

SITE NAME: TRINAR HALL HOMES

BUILDER: GREENPARK HOMES

TYPE: GLENWAY 7A

GFA: 3317

DATE: Feb-19

LO# 81523

WINTER NATURAL AIR CHANGE RATE 0.227

SUMMER NATURAL AIR CHANGE RATE 0.063

HEAT LOSS AT °F. 81

HEAT GAIN AT °F. 11

CSA-F280-12

ENERGYSTAR

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-2	BED-5	S-ENS	ENS-3		
			42	22	8	14	16	30	11	11	6	17		
			9	9	9	9	9	9	9	9	9	9		
FACTORS			LOSS GAIN		LOSS GAIN			LOSS GAIN				LOSS GAIN		
GRS.WALL AREA			378	198	72	126	144	270	99	99	54	153		
GLAZING			LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN		
NORTH	20.4	15.1	0	0	0	0	0	0	9	183	136	0	0	0
EAST	20.4	40.7	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	20.4	24.1	0	0	0	0	0	0	0	0	0	0	0	0
WEST	20.4	40.7	34	692	1384	15	305	611	0	0	0	0	0	0
SKYLT.	34.2	99.9	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	27.0	3.7	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	3.9	0.5	344	1327	179	183	706	95	72	278	38	109	421	57
NET EXPOSED BSMT WALL ABOVE GR	3.9	0.5	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.4	0.6	372	512	207	123	169	69	115	158	64	229	315	128
NO ATTIC EXPOSED CLG	2.9	1.2	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.7	0.4	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	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	0
SUBTOTAL HT LOSS			2530	1180	436	1081	2080	2045	810	979	457	1082		
SUB TOTAL HT GAIN			1771	775	102	442	1592	1754	246	580	281	856		
LEVEL FACTOR / MULTIPLIER			0.20	0.23	0.20	0.23	0.20	0.23	0.20	0.23	0.20	0.23		
AIR CHANGE HEAT LOSS			592	276	102	253	486	478	189	229	107	253		
AIR CHANGE HEAT GAIN			99	43	6	25	89	98	14	33	16	48		
DUCT LOSS			0	0	0	0	0	0	100	0	0	133		
DUCT GAIN			0	0	0	0	0	0	26	0	0	90		
HEAT GAIN PEOPLE	240		2	480	0	0	1	240	0	1	240	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				612	0	0	612	612	0		612	0	0	0
TOTAL HT LOSS BTU/H			3122	1456	538	1334	2822	2523	1099	1207	564	1468		
TOTAL HT GAIN x 1.3 BTU/H			3851	1064	140	1714	3622	3516	372	1904	385	1293		

ROOM USE	EXP. WALL	CLG. HT.	LV/DN	K/D/F	OFF	LAUN	PWD	FOY						BAS
			26	77	10	25	13	19						178
			10	10	10	10	10	10						9
FACTORS			LOSS GAIN		LOSS GAIN			LOSS GAIN				LOSS GAIN		
GRS.WALL AREA			260	770	100	250	130	190						1068
GLAZING			LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN						LOSS GAIN
NORTH	20.4	15.1	0	0	0	0	0	0	0	0	0	0	0	3
EAST	20.4	40.7	0	0	0	0	0	0	0	0	0	0	0	61
SOUTH	20.4	24.1	26	529	626	13	265	313	0	0	0	0	0	122
WEST	20.4	40.7	0	0	0	73	1486	2972	0	0	0	0	0	144
SKYLT.	34.2	99.9	0	0	0	0	0	0	0	0	0	0	0	3
DOORS	27.0	3.7	0	0	0	20	541	73	0	0	0	0	0	61
NET EXPOSED WALL	3.9	0.5	234	903	122	664	2562	346	80	309	42	221	853	115
NET EXPOSED BSMT WALL ABOVE GR	3.9	0.5	0	0	0	0	0	0	0	0	0	0	0	78
EXPOSED CLG	1.4	0.6	0	0	0	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.9	1.2	0	0	0	10	29	12	0	0	0	0	0	0
EXPOSED FLOOR	2.7	0.4	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	20
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	541
SUBTOTAL HT LOSS			1432	4882	716	1577	699	1660						73
SUB TOTAL HT GAIN			748	3716	345	325	550	224						0
LEVEL FACTOR / MULTIPLIER			0.30	0.41	0.30	0.41	0.30	0.41	0.30	0.41	0.30	0.41		0
AIR CHANGE HEAT LOSS			581	1980	290	639	284	673						2058
AIR CHANGE HEAT GAIN			42	209	19	18	31	13						278
DUCT LOSS			0	0	0	0	0	0						0
DUCT GAIN			0	0	0	0	0	0						0
HEAT GAIN PEOPLE	240		0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				612	612	612	612	612						612
TOTAL HT LOSS BTU/H			2012	6862	1006	2216	983	2334						16655
TOTAL HT GAIN x 1.3 BTU/H			1822	5898	1269	1241	755	308						1706



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Building Code	H. Authier	43236	2021-02-05
Sewage System			
Zoning			

TOTAL HEAT GAIN BTU/H:

31144

TONS: 2.60

LOSS DUE TO VENTILATION LOAD BTU/H: 2097

STRUCTURAL HEAT LOSS: 48202

TOTAL COMBINED HEAT LOSS BTU/H: 50298

SITE NAME: TRINAR HALL HOMES
BUILDER: GREENPARK HOMES

TYPE: GLENWAY 7A

DATE: Feb-19

GFA: 3317

LO# 81523

HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 48,202 TOTAL HEAT GAIN 30,861
AIR FLOW RATE CFM 23.46 AIR FLOW RATE CFM 36.65

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

#GOODMAN
GMEC960603BNA 60

AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	13	8	4
R/A	0	0	5	3	1

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

FAN SPEED LOW
MEDLOW
MEDIUM
MEDIUM HIGH
HIGH 1131

DESIGN CFM = 1131
CFM @ .6" E.S.P.

TEMPERATURE RISE 47 °F

All S/A diffusers 4"x10" unless noted otherwise on layout.
All S/A runs 5'Ø unless noted otherwise on layout.

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-2	BED-5	S-ENS	MBR	ENS-3	BED-3	LV/DN	K/D/F	K/D/F	OFF	LAUN	PWD	FOY	K/D/F	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.56	1.46	0.54	1.33	1.41	1.26	1.10	1.21	0.56	1.56	1.47	1.41	2.01	2.29	2.29	1.01	2.22	0.98	2.33	2.29	4.16	4.16	4.16	4.16
CFM PER RUN HEAT	37	34	13	31	33	30	26	28	13	37	34	33	47	54	54	24	52	23	55	54	98	98	98	98
RM GAIN MBH.	1.93	1.06	0.14	1.71	1.81	1.76	0.37	1.90	0.39	1.93	1.29	1.81	1.82	1.97	1.97	1.27	1.24	0.76	0.31	1.97	0.43	0.43	0.43	0.43
CFM PER RUN COOLING	71	39	5	63	66	64	14	70	14	71	47	66	67	72	72	46	45	28	11	72	16	16	16	16
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	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	62	54	42	42	54	50	51	20	46	51	51	54	7	47	42	30	28	27	38	48	46	45	24	18
EQUIVALENT LENGTH	170	160	160	140	120	170	140	190	160	150	130	110	150	130	140	130	170	100	100	150	150	100	140	110
TOTAL EFFECTIVE LENGTH	232	214	202	182	174	220	191	210	206	201	181	164	157	177	182	160	198	127	138	198	196	145	164	128
ADJUSTED PRESSURE	0.07	0.08	0.09	0.09	0.1	0.08	0.09	0.08	0.08	0.09	0.1	0.11	0.1	0.1	0.09	0.11	0.09	0.14	0.12	0.09	0.08	0.11	0.1	0.13
ROUND DUCT SIZE	6	5	4	6	5	5	4	6	4	6	5	5	6	5	5	5	5	4	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	189	250	149	158	242	220	298	143	149	189	250	242	240	396	396	176	382	264	404	396	500	500	500	500
COOLING VELOCITY (ft/min)	362	286	57	321	485	470	161	357	161	362	345	485	342	529	529	338	330	321	81	529	82	82	82	82
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	A	B	B	B	D	C	D	B	D	A	D	D	D	A	A	B	D	C	C	A	A	B	B	D

RUN #	25
ROOM NAME	BED-4
RM LOSS MBH.	1.26
CFM PER RUN HEAT	30
RM GAIN MBH.	1.76
CFM PER RUN COOLING	64
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH.	44
EQUIVALENT LENGTH	180
TOTAL EFFECTIVE LENGTH	224
ADJUSTED PRESSURE	0.08
ROUND DUCT SIZE	5
HEATING VELOCITY (ft/min)	220
COOLING VELOCITY (ft/min)	470
OUTLET GRILL SIZE	3X10
TRUNK	C



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Sewage System			
Zoning			

SUPPLY AIR TRUNK SIZE															RETURN AIR TRUNK SIZE									
	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	DUCT	DUCT				VELOCITY (ft/min)	
TRUNK A	334	0.07	9.6	12	x	8	501		TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0
TRUNK B	660	0.07	12.4	18	x	8	660		TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0
TRUNK C	138	0.08	6.7	8	x	8	311		TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0
TRUNK D	474	0.08	10.6	14	x	8	609		TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.05	0	0	x	8	0
TRUNK E	0	0.00	0	0	x	8	0		TRUNK K	0	0.00	0	0	x	8	0	TRUNK S	0	0.05	0	0	x	8	0
TRUNK F	0	0.00	0	0	x	8	0		TRUNK L	0	0.00	0	0	x	8	0	TRUNK T	0	0.05	0	0	x	8	0
																TRUNK U	0	0.05	0	0	x	8	0	
																TRUNK V	0	0.05	0	0	x	8	0	
RETURN AIR #	1	2	3	4	5	6	7	8						BR		TRUNK W	425	0.05	11.5	16	x	8	478	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0		TRUNK X	1131	0.05	16.5	32	x	8	636	
AIR VOLUME	115	85	115	85	85	155	155	155	0	0	0	0	0	0	181	TRUNK Y	440	0.05	11.6	16	x	8	495	
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	TRUNK Z	270	0.05	9.7	12	x	8	405	
ACTUAL DUCT LGH.	61	48	56	51	54	36	35	33	1	1	1	1	1	1	14	DROP	1131	0.05	16.5	24	x	10	679	
EQUIVALENT LENGTH	205	185	225	205	185	210	205	210	0	0	0	0	0	0	135									
TOTAL EFFECTIVE LH	266	233	281	256	239	246	240	243	1	1	1	1	1	1	149									
ADJUSTED PRESSURE	0.06	0.06	0.05	0.06	0.06	0.06	0.06	0.06	14.80	14.80	14.80	14.80	14.80	14.80	0.10									
ROUND DUCT SIZE	6.7	6	7	6	6	7.5	7.5	7.5	0	0	0	0	0	0	7									
INLET GRILL SIZE	8	8	8	8	8	8	8	8	0	0	0	0	0	0	8									
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X									
INLET GRILL SIZE	14	14	14	14	14	14	14	14	0	0	0	0	0	0	14									

TYPE: GLENWAY 7A
SITE NAME: TRINAR HALL HOMES

LO # 81523

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES		9.32.3.1(1)
a)	<input checked="" type="checkbox"/> Direct vent (sealed combustion) only	
b)	<input type="checkbox"/> Positive venting induced draft (except fireplaces)	
c)	<input type="checkbox"/> Natural draft, B-vent or induced draft gas fireplace	
d)	<input type="checkbox"/> Solid Fuel (including fireplaces)	
e)	<input type="checkbox"/> No Combustion Appliances	

HEATING SYSTEM	
<input checked="" type="checkbox"/> Forced Air	<input type="checkbox"/> Non Forced Air
<input type="checkbox"/> Electric Space Heat	

HOUSE TYPE		9.32.1(2)
<input checked="" type="checkbox"/> I	Type a) or b) appliance only, no solid fuel	
<input type="checkbox"/> II	Type I except with solid fuel (including fireplaces)	
<input type="checkbox"/> III	Any Type c) appliance	
<input type="checkbox"/> IV	Type I, or II with electric space heat	
<input type="checkbox"/>	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
<input type="checkbox"/> 1	Exhaust only/Forced Air System	
<input type="checkbox"/> 2	HRV with Ducting/Forced Air System	
<input checked="" type="checkbox"/> 3	HRV Simplified/connected to forced air system	
<input type="checkbox"/> 4	HRV with Ducting/non forced air system	
<input type="checkbox"/>	Part 6 Design	

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	<u>2</u> @ 21.2 cfm	<u>42.4</u> cfm
Other Bedrooms	<u>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Kitchen & Bathrooms	<u>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Other Rooms	<u>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Table 9.32.3.A. TOTAL		<u>212.0</u> cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED		9.32.3.4.(1)
1 Bedroom	31.8	cfm
2 Bedroom	47.7	cfm
3 Bedroom	63.6	cfm
4 Bedroom	79.5	cfm
5 Bedroom	95.4	cfm
TOTAL		<u>95.4</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>212</u>	cfm
Less Principal Ventil. Capacity	<u>95.4</u>	cfm
Required Supplemental Capacity	<u>116.6</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model: VANEE 65H	Location: BSMT		
<u>95.4</u> cfm	<u>3.0</u> sones <input checked="" type="checkbox"/> HVI Approved		
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
95.4 CFM	X 81 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		PANASONIC	HVI	Sones
Location	Model	cfm		
ENS	FV-05-11VK1	50	<input checked="" type="checkbox"/>	0.3
ENS-2	FV-05-11VK1	50	<input checked="" type="checkbox"/>	0.3
ENS-3	FV-05-11VK1	50	<input checked="" type="checkbox"/>	0.3
PWD	FV-05-11VK1	50	<input checked="" type="checkbox"/>	0.3

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

LOCATION OF INSTALLATION	
Lot:	Concession
Township	Plan:
Address	
Roll #	Building Per

BUILDER: GREENPARK HOMES



Name:

Address:

City:

Telephone #:

Fax #:

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INSTALLING CONTRACTOR

Name:

Address:

City:

Telephone #:

Fax #:

Discipline	Reviewer	BCIN	Date
Building Code	H. Authier	43236	2021-02-05
Sewage System			
Zoning			

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:

February-19

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

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

LO#: 81523

Model: GLENWAY 7A

Builder: GREENPARK HOMES

Date: 2/22/2019

Volume Calculation
Air Change & Delta T Data
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1502	9	13518
First	1502	10	15020
Second	1815	9	16335
Third	0	9	0
Fourth	0	9	0
Total:			44,873.0 ft³
Total:			1270.7 m³

WINTER NATURAL AIR CHANGE RATE	0.227
SUMMER NATURAL AIR CHANGE RATE	0.063

Design Temperature Difference

	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-23	45	81
Summer DTDc	24	30	6	11

5.2.3.1 Heat Loss due to Air Leakage
6.2.6 Sensible Gain due to Air Leakage

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

$$0.227 \times 352.96 \times 45^\circ\text{C} \times 1.2 = 4345 \text{ W}$$

$$= 14824 \text{ Btu/h}$$

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

$$= 0.063 \times 352.96 \times 6^\circ\text{C} \times 1.2 = 163 \text{ W}$$

$$= 557 \text{ Btu/h}$$

5.2.3.2 Heat Loss due to Mechanical Ventilation
6.2.7 Sensible heat Gain due to Ventilation

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

$$95 \text{ CFM} \times 81^\circ\text{F} \times 1.08 \times 0.25 = 2097 \text{ Btu/h}$$

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

$$95 \text{ CFM} \times 11^\circ\text{F} \times 1.08 \times 0.25 = 283 \text{ Btu/h}$$

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)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HLcleve)	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLcleve)
1	0.5	14,824	9,243	0.802
2	0.3		10,966	0.406
3	0.2		12,679	0.234
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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Sewage System			
Zoning			

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: GLENWAY 7A	BUILDER: GREENPARK HOMES
SFQT: 3317	SITE: TRINAR HALL HOMES
LO# 81523	

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-9	OUTDOOR DESIGN TEMP.	86
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:	2.50	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	TIGHT	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	44873.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
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: 54.0 ft	WIDTH: 35.0 ft	EXPOSED PERIMETER:	178.0 ft

2012 OBC - COMPLIANCE PACKAGE		Compliance Package	
Component		ENERGYSTAR	
		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.70
Exposed Floor Minimum RSI (R)-Value		31	29.80
Walls Above Grade Minimum RSI (R)-Value		R22+R5	21.10
Basement Walls Minimum RSI (R)-Value		20	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		ZONE 2	-
Skylights Maximum U-Value		ZONE 2	-
Space Heating Equipment Minimum AFUE		0.96	-
HRV Minimum Efficiency		75%	-
Domestic Hot Water Heater Minimum EF		0.9	-



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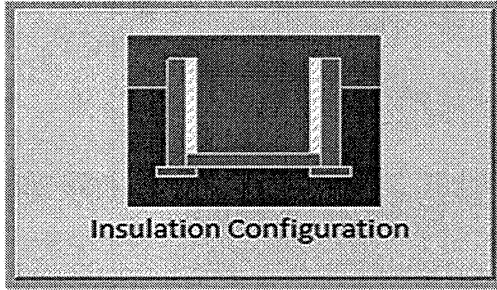
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

Discipline	Reviewer	BCIN	Date
Building Code	H. Authier	43236	2021-02-05
Sewage System			
Zoning			

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Bradford	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	16.5	 <p>Insulation Configuration</p>
Floor Width (m):	10.7	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.1	
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):	1875	



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Discipline	Reviewer	BCIN	Date
Building Code	H. Authier	43236	2021-02-05
Sewage System			
Zoning			

TYPE: GLENWAY 7A

LO# 81523

Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

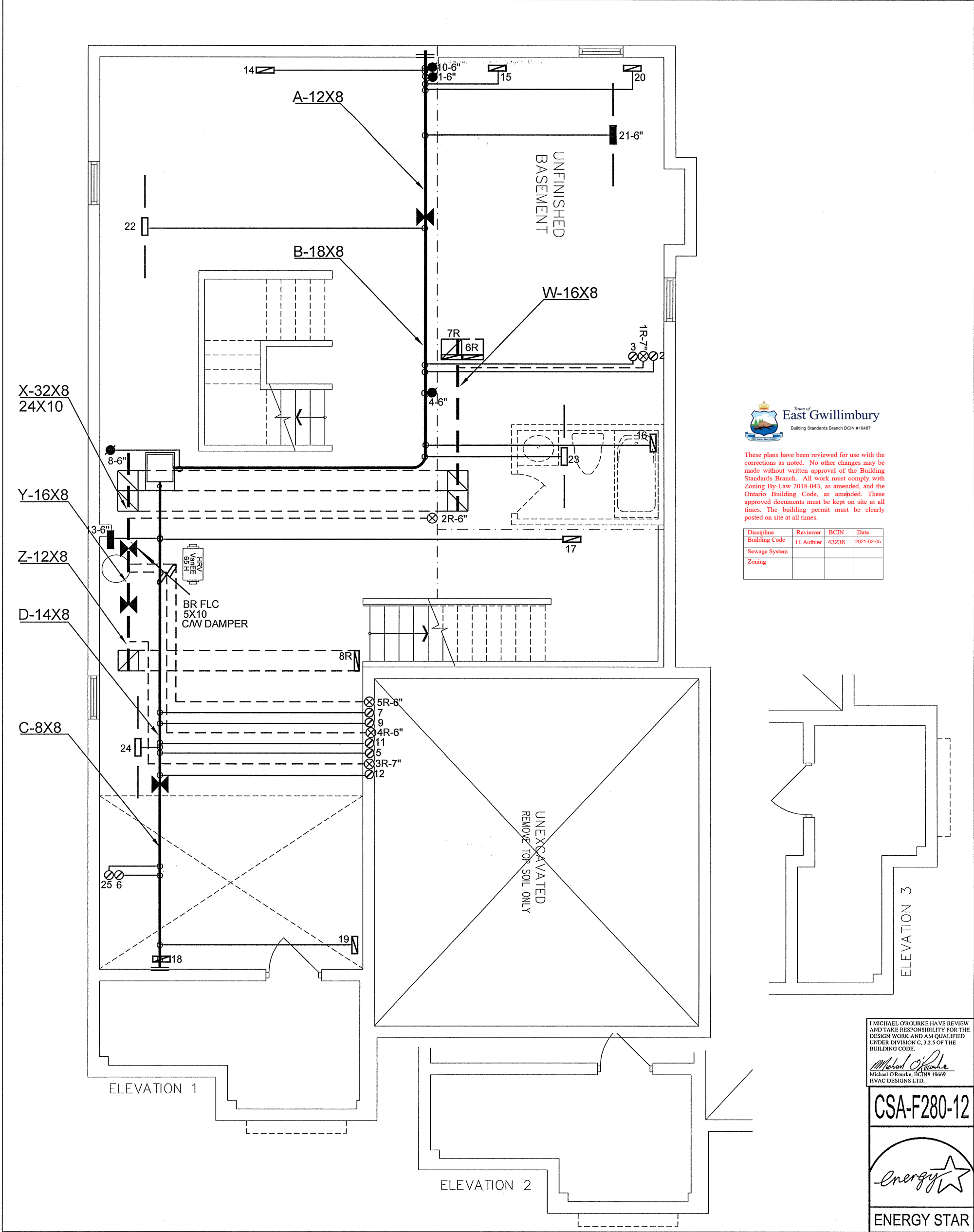
Weather Station Description			
Province:	Ontario		
Region:	Bradford		
Weather Station Location:	Open flat terrain, grass		
Anemometer height (m):	10		
Local Shielding			
Building Site:	Suburban, forest		
Walls:	Heavy		
Flue:	Heavy		
Highest Ceiling Height (m):	6.71		
Building Configuration			
Type:	Detached		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m ³):	1270.7		
Air Leakage/Ventilation			
Air Tightness Type:	Energy Star Detached (2.5 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1186.2 cm ²	
	2.50	ACH @ 50 Pa	
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust	
	45.0	45.0	
Flue Size			
Flue #:	#1	#2	#3
Diameter (mm):	0	0	0
Natural Infiltration Rates			
Heating Air Leakage Rate (ACH/H):	0.227		
Cooling Air Leakage Rate (ACH/H):	0.063		

TYPE: GLENWAY 7A
LO# 81523



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Discipline	Reviewer	BCIN	Date
Building Code	H. Authier	43236	2021-02-05
Sewage System			
Zoning			



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Discipline	Reviewer	BCIN	Date
Building Code	H. Authier	43236	2021-02-06
Sewage System			
Zoning			

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.

CSA-F280-12

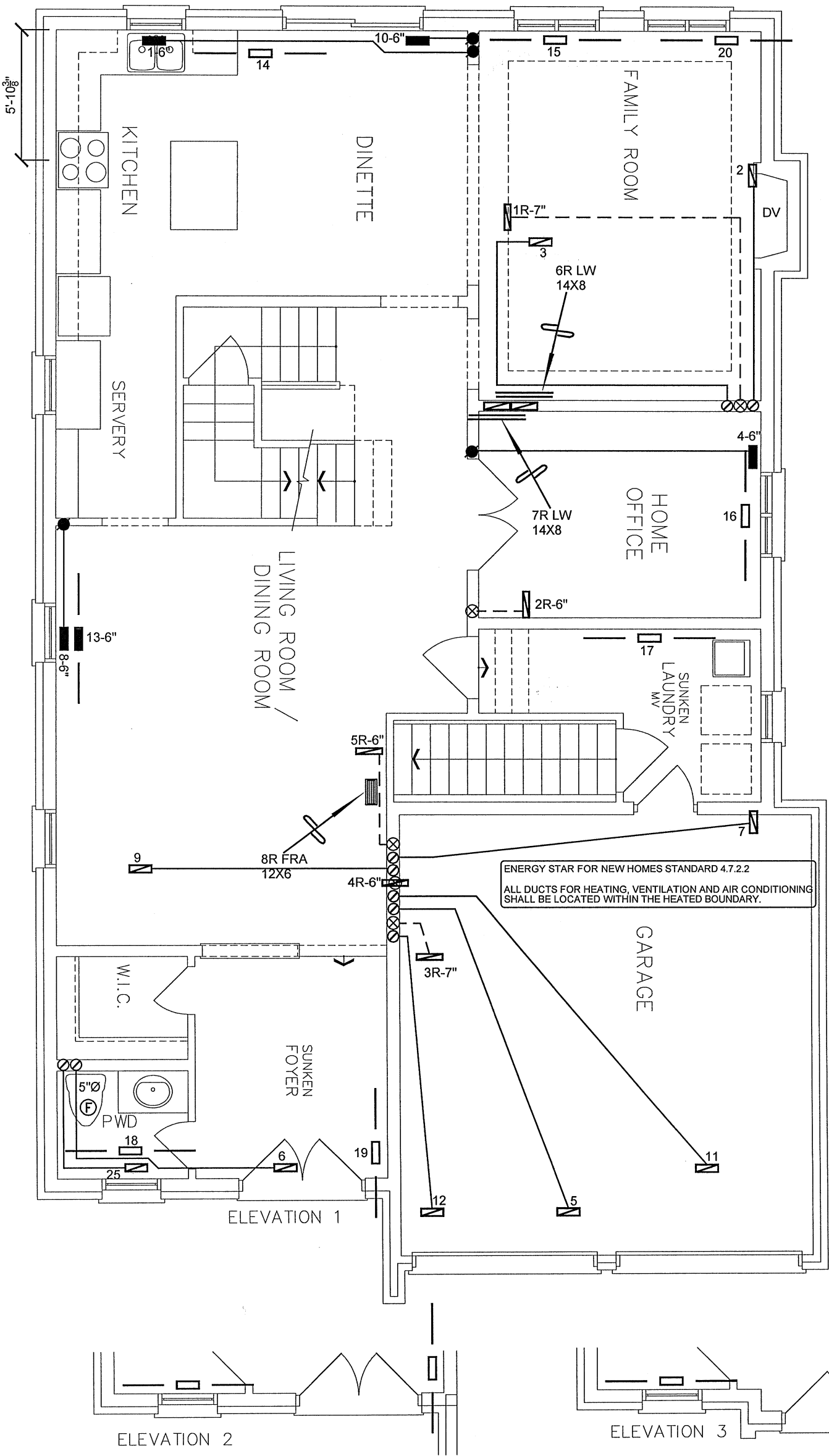


ENERGY STAR

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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Client GREENPARK HOMES	 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	HEAT LOSS 50298 BTU/H UNIT DATA MAKE GOODMAN MODEL GMCE960603BNA INPUT 60 MBTU/H OUTPUT 57.6 MBTU/H COOLING 2.5 TONS FAN SPEED 1131 cfm @ 0.6" w.c.	# OF RUNS S/A R/A FANS 3RD FLOOR 2ND FLOOR 13 5 4 1ST FLOOR 8 3 2 BASEMENT 4 1 0	Sheet Title BASEMENT HEATING LAYOUT	
				Date FEB/2019	Scale 3/16" = 1'-0"
Project Name TRINAR HALL HOMES EAST GWILLIMBURY, ONT.	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.		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	BCIN# 19669	
GLENWAY 7A 3317 sqft				LO# 81523	



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Discipline	Reviewer	BCIN	Date
Building Code	H. Authier	43236	2021-02-05
Sewage System			
Zoning			

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.

CSA-F280-12

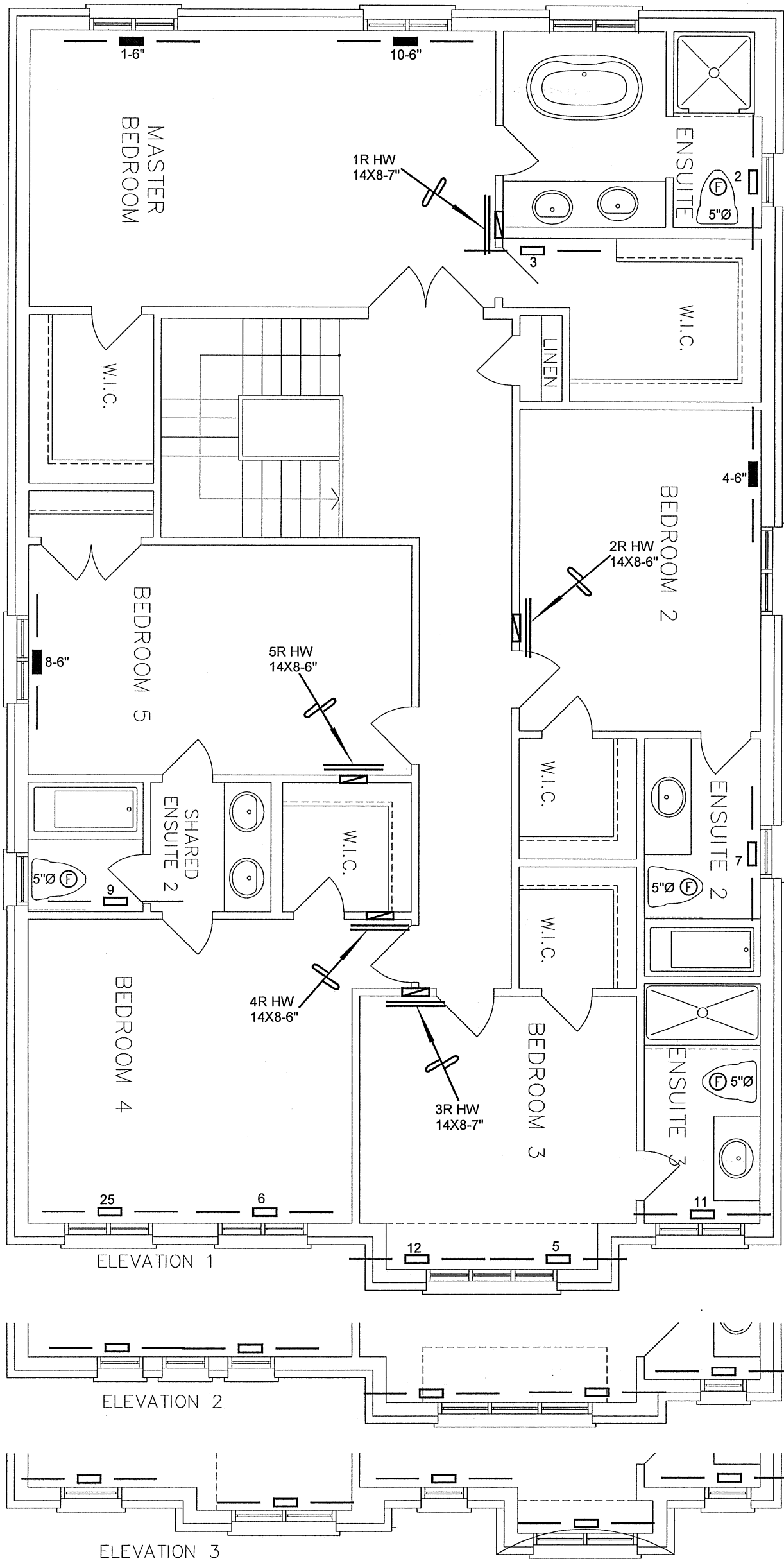


ENERGY STAR

HVAC LEGEND						3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	
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	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	1.
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	No.
REVISIONS								
Description							Date	

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Client GREENPARK HOMES		<div><p>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</p></div>	Sheet Title FIRST FLOOR HEATING LAYOUT	
Project Name TRINAR HALL HOMES EAST GWILLIMBURY, ONT.			Date FEB/2019	
GLENWAY 7A 3317 sqft		Scale 3/16" = 1'-0"		
		BCIN# 19669		
		LO#	81523	
		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.		



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Discipline	Reviewer	BCIN	Date
Building Code	H. Authier	43236	2021-02-05
Sewage System			
Zoning			

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

CSA-F280-12



ENERGY STAR

HVAC LEGEND						3.		
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GREENPARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name		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.	Date	FEB/2019
TRINAR HALL HOMES EAST GWILLIMBURY, ONT.			Scale	3/16" = 1'-0"
			BCIN# 19669	
GLENWAY 7A 3317 sqft		LO# 81523		