ONE LINE PIPE SYMBOLS

HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
CHS	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
DCHS	DISTRICT CHILLED WATER SUPPLY
DCHR	DISTRICT CHILLED WATER RETURN
D	CONDENSATE DRAIN
	BALL VALVE
	BUTTERFLY VALVE (LEVER HANDLE)
	BUTTERFLY VALVE (GEAR OPERATOR)
	GATE VALVE
	CHECK VALVE (SWING CHECK)
	CHECK VALVE (BUTTERFLY CHECK)
	PRESSURE REDUCING VALVE
	FLOW LIMITING VALVE
	CALIBRATED BALANCING VALVE
	STRAINER W/ DRAIN VALVE
	UNION
	AIR TERMINAL / FAN COIL UNIT/HOT WATER RETURN CONTROL VALVE (2-WAY) ELECTRIC OR ELECTRONIC
	CONTROL VALVE (2-WAY) ELECTRIC OR ELECTRONIC
	CONTROL VALVE (3-WAY) ELECTRIC OR ELECTRONIC

ONE LINE PIPE SYMBOLS

H	AIR VENT (A - AUTO, H - HAND)
	PRESSURE AND TEMPERATURE TAP
	PRESSURE GAUGE
	THERMOMETER W/ INSERTION WELL
	ELBOW, TURNED UP
	ELBOW, TURNED DOWN
	RISE OR DROP IN PIPE
	ELBOW
	TEE, SIDE CONNECTION
	TEE, OUTLET UP
	TEE, OUTLET DOWN
	CAPPED OUTLET
	CAPPED PIPE
	CONCENTRIC REDUCER
EMS	EMERGENCY MANAGEMENT SYSTEM INSERTION WELL

TWO LINE PIPE SYMBOLS

	ELBOW - WELDED LONG RADIUS 45°
	ELBOW - WELDED LONG RADIUS 90°
	FLANGES - SLIP ON
	FLANGES - WELD NECK
	REDUCERS - WELDED CONCENTRIC
	TEE - WELDED
	BUTTERFLY VALVE - LEVER OPERATOR
	BUTTERFLY VALVE - WORM GEAR OPERATOR
	BUTTERFLY VALVE - ACTUATOR
	CHECK VALVE - SWING CHECK
	CHECK VALVE - SILENT OR WAFER
	STRAINER - Y

DEMOLITION AND RENOVATION SYMBOLS

	EQUIPMENT TO BE REMOVED
	EXISTING EQUIPMENT
	NEW EQUIPMENT
	POINT OF CONNECTION TO EXISTING
	TERMINATION OF DEMOLITION
	DUCT TO BE REMOVED
	EXISTING DUCT TO REMAIN
	NEW DUCT
	PIPING TO BE REMOVED
	EXISTING PIPING TO REMAIN
	NEW PIPING

DUCTWORK SYMBOLS

T	THERMOSTAT
	THERMOSTAT WIRING
FM	GPM FLUID FLOW METER
EMS	ENERGY MANAGEMENT SYSTEM
ATC	AUTOMATIC TEMP CONTROLS
ø	ROUND DIAMETER
	SHORT (1x) RADIUS ELL (RECTANGULAR OR ROUND) CENTERLINE RADIUS = 1d
	LONG (1.5x) RADIUS ELL (ROUND OR OVAL) CENTERLINE RADIUS = 1.5d
	SQUARE ELL
	ELL WITH TURNING VANES
	STREAMLINE TAP (RECTANGULAR)
Ø	STREAMLINE TAP (ROUND)
Ø	CONICAL TAP
	STRAIGHT TAP
	LATERAL TAP
	MANUAL VOLUME DAMPER
20/12	RECTANGULAR DUCT (WIDTH/DEPTH)
	FLEXIBLE DUCT
	SUPPLY DUCT UP
	RETURN DUCT UP
	EXHAUST DUCT UP
	SUPPLY DUCT DOWN
	RETURN DUCT DOWN
	EXHAUST DUCT DOWN
	CEILING DIFFUSER
	RETURN AIR GRILLE
	EXHAUST AIR GRILLE
X 4 X	TYPE - THROW / CFM } SUPPLY AIR DEVICE
X X	TYPE / CFM RETURN/EXHAUST AIR DEVICE

DESIGN NOTE:
THIS BUILDING HAS BEEN DESIGNED IN ACCORDANCE WITH ARKANSAS MECHANICAL CODE 2010, SECTION 402 - NATURAL VENTILATION.

AIR DISTRIBUTION DEVICES

DESSIGNATION	REFERENCE PRODUCT TITUS MODEL	MAXIMUM AIRFLOW (CFM)	TOTAL PRESSURE (IN-WG)	NECK SIZE (IN)	PANEL SIZE (IN)	MAX N.C.	FINISH	Comments
1	350RL	100	0.07	6 X 6	8 X 8	30	STANDARD	
2	PAR	100	0.09	6" ROUND	12" X 12"	30	STANDARD	
3	50F A	150	0.10	6 X 6	12 X 12	30	STANDARD	
4	350RL	150	0.07	8 X 6	10 X 8	30	STANDARD	
5	350RL	225	0.07	8 X 8	10 X 10	30	STANDARD	
6	PAR	275	0.09	10" ROUND	24" X 24"	30	STANDARD	
A	TDC	250	0.08	6" ROUND	12" X 12"	30	STANDARD	PROVIDE FULL FACE LOUVERED
B	TITUS TDC	125	0.12	6 X 6	12 X 12	30	STANDARD	PROVIDE FULL FACE LOUVERED
C	TITUS TDC	125	0.08	6" ROUND	24" X 24"	30	STANDARD	PROVIDE FULL FACE LOUVERED
D	TITUS TDC	250	0.12	8" ROUND	24 X 24	30	STANDARD	PROVIDE FULL FACE LOUVERED
E						30	STANDARD	PROVIDE FULL FACE LOUVERED
F	TITUS 272RL	330	0.10	18 X 6	20 X 8	30	STANDARD	PROVIDE WITH OBD

AIR/DIRT SEPARATOR SCHEDULE

DESIGNATION	REFERENCE PRODUCT	LOCATION	SERVES	TYPE	PIPE CONNECTION SIZE (IN)	MAXIMUM HEIGHT (IN)	MAXIMUM WIDTH (IN)	MAXIMUM FLOW RATE (GPM)	MAXIMUM PRESSURE DROP (FT WC)	MAXIMUM VELOCITY (FT/S)	REMARKS
AS-1	SPIROTHERM VHN400	MECHANICAL ROOM	HEATING WATER	AIR/DIRT SEPARATOR	4	45	21	400	2.6	6.68	
AS-2	SPIROTHERM VHN400	MECHANICAL ROOM	CHILLED WATER	AIR/DIRT SEPARATOR	4	45	21	400	2.6	6.68	

PUMP SCHEDULE

DESIGNATION	REFERENCE PRODUCT	LOCATION	SERVES	TYPE	WATER FLOW RATE (GPM)	TOTAL HEAD (FT)	RPM	MINIMUM EFFICIENCY (%)	ELECTRICAL BHP	ELECTRICAL MHP	ELECTRICAL VOLTAGE/ PHASE	REMARKS
HWP-1	ARMSTRONG 4300 3X3X6	MECHANICAL ROOM	HEATING WATER	VERTICAL INLINE	265	70	3540	71.5	6.6	7.5	208 / 3	
HWP-2	ARMSTRONG 4300 3X3X6	MECHANICAL ROOM	HEATING WATER	VERTICAL INLINE	265	70	3540	71.5	6.6	7.5	208 / 3	

EXPANSION TANK SCHEDULE

DESIGNATION	REFERENCE PRODUCT	LOCATION	SERVES	TYPE	MAXIMUM TEMP. (°F)	INITIAL TANK AIR PRESSURE (PSI)	MAXIMUM PRESSURE (PSI)	MAXIMUM TANK SIZE (GAL.)	TANK DIAMETER (IN)	TANK LENGTH (IN)	REMARKS
ET-1	ARMSTRONG AX-100	MECHANICAL ROOM	HEATING WATER	BLADDER	250	125	150	60	20	49	PROVIDE FULL ACCEPTANCE

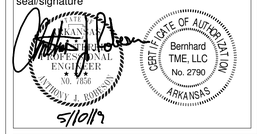
Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature



No.	Description	Date

UCA Housing Renovations - Phase 2
State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

Contents

LEGEND AND SCHEDULES - HVAC

Sheet Number

M0.1

5/9/2019 1:36:16 PM

FAN COIL UNIT SCHEDULE - FIRST FLOOR

DESIGNATION	REFERENCE PRODUCT	TYPE	SUPPLY AIRFLOW (CFM)	FILTER TYPE	COOLING									HEATING								ELECTRICAL			REMARKS
					TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	EDB (ºF)	EWB (ºF)	EWT (ºF)	LWT (ºF)	WATER FLOW (GPM)	WATER DP (FT. WC)	COIL ROWS	TOTAL CAPACITY (MBH)	EDB (ºF)	EWB (ºF)	EWT (ºF)	LWT (ºF)	WATER FLOW (GPM)	WATER DP (FT WC)	COIL ROWS	VOLTAGE/ PHASE	FLA	MOTOR WATTS	
FCU-101-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-102-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-103-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-104-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-105-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-106-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-107-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-108-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-110-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-111-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-112-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-113-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-114-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-116-1	IEC CBY02	HORIZ. TELE. HIDEAWAY	291	1" THROWAWAY	8.3	6.2	80.0	67.0	42.0	53.0	1.5	5.3	3	8.5	70.0	97.2	180.0	146.0	0.5	0.2	1	120 / 1	0.5	83.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-124-1	IEC CPY02	HORIZ. HIDEAWAY W/ PLENUM	291	1" THROWAWAY	8.3	6.2	80.0	67.0	42.0	53.0	1.5	5.3	3	8.5	70.0	97.2	180.0	146.0	0.5	0.2	1	120 / 1	0.5	83.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-125-1	IEC CBY03	HORIZ. TELE. HIDEAWAY	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-126-1	IEC CBY03	HORIZ. TELE. HIDEAWAY	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-126-2	IEC CBY03	HORIZ. TELE. HIDEAWAY	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-126-3	IEC CBY03	HORIZ. TELE. HIDEAWAY	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-127-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-127-2	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-128-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-131-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-132-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-133-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-134-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-135-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-136-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-137-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-138-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-139-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-140-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-141-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-142-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-143-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-144-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-145-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-146-1	IEC CXB02	HORIZ. EXPOSED CABINET	291	1" THROWAWAY	8.3	6.2	80.0	67.0	42.0	53.0	1.5	5.3	3	8.5	70.0	97.2	180.0	146.0	0.5	0.2	1	120 / 1	0.5	83.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-147-1	IEC CBY06	HORIZ. TELE. HIDEAWAY	621	1" THROWAWAY	19.3	14.3	80.0	67.0	42.0	57.3	2.5	4.5	4	21.7	70.0	102.4	180.0	151.1	1.5	1.8	1	120 / 1	1.6	153.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-156-1	IEC CBY02	HORIZ. TELE. HIDEAWAY	291	1" THROWAWAY	8.3	6.2	80.0	67.0	42.0	53.0	1.5	5.3	3	8.5	70.0	97.2	180.0	146.0	0.5	0.2	1	120 / 1	0.5	83.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-163-1	IEC CBY04	HORIZ. TELE. HIDEAWAY	400	1" THROWAWAY	13.8	8.3	80.0	67.0	42.0	55.8	2.0	12.5	4	15.5	70.0	105.7	180.0	149.0	1.0	0.8	1	120 / 1	1.4	144.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-166-1	IEC CBY04	HORIZ. TELE. HIDEAWAY	400	1" THROWAWAY	13.8	8.3	80.0	67.0	42.0	55.8	2.0	12.5	4	15.5	70.0	105.7	180.0	149.0	1.0	0.8	1	120 / 1	1.4	144.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-167-1	IEC CPY03	HORIZ. HIDEAWAY W/ PLENUM	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-170-1	IEC CBY03	HORIZ. TELE. HIDEAWAY	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-1001-1	IEC CBY04	HORIZ. TELE. HIDEAWAY	400	1" THROWAWAY	13.8	8.3	80.0	67.0	42.0	55.8	2.0	12.5	4	15.5	70.0	105.7	180.0	149.0	1.0	0.8	1	120 / 1	1.4	144.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-1001-2	IEC FSY08	FLOOR MOUNTED	800	1" THROWAWAY	20.6	14.1	80.0	67.0	42.0	53.8	3.5	12.5	4	27.8	70.0	102.0	180.0	142.9	1.5	2.0	1	120 / 1	1.9	195.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-1001-3	IEC FSY08	FLOOR MOUNTED	800	1" THROWAWAY	20.6	14.1	80.0	67.0	42.0	53.8	3.5	12.5	4	27.8	70.0	102.0	180.0	142.9	1.5	2.0	1	120 / 1	1.9	195.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-1001-4	IEC CBY04	HORIZ. TELE. HIDEAWAY	400	1" THROWAWAY	13.8	8.3	80.0	67.0	42.0	55.8	2.0	12.5	4	15.5	70.0	105.7	180.0	149.0	1.0	0.8	1	120 / 1	1.4	144.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-1001-5	IEC CBY04	HORIZ. TELE. HIDEAWAY	400	1" THROWAWAY	13.8	8.3	80.0	67.0	42.0	55.8	2.0	12.5	4	15.5	70.0	105.7	180.0	149.0	1.0	0.8	1	120 / 1	1.4	144.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-1002-1	IEC CBY03	HORIZ. TELE. HIDEAWAY	326	1" THROWAWAY	8.6	5.7	80.0	67.0	42.0	53.5	1.5	12.5	4	11.6	70.0	105.6	180.0	151.0	0.8	0.5	1	120 / 1	0.8	80.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-1004-1	IEC CBY03	HORIZ. TELE. HIDEAWAY	326	1" THROWAWAY	8.6	5.7	80.0	67.0	42.0	53.5	1.5	12.5	4	11.6	70.0	105.6	180.0	151.0	0.8	0.5	1	120 / 1	0.8	80.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-1009-1	IEC CBY03	HORIZ. TELE. HIDEAWAY	326	1" THROWAWAY	8.6	5.7	80.0	67.0	42.0	53.5	1.5	12.5	4	11.6	70.0	105.6	180.0	151.0	0.8	0.5	1	120 / 1	0.8	80.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.

EXHAUST FAN SCHEDULE

DESIGNATION	REFERENCE PRODUCT	TYPE	LOCATION	DRIVE	WEIGHT (LBS)	AIRFLOW (CFM)	ESP (IN WG)	RPM	SONES	BHP	MHP	VOLTAGE/ PHASE	REMARKS
EF-1	COOK ACED 150C15D	DOWNBLAST	ROOF	DIRECT	150	2150	1.0	1550	15.2	0.59	3/4	120 / 1	ROOF CURB, BIRD SCREEN, INTEGRAL DISCONNECT SWITCH, BACKDRAFT DAMPER, ECM MOTOR WITH TYPICAL CONTROLLER FOR BALANCING
EF-2	COOK ACED 150C15D	DOWNBLAST	ROOF	DIRECT	150	2080	1.0	1371	14.8	0.56	3/4	120 / 1	ROOF CURB, BIRD SCREEN, INTEGRAL DISCONNECT SWITCH, BACKDRAFT DAMPER, ECM MOTOR WITH TYPICAL CONTROLLER FOR BALANCING
EF-129-1	COOK GC-148	CEILING MOUNTED	PRIVATE BATHROOM	DIRECT	20	75	0.50	937	2.0	36 W	-	120 / 1	FACTORY INSTALLED SPEED CONTROLLER
EF-165	COOK GC-146	CEILING MOUNTED	PRIVATE BATHROOM	DIRECT	20	75	0.25	900	1.2	31 W	-	120 / 1	FACTORY INSTALLED SPEED CONTROLLER

Stocks Mann Architects, PLC

W

Bernhard TME Engineering

Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature

ANTHONY J. ROBESON
NO. 7856

5/10/19

Bernhard TME, LLC
No. 2790

No.	Description	Date

UCA Housing Renovations - Phase 2
State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

Contents

SCHEDULES - HVAC

Sheet Number

M0.2

5/9/2019 1:36:19 PM

FAN COIL UNIT SCHEDULE - SECOND FLOOR

DESIGNATION	REFERENCE PRODUCT	TYPE	SUPPLY AIRFLOW (CFM)	FILTER TYPE	COOLING									HEATING									ELECTRICAL			REMARKS
					TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	EDB (ºF)	EWB (ºF)	EWT (ºF)	LWT (ºF)	WATER FLOW (GPM)	WATER DP (FT. WC)	COIL ROWS	TOTAL CAPACITY (MBH)	EDB (ºF)	EWB (ºF)	EWT (ºF)	LWT (ºF)	WATER FLOW (GPM)	WATER DP (FT WC)	COIL ROWS	VOLTAGE/ PHASE	FLA	MOTOR WATTS	
FCU-201-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-202-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-203-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-204-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-205-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-206-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-207-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-208-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-209-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-210-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-211-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-212-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-213-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-214-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-215-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-216-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-217-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-218-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-219-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-220-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-221-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-222-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-223-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-224-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-225-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-226-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-227-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-228-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-229-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-230-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-231-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-232-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-233-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-234-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-235-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-236-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-237-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-238-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-239-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-240-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-241-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-242-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-243-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-244-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-245-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-246-1	IEC CXB02	HORIZ. EXPOSED CABINET	291	1" THROWAWAY	8.3	6.2	80.0	67.0	42.0	53.0	1.5	5.3	3	8.5	70.0	97.2	180.0	146.0	0.5	0.2	1	120 / 1	0.5	83.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-254-1	IEC CBY04	HORIZ. TELE. HIDEAWAY	400	1" THROWAWAY	13.8	8.3	80.0	67.0	42.0	55.8	2.0	12.5	4	15.5	70.0	105.7	180.0	149.0	1.0	0.8	1	120 / 1	1.4	144.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-256-1	IEC CBY03	HORIZ. TELE. HIDEAWAY	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-258-1	IEC CBY03	HORIZ. TELE. HIDEAWAY	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-260-1	IEC CBY02	HORIZ. TELE. HIDEAWAY	291	1" THROWAWAY	8.3	6.2	80.0	67.0	42.0	53.0	1.5	5.3	3	8.5	70.0	97.2	180.0	146.0	0.5	0.2	1	120 / 1	0.5	83.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-267-1	IEC CBY02	HORIZ. TELE. HIDEAWAY	291	1" THROWAWAY	8.3	6.2	80.0	67.0	42.0	53.0	1.5	5.3	3	8.5	70.0	97.2	180.0	146.0	0.5	0.2	1	120 / 1	0.5	83.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-2001-1	IEC CBY03	HORIZ. TELE. HIDEAWAY	326	1" THROWAWAY	8.6	5.7	80.0	67.0	42.0	53.5	1.5	12.5	4	11.6	70.0	105.6	180.0	151.0	0.8	0.5	1	120 / 1	0.8	80.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-2005-1	IEC CBY03	HORIZ. TELE. HIDEAWAY	326	1" THROWAWAY	8.6	5.7	80.0	67.0	42.0	53.5	1.5	12.5	4	11.6	70.0	105.6	180.0	151.0	0.8	0.5	1	120 / 1	0.8	80.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-2007-1	IEC CBY03	HORIZ. TELE. HIDEAWAY	326	1" THROWAWAY	8.6	5.7	80.0	67.0	42.0	53.5	1.5	12.5	4	11.6	70.0	105.6	180.0	151.0	0.8	0.5	1	120 / 1	0.8	80.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.

Stocks Mann Architects, PLC

W

Bernhard TME Engineering

Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature

ANTHONY J. ROBESON
NO. 7856

Bernhard TME, LLC
No. 2790

5/10/19

No.	Description	Date

UCA Housing
Renovations - Phase 2
State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

Contents

SCHEDULES - HVAC

Sheet Number

M0.3

5/9/2019 1:36:21 PM

FAN COIL UNIT SCHEDULE - THIRD FLOOR

DESIGNATION	REFERENCE PRODUCT	TYPE	SUPPLY AIRFLOW (CFM)	FILTER TYPE	COOLING									HEATING								ELECTRICAL			REMARKS
					TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	EDB (ºF)	EWB (ºF)	EWT (ºF)	LWT (ºF)	WATER FLOW (GPM)	WATER DP (FT. WC)	COIL ROWS	TOTAL CAPACITY (MBH)	EDB (ºF)	EWB (ºF)	EWT (ºF)	LWT (ºF)	WATER FLOW (GPM)	WATER DP (FT WC)	COIL ROWS	VOLTAGE/ PHASE	FLA	MOTOR WATTS	
FCU-301-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-302-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-303-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-304-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-305-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-306-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-307-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-308-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-309-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-310-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-311-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-312-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-313-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-314-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-315-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-316-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-317-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-318-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-319-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-320-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-321-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-322-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-323-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-324-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-325-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-326-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-327-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-328-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-329-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-330-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-331-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-332-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-333-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-334-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-335-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-336-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-337-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-338-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-339-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-340-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-341-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-342-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-343-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-344-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-345-1	IEC CXB03	HORIZ. EXPOSED CABINET	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-346-1	IEC CXB02	HORIZ. EXPOSED CABINET	291	1" THROWAWAY	8.3	6.2	80.0	67.0	42.0	53.0	1.5	5.3	3	8.5	70.0	97.2	180.0	146.0	0.5	0.2	1	120 / 1	0.5	83.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-354-1	IEC CBY04	HORIZ. TELE. HIDEAWAY	400	1" THROWAWAY	13.8	8.3	80.0	67.0	42.0	55.8	2.0	12.5	4	15.5	70.0	105.7	180.0	149.0	1.0	0.8	1	120 / 1	1.4	144.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-356-1	IEC CBY03	HORIZ. TELE. HIDEAWAY	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-358-1	IEC CBY03	HORIZ. TELE. HIDEAWAY	326	1" THROWAWAY	11.9	8.3	80.0	67.0	42.0	53.8	2.0	12.5	4	11.2	70.0	101.9	180.0	152.0	0.8	0.5	1	120 / 1	0.8	85.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-360-1	IEC CBY02	HORIZ. TELE. HIDEAWAY	291	1" THROWAWAY	8.3	6.2	80.0	67.0	42.0	53.0	1.5	5.3	3	8.5	70.0	97.2	180.0	146.0	0.5	0.2	1	120 / 1	0.5	83.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-367-1	IEC CBY02	HORIZ. TELE. HIDEAWAY	291	1" THROWAWAY	8.3	6.2	80.0	67.0	42.0	53.0	1.5	5.3	3	8.5	70.0	97.2	180.0	146.0	0.5	0.2	1	120 / 1	0.5	83.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-3001-1	IEC CBY03	HORIZ. TELE. HIDEAWAY	326	1" THROWAWAY	8.6	5.7	80.0	67.0	42.0	53.5	1.5	12.5	4	11.6	70.0	105.6	180.0	151.0	0.8	0.5	1	120 / 1	0.8	80.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-3005-1	IEC CBY03	HORIZ. TELE. HIDEAWAY	326	1" THROWAWAY	8.6	5.7	80.0	67.0	42.0	53.5	1.5	12.5	4	11.6	70.0	105.6	180.0	151.0	0.8	0.5	1	120 / 1	0.8	80.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.
FCU-3007-1	IEC CBY03	HORIZ. TELE. HIDEAWAY	326	1" THROWAWAY	8.6	5.7	80.0	67.0	42.0	53.5	1.5	12.5	4	11.6	70.0	105.6	180.0	151.0	0.8	0.5	1	120 / 1	0.8	80.0	PIPING PACKAGE, 3 SPEED MOTOR, TERMINAL BLOCK, STAINLESS STEEL OR PLASTIC DRAIN PAN, INTEGRAL DISCONNECT. CONTROL VALVES, CONTROLLER AND THERMOSTAT BY ATC CONTRACTOR.

Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature

ANTHONY J. ROBESON
NO. 7856

5/10/19

Bernhard TME, LLC
No. 2790

No.	Description	Date

UCA Housing
Renovations - Phase 2
State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

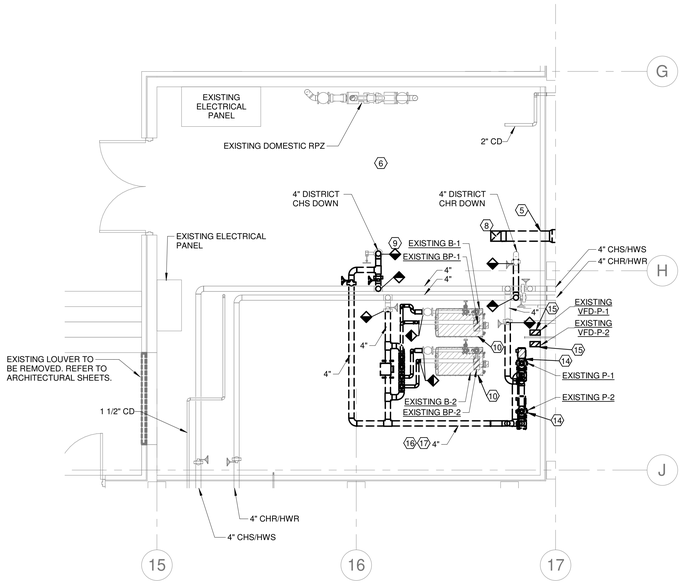
Contents

SCHEDULES - HVAC

Sheet Number

M0.4

5/9/2019 1:36:23 PM



N 2 MECHANICAL ROOM ENLARGED DEMOLITION PLAN - HVAC

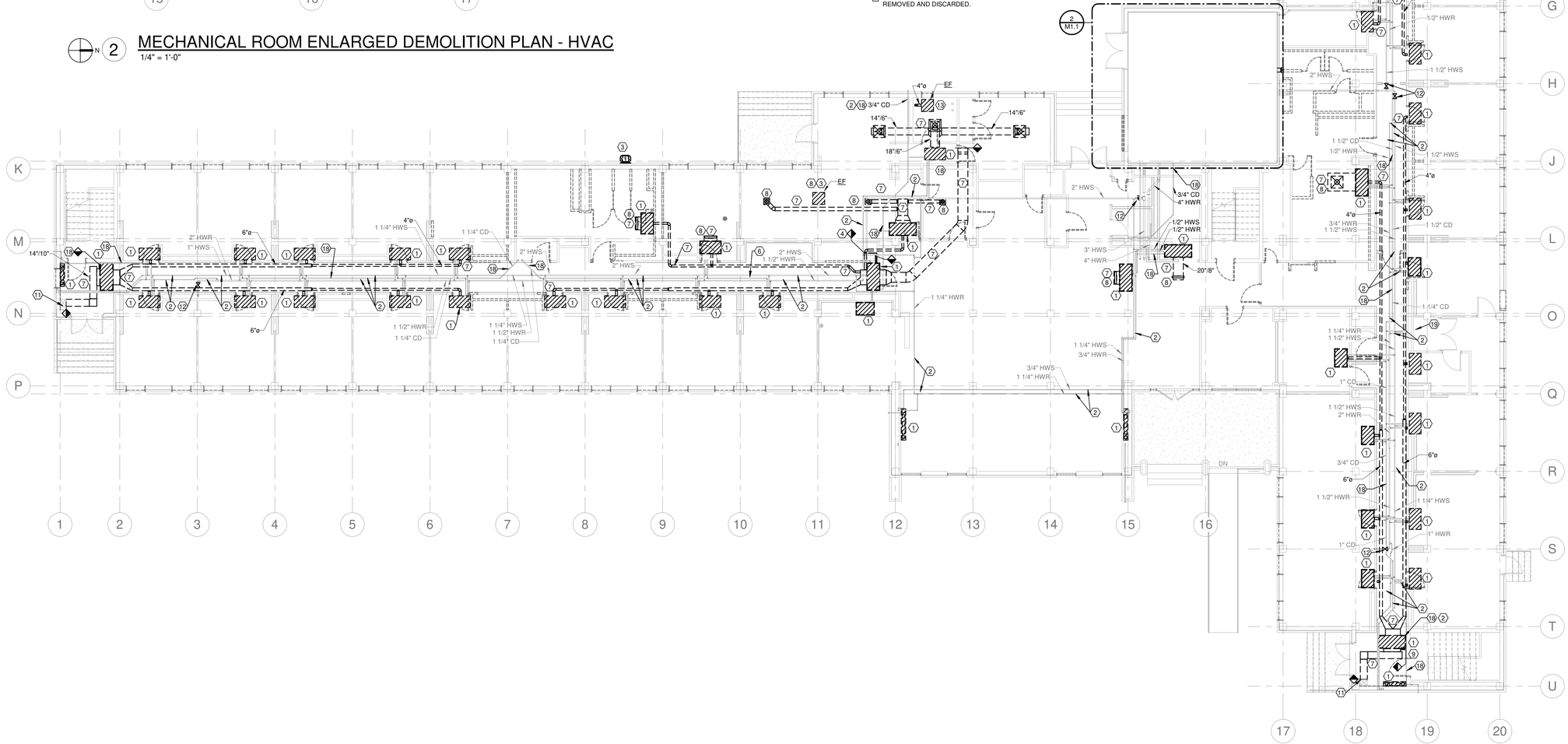
1/4" = 1'-0"

GENERAL NOTES

1. PROTECT EXISTING BUILDING COMPONENTS TO REMAIN, SUCH AS BUT NOT LIMITED TO, TELECOMMUNICATIONS CABLING AND EQUIPMENT, CONDUIT, PIPING, INSULATION, ELECTRICAL DEVICES AND DATA JACKS FROM DAMAGE, DEBRIS, DUST AND LOSS OF USE DURING ALL PHASES OF CONSTRUCTION. COMPONENTS THAT ARE DAMAGED OR BECOME DIRTY DURING THE CONSTRUCTION PHASE ARE TO BE REPLACED OR CLEANED TO ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
2. NOTIFY ENGINEER OF RECORD OF ANY EXISTING CONDITIONS THAT DO NOT MATCH THOSE INDICATED THAT WILL AFFECT THE NEW WORK TO BE PERFORMED.
3. ALL DUCT, CONTROLS AND PIPING COMPONENTS SHALL BE REMOVED. NOTHING SHALL REMAIN ABANDONED IN PLACE UNLESS OTHERWISE NOTED.
4. ALL EXISTING ISOLATION GATE VALVES TO BE REMOVED AND REPLACED WITH ISOLATION BALL VALVES WHETHER SHOWN ON DRAWINGS OR NOT.
5. THE CONTROL WIRE IS TO REMAIN CONNECTED TO THE BOILER DURING CONSTRUCTION AND IS TO ONLY BE DISCONNECTED AND RECONNECTED AT THE CONTROL PANEL. COORDINATE BOILER MODIFICATIONS WITH THE UCA CONTROLS SHOP.
6. ALL EXISTING PRESSURE RELIEF VALVES ON EXISTING HEATING/CHILLED WATER SYSTEM TO BE REPLACED.
7. CONTROLS CONTRACTOR TO COORDINATE ALL TERMINATIONS/CONNECTIONS AT BOILERS WITH UCA CONTROLS SHOP.

KEYED DEMOLITION NOTES:

1. REMOVE AND DISPOSE OF EXISTING FAN COIL UNIT.
2. REMOVE AND DISPOSE OF INSULATION ON EXISTING EXPOSED HEATING / CHILLED WATER AND CONDENSATE DRAIN PIPING.
3. REMOVE AND DISPOSE OF EXISTING EXHAUST FAN. PATCH, REPAIR, INSULATE AND SEAL WALL OPENING TO MATCH EXISTING CONDITIONS. REFER TO ARCHITECTURAL SHEETS FOR CONSTRUCTION REQUIREMENTS.
4. REMOVE AND DISPOSE OF EXISTING HEATING / CHILLED WATER PIPING TO POINT INDICATED ON DRAWING.
5. PATCH HOLE IN WALL AS REQUIRED TO MATCH EXISTING.
6. EXISTING CONCRETE HOUSEKEEPING PADS IN THIS AREA TO REMAIN.
7. REMOVE AND DISPOSE OF EXISTING DUCTWORK TO POINT INDICATED ON DRAWING.
8. REMOVE AND DISPOSE OF EXISTING AIR DEVICE.
9. REMOVE EXISTING PIPING BACK TO ISOLATION VALVE.
10. EXISTING BOILER AND ASSOCIATED BOILER PUMP TO REMAIN.
11. EXISTING DUCTWORK IN RISER CHASE TO REMAIN ABANDONED IN PLACE. CONTRACTOR SHALL CAP, SEAL AND INSULATE DUCT AT PENETRATION AT RISER.
12. EXISTING ISOLATION GATE VALVE TO BE REMOVED AND DISCARDED.
13. REMOVE AND DISPOSE OF EXISTING EXHAUST FAN. DUCT AND ROOF PENETRATION TO REMAIN.
14. REMOVE AND DISPOSE OF EXISTING HEATING WATER PUMP AND ASSOCIATED PIPING BACK TO POINT INDICATED.
15. REMOVE EXISTING VFD AND RETURN TO OWNER.
16. EXISTING FLOW METER TO BE REMOVED BY OWNER AND PROVIDED TO MECHANICAL CONTRACTOR FOR INSTALLATION IN NEW WORK.
17. MECHANICAL CONTRACTOR TO REMOVE AND DISCARD ALL EXISTING PIPING INSULATION IN MECHANICAL ROOM.
18. EXISTING CONDENSATE DRAIN PIPING TO REMAIN.
19. EXISTING DRYER VENT PIPE AND FLEX DUCT TO BE REMOVED AND DISCARDED.



N 1 FIRST FLOOR DEMOLITION PLAN - HVAC

1/8" = 1'-0"

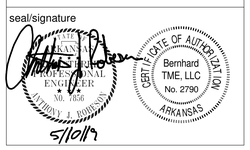
Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature



No.	Description	Date

UCA Housing Renovations - Phase 2 State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

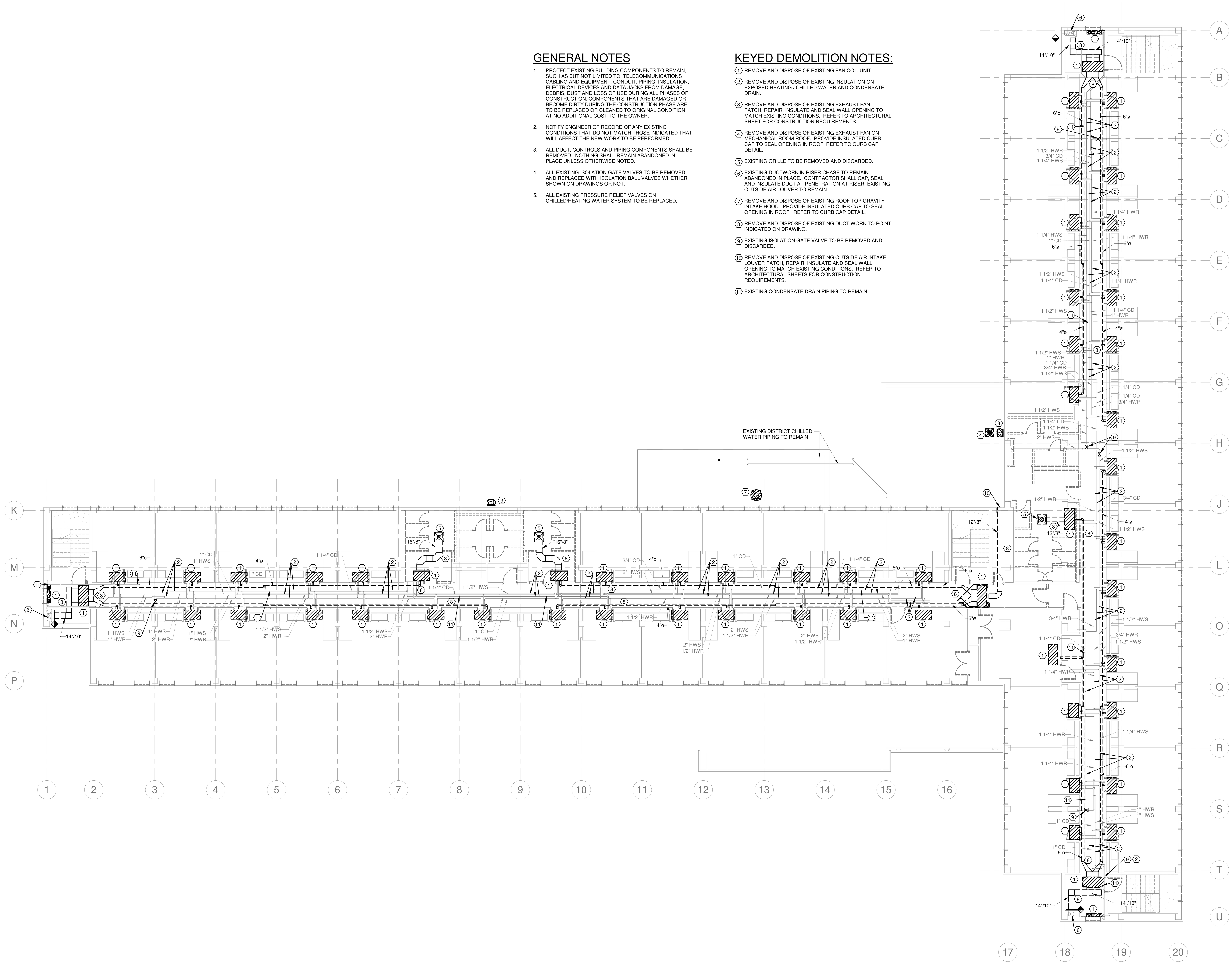
Contents

FIRST FLOOR DEMOLITION PLAN - HVAC

Sheet Number

M1.1

5/9/2019 1:36:36 PM



GENERAL NOTES

1. PROTECT EXISTING BUILDING COMPONENTS TO REMAIN, SUCH AS BUT NOT LIMITED TO, TELECOMMUNICATIONS CABLING AND EQUIPMENT, CONDUIT, PIPING, INSULATION, ELECTRICAL DEVICES AND DATA JACKS FROM DAMAGE, DEBRIS, DUST AND LOSS OF USE DURING ALL PHASES OF CONSTRUCTION. COMPONENTS THAT ARE DAMAGED OR BECOME DIRTY DURING THE CONSTRUCTION PHASE ARE TO BE REPLACED OR CLEANED TO ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
2. NOTIFY ENGINEER OF RECORD OF ANY EXISTING CONDITIONS THAT DO NOT MATCH THOSE INDICATED THAT WILL AFFECT THE NEW WORK TO BE PERFORMED.
3. ALL DUCT, CONTROLS AND PIPING COMPONENTS SHALL BE REMOVED. NOTHING SHALL REMAIN ABANDONED IN PLACE UNLESS OTHERWISE NOTED.
4. ALL EXISTING ISOLATION GATE VALVES TO BE REMOVED AND REPLACED WITH ISOLATION BALL VALVES WHETHER SHOWN ON DRAWINGS OR NOT.
5. ALL EXISTING PRESSURE RELIEF VALVES ON CHILLED/HEATING WATER SYSTEM TO BE REPLACED.

KEYED DEMOLITION NOTES:

1. REMOVE AND DISPOSE OF EXISTING FAN COIL UNIT.
2. REMOVE AND DISPOSE OF EXISTING INSULATION ON EXPOSED HEATING / CHILLED WATER AND CONDENSATE DRAIN.
3. REMOVE AND DISPOSE OF EXISTING EXHAUST FAN. PATCH, REPAIR, INSULATE AND SEAL WALL OPENING TO MATCH EXISTING CONDITIONS. REFER TO ARCHITECTURAL SHEET FOR CONSTRUCTION REQUIREMENTS.
4. REMOVE AND DISPOSE OF EXISTING EXHAUST FAN ON MECHANICAL ROOM ROOF. PROVIDE INSULATED CURB CAP TO SEAL OPENING IN ROOF. REFER TO CURB CAP DETAIL.
5. EXISTING GRILLE TO BE REMOVED AND DISCARDED.
6. EXISTING DUCTWORK IN RISER CHASE TO REMAIN ABANDONED IN PLACE. CONTRACTOR SHALL CAP, SEAL AND INSULATE DUCT AT PENETRATION AT RISER. EXISTING OUTSIDE AIR LOUVER TO REMAIN.
7. REMOVE AND DISPOSE OF EXISTING ROOF TOP GRAVITY INTAKE HOOD. PROVIDE INSULATED CURB CAP TO SEAL OPENING IN ROOF. REFER TO CURB CAP DETAIL.
8. REMOVE AND DISPOSE OF EXISTING DUCT WORK TO POINT INDICATED ON DRAWING.
9. EXISTING ISOLATION GATE VALVE TO BE REMOVED AND DISCARDED.
10. REMOVE AND DISPOSE OF EXISTING OUTSIDE AIR INTAKE LOUVER PATCH, REPAIR, INSULATE AND SEAL WALL OPENING TO MATCH EXISTING CONDITIONS. REFER TO ARCHITECTURAL SHEETS FOR CONSTRUCTION REQUIREMENTS.
11. EXISTING CONDENSATE DRAIN PIPING TO REMAIN.

1 SECOND FLOOR DEMOLITION PLAN - HVAC

1/8" = 1'-0"

Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature

CERTIFICATE OF AUTHORIZATION
Bernhard TME, LLC
No. 2790
ARKANSAS

5/10/19

No.	Description	Date

UCA Housing Renovations - Phase 2
State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

Contents

SECOND FLOOR DEMOLITION PLAN - HVAC

Sheet Number

M1.2

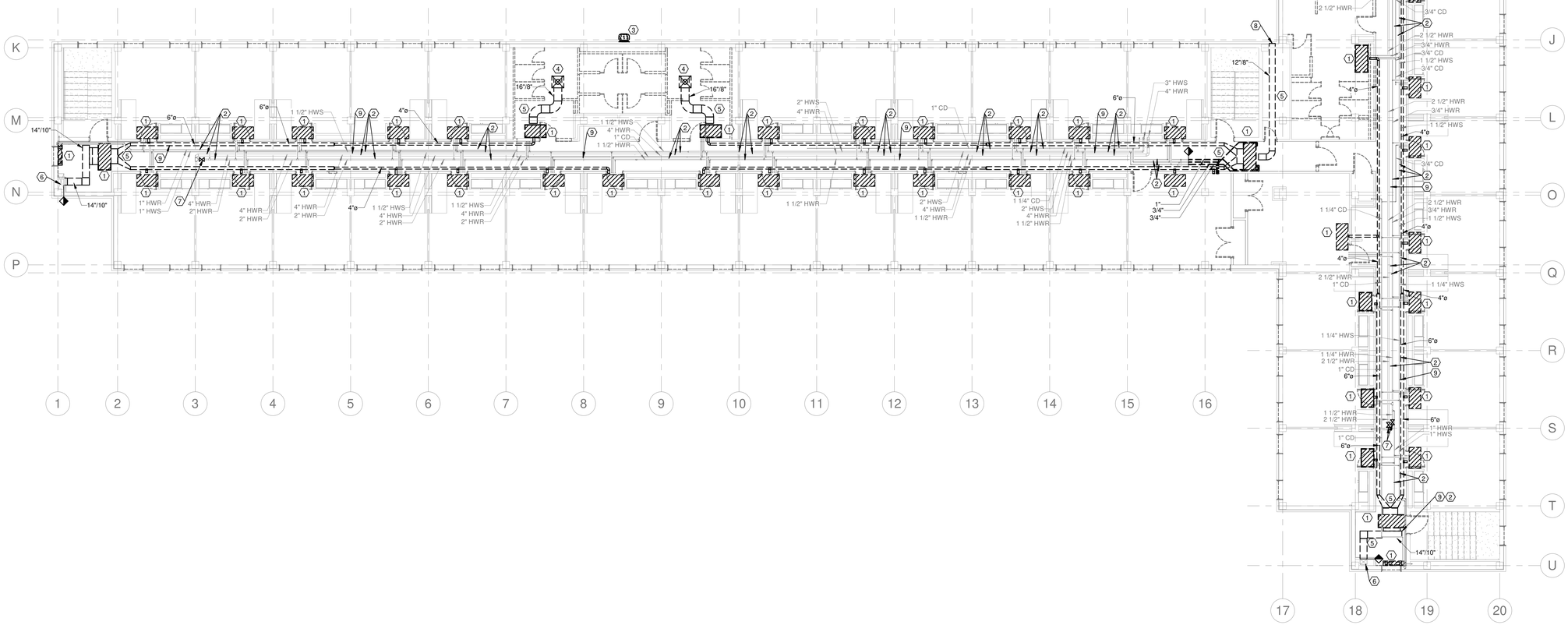
5/9/2019 1:36:43 PM

GENERAL NOTES

1. PROTECT EXISTING BUILDING COMPONENTS TO REMAIN, SUCH AS BUT NOT LIMITED TO, TELECOMMUNICATIONS CABLING AND EQUIPMENT, CONDUIT, PIPING, INSULATION, ELECTRICAL DEVICES AND DATA JACKS FROM DAMAGE, DEBRIS, DUST AND LOSS OF USE DURING ALL PHASES OF CONSTRUCTION. COMPONENTS THAT ARE DAMAGED OR BECOME DIRTY DURING THE CONSTRUCTION PHASE ARE TO BE REPLACED OR CLEANED TO ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
2. NOTIFY ENGINEER OF RECORD OF ANY EXISTING CONDITIONS THAT DO NOT MATCH THOSE INDICATED THAT WILL AFFECT THE NEW WORK TO BE PERFORMED.
3. ALL DUCT, CONTROLS AND PIPING COMPONENTS SHALL BE REMOVED. NOTHING SHALL REMAIN ABANDONED IN PLACE UNLESS OTHERWISE NOTED.
4. ALL EXISTING ISOLATION GATE VALVES TO BE REMOVED AND REPLACED WITH ISOLATION BALL VALVES WHETHER SHOWN ON DRAWINGS OR NOT.
5. ALL EXISTING PRESSURE RELIEF VALVES ON CHILLED/HEATING WATER SYSTEM TO BE REPLACED.

KEYED DEMOLITION NOTES:

1. REMOVE AND DISPOSE OF EXISTING FAN COIL UNIT.
2. REMOVE AND DISPOSE OF EXISTING INSULATION ON EXPOSED HEATING / CHILLED WATER AND CONDENSATE DRAIN PIPING.
3. REMOVE AND DISPOSE OF EXISTING EXHAUST FAN. PATCH, REPAIR, INSULATE AND SEAL WALL OPENING TO MATCH EXISTING CONDITIONS. REFER TO ARCHITECTURAL SHEET CONSTRUCTION REQUIREMENTS.
4. EXISTING GRILLE TO BE REMOVED AND DISCARDED.
5. REMOVE AND DISPOSE OF EXISTING DUCTWORK TO POINT INDICATED ON DRAWING.
6. EXISTING DUCTWORK IN RISER CHASE TO REMAIN ABANDONED IN PLACE. CONTRACTOR SHALL CAP, SEAL AND INSULATE DUCT AT PENETRATION AT RISER.
7. EXISTING ISOLATION GATE VALVE TO BE REMOVED AND DISCARDED.
8. REMOVE AND DISCARD EXISTING OUTSIDE AIR LOUVER. PATCH, REPAIR, INSULATE AND SEAL WALL OPENING TO MATCH EXISTING CONDITIONS. REFER TO ARCHITECTURAL SHEETS FOR CONTRUCTION REQUIREMENTS.
9. EXISTING CONDENSATE DRAIN PIPING TO REMAIN.



N 1 THIRD FLOOR DEMOLITION PLAN - HVAC
1/8" = 1'-0"

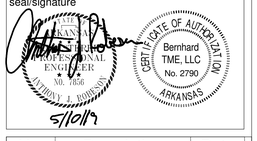
Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature



No.	Description	Date

UCA Housing Renovations - Phase 2 State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

Contents

THIRD FLOOR DEMOLITION PLAN - HVAC

Sheet Number

M1.3

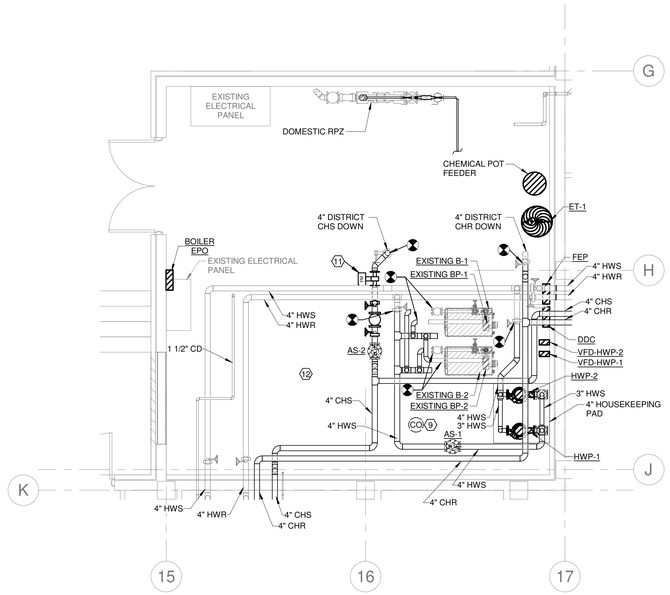
5/9/2019 1:36:49 PM

GENERAL NOTES

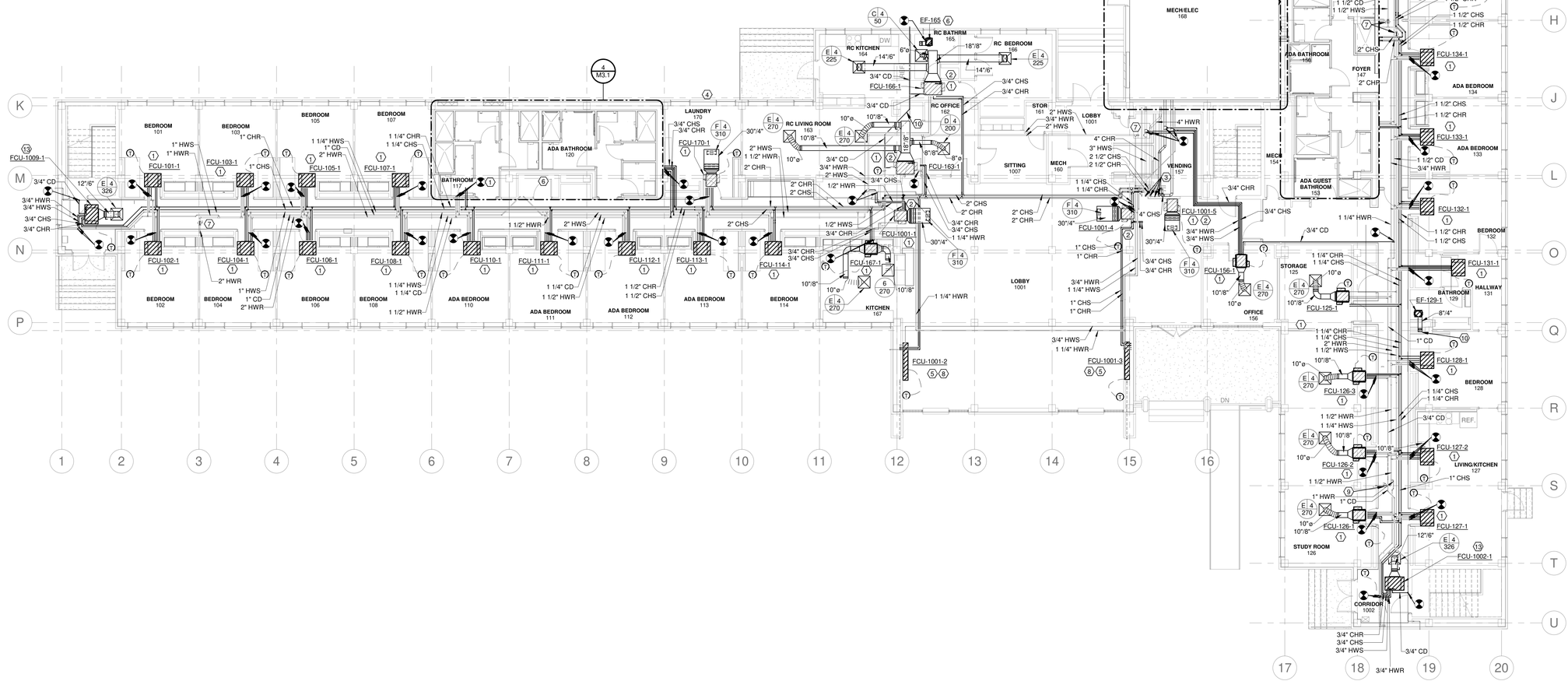
1. PROTECT EXISTING BUILDING COMPONENTS TO REMAIN, SUCH AS BUT NOT LIMITED TO, TELECOMMUNICATIONS CABLING AND EQUIPMENT, CONDUIT, PIPING, INSULATION, ELECTRICAL DEVICES AND DATA JACKS FROM DAMAGE, DEBRIS, DUST AND LOSS OF USE DURING ALL PHASES OF CONSTRUCTION. COMPONENTS THAT ARE DAMAGED OR BECOME DIRTY DURING THE CONSTRUCTION PHASE ARE TO BE REPLACED OR CLEANED TO ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
2. CONTRACTOR SHALL ENSURE ALL CONDENSATE DRAINS ARE CLEAN, SEALED, AND PROPERLY DRAINING.
3. ALL EXPOSED HEATING WATER PIPING AND CONDENSATE DRAIN PIPING SHALL BE REINSULATED.
4. ALL THERMOSTATS SHALL HAVE INTEGRAL HUMIDITY SENSORS.
5. ALL EXISTING ISOLATION GATE VALVES TO BE REMOVED AND REPLACED WITH ISOLATION BALL VALUES WHETHER SHOWN ON DRAWINGS OR NOT.
6. INSTALL FIRE DAMPERS PER FIRE DAMPER MANUFACTURER'S INSTRUCTIONS.
7. COORDINATE ALL ROOF AND FLOOR PENETRATIONS WITH STRUCTURAL DRAWINGS.
8. ALL EXISTING PRESSURE RELIEF VALVES ON HEATING WATER SYSTEM TO BE REPLACED.
9. CONTROLS CONTRACTOR TO COORDINATE ALL TERMINATIONS AND CONNECTIONS AT BOILERS WITH UCA CONTROLS SHOP.

KEYED NOTES:

1. EXTEND HEATING WATER SUPPLY AND HEATING WATER RETURN TO NEW LOCATION OF FAN COIL UNIT. PROVIDE 3/4 INCH CHILLED WATER SUPPLY, CHILLED WATER RETURN AND CONDENSATE DRAIN PIPING TO FAN COIL UNIT FROM MAIN CHILLED WATER SUPPLY & RETURN PIPING IN CORRIDOR. REFER TO DETAIL 12, SHEET M5.1.
2. PATCH CEILING AND PAINT AS REQUIRED TO MATCH EXISTING CONDITIONS AFTER FAN COIL UNIT INTSTALLATION.
3. 3" CHS/R, 3" HWS, 4" HWR UP TO 2ND FLOOR. PROVIDE RISER ISOLATION VALVE IN NEW AND EXISTING PIPE.
4. PROVIDE THREE 4 INCH DRYER VENT PENETRATIONS THROUGH THE WALL. SEAL AND INSULATE AROUND PENETRATIONS. PROVIDE DRYER VENT CAP WITH BACKDRAFT DAMPER. COORDINATE EXACT QUANTITY OF PENETRATIONS WITH OWNER. COORDINATE EXACT LOCATION WITH ARCHITECT.
5. INSTALL NEW FLOOR MOUNTED FAN COIL IN SAME LOCATION AS EXISTING. CONNECT NEW UNIT INTO EXISTING HEATING WATER PIPING.
6. CONNECT NEW EXHAUST FAN TO EXISTING EXHAUST DUCT.
7. REPLACE EXISTING GATE VALVE WITH FULL PORT BALL VALVE. MATCH EXISTING VALVE SIZE.
8. ROUTE NEW CHILLED WATER SUPPLY AND RETURN PIPING DOWN IN WALL TO NEW FAN COIL UNIT ON FLOOR. REFER TO ARCHITECTURAL DETAIL FOR BLOCKING AND/OR FURRING.
9. CARBON MONOXIDE MONITOR.
10. ROUTE EXHAUST DUCT UP IN CHASE TO EXHAUST RELIEF ON ROOF EQUIVALENT TO COOK MODEL PR.
11. OWNER TO PROVIDE EXISTING FLOW METER TO MECHANICAL CONTRACTOR. MECHANICAL CONTRACTOR TO INSTALL EXISTING FLOW METER AS SHOWN.
12. MECHANICAL CONTRACTOR TO INSULATE ALL NEW AND EXISTING PIPING IN MECHANICAL ROOM.
13. INSTALL NEW FAN COIL SERVING CORRIDOR IN SAME LOCATION AS EXISTING OUTSIDE AIR UNIT THAT WAS REMOVED. TIE NEW UNIT INTO EXISTING HEATING WATER AND CONDENSATE DRAIN PIPING. PROVIDE NEW 3/4" CHILLED WATER SUPPLY AND 3/4" CHILLED WATER RETURN PIPING TO FAN COIL FROM MAIN CHILLED WATER SUPPLY AND RETURN PIPING IN CORRIDOR.



N 2 MECHANICAL ROOM ENLARGED MECHANICAL ROOM PLAN - HVAC
1/4" = 1'-0"



N 1 FIRST FLOOR PLAN - HVAC
1/8" = 1'-0"

Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature

No.	Description	Date

UCA Housing Renovations - Phase 2 State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

Contents

FIRST FLOOR PLAN - HVAC

Sheet Number

M2.1

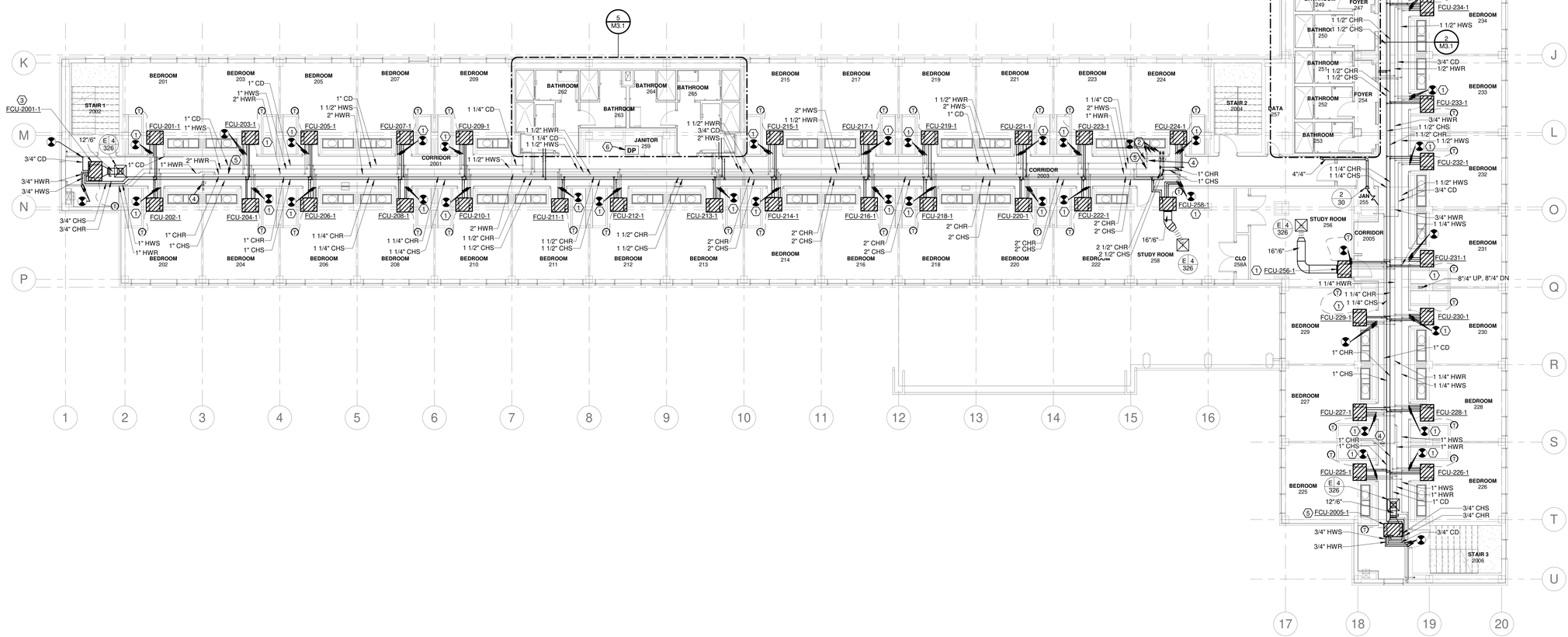
5/9/2019 1:37:04 PM

GENERAL NOTES

1. PROTECT EXISTING BUILDING COMPONENTS TO REMAIN, SUCH AS BUT NOT LIMITED TO, TELECOMMUNICATIONS CABLING AND EQUIPMENT, CONDUIT, PIPING, INSULATION, ELECTRICAL DEVICES AND DATA JACKS FROM DAMAGE, DEBRIS, DUST AND LOSS OF USE DURING ALL PHASES OF CONSTRUCTION. COMPONENTS THAT ARE DAMAGED OR BECOME DIRTY DURING THE CONSTRUCTION PHASE ARE TO BE REPLACED OR CLEANED TO ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
2. CONTRACTOR SHALL ENSURE ALL CONDENSATE DRAINS ARE CLEAN, SEALED, AND PROPERLY DRAINING.
3. ALL EXPOSED HEATING WATER PIPING AND CONDENSATE DRAIN PIPING SHALL BE REINSULATED.
4. ALL THERMOSTATS SHALL HAVE INTEGRAL HUMIDITY SENSORS.
5. ALL EXISTING ISOLATION GATE VALVES TO BE REMOVED AND REPLACED WITH ISOLATION BALL VALUES WHETHER SHOWN ON DRAWINGS OR NOT.
6. INSTALL FIRE DAMPERS PER FIRE DAMPER MANUFACTURER'S INSTRUCTIONS.
7. COORDINATE ALL ROOF AND FLOOR PENETRATIONS WITH STRUCTURAL DRAWINGS.
8. ALL EXISTING PRESSURE RELIEF VALVES ON HEATING WATER SYSTEM TO BE REPLACED.

KEYED NOTES:

1. EXTEND HEATING WATER SUPPLY AND HEATING WATER RETURN TO NEW LOCATION OF FAN COIL UNIT. PROVIDE 3/4 INCH CHILLED WATER SUPPLY, CHILLED WATER RETURN AND CONDENSATE TO FAN COIL UNIT FROM MAIN CHILLED WATER SUPPLY & RETURN AND CONDENSATE PIPING IN CORRIDOR.
2. 2-1/2" CHS/R UP, 3" CHS/R DN, 3" HWS UP AND DN, 4" HWR UP AND DN.
3. IINSTALL NEW FAN COIL SERVING CORRIDOR IN SAME LOCATION AS EXISTING OUTSIDE AIR UNIT THAT WAS REMOVED. TIE NEW UNIT INTO EXISTING HEATING WATER AND CONDENSATE DRAIN PIPING. PROVIDE NEW 3/4" CHILLED WATER SUPPLY AND 3/4" CHILLED WATER RETURN PIPING TO FAN COIL FROM MAIN CHILLED WATER SUPPLY AND RETURN PIPING IN CORRIDOR.
4. REPLACE EXISTING GATE VALVE WITH FULL PORT BALL VALVE. MATCH EXISTING VALVE SIZE.
5. REPLACE EXISTING GATE VALVE WITH FULL PORT BALL VALVE. MATCH EXISTING VALVE SIZE.
6. TIE NEW FAN COIL UNIT INTO EXISTING SUPPLY DUCTWORK.
7. PROVIDE THREE 4 INCH DRYER VENT PENETRATIONS THROUGH THE WALL. SEAL AND INSULATE AROUND PENETRATIONS. PROVIDE DRYER VENT CAP WITH BACKDRAFT DAMPER. COORDINATE EXACT QUANTITY OF PENETRATIONS WITH OWNER. COORDINATE EXACT LOCATION WITH ARCHITECT.



N 1 SECOND FLOOR PLAN - HVAC
1/8" = 1'-0"

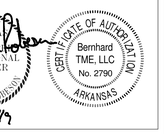
Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature



No.	Description	Date

UCA Housing Renovations - Phase 2 State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

Contents

SECOND FLOOR PLAN - HVAC

Sheet Number

M2.2

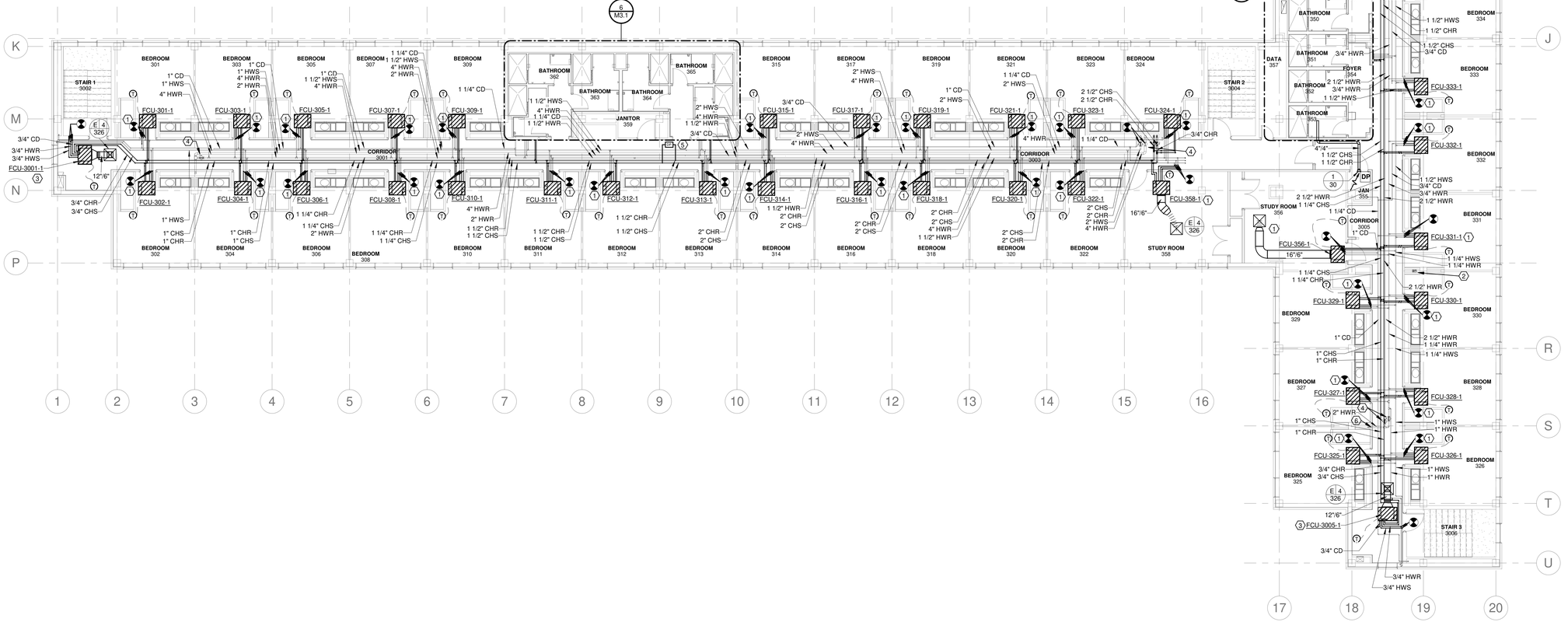
5/9/2019 1:37:09 PM

GENERAL NOTES

1. PROTECT EXISTING BUILDING COMPONENTS TO REMAIN, SUCH AS BUT NOT LIMITED TO, TELECOMMUNICATIONS CABLING AND EQUIPMENT, CONDUIT, PIPING, INSULATION, ELECTRICAL DEVICES AND DATA JACKS FROM DAMAGE, DEBRIS, DUST AND LOSS OF USE DURING ALL PHASES OF CONSTRUCTION. COMPONENTS THAT ARE DAMAGED OR BECOME DIRTY DURING THE CONSTRUCTION PHASE ARE TO BE REPLACED OR CLEANED TO ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
2. CONTRACTOR SHALL ENSURE ALL CONDENSATE DRAINS ARE CLEAN, SEALED, AND PROPERLY DRAINING.
3. ALL EXPOSED HEATING WATER PIPING AND CONDENSATE DRAIN PIPING SHALL BE REINSULATED.
4. ALL THERMOSTATS SHALL HAVE INTEGRAL HUMIDITY SENSORS.
5. ALL EXISTING ISOLATION GATE VALVES TO BE REMOVED AND REPLACED WITH ISOLATION BALL VALUES WHETHER SHOWN ON DRAWINGS OR NOT.
6. INSTALL FIRE DAMPERS PER FIRE DAMPER MANUFACTURER'S INSTRUCTIONS.
7. COORDINATE ALL ROOF AND FLOOR PENETRATIONS WITH STRUCTURAL DRAWINGS.
8. ALL EXISTING PRESSURE RELIEF VALVES ON HEATING WATER SYSTEM TO BE REPLACED.

KEYED NOTES:

1. EXTEND HEATING WATER SUPPLY AND HEATING WATER RETURN TO NEW LOCATION OF FAN COIL UNIT. PROVIDE 3/4 INCH CHILLED WATER SUPPLY, CHILLED WATER RETURN AND CONDENSATE TO FAN COIL UNIT FROM MAIN CHILLED WATER SUPPLY & RETURN AND CONDENSATE PIPING IN CORRIDOR.
2. 8/4 UP FROM 1ST FLOOR TO EXHAUST RELIEF ON ROOF EQUIVALENT TO COOK MODEL PR.
3. INSTALL NEW FAN COIL SERVING CORRIDOR IN SAME LOCATION AS EXISTING OUTSIDE AIR UNIT THAT WAS REMOVED. TIE NEW UNIT INTO EXISTING HEATING WATER AND CONDENSATE DRAIN PIPING. PROVIDE NEW 3/4" CHILLED WATER SUPPLY AND 3/4" CHILLED WATER RETURN PIPING TO FAN COIL FROM MAIN CHILLED WATER SUPPLY AND RETURN PIPING IN CORRIDOR.
4. REPLACE EXISTING GATE VALVE WITH FULL PORT BALL VALVE. MATCH EXISTING VALVE SIZE.
5. INSTALL NEW DIFFERENTIAL PRESSURE SENSOR ACROSS CHILLED WATER PIPING WHERE SHOWN.
6. INSTALL DIFFERENTIAL PRESSURE SENSOR ACROSS 2" HEATING WATER SUPPLY AND RETURN PIPING. CONNECTION POINT OF SENSOR TUBING INDICATED ON DRAWING.
7. HEATING WATER DIFFERENTIAL PRESSURE SENSOR LOCATED HIGH IN JANITOR'S CLOSET.
8. PROVIDE THREE 4 INCH DRYER VENT PENETRATIONS THROUGH THE WALL. SEAL AND INSULATE AROUND PENETRATIONS. PROVIDE DRYER VENT CAP WITH BACKDRAFT DAMPER. COORDINATE EXACT QUANTITY OF PENETRATIONS WITH OWNER. COORDINATE EXACT LOCATION WITH ARCHITECT.



N 1 THIRD FLOOR PLAN - HVAC
1/8" = 1'-0"

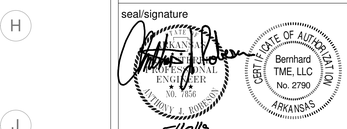
Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature



No.	Description	Date

UCA Housing Renovations - Phase 2
State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

Contents

THIRD FLOOR PLAN - HVAC

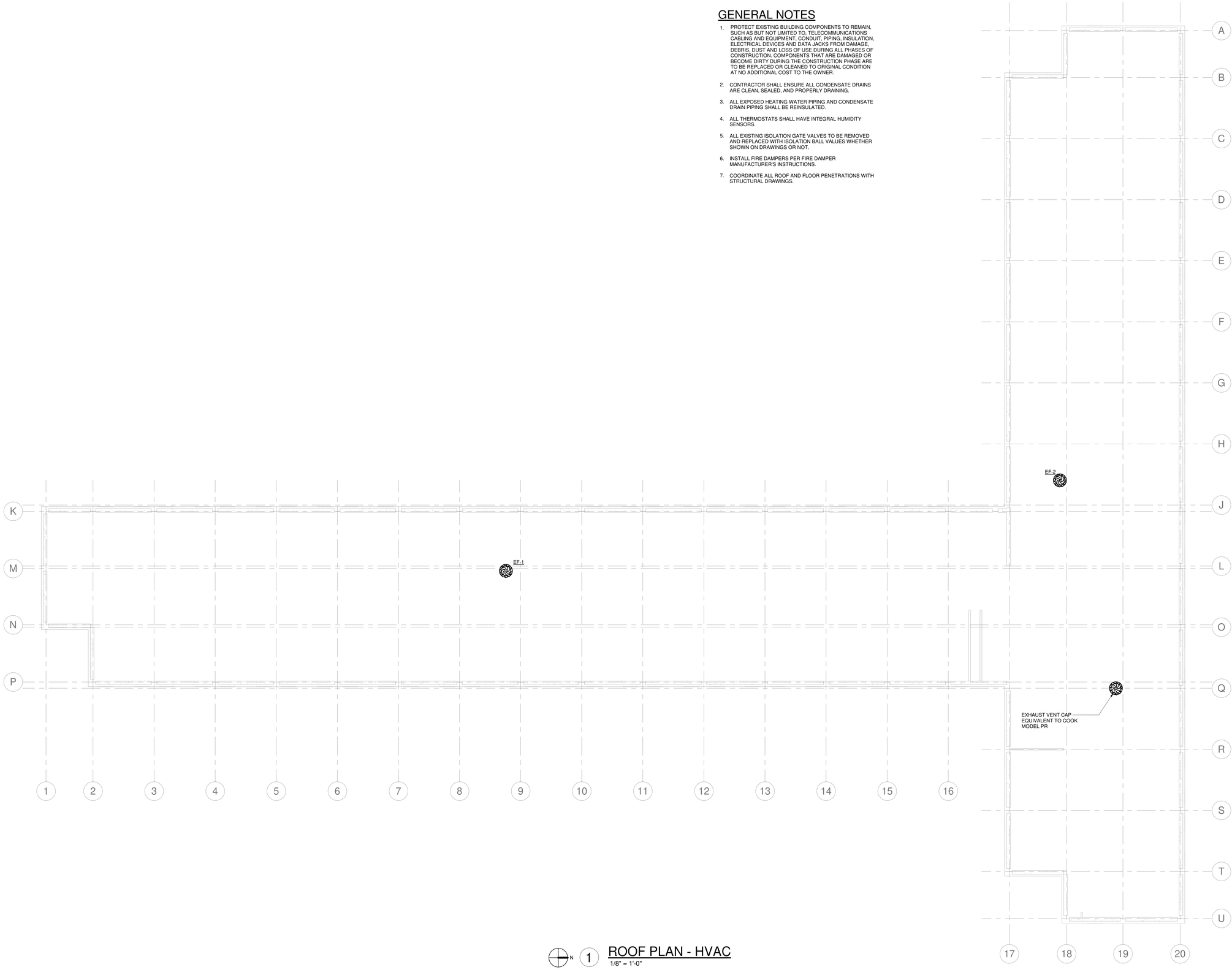
Sheet Number

M2.3

5/9/2019 1:37:13 PM

GENERAL NOTES

1. PROTECT EXISTING BUILDING COMPONENTS TO REMAIN, SUCH AS BUT NOT LIMITED TO, TELECOMMUNICATIONS CABLING AND EQUIPMENT, CONDUIT, PIPING, INSULATION, ELECTRICAL DEVICES AND DATA JACKS FROM DAMAGE, DEBRIS, DUST AND LOSS OF USE DURING ALL PHASES OF CONSTRUCTION. COMPONENTS THAT ARE DAMAGED OR BECOME DIRTY DURING THE CONSTRUCTION PHASE ARE TO BE REPLACED OR CLEANED TO ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
2. CONTRACTOR SHALL ENSURE ALL CONDENSATE DRAINS ARE CLEAN, SEALED, AND PROPERLY DRAINING.
3. ALL EXPOSED HEATING WATER PIPING AND CONDENSATE DRAIN PIPING SHALL BE REINSULATED.
4. ALL THERMOSTATS SHALL HAVE INTEGRAL HUMIDITY SENSORS.
5. ALL EXISTING ISOLATION GATE VALVES TO BE REMOVED AND REPLACED WITH ISOLATION BALL VALUES WHETHER SHOWN ON DRAWINGS OR NOT.
6. INSTALL FIRE DAMPERS PER FIRE DAMPER MANUFACTURER'S INSTRUCTIONS.
7. COORDINATE ALL ROOF AND FLOOR PENETRATIONS WITH STRUCTURAL DRAWINGS.



N 1 ROOF PLAN - HVAC
1/8" = 1'-0"

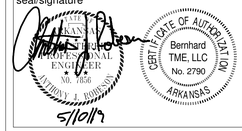
Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature



No.	Description	Date

UCA Housing Renovations - Phase 2 State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

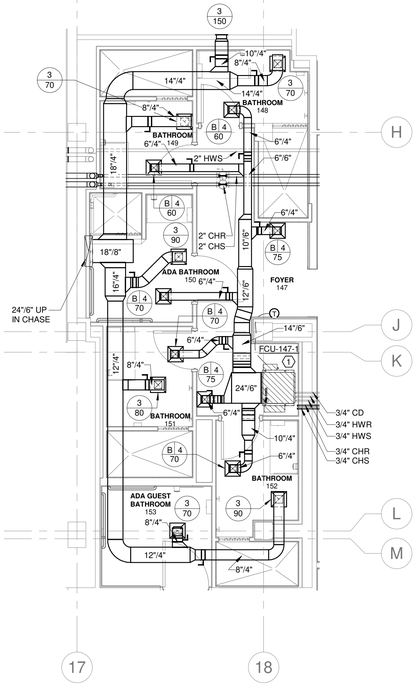
Contents

ROOF PLAN - HVAC

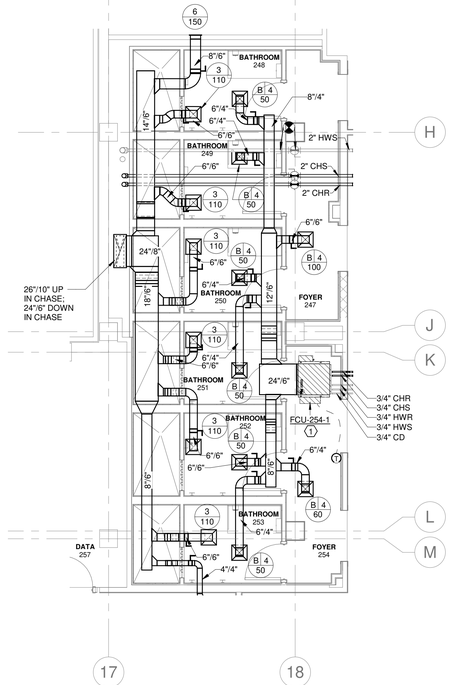
Sheet Number

M2.4

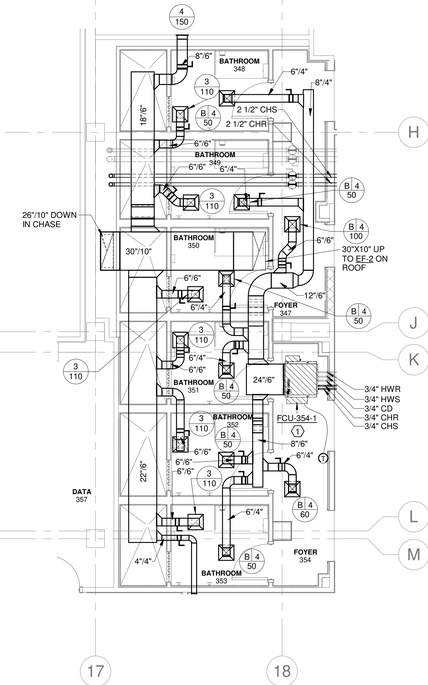
5/9/2019 1:37:15 PM



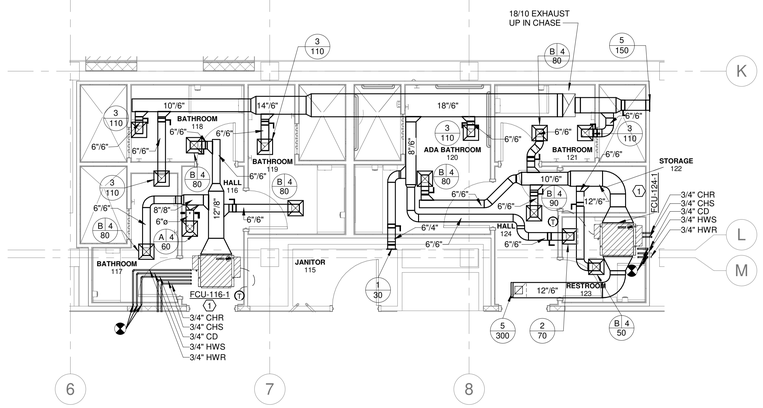
1 1ST FLR NORTH BATHROOM FLOOR PLAN - HVAC
1/4" = 1'-0"



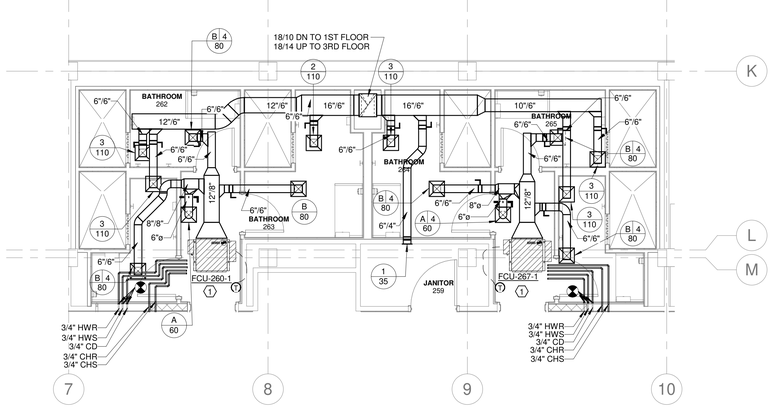
2 2ND FLR NORTH BATHROOM FLOOR PLAN - HVAC
1/4" = 1'-0"



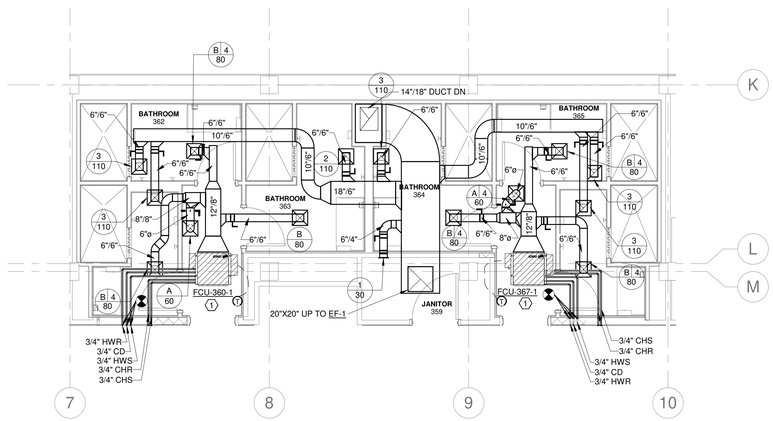
3 3RD FLR NORTH BATHROOM FLOOR PLAN - HVAC
1/4" = 1'-0"



4 1ST FLR SOUTH BATHROOM FLOOR PLAN - HVAC
1/4" = 1'-0"



5 2ND FLR SOUTH BATHROOM FLOOR PLAN - HVAC
1/4" = 1'-0"



6 3RD FLR SOUTH BATHROOM FLOOR PLAN - HVAC
1/4" = 1'-0"

KEYED NOTES:

1. EXTEND CONDENSATE, HEATING WATER SUPPLY, AND HEATING WATER RETURN TO NEW LOCATION OF FAN COIL UNIT. PROVIDE 3/4 INCH CHILLED WATER SUPPLY & CHILLED WATER RETURN TO FAN COIL UNIT FROM MAIN CHILLED WATER SUPPLY & RETURN PIPING IN CORRIDOR.

GENERAL NOTES

1. PROTECT EXISTING BUILDING COMPONENTS TO REMAIN, SUCH AS BUT NOT LIMITED TO, TELECOMMUNICATIONS CABLING AND EQUIPMENT, CONDUIT, PIPING, INSULATION, ELECTRICAL DEVICES AND DATA JACKS FROM DAMAGE, DEBRIS, DUST AND LOSS OF USE DURING ALL PHASES OF CONSTRUCTION. COMPONENTS THAT ARE DAMAGED OR BECOME DIRTY DURING THE CONSTRUCTION PHASE ARE TO BE REPLACED OR CLEANED TO ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
2. NOTIFY ENGINEER OF RECORD OF ANY CONDITIONS THAT DO NOT MATCH THOSE INDICATED THAT WILL AFFECT THE NEW WORK TO BE PERFORMED.
3. INSTALL FIRE DAMPERS PER FIRE DAMPER MANUFACTURER'S INSTRUCTIONS.
4. COORDINATE ALL ROOF AND FLOOR PENETRATIONS WITH STRUCTURAL DRAWINGS.

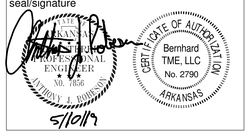
Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature



No.	Description	Date

UCA Housing Renovations - Phase 2
State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

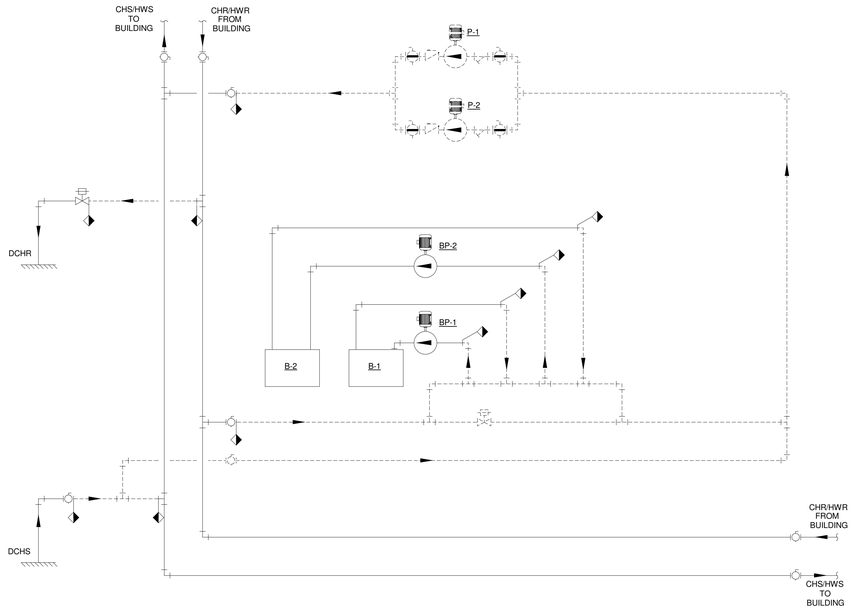
Contents

ENLARGED FLOOR PLANS - HVAC

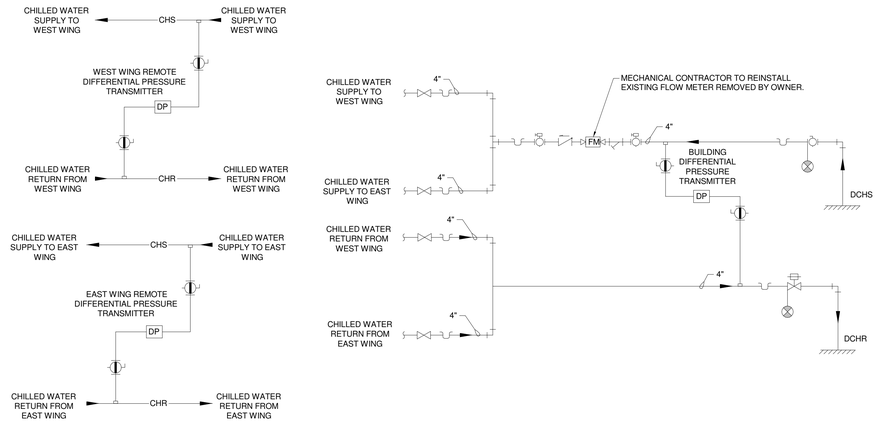
Sheet Number

M3.1

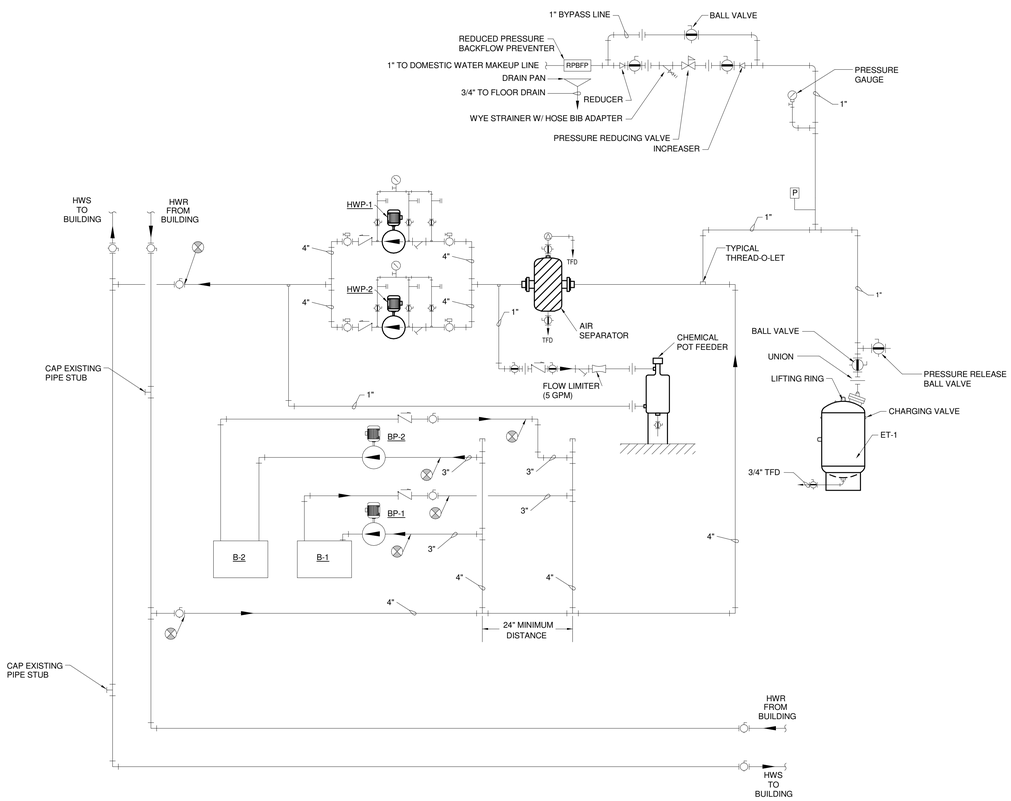
5/9/2019 1:37:22 PM



1 CHILLED / HEATING WATER PIPING DIAGRAM - DEMOLITION
NOT TO SCALE



2 CHILLED WATER PIPING DIAGRAM
NOT TO SCALE



3 HEATING WATER PIPING DIAGRAM
NOT TO SCALE

Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature

No.	Description	Date

UCA Housing Renovations - Phase 2 State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

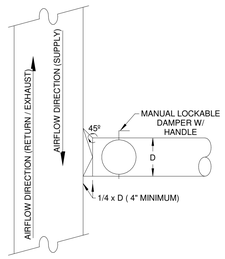
Contents

PIPING DIAGRAMS - HVAC

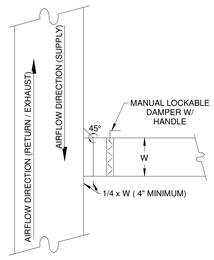
Sheet Number

M4.1

5/9/2019 1:37:23 PM



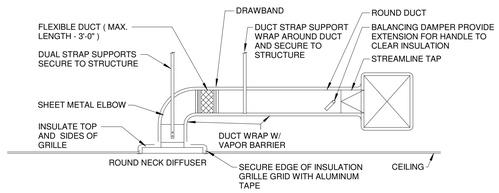
1 ROUND BRANCH DUCT CONNECTION
NOT TO SCALE



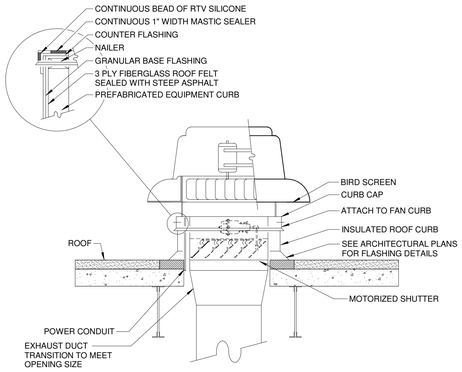
2 RECTANGULAR BRANCH DUCT CONNECTION
NOT TO SCALE

NOTE:

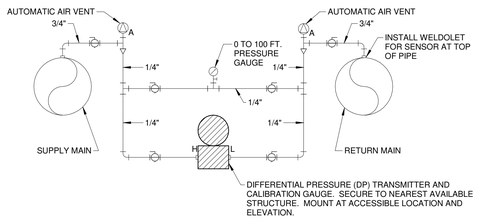
FLEXIBLE DUCT CONNECTIONS SHALL BE INSTALLED TO ADC STANDARDS AND SEALED TO UL STANDARDS PER AMC 603 AND 604.2.1. AS A MINIMUM, THE CONTRACTOR SHALL SECURE THE FLEXIBLE DUCT TO ENDS OF METAL DUCT WITH DRAWBANDS, AND WRAP 3" WIDE ALUMINUM TAPE EQUAL TO HARDCAST "FOIL GRIP" AROUND DRAWBAND AND EXPOSED END OF FLEXIBLE DUCT INSULATION.



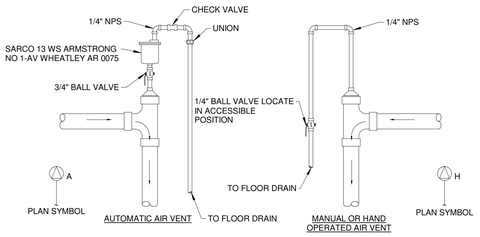
3 DIFFUSER CONNECTION TO ROUND DUCT
NOT TO SCALE



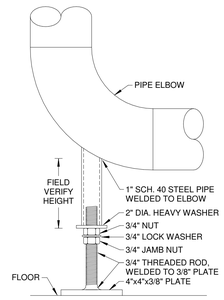
4 ROOFTOP DOWNBLAST EXHAUST FAN DETAIL
NOT TO SCALE



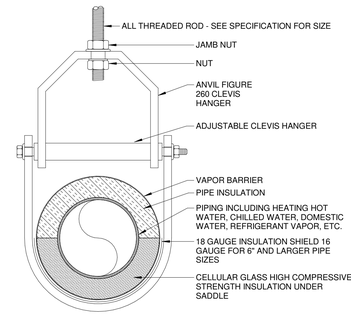
5 DIFFERENTIAL PRESSURE TRANSMITTER DETAIL
NOT TO SCALE



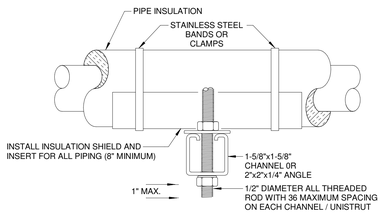
6 AIR ELIMINATOR DETAIL
NOT TO SCALE



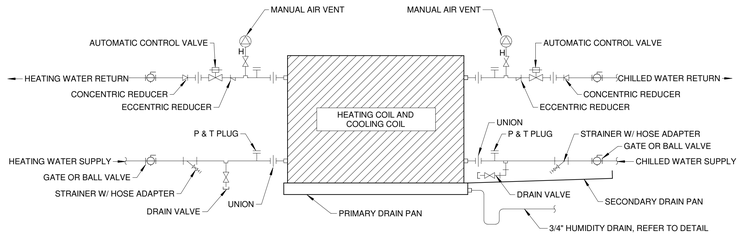
7 PIPE STAND SUPPORT
NOT TO SCALE



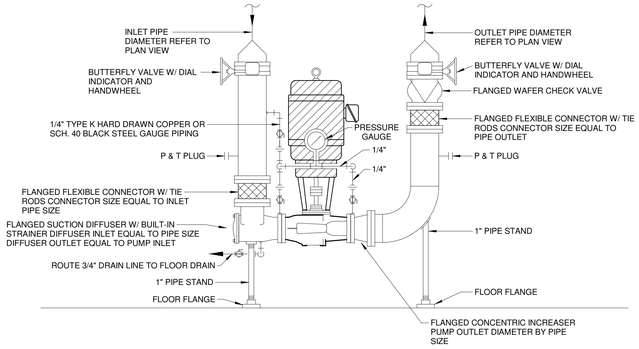
8 1 - 12 CLEVIS PIPE HANGER DETAIL
NOT TO SCALE



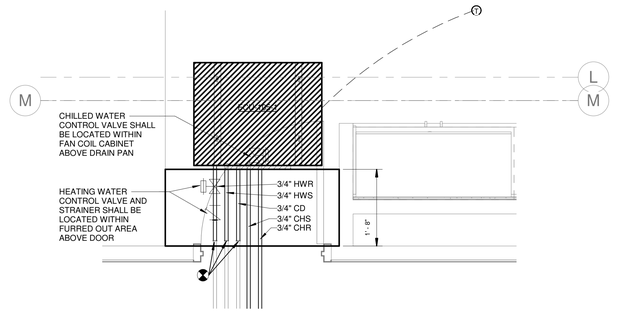
9 TRAPEZE PIPE HANGER DETAIL
NOT TO SCALE



10 FAN COIL UNIT PIPING DETAIL
NOT TO SCALE



11 VERTICAL INLINE PUMP PIPING DETAIL
NOT TO SCALE



12 TYPICAL DORM ROOM FAN COIL DETAIL
NOT TO SCALE

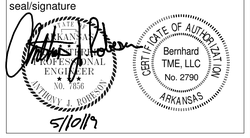
Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature



No.	Description	Date

UCA Housing Renovations - Phase 2
State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

Contents

DETAILS - HVAC

Sheet Number

M5.1

5/9/2019 1:37:26 PM

GENERAL NOTES APPLICABLE TO ALL CONTROL DIAGRAMS:

1. ALL CONTROL DEVICES SHOWN ON THE CONTROL DIAGRAMS ARE FURNISHED BY DIVISION 23 UNLESS OTHERWISE NOTED OR SPECIFIED.
2. ALL COMPONENTS REQUIRED FOR THE SEQUENCES OF OPERATION, SHOWN ON THE CONTROL DIAGRAMS, DESCRIBED IN THE SPECIFICATION, OR AS REQUIRED FOR A PROPERLY OPERATING SYSTEM SHALL BE FURNISHED AND INSTALLED BY DIVISION 23 UNLESS OTHERWISE NOTED, SHOWN, OR SPECIFIED.
3. DIVISION 23 IS RESPONSIBLE TO FURNISH, INSTALL, AND WIRE ALL COMPONENTS REQUIRED FOR INTEGRATION OF INFORMATION SHOWN TO BE ACCESSED BY THE EMS FROM OTHER SYSTEMS AND EQUIPMENT UNLESS OTHERWISE NOTED OR SPECIFIED.
4. ALL POWER WIRING AND TRANSFORMERS FOR SENSORS, ACTUATORS, AND OTHER CONTROL COMPONENTS AS REQUIRED FOR THE EMS AND/OR DDC SYSTEMS TO FUNCTION PROPERLY, SHALL BE FURNISHED AND INSTALLED BY DIVISION 23 UNLESS OTHERWISE SHOWN, NOTED, OR SPECIFIED.
5. ALL POWER WIRING FOR SENSORS, ACTUATORS, AND OTHER DEVICES SHALL BE FROM THE EQUIPMENT CONTROLLERS DDC PANELS OR THE FEP PANELS OF THE ASSOCIATED SYSTEM.
6. ALL CONTROL, INTERLOCK, AND POWER WIRING SHALL BE INSTALLED PER THE DIVISION 26, LOCAL, STATE, AND NATIONAL CODES. RACEWAY SHALL BE INSTALLED PER THE ELECTRICAL SPECIFICATIONS.
7. ALL CONTROL POINTS SHOWN ON THE CONTROL DIAGRAMS SHALL BE PROVIDED AND INTEGRATED INTO AN EMS SYSTEM GRAPHIC REPRESENTATIVE OF THE CONTROL DIAGRAMS.
8. ALL CONTROL BANDS, SETPOINTS, SETPOINT LIMITS, SETPOINT INCREMENT VALUES, SETPOINT DECREMENT VALUES, ALARM LIMITS, AND OTHER PARAMETERS SHALL BE ADJUSTABLE FROM THE EMS.
9. ALL CONTROL BANDS, SETPOINTS, TIME DELAYS, CONTROL LOOPS, AND OTHER PARAMETERS SHALL BE COMMISSIONED BY THE DIVISION 23 TO PROVIDE STABLE CONTROL OF ALL SYSTEMS.
10. ALL SETPOINTS SHALL BE ADJUSTABLE FROM THE EMS SYSTEM GRAPHIC(S).
11. SPACE SETPOINTS SHALL BE ADJUSTABLE FROM THE ROOM SENSOR UNLESS OTHERWISE SHOWN ON DRAWINGS OR SPECIFIED.
12. THE EMS SYSTEM GRAPHICS SHALL BE LINKED WITH ASSOCIATED BUILDING FLOOR PLANS FROM THE SPACE SENSOR OR AREA SERVED.
13. WHERE ONE SYSTEM IS ASSOCIATED WITH ANOTHER SYSTEM, THE SYSTEM GRAPHIC SHALL BE LINKED TO THE ASSOCIATED GRAPHIC AS WELL AS THE BUILDING FLOOR PLAN GRAPHIC. EXAMPLE - AN AIR HANDLING UNIT SYSTEM GRAPHIC SHALL BE LINKED TO THE CHILLED WATER SYSTEM GRAPHIC IN ADDITION TO BOTH BEING LINKED TO THE BUILDING FLOOR PLAN.
14. THE BUILDING FLOOR PLAN SHALL DISPLAY THE SPACE TEMPERATURE AND THE ACTIVE SET POINT AT EACH SPACE SENSOR LOCATION WITH AREA SERVED DISPLAYED IN SEPARATE COLORS BASED ON THE CONDITION OF THE ZONE. AREAS WITH HUMIDITY AND PRESSURE CONTROL WILL ALSO HAVE THOSE VALUES DISPLAYED. EXAMPLE - ALARM, NORMAL, HIGH OR LOW TEMPERATURE, HIGH OR LOW HUMIDITY, ETC.
15. ALL GRAPHICS (SCHEDULES, PLANS, AND DIAGRAMS) WILL INDICATED EQUIPMENT , POINTS, AND AREAS IN ALARM VIA A RED ALARM INDICATOR, RED TEXT, AND/OR A RED HIGHLIGHT. OVERRIDDEN POINTS WILL BE INDICATED WITH PURPLE.
16. THE BUILDING FLOOR PLAN SHALL DISPLAY THE DUCTWORK AND THE PIPING LAYOUT. THE DUCTWORK AND PIPING SHALL BE ABLE TO TOGGLE ON AND OFF INDEPENDENTLY.
17. ALL BUILDING FLOOR PLANS AND SYSTEM GRAPHICS SHALL DISPLAY OUTSIDE AIR TEMPERATURE AND HUMIDITY.
18. THE FLOOR PLAN GRAPHICS SHALL BE LINKED TO A BUILDING GRAPHIC WITH A DIGITAL PHOTOGRAPH BACKGROUND OF THE ACTUAL BUILDING. DURING CONSTRUCTION A TEMPORARY GRAPHIC MAY BE USED THAT IS REPRESENTATIVE OF THE BUILDING.
19. ALL GRAPHICS SHALL BE SUBMITTED IN COLOR WITH THE ATC SUBMITTAL. FAILURE TO INCLUDE ALL GRAPHICS IN SUBMITTAL SHALL BE CAUSE FOR REJECTION OF COMPLETE SUBMITTAL.
20. VARIABLE FREQUENCY DRIVES ARE FURNISHED BY DIVISION 23, INSTALLED AND WIRED BY DIVISION 26. REFER TO VARIABLE FREQUENCY DRIVE SCHEDULE. VERIFY ALL EXISTING MOTOR HORSEPOWER AND ELECTRICAL RATINGS PRIOR TO SUBMITTAL AND ORDERING VARIABLE FREQUENCY DRIVES.
21. POWER WIRING (PWR) FROM POWER SOURCE TO VARIABLE FREQUENCY DRIVES AND FROM VARIABLE FREQUENCY DRIVES TO MOTORS SHALL BE FURNISHED AND INSTALLED BY DIVISION 26.
22. POWER WIRING (PWR) FROM POWER SOURCE TO MOTOR STARTERS AND FROM MOTOR STARTERS TO MOTORS SHALL BE FURNISHED AND INSTALLED BY DIVISION 26.
23. POWER WIRING (PWR) FROM POWER SOURCE TO DDC, AND FEP PANELS SHALL BE FURNISHED AND INSTALLED BY THE DIVISION 26 UNLESS OTHERWISE NOTED ON DRAWINGS.
24. GLOBAL DDC SYSTEM POINTS ARE DEFINED AS A SINGLE POINT USED IN ALL SYSTEMS IN A BUILDING OR CAMPUS TO MAINTAIN CONSISTENCY OF CONTROL ACTIONS THROUGHOUT THE BUILDING OR CAMPUS. EXAMPLE: OUTSIDE AIR TEMPERATURE POINT SAMPLED ON THE NORTH SIDE OF A BUILDING USED TO ENABLE/DISABLE AIRSIDE ECONOMIZER OPERATION THROUGHOUT THE BUILDING OR CAMPUS.
25. THE PROJECT SEQUENCES ARE WRITTEN IN A GENERAL FORM INTENDED FOR IMPLEMENTATION BY ANY CONTROLS SYSTEM AND CONTRACTOR. DIVISION 23 SHALL REVIEW ALL SPECIFICATIONS AND CONTROL SEQUENCES FOR CONSTRUCTABILITY, COMPATIBILITY, AND FEASIBILITY WITH ACTUAL CONDITIONS, BUILDING EQUIPMENT, AND THEIR OWN HARDWARE AND SOFTWARE LIMITATIONS AND CAPABILITIES. CONTROL SEQUENCES ARE INTENDED TO BE THE GENERAL STRUCTURE OF THE CONTRACTORS PROGRAMING, BUT DO NOT NECESSARILY CONTAIN ALL THE REQUIRED DETAILS (LOOP AND TABLE STATEMENT TUNING, RAMPS, LIMITS, ETC) AND BEST PRACTICES FOR THE FINAL PRODUCT. DIVISION 23 SHALL PROVIDE A COMPLETE, OPERABLE, AND TUNED CONTROL SYSTEM THAT MEETS THE INTENDED SEQUENCES AND THE SPECIFIC EQUIPMENT REQUIREMENTS. IF UPON IMPLEMENTATION IT IS DISCOVERED THAT ADDITIONAL PROGRAMMING IS REQUIRED TO MEET THE INTENDED DESIGN OF THE CONTROLS SYSTEM, DIVISION 23 SHALL PROVIDE THE ADDITIONAL PROGRAMMING AT NO ADDITIONAL COST. ALL PROGRAMMING (GRAPHICAL AND/OR TEXT BASED) SHALL BE REVIEWED WITH THE DIVISION 23 AS PART OF THE SUBMITTAL AND COMMISSIONING PROCESSES. DIVISION 23 WILL PROVIDE A SUBMITTAL OF THE GRAPHICAL AND/OR TEXT BASED PROGRAMMING FOR A SIDE TO SIDE COMPARISON WITH THE CONTRACT DOCUMENTS. THIS REVIEW WILL BE PART OF A SCHEDULED MEETING INVOLVING THE BAS CONTROLS DESIGN TEAM, DIVISION 23, AND THE COMMISSIONING AGENT. LIBERTIES TAKEN BY DIVISION 23 ARE ALLOWED AFTER REVIEW AND APPROVAL FROM THE BAS DESIGN TEAM. ALL MODIFICATIONS SHALL BE RECORDED IN THE AS-BUILT DOCUMENTS. DIVISION 23 SHALL BE REQUIRED SET UP TRENDING AS INDICATED BY THE CONSTRUCTION DOCUMENTS, AND AS REQUESTED BY THE BAS DESIGN AND COMMISSIONING TEAM(S).
26. ALL EQUIPMENT SHALL HAVE THE OPTION OF BEING EXCLUDED FROM INDIVIDUAL RESET STRATEGIES BY EQUIPMENT SUMMARY SCHEDULES AND BY EQUIPMENT GRAPHICS.
27. ALL EQUIPMENT CONTROLLERS IN THIS PROJECT SHALL BE HARD WIRED. NO WIRELESS SENSORS SHALL BE ALLOWED UNLESS WRITTEN APPROVAL IS GIVEN BY THE OWNER AND EOR AND THE WIRELESS FREQUENCY BANDS ARE COORDINATED WITH THE OWNER.
28. DIVISION 23 SHALL SET UP ALARM CRITERIA ACCORDING TO EXISTING FACILITY STANDARDS, THE SPECIFICATIONS, AND AS FOLLOWS:
    LEVEL 1 ALARM: HIGHEST PRIORITY ALARM. ALL LOWER LEVEL PRIORITY ALARM RESPONSES APPLY PLUS ALL DESIGNATED HOSPITAL OPERATIONS PERSONNEL ARE NOTIFIED VIA TEXT.
    LEVEL 2 ALARM: HIGH PRIORITY ALARM. ALL LOWER LEVEL PRIORITY ALARM RESPONSES APPLY PLUS ALL DESIGNATED FACILITY OPERATIONS PERSONNEL ARE NOTIFIED VIA TEXT AND EMAIL.
    LEVEL 3 ALARM: HIGH PRIORITY ALARM. ALL LOWER LEVEL PRIORITY ALARM RESPONSES APPLY PLUS ALARM WARRANTS IMMEDIATE RESPONSE BY FACILITY PERSONNEL.
    LEVEL 4 ALARM: MEDIUM PRIORITY ALARM. ALL LOWER LEVEL PRIORITY ALARM RESPONSES APPLY. ALARM WARRANTS A PROMPT RESPONSE FROM PERSONNEL. MAINLY ALARMS CONCERNING COMFORT ISSUES. ALARM AND ALARM LEVEL IS INDICATED VIA FLASHING ALARMS AND POP UPS AT THE BAS.
    LEVEL 5 ALARM: LOW PRIORITY ALARM. ALARM IS LOGGED IN AN ALARM REVIEW SUMMARY.
29. AN ALARM SUMMARY SHALL BE CREATED FOR REVIEW OF FACILITY PERSONNEL DAILY. ALARM SUMMARY TO BE CAPABLE OF BEING SORTED BY ALARM LEVEL AND TIME OF ALARMS.
30. DIVISION 23 SHALL SET UP OPERATOR CLEARANCE REQUIREMENTS ACCORDING TO THE FACILITY STANDARDS, SPECIFICATIONS, AND AS FOLLOWS:
    LEVEL 1: HIGHEST CLEARANCE REQUIRED. THESE SET POINTS CANNOT BE CHANGED OR OVERRIDDEN EXCEPT BY AN OPERATOR WITH THIS CLEARANCE .
    LEVEL 2: HIGH CLEARANCE REQUIRED. THESE SET POINTS CAN ONLY BE CHANGED OR OVERRIDDEN BY SOME ONE WITH THIS LEVEL CLEARANCE OR HIGHER.
    LEVEL 3: MEDIUM CLEARANCE REQUIRED. THESE SET POINTS CAN ONLY BE OVERRIDDEN BY SOMEONE WITH THIS LEVEL CLEARANCE, OR CHANGED BY SOMEONE WITH A HIGHER LEVEL CLEARANCE.
    LEVEL 4: LOW CLEARANCE REQUIRED. THESE SET POINTS CAN ONLY BE OVERRIDDEN BY SOMEONE WITH THIS LEVEL CLEARANCE, OR CHANGED BY SOMEONE WITH A HIGHER LEVEL CLEARANCE.
    LEVEL 5: NO CLEARANCE REQUIRED. THESE SET POINTS CAN BE CHANGED OR OVERRIDDEN BY ANYONE WITH BAS ACCESS. THIS IS ALSO THE CLEARANCE LEVEL FOR OCCUPANT CONTROL ITEMS SUCH AS THERMOSTATS.
30. AN OVERRIDE SUMMARY SHALL BE PROVIDED FOR ALL OVERRIDES AND SHALL BE CAPABLE OF BEING SORTED BY DATE, DURATION, AND LEVEL OF PRIORITY.
31. OVERRIDES SHALL BE CAPABLE OF TIMED RESETS.
32. CONTROL LOGIC AND COMPONENTS SHALL BE ADJUSTED TO OBTAIN AT A MINIMUM THE FOLLOWING RESULTS.
    A. TEMP CONTROL SHALL DEVIATE FROM SET POINT NO MORE THAN 0.2°F WITH PERIODS OF LESS THAN 1 MINUTE.
    B. AIRFLOW CONTROL SHALL DEVIATE FROM SET POINT NO MORE THAN 2% OF THE SYSTEM SET POINT OR SET POINT FOR THAT BRANCH OF THE SYSTEM WITHIN A PERIOD OF LESS THAN 5 MINUTES.
    C. HYDRONIC FLOW CONTROL SHALL DEVIATE FROM SET POINT NO MORE THAN 2% OF THE SYSTEM SET POINT OR SET POINT FOR THAT BRANCH OF THE SYSTEM WITHIN A PERIOD OF LESS THAN 5 MINUTES.
    D. ACTUATORS SHALL NOT OSCILLATE MORE THAN 1% WITHIN A 5 MINUTE PERIOD.
    E. VARIABLE FREQUENCY DRIVE COMMANDS SHALL NOT OSCILLATE MORE THAN 1% IN A 5 MINUTE PERIOD.
33. ALL ALARMS SHALL BE PROVIDED WITH ADJUSTABLE TIME DELAYS TO PREVENT NUISANCE ALARMS.

DIRECT DIGITAL CONTROL POINT TYPES

- AI — DDC SYSTEM ANALOG INPUT POINT TYPE
- G AI — GLOBAL DDC SYSTEM ANALOG INPUT POINT TYPE
- AO — DDC SYSTEM ANALOG OUTPUT POINT TYPE
- G AO — GLOBAL DDC SYSTEM ANALOG OUTPUT POINT TYPE
- DI — DDC SYSTEM DIGITAL OR BINARY INPUT POINT TYPE
- G DI — GLOBAL DDC SYSTEM DIGITAL OR BINARY INPUT POINT TYPE
- DO — DDC SYSTEM DIGITAL OR BINARY OUTPUT POINT TYPE
- G DO — GLOBAL DDC SYSTEM DIGITAL OR BINARY OUTPUT POINT TYPE

ANALOG INPUT SENSORS

- T — DUCT TEMPERATURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY DIVISION 23.
- T — AVERAGING DUCT TEMPERATURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY DIVISION 23. REFER TO DETAIL I.
- T — OUTSIDE AIR TEMPERATURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY DIVISION 23.
- T — PIPE TEMPERATURE SENSOR; FURNISHED AND WIRED BY DIVISION 23; THERMAL WELL INSTALLED IN THE PIPING BY DIVISION 23.
- T — ROOM TEMPERATURE SENSOR WITH SETPOINT, OVERRIDE PUSHBUTTON, AND DIGITAL DISPLAY: FURNISHED, INSTALLED, AND WIRED BY DIVISION 23.
- H — ROOM HUMIDITY SENSOR WITH DIGITAL DISPLAY; FURNISHED, INSTALLED, AND WIRED BY DIVISION 23.
- T — ROOM TEMPERATURE SENSOR WITH SETPOINT, AND OVERRIDE PUSHBUTTON: FURNISHED, INSTALLED, AND WIRED BY DIVISION 23.
- H — ROOM HUMIDITY SENSOR: FURNISHED, INSTALLED, AND WIRED BY DIVISION 23.
- BSP (L H) — BUILDING STATIC PRESSURE SENSOR WITH DIGITAL DISPLAY: FURNISHED, INSTALLED, AND WIRED BY DIVISION 23. REFER TO DETAIL F.
- DSP (L H) — DUCT STATIC PRESSURE SENSOR WITH DIGITAL DISPLAY; FURNISHED, INSTALLED AND WIRED BY DIVISION 23.
- DPS WM (L H) — DIFFERENTIAL PRESSURE SENSOR FOR WET MEDIA WITH DIGITAL DISPLAY; FURNISHED, INSTALLED, AND WIRED BY DIVISION 23. ISOLATION VALVES AND TAPS IN PIPING BY DIVISION 23.
- DPS (L H) — DIFFERENTIAL PRESSURE SENSOR WITH DIGITAL DISPLAY; FURNISHED, INSTALLED AND WIRED BY DIVISION 23.
- H — DUCT RELATIVE HUMIDITY SENSOR; FURNISHED, INSTALLED, AND WIRED BY DIVISION 23.
- PS WM — PRESSURE SENSOR FOR WET MEDIA WITH DIGITAL DISPLAY; FURNISHED, INSTALLED, AND WIRED BY DIVISION 23. ISOLATION VALVES AND TAPS IN PIPING BY DIVISION 23.
- T — STRAP ON TEMPERATURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY DIVISION 23.
- CO — CARBON MONOXIDE SENSOR WITH DIGITAL DISPLAY: FURNISHED, INSTALLED, AND WIRED BY DIVISION 23.
- FM LIQ — LIQUID FLOW METER - FURNISHED AND WIRED BY DIVISION 23. INSTALLED IN PIPING BY DIVISION 23.
- FM GAS — GAS FLOW METER - FURNISHED AND WIRED BY DIVISION 23. INSTALLED IN PIPING BY DIVISION 23.

LEGEND

- THREE PHASE POWER WIRING; FURNISHED AND INSTALLED BY DIVISION 26 (PWR)
- SINGLE PHASE POWER WIRING; FURNISHED AND INSTALLED BY DIVISION 26 (PWR)
- CONTROL AND INTERLOCK WIRING, FURNISHED AND INSTALLED BY DIVISION 23 (ILK)
- EMS ETHERNET LAN COMMUNICATION WIRING, FURNISHED AND INSTALLED BY DIVISION 23 (EMS LAN)
- EMS SUB-NETWORK COMMUNICATION WIRING, FURNISHED AND INSTALLED BY DIVISION 23 (EMS SN)
- ROOM SENSOR COMMUNICATION WIRING, FURNISHED AND INSTALLED BY DIVISION 23 (EMS RS)
- COMMUNICATION WIRING FOR OTHER HVAC SYSTEMS, FURNISHED AND INSTALLED BY DIVISION 23 (EMS OTH)
- PNEUMATIC CONTROL TUBING, FURNISHED AND INSTALLED BY DIVISION 23
- CONTROL PIPING, FURNISHED AND INSTALLED BY DIVISION 25
- LOCAL AREA NETWORK DATA PORT DROP, FURNISHED AND INSTALLED BY DIVISION 26.
- NC — NORMALLY CLOSED - POWERED OPEN
- NO — NORMALLY OPEN - POWERED CLOSED
- NORMALLY CLOSED - POWERED OPEN RELAY CONTACT
- NORMALLY OPEN - POWERED CLOSED RELAY CONTACT
- TFD — TO FLOOR DRAIN
- S — PNEUMATIC CONTROL SUPPLY AIR CONNECTION
- E-PWR — EMERGENCY (ESSENTIAL) ELECTRICAL POWER

DIGITAL INPUT SENSORS

- TLL — LOW LIMIT TEMPERATURE SWITCH WITH MANUAL RESET; FURNISHED, INSTALLED, AND WIRED BY DIVISION 23. DPDT SWITCH FOR HARDWIRE INTERLOCK TO FANS AND DDC MONITORING. REFER TO DETAIL H.
- HSL — HIGH STATIC PRESSURE LIMIT SWITCH WITH MANUAL RESET; FURNISHED, INSTALLED, AND WIRED BY DIVISION 23. DPDT SWITCH FOR HARDWIRE INTERLOCK TO FANS AND DDC MONITORING. ORIENT FOR STATIC PRESSURE SENSING.
- OCC — OCCUPANCY SENSOR; FURNISHED AND WIRED BY DIVISION 23, INSTALLED IN LIGHTING CIRCUIT BY DIVISION 26.
- CSR — CURRENT SENSING RELAY; FURNISHED, INSTALLED, AND WIRED BY DIVISION 23.
- ES — END SWITCH; FURNISHED, INSTALLED AND WIRED BY DIVISION 23 UNLESS OTHERWISE NOTED, SHOWN ON THE DRAWINGS, OR SPECIFIED.
- FIL DP SW (L H) — FILTER DIFFERENTIAL PRESSURE SWITCH; FURNISHED, INSTALLED, AND WIRED BY DIVISION 23.
- WFS — WATER FLOW SWITCH SPECIFIED TO BE FURNISHED WITH HVAC EQUIPMENT; INSTALLED BY DIVISION 23; WIRED BY DIVISION 23.
- DP SW WM (L H) — DIFFERENTIAL PRESSURE SWITCH FOR WET MEDIA; FURNISHED, INSTALLED, AND WIRED BY DIVISION 23. PRESSURE TAPS IN PIPING BY DIVISION 23.
- RM OCC — WALL MOUNTED ROOM OCCUPANCY SWITCH; FURNISHED, INSTALLED, AND WIRED BY DIVISION 23.
- RM OCC — CEILING MOUNTED ROOM OCCUPANCY SWITCH; FURNISHED, INSTALLED, AND WIRED BY DIVISION 23.
- MS — MOISTURE SENSOR: FURNISHED, INSTALLED, AND WIRED BY DIVISION 23.
- EFS — ELECTRONIC WATER FLOW SENSOR; FURNISHED, AND WIRED BY DIVISION 23; INSTALLED IN PIPING BY DIVISION 23.

OUTPUT DEVICES

- VA — CONTROL VALVE (2-WAY) WITH ELECTRIC OR ELECTRONIC ACTUATOR; FURNISHED AND WIRED BY DIVISION 23. INSTALLED IN PIPING BY DIVISION 23.
- VA ES — CONTROL VALVE (2-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL END SWITCH; FURNISHED AND WIRED BY DIVISION 23. INSTALLED IN PIPING BY DIVISION 23.
- VA — CONTROL VALVE (3-WAY) ELECTRIC OR ELECTRONIC; FURNISHED AND WIRED BY DIVISION 23; INSTALLED IN PIPING BY DIVISION 23.
- VA ES — CONTROL VALVE (3-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL END SWITCH; FURNISHED AND WIRED BY DIVISION 23; INSTALLED IN PIPING BY DIVISION 23.
- VA — BUTTERFLY CONTROL VALVE (2-WAY) WITH ELECTRONIC ACTUATOR; FURNISHED AND WIRED BY DIVISION 23; INSTALLED IN PIPING BY DIVISION 23.
- VA ES — BUTTERFLY CONTROL VALVE (2-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL END SWITCH; FURNISHED AND WIRED BY DIVISION 23; INSTALLED BY DIVISION 23.
- VA — BUTTERFLY CONTROL VALVE (3-WAY) WITH ELECTRONIC ACTUATOR; FURNISHED AND WIRED BY DIVISION 23; INSTALLED BY DIVISION 23.
- VA ES — BUTTERFLY CONTROL VALVE (3-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL END SWITCH; FURNISHED AND WIRED BY DIVISION 23; INSTALLED IN PIPING BY DIVISION 23.
- DA — DAMPER ACTUATOR; FURNISHED, INSTALLED, AND WIRED BY DIVISION 23 UNLESS OTHERWISE NOTED ON DRAWINGS OR IN SPECIFICATIONS.
- DA ES — DAMPER ACTUATOR WITH INTEGRAL END SWITCH(ES); FURNISHED, INSTALLED, AND WIRED BY DIVISION 23 UNLESS OTHERWISE NOTED ON DRAWINGS OR IN SPECIFICATIONS.
- SDA — SMOKE DAMPER ACTUATOR(S) FURNISHED AND INSTALLED BY DIVISION 23. REFER TO DETAIL G.
- SDA ES — SMOKE DAMPER ACTUATOR(S) WITH INTEGRAL END SWITCH: FURNISHED AND INSTALLED BY DIVISION 23. REFER TO DETAIL G.
- F/SDA — FIRE/SMOKE DAMPER ACTUATOR(S): FURNISHED AND INSTALLED BY DIVISION 23. REFER TO DETAIL G.
- F/SDA ES — FIRE/SMOKE DAMPER ACTUATOR(S) WITH INTEGRAL END SWITCH: FURNISHED AND INSTALLED BY DIVISION 23. REFER TO DETAIL G.

OTHER CONTROL DEVICES

- FEP — FIELD EQUIPMENT PANEL (FEP): FURNISHED AND INSTALLED BY DIVISION 23. POWER WIRING TO FEP BY DIVISION 26.
- DDC — DIRECT DIGITAL CONTROL PANEL (DDC); FURNISHED AND INSTALLED BY DIVISION 23. POWER WIRING TO DDC PANEL BY DIVISION 26.

1 CONTROL SYMBOL LEGEND
NOT TO SCALE

CONTROL DEVICES FURNISHED BY OTHER TRADES:

- HHL EQ — HUMIDITY HIGH LIMIT SENSOR; FURNISHED WITH THE STEAM HUMIDIFIER; INSTALLED AND WIRED BY DIVISION 23.
- PLENUM FAN INLET BELL HOUSING AIRFLOW MEASURING STATION FURNISHED AND INSTALLED BY THE FAN MANUFACTURER.
- CENTRIFUGAL FAN INLET BELL HOUSING AIRFLOW MEASURING STATION FURNISHED AND INSTALLED BY THE FAN MANUFACTURER.
- AFMS EQ — AIR FLOW MEASURING STATION; FURNISHED AND INSTALLED BY THE AIR HANDLING UNIT MANUFACTURER. WIRING FROM THE AFMS TO THE DDC PANEL BY DIVISION 23. POWER WIRING BY DIVISION 26.
- AFMS SM — AIR FLOW MEASURING STATION; FURNISHED, AND INSTALLED BY DIVISION 23. WIRING FROM THE AFMS TO THE DDC PANEL BY DIVISION 23. POWER WIRING BY DIVISION 26.
- VA EQ — CONTROL VALVE (2-WAY) WITH ELECTRIC OR ELECTRONIC ACTUATOR; FURNISHED WITH EQUIPMENT (EQ); WIRED BY DIVISION 23; INSTALLED IN PIPING BY DIVISION 23.
- NC — CONTROL DAMPER; FURNISHED AND INSTALLED BY DIVISION 23. DAMPER ACTUATOR FURNISHED INSTALLED AND WIRED BY DIVISION 23.
- AFMS EQ (NC) — AIR FLOW MEASURING STATION WITH INTEGRAL CONTROL DAMPER; FURNISHED AND INSTALLED BY THE AIR HANDLING UNIT MANUFACTURER. WIRING TO DDC SYSTEM BY DIVISION 23.
- AFMS SM (NC) — AIR FLOW MEASURING STATION WITH INTEGRAL CONTROL DAMPER; FURNISHED AND INSTALLED BY DIVISION 23.
- FAR SMK — FIRE ALARM PROGRAMMABLE RELAY (FAR) FOR SMOKE PURGE OPERATION (SMK); FURNISHED, INSTALLED, AND PROGRAMMED BY DIVISION 28. FAR SHALL BE LOCATED IN SAME ROOM AS HVAC EQUIPMENT SERVED PER NFPA. ALL WIRING FROM FAR TO FIRE ALARM SYSTEM BY DIVISION 28. INTERLOCK WIRING FROM FAR TO ATC PANEL BY DIVISION 23.
- FAR — FIRE ALARM PROGRAMMABLE RELAY (FAR); FURNISHED, INSTALLED, AND PROGRAMMED BY DIVISION 28. FAR SHALL BE LOCATED IN SAME ROOM AS HVAC EQUIPMENT SERVED PER NFPA. ALL WIRING FROM FAR TO FIRE ALARM SYSTEM BY DIVISION 28. INTERLOCK WIRING FROM FAR TO ATC PANEL BY DIVISION 23.
- DSD — DUCT MOUNTED SMOKE DETECTOR(S); FURNISHED, INSTALLED, AND WIRED BY DIVISION 28 AS PART OF THE FIRE ALARM SYSTEM.

ABBREVIATIONS

HWS	HEATING WATER SUPPLY	MA	MIXED AIR
HWR	HEATING WATER RETURN	MAT	MIXED AIR TEMPERATURE
DHWS	DISTRICT HEATING WATER SUPPLY	MAH	MIXED AIR HUMIDITY
DHWR	DISTRICT HEATING WATER RETURN	DAT	DISCHARGE AIR TEMPERATURE
CWS	CONDENSER SUPPLY	DAH	DISCHARGE AIR HUMIDITY
CWR	CONDENSER RETURN	DB	DRY BULB
CHS	CHILLED WATER SUPPLY	WB	WET BULB
CHR	CHILLED WATER RETURN	RH	RELATIVE HUMIDITY
DCHS	DISTRICT CHILLED WATER SUPPLY	ILK	INTERLOCK
DCHR	DISTRICT CHILLED WATER RETURN	AHU	AIR HANDLING UNIT
SETP.	SETPOINT	BCCO	BLOWER COIL UNIT COOLING ONLY
SP	STATIC PRESSURE	BCU	BLOWER COIL UNIT
DP	DIFFERENTIAL PRESSURE	CVET	CONSTANT VOLUME EXHAUST TERMINAL
OA	OUTSIDE AIR	CVRT	CONSTANT VOLUME RETURN TERMINAL
OAF	OUTSIDE AIRFLOW	CVST	CONSTANT VOLUME SUPPLY TERMINAL
OAT	OUTSIDE AIR TEMPERATURE (DRY BULB)	FCCO	FAN COIL UNIT COOLING ONLY
OAH	OUTSIDE AIR HUMIDITY	FCHO	FAN COIL UNIT HEATING ONLY
RA	RETURN AIR	FCU	FAN COIL UNIT
RAF	RETURN AIRFLOW	IUH	INDUCTION UNIT HEATER
RAT	RETURN AIR TEMPERATURE	PFST	PARALLEL FAN SUPPLY TERMINAL
RAH	RETURN AIR HUMIDITY	SFST	SERIES FAN SUPPLY TERMINAL
SA	SUPPLY AIR	UH	UNIT HEATER
SAF	SUPPLY AIRFLOW	VVET	VARIABLE VOLUME EXHAUST TERMINAL
SAT	SUPPLY AIR TEMPERATURE	VVRT	VARIABLE VOLUME RETURN TERMINAL
		VVST	VARIABLE VOLUME SUPPLY TERMINAL

Stocks Mann Architects, PLC
Bernhard TME Engineering

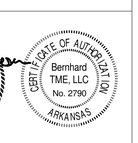
Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature



No.	Description	Date

UCA Housing Renovations - Phase 2
State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

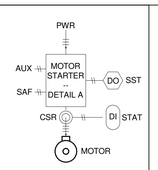
Contents

CONTROLS - HVAC

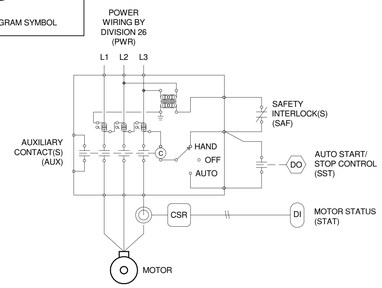
Sheet Number

M6.1

5/9/2019 1:37:27 PM

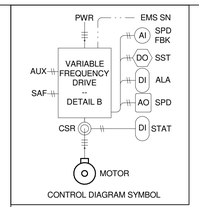


CONTROL DIAGRAM SYMBOL

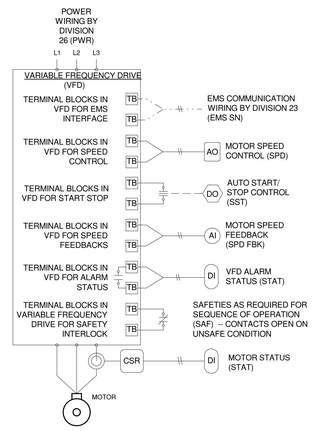


A DETAIL: MOTOR STARTER INTERLOCK DETAIL
NOT TO SCALE

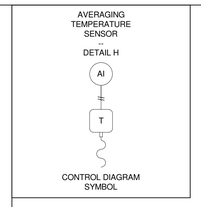
STANDARD COMPONENT

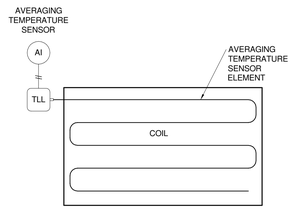


CONTROL DIAGRAM SYMBOL



B DETAIL: VARIABLE FREQUENCY DRIVE INTERLOCK
NOT TO SCALE

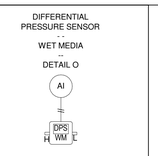




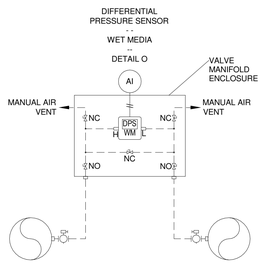
NOTES:
1. AVERAGING TEMPERATURE SENSOR SHALL HAVE ONE FOOT OF ELEMENT LENGTH PER THREE SQUARE FOOT OF COIL SURFACE EVENLY DISTRIBUTED OVER THE COIL SURFACE AS SHOWN IN DETAIL.
2. MULTIPLE AVERAGING TEMPERATURE SENSORS MAY BE REQUIRED TO MEET THE ONE FOOT OF ELEMENT PER TWO SQUARE FOOT OF COIL SURFACE AND IN THIS EVENT THE MULTIPLE AVERAGING TEMPERATURE SENSORS SHALL BE WIRED TO PROVIDE THE CORRECT AVERAGE TEMPERATURE TO THE DDC SYSTEM.
3. AVERAGING TEMPERATURE SENSORS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AT REGULAR INTERVALS TO COVER THE ENTIRE COIL.
4. AVERAGING TEMPERATURE SENSORS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS IN A MANNER TO PREVENT THE ELEMENT FROM BEING DAMAGED FROM VIBRATION.

H DETAIL: DUCT AVERAGING TEMPERATURE SENSOR
NOT TO SCALE

STANDARD COMPONENT



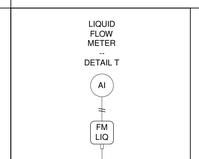
CONTROL DIAGRAM SYMBOL



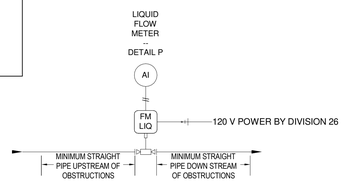
NOTES:
1. DIFFERENTIAL PRESSURE SENSOR FOR WET MEDIA WITH DIGITAL DISPLAY FURNISHED AND INSTALLED BY DIVISION 23.
2. VALVE MANIFOLD AND ENCLOSURE FOR DIFFERENTIAL PRESSURE SENSOR FURNISHED AND INSTALLED BY DIVISION 23.
3. ISOLATION VALVES AND TAPS IN PIPING SHALL BE FURNISHED AND INSTALLED BY DIVISION 23.
4. PIPING FROM ISOLATION VALVES TO VALVE MANIFOLD AND DIFFERENTIAL PRESSURE SENSOR BY DIVISION 23.

O DETAIL: DIFFERENTIAL PRESSURE SENSOR - WET MEDIA
NOT TO SCALE

STANDARD COMPONENT



CONTROL DIAGRAM SYMBOL



NOTES:
1. INSTALL FLOW METER PER MANUFACTURERS INSTALLATION INSTRUCTION FOR MINIMUM LENGTH OF STRAIGHT PIPE UP AND DOWN STREAM OF FLOW METER TO MAINTAIN THE PUBLISHED METER ACCURACY.
2. INSTALL STANDARD CONCENTRIC REDUCERS AS REQUIRED TO MAINTAIN PUBLISHED METER ACCURACIES.
3. FLOW METER IS FURNISHED AND WIRED BY DIVISION 23; INSTALLED IN PIPING BY DIVISION 23.

P DETAIL: LIQUID FLOW METER
NOT TO SCALE

GENERAL NOTES:

1. BAS GRAPHICS SHALL INCLUDE EQUIPMENT SUMMARIES FOR THE ENTIRE BUILDING.
2. SUMMARIES SHALL INDICATE THE SYSTEM SERVED BY THE COMPONENT.
3. OPERATORS WITH APPROPRIATE CLEARANCE SHALL BE CAPABLE OF CHANGING SET POINTS FROM THE SUMMARY TABLE.
4. OVERRIDDEN VALUES SHALL BE HIGHLIGHTED OR THE TEXT COLOR SHALL CHANGE TO INDICATE VALUES HAVE BEEN OVERRIDDEN.
5. EQUIPMENT IN ALARM SHALL BE HIGHLIGHTED RED OR THE TEXT SHALL TURN RED TO INDICATE AN ALARM.
6. IDENTIFY ALL ALARMS ASSOCIATED WITH EACH PIECE OF EQUIPMENT. A GENERAL ALARM STATUS CAN BE DISPLAYED AND SPECIFIC ALARMS CAN BE VIEWED BY CLICKING ON THE ALARM STATUS FOR THAT BOX.
7. REPORTS ARE NOT AN ACCEPTABLE FORM OF SYSTEM SUMMARIES. REPORTS SHALL CONTAIN LIVE DATA.
8. SCHEDULE COLUMNS SHALL BE CAPABLE OF BEING TOGGLED ON AND OFF.
9. ALL EQUIPMENT SHALL BE CAPABLE OF BEING EXCLUDED FROM ANY RESET CALCULATION.
10. GRAPHICS SHALL INCLUDE A SUMMARY TABLE SIMILAR TO THAT SHOWN. THIS PROJECT MAY REQUIRE ADDITIONAL ROWS, COLUMNS, GRAPHICS, AND CALCULATIONS TO BE INCORPORATED (CONTROL LOOP OUTPUTS, BUILDINGS, ETC).
11. PROVIDE LINKS TO AND FROM BUILDING FLOOR GRAPHICS AND SYSTEM GRAPHICS.
12. TABLES INDICATED HERE ARE PROVIDED TO CONVEY THE MINIMUM LEVEL OF DETAIL EXPECTED.

UNITARY EQUIPMENT SUMMARY

DESIGNATION	AREA SERVED	SPACE TEMP CONTROL LOOPOUT	FAN SPEED SET POINT	FAN SPEED	MIN SPACE SETP.	MAX SPACE SETP.	CLG LOW LIMIT SETP.	HTG HIGH LIMIT TEMP SETP.	MIN. SPACE TEMP. SET POINT	MAX. SPACE TEMP. SET POINT	MAX SAT DIFF. SET POINT	SPACE TEMP	ACTIVE SPACE TEMP. SET POINT	DAT	CLG DAT SET POINT	HW PRESSURE. SETP. RESET	HW VALVE COMMAND	HW VALVE POSITION	CHW PRESSURE. SETP. RESET	CHW VALVE COMMAND	CHW VALVE POSITION	OCCUPANCY STATUS	ALARMS
FCU- # # #	AREA ###	-	-	-	-	-	-	-			-	-	-	-	-	☑	-	-	☑	-	-	-	-
FCU- # # #	AREA ###	-	-	-	-	-	-	-			-	-	-	-	-	☑	-	-	☑	-	-	-	-
SUMMARY		MIN. / MAX. - / -															MIN. / MAX. - / -	MIN. / MAX. - / -		MIN. / MAX. - / -			

BLDG ENTERING WATER TEMP	-	BLDG LEAVING WATER TEMP	-	ZONE 1 PRESSURE SETPOINT	-	ZONE 2 PRESSURE SETPOINT	-

1 BUILDING EQUIPMENT SUMMARY
NOT TO SCALE

VARIABLE FREQUENCY DRIVE SCHEDULE

DESIGNATION	REFERENCE PRODUCT	LOCATION	SERVES	TYPE	RATED HORSPOWER	EFFICIENCY (%)	VOLTAGE/ PHASE	REMARKS
VFD-HWP-1	ABB ACH 550	MECHANICAL ROOM	HWP-1	PWM	7.5	98	208 / 3	PROVIDED BY DIVISION 23 ATC CONTRACTOR, DISPLAY AND BUTTONS SHALL BE EXTERNAL TO UNIT
VFD-HWP-2	ABB ACH 550	MECHANICAL ROOM	HWP-2	PWM	7.5	98	208 / 3	PROVIDED BY DIVISION 23 ATC CONTRACTOR, DISPLAY AND BUTTONS SHALL BE EXTERNAL TO UNIT

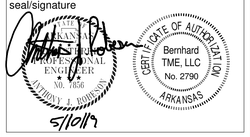
Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature



No.	Description	Date

UCA Housing Renovations - Phase 2
State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

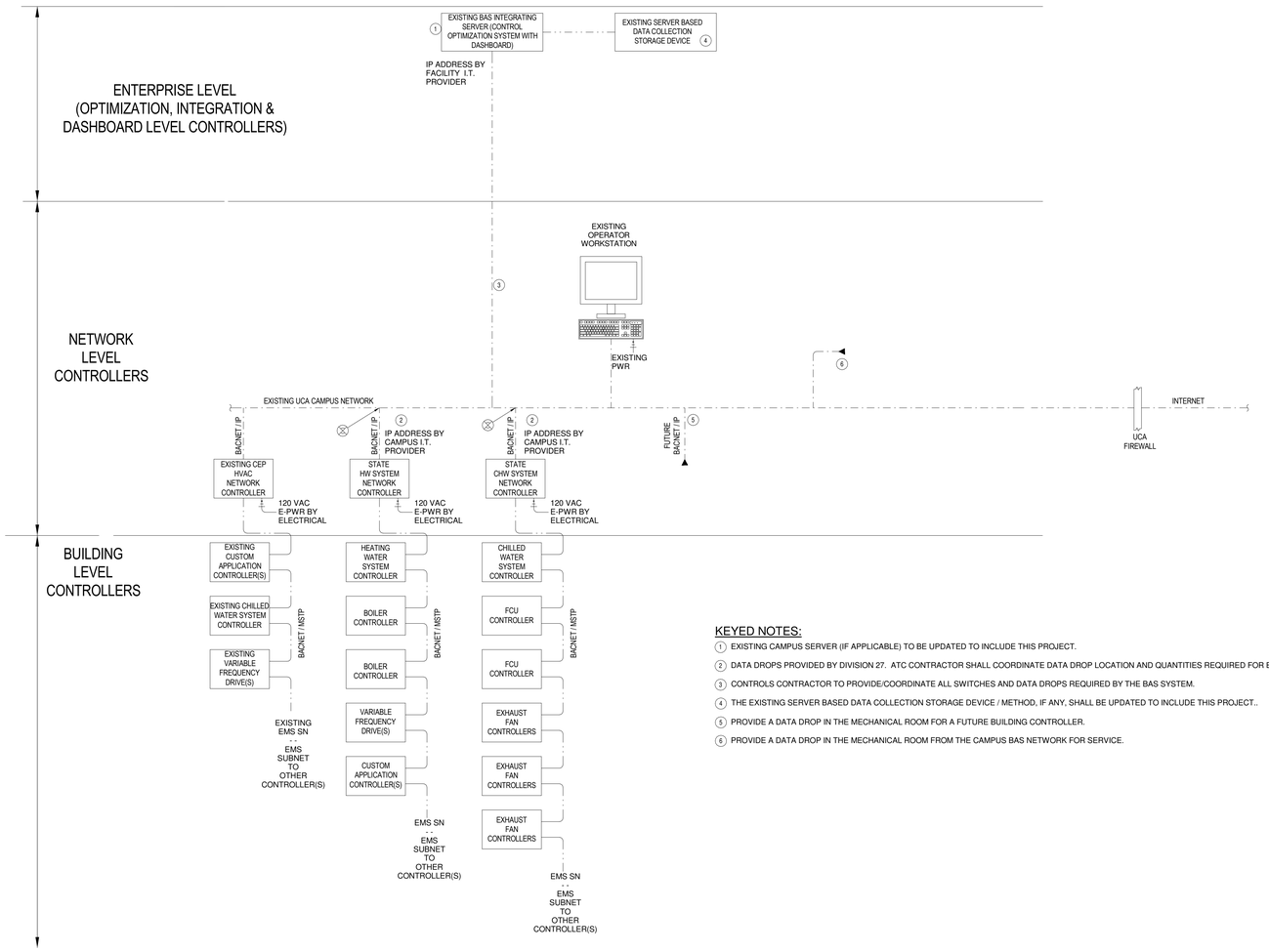
Contents

CONTROLS - HVAC

Sheet Number

M6.2

5/9/2019 1:37:28 PM



KEYED NOTES:

1. EXISTING CAMPUS SERVER (IF APPLICABLE) TO BE UPDATED TO INCLUDE THIS PROJECT.
2. DATA DROPS PROVIDED BY DIVISION 27. ATC CONTRACTOR SHALL COORDINATE DATA DROP LOCATION AND QUANTITIES REQUIRED FOR BAS EQUIPMENT.
3. CONTROLS CONTRACTOR TO PROVIDE/COORDINATE ALL SWITCHES AND DATA DROPS REQUIRED BY THE BAS SYSTEM.
4. THE EXISTING SERVER BASED DATA COLLECTION STORAGE DEVICE / METHOD, IF ANY, SHALL BE UPDATED TO INCLUDE THIS PROJECT..
5. PROVIDE A DATA DROP IN THE MECHANICAL ROOM FOR A FUTURE BUILDING CONTROLLER.
6. PROVIDE A DATA DROP IN THE MECHANICAL ROOM FROM THE CAMPUS BAS NETWORK FOR SERVICE.

EMS GENERAL NOTES:

1. THE BAS ARCHITECTURE SHOWN IS A DIAGRAMMATIC REPRESENTATION AND MAY NOT MATCH THE COMPLETED ARCHITECTURE FOR THIS PROJECT. ATC CONTRACTOR SHALL DETERMINE EXACT ARCHITECTURE FOR THE SYSTEM BEING PROVIDED AND SHALL BE INCLUDE IN THE SUBMITTALS.
2. WIRELESS EQUIPMENT ON THIS PROJECT PROVIDED AND INSTALLED BY OWNER (TABLET DEVICES AND PHONES).
3. ETHERNET CONNECTIONS TO EQUIPMENT (FIELD EQUIPMENT PANELS, CONTROL PANELS, METERS, ETC) SHALL BE TO EQUIPMENT, NOT IN EQUIPMENT. PROVIDE PATCH CABLES AS REQUIRED.
4. EXISTING GRAPHICS AND RESET STRATEGIES FOR THE DISTRICT SHALL BE UPDATED TO INCLUDE THIS BUILDING.

1 BUILDING AUTOMATION SYSTEM RISER DIAGRAM

NOT TO SCALE

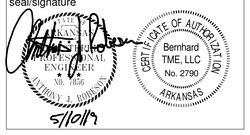
Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature



No.	Description	Date

UCA Housing Renovations - Phase 2 State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

Contents

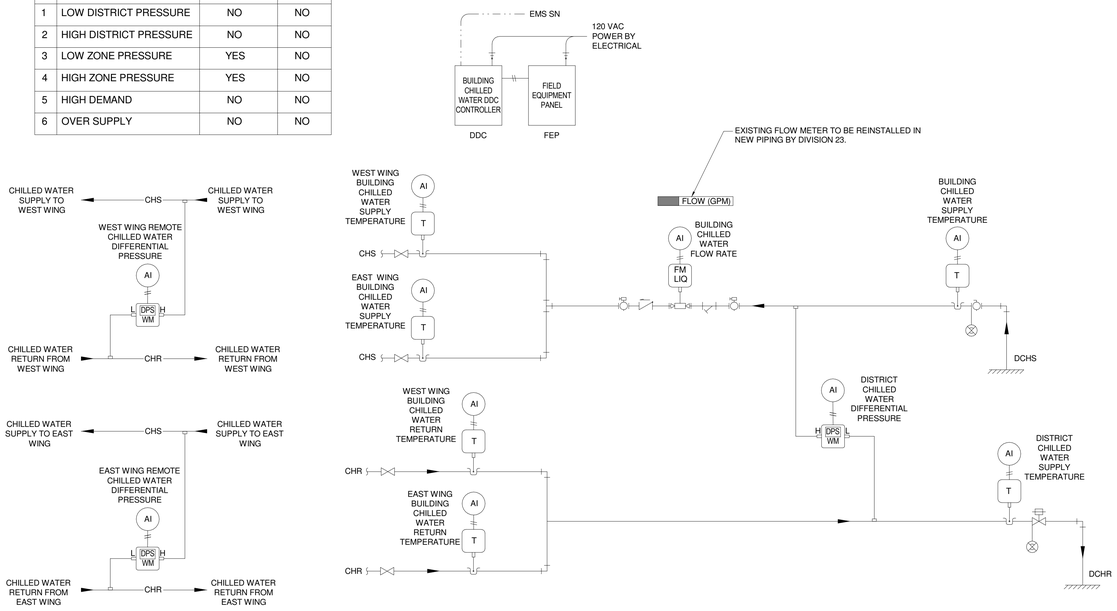
CONTROLS - HVAC

Sheet Number

M6.3

5/9/2019 1:37:28 PM

CHILLED WATER SYSTEM ALARMS			
#	DESCRIPTION	ON GRAPHIC	IN TABLE
1	LOW DISTRICT PRESSURE	NO	NO
2	HIGH DISTRICT PRESSURE	NO	NO
3	LOW ZONE PRESSURE	YES	NO
4	HIGH ZONE PRESSURE	YES	NO
5	HIGH DEMAND	NO	NO
6	OVER SUPPLY	NO	NO



1 CHILLED WATER CONTROL DIAGRAM
NOT TO SCALE

SEQUENCE OF OPERATION:

BUILDING ZONE DIFFERENTIAL PRESSURE SET POINT:
MODULATE THE BUILDING ZONE PRESSURE SET POINT BETWEEN A MAXIMUM SET POINT AND MINIMUM SET POINT AS REQUIRED TO MAINTAIN THE SECOND (ADJUSTABLE) MOST CRITICAL VALVE AT THE CRITICAL VALVE POSITION SET POINT, 95% (ADJUSTABLE). VALVES SHALL BE EXCLUDABLE FROM THE CRITICAL ZONE RESET CALCULATION FROM THE EQUIPMENT GRAPHIC AND FROM THE EQUIPMENT SUMMARY TABLE. THE CHILLED WATER PLANT OPERATION SHALL ADJUST ACCORDINGLY VIA ITS CURRENT SEQUENCE OF OPERATION TO SATISFY THE BUILDING ZONE PRESSURE SET POINTS.

PROVIDE A THERMOSTAT SATISFACTION INDEX THAT STATES WHAT PERCENTAGE OF THE THERMOSTATS ARE WITHIN 2 DEGREES (ADJ) ABOVE THE ACTIVE SET POINT.

ALARMS

1. LOW ZONE PRESSURE: ZONE DIFFERENTIAL PRESSURE < ZONE DIFFERENTIAL PRESSURE SET POINT - OFFSET (ADJUSTABLE)
2. HIGH ZONE PRESSURE: ZONE DIFFERENTIAL PRESSURE > ZONE DIFFERENTIAL PRESSURE SET POINT + OFFSET (ADJUSTABLE)

TRENDING GROUPS

PROVIDE THE FOLLOWING TREND GROUPS FOR THE IDENTIFIED TRENDS.
A. CRITICAL ZONE RESET: ZONE 1 AND ZONE 2 CRITICAL ZONE VALVE POSITIONS, ZONE PRESSURES, ZONE PRESSURE SET POINTS, AND THE ZONE DISTRICT PRESSURE.
B. TEMPERATURE: BUILDING ENTERING AND LEAVING TEMPERATURES, ZONE ENTERING AND LEAVING TEMPERATURES.

GENERAL NOTES:

1. CONTROL VALVES, FLOW METERS, THERMOWELLS, AND TAPS ARE PROVIDED BY DIVISION 23 AND INSTALLED BY DIVISION 23 IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED.
2. ALL CONTROLLERS, ACTUATORS, SENSORS, SWITCHES, TUBING, AND POINTS INDICATED ON THE PLANS ARE PROVIDED AND INSTALLED BY DIVISION 23, UNLESS NOTED OTHERWISE. CONTROL VALVES AND THERMOWELLS ARE PROVIDED BY DIVISION 23 AND INSTALLED BY DIVISION 23. TRANSFORMERS ARE PROVIDED BY DIVISION 23 AND INSTALLED BY DIVISION 26.
3. ALL POINTS INDICATED ON THE CONTROL DRAWINGS ARE NEW, PROVIDED BY DIVISION 23, UNLESS INDICATED OTHERWISE.
4. IF A COMPONENT IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION , THE COMPONENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH, OR CHANGE COLORS.
5. THIS GRAPHIC SHALL BE REPRESENTED ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT CONDITIONS. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SET POINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS. REFER TO SPECIFICATIONS FOR FURTHER GRAPHICAL REQUIREMENTS.
6. ATC CONTRACTOR SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE SEQUENCES REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND ARE NOT ALL INCLUSIVE. THE ATC CONTRACTOR IS STILL REQUIRED TO PROVIDE, DEFINE, AND INDICATE ALL ALARMS, SET POINTS, AND FUNCTIONS REQUIRED TO ACHIEVE THE INTENT OF THE SEQUENCE AND MAINTAIN ALL EQUIPMENT MANUFACTURER'S REQUIREMENTS.
7. EQUIPMENT PROVIDED WITH CONTROLLERS (BOILERS, VARIABLE FREQUENCY DRIVES, ETC) SHALL COMMUNICATE DIRECTLY WITH THE BAS. ALL REQUIRED GATEWAYS AND ROUTERS SHALL BE PROVIDED WITH EQUIPMENT WHERE AVAILABLE. ALL AVAILABLE POINTS SHALL BE OBTAINED FROM THE EQUIPMENT CONTROLLER AND THE BAS SHALL PROVIDE SET POINTS, COMMANDS, ETC. TO THE EQUIPMENT PER THE SEQUENCE OF OPERATIONS.
8. EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL COMMUNICATED POINTS SHALL BE AVAILABLE IN A LIST FORMAT WITH COMPLETE DESCRIPTIONS OF THE POINT, INCLUDING ALARMS. THE OPERATOR SHALL NOT HAVE TO REFER TO OTHER DOCUMENTATION TO DETERMINE WHAT THE POINT IS.
9. VARIABLE FREQUENCY DRIVES SHALL INDICATE HAND, OFF, AUTO, AND BYPASS STATUS.
10. CONTROL VALVES SHALL BE SELECTED WITH PROPER AUTHORITY FOR THEIR GIVEN APPLICATION.
11. UPDATE FACILITY DASHBOARDS TO INCLUDE BUILDING.

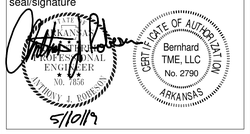
Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature



No.	Description	Date

UCA Housing Renovations - Phase 2
State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

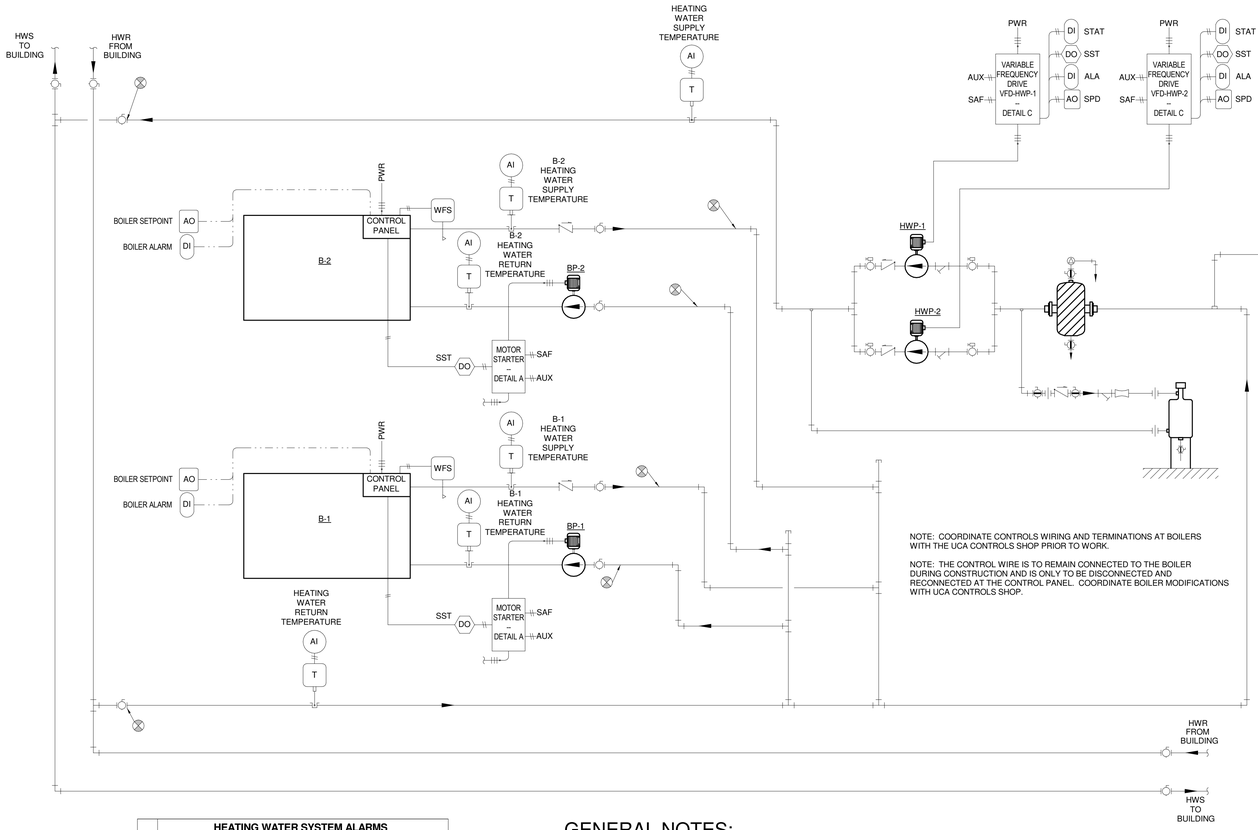
Contents

CONTROLS - HVAC

Sheet Number

M6.4

5/9/2019 1:37:52 PM



NOTE: COORDINATE CONTROLS WIRING AND TERMINATIONS AT BOILERS WITH THE UCA CONTROLS SHOP PRIOR TO WORK.

NOTE: THE CONTROL WIRE IS TO REMAIN CONNECTED TO THE BOILER DURING CONSTRUCTION AND IS ONLY TO BE DISCONNECTED AND RECONNECTED AT THE CONTROL PANEL. COORDINATE BOILER MODIFICATIONS WITH UCA CONTROLS SHOP.

	HEATING WATER SYSTEM ALARMS		
#	DESCRIPTION	ON GRAPHIC	IN TABLE
1	LOW PLANT PRESSURE	NO	NO
2	HIGH PLANT PRESSURE	NO	NO
3	LOW ZONE PRESSURE	YES	NO
4	HIGH ZONE PRESSURE	YES	NO
5	HIGH DEMAND	NO	NO
6	OVER SUPPLY	NO	NO
7	LOW SYSTEM PRESSURE	YES	NO
8	BOILER ALARMS	YES	NO
9	VFD ALARMS	NO	NO
10	STARTER ALARMS	NO	NO
11	FLOW FAIL	NO	NO
12	LOW BOILER LEAVING TEMP	NO	NO
13	HIGH BOILER LEAVING TEMP	NO	NO
14	LOW PLANT LEAVING TEMP	NO	NO
15	HIGH PLANT LEAVING TEMP	NO	NO
16	UNRELIABLE SENSOR	NO	NO
17	VFD IN HAND	YES	NO
18	VFD IN BYPASS	YES	NO
19	VFD COMMAND	YES	NO
20	HIGH CO	YES	YES

GENERAL NOTES:

1. CONTROL VALVES, FLOW METERS, THERMOWELLS AND TAPS ARE PROVIDED BY DIVISION 23 AND INSTALLED BY DIVISION 23 IN LOCATIONS INDICATED BY THE CONTROL DIAGRAMS AND AS SPECIFIED.
2. ALL CONTROLLERS, ACTUATORS, SENSORS, SWITCHES, TUBING AND POINTS INDICATED ON THE PLANS ARE PROVIDED AND INSTALLED BY DIVISION 23 UNLESS OTHERWISE NOTED. CONTROL VALVES AND THERMOWELLS ARE PROVIDED BY DIVISION 23 AND INSTALLED BY DIVISION 23. TRANSFORMERS ARE PROVIDED BY DIVISION 23 AND INSTALLED BY DIVISION 26.
3. ALL POINTS INDICATED ON THE CONTROL DIAGRAMS ARE NEW AND PROVIDED BY DIVISION 23 UNLESS INDICATED OTHERWISE.
4. IF A COMPONENT IS DISABLED DUE TO MAINTENANCE SHUTDOWN, OVERRIDE OR A FAULT CONDITION, THE COMPONENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH OR CHANGE COLORS.
5. THIS GRAPHIC SHALL BE REPRESENTED ON THE BAS INCLUDING THE RESULTS OF AS-BUILT CONDITIONS. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SETPOINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS. REFER TO SPECIFICATIONS FOR FURTHER GRAPHICAL REQUIREMENTS.
6. ATC CONTRACTOR SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE SEQUENCES REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND ARE NOT ALL INCLUSIVE. THE ATC CONTRACTOR IS STILL REQUIRED TO PROVIDE, DEFINE AND INDICATE ALL ALARMS, SETPOINTS AND FUNCTIONS REQUIRED TO ACHIEVE THE INTENT OF THE SEQUENCE AND MAINTAIN ALL EQUIPMENT MANUFACTURER'S REQUIREMENTS.
7. EQUIPMENT SHALL HAVE DEDICATED GRAPHICS PER SPECIFICATIONS. ALL POINTS SHALL BE INDICATED ON GRAPHICS.
8. CONTROL VALVES SHALL BE SELECTED WITH PROPER AUTHORITY FOR THEIR GIVEN APPLICATION.
9. UPDATE FACILITY GRAPHICS TO INCLUDE THIS BUILDING AND ASSOCIATED WORK.

1 HEATING WATER CONTROL DIAGRAM

NOT TO SCALE

SEQUENCE OF OPERATION:

PRESSURE CONTROL:
1. MODULATE THE BUILDING ZONE PRESSURE SET POINTS BETWEEN A MAXIMUM SET POINT AND MINIMUM SET POINT AS REQUIRED TO MAINTAIN THE SECOND (ADJUSTABLE) MOST CRITICAL VALVE AT THE CRITICAL VALVE POSITION SET POINT, 95% (ADJUSTABLE). VALVES SHALL BE EXCLUDABLE FROM THE CRITICAL ZONE RESET CALCULATION FROM THE EQUIPMENT GRAPHIC AND FROM THE EQUIPMENT SUMMARY TABLE. THE HEATING WATER SECONDARY PUMP SPEED SHALL MODULATE TO MAINTAIN THE CRITICAL ZONE PRESSURE SET POINT. PUMPS SHALL BE STAGED ON AND OFF IN A LEAD LAG MANNER AND OPERATED IN PARALLEL TO A CONTROL SIGNAL WHEN ENABLED TOGETHER. PUMPS SHALL BE AUTOMATICALLY ROTATED FOR LEAD AND LAG POSITION ON A WEEKLY (ADJUSTABLE) BASIS BASED ON RUN TIME. IF A PUMP IS NOT AVAILABLE FOR OPERATION DUE TO ALARM, FAILURE, OR OPERATOR LOCKOUT, THE LAGGING PUMP OR PUMPS SHALL AUTOMATICALLY BE MOVED UP IN THE QUEUE AND ALLOWED TO OPERATE AND SHALL NOT BE LIMITED BY ANY STAGING PROCESS.

TEMPERATURE CONTROL:
1. RESET THE PLANT HEATING WATER SUPPLY TEMPERATURE SET POINT LINEARLY BETWEEN THREE OUTSIDE AIR TEMPERATURE SET POINTS: 160F FOR A WINTER OUTSIDE AIR TEMPERATURE SET POINT (40F), 140F FOR A MID-SEASON OUTSIDE AIR TEMPERATURE SET POINT (60F), AND 120F FOR A SUMMER OUTSIDE AIR TEMPERATURE SET POINT (75F). EACH BOILER RESET TABLE SHALL BE OFFSET BY 2 DEGREES FROM THE PRECEDING BOILER SO THAT THE BOILERS WILL BE STAGED ON WHEN THE PRECEDING BOILER CAN NO LONGER MAKE SET POINT. CONTRACTOR TO FOLLOW THE EXISTING SEQUENCE TYPICAL TO SIMILAR HEATING WATER SYSTEMS ON CAMPUS.
2. THE BOILERS SHALL EACH HAVE A CONTROLLER CONFIGURED TO MAINTAIN A DISCHARGE TEMPERATURE SET POINT (NO MASTER BOILER CONTROLLER). THE BAS SHALL PROVIDE THE DISCHARGE TEMPERATURE SET POINT TO THE BOILER(S).
3. BOILERS SHALL BE AUTOMATICALLY ROTATED FOR LEAD AND LAG POSITION ON A WEEKLY BASIS BASED ON RUN TIME.
4. THE PRIMARY PUMP SHALL BE ENABLED WHEN ITS ASSOCIATED BOILER IS ENABLED AND SHALL MAINTAIN ANY MANUFACTURER REQUIRED DELAYS. DELAYS SHALL BE EITHER PROGRAMMED OR HARD WIRED WITH TIME DELAY RELAYS AS REQUIRED BY THE MANUFACTURER.

LEAD LAG SCHEDULE:
1. PROVIDE A SCHEDULE FOR THE BOILERS THAT INDICATES ALL OF THE BOILERS AND THEIR CURRENT POSITION IN THE QUEUE.
2. PROVIDE A SCHEDULE FOR THE PUMPS THAT INDICATES ALL OF THE PUMPS, THEIR CURRENT POSITION IN THE QUEUE, RUN TIME, AND THE NUMBER OF STARTS.

SET POINTS: PROVIDE A SET POINTS TABLE FOR EASE OF OPERATOR ADJUSTMENT.

ALARMS: PROVIDE AN ALARMS TABLE WITH THE FOLLOWING ALARMS.

1. LOW ZONE PRESSURE: ZONE DIFFERENTIAL PRESSURE < ZONE DIFFERENTIAL PRESSURE SET POINT - OFFSET (ADJUSTABLE)
2. HIGH ZONE PRESSURE: ZONE DIFFERENTIAL PRESSURE > ZONE DIFFERENTIAL PRESSURE SET POINT + OFFSET (ADJUSTABLE)
3. LOW SYSTEM PRESSURE: SYSTEM STATIC PRESSURE > SYSTEM STATIC PRESSURE SET POINT ± OFFSET
4. BOILER ALARMS: PROVIDE ALL ALARMS AND WARNINGS COMMUNICATED FROM THE BOILER CONTROLLERS. A GENERAL ALARM IS NOT ACCEPTABLE.
5. VFD IN HAND.
6. VFD IN BYPASS.
7. VFD COMMAND.
8. HIGH CO: CO LEVEL EXCEEDS MAXIMUM SET POINT.

MODES OF OPERATION:

BOILER

A. WHEN THE BOILER IS IN NORMAL MODE, THE ASSOCIATED PRIMARY PUMP SHALL BE ENABLED AND THE BOILER SHALL BE ALLOWED TO OPERATE TO SEQUENCE.
B. WHEN A BOILER IS IN MAINTENANCE MODE, THE ASSOCIATED PRIMARY PUMP SHALL BE DISABLED AND THE BOILER SHALL BE DISABLED. THE NEXT AVAILABLE BOILER SHALL TAKE ITS PLACE IN THE QUEUE.
C. ALARM MODE: WHEN THE BOILERS ARE NOT ALLOWED TO OPERATED DUE TO A FAULT, FAILURE TO PROVE, ETC, THE ASSOCIATED PRIMARY PUMPS SHALL BE DISABLED.

SECONDARY PUMP

A. WHEN THE PUMP IS IN NORMAL MODE, THE PUMP SHALL OPERATED TO SEQUENCE.
B. WHEN THE PUMP IS IN MAINTENANCE MODE, THE PUMP SHALL BE DISABLED AND ANOTHER PUMP SHALL TAKE ITS PLACE IN THE QUEUE.
C. ALARM MODE: WHEN THE PUMP IS NOT ALLOWED TO OPERATED DUE TO A FAULT, FAILURE TO PROVE, ETC, THE PUMP SHALL BE DISABLED AND THE NEXT AVAILABLE PUMP SHALL TAKE ITS PLACE.

TRENDING GROUPS

PROVIDE THE FOLLOWING TREND GROUPS FOR THE IDENTIFIED TRENDS:

A. CRITICAL ZONE RESET: ZONE 1 AND ZONE 2 CRITICAL ZONE VALVE POSITIONS, ZONE PRESSURES, ZONE PRESSURE SET POINTS, AND THE PLANT DIFFERENTIAL PRESSURE.
B. TEMPERATURE CONTROL: BUILDING RETURN WATER TEMPERATURE, BOILER ENTERING WATER TEMPERATURES, BOILER LEAVING TEMPERATURES, PLANT SUPPLY WATER TEMPERATURE, BOILER FIRING RATES, BOILER TEMPERATURE SET POINT, PLANT TEMPERATURE SET POINT, PRIMARY PUMP STATUS.
C. SECONDARY PUMP CONTROL: ZONE PRESSURE AND PRESSURE SET POINTS, PLANT DIFFERENTIAL PRESSURE, SECONDARY PUMP SPEED COMMAND AND FEED BACK, CRITICAL VALVE POSITION.
D. SYSTEM PRESSURE.
E. TEMPERATURE: PLANT ENTERING AND LEAVING TEMPERATURES, ZONE ENTERING AND LEAVING TEMPERATURES.

Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature

No.	Description	Date

UCA Housing Renovations - Phase 2 State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

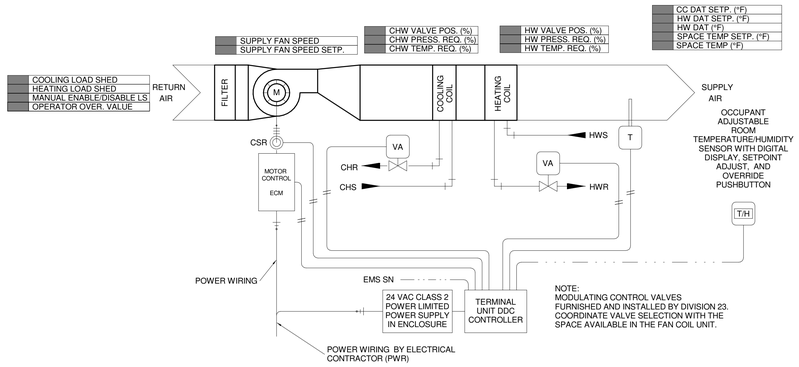
Contents

CONTROLS - HVAC

Sheet Number

M6.5

5/9/2019 1:37:30 PM



SEQUENCE OF OPERATION:

FAN COIL UNIT
TEMPERATURE CONTROL:

PROVIDE SINGLE LOOP CONTROL TO MAINTAIN SPACE TEMPERATURE SET POINT. THE SINGLE LOOP SHALL BE REFERED TO AS THE "SPACE TEMPERATURE CONTROL LOOP." IT SHALL GENERATE A 0 TO 100 OUTPUT THAT IS USED TO CONTROL THE FOLLOWING STAGES FROM A MAXIMUM HEATING CONDITION TO A MAXIMUM COOLING CONDITION. THE LOOP SHALL START IN A NEUTRAL POSITION WHEN ENABLED.

STAGE 1: HEATING WATER VALVE IS FULLY OPEN, THE FAN SPEED IS STEPPED DOWN FROM MAXIMUM SPEED TO MINIMUM SPEED, AND THE CHILLED WATER VALVE IS CLOSED.
STAGE 2: HEATING WATER VALVE IS MODULATED FROM FULLY OPEN TO CLOSED, THE FAN IS AT MINIMUM SPEED, AND THE CHILLED WATER VALVE IS CLOSED.
STAGE 3: THE HEATING WATER VALVE IS CLOSED, THE FAN IS OFF, AND THE CHILLED WATER VALVE IS CLOSED. THE FAN SHALL HAVE AN OVERRIDE AT THE THERMOSTAT TO ALLOW THE FAN TO RUN CONTINUOUSLY AT MINIMUM SPEED INSTEAD OF SHUTTING OFF AT STAGE 3.
STAGE 4: THE HEATING WATER VALVE IS CLOSED, THE FAN IS ON AT MINIMUM SPEED, AND THE CHILLED WATER VALVE IS ENABLED TO MAINTAIN A UNIT DISCHARGE TEMPERATURE SET POINT (55F, ADJ).
STAGE 5: THE HEATING WATER VALVE IS CLOSED, THE FAN IS STEPPED FROM MINIMUM SPEED UP TO MAXIMUM SPEED, AND THE CHILLED WATER VALVE IS ENABLED TO MAINTAIN A UNIT DISCHARGE TEMPERATURE SET POINT (55F, ADJ).
STAGE 6: THE FAN IS AT MAXIMUM SPEED, THE CHILLED WATER VALVE IS ENABLED TO MAINTAIN A UNIT DISCHARGE TEMPERATURE SET POINT (55F, ADJ), AND THE HW VALVE POSITION IS, FROM HUMIDITY CONTROL, MODULATED BACK DOWN TO 0 IN AN OVERRIDE MANNER.

HUMIDITY CONTROL:

THE HEATING VALVE SHALL BE MODULATED FROM CLOSED TO A MAXIMUM HUMIDITY CONTROL POSITION SET POINT (30%, ADJ), VIA A HUMIDITY OVERRIDE CONTROL LOOP AS REQUIRED TO MAINTAIN THE SPACE HUMIDITY SET POINT (55%, ADJ). HUMIDITY CONTROL SEQUENCE SHALL BE DISABLED IF THE HEATING WATER SYSTEM IS NOT OPERATIONAL FOR ANY REASON.

HIGH SAT OVERRIDE:

THE HEATING VALVE POSITION SHALL BE LIMITED SO THAT THE DISCHARGE TEMPERATURE DOES NOTE EXCEED 20 DEG. F ABOVE THE SPACE TEMPERATURE.

SET POINT:

THE SPACE TEMPERATURE SET POINT SHALL BE SET AT THE THERMOSTAT, OR BY THE BAS, BETWEEN SPACE SET POINT MAXIMUM (74F) AND SPACE SET POINT MINIMUM (68F) VALUES, WITH A DEAD BAND OF 1 DEG. F (ADJ) DURING OCCUPIED PERIODS AND 5 DEG F DURING UNOCCUPIED PERIODS. THE RANGE SHALL BE LIMITED DURING THE HEATING RANGE TO PREVENT THE SPACE TEMPERATURE SET POINT FROM EXCEEDING A HEATING HIGH LIMIT SET POINT (72F), AND SHALL BE LIMITED DURING THE COOLING RANGE TO PREVENT THE SPACE TEMPERATURE SET POINT FROM EXCEEDING THE COOLING LOW LIMIT SET POINT (70F).

DORM ROOM OCCUPANCY SHALL BE DETERMINED BY SCHEDULE (SET UP FOR IN SESSION AND OUT OF SESSION SCHEDULES), AND SHALL BE SCHEDULED FOR FULL TIME OCCUPANCY DURING IN-SESSION TIMES OF THE YEAR.

UNITS SHALL BE REDILY CAPABLE OF BEING EXCLUDED FROM ANY RESET CALCULATIONS.

PUBLIC AREA SCHEDULES SHALL BE COORDINATED WITH THE FACILITY.

MODES OF OPERATION:

A. NORMAL: THE UNIT OPERATES TO THE PROVIDED SEQUENCE OF OPERATION.
B. OCCUPANT DISABLED: THE FAN COIL VALVES SHALL CLOSE AND THE FAN SHALL BE DISABLED FROM THE THERMOSTAT.
C. MAINTENANCE DISABLED: THE FAN COIL VALVES SHALL CLOSE AND THE FAN SHALL BE DISABLED.
D. ALARM MODE: IF FAN STATUS DOESN'T PROVE, MOISTURE SWITCH FAILS, ETC, THEN THE FAN COIL VALVES SHALL CLOSE AND THE FAN SHALL BE DISABLED.

ALARMS:

A. SUPPLY FAN: CT TRIPPED, FAN OFF WHEN COMMANDED ON.
B. HIGH SPACE TEMP: SPACE TEMP > ACTIVE SET POINT + 5F OFFSET (ADJ.).
C. LOW SPACE TEMP: SPACE TEMP < ACTIVE SET POINT - 5F OFFSET (ADJ).
D. HIGH HUMIDITY: SPACE HUMIDITY > MAX SPACE HUMIDITY SET POINT + 2% (ADJ).
E. VALVE FAILED: VALVE FEEDBACK DOESN'T MATCH VALVE COMMAND WITHIN 3%.
F. FILTER RUN TIME EXCEEDS ALARM LIMIT.
G. HIGH UNIT MOISTURE.

TRENDING GROUPS:

PROVIDE THE FOLLOWING TREND GROUPS FOR THE IDENTIFIED TRENDS.

A. TEMPERATURE CONTROL: ACTIVE SPACE TEMP SET POINT, SPACE TEMP, SPACE TEMP CONTROL LOOP OUTPUT, HW VALVE, CHW VALVE, FAN SPEED, DAT.
B. OVERRIDE CONTROL: ACTIVE SPACE TEMP SET POINT, SPACE TEMP, SPACE TEMP CONTROL LOOP OUTPUT, HW VALVE, CHW VALVE, DAT, HUMIDITY OVERRIDE, HI SAT OVERRIDE.
C. HUMIDITY CONTROLS: ACTIVE SPACE TEMP SET POINT, SPACE TEMP, SPACE HUMIDITY, SPACE TEMP CONTROL LOOP OUTPUT, HW VALVE, CHW VALVE, DAT, HUMIDITY OVERRIDE, HI SAT OVERRIDE.

GENERAL NOTES:

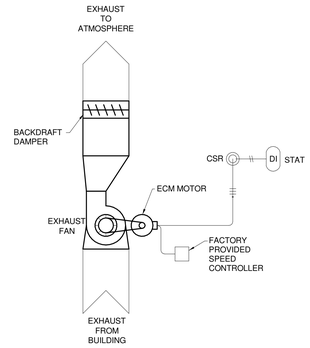
1. IF A COMPONENT IS DISABLED DUE TO MAINTENANCE SHUTDOWN OR A FAULT CONDITION, THE COMPONENT SHALL BE HIGHLIGHTED, OUTLINED, FLASH OR CHANGE COLORS.
2. THIS GRAPHIC SHALL BE REPRESENTED ON THE BAS, INCLUDING THE RESULTS OF AS-BUILT CONDITIONS. THE GRAPHIC IS TO BE POPULATED WITH LIVE VALUES. SETPOINTS SHALL BE ADJUSTABLE FROM THIS GRAPHIC AND LINKS SHALL BE PROVIDED TO TRENDING GROUPS.
3. IF MULTIPLE UNITS SERVE THE SAME AREA, ONE OF THE CONTROLLERS WILL BE DESIGNATED AS THE MASTER CONTROLLER AND ALL OTHER CONTROLLERS WILL BE DESIGNATED AS SLAVE CONTROLLERS. VALVE ACTUATORS OF THE SLAVE CONTROLLERS WILL TRACK THOSE OF THE MASTER CONTROLLER.
4. ALL CONTROLLERS, ACTUATORS, SENSORS SWITCHES, TUBING AND POINTS INDICATED ON THE PLANS ARE PROVIDED AND INSTALLED BY DIVISION 23, UNLESS INDICATED OTHERWISE.
5. ALL POINTS AND COMPONENTS INDICATED ON THE CONTROL DRAWINGS ARE NEW AND PROVIDED BY DIVISION 23 UNLESS INDICATED OTHERWISE.
6. CONTROL VALVES SHALL BE SELECTED WITH PROPER AUTHORITY FOR THEIR GIVEN APPLICATION, PROVIDED BY DIVISION 23 AND INSTALLED BY DIVISION 23.
7. A SINGLE TRANSFORMER MAY BE PROVIDED FOR UP TO 10 CONTROLLERS PROVIDED THE LENGTH OF RUNS AND ZONING IS TAKEN INTO CONSIDERATION.
8. CONTROL WIRING IS BY DIVISION 23.
9. REFER TO MECHANICAL SHEETS FOR PIPE AND DUCT SIZES.
10. POWER WIRING IS BY DIVISION 26.
11. ATC CONTRACTOR SHALL TUNE ALL LOOPS AND TABLES FOR SMOOTH, STABLE OPERATION. NUMBERS INDICATED IN THESE DIAGRAMS ARE FOR A STARTING POINT ONLY. THESE DIAGRAMS REPRESENT THE BASIC FUNCTION OF THE CONTROLS SEQUENCE AND ARE NOT ALL INCLUSIVE. THE ATC CONTRACTOR IS STILL REQUIRED TO PROVIDE, DEFINE AND INDICATE ALL ALARMS, SETPOINTS AND FUNCTIONS REQUIRED TO ACHIEVE THE INTENT OF THE SEQUENCE AND TO MAINTAIN ALL EQUIPMENT MANUFACTURER'S REQUIREMENTS.
12. REFER TO MECHANICAL SHEETS AND SCHEDULES FOR FINAL COUNTS AND LOCATIONS. CONTRACTOR TO VERIFY FINAL QUANTITIES WITH MECHANICAL SCHEDULES AND PLANS.

FAN COIL UNIT ALARMS

#	DESCRIPTION	ON GRAPHIC	IN TABLE
A	SUPPLY FAN FAIL	YES	YES
B	HIGH SPACE TEMP	YES	YES
C	LOW SPACE TEMP	YES	YES
D	HIGH HUMIDITY	YES	YES
E	VALVE FAILED	NO	YES
F	FILTER RUN TIME	NO	YES
G	UNIT MOISTURE ALARM	YES	YES

1 TYPICAL HEATING AND COOLING FAN COIL UNIT CONTROL DIAGRAM

NOT TO SCALE



SEQUENCE OF OPERATION:

MODES OF OPERATION
EXHAUST FAN SHALL BE ENABLED AND DISABLED BY DISCONNECT.

EXHAUST FAN ALARMS

#	DESCRIPTION	ON GRAPHIC	IN TABLE
N/A	FAILED CURRENT SWITCH	N/A	YES

DIAGRAM GENERAL NOTES:

1. POWER WIRING TO TOGGLE DISCONNECT BY DIVISION 26.
2. CONTROL WIRING FROM MOTOR STARTER TO DAMPER ACTUATOR SHALL BE FURNISHED AND INSTALLED BY DIVISION 23.
3. CONTROL DAMPER FURNISHED AND FACTORY MOUNTED WITH EXHAUST FAN. DAMPER ACTUATOR FURNISHED DIVISION 23.

2 GENERAL EXHAUST CONTROL DIAGRAM

NOT TO SCALE

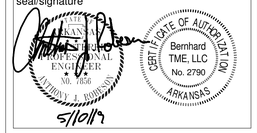
Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature



No.	Description	Date

UCA Housing Renovations - Phase 2
State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

Contents

CONTROLS - HVAC

Sheet Number

M6.6

5/9/2019 1:37:31 PM

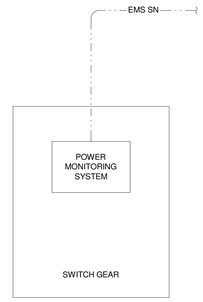


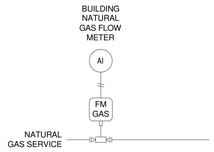
DIAGRAM GENERAL NOTE:

POWER SHALL BE MONITORED VIA INTERROGATION OF CAMPUS NETWORK.

ENERGY MONITORING:
THE METER WILL BE TIED INTO THE NEW BACNET/MSTP BUILDING AUTOMATION SYSTEM. METER WILL BE PROVIDED BY ELECTRICAL CONTRACTOR. COMMUNICATION CABLING WILL BE PROVIDED BY ATC CONTRACTOR. REFER TO DRAWINGS FOR LOCATION OF THE METER. DIVISION 230900 WILL INTEGRATE TO THE METER.

THE NEW BACNET NETWORK SHALL OBTAIN ALL AVAILABLE POINTS FROM THE GEAR. THE NEW BACNET NETWORK SHALL LOG AND DISPLAY INSTANTANEOUS VOLTAGE, CURRENT, POWER (KW), USAGE (KWH), AND POWER FACTOR. THE NEW BACNET NETWORK SHALL DISPLAY INSTANTANEOUS , HOURLY, DAILY, MONTHLY, YEARLY VALUES, AND ALARMS ON THE NEW BACNET NETWORK GRAPHIC.

1 ELECTRICAL MONITORING CONTROL DIAGRAM
NOT TO SCALE



NATURAL GAS METERING ALARMS			
#	DESCRIPTION	ON GRAPHIC	IN TABLE
1	HIGH USAGE	NO	NO
2	HIGH FLOW RATE	NO	NO

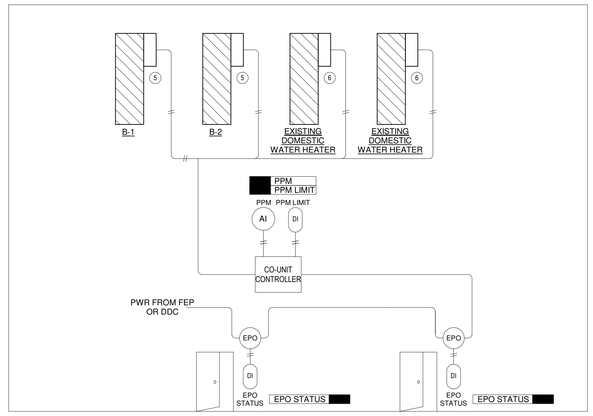
ENERGY MONITORING:
THE EMS SHALL MONITOR THE NATURAL GAS FOR INSTANTANEOUS FLOW RATE AND USAGE. THE EMS TO PROVIDE INSTANTANEOUS USE, HOURLY, DAILY, MONTHLY, YEARLY USAGE AND PROVIDE COMPARATIVE DATA FROM PREVIOUS HOUR, DAY, MONTH, AND YEARS ON A DASH BOARD GRAPHIC IN THE EMS.

* PROVIDE PULSE COUNTER ON EXISTING, UCA OWNED GAS METER.

DIAGRAM GENERAL NOTES:

1. EXISTING GAS METER TO HAVE PULSE COUNTER PROVIDED AND WIRED BY ATC CONTRACTOR AND INSTALLED BY DIVISION 22 CONTRACTOR.

2 NATURAL GAS METERING CONTROL DIAGRAM
NOT TO SCALE



EMERGENCY BOILER SHUT-OFF SEQUENCE OF OPERATION:
1. UPON EMERGENCY STATUS INDICATED BY CO SWITCH OR EMERGENCY OFF SWITCH, ALL BOILERS SHALL BE DISABLED BY A BUILT-IN SAFETY INTERLOCK (IF AVAILABLE) OR THROUGH A RELAY INSTALLED IN THE THE BOILER CONTROLLER POWER CIRCUIT.

ALARM MONITORING:
AN ALARM SHALL BE GENERATED AT THE EMS IF ANY OF THE FOLLOWING OCCUR:
1. CO SWITCH IS TRIGGERED.
2. BOILER EMERGENCY POWER OFF SWITCH IS TRIGGERED.
3. REMOTE ALARM CIRCUIT ACTIVE (LOW WATER, OVER PRESSURE, OR LOSS OF OPERATING BOILER).

DIAGRAM GENERAL AND KEYED NOTES:

1. CARBON MONOXIDE DETECTOR LOCATED IN BOILER ROOM.
2. CARBON MONOXIDE DETECTOR CONTROLLER, SENSOR, POWER SUPPLY, AND CONTROL WIRING PROVIDED AND INSTALLED BY DIVISION 23.
3. EPO SWITCHES LOCATED BY BOILER ROOM DOORS.
4. CARBON MONOXIDE LIMIT TO BE SET FOR 50 PPM UNLESS DICTATED OTHERWISE BY AHJ OR LOCAL ORDINANCES.
5. COORDINATE BOILER SAFETY INTERLOCK WIRING WITH INDIVIDUAL BOILER MANUFACTURER. MANUFACTURER MAY REQUIRE RELAY TO BE PROVIDED TO INTERRUPT ENABLE SIGNAL OR MAY PROVIDE CONTACTS FOR SAFETY OFF.
6. CONNECT SAFETY CIRCUIT TO EXISTING DOMESTIC WATER HEATERS. FIELD VERIFY EXACT NUMBER OF DOMESTIC WATER HEATERS. EACH EXISTING WATER HEATER TO HAVE ITS OWN SAFETY CIRCUIT CONNECTION.

3 BOILER EMERGENCY POWER-OFF CONTROL DIAGRAM
NOT TO SCALE

Lead Architect:
Stocks-Mann Architects, PLC
401 W. Capitol, Suite 401
Little Rock, AR 72201
501-370-9207

Associate Architect:
Woods Group Architects
2200 Main Street
Little Rock, AR 72206
501-372-2230

Structural Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6676

MEP/Fire Protection Engineer:
Bernhard TME
1 Allied Drive, Suite 2600
Little Rock, AR 72202
501-666-6776

seal/signature

No.	Description	Date

UCA Housing Renovations - Phase 2 State Hall

University of Central Arkansas
Conway, Arkansas

SMA Project Number	1807
Date	05-10-2019
Phase	Construction Drawings
UCA Project Number	UCA-19-021

Contents

CONTROLS - HVAC

Sheet Number

M6.7

5/9/2019 1:37:32 PM