Introducing the

Innovative design/Cleaner indoor air/Healthier choice

Coziahr Heating and Air Conditioning

Leadership - Past and Present

Walt Coziahr

Founder 1936

Deceased 1960

Walter Coziahr

Retired

Owner/President 1960 - 1999

Iowa State College - Engineering

Dave Coziahr

Owner/President

B.S. Construction Engineering - Mechanical emphasis - ISU

Engineer-In-Training

Luanne Coziahr

Owner/Vice President

B.S. Plant Pathology - ISU

M.S. Biological Science -UNL

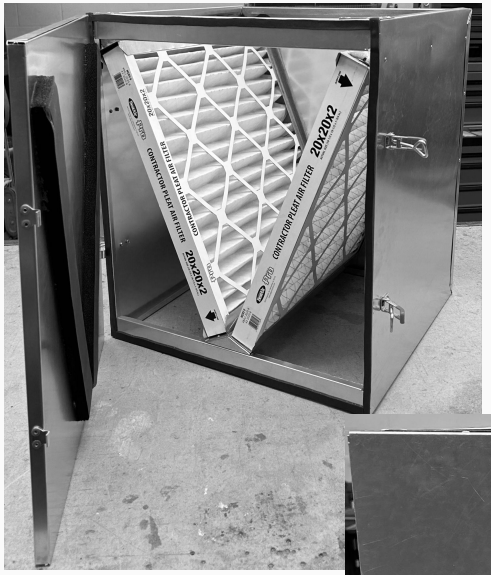
The Problem

The typical HVAC air filtering system is poorly designed, grossly undersized and woefully ineffective.

Static Pressure Measurements

Equipment		*Filter*	
Entering Pressure	.81	Before Pressure	.15
Exiting Pressure	.28	After Pressure	.81
Total ESP	1.09	Pressure Drop	.66
Duct		**Coil**	
Supply Pressure Drop	.17	Before Pressure	.28
Return Pressure Drop	.15	After Pressure	.17
Total Pressure Drop	.32	Pressure Drop	.11

80K Btu/hr, 90% AFUE furnace requires 1200 cfm. Plotted air flow: 750 cfm.
2-½ ton air conditioner requires 1000 cfm. Plotted air flow: 680 cfm.



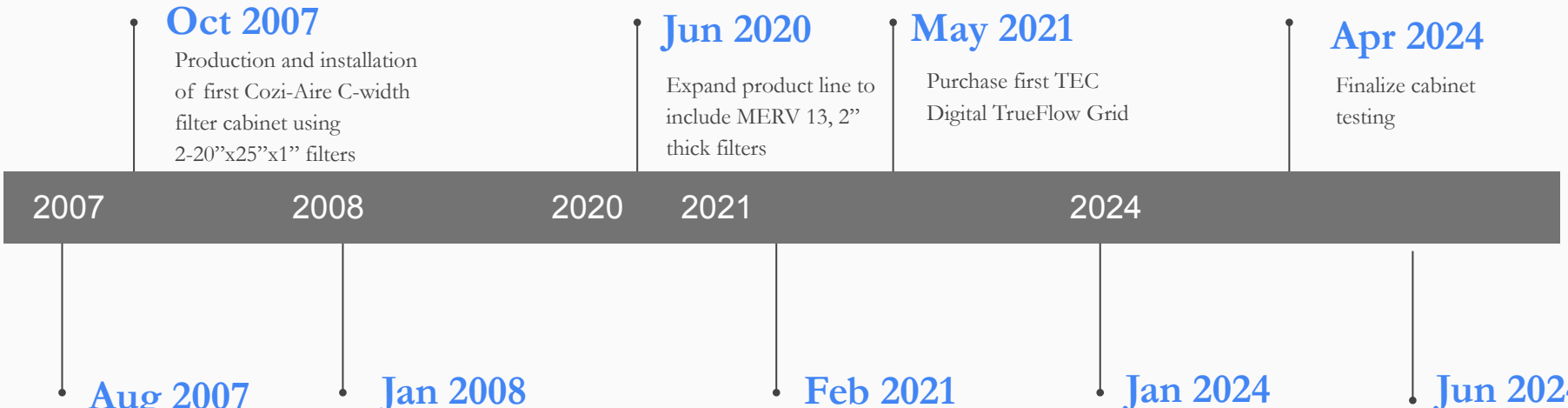
The Solution

The Cozi-Aire Filter Cabinet

Engineered for:

- ★ Extremely low pressure drops
- ★ Easy filter change
- ★ Standard filter sizes
- ★ Use with multiple MERV filter ratings
- ★ Use with all furnace and air handler cabinet widths
- ★ Compact size, and
- ★ Low duct leakage

Cozi-Aire Filter Cabinet Timeline



Oct 2007

Production and installation of first Cozi-Aire C-width filter cabinet using 2-20”x25”x1” filters

Jun 2020

Expand product line to include MERV 13, 2” thick filters

May 2021

Purchase first TEC Digital TrueFlow Grid

Apr 2024

Finalize cabinet testing

Aug 2007

Attend first NCI air flow course led by Rob Falke

Jan 2008

Expand production to include all cabinet widths and continue collecting field data

Feb 2021

Purchase TEC TrueFlow Air Handler Flow Meter to measure air flow

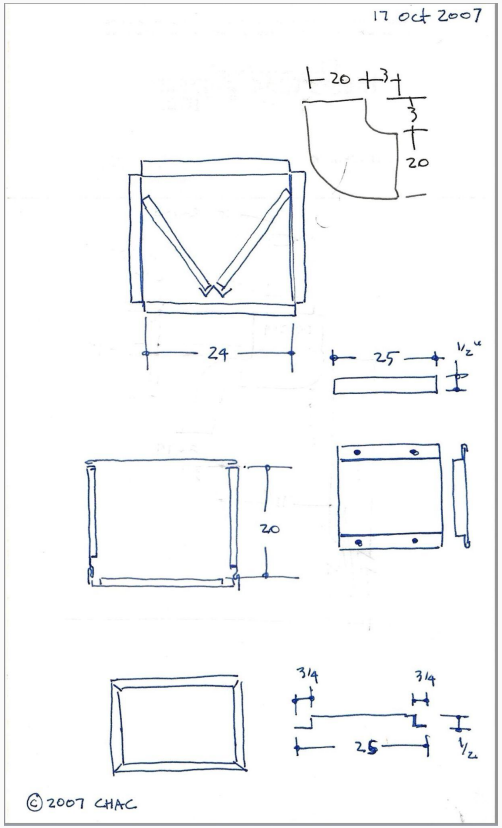
Jan 2024

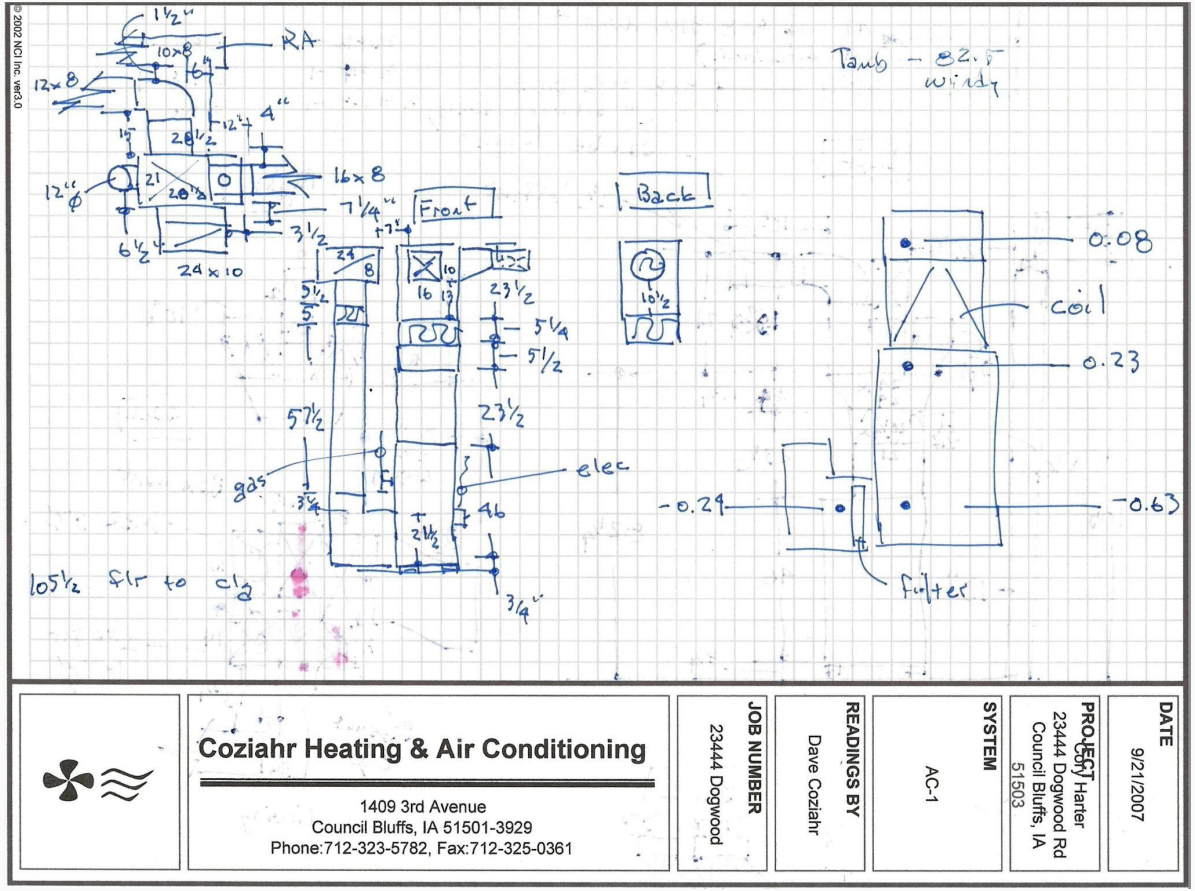
Begin bench testing of the Cozi-Aire cabinets using 1” and 2” thick MERV 8, 11, 13 and 15 filters

Jun 2024

First presentation of the Cozi-Aire filter cabinet

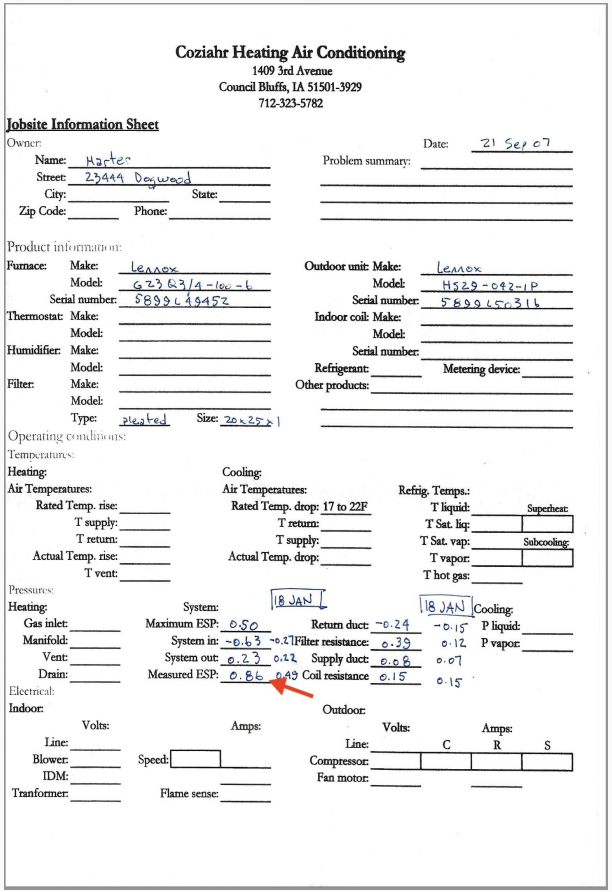
First Cabinet





	Coziahr Heating & Air Conditioning 1409 3rd Avenue Council Bluffs, IA 51501-3929 Phone:712-323-5782, Fax:712-325-0361	**JOB NUMBER** 23444 Dogwood	**READINGS BY** Dave Coziahr	**SYSTEM** AC-1	**PROJECT** Jeff Harter 23444 Dogwood Rd Council Bluffs, IA 51503	**DATE** 9/21/2007

Job Site Information Sheets (Data collection)



Coziahr Heating Air Conditioning
1409 3rd Avenue
Council Bluffs, IA 51501-3929
712-323-5782

Jobsite Information Sheet

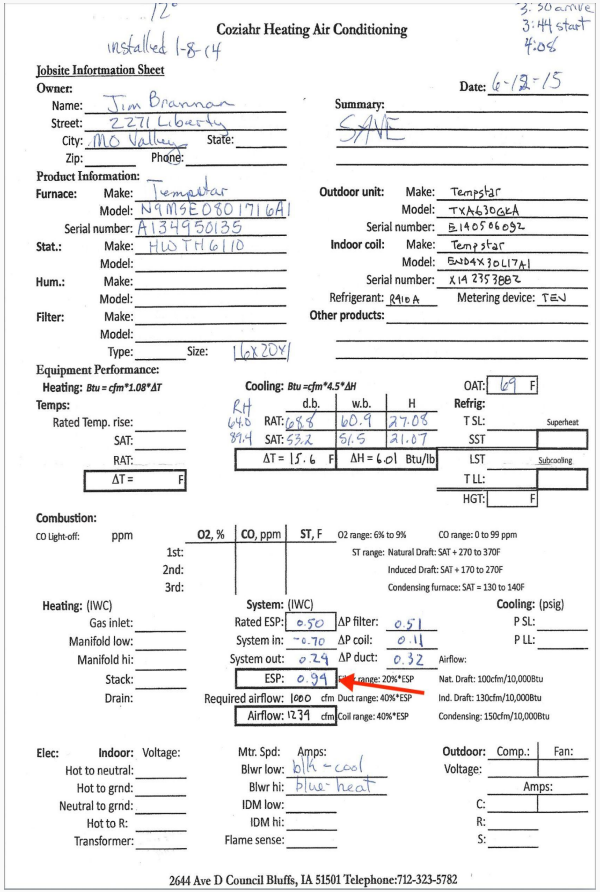
Owner:
Name: Harter
Street: 23949 Dogwood
City: State:
Zip Code: Phone:
Date: 21 Sep 07
Problem summary:

Product information:
Furnace: Make: Lennox
Model: G23Q3/4-100-6
Serial number: 5899C19452
Thermostat: Make:
Model:
Humidifier: Make:
Model:
Filter: Make:
Model:
Type: pleated Size: 20x25x1
Outdoor unit: Make: Lennox
Model: HS29-042-1P
Serial number: 5899C15316
Indoor coil: Make:
Model:
Serial number:
Refrigerant: Metering device:
Other products:

Operating conditions:
Temperatures:
Heating:
Air Temperatures:
Rated Temp. rise:
T supply:
T return:
Actual Temp. rise:
T vent:
Cooling:
Air Temperatures:
Rated Temp. drop: 17 to 22F
T return:
T supply:
Actual Temp. drop:
Refrig. Temps.:
T liquid: Superheat:
T Sat. liq:
T Sat. vap: Subcooling:
T vapor:
T hot gas:

Pressures:
Heating: System: 18 JAN
Gas inlet:
Manifold:
Vent:
Drain:
Cooling: 18 JAN
Maximum ESP: 0.50
System in: -0.63 -0.27
System out: 0.23 0.22
Measured ESP: 0.86 0.49
Return duct: -0.24 -0.15
Filter resistance: 0.39 0.12
Supply duct: 0.08 0.07
Coil resistance 0.15 0.15
P liquid:
P vapor:

Electrical:
Indoor: Volts: Amps:
Line:
Blower: Speed:
IDM:
Tranformer:
Flame sense:
Outdoor: Volts: Amps:
Line: C R S
Compressor:
Fan motor:



12°
Installed 1-8-14
3:30 arrive
3:44 start
4:08

Coziahr Heating Air Conditioning

Jobsite Information Sheet
Owner:
Name: Jim Brannan
Street: 2271 Liberty
City: MO Valley State:
Zip: Phone:
Date: 6-12-15
Summary: SAME

Product Information:
Furnace: Make: Tempstar
Model: N9MSE080171 6A1
Serial number: A134950135
Stat.: Make: HW TH6110
Model:
Hum.: Make:
Model:
Filter: Make:
Model:
Type: Size: 16x20x1
Outdoor unit: Make: Tempstar
Model: TXA630G6A
Serial number: B140506632
Indoor coil: Make: Tempstar
Model: E32B4X30L17A1
Serial number: X14235388Z
Refrigerant: R410A Metering device: TEV
Other products:

Equipment Performance:
Heating: Btu = cfm*1.08*ΔT
Temps:
Rated Temp. rise:
SAT:
RAT:
ΔT = F
Cooling: Btu = cfm*4.5*ΔH

	d.b.	w.b.	H
RH 64.0 RAT:	68.8	60.9	27.08
89.4 SAT:	53.2	51.5	21.07
ΔT = 15.6 F	ΔH = 6.01 Btu/lb		

OAT: 69 F
Refrig:
T SL: Superheat
SST
LST Subcooling
T LL:
HGT: F

Combustion:
CO Light-off: ppm

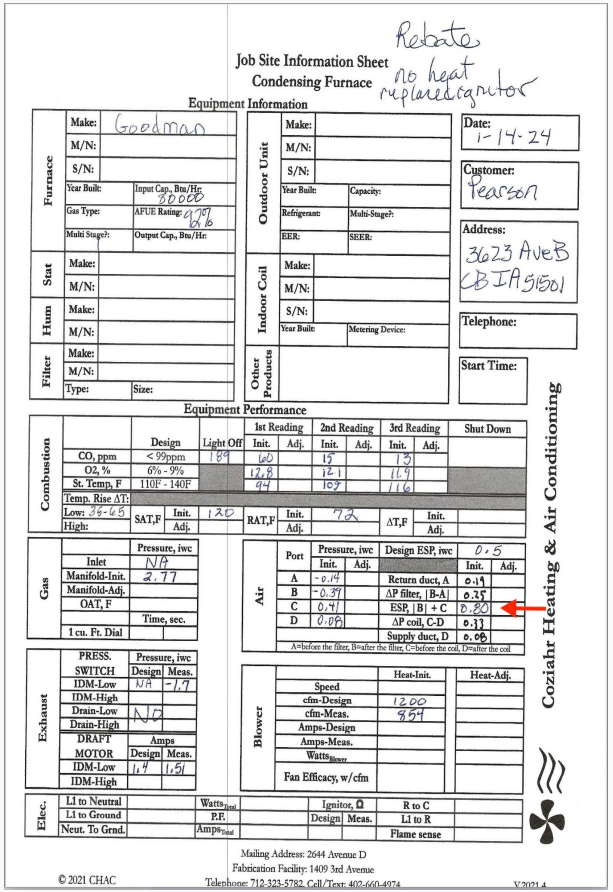
	O2, %	CO, ppm	ST, F
1st:			
2nd:			
3rd:			

O2 range: 6% to 9% CO range: 0 to 99 ppm
ST range: Natural Draft: SAT + 270 to 370F
Induced Draft: SAT + 170 to 270F
Condensing furnace: SAT = 130 to 140F

Heating: (IWC)
Gas inlet:
Manifold low:
Manifold hi:
Stack:
Drain:
System: (IWC)
Rated ESP: 0.50 ΔP filter: 0.51
System in: -0.70 ΔP coil: 0.11
System out: 0.29 ΔP duct: 0.32
ESP: 0.99 Duct range: 20%*ESP
Required airflow: 1000 cfm Duct range: 40%*ESP
Airflow: 1239 cfm Coil range: 40%*ESP
Airflow:
Nat. Draft: 100cfm/10,000Btu
Ind. Draft: 130cfm/10,000Btu
Condensing: 150cfm/10,000Btu
Cooling: (psig)
P SL:
P LL:

Elec: Indoor: Voltage:
Hot to neutral:
Hot to grnd:
Neutral to grnd:
Hot to R:
Transformer:
Mtr. Spd: Amps:
Blwr low: blk = cool
Blwr hi: blue = heat
IDM low:
IDM hi:
Flame sense:
Outdoor: Comp.: Fan:
Voltage:
Amps:
C:
R:
S:

2644 Ave D Council Bluffs, IA 51501 Telephone:712-323-5782



Rebate
no heat replacement

Job Site Information Sheet
Condensing Furnace

Equipment Information

Furnace	Make: Goodman		Outdoor Unit	Make:	
	M/N:			M/N:	
	S/N:			S/N:	
	Year Built:	Input Cap., Btu/Hr: 80000		Year Built:	Capacity:
	Gas Type:	AFUE Rating: 97%		Refrigerant:	Multi-Stage?:
	Multi Stage?:	Output Cap., Btu/Hr:		EER:	SEER:
Stat	Make:		Indoor Coil	Make:	
	M/N:			M/N:	
Hum	Make:			S/N:	
	M/N:			Year Built:	Metering Device:
Filter	Make:		Other Products		
	M/N:				
	Type:	Size:			

Date: 1-14-24
Customer: Pearson
Address: 3023 Ave B CB IA 51501
Telephone:
Start Time:

Equipment Performance

		Design	Light Off	1st Reading Init.	1st Reading Adj.	2nd Reading Init.	2nd Reading Adj.	3rd Reading Init.	3rd Reading Adj.	Shut Down
Combustion	CO, ppm	<99ppm	189	60		13		15		
	O2, %	6% - 9%		12.8		12.1		11.9		
	St. Temp, F	110F - 140F		94		103		116		
	Temp. Rise ΔT:									
	Low: 55-65	SAT,F	120	RAT,F		72	ΔT,F			
	High:									

Gas	Inlet	Pressure, iwc NA	Air	Port	Pressure, iwc Init.	Adj.	Design ESP, iwc 0.5
	Manifold-Init.	2.77		A	-0.14		Return duct, A 0.19
	Manifold-Adj.			B	-0.39		ΔP filter, B-A 0.25
	OAT, F			C	0.71		ESP, B + C 0.80
	Time, sec.			D	0.09		ΔP coil, C-D 0.33
	1 cu. Ft. Dial						Supply duct, D 0.08

A=before the filter, B=after the filter, C=before the coil, D=after the coil

Exhaust	PRESS. SWITCH	Pressure, iwc Design	Meas.	Blower		Heat-Init.	Heat-Adj.
	IDM-Low	NA	-1.7		Speed		
	IDM-High				cfm-Design	1200
	Drain-Low	NO			cfm-Meas.	954
	Drain-High				Amps-Design	
	DRAFT MOTOR	Amps Design	Meas.		Amps-Meas.	
	IDM-Low	1.4	1.51		Watts Blower	
	IDM-High				Fan Efficacy, w/cfm	

Elec.	L1 to Neutral		Watts Total		Ignitor, Ω		R to C
	L1 to Ground		P.F.		Design	Meas.	L1 to R
	Neut. To Grnd.		Amps Total				Flame sense

Coziahr Heating & Air Conditioning

Mailing Address: 2644 Avenue D
Fabrication Facility: 1409 3rd Avenue
Telephone: 712-323-5782 Cell/Text: 402-660-4974

V2021.4

Measuring Static Pressure and Air Flow

Date tested: 4/29/2024
4/29/2024 1:22:43 PM
Company info
Name: Coziahr Htg & A/C
Phone: (712) 323-5782
Email: coziahr@gmail.com

Tech info
Name: David Coziahr
ID: 263
Title: Owner
Credentials: BPI 5044809

True Flow System Air Flow and Static Pressure Analysis

Air measurements

Total air flow = 1005 SCFM
Return duct = -0.120 inH_2O
After filter = -0.284 inH_2O
Supply duct = 0.042 inH_2O

System & Conditions

Cooling Climate: Moist
Elevation: 981 ft
Return temp: 66° F

System Type: Electric
Orientation: Upflow
Cooling Capacity: 2.5
Filter Location: InDuct

Summary calculations

Flow	402 SCFM/ton
TESP	0.325 inH_2O
Return Plenum	0.120 inH_2O
Filter Drop	0.164 inH_2O
Supply Plenum	0.042 inH_2O

Summary of Warnings

No warnings.

Customer

Name: Deupree
Phone: N/A
Email: N/A
Address: 3318 Avenue G Council Bluffs IA 51501 United States

A/C System Test 5/30/2024, 1:03:17 PM

Outdoor Measurements

Low Pressure (PSIG/°F):	110.0 / -61.8
High Pressure (PSIG/°F):	302.5 / -61.8
Suction Line Temp (°F):	53.6
Liquid Line Temp (°F):	75.8
Discharge Line Temp (°F):	--
Outdoor Air Temp (°F):	76.4
Superheat (°F):	115.5
Subcooling (°F):	--
Condenser Voltage:	241.2
Condenser Amperage:	6.9
Condenser Power Factor:	0.96
Condenser Power (W):	1,617

Indoor Measurements

Return Temp (°F):	70.9
Return %RH:	50.8
Return Wet Bulb (°F):	59.2
Supply Temp (°F):	51.4
Supply %RH:	82.4
Supply Wet Bulb (°F):	48.6
Airflow, Estimated (SCFM):	1,200
Airflow, Measured (SCFM):	1,098
Total External Static Pres (inH2O):	0.5
AHU Voltage:	120.7
AHU Amperage:	1.4
AHU Power Factor:	0.78
AHU Power (W):	307

System Profile & Weather Data

System Type:	Split
Nominal Tonnage:	3.0
Refrigerant:	R410A
Nom. Airflow (SCFM/Ton):	400
SEER:	13-16
Metering Device:	TXV
Atmospheric Pressure (PSIA):	14.179
Elevation (ft):	988
Temperature (°F):	75.0
Humidity (%):	56.0
Dew Point (°F):	58.7
System Stability:	Stable
System Benchmarked:	No

Performance Calculations

Capacity Calculations:

Nominal:	3.0 Tons / 36,000 Btu/h
Normalized:	2.7 Tons / 32,631 Btu/h
Actual:	2.6 Tons / 30,716 Btu/h (94.1% Normalized)
Sensible:	1.9 Tons / 22,601 Btu/h (88.1% Normalized)
Latent:	0.7 Tons / 8,115 Btu/h (116.4% Normalized)
Sensible Heat Ratio:	0.74

Air-side Performance:

Temp Split Target:	19.8°F
Temp Split:	19.5°F
Dehumidification:	7.5 lb/hr
	0.9 gal/hr

System Efficiency:

Fan Efficacy:	0.28
Total Power:	1,924
EER/EER2:	16.0/15.3
~SEER/SEER2:	17.7/16.9
Sensible Efficiency:	88.1%
Fltr. Face Velocity:	158 FPM

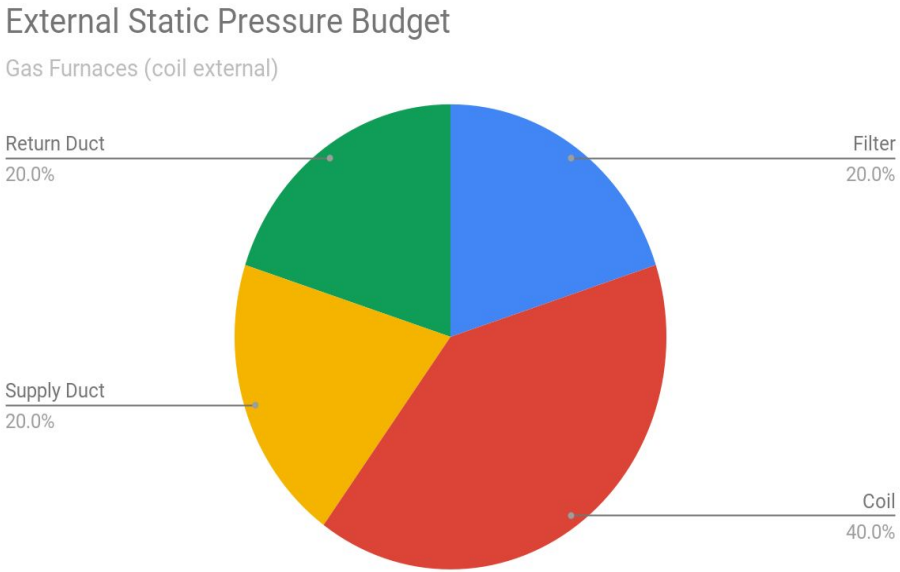
Notes:
Test started on 5/30/2024, 12:35:20 PM.

Customer
Arlon Deupree
125 Applewood Court
Council Bluffs, IA 51503

LUXAIRE AL19B3621S W2F2552505
ID
Coords: 41.2435, -95.7974
Condenser
Make: LUXAIRE
Model: AL19B3621S
Serial: W2F2552505
Air Handler
Make: RUUD
Model: UGPR-10EBRMR
Serial: GX5D301F390703590
Evaporator
Make: LUXAIRE
Model: CM36CXA1C
Serial: W2N1786241

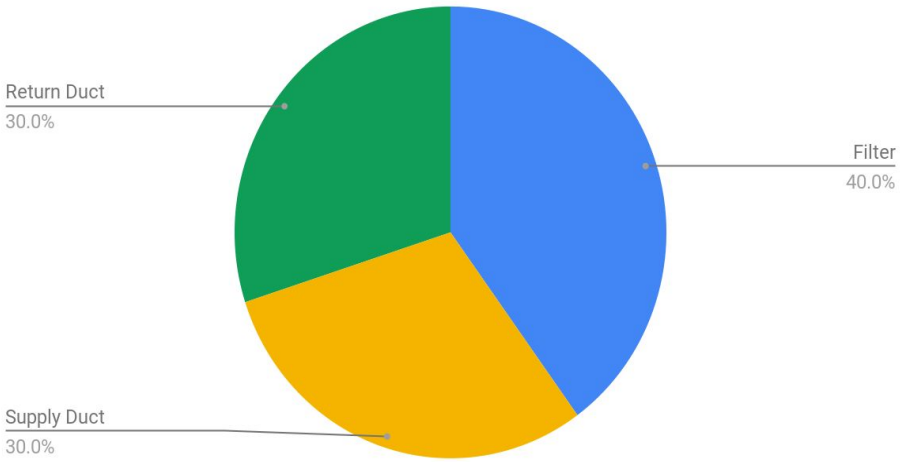
measureQuick

External Static Pressure Budget



Manufacturer Max. ESP	Filter Budget	End of Filter Life ∂p
0.50 iwc	20%	0.10 iwc
0.80 iwc	20%	0.16 iwc

Manufacturer Max. ESP	Filter Budget	End of Filter Life ∂p
0.50 iwc	40%	0.20 iwc
0.80 iwc	40%	0.32 iwc



Particle Size and Filter Efficiency

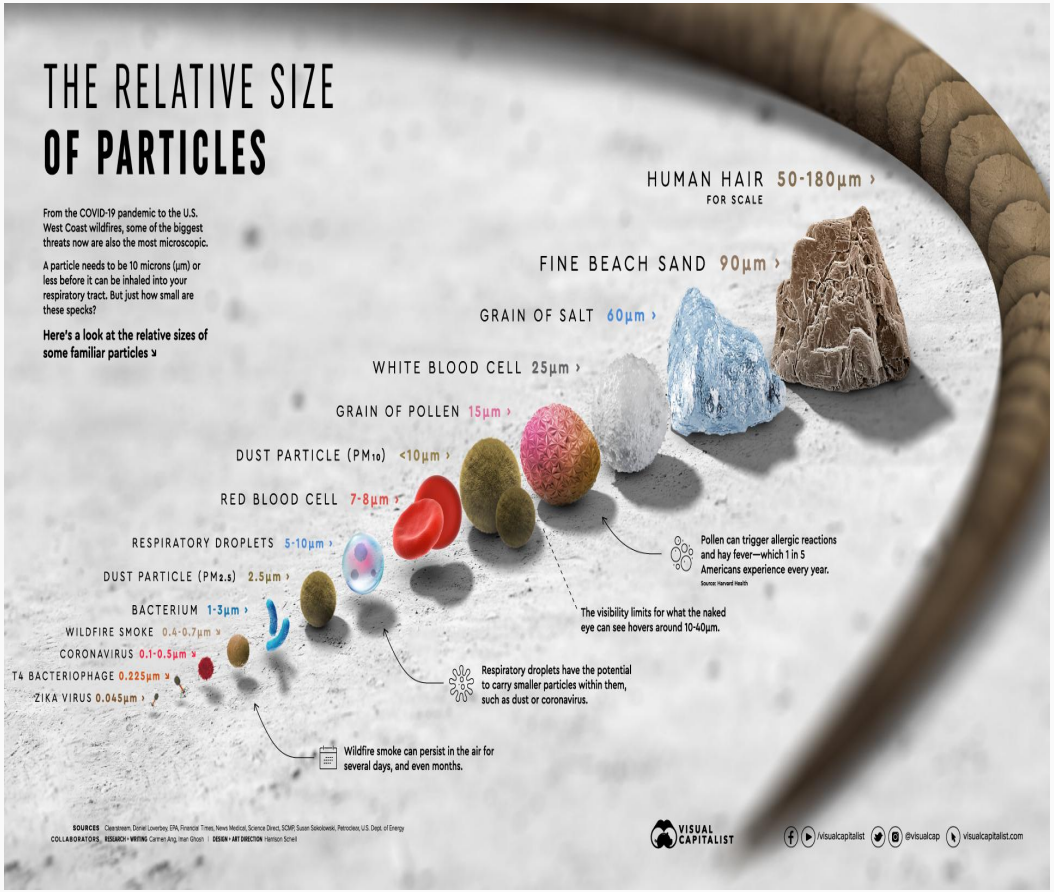
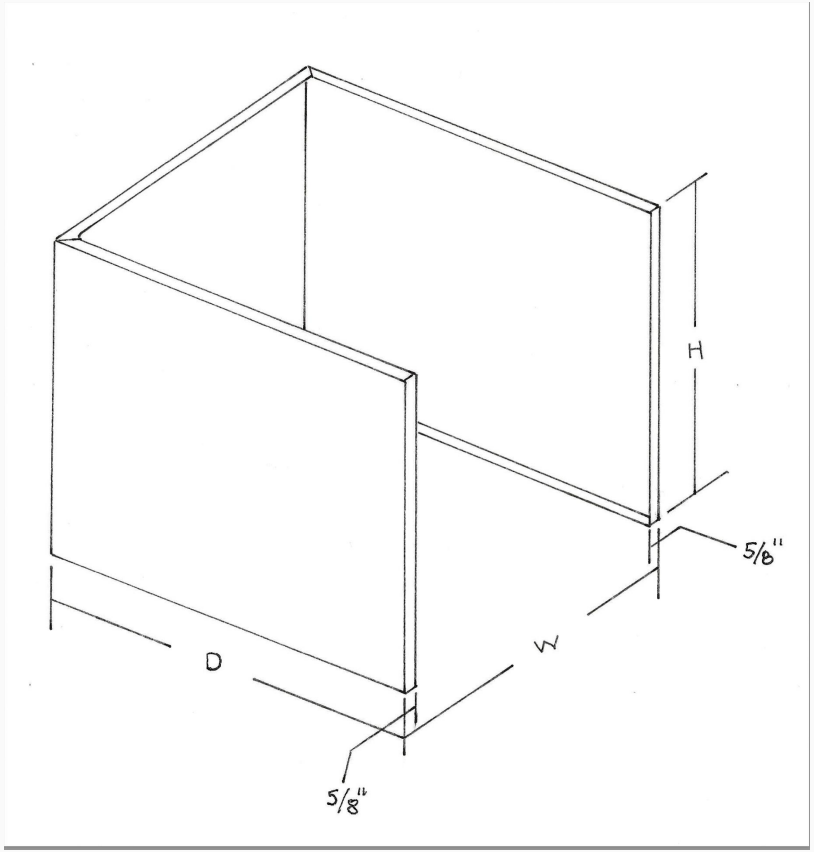


TABLE 3: MERV PARAMETERS

Standard 52.2 Minimum Efficiency Reporting Value (MERV)	Composite Average Particle Size Efficiency, % in Size Range, µm			ASHRAE Arrestance
	Range 1 (0.3-1.0)	Range 2 (1.0-3.0)	Range 3 (3.0-10.0)	
1	n/a	n/a	E3 < 20	Aavg < 65
2	n/a	n/a	E3 < 20	65 ≤ Aavg < 70
3	n/a	n/a	E3 < 20	70 ≤ Aavg < 75
4	n/a	n/a	E3 < 20	75 ≤ Aavg
5	n/a	n/a	20 ≤ E3< 35	n/a
6	n/a	n/a	35 ≤ E3< 50	n/a
7	n/a	n/a	50 ≤ E3< 70	n/a
8	n/a	n/a	70 ≤ E3	n/a
9	n/a	E2 < 50	85 ≤ E3	n/a
10	n/a	50 ≤ E2< 65	85 ≤ E3	n/a
11	n/a	65 ≤ E2< 80	85 ≤ E3	n/a
12	n/a	80 ≤ E2	90 ≤ E3	n/a
13	E1< 75	90 ≤ E2	90 ≤ E3	n/a
14	75 ≤ E1< 85	90 ≤ E2	90 ≤ E3	n/a
15	85 ≤ E1< 95	90 ≤ E2	90 ≤ E3	n/a
16	95 ≤ E1	95 ≤ E2	95 ≤ E3	n/a

Product Nomenclature and Physical Dimensions

Cabinet Width	**A(A)** When A follows the first letter the filter cabinet is designated for an AHU	**A = 14”**
		B = 17-½”
		C = 21”
		D = 24-½”
Number of Filters	**2**	**2**
		3
		4
		5
MERV Rating	**M8**	**M8 = MERV 8**
		M11 = MERV 11
		M13 = MERV 13
		M15 = MERV 15



Cabinet Dimensions	
Width (W)	
A - Cabinet	14”
B - Cabinet	17-½”
C - Cabinet	21”
D - Cabinet	24-½”
Height (H)	
All Cabinets	22”
Depth (D)	
Furnace/AHU	26-½”/21-1/2”
Columbus Industries Filter Dimensions	

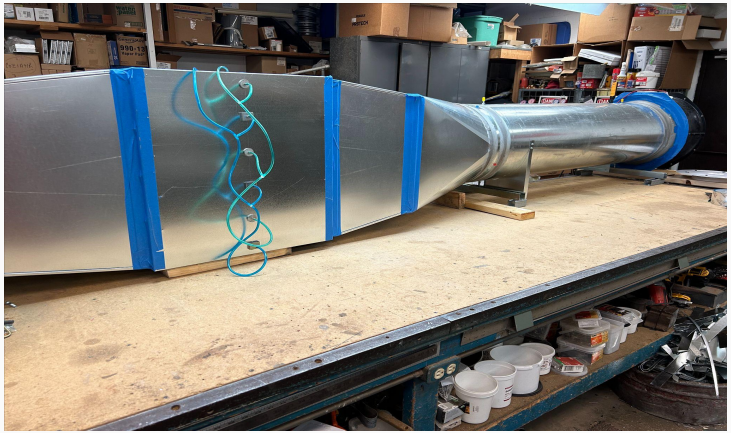
Height	Depth	Thickness
20”	25” or 20”	2”

Applications

Suggested Air Flow Ranges

Cabinet Width	Air Flow, cfm	Cabinet Width	Air Flow, cfm
A2	600 to 800	C3	1,000 to 1,200
A3	1,000 to 1,200	C4	1,600 to 1,800
B2	800 to 1,000	D4	1,600 to 1,800
B3	1,400 to 1,600	D5	1,800 to 2,400

Cozi-Aire Filter Cabinet Bench Test Configuration



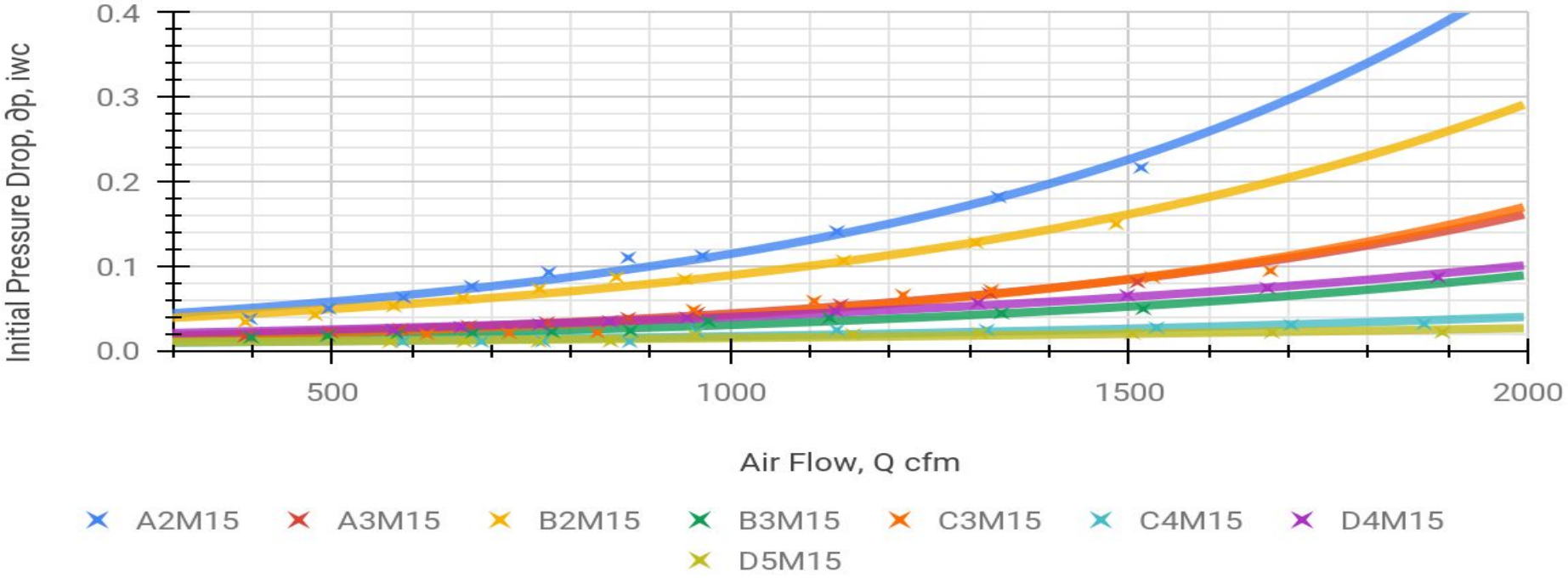
Cozi-Aire Filter Cabinet Performance Data (D5M15)

Filter Cabinet Pressures		Filter Rating*	BD3**	Alt Correction	0.96
Inlet Press.	Outlet Press.	MERV 15	Corrected cfm	Airflow, cfm	Ring
0.2320	0.2107	0.0213	1972	2054	A
0.1872	0.1661	0.0211	1749	1822	A
0.1512	0.1312	0.0200	1567	1632	A
0.1206	0.1002	0.0204	1368	1425	A
0.0962	0.0771	0.0191	1202	1252	A
0.0695	0.0514	0.0181	996	1037	A
0.0547	0.0440	0.0107	885	922	B
0.0458	0.0352	0.0106	791	824	B
0.0377	0.0271	0.0106	694	723	B
0.0300	0.0200	0.0100	597	622	B
* - all filters are manufactured by Columbus Industries					
** - The Energy Conservatory BD3 blower door fan, s/n: 29338					
*** - air density corrected, RAT: 68F, RArh: 47%, altitude: 980 ft.					
**** -duct leakage		4.00%			
2" MERV 8 - 9 pleats/ft, 2" MERV 11 - 15 pleats/ft, 2" MERV 13 - 15 pleats/ft, 2" MERV 15 - 44 pleats/ft					

Cozi-Aire Filter Cabinet Performance Chart

Filter Cabinet Performance

Cabinets with 20"x25"x2" MERV 15 filters



Filter Sizer App

Heating Target Air Flow				
Heating Type	Air Flow	Heating Input		Heating Target Air Flow, cfm
Gas	cfm/MBtuh	MBtuh Input		
AFUE_80	13	80		1040

Cooling Target Air Flow				
Air Flow		Cooling Capacity	Cooling Target Air Flow, cfm	Dominant Mode
Climate	cfm/ton	Tons		Heating
Mixed	400	2.5	1000	1040

System Static Pressure Budget				
Equip ESP, iwc	Coil Location	Ductwork Press, iwc	Coil Press, iwc	Filter Press, iwc
0.50	External	0.20	0.20	0.10

Filter Cabinet Selection		Projected Cabinet Performance		
Cabinet Width	Number and Type of Filters	Clean Filter Factor of Safety	Target Initial Pressure Drop	Projected Initial Pressure Drop, iwc
C	C3M11	1.50	0.067	0.031
				Meets Target

Cozi-Aire Duct Leakage Test

Duct Leakage Test

Testing Company:

Name: WCI
Address: 2644 Avenue D
Council Bluffs , IA 51501
Phone: 712-323-5782
www.coziahrhvac.com

Technician:

Name: David Coziahr
Credentials: BPI certification number: 5044809
Email: coziahr@gmail.com

Building Information:

Project ID: Cozi-Aire D-width cabinet
Address:
Geo-Tag Data: Latitude:
Longitude:
Timestamp:

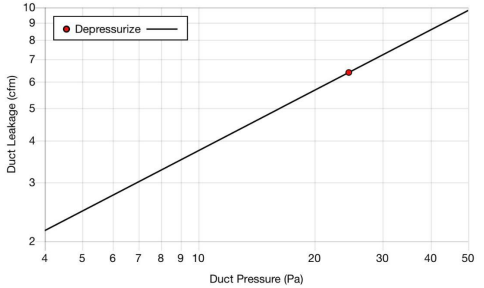
Customer Information:

Name:
Address:

Measured Leakage: **0.40 CFM25/100 ft²**
Leakage Target: **6.00 CFM25/100 ft²**
Compliance with Leakage Target: **Pass**

Test ID: 11Jun2024_DLT
Purpose of Test: Iowa 2012IECC Total Leakage
Measured CFM25: 6.5
Conditioned Floor Area: 1,600.0 ft²
Coefficient (C): 0.9
Test Standard: RESNET 380 Total Duct Leakage
Test Characteristics: Time Average Period: 10 seconds
Test Date and Time: 2024-06-11 15:16:54

AH Flow: 2,000.0 cfm (cooling)
Exponent (n): 0.600 (assumed)
Test Mode: Depressurize



Field Test Results (B2M8) (B2M15)

Date tested: 7/6/2023
Spetman_ new motor med speed
Company info
Name: Coziahr Htg & A/C
Phone: (712) 323-5782
Email: coziahr@gmail.com

Tech info
Name: David Coziahr
ID: 263
Title: Owner
Credentials: BPI 5044809

True Flow System Air Flow and Static Pressure Analysis

Air measurements

Total air flow = 908 SCFM
Return duct = -0.155 inH_2O
After filter = -0.209 inH_2O
Before evap. coil = 0.259 inH_2O
Supply duct = 0.069 inH_2O

System & Conditions

Cooling Climate: Moist
Elevation: 1223 ft
Return temp: 72° F

System Type: Fuel
Orientation: Upflow
Cooling Capacity: 2.5
Filter Location: InDuct

Summary calculations

Flow	363 SCFM/ton
TESP	0.468 inH_2O
Return Plenum	0.155 inH_2O
Filter Drop	0.055 inH_2O
Evap. Coil Drop	0.190 inH_2O
Supply Plenum	0.069 inH_2O

Summary of Warnings

No warnings.

Customer

Name: Spetman
Phone: N/A
Email: N/A
Address: 19914 Honeysuckle Rd Council Bluffs IA 51503 United States

Date tested: 6/18/2024
6/18/2024 10:49:00 AM
Company info
Name: Coziahr Htg & A/C
Phone: (712) 323-5782
Email: coziahr@gmail.com

Tech info
Name: David Coziahr
ID: 263
Title: Owner
Credentials: BPI 5044809

True Flow System Air Flow and Static Pressure Analysis

Air measurements

Total air flow = 880 SCFM
Return duct = -0.150 inH_2O
After filter = -0.230 inH_2O
Before evap. coil = 0.248 inH_2O
Supply duct = 0.072 inH_2O

System & Conditions

Cooling Climate: Moist
Elevation: 1220 ft
Return temp: 73° F

System Type: Fuel
Orientation: Upflow
Cooling Capacity: 2.5
Filter Location: InDuct

Summary calculations

Flow	352 SCFM/ton
TESP	0.478 inH_2O
Return Plenum	0.150 inH_2O
Filter Drop	0.080 inH_2O
Evap. Coil Drop	0.176 inH_2O
Supply Plenum	0.072 inH_2O

Summary of Warnings

Low Flow; High Return Pressure.
Maximum TESP Adjusted By User

Customer

Name: DeeDee Spetman
Phone: (402) 345-5558
Email: dspetman@gmail.com
Address: 19914 Honeysuckle Road Council Bluffs IA 51503

Field Test Results (A2M8) and (A2M15)

Date tested: 2/24/2024
Meade
Company info
Name: Coziahr Htg & A/C
Phone: (712) 323-5782
Email: coziahr@gmail.com

Tech info
Name: David Coziahr
ID: 263
Title: Owner
Credentials: BPI 5044809

True Flow System Air Flow and Static Pressure Analysis

Air measurements

Total air flow = 734 SCFM
Return duct = -0.114 inH_2O
After filter = -0.169 inH_2O
Before evap. coil = 0.656 inH_2O
Supply duct = 0.129 inH_2O

System & Conditions

Cooling Climate: Moist
Elevation: 1157 ft
Return temp: 66° F

System Type: Fuel
Orientation: Upflow
Cooling Capacity: 2.145
Filter Location: InDuct

Summary calculations

Flow	342 SCFM/ton
TESP	0.824 inH_2O
Return Plenum	0.114 inH_2O
Filter Drop	0.055 inH_2O
Evap. Coil Drop	0.527 inH_2O
Supply Plenum	0.129 inH_2O

Summary of Warnings

⚠ Low Flow; High Evap Coil Drop.

Customer

Name: Meade
Phone: N/A
Email: N/A
Address: N/A

Date tested: 6/8/2024
6/8/2024 2:49:16 PM
Company info
Name: Coziahr Htg & A/C
Phone: (712) 323-5782
Email: coziahr@gmail.com

Tech info
Name: David Coziahr
ID: 263
Title: Owner
Credentials: BPI 5044809

True Flow System Air Flow and Static Pressure Analysis

Air measurements

Total air flow = 723 CFM
Return duct = -0.120 inH_2O
After filter = -0.207 inH_2O
Before evap. coil = 0.595 inH_2O
Supply duct = 0.109 inH_2O

System & Conditions

Cooling Climate: Moist
Elevation: 1161 ft

System Type: Fuel
Orientation: Upflow
Cooling Capacity: 2
Filter Location: InDuct

Summary calculations

Flow	362 CFM/ton
TESP	0.802 inH_2O
Return Plenum	0.120 inH_2O
Filter Drop	0.087 inH_2O
Evap. Coil Drop	0.486 inH_2O
Supply Plenum	0.109 inH_2O

Summary of Warnings

❗ Flow is OK; High TESP.
⚠ Flow is OK; High Evap Coil Drop.
ℹ Maximum TESP Adjusted By User

Customer

Name: Mary Meade
Phone: N/A
Email: N/A
Address: 248 Zenith Dr Council Bluffs IA 51503 United States

Field Results (C3M8)

Date tested: 9/15/2023
Bates_TF report
Company info
Name: Coziahr Htg & A/C
Phone: (712) 323-5782
Email: coziahr@gmail.com

Tech info
Name: David Coziahr
ID: 263
Title: Owner
Credentials: BPI 5044809

True Flow System Air Flow and Static Pressure Analysis

Air measurements

Total air flow = 1069 SCFM
Return duct = -0.381 inH_2O
After filter = -0.416 inH_2O
Supply duct = 0.106 inH_2O

System & Conditions

Cooling Climate: Moist
Elevation: 1067 ft
Return temp: 74° F

System Type: Electric
Orientation: Upflow
Cooling Capacity: 3
Filter Location: InDuct

Summary calculations

Flow	356 SCFM/ton	
TESP	0.523 inH_2O	
Return Plenum	0.381 inH_2O	
Filter Drop	0.035 inH_2O	
Supply Plenum	0.106 inH_2O	

Summary of Warnings

⚠ Low Flow; High Return Pressure.

Customer

Name: Bates
Phone: N/A
Email: N/A
Address: N/A

Field Test Results (C3M8)

Date tested: 10/20/2023
Lowndes
Company info
Name: Coziahr Htg & A/C
Phone: (712) 323-5782
Email: coziahr@gmail.com

Tech info
Name: David Coziahr
ID: 263
Title: Owner
Credentials: BPI 5044809

True Flow System Air Flow and Static Pressure Analysis

Air measurements

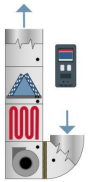
Total air flow = 1059 SCFM
Return duct = -0.108 inH_2O
After filter = -0.133 inH_2O
Before evap. coil = 0.476 inH_2O
Supply duct = 0.174 inH_2O

System & Conditions

Cooling Climate: Moist
Elevation: 743 ft
Return temp: 74° F

System Type: Fuel
Orientation: Upflow
Cooling Capacity: 2.5
Filter Location: InDuct

Summary calculations



Flow	424 SCFM/ton
TESP	0.609 inH_2O
Return Plenum	0.108 inH_2O
Filter Drop	0.025 inH_2O
Evap. Coil Drop	0.302 inH_2O
Supply Plenum	0.174 inH_2O

Summary of Warnings

Flow is OK; High Evap Coil Drop.

Customer

Name: Lowndes
Phone: N/A
Email: N/A
Address: 444 Glen Ave Council Bluffs IA 51503 United States

Field Test Results (BA2M8)

Date tested: 11/3/2022
510 N 41st St

Company info
Name: Coziahr Htg & A/C
Phone: (712) 323-5782
Email: coziahr@gmail.com

Tech info
Name: David Coziahr
ID: 263
Title: Owner
Credentials: BPI 5044809

True Flow System Air Flow and Static Pressure Analysis

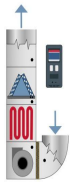
Air measurements

Total air flow = 806 SCFM
Return duct = -0.204 inH_2O
After filter = -0.468 inH_2O
Before evap. coil = 0.187 inH_2O
Supply duct = 0.077 inH_2O

System & conditions

System Type: Fuel
Orientation: Upflow
Cooling Capacity: 1.875
Filter Location: InDuct
Cooling Climate Type: Moist
Elevation: 1001 ft

Summary calculations



Flow	430 SCFM/ton
TESP	0.655 inH_2O
Return Plenum	0.204 inH_2O
Filter Drop	0.265 inH_2O
Evap. Coil Drop	0.109 inH_2O
Supply Plenum	0.077 inH_2O

Summary of Warnings

⚠ Flow is OK, high filter drop
⚠ Flow is OK; High Return Pressure.

Customer

Name: Salvo
Phone: N/A
Email: N/A
Address: 510 N 41st St Council Bluffs IA 51501 United States

Date tested: 12/4/2023
Salvo

Company info
Name: Coziahr Htg & A/C
Phone: (712) 323-5782
Email: coziahr@gmail.com

Tech info
Name: David Coziahr
ID: 263
Title: Owner
Credentials: BPI 5044809

True Flow System Air Flow and Static Pressure Analysis

Air measurements

Total air flow = 960 SCFM
Return duct = -0.219 inH_2O
After filter = -0.321 inH_2O
Supply duct = 0.106 inH_2O

System & Conditions

Cooling Climate: Moist
Elevation: 978 ft
Return temp: 69° F

System Type: Electric
Orientation: Horizontal
Cooling Capacity: 2.4
Filter Location: InDuct

Summary calculations

Flow	400 SCFM/ton
TESP	0.427 inH_2O
Return Plenum	0.219 inH_2O
Filter Drop	0.102 inH_2O
Supply Plenum	0.106 inH_2O

Summary of Warnings

⚠ Flow is OK; High Return Pressure.

Customer

Name: Salvo
Phone: N/A
Email: N/A
Address: 510 N 41st St Council Bluffs IA 51501 United States

Thank you for your time

Innovative design/Cleaner indoor air/Healthier choice

What questions can I answer for you?