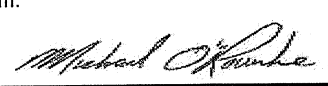


Schedule 1: Designer Information

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.
Municipality VAUGHAN (WOODBIDGE)			Postal code
Plan number/ other description			Lot/con.
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@hvacadesigns.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: 5013 - RIVERVIEW WOB Project: PINE VALLEY PH 2	
D. Declaration of Designer			
I, <u>MICHAEL O'ROURKE</u> (print name)			declare that (choose one as appropriate):
<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.			
May 4, 2022		 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.

SITE NAME: PINE VALLEY PH 2		WOB		DATE May-22		WINTER NATURAL AIR CHANGE RATE		HEAT LOSS AT °F		CSA-F200-12	
BUILDER: GOLD PARK HOMES		TYPE: 5013 - RIVERVIEW		LO# 98526		SUMMER NATURAL AIR CHANGE RATE 0.137		HEAT GAIN AT °F		SB-12 PACKAGE A1	
ROOM USE	PBR	ENS	WIC	GF4: 4502	ENS-2	ENS-3	LOFT	ENS-4	WIC-E		
EXP. WALL	37	16	10	11	7	17	11	7	8		
CLG. HT.	9	9	9	9	9	9	9	9	9		
FACTORS											
GRS.WALL AREA	333	144	90	261	63	153	99	63	72		
GLAZING	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS		
NORTH	0	0	0	0	10	0	10	0	0		
EAST	0	0	0	0	20	0	0	0	0		
SOUTH	0	0	0	0	0	0	0	0	0		
WEST	0	0	0	0	0	0	0	0	0		
SKYL.	0	0	0	0	0	0	0	0	0		
DOORS	0	0	0	0	0	0	0	0	0		
NET EXPOSED WALL	4.5	0.8	84	375	63	79	353	59	204	153	212
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	89	114	52	219	281	129	224	287	132
NO ATTIC EXPOSED CLG	2.7	1.3	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	2696	1476	617	1409	566	3120	2794	268	4832	706	1209
SUB TOTAL HT GAIN	0.20	0.41	0.20	0.41	0.20	0.41	0.20	0.41	0.20	0.41	0.20
LEVEL FACTOR / MULTIPLIER	1109	607	254	579	1988	1283	1988	434	235	434	268
AIR CHANGE HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0
AIR CHANGE HEAT GAIN	170	72	19	41	204	204	204	32	26	32	20
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	2	0	0	0	166	405	405	128	0	128	0
HEAT GAIN APPLIANCES/LIGHTS	809	480	0	1	240	240	240	0	0	0	0
TOTAL HT LOSS BTU/H	3805	2083	870	2187	809	4844	809	809	0	809	0
TOTAL HT GAIN x 1.3 BTU/H	4922	1372	369	2370	5788	411	1990	828	808	1924	374

ROOM USE	GRT	DIN	KTIBF	OFF	LND	FOY	MUD	WOB	BAS
EXP. WALL	55	32	59	30	0	21	34	53	173
CLG. HT.	11	11	11	11	9	11	11	10	10
FACTORS									
GRS.WALL AREA	605	352	649	330	0	231	374	530	1211
GLAZING	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS
NORTH	0	0	0	0	0	0	0	44	0
EAST	0	0	0	0	0	0	0	0	0
SOUTH	0	0	0	0	0	0	0	0	0
WEST	0	0	0	0	0	0	0	0	0
SKYL.	0	0	0	0	0	0	0	0	0
DOORS	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.5	0.8	84	375	63	79	353	59	204
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	89	114	52	219	281	129	224
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS	6438	2042	5251	2347	165	2092	2085	763	4977
SUB TOTAL HT GAIN	0.30	0.57	0.30	0.57	0.20	0.41	0.30	0.50	2.00
LEVEL FACTOR / MULTIPLIER	3662	1161	2986	1335	68	1190	1186	4625	19200
AIR CHANGE HEAT LOSS	0	0	0	0	0	0	0	0	0
AIR CHANGE HEAT GAIN	624	69	407	173	4	98	26	2788	227
DUCT LOSS	0	0	0	0	0	0	0	0	0
DUCT GAIN	0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	809	809	809	809	809	809	809	0	0
TOTAL HT LOSS BTU/H	10100	3203	8237	3682	256	3281	3271	5388	24177
TOTAL HT GAIN x 1.3 BTU/H	12941	2364	8819	4358	1246	1869	490	3624	704

TOTAL HEAT GAIN BTU/H: 65019 TONS: 5.42
 TOTAL HEAT LOSS BTU/H: 6156
 STRUCTURAL HEAT LOSS: 88803
 TOTAL COMBINED HEAT LOSS BTU/H: 94959

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.

Michael O'Rourke

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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

WOB
 TYPE: 5013 - RIVERVIEW

DATE: May-22

LO# 96526

FURNACE 1

HEATING CFM 1170 COOLING CFM 1170
 TOTAL HEAT LOSS 61,340 TOTAL HEAT GAIN 35,169
 AIR FLOW RATE CFM 19.07 AIR FLOW RATE CFM 33.27

FURNACE HEAT LOSS +
 HRV / ERV / HEAT LOSS
 = 64418 BTUH

\$LENNOX
 ML196UH090XE36C 90
 FAN SPEED LOW 0
 MEDIUM 0
 HIGH 1170

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

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

furnace pressure 0.6
 furnace filter 0.05
 a/c coil pressure 0.2
 available pressure for s/a & r/a 0.35
 plenum pressure s/a 0.18
 max s/a dif. press. loss 0.03
 min adjusted pressure s/a 0.15
 r/a grille press. loss 0.02
 adjusted pressure r/a 0.15

DESIGN CFM = 1170
 CFM @ .5" E.S.P. 1170
 TEMPERATURE RISE 68 °F

ROOM NAME	25	26	27	28	29	30	31	32	33	34	35	36	19	20	21	22	23	24
ROOM NAME	K7/BF	K7/BF	K7/BF	OFF	OFF	MUD	BAS	BAS	BAS	BAS	BAS	BAS	FOY	GRT	GRT	GRT	GRT	DIN
RM LOSS MBH	2.75	2.75	2.75	1.84	1.84	3.27	4.93	4.93	4.93	4.93	4.93	4.93	3.28	2.53	2.53	2.53	2.53	3.20
CFM PER RUN HEAT	52	52	52	35	35	62	94	94	94	94	94	94	63	48	48	48	48	61
RM GAIN MBH	2.94	2.94	2.94	2.18	2.18	0.49	0.72	0.72	0.72	0.72	0.72	0.72	1.87	3.24	3.24	3.24	3.24	2.36
CFM PER RUN COOLING	98	98	98	72	72	16	24	24	24	24	24	24	62	108	108	108	108	79
ADJUSTED PRESSURE	0.16	0.16	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.16	0.17	0.15	0.15	0.15	0.15	0.17
ACTUAL DUCT LGH.	34	39	31	65	60	21	66	37	49	16	15	49	47	56	49	45	38	27
EQUIVALENT LENGTH	100	140	170	130	120	140	130	140	130	130	130	130	100	110	150	130	150	140
TOTAL EFFECTIVE LENGTH	134	179	201	195	180	161	196	177	189	146	145	179	147	166	199	175	188	167
ADJUSTED PRESSURE	0.12	0.09	0.08	0.09	0.1	0.11	0.08	0.09	0.09	0.11	0.11	0.09	5	6	6	6	6	5
ROUND DUCT SIZE	6	6	6	5	5	6	6	6	6	6	6	6	5	6	6	6	6	6
HEATING VELOCITY (ft/min)	265	265	265	257	257	455	479	479	479	479	479	479	463	245	245	245	245	448
COOLING VELOCITY (ft/min)	500	500	500	529	529	117	122	122	122	122	122	122	455	551	551	551	551	580
OUTLET GRILL SIZE	4X10	4X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	4X10	4X10	4X10	4X10	3X10
TRUNK	E	E	E	F	F	F	D	D	E	E	F	F	F	D	D	D	D	F

ROOM NAME	25	26	27	28	29	30	31	32	33	34	35	36	19	20	21	22	23	24
ROOM NAME	K7/BF	K7/BF	K7/BF	OFF	OFF	MUD	BAS	BAS	BAS	BAS	BAS	BAS	FOY	GRT	GRT	GRT	GRT	DIN
RM LOSS MBH	2.75	2.75	2.75	1.84	1.84	3.27	4.93	4.93	4.93	4.93	4.93	4.93	3.28	2.53	2.53	2.53	2.53	3.20
CFM PER RUN HEAT	52	52	52	35	35	62	94	94	94	94	94	94	63	48	48	48	48	61
RM GAIN MBH	2.94	2.94	2.94	2.18	2.18	0.49	0.72	0.72	0.72	0.72	0.72	0.72	1.87	3.24	3.24	3.24	3.24	2.36
CFM PER RUN COOLING	98	98	98	72	72	16	24	24	24	24	24	24	62	108	108	108	108	79
ADJUSTED PRESSURE	0.16	0.16	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.16	0.17	0.15	0.15	0.15	0.15	0.17
ACTUAL DUCT LGH.	34	39	31	65	60	21	66	37	49	16	15	49	47	56	49	45	38	27
EQUIVALENT LENGTH	100	140	170	130	120	140	130	140	130	130	130	130	100	110	150	130	150	140
TOTAL EFFECTIVE LENGTH	134	179	201	195	180	161	196	177	189	146	145	179	147	166	199	175	188	167
ADJUSTED PRESSURE	0.12	0.09	0.08	0.09	0.1	0.11	0.08	0.09	0.09	0.11	0.11	0.09	5	6	6	6	6	5
ROUND DUCT SIZE	6	6	6	5	5	6	6	6	6	6	6	6	5	6	6	6	6	6
HEATING VELOCITY (ft/min)	265	265	265	257	257	455	479	479	479	479	479	479	463	245	245	245	245	448
COOLING VELOCITY (ft/min)	500	500	500	529	529	117	122	122	122	122	122	122	455	551	551	551	551	580
OUTLET GRILL SIZE	4X10	4X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	4X10	4X10	4X10	4X10	3X10
TRUNK	E	E	E	F	F	F	D	D	E	E	F	F	F	D	D	D	D	F

TRUNK	25	26	27	28	29	30	31	32	33	34	35	36	19	20	21	22	23	24
TRUNK	A	B	C	D	E	F	G	H	I	J	K	L	O	P	Q	R	S	T
TRUNK CFM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRUNK PRESS.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.07	0.07	0.07	0.07
TRUNK VELOCITY (ft/min)	0	0	0	0	0	0	0	0	0	0	0	0	0.07	0.07	0.07	0.07	0.07	0.07
ROUND DUCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DUCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DUCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VELOCITY (ft/min)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TRUNK	25	26	27	28	29	30	31	32	33	34	35	36	19	20	21	22	23	24
TRUNK	A	B	C	D	E	F	G	H	I	J	K	L	O	P	Q	R	S	T
TRUNK CFM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRUNK PRESS.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.07	0.07	0.07	0.07
TRUNK VELOCITY (ft/min)	0	0	0	0	0	0	0	0	0	0	0	0	0.07	0.07	0.07	0.07	0.07	0.07
ROUND DUCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DUCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DUCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VELOCITY (ft/min)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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

WOB TYPE: 5013 - RIVERVIEW
DATE: May-22

GFA: 4502 LO# 96526
FURNACE 2

HEATING CFM 980 COOLING CFM 980
TOTAL HEAT LOSS 27,464 TOTAL HEAT GAIN 29,332
AIR FLOW RATE CFM 35.68 AIR FLOW RATE CFM 33.41

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

FURNACE HEAT LOSS +
HRV / ERV HEAT LOSS
= 30542 BTUH

\$LENNOX 45
ML196UH045XE36B
FAN SPEED LOW 620
MEDIUM 685
HIGH 980

AFUE = 96 %
INPUT (BTU/H) = 44,000
OUTPUT (BTU/H) = 42,800
DESIGN CFM = 980
CFM @ 5" E.S.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	20	0	0
R/A	0	0	6	0	0

plenium pressure s/a 0.18
max s/a diff 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

TEMPERATURE RISE 40 °F

ROOM #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
ROOM NAME	PBR	PBR	ENS	ENS	WIC	WIC-E	BED-2	BED-2	BED-3	BED-3	BED-4	BED-4	BED-4	LOFT	ENS-2	ENS-3	ENS-4	LND
RM LOSS MBH	1.90	1.90	1.04	1.04	0.87	0.81	1.09	1.09	1.61	1.61	1.71	1.71	1.71	1.99	1.10	1.88	0.83	0.26
CFM PER RUN HEAT	68	68	37	37	31	29	39	39	58	58	61	61	61	71	39	67	30	9
RM GAIN MBH	2.46	2.46	0.69	0.69	0.37	0.37	1.18	1.18	1.93	1.93	2.21	2.21	2.21	2.21	1.82	0.41	1.34	0.49
CFM PER RUN COOLING	82	82	23	23	12	12	40	40	64	64	74	74	74	61	14	45	16	42
ADJUSTED PRESSURE	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	52	63	48	16	51	19	72	77	78	69	66	66	73	84	65	64	75	46
EQUIVALENT LENGTH	210	190	255	130	245	120	170	180	200	180	190	190	170	190	170	180	160	130
TOTAL EFFECTIVE LENGTH	262	253	303	146	296	139	242	257	278	259	249	256	243	274	235	244	235	176
ADJUSTED PRESSURE	0.06	0.06	0.06	0.12	0.06	0.12	0.07	0.07	0.06	0.07	0.07	0.07	0.07	0.06	0.07	0.07	0.07	0.1
ROUND DUCT SIZE	6	6	4	4	4	4	5	5	6	6	6	6	6	6	5	6	4	4
HEATING VELOCITY (ft/min)	347	347	424	424	356	333	286	286	296	296	311	311	311	362	286	342	344	103
COOLING VELOCITY (ft/min)	418	418	264	264	138	138	294	294	326	326	377	377	377	311	103	229	184	482
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10
TRUNK	C	C	C	C	C	C	B	B	A	A	A	A	A	B	B	A	A	B

ROOM #	37	38
ROOM NAME	BED-3	BED-4
RM LOSS MBH	1.61	1.71
CFM PER RUN HEAT	58	61
RM GAIN MBH	1.93	2.21
CFM PER RUN COOLING	64	74
ADJUSTED PRESSURE	0.17	0.17
ACTUAL DUCT LGH.	67	71
EQUIVALENT LENGTH	190	170
TOTAL EFFECTIVE LENGTH	257	241
ADJUSTED PRESSURE	0.07	0.07
ROUND DUCT SIZE	6	6
HEATING VELOCITY (ft/min)	296	311
COOLING VELOCITY (ft/min)	326	377
OUTLET GRILL SIZE	4X10	4X10
TRUNK	A	A

SUPPLY AIR TRUNK SIZE	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	RETURN AIR TRUNK SIZE	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	515	0.06	11.8	16	579	TRUNK G	0	0.00	0	0	8
TRUNK B	712	0.06	13.3	22	583	TRUNK H	0	0.00	0	0	8
TRUNK C	982	0.06	15	26	680	TRUNK I	0	0.00	0	0	8
TRUNK D	0	0.00	0	0	0	TRUNK J	0	0.00	0	0	8
TRUNK E	0	0.00	0	0	0	TRUNK K	0	0.00	0	0	8
TRUNK F	0	0.00	0	0	0	TRUNK L	0	0.00	0	0	8
TRUNK A	155	0.15	11.5	11.5	0	TRUNK X	825	0.05	14.7	26	8
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	TRUNK Y	450	0.05	11.7	16	8
ACTUAL DUCT LGH.	62	93	79	75	59	TRUNK Z	155	0.05	7.8	8	8
EQUIVALENT LENGTH	170	235	195	245	0	DROP	980	0.05	15.7	24	10
TOTAL EFFECTIVE LH	232	328	274	320	1						
ADJUSTED PRESSURE	0.06	0.05	0.05	0.05	14.80						
ROUND DUCT SIZE	7.5	7	7	7	0						
INLET GRILL SIZE	X	X	X	X	0						
INLET GRILL SIZE	14	14	14	14	0						

TYPE: 5013 - RIVERVIEW
 SITE NAME: PINE VALLEY PH 2

LO # 96526
 WOB

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES 9.32.3.1(1)

a) Direct vent (sealed combustion) only

b) Positive venting induced draft (except fireplaces)

c) Natural draft, B-vent or induced draft gas fireplace

d) Solid Fuel (including fireplaces)

e) No Combustion Appliances

HEATING SYSTEM

Forced Air Non Forced Air

Electric Space Heat

HOUSE TYPE 9.32.1(2)

I Type a) or b) appliance only, no solid fuel

II Type I except with solid fuel (including fireplaces)

III Any Type c) appliance

IV Type I, or II with electric space heat

Other: Type I, II or IV no forced air

SYSTEM DESIGN OPTIONS O.N.H.W.P.

1 Exhaust only/Forced Air System

2 HRV with Ducting/Forced Air System

3 HRV Simplified/connected to forced air system

4 HRV with Ducting/non forced air system

Part 6 Design

TOTAL VENTILATION CAPACITY 9.32.3.3(1)

Basement + Master Bedroom	2	@ 21.2 cfm	42.4	cfm
Other Bedrooms	3	@ 10.6 cfm	31.8	cfm
Kitchen & Bathrooms	6	@ 10.6 cfm	63.6	cfm
Other Rooms	5	@ 10.6 cfm	53.0	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	150	cfm
Required Supplemental Capacity	40.8	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE V150H Location: BSMT

150.0 cfm HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM		ΔT °F		FACTOR		% LOSS
150.0 CFM	X	76 F	X	1.08	X	0.25

SUPPLEMENTAL FANS BY INSTALLING CONTRACTOR

Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	✓	3.5
ENS-2	BY INSTALLING CONTRACTOR	50	✓	3.5
ENS-3	BY INSTALLING CONTRACTOR	50	✓	3.5
ENS-4	BY INSTALLING CONTRACTOR	50	✓	3.5

HEAT RECOVERY VENTILATOR 9.32.3.11.

Model: VANEE V150H INSTALL 2 HRV / ERV's

150 cfm high 35 cfm low

75 % 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: *Michael O'Rourke*

HRAI # 001820

Date: May-22

CSA F280-12 Residential Heat Loss and Heat Gain Calculations Formula Sheet (For Air Leakage / Ventilation Calculation)																																					
LO#: 96526	Model: 5013 - RIVERVIEW	Builder: GOLD PARK HOMES	Date: 2022-05-04																																		
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>2108</td> <td>10</td> <td>21080</td> </tr> <tr> <td>First</td> <td>2108</td> <td>11</td> <td>23188</td> </tr> <tr> <td>Second</td> <td>2793</td> <td>9</td> <td>25137</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>69,405.0 ft³</td> </tr> <tr> <td colspan="2"></td> <td></td> <td>1,965.3 m³</td> </tr> </tbody> </table>	Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2108	10	21080	First	2108	11	23188	Second	2793	9	25137	Third	0	9	0	Fourth	0	9	0	Total:			69,405.0 ft³				1,965.3 m³	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> WINTER NATURAL AIR CHANGE RATE SUMMER NATURAL AIR CHANGE RATE </td> <td style="width: 50%;"> 0.407 0.137 </td> </tr> </table>			WINTER NATURAL AIR CHANGE RATE SUMMER NATURAL AIR CHANGE RATE	0.407 0.137
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																		
Bsmt	2108	10	21080																																		
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Second	2793	9	25137																																		
Third	0	9	0																																		
Fourth	0	9	0																																		
Total:			69,405.0 ft³																																		
			1,965.3 m³																																		
WINTER NATURAL AIR CHANGE RATE SUMMER NATURAL AIR CHANGE RATE	0.407 0.137																																				
5.2.3.1 Heat Loss due to Air Leakage																																					
$HL_{air-b} = LR_{air-b} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$																																					
0.407	x	545.93	x	42 °C	x	1.2	=	11254 W																													
								=	38399 Btu/h																												
5.2.3.2 Heat Loss due to Mechanical Ventilation																																					
$HL_{vair-b} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																					
300 CFM	x	76 °F	x	1.08	x	0.25	=	6156 Btu/h																													
								x	2 HRV / ERV's																												
								=	1,037 Btu/h																												
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																					
$HL_{airr} = Level\ Factor \times HL_{air-bv} \times \{ (HL_{agcr} + HL_{bgr}) \div (HL_{aglevel} + HL_{bglevel}) \}$																																					
Level	Level Factor (LF)	HL _{air-bv} + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HL _{air-bv} / HL _{level})																																	
1	0.5	38,399	9,602	1.999																																	
2	0.3		20,255	0.569																																	
3	0.2		18,670	0.411																																	
4	0	0	0	0.000																																	
5	0	0	0	0.000																																	

*HL_{air-bv} = Air leakage heat loss + ventilation heat loss
 *For a balanced or supply only ventilation system HL_{air-bv} = 0

Michael O'Rourke
 BCIN# 19669

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 5013 - RIVERVIEW	WOB	BUILDER: GOLD PARK HOMES
SFQT: 4502	LO# 96526	SITE: PINE VALLEY PH 2

DESIGN ASSUMPTIONS

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

BUILDING DATA

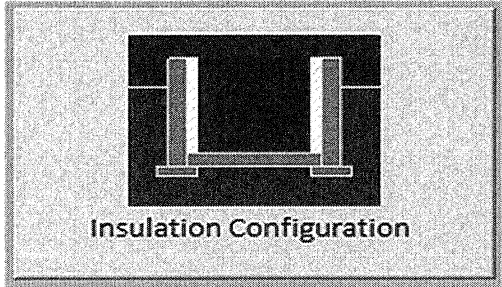
ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	69405.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED 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: 70.0 ft	WIDTH: 43.0 ft	EXPOSED PERIMETER:	173.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	53.0 ft

2012 OBC - COMPLIANCE PACKAGE Component	Compliance Package A1	
	Nominal	Min. Eff.
	Ceiling with Attic Space Minimum RSI (R)-Value	60
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

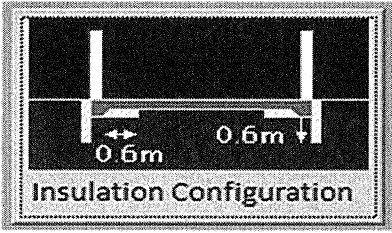
Residential Foundation Thermal Load Calculator

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	 <p>Insulation Configuration</p>
Floor Width (m):	13.1	
Exposed Perimeter (m):	52.7	
Wall Height (m):	3.0	
Depth Below Grade (m):	1.84	
Window Area (m ²):	0.0	
Door Area (m ²):	0.0	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):	911	

Residential Slab on Grade Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Length (m):	1.5	 <p style="text-align: center; margin-top: 5px;">Insulation Configuration</p>
Width (m):	13.1	
Exposed Perimeter (m):	16.2	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):	224	

TYPE: 5013 - RIVERVIEW
 LO# 96526

WOB

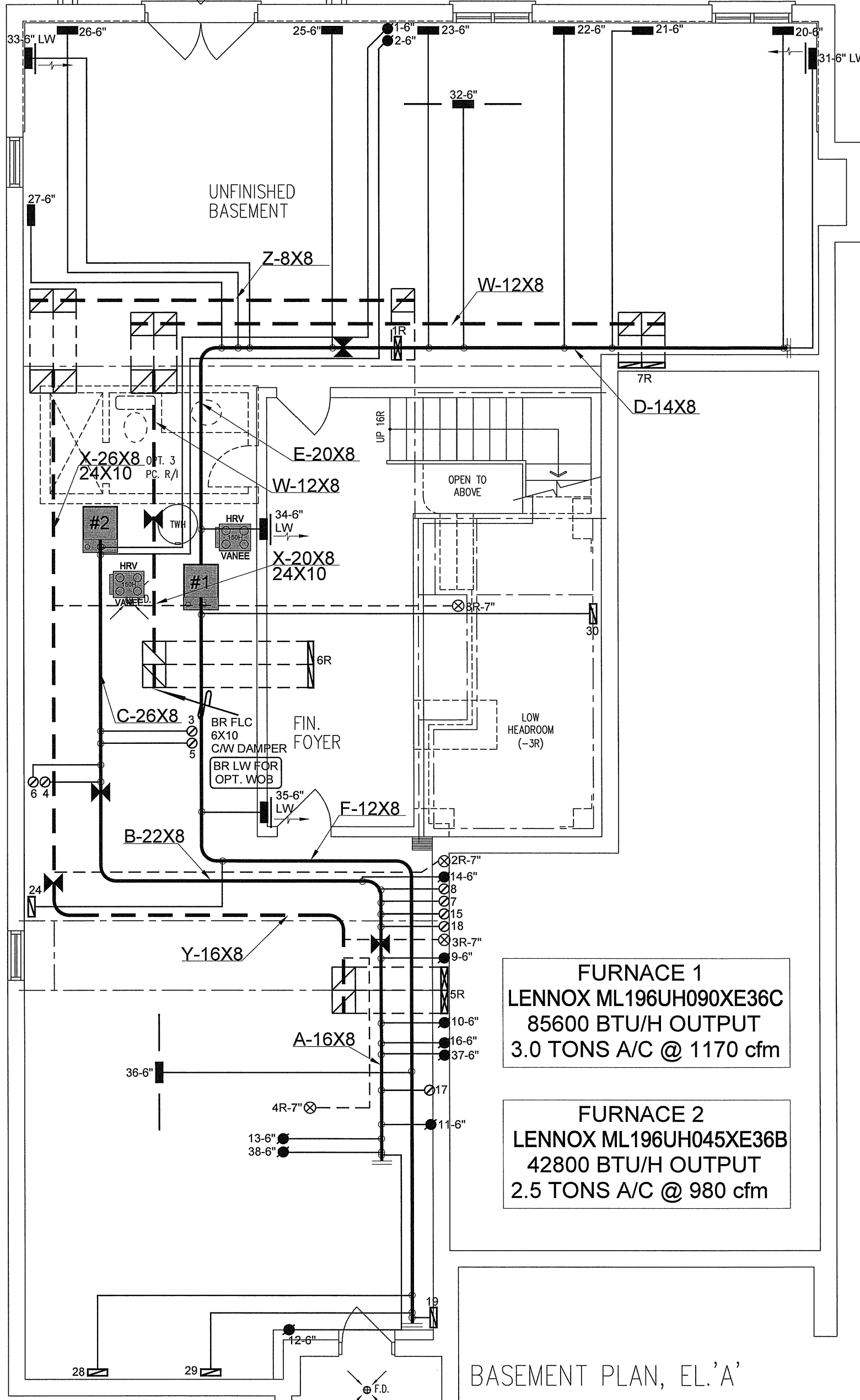
Air Infiltration Residential Load Calculator

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):	1965.3			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa. 3.57	2619.8 cm ² ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply 70.8	Total Exhaust 70.8		
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: 5013 - RIVERVIEW
 LO# 96526

WOB



FURNACE 1
LENNOX ML196UH090XE36C
 85600 BTU/H OUTPUT
 3.0 TONS A/C @ 1170 cfm

FURNACE 2
LENNOX ML196UH045XE36B
 42800 BTU/H OUTPUT
 2.5 TONS A/C @ 980 cfm

BASEMENT PLAN, EL. 'A'

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.

WOB
CSA-F280-12
PACKAGE A1

HVAC LEGEND	
SYMBOL	DESCRIPTION
[Symbol]	SUPPLY AIR GRILLE
[Symbol]	SUPPLY AIR GRILLE 6" BOOT
[Symbol]	SUPPLY AIR BOOT ABOVE
[Symbol]	SUPPLY AIR STACK FROM 2ND FLOOR
[Symbol]	6" SUPPLY AIR STACK 2ND FLOOR
[Symbol]	14" RETURN AIR GRILLE
[Symbol]	30" RETURN AIR GRILLE
[Symbol]	FRN-FLOOR RETURN AIR GRILLE
[Symbol]	RETURN AIR STACK ABOVE
[Symbol]	RETURN AIR STACK 2ND FLOOR
[Symbol]	REDUCER

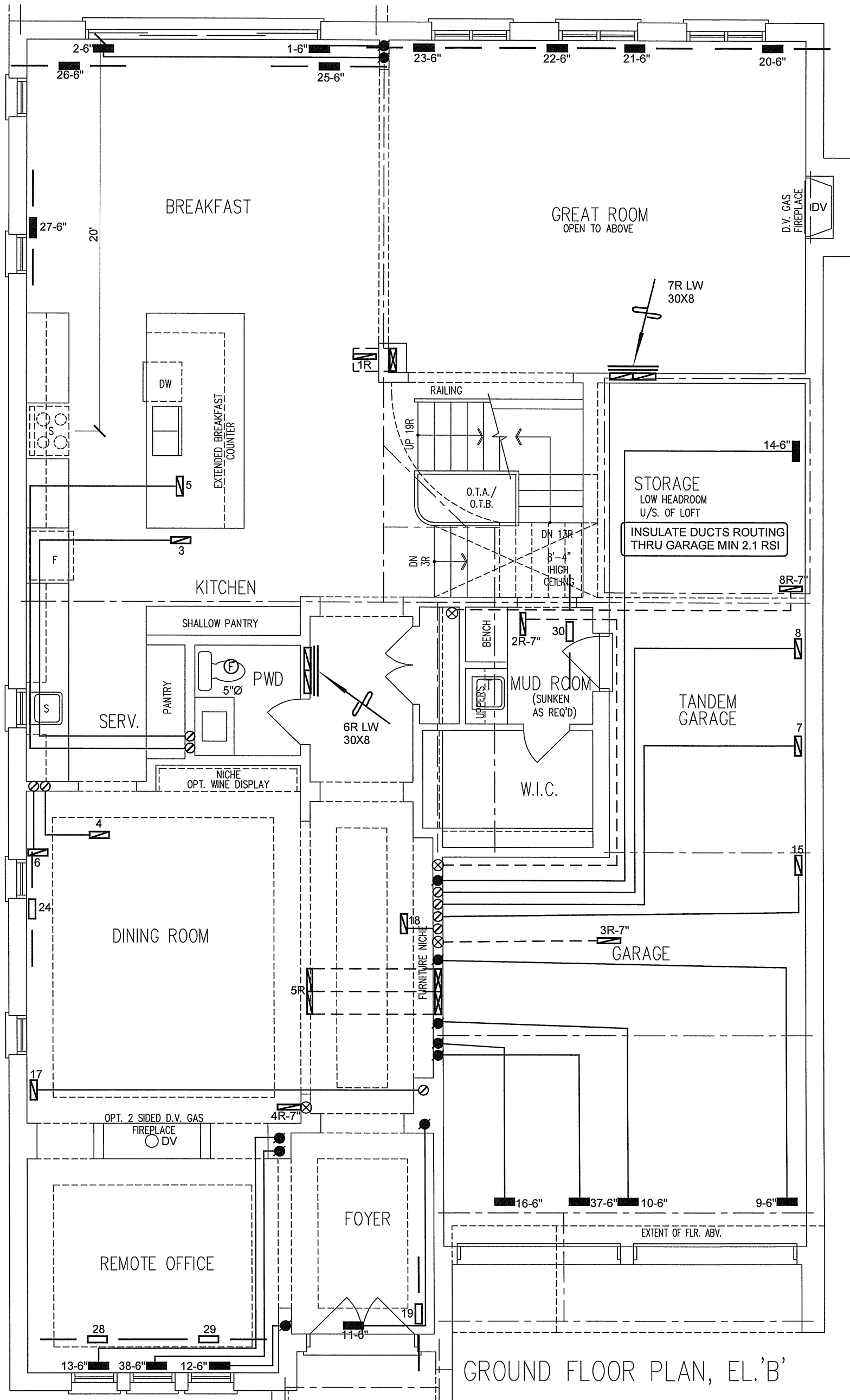
REVISIONS	
No.	Description
1.	
Date	

Client
GOLD PARK HOMES
 Project Name
PINE VALLEY PH 2
VAUGHAN, ONTARIO
RIVERVIEW - WOB
5013 **4502 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@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.

	S/A	R/A	FANS
2ND	20	6	6
1ST	12	2	2
BAS	6	1	0

Sheet Title
BASEMENT HEATING LAYOUT
 Date **MAY/2022**
 Scale **3/16" = 1'-0"**
 BCIN# **19669**
LO# 96526



GROUND 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.

WOB
CSA-F280-12
PACKAGE A1

HVAC LEGEND	
SYMBOL	DESCRIPTION
[Symbol]	SUPPLY AIR GRILLE
[Symbol]	SUPPLY AIR GRILLE 6" BOOT
[Symbol]	SUPPLY AIR BOOT ABOVE
[Symbol]	6" SUPPLY AIR STACK ABOVE
[Symbol]	SUPPLY AIR STACK FROM 2nd FLOOR
[Symbol]	6" SUPPLY AIR STACK 2nd FLOOR
[Symbol]	14x8" RETURN AIR GRILLE
[Symbol]	30x8" RETURN AIR GRILLE
[Symbol]	FRA- FLOOR RETURN AIR GRILLE
[Symbol]	RETURN AIR STACK ABOVE
[Symbol]	RETURN AIR STACK 2nd FLOOR
[Symbol]	REDUCER

REVISIONS	
No.	Description
1.	
2.	
3.	

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Client
GOLD PARK HOMES

Project Name
**PINE VALLEY PH 2
VAUGHAN, ONTARIO**

RIVERVIEW - WOB
5013

4502 sqft

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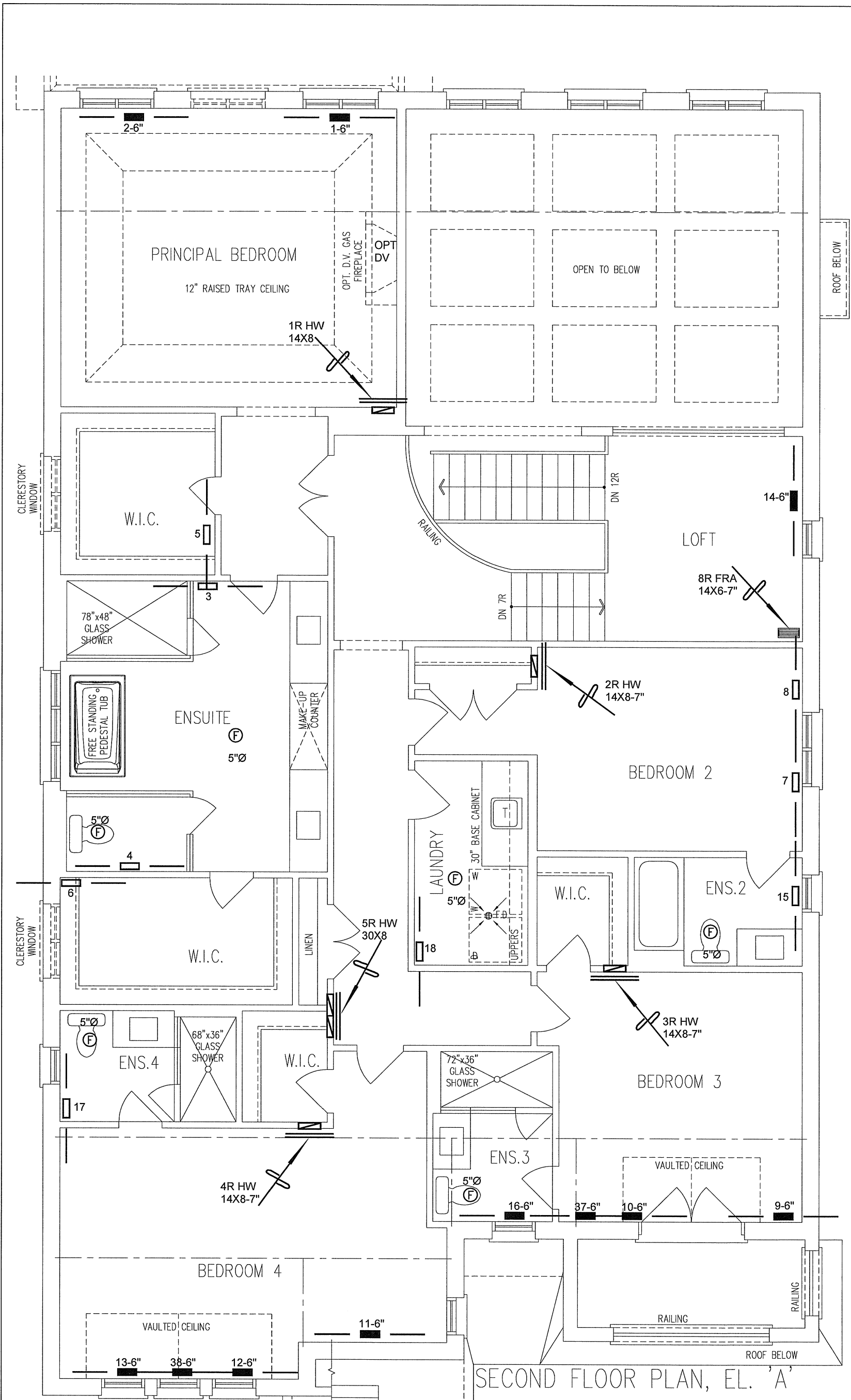
Sheet Title
FIRST FLOOR HEATING LAYOUT

Date
MAY/2022

Scale
3/16" = 1'-0"

BCIN# 19669

LO# 96526



I MICHAEL O'ROURKE HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.3.2.3 OF THE BUILDING CODE.

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

WOB
CSA-F280-12
PACKAGE A1

HVAC LEGEND	
	SUPPLY AIR GRILLE
	SUPPLY AIR BOOT
	SUPPLY AIR STACK
	RETURN AIR GRILLE
	RETURN AIR STACK
	REDUCER

No.	Description	Date
1.		

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Client
GOLD PARK HOMES

Project Name
**PINE VALLEY PH 2
 VAUGHAN, ONTARIO**

**RIVERVIEW - WOB
 5013 4502 sqft**

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Sheet Title
SECOND FLOOR HEATING LAYOUT

Date
MAY/2022

Scale
3/16" = 1'-0"

BCIN# 19669

LO# **96526**

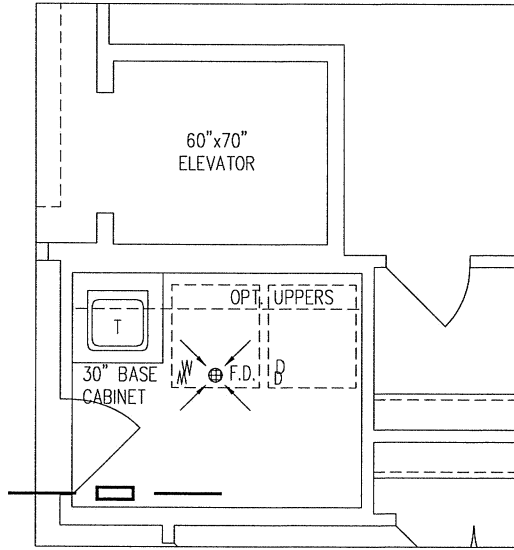
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

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

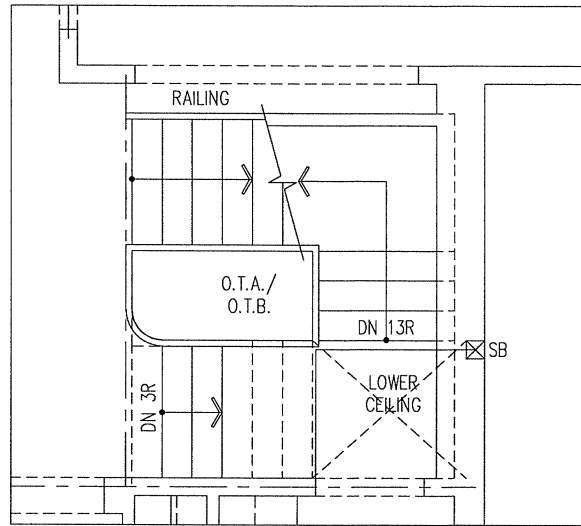
WOB

CSA-F280-12

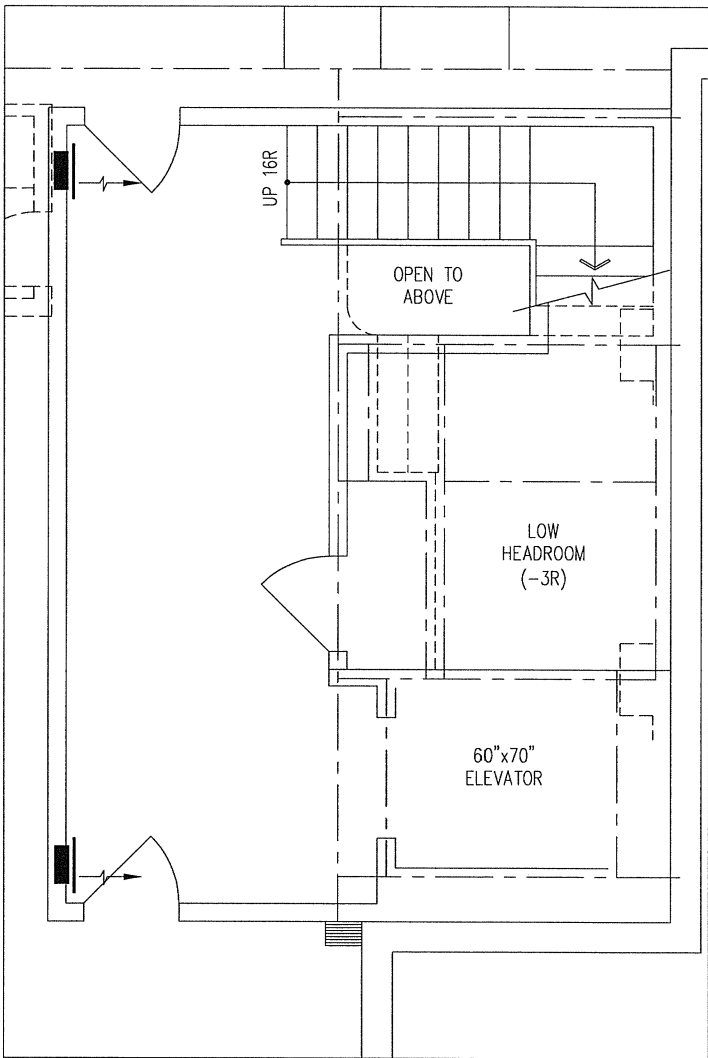
PACKAGE A1



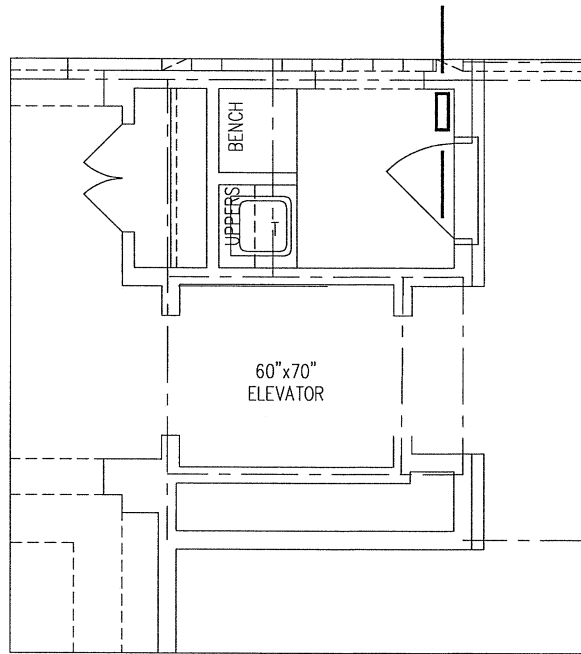
PART. SECOND FLOOR PLAN, W/
OPT. ELEVATOR, EL. 'A'



PART. GROUND FLOOR PLAN, W/
NO LOFT CONDITION, EL. 'A'



PART BASEMENT FLOOR PLAN, W/
OPT. ELEVATOR, EL. 'A'



PART. GROUND FLOOR PLAN, W/
OPT. ELEVATOR, EL. 'A'

HVAC LEGEND		REVISIONS	
SYMBOL	DESCRIPTION	No.	Date
	SUPPLY AIR GRILLE	1.	
	SUPPLY AIR BOOT	2.	
	SUPPLY AIR STACK	3.	
	RETURN AIR GRILLE		
	RETURN AIR STACK		
	REDUCER		

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Client
GOLD PARK HOMES

Project Name
**PINE VALLEY PH 2
VAUGHAN, ONTARIO**

**RIVERVIEW - WOB
5013**

4502 sqft

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Sheet Title
**STRIP PLAN
HEATING
LAYOUT**

Date
MAY/2022

Scale
3/16" = 1'-0"

BCIN# 19669

LO# 96526

