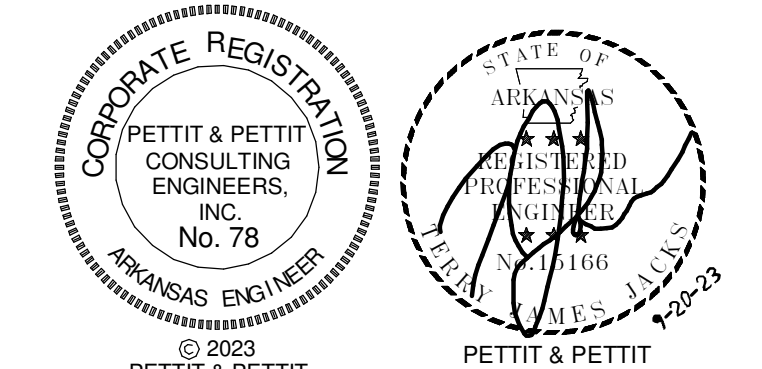
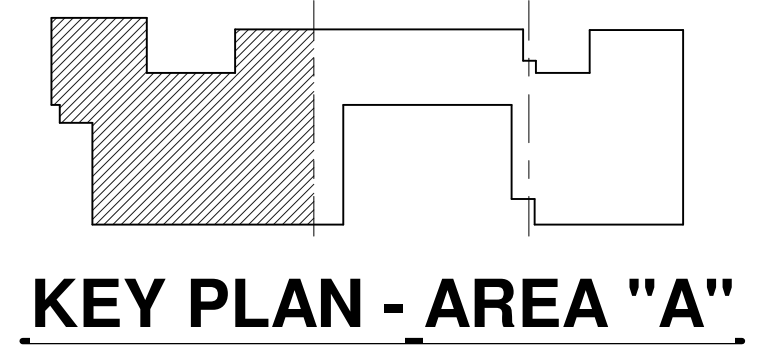


- ### HVAC GENERAL NOTES
- ALL LIGHTER SOLID LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC. TO REMAIN.
 - ALL DARKER SOLID LINES REPRESENT NEW PIPING, DUCTWORK, EQUIPMENT, ETC.
 - FIELD VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING ITEMS SHOWN ON THIS PLAN THAT ARE TO BE CONNECTED TO.
 - REFER TO M1.9 FOR PROJECT PHASING PLAN.

- ### HVAC KEYED NOTES
- EXISTING BOILER **B-1** TO REMAIN.
 - EXISTING BOILER **B-2** TO REMAIN.
 - EXISTING CHILLER **CH-1** TO REMAIN.
 - EXISTING COOLING TOWER PUMPS TO REMAIN.
 - NEW HEATING WATER SECONDARY PUMPS **P-1A** AND **P-1B** ON EXISTING CONC. PAD. MODIFY PAD AS REQUIRED FOR NEW PUMPS.
 - NEW CHILLED WATER SECONDARY PUMPS **P-2A** AND **P-2B** ON EXISTING CONC. PAD. MODIFY PAD AS REQUIRED FOR NEW PUMPS.
 - EXISTING CHILLED WATER PRIMARY PUMP **P-3** TO REMAIN.
 - EXISTING AIR HANDLING UNIT TO REMAIN.
 - EXISTING ELECTRICAL SWITCHGEAR TO REMAIN.

1 LEVEL 1 PLAN - RENOV PART A - HVAC
SCALE: 1/8" = 1'-0"



#	Date	Description
1	4-23-24	PR-4

H+N ARCHITECTS

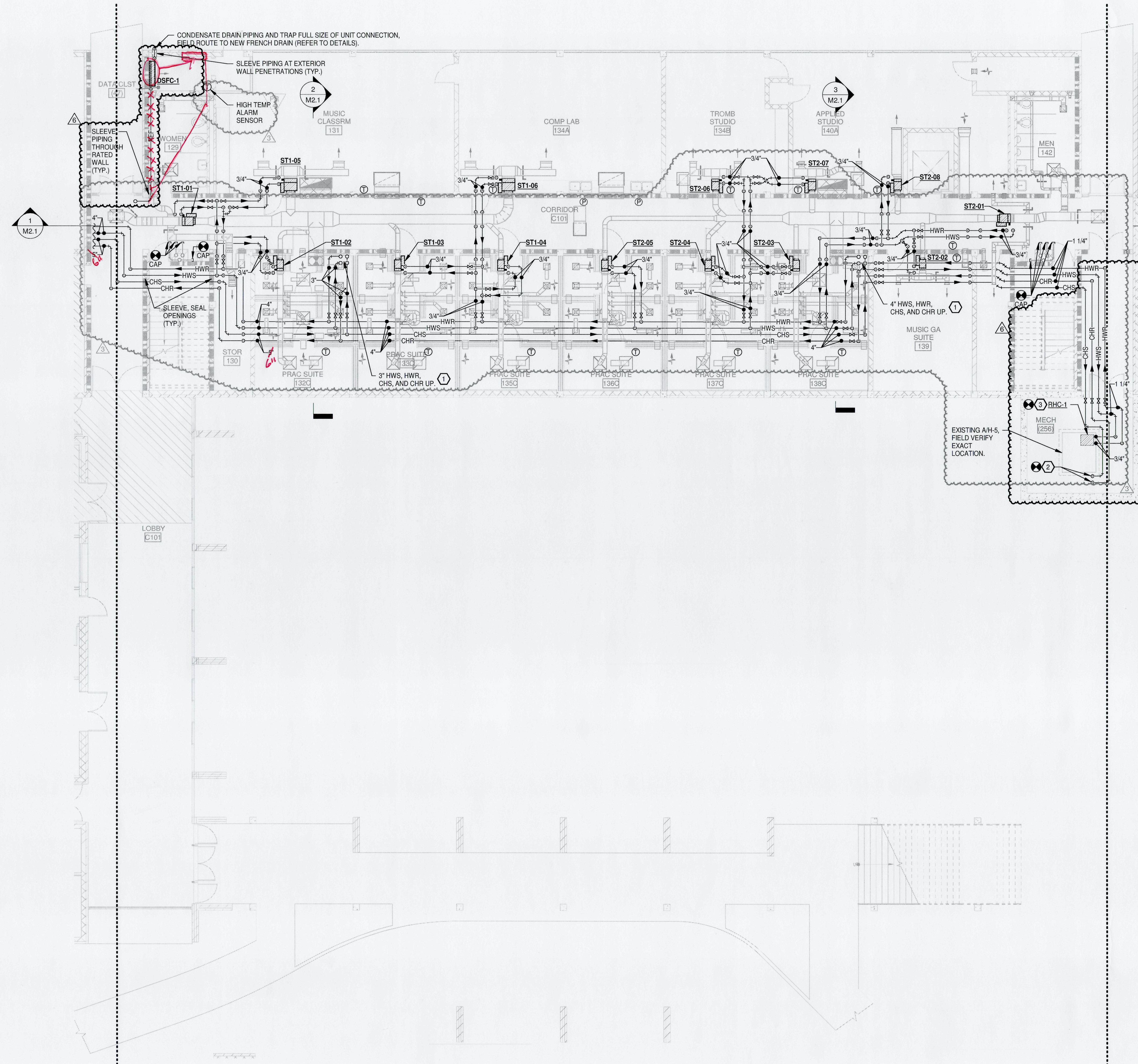
1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

901 W 3rd St.
Little Rock, AR 72201
501.374.5300
www.WERarch.com

**UCA SNOW FINE ARTS CENTER
RENOVATIONS
CONWAY, AR**

VERIFY SCALE
INCH ON ORIGINAL DRAWING
0 1"

Date: 09/20/23
Title: LEVEL 1 PLAN - PART A - HVAC
Sheet Number:
M1.1A
COPYRIGHT H+N ARCHITECTS 2023



HVAC GENERAL NOTES

1. ALL LIGHTER SOLID LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC. TO REMAIN.
2. ALL DARKER SOLID LINES REPRESENT NEW PIPING, DUCTWORK, EQUIPMENT, ETC.
3. FIELD VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING ITEMS SHOWN ON THIS PLAN THAT ARE TO BE CONNECTED TO.
4. REFER TO M1.9 FOR PROJECT PHASING PLAN.

HVAC THERMOSTAT WIRING NOTES

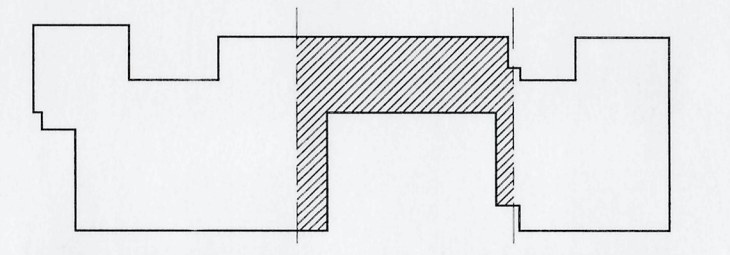
1. NEW THERMOSTAT / HUMIDISTAT WIRING TO BE ROUTED IN WIREMOLD AT BLOCK WALLS AND/OR AT OTHER SOLID WALLS THAT WOULD REQUIRE SAW CUTTING OR OTHER DESTRUCTIVE METHODS TO INSTALL NEW WIRING INTO THE WALL INTERIOR SPACE. WIREMOLD COLOR SHALL MATCH WALL COLOR (OR WIREMOLD COLOR SHALL BE AS OTHERWISE DIRECTED BY ARCHITECT / OWNER, FIELD VERIFY BEFORE INSTALLING).

HVAC KEYED NOTES

1. PROVIDE HOSE BIBB WITH CAP DOWNSTREAM OF FLOOR VALVE FOR PIPE DRAINAGE.
2. RE-WORK EXISTING SUPPLY DUCTWORK DIRECTLY DOWNSTREAM OF THE EXISTING A/H-5 AIR HANDLING UNIT SUPPLY CONNECTION (FIELD VERIFY) FOR INSTALLATION OF NEW RE-HEAT COIL RHC-1. PROVIDE NEW DUCTWORK TRANSITIONS AS REQUIRED.
3. 1-1/4" CHS / CHR TO EXISTING A/H-5 COOLING COIL. RE-CONNECT PIPING.

H+N ARCHITECTS
 WERR
 901 W 3rd St.
 Little Rock, AR 72201
 501.374.5300
 www.WERRarch.com

**UCA SNOW FINE ARTS CENTER
 RENNOVATIONS
 CONWAY, AR**



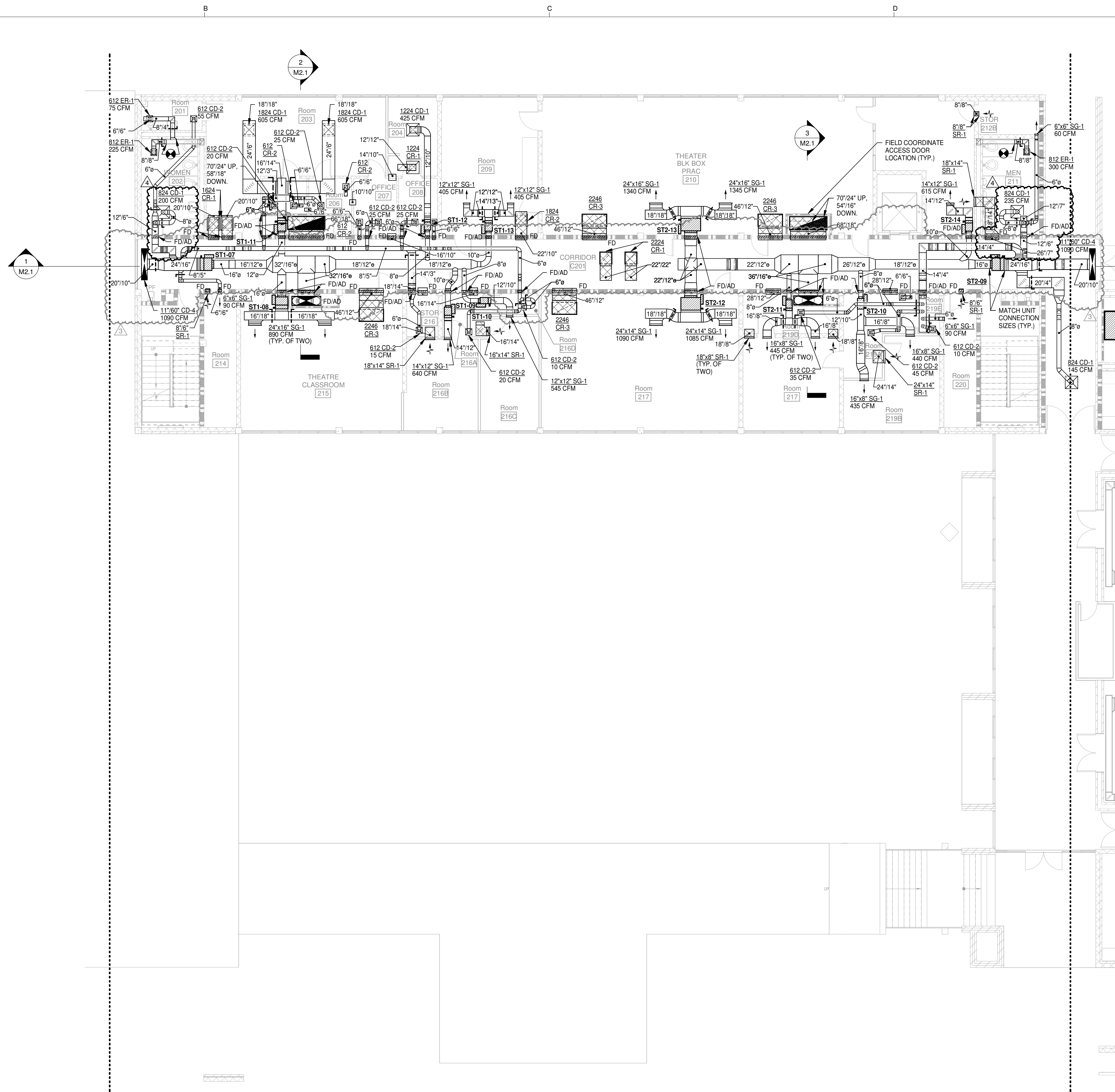
1 LEVEL 1 PLAN - RENOV PART B - HVAC PIPING
 SCALE: 1/8" = 1'-0"

© 2023
 PETTIT & PETTIT
 CONSULTING ENGINEERS, INC.
 LITTLE ROCK, ARKANSAS

#	Date	Description
4-23-24	PR-4	
2-13-24	PR-1	

Revision History

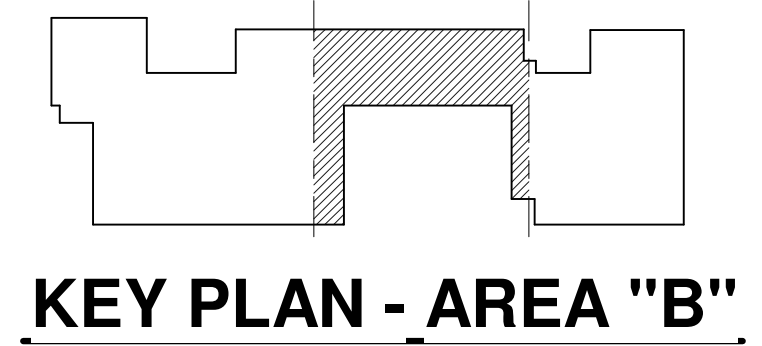
Date: 09/20/23
 Title: LEVEL 1 PLAN - PART B - HVAC PIPING
 Sheet Number:
M1.3B
 COPYRIGHT H+N ARCHITECTS 2023



- ### HVAC GENERAL NOTES
1. ALL LIGHTER SOLID LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC. TO REMAIN.
 2. ALL DARKER SOLID LINES REPRESENT NEW PIPING, DUCTWORK, EQUIPMENT, ETC.
 3. FIELD VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING ITEMS SHOWN ON THIS PLAN THAT ARE TO BE CONNECTED TO.
 4. REFER TO M1.9 FOR PROJECT PHASING PLAN.

- ### HVAC SUPPLY DUCTWORK NOTES
1. ALL LOW PRESSURE SUPPLY AIR DUCTWORK DOWNSTREAM OF THE VARIABLE AIR VOLUME (VAV) SUPPLY AIR TERMINAL BOXES SHALL BE INTERNALLY LINED.

1 LEVEL 2 PLAN - RENOV PART B - HVAC DUCTWORK
SCALE: 1/8" = 1'-0"



VERIFIED SCALE
INCH ON ORIGINAL DRAWING
0 1"

KEY PLAN - AREA "B"

PETTIT & PETTIT
CONSULTING ENGINEERS,
INC.
No. 78
ARKANSAS ENGINEER

PETTIT & PETTIT
CONSULTING ENGINEERS, INC.
No. 1166
ARKANSAS ENGINEER

© 2023
PETTIT & PETTIT
CONSULTING ENGINEERS, INC.
LITTLE ROCK, ARKANSAS

#	Date	Description
3	3-15-24	PR-2
2	2-13-24	PR-1
1		

Revision History

H+N ARCHITECTS

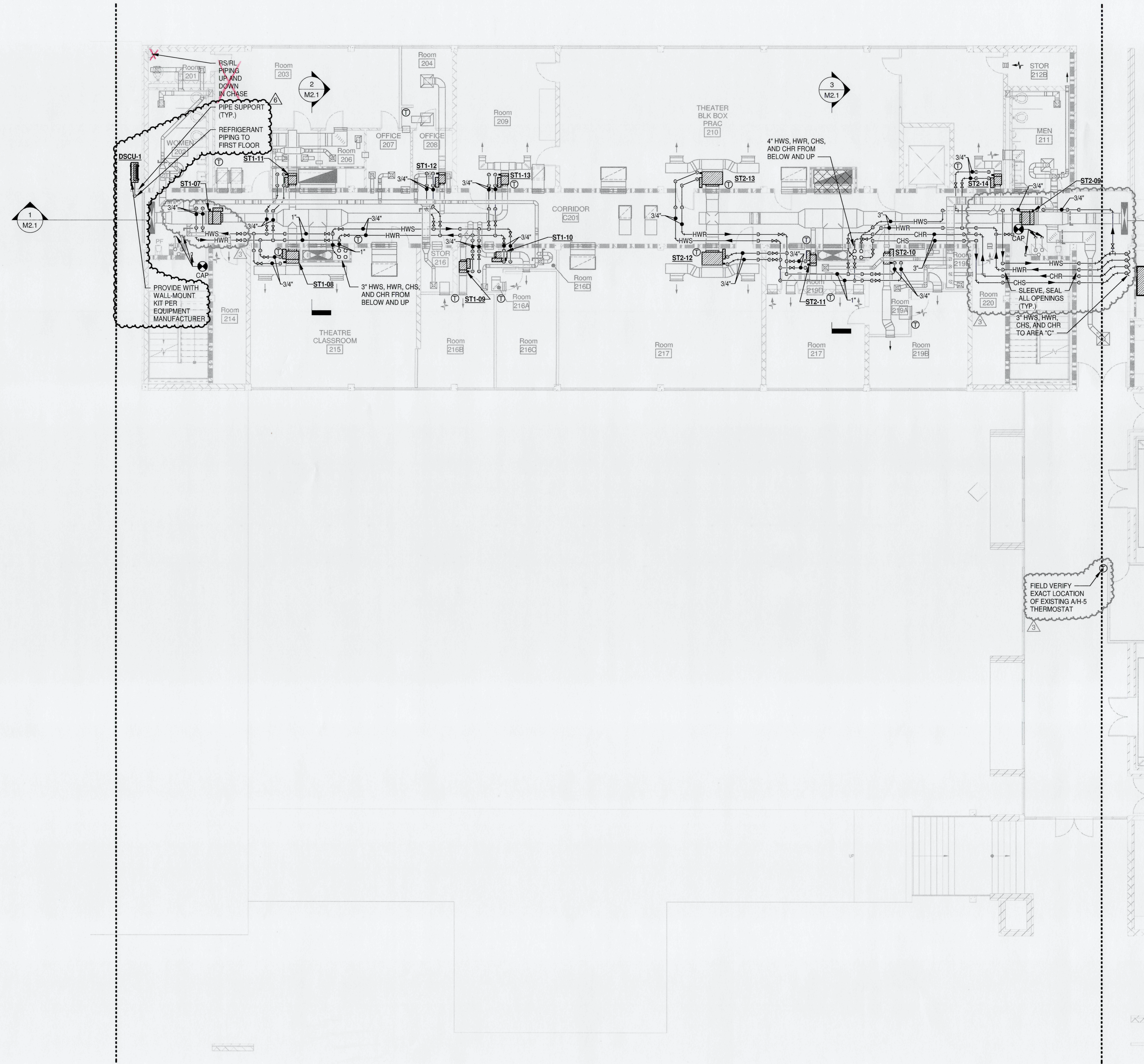
1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

WE RARCH

901 W 3rd St.
Little Rock, AR 72201
501.374.5300
www.WERarch.com

**UCA SNOW FINE ARTS CENTER
RENOVATIONS
CONWAY, AR**

Date: 09/20/23
Title: LEVEL 2 PLAN - PART B - HVAC DUCTWORK
Sheet Number:
M1.4B
COPYRIGHT H+N ARCHITECTS 2023



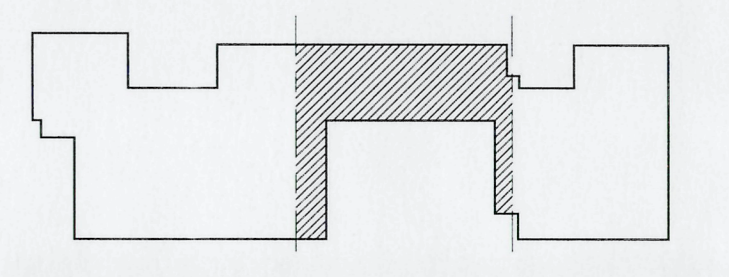
HVAC GENERAL NOTES

1. ALL LIGHTER SOLID LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC. TO REMAIN.
2. ALL DARKER SOLID LINES REPRESENT NEW PIPING, DUCTWORK, EQUIPMENT, ETC.
3. FIELD VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING ITEMS SHOWN ON THIS PLAN THAT ARE TO BE CONNECTED TO.
4. REFER TO M1.9 FOR PROJECT PHASING PLAN.

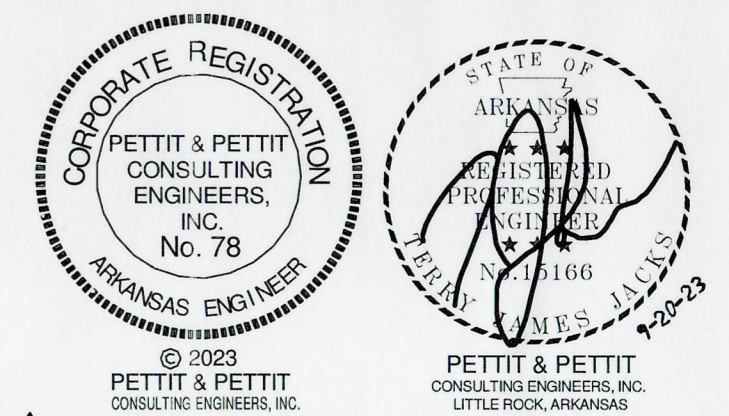
HVAC THERMOSTAT WIRING NOTES

1. NEW THERMOSTAT / HUMIDISTAT WIRING TO BE ROUTED IN WIREMOLD AT BLOCK WALLS AND/OR AT OTHER SOLID WALLS THAT WOULD REQUIRE SAW CUTTING OR OTHER DESTRUCTIVE METHODS TO INSTALL NEW WIRING INTO THE WALL INTERIOR SPACE. WIREMOLD COLOR SHALL MATCH WALL COLOR (OR WIREMOLD COLOR SHALL BE AS OTHERWISE DIRECTED BY ARCHITECT / OWNER, FIELD VERIFY BEFORE INSTALLING).

FIELD VERIFY EXACT LOCATION OF EXISTING AH-5 THERMOSTAT



KEY PLAN - AREA "B"



#	Date	Description
6	4-23-24	PR-4
3	2-13-24	PR-1
1		

1 LEVEL 2 PLAN - RENOV PART B - HVAC PIPING
SCALE: 1/8" = 1'-0"

H+N ARCHITECTS
1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

WE R R
901 W 3rd St.
Little Rock, AR 72201
501.374.5300
www.WERarch.com

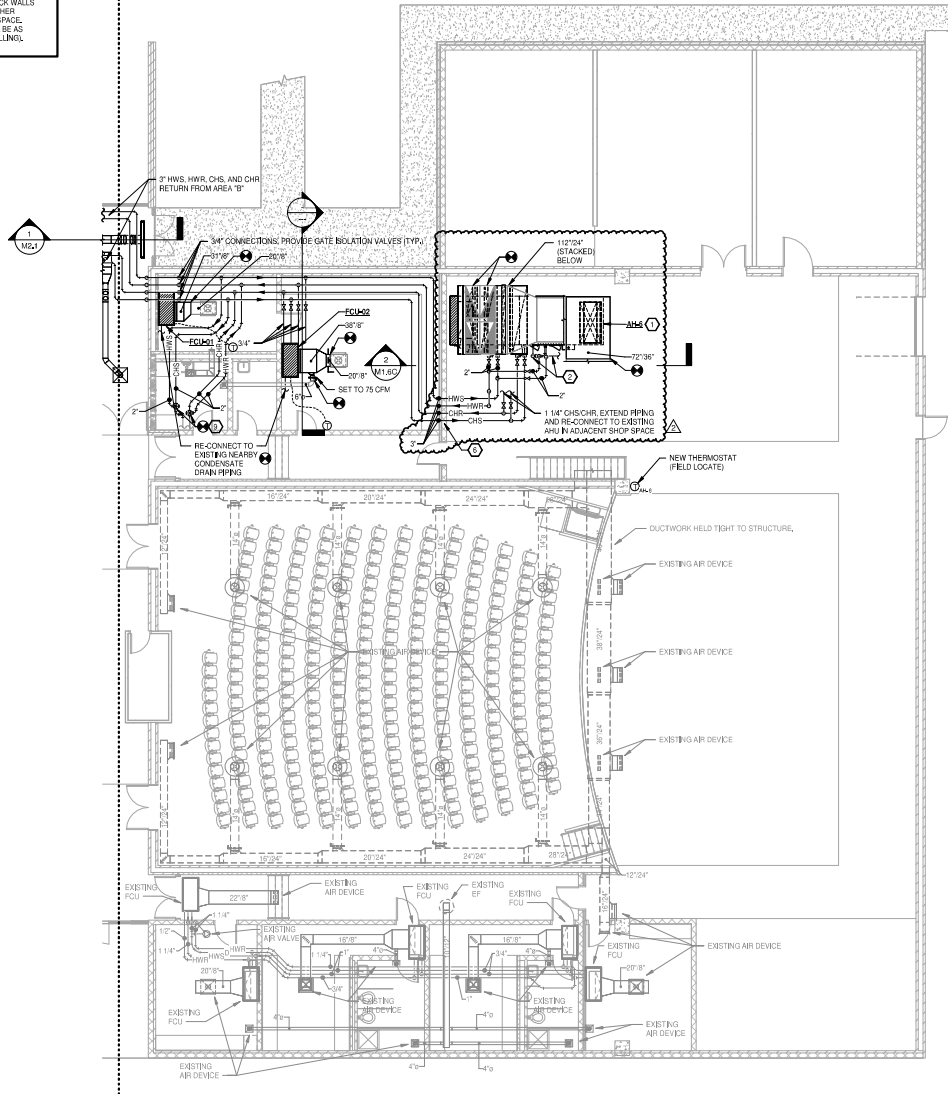
UCA SNOW FINE ARTS CENTER RENNOVATIONS
CONWAY, AR

VERIFY SCALE
INCH ON ORIGINAL DRAWING
0 1"

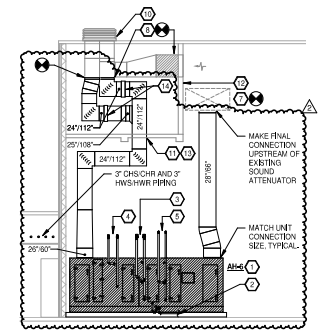
Date: 09/20/23
Title: LEVEL 2 PLAN - PART B - HVAC PIPING
Sheet Number:
M1.5B
COPYRIGHT H+N ARCHITECTS 2023

HVAC THERMOSTAT WIRING NOTES

1. NEW THERMOSTAT, HUMIDISTAT WIRING TO BE ROUTED IN WIREMOLD AT BLOCK WALLS AND/OR AT OTHER SOLID WALLS THAT WOULD REQUIRE SAW CUTTING OR OTHER DESTRUCTIVE METHODS TO INSTALL NEW WIRING INTO THE WALL INTERIOR SPACE. WIREMOLD COLOR SHALL MATCH WALL COLOR (OR WIREMOLD COLOR SHALL BE AS OTHERWISE DIRECTED BY ARCHITECT/OWNER, FIELD VERIFY BEFORE INSTALLING).



1 LEVEL 2 PLAN - RENOV PART C - HVAC
SCALE: 1/8" = 1'-0"



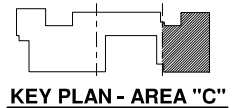
2 AH-6 SECTION
SCALE: 1/8" = 1'-0"

HVAC KEYED NOTES

- 1. NEW AIR HANDLING UNIT (AHU) SHALL BE INSTALLED ON NEW 8" CONCRETE EQUIPMENT PAD BENEATH EXISTING EQUIPMENT ROOM. CONNECT TO EXISTING SUPPLY AND MIXED RETURN DUCTWORK.
- 2. RUN NEW CONDENSATE DRAIN FULL SIZE TO EXISTING CONDENSATE DRAIN PIPING.
- 3. EXTEND 3" CHS/HR PIPING TO **AHU**.
- 4. EXTEND 2" HWS/HR PIPING TO **AHU** PREHEAT COIL.
- 5. EXTEND 2" HWS/HR PIPING TO **AHU** REHEAT COIL.
- 6. CORE DRILL WALL AS REQUIRED TO ROUTE PIPING THROUGH WALL. SLEEVE PIPING AT WALL PENETRATION. FIRE CALK ALL VOIDS.
- 7. CONNECT TO EXISTING SUPPLY DUCTWORK AND SUPPLY DUCT SILENCER.
- 8. CONNECT TO EXISTING RETURN DUCTWORK AND RETURN DUCT SILENCER.
- 9. NEW 3-WAY CHANGEOVER CONTROL VALVE TO SERVE EXISTING 2-PIPE FAN COIL UNITS.
- 10. EXISTING ROOFTOP VENTILATOR TO REMAIN.
- 11. EXISTING MECHANICAL ROOM FLOOR TO BE DEMOLISHED AS REQUIRED TO ROUTE NEW MIXED RETURN AIR DUCTWORK.
- 12. EXISTING MECHANICAL ROOM ABOVE TO REMAIN.
- 13. STRUCTURAL FRAMING AT NEW DUCTWORK OPENINGS. SEE STRUCTURAL SHEETS FOR DETAILS.
- 14. NEW MODULATING MOTORIZED CONTROL AIR DAMPER.

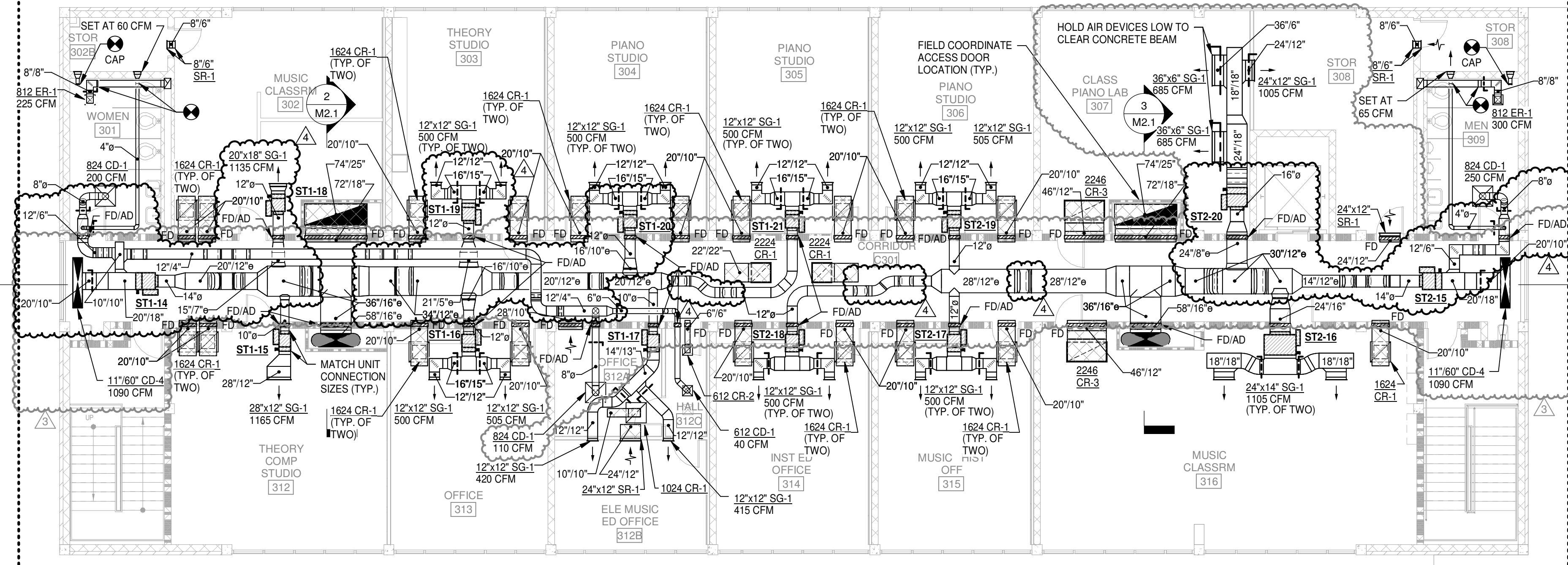
HVAC GENERAL NOTES

1. ALL LIGHTER SOLID LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC. TO REMAIN.
2. ALL DARKER SOLID LINES REPRESENT NEW PIPING, DUCTWORK, EQUIPMENT, ETC.
3. FIELD VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING ITEMS SHOWN ON THIS PLAN THAT ARE TO BE CONNECTED TO.
4. REFER TO M1.0 FOR PROJECT PHASING PLAN.

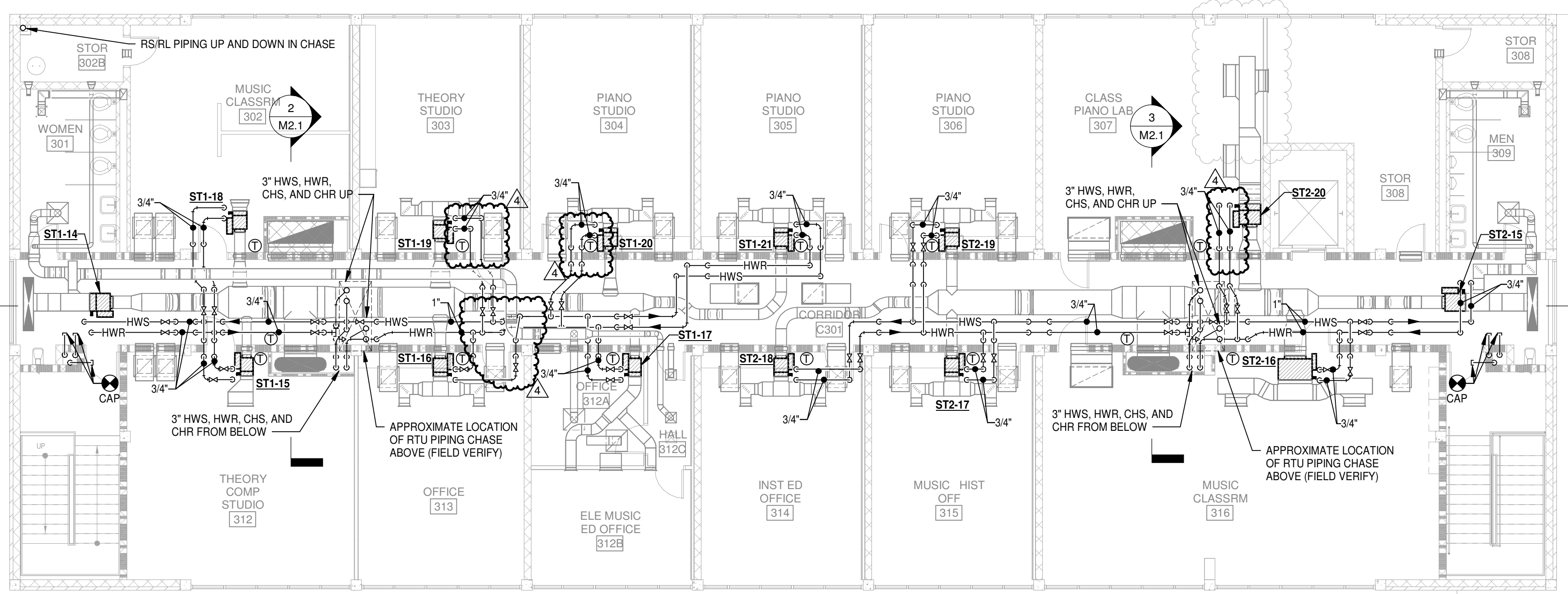


PROFESSIONAL ENGINEER
PETTIT & PETTIT CONSULTING ENGINEERS, INC.
 NO. 78
 MISSISSIPPI REGISTERED
 10-20-23
 ADDENDUM #2
 DATE: 09/20/23
 DESIGNER: [Signature]

Date: 09/20/23
 Title: LEVEL 2 PLAN - PART C - HVAC
 Sheet Number: **M1.6C**
 COPYRIGHT H+N ARCHITECTS 2023



1 LEVEL 3 PLAN - RENOV PART B - HVAC DUCTWORK
SCALE: 1/8" = 1'-0"



2 LEVEL 3 PLAN - RENOV PART B - HVAC PIPING
SCALE: 1/8" = 1'-0"

HVAC GENERAL NOTES

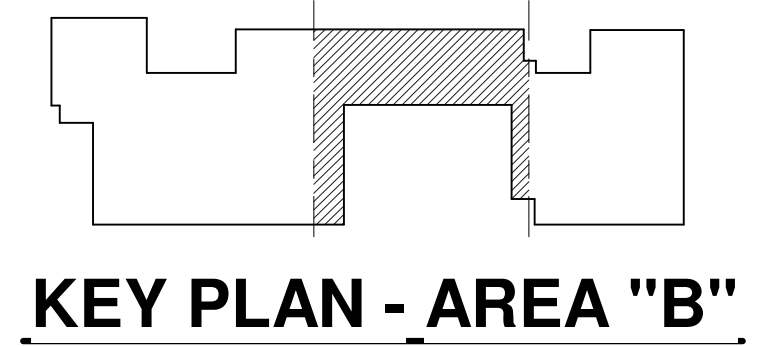
1. ALL LIGHTER SOLID LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC. TO REMAIN.
2. ALL DARKER SOLID LINES REPRESENT NEW PIPING, DUCTWORK, EQUIPMENT, ETC.
3. FIELD VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING ITEMS SHOWN ON THIS PLAN THAT ARE TO BE CONNECTED TO.
4. REFER TO M1.9 FOR PROJECT PHASING PLAN.

HVAC THERMOSTAT WIRING NOTES

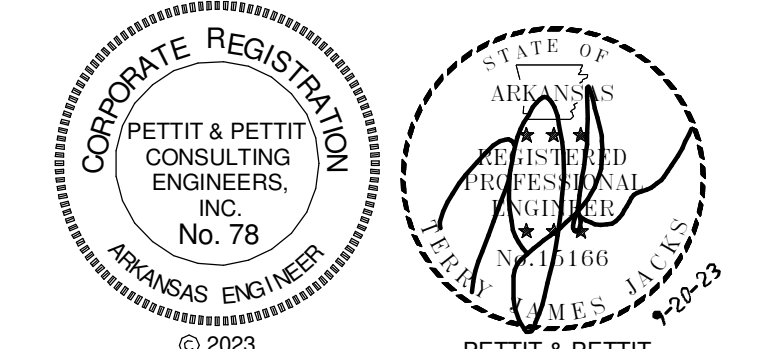
1. NEW THERMOSTAT / HUMIDISTAT WIRING TO BE ROUTED IN WIREMOLD AT BLOCK WALLS AND/OR AT OTHER SOLID WALLS THAT WOULD REQUIRE SAW CUTTING OR OTHER DESTRUCTIVE METHODS TO INSTALL NEW WIRING INTO THE WALL INTERIOR SPACE. WIREMOLD COLOR SHALL MATCH WALL COLOR (OR WIREMOLD COLOR SHALL BE AS OTHERWISE DIRECTED BY ARCHITECT / OWNER, FIELD VERIFY BEFORE INSTALLING).

HVAC SUPPLY DUCTWORK NOTES

1. ALL LOW PRESSURE SUPPLY AIR DUCTWORK DOWNSTREAM OF THE VARIABLE AIR VOLUME (VAV) SUPPLY AIR TERMINAL BOXES SHALL BE INTERNALLY LINED.



KEY PLAN - AREA "B"



3-15-24	PR-2
2-13-24	PR-1
#	Date Description
Revision History	

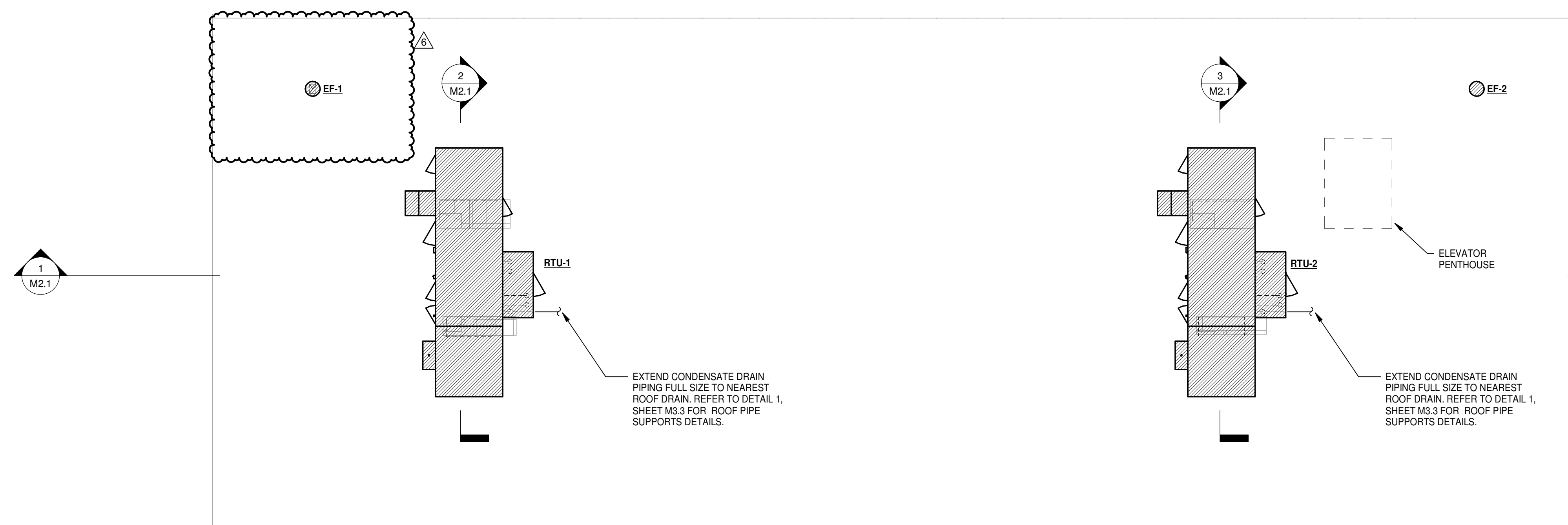
H+N ARCHITECTS
1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

WE RARCH
901 W 3rd St.
Little Rock, AR 72201
501.374.5300
www.WERarch.com

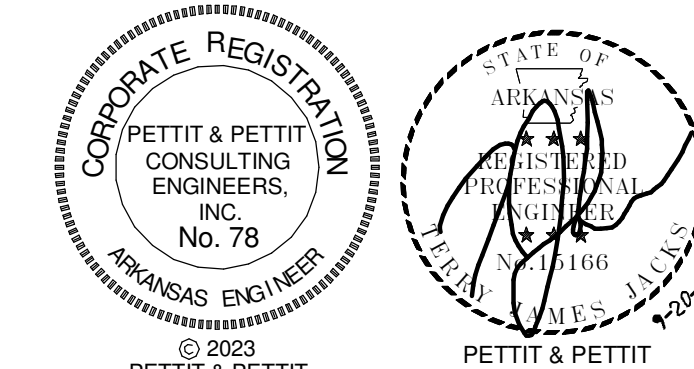
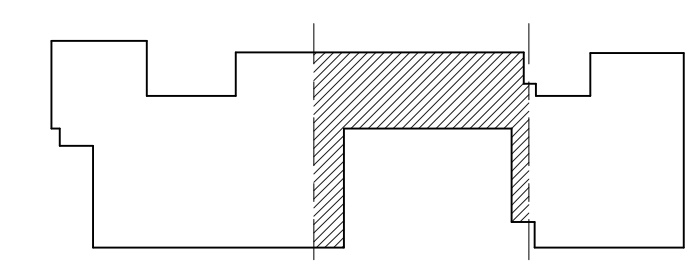
**UCA SNOW FINE ARTS CENTER
RENOVATIONS
CONWAY, AR**

VERIFY SCALE
INCH ON ORIGINAL DRAWING
0 1"

Date: 09/20/23
Title: LEVEL 3 PLAN - PART B - HVAC DUCTWORK
Sheet Number:
M1.7B
COPYRIGHT H+N ARCHITECTS 2023



- ### HVAC GENERAL NOTES
1. ALL LIGHTER SOLID LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC. TO REMAIN.
 2. ALL DARKER SOLID LINES REPRESENT NEW PIPING, DUCTWORK, EQUIPMENT, ETC.
 3. FIELD VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING ITEMS SHOWN ON THIS PLAN THAT ARE TO BE CONNECTED TO.
 4. REFER TO M1.9 FOR PROJECT PHASING PLAN.



#	Date	Description
1	4-23-24	PR-4

H+N ARCHITECTS

1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

WER

901 W 3rd St.
Little Rock, AR 72201
501.374.5300
www.WERarch.com

**UCA SNOW FINE ARTS CENTER
RENOVATIONS
CONWAY, AR**

VERIFY SCALE
INCH ON ORIGINAL DRAWING
0 1"

Date: 09/20/23
Title: LEVEL ROOF PLAN - PART B - HVAC
Sheet Number:
M1.8B
COPYRIGHT H+N ARCHITECTS 2023

PROJECT PHASING PLAN

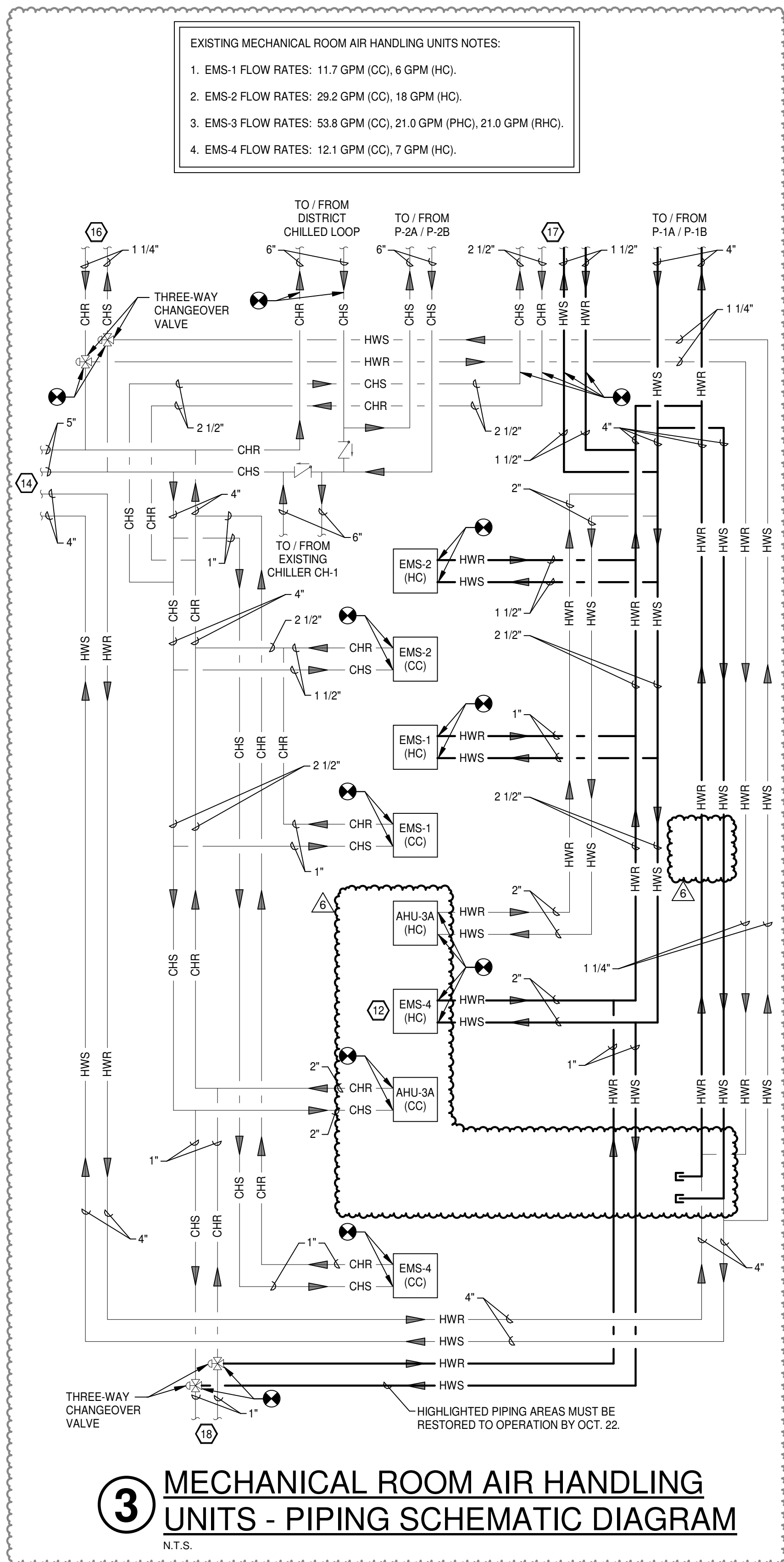
THIS PROJECT IS TO BE PHASED IN A MANNER THAT PRIORITIZES THE MECHANICAL ROOM REVISIONS DURING THE PERIOD OF TIME THE BUILDING WILL BE COMPLETELY EMPTY FROM DECEMBER 16TH, 2023 THROUGH JANUARY 10TH, 2024. WHILE THE BUILDING WILL BE COMPLETELY EMPTY, AREA "A" OF THE BUILDING HOUSES EXPENSIVE MUSICAL INSTRUMENTS, SO RESTORING THE HEATING WATER LOOP WHICH SERVES AREA "A" OF THE BUILDING MUST OCCUR BY DECEMBER 22ND, 2023. THE REMAINDER OF THE MECHANICAL ROOM RE-PIPING SHALL OCCUR PRIOR TO JANUARY 10TH, 2024. EQUIPMENT AND CONTROLS SHALL BE IN PLACE AT THAT TIME IN ORDER FOR EQUIPMENT SERVING AREA "A" TO BE FUNCTIONAL.

THE REMAINDER OF THE PROJECT SHALL OCCUR BETWEEN DECEMBER 22ND AND MAY 12TH, 2024. THIS INCLUDES EQUIPMENT, PIPING, DUCTWORK, CONTROLS, ELECTRICAL AND ASSOCIATED ARCHITECTURAL MODIFICATIONS IN AREAS "B" AND "C".

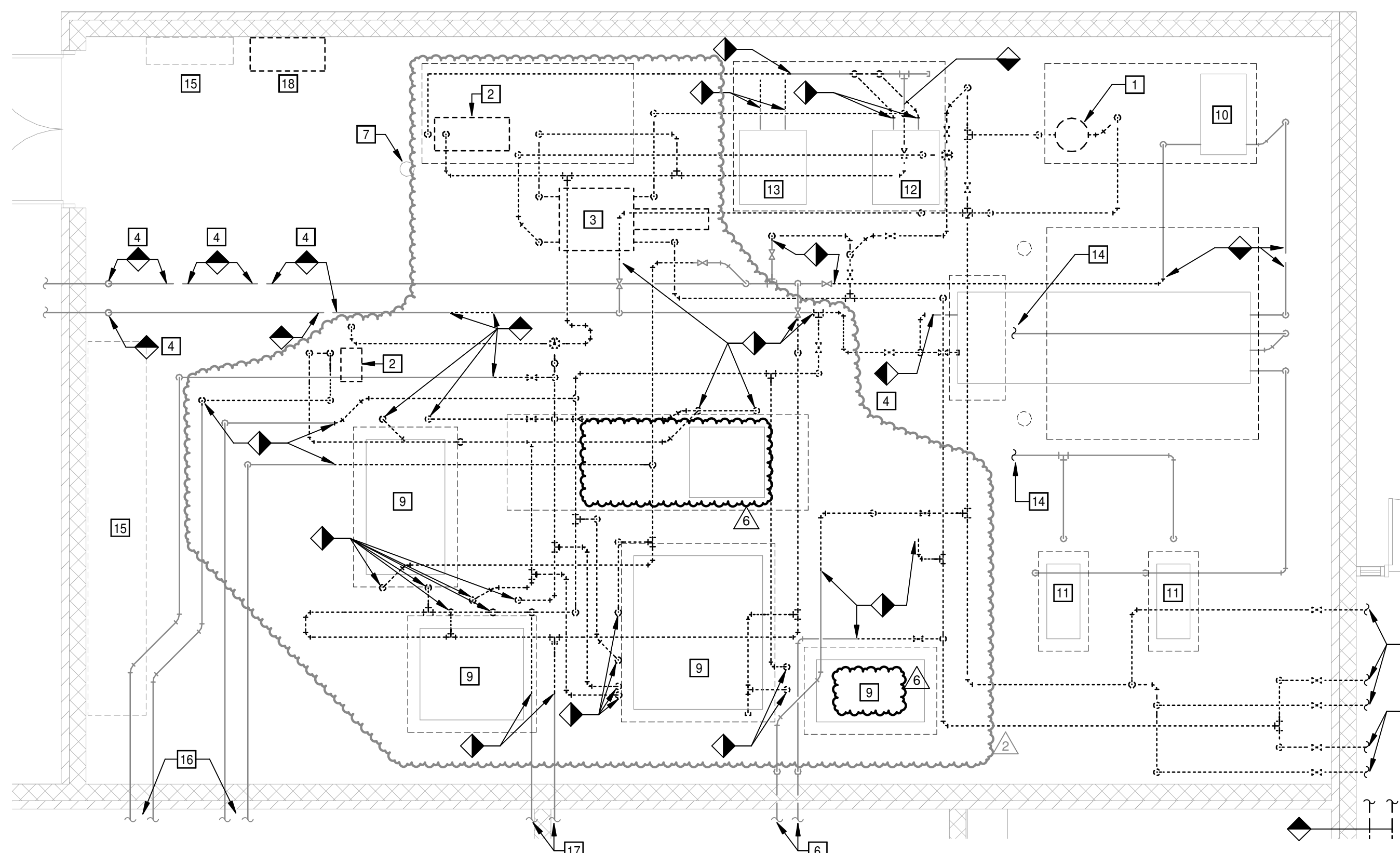
ALL BUILDING AND UTILITY SHUTDOWNS OUTSIDE OF THE TIMEFRAMES LISTED ABOVE SHALL BE CAREFULLY COORDINATED WITH UCA FACILITIES MANAGEMENT 1 WEEK IN ADVANCE OF THE PROPOSED SHUTDOWN.

EXISTING MECHANICAL ROOM AIR HANDLING UNITS NOTES:

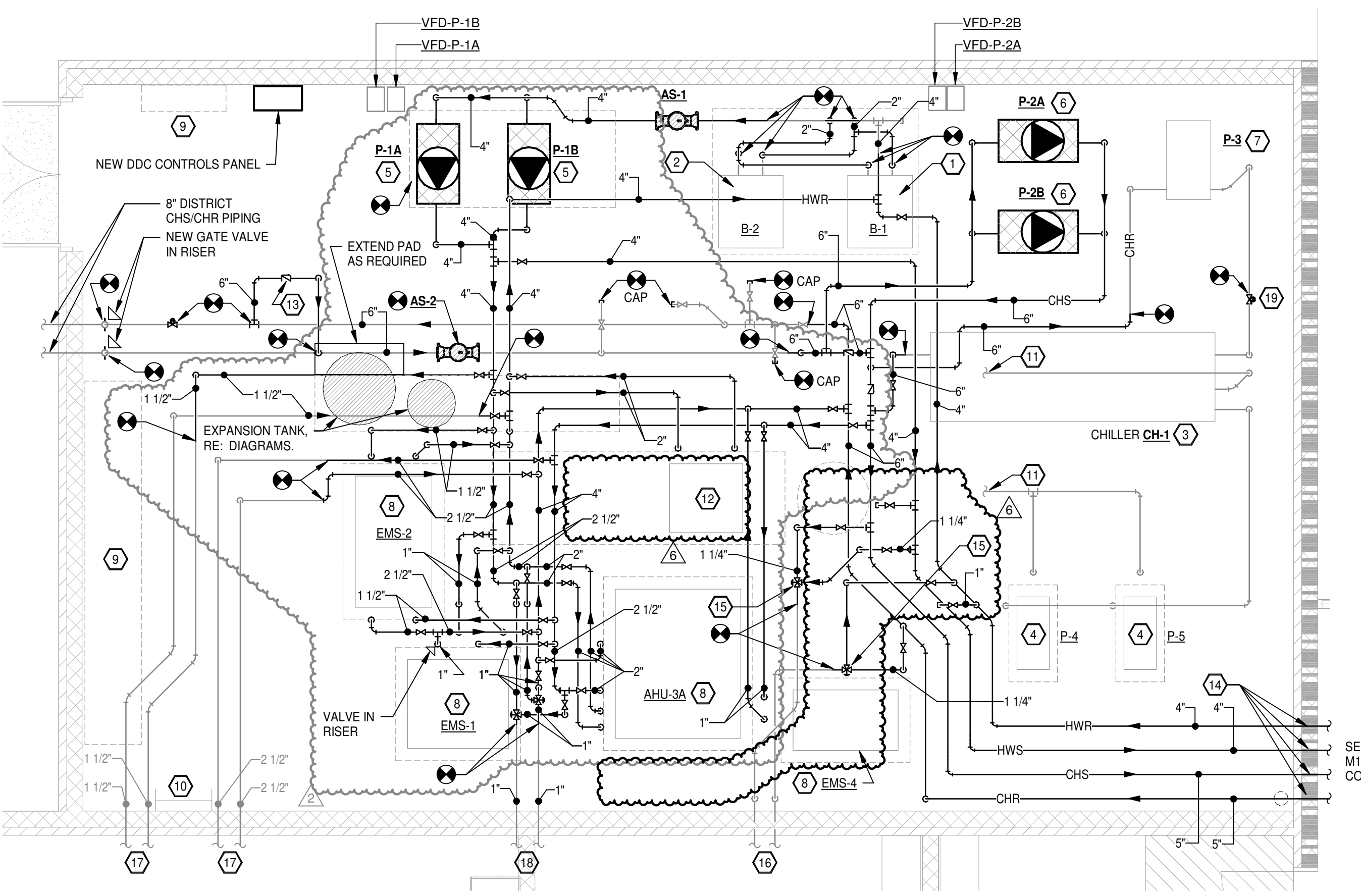
- EMS-1 FLOW RATES: 11.7 GPM (CC), 6 GPM (HC).
- EMS-2 FLOW RATES: 29.2 GPM (CC), 18 GPM (HC).
- EMS-3 FLOW RATES: 53.8 GPM (CC), 21.0 GPM (PHC), 21.0 GPM (RHC).
- EMS-4 FLOW RATES: 12.1 GPM (CC), 7 GPM (HC).



3 MECHANICAL ROOM AIR HANDLING UNITS - PIPING SCHEMATIC DIAGRAM
N.T.S.



1 ENLARGED MECHANICAL ROOM PLAN - DEMOLITION
SCALE: 1/4" = 1'-0"



2 ENLARGED MECHANICAL ROOM PLAN - NEW
SCALE: 1/4" = 1'-0"

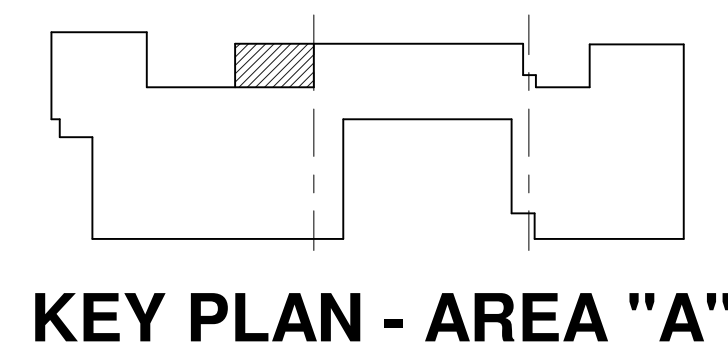
HVAC KEYED DEMOLITION NOTES

- EXISTING CHILLED WATER PUMP AND ASSOCIATED PIPING TO BE DEMOLISHED TO POINT INDICATED.
- EXISTING HEATING WATER PUMP AND ASSOCIATED PIPING TO BE DEMOLISHED TO POINT INDICATED.
- EXISTING PLATE-AND-FRAME HEAT EXCHANGER AND ASSOCIATED PIPING TO BE DEMOLISHED TO POINT INDICATED.
- DEMOLISH SECTIONS OF EXISTING DISTRICT CHILLED WATER SYSTEMS AS REQUIRED FOR INSTALLATION OF NEW VALVES AND BYPASS.
- NOT USED.
- EXISTING 1-1/4" CH/HWS / CH/HWR PIPING IN EXISTING TRENCH.
- EXISTING CHEMICAL SHOT FEEDER TO BE RE-USED.
- EXISTING COMBINATION HEATING / CHILLED WATER PIPING TO BE DEMOLISHED AND CAPPED AT RISERS. EXISTING PIPING OPENINGS IN WALL NOT RE-USED FOR NEW PIPING SHALL BE PATCHED WITH 2 LAYERS OF 5/8" TYPE X GYP BOARD AND FIRE CAULK.
- EXISTING AIR HANDLING UNIT TO REMAIN.
- EXISTING CHILLED WATER PUMP P-3 TO REMAIN.
- EXISTING CONDENSER WATER PUMP TO REMAIN.
- EXISTING BOILER B-1 AND ASSOCIATED PRIMARY PUMP TO REMAIN.
- EXISTING BOILER B-2 AND ASSOCIATED PRIMARY PUMP TO REMAIN.
- EXISTING CONDENSER WATER PIPING UP TO COOLING TOWER ON ROOF TO REMAIN.
- EXISTING ELECTRICAL SWITCHGEAR TO REMAIN.
- EXISTING 2-1/2" CHS/CHR AND 1-1/2" HWS/HWR PIPING SERVING WEST WING TO REMAIN.
- EXISTING 1" CHS/CHR PIPING TO REMAIN.
- EXISTING UN-USED BARBER-COLEMAN CONTROL PANEL IN THIS APPROXIMATE LOCATION TO BE DEMOLISHED AS REQUIRED.

HVAC KEYED NOTES

- EXISTING BOILER B-1 TO REMAIN.
- EXISTING BOILER B-2 TO REMAIN.
- EXISTING CHILLER CH-1 TO REMAIN.
- EXISTING COOLING TOWER PUMPS TO REMAIN.
- NEW HEATING WATER SECONDARY PUMP P-1A AND P-1B ON EXISTING CONC. PAD. MODIFY PAD AS REQUIRED FOR NEW PUMP.
- NEW CHILLED WATER SECONDARY PUMPS P-2A AND P-2B ON EXISTING CONC. PAD. MODIFY PAD AS REQUIRED FOR NEW PUMP.
- EXISTING CHILLED WATER PRIMARY PUMP P-3 TO REMAIN.
- EXISTING AIR HANDLING UNIT TO REMAIN.
- EXISTING ELECTRICAL SWITCHGEAR TO REMAIN.
- EXISTING ROOF ACCESS LADDER TO REMAIN.
- EXISTING CONDENSER WATER PIPING ROUTED TO COOLING TOWER ON ROOF TO REMAIN.
- EXISTING REHEAT COIL SERVING EXISTING AIR HANDLING UNIT EMS-4 TO REMAIN IN PLACE AND BE RE-USED.
- BUILDING DECOUPLER. REFER TO RISER DIAGRAM AND CONTROLS DIAGRAM FOR DETAILS.
- NEW PIPING ROUTED THROUGH EXISTING OPENING IN MECHANICAL ROOM WALL. ENLARGE AS REQUIRED. REPAIR VOIDS AROUND PIPING WITH 2 LAYERS OR TYPE X GYP BOARD AND FIRE CAULK.
- NEW 3-WAY CHANGEOVER VALVE SERVING EXISTING 2-PIPE FAN COIL SYSTEM.
- EXISTING 1-1/4" PIPING SERVING 2-PIPE FAN COIL SYSTEM ROUTED IN TUNNEL.
- EXISTING 2-1/2" CHS/CHR AND 1-1/2" HWS/HWR PIPING SERVING THE WEST WING TO REMAIN.
- EXISTING 1" CHS/CHR PIPING TO REMAIN.
- CHILLER ISOLATION VALVE.

MECHANICAL CONTRACTOR IS TO PROVIDE NEW ISOLATION VALVES, CONTROL VALVE, AUTO-FLOW VALVE, AND PIPING STRAINER FOR EACH EXISTING COIL ON EXISTING AIR HANDLING UNITS.



KEY PLAN - AREA "A"

VERBLY SCALE
INCH ON ORIGINAL DRAWING
0 1"

PETTIT & PETTIT CONSULTING ENGINEERS, INC.
CORPORATE REGISTRATION
ENGINEERS, INC. No. 78
ARIZONA REGISTERED PROFESSIONAL ENGINEER
STATE OF ARIZONA
No. 11666
2-20-23

© 2023
PETTIT & PETTIT CONSULTING ENGINEERS, INC.
LITTLE ROCK, ARKANSAS

PETTIT & PETTIT CONSULTING ENGINEERS, INC.
LITTLE ROCK, ARKANSAS

Date: 09/20/23
Title: ENLARGED MECHANICAL ROOM PLANS
Sheet Number:
M1.9
COPYRIGHT H+N ARCHITECTS 2023

#	Date	Description
1	4-23-24	PR-4
2	10-20-23	ADDENDUM #2
#		Revision History

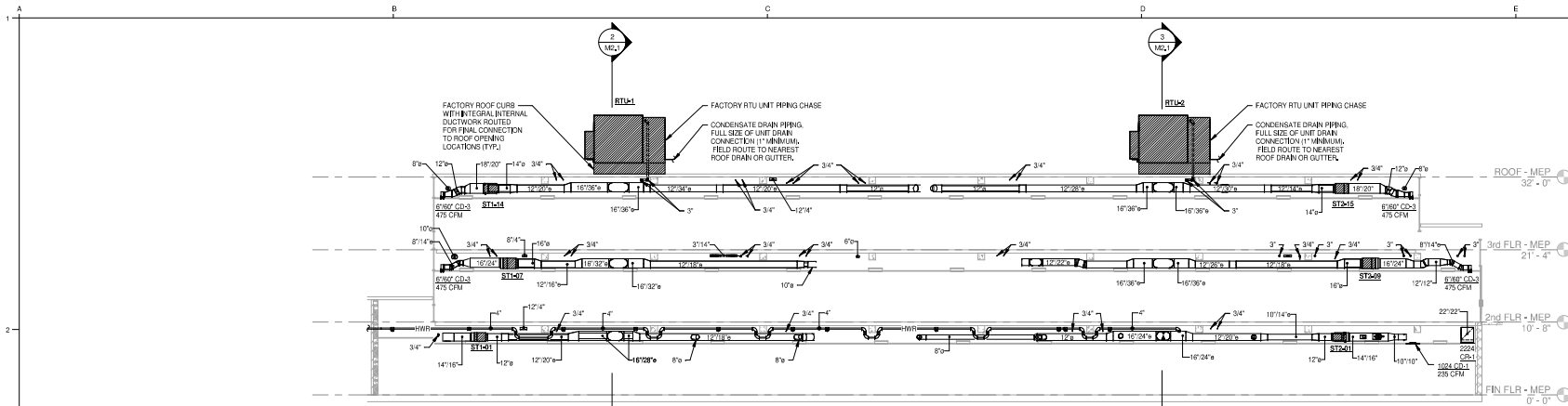
H+N ARCHITECTS



901 W 3rd St.
Little Rock, AR 72201
501.374.5300
www.WERarch.com

UCA SNOW FINE ARTS CENTER RENOVATIONS
CONWAY, AR

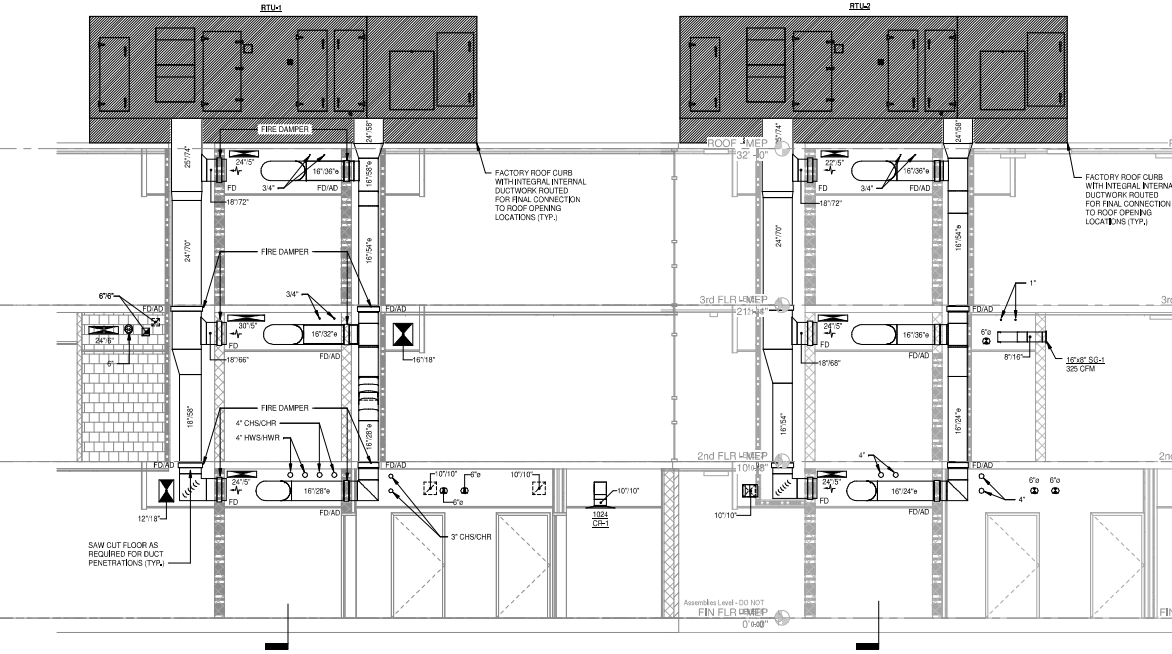
1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com



LEGEND

	CEILING DIFFUSER		AIR VENT (AUTO HAND)
	RETURN AIR GRILLE (RA)		BUTTERFLY VALVE
	EXHAUST REGISTER (ER)		AUTOMATIC CONTROL VALVE (3-WAY)
	SIZE - DESIGNATION CUBIC FEET PER MINUTE		AUTOMATIC CONTROL VALVE
	FLEXIBLE DUCT CONNECTOR		CHECK VALVE
	TURNING VANES		FLEXIBLE CONNECTOR (BRAIDED)
	SPLITTER DAMPER (TEE)		GATE VALVE
	INTERNALLY INSULATED DUCTWORK		GLOBE VALVE (STRAIGHT)
	MANUAL DAMPER		PLUG VALVE
	FIRE DAMPER (FD)		PRESSURE GAUGE (W/CLOCK)
	OPPOSED BLADE DAMPER		PRESSURE RELIEF VALVE
	DIAMETER		PRESSURE AND TEMPERATURE TAP
	THERMOSTAT (HANDSTAT WITH UNIT NUMBER)		REDUCER (CONCENTRIC)
	HANDSTAT		REDUCER (ECCENTRIC)
	PRESSURE SENSOR		STRAINER (WITH BLOW DOWN VALVE)
	DETAIL TOP NUMBER REFERS TO THE DETAIL NUMBER, BOTTOM NUMBER REFERS TO THE SHEET WHERE DETAIL IS SHOWN		THERMOMETER
	SECTION		TO FLOOR DRAIN
	CONNECT TO EXISTING		UNION (FLANGE), SCREWED
	DEMOLITION TERMINATION		CHS - CHILLED WATER SUPPLY
			CHR - CHILLED WATER RETURN
			HW-S - HEATING WATER SUPPLY
			HW-R - HEATING WATER RETURN
			RS-RL - REFRIGERANT SUCTION/REFRIGERANT LIQUID
			D - DRAIN

- GENERAL NOTES**
1. DUE TO THE SMALL SCALE OF THIS DRAWING, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, AND ACCESSORIES WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL INVESTIGATE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING THIS WORK AND SHALL COORDINATE AND ARRANGE HIS WORK ACCORDINGLY.
 2. ROUND BRANCH DUCT RUNOUTS SHALL BE SAME SIZE AS DIFFUSER THROAT UNLESS OTHERWISE NOTED.
 3. FLEXIBLE DUCT MAY BE USED FOR FINAL CONNECTIONS TO DIFFUSERS. A MAXIMUM LENGTH OF THREE FEET (3') SHALL BE USED.
 4. ALL CEILING-MOUNTED SUPPLY DIFFUSERS SHALL HAVE FOUR-WAY (SWAY) PATTERN UNLESS OTHERWISE INDICATED.
 5. WHERE MANUAL DAMPERS ARE INSTALLED IN EXTERNALLY INSULATED DUCTWORK, PROVIDE STAND-OFF BRACKET TO PREVENT COMPRESSION OF INSULATION BY DAMPER OPERATOR HANDLE.
 6. PROVIDE TURNING VANES IN ALL 90-DEGREE ELBOWS.
 7. PROVIDE SLEEVES THROUGH WALLS AND FLOORS. SEAL EXCESS OPENING WITH WATERPROOF SEALANT. COORDINATE LOCATIONS AND SIZES OF SLEEVES WITH GENERAL CONTRACTOR. SLEEVES SHALL PROVIDE A MINIMUM OF 1" CLEARANCE BETWEEN DUCT OR PIPE AND SLEEVE. SEAL PENETRATION IN FIRE-SMOKE RATED WALLS AND FLOOR WITH AN APPROVED FIRE-SMOKE BLOCK SEALANT.
 8. EXTERNALLY INSULATE SUPPLY, RETURN, RELIEF, AND OUTSIDE AIR DUCTWORK UNLESS NOTED OTHERWISE. INTERNALLY LINED DUCT IS SHOWN CROSS-HATCHED ON THE FLOOR PLAN.
 9. EXHAUST DUCTWORK SHALL BE UNINSULATED, UNLESS NOTED OTHERWISE.
 10. EXTERNALLY INSULATE LOW-VELOCITY ROUND RUNOUT DUCTWORK.
 11. INSULATE THE TOP OF ALL SUPPLY AIR DIFFUSERS WITH A MINIMUM OF 1/2" THICK FIBERGLASS DUCT WRAP.
 12. MOUNT THERMOSTATS AT 48" AFF, OR MATCH LIGHT SWITCH HEIGHT.
 13. ARRANGE PIPING TO ALLOW FOR PROPER SERVICE AND ACCESS TO EQUIPMENT. INSTALL UNIONS AND ISOLATION VALVES TO ALLOW FOR REMOVAL OF EQUIPMENT WITHOUT DISTURBING MAINS.
 14. REFER TO REFLECTED CEILING PLAN FOR EXACT DIFFUSER LOCATIONS.
 15. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF FIRE AND SMOKE RATED PARTITIONS.
 16. COORDINATE LOCATION OF DUCTS AND DIFFUSERS WITH STRUCTURAL FRAMING MEMBERS. OFFSET DUCTS AS REQUIRED TO CLEAR STRUCTURAL MEMBERS.
 17. COORDINATE LOCATIONS AND ELEVATION OF DUCT RUNS WITH PLUMBING, SPRINKLER, AND ELECTRICAL CONTRACTORS.
 18. PROVIDE ACCESS DOORS IN DUCTS FOR ALL FIRE DAMPERS. PROVIDE CEILING ACCESS DOORS FOR DAMPERS ABOVE GYP, BOARD CEILINGS. PROVIDE WALL ACCESS DOORS FOR DAMPERS AT CHASES AS WHERE DAMPER INSTALLED AT FLOOR LEVEL AND NOT ACCESSIBLE FOR SERVICE FROM BELOW.
 19. DUCT DIMENSIONS ARE REQUIRED FIRE AREA AND DO NOT ACCOUNT FOR INTERNAL INSULATION THICKNESS. INCREASE DUCT SIZES WHERE INTERNAL INSULATION IS SHOWN TO ACHIEVE THE REQUIRED FIRE AREA.



PROFESSIONAL ENGINEER REGISTRATION
PETTIT & PETTIT CONSULTING ENGINEERS, INC. NO. 78
MEMBER ENGINEER

PROFESSIONAL ENGINEER REGISTRATION
PETTIT & PETTIT CONSULTING ENGINEERS, INC. NO. 189
MEMBER ENGINEER

8202
PETTIT & PETTIT CONSULTING ENGINEERS, INC.
5500 N. BRADLEY BL.
LITTLE ROCK, AR 72201

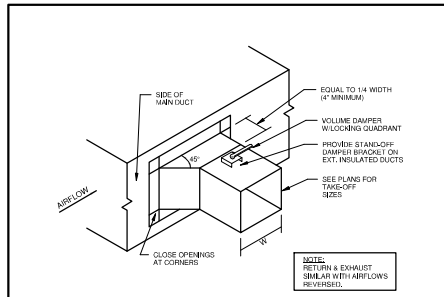
Date: 09/20/23
Title: HVAC SECTIONS
Sheet Number:
M2.1
COPYRIGHT H+N ARCHITECTS 2023

H+N ARCHITECTS
1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

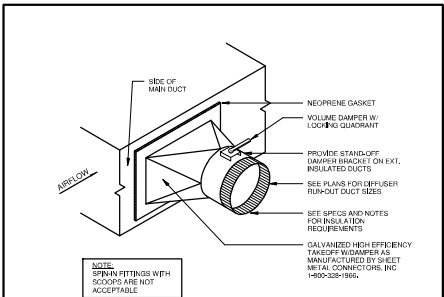
UCA SNOW FINE ARTS CENTER RENOVATIONS
CONWAY, AR

801 W 3rd St.
Little Rock, AR 72201
501.374.5300
www.WERArch.com

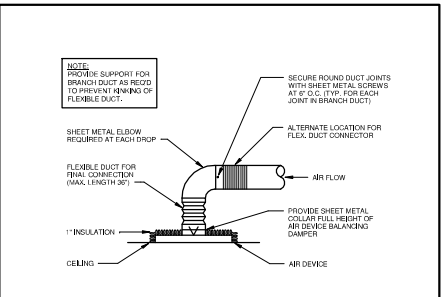
1/8" = 1'-0"
COPY SCALE
INCH ON ORIGINAL DRAWING



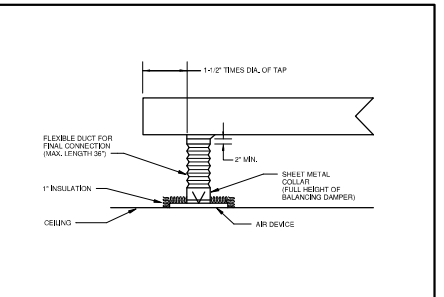
1 BRANCH DUCT TAKE-OFF DETAIL
N.T.S.



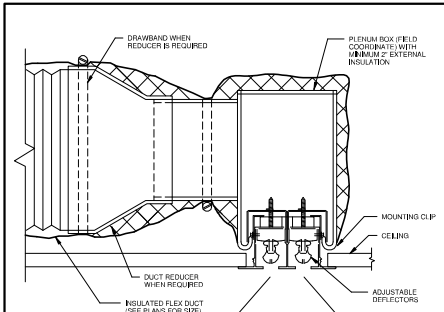
2 BRANCH DUCT TAKE-OFF DETAIL
N.T.S.



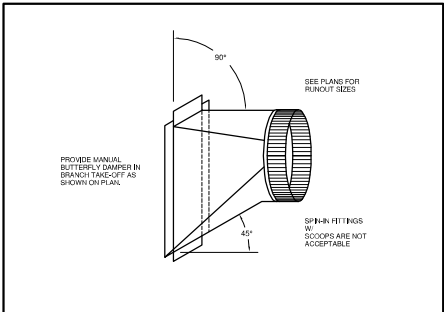
3 DIFFUSER CONNECTION DETAIL
N.T.S.



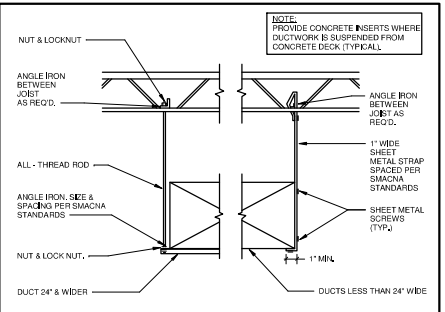
4 DIFFUSER CONNECTION END OF TRUNK DUCT
N.T.S.



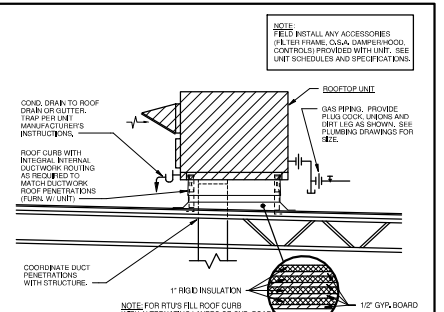
5 CEILING LINEAR SLOT DETAIL
N.T.S.



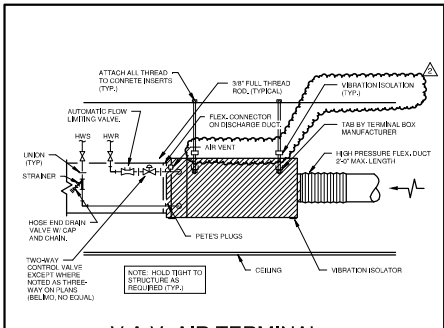
6 BRANCH DUCT TAP FITTING
N.T.S.



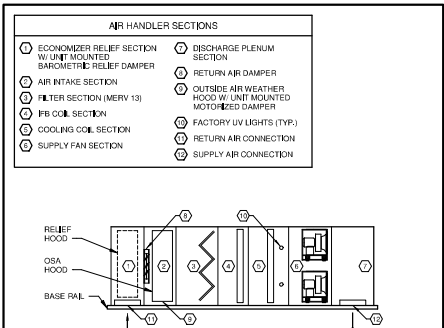
7 DUCT SUPPORT DETAIL
N.T.S.



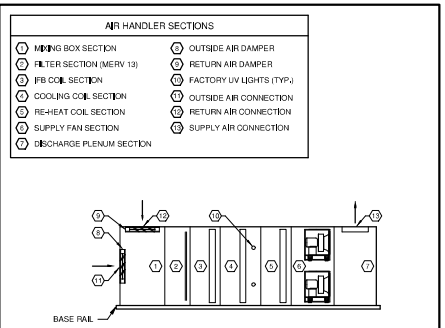
8 ROOFTOP UNIT INSTALLATION DETAIL
N.T.S.



9 V.A.V. AIR TERMINAL PIPING AND MOUNTING DETAIL
N.T.S.



10 RTU-1 AND RTU-2 DETAIL
N.T.S.

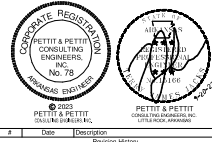
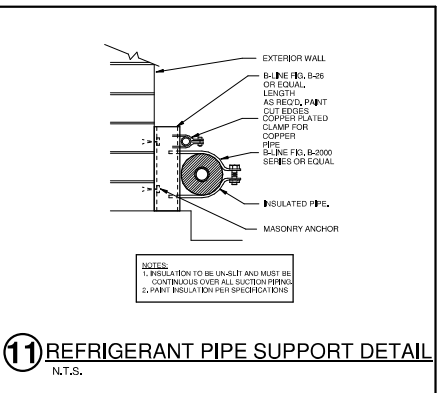
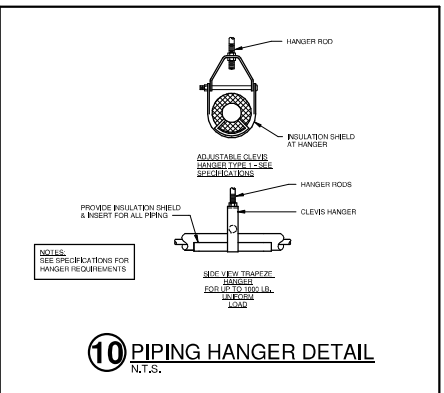
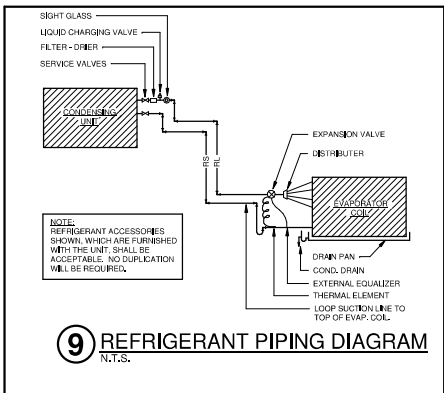
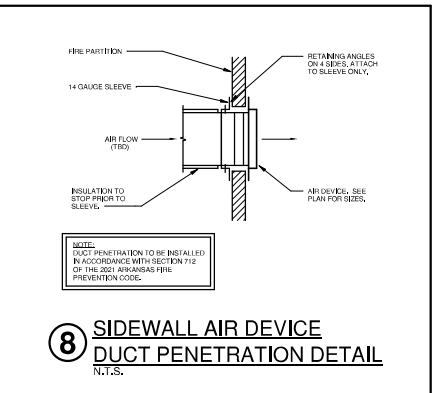
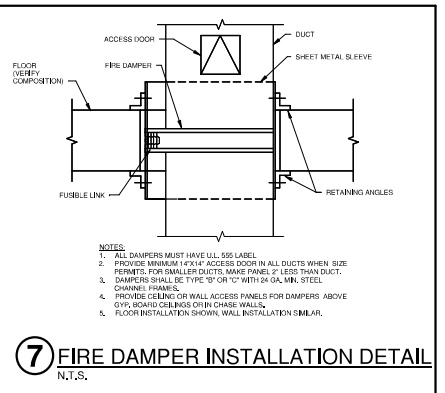
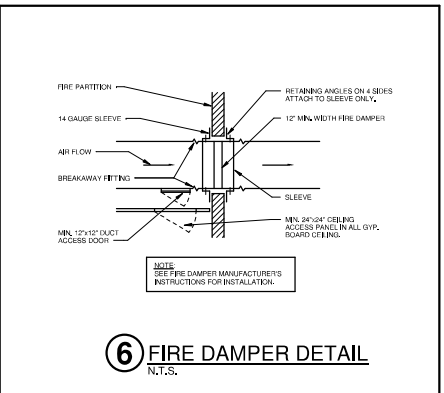
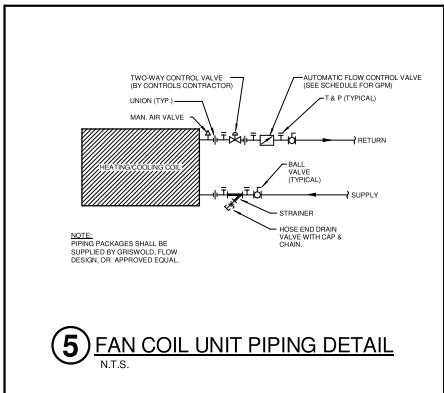
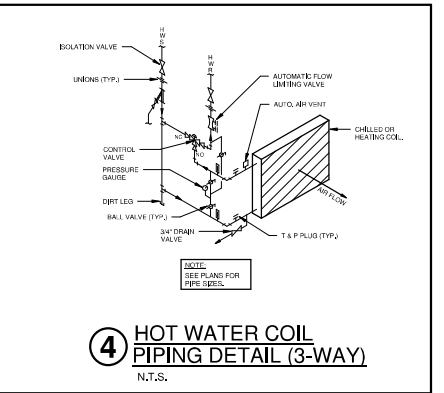
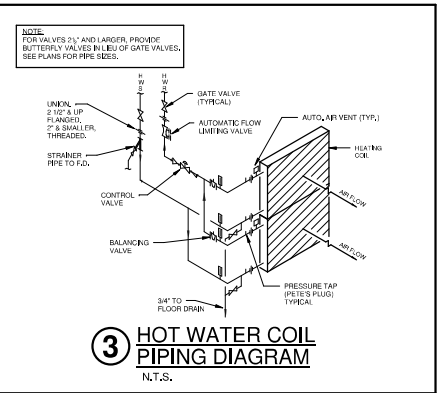
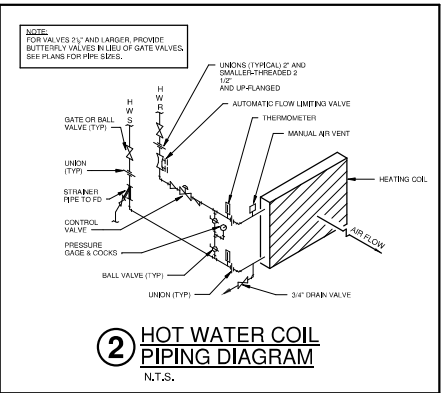
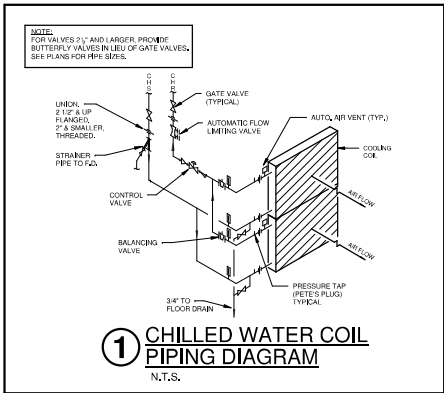


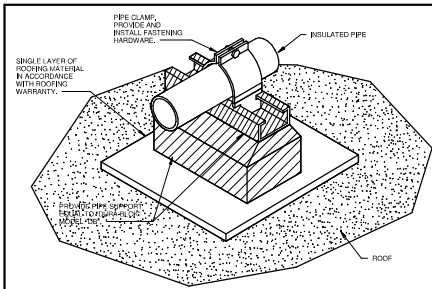
11 AH-6 DETAIL
N.T.S.



© 2023 P. PETTIT & P. PETTIT CONSULTING ENGINEERS, INC. 10-20-23 ADDENDUM #2 Date Description Revision History

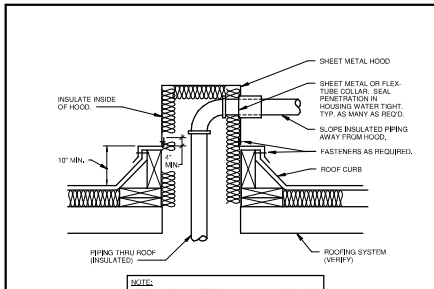
H+N ARCHITECTS
 1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com
WE R
 801 W 3rd St, Little Rock, AR 72201 501.374.5300 www.WERarch.com
UCA SNOW FINE ARTS CENTER RENNOVATIONS
 CONWAY, AR
 1/8" = 1'-0" ON ORIGINAL DRAWING
 Date: 09/20/23
 Title: HVAC DETAILS
 Sheet Number: **M3.1**
 COPYRIGHT H+N ARCHITECTS 2023





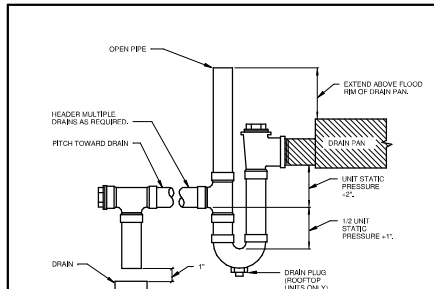
NOTE:
INSTALL SUPPORTS AT A MAXIMUM SPACING OF 9'-0" FOR ROOF PIPING. INSTALL SUPPORTS AT A MAXIMUM SPACING OF 2'-0" FOR FLOOR PIPING.

1 ROOF PIPE SUPPORT DETAIL
N.T.S.

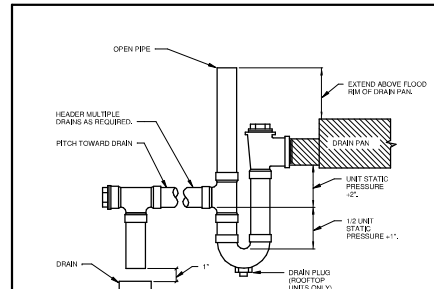


NOTE:
VERIFY WITH ARCHITECTURAL PLANS AND WITH ROOF MANUFACTURER REQUIREMENTS.

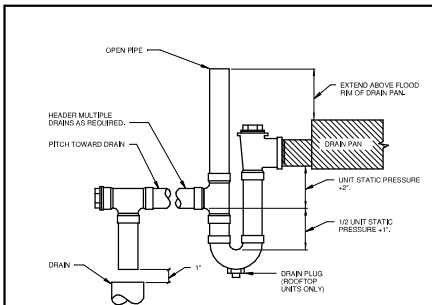
2 ROOF PIPING PENETRATION DETAIL
N.T.S.



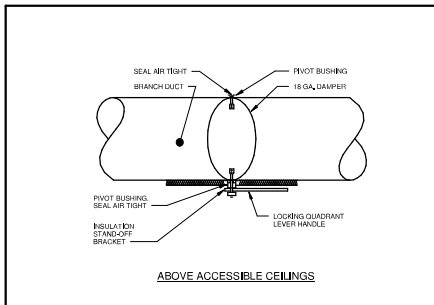
3 R.T.U. DRAIN PIPING
N.T.S.



4 A.H.U. DRAIN PIPING
N.T.S.

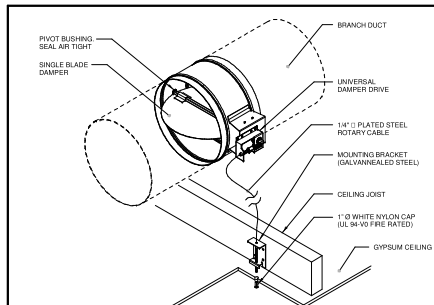


5 FAN COIL DRAIN PIPING
N.T.S.

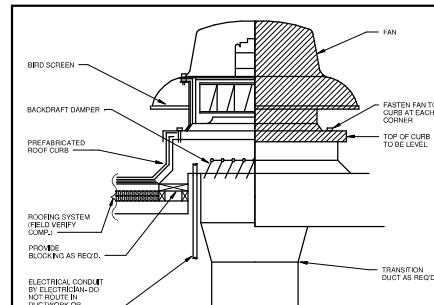


ABOVE ACCESSIBLE CEILINGS

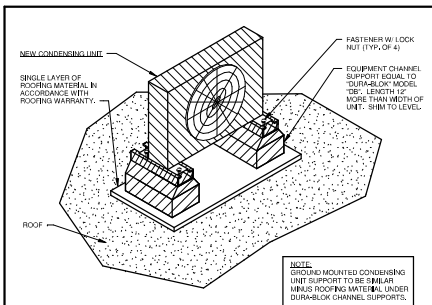
6 MANUAL DAMPER OPERATOR DETAIL
N.T.S.



7 MANUAL DAMPER OPERATOR DETAIL
N.T.S.

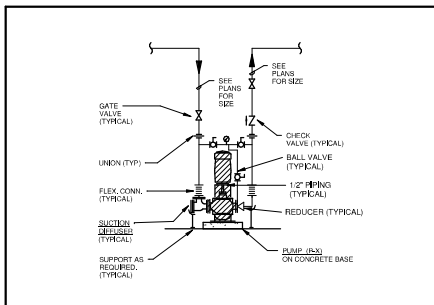


8 EXHAUST FAN DETAIL
N.T.S.

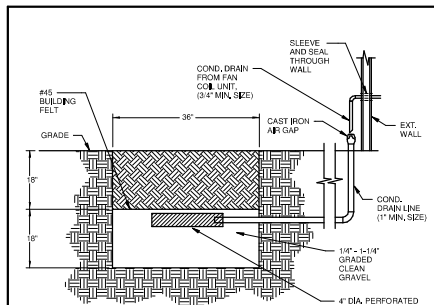


NOTE:
GROUND MOUNTED CONDENSING UNIT SUPPORT TO BE SIMILAR MINUS ROOFING MATERIAL UNDER DURN-BLOCK CHANNEL SUPPORTS.

9 MINI-SPLIT CONDENSING UNIT ROOF SUPPORT DETAIL
N.T.S.



10 VERTICAL IN-LINE PUMP DETAIL
N.T.S.



11 FRENCH DRAIN DETAIL
N.T.S.



Date: 09/20/23
Title: HVAC DETAILS

Sheet Number:
M3.3

COPYRIGHT H+N ARCHITECTS 2023

H+N ARCHITECTS
1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

WE R
801 W 3rd St.
Little Rock, AR 72201
501.374.5300
www.WERarch.com

UCA SNOW FINE ARTS CENTER
RENOVATIONS
CONWAY, AR

COPY SCALE
1" = 1'-0" ON ORIGINAL DRAWING

2 | Title | Revision History

ROOFTOP VAV AIR HANDLING UNIT SCHEDULE																																		
DESIG.	MFR/DIMS	WEIGHT	AREA SERVED	LOCAT.	TYPE	PRE-HEATING WATER COIL								CHILLED WATER COIL								FAN DATA						MOTOR DATA			REMARKS			
						OSA	EAT/LAT	EWT/LWT	GPM	W.P.D.	MBH	ROW/FIN	FACE VELOCITY	APD	EAT	LAT	MBH TOTAL	MBH SENS.	EWT	LWT	GPM	W.P.D.	ROW/FIN	FACE VELOCITY	APD	CFM	ESP/TSP	TYPE	DIA.	QUANTITY		BHP	HP	VOLT/PH
RTU-1	TEMTROL / (317 x 86 x 83.5)	13,200 LBS.	CLASSROOMS, OFFICES	ROOF	HORIZONTAL	4,775	15.0°/54.4°	160°/135.2°	50.0	1.4'	613.2	2R/12 FPI	865.1 FPM	0.64"	80.7° d.b. / 68.4° w.b.	54.1° d.b. / 53.9° w.b.	636.7	413.0	45° F	55.0° F	127.0	13.8'	4R/12 FPI	452 FPM	0.59"	14,500 (TOTAL)	3.2"/5.23"	BI	16"	4	4.37 (x4)	5.5 (EACH)	208 / 3ø	(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) PROVIDE WITH 7" MIN. BASE RAIL.
RTU-2	TEMTROL / (317 x 86 x 83.5)	13,200 LBS.	CLASSROOMS, OFFICES	ROOF	HORIZONTAL	5,180	15.0°/54.4°	160°/135.2°	50.0	1.4'	613.2	2R/12 FPI	865.1 FPM	0.64"	80.7° d.b. / 68.4° w.b.	54.1° d.b. / 53.9° w.b.	636.7	413.0	45° F	55.0° F	127.0	13.8'	4R/12 FPI	452 FPM	0.59"	14,500 (TOTAL)	3.2"/5.23"	BI	16"	4	4.37 (x4)	5.5 (EACH)	208 / 3ø	(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) PROVIDE WITH 7" MIN. BASE RAIL.

- PROVIDE UNIT WITH FACTORY VIBRATION DAMPENING / SOUND DAMPENING ROOF CURB, ROOF CURB TO HAVE OFFSET CONNECTIONS FOR SUPPLY / RETURN DOWNFLOW DUCTWORK. FIELD COORDINATE ROOF CURB INSTALLATION WITH ROOFING CONTRACTOR. REFER TO DETAILS.
- PROVIDE UNIT WITH INVERTER DUTY FANWALL MOTOR SYSTEM FOR SUPPLY FAN(S). ABB ACH580 VARIABLE FREQUENCY DRIVE (VFD) AND SUPPLY FAN ISOLATION / BYPASS SYSTEM TO BE PROVIDED WITH UNIT.
- PROVIDE UNIT WITH 4" MERV 13 FILTERS (85% MINIMUM ASHRAE EFFICIENCY). UNIT SHALL NOT BE OPERATED AT ANY TIME WITHOUT FILTER MEDIA INSTALLED AS RECOMMENDED BY MANUFACTURER.
- PROVIDE UNIT PIPING AND WIRING CONNECTIONS AND ACCESS PANELS / ACCESS DOORS ON SIDE OF UNIT THAT WILL ALLOW GREATEST ACCESSIBILITY. SEE PLANS FOR UNIT ORIENTATIONS.
- PROVIDE UNIT WITH FACTORY MOUNTED UN-POWERED 115V CONVENIENCE OUTLET. POWER TO BE PROVIDED BY ELECTRICAL CONTRACTOR. FIELD COORDINATE.
- PROVIDE UNIT WITH FACTORY MOUNTED WEATHER HOODS WITH BIRD SCREENS, FULLY MODULATING OSA DAMPER, AND BAROMETRIC RELIEF DAMPERS.
- PROVIDE WITH FACTORY UNIT-MOUNTED CONTROLS CABINET. CONTROLS CABINET TO CONTAIN VFD, CONTROLS PACKAGE, AND BACNET CARD.
- PROVIDE UNIT WITH SUPPLY AND RETURN SMOKE DETECTORS.
- PROVIDE UNIT WITH FACTORY ULTRAVIOLET (UV) LIGHTS.
- UNIT COLOR TO BE SELECTED BY ARCHITECT.

AIR TERMINAL BOX SCHEDULE														
DESIG.	MFR/MDL	TYPE	PRIMARY CFM		UNIT A.P.D.	INLET SIZE	HEATING WATER COIL DATA						REMARKS	
			MAX.	MIN.			CFM	MBH	EWT/LWT	EAT/LAT	GPM	WPD		ROW/FIN
ST1-01	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	970	450	0.44"	12"ø	560	25.5	160° F / 118.3° F	55° F / 96.9° F	1.25	0.51	2 R/10 FPI	SEE SPECIFICATIONS. PROVIDE WITH THREE-WAY VALVE.
ST1-02	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	265	100	0.66"	8"ø	135	6.3	160° F / 108.6° F	55° F / 97.3° F	0.25	0.02	2 R/10 FPI	SEE SPECIFICATIONS.
ST1-03	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	265	100	0.66"	8"ø	135	6.3	160° F / 108.6° F	55° F / 97.3° F	0.25	0.02	2 R/10 FPI	SEE SPECIFICATIONS.
ST1-04	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	265	100	0.66"	8"ø	135	6.3	160° F / 108.6° F	55° F / 97.3° F	0.25	0.02	2 R/10 FPI	SEE SPECIFICATIONS.
ST1-05	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	1715	515	0.51"	16"ø	685	31.1	160° F / 109.1° F	55° F / 96.8° F	1.25	0.25	3 R/10 FPI	SEE SPECIFICATIONS.
ST1-06	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	1875	565	0.47"	16"ø	750	35.0	160° F / 112.2° F	55° F / 98.0° F	1.5	0.34	3 R/10 FPI	SEE SPECIFICATIONS.
ST1-07	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	1575	455	0.55"	16"ø	610	29.8	160° F / 111.3° F	55° F / 99.9° F	1.25	0.25	3 R/10 FPI	SEE SPECIFICATIONS. PROVIDE WITH THREE-WAY VALVE.
ST1-08	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	1780	535	0.49"	16"ø	715	31.6	160° F / 108.4° F	55° F / 95.7° F	1.25	0.25	3 R/10 FPI	SEE SPECIFICATIONS.
ST1-09	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	640	195	0.55"	10"ø	260	12.0	160° F / 111.0° F	55° F / 97.3° F	0.50	0.08	2 R/10 FPI	SEE SPECIFICATIONS.
ST1-10	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	545	165	0.46"	8"ø	220	10.5	160° F / 117.2° F	55° F / 98.6° F	0.50	0.07	2 R/10 FPI	SEE SPECIFICATIONS.
ST1-11	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	1210	365	0.40"	12"ø	485	22.0	160° F / 115.0° F	55° F / 96.7° F	1.0	0.35	2 R/10 FPI	SEE SPECIFICATIONS.
ST1-12	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	425	130	0.56"	8"ø	170	9.4	160° F / 121.8° F	55° F / 105.3° F	0.50	0.06	2 R/10 FPI	SEE SPECIFICATIONS.
ST1-13	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	810	245	0.45"	10"ø	325	15.6	160° F / 117.4° F	55° F / 99.1° F	0.75	0.17	2 R/10 FPI	SEE SPECIFICATIONS.
ST1-14	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	1500	435	0.49"	14"ø	585	25.5	160° F / 107.9° F	55° F / 95.1° F	1.0	0.16	3 R/10 FPI	SEE SPECIFICATIONS. PROVIDE WITH THREE-WAY VALVE.
ST1-15	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	1165	350	0.42"	12"ø	470	21.7	160° F / 115.6° F	55° F / 97.5° F	1.0	0.35	2 R/10 FPI	SEE SPECIFICATIONS.
ST1-16	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	1005	305	0.49"	12"ø	400	18.0	160° F / 111.0° F	55° F / 96.3° F	0.75	0.21	2 R/10 FPI	SEE SPECIFICATIONS.
ST1-17	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	835	250	0.56"	10"ø	335	16.8	160° F / 114.2° F	55° F / 101.0° F	0.75	0.21	2 R/10 FPI	SEE SPECIFICATIONS.
ST1-18	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	1135	340	0.43"	12"ø	455	21.5	160° F / 116.1° F	55° F / 98.4° F	1.0	0.35	2 R/10 FPI	SEE SPECIFICATIONS.
ST1-19	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	1000	300	0.49"	12"ø	400	18.0	160° F / 111.0° F	55° F / 96.3° F	0.75	0.21	2 R/10 FPI	SEE SPECIFICATIONS.
ST1-20	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	1000	300	0.49"	12"ø	400	18.0	160° F / 111.0° F	55° F / 96.3° F	0.75	0.21	2 R/10 FPI	SEE SPECIFICATIONS.
ST1-21	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	1000	300	0.49"	12"ø	400	18.0	160° F / 111.0° F	55° F / 96.3° F	0.75	0.21	2 R/10 FPI	SEE SPECIFICATIONS.
ST2-01	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	1080	345	0.43"	12"ø	570	25.7	160° F / 118.0° F	55° F / 96.5° F	1.25	0.51	2 R/10 FPI	SEE SPECIFICATIONS. PROVIDE WITH THREE-WAY VALVE.
ST2-02	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	285	100	0.65"	8"ø	285	13.6	160° F / 123.0° F	55° F / 98.7° F	0.75	0.13	2 R/10 FPI	SEE SPECIFICATIONS.
ST2-03	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	265	100	0.66"	8"ø	135	6.3	160° F / 108.6° F	55° F / 97.3° F	0.25	0.02	2 R/10 FPI	SEE SPECIFICATIONS.
ST2-04	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	265	100	0.66"	8"ø	135	6.3	160° F / 108.6° F	55° F / 97.3° F	0.25	0.02	2 R/10 FPI	SEE SPECIFICATIONS.
ST2-05	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	265	100	0.66"	8"ø	135	6.3	160° F / 108.6° F	55° F / 97.3° F	0.25	0.02	2 R/10 FPI	SEE SPECIFICATIONS.
ST2-06	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	830	250	0.44"	10"ø	335	15.8	160° F / 116.9° F	55° F / 98.3° F	0.75	0.17	2 R/10 FPI	SEE SPECIFICATIONS.
ST2-07	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	780	235	0.47"	10"ø	315	15.4	160° F / 118.0° F	55° F / 99.9° F	0.75	0.17	2 R/10 FPI	SEE SPECIFICATIONS.
ST2-08	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	995	300	0.50"	12"ø	400	18.0	160° F / 111.0° F	55° F / 96.3° F	0.75	0.21	2 R/10 FPI	SEE SPECIFICATIONS.
ST2-09	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	1710	430	0.49"	14"ø	575	25.3	160° F / 108.3° F	55° F / 95.5° F	1.0	0.16	3 R/10 FPI	SEE SPECIFICATIONS. PROVIDE WITH THREE-WAY VALVE.
ST2-10	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	875	265	0.41"	10"ø	350	16.1	160° F / 116.1° F	55° F / 97.2° F	0.75	0.17	2 R/10 FPI	SEE SPECIFICATIONS.

AIR TERMINAL BOX SCHEDULE (CONTINUED)														
DESIG.	MFR/MDL	TYPE	PRIMARY CFM		UNIT A.P.D.	INLET SIZE	HEATING WATER COIL DATA						REMARKS	
			MAX.	MIN.			CFM	MBH	EWT/LWT	EAT/LAT	GPM	WPD		ROW/FIN
ST2-11	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	890	270	0.40"	10"ø	360	16.3	160° F / 115.7° F	55° F / 96.5° F	0.75	0.17	2 R/10 FPI	SEE SPECIFICATIONS.
ST2-12	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	2175	655	0.56"	24"x16"	870	40.7	160° F / 104.5° F	55° F / 98.2° F	1.5	0.42	3 R/10 FPI	SEE SPECIFICATIONS.
ST2-13	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	2685	805	0.49"	24"x16"	1075	47.5	160° F / 104.5° F	55° F / 95.8° F	1.75	0.55	3 R/10 FPI	SEE SPECIFICATIONS.
ST2-14	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	775	235	0.47"	10"ø	310	15.3	160° F / 118.3° F	55° F / 100.3° F	0.75	0.17	2 R/10 FPI	SEE SPECIFICATIONS.
ST2-15	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	1405	430	0.50"	14"ø	570	25.2	160° F / 108.4° F	55° F / 95.7° F	1.0	0.16	3 R/10 FPI	SEE SPECIFICATIONS. PROVIDE WITH THREE-WAY VALVE.
ST2-16	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	2210	665	0.56"	24"x16"	885	41.0	160° F / 104.1° F	55° F / 97.7° F	1.5	0.42	3 R/10 FPI	SEE SPECIFICATIONS.
ST2-17	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	1000	300	0.49"	12"ø	400	18.0	160° F / 111.0° F	55° F / 96.3° F	0.75	0.21	2 R/10 FPI	SEE SPECIFICATIONS.
ST2-18	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	1000	300	0.49"	12"ø	400	18.0	160° F / 111.0° F	55° F / 96.3° F	0.75	0.21	2 R/10 FPI	SEE SPECIFICATIONS.
ST2-19	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	1005	305	0.49"	12"ø	405	18.1	160° F / 110.7° F	55° F / 96.0° F	0.75	0.21	2 R/10 FPI	SEE SPECIFICATIONS.
ST2-20	PRICE / SDV5	SINGLE DUCT VARIABLE VOL.	2375	660	0.56"	24"x16"	875	40.8	160° F / 104.4° F	55° F / 98.0° F	1.5	0.42	3 R/10 FPI	SEE SPECIFICATIONS.

DUCTLESS SPLIT-SYSTEM COOLING UNIT										
DESIG.	MFR/MDL	TYPE	CFM	OSA AMBIENT COOL. RANGE	CAPACITY (MBH) MAX. / MIN.	ELECTRICAL DATA			SEER	REMARKS
						MCA	MOCP	VOLT/PHASE		
DSFC-1*, DSCU-1**	SAMSUNG / AC030BNADCHAA* AC030BXSCCCAA**	WALL-MOUNTED	777-HIGH 724-MED 671-LOW	122° F / -40° F (WITH WIND BAFFLE)	30 / 8.5	1.07 / 21.9**	30	208V / 1ø	19.7	PROVIDE WIND BAFFLE. WIRED REMOTE THERMOSTAT WITH LOCKING COVER, AND CONDENSATE PUMP (MINIMUM 15 FT. HEAD AT 3 GPM FLOW RATE).

PUMP SCHEDULE													
DESIG.	MFR/MDL	SERVES	LOCAT.	TYPE	GPM	HEAD	EFF.	MOTOR DATA				REMARKS	
								BHP	HP	RPM	VOLT/PH		
P-1A	ARMSTRONG / 4300-0408-010.0 4x4x8	HEATING WATER	MECH. RM.	VERTICAL IN-LINE	390	65'	74.8%	8.6	10	1,800	208 / 3ø	HEATING WATER SECONDARY - VARIABLE VOLUME. FURNISH SUCTION GUIDE WITH TEMPORARY / PERMANENT STRAINERS.	
P-1B	ARMSTRONG / 4300-0408-010.0 4x4x8	HEATING WATER	MECH. RM.	VERTICAL IN-LINE	390	65'	74.8%	8.6	10	1,800	208 / 3ø	HEATING WATER SECONDARY - VARIABLE VOLUME. FURNISH SUCTION GUIDE WITH TEMPORARY / PERMANENT STRAINERS.	
P-2A	ARMSTRONG / 4300-0513-025.0 5x5x11	CHILLED WATER	MECH. RM.	VERTICAL IN-LINE	535	115'	69.1%	22.5	25	1,800	208 / 3ø	CHILLED WATER SECONDARY - VARIABLE VOLUME. FURNISH SUCTION GUIDE WITH TEMPORARY / PERMANENT STRAINERS.	
P-2B	ARMSTRONG / 4300-0513-025.0 5x5x11	CHILLED WATER	MECH. RM.	VERTICAL IN-LINE	535	115'	69.1%	22.5	25	1,800	208 / 3ø	CHILLED WATER SECONDARY - VARIABLE VOLUME. FURNISH SUCTION GUIDE WITH TEMPORARY / PERMANENT STRAINERS.	
P-3	EXISTING TO REMAIN	CHILLED WATER	MECH. RM.	END SUCTION	--	--	--	--	--	1,800	208 / 3ø	CHILLED WATER PRIMARY - CONSTANT VOLUME. EXISTING TO REMAIN. RATINGS FOR REFERENCE ONLY.	
P-4	EXISTING TO REMAIN	CONDENSER WATER	MECH. RM.	END SUCTION	--	--	--	--	--	1,800	208 / 3ø	CONDENSER WATER PRIMARY - CONSTANT VOLUME. EXISTING TO REMAIN. RATINGS FOR REFERENCE ONLY.	
P-5	EXISTING TO REMAIN	CONDENSER WATER	MECH. RM.	END SUCTION	--	--	--	--	--	1,800	208 / 3ø	CONDENSER WATER PRIMARY - CONSTANT VOLUME. EXISTING TO REMAIN. RATINGS FOR REFERENCE ONLY.	
P-6	EXISTING TO REMAIN	HEATING WATER	MECH. RM.	IN-LINE CLOSE-COUPLED	--	--	--	--	--	1,800	208 / 3ø	HEATING WATER PRIMARY - CONSTANT VOLUME. EXISTING TO REMAIN. RATINGS FOR REFERENCE ONLY.	
P-7	EXISTING TO REMAIN	HEATING WATER	MECH. RM.	IN-LINE CLOSE-COUPLED	--	--	--	--	--	1,800	208 / 3ø	HEATING WATER PRIMARY - CONSTANT VOLUME. EXISTING TO REMAIN. RATINGS FOR REFERENCE ONLY.	

RE-HEAT COIL SCHEDULE													
DESIG.	MFR/MDL	SERVES	LOCAT.	CFM	EAT/LAT	EWT/LWT	GPM	WPD	MBH	ROW/FPI	FACE VELOCITY	APD	REMARKS
RHC-1	GREENHECK / HW58S02508-27x24-RH	AH-5	MECH. (250)	2800	60°/92.4°	160°/127.3°	6.1	2.9	98.2	2R/8 FPI	622 FPM	0.23"	3/4" CONNECTIONS

© 2023
 PETTIT & PETTIT CONSULTING ENGINEERS, INC.
 LITTLE ROCK, ARKANSAS

SHEET NO. **M4.1**
 DATE: 4-23-24
 DESCRIPTION: PR-4
 REVISION HISTORY: 2-13-24 PR-1

H+N ARCHITECTS
 1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

WE RARCH
 901 W 3rd St.
 Little Rock, AR 72201
 501.374.5300
 www.WERarch.com

UCA SNOW FINE ARTS CENTER RENNOVATIONS
 CONWAY, AR

HERRY SCALE
 INCH ON ORIGINAL DRAWING
 0 1"

Date: 09/20/23
 Title: HVAC SCHEDULES
 Sheet Number:
M4.1
 COPYRIGHT H+N ARCHITECTS 2023

INDOOR VAV AIR HANDLING UNIT SCHEDULE

DESIG.	MFR./DIMS	WEIGHT	AREA SERVED	LOCAT.	TYPE	PRE-HEATING WATER COIL										CHILLED WATER COIL										RE-HEAT WATER COIL										FAN DATA				MOTOR DATA				REMARKS
						OSA CFM	EAT/LAT	EW/LWT	GPM	W.P.D.	MBH	ROW/FIN	FACE VELOCITY	APD	EAT	LAT	EW/LWT	GPM	W.P.D.	MBH	ROW/FIN	FACE VELOCITY	APD	EAT/LAT	EW/LWT	GPM	W.P.D.	MBH	ROW/FIN	FACE VELOCITY	APD	CFM	ESP/TSP	TYPE	DIA.	QUA.	BHP	HP	VOLT/PH					
AH6	TEMPLO/ (25' x 80' x 76.5')	9,300 LBS.	THEATRE SPACES	INDOOR PLATFORM	HORIZONTAL	---	150/194.2	100/130.4	39.0	4.7	556.5	3/19 FPI	876.4 FPM	1.07	85/104.5	54.1/42.5	55.2/55.2	49 F	55.0 F	111.0	3.0	6/11 FPI	482.5 FPM	0.87	64.0/194.2	100/130.0	39.0	5.2	566.7	3/19 FPI	482.5 FPM	0.16	15,000 (TOTAL)	0.6/3.0	16	16"	4	2.9 (4x)	3 (EACH)	200/34	(1) (2) (3) (4) (5) (6) PROVIDE WITH 1/2" MIN. BASE PAINT.			

- PROVIDE UNIT WITH INVERTER DUTY FANWALL MOTOR SYSTEM FOR SUPPLY FAN(S). ABB ACH50 VARIABLE FREQUENCY DRIVE (VFD) AND SUPPLY FAN ISOLATION / BYPASS SYSTEM TO BE PROVIDED WITH UNIT.
- PROVIDE UNIT WITH 4" RATED MEDIA 15" FILTERS WITH MEDIA REMAIN ABOVE EFFICIENCY. UNIT SHALL NOT BE OPERATED AT ANY TIME WITHOUT FILTER MEDIA INSTALLED AS RECOMMENDED BY MANUFACTURER.
- PROVIDE UNIT PIPING AND WIRING CONNECTIONS AND DOUBLE WALL INSULATED Hinged ACCESS DOORS ON SIDE OF UNIT THAT WILL ALLOW GREATEST ACCESSIBILITY. SEE PLANS FOR UNIT ORIENTATIONS.
- PROVIDE UNIT WITH FULLY MODULATING OSA DAMPER AND FULLY MODULATING RETURN DAMPER.
- PROVIDE UNIT WITH SUPPLY AND RETURN SMOKE DETECTORS.
- PROVIDE UNIT WITH FACTORY ULTRAVIOLET (UV) LIGHTS.

FANCOIL UNIT SCHEDULE

UNIT	MFR./MDL	TYPE	CFM	ESP	CHILLED WATER COIL (4 ROW)										HEATING WATER COIL (1 ROW)										MOTOR		REMARKS
					EAT	EWL	LWT	GPM	PD	TH(MBH)	SH(MBH)	PIPE SIZE	EAT	EWL	LWT	GPM	PD	MBH	PIPE SIZE	H.P.	VOLT/PHASE						
FC-01	INTERNATIONAL CEV8	HORIZONTAL TELESCOPING HIDEAWAY	430	.25"	78.0°F d.b. 63.0°F w.b.	49F	54.4°F	2.5	4.5	11.5	9.5	1/2"	70°F d.b.	180°F	128.2°F	0.75	6.6	12.5	1/2"	1/12	115W/1/0	REFER TO SPECIFICATIONS - PROVIDE CONDENSATE OVERFLOW SWITCH					
FC-02	INTERNATIONAL CEV8	HORIZONTAL TELESCOPING HIDEAWAY	465	.25"	75.0°F d.b. 60.0°F w.b.	49F	61.1°F	3.0	5.8	13.7	10.7	1/2"	70°F d.b.	180°F	128.2°F	1.0	1.2	15.1	1/2"	1/8	115W/1/0	REFER TO SPECIFICATIONS - PROVIDE CONDENSATE OVERFLOW SWITCH					

CHILLER SCHEDULE (WATER COOLED)

DESIG.	MFR./MDL	TYPE	TONS	INPUT KW	IPLV (EER)	EVAPORATOR				CONDENSER				ELECTRICAL DATA				POWER DATA			REMARKS
						GPM	P.D.	EWL	LWT	GPM	P.D.	EWL	LWT	QTY.	HP	LRA	SLA	VOLT/PH	MQP	MCA	
CH4	TRANE FTHB15ALD020W000N01L2L1P0001	WATER COOLED SCREW	315	---	---	516	---	54"	44"	665	---	85"	95"	1	---	669	447	208/3	1,000	559	EXISTING EQUIPMENT TO REMAIN. RATINGS FOR REFERENCE ONLY.

EXHAUST FAN SCHEDULE

DESIG.	MFR./MDL	SERVES	LOCAT.	TYPE	FAN DATA						MOTOR DATA				REMARKS	
					CFM	S.P.	RPM	DRIVE	TYPE	DIA.	SONES	RPM	BHP	HP		VOLT/PH
EF-1	GREENHECK / G-100P4VG	TOILETS	ROOF	CENTRIFUGAL DOWNBLAST	750	1.0"	2303	DIRECT	CENT.	11.13'	13.9	2500	0.36	1/2	120V / 1/0	PROVIDE WITH ECM MOTOR, BACKDRAFT DAMPER, FACTORY ROOF CURB, AND FACTORY DISCONNECT.
EF-2	GREENHECK / G-130VG	TOILETS	ROOF	CENTRIFUGAL DOWNBLAST	900	1.0"	1497	DIRECT	CENT.	13.06'	12.0	1725	0.29	1/2	120V / 1/0	PROVIDE WITH ECM MOTOR, BACKDRAFT DAMPER, FACTORY ROOF CURB, AND FACTORY DISCONNECT.

VARIABLE FREQUENCY DRIVE SCHEDULE

DESIGNATION	SERVES	MFR./MDL	TYPE	APPLICATION	RATED HORSEPOWER	VOLTAGE	PHASE	AMPS	MINIMUM EFFICIENCY	REMARKS
VFD-P1A	HEATING WATER PUMP	ABB ACH-580	WALL-MOUNTED	VARIABLE TORQUE PWM	10	208	3	30.8	96%	FURNISH WITH MANUAL VERTICAL BYPASS, INPUT DISCONNECT SWITCH, INPUT LINE REACTORS, AND EMS INTERFACE.
VFD-P1B	HEATING WATER PUMP	ABB ACH-580	WALL-MOUNTED	VARIABLE TORQUE PWM	10	208	3	30.8	96%	FURNISH WITH MANUAL VERTICAL BYPASS, INPUT DISCONNECT SWITCH, INPUT LINE REACTORS, AND EMS INTERFACE.
VFD-P2A	CHILLED WATER PUMP	ABB ACH-580	WALL-MOUNTED	VARIABLE TORQUE PWM	25	208	3	74.8	96%	FURNISH WITH MANUAL VERTICAL BYPASS, INPUT DISCONNECT SWITCH, INPUT LINE REACTORS, AND EMS INTERFACE.
VFD-P2B	CHILLED WATER PUMP	ABB ACH-580	WALL-MOUNTED	VARIABLE TORQUE PWM	25	208	3	74.8	96%	FURNISH WITH MANUAL VERTICAL BYPASS, INPUT DISCONNECT SWITCH, INPUT LINE REACTORS, AND EMS INTERFACE.

HOT WATER BOILER SCHEDULE

DESIG.	MFR./MDL	TYPE	FUEL	INPUT MBH	OUTPUT MBH	EWL	LWT	GPM	P.D.	REMARKS
B1	RAYPACK 1971066	SEALED COMBUSTION	NATURAL GAS	999 MBH	961 MBH	150"	180"	64	---	EXISTING EQUIPMENT TO REMAIN. RATINGS FOR REFERENCE ONLY.
B2	RAYPACK 1991050A	SEALED COMBUSTION	NATURAL GAS	500 MBH	420 MBH	150"	180"	28	---	EXISTING EQUIPMENT TO REMAIN. RATINGS FOR REFERENCE ONLY.

AIR / DIRT SEPARATOR SCHEDULE

DESIG.	MFR./MDL	TYPE	SERVES	SYSTEM FLOW	PRESS. DROP	VOLUME	INLET / OUTLET CONNECTIONS	DRAIN	WEIGHT	REMARKS
AS1	SPROTHERM V11500	COALESCING AIR / DIRT SEPARATOR	HEATING WATER	390 GPM	4.1 FT. AT 8 FPS	26.0 GAL.	5" N.	1" N.	479 LBS.	(1) (2) (3) (4) (5)
AS2	SPROTHERM V1000FA	COALESCING AIR / DIRT SEPARATOR	CHILLED WATER	535 GPM	3.1 FT. AT 8 FPS	40 GAL.	8" N.	1" N.	586 LBS.	(1) (2) (3) (4) (5)

- PROVIDE COALESCING TYPE AIR / DIRT SEPARATOR. CENTRIFUGAL TYPES ARE NOT ACCEPTABLE.
- SEPARATOR VESSEL SHALL BE CERTIFIED FOR 150 LBS. WORKING PRESSURE WITH CLASS 150 STEEL WELD NECK HEMED FACE FLANGES.
- SEPARATOR VESSEL SHALL INCLUDE STRUCTURED COALESCING MEDIA FILLING THE ENTIRE VESSEL. PARTIALLY FILLED VESSELS OR VESSELS WITH LOOSE MEDIA ARE NOT ACCEPTABLE.
- SEPARATOR VESSEL SHALL REMOVE 100% OF FREE AND ENTANGLED AIR AND 99.9% OF DISSOLVED AIR AS TESTED BY INDEPENDENT LABORATORY.
- SEPARATOR VESSEL SHALL REMOVE 90% OF THE 50 MICRON PARTICLES WITHIN 100 COMPLETE SYSTEM CIRCULATIONS, AND SHALL BE CAPABLE OF REMOVING PARTICLES OF 5 MICRON SIZE.

AIR DEVICE SCHEDULE

DESIG.	MFR./MDL	TYPE	FACE SIZE	FINISH	FREE AREA	ACCESS	REMARKS
CD-1	TITUS PAC	PERF. FACE CEILING SUPPLY	SEE PLANS	FINISH PER ARCHITECT	---	OPPOSED BLADE DAMPER	34" x 24" SQUARE PANEL FACE MODULAR CORE PERFORATED SCREEN 3/16" DIAMETER HOLES ON 1/4" STAGGERED CENTERS. 18" SQUARE NECK MATCH CONNECTION (SEE AS INDICATED ON PLANS).
CD-2	TITUS PAC	PERF. FACE CEILING SUPPLY	SEE PLANS	FINISH PER ARCHITECT	---	OPPOSED BLADE DAMPER	12" x 12" SQUARE PANEL FACE MODULAR CORE PERFORATED SCREEN 3/16" DIAMETER HOLES ON 1/4" STAGGERED CENTERS. SQUARE NECK MATCH CONNECTION (SEE AS INDICATED ON PLANS).
CD-3	TITUS ML30	LINEAR SLOT CEILING SUPPLY	AS NOTED	FINISH PER ARCHITECT	---	OPPOSED BLADE DAMPER	61.25" x 7.75" FACE 62" x 62" DUCT CONNECTION. FLUSH END GAP BORDERS. 3" x 1" SLOTS. PROVIDE MANUFACTURER'S CONCEALED MOUNTING FRAME HARDWARE FOR GYPSUM LOCATIONS. RE. ARCH. FOR CEILING TYPES. (2)
CR-1	TITUS PAR	PER. FACE CEILING RETURN	SEE PLANS	FINISH PER ARCHITECT	51%	OPPOSED BLADE DAMPER	24" x 24" SQUARE PANEL FACE PERFORATED SCREEN 3/16" DIAMETER HOLES ON 1/4" STAGGERED CENTERS. 22" x 22" SQUARE NECK MATCH CONNECTION (SEE AS INDICATED ON PLANS).
CR-2	TITUS PAR	PER. FACE CEILING RETURN	SEE PLANS	FINISH PER ARCHITECT	51%	OPPOSED BLADE DAMPER	12" x 12" SQUARE PANEL FACE PERFORATED SCREEN 3/16" DIAMETER HOLES ON 1/4" STAGGERED CENTERS. 10" x 10" SQUARE NECK MATCH CONNECTION (SEE AS INDICATED ON PLANS).
CR-3	TITUS PAR	PER. FACE CEILING RETURN	SEE PLANS	FINISH PER ARCHITECT	51%	OPPOSED BLADE DAMPER	24" x 48" SQUARE PANEL FACE PERFORATED SCREEN 3/16" DIAMETER HOLES ON 1/4" STAGGERED CENTERS. 22" x 48" RECTANGULAR NECK MATCH CONNECTION (SEE AS INDICATED ON PLANS).
ER-1	TITUS PAR	PER. FACE CEILING EXHAUST	SEE PLANS	FINISH PER ARCHITECT	51%	OPPOSED BLADE DAMPER	12" x 12" SQUARE PANEL FACE PERFORATED SCREEN 3/16" DIAMETER HOLES ON 1/4" STAGGERED CENTERS. 10" x 10" SQUARE NECK MATCH CONNECTION (SEE AS INDICATED ON PLANS).
SG-1	TITUS 350 RL	SIDEWALL LINEAR BAR SUPPLY	SEE PLANS	FINISH PER ARCHITECT	---	OPPOSED BLADE DAMPER	34" BLADE SPACING. DOUBLE DEFLECTION.
SR-1	TITUS 350 RL	SIDEWALL LINEAR BAR RETURN	SEE PLANS	FINISH PER ARCHITECT	---	OPPOSED BLADE DAMPER	34" BLADE SPACING. 35 DEGREE DEFLECTION.

- PROVIDE MANUFACTURER'S MOUNTING FRAME FOR GYPSUM LOCATIONS. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN.
- PROVIDE LINEAR SLOT DIFFUSERS WITH FULLY INSULATED FLENUM.

H+N ARCHITECTS



801 W 3rd St.
Little Rock, AR 72201
501.374.5300
www.WERArch.com

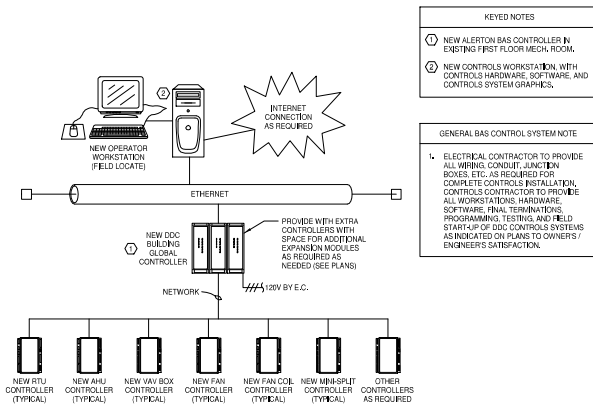
UCA SNOW FINE ARTS CENTER
RENOVATIONS
CONWAY, AR

GRAPHIC SCALE
1" = 16'-0" (GENERAL DRAWING)



Date: 09/20/23
Title: HVAC SCHEDULES
Sheet Number:
M4.2
Copyright H+N ARCHITECTS 2023

10-20-23	ADDENDUM #2
1	2



1 BUILDING AUTOMATION SYSTEM (BAS) RISER DIAGRAM

- KEYED NOTES**
- NEW ALERTON BAS CONTROLLER IN EXISTING FIRST FLOOR MECH. ROOM.
 - NEW CONTROLS WORKSTATION, WITH CONTROLS HARDWARE, SOFTWARE, AND CONTROLS SYSTEM GRAPHICS.
- GENERAL BAS CONTROL SYSTEM NOTE**
- ELECTRICAL CONTRACTOR TO PROVIDE ALL WIRING, CONDUIT, JUNCTION BOXES, ETC. AS REQUIRED FOR COMPLETE CONTROLS INSTALLATION. CONTROLS CONTRACTOR TO PROVIDE ALL WORKSTATIONS, HARDWARE, SOFTWARE, FINAL TERMINATIONS, PROGRAMMING, TESTING AND FIELD START-UP OF DDC CONTROLS SYSTEMS AS INDICATED ON PLANS TO OWNERS' ENGINEERS SATISFACTION.

VAV TERMINAL SEQUENCE OF OPERATION

VAV TERMINALS WITH HOT WATER REHEAT

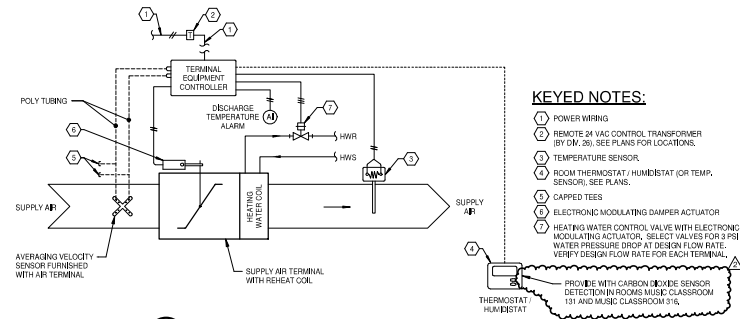
THE TERMINAL MODE OF OPERATION IS EITHER "OCCUPIED" OR "UNOCCUPIED" BASED UPON WEEKLY SCHEDULE OR OPERATOR COMMAND. DURING THE OCCUPIED MODE OF OPERATION, THE SPACE TEMPERATURE SETPOINT SHALL BE ADJUSTABLE BY THE OCCUPANT AT THE THERMOSTAT BETWEEN A MINIMUM OF 68°F (20°C) AND A MAXIMUM OF 75°F (ADJUST) ON A RISE IN SPACE TEMPERATURE ABOVE THE SETPOINT. THE VAV CONTROLLER WILL MODULATE THE AIR VALVE TO PROVIDE MAXIMUM CFM AS SPACE TEMPERATURE DECREASES BELOW THE HEATING SETPOINT. THE VAV CONTROLLER WILL MODULATE THE AIR VALVE TO ITS MINIMUM POSITION, AS THE SPACE TEMPERATURE CONTINUES TO FALL BELOW THE HEATING SETPOINT WITH THE AIR VALVE AT MINIMUM POSITION. THE CONTROLLER SHALL MODULATE THE AIR VALVE TO ITS HEATING MINIMUM AIRFLOW AT THIS POINT. THE HEATING VALVE SHALL BE MODULATED OPEN AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE AT THE HEATING SETPOINT. IF DURING THE OCCUPIED CYCLE THE CARBON DIOXIDE (CO2) SENSOR EXCEEDS THE HIGH LIMIT OF 1200 PPM (ADJUSTABLE), THE VAV TERMINAL BOX DAMPER SHALL OPEN TO ITS MAXIMUM SCHEDULED VALUE UNTIL THE ROOM CO2 LEVEL DROPS BELOW THE HIGH LIMIT SETPOINT.

UNOCCUPIED CYCLE: DURING THE UNOCCUPIED CYCLE, THE AIR VALVE ON THE TERMINAL UNIT SHALL DRIP TO THE UNOCCUPIED MINIMUM CFM. THE SYSTEM FAN AND HEAT SHALL CYCLE TO MAINTAIN A REDUCED SPACE TEMPERATURE (INSI).

UNOCCUPIED CYCLE OVERRIDE: DURING THE UNOCCUPIED CYCLE, THE LOCAL USER SHALL BE PROVIDED WITH AN OVERRIDE FUNCTION ON EACH LOCAL THERMOSTAT. THE OVERRIDE FUNCTION SHALL FUNCTION FOR A TWO (2) HOUR PERIOD.

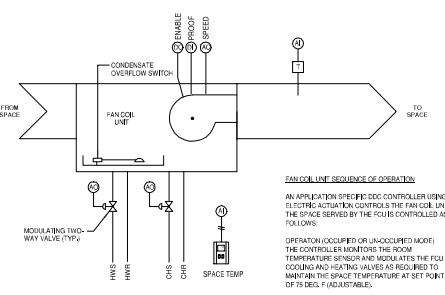
FREEZE PROTECTION SEQUENCE OF OPERATION

UPON ACTIVATION OF A FREEZE STAT IN ANY AIR HANDLING UNIT SERVING THIS BUILDING, ALL VAV TERMINAL BOX HEATING WATER CONTROL VALVES SHALL BE FULLY OPENED. UPON RESET OF THE ACTIVATED FREEZE STAT, THE VALVES SHALL RETURN TO NORMAL OPERATION.



- KEYED NOTES:**
- POWER WIRING
 - REMOTE 24 VAC CONTROL TRANSFORMER (BY DM. 26). SEE PLANS FOR LOCATIONS.
 - TEMPERATURE SENSOR
 - ROOM THERMOSTAT/ HUMIDISTAT, OR TEMP. SENSOR, SEE PLANS.
 - CAPPED TEES
 - ELECTRONIC MODULATING DAMPER ACTUATOR
 - HEATING WATER CONTROL VALVE WITH ELECTRONIC MODULATING ACTUATOR. SELECT VALVES FOR 3 PSI WATER PRESSURE DROP AT DESIGN FLOW RATE. VERIFY DESIGN FLOW RATE FOR EACH TERMINAL.
 - PROVIDE WITH CARBON DIOXIDE SENSOR DETECTION IN ROOMS MUSIC CLASSROOM 131 AND MUSIC CLASSROOM 316.

2 SUPPLY AIR TERMINAL W/ HOT WATER REHEAT (TYPICAL)



FAN COIL UNIT SEQUENCE OF OPERATION

AN APPLICATION SPECIFIC DDC CONTROLLER USING ELECTRIC ACTUATION CONTROLS THE FAN COIL UNIT. THE SPACE SERVED BY THE FCU IS CONTROLLED AS FOLLOWS:

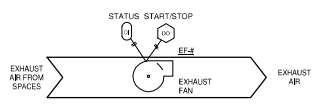
OPERATION OCCUPIED OR UNOCCUPIED MODE: THE CONTROLLER MONITORS THE ROOM TEMPERATURE SENSOR AND MODULATES THE FCU COOLING AND HEATING VALVES AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE AT SET POINT OF 75 DEG. F (ADJUSTABLE).

3 4-PIPE FAN COIL UNIT CONTROL DIAGRAM

EXHAUST FAN - SEQUENCE OF OPERATION (TYPICAL)

EXHAUST FANS SHALL OPERATE INTERLOCKED WITH A SIGNAL FROM THE BUILDING AUTOMATION SYSTEM.

THE EXHAUST FAN SHALL SHUT DOWN UPON A SIGNAL FROM THE BUILDING FIRE ALARM SYSTEM.



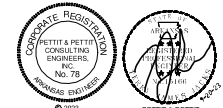
4 EXHAUST FAN (TYPICAL) CONTROL DIAGRAM

HVAC CONTROLS GENERAL NOTES

- ALL FINAL SEQUENCES OF OPERATION TO BE DISCUSSED AND COORDINATE WITH PROJECT COMMISSIONING AGENT, UCA CONTROLS TEAM, AND PROJECT ENGINEER IN A DESIGN REVIEW MEETING AT THE SUBMITTAL REVIEW PERIOD AND PRIOR TO STARTING CONTROLS INSTALLATION.

HVAC CONTROL VALVE NOTES

- NEW CONTROL VALVES TO BE BELMO (NO EQUAL) 2-1/2" NODC. NORMALLY CLOSED
- NEW DISTRICT LOOP ISOLATION VALVES AND CHILLER ISOLATION VALVES TO HAVE BRAY ACTUATORS WITH STATUS OUTPUTS.



PROJECT REGISTRATION
 PETTIT & PETTIT CONSULTING ENGINEERS, INC. NO. 78
 10-20-23 ADDENDUM #2
 10-12-22 ADDENDUM #1
 Date Description Revision History

H+N ARCHITECTS
 1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

UCA SNOW FINE ARTS CENTER RENNOVATIONS
 CONWAY, AR

801 W 3rd St.
 Little Rock, AR 72201
 501.374.5300
 www.WEArch.com

DATE: 09/20/23
 TITLE: HVAC CONTROLS
 SHEET NUMBER: **M5.1**
 COPYRIGHT H+N ARCHITECTS 2023

VARIABLE AIR VOLUME AIR HANDLING UNIT - SEQUENCE OF OPERATION

RTU-1 (RTU-2 SIMILAR)

GENERAL DESCRIPTION:

ROOFTOP VAV AIR HANDLING UNIT SHALL BE ROOF-MOUNTED AND SHALL SERVE INDIVIDUAL VAV SUPPLY AIR TERMINAL BOXES WITHIN THE INTERIOR SPACES. UNIT TO BE FACTORY PROVIDED WITH VARIABLE FREQUENCY DRIVE (VFD).

UNIT CONTROLS:

UNIT SHALL BE PROVIDED WITH A STANDALONE UNIT CONTROLLER THAT SHALL INTERFACE WITH THE BACNET BUILDING AUTOMATION SYSTEM (BAS) SYSTEMS. UNIT CONTROLLER SHALL BE CAPABLE OF OPERATING UNIT WITHOUT REQUIRING CONSTANT BACNET COMMUNICATION TO MAINTAIN NORMAL UNIT OPERATION. IF COMMUNICATION WITH THE BACNET LOST, THE ROOFTOP AIR HANDLING UNIT SHALL USE ITS DEFAULT SETPOINTS AND OPERATE IN THE OCCUPIED COOLING MODE.

THE BAS SHALL SEND THE ROOFTOP AIR HANDLING UNIT A DISCHARGE AIR TEMPERATURE (DAT) COOLING SETPOINT AND A DUCT STATIC PRESSURE SETPOINT. THE BAS SHALL ALSO SEND STARTUP, MORNING WARMUP, OCCUPIED, UNOCCUPIED, HEATING / COOLING, TIME OVERRIDE, COAST DOWN, NIGHT SETBACK, PURGE, AND PRIORITY SHUT-DOWN COMMANDS.

OCCUPIED MODE:

THE OCCUPIED MODE SHALL BE DETERMINED BY THE OWNER'S BUILDING SCHEDULE. WHEN THE AIR HANDLING UNIT IS IN OCCUPIED MODE, THE SUPPLY FANS SHALL OPERATE CONTINUOUSLY. THE VARIABLE FREQUENCY DRIVE(S) (VFD) SHALL MODULATE THE SUPPLY FANS AS REQUIRED BETWEEN THE MINIMUM AND MAXIMUM FAN SPEED SETPOINTS (ADJUSTABLE) TO MAINTAIN THE DUCT STATIC PRESSURE AND THE COOLING VALVE AND HEATING VALVE SHALL MODULATE IN SEQUENCE TO MAINTAIN THE COOLING DISCHARGE AIR TEMPERATURE. THE SUPPLY FANS SHALL BE OFF WHENEVER THE ROOFTOP AIR HANDLING UNIT INHEARS AN LOW LIMIT IS TRIPPED. THE STOP / AUTO INTERLOCK IS OPEN, OR THE SUPPLY FAN STATUS INDICATES A FAILURE AFTER A TWO-MINUTE DELAY. THE LOW LIMIT AND THE FAN FAILURE REQUIRE A MANUAL RESET. THE OUTDOOR AIRFLOW, AS MEASURED AT A FLOW MEASURING STATION, SHALL BE MAINTAINED AT A VALUE EQUAL TO OR HIGHER THAN THE MINIMUM REQUIRED OUTDOOR AIRFLOW SETPOINT SECTION OF THE AIR SYSTEM LEVEL OPERATION SECTION OF THIS SPECIFICATION.

UNOCCUPIED MODE:

THE UNOCCUPIED MODE SHALL BE DETERMINED BY THE OWNER'S BUILDING SCHEDULE. WHEN THE AIR HANDLING UNIT IS IN THE UNOCCUPIED MODE, THE SUPPLY FANS SHALL MODULATE DOWN TO MAINTAIN ASSOCIATED VAV TERMINAL BOX MINIMUM AIR FLOW RATES. THE OUTDOOR AIR DAMPER SHALL BE CLOSED. THE ZONE TERMINAL RE-HEAT SHALL MODULATE TO MAINTAIN THE BUILDING UNOCCUPIED TEMPERATURE SETPOINT.

OVERSIDE MODE:

IF DURING THE COURSE OF AN UNOCCUPIED MODE PERIOD THE LOCAL USER UTILIZES THE OVERSIDE FUNCTION AT THE LOCAL USER THERMOSTAT, THE AIR HANDLING UNIT SHALL RETURN TO OCCUPIED MODE STATUS FOR A PERIOD OF TWO (2) HOURS ADJUST.

VFD CONTROL:

WHEN THE SUPPLY FAN(S) ARE ON, THE VFD(S) SHALL SLOWLY RAMP (ADJ.) UP AND MODULATE TO MAINTAIN THE DUCT STATIC PRESSURE SETPOINT.

SUPPLY FANS:

THE ROOFTOP AIR HANDLING UNIT WILL BE FACTORY SUPPLIED WITH DIRECT DRIVE SUPPLY FANS.

COOLING VALVE CONTROL:

THE COOLING VALVE SHALL MODULATE TO MAINTAIN THE UNIT SUPPLY AIR DISCHARGE TEMPERATURE OF 55°F (ADJ.). THE COOLING VALVE SHALL BE CLOSED IF THE SUPPLY FANS ARE OFF, THE SUPPLY AIR SENSOR HAS FAILED, OR IF THE AIR HANDLING UNIT IS IN THE HEATING MODE (THE COOLING COIL CONTROL VALVE SHALL BE CLOSED IF OUTSIDE AIR TEMPERATURE IS ABOVE 40°F (ADJ.), IF OUTSIDE AIR TEMPERATURE IS BELOW 40°F (ADJ.) THEN THE COOLING COIL CONTROL VALVE SHALL BE FULLY OPENED TO HELP PREVENT FREEZING).

HEATING VALVE INTEGRAL GAGE & BYPASS DAMPER CONTROL:

WHEN THE PRE-HEAT COIL LEAVING AIR TEMPERATURE DROPS TO BELOW 50°F (ADJ.), THE HEATING VALVE SHALL MODULATE OPEN AS NEEDED AND THE GAGE AND BYPASS DAMPER SHALL MODULATE IN CONCORD TO MAINTAIN THE PRE-HEAT COIL LEAVING AIR TEMPERATURE SETPOINT OF 50°F (ADJ.) WHEN THE OUTDOOR AIR TEMPERATURES ARE BELOW 40°F (ADJ.), THEN THE BYPASS DAMPER ONLY SHALL BE MODULATED AND THE HEATING WATER VALVE SHALL OPERATE AT 100% OPEN.

MINIMUM REQUIRED OUTDOOR AIRFLOW SETPOINT:

DURING OCCUPIED TIMES, THE AIR HANDLER OUTDOOR AIR DAMPER SHALL MAINTAIN A MINIMUM OPEN POSITION TO DELIVER REQUIRED OUTDOOR AIRFLOW TO EACH INDIVIDUAL VAV ZONE. SEE THE CONNECTION LIST ON THE AIR HANDLER UNIT SCHEDULE, COORDINATE WITH ENGINEER.

DISCHARGE DUCT STATIC PRESSURE SETPOINT:

THE DISCHARGE DUCT STATIC PRESSURE SHALL BE SENSSED DIRECTLY AT A POINT APPROXIMATELY TWO-THIRDS (2/3) THE TRUNK DUCT OVERALL LENGTH. THE SENSOR SHALL BE MOUNTED IN A NON-TURBULENT LOCATION. THE BUILDING AUTOMATION SYSTEM SHALL CONTINUOUSLY MONITOR THE DAMPER POSITION OF ALL VAV TERMINAL UNITS. WHEN ANY VAV TERMINAL UNIT DAMPER IS MORE THAN 95% (ADJ.) OPEN, THE SUPPLY FAN DISCHARGE DUCT STATIC PRESSURE SETPOINT SHALL BE RESET UPWARDS BY 0.1" W.C. (ADJ.) OF THE MAXIMUM SYSTEM STATIC PRESSURE SETPOINT AT A FREQUENCY OF 10 MINUTES (ADJ.) UNTIL NO VAV TERMINAL UNIT DAMPER IS MORE THAN 95% OPEN OR THE STATIC PRESSURE SETPOINT HAS RESET UPWARD TO THE SYSTEM MAXIMUM SETTING OR THE SUPPLY FAN SPEED ARE AT THEIR MAXIMUM SETTING.

WHEN ALL VAV TERMINAL UNIT DAMPERS ARE LESS THAN 85% (ADJ.) OPEN, THE SUPPLY FAN DISCHARGE DUCT STATIC PRESSURE SETPOINT SHALL BE RESET DOWNWARD BY 0.1" W.C. (ADJ.) OF THE MAXIMUM SYSTEM STATIC PRESSURE SETPOINT AT A FREQUENCY OF 10 MINUTES (ADJ.) UNTIL ALL DAMPERS ARE MORE THAN 85% OPEN OR THE STATIC PRESSURE SETPOINT HAS RESET DOWNWARD TO THE SYSTEM MINIMUM SETTING OR THE VFD(S) ARE AT THEIR MINIMUM SETTINGS.

THE CONTROL BANDS, SETPOINT INCREMENT VALUES, SETPOINT DECREMENT VALUES, AND ADJUSTMENT FREQUENCIES SHALL BE ADJUSTED TO MAINTAIN STATIC PRESSURE OPTIMIZATION WITH STABLE SYSTEM CONTROL AND MAXIMUM COMFORT CONTROL.

COOLING:

THE UNIT IS PROVIDED WITH A CHILLED WATER COIL FOR COOLING.

COOLING DAT RESET: THE COOLING DAT SETPOINT MAY BE RESET BY THE SPACE TEMPERATURE, RETURN AIR TEMPERATURE, OUTSIDE AIR TEMPERATURE, SPACE RELATIVE HUMIDITY, OR EXTERNAL VOLTAGE(S) SIGNALS. A LINEAR RELATIONSHIP BETWEEN THE DAT AND THE RESET VARIABLE WILL BE CREATED FOR THE MINIMUM AND MAXIMUM DAT SETPOINTS. AS THE RESET VARIABLE CHANGES THE DAT WILL ADJUST ACCORDING TO THE RELATIONSHIP. MINIMUM RESET SETPOINT IS 53°F (ADJ.) AND MAXIMUM RESET SETPOINT IS 65°F (ADJ.).

HEATING:

THE UNIT IS PROVIDED WITH A HEATING HOT WATER COIL FOR HEATING.

HEATING DAT RESET: THE HEATING DAT SETPOINT MAY BE RESET BY SPACE TEMPERATURE, RETURN AIR TEMPERATURE, OUTSIDE AIR TEMPERATURE, NETWORK OR EXTERNAL VOLTAGE(S) SIGNALS. A LINEAR RELATIONSHIP BETWEEN THE DAT AND THE RESET VARIABLE WILL BE CREATED FOR THE MINIMUM AND MAXIMUM DAT SETPOINTS. AS THE RESET VARIABLE CHANGES THE DAT WILL ADJUST ACCORDING TO THE RELATIONSHIP. WHEN THE AIR HANDLING UNIT IS IN THE HEATING MODE OR THE NIGHT SETBACK MODE, THE HEATING VALVE SHALL MODULATE OPEN TO MAINTAIN THE DISCHARGE AIR TEMPERATURE AT THE DISCHARGE HEATING SETPOINT ADJUSTABLE.

LOW LIMIT TEMPERATURE DETECTOR:

IN THE EVENT THE LOW LIMIT TEMPERATURE DETECTOR DETECTS MIXED AIR TEMPERATURE BELOW 35 DEG. F, THE SUPPLY AIR FANS SHALL STOP. THE DAMPERS SHALL CLOSE, AND AN ALARM SHALL SOUND AT THE BAS WORKSTATION. THE LOW LIMIT TEMPERATURE DETECTOR SHALL REQUIRE A MANUAL RESET.

NIGHT SETBACK / MORNING WARMUP HEATING MODE:

THE AIR HANDLING UNIT SHALL INDEX FROM UNOCCUPIED MODE TO OCCUPIED MODE AT A TIME DETERMINED BY THE BAS SYSTEM SO THAT THE SETPOINT IS MET DURING THE ENTIRE PORTION OF THE BUILDING OCCUPIED HOURS (ADJUSTABLE).

ECONOMIZER MODE:

ECONOMIZER MODE SHALL OPERATE BASED UPON ENTHALPY SETPOINT. DURING ECONOMIZER MODE, THE OUTSIDE AIR DAMPER SHALL MODULATE FULLY OPEN. THE RETURN AIR DAMPER SHALL MODULATE CLOSED, AND THE BAROMETRIC RELIEF DAMPERS SHALL OPEN AS REQUIRED TO MAINTAIN SPACE SETPOINT. WHEN THE OUTSIDE AIR CONDITIONS ARE ABOVE THE ENTHALPY SETPOINT, THE OUTSIDE AIR DAMPER SHALL CLOSE TO THE MINIMUM POSITION REQUIRED. THE RETURN AIR DAMPER SHALL FULLY OPEN, AND THE UNIT SHALL RESUME NORMAL COOLING/HEATING OPERATION.

SUPPLY AIR DISCHARGE TEMPERATURE RESET:

THE SUPPLY AIR DISCHARGE TEMPERATURE SHALL BE SENSSED DIRECTLY AT THE DISCHARGE OF THE AIR HANDLING UNIT. THE BUILDING AUTOMATION SYSTEM SHALL CONTINUOUSLY MONITOR THE SPACE RELATIVE HUMIDITY AS INDICATED ON PLANS AND THE DAMPER POSITION OF ALL VAV TERMINAL UNITS. WHEN IN COOLING MODE AND ALL OF THE VAV TERMINAL UNITS HAVE BEEN REDUCED DOWN TO THE MINIMUM SETTING OF THE VAV TERMINAL UNIT, THE UNIT SUPPLY AIR TEMPERATURE SHALL BE RESET UPWARDS BY 0.2°F (ADJ.) AT A FREQUENCY OF 10 MINUTES (ADJ.) UNTIL ALL OF THE VAV TERMINAL UNIT DAMPERS ARE AT LEAST 85% OPEN (ADJ.) BUT NO VAV TERMINAL UNIT DAMPER IS MORE THAN 95% OPEN (ADJ.). UPON ANY VAV TERMINAL UNIT DAMPER OPENING TO 85% OPEN (ADJ.) OR MORE, THEN THE UNIT SUPPLY AIR TEMPERATURE SHALL BE RESET DOWNWARDS BY 0.5°F (ADJ.) AT A FREQUENCY OF 10 MINUTES (ADJ.) UNTIL ALL OF THE VAV TERMINAL UNIT DAMPERS ARE AT LEAST 85% OPEN (ADJ.) BUT NO VAV TERMINAL UNIT DAMPER IS MORE THAN 95% OPEN (ADJ.). THE BUILDING AUTOMATION SYSTEM SHALL OVERSPEED AND RESET THE UNIT SUPPLY AIR TEMPERATURE DOWNWARDS BY 0.5°F (ADJ.) AT A FREQUENCY OF 10 MINUTES (ADJ.) IF THE SPACE RELATIVE HUMIDITY INCREASES TO MORE THAN 60%RH. THE MAXIMUM ALLOWABLE SUPPLY AIR DISCHARGE TEMPERATURE RESET SHALL BE 60°F (ADJ.) FOR THE UNIT SUPPLY AIR DISCHARGE TEMPERATURE. THE SUPPLY AIR DISCHARGE TEMPERATURE RESET SEQUENCE SHALL BE ALLOWED TO BE ENABLED OR DISABLED AT ANY TIME BY THE OWNER THRU A HARD BUTTON IN THE UNIT CONTROL GRAPHICS AT THE BAS WORKSTATION.

AIR HANDLING UNIT SYSTEM LEVEL CONTROL:

1. VAV TERMINAL BOX RE-HEAT INTERLOCK CONTROL:

A. VAV TERMINAL BOX RE-HEAT SHALL BE DISABLED FROM, OR ENABLED FOR LOCAL CONTROL, BY THE VAV TERMINAL BOX STANDALONE CONTROLLER.

B. AT A MINIMUM, ALL VAV TERMINAL BOXES BEING SERVED BY AN AIR HANDLING UNIT SHALL BE CONTROLLED AS A GROUP. PROVIDE MORE GROUPS AS DESIGNATED IN THE POINTS LIST, DRAWINGS, OR ELSEWHERE IN THE SPECIFICATION.

C. THE INTERLOCK SHALL BE CONTROLLED BY COMPARING THE OUTSIDE AIR AMBIENT TEMPERATURE TO THE INTERLOCK SETPOINT (ADJUSTABLE). IF EACH AIR HANDLING UNIT CONTROLLER IS INDIVIDUALLY SENSING THE OUTSIDE AIR AMBIENT TEMPERATURE, SERVING THE UNIT, THEN THE TEMPERATURE SENSOR FOR THAT AIR HANDLING UNIT SHALL BE USED FOR THE COMMAND AND OTHER PROCESSES.

D. THE INTERLOCK SHALL BE CONTROLLED BY A SYSTEM OPERATOR INTERLOCK FOR EACH GROUP OF BOXES.

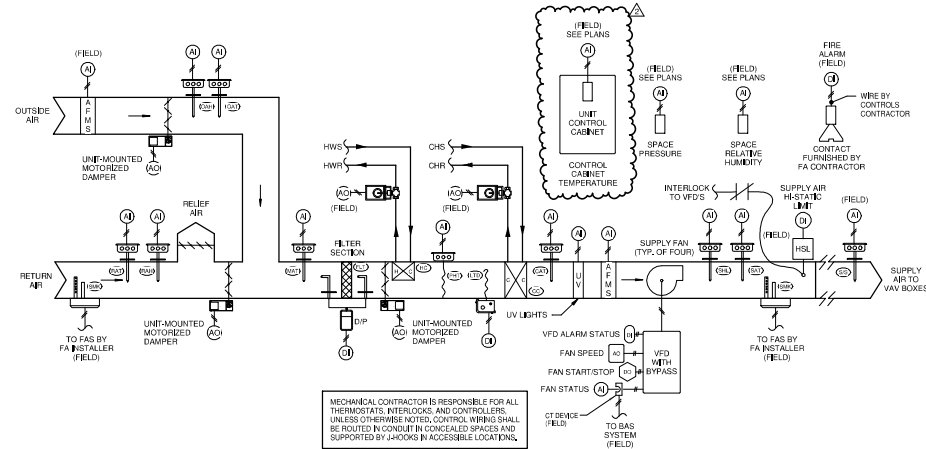
THE FOLLOWING POINTS SHALL BE MONITORED AND ALARMED AT THE AIR HANDLING UNIT CONTROLLER AND THE BAS:

- | | |
|----------------------------------|----------------------------------|
| 1. SUPPLY AIR TEMP. | 12. RETURN AIR TEMP. |
| 2. MIXED AIR TEMP. | 13. RETURN AIR RELATIVE HUMIDITY |
| 3. OUTSIDE AIR TEMP. | 14. SENSORS NORMAL FAIL STATUS |
| 4. OUTSIDE AIR RELATIVE HUMIDITY | 15. LOW LIMIT STATUS |
| 5. SPACE RELATIVE HUMIDITY | 16. COOLING VALVE OPEN % |
| 6. SPACE PRESSURE | 17. HEATING VALVE OPEN % |
| 7. VFD CURT % | 18. HEAT / COOL MODE |
| 8. SUPPLY FAN MODULATION | 19. DAMPER MINIMUM POSITION % |
| 9. FAN STATUS | 20. FILTER NORMAL / DIRTY |
| 10. COOLING AIR TEMP. | 21. SUPPLY AIR STATIC PRESSURE |
| 11. HEATING AIR TEMP. | 22. COOL-LOG PARAMETERS |

THE FOLLOWING POINTS SHALL BE OPERATOR ADJUSTABLE AND/OR AUTOMATICALLY RESET BY THE BAS PROGRAM:

- HEATING SETPOINT - HEAT RESET SETPOINT
- COOLING SETPOINT - COOL RESET SETPOINT
- MIX POSITION SETPOINT - STATIC PRESS. SETPOINT
- DAMPER OPEN/CLOSE - COOL/HEAT ENABLE

THE SYSTEM SHALL SHUT DOWN IMMEDIATELY UPON DETECTION OF SMOKE FROM DETECTORS LOCATED IN THE SUPPLY AND RETURN AIR STREAMS OR IF THE ALARM SYSTEM IS ACTIVATED.



1 AIR HANDLING UNIT RTU-1 (RTU-2 SIMILAR) W/ HOT WATER & CHILLED WATER COILS



DATE: 09/20/23
 TITLE: HVAC CONTROLS
 SHEET NUMBER: M5.2

DATE: 09/20/23
 REVISION: 1
 REVISION HISTORY:

H+N ARCHITECTS
 1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

WE RARCH
 801 W 3rd St.
 Little Rock, AR 72201
 501.374.5300
 www.WERArch.com

UCA SNOW FINE ARTS CENTER
 RENNOVATIONS
 CONWAY, AR

COPY SCALE
 1" = 1'-0"

DATE: 09/20/23
 TITLE: HVAC CONTROLS
 SHEET NUMBER: M5.2
 DATE: 09/20/23
 REVISION: 1
 REVISION HISTORY:

COPYRIGHT H+N ARCH/ECTS 2023

VARIABLE AIR VOLUME AIR HANDLING UNIT - SEQUENCE OF OPERATION

AH-6

GENERAL DESCRIPTION

INTERIOR VAV AIR HANDLING UNIT SHALL BE MOUNTED ON A STRUCTURAL PLATFORM AND SHALL SERVE INDIVIDUAL AREAS WITHIN THE INTERIOR SPACES AS A SINGLE ZONE VAV SYSTEM, UNIT TO BE FACTORY PROVIDED WITH VARIABLE FREQUENCY DRIVE (VFD).

UNIT CONTROLS

UNIT SHALL BE PROVIDED WITH A STANDALONE UNIT CONTROLLER THAT SHALL INTERFACE WITH THE BACNET BUILDING AUTOMATION SYSTEM (BAS) SYSTEMS. UNIT CONTROLLER SHALL BE CAPABLE OF OPERATING UNIT WITHOUT REQUIRING CONSTANT BACNET COMMUNICATION TO MAINTAIN NORMAL UNIT OPERATION. IF COMMUNICATION WITH THE BAS IS LOST, THE VAV AIR HANDLING UNIT SHALL USE ITS DEFAULT SETPOINTS AND OPERATE IN THE OCCUPIED COOLING MODE.

THE BAS SHALL SEND THE VAV AIR HANDLING UNIT A DISCHARGE AIR TEMPERATURE (DAT) COOLING SETPOINT AND A DUCT STATIC PRESSURE SETPOINT. THE BAS SHALL ALSO SEND START-UP, MORNING WARM-UP, OCCUPIED, UNOCCUPIED, HEATING / COOLING, TYPED OVERRIDE, COAST DOWN, NIGHT SETBACK, PURGE, AND PRIORITY SHUT-DOWN COMMANDS.

OCCUPIED MODE

THE OCCUPIED MODE SHALL BE DETERMINED BY THE OWNER'S BUILDING SCHEDULE. WHEN THE AIR HANDLING UNIT IS IN OCCUPIED MODE, THE SUPPLY FANS SHALL OPERATE CONTINUOUSLY. THE VARIABLE FREQUENCY DRIVE(S) (VFD) SHALL MODULATE THE SUPPLY FAN(S) AS REQUIRED BETWEEN THE MINIMUM AND MAXIMUM FAN SPEED SETPOINTS (ADJUSTABLE) TO MAINTAIN THE DUCT STATIC PRESSURE AND THE COOLING VALVE AND PRE-HEAT HEATING VALVES SHALL MODULATE IN SEQUENCE TO MAINTAIN THE UNIT DISCHARGE AIR TEMPERATURE. THE SUPPLY FANS SHALL BE OFF WHENEVER THE AIR HANDLING UNIT MIXED AIR FLOW LIMIT IS TRIPPED. THE STOP / AUTO INTERLOCK IS OPEN, OR THE SUPPLY FAN STATUS INDICATES A FAILURE (AFTER A TWO-MINUTE DELAY). THE LOW LIMIT AND THE FAN FAILURE REQUIRE A MANUAL RESET. THE OUTDOOR AIRFLOW, AS MEASURED AT THE AIRFLOW MEASURING STATION, SHALL BE MAINTAINED AT A VALUE EQUAL TO OR GREATER THAN THE MINIMUM REQUIRED OUTDOOR AIRFLOW SETPOINT SECTION OF THE AHU SYSTEM LEVEL OPERATION SECTION OF THIS SPECIFICATION.

UNOCCUPIED MODE

THE UNOCCUPIED MODE SHALL BE DETERMINED BY THE OWNER'S BUILDING SCHEDULE. WHEN THE AIR HANDLING UNIT IS IN THE UNOCCUPIED MODE, THE SUPPLY FANS SHALL MODULATE DOWN TO MINIMUM AIR-FLOW RATE REQUIRED TO MAINTAIN THE BUILDING UNOCCUPIED TEMPERATURE SETPOINT (ADJUSTABLE). THE OUTDOOR AIR DAMPER SHALL BE CLOSED.

OVERRIDE MODE

IF DURING THE COURSE OF AN UNOCCUPIED MODE PERIOD THE LOCAL USER UTILIZES THE OVERRIDE FUNCTION AT THE LOCAL USER THERMOSTAT, THE AIR HANDLING UNIT SHALL RETURN TO OCCUPIED MODE STATUS FOR A PERIOD OF TWO (2) HOURS (ADJ.).

VFD CONTROL

WHEN THE SUPPLY FAN(S) ARE ON, THE VFD(S) SHALL SLOWLY RAMP (ADJ.) UP AND MODULATE TO MAINTAIN THE DUCT STATIC PRESSURE SETPOINT.

SUPPLY FANS

THE AIR HANDLING UNIT WILL BE FACTORY SUPPLIED WITH DIRECT DRIVE SUPPLY FANS.

COOLING VALVE CONTROL

THE COOLING VALVE SHALL MODULATE TO MAINTAIN THE UNIT SUPPLY AIR DISCHARGE TEMPERATURE OF 55°F (ADJ.). THE COOLING VALVE SHALL BE CLOSED IF THE SUPPLY FANS ARE OFF. THE SUPPLY AIR SENSOR HAS FAILED, OR IF THE AIR HANDLING UNIT IS IN THE HEATING MODE. THE COOLING COIL CONTROL VALVE SHALL BE CLOSED IF OUTSIDE AIR TEMPERATURE IS ABOVE 40°F (ADJ.). IF OUTSIDE AIR TEMPERATURE IS BELOW 40°F (ADJ.), THEN THE COOLING COIL CONTROL VALVE SHALL BE FULLY OPENED TO HELP PREVENT FREEZING.

HEATING VALVE INTEGRAL FACE & BYPASS DAMPER CONTROL

WHEN THE PRE-HEAT COIL LEAVING AIR TEMPERATURE DROPS TO BELOW 50°F (ADJ.), THE HEATING VALVE SHALL MODULATE OPEN AS NEEDED AND THE FACE AND BYPASS DAMPER SHALL MODULATE IN CONCERT TO MAINTAIN THE PRE-HEAT COIL LEAVING AIR TEMPERATURE SETPOINT OF 55°F (ADJ.). WHEN THE OUTDOOR AIR TEMPERATURES ARE BELOW 40°F (ADJ.), THEN THE BYPASS DAMPER ONLY SHALL BE MODULATED AND THE HEATING WATER VALVE SHALL OPERATE AT 100% OPEN.

MINIMUM REQUIRED OUTDOOR AIRFLOW SETPOINT

DURING OCCUPIED TIMES, THE AIR HANDLER OUTDOOR AIR DAMPER SHALL MAINTAIN A MINIMUM OPEN POSITION TO DELIVER REQUIRED OUTDOOR AIRFLOW TO THE ZONES SERVED. SEE THE OADR (LISTED ON THE AIR HANDLER UNIT SCHEDULE). COORDINATE WITH ENGINEER.

DISCHARGE DUCT STATIC PRESSURE SETPOINT

THE DISCHARGE DUCT STATIC PRESSURE SHALL BE SENSED DIRECTLY AT A POINT APPROXIMATELY TWO-THIRDS (2/3) THE TRUNK DUCT OVERLENGTH. THE SENSOR SHALL BE MOUNTED IN A NON-TURBULENT LOCATION.

THE CONTROL BANDS, SETPOINT INCREMENT VALUES, SETPOINT DECREMENT VALUES, AND ADJUSTMENT FREQUENCIES SHALL BE ADJUSTED TO MAINTAIN STATIC PRESSURE OPTIMIZATION WITH STABLE SYSTEM CONTROL AND MAXIMUM COMFORT CONTROL.

COOLING

THE UNIT IS PROVIDED WITH A CHILLED WATER COIL FOR COOLING.

COOLING DAT RESET: THE COOLING DAT SETPOINT MAY BE RESET BY THE SPACE TEMPERATURE, RETURN AIR TEMPERATURE, OUTSIDE AIR TEMPERATURE, SPACE RELATIVE HUMIDITY, OR EXTERNAL VOLTAGE SIGNALS. A LINEAR RELATIONSHIP BETWEEN THE DAT AND THE RESET VARIABLE WILL BE CREATED FOR THE MINIMUM AND MAXIMUM DAT SETPOINTS. AS THE RESET VARIABLE CHANGES THE DAT WILL ADJUST ACCORDING TO THE RELATIONSHIP. MINIMUM RESET SETPOINT IS 55°F (ADJ.) AND MAXIMUM RESET SETPOINT IS 65°F (ADJ.).

HEATING

THE UNIT IS PROVIDED WITH A HEATING HOT WATER COIL FOR HEATING.

HEATING DAT RESET: THE HEATING DAT SETPOINT MAY BE RESET BY SPACE TEMPERATURE, RETURN AIR TEMPERATURE, OUTSIDE AIR TEMPERATURE, NETWORK, OR EXTERNAL VOLTAGE SIGNALS. A LINEAR RELATIONSHIP BETWEEN THE DAT AND THE RESET VARIABLE WILL BE CREATED FOR THE MINIMUM AND MAXIMUM DAT SETPOINTS. AS THE RESET VARIABLE CHANGES THE DAT WILL ADJUST ACCORDING TO THE RELATIONSHIP. WHEN THE AIR HANDLING UNIT IS IN THE HEATING MODE OR THE NIGHT SETBACK MODE, THE HEATING VALVE SHALL MODULATE OPEN TO MAINTAIN THE DISCHARGE AIR TEMPERATURE AT THE DISCHARGE HEATING SETPOINT (ADJUSTABLE).

LOW LIMIT TEMPERATURE DETECTOR

IN THE EVENT THE LOW LIMIT TEMPERATURE DETECTOR DETECTS MIXED AIR TEMPERATURE BELOW 35 DEG. F, THE SUPPLY AIR FAN(S) SHALL STOP. THE DAMPERS SHALL CLOSE, AND AN ALARM SHALL SOUND AT THE BAS WORKSTATION. THE LOW LIMIT TEMPERATURE DETECTOR SHALL REQUIRE A MANUAL RESET.

NIGHT SETBACK / MORNING WARM-UP HEATING MODE

THE AIR HANDLING UNIT SHALL INDEX FROM UNOCCUPIED MODE TO OCCUPIED MODE AT A TIME DETERMINED BY THE BAS SYSTEM SO THAT THE SETPOINT IS MET DURING THE ENTIRE PORTION OF THE BUILDING OCCUPIED HOURS (ADJUSTABLE).

ECONOMIZER MODE

ECONOMIZER MODE

ECONOMIZER MODE SHALL OPERATE BASED UPON ENTHALPY SETPOINT. THE EXISTING DUCTWORK CONNECTIONS TO THE RETURN AIR AT THE ROOF LEVEL PENHOUSE HAVE BEEN PROVIDED WITH A RELIEF DAMPER ASSEMBLY (QUANTITY OF TWO) FOR ECONOMIZER OPERATION. CONTROLS CONTRACTOR SHALL FIELD REPLACE EXISTING RELIEF DAMPER ASSEMBLYS AND THE UNIT CONTROLLER SHALL ACTIVATE ECONOMIZER MODE ONCE THE OUTSIDE AIR ENTHALPY IS LESS THAN THE RETURN AIR ENTHALPY. DURING ECONOMIZER MODE, THE OUTSIDE AIR DAMPERS SHALL MODULATE FULLY OPEN, THE RETURN AIR DAMPERS SHALL MODULATE CLOSED, AND THE RELIEF AIR DAMPERS SHALL OPEN AND MODULATE TO MAINTAIN A BUILDING PRESSURE DIFFERENTIAL OF 0.4" W.G. (ADJUSTABLE). WHEN THE OUTSIDE AIR CONDITIONS ARE ABOVE THE ENTHALPY SETPOINT, THE OUTSIDE AIR DAMPER SHALL CLOSE TO THE MINIMUM POSITION REQUIRED. THE RETURN AIR DAMPER SHALL FULLY OPEN, THE RELIEF AIR DAMPERS SHALL CLOSE, AND THE UNIT SHALL RESUME NORMAL COOLING/HEATING OPERATION.

AIR HANDLING UNIT SYSTEM LEVEL CONTROL

1. THE INTERLOCK SHALL BE CONTROLLED BY COMPARING THE OUTSIDE AIR AMBIENT TEMPERATURE TO THE INTERLOCK SETPOINT (ADJUSTABLE). IF EACH AIR HANDLING UNIT CONTROLLER IS INDIVIDUALLY SENSING THE OUTSIDE AIR AMBIENT TEMPERATURE SERVING THE UNIT, THEN THE TEMPERATURE SENSOR FOR THAT AIR HANDLING UNIT SHALL BE USED FOR THE COMMAND AND OTHER PROCESSES.

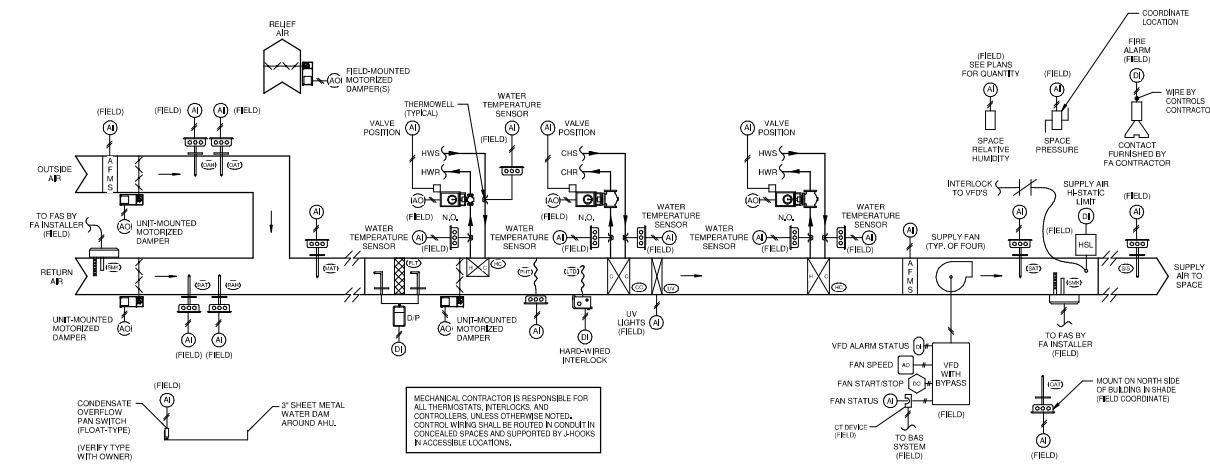
THE FOLLOWING POINTS SHALL BE MONITORED AND ALARMED AT THE AIR HANDLING UNIT CONTROLLER AND THE BAS:

- | | |
|----------------------------------|----------------------------------|
| 1. SUPPLY AIR TEMP. | 12. RETURN AIR TEMP. |
| 2. MIXED AIR TEMP. | 13. RETURN AIR RELATIVE HUMIDITY |
| 3. OUTSIDE AIR TEMP. | 14. SENSORS NORMAL / FAIL STATUS |
| 4. OUTSIDE AIR RELATIVE HUMIDITY | 15. LOW LIMIT STATUS |
| 5. SPACE RELATIVE HUMIDITY | 16. COOLING VALVE OPEN % |
| 6. SPACE PRESSURE | 17. HEATING VALVE OPEN % |
| 7. VFD OUTPUT % | 18. HEAT COIL MODE |
| 8. SUPPLY FAN MODULATION | 19. DAMPER MINIMUM POSITION % |
| 9. FAN STATUS | 20. FILTER NORMAL / DIRTY |
| 10. COOLING AIR TEMP. | 21. SUPPLY AIR STATIC PRESSURE |
| 11. HEATING AIR TEMP. | 22. DDC LOOP PARAMETERS |

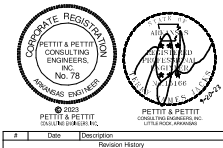
THE FOLLOWING POINTS SHALL BE OPERATOR ADJUSTABLE AND/OR AUTOMATICALLY RESET BY THE BAS PROGRAM:

- HEATING SETPOINT - HEAT RESET SETPOINT
- COOLING SETPOINT - COOL RESET SETPOINT
- MIN. POSITION SETPOINT - STATIC PRESS. SETPOINT
- DAMPER OPEN/CLOSE - COOL/HEAT DISABLE

THE SYSTEM SHALL SHUT DOWN IMMEDIATELY UPON DETECTION OF SMOKE FROM DETECTORS LOCATED IN THE SUPPLY AND RETURN AIR STREAMS OR IF THE BAS SYSTEM IS ACTIVATED.



1 AIR HANDLING UNIT AH-6 W/ HOT WATER & CHILLED WATER COILS

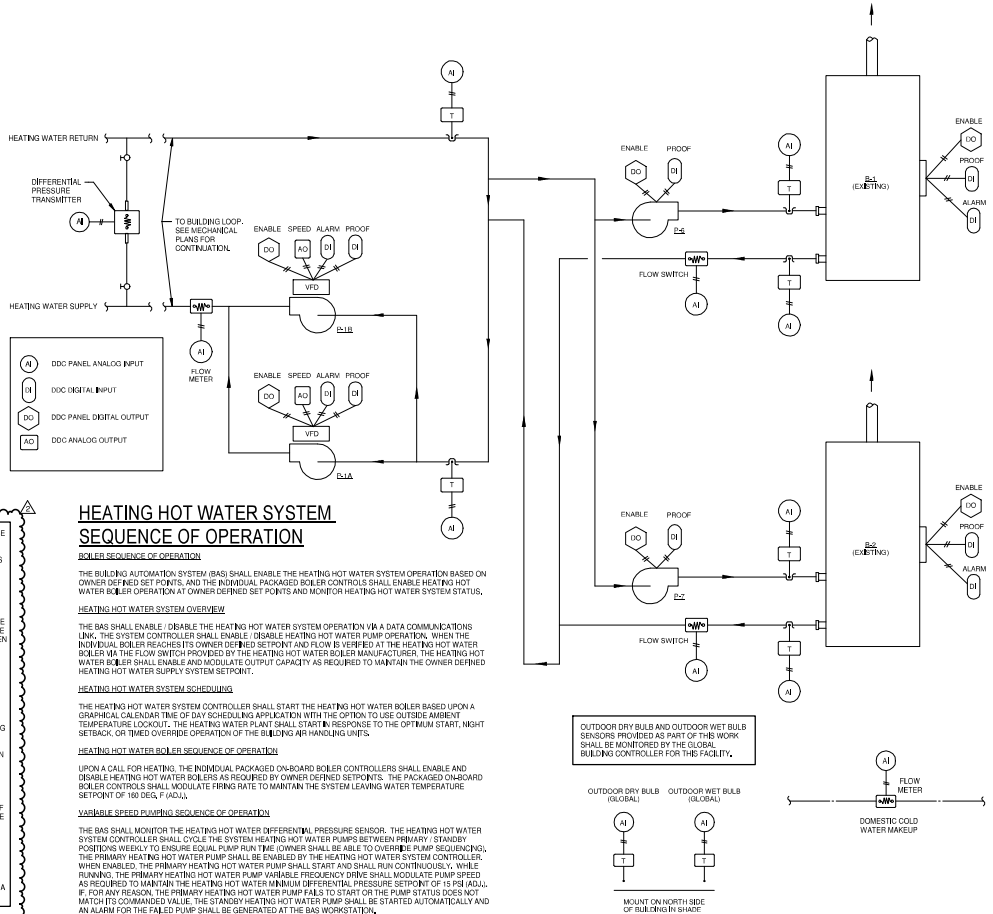


Date: 09/20/23
 Title: HVAC CONTROLS
 Sheet Number:
M5.3
 COPYRIGHT H+N ARCHITECTS 2023

H+N ARCHITECTS
 1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com
WE'RE
 501 W 3rd St.
 Little Rock, AR 72201
 501.374.5300
 www.WEArch.com
UCA SNOW FINE ARTS CENTER
RENOVATIONS
 CONWAY, AR

1
2
3
4
5

A B C D E F



- NOTE 1:** AIR HANDLING UNITS AND FAN COIL UNITS SHALL BE FORCED OUT OF DEHUMIDIFICATION MODE UPON LOSS OF HEATING WATER FLOW AND/OR IF THE HEATING WATER SUPPLY TEMPERATURE REACHES THE LOW LIMIT SETPOINT OF 110 DEGREES F (ADJUSTABLE).
- NOTE 2:** UPON A LEAD HEATING WATER SYSTEM PUMP REACHING A MAXIMUM CONTINUOUS RUN TIME OF 300 HOURS (ADJUSTABLE), THE LEAD HEATING WATER SYSTEM PUMP SHALL BE STOPPED AND THE HEATING WATER SYSTEM PUMP THAT HAS MET THE MAXIMUM CONTINUOUS RUN TIME LIMIT SHALL THEN BE SHUT DOWN AND BECOME THE LEAD HEATING WATER SYSTEM PUMP.
- NOTE 3:** THE BAS CONTROL SYSTEM GRAPHICS SHALL BE PROVIDED WITH RADIO BUTTONS FOR PUMP DISABLE AND OVERRIDE FUNCTIONS.
- NOTE 4:** THE BAS CONTROL SYSTEM SHALL ROLL EACH OF THE CONTROL VALVES IN THE HEATING WATER SYSTEM LOOP FOR THE PURPOSE OF DETERMINING VALVE OPEN POSITION. IF ALL HEATING WATER CONTROL VALVES ARE 90% OR MORE OPEN, THE DIFFERENTIAL PRESSURE SETPOINT SHALL INCREASE AT CURRENT SETPOINT. IF ALL HEATING WATER CONTROL VALVES ARE BETWEEN 30% AND 90% OPEN, THE DIFFERENTIAL PRESSURE SETPOINT SHALL BE RESET DOWNWARDS AT 3 PSI (ADJUSTABLE INCREMENTS UNTIL A HEATING WATER CONTROL VALVE IS 90% OR MORE OPEN. IF MORE THAN ONE HEATING WATER CONTROL VALVE IS MORE THAN 90% OPEN, THE DIFFERENTIAL PRESSURE SETPOINT SHALL BE RESET UPWARDS AT 3 PSI (ADJUSTABLE INCREMENTS UNTIL THE CRITICAL ZONE VALVE IS AT 90% OPEN.
- NOTE 5:** THE BAS CONTROL SYSTEM GRAPHICS SHALL BE PROVIDED WITH OVERRIDE FUNCTIONS FOR A MANUAL DIFFERENTIAL PRESSURE SETPOINT AND A STARTUP DIFFERENTIAL PRESSURE SETPOINT.

HEATING HOT WATER SYSTEM SEQUENCE OF OPERATION

BOILER SEQUENCE OF OPERATION

THE BUILDING AUTOMATION SYSTEM (BAS) SHALL ENABLE THE HEATING HOT WATER SYSTEM OPERATION BASED ON OWNER DEFINED SET POINTS, AND THE INDIVIDUAL PACKAGED BOILER CONTROLS SHALL ENABLE HEATING HOT WATER BOILER OPERATION AT OWNER DEFINED SET POINTS AND MONITOR HEATING HOT WATER SYSTEM STATUS.

HEATING HOT WATER SYSTEM OVERVIEW

THE BAS SHALL ENABLE / DISABLE THE HEATING HOT WATER SYSTEM OPERATION VIA A DATA COMMUNICATIONS LINK. THE SYSTEM CONTROLLER SHALL ENABLE / DISABLE HEATING HOT WATER PUMP OPERATION, WHEN THE INDIVIDUAL BOILER REACHES ITS OWNER DEFINED SETPOINT AND FLOW IS VERIFIED AT THE HEATING HOT WATER BOILER VIA THE FLOW SWITCH PROVIDED BY THE HEATING HOT WATER BOILER MANUFACTURER. THE HEATING HOT WATER BOILER SHALL ENABLE AND MODULATE OUTPUT CAPACITY AS REQUIRED TO MAINTAIN THE OWNER DEFINED HEATING HOT WATER SUPPLY SYSTEM SETPOINT.

HEATING HOT WATER SYSTEM SCHEDULING

THE HEATING HOT WATER SYSTEM CONTROLLER SHALL START THE HEATING HOT WATER BOILER BASED UPON A GRAPHICAL CALENDAR TIME OF DAY SCHEDULING APPLICATION WITH THE OPTION TO USE OUTSIDE AMBIENT TEMPERATURE LOCKOUT. THE HEATING WATER PLANT SHALL START IN RESPONSE TO THE OPTIMUM START, NIGHT SETBACK, OR TIMED OVERRIDE OPERATION OF THE BUILDING AIR HANDLING UNITS.

HEATING HOT WATER BOILER SEQUENCE OF OPERATION

UPON A CALL FOR HEATING, THE INDIVIDUAL PACKAGED ON-BOARD BOILER CONTROLLERS SHALL ENABLE AND DISABLE HEATING HOT WATER BOILERS AS REQUIRED BY OWNER DEFINED SETPOINTS. THE PACKAGED ON-BOARD BOILER CONTROLS SHALL MODULATE FIRING RATE TO MAINTAIN THE SYSTEM LEAVING WATER TEMPERATURE SETPOINT OF 180 DEG. F (ADJ.).

VARIABLE SPEED PUMPING SEQUENCE OF OPERATION

THE BAS SHALL MONITOR THE HEATING HOT WATER DIFFERENTIAL PRESSURE SENSOR. THE HEATING HOT WATER SYSTEM CONTROLLER SHALL CYCLE THE SYSTEM HEATING HOT WATER PUMPS BETWEEN PRIMARY / STANDBY POSITIONS WEEKLY TO ENSURE EQUAL PUMP RUN TIME. OWNER SHALL BE ABLE TO OVERRIDE PUMP SCHEDULING. THE PRIMARY HEATING HOT WATER PUMP SHALL BE ENABLED BY THE HEATING HOT WATER SYSTEM CONTROLLER. WHEN ENABLED, THE PRIMARY HEATING HOT WATER PUMP SHALL START AND SHALL RUN CONTINUOUSLY. WHILE RUNNING, THE PRIMARY HEATING HOT WATER PUMP VARIABLE FREQUENCY DRIVE SHALL MODULATE PUMP SPEED AS REQUIRED TO MAINTAIN THE HEATING HOT WATER MINIMUM DIFFERENTIAL PRESSURE SETPOINT OF 15 PSI (ADJ.). IF, FOR ANY REASON, THE PRIMARY HEATING HOT WATER PUMP FAILS TO START OR THE PUMP STATUS DOES NOT MATCH ITS COMMANDED VALUE, THE STANDBY HEATING HOT WATER PUMP SHALL BE STARTED AUTOMATICALLY AND AN ALARM FOR THE FAILED PUMP SHALL BE GENERATED AT THE BAS WORKSTATION.

FREEZE PROTECTION SEQUENCE OF OPERATION

UPON ACTIVATION OF A FREEZE STAT IN ANY AIR HANDLING UNIT SERVING THIS BUILDING, THE PRIMARY PUMP SHALL BE ENABLED AND SHALL RUN AT FULL FLOW WITH ALL OF THE AIR HANDLING UNIT AND FAN TERMINAL BOX HEATING WATER CONTROL VALVES FULLY OPENED. UPON RESET OF THE ACTIVATED FREEZE STAT, THE SYSTEM SHALL RETURN TO NORMAL OPERATION.

OUTDOOR DRY BULB AND OUTDOOR WET BULB SENSORS PROVIDED AS PART OF THE WORK SHALL BE MONITORED BY THE GLOBAL BUILDING CONTROLLER FOR THIS FACILITY.



HEATING WATER SYSTEM CONTROL DIAGRAM

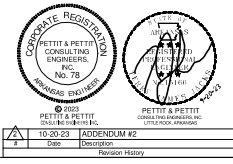
H+N ARCHITECTS

WE RARCH

801 W 3rd St.
Little Rock, AR 72201
501.374.5300
www.HNArch.com

UCA SNOW FINE ARTS CENTER RENNOVATIONS

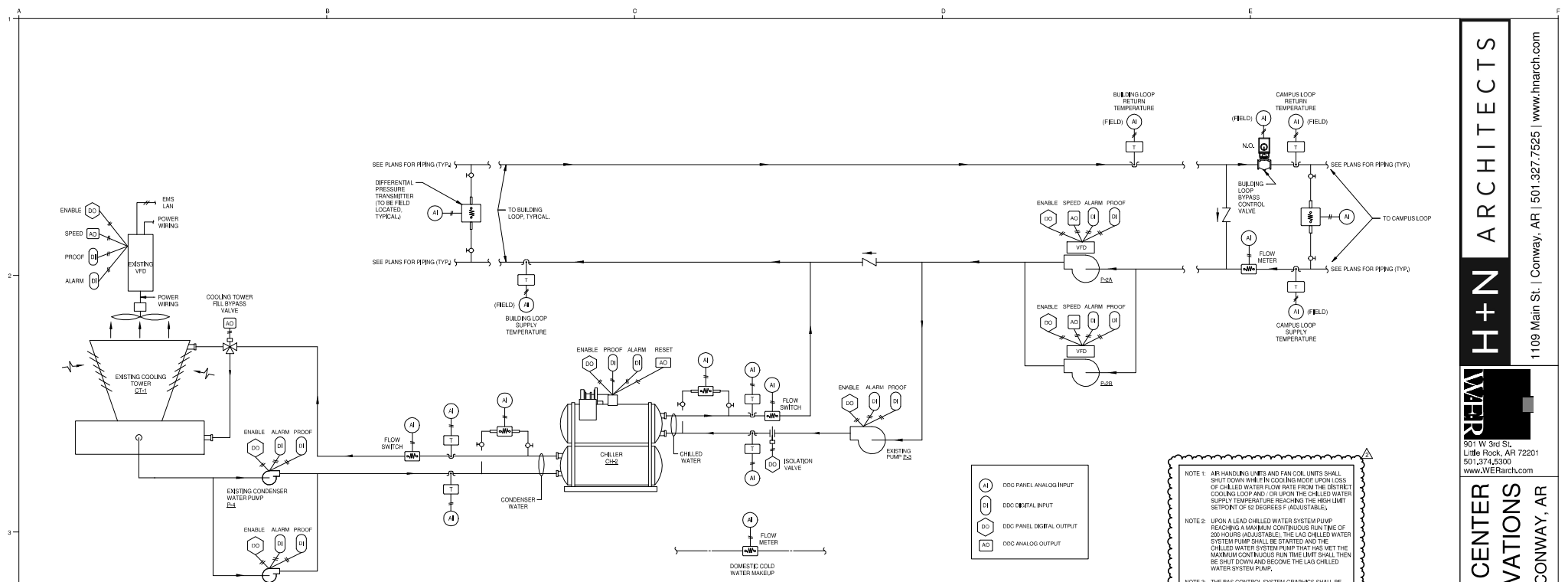
COPY SCALE
1" = 12"



Date: 09/20/23
Title: HVAC CONTROLS
Sheet Number:
M5.4
COPYRIGHT H+N ARCHITECTS 2023

10-20-23 ADDENDUM #2
Date: 10-20-23
Revision History

1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com



1 CHILLED WATER SYSTEM CONTROL DIAGRAM

CAMPUS CHILLED WATER SYSTEM SEQUENCE OF OPERATION

THE BUILDING SHALL BE SUPPLIED WITH CHILLED WATER BY DEFAULT BY THE CAMPUS CHILLED WATER LOOP. THE BAS SHALL BE CAPABLE OF SWITCHING FROM CAMPUS CHILLED WATER TO THE LOCAL CHILLER COOLING TOWER REMOTE(Y), REFER TO LOCAL CHILLED WATER SYSTEM AND CONDENSER WATER SYSTEM SEQUENCE OF OPERATION THIS SHEET.

VARIABLE SPEED RUNNING SEQUENCE OF OPERATION
 THE BAS SHALL MONITOR THE WATER DIFFERENTIAL PRESSURE SENSOR(S) FOR THE SYSTEMS SERVED, CHILLED WATER SECONDARY PUMPS P2A (DUTY) AND P2B (STANDBY) SHALL BE DUTY ROTATED EVERY 2 WEEKS AND ENABLED BY THE BAS CONTROLLER. WHEN ENABLED, THE CHILLED WATER SECONDARY PUMP SHALL START AND SHALL RUN CONTINUOUSLY TO MAINTAIN THE BUILDING DIFFERENTIAL PRESSURE SETPOINT. WHILE RUNNING, THE CHILLED WATER SECONDARY PUMP VARIABLE FREQUENCY DRIVE SHALL MODULATE PUMP SPEED AS REQUIRED TO MAINTAIN THE BUILDING WATER MINIMUM DIFFERENTIAL PRESSURE SETPOINT OF 15 PSI ADJUSTABLE. IF FOR ANY REASON, THE CHILLED WATER SECONDARY PUMP FAILS TO START OR THE PUMP STATUS DOES NOT MATCH ITS COMMANDING VALVE, AN ALARM FOR THE FAILED PUMP SHALL BE GENERATED AT THE BAS WORKSTATION, AND THE STANDBY PUMP SHALL BE INITIATED.

THE BUILDING LOOP BYPASS CONTROL VALVE SHALL BE ENABLED UPON OWNER DEFINED SETPOINTS (ADJUSTABLE) AND/OR OPERATOR COMMAND (REQUIRED RADIO BUTTON IN THE CONTROL GRAPHICS FOR BYPASS MODE ACTIVATION). DEACTIVATION FROM THE BAS, ONCE ENABLED, THE BUILDING LOOP BYPASS CONTROL VALVE SHALL MODULATE CLOSED AS REQUIRED TO MODULATE THE CAMPUS LOOP CHILLED WATER SUPPLY FLOW OR MAINTAIN THE OWNER DEFINED LEAVING WATER TEMPERATURE SETPOINT OF 55 DEG F (ADJ). ONCE OWNER DEFINED (POWER OFF) OR OPERATOR COMMAND HAS RESTORED THE BUILDING LOOP BYPASS CONTROL VALVE TO NORMAL OPERATION, THE CAMPUS LOOP CHILLED WATER SYSTEM SHALL BE FULLY UTILIZED TO SERVICE THE BUILDING AIR HANDLING UNITS. THE CHILLED WATER LOOP SUPPLY AND RETURN TEMPERATURES SHALL BE MONITORED AT THE BAS WORKSTATION.

UPON ACTIVATION OF A FREEZE STAT IN ANY AIR HANDLING UNIT SERVING THIS BUILDING, THE BUILDING LOOP BYPASS CONTROL VALVE SHALL BE CLOSED AND PUMP P2A (DUTY) OR P2B (STANDBY) SHALL BE ENABLED AND SHALL RUN AT FULL FLOW WITH ALL OF THE AIR TRAVELING UNIT CHILLED WATER CONTROL VALVES FULLY OPENED. UPON RESET OF THE ACTIVATED FREEZE STAT, THE SYSTEM SHALL RETURN TO NORMAL OPERATION.

LOCAL CHILLED WATER SYSTEM SEQUENCE OF OPERATION

CHILLED WATER SUPPLY TEMPERATURE RESET SEQUENCE OF OPERATION
 THE BUILDING AUTOMATION SYSTEM (BAS) SHALL ENABLE THE LOCAL CHILLED WATER SYSTEM OPERATION BASED ON OWNER'S PREFERENCE. ONCE THE CHILLER HAS BEEN ENABLED, THE CHILLER'S CHILLED WATER ISOLATION VALVE SHALL BE OPENED. THE CHILLER'S ASSOCIATED CONDENSER WATER PUMP SHALL BE STARTED, AND THE PRIMARY CHILLED WATER SYSTEM PUMP P2 SHALL BE STARTED. UPON PROOF OF FLOW, THE CHILLER SHALL BE STARTED, ONCE STARTED, THE CHILLER SHALL UTILIZE ITS INTERNAL CONTROLS TO MAINTAIN A CHILLED WATER SYSTEM LEAVING CHILLED WATER SETPOINT OF 42 DEG F (ADJ).

THE BAS SHALL ENABLE (ENABLE THE CHILLED WATER SYSTEM OPERATION VIA A DATA COMMUNICATIONS LINK, THE CHILLED WATER PLANT SHALL START IN RESPONSE TO THE OPTIMUM START / NIGHT SETBACK, OR TIME/D OVERRIE OPERATOR OF THE BUILDING AIR HANDLING UNITS, IF ANY COMPONENT OF THE CHILLED WATER SYSTEM FAILS TO START ONCE ENABLED, AN ALARM SHALL BE INDICATED AT THE BAS OPERATOR WORKSTATION.

VARIABLE SPEED RUNNING SEQUENCE OF OPERATION
 THE BAS SHALL MONITOR THE WATER DIFFERENTIAL PRESSURE SENSOR(S) FOR THE SYSTEMS SERVED, CHILLED WATER SECONDARY PUMPS P2A (DUTY) AND P2B (STANDBY) SHALL BE DUTY ROTATED EVERY 2 WEEKS AND ENABLED BY THE BAS CONTROLLER. WHEN DISABLED, THE CHILLED WATER SECONDARY PUMP SHALL START AND SHALL RUN CONTINUOUSLY TO MAINTAIN THE BUILDING DIFFERENTIAL PRESSURE SETPOINT. WHILE RUNNING, THE CHILLED WATER SECONDARY PUMP VARIABLE FREQUENCY DRIVE SHALL MODULATE PUMP SPEED AS REQUIRED TO MAINTAIN THE BUILDING WATER MINIMUM DIFFERENTIAL PRESSURE SETPOINT OF 15 PSI ADJUSTABLE. IF FOR ANY REASON, THE CHILLED WATER SECONDARY PUMP FAILS TO START OR THE PUMP STATUS DOES NOT MATCH ITS COMMANDING VALVE, AN ALARM FOR THE FAILED PUMP SHALL BE GENERATED AT THE BAS WORKSTATION, AND THE STANDBY PUMP SHALL BE INITIATED.

CHILLED WATER SUPPLY TEMPERATURE RESET SEQUENCE OF OPERATION
 THE BAS SHALL CONTINUOUSLY MONITOR THE CHILLER LOAD(S), THE BUILDING HUMIDISTATS, THE CHILLED WATER VALVE POSITIONS AND THE CHILLED WATER PUMP SPEED(S). IF THE CHILLER LOAD DROPS TO BELOW 80% CAPACITY, THE BAS SHALL INITIATE A CHILLED WATER SUPPLY TEMPERATURE RESET SEQUENCE. THE CHILLED WATER SUPPLY TEMPERATURE SHALL BE RESET UPWARDS BY 0.5 DEG F IN 15 MINUTE INCREMENTS UNTIL THE CHILLED WATER SUPPLY TEMPERATURE REACHES A MAXIMUM TEMPERATURE OF 55 DEG F (ADJ). THEREAFTER, THE BAS SHALL START TO RESET THE CHILLED WATER SUPPLY TEMPERATURE DOWNWARD TO THE NORMAL OPERATING TEMPERATURE OF 42 DEG F (ADJ) IN 15 MIN INCREMENTS (ADJ). ONCE CHILLED WATER SUPPLY TEMPERATURE HAS BEEN RETURNED TO 42 DEG F (ADJ), THE CHILLED WATER SYSTEM SHALL RETURN TO NORMAL OPERATION. THE OPERATOR SHALL BE ABLE TO ENABLE (ENABLE THE CHILLED WATER SUPPLY TEMPERATURE RESET SEQUENCE) AT ANY TIME.

CONDENSER WATER SYSTEM SEQUENCE OF OPERATION

CONDENSER WATER SYSTEM SEQUENCE OF OPERATION
 THE BUILDING AUTOMATION SYSTEM (BAS) SHALL ENABLE THE LOCAL CHILLED WATER SYSTEM OPERATION BASED ON OWNER DEFINED SCHEDULE. ONCE A CHILLER HAS BEEN ENABLED, THE CONDENSER WATER SYSTEM SHALL ALSO BE ENABLED. IF ANY COMPONENT OF THE CONDENSER WATER SYSTEM FAILS TO START ONCE ENABLED, AN ALARM SHALL BE INDICATED AT THE BAS OPERATOR WORKSTATION.

COOLING TOWER SEQUENCE OF OPERATION
 ONCE ENABLED, THE COOLING TOWER FAN SHALL BE MODULATED (VIA VARIABLE FREQUENCY DRIVE) TO MAINTAIN A CONDENSER WATER SUPPLY TEMPERATURE OF THE OUTDOOR WET BULB PLUS 3 DEG F WITH A MINIMUM SUPPLY WATER TEMPERATURE OF 40 DEG F AND A MAXIMUM SUPPLY WATER TEMPERATURE OF 85 DEG F. IF REQUIRED, THE COOLING TOWER WATER BYPASS VALVE SHALL BE MODULATED TO AVOID OVER-COOLING THE CONDENSER WATER SUPPLY TO THE CHILLER.

COOLING TOWER FREE COOLING SEQUENCE OF OPERATION
 WHEN THE OUTDOOR AMBIENT WET BULB TEMPERATURE DROPS BELOW 40 DEG F (ADJ) FOR A PERIOD OF MORE THAN 15 MINUTES (ADJ), THE CONDENSER WATER SUPPLY TEMPERATURE SHALL BE RESET DOWNWARD TO 40 DEG F (ADJ). THE COOLING TOWER FANS SHALL MODULATE AS REQUIRED TO MAINTAIN THE CONDENSER WATER SUPPLY TEMPERATURE. WHEN THE OUTDOOR AMBIENT WET BULB TEMPERATURE RISES TO 40 DEG F (ADJ) OR ABOVE FOR A PERIOD OF MORE THAN 15 MINUTES (ADJ), THE LEAVING CONDENSER WATER TEMPERATURE SHALL RETURN TO ITS NORMAL RANGE OF A MAXIMUM OF 85 DEG F AND A MINIMUM OF 60 DEG F. DURING THIS TRANSITION, THE COOLING TOWER FANS SHALL BE DISABLED AND THE TOWER WATER BYPASS VALVE SHALL OPEN TO BYPASS THE COOLING TOWER FILL TO QUICKLY RAISE THE CONDENSER WATER SUPPLY TEMPERATURE BACK TO THE MINIMUM TEMPERATURE OF 65 DEG F.

CONSTANT SPEED CONDENSER WATER PUMP SEQUENCE OF OPERATION
 THE EXISTING CONDENSER WATER PUMPS 2A AND 2B ARE CONSTANT SPEED PUMPS AND SHALL BE DUTY-ROTATED EVERY 2 WEEKS. ONCE ENABLED, THE CONDENSER WATER PUMPS SHALL RUN AT CONSTANT SPEED.

- NOTE 1:** AIR HANDLING UNITS AND FAN COIL UNITS SHALL SHUT DOWN WHEN COOLING MODE UPON LOSS OF CHILLED WATER FLOW RATE FROM THE DISTRICT COOLING LOOP AND (OR) UPON THE CHILLED WATER SUPPLY TEMPERATURE REACHING THE HIGH LIMIT SETPOINT OF 55 DEGREES F (ADJUSTABLE).
- NOTE 2:** UPON A LEAD CHILLED WATER SYSTEM PUMP REACHING A MAXIMUM CONTINUOUS RUN TIME OF 200 HOURS (ADJUSTABLE), THE LAG CHILLED WATER SYSTEM PUMP SHALL BE STARTED AND THE CHILLED WATER SYSTEM PUMP THAT HAS MET THE MAXIMUM CONTINUOUS RUN TIME SHALL THEN BE SHUT DOWN AND BECOME THE LAG CHILLED WATER SYSTEM PUMP.
- NOTE 3:** THE BAS CONTROL SYSTEM GRAPHICS SHALL BE PROVIDED WITH RADIO BUTTONS FOR PUMP DISABLE AND OVERRIDE FUNCTIONS.
- NOTE 4:** THE BAS CONTROL SYSTEM SHALL POLL EACH OF THE CONTROL VALVES IN THE CHILLED WATER SYSTEM LOOP FOR THE PURPOSE OF DETERMINING VALVE OPEN POSITION. IF ALL CHILLED WATER CONTROL VALVES ARE 80% OR MORE OPEN, THE DIFFERENTIAL PRESSURE SETPOINT SHALL REMAIN AT CURRENT SETPOINT. IF ALL CHILLED WATER CONTROL VALVES ARE BETWEEN 30% AND 80%, OPEN, THE DIFFERENTIAL PRESSURE SETPOINT SHALL BE RESET DOWNWARDS AT 3 PSI (ADJUSTABLE) INCREMENTS UNTIL A CHILLED WATER CONTROL VALVE IS 90% OR MORE OPEN. IF MORE THAN ONE CHILLED WATER CONTROL VALVE IS MORE THAN 85% OPEN, THE DIFFERENTIAL PRESSURE SETPOINT SHALL BE RESET UPWARDS AT 3 PSI (ADJUSTABLE) INCREMENTS UNTIL THE CRITICAL ZONE VALVE IS AT 90% OPEN.
- NOTE 5:** THE BAS CONTROL SYSTEM GRAPHICS SHALL BE PROVIDED WITH OVERRIDE FUNCTIONS FOR A MANUAL DIFFERENTIAL PRESSURE SETPOINT AND A START-UP DIFFERENTIAL PRESSURE SETPOINT.



CONSTANT AIR VOLUME MECHANICAL ROOM AIR HANDLING UNIT - SEQUENCE OF OPERATION

EMS-X

GENERAL DESCRIPTION

EXISTING INTERIOR CONSTANT VOLUME AIR HANDLING UNIT SHALL SERVE INDIVIDUAL AREAS WITHIN THE INTERIOR SPACES AS A SINGLE ZONE SYSTEM.

UNIT CONTROLS

UNIT SHALL BE PROVIDED WITH A NEW STANDALONE UNIT CONTROLLER THAT SHALL INTERFACE WITH THE BACNET BUILDING AUTOMATION SYSTEM (BAS) SYSTEMS. UNIT CONTROLLER SHALL BE CAPABLE OF OPERATING UNIT WITHOUT REQUIRING CONSTANT BACNET COMMUNICATION TO MAINTAIN NORMAL UNIT OPERATION. IF COMMUNICATION WITH THE BAS IS LOST, THE AIR HANDLING UNIT SHALL USE ITS DEFAULT SETPOINTS AND OPERATE IN THE OCCUPIED COOLING MODE.

THE BAS SHALL SEND THE AIR HANDLING UNIT A DISCHARGE AIR TEMPERATURE (DAT) COOLING SETPOINT. THE BAS SHALL ALSO SEND START-UP MORNING WARM-UP, OCCUPIED, UNOCCUPIED HEATING / COOLING, TIMED OVERRIDE, COAST DOWN, NIGHT SETBACK, PURGE, AND PRIORITY SHUT-DOWN COMMANDS.

OCCUPIED MODE

THE OCCUPIED MODE SHALL BE DETERMINED BY THE OWNER'S BUILDING SCHEDULE. WHEN THE AIR HANDLING UNIT IS IN OCCUPIED MODE, THE SUPPLY FANS SHALL OPERATE CONTINUOUSLY AND THE COOLING VALVE AND PRE-HEAT / HEATING VALVES SHALL MODULATE IN SEQUENCE TO MAINTAIN THE UNIT DISCHARGE AIR TEMPERATURE. THE SUPPLY FANS SHALL BE OFF WHENEVER THE AIR HANDLING UNIT HIRED AIR LOW LIMIT IS TRIPPED, THE STOP / AUTO INTERLOCK IS OPEN, OR THE SUPPLY FAN STATUS INDICATES A FAILURE (AFTER A TWO MINUTE DELAY). THE LOW LIMIT AND THE FAN FAILURE REQUIRE A MANUAL RESET. THE OUTDOOR AIR FLOW AS MEASURED PRIOR TO STARTUP DEMONSTRATION, SHALL BE MAINTAINED AT A VALUE EQUAL TO OR HIGHER THAN THE CURRENT SETPOINT ONCE NEW UNIT CONTROLS HAVE BEEN INSTALLED.

UNOCCUPIED MODE

THE UNOCCUPIED MODE SHALL BE DETERMINED BY THE OWNER'S BUILDING SCHEDULE. WHEN THE AIR HANDLING UNIT IS IN THE UNOCCUPIED MODE, THE SUPPLY FANS SHALL OPERATE AS REQUIRED TO MAINTAIN THE BUILDING UNOCCUPIED TEMPERATURE SETPOINT (ADJUSTABLE). THE OUTDOOR AIR DAMPER SHALL BE CLOSED.

OVERRIDE MODE

IF DURING THE COURSE OF AN UNOCCUPIED MODE PERIOD THE LOCAL USER UTILIZES THE OVERRIDE FUNCTION AT THE LOCAL USER THERMOSTAT, THE AIR HANDLING UNIT SHALL RETURN TO OCCUPIED MODE STATUS FOR A PERIOD OF TWO (2) HOURS (ADJ.).

SUPPLY FANS

THE AIR HANDLING UNIT SHALL UTILIZE THE EXISTING SUPPLY FANS.

COOLING VALVE CONTROL

THE COOLING VALVE SHALL MODULATE TO MAINTAIN THE UNIT SUPPLY AIR DISCHARGE TEMPERATURE OF 55°F (ADJ.). THE COOLING VALVE SHALL BE CLOSED IF THE SUPPLY FANS ARE OFF, THE SUPPLY AIR SENSOR HAS FAILED, OR IF THE AIR HANDLING UNIT IS IN THE HEATING MODE (THE COOLING COIL CONTROL VALVE SHALL BE CLOSED IF OUTSIDE AIR TEMPERATURE IS ABOVE 40°F (ADJ.) IF OUTSIDE AIR TEMPERATURE IS BELOW 40°F (ADJ.) THEN THE COOLING COIL CONTROL VALVE SHALL BE FULLY OPENED TO HELP PREVENT FREEZING).

HEATING VALVE (PRE-HEAT WHERE APPLICABLE)

WHEN THE PRE-HEAT COIL LEAVING AIR TEMPERATURE DROPS TO BELOW 55°F (ADJ.), THE HEATING VALVE SHALL MODULATE OPEN AS NEEDED TO MAINTAIN THE PRE-HEAT COIL LEAVING AIR TEMPERATURE SETPOINT OF 55°F (ADJ.).

MINIMUM REQUIRED OUTDOOR AIR FLOW SETPOINT

DURING OCCUPIED TIMES, THE AIR HANDLER OUTDOOR AIR DAMPER SHALL MAINTAIN A MINIMUM OPEN POSITION TO DELIVER REQUIRED OUTDOOR AIR FLOW TO THE ZONES SERVED. COORDINATE WITH ENGINEER.

COOLING

THE EXISTING UNIT IS PROVIDED WITH A CHILLED WATER COIL FOR COOLING.

COOLING DAT RESET. THE COOLING DAT SETPOINT MAY BE RESET BY THE SPACE TEMPERATURE, RETURN AIR TEMPERATURE, OUTSIDE AIR TEMPERATURE, SPACE RELATIVE HUMIDITY, OR EXTERNAL VOLTAGE/HA SIGNALS. A LINEAR RELATIONSHIP BETWEEN THE DAT AND THE RESET VARIABLE WILL BE CREATED FOR THE MINIMUM AND MAXIMUM DAT SETPOINTS. AS THE RESET VARIABLE CHANGES THE DAT WILL ADJUST ACCORDING TO THE RELATIONSHIP. MINIMUM RESET SETPOINT IS 50°F (ADJ.) AND MAXIMUM RESET SETPOINT IS 55°F (ADJ.).

HEATING

THE EXISTING UNIT IS PROVIDED WITH A HEATING HOT WATER COIL FOR HEATING.

HEATING DAT RESET. THE HEATING DAT SETPOINT MAY BE RESET BY SPACE TEMPERATURE, RETURN AIR TEMPERATURE, OUTSIDE AIR TEMPERATURE, NETWORK, OR EXTERNAL VOLTAGE/HA SIGNALS. A LINEAR RELATIONSHIP BETWEEN THE DAT AND THE RESET VARIABLE WILL BE CREATED FOR THE MINIMUM AND MAXIMUM DAT SETPOINTS. AS THE RESET VARIABLE CHANGES THE DAT WILL ADJUST ACCORDING TO THE RELATIONSHIP, WHEN THE AIR HANDLING UNIT IS IN THE HEATING MODE OR THE NIGHT SETBACK MODE, THE HEATING VALVE SHALL MODULATE OPEN TO MAINTAIN THE DISCHARGE AIR TEMPERATURE AT THE DISCHARGE HEATING SETPOINT (ADJUSTABLE).

LOW LIMIT TEMPERATURE DETECTOR

IN THE EVENT THE LOW LIMIT TEMPERATURE DETECTOR DETECTS MIXED AIR TEMPERATURE BELOW 35 DEG. F, THE SUPPLY AIR FANS SHALL STOP, THE DAMPERS SHALL CLOSE, AND AN ALARM SHALL SOUND AT THE BAS WORKSTATION. THE LOW LIMIT TEMPERATURE DETECTOR SHALL REQUIRE A MANUAL RESET.

NIGHT SETBACK / MORNING WARMUP HEATING MODE

THE AIR HANDLING UNIT SHALL INDEX FROM UNOCCUPIED MODE TO OCCUPIED MODE AT A TIME DETERMINED BY THE BAS SYSTEM SO THAT THE SETPOINT IS MET DURING THE ENTIRE PORTION OF THE BUILDING OCCUPIED HOURS (ADJUSTABLE).

AIR HANDLING UNIT SYSTEM LEVEL CONTROL

1. THE INTERLOCK SHALL BE CONTROLLED BY COMPARING THE OUTSIDE AIR AMBIENT TEMPERATURE TO THE INTERLOCK SETPOINT (ADJUSTABLE). IF EACH AIR HANDLING UNIT CONTROLLER IS INDIVIDUALLY SENSING THE OUTSIDE AIR AMBIENT TEMPERATURE SERVING THE UNIT, THEN THE TEMPERATURE SENSOR FOR THAT AIR HANDLING UNIT SHALL BE USED FOR THE COMMAND AND OTHER PROCESSES.

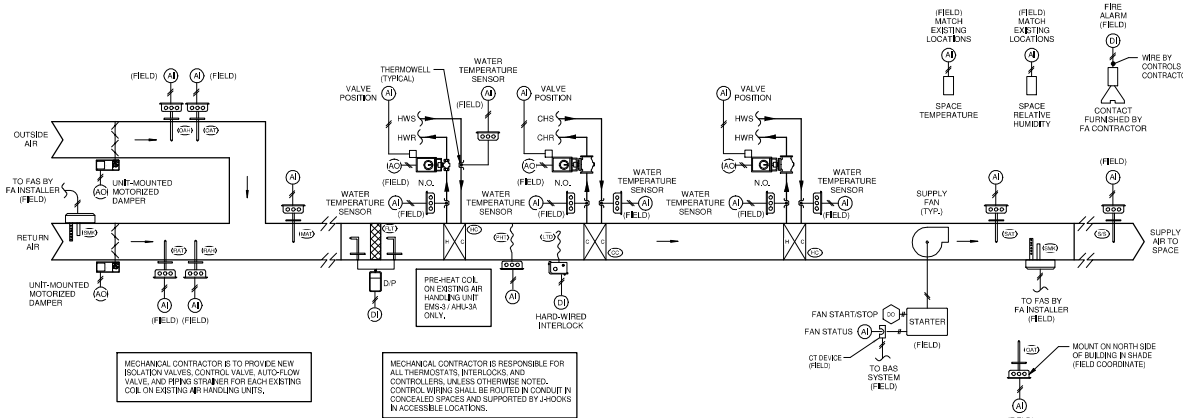
THE FOLLOWING POINTS SHALL BE MONITORED AND ALARMED AT THE AIR HANDLING UNIT CONTROLLER AND THE BAS:

1. SUPPLY AIR TEMP
2. MIXED AIR TEMP.
3. OUTSIDE AIR TEMP.
4. OUTSIDE AIR RELATIVE HUMIDITY
5. SPACE RELATIVE HUMIDITY
6. FAN STATUS
7. COOLING AIR TEMP.
8. HEATING AIR TEMP.
9. RETURN AIR TEMP.
10. RETURN AIR RELATIVE HUMIDITY
11. LOW LIMIT STATUS
12. COOLING VALVE OPEN %
13. HEATING VALVE OPEN %
14. SENSORS NORMAL / FAI STATUS
15. HEAT / COOL MODE
16. DAMPER MINIMUM POSITION %
17. FILTER NORMAL / DIRTY
18. DDC LOOP PARAMETERS

THE FOLLOWING POINTS SHALL BE OPERATOR ADJUSTABLE AND/OR AUTOMATICALLY RESET BY THE BAS PROGRAM:

1. HEATING SETPOINT - HEAT RESET SETPOINT
2. COOLING SETPOINT - COOL RESET SETPOINT
3. DAMPER OPEN/CLOSE - COOL/HEAT TRIPBLE

THE SYSTEM SHALL SHUT DOWN IMMEDIATELY UPON DETECTION OF SMOKE FROM DETECTORS LOCATED IN THE SUPPLY AND RETURN AIR STREAMS OR IF THE ALARM SYSTEM IS ACTIVATED.



MECHANICAL CONTRACTOR IS TO PROVIDE NEW ISOLATION VALVES, CONTROL VALVE, AUTO-CLOSE VALVE, AND PIPING STRAINER FOR EACH EXISTING COIL ON EXISTING AIR HANDLING UNITS.

MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL THERMISTORS, INTERLOCKS, AND CONTROLLERS, UNLESS OTHERWISE NOTED. CONTROL WIRING SHALL BE ROUTED IN CONDUIT IN CONCEALED SPACES AND SUPPORTED BY J-HOOKS IN ACCESSIBLE LOCATIONS.

AIR HANDLING UNIT EMS-X W/ HOT WATER & CHILLED WATER COILS

H+N ARCHITECTS
 1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com
WE R

801 W 3rd St.
 Little Rock, AR 72201
 501.374.5300
 www.WERarch.com

UCA SNOW FINE ARTS CENTER RENNOVATIONS
 CONWAY, AR

Date: 09/20/23
 Title: HVAC CONTROLS
 Sheet Number:
M5.6

10-20-23 ADDENDUM #2
 Date: 10/20/23
 Description: Revision History

CONSTANT AIR VOLUME MECHANICAL ROOM AIR HANDLING UNIT - SEQUENCE OF OPERATION

A/H-5

GENERAL DESCRIPTION:
 EXISTING INTERIOR CONSTANT VOLUME AIR HANDLING UNIT SHALL SERVE INDIVIDUAL AREAS WITHIN THE INTERIOR SPACES AS A SINGLE ZONE SYSTEM. EXISTING AIR HANDLING UNIT HAS AN EXISTING WATER COIL THAT WILL BE UTILIZED FOR COOLING MODE. A NEW RE-HEATING WATER COIL WILL BE ADDED AS PART OF THIS PROJECT TO BE UTILIZED FOR HEATING MODE.

UNIT CONTROLS:
 UNIT SHALL BE PROVIDED WITH A NEW STANDALONE UNIT CONTROLLER THAT SHALL INTERFACE WITH THE BACNET BUILDING AUTOMATION SYSTEM (BAS) SYSTEMS. UNIT CONTROLLER SHALL BE CAPABLE OF OPERATING UNIT WITHOUT REQUIRING CONSTANT BACNET COMMUNICATION TO MAINTAIN NORMAL UNIT OPERATION. IF COMMUNICATION WITH THE BAS IS LOST, THE AIR HANDLING UNIT SHALL USE ITS DEFAULT SETPOINTS AND OPERATE IN THE OCCUPIED COOLING MODE.

THE BAS SHALL SEND THE AIR HANDLING UNIT A DISCHARGE AIR TEMPERATURE (DAT) SETPOINT. THE BAS SHALL ALSO SEND START-UP, MORNING WARM-UP, OCCUPIED, UNOCCUPIED, HEATING / COOLING, TIMED OVERRIDE, COAST DOWN, NIGHT SETBACK, PURGE, AND PRIORITY SHUT-DOWN COMMANDS.

OCCUPIED MODE:
 THE OCCUPIED MODE SHALL BE DETERMINED BY THE OWNER'S BUILDING SCHEDULE. WHEN THE AIR HANDLING UNIT IS IN OCCUPIED MODE, THE SUPPLY FAN(S) SHALL OPERATE CONTINUOUSLY, THE UNIT COOLING CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE COIL LEAVING AIR TEMPERATURE, AND THE HEATING COIL CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE UNIT DISCHARGE AIR TEMPERATURE. THE SUPPLY FAN(S) SHALL BE OFF WHENEVER THE AIR HANDLING UNIT MIXED AIR LOW LIMIT IS TRIPPED, THE STOP / AUTO INTERLOCK IS OPEN, OR THE SUPPLY FAN STATUS INDICATES A FAILURE (AFTER A TWO MINUTE DELAY). THE LOW LIMIT AND THE FAN FAILURE REQUIRE A MANUAL RESET. THE OUTDOOR AIRFLOW SHALL BE MAINTAINED AT A VALUE EQUAL TO OR HIGHER THAN THE CURRENT SETPOINT ONCE NEW UNIT CONTROLS HAVE BEEN INSTALLED.

UNOCCUPIED MODE:
 THE UNOCCUPIED MODE SHALL BE DETERMINED BY THE OWNER'S BUILDING SCHEDULE. WHEN THE AIR HANDLING UNIT IS IN THE UNOCCUPIED MODE, THE SUPPLY FAN(S) SHALL CYCLE ON AS NEEDED, THE UNIT COOLING CONTROL VALVE AND THE HEATING CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE BUILDING UNOCCUPIED TEMPERATURE SETPOINT (ADJUSTABLE). THE OUTDOOR AIR DAMPER SHALL BE CLOSED.

OVERRIDE MODE:
 IF DURING THE COURSE OF AN UNOCCUPIED MODE PERIOD THE LOCAL USER UTILIZES THE OVERRIDE FUNCTION AT THE LOCAL USER THERMOSTAT, THE AIR HANDLING UNIT SHALL RETURN TO OCCUPIED MODE STATUS FOR A PERIOD OF TWO (2) HOURS (ADJ.).

SUPPLY FANS:
 THE AIR HANDLING UNIT SHALL UTILIZE THE EXISTING SUPPLY FAN(S).

COOLING VALVE CONTROL:
 THE COOLING CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE UNIT SUPPLY AIR DISCHARGE TEMPERATURE OF 55°F (ADJ.). THE COOLING CONTROL VALVE SHALL BE NORMALLY CLOSED TO CHILLED WATER FLOW IF THE SUPPLY FAN(S) ARE OFF, THE SUPPLY AIR SENSOR HAS FAILED, OR IF THE AIR HANDLING UNIT IS IN HEATING MODE (EXCEPT AS NOTED BELOW).

HEATING VALVE CONTROL:
 THE HEATING CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE HEATING COIL LEAVING AIR TEMPERATURE OF 95°F (ADJ.). IF THE HEATING COIL LEAVING AIR TEMPERATURE DROPS TO BELOW 40°F (ADJ.) SIGNALLING A LOSS OF HEATING WATER FLOW, THE COOLING CONTROL VALVE SHALL FULLY OPEN TO ALLOW CHILLED WATER TO FLOW THROUGH THE COOLING COIL AT THE FULL OPEN FLOW RATE TO HELP PREVENT COIL FREEZING. THE CHILLED WATER FLOW SHALL REMAIN IN THE FULL OPEN FLOW RATE MODE EVEN IF THE SUPPLY FAN(S) HAVE BEEN SHUT OFF DURING A LOW LIMIT EVENT. ONCE HEATING WATER FLOW HAS BEEN RESTORED, THE COOLING CONTROL VALVE SHALL REVERT TO NORMAL HEATING MODE OPERATION. THE HEATING CONTROL VALVE SHALL BE CLOSED IF THE SUPPLY FAN(S) ARE OFF, THE SUPPLY AIR SENSOR HAS FAILED, OR IF THE AIR HANDLING UNIT IS IN COOLING MODE (EXCEPT AS REQUIRED FOR SPACE DEHUMIDIFICATION).

MINIMUM REQUIRED OUTDOOR AIRFLOW SETPOINT:
 DURING OCCUPIED TIMES, THE AIR HANDLER OUTDOOR AIR DAMPER SHALL MAINTAIN A MINIMUM OPEN POSITION TO DELIVER REQUIRED OUTDOOR AIRFLOW TO THE ZONES SERVED. COORDINATE WITH ENGINEER.

COOLING / HEATING:
 THE EXISTING UNIT IS PROVIDED WITH A SINGLE WATER COIL TO BE UTILIZED FOR COOLING, AND A NEW HEATING COIL WILL BE INSTALLED FOR HEATING AND DEHUMIDIFICATION.

COOLING DAT RESET: THE COOLING DAT SETPOINT MAY BE RESET BY THE SPACE TEMPERATURE, RETURN AIR TEMPERATURE, OUTSIDE AIR TEMPERATURE, SPACE RELATIVE HUMIDITY, OR EXTERNAL VOLTAGE/MA SIGNALS. A LINEAR RELATIONSHIP BETWEEN THE DAT AND THE RESET VARIABLE WILL BE CREATED FOR THE MINIMUM AND MAXIMUM DAT SETPOINTS. AS THE RESET VARIABLE CHANGES THE DAT WILL ADJUST ACCORDING TO THE RELATIONSHIP. MINIMUM RESET SETPOINT IS 53°F (ADJ.) AND MAXIMUM RESET SETPOINT IS 65°F (ADJ.).

HEATING DAT RESET: THE HEATING DAT SETPOINT MAY BE RESET BY SPACE TEMPERATURE, RETURN AIR TEMPERATURE, OUTSIDE AIR TEMPERATURE, NETWORK, OR EXTERNAL VOLTAGE/MA SIGNALS. A LINEAR RELATIONSHIP BETWEEN THE DAT AND THE RESET VARIABLE WILL BE CREATED FOR THE MINIMUM AND MAXIMUM DAT SETPOINTS. AS THE RESET VARIABLE CHANGES THE DAT WILL ADJUST ACCORDING TO THE RELATIONSHIP. WHEN THE AIR HANDLING UNIT IS IN THE HEATING MODE OR THE NIGHT SETBACK MODE, THE HEATING VALVE(S) SHALL MODULATE OPEN TO MAINTAIN THE DISCHARGE AIR TEMPERATURE AT THE DISCHARGE HEATING SETPOINT (ADJUSTABLE).

DEHUMIDIFICATION:
 IN THE EVENT OF A CALL FOR SPACE DEHUMIDIFICATION, THE COOLING CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE COIL LEAVING AIR TEMPERATURE, AND THE HEATING CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE SPACE RELATIVE HUMIDITY AT 55% RH (ADJ.).

LOW LIMIT TEMPERATURE DETECTOR:
 IN THE EVENT THE LOW LIMIT TEMPERATURE DETECTOR DETECTS MIXED AIR TEMPERATURE BELOW 35 DEG. F, THE SUPPLY AIR FAN(S) SHALL STOP, THE DAMPERS SHALL CLOSE, AND AN ALARM SHALL SOUND AT THE BAS WORKSTATION. THE LOW LIMIT TEMPERATURE DETECTOR SHALL REQUIRE A MANUAL RESET.

NIGHT SETBACK / MORNING WARM-UP HEATING MODE:
 THE AIR HANDLING UNIT SHALL INDEX FROM UNOCCUPIED MODE TO OCCUPIED MODE AT A TIME DETERMINED BY THE BAS SYSTEM SO THAT THE SETPOINT IS MET DURING THE ENTIRE PORTION OF THE BUILDING OCCUPIED HOURS (ADJUSTABLE).

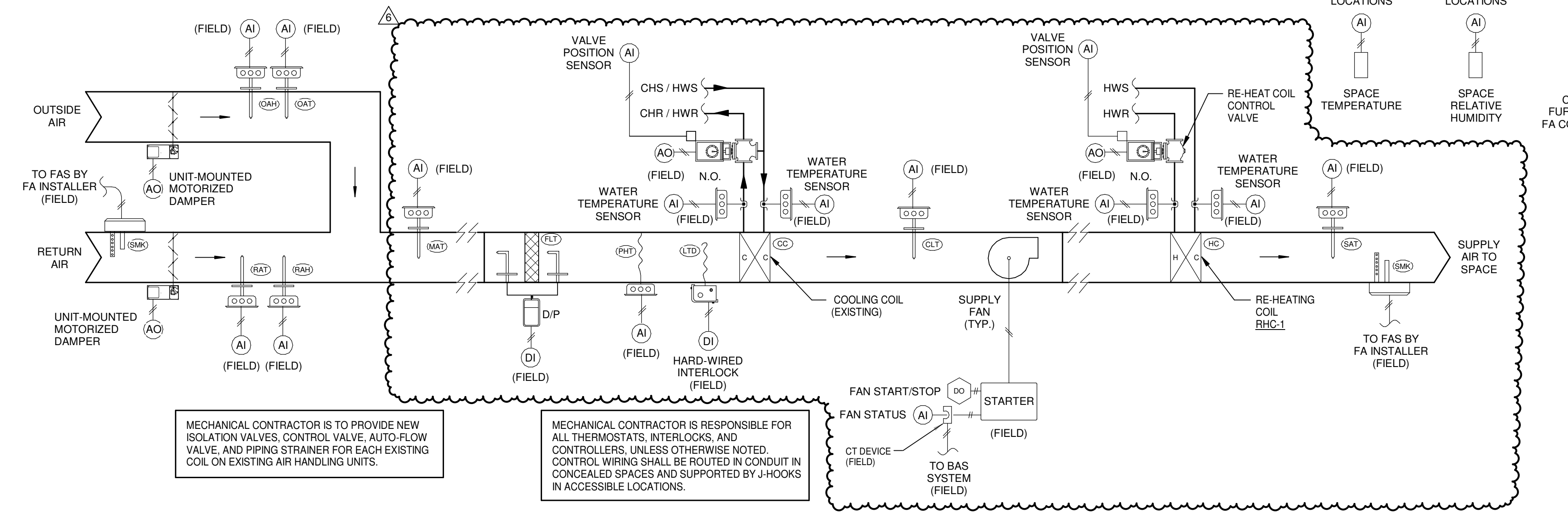
AIR HANDLING UNIT SYSTEM LEVEL CONTROL:
 1. THE INTERLOCK SHALL BE CONTROLLED BY COMPARING THE OUTSIDE AIR AMBIENT TEMPERATURE TO THE INTERLOCK SETPOINT (ADJUSTABLE). IF EACH AIR HANDLING UNIT CONTROLLER IS INDIVIDUALLY SENSING THE OUTSIDE AIR AMBIENT TEMPERATURE SERVING THE UNIT, THEN THE TEMPERATURE SENSOR FOR THAT AIR HANDLING UNIT SHALL BE USED FOR THE COMMAND AND OTHER PROCESSES.

THE FOLLOWING POINTS SHALL BE MONITORED AND ALARMED AT THE AIR HANDLING UNIT CONTROLLER AND THE BAS:

- | | |
|----------------------------------|----------------------------------|
| 1. SUPPLY AIR TEMP. | 11. LOW LIMIT STATUS |
| 2. MIXED AIR TEMP. | 12. COOLING VALVE OPEN % |
| 3. OUTSIDE AIR TEMP. | 13. HEATING VALVE OPEN % |
| 4. OUTSIDE AIR RELATIVE HUMIDITY | 14. SENSORS NORMAL / FAIL STATUS |
| 5. SPACE RELATIVE HUMIDITY | 15. HEAT / COOL MODE |
| 6. SUPPLY FAN STATUS | 16. DAMPER MINIMUM POSITION % |
| 7. COOLING AIR TEMP. | 17. FILTER NORMAL / DIRTY |
| 8. DISCHARGE AIR TEMP. | 18. DDC LOOP PARAMETERS |
| 9. RETURN AIR TEMP. | |
| 10. RETURN AIR RELATIVE HUMIDITY | |

THE FOLLOWING POINTS SHALL BE OPERATOR ADJUSTABLE AND / OR AUTOMATICALLY RESET BY THE BAS PROGRAM:
 1. HEATING SETPOINT - HEAT RESET SETPOINT
 2. COOLING SETPOINT - COOL RESET SETPOINT
 3. DAMPER OPEN/CLOSE - COOL/HEAT DISABLE

THE SYSTEM SHALL SHUT DOWN IMMEDIATELY UPON DETECTION OF SMOKE FROM DETECTORS LOCATED IN THE SUPPLY AND RETURN AIR STREAMS OR IF FIRE ALARM SYSTEM IS ACTIVATED.



MECHANICAL CONTRACTOR IS TO PROVIDE NEW ISOLATION VALVES, CONTROL VALVE, AUTO-FLOW VALVE, AND PIPING STRAINER FOR EACH EXISTING COIL ON EXISTING AIR HANDLING UNITS.

MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL THERMOSTATS, INTERLOCKS, AND CONTROLLERS, UNLESS OTHERWISE NOTED. CONTROL WIRING SHALL BE ROUTED IN CONDUIT IN CONCEALED SPACES AND SUPPORTED BY J-HOOKS IN ACCESSIBLE LOCATIONS.

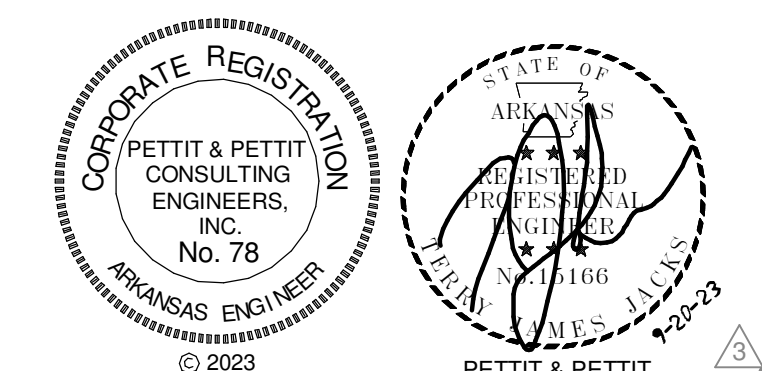
FAN START/STOP STARTER
 FAN STATUS (FIELD)
 CT DEVICE (FIELD)
 TO BAS SYSTEM (FIELD)

1 AIR HANDLING UNIT A/H-5 W/ COMBINATION COOLING / HEATING WATER COIL



901 W 3rd St.
 Little Rock, AR 72201
 501.374.5300
 www.WERarch.com

VERBLY SCALE
 INCH ON ORIGINAL DRAWING
 0 1"



4-23-24	PR-4
2-13-24	PR-1
Date	Description

Date: 09/20/23
 Title: HVAC CONTROLS
 Sheet Number:
M5.7
 COPYRIGHT H+N ARCHITECTS 2023

CONSTANT AIR VOLUME MECHANICAL ROOM AIR HANDLING UNIT - SEQUENCE OF OPERATION

AHU-3A

GENERAL DESCRIPTION:

EXISTING INTERIOR CONSTANT VOLUME AIR HANDLING UNIT SHALL SERVE INDIVIDUAL AREAS WITHIN THE INTERIOR SPACES AS A SINGLE ZONE SYSTEM. UNIT SUPPLY AND ENERGY RECOVERY EXHAUST FANS ARE OPERATED FROM EXISTING VARIABLE FREQUENCY DRIVE(S).

UNIT CONTROLS:

UNIT SHALL BE PROVIDED WITH A NEW STANDALONE UNIT CONTROLLER THAT SHALL INTERFACE WITH THE BACNET BUILDING AUTOMATION SYSTEM (BAS) SYSTEMS. UNIT CONTROLLER SHALL BE CAPABLE OF OPERATING UNIT WITHOUT REQUIRING CONSTANT BACNET COMMUNICATION TO MAINTAIN NORMAL UNIT OPERATION. IF COMMUNICATION WITH THE BAS IS LOST, THE AIR HANDLING UNIT SHALL USE ITS DEFAULT SETPOINTS AND OPERATE IN THE OCCUPIED COOLING MODE.

THE BAS SHALL SEND THE AIR HANDLING UNIT A DISCHARGE AIR TEMPERATURE (DAT) COOLING SETPOINT. THE BAS SHALL ALSO SEND START-UP, MORNING WARM-UP, OCCUPIED, UNOCCUPIED, HEATING / COOLING, TIMED OVERRIDE, COAST DOWN, NIGHT SETBACK, PURGE, AND PRIORITY SHUT-DOWN COMMANDS.

OCCUPIED MODE:

THE OCCUPIED MODE SHALL BE DETERMINED BY THE OWNER'S BUILDING SCHEDULE. WHEN THE AIR HANDLING UNIT IS IN OCCUPIED MODE, THE SUPPLY FAN(S) AND ENERGY RECOVERY EXHAUST FAN SHALL OPERATE CONTINUOUSLY AND THE COOLING VALVE AND HEATING VALVE(S) SHALL MODULATE IN SEQUENCE TO MAINTAIN THE UNIT DISCHARGE AIR TEMPERATURE. THE SUPPLY FAN(S) AND ENERGY RECOVERY EXHAUST FAN SHALL BE OFF WHENEVER THE AIR HANDLING UNIT MIXED AIR LOW LIMIT IS TRIPPED, THE STOP / AUTO INTERLOCK IS OPEN, OR THE SUPPLY FAN STATUS INDICATES A FAILURE (AFTER A TWO MINUTE DELAY). THE LOW LIMIT AND THE FAN FAILURE REQUIRE A MANUAL RESET. THE OUTDOOR AIR DAMPER AND EXHAUST AIR DAMPER SHALL BE OPENED, AND THE ASSOCIATED ENERGY RECOVERY UNIT WHEEL OPERATION SHALL BE ENABLED. THE OUTDOOR AIRFLOW, AS MEASURED PRIOR TO STARTING DEMOLITION, SHALL BE MAINTAINED AT A VALUE EQUAL TO OR HIGHER THAN THE CURRENT SETPOINT ONCE NEW UNIT CONTROLS HAVE BEEN INSTALLED.

UNOCCUPIED MODE:

THE UNOCCUPIED MODE SHALL BE DETERMINED BY THE OWNER'S BUILDING SCHEDULE. WHEN THE AIR HANDLING UNIT IS IN THE UNOCCUPIED MODE, THE SUPPLY FAN(S) SHALL OPERATE AS REQUIRED TO MAINTAIN THE BUILDING UNOCCUPIED TEMPERATURE SETPOINT (ADJUSTABLE). THE OUTDOOR AIR DAMPER AND EXHAUST AIR DAMPER SHALL BE CLOSED. THE ENERGY RECOVERY EXHAUST FAN AND ENERGY RECOVERY UNIT WHEEL OPERATION SHALL BE DISABLED.

OVERRIDE MODE:

IF DURING THE COURSE OF AN UNOCCUPIED MODE PERIOD THE LOCAL USER UTILIZES THE OVERRIDE FUNCTION AT THE LOCAL USER THERMOSTAT, THE AIR HANDLING UNIT SHALL RETURN TO OCCUPIED MODE STATUS FOR A PERIOD OF TWO (2) HOURS (ADJ.).

SUPPLY FAN:

THE AIR HANDLING UNIT SHALL UTILIZE THE EXISTING SUPPLY FAN(S).

COOLING VALVE CONTROL:

UPON A CALL FOR COOLING, THE COOLING VALVE SHALL MODULATE TO MAINTAIN THE UNIT SUPPLY AIR DISCHARGE TEMPERATURE OF 59°F (ADJ.). THE COOLING VALVE SHALL BE CLOSED IF THE SUPPLY FAN(S) ARE OFF, THE SUPPLY AIR SENSOR HAS FAILED, OR IF THE AIR HANDLING UNIT IS IN THE HEATING MODE.

HEATING VALVE CONTROL:

UPON A CALL FOR HEATING, THE HEATING VALVE SHALL MODULATE TO MAINTAIN THE COIL LEAVING AIR DISCHARGE TEMPERATURE OF 85°F (ADJ.). THE HEATING VALVE SHALL BE CLOSED IF THE SUPPLY FAN(S) ARE OFF, THE SUPPLY AIR SENSOR HAS FAILED, OR IF THE AIR HANDLING UNIT IS IN THE COOLING MODE.

ENERGY RECOVERY EXHAUST FAN:

THE ENERGY RECOVERY UNIT EXHAUST SHALL UTILIZE THE EXISTING ROOF-MOUNTED EXHAUST FAN.

MINIMUM REQUIRED OUTDOOR AIRFLOW SETPOINT:

DURING OCCUPIED TIMES, THE AIR HANDLER OUTDOOR AIR DAMPER AND EXHAUST AIR DAMPER SHALL MAINTAIN AN OPEN POSITION AND THE ENERGY RECOVERY UNIT WHEEL OPERATION SHALL BE ENABLED TO DELIVER REQUIRED OUTDOOR AIRFLOW TO THE ZONES SERVED. COORDINATE WITH ENGINEER.

COOLING:

THE EXISTING UNIT IS PROVIDED WITH A CHILLED WATER COIL FOR COOLING.

COOLING DAT RESET: THE COOLING DAT SETPOINT MAY BE RESET BY THE SPACE TEMPERATURE, RETURN AIR TEMPERATURE, OUTSIDE AIR TEMPERATURE, SPACE RELATIVE HUMIDITY, OR EXTERNAL VOLTAGE/MA SIGNALS. A LINEAR RELATIONSHIP BETWEEN THE DAT AND THE RESET VARIABLE WILL BE CREATED FOR THE MINIMUM AND MAXIMUM DAT SETPOINTS. AS THE RESET VARIABLE CHANGES THE DAT WILL ADJUST ACCORDING TO THE RELATIONSHIP. MINIMUM RESET SETPOINT IS 53°F (ADJ.) AND MAXIMUM RESET SETPOINT IS 65°F (ADJ.).

HEATING:

THE EXISTING UNIT IS PROVIDED WITH A HEATING WATER COIL FOR HEATING.

HEATING DAT RESET: THE HEATING DAT SETPOINT MAY BE RESET BY SPACE TEMPERATURE, RETURN AIR TEMPERATURE, OUTSIDE AIR TEMPERATURE, NETWORK, OR EXTERNAL VOLTAGE/MA SIGNALS. A LINEAR RELATIONSHIP BETWEEN THE DAT AND THE RESET VARIABLE WILL BE CREATED FOR THE MINIMUM AND MAXIMUM DAT SETPOINTS. AS THE RESET VARIABLE CHANGES THE DAT WILL ADJUST ACCORDING TO THE RELATIONSHIP. WHEN THE AIR HANDLING UNIT IS IN THE HEATING MODE OR THE NIGHT SETBACK MODE, THE HEATING VALVE SHALL MODULATE OPEN TO MAINTAIN THE COIL DISCHARGE AIR TEMPERATURE AT THE COIL DISCHARGE HEATING SETPOINT (ADJUSTABLE). WHEN THE AIR HANDLING UNIT IS IN THE COOLING MODE AND THE SPACE(S) SERVED REQUIRE DEHUMIDIFICATION, THE RE-HEATING VALVE SHALL MODULATE OPEN AS REQUIRED TO MAINTAIN THE SPACE RELATIVE HUMIDITY AT THE SPACE RELATIVE HUMIDITY SETPOINT (ADJUSTABLE).

ENERGY RECOVERY UNIT:

THE EXISTING UNIT IS PROVIDED WITH AN EXISTING ENERGY RECOVERY UNIT FOR VENTILATION AIR TREATMENT.

THE EXISTING ENERGY RECOVERY UNIT ROOF-MOUNTED EXHAUST FAN AND ENERGY RECOVERY WHEEL SHALL BE ENABLED ANY TIME THE AIR HANDLING UNIT IS IN OCCUPIED MODE TO PRE-CONDITION THE VENTILATION AIR BEING PROVIDED TO THE SPACES. THE EXISTING ENERGY RECOVERY UNIT ROOF-MOUNTED EXHAUST FAN AND ENERGY RECOVERY WHEEL SHALL BE DISABLED ANY TIME THE AIR HANDLING UNIT IS IN UNOCCUPIED MODE.

LOW LIMIT TEMPERATURE DETECTOR:

IN THE EVENT THE LOW LIMIT TEMPERATURE DETECTOR DETECTS MIXED AIR TEMPERATURE BELOW 35 DEG. F, THE SUPPLY AIR FAN(S) SHALL STOP, THE EXHAUST AIR FAN SHALL STOP, THE ENERGY RECOVERY WHEEL SHALL STOP, THE OUTSIDE AIR AND EXHAUST DAMPERS SHALL CLOSE, AND AN ALARM SHALL SOUND AT THE BAS WORKSTATION. THE LOW LIMIT TEMPERATURE DETECTOR SHALL REQUIRE A MANUAL RESET.

NIGHT SETBACK / MORNING WARM-UP HEATING MODE:

THE AIR HANDLING UNIT SHALL INDEX FROM UNOCCUPIED MODE TO OCCUPIED MODE AT A TIME DETERMINED BY THE BAS SYSTEM SO THAT THE SETPOINT IS MET DURING THE ENTIRE PORTION OF THE BUILDING OCCUPIED HOURS (ADJUSTABLE).

AIR HANDLING UNIT SYSTEM LEVEL CONTROL:

1. THE INTERLOCK SHALL BE CONTROLLED BY COMPARING THE OUTSIDE AIR AMBIENT TEMPERATURE TO THE INTERLOCK SETPOINT (ADJUSTABLE). IF EACH AIR HANDLING UNIT CONTROLLER IS INDIVIDUALLY SENSING THE OUTSIDE AIR AMBIENT TEMPERATURE SERVING THE UNIT, THEN THE TEMPERATURE SENSOR FOR THAT AIR HANDLING UNIT SHALL BE USED FOR THE COMMAND AND OTHER PROCESSES:

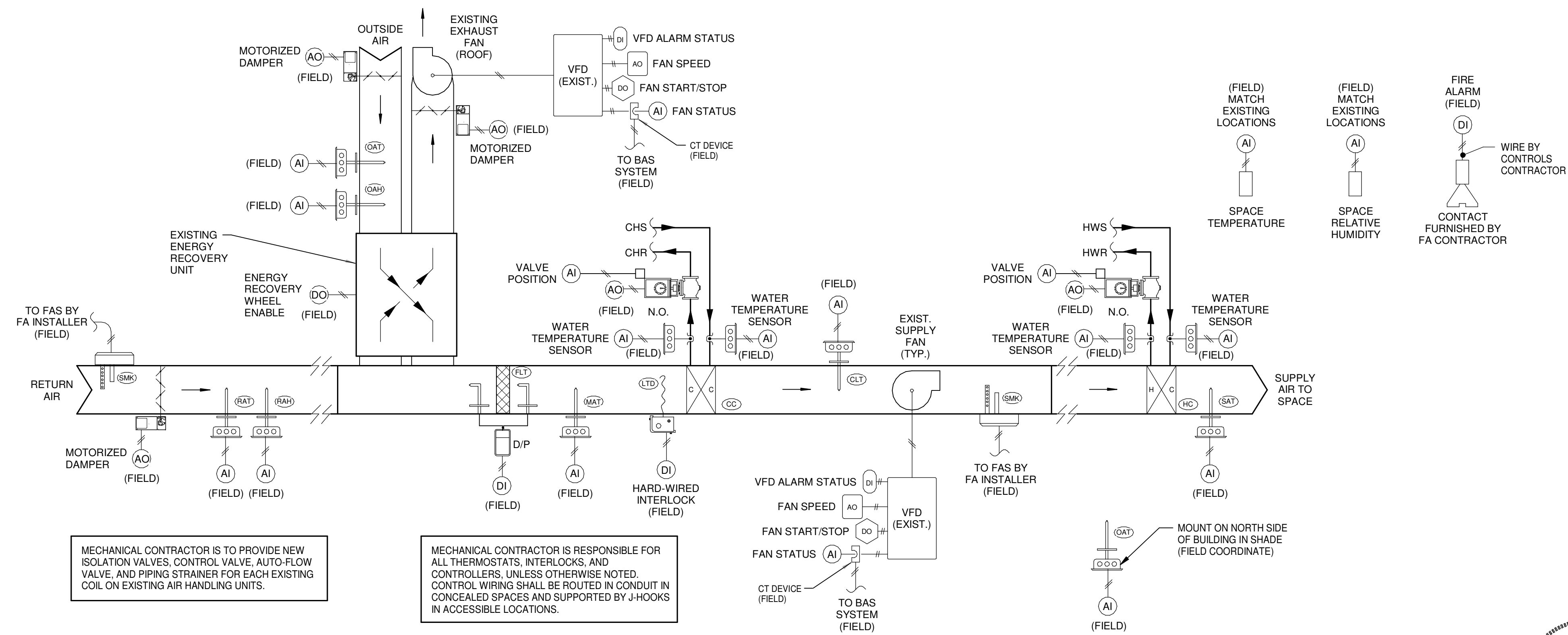
THE FOLLOWING POINTS SHALL BE MONITORED AND ALARMED AT THE AIR HANDLING UNIT CONTROLLER AND THE BAS:

- | | | |
|----------------------------------|----------------------------------|-------------------------------|
| 1. SUPPLY AIR TEMP. | 11. RETURN AIR RELATIVE HUMIDITY | 21. DAMPER MINIMUM POSITION % |
| 2. MIXED AIR TEMP. | 12. EXHAUST FAN STATUS | 22. FILTER NORMAL / DIRTY |
| 3. OUTSIDE AIR TEMP. | 13. EXHAUST AIR TEMP. | 23. DDC LOOP PARAMETERS |
| 4. OUTSIDE AIR RELATIVE HUMIDITY | 14. SUPPLY VFD STATUS | |
| 5. SPACE RELATIVE HUMIDITY | 15. EXHAUST VFD STATUS | |
| 6. SUPPLY FAN STATUS | 16. LOW LIMIT STATUS | |
| 7. COOLING AIR TEMP. | 17. COOLING VALVE OPEN % | |
| 8. SUPPLY AIR TEMP. | 18. HEATING VALVE OPEN % | |
| 9. SUPPLY AIR RELATIVE HUMIDITY | 19. SENSORS NORMAL / FAIL STATUS | |
| 10. RETURN AIR TEMP. | 20. HEAT / COOL MODE | |

THE FOLLOWING POINTS SHALL BE OPERATOR ADJUSTABLE AND / OR AUTOMATICALLY RESET BY THE BAS PROGRAM:

- HEATING SETPOINT - HEAT RESET SETPOINT
- COOLING SETPOINT - COOL RESET SETPOINT
- DAMPER OPEN/CLOSE - COOL/HEAT DISABLE

THE SYSTEM SHALL SHUT DOWN IMMEDIATELY UPON DETECTION OF SMOKE FROM DETECTORS LOCATED IN THE SUPPLY AND RETURN AIR STREAMS OR IF FIRE ALARM SYSTEM IS ACTIVATED.



MECHANICAL CONTRACTOR IS TO PROVIDE NEW ISOLATION VALVES, CONTROL VALVE, AUTO-FLOW VALVE, AND PIPING STRAINER FOR EACH EXISTING COIL ON EXISTING AIR HANDLING UNITS.

MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL THERMOSTATS, INTERLOCKS, AND CONTROLLERS, UNLESS OTHERWISE NOTED. CONTROL WIRING SHALL BE ROUTED IN CONCEALED SPACES AND SUPPORTED BY J-HOOKS IN ACCESSIBLE LOCATIONS.

1 AIR HANDLING UNIT AHU-3A W/ HOT WATER & CHILLED WATER COILS

© 2023 PETTIT & PETTIT CONSULTING ENGINEERS, INC.

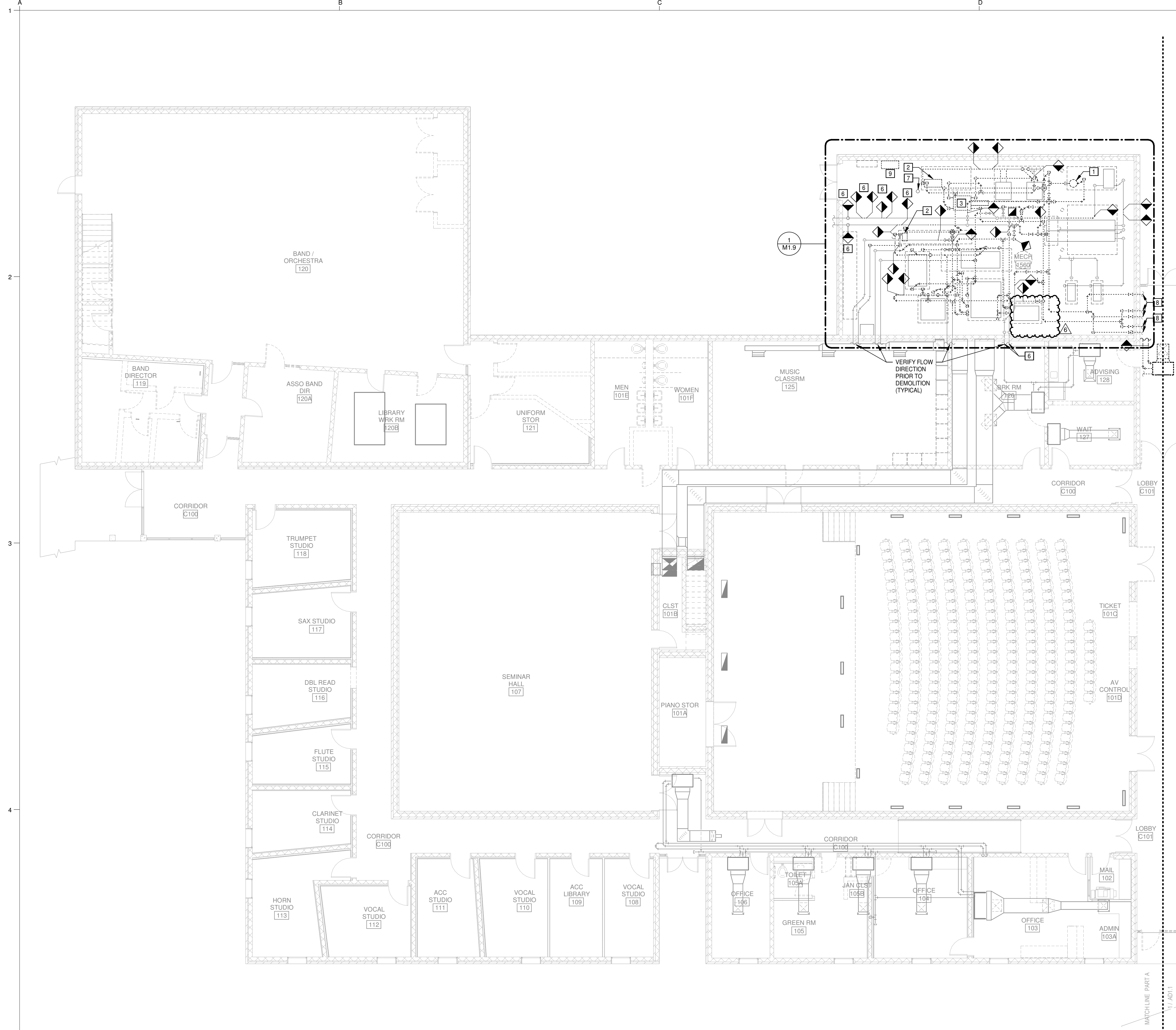
#	Date	Description
4	4-23-24	PR-4

Date: 09/20/23
 Title: HVAC CONTROLS
 Sheet Number: **M5.8**
 COPYRIGHT H+N ARCHITECTS 2023

H+N ARCHITECTS
 1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com
WE RARCH
 901 W 3rd St.
 Little Rock, AR 72201
 501.374.5300
 www.WERarch.com

UCA SNOW FINE ARTS CENTER RENNOVATIONS CONWAY, AR

VERIFY SCALE
 INCH ON ORIGINAL DRAWING
 0 1"



HVAC GENERAL DEMOLITION NOTES

1. ALL LIGHTER SOLID LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC. TO REMAIN.
2. ALL DARKER DASHED LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC. TO BE REMOVED.
3. FIELD VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING ITEMS SHOWN ON THIS PLAN THAT ARE TO BE CONNECTED TO.
4. SEE ARCHITECTURAL PLANS FOR REMOVAL AND REPLACEMENT OF CEILINGS.

HVAC KEYED DEMOLITION NOTES

- 1 EXISTING CHILLED WATER PUMP AND ASSOCIATED PIPING TO BE DEMOLISHED TO POINT INDICATED.
- 2 EXISTING HEATING WATER PUMP AND ASSOCIATED PIPING TO BE DEMOLISHED TO POINT INDICATED.
- 3 EXISTING PLATE-AND-FRAME HEAT EXCHANGER AND ASSOCIATED PIPING TO BE DEMOLISHED TO POINT INDICATED.
- 4 DEMOLISH SECTIONS OF EXISTING DISTRICT CHILLED WATER SYSTEMS AS REQUIRED FOR INSTALLATION OF NEW VALVES AND BYPASS.
- 5 NOT USED.
- 6 EXISTING PIPING IN EXISTING TRENCH.
- 7 EXISTING CHEMICAL SHOT FEEDER TO BE RE-USED.
- 8 EXISTING COMBINATION HEATING / CHILLED WATER PIPING TO BE DEMOLISHED AND CAPPED AT RISERS.
- 9 EXISTING UN-USED BARBER-COLEMAN CONTROL PANEL IN THIS APPROXIMATE LOCATION TO BE DEMOLISHED AS REQUIRED.

1 LEVEL 1 PLAN - DEMO PART A - HVAC
SCALE: 1/8" = 1'-0"

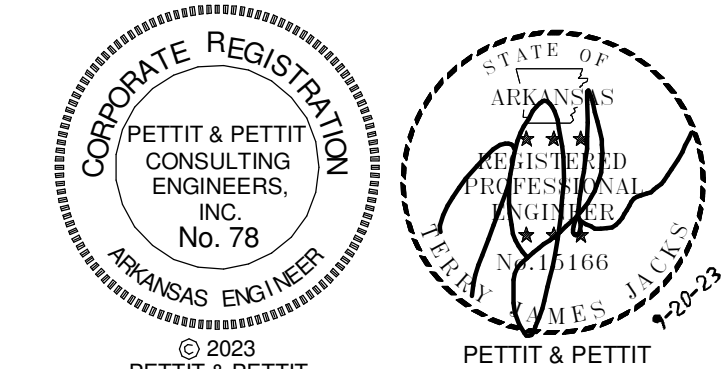
H+N ARCHITECTS



901 W 3rd St.
Little Rock, AR 72201
501.374.5300
www.WERarch.com

**UCA SNOW FINE ARTS CENTER
RENOVATIONS
CONWAY, AR**

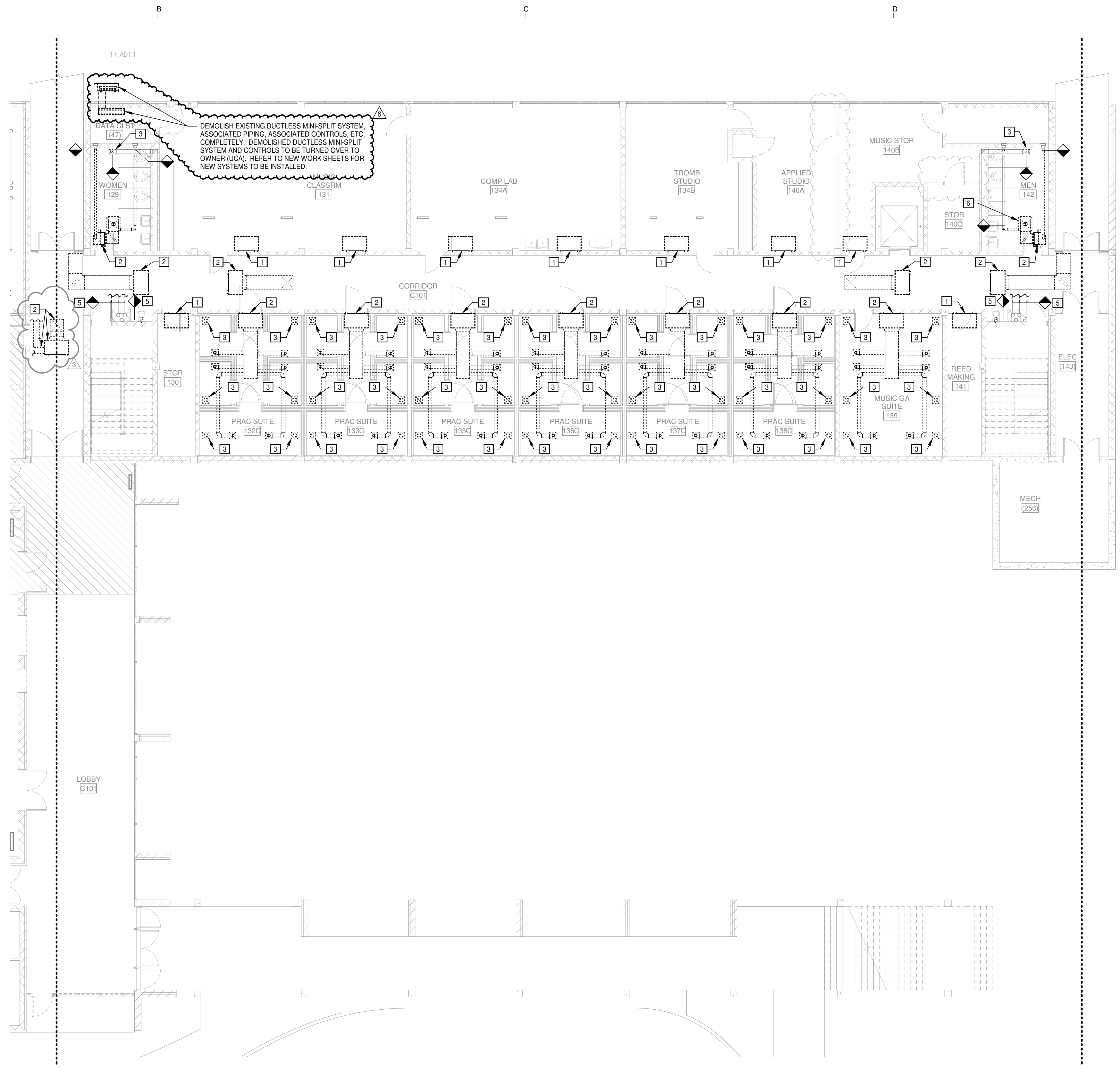
VERIFY SCALE
INCH ON ORIGINAL DRAWING
0 1"



4-23-24	PR-4
Date	Description
Revision History	

Date: 09/20/23
Title: LEVEL 1 PLAN - DEMO PART A - HVAC
Sheet Number:
MD1.1A
COPYRIGHT H+N ARCHITECTS 2023

1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com



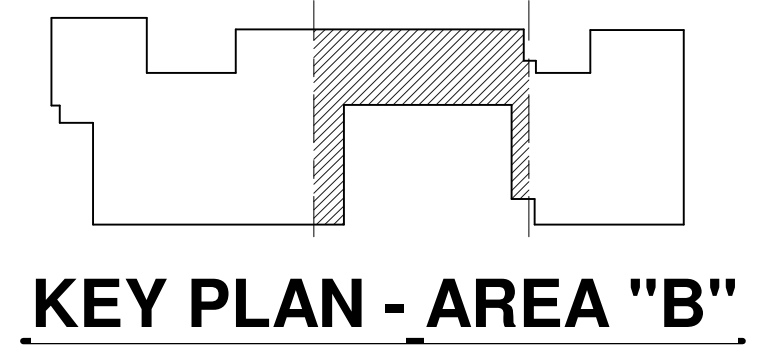
HVAC GENERAL DEMOLITION NOTES

1. ALL LIGHTER SOLID LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC. TO REMAIN.
2. ALL DARKER DASHED LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC. TO BE REMOVED.
3. FIELD VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING ITEMS SHOWN ON THIS PLAN THAT ARE TO BE CONNECTED TO.
4. SEE ARCHITECTURAL PLANS FOR REMOVAL AND REPLACEMENT OF CEILINGS.

HVAC KEYED DEMOLITION NOTES

- 1 EXISTING FAN COIL UNIT, ASSOCIATED PIPING, CONTROLS, ETC. TO BE DEMOLISHED COMPLETELY.
- 2 EXISTING FAN COIL UNIT, ASSOCIATED DUCTWORK, PIPING, AIR DEVICES, CONTROLS, ETC. TO BE DEMOLISHED COMPLETELY.
- 3 EXISTING EXHAUST AIR DEVICE AND ASSOCIATED DUCTWORK TO BE DEMOLISHED TO POINT INDICATED, PREPARE DUCTWORK FOR NEW EXHAUST AIR DEVICE CONNECTION.
- 4 EXISTING RETURN AIR DEVICES AND ASSOCIATED DUCTWORK TO BE DEMOLISHED COMPLETELY.
- 5 EXISTING PIPING TO BE DEMOLISHED BACK TO RISERS AND CAPPED.

1 LEVEL 1 PLAN - DEMO PART B - HVAC
SCALE: 1/8" = 1'-0"



KEY PLAN - AREA "B"

VERIFIED SCALE
INCH ON ORIGINAL DRAWING
0 1"

© 2023
PETTIT & PETTIT
CONSULTING ENGINEERS, INC.
LITTLE ROCK, ARKANSAS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JAMES M. PETTIT
No. 78
2023

#	Date	Description
4	4-23-24	PR-4
3	2-13-24	PR-1
#		

Revision History

H+N ARCHITECTS

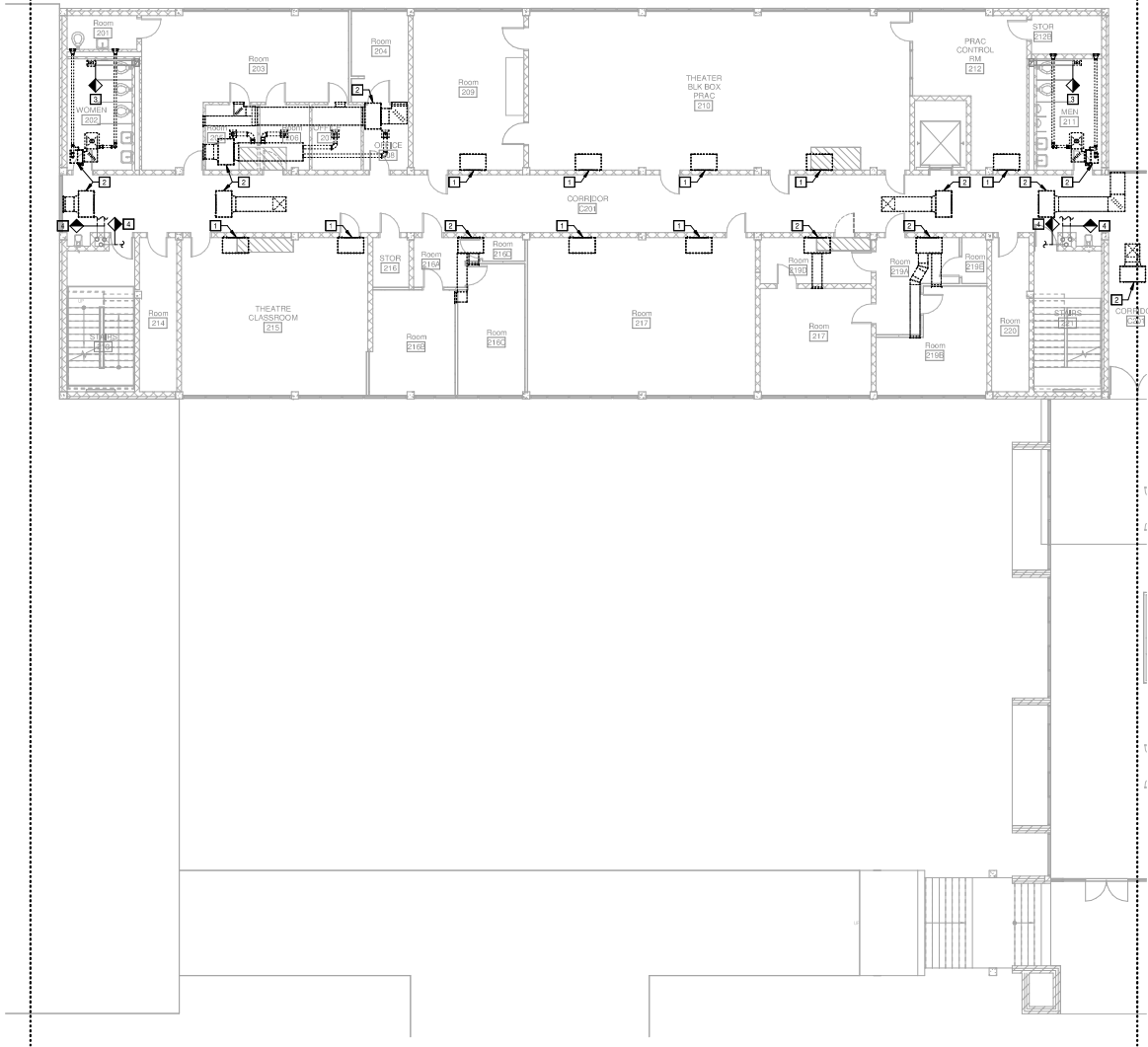
1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

WER

901 W 3rd St.
Little Rock, AR 72201
501.374.5300
www.WERarch.com

**UCA SNOW FINE ARTS CENTER
RENOVATIONS
CONWAY, AR**

Date: 09/20/23
Title: LEVEL 1 PLAN - DEMO
PART B - HVAC
Sheet Number:
MD1.1B
COPYRIGHT H+N ARCHITECTS 2023



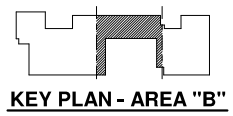
1 LEVEL 2 PLAN - DEMO PART B - HVAC
SCALE: 1/8" = 1'-0"

HVAC GENERAL DEMOLITION NOTES

1. ALL LIGHTER SOLID LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC., TO REMAIN.
2. ALL DARKER DASHED LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC., TO BE REMOVED.
3. FIELD VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING ITEMS SHOWN ON THIS PLAN THAT ARE TO BE CONNECTED TO.
4. SEE ARCHITECTURAL PLANS FOR REMOVAL AND REPLACEMENT OF CEILING.

HVAC KEYED DEMOLITION NOTES

1. EXISTING FAN COIL UNIT, ASSOCIATED PIPING, CONTROLS, ETC., TO BE DEMOLISHED COMPLETELY.
2. EXISTING FAN COIL UNIT, ASSOCIATED DUCTWORK, PIPING, AIR DEVICES, CONTROLS, ETC., TO BE DEMOLISHED COMPLETELY.
3. EXISTING EXHAUST AIR DEVICE AND ASSOCIATED DUCTWORK TO BE DEMOLISHED TO POINT INDICATED. PREPARE DUCTWORK FOR NEW EXHAUST AIR DEVICE CONNECTION.
4. EXISTING PIPING TO BE DEMOLISHED BACK TO RISERS AND CAPS.



KEY PLAN - AREA "B"

PROFESSIONAL ENGINEER
PETTIT & PETTIT CONSULTING ENGINEERS, INC. NO. 78
STATE OF ARKANSAS

PROFESSIONAL ENGINEER
PETTIT & PETTIT CONSULTING ENGINEERS, INC. NO. 189
STATE OF ARKANSAS

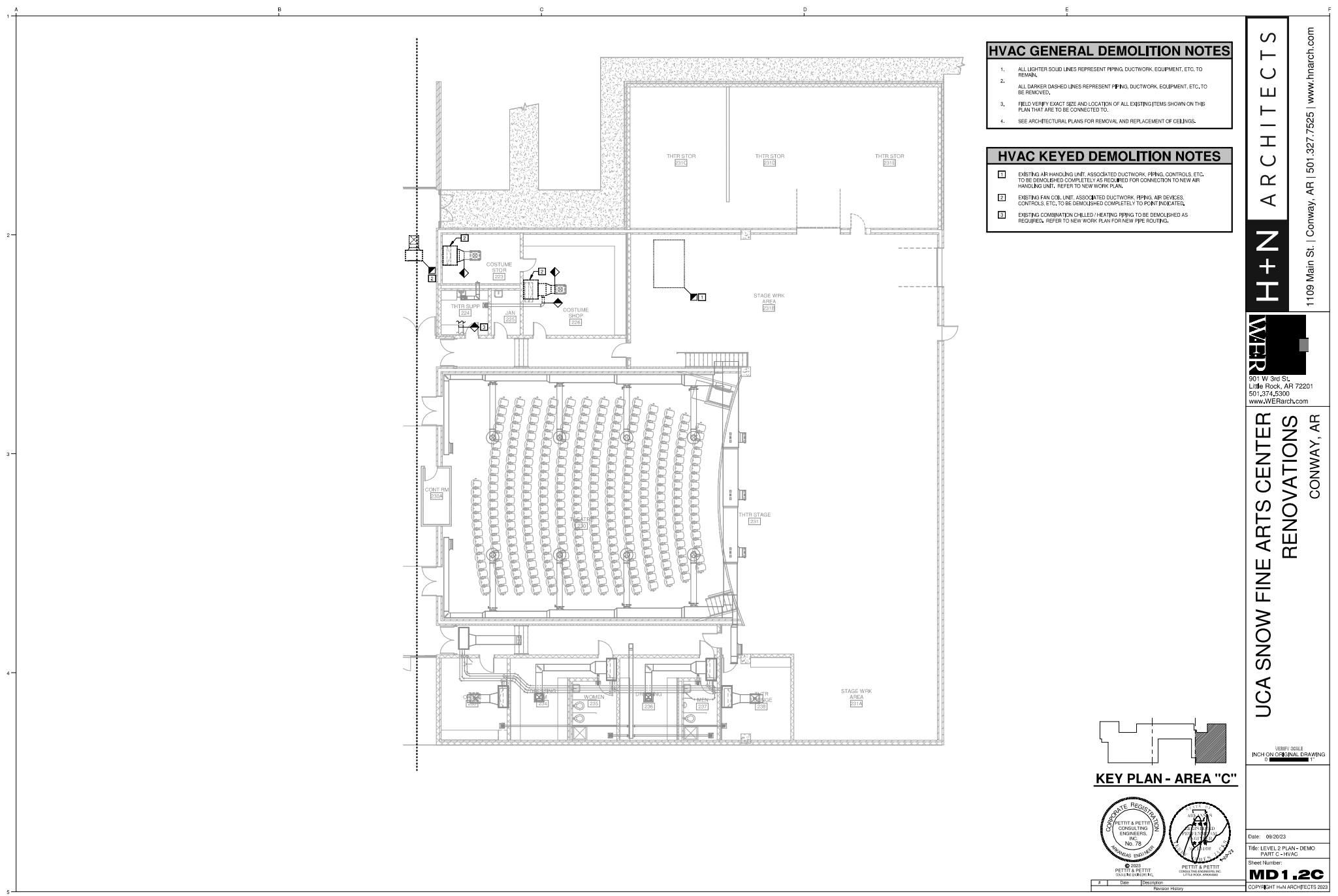
DATE: 09/20/23
TITLE: LEVEL 2 PLAN - DEMO PART B - HVAC
SHEET NUMBER: MD1.2B
COPYRIGHT H+N ARCHITECTS 2023

H+N ARCHITECTS

1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

UCA SNOW FINE ARTS CENTER RENOVATIONS CONWAY, AR

COPYRIGHT H+N ARCHITECTS 2023



HVAC GENERAL DEMOLITION NOTES

1. ALL LIGHTER SOLID LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC., TO REMAIN.
2. ALL DARKER DASHED LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC., TO BE REMOVED.
3. FIELD VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING ITEMS SHOWN ON THIS PLAN THAT ARE TO BE CONNECTED TO.
4. SEE ARCHITECTURAL PLANS FOR REMOVAL AND REPLACEMENT OF CEILING.

HVAC KEYED DEMOLITION NOTES

1. EXISTING AIR HANDLING UNIT, ASSOCIATED DUCTWORK, PIPING, CONTROLS, ETC., TO BE DEMOLISHED COMPLETELY AS REQUIRED FOR CONNECTION TO NEW AIR HANDLING UNIT. REFER TO NEW WORK PLAN.
2. EXISTING FAN COIL UNIT, ASSOCIATED DUCTWORK, PIPING, AIR DEVICES, CONTROLS, ETC., TO BE DEMOLISHED COMPLETELY TO POINT INDICATED.
3. EXISTING COMBINATION CHILLED / HEATING PIPING TO BE DEMOLISHED AS REQUIRED. REFER TO NEW WORK PLAN FOR NEW PIPE ROUTINGS.

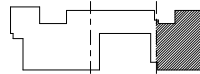
H+N ARCHITECTS

1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com



801 W 3rd St.
Little Rock, AR 72201
501.374.5300
www.JWERarch.com

**UCA SNOW FINE ARTS CENTER
RENOVATIONS
CONWAY, AR**



KEY PLAN - AREA "C"

VERIFY SCALE
1" = 10'-0" ON ORIGINAL DRAWING



PETTIT & PETTIT
CONSULTING ENGINEERS, INC.
LITTLE ROCK, ARKANSAS

Date: 09/20/23

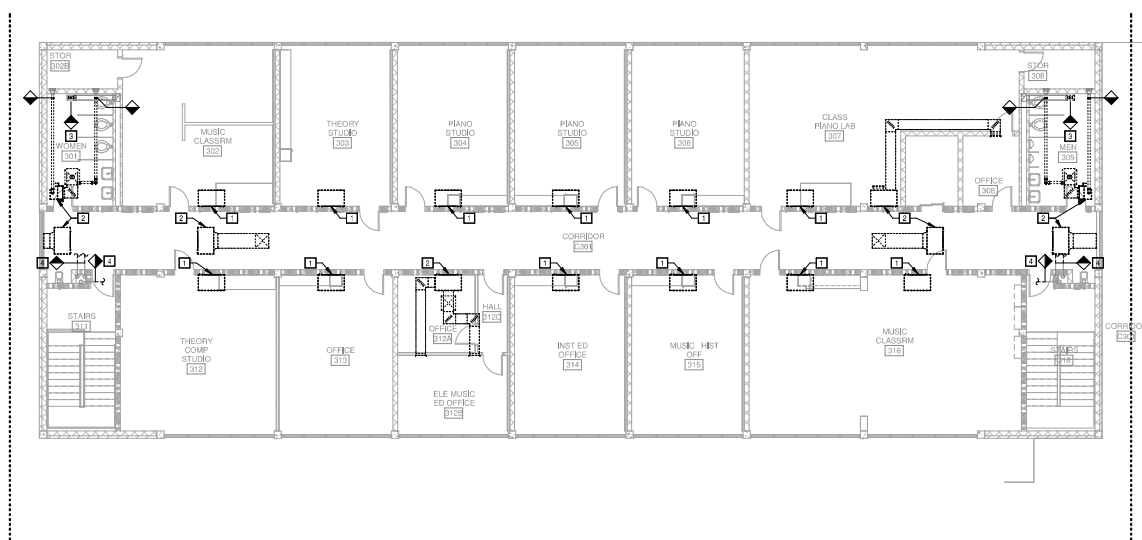
Title: LEVEL 2 PLAN - DEMO
PART C - HVAC

Sheet Number:

MD1.2C

COPYRIGHT H+N ARCHITECTS 2023

2 | Date: 09/20/23 | Revision History



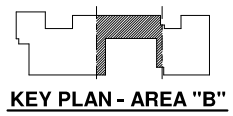
1 LEVEL 3 PLAN - DEMO PART B - HVAC
SCALE: 1/8" = 1'-0"

HVAC GENERAL DEMOLITION NOTES

1. ALL LIGHTER SOLID LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC. TO REMAIN.
2. ALL DARKER DASHED LINES REPRESENT PIPING, DUCTWORK, EQUIPMENT, ETC. TO BE REMOVED.
3. FIELD VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING ITEMS SHOWN ON THIS PLAN THAT ARE TO BE CONNECTED TO.
4. SEE ARCHITECTURAL PLANS FOR REMOVAL AND REPLACEMENT OF CEILING.

HVAC KEYED DEMOLITION NOTES

1. EXISTING FAN COIL UNIT, ASSOCIATED PIPING, CONTROLS, ETC. TO BE DEMOLISHED COMPLETELY.
2. EXISTING FAN COIL UNIT, ASSOCIATED DUCTWORK, PIPING, AIR DEVICES, CONTROLS, ETC. TO BE DEMOLISHED COMPLETELY.
3. EXISTING EXHAUST AIR DEVICE AND ASSOCIATED DUCTWORK TO BE DEMOLISHED TO POINT INDICATED. PREPARE DUCTWORK FOR NEW EXHAUST AIR DEVICE CONNECTION.
4. EXISTING PIPING TO BE DEMOLISHED BACK TO RISERS AND CAPPED.



KEY PLAN - AREA "B"

PETTIT & PETTIT
CONSULTING ENGINEERS, INC.
NO. 78
ARKANSAS ENGINEER

PETTIT & PETTIT
CONSULTING ENGINEERS, INC.
NO. 189
ARKANSAS ENGINEER

6302
PETTIT & PETTIT
CONSULTING ENGINEERS, INC.
LITTLE ROCK, ARKANSAS

H+N ARCHITECTS

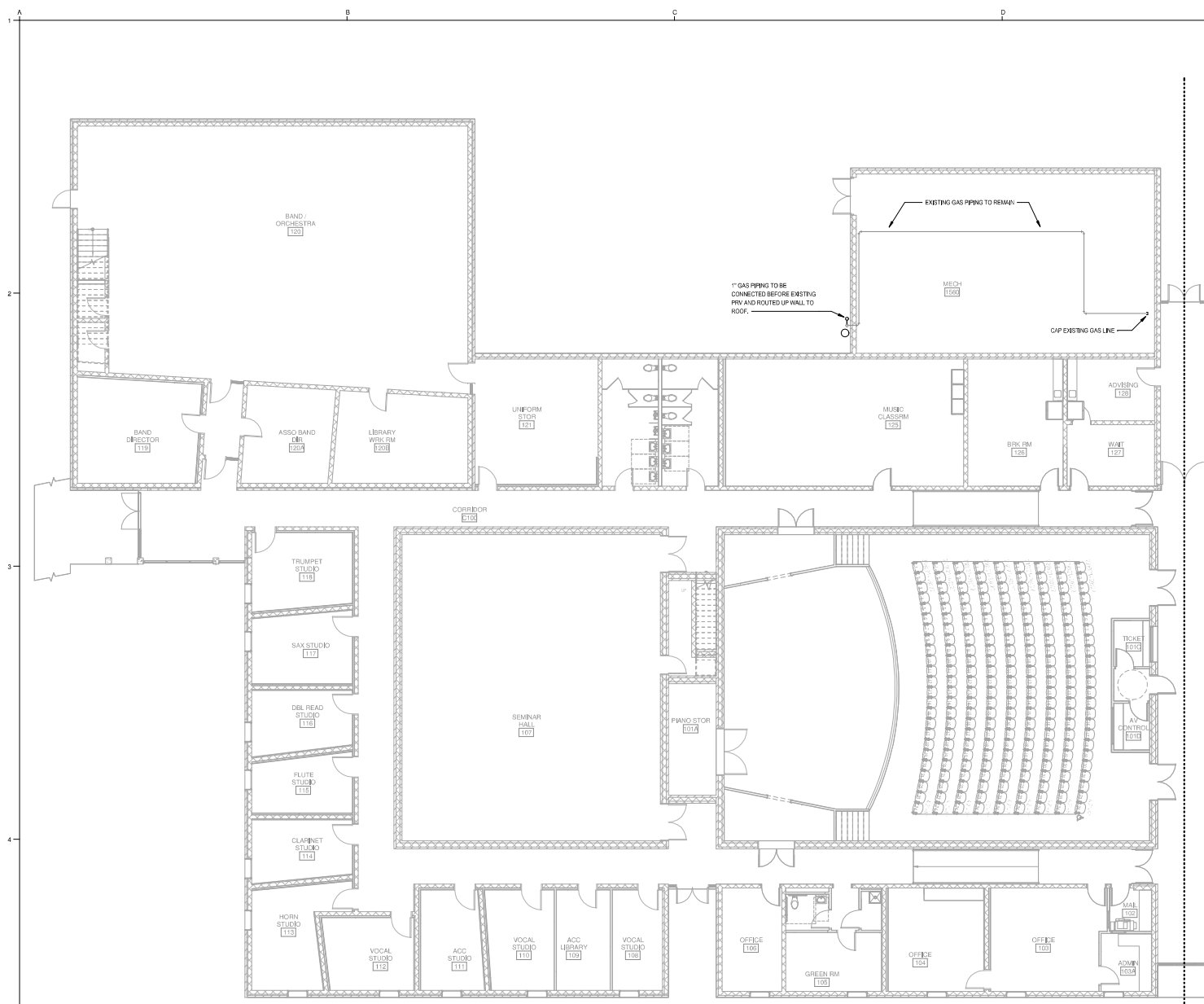
1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

UCA SNOW FINE ARTS CENTER
RENOVATIONS
CONWAY, AR

MD1.3B

COPYRIGHT H+N ARCHITECTS 2023

Date: 09/20/23
Title: LEVEL 3 PLAN - DEMO PART B - HVAC
Sheet Number:
Revision History



PLUMBING KEYED NOTES - P1.1A

- ① INSTALL NEW WALL MOUNTED ADA WATER CLOSET. CONNECT INTO EXISTING PLUMBING IN CHASE. FIELD VERIFY AND MAKE ALL PIPING ADJUSTMENTS AS REQUIRED. REPAIR FLOOR BACK TO ORIGINAL CONDITION.
- ② INSTALL NEW WALL MOUNTED WATER CLOSET. CONNECT INTO EXISTING PLUMBING IN CHASE. FIELD VERIFY AND MAKE ALL PIPING ADJUSTMENTS AS REQUIRED. REPAIR FLOOR BACK TO ORIGINAL CONDITION.
- ③ INSTALL NEW URINAL. VERIFY INSTALLATION HEIGHT WITH ARCHITECTURAL DRAWINGS. CONNECT INTO EXISTING PLUMBING IN CHASE (FIELD VERIFY) AND MAKE ALL PIPING ADJUSTMENTS AS REQUIRED. REPAIR FLOOR BACK TO ORIGINAL CONDITION.
- ④ INSTALL NEW WALL MOUNTED LAVATORY. VERIFY INSTALLATION HEIGHT WITH ARCHITECTURAL DRAWINGS. CONNECT INTO EXISTING PLUMBING IN CHASE (FIELD VERIFY) AND MAKE ALL PIPING ADJUSTMENTS AS REQUIRED. PROVIDE NEW P-TRAPS, STOP, FAUCETS, ESCUTCHEONS, SUPPORT, ETC. AS SPECIFIED. REPAIR FLOOR BACK TO ORIGINAL CONDITION.
- ⑤ INSTALL NEW COUNTER MOUNTED SINK AND CONNECT INTO EXISTING PLUMBING IN WALL (FIELD VERIFY) AND MAKE ALL PIPING ADJUSTMENTS AS REQUIRED. PROVIDE NEW P-TRAPS, STOPS, FAUCETS, ESCUTCHEONS, SUPPORT, ETC. AS SPECIFIED. REPAIR WALL BACK TO ORIGINAL CONDITION.
- ⑥ EXISTING SANITARY SEWER PIPING BELOW GRADE TO REMAIN.
- ⑦ NEW SERVICE SINK. SAW CUT SLAB AS REQUIRED TO ROGE NEW DRAIN PIPING TO EXISTING 10" SAN. SEWER PIPING BELOW THE SLAB.
- ⑧ INSTALL NEW FLOOR DRAIN. CONNECT INTO EXISTING PLUMBING BELOW GRADE AND MAKE ALL PIPING ADJUSTMENTS AS REQUIRED. REPAIR FLOOR BACK TO ORIGINAL CONDITION.
- ⑨ INSTALL NEW POINT OF USE WATER HEATER BELOW TO SERVE LAVATORIES. SEE SCHEDULE SHEET FOR MAKE/MODEL AND DETAIL SHEET FOR PIPE ROUTING.
- ⑩ NEW 20 GALLON ELECTRIC WATER HEATER MOUNTED ABOVE NEW SERVICE SINK IN JANITOR'S CLOSET TO SERVE BOTH ADJACENT BATHROOM AND LOCAL SERVICE SINK.

1 LEVEL 1 PLAN - RENOV PART A - PLUMBING
SCALE: 1/8" = 1'-0"

H+N ARCHITECTS

WE RARCH

801 W 3rd St.
Little Rock, AR 72201
501.374.5300
www.WERArch.com

**UCA SNOW FINE ARTS CENTER
RENOVATIONS**
CONWAY, AR

DRY SCALE
1" = 10'-0"



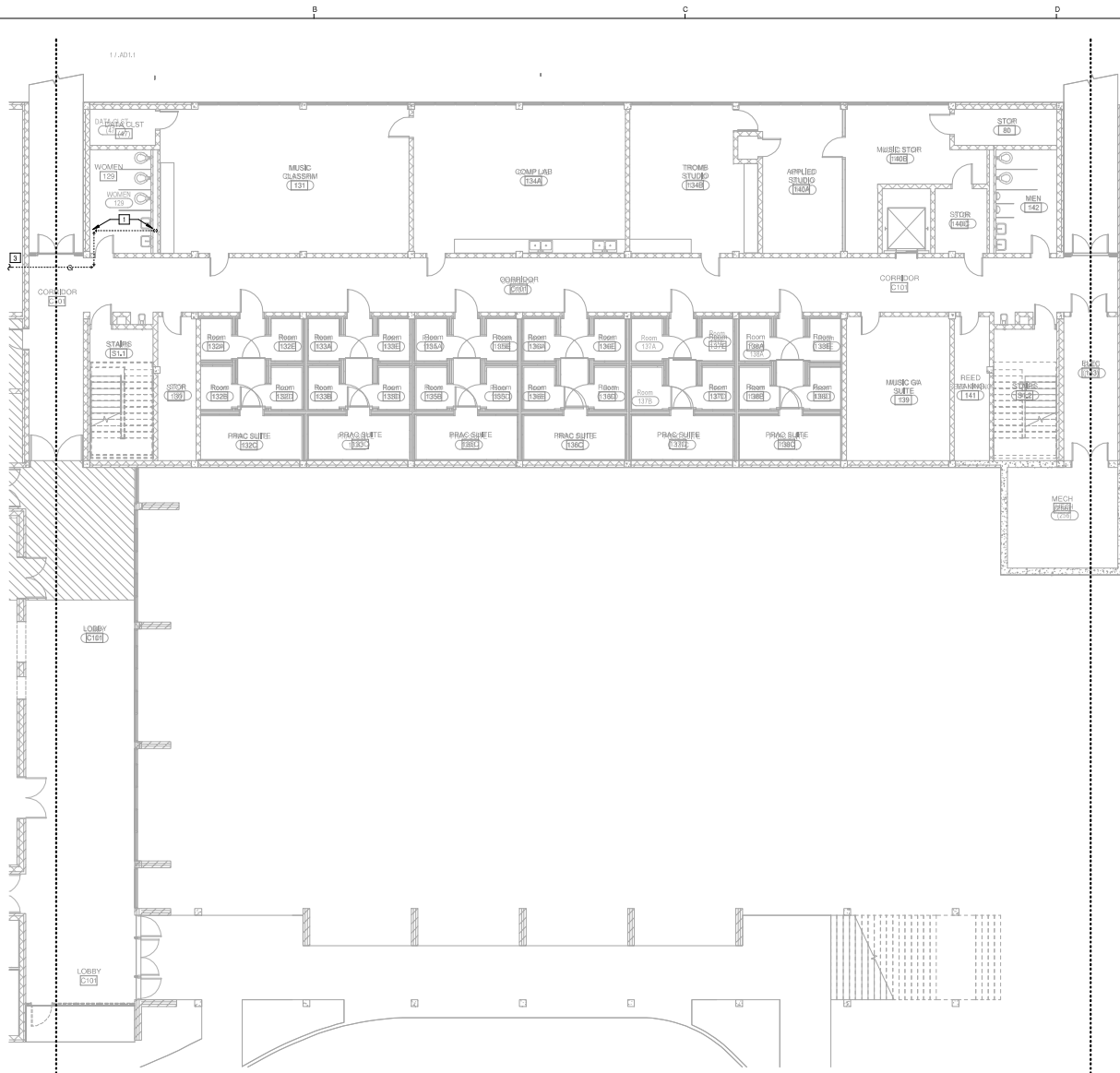
Date: 09/20/23

Title: LEVEL 1 PLAN - RENOV PART A - PLUMBING

Sheet Number:
P1.1A

COPYRIGHT H+N ARCHITECTS 2023

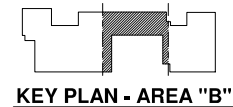
PETTIT & PETTIT CONSULTING ENGINEERS, INC. No. 78
PETTIT & PETTIT CONSULTING ENGINEERS, INC. No. 79



1 LEVEL 1 PLAN - DEMO PART B - PLUMBING
SCALE: 1/8" = 1'-0"

- ### GENERAL PLUMB. DEMO. NOTES
1. FIELD VERIFY EXISTING PLUMBING FEATURE LOCATIONS, TYPE ETC.-VERIFY EXISTING PLUMBING PIPING LOCATIONS, SEES, ETC.
 2. CUT WALLS, FLOORS OR CEILINGS AS REQUIRED TO INSTALL NEW PIPING. ALL FURRING AND REPAIRING SHALL BE BY THE GENERAL CONTRACTOR, COORDINATE REQUIREMENTS WITH THE GENERAL CONTRACTOR.
 3. REWORK EXISTING WATER, SANITARY, ACID WASTE, AND VENT PIPING AS REQUIRED TO INSTALL NEW PLUMBING FIXTURES.
 4. WHERE EXISTING FIXTURES AND EQUIPMENT ARE REMOVED AND NOT REPLACED, CAP ALL PIPING WITHIN WALLS, FLOORS OR CEILINGS AS REQUIRED FOR CONDEMENT.
 5. REMOVE ALL EXPOSED EXISTING PIPING WHICH IS DEEMED INOPERABLE AS A RESULT OF THIS CONTRACT UNLESS SHOWN OR NOTED OTHERWISE.
 6. EXISTING PIPE TO WHICH NEW PIPE IS CONNECTED, SHALL BE ROODED, FLUSHED AND CLEANED FROM POINT OF CONNECTION TO MAIN OUTSIDE BUILDING.
 7. EXISTING FLOOR DRAINS WITHIN SCOPE OF CONSTRUCTION SHALL BE THOROUGHLY CLEANED AND BUFFED. EXISTING PIPING SHALL BE ROODED AND CLEANED TO THE POINT OF CONNECTION TO THE MAIN.
 8. ALL PLUMBING FIXTURES, VALVES, PIPING, AND EQUIPMENT WHICH ARE TO BE REMOVED AND NOT RELOCATED SHALL BECOME THE PROPERTY OF THE OWNER AND DELIVERED TO STORAGE ON SITE AS DIRECTED BY THE OWNER.

- ### PLUMBING DEMO. KEYED NOTES
1. DEMO EXISTING GAS LINE
 2. DISCONNECT AND DEMOLISH EXISTING GAS WATER HEATER, DEMOLISH EXISTING GAS LINE AND ASSOCIATED VENT AND FUE PIPING AS WELL AS ASSOCIATED CONDENSATE PIPING. PREP ALL OTHER EXISTING WATER LINES FOR CONNECTION TO NEW GAS WATER HEATER.
 3. REMOVE GAS LINE BACK AND CAP BEFORE IT REACHES THE PARKING GARAGE.
 4. DISCONNECT EXISTING GAS PIPING AND DEMOLISH EXISTING WATER HEATER AND ALL OTHER ASSOCIATED PIPING TO REMAIN.



KEY PLAN - AREA "B"



Date: 09/20/23
Title: LEVEL 1 PLAN - DEMO PART B - PLUMBING

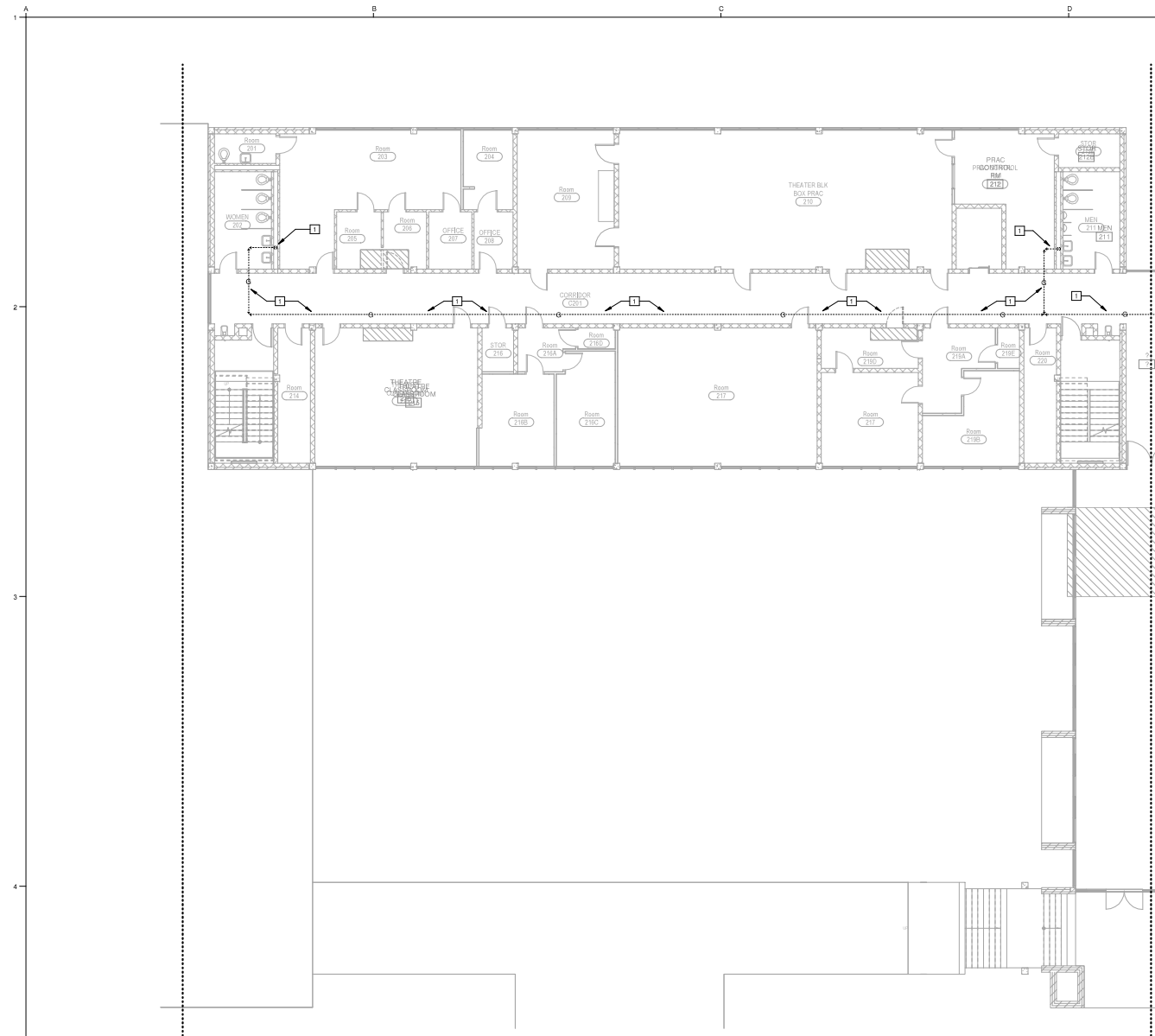
Sheet Number: **P1.1B**

COPYRIGHT H+N ARCHITECTS 2023

H+N ARCHITECTS
1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

WE R
801 W 3rd St.
Little Rock, AR 72201
501.374.5300
www.WERarch.com

UCA SNOW FINE ARTS CENTER RENNOVATIONS
CONWAY, AR



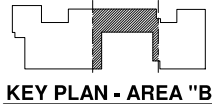
1 LEVEL 2 PLAN - DEMO PART B - PLUMBING
SCALE: 1/8" = 1'-0"

GENERAL PLUMB. DEMO. NOTES

1. FIELD VERIFY EXISTING PLUMBING FEATURE LOCATIONS, TYPE ETC. VERIFY EXISTING PLUMBING PIPING LOCATIONS, SIZES, ETC.
2. CUT WALLS, FLOORS OR CEILINGS AS REQUIRED TO INSTALL NEW PIPING. ALL FURRING AND REPAIRING SHALL BE BY THE GENERAL CONTRACTOR. COORDINATE REQUIREMENTS WITH THE GENERAL CONTRACTOR.
3. REWORK EXISTING WATER, SANITARY, ACID WASTE, AND VENT PIPING AS REQUIRED TO INSTALL NEW PLUMBING FIXTURES.
4. WHERE EXISTING FIXTURES AND EQUIPMENT ARE REMOVED AND NOT REPLACED, CAP ALL PIPING WITHIN WALLS, FLOORS OR CEILINGS ARE REQUIRED FOR CONCEALMENT.
5. REMOVE ALL EXPOSED EXISTING PIPING WHICH IS DEEMED INOPERABLE AS A RESULT OF THIS CONTRACT UNLESS SHOWN OR NOTED OTHERWISE.
6. EXISTING PIPE, TO WHICH NEW PIPE IS CONNECTED, SHALL BE RODDED, FLUSHED AND CLEANED FROM POINT OF CONNECTION TO MAIN OUTSIDE BUILDING.
7. EXISTING FLOOR DRAINS WITHIN SCOPE OF CONSTRUCTION SHALL BE THOROUGHLY CLEANED AND BUFTED. EXISTING PIPING SHALL BE RODDED AND CLEANED TO THE POINT OF CONNECTION TO THE MAIN.
8. ALL PLUMBING FIXTURES, VALVES, PIPING, AND EQUIPMENT WHICH ARE TO BE REMOVED AND NOT RELOCATED SHALL BECOME THE PROPERTY OF THE OWNER AND DELIVERED TO STORAGE ON SITE AS DIRECTED BY THE OWNER.

PLUMBING DEMO. KEYED NOTES

- 1. DEMOLISH EXISTING GAS WATER HEATER, DEMOLISH EXISTING GAS LINE AND ASSOCIATED VENT AND FLUE PIPING AS WELL AS ASSOCIATED CONDENSATE PIPING. PREP ALL OTHER EXISTING WATER LINES FOR CONNECTION TO NEW GAS WATER HEATER.
- 2. DEMOLISH EXISTING GAS PIPING AND DEMOLISH EXISTING WATER HEATER AND ALL OTHER ASSOCIATED PIPING TO REMAIN.
- 3. DEMOLISH GAS LINE BACK AND CAP BEFORE IT REACHES THE STAIRS.
- 4. DEMOLISH EXISTING GAS PIPING AND DEMOLISH EXISTING WATER HEATER AND ALL OTHER ASSOCIATED PIPING TO REMAIN.



KEY PLAN - AREA "B"



PETTIT & PETTIT CONSULTING ENGINEERS, INC.
1020 28th Avenue #2
Conway, Arkansas 72034
Date: 09/20/23
Description: PLUMBING DEMO

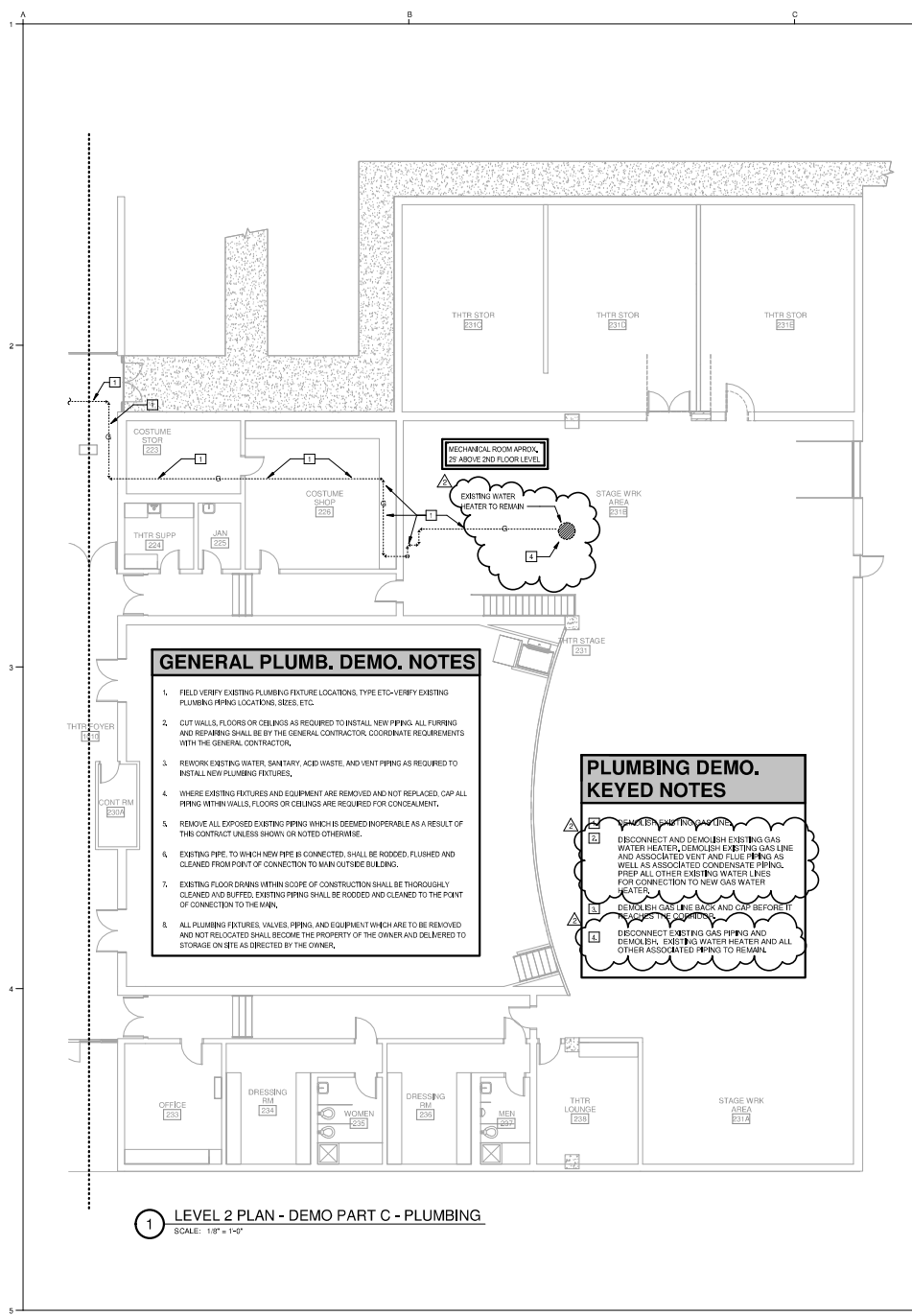
H+N ARCHITECTS
1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

WE R ARCHITECTS
801 W 3rd St.
Little Rock, AR 72201
501.374.5300
www.WERArch.com

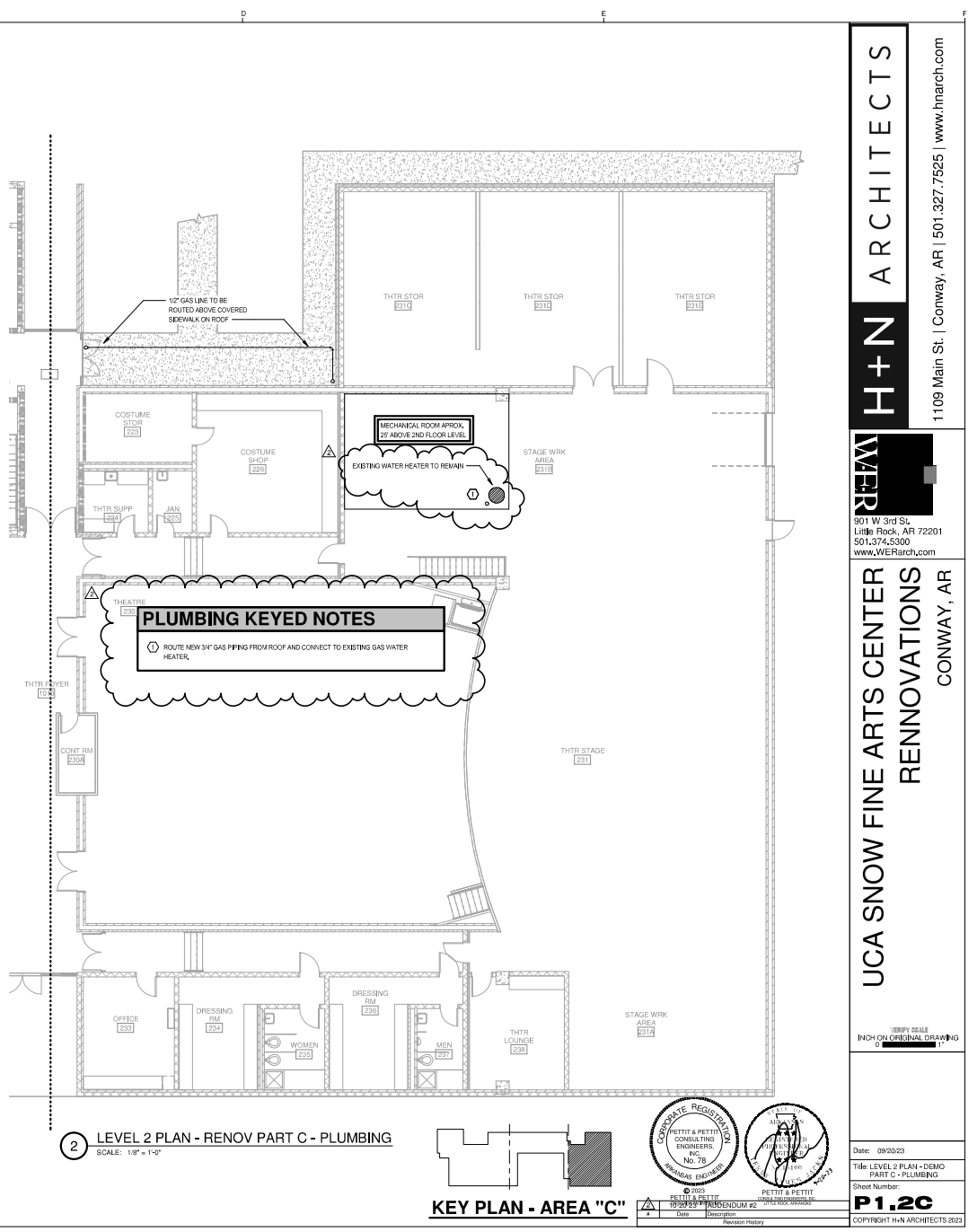
**UCA SNOW FINE ARTS CENTER
RENOVATIONS**
CONWAY, AR

COPY SCALE
1" = 1'-0" ON ORIGINAL DRAWING

Date: 09/20/23
Title: LEVEL 2 PLAN - DEMO PART B - PLUMBING
Sheet Number: **P1.2B**
COPYRIGHT H+N ARCHITECTS 2023



1 LEVEL 2 PLAN - DEMO PART C - PLUMBING
SCALE: 1/8" = 1'-0"



2 LEVEL 2 PLAN - RENOV PART C - PLUMBING
SCALE: 1/8" = 1'-0"

KEY PLAN - AREA "C"

© 2023
 PETTIT & PETTIT CONSULTING ENGINEERS, INC.
 1020 N. 28th Avenue, Suite 200
 Conway, AR 72034
 Date: 09/20/23
 Designer: [Name]

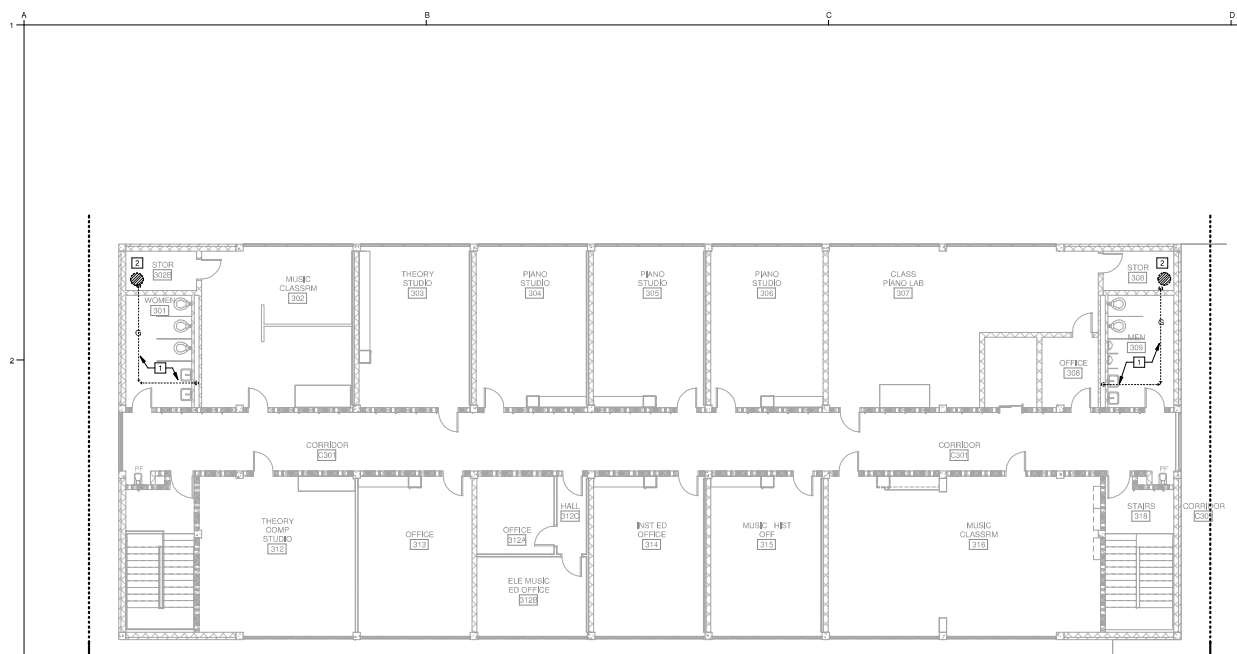
H+N ARCHITECTS
 1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

WE R ARCHITECTS
 801 W 3rd St.
 Little Rock, AR 72201
 501.374.5300
 www.WERarch.com

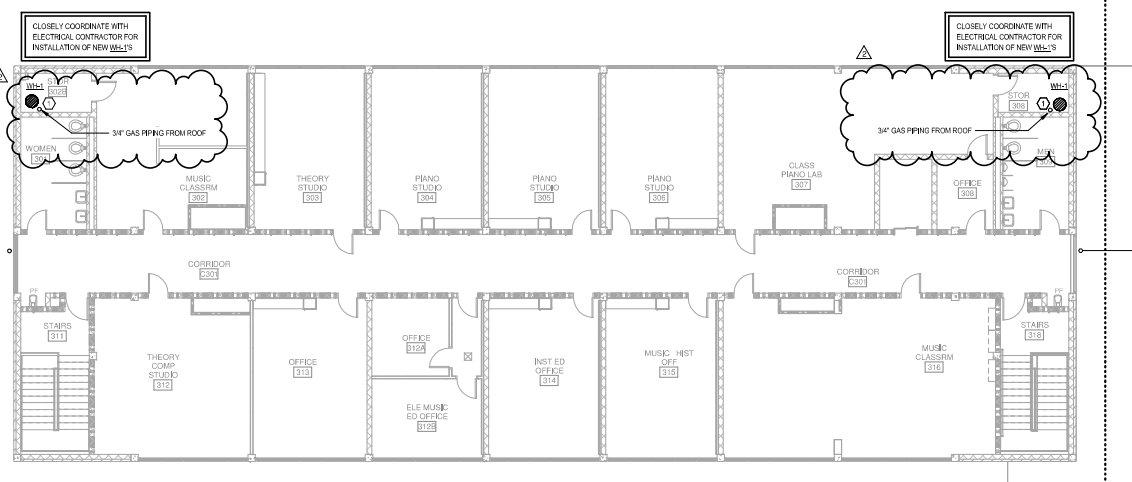
**UCA SNOW FINE ARTS CENTER
 RENNOVATIONS**
 CONWAY, AR

COPY SCALE
 1/8" ON ORIGINAL DRAWING
 1" = 1'-0"

Date: 09/20/23
 Title: LEVEL 2 PLAN - DEMO PART C - PLUMBING
 Sheet Number: **P1.20**
 COPYRIGHT H+N ARCHITECTS 2023



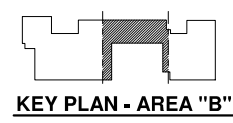
1 LEVEL 3 PLAN - DEMOLITION PART B - PLUMBING
SCALE: 1/8" = 1'-0"



2 LEVEL 3 PLAN - RENOVATION PART B - PLUMBING
SCALE: 1/8" = 1'-0"

- GENERAL PLUMB. DEMO. NOTES**
1. FIELD VERIFY EXISTING PLUMBING FIXTURE LOCATIONS, TYPE ETC.-VERIFY EXISTING PLUMBING FIXTURE LOCATIONS, SIZES, ETC.
 2. CUT WALLS, FLOORS OR CEILINGS AS REQUIRED TO INSTALL NEW PIPING. ALL FURRING AND REPAIRING SHALL BE BY THE GENERAL CONTRACTOR. COORDINATE REQUIREMENTS WITH THE GENERAL CONTRACTOR.
 3. REWORK EXISTING WATER, SANITARY, ACID WASTE, AND VENT PIPING AS REQUIRED TO INSTALL NEW PLUMBING FIXTURES.
 4. WHERE EXISTING FIXTURES AND EQUIPMENT ARE REMOVED AND NOT REPLACED, CAP ALL PIPING WITHIN WALLS, FLOORS OR CEILINGS ARE REQUIRED FOR CONCEALMENT.
 5. REMOVE ALL EXPOSED EXISTING PIPING WHICH IS DEEMED PREFERABLE AS A RESULT OF THIS CONTRACT UNLESS SHOWN OR NOTED OTHERWISE.
 6. EXISTING PIPE, TO WHICH NEW PIPE IS CONNECTED, SHALL BE RODED, FLUSHED AND CLEANED FROM POINT OF CONNECTION TO MAIN OUTSIDE BUILDING.
 7. EXISTING FLOOR DRAINS WITHIN SCOPE OF CONSTRUCTION SHALL BE THOROUGHLY CLEANED AND BUFFED. EXISTING PIPING SHALL BE RODED AND CLEANED TO THE POINT OF CONNECTION TO THE MAIN.
 8. ALL PLUMBING FIXTURES, VALVES, PIPING, AND EQUIPMENT WHICH ARE TO BE REMOVED AND NOT RELOCATED SHALL BECOME THE PROPERTY OF THE OWNER AND DELIVERED TO STORAGE ON SITE AS DIRECTED BY THE OWNER.

- PLUMBING DEMO. KEYED NOTES**
- 1. DEMOLISH EXISTING GAS LINE.
 - 2. DISCONNECT AND DEMOLISH EXISTING GAS WATER HEATER, DEMOLISH EXISTING GAS LINE AND ASSOCIATED VENT AND FLUE PIPING AS WELL AS ASSOCIATED CONDENSATE PIPING. PREP ALL OTHER EXISTING WATER LINES FOR CONNECTION TO NEW GAS WATER HEATER.
 - 3. DEMOLISH GAS LINE BACK AND STOP BEFORE IT REACHES THE CORRIDOR.
 - 4. DISCONNECT EXISTING GAS PIPING AND DEMOLISH EXISTING WATER HEATER AND ALL OTHER ASSOCIATED PIPING TO REMAIN.
- PLUMBING KEYED NOTES.**
- 1. EXTEND AND CONNECT EXISTING WATER PIPING TO NEW WATER HEATER IN THIS LOCATION. ROUTE NEW GAS, FLUE, AND VENT PIPING THROUGH ROOF. ROUTE NEW CONDENSATE LINE THROUGH CONDENSATE WATER/DRYER TO EXISTING FLOOR DRAIN.



PROFESSIONAL REGISTERED ENGINEERS, INC. NO. 78
PETIT & PETIT CONSULTING ENGINEERS, INC.
1020 28th Avenue #2
Conway, AR 72021
Date: 09/20/23
Description: Renovation History

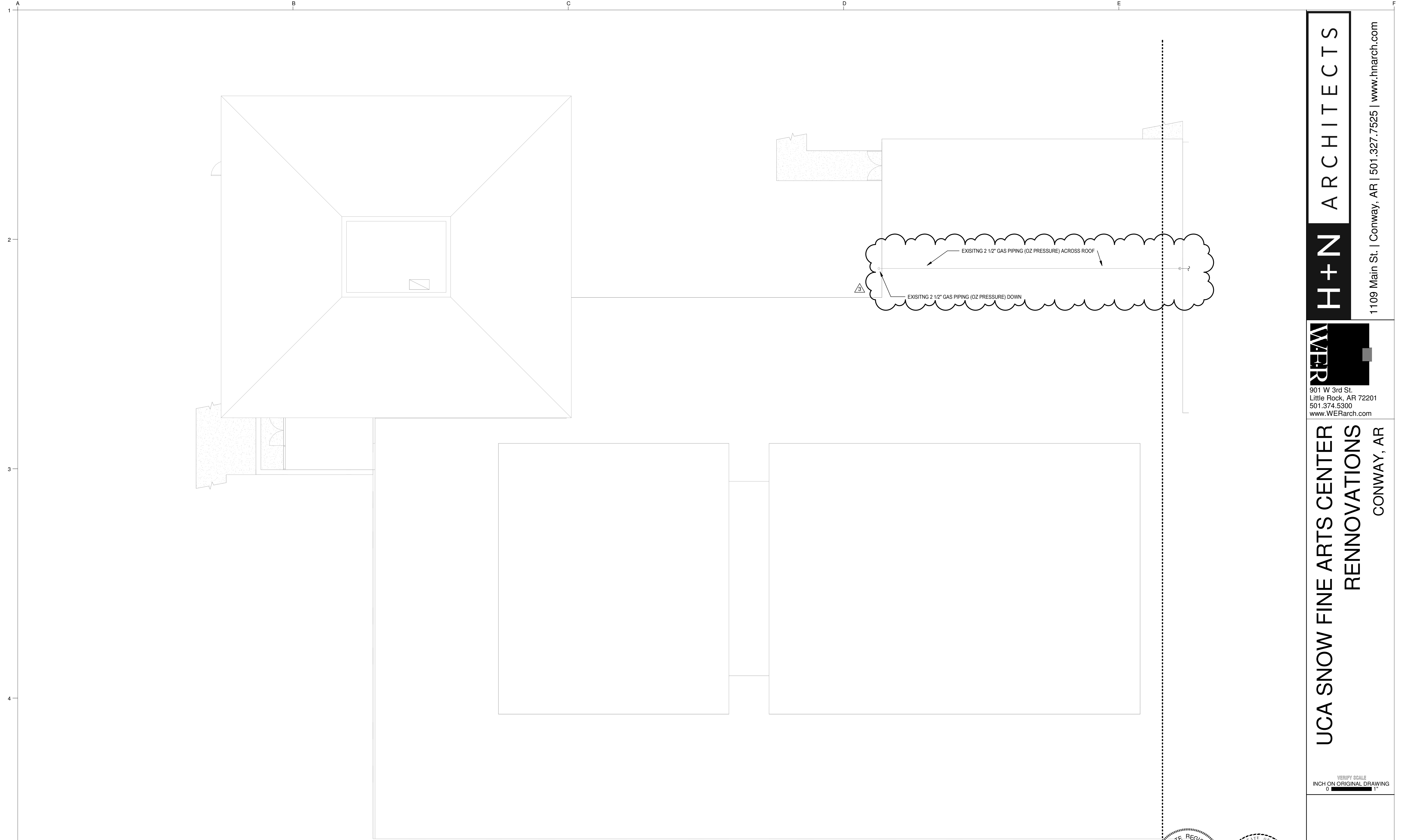
H+N ARCHITECTS
1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

WE RARCH
801 W 3rd St.
Little Rock, AR 72201
501.374.5300
www.WERarch.com

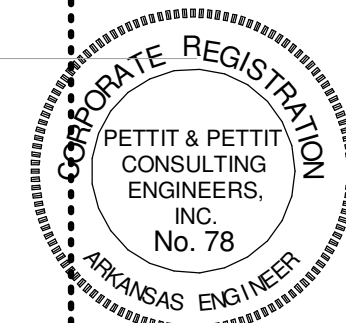
UCA SNOW FINE ARTS CENTER RENOVATIONS
CONWAY, AR

COPY SCALE: 1/8" = 1'-0"
INCH ON ORIGINAL DRAWING

Date: 09/20/23
Title: LEVEL 3 PLAN - DEMO PART B - PLUMBING
Sheet Number: **P1.3B**
COPYRIGHT H+N ARCHITECTS 2023



1 ROOF PLAN RENOVATION PART A - PLUMBING
 SCALE: 1/8" = 1'-0"



#	Date	Description
1	09/20/23	ADDENDUM #2

**UCA SNOW FINE ARTS CENTER
 RENNOVATIONS
 CONWAY, AR**

VERIFY SCALE
 INCH ON ORIGINAL DRAWING
 0 1"

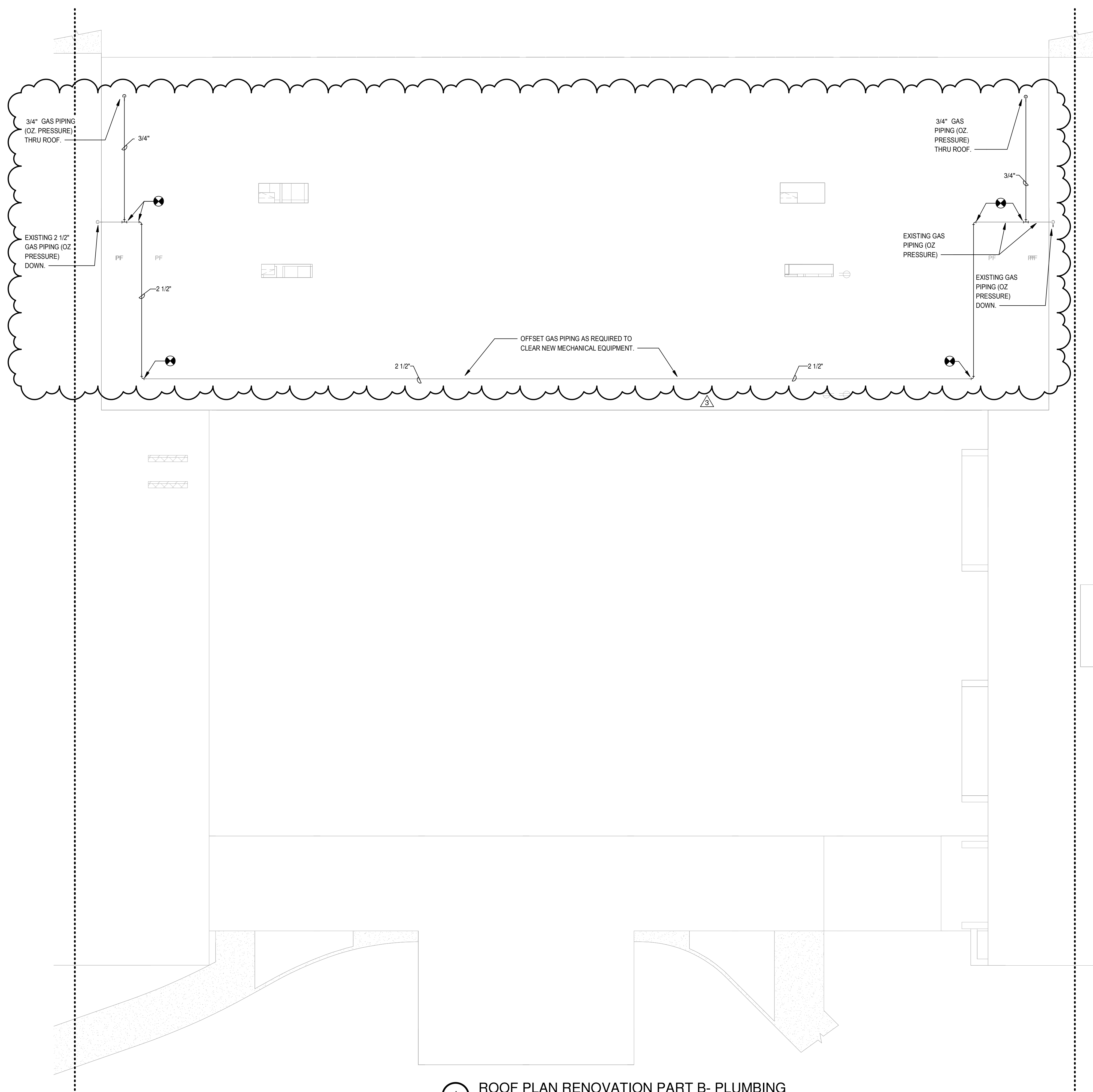
Date: 09/20/23
 Title: ROOF PLAN - PART A - PLUMBING
 Sheet Number:
P1.4A
 COPYRIGHT H+N ARCHITECTS 2023



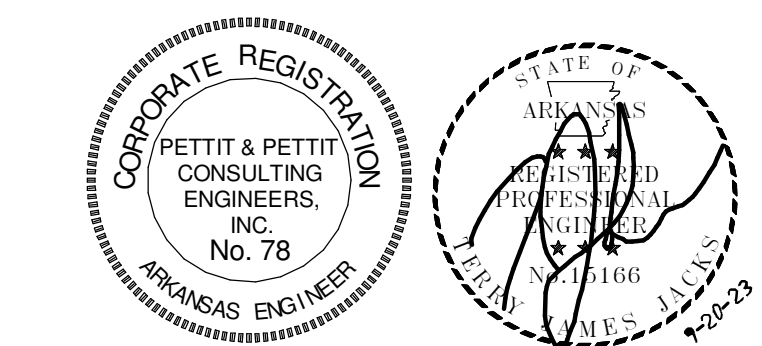
901 W 3rd St.
 Little Rock, AR 72201
 501.374.5300
 www.WERarch.com

H+N ARCHITECTS

1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com



1 ROOF PLAN RENOVATION PART B- PLUMBING
SCALE: 1/8" = 1'-0"



#	Date	Description
1	09/20/23	ADDENDUM #2
2		

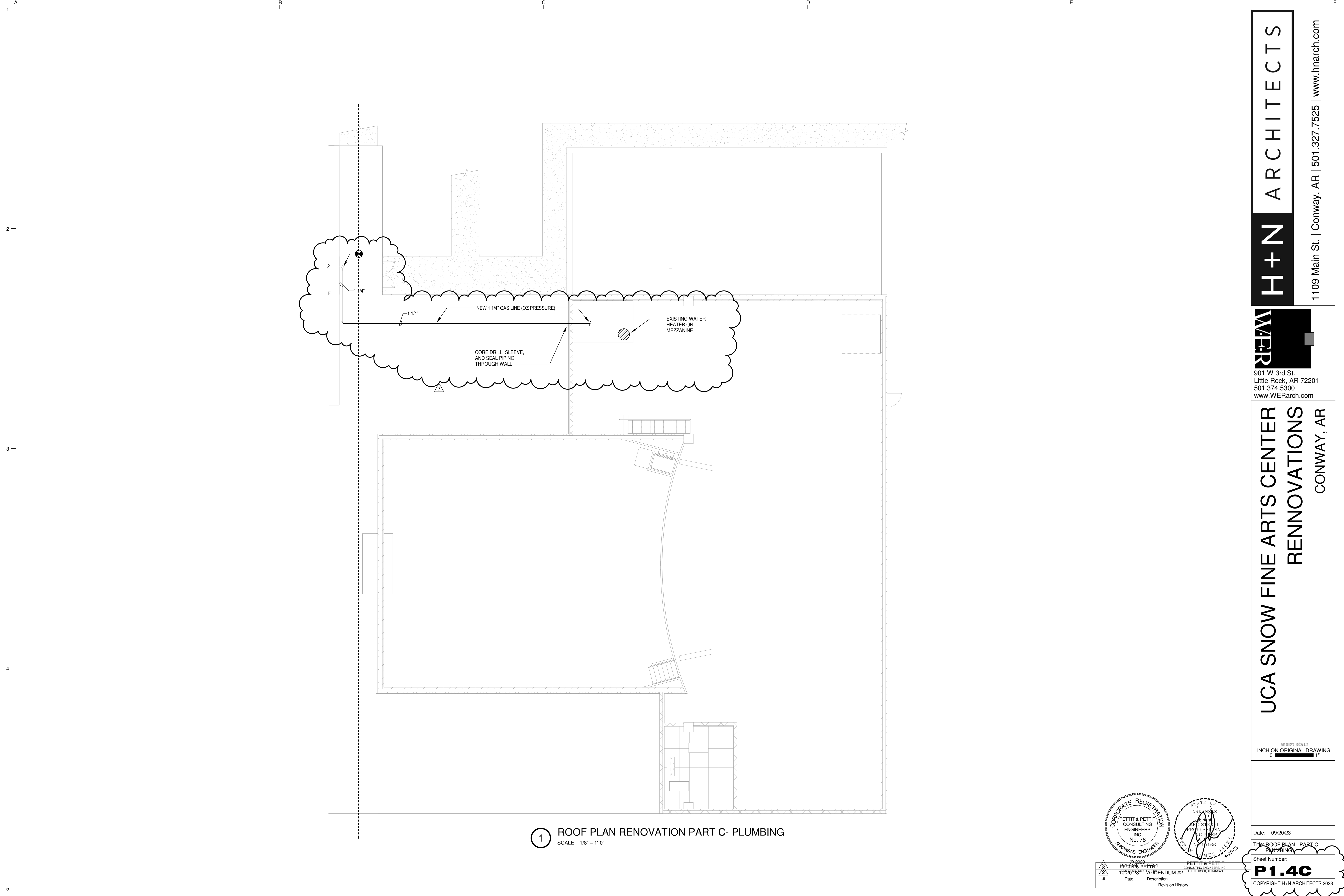
H+N ARCHITECTS
1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

WER
901 W 3rd St.
Little Rock, AR 72201
501.374.5300
www.WERarch.com

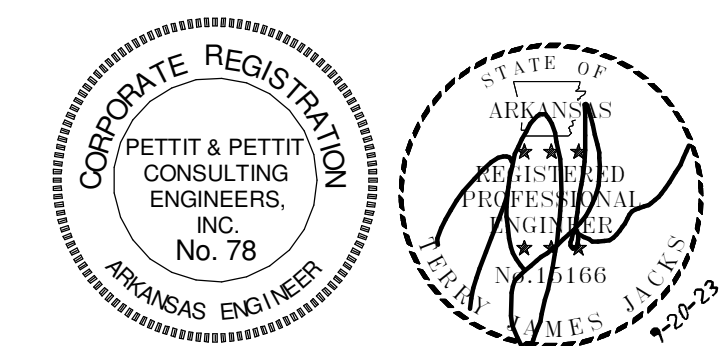
**UCA SNOW FINE ARTS CENTER
RENOVATIONS
CONWAY, AR**

VERIFY SCALE
INCH ON ORIGINAL DRAWING
0 1"

Date: 09/20/23
Title: ROOF PLAN - PART B - PLUMBING
Sheet Number:
P1.4B
COPYRIGHT H+N ARCHITECTS 2023



1 ROOF PLAN RENOVATION PART C- PLUMBING
SCALE: 1/8" = 1'-0"



#	Date	Description
1	09/20/23	PEP-1
2	10/20/23	ADDENDUM #2

Date: 09/20/23
 Title: ROOF PLAN - PART C - PLUMBING
 Sheet Number: **P1.4C**
 COPYRIGHT H+N ARCHITECTS 2023

VERIFY SCALE
 INCH ON ORIGINAL DRAWING
 0 1"

**UCA SNOW FINE ARTS CENTER
 RENNOVATIONS
 CONWAY, AR**

WER
 901 W 3rd St.
 Little Rock, AR 72201
 501.374.5300
 www.WERarch.com

H+N ARCHITECTS
 1109 Main St. | Conway, AR | 501.327.7525 | www.hnarch.com

