

Direct, Indirect and Indirect/Direct Evaporative Cooling Units

Technical Guide for:

- **MCC** Low Operating Cost,
High Efficiency,
Environmentally Friendly
Evaporative Cooling Units



Keeping Mission

Critical Facilities

Cool

TABLE OF CONTENTS

How To Use This Guide	4
What is Evaporative Cooling	4
How Much Cooling Can I Get.....	5
Typical Design Conditions Chart.....	6
Direct Evaporative Cooling.....	7
Indirect Evaporative Cooling.....	8
Indirect Evaporative Cooling with Hot Aisle Return.....	9
Indirect/Direct Evaporative Cooling	10
Alton HECD Features and Options	11
Alton HECD Air Performance Chart	12
Alton HECD Amp Draw Table	13
Alton HECD Dimensions – Basic Unit.....	14-15
Alton HECD Dimensions – Basic Unit with Mixing Section	16-17
Alton HECD Typical Wiring	18-19
Alton HECD Typical Specifications	20
Aztec ASC Model Designation	21
Aztec ASC Features and Options	22
Aztec ASC Equipment Data Chart.....	23
Aztec ASC Blower Performance Chart with Standard Arrangement Fan(s)	24-25
Aztec ASC Blower Performance Chart for Fan Array.....	26-27
Aztec ASC Blower Performance Chart for Fan Array with 100% Redundancy.....	28-29
Aztec ASC Amp Draw Table.....	30
Aztec ASC Fan Efficiency	31
Aztec ASC Dimensions for Standard Arrangement Fan(s) with End Discharge	32-33
Aztec ASC Dimensions for Standard Arrangement Fan(s) with Down Discharge	34-35
Aztec ASC Dimensions for Fan Array with End Discharge.....	36-37
Aztec ASC Dimensions for Fan Array with Down Discharge	38-39
Aztec ASC Dimensions for Roof Curb.....	40
Aztec ASC Typical Piping.....	41
Aztec ASC Control Systems	42-43
Aztec ASC Typical Wiring.....	44-45
Aztec ASC Typical Specifications.....	46-47

HOW TO USE THIS GUIDE

We offer two different system types of evaporative cooling units. These consist of an Alton Direct Evaporative Cooling Unit (DEC) or an Aztec series that can be set up as either an Indirect or Indirect/Direct Unit (IDEC). To help you understand which type of unit we are talking about throughout this Technical Guide; we will use **DEC** or **IDEC** Identification Blocks on the page headings. If you see the **DEC** block at the top of a page you will know that the

information refers to the Alton Direct Evaporative Cooling Series. And if you see the **IDEC** block at the top of a page you will know that the information refers to the Aztec Indirect or Indirect/Direct Evaporative Cooling Series. Some pages have both of these blocks at the top of a page. The information shown here is general information that pertains to both types of units.

WHAT IS EVAPORATIVE COOLING?

Evaporative Cooling is the oldest form of cooling known to man and occurs in nature every day. Whenever water is evaporated, heat is absorbed. Wet the back of your hand, then blow on it. The skin surface is immediately cooler. This demonstrates the basic principle of evaporative cooling. Cooling nature's way, with water, eliminates the cost of expensive refrigeration systems and reduces operating cost and maintenance costs. History shows that the ancient Egyptians used this principle to keep themselves cool. Direct evaporative cooling is an adiabatic process where the dry bulb temperature is lowered without changing the amount of heat

in the air. This adiabatic cooling process is also used to create the chilled water that feeds our indirect evaporative cooling coil. Indirect evaporative cooling can be used to lower both the dry bulb and wet bulb temperatures.

Choosing an evaporative cooling system offers a substantial energy cost savings. Leadership in Energy and Environmental Design (LEED) points can be achieved by using cooling options that operate more efficiently than LEED thresholds.

HOW MUCH COOLING CAN I GET?

The amount of cooling we can get from an evaporative cooling unit varies from area to area. The more difference you have between your Entering Dry Bulb (EDB) and Entering Wet Bulb (EWB) temperatures, the greater the cooling effect.

The formula to determine Leaving Dry Bulb (LDB) temperature for Direct Evaporative Cooling Units is:

$$LDB = EDB - (SE \times (EDB - EWB))$$

LDB = Leaving Air Dry Bulb temperature

EDB = Entering Air Dry Bulb temperature

EWB = Entering Air Wet Bulb temperature

SE = Saturation Effectiveness (see chart below).

Example: Calculate the leaving air dry bulb temperature for a 20,000 CFM unit with 100° entering dry bulb and 80° entering wet bulb temperatures.

Solution: Air Delivery Table on page 12 shows we would use a HECD-210 for 20,000 CFM requirement. Chart shows this model has 32.9 sq. ft. of cooling media. 20,000 CFM divided by 32.9 sq. ft. of media equals 607 FPM velocity across cooling media. Chart below shows 87% Saturation Effectiveness at 607 FPM.

$$LDB = 100^\circ - (0.87 \times (100^\circ - 80^\circ)) = 82.6^\circ$$

For Direct Evaporative Cooling units the Wet Bulb temperature will not change.

The formula to determine Leaving Dry Bulb (LDB) temperature for Indirect Evaporative Cooling Units is:

$$LDB = EDB - (SE \times (EDB - EWB))$$

LDB = Leaving Air Dry Bulb temperature

EDB = Entering Air Dry Bulb temperature

EWB = Entering Air Wet Bulb temperature

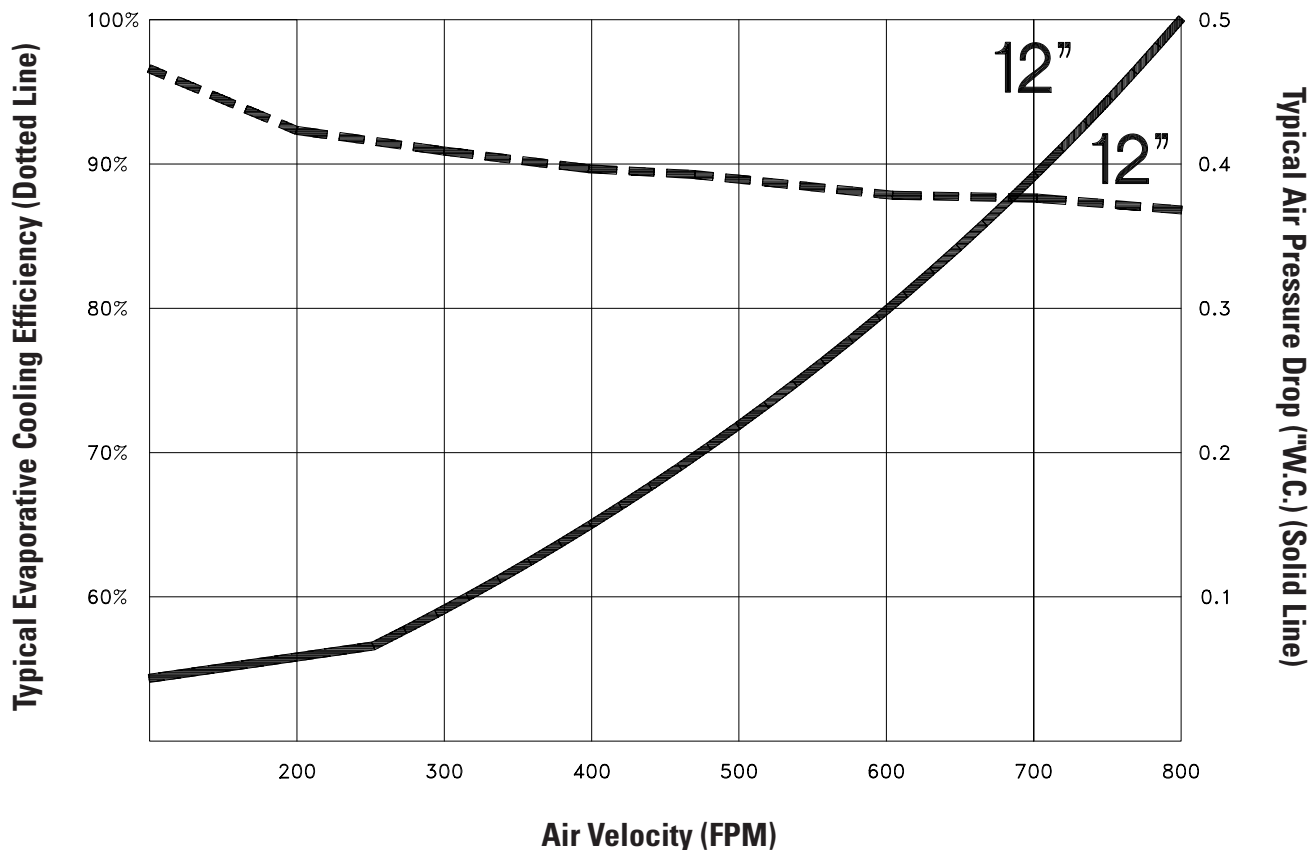
SE = Saturation Effectiveness (use 0.75)

Example: Calculate the leaving air dry bulb temperature for a 20,000 CFM unit with 100° entering dry bulb and 80° entering wet bulb temperatures.

Solution:

$$LDB = 100^\circ - (0.75 \times (100^\circ - 80^\circ)) = 85^\circ$$

The use of a Psychrometric Chart is required to determine wet bulb temperature.



TYPICAL DESIGN CONDITIONS CHART

State	City	DB °F	WB °F	State	City	DB °F	WB °F
AL	Birmingham	95	78	MT	Billings	94	66
AZ	Flagstaff	86	61		Great Falls	91	64
	Phoenix	110	76	NE	Lincoln	97	78
Tucson	105	72	Omaha		96	78	
AR	Fort Smith	99	79	NV	Las Vegas	108	71
	Little Rock	98	80		Reno	95	63
CA	Bakersfield	104	73	NM	Albuquerque, NM	96	65
	Los Angeles	84	70		Albany	88	75
	Sacramento	100	72	NY	Buffalo	86	74
	San Diego	85	73		New York City	89	77
	San Francisco	83	65		NC	Greensboro	92
CO	Denver	93	65	Raleigh		94	78
	Grand Junction	97	65	ND	Bismarck	93	74
	Pueblo	98	68		Fargo	91	75
FL	Jacksonville	95	80	OH	Cincinnati	93	78
	Orlando	94	79		Cleveland	89	76
	Pensacola	94	81		Columbus	91	77
GA	Atlanta, GA	94	77	OK	Oklahoma City	99	77
ID	Boise	97	66		Tulsa	100	79
	Coeur d'Alene	91	65	OR	Pendleton	96	67
IL	Chicago	92	79		Portland	91	69
	Decatur	93	79	PA	Philadelphia	93	78
	Rockford	91	78		Pittsburgh	89	75
IN	Evansville	94	79	SC	Columbia	97	78
	Indianapolis	91	78		Greenville	94	77
	South Bend	90	77	SD	Rapid City	95	71
IA	Des Moines	93	78		Sioux Falls	93	77
	Dubuque	89	78	TN	Knoxville	92	77
KS	Salina	101	77		Memphis	96	80
	Wichita	101	77		Nashville	94	78
KY	Bowling Green	93	78	TX	Amarillo	97	71
	Lexington	91	77		Dallas	101	78
	Louisville	93	79		El Paso	101	70
	Paducah	95	80		Houston	97	80
LA	New Orleans	94	81		San Antonio	98	78
	Shreveport	97	80	UT	Salt Lake City	97	67
MI	Detroit	90	77	VA	Richmond	95	79
	Grand Rapids	89	76		Roanoke	92	75
	Saginaw	90	77	WA	Seattle	85	66
MN	Minneapolis	91	77		Spokane	92	65
	Rochester	88	76	WI	Madison	90	77
MO	Kansas City	96	79		Milwaukee	90	77
	Springfield	95	78	WY	Casper	93	63
	St Louis	95	79		Cheyenne	88	63

DIRECT EVAPORATIVE COOLING

Direct – Water is in direct contact with the airstream. The dry bulb temperature is lowered but the wet bulb temperature remains constant which raises the Relative Humidity in the airstream.

LEAVING AIR TEMPERATURES

EAWB °F WB	Entering Air Temperature Dry Bulb Temp. (EADB)															
	80° F		85° F		90° F		95° F		100° F		105° F		110° F		115° F	
	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB
56	58.9	56.0	59.5	56.0	60.1	56.0	60.7	56.0	—	—	—	—	—	—	—	—
58	60.6	58.0	61.2	58.0	61.8	58.0	62.4	58.0	63.0	58.0	—	—	—	—	—	—
60	62.4	60.0	63.0	60.0	63.6	60.0	64.2	60.0	64.8	60.0	65.4	60.0	—	—	—	—
62	64.2	62.0	64.8	62.0	65.4	62.0	66.0	62.0	66.6	62.0	67.2	62.0	67.8	62.0	—	—
64	65.9	64.0	66.5	64.0	67.1	64.0	67.7	64.0	68.3	64.0	68.9	64.0	69.5	64.0	70.1	64.0
66	67.7	66.0	68.3	66.0	68.9	66.0	69.5	66.0	70.1	66.0	70.7	66.0	71.3	66.0	71.9	66.0
68	69.4	68.0	70.0	68.0	70.6	68.0	71.2	68.0	71.8	68.0	72.4	68.0	73.0	68.0	73.6	68.0
70	71.2	70.0	71.8	70.0	72.4	70.0	73.0	70.0	73.6	70.0	74.2	70.0	74.8	70.0	75.4	70.0
72	73.0	72.0	73.6	72.0	74.2	72.0	74.8	72.0	75.4	72.0	76.0	72.0	76.6	72.0	77.2	72.0
74	74.7	74.0	75.3	74.0	75.9	74.0	76.5	74.0	77.1	74.0	77.7	74.0	78.3	74.0	78.9	74.0
76	76.5	76.0	77.1	76.0	77.7	76.0	78.3	76.0	78.9	76.0	79.5	76.0	80.1	76.0	80.7	76.0
78	78.2	78.0	78.8	78.0	79.4	78.0	80.0	78.0	80.6	78.0	81.2	78.0	81.8	78.0	82.4	78.0
80	80.0	80.0	80.6	80.0	81.2	80.0	81.8	80.0	82.4	80.0	83.0	80.0	83.6	80.0	84.2	80.0
82	—	—	82.4	82.0	83.0	82.0	83.6	82.0	84.2	82.0	84.8	82.0	85.4	82.0	86.0	82.0
84	—	—	84.1	84.0	84.7	84.0	85.3	84.0	85.9	84.0	86.5	84.0	87.1	84.0	87.7	84.0

Notes:

1. Direct evaporative cooling performance is based on 88% saturation efficiency.

THERMAL PERFORMANCE Per 1,000 CFM

EAWB °F WB	Entering Air Temperature Dry Bulb Temp. (EADB)															
	80° F		85° F		90° F		95° F		100° F		105° F		110° F		115° F	
	KW	BTU	KW	BTU	KW	BTU	KW	BTU	KW	BTU	KW	BTU	KW	BTU	KW	BTU
56	6.7	22,810	8.1	27,562	9.5	32,314	10.9	37,066	12.3	41,818	13.6	46,570	15.0	51,322	16.4	56,074
58	6.1	20,909	7.5	25,661	8.9	30,413	10.3	35,165	11.7	39,917	13.1	44,669	14.5	49,421	15.9	54,173
60	5.6	19,008	7.0	23,760	8.4	28,512	9.7	33,264	11.1	38,016	12.5	42,768	13.9	47,520	15.3	52,272
62	5.0	17,107	6.4	21,859	7.8	26,611	9.2	31,363	10.6	36,115	12.0	40,867	13.4	45,619	14.8	50,371
64	4.5	15,206	5.8	19,958	7.2	24,710	8.6	29,462	10.0	34,214	11.4	38,966	12.8	43,718	14.2	48,470
66	3.9	13,306	5.3	18,058	6.7	22,810	8.1	27,562	9.5	32,314	10.9	37,066	12.3	41,818	13.6	46,570
68	3.3	11,405	4.7	16,157	6.1	20,909	7.5	25,661	8.9	30,413	10.3	35,165	11.7	39,917	13.1	44,669
70	2.8	9,504	4.2	14,256	5.6	19,008	7.0	23,760	8.4	28,512	9.7	33,264	11.1	38,016	12.5	42,768
72	2.2	7,603	3.6	12,355	5.0	17,107	6.4	21,859	7.8	26,611	9.2	31,363	10.6	36,115	12.0	40,867
74	1.7	5,702	3.1	10,454	4.5	15,206	5.8	19,958	7.2	24,710	8.6	29,462	10.0	34,214	11.4	38,966
76	1.1	3,802	2.5	8,554	3.9	13,306	5.3	18,058	6.7	22,810	8.1	27,562	9.5	32,314	10.9	37,066
78	0.6	1,901	1.9	6,653	3.3	11,405	4.7	16,157	6.1	20,909	7.5	25,661	8.9	30,413	10.3	35,165
80	—	—	1.4	4,752	2.8	9,504	4.2	14,256	5.6	19,008	7.0	23,760	8.4	28,512	9.7	33,264
82	—	—	0.8	2,851	2.2	7,603	3.6	12,355	5.0	17,107	6.4	21,859	7.8	26,611	9.2	31,363
84	—	—	0.3	950	1.7	5,702	3.1	10,454	4.5	15,206	5.8	19,958	7.2	24,710	8.6	29,462

Notes:

1. Direct evaporative cooling performance is based on 88% saturation efficiency.

INDIRECT EVAPORATIVE COOLING WITH 100% OUTSIDE AIR

Indirect – Water is never in contact with the airstream. Both the dry bulb and wet bulb temperatures are lowered. This is straight sensible cooling, which is ideal to offset the load in a data center.

LEAVING AIR TEMPERATURES

EAWB	Entering Air Temperature Dry Bulb Temp. (EADB)															
	80° F		85° F		90° F		95° F		100° F		105° F		110° F		115° F	
	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB
56	62.0	48.2	63.3	46.6	64.5	44.7	65.8	42.6	---	---	---	---	---	---	---	---
58	63.5	51.1	64.8	49.5	66.0	47.5	67.3	46.1	68.5	44.0	---	---	---	---	---	---
60	65.0	54.2	66.3	52.8	67.5	51.0	68.8	49.2	70.0	47.6	71.3	46.0	---	---	---	---
62	66.5	57.1	67.8	55.6	69.0	54.1	70.3	52.2	71.5	50.9	72.8	49.4	74.0	47.6	---	---
64	68.0	59.8	69.3	58.4	70.5	57.1	71.8	55.4	73.0	53.9	74.3	52.6	75.5	50.8	76.8	49.2
66	69.5	62.3	70.8	61.1	72.0	59.6	73.3	58.4	74.5	56.8	75.8	55.5	77.0	54.1	78.3	52.3
68	71.0	65.0	72.3	63.8	73.5	62.3	74.8	61.0	76.0	59.8	77.3	58.4	78.5	57.0	79.8	55.5
70	72.5	67.8	73.8	66.6	75.0	65.1	76.3	63.9	77.5	62.8	78.8	61.4	80.0	60.0	81.3	59.0
72	74.0	71.0	75.3	69.0	76.5	68.0	77.8	66.8	79.0	65.6	80.3	64.4	81.5	63.1	82.8	61.7
74	75.5	72.7	76.8	71.6	78.0	70.5	79.3	69.4	80.5	68.2	81.8	67.1	83.0	66.0	84.3	64.8
76	77.0	74.8	78.3	74.1	79.5	73.0	80.8	71.9	82.0	71.0	83.3	69.9	84.5	68.8	85.8	67.6
78	78.5	77.6	79.8	76.8	81.0	75.8	82.3	74.7	83.5	73.6	84.8	72.5	86.0	71.5	87.3	70.4
80	80.0	80.0	81.3	79.2	82.5	78.2	83.8	77.3	85.0	76.4	86.3	75.5	87.5	74.4	88.8	73.3
82	---	---	82.8	81.5	84.0	80.5	85.3	79.6	86.5	78.8	87.8	77.9	89.0	77.0	90.3	76.2
84	---	---	84.3	83.9	85.5	82.9	86.8	81.9	88.0	81.1	89.3	80.2	90.5	79.3	91.8	78.5

Notes:

1. Indirect evaporative cooling performance is based on 75% saturation efficiency.

THERMAL PERFORMANCE Per 1,000 CFM

EAWB	Entering Air Temperature Dry Bulb Temp. (EADB)															
	80° F		85° F		90° F		95° F		100° F		105° F		110° F		115° F	
	KW	BTU	KW	BTU	KW	BTU	KW	BTU	KW	BTU	KW	BTU	KW	BTU	KW	BTU
56	5.7	19,440	6.9	23,490	8.1	27,540	9.3	31,590	-	-	-	-	-	-	-	-
58	5.2	17,820	6.4	21,870	7.6	25,920	8.8	29,970	10.0	34,020	-	-	-	-	-	-
60	4.7	16,200	5.9	20,250	7.1	24,300	8.3	28,350	9.5	32,400	10.7	36,450	-	-	-	-
62	4.3	14,580	5.5	18,630	6.6	22,680	7.8	26,730	9.0	30,780	10.2	34,830	11.4	38,880	-	-
64	3.8	12,960	5.0	17,010	6.2	21,060	7.4	25,110	8.5	29,160	9.7	33,210	10.9	37,260	12.1	41,310
66	3.3	11,340	4.5	15,390	5.7	19,440	6.9	23,490	8.1	27,540	9.3	31,590	10.4	35,640	11.6	39,690
68	2.8	9,720	4.0	13,770	5.2	17,820	6.4	21,870	7.6	25,920	8.8	29,970	10.0	34,020	11.2	38,070
70	2.4	8,100	3.6	12,150	4.7	16,200	5.9	20,250	7.1	24,300	8.3	28,350	9.5	32,400	10.7	36,450
72	1.9	6,480	3.1	10,530	4.3	14,580	5.5	18,630	6.6	22,680	7.8	26,730	9.0	30,780	10.2	34,830
74	1.4	4,860	2.6	8,910	3.8	12,960	5.0	17,010	6.2	21,060	7.4	25,110	8.5	29,160	9.7	33,210
76	0.9	3,240	2.1	7,290	3.3	11,340	4.5	15,390	5.7	19,440	6.9	23,490	8.1	27,540	9.3	31,590
78	0.5	1,620	1.7	5,670	2.8	9,720	4.0	13,770	5.2	17,820	6.4	21,870	7.6	25,920	8.8	29,970
80	-	86,400	1.2	4,050	2.4	8,100	3.6	12,150	4.7	16,200	5.9	20,250	7.1	24,300	8.3	28,350
82	-	-	0.7	2,430	1.9	6,480	3.1	10,530	4.3	14,580	5.5	18,630	6.6	22,680	7.8	26,730
84	-	-	0.2	810	1.4	4,860	2.6	8,910	3.8	12,960	5.0	17,010	6.2	21,060	7.4	25,110

Notes:

1. Indirect evaporative cooling performance is based on 75% saturation efficiency.

INDIRECT EVAPORATIVE COOLING WITH 100% RETURN AIR

Indirect – Water is never in contact with the airstream. Both the dry bulb and wet bulb temperatures are lowered. This is straight sensible cooling, which is ideal to offset the load in a data center.

LEAVING AIR TEMPERATURES

Ambient Wet Bulb Temp	Return Air Temperature at 30% RH								
	90/67	95/71	100/74	105/78	110/81	115/85	120/89	125/92	130/96
56	64/58	65/62	66/65	67/69	72/71	75/75	79/78	82/81	86/85
58	66/59	67/62	68/66	69/69	72/72	76/75	79/79	82/81	86/85
60	67/59	68/62	69/66	70/70	72/72	76/76	80/79	83/82	87/86
62	69/60	70/63	71/66	72/71	73/73	77/76	80/80	83/82	87/86
64	71/60	72/64	72/66	73/71	74/73	77/77	81/80	84/83	88/86
66	72/61	73/64	74/66	75/71	76/73	77/77	82/81	84/83	88/87
68	74/62	75/65	76/67	77/71	78/73	78/78	82/81	85/84	89/88
70	75/62	76/65	77/67	78/71	79/73	80/78	82/82	85/84	89/88
72	77/63	78/66	79/68	80/71	81/74	82/78	83/82	86/85	89/89
74	79/63	80/66	81/68	81/72	82/74	83/78	84/83	86/85	90/89
76	80/64	81/67	82/69	83/72	84/75	85/78	86/83	87/86	90/89
78	82/64	83/67	84/69	85/73	86/75	86/79	87/83	88/86	90/90
80	84/65	84/68	85/70	86/73	87/75	88/79	89/83	90/86	91/90
82	85/66	86/68	87/70	88/74	89/76	90/79	91/83	91/86	92/90
84	87/66	88/69	89/71	90/74	90/76	91/80	92/83	93/86	94/91

LEAVING AIR TEMPERATURES

Ambient Wet Bulb Temp	Return Air Temperature at 50% RH								
	90/75	95/79	100/83	105/87	110/91	115/96	120/100	125/104	130/108
56	68/68	71/71	75/74	78/78	82/81	86/86	90/90	94/94	98/98
58	69/68	72/72	75/75	79/78	82/82	87/86	91/90	95/94	99/98
60	70/69	73/72	76/75	79/79	83/82	87/87	91/91	95/95	99/98
62	70/70	73/73	76/76	80/79	83/83	88/87	92/91	96/95	99/99
64	71/70	74/73	77/76	80/80	84/83	89/88	92/92	96/96	100/99
66	72/71	74/74	78/77	81/80	84/84	89/89	93/92	97/96	100/99
68	74/71	75/74	78/78	81/81	85/84	90/89	93/93	97/96	100/100
70	75/71	76/75	79/78	82/81	86/85	90/90	94/93	97/97	101/100
72	77/71	78/75	79/79	83/82	86/85	91/90	94/94	98/97	101/100
74	79/72	80/75	81/79	83/83	87/86	91/91	95/94	98/98	101/101
76	80/72	81/76	82/79	83/83	87/86	92/91	95/95	99/98	101/101
78	82/73	83/76	84/79	85/83	87/87	92/92	96/95	99/99	101/101
80	84/73	84/76	85/80	86/83	88/87	93/92	96/96	100/99	101/101
82	85/74	86/77	87/80	88/84	89/88	93/92	97/96	100/99	101/101
84	87/74	88/77	89/81	90/84	90/88	93/92	97/96	100/99	102/101

Notes:

1. Indirect evaporative cooling performance is based on 75% saturation efficiency.

INDIRECT/DIRECT EVAPORATIVE COOLING

Indirect/Direct – This is a two-stage hybrid approach using both systems described above. The first stage is the Indirect section which will lower dry bulb and wet bulb temperatures. The second stage is the Direct section that further lowers the dry bulb temperature using the leaving air of the Indirect section as the starting point.

LEAVING AIR TEMPERATURES

EAWB °F WB	Entering Air Temperature Dry Bulb Temp. (EADB)															
	80° F		85° F		90° F		95° F		100° F		105° F		110° F		115° F	
	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB
56	49.9	48.2	48.6	46.6	47.1	44.7	45.4	42.6	—	—	—	—	—	—	—	—
58	52.6	51.1	51.3	49.5	49.7	47.5	48.6	46.1	46.9	44.0	—	—	—	—	—	—
60	55.5	54.2	54.4	52.8	53.0	51.0	51.5	49.2	50.3	47.6	49.0	46.0	—	—	—	—
62	58.2	57.1	57.1	55.6	55.9	54.1	54.4	52.2	53.4	50.9	52.2	49.4	50.8	47.6	—	—
64	60.8	59.8	59.7	58.4	58.7	57.1	57.4	55.4	56.2	53.9	55.2	52.6	53.8	50.8	52.5	49.2
66	63.2	62.3	62.3	61.1	61.1	59.6	60.2	58.4	58.9	56.8	57.9	55.5	56.8	54.1	55.4	52.3
68	65.7	65.0	64.8	63.8	63.6	62.3	62.7	61.0	61.7	59.8	60.7	58.4	59.6	57.0	58.4	55.5
70	68.4	67.8	67.5	66.6	66.3	65.1	65.4	63.9	64.6	62.8	63.5	61.4	62.4	60.0	61.7	59.0
72	71.4	71.0	69.8	69.0	69.0	68.0	68.1	66.8	67.2	65.6	66.3	64.4	65.3	63.1	64.2	61.7
74	73.0	72.7	72.2	71.6	71.4	70.5	70.6	69.4	69.7	68.2	68.9	67.1	68.0	66.0	67.1	64.8
76	75.1	74.8	74.6	74.1	73.8	73.0	73.0	71.9	72.3	71.0	71.5	69.9	70.7	68.8	69.8	67.6
78	77.7	77.6	77.2	76.8	76.4	75.8	75.6	74.7	74.8	73.6	74.0	72.5	73.2	71.5	72.4	70.4
80	80.0	80.0	79.4	79.2	78.7	78.2	78.1	77.3	77.4	76.4	76.8	75.5	76.0	74.4	75.2	73.3
82	—	—	81.7	81.5	80.9	80.5	80.3	79.6	79.7	78.8	79.1	77.9	78.4	77.0	77.9	76.2
84	—	—	83.9	83.9	83.2	82.9	82.5	81.9	81.9	81.1	81.3	80.2	80.6	79.3	80.1	78.5

Notes:

1. Indirect evaporative cooling performance is based on 75% saturation efficiency.
2. Direct evaporative cooling performance is based on 88% saturation efficiency.

THERMAL PERFORMANCE Per 1,000 CFM

EAWB °F WB	Entering Air Temperature Dry Bulb Temp. (EADB)															
	80° F		85° F		90° F		95° F		100° F		105° F		110° F		115° F	
	KW	BTU	KW	BTU	KW	BTU	KW	BTU	KW	BTU	KW	BTU	KW	BTU	KW	BTU
56	9.5	32,556	11.5	39,314	13.6	46,358	15.7	53,592	-	-	-	-	-	-	-	-
58	8.7	29,605	10.7	36,364	12.7	43,502	14.7	50,071	16.8	57,305	-	-	-	-	-	-
60	7.8	26,464	9.7	33,033	11.7	39,982	13.8	46,930	15.7	53,689	17.7	60,448	-	-	-	-
62	6.9	23,514	8.8	30,177	10.8	36,841	12.9	43,885	14.8	50,358	16.7	57,022	18.7	63,971	-	-
64	6.1	20,753	8.0	27,322	9.9	33,795	11.9	40,649	13.9	47,313	15.8	53,786	17.8	60,735	19.8	67,494
66	5.3	18,183	7.2	24,561	9.2	31,225	11.0	37,603	13.0	44,362	14.9	50,836	16.8	57,404	18.9	64,353
68	4.5	15,422	6.4	21,801	8.3	28,464	10.2	34,938	12.1	41,316	14.0	47,885	16.0	54,454	17.9	61,117
70	3.7	12,567	5.6	18,945	7.5	25,609	9.4	31,987	11.2	38,271	13.1	44,839	15.1	51,408	16.9	57,596
72	2.7	9,331	4.8	16,470	6.6	22,658	8.5	29,037	10.4	35,415	12.2	41,794	14.1	48,267	16.1	54,836
74	2.2	7,521	4.0	13,805	5.9	20,088	7.7	26,371	9.6	32,750	11.4	39,033	13.3	45,317	15.2	51,695
76	1.6	5,331	3.3	11,234	5.1	17,518	7.0	23,801	8.8	29,894	10.6	36,178	12.4	42,461	14.3	48,840
78	0.7	2,475	2.5	8,474	4.3	14,662	6.1	20,946	8.0	27,229	9.8	33,512	11.6	39,701	13.5	45,984
80	-	-	1.8	5,998	3.6	12,187	5.4	18,280	7.1	24,373	8.9	30,467	10.8	36,750	12.6	43,034
82	-	-	1.1	3,618	2.9	9,806	4.7	15,900	6.4	21,898	8.2	27,991	10.0	34,085	11.7	40,083
84	-	-	0.3	1,143	2.1	7,331	4.0	13,519	5.7	19,518	7.5	25,611	9.3	31,704	11.0	37,703

Notes:

1. Indirect evaporative cooling performance is based on 75% saturation efficiency.
2. Direct evaporative cooling performance is based on 88% saturation efficiency.

HECD FEATURES

A *Cooling Media.*

The Turbodek media with its unique cross-fluted design not only offers a higher cooling efficiency, up to 90% in the 400 fpm range (slightly higher with Fiberdek), but is more durable and its self cleaning action extends the life span years beyond that of most conventional media. Optional Fiberdek is U.L. approved with a U.L.900, class 2 rating.

B *Optional Maxaire Prefilter.*

Keeps bugs out, reduces odor-producing algae by keeping out sunlight and helps minimize the accumulation of dust, dirt and other airborne particles from rapidly collecting in the water tank.

C *Washer Cabinet and Water Pan.*

Construction of 304 Stainless Steel.

D *Float Operated Valve.*

Maintains water level in tank, $\frac{3}{8}$ " , parts are corrosion-resistant and replaceable.

E *Bleed-off Valve.*

Manually adjustable, brass construction, $\frac{1}{4}$ " , reduces mineral buildup, helps prevent media clogging thus extending media life.

F *Water Distribution Manifold.*

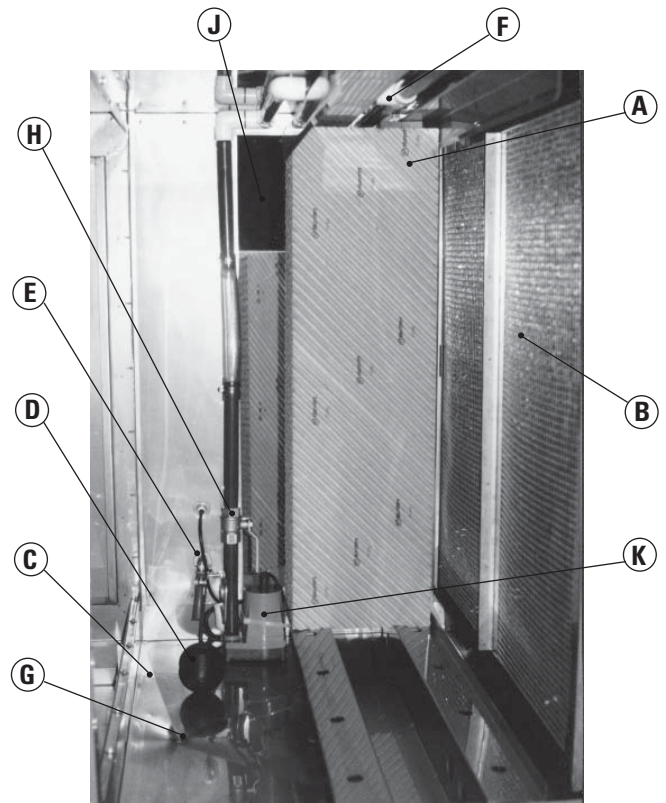
Heavy-duty schedule 40 PVC with metered orifices, and removable end caps for easy cleaning.

G *Bottom Drain.*

Drain pan is cross broke to center with stainless steel nipple welded in place, allows for complete drainage of water pan.

H *Water Regulator Valve.*

Brass construction, water flow can be field set.



J *Access Panel.*

Full size side panel provides easy access to pump, float valve, water regulator valve and cooling media that can be easily removed.

K *Pump.*

Submersible, centrifugal, U.L. listed, dielectric oil-filled motor, lubricated for life. Lightweight and compact with strainer to prevent clogging. Available for 115V or 230V, single-phase operation.

HECD EQUIPMENT OPTIONS

- Cooling module only
- Additional access door
- Motorized discharge damper (2 position or modulating)
- Maxaire prefilter
- Fiberdek
- Duradek coating
- Stainless steel blower compartment
- Factory wired starters/disconnects
- Remote control panels
- TEFC motors
- OA/RA mixing plenum
- Fill and drain kit
- Spring isolated blower assembly
- One foot cabinet section for coil mounting
- Variable frequency motor drives

HECD SERIES AIR PERFORMANCE CHART

MODEL NO.	CFM	BLOWER HORSEPOWER AND SPEED REQD. @ ESP (W.C.)														
		0.125"		0.25"		0.50"		0.75"		1.00"		1.25"		1.50"		
		HP	RPM	HP	RPM	HP	RPM	HP	RPM	HP	RPM	HP	RPM	HP	RPM	
HECD-70 WCD-70 FFA-13.3 sq. ft. 18" FC	5000	1	387	1	432	1.5	512	2	588	2	667	2	716	3	768	
	6000	1.5	451	1.5	486	2	553	3	625	3	692	3	745	5	798	
	7000	2	518	3	544	3	605	3	666	5	725	5	777	5	829	
	8000	3	585	3	607	5	656	5	712	5	766	5	815	7.5	863	
	9000	5	652	5	670	5	713	5	763	7.5	812	7.5	859	7.5	902	
HECD-100 WCD-100 FFA-17.2 sq. ft. 20" FC	8000	3	462	3	490	3	545	5	593	5	642	5	688	5	740	
	9000	5	514	5	539	5	588	5	635	5	675	7.5	715	7.5	760	
	10,000	5	565	5	587	5	632	7.5	677	7.5	715	7.5	752	7.5	789	
	11,000	7.5	617	7.5	640	7.5	680	7.5	720	7.5	756	10	791	10	826	
	12,000	7.5	670	7.5	691	10	727	10	763	10	800	10	835	10	866	
HECD-130 WCD-130 FFA-20.0 sq. ft. 25" FC	11,000	2	305	3	333	3	385	5	433	5	477	5	518	7.5	560	
	12,000	3	329	3	354	5	402	5	447	5	490	7.5	530	7.5	566	
	13,000	3	352	5	375	5	419	5	463	7.5	505	7.5	542	7.5	577	
	14,000	5	375	5	396	5	439	7.5	481	7.5	520	7.5	555	10	590	
	HECD-210 WCD-210 FFA-32.9 sq. ft. 27" FC	15,000	3	290	5	314	5	360	7.5	400	7.5	440	7.5	475	10	511
16,000		5	304	5	330	5	373	7.5	411	7.5	448	10	484	10	518	
17,000		5	320	5	343	7.5	385	7.5	422	10	460	10	493	10	524	
18,000		5	337	7.5	359	7.5	399	7.5	436	10	470	10	503	15	534	
19,000		7.5	355	7.5	373	7.5	412	10	450	10	481	15	512	15	544	
20,000		7.5	370	7.5	391	7.5	428	10	462	15	493	15	523	15	556	
21,000		7.5	385	10	405	10	441	15	475	15	505	15	535	15	566	
22,000		10	402	10	420	15	456	15	490	15	515	15	546	20	576	
23,000		10	420	15	435	15	469	15	502	15	532	20	560	20	589	
HECD-260 (2) WCD-130 FFA-40.0 sq. ft. 27" FC		21,000	7.5	325	7.5	343	10	375	10	409	15	441	15	468	15	495
	22,000	7.5	337	7.5	354	10	389	15	420	15	450	15	478	15	504	
	23,000	10	350	10	369	15	400	15	431	15	460	15	487	15	513	
	24,000	10	365	10	382	15	412	15	442	15	471	15	497	20	522	
	25,000	10	375	15	395	15	424	15	455	15	481	20	507	20	532	
	26,000	15	391	15	407	15	437	15	465	20	492	20	516	20	542	
	27,000	15	403	15	421	15	449	20	476	20	503	20	528	25	551	
	28,000	15	420	15	434	20	464	20	488	20	513	25	538	25	563	
	HECD-300 WCD-300 FFA-49.5 sq. ft. 33" FC	23,000	5	230	5	246	7.5	285	7.5	319	10	349	10	377	15	402
24,000		7.5	239	7.5	252	7.5	291	10	325	10	354	15	382	15	406	
25,000		7.5	248	7.5	260	7.5	297	10	330	10	360	15	387	15	411	
26,000		7.5	258	7.5	267	10	303	10	335	15	365	15	393	15	416	
27,000		7.5	267	7.5	276	10	311	15	341	15	371	15	397	15	422	
28,000		10	276	10	284	10	318	15	347	15	376	15	402	20	427	
29,000		10	285	10	292	15	324	15	354	15	382	15	408	20	432	
30,000		10	295	10	303	15	331	15	360	15	388	20	414	20	436	
31,000		15	305	15	311	15	340	15	367	20	394	20	419	20	443	
32,000		15	313	15	320	15	346	15	373	20	400	20	424	20	449	
HECD-340 (2) WCD-210 FFA-65.8 sq. ft. 33" FC		28,000	10	262	10	267	10	283	15	310	15	339	15	364	15	388
	29,000	10	270	10	276	10	290	15	315	15	343	15	368	20	392	
	30,000	10	279	10	285	15	297	15	319	15	348	15	373	20	395	
	31,000	15	288	15	293	15	305	15	325	15	353	20	377	20	400	
	32,000	15	297	15	301	15	314	15	331	20	357	20	382	20	404	
	33,000	15	307	15	311	15	322	15	337	20	361	20	387	20	408	
	34,000	15	315	15	320	15	330	20	344	20	366	20	392	25	413	
	35,000	15	325	20	329	20	338	20	351	20	370	25	396	25	417	
	36,000	20	333	20	338	20	347	20	359	20	376	25	400	25	423	
	37,000	20	342	20	347	20	355	20	365	25	382	25	404	25	428	
	38,000	20	352	20	355	25	364	25	374	25	388	25	408	30	433	
	HECD-420 (2) WCD-210 FFA-66.8 sq. ft. 36" FC	36,000	15	259	15	274	15	299	20	325	20	350	25	370	25	390
		37,000	15	266	15	280	20	306	20	331	20	354	25	375	25	394
38,000		15	273	20	287	20	311	20	336	25	359	25	380	25	398	
39,000		20	280	20	293	20	317	25	341	25	364	25	384	30	402	
40,000		20	287	20	298	20	322	25	345	25	368	30	389	30	407	
41,000		20	293	20	305	25	328	25	350	25	373	30	393	30	412	
42,000		20	299	20	312	25	334	25	356	30	377	30	398	40	417	
43,000		20	305	25	318	25	340	30	361	30	383	30	404	40	422	
44,000		25	311	25	324	25	346	30	366	30	388	40	408	40	427	
45,000		25	318	25	330	30	351	30	371	40	393	40	414	40	432	
46,000		25	324	30	337	30	358	30	377	40	398	40	418	40	436	
HECD-600 (2) WCD-300 FFA-99.0 sq. ft. 42" FC	46,000	20	247	20	258	20	282	25	304	25	325	30	344	40	362	
	48,000	20	258	20	267	25	290	25	313	30	332	40	351	40	368	
	50,000	20	267	25	277	25	298	30	320	30	340	40	358	40	375	
	52,000	25	277	25	287	30	307	30	328	40	347	40	366	40	382	
	54,000	25	286	30	296	30	315	40	336	40	355	40	373	50	390	
	56,000	30	296	30	306	40	324	40	344	40	362	50	380	50	396	
	58,000	30	306	40	315	40	333	40	352	50	371	50	387	50	404	
	60,000	40	316	40	325	40	342	50	360	50	378	50	395	60	411	
	62,000	40	327	40	335	50	351	50	368	50	386	60	404	60	419	
	64,000	50	337	50	345	50	359	50	377	60	394	60	411	60	426	

EXAMPLE OF HOW TO USE AIR DELIVERY TABLE:

To select a blower that will provide 20,000 CFM with external static pressure of 0.50" at sea level and determine the RPM and horsepower required, begin by finding 20,000 in CFM column. Model HECD-210 meets this requirement. Then follow the line for 20,000 CFM horizontally to the column for 0.50" static pressure. (Make adjustments for the accessories listed below, if applicable.) This shows that the operating speed is 428 RPM and the horsepower is 7-1/2. Allowances for drive loss have already been factored into the table.

Static pressure drops for optional equipment accessories must be added to the external static pressures to determine the appropriate blower motor horsepower.

- Maxaire prefilter 0.30" WG
- Discharge damper 0.50" WG
- OA/RA mixing plenum 0.15" WG

Performance shown is for installation type B, Free inlet, Ducted outlet.

Performance ratings include the effects of evaporative media, bearings and blower sheaves in the airstream.

NOTE: Combination of some optional equipment may effect standard cabinet dimension. Please contact factory for more information.

ALTON HECD AMP DRAW TABLE

ITEM	SOURCE	AMPS	Motor Horsepower						
			1	1-1/2	2	3	5	7-1/2	10
A	Blower Motor	200 V 3 Phase	4.8	6.9	7.8	11.0	17.5	25.3	32.2
		208 V 3 Phase	4.6	6.6	7.5	10.6	16.7	24.2	30.8
		230 V 3 Phase	4.2	6.0	6.8	9.6	15.3	22.0	28.8
		460 V 3 Phase	2.1	3.0	3.4	4.8	7.6	11.0	14.4
		575 V 3 Phase	1.7	2.4	2.7	3.9	6.1	9.0	11.5
		AMPS	Motor Horsepower						
			15	20	25	30	40	50	60
		200 V 3 Phase	48.3	62.1	78.2	92.0	120.0	150.0	177.0
		208 V 3 Phase	46.2	59.4	74.8	88.0	114.0	143.0	169.0
		230 V 3 Phase	42.0	54.0	68.0	80.0	104.0	130.0	154.0
		460 V 3 Phase	21.0	27.0	34.0	40.0	52.0	65.0	77.0
575 V 3 Phase	17.0	22.0	27.0	32.0	41.0	52.0	62.0		
B	Control Transformer	AMPS	Control Circuit Amps						
			HECD-70, 100, 130, 210 & 300			HECD-260, 340, 420 & 600			
		200 V 3 Phase	7.5			12.5			
		208 V 3 Phase	7.2			12.0			
		230 V 3 Phase	6.5			10.9			
		460 V 3 Phase	3.3			5.4			
		575 V 3 Phase	2.6			4.3			

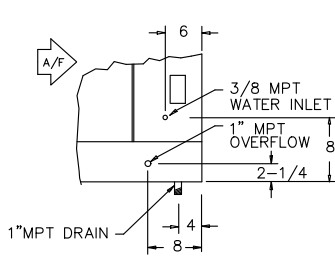
- NOTES:** 1) Above motor amps are based on 2011 edition of NEC.
2) Control circuit amps are based on standard controls.

Steps to Size Optional Disconnect Switch:

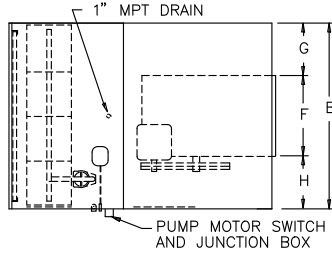
1. Find the blower motor HP required from chart on page 12.
2. Find amp draw for motor HP from chart in Item A above.
3. Find amps for control circuit from chart in Item B above.
4. Add amps from step 2 and step 3, then multiply by 1.25.

DIMENSIONS – BASIC UNIT

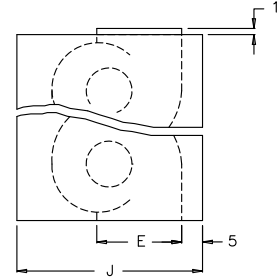
HECD-70, 100, 130, 210, 300



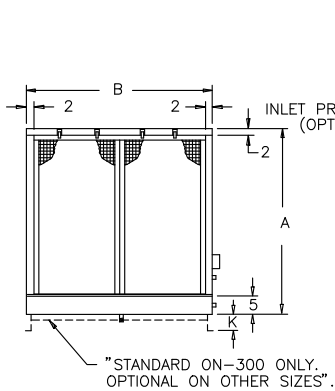
DETAIL "A"



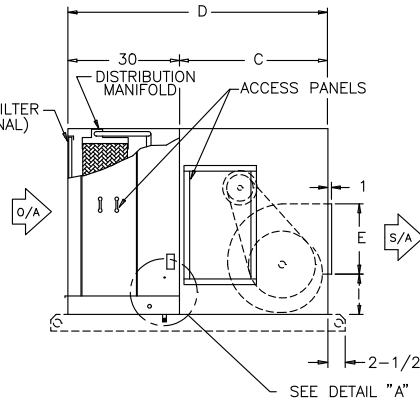
PLAN VIEW



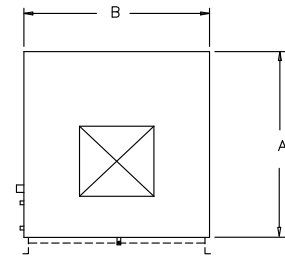
OPTIONAL FAN ARRANGEMENT



REAR VIEW



SIDE VIEW



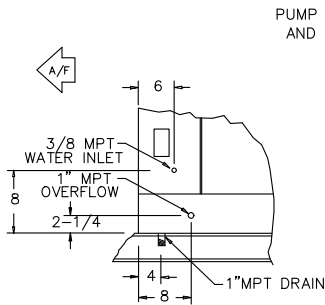
FRONT VIEW

NOTE: When using optional fan arrangements or internally isolated fan "D" dimension will = "J" plus 30".

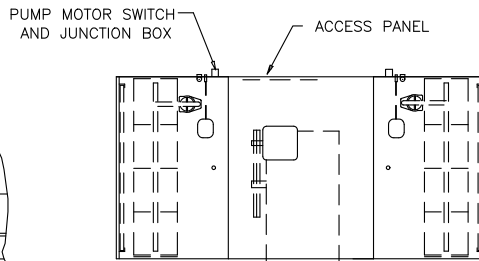
MODEL	BLOWER SIZE	EVAP. MEDIA	A	B	C	D	E	F	G	H	I	J	K	NET WT.	OPERATING WT.
HECD-70	18" FC	(4) 12 x 12 x 42-1/2 (1) 2 x 12 x 42-1/2	50	50	32	62	18-7/8	21-7/8	14-1/16	14-1/16	12-7/8	39	4	630 lbs.	890 lbs.
HECD-100	20" FC	(4) 12 x 12 x 48 (1) 8 x 12 x 48	56	56	35	65	24-3/4	24-7/8	15-9/16	15-9/16	13-1/2	44	4	805 lbs.	1069 lbs.
HECD-130	25" FC	(5) 12 x 12 x 54-1/2	62	60	42	72	31-1/4	31-3/8	14-5/16	14-5/16	15-7/8	53	4	949 lbs.	1240 lbs.
HECD-210	27" FC	(6) 12 x 12 x 67-1/2 (1) 3 x 12 x 67-1/2	75	75	50	80	34-1/4	34-3/8	20-5/16	20-5/16	17-9/16	60	4	1489 lbs.	1879 lbs.
HECD-300	33" FC	(8) 12 x 12 x 78-1/2	86	96	75	105	42-15/16	39-3/4	20	36-1/4	17-1/16	75	4	2008 lbs.	2529 lbs.

DIMENSIONS – BASIC UNIT

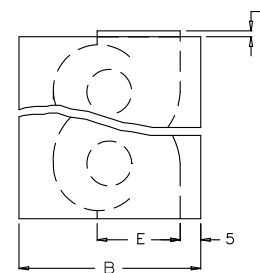
HECD-260, 340, 420, 600



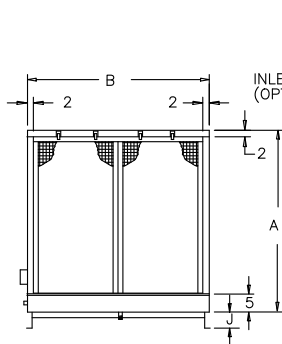
DETAIL "A"



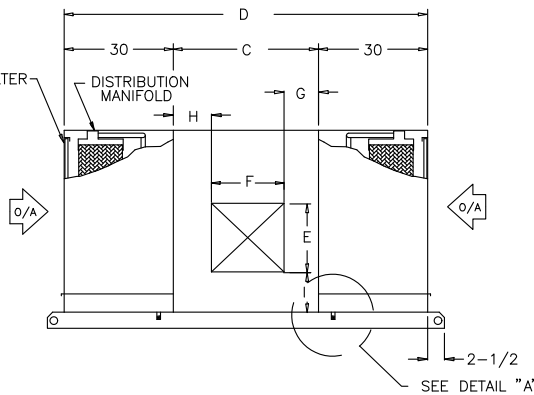
PLAN VIEW



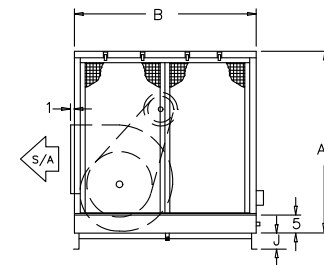
OPTIONAL FAN ARRANGEMENTS



REAR VIEW



SIDE VIEW



FRONT VIEW

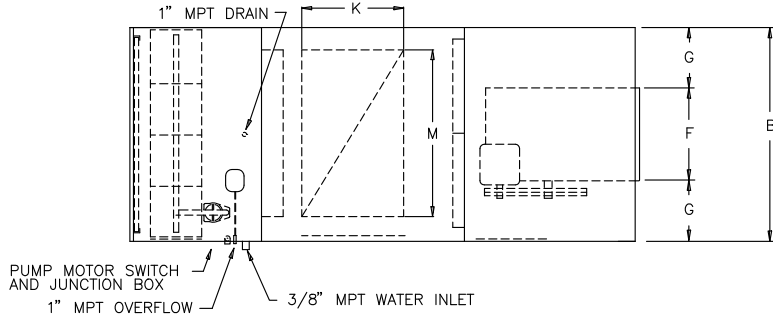
NOTE: Combination of some optional equipment may effect standard cabinet dimensions. Please contact factory for more information.

MODEL	BLOWER SIZE	EVAP. MEDIA	A	B	C*	D*	E	F	G	H	I	J	NET WT.	OPERATING WT.
HECD-260	27" FC	(10) 12 x 12 x 54-1/2	62	60	53	113	34-1/4	34-3/8	9-5/16	9-5/16	17-9/16	4	1553 lbs.	2135 lbs.
HECD-340	33" FC	(12) 12 x 12 x 67-1/2 (2) 3 x 12 x 67-1/2	75	75	96	156	42-15/16	39-7/8	20	36-1/8	17-1/16	4	2328 lbs.	3108 lbs.
HECD-420	36" FC	(12) 12 x 12 x 67-1/2 (2) 3 x 12 x 67-1/2	75	75	96	156	42-15/16	42-3/4	17	36-1/4	17-1/16	4	2453 lbs.	3233 lbs.
HECD-600	42" FC	(16) 12 x 12 x 78-1/2	86	96	129	189	44	60-1/4	30	38-3/4	36-1/2	6	3600 lbs.	4650 lbs.

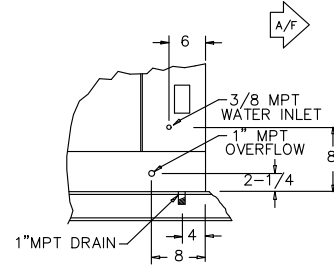
* Internally Isolated Model 260 - "C" = 75, "D" = 135

DIMENSIONS – BASIC UNIT WITH MIXING SECTION

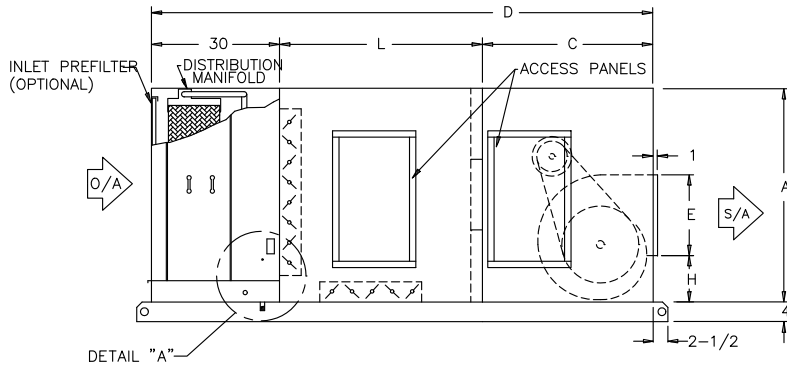
HECD-70, 100, 130, 210, 300



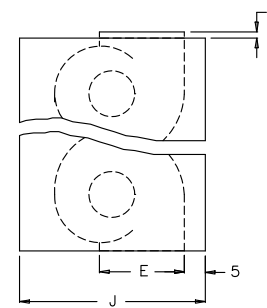
PLAN VIEW



DETAIL "A"



SIDE VIEW



OPTIONAL FAN ARRANGEMENTS

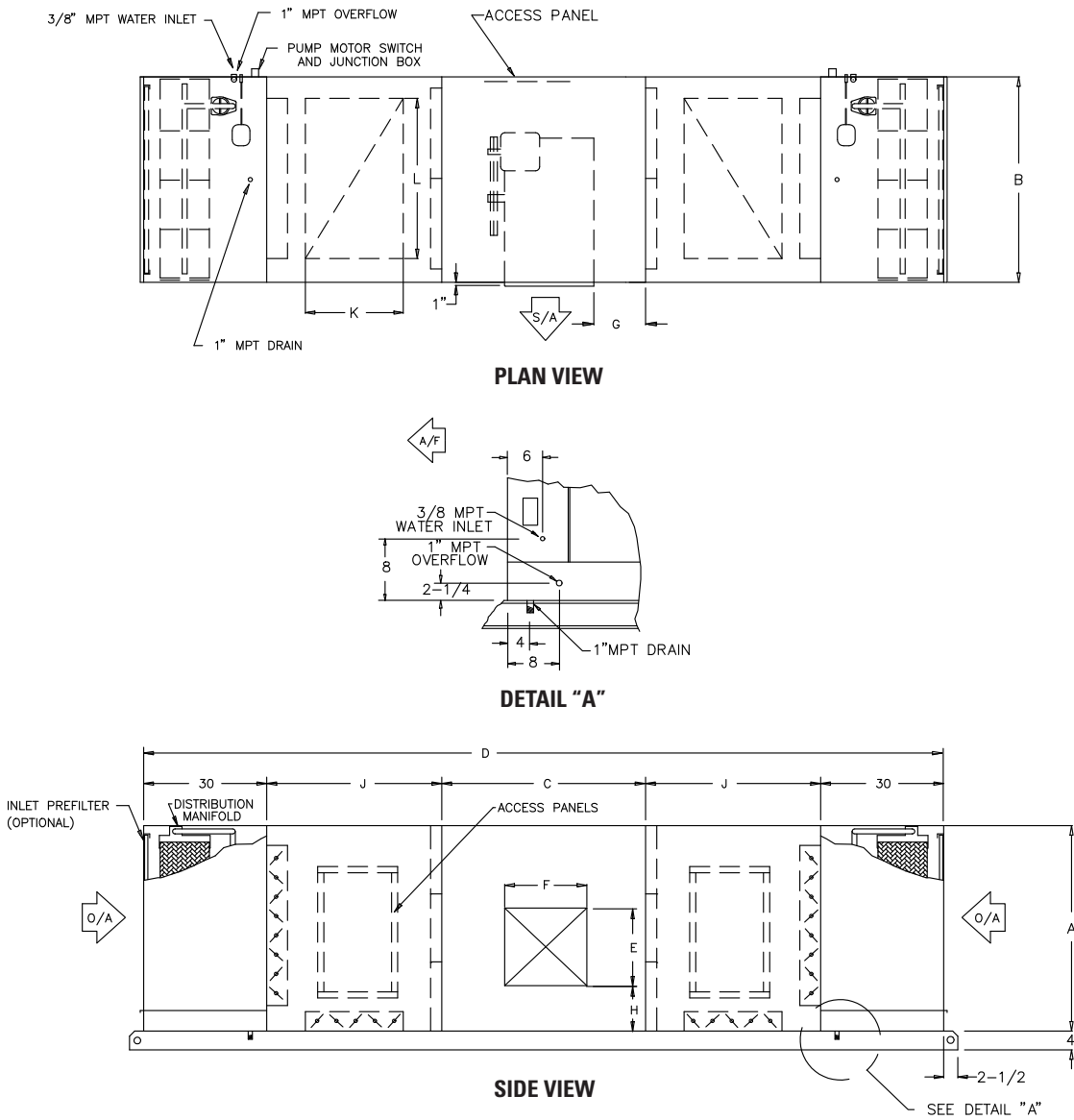
NOTE: When using internally isolated fan or optional fan arrangement use "J" dimension in place of "C" dimension.

MODEL	A	B	C	D	E	F	G	H	J	K	L	M
HECD-70	50	50	32	110	18-7/8	21-7/8	14-1/16	12-7/8	39	24	48	32
HECD-100	56	56	35	113	24-3/4	24-7/8	15-9/16	13-1/2	44	24	48	40
HECD-130	62	60	42	120	31-1/4	31-3/8	14-5/16	15-7/8	53	28	48	44
HECD-210	75	75	50	128	34-1/4	34-3/8	20-5/16	17-9/16	60	30	48	65
HECD-300	86	96	75	153	42-15/16	39-3/4	20	17-1/16	75	32	48	75

MODEL	BLOWER SIZE	EVAP. MEDIA	FILTER QTY. & SIZE	NET WT.	OPERATING WT.
HECD-70	18" FC	(4) 12 x 12 x 42-1/2 (1) 2 x 12 x 42-1/2	(6) 16 x 25 x 2	995 lbs.	1253 lbs.
HECD-100	20" FC	(4) 12 x 12 x 48 (1) 8 x 12 x 48	(6) 16 x 25 x 2	1250 lbs.	1514 lbs.
HECD-130	25" FC	(5) 12 x 12 x 54-1/2	(9) 20 x 20 x 2	1488 lbs.	1780 lbs.
HECD-210	27" FC	(6) 12 x 12 x 67-1/2 (1) 3 x 12 x 67-1/2	(6) 16 x 25 x 2 (6) 20 x 25 x 2	2269 lbs.	2659 lbs.
HECD-300	33" FC	(8) 12 x 12 x 78-1/2	(16) 20 x 24 x 2	3275 lbs.	3785 lbs.

DIMENSIONS – BASIC UNIT WITH MIXING SECTION

HECD-260, 340, 420, 600



NOTE: When using internally isolated fan on 260 size only "C" dimension = 75" & "D" dimension = 219".

MODEL	A	B	C	D	E	F	G	H	J	K	L
HECD-260	62	60	53	209	34-1/4	34-3/8	9-5/16	17-9/16	48	28	44
HECD-340	75	75	96	252	42-15/16	39-7/8	20	17-1/16	48	30	65
HECD-420	75	75	96	252	42-15/16	42-3/4	17	17-1/16	48	30	65
HECD-600	86	96	129	285	44	60-1/4	30	36-1/2	48	32	75

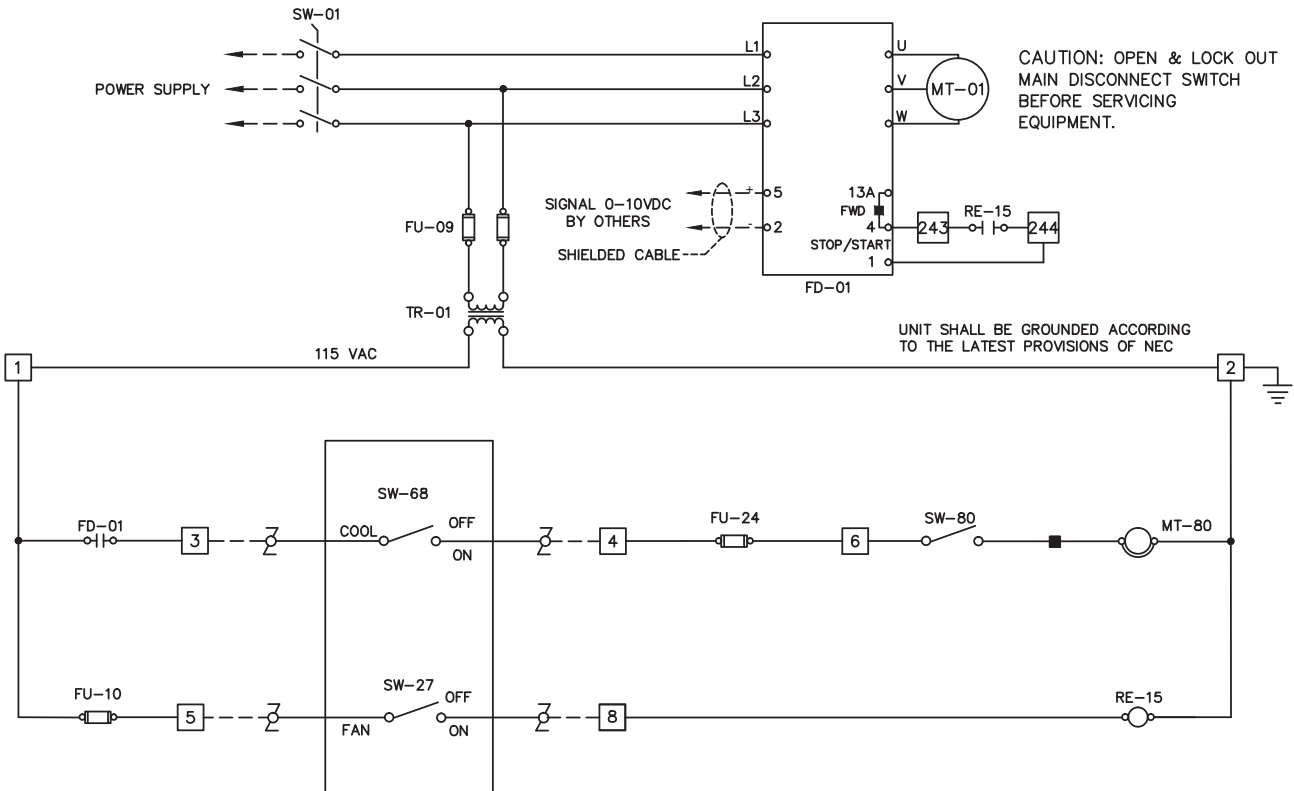
MODEL	BLOWER SIZE	EVAP. MEDIA	FILTER QTY. & SIZE	NET WT.	OPERATING WT.
HECD-260	27" FC	(10) 12 x 12 x 54-1/2	(18) 20 x 20 x 2	2650 lbs.	3245 lbs.
HECD-340	33" FC	(12) 12 x 12 x 67-1/2 (2) 3 x 12 x 67-1/2	(12) 16 x 25 x 2 (12) 20 x 25 x 2	4040 lbs.	4840 lbs.
HECD-420	36" FC	(12) 12 x 12 x 67-1/2 (2) 3 x 12 x 67-1/2	(12) 16 x 25 x 2 (12) 20 x 25 x 2	4215 lbs.	5015 lbs.
HECD-600	42" FC	(16) 12 x 12 x 78-1/2	(32) 20 x 25 x 2	6100 lbs.	7175 lbs.

CONTROLS

Typical Wiring

C000741

C000741 03/29/13



CAUTION: OPEN & LOCK OUT MAIN DISCONNECT SWITCH BEFORE SERVICING EQUIPMENT.

UNIT SHALL BE GROUNDED ACCORDING TO THE LATEST PROVISIONS OF NEC

- NOTES**
- NOTE: BECAUSE OF SHIPPING RESTRICTIONS FIELD CONNECTIONS AND/OR WIRING BETWEEN COMPONENTS OR SECTIONS MAY BE REQUIRED
 - DENOTES COMPONENT TERMINAL NUMBER AND WIRING
 - DENOTES JUMPER WIRE
 - DENOTES WIRE CONNECTION
 - DENOTES CONTROL CABINET TERMINAL BLOCK & WIRE NUMBER
 - △ DENOTES COMPONENTS SUPPLIED AND WIRED BY OTHERS
 - DENOTES WIRING BY OTHERS
 - ⌘ DENOTES WIRE NUMBER LEADS
 - 1-T0-99 TERMINAL BLOCKS-115 VOLT
 - 101-T0-199 TERMINAL BLOCKS-24 VOLT

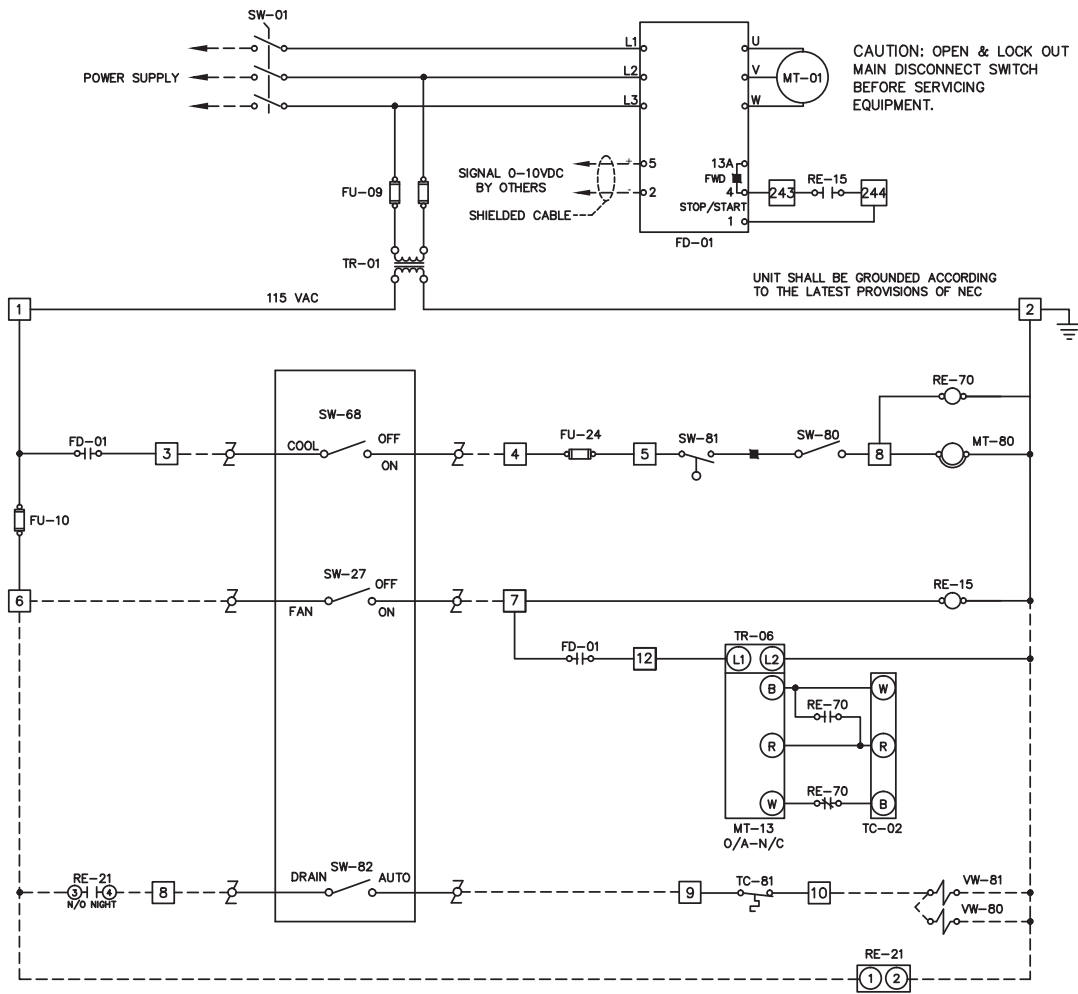
- COMPONENT IDENTIFICATION**
- FD-01 VARIABLE FREQUENCY DRIVE
 - FU-09 TRANSFORMER FUSE
 - FU-10 CONTROL CIRCUIT FUSE
 - FU-24 EVAPORATIVE COOLING MOTOR FUSE
 - MT-01 MAIN SUPPLY FAN MOTOR
 - MT-80 WATER PUMP
 - RE-15 VARIABLE FREQUENCY DRIVE START RELAY
 - SW-01 MAIN DISCONNECT SWITCH
 - SW-27 FAN ON-OFF SWITCH
 - SW-68 COOL-OFF ON SWITCH
 - SW-80 PUMP SWITCH
 - TR-01 CONTROL CIRCUIT TRANSFORMER

CONTROLS

Typical Wiring

C000742

C000742 03/29/13



NOTES

NOTE: BECAUSE OF SHIPPING RESTRICTIONS FIELD CONNECTIONS AND/OR WIRING BETWEEN COMPONENTS OR SECTIONS MAY BE REQUIRED

- DENOTES COMPONENT TERMINAL NUMBER AND WIRING
- DENOTES JUMPER WIRE
- DENOTES WIRE CONNECTION
- DENOTES CONTROL CABINET TERMINAL BLOCK & WIRE NUMBER
- △ DENOTES COMPONENTS SUPPLIED AND WIRED BY OTHERS
- DENOTES WIRING BY OTHERS
- ∩ DENOTES WIRE NUMBER LEADS
- 1-TO-99 TERMINAL BLOCKS-115 VOLT
- 101-TO-199 TERMINAL BLOCKS-24 VOLT

COMPONENT IDENTIFICATION

- FD-01 VARIABLE FREQUENCY DRIVE
- FU-09 TRANSFORMER FUSE
- FU-10 CONTROL CIRCUIT FUSE
- FU-24 EVAPORATIVE COOLING MOTOR FUSE
- MT-01 MAIN SUPPLY FAN MOTOR
- MT-13 DAMPER MOTOR
- MT-80 WATER PUMP
- RE-15 VARIABLE FREQUENCY DRIVE START RELAY
- RE-21 7 DAY TIME CLOCK
- RE-70 100% OUTSIDE AIR RELAY
- SW-01 MAIN DISCONNECT SWITCH
- SW-27 FAN ON-OFF SWITCH
- SW-68 COOL-OFF ON SWITCH
- SW-80 PUMP SWITCH
- SW-81 WATER LEVEL CUT-OFF SWITCH
- SW-82 RESERVOIR DRAIN SWITCH
- TC-02 MIXED AIR CONTROLLER
- TC-81 FREEZE PROTECTION THERMOSTAT
- TR-01 CONTROL CIRCUIT TRANSFORMER
- TR-06 DAMPER MOTOR TRANSFORMER
- VW-80 WATER DRAIN VALVE (N/O)
- VW-81 3-WAY WATER SUPPLY VALVE (N/C)

TYPICAL SPECIFICATIONS

1.0 The evaporative cooling unit shall be weatherproof and self-contained. It consists of component parts as listed in the following paragraphs. Units shall be HECD as sold by Alton located in Dallas, Texas or approved equal.

2.0 HECD EVAPORATIVE SECTION

2.1 The HECD evaporative cooling section shall contain the HECD water system, 12" deep cell cooling media, float valve, overflow, and drain connections. Evaporative module to be built separately from the blower section, and no water is to flow into the blower compartment at any time. Evaporative and blower sections are to be firmly attached. Cabinet shall be fabricated from 304 stainless steel. The cooling media shall be easily removable through a full size access panel located on the side of the casing. The side access panel shall also permit easy access to the pump, float, water regulating and bleed-off valves.

2.2 Turbodek cooling media shall be 12" deep fluted Fiberdek, high efficiency evaporative media, impregnated with insoluble anti-rot chemicals. Maximum air velocity without water carryover is approximately 700 FPM.

2.3 HECD water system shall produce a fine spray action which uniformly saturates the 12" deep Fiberdek media. HECD system to include a submersible pump with U.L. listed, hermetically sealed, dielectric oil-filled motor and Buna-N seal. Horsepower rating of the pump shall not be less than 1/6 HP. Pump to be centrifugal type with suction strainer to prevent the intake of solid matter. Pump assembly shall discharge into a distribution manifold fabricated from heavy-duty PVC pipe with metered orifices. A water regulating valve shall be installed in the distribution manifold and will permit field adjustment of water flow over the media. A manual pet-cock metering valve shall be installed in the distribution manifold allowing continuous bleed-off, thus minimizing the build-up of minerals and salts. The HECD water system assembly shall be available for 115 or 230 volt single phase operation.

2.4 An adjustable brass float valve shall maintain a constant water level in the HECD tank.

2.5 The HECD evaporative cooling unit shall have a minimum saturation effectiveness of 88 percent at 700 FPM. Saturating effectiveness is defined as:

$$SE = \frac{T_1 - T_2}{T_1 - T_3} \times 100$$

Where: T1 = Outside air, dry bulb temperature, °F.
 T2 = Leaving air, dry bulb temperature, °F.
 T3 = Outside air, wet bulb temperature, °F.

3.0 BLOWER SECTION

3.1 The blower section shall include a fan of the centrifugal type and be complete with motor and drive equipment. The fan shall be tested in accordance with standards set forth in Standard 210 of AMCA (Air Movement and Control Association). All air ratings are based on delivery against the external static pressure specified with HECD system operating. Fan wheels shall have two (2) bearings, one mounted on each side of the wheel. Bearings shall be self-aligning, pillow block, ball bearing type with screw-in grease zerk fittings for relubrication. Fan shaft shall be ground and polished with key seats and keys for mounting wheel and fan pulley. Fan shall be connected to motor by means of an approved V-belt drive with grooved pulleys. Motor pulleys shall be the adjustable pitch diameter type through 7 1/2 HP. The motor shall be designed to suit the characteristics of the available electric service. Motor shall be mounted on a base with adjusting slots which will permit easy belt adjustment.

3.2 Blower wheels shall be the centrifugal center hub type with multiple forward curved blades and double intake.

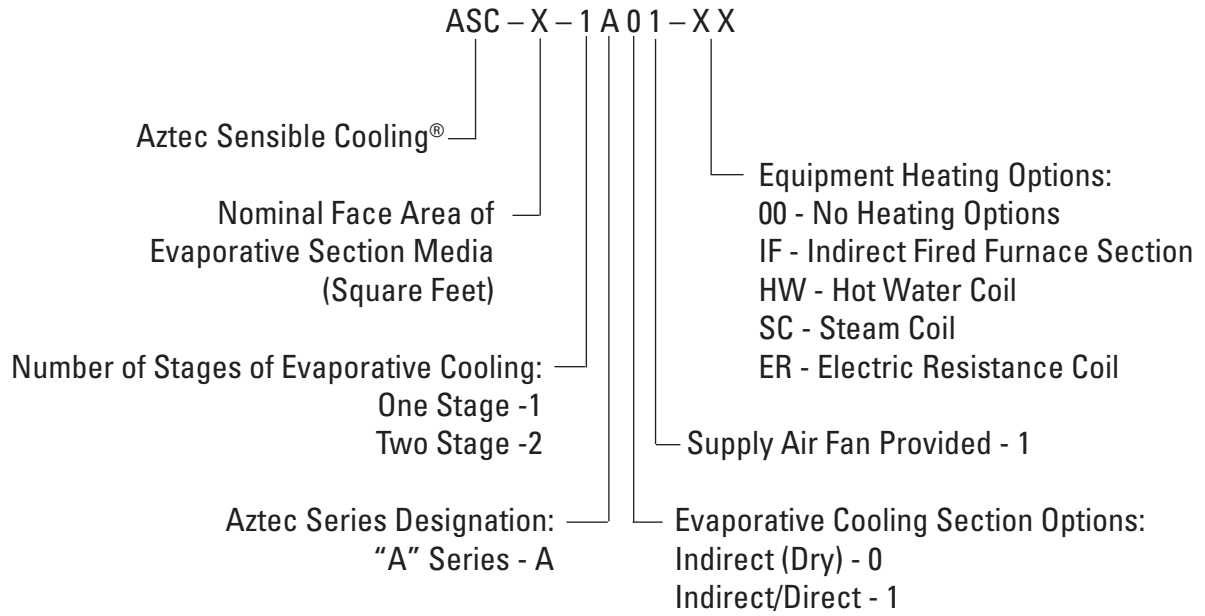
3.3 Blower scroll housing to be welded construction. When the fan motor is located above the blower housing, a frame shall support the adjustable motor base. In no case will the motor frame rest directly on the blower housing.

3.4 Standard unit construction to have top horizontal discharge from front of cabinet, with bottom horizontal, top vertical, or bottom vertical discharge available upon request.

3.5 Blower cabinet to be fabricated from galvanized steel. A removable panel permitting access to blower motor and drive shall be provided. Access panel is to be a minimum of 16" wide by 29" high and shall include two stainless steel retainers, handle and weatherproof gasket. Blower cabinet to be rigidly constructed, corrosion-resistant, and have a primer/enamel exterior finish.

MEDIA SPECIFICATIONS	
CONDITION	FIBERDEK
maximum water temp.	165°F
maximum air temp.	300°F
ph range	5-10
dry weight	4.5 lb/ft ³
wet weight	9.0 lb/ft ³
operating weight	11.4 lb/ft ³
water flow rate (gpm/sq. ft.)	1.5

AZTEC ASC MODEL DESIGNATION



ASC FEATURES

INDIRECT UNITS:

- Direct drive centrifugal, backward airfoil, SWSI plenum type blower(s) rated in accordance with AMCA Standard 211 and bearing the AMCA seal
- U.L. Listed three phase ODP supply fan motor(s)
- Variable frequency drive for supply air blower motor(s)
- Internal seismic-rated blower/motor isolation with flexible ducting between blower(s) and unit casing
- Stainless steel integral cooling tower with submersible pump(s)
- 6 row, aluminum fin/copper tube indirect cooling coil section
- PVC plumbing
- Adjustable sump water bleed-off valve assembly in cooling tower section
- Low sump water level shut-off switch in cooling tower section
- Automatic fill and drain system
- Cabinet constructed of galvanized steel with corrosion-resistant enamel finish
- Insulated cabinet
- Formed galvanized steel channel base and intermediate equipment supports. Suitable for slab or curb mounting
- Supply air, front access, nominal 2" MERV 8 filters
- Hinged, double wall, insulated access door(s)
- Weather resistant, outside air intake louvers and birdscreen One side hinged for filter access
- Integral control box
- DDC control system
- Listed by ETL Testing Laboratories

INDIRECT/DIRECT UNITS:

- 12" deep Fiberdek media meeting UL 900 Class 2 rating
- Stainless steel direct evaporative section
- Adjustable sump water bleed-off valve assembly in cooling tower section
- Low sump water level shut-off switch in cooling tower section
- Automatic fill and drain system
- U.L. listed, single phase submersible pump

EQUIPMENT OPTIONS

- Double wall and roof cabinet construction
- TEFC Fan Motor(s)
- Mixing section with return air and outside air dampers
- 12" or 18" high full perimeter roof curb
- Direct drive centrifugal, backward airfoil, SWSI plenum type fan arrays
- MERV 11 and MERV 14 supply air filters
- Direct expansion or chilled water cooling coil
- Variable frequency drive on cooling tower fan
- Smoke detector
- Firestat
- Copper plumbing
- UL labeled control panel

EQUIPMENT DATA CHART

Model	CFM	Face Area/ Media Size	Face Velocity	Indirect Cooling Coil ΔP	Direct Evaporative Cooling Media (12" Deep) ΔP	Indirect Section Exhaust Fan Motor HP	2" Supply Air Filters					Supply Air Louver ΔP	Dampers	
							Qty/Size	Velocity	Pressure Drop (" W.C.)				Return Air ΔP	Outside Air ΔP
									Std MERV 8 ①③	Opt MERV 11 ②③	Opt MERV 14 ④⑤			
ASC-5	1500	5.0 30" x 24"	300	0.36	0.08	0.5	2) 16" x 25"	270	0.08	0.09	0.10	0.06	0.03	0.01
	2000		400	0.53	0.14			360	0.14	0.16	0.18	0.10	0.05	0.02
	2500		500	0.71	0.21			450	0.22	0.25	0.28	0.16	0.08	0.02
ASC-7	2500	7.5 36" x 30"	357	0.45	0.12	0.5	4) 16" x 20"	281	0.09	0.10	0.11	0.08	0.04	0.01
	3000		429	0.58	0.16			338	0.12	0.14	0.16	0.12	0.06	0.02
	3500		500	0.71	0.21			394	0.17	0.19	0.22	0.16	0.08	0.02
ASC-10	3500	10.5 42" x 36"	350	0.44	0.11	1.0	2) 20" x 20" 2) 20" x 25"	315	0.11	0.12	0.14	0.08	0.04	0.01
	4250		425	0.57	0.15			383	0.16	0.18	0.21	0.12	0.06	0.02
	5000		500	0.71	0.21			450	0.22	0.25	0.28	0.16	0.08	0.02
ASC-15	5000	15.0 48" x 45"	333	0.41	0.10	2.0	6) 16" x 25"	333	0.12	0.14	0.16	0.07	0.04	0.01
	6250		417	0.56	0.15			417	0.19	0.22	0.24	0.11	0.06	0.02
	7500		500	0.71	0.21			500	0.27	0.31	0.35	0.16	0.08	0.02
ASC-20	7500	20.0 63" x 45"	357	0.50	0.12	2.0	6) 16" x 20" 3) 16" x 25"	346	0.13	0.15	0.17	0.09	0.05	0.01
	8750		438	0.62	0.17			404	0.18	0.20	0.23	0.12	0.06	0.02
	10,000		500	0.71	0.21			462	0.23	0.26	0.30	0.16	0.08	0.02
ASC-25	10,000	25.0 68" x 54"	400	0.51	0.14	3.0	6) 18" x 24" 3) 20" x 24"	353	0.13	0.15	0.17	0.10	0.05	0.01
	11,250		450	0.60	0.18			397	0.17	0.20	0.22	0.13	0.06	0.02
	12,500		500	0.71	0.21			441	0.21	0.24	0.27	0.16	0.08	0.02
ASC-30	12,500	30.0 72" x 60"	417	0.56	0.15	3.0	9) 20" x 25"	400	0.17	0.20	0.22	0.11	0.06	0.01
	13,750		458	0.63	0.18			440	0.21	0.24	0.27	0.13	0.07	0.02
	15,000		500	0.71	0.21			480	0.25	0.29	0.32	0.16	0.08	0.02
ASC-40	15,000	42.0 84" x 72"	375	0.50	0.12	5.0	9) 16" x 25" 6) 20" x 25"	327	0.12	0.13	0.15	0.09	0.05	0.01
	17,500		438	0.62	0.17			382	0.16	0.18	0.20	0.12	0.06	0.02
	20,000		500	0.71	0.21			436	0.21	0.24	0.27	0.16	0.08	0.02
ASC-50	20,000	50.0 102" x 72"	400	0.53	0.14	7.5	9) 16" x 25" 9) 20" x 25"	400	0.17	0.20	0.22	0.10	0.05	0.01
	22,500		450	0.60	0.18			450	0.22	0.25	0.28	0.13	0.06	0.02
	25,000		500	0.71	0.21			500	0.27	0.31	0.35	0.16	0.08	0.02
ASC-60	25,000	60.0 102" x 87"	417	0.56	0.15	7.5	21) 18" x 25"	381	0.16	0.18	0.20	0.11	0.06	0.01
	27,500		458	0.63	0.18			419	0.19	0.22	0.25	0.13	0.07	0.02
	30,000		500	0.71	0.21			457	0.23	0.26	0.29	0.16	0.08	0.02
ASC-75	30,000	75.0 103" x 105"	400	0.53	0.14	10.0	24) 18" x 25"	384	0.16	0.18	0.21	0.10	0.05	0.01
	33,750		450	0.60	0.18			432	0.21	0.23	0.26	0.13	0.06	0.02
	37,500		500	0.71	0.21			480	0.25	0.29	0.32	0.16	0.08	0.02

NOTES:

- MERV 8 removes over 70% of particles 3.0 – 10.0 micron size (Pollen and mold spores) from the airstream.
- MERV 11 removes over 80% of particles 1.0 – 3.0 micron size (Legionella and humidifier dust)from the airstream.
- Pressure drop shown is for clean filters. Recommended maximum dirty filter pressure drop is 1.0" W.C.
- MERV 14 removes over 85% of particles 0.3 – 1.0 micron size (All bacteria and most tobacco smoke) from the airstream.
- Pressure drop shown is for clean filters. Recommended maximum dirty filter pressure drop is 1.5" W.C.

BLOWER PERFORMANCE CHART WITH STANDARD ARRANGEMENT FAN(S)

SUPPLY AIR FAN PERFORMANCE TABLE AT STANDARD CONDITIONS

Model	SCFM	Fan and Motor Qty	Fan Size	FEG	TSP - System Total Static Pressure (Inches W.C.)											
					1.5			2.0			2.5			3.0		
					Fan RPM	Motor RPM	MHP	Fan RPM	Motor RPM	MHP	Fan RPM	Motor RPM	MHP	Fan RPM	Motor RPM	MHP
ASC-5	1,500	1	15.0"	75	1724	1200	1	1882	1800	1	2033	1800	1	2178	1800	1-1/2
	2,000				1785	1200	1	1937	1800	1-1/2	2080	1800	1-1/2	2218	1800	1-1/2
	2,500				1857	1800	1-1/2	2004	1800	1-1/2	2141	1800	2	2272	1800	2
ASC-7	2,500	1	18.2"	75	1388	1200	1	1517	1200	1-1/2	1644	1200	2	1767	1200	2
	3,000				1522	1200	1-1/2	1631	1200	2	1739	1200	2	1846	1800	3
	3,500				1673	1200	1-1/2	1768	1200	2	1862	1800	3	1955	1800	3
ASC-10	3,500	1	18.2"	75	1673	1200	1-1/2	1768	1200	2	1862	1800	3	1955	1800	3
	4,250				1655	1200	2	1752	1200	3	1847	1800	3	1941	1800	5
	5,000				1678	1200	3	1774	1200	3	1867	1800	5	1959	1800	5
ASC-15	5,000	1	22.2"	75	1215	1200	2	1308	1200	3	1399	1200	5	1487	1200	5
	6,250				1385	1200	3	1465	1200	5	1542	1200	5	1617	1200	5
	7,500				1569	1200	5	1640	1200	5	1708	1200	7-1/2	1774	1200	7-1/2
ASC-20	7,500	1	22.2"	75	1423	1200	5	1501	1200	5	1576	1200	5	1649	1200	7-1/2
	8,750				1584	1200	5	1655	1200	7-1/2	1723	1200	7-1/2	1788	1200	7-1/2
	10,000				1750	1200	7-1/2	1816	1800	7-1/2	1878	1800	7-1/2	1938	1800	10
ASC-25	10,000	1	27.0"	75	1079	1200	5	1146	1200	7-1/2	1212	1200	7-1/2	1278	1200	7-1/2
	11,250				1165	1200	5	1226	1200	7-1/2	1285	1200	7-1/2	1344	1200	10
	12,500				1255	1200	7-1/2	1311	1200	7-1/2	1365	1200	10	1419	1200	10
ASC-30	12,500	1	27.0"	75	1255	1200	7-1/2	1311	1200	7-1/2	1365	1200	10	1419	1200	10
	13,750				1348	1200	7-1/2	1400	1200	10	1450	1200	10	1499	1200	15
	15,000				-	-	-	1491	1200	10	1538	1200	15	1584	1200	15
ASC-40	15,000	1	30.0"	75	1106	1200	7-1/2	1157	1200	10	1207	1200	10	1257	1200	15
	17,500				-	-	-	1287	1200	15	1331	1200	15	1374	1200	15
	20,000				-	-	-	1423	1200	15	1462	1200	20	1501	1200	20
ASC-50	20,000	2	27.0"	75	1079	1200	2 @ 5	1146	1200	2 @ 7-1/2	1212	1200	2 @ 7-1/2	1278	1200	2 @ 7-1/2
	22,500				1165	1200	2 @ 5	1226	1200	2 @ 7-1/2	1285	1200	2 @ 7-1/2	1344	1200	2 @ 10
	25,000				1255	1200	2 @ 7-1/2	1311	1200	2 @ 7-1/2	1365	1200	2 @ 10	1419	1200	2 @ 10
ASC-60	25,000	2	27.0"	75	1255	1200	2 @ 7-1/2	1311	1200	2 @ 7-1/2	1365	1200	2 @ 10	1419	1200	2 @ 10
	27,500				1348	1200	2 @ 7-1/2	1400	1200	2 @ 10	1450	1200	2 @ 10	1499	1200	2 @ 15
	30,000				-	-	-	1491	1200	2 @ 10	1538	1200	2 @ 15	1584	1200	2 @ 15
ASC-75	30,000	2	30.0"	75	1106	1200	2 @ 7-1/2	1157	1200	2 @ 10	1207	1200	2 @ 10	1257	1200	2 @ 15
	33,750				1208	1200	2 @ 10	1254	1200	2 @ 10	1299	1200	2 @ 15	1344	1200	2 @ 15
	37,500				-	-	-	1355	1200	2 @ 15	1396	1200	2 @ 15	1437	1200	2 @ 20

NOTES:

- 1 MHP = Motor Horse Power FEG = Fan Efficiency Grade
- 2) Fans are Direct Drive Single Width, Single Inlet (SWSI) Plenum Fan(s)
- 3) Equipment can be supplied with CFM different from those stated, contact factory for selection and pricing
- 4) The selections above are based on Total Static Pressure (TSP). To find the system Total Static Pressure: add supply duct static, return duct static, and applicable components from Equipment Data Chart on page 23.

BLOWER PERFORMANCE CHART WITH STANDARD ARRANGEMENT FAN(S)

SUPPLY AIR FAN PERFORMANCE TABLE AT STANDARD CONDITIONS

Model	SCFM	Fan and Motor Qty	Fan Size	FEG	TSP - System Total Static Pressure (Inches W.C.)											
					3.5			4.0			4.5			5.0		
					Fan RPM	Motor RPM	MHP	Fan RPM	Motor RPM	MHP	Fan RPM	Motor RPM	MHP	Fan RPM	Motor RPM	MHP
ASC-5	1,500	1	15.0"	75	2318	1800	1-1/2	2454	1800	2	2587	1800	2	2715	1800	3
	2,000				2352	1800	2	2482	1800	3	2609	1800	3	2733	1800	3
	2,500				2399	1800	3	2523	1800	3	2644	1800	3	2762	1800	5
ASC-7	2,500	1	18.2"	75	1887	1800	3	2003	1800	3	2115	1800	3	-	-	-
	3,000				1951	1800	3	2055	1800	3	2157	1800	5	2257	1800	5
	3,500				2047	1800	5	2138	1800	5	2229	1800	5	2319	1800	5
ASC-10	3,500	1	18.2"	75	2047	1800	5	2138	1800	5	2229	1800	5	2319	1800	5
	4,250				2034	1800	5	2127	1800	5	2219	1800	5	2310	1800	7-1/2
	5,000				2051	1800	5	2142	1800	5	2232	1800	7-1/2	2322	1800	7-1/2
ASC-15	5,000	1	22.2"	75	1574	1200	5	1660	1200	7-1/2	1744	1200	7-1/2	1826	1800	7-1/2
	6,250				1690	1200	7-1/2	1762	1200	7-1/2	1833	1800	7-1/2	1903	1800	10
	7,500				1838	1800	7-1/2	1901	1800	7-1/2	1962	1800	10	2023	1800	10
ASC-20	7,500	1	22.2"	75	1719	1200	7-1/2	1789	1200	7-1/2	1858	1800	10	1926	1800	10
	8,750				1851	1800	10	1913	1800	10	1974	1800	10	2034	1800	15
	10,000				1996	1800	10	2052	1800	15	2108	1800	15	2162	1800	15
ASC-25	10,000	1	27.0"	75	1343	1200	10	1409	1200	10	1473	1200	15	1538	1200	15
	11,250				1403	1200	10	1461	1200	15	1519	1200	15	1578	1200	15
	12,500				1472	1200	15	1525	1200	15	1577	1200	15	1630	1200	20
ASC-30	12,500	1	27.0"	75	1472	1200	15	1525	1200	15	1577	1200	15	1630	1200	20
	13,750				1548	1200	15	1596	1200	15	1645	1200	20	1693	1200	20
	15,000				1629	1200	15	1674	1200	20	1718	1200	20	1763	1200	20
ASC-40	15,000	1	30.0"	75	1306	1200	15	1356	1200	15	1405	1200	20	1454	1200	20
	17,500				1417	1200	20	1459	1200	20	1502	1200	20	1544	1200	25
	20,000				1539	1200	20	1576	1200	25	1614	1200	25	1651	1200	30
ASC-50	20,000	2	27.0"	75	1343	1200	2 @ 10	1409	1200	2 @ 10	1473	1200	2 @ 15	1538	1200	2 @ 15
	22,500				1403	1200	2 @ 10	1461	1200	2 @ 15	1519	1200	2 @ 15	1578	1200	2 @ 15
	25,000				1472	1200	2 @ 15	1525	1200	2 @ 15	1577	1200	2 @ 15	1630	1200	2 @ 20
ASC-60	25,000	2	27.0"	75	1472	1200	2 @ 15	1525	1200	2 @ 15	1577	1200	2 @ 15	1630	1200	2 @ 20
	27,500				1548	1200	2 @ 15	1596	1200	2 @ 15	1645	1200	2 @ 20	1693	1200	2 @ 20
	30,000				1629	1200	2 @ 15	1674	1200	2 @ 20	1718	1200	2 @ 20	1763	1200	2 @ 20
ASC-75	30,000	2	30.0"	75	1306	1200	2 @ 15	1356	1200	2 @ 15	1405	1200	2 @ 20	1454	1200	2 @ 20
	33,750				1388	1200	2 @ 15	1432	1200	2 @ 20	1476	1200	2 @ 20	1520	1200	2 @ 25
	37,500				1477	1200	2 @ 20	1517	1200	2 @ 20	1556	1200	2 @ 25	1596	1200	2 @ 25

NOTES:

1. MHP = Motor Horse Power FEG = Fan Efficiency Grade
2. Fans are Direct Drive Single Width, Single Inlet (SWSI) Plenum Fan(s)
3. Equipment can be supplied with CFM different from those stated, contact factory for selection and pricing
4. The selections above are based on Total Static Pressure. To find the system Total Static Pressure: add supply duct static, return duct static, and applicable components from Equipment Data Chart on page 23.

BLOWER PERFORMANCE CHART FOR FAN ARRAY

SUPPLY AIR FAN PERFORMANCE TABLE AT STANDARD CONDITIONS

Model	SCFM	Fan and Motor Qty	Fan Size	FEG	TSP - System Total Static Pressure (Inches W.C.)											
					1.5			2.0			2.5			3.0		
					Fan RPM	Motor RPM	MHP	Fan RPM	Motor RPM	MHP	Fan RPM	Motor RPM	MHP	Fan RPM	Motor RPM	MHP
ASC-5	1,500 2,000 2,500				Not Available											
ASC-7	2,500 3,000 3,500				Not Available											
ASC-10	3,500 4,250 5,000				Not Available											
ASC-15	5,000	2	18.2"	71	1373	1200	2 @ 1-1/2	1497	1200	2 @ 3	1619	1200	2 @ 3	1738	1800	2 @ 3
	6,250				1543	1200	2 @ 3	1647	1200	2 @ 3	1748	1800	2 @ 3	1847	1800	2 @ 3
	7,500				1518	1200	2 @ 3	1624	1200	2 @ 3	1727	1800	2 @ 3	1829	1800	2 @ 3
ASC-20	7,500	2	20.0"	71	1315	1200	2 @ 3	1423	1200	2 @ 3	1526	1200	2 @ 3	1626	1200	2 @ 3
	8,750				1426	1200	2 @ 3	1526	1200	2 @ 3	1620	1200	2 @ 3	1710	1800	2 @ 5
	10,000				1545	1200	2 @ 3	1637	1200	2 @ 3	1725	1800	2 @ 5	1808	1800	2 @ 5
ASC-25	10,000	4	16.5"	71	1761	1800	4 @ 3	1874	1800	4 @ 3	1984	1800	4 @ 3	2094	1800	4 @ 3
	11,250				1898	1800	4 @ 3	2002	1800	4 @ 3	2102	1800	4 @ 3	2200	1800	4 @ 3
	12,500				1774	1800	4 @ 3	1886	1800	4 @ 3	1996	1800	4 @ 3	2104	1800	4 @ 3
ASC-30	12,500	4	18.2"	67	1552	1200	4 @ 3	1659	1800	4 @ 3	1761	1800	4 @ 3	1862	1800	4 @ 3
	13,750				1457	1200	4 @ 3	1573	1200	4 @ 3	1685	1800	4 @ 3	1796	1800	4 @ 3
	15,000				1527	1200	4 @ 3	1636	1200	4 @ 3	1741	1800	4 @ 3	1843	1800	4 @ 5
ASC-40	15,000	4	22.2"	71	1180	1200	4 @ 3	1277	1200	4 @ 3	1371	1200	4 @ 3	1464	1200	4 @ 3
	17,500				1283	1200	4 @ 3	1370	1200	4 @ 3	1454	1200	4 @ 3	1535	1200	4 @ 5
	20,000				1392	1200	4 @ 3	1472	1200	4 @ 3	1549	1200	4 @ 5	1623	1200	4 @ 5
ASC-50	20,000	4	22.2"	71	1392	1200	4 @ 3	1472	1200	4 @ 3	1549	1200	4 @ 5	1623	1200	4 @ 5
	22,500				1314	1200	4 @ 3	1398	1200	4 @ 5	1480	1200	4 @ 5	1559	1200	4 @ 5
	25,000				1287	1200	4 @ 3	1373	1200	4 @ 5	1457	1200	4 @ 5	1538	1200	4 @ 5
ASC-60	25,000	4	24.5"	71	1115	1200	4 @ 3	1198	1200	4 @ 5	1279	1200	4 @ 5	1358	1200	4 @ 5
	27,500				1177	1200	4 @ 5	1254	1200	4 @ 5	1329	1200	4 @ 5	1403	1200	4 @ 7-1/2
	30,000				1243	1200	4 @ 5	1315	1200	4 @ 5	1385	1200	4 @ 5	1454	1200	4 @ 7-1/2
ASC-75	30,000	4	24.5"	67	1146	1200	4 @ 5	1225	1200	4 @ 5	1302	1200	4 @ 5	1378	1200	4 @ 7-1/2
	33,750				1232	1200	4 @ 5	1304	1200	4 @ 5	1374	1200	4 @ 7-1/2	1443	1200	4 @ 7-1/2
	37,500				1322	1200	4 @ 5	1388	1200	4 @ 7-1/2	1453	1200	4 @ 7-1/2	1516	1200	4 @ 10

NOTES:

1. MHP = Motor Horse Power FEG = Fan Efficiency Grade
2. Fans are Direct Drive Single Width, Single Inlet (SWSI) Plenum Fan(s)
3. Equipment can be supplied with CFM different from those stated, contact factory for selection and pricing
4. The selections above are based on Total Static Pressure (TSP). To find the system Total Static Pressure: add supply duct static, return duct static, and applicable components from Equipment Data Chart on page 23.

BLOWER PERFORMANCE CHART FOR FAN ARRAY

SUPPLY AIR FAN PERFORMANCE TABLE AT STANDARD CONDITIONS

Model	SCFM	Fan and Motor Qty	Fan Size	FEG	TSP - System Total Static Pressure (Inches W.C.)											
					3.5			4.0			4.5			5.0		
					Fan RPM	Motor RPM	MHP	Fan RPM	Motor RPM	MHP	Fan RPM	Motor RPM	MHP	Fan RPM	Motor RPM	MHP
ASC-5	1,500 2,000 2,500				Not Available											
ASC-7	2,500 3,000 3,500				Not Available											
ASC-10	3,500 4,250 5,000				Not Available											
ASC-15	5,000	2	18.2"	71	1855	1800	2 @ 3	1969	1800	2 @ 3	2080	1800	2 @ 5	-	-	-
	6,250				1945	1800	2 @ 3	2041	1800	2 @ 5	2137	1800	2 @ 5	2232	1800	2 @ 5
	7,500				1929	1800	2 @ 5	2028	1800	2 @ 5	2126	1800	2 @ 5	2222	1800	2 @ 7.5
ASC-20	7,500	2	20.0"	71	1723	1800	2 @ 5	1817	1800	2 @ 5	1910	1800	2 @ 5	2000	1800	2 @ 7-1/2
	8,750				1797	1800	2 @ 5	1883	1800	2 @ 5	1966	1800	2 @ 7-1/2	2048	1800	2 @ 7-1/2
	10,000				1889	1800	2 @ 5	1967	1800	2 @ 7-1/2	2043	1800	2 @ 7-1/2	2118	1800	2 @ 7-1/2
ASC-25	10,000	4	16.5"	71	2202	1800	4 @ 3	2310	1800	4 @ 3	2417	1800	4 @ 5	2523	1800	4 @ 5
	11,250				2298	1800	4 @ 3	2395	1800	4 @ 5	2491	1800	4 @ 5	2587	1800	4 @ 5
	12,500				2211	1800	4 @ 3	2318	1800	4 @ 5	2424	1800	4 @ 5	2529	1800	4 @ 5
ASC-30	12,500	4	18.2"	67	1961	1800	4 @ 3	2058	1800	4 @ 5	2155	1800	4 @ 5	2250	1800	4 @ 5
	13,750				1904	1800	4 @ 5	2011	1800	4 @ 5	2116	1800	4 @ 5	2219	1800	4 @ 5
	15,000				1945	1800	4 @ 5	2045	1800	4 @ 5	2143	1800	4 @ 5	2240	1800	4 @ 7-1/2
ASC-40	15,000	4	22.2"	71	1554	1200	4 @ 5	1643	1200	4 @ 5	1730	1800	4 @ 5	1816	1800	4 @ 7-1/2
	17,500				1615	1200	4 @ 5	1694	1800	4 @ 5	1772	1800	4 @ 7-1/2	1849	1800	4 @ 7-1/2
	20,000				1695	1800	4 @ 5	1766	1800	4 @ 7-1/2	1836	1800	4 @ 7-1/2	1906	1800	4 @ 7-1/2
ASC-50	20,000	4	22.2"	71	1695	1800	4 @ 5	1766	1800	4 @ 7-1/2	1836	1800	4 @ 7-1/2	1906	1800	4 @ 7-1/2
	22,500				1637	1200	4 @ 7-1/2	1714	1800	4 @ 7-1/2	1789	1800	4 @ 7-1/2	1864	1800	4 @ 7-1/2
	25,000				1618	1200	4 @ 7-1/2	1697	1800	4 @ 7-1/2	1775	1800	4 @ 7-1/2	1851	1800	4 @ 10
ASC-60	25,000	4	24.5"	71	1437	1200	4 @ 7-1/2	1515	1200	4 @ 7-1/2	1591	1200	4 @ 7-1/2	1666	1800	4 @ 10
	27,500				1475	1200	4 @ 7-1/2	1547	1200	4 @ 7-1/2	1618	1200	4 @ 10	1688	1800	4 @ 10
	30,000				1521	1200	4 @ 7-1/2	1588	1200	4 @ 10	1654	1800	4 @ 10	1719	1800	4 @ 10
ASC-75	30,000	4	24.5"	67	1454	1200	4 @ 7-1/2	1529	1200	4 @ 10	1603	1200	4 @ 10	1676	1800	4 @ 15
	33,750				1511	1200	4 @ 10	1578	1200	4 @ 10	1645	1200	4 @ 10	1712	1800	4 @ 15
	37,500				1578	1200	4 @ 10	1639	1200	4 @ 10	1700	1800	4 @ 15	1761	1800	4 @ 15

NOTES:

1. MHP = Motor Horse Power FEG = Fan Efficiency Grade
2. Fans are Direct Drive Single Width, Single Inlet (SWSI) Plenum Fan(s)
3. Equipment can be supplied with CFM different from those stated, contact factory for selection and pricing
4. The selections above are based on Total Static Pressure. To find the system Total Static Pressure: add supply duct static, return duct static, and applicable components from Equipment Data Chart on page 23.

BLOWER PERFORMANCE CHART FOR FAN ARRAY WITH 100% REDUNDANCY

SUPPLY AIR FAN PERFORMANCE TABLE AT STANDARD CONDITIONS

Model	SCFM	Fan and Motor Qty	Fan Size	FEG	TSP - System Total Static Pressure (Inches W.C.)											
					1.5			2.0			2.5			3.0		
					Fan RPM	Motor RPM	MHP	Fan RPM	Motor RPM	MHP	Fan RPM	Motor RPM	MHP	Fan RPM	Motor RPM	MHP
ASC-5	1,500 2,000 2,500				Not Available											
ASC-7	2,500 3,000 3,500				Not Available											
ASC-10	3,500 4,250 5,000				Not Available											
ASC-15	5,000	2	18.2"	71	1373	1200	2 @ 3	1497	1200	2 @ 5	1619	1200	2 @ 5	1738	1800	2 @ 5
	6,250				1543	1200	2 @ 5	1647	1200	2 @ 7-1/2	1748	1800	2 @ 7-1/2	1847	1800	2 @ 7-1/2
	7,500				1518	1200	2 @ 7-1/2	1624	1200	2 @ 7-1/2	1727	1800	2 @ 7-1/2	1829	1800	2 @ 10
ASC-20	7,500	2	20.0"	71	1315	1200	2 @ 5	1423	1200	2 @ 7-1/2	1526	1200	2 @ 7-1/2	1626	1200	2 @ 7-1/2
	8,750				1426	1200	2 @ 7-1/2	1526	1200	2 @ 7-1/2	1620	1200	2 @ 10	1710	1800	2 @ 10
	10,000				1545	1200	2 @ 10	1637	1200	2 @ 10	1725	1800	2 @ 15	1808	1800	2 @ 15
ASC-25	10,000	4	16.5"	71	1761	1800	4 @ 3	1874	1800	4 @ 3	1984	1800	4 @ 3	2094	1800	4 @ 3
	11,250				1898	1800	4 @ 3	2002	1800	4 @ 3	2102	1800	4 @ 3	2200	1800	4 @ 5
	12,500				1774	1800	4 @ 3	1886	1800	4 @ 3	1996	1800	4 @ 5	2104	1800	4 @ 5
ASC-30	12,500	4	18.2"	67	1552	1200	4 @ 3	1659	1800	4 @ 3	1761	1800	4 @ 5	1862	1800	4 @ 5
	13,750				1457	1200	4 @ 3	1573	1200	4 @ 3	1685	1800	4 @ 5	1796	1800	4 @ 5
	15,000				1527	1200	4 @ 3	1636	1200	4 @ 5	1741	1800	4 @ 5	1843	1800	4 @ 5
ASC-40	15,000	4	22.2"	71	1180	1200	4 @ 3	1277	1200	4 @ 3	1371	1200	4 @ 5	1464	1200	4 @ 5
	17,500				1283	1200	4 @ 3	1370	1200	4 @ 5	1454	1200	4 @ 5	1535	1200	4 @ 5
	20,000				1392	1200	4 @ 5	1472	1200	4 @ 5	1549	1200	4 @ 5	1623	1200	4 @ 7-1/2
ASC-50	20,000	4	22.2"	71	1392	1200	4 @ 5	1472	1200	4 @ 5	1549	1200	4 @ 5	1623	1200	4 @ 7-1/2
	22,500				1314	1200	4 @ 5	1398	1200	4 @ 5	1480	1200	4 @ 7-1/2	1559	1200	4 @ 7-1/2
	25,000				1287	1200	4 @ 5	1373	1200	4 @ 5	1457	1200	4 @ 7-1/2	1538	1200	4 @ 7-1/2
ASC-60	25,000	4	24.5"	71	1115	1200	4 @ 5	1198	1200	4 @ 5	1279	1200	4 @ 7-1/2	1358	1200	4 @ 7-1/2
	27,500				1177	1200	4 @ 5	1254	1200	4 @ 7-1/2	1329	1200	4 @ 7-1/2	1403	1200	4 @ 7-1/2
	30,000				1243	1200	4 @ 7-1/2	1315	1200	4 @ 7-1/2	1385	1200	4 @ 7-1/2	1454	1200	4 @ 10
ASC-75	30,000	4	24.5"	67	1146	1200	4 @ 7-1/2	1225	1200	4 @ 7-1/2	1302	1200	4 @ 7-1/2	1378	1200	4 @ 10
	33,750				1232	1200	4 @ 7-1/2	1304	1200	4 @ 7-1/2	1374	1200	4 @ 10	1443	1200	4 @ 10
	37,500				1322	1200	4 @ 10	1388	1200	4 @ 10	1453	1200	4 @ 15	1516	1200	4 @ 15

NOTES:

1. MHP = Motor Horse Power FEG = Fan Efficiency Grade
2. Fans are Direct Drive Single Width, Single Inlet (SWSI) Plenum Fan(s)
3. Equipment can be supplied with CFM different from those stated, contact factory for selection and pricing
4. The selections above are based on Total Static Pressure (TSP). To find the system Total Static Pressure: add supply duct static, return duct static, and applicable components from Equipment Data Chart on page 23.

BLOWER PERFORMANCE CHART FOR FAN ARRAY WITH 100% REDUNDANCY

SUPPLY AIR FAN PERFORMANCE TABLE AT STANDARD CONDITIONS

Model	SCFM	Fan and Motor Qty	Fan Size	FEG	TSP - System Total Static Pressure (Inches W.C.)											
					3.5			4.0			4.5			5.0		
					Fan RPM	Motor RPM	MHP	Fan RPM	Motor RPM	MHP	Fan RPM	Motor RPM	MHP	Fan RPM	Motor RPM	MHP
ASC-5	1,500 2,000 2,500	Not Available														
ASC-7	2,500 3,000 3,500	Not Available														
ASC-10	3,500 4,250 5,000	Not Available														
ASC-15	5,000	2	18.2"	71	1855	1800	2 @ 7-1/2	1969	1800	2 @ 7-1/2	2080	1800	2 @ 7-1/2	NA	NA	NA
	6,250				1945	1800	2 @ 7-1/2	2041	1800	2 @ 10	2137	1800	2 @ 10	2232	1800	2 @ 10
	7,500				1929	1800	2 @ 10	2028	1800	2 @ 10	2126	1800	2 @ 15	2222	1800	2 @ 15
ASC-20	7,500	2	20.0"	71	1723	1800	2 @ 10	1817	1800	2 @ 10	1910	1800	2 @ 10	2000	1800	2 @ 15
	8,750				1797	1800	2 @ 10	1883	1800	2 @ 15	1966	1800	2 @ 15	2048	1800	2 @ 15
	10,000				1889	1800	2 @ 15	1967	1800	2 @ 15	2043	1800	2 @ 15	2118	1800	2 @ 20
ASC-25	10,000	4	16.5"	71	2202	1800	4 @ 5	2310	1800	4 @ 5	2417	1800	4 @ 5	2523	1800	4 @ 5
	11,250				2298	1800	4 @ 5	2395	1800	4 @ 5	2491	1800	4 @ 5	2587	1800	4 @ 7-1/2
	12,500				2211	1800	4 @ 5	2318	1800	4 @ 5	2424	1800	4 @ 5	2529	1800	4 @ 7-1/2
ASC-30	12,500	4	18.2"	67	1961	1800	4 @ 5	2058	1800	4 @ 5	2155	1800	4 @ 5	2250	1800	4 @ 7-1/2
	13,750				1904	1800	4 @ 5	2011	1800	4 @ 5	2116	1800	4 @ 7-1/2	2219	1800	4 @ 7-1/2
	15,000				1945	1800	4 @ 5	2045	1800	4 @ 7-1/2	2143	1800	4 @ 7-1/2	2240	1800	4 @ 7-1/2
ASC-40	15,000	4	22.2"	71	1554	1200	4 @ 5	1643	1200	4 @ 5	1730	1800	4 @ 7-1/2	1816	1800	4 @ 7-1/2
	17,500				1615	1200	4 @ 7-1/2	1694	1800	4 @ 7-1/2	1772	1800	4 @ 7-1/2	1849	1800	4 @ 7-1/2
	20,000				1695	1800	4 @ 7-1/2	1766	1800	4 @ 7-1/2	1836	1800	4 @ 10	1906	1800	4 @ 10
ASC-50	20,000	4	22.2"	71	1695	1800	4 @ 7-1/2	1766	1800	4 @ 7-1/2	1836	1800	4 @ 10	1906	1800	4 @ 10
	22,500				1637	1200	4 @ 7-1/2	1714	1800	4 @ 10	1789	1800	4 @ 10	1864	1800	4 @ 10
	25,000				1618	1200	4 @ 10	1697	1800	4 @ 10	1775	1800	4 @ 10	1851	1800	4 @ 15
ASC-60	25,000	4	24.5"	71	1437	1200	4 @ 7-1/2	1515	1200	4 @ 10	1591	1200	4 @ 10	1666	1800	4 @ 15
	27,500				1475	1200	4 @ 10	1547	1200	4 @ 10	1618	1200	4 @ 15	1688	1800	4 @ 15
	30,000				1521	1200	4 @ 10	1588	1200	4 @ 15	1654	1800	4 @ 15	1719	1800	4 @ 15
ASC-75	30,000	4	24.5"	67	1454	1200	4 @ 10	1529	1200	4 @ 15	1603	1200	4 @ 15	1676	1800	4 @ 15
	33,750				1511	1200	4 @ 15	1578	1200	4 @ 15	1645	1200	4 @ 15	1712	1800	4 @ 15
	37,500				1578	1200	4 @ 15	1639	1200	4 @ 15	1700	1800	4 @ 20	1761	1800	4 @ 20

NOTES:

1. MHP = Motor Horse Power FEG = Fan Efficiency Grade
2. Fans are Direct Drive Single Width, Single Inlet (SWSI) Plenum Fan(s)
3. Equipment can be supplied with CFM different from those stated, contact factory for selection and pricing
4. The selections above are based on Total Static Pressure. To find the system Total Static Pressure: add supply duct static, return duct static, and applicable components from Equipment Data Chart on page 23.

ASC AMP DRAW TABLE

ITEM	SOURCE	AMPS	Motor Horsepower												
			1/2			1			1-1/2			2			
			Motor Qty			Motor Qty			Motor Qty			Motor Qty			
			1	2	4	1	2	4	1	2	4	1	2	4	
A	Blower Motor(s)	200 V 3 Ph	2.6	5.2	10.4	4.8	9.6	19.2	6.9	13.8	27.6	7.8	15.6	31.2	
		208 V 3 Ph	2.5	5.0	10.0	4.6	9.2	18.4	6.6	13.2	26.4	7.5	15.0	30.0	
		230 V 3 Ph	2.0	4.0	8.0	4.2	8.4	16.8	6.0	12.0	24.0	6.8	13.6	27.2	
		460 V 3 Ph	1.0	2.0	4.0	2.1	4.2	8.4	3.0	6.0	12.0	3.4	6.8	13.6	
		575 V 3 Ph	0.8	1.6	3.2	1.7	3.4	6.8	2.4	4.8	9.6	2.7	5.4	10.8	
		AMPS	Motor Horsepower												
			3			5			7-1/2			10			
			Motor Qty			Motor Qty			Motor Qty			Motor Qty			
			1	2	4	1	2	4	1	2	4	1	2	4	
			200 V 3 Ph	11.0	22.0	44.0	17.5	35	70	25.3	50.6	101	32.2	64.40	129
			208 V 3 Ph	10.6	21.2	42.4	16.7	33.4	66.8	24.2	48.4	96.8	30.8	61.60	123
			230 V 3 Ph	9.6	19.2	38.4	15.3	30.6	61.2	22.0	44.0	88.0	28.8	57.60	115
			460 V 3 Ph	4.8	9.6	19.2	7.6	15.2	30.4	11.0	22.0	44.0	14.4	28.80	57.6
			575 V 3 Ph	3.9	7.8	15.6	6.1	12.2	24.4	9.0	18.0	36.0	11.5	23.00	46.0
			AMPS	Motor Horsepower											
				15			20			25			30		
				Motor Qty			Motor Qty			Motor Qty			Motor Qty		
				1	2	4	1	2	4	1	2	4	1	2	4
			200 V 3 Ph	48.3	96.6	193.2	62.1	124	248	78.2	156	313	92.0	184	368
			208 V 3 Ph	46.2	92.4	184.8	59.4	119	238	74.8	150	299	88.0	176	352
	230 V 3 Ph	42.0	84.0	168	54.0	108	216	68.0	136	272	80.0	160	320		
	460 V 3 Ph	21.0	42.0	84.0	27.0	54.0	108	34.0	68.0	136	40.0	80.0	160		
	575 V 3 Ph	17.0	34.0	68.0	22.0	44.0	88.0	27.0	54.0	108	32.0	64.0	128		
B	Controls	AMPS	Pump(s) and Control Circuit Amps												
			Indirect Unit Size				Indirect/Direct Unit Size								
			5 - 10		15 - 30		40 - 75		5 - 10		15 - 30		40 - 75		
			7.5		10.0		9.6		12.5		12.5		14.6		
			7.2		9.6		9.2		12.0		12.0		14.0		
			6.5		8.7		8.4		10.9		10.9		12.7		
	460 V 3 Ph		3.3		4.3		4.2		5.4		5.4		6.4		
	575 V 3 Ph		2.6		3.5		CF		4.3		4.3		CF		

- NOTES** 1) CF = Contact Factory
 2) Above motor amps are based on 2011 edition of NEC.
 3) Control circuit amps are based on standard controls.

Steps to Size Optional Disconnect Switch:

1. Find the Indirect Section Exhaust Fan Motor HP from chart on page 23.
2. Find amp draw for Indirect Section Exhaust Fan Motor HP from chart in Item A above.
3. Find the blower motor HP required from charts on pages 24 - 29.
4. Find amp draw for blower motor HP from chart in Item A above.
5. Find amps for controls from chart in Item B above.
6. Add amps from steps 2, 4 and 5, then multiply by 1.25.

FAN EFFICIENCY

In order to reduce fan-energy consumption in commercial HVAC systems across the US, the industry has initiated the development of a federal efficiency standard for commercial and industrial fans. The FEG, or Fan Efficiency Grade, was developed as a means to measure fan efficiency. The FEG is an indicator of the air moving device's aerodynamic quality and is calculated using the fan's peak total efficiency and fan size. ASHRAE Standard 90.1-2013 states that fans shall achieve an FEG of 67 or higher based on the manufacturer's certified data, as defined by AMCA 205. The total efficiency of the fan at the design point of operation shall be within 15 percentage points of the maximum total efficiency of the fan.

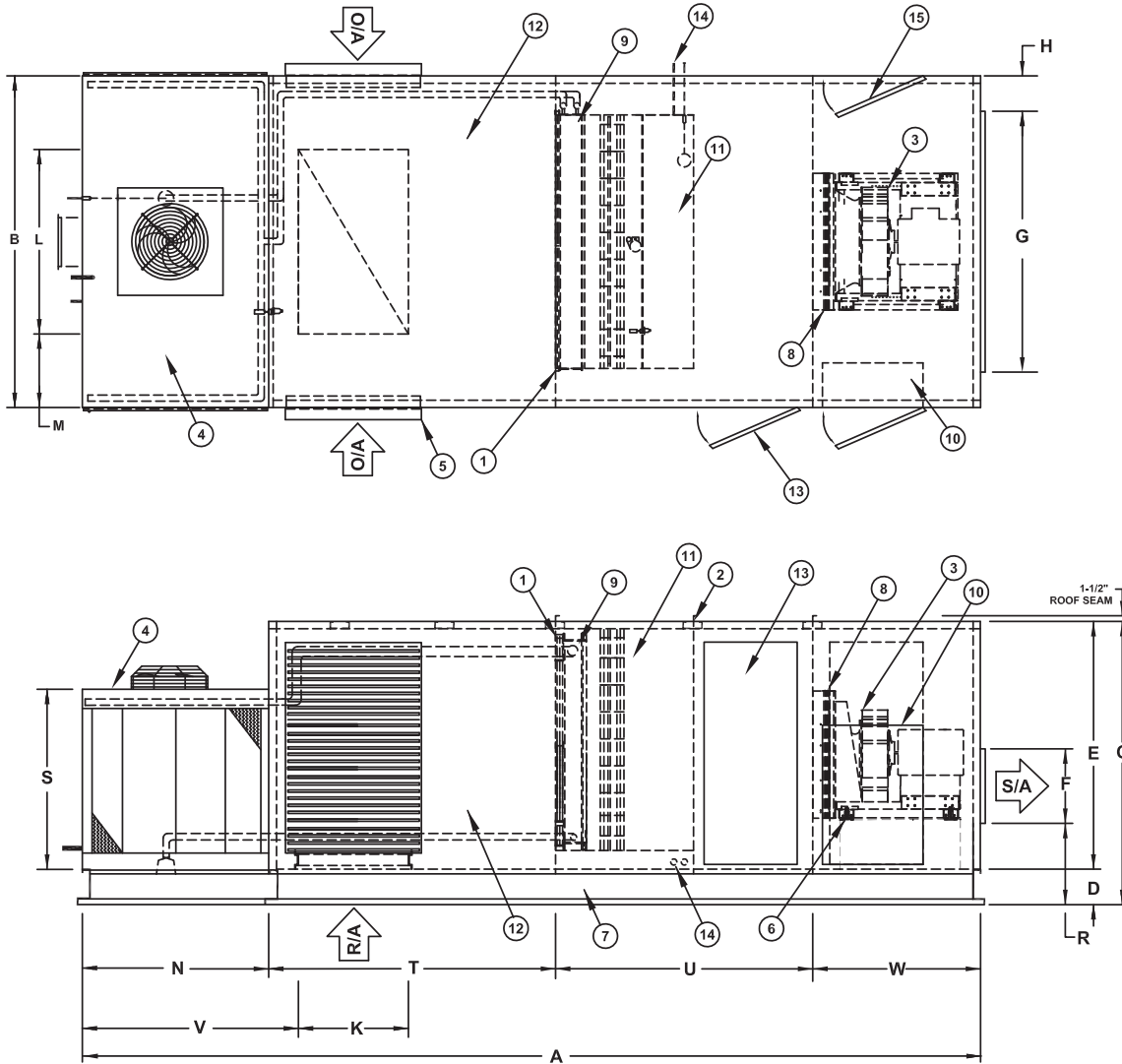
The air handler used in the Aztec ASC Series of evaporative cooling unit incorporates Direct Drive Plenum Fan(s). The backward inclined airfoil wheels used here have the highest efficiency of all centrifugal fan designs. The high efficiency wheel combined with the direct drive motor eliminates belt drive losses and offers a compact space-saving design. By eliminating the belt drive package, maintenance costs for the belts and bearings are also eliminated. The direct drive motor is also connected to a Variable Frequency Drive (VFD) controller to vary the airflow as needed as design conditions change throughout the day or year.

DIMENSIONAL DATA FOR STANDARD ARRANGEMENT FAN(S) WITH END DISCHARGE

AZTEC "2A11" SERIES WITH DIRECT DRIVE PLENUM FAN AND MIXING BOX SECTION

C000743A

- ① 2" THICK FILTER SECTION.
- ② HEAVY GAUGE ROOF AND WALL PANELS.
- ③ DIRECT DRIVE PLENUM FAN (SINGLE FAN SHOWN, TWIN FANS USED ON MODELS ASC-50, 60 AND 75).
- ④ INTEGRAL COOLING TOWER WITH DIRECT DRIVE PROP FAN.
- ⑤ HINGED, SUPPLY AIR INLET LOUVER FOR FILTER ACCESS.
- ⑥ SEISMIC RATED, SPRING ISOLATION.
- ⑦ UNIT BASE.
- ⑧ FLEX CONNECTION.
- ⑨ INDIRECT COOLING COIL.
- ⑩ ELECTRICAL CONTROL BOX.
- ⑪ STAINLESS STEEL DIRECT EVAPORATIVE COOLING SECTION.
- ⑫ MIXING SECTION (OPTIONAL).
- ⑬ HINGED, DOUBLE WALL INSULATED ACCESS DOOR.
- ⑭ DRAIN CONNECTION.
- ⑮ ACCESS DOOR TO PLENUM FAN ASSEMBLY.



Allow a minimum of 3 feet of clearance on all sides for access. Additional distance may be required for component removal.

		Model										
		ASC-5	ASC-7	ASC-10	ASC-15	ASC-20	ASC-25	ASC-30	ASC-40	ASC-50	ASC-60	ASC-75
Unit Shipping Weight (lbs)	1A01	2600	2980	3375	4765	5740	6890	7045	9165	10,960	12,455	14,965
	2A11	2715	3110	3520	4940	5960	7135	7295	9470	11,300	12,835	15,390
Unit Operating Weight (lbs)	1A01	2880	3315	3805	5395	6470	7725	8010	10,520	12,700	14,250	16,860
	2A11	3120	3605	4145	5795	6990	8310	8630	11,280	13,590	15,220	17,930

DIMENSIONAL DATA FOR STANDARD ARRANGEMENT FAN(S) WITH END DISCHARGE

MODEL	DIMENSIONS								
	A	B	C	D	E	F	G	H	K
ASC-5	188-5/16	52	42-1/2	6	36-1/2	16	42	5	14-1/8
ASC-7	190-13/16	56	48-1/2	6	42-1/2	16	46	5	14-1/8
ASC-10	203-3/4	64	55-1/2	8	47-1/2	20	46	8	17-1/2
ASC-15	225-1/4	71	66-1/2	8	58-1/2	20	54	8-1/2	22-13/16
ASC-20	241-5/16	84	66-1/2	8	58-1/2	20	54	15	26
ASC-25	250-5/16	89	74-1/2	8	66-1/2	20	70	9-1/2	29-1/2
ASC-30	254-3/8	92	80-1/2	8	72-1/2	20	70	11	32-1/2
ASC-40	280	106	92-1/2	8	84-1/2	30	79	13-1/2	35-1/2
ASC-50	292-13/16	123	92-1/2	8	84-1/2	30	82	20-1/2	42-3/8
ASC-60	298-13/16	123	107-1/2	8	99-1/2	38	82	20-1/2	42-3/8
ASC-75	318-7/8	123	125-1/2	8	117-1/2	38	82	20-1/2	46

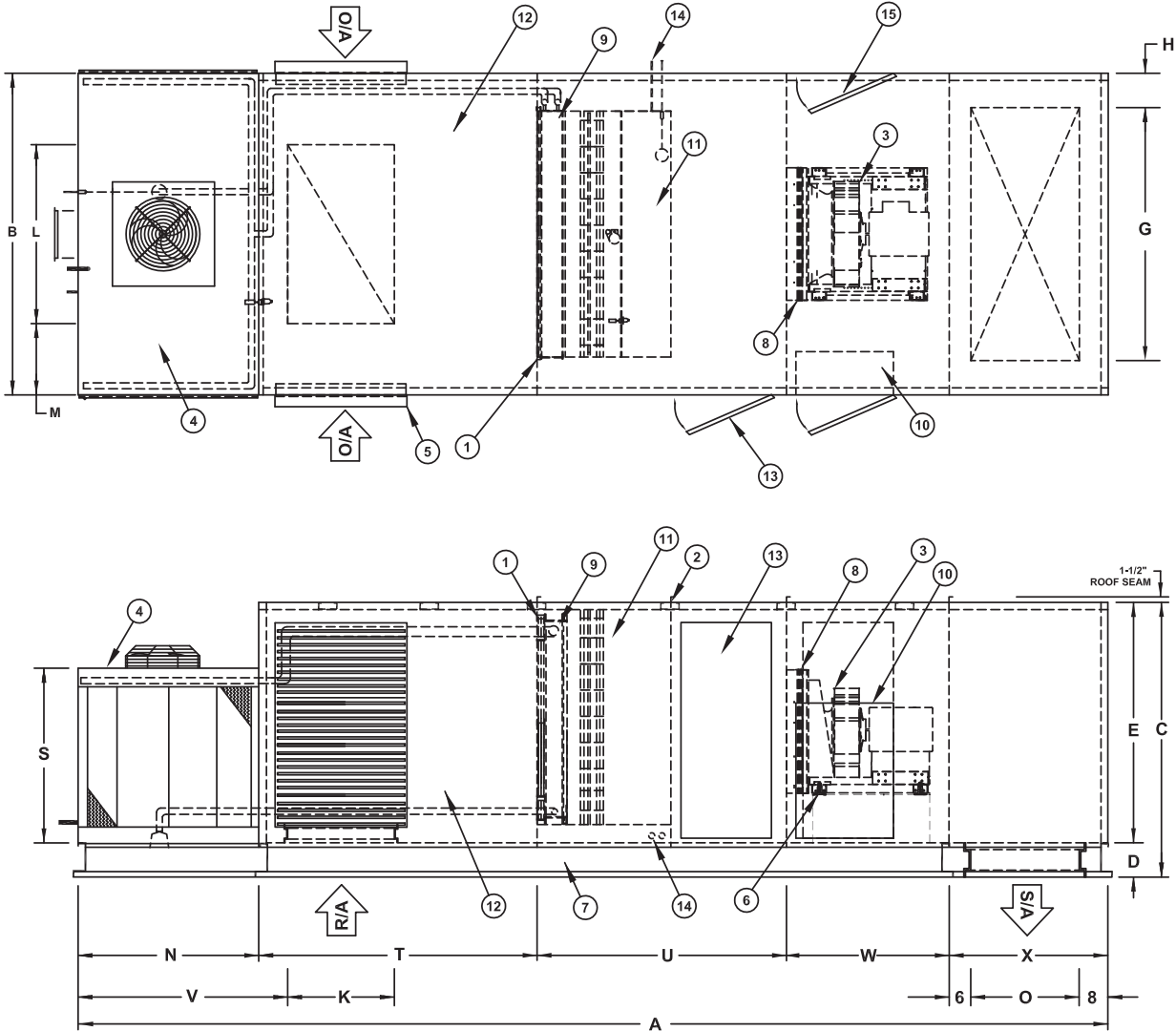
MODEL	DIMENSIONS								
	L	M	N	R	S	T	U	V	W
ASC-5	23-1/2	14-1/4	32	10-5/16	36-1/2	47-1/2	69	40	39-13/16
ASC-7	29-1/2	13-1/4	34	10-5/16	36-1/2	47-1/2	69	42	40-5/16
ASC-10	35-1/2	14-1/4	38	12-5/16	36-1/2	52	69	48-1/2	44-3/4
ASC-15	43-1/2	13-3/4	50	14-5/16	48-1/2	52	73-7/8	59-3/8	49-3/8
ASC-20	49-1/2	17-1/4	50	15-5/16	48-1/2	68	73-7/8	59-3/8	49-3/8
ASC-25	49-1/2	19-3/4	50	20-5/16	48-1/2	77	73-7/8	60-1/2	49-3/8
ASC-30	53-1/2	19-1/4	50	20-5/16	60-1/2	80	75	60-1/2	49-3/8
ASC-40	65-1/2	20-1/4	62	20-5/16	60-1/2	88	75	72-1/2	55
ASC-50	88	17-1/2	66	20-5/16	72-1/2	93	78-13/16	81-13/16	55
ASC-60	88	17-1/2	72	20-5/16	72-1/2	93	78-13/16	81-13/16	55
ASC-75	88	17-1/2	78	20-5/16	84-1/2	104-3/4	78-13/16	90-1/2	57-3/8

DIMENSIONAL DATA FOR STANDARD ARRANGEMENT FAN(S) WITH DOWN DISCHARGE

AZTEC "2A11" SERIES WITH DIRECT DRIVE PLENUM FAN AND MIXING BOX SECTION WITH DISCHARGE PLENUM.

C000744A

- ① 2" THICK FILTER SECTION.
- ② HEAVY GAUGE ROOF AND WALL PANELS.
- ③ DIRECT DRIVE PLENUM FAN (SINGLE FAN SHOWN, TWIN FANS USED ON MODELS ASC- 50, 60 AND 75).
- ④ INTEGRAL COOLING TOWER WITH DIRECT DRIVE PROP FAN.
- ⑤ HINGED, SUPPLY AIR INLET LOUVER FOR FILTER ACCESS.
- ⑥ SEISMIC RATED, SPRING ISOLATION.
- ⑦ UNIT BASE.
- ⑧ FLEX CONNECTION.
- ⑨ INDIRECT COOLING COIL.
- ⑩ ELECTRICAL CONTROL BOX.
- ⑪ STAINLESS STEEL DIRECT EVAPORATIVE COOLING SECTION.
- ⑫ MIXING SECTION (OPTIONAL).
- ⑬ HINGED, DOUBLE WALL INSULATED ACCESS DOOR.
- ⑭ DRAIN CONNECTION.
- ⑮ ACCESS DOOR TO PLENUM FAN ASSEMBLY.



Allow a minimum of 3 feet of clearance on all sides for access. Additional distance may be required for component removal.

		Model										
		ASC-5	ASC-7	ASC-10	ASC-15	ASC-20	ASC-25	ASC-30	ASC-40	ASC-50	ASC-60	ASC-75
Unit Shipping Weight (lbs)	1A01	2760	3180	3610	5095	6100	7330	7545	9800	11,685	13,260	15,950
	2A11	2875	3315	3755	5275	6320	7580	7795	10,105	12,025	13,640	16,375
Unit Operating Weight (lbs)	1A01	3040	3515	4040	5725	6830	8165	8510	11,155	13,425	15,055	17,845
	2A11	3280	3810	4380	6130	7350	8755	9130	11,915	14,315	16,025	18,915

***D*IMENSIONAL DATA FOR STANDARD ARRANGEMENT FAN(S) WITH DOWN DISCHARGE**

MODEL	DIMENSIONS								
	A	B	C	D	E	G	H	K	L
ASC-5	215-5/16	52	42-1/2	6	36-1/2	42	5	14-1/8	23-1/2
ASC-7	220-13/16	56	48-1/2	6	42-1/2	46	5	14-1/8	29-1/2
ASC-10	237-3/4	64	55-1/2	8	47-1/2	46	8	17-1/2	35-1/2
ASC-15	259-5/16	71	66-1/2	8	58-1/2	54	8-1/2	22-13/16	43-1/2
ASC-20	279-5/16	84	66-1/2	8	58-1/2	54	15	26	49-1/2
ASC-25	295-5/16	89	74-1/2	8	66-1/2	70	9-1/2	29-1/2	49-1/2
ASC-30	301-3/8	92	80-1/2	8	72-1/2	70	11	32-1/2	53-1/2
ASC-40	330	106	92-1/2	8	84-1/2	79	13-1/2	35-1/2	65-1/2
ASC-50	344-13/16	123	92-1/2	8	84-1/2	82	20-1/2	42-3/8	88
ASC-60	350-13/16	123	107-1/2	8	99-1/2	82	20-1/2	42-3/8	88
ASC-75	380-7/8	123	125-1/2	8	117-1/2	82	20-1/2	46	88

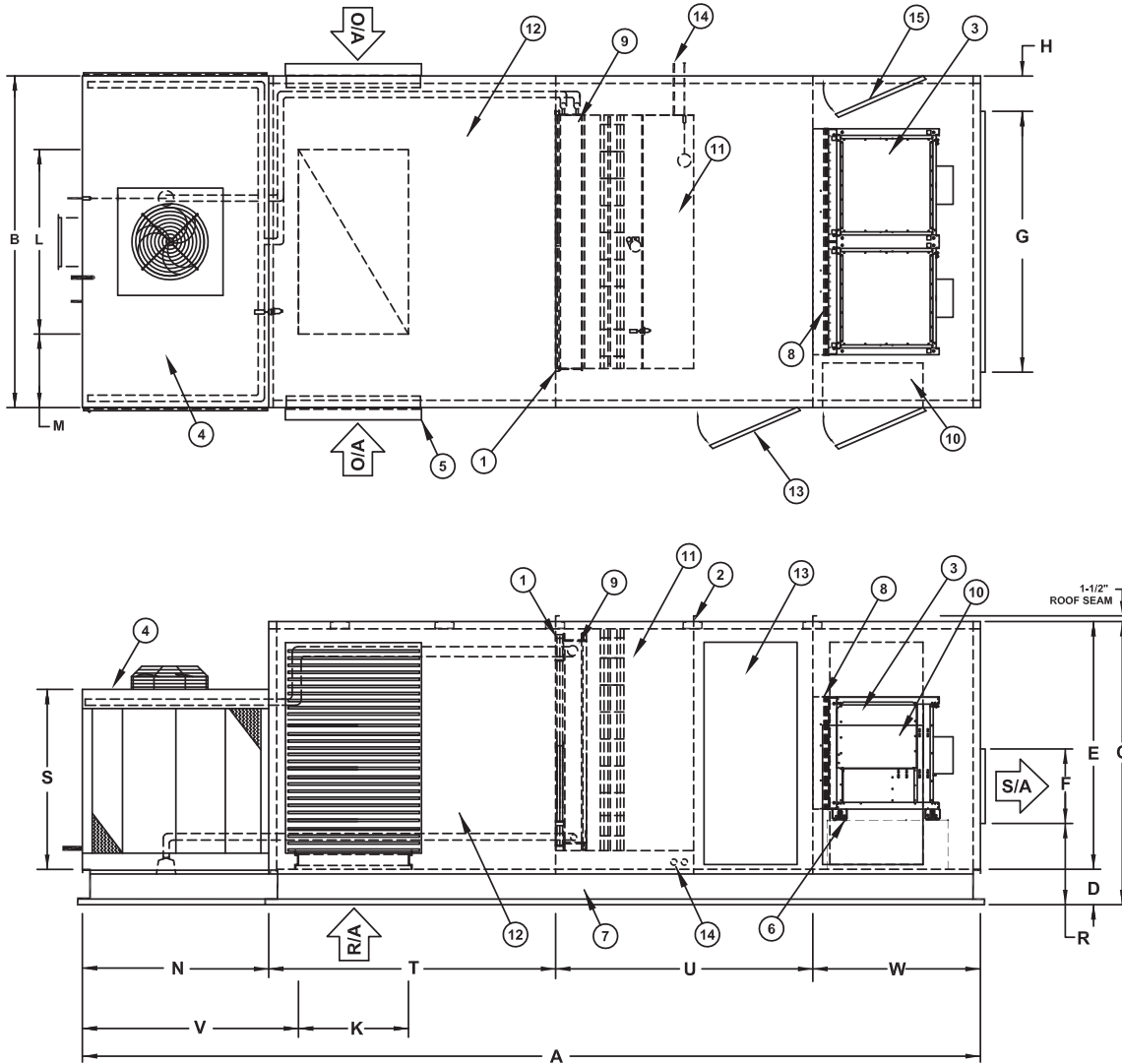
MODEL	DIMENSIONS								
	M	N	O	S	T	U	V	W	X
ASC-5	14-1/4	32	13	36-1/2	47-1/2	69	40	39-13/16	27
ASC-7	13-1/4	34	16	36-1/2	47-1/2	69	42	40-5/16	30
ASC-10	14-1/4	38	20	36-1/2	52	69	48-1/2	44-3/4	34
ASC-15	13-3/4	50	20	48-1/2	52	73-7/8	59-3/8	49-3/8	34
ASC-20	17-1/4	50	24	48-1/2	68	73-7/8	59-3/8	49-3/8	38
ASC-25	19-3/4	50	30	48-1/2	77	73-7/8	60-1/2	49-3/8	45
ASC-30	19-1/4	50	33	60-1/2	80	75	60-1/2	49-3/8	47
ASC-40	20-1/4	62	36	60-1/2	88	75	72-1/2	55	50
ASC-50	17-1/2	66	38	72-1/2	93	78-13/16	81-13/16	55	52
ASC-60	17-1/2	72	38	72-1/2	93	78-13/16	81-13/16	55	52
ASC-75	17-1/2	78	48	84-1/2	104-3/4	78-13/16	90-1/2	57-3/8	62

DIMENSIONAL DATA FOR FAN ARRAY WITH END DISCHARGE

AZTEC "2A11" SERIES WITH DIRECT DRIVE FAN ARRAY AND MIXING BOX SECTION

C000745A

- ① 2" THICK FILTER SECTION.
- ② HEAVY GAUGE ROOF AND WALL PANELS.
- ③ DIRECT DRIVE PLENUM FAN (TWIN FAN SHOWN FOR MODELS ASC-5, 7, 10, 15, 20 AND QUAD FANS USED ON 25, 30, 40, 50, 60 AND 75).
- ④ INTEGRAL COOLING TOWER WITH DIRECT DRIVE PROP FAN.
- ⑤ HINGED, SUPPLY AIR INLET LOUVER FOR FILTER ACCESS.
- ⑥ SEISMIC RATED, SPRING ISOLATION.
- ⑦ UNIT BASE.
- ⑧ FLEX CONNECTION.
- ⑨ INDIRECT COOLING COIL.
- ⑩ ELECTRICAL CONTROL BOX.
- ⑪ STAINLESS STEEL DIRECT EVAPORATIVE COOLING SECTION.
- ⑫ MIXING SECTION (OPTIONAL).
- ⑬ HINGED, DOUBLE WALL INSULATED ACCESS DOOR.
- ⑭ DRAIN CONNECTION.
- ⑮ ACCESS DOOR TO PLENUM FAN ASSEMBLY.



Allow a minimum of 3 feet of clearance on all sides for access. Additional distance may be required for component removal.

		Model										
		ASC-5	ASC-7	ASC-10	ASC-15	ASC-20	ASC-25	ASC-30	ASC-40	ASC-50	ASC-60	ASC-75
Unit Shipping Weight (lbs)	1A01	NA	NA	NA	4825	5840	7340	7685	10,170	11,620	13,290	14,900
	2A11	NA	NA	NA	5005	6055	7585	7935	10,470	11,960	13,670	15,320
Unit Operating Weight (lbs)	1A01	NA	NA	NA	5455	6570	8175	8650	11,525	13,360	15,085	16,795
	2A11	NA	NA	NA	5860	7085	8760	9270	12,280	14,250	16,055	17,860

D **DIMENSIONAL DATA FOR FAN ARRAY WITH END DISCHARGE**

MODEL	DIMENSIONS								
	A	B	C	D	E	F	G	H	K
ASC-15	225-1/4	71	66-1/2	8	58-1/2	20	54	8-1/2	22-13/16
ASC-20	241-5/16	84	66-1/2	8	58-1/2	20	54	15	26
ASC-25	250-5/16	89	74-1/2	8	66-1/2	20	70	9-1/2	29-1/2
ASC-30	254-3/8	92	80-1/2	8	72-1/2	20	70	11	32-1/2
ASC-40	280	106	92-1/2	8	84-1/2	30	79	13-1/2	35-1/2
ASC-50	292-13/16	123	92-1/2	8	84-1/2	30	82	20-1/2	42-3/8
ASC-60	298-13/16	123	107-1/2	8	99-1/2	38	82	20-1/2	42-3/8
ASC-75	318-7/8	123	125-1/2	8	117-1/2	38	82	20-1/2	46

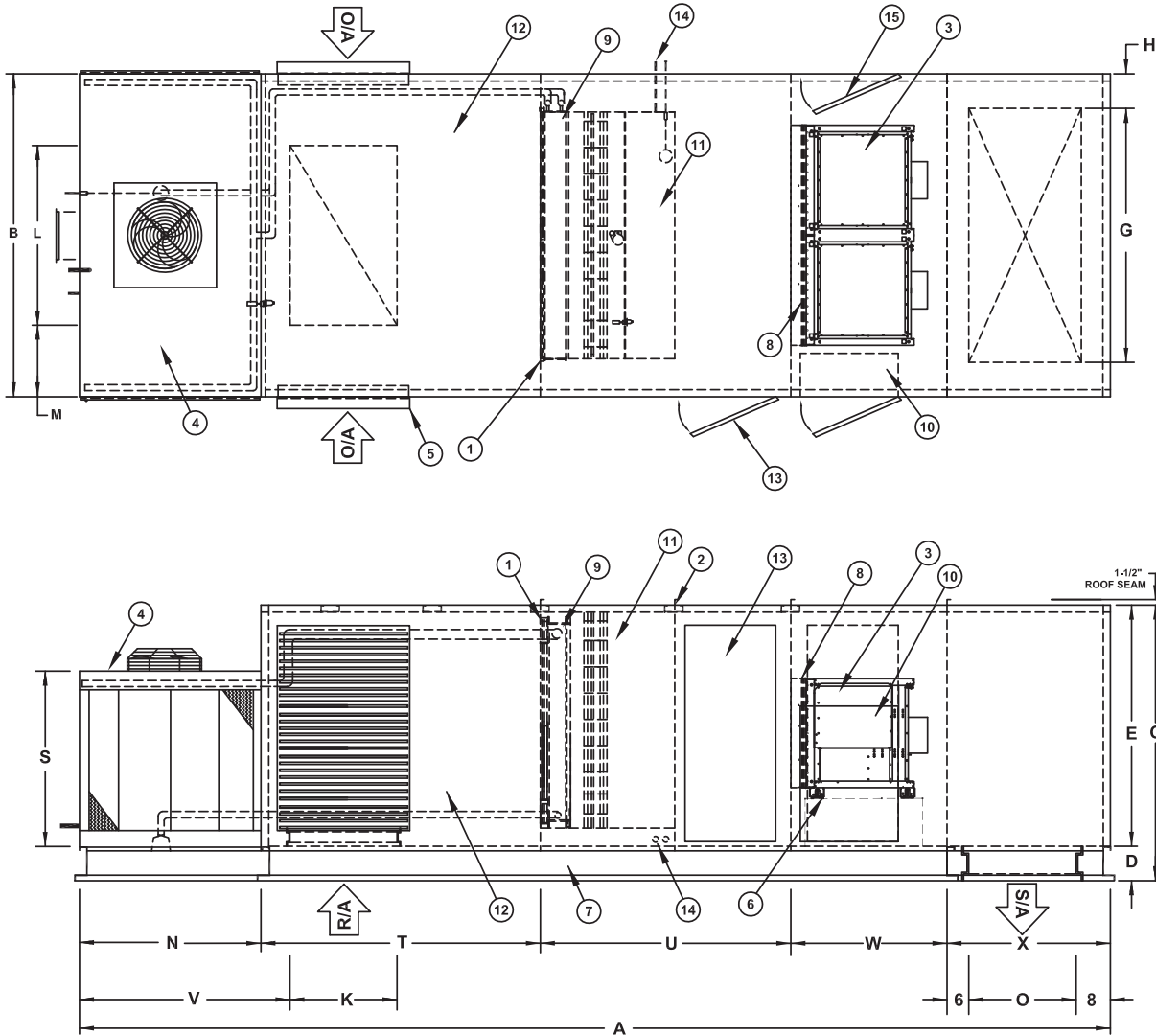
MODEL	DIMENSIONS								
	L	M	N	R	S	T	U	V	W
ASC-15	43-1/2	13-3/4	50	14-5/16	48-1/2	52	73-7/8	59-3/8	49-3/8
ASC-20	49-1/2	17-1/4	50	15-5/16	48-1/2	68	73-7/8	59-3/8	49-3/8
ASC-25	49-1/2	19-3/4	50	20-5/16	48-1/2	77	73-7/8	60-1/2	49-3/8
ASC-30	53-1/2	19-1/4	50	20-5/16	60-1/2	80	75	60-1/2	49-3/8
ASC-40	65-1/2	20-1/4	62	20-5/16	60-1/2	88	75	72-1/2	55
ASC-50	88	17-1/2	66	20-5/16	72-1/2	93	78-13/16	81-13/16	55
ASC-60	88	17-1/2	72	20-5/16	72-1/2	93	78-13/16	81-13/16	55
ASC-75	88	17-1/2	78	20-5/16	84-1/2	104-3/4	78-13/16	90-1/2	57-3/8

DIMENSIONAL DATA FOR FAN ARRAY WITH DOWN DISCHARGE

AZTEC "2A11" SERIES WITH DIRECT DRIVE FAN ARRAY AND MIXING BOX SECTION WITH DISCHARGE PLENUM.

C000746A

- ① 2" THICK FILTER SECTION.
- ② HEAVY GAUGE ROOF AND WALL PANELS.
- ③ DIRECT DRIVE PLENUM FAN (TWIN FAN SHOWN FOR MODELS ASC-5, 7, 10, 15, 20 AND QUAD FANS USED ON 25, 30, 40, 50, 60 AND 75).
- ④ INTEGRAL COOLING TOWER WITH DIRECT DRIVE PROP FAN.
- ⑤ HINGED, SUPPLY AIR INLET LOUVER FOR FILTER ACCESS.
- ⑥ SEISMIC RATED, SPRING ISOLATION.
- ⑦ UNIT BASE.
- ⑧ FLEX CONNECTION.
- ⑨ INDIRECT COOLING COIL.
- ⑩ ELECTRICAL CONTROL BOX.
- ⑪ STAINLESS STEEL DIRECT EVAPORATIVE COOLING SECTION.
- ⑫ MIXING SECTION (OPTIONAL).
- ⑬ HINGED, DOUBLE WALL INSULATED ACCESS DOOR.
- ⑭ DRAIN CONNECTION.
- ⑮ ACCESS DOOR TO PLENUM FAN ASSEMBLY.



Allow a minimum of 3 feet of clearance on all sides for access. Additional distance may be required for component removal.

		Model										
		ASC-5	ASC-7	ASC-10	ASC-15	ASC-20	ASC-25	ASC-30	ASC-40	ASC-50	ASC-60	ASC-75
Unit Shipping Weight (lbs)	1A01	NA	NA	NA	5160	6200	7780	8185	10,800	12,345	14,095	15,890
	2A11	NA	NA	NA	5340	6420	8030	8435	11,105	12,685	14,475	16,310
Unit Operating Weight (lbs)	1A01	NA	NA	NA	5790	6930	8615	9250	12,155	14,085	15,890	17,785
	2A11	NA	NA	NA	6195	7450	9205	9770	12,915	14,975	16,860	18,850

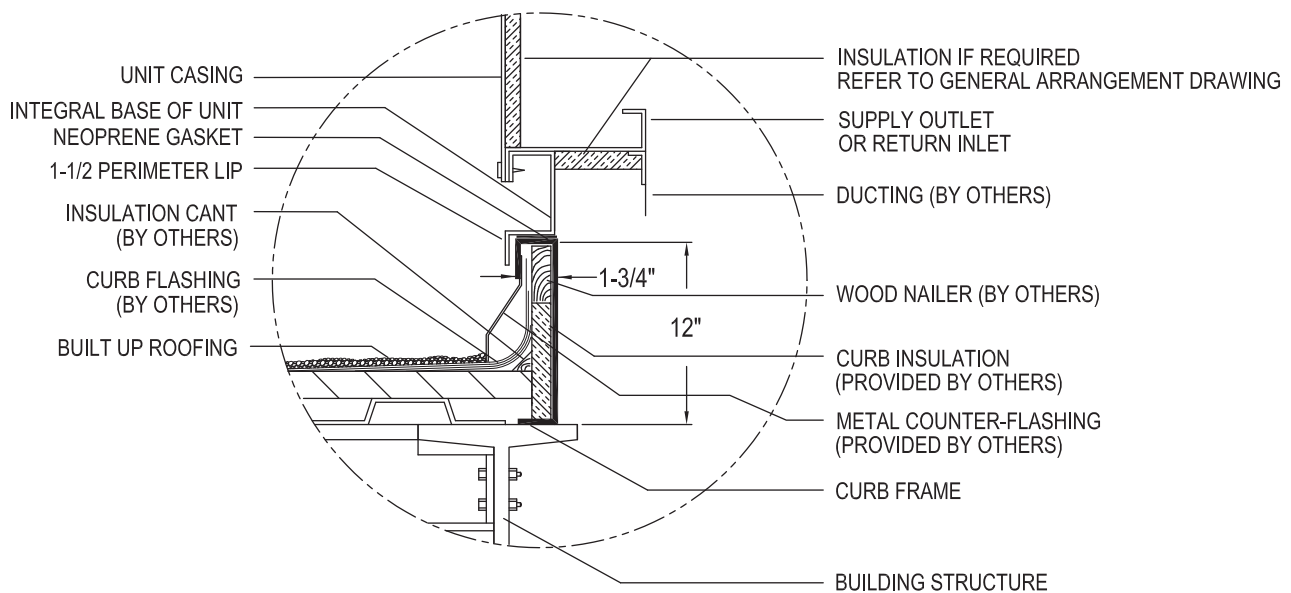
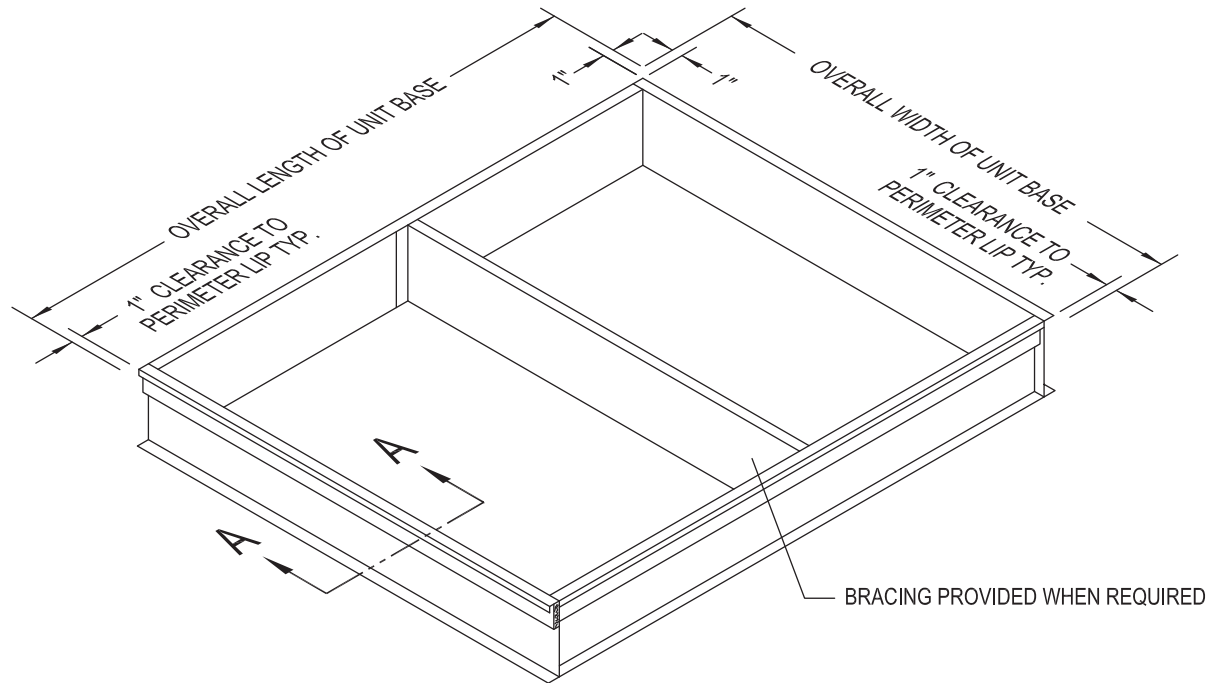
D **DIMENSIONAL DATA FOR FAN ARRAY WITH DOWN DISCHARGE**

MODEL	DIMENSIONS								
	A	B	C	D	E	G	H	K	L
ASC-15	259-5/16	71	66-1/2	8	58-1/2	54	8-1/2	22-13/16	43-1/2
ASC-20	279-5/16	84	66-1/2	8	58-1/2	54	15	26	49-1/2
ASC-25	295-5/16	89	74-1/2	8	66-1/2	70	9-1/2	29-1/2	49-1/2
ASC-30	301-3/8	92	80-1/2	8	72-1/2	70	11	32-1/2	53-1/2
ASC-40	330	106	92-1/2	8	84-1/2	79	13-1/2	35-1/2	65-1/2
ASC-50	344-13/16	123	92-1/2	8	84-1/2	82	20-1/2	42-3/8	88
ASC-60	350-13/16	123	107-1/2	8	99-1/2	82	20-1/2	42-3/8	88
ASC-75	380-7/8	123	125-1/2	8	117-1/2	82	20-1/2	46	88

MODEL	DIMENSIONS								
	M	N	O	S	T	U	V	W	X
ASC-15	13-3/4	50	20	48-1/2	52	73-7/8	59-3/8	49-3/8	34
ASC-20	17-1/4	50	24	48-1/2	68	73-7/8	59-3/8	49-3/8	38
ASC-25	19-3/4	50	30	48-1/2	77	73-7/8	60-1/2	49-3/8	45
ASC-30	19-1/4	50	33	60-1/2	80	75	60-1/2	49-3/8	47
ASC-40	20-1/4	62	36	60-1/2	88	75	72-1/2	55	50
ASC-50	17-1/2	66	38	72-1/2	93	78-13/16	81-13/16	55	52
ASC-60	17-1/2	72	38	72-1/2	93	78-13/16	81-13/16	55	52
ASC-75	17-1/2	78	48	84-1/2	104-3/4	78-13/16	90-1/2	57-3/8	62

DIMENSIONAL DATA

Roof Curb C000525



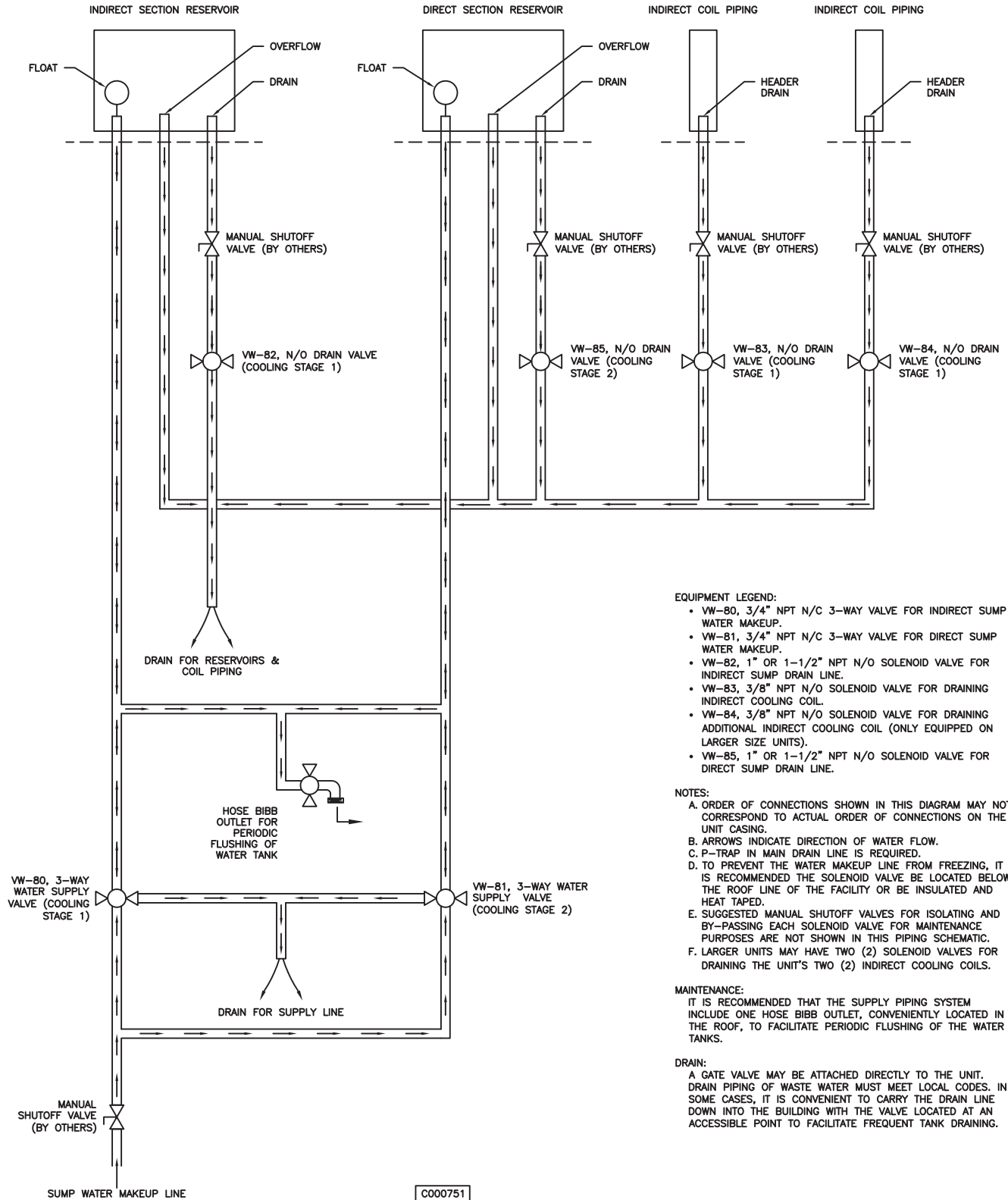
ROOF CURB DETAIL

C000525

PLUMBING

Typical Piping

C000751



MDT Expert

C000740

Application:

Modulating Discharge Temperature Control with BACview controller allowing after hours unit enable, operating feedback, and monitoring of alarm status.

Includes:

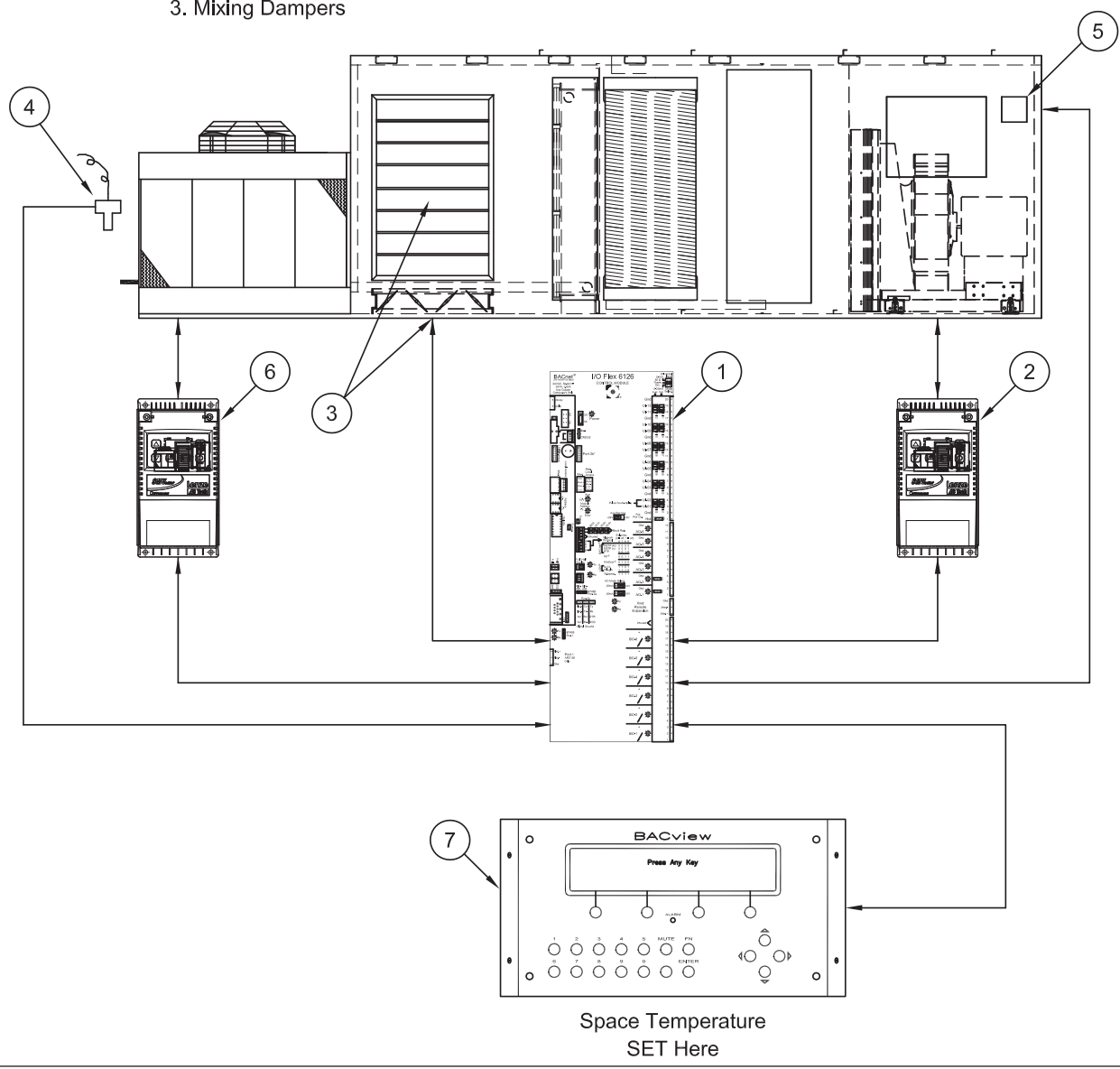
Discharge air sensor (5) and mounted in unit discharge and inlet air sensor (4) mounted in unit inlet with remote mounted BACview controller (7) to set space temperature, operation schedules, and optional damper control setpoints. Service information, operating feedback and alarm status can also be monitored. Unit DDC controller (1) modulates unit airflow via supply fan variable frequency drive (2). Shown with optional DDC-controlled mixing dampers (3) for building pressure or manual control and optional DDC-controlled cooling tower VFD (6).

COMPONENT I.D.

- 1. Unit DDC Controller
- 2. Supply Fan VFD
- 3. Mixing Dampers

- 4. Inlet Air Sensor
- 5. Discharge Air Sensor

- 6. Cooling Tower VFD
- 7. BACview Interface



CONTROLS

MRT Expert

C000739

Application:

Modulating Room Temperature Control with BACview controller allowing after hours unit enable, room setpoint adjustment, operating feedback, monitoring of alarm status and digital temperature readout with RS-std room sensor.

Includes:

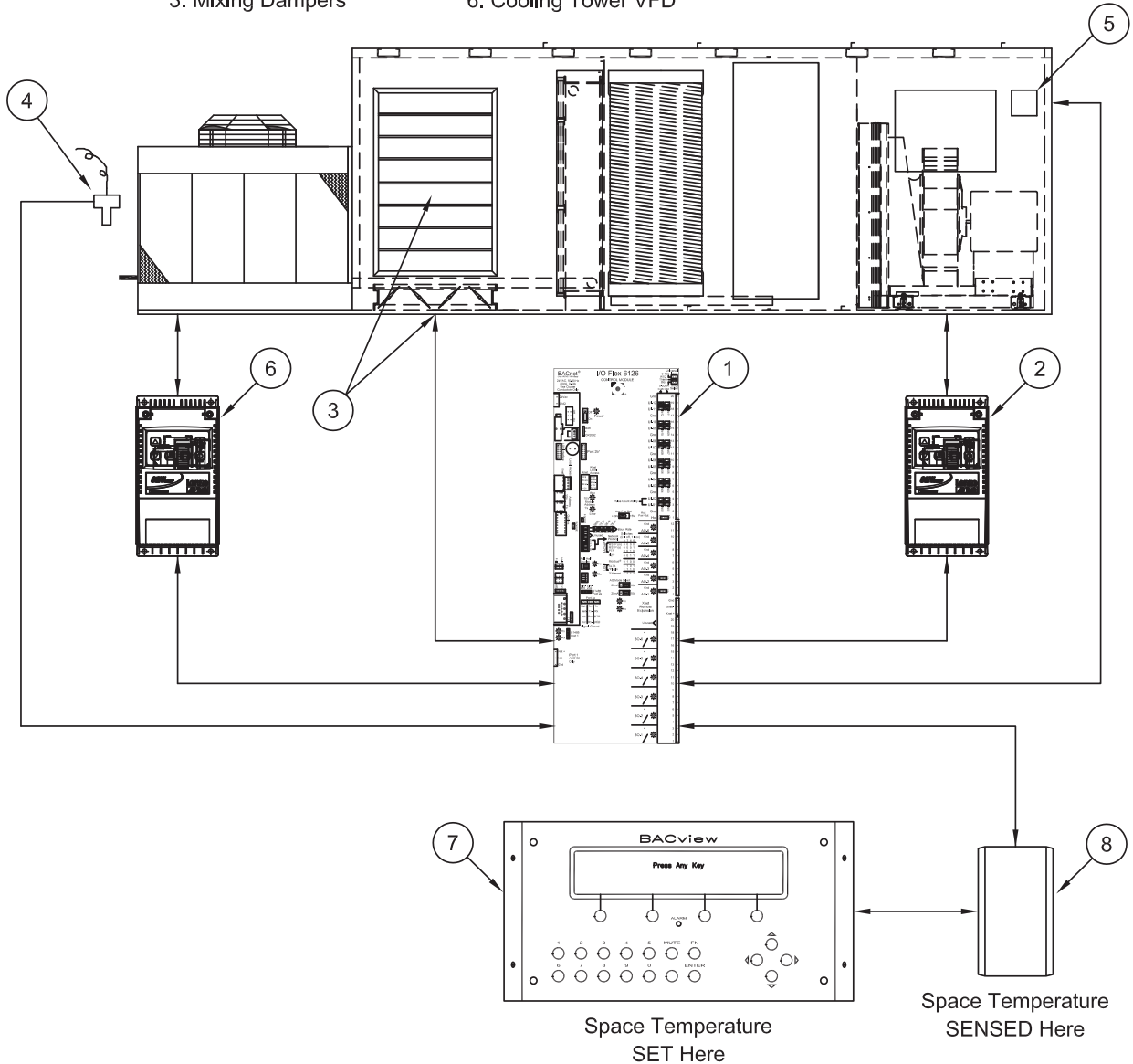
Discharge air sensor (5) and mounted in unit discharge and inlet air sensor (4) mounted in unit inlet with remote mounted BACview controller (7) to set space temperature, operation schedules, and optional damper control setpoints. Service information, operating feedback and alarm status can also be monitored. Unit DDC controller (1) modulates unit airflow via supply fan VFD (2). Also includes an RS-std room sensor (8). Shown with optional DDC-controlled mixing dampers (3) for mixed air, building pressure, or manual control and optional DDC-controlled cooling tower VFD (6).

COMPONENT I.D.

- 1. Unit DDC Controller
- 2. Supply Fan VFD
- 3. Mixing Dampers

- 4. Inlet Air Sensor
- 5. Discharge Air Sensor
- 6. Cooling Tower VFD

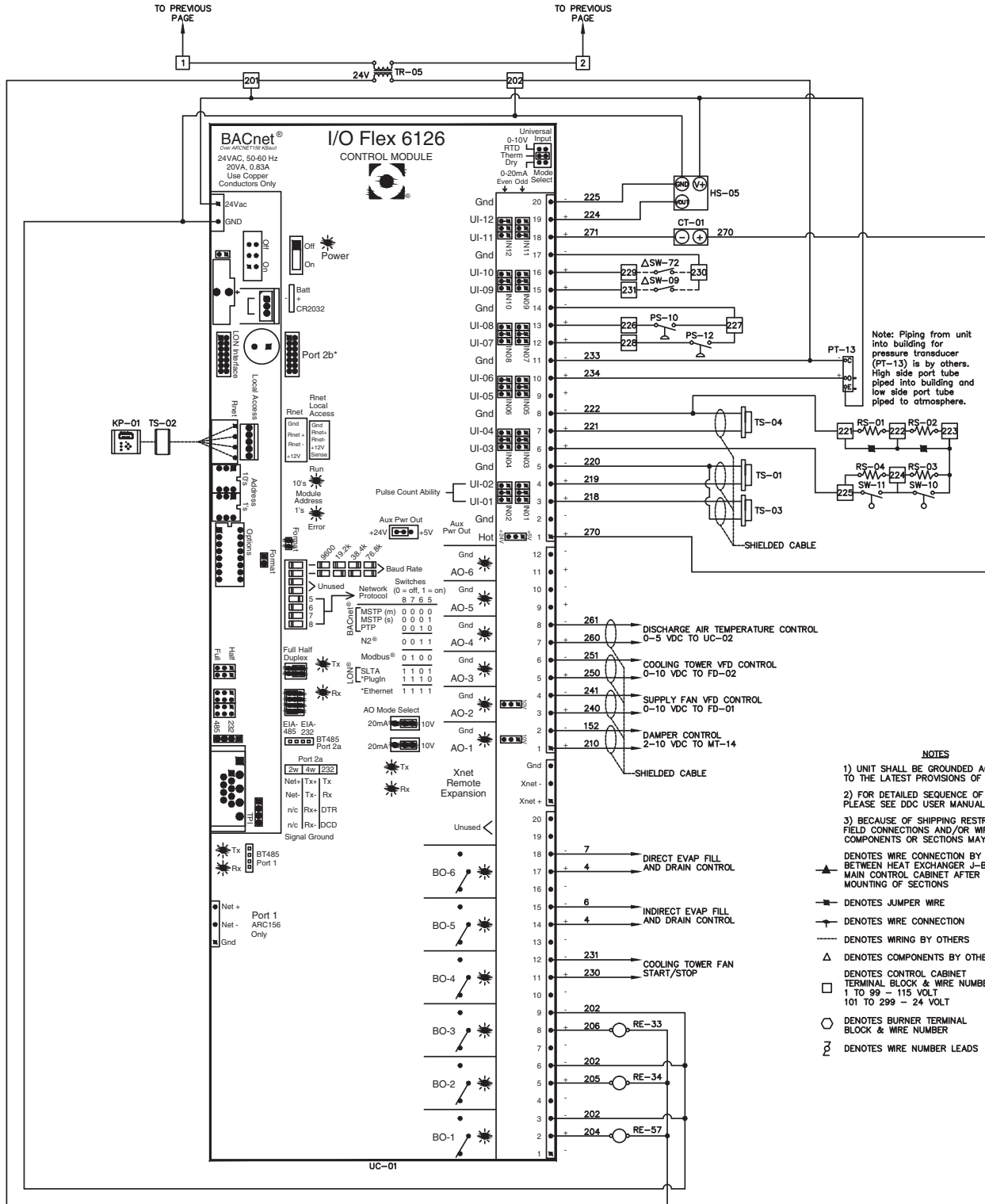
- 7. BACview Interface
- 8. Room Thermostat



Typical Wiring

C000748

C000748



- NOTES**
- 1) UNIT SHALL BE GROUNDED ACCORDING TO THE LATEST PROVISIONS OF NEC.
 - 2) FOR DETAILED SEQUENCE OF OPERATION PLEASE SEE DDC USER MANUAL.
 - 3) BECAUSE OF SHIPPING RESTRICTIONS FIELD CONNECTIONS AND/OR WIRING BETWEEN COMPONENTS OR SECTIONS MAY BE REQUIRED
- ▲ DENOTES WIRE CONNECTION BY OTHERS BETWEEN HEAT EXCHANGER U-BOX AND MAIN CONTROL CABINET AFTER FIELD MOUNTING OF SECTIONS
 - DENOTES JUMPER WIRE
 - DENOTES WIRE CONNECTION
 - DENOTES WIRING BY OTHERS
 - △ DENOTES COMPONENTS BY OTHERS
 - DENOTES CONTROL CABINET TERMINAL BLOCK & WIRE NUMBER 1 TO 99 - 115 VOLT 101 TO 299 - 24 VOLT
 - DENOTES BURNER TERMINAL BLOCK & WIRE NUMBER
 - ∩ DENOTES WIRE NUMBER LEADS

AZTEC ASC TYPICAL SPECIFICATIONS

1.0 GENERAL

1.1 (Choose one)

Furnish and install a "1A01" Series Aztec ASC-_____-1A01 Packaged Indirect HVAC unit complete with blower section, direct drive motor/blower, flat bank filter section, integral cooling tower, indirect cooling coil section, and inlet louver with birdscreen. The entire unit is to be manufactured by Aztec Sensible Cooling, Dallas, Texas or an approved equal. The unit shall include all components and accessories as set forth herein.

Furnish and install a "2A11" Series Aztec ASC-_____-2A11 Packaged Indirect/Direct Evaporative HVAC unit complete with blower section, direct drive motor/blower, flat bank filter section, integral cooling tower, indirect cooling coil section, direct evaporative cooling section and inlet louver with birdscreen. The entire unit is to be manufactured by Aztec Sensible Cooling, Dallas, Texas or an approved equal. The unit shall include all components and accessories as set forth herein.

- 1.2 Unit shall be designed to insure against air stratification across filters and evaporative cooling media. Air velocities across filters and evaporative cooling media shall not exceed 500 FPM.
- 1.3 Complete unit shall be ETL listed. All units shall be built up with orientation and connection locations as indicated on drawings.
- 1.4 Capacities shall be as scheduled on drawings and/or equipment schedule.

2.0 CABINET

- 2.1 The unit shall consist of sections required to incorporate the components indicated on the plans and schedule.
- 2.2 The wall and roof panels of the unit shall be fabricated of heavy gauge galvanized steel formed members. The walls and roof structure shall accommodate up to 1" of insulation.
- 2.3 The wall panels shall form a self-framing casing with no additional structural support required. All panels shall be sealed airtight with a sealant.
- 2.4 The floor panels will be built with 1" interlocking standing seam and be suitably reinforced with framing members as required to support the internal components of the unit and be both water and airtight.
- 2.5 Access doors shall be of the double wall, insulated type and provided with live neoprene bulb gaskets, hinges, and latches capable of applying additional sealing as required.
- 2.6 The roof of the unit shall have a minimum 1 1/2" interlocking standing seam construction. All seams will be caulked and sealed to be weathertight and airtight.
- 2.7 All exterior surfaces shall be cleaned to prepare the galvanized surface before applying a specially formulated corrosion resistant combination prime and finish coating of durable 500 hour salt spray resistant, dark tan, acrylic enamel.

3.0 STRUCTURAL BASE

- 3.1 Unit or individual unit section shall be fabricated with either a rigidly formed 12 gauge galvanized steel or structural steel base frame electrically welded to form a rigid chassis suitably reinforced and braced to permit the loading, shipping, unloading, rigging, and general handling of the completed sections without damage to assembled components due to normal handling techniques. If fabricated in sections, they shall be joined together by bolting. Structural components shall be of such design as to provide adequate support for each section and the complete assembly when the unit is supported around its base perimeter.

- 3.2 Lifting lugs shall be provided as required for each section.
- 3.3 Base frame of each section shall be designed to accept full perimeter roof curb as shown in drawings. Base frame and outside casing shall be specifically designed to shed water away from all curb penetrations.

4.0 INSULATION

- 4.1 Wall panels, roof, and floor shall be insulated with 1" thick, 1-1/2# density mat faced fiberglass insulation.
- 4.2 Insulation shall meet the requirements of the following codes and specifications:

NFPA 90A and NFPA 90B	ASTM C 1071 Type II
TIMA Standard AHC-101	HH-I-545B Type II

Insulation will be tested in accordance with ASTM E-84, UL 723, and NFPA-255 and will not exceed:
25 Flame spread
50 Smoke Developed

- 4.3 Insulation shall be held in place with adhesive and mechanical fasteners. The mechanical fasteners shall be spaced in accordance with the latest edition of SMACNA "HVAC Duct Construction standards".

5.0 SUPPLY AIR BLOWER SECTION

- 5.1 The blower section shall include centrifugal, backward airfoil SWSI plenum type blower and shall be complete with direct drive motor. The blower in accordance with AMCA (Air Movement and Control Association) Standard 210. The blowers shall be designed to operate without conventional scroll housing. All blower wheels shall have tapered and spun wheel cones or shrouds providing stable flow and high rigidity. The wheels shall be non-overloading type. The blades shall be continuously welded, airfoil type, designed for maximum efficiency and quiet operation. All air ratings are based on delivery against the external static pressure specified with all optional equipment in place and operating. All blowers will be dynamically balanced on precision electronic vibration amplifying equipment to insure quiet, smooth running, trouble free operation. Flexible ducting shall be provided between blower inlet and unit casing.

AZTEC ASC TYPICAL SPECIFICATIONS

- 5.2 Blower motor shall be designed to suit the characteristics of the available electric service shown on drawings. Motor will be (energy efficient ODP).
- 5.3 Motor and blower assembly shall be mounted on a common structural steel base under which vibration isolators shall be anchored to the floor. Vibration isolators shall be spring type with seismic restraint to restrict vertical and horizontal motion. The isolation base shall be complete with hold down bolts and wood blocking to maintain the isolation base in rigid position for shipping.
- 5.4 Supply fan motor shall be controlled by Variable Frequency Drive (VFD). The DDC control system will modulate the VFD to maximize system efficiency and performance based on sensed environmental conditions. The VFD shall be mounted inside cabinet suitable for rooftop applications.

6.0 INDIRECT EVAPORATIVE COOLING SECTION

- 6.1 The indirect evaporative cooling section of the unit shall consist of an indirect cooling coil [A] and an integral cooling tower [B] as described below:

A. INDIRECT COOLING COIL: The indirect cooling coil in the unit shall be of the drainable, counterflow type. The coil's finning material shall be of corrugated type and mechanically bonded to the coil's tubing. The coil shall be equipped with both a drain and vent connection.

The header and the supply and return coil connection of the indirect coil shall be copper, located on one end of the coil and internally plumbed at the factory to the recirculating pump provided with the unit's integral cooling tower.

The unit's indirect coil drain connection or the chilled water supply line from the cooling tower in the unit, whichever has the lowest drain point, shall be plumbed to the exterior of the unit's housing and provided with a manually operated drain valve.

B. INTEGRAL COOLING TOWER: The unit's integral cooling tower shall be provided with the following factory pre-assembled components: 2" aluminum mesh, washable type intake air filters; welded stainless steel sump construction; stainless steel housing construction; propeller type, corrosion coated, direct or belt driven exhaust fan; evaporative cooling media; cooling tower cooling media water distribution header or headers; recirculating pump manifold assembly; factory set, calibrated butterfly or ball type brass water balancing valve, factory adjusted, brass lever control valve with a plastic float ball; sump drain connection; sump overflow connection; sump water fill and make-up line connection; adjustable brass water bleed valve with the copper bleed tubing plumbed to the cooling tower's overflow stand pipe; recirculating pump low sump water lever shutoff switch; submersible type recirculating pump.

7.0 DIRECT EVAPORATIVE SECTION (2A11 Series only)

- 7.1 The evaporative section(s) shall have a 5 $\frac{1}{2}$ " deep sump with welded seams and corners. The sump shall be constructed of 304 stainless steel and will be factory leak tested prior to shipment. The remainder of the direct evaporative cooling section shall also be constructed of 304 stainless steel.
- 7.2 The cooling media shall be 12" deep fluted Fiberdek, high efficiency evaporative media, impregnated with an insoluble antirot chemical. The face velocity shall be equal to or less than that shown on the air handler schedule, in no case shall the face velocity exceed 500 FPM.
- 7.3 The evaporative cooling section shall include a submersible pump with U.L. listed, hermetically sealed, dielectric oil-filled motor and Buna-N seal. Horsepower rating of the pump shall not be less than 1/6 HP. Pump to be centrifugal type.
- 7.4 The water distribution system shall be constructed of PVC plumbing and include, but not be limited to, the following items: pump riser; factory installed water regulator valve to permit field adjustment of water flow over media; 1" drain connection; 1 $\frac{1}{2}$ " overflow line; $\frac{3}{4}$ " water control valve; adjustable bleed valve to allow continuous bleed off, thus minimizing the build up of minerals and salts; cleanable water distribution header over the complete width of media.

8.0 OUTSIDE AIR INLET LOUVER

- 8.1 Louver frame and blades shall be galvanized steel with riveted or welded construction.
- 8.2 Louver shall include galvanized birdscreen.
- 8.3 Louver design shall be of the drainable type and be tested to AMCA Standard 500 and licensed to bear the AMCA seal.
- 8.4 Louver shall be hinged for service and filter access on all 100% outside air units.

9.0 FILTER SECTION

- 9.1 Flat filter rack shall be designed for 2" thick filters of size and quantity as shown on drawings. Filter rack shall be of the front access type. Filters shall be mounted in galvanized steel frames.
- 9.2 Filter media shall be nominal 2" thick, Merv 8 disposable type design. All filters shall be listed by Underwriters Laboratories as Class 2.

OPTIONAL EQUIPMENT

- 2" Fiberglass insulation
- Double wall and roof cabinet construction
- TEFC motors
- Mixing section with return air and outside air dampers
- 12" or 18" high full perimeter roof curb
- Direct drive centrifugal, backward airfoil, SWSI plenum type fan arrays
- MERV 11 and MERV 14 supply air filters
- Direct expansion or chilled water cooling coil
- Variable frequency drive on cooling tower fan
- Smoke detector
- Firestat
- Copper plumbing
- UL labeled control panel

Check out our other Mestex cooling solutions.

KOLDWAVE

Koldwave offers portable cooling solutions in either water cooled or air cooled models. Water cooled models are available from 1/2 - 3 tons and air cooled models are available from 1 - 5 tons.



Applied Air[®]

Applied Air offers packaged 100% Outside Air cooling solutions. These rooftop curb mounted units are available in 20, 40, and 60 ton sizes.



In the interest of product improvement the factory reserves the right to make changes without notice.