

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@hvacdsgns.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: 4003 - BROOKSIDE WOB Project: PINE VALLEY PH 2	
D. Declaration of Designer			
I, <u>MICHAEL O'ROURKE</u> (print name) declare that (choose one as appropriate):			
☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: _____ Firm BCIN: _____			
☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code. Individual BCIN: <u>19669</u> Basis for exemption from registration and qualification: <u>O.B.C SENTENCE 3.2.4.1 (4)</u>			
☐ The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification: _____			
I certify that:			
1. The information contained in this schedule is true to the best of my knowledge. 2. I have submitted this application with the knowledge and consent of the firm.			
April 14, 2022 _____ Date		 _____ Signature of Designer	

NOTE:

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

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

SITE NAME: PINE VALLEY PH 2
BUILDER: GOLD PARK HOMES
DATE: Apr-22
LO# 96121
WOB TYPE: 4003 - BROOKSIDE
GFA: 3228
WINTER NATURAL AIR CHANGE RATE: 0.407
SUMMER NATURAL AIR CHANGE RATE: 0.137
HEAT LOSS AT °F: 76
HEAT GAIN AT °F: 13
CSA-F280-12
SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LOSS	GAIN	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-3/4	ENS-2	ENS-2
GRS.WALL AREA	297			225		45	135	108	108	108	108	63	72	72
GLAZING														
NORTH	21.3	16.0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	21.3	41.6	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	21.3	24.9	0	0	0	0	0	0	0	0	0	0	0	0
WEST	21.3	41.6	36	766	1486	18	383	448	18	383	448	0	0	0
SKYL.T.	37.2	101.5	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	20.1	3.4	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.5	0.8	251	1165	196	198	884	149	45	201	34	99	442	74
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	290	372	170	156	200	92	70	90	41	234	300	138
NO ATTIC EXPOSED CLG	2.7	1.3	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
BASEMENT/CRAWL HEAT LOSS														
SLAB ON GRADE HEAT LOSS														
SUBTOTAL HT LOSS	2303			1658		291	1125	499	651	651	651	407	538	214
SUB TOTAL HT GAIN						75	0.20	0.37	0.20	0.37	0.20	0.37	0.20	0.37
LEVEL FACTOR / MULTIPLIER	843			607		106	412	423	44	44	365	149	197	15
AIR CHANGE HEAT LOSS	127			83		5	0	0	0	0	0	0	0	0
AIR CHANGE HEAT GAIN														
DUCT LOSS														
DUCT GAIN														
HEAT GAIN PEOPLE	240			480		0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				776		0	0	0	0	0	0	0	0	0
TOTAL HT LOSS BTU/H	3146			2266		397	1537	2015	1578	1578	1363	556	735	297
TOTAL HT GAIN x 1.3 BTU/H				4220		104	2225	2015	1578	1578	2173	146	538	297

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LOSS	GAIN	MEDIA	DIN	KT/GT	STUDY	PWD	FOY	MUD	WOB	BAS
GRS.WALL AREA	560			253		770	121	121	121	121	121	121	121	121
GLAZING														
NORTH	21.3	16.0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	21.3	41.6	84	1768	3490	0	0	0	0	0	0	0	0	0
SOUTH	21.3	24.9	0	0	0	0	0	0	0	0	0	0	0	0
WEST	21.3	41.6	0	0	0	0	0	0	0	0	0	0	0	0
SKYL.T.	37.2	101.5	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	20.1	3.4	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.5	0.8	456	2035	343	219	977	165	631	2816	474	89	397	67
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	244	313	143	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.3	200	550	252	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.4	444	1132	191	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS														
SLAB ON GRADE HEAT LOSS														
SUBTOTAL HT LOSS	6219			1701		5749	1078	5487	578	589	5092	1802	537	2388
SUB TOTAL HT GAIN														
LEVEL FACTOR / MULTIPLIER	0.20	0.37	4486	0.30	0.50	1011	0.30	0.50	578	99	0.30	0.50	4273	4851
AIR CHANGE HEAT LOSS	2277			857		2897	543	2897	543	297	2566	908	0	0.50
AIR CHANGE HEAT GAIN														1.51
DUCT LOSS														13449
DUCT GAIN														327
HEAT GAIN PEOPLE	240			480		0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				776		0	0	0	0	0	0	0	0	0
TOTAL HT LOSS BTU/H	9345			2558		8647	1621	8647	1621	886	7653	2710	4043	18300
TOTAL HT GAIN x 1.3 BTU/H				7964		8629	1812	8629	1812	138	5765	576	5555	1095

TOTAL HEAT GAIN BTU/H: 47087
TONS: 3.92
LOSS DUE TO VENTILATION LOAD BTU/H: 1631
STRUCTURAL HEAT LOSS: 87346
TOTAL COMBINED HEAT LOSS BTU/H: 68977

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

WOB

TYPE: 4003 - BROOKSIDE

DATE: Apr-22

GFA: 3228 LO# 96121

HEATING CFM 1575 COOLING CFM 1575
TOTAL HEAT LOSS 67,346 TOTAL HEAT GAIN 46,812
AIR FLOW RATE CFM 23.39 AIR FLOW RATE CFM 33.65\$*LENNOX
ML196JH090XE48C 90AFUE = 96 %
INPUT (BTU/H) = 88,000
OUTPUT (BTU/H) = 85,600FAN SPEED
LOW 0
MEDIUM 1080
HIGH 1575DESIGN CFM = 1575
CFM @ .6" E.S.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	10	6
R/A	0	0	6	2	1

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

All S/A runs 5/8" unless noted otherwise on layout.

TEMPERATURE RISE 50 °F

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	ENS	WIC	BED-2	BED-3	BED-4	ENS-3/4	MEDIA	MEDIA	MEDIA	MEDIA	ENS-2	DIN	KT/GT	KT/GT	KT/GT	MUD	PWD	FOY	MEDIA	STUDY	BAS	FOY	KT/GT
RM LOSS MBH	1.57	2.27	0.40	1.54	1.58	0.56	3.11	3.11	3.11	1.57	0.73	2.56	2.16	2.16	2.16	2.71	0.89	3.83	3.11	1.62	3.72	3.83	2.16
CFM PER RUN HEAT	37	53	9	36	37	13	73	73	73	37	17	60	51	51	51	63	21	90	73	38	87	90	51
RM GAIN MBH	2.11	1.68	0.10	2.01	2.22	0.15	2.65	2.65	2.65	2.11	0.30	2.41	2.16	2.16	2.16	0.58	0.14	2.88	2.65	1.81	1.11	2.88	2.16
CFM PER RUN COOLING	71	57	4	68	75	5	89	89	89	71	10	81	73	73	73	19	5	97	89	61	37	97	73
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.16	0.17	0.17
ACTUAL DUCT LGH.	46	55	27	27	47	45	54	56	61	51	27	31	43	36	33	21	29	53	71	11	39	53	30
EQUIVALENT LENGTH	150	140	130	150	120	160	150	175	185	140	260	140	170	160	100	250	120	110	170	130	160	120	110
TOTAL EFFECTIVE LENGTH	196	195	157	177	167	205	204	231	246	191	287	171	213	196	133	271	149	163	241	141	199	173	140
ADJUSTED PRESSURE	0.09	0.09	0.11	0.1	0.1	0.08	0.08	0.07	0.07	0.09	0.06	0.09	0.08	0.09	0.09	0.13	0.06	0.12	0.1	0.07	0.12	0.08	0.12
ROUND DUCT SIZE	5	5	4	6	6	4	6	6	6	5	4	6	5	5	5	6	4	6	6	6	6	6	5
HEATING VELOCITY (ft/min)	272	389	103	184	189	163	149	163	372	272	195	306	374	374	374	321	241	459	372	194	444	459	374
COOLING VELOCITY (ft/min)	521	419	46	347	382	372	57	454	454	521	115	413	536	536	536	97	57	495	454	311	189	495	536
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	4X10	4X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	3X10	4X10	4X10	4X10	4X10	4X10	3X10
TRUNK	A	B	B	D	D	B	D	D	D	A	B	B	A	A	A	B	D	C	D	B	A	C	A

RUN #	25	26	27	28	29
ROOM NAME	BAS	BAS	BAS	BAS	BAS
RM LOSS MBH	3.72	3.72	3.72	3.72	3.72
CFM PER RUN HEAT	87	87	87	87	87
RM GAIN MBH	1.11	1.11	1.11	1.11	1.11
CFM PER RUN COOLING	37	37	37	37	37
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	63	52	23	35	44
EQUIVALENT LENGTH	220	210	150	140	110
TOTAL EFFECTIVE LENGTH	283	262	173	175	154
ADJUSTED PRESSURE	0.06	0.06	0.09	0.09	0.11
ROUND DUCT SIZE	6	6	6	6	6
HEATING VELOCITY (ft/min)	444	444	444	444	444
COOLING VELOCITY (ft/min)	189	189	189	189	189
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	4X10
TRUNK	A	A	B	D	C

TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	0.06	12	16	606	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK B	0.06	14.7	26	647	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK C	0.09	8.3	8	601	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK D	0.07	12.3	18	644	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK E	0.06	17.9	30	756	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK F	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	130	85	155	155	85	420	205	115	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
ACTUAL DUCT LGH.	41	53	45	67	71	26	25	47	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	236	190	185	190	185	145	145	245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	296	243	230	257	256	171	170	292	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.06	0.06	0.06	0.06	0.06	0.09	0.09	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
ROUND DUCT SIZE	7	6	7.5	7.5	6	9.8	7.5	7	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
INLET GRILL SIZE	14	14	14	14	14	30	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: 4003 - BROOKSIDE
SITE NAME: PINE VALLEY PH 2

LO # 96121
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>5</u> @ 10.6 cfm	<u>53.0</u> cfm
Table 9.32.3.A.	TOTAL	<u>180.2</u> cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED		9.32.3.4.(1)
1 Bedroom	31.8	cfm
2 Bedroom	47.7	cfm
3 Bedroom	63.6	cfm
4 Bedroom	79.5	cfm
5 Bedroom	95.4	cfm
TOTAL		<u>79.5</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>180.2</u>	cfm
Less Principal Ventil. Capacity	<u>79.5</u>	cfm
Required Supplemental Capacity	<u>100.7</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE V150H	Location: BSMT
<u>79.5</u> cfm	☒ HVI Approved

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

SUPPLEMENTAL FANS		BY INSTALLING CONTRACTOR		
Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-3/4	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-2	BY INSTALLING CONTRACTOR	50	☒	3.5
PWD	BY INSTALLING CONTRACTOR	50	☒	3.5

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE V150H		
<u>150</u>	cfm high	<u>35</u> cfm low
<u>75</u>	% Sensible Efficiency @ 32 deg F (0 deg C)	☒ HVI Approved

LOCATION OF INSTALLATION	
Lot:	Concession
Township	Plan:
Address	
Roll #	Building Permit #

BUILDER:		GOLD PARK HOMES
Name:		
Address:		
City:		
Telephone #:	Fax #:	

INSTALLING CONTRACTOR	
Name:	
Address:	
City:	
Telephone #:	Fax #:

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	April-22

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																			
Formula Sheet (For Air Leakage / Ventilation Calculation)																																			
LO#: 96121	Model: 4003 - BROOKSIDE	Builder: GOLD PARK HOMES	Date: 4/14/2022																																
Volume Calculation																																			
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> <tr> <td>Bsmt</td> <td>1538</td> <td>10</td> <td>15380</td> </tr> <tr> <td>First</td> <td>1538</td> <td>11</td> <td>16918</td> </tr> <tr> <td>Second</td> <td>1813</td> <td>9</td> <td>16317</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">Total:</td> <td></td> <td>48,615.0 ft³</td> </tr> <tr> <td colspan="2">Total:</td> <td></td> <td>1376.6 m³</td> </tr> </table>				Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1538	10	15380	First	1538	11	16918	Second	1813	9	16317	Third	0	9	0	Fourth	0	9	0	Total:			48,615.0 ft³	Total:			1376.6 m³
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																
Bsmt	1538	10	15380																																
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Third	0	9	0																																
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Total:			48,615.0 ft³																																
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<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="4">Design Temperature Difference</th> </tr> <tr> <th></th> <th>T_{in} °C</th> <th>T_{out} °C</th> <th>ΔT °C</th> </tr> <tr> <td>Winter DTDh</td> <td>22</td> <td>-20</td> <td>42</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>31</td> <td>7</td> </tr> <tr> <td></td> <td></td> <td></td> <td>76</td> </tr> <tr> <td></td> <td></td> <td></td> <td>13</td> </tr> </table>				Design Temperature Difference					T _{in} °C	T _{out} °C	ΔT °C	Winter DTDh	22	-20	42	Summer DTDc	24	31	7				76				13								
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Winter DTDh	22	-20	42																																
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			76																																
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6.2.6 Sensible Gain due to Air Leakage																																			
$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$																																			
0.407	x	382.40	x																																
		7 °C	x																																
		1.2	=																																
			445 W																																
			=																																
			1520 Btu/h																																
6.2.7 Sensible heat Gain due to Ventilation																																			
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																			
80 CFM	x	13 °F	x																																
		1.08	x																																
		0.25	=																																
			275 Btu/h																																
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																			
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{aglevel} + HL_{bglevel})\}$																																			
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{clevel})</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)</th> </tr> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">26,897</td> <td>8,894</td> <td>1.512</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>16,011</td> <td>0.504</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>14,694</td> <td>0.366</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> </table>				Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)	1	0.5	26,897	8,894	1.512	2	0.3	16,011	0.504	3	0.2	14,694	0.366	4	0	0	0.000	5	0	0	0.000						
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*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0																																			

Michael O'Rourke
BCIN# 19669

Michael O'Rourke

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 4003 - BROOKSIDE	WOB	BUILDER: GOLD PARK HOMES
SFQT: 3228	LO# 96121	SITE: PINE VALLEY PH 2

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-4	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75
		WINDOW SHGC	0.50

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	48615.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 58.0 ft	WIDTH: 34.0 ft	EXPOSED PERIMETER:	142.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	42.0 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	96%	-
HRV/ERV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

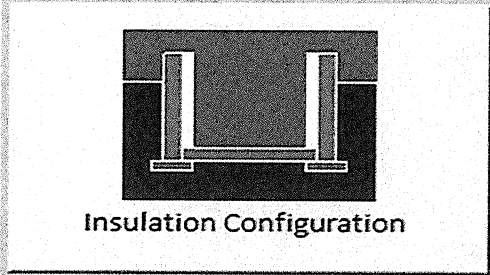
INDIVIDUAL BCIN: 19669

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):	4.3	 Insulation Configuration
Floor Width (m):	10.4	
Exposed Perimeter (m):	43.3	
Wall Height (m):	3.0	
Depth Below Grade (m):	1.79	
Window Area (m ²):	0.6	
Door Area (m ²):	3.7	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		700

TYPE: 4003 - BROOKSIDE
LO# 96121

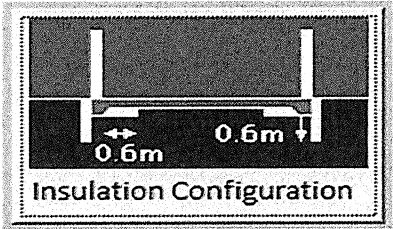
WOB

Michael O'Rourke BCIN #19669



Residential Slab on Grade Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Length (m):	1.2	 Insulation Configuration
Width (m):	10.4	
Exposed Perimeter (m):	12.8	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		157

TYPE: 4003 - BROOKSIDE
LO# 96121

WOB

Air Infiltration Residential Load Calculator

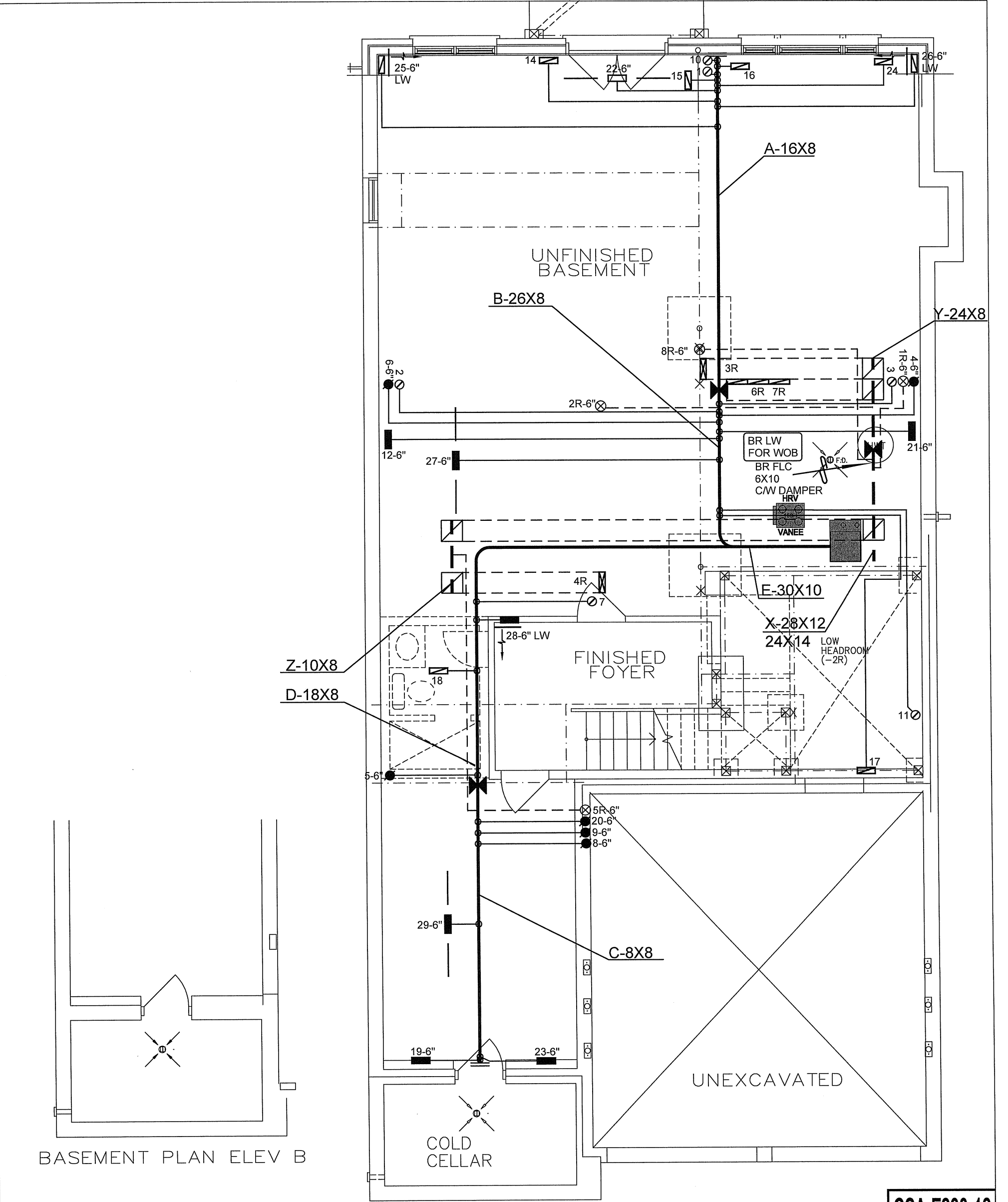
Supplemental tool for CAN/CSA-F280

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):	1376.6			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1835.1 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	37.5	37.5		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.407			
Cooling Air Leakage Rate (ACH/H):	0.137			

TYPE: 4003 - BROOKSIDE

WOB

LO# 96121



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

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

BASEMENT PLAN ELEV A

CSA-F280-12

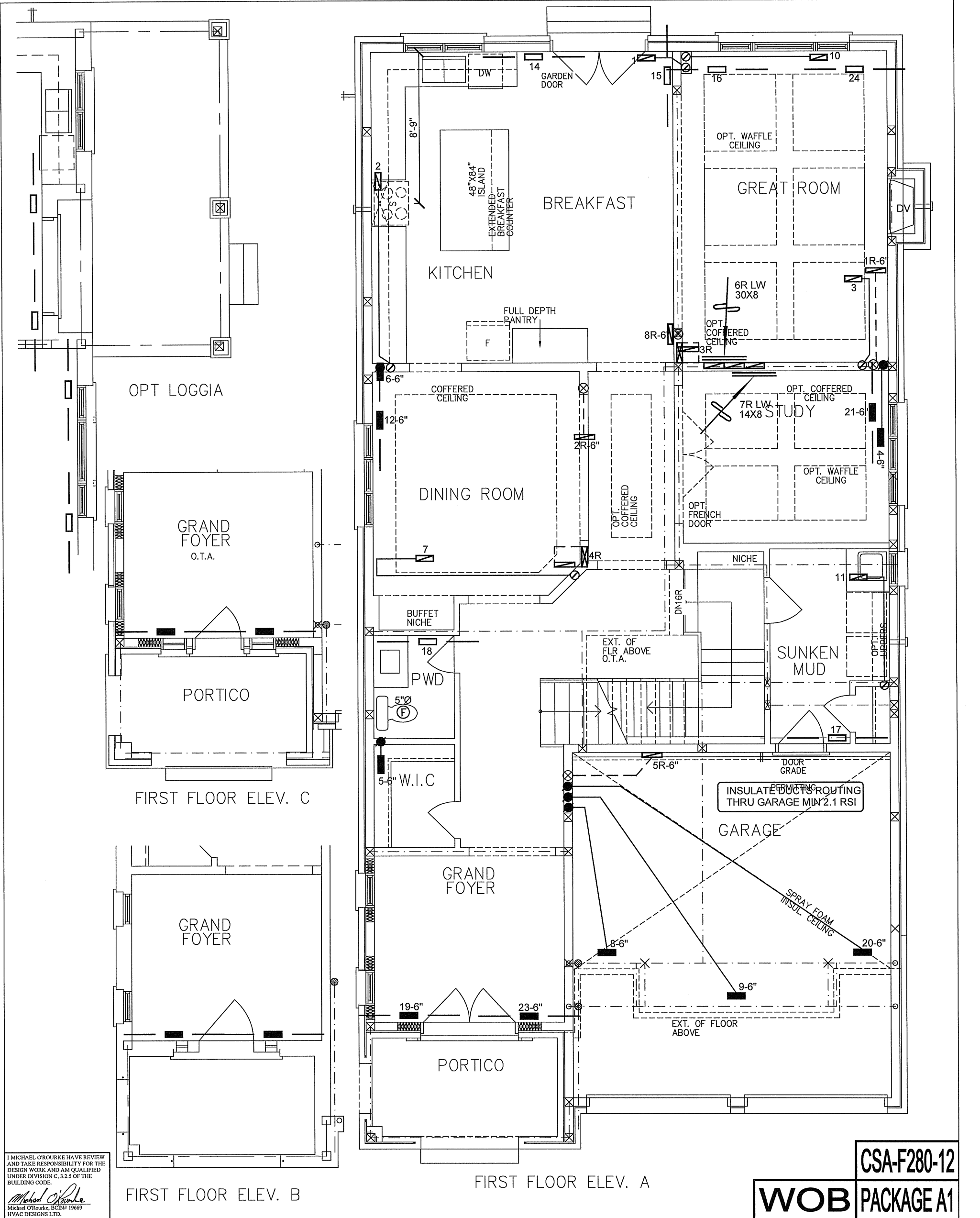
WOB

PACKAGE A1

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

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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	HEAT LOSS 68977 BTU/H		# OF RUNS S/A R/A FANS		Sheet Title BASEMENT HEATING LAYOUT Date APR/2022 Scale 3/16" = 1'-0" BCIN# 19669 LO# 96121	
GOLD PARK HOMES			UNIT DATA		3RD FLOOR			
Project Name PINE VALLEY PH 2 VAUGHAN, ONTARIO WOB THE BROOKSIDE 4003			MAKE LENNOX		2ND FLOOR 12 6 3			
			MODEL ML196UH090XE48C		1ST FLOOR 10 2 2			
			INPUT 88 MBTU/H		BASEMENT 6 1 0			
3228 sqft		OUTPUT 85.6 MBTU/H		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				
		COOLING 4.0 TONS						
		FAN SPEED 1575 cfm @ 0.6" w.g.						
		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.						



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

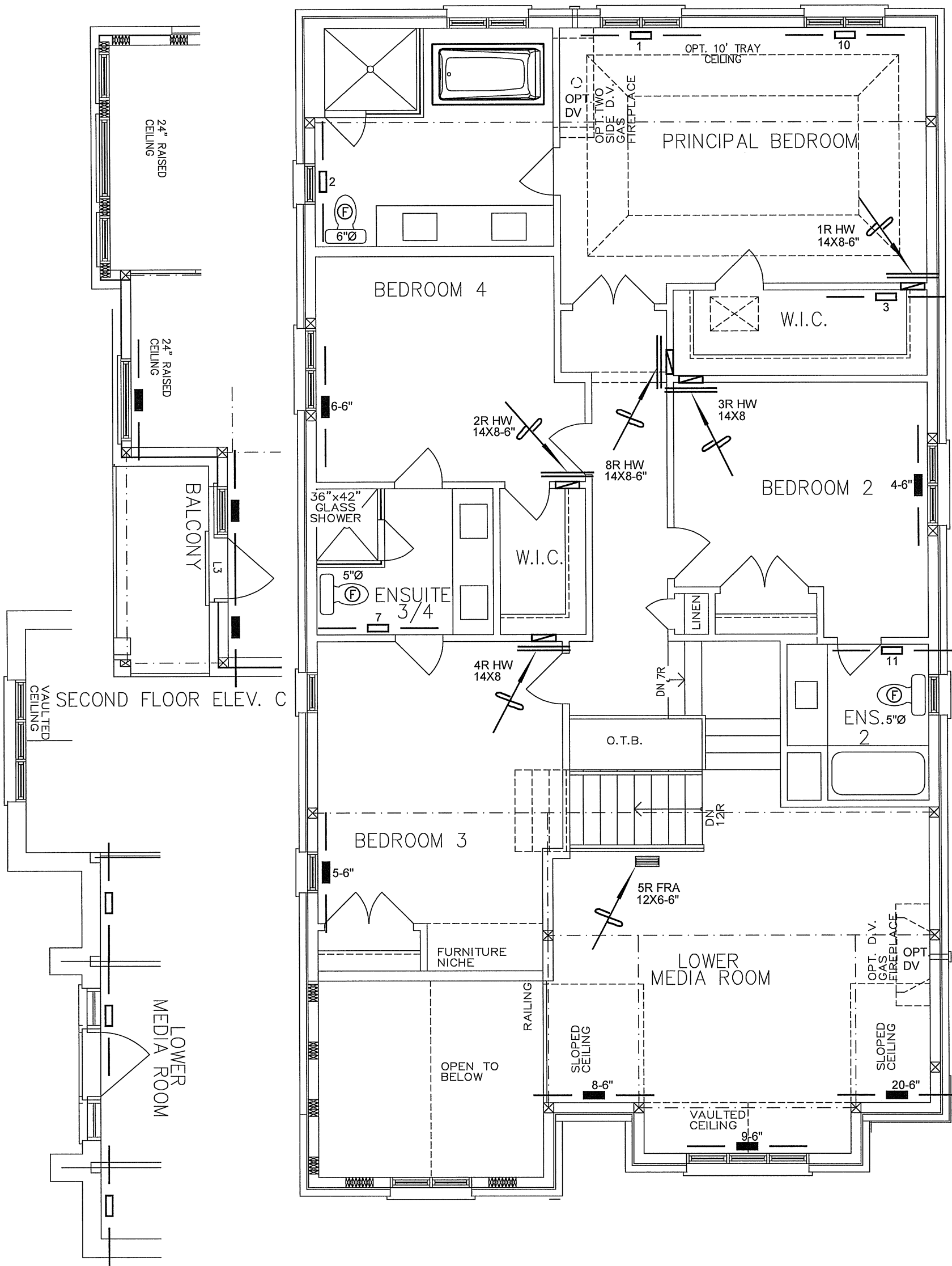
CSA-F280-12

WOB PACKAGE A1

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

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GOLD PARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	APR/2022
PINE VALLEY PH 2 VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
WOB			BCIN# 19669	
THE BROOKSIDE 4003		LO# 96121		
3228 sqft				



SECOND FLOOR ELEV. B

SECOND FLOOR ELEV. A

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

CSA-F280-12

WOB PACKAGE A1

HVAC LEGEND							3.		
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GOLD PARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	APR/2022
PINE VALLEY PH 2 VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
WOB			BCIN# 19669	
THE BROOKSIDE 4003		LO# 96121		
3228 sqft				