



Park Hill School District

Building Successful Futures • Each Student • Every Day

ADDENDUM No. 1

Park Hill School District

2023 HVAC

January 25, 2023

You are instructed to read and note the following described changes, corrections, clarifications, omissions, deletions, additions, approvals and statements pertinent to the Construction Documents.

Addendum No. 1 is part of the general notes and shall govern in the performance of the Work:

Package #1 - Gerner Family Early Education Center - Contractors are instructed to remove vibration isolation curbs from RTU 1 and 2.

Package #2 - Plaza Middle School - Information on changes to suction/liquid line connection sizes and changes to AHU-3 coil sections.

All Packages - All equipment must have a minimum 1-year labor warranty.

ACKNOWLEDGEMENT: Each Bidder shall acknowledge receipt of Addendum No. 1 on the Acknowledgement Form.

Acknowledgment Form

ACKNOWLEDGEMENT OF ADDENDA

The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:

Addendum No. 1, dated January 25, 2023

COMPANY _____

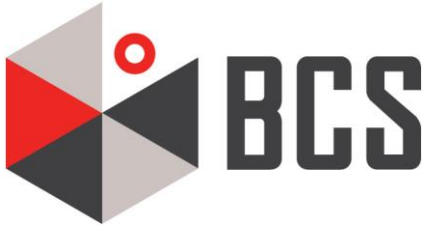
ADDRESS _____

PHONE _____ FAX _____

EMAIL _____

PRINT NAME _____

SIGNATURE _____ Date: _____



AAON EQUIPMENT SUBMITTAL

Revision 2

DATE: January 24, 2023

PROJECT: Park Hill School District
Plaza Middle School

PREPARED BY: Sam Gall

SUBMITTED BY: Spencer Brinkmeyer
Building Controls & Services, Inc.
10915 Eicher Dr
Lenexa, KS 66219
Phone: (913) 338-2211
Fax: (316) 267-2988

ATTN: Park Hill School District

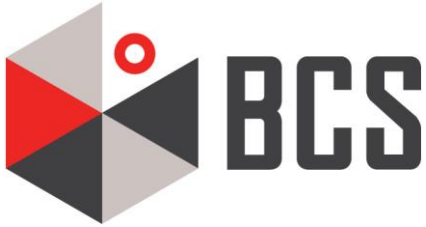
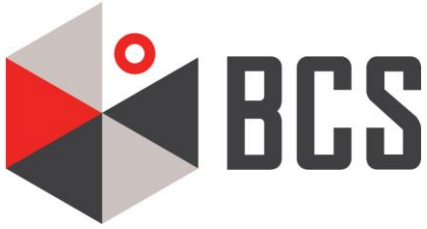
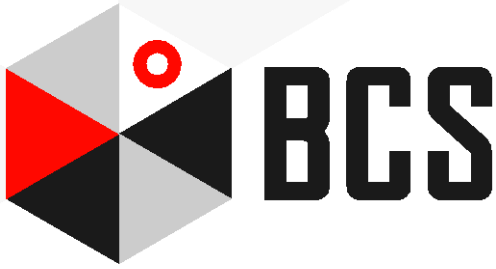


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Equipment Summary



Project Name: Park Hill School District – Plaza Middle School

Today's Date : 11/30/2022

Submitted By : Sam Gall

Attention : Estimating Department

Please contact Sam Gall at 816-510-5808 with any questions.

Building Controls and Services is pleased to submit pricing on the above project. For your convenience, we have prepared the following scope summary:

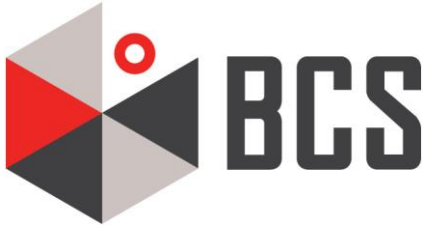
AAON CF-Series Condensing Unit & DX Coils

Qty (2) Plan Marks: AHU/CU-1, 2

- Condensing Unit Features:
- 2,500 Hour Salt Spray Tested Exterior Paint
- Compressor/Controls Cabinet w/ Hinged Access Doors & Quarter-Turn Handles
- 230V/3Ø Power Connection
- Factory Installed Unit Disconnect Switch
- Factory Wired 115V GFCI Convenience Receptacle
- Dual Circuit
- Variable Capacity Scroll Compressors w/ 5-year Non-Prorated Warranty
- Replacement DX Evaporator Coil (Final Field Measurement Required)
- Factory Installed Hail Guards
- Terminal Strip for Field Installed DDC by Others
- Factory Authorized Startup Labor
- Standard One (1) Year Parts Only Warranty (From date of Shipment) except where noted otherwise

Not Included

- Refrigerant Piping/Specialties Not Indicated Above
- Oil Return Tubing
- Thermostat Rough In
- Venting
- Labor & Refrigerant Warranty
- High Voltage/Low Voltage/Control Wiring
- Sensor Installation by MC (Space Temp, Supply Temp, Building Pressure Tubing)



Unit Ratings



Unit Rating

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.329 (SN: 7072560-4DHL2ZN4)

A1 A2 A3 A4 A5 1 2A 2B 3A 3B 4 5 6A 6B 6C 7 8A 8B 8C 8D 9 10 11 12 13 14 15 16 17 18 19 20 21 22

CFA-050-D-A-2-GA00K:0-H0-00-00-AV0-D-N000-00A0J00-00000DB

Tag: CU-1, 2 - Plaza MS

Job Information

Job Name: Park Hill School District - Summer 2023
Job Number: P22-2-671F
Site Altitude: 1080 ft
Refrigerant: R-410A

Unit Information

Approx. Op./Ship Weights: 2708 / 2708 lbs. (±5%)
Suction Temperature: 45.00 °F
Ambient Temperature: 100 °F DB / 75 °F WB

Cooling Section

Capacity (MBH)

Suction Temp	Total Unit	Circuit 1	Circuit 2
Design (45°)	560.0	281.0	278.9
35°	470.1	235.8	234.3
40°	514.1	258.0	256.1
45°	560.0	281.0	278.9
50°	607.7	305.0	302.7

EER - ARI Listing Information

No ARI Rating Program Exists for Units Over 250 MBH
All AAON Units Are Tested in Accordance With ARI Standards

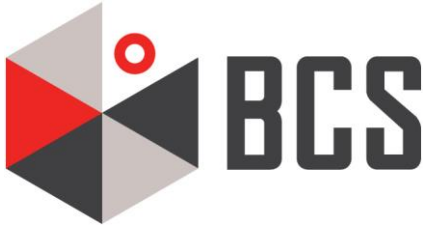
EER @ AHRI Conditions: N/A
Application EER @ Op. Conditions: 10.9

Electrical Data

Rating:	230/3/60			Minimum Circuit Amp:	233		
Unit FLA:	221			Maximum Overcurrent:	250		
	Qty	HP	VAC	Phase	RPM	FLA	RLA
Compressor 1:	4		230	3			48.1
Condenser Fans:	2	1.50	230	3	1140	7.2	
Condenser Fans:	2	1.50	230	3	1140	7.2	

Connection Sizes

System	Suction Line	Liquid Line
1	1.63"	1.13"
2	1.63"	1.13"



Unit Submittal Detail



Unit Submittal

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.329 (SN: 7072560-4DHL2ZN4)

A1 A2 A3 A4 A5 1 2A 2B 3A 3B 4 5 6A 6B 6C 7 8A 8B 8C 8D 9 10 11 12 13 14 15 16 17 18 19 20 21 22

CFA-050-D-A-2-GA00K:0-H0-00-00-AV0-D-N000-00A0J00-00000DB
Tag: CU-1, 2 - Plaza MS

Job Name:
Job Number:

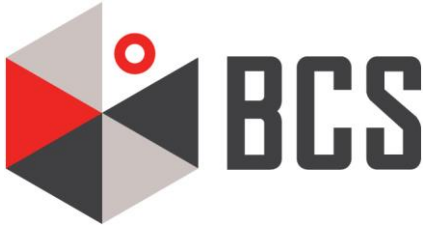
Park Hill School District - Summer 2023
P22-2-671F

Unit Submittal For:
Unit Submittal Date:

December 05, 2022

	Base Option	Description
CF	Generation	CF - Condensing Unit
A	Major Rev	Major Revision
050	Unit Size	Fifty
D	Series	D Cabinet
A	Revision	Minor Revision
2	Voltage	230V/3Ø/60Hz
G	Compressor Style	R-410A Tandem Variable Capacity Scroll Comp (Two Circuits)
A	Condenser Style	Air-Cooled Microchannel Condenser
0	Configuration	Standard
0	Coating	Standard
K	Staging	1 Variable Refrig System + 1 On/Off Refrig System

	Feature Option	Description
0	1. Unit Orientation	Vertical Condenser Discharge with End Control Panel
H	2A. Refrigeration Control	5 Minute Compressor Off Timer & 20 Second Compressor Stage Delay + Adjustable Compressor Lockout
0	2B. Blank	Standard
0	3A. Refrigeration Options	Standard
0	3B. Blank	Standard
0	4. Refrigeration Accessories	Standard
0	5. Blank	Standard
A	6A. Unit Disconnect Type	Single Point Power Non-Fused Disconnect
V	6B. Disconnect Size	250 Amps
0	6C. Blank	Standard
D	7. Accessories	Suction Pressure Transducer on Each Refrigeration System
N	8A. Control Sequence	Field Installed DDC Controls Furnished by Others with Isolation Relays
0	8B. Control suppliers	Standard Terminal Block
0	8C. Control Supplier Options	Standard
0	8D. BMS Connection and Diagnostics	Standard
0	9. Blank	Standard
0	10. Blank	Standard
A	11. Maintenance Accessories	115VAC Convenience Outlet - Factory Wired
0	12. Code Options	Standard ETL U.S.A. Listing
J	13. Air Cooled Condenser Accessories	Cond. Coil Guards + VFD Controlled Cond. Fans - Head Pressure Control
0	14. Blank	Standard
0	15. Blank	Standard
0	16. Electrical Options	Standard
0	17. Shipping Options	Standard
0	18. Blank	Standard
0	19. Blank	Standard
0	20. Cabinet Material	Standard - Galvanized Steel Cabinet
D	21. Warranty	Extended Compressor Warranty - Years 2-5
B	22. Paint and SPAs	Premium AAON Gray Paint Exterior



Control Terminal Details



Points List

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.329 (SN: 7072560-4DHL2ZN4)

A1 A2 A3 A4 A5 1 2A 2B 3A 3B 4 5 6A 6B 6C 7 8A 8B 8C 8D 9 10 11 12 13 14 15 16 17 18 19 20 21 22

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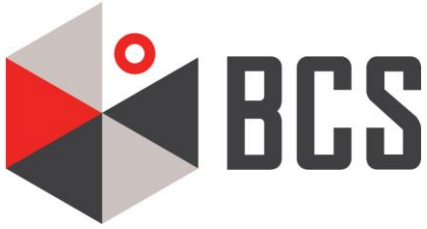
Tag: CU-1, 2 - Plaza MS

Job Name: **Park Hill School District - For:**
Summer 2023

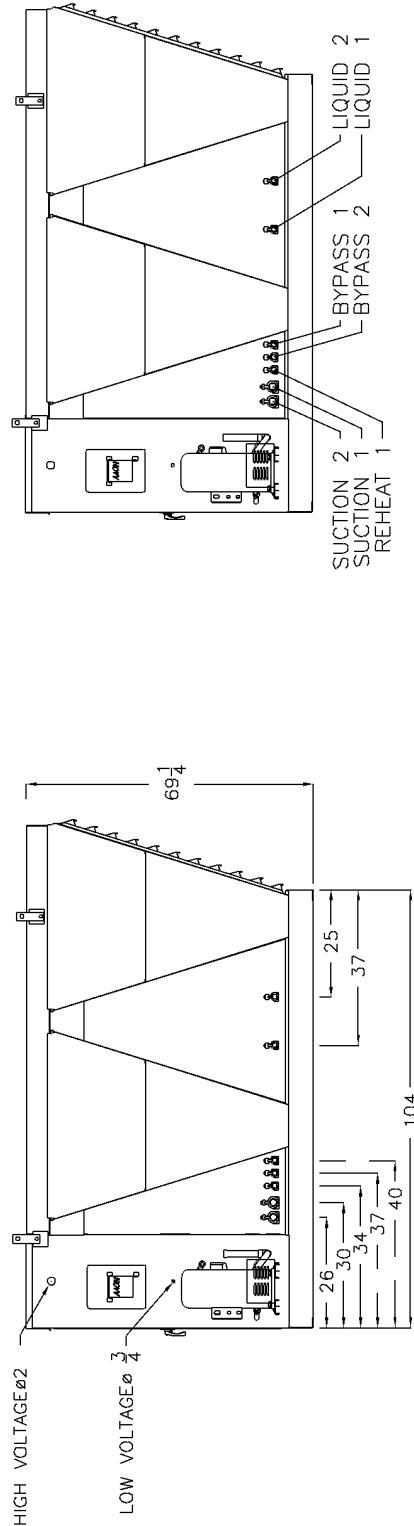
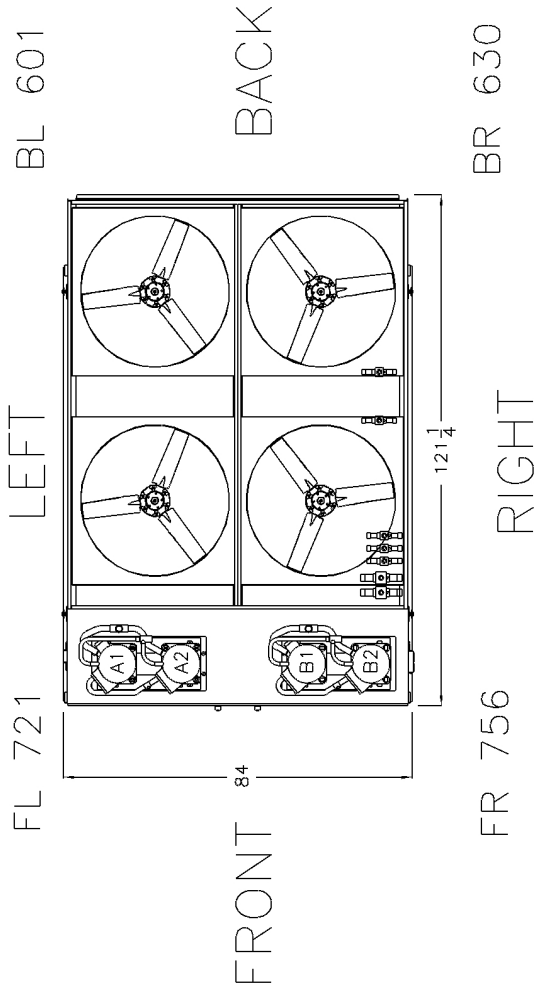
Job Number: **P22-2-671F** Date: **December 05, 2022**

Terminals Available/Required for Controlling the Unit

Terminal	Description
[C]	Common
[R]	24VAC Control Voltage
[Y1]	Cooling Stage Enable + Isolation Relay
[Y2]	Cooling Stage Enable + Isolation Relay
[Y3]	Cooling Stage Enable + Isolation Relay
[Y4]	Cooling Stage Enable + Isolation Relay
[P51-] & [P61+], [P52-] & [P62+],	Suction Pressure Sensor (0-5 VDC)

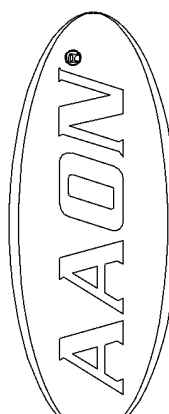


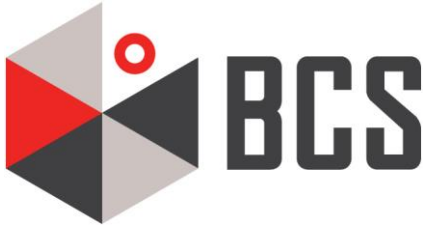
Unit Drawings



CONFIGURABLE OPTIONS SHOWN

All dimensions are in units of inches

											
Job Name:		Park Hill School District – Summer 2023				Unit Tag:		CU–1, 2 – Plaza MS			
Configurator:		CFA-050–D–A–2–CA00K:0–H0–00–00–AV0–D–N000–00A0J00–000000DB									
Shipping Weight:		2708 (±5%)		Operating Weight:		2708 (±5%)					
Clearances:		Compressor End: 36		Left: 30		Right: 36		Piping Connection End: 6		Top: OPEN	
Date:		12/5/2022		Software Ver. 4.329 v2.6.0.0							



Refrigerant Accessories

Rating Sheet
BUILDING CONTROLS AND SERVICES

1730 E. DOUGLAS / WICHITA, KS 67214
Phone # - 3162675814 / Fax # - 3162672988
Samuel Gall

Customer: bldg controls
Quote #: 1000001

Job: Park Hill AHU
Item #: 4

38D48X82-12-4-W-F-R
AHU-2

No. Coils:	1	Coil Type:	Direct Expansion
Fin Height (In.):	48	Fin Mat./Thickness/Type:	Aluminum/ 0.008/ Waffle
Fin Length (In.):	82	Tube Mat./Wall/OD:	Copper/ 0.02/ 3/8 Inch
Air Flow/Coil (ACFM/SCFM)	12757 / 12040 (S)	Tube Spacing:	1 x 0.866
ACFM/SCFM Velocity (fpm):	466.7 / 440.5	Tube Surface:	Smooth
EDB/EWB (°F):	80 / 67	Distributors per Coil:	2
Suction Temperature (°F):	45	Configuration:	Dual Circuit Intertwined
Liquid Temperature (°F):	110	Casing Material:	Galv
Rows/FPI:	4/12	Refrigerant:	R-410A
SuperHeat:	8	Altitude (Feet):	1080
Circuiting:	48/4/0/SE/Full	FF Inside*:	0
		FF Outside*:	0

	Per Coil	Total All Coils
LDB/LWB (°F):	57.1 / 55.4	
Total Heat (BTUH):	441,277	441,277
Sensible. Heat (BTUH):	300,347	300,347
Circuit Load :	0.77	
Refrigerant Pressure Drop (psi):	3.03	
Air Pressure Drop (in W.G.):	0.33	
Connection Size (In.):	1.625	
Uncrated, Dry Coil Weight: 317.5		

Warning: Refrigerant Pressure Drop of 3.03 psi is outside the range of 4-12 psi recommended for application. Consider changing the number of circuits accordingly.
Coil is NOT certified by AHRI. Coil is outside the scope of the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program.

Printed on 1/24/2023 using Total Package II; program version 12.5.2022.2 - DLL/Data 1.0.5.91/20221209.1

* (Hr*ft²*°F/Btu) Fouling Factor Units

We reserve the right to change or revise specifications and product design in connection with any feature of our products. Such changes do not entitle the buyer to corresponding changes, improvements, additions, or replacements for equipment previously sold or shipped.

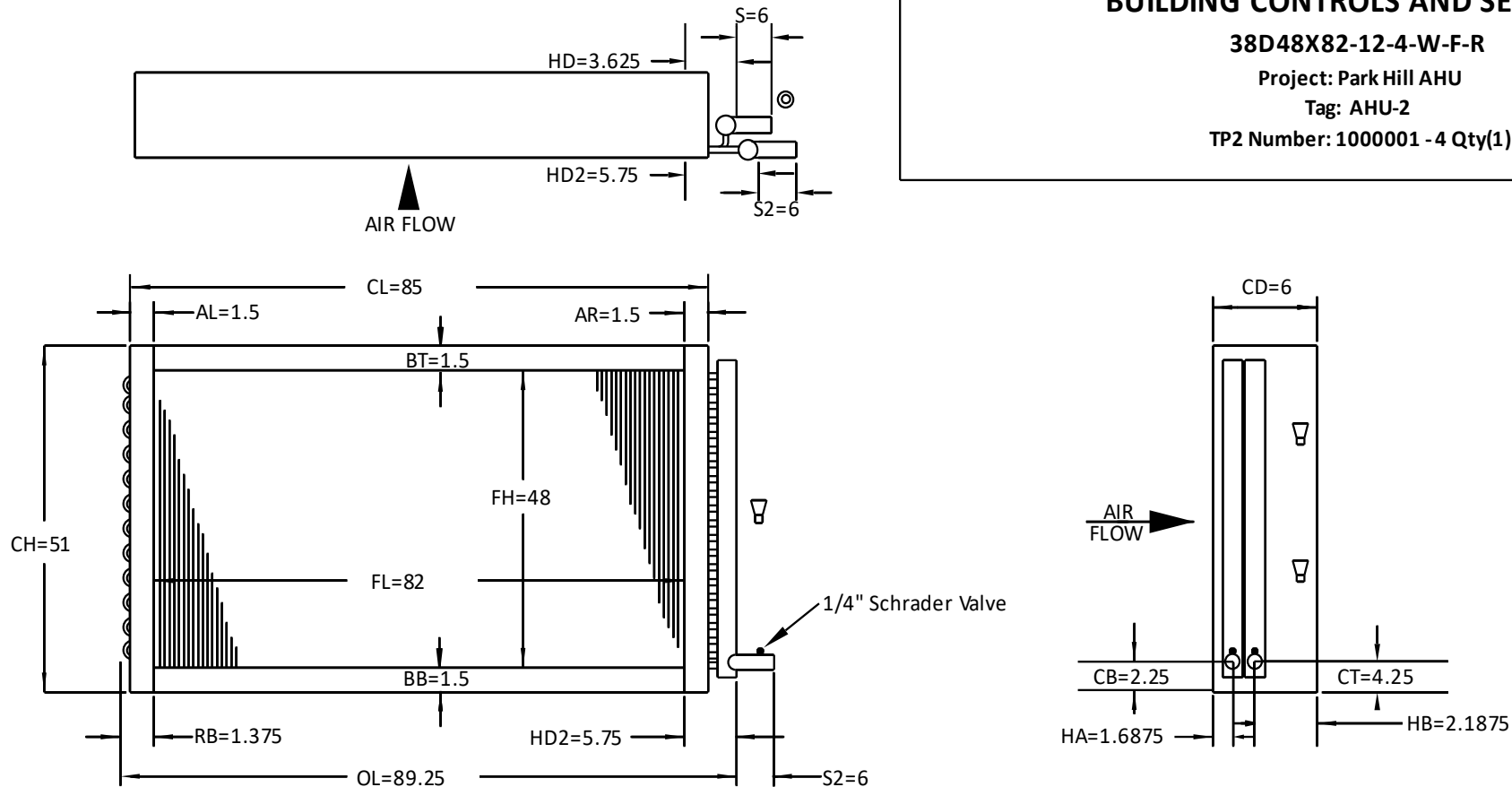
BUILDING CONTROLS AND SERVICES

38D48X82-12-4-W-F-R

Project: Park Hill AHU

Tag: AHU-2

TP2 Number: 1000001 - 4 Qty(1)



Fin Type: Waffle
Fin Material: Aluminum
Fin Thickness: 0.008
Rows/FPI: 4/12
Circuiting: 48/4/0/SE/Full
Tube Type: 3/8 Inch / Copper / Smooth
Tube Thickness: 0.02
Casing: Galv Gages: TS=16/ SP=16

Connection Material: Copper
Liquid Connection Size: 1.125
Suction Connection Size: 1.625
Suction Header Dia.: 1.625
Connection Type: ODS
App. weight (Uncrated each): 317.5

Smooth Bore
Capacity = 441277 / Suction Temperature = 45 / Refrigerant = R-410A
Tube Sheet Flange Standard
Side Plate Flange: Stacking

Date: 1/24/2023 1:36:49 PM

Program Version: 12.5.2022.2

Sales Person: Samuel Gall

4492 Hunt St

Pryor, OK 74361

RAE Corporation

Phone 918.825.7222

Fax 1.800.264.5329

Rating Sheet
BUILDING CONTROLS AND SERVICES

1730 E. DOUGLAS / WICHITA, KS 67214
Phone # - 3162675814 / Fax # - 3162672988
Samuel Gall

Customer: bldg controls
Quote #: 1000001

Job: Park Hill AHU
Item #: 2

38D21X108-12-6-W-F-L
AHU-3

No. Coils:	2	Coil Type:	Direct Expansion
Fin Height (In.):	21	Fin Mat./Thickness/Type:	Aluminum/ 0.01/ Waffle
Fin Length (In.):	108	Tube Mat./Wall/OD:	Copper/ 0.016/ 3/8 Inch
Air Flow/Coil (ACFM/SCFM)	7814 / 7375 (S)	Tube Spacing:	1 x 0.866
Totals (ACFM/SCFM):	15629 / 14750	Tube Surface:	Smooth
ACFM/SCFM Velocity (fpm):	496.2 / 468.3	Distributors per Coil:	2
EDB/EWB (°F):	80 / 67	Configuration:	Dual Circuit Intertwined
Suction Temperature (°F):	50	Casing Material:	Galv
Liquid Temperature (°F):	110	Refrigerant:	R-410A
Rows/FPI:	6/12	Altitude (Feet):	1080
SuperHeat:	8	FF Inside*:	0
Circuiting:	21/6/0/SE/Full	FF Outside*:	0

	Per Coil	Total All Coils
LDB/LWB (°F):	57.0 / 56.3	
Total Heat (BTUH):	250,921	501,843
Sensible. Heat (BTUH):	184,332	368,663
Circuit Load :	1.00	
Refrigerant Pressure Drop (psi):	7.67	
Air Pressure Drop (in W.G.):	0.58	
Connection Size (In.):	1.625	
Uncrated, Dry Coil Weight: 305.7		

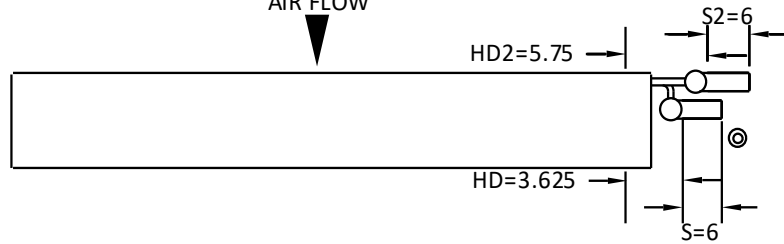
Coil is NOT certified by AHRI. Coil is outside the scope of the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program.
Use of the Specified Fin Surface is NOT AHRI Certified.

Printed on 1/24/2023 using Total Package II; program version 12.5.2022.2 - DLL/Data 1.0.5.91/20221209.1

* (Hr*ft²*°F/Btu) Fouling Factor Units

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AIR FLOW



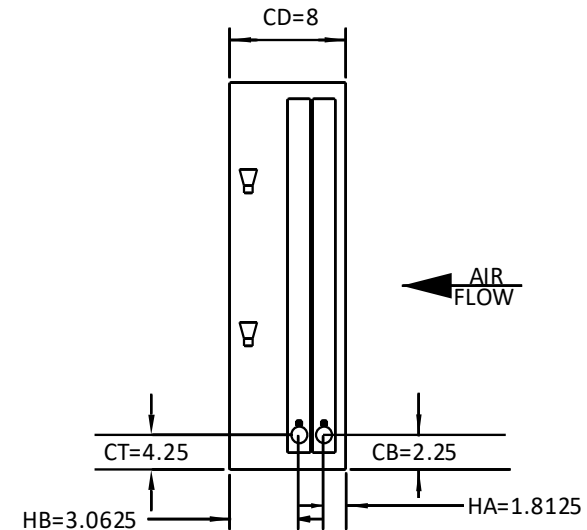
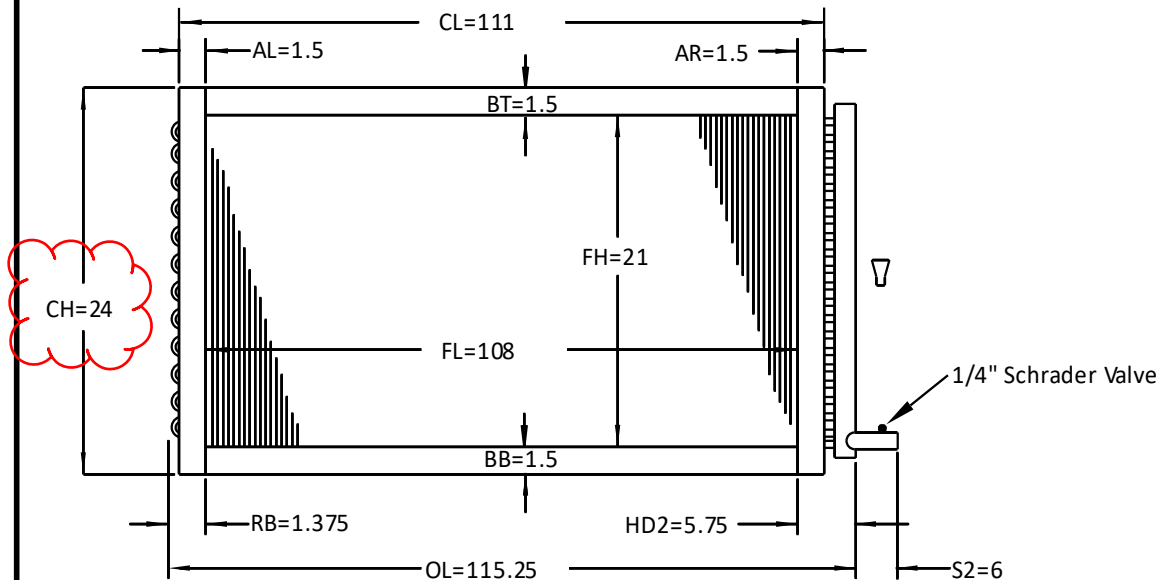
BUILDING CONTROLS AND SERVICES

38D21X108-12-6-W-F-L

Project: Park Hill AHU

Tag: AHU-3

TP2 Number: 1000001 - 2 Qty(2)



Fin Type: Waffle
Fin Material: Aluminum
Fin Thickness: 0.01
Rows/FPI: 6/12
Circuiting: 21/6/0/SE/Full
Tube Type: 3/8 Inch / Copper / Smooth
Tube Thickness: 0.016
Casing: Galv Gages: TS=16/ SP=16

Connection Material: Copper
Liquid Connection Size: 1.125
Suction Connection Size: 1.625
Suction Header Dia.: 1.625
Connection Type: ODS
App. weight (Uncrated each): 305.7

Smooth Bore

Customer Notes:

Capacity = 250921 / Suction Temperature = 50 / Refrigerant = R-410A

Tube Sheet Flange Standard

Side Plate Flange: Stacking

Date: 1/24/2023 1:27:09 PM

Program Version: 12.5.2022.2

Sales Person: Samuel Gall

4492 Hunt St

Pryor, OK 74361

RAE Corporation

Phone 918.825.7222

Fax 1.800.264.5329



Refrigeration Accessories

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.329 (SN: 7072560-4DHL2ZN4)

CFA-050-D-A-2-GA00K:0-H0-00-00-AV0-D-N000-00A0J00-00000DB

Condensing Unit Tag:

Job Information

Job Name: Park Hill School District - Summer 2023 Job Number: P22-2-671F

Factory Supplied / Factory Installed

Quantity	Description	Part #:	Location

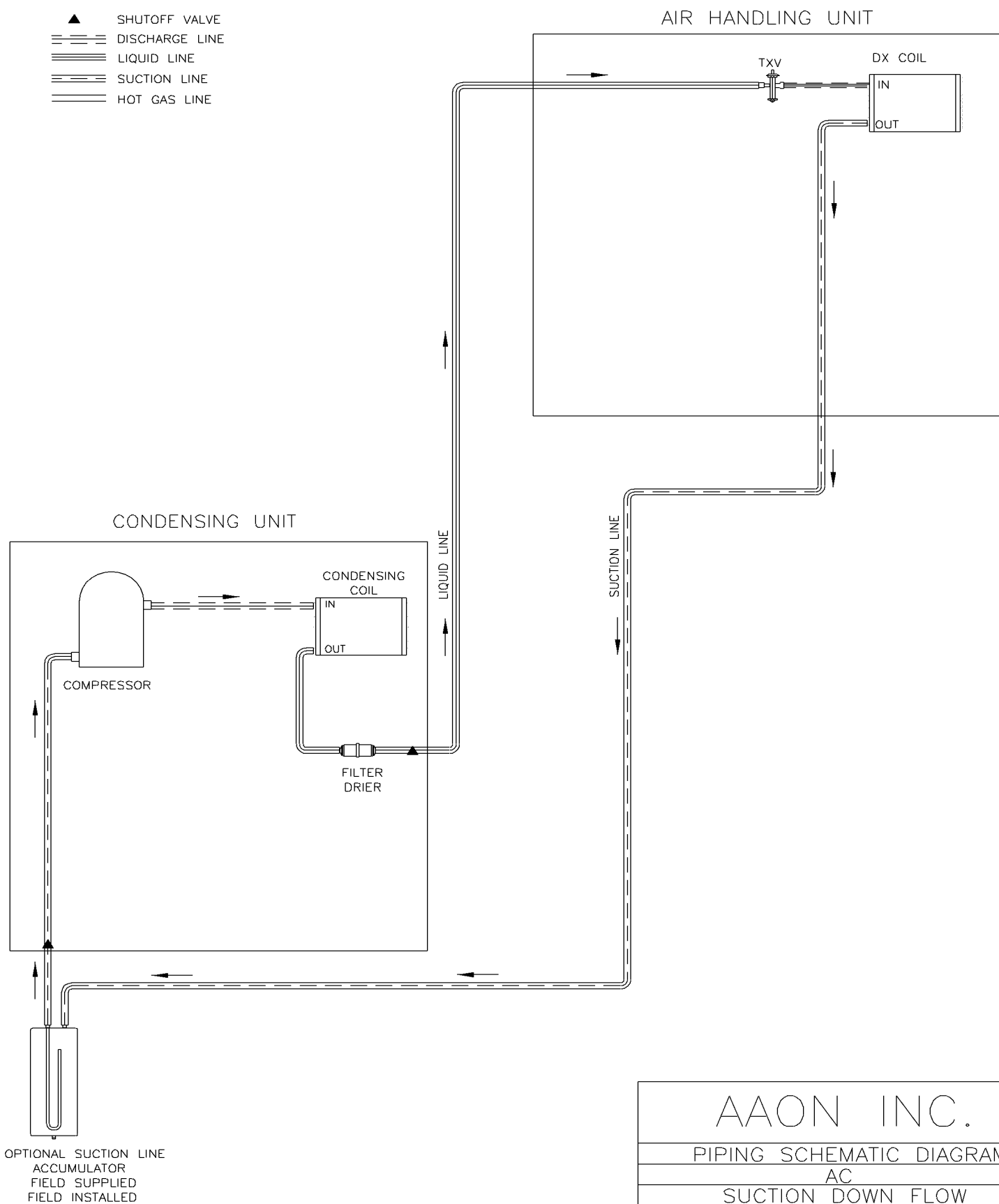
Factory Supplied / Field Installed

Quantity	Description	Part #:	Location
-	N/A	-	-

Field Supplied / Field Installed

Quantity	Description	Part #:	Location
-	P-Trap(s)		AHU

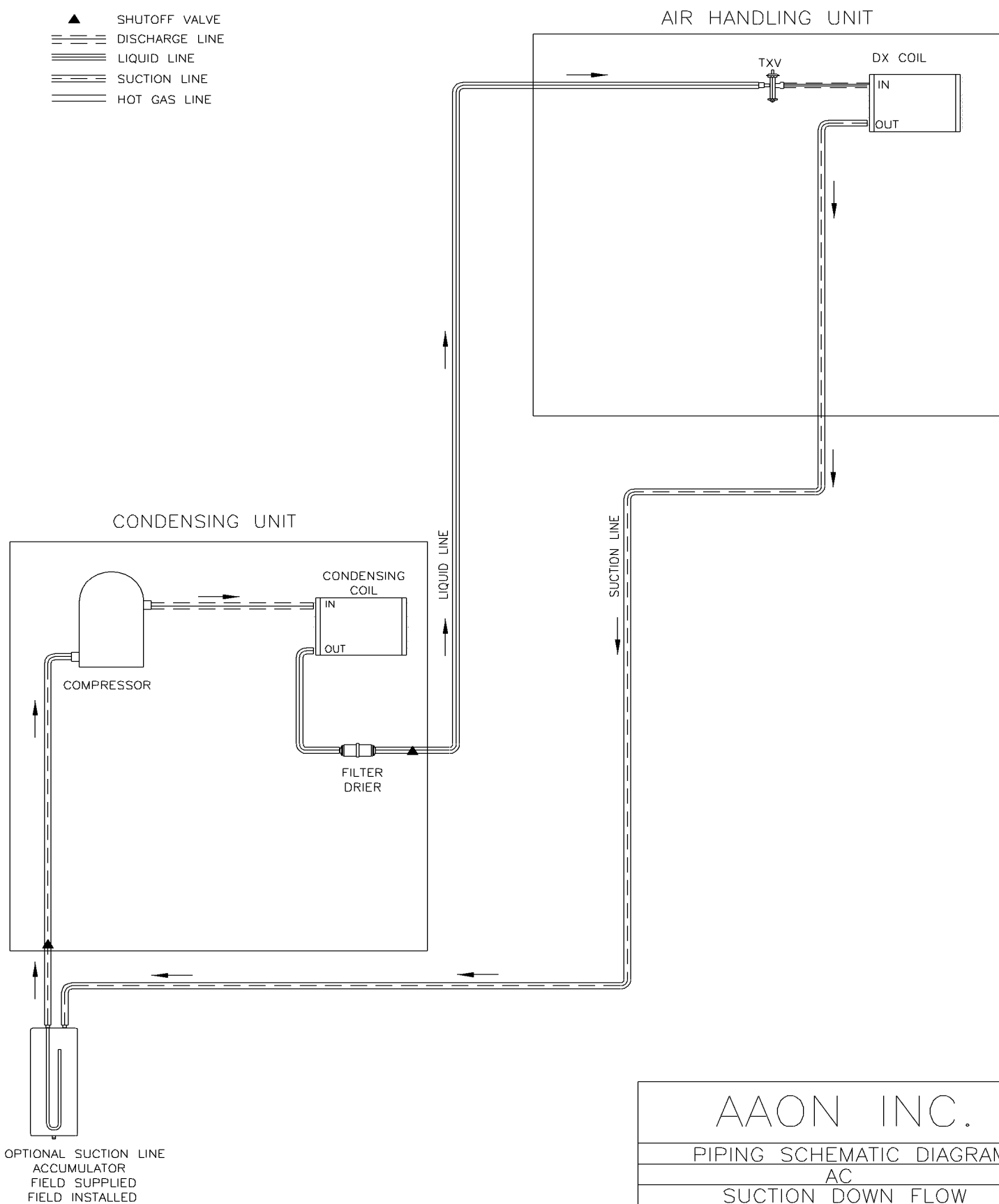
- ▲ SHUTOFF VALVE
- ≡≡≡ DISCHARGE LINE
- ===== LIQUID LINE
- ≡≡≡ SUCTION LINE
- ===== HOT GAS LINE



AAON INC.		
PIPING SCHEMATIC DIAGRAM		
AC		
SUCTION DOWN FLOW		
DATE	DRAWING NUMBER	REV
	AC - SD	

Circuit #: 1

- ▲ SHUTOFF VALVE
- ≡≡≡ DISCHARGE LINE
- ===== LIQUID LINE
- ≡≡≡ SUCTION LINE
- ===== HOT GAS LINE



AAON INC.		
PIPING SCHEMATIC DIAGRAM		
AC		
SUCTION DOWN FLOW		
DATE	DRAWING NUMBER	REV
	AC - SD	

Circuit #: 2