



Now In Production

JUNE 2011

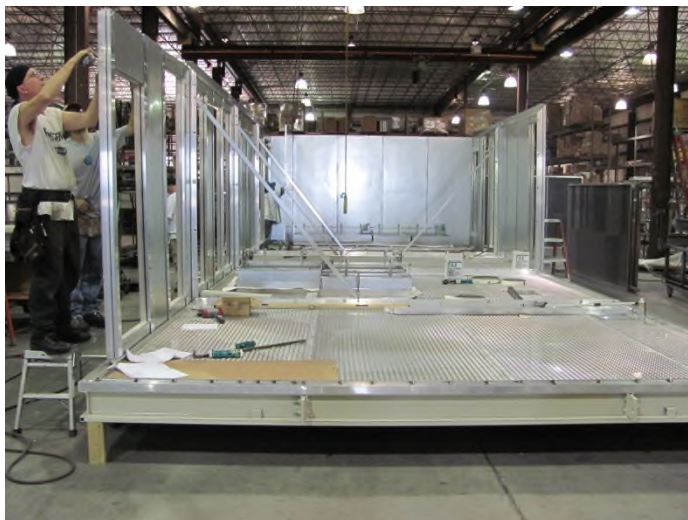
University of Arkansas NANO Building, Little Rock, AR

Two (2) custom make up ERU units. AHU-1, 32,000 CFM with plate type heat exchanger, and AHU-2, 30,000 CFM with an energy recovery wheel.

Representative : Powers of Arkansas, Inc. 5440 Northshore Dr., Little Rock, AR 72118
Mark Emmerling; P 501-374-5420; F 501-370-9298



Units are built in sections with structural steel bases, welded aluminum tread plate floors, drains in all sections, removable lifting lugs and 2 inch turned up lip around the base perimeter and floor penetrations .



The aluminum exterior and interior panels are insulated with 3 inch polyurethane foam insulation with R value of 20.

The units are fabricated with **no-thru-metal** construction.



4500 Industrial Access Road Douglasville, GA 770-489-0716 P ; 770-489-2938 F ; www.seasons4.net



Now In Production

JUNE 2011

University of Arkansas NANO Building, Little Rock, AR

Two (2) custom make up ERU units. AHU-1, 32,000 CFM with plate type heat exchanger, and AHU-2, 30,000 CFM with an energy recovery wheel.

Representative : Powers of Arkansas, Inc. 5440 Northshore Dr., Little Rock, AR 72118
Mark Emmerling; P 501-374-5420; F 501-370-9298



Multiple direct drive supply and exhaust air blowers with premium efficiency motors, fan isolation dampers and trolley rails for motor removal are some of the features provided.



AHU-1 is a 32,000 CFM system with Plate type heat exchanger, and AHU-2 is a 30,000 CFM system with an enthalpy wheel.



4500 Industrial Access Road Douglasville, GA 770-489-0716 P ; 770-489-2938 F ; www.seasons4.net



Now In Production

JUNE 2011

University of Arkansas NANO Building, Little Rock, AR

Two (2) custom make up ERU units. AHU-1, 32,000 CFM with plate type heat exchanger, and AHU-2, 30,000 CFM with an energy recovery wheel.

Representative : Powers of Arkansas, Inc. 5440 Northshore Dr., Little Rock, AR 72118
Mark Emmerling; P 501-374-5420; F 501-370-9298



Chilled water cooling coils, integral face and bypass heating coils, humidifier, service lights, UV lights, smoke/fire dampers, and high efficiency filters are additional features.



AHU-1 is provided with a walk-in service corridor. All motors are driven with ABB drives. DDC controls are provided and programmed by Powers of Arkansas and installed by Seasons-4.



4500 Industrial Access Road Douglasville, GA 770-489-0716 P ; 770-489-2938 F ; www.seasons4.net



Now In Production

JUNE 2011

University of Arkansas NANO Building, Little Rock, AR

Two (2) custom make up ERU units. AHU-1, 32,000 CFM with plate type heat exchanger, and AHU-2, 30,000 CFM with an energy recovery wheel.

**Representative : Powers of Arkansas, Inc. 5440 Northshore Dr., Little Rock, AR 72118
Mark Emmerling; P 501-374-5420; F 501-370-9298**



Units are completely assembled, performance and air leak tested.



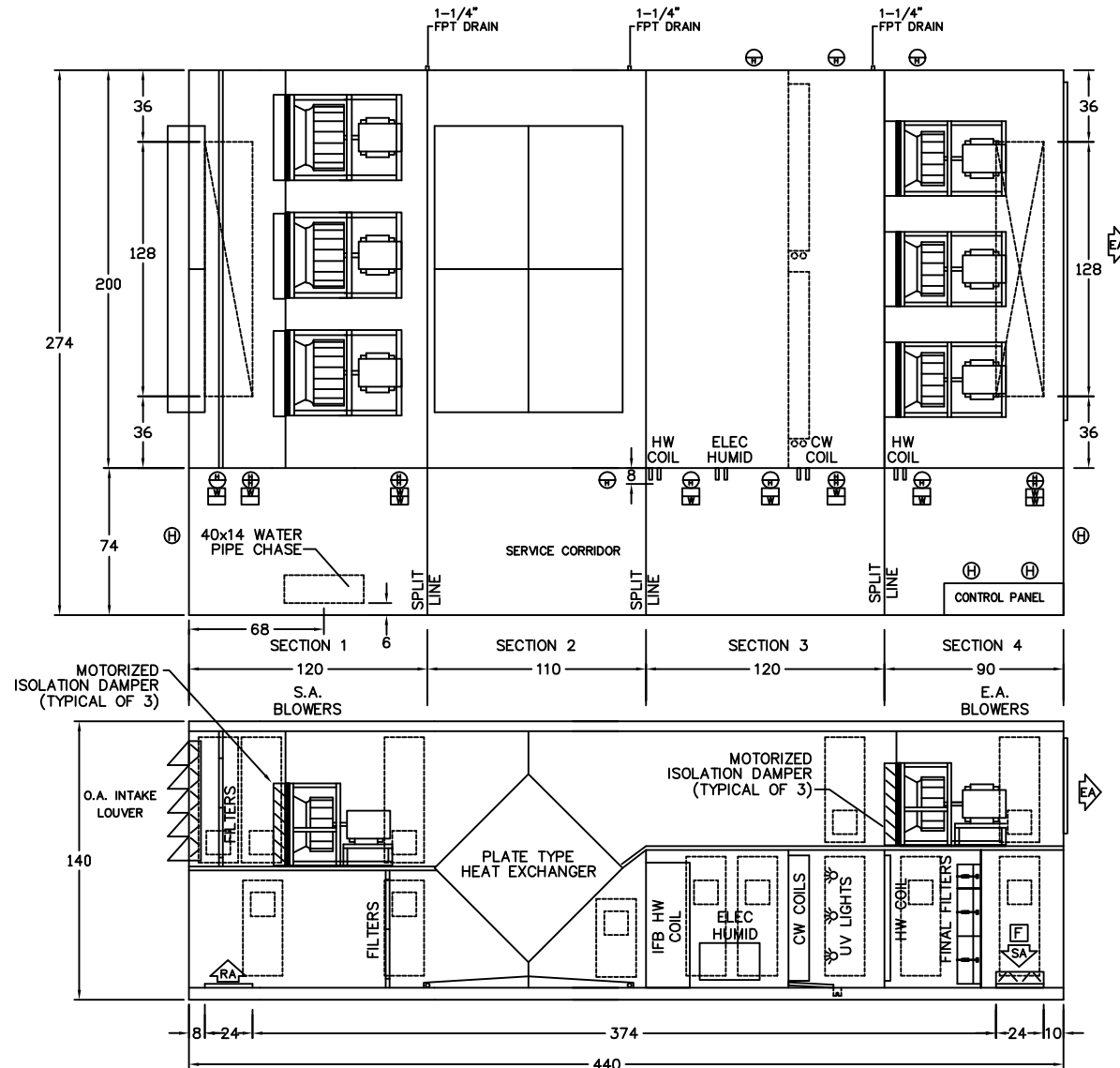
Split in sections and shipped to their destination.



4500 Industrial Access Road Douglasville, GA 770-489-0716 P ; 770-489-2938 F ; www.seasons4.net



ENGINEERING AND MANUFACTURING HVAC EQUIPMENT SINCE 1971



STEPS FROM VESTIBULE TO ROOF LEVEL
PROVIDED AND INSTALLED BY OTHERS

LEGEND

- (H) HINGED ACCESS DOOR
- (W) VIEW-PORT 8"x8" MIN
- (L) LIFT-OFF ACCESS DOOR
- (B) BALANCING DAMPER
- (F) FIRE/SMOKE DAMPER

NOTE: O.A./E.A. LOUVERS, FURNACE VENT CAPS, ETC. MAY REQUIRE FIELD INSTALLATION

REV. #	BY	DATE	DESCRIPTION	DIMENSIONAL DATA	DRAWN BY
0	JJZ	031011	ORIGINAL ISSUE	UALR CIBNS NANO BLDG LITTLE ROCK AR AHU-1	JJZ
1	CCB	031611	ADDED VIEWPORTS, DELETED F/B DAMPERS, MOVED PIPE CHASE, CONTROL PANEL		DATE 031011
2	JJZ	032311	ADDED UV LIGHTS AT CW COIL		SCALE N/A
3	JJZ	033011	MOTORIZED DAMPERS, ADDITIONAL DOORS, VIEWPORT SIZE, NOTE ABOUT STEPS		REVISION # 3
					DWG. NAME A894D01JZ

ENGINEERING SPECIFICATIONS

JOB NAME	UALR CIBNS NANOTECHNOLOGY BUILDING
LOCATION	LITTLE ROCK AR
DATE PREPARED	Revised: 03/16/11
SEASONS-4 REFERENCE #	A89401
UNIT MODEL #	3EZT37-173A-HW9.1-32EP
UNIT DESIGNATION	AHU-1
SYSTEM VOLTAGE	460/3/60

DESIGN DATA

TOTAL AIRFLOW (CFM)	32,000
---------------------	--------

CHILLED WATER COIL SECTION 1

FACE AREA (SQ-FT) for 2 Coils	73.5
ROWS/FPI	6/12
COIL CIRCUITS (NUMBER)	2
TOTAL CAPACITY (BTUH) for 2 Coils	2,078,280
SENSIBLE CAPACITY (BTUH) for 2 Coils	1,142,188
ENTERING AIR TEMP (FDB/FWB)	84.3/72.0
LEAVING AIR TEMP (FDB/FWB)	51.9/51.8
CONDITIONED AIR (ACFM)	32,000
ENTERING WATER TEMP (DEG F)	43.0
LEAVING WATER TEMP (DEG F)	54.9
FLOWRATE (GPM) for 2 Coils	350.0
TYPE FLUID	WATER
FLUID PRESSURE DROP (FT WATER each Coil)	12.28
SUPPLY/RETURN CONNECTION SIZE (each Coil)	3 1/8, 3 1/8

SUPPLY AIR BLOWER SECTION

TYPE	AF SWSI PLENUM
NUMBER/SIZE	2/30"
AIRFLOW (CFM)	32,000
TOTAL STATIC PRESSURE (TSP) IN WC	7.90
EXTERNAL STATIC (ESP) IN WC	3.00
DESIGN FAN SPEED (RPM)	1,771
FAN BHP	2 @ 28.8
MOTOR HP	2 @ 30
MOTOR DRIVE	DIRECT DRIVE

EXHAUST AIR BLOWER

TYPE	AF SWSI PLENUM
NUMBER/SIZE	2/30"
AIRFLOW (CFM)	32,000
TOTAL STATIC PRESSURE (TSP) IN WC	4.68
EXTERNAL STATIC (ESP) IN WC	2.50
DESIGN FAN SPEED (RPM)	1,608
FAN BHP	2 @ 17.4
MOTOR HP	2 @ 20
MOTOR DRIVE	DIRECT DRIVE

ENGINEERING SPECIFICATIONS

FILTER SECTION

TYPE	12" RIGID; MERV 14
NUMBER/SIZE	8/12x24, 16/24x24
TOTAL FACE AREA (SQ-FT)	80.0
FACE VELOCITY (FPM)	400

HOT WATER PREHEAT COIL WITH INTEGRAL FACE AND BYPASS

FACE AREA (SQ-FT)	41.3
ROWS/FPI	2/7
COIL CIRCUITS (NUMBER)	1
CAPACITY (BTUH)	702,979
ENTERING AIR TEMP (DEG F)	40.0
LEAVING AIR TEMP (DEG F)	60.2
CONDITIONED AIR (ACFM)	32,000
ENTERING WATER TEMP (DEG F)	180.0
LEAVING WATER TEMP (DEG F)	151.6
FLOWRATE (GPM)	50.0
TYPE FLUID	WATER
FLUID PRESSURE DROP (FT WATER)	0.28
SUPPLY/RETURN CONNECTION SIZE	2 1/8, 2 1/8

HOT WATER COIL SECTION 2

FACE AREA (SQ-FT)	8.3
ROWS/FPI	2/8
COIL CIRCUITS (NUMBER)	1
CAPACITY (BTUH)	210,318
COIL ENTERING/LEAVING AIR TEMP (DEG F)	51 / 89.6
MIXED AIR LEAVING TEMP (DEG F)	57.0
CONDITIONED AIR (ACFM)	5,000
ENTERING WATER TEMP (DEG F)	180.0
LEAVING WATER TEMP (DEG F)	147.6
FLOWRATE (GPM)	13.0
TYPE FLUID	WATER
FLUID PRESSURE DROP (FT WATER)	1.43
SUPPLY/RETURN CONNECTION SIZE	1 1/8, 1 1/8
BYPASS AIR (ACFM)	27,000

HUMIDIFIER

TYPE	ELECTRIC
CAPACITY (LB/HR)	200.0
CONDITIONED AIR (SCFM)	22,000
STAGING CONTROLS	TBD
SUPPLY CONNECTION SIZE	0.50
DRAIN CONNECTION SIZE	0.75

PLATE TYPE HEAT EXCHANGER

SIZE	144 X 66.9 FACE
SUPPLY AIRFLOW (SCFM)	32,000
RETURN AIRFLOW (SCFM)	32,000
SUMMER ENTERING AIR TEMP (FDB/FWB)	99.0/82.4
SUMMER LEAVING AIR TEMP (FDB/FWB)	83.3/78.6
WINTER ENTERING AIR TEMP (FDB/FWB)	15.0/12.5
WINTER LEAVING AIR TEMP (FDB/FWB)	52.3/36.1

ENGINEERING SPECIFICATIONS

ERS OUTSIDE AIR FILTER SECTION

TYPE	2" PLEATED; MERV 8
NUMBER/SIZE	24/16x25
TOTAL FACE AREA (SQ-FT)	66.7
FACE VELOCITY (FPM)	480

ERS EXHAUST AIR FILTER SECTION

TYPE	2" PLEATED; MERV 8
NUMBER/SIZE	24/16x25
TOTAL FACE AREA (SQ-FT)	66.7
FACE VELOCITY (FPM)	480

UNIT SECTION WEIGHTS (LBS)

SECTION 1	13,450
SECTION 2	9,500
SECTION 3	14,400
SECTION 4	11,000

UNIT WEIGHT (LBS)	48,350
-------------------	--------

**ENGINEERING SPECIFICATIONS
ELECTRICAL DATA**

JOB NAME UALR CIBNS NANOTECHNOLOGY BUILDING
LOCATION LITTLE ROCK AR
DATE PREPARED Revised: 03/16/11
SEASONS-4 REF NUMBER A89401 **UNIT MODEL** 3EZT37-173A-HW9.1-32EP
UNIT DESIGNATION AHU-1

SYSTEM VOLTAGE 460 **CONTROL VOLTAGE** 120 **EXT. VOLTAGE** 24

<u>ITEM</u>	<u>QTY</u>	<u>HP</u>	<u>FLA</u>	<u>LRA</u>	<u>KW</u>	<u>TYPE</u>
SA FAN	3	30.0	35.0	223.6	22.8	Bald
EA FAN	3	20.0	23.5	160.8	14.0	Bald
ER WHEEL	1	0.5	1.0	10.8	0.5	GSTD
CONTROL CIRCUIT			1.6			
HUMIDIFIER	1		85.4		68.0	
	-----	-----	-----	-----	-----	
TOTALS (COOL)	7	150.5	178.1		110.9	
TOTALS (HEAT)	8	150.5	263.6		178.9	

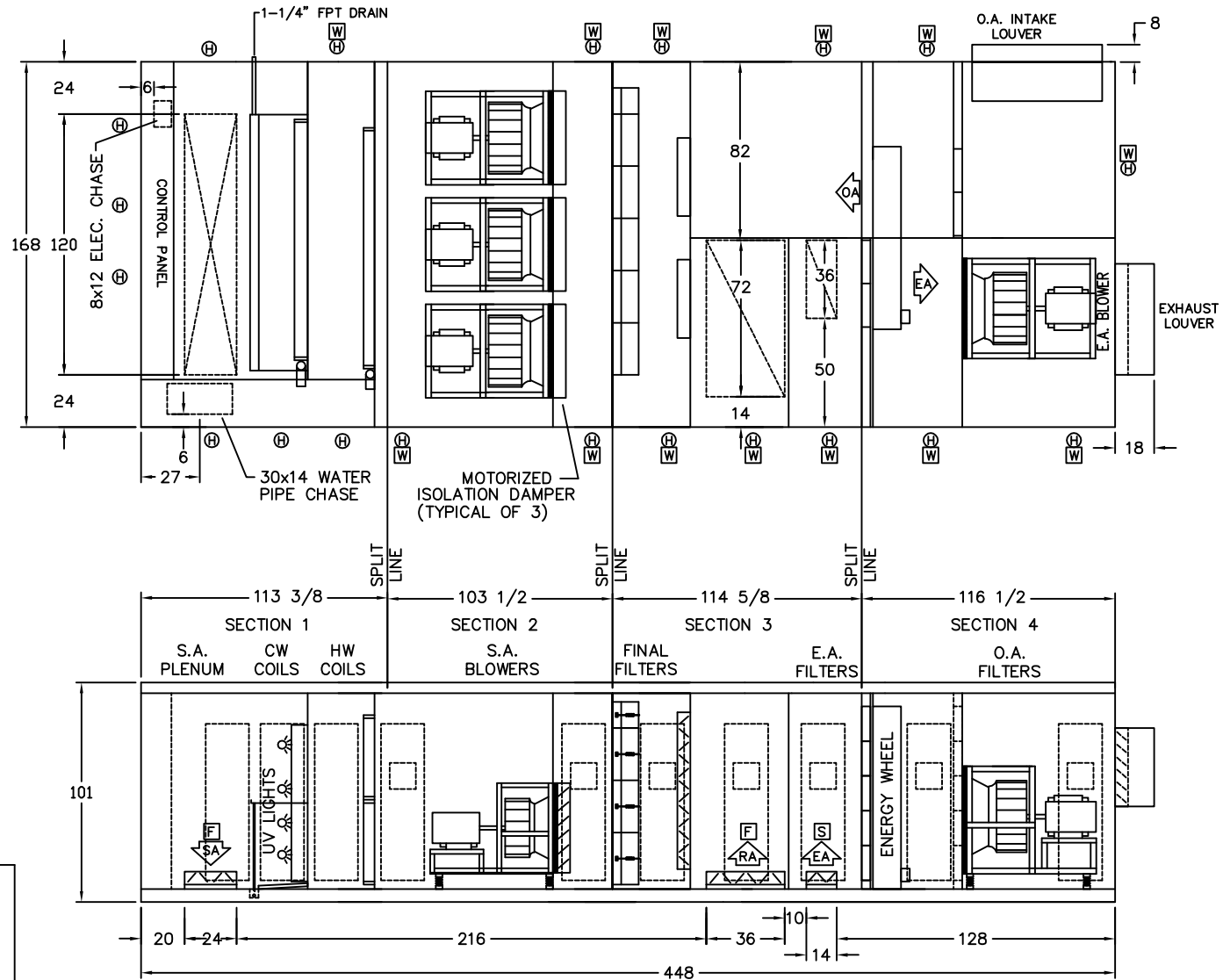
M.C.A. 272 (MINIMUM CIRCUIT AMPACITY)

M.O.P. 300 (MAXIMUM OVERLOAD PROTECTION)

S.C.C.R. 65,000 (SHORT CIRCUIT CURRENT RATING)



ENGINEERING AND MANUFACTURING HVAC EQUIPMENT SINCE 1971



LEGEND

- (H) HINGED ACCESS DOOR
- (W) VIEW-PORT 8"x8" MIN.
- (L) LIFT-OFF ACCESS DOOR
- (B) BALANCING DAMPER
- (S) SMOKE DAMPER
- (F) FIRE/SMOKE DAMPER

NOTE: O.A./E.A. LOUVERS, FURNACE VENT CAPS, ETC. MAY REQUIRE FIELD INSTALLATION

REV. #	BY	DATE	DESCRIPTION	DIMENSIONAL DATA	DRAWN BY
0	JJZ	031011	ORIGINAL ISSUE	UALR CIBNS NANO BLDG LITTLE ROCK AR AHU-2	JJZ
1	CCB	031511	ADDED EA OPENING, REVISED PIPING CHASE, ADDED VIEWPORTS, ELEC. CHASE		DATE 031011
2	JJZ	032311	ADDED UV LIGHTS AT CW COIL		SCALE N/A
3	JJZ	033011	MOTORIZED ISOLATION DAMPER, VIEWPORT MIN SIZE		REVISION # 3
					DWG. NAME A894D02JZ

ENGINEERING SPECIFICATIONS

JOB NAME UALR CIBNS NANOTECHNOLOGY BUILDING
LOCATION LITTLE ROCK AR
DATE PREPARED Revised: 03/15/11
SEASONS-4 REFERENCE # A89402
UNIT MODEL # 3EUK37-108A-HW10.-30EW
UNIT DESIGNATION AHU-2
SYSTEM VOLTAGE 460/3/60

DESIGN DATA

TOTAL AIRFLOW (CFM)	30,000
---------------------	--------

CHILLED WATER COIL SECTION 1

FACE AREA (SQ-FT)	62.8
ROWS/FPI	8/8
COIL CIRCUITS (NUMBER)	1
TOTAL CAPACITY (BTUH)	1,306,776
SENSIBLE CAPACITY (BTUH)	900,146
ENTERING AIR TEMP (FDB/FWB)	79.0/66.0
LEAVING AIR TEMP (FDB/FWB)	51.7/51.4
CONDITIONED AIR (ACFM)	30,000
ENTERING WATER TEMP (DEG F)	43.0
LEAVING WATER TEMP (DEG F)	54.8
FLOWRATE (GPM)	222.0
TYPE FLUID	WATER
FLUID PRESSURE DROP (FT WATER)	7.56
SUPPLY/RETURN CONNECTION SIZE	3 5/8, 3 5/8

SUPPLY AIR BLOWER SECTION

TYPE	AF SWSI PLENUM
NUMBER/SIZE	2/30"
AIRFLOW (CFM)	30,000
TOTAL STATIC PRESSURE (TSP) IN WC	6.56
EXTERNAL STATIC (ESP) IN WC	3.00
DESIGN FAN SPEED (RPM)	1,671
FAN BHP	2 @ 22.1
MOTOR HP	2 @ 30
MOTOR DRIVE	DIRECT DRIVE

EXHAUST AIR BLOWER

TYPE	AF SWSI PLENUM
NUMBER/SIZE	1/19.5"
AIRFLOW (CFM)	4,221
TOTAL STATIC PRESSURE (TSP) IN WC	3.20
EXTERNAL STATIC (ESP) IN WC	1.50
DESIGN FAN SPEED (RPM)	1,746
FAN BHP	2.9
MOTOR HP	5.0
MOTOR DRIVE	DIRECT DRIVE

ENGINEERING SPECIFICATIONS

FILTER SECTION

TYPE	12" RIGID; MERV 13
NUMBER/SIZE	3/12x24, 15/24x24
TOTAL FACE AREA (SQ-FT)	66.0
FACE VELOCITY (FPM)	455

HOT WATER COIL SECTION 1

FACE AREA (SQ-FT)	53.2
ROWS/FPI	1/7
COIL CIRCUITS (NUMBER)	1
CAPACITY (BTUH)	998,874
ENTERING AIR TEMP (DEG F)	30.0
LEAVING AIR TEMP (DEG F)	60.5
CONDITIONED AIR (ACFM)	30,000
ENTERING WATER TEMP (DEG F)	180.0
LEAVING WATER TEMP (DEG F)	149.3
FLOWRATE (GPM)	65.0
TYPE FLUID	WATER
FLUID PRESSURE DROP (FT WATER)	3.71
SUPPLY/RETURN CONNECTION SIZE	2 1/8, 2 1/8

ENERGY RECOVERY WHEEL #1

SIZE	66 IN DIA / 8 IN DEEP
SUPPLY AIRFLOW (SCFM)	6,000
RETURN AIRFLOW (SCFM)	4,000
PURGE AIRFLOW (SCFM)	221
SUMMER ENTERING AIR TEMP (FDB/FWB)	98.0/80.0
SUMMER LEAVING AIR TEMP (FDB/FWB)	81.0/68.6
WINTER ENTERING AIR TEMP (FDB/FWB)	10.0/9.0
WINTER LEAVING AIR TEMP (FDB/FWB)	49.3/40.2

ERS OUTSIDE AIR FILTER SECTION

TYPE	2" PLEATED; MERV 8
NUMBER/SIZE	8/16x20
TOTAL FACE AREA (SQ-FT)	17.8
FACE VELOCITY (FPM)	350

ERS EXHAUST AIR FILTER SECTION

TYPE	2" PLEATED; MERV 8
NUMBER/SIZE	8/16x20
TOTAL FACE AREA (SQ-FT)	17.8
FACE VELOCITY (FPM)	225

UNIT SECTION WEIGHTS (LBS)

SECTION 1	8,750
SECTION 2	6,450
SECTION 3	7,300
SECTION 4	6,500

UNIT WEIGHT (LBS)	29,000
-------------------	--------

**ENGINEERING SPECIFICATIONS
ELECTRICAL DATA**

JOB NAME UALR CIBNS NANOTECHNOLOGY BUILDING

LOCATION LITTLE ROCK AR

DATE PREPARED Revised: 03/15/11

SEASONS-4 REF NUMBER A89402 **UNIT MODEL** 3EUK37-108A-HW10.-30EW

UNIT DESIGNATION AHU-2

SYSTEM VOLTAGE 460 **CONTROL VOLTAGE** 120 **EXT. VOLTAGE** 24

<u>ITEM</u>	<u>QTY</u>	<u>HP</u>	<u>FLA</u>	<u>LRA</u>	<u>KW</u>	<u>TYPE</u>
SA FAN	3	30.0	35.0	223.6	17.5	Bald
EA FAN	1	5.0	6.6	51.0	2.4	Bald
ER WHEEL	1	0.5	1.0	10.8	0.5	GSTD
CONTROL CIRCUIT			1.6			
	-----	-----	-----	-----	-----	
TOTALS (COOL)	5	95.5	114.2		55.5	
TOTALS (HEAT)	5	95.5	114.2		55.5	

M.C.A. 123 (MINIMUM CIRCUIT AMPACITY)

M.O.P. 150 (MAXIMUM OVERLOAD PROTECTION)

S.C.C.R. 65,000 (SHORT CIRCUIT CURRENT RATING)