


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]				
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings </div> <div style="width: 30%;"> <input checked="" type="checkbox"/> HVAC – House <input type="checkbox"/> Building Services <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Fire Protection </div> <div style="width: 30%;"> <input type="checkbox"/> Building Structural <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> On-site Sewage Systems </div> </div>				
Description of designer's work HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12		Model: 4204 THE BROOKVALLEY CNR - WOB Project: PINE VALLEY & TESTON		
D. Declaration of Designer				
I, <u>MICHAEL O'ROURKE</u> declare that (choose one as appropriate): (print name)				
<input type="checkbox"/> 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: _____				
<input checked="" type="checkbox"/> 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>				
<input type="checkbox"/> 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.				
October 5, 2018		 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 BUILDER: GOLD PARK HOMES										CNR - WOB		TYPE: 4204 THE BROOKVALLEY		GFA: 3646		DATE: Oct-18 LO# 80235		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.		MBR		ENS		WIC		BED-2		BED-3		BED-4		ENS-2/3		BTH-2			
FACTORS		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN			
GRS.WALL AREA		333		324		63		288		396		252		45		45		0		0			
GLAZING		0		0		0		0		0		0		0		0		0		0			
NORTH		21.3		15.3		0		0		0		0		0		0		0		0			
EAST		21.3		39.4		0		0		0		0		0		0		0		0			
SOUTH		21.3		23.7		0		0		0		0		0		0		0		0			
WEST		21.3		39.4		45		958		1066		45		958		1066		0		0			
SKYL.T.		37.2		101.5		0		0		0		0		0		0		0		0			
DOORS		25.2		4.3		0		0		0		0		0		0		0		0			
NET EXPOSED WALL		4.5		0.8		288		1285		216		246		1098		185		63		281			
NET EXPOSED BSMT WALL ABOVE GR		3.6		0.6		0		0		0		0		0		0		0		0			
EXPOSED CLG		1.3		0.6		337		432		198		350		449		206		63		81			
NO ATTIC EXPOSED CLG		2.7		1.3		0		0		0		0		0		0		30		82			
EXPOSED FLOOR		2.6		0.4		0		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		2675		3207		84		2209		3702		2387		676		502		205		94			
SUB TOTAL HT GAIN		2187		2756		0.20		0.35		0.20		0.35		0.20		0.35		0.20		0.35			
LEVEL FACTOR / MULTIPLIER		950		1138		128		1053		1314		847		240		41		73		8			
AIR CHANGE HEAT LOSS		0		0		0		0		0		0		0		0		0		0			
AIR CHANGE HEAT GAIN		0		0		0		0		0		0		0		0		0		0			
DUCT LOSS		0		0		0		0		0		0		0		0		0		0			
DUCT GAIN		0		0		0		0		0		0		0		0		0		0			
HEAT GAIN PEOPLE		240		0		0		1		240		1		240		0		54		0			
HEAT GAIN APPLIANCES/LIGHTS		685		0		0		685		685		685		685		0		0		0			
TOTAL HT LOSS BTU/H		3625		4345		490		4423		5016		3235		1007		776		278		132			
TOTAL HT GAIN x 1.3 BTU/H		4592		3879		119		4743		5792		3247		776		132							

ROOM USE		EXP. WALL		CLG. HT.		DIN		KT/GT		LIB		LAUN		PWD		FOY		MUD		WOB		BAS	
FACTORS		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS	
GRS.WALL AREA		286		286		286		286		286		286		286		286		286		286		286	
GLAZING		0		0		0		0		0		0		0		0		0		0		0	
NORTH		21.3		15.3		0		0		0		0		0		0		0		0		0	
EAST		21.3		39.4		0		0		0		0		0		0		0		0		0	
SOUTH		21.3		23.7		42		894		995		42		894		995		0		0		0	
WEST		21.3		39.4		0		0		0		0		0		0		0		0		0	
SKYL.T.		37.2		101.5		0		0		0		0		0		0		0		0		0	
DOORS		25.2		4.3		0		0		0		0		0		0		0		0		0	
NET EXPOSED WALL		4.5		0.8		244		1089		183		72		321		54		176		785		132	
NET EXPOSED BSMT WALL ABOVE GR		3.6		0.6		0		0		0		0		0		0		0		0		0	
EXPOSED CLG		1.3		0.6		0		0		0		0		0		0		0		0		0	
NO ATTIC EXPOSED CLG		2.7		1.3		0		0		0		0		0		0		0		0		0	
EXPOSED FLOOR		2.6		0.4		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	
SUBTOTAL HT LOSS		1983		5576		0.30		0.46		0.30		0.46		0.30		0.46		0.30		0.46		0.30	
SUB TOTAL HT GAIN		1178		3126		461		235		11		11		160		25		0		0		0	
LEVEL FACTOR / MULTIPLIER		906		906		97		97		97		97		97		97		97		97		97	
AIR CHANGE HEAT LOSS		0		0		0		0		0		0		0		0		0		0		0	
AIR CHANGE HEAT GAIN		0		0		0		0		0		0		0		0		0		0		0	
DUCT LOSS		0		0		0		0		0		0		0		0		0		0		0	
DUCT GAIN		0		0		0		0		0		0		0		0		0		0		0	
HEAT GAIN PEOPLE		240		0		0		0		0		0		0		0		0		0		0	
HEAT GAIN APPLIANCES/LIGHTS		685		0		0		685		685		685		685		685		685		685		685	
TOTAL HT LOSS BTU/H		2889		9967		5536		765		1182		186		6198		2728		2608		5065		19586	
TOTAL HT GAIN x 1.3 BTU/H		2548		8739		4894		1178		186		1315		4254		1938		818		2162		1635	

TOTAL HEAT GAIN BTU/H: 49207 TONS: 4.10 LOSS DUE TO VENTILATION LOAD BTU/H: 3161 STRUCTURAL HEAT LOSS: 76179 TOTAL COMBINED HEAT LOSS BTU/H: 79380

Michael O'Rourke

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

CNR - WOB

TYPE: 4204 THE BROOKVALEY DATE: Oct-18

GFA: 3646 LO# 80235

HEATING CFM 1525 COOLING CFM 1525
TOTAL HEAT GAIN 48,671
AIR FLOW RATE CFM 31.33

EL296UH090XE48C
FAN SPEED 90

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

1st 2nd 3rd 4th
S/A 0 0 0 0
R/A 0 0 0 0

plenum pressure s/a 0.18
max s/a diff press. loss 0.03
min adjusted pressure s/a 0.15

r/a pressure 0.17
r/a grille press. loss 0.02
adjusted pressure r/a 0.15

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

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	ENS	BED-2	BED-3	BED-4	ENS-2/3	BED-2	BED-3	MBR	BTH-2	DIN	KT/GT	KT/GT	KT/GT	LIB	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	
RM LOSS MBH.	1.81	3.17	1.17	2.21	2.51	1.62	0.50	2.21	2.51	1.81	0.28	2.89	2.49	2.49	2.49	2.77	0.77	1.14	6.20	2.61	4.11	4.11	4.11	
CFM PER RUN HEAT	36	64	23	44	50	32	10	44	50	36	6	58	50	50	50	55	15	23	124	52	82	82	82	
RM GAIN MBH.	2.30	2.94	0.94	2.37	2.90	1.62	0.39	2.37	2.90	2.30	0.13	2.55	2.18	2.18	2.18	2.45	1.18	0.19	2.73	1.31	0.63	0.63	0.63	
CFM PER RUN COOLING	72	92	29	74	91	51	12	74	91	72	4	80	68	68	68	77	37	6	85	41	20	20	20	
ADJUSTED PRESSURE	0.17	0.16	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.15	0.17	0.16	0.16	0.16	
ACTUAL DUCT LGH.	51	47	36	52	74	45	50	56	63	43	35	26	26	26	43	53	50	34	36	10	41	21	16	
EQUIVALENT LENGTH	160	200	120	150	200	160	140	160	190	160	150	100	110	110	110	110	170	100	150	140	130	100	100	
TOTAL EFFECTIVE LENGTH	211	247	156	202	274	205	190	216	253	203	185	126	136	136	136	163	220	134	186	150	171	121	116	
ADJUSTED PRESSURE	0.08	0.07	0.11	0.09	0.06	0.08	0.09	0.08	0.06	0.08	0.09	0.14	0.13	0.13	0.13	0.09	0.11	0.08	0.13	0.08	0.11	0.09	0.13	
ROUND DUCT SIZE	5	6	4	5	6	5	4	5	6	5	4	5	5	5	5	5	4	4	6	4	5	5	5	
HEATING VELOCITY (ft/min)	264	326	264	323	255	235	115	323	255	264	69	426	367	367	367	367	404	172	264	632	597	602	602	
COOLING VELOCITY (ft/min)	529	469	333	543	464	374	138	543	464	529	46	587	499	499	499	565	424	69	433	470	147	147	147	
OUTLET GRILL SIZE	3X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	
TRUNK	E	A	D	C	B	A	C	C	B	E	D	A	D	E	A	B	C	C	C	E	A	E	D	

ROOM NAME	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
BED-4	1.62	2.77	2.49	0.50	0.49	4.11	4.11	82	82	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
RM LOSS MBH	1.62	2.77	2.49	0.50	0.49	4.11	4.11	82	82	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
CFM PER RUN HEAT	32	55	50	10	10	82	82	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
RM GAIN MBH	1.62	2.45	2.18	0.39	0.12	0.63	0.63	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	
CFM PER RUN COOLING	51	77	68	12	4	20	20	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.16	0.16	
ACTUAL DUCT LGH.	50	52	37	45	22	30	36	45	22	30	36	45	22	30	36	45	22	30	36	45	22	30	36	
EQUIVALENT LENGTH	150	140	150	160	160	120	200	150	160	160	120	200	150	160	160	120	200	150	160	160	120	200	150	
TOTAL EFFECTIVE LENGTH	200	192	187	205	182	150	236	182	205	182	150	236	182	205	182	150	236	182	205	182	150	236	182	
ADJUSTED PRESSURE	0.09	0.09	0.09	0.08	0.09	0.11	0.07	0.09	0.08	0.09	0.11	0.07	0.09	0.08	0.09	0.11	0.07	0.09	0.08	0.09	0.11	0.07	0.09	
ROUND DUCT SIZE	5	5	5	4	4	5	6	5	4	4	5	6	5	4	4	5	6	5	4	4	5	6	5	
HEATING VELOCITY (ft/min)	235	404	367	115	115	602	418	367	115	115	602	418	367	115	115	602	418	367	115	115	602	418	367	
COOLING VELOCITY (ft/min)	374	565	499	138	46	147	102	499	138	46	147	102	499	138	46	147	102	499	138	46	147	102	499	
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	
TRUNK	A	B	A	C	E	D	C	A	D	C	A	D	C	A	D	C	A	D	C	A	D	C	A	

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	0.07	10	12	8	368	0.07	10	12	8	368	0.07	10	12	8
TRUNK B	0.05	9.5	10	8	292	0.05	9.5	10	8	292	0.05	9.5	10	8
TRUNK C	0.06	12.8	20	8	644	0.06	12.8	20	8	644	0.06	12.8	20	8
TRUNK D	0.08	16.4	32	8	1255	0.08	16.4	32	8	1255	0.08	16.4	32	8
TRUNK E	0.06	8.5	8	8	266	0.06	8.5	8	8	266	0.06	8.5	8	8
TRUNK F	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK G	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK H	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK I	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK J	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK K	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK L	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK M	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK N	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK O	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK P	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK Q	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK R	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK S	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK T	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK U	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK V	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK W	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK X	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK Y	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK Z	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
DROP	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0

TYPE: 4204 THE BROOKVALLEY
SITE NAME: PINE VALLEY & TESTON

LO # 80235
CNR - WOB

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES		9.32.3.1(1)
a)	<input checked="" type="checkbox"/> Direct vent (sealed combustion) only	
b)	<input type="checkbox"/> Positive venting induced draft (except fireplaces)	
c)	<input type="checkbox"/> Natural draft, B-vent or induced draft gas fireplace	
d)	<input type="checkbox"/> Solid Fuel (including fireplaces)	
e)	<input type="checkbox"/> No Combustion Appliances	

HEATING SYSTEM	
<input checked="" type="checkbox"/> Forced Air	<input type="checkbox"/> Non Forced Air
<input type="checkbox"/> Electric Space Heat	

HOUSE TYPE		9.32.1(2)
<input checked="" type="checkbox"/> I	Type a) or b) appliance only, no solid fuel	
<input type="checkbox"/> II	Type I except with solid fuel (including fireplaces)	
<input type="checkbox"/> III	Any Type c) appliance	
<input type="checkbox"/> IV	Type I, or II with electric space heat	
<input type="checkbox"/>	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
<input type="checkbox"/>	1 Exhaust only/Forced Air System	
<input type="checkbox"/>	2 HRV with Ducting/Forced Air System	
<input checked="" type="checkbox"/>	3 HRV Simplified/connected to forced air system	
<input type="checkbox"/>	4 HRV with Ducting/non forced air system	
<input type="checkbox"/>	Part 6 Design	

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	2 @ 21.2 cfm	42.4 cfm
Other Bedrooms	3 @ 10.6 cfm	31.8 cfm
Kitchen & Bathrooms	5 @ 10.6 cfm	53 cfm
Other Rooms	6 @ 10.6 cfm	63.6 cfm
Table 9.32.3.A.	TOTAL	190.8 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	190.8 cfm	
Less Principal Ventil. Capacity	155 cfm	
Required Supplemental Capacity	35.8 cfm	

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
155.0 cfm	3.0 sones
<input checked="" type="checkbox"/>	HVI Approved

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

SUPPLEMENTAL FANS		NUTONE	
Location	Model	cfm	HVI
ENS	QTXEN050C	50	<input checked="" type="checkbox"/>
ENS-2/3	QTXEN050C	50	<input checked="" type="checkbox"/>
BTH-2	QTXEN050C	50	<input checked="" type="checkbox"/>
PWD	QTXEN050C	50	<input checked="" type="checkbox"/>

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 65H		
155 cfm high	64 cfm low	
75 % Sensible Efficiency	<input checked="" type="checkbox"/>	HVI Approved
@ 32 deg F (0 deg C)		

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

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

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

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	October-18

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																									
Formula Sheet (For Air Leakage / Ventilation Calculation)																																									
LO#: 80235				Model: 4204 THE BROOKVALLEY		Builder: GOLD PARK HOMES		Date: 10/5/2018																																	
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>1673</td> <td>10</td> <td>16730</td> </tr> <tr> <td>First</td> <td>1673</td> <td>11</td> <td>18403</td> </tr> <tr> <td>Second</td> <td>2047</td> <td>9</td> <td>18423</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>53,556.0 ft³</td> </tr> <tr> <td colspan="2">Total:</td> <td></td> <td>1516.5 m³</td> </tr> </table>										Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1673	10	16730	First	1673	11	18403	Second	2047	9	18423	Third	0	9	0	Fourth	0	9	0	Total:			53,556.0 ft³	Total:			1516.5 m³
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																						
Bsmt	1673	10	16730																																						
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Air Change & Delta T Data																																									
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WINTER NATURAL AIR CHANGE RATE			0.407																																						
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			76																																						
			13																																						
6.2.6 Sensible Gain due to Air Leakage																																									
$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$																																									
$= 0.137 \times 421.26 \times 7 \times 1.2 = 491 \text{ W}$																																									
$= 1674 \text{ Btu/h}$																																									
6.2.7 Sensible heat Gain due to Ventilation																																									
$HL_{vaibr} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																									
$155 \text{ CFM} \times 13 \text{ °F} \times 1.08 \times 0.25 = 536 \text{ Btu/h}$																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																									
$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																									
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HL_{airbv} Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{clevel})</th> <th>Air Leakage Heat Loss Multiplier (LF x HL_{airbv} / HL_{clevel})</th> </tr> <tr> <td>1</td> <td>0.5</td> <td rowspan="5">29,631</td> <td>9,244</td> <td>1.603</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>19,453</td> <td>0.457</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>16,696</td> <td>0.355</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)	HL _{airbv} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{clevel})	1	0.5	29,631	9,244	1.603	2	0.3	19,453	0.457	3	0.2	16,696	0.355	4	0	0	0.000	5	0	0	0.000						
Level	Level Factor (LF)	HL _{airbv} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{clevel})																																					
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4	0		0	0.000																																					
5	0		0	0.000																																					
<p>*HL_{airbv} = Air leakage heat loss + ventilation heat loss</p> <p>*For a balanced or supply only ventilation system HL_{airve} = 0</p>																																									

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL:	4204 THE BROOKVALLEY	CNR - WOB	BUILDER:	GOLD PARK HOMES
SFQT:	3646	LO#	80235	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:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	53556.0	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: 62.0 ft	WIDTH: 35.0 ft	EXPOSED PERIMETER:	149.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	45.0 ft

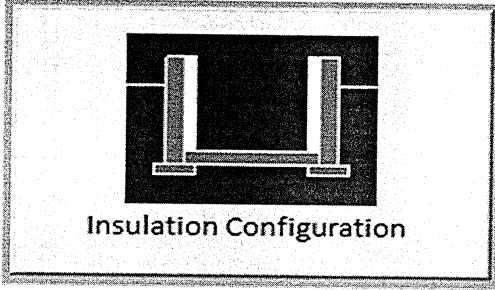
2012 OBC - COMPLIANCE PACKAGE		
Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement 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

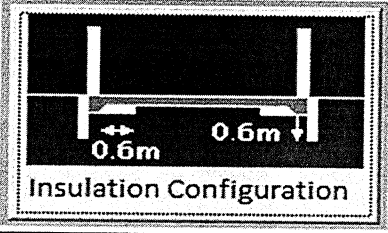
Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	10.7	
Exposed Perimeter (m):	45.4	
Wall Height (m):	3.0	
Depth Below Grade (m):	1.81	
Window Area (m ²):	0.3	
Door Area (m ²):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		760

TYPE: 4204 THE BROOKVALLEY
LO# 80235

CNR - 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):	10.7	
Exposed Perimeter (m):	13.7	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		174

TYPE: 4204 THE BROOKVALLEY
LO# 80235

CNR - 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):	1516.5			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2021.6 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):	0.137			

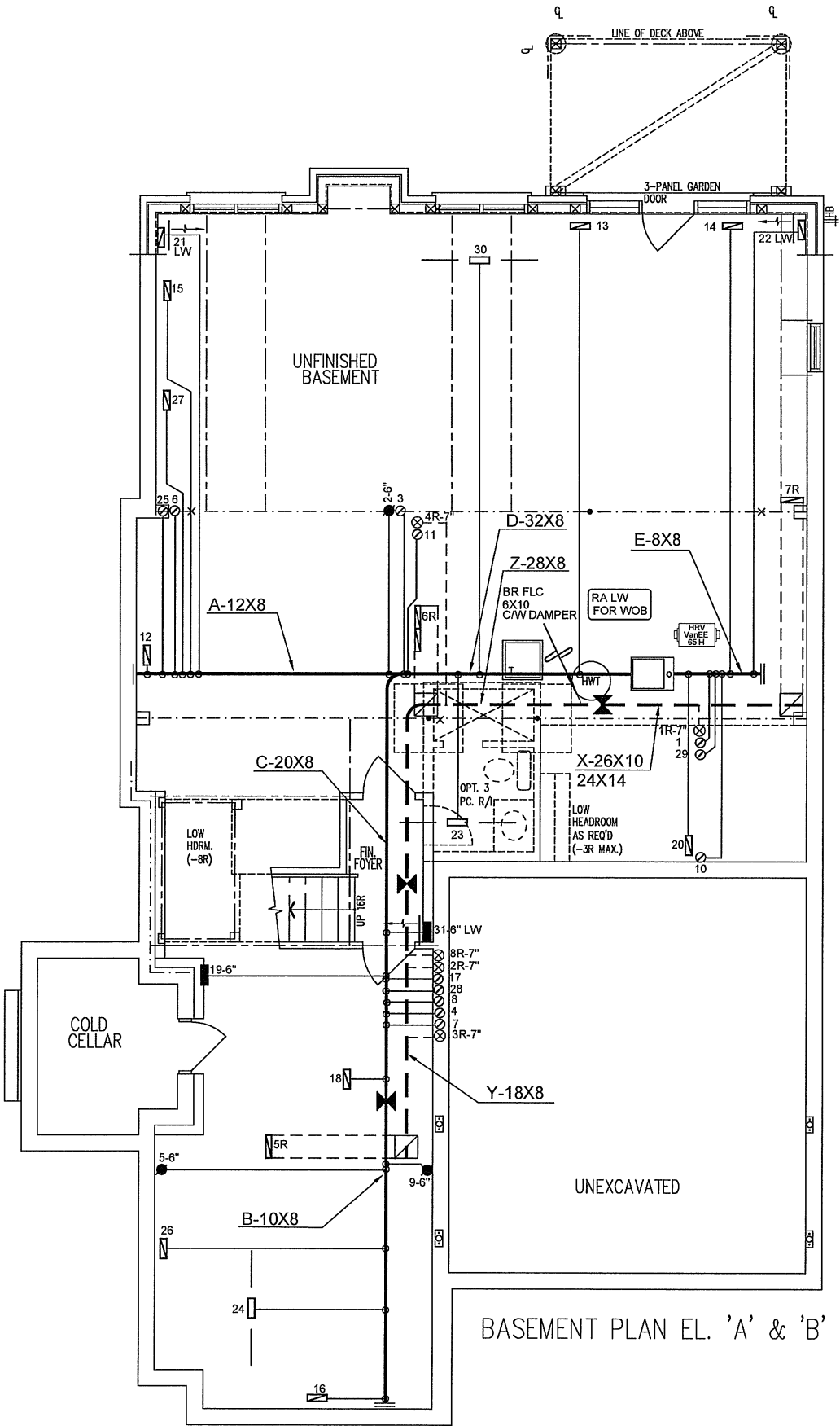
TYPE: 4204 THE BROOKVALLEY
LO# 80235

CNR - WOB

HVAC LEGEND		
SYMBOL	DESCRIPTION	
	SUPPLY AIR GRILLE	2.
	SUPPLY AIR GRILLE 6" BOOT	1.
	SUPPLY AIR BOOT ABOVE	
	SUPPLY AIR STACK FROM 2nd FLOOR	
	SUPPLY AIR STACK 2nd FLOOR	
	14"X8" RETURN AIR GRILLE	
	30"X6" RETURN AIR GRILLE	
	FRA-FLOOR RETURN AIR GRILLE	
	RETURN AIR STACK ABOVE	
	RETURN AIR STACK 2nd FLOOR	
	REDUCER	
REVISIONS		
No.	Description	Date

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.



CSA-F280-12

WOB

PACKAGE A1

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Client

GOLD PARK HOMES

Project Name

PINE VALLEY & TESTON
VAUGHAN, ONTARIO

THE BROOKVALLEY - WOB
4204 CNR 3646 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.

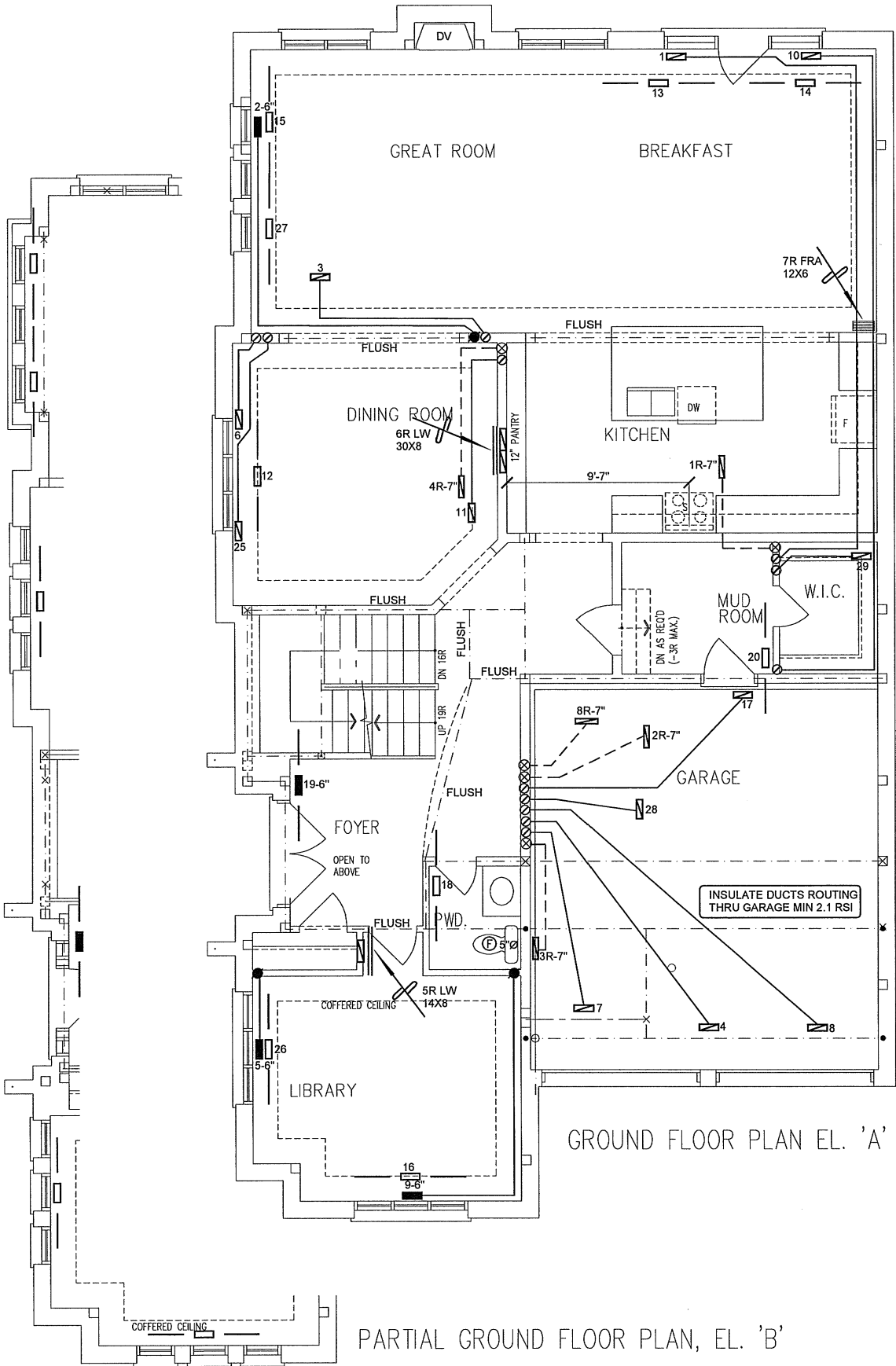
HEAT LOSS 79360 BTU/H	# OF RUNS	S/A	R/A	FANS
UNIT DATA	3RD FLOOR			
MAKE LENNOX	2ND FLOOR	15	5	5
MODEL EL296UH090XE48C	1ST FLOOR	10	3	2
INPUT 88 MBTU/H	BASEMENT	6	1	0
OUTPUT 85 MBTU/H	ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A			
COOLING 4.0 TONS				
FAN SPEED 1525 cfm @ 0.6" w.c.				

Sheet Title	
BASEMENT HEATING LAYOUT	
Date	OCT/2018
Scale	1/8" = 1'-0"
BCIN# 19669	
LO#	80235

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

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



CSA-F280-12

WOB PACKAGE A1

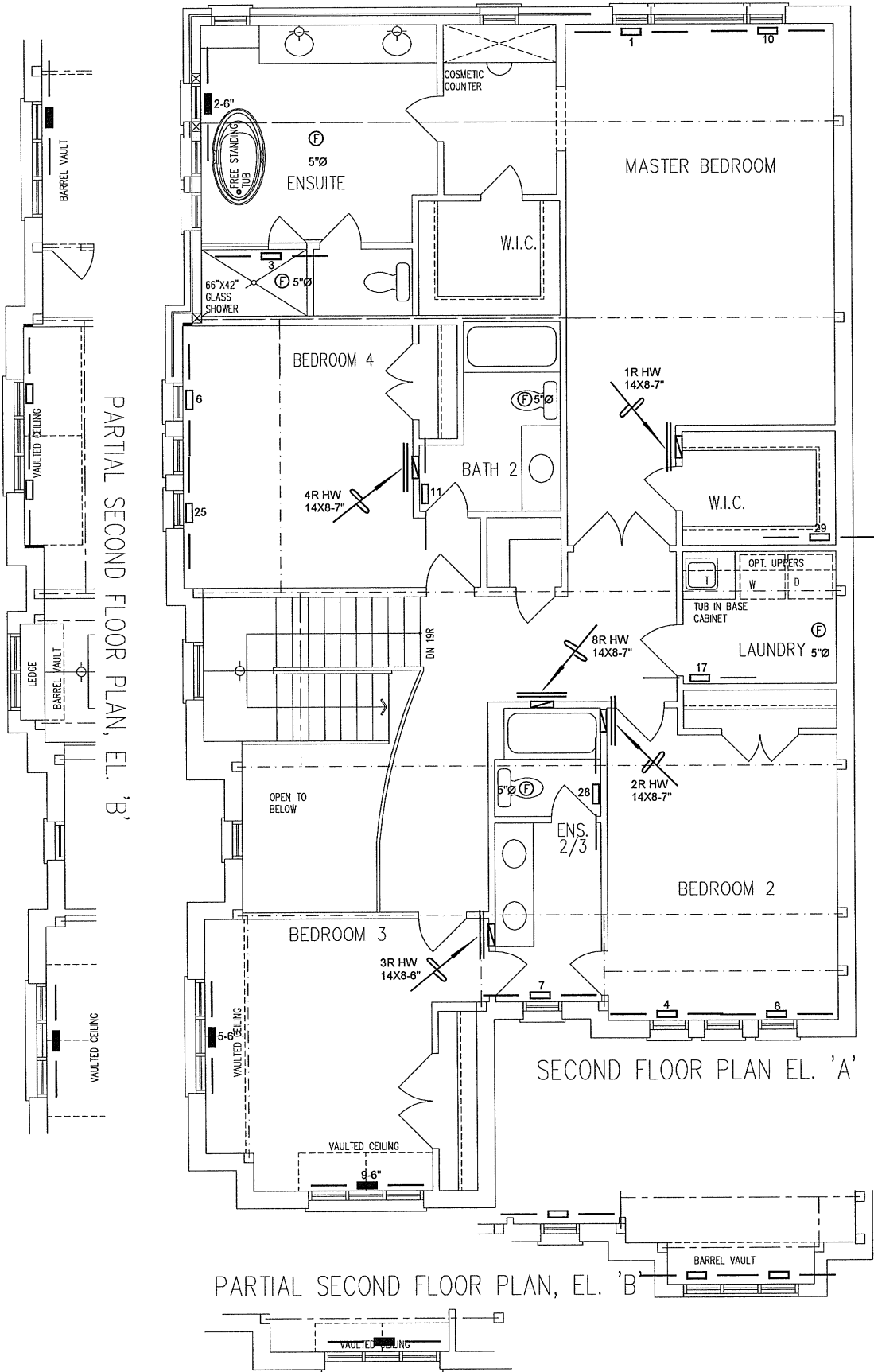
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Client	<div>HVACDESIGNS LTD.</div> <div>375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services</div> <div>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.</div>	Sheet Title
GOLD PARK HOMES		FIRST FLOOR HEATING LAYOUT
Project Name		Date
PINE VALLEY & TESTON VAUGHAN, ONTARIO		OCT/2018
THE BROOKVALLEY - WOB 4204 CNR 3646 sqft		Scale 1/8" = 1'-0"
		BCIN# 19669
		LO# 80235

HVAC LEGEND				
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE	1.
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR	
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR	
			14"x8" RETURN AIR GRILLE	
			30"x8" RETURN AIR GRILLE	
			FRA- FLOOR RETURN AIR GRILLE	
			RETURN AIR STACK ABOVE	
			RETURN AIR STACK 2nd FLOOR	
			REDUCER	
			REVISIONS	
			Description	Date

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



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Client		<div><div><div>HVAC</div><div>DESIGNS LTD.</div></div><div>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</div></div>	Sheet Title	
GOLD PARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name		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.	Date	OCT/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
			BCIN# 19669	
THE BROOKVALLEY - WOB 4204 CNR 3646 sqft			LO#	80235