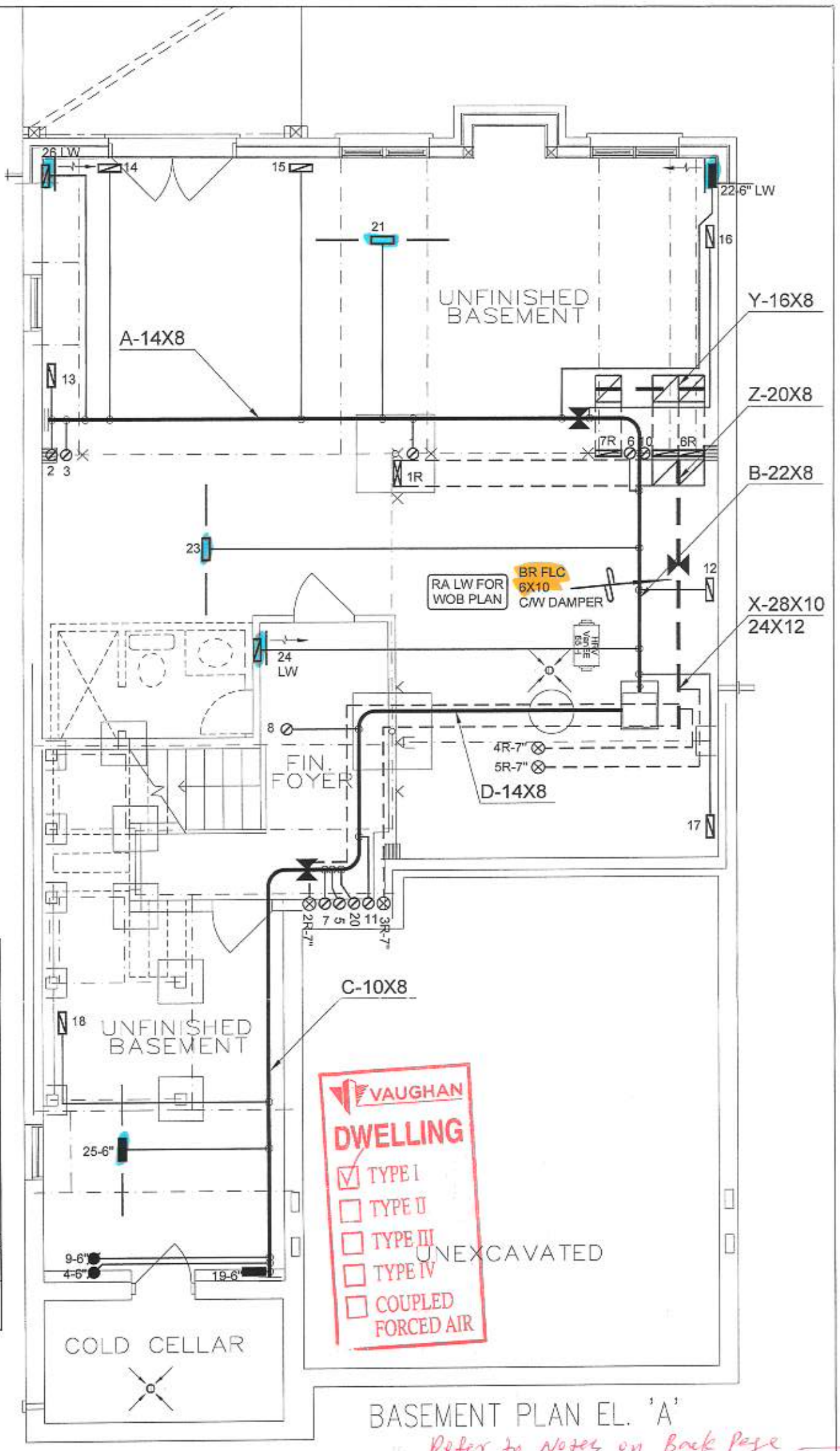


Refer to Notes on Back Page →

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

CSA-F280-12

WOB PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
— ▭ —	SUPPLY AIR GRILLE	▬	6" SUPPLY AIR BOOT ABOVE	▭	14"x8" RETURN AIR GRILLE	▭	RETURN AIR STACK ABOVE
— ▬ —	SUPPLY AIR GRILLE 6" BOOT	⊘	SUPPLY AIR STACK FROM 2nd FLOOR	▭	30"x8" RETURN AIR GRILLE	▭	RETURN AIR STACK 2nd FLOOR
▭	SUPPLY AIR BOOT ABOVE	●	6" SUPPLY AIR STACK 2nd FLOOR	▭	FRA- FLOOR RETURN AIR GRILLE	⧗	REDUCER

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client
GOLD PARK HOMES

Project Name
PINE VALLEY & TESTON
VAUGHAN, ONTARIO

THE VALLEYVIEW - WOB
4002 2968 sqft

HVAC DESIGNS 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.

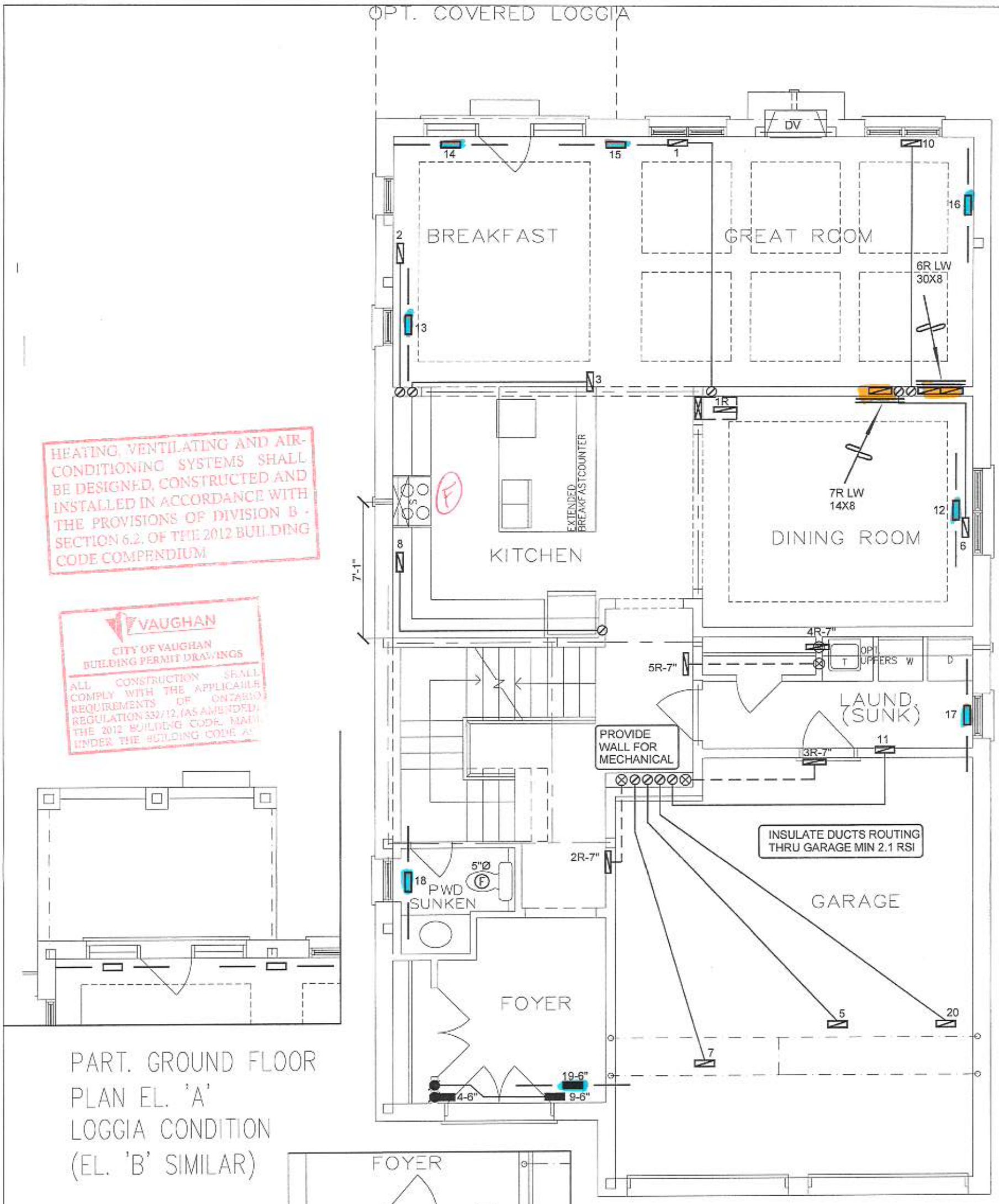
HEAT LOSS 65398 BTU/H UNIT DATA		
MAKE	LENNOX	
MODEL	EL296UH090XE48C	
INPUT	88	MBTU/H
OUTPUT	85	MBTU/H
COOLING	3.5	TONS
FAN SPEED	1255	cfm @ 0.8" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	12	5	3
1ST FLOOR	8	2	2
BASEMENT	5	1	0

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

Sheet Title
BASEMENT HEATING LAYOUT

Date OCT/2018
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 80231



HEATING, VENTILATING AND AIR-CONDITIONING SYSTEMS SHALL BE DESIGNED, CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF DIVISION B - SECTION 6.2. OF THE 2012 BUILDING CODE COMPENDIUM

VAUGHAN
CITY OF VAUGHAN
BUILDING PERMIT DRAWINGS
ALL CONSTRUCTION SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF ONTARIO REGULATION 332/12, (AS AMENDED) THE 2012 BUILDING CODE. MADE UNDER THE BUILDING CODE AS

PART. GROUND FLOOR PLAN EL. 'A'
LOGGIA CONDITION
(EL. 'B' SIMILAR)

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, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12

WOB PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x6" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x6" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client
GOLD PARK HOMES

Project Name
PINE VALLEY & TESTON
VAUGHAN, ONTARIO

THE VALLEYVIEW - WOB
4002 2968 sqft

HVAC DESIGNS LTD.
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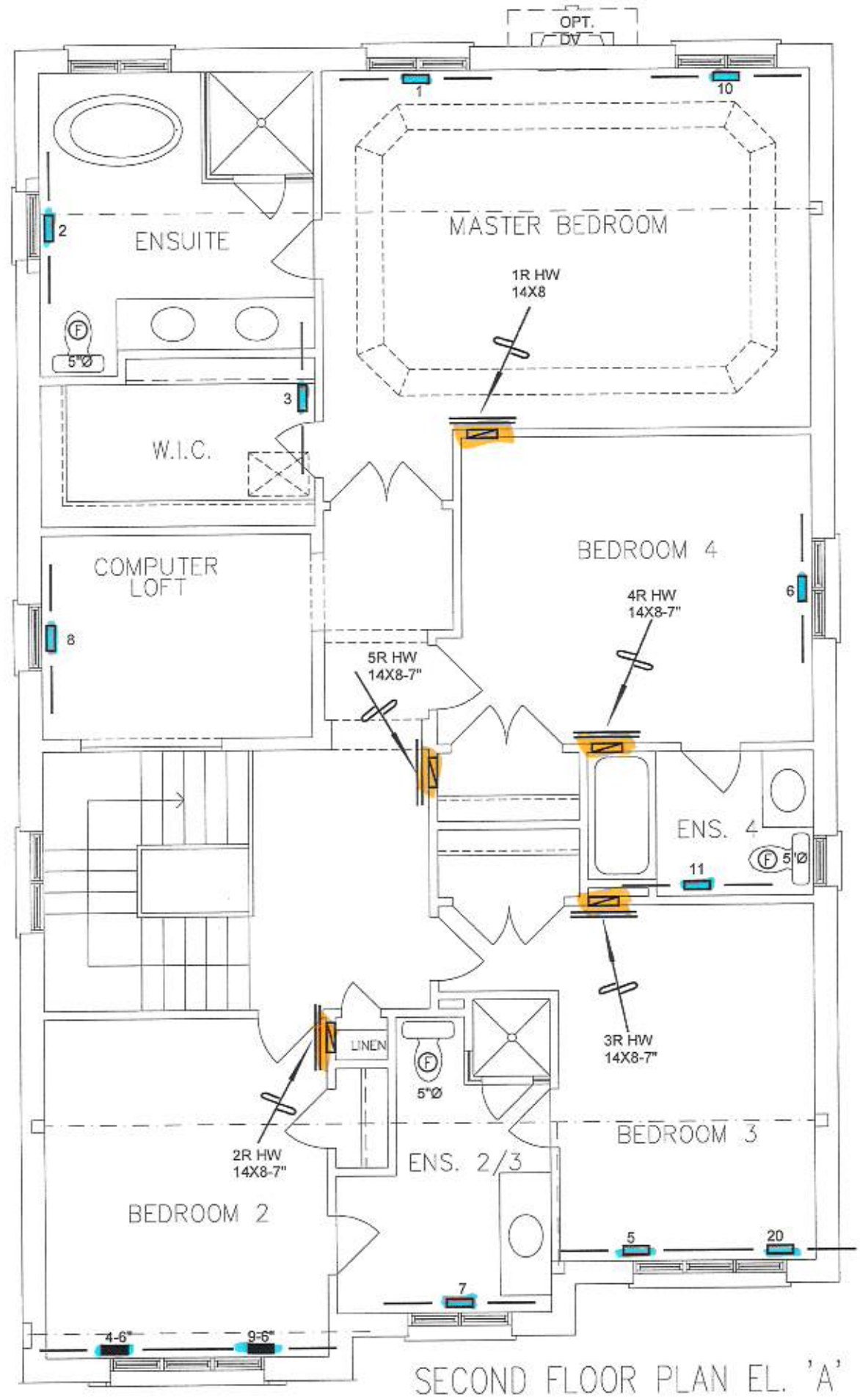
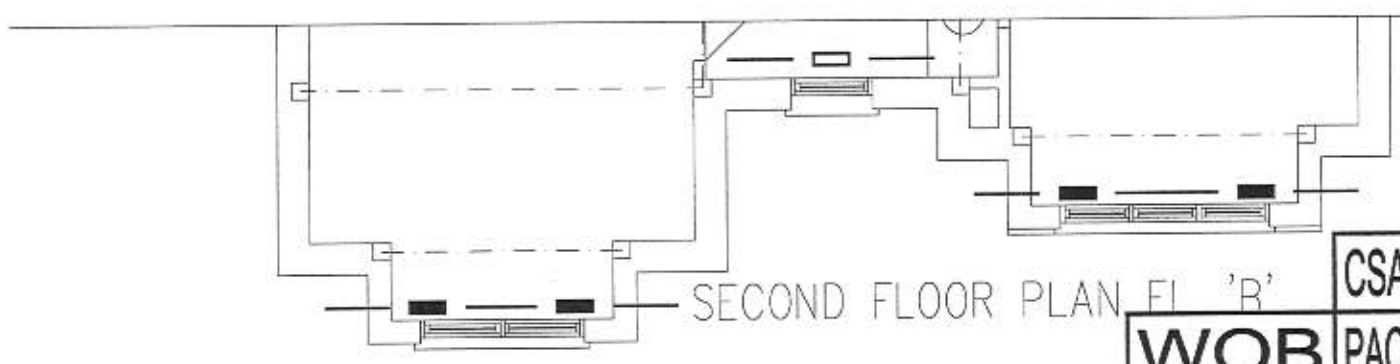
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

Sheet Title
FIRST FLOOR HEATING LAYOUT

Date OCT/2018
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 80231



SECOND FLOOR PLAN EL. 'A'



SECOND FLOOR PLAN EL. 'B'

HEATING, VENTILATING AND AIR-CONDITIONING SYSTEMS SHALL BE DESIGNED, CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF DIVISION B - SECTION 6.2. OF THE 2012 BUILDING CODE COMPENDIUM

VAUGHAN
CITY OF VAUGHAN
BUILDING PERMIT DRAWINGS
ALL CONSTRUCTION SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF ONTARIO REGULATION 332/12, (AS AMENDED), THE 2012 BUILDING CODE, MADE UNDER THE BUILDING CODE ACT

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

CSA-F280-12

WOB | PACKAGE A1

HVAC LEGEND

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

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client
GOLD PARK HOMES

Project Name
PINE VALLEY & TESTON
VAUGHAN, ONTARIO

THE VALLEYVIEW - WOB
4002 2968 sqft

HVAC DESIGNS LTD.
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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
SECOND FLOOR HEATING LAYOUT

Date OCT/2018
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 80231

20-120002-GLD-00-CM

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 (WOODBRIDGE)	Postal code	Plan number/ other description		

B. Individual who reviews and takes responsibility for design activities

Name			Firm	
MICHAEL O'ROURKE			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]

- ☐ 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: 4002 THE VALLEYVIEW

Project: PINE VALLEY & TESTON

D. Declaration of Designer

I MICHAEL O'ROURKE (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: 19669
Basis for exemption from registration and qualification: O.B.C SENTENCE 3.2.4.1 (4)

☐ The design work is exempt from the registration and qualification requirements of the Building Code.
Basis for exemption from registration and qualification:

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have submitted this application with the knowledge and consent of the firm.

October 5, 2018
Date

Signature of Designer

FOR OFFICE USE ONLY
CITY OF VAUGHAN
BUILDING STANDARDS DEPARTMENT
PLANS EXAMINATION
RECEIVED FEB 2 0 2020

	DATE REVIEWED	INITIAL
ZONING		
GRADING		
BUILDING CODE		
MECHANICAL	Feb 24/20	Ur
PLUMBING		
FIRE		

NOTE:
1. 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.
2. 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.

HVAC DESIGNS LTD.

375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

SITE NAME: PINE VALLEY & TESTON
BUILDER: GOLD PARK HOMES
TYPE: 4002 THE VALLEYVIEW
GFA: 2958
DATE: Oct-18
LOT 80231
WINTER NATURAL AIR CHANGE RATE 0.407
SUMMER NATURAL AIR CHANGE RATE 0.137
HEAT LOSS ΔT °F. 76
HEAT GAIN ΔT °F. 13
CSA-F280-12
SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			ENS-2/3			COMP					ENS-4					
EXP. WALL			40			25			6			38			33			13			11			14					6					
CLG. HT.			10			9			9			9			10			9			9			9					9					
	FACTORS																																	
GRS.WALL AREA	LOSS	GAIN	400			225			54			342			330			117			99			126					64					
GLAZING			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN				LOSS	GAIN				
NORTH	21.3	15.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	383	281	0	0	0	0	0	0			6	170	126			
EAST	21.3	40.5	0	0	0	0	0	0	0	0	0	45	958	1821	50	1064	2023	0	0	0	24	511	971	0	0	0			0	0	0			
SOUTH	21.3	24.3	0	0	0	14	298	340	0	0	0	9	192	219	0	0	0	0	0	0	0	0	0	21	447	510			0	0	0			
WEST	21.3	40.5	36	766	1457	20	426	809	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0			
SKYLT.	37.2	101.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			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	0			
NET EXPOSED WALL	4.5	0.8	364	1624	274	191	852	144	54	241	41	288	1285	216	280	1250	210	99	442	74	76	335	56	105	469	79			46	205	35			
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	168	155	200	92	72	92	42	204	262	120	168	215	99	260	334	153	153	196	90	168	236	99			120	164	71			
NO ATTIC EXPOSED CLG	2.7	1.3	10	27	13	0	0	0	0	0	0	60	165	76	30	82	38	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	30	77	13	198	505	85	0	0	0	153	390	66	0	0	0			29	51	9			
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			2829			1776			333			2938			3117			1159			1432			1131					581					
SUB TOTAL HT GAIN				1931			1385			83			2464			2465			508			1183			668					239				
LEVEL FACTOR / MULTIPLIER			0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31				0.20	0.31				
AIR CHANGE HEAT LOSS			873			548			103			907			962			358			442			349					179					
AIR CHANGE HEAT GAIN				155			111			7			198			198			41			95			55					19				
DUCT LOSS			0			0			0			384			408			0			187			0					76					
DUCT GAIN				0			0			0			359			358			0			128			0					26				
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0	0		0			0					
HEAT GAIN APPLIANCES/LIGHTS					683			0			0			683			683			683			0			683				0				
TOTAL HT LOSS BTU/H			3702			2324			436			4229			4487			1516			2052			1480					836					
TOTAL HT GAIN x 1.3 BTU/H				4224			1945			116			5127			5113			1914			1828			1854					369				

ROOM USE			INN				KT/GT				LAUN			PWD			FOY							WDB			BAS					
EXP. WALL			13				90				23			6			45							42			132					
CLG. HT.			11				11				12			13			11							10			10					
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	143				990				276			78			495							420			924					
GLAZING			LOSS	GAIN			LOSS	GAIN			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN						LOSS	GAIN		LOSS	GAIN				
NORTH	21.3	15.6	26	553	406		0	0	0		10	213	156	0	0	0	0	0	0					0	0	0	0	0	0			
EAST	21.3	40.5	0	0	0		0	0	0		0	0	0	0	0	0	35	745	1416					0	0	0	0	0	0			
SOUTH	21.3	24.3	0	0	0		24	511	583		0	0	0	8	170	194	0	0	0					0	0	0	6	128	146			
WEST	21.3	40.5	0	0	0		107	2277	4330		0	0	0	0	0	0	0	0	0					72	1532	2914	0	0	0			
SKYLT.	37.2	101.5	0	0	0		0	0	0		0	0	0	0	0	0	0	0	0					0	0	0	0	0	0			
DOORS	25.2	4.3	0	0	0		10	252	43		20	505	85	0	0	0	20	505	85					10	252	43	20	505	85			
NET EXPOSED WALL	4.5	0.8	117	522	88		849	3789	638		246	1098	185	70	312	53	440	1964	331					338	1508	254	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	396	1425	240			
EXPOSED CLG	1.3	0.6	0	0	0		0	0	0		0	0	0	0	0	0	0	0	0					0	0	0	0	0	0			
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0		10	27	13		0	0	0	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	0	0	0					0	0	0	0	0	0			
BASEMENT/CRAWL HEAT LOSS				0				0				0			0			0														
SLAB ON GRADE HEAT LOSS				0				0				0			0			0														
SUBTOTAL HT LOSS				1075				6857				1816			483			3213							533			2397				
SUB TOTAL HT GAIN					494				5605				426			247			1832						3826			4455				
LEVEL FACTOR / MULTIPLIER			0.30	0.53			0.30	0.53			0.30	0.53		0.30	0.53		0.30	0.53								3210			471			
AIR CHANGE HEAT LOSS				567				3613				957			254			1693									0.50	1.43				
AIR CHANGE HEAT GAIN					40				451				34			20			148									11805				
DUCT LOSS				0				0				0			0			0											296			
DUCT GAIN					0				0				0			0			0									0				
HEAT GAIN PEOPLE	240		0		0		0		0		0		0	0		0	0		0													
HEAT GAIN APPLIANCES/LIGHTS					503				683				683			347			2574					0		0	0		0			
TOTAL HT LOSS BTU/H				1642				10469				2772			737			4906						4359			16260				
TOTAL HT GAIN x 1.3 BTU/H					1582				8762				1486													4173			997		

TOTAL HEAT GAIN BTU/H: 42948
TONS: 3.58
LOSS DUE TO VENTILATION LOAD BTU/H: 3181
STRUCTURAL HEAT LOSS: 62218
TOTAL COMBINED HEAT LOSS BTU/H: 65399

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.

Michael O'Rourke

INDIVIDUAL BCIN: 29669 MICHAEL O'ROURKE

HVAC DESIGNS LTD.

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Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

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

TYPE: 4002 THE VALLEYVIEW DATE: Oct-18 GFA: 2968 LO# 80231

HEATING CFM	1255	COOLING CFM	1255
TOTAL HEAT LOSS	52,218	TOTAL HEAT GAIN	42,412
AIR FLOW RATE CFM	20.17	AIR FLOW RATE CFM	29.59

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	0.02
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

^LENNOX
EL296UH090XE48C 90
FAN SPEED
LOW 0
MEDLOW 0
MEDIUM 1105
MEDIUM HIGH 1255
HIGH 1525

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

DESIGN CFM = 1255
CFM @ .6 " E.S.P.

TEMPERATURE RISE 63 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	8	5
R/A	0	0	5	2	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	WIC	BED-2	BED-3	BED-4	ENS-2/3	COMP	BED-2	MBR	ENS-4	DIN	KT/GT	KT/GT	KT/GT	KT/GT	LAUN	PWD	FOY	BED-3	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.85	2.32	0.44	2.11	2.24	1.52	2.05	1.48	2.11	1.85	0.84	1.64	2.62	2.62	2.62	2.62	2.77	0.74	4.91	2.24	4.12	4.12	4.12	4.12
CFM PER RUN HEAT	37	47	9	43	45	31	42	30	43	37	17	33	53	53	53	53	56	15	99	45	83	83	83	83
RM GAIN MBH.	2.11	1.94	0.12	2.56	2.56	1.91	1.83	1.85	2.56	2.11	0.37	1.58	2.19	2.19	2.19	2.19	1.49	0.35	2.57	2.56	1.03	1.03	1.03	1.03
CFM PER RUN COOLING	62	58	3	76	76	57	54	55	76	62	11	47	65	65	65	65	44	10	76	76	31	31	31	31
ADJUSTED PRESSURE	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	0.17	0.17	0.16	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	50	58	58	61	51	38	48	42	67	35	47	10	41	48	40	30	11	48	44	57	35	42	26	28
EQUIVALENT LENGTH	210	150	150	180	170	180	140	190	190	120	180	130	130	130	150	130	200	210	140	160	140	220	120	150
TOTAL EFFECTIVE LENGTH	260	208	208	241	221	218	188	232	257	155	227	140	171	178	190	160	211	258	184	217	175	262	146	178
ADJUSTED PRESSURE	0.07	0.08	0.08	0.07	0.08	0.08	0.09	0.07	0.07	0.11	0.08	0.12	0.1	0.1	0.09	0.11	0.08	0.07	0.09	0.08	0.09	0.06	0.11	0.09
ROUND DUCT SIZE	5	5	4	6	5	5	5	5	6	5	4	4	5	5	5	5	5	4	6	5	5	6	5	5
HEATING VELOCITY (ft/min)	272	345	103	219	330	228	308	220	219	272	195	379	389	389	389	389	411	172	505	330	509	423	609	609
COOLING VELOCITY (ft/min)	455	426	34	388	558	419	396	404	388	455	126	539	477	477	477	477	323	115	388	558	228	158	228	228
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	4X10	3X10	3X10
TRUNK	A	A	A	C	D	B	D	D	C	B	D	B	A	A	A	B	B	C	C	D	A	A	B	B

RUN #	25
ROOM NAME	BAS
RM LOSS MBH.	4.12
CFM PER RUN HEAT	83
RM GAIN MBH.	1.03
CFM PER RUN COOLING	31
ADJUSTED PRESSURE	0.16
ACTUAL DUCT LGH.	43
EQUIVALENT LENGTH	150
TOTAL EFFECTIVE LENGTH	193
ADJUSTED PRESSURE	0.08
ROUND DUCT SIZE	6
HEATING VELOCITY (ft/min)	423
COOLING VELOCITY (ft/min)	158
OUTLET GRILL SIZE	4X10
TRUNK	C

SUPPLY AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK A	418	0.06	10.9	14	x	8	537
TRUNK B	794	0.06	13.8	22	x	8	650
TRUNK C	283	0.07	9	10	x	8	509
TRUNK D	462	0.07	10.9	14	x	8	594
TRUNK E	0	0.00	0	0	x	8	0
TRUNK F	0	0.00	0	0	x	8	0
TRUNK G	0	0.00	0	0	x	8	0
TRUNK H	0	0.00	0	0	x	8	0
TRUNK I	0	0.00	0	0	x	8	0
TRUNK J	0	0.00	0	0	x	8	0
TRUNK K	0	0.00	0	0	x	8	0
TRUNK L	0	0.00	0	0	x	8	0

RETURN AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK O	0	0.05	0	0	x	8	0
TRUNK P	0	0.05	0	0	x	8	0
TRUNK Q	0	0.05	0	0	x	8	0
TRUNK R	0	0.05	0	0	x	8	0
TRUNK S	0	0.05	0	0	x	8	0
TRUNK T	0	0.05	0	0	x	8	0
TRUNK U	0	0.05	0	0	x	8	0
TRUNK V	0	0.05	0	0	x	8	0
TRUNK W	0	0.05	0	0	x	8	0
TRUNK X	1255	0.05	17.2	28	x	10	645
TRUNK Y	475	0.05	11.9	16	x	8	534
TRUNK Z	610	0.05	13.1	20	x	8	549
DROP	1255	0.05	17.2	24	x	12	628

RETURN AIR #	1	2	3	4	5	6	7										BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	135	110	120	120	110	300	175	0	0	0	0	0	0	0	0	0	185
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	51	58	57	34	42	28	35	1	1	1	1	1	1	1	1	1	18
EQUIVALENT LENGTH	235	205	165	185	225	190	185	0	0	0	0	0	0	0	0	0	215
TOTAL EFFECTIVE LH	286	263	222	219	267	218	220	1	1	1	1	1	1	1	1	1	233
ADJUSTED PRESSURE	0.05	0.06	0.07	0.07	0.06	0.07	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.06
ROUND DUCT SIZE	7.5	6.6	6.6	6.6	6.6	9.2	7.5	0	0	0	0	0	0	0	0	0	8
INLET GRILL SIZE	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	30	14	0	0	0	0	0	0	0	0	0	24

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

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TYPE: 4002 THE VALLEYVIEW
SITE NAME: PINE VALLEY & TESTON
LO # 80231

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	5	@ 10.6 cfm	53	cfm
Other Rooms	5	@ 10.6 cfm	53.0	cfm
Table 9.32.3.A.		TOTAL	180.2	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	180.2	cfm
Less Principal Ventil. Capacity	155	cfm
Required Supplemental Capacity	25.2	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE 65H Location: BSMT

155.0 cfm 3.0 sones [✓] HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM		ΔT °F		Factor		% LOSS
155.0 CFM	X	76 F	X	1.06	X	0.25

SUPPLEMENTAL FANS

NUTONE

Location	Model	cfm	HVI	Sones
ENS	QTXEN050C	50	✓	0.3
ENS-2/3	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

155 cfm high 64 cfm low

75 % Sensible Efficiency @ 32 deg F (0 deg C) [✓] 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:

HRAI # 001820

Date: October-16

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: 19689 MICHAEL O'ROURKE

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CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 80231 Model: 4002 THE VALLEYVIEW Builder: GOLD PARK HOMES Date: 10/5/2018

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1322	10	13220
First	1322	11	14542
Second	1657	9	14913
Third	0	9	0
Fourth	0	9	0
		Total:	42,675.0 ft³
		Total:	1208.4 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.407
SUMMER NATURAL AIR CHANGE RATE	0.137

Design Temperature Difference

	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-20	42	76
Summer DTDc	24	31	7	13

5.2.3.1 Heat Loss due to Air Leakage

$$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$$

0.407 x 335.67 x 42 °C x 1.2 = 6920 W

= 23611 Btu/h

6.2.6 Sensible Gain due to Air Leakage

$$HG_{salb} = LR_{aire} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

= 0.137 x 335.67 x 7 °C x 1.2 = 391 W

= 1334 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

155 CFM x 76 °F x 1.08 x 0.25 = 3181 Btu/h

6.2.7 Sensible heat Gain due to Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

155 CFM x 13 °F x 1.08 x 0.25 = 536 Btu/h

5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)

$$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$$

Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL_{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5	23,611	8,280	1.426
2	0.3		13,444	0.527
3	0.2		15,294	0.309
4	0		0	0.000
5	0		0	0.000

*HLairbv = Air leakage heat loss + ventilation heat loss
*For a balanced or supply only ventilation system HLairve = 0

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 4002 THE VALLEYVIEW
SFQT: 2968 **LO#** 80231
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)	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^3):	42675.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
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: 55.0 ft	WIDTH: 32.0 ft	EXPOSED PERIMETER:	132.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	42.0 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

Michael O'Rourke

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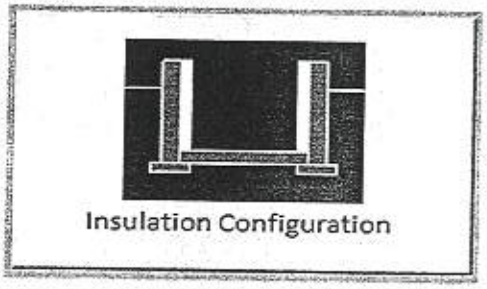
Residential Foundation Thermal Load Calculator

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
Floor Width (m):	9.8
Exposed Perimeter (m):	40.2
Wall Height (m):	3.0
Depth Below Grade (m):	1.79
Window Area (m^2):	0.6
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):	**702**



Insulation Configuration

TYPE: 4002 THE VALLEYVIEW
LO# 80231

HVAC Designs Ltd.
375 Finley Ave, Suite 202
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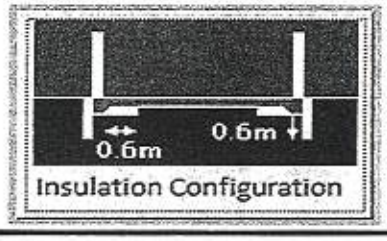
Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Length (m):	1.5	 Insulation Configuration
Width (m):	9.8	
Exposed Perimeter (m):	12.8	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):	**156**	

TYPE: 4002 THE VALLEYVIEW
LO# 80231

HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
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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):	1208.4	
Air Leakage/Ventilation		
Air Tightness Type:	Present (1961-) (3.57 ACH)	
Custom BDT Data:	ELA @ 10 Pa.	1610.9 cm^2
	3.57	ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust
	73.2	73.2
Flue Size		
Flue #:	#1 #2 #3 #4	
Diameter (mm):	0 0 0 0	
Natural Infiltration Rates		
Heating Air Leakage Rate (ACH/H):	**0.407**	
Cooling Air Leakage Rate (ACH/H):	**0.137**	

TYPE: 4002 THE VALLEYVIEW
LO# 80231