


## Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

<b>A. Project Information</b>			
Building number, street name		Unit no.	Lot/con.
Municipality VAUGHAN (WOODBIDGE)	Postal code	Plan number/ other description	
<b>B. Individual who reviews and takes responsibility for design activities</b>			
Name <b>MICHAEL O'ROURKE</b>		Firm <b>HVAC DESIGNS LTD.</b>	
Street address <b>375 FINLEY AVE</b>		Unit no. <b>202</b>	Lot/con. <b>N/A</b>
Municipality <b>AJAX</b>	Postal code <b>L1S 2E2</b>	Province <b>ONTARIO</b>	E-mail <b>info@hvacdesigns.ca</b>
Telephone number <b>(905) 619-2300</b>	Fax number <b>(905) 619-2375</b>	Cell number ( )	
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]</b>			
<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 <b>HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12</b>		<b>Model:</b> 4009  <b>Project:</b> PINE VALLEY & TESTON	
<b>D. Declaration of Designer</b>			
I, <u><b>MICHAEL O'ROURKE</b></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.			
June 29, 2020			
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										DATE: Jun-20										WINTER NATURAL AIR CHANGE RATE 0.398										HEAT LOSS ΔT °F. 76				CSA-F280-12																							
BUILDER: GOLD PARK HOMES										TYPE: 4009										GFA: 3025										LO# 86411										SUMMER NATURAL AIR CHANGE RATE 0.134										HEAT GAIN ΔT °F. 13				SB-12 PACKAGE A1			
ROOM USE				MBR				ENS				BED-2				BED-3				BED-4				BATH				LOFT				ENS-2																									
EXP. WALL				36				9				14				12				39				7				16				13																									
CLG. HT.				10				10				10				9				9				9				9				10																									
FACTORS																																																									
GRS.WALL AREA				360				90				140				108				351				63				144				130																									
GLAZING				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN																									
NORTH				21.3	16.0	0	0	0	32	681	511	21	447	335	17	362	272	0	0	0	8	170	128	0	0	0	8	170	128	0	0	0																									
EAST				21.3	41.6	0	0	0	0	0	0	0	0	0	0	0	0	40	851	1662	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0																										
WEST				21.3	41.6	43	915	1787	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																										
SKYLT.				37.2	57.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	596	913	0	0	0																										
DOORS				25.2	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																										
NET EXPOSED WALL				4.5	0.8	317	1415	238	58	259	44	119	531	89	91	406	68	311	1388	234	55	245	41	144	643	108	122	544	92	0	0	0																									
NET EXPOSED BSMT WALL ABOVE GR				3.6	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																									
EXPOSED CLG				1.3	0.6	320	411	188	153	196	90	0	0	0	204	262	120	216	277	127	91	117	53	288	370	169	0	0	0	0	0	0																									
NO ATTIC EXPOSED CLG				2.7	1.3	0	0	0	0	0	0	0	0	0	0	0	0	67	184	84	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	270	689	116	0	0	0	35	89	15	0	0	0	0	0	0																									
BASEMENT/CRAWL HEAT LOSS				0				0				0				0				0				0				0				0																									
SLAB ON GRADE HEAT LOSS				0				0				0				0				0				0				0				0																									
SUBTOTAL HT LOSS				2740				1136				978				1030				3389				532				1697				715																									
SUB TOTAL HT GAIN								2213				425				460				2223				223				1206				219																									
LEVEL FACTOR / MULTIPLIER				0.30	0.36					0.30	0.36	0.30	0.36	0.20	0.78	0.20	0.78	0.20	0.78	0.20	0.78	0.20	0.78	0.30	0.36																																
AIR CHANGE HEAT LOSS				994				412				355				805				2651				416				1328				259																									
AIR CHANGE HEAT GAIN								191				37				40				192				19				104				19																									
DUCT LOSS				0				0				0				0				604				0				302				0																									
DUCT GAIN								0				0				0				352				0				217				0																									
HEAT GAIN PEOPLE				240	2	480				0	0	1	240	1	240	1	240	1	240	0	0	0	0	0	0	0	0	0	0	0	0																										
HEAT GAIN APPLIANCES/LIGHTS								861				861				861				861				0				861				0																									
TOTAL HT LOSS BTU/H				3734				1548				1333				1835				6644				949				3327				974																									
TOTAL HT GAIN x 1.3 BTU/H				4869				910				2031				2081				5028				314				3105				310																									

ROOM USE			GRT			KT/DT			M/L			W/R			FOY			BAS		
EXP. WALL			36			46			19			12			43			212		
CLG. HT.			10			10			11			10			19			10		
FACTORS																				
GRS.WALL AREA			360			460			209			120			817			1484		
LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN		
GLAZING			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN		
NORTH			0 0 0			0 0 0			0 0 0			0 0 0			0 0 0			9 192 144		
EAST			0 0 0			0 0 0			0 0 0			0 0 0			63 1341 2618			0 0 0		
SOUTH			42 894 1046			64 1362 1594			0 0 0			9 192 224			0 0 0			3 64 75		
WEST			103 2192 4280			0 0 0			0 0 0			0 0 0			0 0 0			3 64 125		
SKYLT.			0 0 0			0 0 0			0 0 0			0 0 0			0 0 0			0 0 0		
DOORS			0 0 0			0 0 0			20 505 85			0 0 0			40 1010 170			20 505 85		
NET EXPOSED WALL			215 959 162			396 1767 298			189 843 142			111 495 83			714 3186 537			0 0 0		
NET EXPOSED BSMT WALL ABOVE GR			0 0 0			0 0 0			0 0 0			0 0 0			0 0 0			636 2289 385		
EXPOSED CLG			331 425 195			335 430 197			0 0 0			0 0 0			152 195 89			0 0 0		
NO ATTIC EXPOSED CLG			0 0 0			0 0 0			0 0 0			0 0 0			50 137 63			0 0 0		
EXPOSED FLOOR			0 0 0			0 0 0			0 0 0			0 0 0			0 0 0			0 0 0		
BASEMENT/CRAWL HEAT LOSS			0			0			0			0			0			7336		
SLAB ON GRADE HEAT LOSS			0			0			0			0			0					
SUBTOTAL HT LOSS			4470			3559			1348			687			5869			10449		
SUB TOTAL HT GAIN			5682			2088			227			308			3477			814		
LEVEL FACTOR / MULTIPLIER			0.30 0.36			0.30 0.36			0.30 0.36			0.30 0.36			0.30 0.36			0.50 1.24		
AIR CHANGE HEAT LOSS			1621			1291			489			249			2129			13000		
AIR CHANGE HEAT GAIN			491			180			20			27			300			70		
DUCT LOSS			0			0			0			0			0			0		
DUCT GAIN			0			0			0			0			0			0		
HEAT GAIN PEOPLE			0			0			0			0			0			0		
HEAT GAIN APPLIANCES/LIGHTS			861			861			861			861			0			861		
TOTAL HT LOSS BTU/H			6091			4850			1838			936			7999			23449		
TOTAL HT GAIN x 1.3 BTU/H			9143			4068			1440			1554			4910			2268		

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

TYPE: 4009

DATE: Jun-20

GFA: 3025

LO# 86411

HEATING CFM 1340 COOLING CFM 1340  
TOTAL HEAT LOSS 65,506 TOTAL HEAT GAIN 42,031  
AIR FLOW RATE CFM 20.46 AIR FLOW RATE CFM 31.88

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

**LENNOX**  
**EL196UH090XE48C**

AFUE = 96 %  
INPUT (BTU/H) = 88,000  
OUTPUT (BTU/H) = **85,600**

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	6	14	5
R/A	0	0	3	5	1

plenium pressure s/a 0.18  
max s/a dif press. loss 0.02  
min adjusted pressure s/a 0.16  
r/a pressure 0.17  
r/a grille press. Loss 0.02  
adjusted pressure r/a 0.15

FAN SPEED 90  
LOW 0  
MEDLOW 1080  
MEDIUM 1190  
MEDIUM HIGH 1340  
HIGH 1575

DESIGN CFM = **1340**  
CFM @ .6" E.S.P.

TEMPERATURE RISE 59 °F

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

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

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	BED-4	BED-2	BED-3	BED-4	BATH	LOFT	BED-4	MBR	ENS-2	GRT	GRT	KT/DT	KT/DT	GRT	M/L	W/R	FOY	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.87	1.55	2.21	1.33	1.83	2.21	0.95	3.33	2.21	1.87	0.97	2.03	2.03	2.43	2.43	2.03	1.84	0.94	4.00	4.00	4.69	4.69	4.69	4.69
CFM PER RUN HEAT	38	32	45	27	38	45	19	68	45	38	20	42	42	50	50	42	38	19	82	82	96	96	96	96
RM GAIN MBH.	2.43	0.91	1.68	2.03	2.08	1.68	0.31	3.10	1.68	2.43	0.31	3.05	3.05	2.03	2.03	3.05	1.44	1.55	2.46	2.46	0.45	0.45	0.45	0.45
CFM PER RUN COOLING	78	29	53	65	66	53	10	99	53	78	10	97	97	65	65	97	46	50	78	78	14	14	14	14
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.16	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	46	25	39	13	36	32	29	45	38	50	5	57	67	49	40	53	10	39	52	40	59	32	29	31
EQUIVALENT LENGTH	110	150	140	150	150	120	130	150	130	160	130	150	150	120	110	130	170	130	150	120	140	170	130	150
TOTAL EFFECTIVE LENGTH	156	175	179	163	186	152	159	195	168	210	135	207	217	169	150	183	180	169	202	160	199	202	159	181
ADJUSTED PRESSURE	0.11	0.1	0.1	0.11	0.09	0.11	0.11	0.08	0.1	0.08	0.13	0.08	0.07	0.1	0.11	0.09	0.1	0.1	0.08	0.1	0.08	0.08	0.1	0.09
ROUND DUCT SIZE	5	4	5	5	5	5	4	6	5	6	4	6	6	5	5	6	4	5	6	6	6	6	6	6
HEATING VELOCITY (ft/min)	279	367	330	198	279	330	218	347	330	194	229	214	214	367	367	214	436	140	418	418	489	489	489	489
COOLING VELOCITY (ft/min)	573	333	389	477	485	389	115	505	389	398	115	495	495	477	477	495	528	367	398	398	71	71	71	71
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	4X10
TRUNK	B	B	D	B	B	D	D	C	D	A	D	A	A	A	B	A	D	C	C	C	A	A	B	C

RUN #	25
ROOM NAME	BAS
RM LOSS MBH.	4.69
CFM PER RUN HEAT	96
RM GAIN MBH.	0.45
CFM PER RUN COOLING	14
ADJUSTED PRESSURE	0.16
ACTUAL DUCT LGH.	62
EQUIVALENT LENGTH	140
TOTAL EFFECTIVE LENGTH	202
ADJUSTED PRESSURE	0.08
ROUND DUCT SIZE	6
HEATING VELOCITY (ft/min)	489
COOLING VELOCITY (ft/min)	71
OUTLET GRILL SIZE	4X10
TRUNK	C

SUPPLY AIR TRUNK SIZE													RETURN AIR TRUNK SIZE												
	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	406	0.07	10.3	12	x	8	609	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0		
TRUNK B	687	0.07	12.6	18	x	8	687	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0		
TRUNK C	443	0.08	10.3	12	x	8	665	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0		
TRUNK D	1342	0.07	16.2	30	x	8	805	TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.05	0	0	x	8	0		
TRUNK E	0	0.00	0	0	x	8	0	TRUNK K	0	0.00	0	0	x	8	0	TRUNK S	0	0.05	0	0	x	8	0		
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0	TRUNK T	0	0.05	0	0	x	8	0		

RETURN AIR #	1	2	3	4	5	6	7	8											BR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
AIR VOLUME	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0</

TYPE: 4009  
SITE NAME: PINE VALLEY & TESTON

LO # 86411

**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>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>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Table 9.32.3.A.	TOTAL	<u>169.6</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>169.6</u>	cfm
Less Principal Ventil. Capacity	<u>79.5</u>	cfm
Required Supplemental Capacity	<u>90.1</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model:	VANEE 65H
Location:	BSMT
<u>79.5</u> cfm	<u>3.0</u> sones
<input checked="" type="checkbox"/> HVI Approved	

PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	$\Delta T$ °F	FACTOR	% LOSS
79.5 CFM	X 76 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		PANASONIC		
Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	50	<input checked="" type="checkbox"/>	0.3
BATH	FV-05-11VK1	50	<input checked="" type="checkbox"/>	0.3
ENS-2	FV-05-11VK1	50	<input checked="" type="checkbox"/>	0.3
W/R	FV-05-11VK1	50	<input checked="" type="checkbox"/>	0.3

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model:	VANEE 65H	
<u>155</u> cfm high	<u>64</u> cfm low	
<u>75</u> % Sensible Efficiency @ 32 deg F (0 deg C)	<input checked="" type="checkbox"/> 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:	June-20

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.  
INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 86411	Model: 4009	Builder: GOLD PARK HOMES	Date: 29/06/2020																																																									
<b>Volume Calculation</b>			<b>Air Change &amp; Delta T Data</b>																																																									
<b>House Volume</b> <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>1895</td> <td>10</td> <td>18950</td> </tr> <tr> <td>First</td> <td>1895</td> <td>10</td> <td>18950</td> </tr> <tr> <td>Second</td> <td>1130</td> <td>9</td> <td>10170</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>48,070.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>1361.2 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1895	10	18950	First	1895	10	18950	Second	1130	9	10170	Third	0	9	0	Fourth	0	9	0	Total:			48,070.0 ft³	Total:			1361.2 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%; text-align: center;">0.398</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.134</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td style="text-align: center;">22</td> <td style="text-align: center;">-20</td> <td style="text-align: center;">42</td> <td style="text-align: center;">76</td> </tr> <tr> <td>Summer DTDc</td> <td style="text-align: center;">24</td> <td style="text-align: center;">31</td> <td style="text-align: center;">7</td> <td style="text-align: center;">13</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.398	SUMMER NATURAL AIR CHANGE RATE	0.134	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-20	42	76	Summer DTDc	24	31	7	13
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<b>5.2.3.1 Heat Loss due to Air Leakage</b>			<b>6.2.6 Sensible Gain due to Air Leakage</b>																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ <p>0.398 x 378.11 x 42 °C x 1.2 = 7620 W</p> <p>= 26000 Btu/h</p>			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>= 0.134 x 378.11 x 7 °C x 1.2 = 431 W</p> <p>= 1470 Btu/h</p>																																																									
<b>5.2.3.2 Heat Loss due to Mechanical Ventilation</b>			<b>6.2.7 Sensible heat Gain due to Ventilation</b>																																																									
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>80 CFM x 76 °F x 1.08 x 0.25 = 1631 Btu/h</p>			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>80 CFM x 13 °F x 1.08 x 0.25 = 275 Btu/h</p>																																																									
<b>5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)</b>																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL <sub>level</sub> )	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																																								
1	0.5	26,000	10,449	1.244																																																								
2	0.3		21,503	0.363																																																								
3	0.2		6,649	0.782																																																								
4	0		0	0.000																																																								
5	0		0	0.000																																																								
<p>*HLairbv = Air leakage heat loss + ventilation heat loss</p> <p>*For a balanced or supply only ventilation system HLairve = 0</p>																																																												

**HEAT LOSS AND GAIN SUMMARY SHEET**

<b>MODEL:</b> 4009	<b>BUILDER:</b> GOLD PARK HOMES
<b>SFQT:</b> 3025	<b>SITE:</b> PINE VALLEY & TESTON
<b>LO#</b> 86411	

**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 (ft <sup>3</sup> ):	48070.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft <sup>2</sup> ):	1.75	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 73.0 ft	WIDTH: 33.0 ft	EXPOSED PERIMETER:	212.0 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	-

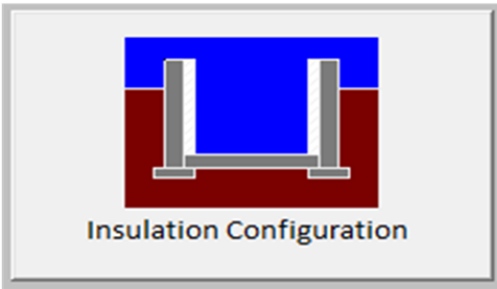
INDIVIDUAL BCIN: 19669

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):	22.3	 <p>Insulation Configuration</p>
Floor Width (m):	10.1	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m <sup>2</sup> ):	1.4	
Door Area (m <sup>2</sup> ):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		2149

TYPE: 4009  
LO# 86411

# 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):	8.84			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m <sup>3</sup> ):	1361.2			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1814.5 cm <sup>2</sup>		
	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):	0.398			
Cooling Air Leakage Rate (ACH/H):	0.134			

TYPE: 4009

LO# 86411



HVAC LEGEND	
	4X10 SUPPLY GRILLE
	14X8 RETURN GRILLE
	4X10 SUPPLY GRILLE 6'9\"/>
	30X8 RETURN GRILLE
	SUPPLY DUCTWORK
	RETURN DUCTWORK
	EXHAUST FAN
	LOW WALL
	HIGH WALL

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INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE. ALL SUPPLY BRANCH OUTLETS SHALL BE EQUIPPED WITH MANUAL BALANCING DAMPER, DUCTWORK WHICH PASSES THROUGH THE GARAGE OR UNHEATED SPACES SHALL BE ADEQUATELY INSULATED AND GAS-PROOFED

2			
1	ISSUED FOR PERMIT	JUNE 22/21	PS
No.	Revision	Date	By

SB-12 PACKAGE	A1
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ALL S/A DIFFUSERS "4x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5'Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

1. MATERIAL, WORKMANSHIP, FINISHES, AND ALL SPECIFICATIONS ARE THE DESIGN WORK AND NOT QUALIFIED UNDER PROVISION C.3.2.1 OF THE BUILDING CODE. MATERIALS SPECIFIED HEREIN 1969

*Michael G. Goff*

**HVA**DESIGNS LTD.

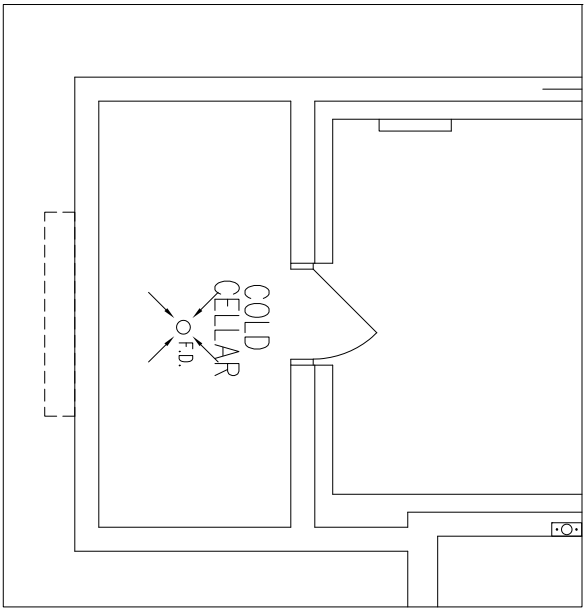
375 Finley Ave - Unit 202 - Ajax, Ontario L1S 2E2  
Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375  
Email: info@hvacadesigns.ca  
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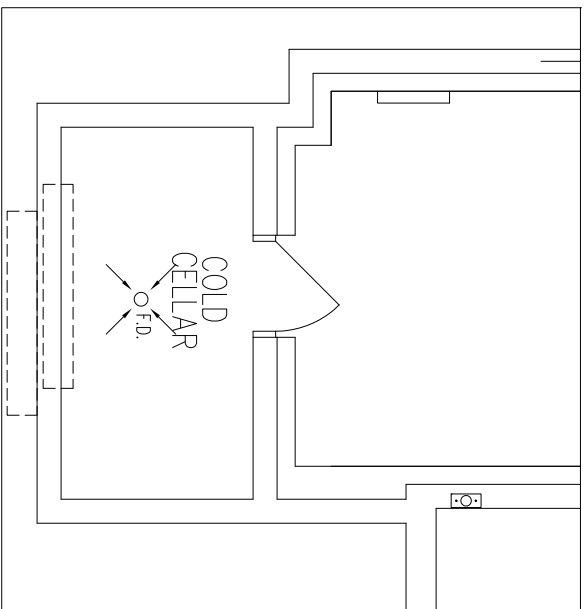
Client GOLD PARK HOMES

Project PINE VALLEY & TESTON  
Name VAUGHAN, ONTARIO  
4009  
3025 ft²

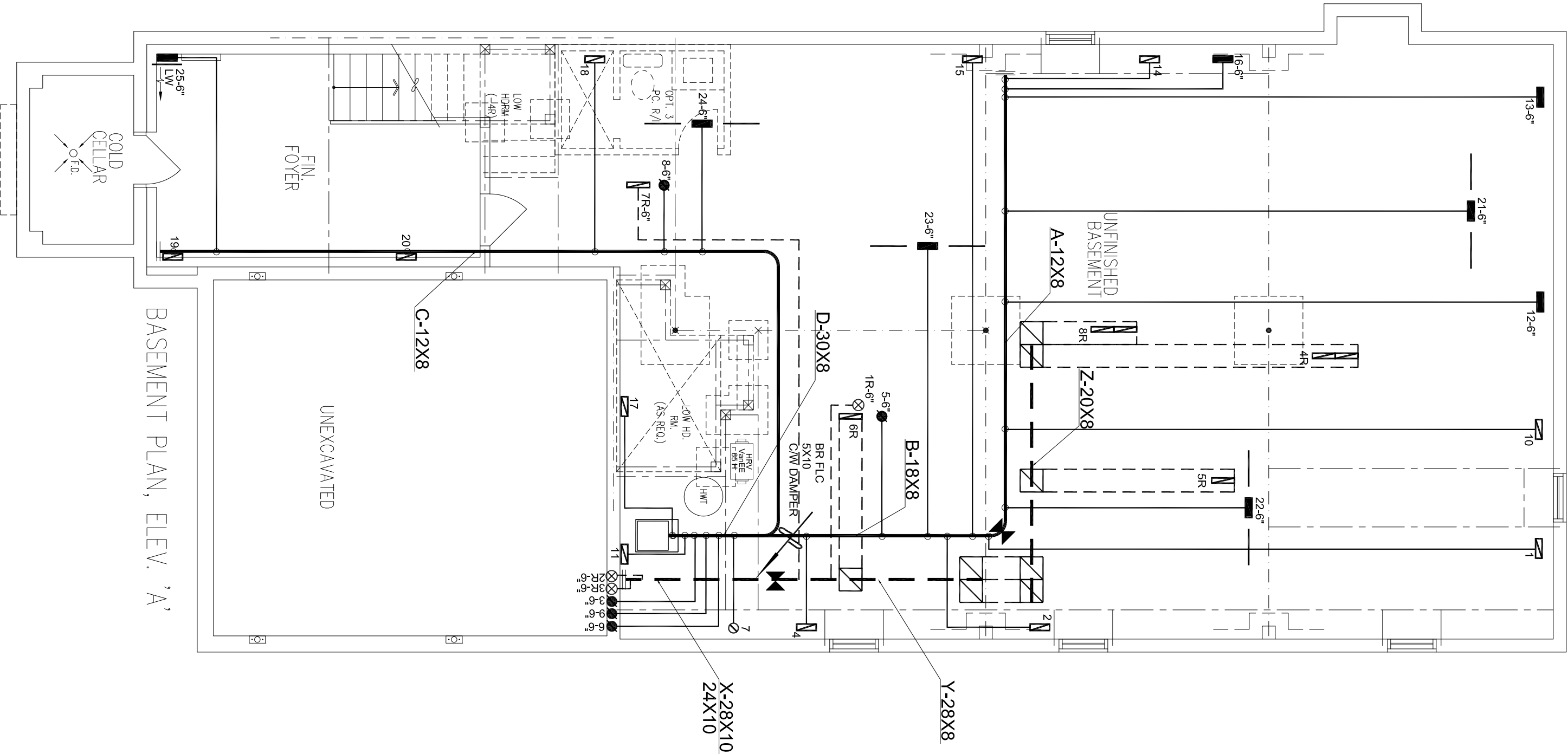
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By		By
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Date	JUNE 2020	
LO #	86411	



PART. BASEMENT PLAN, EL. 'B'



PART. BASEMENT PLAN, EL. 'C'



NOTE:  
INSTALLATION OF THE DUCT WORK & MECHANICAL SYSTEM TO MAINTAIN FIRE RATING PER OBC, LOCAL BYLAWS AND THE SPECIFIED RATINGS INDICATED ON THE ARCHITECTURAL DRAWINGS

HEAT LOSS 67138 BTU/H	# OF RUNS	S/A	R/A	FANS
UNIT DATA	3RD FLOOR			
MAKE				
LENNOX	2ND FLOOR	6	3	1
MODEL EL196UH090XE48C	1ST FLOOR	14	5	5
BR/UT	BASEMENT	5	1	0
88				
OUTPUT				
85.6				
COOLING				
3.5				
FAN SPEED				
1340				

HVAC LEGEND	
	4x10 SUPPLY GRILLE
	14x8 RETURN GRILLE
	4x10 SUPPLY GRILLE 6'9\"/>
	30x8 RETURN GRILLE
	SUPPLY DUCTWORK
	RETURN DUCTWORK
	EXHAUST FAN
	LOW WALL
	HIGH WALL

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INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE. ALL SUPPLY BRANCH OUTLETS SHALL BE EQUIPPED WITH MANUAL BALANCING DAMPER, DUCTWORK WHICH PASSES THROUGH THE GARAGE OR UNHEATED SPACES SHALL BE ADEQUATELY INSULATED AND GAS-PROOFED

2		
1	ISSUED FOR PERMIT	JUNE 22/20 PS
Rev	Revision	Date

SB-12 PACKAGE	A1
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ALL S/A DIFFUSERS "4x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

1. I warrant, design, calculate, prepare, review and take responsibility for the design work and any calculations under Division C, 3.2.1 of the Building Code. HVAC DESIGNS LTD. *Michael G. Bell*

**HVAC DESIGNS LTD.**  
375 Finley Ave - Unit 202 - Ajax, Ontario L1S 2E2  
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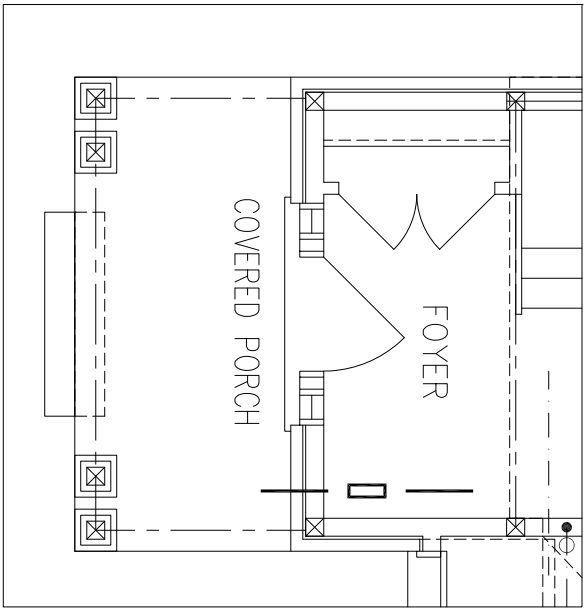
Client **GOLD PARK HOMES**

Project **PINE VALLEY & TESTON VAUGHAN, ONTARIO**

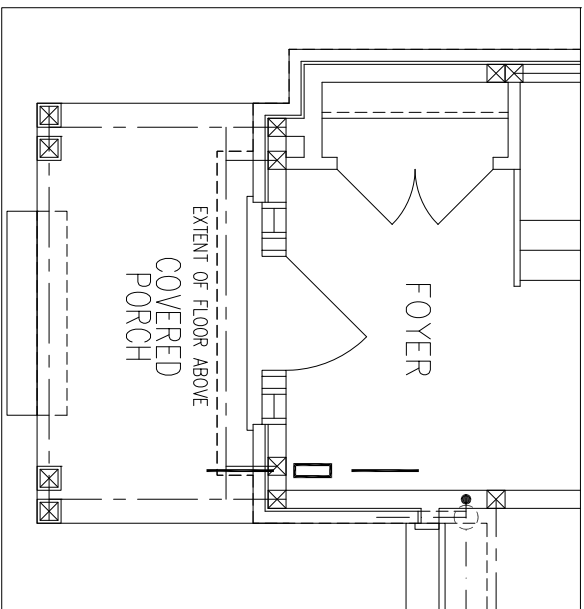
4009  
3025 ft²

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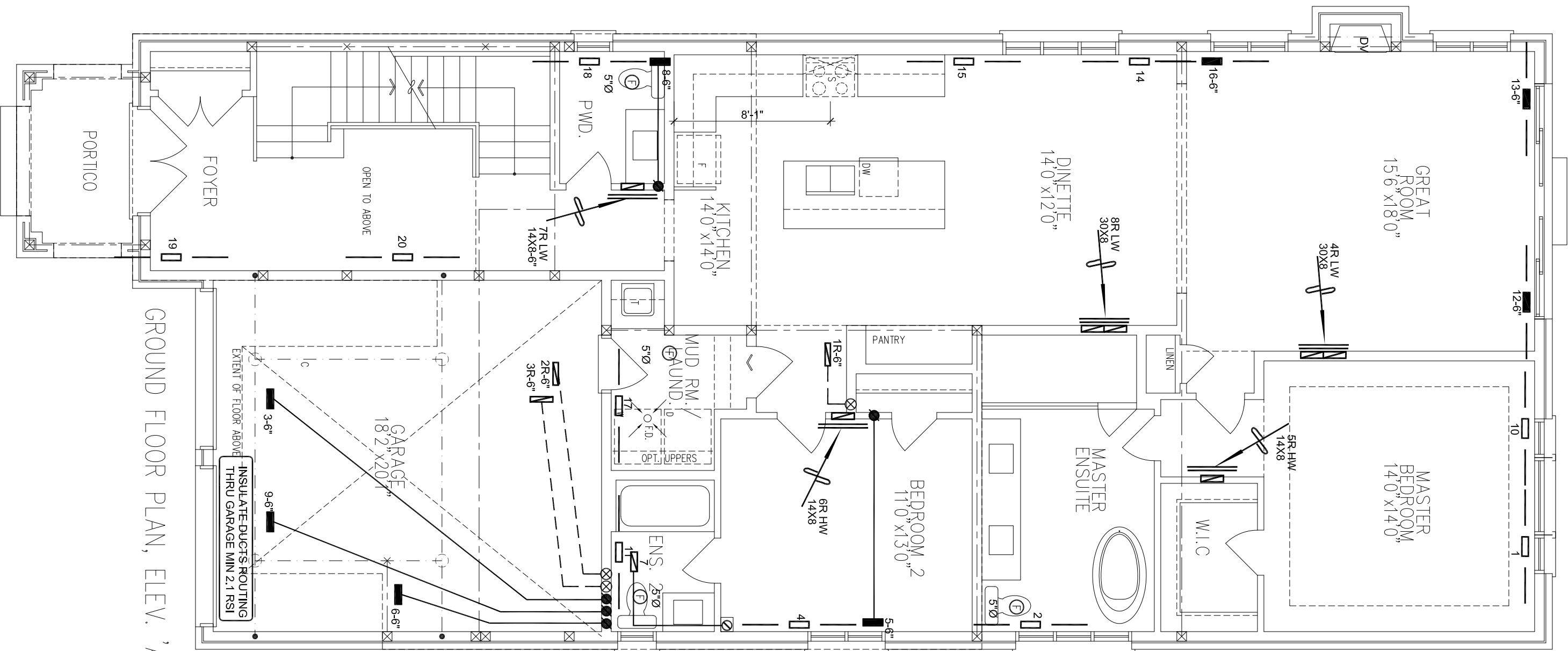
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Drawn	PS	Checked AS
By		
Scale	3/16"=1'-0"	Sheet No
Date	JUNE 2020	
LO #	86411	2



PART. GROUND FLOOR PLAN, ELEV. 'B'



PART. GROUND FLOOR PLAN, EL. 'C'



GROUND FLOOR PLAN, ELEV. 'A'

NOTE:  
INSTALLATION OF THE DUCT WORK & MECHANICAL SYSTEM TO MAINTAIN FIRE RATING PER OBC, LOCAL BYLAWS AND THE SPECIFIED RATINGS INDICATED ON THE ARCHITECTURAL DRAWINGS

HVAC LEGEND	
	4x10 SUPPLY GRILLE
	14x8 RETURN GRILLE
	4x10 SUPPLY GRILLE 6'9\"/>
	30x8 RETURN GRILLE
	SUPPLY DUCTWORK
	RETURN DUCTWORK
	EXHAUST FAN
	LOW WALL
	HIGH WALL

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I HEREBY CERTIFY THAT I HAVE PREPARED AND I AM RESPONSIBLE FOR THE DESIGN WORK AND I AM QUALIFIED UNDER DIVISION C 3.2.1 OF THE BUILDING CODE.  
MICHAEL GREGG, DESIGNER 19669  
HVAC DESIGNS LTD.  
*Michael Gregg*

**HVAC DESIGNS LTD.**

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Client **GOLD PARK HOMES**  
Project **PINE VALLEY & TESTON**  
Name **VAUGHAN, ONTARIO**  
**4009**  
3025 ft²

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Sheet	LOFT		
Drawn	PS	Checked	AS
By		By	
Scale	3/16"=1'-0"		
Date	JUNE 2020		
LO#	86411		3