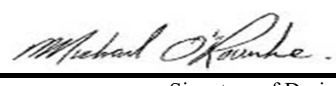


Schedule 1: Designer Information

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: 5006 CNR THE SILVERWOOD Project: PINE VALLEY & TESTON	
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.			
February 26, 2020		 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 & TESTON										THE SILVERWOOD										DATE: Feb-20				WINTER NATURAL AIR CHANGE RATE 0.340										HEAT LOSS ΔT °F. 76				CSA-F280-12													
BUILDER: GOLD PARK HOMES										TYPE: 5006 CNR										GFA: 3453				LO# 77484				SUMMER NATURAL AIR CHANGE RATE 0.124										HEAT GAIN ΔT °F. 16				SB-12 PACKAGE A1									
ROOM USE				MBR				ENS				WIC				BED-2				BED-3				BED-4				BATH				WIC-2				MEDIA				ENS-2											
EXP. WALL				46				10				0				13				31				34				13				9				8				16											
CLG. HT.				11				11				11				11				9				9				9				9				9				11											
FACTORS																																																			
GRS.WALL AREA				506				110				0				143				279				306				117				81				72				176											
GLAZING				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN											
NORTH				21.3	16.8	0	0	0	30	638	504	0	0	0	20	426	336	17	362	286	9	192	151	8	170	135	0	0	0	0	0	0	0	0	0	0	0	0													
EAST				21.3	42.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	468	933	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
SOUTH				21.3	25.7	30	638	772	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	489	592	0	0	0	0													
WEST				21.3	42.4	54	1149	2289	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													
SKYLT.				37.2	103.0	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	0	0	0													
DOORS				25.2	5.2	10	252	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
NET EXPOSED WALL				4.5	0.9	412	1839	382	80	357	74	0	0	0	123	549	114	262	1169	243	275	1227	255	109	486	101	81	361	75	49	219	45	176	785	163																
NET EXPOSED BSMT WALL ABOVE GR				3.6	0.7	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	0	0													
EXPOSED CLG				1.3	0.6	269	345	172	117	150	75	63	81	40	0	0	0	204	262	130	174	223	111	152	195	97	39	50	25	245	314	156	0	0	0	0	0	0													
NO ATTIC EXPOSED CLG				2.7	1.4	0	0	0	0	0	0	0	0	0	0	0	0	35	96	48	55	151	75	0	0	0	15	41	21	0	0	0	0	0	0	0	0														
EXPOSED FLOOR				2.6	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	229	584	121	60	153	32	54	138	29	0	0	0	0	0	0	0	0	0													
BASEMENT/CRAWL HEAT LOSS				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			
SUBTOTAL HT LOSS				4224				1146				81				975				1889				2845				1005				590				1023				785											
SUB TOTAL HT GAIN				3668				653				40				450				707				1647				364				149				794				163											
LEVEL FACTOR / MULTIPLIER				0.30	0.34				0.30	0.34				0.30	0.34				0.20	0.79				0.20	0.79				0.20	0.79				0.30	0.34																
AIR CHANGE HEAT LOSS				1426				387				27				329				1494				2250				794				467				809				265											
AIR CHANGE HEAT GAIN				455				81				5				56				88				204				45				19				99				20											
DUCT LOSS				0				0				0				0				0				510				180				106				0				0				0							
DUCT GAIN				0				0				0				0				0				312				41				17				0				0				0							
HEAT GAIN PEOPLE				240	2	480	0	0	0	0	0	0	1	240	1	240	1	240	1	240	1	240	1	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
HEAT GAIN APPLIANCES/LIGHTS				1034				0				0				1034				1034				1034				0				0				1034				0											
TOTAL HT LOSS BTU/H				5650				1532				108				1303				3383				5605				1979				1163				1831				1051											
TOTAL HT GAIN x 1.3 BTU/H				7327				955				59				2314				2689				4468				586				240				2504				239											

SITE NAME: PINE VALLEY & TESTON
BUILDER: GOLD PARK HOMES

THE SILVERWOOD
TYPE: 5006 CNR

DATE: Feb-20

GFA: 3453 LO# 77484

HEATING CFM 1525 COOLING CFM 1525
TOTAL HEAT LOSS 75,026 TOTAL HEAT GAIN 47,868
AIR FLOW RATE CFM 20.33 AIR FLOW RATE CFM 31.86

furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure
for s/a & r/a 0.35

^LENNOX
EL296UH090XE48C
FAN SPEED 90

AFUE = 96 %
INPUT (BTU/H) = 88,000
OUTPUT (BTU/H) = 85,000

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	6	18	6
R/A	0	0	3	5	1

plenium pressure s/a 0.18 r/a pressure 0.17
max s/a dif press. loss 0.03 r/a grille press. Loss 0.02
min adjusted pressure s/a 0.15 adjusted pressure r/a 0.15

LOW 0
MEDLOW 0
MEDIUM 1105
MEDIUM HIGH 1255
HIGH 1525

DESIGN CFM = 1525
CFM @ 6" E.S.P.

TEMPERATURE RISE 52 °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	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	WIC-2	MEDIA	MBR	ENS-2	ENS	BED-4	K/B/F	K/B/F	DIN	LIB	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	2.82	0.77	0.11	1.30	3.38	2.80	1.98	1.16	1.83	2.82	1.05	0.77	2.80	2.60	2.60	2.25	2.57	0.39	3.19	1.27	4.42	4.42	4.42	4.42
CFM PER RUN HEAT	57	16	2	26	69	57	40	24	37	57	21	16	57	53	53	46	52	8	65	26	90	90	90	90
RM GAIN MBH	3.66	0.48	0.06	2.31	2.69	2.23	0.59	0.24	2.50	3.66	0.24	0.48	2.23	2.90	2.90	1.83	2.97	0.09	0.81	0.29	0.68	0.68	0.68	0.68
CFM PER RUN COOLING	117	15	2	74	86	71	19	8	80	117	8	15	71	92	92	58	95	3	26	9	22	22	22	22
ADJUSTED PRESSURE	0.15	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.15	0.17	0.17	0.17	0.16	0.16	0.17	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	52	30	33	14	33	49	23	50	45	42	6	21	56	63	46	55	76	20	55	11	37	55	43	29
EQUIVALENT LENGTH	150	130	190	180	180	160	170	150	160	150	160	140	180	140	150	220	200	180	160	130	170	130	100	110
TOTAL EFFECTIVE LENGTH	202	160	223	194	213	209	193	200	205	192	166	161	236	203	196	275	276	200	215	141	207	185	143	139
ADJUSTED PRESSURE	0.08	0.11	0.08	0.09	0.08	0.08	0.09	0.09	0.08	0.08	0.1	0.11	0.07	0.08	0.08	0.06	0.06	0.09	0.08	0.12	0.08	0.09	0.11	0.12
ROUND DUCT SIZE	6	4	4	5	6	5	4	4	5	6	4	4	5	6	6	5	6	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	291	184	23	191	352	419	459	275	272	291	241	184	419	270	270	338	265	92	477	298	459	459	459	459
COOLING VELOCITY (ft/min)	597	172	23	543	438	521	218	92	587	597	92	172	521	469	469	426	484	34	191	103	112	112	112	112
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	4X10	3X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	B	C	B	C	C	E	C	E	E	C	C	C	E	A	B	D	D	E	E	E	B	A	C	C

RUN #	25	26	27	28	29	30
ROOM NAME	BAS	BAS	K/B/F	K/B/F	LIB	DIN
RM LOSS MBH	4.42	4.42	2.60	2.60	2.57	2.25
CFM PER RUN HEAT	90	90	53	53	52	46
RM GAIN MBH	0.68	0.68	2.90	2.90	2.97	1.83
CFM PER RUN COOLING	22	22	92	92	95	58
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.16	0.17
ACTUAL DUCT LGH	29	65	53	17	70	60
EQUIVALENT LENGTH	140	170	150	150	160	160
TOTAL EFFECTIVE LENGTH	169	235	203	167	230	220
ADJUSTED PRESSURE	0.1	0.07	0.08	0.1	0.07	0.08
ROUND DUCT SIZE	6	6	6	5	6	5
HEATING VELOCITY (ft/min)	459	459	270	389	265	338
COOLING VELOCITY (ft/min)	112	112	469	675	484	426
OUTLET GRILL SIZE	4X10	4X10	4X10	3X10	4X10	3X10
TRUNK	A	D	A	B	D	D

SUPPLY AIR TRUNK SIZE

	TRUNK	STATIC	ROUND	RECT	VELOCITY
	CFM	PRESS.	DUCT	DUCT	(ft/min)
TRUNK A	286	0.08	8.8	10	x 8 515
TRUNK B	541	0.08	11.1	14	x 8 696
TRUNK C	966	0.08	13.8	22	x 8 790
TRUNK D	286	0.06	9.4	10	x 8 515
TRUNK E	560	0.06	12.1	18	x 8 560
TRUNK F	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	0	0.05	0	0	x 8 0
TRUNK X	1525	0.05	18.5	32	x 10 686
TRUNK Y	625	0.05	13.2	20	x 8 563
TRUNK Z	0	0.05	0	0	x 8 0
DROP	1525	0.05	18.5	24	x 14 654

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	135	130	135	155	255	235	115	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH	30	63	45	26	39	42	68	60	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	185	185	225	225	205	245	250	215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	215	248	270	251	244	287	318	275	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.07	0.06	0.05	0.06	0.06	0.05	0.05	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	6.8	7	7.5	7.5	9	9.2	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	30	30	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: 5006 CNR
SITE NAME: PINE VALLEY & TESTON

LO # 77484
THE SILVERWOOD

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>5</u> @ 10.6 cfm	<u>53</u> cfm
Other Rooms	<u>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Table 9.32.3.A.	TOTAL	<u>190.8</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>190.8</u>	cfm
Less Principal Ventil. Capacity	<u>155</u>	cfm
Required Supplemental Capacity	<u>35.8</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model:	VANEE 65H		
Location:	BSMT		
<u>155.0</u> cfm	<u>3.0</u> sones		
☒ HVI Approved			
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
155.0 CFM	X 76 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		NUTONE		
Location	Model	cfm	HVI	Sones
ENS	QTXEN050C	50	☒	0.3
BATH	QTXEN050C	50	☒	0.3
ENS-2	QTXEN050C	50	☒	0.3
PWD	QTXEN050C	50	☒	0.3

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model:	VANEE 65H	
<u>155</u> cfm high	<u>64</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:	February-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 77484	Model: 5006 CNR	Builder: GOLD PARK HOMES	Date: 2/26/2020																																																									
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>2351</td> <td>10</td> <td>23510</td> </tr> <tr> <td>First</td> <td>2351</td> <td>11</td> <td>25861</td> </tr> <tr> <td>Second</td> <td>1499</td> <td>9</td> <td>13491</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>62,862.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1780.1 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2351	10	23510	First	2351	11	25861	Second	1499	9	13491	Third	0	9	0	Fourth	0	9	0	Total:			62,862.0 ft³	Total:			1780.1 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%; text-align: center;">0.340</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.124</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td style="text-align: center;">22</td> <td style="text-align: center;">-20</td> <td style="text-align: center;">42</td> <td style="text-align: center;">76</td> </tr> <tr> <td>Summer DTDc</td> <td style="text-align: center;">22</td> <td style="text-align: center;">31</td> <td style="text-align: center;">9</td> <td style="text-align: center;">16</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.340	SUMMER NATURAL AIR CHANGE RATE	0.124	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-20	42	76	Summer DTDc	22	31	9	16
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																									
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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 494.46 x 42 °C x 1.2 = 8519 W = 29067 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.124 x 494.46 x 9 °C x 1.2 = 646 W = 2204 Btu/h																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 155 CFM x 76 °F x 1.08 x 0.25 = 3181 Btu/h			$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 155 CFM x 16 °F x 1.08 x 0.25 = 661 Btu/h																																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																																								
1	0.5	29,067	11,977	1.213																																																								
2	0.3		25,834	0.338																																																								
3	0.2		7,352	0.791																																																								
4	0		0	0.000																																																								
5	0		0	0.000																																																								
*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0																																																												

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 5006 CNR	THE SILVERWOOD	BUILDER: GOLD PARK HOMES
SFQT: 3453	LO# 77484	SITE: PINE VALLEY & TESTON

DESIGN ASSUMPTIONS

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

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft ³):	62862.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 76.0 ft	WIDTH: 42.0 ft	EXPOSED PERIMETER:	236.0 ft

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

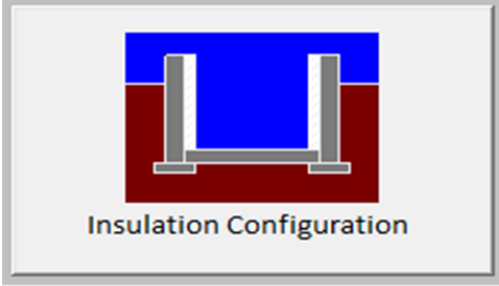
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 600 mm below 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):	23.2	 Insulation Configuration
Floor Width (m):	12.8	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	3.2	
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):		2429

TYPE: 5006 CNR
LO# 77484

THE SILVERWOOD

Air Infiltration Residential Load Calculator

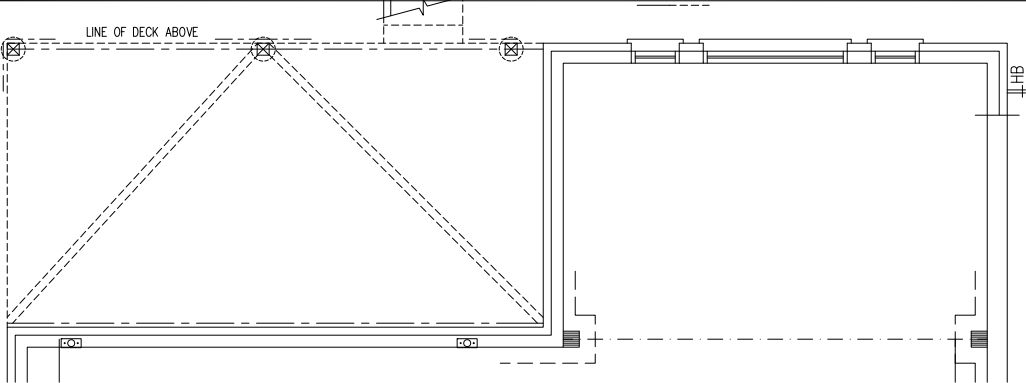
Supplemental tool for CAN/CSA-F280

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):	1780.1			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2372.9 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	73.2	73.2		
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):	0.124			

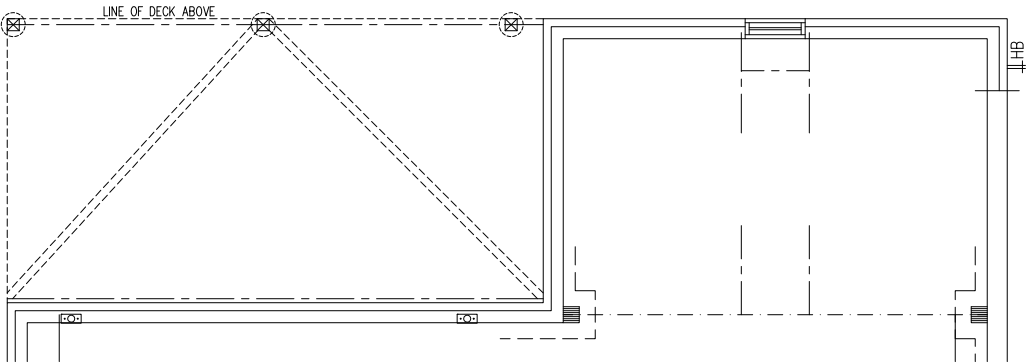
TYPE: 5006 CNR
LO# 77484

THE SILVERWOOD

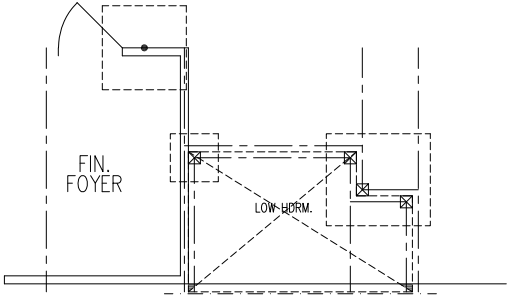
MICHAEL OROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.3 OF THE BUILDING CODE.
Michael O'Rourke
REGISTERED PROFESSIONAL ENGINEER
IN THE PROVINCE OF ONTARIO
IN THE DESIGN FIELD



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



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

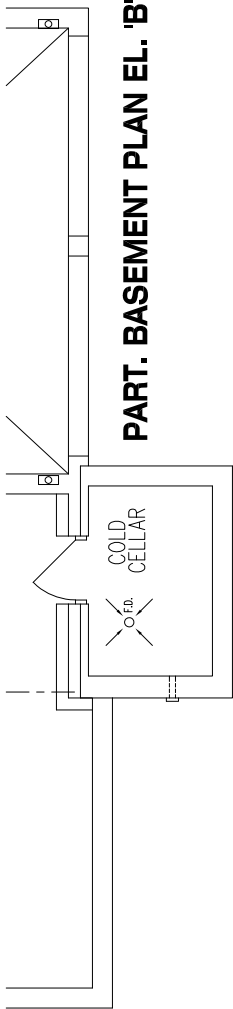
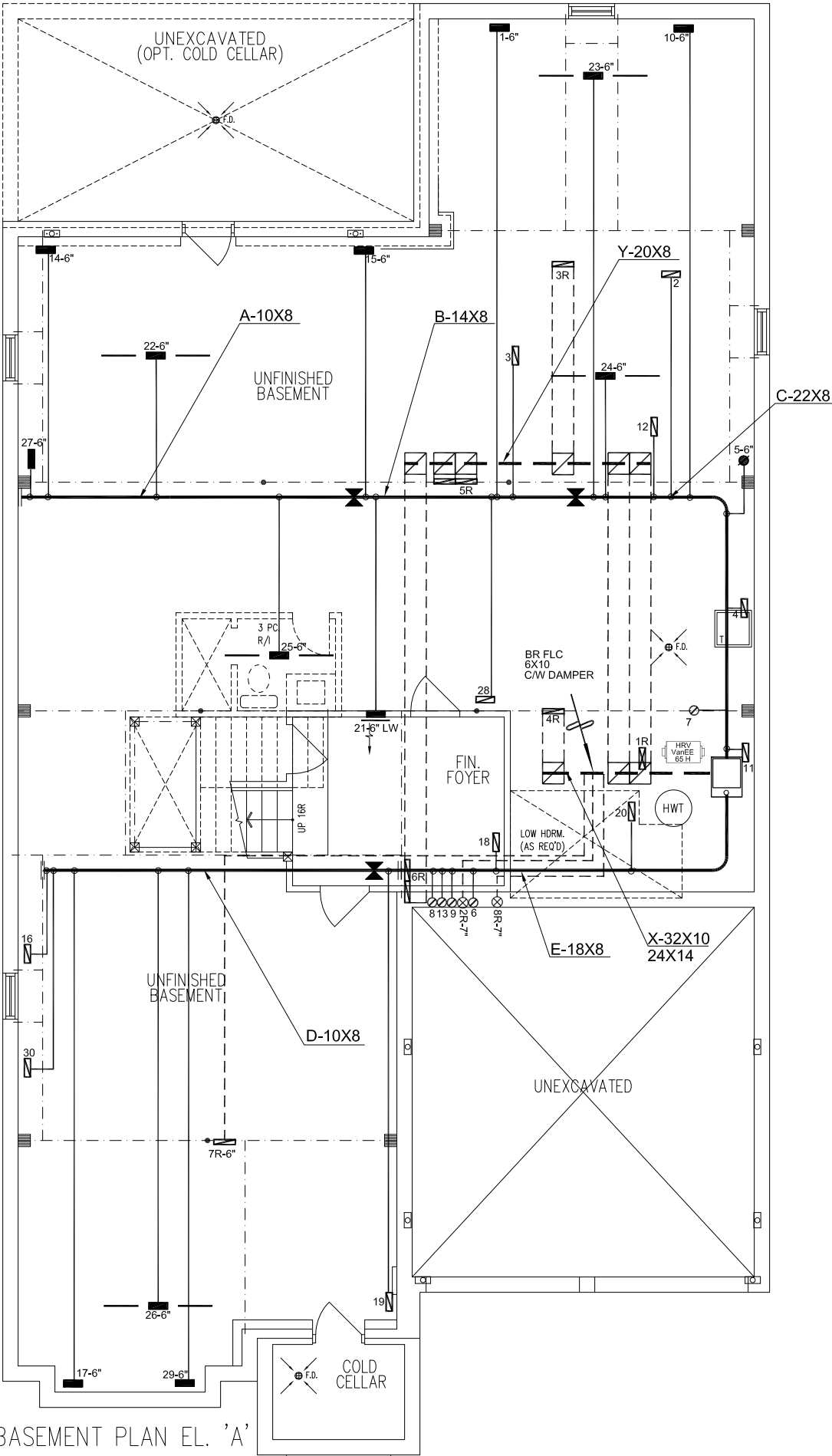


OPT. SUNKEN MUD ROOM 'A' & 'B'

WOD
LOD
CSA-F280-12
PACKAGE A1

HVAC LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		SUPPLY AIR BOOT ABOVE
	SUPPLY AIR BOOT FROM 2nd FLOOR		6" SUPPLY AIR STACK 2nd FLOOR
	FRA- FLOOR RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	RETURN AIR STACK 2nd FLOOR		REDUCER
		3.	
		2.	REVISED AS PER ARCHITECTURALS
		1.	DECK CONDITIONS ADDED
		No.	Description
			REVISIONS
			Date

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PART. BASEMENT PLAN EL. 'B'

Client	GOLD PARK HOMES
Project Name	PINE VALLEY & TESTON VAUGHAN, ONTARIO
	THE SILVERWOOD 5006 CNR 3453 sqft

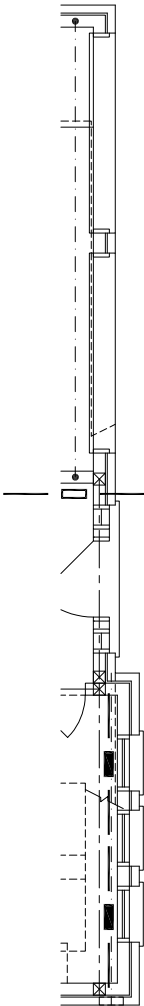
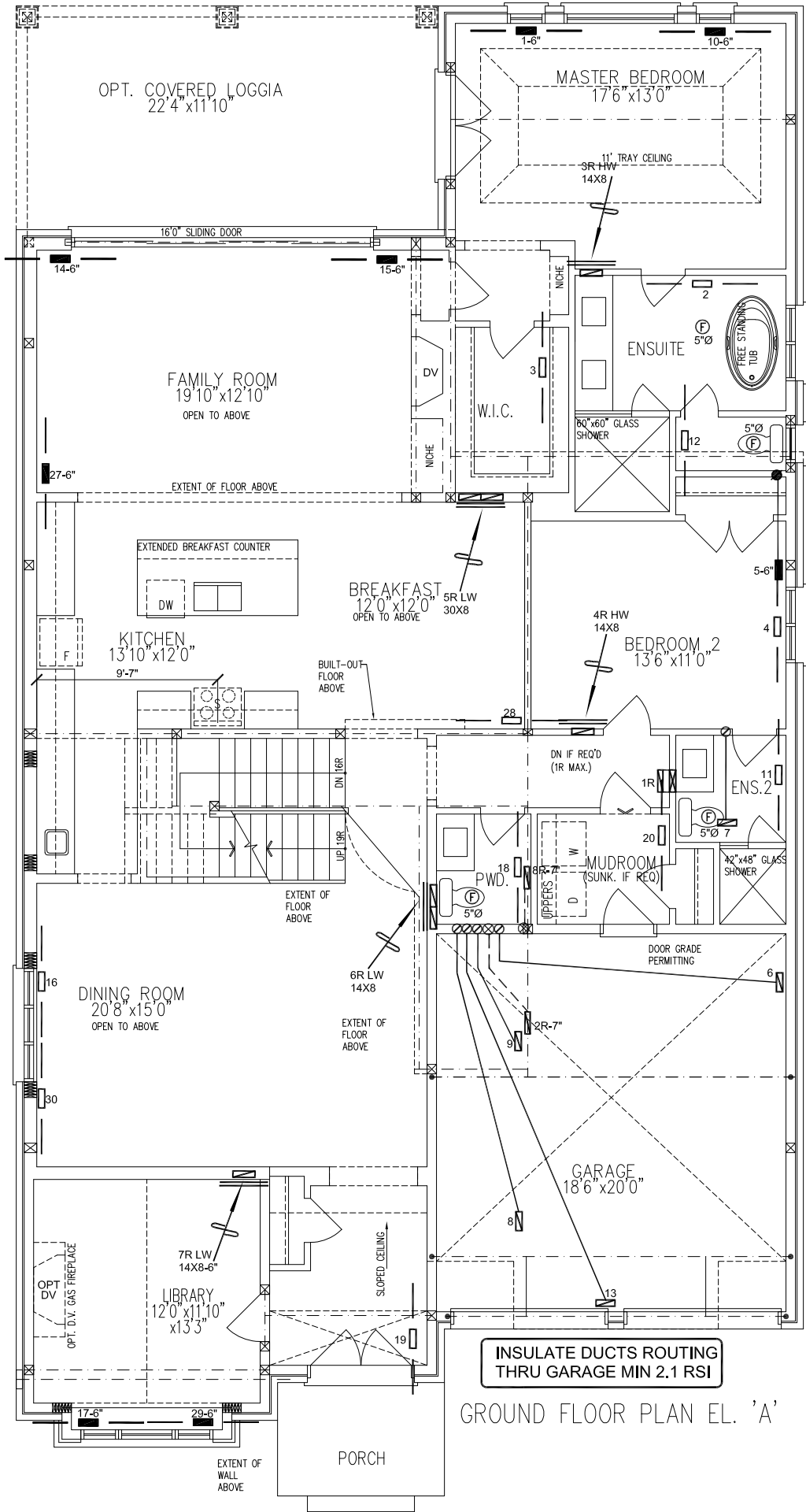
 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.	HEAT LOSS 78207 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title BASEMENT HEATING LAYOUT	
	MAKE LENNOX		3RD FLOOR				
	MODEL EL296UH090XE48C		2ND FLOOR 6 3 1				
	INPUT 88 MBTU/H		1ST FLOOR 18 5 5				
	OUTPUT 85 MBTU/H		BASEMENT 6 1 0			Date	JAN/2018
	COOLING 4.0 TONS		ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A			Scale	1/8" = 1'-0"
	FAN SPEED 1525 cfm @ 0.6" w.c.					BCIN# 19669	
						LO#	77484

MICHAEL OROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.3 OF THE BUILDING CODE.
Michael O'Rourke
REGISTERED PROFESSIONAL ENGINEER
HVAAC DESIGNS LTD.

WOD
LOD
CSA-F280-12
PACKAGE A1

HVAC LEGEND					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE
					RETURN AIR STACK 2nd FLOOR
					REDUCER
				REVISIONS	
				No.	Date
				2.	REVISED AS PER ARCHITECTURALS
				1.	DECK CONDITIONS ADDED
					OCT/2018

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PART. GROUND FLOOR PLAN EL. 'B'

Client	GOLD PARK HOMES
Project Name	PINE VALLEY & TESTON VAUGHAN, ONTARIO
	THE SILVERWOOD
	5006 CNR
	3453 sqft

HVAC

DESIGNS

LTD.

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

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

Sheet Title		FIRST FLOOR HEATING LAYOUT
Date	JAN/2018	
Scale	1/8" = 1'-0"	
BCIN# 19669		
LO#	77484	

MICHAEL OROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.3 OF THE BUILDING CODE.

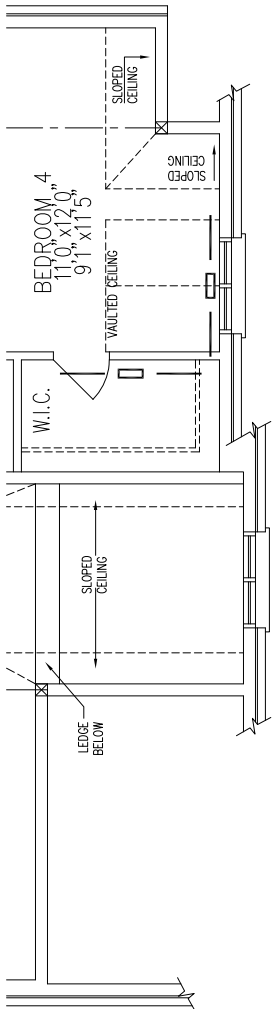
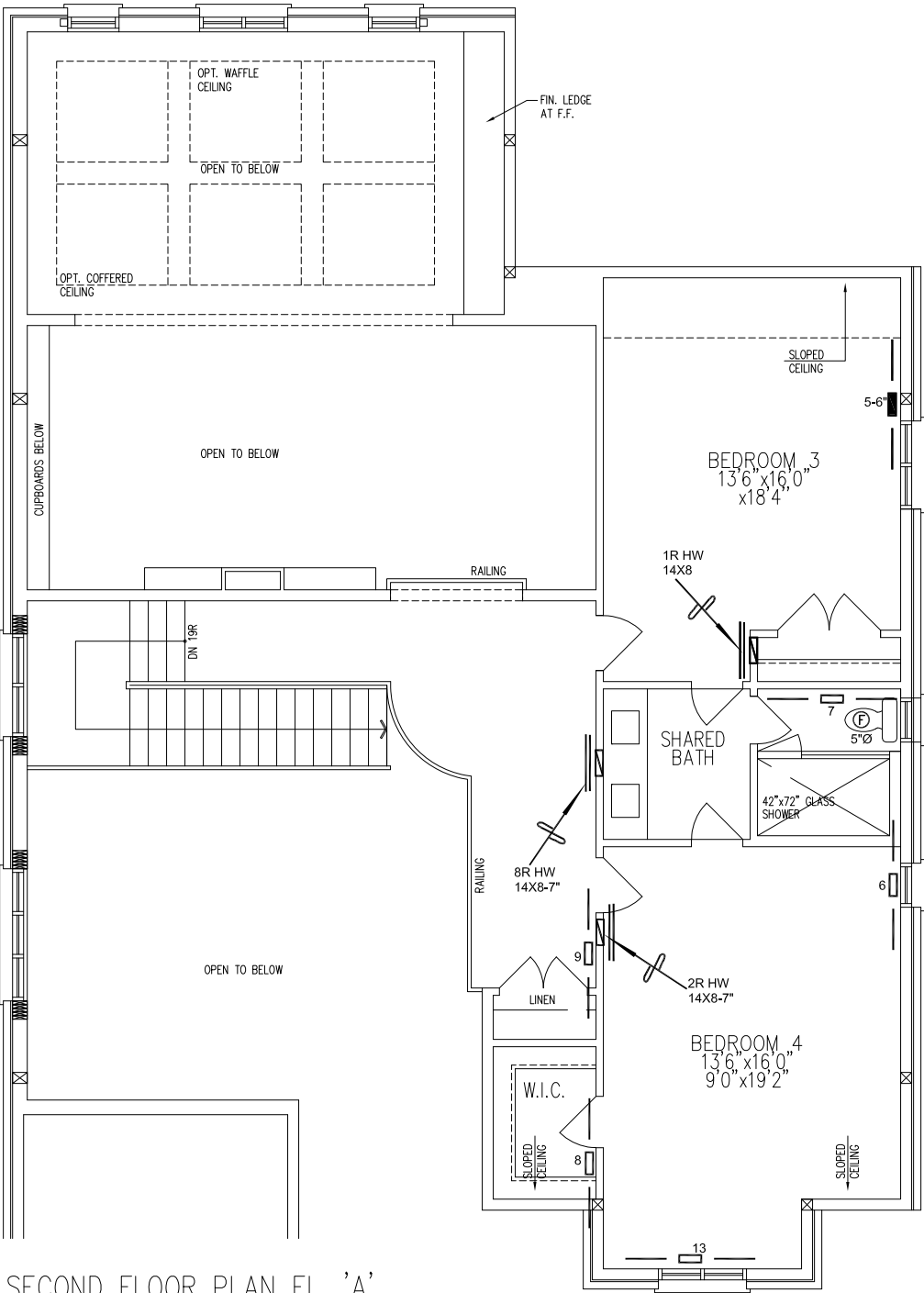
Michael O'Rourke
REGISTERED PROFESSIONAL ENGINEER
H.V.A.C. DESIGNS LTD. 19669

WODCSA-F280-12

LODPACKAGE A1

HVAC LEGEND									
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	DECK CONDITIONS ADDED
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		REDUCER	No.	REVISIONS
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE				Date

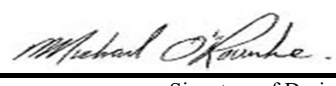
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Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest 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		SECOND FLOOR HEATING LAYOUT	
Project Name			Date	JAN/2018		
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"		
THE SILVERWOOD 5006 CNR 3453 sqft			BCIN# 19669			
			LO#	77484		

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: 5006 CNR THE SILVERWOOD - OPT LOFT Project: PINE VALLEY & TESTON	
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.			
February 26, 2020		 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 & TESTON										THE SILVERWOOD - OPT LOFT										DATE: Feb-20				WINTER NATURAL AIR CHANGE RATE 0.340										HEAT LOSS ΔT °F. 76				CSA-F280-12													
BUILDER: GOLD PARK HOMES										TYPE: 5006 CNR										GFA: 3622				LO# 85445				SUMMER NATURAL AIR CHANGE RATE 0.124										HEAT GAIN ΔT °F. 16				SB-12 PACKAGE A1									
ROOM USE				MBR				ENS				WIC				BED-2				BED-3				BED-4				BATH				WIC-2				LOFT				ENS-2											
EXP. WALL				46				10				0				13				31				34				13				9				10				16											
CLG. HT.				11				11				11				11				9				9				9				9				9				11											
FACTORS																																																			
GRS.WALL AREA				506				110				0				143				279				306				117				81				90				176											
GLAZING				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN											
NORTH				21.3	16.8	0	0	0	30	638	504	0	0	0	20	426	336	17	362	286	9	192	151	8	170	135	0	0	0	0	0	0	0	0	0																
EAST				21.3	42.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	468	933	0	0	0	0	0	0	0	0	0	0	0	0																
SOUTH				21.3	25.7	30	638	772	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	489	592	0	0	0																
WEST				21.3	42.4	54	1149	2289	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																
SKYLT.				37.2	103.0	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																
DOORS				25.2	5.2	10	252	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
NET EXPOSED WALL				4.5	0.9	412	1839	382	80	357	74	0	0	0	123	549	114	262	1169	243	275	1227	255	109	486	101	81	361	75	67	299	62	176	785	163																
NET EXPOSED BSMT WALL ABOVE GR				3.6	0.7	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	269	345	172	117	150	75	63	81	40	0	0	0	204	262	130	174	223	111	152	195	97	39	50	25	567	728	362	0	0	0	0															
NO ATTIC EXPOSED CLG				2.7	1.4	0	0	0	0	0	0	0	0	0	0	0	0	35	96	48	55	151	75	0	0	0	15	41	21	0	0	0	0	0	0	0															
EXPOSED FLOOR				2.6	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	229	584	121	60	153	32	54	138	29	0	0	0	0	0	0	0															
BASEMENT/CRAWL HEAT LOSS				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			
SUBTOTAL HT LOSS				4224				1146				81				975				1889				2845				1005				590				1516				785											
SUB TOTAL HT GAIN				3668				653				40				450				707				1647				364				149				1016				163											
LEVEL FACTOR / MULTIPLIER				0.30	0.34				0.30	0.34				0.30	0.34			0.20	0.74				0.20	0.74			0.20	0.74			0.20	0.74		0.30	0.34																
AIR CHANGE HEAT LOSS				1450				393				28				334				1400				2108				745				438				1123				270											
AIR CHANGE HEAT GAIN				455				81				5				56				88				204				45				19				126				20											
DUCT LOSS				0				0				0				0				0				495				175				103				0				0				0							
DUCT GAIN				0				0				0				0				0				312				41				17				0				0				0							
HEAT GAIN PEOPLE				240	2	480	0	0	0	0	0	0	1	240	1	240	1	240	1	240	1	240	1	240	0	0	0	0	0	0	0	0	0	0	0	0	0														
HEAT GAIN APPLIANCES/LIGHTS				1034				0				0				1034				1034				1034				0				0				1034				0				0							
TOTAL HT LOSS BTU/H				5674				1539				109				1309				3289				5449				1924				1131				2639				1055											
TOTAL HT GAIN x 1.3 BTU/H				7327				955				59				2314				2689				4468				586				240				2828				239											

SITE NAME: PINE VALLEY & TESTON
BUILDER: GOLD PARK HOMES

THE SILVERWOOD - OPT LOFT
TYPE: 5006 CNR

DATE: Feb-20

GFA: 3622 LO# 85445

HEATING CFM 1525 COOLING CFM 1525
TOTAL HEAT LOSS 75,072 TOTAL HEAT GAIN 47,881
AIR FLOW RATE CFM 20.31 AIR FLOW RATE CFM 31.85

furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure
for s/a & r/a 0.35

*LENNOX
EL296UH090XE48C

AFUE = 96 %
INPUT (BTU/H) = 88,000
OUTPUT (BTU/H) = 85,000

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	6	18	6
R/A	0	0	3	5	1

plenium pressure s/a 0.18 r/a pressure 0.17
max s/a dif press. loss 0.03 r/a grille press. Loss 0.02
min adjusted pressure s/a 0.15 adjusted pressure r/a 0.15

FAN SPEED 90
LOW 0
MEDLOW 0
MEDIUM 1105
MEDIUM HIGH 1255
HIGH 1525

DESIGN CFM = 1525
CFM @ 6" E.S.P.

TEMPERATURE RISE 52 °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	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	WIC-2	LOFT	MBR	ENS-2	ENS	BED-4	K/B/F	K/B/F	DIN	LIB	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	2.84	0.77	0.11	1.31	3.29	2.72	1.92	1.13	2.64	2.84	1.06	0.77	2.72	2.47	2.47	2.26	2.58	0.40	3.20	1.28	4.42	4.42	4.42	4.42
CFM PER RUN HEAT	58	16	2	27	67	55	39	23	54	58	21	16	55	50	50	46	52	8	65	26	90	90	90	90
RM GAIN MBH	3.66	0.48	0.06	2.31	2.69	2.23	0.59	0.24	2.83	3.66	0.24	0.48	2.23	2.82	2.82	1.83	2.97	0.09	0.81	0.29	0.68	0.68	0.68	0.68
CFM PER RUN COOLING	117	15	2	74	86	71	19	8	90	117	8	15	71	90	90	58	95	3	26	9	22	22	22	22
ADJUSTED PRESSURE	0.15	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.15	0.17	0.17	0.17	0.16	0.16	0.17	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	52	30	33	14	33	49	23	50	37	42	6	21	56	63	46	55	76	20	55	11	37	55	43	29
EQUIVALENT LENGTH	150	130	190	180	180	160	170	150	160	150	160	140	180	140	150	220	200	180	160	130	170	130	100	110
TOTAL EFFECTIVE LENGTH	202	160	223	194	213	209	193	200	197	192	166	161	236	203	196	275	276	200	215	141	207	185	143	139
ADJUSTED PRESSURE	0.08	0.11	0.08	0.09	0.08	0.08	0.09	0.09	0.08	0.08	0.1	0.11	0.07	0.08	0.08	0.06	0.06	0.09	0.08	0.12	0.08	0.09	0.11	0.12
ROUND DUCT SIZE	6	4	4	5	6	5	4	4	6	6	4	4	5	6	6	5	6	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	296	184	23	198	342	404	447	264	275	296	241	184	404	255	255	338	265	92	477	298	459	459	459	459
COOLING VELOCITY (ft/min)	597	172	23	543	438	521	218	92	459	597	92	172	521	459	459	426	484	34	191	103	112	112	112	112
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	4X10	3X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	B	C	B	C	C	E	C	E	E	C	C	C	E	A	B	D	D	E	E	E	B	A	C	C

RUN #	25	26	27	28	29	30
ROOM NAME	BAS	BAS	K/B/F	K/B/F	LIB	DIN
RM LOSS MBH	4.42	4.42	2.47	2.47	2.58	2.26
CFM PER RUN HEAT	90	90	50	50	52	46
RM GAIN MBH	0.68	0.68	2.82	2.82	2.97	1.83
CFM PER RUN COOLING	22	22	90	90	95	58
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.16	0.17
ACTUAL DUCT LGH	29	65	53	17	70	60
EQUIVALENT LENGTH	140	170	150	150	160	160
TOTAL EFFECTIVE LENGTH	169	235	203	167	230	220
ADJUSTED PRESSURE	0.1	0.07	0.08	0.1	0.07	0.08
ROUND DUCT SIZE	6	6	6	5	6	5
HEATING VELOCITY (ft/min)	459	459	255	367	265	338
COOLING VELOCITY (ft/min)	112	112	459	661	484	426
OUTLET GRILL SIZE	4X10	4X10	4X10	3X10	4X10	3X10
TRUNK	A	D	A	B	D	D

SUPPLY AIR TRUNK SIZE

	TRUNK	STATIC	ROUND	RECT	VELOCITY
	CFM	PRESS.	DUCT	DUCT	(ft/min)
TRUNK A	280	0.08	8.7	10	x 8 504
TRUNK B	530	0.08	11.1	14	x 8 681
TRUNK C	954	0.08	13.8	22	x 8 781
TRUNK D	286	0.06	9.4	10	x 8 515
TRUNK E	572	0.06	12.2	18	x 8 572
TRUNK F	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	0	0.05	0	0	x 8 0
TRUNK X	1525	0.05	18.5	32	x 10 686
TRUNK Y	625	0.05	13.2	20	x 8 563
TRUNK Z	0	0.05	0	0	x 8 0
DROP	1525	0.05	18.5	24	x 14 654

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	135	130	135	155	255	235	115	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH	30	63	45	26	39	42	68	60	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	185	185	225	225	205	245	250	215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	215	248	270	251	244	287	318	275	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.07	0.06	0.05	0.06	0.06	0.05	0.05	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	6.8	7	7.5	7.5	9	9.2	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	30	30	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: 5006 CNR
SITE NAME: PINE VALLEY & TESTON

LO # 85445
THE SILVERWOOD - OPT LOFT

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>5</u> @ 10.6 cfm <u>53</u> cfm	
Other Rooms	<u>6</u> @ 10.6 cfm <u>63.6</u> cfm	
Table 9.32.3.A.	TOTAL <u>190.8</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>190.8</u> cfm	
Less Principal Ventil. Capacity	<u>155</u> cfm	
Required Supplemental Capacity	<u>35.8</u> cfm	

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
<u>155.0</u> cfm	<u>3.0</u> sones ☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	ΔT °F	FACTOR	% LOSS	
155.0 CFM	X 76 F	X 1.08	X	0.25

SUPPLEMENTAL FANS		NUTONE		
Location	Model	cfm	HVI	Sones
ENS	QTXEN050C	50	☒	0.3
BATH	QTXEN050C	50	☒	0.3
ENS-2	QTXEN050C	50	☒	0.3
PWD	QTXEN050C	50	☒	0.3

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 65H		
<u>155</u> cfm high	<u>64</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:	February-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 85445	Model: 5006 CNR	Builder: GOLD PARK HOMES	Date: 2/26/2020																																																									
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>2351</td> <td>10</td> <td>23510</td> </tr> <tr> <td>First</td> <td>2351</td> <td>11</td> <td>25861</td> </tr> <tr> <td>Second</td> <td>1499</td> <td>9</td> <td>13491</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>62,862.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>1780.1 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2351	10	23510	First	2351	11	25861	Second	1499	9	13491	Third	0	9	0	Fourth	0	9	0	Total:			62,862.0 ft³	Total:			1780.1 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%; text-align: center;">0.340</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.124</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td style="text-align: center;">22</td> <td style="text-align: center;">-20</td> <td style="text-align: center;">42</td> <td style="text-align: center;">76</td> </tr> <tr> <td>Summer DTDc</td> <td style="text-align: center;">22</td> <td style="text-align: center;">31</td> <td style="text-align: center;">9</td> <td style="text-align: center;">16</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.340	SUMMER NATURAL AIR CHANGE RATE	0.124	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-20	42	76	Summer DTDc	22	31	9	16
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																									
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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 494.46 x 42 °C x 1.2 = 8519 W = 29067 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.124 x 494.46 x 9 °C x 1.2 = 646 W = 2204 Btu/h																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 155 CFM x 76 °F x 1.08 x 0.25 = 3181 Btu/h			$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 155 CFM x 16 °F x 1.08 x 0.25 = 661 Btu/h																																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																																								
1	0.5	29,067	11,977	1.213																																																								
2	0.3		25,408	0.343																																																								
3	0.2		7,846	0.741																																																								
4	0		0	0.000																																																								
5	0		0	0.000																																																								
*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0																																																												

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 5006 CNR	THE SILVERWOOD - OPT LOFT	BUILDER: GOLD PARK HOMES
SFQT: 3622	LO# 85445	SITE: PINE VALLEY & TESTON

DESIGN ASSUMPTIONS

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

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft ³):	62862.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 76.0 ft	WIDTH: 42.0 ft	EXPOSED PERIMETER:	236.0 ft

2012 OBC - COMPLIANCE PACKAGE

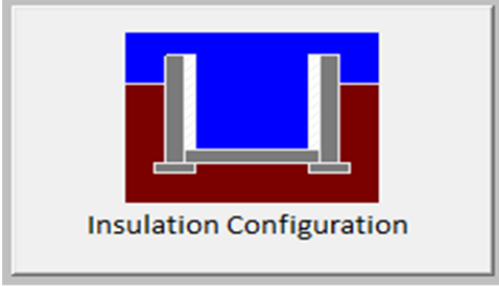
Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 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):	23.2	 Insulation Configuration
Floor Width (m):	12.8	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	3.2	
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):		2429

TYPE: 5006 CNR
LO# 85445

THE SILVERWOOD - OPT LOFT

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):	1780.1			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2372.9 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	73.2	73.2		
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):	0.124			

TYPE: 5006 CNR
LO# 85445

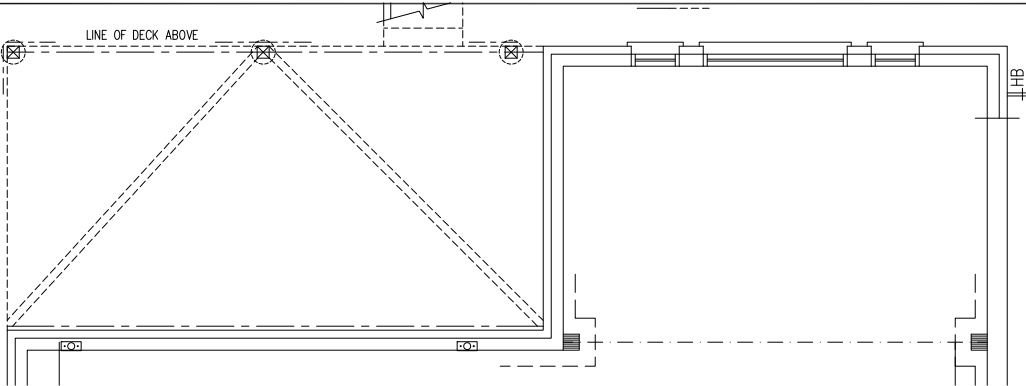
THE SILVERWOOD - OPT LOFT

MICHAEL OROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.3 OF THE BUILDING CODE.
Michael O'Rourke
MICHAEL OROURKE INC. 19669 HVAC DESIGN LTD.

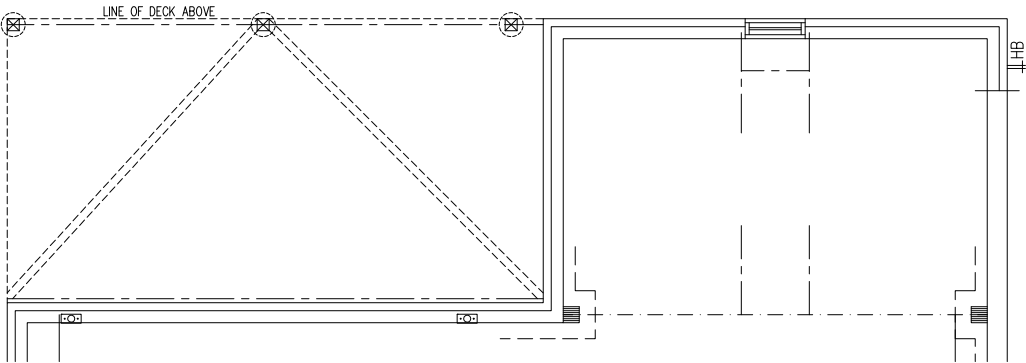
WOD
LOD
CSA-F280-12
PACKAGE A1

HVAC LEGEND				3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE
	SUPPLY AIR GRILLE 6" BOOT		6" SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE
	RETURN AIR STACK ABOVE		REDUCER		
				No.	Description
					Date

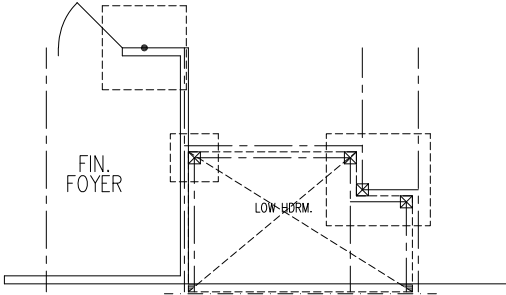
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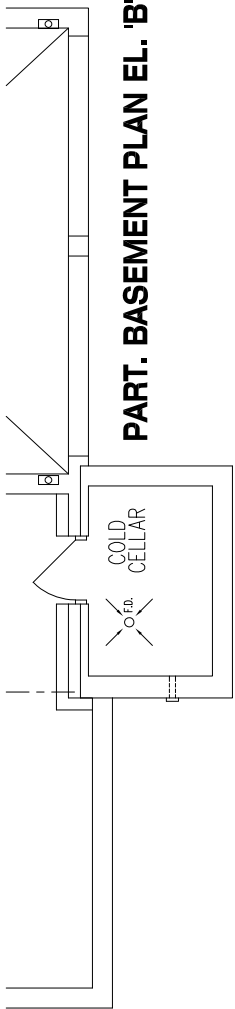
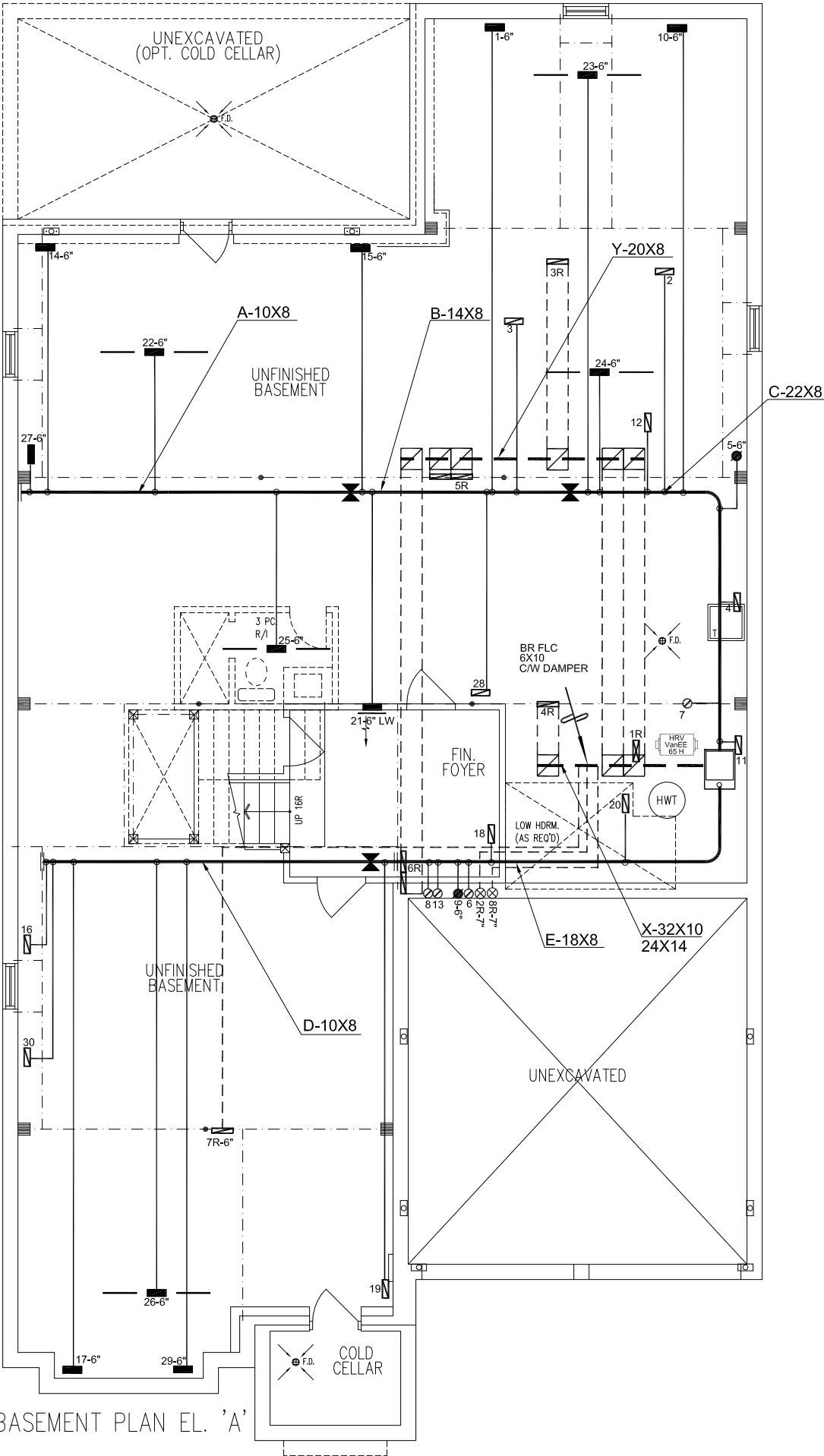
PART. BASEMENT PLAN ELEV. 'A', & 'B' - L.O.D. COND.



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



OPT. SUNKEN MUD ROOM 'A' & 'B'



Client	GOLD PARK HOMES
Project Name	PINE VALLEY & TESTON VAUGHAN, ONTARIO
	OPT LOFT THE SILVERWOOD
	5006 CNR 3622 sqft

HVACDESIGNS LTD. 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.	HEAT LOSS 78252 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title BASEMENT HEATING LAYOUT	
	MAKE LENNOX		3RD FLOOR				
	MODEL EL296UH090XE48C		2ND FLOOR 6 3 1				
	INPUT 88 MBTU/H		1ST FLOOR 18 5 5				
	OUTPUT 85 MBTU/H		BASEMENT 6 1 0			Date FEB/2020	
	COOLING 4.0 TONS		ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A			Scale 1/8" = 1'-0"	
	FAN SPEED 1525 cfm @ 0.6" w.c.					BCIN# 19669	
					LO#	85445	

MICHAEL OROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.3 OF THE BUILDING CODE.

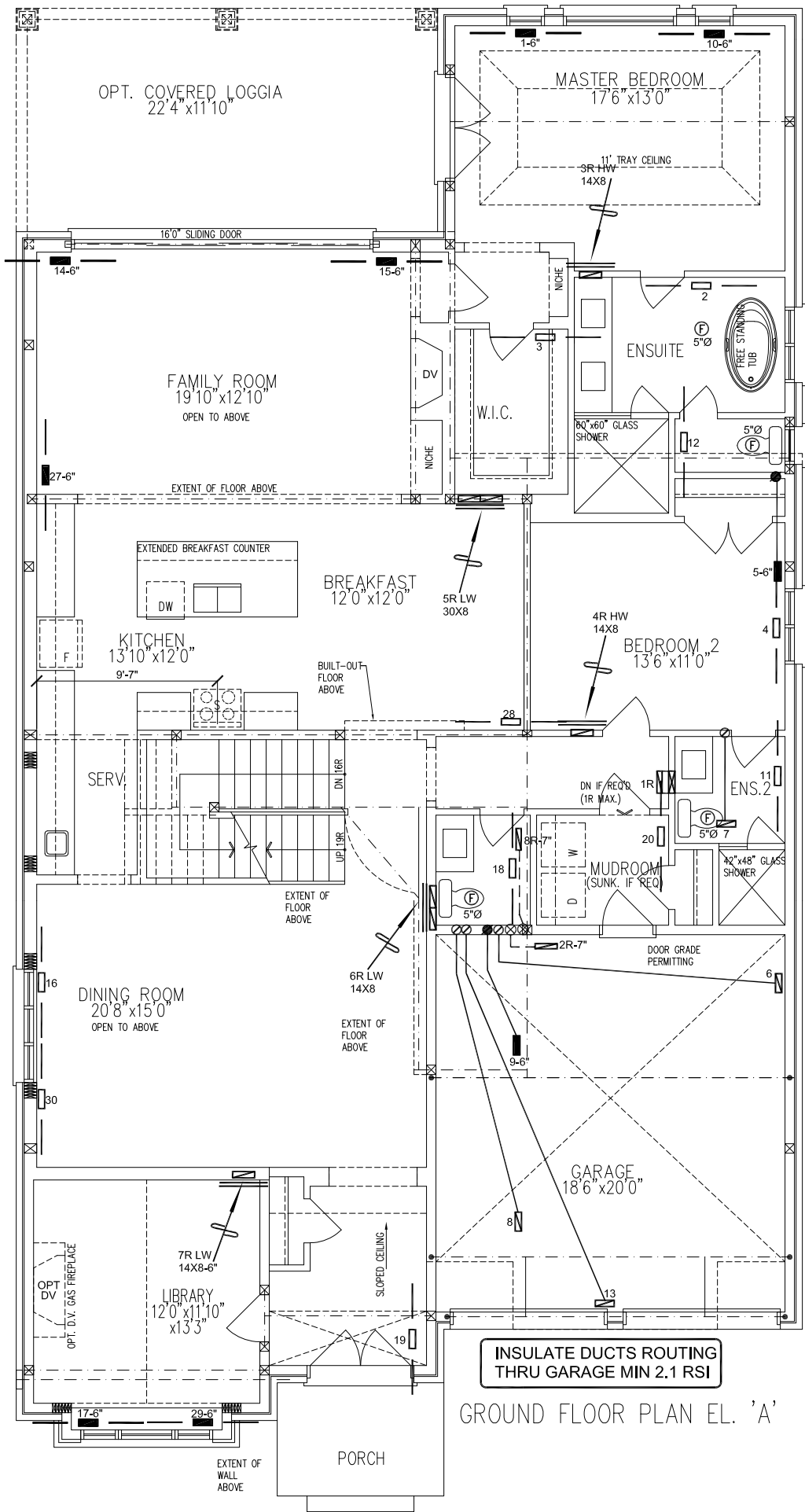
Michael O'Rourke
HVAC DESIGNER
BCIN# 19669
HVAC DESIGNS LTD.

WOD
LOD

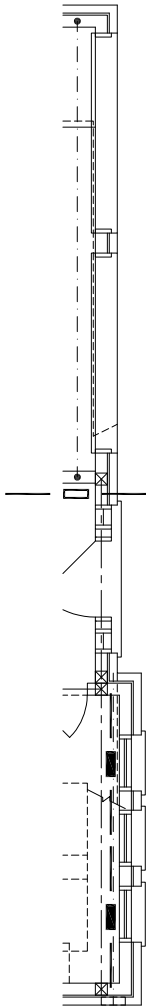
CSA-F280-12
PACKAGE A1

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

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GROUND FLOOR PLAN EL. 'A'



PART. GROUND FLOOR PLAN EL. 'B'

Client
GOLD PARK HOMES

Project Name
PINE VALLEY & TESTON
VAUGHAN, ONTARIO

OPT LOFT
THE SILVERWOOD
5006 CNR 3622 sqft

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

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

	Sheet Title	
	FIRST FLOOR HEATING LAYOUT	
	Date	FEB/2020
	Scale	1/8" = 1'-0"
	BCIN# 19669	
	LO#	85445

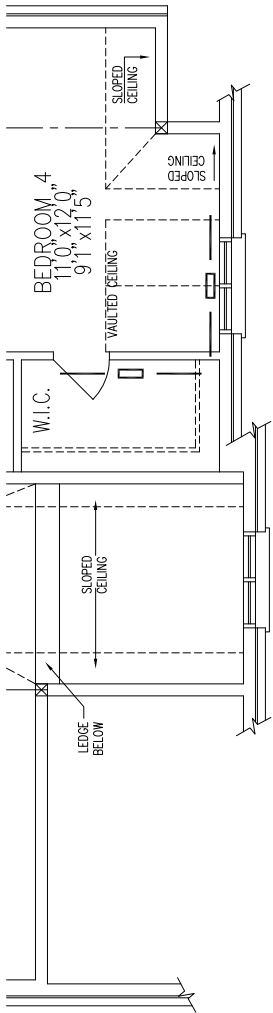
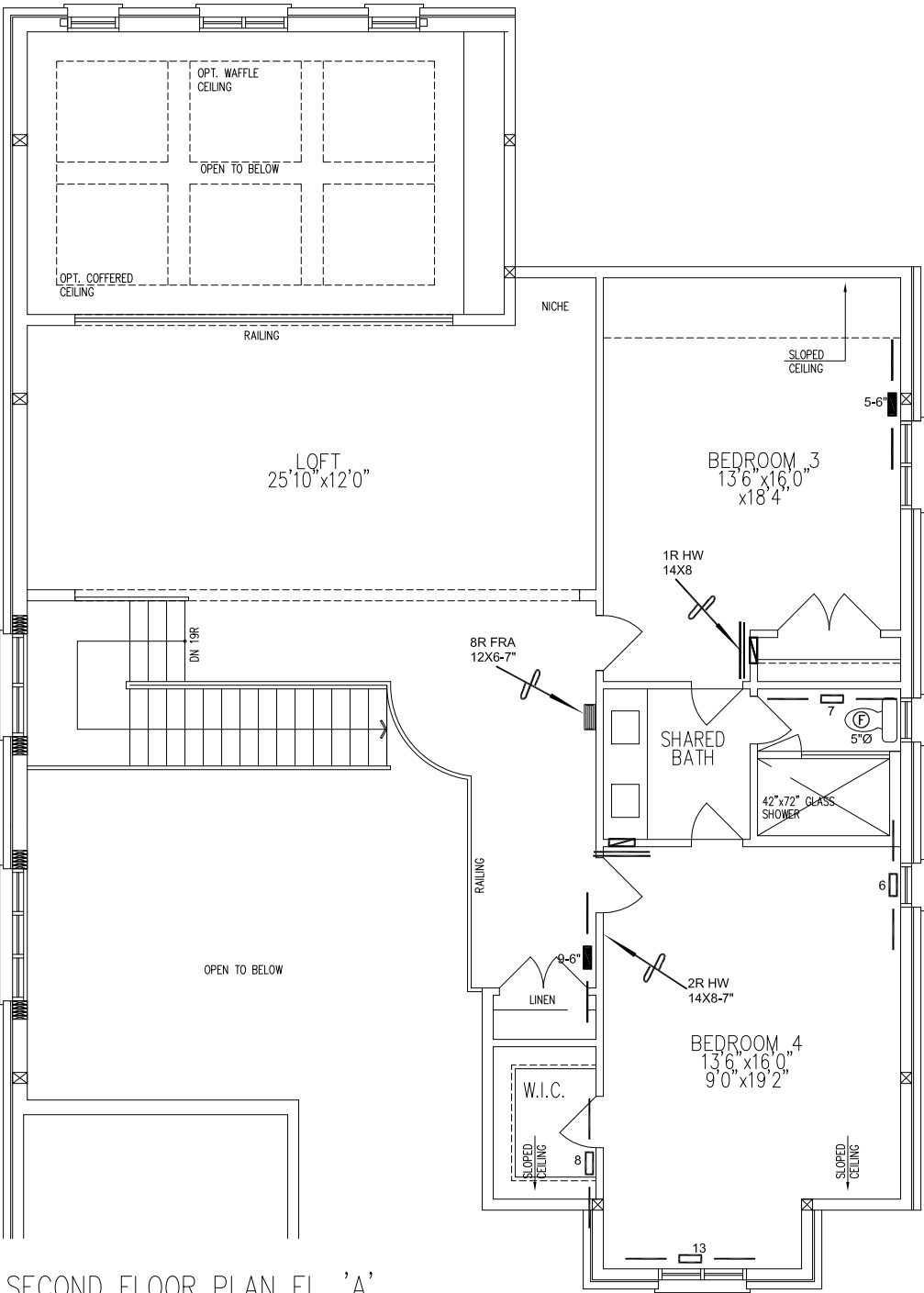
MICHAEL OROURKE HAVE REVIEWED
 AND TAKE RESPONSIBILITY FOR THE
 DESIGN WORK AND AM QUALIFIED
 UNDER DIVISION C, 3.2.3 OF THE
 BUILDING CODE.

 MICHAEL OROURKE
 HVAC DESIGNS LTD.

WOD
 LOD
 CSA-F280-12
 PACKAGE A1

HVAC LEGEND									
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		REDUCER	No.	
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR					REVISIONS	
								Description	Date

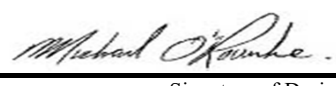
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Client GOLD PARK HOMES Project Name PINE VALLEY & TESTON VAUGHAN, ONTARIO OPT LOFT THE SILVERWOOD 5006 CNR 3622 sqft	 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: 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	SECOND FLOOR HEATING LAYOUT	
			Date	FEB/2020	
			Scale	1/8" = 1'-0"	
				BCIN# 19669	
			LO#	85445	

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: 5006 CNR THE SILVERWOOD - WOB Project: PINE VALLEY & TESTON	
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.			
February 26, 2020		 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

ROOM USE			FACTORS		K/B/F			DIN			LIB			PWD			FOY			MUD									WOB			BAS						
EXP. WALL	CLG. HT.	58			18	28	18	33	16	6	11	19	16	10	12	52	184																					
			LOSS	GAIN																																		
GRS.WALL AREA			1044			504			528			66			304			120									520			1472								
GLAZING			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	0	0	3	64	48							
EAST	21.3	41.6	0	0	0	0	0	0	58	1234	2410	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	34	724	847	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	85	100	6	128	149							
WEST	21.3	41.6	136	2894	5651	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84	1788	3490	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	0	0							
DOORS	25.2	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	40	1010	170	20	505	85	40	1010	170	20	505	85	40	1010	170	20	505	85					
NET EXPOSED WALL			4.5	0.8	908	4052	682	470	2097	353	470	2097	353	66	295	50	264	1178	198	100	446	75	392	1749	295	0	0	0	0	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	368	1324	223	0	0	0	0						
EXPOSED CLG			1.3	0.6	652	837	383	427	548	251	0	0	0	0	0	0	0	0	0	0	0	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	185	508	233	0	0	0	72	198	91	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	0						
BASEMENT/CRAWL HEAT LOSS					0			0			0			0			0			0													2640					
SLAB ON GRADE HEAT LOSS					0			0			0			0			0			0																		
SUBTOTAL HT LOSS					7783			3369			3840			295			2386			951							741											
SUB TOTAL HT GAIN						6717			1451			2996		50			459		160						4055								505					
LEVEL FACTOR / MULTIPLIER					0.30	0.38		0.30	0.38		0.30	0.38		0.30	0.38		0.30	0.38		0.30	0.38					0.50	1.63											
AIR CHANGE HEAT LOSS						2956			1280			1459			112			906			361												16355					
AIR CHANGE HEAT GAIN						601			130			268		4			41			14													408					
DUCT LOSS					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	0	0	0	0	0	0	0	0	0	0	0					
HEAT GAIN APPLIANCES/LIGHTS						875			875			875		0			0			0						0							875					
TOTAL HT LOSS BTU/H					10739			4649			5299		406			3292			1313						6114								21017					
TOTAL HT GAIN x 1.3 BTU/H						10651			3192			5381		70			650			227					5271								2322					

TOTAL COMBINED HEAT LOSS BTU/H: 80693

SITE NAME: PINE VALLEY & TESTON
BUILDER: GOLD PARK HOMES

THE SILVERWOOD - WOB
TYPE: 5006 CNR

DATE: Feb-20

GFA: 3453 LO# 80243

HEATING CFM 1525 COOLING CFM 1525
TOTAL HEAT LOSS 77,512 TOTAL HEAT GAIN 46,859
AIR FLOW RATE CFM 19.67 AIR FLOW RATE CFM 32.54

furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure
for s/a & r/a 0.35

^LENNOX
EL296UH090XE48C
FAN SPEED 90

AFUE = 96 %
INPUT (BTU/H) = 88,000
OUTPUT (BTU/H) = 85,000

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	6	18	6
R/A	0	0	3	5	1

plenium pressure s/a 0.18 r/a pressure 0.17
max s/a dif press. loss 0.03 r/a grille press. Loss 0.02
min adjusted pressure s/a 0.15 adjusted pressure r/a 0.15

LOW 0
MEDLOW 0
MEDIUM 1105
MEDIUM HIGH 1255
HIGH 1525

DESIGN CFM = 1525
CFM @ 6" E.S.P.

TEMPERATURE RISE 52 °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	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	WIC-2	MEDIA	MBR	ENS-2	ENS	BED-4	K/B/F	K/B/F	DIN	LIB	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	2.91	0.79	0.11	1.34	3.57	2.96	2.09	1.23	1.93	2.91	1.08	0.79	2.96	2.68	2.68	2.32	2.65	0.41	3.29	1.31	4.52	4.52	4.52	4.52
CFM PER RUN HEAT	57	16	2	26	70	58	41	24	38	57	21	16	58	53	53	46	52	8	65	26	89	89	89	89
RM GAIN MBH	3.36	0.43	0.05	2.03	2.35	1.99	0.51	0.20	2.20	3.36	0.19	0.43	1.99	2.66	2.66	1.60	2.69	0.07	0.65	0.23	1.27	1.27	1.27	1.27
CFM PER RUN COOLING	109	14	2	66	76	65	16	6	72	109	6	14	65	87	87	52	88	2	21	7	41	41	41	41
ADJUSTED PRESSURE	0.15	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.15	0.17	0.17	0.17	0.16	0.16	0.17	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	52	30	33	14	33	49	23	50	45	42	6	21	56	63	46	55	76	20	55	11	37	55	43	29
EQUIVALENT LENGTH	150	130	190	180	180	160	170	150	160	150	160	140	180	140	150	220	200	180	160	130	170	130	100	110
TOTAL EFFECTIVE LENGTH	202	160	223	194	213	209	193	200	205	192	166	161	236	203	196	275	276	200	215	141	207	185	143	139
ADJUSTED PRESSURE	0.08	0.11	0.08	0.09	0.08	0.08	0.09	0.09	0.08	0.08	0.1	0.11	0.07	0.08	0.08	0.06	0.06	0.09	0.08	0.12	0.08	0.09	0.11	0.12
ROUND DUCT SIZE	6	4	4	5	5	5	4	4	5	6	4	4	5	6	6	5	6	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	291	184	23	191	514	426	470	275	279	291	241	184	426	270	270	338	265	92	477	298	454	454	454	454
COOLING VELOCITY (ft/min)	556	161	23	485	558	477	184	69	529	556	69	161	477	444	444	382	449	23	154	80	209	209	209	209
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	4X10	3X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	B	C	B	C	C	E	C	E	E	C	C	C	E	A	B	D	D	E	E	E	B	A	C	C

RUN #	25	26	27	28	29	30
ROOM NAME	BAS	BAS	K/B/F	K/B/F	LIB	DIN
RM LOSS MBH	4.52	4.52	2.68	2.68	2.65	2.32
CFM PER RUN HEAT	89	89	53	53	52	46
RM GAIN MBH	1.27	1.27	2.66	2.66	2.69	1.60
CFM PER RUN COOLING	41	41	87	87	88	52
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.16	0.17
ACTUAL DUCT LGH	29	65	53	17	70	60
EQUIVALENT LENGTH	140	170	150	150	160	160
TOTAL EFFECTIVE LENGTH	169	235	203	167	230	220
ADJUSTED PRESSURE	0.1	0.07	0.08	0.1	0.07	0.08
ROUND DUCT SIZE	6	6	6	5	6	5
HEATING VELOCITY (ft/min)	454	454	270	389	265	338
COOLING VELOCITY (ft/min)	209	209	444	639	449	382
OUTLET GRILL SIZE	4X10	4X10	4X10	3X10	4X10	3X10
TRUNK	A	D	A	B	D	D

SUPPLY AIR TRUNK SIZE

	TRUNK	STATIC	ROUND	RECT	VELOCITY
	CFM	PRESS.	DUCT	DUCT	(ft/min)
TRUNK A	284	0.08	8.8	10	x 8 511
TRUNK B	538	0.08	11.1	14	x 8 692
TRUNK C	963	0.08	13.8	22	x 8 788
TRUNK D	285	0.06	9.4	10	x 8 513
TRUNK E	562	0.06	12.1	18	x 8 562
TRUNK F	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	0	0.05	0	0	x 8 0

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	135	130	135	155	255	235	115	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH	30	63	45	26	39	42	68	60	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	185	185	225	225	205	245	250	215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	215	248	270	251	244	287	318	275	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.07	0.06	0.05	0.06	0.06	0.05	0.05	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	6.8	7	7.5	7.5	9	9.2	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	30	30	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
TRUNK X	1525	0.05	18.5	32	x	10	686																	
TRUNK Y	625	0.05	13.2	20	x	8	563																	
TRUNK Z	0	0.05	0	0	x	8	0																	
DROP	1525	0.05	18.5	24	x	14	654																	

TYPE: 5006 CNR
SITE NAME: PINE VALLEY & TESTON

LO # 80243
THE SILVERWOOD - 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>5</u> @ 10.6 cfm	<u>53</u> cfm
Other Rooms	<u>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Table 9.32.3.A.	TOTAL	<u>190.8</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>190.8</u>	cfm
Less Principal Ventil. Capacity	<u>155</u>	cfm
Required Supplemental Capacity	<u>35.8</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model:	VANEE 65H		
Location:	BSMT		
<u>155.0</u> cfm	<u>3.0</u> sones		
☒ HVI Approved			
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
155.0 CFM	X 76 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		NUTONE		
Location	Model	cfm	HVI	Sones
ENS	QTXEN050C	50	☒	0.3
BATH	QTXEN050C	50	☒	0.3
ENS-2	QTXEN050C	50	☒	0.3
PWD	QTXEN050C	50	☒	0.3

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model:	VANEE 65H	
<u>155</u> cfm high	<u>64</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:	February-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 80243	Model: 5006 CNR	Builder: GOLD PARK HOMES	Date: 2/26/2020																																																									
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>2351</td> <td>10</td> <td>23510</td> </tr> <tr> <td>First</td> <td>2351</td> <td>11</td> <td>25861</td> </tr> <tr> <td>Second</td> <td>1499</td> <td>9</td> <td>13491</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>62,862.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>1780.1 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2351	10	23510	First	2351	11	25861	Second	1499	9	13491	Third	0	9	0	Fourth	0	9	0	Total:			62,862.0 ft³	Total:			1780.1 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%; text-align: center;">0.383</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.115</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td style="text-align: center;">22</td> <td style="text-align: center;">-20</td> <td style="text-align: center;">42</td> <td style="text-align: center;">76</td> </tr> <tr> <td>Summer DTDc</td> <td style="text-align: center;">24</td> <td style="text-align: center;">31</td> <td style="text-align: center;">7</td> <td style="text-align: center;">13</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.383	SUMMER NATURAL AIR CHANGE RATE	0.115	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																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.383 x 494.46 x 42 °C x 1.2 = 9587 W = 32711 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.115 x 494.46 x 7 °C x 1.2 = 484 W = 1652 Btu/h																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 155 CFM x 76 °F x 1.08 x 0.25 = 3181 Btu/h			$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 155 CFM x 13 °F x 1.08 x 0.25 = 536 Btu/h																																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <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_{level})</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">32,711</td> <td style="text-align: center;">10,034</td> <td style="text-align: center;">1.630</td> </tr> <tr> <td>2</td> <td>0.3</td> <td style="text-align: center;">25,834</td> <td style="text-align: center;">0.380</td> </tr> <tr> <td>3</td> <td>0.2</td> <td style="text-align: center;">7,352</td> <td style="text-align: center;">0.890</td> </tr> <tr> <td>4</td> <td>0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">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 _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)	1	0.5	32,711	10,034	1.630	2	0.3	25,834	0.380	3	0.2	7,352	0.890	4	0	0	0.000	5	0	0	0.000																														
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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 5006 CNR	THE SILVERWOOD - WOB	BUILDER: GOLD PARK HOMES
SFQT: 3453	LO# 80243	SITE: PINE VALLEY & TESTON

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

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:	UNSHelterED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft ³):	62862.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	8.0 ft
LENGTH: 76.0 ft	WIDTH: 42.0 ft	EXPOSED PERIMETER:	184.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	52.0 ft

2012 OBC - COMPLIANCE PACKAGE

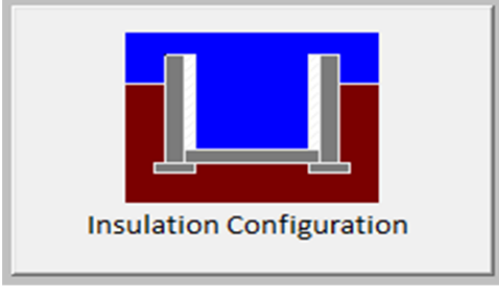
Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 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

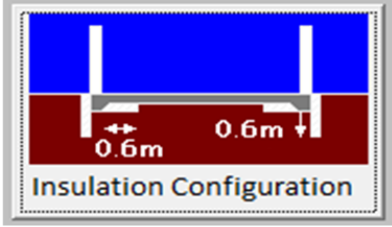
Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	12.8	
Exposed Perimeter (m):	56.1	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.10	
Window Area (m ²):	0.8	
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):		774

TYPE: 5006 CNR
LO# 80243

THE SILVERWOOD - WOB

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		
Length (m):	1.5	
Width (m):	12.8	
Exposed Perimeter (m):	15.8	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		217

TYPE: 5006 CNR
LO# 80243

THE SILVERWOOD - WOB

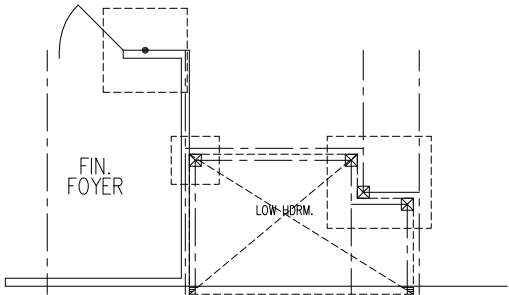
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

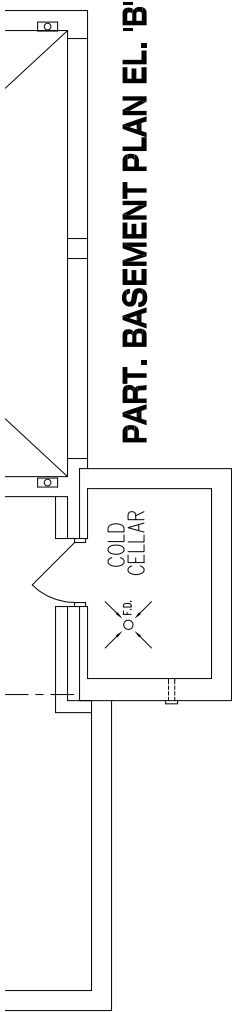
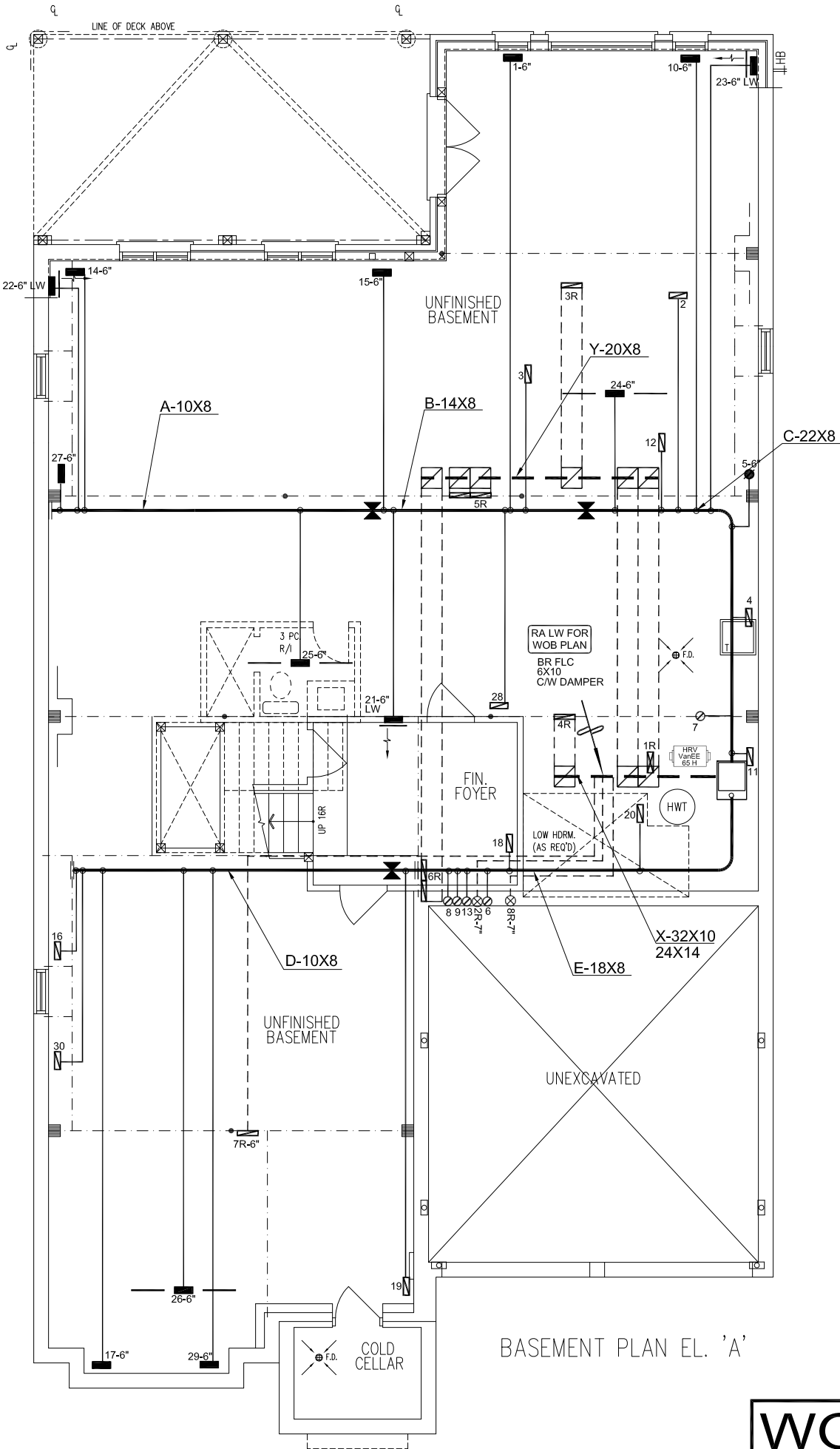
Weather Station Description				
Province:	Ontario			
Region:	Vaughan (Woodbridge)			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Very heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	9.14			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1780.1			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2372.9 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	73.2	73.2		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.383			
Cooling Air Leakage Rate (ACH/H):	0.115			

TYPE: 5006 CNR
LO# 80243

THE SILVERWOOD - WOB



OPT. SUNKEN MUD ROOM 'A' & 'B'



PART. BASEMENT PLAN EL. 'B'

BASEMENT PLAN EL. 'A'

CSA-F280-12

WOB

PACKAGE A1

HVAC LEGEND					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		30"x8" RETURN AIR GRILLE
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK FROM 2nd FLOOR		14"x8" RETURN AIR GRILLE
	SUPPLY AIR STACK ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		30"x8" RETURN AIR GRILLE
	SUPPLY AIR STACK ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		REDUCER

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.

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

Client	GOLD PARK HOMES
Project Name	PINE VALLEY & TESTON VAUGHAN, ONTARIO
	THE SILVERWOOD - WOB
	5006 CNR 3453 sqft

HVACDESIGNS LTD.

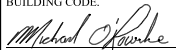
375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
Email: info@hvacdsgns.ca
Web: www.hvacdesigns.ca
Specializing in Residential Mechanical Design Services

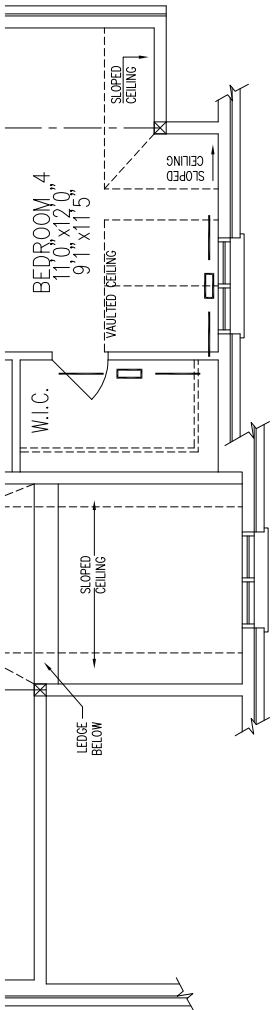
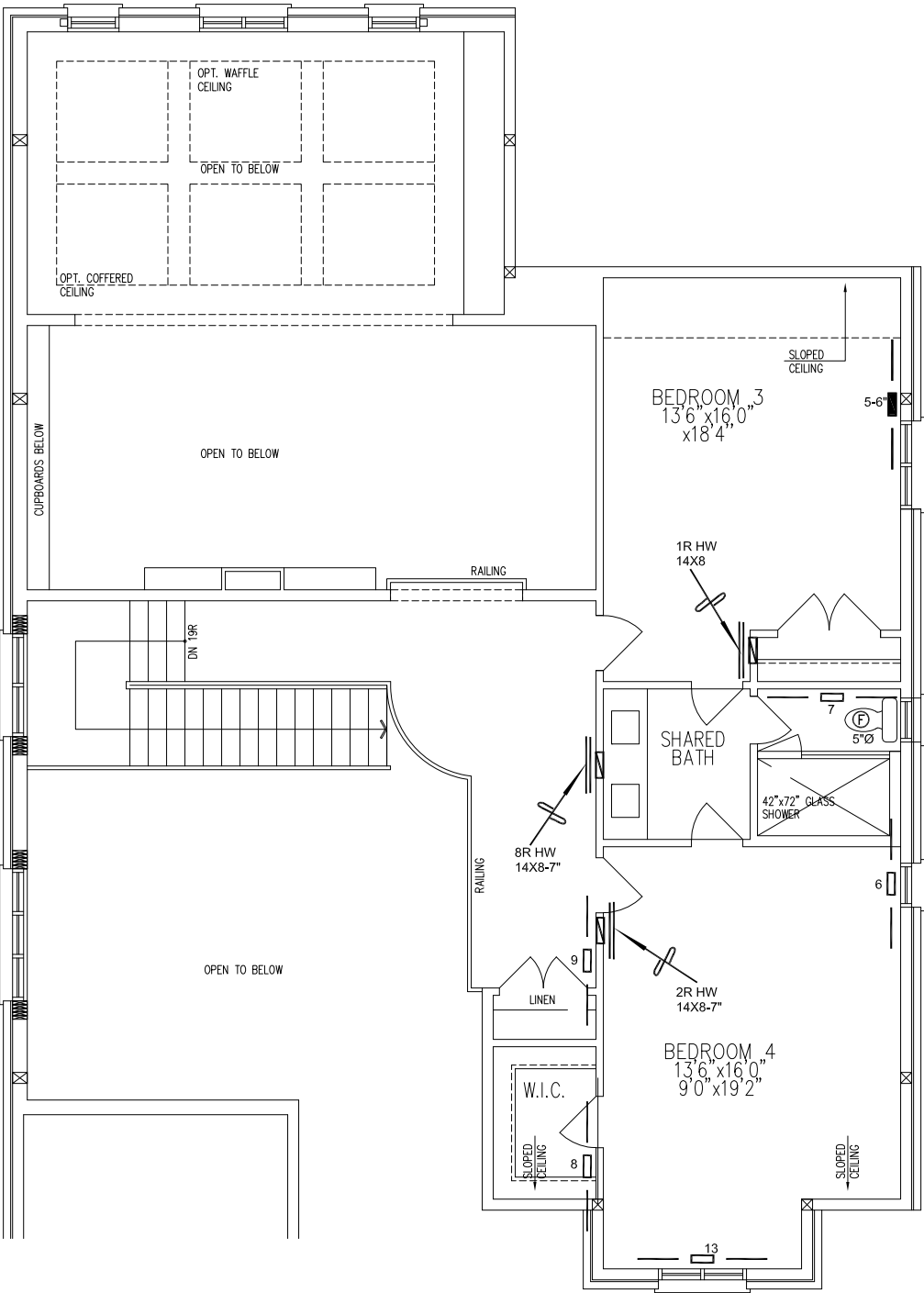
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

HEAT LOSS 80693 BTU/H UNIT DATA	# OF RUNS S/A R/A FANS	Sheet Title
MAKE LENNOX	3RD FLOOR	BASEMENT HEATING LAYOUT
MODEL EL296UH090XE48C	2ND FLOOR 6 3 1	Date OCT/2018
INPUT 88 MBTU/H	1ST FLOOR 18 5 5	Scale 1/8" = 1'-0"
OUTPUT 85 MBTU/H	BASEMENT 6 1 0	BCIN# 19669
COOLING 4.0 TONS	ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A	LO# 80243
FAN SPEED 1525 cfm @ 0.6" w.c.		

HVAC LEGEND						3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		1. REVISED AS PER ARCHITECTURALS
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		No. Description
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER
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.						REVISIONS	
						Date	FEB/2020

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


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



PART. SECOND FLOOR PLAN EL. 'B'

SECOND FLOOR PLAN EL. 'A'

CSA-F280-12

WOB

PACKAGE A1

Client

GOLD PARK HOMES

Project Name

PINE VALLEY & TESTON VAUGHAN, ONTARIO

THE SILVERWOOD - WOB

5006 CNR

3453 sqft



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

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

Sheet Title

SECOND FLOOR HEATING LAYOUT

Date

OCT/2018

Scale

1/8" = 1'-0"

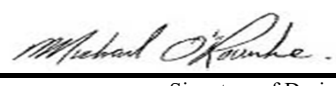
BCIN# 19669

LO#

80243

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: 5006 CNR THE SILVERWOOD - OPT LOFT - WOB Project: PINE VALLEY & TESTON	
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.			
February 26, 2020		 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 & TESTON										THE SILVERWOOD - OPT LOFT - WOB										DATE: Feb-20		WINTER NATURAL AIR CHANGE RATE 0.407										HEAT LOSS ΔT °F. 76		CSA-F280-12					
BUILDER: GOLD PARK HOMES										TYPE: 5006 CNR										GFA: 3622		LO# 85446		SUMMER NATURAL AIR CHANGE RATE 0.148										HEAT GAIN ΔT °F. 16		SB-12 PACKAGE A1			
ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			BATH			WIC-2			LOFT			ENS-2									
EXP. WALL			46			10			0			13			31			34			13			9			10			16									
CLG. HT.			11			11			11			11			9			9			9			9			9			11									
FACTORS																																							
GRS.WALL AREA			LOSS GAIN			506			110			0			143			279			306			117			81			90			176						
GLAZING						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	30	638	480	0	0	0	20	426	320	17	362	272	9	192	144	8	170	128	0	0	0	0	0	0	0	0	0	0	0			
EAST			21.3	39.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	468	877	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
SOUTH			21.3	24.3	30	638	730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	489	559	0	0	0	0				
WEST			21.3	39.9	54	1149	2152	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				
SKYLT.			37.2	103.0	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	0				
DOORS			25.2	5.2	10	252	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
NET EXPOSED WALL			4.5	0.9	412	1839	382	80	357	74	0	0	0	123	549	114	262	1169	243	275	1227	255	109	486	101	81	361	75	67	299	62	176	785	163					
NET EXPOSED BSMT WALL ABOVE GR			3.6	0.7	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	269	345	172	117	150	75	63	81	40	0	0	0	204	262	130	174	223	111	152	195	97	39	50	25	567	728	362	0	0	0	0				
NO ATTIC EXPOSED CLG			2.7	1.4	0	0	0	0	0	0	0	0	0	0	0	0	35	96	48	55	151	75	0	0	0	15	41	21	0	0	0	0	0	0	0				
EXPOSED FLOOR			2.6	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	229	584	121	60	153	32	54	138	29	0	0	0	0	0	0	0				
BASEMENT/CRAWL HEAT LOSS						0			0			0			0			0			0			0			0			0			0						
SLAB ON GRADE HEAT LOSS						0			0			0			0			0			0			0			0			0			0						
SUBTOTAL HT LOSS						4224			1146			81			975			1889			2845			1005			590			1516			785						
SUB TOTAL HT GAIN						3488			629			40			434			693			1584			358			149			983			163						
LEVEL FACTOR / MULTIPLIER			0.30	0.41				0.30	0.41				0.30	0.41				0.20	0.89				0.20	0.89				0.20	0.89				0.30	0.41					
AIR CHANGE HEAT LOSS						1732			470			33			400			1675			2523			891			524			1344			322						
AIR CHANGE HEAT GAIN						473			85			5			59			94			215			48			20			133			22						
DUCT LOSS						0			0			0			0			0			537			190			111			0			0						
DUCT GAIN						0			0			0			0			0			291			41			17			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				
HEAT GAIN APPLIANCES/LIGHTS						875			0			0			875			875			875			0			0			875			0						
TOTAL HT LOSS BTU/H						5956			1615			114			1374			3564			5905			2085			1225			2860			1107						
TOTAL HT GAIN x 1.3 BTU/H						6911			928			59			2090			2472			4166			581			242			2589			241						

ROOM USE							K/B/F		DIN		LIB		PWD		FOY		MUD								WOB		BAS					
EXP. WALL							58		28		33		6		19		10								52		184					
CLG. HT.							18		18		16		11		16		12								10		10					
FACTORS																																
GRS.WALL AREA	LOSS	GAIN																														
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	0	0	3	64	48				
EAST	21.3	39.9	0	0	0	0	0	0	0	0	58	1234	2312	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
SOUTH	21.3	24.3	0	0	0	34	724	827	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	85	97	6	128	146		
WEST	21.3	39.9	126	2681	5022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84	1788	3348	0	0	0		
SKYLT.	37.2	103.0	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		
DOORS	25.2	5.2	10	252	52	0	0	0	0	0	0	0	0	0	0	40	1010	210	20	505	105	40	1010	210	20	505	105	20	505	105		
NET EXPOSED WALL	4.5	0.9	908	4052	842	470	2097	436	470	2097	436	66	295	61	264	1178	245	100	446	93	392	1749	364	0	0	0	0	0	0	0	0	
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.7	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	320	411	204	427	548	273	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NO ATTIC EXPOSED CLG	2.7	1.4	0	0	0	0	0	0	185	508	253	0	0	0	72	198	98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
EXPOSED FLOOR	2.6	0.5	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	0	0	
BASEMENT/CRAWL HEAT LOSS			0			0					0						0															
SLAB ON GRADE HEAT LOSS			0			0					0						0															
SUBTOTAL HT LOSS			7397			3369					3840			295		2386		951								741					2814	
SUB TOTAL HT GAIN				6122			1535					3001		61			553		198						4019					3511		299
LEVEL FACTOR / MULTIPLIER	0.30	0.41				0.30	0.41				0.30	0.41		0.30	0.41		0.30	0.41											0.50	1.96		
AIR CHANGE HEAT LOSS			3033			1381					1575			121		978		390												17390		
AIR CHANGE HEAT GAIN				830			208					407		8			75		27												585	
DUCT LOSS			0			0					0			0		0		0												0		
DUCT GAIN				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	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				875			875					875		0			0		0											875		
TOTAL HT LOSS BTU/H			10429			4750					5415		415		3364		1341								6114				20901			
TOTAL HT GAIN x 1.3 BTU/H				10174		3404					5567		90			817		292							5225				2287			

TOTAL HEAT GAIN BTU/H:

48798

TONS: 4.07

LOSS DUE TO VENTILATION LOAD BTU/H: 3181

STRUCTURAL HEAT LOSS: 78536

TOTAL COMBINED HEAT LOSS BTU/H: 81717



SITE NAME: PINE VALLEY & TESTON
BUILDER: GOLD PARK HOMES

THE SILVERWOOD - OPT LOFT - WOB
TYPE: 5006 CNR DATE: Feb-20

GFA: 3622 LO# 85446

HEATING CFM 1525 COOLING CFM 1525
TOTAL HEAT LOSS 78,536 TOTAL HEAT GAIN 48,137
AIR FLOW RATE CFM 19.42 AIR FLOW RATE CFM 31.68

furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure
for s/a & r/a 0.35

^LENNOX
EL296UH090XE48C
FAN SPEED 90
LOW 0
MEDLOW 0
MEDIUM 1105
MEDIUM HIGH 1255
HIGH 1525

AFUE = 96 %
INPUT (BTU/H) = 88,000
OUTPUT (BTU/H) = 85,000

DESIGN CFM = 1525
CFM @ .6" E.S.P.

TEMPERATURE RISE 52 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	6	18	6
R/A	0	0	3	5	1

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	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	WIC-2	LOFT	MBR	ENS-2	ENS	BED-4	K/B/F	K/B/F	DIN	LIB	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	2.98	0.81	0.11	1.37	3.56	2.95	2.09	1.23	2.86	2.98	1.11	0.81	2.95	2.61	2.61	2.38	2.71	0.42	3.36	1.34	4.50	4.50	4.50	4.50
CFM PER RUN HEAT	58	16	2	27	69	57	40	24	56	58	22	16	57	51	51	46	53	8	65	26	87	87	87	87
RM GAIN MBH	3.46	0.46	0.06	2.09	2.47	2.08	0.58	0.24	2.59	3.46	0.24	0.46	2.08	2.54	2.54	1.70	2.78	0.09	0.82	0.29	1.25	1.25	1.25	1.25
CFM PER RUN COOLING	109	15	2	66	78	66	18	8	82	109	8	15	66	81	81	54	88	3	26	9	40	40	40	40
ADJUSTED PRESSURE	0.15	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.15	0.17	0.17	0.17	0.16	0.16	0.17	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	52	30	33	14	33	49	23	50	37	42	6	21	56	63	46	55	76	20	55	11	37	55	43	29
EQUIVALENT LENGTH	150	130	190	180	180	160	170	150	160	150	160	140	180	140	150	220	200	180	160	130	170	130	100	110
TOTAL EFFECTIVE LENGTH	202	160	223	194	213	209	193	200	197	192	166	161	236	203	196	275	276	200	215	141	207	185	143	139
ADJUSTED PRESSURE	0.08	0.11	0.08	0.09	0.08	0.08	0.09	0.09	0.08	0.08	0.1	0.11	0.07	0.08	0.08	0.06	0.06	0.09	0.08	0.12	0.08	0.09	0.11	0.12
ROUND DUCT SIZE	6	4	4	5	6	5	4	4	5	6	4	4	5	5	5	5	6	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	296	184	23	198	352	419	459	275	411	296	252	184	419	374	374	338	270	92	477	298	444	444	444	444
COOLING VELOCITY (ft/min)	556	172	23	485	398	485	207	92	602	556	92	172	485	595	595	396	449	34	191	103	204	204	204	204
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	B	C	B	C	C	E	C	E	E	C	C	C	E	A	B	D	D	E	E	E	B	A	C	C

RUN #	25	26	27	28	29	30
ROOM NAME	BAS	BAS	K/B/F	K/B/F	LIB	DIN
RM LOSS MBH	4.50	4.50	2.61	2.61	2.71	2.38
CFM PER RUN HEAT	87	87	51	51	53	46
RM GAIN MBH	1.25	1.25	2.54	2.54	2.78	1.70
CFM PER RUN COOLING	40	40	81	81	88	54
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.16	0.17
ACTUAL DUCT LGH	29	65	53	17	70	60
EQUIVALENT LENGTH	140	170	150	150	160	160
TOTAL EFFECTIVE LENGTH	169	235	203	167	230	220
ADJUSTED PRESSURE	0.1	0.07	0.08	0.1	0.07	0.08
ROUND DUCT SIZE	6	6	5	5	6	5
HEATING VELOCITY (ft/min)	444	444	374	374	270	338
COOLING VELOCITY (ft/min)	204	204	595	595	449	396
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	4X10	3X10
TRUNK	A	D	A	B	D	D

SUPPLY AIR TRUNK SIZE

	TRUNK	STATIC	ROUND	RECT	VELOCITY
	CFM	PRESS.	DUCT	DUCT	(ft/min)
TRUNK A	276	0.08	8.7	10	x 8 497
TRUNK B	525	0.08	11	14	x 8 675
TRUNK C	947	0.08	13.7	22	x 8 775
TRUNK D	285	0.06	9.4	10	x 8 513
TRUNK E	578	0.06	12.3	18	x 8 578
TRUNK F	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	0	0.05	0	0	x 8 0
TRUNK X	1525	0.05	18.5	32	x 10 686
TRUNK Y	625	0.05	13.2	20	x 8 563
TRUNK Z	0	0.05	0	0	x 8 0
DROP	1525	0.05	18.5	24	x 14 654

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	135	130	135	155	255	235	115	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH	30	63	45	26	39	42	68	60	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	185	185	225	225	205	245	250	215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	215	248	270	251	244	287	318	275	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.07	0.06	0.05	0.06	0.06	0.05	0.05	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	6.8	7	7.5	7.5	9	9.2	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	30	30	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: 5006 CNR
SITE NAME: PINE VALLEY & TESTON

LO # 85446
THE SILVERWOOD - OPT LOFT - 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>5</u> @ 10.6 cfm	<u>53</u> cfm
Other Rooms	<u>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Table 9.32.3.A.	TOTAL	<u>190.8</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>190.8</u>	cfm
Less Principal Ventil. Capacity	<u>155</u>	cfm
Required Supplemental Capacity	<u>35.8</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model:	VANEE 65H		
Location:	BSMT		
<u>155.0</u> cfm	<u>3.0</u> sones		
☒ HVI Approved			
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
155.0 CFM	X 76 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		NUTONE		
Location	Model	cfm	HVI	Sones
ENS	QTXEN050C	50	☒	0.3
BATH	QTXEN050C	50	☒	0.3
ENS-2	QTXEN050C	50	☒	0.3
PWD	QTXEN050C	50	☒	0.3

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model:	VANEE 65H	
<u>155</u> cfm high	<u>64</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:	February-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations
Formula Sheet (For Air Leakage / Ventilation Calculation)

LO#: 85446

Model: 5006 CNR

Builder: GOLD PARK HOMES

Date: 2/26/2020

Volume Calculation
Air Change & Delta T Data
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	2351	10	23510
First	2351	11	25861
Second	1499	9	13491
Third	0	9	0
Fourth	0	9	0
Total:			62,862.0 ft³
Total:			1780.1 m³

WINTER NATURAL AIR CHANGE RATE	0.407
SUMMER NATURAL AIR CHANGE RATE	0.148

Design Temperature Difference				
	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-20	42	76
Summer DTDc	22	31	9	16

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 494.46 x 42 °C x 1.2 = 10193 W

= 34779 Btu/h

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

= 0.148 x 494.46 x 9 °C x 1.2 = 772 W

= 2633 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation
6.2.7 Sensible heat Gain due to Ventilation

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

155 CFM x 76 °F x 1.08 x 0.25 = 3181 Btu/h

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

155 CFM x 16 °F x 1.08 x 0.25 = 661 Btu/h

5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)

$$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$$

Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5	34,779	8,884	1.957
2	0.3		25,448	0.410
3	0.2		7,846	0.887
4	0		0	0.000
5	0		0	0.000

*HLairbv = Air leakage heat loss + ventilation heat loss

*For a balanced or supply only ventilation system HLairve = 0

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 5006 CNR	THE SILVERWOOD - OPT LOFT - W	BUILDER: GOLD PARK HOMES
SFQT: 3622	LO# 85446	SITE: PINE VALLEY & TESTON

DESIGN ASSUMPTIONS

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

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft ³):	62862.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.5 ft
LENGTH: 76.0 ft	WIDTH: 42.0 ft	EXPOSED PERIMETER:	184.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	52.0 ft

2012 OBC - COMPLIANCE PACKAGE

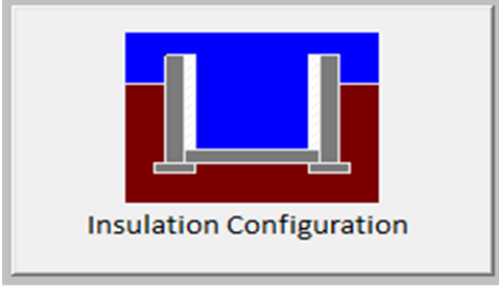
Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 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

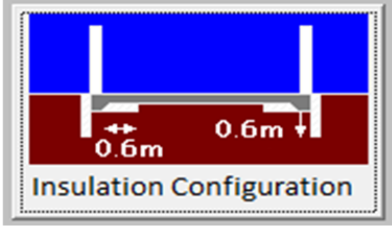
Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	12.8	
Exposed Perimeter (m):	56.1	
Wall Height (m):	3.0	
Depth Below Grade (m):	1.97	
Window Area (m ²):	0.8	
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):		825

TYPE: 5006 CNR
LO# 85446

THE SILVERWOOD - OPT LOFT - WOB

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		
Length (m):	1.5	
Width (m):	12.8	
Exposed Perimeter (m):	15.8	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		217

TYPE: 5006 CNR
LO# 85446

THE SILVERWOOD - OPT LOFT - WOB

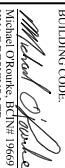
Air Infiltration Residential Load Calculator

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):	1780.1			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2372.9 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	73.2	73.2		
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):	0.148			

TYPE: 5006 CNR
LO# 85446

THE SILVERWOOD - OPT LOFT - WOB

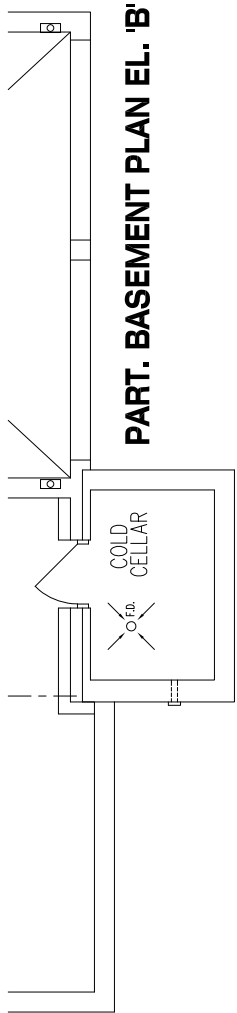
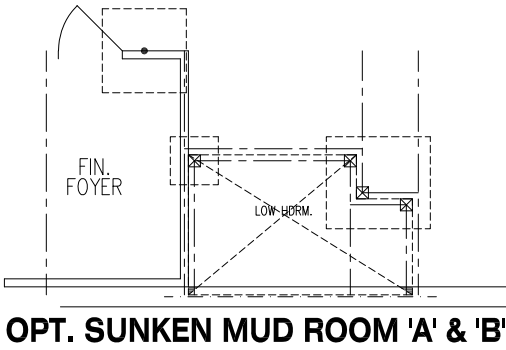
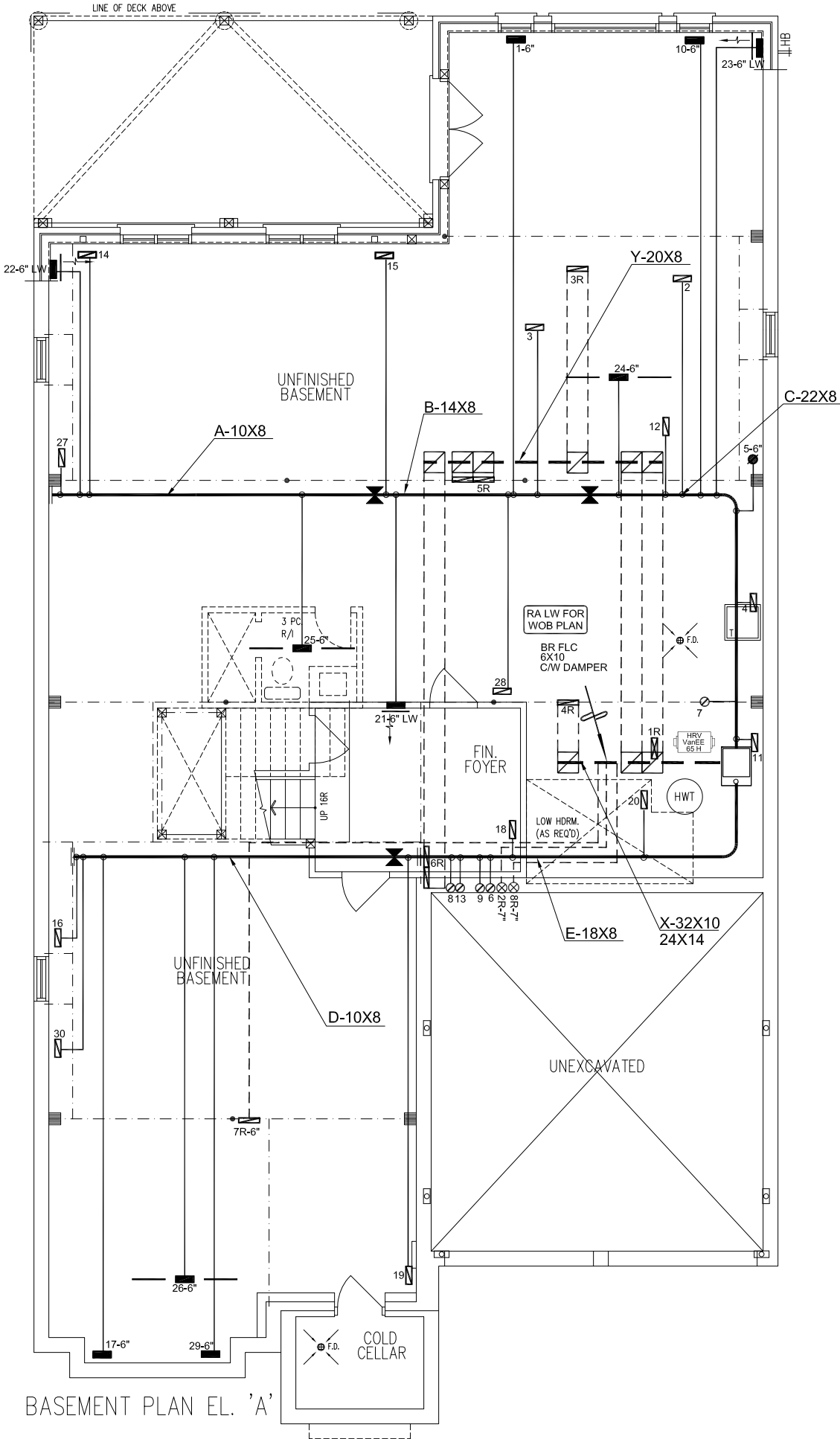
I MICHAEL OROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.3 OF THE BUILDING CODE.

 MICHAEL OROURKE
 HVAC DESIGNS LTD.

WOB
 PACKAGE A1

CSA-F280-12

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

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Client	GOLD PARK HOMES
Project Name	PINE VALLEY & TESTON VAUGHAN, ONTARIO
	OPT LOFT THE SILVERWOOD
	5006 CNR - WOB 3622 sqft

HVAC DESIGNS LTD. 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				HEAT LOSS 81717 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title		
				MAKE LENNOX		3RD FLOOR			BASEMENT HEATING LAYOUT		
				MODEL EL296UH090XE48C		2ND FLOOR					
				INPUT 88 MBTU/H		1ST FLOOR					
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.				OUTPUT 85 MBTU/H		BASEMENT			Date	FEB/2020	
				COOLING 4.0 TONS		ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A			Scale	1/8" = 1'-0"	
				FAN SPEED 1525 cfm @ 0.6" w.c.					BCIN# 19669		
									LO# 85446		

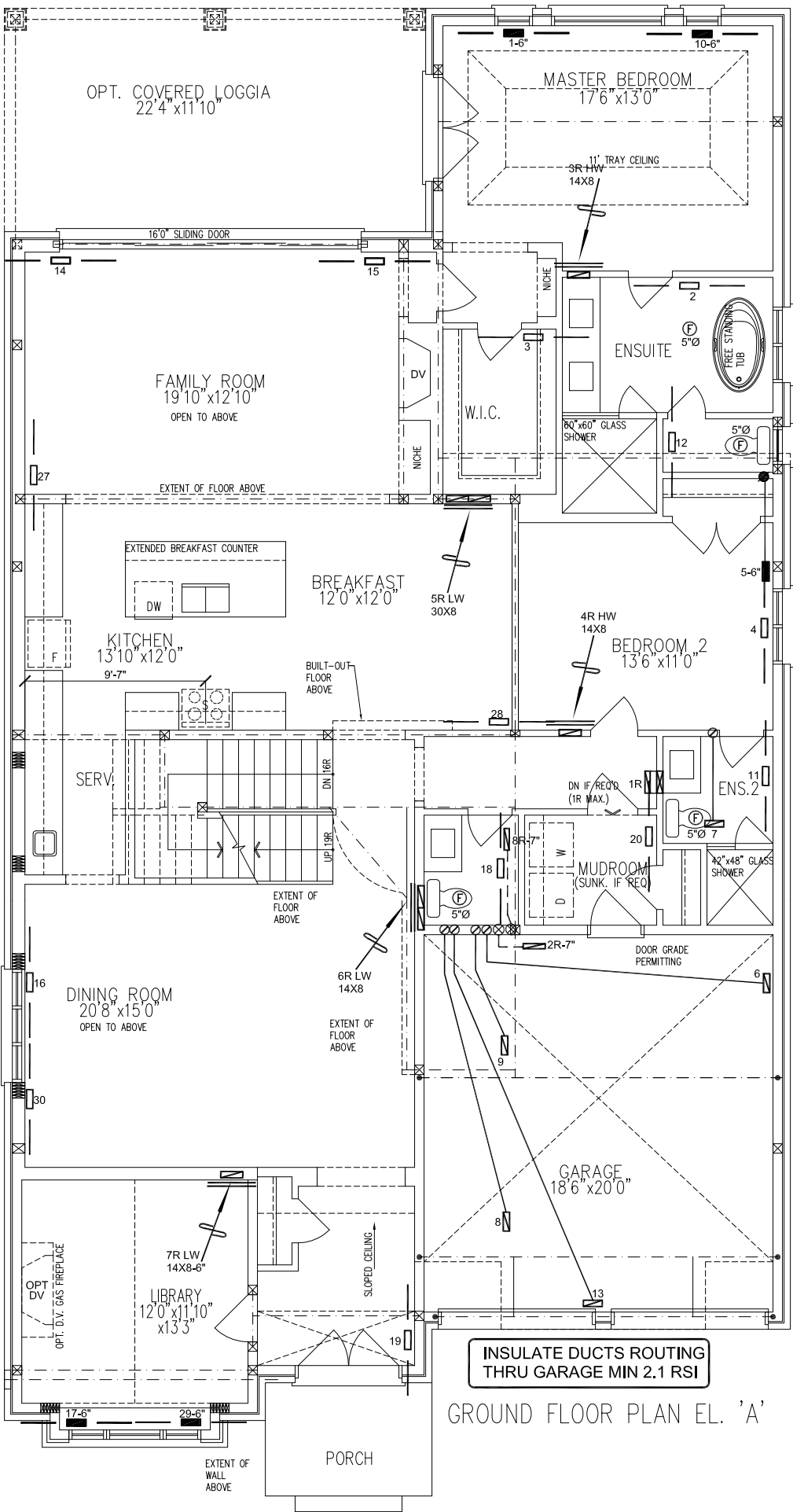
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

WOB PACKAGE A1

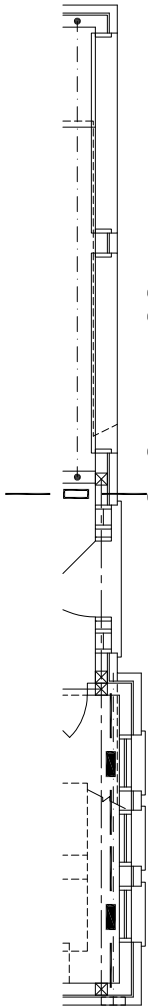
CSA-F280-12

HVAC LEGEND									
								3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION			2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x6" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x6" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA-FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS	

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GROUND FLOOR PLAN EL. 'A'



PART. GROUND FLOOR PLAN EL. 'B'

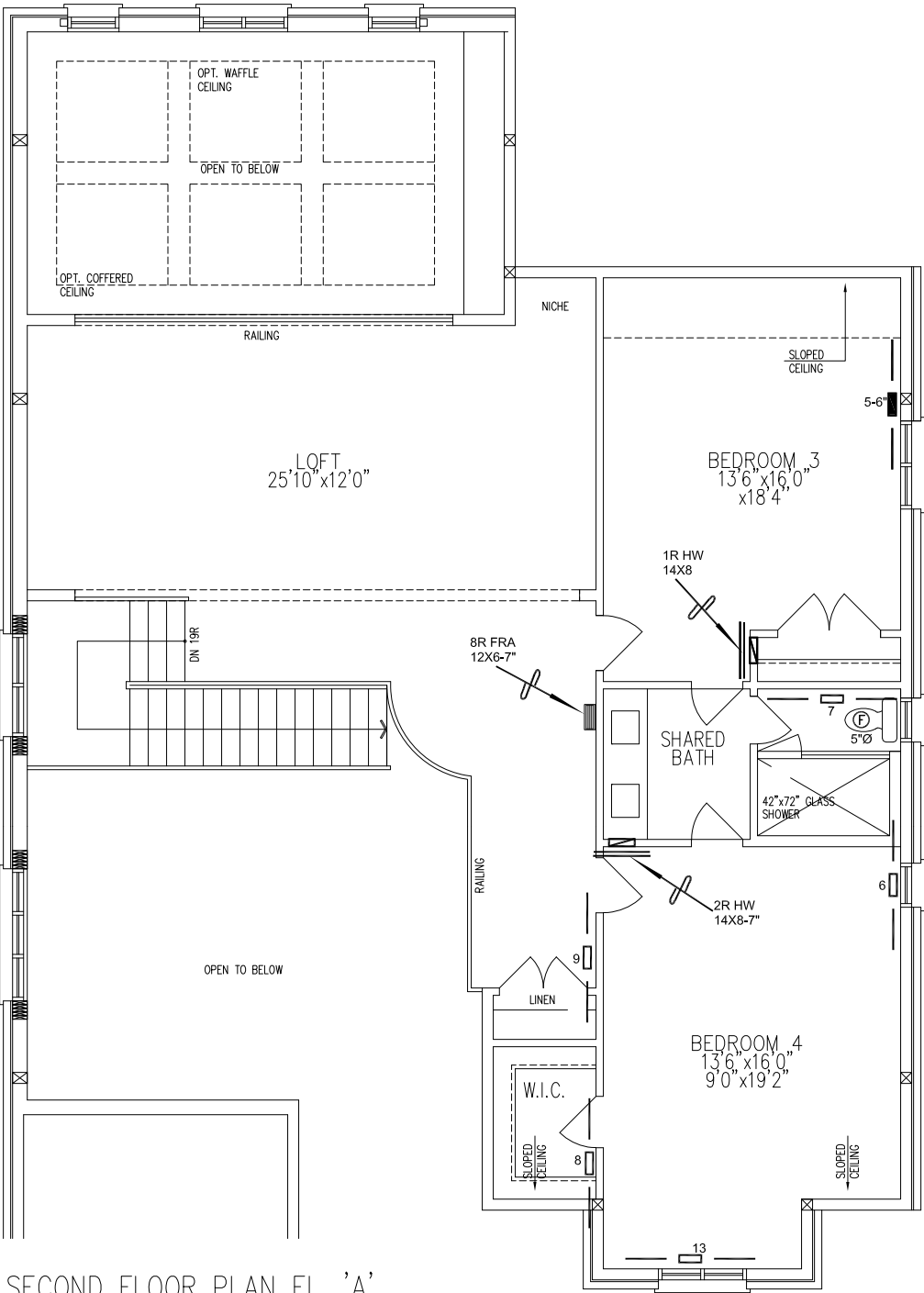
Client	 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdsgns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services			Sheet Title	
GOLD PARK HOMES				FIRST FLOOR HEATING LAYOUT	
Project Name				Date	FEB/2020
PINE VALLEY & TESTON VAUGHAN, ONTARIO				Scale	1/8" = 1'-0"
OPT LOFT THE SILVERWOOD				BCIN# 19669	
5006 CNR - WOB 3622 sqft	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.			LO#	85446

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

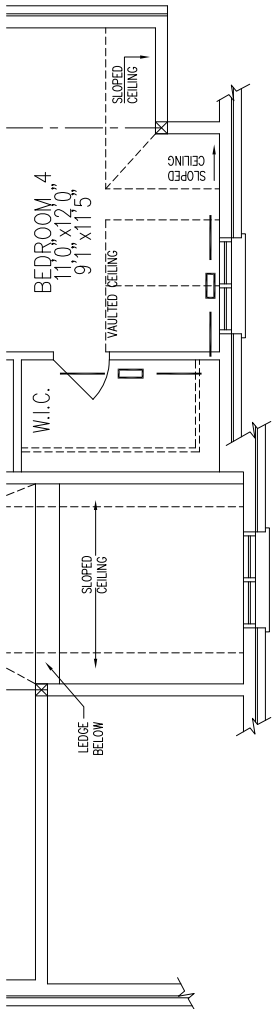
WOB PACKAGE A1

CSA-F280-12

HVAC LEGEND									
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	3.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x6" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	2.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x6" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	1.	
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA-FLOOR RETURN AIR GRILLE		REDUCER	No.	
REVISIONS Description Date									



SECOND FLOOR PLAN EL. 'A'



PART. SECOND FLOOR PLAN EL. 'B'

Client	 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	Sheet Title	
GOLD PARK HOMES		SECOND FLOOR HEATING LAYOUT	
Project Name		Date	FEB/2020
PINE VALLEY & TESTON VAUGHAN, ONTARIO		Scale	1/8" = 1'-0"
OPT LOFT THE SILVERWOOD		BCIN# 19669	
5006 CNR - WOB 3622 sqft	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.	LO#	85446