

EUC # Project/Job name or Client last name

Example Customer

Project Address

1234 Anywhere Street, City

1) Cooling efficiency

16 SEER 13 EER

Minimum requirements are SEER >15, EER>12.5, AFUE >.92, HSPF >9.1

Heating Efficiency

9.2 AFUE/HSPF

2) Conditioned Floor Area

1808 Square Feet

Maximum Cooling Capacity

2 Nominal Tons 904 SF/Ton

Minimum of 800 SF per AC/heat pump Ton, and maximum furnace of 18 BtuH per SF conditioned floor area

Max Heating Capacity

24000 BtuH Input 13 BtuH/SF

3) Measured System Airflow in Cooling

733 CFM 489 CFM/Ton (connected)

Acceptable methods Airflow: FlowBlaster "sum of supply" total airflow, Energy Conservatory True Flow plate at returns, and/or plenum pressure matching using DuctBlaster.

Measured Furnace/Air Handler Fan Watts

147 Watts 0.20 Fan Watts/CFM

Acceptable method Watt Measurement: Any device capable of accurately measuring true RMS Watts

4) Total Distribution Sytem Leakage @25Pa

5.4 CFM25 4 Flow Ring Used for leakage test

Nominal AC tons x 400 CFM/ton

600 Nominal airflow

Total Leakage CFM25 divided by nominal airflow

1% % leakage

Ducts fully supported by bottom chord/ceiling joists

yes yes/no

Compact duct design utilized

yes yes/no

Ducts fully extended with no visible kinks

yes yes/no

5) Sensible Delivered BtuH calculation

Outdoor dry bulb during testing

54 (F)

Indoor dry bulb (use average returns below)

73 (F)

Indoor wet bulb (cooling tests only)

(F)

Site Elevation above Sea Level

1000 Feet

SYSTEM SIZING AND REQUIRED PERFORMANCE REFERENCE TABLE					
BTUH / SF FURNACE		THE SYSTEM DESIGNER MUST CERTIFY THE DESIGN IS CAPABLE OF MEETING ALL PERFORMANCE TARGETS AND MEETS OR EXCEEDS MANUAL J, D, S, T			
SF PER TON SIZING TABLE		MAX FURNACE INPUT		COOLING COIL MIN.	FAN WATT DRAW
CONDITIONED SF	AC SIZING	MIN	MAX	REQUIRED CFM	MAXIMUM AT MIN CFM
TYPICAL RANGE	MAXIMUM				
0-1599	1.5	0	21600	675	169
1600-1999	2.0	0	28800	900	225
2000-2399	2.5	0	36000	1125	281
2400-2799	3.0	0	43200	1350	338
2800-3199	3.5	0	50400	1575	394
3200-3999	4.0	0	57600	1800	450
4000-Up	5.0	0	72000	2250	563

Return Flow (Alnor flow hood, TF or plenum pressure matching)

Start Temp (F)

End Temp (F)

Ave Temp (F)

Airflow CFM

Return airflows using flow capture hood OK

Return air temp #1 start

71

"A" Starting →

71.6

(F) "B" Ending →

71.3

(Temp A + Temp B) ÷ 2 = Ave Temp 1

557

Measured CFM Return 1 (Total if only 1)

Return air temp #2 start

74.8

"C" Starting →

76.7

(F) "D" Ending →

75.8

(Temp C + Temp D) ÷ 2 = Ave Temp 2

196

Measured CFM Return 2

Calculate the weighted return average CFM with 2 returns:

52.7

CFM Return 1 ÷ Total CFM × Ave Temp 1

19.7

CFM Return 2 ÷ Total CFM × Ave Temp 2

72.5

Weighted Return Temp (weighted return 1 + weighted return 2)

753

Total CFM Return (1+2)

Supply Airflows (use only Energy Conservatory FlowBlaster)

Temp (F) CFM Flow Correction

Constant

Delta T

Calculation

Btu/Hr

Calculation

Supply Grille #1 Room: Bedroom 2

97.2 94 0.95

1.08

24.7

Delta SG1 -Weighted Return Temp

2386

BtuH (delta x 1.08 x CFM x Flow Correction)

Supply Grille #2 Room: Bedroom 3

98.9 122 0.95

1.08

26.4

Delta SG2 -Weighted Return Temp

3310

BtuH (delta x 1.08 x CFM x Flow Correction)

Supply Grille #3 Room: Main Living

97.2 212 0.95

1.08

24.7

Delta SG3 -Weighted Return Temp

5382

BtuH (delta x 1.08 x CFM x Flow Correction)

Supply Grille #4 Room: Master Suite

97.9 172 0.95

1.08

25.4

Delta SG4 -Weighted Return Temp

4490

BtuH (delta x 1.08 x CFM x Flow Correction)

Supply Grille #5 Room: Formal Dining

99.0 133 0.95

1.08

26.5

Delta SG5 -Weighted Return Temp

3622

BtuH (delta x 1.08 x CFM x Flow Correction)

Supply Grille #6 Room:

1.08

Delta SG6 -Weighted Return Temp

BtuH (delta x 1.08 x CFM x Flow Correction)

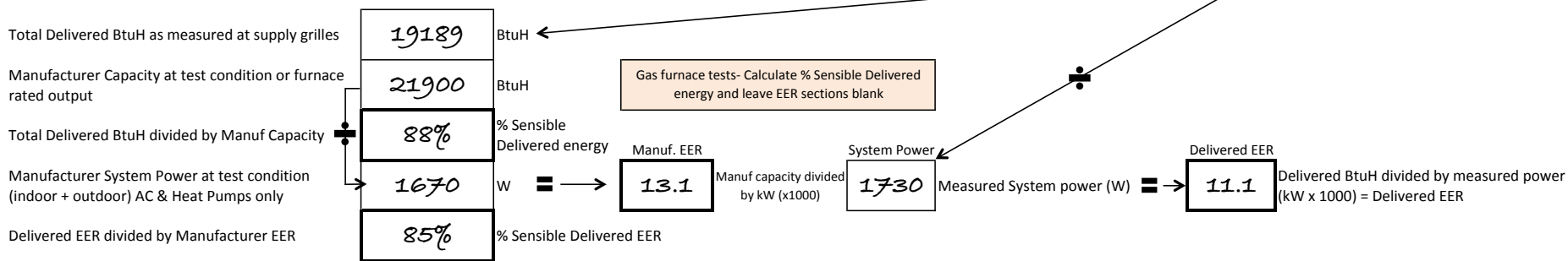
Supply Grille #7 Room:

1.08

Delta SG7 -Weighted Return Temp

BtuH (delta x 1.08 x CFM x Flow Correction)

Supply Airflow (continued from page 1)	Temp (F)	Flow Correction	CFM (indicated)			
Supply Grille #8 Room:				1.08		Delta SG8 -Weighted Return Temp
Supply Grille #9 Room:				1.08		Delta SG9 -Weighted Return Temp
Supply Grille #10 Room:				1.08		Delta SG10 -Weighted Return Temp
Supply Grille #11 Room:				1.08		Delta SG11 -Weighted Return Temp
Supply Grille #12 Room:				1.08		Delta SG12 -Weighted Return Temp
Totals		733	CFM Total (Indicated airflow)			19189 Total Btu/Hr Delivered (sum entire column)



6) Room temperature stratification testing at 3' AFF, center of all rooms

All temps after continuous minimum 15 minutes of system operation, system running, all doors open

Room	Temp (F)	Flow Correction	Pascals	Notes
#1 Room: Bedroom 2	69.4	(F)	4.2	Pascals across door
#2 Room: Bedroom 3	67.2	(F)	3.4	Pascals across door
#3 Room: Main Living	68.8	(F)	N/A	Pascals across door
#4 Room: Master Suite	68.4	(F)	0.2	Pascals across door
#5 Room: Formal Dining	68.6	(F)	N/A	Pascals across door
#6 Room: Laundry	N/A	(F)	0.2	Pascals across door
#7 Room: Bath 2	N/A	(F)	1.1	Pascals across door
#8 Room:		(F)		Pascals across door
#9 Room:		(F)		Pascals across door
#10 Room:		(F)		Pascals across door
Central Point 1' up Room: Main Living	70.1	(F)		All <5 Pa is a pass
Central 1' down ceiling	68.4	(F)		
Difference between coldest and warmest-all:	2.9	(F)		Difference of 3.0 degrees or less is a pass

7) Measure all exhaust flows and mark type and whether continuous or demand controlled

Ventilation Location	CFM Flow	Supply or Exhaust / continuous or switched
#1 Room: Master Bath	33	Exhaust / cont. HRV
#2 Room: Master Toilet	29	Exhaust / cont. HRV
#3 Room: Master Bed	48	Supply / cont. HRV
#4 Room: Bedroom 2	35	Supply / cont. HRV
#5 Room: Bedroom 3	32	Supply / cont. HRV
#6 Room: Laundry	30	Exhaust / cont. HRV
#7 Room: Bath 2	26	Exhaust / cont. HRV
#8 Room:		
	118	Total CFM all continuous exhaust ventilation
	115	Total CFM all continuous supply ventilation
	72	Total required ventilation CFM (ASHRAE 62.2)
	53	Total Watts of all continuous ventilation
	0.45	Watts ÷ CFM of all continuous ventilation

Continuous ventilation exceeds required plus: HRV <=0.45W/CFM passes or exhaust fans <=0.20 W/CFM is a pass

By signing below, I _____ (Print name) certify that I am the lead installing technician on this project and performed all measurements listed herein. I certify that all numbers listed herein have been measured, are true, and are of the best ability of my equipment and self to accurately measure and calculate. _____ (Signature) (Company Name) _____ (Date)

Installing Contractor must attach a signed copy of the ACCA Manual J, D, S, and T "as built" forms to this form, with the system designer's name and signature.

