

OPT. LOGGIA DWELLING

- TYPE I
- TYPE II
- TYPE III
- TYPE IV
- COUPLED FORCED AIR

HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 9.1 OF THE BUILDING CODE.

BASEMENT PLAN ELEV B

Supply or Return Air Duct exposed to an unheated space shall be insulated to provide a thermal resistance of not less than RSI 2.1 (R12)

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

LOD CSA-F280-12
WOD PACKAGE A1

I, MICHAEL, ORDERER HAVE REVIEWED AND TAKES RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.3 OF THE BUILDING CODE.

Michael O'Rourke
Michael O'Rourke, RCSSA 19669
HVAC DESIGNS LTD.

HVAC LEGEND							REVISIONS		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	No.	Date
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	3.	
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	2.	DECK CONDITIONS ADDED OCT/2018
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	1.	REVISED AS PER CAD JULY/2018

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Client
GOLD PARK HOMES

Project Name
PINE VALLEY & TESTON VAUGHAN, ONTARIO

THE BROOKSIDE
4003

3296 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.

HEAT LOSS 63916 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS	
MAKE	LENNOX	3RD FLOOR	
MODEL	EL296UH090XE48C	2ND FLOOR	12 5 3
INPUT	88 MBTU/H	1ST FLOOR	10 2 2
OUTPUT	85 MBTU/H	BASEMENT	5 1 0
COOLING	3.5 TONS	ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5'Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A	
FAN SPEED	1525 cfm @ 0.6" w.c.		

Sheet Title
BASEMENT HEATING LAYOUT

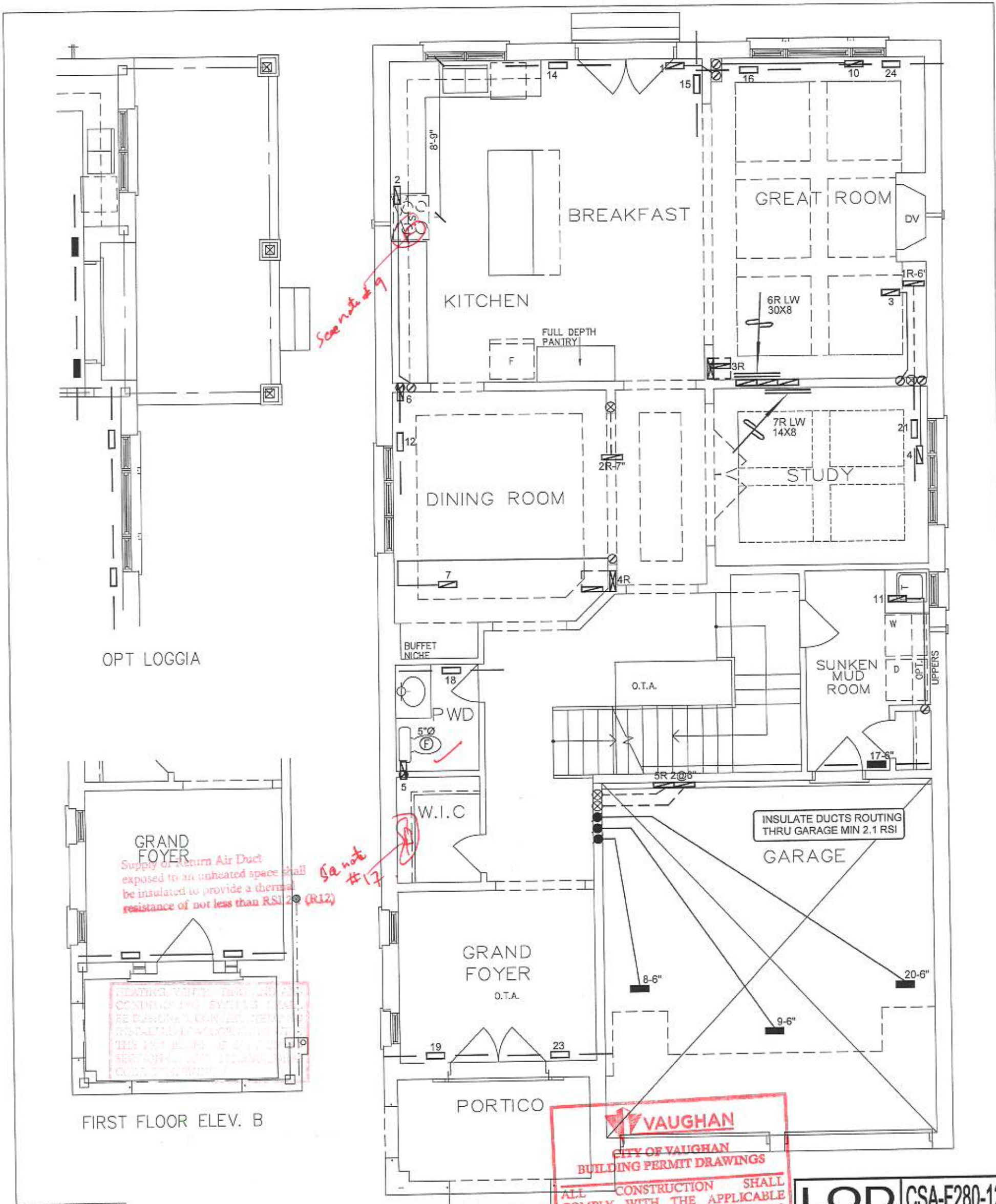
Date
JAN/2018

Scale
3/16" = 1'-0"

BCIN# 19669

LO# 77458

Please see back side for Notes



I MICHAEL OROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.33.5 OF THE BUILDING CODE.

Michael Orourke
 Michael Orourke, BCIN# 19669
 HVAC DESIGNS LTD.

VAUGHAN
 CITY OF VAUGHAN
 BUILDING PERMIT DRAWINGS

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LOD CSA-F280-12
WOD PACKAGE A1

HVAC LEGEND							REVISIONS		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	No.	Date
[Symbol]	FLOOR SUPPLY AIR GRILLE	[Symbol]	6" SUPPLY AIR BOOT ABOVE	[Symbol]	14"x8" RETURN AIR GRILLE	[Symbol]	RETURN AIR STACK ABOVE	3.	
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[Symbol]	SUPPLY AIR BOOT ABOVE	[Symbol]	6" SUPPLY AIR STACK 2nd FLOOR	[Symbol]	FRA- FLOOR RETURN AIR GRILLE	[Symbol]	REDUCER	1.	REVISED AS PER CAD JULY/2018

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Client
GOLD PARK HOMES

Project Name
PINE VALLEY & TESTON VAUGHAN, ONTARIO

THE BROOKSIDE 4003 **3296 sqft**

HVACDESIGNS 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
JAN/2018


Scale
3/16" = 1'-0"

BCIN# 19669

LO# **77458**

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 (WOODBRIIDGE)	Postal code	Plan number/ other description M4647	
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@hvaccdesigns.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: 4003 THE BROOKSIDE Project: PINE VALLEY & TESTON	
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 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.			
October 5, 2018		 Signature of Designer	
Date			

CITY OF VAUGHAN
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RECEIVED
 FEB 6 2020
 CITY OF VAUGHAN
 BUILDING STANDARDS DEPARTMENT
 PLANS ADMINISTRATION
 FROM: 619-2300-1000

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.

Application for a Permit Construct or Demolish – Effective January 1, 2015

20-12-0003-GLD-00-CM

SITE NAME: PINE VALLEY & TESTON
BUILDER: GOLD PARKHOMES

TYPE: 4003 THE BROOKSIDE GFA: 3396

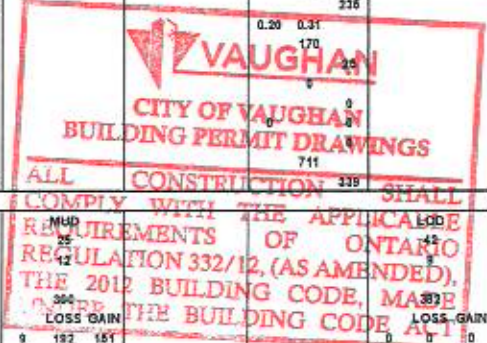
DATE: Oct-10
LO# 77488

WINTER NATURAL AIR CHANGE RATE 0.341
SUMMER NATURAL AIR CHANGE RATE 0.124

HEAT LOSS AT *F. 78
HEAT GAIN AT *F. 18

CSA-P289-12
SB-12 PACKAGE A1

ROOM USE	MBR		ENS		WIC		BED-2		BED-3		BED-4		BATH		ENS-2									
EXP. WALL	33		26		5		13		16		12		7		8									
CLG. HT.	9		9		9		9		9		9		9		9									
GRS.WALL AREA	FACTORS		228		48		118		137		108		84		73									
	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN								
GLAZING	21.3	16.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
NORTH	21.3	16.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
EAST	21.3	42.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
SOUTH	21.3	25.7	0	0	9	192	233	0	0	0	0	18	383	463	0	0	0							
WEST	21.3	42.4	34	724	1441	17	362	721	0	0	0	0	0	0	0	0	0							
SKYL.T.	37.2	103.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
DOORS	25.2	5.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
NET EXPOSED WALL	4.5	0.9	266	1186	247	202	899	187	46	203	42	181	482	84	119	828	110	92	411	86	64	284	69	
NET EXPOSED BSWT WALL ABOVE GR	3.5	0.7	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	290	372	185	186	200	190	70	80	46	234	300	149	195	250	124	188	212	108	98	128	83	
NO ATTIC EXPOSED CLG	2.7	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
EXPOSED FLOOR	2.8	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
BA SEMENT/CRAWL HEAT LOSS																								
SLAB ON GRADE HEAT LOSS																								
SUBTOTAL HT LOSS			2284		1853		293		1114		1162		986		410		542		235					
SUB TOTAL HT GAIN			1874		1239		87		529		698		628		122									
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			716		513		92		349		384		305		129		170		25					
AIR CHANGE HEAT GAIN			159		131		9		56		74		67		13									
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		2		480		0		0		1		240		1		240		0					
HEAT GAIN APPLANCES/LIGHTS			816		0		0		615		615		615		615		615		615					
TOTAL HT LOSS BTU/H			3000		2171		385		1463		1527		1296		539		711		339					
TOTAL HT GAIN x 1.3 BTU/H			4517		1781		125		1872		2115		2018		175									



ROOM USE	MEDIA		DIN		KTGR		STDY		W/R		FOY		LDD		BAS	
EXP. WALL	40		23		70		11		12		43		43		182	
CLG. HT.	14		11		11		11		11		11		11		9	
GRS.WALL AREA	FACTORS		253		770		121		132		473		106		1062	
	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
GLAZING	21.3	16.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH	21.3	16.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	21.3	42.4	55	1170	2332	0	0	0	0	0	0	42	894	1780	0	0
SOUTH	21.3	25.7	0	0	0	34	724	378	0	0	0	23	485	892	0	0
WEST	21.3	42.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SKYL.T.	37.2	103.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	25.2	5.2	10	252	82	0	0	0	0	0	0	40	1010	210	20	205
NET EXPOSED WALL	4.5	0.9	495	2209	459	219	977	203	692	2910	805	89	397	83	132	589
NET EXPOSED BSWT WALL ABOVE GR	3.0	0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	365	468	233	0	0	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.4	78	217	108	0	0	0	0	0	0	166	429	213	0	0
EXPOSED FLOOR	2.8	0.5	444	1132	235	0	0	0	0	0	0	0	0	0	0	0
BA SEMENT/CRAWL HEAT LOSS																
SLAB ON GRADE HEAT LOSS																
SUBTOTAL HT LOSS			5450		1701		5421		1078		599		4684		1906	
SUB TOTAL HT GAIN			3420		1078		6607		621		122		3137		508	
LEVEL FACTOR / MULTIPLIER	0.20	0.31			0.30 0.43		0.30 0.43		0.30 0.43		0.30 0.43		0.30 0.43		0.30 0.43	
AIR CHANGE HEAT LOSS			1709		733		2337		466		264		1025		822	
AIR CHANGE HEAT GAIN			383		114		595		66		13		333		56	
DUCT LOSS			716		0		0		0		0		0		0	
DUCT GAIN			440		0		0		0		0		0		0	
HEAT GAIN PEOPLE	240		0		0		0		0		0		0		0	
HEAT GAIN APPLANCES/LIGHTS			616		616		616		616		616		616		616	
TOTAL HT LOSS BTU/H			7875		2434		7768		1543		843		6389		2723	
TOTAL HT GAIN x 1.3 BTU/H			6238		2360		8992		1652		176		4511		1630	

TOTAL HEAT GAIN BTU/H: 42128 TONS: 2.81 LOSS DUE TO VENTILATION LOAD BTU/H: 3181 STRUCTURAL HEAT LOSS: 60735 TOTAL COMBINED HEAT LOSS BTU/H: 63918

Michael Orourke

SITE NAME: PINE VALLEY & TESTON
 BUILDER: GOLD PARKHOMES

TYPE: 4003 THE BROOKSIDE

DATE: Oct-18

GFA: 3296

LO# 77458

HEATING CFM	1525	COOLING CFM	1525
TOTAL HEAT LOSS	60,735	TOTAL HEAT GAIN	41,467
AIR FLOW RATE CFM	25.11	AIR FLOW RATE CFM	36.78

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

*LENNOX	
EL206UH090XE48C	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 = 1525
 CFM @ 0" E.S.P.

TEMPERATURE RISE 52 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	10	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	14	15	16	17	18	19	20	21	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	MEDIA	MEDIA	MBR	ENS-2	DIN	KT/GR	KT/GR	KT/GR	MUD	W/R	FOY	MEDIA	STDY	FOY	KT/GR
RM LOSS MBH	1.50	2.17	0.38	1.46	1.53	1.30	0.54	2.62	2.62	1.50	0.71	2.43	1.94	1.94	1.94	2.73	0.84	3.19	2.62	1.54	3.19	1.94
CFM PER RUN HEAT	38	55	10	37	38	33	14	66	66	38	18	61	49	49	49	68	21	80	66	39	80	49
RM GAIN MBH	2.06	1.78	0.12	1.87	2.11	2.02	0.17	2.10	2.10	2.06	0.34	2.35	2.22	2.22	2.22	1.53	0.18	2.26	2.10	1.69	2.26	2.22
CFM PER RUN COOLING	76	66	5	69	78	74	6	77	77	76	12	86	81	81	81	58	6	83	77	62	83	81
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.17	0.17	0.16	0.17	0.17	0.16	0.16
ACTUAL DUCT LGH.	46	55	27	27	47	45	54	56	61	51	27	31	43	36	33	21	29	53	71	11	53	30
EQUVALENT LENGTH	150	140	130	150	120	160	150	175	185	140	260	140	170	160	100	250	120	110	170	130	120	110
TOTAL EFFECTIVE LENGTH	196	195	157	177	167	205	204	231	246	191	287	171	213	196	133	271	149	163	241	141	173	140
ADJUSTED PRESSURE	0.09	0.09	0.11	0.1	0.1	0.08	0.08	0.07	0.07	0.09	0.06	0.09	0.08	0.08	0.12	0.08	0.12	0.1	0.07	0.12	0.09	0.12
ROUND DUCT SIZE	5	5	4	5	5	5	4	6	6	5	4	5	5	5	5	6	4	5	6	4	5	5
HEATING VELOCITY (ft/min)	279	404	115	272	279	242	161	337	337	279	207	448	360	360	360	347	241	587	337	447	587	360
COOLING VELOCITY (ft/min)	558	485	57	507	573	543	69	393	393	558	138	631	595	595	595	286	69	609	393	711	609	595
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10
TRUNK	A	B	B	B	D	B	D	C	C	A	B	B	A	A	A	B	D	C	C	B	C	A

RUN #	25	26	27	28	29
ROOM NAME	BAS	BAS	BAS	BAS	BAS
RM LOSS MBH	4.02	4.02	4.02	4.02	4.02
CFM PER RUN HEAT	101	101	101	101	101
RM GAIN MBH	0.70	0.70	0.70	0.70	0.70
CFM PER RUN COOLING	26	26	26	26	26
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	44	19	23	35	44
EQUVALENT LENGTH	150	160	150	140	110
TOTAL EFFECTIVE LENGTH	194	179	173	175	154
ADJUSTED PRESSURE	0.08	0.09	0.09	0.09	0.11
ROUND DUCT SIZE	6	6	6	6	5
HEATING VELOCITY (ft/min)	515	515	515	515	742
COOLING VELOCITY (ft/min)	133	133	133	133	191
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	3X10
TRUNK	A	A	B	D	C

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

SUPPLY 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 A	474	0.08	10.8	14	8	TRUNK G	0	0.00	0	0	8
TRUNK B	896	0.06	14.5	24	8	TRUNK H	0	0.00	0	0	8
TRUNK C	459	0.07	10.8	14	8	TRUNK I	0	0.00	0	0	8
TRUNK D	633	0.07	12.2	18	8	TRUNK J	0	0.00	0	0	8
TRUNK E	1529	0.06	17.7	28	10	TRUNK K	0	0.00	0	0	8
TRUNK F	0	0.00	0	0	8	TRUNK L	0	0.00	0	0	8

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 O	0	0.06	0	0	8	TRUNK X	1525	0.06	17.7	32	8
TRUNK P	0	0.06	0	0	8	TRUNK Y	860	0.06	14.2	24	8
TRUNK Q	0	0.06	0	0	8	TRUNK Z	335	0.06	10	12	8
TRUNK R	0	0.06	0	0	8	DRCP	1525	0.06	17.7	24	14
TRUNK S	0	0.06	0	0	8						
TRUNK T	0	0.06	0	0	8						
TRUNK U	0	0.06	0	0	8						
TRUNK V	0	0.06	0	0	8						
TRUNK W	0	0.06	0	0	8						

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	14	15	16	17	18	19	20	21	23	24
AIR VOLUME	85	125	155	155	180	390	190	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	41	53	45	67	71	28	25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUVALENT LENGTH	195	190	185	190	185	145	145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	238	243	230	257	256	171	170	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.06	0.06	0.06	0.06	0.06	0.09	0.09	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	6	6.9	7.5	7.5	7.9	9.6	7.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
INLET GRILL SIZE	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
INLET GRILL SIZE	14	14	14	14	30	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

TYPE: 4003 THE BROOKSIDE
 SITE NAME: PINE VALLEY & TESTON

LO # 77458

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	6	@ 10.6 cfm	63.6	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	155	cfm
Required Supplemental Capacity	35.8	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 1.08	X 0.25

SUPPLEMENTAL FANS NUTONE

Location	Model	cfm	HVI	Sones
ENS	QTXENC60C	50	✓	0.3
BATH	QTXENC60C	50	✓	0.3
ENS-2	QTXENC60C	50	✓	0.3
WIR	QTXENC60C	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 #:

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: October-18



CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventilation Calculation)

LO#: 77458

Model: 4003 THE BROOKSIDE

Builder: GOLD PARKHOMES

Date: 10/5/2018

Volume Calculation

Air Change & Delta T Data

House Volume

Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)
Bsmt	1530	9	13923
First	1530	11	16830
Second	1782	9	16216.2
Third	0	9	0
Fourth	0	9	0
		Total:	46,969.2 ft ³
		Total:	1330.0 m ³

WINTER NATURAL AIR CHANGE RATE	0.341
SUMMER NATURAL AIR CHANGE RATE	0.124

Design Temperature Difference				
	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-20	42	76
Summer DTDc	22	31	9	16

5.2.3.1 Heat Loss due to Air Leakage

6.2.6 Sensible Gain due to Air Leakage

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

0.341 x 369.45 x 42 °C x 1.2 = 6384 W
 = 21783 Btu/h

$$HG_{sairb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

0.124 x 369.45 x 9 °C x 1.2 = 484 W
 = 1652 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

6.2.7 Sensible heat Gain due to 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

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

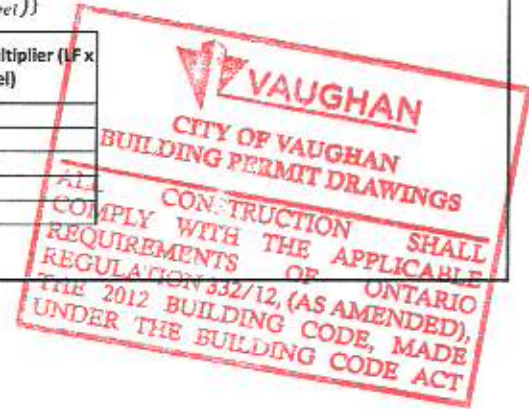
155 CFM x 16 °F x 1.08 x 0.25 = 661 Btu/h

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

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

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 / HL _{clevel})
1	0.5	21,783	9,184	1.186
2	0.3		15,159	0.431
3	0.2		13,894	0.314
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



HEAT LOSS AND GAIN SUMMARY SHEET

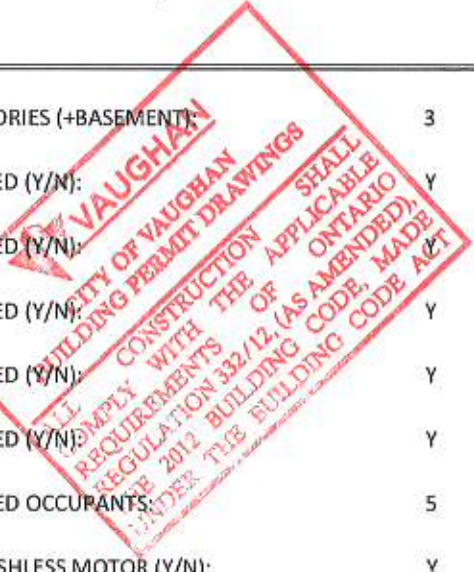
MODEL: 4003 THE BROOKSIDE **BUILDER:** GOLD PARKHOMES
SFQT: 3296 **LO#** 77458 **SITE:** PINE VALLEY & TESTON

DESIGN ASSUMPTIONS

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

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	46969.2	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:	6.1 ft
LENGTH: 59.0 ft	WIDTH: 32.0 ft	EXPOSED PERIMETER:	182.0 ft

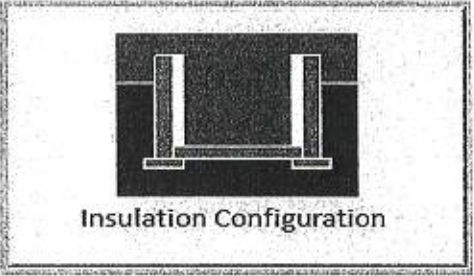


2012 OBC - COMPLIANCE PACKAGE		
Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement 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):	18.0	 <p style="text-align: center;">Insulation Configuration</p>
Floor Width (m):	9.8	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.8	
Depth Below Grade (m):	1.86	
Window Area (m ²):	3.3	
Door Area (m ²):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):	1774	

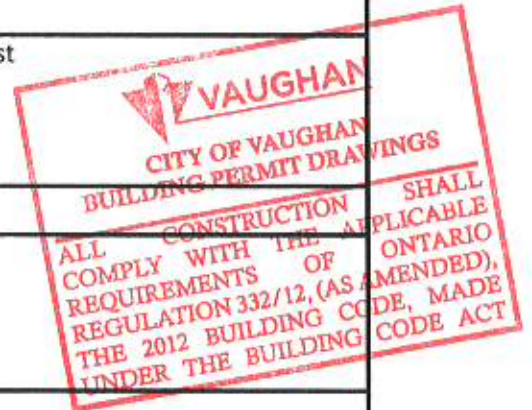


TYPE: 4003 THE BROOKSIDE
 LO# 77458

Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Vaughan (Woodbridge)			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	7.04			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1330.0			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa. 3.57	1773.0 cm ² ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply 73.2	Total Exhaust 73.2		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.341			
Cooling Air Leakage Rate (ACH/H):	0.124			



TYPE: 4003 THE BROOKSIDE
 LO# 77458