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FORM R405-2020

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name:	RELYEA MAIN RESIDENCE	Builder Name:	
Street:		Permit Office:	
City, State, Zip:	HIGH SPRINGS , FL ,	Permit Number:	
Owner:	RELYEA RESIDENCE	Jurisdiction:	
Design Location:	FL, Gainesville	County:	Columbia (Florida Climate Zone 2)

1. New construction or existing	New (From Plans)
2. Single family or multiple family	Detached
3. Number of units, if multiple family	1
4. Number of Bedrooms	1
5. Is this a worst case?	No
6. Conditioned floor area above grade (ft²)	1468
Conditioned floor area below grade (ft²)	0

7. Windows(228.0 sqft.)	Description	Area
a. U-Factor:	Dbl, U=0.40	228.00 ft²
SHGC:	SHGC=0.25	
b. U-Factor:	N/A	ft²
SHGC:		
c. U-Factor:	N/A	ft²
SHGC:		
Area Weighted Average Overhang Depth:		2.158 ft.
Area Weighted Average SHGC:		0.250

8. Skylights		Area
c. U-Factor:(AVG)	N/A	ft²
SHGC(AVG):	N/A	

9. Floor Types (1467.9 sqft.)	Insulation	Area
a. Slab-On-Grade Edge Insulation	R=0.0	1467.90 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

10. Wall Type(1968.0 sqft.)	Insulation	Area
a. Frame - Wood, Exterior	R=19.0	1968.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²
d. N/A	R=	ft²

11. Ceiling Types (1468.0 sqft.)	Insulation	Area
a. Roof Deck (Unvented)	R=20.0	1468.00 ft²
b. N/A	R=	ft²
c. N/A	R=	ft²

12. Ducts	R	ft²
a. Sup: Attic, Ret: LAUNDRY, AH: LAUNDRY	6	15

13. Cooling systems	kBtu/hr	Efficiency
a. Central Unit	23.8	SEER:14.00

14. Heating systems	kBtu/hr	Efficiency
a. Electric Heat Pump	23.8	HSPF:8.50

15. Hot water systems		
a. Electric	Tankless	Cap: 1 gallons
		EF: 0.990
b. Conservation features		
None		
16. Credits		Pstat

COLUMBIA COUNTY BUILDING DEPARTMENT
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Code Compliance
PLANS EXAMINER

Glass/Floor Area: 0.155

Total Proposed Modified Loads: 44.66

Total Baseline Loads: 44.46

PASS

I hereby certify that the plans and specifications covered by this calculation are in compliance with the Florida Energy Code.

PREPARED BY: _____

DATE: _____

I hereby certify that this building, as designed, is in compliance with the Florida Energy Code.

OWNER/AGENT: _____

DATE: _____

Review of the plans and specifications covered by this calculation indicates compliance with the Florida Energy Code. Before construction is completed this building will be inspected for compliance with Section 553.908 Florida Statutes.

GREAT SEAL OF THE STATE OF FLORIDA
IN GOD WE TRUST

BUILDING OFFICIAL: _____

DATE: _____

- Compliance requires certification by the air handler unit manufacturer that the air handler enclosure qualifies as certified factory-sealed in accordance with R403.3.2.1.

- Compliance requires an Air Barrier and Insulation Inspection Checklist in accordance with R402.4.1.1 and this project requires an envelope leakage test report with envelope leakage no greater than 6.55 ACH50 (R402.4.1.2).

FORM R405-2020

INPUT SUMMARY CHECKLIST REPORT

PROJECT

Title:	RELYEA MAIN RESIDENCE	Bedrooms:	1	Address Type:	Street Address
Building Type:	User	Conditioned Area:	1468	Lot #	
Owner Name:	RELYEA RESIDENCE	Total Stories:	1	Block/Subdivision:	
# of Units:	1	Worst Case:	No	PlatBook:	
Builder Name:		Rotate Angle:	0	Street:	
Permit Office:		Cross Ventilation:	No	County:	Columbia
Jurisdiction:		Whole House Fan:	No	City, State, Zip:	HIGH SPRINGS , FL ,
Family Type:	Detached				
New/Existing:	New (From Plans)				
Comment:					

CLIMATE

√	Design Location	TMY Site	Design Temp 97.5 %	Design Temp 2.5 %	Int Design Temp Winter	Int Design Temp Summer	Heating Degree Days	Design Moisture	Daily Temp Range
_____	FL, Gainesville	FL_GAINESVILLE_REGI	32	92	70	75	1305.5	51	Medium

BLOCKS

Number	Name	Area	Volume
1	Entire House	1468	17616

SPACES

Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Infil ID	Finished	Cooled	Heated
1	BATH	117	1404	No	0		1	Yes	Yes	Yes
2	TOILET	34	408	No	0		1	Yes	Yes	Yes
3	BEDROOM	229	2748	No	2	1	1	Yes	Yes	Yes
4	WIC	87	1044	No	0		1	Yes	Yes	Yes
5	LAUNDRY	98	1176	No	0		1	No	Yes	Yes
6	BATH2	22	264	No	0		1	No	Yes	Yes
7	KITCHEN	218	2616	Yes	0		1	Yes	Yes	Yes
8	FOYER	38	456	No	0		1	Yes	Yes	Yes
9	DINING	69	828	No	0		1	Yes	Yes	Yes
10	LIVING	556	6672	No	0		1	Yes	Yes	Yes

FLOORS

√	#	Floor Type	Space	Perimeter	Perimeter R-Value	Area	Joist R-Value	Tile	Wood	Carpet
_____	1	Slab-On-Grade Edge Insulatio	BATH	18 ft		117.1 ft²	----	0	1	0
_____	2	Slab-On-Grade Edge Insulatio	TOILET	6 ft		34 ft²	----	0	1	0
_____	3	Slab-On-Grade Edge Insulatio	BEDROOM	30.3 ft		228.7 ft²	----	0	1	0
_____	4	Slab-On-Grade Edge Insulatio	WIC	8.7 ft		86.7 ft²	----	0	1	0
_____	5	Slab-On-Grade Edge Insulatio	LAUNDRY	1 ft		97.9 ft²	----	0	1	0
_____	6	Slab-On-Grade Edge Insulatio	BATH2	1 ft		22 ft²	----	0	1	0
_____	7	Slab-On-Grade Edge Insulatio	KITCHEN	29 ft		217.9 ft²	----	0	1	0

INPUT SUMMARY CHECKLIST REPORT

FLOORS

√	#	Floor Type	Space	Perimeter	Perimeter R-Value	Area	Joist R-Value	Tile	Wood	Carpet
_____	8	Slab-On-Grade Edge Insulatio	FOYER	6.3 ft		38 ft²	----	0	1	0
_____	9	Slab-On-Grade Edge Insulatio	DINING	16.7 ft		69.3 ft²	----	0	1	0
_____	10	Slab-On-Grade Edge Insulatio	LIVING	49 ft		556.3 ft²	----	0	1	0

ROOF

√	#	Type	Materials	Roof Area	Gable Area	Roof Color	Rad Barr	Solar Absor.	SA Tested	Emitt	Emitt Tested	Deck Insul.	Pitch (deg)
_____	1	Gable or Shed	Metal	1641 ft²	368 ft²	Medium	N	0.9	No	0.9	No	20	26.57

ATTIC

√	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC
_____	1	Full attic	Unvented	0	1468 ft²	N	N

CEILING

√	#	Ceiling Type	Space	R-Value	Ins Type	Area	Framing Frac	Truss Type
_____	1	Under Attic (Unvented)	BATH	0	Blown	117 ft²	0.1	Wood
_____	2	Under Attic (Unvented)	TOILET	0	Blown	34 ft²	0.1	Wood
_____	3	Under Attic (Unvented)	BEDROOM	0	Blown	229 ft²	0.1	Wood
_____	4	Under Attic (Unvented)	WIC	0	Blown	87 ft²	0.1	Wood
_____	5	Under Attic (Unvented)	LAUNDRY	0	Blown	98 ft²	0.1	Wood
_____	6	Under Attic (Unvented)	BATH2	0	Blown	22 ft²	0.1	Wood
_____	7	Under Attic (Unvented)	KITCHEN	0	Blown	218 ft²	0.1	Wood
_____	8	Under Attic (Unvented)	FOYER	0	Blown	38 ft²	0.1	Wood
_____	9	Under Attic (Unvented)	DINING	0	Blown	69 ft²	0.1	Wood
_____	10	Under Attic (Unvented)	LIVING	0	Blown	556 ft²	0.1	Wood

WALLS

√	#	Ornt	Adjacent To	Wall Type	Space	Cavity R-Value	Width Ft	Width In	Height Ft	Height In	Area	Sheathing R-Value	Framing Fraction	Solar Absor.	Below Grade%
____	1	N	Exterior	Frame - Wood	BATH	19	11	4	12	0	136.0 ft²	0	0.25	0.8	0
____	2	W	Exterior	Frame - Wood	BATH	19	6	8	12	0	80.0 ft²	0	0.25	0.8	0
____	3	W	Exterior	Frame - Wood	TOILET	19	6	0	12	0	72.0 ft²	0	0.25	0.8	0
____	4	N	Exterior	Frame - Wood	BEDROOM	19	14	0	12	0	168.0 ft²	0	0.25	0.8	0
____	5	E	Exterior	Frame - Wood	BEDROOM	19	16	4	12	0	196.0 ft²	0	0.25	0.8	0
____	6	E	Exterior	Frame - Wood	WIC	19	8	8	12	0	104.0 ft²	0	0.25	0.8	0
____	7	N	Exterior	Frame - Wood	KITCHEN	19	16	8	12	0	200.0 ft²	0	0.25	0.8	0
____	8	W	Exterior	Frame - Wood	KITCHEN	19	12	4	12	0	148.0 ft²	0	0.25	0.8	0
____	9	W	Exterior	Frame - Wood	FOYER	19	6	4	12	0	76.0 ft²	0	0.25	0.8	0
____	10	S	Exterior	Frame - Wood	DINING	19	8	0	12	0	96.0 ft²	0	0.25	0.8	0
____	11	W	Exterior	Frame - Wood	DINING	19	8	8	12	0	104.0 ft²	0	0.25	0.8	0
____	12	E	Exterior	Frame - Wood	LIVING	19	15	0	12	0	180.0 ft²	0	0.25	0.8	0

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WALLS

√	#	Ornt	Adjacent To	Wall Type	Space	Cavity R-Value	Width Ft	Width In	Height Ft	Height In	Area	Sheathing R-Value	Framing Fraction	Solar Absor.	Below Grade%
___	13	S	Exterior	Frame - Wood	LIVING	19	34	0	12	0	408.0 ft²	0	0.25	0.8	0

DOORS

√	#	Ornt	Door Type	Space	Storms	U-Value	Width Ft	Width In	Height Ft	Height In	Area
___	1	N	Insulated	KITCHEN	None	.29	3		7		21 ft²
___	2	W	Insulated	FOYER	None	.29	3		7		21 ft²

WINDOWS

Orientation shown is the entered, Proposed orientation.

√	#	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Imp	Area	Overhang Depth	Overhang Separation	Int Shade	Screening
___	1	N	1	Vinyl	Low-E Double	Yes	0.4	0.25	N	9.0 ft²	1 ft 0 in	6 ft 0 in	None	Exterior 5
___	2	N	4	Vinyl	Low-E Double	Yes	0.4	0.25	N	39.0 ft²	1 ft 0 in	6 ft 0 in	None	Exterior 5
___	3	N	7	Vinyl	Low-E Double	Yes	0.4	0.25	N	24.0 ft²	12 ft 0 in	6 ft 0 in	None	Exterior 5
___	4	S	10	Vinyl	Low-E Double	Yes	0.4	0.25	N	39.0 ft²	1 ft 0 in	6 ft 0 in	None	Exterior 5
___	5	S	13	Vinyl	Low-E Double	Yes	0.4	0.25	N	39.0 ft²	1 ft 0 in	6 ft 0 in	None	Exterior 5
___	6	S	13	Vinyl	Low-E Double	Yes	0.4	0.25	N	78.0 ft²	1 ft 0 in	6 ft 0 in	None	Exterior 5

INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Proposed ACH(50)	.000499	1923.3	105.52	198.09	.151	6.5506

HEATING SYSTEM

√	#	System Type	Subtype	Speed	Efficiency	Capacity	Block	Ducts
___	1	Electric Heat Pump/	Split	Singl	HSPF:8.5	23.8 kBtu/hr	1	sys#1

COOLING SYSTEM

√	#	System Type	Subtype	Subtype	Efficiency	Capacity	Air Flow	SHR	Block	Ducts
___	1	Central Unit/	Split	Singl	SEER: 14	23.8 kBtu/hr	793 cfm	0.7	1	sys#1

HOT WATER SYSTEM

√	#	System Type	SubType	Location	EF	Cap	Use	SetPnt	Conservation
___	1	Electric	Tankless	LAUNDRY	0.99	1 gal	55.1 gal	120 deg	None

SOLAR HOT WATER SYSTEM

√	FSEC Cert #	Company Name	System Model #	Collector Model #	Collector Area	Storage Volume	FEF
___	None	None			ft²		

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INPUT SUMMARY CHECKLIST REPORT

DUCTS

√	#	---- Supply ---- Location	R-Value	Area	---- Return ---- Location	Area	Leakage Type	Air Handler	CFM 25 TOT	CFM25 OUT	QN	RLF	HVAC # Heat	Cool
_____	1	Attic	6	15 ft²	LAUNDRY	7 ft²	Default Leakage	LAUNDRY	(Default)	(Default)			1	1

TEMPERATURES

Programable Thermostat: Y

Ceiling Fans:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cooling	[ ]	[ ]	[ ]	[ ]	[ ]	[X]	[X]	[X]	[X]	[ ]	[ ]	[ ]
Heating	[X]	[X]	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[X]	[X]
Venting	[ ]	[ ]	[X]	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[X]	[X]	[ ]

Thermostat Schedule: HERS 2006 Reference

Schedule Type		Hours 1	2	3	4	5	6	7	8	9	10	11	12
Cooling (WD)	AM	78	78	78	78	78	78	78	78	80	80	80	80
	PM	80	80	78	78	78	78	78	78	78	78	78	78
Cooling (WEH)	AM	78	78	78	78	78	78	78	78	78	78	78	78
	PM	78	78	78	78	78	78	78	78	78	78	78	78
Heating (WD)	AM	66	66	66	66	66	68	68	68	68	68	68	68
	PM	68	68	68	68	68	68	68	68	68	68	66	66
Heating (WEH)	AM	66	66	66	66	66	68	68	68	68	68	68	68
	PM	68	68	68	68	68	68	68	68	68	68	66	66

MASS

Mass Type	Area	Thickness	Furniture Fraction	Space
Default(8 lbs/sq.ft.	0 ft²	0 ft	0.3	WORKSHOP
Default(8 lbs/sq.ft.	ft²	ft	0.3	BATH
Default(8 lbs/sq.ft.	ft²	ft	0.3	STAIRS
Default(8 lbs/sq.ft.	ft²	ft	0.3	BEDROOM 1
Default(8 lbs/sq.ft.	ft²	ft	0.3	BATH1
Default(8 lbs/sq.ft.	ft²	ft	0.3	BATH 2
Default(8 lbs/sq.ft.	ft²	ft	0.3	BEDROOM 2
Default(8 lbs/sq.ft.	ft²	ft	0.3	STAIRS 1
Default(8 lbs/sq.ft.	ft²	ft	0.3	LIVING

wrightsoft

Load Short Form
Entire House
BABIONE'S A/C & HEATING INC.

Job:
Date: Apr 19, 2021
By: JEFF

820 N MAIN ST., WILLISTON, FL 32696 Phone: 352-529-1034 Fax: 352-529-0007 Email: jeffbabione@embarqmail.com Web: www.babionesac.com License: CAC058697

Project Information

For: RELYEA RESIDENCE, JOSHUA SHATKIN
HIGH SPRINGS, FL
Phone: 352-222-3443

Design Information

	Htg	Clg
Outside db (°F)	33	94
Inside db (°F)	68	70
Design TD (°F)	35	24
Daily range	-	M
Inside humidity (%)	50	50
Moisture difference (gr/lb)	29	57

Infiltration

Method	Simplified
Construction quality	Semi-tight
Fireplaces	0

HEATING EQUIPMENT

Make	Trane
Trade	TRANE
Model	4TWR4024G1
AHRI ref	8908427

Efficiency	8.5 HSPF	
Heating input		
Heating output	22400	Btuh @ 47°F
Temperature rise	26	°F
Actual air flow	793	cfm
Air flow factor	0.038	cfm/Btuh
Static pressure	0.70	in H2O
Space thermostat		

Capacity balance point = 32 °F

COOLING EQUIPMENT

Make	Trane
Trade	TRANE
Cond	4TWR4024G1
Coil	TEM4A0B24S21++TDR
AHRI ref	8908427

Efficiency	11.5 EER, 14 SEER	
Sensible cooling	16660	Btuh
Latent cooling	7140	Btuh
Total cooling	23800	Btuh
Actual air flow	793	cfm
Air flow factor	0.057	cfm/Btuh
Static pressure	0.70	in H2O
Load sensible heat ratio	0.86	

Backup:
Input = 6 kW, Output = 20827 Btuh, 100 AFUE

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
BATH	117	1977	841	75	48
TOILET	34	614	237	23	13
BEDROOM	229	3670	2200	140	125
WIC	87	961	413	37	23
LAUNDRY	98	194	679	7	39
BATH2	22	44	41	2	2
KITCHEN	218	3516	2821	134	160
FOYER	38	815	433	31	25
DINING	69	2109	1209	80	69
LIVING	557	6928	5090	264	289

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Entire House	d	1469	20827	13965	793	793
Other equip loads			0	0		
Equip. @ 0.99 RSM				13756		
Latent cooling				2196		
TOTALS		1469	20827	15952	793	793

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

wrightsoft

Project Summary
Entire House
BABIONE'S A/C & HEATING INC.

Job:
Date: Apr 19, 2021
By: JEFF

820 N MAIN ST., WILLISTON, FL 32696 Phone: 352-529-1034 Fax: 352-529-0007 Email: jeffbabione@embarqmail.com Web: www.babionesac.com License: CAC058697

Project Information

For: RELYEA RESIDENCE, JOSHUA SHATKIN
HIGH SPRINGS, FL
Phone: 352-222-3443

Notes: MAIN RESIDENCE

Design Information

Weather: Gainesville Regional AP, FL, US

Winter Design Conditions

Outside db	33	°F
Inside db	68	°F
Design TD	35	°F

Summer Design Conditions

Outside db	94	°F
Inside db	70	°F
Design TD	24	°F
Daily range	M	
Relative humidity	50	%
Moisture difference	57	gr/lb

Heating Summary

Structure	20827	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Humidification	0	Btuh
Piping	0	Btuh
Equipment load	20827	Btuh

Sensible Cooling Equipment Load Sizing

Structure	13965	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Blower	0	Btuh
Use manufacturer's data	n	
Rate/swing multiplier	0.99	
Equipment sensible load	13756	Btuh

Infiltration

Method	Simplified
Construction quality	Semi-tight
Fireplaces	0

	Heating	Cooling
Area (ft²)	1469	1469
Volume (ft³)	17627	17627
Air changes/hour	0.31	0.16
Equiv. AVF (cfm)	91	47

Latent Cooling Equipment Load Sizing

Structure	2196	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Equipment latent load	2196	Btuh
Equipment Total Load (Sen+Lat)	15952	Btuh
Req. total capacity at 0.70 SHR	1.6	ton

Heating Equipment Summary

Make	Trane
Trade	TRANE
Model	4TWR4024G1
AHRI ref	8908427

Efficiency	8.5 HSPF	
Heating input		
Heating output	22400	Btuh @ 47°F
Temperature rise	26	°F
Actual air flow	793	cfm
Air flow factor	0.038	cfm/Btuh
Static pressure	0.70	in H2O

Space thermostat
Capacity balance point = 32 °F

Backup:
Input = 6 kW, Output = 20827 Btuh, 100 AFUE

Cooling Equipment Summary

Make	Trane
Trade	TRANE
Cond	4TWR4024G1
Coil	TEM4A0B24S21++TDR
AHRI ref	8908427

Efficiency	11.5 EER, 14 SEER	
Sensible cooling	16660	Btuh
Latent cooling	7140	Btuh
Total cooling	23800	Btuh
Actual air flow	793	cfm
Air flow factor	0.057	cfm/Btuh
Static pressure	0.70	in H2O
Load sensible heat ratio	0.86	

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

wrightsoft

Duct System Summary
Entire House
BABIONE'S A/C & HEATING INC.

Job:
Date: Apr 19, 2021
By: JEFF

820 N MAIN ST., WILLISTON, FL 32696 Phone: 352-529-1034 Fax: 352-529-0007 Email: jeffbabione@embarqmail.com Web: www.babionesac.com License: CAC058697

Project Information

For: RELYEA RESIDENCE, JOSHUA SHATKIN
HIGH SPRINGS, FL
Phone: 352-222-3443

	Heating	Cooling
External static pressure	0.70 in H2O	0.70 in H2O
Pressure losses	0 in H2O	0 in H2O
Available static pressure	0.70 in H2O	0.70 in H2O
Supply / return available pressure	0.551 / 0.149 in H2O	0.551 / 0.149 in H2O
Lowest friction rate	0.206 in/100ft	0.206 in/100ft
Actual air flow	793 cfm	793 cfm
Total effective length (TEL)	340 ft	

Supply Branch Detail Table

Name		Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
BATH	h	1977	75	48	0.216	6.0	0x 0	VlFx	34.7	220.0	st3
BATH2	c	41	2	2	0.292	4.0	0x 0	VlFx	9.0	180.0	st1
BEDROOM	h	3670	140	125	0.322	7.0	0x 0	VlFx	21.0	150.0	st4
DINING	h	2109	80	69	0.315	5.0	0x 0	RtFg	24.7	150.0	st2A
FOYER	h	815	31	25	0.258	4.0	0x 0	RtFg	18.4	195.0	st2A
KITCHEN	c	2821	134	160	0.367	7.0	0x 0	VlFx	15.1	135.0	st2
LAUNDRY	c	679	7	39	0.317	4.0	0x 0	VlFx	8.6	165.0	st1
LIVING	c	2545	132	145	0.317	7.0	0x 0	VlFx	23.8	150.0	st4A
LIVING-A	c	2545	132	145	0.290	7.0	0x 0	RtFg	9.8	180.0	st2
TOILET	h	614	23	13	0.206	4.0	0x 0	VlFx	37.7	230.0	st3
WIC	h	961	37	23	0.343	4.0	0x 0	VlFx	20.5	140.0	st4

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st4A	Peak AVF	132	145	0.317	541	7.0	0 x 0	RectFbg	st4
st2A	Peak AVF	111	93	0.258	567	6.0	0 x 0	RectFbg	st2
st2	Peak AVF	377	398	0.258	507	12.0	0 x 0	RectFbg	
st1	Peak AVF	416	395	0.206	530	12.0	0 x 0	RectFbg	
st3	Peak AVF	99	61	0.206	502	6.0	0 x 0	RectFbg	st1
st4	Peak AVF	308	293	0.317	565	10.0	0 x 0	RectFbg	st1

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb1	0x 0	518	583	62.7	0.238	546	14.0	0x 0		VlFx	
rb2	0x 0	275	210	72.4	0.206	504	10.0	0x 0		VlFx	

wrightsoft

Manual S Compliance Report
Entire House

BABIONE'S A/C & HEATING INC.

Job:
Date: Apr 19, 2021
By: JEFF

820 N MAIN ST., WILLISTON, FL 32696 Phone: 352-529-1034 Fax: 352-529-0007 Email: jeffbabione@embarqmail.com Web: www.babionesac.com License: CAC058697

Project Information

For: RELYEA RESIDENCE, JOSHUA SHATKIN
HIGH SPRINGS, FL
Phone: 352-222-3443

Cooling Equipment

Design Conditions

Outdoor design DB:	93.5°F	Sensible gain:	13965	Btuh	Entering coil DB:	70.0°F
Outdoor design WB:	76.5°F	Latent gain:	2196	Btuh	Entering coil WB:	58.4°F
Indoor design DB:	70.0°F	Total gain:	16161	Btuh		
Indoor RH:	50%	Estimated airflow:	793	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Trane		Model:	4TWR4024G1+TEM4A0B24S21++TDR	
Actual airflow:	793	cfm			
Sensible capacity:	16660	Btuh	119% of load		
Latent capacity:	7140	Btuh	325% of load		
Total capacity:	23800	Btuh	147% of load	SHR:	70%

Heating Equipment

Design Conditions

Outdoor design DB:	33.0°F	Heat loss:	20827	Btuh	Entering coil DB:	68.0°F
Indoor design DB:	68.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP					
Manufacturer:	Trane		Model:	4TWR4024G1+TEM4A0B24S21++TDR		
Actual airflow:	793	cfm				
Output capacity:	16862	Btuh	81% of load		Capacity balance:	32 °F
Supplemental heat required:	3965	Btuh			Economic balance:	-99 °F

Backup equipment type:	Elec strip				
Manufacturer:		Model:			
Actual airflow:	793	cfm			
Output capacity:	6.1	kW	100% of load	Temp. rise:	50 °F

Meets all requirements of ACCA Manual S.

Residential Plans Examiner Review Form for HVAC System Design (Loads, Equipment, Ducts)

Form RPER 1 15 Mar 09

Header Information

Contractor: BABIONE'S A/C & HEATING INC.

Mechanical license: CAC058697

Building plan #:

Home address (Street or Lot#, Block, Subdivision): , Entire House

REQUIRED ATTACHMENTS	ATTACHED
Manual J1 Form (and supporting worksheets):	Yes ☐ No ☐
or MJ1AE Form* (and supporting worksheets):	Yes ☐ No ☐
OEM performance data (heating, cooling, blower):	Yes ☐ No ☐
Manual D Friction Rate Worksheet:	Yes ☐ No ☐
Duct distribution sketch:	Yes ☐ No ☐

HVAC LOAD CALCULATION (IRC M1401.3)

Design Conditions

Winter Design Conditions

Outdoor temperature:	33	°F
Indoor temperature:	68	°F
Total heat loss:	20827	Btuh

Summer Design Conditions

Outdoor temperature:	94	°F
Indoor temperature:	70	°F
Grains difference:	57 gr/lb @ 50% RH	
Sensible heat gain:	14178	Btuh
Latent heat gain:	2229	Btuh
Total heat gain:	16407	Btuh

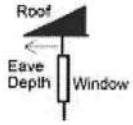
Building Construction Information

Building

Orientation: (North, East, West, South, Northeast, Northwest, Southeast, Southwest)	Front Door faces North	
Number of bedrooms:	0	
Conditioned floor area:	1469	ft²
Number of occupants:	2	

Windows

Eave overhang depth:	12.0	ft
Internal shade: (Blinds, drapes, etc.)	none	
Number of skylights:	0	



HVAC EQUIPMENT SELECTION (IRC M1401.3)

Heating Equipment Data

Equipment type: (Furnace, Heat pump, Boiler, etc.)	Split ASHP
Model:	Trane 4TWR4024G1+TEM4A0B24S21++TDR
Heating output capacity: (Heat pumps - capacity at winter design outdoor conditions)	16862 Btuh
Aux. heating output capacity:	20827 Btuh

Cooling Equipment Data

Equipment type: (Air Conditioner, Heat pump, etc.)	Split ASHP
Model:	Trane 4TWR4024G1+TEM4A0B24S21++TDR
Total cooling capacity:	0 Btuh
Sensible cooling capacity:	0 Btuh
Latent cooling capacity:	0 Btuh

Blower Data

Heating cfm:	793
Cooling cfm:	793
Static pressure: (Fan's rated external static pressure for design airflow)	0.70 in H2O

HVAC DUCT DISTRIBUTION SYSTEM DESIGN (IRC M1601.1)

Design airflow:	793	cfm	Longest supply duct:	268	ft	Duct Materials Used	
Equipment design ESP:	0.70	in H2O	Longest return duct:	72	ft	Trunk duct:	Fiberglass board
Total device pressure losses:	0	in H2O	**Total effective length (TEL):**	340	ft		
Available static pressure (ASP):	0.70	in H2O	**Friction rate:** (Friction Rate = ASP ÷ (TEL x 100))	0.206	in/100ft	Branch duct:	Round flex vinyl, Fiberglass board

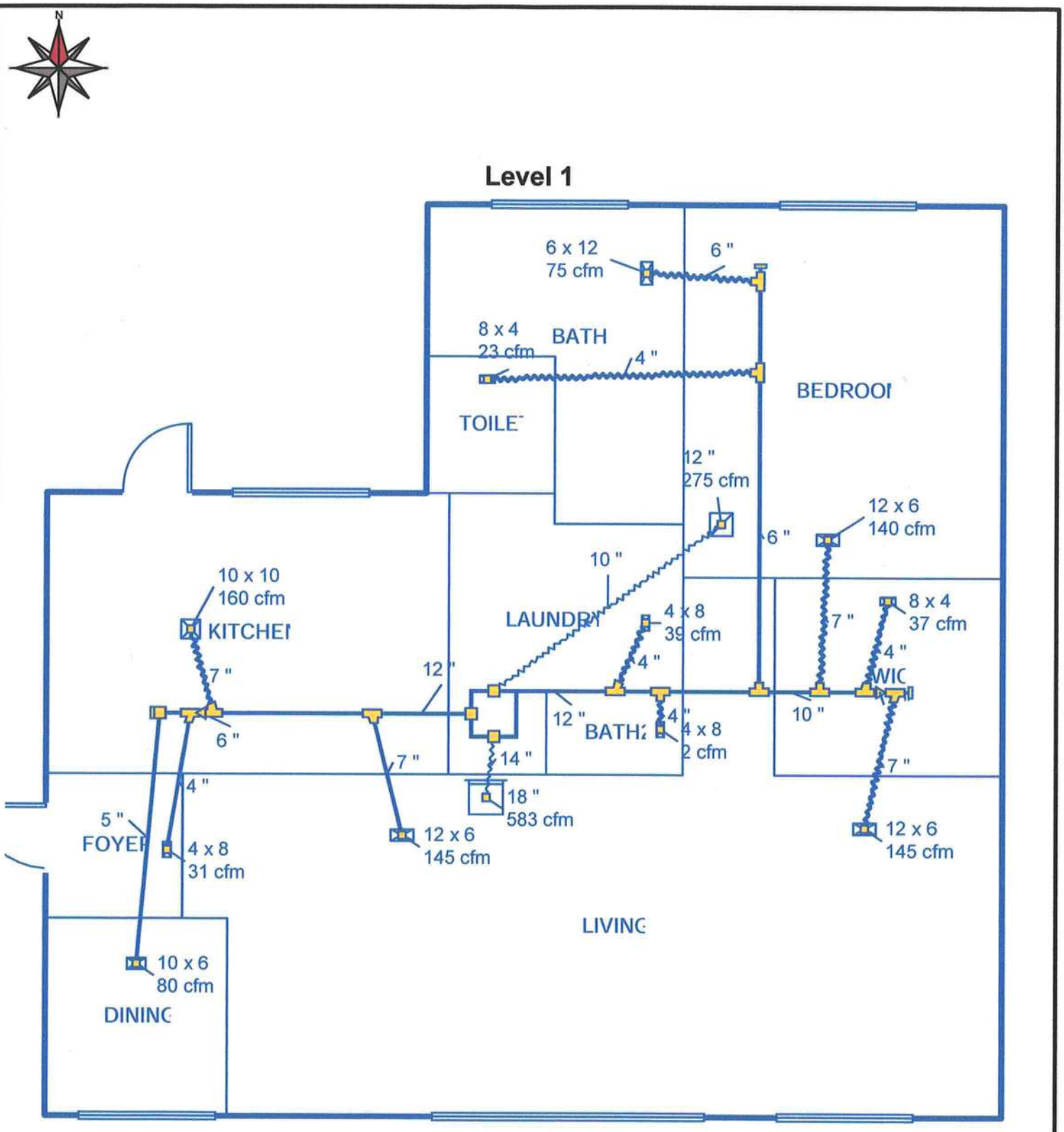
I declare the load calculation, equipment, equipment selection and duct design were rigorously performed based on the building plan listed above. I understand the claims made on these forms will be subject to review and verification.

Contractor's printed name: JEFF BABIONE

Contractor's signature: Jeffrey T Babione Date: 4-20-2021

Reserved for County, Town Municipality or Authority having jurisdiction use.

*Home qualifies for MJ1AE Form based on Abridged Edition Checklist



Job #:
Performed by JEFF for:
RELYEA RESIDENCE

HIGH SPRINGS, FL
Phone: 352-222-3443

BABIONE'S A/C & HEATING INC.

820 N MAIN ST.
WILLISTON, FL 32696
Phone: 352-529-1034 Fax: 352-529-0007
www.babionesac.com jeffbabione@embarqmail.com

Scale: 1 : 70

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2020 - AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

TABLE 402.4.1.1
AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA [a]

				CHECK
Project Name:	RELYEA MAIN RESIDENCE	Builder Name:		
Street:		Permit Office:		
City, State, Zip:	HIGH SPRINGS , FL ,	Permit Number:		
Owner:	RELYEA RESIDENCE	Jurisdiction:		
Design Location:	FL, Gainesville			

COMPONENT	AIR BARRIER CRITERIA	INSULATION INSTALLATION CRITERIA	
General requirements	A continuous air barrier shall be installed in the building envelope. The exterior thermal envelope contains a continuous air barrier. Breaks or joints in the air barrier shall be sealed.	Air-permeable insulation shall not be used as a sealing material.	
Ceiling/attic	The air barrier in any dropped ceiling/soffit shall be aligned with the insulation and any gaps in the air barrier shall be sealed. Access openings, drop down stairs or knee wall doors to unconditioned attic spaces shall be sealed.	The insulation in any dropped ceiling/soffit shall be aligned with the air barrier.	
Walls	The junction of the foundation and sill plate shall be sealed. The junction of the top plate and the top of exterior walls shall be sealed. Knee walls shall be sealed.	Cavities within corners and headers of frame walls shall be insulated by completely filling the cavity with a material having a thermal resistance of R-3 per inch minimum. Exterior thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier.	
Windows, skylights and doors	The space between window/door jambs and framing, and skylights and framing shall be sealed.		
Rim joists	Rim joists shall include the air barrier.	Rim joists shall be insulated.	
Floors (including above-garage and cantilevered floors)	The air barrier shall be installed at any exposed edge of insulation.	Floor framing cavity insulation shall be installed to maintain permanent contact with the underside of subfloor decking, or floor framing cavity insulation shall be permitted to be in contact with the top side of sheathing, or continuous insulation installed on the underside of floor framing and extends from the bottom to the top of all perimeter floor framing members.	
Crawl space walls	Exposed earth in unvented crawl spaces shall be covered with a Class I vapor retarder with overlapping joints taped.	Where provided instead of floor insulation, insulation shall be permanently attached to the crawlspace walls.	
Shafts, penetrations	Duct shafts, utility penetrations, and flue shafts opening to exterior or unconditioned space shall be sealed.		
Narrow cavities		Batts in narrow cavities shall be cut to fit, or narrow cavities shall be filled by insulation that on installation readily conforms to the available cavity spaces.	
Garage separation	Air sealing shall be provided between the garage and conditioned spaces.		
Recessed lighting	Recessed light fixtures installed in the building thermal envelope shall be sealed to the finished surface.	Recessed light fixtures installed in the building thermal envelope shall be air tight and IC rated.	
Plumbing and wiring		Batt insulation shall be cut neatly to fit around wiring and plumbing in exterior walls, or insulation that on installation readily conforms to available space shall extend behind piping and wiring.	
Shower/tub on exterior wall	The air barrier installed at exterior walls adjacent to showers and tubs shall separate them from the showers and tubs.	Exterior walls adjacent to showers and tubs shall be insulated.	
Electrical/phone box on exterior walls	The air barrier shall be installed behind electrical or communication boxes or air-sealed boxes shall be installed.		
HVAC register boots	HVAC supply and return register boots that penetrate building thermal envelope shall be sealed to the sub-floor, wall covering or		
Concealed sprinklers	When required to be sealed, concealed fire sprinklers shall only be sealed in a manner that is recommended by the manufacturer. Caulking or other adhesive sealants shall not be used to fill voids between fire sprinkler cover plates and walls or ceilings.		

a. In addition, inspection of log walls shall be in accordance with the provisions of ICC-400.

RESIDENTIAL ENERGY CONSERVATION CODE DOCUMENTATION CHECKLIST

Florida Department of Business and Professional Regulation
Simulated Performance Alternative (Performance) Method

Applications for compliance with the 2020 Florida Building Code, Energy Conservation via the Residential Simulated Performance Alternative shall include:

- ☐ *This checklist*
- ☐ *Form R405-2020 report*
- ☐ *Input summary checklist that can be used for field verification (usually four pages/may be greater)*
- ☐ *Energy Performance Level (EPL) Display Card (one page)*
- ☐ *HVAC system sizing and selection based on ACCA Manual S or per exceptions provided in Section R403.7*
- ☐ *Mandatory Requirements (five pages)*

Required prior to CO:

- ☐ *Air Barrier and Insulation Inspection Component Criteria checklist (Table R402.4.1.1 - one page)*
- ☐ *A completed 2020 Envelope Leakage Test Report (usually one page); exception in R402.4 allows dwelling units of R-2 Occupancies and multiple attached single family dwellings to comply with Section C402.5*
- ☐ *If Form R405 duct leakage type indicates anything other than "default leakage", then a completed 2020 Duct Leakage Test Report - Performance Method (usually one page)*

Envelope Leakage Test Report (Blower Door Test)
Residential Prescriptive, Performance or ERI Method Compliance
2020 Florida Building Code, Energy Conservation, 7th Edition

Jurisdiction:	Permit #:

Job Information

Builder:	Community:	Lot: NA
Address:		
City: HIGH SPRINGS	State: FL	Zip:

Air Leakage Test Results *Passing results must meet either the Performance, Prescriptive, or ERI Method*

○ **PRESCRIPTIVE METHOD-**The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 7 air changes per hour at a pressure of 0.2 inch w.g. (50 Pascals) in Climate Zones 1 and 2.

○ **PERFORMANCE or ERI METHOD-**The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding the selected ACH(50) value, as shown on Form R405-2020 (Performance) or R406-2020 (ERI), section labeled as infiltration, sub-section ACH50.

ACH(50) specified on Form R405-2020-Energy Calc (Performance) or R406-2020 (ERI): 6.551

CFM(50)	x 60 ÷	Building Volume	=	ACH(50)
_____		17616		_____

☐ **PASS**

☐ When ACH(50) is less than 3, Mechanical Ventilation installation must be verified by building department.

Method for calculating building volume:

○ Retrieved from architectural plans

● Code software calculated

○ Field measured and calculated

R402.4.1.2 Testing. Testing shall be conducted in accordance with ANSI/RESNET/ICC 380 and reported at a pressure of 0.2 inch w.g. (50 Pascals). Testing shall be conducted by either individuals as defined in Section 553.993(5) or (7), *Florida Statues.*or individuals licensed as set forth in Section 489.105(3)(f), (g), or (i) or an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the*code official.* Testing shall be performed at any time after creation of all penetrations of the *building thermal envelope.*

During testing:
1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures.
2. Dampers including exhaust, intake, makeup air, back draft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.
3. Interior doors, if installed at the time of the test, shall be open.
4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed.
5. Heating and cooling systems, if installed at the time of the test, shall be turned off.
6. Supply and return registers, if installed at the time of the test, shall be fully open.

Testing Company

Company Name: _____ Phone: _____

I hereby verify that the above Air Leakage results are in accordance with the 2020 7th Edition Florida Building Code Energy Conservation requirements according to the compliance method selected above.

Signature of Tester: _____ Date of Test: _____

Printed Name of Tester: _____

License/Certification #: _____ Issuing Authority: _____