

CODE REFERENCES	
FBC, BUILDING	FLORIDA BUILDING CODE, BUILDING, 2023 EIGHTH EDITION
FBC, EXISTING BUILDING	FLORIDA BUILDING CODE, EXISTING BUILDING, 2023 EIGHTH EDITION
FBC, MECHANICAL	FLORIDA BUILDING CODE, MECHANICAL, 2023 EIGHTH EDITION
FBC, FUEL GAS	FLORIDA BUILDING CODE, FUEL GAS, 2023 EIGHTH EDITION
FBC, EXISTING BUILDING	FLORIDA BUILDING CODE, 2023 EIGHTH EDITION
FBC, ENERGY	FLORIDA BUILDING CODE, 2023 EIGHTH EDITION
FFPC	FLORIDA FIRE PREVENTION CODE, 2023 EIGHTH EDITION
NFPA 13	STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS, 2019 EDITION
NFPA 51B	STANDARD FOR FIRE PREVENTION DURING WELDING, CUTTING, AND OTHER HOT WORK, 2019 EDITION
NFPA 54	NATIONAL FUEL GAS CODE, 2021 EDITION
NFPA 70	NATIONAL ELECTRIC CODE, 2020 EDITION
NFPA 90A	STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATING SYSTEMS, 2021 EDITION
NFPA 101	LIFE SAFETY CODE, 2021 EDITION
NFPA 101A	GUIDE ON ALTERNATIVE APPROACHES TO LIFE SAFETY, 2019 EDITION

DESIGN CRITERIA	
BUILDING TYPE	GROUP B, BUSINESS
CLIMATE ZONE	2A, LEON COUNTY, FLORIDA
OUTDOOR DESIGN CONDITIONS (SUMMER)	100°F DB, 80°F WB - BASED ON CURRENT UNIVERSITY STANDARD OUTDOOR AIR CONDITIONS.
OUTDOOR DESIGN CONDITIONS (WINTER)	25°F DB
INTERIOR DESIGN TEMPERATURES	72°F HEATING, 75°F COOLING
ENERGY COMPLIANCE METHOD	ENERGY TRADE OFF.
COMMISSIONING	THIS PROJECT DOES NOT REQUIRE COMMISSIONING PER EXCEPTIONS AS INDICATED IN SECTION 408 OF THE FLORIDA BUILDING CODE, ENERGY.
SCOPE OF WORK	THE HVAC SCOPE OF WORK GENERALLY CONSISTS OF THE FOLLOWING: DEMOLITION OF A PORTION OF THE EXISTING BOOK STORE MEP&P COMPONENTS. INSTALLATION OF A NEW AHU TO SERVE THE FUTURE RECREATION TENANT AND INSTALLATION OF NEW VARIABLE AIR VOLUME TERMINAL UNITS (VAV'S OR VTU'S) TO SERVE THE PROPOSED RENOVATION AREAS.

CONTROLS SYMBOLS	
DDC CONTROL PANEL - MAINTAIN A MINIMUM OF 36" CLEAR IN FRONT OF PANEL	
DUCT MOUNTED SENSOR	
FAN OR PUMP	
AIRFLOW MONITORING STATION	
VFD/AFD	
DUCT MOUNTED SMOKE DETECTOR	
PREMIUM EFFICIENT MOTOR, UNO	
MOTORIZED DAMPER	
THERMOSTAT/ TEMPERATURE SENSOR WITH CONTROL WIRING	
CURRENT SENSOR	
CURRENT/CONTACT RELAY	
ANALOG INPUT	
ANALOG OUTPUT	
DIGITAL INPUT	
DIGITAL OUTPUT	

PIPING SYMBOLS	
CHECK VALVE	
PIPING UP	
PIPING DOWN	
END CAP	
CONTROL VALVE	
GATE VALVE	
BUTTERFLY VALVE	
BALL VALVE	
PUMP (SCHEMATIC)	
UNION	
FLEXIBLE CONNECTION (STAINLESS STEEL, UNO)	
DIRECTION OF FLOW	
CHILLED WATER SUPPLY & CHILLED WATER RETURN	
HEATING HOT WATER SUPPLY & HEATING HOT WATER RETURN	
CONDENSATE & PUMPED CONDENSATE	

ABBREVIATIONS & SYMBOLS	
AC	AIR CONDITIONER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFR	ABOVE FINISHED ROOF
AFD	ADJUSTABLE FREQ. DRIVE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
BHP	BRAKE HORSE POWER
CD	CONDENSATE
CFM	CUBIC FEET PER MINUTE
CU	CONDENSING UNIT
DDC	DIRECT DIGITAL CONTROLS
DN	DOWN
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EWI	ENTERING WATER TEMPERATURE
ESP	EXTERNAL STATIC PRESSURE
FLA	FULL LOAD AMPS
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
GFI	GROUND FAULT CIRCUIT INTERRUPTER
GPM	GALLONS PER MINUTE
KW	KILLOWATT
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSANDS OF BTU'S PER HOUR
MCA	MINIMUM CIRCUIT AMPS
MOC	MAXIMUM OVER CURRENT PROTECTION
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTDOOR AIR
PSI	POUNDS PER SQUARE INCH
PISG	PSI GAUGE
PVC	POLYVINYL CHLORIDE
RA	RETURN AIR
RG	RETURN GRILLE
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SG	SUPPLY GRILLE
TSP	TOTAL STATIC PRESSURE
UNO	UNLESS NOTED OTHERWISE
VAV	VARIABLE AIR VOLUME TERMINAL UNIT
VTU	VARIABLE VOLUME TERMINAL UNIT
WP	WEATHER PROOF
ΔP	CHANGE IN PRESSURE
ΔT	CHANGE IN TEMPERATURE
SIM	SIMILAR
CONNECT TO SYMBOL	
DEMOLISH TO SYMBOL	
DEMOLISH EXISTING EQUIPMENT	
DIFFUSER TAG, NEW	
DIFFUSER TAG, EXISTING	

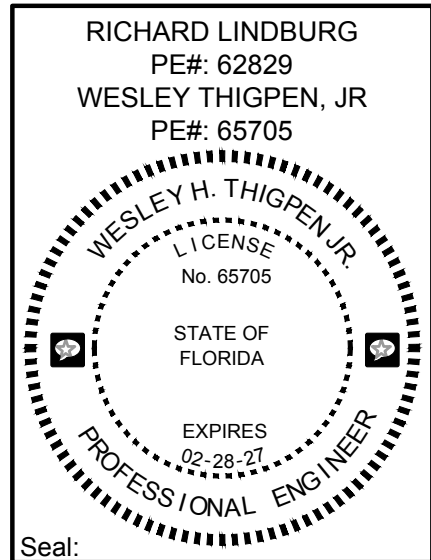
DUCT SYMBOLS	
SUPPLY AIR DUCTWORK DOWN	
SUPPLY AIR DUCTWORK UP	
OUTSIDE AIR DUCTWORK DOWN	
OUTSIDE AIR DUCTWORK UP	
FLEXIBLE CANVAS CONNECTION	
RETURN AIR DUCTWORK UP	
RETURN AIR DUCTWORK DOWN	
EXHAUST AIR DUCTWORK UP	
EXHAUST AIR DUCTWORK DOWN	
FIRE DAMPER EX. - EXISTING	
MECHANICAL EQUIPMENT WITH MAINTENANCE CLEARANCE	
MANUAL BALANCE DAMPER	
MOTORIZED DAMPER, REFER TO SPECIFICATIONS FOR VOLTAGE REQUIREMENTS	
FLEXIBLE DUCTWORK	
SUPPLY AIR DIFFUSER	
RETURN AIR GRILLE	
EXHAUST AIR GRILLE	
DEMOLISH EXISTING DUCTWORK	

GENERAL HVAC NOTES	
1	TOMAHAWK ENGINEERING AND CONSULTING, INC. SHALL NOT BE HELD RESPONSIBLE FOR ANY MISUSE AND/OR MISREPRESENTATION OF THIS SET OF DOCUMENTS.
2	THE CONTRACTOR ASSUMES RESPONSIBILITY FOR USE OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL MAKE HIMSELF AWARE OF PROJECT CONDITIONS AND OWNER REQUIREMENTS PRIOR TO PROCUREMENT OF EQUIPMENT AND SERVICES. CHANGES IN PROJECT COST WILL NOT BE GRANTED DUE TO FIELD CONFLICTS AND/OR PROJECT CONDITIONS.
3	THIS SET OF DRAWINGS AND SPECIFICATIONS SHALL NOT BE CONSIDERED A SET OF CONSTRUCTION DOCUMENTS UNLESS A SIGNATURE AND DATE ARE AFFIXED TO THE DRAWINGS AND SPECIFICATIONS BY THE ENGINEER IN RESPONSIBLE CHARGE FOR THE GIVEN DISCIPLINE.
4	CONFLICTS BETWEEN THIS SET OF DRAWINGS AND THE CONTRACT SPECIFICATIONS SHALL BE RESOLVED BY THE ENGINEER OF RECORD. THE CONTRACTOR DOES NOT HAVE THE AUTHORITY TO INTERPRET CONFLICTS AND RESOLVE ISSUES WITHOUT WRITTEN DIRECTION FROM THE ENGINEER OF RECORD.
5	ANY CONFLICTS IN THE FIELD OR WITHIN THESE DOCUMENTS SHALL BE RECORDED AND PROVIDED TO THE ENGINEER OF RECORD ON THE CONTRACTOR'S STANDARD LETTERHEAD. WRITTEN DIRECTION RESOLVING CONFLICT WILL BE ISSUED BY THE ENGINEER OF RECORD.
6	WHERE THE CONTRACTOR DEVIATES FROM THIS SET OF CONSTRUCTION DOCUMENTS AND RESUBMISSION OF REVISED DRAWINGS IS REQUIRED BY THE PERMITTING OFFICE/OFFICIAL, A MINIMUM CHARGE OF \$750.00 PER AFFECTED DRAWING SHEET WILL BE BILLED TO THE CONTRACTOR. THE REVISED DRAWINGS WILL NOT BE PROVIDED AND/OR SUBMITTED TO THE PERMIT OFFICE UNTIL A PURCHASE ORDER OR SIGNED AGREEMENT IS ISSUED BY THE CONTRACTOR TO THE DESIGN PROFESSIONAL FOR WORK REQUIRED. THIS SHALL NOT APPLY TO UNFORESEEN CONDITIONS OR CHANGES REQUIRED FOR THE PROJECT THAT ARE NOT INITIATED BY THE CONTRACTOR.
7	DRAWINGS ARE SCHEMATIC IN NATURE. THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND EXISTING EQUIPMENT (WHERE APPLICABLE) TO ENSURE EQUIPMENT FURNISHED WILL WORK FOR SPACES PROVIDED. FINAL DIMENSIONS OF DUCTWORK AND PIPING SHALL BE COORDINATED IN FIELD. THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR PROVIDING OFFSETS AND TRANSITIONS IN DUCTWORK AND PIPING TO FIT IN SPACES PROVIDED AND THESE ADDITIONAL OFFSETS AND TRANSITIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
8	DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA GUIDELINES AT TIME OF PROJECT PERMIT.
9	THERMOSTATS, HUMIDISTATS, TEMPERATURE SENSORS, HUMIDITY SENSORS, AND/OR OTHER DEVICES REQUIRING OCCUPANT ADJUSTMENT BUT LOCATED ON WALL SHALL BE MOUNTED 48" AFF, UNLESS NOTED OTHERWISE.
10	WHERE APPLICABLE AND AVAILABLE, ACTUAL EQUIPMENT DRAWINGS ARE USED FOR SYMBOLS ON PLAN VIEWS AND IN DETAILS. HOWEVER, SIMPLE BLOCK DIAGRAMS WITH ESTIMATED DIMENSIONS ARE ALSO USED FOR PLAN VIEWS. WHERE EQUIPMENT OR DEVICES ARE NOT LABELED, INDUSTRY STANDARD TERMINOLOGY AND SYMBOLOLOGY SHALL APPLY.
11	THESE GENERAL NOTES WORK IN CONJUNCTION WITH NOTES SHOWN ON PLAN VIEWS. THESE NOTES DO NOT SUPERCEDE NOTES SHOWN ON PLAN VIEW DRAWINGS. CONVERSELY, NOTES SHOWN ON PLAN VIEW DRAWINGS DO NOT SUPERCEDE THESE GENERAL NOTES.
12	REFER TO EQUIPMENT SCHEDULES FOR AIR AND WATER PRESSURE DROPS ASSOCIATED WITH COOLING AND HEATING COILS.
13	PROVIDE ACCESS PANELS IN DUCTWORK AND/OR BUILDING CONSTRUCTION WHERE REQUIRED FOR EQUIPMENT ACCESS AND SERVICE. PANELS SHALL BE SIZED TO SUIT EQUIPMENT SERVICED. WHERE PANELS WILL BE LOCATED IN FIRE RATED WALLS AND/OR PARTITIONS, THE ACCESS PANEL SHALL MEET THE RATING OF THE WALL. REFER TO ARCHITECTURAL DRAWINGS FOR RATINGS OF WALLS AND PARTITIONS.
14	UNLESS NOTED OTHERWISE, DUCTWORK, PIPING, VALVES, DAMPERS, AND ALL ASSOCIATED AUXILIARY HVAC DEVICES SHALL BE CONSTRUCTED IN ACCORDANCE WITH MECHANICAL SPECIFICATIONS. ALL EQUIPMENT INSTALLED AS PART OF THIS PROJECT SHALL BE NEW, UNLESS NOTED OTHERWISE, NO EXCEPTIONS.
15	PAINT DUCTWORK AND DAMPERS VISIBLE THRU REGISTERS FLAT BLACK PRIOR TO OWNER OCCUPANCY.
16	HVAC EQUIPMENT PROVIDED FROM THIRD PARTY MANUFACTURER SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS. WHERE CONFLICTS BETWEEN CONTRACT DOCUMENTS AND MANUFACTURER'S INSTRUCTION ARISE, THE MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL PREVAIL.
17	THE CONTRACTOR SHALL MAKE HIS OR HERSELF AWARE OF THE OWNER'S SCHEDULE AND BE PREPARED TO WORK AT NIGHT OR ON WEEKENDS TO COMPLETE WORK SHOWN IN THESE DOCUMENTS. INTERRUPTIONS TO OWNER'S NORMAL WORK SCHEDULE SHALL NOT BE MADE WITHOUT WRITTEN INSTRUCTION TO DO SO FROM OWNER'S REPRESENTATIVE.
18	FOR EQUIPMENT DEMOLISHED UNDER THIS CONTRACT, THE CONTRACTOR SHALL ALLOW THE OWNER FIRST REFUSAL OF DEMOLISHED EQUIPMENT. IF EQUIPMENT IS REFUSED, THE CONTRACTOR SHALL DISPOSE OF DEMOLISHED EQUIPMENT IN ACCORDANCE WITH THE AUTHORITY HAVING JURISDICTION. IN ADDITION, FOR EQUIPMENT INDICATED TO BE DEMOLISHED, THE CONTRACTOR SHALL ASSUME THAT THIS ALSO REQUIRES DEMOLITION OF ALL ASSOCIATED APPURTENANCES INCLUDING ELECTRICAL CONNECTIONS, CONTROLS CONNECTIONS, ETC.
19	CONTROLS COMPONENTS INDICATED TO BE DEMOLISHED SHALL ALSO INCLUDE CONTROL WIRING AND CONDUITS, REGARDLESS OF VOLTAGE. WHERE CONTROLS WIRING IS 120V AND ABOVE, A LICENSED ELECTRICAL CONTRACTOR SHALL BE PROCURED BY THE CONTROLS VENDOR TO PERFORM WORK.
20	THE CONTROLS VENDOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING ALL CONTROL WIRING AND CONDUIT ASSOCIATED WITH THIS PROJECT, REGARDLESS OF VOLTAGE. WHERE CONTROL VOLTAGE IS 110V AND ABOVE, THE CONTROLS VENDOR SHALL PROCURE THE SERVICES OF A FLORIDA LICENSED ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL WIRING AND CONDUITS IN ACCORDANCE WITH NEC AND THE LOCAL AUTHORITY HAVING JURISDICTION.
21	WHERE THERE ARE CONFLICTS BETWEEN LIGHT SWITCHES AND THERMOSTAT/HUMIDISTAT LOCATIONS, THE LIGHT SWITCHES SHALL PREVAIL. MOUNT THERMOSTAT/HUMIDISTATS ADJACENT TO LIGHT SWITCHES.
22	AS REQUIRED BY BUILDING CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE TRANSITIONS AND EQUIVALENT SQUARE DUCT SIZES NEEDED TO FIT THRU JOISTS AND/OR WALL 2x4 SPACING WHERE ROUND IS SHOWN ON PLANS. THE CONTRACTOR SHALL PROVIDE THESE TRANSITIONS AND SQUARE DUCTS AT NO ADDITIONAL COST TO THE OWNER. COORDINATE WITH THE GC IN FIELD FOR JOIST AND WALL 2x4 REQUIREMENTS.
23	WHERE REQUIRED BY BUILDING CONSTRUCTION AND HEIGHT TO EQUIPMENT SERVED, THE CONTRACTOR SHALL PROVIDE HOISTING MECHANISMS AS WELL AS SCAFFOLDING WHERE REQUIRED TO INSTALL EQUIPMENT SHOWN WITHIN THESE CONTRACT DOCUMENTS. EQUIPMENT USED FOR THE INSTALLATION OF EQUIPMENT SHALL MEET ALL OSHA REQUIREMENTS.
24	PROVIDE MANUAL BALANCE DAMPERS FOR SUPPLY, RETURN, AND EXHAUST. TAKE-OFFS TO REGISTERS WHETHER INDICATED OR NOT. WHERE DAMPERS WILL BE LOCATED ABOVE INACCESSIBLE CEILINGS, PROVIDE OPPOSED BLADE MANUAL BALANCE DAMPERS FROM REGISTER MANUFACTURER.

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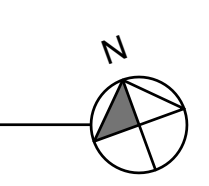
Client:	FLORIDA STATE UNIVERSITY Tallahassee, Florida
Consultant:	1940 Buford Boulevard Tallahassee, Florida 32306 Phone: 850-402-3240 Fax: 850-402-9659 THIS FIRM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY RICHARD LINDBURG, PE, LICENSED PROFESSIONAL ENGINEER, STATE OF FLORIDA PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED VALID UNLESS THEY BEARING THE SIGNATURE OF THE SIGNED MADE BY SIGNED ON AND A FLORIDA LICENSE
Project #:	COA # - 29709 Tomahawk Project # - 23036
Phase:	19370.42 100% CONSTRUCTION DOCUMENTS
Job Title:	PG #1 REMODELING

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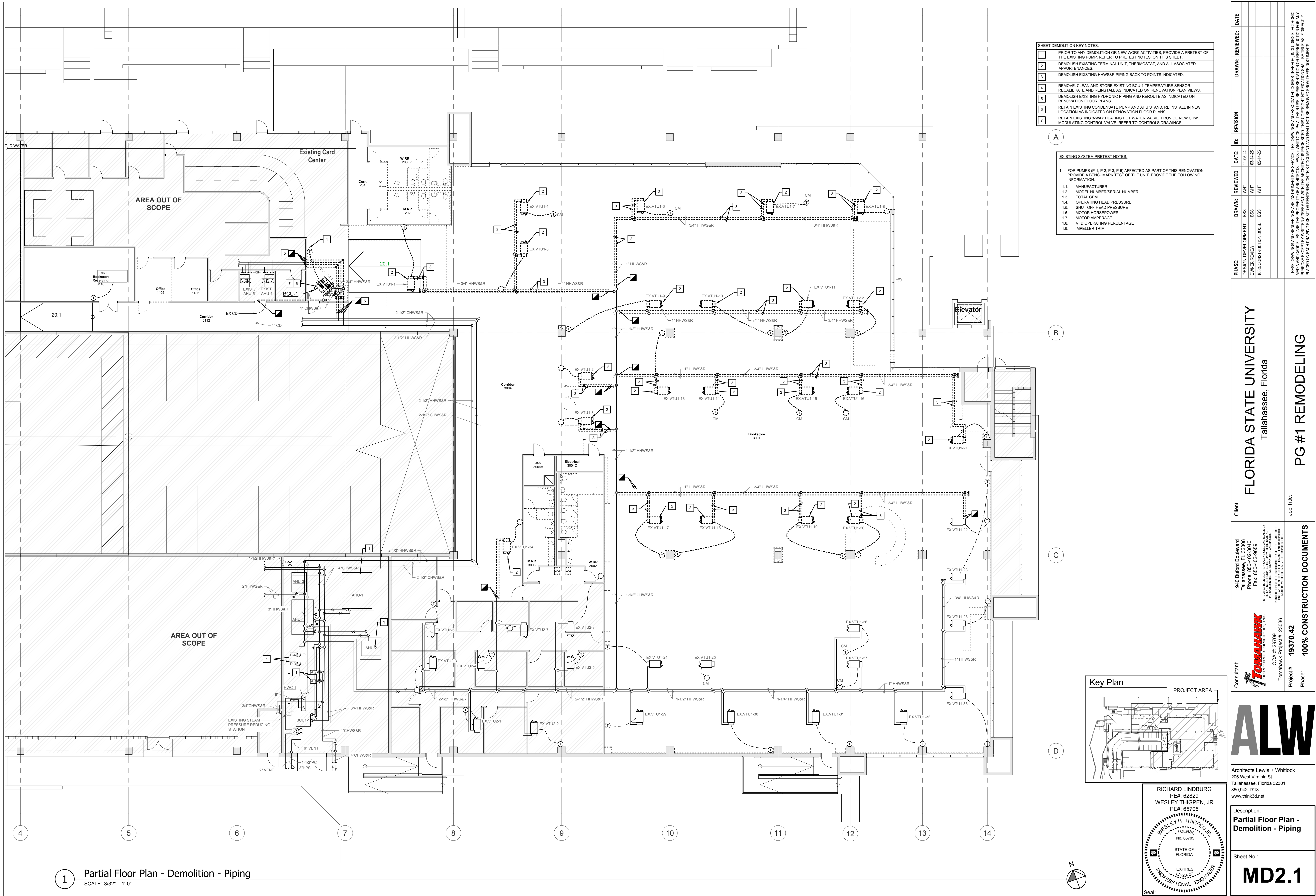
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Legend & Notes - Mechanical

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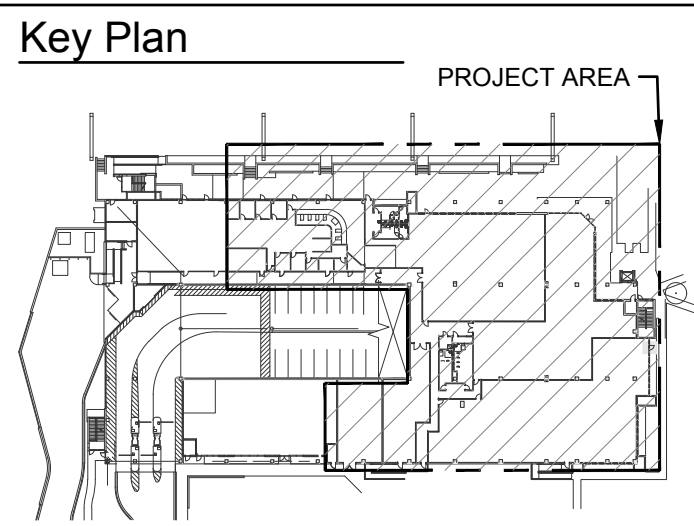
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- SHEET DEMOLITION KEY NOTES:
1. PRIOR TO ANY DEMOLITION OR NEW WORK ACTIVITIES, PROVIDE A PRETEST OF THE EXISTING PUMP. REFER TO PRETEST NOTES ON THIS SHEET.
 2. DEMOLISH EXISTING TERMINAL UNIT, THERMOSTAT, AND ALL ASSOCIATED APPURTENANCES.
 3. DEMOLISH EXISTING HHWS&R PIPING BACK TO POINTS INDICATED.
 4. REMOVE, CLEAN AND STORE EXISTING BCU-1 TEMPERATURE SENSOR. RECALIBRATE AND REINSTALL AS INDICATED ON RENOVATION PLAN VIEWS.
 5. DEMOLISH EXISTING HYDRONIC PIPING AND REROUTE AS INDICATED ON RENOVATION FLOOR PLANS.
 6. RETAIN EXISTING CONDENSATE PUMP AND AHU STAND. RE INSTALL IN NEW LOCATION AS INDICATED ON RENOVATION FLOOR PLANS.
 7. RETAIN EXISTING 3-WAY HEATING HOT WATER VALVE. PROVIDE NEW CHW MODULATING CONTROL VALVE. REFER TO CONTROLS DRAWINGS.

- EXISTING SYSTEM PRETEST NOTES:
1. FOR PUMPS (P-1, P-2, P-3, P-5) AFFECTED AS PART OF THIS RENOVATION, PROVIDE A BENCHMARK TEST OF THE UNIT. PROVIDE THE FOLLOWING INFORMATION:
 - 1.1. MANUFACTURER
 - 1.2. MODEL NUMBER/SERIAL NUMBER
 - 1.3. TOTAL GPM
 - 1.4. OPERATING HEAD PRESSURE
 - 1.5. SHUT OFF HEAD PRESSURE
 - 1.6. MOTOR HORSEPOWER
 - 1.7. MOTOR AMPERAGE
 - 1.8. VFD OPERATING PERCENTAGE
 - 1.9. IMPELLER TRIM



RICHARD LINDBURG
PE# 62829
WESLEY THIGPEN, JR.
PE# 65705

WESLEY H. THIGPEN, JR.
LICENSE
No. 65705
STATE OF
FLORIDA
EXPIRES
12-28-21
PROFESSIONAL ENGINEER

Seal:

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Client: **FLORIDA STATE UNIVERSITY**
Tallahassee, Florida

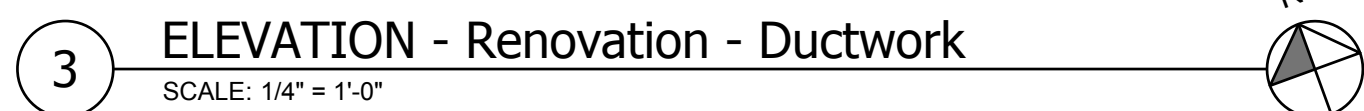
Consultant: **Tomahawk**
1940 Buford Boulevard
Tallahassee, FL 32306
Phone: 850-402-3240
Fax: 850-402-9659
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Tomahawk Project # 23036
Project # **19370.42**
Phase: **100% CONSTRUCTION DOCUMENTS**

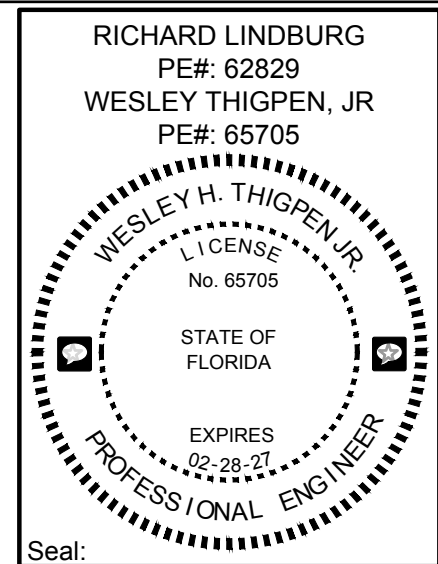
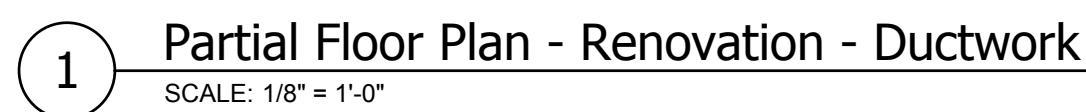
Architects Lewis + Whitlock
206 West Virginia St.
Tallahassee, Florida 32301
850.942.1718
www.think3d.net

Description: **Partial Floor Plan - Demolition - Piping**

Sheet No.: **MD2.1**



- SHEET NOTES:
1. EXISTING DUCTWORK CONNECTED TO EXISTING AHU-1 SHALL BE CLEANED ACCORDING TO CURRENT UNIVERSITY PROTOCOL. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION.



Sheet No.:

M1.1

PG #1 REMODELING

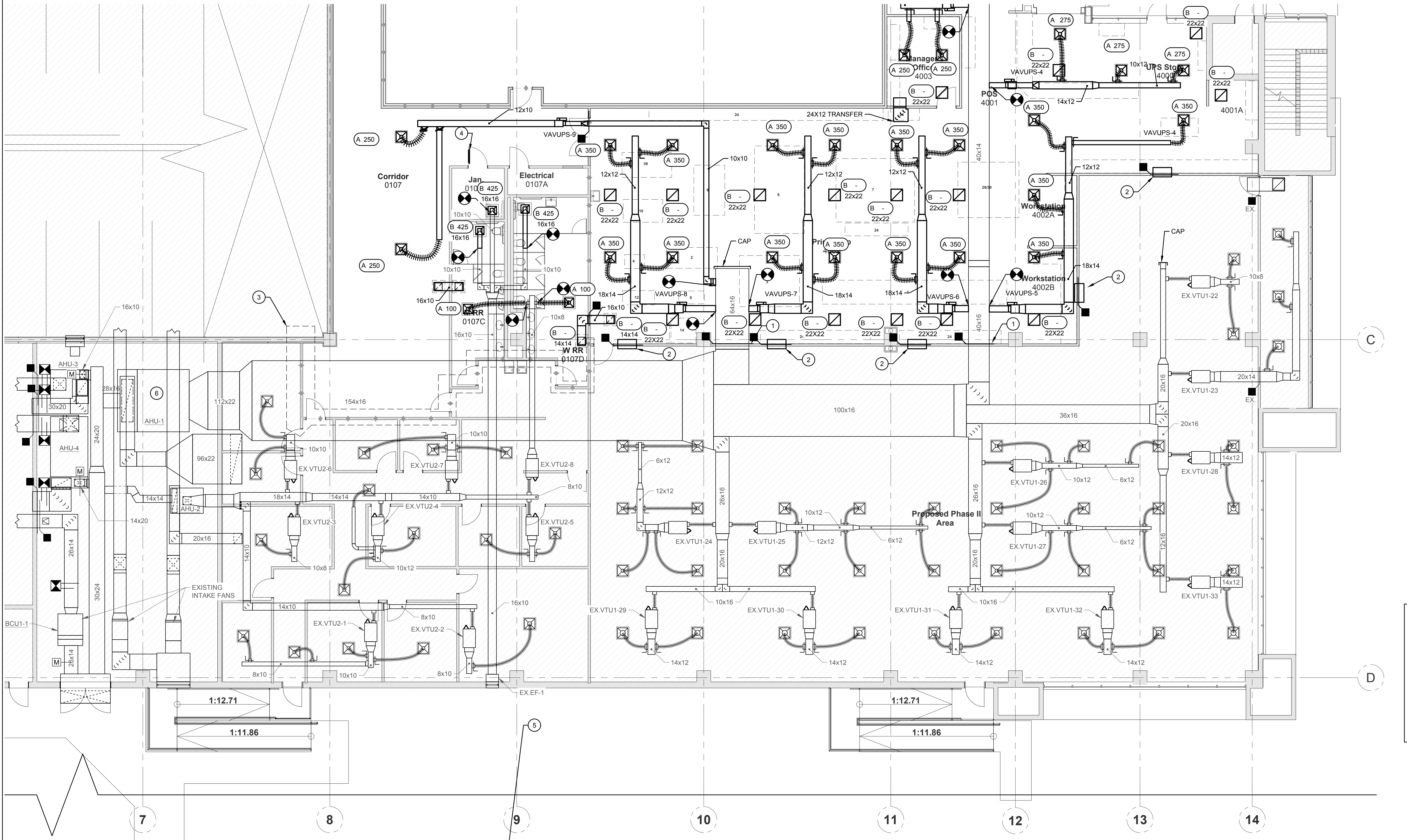
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19370.42
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Project #

Plans -

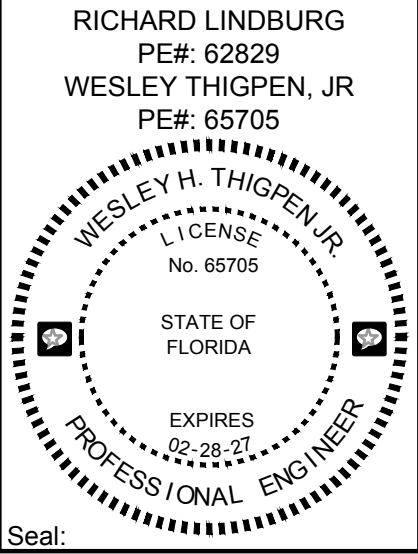
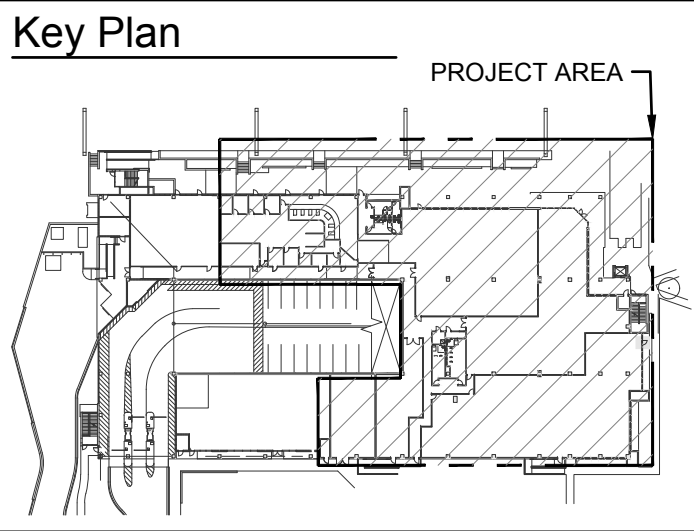
Sheet No.:



SHEET RENOVATION KEY NOTES:	
1	PROVIDE A FIRE DAMPER FOR EXISTING DUCT THROUGH NEW TENANT SEPARATION WALK.
2	PROVIDE A 36x18 RETURN AIR TRANSFER WITH FIRE DAMPER.
3	COORDINATE CONSTRUCTION OF 1-HOUR FIRE WALL WITH G.C. IN FIELD. OFFSETS IN WALL REQUIRED TO COORDINATE WITH EXISTING DUCTWORK.
4	PROVIDE A NEW 24x24 DOOR GRILLE TO MATCH EXISTING. COORDINATE WITH ARCHITECTURAL FINISHES.
5	REBALANCE EXISTING EXHAUST FAN TO CFM VALUES INDICATED. PROVIDE NEW BELTS AND SHEAVES AS PART OF TEST AND BALANCE ACTIVITIES.
6	PROVIDE NEW BELTS AND SHEAVES TO BALANCE AHU-1 TO CFM VALUES AS SCHEDULED.

SHEET NOTES:	
1.	EXISTING DUCTWORK CONNECTED TO EXISTING AHU-1 SHALL BE CLEANED ACCORDING TO CURRENT UNIVERSITY PROTOCOL. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION.

1 Partial Floor Plan - Renovation - Ductwork
SCALE: 1/8" = 1'-0"

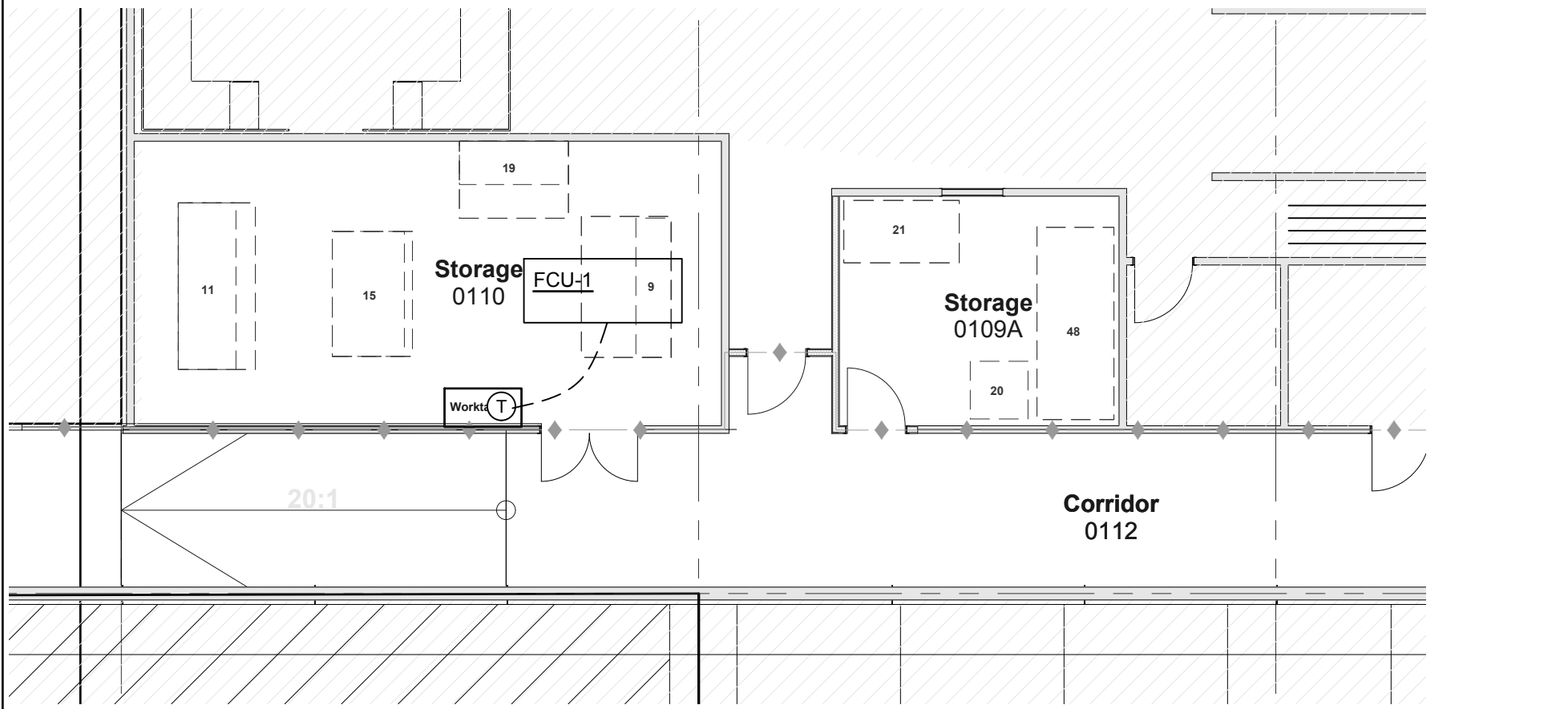


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Consultant:	1940 Buford Boulevard Tallahassee, Florida 32306 Phone: 850-402-3240 Fax: 850-402-9659 THIS FIRM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY THE ENGINEER. ANY FURTHER PRINTING OF THIS SEAL OR ANY OTHER INFORMATION ON THIS DOCUMENT IS NOT CONSIDERED VALID FOR ANY PURPOSES.
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Phase:	19370.42 100% CONSTRUCTION DOCUMENTS

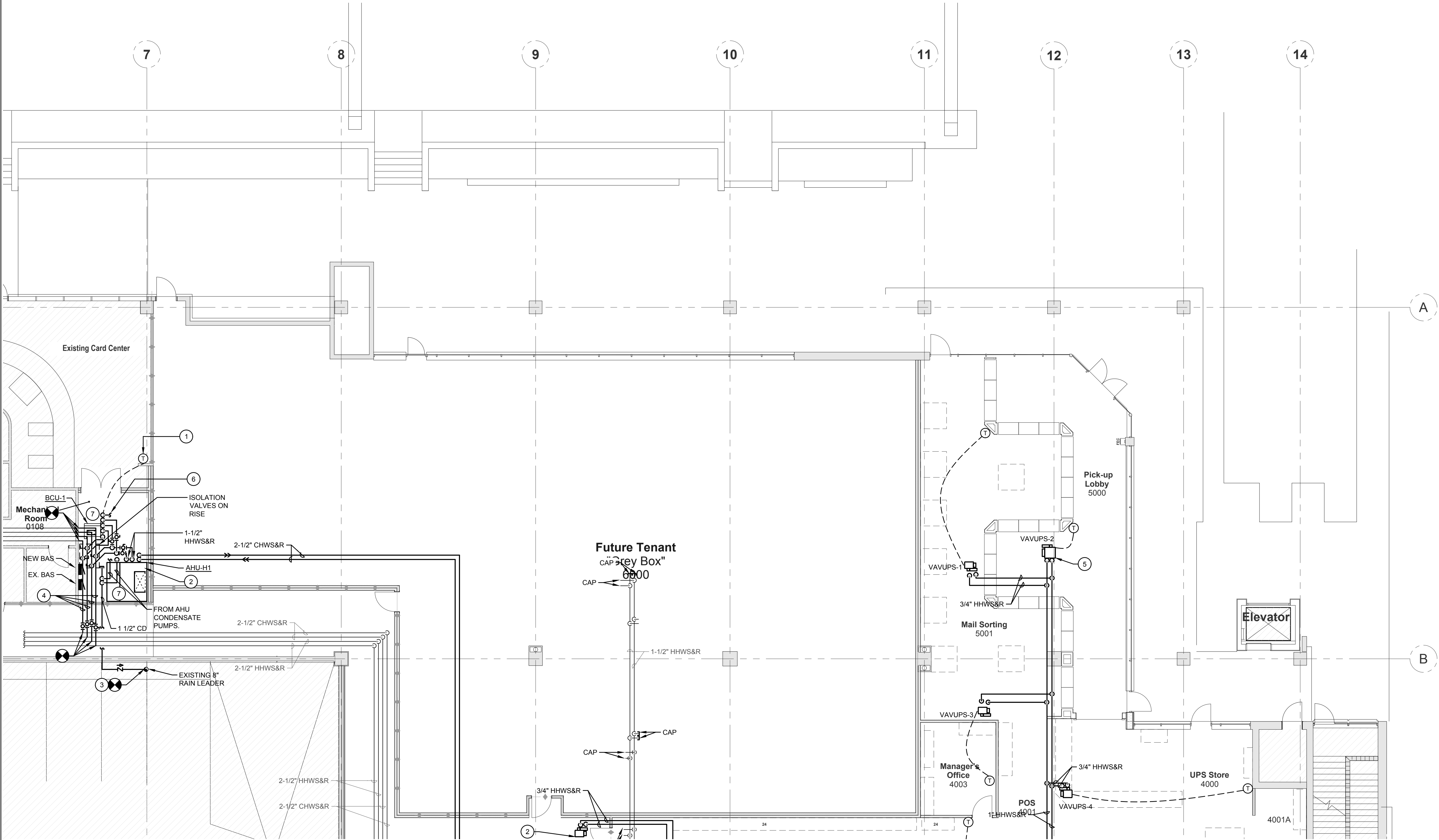
Architects Lewis + Whitlock 206 West Virginia St. Tallahassee, Florida 32301 850.942.1718 www.think3d.net	Description: Partial Floor Plan - Renovation - Ductwork	Sheet No.: M1.2
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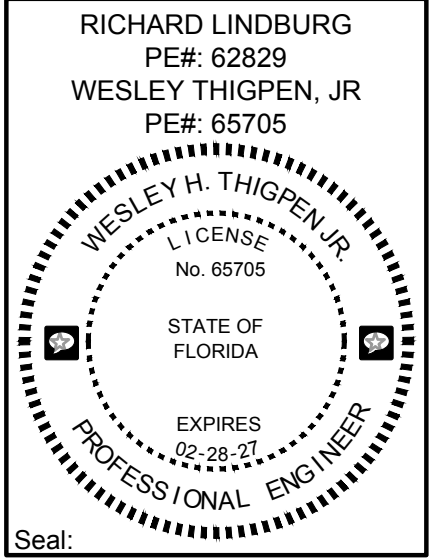
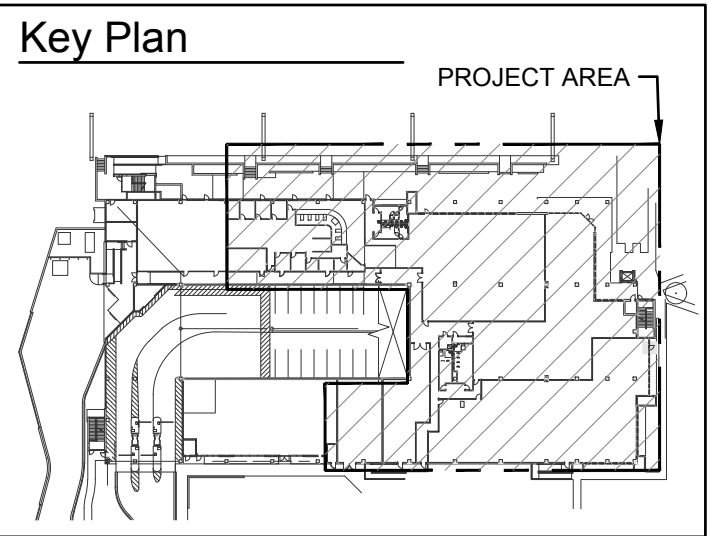
2 Partial Floor Plan - Renovation - Piping
SCALE: 1/8" = 1'-0"

SHEET RENOVATION KEY NOTES:	
1	REINSTALL EXISTING TEMPERATURE SENSOR FOR BCU-1. PROVIDE ALL REQUIRED WIRING NEED FOR RELOCATION.
2	PROVIDE AHU WITH CONDENSATE PUMP EQUAL TO A LITTLE GIANT PUMP MODEL VCL-4SULS HIGH CAPACITY CONDENSATE PUMP WITH 115C/10 MOTOR CHARACTERISTICS, 6 FT POWER CORD, DISCHARGE CHECK VALVE, AND FLOAT SWITCH FOR CONNECTION TO BAS TO SHUT DOWN AHU UPON DETECTION OF WATER. ROUTE FULL LINE SIZE DISCHARGE TO CONDENSATE MAIN ON FLOOR PLANS.
3	ROUTE 1 1/2" CONDENSATE MAIN TO EXISTING 8" RAIN LEADER IN GARAGE. PROVIDE CHECK VALVE.
4	RECONNECT HYDRONIC PIPING OF SAME SIZE AS THAT DEMOLISHED.
5	PROVIDE VAV WITH 3-WAY CONTROL VALVE.
6	REINSTALL BCU-1 ON STAND W/ EXISTING CONDENSATE PUMP BENEATH. ROUTE CONDENSATE DISCHARGE FULL LINE SIZE AND WITH CHECK VALVE TO CONDENSATE MAIN. REFER TO DETAILS.
7	PROVIDE THE FOLLOWING: 2" HHWS&R CONNECTION TO SERVE BCU-1 AND AHU-H1. PROVIDE ISOLATION VALVES ON RISE AT TAPS. PROVIDE 3/4" HHWS&R TO BCU-1 AND 1-1/2" HHWS&R TO AHU-H1. PROVIDE A 1" CONNECTION TO BCU-1 FROM MAINS WITH VALVE ON RISE. PROVIDE NEW MOTORIZED CONTROL VALVE FOR CHW FOR BCU-1 AND REINSTALL HHW CONTROL VALVE FOR BCU-1. REFER TO CONTROLS AND DETAILS FOR FURTHER INFORMATION.

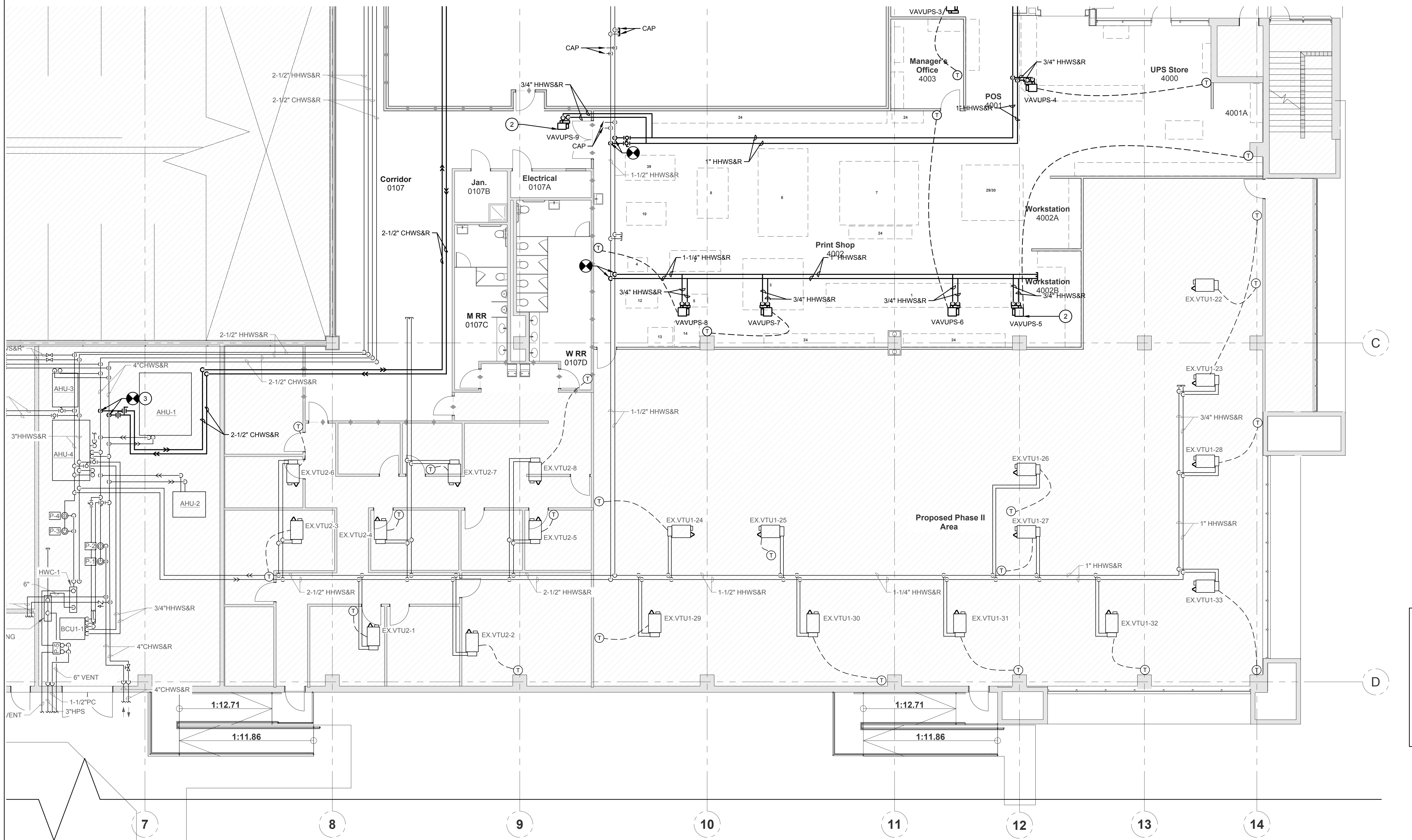
SHEET NOTES:	
1.	UNLESS NOTED OTHERWISE, RUN OUT PIPING TO VAVs SHALL BE 3/4" MINIMUM.
2.	AS REQUIRED FOR CONNECTION TO EXISTING HYDRONIC SYSTEMS, THE CONTRACT OR SHALL INCLUDE ALL LABOR AND MATERIALS TO DRAIN AND REFILL SYSTEMS ACCORDING TO CLOSED LOOP CHEMICALLY TREATED SYSTEMS. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION.



1 Partial Floor Plan - Renovation - Piping
SCALE: 1/8" = 1'-0"



Client:		FLORIDA STATE UNIVERSITY Tallahassee, Florida		Job Title:		PG #1 REMODELING	
Consultant:		1940 Buford Boulevard Tallahassee, FL 32306 Phone: 850-402-3240 Fax: 850-402-9659 TOMAHAWK ARCHITECTS + ENGINEERS, LLC THIS SEAL HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY THE ENGINEER AND FURTHER PRINTED IN THE MARGIN PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED VALID UNLESS THEY BEARING THIS SEAL		COA # : 29709 Tomahawk Project # : 23036		Project #: 19370.42	
Phase:		100% CONSTRUCTION DOCUMENTS		Description:		Partial Floor Plans - Renovation- Piping	
Drawn:		BSS		Reviewed:		Date:	
Design Development		BSS		Owner Review		11-05-24	
100% Construction Docs		BSS		100% Construction Docs		03-14-25	
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- SHEET RENOVATION KEY NOTES:
- 1

HOT TAP OR FREEZE EXISTING CHILLED WATER MAINS TO INSTALL CHWS&R FOR AHU-H1
- 2

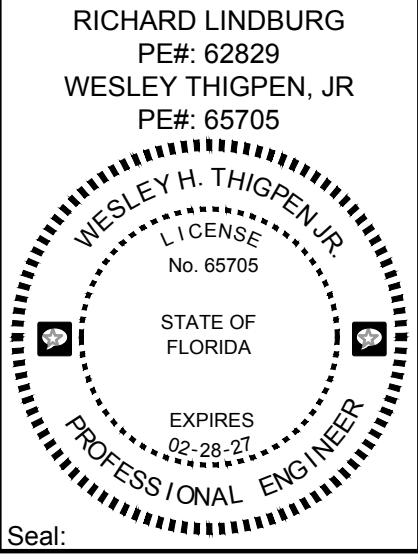
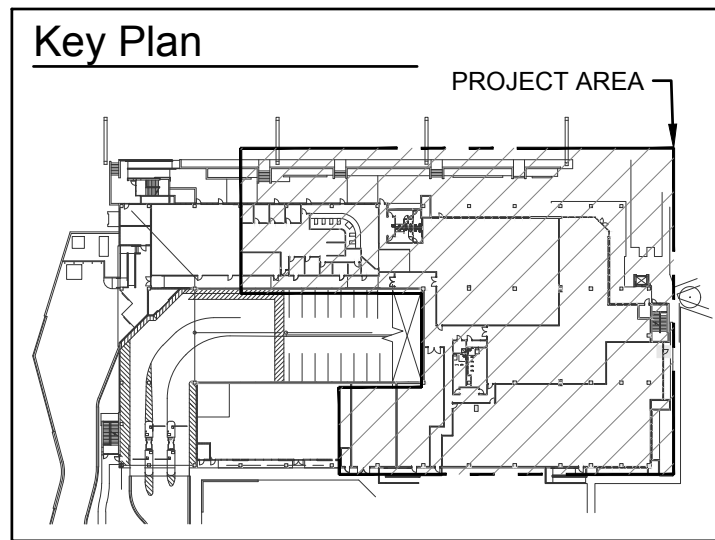
PROVIDE VAV WITH 3-WAY CONTROL VALVE.
- SHEET NOTES:
1.

UNLESS NOTED OTHERWISE, RUN OUT PIPING TO VAVs SHALL BE 3/4" MINIMUM.
2.

AS REQUIRED FOR CONNECTION TO EXISTING HYDRONIC SYSTEMS, THE CONTRACT SHALL INCLUDE ALL LABOR AND MATERIALS TO DRAIN AND REFILL SYSTEMS ACCORDING TO CLOSED LOOP CHEMICALLY TREATED SYSTEMS. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION.

1 Partial Floor Plan - Renovation - Piping

SCALE: 1/8" = 1'-0"



PHASE:	DRAWN:	REVIEWED:	DATE:	ID:	REVISION:	DRAWN:	REVIEWED:	DATE:
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Tallahassee, Florida

Job Title: **PG #1 REMODELING**

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Tomahawk Project # : 23036

Project # : **19370.42**
Phase: **100% CONSTRUCTION DOCUMENTS**



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Description: **Partial Floor Plan - Renovation - Piping**

Sheet No.: **M2.2**

1. OPENING CLEARANCE

THE OPENING IN THE WALL OR FLOOR SHALL BE LARGER THAN THE DAMPER/SLEEVE ASSEMBLY TO PERMIT INSTALLATION OR EXPANSION. THE OPENING SHALL BE A MINIMUM OF 1/8" PER FOOT LARGER THAN THE OVERALL SIZE OF THE DAMPER/SLEEVE ASSEMBLY. THE MAXIMUM OPENING SIZE SHALL NOT EXCEED 1/8" PER FOOT PLUS 2". NOR SHALL THE OPENING BE LESS THAN 1/4" LARGER THAN THE DAMPER/SLEEVE ASSEMBLY.

2. FASTENERS AND MULTIPLE SECTION ASSEMBLY

USE NO. 10 BOLTS OR SCREWS, 3/16" RIVETS, TACK WELDS OR SPOT WELDS AS DEPICTED IN FIGURE 2 AND SPACED AS FOLLOWS WHEN JOINING INDIVIDUAL DAMPERS TO MAKE MULTIPLE SECTION DAMPER ASSEMBLIES OR WHEN FASTENING DAMPER TO THE SLEEVE: VERTICAL MOUNT (IN WALL): ALL DAMPERS, 6" SPACING HORIZONTAL MOUNT (IN FLOOR): ALL DAMPERS, 6" SPACING MULTIPLE SECTION HORIZONTAL MOUNT DAMPERS REQUIRE A 14 GAGE THICK X 4-1/2" WIDE STEEL REINFORCING PLATE SANDWICHED BETWEEN THE DAMPER FRAMES WITH 1/2" LONG WELDS STAGGERED INTERMITTENTLY AND SPACED ON MAXIMUM 6" CENTERS. THE REINFORCING PLATE MUST BE THE SAME MATERIAL AS THE DAMPERS. THE LENGTH MUST BE EQUAL TO THE DAMPER WIDTH OF TWO OR MORE ADJOINING

DAMPER SECTIONS. REINFORCING PLATES ARE NOT REQUIRED FOR ASSEMBLIES CONSISTING OF TWO DAMPERS ATTACHED END-TO-END OR THREE DAMPERS ATTACHED SIDE-TO-SIDE AS DEPICTED IN FIGURE 5.

3. DAMPER SLEEVE

SLEEVE THICKNESS MUST BE EQUAL TO OR THICKER THAN THE DUCT CONNECTED TO IT. SLEEVE GAGE REQUIREMENTS ARE LISTED IN THE SMACNA FIRE, SMOKE AND RADIATION DAMPER INSTALLATION GUIDE FOR HVAC SYSTEMS AND IN NFPA90A. IF A BREAKAWAY STYLE DUCT/SLEEVE CONNECTION IS NOT USED, THE SLEEVE SHALL BE A MINIMUM OF 16 GAGE FOR DAMPERS UP TO 36" WIDE BY 24" HIGH AND 14 GAGE FOR DAMPERS EXCEEDING 36" WIDE BY 24" DAMPER SLEEVE SHALL NOT EXTEND MORE THAN 6" BEYOND THE FIRE WALL OR PARTITION UNLESS DAMPER IS EQUIPPED WITH A FACTORY INSTALLED ACCESS DOOR. SLEEVE MAY EXTEND UP TO 16" BEYOND THE FIRE WALL OR PARTITION ON SIDES EQUIPPED WITH A FACTORY INSTALLED ACCESS DOOR. SLEEVE SHALL TERMINATE AT BOTH SIDES OF WALL WITHIN DIMENSIONS SHOWN.

4. DAMPER ORIENTATION

USE "AIR FLOW" AND "MOUNT WITH ARROW UP" LABELS ON DYNAMIC DIBD MODELS FOR PROPER DAMPER ORIENTATION. FOR STATIC IBD MODELS USE ONLY "MOUNT WITH ARROW UP" LABEL ON DAMPER FOR PROPER DAMPER ORIENTATION. STATIC AND DYNAMIC DAMPERS MUST BE INSTALLED WITH LEADING EDGE OF THE CLOSED BLADES WITHIN THE WALL OR FLOOR.

5. MOUNTING ANGLES

MOUNTING ANGLES SHALL BE A MINIMUM OF 1-1/2"x1-1/2"x 20 GAGE STEEL AND MUST BE ATTACHED ONLY TO THE SLEEVE. MOUNTING ANGLES MUST OVERLAP THE PARTITION A MINIMUM OF 1". DO NOT WELD OR FASTEN ANGLES TOGETHER AT CORNERS OF DAMPERS. RUSKIN FIRE DAMPERS MAY BE

INSTALLED USING RUSKIN PFMA.

a. MOUNTING ANGLE FASTENERS
SLEEVE: #10 BOLTS OR SCREWS, 3/16" STEEL RIVETS OR 1/2" LONG WELDS. MASONRY/WALL OR FLOOR: #10 SELF-TAPPING CONCRETE SCREWS. WOOD/STEEL STUD WALL: #10 SCREWS
b. MOUNTING ANGLE FASTENER SPACING
FASTENERS SHALL BE SPACED AT 8" O.C.

6. DUCT/SLEEVE CONNECTIONS

a. BREAK-AWAY DUCT/SLEEVE CONNECTIONS
REFER TO FIGURE 4. A MAXIMUM OF TWO #10 SHEET METAL SCREWS ON EACH SIDE AND THE BOTTOM, LOCATED IN THE CENTER OF THE SLIP POCKET AND PENETRATING BOTH SIDES OF THE SLIP POCKET MAY BE USED. CONNECTIONS USING THESE SLIP JOINTS ON THE TOP AND BOTTOM WITH FLAT DRIVE SLIPS UP TO 20" LONG ON THE SIDES MAY ALSO BE USED.

b. ROUND AND OVAL BREAK-AWAY CONNECTIONS
ROUND AND FLAT OVAL BREAK-AWAY CONNECTIONS MUST USE EITHER A 4" WIDE DRAWBAND OR #10 SHEET METAL SCREWS SPACED EQUALLY AROUND THE CIRCUMFERENCE OF THE DUCT AS FOLLOWS:
• DUCT DIAMETERS 22" AND SMALLER - MAXIMUM 3 SCREWS.
• DUCT DIAMETERS OVER 22" AND INCLUDING 36" - MAXIMUM 5 SCREWS.
• DUCT DIAMETERS OVER 36" AND UP TO AND INCLUDING 191" TOTAL PERIMETER - MAXIMUM 8 SCREWS. FOR FLAT OVAL DUCTS, THE DIAMETER IS CONSIDERED THE LARGEST (MAJOR) DIMENSION OF THE DUCT.

NOTE: WHEN OPTIONAL SEALING OF THESE JOINTS IS DESIRED, THE FOLLOWING SEALANTS MAY BE APPLIED IN ACCORDANCE WITH THE SEALANT MANUFACTURER'S INSTRUCTIONS:
DESIGN POLYMERICS - DP 1010 PRECISION - PA2084T
HARDCAST, INC. - IRON GRIP 601 ECO DUCT SEAL 44-52

c. FLANGED BREAK-AWAY STYLE DUCT SLEEVE CONNECTIONS.
FLANGED CONNECTION SYSTEMS MANUFACTURED BY DUCTMATE, NEXUS OR WARD ARE APPROVED BREAK-AWAY CONNECTIONS WHEN INSTALLED AS REQUIRED.

TDC AND TDF ROLL-FORMED FLANGED CONNECTIONS USING 3/8" STEEL BOLTS AND NUTS, AND METAL CLEATS, AS TESTED BY SMACNA, ARE APPROVED BREAK-AWAY CONNECTIONS WHEN INSTALLED AS REQUIRED.

d. NON-BREAK-AWAY DUCT/SLEEVE CONNECTIONS
IF OTHER DUCT SLEEVE CONNECTIONS ARE USED, THE SLEEVE SHALL BE A MINIMUM OF 16 GAGE FOR DAMPERS UP TO 36" WIDE X 24" HIGH AND 14 GAGE FOR DAMPERS EXCEEDING 36" WIDE X 24" HIGH.

7. INSTALLATION AND MAINTENANCE

TO ENSURE OPTIMUM OPERATION AND PERFORMANCE, THE DAMPER MUST BE INSTALLED SO IT IS SQUARE AND FREE FROM RACKING. EACH FIRE DAMPER SHOULD BE MAINTAINED AND TESTED ON A REGULAR BASIS AND IN ACCORDANCE WITH THE LATEST EDITIONS OF NFPA 90A AND LOCAL CODES. CARE SHOULD BE EXERCISED TO ENSURE THAT SUCH TESTS ARE PERFORMED SAFELY AND DO NOT CAUSE SYSTEM DAMAGE.

PROVIDE ACCESS DOOR FOR RESETTNG OF FUSIBLE LINK AS REQUIRED BY CONTRACT SPECIFICATIONS.

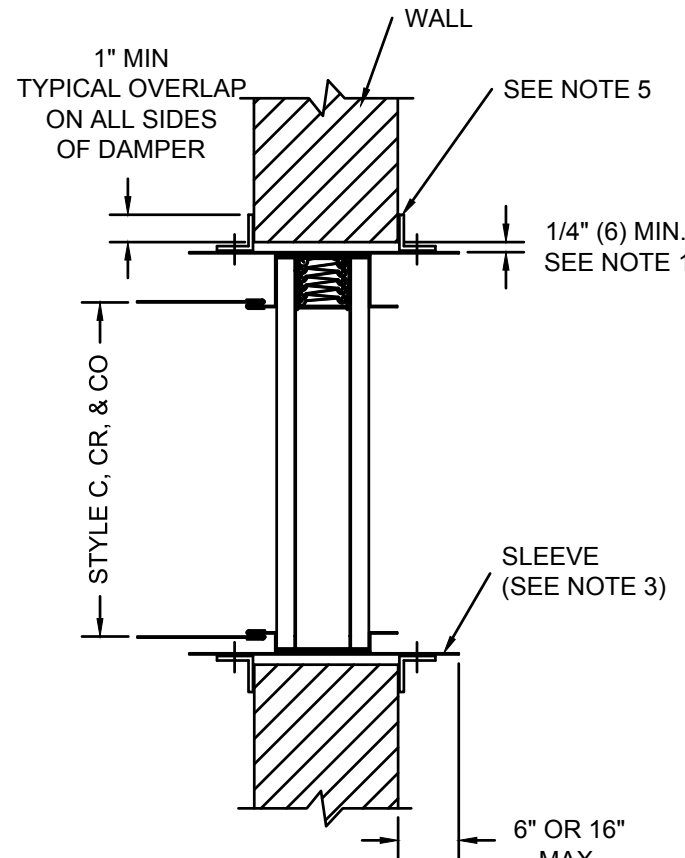


FIGURE 1

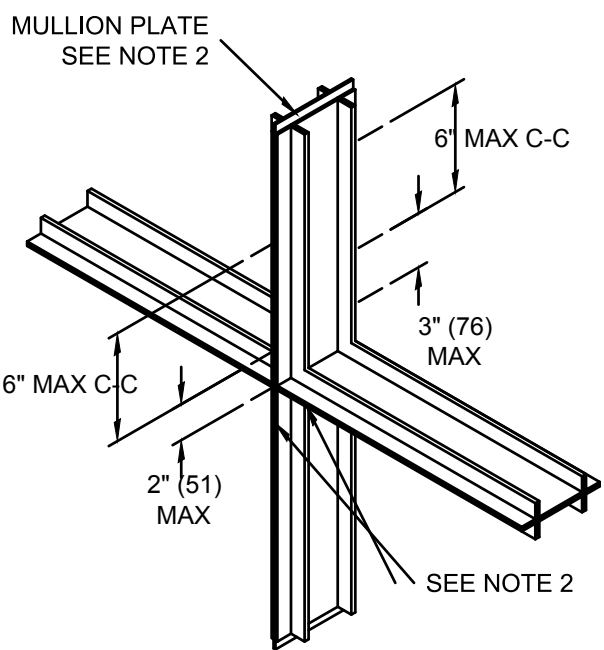


FIGURE 2

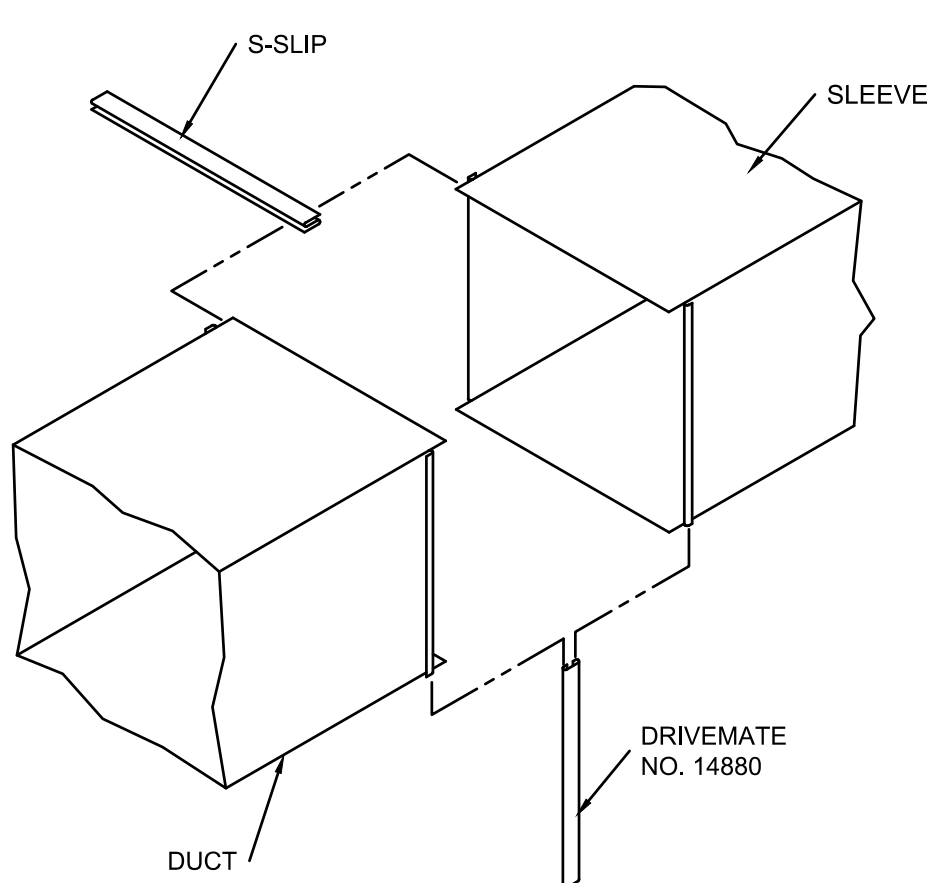


FIGURE 3

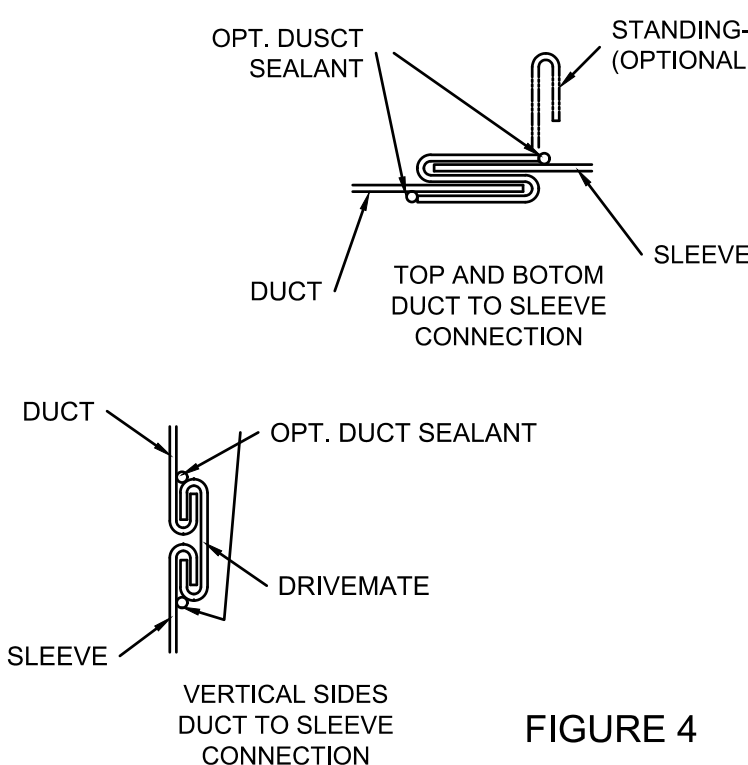
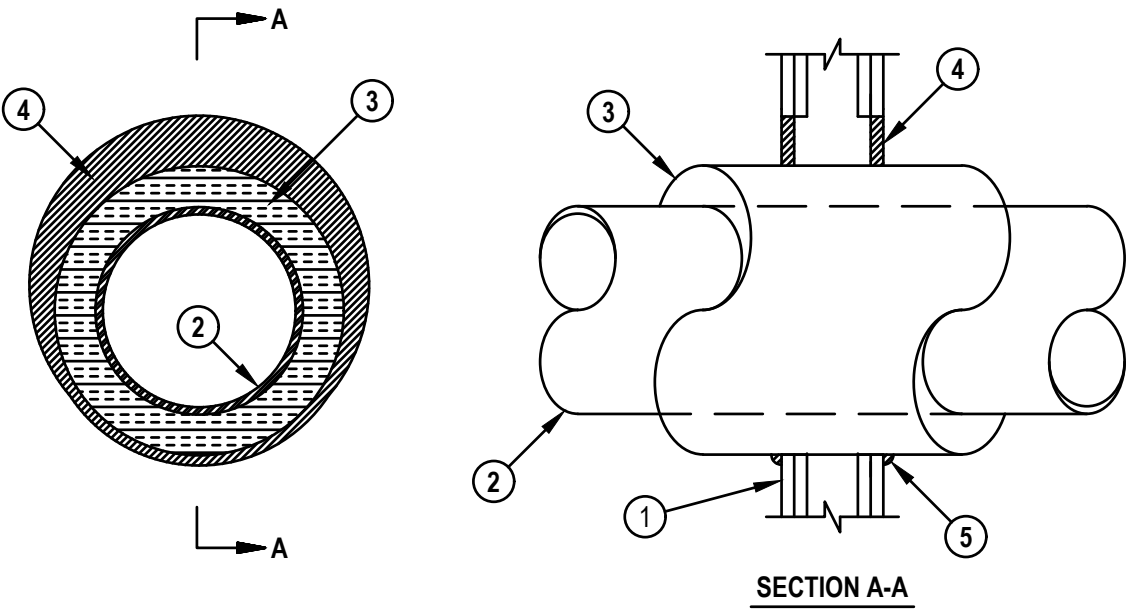


FIGURE 4



SECTION A-A

CAN/ULC S115	
F Ratings — 1, 2 and 3 Hr (See Items 1, 3 and 4)	
FT Ratings — 0, 1/2, 1 and 1-1/4 Hr (See Item 3)	
FH Ratings — 1, 2 and 3 Hr (See Items 1, 2 and 4)	
FTH Ratings — 0, 1/2, 1 and 1-1/4 Hr (See Item 3)	
L Rating At Ambient — 4 CFM/Sq Ft	
L Rating At 400 F — Less Than 1 CFM/Sq Ft	
ANSI/UL1479 (ASTM E814)	
F Ratings — 1, 2 and 3 Hr (See Items 1, 3 and 4)	
T Ratings — 0, 1/2, 1 and 1-1/4 Hr (See Item 3)	
L Rating At Ambient — 4 CFM/Sq Ft	
L Rating At 400 F — Less Than 1 CFM/Sq Ft	

System No. W-L-5029

1. Wall Assembly — The 1, 2 or 3 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide for 1 and 2 hr F and FH rating and 3-1/2 in. (89 mm) wide for 3 hr F and FH rating and spaced max 24 in. (610 mm) OC.
B. Gypsum Board* — Min 5/8 in. (16 mm) thick with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 18-5/8 in. (473 mm). The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.

2. Through Penetrants — One metallic pipe or tubing to be installed within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or tubing may be used:
A. Steel Pipe — Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
B. Iron Pipe — Nom 12 in. (305 mm) diam (or smaller) cast or ductile iron pipe.
C. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing. When the hourly F or FH Rating of the firestop system is 3 hr, the nom diam of copper tube shall not exceed 4 in. (102 mm).
D. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe. When the hourly F or FH Rating of the firestop system is 3 hr, the nom diam of copper pipe shall not exceed 4 in. (102 mm).

3. Pipe Covering* — Nom 1, 1-1/2 or 2 in. (25, 38 or 51 mm) thick hollow cylindrical heavy density (min 3.5 pcf or 56 kg/m3) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. For 1 and 2 hr F and FH Ratings, the annular space between insulated penetrant and periphery of opening shall be min 0 in. (point contact) to max 1-7/8 in. (48 mm). For 3 hr F and FH Ratings, the annular space shall be min 0 in. (point contact) to max 1-1/4 in. (32 mm).
See Pipe and Equipment Covering — Materials (BRGU) category in the Building Material Directory for the names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
The hourly T, FT, FTH Ratings of the firestop system are 1/2 hr for 1 hr rated walls and 1 hr for 2 hr rated walls. For 3 hr rated walls, the hourly T, FT and FTH Ratings when steel and iron pipes are used are 1 hr. For 3 hr rated walls, the hourly T, FT and FTH Ratings when copper penetrants are used are 1-1/4 hr for 2 in. (51 mm) thick pipe covering and 0 hr for pipe covering thickness less than 2 in. (51 mm).

3A. Pipe Covering* — (Not Shown) — As an alternate to Item 3, max 2 in. (51 mm) thick cylindrical calcium silicate (min 14 pcf) units sized to the outside diam of the pipe or tube may be used. Pipe insulation secured with stainless steel bands or min 18 AWG stainless steel wire spaced max 12 in. (305 mm) OC. When the alternate pipe covering is used, the T and FT Rating shall be as specified in Item 3 above.
See Pipe and Equipment Covering — Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

4. Fill, Void or Cavity Material* — Sealant — For 1 and 2 hr F and FH Rating, min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. For 3 hr F and FH Rating, min 1 in. (25 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point contact location between pipe covering and gypsum board, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe covering/gypsum board interface on both surfaces of wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant

*Bearing the UL Classification Mark

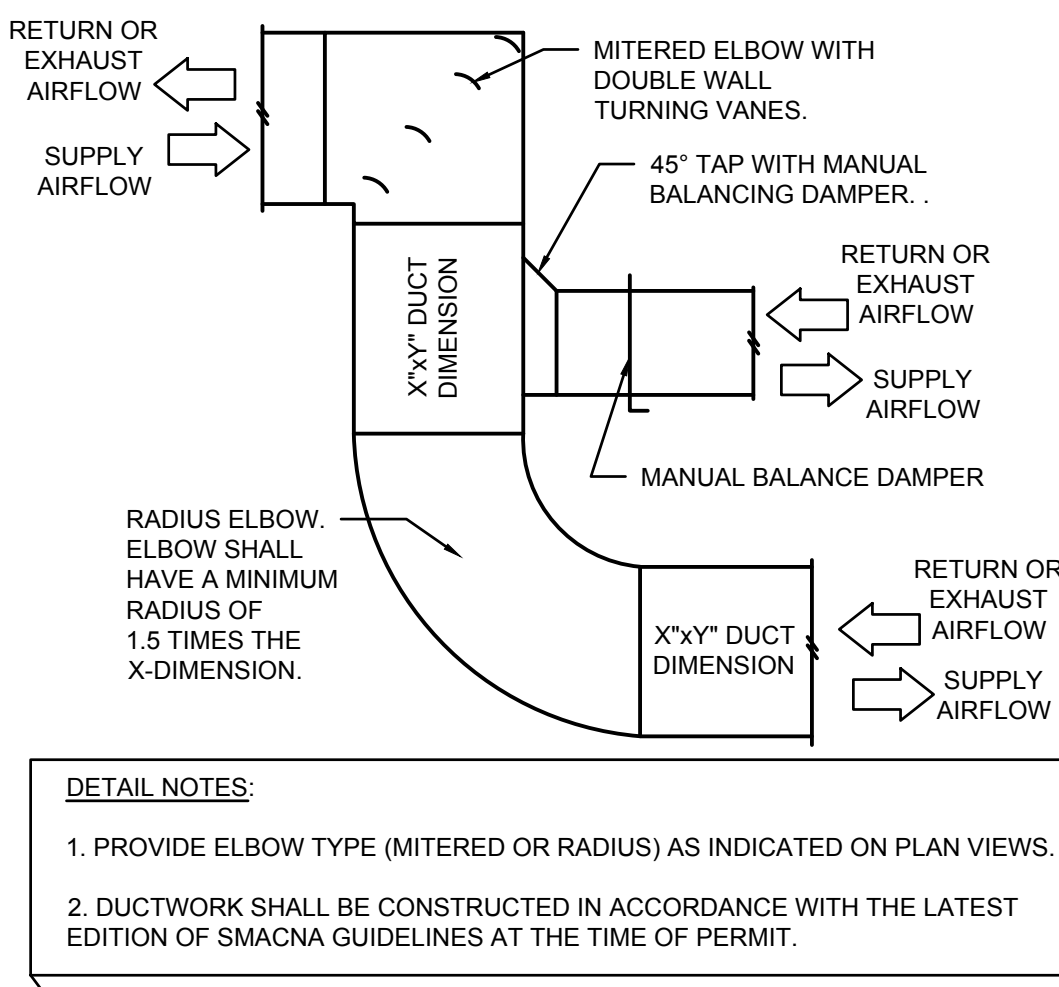


Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CAN/ULC-S115



4. FIRE RATED PIPING PENETRATION DETAIL

SCALE: NONE

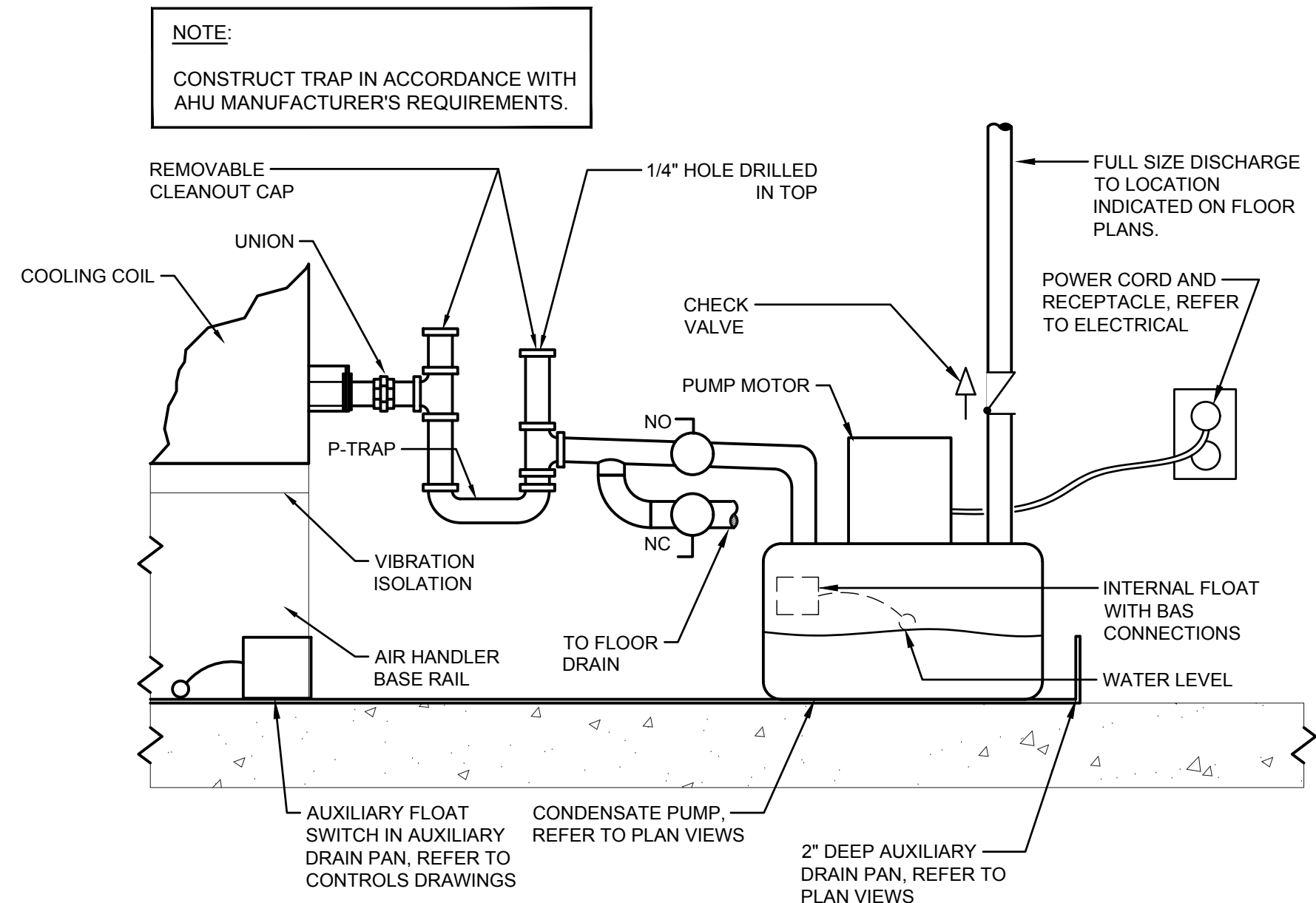


DETAIL NOTES:

1. PROVIDE ELBOW TYPE (MITERED OR RADIUS) AS INDICATED ON PLAN VIEWS.
2. DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA GUIDELINES AT THE TIME OF PERMIT.

5. TYPICAL DUCTWORK DETAIL

SCALE: NONE



3. AHU CONDENSATE DRAIN (TYPICAL AHU-H1 & BCU-1)

SCALE: NONE

6

FIRE RATED DUCTWORK PENETRATION DETAIL

SCALE: NONE

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OWNER REVIEW	DM	WHT	03-14-25			
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Tallahassee, Florida

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100% CONSTRUCTION DOCUMENTS
Project #:
Phase:

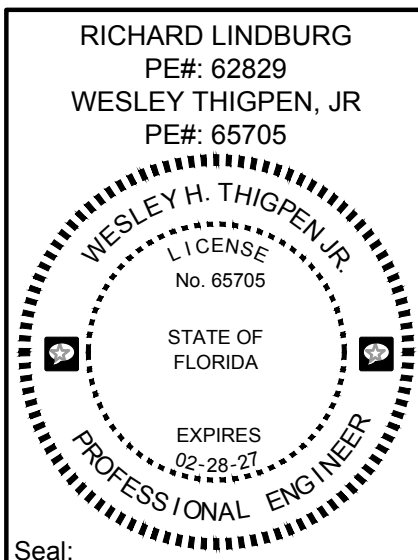
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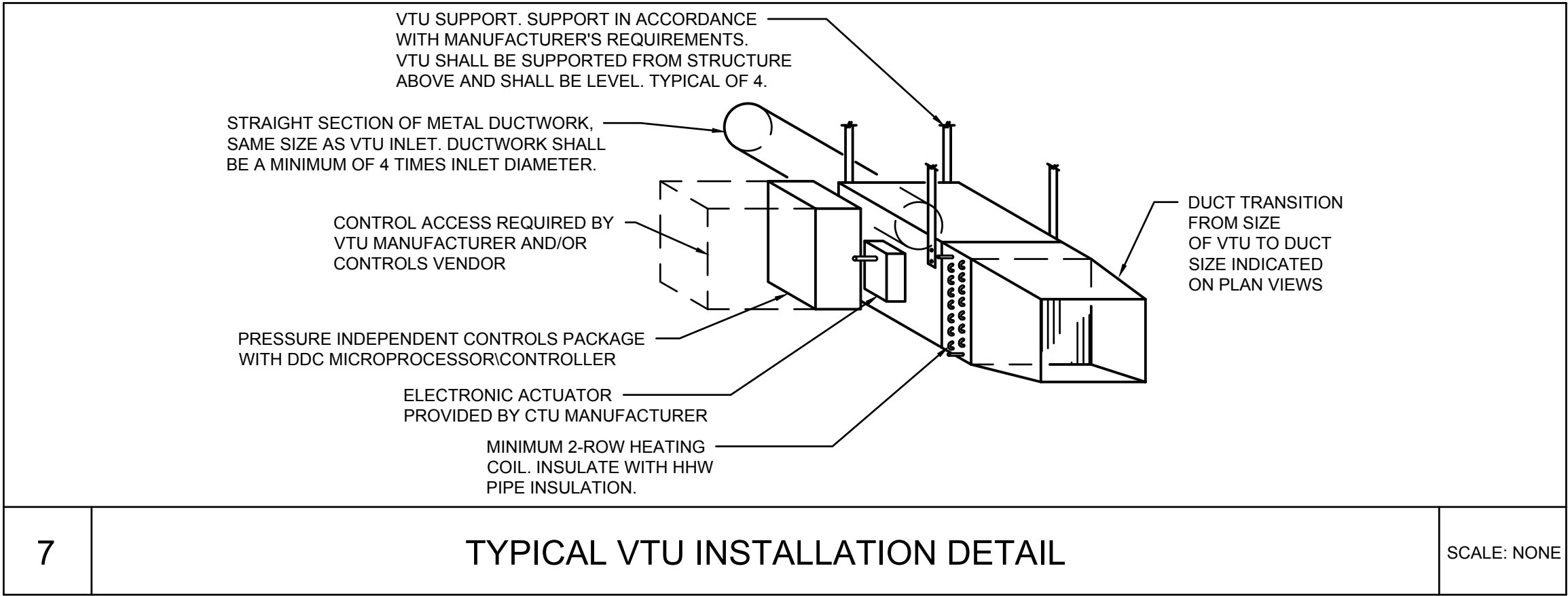
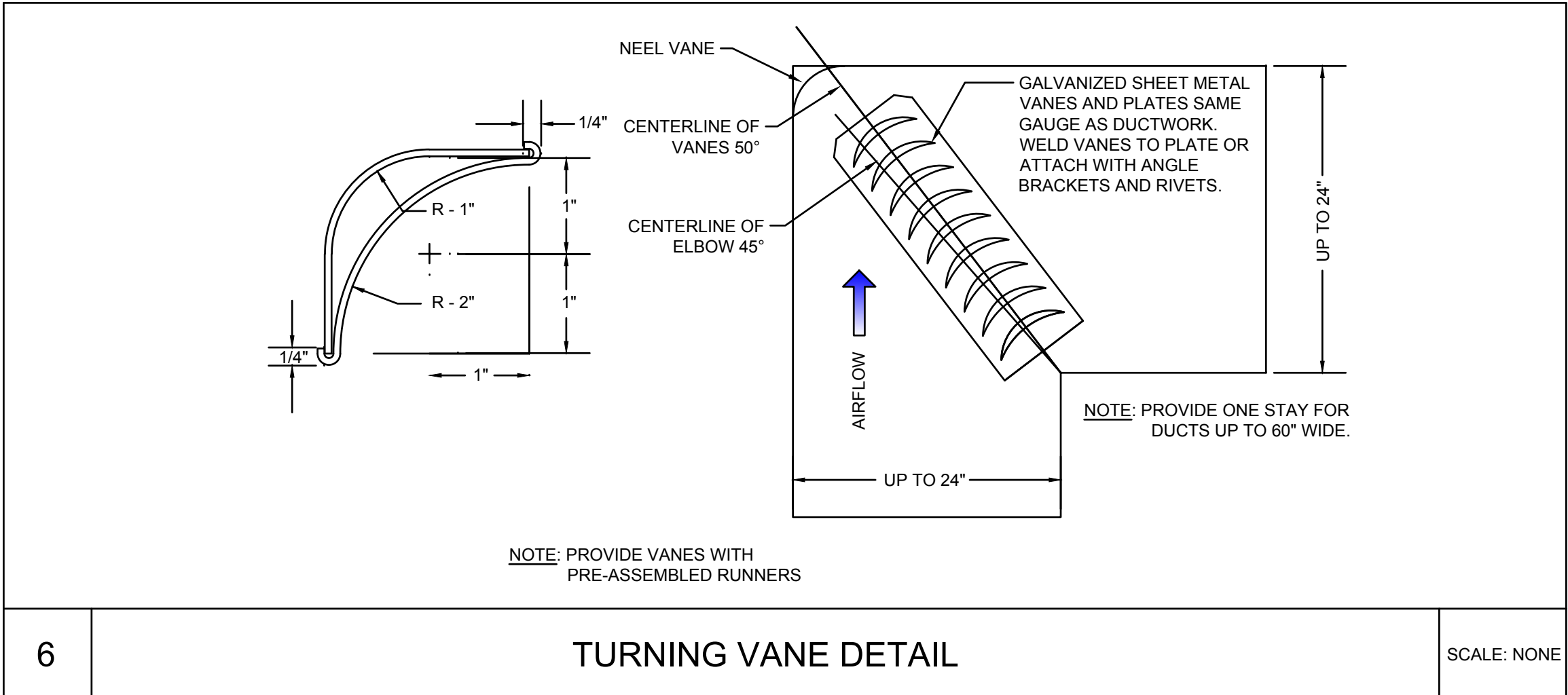
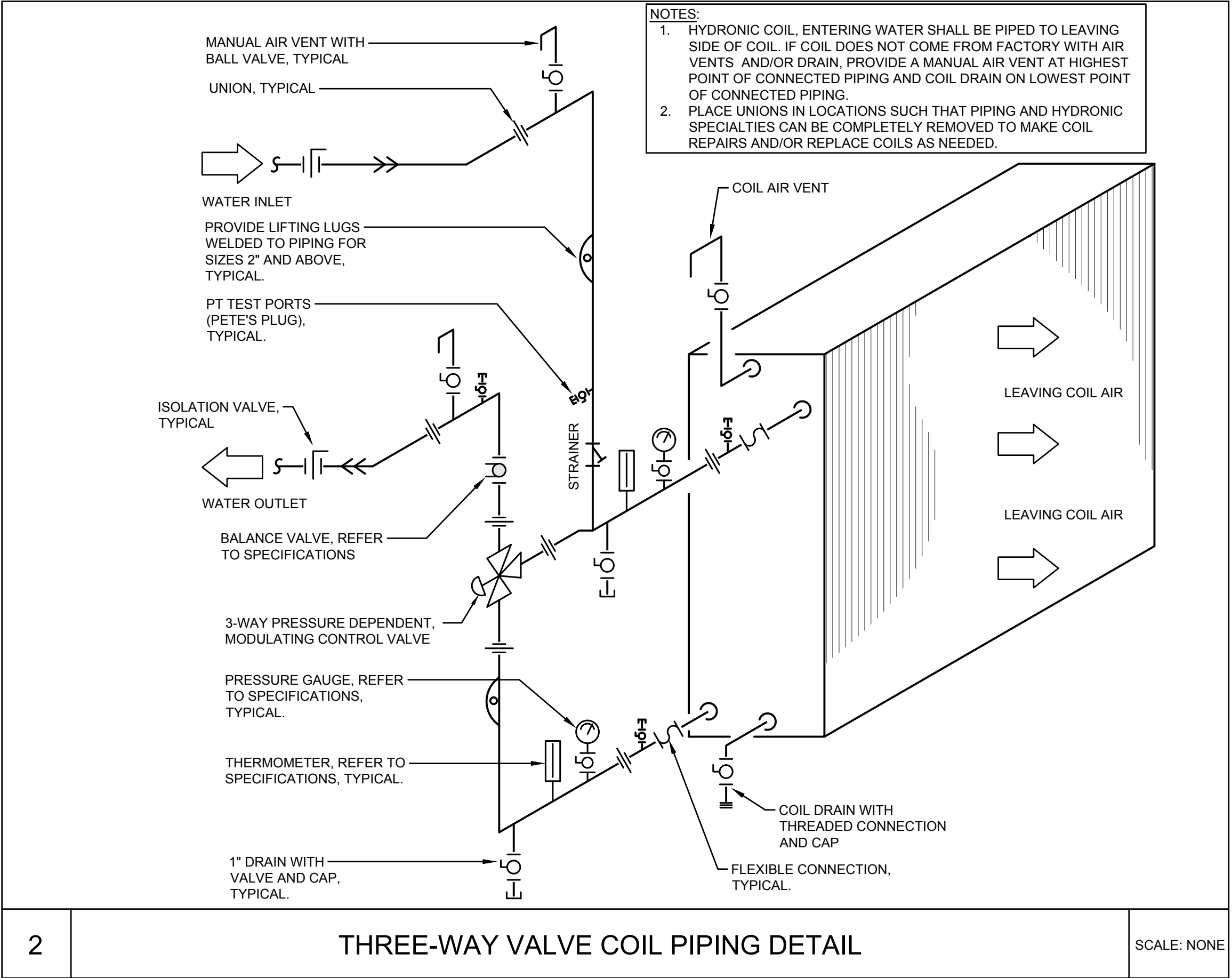
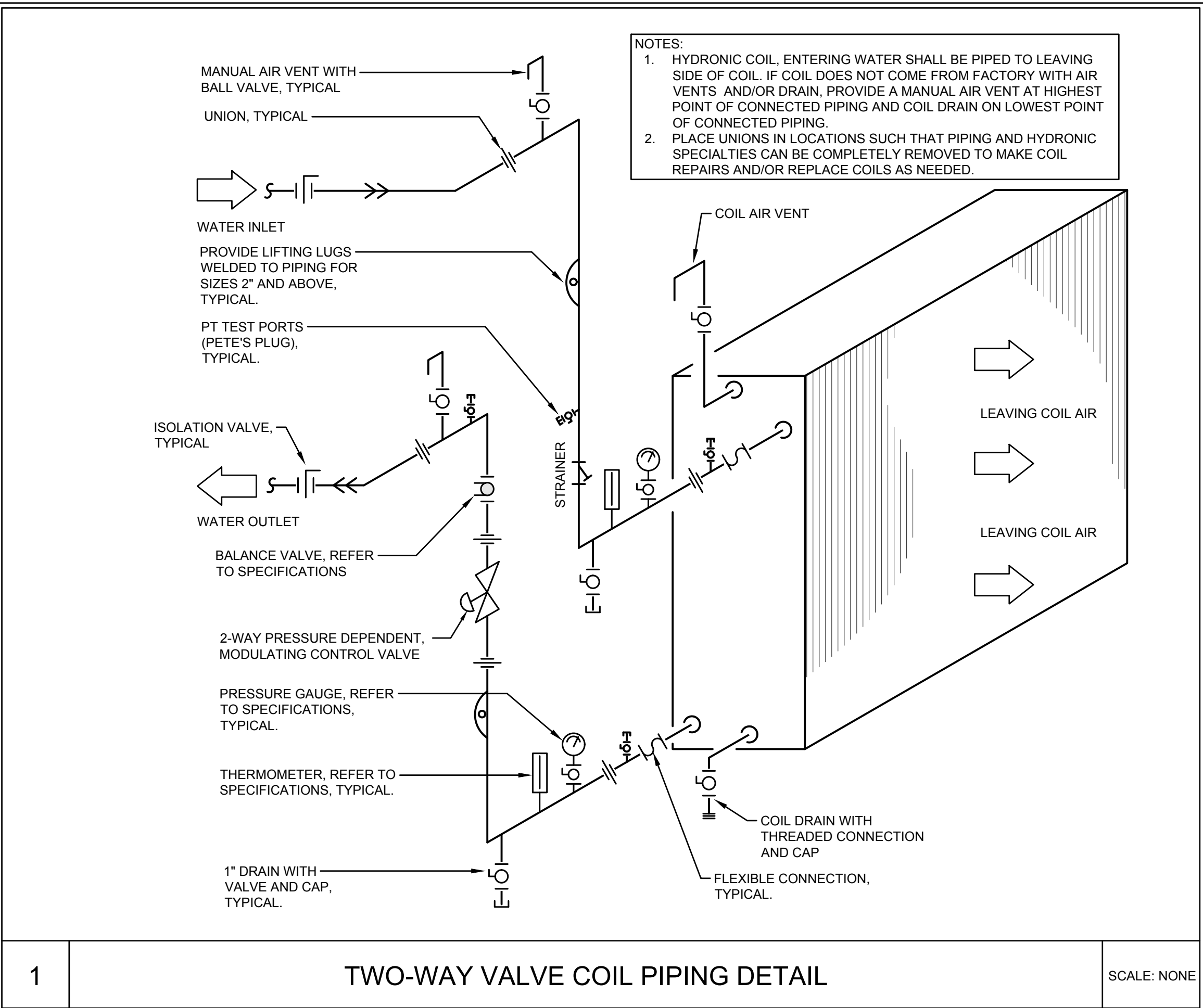
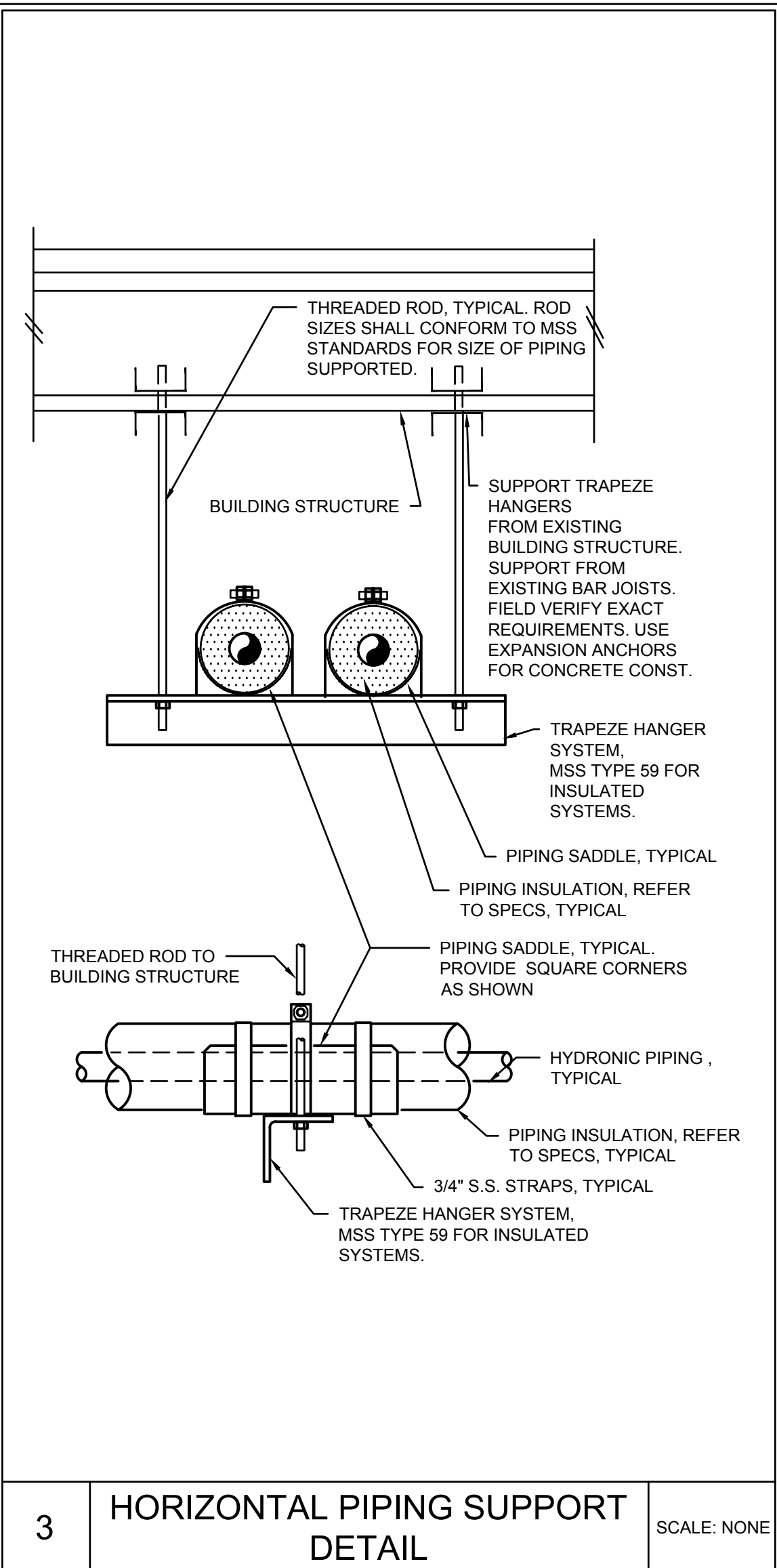
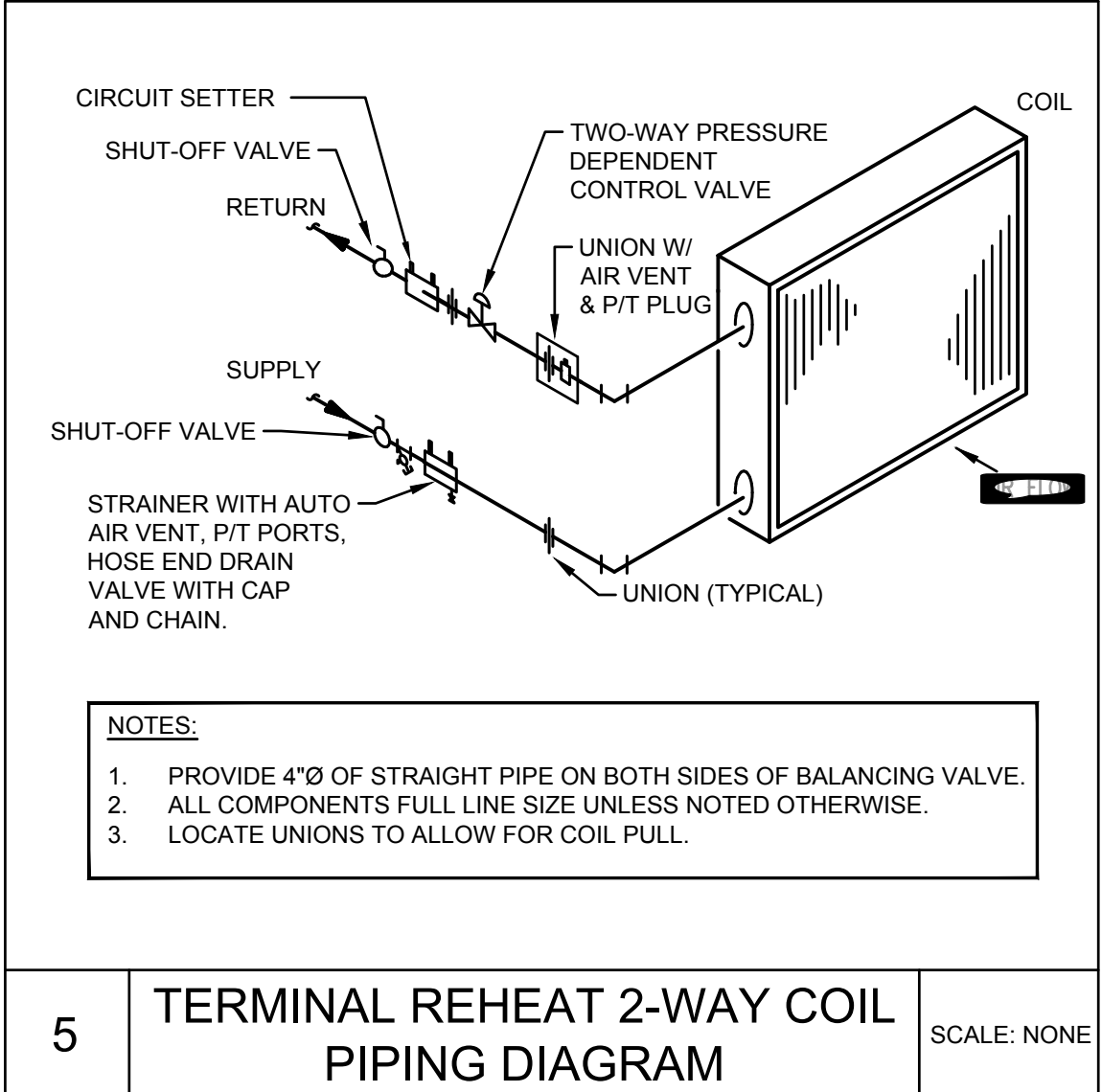
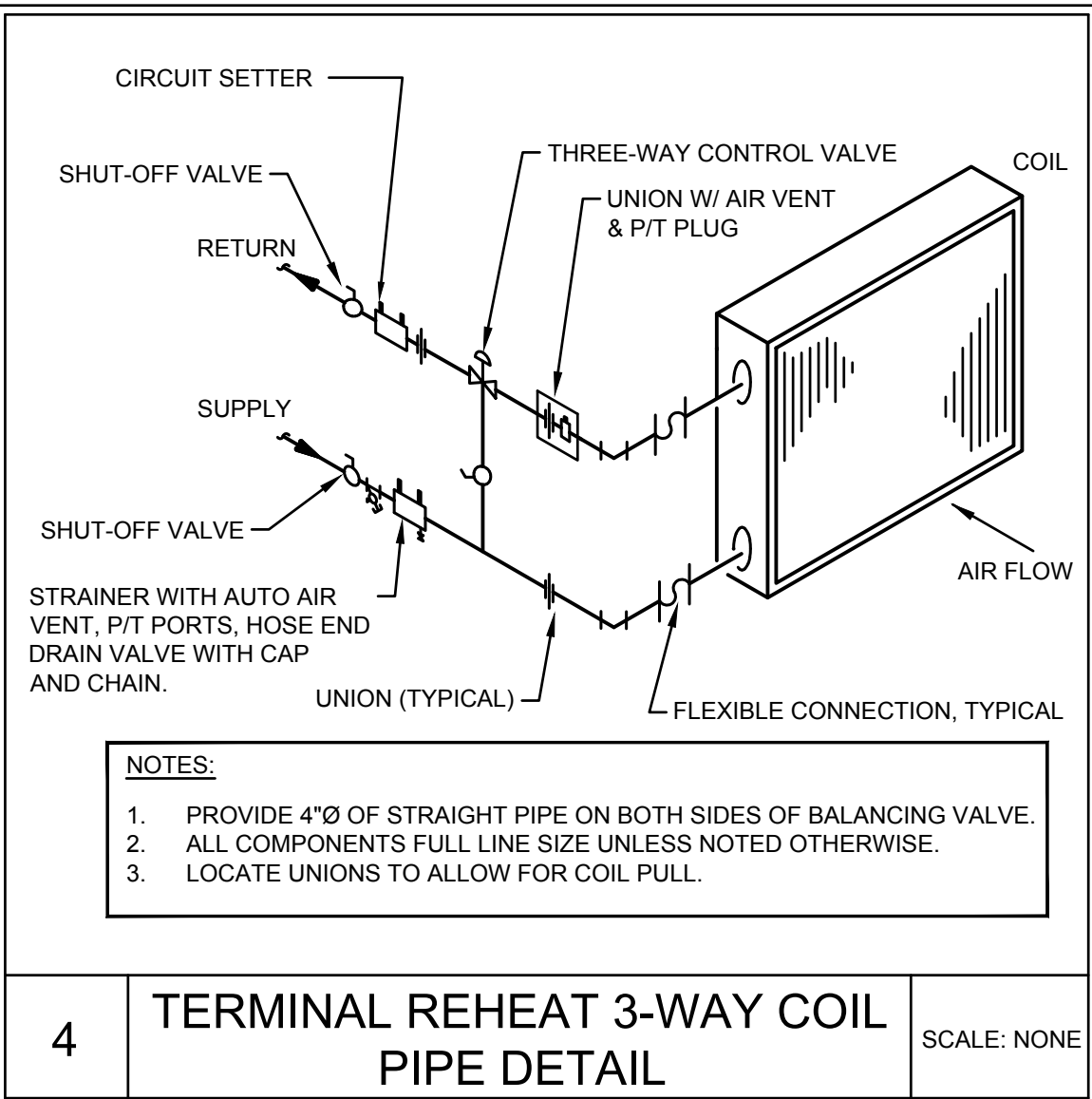
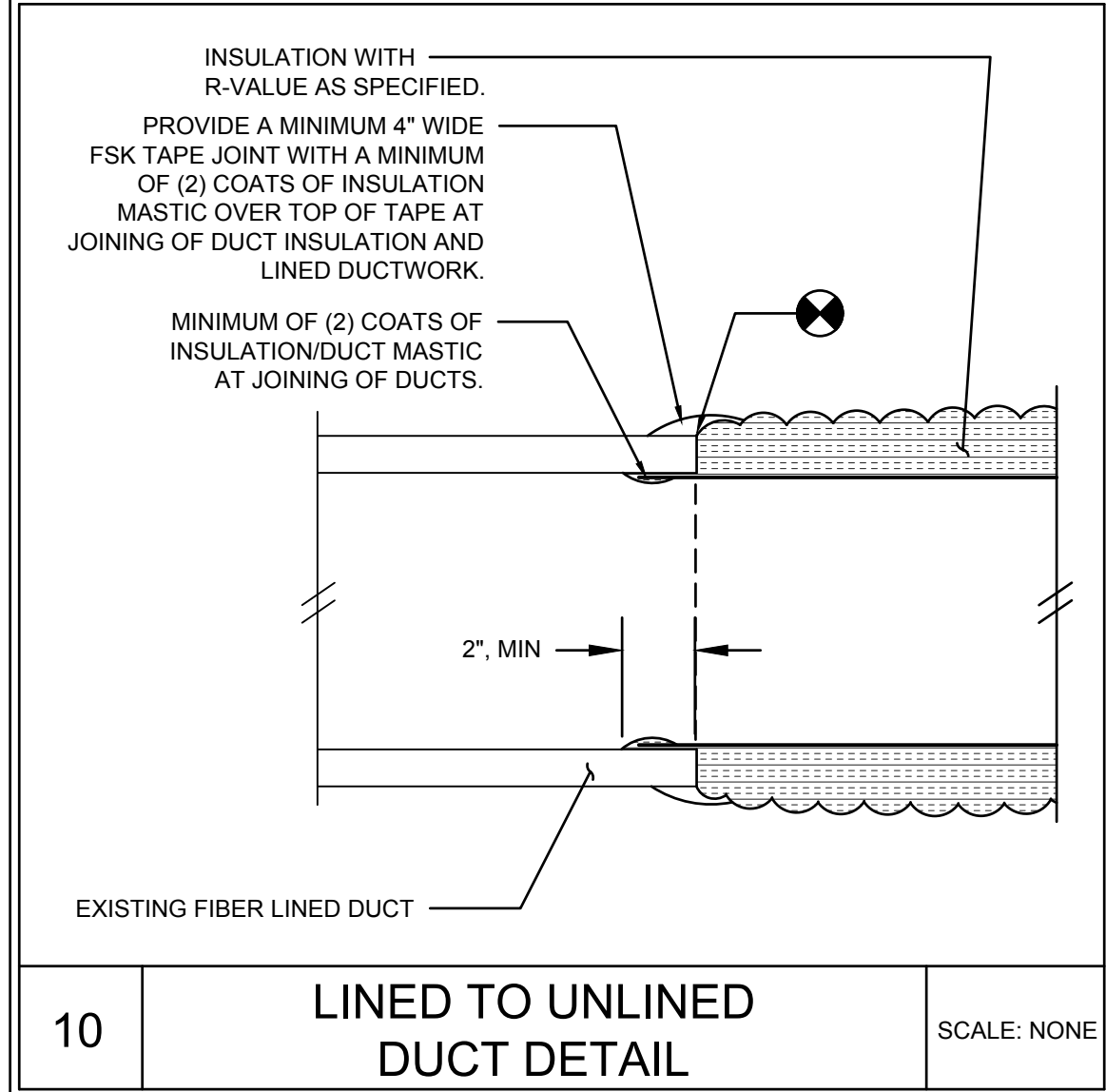
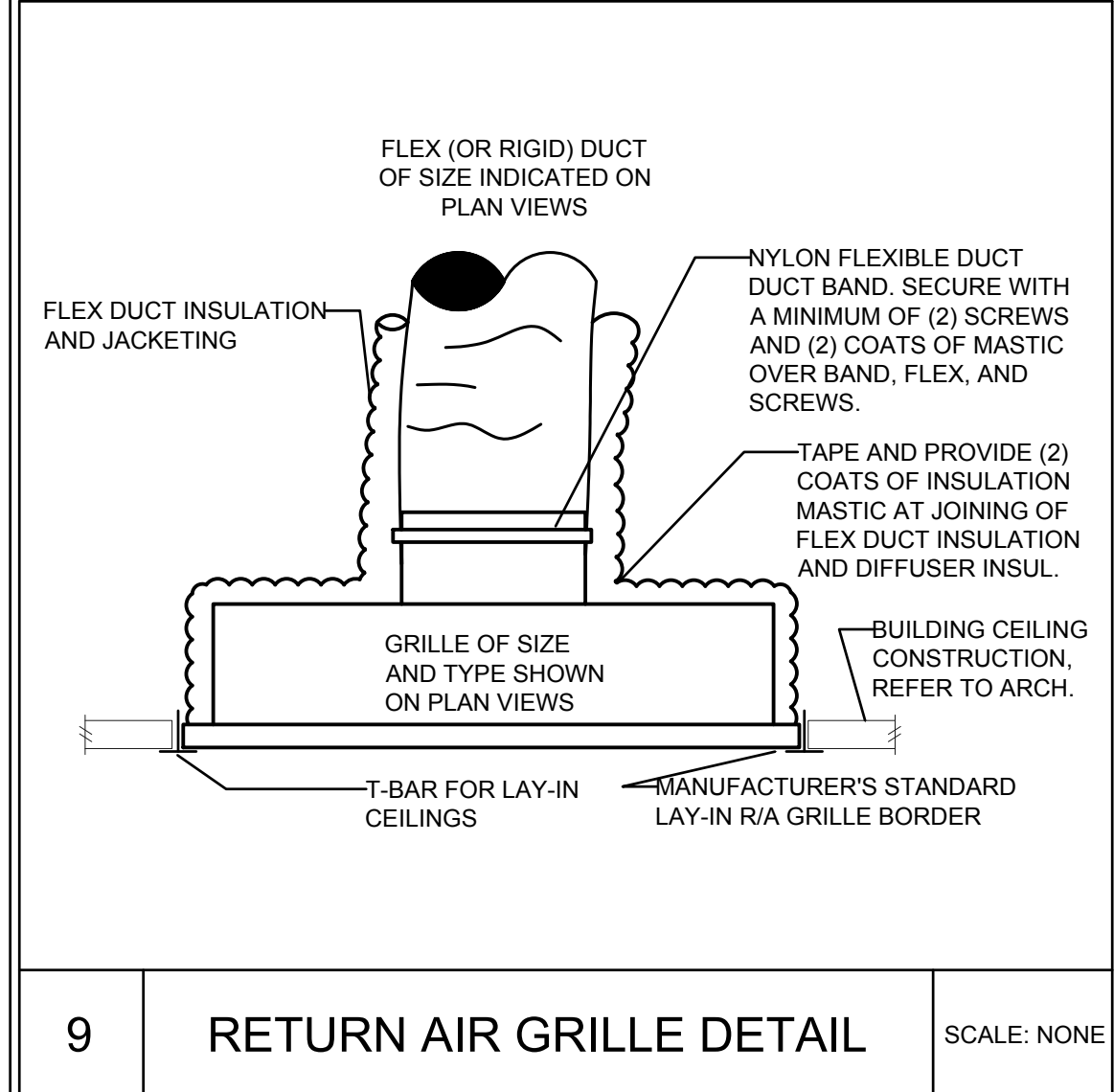
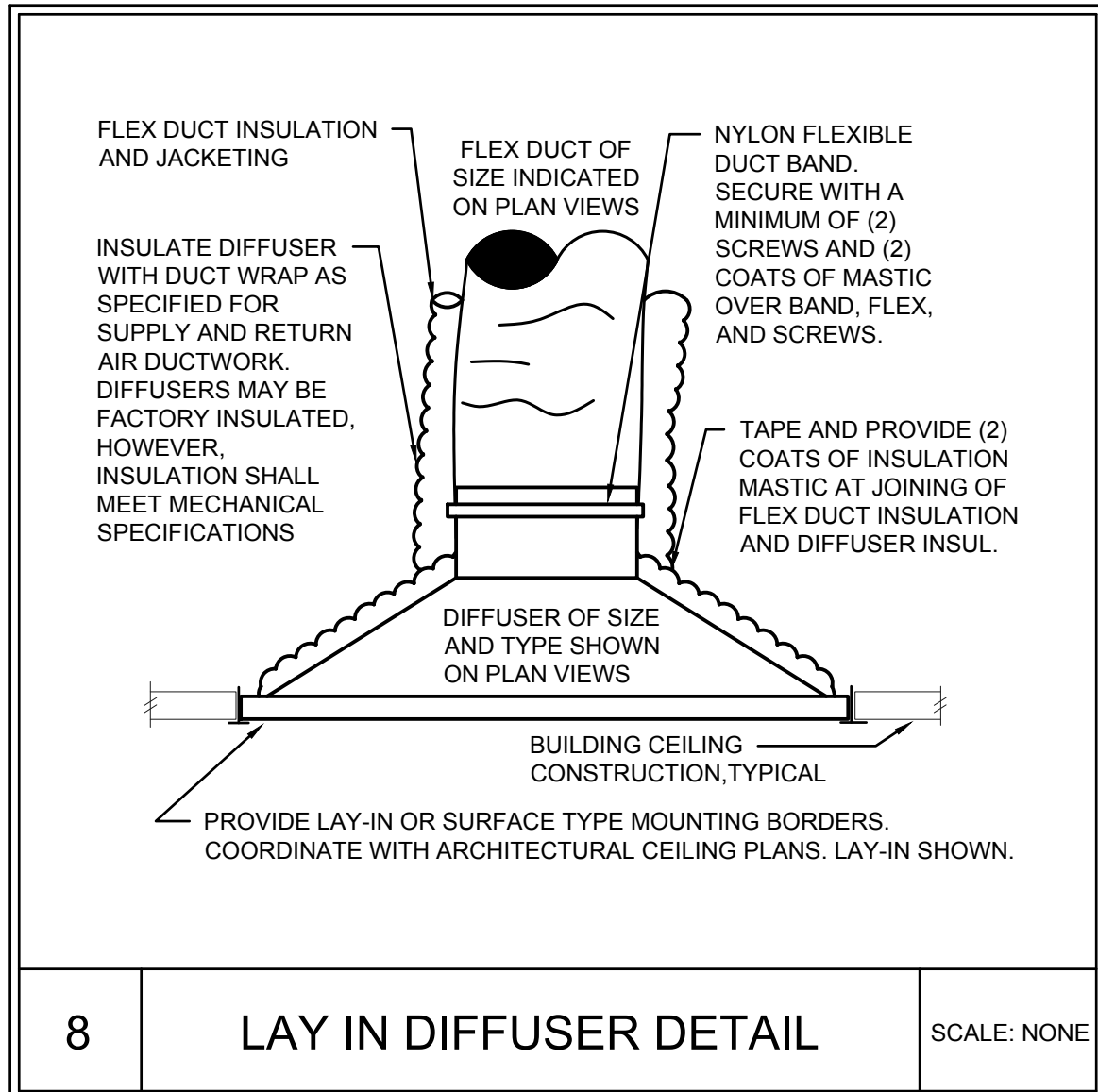
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Description:
Details - Mechanical

Sheet No.:

M5.1





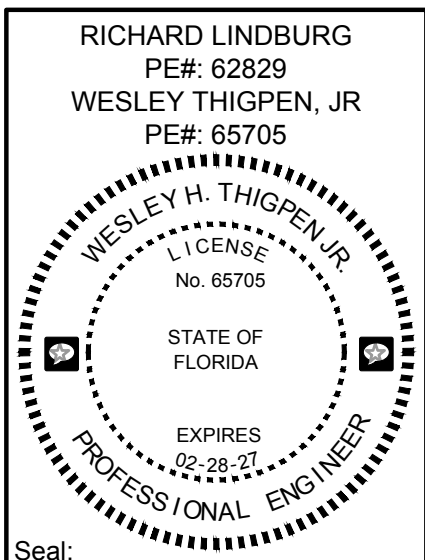
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100% CONSTRUCTION DOCS	BSS	WHT	05-14-25			

Client:	FLORIDA STATE UNIVERSITY Tallahassee, Florida
Job Title:	PG #1 REMODELING

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Project #:	COA # 23709 Tomahawk Project # 23036
Phase:	19370.42 100% CONSTRUCTION DOCUMENTS

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Description: Details - Mechanical
Sheet No.: M5.2



AIR HANDLING UNIT SCHEDULE

EQUIPMENT NO.	NEW/ EXISTING	AREA(S) SERVED	COMPONENTS	TOTAL CFM	TOTAL DESIGN CFM	OUTSIDE AIR CFM	TOTAL DESIGN O/A	ESP	TSP	FAN SIZE/ TYPE	# OF FANS	MOTOR HP (EACH)	VOLTAGE / PHASE	COOLING COIL TOTAL COOLING	COOLING COIL SENS. COOLING	COOLING COIL ENT. AIR DB / WB	COOLING COIL LVG. AIR DB / WB	COOLING COIL ENT. / LVG. WATER	COOLING COIL WATER PRESS. DROP (FT HEAD)	CLG COIL GPM	COOLING COIL FACE VELOCITY (FPM)	CLG COIL # OF ROWS / FINS PER FOOT	COOLING COIL AIR PRESS. DROP (IN. WATER)	COOLING COIL WATER VELOCITY	PHC TOTAL HEATING	PHC ENT. AIR DB	PHC LVG. AIR DB	PHC ENT. / LVG. WATER	PHC WATER PRESS. DROP (FT HEAD)	PHC GPM	PHC FACE VELOCITY (FPM)	PHC # OF ROWS/FINS PER FOOT	PHC AIR PRESS. DROP (IN. WATER)	PHC WATER VELOCITY
AHU-H1	NEW	FUTURE REC.	PFLFFU/PHC/C CL/FAN	6500	6500	2000	2000	1.50"	4.20"	15.7"/PLN	2	8.05	460V / 3Ø	349.9 MBH	232.9 MBH	82.0°F/68.1°F	53.0°F/52.9°F	45°F/60°F	5.22'	41.0	495	8/144	0.96"	2.13 FPS	232.7 MBH	17°F	50°F	180°F/150°F	2.0'	15.0	520	1/122	0.15"	2.5 FPS
BCU-1	EXISTING	CARD CENTER	NA	800	800**	100	NA	0.75"	NA	NA	NA	NA	NA	30.0 MBH	22.0 MBH	NA	NA	NA	NA	6.0	NA	NA	NA	NA	NA	NA	NA	NA	2.5	NA	NA	NA	NA	NA
AHU-1	EXISTING	SOUTH OFFICE AREA	NA	20000	18025**	3000	3000	1.43"	2.04"	NA	1	15	NA	797.0 MBH	572.4 MBH	NA	NA	NA	NA	100.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:

1. BASIS OF DESIGN: EQUAL TO TRANE. PROVIDE UNIT WITH MINIMUM SHIPPING SPLITS. EXISTING UNITS, FIELD VERIFY MAKE/MODEL. UNLESS NOTED OTHERWISE, NOTES BELOW DO NOT CORRESPOND TO EXISTING EQUIPMENT.
2. CONTRACTOR SHALL INCLUDE COST REQUIRED FOR FACTORY ASSISTANCE FOR BREAKDOWN AND INSTALLATION AND RECONSTRUCTION OF UNITS AS NEEDED.
3. PROVIDE VFD FOR FANS. PROVIDE (1) VFD PER FAN, REFER TO CONTROLS DRAWINGS AND SPECIFICATIONS FOR FURTHER INFORMATION.
4. PROVIDE DETACHABLE, 6" TALL, BASE RAILS FROM MANUFACTURER.
5. CHILLED WATER COOLING COILS WHOSE WATER VELOCITY THRU TUBES IS LESS THAN 2.15 FPS SHALL BE PROVIDED WITH TURBULATORS OR TURBOSPIRALS.
6. PROVIDE RIGHT/LEFT HAND CONFIGURATION BASED ON FLOOR PLANS AND ELEVATIONS. THE CONTRACTOR AND EQUIPMENT SUPPLIER ARE RESPONSIBLE FOR VERIFICATION OF UNIT HAND PRIOR TO ORDERING AND/OR SHIPPING. WRONG HAND WILL BE RETURNED AT CONTRACTOR/SUPPLIERS EXPENSE.
7. SUPPLY AIR FANS SHALL BE CLASS II, NO EXCEPTIONS. FANS AND MOTORS SHALL BE PROVIDED ON SPRING ISOLATED ASSEMBLIES.
8. FAN MOTORS SHALL BE PREMIUM EFFICIENT MOTORS, NO EXCEPTIONS.
9. CONDENSATE TRAPS SHALL BE PROVIDED AS DETAILED ON PRINTED INSTALLATION LITERATURE PROVIDED WITH THE AIR HANDLING UNIT. REFER TO MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS FOR PROPER TRAP CONSTRUCTION BASED ON STATIC PRESSURE AS INDICATED HEREIN.
10. PROVIDE UNIT WITH: STAINLESS STEEL DRAIN PANS SLOPED TO CONDENSATE DRAIN, STAINLESS STEEL COIL CASINGS, 2" FOAM (R-13) INSULATION IN THE PANELS, 18 GA. CASING, MINIMUM 1 YEAR WARRANTY FOR THE UNIT.
11. PRE-FILTERS IN COMBINATION FILTER SECTION TO BE 2" MERV 8 AND 4" MERV 13 FILTERS. FILTER PRESSURE DROPS SHALL BE THE FOLLOWING: TOTAL - 1.20". PROVIDE FILTER SECTIONS WITH MAGNAHELIC GAUGES WITH PERMANENT MARKINGS AT THE CLEAN AND DIRTY CONDITIONS.
12. PROVIDE FAN SECTIONS WITH MARINE LIGHTS.

** PROVIDE NEW BELTS AND SHEAVES FOR FINAL TEST AND BALANCE OF EXISTING EQUIPMENT.

COMPONENT LEGEND FOR AIR HANDLING UNIT

MXB	- MIXING BOX	PLN	- PLENUM
FMXB	- MIXING BOX WITH FILTERS	SAC	- SMALL ACCESS
PHC	- PREHEAT COIL	MLAC	- MEDIUM/LARGE ACCESS
CCL	-COOLING COIL	LAC	- LARGE ACCESS
FAN	- FAN	XLAC	- EXTRA LARGE ACCESS
FLT	- FLAT FILTER	IFB	- INTERNAL FACE & BYPASS
PFL	- PRE-FILTERS	DIF	- DIFFUSER
FFL	- FINAL FILTERS	FLTA	- ANGLE FILTER SECTION
CCLT	- COOLING COIL & TURNING SECTION	TRN	- TURNING SECTION

TERMINAL UNIT WITH HEATING HOT WATER REHEAT SCHEDULE

EQUIPMENT NO.	INLET SIZE	TOTAL CFM	MIN. COOLING CFM	MAX HEATING CFM	MIN. HEATING CFM	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	MBH	GPM	NC
VAVUPS-1	8	500	150	500	250	55	95	180	150	10.9	0.7	-
VAVUPS-2	14	1800	600	1800	900	55	95	180	150	39.1	2.6	-
VAVUPS-3	8	500	150	500	250	55	95	180	150	10.9	0.7	-
VAVUPS-4	10	825	250	825	400	55	95	180	150	17.4	1.2	-
VAVUPS-5	12	1400	450	1400	750	55	95	180	150	32.6	2.2	-
VAVUPS-6	12	1400	450	1400	750	55	95	180	150	32.6	2.2	-
VAVUPS-7	12	1400	450	1400	750	55	95	180	150	32.6	2.2	-
VAVUPS-8	12	1400	450	1400	750	55	95	180	150	32.6	2.2	-

- NOTES:
1. BASIS OF DESIGN: PRICE, OR EQUAL.
2. PROVIDE ALL TERMINAL UNITS WITH AN APPLICATION SPECIFIC DDC CONTROLLER. PROVIDE ANY AND ALL COMPONENTS REQUIRED TO CONNECT TO BAS PANEL PROVIDED FOR ASSOCIATED AHU. UNITS SHALL BE POWERED THRU CONTROLS SYSTEMS WITH LOW VOLTAGE ELECTRICAL CHARACTERISTICS.
3. (-) INDICATES NC LEVEL OF 25 OR LESS.
4. MAXIMUM PRESSURE LOSS THRU UNIT AND COIL SHALL BE 0.5" STATIC PRESSURE.
5. PROVIDE TERMINAL UNITS WITH (2) ROW HEATING HOT WATER REHEAT COILS, CAPABLE OF PROVIDING BTUH AND AIR TEMPERATURES INDICATED.

DIFFUSER SCHEDULE

PLAN MARK	CFM	NECK SIZE	DESCRIPTION
A	0-100	6"Ø	SQUARE PLAQUE DIFFUSER, HIGH CAPACITY, ROUND INLET (OF SIZE INDICATED) ALUMINUM CONSTRUCTION. PROVIDE THROW PATTERN AS INDICATED. WHERE NO THROW PATTERN IS INDICATED, PROVIDE 4-WAY THROW. SHALL BE EQUAL TO PRICE MODEL ASPD. PROVIDE WITH INSULATED BACKPAN, MINIMUM, R-6 INSULATION WITH FOIL SCRIM VAPOR BARRIER.
	101-245	8"Ø	
	246-350	10"Ø	
	351-500	12"Ø	
	501-900	14"Ø	
B	REFER TO PLAN VIEWS FOR CFM AND SIZES		ALL ALUMINUM CONSTRUCTION RETURN AIR. WITH LOUVERED FACE AND 3/4" BLADE SPACING ON 45° ANGLE. PROVIDE LAY-IN TYPE BORDER WHERE LOCATED IN LAY-IN TYPE CEILINGS. PROVIDE WITH SURFACE MOUNTED BORDER WHERE LOCATED IN GYPSUM CEILINGS OR ON WALLS.
C	REFER TO PLAN VIEWS FOR CFM AND SIZES		ALL ALUMINUM CONSTRUCTION DOUBLE DEFLECTION SUPPLY AIR DIFFUSER WITH AIRFOIL BLADES. PROVIDE 3/4" BLADE SPACING AND ADJUSTABLE DIRECTIONS IN BOTH HORIZONTAL AND VERTICAL PLANES. PROVIDE LAY-IN TYPE BORDER WHERE LOCATED IN LAY-IN TYPE CEILINGS. PROVIDE WITH SURFACE MOUNTED BORDER WHERE LOCATED IN GYPSUM CEILINGS OR ON WALLS.

- NOTES:
1. LAY-IN AND WALL MOUNTED DIFFUSERS AND GRILLES SHALL BE WHITE.
2. WHERE REQUIRED BY GYPSUM CEILINGS, PROVIDE WITH PLASTER RINGS OR OTHER APPURTENANCES AS REQUIRED.
3. INTERIORS OF DIFFUSERS AND GRILLES VISIBLE FROM THE FINISHED SPACE SHALL BE PAINTED FLAT BLACK.
4. UNLESS NOTED OTHERWISE, DIFFUSERS/GRILLES/REGISTERS SHALL BE ALL ALUMINUM CONSTRUCTION AND EQUAL TO PRICE.

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ARCHITECTS & ENGINEERS, LLC

COA #: 29709
Tomahawk Project #: 23036

Project #:
Phase:

Job Title:

19370.42
100% CONSTRUCTION DOCUMENTS

FLORIDA STATE UNIVERSITY
Tallahassee, Florida

PG #1 REMODELING

DESIGN DEVELOPMENT
OWNER REVIEW
100% CONSTRUCTION DOCS

DRAWN: DMW
CHECKED: DMW
DESIGNED: DMW

DATE: 11-05-24
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REVISION: 1
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REVISION: 3

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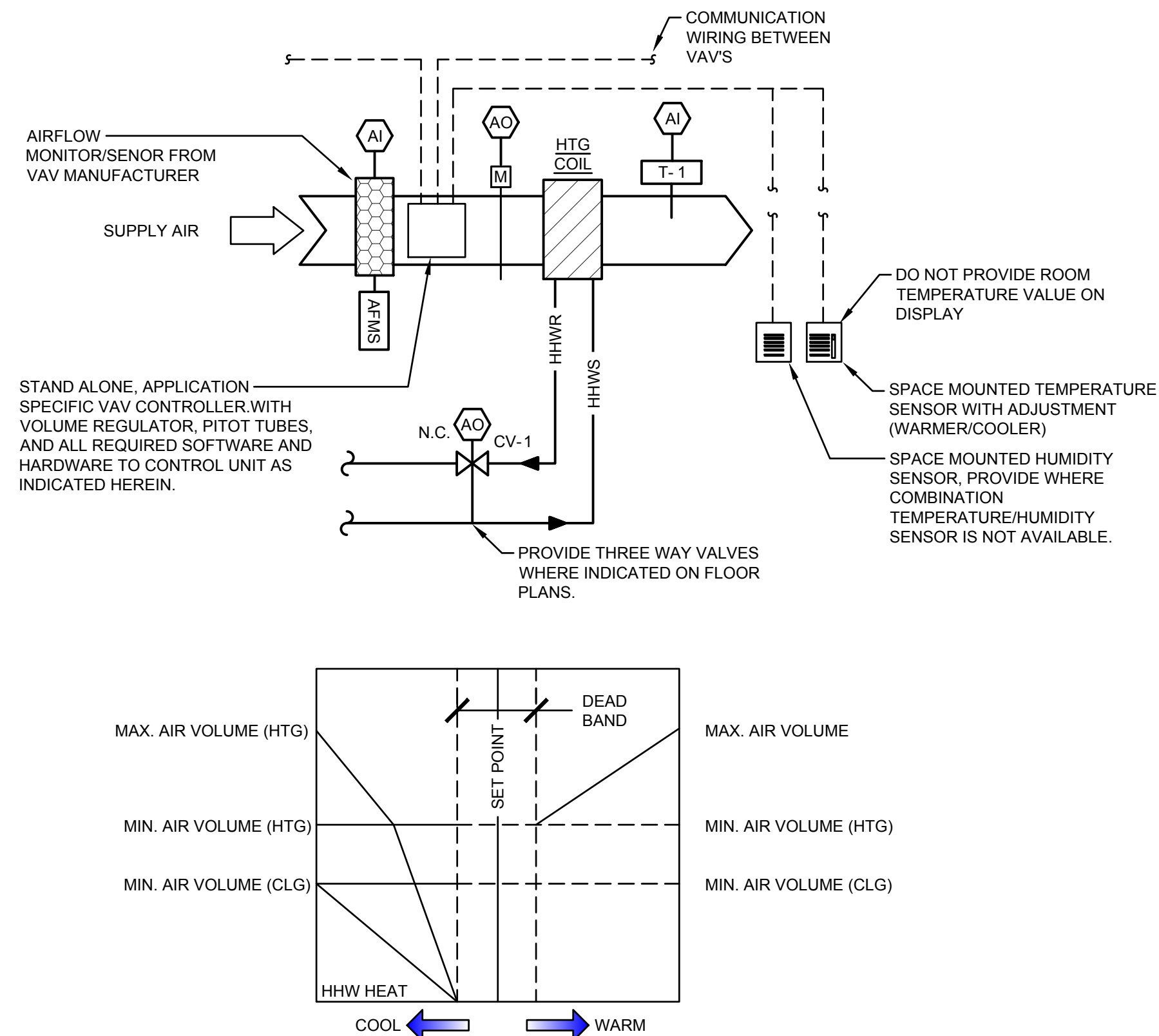
EXPIRES
12-28-25

PROFESSIONAL ENGINEER

Seal:

Description:
Schedules -
Mechanical

Sheet No.:
M6.1



VAV SEQUENCE OF OPERATIONS

THE VAV SHALL BE CONNECTED TO BAS PANEL ASSOCIATED WITH THEIR RESPECTIVE EXISTING AIR HANDLERS

THE VAV SHALL BE ENABLED BY THE BAS CONTROL SYSTEM. ONCE THE VAV HAS BEEN ENABLED, THE FOLLOWING SHALL OCCUR:

THE BAS SHALL CONTINUOUSLY MONITOR THE SPACE TEMPERATURE VIA THE SPACE MOUNTED TEMPERATURE SENSOR.

THE VAV SHALL BE IN THE SAME MODE (OCCUPIED/UNOCCUPIED & HEATING/COOLING). REFER TO AHU CONTROLS FOR FURTHER INFORMATION. NOTE: THIS FUNCTION WILL BE USED FOR FUTURE BUILD OUT AND RENOVATION PHASES. IMBED LOGIC IN CONTROLLER FOR USE UPON COMPLETION OF FUTURE PHASES.

COOLING MODE:

DURING COOLING MODE, THE VAV SHALL MODULATE ITS VOLUME DAMPER BETWEEN THE MAXIMUM OPEN AND MINIMUM COOLING POSITION AS REQUIRED TO PROVIDE THE SCHEDULED AIRFLOW VOLUME AND MAINTAIN SPACE TEMPERATURE. UPON A FALL IN SPACE TEMPERATURE, THE VAV SHALL MODULATE ITS VOLUME DAMPER TO SATISFY THE SPACE TEMPERATURE SET POINT TOWARD MINIMUM POSITION. THE MINIMUM COOLING DAMPER POSITION SHALL BE SET AS INDICATED BY THE VAV SCHEDULE. IF SPACE TEMPERATURE CONTINUES TO FALL BELOW SET POINT AND THE DAMPER IS AT THE MINIMUM COOLING POSITION, THE HEATING HOT WATER CONTROL VALVE SHALL MODULATE OPEN AND CLOSED TO SATISFY TEMPERATURE SET POINT.

HEATING MODE:

DURING HEATING MODE, THE VAV SHALL MODULATE ITS AIR VOLUME DAMPER TO THE MINIMUM HEATING POSITION. THE HEATING HOT WATER CONTROL VALVE SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE SET POINT.

WHERE THE VAV IS AT THE MINIMUM HEATING AIR FLOW AND THE CONTROL HHW CONTROL VALVE IS 100% OPEN AND THE SPACE TEMPERATURE CONTINUES TO FALL FOR 2-MINUTES, THE VAV SHALL MODULATE ITS AIR FLOW VOLUME DAMPER TO MAINTAIN SPACE TEMPERATURE. THE HEATING HOT WATER CONTROL VALVE SHALL REMAIN 100% OPEN. ONCE THE VAV IS AT THE MINIMUM HEATING CFM VALUE FOR ONE MINUTE, THE HEATING HOT WATER CONTROL VALVE SHALL BE ALLOWED TO MODULATE SPACE TEMPERATURE, ONCE AGAIN.

SET POINTS OCCUPIED

COOLING: 72°F

HEATING: 70°F

SET POINTS UNOCCUPIED

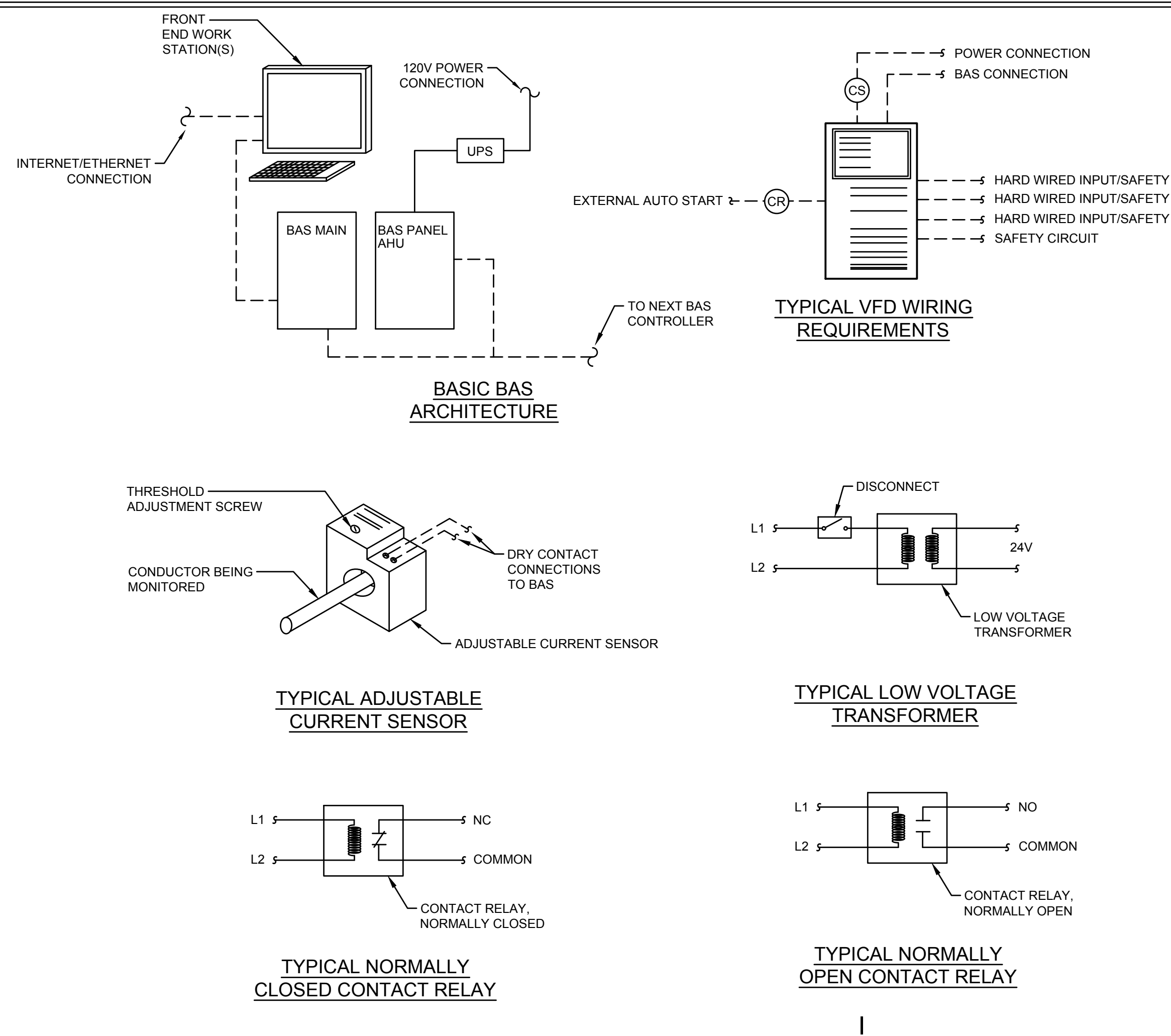
COOLING: 78°F

HEATING: 68°F

THE DISCHARGE AIR TEMPERATURE, T-1 SHALL BE MONITORED AND ALARM THE BAS UPON A USER SPECIFIED HIGH/LOW VALUE.

FOR BOTH HEATING AND COOLING MODES, PROVIDE OCCUPANT ADJUSTMENT UP 2°F AND DOWN 2°F.

NOTE: PROVIDE DEAD BAND IN ACCORDANCE WITH ASHRAE 90.1.



THE INTENT OF THESE DIAGRAMS IS TO SHOW GENERAL SYSTEM ARRANGEMENT AND COMPONENTS. THE SUCCESSFUL CONTROLS VENDOR SHALL PROVIDE ALL DEVICES, LABOR, CONDUIT, CONTROL PANELS, WIRING (REGARDLESS OF VOLTAGE), OR ANY OTHER COMPONENTS REQUIRED OR IMPLIED TO HAVE A FULLY COMPLETE AND FULLY FUNCTIONAL CONTROL SYSTEM.

THE VENDOR SHALL PROVIDE A CONTROL SYSTEM WITH FULLY WEB ENABLED ADDRESSABLE CONTROL PANELS. THE CONTROL NETWORK SHALL BE ACCESSIBLE VIA THE CONTROLS SYSTEM NETWORK AT THE FRONT END COMPUTER STATION AS WELL AS ANY ADDITIONAL COMPUTER REQUESTED BY OWNER PERSONNEL. GRAPHICS SHALL BE PROVIDED AND SHALL ALSO BE SITE AND COMPONENT SPECIFIC AT THE FRONT END WORK STATION. WHERE THE SYSTEM IS EXISTING, THE GRAPHICS SHALL BE UPDATED AT THE FRONT END WORK STATION AND SHALL MEET THE STANDARDS SET FORTH UNDER CURRENT CONTROLS PROTOCOL.

THE CONTROLS VENDOR SHALL WORK WITH THE TEST AND BALANCE AGENT AS REQUIRED TO SET ALL DIFFERENTIAL PRESSURE SENSORS AND STATIC PRESSURE SENSORS. SENSORS SHALL BE SET AS REQUIRED TO DELIVER CFM VALUES AND GPM VALUES FOUND WITHIN THESE DOCUMENTS.

THE CONTROLS VENDOR SHALL PROVIDE A POINT TO POINT CONTROLS CHECK OUT PRIOR UPON COMPLETION OF CONTROLS INSTALLATION.

DAMPER AND VALVE MOTOR VOLTAGES SHALL SUIT THE APPLICATION.
PROVIDE 120/24 VOLT AS NEEDED.

PROVIDE 120V DAMPER AND VALVE ACTUATORS FOR COMPONENTS LOCATED OUTDOORS. ACTUATORS LOCATED OUTDOORS SHALL BE PROVIDED WITH HEATERS.

REFER TO ELECTRICAL DRAWINGS FOR PANELS PROVIDED WITH BAS CONNECTIONS/CIRCUITS. IT IS THE RESPONSIBILITY OF THE CONTROLS VENDOR TO PROVIDE ELECTRICAL WIRING AND CONDUITS FROM ELECTRICAL PANELS TO CONTROLS EQUIPMENT AND COMPONENTS.

ADJUSTABLE CURRENT SENSORS SHALL BE PROVIDED FOR BELT DRIVEN EQUIPMENT. SET SENSORS FOR BELT BROKEN, BELT LOOSE, AND NORMAL OPERATION. PROVIDE ALARM BELT BROKEN OR BELT LOOSE CONDITIONS.

PROVIDE LOW VOLTAGE TRANSFORMERS FOR LOW VOLTAGE APPLICATIONS. PROVIDE TRANSFORMERS WITH DISCONNECTING MEANS. PROVIDE WITH VOLT AMPS TO SUIT APPLICATION AND WIRING LENGTHS OF FIELD INSTALLED DEVICES.

ALL SET POINTS ASSOCIATED WITH THIS CONTROL SYSTEM SHALL BE FULLY ADJUSTABLE AND SHALL BE FULLY TRENDABLE.

