

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

ELEVATION B - WOB
TYPE: 5001 - THE HILLSBOROUGH

GFA: 3602

DATE: Oct-18
LOF: 80238

WINTER NATURAL AIR CHANGE RATE: 0.389
SUMMER NATURAL AIR CHANGE RATE: 0.130

HEAT LOSS AT °F: 76
HEAT GAIN AT °F: 13

CSA-F280-12
SB-12 PACKAGE A1

ROOM USE	MR	ENS	WIC	BED-2	BED-3	BED-4	BATH	ENS-4	WOB	BAS
GRS WALL AREA	410	225	90	99	333	180	63	54	468	864
GLAZING	0	0	0	0	0	0	0	0	0	0
NORTH	0	0	0	0	0	0	0	0	0	0
EAST	0	0	0	0	0	0	0	0	0	0
SOUTH	0	0	0	0	0	0	0	0	0	0
WEST	0	0	0	0	0	0	0	0	0	0
SKYLIT	0	0	0	0	0	0	0	0	0	0
DOORS	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.5	0.8	372	1660	280	197	879	148	500	500
NET EXPOSED INSULATED WALL ABOVE GR	3.6	0.6	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	340	436	200	155	200	92	134	134
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS	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
SUB TOTAL HT LOSS	2905	1675	1342	556	138	1038	463	3317	2012	1139
LEVEL FACTOR / MULTIPLIER	0.20	0.37	0.20	0.37	0.20	0.37	0.20	0.37	0.20	0.37
AIR CHANGE HEAT LOSS	1073	618	205	13	43	383	1225	168	105	325
AIR CHANGE HEAT GAIN	183	124	0	0	0	0	0	0	0	0
DUCT LOSS	0	0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	2	480	0	0	0	0	0	0	0	0
TOTAL HT LOSS BTU/H	3978	2294	0	0	0	0	0	0	0	0
TOTAL HT GAIN x 1.3 BTU/H	4407	1907	761	195	1422	1947	4596	4551	751	1325

ROOM USE	MR	ENS	WIC	BED-2	BED-3	BED-4	BATH	ENS-4	WOB	BAS
GRS WALL AREA	320	650	200	207	50	420	286	468	864	864
GLAZING	0	0	0	0	0	0	0	0	0	0
NORTH	0	0	0	0	0	0	0	0	0	0
EAST	0	0	0	0	0	0	0	0	0	0
SOUTH	0	0	0	0	0	0	0	0	0	0
WEST	0	0	0	0	0	0	0	0	0	0
SKYLIT	0	0	0	0	0	0	0	0	0	0
DOORS	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.5	0.8	268	1196	201	500	2331	376	125	179
NET EXPOSED INSULATED WALL ABOVE GR	3.6	0.6	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	60	77	35	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS	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
SUB TOTAL HT LOSS	2380	5503	5581	1464	930	1385	1237	223	3516	1571
LEVEL FACTOR / MULTIPLIER	0.30	0.53	0.30	0.53	0.30	0.53	0.30	0.53	0.30	0.53
AIR CHANGE HEAT LOSS	1266	2927	517	779	86	515	115	0	1870	145
AIR CHANGE HEAT GAIN	212	0	0	0	0	0	0	0	0	0
DUCT LOSS	0	0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	0	0	0	0	0	0	0	0	0	0
TOTAL HT LOSS BTU/H	3645	751	8429	751	751	1910	342	0	5386	2231
TOTAL HT GAIN x 1.3 BTU/H	4222	8903	2238	1910	2734	53	1325	725	1382	1382

TOTAL HEAT GAIN BTU/H: 42288

TONS: 3.52

LOSS DUE TO VENTILATION LOAD BTU/H: 3181

STRUCTURAL HEAT LOSS: 65872

TOTAL COMBINED HEAT LOSS BTU/H: 89053

FOR OFFICE USE ONLY
CITY OF VAUGHAN
BUILDING STANDARDS DEPARTMENT
PLANS & SPECIFICATIONS
RECEIVED
FEB 2 2019
2019
March 12/20
WVS

20180006-640-0000

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: 39669
MICHAEL O'Rourke

SITE NAME: PINE VALLEY & TESTON
BUILDER: GOLD PARK HOMESELEVATION B - WOB
TYPE: 5001 - THE HILLSBOROUGH

DATE: Oct-18

GFA: 3602 LO# 80238

HEATING CFM 1255
TOTAL HEAT LOSS 65,872
AIR FLOW RATE CFM 19.05COOLING CFM 1255
TOTAL HEAT GAIN 41,752
AIR FLOW RATE CFM 30.06EL296UH090XE48C
FAN SPEED LOW
MEDIUM
HIGHAFUE = 96 %
INPUT (BTU/H) = 88,000
OUTPUT (BTU/H) = 85,000
DESIGN CFM = 1255
CFM @ 8" E.S.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	9	6
R/A	0	0	4	2	1

All S/A diffusers at "X10" unless noted otherwise on layout.
All R/A runs 5"Ø unless noted otherwise on layout.furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure for s/a & r/a 0.35
plenium pressure s/a 0.18
max s/a diff. press. loss 0.02
min adjusted pressure s/a 0.16
r/a grille press. loss 0.17
adjusted pressure r/a 0.15

TEMPERATURE RISE 63 °F

ROOM #	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	BATH	BED-3	BATH	MBR	ENS-4	LIB	LIB	KT/GT	KT/GT	DIN	LAUN	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.99	2.29	0.76	1.42	2.50	2.60	0.66	2.50	0.66	1.99	0.73	1.82	1.82	2.81	2.81	2.24	1.91	0.34	5.39	2.59	3.87	3.87	3.87	3.87
CFM PER RUN HEAT	38	44	14	27	48	49	13	48	13	38	14	35	35	54	54	43	36	7	103	49	74	74	74	74
RM GAIN MBH	2.20	1.91	0.20	1.95	2.28	2.91	0.23	2.28	0.23	2.20	0.42	2.11	2.11	2.97	2.97	2.30	2.73	0.05	2.23	1.38	0.52	0.52	0.52	0.52
CFM PER RUN COOLING	66	57	6	59	69	87	7	69	7	66	13	63	63	89	89	69	82	2	67	42	16	16	16	16
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17
EQUVALENT LENGTH	64	49	31	31	49	48	30	45	26	75	48	50	45	50	37	29	50	5	31	11	40	28	44	47
TOTAL EFFECTIVE LENGTH	205	165	110	135	125	180	145	105	165	205	220	120	120	120	120	190	160	100	150	170	170	190	170	160
ADJUSTED PRESSURE	0.06	0.08	0.12	0.1	0.1	0.07	0.1	0.11	0.09	0.06	0.06	0.1	0.1	0.1	0.1	0.08	0.08	0.16	0.09	0.1	0.1	0.08	0.08	0.08
ROUND DUCT SIZE	5	5	4	5	5	6	4	5	4	5	4	5	5	5	5	5	5	4	6	4	5	5	5	5
HEATING VELOCITY (ft/min)	279	323	161	196	352	250	149	352	149	279	161	257	257	396	396	316	264	80	525	562	543	543	543	543
COOLING VELOCITY (ft/min)	485	419	69	433	507	444	80	507	80	485	149	463	463	653	653	507	602	23	342	482	117	117	117	117
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10
TRUNK	A	D	C	D	D	A	D	D	D	A	A	B	B	A	A	B	B	C	B	D	A	A	D	B

ROOM #	25	26	27
ROOM NAME	BAS	KT/GT	BAS
RM LOSS MBH	3.87	2.81	3.87
CFM PER RUN HEAT	74	54	74
RM GAIN MBH	0.52	2.97	0.52
CFM PER RUN COOLING	16	89	16
ADJUSTED PRESSURE	0.17	0.16	0.17
EQUVALENT LENGTH	40	35	59
TOTAL EFFECTIVE LENGTH	110	130	150
ADJUSTED PRESSURE	0.11	0.1	0.08
ROUND DUCT SIZE	5	5	5
HEATING VELOCITY (ft/min)	543	396	543
COOLING VELOCITY (ft/min)	117	653	117
OUTLET GRILL SIZE	3X10	3X10	3X10
TRUNK	B	D	A

SUPPLY AIR TRUNK SIZE											RETURN AIR TRUNK SIZE										
TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)		
TRUNK A	469	0.06	11.3	14	8	603	0.00	0	0	8	0	0.06	0	0	8	0	0.06	0	0	8	
TRUNK B	400	0.08	9.9	12	8	600	0.00	0	0	8	0	0.06	0	0	8	0	0.06	0	0	8	
TRUNK C	890	0.06	14.4	24	8	668	0.00	0	0	8	0	0.06	0	0	8	0	0.06	0	0	8	
TRUNK D	370	0.08	9.7	12	8	555	0.00	0	0	8	0	0.06	0	0	8	0	0.06	0	0	8	
TRUNK E	0	0.00	0	0	8	0	0.00	0	0	8	0	0.06	0	0	8	0	0.06	0	0	8	
TRUNK F	0	0.00	0	0	8	0	0.00	0	0	8	0	0.06	0	0	8	0	0.06	0	0	8	
											TRUNK G	0	0.00	0	0	8	0	0.06	0	0	8
											TRUNK H	0	0.00	0	0	8	0	0.06	0	0	8
											TRUNK I	0	0.00	0	0	8	0	0.06	0	0	8
											TRUNK J	0	0.00	0	0	8	0	0.06	0	0	8
											TRUNK K	0	0.00	0	0	8	0	0.06	0	0	8
											TRUNK L	0	0.00	0	0	8	0	0.06	0	0	8
											TRUNK M	0	0.00	0	0	8	0	0.06	0	0	8
											TRUNK N	0	0.00	0	0	8	0	0.06	0	0	8
											TRUNK O	0	0.06	0	0	8	0	0.06	0	0	8
											TRUNK P	0	0.06	0	0	8	0	0.06	0	0	8
											TRUNK Q	0	0.06	0	0	8	0	0.06	0	0	8
											TRUNK R	0	0.06	0	0	8	0	0.06	0	0	8
											TRUNK S	0	0.06	0	0	8	0	0.06	0	0	8
											TRUNK T	0	0.06	0	0	8	0	0.06	0	0	8
											TRUNK U	0	0.06	0	0	8	0	0.06	0	0	8
											TRUNK V	0	0.06	0	0	8	0	0.06	0	0	8
											TRUNK W	0	0.06	0	0	8	0	0.06	0	0	8
											TRUNK X	1130	0.06	15.8	30	8	678	0.06	9.7	12	8
											TRUNK Y	310	0.06	0	0	8	465	0.06	0	0	8
											TRUNK Z	0	0.06	0	0	8	0	0.06	0	0	8
											DROP	1255	0.06	16.4	24	12	628	0.06	0	0	12

Michael O'Rourke

INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

TYPE: 5001 - THE HILLSBOROUGH
SITE NAME: PINE VALLEY & TESTON
RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY
LO # 80238 ELEVATION B - WOB

COMBUSTION APPLIANCES 9.32.3.(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

☐ Electric Space Heat

☐ Non Forced Air

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
Other Bedrooms	3	@ 10.6 cfm	31.8
Kitchen & Bathrooms	5	@ 10.6 cfm	53
Other Rooms	6	@ 10.6 cfm	63.6
TOTAL			190.8

Table 9.32.3.A.

PRINCIPAL VENTILATION CAPACITY REQUIRED 9.32.3.4.(1)

Bedroom	1	31.8
Bedroom	2	47.7
Bedroom	3	63.6
Bedroom	4	79.5
Bedroom	5	95.4
TOTAL		79.5

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.

Total Ventilation Capacity	190.8
Less Principal Ventil. Capacity	155
Required Supplemental Capacity	35.8

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANE 65H Location: BSMT

155.0 cfm 3.0 sones

☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM 155.0 CFM 76 F X 1.08 X 0.25

% LOSS

SUPPLEMENTAL FANS

Location	Model	CFM	HVI	Sones
ENS	QTXEN050C	50	☒	0.3
BATH	QTXEN050C	50	☒	0.3
ENS-4	QTXEN050C	50	☒	0.3
W/R	QTXEN050C	50	☒	0.3

HEAT RECOVERY VENTILATOR

Model: VANE 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: Building Permit #

Roll # Building Permit #

NAME: GOLD PARK HOMES

REGULATION 332/12 (AS AMENDED)

THE 2012 BUILDING CODE, MADE

UNDER THE BUILDING CODE ACT

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

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

CSA F280-12 Residential Heat Loss and Heat Gain Calculations
Formula Sheet (For Air Leakage / Ventilation Calculation)

LO#: 80238

Model: 5001 - THE HILLSBOROUGH

Builder: GOLD PARK HOMES

Date: 10/5/2018

Volume Calculation

House Volume			
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1666	9	14994
First	1666	10	16660
Second	1993	9	17937
Third	0	9	0
Fourth	0	9	0
		Total:	49,591.0 ft³
		Total:	1404.3 m³

5.2.3.1 Heat Loss due to Air Leakage

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

0.389

x

390.07

x

42 °C

x

1.2

=

7678 W

=

26199 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.130

x

390.07

x

7 °C

x

1.2

=

434 W

=

1482 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

155 CFM

x

76 °F

x

1.08

x

0.25

=

3181 Btu/h

6.2.7 Sensible heat Gain due to Ventilation

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

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)

$$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times ((HL_{agcr} + HL_{bgcr}) \div (HL_{agcleve} + HL_{bgcleve}))$$

Level	Level Factor (LF)	Hlaive Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x Hlaive / HL _{level})
1	0.5		9,388	1.395
2	0.3		14,778	0.532
3	0.2	26,199	14,193	0.369
4	0		0	0.000
5	0		0	0.000

HL_{airbv} = Air leakage heat loss + ventilation heat lossHL_{airr} = 0

VVAUGHAN
CITY OF VAGUEAN
BUILDING PERMIT DRAWING
ALL CONSTRUCTION
COMPLY WITH THE
REGULATIONS OF
THE 2012 BUILDING CODE, MADE
UNDER THE BUILDING CODE ACT

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 5001 - THE HILLSBOROUGH ELEVATION B - WOB BUILDER: GOLD PARK HOMES
 SFQI: 3602 LO# 80238 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 (ft³):	49591.0	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:	6.0 ft
LENGTH:	56.0 ft	WIDTH:	42.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	52.0 ft

2012 OBC - COMPLIANCE PACKAGE

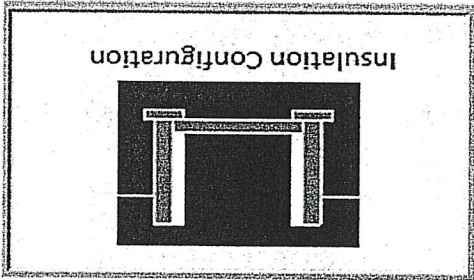
Component	2012 OBC - COMPLIANCE PACKAGE	Min. Eff.	Compliance Package A1
Ceiling with Attic Space Minimum RSI (R)-Value	60	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	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	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	10	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	0.28	0.28	-
Skylights Maximum U-Value	0.49	0.49	-
Space Heating Equipment Minimum AFUE	0.96	0.96	-
HRV Minimum Efficiency	75%	75%	-
Domestic Hot Water Heater Minimum EF	0.8	0.8	-

INDIVIDUAL BCIN: 19669
 MICHAEL O'ROURKE

Michael O'Roourke

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):	12.8
Exposed Perimeter (m):	43.9
Wall Height (m):	2.7
Depth Below Grade (m):	1.57
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):	
824	

CITY OF VAUGHAN
 BUILDING PERMIT DRAWINGS
 SHALL COMPLY WITH THE APPLICABLE
 REQUIREMENTS OF ONTARIO
 REGULATION 552/12 (AS AMENDED)
 UNDER THE BUILDING CODE, MADE
 BY THE BUILDING CODE ACT

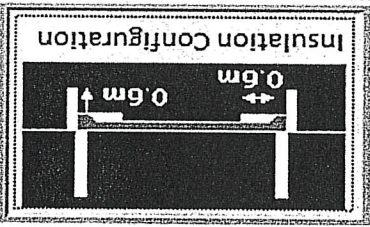
ELEVATION B - WOB

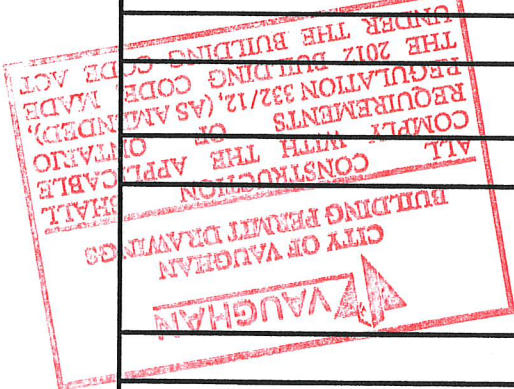
TYPE: 5001 - THE HILLSBOROUGH

LO# 80238

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	
Width (m):	12.8	
Exposed Perimeter (m):	15.8	
Radiant Slab		
Heated Fraction of the Slab:	0	Design Months Heating Month: 1
Fluid Temperature (°C):	33	
Results		
Heating Load (Watts):		

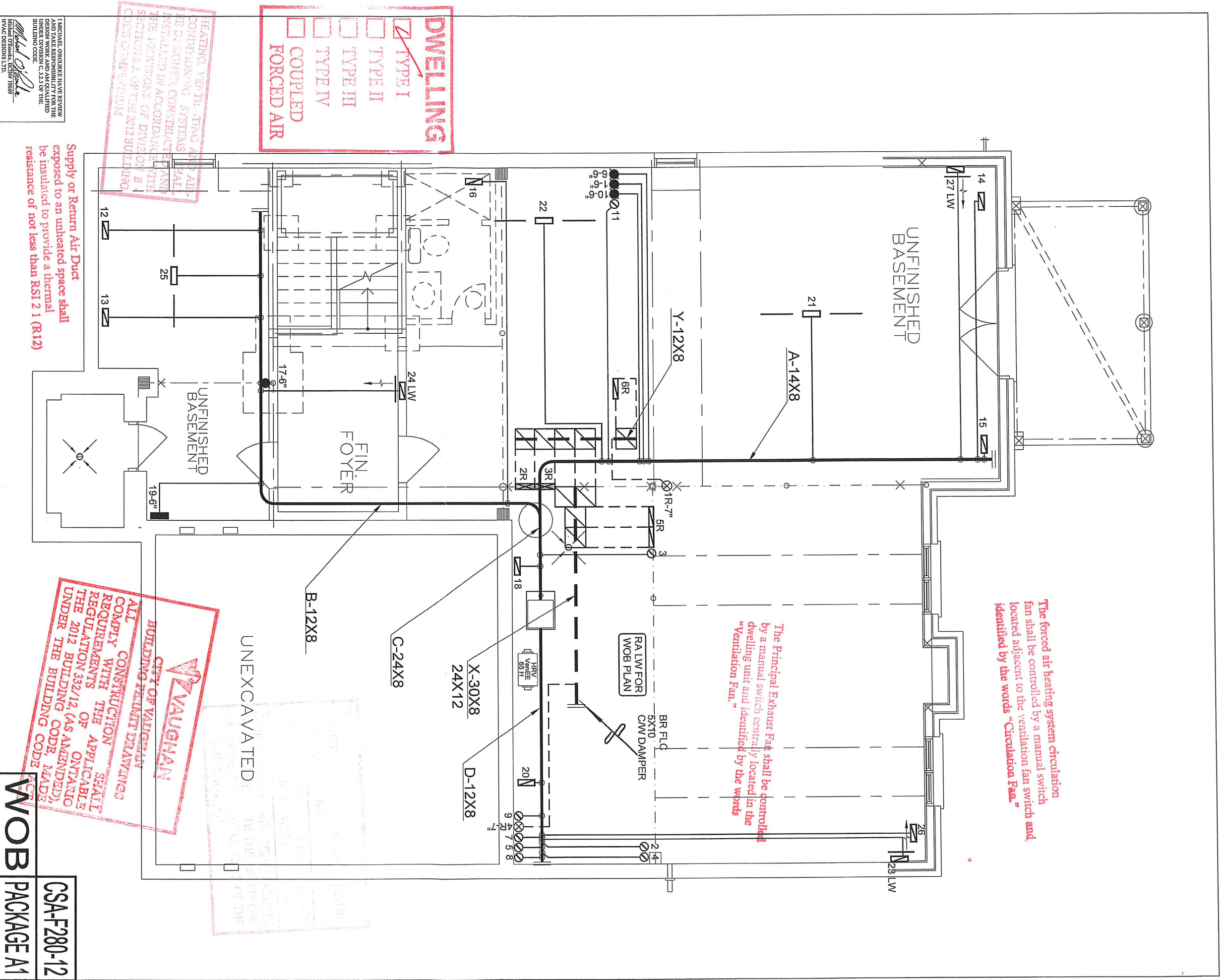


Air Infiltration Residential Load Calculator

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):	8.53
Building Configuration	
Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m ³):	1404.3
Air Leakage/Ventilation	
Air Tightness Type:	Present (1961-) (3.57 ACH)
Custom BDT Data:	ELA @ 10 Pa. 1871.9 cm ² ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply 73.2 Total Exhaust
Flue Size	
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Natural Infiltration Rates	
Heating Air Leakage Rate (ACH/H):	0.389
Cooling Air Leakage Rate (ACH/H):	0.130

TYPE: 5001 - THE HILLSBOROUGH
ELEVATION B - WOB
LO# 80238



HVAC LEGEND			3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE	2.
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR	1.
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR	No.
			FRA - FLOOR RETURN AIR GRILLE	Description
				Date

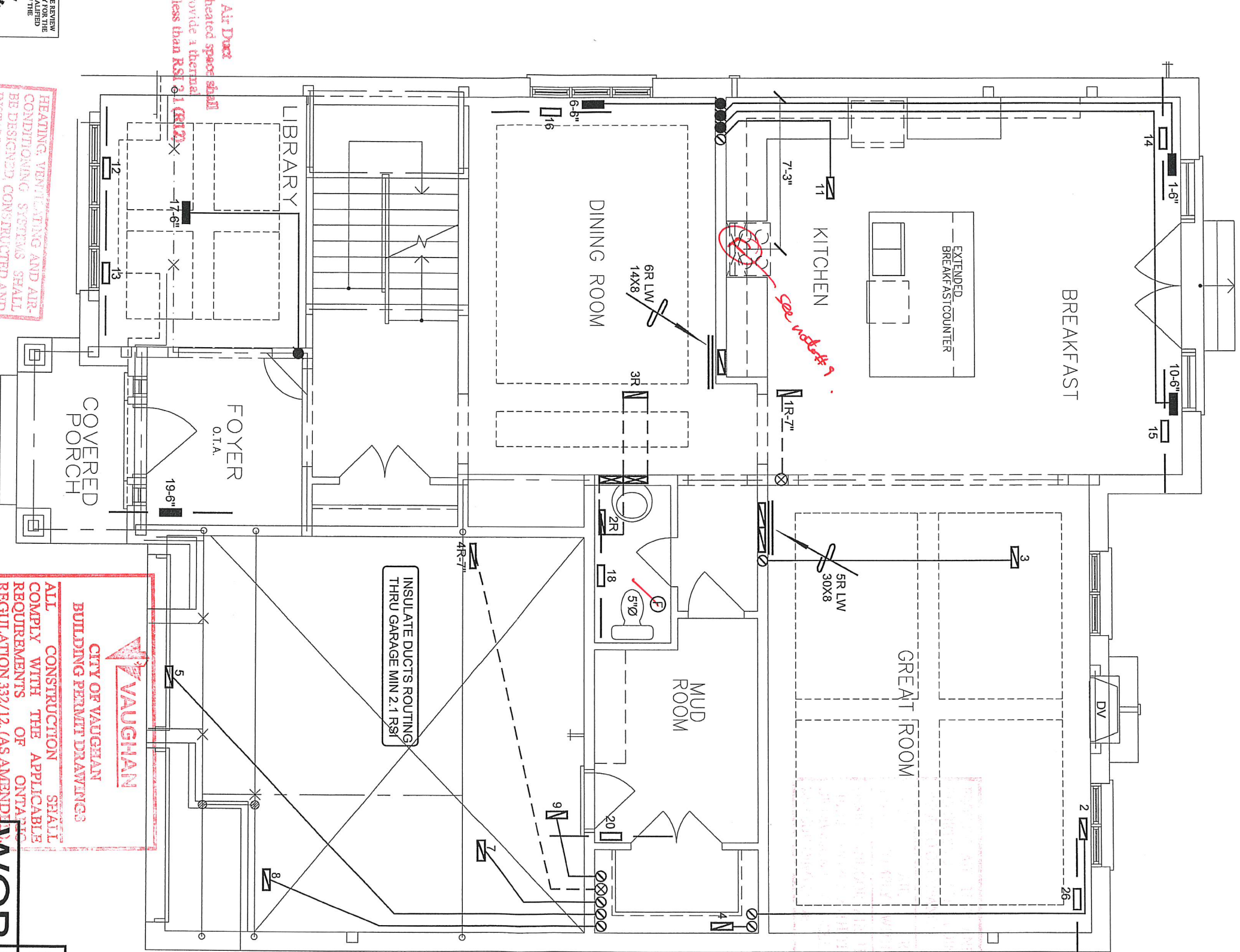
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GOLD PARK HOMES	Project Name
PINE VALLEY & TESTON VAUGHAN, ONTARIO ELEVATION B - WOB THE HILLSBOROUGH 5001	375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdsgns.ca Web: www.hvacdsgns.ca Specializing in Residential Mechanical Design Services
3602 sqft	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-protected.

HEAT LOSS 69063 BTU/H	# OF RUNS	S/A	R/A	FANS
UNIT DATA	3RD FLOOR			
MAKE LENNOX	2ND FLOOR	12	4	3
MODEL EL296UH090XE48C	1ST FLOOR	9	2	2
INPUT	BASEMENT	6	1	0
OUTPUT 88				
COOLING 3.5	ALL S/A DIFFUSERS 4"x10"			
FAN SPEED 1255	UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A			
	Scale 3/16" = 1'-0"			
	BCIN# 19669			
	LO# 80238			

CSA-F280-12	WOB	PACKAGE A1
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REVISIONS	Date

Please see back side for notes



HVAC LEGEND		HVAC LEGEND		HVAC LEGEND	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	SUPPLY AIR BOOT		30"x48" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		FRA- FLOOR RETURN AIR GRILLE		REDUCER
	SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

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Client

GOLD PARK HOMES

Project Name

**PINE VALLEY & TESTON
VAUGHAN, ONTARIO
ELEVATION B - WOB
THE HILLSBOROUGH
5001**

375 Finley Ave, Suite 202 - Ajax, Ontario
L1S 2E2 Tel: 905.619.2300 - 905.420.5300 Fax: 905.619.2375
Email: info@hvadesigns.ca
Web: www.hvadesigns.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.

Sheet Title

**FIRST FLOOR
HEATING
LAYOUT**

Date

OCT/2018

Scale

3/16" = 1'-0"

BCIN#

19669

LO#

80238

1 MICHAEL, ONTARIO HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN AND CONSTRUCTION OF THE BUILDING CODE. 3.2.5 OF THE BUILDING CODE.

Michael Designs Ltd. 19669

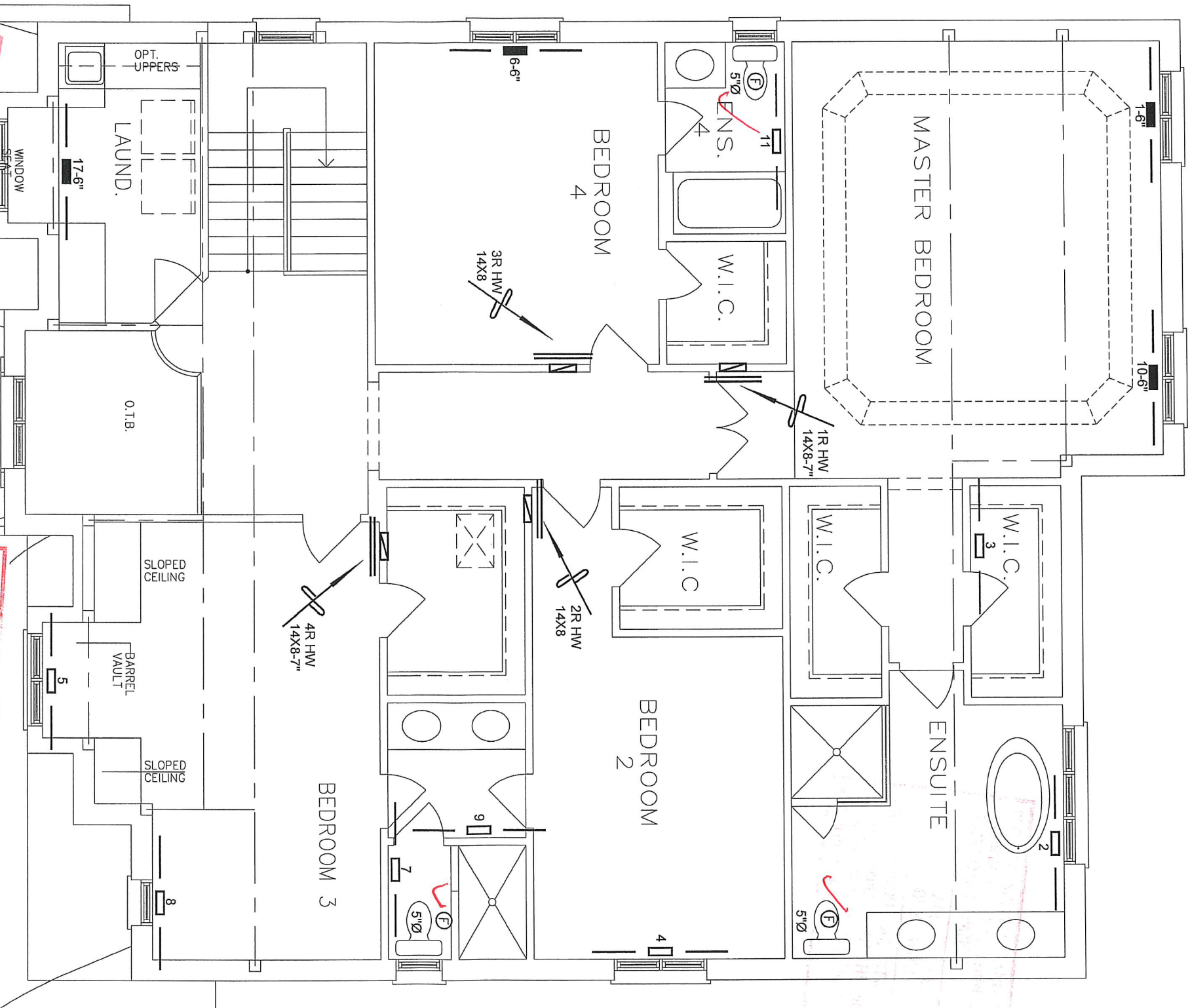
HEATING, VENTILATING AND AIR-CONDITIONING SYSTEMS SHALL BE DESIGNED, CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2012 BUILDING CODE, SECTION 9.2. OF THE 2012 BUILDING CODE.

**CITY OF VAUGHAN
BUILDING PERMIT DRAWINGS**

ALL CONSTRUCTION SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF ONTARIO REGULATION 332/12, (AS AMENDED BY THE 2012 BUILDING CODE, MADE UNDER THE BUILDING CODE, 1995)

**WOB
PACKAGE A1**

CSA-F280-12



I HEREBY, ON BEHALF OF THE CLIENT, ACKNOWLEDGE THAT I HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED TO SIGN THESE DRAWINGS IN ACCORDANCE WITH THE BUILDING CODE OF THE PROVINCE OF ONTARIO.
Michael G. Goss
Michael Goss, P.Eng. 1560
HVAC DESIGNS LTD.

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD. AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

HVAC LEGEND					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA - FLOOR RETURN AIR GRILLE
					RETURN AIR STACK ABOVE
					REDUCER
				No.	Description
					Date

CITY OF VAUGHAN
BUILDING PERMIT DRAWINGS
ALL CONSTRUCTION SHALL
COMPLY WITH THE APPLICABLE
REQUIREMENTS OF
THE 2012 BUILDING CODE, (AS AMENDED)
UNDER THE BUILDING CODE ACT

CSA-F-280-12
WOB
PACKAGE A1

Client
GOLD PARK HOMES
Project Name
**PINE VALLEY & TESTON
VAUGHAN, ONTARIO
ELEVATION B - WOB
THE HILLSBOROUGH
5001**

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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# 80238