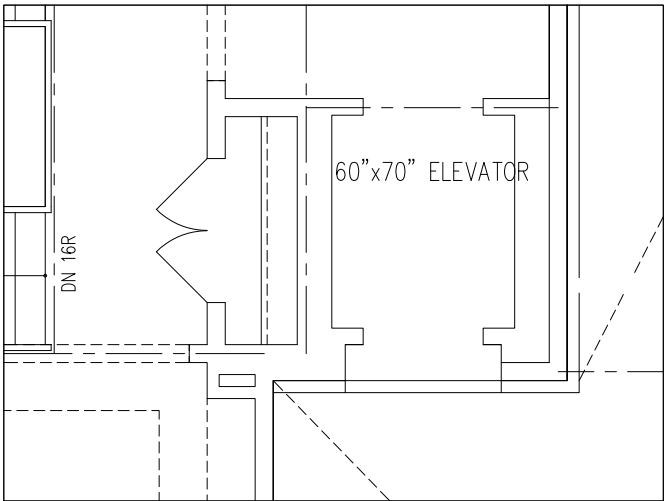
3/16" = 1'-0"

BCIN# 19669

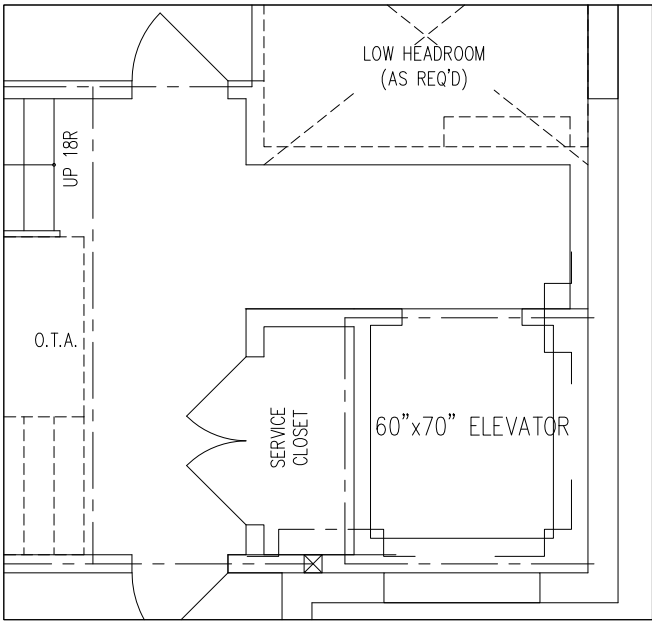
LO# 96517



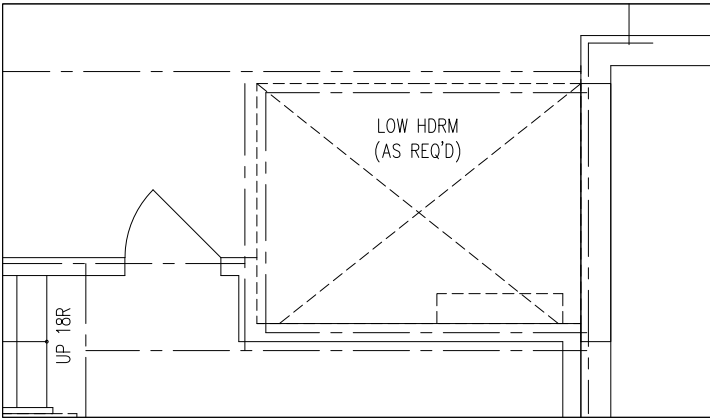
PART. OPT. SECOND FLR PLAN
(5 BEDROOM PLAN)



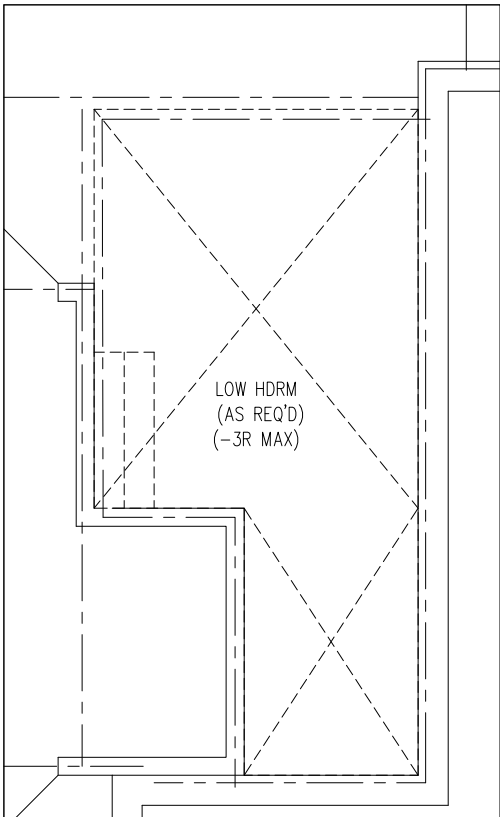
PARTIAL GROUND FLOOR PLAN
(W/ ELEVATOR) ELEV. 'A', 'B'&'C'



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.		
	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			STRIP PLAN HEATING LAYOUT	
Project Name			Date	MAY/2022
PINE VALLEY PH 2 VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
TIMBERLAND - OPT 5 BED			BCIN# 19669	
5011 - WOB			LO#	96517
4238 sqft				

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# 96517

TIMBERLAND - OPT 5 BED - WOB