

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 - LOT 67 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.			
July 12, 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 - LOT 67										DATE Jul-22										WINTER NATURAL AIR CHANGE RATE 0.340										HEAT LOSS AT °F. 76										CSA-F280-12																			
BUILDER: GOLD PARK HOMES										TYPE: 5011										GFA: 4166										LO# 98037										SUMMER NATURAL AIR CHANGE RATE 0.114										HEAT GAIN AT °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																																															
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	0	74	1575	3075	64	1362	2659	0	0	0	12	255	499	0	0	0																																									
SOUTH		21.3	24.9	0	0	0	17	362	423	0	0	0	0	0	0	0	24	511	598	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																																									
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	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																																									
NET EXPOSED WALL		4.5	0.8	307	1370	231	100	446	75	72	321	54	99	442	74	61	272	46	308	1375	231	90	402	68	132	589	99	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	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																																			
BASEMENT/CRAWL HEAT LOSS				0		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		0																																			
SUBTOTAL HT LOSS				3281		1071		772		1887		3176		4052		786		1248		698		630																																															
SUB TOTAL HT GAIN				3425		619		206		1378		4173		4491		157		693		279		355																																															
LEVEL FACTOR / MULTIPLIER		0.20 0.32		0.20 0.32		0.20 0.32		0.20 0.32		0.20 0.32		0.20 0.32		0.20 0.32		0.20 0.32		0.20 0.32		0.20 0.32		0.20 0.32																																															
AIR CHANGE HEAT LOSS		1052		343		247		605		1018		1299		252		400		224		202																																																	
AIR CHANGE HEAT GAIN		215		39		13		86		262		282		10		43		18		22																																																	
DUCT LOSS		0		0		102		249		419		0		104		165		0		0																																																	
DUCT GAIN		240		2		0		0		1		1		0		0		0		0																																																	
HEAT GAIN PEOPLE				480		0		0		240		240		240		240		240		240																																																	
HEAT GAIN APPLIANCES/LIGHTS				813		0		0		813		813		813		813		813		813																																																	
TOTAL HT LOSS BTU/H		4333		1415		1121		2741		4614		5351		1142		1813		922		832																																																	
TOTAL HT GAIN x 1.3 BTU/H		6413		855		313		3599		7846		7572		239		1052		385		491																																																	

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

TIMBERLAND - LOT 67
TYPE: 5011

DATE: Jul-22

GFA: 4166 LO# 98037

FURNACE 1

HEATING CFM 1070 COOLING CFM 1070
TOTAL HEAT LOSS 54,576 TOTAL HEAT GAIN 29,879
AIR FLOW RATE CFM 19.61 AIR FLOW RATE CFM 35.81

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
= 57654 BTUH**
\$*LENNOX
ML196UH070XE48B
70
FAN SPEED
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.	3.05	3.12	3.12	3.12
CFM PER RUN HEAT	60	61	61	61
RM GAIN MBH.	1.81	3.03	3.03	3.03
CFM PER RUN COOLING	65	108	108	108
ADJUSTED PRESSURE	0.17	0.15	0.15	0.15
ACTUAL DUCT LGH.	53	62	58	52
EQUIVALENT LENGTH	150	120	120	150
TOTAL EFFECTIVE LENGTH	203	182	178	202
ADJUSTED PRESSURE	0.08	0.08	0.09	0.08
ROUND DUCT SIZE	5	6	6	6
HEATING VELOCITY (ft/min)	441	311	311	311
COOLING VELOCITY (ft/min)	477	551	551	551
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.	3.18	2.41	2.41	2.41	1.81	1.81	2.57	5.11	5.11	5.11	5.11	5.11
CFM PER RUN HEAT	62	47	47	47	35	35	50	100	100	100	100	100
RM GAIN MBH.	3.04	2.69	2.69	2.69	2.55	2.55	0.42	0.47	0.47	0.47	0.47	0.47
CFM PER RUN COOLING	109	97	97	97	91	91	15	17	17	17	17	17
ADJUSTED PRESSURE	0.15	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	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	0.08	0.08	0.11	0.13	0.07	0.07	0.08	0.11	0.08	0.09	0.07	0.07
ROUND DUCT SIZE	6	6	6	6	6	6	5	6	6	6	6	6
HEATING VELOCITY (ft/min)	316	240	240	240	178	178	367	510	510	510	510	510
COOLING VELOCITY (ft/min)	556	495	495	495	464	464	110	87	87	87	87	87
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																RETURN AIR TRUNK SIZE															
	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)			TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			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 O	0	0.05	0	0	x	8	0				
TRUNK B	0	0.00	0	0	x	8	0			TRUNK H	0	0.00	0	0	x	8	0			TRUNK P	0	0.05	0	0	x	8	0				
TRUNK C	0	0.00	0	0	x	8	0			TRUNK I	0	0.00	0	0	x	8	0			TRUNK Q	0	0.05	0	0	x	8	0				
TRUNK D	580	0.07	11.8	16	x	8	653			TRUNK J	0	0.00	0	0	x	8	0			TRUNK R	0	0.05	0	0	x	8	0				
TRUNK E	1066	0.07	14.9	26	x	8	738			TRUNK K	0	0.00	0	0	x	8	0			TRUNK S	0	0.05	0	0	x	8	0				
TRUNK F	0	0.00	0	0	x	8	0			TRUNK L	0	0.00	0	0	x	8	0			TRUNK T	0	0.05	0	0	x	8	0				

RETURN AIR #	7	8	9												BR
AIR VOLUME	0	0	0	0	0	0	400	300	130	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
ACTUAL DUCT LGH.	1	1	1	1	1	1	47	32	49	1	1	1	1	1	14
EQUIVALENT LENGTH	0	0	0	0	0	0	195	175	235	0	0	0	0	0	185
TOTAL EFFECTIVE LH	1	1	1	1	1	1	242	207	284	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	0.07
ROUND DUCT SIZE	0	0	0	0	0	0	10.7	9.2	7.3	0	0	0	0	0	8.5
INLET GRILL SIZE	0	0	0	0	0	0	8	8	8	0	0	0	0	0	8
	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	24

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

TYPE: 5011
DATE: Jul-22

GFA: 4166 LO# 98037

FURNACE 2

HEATING CFM 985 COOLING CFM 985
TOTAL HEAT LOSS 25,183 TOTAL HEAT GAIN 30,330
AIR FLOW RATE CFM 39.11 AIR FLOW RATE CFM 32.48

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
= 28261 BTUH**
\$LENNOX
ML196UH070XE36B
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	19	0	0
R/A	0	0	6	0	0

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

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

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	14	15	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	ENS-2	ENS-3	ENS-4	LND
RM LOSS MBH.	1.44	1.44	1.44	0.71	0.71	1.12	0.92	1.37	1.37	1.54	1.54	1.54	1.78	1.78	1.14	1.81	0.83	0.90
CFM PER RUN HEAT	56	56	56	28	28	44	36	54	54	60	60	60	70	70	45	71	33	35
RM GAIN MBH.	2.14	2.14	2.14	0.43	0.43	0.31	0.39	1.80	1.80	2.62	2.62	2.62	2.52	2.52	0.24	1.05	0.49	1.56
CFM PER RUN COOLING	69	69	69	14	14	10	13	58	58	85	85	85	82	82	8	34	16	51
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	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	70	75	50	66	61	54
EQUIVALENT LENGTH	200	160	130	170	90	140	80	180	190	160	150	200	160	190	220	160	200	180
TOTAL EFFECTIVE LENGTH	275	223	181	231	110	209	95	242	257	221	205	250	230	265	270	226	261	234
ADJUSTED PRESSURE	0.06	0.08	0.1	0.07	0.16	0.08	0.18	0.07	0.07	0.07	0.08	0.06	0.07	0.06	0.06	0.08	0.07	0.07
ROUND DUCT SIZE	6	6	6	4	4	5	4	5	5	6	6	6	6	6	5	5	4	5
HEATING VELOCITY (ft/min)	286	286	286	321	321	323	413	396	396	306	306	306	357	357	330	521	379	257
COOLING VELOCITY (ft/min)	352	352	352	161	161	73	149	426	426	433	433	433	418	418	59	250	184	374
OUTLET GRILL SIZE	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10
TRUNK	C	C		C		C		B	B	B	B	A	A	A	B	B	A	C

RUN #	38
ROOM NAME	BED-4
RM LOSS MBH.	1.78
CFM PER RUN HEAT	70
RM GAIN MBH.	2.52
CFM PER RUN COOLING	82
ADJUSTED PRESSURE	0.16
ACTUAL DUCT LGH.	72
EQUIVALENT LENGTH	210
TOTAL EFFECTIVE LENGTH	282
ADJUSTED PRESSURE	0.06
ROUND DUCT SIZE	6
HEATING VELOCITY (ft/min)	357
COOLING VELOCITY (ft/min)	418
OUTLET GRILL SIZE	4X10
TRUNK	A

SUPPLY AIR TRUNK SIZE														RETURN AIR TRUNK SIZE													
	TRUNK	STATIC	ROUND	RECT			VELOCITY		TRUNK	STATIC	ROUND	RECT		VELOCITY		TRUNK	STATIC	ROUND	RECT			VELOCITY					
	CFM	PRESS.	DUCT	DUCT			(ft/min)		CFM	PRESS.	DUCT	DUCT		(ft/min)		CFM	PRESS.	DUCT	DUCT			(ft/min)					
TRUNK A	303	0.06	9.6	12	x	8	455	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0				
TRUNK B	647	0.06	12.8	20	x	8	582	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0				
TRUNK C	866	0.06	14.3	26	x	8	600	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0				
TRUNK D	0	0.00	0	0	x	8	0	TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.05	0	0	x	8	0				
TRUNK E	0	0.00	0	0	x	8	0	TRUNK K	0	0.00	0	0	x	8	0	TRUNK S	0	0.05	0	0	x	8	0				
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0	TRUNK T	0	0.05	0	0	x	8	0				

RETURN AIR #	1	2	3	4	5	6										BR
AIR VOLUME	270	75	75	70	250	250	0	0	0	0	0	0	0	0	0	-5
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.	74	67	63	49	48	57	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
TOTAL EFFECTIVE LH	289	282	253	274	253	252	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
ROUND DUCT SIZE	9.7	6	5.7	5.8	9	9	0	0	0	0	0	0	0	0	0	#NUM!
INLET GRILL SIZE	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	#NUM!
	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	#NUM!

TYPE: 5011
SITE NAME: PINE VALLEY PH 2

LO # 98037
TIMBERLAND - LOT 67

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		<u>79.5</u> 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:	July-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#: 98037	Model: 5011	Builder: GOLD PARK HOMES	Date: 2022-07-12																																																									
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>1930</td> <td>10</td> <td>19300</td> </tr> <tr> <td>First</td> <td>1930</td> <td>11</td> <td>21230</td> </tr> <tr> <td>Second</td> <td>2539</td> <td>9</td> <td>22851</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>63,381.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1794.8 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1930	10	19300	First	1930	11	21230	Second	2539	9	22851	Third	0	9	0	Fourth	0	9	0	Total:			63,381.0 ft³	Total:			1794.8 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%;">0.340</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.114</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <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> </thead> <tbody> <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> </tbody> </table>		WINTER NATURAL AIR CHANGE RATE	0.340	SUMMER NATURAL AIR CHANGE RATE	0.114	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-20	42	76	Summer DTDc	24	31	7	13
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.340 x 498.54 x 42 °C x 1.2 = 8590 W = 29307 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.114 x 498.54 x 7 °C x 1.2 = 486 W = 1659 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)																																																												
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				Michael O'Rourke BCIN# 19669 																																																								

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 5011	TIMBERLAND - LOT 67	BUILDER: GOLD PARK HOMES
SFQT: 4166	LO# 98037	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):	63381.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 65.0 ft	WIDTH: 43.0 ft	EXPOSED PERIMETER:	216.0 ft

2012 OBC - COMPLIANCE PACKAGE**Component****Compliance Package
A1****Nominal Min. Eff.**

Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	0.28	-
Skylights Maximum U-Value	0.49	-
Space Heating Equipment Minimum AFUE	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

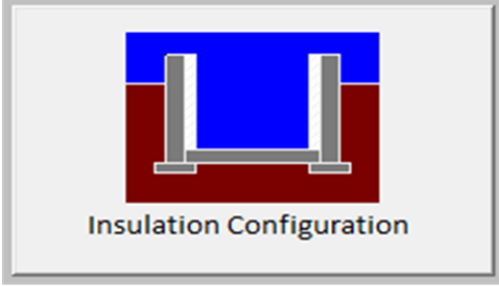
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	19.8	 Insulation Configuration
Floor Width (m):	13.1	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	3.1	
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):		2190

TYPE: 5011
LO# 98037

TIMBERLAND - LOT 67

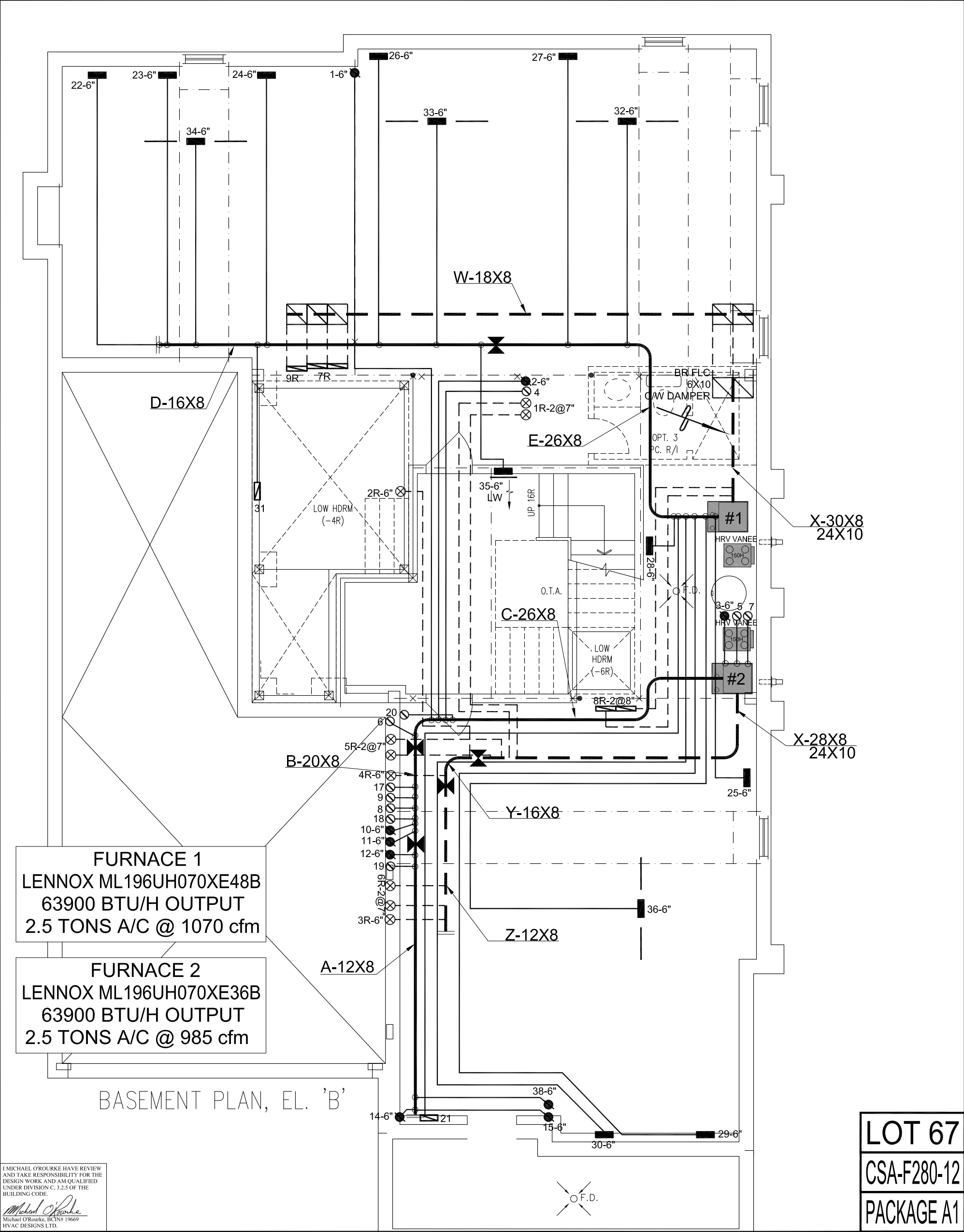
Air Infiltration Residential Load Calculator

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):	1794.8			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2392.5 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	70.8	70.8		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.340			
Cooling Air Leakage Rate (ACH/H):	0.114			

TYPE: 5011
LO# 98037

TIMBERLAND - LOT 67



FURNACE 1
LENNOX ML196UH070XE48B
63900 BTU/H OUTPUT
2.5 TONS A/C @ 1070 cfm

FURNACE 2
LENNOX ML196UH070XE36B
63900 BTU/H OUTPUT
2.5 TONS A/C @ 985 cfm

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

LOT 67

CSA-F280-12

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

GOLD PARK HOMES

Project Name

PINE VALLEY PH 2
VAUGHAN, ONTARIO

TIMBERLAND - LOT 67
5011

4166 sqft

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

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

	S/A	R/A	FANS
2ND	19	6	5
1ST	11	3	2
BAS	5	1	0

Sheet Title

BASEMENT
HEATING
LAYOUT

Date

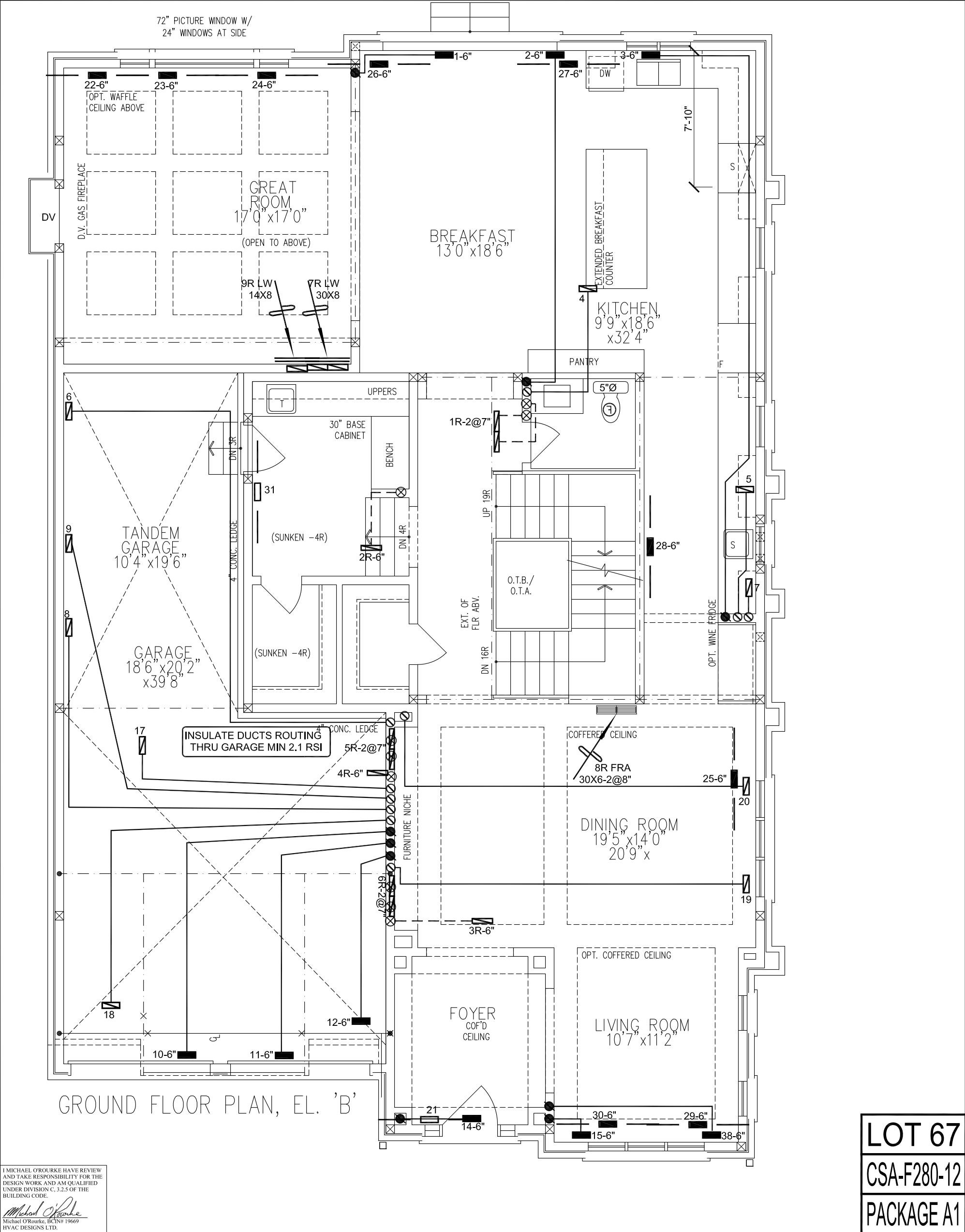
JULY/2022

Scale

3/16" = 1'-0"

BCIN# 19669

LO# 98037



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LOT 67

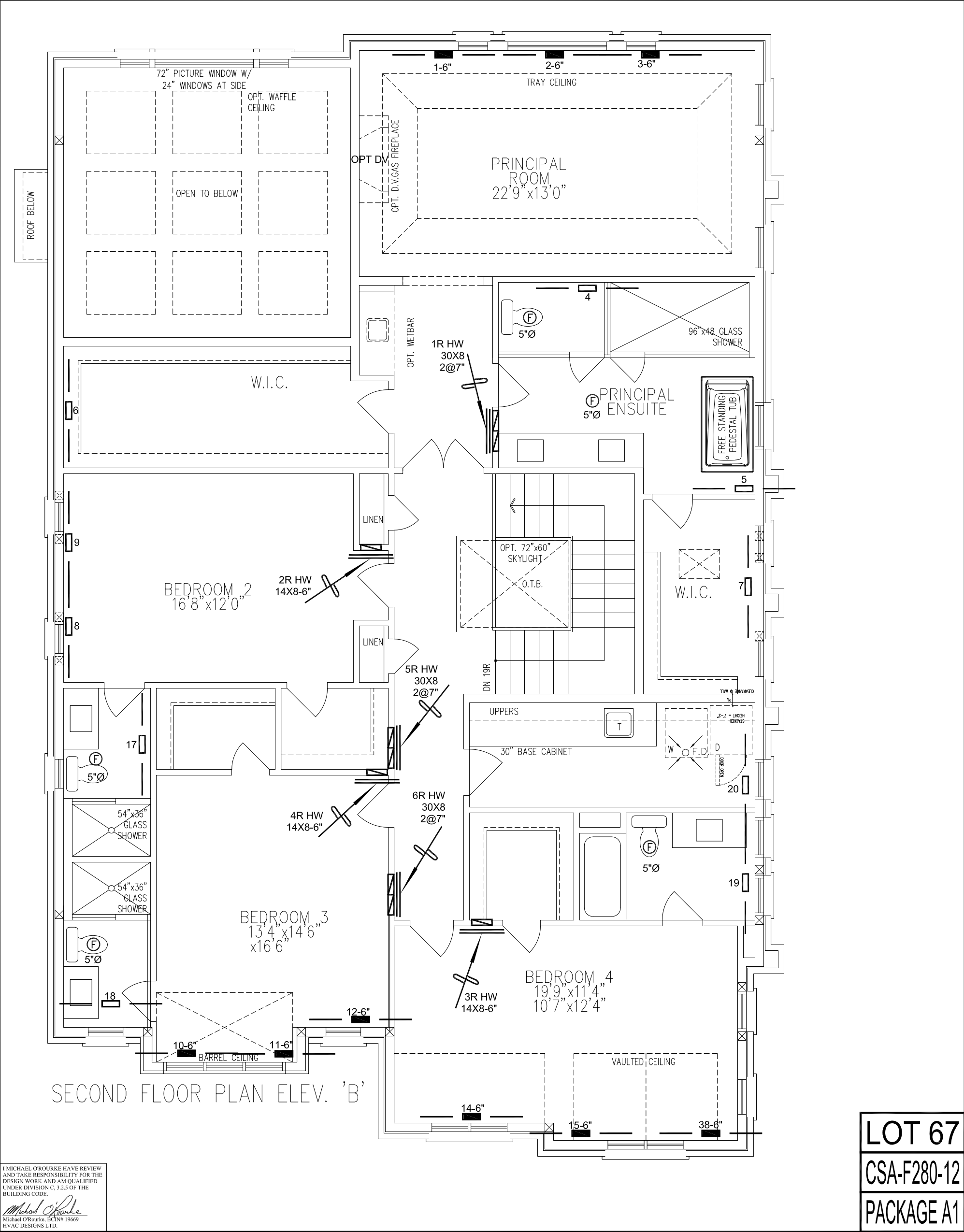
CSA-F280-12

PACKAGE A1

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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	JULY/2022
PINE VALLEY PH 2 VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
TIMBERLAND - LOT 67			BCIN# 19669	
5011	4166 sqft		LO#	98037



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Michael O'Rourke

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

LOT 67

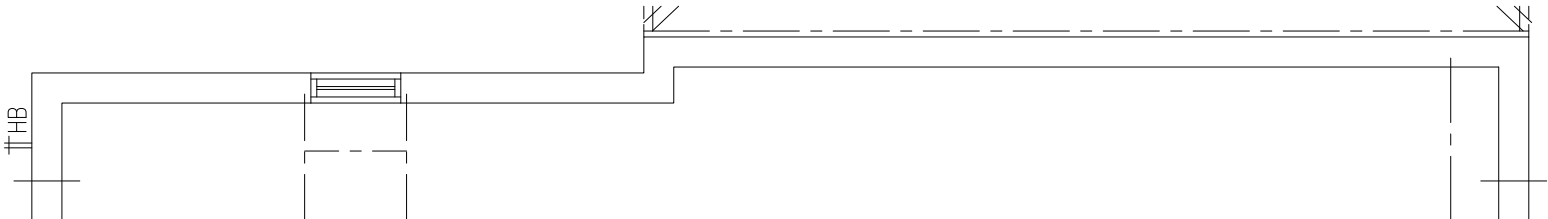
CSA-F280-12

PACKAGE A1

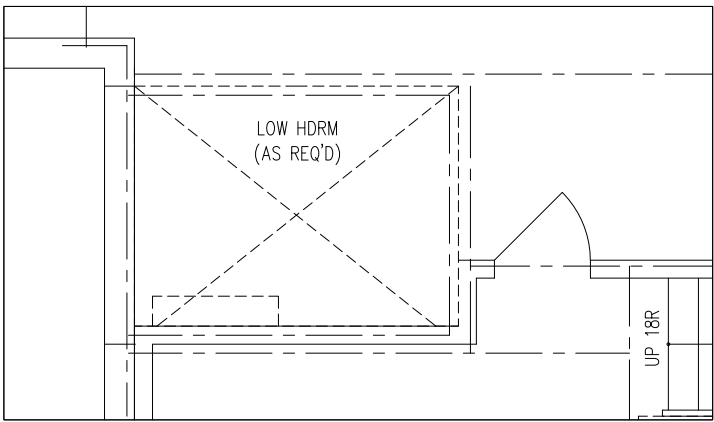
HVAC LEGEND								3.		
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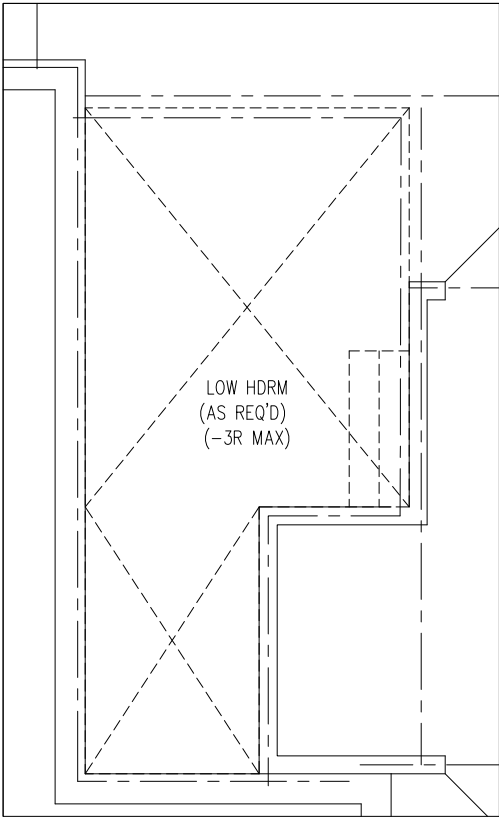
Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets 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	JULY/2022
PINE VALLEY PH 2 VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
TIMBERLAND - LOT 67			BCIN# 19669	
5011	4166 sqft		LO#	98037



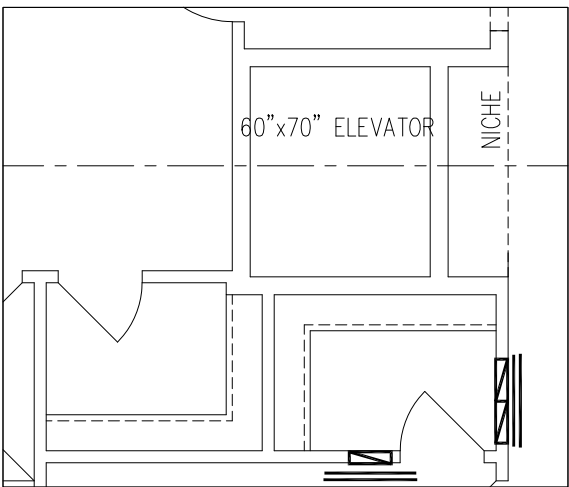
PART. BASEMENT PLAN ELEV. 'A', 'B' & 'C' – W.O.D. COND.



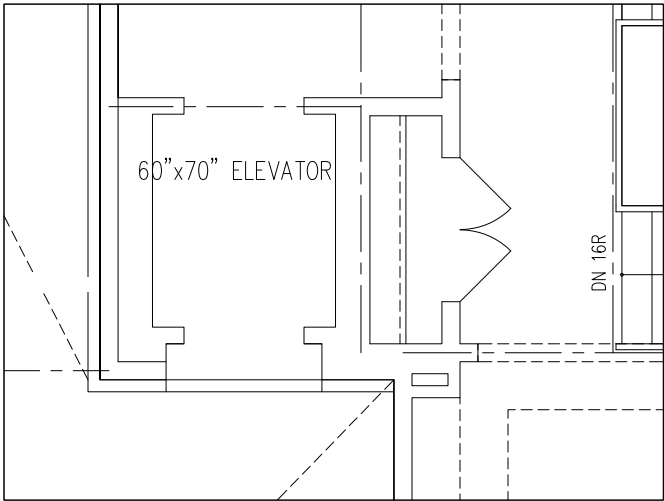
PARTIAL BASEMENT PLAN
(W/ ELEVATOR) ELEV. 'A', 'B'&'C'
(OPT. SUNKEN MUD RM)



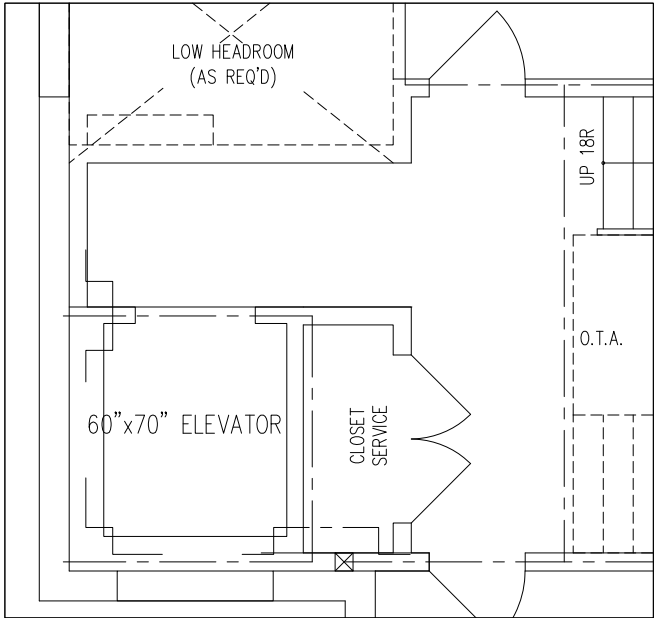
PARTIAL BASEMENT PLAN ELEV.
'A', 'B'&'C'
(OPT. SUNKEN MUD RM)



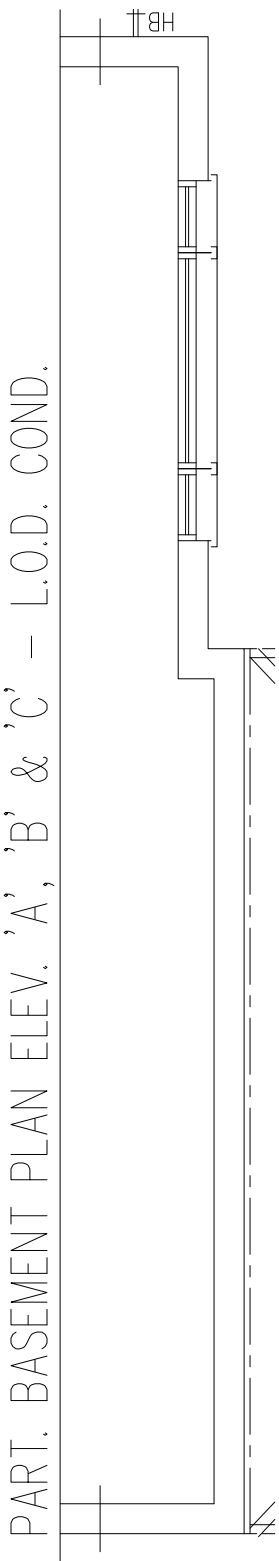
PARTIAL SECOND FLOOR PLAN
(W/ ELEVATOR) ELEV. 'A', 'B'&'C'



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



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



PART. BASEMENT PLAN ELEV. 'A', 'B' & 'C' – L.O.D. COND.

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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.

LOT 67
CSA-F280-12
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 PINE VALLEY PH 2 VAUGHAN, ONTARIO			Date	JULY/2022
TIMBERLAND - LOT 67 5011 4166 sqft			Scale	3/16" = 1'-0"
			BCIN# 19669	
			LO#	98037