


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]				
<input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings <input checked="" type="checkbox"/> HVAC – House <input type="checkbox"/> Building Services <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Fire Protection <input type="checkbox"/> Building Structural <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> 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: 4005 THE EDGEBROOK OPT 5 BED 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.				
September 10, 2018				
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 & TESTON BUILDERS: GOLD PARK HOMES TYPE: OPT 5 BED DATE: Sep-18 WINTER NATURAL AIR CHANGE RATE 0.351 HEAT LOSS AT "F" 76 CSA-F280-12
GFA: 3481 LO# 77462 SUMMER NATURAL AIR CHANGE RATE 0.128 HEAT GAIN AT "F" 16 SB-12 PACKAGE A1

ROOM USE	EXP. WALL CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-3/4	BED-5	BATH
FACTORS										
GRS.WALL AREA	374	256	73	118	118	118	118	73	291	55
GLAZING	0	0	0	0	0	0	0	0	0	0
NORTH	21.3	16.8	0	0	0	0	0	0	0	0
EAST	21.3	42.4	0	0	0	0	0	0	0	0
SOUTH	21.3	25.7	0	0	0	0	0	0	0	0
WEST	21.3	42.4	0	0	0	0	0	0	0	0
SKYL.T.	37.2	103.0	0	0	0	0	0	0	0	0
DOORS	25.2	5.2	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.5	340	1616	316	223	994	207	73	326	58
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.7	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.5	375	481	238	192	246	123	88	113
EXPOSED FLOOR	2.7	1.4	0	0	0	0	0	0	0	0
NO A/TTC EXPOSED FLOOR	2.6	0.5	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS										
SLAB ON GRADE HEAT LOSS										
SUB TOTAL HT LOSS			1922	438	1148	1171	726	524	4087	566
LEVEL FACTOR / MULT IPLIER	0.20	0.36	0.20	0.36	0.20	0.36	0.20	0.36	0.20	0.36
AIR CHANGE HEAT LOSS	974	688	157	13	411	419	389	223	1466	203
AIR CHANGE HEAT GAIN			160	13	58	77	75	0	424	16
DUCT LOSS										
DUCT GAIN										
HEAT GAIN PEOPLE	240									
HEAT GAIN APPLIANCES/LIGHTS										
TOTAL HT LOSS BTU/H	3695	2610	595	178	1714	1748	1613	847	8075	845
TOTAL HT GAIN x 1.3 BTU/H	4801	2040	2040	178	2324	2600	2347	500	7803	1345

ROOM USE	EXP. WALL CLG. HT.	GRDN	KIMIG	LAUN	WIR	FOY	LOD	BAS
FACTORS								
GRS.WALL AREA	372	912	276	96	732	382	382	1460
GLAZING	0	0	0	0	0	0	0	0
NORTH	21.3	16.8	0	0	0	0	0	0
EAST	21.3	42.4	0	0	0	0	0	0
SOUTH	21.3	25.7	0	0	0	0	0	0
WEST	21.3	42.4	0	0	0	0	0	0
SKYL.T.	37.2	103.0	0	0	0	0	0	0
DOORS	25.2	5.2	0	0	0	0	0	0
NET EXPOSED WALL	4.5	326	1455	302	774	3454	718	805
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.7	0	0	0	0	0	0
EXPOSED CLG	1.3	0.5	0	0	0	0	0	0
NO A/TTC EXPOSED CLG	2.7	1.4	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.5	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS								
SLAB ON GRADE HEAT LOSS								
SUB TOTAL HT LOSS			2434	1486	2434	1437	1437	8537
LEVEL FACTOR / MULT IPLIER	0.30	0.44	0.30	0.44	0.30	0.44	0.30	0.44
AIR CHANGE HEAT LOSS	1071	167	1071	167	1071	167	1071	167
AIR CHANGE HEAT GAIN								
DUCT LOSS								
DUCT GAIN								
HEAT GAIN PEOPLE	240							
HEAT GAIN APPLIANCES/LIGHTS								
TOTAL HT LOSS BTU/H	3505	3145	3145	3145	3145	3145	3145	3145
TOTAL HT GAIN x 1.3 BTU/H								

TOTAL HEAT T GAIN BTU/H: 48354 TONS: 4.03 LOSS DUE TO VENTILATION LOAD BTU/H: 3181 STRUCTURAL HEAT LOSS: 66134 TOTAL COMBINED HEAT LOSS BTU/H: 88315

Michael O'Rourke

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

TYPE: 4005 THE EDGEBROOK

GFA: 3481

DATE: Sep-18

LO# 77462

HEATING CFM	1525	COOLING CFM	1525
TOTAL HEAT LOSS	66,134	TOTAL HEAT GAIN	47,693
AIR FLOW RATE CFM	23.06	AIR FLOW RATE CFM	31.98

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

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

EL296UH090XE48C
FAN SPEED
LOW 0
MEDIUM 1105
HIGH 1255

AFUE = 96 %
INPUT (BTU/H) = 88,000
OUTPUT (BTU/H) = 85,000
DESIGN CFM = 1525
CFM @ 0" W.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	9	5
R/A	0	0	5	2	1

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

All S/A runs 5'x0" unless noted otherwise on layout.

RUN #	ROOM NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-3/4	BED-5	BED-5	MBR	BATH	GRDN	K/M/G	K/M/G	K/M/G	K/M/G	K/M/G	LAUN	W/R	FOY	FOY	BED-5	K/M/G	BAS	BAS
2	RM LOSS MBH	1.85	2.61	1.71	1.75	1.51	0.85	2.02	2.02	1.85	0.85	3.50	2.30	2.30	2.30	2.30	2.30	2.59	0.78	4.06	4.06	2.02	2.30	4.46	4.46
3	CFM PER RUN HEAT	43	60	14	40	35	20	47	47	43	19	81	53	53	53	53	53	60	18	94	94	47	53	103	103
4	RM GAIN MBH	2.25	2.04	0.18	2.32	2.60	0.50	2.60	2.60	2.25	1.34	3.14	2.61	2.61	2.61	2.61	2.61	1.71	0.38	2.32	2.32	2.60	2.61	0.75	0.75
5	CFM PER RUN COOLING	72	65	6	74	83	16	83	83	72	43	101	84	84	84	84	84	55	12	74	74	83	84	24	24
6	ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.16	0.17	0.16	0.16	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.16	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.16
7	EQUIVALENT LENGTH	64	42	87	52	15	38	22	40	43	31	12	42	42	48	57	67	67	6	36	25	46	63	36	54
8	ACTUAL DUCT LGH	150	130	190	170	180	140	170	165	130	180	165	140	130	100	100	100	180	180	100	120	160	120	150	140
9	TOTAL EFFECTIVE LENGTH	214	172	277	222	195	178	192	205	193	209	211	177	182	178	157	247	247	186	136	145	206	183	186	194
10	ADJUSTED PRESSURE	0.08	0.1	0.06	0.08	0.08	0.1	0.09	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.1	0.07	0.09	0.12	0.11	0.08	0.09	0.09	0.08	0.08
11	ROUND DUCT SIZE	5	5	4	5	6	5	4	6	5	4	6	5	5	5	5	5	5	4	5	5	6	5	6	6
12	HEATING VELOCITY (ft/min)	316	441	161	294	204	257	229	240	316	218	413	389	389	389	389	389	441	207	690	690	240	389	525	525
13	COOLING VELOCITY (ft/min)	529	477	69	543	423	551	184	423	423	493	515	617	617	617	617	617	404	138	543	543	423	617	122	122
14	OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	3X10	3X10	4X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10	4X10
15	TRUNK	B	C	A	D	C	C	C	D	D	D	C	B	B	B	B	B	A	C	D	D	D	A	B	A

RUN #	ROOM NAME	25	26	27
1	BAS	BAS	BAS	BAS
2	RM LOSS MBH	4.46	4.46	4.46
3	CFM PER RUN HEAT	103	103	103
4	RM GAIN MBH	0.75	0.75	0.75
5	CFM PER RUN COOLING	24	24	24
6	ADJUSTED PRESSURE	0.16	0.16	0.16
7	ACTUAL DUCT LGH	44	11	39
8	EQUIVALENT LENGTH	110	130	160
9	TOTAL EFFECTIVE LENGTH	154	141	199
10	ADJUSTED PRESSURE	0.11	0.11	0.08
11	ROUND DUCT SIZE	6	6	6
12	HEATING VELOCITY (ft/min)	525	525	525
13	COOLING VELOCITY (ft/min)	122	122	122
14	OUTLET GRILL SIZE	4X10	4X10	4X10
15	TRUNK	B	C	D

RUN #	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)
1	TRUNK A	273	0.06	9.3	10	0	0.00	0	0	0	0	0.00	0	0	0
2	TRUNK B	681	0.06	13.1	20	0	0.00	0	0	0	0	0.00	0	0	0
3	TRUNK C	1038	0.06	15.3	28	0	0.00	0	0	0	0	0.00	0	0	0
4	TRUNK D	491	0.08	10.7	14	0	0.00	0	0	0	0	0.00	0	0	0
5	TRUNK E	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
6	TRUNK F	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
7	TRUNK G	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
8	TRUNK H	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
9	TRUNK I	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
10	TRUNK J	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
11	TRUNK K	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
12	TRUNK L	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
13	TRUNK M	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
14	TRUNK N	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
15	TRUNK O	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
16	TRUNK P	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
17	TRUNK Q	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
18	TRUNK R	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
19	TRUNK S	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
20	TRUNK T	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
21	TRUNK U	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
22	TRUNK V	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
23	TRUNK W	0	0.00	0	0	0	0.00	0	0	0	0	0.00	0	0	0
24	TRUNK X	1265	0.05	17.2	28	0	0.05	17.2	28	0	0.05	17.2	28	0	0
25	TRUNK Y	565	0.05	12.7	18	0	0.05	12.7	18	0	0.05	12.7	18	0	0
26	TRUNK Z	930	0.05	15.4	28	0	0.05	15.4	28	0	0.05	15.4	28	0	0
27	DROP	1525	0.05	18.5	24	0	0.05	18.5	24	0	0.05	18.5	24	0	0

RUN #	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)
1	TRUNK A	135	0.15	13.0	10	0	0.15	13.0	10	0	0.15	13.0	10	0	0
2	TRUNK B	79	0.15	13.0	10	0	0.15	13.0	10	0	0.15	13.0	10	0	0
3	TRUNK C	230	0.15	13.0	10	0	0.15	13.0	10	0	0.15	13.0	10	0	0
4	TRUNK D	309	0.15	13.0	10	0	0.15	13.0	10	0	0.15	13.0	10	0	0
5	TRUNK E	7.5	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
6	TRUNK F	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
7	TRUNK G	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
8	TRUNK H	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
9	TRUNK I	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
10	TRUNK J	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
11	TRUNK K	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
12	TRUNK L	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
13	TRUNK M	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
14	TRUNK N	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
15	TRUNK O	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
16	TRUNK P	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
17	TRUNK Q	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
18	TRUNK R	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
19	TRUNK S	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
20	TRUNK T	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
21	TRUNK U	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
22	TRUNK V	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
23	TRUNK W	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
24	TRUNK X	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
25	TRUNK Y	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
26	TRUNK Z	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0
27	DROP	8	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0.05	0.06	0.08	0	0

TYPE: 4005 THE EDGEBROOK
SITE NAME: PINE VALLEY & TESTON

LO # 77462
OPT 5 BED

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	<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>4</u> @ 10.6 cfm	<u>42.4</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	95.4	cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>180.2</u>	cfm
Less Principal Ventil. Capacity	<u>155</u>	cfm
Required Supplemental Capacity	<u>25.2</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model:	VANEE 65H
Location:	BSMT
<u>155.0</u> cfm	<u>3.0</u> sones
<input checked="" type="checkbox"/>	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
ENS	QTXEN050C	50	<input checked="" type="checkbox"/>
ENS-3/4	QTXEN050C	50	<input checked="" type="checkbox"/>
BATH	QTXEN050C	50	<input checked="" type="checkbox"/>
W/R	QTXEN050C	50	<input checked="" type="checkbox"/>

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	<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:	September-18

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																															
Formula Sheet (For Air Leakage / Ventilation Calculation)																																															
LO#: 77462		Model: 4005 THE EDGEBROOK		Builder: GOLD PARK HOMES		Date: 9/10/2018																																									
Volume Calculation						Air Change & Delta T Data																																									
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6.2.6 Sensible Gain due to Air Leakage																																															
$HG_{satlb} = LR_{airlc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$						$= 0.128 \times 406.09 \times 9^\circ\text{C} \times 1.2 = 548 \text{ W}$																																									
						$= 24645 \text{ Btu/h}$																																									
6.2.7 Sensible heat Gain due to Ventilation																																															
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$						$155 \text{ CFM} \times 16^\circ\text{F} \times 1.08 \times 0.25 = 661 \text{ Btu/h}$																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																															
$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{aglevel} + HL_{bglevel})\}$						<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <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_{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;">24,645</td> <td>9,975</td> <td>1.235</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>16,801</td> <td>0.440</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>13,769</td> <td>0.358</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> </tbody> </table>				Level	Level Factor (LF)	HLairbv 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	24,645	9,975	1.235	2	0.3	16,801	0.440	3	0.2	13,769	0.358	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																																															

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 4005 THE EDGEBROOK	OPT 5 BED	BUILDER: GOLD PARK HOMES
SFQT: 3481	LO# 77462	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 (ft³):	51626.9	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.1 ft
LENGTH: 67.0 ft	WIDTH: 32.0 ft	EXPOSED PERIMETER:	198.0 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	-

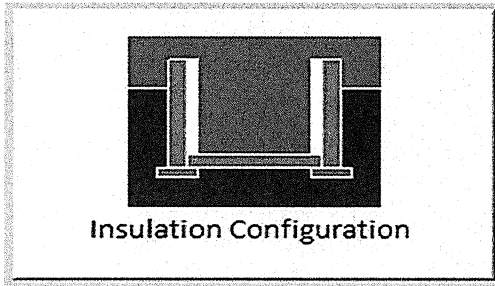
INDIVIDUAL BCIN: 19669

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):	20.4	 Insulation Configuration
Floor Width (m):	9.8	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.8	
Depth Below Grade (m):	1.86	
Window Area (m ²):	3.3	
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):		1955

TYPE: 4005 THE EDGEBROOK
LO# 77462

OPT 5 BED

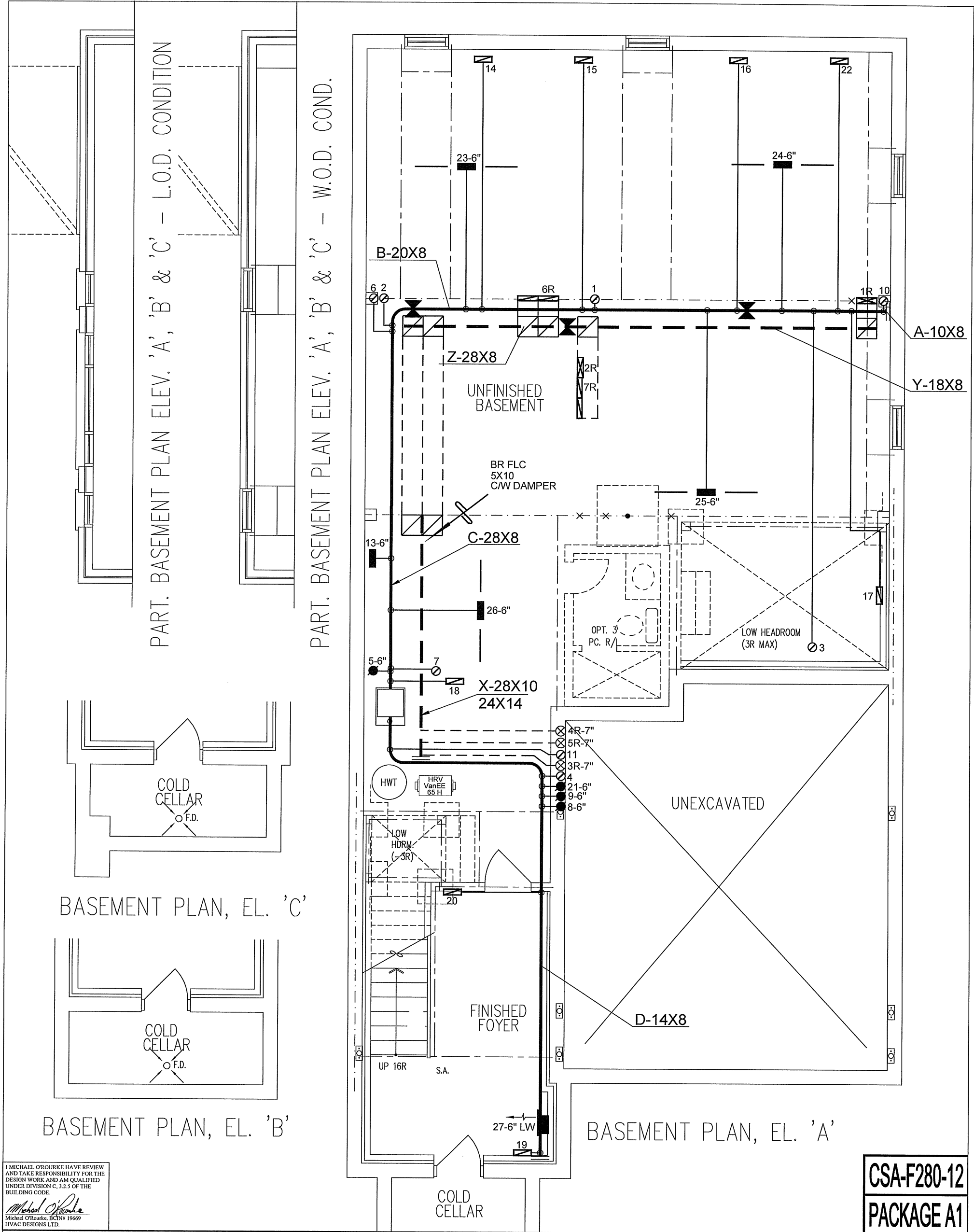
Air Infiltration Residential Load Calculator

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):	7.35			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1461.9			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1948.8 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):	0.351			
Cooling Air Leakage Rate (ACH/H):	0.128			

TYPE: 4005 THE EDGEBROOK
LO# 77462

OPT 5 BED



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.

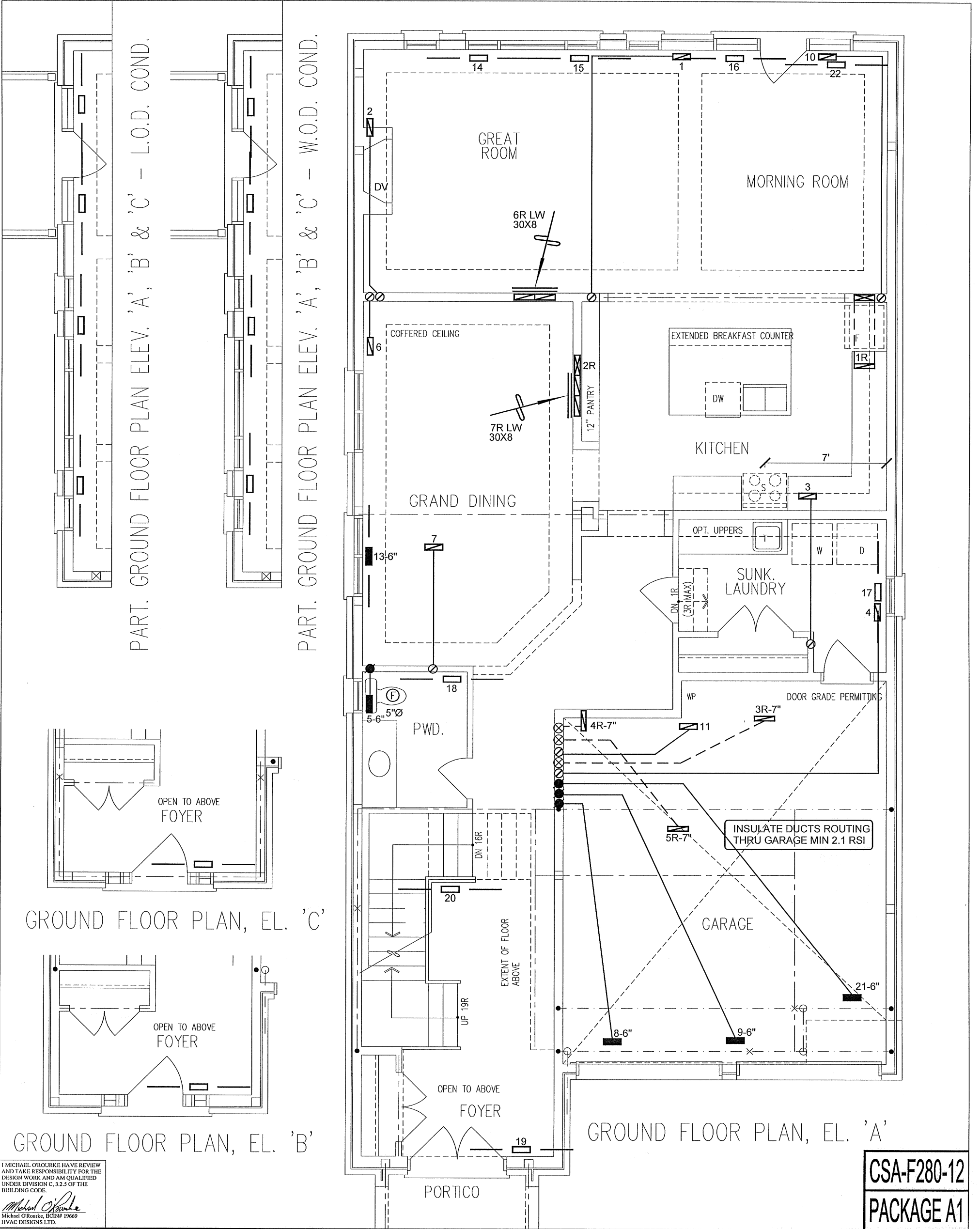
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

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

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Client		<div><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></div>	HEAT LOSS 69315 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS		Sheet Title		
GOLD PARK HOMES			MAKE LENNOX	3RD FLOOR				BASEMENT HEATING LAYOUT	
Project Name PINE VALLEY & TESTON VAUGHAN, ONTARIO			MODEL EL296UH090XE48C	2ND FLOOR		12	5		3
			INPUT 88 MBTU/H	1ST FLOOR		9	2		2
THE EDGEBROOK 4005 OPT 5 BED 3481 sqft			OUTPUT 85 MBTU/H	BASEMENT		5	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 3/16" = 1'-0"	
		FAN SPEED 1525 cfm @ 0.6" w.c.						BCIN# 19669	
								LO# 77462	



HVAC LEGEND							3.		
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	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER		Date
							REVISIONS		

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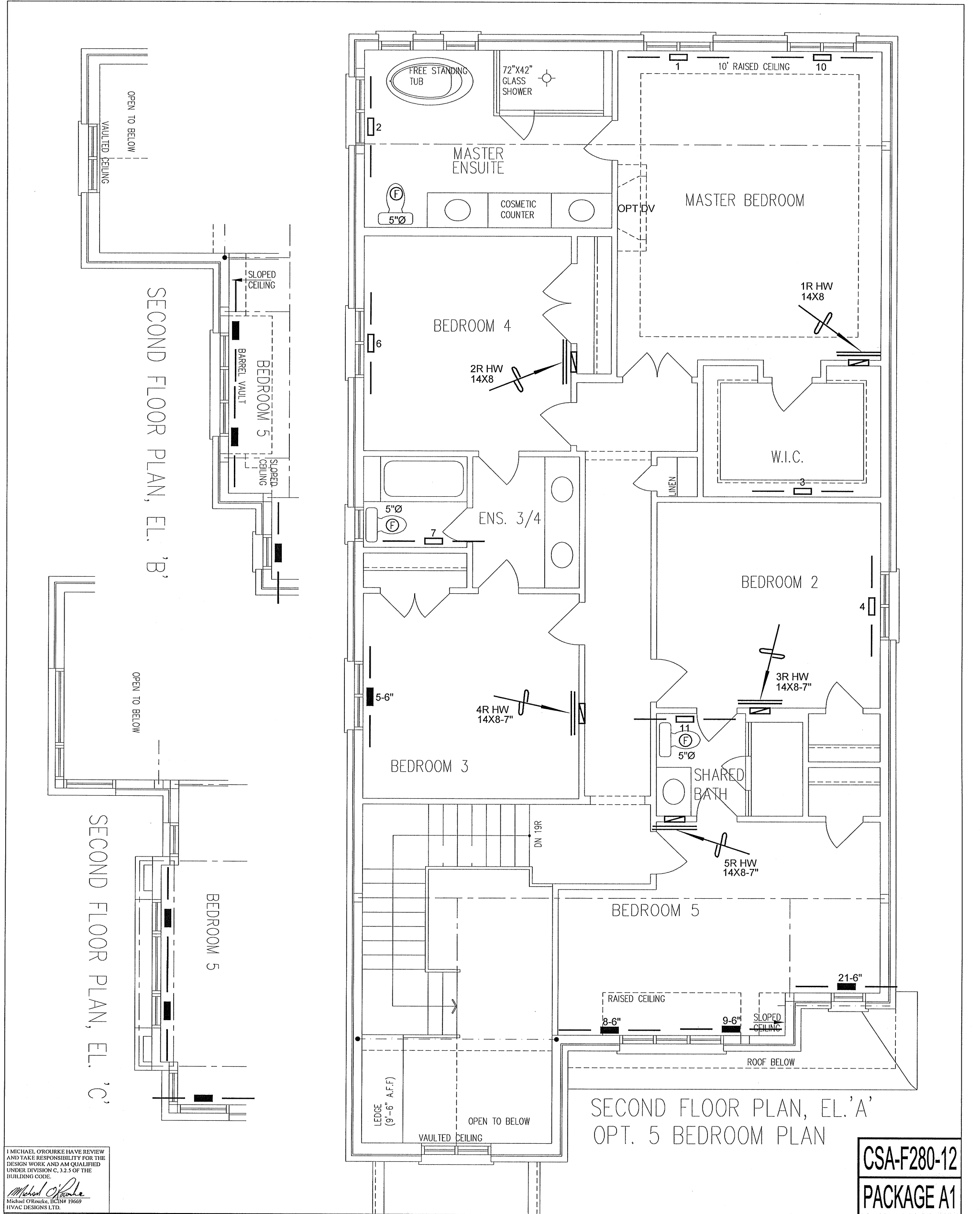
Client		Sheet Title		
GOLD PARK HOMES		FIRST FLOOR HEATING LAYOUT		
Project Name		Date		
PINE VALLEY & TESTON VAUGHAN, ONTARIO		JAN/2018		
THE EDGEBROOK		Scale		
4005 OPT 5 BED 3481 sqft		3/16" = 1'-0"		
		BCIN# 19669		
		LO# 77462		



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.



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.	DECK CONDITIONS ADDED
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	REVISED AS PER CAD
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							REVISIONS		

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GOLD PARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	JAN/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
THE EDGEBROOK			BCIN# 19669	
4005 OPT 5 BED 3481 sqft			LO#	77462