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: TRINAR HALL HOMES | LOT 36 | DATE: Dec-20 | WINTER NATURAL AIR CHANGE RATE 0.223 | HEAT LOSS ΔT °F. 81 | CSA-F280-12
BUILDER: GREENPARK HOMES | TYPE: GLENWAY 12A | GFA: 2969 | LO# 88748 | SUMMER NATURAL AIR CHANGE RATE 0.062 | HEAT GAIN ΔT °F. 11 | ENERGYSTAR

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			BATH			ALC			ENS-4		
EXP. WALL			33			22			9			15			23			15			23			23			12		
CLG. HT.			9			9			9			9			9			9			9			9			9		
	FACTORS																												
GRS.WALL AREA	LOSS	GAIN	297			198			81			135			207			135			207			207			108		
GLAZING				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	0	0	0	9	183	136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	20.4	40.7	0	0	0	0	0	0	0	0	0	0	0	0	37	753	1507	0	0	0	10	204	407	0	0	0	0	0	0
SOUTH	20.4	24.1	0	0	0	18	366	433	0	0	0	0	0	0	0	0	0	29	590	698	0	0	0	7	142	168	24	488	578
WEST	20.4	40.7	36	733	1466	14	285	570	14	285	570	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SKYLT.	34.2	99.9	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	27.0	3.7	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	3.9	0.5	261	1007	136	166	640	87	67	258	35	126	486	66	170	656	89	106	409	55	197	760	103	200	772	104	84	324	44
NET EXPOSED BSMT WALL ABOVE GR	3.9	0.5	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
EXPOSED CLG	1.4	0.6	334	459	186	142	195	79	54	74	30	240	330	134	204	281	114	143	197	80	90	124	50	150	206	84	99	136	55
NO ATTIC EXPOSED CLG	2.9	1.2	0	0	0	0	0	0	0	0	0	0	0	0	30	88	36	21	62	25	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.7	0.4	0	0	0	15	41	6	0	0	0	10	27	4	225	615	83	21	57	8	90	246	33	10	27	4	0	0	0
BASEMENT/CRAWL HEAT LOSS				0			0			0			0			0			0			0			0			0	
SLAB ON GRADE HEAT LOSS				0			0			0			0			0			0			0			0			0	
SUBTOTAL HT LOSS				2199			1528			618			1027			2392			1315			1333			1148			949	
SUB TOTAL HT GAIN					1788			1174			635			339			1828			866			593			360			677
LEVEL FACTOR / MULTIPLIER			0.20	0.22		0.20	0.22		0.20	0.22		0.20	0.22		0.20	0.22		0.20	0.22		0.20	0.22		0.20	0.22		0.20	0.22	
AIR CHANGE HEAT LOSS				480			334			135			224			522			287			291			251			207	
AIR CHANGE HEAT GAIN					69			45			24			13			70			33			23			14			26
DUCT LOSS				0			186			0			125			291			160			162			140			0	
DUCT GAIN					0			122			0			123			277			177			62			37			0
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0	0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS					636			0			0			636			636			636			0			0			0
TOTAL HT LOSS BTU/H				2679			2048			753			1376			3206			1762			1787			1538			1156	
TOTAL HT GAIN x 1.3 BTU/H					3864			1744			857			1756			3966			2538			881			535			913

ROOM USE			LV/DN				KT/FM			OFF			LAUN				FOY			MUD				BAS		
EXP. WALL			30				70			24			18				18			12				194		
CLG. HT.			10				10			18			12				10			12				9		
	FACTORS																									
GRS.WALL AREA	LOSS	GAIN	300				700			432			216				180			144				1261		
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	0		0	0	0	0	0	0		0	0	0
EAST	20.4	40.7	0	0	0		0	0	0	64	1302	2606	0	0	0		0	0	0	0	0	0		4	81	163
SOUTH	20.4	24.1	60	1221	1444		24	488	578	41	834	987	0	0	0		0	0	0	0	0	0		4	81	96
WEST	20.4	40.7	0	0	0		86	1750	3502	0	0	0	0	0	0		0	0	0	0	0	0		4	81	163
SKYLT.	34.2	99.9	0	0	0		0	0	0	0	0	0	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		46	1244	168	20	541	73		20	541	73
NET EXPOSED WALL	3.9	0.5	240	926	125		590	2276	308	327	1262	170	216	833	113		134	517	70	124	478	65		0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.9	0.5	0	0	0		0	0	0	0	0	0	0	0	0		0	0	0	0	0	0		485	1869	253
EXPOSED CLG	1.4	0.6	0	0	0		0	0	0	168	231	94	0	0	0		0	0	0	0	0	0		0	0	0
NO ATTIC EXPOSED CLG	2.9	1.2	20	59	24		10	29	12	0	0	0	15	44	18		73	215	87	0	0	0		0	0	0
EXPOSED FLOOR	2.7	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			0				6696	
SLAB ON GRADE HEAT LOSS				0				0			0			0				0			0					
SUBTOTAL HT LOSS				2206				4544			3629			877				1975			1019				9350	
SUB TOTAL HT GAIN					1593				4399			3857			130				325			138					748
LEVEL FACTOR / MULTIPLIER			0.30	0.29			0.30	0.29		0.30	0.29		0.30	0.29			0.30	0.29		0.30	0.29			0.50	0.73	
AIR CHANGE HEAT LOSS				634				1306			1043			252				568			293				6829	
AIR CHANGE HEAT GAIN					61				169			149			5				13			5					29
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		0		0
HEAT GAIN APPLIANCES/LIGHTS					636				636			636			636				0			636					0
TOTAL HT LOSS BTU/H				2840				5850			4673			1130				2543			1312				16179	
TOTAL HT GAIN x 1.3 BTU/H					2977				6765			6033			1002				439			1012					1009

Town of East Gwillimbury
Building Standards Branch BCIN #16487

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Discipline	Reviewer	BCIN	Date
Building Code	H. Authier	43236	2021-02-03
Sewage System			
Zoning			

TOTAL HEAT GAIN BTU/H: 36528 | TONS: 3.04 | LOSS DUE TO VENTILATION LOAD BTU/H: 1747 | STRUCTURAL HEAT LOSS: 50831 | TOTAL COMBINED HEAT LOSS BTU/H: 52578

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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SITE NAME: TRINAR HALL HOMES — LOT 36
BUILDER: GREENPARK HOMES — TYPE: GLENWAY 12A — DATE: Dec-20 — GFA: 2969 — LO# 88748

HEATING CFM	1131	COOLING CFM	1131
TOTAL HEAT LOSS	50,831	TOTAL HEAT GAIN	36,292
AIR FLOW RATE CFM	22.25	AIR FLOW RATE CFM	31.16

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

#GOODMAN
GMEC960603BNA 60
FAN SPEED
LOW
MEDLOW
MEDIUM
MEDIUM HIGH
HIGH 1131

AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600
DESIGN CFM = 1131
CFM @ .6 " E.S.P.
TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	11	10	5
R/A	0	0	5	3	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	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	ALC	BED-3	MBR	ENS-4	LV/DN	KT/FM	KT/FM	OFF	LAUN	MUD	FOY	KT/FM	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.34	2.05	0.75	1.38	1.60	1.76	1.79	1.54	1.60	1.34	1.16	1.42	1.95	1.95	2.34	1.13	1.31	2.54	1.95	3.24	3.24	3.24	3.24
CFM PER RUN HEAT	30	46	17	31	36	39	40	34	36	30	26	32	43	43	52	25	29	57	43	72	72	72	72
RM GAIN MBH.	1.93	1.74	0.86	1.76	1.98	2.54	0.88	0.53	1.98	1.93	0.91	1.49	2.25	2.25	3.02	1.00	1.01	0.44	2.25	0.20	0.20	0.20	0.20
CFM PER RUN COOLING	60	54	27	55	62	79	27	17	62	60	28	46	70	70	94	31	32	14	70	6	6	6	6
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	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	27	34	50	57	50	40	57	44	53	33	48	24	30	16	53	24	14	43	26	23	19	29	47
EQUIVALENT LENGTH	120	130	140	150	140	200	180	130	150	160	200	190	130	110	120	110	100	150	140	130	120	170	120
TOTAL EFFECTIVE LENGTH	147	164	190	207	190	240	237	174	203	193	248	214	160	126	173	134	114	193	166	153	139	199	167
ADJUSTED PRESSURE	0.12	0.1	0.09	0.08	0.09	0.07	0.07	0.1	0.08	0.09	0.07	0.08	0.11	0.14	0.09	0.13	0.15	0.09	0.1	0.11	0.12	0.09	0.1
ROUND DUCT SIZE	5	5	4	**6**	5	**6**	5	4	5	5	4	**6**	5	5	**6**	4	4	5	5	5	5	5	5
HEATING VELOCITY (ft/min)	220	338	195	158	264	199	294	390	264	220	298	163	316	316	265	287	333	419	316	529	529	529	529
COOLING VELOCITY (ft/min)	441	396	310	280	455	403	198	195	455	441	321	235	514	514	479	356	367	103	514	44	44	44	44
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	A	B	B		E	F	E	E	E	A	E	F	B	A	D	C	C	D	A	B	A	F	D

RUN #	25	26	27
ROOM NAME	OFF	LV/DN	BAS
RM LOSS MBH.	2.34	1.42	3.24
CFM PER RUN HEAT	52	32	72
RM GAIN MBH.	3.02	1.49	0.20
CFM PER RUN COOLING	94	46	6
ADJUSTED PRESSURE	0.16	0.17	0.17
ACTUAL DUCT LGH.	45	27	20
EQUIVALENT LENGTH	120	170	180
TOTAL EFFECTIVE LENGTH	165	197	200
ADJUSTED PRESSURE	0.1	0.09	0.09
ROUND DUCT SIZE	**6**	**6**	5
HEATING VELOCITY (ft/min)	265	163	529
COOLING VELOCITY (ft/min)	479	235	44
OUTLET GRILL SIZE	4X10	4X10	3X10
TRUNK	D	F	C

Town of East Gwillimbury
Building Standards Branch BCIN #16487

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Discipline	Reviewer	BCIN	Date
Building Code	H. Authier	43236	2021-02-03
Sewage System			
Zoning			

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	218	0.09	7.7	8	x	8	491	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	178	0.09	7.1	8	x	8	401	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	522	0.09	10.7	14	x	8	671	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	233	0.09	7.9	8	x	8	524	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	405	0.07	10.3	12	x	8	608	TRUNK K	0	0.00	0	0	x	8	0
TRUNK F	580	0.07	11.8	18	x	8	580	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	435	0.05	11.6	16	x	8	489
TRUNK W	870	0.05	15	26	x	8	602
TRUNK X	1131	0.05	16.5	32	x	8	636
TRUNK Y	435	0.05	11.6	16	x	8	489
TRUNK Z	285	0.05	9.9	12	x	8	428
DROP	1131	0.05	16.5	24	x	10	679

RETURN AIR #	1	2	3	4	5	6	7	8								BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	95	75	75	75	280	155	135	75	0	0	0	0	0	0	0	166
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
ACTUAL DUCT LGH.	40	70	63	66	28	29	53	64	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	165	255	225	215	195	200	240	255	0	0	0	0	0	0	0	175
TOTAL EFFECTIVE LH	205	325	288	281	223	229	293	319	1	1	1	1	1	1	1	189
ADJUSTED PRESSURE	0.07	0.05	0.05	0.05	0.07	0.06	0.05	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.08
ROUND DUCT SIZE	6	6	6	6	9	7.5	7.5	6	0	0	0	0	0	0	0	7.2
INLET GRILL SIZE	8	8	8	8	8	8	8	8	0	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	30	14	14	14	0	0	0	0	0	0	0	14

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: 19669 MICHAEL O'ROURKE

HVAC DESIGNS LTD.

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TYPE: GLENWAY 12A LO # 88748
SITE NAME: TRINAR HALL HOMES LOT 36

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	79.5	cfm
Required Supplemental Capacity	111.3	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE 65H Location: BSMT

79.5 cfm 3.0 sones [✓] HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM		ΔT °F		FACTOR		% LOSS
79.5 CFM	X	81 F	X	1.08	X	0.25

SUPPLEMENTAL FANS PANASONIC

Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	50	✓	0.3
BATH	FV-05-11VK1	50	✓	0.3
ENS-4	FV-05-11VK1	50	✓	0.3
PWD	FV-05-11VK1	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 Pe

BUILDER: GREENPARK HOMES

Name:

Address:

City:

Telephone #: Fax #:

INSTALLING CONTRACTOR

Name:

Address:

City:

Telephone #: Fax #:

DESIGNER CERTIFICATION

I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.

Name: HVAC Designs Ltd.

Signature: Michael O'Rourke

HRAI # 001820

Date: December-20

I REVIEW AND TAKE RESPONIBILITY 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 MICHAEL O'ROURKE

Town of East Gwillimbury
Building Standards Branch BCIN #16487

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Building Code	H. Authier	43236	2021-02-03
Sewage System			
Zoning			

HVAC DESIGNS LTD.

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Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 88748 Model: GLENWAY 12A Builder: GREENPARK HOMES Date: 12/17/2020

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1462	9	13158
First	1462	10	14620
Second	1580	9	14220
Third	0	9	0
Fourth	0	9	0
		Total:	41,998.0 ft³
		Total:	1189.3 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.223
SUMMER NATURAL AIR CHANGE RATE	0.062

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

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

0.223 x 330.35 x 45 °C x 1.2 = 4003 W

= **13658 Btu/h**

6.2.6 Sensible Gain due to Air Leakage

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

= 0.062 x 330.35 x 6 °C x 1.2 = 150 W

= **513 Btu/h**

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

80 CFM x 81 °F x 1.08 x 0.25 = **1747 Btu/h**

6.2.7 Sensible heat Gain due to Ventilation

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

80 CFM x 11 °F x 1.08 x 0.25 = **236 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	13,658	9,350	0.730
2	0.3		14,251	0.288
3	0.2		12,507	0.218
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

Town of East Gwillimbury
Building Standards Branch BCIN #16487

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Discipline	Reviewer	BCIN	Date
Building Code	H. Authier	43236	2021-02-03
Sewage System			
Zoning			

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL:	GLENWAY 12A		LOT 36	**BUILDER:**	GREENPARK HOMES
SFQT:	2969	**LO#**	88748	**SITE:**	TRINAR HALL HOMES

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 (ft^3):	41998.0	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:	6.5 ft
LENGTH: 59.0 ft	WIDTH: 38.0 ft	EXPOSED PERIMETER:	194.0 ft

2012 OBC - COMPLIANCE PACKAGE **Component**	**Compliance Package 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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Discipline	Reviewer	BCIN	Date
Building Code	H. Authier	43236	2021-02-03
Sewage System			
Zoning			

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE

Michael O'Rourke

HVAC Designs Ltd.
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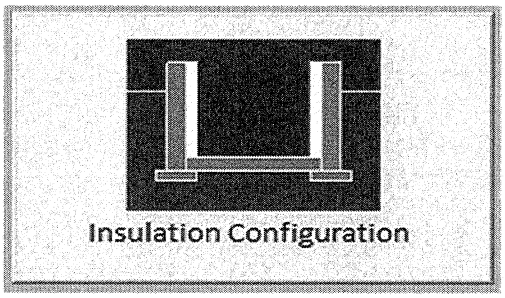
Ajax ON, L1S 2E2
905-619-2300

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):	**18.0**	 Insulation Configuration
Floor Width (m):	**11.6**	
Exposed Perimeter (m):	**0.0**	
Wall Height (m):	**2.7**	
Depth Below Grade (m):	**1.98**	
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):		**1962**

TYPE: GLENWAY 12A LOT 36

LO# 88748

Town of East Gwillimbury
Building Standards Branch BCIN #16487

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Sewage System			
Zoning			

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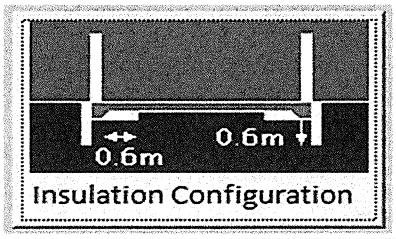
Residential Foundation Thermal Load Calculator

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		
Length (m):	0.0	
Width (m):	0.0	
Exposed Perimeter (m):	0.0	

Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):	**0**	

TYPE: GLENWAY 12A LOT 36
LO# 88748

Town of East Gwillimbury
Building Standards Branch BCIN #16487

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Sewage System			
Zoning			

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905-619-2300

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):	6.55
Building Configuration	
Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	1189.3
Air Leakage/Ventilation	
Air Tightness Type:	Energy Star Detached (2.5 ACH)
Custom BDT Data:	ELA @ 10 Pa. 1110.2 cm^2
	2.50 ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply 37.5 / Total Exhaust 37.5
Flue Size	
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Natural Infiltration Rates	
Heating Air Leakage Rate (ACH/H):	**0.223**
Cooling Air Leakage Rate (ACH/H):	**0.062**

TYPE: GLENWAY 12A LOT 36

LO# 88748

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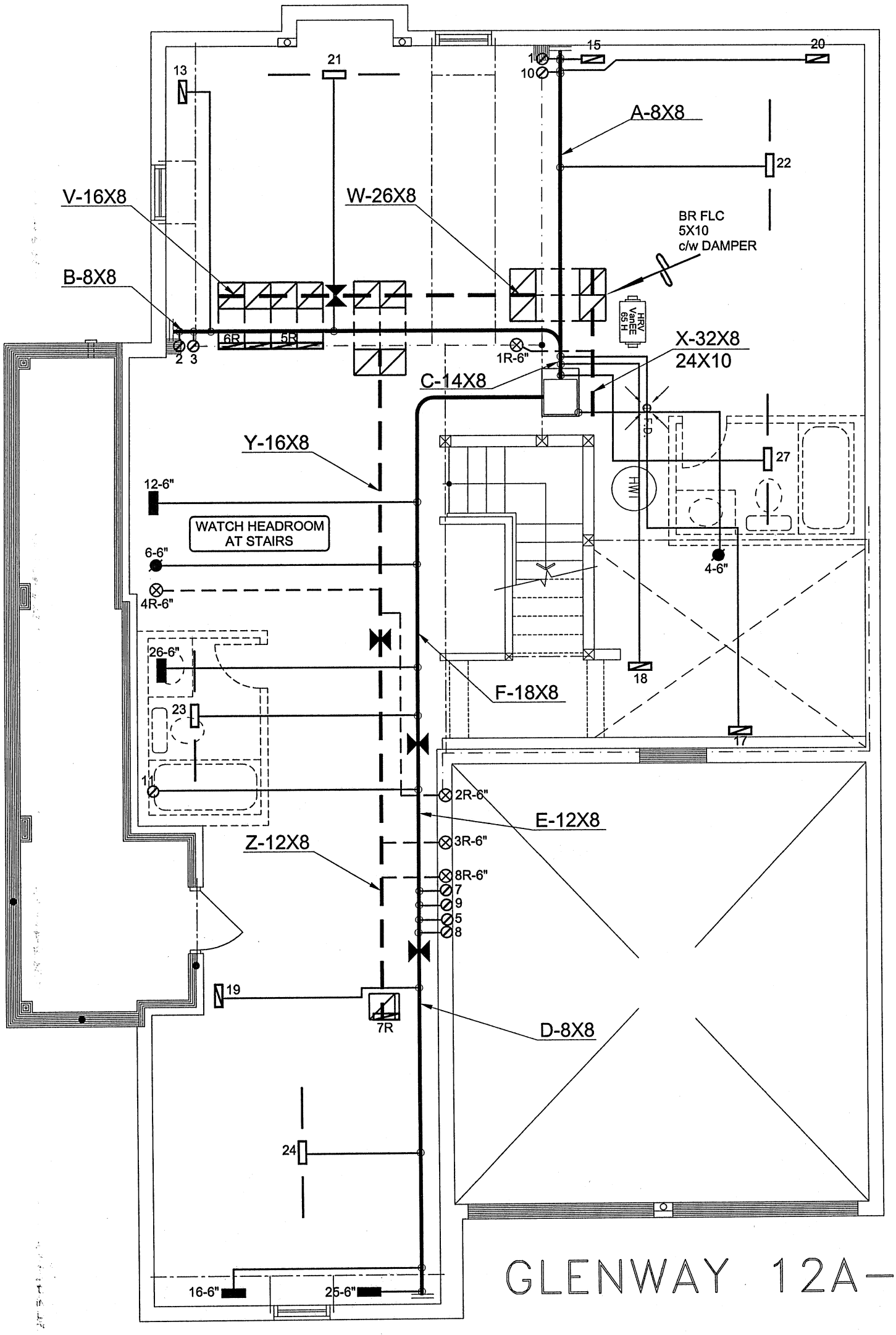
Zoning			



GLENWAY 12A-036

Town of East Gwillimbury
Building Standards Branch BCIN #16487

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Discipline	Reviewer	BCIN	Date
Building Code	H. Authier	43236	2021-02-03
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, BCIN# 19669
HVAC DESIGNS LTD.

ENERGY STAR

LOT 36 | **CSA-F280-12**

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
GREENPARK HOMES

Project Name
TRINAR HALL HOMES
EAST GWILLIMBURY, ONT.

LOT 36
GLENWAY 12A 2969 sqft

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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.

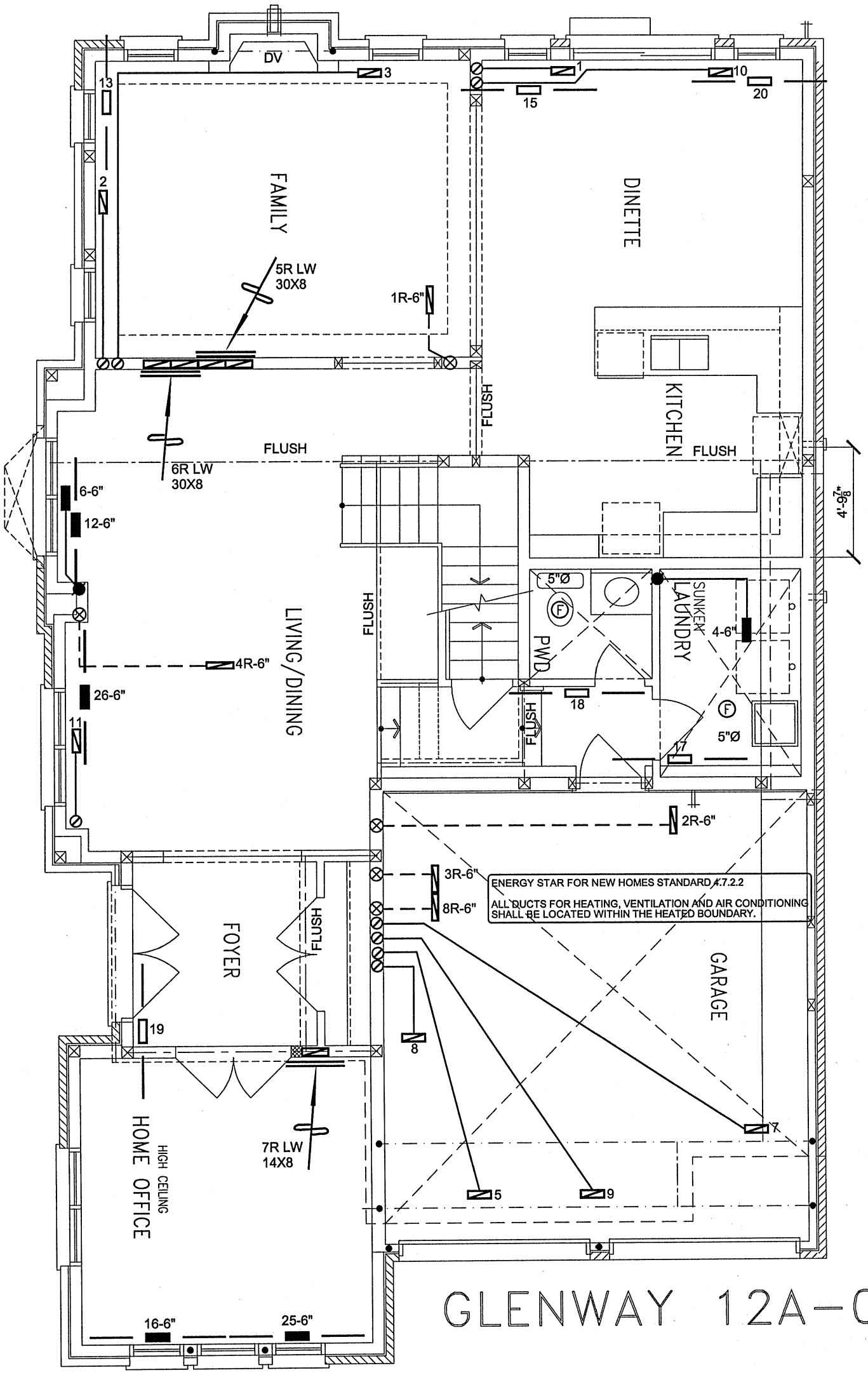
HEAT LOSS 52578 BTU/H	
UNIT DATA	
MAKE	GOODMAN
MODEL	GMEC960603BNA
INPUT	60 MBTU/H
OUTPUT	57.6 MBTU/H
COOLING	3.0 TONS
FAN SPEED	1131 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	11	5	3
1ST FLOOR	10	3	3
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 DEC/2020
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 88748



GLENWAY 12A-036

Town of East Gwillimbury
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Sewage System			
Zoning			

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Michael O'Rourke

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

ENERGY STAR

LOT 36 | CSA-F280-12

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.		
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REVISIONS

Client
GREENPARK HOMES

Project Name
TRINAR HALL HOMES
EAST GWILLIMBURY, ONT.

LOT 36
GLENWAY 12A 2969 sqft

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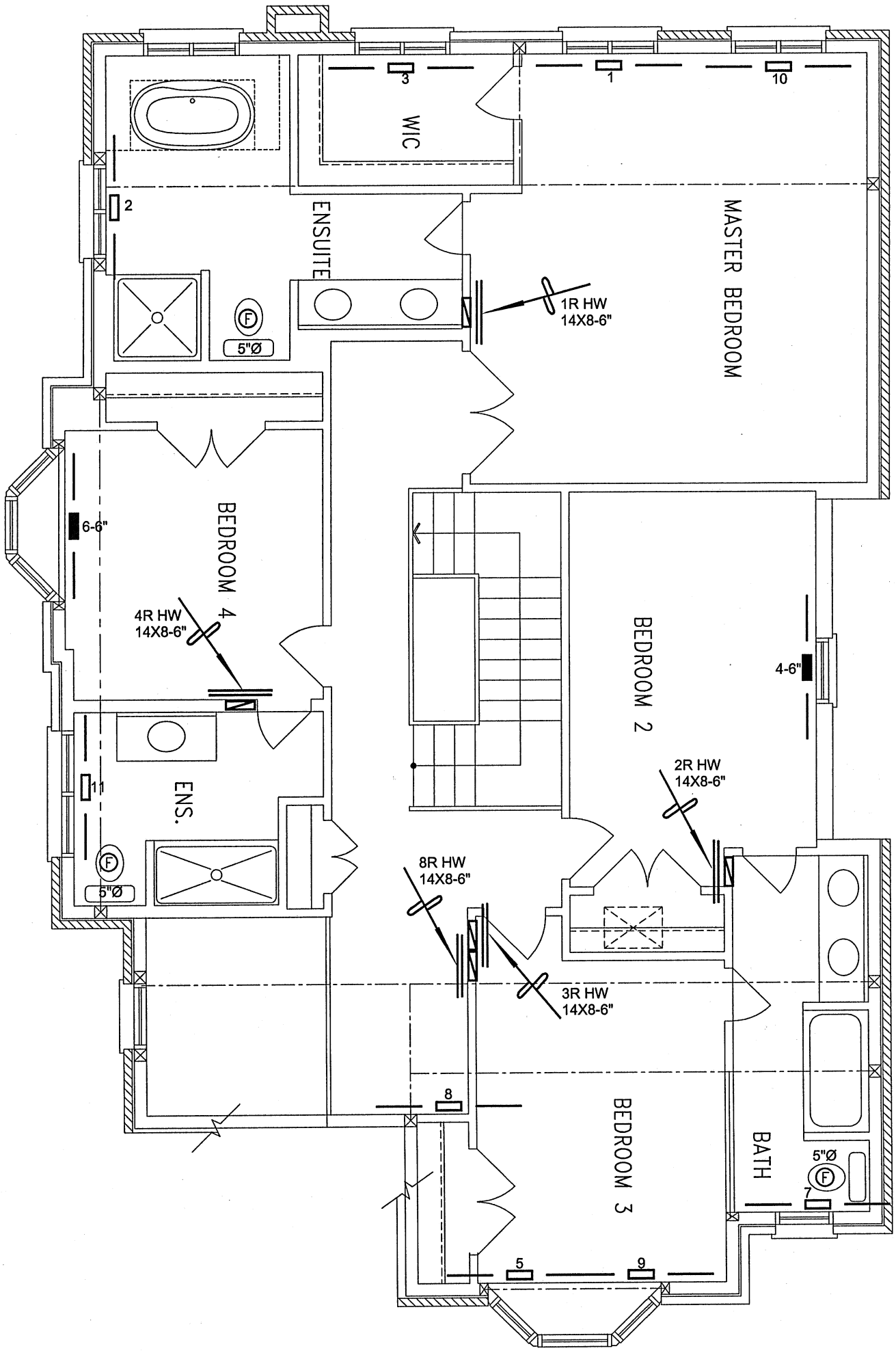
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

Sheet Title
FIRST FLOOR HEATING LAYOUT

Date DEC/2020
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 88748



GLENWAY 12A-036

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Town of East Gwillimbury
Building Standards Branch BCIN #16487

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Sewage System			
Zoning			

ENERGY STAR

LOT 36 | CSA-F280-12

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

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REVISIONS

Client
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Project Name
TRINAR HALL HOMES
EAST GWILLIMBURY, ONT.

LOT 36
GLENWAY 12A 2969 sqft

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Sheet Title
SECOND FLOOR HEATING LAYOUT

Date DEC/2020
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 88748