

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: 5005 ELEV. 'B' - THE HIGHBOURNE OPT. 5 BED Project: PINE VALLEY & TESTON		
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.				
January 24, 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										OPT. 5 BED TYPE: 5005 ELEV. 'B' - THE HIGBOURNE GFA: 4380		DATE: Jan-18 LO# 77533		WINTER NATURAL AIR CHANGE RATE 0.350 SUMMER NATURAL AIR CHANGE RATE 0.128		HEAT LOSS AT °F. 76 HEAT GAIN AT °F. 16		CSA-F280-12 SB-12 PACKAGE A1		
ROOM USE EXP. WALL CLG. HT.		MBR	ENS	BED-5		BED-2		BED-3		BED-4		ENS-2/5		WIC-2		ENS-3	ENS-4	WIC-3		WIC
		46	30	14		36		36		19		6		3		4		7	14	6
		11	10	10		11		11		10		10		10		10		10	10	10
GRS.WALL AREA		506	300	140		396		396		190		60		30		40		70	140	60
GLAZING		LOSS	LOSS	LOSS		LOSS		LOSS		LOSS		LOSS		LOSS		LOSS		LOSS	LOSS	LOSS
NORTH		0	0	6		0		0		0		8		0		0		0	0	0
EAST		0	0	0		0		0		0		0		0		0		0	0	0
SOUTH		0	0	0		0		0		0		0		0		0		0	0	0
WEST		50	724	0		10		1064		32		0		0		0		8	425	848
SKYLT.		50	34	0		213		257		681		0		0		0		170	206	0
DOORS		0	0	0		0		0		0		0		0		0		0	0	0
NET EXPOSED WALL		456	266	134		336		1499		158		52		30		179		62	536	111
NET EXPOSED BSMT WALL ABOVE GR		0	0	0		0		0		0		0		48		37		277	58	268
EXPOSED CLG		480	205	315		175		320		285		60		40		92		105	63	102
NO ATTIC EXPOSED CLG		0	0	0		78		49		0		77		51		118		135	67	34
EXPOSED FLOOR		0	0	0		0		26		0		0		0		0		0	0	0
BASEMENT/CRAWL HEAT LOSS		0	0	0		0		18		0		0		0		0		0	0	0
SLAB ON GRADE HEAT LOSS		0	0	0		253		46		0		153		40		0		0	0	0
SUBTOTAL HT LOSS		3715	2174	1523		3945		3191		1752		632		287		297		582	1029	399
SUB TOTAL HT GAIN		2849	1819	508		3415		2882		1162		253		75		96		330	983	121
LEVEL FACTOR / MULTIPLIER		0.20	0.32	0.20		0.20		0.32		0.20		0.20		0.20		0.20		0.32	0.20	0.32
AIR CHANGE HEAT LOSS		1179	690	483		1252		1013		556		201		91		94		185	327	127
AIR CHANGE HEAT GAIN		0	0	0		0		420		0		83		38		0		0	0	0
DUCT LOSS		0	0	201		520		407		0		28		8		0		0	0	0
HEAT GAIN PEOPLE		2	0	0		465		407		1		0		0		0		0	0	0
HEAT GAIN APPLIANCES/LIGHTS		677	0	677		677		240		240		0		0		0		0	0	0
TOTAL HT LOSS BTU/H		4894	2864	2207		5717		4625		2308		916		416		391		766	1356	525
TOTAL HT GAIN x 1.3 BTU/H		5557	2587	2106		6555		5820		2831		395		117		136		470	1412	172

ROOM USE EXP. WALL CLG. HT.	LIB	DIN	KIT/IGT	CAB	LAUN	PWD	FOY	MUD	FOY	MUD	FOY	MUD	BAS						
GRS.WALL AREA GLAZING	341	352	957	495	0	55	385	216	385	216	385	216	1666						
FACTORS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS						
NORTH	21.3	16.8	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						
SOUTH	21.3	25.7	0	0	0	0	0	0	0	0	0	0	0						
WEST	21.3	42.4	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						
DOORS	25.2	5.2	0	0	0	0	0	0	0	0	0	0	0						
NET EXPOSED WALL	4.5	0.9	285	1272	264	318	1419	295	776	3463	720	369	1647	342	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
EXPOSED CLG	1.3	0.6	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	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
BASEMENT/CRAWL HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0						
SLAB ON GRADE HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0						
SUB TOTAL HT LOSS	2464	2143	7315	4886	274	507	2995	1380	2995	1380	2995	1380	11937						
SUB TOTAL HT GAIN	2638	1170	6883	4912	95	249	655	287	655	287	655	287	11937						
LEVEL FACTOR / MULTIPLIER	0.30	0.43	0.30	0.43	0.20	0.32	0.30	0.43	0.30	0.43	0.30	0.43	0.50						
AIR CHANGE HEAT LOSS	1071	931	3180	2124	87	220	1302	600	1302	600	1302	600	15713						
AIR CHANGE HEAT GAIN	0	0	0	0	0	0	0	0	0	0	0	0	0						
DUCT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0						
HEAT GAIN PEOPLE	0	0	0	0	0	0	0	0	0	0	0	0	0						
HEAT GAIN APPLIANCES/LIGHTS	677	677	677	677	677	677	677	677	677	677	677	677	677						
TOTAL HT LOSS BTU/H	3534	3074	10495	7010	397	727	4297	1979	4297	1979	4297	1979	27650						
TOTAL HT GAIN x 1.3 BTU/H	4633	2545	10671	7867	1117	354	932	1288	932	1288	932	1288	2268						

SITE NAME: PINE VALLEY & TESTON
BUILDER: GOLD PARK HOMESOPT. 5 BED
TYPE: 5005 ELEV. B' - THE HIGHBOURNI DATE: Jan-18

GFA: 4380 LO# 77533

HEATING CFM 1955
TOTAL HEAT LOSS 86,148
AIR FLOW RATE CFM 22.69COOLING CFM 1955
TOTAL HEAT GAIN 59,934
AIR FLOW RATE CFM 32.62EL296UH110XE60C
FAN SPEED
LOW 0
MEDIUM 1380
HIGH 1505
DESIGN CFM = 1955
CFM @ .6" E.S.P.AFUE = 96 %
INPUT (BTU/H) = 110,000
OUTPUT (BTU/H) = 106,000

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	18	13	7
R/A	0	0	6	3	1

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

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

RUN #	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	BED-5	BED-2	BED-3	BED-4	ENS-2/5	WIC-2	ENS-3	MBR	ENS-4	LIB	DIN	KIT/GT	KIT/GT	KIT/GT	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	2.45	2.23	2.21	1.91	2.31	2.31	0.92	0.42	0.39	2.45	0.77	1.77	3.07	2.82	2.62	2.62	0.40	0.73	4.30	1.98	3.95	3.95	3.95	3.95
CFM PER RUN HEAT	56	51	50	43	52	52	21	9	56	56	17	40	70	60	60	60	9	16	97	45	90	90	90	90
RM GAIN MBH	2.78	1.99	2.11	2.22	2.91	2.83	0.40	0.12	0.14	2.78	0.47	2.32	2.54	2.67	2.67	2.67	1.12	0.35	0.93	1.29	0.32	0.32	0.32	0.32
CFM PER RUN COOLING	91	65	69	72	95	92	13	4	4	91	15	76	83	87	87	87	36	12	30	42	11	11	11	11
ADJUSTED PRESSURE	0.15	0.16	0.16	0.16	0.15	0.15	0.16	0.16	0.16	0.15	0.16	0.16	0.16	0.15	0.15	0.15	0.16	0.16	0.15	0.16	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	70	70	53	49	70	48	47	48	53	64	59	57	29	52	69	54	36	73	40	47	67	60	54	38
EQUIVALENT LENGTH	200	200	170	160	160	160	200	150	170	170	150	140	103	120	140	110	200	170	210	160	150	120	103	90
TOTAL EFFECTIVE LENGTH	270	270	223	209	230	208	247	198	223	234	209	197	132	172	209	164	236	243	250	207	217	180	157	128
ADJUSTED PRESSURE	0.05	0.06	0.07	0.07	0.06	0.07	0.06	0.08	0.07	0.06	0.07	0.08	0.11	0.09	0.07	0.09	0.07	0.06	0.06	0.08	0.07	0.08	0.09	0.11
ROUND DUCT SIZE	6	5	5	5	6	6	4	4	4	6	4	5	5	5	6	5	4	4	6	4	6	6	6	5
HEATING VELOCITY (ft/min)	286	374	367	316	265	265	241	103	103	286	195	294	514	441	306	441	103	184	495	516	459	459	459	661
COOLING VELOCITY (ft/min)	464	477	507	529	484	469	149	46	46	464	172	558	609	639	444	639	413	138	153	482	56	56	56	81
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	3X10

RUN #	25	26	27	28	29	30	31	32	33	34	35	36	37	38
ROOM NAME	BAS	BAS	BED-2	BED-2	BED-3	WIC-3	LIB	KIT/GT	CAB	CAB	CAB	WIC	ENS	BAS
RM LOSS MBH	3.95	3.95	1.91	1.91	2.31	1.36	1.77	2.62	2.34	2.34	2.34	0.53	0.63	3.95
CFM PER RUN HEAT	90	90	43	43	52	31	40	60	53	53	53	12	14	90
RM GAIN MBH	0.32	0.32	2.22	2.22	2.91	1.41	2.32	2.67	2.62	2.62	2.62	0.17	0.59	0.32
CFM PER RUN COOLING	11	11	72	72	95	46	76	87	86	86	86	6	19	11
ADJUSTED PRESSURE	0.15	0.15	0.16	0.16	0.15	0.16	0.16	0.15	0.15	0.15	0.15	0.16	0.16	0.15
ACTUAL DUCT LGH.	34	50	52	55	75	58	51	55	69	71	82	56	58	23
EQUIVALENT LENGTH	110	150	170	160	190	160	190	120	150	130	140	200	190	140
TOTAL EFFECTIVE LENGTH	144	200	222	215	235	248	211	175	219	201	222	256	248	163
ADJUSTED PRESSURE	0.1	0.07	0.07	0.07	0.06	0.06	0.07	0.08	0.07	0.07	0.07	0.06	0.06	0.09
ROUND DUCT SIZE	5	6	5	5	6	5	6	6	6	6	6	4	4	6
HEATING VELOCITY (ft/min)	661	459	316	316	265	228	204	306	270	270	270	138	161	459
COOLING VELOCITY (ft/min)	81	56	529	529	484	338	388	444	438	438	438	69	218	56
OUTLET GRILL SIZE	3X10	4X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	4X10

SUPPLY AIR TRUNK SIZE												RETURN AIR TRUNK SIZE												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 CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)					
TRUNK A	265	9.2	10	8	648	0.06	12.8	20	8	583	0	0.05	0	0	TRUNK Q	0	0.05	0	0	X				
TRUNK B	210	0.07	8.1	X	TRUNK G	0.06	20.3	38	X	741	0	0.05	0	0	TRUNK P	0	0.05	0	0	X				
TRUNK C	657	0.06	12.9	X	TRUNK H	0.05	0	0	X	10	0	0.05	0	0	TRUNK R	0	0.05	0	0	X				
TRUNK D	262	0.05	9.6	X	TRUNK I	0	0.00	0	X	8	0	0.05	0	0	TRUNK S	0	0.05	0	0	X				
TRUNK E	1309	0.05	17.4	X	TRUNK J	0	0.00	0	X	8	0	0.05	0	0	TRUNK T	0	0.05	0	0	X				
TRUNK F	402	0.06	10.7	X	TRUNK K	0	0.00	0	X	8	0	0.05	0	0	TRUNK U	0	0.05	0	0	X				
TRUNK G	265	9.2	10	8	TRUNK L	0	0.00	0	X	8	0	0.05	0	0	TRUNK V	0	0.05	0	0	X				
TRUNK H	210	0.07	8.1	X	TRUNK M	0	0.00	0	X	8	0	0.05	0	0	TRUNK W	0	0.05	0	0	X				
TRUNK I	657	0.06	12.9	X	TRUNK N	0	0.00	0	X	8	0	0.05	0	0	TRUNK X	0	0.05	0	0	X				
TRUNK J	262	0.05	9.6	X	TRUNK O	0	0.00	0	X	8	0	0.05	0	0	TRUNK Y	0	0.05	0	0	X				
TRUNK K	1309	0.05	17.4	X	TRUNK P	0	0.00	0	X	8	0	0.05	0	0	TRUNK Z	0	0.05	0	0	X				
TRUNK L	402	0.06	10.7	X	TRUNK Q	0	0.00	0	X	8	0	0.05	0	0	TRUNK AA	0	0.05	0	0	X				
TRUNK M	265	9.2	10	8	TRUNK R	0	0.00	0	X	8	0	0.05	0	0	TRUNK AB	0	0.05	0	0	X				
TRUNK N	210	0.07	8.1	X	TRUNK S	0	0.00	0	X	8	0	0.05	0	0	TRUNK AC	0	0.05	0	0	X				
TRUNK O	657	0.06	12.9	X	TRUNK T	0	0.00	0	X	8	0	0.05	0	0	TRUNK AD	0	0.05	0	0	X				
TRUNK P	262	0.05	9.6	X	TRUNK U	0	0.00	0	X	8	0	0.05	0	0	TRUNK AE	0	0.05	0	0	X				
TRUNK Q	1309	0.05	17.4	X	TRUNK V	0	0.00	0	X	8	0	0.05	0	0	TRUNK AF	0	0.05	0	0	X				
TRUNK R	402	0.06	10.7	X	TRUNK W	0	0.00	0	X	8	0	0.05	0	0	TRUNK AG	0	0.05	0	0	X				
TRUNK S	265	9.2	10	8	TRUNK X	0	0.00	0	X	8	0	0.05	0	0	TRUNK AH	0	0.05	0	0	X				
TRUNK T	210	0.07	8.1	X	TRUNK Y	0	0.00	0	X	8	0	0.05	0	0	TRUNK AI	0	0.05	0	0	X				
TRUNK U	657	0.06	12.9	X	TRUNK Z	0	0.00	0	X	8	0	0.05	0	0	TRUNK AJ	0	0.05	0	0	X				
TRUNK V	262	0.05	9.6	X	TRUNK AA	0	0.00	0	X	8	0	0.05	0	0	TRUNK AK	0	0.05	0	0	X				
TRUNK W	1309	0.05	17.4	X	TRUNK AB	0	0.00	0	X	8	0	0.05	0	0	TRUNK AL	0	0.05	0	0	X				
TRUNK X	402	0.06	10.7	X	TRUNK AC	0	0.00	0	X	8	0	0.05	0	0	TRUNK AM	0	0.05	0	0	X				
TRUNK Y	265	9.2	10	8	TRUNK AD	0	0.00	0	X	8	0	0.05	0	0	TRUNK AN	0	0.05	0	0	X				
TRUNK Z	210	0.07	8.1	X	TRUNK AE	0	0.00	0	X	8	0	0.05	0	0	TRUNK AO	0	0.05	0	0	X				
TRUNK AA	657	0.06	12.9	X	TRUNK AF	0	0.00	0	X	8	0	0.05	0	0	TRUNK AP	0	0.05	0	0	X				
TRUNK AB	262	0.05	9.6	X	TRUNK AG	0	0.00	0	X	8	0	0.05	0	0	TRUNK AQ	0	0.05	0	0	X				
TRUNK AC	1309	0.05	17.4	X	TRUNK AH	0	0.00	0	X	8	0	0.05	0	0	TRUNK AR	0	0.05	0	0	X				
TRUNK AD	402	0.06	10.7	X	TRUNK AI	0	0.00	0	X	8	0	0.05	0	0	TRUNK AS	0	0.05	0	0	X				
TRUNK AE	265	9.2	10	8	TRUNK AJ	0	0.00	0	X	8	0	0.05	0	0	TRUNK AT	0	0.05	0	0	X				
TRUNK AF	210	0.07	8.1	X	TRUNK AK	0	0.00	0	X	8	0	0.05	0	0	TRUNK AU	0	0.05	0	0	X				
TRUNK AG	657	0.06	12.9	X	TRUNK AL	0	0.00	0	X	8	0	0.05	0	0	TRUNK AV	0	0.05	0	0	X				
TRUNK AH	262	0.05	9.6	X	TRUNK AM	0	0.00	0	X	8	0	0.05	0	0	TRUNK AW	0	0.05	0	0	X				
TRUNK AI	1309	0.05	17.4	X	TRUNK AN	0	0.00	0	X	8	0	0.05	0	0	TRUNK AX	0	0.05	0	0	X				
TRUNK AJ	402	0.06	10.7	X	TRUNK AO	0	0.00	0	X	8	0	0.05	0	0	TRUNK AY	0	0.05	0	0	X				
TRUNK AK	265	9.2	10	8	TRUNK AP	0	0.00	0	X	8	0	0.05	0	0	TRUNK AZ	0	0.05	0	0	X				
TRUNK AL	210	0.07	8.1	X	TRUNK AQ	0	0.00	0	X	8	0	0.05	0	0	TRUNK BA	0	0.05	0	0	X				
TRUNK AM	657	0.06	12.9	X	TRUNK AR	0	0.00	0	X	8	0	0.05	0	0	TRUNK BB	0	0.05	0	0	X				
TRUNK AN	262	0.05	9.6	X	TRUNK AS	0	0.00	0	X	8	0	0.05	0	0	TRUNK BC	0	0.05	0	0	X				
TRUNK AO	1309	0.05	17.4	X	TRUNK AT	0	0.00	0	X	8	0	0.05	0	0	TRUNK BD	0	0.05	0	0	X				
TRUNK AP	402	0.06	10.7	X	TRUNK AU	0	0.00	0	X	8	0	0.05	0	0	TRUNK BE	0	0.05	0	0	X				
TRUNK AQ	265	9.2	10	8	TRUNK AV	0	0.00	0	X	8	0	0.05	0	0	TRUNK BF	0	0.05	0	0	X				
TRUNK AR	210	0.07	8.1	X	TRUNK AW	0	0.00	0	X	8	0	0.05	0	0	TRUNK BG	0	0.05	0	0	X				
TRUNK AS	657	0.06	12.9	X	TRUNK AX	0	0.00	0	X	8	0	0.05	0	0	TRUNK BH	0	0.05	0	0	X				
TRUNK AT	262	0.05	9.6	X	TRUNK AY	0	0.00	0	X	8	0	0.05	0	0	TRUNK BI	0	0.05	0	0	X				
TRUNK AU	1309	0.05	17.4	X	TRUNK AZ	0	0.00	0	X	8	0	0.05	0	0	TRUNK BJ	0	0.05	0	0	X				
TRUNK AV	402	0.06	10.7	X	TRUNK BA	0	0.00	0	X	8	0	0.05	0	0	TRUNK BK	0	0.05	0	0	X				
TRUNK AW	265	9.2	10	8	TRUNK BB	0	0.00	0	X	8	0	0.05	0	0	TRUNK BL	0	0.05	0	0	X				
TRUNK AX	210	0.07	8.1	X	TRUNK BC	0	0.00	0	X	8	0	0.05	0	0	TRUNK BM	0	0.05	0	0	X				
TRUNK AY	657	0.06	12.9	X	TRUNK BD	0	0.00	0	X	8	0	0.05	0	0	TRUNK BN	0	0.05	0	0	X				
TRUNK AZ	262	0.05	9.6	X	TRUNK BE	0	0.00	0	X	8	0	0.05	0	0	TRUNK BO	0	0.05	0	0	X				
TRUNK BA	1309	0.05	17.4	X	TRUNK BF	0	0.00	0	X	8	0	0.05	0	0	TRUNK BP	0	0.05	0	0	X				
TRUNK BB	402	0.06	10.7	X	TRUNK BG	0	0.00	0	X	8	0	0.05	0	0	TRUNK BQ	0	0.05	0	0	X				
TRUNK BC	265	9.2	10	8	TRUNK BH	0	0.00	0	X	8	0	0.05	0	0	TRUNK BR	0	0.05	0	0	X				
TRUNK BD	210	0.07	8.1	X	TRUNK BI	0	0.00	0	X	8	0	0.05	0	0	TRUNK BS	0	0.05	0	0	X				
TRUNK BE	657	0.06	12.9	X	TRUNK BJ	0	0.00	0	X	8	0	0.05	0	0	TRUNK BT	0	0.05	0	0	X				
TRUNK BF	262	0.05	9.6	X	TRUNK BK	0	0.00	0	X	8	0	0.05	0	0	TRUNK BU	0	0.05	0	0	X				
TRUNK BG	1309	0.05	17.4	X	TRUNK BL	0	0.00	0	X	8	0	0.05	0	0	TRUNK BV	0	0.05	0	0	X				
TRUNK BH	402	0.06	10.7	X	TRUNK BM	0	0.00	0	X	8	0	0.05	0	0	TRUNK BW	0	0.05	0	0	X				
TRUNK BI	265	9.2	10	8	TRUNK BN	0	0.00	0	X	8	0	0.05	0	0	TRUNK BX	0	0.05	0	0	X				
TRUNK BJ	210	0.07	8.1	X	TRUNK BO	0	0.00	0	X	8	0	0.05	0	0	TRUNK BY	0	0.05	0	0	X				
TRUNK BK	657	0.06	12.9	X	TRUNK BP	0	0.00	0	X	8	0	0.05	0	0	TRUNK BZ	0	0.05	0	0	X				
TRUNK BL	262	0.05	9.6	X	TRUNK BQ	0	0.00	0	X	8	0	0.05	0	0	TRUNK CA	0	0.05	0	0	X				
TRUNK BM	1309	0.05	17.4	X	TRUNK BR	0	0.00	0	X	8	0	0.05	0	0	TRUNK CB	0	0.05	0	0	X				
TRUNK BN	402	0.06	10.7	X	TRUNK BS	0	0.00	0	X	8	0	0.05	0	0	TRUNK CC	0	0.05	0	0	X				
TRUNK BO	265	9.2	10	8	TRUNK BT	0	0.00	0	X	8	0	0.05	0	0	TRUNK CD	0	0.05	0	0	X				
TRUNK BP	210	0.07	8.1	X	TRUNK BU	0	0.00	0	X	8	0	0.05	0	0	TRUNK CE	0	0.05	0	0	X				
TRUNK BQ	657	0.06	12.9	X	TRUNK BV	0	0.00	0	X	8	0	0.05	0	0	TRUNK CF	0	0.05	0	0	X				
TRUNK BR	262	0.05	9.6	X	TRUNK BW	0	0.00	0	X	8	0	0.05	0	0	TRUNK CG	0	0.05	0	0	X				
TRUNK BS	1309	0.05	17.4	X	TRUNK BX	0	0.00	0	X	8	0	0.05	0	0	TRUNK CH	0	0.05	0	0	X				
TRUNK BT	402	0.06	10.7	X	TRUNK BY	0	0.00	0	X	8	0	0.05	0	0	TRUNK CI	0	0.05	0	0	X				
TRUNK BU	265	9.2	10	8	TRUNK BZ	0	0.00	0	X	8	0	0.05	0	0	TRUNK CJ	0	0.05	0	0	X				
TRUNK BV	210	0.07	8.1	X	TRUNK CA	0	0.00	0	X	8	0	0.05	0	0	TRUNK CK	0	0.05	0	0	X				
TRUNK BW	657	0.06	12.9	X	TRUNK CB	0	0.00	0	X	8	0	0.05	0	0	TRUNK CL	0	0.05	0	0	X				
TRUNK BX	262	0.05	9.6	X	TRUNK CC	0	0.00	0	X	8	0	0.05	0	0	TRUNK CM	0	0.05	0	0	X				
TRUNK BY	1309	0.05	17.4	X	TRUNK CD	0	0.00	0	X	8	0	0.05	0	0	TRUNK CN	0	0.05	0	0	X				
TRUNK BZ	402	0.06	10.7	X	TRUNK CE	0	0.00	0	X	8	0	0.05	0	0	TRUNK CO	0	0.05	0	0	X				
TRUNK CA	265	9.2	10	8	TRUNK CF	0	0.00	0	X	8	0	0.05	0	0	TRUNK CP	0	0.05	0	0	X				
TRUNK CB	210	0.07	8.1	X	TRUNK CG	0	0.00	0	X	8	0	0.05	0	0	TRUNK CQ	0	0.05	0	0	X				
TRUNK CC	657	0.06	12.9	X	TRUNK CH	0	0.00	0	X	8	0	0.05	0	0	TRUNK CR	0	0.05	0	0	X				
TRUNK CD	262	0.05	9.6	X</																				

TYPE: 5005 ELEV. 'B' - THE HIGHBOURNE
SITE NAME: PINE VALLEY & TESTON

LO # 77533
OPT. 5 BED

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES		9.32.3.1(1)
a)	☒ Direct vent (sealed combustion) only	
b)	☐ Positive venting induced draft (except fireplaces)	
c)	☐ Natural draft, B-vent or induced draft gas fireplace	
d)	☐ Solid Fuel (including fireplaces)	
e)	☐ No Combustion Appliances	

HEATING SYSTEM	
☒ Forced Air	☐ Non Forced Air
☐ Electric Space Heat	

HOUSE TYPE		9.32.1(2)
☒ I	Type a) or b) appliance only, no solid fuel	
☐ II	Type I except with solid fuel (including fireplaces)	
☐ III	Any Type c) appliance	
☐ IV	Type I, or II with electric space heat	
☐	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
☐ 1	Exhaust only/Forced Air System	
☐ 2	HRV with Ducting/Forced Air System	
☒ 3	HRV Simplified/connected to forced air system	
☐ 4	HRV with Ducting/non forced air system	
☐	Part 6 Design	

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	<u>2</u> @ 21.2 cfm	<u>42.4</u> cfm
Other Bedrooms	<u>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Kitchen & Bathrooms	<u>7</u> @ 10.6 cfm	<u>74.2</u> cfm
Other Rooms	<u>7</u> @ 10.6 cfm	<u>74.2</u> cfm
Table 9.32.3.A.	TOTAL	<u>233.2</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>95.4</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>233.2</u>	cfm
Less Principal Ventil. Capacity	<u>155</u>	cfm
Required Supplemental Capacity	<u>78.2</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
ENS-2/5	QTXEN050C	50	☒	0.3
ENS-4	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	☒ 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:	January-18

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																									
Formula Sheet (For Air Leakage / Ventilation Calculation)																																									
LO#: 77533		Model: 5005 ELEV. 'B' - THE HIGHBORNE		Builder: GOLD PARK HOMES		Date: 24/01/2018																																			
Volume Calculation																																									
<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>2020</td> <td>10</td> <td>20200</td> </tr> <tr> <td>First</td> <td>2020</td> <td>11</td> <td>22220</td> </tr> <tr> <td>Second</td> <td>2360</td> <td>10</td> <td>23600</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>66,020.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>1869.5 m³</td> </tr> </tbody> </table>										Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2020	10	20200	First	2020	11	22220	Second	2360	10	23600	Third	0	9	0	Fourth	0	9	0	Total:			66,020.0 ft³	Total:			1869.5 m³
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																						
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Summer DTDc	22	31	9																																						
			16																																						
6.2.6 Sensible Gain due to Air Leakage																																									
$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$																																									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>=</td> <td>0.128</td> <td>x</td> <td>519.30</td> <td>x</td> <td>9 °C</td> <td>x</td> <td>1.2</td> <td>=</td> <td>698 W</td> </tr> <tr> <td colspan="9"></td> <td>=</td> <td>2383 Btu/h</td> </tr> </table>										=	0.128	x	519.30	x	9 °C	x	1.2	=	698 W										=	2383 Btu/h											
=	0.128	x	519.30	x	9 °C	x	1.2	=	698 W																																
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6.2.7 Sensible heat Gain due to Ventilation																																									
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>155 CFM</td> <td>x</td> <td>76 °F</td> <td>x</td> <td>1.08</td> <td>x</td> <td>0.25</td> <td>=</td> <td>661 Btu/h</td> </tr> </table>										155 CFM	x	76 °F	x	1.08	x	0.25	=	661 Btu/h																							
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5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																									
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																									
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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:** 5005 ELEV. 'B' - THE HIGHBOURNE OPT. 5 BED
SFQT: 4380 **LO#** 77533**BUILDER:** GOLD PARK HOMES
SITE: PINE VALLEY & TESTON**DESIGN ASSUMPTIONS**

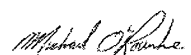
HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-4	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	72

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):	66020.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 77.0 ft	WIDTH: 42.0 ft	EXPOSED PERIMETER:	238.0 ft

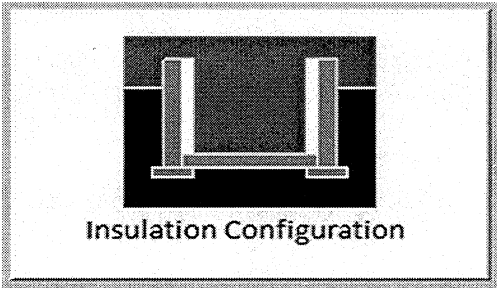
2012 OBC - COMPLIANCE PACKAGE**Component****Compliance Package
A1****Nominal Min. Eff.**

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):	23.5	 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):	1.9	
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):		2472

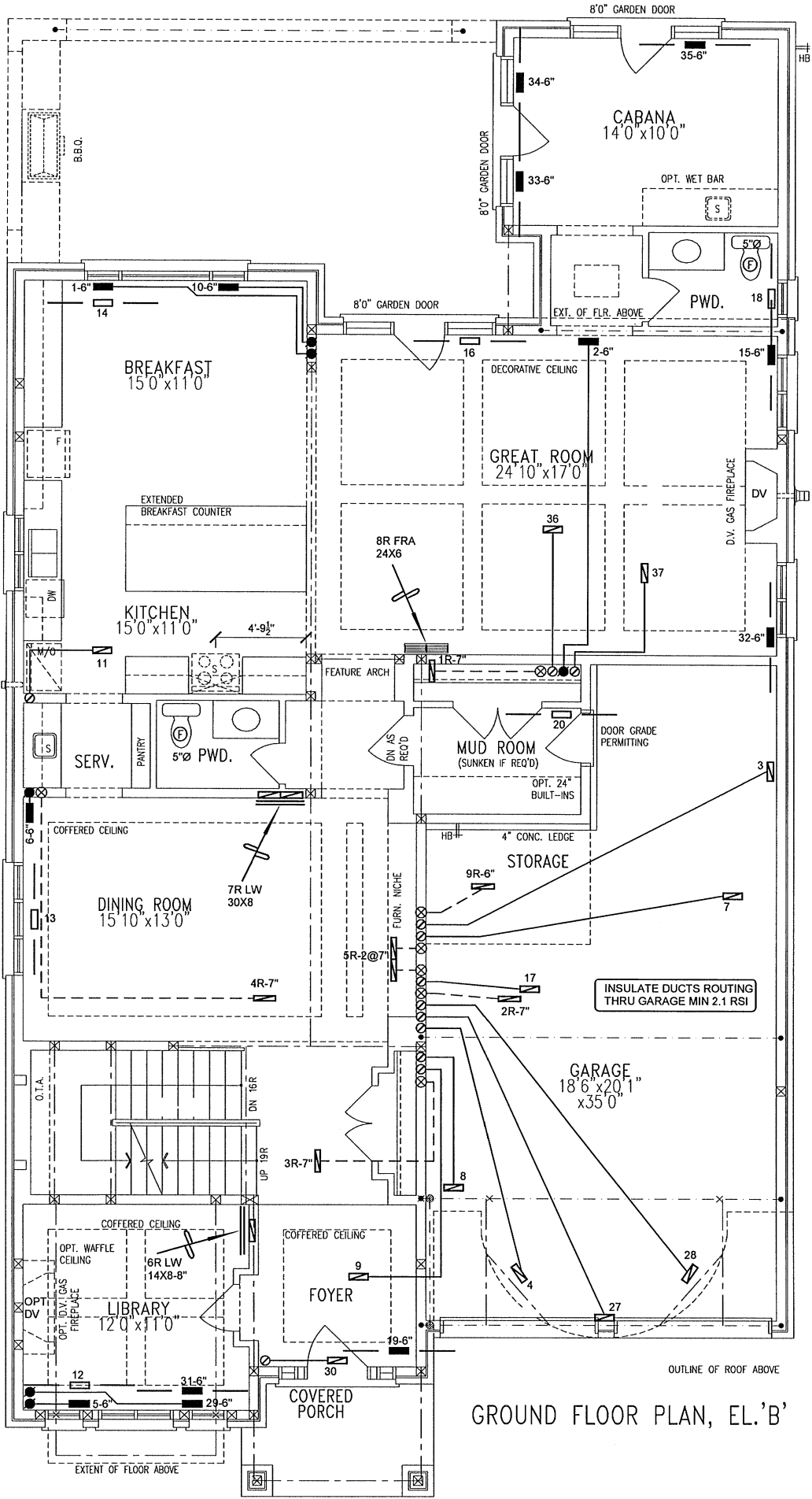
TYPE: 5005 ELEV. 'B' - THE HIGHBOURNE OPT. 5 BED
LO# 77533

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):	7.32		
Building Configuration			
Type:	Detached		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m ³):	1869.5		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	2492.1 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):	0.350		
Cooling Air Leakage Rate (ACH/H):	0.128		

TYPE: 5005 ELEV. 'B' - THE HIGHBOURNE OPT. 5 BED
LO# 77533



GROUND FLOOR PLAN, EL. 'B'

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

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

CSA-F280-12
PACKAGE A1

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

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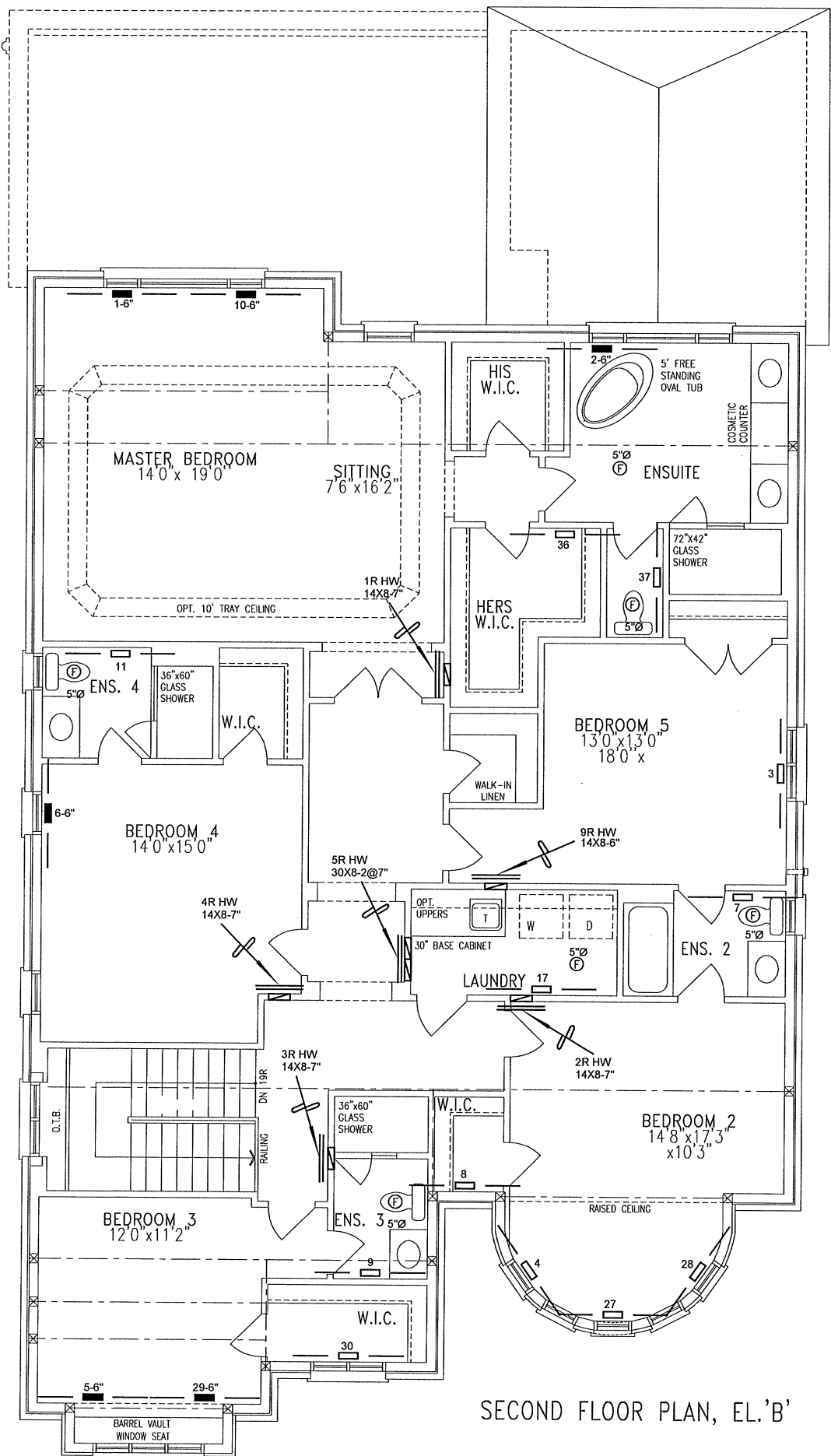
Client	GOLDPARK HOMES
Project Name	PINE VALLEY & TESTON VAUGHAN, ONTARIO THE HIGHBOURNE OPT. 5 BED 5005 ELEV. 'B' 4380 sqft

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.

Sheet Title	FIRST FLOOR HEATING LAYOUT
Date	JAN/2018
Scale	1/8" = 1'-0"
BCIN#	19669
LO#	77533



SECOND FLOOR PLAN, EL. 'B'

I MICHAEL O'Rourke HAVE REVIEW
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C, 3.2.5 OF THE
BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	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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Client
GOLDPARK HOMES
Project Name
PINE VALLEY & TESTON
VAUGHAN, ONTARIO
THE HIGHBOURNE
OPT. 5 BED
5005 ELEV. 'B' 4380 sqft

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Sheet Title
SECOND FLOOR
HEATING
LAYOUT
Date
JAN/2018
Scale
1/8" = 1'-0"
BCIN# 19669
LO# 77533