

ENERGY PERFORMANCE LEVEL (EPL) DISPLAY CARD

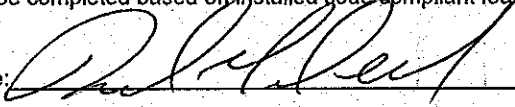
ESTIMATED ENERGY PERFORMANCE INDEX* = 92

The lower the Energy Performance Index, the more efficient the home.

1. New home or, addition	1. <u>New (From Plans)</u>	12. Ducts, location & insulation level	
2. Single-family or multiple-family	2. <u>Single-family</u>	a) Supply ducts	R <u>6.0</u>
3. No. of units (if multiple-family)	3. <u>1</u>	b) Return ducts	R <u>6.0</u>
4. Number of bedrooms	4. <u>4</u>	c) AHU location	varies
5. Is this a worst case? (yes/no)	5. <u>No</u>	13. Cooling system:	Capacity <u>102.4</u>
6. Conditioned floor area (sq. ft.)	6. <u>5851</u>	a) Split system	SEER <u>15.0</u>
7. Windows, type and area		b) Single package	SEER <u> </u>
a) U-factor:(weighted average)	7a. <u>0.576</u>	c) Ground/water source	SEER/COP <u> </u>
b) Solar Heat Gain Coefficient (SHGC)	7b. <u>0.228</u>	d) Room unit/PTAC	EER <u> </u>
c) Area	7c. <u>1052.2</u>	e) Other	<u>16.0</u>
8. Skylights		14. Heating system:	Capacity <u>99.6</u>
a) U-factor:(weighted average)	8a. <u>NA</u>	a) Split system heat pump	HSPF <u>9.0</u>
b) Solar Heat Gain Coefficient (SHGC)	8b. <u>NA</u>	b) Single package heat pump	HSPF <u> </u>
9. Floor type, insulation level:		c) Electric resistance	COP <u> </u>
a) Slab-on-grade (R-value)	9a. <u>0.0</u>	d) Gas furnace, natural gas	AFUE <u> </u>
b) Wood, raised (R-value)	9b. <u>19.0</u>	e) Gas furnace, LPG	AFUE <u> </u>
c) Concrete, raised (R-value)	9c. <u> </u>	f) Other	<u>9.00</u>
10. Wall type and insulation:		15. Water heating system	
A. Exterior:		a) Electric resistance	EF <u> </u>
1. Wood frame (Insulation R-value)	10A1. <u>19.0</u>	b) Gas fired, natural gas	EF <u>0.82</u>
2. Masonry (Insulation R-value)	10A2. <u>4.1</u>	c) Gas fired, LPG	EF <u> </u>
B. Adjacent:		d) Solar system with tank	EF <u> </u>
1. Wood frame (Insulation R-value)	10B1. <u>13.0</u>	e) Dedicated heat pump with tank	EF <u> </u>
2. Masonry (Insulation R-value)	10B2. <u> </u>	f) Heat recovery unit	HeatRec% <u> </u>
11. Ceiling type and insulation level		g) Other	<u> </u>
a) Under attic	11a. <u>30.0</u>	16. HVAC credits claimed (Performance Method)	
b) Single assembly	11b. <u> </u>	a) Ceiling fans	<u> </u>
c) Knee walls/skylight walls	11c. <u>30.0</u>	b) Cross ventilation	<u>No</u>
d) Radiant barrier installed	11d. <u>No</u>	c) Whole house fan	<u>No</u>
		d) Multizone cooling credit	<u> </u>
		e) Multizone heating credit	<u> </u>
		f) Programmable thermostat	<u>Yes</u>

*Label required by Section R303.1.3 of the Florida Building Code, Energy Conservation, if not DEFAULT.

I certify that this home has complied with the Florida Building Code, Energy Conservation, through the above energy saving features which will be installed (or exceeded) in this home before final inspection. Otherwise, a new EPL display card will be completed based on installed code compliant features.

Builder Signature: Date: 1/30/2019Address of New Home: Shore Dr E.City/FL Zip: Oldsmar, FL34677

FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION

Florida Department of Business and Professional Regulation - Residential Performance Method

Project Name: RichardDeebRes

Street: () Shore Dr E, 34677

City, State, Zip: Oldsmar, FL, 34677

Owner:

Design Location: FL, Tampa

Builder Name: Deeb Family Homes

Permit Office: OLDSMAR

Permit Number:

Jurisdiction: 622400

County: Pinellas (Florida Climate Zone, 2)

1. New construction or existing	New (From Plans)
2. Single family or multiple family	Single-family
3. Number of units, if multiple family	1
4. Number of Bedrooms	4
5. Is this a worst case?	No
6. Conditioned floor area above grade (ft²)	5851
Conditioned floor area below grade (ft²)	0
7. Windows(1052.3 sqft.)	Description Area
a. U-Factor:	Dbl, U=0.65 408.00 ft²
SHGC:	SHGC=0.21
b. U-Factor:	Dbl, U=0.58 270.74 ft²
SHGC:	SHGC=0.24
c. U-Factor:	Dbl, U=0.62 173.01 ft²
SHGC:	SHGC=0.22
d. U-Factor:	other (see details) 200.50 ft²
SHGC:	other (see details)
Area Weighted Average Overhang Depth:	11.579 ft.
Area Weighted Average SHGC:	0.228
8. Floor Types (4318.0 sqft.)	Insulation Area
a. Floor over Garage	R=19.0 3874.00 ft²
b. Slab-On-Grade Edge Insulation	R=0.0 231.00 ft²
c. other (see details)	R= 213.00 ft²
9. Wall Types(6347.8 sqft.)	Insulation Area
a. Frame - Wood, Exterior	R=19.0 5647.80 ft²
b. Frame - Wood, Adjacent	R=13.0 620.67 ft²
c. Concrete Block - Int Insul, Exterior	R=4.1 79.33 ft²
d. N/A	R= ft²
10. Ceiling Types (5022.0 sqft.)	Insulation Area
a. Under Attic (Vented)	R=30.0 4388.00 ft²
b. Knee Wall (Vented)	R=30.0 634.00 ft²
c. N/A	R= ft²
11. Ducts	R ft²
a. Sup: Attic, Ret: Attic, AH: Main	6 679.6
b. Sup: Attic, Ret: Attic, AH: Main	6 185.6
c. Sup: Attic, Ret: Attic, AH: 2nd Floor	6 305
12. Cooling systems	kBtu/hr Efficiency
a. Central Unit	55.0 SEER:15.00
b. Central Unit	18.8 SEER:16.00
c. Central Unit	28.6 SEER:16.00
13. Heating systems	kBtu/hr Efficiency
a. Electric Heat Pump	55.0 HSPF:9.00
b. Electric Heat Pump	16.8 HSPF:9.00
c. Electric Heat Pump	27.8 HSPF:9.00
14. Hot water systems	Cap: 1 gallons EF: 0.820
a. Natural Gas Tankless	
b. Conservation features	
None	
15. Credits	Pstat

Glass/Floor Area: 0.180

Total Proposed Modified Loads: 174.87

Total Baseline Loads: 189.38

PASS

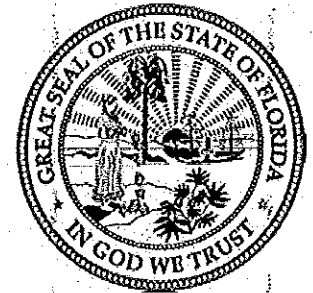
I hereby certify that the plans and specifications covered by this calculation are in compliance with the Florida Energy Code.

PREPARED BY: [Signature]
DATE: 1/22/2019 FRANCISCO FELIU

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

OWNER/AGENT: [Signature]
DATE: 1/30/2019

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.



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 7.00 ACH50 (R402.4.1.2).

INPUT SUMMARY CHECKLIST REPORT

PROJECT													
Title:	RichardDeebRes	Bedrooms:	4	Address Type:	Street Address								
Building Type:	User	Conditioned Area:	5851	Lot #									
Owner Name:		Total Stories:	3	Block/Subdivision:									
# of Units:	1	Worst Case:	No	PlatBook:									
Builder Name:	Deeb Family Homes	Rotate Angle:	0	Street:	Shore Dr								
Permit Office:		Cross Ventilation:	No	County:	Pinellas								
Jurisdiction:	622400	Whole House Fan:	No	City, State, Zip:	Oldsmar , FL ,								
Family Type:	Single-family												
New/Existing:	New (From Plans)												
Comment:													
CLIMATE													
✓	Design Location	TMY Site	Design Temp 97.5 %	2.5 %	Int Design Temp Winter	Summer	Heating Degree Days	Design Moisture	Daily Temp Range				
	FL, Tampa	FL_TAMPA_INTERNATI	39	91	70	75	645.6	54	Medium				
BLOCKS													
	Number	Name	Area	Volume									
	1	Block1	3398	36358.6									
	2	Block2	928	9558.4									
	3	Block3	1525	14182.5									
SPACES													
	Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Infil ID	Finished	Cooled	Heated		
	1	Main	3398	36358.6	Yes	4	1	1	Yes	Yes	Yes		
	2	Master Bedroom	928	9558.4	No	1	1	1	Yes	Yes	Yes		
	3	2nd Floor	1525	14182.5	No	0	2	1	Yes	Yes	Yes		
FLOORS													
✓	#	Floor Type	Space	Perimeter	Perimeter R-Value	Area	Jolst R-Value	Tile	Wood	Carpel			
	1	Raised Floor	2nd Floor	----	----	213 ft²	19	0	0	1			
	2	Floor over Garage	Main	----	----	3874 ft²	19	1	0	0			
	3	Slab-On-Grade Edge Insulatio	Main	8.5 ft		231 ft²	----	0.08	0	0.92			
ROOF													
✓	#	Type	Materials	Roof Area	Gable Area	Roof Color	Rad Barr	Solar Absor.	SA Tested	Emitt Tested	Deck Insul.	Pitch (deg)	
	1	Gable or Shed	Metal	4829 ft²	1082 ft²	Medium	N	0.65	N	0.65	No	0	26.6
ATTIC													
✓	#	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC						
	1	Full attic	Vented	300	4318 ft²	N	N						

INPUT SUMMARY CHECKLIST REPORT

CEILING

✓ #	Ceiling Type	Space	R-Value	Ins Type	Area	Framing Frac	Truss Type
1	Knee Wall (Vented)	Main	30	Batt	598 ft²	0.1	Wood
2	Knee Wall (Vented)	2nd Floor	30	Batt	36 ft²	0.1	Wood
3	Under Attic (Vented)	Main	30	Blown	1916 ft²	0.11	Wood
4	Under Attic (Vented)	Master Bedroom	30	Blown	825 ft²	0.11	Wood
5	Under Attic (Vented)	2nd Floor	30	Blown	1647 ft²	0.11	Wood

WALLS

✓ #	Ornt	Adjacent To	Wall Type	Space	Cavity R-Value	Width Ft	In	Height Ft	In	Area	Sheathing R-Value	Framing Fraction	Solar Absor	Below Grade%
1	N	Exterior	Frame - Wood	Master Bedro	19	16	0	10	8	170.7 ft²	0	0.23	0.6	0
2	N	Exterior	Frame - Wood	Main	19	85	5	10	8	911.1 ft²	0	0.23	0.6	0
3	N	Exterior	Frame - Wood	2nd Floor	19	53	6	9	4	499.3 ft²	0	0.23	0.6	0
4	E	Exterior	Frame - Wood	Main	19	73	2	12	0	878.0 ft²	0	0.23	0.6	0
5	E	Exterior	Frame - Wood	2nd Floor	19	43	0	9	4	401.3 ft²	0	0.23	0.6	0
6	E	Exterior	Concrete Block - Int Insul	Main	4.1	8	6	9	4	79.3 ft²	0	0	0.6	0
7	S	Exterior	Frame - Wood	Master Bedro	19	50	11	10	8	543.1 ft²	0	0.23	0.6	0
8	S	Exterior	Frame - Wood	Main	19	49	5	10	8	527.1 ft²	0	0.23	0.6	0
9	S	Exterior	Frame - Wood	2nd Floor	19	53	6	9	4	499.3 ft²	0	0.23	0.6	0
10	W	Exterior	Frame - Wood	Master Bedro	19	24	7	10	0	245.8 ft²	0	0.23	0.6	0
11	W	Exterior	Frame - Wood	Main	19	53	6	10	8	570.7 ft²	0	0.23	0.6	0
12	W	Exterior	Frame - Wood	2nd Floor	19	43	0	9	4	401.3 ft²	0	0.23	0.6	0
13	-	Garage	Frame - Wood	Main	13	66	6	9	4	620.7 ft²	0	0.23	0.3	0

DOORS

✓ #	Ornt	Door Type	Space	Storms	U-Value	Width Ft	In	Height Ft	In	Area
1	-	Wood	Main	None	.25	3		6	8	20 ft²

WINDOWS

Orientation shown is the entered, Proposed, orientation.

✓ #	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Imp	Area	Overhang Depth	Separation	Int Shade	Screening
1	n	1	Metal	Low-E Double	Yes	0.65	0.21	N	48.0 ft²	37 ft 10 in	2 ft 4 in	None	None
2	n	2	Metal	Low-E Double	Yes	0.58	0.24	N	21.3 ft²	2 ft 6 in	3 ft 0 in	None	None
3	n	2	Metal	Low-E Double	Yes	0.58	0.24	N	23.4 ft²	2 ft 6 in	2 ft 4 in	Drapes/blinds	None
4	n	2	Metal	Low-E Double	Yes	0.49	0.24	N	6.0 ft²	2 ft 6 in	2 ft 4 in	None	None
5	n	3	Metal	Low-E Double	Yes	0.65	0.21	N	48.0 ft²	26 ft 4 in	1 ft 0 in	None	None
6	e	4	Metal	Low-E Double	Yes	0.29	0.27	N	48.0 ft²	2 ft 6 in	2 ft 0 in	None	None
7	e	4	Metal	Low-E Double	Yes	0.62	0.22	N	19.0 ft²	2 ft 6 in	1 ft 8 in	Drapes/blinds	None
8	e	4	Metal	Low-E Double	Yes	0.62	0.22	N	27.6 ft²	2 ft 6 in	1 ft 8 in	Drapes/blinds	None
9	e	4	Metal	Low-E Double	Yes	0.62	0.22	N	110.4 ft²	2 ft 6 in	2 ft 4 in	Drapes/blinds	None
10	e	5	Metal	Low-E Double	Yes	0.29	0.27	N	40.0 ft²	7 ft 6 in	0 ft 6 in	None	None
11	e	5	Metal	Low-E Double	Yes	0.62	0.22	N	16.0 ft²	2 ft 6 in	0 ft 6 in	None	None
12	s	7	Metal	Low-E Double	Yes	0.58	0.24	N	9.2 ft²	2 ft 6 in	2 ft 6 in	Drapes/blinds	None
13	s	7	Metal	Low-E Double	Yes	0.49	0.24	N	5.0 ft²	2 ft 6 in	2 ft 6 in	None	None

INPUT SUMMARY CHECKLIST REPORT

WINDOWS

Orientation shown is the entered, Proposed orientation.

✓	#	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Imp	Area	Overhang Depth	Separation	Int Shade	Screening
✓	14	s	7	Metal	Low-E Double	Yes	0.49	0.24	N	8.0 ft²	2 ft 6 in	2 ft 6 in	None	None
✓	15	s	8	Metal	Low-E Double	Yes	0.65	0.21	N	48.0 ft²	37 ft 10 in	2 ft 4 in	None	None
✓	16	s	8	Metal	Low-E Double	Yes	0.49	0.24	N	25.0 ft²	28 ft 8 in	3 ft 0 in	None	None
✓	17	w	10	Metal	Low-E Double	Yes	0.58	0.24	N	57.8 ft²	2 ft 6 in	2 ft 6 in	None	None
✓	18	w	10	Metal	Low-E Double	Yes	0.49	0.24	N	6.0 ft²	18 ft 4 in	2 ft 10 in	None	None
✓	19	w	11	Metal	Low-E Double	Yes	0.29	0.27	N	20.0 ft²	18 ft 4 in	3 ft 0 in	None	None
✓	20	w	11	Metal	Low-E Double	Yes	0.58	0.24	N	110.4 ft²	2 ft 6 in	2 ft 6 in	Drapes/blinds	None
✓	21	w	11	Metal	Low-E Double	Yes	0.65	0.21	N	120.0 ft²	15 ft 4 in	0 ft 10 in	None	None
✓	22	w	11	Metal	Low-E Double	Yes	0.49	0.24	N	42.5 ft²	10 ft 6 in	3 ft 0 in	None	None
✓	23	w	12	Metal	Low-E Double	Yes	0.58	0.24	N	48.6 ft²	2 ft 6 in	0 ft 6 in	Drapes/blinds	None
✓	24	w	12	Metal	Low-E Double	Yes	0.65	0.21	N	48.0 ft²	15 ft 6 in	0 ft 6 in	None	None
✓	25	w	12	Metal	Low-E Double	Yes	0.65	0.21	N	96.0 ft²	15 ft 6 in	0 ft 6 in	None	None

GARAGE

✓	#	Floor Area	Ceiling Area	Exposed Wall Perimeter	Avg. Wall Height	Exposed Wall Insulation
✓	1	7748 ft²	7748 ft²	319.8 ft	9.3 ft	1

INFILTRATION

#	Scope	Method	SLA	CFM 50	ELA	EqLA	ACH	ACH 50
1	Wholehouse	Proposed ACH(50)	.000457	7011.6	384.93	723.91	.287	7

HEATING SYSTEM

✓	#	System Type	Subtype	Efficiency	Capacity	Block	Ducts
✓	1	Electric Heat Pump/	Split	HSPF:9.0000	55 kBtu/hr	1	sys#1
✓	2	Electric Heat Pump/	None	HSPF:9	16.8 kBtu/hr	2	sys#2
✓	3	Electric Heat Pump/	None	HSPF:9	27.8 kBtu/hr	3	sys#3

COOLING SYSTEM

✓	#	System Type	Subtype	Efficiency	Capacity	Air Flow	SHR	Block	Ducts
✓	1	Central Unit/	Split	SEER: 15	55 kBtu/hr	cfm	0.75	1	sys#1
✓	2	Central Unit/	None	SEER: 16	18.8 kBtu/hr	564 cfm	0.75	2	sys#2
✓	3	Central Unit/	None	SEER: 16	28.6 kBtu/hr	cfm	0.75	3	sys#3

HOT WATER SYSTEM

✓	#	System Type	SubType	Location	EF	Cap	Use	SetPnt	Conservation
✓	1	Natural Gas	Tankless	Exterior	0.82	1 gal	60.9 gal	120 deg	None
✓	2	Natural Gas	Tankless	Exterior	0.82	1 gal	60.9 gal	120 deg	None

INPUT SUMMARY CHECKLIST REPORT

SOLAR HOT WATER SYSTEM

✓	FSEC Cert #	Company Name	System Model #	Collector Model #	Collector Area	Storage Volume	FEF
---	None	None			ft ²		

DUCTS

✓	#	Location	--- Supply --- R-Value	Area	--- Return --- Location	Area	Leakage Type	Air Handler	CFM 25 TOT	CFM25 OUT	QN	RLF	HVAC # Heat	Cool
---	1	Attic	6	679.6 ft	Attic	169.9 ft	Default Leakage	Main	(Default)	(Default)			1	1
---	2	Attic	6	185.6 ft	Attic	46.4 ft ²	Default Leakage	Main	(Default)	(Default)			2	2
---	3	Attic	6	305 ft ²	Attic	76.25 ft	Default Leakage	2nd Floor	(Default)	(Default)			3	3

TEMPERATURES

Programable Thermostat: Y				Ceiling Fans:																				
Cooling	☒	Jan	☒	Feb	☒	Mar	☐	Apr	☐	May	☒	Jun	☒	Jul	☒	Aug	☒	Sep	☐	Oct	☒	Nov	☒	Dec
Heating	☒	Jan	☒	Feb	☒	Mar	☐	Apr	☐	May	☒	Jun	☒	Jul	☒	Aug	☒	Sep	☐	Oct	☒	Nov	☒	Dec
Venting	☒	Jan	☒	Feb	☒	Mar	☒	Apr	☐	May	☒	Jun	☒	Jul	☒	Aug	☒	Sep	☐	Oct	☒	Nov	☒	Dec
Thermostat Schedule: HERS 2006 Reference																								
Schedule Type				1	2	3	4	5	6	7	8	9	10	11	12									
Cooling (WD)	AM	78	78	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	78	78									
Cooling (WEH)	AM	78	78	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	78	78									
Heating (WD)	AM	66	66	66	66	66	66	66	68	68	68	68	68	68	68									
	PM	68	68	68	68	68	68	68	68	68	68	68	68	68	66	66								
Heating (WEH)	AM	66	66	66	66	66	66	66	68	68	68	68	68	68	68									
	PM	68	68	68	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 ft ²	0 ft	0.3	Main
Default(8 lbs/sq.ft.	0 ft ²	0 ft	0.3	Master Bedroom
Default(8 lbs/sq.ft.	0 ft ²	0 ft	0.3	2nd Floor



Manual S Compliance Report ahu1

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res

Date: 1/22/2019

By: FJF

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

Project Information

For: Deeb Family Homes

Cooling Equipment

Design Conditions

Outdoor design DB: 91.4°F
Outdoor design WB: 77.2°F
Indoor design DB: 75.0°F
Indoor RH: 50%

Sensible gain: 43863 Btuh
Latent gain: 7646 Btuh
Total gain: 51509 Btuh
Estimated airflow: 1833 cfm

Entering coil DB: 78.2°F
Entering coil WB: 64.1°F

Manufacturer's Performance Data at Actual Design Conditions

Equipment type: Split ASHP
Manufacturer: Trane Model: 4TWR6060H1+TEM6A0D60H51++TDR
Actual airflow: 1833 cfm
Sensible capacity: 47608 Btuh 109% of load
Latent capacity: 8115 Btuh 106% of load
Total capacity: 55724 Btuh 108% of load SHR: 85%

Heating Equipment

Design Conditions

Outdoor design DB: 42.9°F
Indoor design DB: 70.0°F

Heat loss: 35677 Btuh

Entering coil DB: 69.0°F

Manufacturer's Performance Data at Actual Design Conditions

Equipment type: Split ASHP
Manufacturer: Trane Model: 4TWR6060H1+TEM6A0D60H51++TDR
Actual airflow: 1833 cfm
Output capacity: 52320 Btuh 147% of load
Supplemental heat required: 0 Btuh

Capacity balance: 32 °F
Economic balance: -99 °F

Backup equipment type: Elec strip

Manufacturer: Model:
Actual airflow: 1833 cfm
Output capacity: 10.4 kW 100% of load Temp. rise: 50 °F

Meets all requirements of ACCA Manual S.



wrightsoft®
A BENTLEY SYSTEMS COMPANY

Right-Suite® Universal 2018 18.0.31 RSU24019

...ebFamilyHomes\RichardDeebRes\RichardDeebRes.rup Calc = MJ8 House faces: E

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Manual S Compliance Report ahu2

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res
Date: 1/22/2019
By: FJF

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

Project Information

For: Deeb Family Homes

Cooling Equipment

Design Conditions

Outdoor design DB:	91.4°F	Sensible gain:	12206	Btuh	Entering coil DB:	77.7°F
Outdoor design WB:	77.2°F	Latent gain:	2330	Btuh	Entering coil WB:	63.9°F
Indoor design DB:	75.0°F	Total gain:	14535	Btuh		
Indoor RH:	50%	Estimated airflow:	627	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Trane	Model:	4TWR6018H1+TEM6A0B24H21++TDR
Actual airflow:	627	cfm	
Sensible capacity:	15632	Btuh	128% of load
Latent capacity:	3106	Btuh	133% of load
Total capacity:	18738	Btuh	129% of load SHR: 83%

Heating Equipment

Design Conditions

Outdoor design DB:	42.9°F	Heat loss:	9741	Btuh	Entering coil DB:	69.2°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Trane	Model:	4TWR6018H1+TEM6A0B24H21++TDR
Actual airflow:	627	cfm	
Output capacity:	15507	Btuh	159% of load
Supplemental heat required:	0	Btuh	
			Capacity balance: 30 °F
			Economic balance: -99 °F

Meets all requirements of ACCA Manual S.



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Manual S Compliance Report ahu3

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res
Date: 1/22/2019
By: FJF

631 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

Project Information

For: Deeb Family Homes

Cooling Equipment

Design Conditions

Outdoor design DB:	91.4°F	Sensible gain:	23682	Btuh	Entering coil DB:	77.9°F
Outdoor design WB:	77.2°F	Latent gain:	3787	Btuh	Entering coil WB:	64.0°F
Indoor design DB:	75.0°F	Total gain:	27469	Btuh		
Indoor RH:	50%	Estimated airflow:	953	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Trane	Model:	4TWR6030H1+TEM6A0B30H21++TDR
Actual airflow:	953	cfm	
Sensible capacity:	24004	Btuh	101% of load
Latent capacity:	4099	Btuh	108% of load
Total capacity:	28103	Btuh	102% of load SHR: 85%

Heating Equipment

Design Conditions

Outdoor design DB:	42.9°F	Heat loss:	16565	Btuh	Entering coil DB:	69.1°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Trane	Model:	4TWR6030H1+TEM6A0B30H21++TDR
Actual airflow:	953	cfm	
Output capacity:	25816	Btuh	156% of load
Supplemental heat required:	0	Btuh	
			Capacity balance: 29 °F
			Economic balance: -99 °F

Backup equipment type:	Elec strip		
Manufacturer:		Model:	
Actual airflow:	953	cfm	
Output capacity:	4.8	kW	99% of load Temp. rise: 50 °F

Meets all requirements of ACCA Manual S.



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Component Constructions Entire House

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res
Date: 1/22/2019
By: FJF

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

Project Information

For: Deeb Family Homes

Design Conditions

Location:		Indoor:		Heating	Cooling
Tampa Intl AP, FL, US		Indoor temperature (°F)		70	75
Elevation: 10 ft		Design TD (°F)		27	16
Latitude: 28°N		Relative humidity (%)		30	50
		Moisture difference (gr/lb)		0.0	53.9
Outdoor:	Heating	Cooling	Infiltration:		
Dry bulb (°F)	43	91	Method		
Daily range (°F)	-	14 (L)	Construction quality		
Wet bulb (°F)	-	77	Simplified Average		
Wind speed (mph)	15.0	7.5	Fireplaces		

Construction descriptions	Or	Area ft²	U-value Btu/h/ft²·°F	Insul R ft²·°F/Btu/h	Htg HTM Btu/h/ft²	Loss Ctg HTM Btu/h	Clg HTM Btu/h/ft²	Gain Btu/h
Walls								
12E-0sw: Frm wall, stucco ext, r-19 cav ins, 1/2" gypsum board int	n	1438	0.068	19.0	1.84	2650	1.49	2136
fnsh, 2"x6" wood frm, 16" o.c. stud	e	1018	0.068	19.0	1.84	1875	1.49	1512
	s	1477	0.068	19.0	1.84	2723	1.49	2195
	w	671	0.068	19.0	1.84	1236	1.49	997
	all	4604	0.068	19.0	1.84	8484	1.49	6840
16B-30md: Knee wall, mil roof mat, r-30 kw ins, 1/2" gypsum board int	n	589	0.032	30.0	0.87	511	1.74	1026
fnsh	n	38	0.032	30.0	0.87	33	1.74	66
	all	627	0.032	30.0	0.87	544	1.74	1092
13A-2ocs: Blk wall, stucco ext, r-2 ext bd ins, 8" thk, 1/2" gypsum board int fnsh	e	79	0.201	0	5.45	432	4.39	348
Partitions								
12C-0sw: Frm wall, 1/2" gyp.bd ext, r-13 cav ins, 1/2" gypsum board int fnsh, 2"x4" wood frm, 16" o.c. stud		600	0.091	13.0	2.47	1481	1.46	877
Windows								
10C-m: 2 glazing, clr outr, air gas, mil no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 2.5 ft overhang (8 ft window ht, 3 ft sep.); 6.67 ft head ht	n	21	0.580	0	15.7	335	10.2	217
2A-2om: 2 glazing, clr outr, air gas, mil no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 50% drapes, medium; 2.5 ft overhang (5.3 ft window ht, 2.33 ft sep.); 6.67 ft head ht	n	23	0.580	0	15.7	368	13.1	307
2A-2omd: 2 glazing, clr outr, air gas, mil no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.21); 26.33 ft overhang (8 ft window ht, 1 ft sep.); 6.67 ft head ht	n	48	0.650	0	17.6	846	15.1	723
2A-2omd: 2 glazing, clr outr, air gas, mil no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.21); 37.83 ft overhang (8 ft window ht, 2.33 ft sep.); 6.67 ft head ht	n	48	0.650	0	17.6	846	15.1	723
	s	48	0.650	0	17.6	846	15.1	723
	all	96	0.650	0	17.6	1691	15.1	1446
2B-2fm: 2 glazing, clr outr, air gas, mil no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 2.5 ft overhang (2 ft window ht, 2.33 ft sep.); 6.67 ft head ht	n	6	0.490	0	13.3	80	13.1	78



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10C-m: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.27); 2.5 ft overhang (8 ft window ht, 2 ft sep.); 6.67 ft head ht	e	48	0.290	0	7.86	377	21.4	1025
10C-m: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.27); 7.5 ft overhang (8 ft window ht, 0.5 ft sep.); 6.67 ft head ht	e	40	0.290	0	7.86	314	11.3	453
2A-2om: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.22); 50% drapes, medium; 2.5 ft overhang (4.3 ft window ht, 1.67 ft sep.); 6.67 ft head ht	e	19	0.620	0	16.8	319	26.2	487
2A-2om: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.22); 50% drapes, medium; 2.5 ft overhang (6.25 ft window ht, 1.67 ft sep.); 6.67 ft head ht	e	28	0.620	0	16.8	464	26.6	734
2A-2om: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.22); 50% drapes, medium; 2.5 ft overhang (6.25 ft window ht, 2.33 ft sep.); 6.67 ft head ht	e	110	0.620	0	16.8	1855	27.5	3036
2B-2fm: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.22); 2.5 ft overhang (2 ft window ht, 0.5 ft sep.); 6.67 ft head ht	e	16	0.620	0	16.8	269	18.3	293
2A-2om: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 50% drapes, medium; 2.5 ft overhang (4.25 ft window ht, 2.5 ft sep.); 6.67 ft head ht	s	9	0.580	0	15.7	145	13.1	121
2B-2fm: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 2.5 ft overhang (2 ft window ht, 2.5 ft sep.); 6.67 ft head ht	s	8	0.490	0	13.3	106	13.1	105
2B-2fm: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 3 ft overhang (2 ft window ht, 2.5 ft sep.); 6.67 ft head ht	s	5	0.490	0	13.3	66	13.1	65
2B-2fm: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 28.67 ft overhang (5 ft window ht, 3 ft sep.); 6.67 ft head ht	s	25	0.490	0	13.3	332	13.1	327
10C-m: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.27); 18.33 ft overhang (8 ft window ht, 3 ft sep.); 6.67 ft head ht	w	20	0.290	0	7.86	157	7.29	146
2A-2om: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 2.5 ft overhang (6.25 ft window ht, 2.5 ft sep.); 6.67 ft head ht	w	58	0.580	0	15.7	909	32.6	1863
2A-2om: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 50% drapes, medium; 2.5 ft overhang (5.25 ft window ht, 0.5 ft sep.); 6.67 ft head ht	w	49	0.580	0	15.7	763	23.8	1157
2A-2om: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 50% drapes, medium; 2.5 ft overhang (6.25 ft window ht, 2.5 ft sep.); 6.67 ft head ht	w	110	0.580	0	15.7	1736	28.4	3138
2A-2omd: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.21); 15.5 ft overhang (8 ft window ht, 0.5 ft sep.); 6.67 ft head ht	w	48	0.650	0	17.6	846	15.1	723
	w	96	0.650	0	17.6	1691	15.1	1446
	all	144	0.650	0	17.6	2537	15.1	2169
2A-2omd: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.21); 15.33 ft overhang (10 ft window ht, 0.83 ft sep.); 6.67 ft head ht	w	120	0.650	0	17.6	2114	15.1	1808
2B-2fm: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 18.33 ft overhang (2 ft window ht, 2.83 ft sep.); 6.67 ft head ht	w	6	0.490	0	13.3	80	13.1	78
2B-2fm: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 10.5 ft overhang (5 ft window ht, 3 ft sep.); 6.67 ft head ht	w	43	0.490	0	13.3	564	13.1	555
Doors								
11D0: Door, wd sc type	n	20	0.390	0	10.6	212	12.1	243
Ceilings								
16B-30md: Attic ceiling, mtl roof mat, r-30 ceil ins, 1/2" gypsum board int fnsh		4388	0.032	30.0	0.87	3805	1.74	7645

Floors

20P-19t: Flr floor, frm flr, 12" thkns, r-19 cav ins, amb ovr
 20P-19t: Flr floor, frm flr, 12" thkns, r-19 cav ins, gar ovr
 22A-1pl: Bg floor, light dry soil, on grade depth

213	0.050	19.0	1.35	289	0.72	154
3939	0.050	19.0	1.36	5338	0.72	2846
9	0.989	0	28.8	228	0	0



Component Constructions ahu2

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res
Date: 1/22/2019
By: FJF

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

Project Information

For: Deeb Family Homes

Design Conditions

Location:		Indoor:		Heating	Cooling
Tampa Intl AP, FL, US		Indoor temperature (°F)		70	75
Elevation: 10 ft		Design TD (°F)		27	16
Latitude: 28°N		Relative humidity (%)		30	50
		Moisture difference (gr/lb)		0.0	53.9
Outdoor:	Heating	Cooling	Infiltration:		
Dry bulb (°F)	43	91	Method	Simplified	
Daily range (°F)	-	14 (L)	Construction quality	Average	
Wet bulb (°F)	-	77	Fireplaces	0	
Wind speed (mph)	15.0	7.5			

Construction descriptions

	Or	Area ft²	U-value Btu/h·ft²·°F	Insul R ft²·°F/Btu	Htg HTM Btu/h·ft²	Loss Ctg HTM Btu/h·ft²	Ga/n Btu/h
Walls							
12E-0sw: Frm wall, stucco ext, r-19 cav ins, 1/2" gypsum board int	n	123	0.068	19.0	1.84	227	183
fnsh, 2"x8" wood frm, 16" o.c. stud	s	523	0.068	19.0	1.84	963	777
	w	182	0.068	19.0	1.84	336	271
	all	828	0.068	19.0	1.84	1527	1231
16B-30md: Knee wall, mtl roof mat, r-30 kw ins, 1/2" gypsum board int	n	93	0.032	30.0	0.87	81	162
fnsh							

Partitions (none)

Windows

2A-2omd: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.21); 37.83 ft overhang (8 ft window ht, 2.33 ft sep.); 6.67 ft head ht	n	48	0.650	0	17.6	846	15.1	723
2A-2om: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 50% drapes, medium; 2.5 ft overhang (4.25 ft window ht, 2.5 ft sep.); 6.67 ft head ht	s	9	0.580	0	15.7	145	13.1	121
2B-2fm: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 2.5 ft overhang (2 ft window ht, 2.5 ft sep.); 6.67 ft head ht	s	8	0.490	0	13.3	106	13.1	105
2B-2fm: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 3 ft overhang (2 ft window ht, 2.5 ft sep.); 6.67 ft head ht	s	5	0.490	0	13.3	66	13.1	65
2A-2om: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 2.5 ft overhang (6.25 ft window ht, 2.5 ft sep.); 6.67 ft head ht	w	58	0.580	0	15.7	909	32.6	1883
2B-2fm: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 18.33 ft overhang (2 ft window ht, 2.83 ft sep.); 6.67 ft head ht	w	6	0.490	0	13.3	80	13.1	78

Doors (none)



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Ceilings16B-30md: Attic ceiling, mtl roof mat, r-30 ceil ins, 1/2" gypsum board
int fnsh

825 0.032 30.0 0.87 715 1.74 1437

Floors

20P-19t: Flr floor, frm flr, 12" thkns, r-19 cav ins, gar ovr

928 0.050 19.0 1.35 1258 0.72 671

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Component Constructions ahu1

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res
Date: 1/22/2019
By: FJF

631 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

Project Information

For: Deeb Family Homes

Design Conditions

Location: Tampa Intl AP, FL, US Elevation: 10 ft Latitude: 28°N			Indoor: Indoor temperature (°F) 70 Design TD (°F) 27 Relative humidity (%) 30 Moisture difference (gr/lb) 0.0	Heating 70 27 30 0.0	Cooling 75 16 50 53.9
Outdoor: Dry bulb (°F) 43 Daily range (°F) - Wet bulb (°F) 77 Wind speed (mph) 15.0	Heating 43	Cooling 91	Infiltration: Method 14 (L) Construction quality 77 Fireplaces 7.5	Simplified Average 0	

Construction descriptions

Construction descriptions	Or	Area ft²	U-value Btu/h/ft²-°F	Insul R ft²-°F/Btu	Htg HTM Btu/h/ft²	Loss Ctg HTM Btu/h	Clg HTM Btu/h/ft²	Gain Btu/h
Walls								
12E-0sw: Frm wall, stucco ext, r-19 cav ins, 1/2" gypsum board int fnsh, 2"x8" wood frm, 16" o.c. stud	n	864	0.068	19.0	1.84	1591	1.49	1283
	e	672	0.068	19.0	1.84	1239	1.49	999
	s	456	0.068	19.0	1.84	839	1.49	677
	w	280	0.068	19.0	1.84	515	1.49	416
	all	2271	0.068	19.0	1.84	4185	1.49	3375
16B-30md: Knee wall, mtl roof mat, r-30 kw ins, 1/2" gypsum board int fnsh	n	387	0.032	30.0	0.87	336	1.74	674
13A-2ocs: Blk wall, stucco ext, r-2 ext bd ins, 8" thk, 1/2" gypsum board int fnsh	e	79	0.201	0	5.45	432	4.39	348
Partitions								
12C-0sw: Frm wall, 1/2" gyp.bd ext, r-13 cav ins, 1/2" gypsum board int fnsh, 2"x4" wood frm, 16" o.c. stud		600	0.091	13.0	2.47	1481	1.46	877
Windows								
10C-m: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 2.5 ft overhang (8 ft window ht, 3 ft sep.); 6.67 ft head ht	n	21	0.580	0	15.7	335	10.2	217
2A-2om: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 50% drapes, medium; 2.5 ft overhang (5.3 ft window ht, 2.33 ft sep.); 6.67 ft head ht	n	23	0.580	0	15.7	368	13.1	307
2A-2omd: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.21); 37.83 ft overhang (8 ft window ht, 2.33 ft sep.); 6.67 ft head ht	s	48	0.650	0	17.6	846	15.1	723
2B-2fm: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 2.5 ft overhang (2 ft window ht, 2.33 ft sep.); 6.67 ft head ht	n	6	0.490	0	13.3	80	13.1	78
10C-m: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.27); 2.5 ft overhang (8 ft window ht, 2 ft sep.); 6.67 ft head ht	e	48	0.290	0	7.86	377	21.4	1025



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2A-20m: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.22); 50% drapes, medium; 2.5 ft overhang (4.3 ft window ht, 1.67 ft sep.); 6.67 ft head ht	e	19	0.620	0	16.8	319	26.2	497
2A-20m: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.22); 50% drapes, medium; 2.5 ft overhang (6.25 ft window ht, 1.67 ft sep.); 6.67 ft head ht	e	28	0.620	0	16.8	464	26.6	734
2A-20m: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.22); 50% drapes, medium; 2.5 ft overhang (6.25 ft window ht, 2.33 ft sep.); 6.67 ft head ht	e	110	0.620	0	16.8	1855	27.5	3036
2B-2fm: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 28.67 ft overhang (5 ft window ht, 3 ft sep.); 6.67 ft head ht	s	25	0.490	0	13.3	332	13.1	327
10C-m: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.27); 18.33 ft overhang (8 ft window ht, 3 ft sep.); 6.67 ft head ht	w	20	0.290	0	7.86	157	7.29	146
2A-20m: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 50% drapes, medium; 2.5 ft overhang (6.25 ft window ht, 2.5 ft sep.); 6.67 ft head ht	w	110	0.580	0	15.7	1736	28.4	3138
2A-20md: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.21); 15.33 ft overhang (10 ft window ht, 0.83 ft sep.); 6.67 ft head ht	w	120	0.650	0	17.6	2114	15.1	1808
2B-2fm: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 10.5 ft overhang (5 ft window ht, 3 ft sep.); 6.67 ft head ht	w	43	0.490	0	13.3	564	13.1	555
Doors								
11D0: Door, wd sc type	n	20	0.390	0	10.6	212	12.1	243
Ceilings								
16B-30md: Attic ceiling, mtl roof mat, r-30 cell ins, 1/2" gypsum board int fnsh		1916	0.032	30.0	0.87	1661	1.74	3338
Floors								
20P-19t: Flr floor, frm flr, 12" thkns, r-19 cav ins, gar ovr		3011	0.050	19.0	1.35	4080	0.72	2176
22A-tp1: Bg floor, light dry soll, on grade depth		9	0.989	0	26.8	228	0	0



Component Constructions ahu3

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res

Date: 1/22/2019

By: FJF

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

Project Information

For: Deeb Family Homes

Design Conditions

Location:		Indoor:		Heating	Cooling
Tampa Intl AP, FL, US		Indoor temperature (°F)		70	75
Elevation: 10 ft		Design TD (°F)		27	16
Latitude: 28°N		Relative humidity (%)		30	50
Outdoor:		Moisture difference (gr/lb)		0.0	53.9
Heating	Dry bulb (°F)	43	91	Infiltration:	
	Daily range (°F)	-	14 (L)		
	Wet bulb (°F)	-	77		
	Wind speed (mph)	15.0	7.5		
		Method		Simplified	
		Construction quality		Average	
		Fireplaces		0	

Construction descriptions

	Or	Area ft²	U-value Btu/h·ft²·°F	Insul R ft²·°F/Btu	Htg HTM Btu/h·ft²	Loss Ctg HTM Btu/h·ft²	Gain Btu/h
Walls							
12E-0sw: Frm wall, stucco ext, r-19 cav ins, 1/2" gypsum board int fnsh, 2"x6" wood frm, 16" o.c. stud	n	451	0.068	19.0	1.84	831	670
	e	345	0.068	19.0	1.84	636	513
	s	499	0.068	19.0	1.84	920	742
	w	209	0.068	19.0	1.84	384	310
	all	1504	0.068	19.0	1.84	2772	2235
16B-30md: Knee wall, mtl roof mat, r-30 kw ins, 1/2" gypsum board int fnsh	n	109	0.032	30.0	0.87	95	190
	n	38	0.032	30.0	0.87	33	66
	all	147	0.032	30.0	0.87	127	256

Partitions (none)

Windows

2A-2omd: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.21); 26.33 ft overhang (8 ft window ht, 1 ft sep.); 6.67 ft head ht	n	48	0.650	0	17.6	846	15.1	723
10C-m: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.27); 7.5 ft overhang (8 ft window ht, 0.5 ft sep.); 6.67 ft head ht	e	40	0.290	0	7.86	314	11.3	453
2B-2fm: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.22); 2.5 ft overhang (2 ft window ht, 0.5 ft sep.); 6.67 ft head ht	e	16	0.620	0	16.8	269	18.3	293
2A-2om: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.24); 50% drapes, medium; 2.5 ft overhang (5.25 ft window ht, 0.5 ft sep.); 6.67 ft head ht	w	49	0.580	0	15.7	763	23.8	1157
2A-2omd: 2 glazing, clr outr, air gas, mtl no brk frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.21); 15.5 ft overhang (8 ft window ht, 0.5 ft sep.); 6.67 ft head ht	w	48	0.650	0	17.6	846	15.1	723
	w	96	0.650	0	17.6	1691	15.1	1446
	all	144	0.650	0	17.6	2537	15.1	2169

Doors (none)



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Ceilings16B-30md: Attic ceiling, mtl roof mat, r-30 cell ins, 1/2" gypsum board
int fnsh

1647 0.032 30.0 0.87 1428 1.74 2870

Floors

20P-19t: Flr floor, frm flr, 12" thkns, r-19 cav ins, amb ovr

213 0.050 19.0 1.35 289 0.72 154

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Project Summary
Entire House
DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res
Date: 1/22/2019
By: FJF

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

Project Information

For: Deeb Family Homes

Notes:

Design Information

Weather: Tampa Intl AP, FL, US

Winter Design Conditions

Outside db 43 °F
Inside db 70 °F
Design TD 27 °F

Summer Design Conditions

Outside db 91 °F
Inside db 75 °F
Design TD 16 °F
Daily range L
Relative humidity 50 %
Moisture difference 54 gr/lb

Heating Summary

Structure 48642 Btuh
Ducts 13341 Btuh
Central vent (0 cfm) 0 Btuh

Humidification 0 Btuh
Piping 0 Btuh
Equipment load 61983 Btuh

Sensible Cooling Equipment Load Sizing

Structure 56674 Btuh
Ducts 23075 Btuh
Central vent (0 cfm) 0 Btuh

Blower 0 Btuh

Use manufacturer's data y
Rate/swing multiplier 1.00
Equipment sensible load 79750 Btuh

Infiltration

Method Simplified
Construction quality Average
Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 8197 Btuh
Ducts 5566 Btuh
Central vent (0 cfm) 0 Btuh

Equipment latent load 13763 Btuh

Equipment Total Load (Sen+Lat) 93512 Btuh
Req. total capacity at 0.70 SHR 9.5 ton

	Heating	Cooling
Area (ft ²)	5851	5851
Volume (ft ³)	62056	62056
Air changes/hour	0.37	0.19
Equiv. AVF (cfm)	383	197

Heating Equipment Summary

Make n/a
Trade n/a
Model n/a
AHRI ref. n/a

Efficiency n/a
Heating input 0 Btuh
Heating output 0 °F
Temperature rise 0 cfm
Actual air flow 0 cfm/Btuh
Air flow factor 0 in H₂O
Static pressure n/a
Space thermostat n/a

Cooling Equipment Summary

Make n/a
Trade n/a
Cond n/a
Coil n/a
AHRI ref. n/a
Efficiency n/a
Sensible cooling 0 Btuh
Latent cooling 0 Btuh
Total cooling 0 Btuh
Actual air flow 0 cfm
Air flow factor 0 cfm/Btuh
Static pressure 0 in H₂O
Load sensible heat ratio 0

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



Project Summary ahu1

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res
Date: 1/22/2019
By: FJF

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

Project Information

For: Deeb Family Homes

Notes:

Design Information

Weather: Tampa Intl AP, FL, US

Winter Design Conditions

Outside db	43 °F
Inside db	70 °F
Design TD	27 °F

Summer Design Conditions

Outside db	91 °F
Inside db	75 °F
Design TD	16 °F
Daily range	L
Relative humidity	50 %
Moisture difference	54 gr/lb

Heating Summary

Structure	28183 Btuh
Ducts	7495 Btuh
Central vent (0 cfm) (none)	0 Btuh
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	35677 Btuh

Sensible Cooling Equipment Load Sizing

Structure	30815 Btuh
Ducts	13047 Btuh
Central vent (0 cfm) (none)	0 Btuh
Blower	0 Btuh

Use manufacturer's data	y
Rate/swing multiplier	1.00
Equipment sensible load	43863 Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

	Heating	Cooling
Area (ft ²)	3398	3398
Volume (ft ³)	37160	37160
Air changes/hour	0.33	0.17
Equiv. AVF (cfm)	202	104

Latent Cooling Equipment Load Sizing

Structure	4600 Btuh
Ducts	3046 Btuh
Central vent (0 cfm) (none)	0 Btuh
Equipment latent load	7646 Btuh

Equipment Total Load (Sen+Lat)	51509 Btuh
Req. total capacity at 0.70 SHR	5.2 ton

Heating Equipment Summary

Make	Trane
Trade	TRANE
Model	4TWR6060H1
AHRI ref	7563852

Efficiency	9 HSPF
Heating input	
Heating output	55000 Btuh @ 47°F
Temperature rise	27 °F
Actual air flow	1833 cfm
Air flow factor	0.051 cfm/Btuh
Static pressure	0.25 in H2O
Space thermostat	
Capacity balance point = 32 °F	

Backup:
Input = 10 kW, Output = 35515 Btuh, 100 AFUE

Cooling Equipment Summary

Make	Trane
Trade	TRANE
Cond	4TWR6060H1
Coil	TEM6A0D60H51++TDR
AHRI ref	7563852
Efficiency	12.5 EER, 15 SEER
Sensible cooling	38500 Btuh
Latent cooling	16500 Btuh
Total cooling	55000 Btuh
Actual air flow	1833 cfm
Air flow factor	0.042 cfm/Btuh
Static pressure	0.25 in H2O
Load sensible heat ratio	0.85

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Project Summary ahu2

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res
Date: 1/22/2019
By: FJF

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

Project Information

For: Deeb Family Homes

Notes:

Design Information

Weather: Tampa Intl AP, FL, US

Winter Design Conditions

Outside db	43 °F
Inside db	70 °F
Design TD	27 °F

Summer Design Conditions

Outside db	91 °F
Inside db	75 °F
Design TD	16 °F
Daily range	L
Relative humidity	50 %
Moisture difference	54 gr/lb

Heating Summary

Structure	7623 Btuh
Ducts	2118 Btuh
Central vent (0 cfm) (none)	0 Btuh
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	9741 Btuh

Sensible Cooling Equipment Load Sizing

Structure	8508 Btuh
Ducts	3697 Btuh
Central vent (0 cfm) (none)	0 Btuh
Blower	0 Btuh
Use manufacturer's data	y
Rate/swing multiplier	1.00
Equipment sensible load	12206 Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

Latent Cooling Equipment Load Sizing

Structure	1394 Btuh
Ducts	936 Btuh
Central vent (0 cfm) (none)	0 Btuh
Equipment latent load	2330 Btuh

	Heating	Cooling
Area (ft ²)	928	928
Volume (ft ³)	9530	9530
Air changes/hour	0.40	0.21
Equiv. AVF (cfm)	63	33

Equipment Total Load (Sen+Lat)	14535 Btuh
Req. total capacity at 0.75 SHR	1.4 ton

Heating Equipment Summary

Make	Trane
Trade	TRANE
Model	4TWR6018H1
AHRI ref	8937191
Efficiency	9 HSPF
Heating input	16800 Btuh @ 47°F
Heating output	24 °F
Temperature rise	627 cfm
Actual air flow	0.064 cfm/Btuh
Air flow factor	0.38 in H2O
Static pressure	
Space thermostat	
Capacity balance point = 30 °F	
Backup:	
Input = 10 kW, Output = 35515 Btuh, 100 AFUE	

Cooling Equipment Summary

Make	Trane
Trade	TRANE
Cond	4TWR6018H1
Coil	TEM6A0B24H21++TDR
AHRI ref	8937191
Efficiency	12.5 EER, 16 SEER
Sensible cooling	14100 Btuh
Latent cooling	4700 Btuh
Total cooling	18800 Btuh
Actual air flow	627 cfm
Air flow factor	0.051 cfm/Btuh
Static pressure	0.38 in H2O
Load sensible heat ratio	0.84

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



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Project Summary ahu3

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res
Date: 1/22/2019
By: FJF

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

Project Information

For: Deeb Family Homes

Notes:

Design Information

Weather: Tampa Intl AP, FL, US

Winter Design Conditions

Outside db	43 °F
Inside db	70 °F
Design TD	27 °F

Summer Design Conditions

Outside db	91 °F
Inside db	75 °F
Design TD	16 °F
Daily range	L
Relative humidity	50 %
Moisture difference	54 gr/lb

Heating Summary

Structure	12836 Btuh
Ducts	3729 Btuh
Central vent (0 cfm) (none)	0 Btuh
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	16565 Btuh

Sensible Cooling Equipment Load Sizing

Structure	17351 Btuh
Ducts	6331 Btuh
Central vent (0 cfm) (none)	0 Btuh
Blower	0 Btuh
Use manufacturer's data	y
Rate/swing multiplier	1.00
Equipment sensible load	23682 Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

Latent Cooling Equipment Load Sizing

Structure	2203 Btuh
Ducts	1584 Btuh
Central vent (0 cfm) (none)	0 Btuh
Equipment latent load	3787 Btuh

	Heating	Cooling
Area (ft²)	1525	1525
Volume (ft³)	15367	15367
Air changes/hour	0.46	0.23
Equiv. AVF (cfm)	117	60

Equipment Total Load (Sen+Lat)	27469 Btuh
Req. total capacity at 0.75 SHR	2.6 ton

Heating Equipment Summary

Make	Trane
Trade	TRANE
Model	4TWR6030H1
AHRI ref	7562380
Efficiency	9 HSPF
Heating input	
Heating output	27800 Btuh @ 47°F
Temperature rise	27 °F
Actual air flow	953 cfm
Air flow factor	0.058 cfm/Btuh
Static pressure	0.44 in H2O
Space thermostat	
Capacity balance point = 29 °F	
Backup:	
Input = 5 kW, Output = 16375 Btuh, 100 AFUE	

Cooling Equipment Summary

Make	Trane
Trade	TRANE
Cond	4TWR6030H1
Coil	TEM6A0B30H21++TDR
AHRI ref	7562380
Efficiency	13.0 EER, 16 SEER
Sensible cooling	21450 Btuh
Latent cooling	7150 Btuh
Total cooling	28600 Btuh
Actual air flow	953 cfm
Air flow factor	0.040 cfm/Btuh
Static pressure	0.44 in H2O
Load sensible heat ratio	0.86

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



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Right-J® Worksheet Entire House DEL-AIR HEATING & AIR CONDITIONING

 Job: Richard Deeb Res
 Date: 1/22/2019
 By: FJF

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

1	Room name				Entire House				ahu1					
2	Exposed wall				556.4 ft				270.9 ft					
3	Room height				10.2 ft				10.7 ft					
4	Room dimensions				6056.8 ft ²				3481.6 ft ²					
5	Room area													
	Ty	Construction number	U-value (Btuh/ft ² ·°F)	Or	HTM (Btuh/ft ²)		Area (ft ²) or perimeter (ft)		Load (Btuh)		Area (ft ²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	1.84	1.49	1585	1438	2650	2136	914	864	1591	1283
11	G	10C-m	0.580	n	15.72	10.18	21	0	335	217	21	0	335	217
	G	2A-2om	0.580	n	15.72	13.10	23	0	368	307	23	0	368	307
	G	2A-2omd	0.650	n	17.61	15.06	48	0	846	723	0	0	0	0
	G	2A-2omd	0.650	n	17.61	15.06	48	0	846	723	0	0	0	0
	G	2B-2fm	0.490	n	13.28	13.07	6	0	80	78	6	0	80	78
	W	16B-30md	0.032	n	0.87	1.74	589	589	511	1026	387	387	336	674
	W	16B-30md	0.032	n	0.87	1.74	38	38	33	66	0	0	0	0
	W	12E-0sw	0.068	e	1.84	1.49	1279	1018	1875	1512	878	672	1239	999
	G	10C-m	0.290	e	7.86	21.36	48	0	377	1025	48	0	377	1025
	G	10C-m	0.290	e	7.86	11.33	40	29	314	453	0	0	0	0
	G	2A-2om	0.620	e	16.80	26.18	19	2	319	497	19	2	319	497
G	2A-2om	0.620	e	16.80	26.59	28	2	464	734	28	2	464	734	
G	2A-2om	0.620	e	16.80	27.50	110	0	1855	3036	110	0	1855	3036	
G	2B-2fm	0.620	e	16.80	18.29	16	13	269	293	0	0	0	0	
W	13A-2oc	0.201	e	5.45	4.39	79	79	432	348	79	79	432	348	
W	12E-0sw	0.068	s	1.84	1.49	1573	1477	2723	2195	529	456	839	677	
G	2A-2om	0.580	s	15.72	13.10	9	9	145	121	0	0	0	0	
G	2A-2omd	0.650	s	17.61	15.06	48	48	846	723	48	48	846	723	
G	2B-2fm	0.490	s	13.28	13.07	8	8	106	105	0	0	0	0	
G	2B-2fm	0.490	s	13.28	13.07	5	5	66	65	0	0	0	0	
G	2B-2fm	0.490	s	13.28	13.07	25	25	332	327	25	25	332	327	
W	12E-0sw	0.068	w	1.84	1.49	1220	671	1236	997	573	280	515	416	
G	10C-m	0.290	w	7.86	7.29	20	20	157	146	20	20	157	146	
G	2A-2om	0.580	w	15.72	32.57	58	0	909	1883	0	0	0	0	
G	2A-2om	0.580	w	15.72	23.82	49	15	763	1157	0	0	0	0	
G	2A-2om	0.580	w	15.72	28.42	110	0	1738	3138	110	0	1736	3138	
G	2A-2omd	0.650	w	17.61	15.06	48	48	846	723	0	0	0	0	
G	2A-2omd	0.650	w	17.61	15.06	96	96	1691	1446	0	0	0	0	
G	2A-2omd	0.650	w	17.61	15.06	120	120	2114	1808	120	120	2114	1808	
G	2B-2fm	0.490	w	13.28	13.07	6	6	80	78	0	0	0	0	
G	2B-2fm	0.490	w	13.28	13.07	43	43	564	555	43	43	564	555	
R	12C-0sw	0.091	-	2.47	1.46	620	600	1481	877	620	600	1481	877	
D	11D0	0.390	n	10.57	12.07	20	20	212	243	20	20	212	243	
C	16B-30md	0.032	-	0.87	1.74	4388	4388	3805	7645	1916	1916	1661	3338	
F	20P-19t	0.050	-	1.35	0.72	213	213	289	154	0	0	0	0	
F	20P-19t	0.050	-	1.35	0.72	3939	3939	5338	2846	3011	3011	4080	2176	
F	22A-1pl	0.989	-	26.80	0.00	235	9	228	0	235	9	228	0	
6	c) AED excursion								4074				1103	
	Envelope loss/gain								37238		44481		22162	
12	a) Infiltration								11404		3544		6021	
	b) Room ventilation								0		0		0	
13	Internal gains:				Occupants @ 230		5		1150		4		920	
					Appliances/other				7500				3300	
	Subtotal (lines 6 to 13)								48642		56674		28183	
	Less external load								0		0		0	
	Less transfer								0		0		0	
	Redistribution								0		0		0	
14	Subtotal								48642		56674		28183	
15	Duct loads						27%		13341		23075		7495	
	Total room load								61983		79750		35677	
	Air required (cfm)								3413		3413		1833	

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



Right-J® Worksheet Entire House

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res

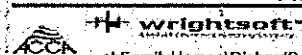
Date: 1/22/2019

By: FJF

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

1 Room name		ahu2				ahu3								
2 Exposed wall		92.5 ft				193.0 ft								
3 Room height		10.3 ft				9.3 ft								
4 Room dimensions		928.1 ft²				1647.0 ft²								
5 Room area														
	Ty	Construction number	U-value (Btu/h/ft²·°F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	1.84	1.49	171	123	227	183	499	451	831	670
11	G	10C-m	0.580	n	15.72	10.18	0	0	0	0	0	0	0	0
	G	2A-2om	0.580	n	15.72	13.10	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	n	17.61	15.06	0	0	0	0	48	0	848	723
	G	2A-2omd	0.650	n	17.61	15.06	48	0	848	723	0	0	0	0
	G	2B-2fm	0.490	n	13.28	13.07	0	0	0	0	0	0	0	0
	W	16B-30md	0.032	n	0.87	1.74	93	93	81	162	109	109	95	190
	W	16B-30md	0.032	n	0.87	1.74	0	0	0	0	38	38	33	66
	W	12E-0sw	0.068	e	1.84	1.49	0	0	0	0	401	345	636	513
	G	10C-m	0.290	e	7.86	21.38	0	0	0	0	0	0	0	0
	G	10C-m	0.290	e	7.86	11.33	0	0	0	0	40	29	314	453
	G	2A-2om	0.620	e	16.80	26.18	0	0	0	0	0	0	0	0
	G	2A-2om	0.620	e	16.80	26.59	0	0	0	0	0	0	0	0
	G	2A-2om	0.620	e	16.80	27.50	0	0	0	0	0	0	0	0
	G	2B-2fm	0.620	e	16.80	18.29	0	0	0	0	16	13	269	293
	W	13A-2ocs	0.201	e	5.45	4.39	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	s	1.84	1.49	545	523	963	777	499	499	920	742
	G	2A-2om	0.580	s	15.72	13.10	9	9	145	121	0	0	0	0
	G	2A-2omd	0.650	s	17.61	15.06	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	s	13.28	13.07	8	8	106	105	0	0	0	0
	G	2B-2fm	0.490	s	13.28	13.07	5	5	66	65	0	0	0	0
	G	2B-2fm	0.490	s	13.28	13.07	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	w	1.84	1.49	246	182	336	271	401	209	384	310
	G	10C-m	0.290	w	7.86	7.29	0	0	0	0	0	0	0	0
	G	2A-2om	0.580	w	15.72	32.57	58	0	909	1883	0	0	0	0
	G	2A-2om	0.580	w	15.72	23.82	0	0	0	0	49	15	763	1157
	G	2A-2om	0.580	w	15.72	28.42	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	w	17.61	15.06	0	0	0	0	48	48	848	723
	G	2A-2omd	0.650	w	17.61	15.06	0	0	0	0	96	96	1691	1446
	G	2A-2omd	0.650	w	17.61	15.06	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	w	13.28	13.07	6	6	80	78	0	0	0	0
	G	2B-2fm	0.490	w	13.28	13.07	0	0	0	0	0	0	0	0
	R	12C-0sw	0.091	-	2.47	1.46	0	0	0	0	0	0	0	0
	D	11D0	0.390	n	10.57	12.07	0	0	0	0	0	0	0	0
	C	16B-30md	0.032	-	0.87	1.74	825	825	715	1437	1647	1647	1428	2870
	F	20P-19t	0.050	-	1.35	0.72	0	0	0	0	213	213	289	154
	F	20P-19t	0.050	-	1.35	0.72	928	928	1258	671	0	0	0	0
	F	22A-1pl	0.989	-	26.80	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion								614					2357
	Envelope loss/gain								5731	7090			9345	12668
12	a) Infiltration								1892	588			3491	1085
	b) Room ventilation								0	0			0	0
13	Internal gains:		Occupants @	230			1			230	0			0
			Appliances/other							600				3600
	Subtotal (lines 6 to 13)								7623	8508			12836	17351
14	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
	Subtotal								7623	8508			12836	17351
15	Duct loads						28%	43%	2118	3697	29%	36%	3729	6331
	Total room load								9741	12206			16565	23682
	Air required (cfm)								627	627			953	953

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



Right-Suite® Universal 2018 18.0.31 RSU24019

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1	Room name				ahu1				family/kitchen					
2	Exposed wall				270.9 ft				72.5 ft					
3	Room height				10.7 ft				10.7 ft					
4	Room dimensions				3481.6 ft²				1.0 x 897.1 ft					
5	Room area				3481.6 ft²				897.1 ft²					
	Ty	Construction number	U-value (Btu/h/ft²·°F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	1.84	1.49	914	864	1591	1283	401	378	696	561
	G	10C-m	0.580	n	15.72	10.18	21	0	335	217	0	0	0	0
	G	2A-2om	0.580	n	15.72	13.10	23	0	368	307	23	0	368	307
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	n	13.28	13.07	6	0	80	78	0	0	0	0
	W	16B-30md	0.032	n	0.87	1.74	387	387	336	674	136	136	118	237
	W	16B-30md	0.032	n	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	e	1.84	1.49	878	672	1239	999	0	0	0	0
	G	10C-m	0.290	e	7.86	21.36	48	0	377	1025	0	0	0	0
	G	10C-m	0.290	e	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.620	e	16.80	26.18	19	2	319	497	0	0	0	0
	G	2A-2om	0.620	e	16.80	26.59	28	2	484	734	0	0	0	0
	G	2A-2om	0.620	e	16.80	27.50	110	0	1855	3036	0	0	0	0
	G	2B-2fm	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0
	W	13A-2ocs	0.201	e	5.45	4.39	79	79	432	348	0	0	0	0
	W	12E-0sw	0.068	s	1.84	1.49	529	456	839	677	128	80	148	119
	G	2A-2om	0.580	s	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	s	17.61	15.06	48	48	846	723	48	48	846	723
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	s	13.28	13.07	25	25	332	327	0	0	0	0
	W	12E-0sw	0.068	w	1.84	1.49	573	280	515	416	246	136	250	202
	G	10C-m	0.290	w	7.86	7.29	20	20	167	146	0	0	0	0
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.580	w	15.72	28.42	110	0	1738	3138	110	0	1738	3138
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	w	17.61	15.06	120	120	2114	1808	0	0	0	0
	G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	w	13.28	13.07	43	43	564	555	0	0	0	0
	P	12C-0sw	0.091	-	2.47	1.46	620	600	1481	877	0	0	0	0
	D	11D0	0.390	n	10.57	12.07	20	20	212	243	0	0	0	0
	C	16B-30md	0.032	-	0.87	1.74	1916	1916	1661	3338	791	791	686	1378
	F	20P-19t	0.050	-	0.00	0.00	0	0	0	0	0	0	0	0
	F	20P-19t	0.050	-	1.35	0.72	3011	3011	4080	2176	897	897	1216	648
	F	22A-1pl	0.989	-	26.80	0.00	235	9	228	0	0	0	0	0
6	c) AED excursion									1103				-48
	Envelope loss/gain								22162	24724			6063	7266
12	a) Infiltration								6021	1871			1634	508
	b) Room ventilation								0	0			0	0
13	Internal gains:		Occupants @	230			4			920	3			690
			Appliances/other							3300				1800
	Subtotal (lines 6 to 13)								28183	30815			7697	10263
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								28183	30815			7697	10263
15	Duct loads						27%	42%	7495	13047	29%	47%	2269	4791
	Total room load								35677	43863			9966	15054
	Air required (cfm)								1833	1833			512	629

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



Right-J® Worksheet ahu1

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res

Date: 1/22/2019

By: FJF

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

1	Room name				breakfast				living rm			
	Exposed wall				14.0 ft				19.5 ft			
	Room height				heat/cool				heat/cool			
2	Room dimensions				10.0 ft 1.0 x 179.0 ft				10.7 ft 1.0 x 512.8 ft			
3	Room area				179.0 ft²				512.8 ft²			
4	Ty	Construction number	U-value (Btu/h/ft²-F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S
6	W	12E-0sw	0.068	n	1.84	1.49	0	0	0	0	0	0
	G	10C-m	0.580	n	15.72	10.18	0	0	0	0	0	0
11	G	2A-2om	0.580	n	15.72	13.10	0	0	0	0	0	0
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0
11	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0
	G	2B-2fm	0.490	n	13.28	13.07	0	0	0	0	0	0
11	W	16B-30md	0.032	n	0.87	1.74	0	0	0	0	66	66
	W	16B-30md	0.032	n	0.00	0.00	0	0	0	0	0	0
11	W	12E-0sw	0.068	e	1.84	1.49	0	0	0	0	0	0
	G	10C-m	0.290	e	7.86	21.36	0	0	0	0	0	0
11	G	10C-m	0.290	e	0.00	0.00	0	0	0	0	0	0
	G	2A-2om	0.620	e	16.80	26.18	0	0	0	0	0	0
11	G	2A-2om	0.620	e	16.80	26.59	0	0	0	0	0	0
	G	2A-2om	0.620	e	16.80	27.50	0	0	0	0	0	0
11	G	2B-2fm	0.620	e	0.00	0.00	0	0	0	0	0	0
	W	13A-2ocs	0.201	e	5.45	4.39	0	0	0	0	0	0
11	W	12E-0sw	0.068	s	1.84	1.49	50	25	46	37	32	32
	G	2A-2om	0.580	s	0.00	0.00	0	0	0	0	0	0
11	G	2A-2omd	0.650	s	17.61	15.06	0	0	0	0	0	0
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0
11	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0
	G	2B-2fm	0.490	s	13.28	13.07	25	25	332	327	0	0
11	W	12E-0sw	0.068	w	1.84	1.49	90	48	88	71	177	57
	G	10C-m	0.290	w	7.86	7.29	0	0	0	0	0	0
11	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0
11	G	2A-2om	0.580	w	15.72	28.42	0	0	0	0	0	0
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0
11	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0
	G	2A-2omd	0.650	w	17.61	15.06	0	0	0	0	120	120
11	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0
	G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0
11	G	2B-2fm	0.490	w	13.28	13.07	43	43	564	555	0	0
	R	12C-0sw	0.091	-	2.47	1.48	0	0	0	0	0	0
11	D	11D0	0.390	n	10.57	12.07	0	0	0	0	0	0
	C	16B-30md	0.032	-	0.87	1.74	45	45	39	78	0	0
11	F	20P-19t	0.050	-	0.00	0.00	0	0	0	0	0	0
	F	20P-19t	0.050	-	1.35	0.72	179	179	243	129	480	480
11	F	22A-1pl	0.989	-	26.80	0.00	0	0	0	0	0	0
6	c) AED excursion								507			1248
	Envelope loss/gain								1312	1704		2985
12	a) Infiltration								251	78		492
	b) Room ventilation								0	0		153
13	Internal gains:	Occupants @	230				0		0	0		0
		Appliances/other							0	0		300
14	Subtotal (lines 6 to 13)								1562	1782		3477
	Less external load								0	0		0
14	Less transfer								0	0		0
	Redistribution								0	0		0
15	Subtotal								1562	1782		3477
	Duct loads						29%	47%	461	832	29%	47%
15	Total room load								2023	2614		4502
	Air required (cfm)								104	109		251

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



Right-Suite® Universal 2018 18.0.31 RSU24019

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Right-J® Worksheet ahu1

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res

Date: 1/22/2019

By: FJF

631 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2865 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

1	Room name				hall blh				storage					
2	Exposed wall				6.0 ft				43.0 ft					
3	Room height				10.0 ft				12.0 ft					
4	Room dimensions				1.0 x 90.0 ft				1.0 x 231.8 ft					
5	Room area				90.0 ft²				231.8 ft²					
	Ty	Construction number	U-value (Btu/h/ft²-F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
11	W	12E-0sw	0.068	n	1.84	1.49	0	0	0	0	156	156	287	232
	G	10C-m	0.580	n	15.72	10.18	0	0	0	0	0	0	0	0
	G	2A-2om	0.580	n	15.72	13.10	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	n	13.28	13.07	0	0	0	0	0	0	0	0
	W	16B-30md	0.032	n	0.87	1.74	0	0	0	0	28	28	24	49
	W	16B-30md	0.032	n	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	e	1.84	1.49	0	0	0	0	198	170	314	253
	G	10C-m	0.290	e	7.86	21.36	0	0	0	0	0	0	0	0
	G	10C-m	0.290	e	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.620	e	16.80	26.18	0	0	0	0	0	0	0	0
	G	2A-2om	0.620	e	16.80	26.59	0	0	0	0	0	0	0	0
	G	2A-2om	0.620	e	16.80	27.50	0	0	0	0	28	0	464	759
	G	2B-2fm	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0
	W	13A-2occs	0.201	e	5.45	4.39	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	s	1.84	1.49	0	0	0	0	162	162	299	241
	G	2A-2om	0.580	s	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	s	17.61	15.06	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	s	13.28	13.07	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	w	1.84	1.49	60	40	74	59	0	0	0	0
	G	10C-m	0.290	w	7.86	7.29	20	20	157	146	0	0	0	0
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.580	w	15.72	28.42	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	w	17.61	15.06	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0	0	0
G	2B-2fm	0.490	w	13.28	13.07	0	0	0	0	0	0	0	0	
R	12C-0sw	0.091	-	2.47	1.46	0	0	0	0	0	0	0	0	
D	11D0	0.390	n	10.57	12.07	0	0	0	0	0	0	0	0	
C	16B-30md	0.032	-	0.87	1.74	0	0	0	0	232	232	201	404	
F	20P-19t	0.050	-	0.00	0.00	0	0	0	0	0	0	0	0	
F	20P-19t	0.050	-	1.35	0.72	90	90	122	65	232	232	314	167	
F	22A-4pt	0.989	-	28.60	0.00	0	0	0	0	0	0	0	0	
6	c) AED excursion								239				-131	
	Envelope loss/gain								353		-510		1903 1974	
12	a) Infiltration								108		33		975 303	
	b) Room ventilation								0		0		0 0	
13	Internal gains: Occupants @ 230 Appliances/other						0				0 0		0 0	
	Subtotal (lines 6 to 13)								460		543		2878 2277	
	Less external load								0		0		0 0	
	Less transfer								0		0		0 0	
	Redistribution								0		0		0 0	
14	Subtotal								460		543		2878 2277	
15	Duct loads						10% 10%		46 54		29% 47%		848 1063	
	Total room load								506		598		3727 3340	
	Air required (cfm)								26		25		191 140	

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



1	Room name					study					foyer				
2	Exposed wall					12.0 ft					10.0 ft				
3	Room height					10.4 ft					15.5 ft				
4	Room dimensions					1.0 x 204.4 ft					15.5 x 17.0 ft				
5	Room area					204.4 ft²					263.5 ft²				
6	Ty	Construction number	U-value (Btu/h/ft²·°F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)		
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool	
11	W	12E-0sw	0.068	n	1.84	1.49	0	0	0	0	0	0	0	0	
	G	10C-m	0.580	n	15.72	10.18	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	n	15.72	13.10	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	n	13.28	13.07	0	0	0	0	0	0	0	0	
	W	16B-30md	0.032	n	0.87	1.74	86	86	75	150	0	0	0	0	
	W	16B-30md	0.032	n	0.00	0.00	0	0	0	0	0	0	0	0	
	W	12E-0sw	0.068	e	1.84	1.49	126	98	181	146	155	88	162	131	
	G	10C-m	0.290	e	7.86	21.36	0	0	0	0	48	0	377	1025	
	G	10C-m	0.290	e	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2om	0.620	e	16.80	26.18	0	0	0	0	19	2	319	497	
	G	2A-2om	0.620	e	16.80	26.59	0	0	0	0	0	0	0	0	
	G	2A-2om	0.620	e	16.80	27.50	28	0	484	759	0	0	0	0	
	G	2B-2fm	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0	
	W	13A-2occs	0.201	e	5.45	4.39	0	0	0	0	0	0	0	0	
	W	12E-0sw	0.068	s	1.84	1.49	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	s	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	s	17.61	15.08	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	s	13.28	13.07	0	0	0	0	0	0	0	0	
	W	12E-0sw	0.068	w	1.84	1.49	0	0	0	0	0	0	0	0	
	G	10C-m	0.290	w	7.86	7.29	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	w	15.72	28.42	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	w	17.61	15.06	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	w	13.28	13.07	0	0	0	0	0	0	0	0	
	R	12C-0sw	0.091	-	2.47	1.46	0	0	0	0	0	0	0	0	
	D	11D0	0.390	n	10.57	12.07	0	0	0	0	0	0	0	0	
	C	16B-30md	0.032	-	0.87	1.74	169	169	147	295	0	0	0	0	
	F	20P-19t	0.050	-	0.00	0.00	0	0	0	0	0	0	0	0	
	F	20P-19t	0.050	-	1.35	0.72	204	204	277	148	61	61	83	44	
	F	22A-1pl	0.989	-	26.80	0.00	0	0	0	0	0	0	0	0	
6	c) AED excursion									-77				-30	
	Envelope loss/gain									1144		1420		941	
12	a) Infiltration									380		118		278	
	b) Room ventilation									0		0		0	
13	Internal gains: Occupants @ 230							0		0		0		0	
	Appliances/other									300				0	
	Subtotal (lines 6 to 13)									1523		1839		1219	
	Less external load									0		0		0	
	Less transfer									0		0		0	
	Redistribution									0		0		0	
14	Subtotal									1523		1839		1219	
15	Duct loads					29%		47%		449		858		10%	
	Total room load									1973		2697		1341	
	Air required (cfm)									101		113		69	

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

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1	Room name					dining rm					guest bth				
2	Exposed wall					15.0 ft					4.0 ft				
3	Room height					10.7 ft					10.0 ft				
4	Room dimensions					1.0 x 248.9 ft					6.0 x 13.5 ft				
5	Room area					248.9 ft ²					81.0 ft ²				
	Ty	Construction number	U-value (Btuh/ft ² ·°F)	Or	HTM (Btuh/ft ²)		Area (ft ²) or perimeter (ft)		Load (Btuh)		Area (ft ²) or perimeter (ft)		Load (Btuh)		
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool	
8 11	W	12E-0sw	0.068	n	1.84	1.49	0	0	0	0	0	0	0	0	
	G	10C-m	0.580	n	15.72	10.18	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	n	15.72	13.10	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	n	13.28	13.07	0	0	0	0	0	0	0	0	
	W	16B-30md	0.032	n	0.87	1.74	51	51	44	89	0	0	0	0	
	W	16B-30md	0.032	n	0.00	0.00	0	0	0	0	0	0	0	0	
	W	12E-0sw	0.068	e	1.84	1.49	161	105	194	166	40	40	74	59	
	G	10C-m	0.290	e	7.86	21.36	0	0	0	0	0	0	0	0	
	G	10C-m	0.290	e	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2om	0.620	e	16.80	26.18	0	0	0	0	0	0	0	0	
	G	2A-2om	0.620	e	16.80	26.59	28	2	464	734	0	0	0	0	
	G	2A-2om	0.620	e	16.80	27.50	28	0	464	759	0	0	0	0	
	G	2B-2fm	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0	
	W	13A-2ocs	0.201	e	5.45	4.39	0	0	0	0	0	0	0	0	
	W	12E-0sw	0.068	s	1.84	1.49	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	s	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	s	17.61	15.06	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	s	13.28	13.07	0	0	0	0	0	0	0	0	
	W	12E-0sw	0.068	w	1.84	1.49	0	0	0	0	0	0	0	0	
	G	10C-m	0.290	w	7.86	7.29	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	w	15.72	28.42	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	w	17.61	15.06	0	0	0	0	0	0	0	0	
G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0	0	0		
G	2B-2fm	0.490	w	13.28	13.07	0	0	0	0	0	0	0	0		
P	12C-0sw	0.091	-	2.47	1.46	0	0	0	0	0	0	0	0		
D	11D0	0.390	n	10.67	12.07	0	0	0	0	0	0	0	0		
C	16B-30md	0.032	-	0.87	1.74	101	101	88	176	81	81	70	141		
F	20P-19t	0.050	-	0.00	0.00	0	0	0	0	0	0	0	0		
F	20P-19t	0.050	-	1.35	0.72	249	249	337	180	81	81	110	59		
F	22A-1pl	0.989	-	26.80	0.00	0	0	0	0	0	0	0	0		

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1	Room name					pantry 9.0 ft					laundry 10.5 ft				
2	Exposed wall					10.0 ft					10.0 ft				
3	Room height					1.0 x 82.0 ft					10.5 x 10.5 ft				
4	Room dimensions					82.0 ft²					110.3 ft²				
5	Room area														
	Ty	Construction number	U-value (Btu/h/ft²·F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)		
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool	
6	W	12E-0sw	0.068	n	1.84	1.49	90	84	155	125	105	84	154	124	
	G	10C-m	0.580	n	15.72	10.18	0	0	0	0	21	0	335	217	
	G	2A-2om	0.580	n	15.72	13.10	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	n	13.28	13.07	6	0	80	78	0	0	0	0	
	W	16B-30md	0.032	n	0.87	1.74	0	0	0	0	0	0	0	0	
	W	16B-30md	0.032	n	0.00	0.00	0	0	0	0	0	0	0	0	
	W	12E-0sw	0.068	e	1.84	1.49	0	0	0	0	0	0	0	0	
	G	10C-m	0.290	e	7.86	21.36	0	0	0	0	0	0	0	0	
	G	10C-m	0.290	e	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2om	0.620	e	16.80	26.18	0	0	0	0	0	0	0	0	
	G	2A-2om	0.620	e	16.80	26.59	0	0	0	0	0	0	0	0	
	G	2A-2om	0.620	e	16.80	27.50	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0	
	W	13A-2occs	0.201	e	5.45	4.39	0	0	0	0	0	0	0	0	
	W	12E-0sw	0.068	s	1.84	1.49	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	s	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	s	17.61	15.06	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	s	13.28	13.07	0	0	0	0	0	0	0	0	
	W	12E-0sw	0.068	w	1.84	1.49	0	0	0	0	0	0	0	0	
	G	10C-m	0.290	w	7.86	7.29	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	w	15.72	28.42	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	w	17.61	15.06	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	w	13.28	13.07	0	0	0	0	0	0	0	0	
	R	12C-0sw	0.091	-	2.47	1.46	0	0	0	0	0	0	0	0	
	D	11D0	0.390	n	10.57	12.07	0	0	0	0	0	0	0	0	
	C	16B-30md	0.032	-	0.87	1.74	82	82	71	143	110	110	96	192	
	F	20P-19t	0.050	-	0.00	0.00	0	0	0	0	0	0	0	0	
	F	20P-19t	0.050	-	1.35	0.72	82	82	111	59	110	110	149	80	
	F	22A-1pl	0.989	-	26.80	0.00	0	0	0	0	0	0	0	0	
6	c) AED excursion									-49			-138		
	Envelope loss/gain									417	356			734	475
12	a) Infiltration									181	50			188	58
	b) Room ventilation									0	0			0	0
13	Internal gains: Occupants @ 230							0			0	0			0
	Appliances/other										0			600	
	Subtotal (lines 6 to 13)									578	406			923	1134
	Less external load									0	0			0	0
	Less transfer									0	0			0	0
	Redistribution									0	0			0	0
14	Subtotal									578	406			923	1134
15	Duct loads							29%	47%	170	190	29%	47%	272	529
	Total room load									748	596			1195	1663
	Air required (cfm)									38	25			61	69

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1	Room name				guest rm				hall					
2	Exposed wall				43.0 ft				0 ft					
3	Room height				12.0 ft				10.0 ft					
4	Room dimensions				1.0 x 233.8 ft				1.0 x 112.0 ft					
5	Room area				233.8 ft²				112.0 ft²					
	Ty	Construction number	U-value (Btu/h/ft²·°F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	1.84	1.49	162	162	299	241	0	0	0	0
		G 10C-m	0.580	n	15.72	10.18	0	0	0	0	0	0	0	0
		G 2A-2om	0.580	n	15.72	13.10	0	0	0	0	0	0	0	0
		G 2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0	0	0
		G 2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0	0	0
		G 2B-2fm	0.490	n	13.28	13.07	0	0	0	0	0	0	0	0
		16B-30md	0.032	n	0.87	1.74	20	20	17	35	0	0	0	0
		16B-30md	0.032	n	0.00	0.00	0	0	0	0	0	0	0	0
		12E-0sw	0.068	e	1.84	1.49	198	170	314	253	0	0	0	0
		G 10C-m	0.290	e	7.86	21.36	0	0	0	0	0	0	0	0
		G 10C-m	0.290	e	0.00	0.00	0	0	0	0	0	0	0	0
		G 2A-2om	0.620	e	16.80	26.18	0	0	0	0	0	0	0	0
		G 2A-2om	0.620	e	16.80	26.59	0	0	0	0	0	0	0	0
		G 2A-2om	0.620	e	16.80	27.50	28	0	484	759	0	0	0	0
		G 2B-2fm	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0
		13A-2occs	0.201	e	5.45	4.39	0	0	0	0	0	0	0	0
		12E-0sw	0.068	s	1.84	1.49	156	156	287	232	0	0	0	0
		G 2A-2om	0.580	s	0.00	0.00	0	0	0	0	0	0	0	0
		G 2A-2omd	0.650	s	17.61	15.06	0	0	0	0	0	0	0	0
		G 2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0
		G 2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0
		G 2B-2fm	0.490	s	13.28	13.07	0	0	0	0	0	0	0	0
		12E-0sw	0.068	w	1.84	1.49	0	0	0	0	0	0	0	0
		G 10C-m	0.290	w	7.86	7.29	0	0	0	0	0	0	0	0
		G 2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0
		G 2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0
		G 2A-2om	0.580	w	15.72	28.42	0	0	0	0	0	0	0	0
		G 2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0
		G 2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0
		G 2A-2omd	0.650	w	17.61	15.06	0	0	0	0	0	0	0	0
		G 2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0	0	0
		G 2B-2fm	0.490	w	13.28	13.07	0	0	0	0	0	0	0	0
		12C-0sw	0.091	-	2.47	1.46	0	0	0	0	0	0	0	0
		11D0	0.390	n	10.57	12.07	0	0	0	0	0	0	0	0
		16B-30md	0.032	-	0.87	1.74	234	234	203	407	70	70	61	122
		20P-19t	0.050	-	0.00	0.00	0	0	0	0	0	0	0	0
20P-19t	0.050	-	1.35	0.72	234	234	317	169	112	112	152	81		
22A-1pt	0.989	-	26.80	0.00	0	0	0	0	0	0	0	0		

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



Right-J® Worksheet ahu1

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res

Date: 1/22/2019

By: FJF

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2685 Fax 407-333-3853 Web: WWW.DEL-AIR.COM

1	Room name				foyer garage									
2	Exposed wall				8.5 ft									
3	Room height				9.3 ft				heat/cool					
4	Room dimensions				1.0 x 235.3 ft									
5	Room area				235.3 ft²									
	Ty	Construction number	U-value (Btu/h/ft²·°F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area or perimeter		Load	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	1.84	1.49	0	0	0	0				
	G	10C-m	0.580	n	15.72	10.18	0	0	0	0				
	G	2A-2om	0.580	n	15.72	13.10	0	0	0	0				
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0				
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0				
	G	2B-2fm	0.490	n	13.28	13.07	0	0	0	0				
	W	16B-30md	0.032	n	0.87	1.74	0	0	0	0				
	W	16B-30md	0.032	n	0.00	0.00	0	0	0	0				
	W	12E-0sw	0.068	e	1.84	1.49	0	0	0	0				
	G	10C-m	0.290	e	7.86	21.36	0	0	0	0				
	G	10C-m	0.290	e	0.00	0.00	0	0	0	0				
	G	2A-2om	0.620	e	16.80	26.18	0	0	0	0				
	G	2A-2om	0.620	e	16.80	26.59	0	0	0	0				
	G	2A-2om	0.620	e	16.80	27.50	0	0	0	0				
	G	2B-2fm	0.620	e	0.00	0.00	0	0	0	0				
	W	13A-2ocs	0.201	e	5.45	4.39	79	79	432	348				
	W	12E-0sw	0.068	s	1.84	1.49	0	0	0	0				
	G	2A-2om	0.580	s	0.00	0.00	0	0	0	0				
	G	2A-2omd	0.650	s	17.61	15.06	0	0	0	0				
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0				
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0				
	G	2B-2fm	0.490	s	13.28	13.07	0	0	0	0				
	W	12E-0sw	0.068	w	1.84	1.49	0	0	0	0				
	G	10C-m	0.290	w	7.86	7.29	0	0	0	0				
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0				
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0				
	G	2A-2om	0.580	w	15.72	28.42	0	0	0	0				
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0				
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0				
	G	2A-2omd	0.650	w	17.61	15.06	0	0	0	0				
	G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0				
	G	2B-2fm	0.490	w	13.28	13.07	0	0	0	0				
	P	12C-0sw	0.091	-	2.47	1.46	620	600	1481	877				
	D	11D0	0.390	n	10.57	12.07	20	20	212	243				
	C	16B-30md	0.032	-	0.87	1.74	0	0	0	0				
	F	20P-19t	0.050	-	0.00	0.00	0	0	0	0				
F	20P-19t	0.050	-	1.35	0.72	0	0	0	0					
F	22A-lpl	0.989	-	26.80	0.00	235	0	228	0					
6	c) AED excursion										-164			
	Envelope loss/gain										2353	1304		
12	a) Infiltration										142	44		
	b) Room ventilation										0	0		
13	Internal gains:		Occupants @ 230				0			0				
			Appliances/other							0				
	Subtotal (lines 6 to 13)										2495	1348		
	Less external load										0	0		
	Less transfer										0	0		
	Redistribution										0	0		
14	Subtotal										2495	1348		
15	Duct loads								10%	10%	249	135		
	Total room load										2744	1482		
	Air required (cfm)										141	62		

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



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Right-Suite® Universal 2018 18.0.31 RSU24019

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531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax 407-333-3853 Web: WWW.DEL-AIR.COM

1	Room name					ahu2				master wic 2				
2	Exposed wall					92.5 ft				6.5 ft				
3	Room height					10.3 ft				10.0 ft				
4	Room dimensions									1.0 x 121.6 ft				
5	Room area					928.1 ft²				121.6 ft²				
	Ty	Construction number	U-value (Btu/h/ft²·F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	1.84	1.49	171	123	227	183	0	0	0	0
11	G	10C-m	0.580	n	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.580	n	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	n	17.61	15.06	48	0	846	723	0	0	0	0
	G	2B-2fm	0.490	n	0.00	0.00	0	0	0	0	0	0	0	0
	W	16B-30md	0.032	n	0.87	1.74	93	93	81	162	0	0	0	0
	W	16B-30md	0.032	n	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	e	0.00	0.00	0	0	0	0	0	0	0	0
	G	10C-m	0.290	e	0.00	0.00	0	0	0	0	0	0	0	0
	G	10C-m	0.290	e	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0
G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0	
G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0	
G	2B-2fm	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0	
W	13A-2ocs	0.201	e	0.00	0.00	0	0	0	0	0	0	0	0	0
W	12E-0sw	0.068	s	1.84	1.49	545	523	963	777	0	0	0	0	0
G	2A-2om	0.580	s	15.72	13.10	9	9	145	121	0	0	0	0	0
G	2A-2omd	0.650	s	0.00	0.00	0	0	0	0	0	0	0	0	0
G	2B-2fm	0.490	s	13.28	13.07	8	8	106	105	0	0	0	0	0
G	2B-2fm	0.490	s	13.28	13.07	5	5	66	65	0	0	0	0	0
G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0	0
W	12E-0sw	0.068	w	1.84	1.49	246	182	336	271	65	59	109	88	0
G	10C-m	0.290	w	0.00	0.00	0	0	0	0	0	0	0	0	0
G	2A-2om	0.580	w	15.72	32.57	58	0	909	1883	0	0	0	0	0
G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0	0
G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0	0
G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0	0
G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0	0
G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0	0
G	2B-2fm	0.490	w	13.28	13.07	6	6	80	78	6	6	80	78	0
G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0	0	0	0
R	12C-0sw	0.091	-	0.00	0.00	0	0	0	0	0	0	0	0	0
D	11D0	0.390	n	0.00	0.00	0	0	0	0	0	0	0	0	0
C	16B-30md	0.032	-	0.87	1.74	825	825	715	1437	25	25	22	44	0
F	20P-19l	0.050	-	0.00	0.00	0	0	0	0	0	0	0	0	0
F	20P-19l	0.050	-	1.35	0.72	928	928	1258	671	122	122	165	88	0
F	22A-1pl	0.989	-	0.00	0.00	0	0	0	0	0	0	0	0	0

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



Right-J® Worksheet ahu2

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res

Date: 1/22/2019

By: FJF

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2685 Fax 407-333-3853 Web: WWW.DEL-AIR.COM

1	Room name				master rm				master wic 1			
	Exposed wall				10.7 ft				11.5 ft			
	Room height				53.6 ft				10.0 ft			
3	Room dimensions				1.0 x 356.0 ft				1.0 x 110.0 ft			
5	Room area				356.0 ft ²				110.0 ft ²			
	Ty	Construction number	U-value (Btu/h/ft ² ·°F)	Or	HTM (Btu/h/ft ²)		Area (ft ²) or perimeter (ft)		Load (Btu/h)		Area (ft ²) or perimeter (ft)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S
6	W	12E-0sw	0.068	n	1.84	1.49	171	123	227	183	0	0
	G	10C-m	0.580	n	0.00	0.00	0	0	0	0	0	0
	G	2A-2om	0.580	n	0.00	0.00	0	0	0	0	0	0
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0
11	G	2A-2omd	0.650	n	17.61	15.06	48	0	846	723	0	0
	G	2B-2fm	0.490	n	0.00	0.00	0	0	0	0	0	0
	W	16B-30md	0.032	n	0.87	1.74	68	68	59	118	0	0
	W	16B-30md	0.032	n	0.00	0.00	0	0	0	0	0	0
	W	12E-0sw	0.068	e	0.00	0.00	0	0	0	0	0	0
	G	10C-m	0.290	e	0.00	0.00	0	0	0	0	0	0
	G	10C-m	0.290	e	0.00	0.00	0	0	0	0	0	0
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0
	G	2B-2fm	0.620	e	0.00	0.00	0	0	0	0	0	0
	W	13A-2ocs	0.201	e	0.00	0.00	0	0	0	0	0	0
	W	12E-0sw	0.068	s	1.84	1.49	230	230	424	342	115	110
	G	2A-2om	0.580	s	15.72	13.10	0	0	0	0	0	0
	G	2A-2omd	0.650	s	0.00	0.00	0	0	0	0	0	0
	G	2B-2fm	0.490	s	13.28	13.07	0	0	0	0	0	0
	G	2B-2fm	0.490	s	13.28	13.07	0	0	0	0	5	5
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0
	W	12E-0sw	0.068	w	1.84	1.49	171	113	209	168	0	0
	G	10C-m	0.290	w	0.00	0.00	0	0	0	0	0	0
	G	2A-2om	0.580	w	15.72	32.57	58	0	909	1883	0	0
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0
	G	2B-2fm	0.490	w	13.28	13.07	0	0	0	0	0	0
	G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0
	R	12C-0sw	0.091	-	0.00	0.00	0	0	0	0	0	0
	D	11D0	0.390	n	0.00	0.00	0	0	0	0	0	0
	C	16B-30md	0.032	-	0.87	1.74	356	356	309	620	110	110
	F	20P-19t	0.050	-	0.00	0.00	0	0	0	0	0	0
	F	20P-19t	0.050	-	1.35	0.72	356	356	482	257	110	110
	F	22A-1pl	0.989	-	0.00	0.00	0	0	0	0	0	0
6	c) AED excursion								522			-5
	Envelope loss/gain								3464	4818		514
12	a) Infiltration								1148	357		206
	b) Room ventilation								0	0		64
13	Internal gains:				Occupants @	230	1		230	600	0	0
					Appliances/other							0
	Subtotal (lines 6 to 13)								4612	6004		720
	Less external load								0	0		0
	Less transfer								0	0		0
	Redistribution								0	0		0
14	Subtotal								4612	6004		720
15	Duct loads						28%	43%	1281	2609	28%	43%
	Total room load								5893	8613		920
	Air required (cfm)								379	442		59

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



Right-Suite® Universal 2018 18.0.31 RSU24019

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1	Room name		master wc						master bath					
	Exposed wall		7.5 ft						13.5 ft					
	Room height		10.0 ft						10.0 ft					
4	Room dimensions		38.0 ft						225.4 ft					
5	Room area		38.0 ft²						225.4 ft²					
6	Ty	Construction number	U-value (Btu/h/ft²·°F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
11	W	12E-0sw	0.068	n	1.84	1.49	0	0	0	0	0	0	0	0
	G	10C-m	0.580	n	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.580	n	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	n	17.61	15.06	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	n	0.00	0.00	0	0	0	0	0	0	0	0
	W	16B-30md	0.032	n	0.87	1.74	0	0	0	0	25	25	22	44
	W	16B-30md	0.032	n	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	e	0.00	0.00	0	0	0	0	0	0	0	0
	G	10C-m	0.290	e	0.00	0.00	0	0	0	0	0	0	0	0
	G	10C-m	0.290	e	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0
	G	2B-2fm	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0
	W	13A-2ocs	0.201	e	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	s	1.84	1.49	65	56	103	83	135	127	234	189
	G	2A-2om	0.580	s	15.72	13.10	9	9	145	121	0	0	0	0
	G	2A-2omd	0.650	s	0.00	0.00	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	s	13.28	13.07	0	0	0	0	8	8	106	105
	G	2B-2fm	0.490	s	13.28	13.07	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	w	1.84	1.49	10	10	18	15	0	0	0	0
	G	10C-m	0.290	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.580	w	15.72	13.10	0	0	0	0	0	0	0	0
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	w	13.28	13.07	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0	0	0
	R	12C-0sw	0.091	-	0.00	0.00	0	0	0	0	0	0	0	0
	D	11D0	0.390	-	0.00	0.00	0	0	0	0	0	0	0	0
	C	16B-30md	0.032	-	0.87	1.74	38	38	33	66	225	225	195	393
	F	20P-19t	0.050	-	0.00	0.00	0	0	0	0	0	0	0	0
	F	20P-19t	0.050	-	1.35	0.72	38	38	61	27	225	225	305	163
	F	22A-1pl	0.889	-	0.00	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									-3				-8
	Envelope loss/gain								350	309			863	884
12	a) Infiltration								134	42			287	89
	b) Room ventilation								0	0			0	0
13	Internal gains:		Occupants @	230			0			0	0			0
	Appliances/other									0				0
	Subtotal (lines 6 to 13)								485	351			1150	973
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								485	351			1150	973
15	Duct loads						28%	43%	135	153	28%	43%	319	423
	Total room load								620	503			1469	1398
	Air required (cfm)								40	26			95	72

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

1	Room name					master hall																		
2	Exposed wall					0 ft																		
3	Room height					10.0 ft					heat/cool													
4	Room dimensions					1.0 x 77.1 ft																		
5	Room area					77.1 ft²																		
	Ty	Construction number	U-value (Btu/h/ft²·F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area or perimeter		Load											
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool										
6	W	12E-0sw	0.068	n	1.84	1.49	0	0	0	0														
11	G	10C-m	0.580	n	0.00	0.00	0	0	0	0														
	G	2A-2om	0.580	n	0.00	0.00	0	0	0	0														
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0														
	G	2A-2omd	0.650	n	17.61	15.06	0	0	0	0														
	G	2B-2fm	0.490	n	0.00	0.00	0	0	0	0														
	W	16B-30md	0.032	n	0.87	1.74	0	0	0	0														
	W	16B-30md	0.032	n	0.00	0.00	0	0	0	0														
	W	12E-0sw	0.068	e	0.00	0.00	0	0	0	0														
	G	10C-m	0.290	e	0.00	0.00	0	0	0	0														
	G	10C-m	0.290	e	0.00	0.00	0	0	0	0														
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0														
11	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0														
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0														
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0														
	G	2B-2fm	0.620	e	0.00	0.00	0	0	0	0														
	W	13A-2ocs	0.201	e	0.00	0.00	0	0	0	0														
	W	12E-0sw	0.068	s	1.84	1.49	0	0	0	0														
	G	2A-2om	0.580	s	15.72	13.10	0	0	0	0														
	G	2A-2omd	0.650	s	0.00	0.00	0	0	0	0														
	G	2B-2fm	0.490	s	13.28	13.07	0	0	0	0														
	G	2B-2fm	0.490	s	13.28	13.07	0	0	0	0														
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0														
11	W	12E-0sw	0.068	w	1.84	1.49	0	0	0	0														
	G	10C-m	0.290	w	0.00	0.00	0	0	0	0														
	G	2A-2om	0.580	w	15.72	32.57	0	0	0	0														
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0														
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0														
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0														
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0														
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0														
	G	2B-2fm	0.490	w	13.28	13.07	0	0	0	0														
	G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0														
	P	12C-0sw	0.091	-	0.00	0.00	0	0	0	0														
11	D	11D0	0.390	n	0.00	0.00	0	0	0	0														
	C	16B-30md	0.032	-	0.87	1.74	70	70	61	123														
	F	20P-19t	0.050	-	0.00	0.00	0	0	0	0														
	F	20P-19t	0.050	-	1.35	0.72	77	77	105	56														
	F	22A-1pl	0.989	-	0.00	0.00	0	0	0	0														
6	c) AED excursion													-1										
	Envelope loss/gain													166 177										
12	a) Infiltration													0 0										
	b) Room ventilation													0 0										
13	Internal gains:		Occupants @		230		0		0		0		0											
			Appliances/other																					
	Subtotal (lines 6 to 13)													166 177										
	Less external load													0 0										
	Less transfer													0 0										
	Redistribution													0 0										
14	Subtotal													166 177										
15	Duct loads													46 77										
	28% 43%																							
	Total room load													212 254										
	Air required (cfm)													14 13										

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

Room name					ahu3				movie rm					
Exposed wall					9.3 ft				29.0 ft					
Room height					193.0 ft				9.3 ft					
Room dimensions					1647.0 ft²				15.5 x 13.5 ft					
Room area					209.3 ft²				heat/cool					
	Ty	Construction number	U-value (Btu/h/ft²-F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	1.84	1.49	499	451	831	670	128	128	232	187
	G	10C-m	0.580	n	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.580	n	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	n	17.61	15.06	48	0	846	723	0	0	0	0
11	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	n	0.00	0.00	0	0	0	0	0	0	0	0
	W	16B-30md	0.032	n	0.87	1.74	109	109	95	190	0	0	0	0
	W	16B-30md	0.032	n	0.87	1.74	38	38	33	66	0	0	0	0
	W	12E-0sw	0.068	e	1.84	1.49	401	345	636	513	145	105	193	155
	G	10C-m	0.290	e	0.00	0.00	0	0	0	0	0	0	0	0
	G	10C-m	0.290	e	7.86	11.33	40	29	314	453	40	29	314	453
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0
	G	2B-2fm	0.620	e	18.80	18.29	16	13	269	293	0	0	0	0
	W	13A-2occs	0.201	e	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	s	1.84	1.49	499	499	920	742	0	0	0	0
	G	2A-2om	0.580	s	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	s	0.00	0.00	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	w	1.84	1.49	401	209	384	310	0	0	0	0
	G	10C-m	0.290	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2om	0.580	w	15.72	23.82	49	15	763	1157	0	0	0	0
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	w	17.61	15.06	48	48	846	723	0	0	0	0
	G	2A-2omd	0.650	w	17.61	15.06	96	96	1691	1446	0	0	0	0
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0	0	0
	P	12C-0sw	0.091	-	0.00	0.00	0	0	0	0	0	0	0	0
	D	11D0	0.390	n	0.00	0.00	0	0	0	0	0	0	0	0
	C	16B-30md	0.032	-	0.87	1.74	1647	1647	1428	2870	209	209	181	365
	F	20P-19t	0.050	-	1.35	0.72	213	213	289	154	0	0	0	0
	F	20P-19t	0.050	-	0.00	0.00	0	0	0	0	0	0	0	0
	F	22A-1pl	0.989	-	0.00	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion								2357				-26	
	Envelope loss/gain								9345	12668			921	1134
12	a) Infiltration								3491	1085			485	151
	b) Room ventilation								0	0			0	0
13	Internal gains: Occupants @ 230 Appliances/other						0		0	3600	0		0	1200
	Subtotal (lines 6 to 13)								12838	17351			1406	2485
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								12838	17351			1406	2485
15	Duct loads						29%	36%	3729	6331	29%	36%	408	907
	Total room load								16565	23682			1814	3391
	Air required (cfm)								953	953			104	136

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



Right-J® Worksheet ahu3

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res

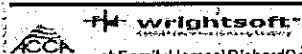
Date: 1/22/2019

By: FJF

631 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax 407-333-3853 Web: WWW.DEL-AIR.COM

1	Room name					rm 4					rm 4 wic				
2	Exposed wall					27.0 ft					7.5 ft				
3	Room height					9.3 ft					9.3 ft				
4	Room dimensions					13.0 x 14.0 ft					5.5 x 7.5 ft				
5	Room area					182.0 ft ²					41.3 ft ²				
	Ty	Construction number	U-value (Btu/h/ft ² ·°F)	Or	HTM (Btu/h/ft ²)		Area (ft ²) or perimeter (ft)		Load (Btu/h)		Area (ft ²) or perimeter (ft)		Load (Btu/h)		
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool	
6	W	12E-0sw	0.068	n	1.84	1.49	131	131	241	194	70	70	129	104	
	G	10C-m	0.580	n	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	n	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	n	17.61	15.06	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	n	0.00	0.00	0	0	0	0	0	0	0	0	
	W	16B-30md	0.032	n	0.87	1.74	51	51	44	89	0	0	0	0	
	W	16B-30md	0.032	n	0.87	1.74	0	0	0	0	0	0	0	0	
	W	12E-0sw	0.068	e	1.84	1.49	0	0	0	0	0	0	0	0	
	G	10C-m	0.290	e	0.00	0.00	0	0	0	0	0	0	0	0	
	G	10C-m	0.290	e	7.86	11.33	0	0	0	0	0	0	0	0	
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.620	e	18.80	18.29	0	0	0	0	0	0	0	0	
	W	13A-2ocs	0.201	e	0.00	0.00	0	0	0	0	0	0	0	0	
	W	12E-0sw	0.068	s	1.84	1.49	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	s	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	s	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0	
	W	12E-0sw	0.068	w	1.84	1.49	121	73	135	109	0	0	0	0	
	G	10C-m	0.290	w	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	w	15.72	23.82	0	0	0	0	0	0	0	0	
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	w	17.61	15.06	48	48	846	723	0	0	0	0	
	G	2A-2omd	0.650	w	17.61	15.06	0	0	0	0	0	0	0	0	
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0	
	G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0	0	0	
G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0	0	0		
R	12C-0sw	0.091	-	0.00	0.00	0	0	0	0	0	0	0	0		
D	11D0	0.390	-	0.00	0.00	0	0	0	0	0	0	0	0		
C	F	16B-30md	0.032	-	0.87	1.74	182	182	158	317	41	41	38	72	
F	F	20P-19t	0.050	-	1.35	0.72	0	0	0	0	0	0	0	0	
F	F	20P-19t	0.050	-	0.00	0.00	0	0	0	0	0	0	0	0	
F	F	22A-1pl	0.989	-	0.00	0.00	0	0	0	0	0	0	0	0	

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



Right-Suite® Universal 2018 18.0.31 RSU24019

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Right-J® Worksheet ahu3

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res

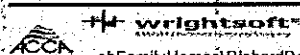
Date: 1/22/2019

By: FJF

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax 407-333-3853 Web: WWW.DEL-AIR.COM

1	Room name				b/h 4				loft							
2	Exposed wall				15.5 ft				37.5 ft							
3	Room height				heat/cool				heat/cool							
4	Room dimensions				9.3 ft 1.0 x 108.3 ft				9.3 ft 1.0 x 594.3 ft							
5	Room area				108.3 ft²				594.3 ft²							
	Ty	Construction number	U-value (Btu/h/ft²·F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)			
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool		
6	W	12E-0sw	0.068	n	1.84	1.49	51	51	95	76	0	0	0	0		
	G	10C-m	0.580	n	0.00	0.00	0	0	0	0	0	0	0	0		
	G	2A-2om	0.580	n	0.00	0.00	0	0	0	0	0	0	0	0		
	G	2A-2omd	0.650	n	17.61	15.06	0	0	0	0	0	0	0	0		
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0	0	0		
	G	2B-2fm	0.490	n	0.00	0.00	0	0	0	0	0	0	0	0		
	W	16B-30md	0.032	n	0.87	1.74	0	0	0	58	58	50	101	0	0	
	W	16B-30md	0.032	n	0.87	1.74	0	0	0	0	0	0	0	0	0	
	W	12E-0sw	0.068	e	1.84	1.49	93	85	157	127	70	70	129	104	0	0
	G	10C-m	0.290	e	0.00	0.00	0	0	0	0	0	0	0	0	0	0
	G	10C-m	0.290	e	7.86	11.33	0	0	0	0	0	0	0	0	0	0
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0	0	0
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0	0	0
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0	0	0
	G	2B-2fm	0.620	e	16.80	18.29	8	6	134	146	0	0	0	0	0	0
	W	13A-2ocs	0.201	e	0.00	0.00	0	0	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	s	1.84	1.49	0	0	0	0	126	126	232	187	0	0
	G	2A-2om	0.580	s	0.00	0.00	0	0	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	s	0.00	0.00	0	0	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	w	1.84	1.49	0	0	0	0	154	58	107	86	0	0
	G	10C-m	0.290	w	0.00	0.00	0	0	0	0	0	0	0	0	0	0
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0	0	0
	G	2A-2om	0.580	w	15.72	23.82	0	0	0	0	0	0	0	0	0	0
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	w	17.61	15.06	0	0	0	0	0	0	0	0	0	0
	G	2A-2omd	0.650	w	17.61	15.06	0	0	0	0	96	96	1691	1446	0	0
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0	0	0	0	0
	G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0	0	0	0	0
	R	12C-0sw	0.091	-	0.00	0.00	0	0	0	0	0	0	0	0	0	0
	D	11D0	0.390	n	0.00	0.00	0	0	0	0	0	0	0	0	0	0
	C	16B-30md	0.032	-	0.87	1.74	108	108	94	189	594	594	515	1035	0	0
	F	20P-19t	0.050	-	1.35	0.72	0	0	0	0	0	0	0	0	0	0
	F	20P-19t	0.050	-	0.00	0.00	0	0	0	0	0	0	0	0	0	0
F	22A-1pt	0.989	-	0.00	0.00	0	0	0	0	0	0	0	0	0	0	
6	c) AED excursion								-6					1224		
	Envelope loss/gain								480	531			2725	4184		
12	a) Infiltration								259	81			731	227		
	b) Room ventilation								0	0			0	0		
13	Internal gains: Occupants @ 230						0			0	0			0		
	Appliances/other									0				1200		
	Subtotal (lines 6 to 13)								739	612			3456	5611		
	Less external load								0	0			0	0		
	Less transfer								0	0			0	0		
	Redistribution								0	0			0	0		
14	Subtotal								739	612			3456	5611		
15	Duct loads						29%	36%	215	223	29%	36%	1004	2047		
	Total room load								954	835			4459	7659		
	Air required (cfm)								55	34			257	308		

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



Right-Suite® Universal 2018 18.0.31 RSU24019

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Right-J® Worksheet ahu3

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res

Date: 1/22/2019

By: FJF

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

1	Room name				rm 3				blh 3			
	Exposed wall				40.5 ft				11.5 ft			
	Room height				heat/cool				heat/cool			
2	Room dimensions				9.3 ft 1.0 x 211.0 ft				9.3 ft 1.0 x 79.5 ft			
3	Room area				211.0 ft²				79.5 ft²			
4	Ty	Construction number	U-value (Btu/h/ft²·°F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)	
5					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S
6	W	12E-0sw	0.068	n	1.84	1.49	121	73	135	109	0	0
	G	10C-m	0.580	n	0.00	0.00	0	0	0	0	0	0
	G	2A-2om	0.580	n	0.00	0.00	0	0	0	0	0	0
	G	2A-2omd	0.650	n	17.61	15.06	48	0	846	723	0	0
	G	2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0
	G	2B-2fm	0.490	n	0.00	0.00	0	0	0	0	0	0
	W	16B-30md	0.032	n	0.87	1.74	0	0	0	0	0	0
	W	16B-30md	0.032	n	0.87	1.74	38	38	33	66	0	0
	W	12E-0sw	0.068	e	1.84	1.49	0	0	0	0	0	0
	G	10C-m	0.290	e	0.00	0.00	0	0	0	0	0	0
	G	10C-m	0.290	e	7.86	11.33	0	0	0	0	0	0
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0
	G	2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0
	G	2B-2fm	0.620	e	16.80	18.29	0	0	0	0	0	0
	W	13A-2ocs	0.201	e	0.00	0.00	0	0	0	0	0	0
	W	12E-0sw	0.068	s	1.84	1.49	131	131	241	194	107	107
	G	2A-2om	0.580	s	0.00	0.00	0	0	0	0	0	0
	G	2A-2omd	0.650	s	0.00	0.00	0	0	0	0	0	0
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0
	G	2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0
	W	12E-0sw	0.068	w	1.84	1.49	126	77	143	115	0	0
	G	10C-m	0.290	w	0.00	0.00	0	0	0	0	0	0
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0
	G	2A-2om	0.580	w	16.72	23.82	49	15	763	1157	0	0
	G	2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0
	G	2A-2omd	0.650	w	17.61	15.06	0	0	0	0	0	0
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0
	G	2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0
	G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0
	G	2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0
	R	12C-0sw	0.091	-	0.00	0.00	0	0	0	0	0	0
	D	11D0	0.390	n	0.00	0.00	0	0	0	0	0	0
	C	16B-30md	0.032	-	0.87	1.74	211	211	183	368	80	80
	F	20P-19t	0.050	-	1.35	0.72	197	197	267	142	16	16
	F	20P-19t	0.050	-	0.00	0.00	0	0	0	0	0	0
	F	22A-1pl	0.989	-	0.00	0.00	0	0	0	0	0	0
6	c) AED excursion								573			-4
	Envelope loss/gain								2610	3447		288
12	a) Infiltration								745	232		192
	b) Room ventilation								0	0		60
13	Internal gains: Occupants @ Appliances/other				230		0		0	0	0	0
	Subtotal (lines 6 to 13)								3355	3978		481
	Less external load								0	0		0
	Less transfer								0	0		0
	Redistribution								0	0		0
14	Subtotal								3355	3978		481
15	Duct loads						29%	36%	975	1452	29%	36%
	Total room load								4330	5430		620
	Air required (cfm)								249	219		36

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



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1	Room name					rm 3 w/c				exercise								
2	Exposed wall					0 ft				24.5 ft								
3	Room height					9.3 ft				9.3 ft								
4	Room dimensions					53.8 ft 1.0 x 53.8 ft				167.8 ft 1.0 x 167.8 ft								
5	Room area					53.8 ft²				167.8 ft²								
	Ty	Construction number	U-value (Btu/h/ft²·°F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)					
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool				
6	W	12E-0sw	0.068	n	1.84	1.49	0	0	0	0	0	0	0	0				
		10C-m	0.580	n	0.00	0.00	0	0	0	0	0	0	0	0				
		2A-2om	0.580	n	0.00	0.00	0	0	0	0	0	0	0	0				
		2A-2omd	0.650	n	17.61	15.06	0	0	0	0	0	0	0	0				
		2A-2omd	0.650	n	0.00	0.00	0	0	0	0	0	0	0	0				
		2B-2fm	0.490	n	0.00	0.00	0	0	0	0	0	0	0	0				
		16B-30md	0.032	n	0.87	1.74	0	0	0	0	0	0	0	0				
		16B-30md	0.032	n	0.87	1.74	0	0	0	0	0	0	0	0				
		12E-0sw	0.068	e	1.84	1.49	0	0	0	0	93	85	157	127				
		10C-m	0.290	e	0.00	0.00	0	0	0	0	0	0	0	0				
		10C-m	0.290	e	7.86	11.33	0	0	0	0	0	0	0	0				
		2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0				
		2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0				
		2A-2om	0.620	e	0.00	0.00	0	0	0	0	0	0	0	0				
		2B-2fm	0.620	e	16.80	18.29	0	0	0	0	8	6	134	146				
		13A-2ocs	0.201	e	0.00	0.00	0	0	0	0	0	0	0	0				
		12E-0sw	0.068	s	1.84	1.49	0	0	0	0	135	135	249	201				
		2A-2om	0.580	s	0.00	0.00	0	0	0	0	0	0	0	0				
		2A-2omd	0.650	s	0.00	0.00	0	0	0	0	0	0	0	0				
		2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0				
		2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0				
		2B-2fm	0.490	s	0.00	0.00	0	0	0	0	0	0	0	0				
		12E-0sw	0.068	w	1.84	1.49	0	0	0	0	0	0	0	0	0			
		10C-m	0.290	w	0.00	0.00	0	0	0	0	0	0	0	0	0			
		2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0	0			
		2A-2om	0.580	w	15.72	23.82	0	0	0	0	0	0	0	0	0			
		2A-2om	0.580	w	0.00	0.00	0	0	0	0	0	0	0	0	0			
		2A-2omd	0.650	w	17.61	15.06	0	0	0	0	0	0	0	0	0			
		2A-2omd	0.650	w	17.61	15.06	0	0	0	0	0	0	0	0	0			
2A-2omd	0.650	w	0.00	0.00	0	0	0	0	0	0	0	0	0					
2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0	0	0	0					
2B-2fm	0.490	w	0.00	0.00	0	0	0	0	0	0	0	0	0					
12C-0sw	0.091	-	0.00	0.00	0	0	0	0	0	0	0	0	0					
11D0	0.390	n	0.00	0.00	0	0	0	0	0	0	0	0	0					
16B-30md	0.032	-	0.87	1.74	54	54	47	94	168	168	145	292						
20P-19t	0.050	-	1.35	0.72	0	0	0	0	0	0	0	0	0					
20P-19t	0.050	-	0.00	0.00	0	0	0	0	0	0	0	0	0					
22A-1pl	0.989	-	0.00	0.00	0	0	0	0	0	0	0	0	0					
c) AED excursion															-1	-16		
Envelope loss/gain															47	93	688	751
a) Infiltration															0	0	410	127
b) Room ventilation															0	0	0	0
Internal gains: Occupants @ 230															0	0	0	0
Appliances/other															0	0	600	600
Subtotal (lines 6 to 13)															47	93	1096	1478
Less external load															0	0	0	0
Less transfer															0	0	0	0
Redistribution															0	0	0	0
Subtotal															47	93	1096	1478
Duct loads															29%	36%	318	539
Total room load															60	126	1415	2017
Air required (cfm)															3	5	81	81

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



Duct System Summary ahu1

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res
Date: 1/22/2019
By: FJF

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

Project Information

For: Deeb Family Homes

	Heating	Cooling
External static pressure	0.25 in H ₂ O	0.25 in H ₂ O
Pressure losses	0.06 in H ₂ O	0.06 in H ₂ O
Available static pressure	0.19 in H ₂ O	0.19 in H ₂ O
Supply / return available pressure	0.095 / 0.095 in H ₂ O	0.095 / 0.095 in H ₂ O
Lowest friction rate	0.134 in/100ft	0.134 in/100ft
Actual air flow	1833 cfm	1833 cfm
Total effective length (TEL)	141 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
breakfast	c 2614	104	109	0.212	6.0	0x0	VIFx	19.5	70.0	st2
dining rm	c 3526	131	147	0.229	7.0	0x0	VIFx	13.0	70.0	
family/kitchen	c 5018	171	210	0.175	8.0	0x0	VIFx	23.3	85.0	
family/kitchen-A	c 5018	171	210	0.228	8.0	0x0	VIFx	13.4	70.0	
family/kitchen-B	c 5018	171	210	0.166	8.0	0x0	VIFx	29.3	85.0	st2
foyer	c 1929	69	81	0.202	6.0	0x0	VIFx	23.9	70.0	
foyer garage	h 2744	141	62	0.223	7.0	0x0	VIFx	15.0	70.0	st4
guest bth	h 421	22	15	0.178	4.0	0x0	VIFx	21.5	85.0	
guest rm	h 3705	190	155	0.165	8.0	0x0	VIFx	30.3	85.0	
hall	h 275	14	11	0.178	4.0	0x0	VIFx	21.5	85.0	
hall bth	h 506	26	25	0.146	4.0	0x0	VIFx	45.0	85.0	st3
laundry	c 1663	61	69	0.177	5.0	0x0	VIFx	22.5	85.0	st4
living rm	c 3008	116	126	0.206	7.0	0x0	VIFx	22.1	70.0	st4
living rm-A	c 3008	116	126	0.216	7.0	0x0	VIFx	18.0	70.0	
pantry	h 748	38	25	0.169	4.0	0x0	VIFx	27.1	85.0	
storage	h 3727	191	140	0.134	9.0	0x0	VIFx	56.3	85.0	
study	c 2697	101	113	0.158	7.0	0x0	VIFx	35.3	85.0	st3

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st2	Peak AVF	341	419	0.166	534	12.0	0 x 0	VinFlx	
st3	Peak AVF	319	277	0.134	585	10.0	0 x 0	VinFlx	
st4	Peak AVF	326	276	0.165	598	10.0	0 x 0	VinFlx	

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Ctg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb2	0x0	1833	1833	0	0	0	0	0x 0		VIFx	



Duct System Summary ahu2

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res
Date: 1/22/2019
By: FJF

631 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

Project Information

For: Deeb Family Homes

	Heating	Cooling
External static pressure	0.38 in H ₂ O	0.38 in H ₂ O
Pressure losses	0.06 in H ₂ O	0.06 in H ₂ O
Available static pressure	0.32 in H ₂ O	0.32 in H ₂ O
Supply / return available pressure	0.160 / 0.160 in H ₂ O	0.160 / 0.160 in H ₂ O
Lowest friction rate	0.292 in/100ft	0.292 in/100ft
Actual air flow	627 cfm	627 cfm
Total effective length (TEL)	110 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
master bath	h 1469	95	72	0.339	6.0	0x0	VIFx	24.4	70.0	st5
master hall	h 212	14	13	0.296	4.0	0x0	VIFx	23.2	85.0	
master rm	c 4307	190	221	0.295	9.0	0x0	VIFx	23.3	85.0	
master rm-A	c 4307	190	221	0.307	9.0	0x0	VIFx	19.2	85.0	
master wc	h 620	40	26	0.360	4.0	0x0	VIFx	19.0	70.0	
master wlc 1	h 920	59	41	0.292	5.0	0x0	VIFx	24.6	85.0	
master wlc 2	h 628	40	33	0.417	4.0	0x0	VIFx	6.8	70.0	

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st5	Peak AVF	452	497	0.292	632	12.0	0 x 0	VinFlx	

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	0x0	627	627	0	0	0	0	0x 0		VIFx	



Duct System Summary ahu3

DEL-AIR HEATING & AIR CONDITIONING

Job: Richard Deeb Res

Date: 1/22/2019

By: FJF

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

Project Information

For: Deeb Family Homes

	Heating	Cooling
External static pressure	0.44 in H2O	0.44 in H2O
Pressure losses	0.06 in H2O	0.06 in H2O
Available static pressure	0.38 in H2O	0.38 in H2O
Supply / return available pressure	0.190 / 0.190 in H2O	0.190 / 0.190 in H2O
Lowest friction rate	0.357 in/100ft	0.357 in/100ft
Actual air flow	953 cfm	953 cfm
Total effective length (TEL)	107 ft	

Supply Branch Detail Table

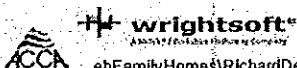
Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
bth 3	h 620	36	20	0.394	4.0	0x0	VIFx	31.4	65.0	st1
bth 4	h 954	55	34	0.620	5.0	0x0	VIFx	11.3	50.0	
exercise	h 1415	81	81	0.397	6.0	0x0	VIFx	30.7	65.0	st1
loft	c 3829	128	154	0.456	7.0	0x0	VIFx	13.3	70.0	
loft-A	c 3829	128	154	0.467	7.0	0x0	VIFx	11.3	70.0	
movie rm	c 3391	104	136	0.641	7.0	0x0	VIFx	9.3	50.0	
rm 3	h 4330	249	219	0.357	9.0	0x0	VIFx	41.5	65.0	st1
rm 3 w/c	c 126	3	5	0.412	4.0	0x0	VIFx	27.2	65.0	st1
rm 4	h 2538	146	138	0.454	7.0	0x0	VIFx	13.8	70.0	
rm 4 w/c	h 374	22	12	0.634	4.0	0x0	VIFx	9.9	50.0	

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st1	Peak AVF	370	325	0.357	678	10.0	0 x 0	VinIFlx	

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
rb3	0x0	953	953	0	0	0	0	0x 0		VIFx	



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Florida Building Code, Energy Conservation, 6th Edition (2017)
Mandatory Requirements for Residential Performance, Prescriptive and ERI Methods

ADDRESS: () Shore Dr. E
Oldsmar, FL, 34677

Permit Number:

MANDATORY REQUIREMENTS See individual code sections for full details.

SECTION R401 GENERAL

- ☐ **R401.3 Energy Performance Level (EPL) display card (Mandatory).** The building official shall require that an energy performance level (EPL) display card be completed and certified by the builder to be accurate and correct before final approval of the building for occupancy. Florida law (Section 553.9085, Florida Statutes) requires the EPL display card to be included as an addendum to each sales contract for both presold and nonpresold residential buildings. The EPL display card contains information indicating the energy performance level and efficiencies of components installed in a dwelling unit. The building official shall verify that the EPL display card completed and signed by the builder accurately reflects the plans and specifications submitted to demonstrate code compliance for the building. A copy of the EPL display card can be found in Appendix RD.

- ☐ **R402.4 Air leakage (Mandatory).** The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections R402.4.1 through R402.4.5.

Exception: Dwelling units of R-2 Occupancies and multiple attached single family dwellings shall be permitted to comply with Section R402.5.

- ☐ **R402.4.1 Building thermal envelope.** The building thermal envelope shall comply with Sections R402.4.1.1 and R402.4.1.2. The sealing methods between dissimilar materials shall allow for differential expansion and contraction.

- ☐ **R402.4.1.1 Installation.** The components of the building thermal envelope as listed in Table R402.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria listed in Table R402.4.1.1, as applicable to the method of construction. Where required by the code official, an approved third party shall inspect all components and verify compliance.

- ☐ **R402.4.1.2 Testing.** The building or dwelling unit shall be tested and verified as having an air leakage rate not exceeding seven air changes per hour in Climate Zones 1 and 2, and three air changes per hour in Climate Zones 3 through 8. 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 Statutes, 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.

Exception: Testing is not required for additions, alterations, renovations, or repairs, of the building thermal envelope of existing buildings in which the new construction is less than 85 percent 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, backdraft 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.

- ☐ **R402.4.2 Fireplaces.** New wood-burning fireplaces shall have tight-fitting flue dampers or doors, and outdoor combustion air. Where using tight-fitting doors on factory-built fireplaces listed and labeled in accordance with UL 127, the doors shall be tested and listed for the fireplace. Where using tight-fitting doors on masonry fireplaces, the doors shall be listed and labeled in accordance with UL 907.

- ☐ **R402.4.3 Fenestration air leakage.** Windows, skylights and sliding glass doors shall have an air infiltration rate of no more than 0.3 cfm per square foot (1.5 L/s/m²), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/m²), when tested according to NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and listed and labeled by the manufacturer.

Exception: Site-built windows, skylights and doors.

MANDATORY REQUIREMENTS - (Continued)

- ☐ **R402.4.4 Rooms containing fuel-burning appliances.** In Climate Zones 3 through 8, where open combustion air ducts provide combustion air to open combustion fuel burning appliances, the appliances and combustion air opening shall be located outside the building thermal envelope or enclosed in a room, isolated from inside the thermal envelope. Such rooms shall be sealed and insulated in accordance with the envelope requirements of Table R402.1.2, where the walls, floors and ceilings shall meet not less than the basement wall R-value requirement. The door into the room shall be fully gasketed and any water lines and ducts in the room insulated in accordance with Section R403. The combustion air duct shall be insulated where it passes through conditioned space to a minimum of R-8.

Exceptions:

1. Direct vent appliances with both intake and exhaust pipes installed continuous to the outside.
2. Fireplaces and stoves complying with Section R402.4.2 and Section R1006 of the Florida Building Code, Residential.

- ☐ **R402.4.5 Recessed lighting.** Recessed luminaires installed in the building thermal envelope shall be sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s) when tested in accordance with ASTM E283 at a 1.57 psf (75 Pa) pressure differential. All recessed luminaires shall be sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.

SECTION R403 SYSTEMS

R403.1 Controls.

- ☐ **R403.1.1 Thermostat provision (Mandatory).** At least one thermostat shall be provided for each separate heating and cooling system.

- ☐ **R403.1.3 Heat pump supplementary heat (Mandatory).** Heat pumps having supplementary electric-resistance heat shall have controls that, except during defrost, prevent supplemental heat operation when the heat pump compressor can meet the heating load.

- ☐ **R403.3.2 Sealing (Mandatory)** All ducts, air handlers, filter boxes and building cavities that form the primary air containment passageways for air distribution systems shall be considered ducts or plenum chambers, shall be constructed and sealed in accordance with Section C403.2.9.2 of the Commercial Provisions of this code and shall be shown to meet duct tightness criteria below.

Duct tightness shall be verified by testing in accordance with ANSI/RESNET/ICC 380 by either individuals as defined in Section 553.993(5) or (7), Florida Statutes, or individuals licensed as set forth in Section 489.105(3)(f), (g) or (i), Florida Statutes, to be "substantially leak free" in accordance with Section R403.3.3.

- ☐ **R403.3.2.1 Sealed air handler.** Air handlers shall have a manufacturer's designation for an air leakage of no more than 2 percent of the design airflow rate when tested in accordance with ASHRAE 193.

- ☐ **R403.3.3 Duct testing (Mandatory).** Ducts shall be pressure tested to determine air leakage by one of the following methods:

1. Rough-in test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. All registers shall be taped or otherwise sealed during the test.
2. Postconstruction test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. Registers shall be taped or otherwise sealed during the test.

Exceptions:

1. A duct air leakage test shall not be required where the ducts and air handlers are located entirely within the building thermal envelope.
2. Duct testing is not mandatory for buildings complying by Section 405 of this code.

A written report of the results of the test shall be signed by the party conducting the test and provided to the code official.

- ☐ **R403.3.5 Building cavities (Mandatory).** Building framing cavities shall not be used as ducts or plenums.

- ☐ **R403.4 Mechanical system piping insulation (Mandatory).** Mechanical system piping capable of carrying fluids above 105°F (41°C) or below 55°F (13°C) shall be insulated to a minimum of R-3.

- ☐ **R403.4.1 Protection of piping insulation.** Piping insulation exposed to weather shall be protected from damage, including that caused by sunlight, moisture, equipment maintenance and wind, and shall provide shielding from solar radiation that can cause degradation of the material. Adhesive tape shall not be permitted.

- ☐ **R403.5.1 Heated water circulation and temperature maintenance systems (Mandatory)** Heated water circulation systems shall be in accordance with Section R403.5.1.1. Heat trace temperature maintenance systems shall be in accordance with Section R403.5.1.2. Automatic controls, temperature sensors and pumps shall be accessible. Manual controls shall be readily accessible.

- ☐ **R403.5.1.1 Circulation systems.** Heated water circulation systems shall be provided with a circulation pump. The system return pipe shall be a dedicated return pipe or a cold water supply pipe. Gravity and thermosiphon circulation systems shall be prohibited. Controls for circulating hot water system pumps shall start the pump based on the identification of a demand for hot water within the occupancy. The controls shall automatically turn off the pump when the water in the circulation loop is at the desired temperature and when there is no demand for hot water.

- ☐ **R403.5.1.2 Heat trace systems.** Electric heat trace systems shall comply with IEEE 515.1 or UL 515. Controls for such systems shall automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping in accordance with the times when heated water is used in the occupancy.

MANDATORY REQUIREMENTS - (Continued)

- ☐ **R403.5.5 Heat traps (Mandatory).** Storage water heaters not equipped with integral heat traps and having vertical pipe risers shall have heat traps installed on both the inlets and outlets. External heat traps shall consist of either a commercially available heat trap or a downward and upward bend of at least 3 1/2 inches (89 mm) in the hot water distribution line and cold water line located as close as possible to the storage tank.
- R403.5.6 Water heater efficiencies (Mandatory).**
- ☐ **R403.5.6.1.1 Automatic controls.** Service water-heating systems shall be equipped with automatic temperature controls capable of adjustment from the lowest to the highest acceptable temperature settings for the intended use. The minimum temperature setting range shall be from 100°F to 140°F (38°C to 60°C).
- ☐ **R403.5.6.1.2 Shut down.** A separate switch or a clearly marked circuit breaker shall be provided to permit the power supplied to electric service systems to be turned off. A separate valve shall be provided to permit the energy supplied to the main burner(s) of combustion types of service water-heating systems to be turned off.
- ☐ **R403.5.6.2 Water-heating equipment.** Water-heating equipment installed in residential units shall meet the minimum efficiencies of Table C404.2 in Chapter 4 of the Florida Building Code, Energy Conservation, Commercial Provisions, for the type of equipment installed. Equipment used to provide heating functions as part of a combination system shall satisfy all stated requirements for the appropriate water-heating category. Solar water heaters shall meet the criteria of Section R403.5.6.2.1.
- ☐ **R403.5.6.2.1 Solar water-heating systems.** Solar systems for domestic hot water production are rated by the annual solar energy factor of the system. The solar energy factor of a system shall be determined from the Florida Solar Energy Center Directory of Certified Solar Systems. Solar collectors shall be tested in accordance with ISO Standard 9806, Test Methods for Solar Collectors, and SRCC Standard TM-1, Solar Domestic Hot Water System and Component Test Protocol. Collectors in installed solar water-heating systems should meet the following criteria:
1. Be installed with a tilt angle between 10 degrees and 40 degrees of the horizontal; and
 2. Be installed at an orientation within 45 degrees of true south.
- ☐ **R403.6 Mechanical ventilation (Mandatory).** The building shall be provided with ventilation that meets the requirements of the Florida Building Code, Residential, or Florida Building Code, Mechanical, as applicable, or with other approved means of ventilation including: Natural, Infiltration or Mechanical means. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.
- ☐ **R403.6.1 Whole-house mechanical ventilation system fan efficacy.** When installed to function as a whole-house mechanical ventilation system, fans shall meet the efficacy requirements of Table R403.6.1.
- Exception:** Where whole-house mechanical ventilation fans are integral to tested and listed HVAC equipment, they shall be powered by an electronically commutated motor.
- ☐ **R403.6.2 Ventilation air.** Residential buildings designed to be operated at a positive indoor pressure or for mechanical ventilation shall meet the following criteria:
1. The design air change per hour minimums for residential buildings in ASHRAE 62.2, Ventilation for Acceptable Indoor Air Quality, shall be the maximum rates allowed for residential applications.
 2. No ventilation or air-conditioning system make-up air shall be provided to conditioned space from attics, crawlspaces, attached enclosed garages or outdoor spaces adjacent to swimming pools or spas.
 3. If ventilation air is drawn from enclosed space(s), then the walls of the space(s) from which air is drawn shall be insulated to a minimum of R-11 and the ceiling shall be insulated to a minimum of R-19, space permitting; or R-10 otherwise.
- ☐ **R403.7 Heating and cooling equipment (Mandatory).**
- R403.7.1 Equipment sizing.** Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on the equipment loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies, based on building loads for the directional orientation of the building. The manufacturer and model number of the outdoor and indoor units (if split system) shall be submitted along with the sensible and total cooling capacities at the design conditions described in Section R302.1. This Code does not allow designer safety factors, provisions for future expansion or other factors that affect equipment sizing. System sizing calculations shall not include loads created by local intermittent mechanical ventilation such as standard kitchen and bathroom exhaust systems. New or replacement heating and cooling equipment shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed.

**TABLE R403.6.1
WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM FAN EFFICACY**

FAN LOCATION	AIRFLOW RATE MINIMUM (CFM)	MINIMUM EFFICACY ^a (CFM/WATT)	AIRFLOW RATE MAXIMUM (CFM)
Range hoods	Any	2.8 cfm/watt	Any
In-line fan	Any	2.8 cfm/watt	Any
Bathroom, utility room	10	1.4 cfm/watt	<90
Bathroom, utility room	90	2.8 cfm/watt	Any

For SI: 1 cfm = 28.3 L/min.

a. When tested in accordance with HVI Standard 916

MANDATORY REQUIREMENTS - (Continued)

- ☐ **R403.7.1.1 Cooling equipment capacity.** Cooling only equipment shall be selected so that its total capacity is not less than the calculated total load but not more than 1.15 times greater than the total load calculated according to the procedure selected in Section 403.7, or the closest available size provided by the manufacturer's product lines. The corresponding latent capacity of the equipment shall not be less than the calculated latent load.

The published value for AHRI total capacity is a nominal, rating-test value and shall not be used for equipment sizing. Manufacturer's expanded performance data shall be used to select cooling-only equipment. This selection shall be based on the outdoor design dry-bulb temperature for the load calculation (or entering water temperature for water-source equipment), the blower CFM provided by the expanded performance data, the design value for entering wet-bulb temperature and the design value for entering dry-bulb temperature.

Design values for entering wet-bulb and dry-bulb temperatures shall be for the indoor dry bulb and relative humidity used for the load calculation and shall be adjusted for return side gains if the return duct(s) is installed in an unconditioned space.

Exceptions:

1. Attached single- and multiple-family residential equipment sizing may be selected so that its cooling capacity is less than the calculated total sensible load but not less than 80 percent of that load.
2. When signed and sealed by a Florida-registered engineer, in attached single- and multiple-family units, the capacity of equipment may be sized in accordance with good design practice.

R403.7.1.2 Heating equipment capacity.

- ☐ **R403.7.1.2.1 Heat pumps.** Heat pump sizing shall be based on the cooling requirements as calculated according to Section R403.7.1.1, and the heat pump total cooling capacity shall not be more than 1.15 times greater than the design cooling load even if the design heating load is 1.15 times greater than the design cooling load.

- ☐ **R403.7.1.2.2 Electric resistance furnaces.** Electric resistance furnaces shall be sized within 4 kW of the design requirements calculated according to the procedure selected in Section R403.7.1.

- ☐ **R403.7.1.2.3 Fossil fuel heating equipment.** The capacity of fossil fuel heating equipment with natural draft atmospheric burners shall not be less than the design load calculated in accordance with Section R403.7.1.

- ☐ **R403.7.1.3 Extra capacity required for special occasions.** Residences requiring excess cooling or heating equipment capacity on an intermittent basis, such as anticipated additional loads caused by major entertainment events, shall have equipment sized or controlled to prevent continuous space cooling or heating within that space by one or more of the following options:

1. A separate cooling or heating system is utilized to provide cooling or heating to the major entertainment areas.
2. A variable capacity system sized for optimum performance during base load periods is utilized.

- ☐ **R403.8 Systems serving multiple dwelling units (Mandatory).** Systems serving multiple dwelling units shall comply with Sections C403 and C404 of the IECC—Commercial Provisions in lieu of Section R403.

- ☐ **R403.9 Snow melt and ice system controls (Mandatory)** Snow- and ice-melting systems, supplied through energy service to the building, shall include automatic controls capable of shutting off the system when the pavement temperature is above 50°F (10°C), and no precipitation is falling and an automatic or manual control that will allow shutoff when the outdoor temperature is above 40°F (4.8°C).

- ☐ **R403.10 Pools and permanent spa energy consumption (Mandatory).** The energy consumption of pools and permanent spas shall be in accordance with Sections R403.10.1 through R403.10.5.

- ☐ **R403.10.1 Heaters.** The electric power to heaters shall be controlled by a readily accessible on-off switch that is an integral part of the heater mounted on the exterior of the heater, or external to and within 3 feet (914 mm) of the heater. Operation of such switch shall not change the setting of the heater thermostat. Such switches shall be in addition to a circuit breaker for the power to the heater. Gas-fired heaters shall not be equipped with continuously burning ignition pilots.

- ☐ **R403.10.2 Time switches.** Time switches or other control methods that can automatically turn off and on according to a preset schedule shall be installed for heaters and pump motors. Heaters and pump motors that have built-in time switches shall be in compliance with this section.

Exceptions:

1. Where public health standards require 24-hour pump operation.
2. Pumps that operate solar- and waste-heat-recovery pool heating systems.
3. Where pumps are powered exclusively from on-site renewable generation.

- ☐ **R403.10.3 Covers.** Outdoor heated swimming pools and outdoor permanent spas shall be equipped with a vapor-retardant cover on or at the water surface or a liquid cover or other means proven to reduce heat loss.

Exception: Where more than 70 percent of the energy for heating, computed over an operation season, is from site-recovered energy, such as from a heat pump or solar energy source, covers or other vapor-retardant means shall not be required.

- ☐ **R403.10.4 Gas- and oil-fired pool and spa heaters.** All gas- and oil-fired pool and spa heaters shall have a minimum thermal efficiency of 82 percent for heaters manufactured on or after April 16, 2013, when tested in accordance with ANSI Z 21.56. Pool heaters fired by natural or LP gas shall not have continuously burning pilot lights.

☐ **R403.10.6 Heat pump pool heaters.** Heat pump pool heaters shall have a minimum COP of 4.0 when tested in accordance with AHRI 1160, Table 2, Standard Rating Conditions-Low Air Temperature. A test report from an independent laboratory is required to verify procedure compliance. Geothermal swimming pool heat pumps are not required to meet this standard.

☐ **R403.11 Portable spas (Mandatory).** The energy consumption of electric-powered portable spas shall be controlled by the requirements of APSP-14.

SECTION R404

ELECTRICAL POWER AND LIGHTING SYSTEMS

☐ **R404.1 Lighting equipment (Mandatory).** Not less than 75 percent of the lamps in permanently installed lighting fixtures shall be high-efficacy lamps or not less than 75 percent of the permanently installed lighting fixtures shall contain only high-efficacy lamps.

Exception: Low-voltage lighting.

R404.1.1 Lighting equipment (Mandatory) Fuel gas lighting systems shall not have continuously burning pilot lights.

2017 - AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

TABLE 402.4.1.1
AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

Project Name: RichardDeebRes Street: () Shore Dr E City, State, Zip: Oldsmar, FL, 34677 Owner: Design Location: FL, Tampa		Builder Name: Deeb Family Homes Permit Office: Oldsmar Permit Number: Jurisdiction: 622400		CHECK
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.		✓
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 drywall.	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 or exterior walls	The air barrier shall be installed behind electrical or communication boxes or air-sealed boxes shall be installed.			✓
HVAC register boots	HVAC register boots that penetrate building thermal envelope shall be sealed to the sub-floor or drywall.			✓
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 2017 Florida Building Code, Energy Conservation via the residential Simulated Performance Method shall include:

- ☐ *This checklist*
- ☐ *A Form R405 report that documents that the Proposed Design complies with Section R405.3 of the Florida Energy Code. This form shall include a summary page indicating home address, e-ratio and the pass or fail status along with summary areas and types of components, whether the home was simulated as a worst-case orientation, name and version of the compliance software tool, name of individual completing the compliance report (one page) and an 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 for the Performance Method:

- ☐ *Air Barrier and Insulation Inspection Component Criteria checklist (Table R402.4.1.1 - one page)*
- ☐ *A completed Envelope Leakage Test Report (usually one page)*
- ☐ *If Form R405 duct leakage type indicates anything other than "default leakage", then a completed Form R405 Duct Leakage Test Report (usually one page)*

Envelope Leakage Test Report (Blower Door Test)
Residential Prescriptive, Performance or ERI Method Compliance
2017 Florida Building Code, Energy Conservation, 6th Edition

Jurisdiction: 622400

Permit #:

Job Information

Builder: Deeb Family Homes

Community:

Lot: NA

Address: Shore Dr E

City: Oldsmar

State: FL

Zip: 34677

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 R405-2017 (Performance) or R406-2017 (ERI), section labeled as infiltration, sub-section ACH50. ACH(50) specified on Form R405-2017 Energy Calc (Performance) or R406-2017 (ERI): 7.000

$\frac{\text{CFM}(50)}{\text{Building Volume}} \times 60 + \frac{60100}{\text{Building Volume}} = \text{ACH}(50)$

☐ **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 Statutes* 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

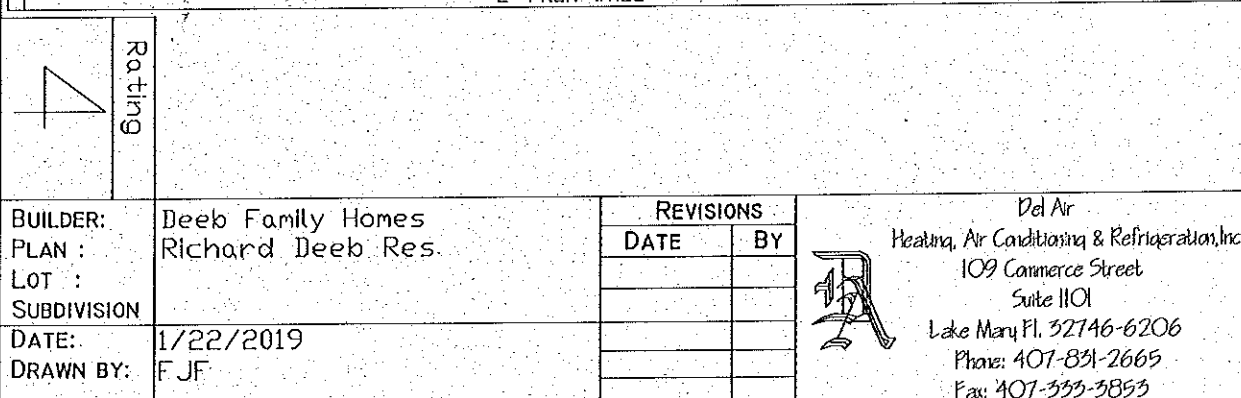
Company Name: _____ Phone: _____

I hereby verify that the above Air Leakage results are in accordance with the 2017 6th Edition Florida Building Code Energy Conservation requirements according to the compliance method selected above.

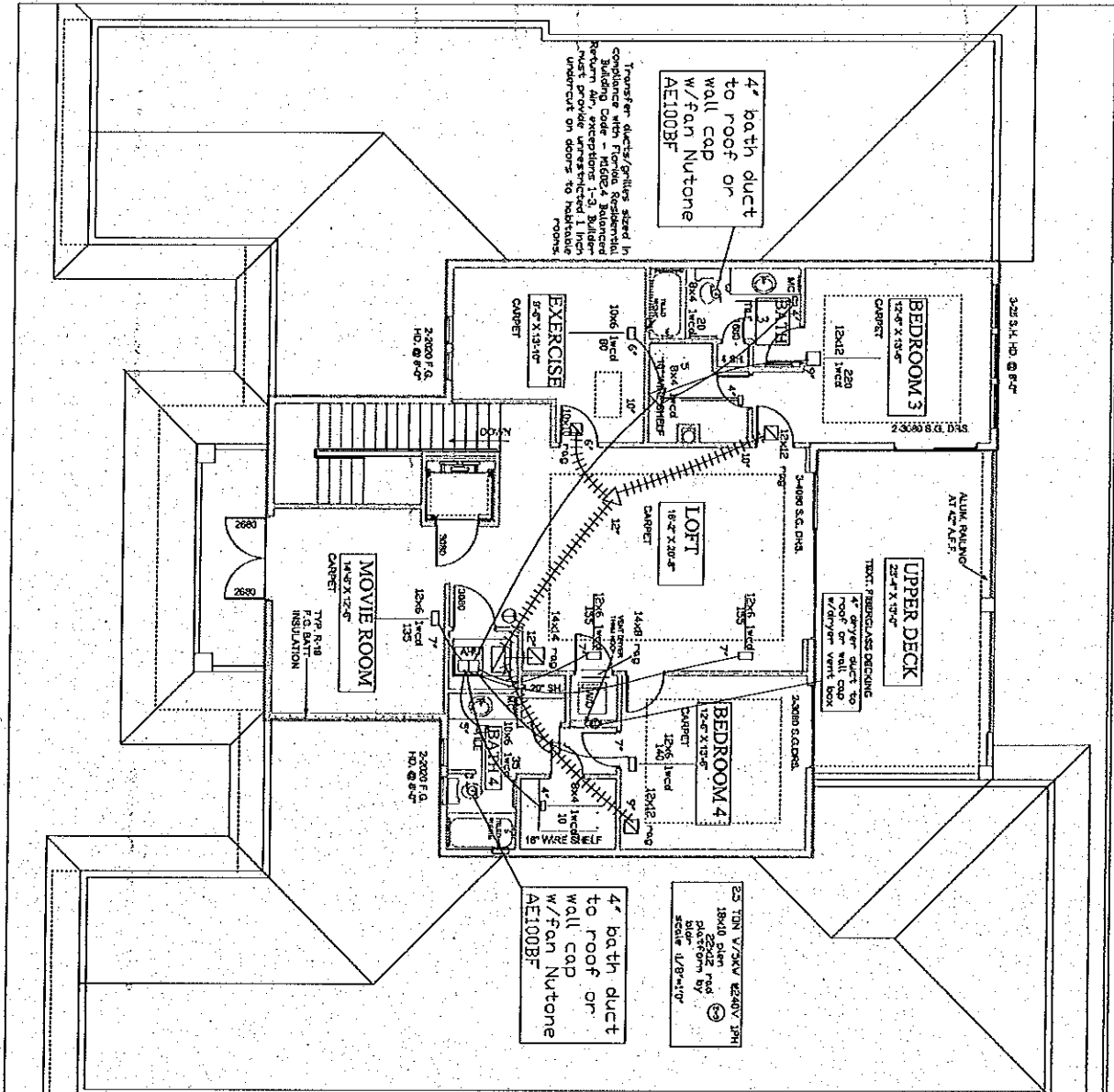
Signature of Tester: _____ Date of Test: _____

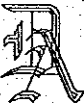
Printed Name of Tester: _____

License/Certification #: _____ Issuing Authority: _____



Must have a minimum clearance of 4 inches around the air handler per the State Energy code. All duct has an R-6 insulation value.



Rating 4															
BUILDER: PLAN : LOT : SUBDIVISION		Deeb Family Homes Richard Deeb Res	REVISIONS <table><tr><th>DATE</th><th>BY</th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>	DATE	BY										
DATE	BY														
DATE: DRAWN BY:		1/22/2019 FJF	 Del Air Heating, Air Conditioning & Refrigeration, Inc. 109 Commerce Street Suite 1101 Lake Mary Fl. 32746-6206 Phone: 407-891-2665 Fax: 407-353-3853												