

Load Report

Manual J8 Load Calculation

October 30, 2020

Project Information

Project #:

Notes:

Name: BRINKLEY RESIDENCE

Location:

Manual J Load Summary

Total Heating: 32,518 Btu/hr

Total Sensible: 21,254 Btu/hr

Total Latent: 9,872 Btu/hr

Outdoor Conditions

Location: Jacksonville IAP, Florida
Elevation: 33'
Latitude: 30
Dry Bulb: **Heating** 33.0 °F
Daily Range: **Cooling** 93.0 °F
Wet Bulb: Medium
77.0 °F

Indoor Conditions

	Heating	Cooling
Room Temp:	70 °F	75 °F
Design Temp Diff:	37.0 °F	18.0 °F
Humidity:	35	50
Moisture Diff (Grains):		49.6

Infiltration

Method: Simple
Stories: 2
Construction: Tight
Exposure Category: Three or Four Exposures
Num Fireplaces: None
Net Air Changes (Heat/Cool): 0.13 / 0.07
Net Flow (Heat/Cool): 98 cfm / 53 cfm

Ventilation

	Heating	Cooling
Num Occupants:	5	
Type:	Heat Recovery	Type: Heat Recovery
ACH:	0.28	ACH: 0.28
Outside Air:	210 cfm	Outside Air: 210 cfm
Sensible Eff:	50 %	Sensible Eff: 50 %

Floorplan/Levels

Ground Floor	2,255 ft²	Total Heated Area:	4,510 ft²
Main Floor	2,255 ft²	Total Cooled Area:	4,510 ft²

(1) ΔT : Difference between supply air and return air (2) Estimated air flow based on specified supply air ΔT
Length = ft Area = ft² Temperature = °F Flowrate = USGPM Air Flow = cfm Heat Loss = Btu/hr Unit Heat Loss = Btu/hr-ft² Rv = hr-ft²-°F/btu
Head Loss = ft water RH = Radiant Floor Heating BB = Baseboard FA = Forced Air OTH = Other Heating SM = Snowmelt N = Not Heated

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See end of report for important Notes and Disclaimers.

Constructions**Walls**

Code	Description	U-Value	Area	Heating	Cooling
13CB-0fcm	Block Wall or Partition; Metal Framing; R-13 Insulation in 2 x 4 Stud Cavity; Any Exterior Finish; Filled Core; Plus Interior Finish	0.089	3,518	11,585	4,697

Doors

Code	Description	U-Value	Area	Heating	Cooling
11J	Metal Door with Fiberglass Core	0.600	40	888	696

Floors

Code	Description	U-Value	Area	Heating	Cooling
22D-10p	22D - Vertical Board Insulation Covers Slab Edge, Turns Under the Slab and Extends Four Feet Horizontally, any Floor Cover	0.100	194' (P)	3,274	0

Ceilings

Code	Description	U-Value	Area	Heating	Cooling
16DR-30ml	FHA vented attic; With radiant barrier over ceiling or same type of air space behind an attic knee wall; R-30 Insulation; Materials: Asphalt Shingles(a), Metal(m), Wood Shakes(w), Tar / Gravel(x), Membrane(z); Colors: Light(l), White(w);	0.032	2,255	2,670	2,382

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Glazing**Windows**

Code	Description	Exposure	U-Value	SHGC	Area	Heating	Cooling
10Dw	French Door with Double Pane Low-e Glass (e = 0.10) and Wood, Wood with Metal Clad or Vinyl Frame, BlindsMedium45 (50%), 1', 1' above.	E	0.49	0.32	40	725	1,332
1D-rf	Double pane operable window or sliding glass door, with Reflective Glass - Insulated Fiberglass Framing, BlindsMedium45 (50%), 1', 1' above.	N	0.49	0.22	108	1,958	1,235
1D-rf	Double pane operable window or sliding glass door, with Reflective Glass - Insulated Fiberglass Framing, BlindsMedium45 (50%), 1', 1' above.	W	0.49	0.22	60	1,088	1,539
1D-rf	Double pane operable window or sliding glass door, with Reflective Glass - Insulated Fiberglass Framing, BlindsMedium45 (50%), 1', 1' above.	S	0.49	0.22	8	145	91
1D-rf	Double pane operable window or sliding glass door, with Reflective Glass - Insulated Fiberglass Framing, BlindsMedium45 (50%), 1', 1' above.	S	0.49	0.22	45	816	524
1D-rf	Double pane operable window or sliding glass door, with Reflective Glass - Insulated Fiberglass Framing, BlindsMedium45 (50%), 1', 1' above.	E	0.49	0.22	62	1,118	1,581

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Internal Loads			Other Loads	
Description	Sensible	Latent	Blower Load	
Default (1,200 Btuh)	1,200	0		1,706 Btu/hr
5 Occupants:	1,150	1,000		
Total	2,350	1,000		

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(2) Estimated air flow based on specified supply air ΔT

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Load Breakdown

Name	Heating	Sensible	Latent
Windows*	5,850	6,302	
Skylights*	0	0	
Doors	888	696	
Walls	11,585	4,697	
Below Grade Walls	0		
Ceilings	2,670	2,382	
Floors	3,274	0	
Infiltration	3,973	1,041	1,774
Internal		2,350	1,000
Other	0		
Duct Loads	0	0	0
Ventilation	4,279	2,081	7,097
Humidification	0		
Piping Load	0		
Radiant Back Loss	0		
Blower Heat		1,706	
AED*		0	
Total	32,518	21,254	9,872
Total Area	4,510 ft²	4,510 ft²	

*Average Load Procedure

Heating ΔT^1 : 70.0Cooling ΔT^1 : 22.0

Est. Heating CFM²: 367

Est. Cooling CFM²: 723

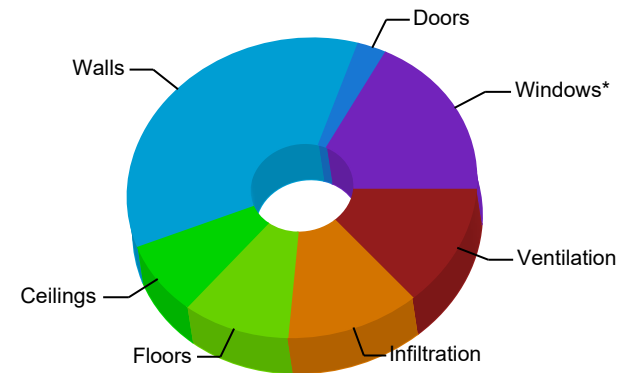
JSHR: 0.68

MJ8 Tons: 2.59

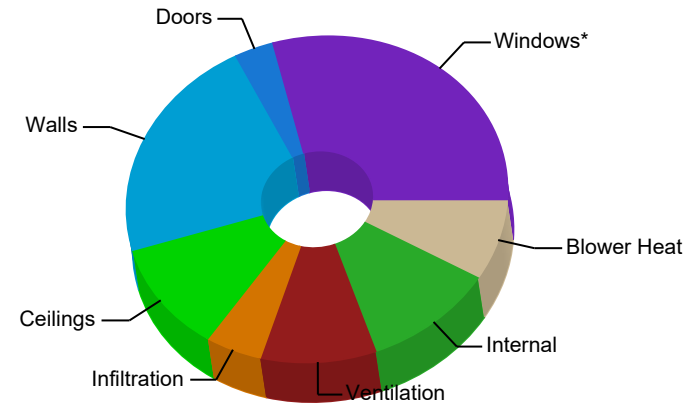
SqFt/Ton: 1739

CFM/SqFt: 0.16

Heating Load Breakdown



Sensible Load Breakdown

(1) ΔT : Difference between supply air and return air(2) Estimated air flow based on specified supply air ΔT

Length = ft Area = ft²

Temperature = °F

Flowrate = USGPM

Air Flow = cfm

Heat Loss = Btu/hr

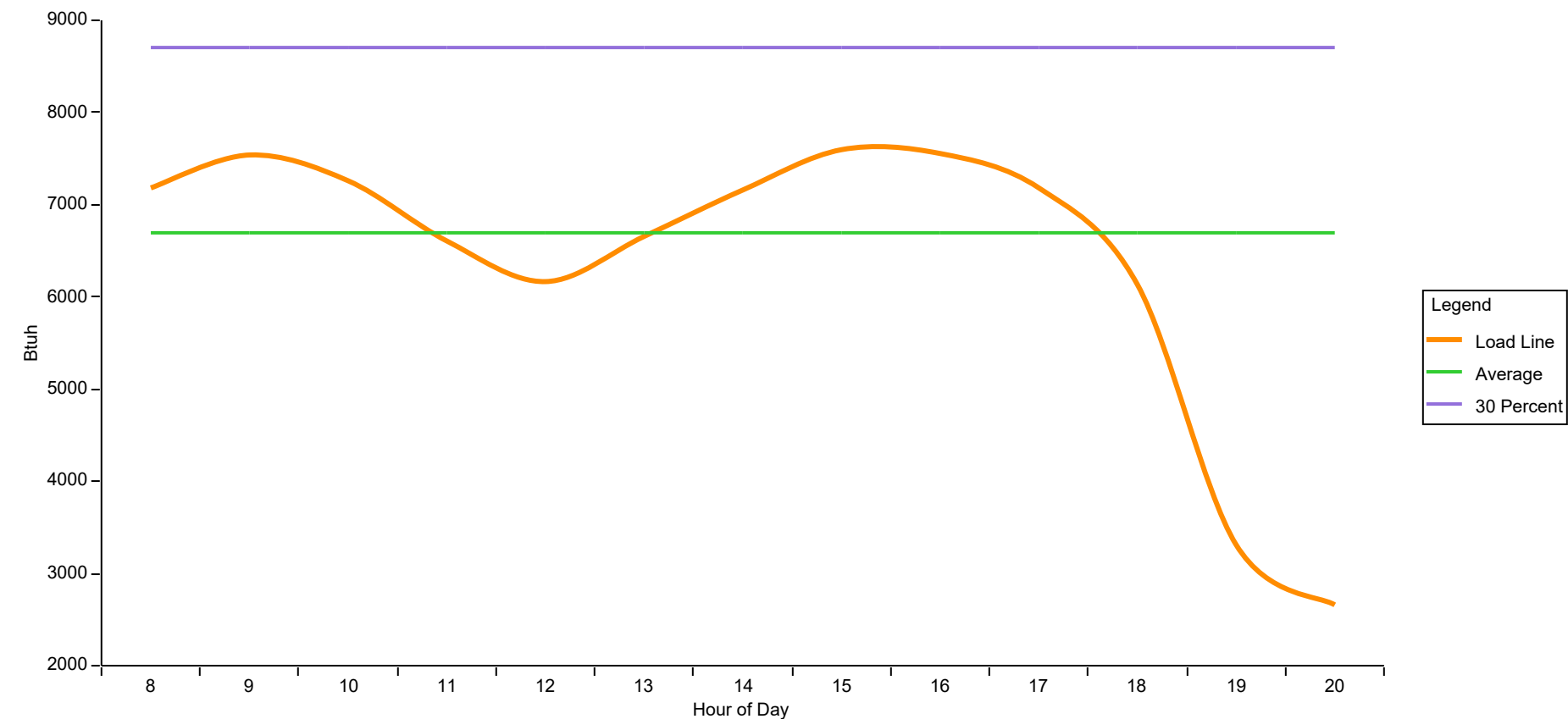
Unit Heat Loss = Btu/hr-ft²

Rv = hr-ft²-°F/btu

N = Not Heated

AED

Fenestration Load vs Hour of Day - Block Load (Summer)



Average Load: 6,696 Btu/hr
Excursion Limit: 8,705 Btu/hr

Peak Load: 7,597 Btu/hr
AED Load: 0 Btu/hr

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Heating Zones

Zone	Area	Room Temp	Total Load
Zone 101	2,255	70	15,295
Zone 201	2,255	70	12,945

Heating Rooms

Room	Area	Room Temp	Total Load
BATH	71	70	615
BATH 2	138	70	727
BATH 3	127	70	749
BATHROOM	179	70	960
BEDROOM 1	165	70	1,850
BEDROOM 2	112	70	711
BEDROOM 3	139	70	1,725
BEDROOM 4	142	70	894
CLOSET	68	70	1,183
COMMON AREA	1,431	70	6,288
CUPROOM	164	70	763
DINING	384	70	3,421
HALLWAY	117	70	0
KITCHEN WITH PANTRY	223	70	0
LIVING ROOM	504	70	3,898
MASTER BEDROOM	342	70	1,705
MUDROOM	206	70	2,750

Cooling Zones

Zone	Area	Room Temp	AED	Sensible Load
C1	4,510	75	YES	17,467

(Average Load Procedure)

Cooling Rooms

Room	Area	Room Temp	AED	Sensible Load
BATH	71	75	YES	226
BATH 2	138	75	YES	445
BATH 3	127	75	YES	441
BATHROOM	179	75	YES	374
BEDROOM 1	165	75	NO	1,416

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BEDROOM 2	112	75	NO	918
BEDROOM 3	139	75	NO	1,358
BEDROOM 4	142	75	YES	562
CLOSET	68	75	YES	351
COMMON AREA	1,431	75	NO	4,919
CUPROOM	164	75	NO	838
DINING	384	75	NO	2,097
HALLWAY	117	75	YES	61
KITCHEN WITH PANTRY	223	75	YES	116
LIVING ROOM	504	75	NO	3,226
MASTER BEDROOM	342	75	YES	818
MUDROOM	206	75	NO	1,406

(Average Load Procedure)

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