



**PROJECT TEAM**

**OWNER**  
UNIVERSITY OF NORTH TEXAS  
CONTACT: CARL PARSONS, PE, LEED AP  
1155 UNION CIRCLE  
DENTON, TEXAS 76203  
P: 940.369.5788

**MEP ENGINEER**  
CAMPOS ENGINEERING  
1331 RIVER BEND DRIVE  
DALLAS, TEXAS 75247  
P: 214.696.6291

**COST ESTIMATOR**  
SUNLAND GROUP  
85 NE LOOP 410, SUITE 570  
SAN ANTONIO, TEXAS 78216  
P: 210.395.2687

**DRAWING INDEX**

Sheet Number	Sheet Name
MEP0.00	MEP COVER SHEET
MEP0.01	PLUMBING SYMBOL LEGEND AND GENERAL NOTES
MEP0.02	MECHANICAL SYMBOL LEGEND
MEP0.03	MECHANICAL GENERAL NOTES
MEP0.04	ELECTRICAL SYMBOL LEGEND AND GENERAL NOTES
DP2.00	BASEMENT/UNDER FLOOR MEP PLAN
MEP2.00	BASEMENT/UNDER FLOOR MEP PLAN
MEP2.01	BASEMENT/UNDER FLOOR MECHANICAL PLAN
MEP2.10	FIRST FLOOR MEP PLAN
MEP2.20	SECOND FLOOR MEP PLAN
MEP2.30	THIRD FLOOR MECHANICAL PLAN
MEP2.40	ROOF MECHANICAL PLAN
MEP5.01	MEP ENLARGED PLANS
MEP5.02	MEP ENLARGED PLANS
MEP5.03	MEP ENLARGED PLANS
MEP6.01	MAIN BUILDING VENTILATION AIR RISER DIAGRAM
MEP6.02	HYDRONIC RISER DIAGRAMS
MEP7.01	MEP SCHEDULES
MEP9.01	MEP CONTROLS
MEP9.02	MEP CONTROLS
MEP9.03	MEP CONTROLS
MEP9.04	MEP CONTROLS
MEP9.05	MEP CONTROLS

**CODES / STANDARDS**

**NFPA CODES / STANDARDS:**

- 2018 Edition NFPA1 Fire Code
- 2018 Edition NFPA101 Life Safety Code
- 2013 Edition NFPA 13 Standard for the Installation of [Fire] Sprinkler Systems
- 2013 Edition NFPA 13R Standard for the Installation of [Fire] Sprinklers in Low-Rise Residential Buildings
- 2013 Edition NFPA 14 Standards for the Installation of Standpipes and Hose Systems
- 2013 Edition NFPA 20 Standard for the Installation of Stationary Pumps for Fire Protection
- 2013 Edition NFPA 24 Standard for the Installation of Private Fire Service Mains and Their Appurtenances
- 2020 Edition NFPA 70 National Electrical Code
- 2013 Edition NFPA 72 National Fire Alarm Signaling Code

**INTERNATIONAL CODE CONFERENCE (ICC):**

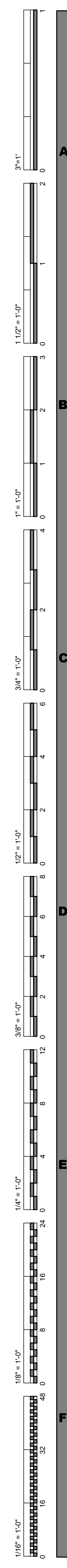
- 2018 Edition International Building Code (IBC)
- 2018 Edition International Mechanical Code (IMC)
- 2018 Edition International Plumbing Code (IPC)
- 2018 Edition International Fire Code (IFC)
- 2018 Edition International Fuel Gas Code (IFGC)
- 2018 Edition International Energy Conservation Code (IECC)

# CLARK HALL MEP UPGRADES

1717 MAPLE STREET  
DENTON, TEXAS 76201



100% CONSTRUCTION DOCUMENTS    05/09/2023    UNIVERSITY OF NORTH TEXAS CLARK HALL



**PROJECT DIRECTORY:**  
JEFFREY STROHL, P.E.  
1331 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-696-6291

**CLARK HALL DORMITORY  
MECHANICAL, ELECTRICAL & PLUMBING  
RENOVATION**  
UNIVERSITY OF NORTH TEXAS  
PROJECT ADDRESS: 1717 MAPLE STREET, DENTON, TX 76201

No.	Date	Issued By	Description

DRAWING TITLE: **MEP COVER SHEET**

PROJECT NUMBER: CAMPOS 022-2995.00  
ISSUE DATE: 05/09/2023  
100% CONSTRUCTION DOCUMENTS  
DRAWN BY: / CHECKED BY: / APPROVED BY: /  
MC / JS / JS



PLUMBING SYMBOL LEGEND

**GRAPHIC SYMBOLS**

DRAWING TITLE  
**TOP TITLE**  
BOTTOM TITLE

1 SHEET SCALE: 1/8" = 1'-0"  
SCALE OF FLOOR PLAN, SECTION OR DETAIL.  
DETAIL NO. AND SHEET NO.

AREA OF ENLARGED PLAN OR DETAIL

1 P3.01 SHEET NO. ON WHICH ENLARGED DETAIL IS DRAWN

SECTION NO.  
PS.01 DIRECTION OF CUTTING PLANE

SHEET NO. ON WHICH THE SECTION IS DRAWN

**PIPING DESIGNATIONS**

4" SAN  
-OR-  
4" SAN

SYSTEM SERVICE ABBREVIATION  
NOMINAL PIPE SIZE (IN INCHES)

4" SAN  
-OR-  
4" SAN

**MISCELLANEOUS SYMBOLS**

XXX-1 EQUIPMENT DESIGNATION

SINGLE LINE PIPE BREAK

DOUBLE LINE PIPE BREAK

STANDARD BREAK

KEYED NOTE

REVISION DELTA

POINT OF DISCONNECTION

POINT OF CONNECTION (NEW TO EXISTING)

NEW ITEMS (PIPING/EQUIPMENT)

EXISTING ITEMS TO REMAIN

EXISTING ITEMS TO BE DEMOLISHED

LIMIT OF EXISTING ITEMS TO BE REMOVED

NEW CONNECTION TO EXISTING ITEM

(N) NEW ITEM (NOTATION SHOWN AS NECESSARY FOR CLARIFICATION)

(E) EXISTING ITEM TO REMAIN (NOTATION SHOWN AS NECESSARY FOR CLARIFICATION)

(F) FUTURE ITEM (NOTATION SHOWN AS NECESSARY FOR CLARIFICATION)

(R) EXISTING ITEM TO BE RELOCATED (NOTATION SHOWN AS NECESSARY FOR CLARIFICATION)

(D) EXISTING ITEM TO BE DEMOLISHED (NOTATION SHOWN AS NECESSARY FOR CLARIFICATION)

**PIPE & FITTING SYMBOLS**

DOUBLE LINE SINGLE LINE DESCRIPTION

PIPE

DIRECTION OF FLOW / SLOPE

PIPING WITH INSULATION (WHEN SHOWN FOR CLARITY)

WELDED JOINT

SCREWED JOINT

FLANGED JOINT

UNION

GROOVED END JOINT

GENERIC FLEXIBLE COUPLING (REFER TO SPECIFICATIONS)

GROOVED END ADAPTER FLANGE

FLANGED COUPLING ADAPTER

STUB END OR FLANGE ADAPTER W/ FLANGE RING

BLIND FLANGE

ELBOW, 45 DEGREE (LONG RADIUS UON)

ELBOW, 90 DEGREE (LONG RADIUS UON)

ELBOW, 90 DEGREE - CHANGE IN DIRECTION TOWARD VIEWER

ELBOW, 90 DEGREE - CHANGE IN DIRECTION AWAY FROM VIEWER

TEE FITTING

TEE FITTING, BRANCH TOWARD VIEWER

TEE FITTING, BRANCH AWAY FROM VIEWER

LATERAL

REDUCER - CONCENTRIC

REDUCER - ECCENTRIC

CAP

ANCHOR

CLEANOUT PLUG / WALL CLEANOUT

VENTURI FLOW METER

FLOW ORIFICE PLATE

STRAINER - "Y" TYPE WITH BLOW DOWN

THERMOWELL WITH THERMOMETER

PRESSURE GAUGE WITH GAUGE COCK

**PIPE & FITTING SYMBOLS**

DOUBLE LINE SINGLE LINE DESCRIPTION

AQUASTAT

AUTOMATIC AIR VENT

MANUAL AIR VENT

WATER METER

PUMP, ARROW INDICATES FLOW

**VALVE SYMBOLS**

DOUBLE LINE SINGLE LINE DESCRIPTION

BOILER FEED BOOSTER PUMP

SHUT-OFF VALVE IN VALVE BOX

BUTTERFLY VALVE

BALL VALVE

DIAPHRAGM VALVE

GLOBE VALVE

PLUG VALVE

GAS COCK

CHECK VALVE

BACKFLOW PREVENTER

BACKWATER VALVE

PRESSURE REDUCING VALVE

BALANCING VALVE

ANGLE VALVE

TEMPERATURE AND PRESSURE RELIEF VALVE

SOLENOID VALVE

MOTOR OPERATED VALVE

GAS PRESSURE REGULATOR

**EQUIPMENT SYMBOLS**

FLOORHUB DRAIN

FLOOR SINK

ROOF DRAIN / OVER-FLOW ROOF DRAIN

FLOOR CLEANOUT

CLEANOUT TO GRADE

P-TRAP

HOSE BIBB / FROST-PROOF HOSE BIBB

TRAP PRIMER

WATER HAMMER ARRESTOR

**ABBREVIATIONS**

A (0.5) COMPRESSED AIR (WORKING PRESS.)  
AAV AIR ADMITTANCE VALVE  
ABV ABOVE  
AC ALTERNATING CURRENT  
AC AIR CONDITIONING  
AD ACCESS DOOR, AREA DRAIN  
AFF ABOVE FINISHED FLOOR  
AHU AIR HANDLING UNIT  
AI ANALOG INPUT  
ALT ALTITUDE  
AMB AMBIENT  
AMP AMPERE  
AO ANALOG OUTPUT  
AP ACCESS PANEL  
APD AIR PRESSURE DROP  
APPROX APPROXIMATE  
AS AIR SEPARATOR  
ASC ABOVE SUSPENDED CEILING  
ASH AUTHORITY HAVING JURISDICTION  
AVG AVERAGE  
AWG AMERICAN WIRE GAUGE

B BOILER  
B&S BELL & SPIGOT  
B&B BACK TO BACK  
BAL BALANCE  
BBR BASE BOARD RADIATOR  
BFC BELOW FINISHED CEILING  
BFG BELOW FINISHED GRADE  
BFV BUTTERFLY VALVE  
BFBP BOILER FEED BOOSTER PUMP  
BFW BOILER FEED WATER  
BGT BUILDING  
BHC BRAKE HORSEPOWER  
BLW BELOW  
BO BLOWOFF  
BOD BOTTOM OF DUCT  
BOP BOTTOM OF PIPE  
BOS BOTTOM OF STEEL  
BTU BRITISH THERMAL UNIT  
BTUH BRITISH THERMAL UNIT PER HOUR  
BV BALL VALVE  
BYP BYPASS

°C CELSIUS (DEGREES)  
C/C COOLING COIL  
CAP CAPACITY  
CD CONDENSATE DRAIN  
CF CHEMICAL FEED  
CFM CUBIC FEET PER MINUTE  
CFS CUBIC FEET PER SECOND  
CH CHILLER  
CHW CHILLED WATER  
CIP CAST IRON PIPE  
CKT CIRCUIT  
CKV CHECK VALVE  
CL CENTER LINE  
CONN CONNECTION  
CPD CONDENSATE PUMP DISCHARGE  
CPVC CHLORINATED POLYVINYL CHLORIDE  
CRAC COMPUTER ROOM AC UNIT  
CRP CONDENSATE RETURN PUMP  
CT COOLING TOWER  
CU CONDENSING UNIT  
CU FT CUBIC FEET  
CU IN CUBIC INCH  
CUH CABINET UNIT HEATER  
CW COEFFICIENT - VALVE FLOW  
CW COLD WATER (POTABLE)  
CWP COLD WORKING PRESSURE  
CWR COLD WATER RETURN (POTABLE)

D DRAIN  
DC DIRECT CURRENT  
DCW DOMESTIC COLD WATER  
DDC DIRECT DIGITAL CONTROL  
DEG DEGREES (CELSIUS OR FAHRENHEIT)  
DF DRINKING FOUNTAIN  
DFU DRAINAGE FIXTURE UNIT  
DIA DIAMETER  
DIP DUCTILE IRON PIPE  
DOV DRAIN OFF VALVE  
DPS DIFFERENTIAL PRESSURE SENSOR  
DPT DIFFERENTIAL PRESSURE TRANSMITTER  
DS DISCONNECT SWITCH  
DVV DRAIN, WASTE & VENT

EA EXHAUST AIR  
EP ELECTRIC PNEUMATIC  
EF EXHAUST FAN  
EFF EFFICIENCY  
EL ELEVATION  
ENT ENTERING  
EOV ELECTRONICALLY OPERATED VALVE  
ES EMERGENCY SHOWER  
ET EXPANSION TANK  
EVAP EVAPORATOR  
EWC ELECTRIC WATER COOLER  
EW EMERGENCY EYE WASH  
EXCH EXCHANGER  
EXH EXHAUST  
EXP EXPANSION

FCU FLOOR CLEANOUT  
FD FLOOR DRAIN  
FAH FAHRENHEIT (DEGREES)  
FLA FULL LOAD AMPS  
FLANGE  
FMS FACILITY MANAGEMENT SYSTEM  
FPM FEET PER MINUTE  
FPS FEET PER SECOND  
FRP FIBERGLASS REINFORCED PLASTIC  
FS FLOOR SINK  
FSI FLOOR SINK  
FT FOOT, FEET  
FT LB FOOT-POUND  
FLUSHOMETER VALVE

G (0.5) GAS (WORKING PRESSURE)  
GA GAS, GAUGE  
GAL GALLON  
GALV GALVANIZED  
GEN GENERATOR  
GEN GREASE INTERCEPTOR  
GI GLOBE VALVE  
GPD GALLONS PER DAY  
GPM GALLONS PER MINUTE  
GPH GALLONS PER HOUR  
GPM GALLONS PER MINUTE  
GATE VALVE  
GW GREASE WASTE  
GWH GAS WATER HEATER

HB HOSE BIBB  
HD HEADHUB DRAIN  
HG HEAT GAIN  
HGT HEIGHT  
HP HORSEPOWER  
HR HOUR  
HVC HEATING, VENTILATION AND AC  
HW HOT WATER (POTABLE)  
HWB HOT WATER BOILER  
HWC HOT WATER COIL  
HWCP HOT WATER CIRCULATING PUMP  
HWP HOT WATER PUMP  
HWR HOT WATER RETURN (POTABLE)  
HWT HOT WATER TANK  
HZ HERTZ (FREQUENCY)

IO INPUT/OUTPUT  
ID INSIDE DIAMETER  
IE INVERT ELEVATION  
IN WC INCHES WATER COLUMN  
INV INVERT  
IP IRON PIPE  
IPS IRON PIPE SIZE, INCHES PER SECOND  
IPT IRON PIPE THREADED  
IR INFRARED  
IW INDIRECT WATERS

K KELVIN THERMAL CONDUCTIVITY  
KIP THOUSAND POUNDS  
KIP FT THOUSAND FOOT-POUNDS  
KW KILOWATT  
KWH KILOWATT HOUR

L LAVATORY  
L POUNDS  
LF LINEAR FEET  
LG LENGTH  
LH LATENT HEAT  
LHG LATENT HEAT GAIN  
LP LOW PRESSURE  
LT LEAVING TEMPERATURE  
LTHW LOW TEMPERATURE HOT WATER  
LWT LEAVING WATER TEMPERATURE

MA MILLIAMPERES  
MAX MAXIMUM  
MCA MINIMUM CIRCUIT AMPACITY  
MCC MOTOR CONTROL CENTER  
MH MANHOLE  
MIN MINIMUM  
MOCP MAXIMUM OVERCURRENT PROTECTION  
MOV MOTOR OPERATED VALVE  
MP MEDIUM PRESSURE  
MPT MALE PIPE THREAD  
MSP MOP SINK  
MU MAKE-UP WATER

NA NOT APPLICABLE  
NC NORMALLY CLOSED  
NFBP NON-FREEZE HOSE BIBB  
NFPA NATIONAL FIRE PROTECTION ASSOCIATION  
NH NO HUB  
NIC NOT IN CONTRACT  
NO NOMINALLY OPEN, NUMBER  
NPS NOMINAL PIPE SIZE  
NPW NON-POTABLE WATER  
NRS NON-RISING STEM  
NTS NOT TO SCALE

OA OUTSIDE AIR  
OD OUTSIDE DIAMETER  
OSD OVERFLOW/STORM DRAIN  
OS&Y OUTSIDE SCREW AND YOKE  
OZ OUNCE

P PUMP  
P/E PNEUMATIC ELECTRIC  
% PERCENT  
PC PUMPED CONDENSATE

PD PRESSURE DROP  
POS POSITIVE  
PG PRESSURE GAUGE  
PH PHASE  
PC PRESSURE COIL  
PRV PRESSURE REDUCING VALVE  
PPM PARTS PER MILLION  
PLBBS PLUMBING  
PRES PRESSURE  
PS PRESSURE SWITCH  
PSF POUNDS PER SQUARE FOOT  
PSI POUNDS PER SQUARE INCH  
PSIG POUNDS PER SQUARE INCH GAUGE  
POLYVINYL CHLORIDE  
PW POTABLE WATER

QUART  
QTY QUANTITY

R RELIEF, THERMAL RESISTANCE  
RA RETURN AIR  
RD ROOF DRAIN  
RECT RECTANGULAR  
RED REDUCER  
REF REFERENCE  
REFR REFRIGERATION  
RET RETURN  
REQ REQUIRED  
REV REVOLUTIONS  
RH RELATIVE HUMIDITY  
RHV REHEAT VALVE  
RL REFRIGERANT LIQUID  
RPM REVOLUTIONS PER MINUTE  
RPS REVOLUTIONS PER SECOND  
RPP REDUCED PRESSURE PRINCIPLE  
RPRW ROOF PUMP W/ CENTER  
RTU ROOF TOP UNIT  
RV RELIEF VALVE

S SECOND, SINK  
SA SUPPLY AIR  
SAN SANITARY  
SCHED SCHEDULE  
SD STORM DRAIN  
SF SQUARE FEET  
SG SPECIFIC GRAVITY, STEAM GAUGE  
SH SHOWER  
SOLV SOLENOID VALVE  
SOV SHUT OFF VALVE  
SUMP SUMP PUMP  
SPEC SPECIFICATION  
SPS STATIC PRESSURE SENSOR  
SQ SQUARE  
SSD SUB-SOIL DRAIN  
SSP STAINLESS STEEL PIPE  
SSS STAINLESS STEEL  
ST STEAM  
STM STEAM  
STR STRAINER  
STW STEAM WORKING PRESSURE  
SUCTION SUCTION  
SUP SUPPLY  
SV SAFETY VALVE

T TEMPERATURE SENSOR  
T&P TEMPERATURE AND PRESSURE  
TCV TEMPERATURE CONTROL VALVE  
TD TEMPERATURE DIFFERENCE  
TEMP TEMPERATURE  
TOP TOP OF PIPE  
TRANS TRANSFER  
TSTAT THERMOSTAT  
TYP TYPICAL

U or UR URINAL  
UG UNDERGROUND  
UH UNIT HEATER  
UL UNDERWRITERS LABORATORY  
UNLESS OTHERWISE NOTED

V VENTS/VOLTS  
VAC VOLTS ALTERNATING CURRENT  
VAR VARIABLE  
VDC VOLTS DIRECT CURRENT  
VEL VELOCITY  
VERT VERTICAL  
VFD VARIABLE FREQUENCY DRIVE  
VTR VENT THROUGH ROOF

W WATT  
WC WATER CLOSET  
WCO WALL CLEANOUT  
WH WATER HEATER, WALL HYDRANT  
WL WATER LINE  
WLD WELDED  
WM WATER METER  
WNF WELD NECK FLANGE  
WPP WATER PUMP, WEATHERPROOF  
WPR WATER PRESSURE DROP  
WPR WORKING PRESSURE DROP  
WT WEIGHT

YD YARD, YARD DRAIN  
YH YARD HYDRANT  
YR YEAR

Z ZONE

**PLUMBING GENERAL NOTES**

1. THE PLUMBING CONTRACTOR SHALL VISIT AND CAREFULLY EXAMINE THOSE PORTIONS OF THE BUILDING AND SITE AFFECTED BY THIS WORK BEFORE SUBMITTING PROPOSALS, SO AS TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT PRICING AND EXECUTION OF THE WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH EXAMINATION HAS BEEN MADE AND LATER CLAIMS FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WILL NOT BE RECOGNIZED. UTILITIES AND SERVICES INDICATED ARE TAKEN FROM VARIOUS SURVEYS, AS-BUILT DRAWINGS AND FIELD INVESTIGATIONS. IT IS TO BE UNDERSTOOD THAT UNDETERMINED CONDITIONS PROBABLY EXIST AND WORK MAY NOT BE FIELD LOCATED EXACTLY AS SHOWN ON THE DRAWINGS. COOPERATION WITH OTHER TRADES AND EXISTING CONDITIONS IN ROUTING, AS DIRECTED BY THE OWNER AND ARCHITECT/ENGINEER, MAY BE NECESSARY AND IT IS INTENDED THAT SUCH DEVIATIONS SHALL BE CONSIDERED AS PART OF THIS CONTRACT. IT IS ALSO UNDERSTOOD THAT THE PLANS ARE NOT COMPLETELY TO SCALE. THIS CONTRACTOR IS TO FIELD VERIFY DIMENSIONS OF ALL SITE UTILITIES, ETC., PRIOR TO BID, AND INCLUDE ANY DEVIATIONS IN THE PROPOSAL.

2. PROVIDE ISOLATION VALVES IN ALL BRANCH PIPING AND AT EQUIPMENT CONNECTIONS. (NOT A PLUMBING FIXTURE)

3. PROVIDE QUARTER TURN STOPS IN THE HOT AND COLD WATER SUPPLIES TO EACH PLUMBING FIXTURE.

4. PROVIDE ISOLATION VALVES IN THE HOT AND COLD WATER PIPING TO EACH GROUP OF PLUMBING FIXTURES. (WATER CLOSET, URINALS, LAVATORIES AND/OR SINKS)

5. PIPING CONNECTIONS TO ALL EQUIPMENT SHALL BE FABRICATED WITH THE ISOLATION VALVES, FLANGES AND/OR UNIONS POSITIONED TO ALLOW REMOVAL AND SERVICE OF THE COMPONENT PARTS.

6. ROUTE PIPING IN AN ORDERLY MANNER AND MAINTAIN PROPER GRACES. INSTALL TO CONSERVE HEADROOM AND TO CREATE MINIMUM INTERFERENCE WITH USE OF SPACE. ROUTE ALL PIPING PARALLEL TO BUILDING LINES UNLESS GROUP PIPING AT COMMON BOP ELEVATIONS WHENEVER PRACTICAL. PIPES LOCATED IN CONCEALED SPACES SHALL BE ROUTED CLOSE TO BUILDING STRUCTURE UNLESS OTHERWISE NOTED.

7. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE OR EQUIPMENT CONNECTED.

8. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED.

9. INSTALL VALVES AND EQUIPMENT IN ACCESSIBLE LOCATIONS. INSTALL ACCESS DOORS IN PARTITIONS OR CEILINGS WHERE VALVES AND EQUIPMENT WOULD OTHERWISE BE INACCESSIBLE.

10. WHEN SOCKET WELDED OR SOLDER END VALVES ARE INSTALLED, SPECIAL CARE SHALL BE TAKEN TO AVOID OVERHEATING AND DAMAGING THE VALVE BODY, TRIM OR PACKING. DAMAGED VALVES SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.

11. IDENTIFY EACH PIPE WITH LABELING AS REQUIRED BY SPECIFICATIONS.

12. SLEEVE ALL PIPING THAT PENETRATES FIRE RATED WALLS, FLOORS AND PARTITIONS. PENETRATIONS SHALL BE SEALED WITH A U.L. LISTED ASSEMBLY TO PROVIDE A RATING EQUAL TO OR GREATER THAN THAT OF THE PENETRATED WALL, FLOOR OR PARTITION.

13. SLEEVE ALL PIPING THAT PENETRATES EXTERIOR BUILDING WALLS AND GRADE BEAMS. SEAL PENETRATIONS WATERTIGHT.

14. COORDINATE WITH OTHER TRADES BEFORE FABRICATION OR INSTALLATION OF ANY SYSTEMS.

15. EXISTING PIPING AND EQUIPMENT SHOWN ON THESE DRAWINGS INDICATES THE GENERAL LOCATION AND ROUTING. THE ACTUAL LOCATION SHALL BE DETERMINED BY THE CONTRACTOR WHO SHALL COORDINATE ALL WORK WITH ALL TRADES NECESSARY TO INSTALL NEW PIPING OR EQUIPMENT AS SHOWN ON THE DRAWING.

16. THESE DRAWINGS DO NOT NECESSARILY SHOW ALL OFFSETS OR ELEVATION DIFFERENCES WHICH MAY BE NECESSARY FOR THE COMPLETE INSTALLATION. THESE SHALL BE PROVIDED AS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM AT NO ADDITIONAL COST TO THE CONTRACTOR.

17. COORDINATE ALL REMODEL WORK WITH NEW CONSTRUCTION AND OTHER TRADES.

18. NOTIFY AND COORDINATE WITH THE OWNER AT LEAST SEVEN DAYS PRIOR TO SHUTDOWN OF ANY BUILDING SERVICES OR EQUIPMENT. SHUTDOWN TIME SHALL BE KEPT TO A MINIMUM.

19. ANY ITEMS DAMAGED DURING DEMOLITION SHALL BE REPLACED WITH NEW MATERIALS TO MATCH EXISTING.

20. CONTRACTOR SHALL PROVIDE TEMPORARY ELECTRICAL SERVICE, PIPING OR OTHER BUILDING SERVICES AS REQUIRED TO KEEP OTHER AREAS IN OPERATION DURING REMODELING. NOTIFY OWNER PRIOR TO SHUT-DOWN FOR ANY TEMPORARY SERVICE REQUIREMENTS. ALL TEMPORARY WORK SHALL BE COMPLETELY REMOVED ONLY AFTER NEW SERVICES ARE COMPLETELY INSTALLED AND FUNCTIONAL.

21. ABANDONED PIPING SHALL BE REMOVED WHERE INDICATED ON THE DRAWINGS. PIPING REMAINING IN PLACE SHALL BE CAPPED, SEALED AIR TIGHT AT POINT(S) OF DEMOLITION, AND INSULATED TO MATCH EXISTING.

22. NEW HOLES THROUGH EXISTING FLOORS SHALL BE CORE DRILLED. ALL CORES SHALL BE X-RAYED PRIOR TO CORING.

23. THE OWNER SHALL HAVE THE OPTION TO DESIGNATE ANY MATERIALS REMOVED OR DEMOLISHED DURING THIS WORK AS "RECYCLABLE" AND SHALL HAVE FINAL DISPOSITION OVER THE DISPOSAL OF THESE MATERIALS. ALL MATERIALS REMOVED/DEMOLISHED BY THE CONTRACTOR FOR THIS JOB AND NOT RETURNED BY THE OWNER FOR RECYCLING OR OTHER PURPOSES SHALL BE DISPOSED OFF-SITE BY THE CONTRACTOR.

24. THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL OF ANY MATERIALS DESIGNATED FOR REMOVAL. THE OWNER SHALL PROVIDE A LIST OF ITEMS THEY REQUIRE TO BE SALVAGED PRIOR TO THE START OF DEMOLITION. THE CONTRACTOR SHALL REMOVE THESE ITEMS USING REASONABLE CARE TO MINIMIZE DAMAGE.

25. ANY AND ALL WATER CONNECTIONS MADE FOR THE PURPOSE OF CLEANING TOOLS OR FOR ANY OTHER CONSTRUCTION-RELATED PURPOSES SHALL BE MADE ONLY TO DOMESTIC WATER HOSE BIBBS OR TO CONTRACTOR-SUPPLIED WATER SOURCES. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE USED AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. CONNECTIONS SHALL NOT BE MADE TO FIRE WATER, CHILLED WATER, CONDENSER WATER, HEATING HOT WATER, DOMESTIC HOT WATER OR ANY OTHER TREATED WATER SOURCE UNLESS REQUIRED AS PART OF WORK ON THESE SYSTEMS.

26. EXCEPT WHERE REQUIRED AT EQUIPMENT NOZZLES, FLANGES SHALL BE RAISED FACE WELD-NECK.

27. INSTALL DIELECTRIC FITTINGS AT ALL FERROUS PIPE CONNECTIONS TO NON-FERROUS METALLIC PIPE OR EQUIPMENT.

28. PROVIDE CHROME PLATED, OR ARCHITECT APPROVED COLOR, ESCUTCHEON PLATES WHERE PIPES EXPOSED TO VIEW PENETRATE FINISHED WALLS, FLOORS AND CEILINGS. SPLIT-RING ESCUTCHEON PLATES SHALL NOT BE USED UNLESS OTHERWISE NOTED.

29. PROVIDE CAPPED DRAIN VALVES AT LOW POINTS OF PIPING SYSTEMS AND AT EQUIPMENT CONNECTIONS. PROVIDE HOSE BIBB CONNECTIONS WITH CAPS AT DRAIN VALVES WHICH DO NOT DISCHARGE DIRECTLY OVER OR ARE NOT PIPED DIRECTLY TO AN APPROPRIATE DRAIN.

30. PIPING OR EQUIPMENT CONNECTIONS OPENED BY DEMOLITION OR RENOVATION SHALL BE COMPLETELY SEALED TO KEEP OUT FOREIGN MATTER UNTIL SUCH TIME AS RECONNECTIONS ARE MADE.

31. ALL PIPING SHALL BE SLOPED PER THE PLUMBING CODE AND THE AUTHORITY HAVING JURISDICTION.

32. CONTRACTOR SHALL VERIFY INVERT ELEVATIONS OF EXISTING SANITARY PIPING TO WHICH NEW SEWER DRAINS ARE TO BE CONNECTED BEFORE INSTALLATION OF NEW SEWER LINE.

33. PROVIDE CLEANOUTS IN ACCORDANCE WITH THE PLUMBING CODE, NO MORE THAN 100 FT. APART, AT CHANGES IN DIRECTION GREATER THAN 45 DEGREES, AND AT THE BASE OF STORM, SOIL AND WASTE STACKS.

34. REFER TO ARCHITECTURAL DRAWINGS FOR PLUMBING FIXTURE EXACT LOCATIONS, MOUNTING HEIGHTS AND DIMENSIONS.

35. ALL ADA COMPLIANT FIXTURES SHALL BE MOUNTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA).

36. INSTALL WATER HAMMER SHOCK ARRESTORS AT EACH BATTERY OF FIXTURES AND AS INDICATED ON RISER DIAGRAMS/DOMECS. ARRESTORS SHALL BE FACTORY-FABRICATED. INSTALL ARRESTORS AND SIZE PER PLUMBING AND DRAINAGE INSTITUTE STANDARD P.D.I. WH-201. PROVIDE ACCESS PANELS FOR SERVICE AND MAINTENANCE.

37. DRAIN, WASTE, AND VENT PIPING LOCATED IN FIRE RATED WALL ASSEMBLIES AND RETURN AIR PLENUMS SHALL BE SERVICE WEIGHT CAST IRON WITH NO HUB FITTINGS.

38. UPON COMPLETION OF THE DOMESTIC WATER PIPING INSTALLATION, THE ENTIRE BUILDING'S HOT WATER RECIRCULATION SYSTEM SHALL BE CALIBRATED AND BALANCED TO PROVIDE SATISFACTORY OPERATION UNDER MINIMUM AND MAXIMUM EXPECTED FLOW CONDITIONS.

**CAMPOS ENGINEERING**

1311 River Bend Drive  
Dallas, Texas 75247  
214-686-9261  
www.camposeng.com  
Registration No. F-03173  
Project Number: 022-2995-00

**UNT UNIVERSITY OF NORTH TEXAS**

5/9/2023

**PROJECT DIRECTORY:**

JEFFREY STROHL, P.E.  
1311 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-686-9261

**CLARK HALL DORMITORY  
MECHANICAL, ELECTRICAL & PLUMBING  
RENOVATION**

CLIENT NAME: UNIVERSITY OF NORTH TEXAS  
PROJECT ADDRESS: 1717 MAPLE STREET, DENTON, TX 76201

**PLUMBING SYMBOL  
LEGEND AND GENERAL  
NOTES**

PROJECT NUMBER: CAMPOS 022-2995-00  
ISSUE DATE: 05/09/2023  
100% CONSTRUCTION DOCUMENTS

DRAWN BY: / CHECKED BY: / APPROVED BY: /  
MC / JS / JS

**MEP0.01**

SCOPE HAS BEEN DIVIDED INTO BASE BID AND ADD ALTERNATES. THE BASE BID AND ALTERNATE REPRESENTS COMPLETE WORKING SYSTEMS INCLUDING DEMOLITION, INSTALLATION, TEST AND BALANCING, COMMISSIONING AND CONTROLS FOR ALL TRADES.

ROUGH DESCRIPTION OF ADD ALTERNATES:  
ADD ALT 1 - HYDRONIC HEATING BOILER REPLACEMENT  
ADD ALT 2 - HEATING WATER PUMP REPLACEMENT  
ADD ALT 3 - SANITARY SEWER REPLACEMENT  
ADD ALT 4 - DOMESTIC WATER HEATER REPLACEMENT  
ADD ALT 5 - CHILLED WATER CONDENSER PUMP REPLACEMENT  
ADD ALT 6 - EXHAUST FAN REPLACEMENT AND BALANCE





5/9/2023

**PROJECT DIRECTORY:**  
JEFFREY STROHL, P.E.  
131 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-686-6251

**CLARK HALL DORMITORY  
MECHANICAL, ELECTRICAL & PLUMBING  
RENOVATION**  
UNIVERSITY OF NORTH TEXAS  
PROJECT ADDRESS: 1717 MAPLE STREET, DENTON, TX 76201

REVISION SCHEDULE	Issued by	Description
No.	Date	

PROJECT NUMBER:  
CAMPOS: 022-2995.00  
ISSUE DATE: 05/09/2023  
100% CONSTRUCTION DOCUMENTS  
DRAWN BY: / CHECKED BY: / APPROVED BY:  
MC / JS / JS

DRAWING TITLE: **MECHANICAL SYMBOL LEGEND**  
MEP0.02

**MECHANICAL SYMBOL LEGEND**

GRAPHIC SYMBOLS	PIPE & FITTING SYMBOLS	VALVE SYMBOLS	DUCTWORK SYMBOLS	DUCTWORK SYMBOLS						
<p>DRAWING TITLE <b>TOP TITLE</b> BOTTOM TITLE</p> <p>1 SHEET SCALE: 1/8" = 1'-0" SCALE OF FLOOR PLAN, SECTION OR DETAIL DETAIL NO. AND SHEET NO.</p> <p>AREA OF ENLARGED PLAN OR DETAIL</p> <p>1 M3.01 DETAIL NUMBER SHEET NO. ON WHICH ENLARGED DETAIL IS DRAWN</p> <p>M5.01 SECTION NO. DIRECTION OF CUTTING PLANE SHEET NO. ON WHICH THE SECTION IS DRAWN</p>	<p><b>PIPING DESIGNATION</b></p> <p>2" CHWS - OR - 2" CHWS</p> <p>2" CHWS SYSTEM SERVICE ABBREVIATION NOMINAL PIPE SIZE (IN INCHES)</p>	<p><b>MULTI-LINE KEY</b></p> <p>HORIZONTAL RUN ON PLAN READ TOP TO BOTTOM</p> <p>VERTICAL RUN ON PLAN READ LEFT TO RIGHT</p> <p>2" HWS 2" HWR 4" CWR 4" CWS</p> <p>3" PCDF(F) 4" CHWS 4" CHWR 2" LPS 2" HPS</p> <p>4" CWS 4" CWR 2" HWR 2" HWS</p> <p>2" HPS 2" LPS 4" CHWR 4" CHWS 3" PCDF(F) BOP 13'-6" AFF UPPER PIPE RACK</p> <p>2" HWS 2" HWR 4" CWR 4" CWS</p> <p>PCDF(F) CHWS CHWR LPS HPS</p> <p>2" HPS 2" LPS 4" CHWR 4" CHWS 3" PCDF(F) BOP 13'-6" AFF UPPER PIPE RACK</p> <p>*(F) INDICATES FUTURE PIPING ON RACK</p>	<p><b>MISCELLANEOUS SYMBOLS</b></p> <p>xxx-1 EQUIPMENT DESIGNATION</p> <p>SINGLE LINE PIPE/DUCTWORK BREAK</p> <p>DOUBLE LINE PIPE/ROUND DUCTWORK BREAK</p> <p>RECTANGULAR DUCT/STANDARD BREAK</p> <p>KEYED NOTE</p> <p>REVISION DELTA</p> <p>POINT OF DISCONNECTION</p> <p>POINT OF CONNECTION (NEW TO EXISTING)</p> <p>NEW ITEMS (PIPING/DUCTWORK/EQUIPMENT)</p> <p>EXISTING ITEMS TO REMAIN</p> <p>EXISTING ITEMS TO BE DEMOLISHED</p> <p>LIMIT OF EXISTING ITEMS TO BE REMOVED</p> <p>NEW CONNECTION TO EXISTING ITEM</p> <p>(N) NEW ITEM (NOTATION SHOWN AS NECESSARY FOR CLARIFICATION)</p> <p>(E) EXISTING ITEM TO REMAIN (NOTATION SHOWN AS NECESSARY FOR CLARIFICATION)</p> <p>(F) FUTURE ITEM (NOTATION SHOWN AS NECESSARY FOR CLARIFICATION)</p> <p>(R) EXISTING ITEM TO BE RELOCATED (NOTATION SHOWN AS NECESSARY FOR CLARIFICATION)</p> <p>(D) EXISTING ITEM TO BE DEMOLISHED (NOTATION SHOWN AS NECESSARY FOR CLARIFICATION)</p> <p>NOTE: WELDED FITTINGS ARE SHOWN FOR DOUBLE LINE PIPING. FITTINGS WITH OTHER END CONDITIONS ARE SIMILAR.</p>	<p><b>PIPE &amp; FITTING SYMBOLS</b></p> <p>DOUBLE LINE</p> <p>SINGLE LINE</p> <p>DESCRIPTION</p> <p>PIPE</p> <p>DIRECTION OF FLOW / SLOPE</p> <p>PIPING WITH INSULATION (WHEN SHOWN FOR CLARITY)</p> <p>WELDED JOINT</p> <p>SCREWED JOINT</p> <p>FLANGED JOINT</p> <p>UNION</p> <p>GROOVED END JOINT</p> <p>GENERIC FLEXIBLE COUPLING (REFER TO SPECIFICATIONS)</p> <p>GROOVED END ADAPTER FLANGE</p> <p>FLANGED COUPLING ADAPTER</p> <p>STUB END OR FLANGE ADAPTER W/ FLANGE RING</p> <p>BLIND FLANGE</p> <p>ELBOW, 45 DEGREE (LONG RADIUS UON)</p> <p>ELBOW, 90 DEGREE (LONG RADIUS UON)</p> <p>ELBOW, 90 DEGREE - CHANGE IN DIRECTION TOWARD VIEWER</p> <p>ELBOW, 90 DEGREE - CHANGE IN DIRECTION AWAY FROM VIEWER</p> <p>TEE FITTING</p> <p>TEE FITTING, BRANCH TOWARD VIEWER</p> <p>TEE FITTING, BRANCH AWAY FROM VIEWER</p> <p>LATERAL</p> <p>REDUCER - CONCENTRIC</p> <p>REDUCER - ECCENTRIC</p> <p>CAP</p> <p>ANCHOR</p> <p>CLEANOUT</p> <p>THERMOWELL WITH THERMOMETER</p> <p>PRESSURE GAUGE WITH GAUGE COCK</p> <p>STRAINER - "Y" TYPE WITH BLOW DOWN</p> <p>AIR SEPARATOR</p> <p>WATER METER</p> <p>VENTURI FLOW METER</p> <p>FLOW ORIFICE PLATE</p> <p>STEAM TRAP, TYPE AS NOTED IB = INVERTED BUCKET F&amp;T = FLOAT &amp; THERMOSTATIC TH = THERMODYNAMIC BP = BALANCED PRESSURE</p> <p>PUMP, ARROW INDICATES FLOW</p>	<p><b>VALVE SYMBOLS</b></p> <p>DOUBLE LINE</p> <p>SINGLE LINE</p> <p>DESCRIPTION</p> <p>GATE VALVE</p> <p>BUTTERFLY VALVE</p> <p>BALL VALVE</p> <p>DIAPHRAGM VALVE</p> <p>GLOBE VALVE</p> <p>PLUG VALVE</p> <p>CHECK VALVE</p> <p>PRESSURE REDUCING VALVE</p> <p>BALANCING VALVE</p> <p>PRESSURE RELIEF VALVE</p> <p>AUTOMATIC AIR VENT</p> <p>MANUAL AIR VENT</p>	<p><b>CONTROL VALVES</b></p> <p>DOUBLE LINE</p> <p>SINGLE LINE</p> <p>DESCRIPTION</p> <p>TWO-WAY, TWO POSITION CONTROL VALVE</p> <p>TWO-WAY, TWO POSITION CONTROL VALVE W/ SOLENOID</p> <p>TWO-WAY, MODULATING CONTROL VALVE</p> <p>THREE-WAY, TWO POSITION CONTROL VALVE</p> <p>THREE-WAY, MODULATING CONTROL VALVE</p>	<p><b>CONTROL SYMBOLS</b></p> <p>WALL MOUNTED DEVICES</p> <p>TEMPERATURE SENSOR/THERMOSTAT</p> <p>HUMIDITY SENSOR/HUMIDISTAT</p> <p>MOTION SENSOR</p> <p>OVERRIDE SWITCH</p> <p>CARBON DIOXIDE SENSOR</p> <p>CARBON MONOXIDE SENSOR</p> <p>VARIABLE FREQUENCY DRIVE</p>	<p><b>EQUIPMENT SYMBOLS</b></p> <p>COOLING ONLY VAV TERMINAL UNIT</p> <p>EXISTING EQUIPMENT (COOLING ONLY VAV SHOWN)</p> <p>VAV TERMINAL WITH ELECTRIC OR HYDRONIC HEAT</p> <p>SERIES FAN POWERED VAV TERMINAL UNIT</p> <p>PARALLEL FAN POWERED VAV TERMINAL UNIT</p> <p>ROOFTOP EXHAUST FAN (ROOF PLAN VIEW)</p> <p>ROOFTOP EXHAUST FAN (FLOOR PLAN VIEW)</p> <p>INLINE EXHAUST FAN (EF), AIR HANDLING UNIT (AHU), CONDENSING UNIT (CU)</p> <p>WALL LOUVER WITH POSITIVE OR NEGATIVE AIRFLOW</p> <p>DOOR UNDERCUT (SPECIFY CFM IF REQUIRED)</p> <p>DOOR LOUVER (SPECIFY CFM IF REQUIRED)</p>	<p><b>DUCTWORK SYMBOLS</b></p> <p>DOUBLE LINE</p> <p>SINGLE LINE</p> <p>DESCRIPTION</p> <p>RECTANGULAR OR SQUARE DUCT, DIMENSIONS ARE IN INCHES, MIN. INSIDE CLEAR, A = WIDTH, B = HEIGHT</p> <p>ROUND DUCT DIMENSIONS ARE IN INCHES, MIN. INSIDE CLEAR, A = DIAMETER</p> <p>FLAT Oval DUCT DIMENSIONS ARE IN INCHES, MIN. INSIDE CLEAR, A = WIDTH, B = HEIGHT</p> <p>DUCTWORK RISE (R) OR DROP (D) RELATIVE TO DIRECTION OF AIRFLOW</p> <p>DIRECTION OF AIR FLOW</p> <p>SUPPLY AIR OR POSITIVE PRESSURE DUCTWORK, SECTION TOWARDS/AWAY VIEWER</p> <p>SUPPLY AIR OR POSITIVE PRESSURE DUCTWORK, AIRFLOW AWAY FROM VIEWER</p> <p>RETURN AIR OR NEGATIVE PRESSURE DUCTWORK, AIRFLOW TOWARDS VIEWER</p> <p>RETURN AIR OR NEGATIVE PRESSURE DUCTWORK, AIRFLOW AWAY FROM VIEWER</p> <p>EXHAUST AIR DUCTWORK, AIRFLOW TOWARDS VIEWER</p> <p>EXHAUST AIR DUCTWORK, AIRFLOW AWAY FROM VIEWER</p> <p>RIGID ROUND DUCTWORK, AIRFLOW TOWARDS VIEWER</p> <p>RIGID ROUND DUCTWORK, AIRFLOW AWAY FROM VIEWER</p> <p>TRANSITION - ECCENTRIC REDUCER</p> <p>TRANSITION - CONCENTRIC REDUCER</p> <p>TRANSITION - SQUARE TO ROUND</p> <p>90° ELBOW WITH TURNING VANES (REQUIRED ON SUPPLY DUCTWORK)</p> <p>90° ELBOW WITHOUT TURNING VANES (RETURN OR EXHAUST DUCTWORK ONLY)</p> <p>45° ELBOW WITH TURNING VANES (REQUIRED ON SUPPLY DUCTWORK)</p> <p>45° ELBOW WITHOUT TURNING VANES (RETURN OR EXHAUST DUCTWORK ONLY)</p> <p>RADIUS 90° ELBOW (R = 1.5W)</p> <p>RADIUS 45° ELBOW (R = 1.5W)</p> <p>SPIN-IN FITTING WITH FLEXIBLE DUCTWORK, DIMENSIONS ARE IN INCHES, MIN. INSIDE CLEAR, A = DIAMETER</p> <p>BRANCH TAKE-OFF WITH MVD</p> <p>CONICAL TAKE-OFF WITH MVD</p> <p>MANUAL VOLUME DAMPER</p> <p>FIRE DAMPER</p> <p>FIRE/SMOKE DAMPER</p> <p>SMOKE DAMPER</p> <p>BACKDRAFT DAMPER</p> <p>MOTORIZED DAMPER</p> <p>BAROMETRIC DAMPER</p> <p>SMOKE DETECTOR</p>	<p><b>AIR DISTRIBUTION</b></p> <p>REFER TO SCHEDULE FOR ADDITIONAL INFORMATION</p> <p>SUPPLY AIR DIFFUSER</p> <p>RETURN AIR OR TRANSFER AIR GRILLE</p> <p>EXHAUST AIR GRILLE</p> <p>ROUND SUPPLY AIR DIFFUSER</p> <p>LINEAR SLOT DIFFUSER</p> <p>CEILING RADIATION DAMPER</p> <p>SIDEWALL REGISTER</p> <p>DUCT MOUNTED GRILLE</p> <p>AIR DISTRIBUTION CALLOUT S1 150 TYP OF 2</p> <p>THIS IS A STANDARD LEGEND SHEET. SOME INFORMATION ON THIS SHEET MAY NOT NECESSARILY APPLY TO THIS PROJECT.</p>

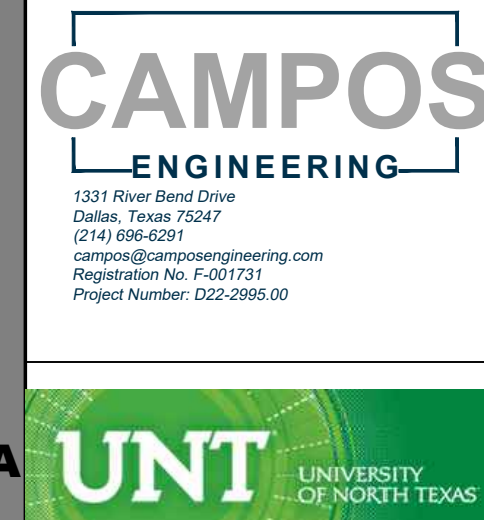
SCOPE HAS BEEN DIVIDED INTO BASE BID AND ADD ALTERNATES. THE BASE BID AND ALTERNATE REPRESENTS COMPLETE WORKING SYSTEMS INCLUDING DEMOLITION, INSTALLATION, TEST AND BALANCING, COMMISSIONING AND CONTROLS FOR ALL TRADES.

ROUGH DESCRIPTION OF ADD ALTERNATES:  
ADD ALT 1 - HYDRONIC HEATING BOILER REPLACEMENT  
ADD ALT 2 - HEATING WATER PUMP REPLACEMENT  
ADD ALT 3 - SANITARY SEWER REPLACEMENT  
ADD ALT 4 - DOMESTIC WATER HEATER REPLACEMENT  
ADD ALT 5 - CHILLED WATER CONDENSER PUMP REPLACEMENT  
ADD ALT 6 - EXHAUST FAN REPLACEMENT AND REBALANCE

3/8" = 1'-0"  
1/2" = 1'-0"  
3/4" = 1'-0"  
1" = 1'-0"  
1 1/2" = 1'-0"  
2" = 1'-0"  
3" = 1'-0"  
4" = 1'-0"  
6" = 1'-0"  
8" = 1'-0"  
12" = 1'-0"  
16" = 1'-0"  
24" = 1'-0"  
32" = 1'-0"  
48" = 1'-0"

1 2 3 4 5 6 7 8





PROJECT DIRECTORY:  
JEFFREY STROBEL, P.E.  
131 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-686-0251

PROJECT TITLE:  
**CLARK HALL DORMITORY  
MECHANICAL, ELECTRICAL & PLUMBING  
RENOVATION**  
CLIENT NAME:  
**UNIVERSITY OF NORTH TEXAS**  
PROJECT ADDRESS:  
1717 MAPLE STREET, DENTON, TX 76201

Table with 3 columns: No., Date, Issued by. Includes revision schedule and drawing title: MECHANICAL GENERAL NOTES.

PROJECT NUMBER:  
CAMPOS: 022-2995.00  
ISSUE DATE: 05/09/2023  
100% CONSTRUCTION DOCUMENTS  
DRAWN BY: / CHECKED BY: / APPROVED BY: /  
MC / JS / JS

MEP0.03

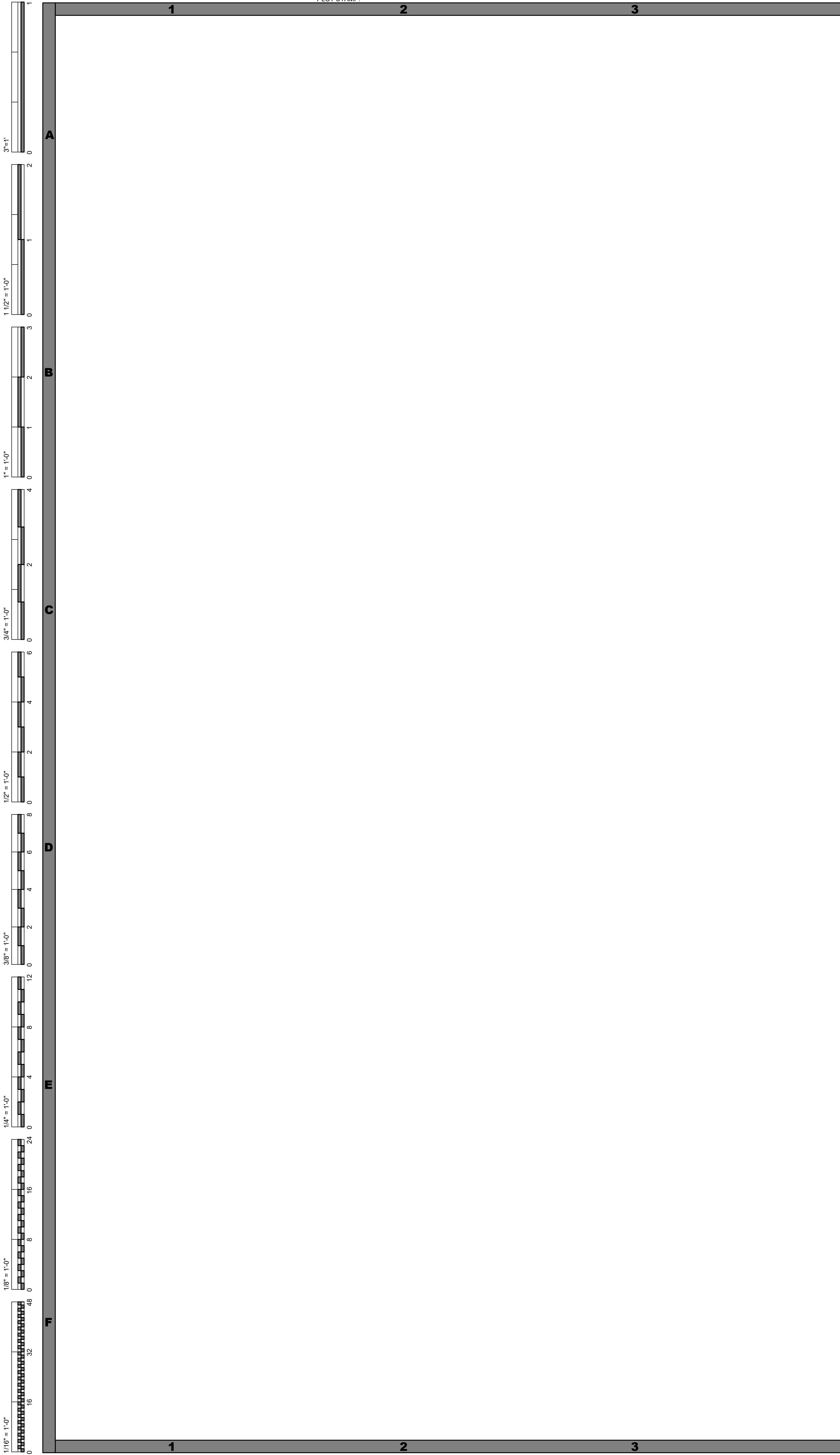
### ABBREVIATIONS

Table of abbreviations for mechanical, electrical, and plumbing systems, including terms like FCU, AHU, and various pipe types.

### MECHANICAL GENERAL NOTES

- 1. ISOLATION VALVES SHALL BE PROVIDED IN ALL BRANCH PIPING AND AT EQUIPMENT CONNECTIONS.
2. PIPING CONNECTIONS TO ALL EQUIPMENT SHALL BE FABRICATED WITH THE ISOLATION VALVES, FLANGES AND/OR UNIONS POSITIONED TO ALLOW REMOVAL AND SERVICE OF THE COMPONENT PARTS.
3. INSTALL MANUAL AIR VENTS AT THE HIGH POINTS OF THE PIPING SYSTEMS.
4. ROUTE PIPING IN AN ORDERLY MANNER AND MAINTAIN PROPER GRADES. INSTALL TO CONSERVE HEADROOM AND TO CREATE MINIMUM INTERFERENCE WITH USE OF SPACE.
5. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE OR EQUIPMENT CONNECTED.
6. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED.
7. INSTALL VALVES AND EQUIPMENT IN ACCESSIBLE LOCATIONS. INSTALL ACCESS DOORS IN PARTITIONS OR CEILINGS WHERE VALVES AND EQUIPMENT WOULD OTHERWISE BE INACCESSIBLE.
8. WHEN SOCKET WELD OR SOLDER END VALVES ARE INSTALLED, SPECIAL CARE SHALL BE TAKEN TO AVOID OVERHEATING AND DAMAGING THE VALVE BODY, TRIM OR PACKING. DAMAGED VALVES SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.
9. IDENTIFY EACH PIPE WITH LABELING AS REQUIRED BY SPECIFICATIONS.
10. SLEEVE ALL PIPING THAT PENETRATES FIRE RATED WALLS, FLOORS AND PARTITIONS. PENETRATIONS SHALL BE SEALED WITH A U.L. LISTED ASSEMBLY TO PROVIDE A RATING EQUAL TO OR GREATER THAN THAT OF THE PENETRATED WALL, FLOOR OR PARTITION.
11. SLEEVE ALL PIPING THAT PENETRATES EXTERIOR BUILDING WALLS AND GRADE BEAMS. SEAL PENETRATIONS WATER/TIGHT.
12. COORDINATE WITH OTHER TRADES BEFORE FABRICATION OR INSTALLATION OF ANY SYSTEMS.
13. EXISTING DUCTWORK, PIPING AND EQUIPMENT SHOWN ON THESE DRAWINGS INDICATES THE GENERAL LOCATION AND ROUTING. THE ACTUAL LOCATION SHALL BE DETERMINED BY THE CONTRACTOR WHO SHALL COORDINATE ALL WORK WITH ALL TRADES NECESSARY TO INSTALL NEW DUCTWORK, PIPING OR EQUIPMENT AS SHOWN ON THE DRAWING.
14. THESE DRAWINGS DO NOT NECESSARILY SHOW ALL OFFSETS OR ELEVATION DIFFERENCES WHICH MAY BE NECESSARY FOR THE COMPLETE INSTALLATION. THESE SHALL BE PROVIDED AS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM AT NO ADDITIONAL COST TO THE CONTRACTOR.
15. ALL NEW DUCTWORK SHALL BE EXTERNALLY INSULATED PER THE SPECIFICATIONS.
16. ALL NEW HYDRONIC PIPING SHALL BE INSULATED PER THE SPECIFICATIONS.
17. WHERE REMOVAL OF EXISTING DUCTWORK OR PORTIONS OF ANY AIR SYSTEM IS NECESSARY, THE DUCT SHALL BE PATCHED AND SEALED AIRTIGHT USING PATCH OF SAME MATERIAL AND EQUAL OR GREATER THICKNESS AS EXISTING. PATCHES SHALL BE ATTACHED WITH SHEET METAL SCREWS OR OTHER MEANS OF POSITIVE ATTACHMENT (WELDING, BONDING, ETC.) AS SPECIFIED FOR THE PARTICULAR DUCT SYSTEM. NEW INSULATION SHALL BE EQUAL TO OR BETTER THAN EXISTING AND SHALL BE PATCHED AND SEALED TO MATCH EXISTING INSULATION AND MAINTAIN VAPOR BARRIER.
18. THE CONTRACTOR SHALL ADJUST AND BALANCE ALL MECHANICAL SYSTEMS TO DESIGN SETTINGS AS SHOWN AND SHALL REBALANCE TO RESTORE SETTINGS OF SYSTEMS TEMPORARILY ALTERED FOR THE PURPOSES OF COMPLETING THE WORK OF THIS PROJECT.
19. NOTIFY AND COORDINATE WITH THE OWNER AT LEAST SEVEN DAYS PRIOR TO SHUT-DOWN OF ANY BUILDING SERVICES OR EQUIPMENT. SHUT-DOWN TIME SHALL BE KEPT TO A MINIMUM.
20. ANY ITEMS DAMAGED DURING DEMOLITION SHALL BE REPLACED WITH NEW MATERIALS TO MATCH EXISTING.
21. CONTRACTOR SHALL PROVIDE TEMPORARY DUCTWORK, ELECTRICAL SERVICE, PIPING OR OTHER BUILDING SERVICES AS REQUIRED TO KEEP OTHER AREAS IN OPERATION DURING REMODELING. NOTIFY OWNER PRIOR TO SHUT-DOWN FOR ANY TEMPORARY SERVICE REQUIREMENTS. ALL TEMPORARY WORK SHALL BE COMPLETELY REMOVED ONLY AFTER NEW SERVICES ARE COMPLETELY INSTALLED AND FUNCTIONAL.
22. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR LOCATIONS OF CEILING-MOUNTED HVAC DEVICES AND EQUIPMENT.
23. DUCT ROUTING CHANGES MADE BY THE CONTRACTOR FOR THE PURPOSE OF ACCOMMODATING FIELD CONDITIONS SHALL INCLUDE FIRE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS IN RATED PARTITIONS AS SHOWN IN ORIGINAL ROUTING ARRANGEMENTS.
24. FURNISH AND INSTALL ACCESS DOORS (AD) IN THE DUCTWORK IMMEDIATELY ADJACENT TO EACH FIRE DAMPER AND EACH FIRE/SMOKE DAMPER. PARTITIONS SHALL BE PROVIDED WITH ACCESS DOORS TO PROVIDE SERVICE AND ACCESS TO DAMPER ACCESS DOORS.
25. PROVIDE FIRE AND COMBINATION FIRE/SMOKE DAMPERS WHERE REQUIRED BY CODE. FIRE, SMOKE, AND COMBINATION FIRE/SMOKE DAMPERS SHALL BE UL LISTED. SHALL BEAR THE UL LABEL AND SHALL COMPLY WITH NFPA BULLETTIN NO. 90A.

SCOPE HAS BEEN DIVIDED INTO BASE BID AND ADD ALTERNATES. THE BASE BID AND ALTERNATE REPRESENTS COMPLETE WORKING SYSTEMS INCLUDING DEMOLITION, INSTALLATION, TEST AND BALANCING, COMMISSIONING AND CONTROLS FOR ALL TRADES.
ROUGH DESCRIPTION OF ADD ALTERNATES:
ADD ALT 1 - HYDRONIC HEATING BOILER REPLACEMENT
ADD ALT 2 - HEATING WATER PUMP REPLACEMENT
ADD ALT 3 - SANITARY SEWER REPLACEMENT
ADD ALT 4 - DOMESTIC WATER HEATER REPLACEMENT
ADD ALT 5 - CHILLED WATER CONDENSER PUMP REPLACEMENT
ADD ALT 6 - EXHAUST FAN REPLACEMENT AND REBALANCE





## ELECTRICAL ABBREVIATIONS

(ALL ABBREVIATIONS MAY NOT APPEAR ON DRAWINGS)

<p><b>A</b> AMPERE(S)</p> <p><b>AC</b> ALTERNATING CURRENT</p> <p><b>ACCU</b> AIR-COOLED CONDENSING UNIT</p> <p><b>ADA</b> AMERICANS WITH DISABILITIES ACT</p> <p><b>AFB</b> ABOVE FINISHED FLOOR</p> <p><b>AFS</b> ABOVE FINISHED CEILING</p> <p><b>AFG</b> ABOVE FINISHED GRADE</p> <p><b>AHU</b> AIR HANDLING UNIT</p> <p><b>AIC</b> AMPERE INTERRUPTING CAPACITY (ROOT MEAN SQUARE ALTERNATE)</p> <p><b>ALT</b> ALTERNATE</p> <p><b>APPROX</b> APPROXIMATE OR APPROXIMATELY</p> <p><b>ARCH</b> ARCHITECT</p> <p><b>ATS</b> AUTOMATIC TRANSFER SWITCH</p> <p><b>AUX</b> AUXILIARY</p> <p><b>AWG</b> AMERICAN WIRE GAGE</p> <p><b>BFC</b> BELOW FINISHED CEILING</p> <p><b>BFG</b> BELOW FINISHED GRADE</p> <p><b>BLDG</b> BUILDING</p> <p><b>BOD</b> BOTTOM OF DUCT</p> <p><b>BOT</b> BOTTOM OF TRAY</p> <p><b>C</b> CONDUIT OR TUBING</p> <p><b>CAT NO.</b> CATALOG NUMBER</p> <p><b>CATV</b> CABLE TELEVISION</p> <p><b>CB</b> CIRCUIT BREAKER</p> <p><b>CCTV</b> CLOSED-CIRCUIT TELEVISION</p> <p><b>CKT</b> CIRCUIT</p> <p><b>CLG</b> CEILING CONDUCTOR</p> <p><b>COMM</b> COMMUNICATIONS</p> <p><b>CONT</b> CONTINUATION</p> <p><b>CT(S)</b> CURRENT TRANSFORMER(S)</p> <p><b>DC</b> DIRECT CURRENT</p> <p><b>DISC</b> DISCONNECT</p> <p><b>DIV</b> DIVISION</p> <p><b>DPDT</b> DOUBLE-POLE, DOUBLE THROW</p> <p><b>DPST</b> DOUBLE POLE, SINGLE THROW</p> <p><b>DWG(S)</b> DRAWING(S)</p> <p><b>EC</b> EMPTY CONDUIT OR TUBING</p> <p><b>EGS</b> ENGINE-GENERATOR SET</p> <p><b>EHH</b> ELECTRICAL HANDHOLE</p> <p><b>ELEC</b> ELECTRIC/ELECTRICAL</p> <p><b>ELEV</b> ELEVATION</p> <p><b>EMERG</b> EMERGENCY</p> <p><b>EMH</b> ELECTRICAL MANHOLE</p> <p><b>EMT</b> ELECTRICAL METALLIC TUBING</p> <p><b>EQPT</b> EQUIPMENT</p> <p><b>ESS</b> ENERGY SAVING</p> <p><b>EWC</b> ELECTRICAL WATER COOLER</p> <p><b>EWVH</b> ELECTRICAL WATER HEATER</p> <p><b>(E)</b> EXISTING</p> <p><b>EXH</b> EXHAUST</p> <p><b>F</b> FUSE(S)</p> <p><b>FAAP</b> FIRE ALARM ANNUNCIATOR PANEL</p> <p><b>FACP</b> FIRE ALARM CONTROL PANEL</p> <p><b>FAPS</b> FIRE ALARM POWER SUPPLY</p> <p><b>FBO</b> FURNISHED BY OWNER</p> <p><b>FL</b> FLOOR</p> <p><b>FLA</b> FULL LOAD AMPERE(S)</p> <p><b>FLEX</b> FLEXIBLE</p> <p><b>FS</b> FUSIBLE SAFETY SWITCH/FUSIBLE SWITCH</p> <p><b>FUT</b> FUTURE</p> <p><b>FVNR</b> FULL VOLTAGE, NON-REVERSING</p> <p><b>FVR</b> FULL VOLTAGE, REVERSING</p> <p><b>G</b> GROUND</p> <p><b>GFI</b> GROUND FAULT CIRCUIT INTERRUPT</p> <p><b>GS</b> GALVANIZED STEEL</p> <p><b>HID</b> HIGH INTENSITY DISCHARGE</p> <p><b>HOA</b> HAND-OFF-AUTOMATIC</p> <p><b>HORIZ</b> HORIZONTAL</p> <p><b>HP</b> HORSEPOWER</p> <p><b>HPF</b> HIGH POWER FACTOR</p> <p><b>HPS</b> HIGH PRESSURE SODIUM</p> <p><b>HVAC</b> HEATING, VENTILATION AND AIR CONDITIONING</p> <p><b>HZ</b> HERTZ</p> <p><b>IES</b> ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA</p> <p><b>IG</b> ISOLATED GROUND</p> <p><b>IMC</b> INTERMEDIATE METALLIC CONDUIT</p> <p><b>INST</b> INSTRUMENT/INSTRUMENTATION</p>	<p><b>JBOX</b> JUNCTION BOX</p> <p><b>KA</b> KILOAMPERE(S)</p> <p><b>KW</b> KILOWATTS(S)</p> <p><b>KWH</b> KILOWATT-HOUR(S)</p> <p><b>KV</b> KILOVOLT(S)</p> <p><b>KVA</b> KILOVOLT-AMPERE(S)</p> <p><b>KVAR</b> KILOVOLT-AMPERE(S) REACTIVE</p> <p><b>LPF</b> LOW POWER FACTOR</p> <p><b>LPS</b> LOW PRESSURE SODIUM LIGHTING</p> <p><b>LTG</b></p> <p><b>m</b> METER(S)</p> <p><b>MAX</b> MAXIMUM</p> <p><b>MCB</b> MAIN CIRCUIT BREAKER</p> <p><b>MCC</b> MOTOR CONTROL CENTER</p> <p><b>MCP</b> MOTOR CIRCUIT PROTECTOR</p> <p><b>MECH</b> MECHANICAL</p> <p><b>MEZZ</b> MEZZANINE</p> <p><b>MH</b> METAL HALIDE</p> <p><b>MIC</b> MICROPHONE</p> <p><b>MIN</b> MINIMUM</p> <p><b>NLO</b> MAIN LUGS ONLY</p> <p><b>mm</b> MILLIMETER(S)</p> <p><b>MMS</b> MANUAL MOTOR STARTER</p> <p><b>MTD</b> MOUNTED MOTOR</p> <p><b>MTR</b> MANUAL TRANSFER SWITCH</p> <p><b>MTS</b> MEDIUM VOLTAGE</p> <p><b>MVA</b> MEGAVOLT-AMPERE(S)</p> <p><b>MVAR</b> MEGAVOLT-AMPERE(S) REACTIVE</p> <p><b>MW</b> MEGAWATT(S)</p> <p><b>NC</b> NORMALLY CLOSED</p> <p><b>NEC</b> NATIONAL ELECTRICAL CODE</p> <p><b>NEMA</b> NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION</p> <p><b>NFPA</b> NATIONAL FIRE PROTECTION ASSOCIATION</p> <p><b>NFS</b> NON-FUSIBLE SAFETY SWITCH</p> <p><b>NO</b> NOT IN CONTRACT</p> <p><b>NIC</b> NORMALLY OPEN</p> <p><b>NTS</b> NOT TO SCALE</p> <p><b>OH</b> OVERHEAD</p> <p><b>P</b> POLE(S)</p> <p><b>PA</b> PUBLIC ADDRESS SYSTEM</p> <p><b>PF</b> POWER FACTOR</p> <p><b>PL</b> PILOT LIGHT</p> <p><b>PNL</b> PANELBOARD</p> <p><b>PVC</b> POLYVINYL CHLORIDE</p> <p><b>RC</b> REMOTE CONTROL</p> <p><b>RCP</b> REFLECTED CEILING PLAN RECEPTACLE(S)</p> <p><b>REC</b> RIGID GALVANIZED STEEL</p> <p><b>RSS</b> REDUCED VOLTAGE, SOLID STATE</p> <p><b>RVSS</b></p> <p><b>SF</b> SQUARE FOOT OR FEET</p> <p><b>SPDT</b> SINGLE-POLE, DOUBLE-THROW</p> <p><b>SPST</b> SINGLE-POLE, SINGLE-THROW</p> <p><b>SS</b> START-STOP</p> <p><b>SW</b> SWITCH</p> <p><b>SWBD</b> SWITCHBOARD</p> <p><b>SWGR</b> SWITCHGEAR</p> <p><b>TA</b> TRIP AMPERE(S)</p> <p><b>TAS</b> TEXAS ACCESSIBILITY STANDARDS</p> <p><b>TEL</b> TELEPHONE</p> <p><b>TEMP</b> TEMPORARY</p> <p><b>TU</b> TEXAS UTILITIES ELECTRIC</p> <p><b>TV</b> TELEVISION</p> <p><b>TYP</b> TYPICAL</p> <p><b>UG</b> UNDERGROUND</p> <p><b>UL</b> UNDERWRITERS LABORATORIES, INC.</p> <p><b>UNINTERRUPTIBLE</b> UNINTERRUPTIBLE POWER SUPPLY UNLESS NOTED OTHERWISE</p> <p><b>V</b> VOLTAGE OR VOLT(S)</p> <p><b>VA</b> VOLT-AMPERE(S)</p> <p><b>VERT</b> VERTICAL</p> <p><b>VFD</b> VARIABLE FREQUENCY DRIVE</p> <p><b>W</b> WATT(S)</p> <p><b>WP</b> WEATHERPROOF</p> <p><b>W/</b> WITH</p> <p><b>W/O</b> WITHOUT</p> <p><b>XFMR</b> TRANSFORMER</p> <p><b>XP</b> EXPLOSION-PROOF</p> <p><b>Δ</b> DELTA</p> <p><b>#</b> NUMBER</p> <p><b>∅</b> PHASE(S)</p>
---	---

## ELECTRICAL CONVENTIONS

PANELBOARD, SWITCHBOARD OR MOTOR CONTROL CENTER DESIGNATION	CONDUIT RUN UP
	CONDUIT RUN DOWN
NEW CONSTRUCTION	CONDUIT CAPPED OFF
EXISTING	CONDUIT CONTINUED
DEMOLISHED	

## LIGHTING SYMBOL LEGEND

(ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS)

### GENERAL

	NO HATCH INDICATES NORMAL POWER LIGHT FIXTURE
	HALF SOLID INDICATES EGRESS LIGHT WITH EMERGENCY BATTERY
	DOWNLIGHT FIXTURE
	2x2 LIGHT FIXTURE
	2x4 LIGHT FIXTURE
	4 FEET STRIP LIGHT FIXTURE
	WALL MOUNTED LIGHT FIXTURE
	EMERGENCY LIGHT FIXTURE
	CLG MTD EXIT LIGHT - SHADING INDICATEDS NUMBER OF FACES. ARROWS INDICATE ORIENTATION
	WALL MTD EXIT LIGHT - SHADING INDICATEDS NUMBER OF FACES. ARROWS INDICATE ORIENTATION
	POLE MOUNTED SITE LIGHTING FIXTURE
	BOLLARD LIGHT FIXTURE

### LIGHTING CONTROL LEGEND

(ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS)

#### GENERAL

\$ <sup>a</sup>	- SUPERSCRIPIT DENOTES FIXTURE BEING CONTROLLED - K - KEY OPERATED SWITCH - T - TIMER SWITCH - 3 - THREE WAY SWITCH - WP - WEATHERPROOF SWITCH
	PHOTOCELL (MATCH CONTACTOR COIL VOLTAGE AS REQUIRED)
	DIGITAL PROGRAMMABLE TIME CLOCK
	WALL MOUNTED OCCUPANCY SENSOR/SWITCH
	CEILING MOUNTED OCCUPANCY SENSOR
	WALL MOUNTED VACANCY SENSOR/SWITCH
	CEILING MOUNTED VACANCY SENSOR
	TOGGLE SWITCH - SPST
	WALL MOUNTED VACANCY SENSOR / DIMMER SWITCH
	LOW VOLTAGE PUSH BUTTON / KEY PAD
	CEILING MOUNTED DAY LIGHT SENSOR

## GENERAL POWER NOTES

- A. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL LOCAL STATE CODES.
- B. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN CODE REQUIRED MINIMUM CLEARANCES AROUND ELECTRICAL EQUIPMENT FOR WORKING SPACE, DEDICATED SPACE, ACCESSIBILITY FOR MAINTENANCE AND OPERATION.
- C. PROVIDE A TYPED DIRECTORY IN ALL PANELBOARDS CLEARLY DESCRIBING THE LOCATION OF AND TYPE OF LOAD BEING SERVED FOR ALL CIRCUITS. PROVIDE ENGRAVED PHENOLIC NAMEPLATES FOR ALL PANELBOARDS AND DISCONNECT SWITCHES.
- D. MINIMUM 20A BRANCH CIRCUIT SHALL BE 2#12, #12G, 3/4" C AND 2#10, #10G, 3/4" C FOR 30A BRANCH CIRCUIT. ALL CONDUCTORS SHALL BE COPPER, 75 DEGREE C, TYPE THHN/THWN EXCEPT WHERE OTHERWISE REQUIRED BY SPECIFICATION OR CODES.
- E. ALL 120V CIRCUITS LONGER THAN 70 FEET SHALL BE #10 AWG AND 277V CIRCUITS LONGER THAN 150 FEET SHALL BE #10 AWG UNLESS NOTED OTHERWISE.
- F. PROVIDE A PULLWIRE FOR ALL EMPTY CONDUITS.
- G. ALL ELECTRICAL EQUIPMENT SHALL BE RAINIGHT (NEMA 3R) WHERE EXPOSED TO THE WEATHER. ALL FLEX CONDUITS CONNECTED TO SUCH EQUIPMENT SHALL BE LIQUIDTIGHT.
- H. ALL CIRCUITS SHALL BE PROVIDED WITH INDEPENDENT GROUND AND NEUTRAL WIRES. NO MULTIWIRE EXCEPT WHERE OTHERWISE REQUIRED BY SPECIFICATION OR PERMITTED.
- I. PROVIDE FIRE RETARDANT U.L. APPROVED SEALANT ON ALL PENETRATIONS, WALLS AND STRUCTURAL SLABS. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO VERIFY PRIOR TO SUBMITTING BID, THE LOCATIONS OF ALL SUCH FIRE RATED PARTITIONS, WALLS AND STRUCTURAL SLABS.
- J. WHERE CORE DRILLING OF FLOOR/WALLS IS REQUIRED, THE CONTRACTOR SHALL SEAL OPENINGS WATERTIGHT AFTER UTILITIES HAVE BEEN INSTALLED. LOCATION OF CORED HOLES SHALL COORDINATE WITH LOCATION OF EQUIPMENT IN A MANNER THAT IS CLEAN AND FUNCTIONAL.
- K. IT SHALL NOT BE THE INTENT OF THESE PLANS AND/OR SPECIFICATIONS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE CONTRACTOR SHALL BE EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS NECESSARY FOR EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO PROVIDE ALL LABOR, MATERIALS AND SUPERVISION NECESSARY TO ACCOMPLISH THE WORK.
- L. ELECTRICAL CONTRACTOR SHALL COORDINATE THEIR WORK WITH ALL OTHER CONTRACTORS AND TRADES BEFORE INSTALLATION OF THEIR WORK IN CHASES, CEILING SPACES AND OTHER AREAS WHERE CONFLICT MAY OCCUR.
- M. ARC-FLASH HAZARD WARNING LABELS SHALL BE PROVIDED AND APPLIED TO SWITCHBOARD, PANELBOARDS, MOTOR CONTROL CENTER, DISCONNECT SWITCHES AND EQUIPMENT CONTROLLERS PER IEC ARTICLE 110.16. THE LABEL SHALL BE PERMANENTLY AFFIXED TO THE EQUIPMENT AND SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED. ALSO, FOR SERVICE EQUIPMENT RATED 1,200 AMPS OR MORE NOT SERVING DWELLING UNIT, THE LABEL SHALL CONTAIN THE FOLLOWING INFORMATION:
  - NOMINAL SYSTEM VOLTAGE.
  - AVAILABLE FAULT CURRENT AT THE SERVICE OVERCURRENT PROTECTIVE DEVICES.
  - THE CLEARING TIME OF SERVICE OVERCURRENT PROTECTIVE DEVICES BASED ON THE AVAILABLE FAULT CURRENT AT THE SERVICE EQUIPMENT.
  - THE DATE THE LABEL WAS APPLIED.

## CAMPOS ENGINEERING

131 River Bend Drive  
Dallas, Texas 75247  
(214) 866-9251  
Registration No. F-03173  
Project Number: 222-2995.00

## UNT UNIVERSITY OF NORTH TEXAS

5/9/2023

---

**PROJECT DIRECTORY:**  
JEFFREY STROHL, P.E.  
131 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-866-9251

## ELECTRICAL SYMBOL LEGEND

(ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS)

	MOTOR RATED SWITCH WITHOUT OVERLOAD PROTECTION
	JUNCTION BOX
	PULL BOX
	TELEPOWER/COMMUNICATIONS POLE
	DUPLEX RECEPTACLE, NEMA 5-20R
	GFCI DUPLEX RECEPTACLE, NEMA 5-20R
	GFCI DUPLEX RECEPTACLE, NEMA 5-20R IN WEATHER PROOF ENCLOSURE
	QUAD. RECEPTACLE, NEMA 5-20R
	EMERGENCY POWER DUPLEX RECEPTACLE, NEMA 5-20R, RED COLOR FINISH
	CEILING MTD EMERGENCY POWER DUPLEX RECEPTACLE, PROVIDE RED OUTLET AND COVERPLATE
	CARD READER AT 48" AFF TO CENTER, UNO
	DOOR RELEASE SWITCH AT 48" AFF TO CENTER, UNO

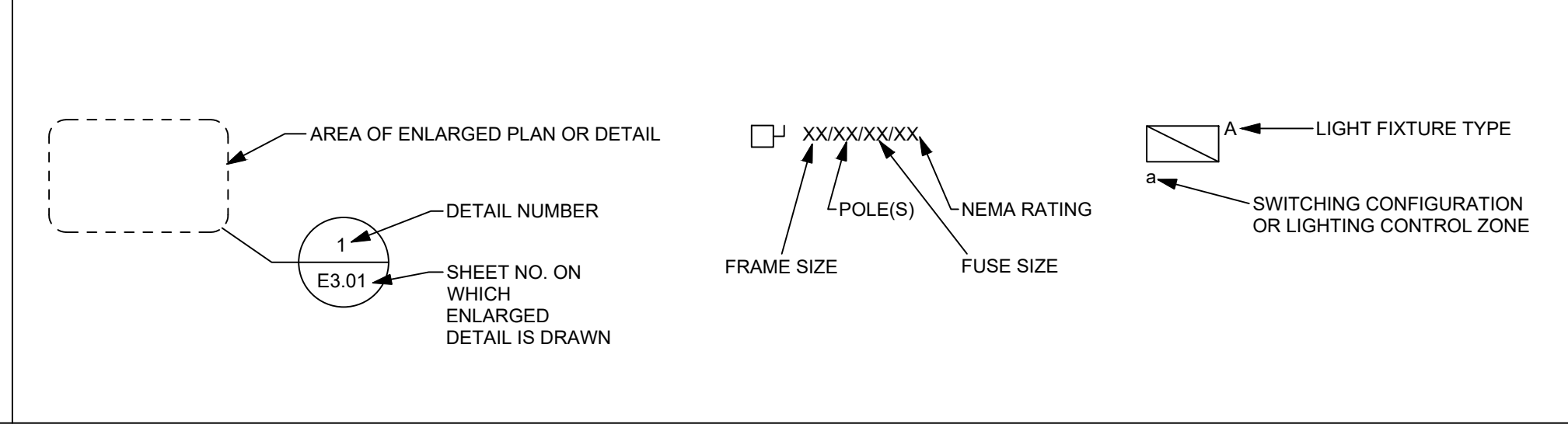
**NOTES:**

1) STANDARD MOUNTING HEIGHT FOR ALL POWER, DATA/VOICE OUTLETS SHALL BE 18" AFF. F. TO CENTER OF DEVICE, U.N.O.

2) RECEPTACLE WITH LETTER 'IG' SHALL BE ISOLATED GROUND RECEPTABLES.

3) STANDARD MOUNTING HEIGHT FOR ALL LIGHT SWITCH, WALL SENSOR, TIMER AND PUSH BUTTON WILL BE 48" AFF. F. TO CENTER OF DEVICE, U.N.O.

## GRAPHIC SYMBOLS



PLOT STAMP: 1 2 3 4 5 6 7 8

3"=1'

1 1/2"=1'-0"

1"=1'-0"

3/4"=1'-0"

1/2"=1'-0"

3/8"=1'-0"

1/4"=1'-0"

3/16"=1'-0"

1/8"=1'-0"

**CLARK HALL DORMITORY**  
**MECHANICAL, ELECTRICAL & PLUMBING**  
**RENOVATION**

UNIVERSITY OF NORTH TEXAS

PROJECT ADDRESS: 1717 MAPLE STREET, DENTON, TX 76201

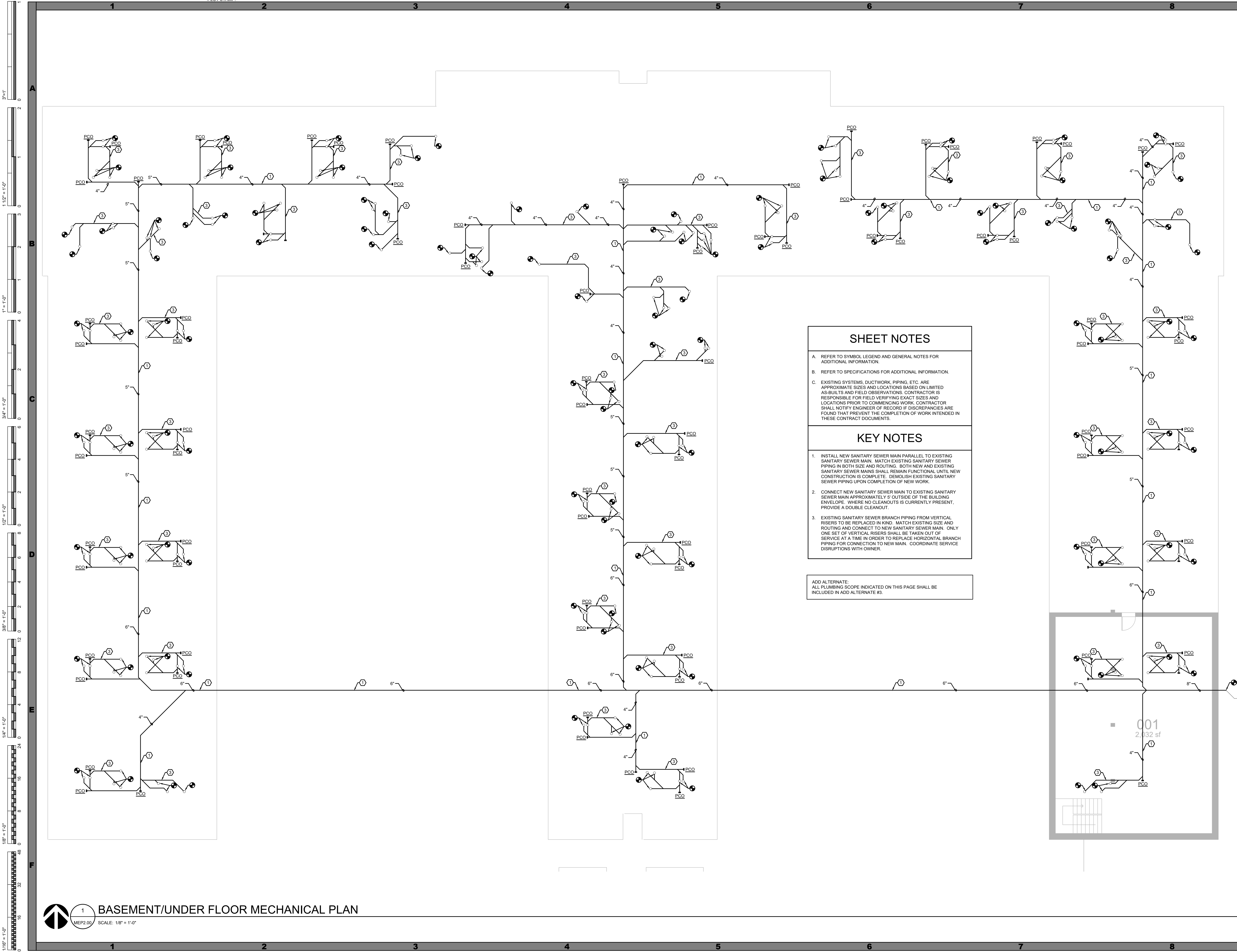
No.	Date	Description

**DRAWING TITLE: ELECTRICAL SYMBOL LEGEND AND GENERAL NOTES**

PROJECT NUMBER:  
CAMPOS: 222-2995.00  
ISSUE DATE: 05/09/2023  
100% CONSTRUCTION DOCUMENTS  
DRAWN BY: / CHECKED BY: / APPROVED BY: /  
MC / JS / JS

## MEP0.04





**SHEET NOTES**

A. REFER TO SYMBOL LEGEND AND GENERAL NOTES FOR ADDITIONAL INFORMATION.

B. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

C. EXISTING SYSTEMS, DUCTWORK, PIPING, ETC. ARE APPROXIMATE SIZES AND LOCATIONS BASED ON LIMITED AS-BUILTS AND FIELD OBSERVATIONS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXACT SIZES AND LOCATIONS PRIOR TO COMMENCING WORK. CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD IF DISCREPANCIES ARE FOUND THAT PREVENT THE COMPLETION OF WORK INTENDED IN THESE CONTRACT DOCUMENTS.

---

**KEY NOTES**

1. INSTALL NEW SANITARY SEWER MAIN PARALLEL TO EXISTING SANITARY SEWER MAIN. MATCH EXISTING SANITARY SEWER PIPING IN BOTH SIZE AND ROUTING. BOTH NEW AND EXISTING SANITARY SEWER MAINS SHALL REMAIN FUNCTIONAL UNTIL NEW CONSTRUCTION IS COMPLETE. DEMOLISH EXISTING SANITARY SEWER PIPING UPON COMPLETION OF NEW WORK.

2. CONNECT NEW SANITARY SEWER MAIN TO EXISTING SANITARY SEWER MAIN APPROXIMATELY 5' OUTSIDE OF THE BUILDING ENVELOPE. WHERE NO CLEANOUTS IS CURRENTLY PRESENT, PROVIDE A DOUBLE CLEANOUT.

3. EXISTING SANITARY SEWER BRANCH PIPING FROM VERTICAL RISERS TO BE REPLACED IN KIND. MATCH EXISTING SIZE AND ROUTING AND CONNECT TO NEW SANITARY SEWER MAIN. ONLY ONE SET OF VERTICAL RISERS SHALL BE TAKEN OUT OF SERVICE AT A TIME IN ORDER TO REPLACE HORIZONTAL BRANCH PIPING FOR CONNECTION TO NEW MAIN. COORDINATE SERVICE DISRUPTIONS WITH OWNER.

ADD ALTERNATE:  
ALL PLUMBING SCOPE INDICATED ON THIS PAGE SHALL BE INCLUDED IN ADD ALTERNATE #3.

**PROJECT DIRECTORY:**  
JEFFREY STROHL, P.E.  
131 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-686-6251

**PROJECT TITLE:** CLARK HALL DORMITORY  
MECHANICAL, ELECTRICAL & PLUMBING  
RENOVATION

**CLIENT NAME:** UNIVERSITY OF NORTH TEXAS

**PROJECT ADDRESS:** 1717 MAPLE STREET, DENTON, TX 76201

REVISION SCHEDULE	
No.	Description

**DRAWING TITLE:** BASEMENT/UNDER FLOOR  
MEP PLAN

**PROJECT NUMBER:** CAMPOS 022-2995.00  
**ISSUE DATE:** 05/09/2023  
100% CONSTRUCTION DOCUMENTS

**DRAWN BY:** / **CHECKED BY:** / **APPROVED BY:**

JM / JS / JS

**1** BASEMENT/UNDER FLOOR MECHANICAL PLAN  
MEP2.00 SCALE: 1/8" = 1'-0"

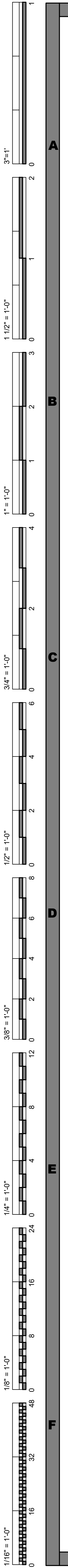
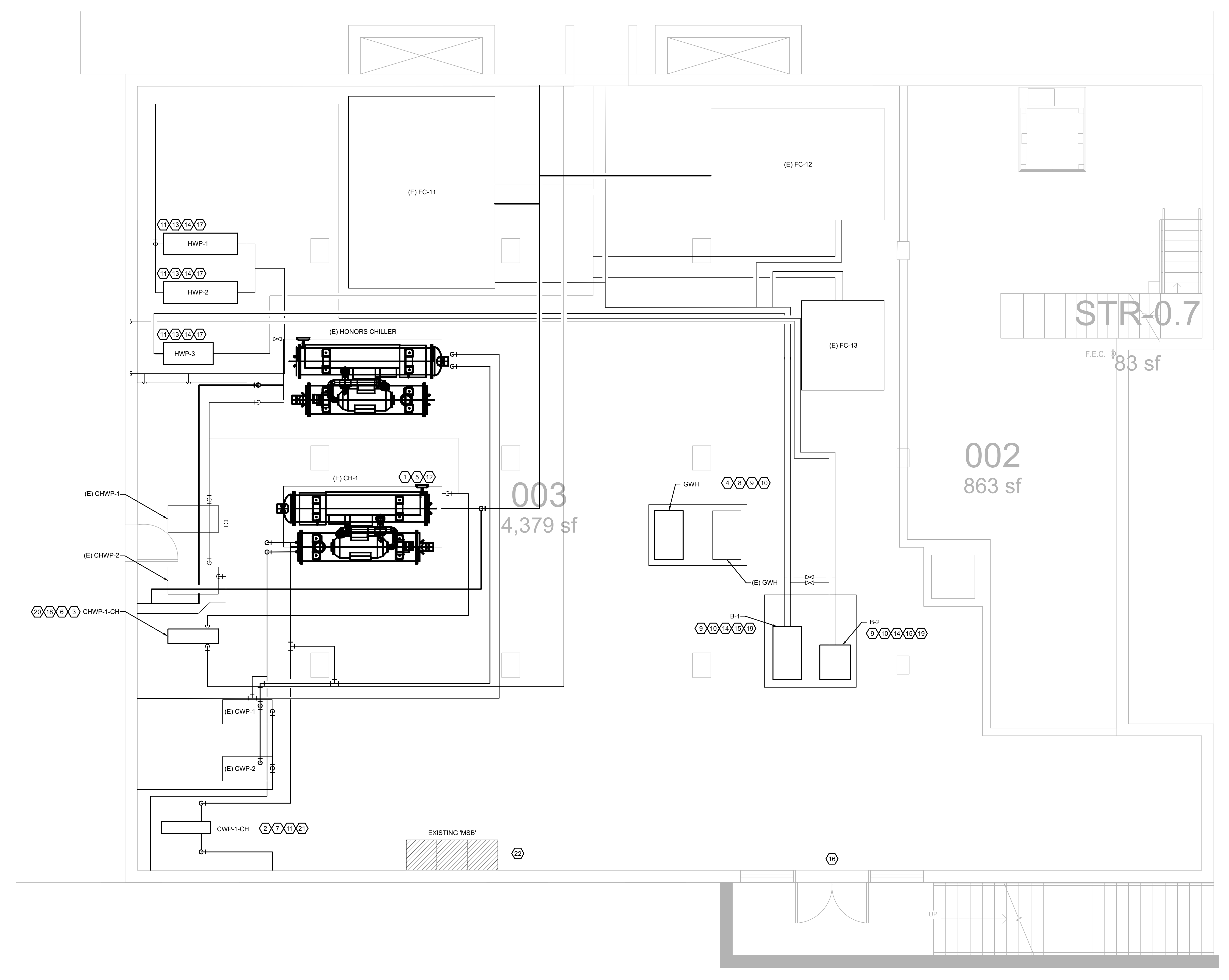


**SHEET NOTES**

- A. REFER TO SYMBOL LEGEND AND GENERAL NOTES FOR ADDITIONAL INFORMATION.
- B. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- C. EXISTING SYSTEMS, DUCTWORK, PIPING, ETC. ARE APPROXIMATE SIZES AND LOCATIONS BASED ON LIMITED AS-BUILTS AND FIELD OBSERVATIONS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXACT SIZES AND LOCATIONS PRIOR TO COMMENCING WORK. CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD IF DISCREPANCIES ARE FOUND THAT PREVENT THE COMPLETION OF WORK INTENDED IN THESE CONTRACT DOCUMENTS.
- D. DEMOLITION AND REPLACEMENT OF CHILLER IS TO BE PERFORMED UNDER SEPARATE WORK ORDER. CONTRACTOR IS TO EXCLUDE THIS PORTION OF WORK IN BID.
- E. PROVIDE NEW TYPE WRITTEN CIRCUIT DIRECTORY FOR ALL EXISTING PANELS, SWITCHBOARDS THAT HAVE BEEN MODIFIED.
- F. ALL NEW BREAKERS SHALL HAVE AIC RATINGS MATCHING THE AIC RATING OF EXISTING ELECTRICAL PANEL CONTAINS THEM.
- G. FOR HYDRONIC EQUIPMENT BEING REPLACED, PROVIDE NEW SHUT-OFF ISOLATION VALVES IF VALVES ARE NOT ABLE TO BE CLOSED COMPLETELY OR ARE DAMAGED.

**KEY NOTES**

- 1. EXISTING CHILLER TO BE DEMOLISHED AND REPLACED WITH NEW. DEMOLISH CHILLED WATER AND CONDENSER WATER PIPING BACK AS REQUIRED TO ALLOW REMOVAL OF EXISTING CHILLER.
- 2. ADD ALT 5 - EXISTING CONDENSER WATER PUMP TO BE DEMOLISHED AND REPLACED WITH NEW. DEMOLISH ASSOCIATED CONDENSER WATER PIPING BACK AS REQUIRED TO ALLOW REMOVAL OF EXISTING PUMP.
- 3. ADD ALT 5 - EXISTING CHILLED WATER PUMP TO BE DEMOLISHED AND REPLACED WITH NEW. DEMOLISH ASSOCIATED CHILLED WATER PIPING BACK AS REQUIRED TO ALLOW REMOVAL OF EXISTING PUMP.
- 4. ADD ALT 4 - EXISTING DOMESTIC WATER BOILER TO BE DEMOLISHED AND REPLACED WITH NEW. DEMOLISH ASSOCIATED DOMESTIC HOT WATER PIPING, NATURAL GAS PIPING AND FLUE VENT BACK AS REQUIRED TO ALLOW REMOVAL OF EXISTING BOILER.
- 5. PROVIDE NEW CHILLED WATER AND CONDENSER WATER PIPING FROM PREVIOUS POINTS OF DISCONNECTION AND CONNECT INTO NEW CHILLER. NEW PIPING SHALL BE OF SAME SIZE AND KIND AS DEMOLISHED PIPING. PROVIDE NEW INSULATION OF CHILLED WATER PIPING. REFER TO SPECIFICATIONS.
- 6. ADD ALT 5 - PROVIDE NEW CHILLED WATER PIPING FROM PREVIOUS POINTS OF DISCONNECTION AND CONNECT INTO NEW PUMP. NEW PIPING SHALL BE OF SAME SIZE AND KIND AS DEMOLISHED PIPING. PROVIDE NEW INSULATION OF CHILLED WATER PIPING. REFER TO SPECIFICATIONS.
- 7. ADD ALT 5 - PROVIDE NEW CONDENSER WATER PIPING FROM PREVIOUS POINTS OF DISCONNECTION AND CONNECT INTO NEW PUMP. NEW PIPING SHALL BE OF SAME SIZE AND KIND AS DEMOLISHED PIPING.
- 8. ADD ALT 4 - PROVIDE NEW DOMESTIC HOT WATER PIPING FROM PREVIOUS POINTS OF DISCONNECTION AND CONNECT INTO NEW BOILER. NEW PIPING SHALL BE OF SAME SIZE AND KIND AS DEMOLISHED PIPING. PROVIDE NEW INSULATION OF DOMESTIC HOT WATER PIPING. REFER TO SPECIFICATIONS.
- 9. ADD ALT 4 - PROVIDE NEW NATURAL GAS PIPING AND APPLIANCE REGULATOR. CONNECT NEW GAS PIPE FROM POINT OF DISCONNECTION TO NEW BOILER. NEW PIPING SHALL BE OF SAME SIZE AND KIND AS DEMOLISHED PIPING.
- 10. ADD ALT 4 - PROVIDE NEW FLUE VENT FROM BOILER AND CONNECT INTO EXISTING FLUE RISER. NEW FLUE SHALL BE OF SAME SIZE AND KIND AS DEMOLISHED FLUE.
- 11. ADD ALT 4 - EXISTING HEATING WATER PUMPS TO BE REPLACED WITH NEW PUMPS. REMOVE ASSOCIATED DISCONNECT SWITCHES, FEEDER BACK TO SWITCHBOARD 'MSB'. EXISTING BREAKERS WILL BE REPLACED TO SERVE NEW PUMPS.
- 12. DISCONNECT AND REMOVE EXISTING ELECTRICAL ITEMS (DISCONNECT SWITCH, WIRES/CONDUIT, CIRCUIT BREAKERS, ETC.) BACK TO RESPECTIVE POWER SOURCE. REPLACE EXISTING 80A/3P BREAKER SERVING REMOVED CHILLER WITH NEW 120A/3P, LSIIG BREAKER. NEW CIRCUIT WILL BE: (3) SETS OF (3)800KCM, 3/0 G, 4"O). PROVIDE NEW 480V/3PH/1200A FUSED DISCONNECT AT CHILLER IF THE CHILLER IS NOT FURNISHED WITH INTEGRAL PROTECTION/DISCONNECT SWITCH.
- 13. ADD ALT 4 - EXISTING HEATING WATER PUMP TO BE DEMOLISHED AND REPLACED WITH NEW. DEMOLISH ASSOCIATED HOT WATER PIPING BACK AS REQUIRED TO ALLOW REMOVAL OF EXISTING PUMP.
- 14. ADD ALT 4 - PROVIDE NEW HOT WATER PIPING FROM PREVIOUS POINTS OF DISCONNECTION AND CONNECT INTO NEW PUMP/BOILER. NEW PIPING SHALL BE OF SAME SIZE AND KIND AS DEMOLISHED PIPING. PROVIDE NEW INSULATION OF HOT WATER PIPING. REFER TO SPECIFICATIONS.
- 15. ADD ALT 4 - EXISTING HEATING WATER PUMP TO BE DEMOLISHED AND REPLACED WITH NEW. DEMOLISH ASSOCIATED HOT WATER PIPING, NATURAL GAS PIPING AND FLUE BENT BACK AS REQUIRED TO ALLOW REMOVAL OF EXISTING BOILER.
- 16. EXISTING LOUVERED WALL AND DOOR TO BE REMOVED TO ALLOW DEMOLITION AND INSTALLATION OF NEW EQUIPMENT. PROTECT AND PRESERVE LOUVERED WALL/DOOR DURING CONSTRUCTION. RE-INSTALL LOUVERED WALL/DOOR ONCE NEW EQUIPMENT HAS BEEN INSTALLED.
- 17. ADD ALT 5 - ELECTRICAL CONTRACTOR TO CONNECT EACH NEW PUMP TO THE EXISTING SWITCHBOARD 'MSB' AT SAME CIRCUIT #. REPLACE (3) EXISTING BREAKERS WITH (3) NEW 80A/3P BREAKERS. NEW CIRCUIT SHALL BE 3RS, 180G, 1-1/4"O). PROVIDE NEW 208V/3PH/100A/80A FUSED DISCONNECT AHEAD OF EACH PUMP'S VFD AND WITHIN SIGHT OF PUMP.
- 18. ADD ALT 5 - EXISTING CHILLED WATER PUMPS TO BE REPLACED WITH NEW PUMPS. REMOVE ASSOCIATED DISCONNECT SWITCHES, FEEDER BACK TO SWITCHBOARD 'MSB'. EXISTING BREAKERS WILL BE REPLACED TO SERVE NEW PUMPS.
- 19. ADD ALT 4 - ELECTRICAL CONTRACTOR TO CONNECT NEW BOILER TO THE EXISTING CIRCUIT MAKE AVAILABLE THROUGH DEMOLITION. PROVIDE NEW DISCONNECT SWITCH 30/20/3P/N1 WITH 3#10,#10G,3/4"O). IF EXISTING BREAKER IS NOT 20A/3P OR IF ONE IS NOT AVAILABLE PROVIDE NEW 20A/3P CIRCUIT BREAKER. NEW CIRCUIT BREAKER SHALL MATCH THE AIC RATING OF THE PANEL.
- 20. ELECTRICAL CONTRACTOR TO CONNECT NEW PUMP TO THE EXISTING SWITCHBOARD 'MSB' AT SAME CIRCUIT #. REPLACE EXISTING BREAKERS WITH NEW 150A/3P BREAKERS. NEW CIRCUIT SHALL BE 3#10, 186G, 1-1/2"O). PROVIDE NEW 208V/3PH/200A/150A FUSED DISCONNECT AHEAD OF PUMP'S VFD AND WITHIN SIGHT OF PUMP.
- 21. ADD ALT 5 - ELECTRICAL CONTRACTOR TO CONNECT NEW PUMP TO THE EXISTING SWITCHBOARD 'MSB' AT SAME CIRCUIT #. REPLACE EXISTING BREAKERS WITH NEW 225A/3P BREAKERS. NEW CIRCUIT SHALL BE 3#10, 186G, 1-1/2"O). PROVIDE NEW 208V/3PH/400A/225A FUSED DISCONNECT AHEAD OF PUMP'S VFD AND WITHIN SIGHT OF PUMP.
- 22. ELECTRICAL CONTRACTOR TO METER EXISTING MAIN SWITCHBOARD 'MSB' INCOMING MAIN FEEDER FOR 30 CONTINUOUS DAYS. THE METERS SOFTWARE MUST BE ABLE TO RECORD THE HIGHEST AVERAGE KW OR AMP REACHED AND MAINTAINED FOR A 15 MINUTE INTERVAL AND SEND REPORT TO THE ENGINEER TO REVIEW PRIOR TO START NEW WORK.



**1** BASEMENT/UNDER FLOOR MECHANICAL PLAN  
MEP2.01 SCALE: 1/4" = 1'-0"

**PROJECT DIRECTORY:**  
JEFFREY STROHL, P.E.  
131 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-686-6251

**CLARK HALL DORMITORY  
MECHANICAL, ELECTRICAL & PLUMBING  
RENOVATION**  
UNIVERSITY OF NORTH TEXAS  
PROJECT ADDRESS: 1717 MAPLE STREET, DENTON, TX 76201

REVISION SCHEDULE	Issued by	Date	Description

**DRAWING TITLE: BASEMENT/UNDER FLOOR MECHANICAL PLAN**

PROJECT NUMBER: CAMPOS 022-2995.00  
ISSUE DATE: 05/09/2023  
100% CONSTRUCTION DOCUMENTS  
DRAWN BY: / CHECKED BY: / APPROVED BY: /  
GG / JS / JS





5/9/2023

**PROJECT DIRECTORY:**

JEFFREY STROHL, P.E.  
1331 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-686-6251

**PROJECT TITLE:** CLARK HALL DORMITORY  
MECHANICAL, ELECTRICAL & PLUMBING  
RENOVATION

**CLIENT NAME:** UNIVERSITY OF NORTH TEXAS  
**PROJECT ADDRESS:** 1717 MAPLE STREET, DENTON, TX 76201

**REVISION SCHEDULE**

No.	Date	Issued by	Description

**PROJECT NUMBER:**

CAMPOS: 022-2995.00

**ISSUE DATE:**

05/09/2023

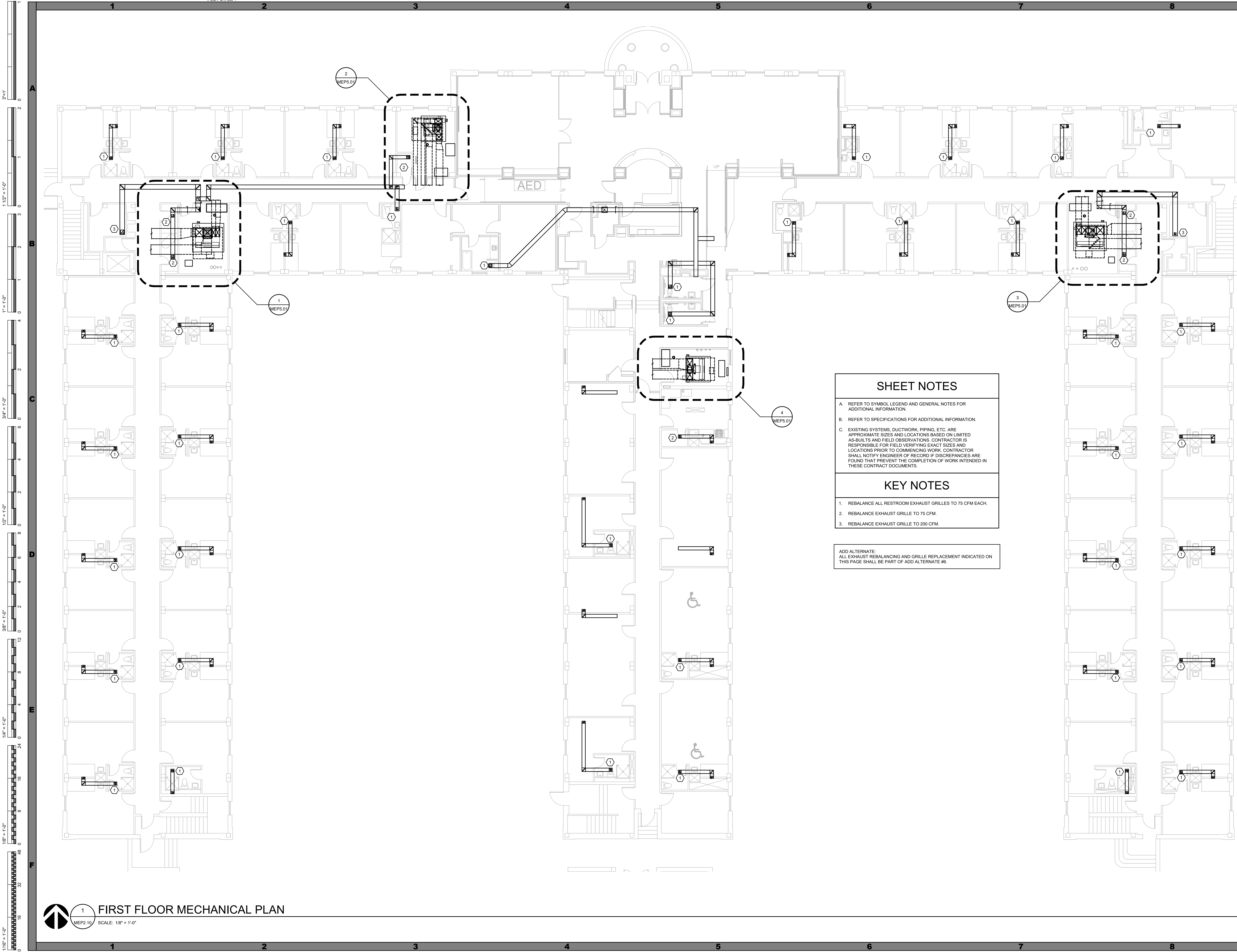
**100% CONSTRUCTION DOCUMENTS**

**DRAWING TITLE:**

FIRST FLOOR MEP PLAN

**DRAWN BY / CHECKED BY / APPROVED BY:**

MC / JS / JS



**SHEET NOTES**

A. REFER TO SYMBOL LEGEND AND GENERAL NOTES FOR ADDITIONAL INFORMATION.

B. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

C. EXISTING SYSTEMS, DUCTWORK, PIPING, ETC. ARE APPROXIMATE SIZES AND LOCATIONS BASED ON LIMITED AS-BUILTS AND FIELD OBSERVATIONS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXACT SIZES AND LOCATIONS PRIOR TO COMMENCING WORK. CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD IF DISCREPANCIES ARE FOUND THAT PREVENT THE COMPLETION OF WORK INTENDED IN THESE CONTRACT DOCUMENTS.

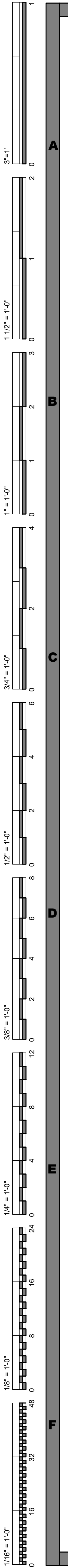
**KEY NOTES**

1. REBALANCE ALL RESTROOM EXHAUST GRILLES TO 75 CFM EACH.

2. REBALANCE EXHAUST GRILLE TO 75 CFM.

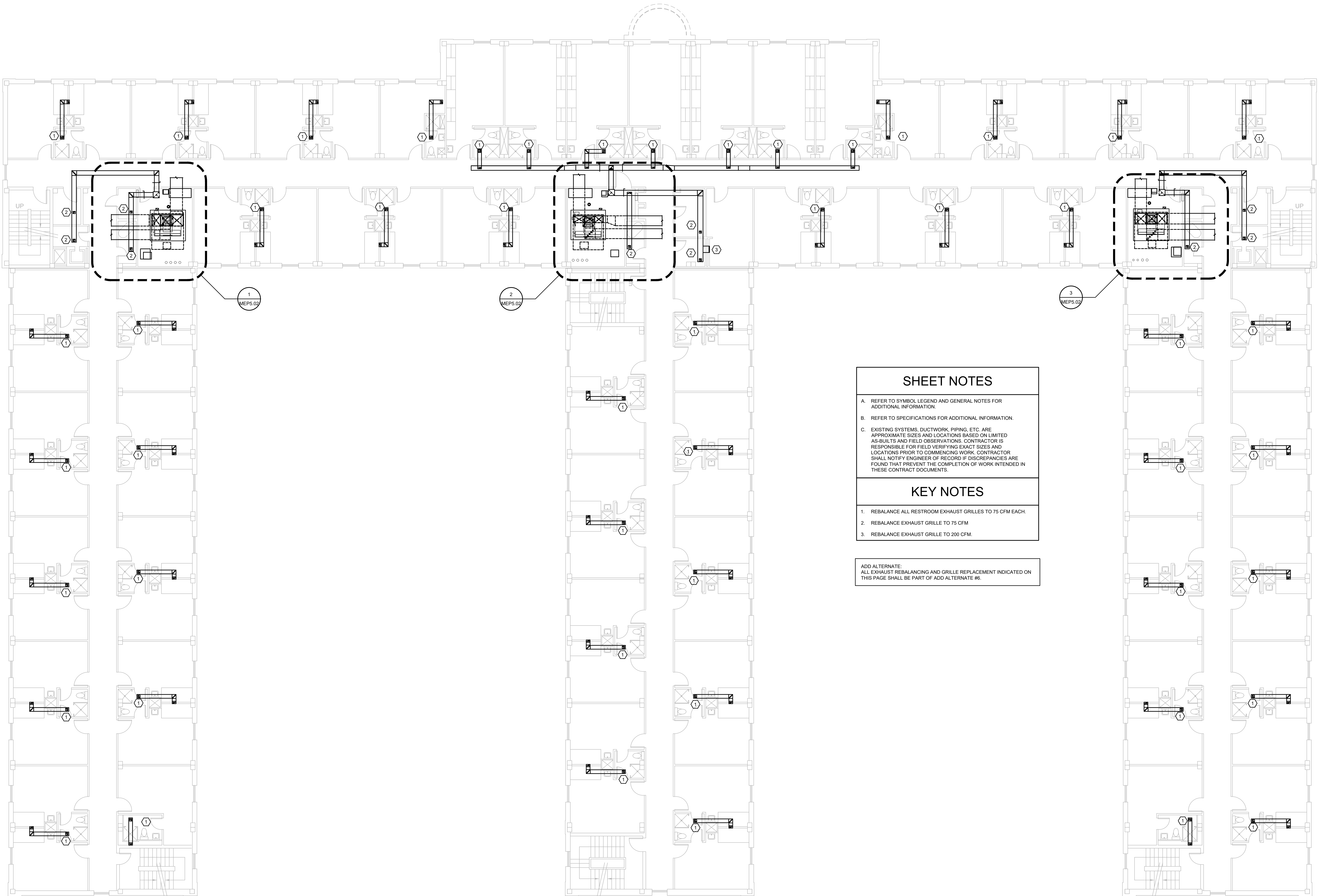
3. REBALANCE EXHAUST GRILLE TO 200 CFM.

ADD ALTERNATE:  
ALL EXHAUST REBALANCING AND GRILLE REPLACEMENT INDICATED ON THIS PAGE SHALL BE PART OF ADD ALTERNATE #6.



**1 FIRST FLOOR MECHANICAL PLAN**  
MEP2.10 SCALE: 1/8" = 1'-0"





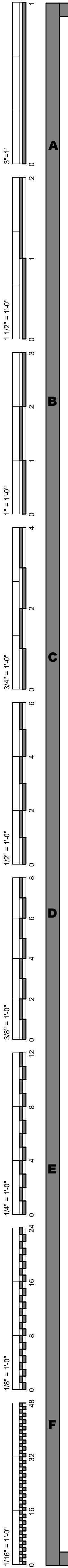
**SHEET NOTES**

- A. REFER TO SYMBOL LEGEND AND GENERAL NOTES FOR ADDITIONAL INFORMATION.
- B. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- C. EXISTING SYSTEMS, DUCTWORK, PIPING, ETC. ARE APPROXIMATE SIZES AND LOCATIONS BASED ON LIMITED AS-BUILTS AND FIELD OBSERVATIONS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXACT SIZES AND LOCATIONS PRIOR TO COMMENCING WORK. CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD IF DISCREPANCIES ARE FOUND THAT PREVENT THE COMPLETION OF WORK INTENDED IN THESE CONTRACT DOCUMENTS.

**KEY NOTES**

- 1. REBALANCE ALL RESTROOM EXHAUST GRILLES TO 75 CFM EACH.
- 2. REBALANCE EXHAUST GRILLE TO 75 CFM
- 3. REBALANCE EXHAUST GRILLE TO 200 CFM.

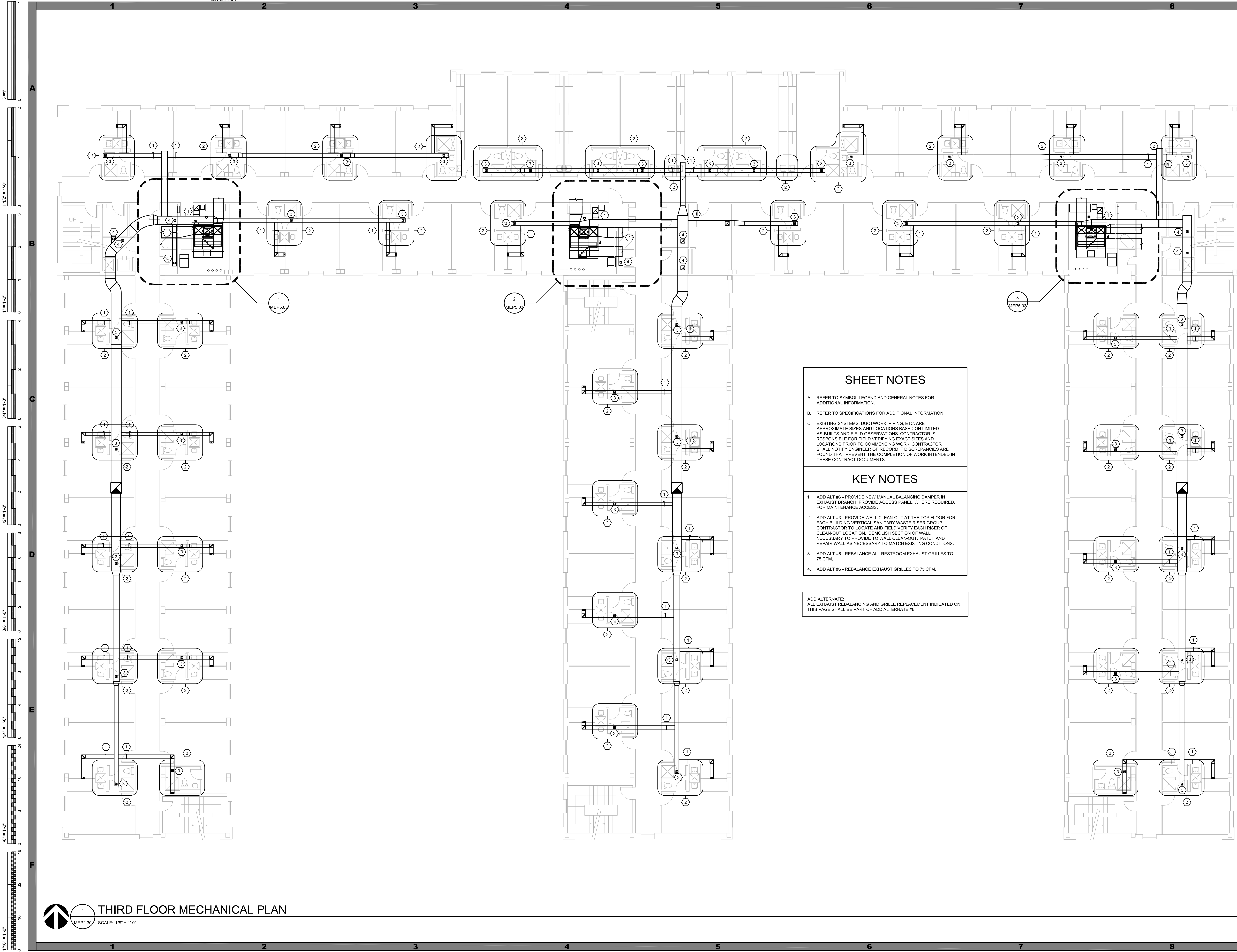
ADD ALTERNATE:  
ALL EXHAUST REBALANCING AND GRILLE REPLACEMENT INDICATED ON THIS PAGE SHALL BE PART OF ADD ALTERNATE #6.



**1 SECOND FLOOR MECHANICAL PLAN**

MEP2.20 SCALE: 1/8" = 1'-0"





**SHEET NOTES**

- A. REFER TO SYMBOL LEGEND AND GENERAL NOTES FOR ADDITIONAL INFORMATION.
- B. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- C. EXISTING SYSTEMS, DUCTWORK, PIPING, ETC. ARE APPROXIMATE SIZES AND LOCATIONS BASED ON LIMITED AS-BUILTS AND FIELD OBSERVATIONS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXACT SIZES AND LOCATIONS PRIOR TO COMMENCING WORK. CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD IF DISCREPANCIES ARE FOUND THAT PREVENT THE COMPLETION OF WORK INTENDED IN THESE CONTRACT DOCUMENTS.

**KEY NOTES**

1. ADD ALT #6 - PROVIDE NEW MANUAL BALANCING DAMPER IN EXHAUST BRANCH. PROVIDE ACCESS PANEL, WHERE REQUIRED, FOR MAINTENANCE ACCESS.
2. ADD ALT #3 - PROVIDE WALL CLEAN-OUT AT THE TOP FLOOR FOR EACH BUILDING VERTICAL SANITARY WASTE RISER GROUP. CONTRACTOR TO LOCATE AND FIELD VERIFY EACH RISER OF CLEAN-OUT LOCATION. DEMOLISH SECTION OF WALL NECESSARY TO PROVIDE TO WALL CLEAN-OUT. PATCH AND REPAIR WALL AS NECESSARY TO MATCH EXISTING CONDITIONS.
3. ADD ALT #6 - REBALANCE ALL RESTROOM EXHAUST GRILLES TO 75 CFM.
4. ADD ALT #6 - REBALANCE EXHAUST GRILLES TO 75 CFM.

ADD ALTERNATE:  
ALL EXHAUST REBALANCING AND GRILLE REPLACEMENT INDICATED ON THIS PAGE SHALL BE PART OF ADD ALTERNATE #6.

**PROJECT DIRECTORY:**

JEFFREY STROFF, P.E.  
1331 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-468-6261

**CLARK HALL DORMITORY  
MECHANICAL, ELECTRICAL & PLUMBING  
RENOVATION**

UNIVERSITY OF NORTH TEXAS  
PROJECT ADDRESS: 1717 MAPLE STREET, DENTON, TX 76201

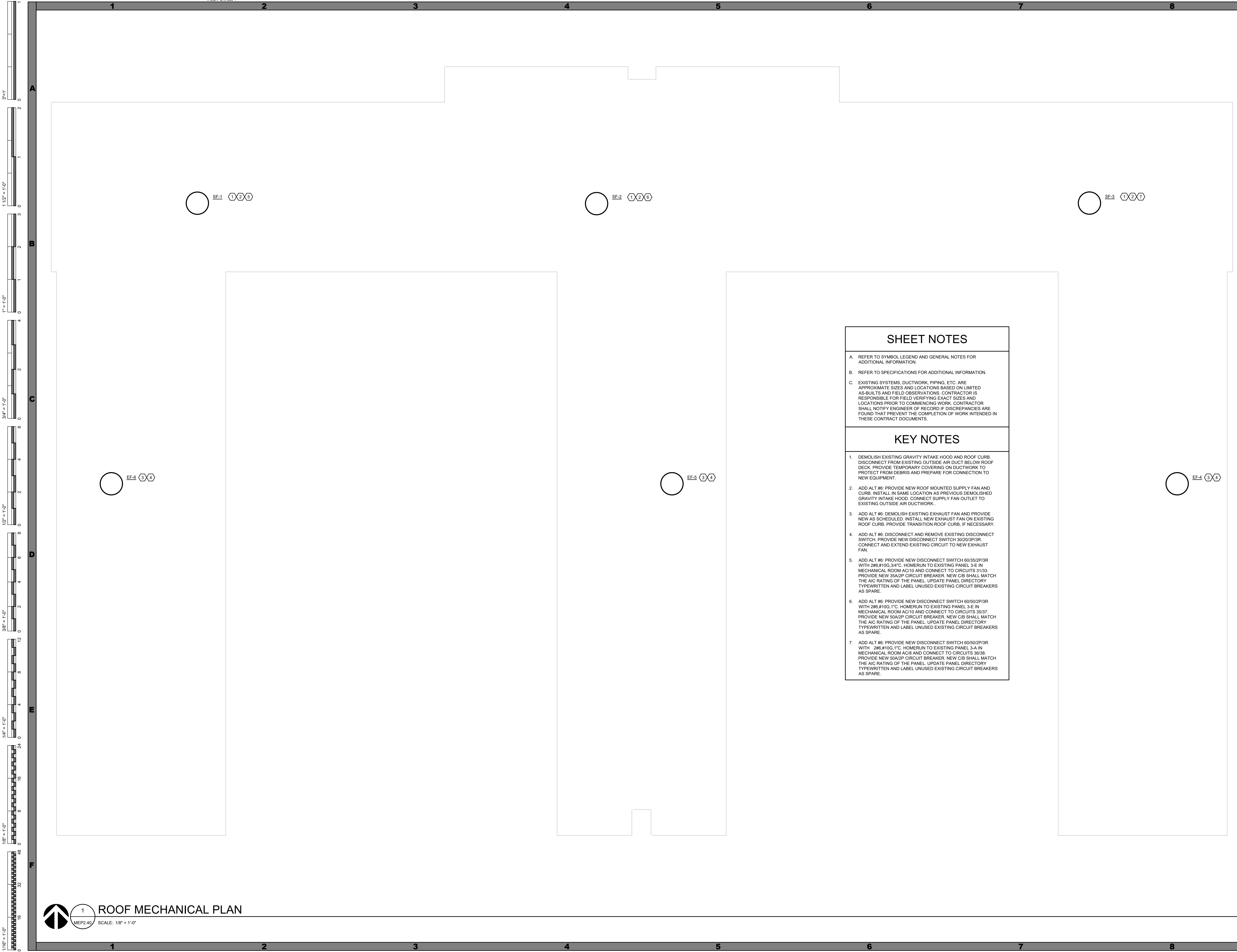
**REVISION SCHEDULE**

No.	Date	Issued by	Description

PROJECT NUMBER:  
CAMPOS: 022-2995.00  
ISSUE DATE: 05/09/2023  
100% CONSTRUCTION DOCUMENTS

DRAWING TITLE: **THIRD FLOOR MECHANICAL PLAN**  
DRAWN BY: / CHECKED BY: / APPROVED BY:  
MC / JS / JS





**SHEET NOTES**

A. REFER TO SYMBOL LEGEND AND GENERAL NOTES FOR ADDITIONAL INFORMATION.

B. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

C. EXISTING SYSTEMS, DUCTWORK, PIPING, ETC. ARE APPROXIMATE SIZES AND LOCATIONS BASED ON LIMITED AS-BUILTS AND FIELD OBSERVATIONS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXACT SIZES AND LOCATIONS PRIOR TO COMMENCING WORK. CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD IF DISCREPANCIES ARE FOUND THAT PREVENT THE COMPLETION OF WORK INTENDED IN THESE CONTRACT DOCUMENTS.

---

**KEY NOTES**

- DEMOLISH EXISTING GRAVITY INTAKE HOOD AND ROOF CURB. DISCONNECT FROM EXISTING OUTSIDE AIR DUCT BELOW ROOF DECK. PROVIDE TEMPORARY COVERING ON DUCTWORK TO PROTECT FROM DEBRIS AND PREPARE FOR CONNECTION TO NEW EQUIPMENT.
- ADD ALT #6: PROVIDE NEW ROOF MOUNTED SUPPLY FAN AND CURB. INSTALL IN SAME LOCATION AS PREVIOUS DEMOLISHED GRAVITY INTAKE HOOD. CONNECT SUPPLY FAN OUTLET TO EXISTING OUTSIDE AIR DUCTWORK.
- ADD ALT #6: DEMOLISH EXISTING EXHAUST FAN AND PROVIDE NEW AS SCHEDULED. INSTALL NEW EXHAUST FAN ON EXISTING ROOF CURB. PROVIDE TRANSITION ROOF CURB, IF NECESSARY.
- ADD ALT #6: DISCONNECT AND REMOVE EXISTING DISCONNECT SWITCH. PROVIDE NEW DISCONNECT SWITCH 30/20/3P/3R. CONNECT AND EXTEND EXISTING CIRCUIT TO NEW EXHAUST FAN.
- ADD ALT #6: PROVIDE NEW DISCONNECT SWITCH 60/35/2P/3R WITH 2#6 #10G, 1" C. HOMERUN TO EXISTING PANEL 3-E IN MECHANICAL ROOM AC/10 AND CONNECT TO CIRCUITS 31/33. PROVIDE NEW 35A/2P CIRCUIT BREAKER. NEW C/B SHALL MATCH THE AIC RATING OF THE PANEL. UPDATE PANEL DIRECTORY TYPEWRITTEN AND LABEL UNUSED EXISTING CIRCUIT BREAKERS AS SPARE.
- ADD ALT #6: PROVIDE NEW DISCONNECT SWITCH 60/50/2P/3R WITH 2#6 #10G, 1" C. HOMERUN TO EXISTING PANEL 3-E IN MECHANICAL ROOM AC/10 AND CONNECT TO CIRCUITS 35/37. PROVIDE NEW 50A/2P CIRCUIT BREAKER. NEW C/B SHALL MATCH THE AIC RATING OF THE PANEL. UPDATE PANEL DIRECTORY TYPEWRITTEN AND LABEL UNUSED EXISTING CIRCUIT BREAKERS AS SPARE.
- ADD ALT #6: PROVIDE NEW DISCONNECT SWITCH 60/50/2P/3R WITH 2#6 #10G, 1" C. HOMERUN TO EXISTING PANEL 3-A IN MECHANICAL ROOM AC/8 AND CONNECT TO CIRCUITS 38/38. PROVIDE NEW 50A/2P CIRCUIT BREAKER. NEW C/B SHALL MATCH THE AIC RATING OF THE PANEL. UPDATE PANEL DIRECTORY TYPEWRITTEN AND LABEL UNUSED EXISTING CIRCUIT BREAKERS AS SPARE.

**PROJECT DIRECTORY:**

JEFFREY STROHL, P.E.  
1331 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-686-6251

**PROJECT TITLE:** CLARK HALL DORMITORY  
MECHANICAL, ELECTRICAL & PLUMBING  
RENOVATION

**CLIENT NAME:** UNIVERSITY OF NORTH TEXAS  
**PROJECT ADDRESS:** 1717 MAPLE STREET, DENTON, TX 76201

**REVISION SCHEDULE**

No.	Date	Issued by	Description

**PROJECT NUMBER:** CAMPOS: D22-2995.00  
**ISSUE DATE:** 05/09/2023  
**100% CONSTRUCTION DOCUMENTS**

**DRAWN BY:** / **CHECKED BY:** / **APPROVED BY:**  
MC / JS / JS



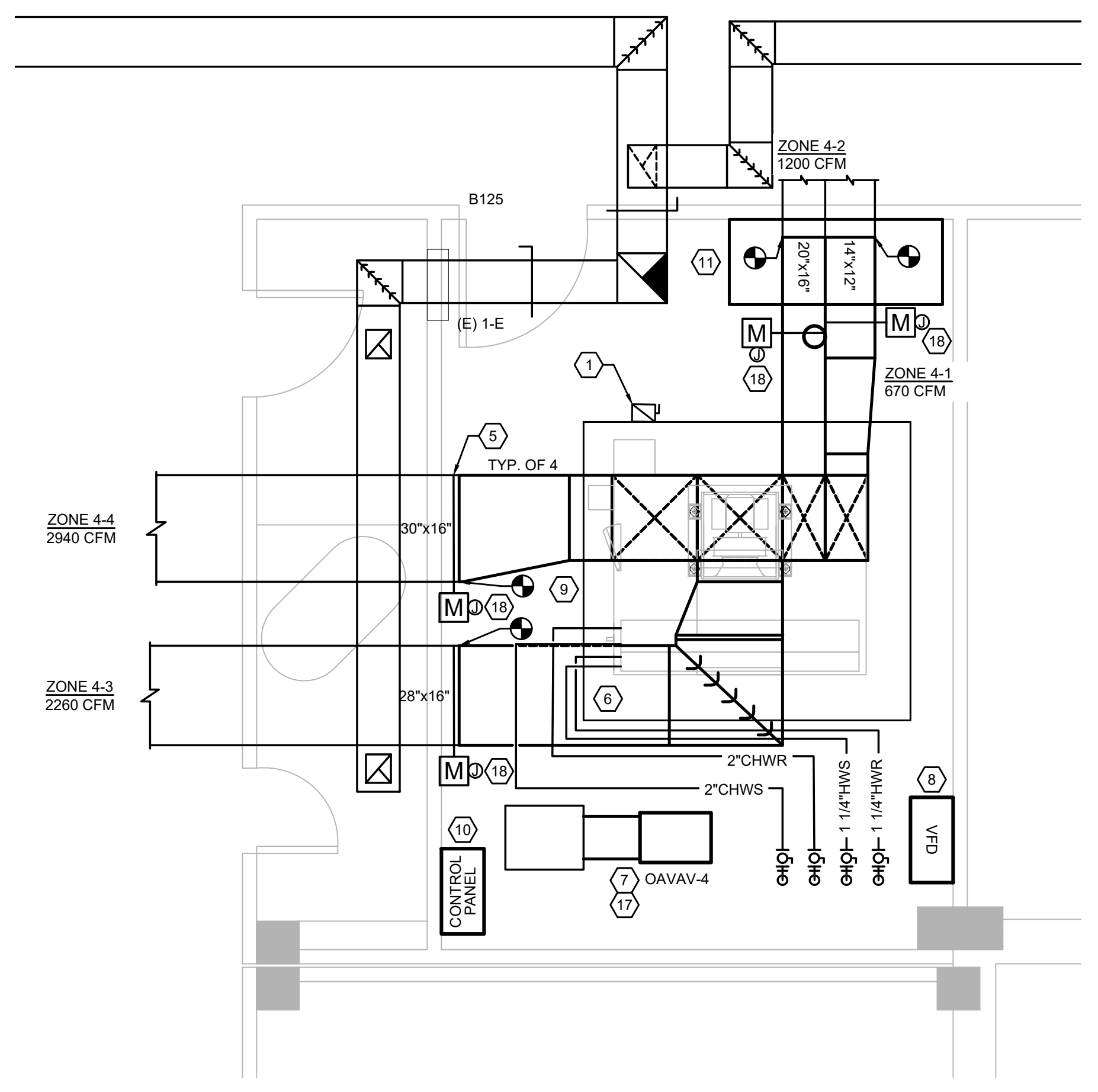


**SHEET NOTES**

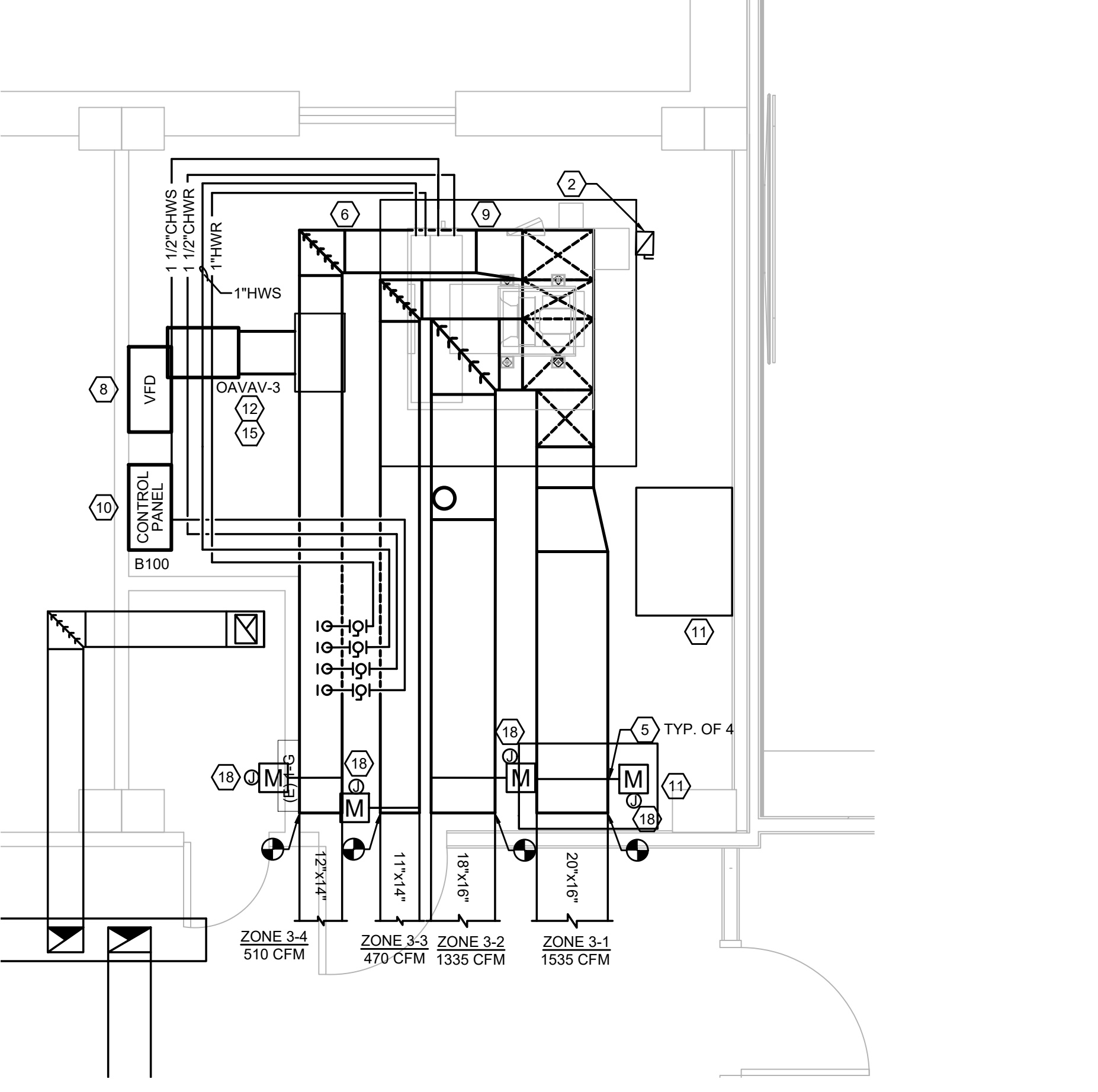
- A. REFER TO SYMBOL LEGEND AND GENERAL NOTES FOR ADDITIONAL INFORMATION.
- B. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- C. EXISTING SYSTEMS, DUCTWORK, PIPING, ETC. ARE APPROXIMATE SIZES AND LOCATIONS BASED ON LIMITED AS-BUILTS AND FIELD OBSERVATIONS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXACT SIZES AND LOCATIONS PRIOR TO COMMENCING WORK. CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD IF DISCREPANCIES ARE FOUND THAT PREVENT THE COMPLETION OF WORK INTENDED IN THESE CONTRACT DOCUMENTS.
- D. PROVIDE NEW TYPE WRITTEN CIRCUIT DIRECTORY FOR ALL EXISTING PANELS, SWITCHBOARDS AND HAVE THE MODIFICATIONS.

**KEY NOTES**

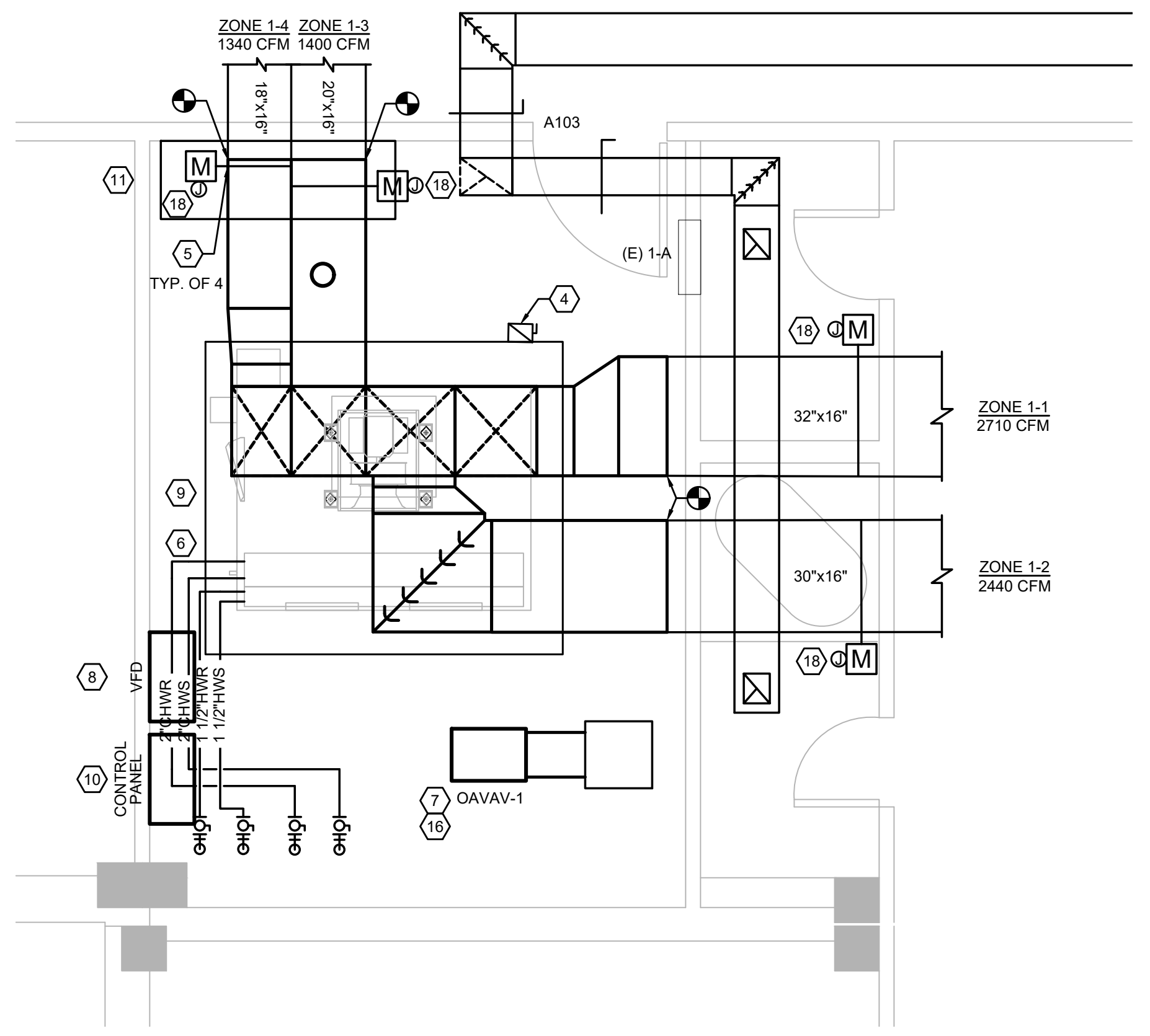
- 1. DISCONNECT AND REMOVE EXISTING ELECTRICAL ITEMS (DISCONNECT SWITCH, WIRES/CONDUIT, CIRCUIT BREAKERS, ETC.) BACK TO RESPECTIVE POWER SOURCE. PROVIDE NEW 1000/0 DISCONNECT SWITCH WITH 300#100, 1/4"C. HOMERUN TO EXISTING PANEL '1-E' AND CONNECT TO CIRCUITS 32/34/36. PROVIDE NEW 90A/3P CIRCUIT BREAKER AND MAKE FINAL CONNECTION. NEW C/B SHALL MATCH THE AIC RATING OF THE PANEL. UPDATE PANEL DIRECTORY TYPEDWRITTEN AND LABEL UNUSED EXISTING CIRCUIT BREAKERS AS "SPARE."
- 2. DISCONNECT AND REMOVE EXISTING ELECTRICAL ITEMS (DISCONNECT SWITCH, WIRES/CONDUIT, CIRCUIT BREAKERS, ETC.) BACK TO RESPECTIVE POWER SOURCE. PROVIDE NEW 60/0 DISCONNECT SWITCH WITH 300#100, 1/4"C. HOMERUN TO EXISTING PANEL '1-E' AND CONNECT TO CIRCUITS 37/39/41. PROVIDE NEW 50A/3P CIRCUIT BREAKER AND MAKE FINAL CONNECTION. NEW C/B SHALL MATCH THE AIC RATING OF THE PANEL. UPDATE PANEL DIRECTORY TYPEDWRITTEN AND LABEL UNUSED EXISTING CIRCUIT BREAKERS AS "SPARE."
- 3. DISCONNECT AND REMOVE EXISTING ELECTRICAL ITEMS (DISCONNECT SWITCH, WIRES/CONDUIT, CIRCUIT BREAKERS, ETC.) BACK TO RESPECTIVE POWER SOURCE. PROVIDE NEW 30/0 DISCONNECT SWITCH WITH 300#100, 1/4"C. HOMERUN TO EXISTING PANEL '1-C' AND CONNECT TO CIRCUITS 38/40/42. PROVIDE NEW 30A/3P CIRCUIT BREAKER AND MAKE FINAL CONNECTION. NEW C/B SHALL MATCH THE AIC RATING OF THE PANEL. UPDATE PANEL DIRECTORY TYPEDWRITTEN AND LABEL UNUSED EXISTING CIRCUIT BREAKERS AS "SPARE."
- 4. DISCONNECT AND REMOVE EXISTING ELECTRICAL ITEMS (DISCONNECT SWITCH, WIRES/CONDUIT, CIRCUIT BREAKERS, ETC.) BACK TO RESPECTIVE POWER SOURCE. PROVIDE NEW 1000/0 DISCONNECT SWITCH WITH 300#100, 1/4"C. HOMERUN TO EXISTING PANEL '1-A' AND CONNECT TO CIRCUITS 30/32/34. PROVIDE NEW 90A/3P CIRCUIT BREAKER AND MAKE FINAL CONNECTION. NEW C/B SHALL MATCH THE AIC RATING OF THE PANEL. UPDATE PANEL DIRECTORY TYPEDWRITTEN AND LABEL UNUSED EXISTING CIRCUIT BREAKERS AS "SPARE."
- 5. NEW ZONE DAMPERS INSTALLED AND BALANCED TO SPECIFIED ZONE AIRFLOWS.
- 6. INSTALL NEW CHILLED WATER AND HOT WATER PIPING. ROUTE PIPING TO AVOID INTERFERENCE WITH UNIT ACCESS PANELS. INSULATE AFFECTED CHILLED AND HOT WATER PIPING. PROVIDE FLOW DIRECTION INDICATORS AT HEADER TAKE-OFFS.
- 7. INSTALL NEW VARIABLE AIR VOLUME BOX FOR VENTILATION AIR CONTROL.
- 8. INSTALL NEW VARIABLE FREQUENCY DRIVE FOR AIR-HANDLER SUPPLY AIR FAN.
- 9. NEW CONDENSATE DRAIN LINE TO DISCHARGE AT EXISTING FLOOR DRAIN WITH AIR GAP.
- 10. COORDINATE LOCATION OF CONTROL PANEL WITH CONTROLS CONTRACTOR.
- 11. EXISTING RETURN AIR SOUND TRAP TO REMAIN.
- 12. INSTALL NEW SERIES FAN POWERED VARIABLE AIR VOLUME BOX FOR VENTILATION AIR CONTROL.
- 13. PROVIDE NEW 100A 120/208V 42P FLUSH MOUNTED PANEL. SUB-FEED NEW PANEL FROM EXISTING PANEL '1-C'.
- 14. PROVIDE NEW DISCONNECT SWITCH WITH 300#100, 3/4"C. HOMERUN TO EXISTING PANEL '1-C' SECTION 2' AND CONNECT TO CIRCUITS 1/3. PROVIDE NEW 20A/2P CIRCUIT BREAKER AND MAKE FINAL CONNECTION. PROVIDE NEW PANEL DIRECTORY TYPEDWRITTEN.
- 15. PROVIDE NEW DISCONNECT SWITCH WITH 300#100, 3/4"C. HOMERUN TO EXISTING PANEL '1-C' SECTION 2' AND CONNECT TO CIRCUITS 2/4. PROVIDE NEW 20A/2P CIRCUIT BREAKER. PROVIDE NEW PANEL DIRECTORY TYPEDWRITTEN.
- 16. PROVIDE NEW MOTOR RATED SWITCH WITH 200#100, 3/4"C. HOMERUN TO EXISTING PANEL '1-C' SECTION 2' AND CONNECT TO CIRCUITS #8. PROVIDE NEW 20A CIRCUIT BREAKER. PROVIDE NEW PANEL DIRECTORY TYPEDWRITTEN.
- 17. PROVIDE NEW MOTOR RATED SWITCH WITH 200#100, 3/4"C. HOMERUN TO EXISTING PANEL '1-C' SECTION 2' AND CONNECT TO CIRCUITS #7. PROVIDE NEW 20A CIRCUIT BREAKER. PROVIDE NEW PANEL DIRECTORY TYPEDWRITTEN.
- 18. CONNECT ALL MOTORIZED DAMPERS IN THIS AREA TO NEAREST 20A CIRCUIT MADE AVAILABLE THROUGH DEMOLITION FROM EXISTING 120/208V PANEL, SERVING THIS AREA. PROVIDE NEW WIRING AND CONDUIT AS REQUIRED.



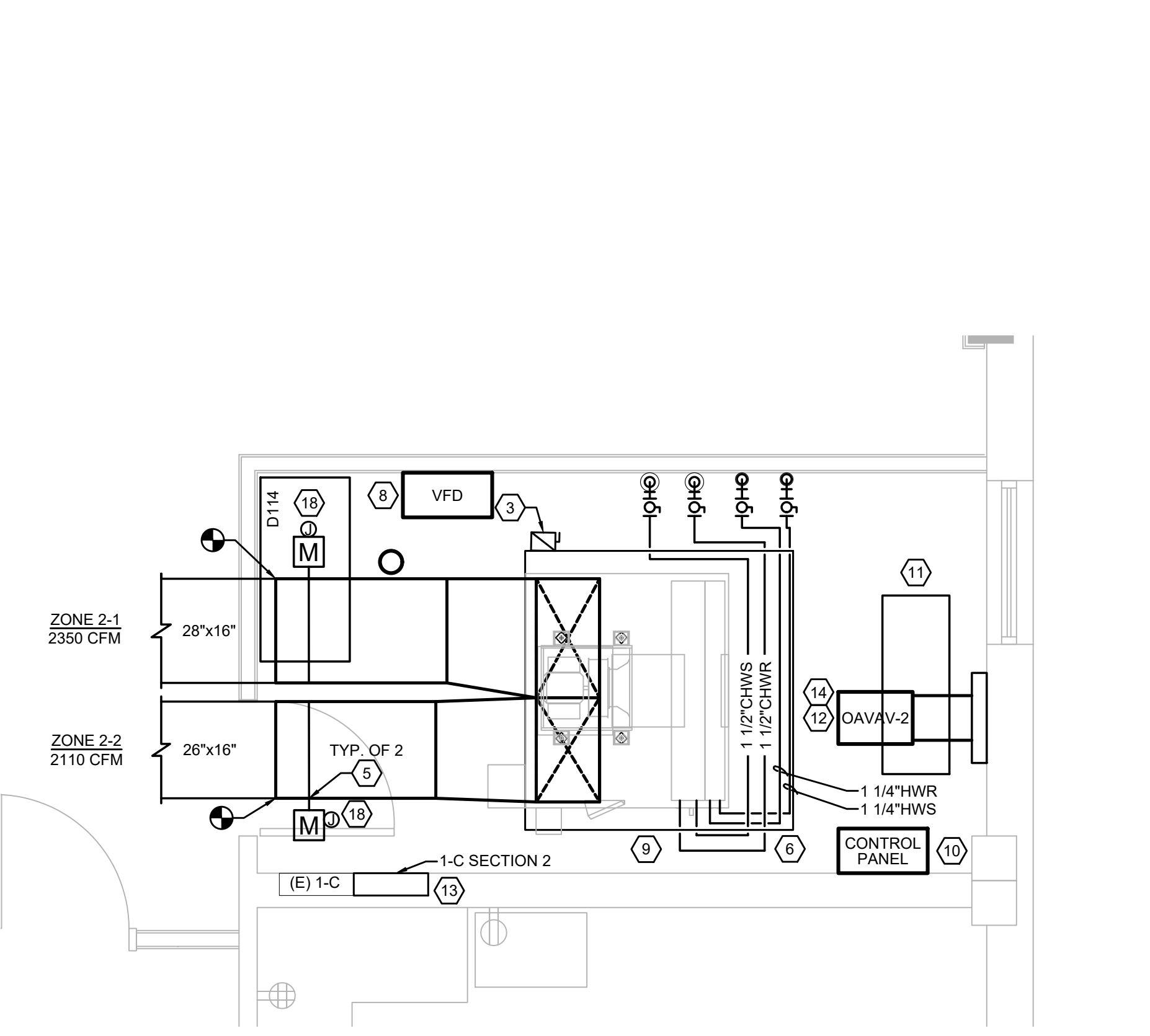
**1 AHU-4 MECHANICAL ROOM**  
MEP5.01 SCALE: 3/8" = 1'-0"



**2 AHU-3 MECHANICAL ROOM**  
MEP5.01 SCALE: 3/8" = 1'-0"



**3 AHU-1 MECHANICAL ROOM**  
MEP5.01 SCALE: 3/8" = 1'-0"



**4 AHU-2 MECHANICAL ROOM**  
MEP5.01 SCALE: 3/8" = 1'-0"

**PROJECT DIRECTORY:**

JEFFREY STROHL, P.E.  
1331 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-686-0251

**CLARK HALL DORMITORY  
MECHANICAL, ELECTRICAL & PLUMBING  
RENOVATION**

UNIVERSITY OF NORTH TEXAS

PROJECT ADDRESS: 1717 MAPLE STREET, DENTON, TX 76201

**REVISION SCHEDULE**

No.	Date	Description

**DRAWING TITLE: MEP ENLARGED PLANS**

PROJECT NUMBER:  
CAMPOS: 022-2995.00  
ISSUE DATE: 05/09/2023  
100% CONSTRUCTION DOCUMENTS

DRAWN BY: / CHECKED BY: / APPROVED BY:  
MC / JS / JS





### SHEET NOTES

- A. REFER TO SYMBOL LEGEND AND GENERAL NOTES FOR ADDITIONAL INFORMATION.
- B. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- C. EXISTING SYSTEMS, DUCTWORK, PIPING, ETC. ARE APPROXIMATE SIZES AND LOCATIONS BASED ON LIMITED AS-BUILTS AND FIELD OBSERVATIONS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXACT SIZES AND LOCATIONS PRIOR TO COMMENCING WORK. CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD IF DISCREPANCIES ARE FOUND THAT PREVENT THE COMPLETION OF WORK INTENDED IN THESE CONTRACT DOCUMENTS.
- D. PROVIDE NEW TYPE WRITTEN CIRCUIT DIRECTORY FOR ALL EXISTING PANELS, SWITCHBOARDS AND HAVE THE MODIFICATIONS.

### KEY NOTES

- 1. DISCONNECT AND REMOVE EXISTING ELECTRICAL ITEMS (DISCONNECT SWITCH, WIRES/CONDUIT, CIRCUIT BREAKERS, ETC.) BACK TO RESPECTIVE POWER SOURCE. PROVIDE NEW 60/60/3 DISCONNECT SWITCH WITH 3#4,#10G, 1" C. HOMERUN TO EXISTING PANEL 2-E AND CONNECT TO CIRCUITS 30/32/34. PROVIDE NEW 60A/3P CIRCUIT BREAKER AND MAKE FINAL CONNECTION. NEW C/B SHALL MATCH THE AIC RATING OF THE PANEL. UPDATE PANEL DIRECTORY TYPEWRITTEN LABEL. UNUSED EXISTING CIRCUIT BREAKERS AS "SPARE."
- 2. DISCONNECT AND REMOVE EXISTING ELECTRICAL ITEMS (DISCONNECT SWITCH, WIRES/CONDUIT, CIRCUIT BREAKERS, ETC.) BACK TO RESPECTIVE POWER SOURCE. PROVIDE NEW 60/60/3 DISCONNECT SWITCH WITH 3#4,#10G, 1" C. HOMERUN TO EXISTING PANEL 2-C AND CONNECT TO CIRCUITS 32/34/36. PROVIDE NEW 60A/3P CIRCUIT BREAKER AND MAKE FINAL CONNECTION. NEW C/B SHALL MATCH THE AIC RATING OF THE PANEL. UPDATE PANEL DIRECTORY TYPEWRITTEN LABEL. UNUSED EXISTING CIRCUIT BREAKERS AS "SPARE."
- 3. DISCONNECT AND REMOVE EXISTING ELECTRICAL ITEMS (DISCONNECT SWITCH, WIRES/CONDUIT, CIRCUIT BREAKERS, ETC.) BACK TO RESPECTIVE POWER SOURCE. PROVIDE NEW 60/60/3 DISCONNECT SWITCH WITH 3#4,#10G, 1" C. HOMERUN TO EXISTING PANEL 2-A AND CONNECT TO CIRCUITS 32/34/36. PROVIDE NEW 60A/3P CIRCUIT BREAKER AND MAKE FINAL CONNECTION. NEW C/B SHALL MATCH THE AIC RATING OF THE PANEL. UPDATE PANEL DIRECTORY TYPEWRITTEN LABEL. UNUSED EXISTING CIRCUIT BREAKERS AS "SPARE."
- 4. NEW ZONE DAMPERS INSTALLED AND BALANCED TO SPECIFIED ZONE AIRFLOWS.
- 5. INSTALL NEW CHILLED WATER AND HOT WATER PIPING. ROUTE PIPING TO AVOID INTERFERENCE WITH UNIT ACCESS PANELS. INSULATE AFFECTED CHILLED AND HOT WATER PIPING. PROVIDE FLOW DIRECTION INDICATORS AT HEADER TAKE-OFFS.
- 6. INSTALL NEW VARIABLE AIR VOLUME BOX FOR VENTILATION AIR CONTROL.
- 7. INSTALL NEW VARIABLE FREQUENCY DRIVE FOR AIR-HANDLER SUPPLY AIR FAN.
- 8. NEW CONDENSATE DRAIN LINE TO DISCHARGE AT EXISTING FLOOR DRAIN WITH AIR GAP.
- 9. COORDINATE LOCATION OF CONTROL PANEL WITH CONTROLS CONTRACTOR.
- 10. EXISTING RETURN AIR SOUND TRAP TO REMAIN.
- 11. PROVIDE NEW MOTOR RATED SWITCH WITH #10,#10G,3/4"C. HOMERUN TO EXISTING PANEL 2-A AND CONNECT TO EXISTING CIRCUITS MADE AVAILABLE THROUGH DEMOLITION. IF NO BREAKER IS AVAILABLE PROVIDE NEW 20A/1P CIRCUIT BREAKER. PROVIDE NEW PANEL DIRECTORY TYPEWRITTEN.
- 12. PROVIDE NEW MOTOR RATED SWITCH WITH #10,#10G,3/4"C. HOMERUN TO EXISTING PANEL 2-C AND CONNECT TO EXISTING CIRCUITS MADE AVAILABLE THROUGH DEMOLITION. IF NO BREAKER IS AVAILABLE PROVIDE NEW 20A/1P CIRCUIT BREAKER. PROVIDE NEW PANEL DIRECTORY TYPEWRITTEN.
- 13. PROVIDE NEW MOTOR RATED SWITCH WITH #10,#10G,3/4"C. HOMERUN TO EXISTING PANEL 2-E AND CONNECT TO EXISTING CIRCUITS MADE AVAILABLE THROUGH DEMOLITION. IF NO BREAKER IS AVAILABLE PROVIDE NEW 20A/1P CIRCUIT BREAKER. PROVIDE NEW PANEL DIRECTORY TYPEWRITTEN.
- 14. CONNECT ALL MOTORIZED DAMPERS IN THIS AREA TO NEAREST 20A CIRCUIT MADE AVAILABLE THROUGH DEMOLITION FROM EXISTING 120/208V PANEL SERVING THIS AREA. PROVIDE NEW WIRING AND CONDUIT AS REQUIRED.

**PROJECT DIRECTORY:**  
JEFFREY STROHL, P.E.  
97226  
1331 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-686-0251

**CLARK HALL DORMITORY  
MECHANICAL, ELECTRICAL & PLUMBING  
RENOVATION**

UNIVERSITY OF NORTH TEXAS  
PROJECT ADDRESS: 1717 MAPLE STREET, DENTON, TX 76201

REVISION SCHEDULE

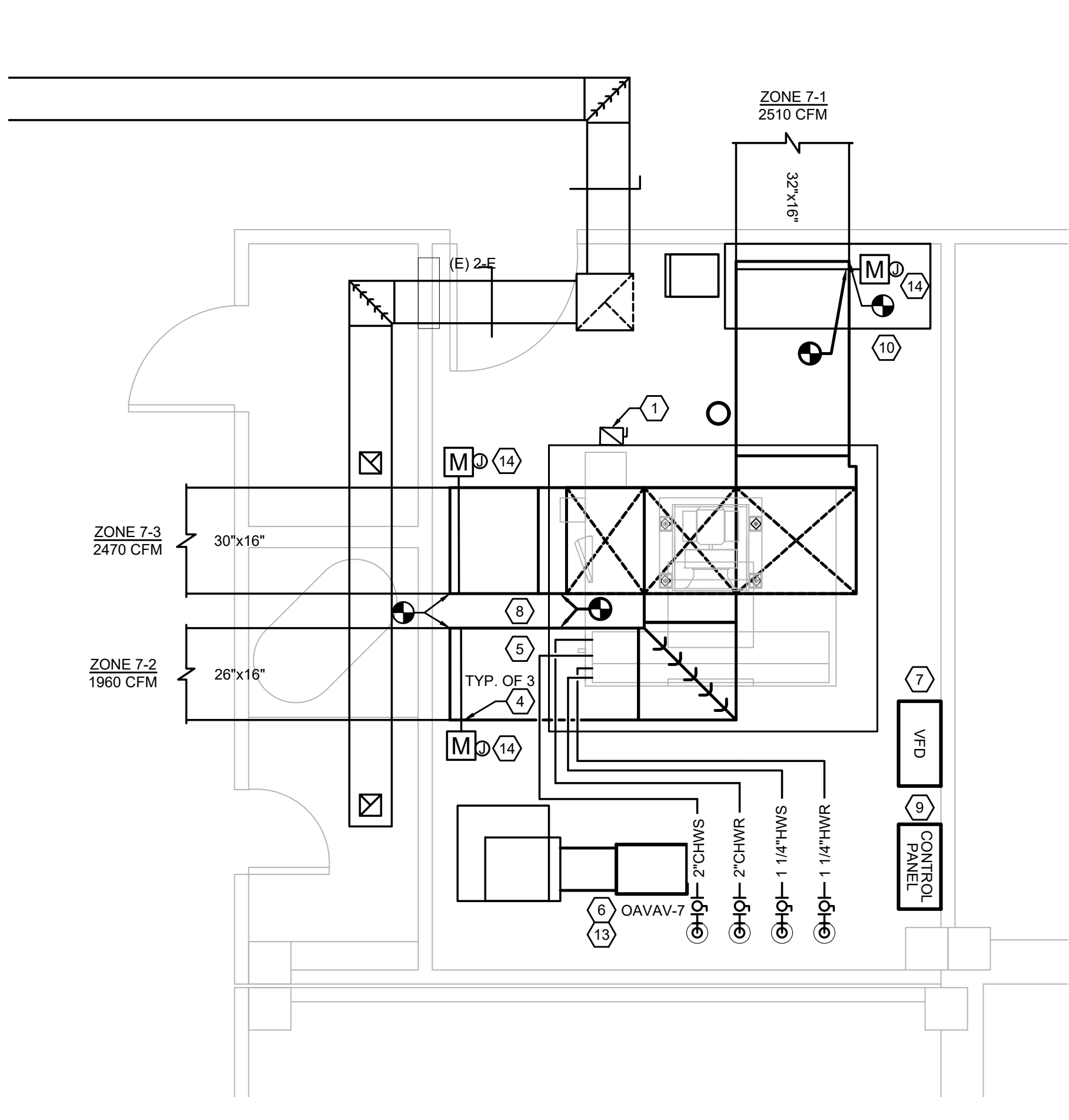
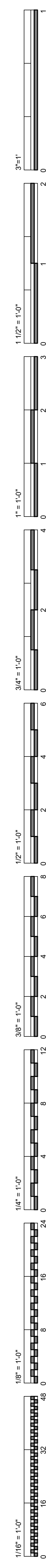
No.	Date	Description

PROJECT NUMBER:  
CAMPOS: 022-2995.00  
ISSUE DATE: 05/09/2023  
100% CONSTRUCTION DOCUMENTS

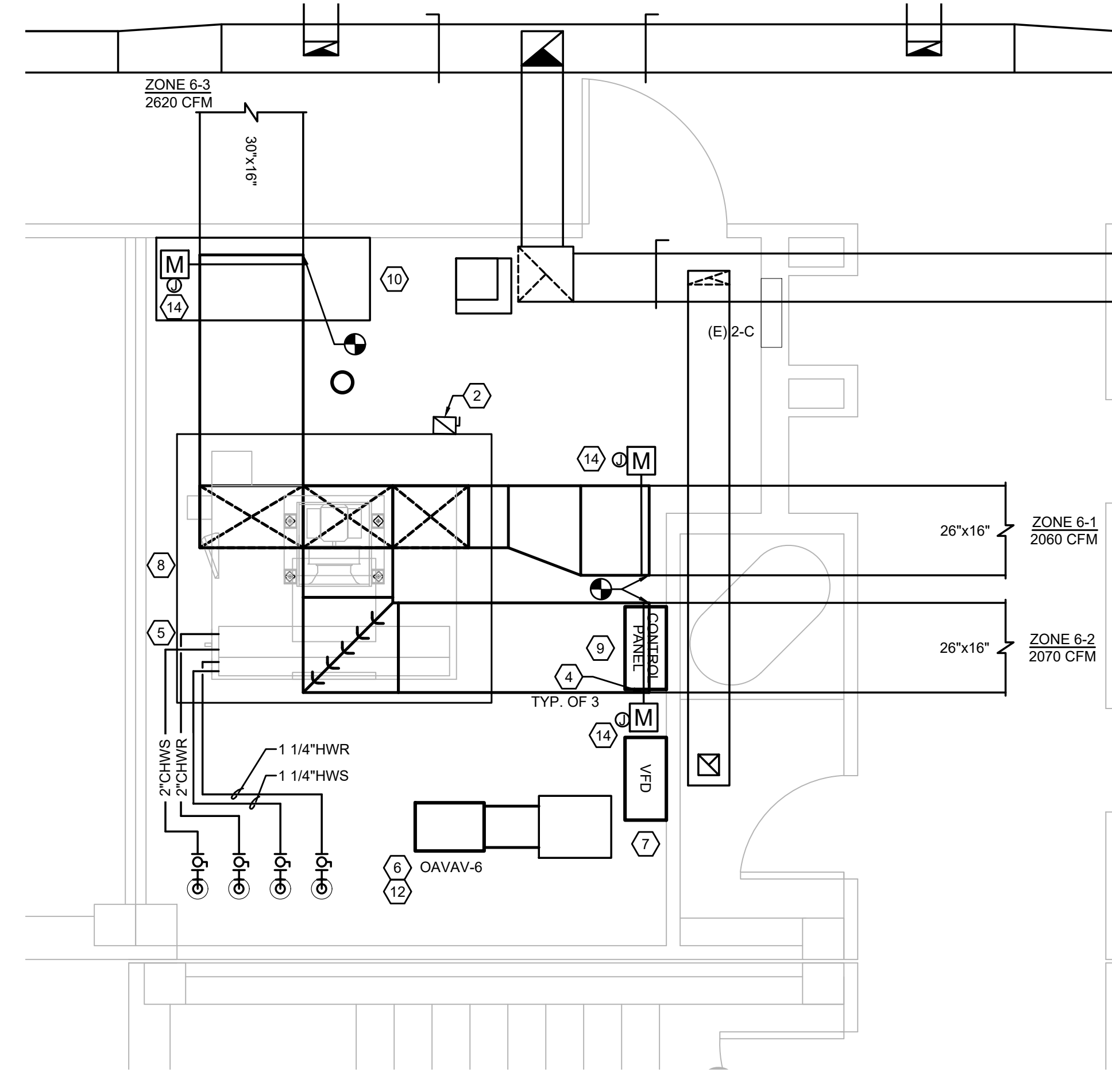
DRAWN BY / CHECKED BY / APPROVED BY:  
MC / JS / JS

DRAWING TITLE: **MEP ENLARGED PLANS**

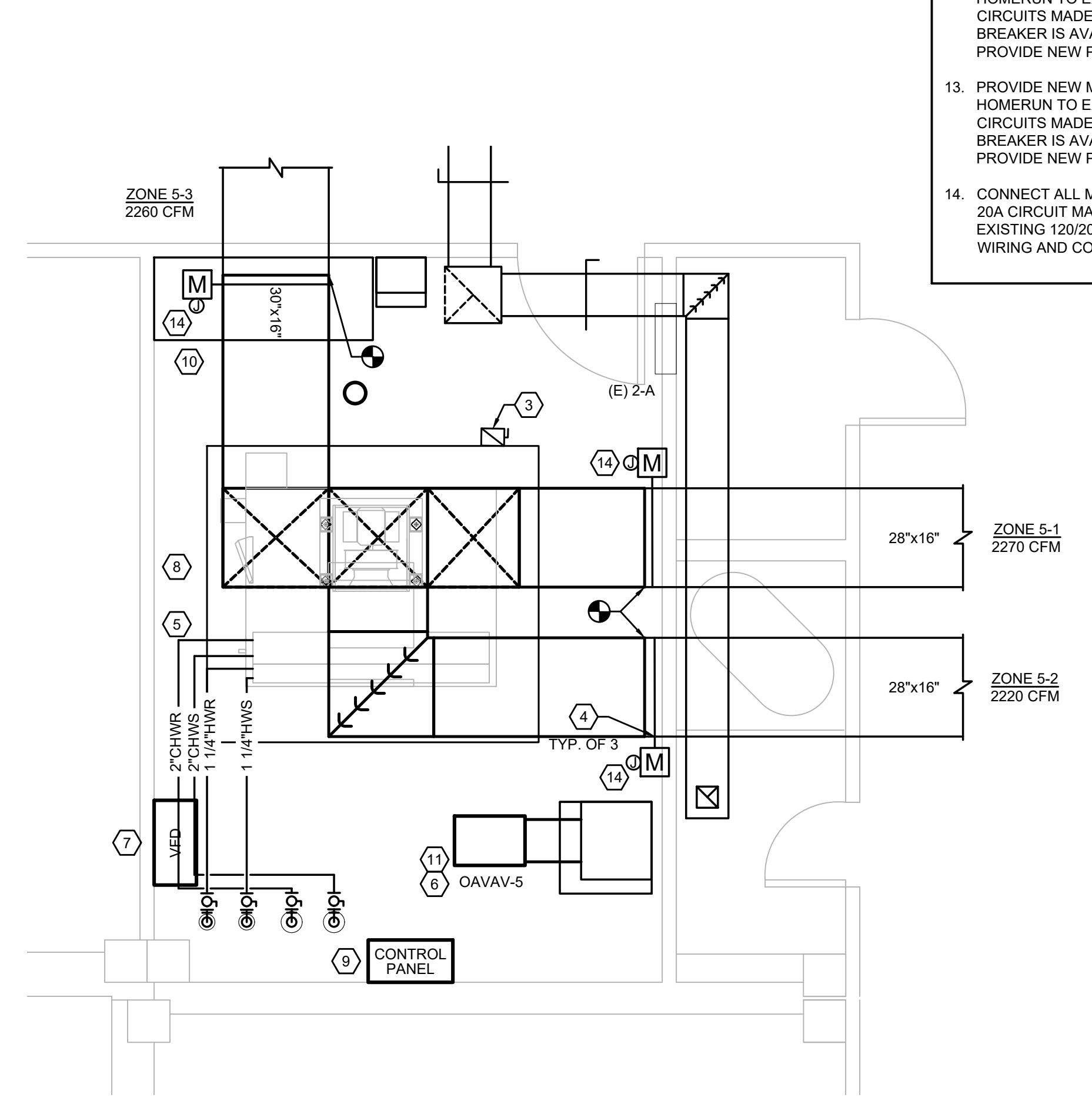
**MEP5.02**



**1 AHU-7 MECHANICAL ROOM**  
MEP5.02 SCALE: 3/8" = 1'-0"



**2 AHU-6 MECHANICAL ROOM**  
MEP5.02 SCALE: 3/8" = 1'-0"



**3 AHU-5 MECHANICAL ROOM**  
MEP5.02 SCALE: 3/8" = 1'-0"



### SHEET NOTES

- A. REFER TO SYMBOL LEGEND AND GENERAL NOTES FOR ADDITIONAL INFORMATION.
- B. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- C. EXISTING SYSTEMS, DUCTWORK, PIPING, ETC. ARE APPROXIMATE SIZES AND LOCATIONS BASED ON LIMITED AS-BUILTS AND FIELD OBSERVATIONS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXACT SIZES AND LOCATIONS PRIOR TO COMMENCING WORK. CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD IF DISCREPANCIES ARE FOUND THAT PREVENT THE COMPLETION OF WORK INTENDED IN THESE CONTRACT DOCUMENTS.
- D. PROVIDE NEW TYPE WRITTEN CIRCUIT DIRECTORY FOR ALL EXISTING PANELS, SWITCHBOARDS AND HAVE THE MODIFICATIONS.

### KEY NOTES

1. DISCONNECT AND REMOVE EXISTING ELECTRICAL ITEMS (DISCONNECT SWITCH, WIRES/CONDUIT, CIRCUIT BREAKERS, ETC.) BACK TO RESPECTIVE POWER SOURCE. PROVIDE NEW 100/60 DISCONNECT SWITCH WITH 3/4" #10, 1/4" C. HOMERUN TO EXISTING PANEL 3-E AND CONNECT TO CIRCUITS 32/34/36. PROVIDE NEW 90A/3P CIRCUIT BREAKER AND MAKE FINAL CONNECTION. NEW CIB SHALL MATCH THE AIC RATING OF THE PANEL. UPDATE PANEL DIRECTORY TYPEWRITTEN LABEL. UNUSED EXISTING CIRCUIT BREAKERS AS "SPARE."
2. DISCONNECT AND REMOVE EXISTING ELECTRICAL ITEMS (DISCONNECT SWITCH, WIRES/CONDUIT, CIRCUIT BREAKERS, ETC.) BACK TO RESPECTIVE POWER SOURCE. PROVIDE NEW 60/60 DISCONNECT SWITCH WITH 3/4" #10, 1/4" C. HOMERUN TO EXISTING PANEL 3-C AND CONNECT TO CIRCUITS 37/39/41. PROVIDE NEW 90A/3P CIRCUIT BREAKER AND MAKE FINAL CONNECTION. NEW CIB SHALL MATCH THE AIC RATING OF THE PANEL. UPDATE PANEL DIRECTORY TYPEWRITTEN LABEL. UNUSED EXISTING CIRCUIT BREAKERS AS "SPARE."
3. DISCONNECT AND REMOVE EXISTING ELECTRICAL ITEMS (DISCONNECT SWITCH, WIRES/CONDUIT, CIRCUIT BREAKERS, ETC.) BACK TO RESPECTIVE POWER SOURCE. PROVIDE NEW 100/60 DISCONNECT SWITCH WITH 3/4" #10, 1/4" C. HOMERUN TO EXISTING PANEL 3-A AND CONNECT TO CIRCUITS 31/35/37. PROVIDE NEW 90A/3P CIRCUIT BREAKER AND MAKE FINAL CONNECTION. NEW CIB SHALL MATCH THE AIC RATING OF THE PANEL. UPDATE PANEL DIRECTORY TYPEWRITTEN LABEL. UNUSED EXISTING CIRCUIT BREAKERS AS "SPARE."
4. NEW ZONE DAMPERS INSTALLED AND BALANCED TO SPECIFIED ZONE AIRFLOWS.
5. INSTALL NEW CHILLED WATER AND HOT WATER PIPING. ROUTE PIPING TO AVOID INTERFERENCE WITH UNIT ACCESS PANELS. INSULATE AFFECTED CHILLED AND HOT WATER PIPING. PROVIDE FLOW DIRECTION INDICATORS AT HEADER TAKE-OFFS.
6. INSTALL NEW VARIABLE AIR VOLUME BOX FOR VENTILATION AIR CONTROL.
7. INSTALL NEW VARIABLE FREQUENCY DRIVE FOR AIR-HANDLER SUPPLY AIR FAN.
8. NEW CONDENSATE DRAIN LINE TO DISCHARGE AT EXISTING FLOOR DRAIN WITH AIR GAP.
9. COORDINATE LOCATION OF CONTROL PANEL WITH CONTROLS CONTRACTOR.
10. EXISTING RETURN AIR SOUND TRAP TO REMAIN.
11. PROVIDE NEW MOTOR RATED SWITCH WITH 2#10, #105, 3/4" C. HOMERUN TO EXISTING PANEL 3-A AND CONNECT TO EXISTING CIRCUITS MADE AVAILABLE THROUGH DEMOLITION. IF NO BREAKER IS AVAILABLE PROVIDE NEW 20A/1P CIRCUIT BREAKER. PROVIDE NEW PANEL DIRECTORY TYPEWRITTEN.
12. PROVIDE NEW MOTOR RATED SWITCH WITH 2#10, #105, 3/4" C. HOMERUN TO EXISTING PANEL 3-C AND CONNECT TO EXISTING CIRCUITS MADE AVAILABLE THROUGH DEMOLITION. IF NO BREAKER IS AVAILABLE PROVIDE NEW 20A/1P CIRCUIT BREAKER. PROVIDE NEW PANEL DIRECTORY TYPEWRITTEN.
13. PROVIDE NEW MOTOR RATED SWITCH WITH 2#10, #105, 3/4" C. HOMERUN TO EXISTING PANEL 3-E AND CONNECT TO EXISTING CIRCUITS MADE AVAILABLE THROUGH DEMOLITION. IF NO BREAKER IS AVAILABLE PROVIDE NEW 20A/1P CIRCUIT BREAKER. PROVIDE NEW PANEL DIRECTORY TYPEWRITTEN.
14. CONNECT ALL MOTORIZED DAMPERS IN THIS AREA TO NEAREST 20A CIRCUIT MADE AVAILABLE THROUGH DEMOLITION FROM EXISTING 100/200V PANEL SERVING THIS AREA. PROVIDE NEW WIRING AND CONDUIT AS REQUIRED.

PROJECT DIRECTORY:  
JEFFREY STROHL, P.E.  
1331 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-686-6251

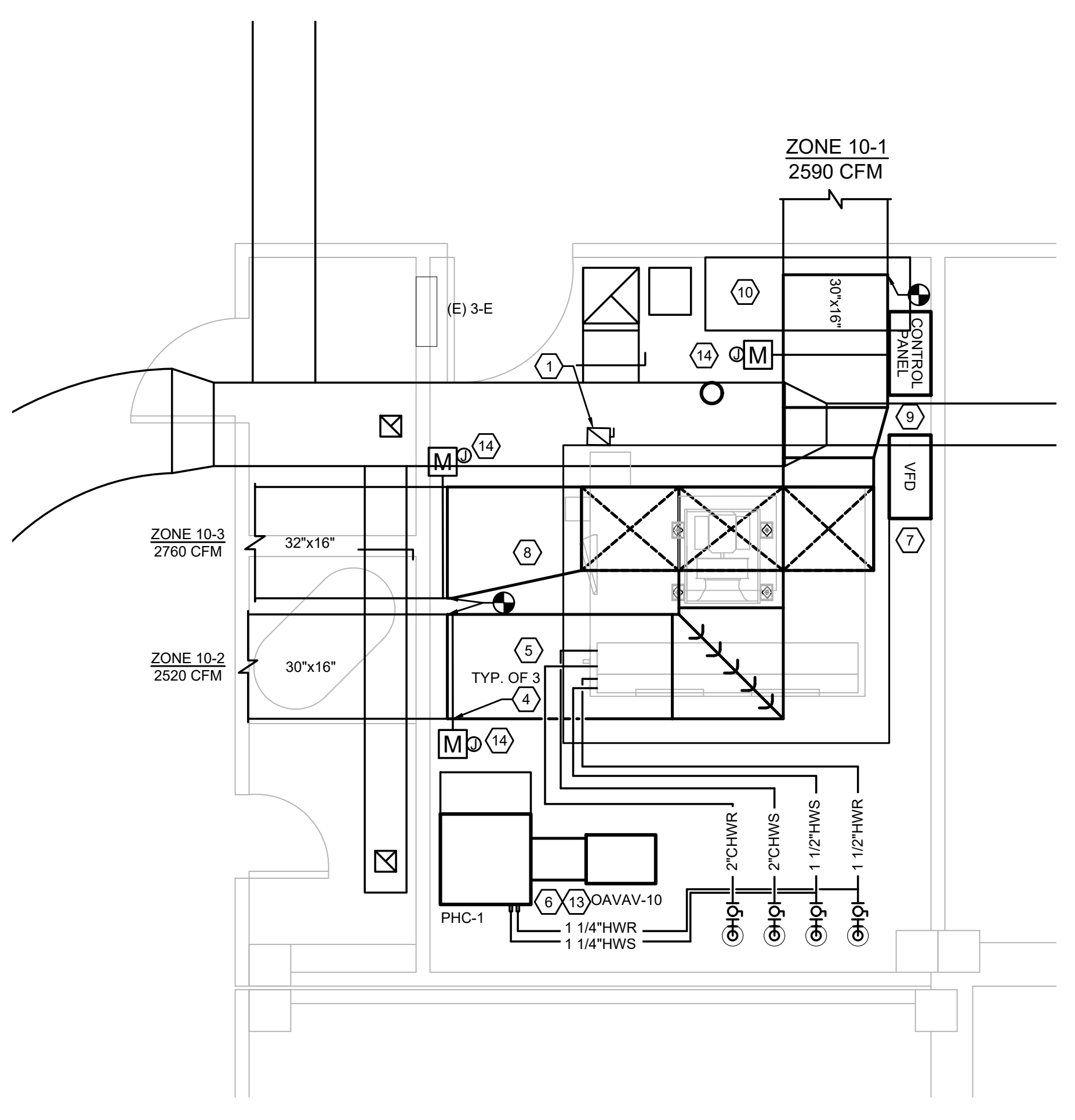
CLARK HALL DORMITORY  
MECHANICAL, ELECTRICAL & PLUMBING  
RENOVATION  
UNIVERSITY OF NORTH TEXAS

CLIENT NAME: UNIVERSITY OF NORTH TEXAS  
PROJECT ADDRESS: 1717 MAPLE STREET, DENTON, TX 76201

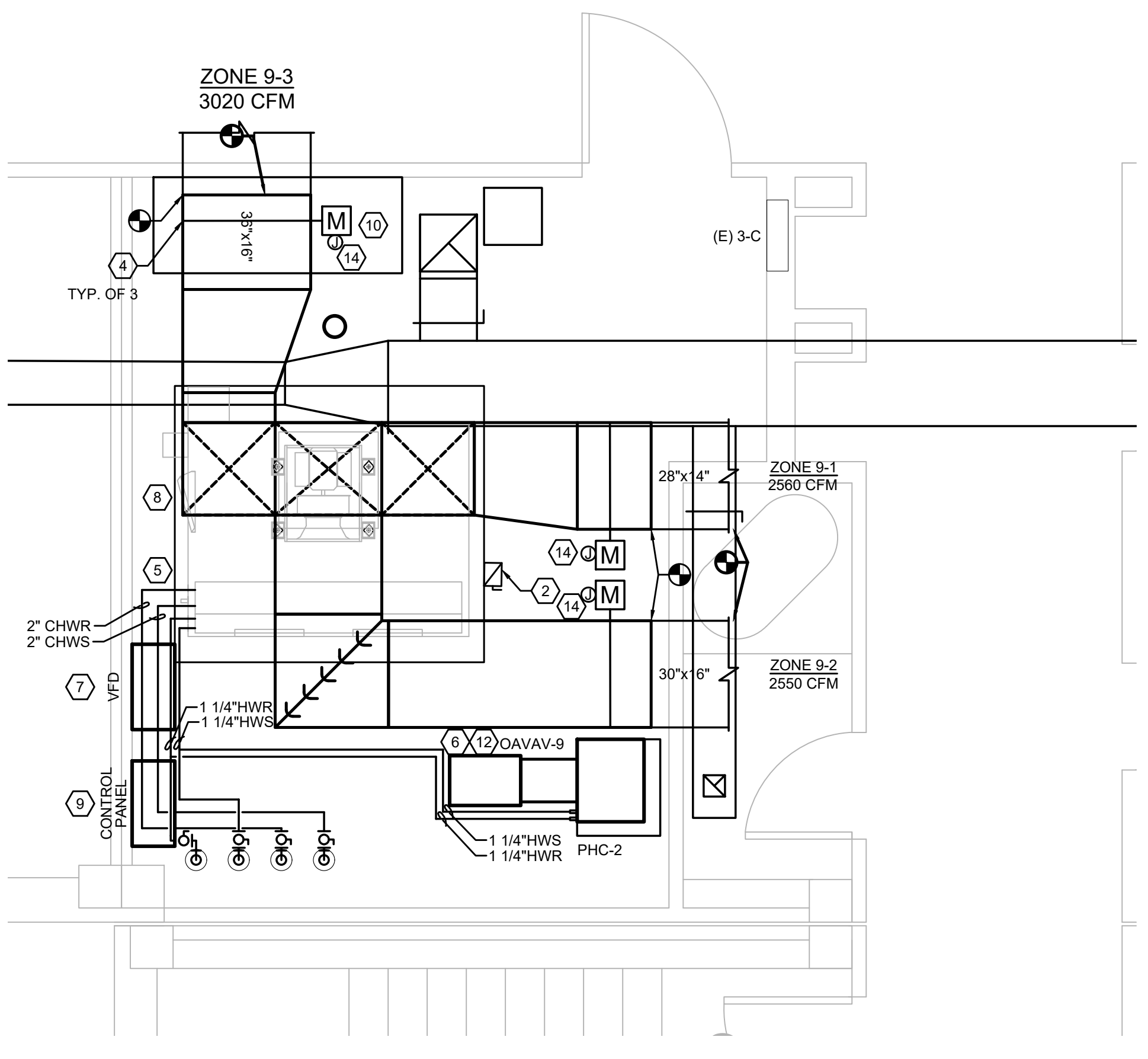
REVISION	SCHEDULE	Issued by
No.	Date	

PROJECT NUMBER:
CAMPOS: 022-2995.00
ISSUE DATE:
05/09/2023
100% CONSTRUCTION DOCUMENTS
DRAWN BY / CHECKED BY / APPROVED BY:
MC / JS / JS

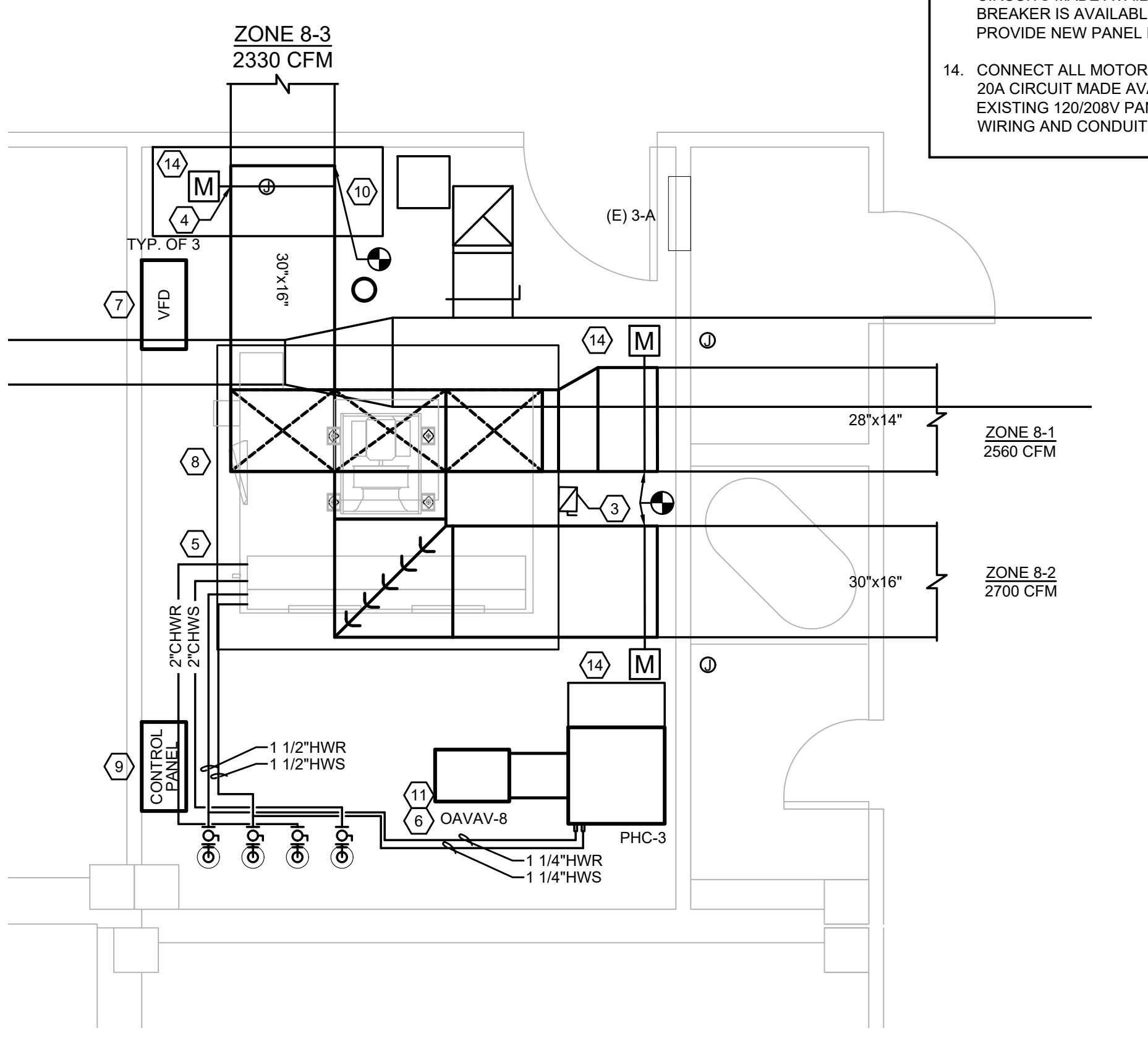
DRAWING TITLE: MEP ENLARGED PLANS  
MEP5.03



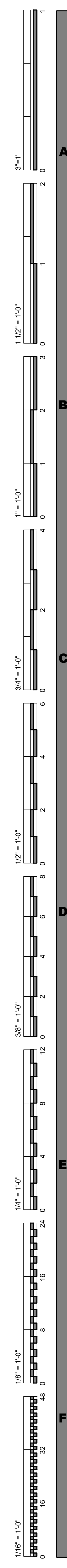
1 AHU-10 MECHANICAL ROOM  
MEP5.03 SCALE: 3/8" = 1'-0"



2 AHU-9 MECHANICAL ROOM  
MEP5.03 SCALE: 3/8" = 1'-0"



3 AHU-8 MECHANICAL ROOM  
MEP5.03 SCALE: 3/8" = 1'-0"







PROJECT DIRECTORY:  
JEFFREY STROHM, P.E.  
1331 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-686-6251

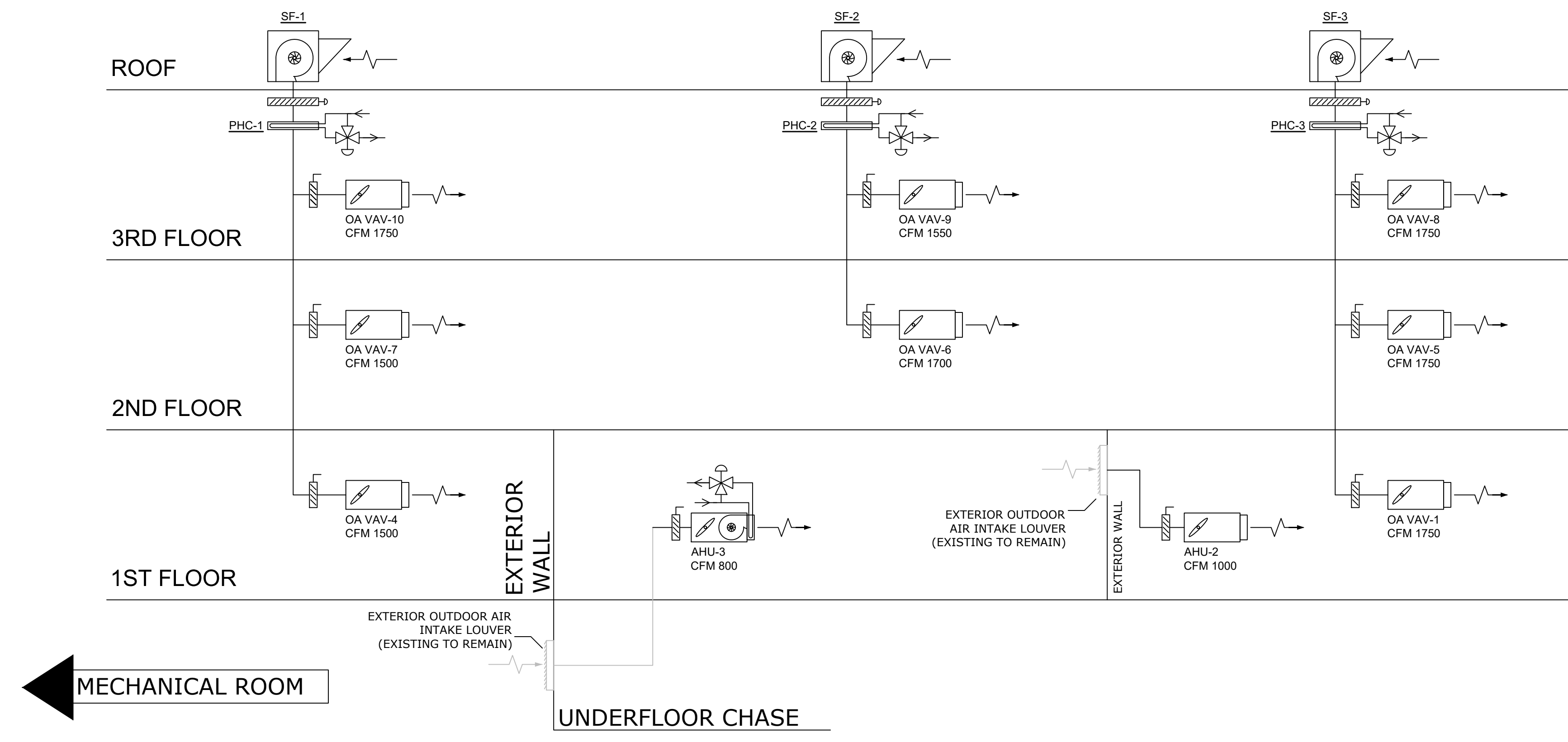
PROJECT TITLE: CLARK HALL DORMITORY  
MECHANICAL, ELECTRICAL & PLUMBING  
RENOVATION  
CLIENT NAME: UNIVERSITY OF NORTH TEXAS  
PROJECT ADDRESS: 1717 MAPLE STREET, DENTON, TX 76201

REVISION SCHEDULE

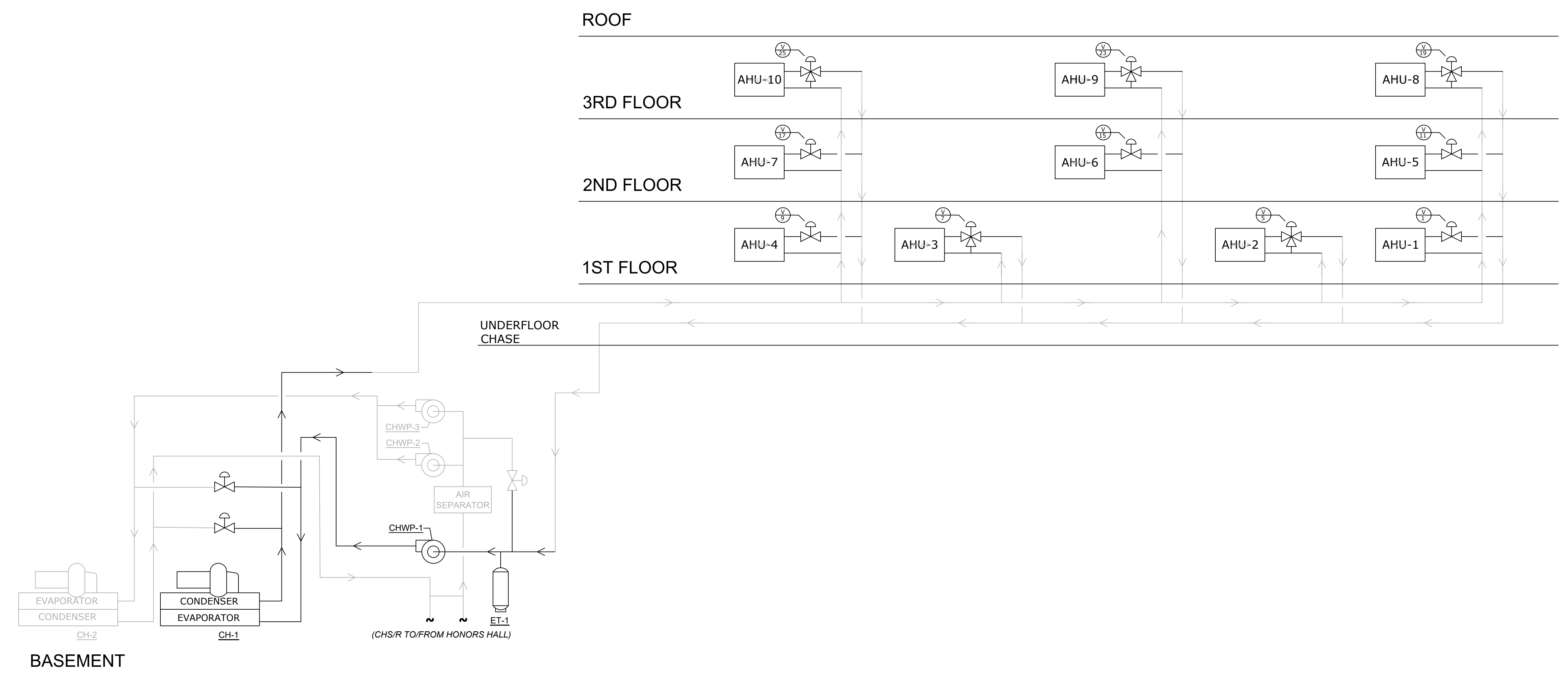
No.	Date	Description

DRAWING TITLE: MAIN BUILDING VENTILATION AIR RISER DIAGRAM

PROJECT NUMBER: CAMPOS 022-2995.00  
ISSUE DATE: 05/09/2023  
100% CONSTRUCTION DOCUMENTS  
DRAWN BY: / CHECKED BY: / APPROVED BY: EG / JS / JS



1 MAIN BUILDING VENTILATION AIR RISER DIAGRAM  
SCALE: NONE



2 CHILLED WATER RISER DIAGRAM  
SCALE: NONE

Vertical scale markers on the left side of the drawing, including 3/8" = 1'-0", 1/2" = 1'-0", 3/4" = 1'-0", 1" = 1'-0", 1 1/2" = 1'-0", and 2" = 1'-0".





**PROJECT DIRECTORY:**

JEFFREY STROHM, P.E.  
MECHANICAL ENGINEERING  
1331 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-686-0251

**PROJECT TITLE:** CLARK HALL DORMITORY  
MECHANICAL, ELECTRICAL & PLUMBING  
RENOVATION

**CLIENT NAME:** UNIVERSITY OF NORTH TEXAS

**PROJECT ADDRESS:** 1717 MAPLE STREET, DENTON, TX 76201

**REVISION SCHEDULE**

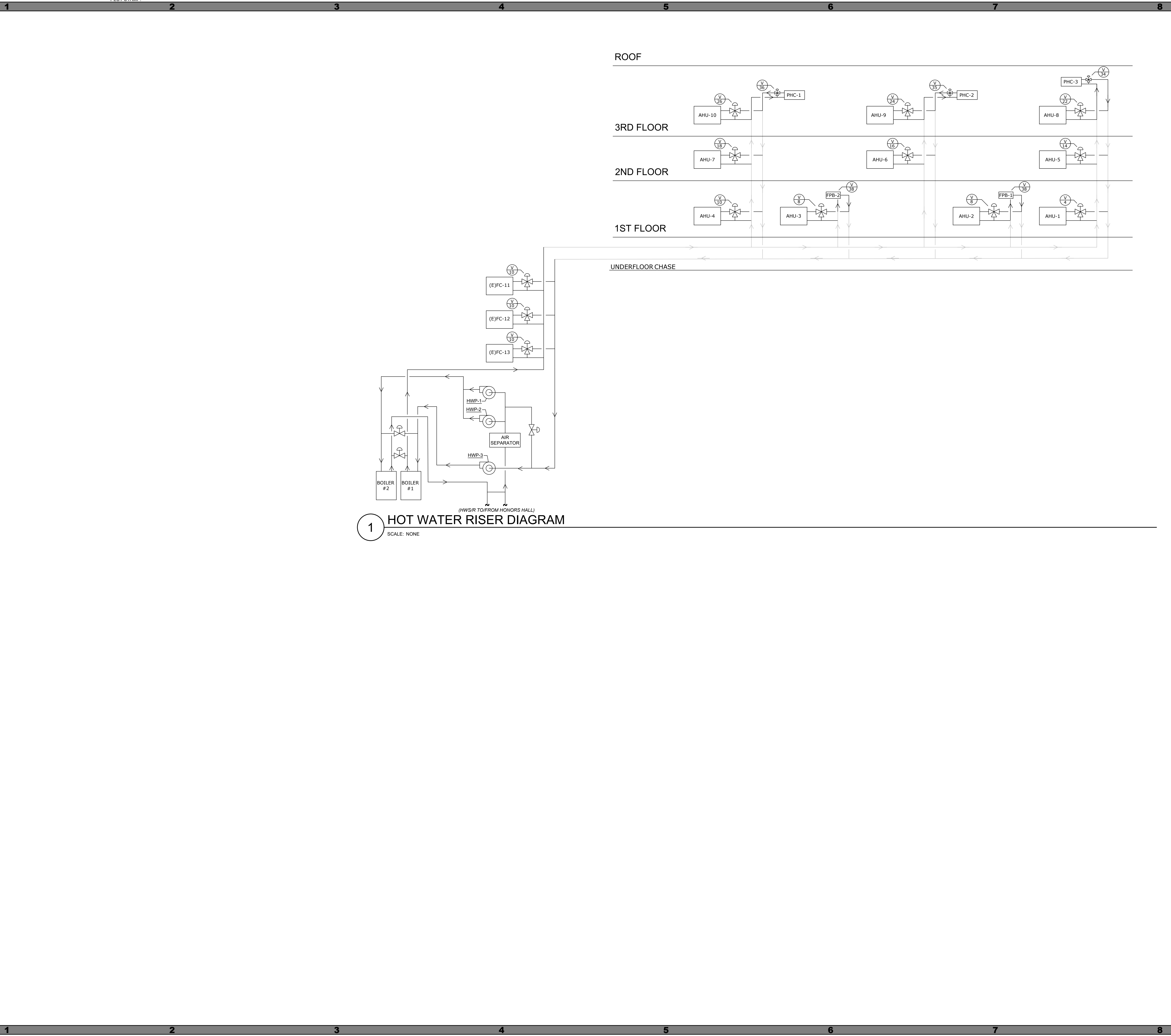
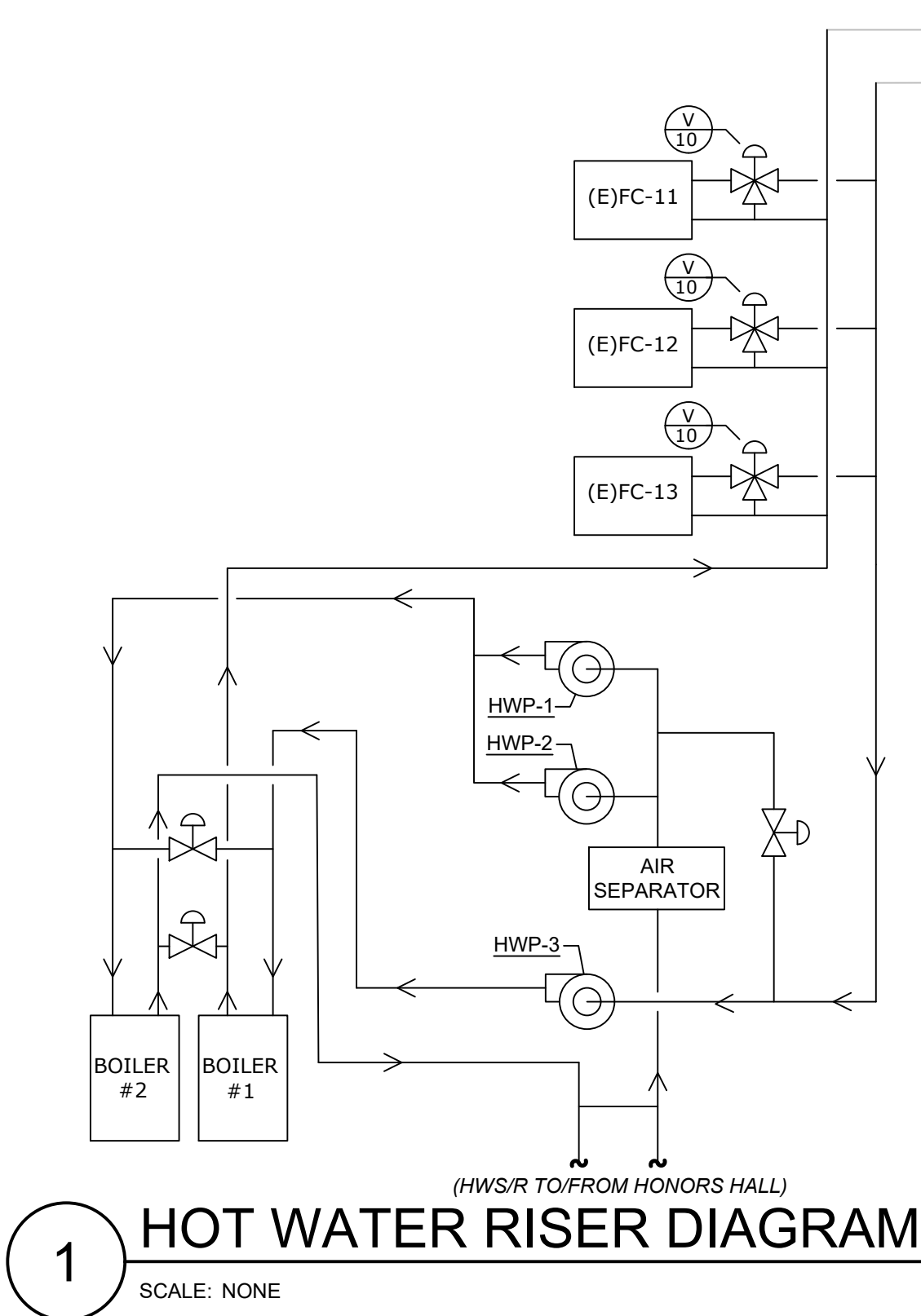
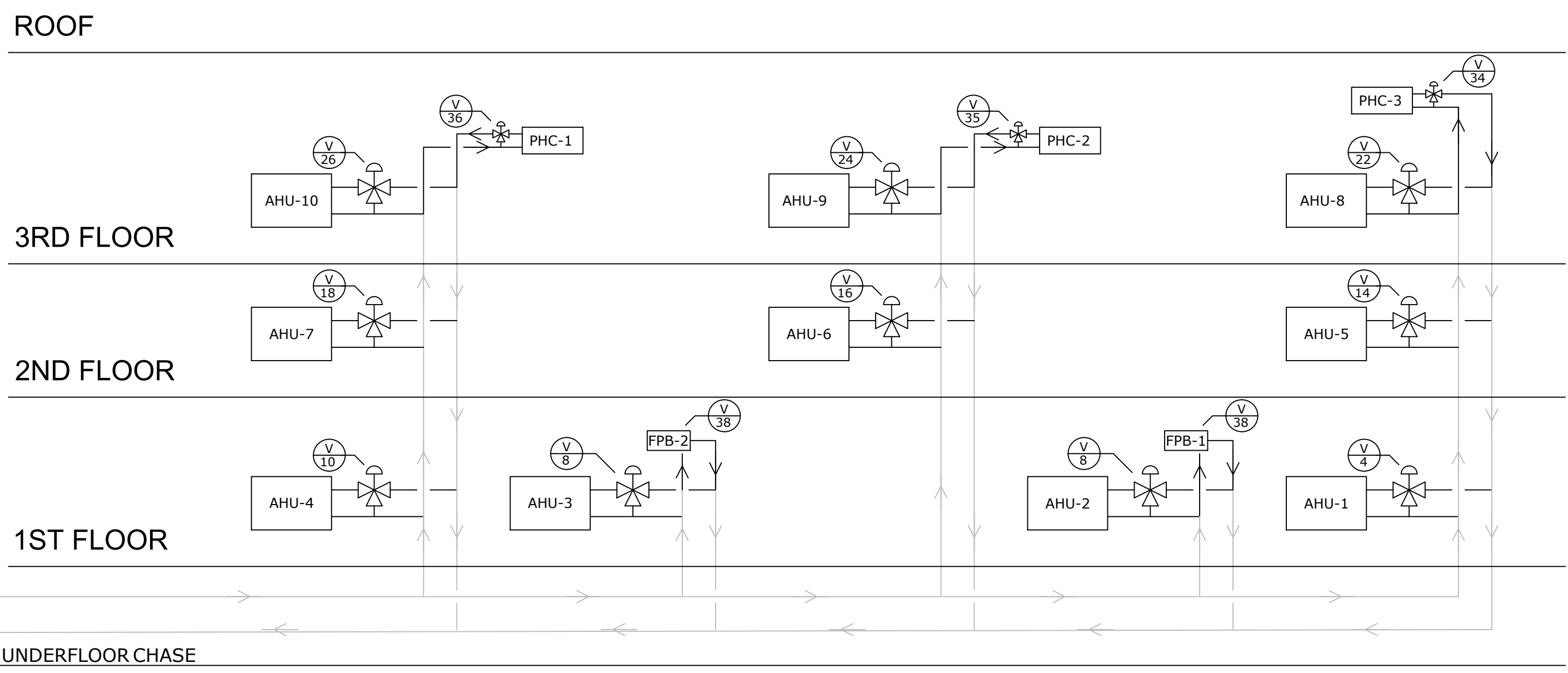
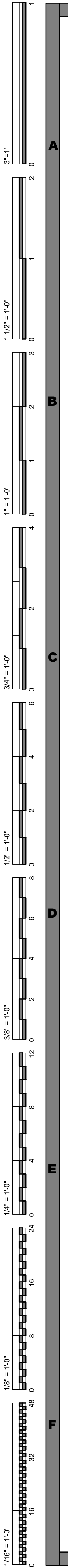
No.	Date	Description

**DRAWING TITLE:** HYDRONIC RISER  
DIAGRAMS

**PROJECT NUMBER:** CAMPOS 022-2995.00  
**ISSUE DATE:** 05/09/2023  
100% CONSTRUCTION DOCUMENTS

**DRAWN BY:** EG / **CHECKED BY:** JS / **APPROVED BY:** JS

**MEP6.02**





### HYDRONIC AIR HANDLING UNIT SCHEDULE - BASE

MARK AHU	SERVES	SUPPLY FAN				HYDRONIC HEATING						NET COOLING PERFORMANCE DATA						POWER CONN.			EXISTING PAD DIMENSIONS W   L	MANUFACTURER MAKE AND MODEL	REMARKS											
		DES	MIN	DES	MIN	EAT	LAT	MBH	E.W.T.	L.W.T.	GPM	MAX P.D.	TOTAL	SENS.	LAT.	O.D. D.B.	I.W.B. D.B.	E.W.T. D.B.	L.W.T. GPM	MAX P.D.				V	PH	MCA	MOCP							
1	FLOOR 1 WING A	8150	2450	1750	1750	1	1	10	58.8	100	352.7	300	160	18	10	248.4	223.5	24.9	105	80	66	55	44	56	41	10	208	3	53	90	86	74	TRANE UCCA	ALL
2	FLOOR 1 WING B	4460	1340	1000	1000	1	1	3	58.3	100	200.7	200	160	10	125.1	110.7	14.4	105	81	66	55	44	56	30	10	208	3	20	30	72	76	TRANE UCCA	ALL	
3	FLOOR 1 LOBBY	3800	1140	800	800	1	1	5	59.1	100	168.0	200	160	8	107.5	84.3	23.2	105	80	66	55	44	56	18	10	208	3	28	50	76	72	TRANE UCCA	ALL	
4	FLOOR 1 WING C	7350	2205	1500	1500	1	1	7.5	58.4	100	322.4	300	160	10	242	216.8	25.2	105	80	66	55	44	56	40	10	208	3	36	60	92	84	TRANE UCCA	ALL	
5	FLOOR 2 WING A	7000	2100	1750	1750	1	1	7.5	57.0	100	325.1	300	160	10	238.3	214.7	23.6	105	81	66	55	44	56	40	10	208	3	30	60	84	84	TRANE UCCA	ALL	
6	FLOOR 2 WING B	6750	2025	1700	1700	1	1	7.5	56.9	100	314.2	300	160	10	250.4	225.5	24.9	105	81	66	55	44	56	42	10	208	3	36	60	75	78	TRANE UCCA	ALL	
7	FLOOR 2 WING C	7220	2170	1500	1500	1	1	7.5	59.2	100	318.2	300	160	10	254.1	229	25.1	105	80	66	55	44	56	42	10	208	3	36	60	92	82	TRANE UCCA	ALL	
8	FLOOR 3 WING A	8030	2410	1750	1750	1	1	10	58.7	100	358.5	300	160	18	255.3	231.6	23.7	105	80	66	55	44	56	43	10	208	3	53	90	92	82	TRANE UCCA	ALL	
9	FLOOR 3 WING B	7860	2360	1550	1550	1	1	7.5	59.7	100	341.7	300	160	17	268.4	243.9	24.5	105	80	66	55	44	56	45	10	208	3	36	60	88	78	TRANE UCCA	ALL	
10	FLOOR 3 WING C	8300	2490	1750	1750	1	1	10	59.0	100	367.2	300	160	18	286.8	241.9	24.9	105	80	66	55	44	56	44	10	208	3	53	90	94	82	TRANE UCCA	ALL	

- EXTERNAL STATIC PRESSURE ("W") INCLUDES DUCTWORK, BALANCING DAMPERS AND AIR DEVICES ONLY.
- UNITS SHALL PERFORM TO LISTED CAPACITIES. UNIT PERFORMANCE MUST SATISFY BOTH SENSIBLE AND LATENT CAPACITY REQUIREMENTS.
- DESIGN BASIS IS TRANE. CONTRACTOR IS RESPONSIBLE FOR VARIATIONS IN FIT AND ELECTRICAL SERVICE.
- PROVIDE WITH TERMINAL STRIP FOR CONTROL SYSTEM INTERFACE - COORDINATE WITH CONTROLS CONTRACTOR.
- PROVIDE WITH 2" MERV-13 FILTERS.
- PROVIDE DUAL DIRECT DRIVE PLENUM SUPPLY FANS WITH VARIABLE FREQUENCY DRIVE AND SHAFT GROUNDING. EACH PLENUM FAN TO BE SIZED FOR 70% OF DESIGN AIRFLOW.
- PROVIDE WITH RETURN AIR SMOKE DETECTOR INTERLOCKED TO SUPPLY FAN.
- PROVIDE WITH INTEGRAL DISCONNECT.
- PROVIDE WITH STAINLESS STEEL OR CORROSION RESISTANT CONDENSATE DRAIN PAN.
- PROVIDE FULL KNOCKDOWN UNIT. MANUFACTURER TO ASSIST SUPERVISOR CONTRACTOR DURING KNOCKDOWN AND BUILDUP OF EQUIPMENT DURING CONSTRUCTION.
- PROVIDE BACK INTAKE AND TOP FRONT DISCHARGE.

### WATER COOLED CHILLER SCHEDULE (EARLY RELEASE OWNER PREPURCHASED) (EXISTING)

MARK CH	COOLING TONS	TYPE	REFRIG.	CHILLED WATER				FOULING FACTOR	CONDENSER WATER				FOULING FACTOR	UNIT ELECTRICAL			MIN. EFFICIENCY (kW/ton)	WEIGHT (LBS)	MANUFACTURER & MODEL NO.	REMARKS		
				GPM	ENT.	LVG.	MAX.WPD		GPM	ENT.	LVG.	MAX.WPD		VOLTS	PH	MCA					MOCP	KW
1	305	CENTRIFUGAL	R-513A	610	50	44	10.0	0.0001	850	85	95	20.0	0.00025	208	3	698	1200	176.7	0.595	16,654	TRANE HDWA	ALL

- PROVIDE FACTORY MOUNTED VARIABLE FREQUENCY DRIVE.
- PROVIDE WITH SOUND INSULATION BASKET ON COMPRESSOR.
- PROVIDE WITH TWO FLOW SWITCHES.
- PROVIDE TWO PASS EVAPORATOR AND CONDENSER.
- PROVIDE MAGNETIC BEARING COMPRESSOR.
- WATER PRESSURE DROP (WPD) UNITS ARE IN FEET OF WATER.
- MANUFACTURER TO PROVIDE PERSONNEL TO ASSIST SUPERVISOR CONTRACTOR IN KNOCKDOWN AND RE-ASSEMBLY OF CHILLER DURING CONSTRUCTION.
- PROVIDE UNIT MOUNTED MANUFACTURER CONTROLLER WITH LCD SCREEN.
- PROVIDE CONTROLLER WITH BACKET INTERFACE FOR INTEGRATION INTO UTILITY BUILDING MANAGEMENT SYSTEM. COORDINATE WITH CONTROLS CONTRACTOR.
- PROVIDE 10 YEAR WARRANTY FOR COMPRESSOR/MOTOR AND 1 YEAR PARTS/LABOR WARRANTY.

### PUMP SCHEDULE

ADD ALT.	MARK	LOCATION	SERVICES	TYPE	GPM	TOTAL HEAD FT. W.G.	PUMP EFF.	MOTOR DATA HP   RPM   V   PH	MANUFACTURER MAKE AND MODEL	REMARKS
#5	CHWP-1-CH	CLARK HALL CENTRAL PLANT	CLARK HALL CHILLED WATER LOOP	HORIZONTAL SPLIT-CASE PUMP	610	85	75.9	200   1780   208   3	ARISTON/KA 4600	ALL
#6	CHWP-1-CH	CLARK HALL CENTRAL PLANT	CLARK HALL CONDENSER WATER LOOP	HORIZONTAL SPLIT-CASE PUMP	850	85	78.4	300   1780   208   3	ARISTON/KA 4600	ALL
#5	HWP-1	CLARK HALL CENTRAL PLANT	CLARK HALL HOT WATER LOOP	BASE MOUNTED END SUCTION PUMP	240	100	72.1	10   3540   208   3	ARISTON/KA 4030	ALL
#2	HWP-2	CLARK HALL CENTRAL PLANT	CLARK HALL HOT WATER LOOP	BASE MOUNTED END SUCTION PUMP	240	100	72.1	10   3540   208   3	ARISTON/KA 4030	ALL
#2	HWP-3	CLARK HALL CENTRAL PLANT	CLARK HALL HOT WATER LOOP	BASE MOUNTED END SUCTION PUMP	240	100	71.9	10   3540   208   3	ARISTON/KA 4030	ALL

- PUMP SUBMITTED MUST MEET STARTED PUMP EFFICIENCY AT CONDITIONS SPECIFIED.
- PUMP MOTOR SHALL BE INVERTER DUTY RATED WITH SHAFT GROUNDING.
- PROVIDE WITH GSP MOTOR.
- PROVIDE WITH ANSI CLASS 125 FLANGES.
- PROVIDE WITH VARIABLE FREQUENCY DRIVE.
- PROVIDE WITH STAINLESS STEEL SHAFT.
- PROVIDE WITH IMPELLER SIZE NOT TO EXCEED 90% OF MAXIMUM CATALOGUED IMPELLER DIAMETER.

### SERIES FAN POWERED VAV BOX WITH HYDRONIC SCHEDULE - BASE

MARK DAVAV	SERVES	INLET SIZE	AIR VALVE		SERIES FAN PERFORMANCE				HOT WATER HEATING				POWER CONN.		MANUFACTURER MAKE AND MODEL	REMARKS					
			DESIGN CFM	MAX CFM	MIN CFM	HEAT CFM	FAN CFM	EXT. S.P.	FAN H.P.	FAN AMPS	EAT D.B.	LAT D.B.	CAP MBH	ENT.			LVG.	MAX P.D.	V	PH	
2	AHU-2 OUTSIDE AIR	10	1,000	1,350	300	1,000	700	0.5	1/8	1.4	10	50	43.2	140	120	4.3	10	208	1	ENVIRO-TEC CFR	ALL
3	AHU-3 OUTSIDE AIR	10	800	1,350	240	800	600	0.5	1/8	1.4	10	50	34.8	140	120	3.5	10	208	1	ENVIRO-TEC CFR	ALL

- PROVIDE WITH CONTROL TRANSFORMER.
- PROVIDE 1" MAT-FACED INSULATION ON ALL INTERIOR SURFACES.
- PROVIDE LEFT OR RIGHT HAND CONFIGURATIONS AS NECESSARY FOR ACCESSIBILITY.
- PROVIDE RECOMMENDED MAINTENANCE CLEARANCES. PROVIDE ACCESS PANELS IN WALLS/CEILING AS REQUIRED.
- PROVIDE CONTROLS PER SEQUENCE OF OPERATION AND SPECIFICATIONS.
- HEATING COIL IS MOUNTED AT THE BOX DISCHARGE.
- PROVIDE WITH SCR ELECTRIC HEATING.
- PROVIDE WITH MODULATING HOT WATER CONTROL VALVE.
- BOX SELECTION SHALL BE BASED ON 80 PERCENT OF MANUFACTURER'S LISTED MAXIMUM ALLOWABLE CFM.
- CFM MIN/MAX VALUES REFER TO THE RANGE OF CAPABILITY FOR THIS AIR VALVE SIZE. IT IS NOT A MINIMUM/MAXIMUM SETTING.
- PROVIDE WITH INTEGRAL DISCONNECT SWITCH.
- MAXIMUM UNIT AIR PRESSURE DROP (UNIT INLET TO COIL DISCHARGE) LESS THAN 0.75 IN WG.
- PROVIDE BOTTOM FAN AND MOTOR ACCESS.

### CONDENSING BOILER SCHEDULE - ADD ALT #1

MARK B	GAS TYPE	TURN DOWN	INPUT BTUH	OUTPUT BTUH	FLOW (GPM)			EWT	LWT	BOILER CIRCUIT				BOILER PUMP CIRCUIT				WBGHT (LBS)	MANUFACTURER AND MODEL NO.	REMARKS	
					MIN	DES	MAX			VOLTS	PH	HZ	MCA	MOCP	VOLTS	PH	HZ				MCA
1	NATURAL	20:1	3,000,000	2,883,000	200	170	100	130	208	3	60	16	20						2,774	AR 3000	ALL
2	NATURAL	20:1	3,000,000	2,883,000	200	170	100	130	208	3	60	16	20					2,774	AR 3000	ALL	

- PROVIDE 75 PSI ASME PRESSURE RELIEF VALVE.
- PROVIDE DIFFERENTIAL PRESSURE SWITCH.
- PROVIDE MANUFACTURER'S CONDENSATE NEUTRALIZATION KIT.
- PROVIDE REALTIME O2 FEEDBACK.
- THE BOILER INSPECTIONS TO BE COORDINATED BY THE CONTRACTOR.
- THE CARBON MONOXIDE DETECTOR AND BOILERS(S) SHALL BE INTERLOCKED TO DISABLE THE BURNERS WHEN MEASURED LEVEL OF CO RISES ABOVE 50 PPM.

### SINGLE DUCT VAV BOX SCHEDULE - BASE

MARK DAVAV	SERVES	INLET SIZE	DESIGN CFM	MAX CFM	MIN CFM	POWER CONN. V	PH	MANUFACTURER MAKE AND MODEL	REMARKS
1	AHU-1 OUTSIDE AIR	12	1,750	1975	530	120	1	ENVIRO-TEC SDR	ALL
4	AHU-4 OUTSIDE AIR	12	1,500	1975	450	120	1	ENVIRO-TEC SDR	ALL
5	AHU-5 OUTSIDE AIR	12	1,750	1975	530	120	1	ENVIRO-TEC SDR	ALL
6	AHU-6 OUTSIDE AIR	12	1,700	1975	510	120	1	ENVIRO-TEC SDR	ALL
7	AHU-7 OUTSIDE AIR	12	1,500	1975	450	120	1	ENVIRO-TEC SDR	ALL
8	AHU-8 OUTSIDE AIR	12	1,750	1975	530	120	1	ENVIRO-TEC SDR	ALL
9	AHU-9 OUTSIDE AIR	12	1,500	1975	470	120	1	ENVIRO-TEC SDR	ALL
10	AHU-10 OUTSIDE AIR	12	1,750	1975	530	120	1	ENVIRO-TEC SDR	ALL

- PROVIDE WITH CONTROL TRANSFORMER.
- PROVIDE 1" MAT-FACED INSULATION ON ALL INTERIOR SURFACES.
- PROVIDE LEFT OR RIGHT HAND CONFIGURATIONS AS NECESSARY FOR ACCESSIBILITY.
- PROVIDE RECOMMENDED MAINTENANCE CLEARANCES. PROVIDE ACCESS PANELS IN WALLS/CEILING AS REQUIRED.
- PROVIDE CONTROLS PER SEQUENCE OF OPERATION AND SPECIFICATIONS.
- CFM MIN/MAX VALUES REFER TO THE RANGE OF CAPABILITY FOR THIS AIR VALVE SIZE. IT IS NOT A MINIMUM/MAXIMUM SETTING.
- PROVIDE WITH INTEGRAL DISCONNECT SWITCH.

### OUTSIDE AIR PREHEAT COIL SCHEDULE - ADD ALT #6

MARK P/HC	SERVES	CFM	EAT D.B.	LAT D.B.	CAP MBH	EWT	LWT	GPM	MAX P.D.	REMARKS
1	SF-1 OUTSIDE AIR	4,750	10	50	266.2	200	160	10	10	ALL
2	SF-2 OUTSIDE AIR	4,250	10	50	183.6	200	160	9.2	10	ALL
3	SF-3 OUTSIDE AIR	5,250	10	50	226.8	200	160	11.3	10	ALL

- PROVIDE WITH 2-ROW HEATING COIL.
- DUCT MOUNTED FIN AND TUBE CONSTRUCTION.

### WATER HEATER SCHEDULE - ADD ALT #4

ITEM	TYPE	NO.	EQUIPMENT DESCRIPTION	DIMENSIONS (IN)	STORAGE (GAL)	FLOW (GPM)	TEMP. IN (°F)	INPUT MBH	TEMP. OUT (°F)	LOCATION	MANUFACTURER	MODEL NO.	NOTES
GWH		1	INTELLIHOT NATURAL GAS BOILER	30"x64"	N/A	23	50	840	120	BASEMENT MECHANICAL ROOM	INTELLIHOT	IQ1001	1,2,3

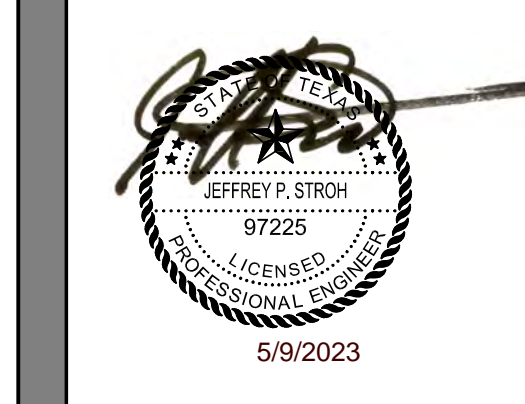
- NOTES:
- ASME RATED FOR 150 PSI WORKING PRESSURE.
  - PROVIDE AMTROL EXPANSION TANK.
  - PROVIDE ELECTRONIC CONTROLS CONNECTED TO THE BAS.

**PROJECT DIRECTORY:**  
 JEFFREY P. STROH, P.E.  
 LICENSED PROFESSIONAL ENGINEER  
 131 RIVER BEND DRIVE  
 DALLAS, TX 75247  
 214-686-6291

**PROJECT TITLE: CLARK HALL DORMITORY MECHANICAL, ELECTRICAL & PLUMBING RENOVATION**  
 CLIENT NAME: UNIVERSITY OF NORTH TEXAS  
 PROJECT ADDRESS: 1717 MAPLE STREET, DENTON, TX 76201

**DRAWING TITLE: MEP SCHEDULES**  
 PROJECT NUMBER: CAMPOS D22-2995.00  
 ISSUE DATE: 05/09/2023  
 100% CONSTRUCTION DOCUMENTS  
 DRAWN BY / CHECKED BY / APPROVED BY: MC / JS / JS



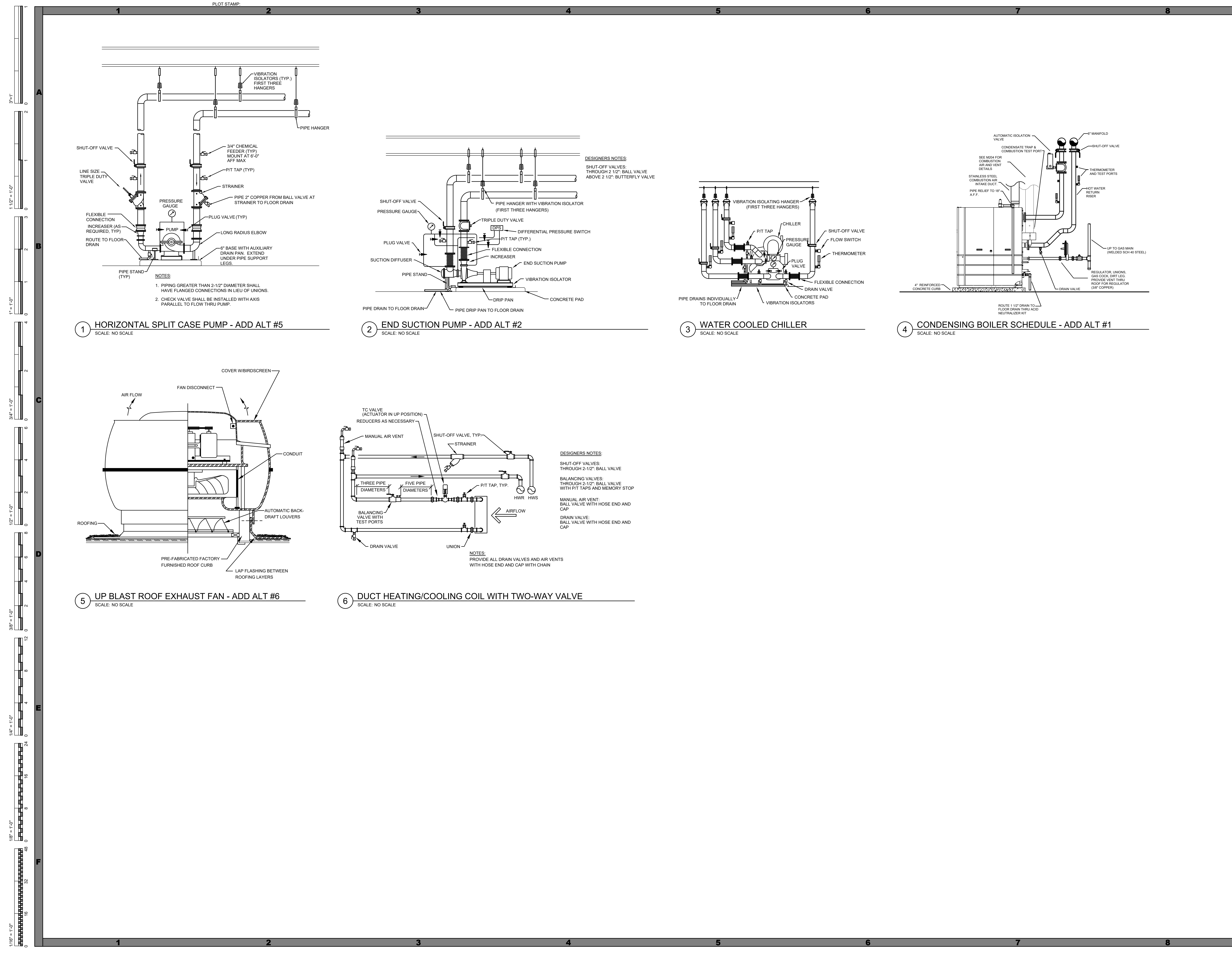


**PROJECT DIRECTORY:**  
JEFFREY STROHL, P.E.  
1331 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-686-6251

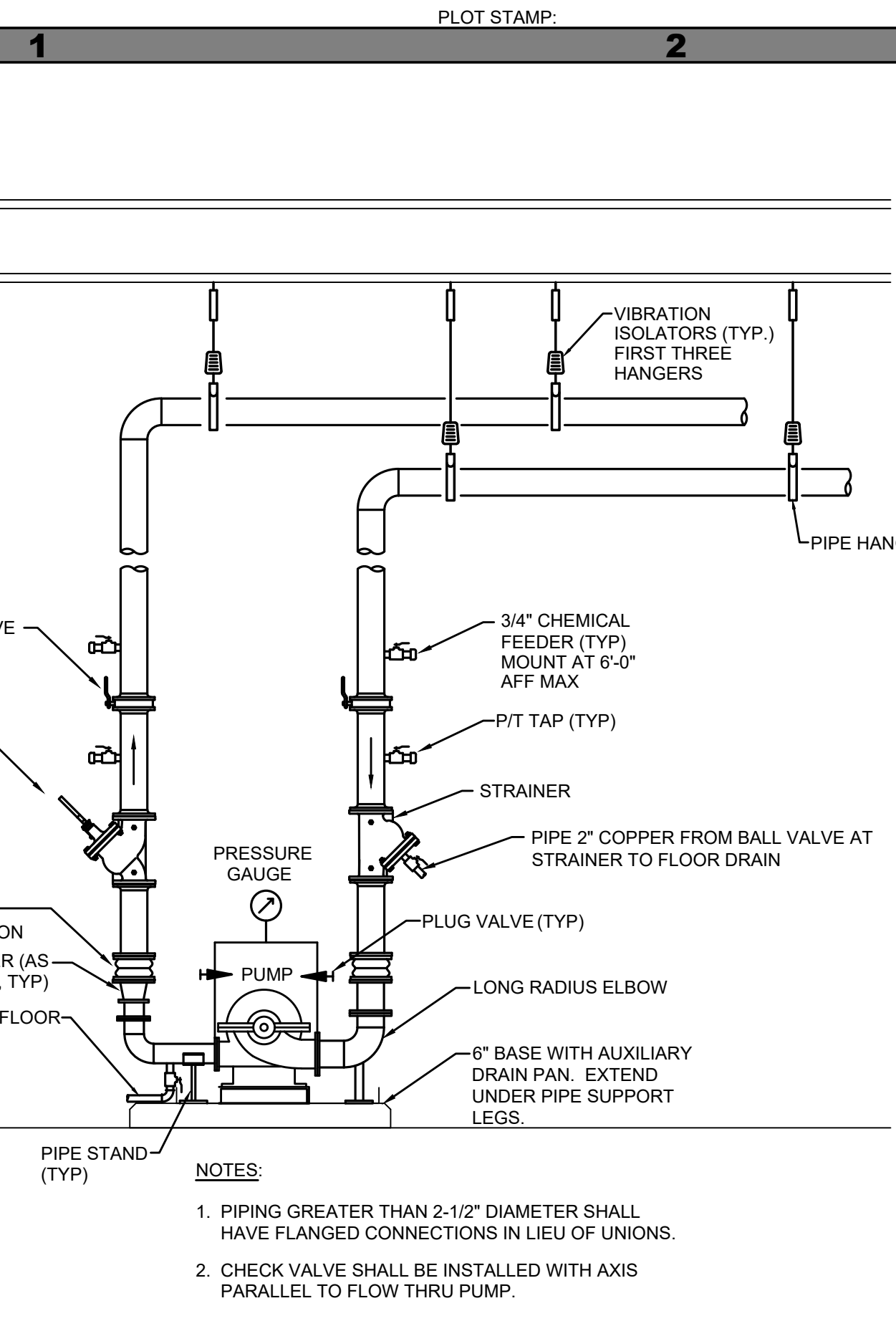
**PROJECT TITLE:** CLARK HALL DORMITORY  
**MECHANICAL, ELECTRICAL & PLUMBING RENOVATION**  
**CLIENT NAME:** UNIVERSITY OF NORTH TEXAS  
**PROJECT ADDRESS:** 1717 MAPLE STREET, DENTON, TX 76201

REVISION	NO.	DATE	DESCRIPTION

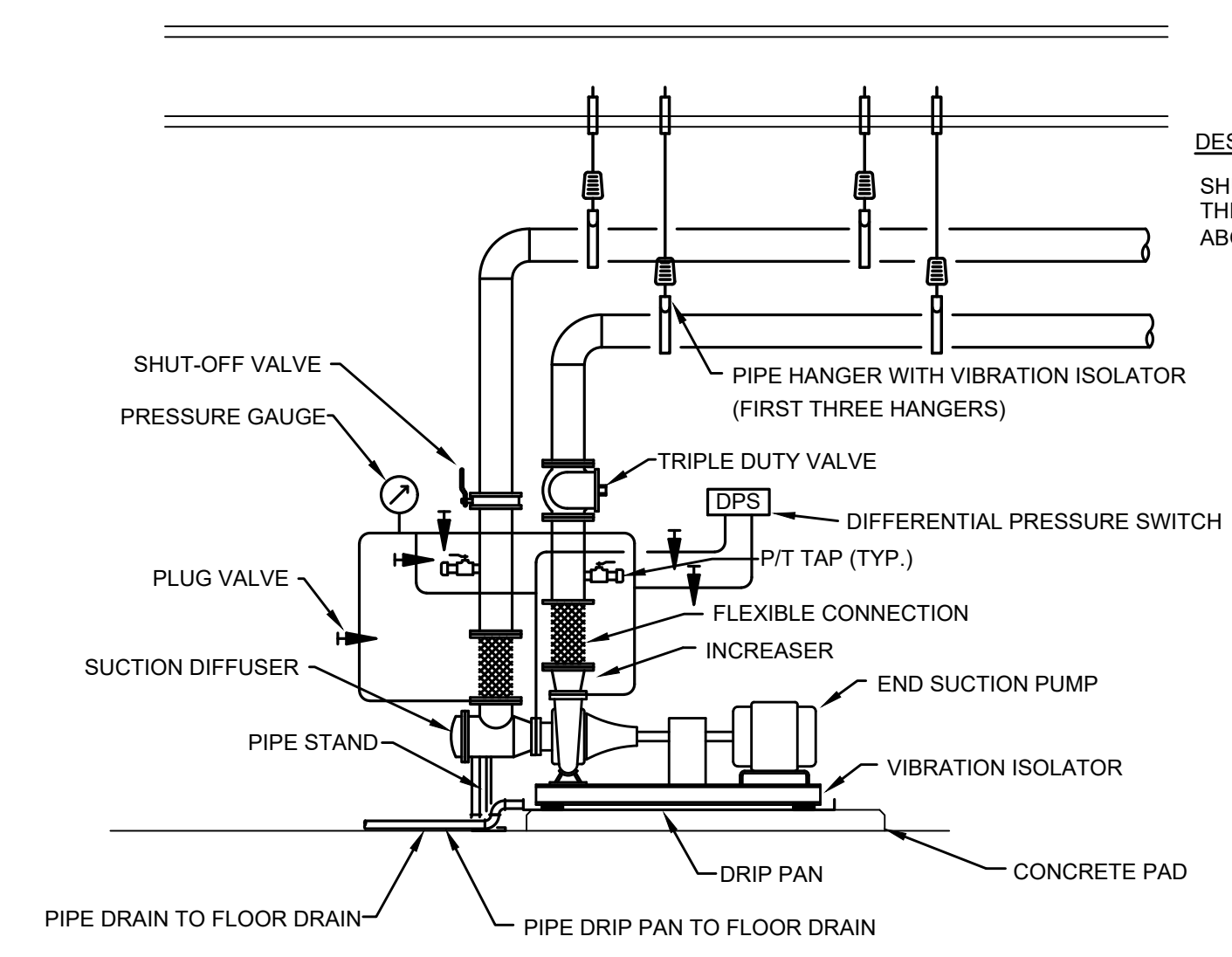
**DRAWING TITLE:** MEP DETAILS  
**PROJECT NUMBER:** CAMPOS 022-2995.00  
**ISSUE DATE:** 05/09/2023  
**100% CONSTRUCTION DOCUMENTS**  
DRAWN BY: / CHECKED BY: / APPROVED BY: /  
MC / JS / JS



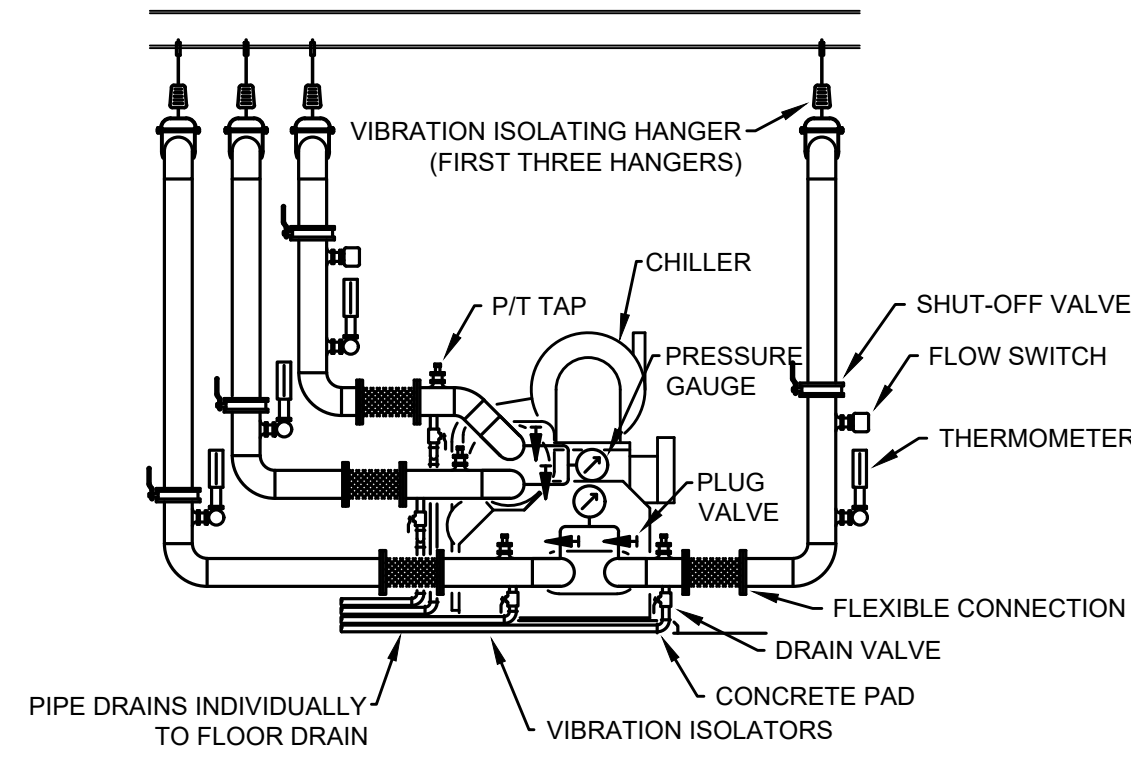
Vertical scale markers on the left side of the drawing, including 3/4" = 1'-0", 1 1/2" = 1'-0", 1" = 1'-0", 3/4" = 1'-0", 1/2" = 1'-0", 3/8" = 1'-0", 1/4" = 1'-0", and 1/8" = 1'-0".



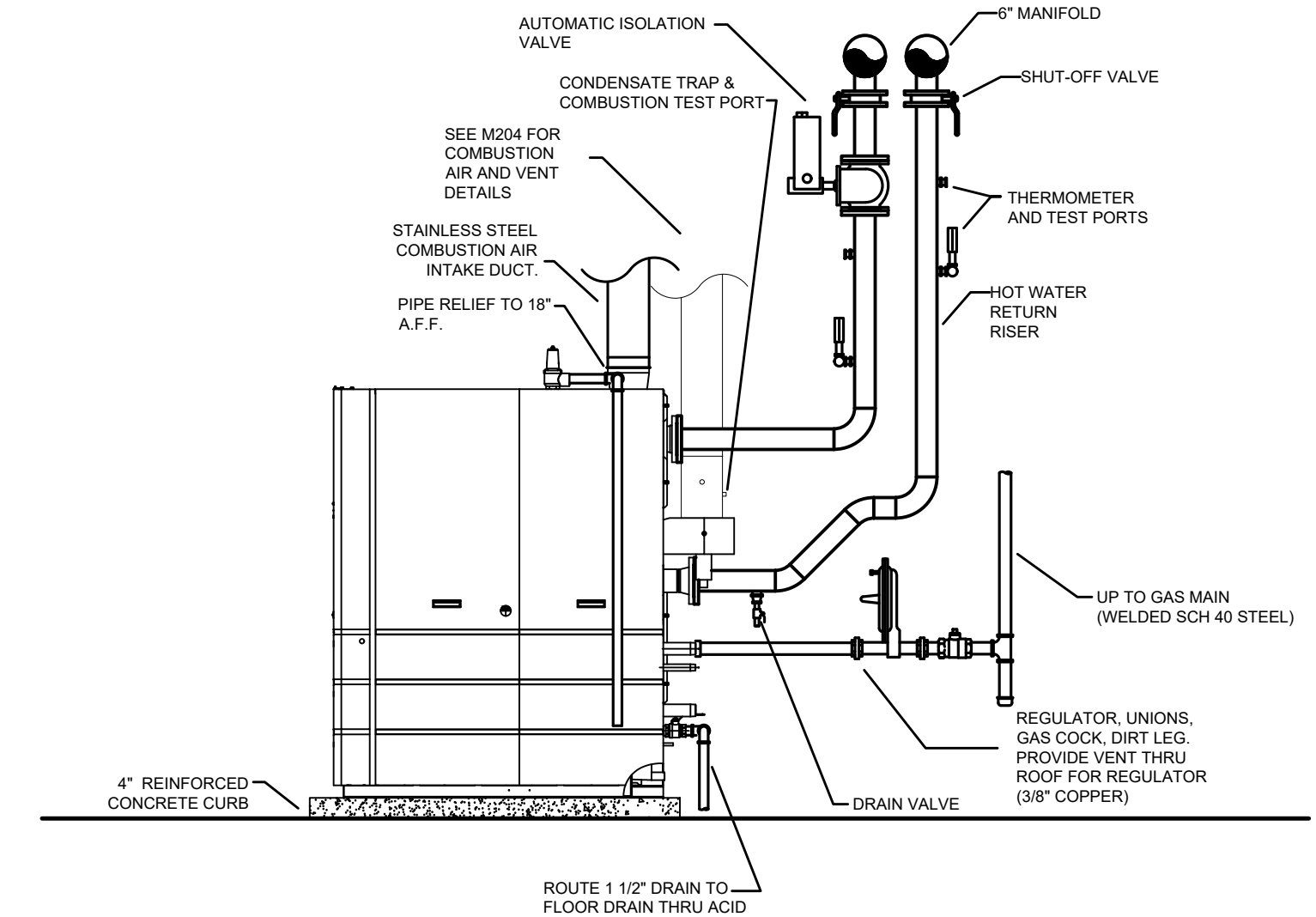
**1 HORIZONTAL SPLIT CASE PUMP - ADD ALT #5**  
SCALE: NO SCALE



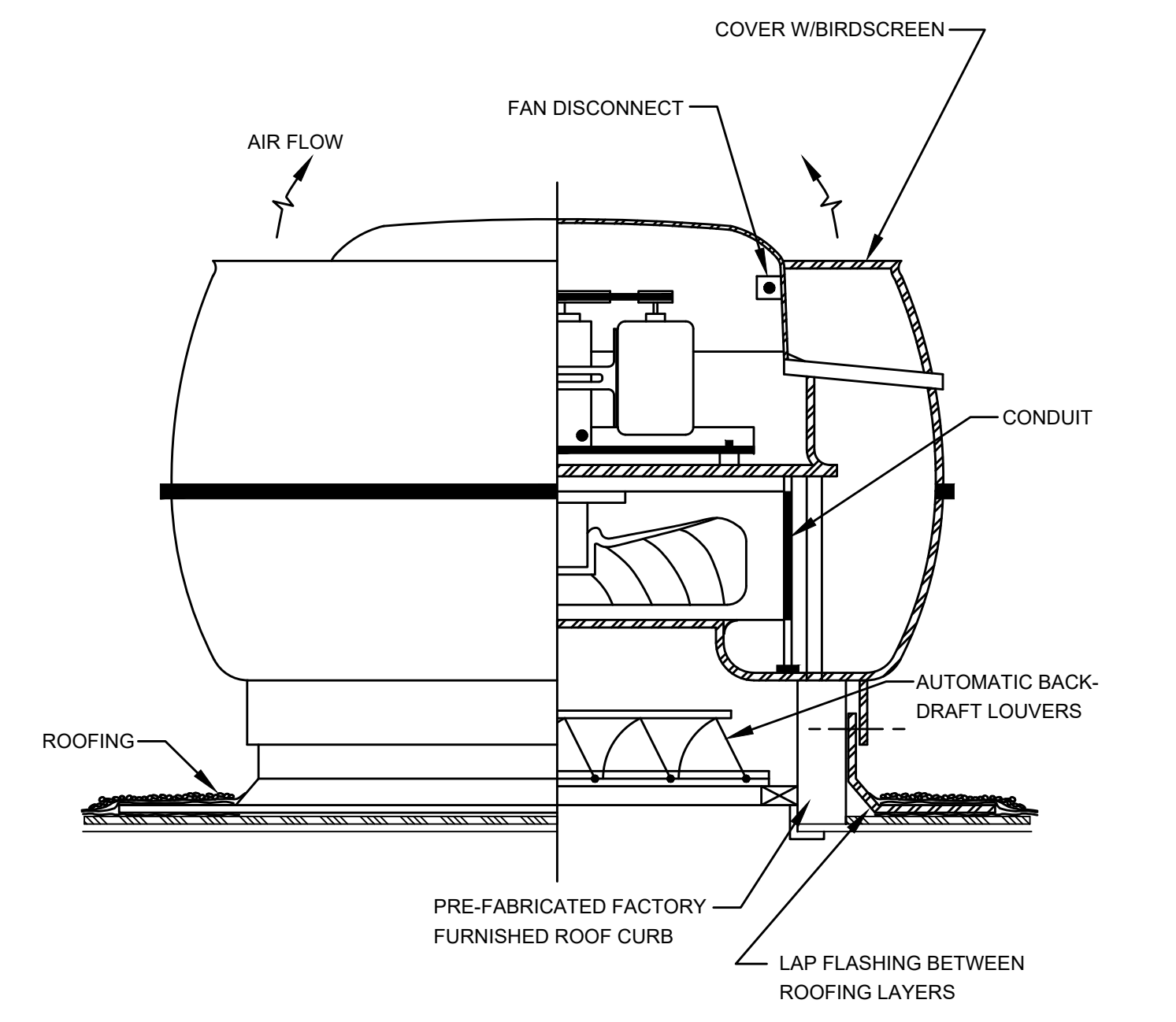
**2 END SUCTION PUMP - ADD ALT #2**  
SCALE: NO SCALE



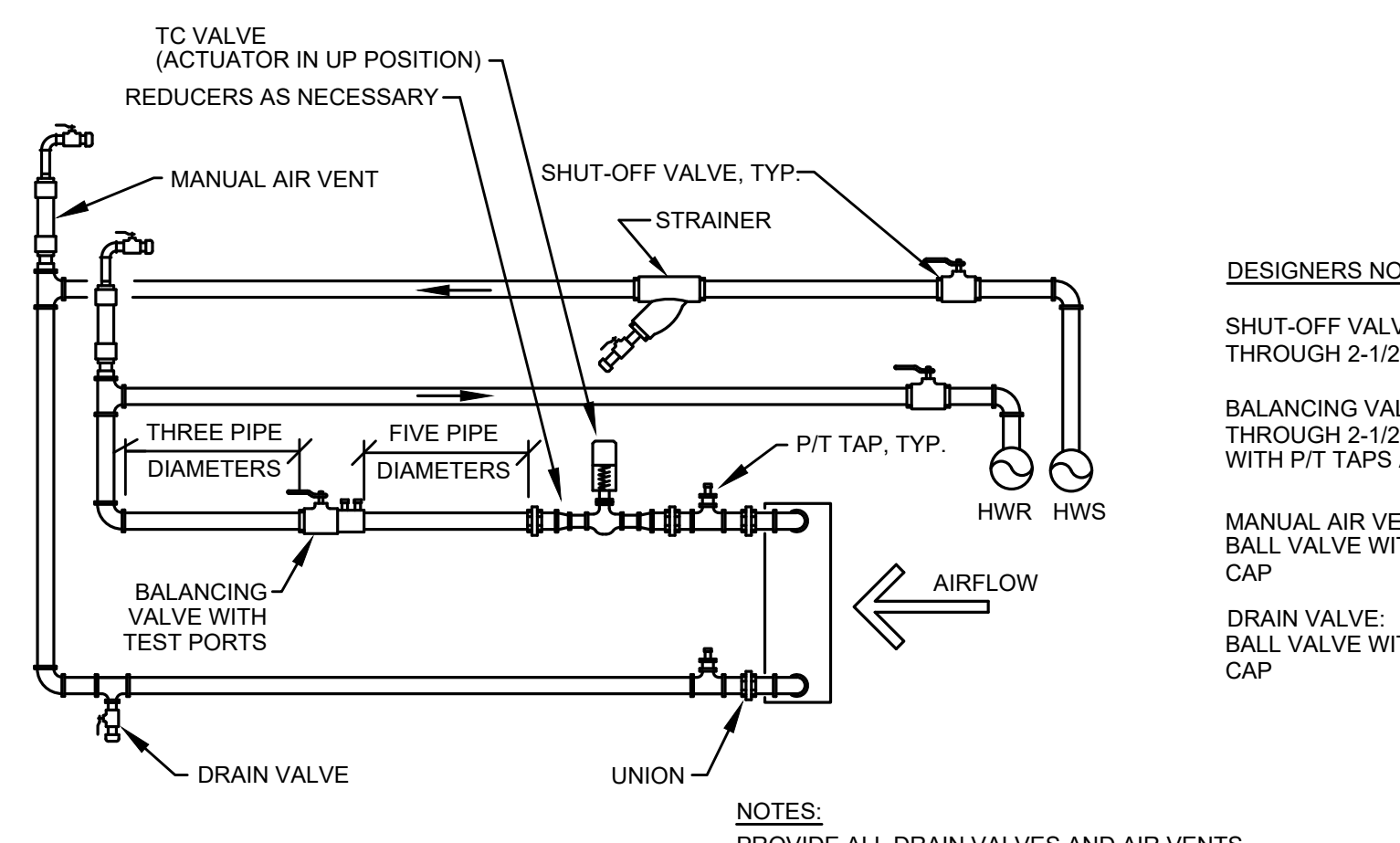
**3 WATER COOLED CHILLER**  
SCALE: NO SCALE



**4 CONDENSING BOILER SCHEDULE - ADD ALT #1**  
SCALE: NO SCALE



**5 UP BLAST ROOF EXHAUST FAN - ADD ALT #6**  
SCALE: NO SCALE

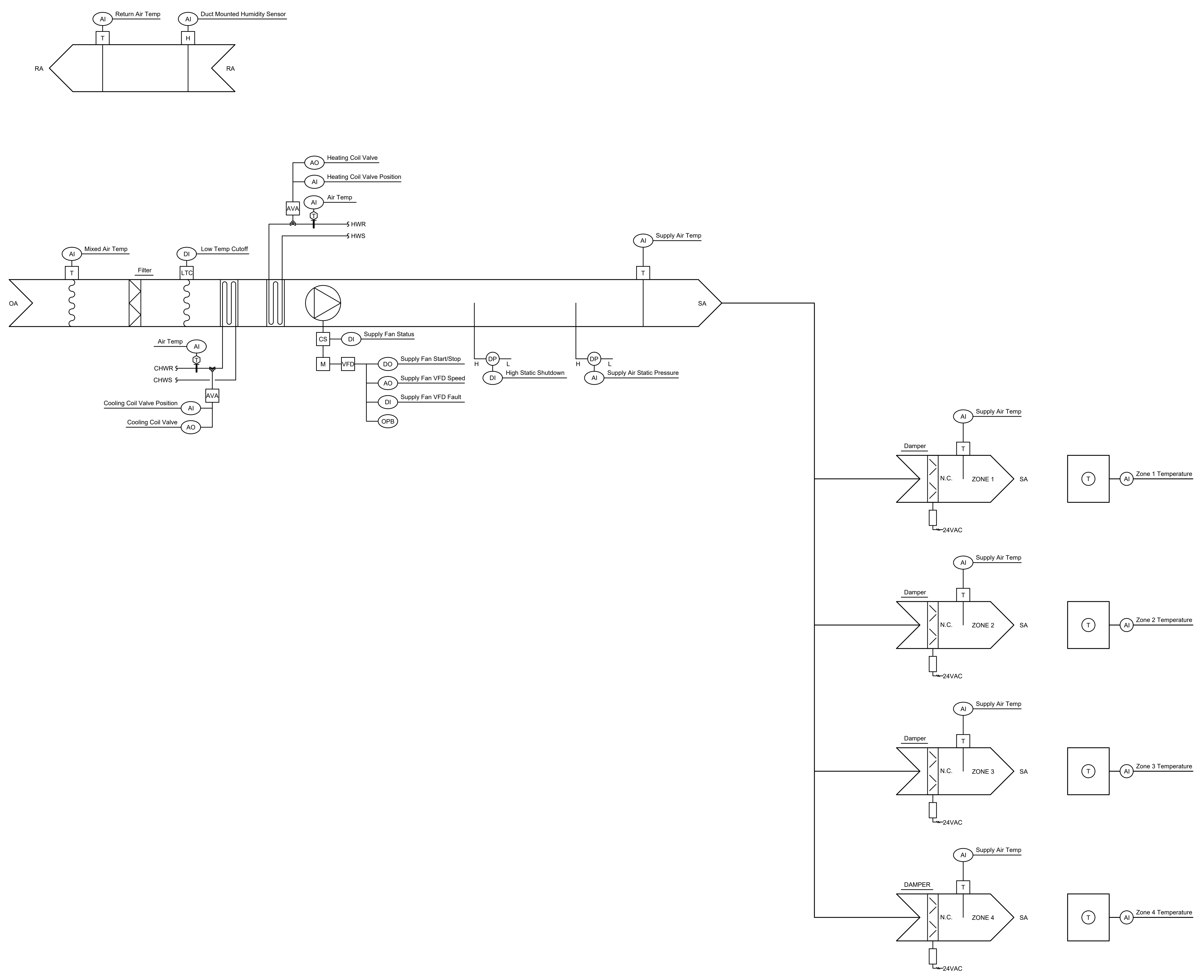


**6 DUCT HEATING/COOLING COIL WITH TWO-WAY VALVE**  
SCALE: NO SCALE





3/8" = 1'-0"  
1/2" = 1'-0"  
3/4" = 1'-0"  
1" = 1'-0"  
1 1/2" = 1'-0"  
3" = 1'-0"  
6" = 1'-0"  
12" = 1'-0"  
24" = 1'-0"  
48" = 1'-0"



SYMBOL LIST	
SYMBOL	DESCRIPTION
	OPPOSED BLADE DAMPER
	AUTOMATIC 2-WAY VALVE
	FAN OR PUMP MOTOR
	DIFFERENTIAL PRESSURE SENSOR
	DUCT MOUNTED TEMPERATURE SENSOR
	VARIABLE FREQUENCY DRIVE
	ADJUSTABLE VALVE ACTUATION
	DDC DIGITAL INPUT POINT
	DDC DIGITAL OUTPUT POINT
	DDC ANALOG INPUT POINT
	DDC ANALOG OUTPUT POINT
	OPEN PROTOCOL BUS
	MOTOR
	DUCT MOUNTED HUMIDITY SENSOR
	LOW TEMPERATURE CUTOFF
	CURRENT SENSOR
	PIPE MOUNTED TEMPERATURE SENSOR

**1** AIR HANDLING UNIT AHU-1 FLOW DIAGRAM (TYPICAL AHU-1, 3 & 4)  
SCALE: NO SCALE

PROJECT DIRECTORY:

JEFFREY STROHL, P.E.  
1331 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-686-6251

PROJECT TITLE: **CLARK HALL DORMITORY MECHANICAL, ELECTRICAL & PLUMBING RENOVATION**

CLIENT NAME: **UNIVERSITY OF NORTH TEXAS**

PROJECT ADDRESS: 1717 MAPLE STREET, DENTON, TX 76201

REVISION SCHEDULE

No.	Date	Description

PROJECT NUMBER:

CAMPOS: **022-2995.00**

ISSUE DATE: 05/09/2023

100% CONSTRUCTION DOCUMENTS

DRAWN BY: / CHECKED BY: / APPROVED BY:

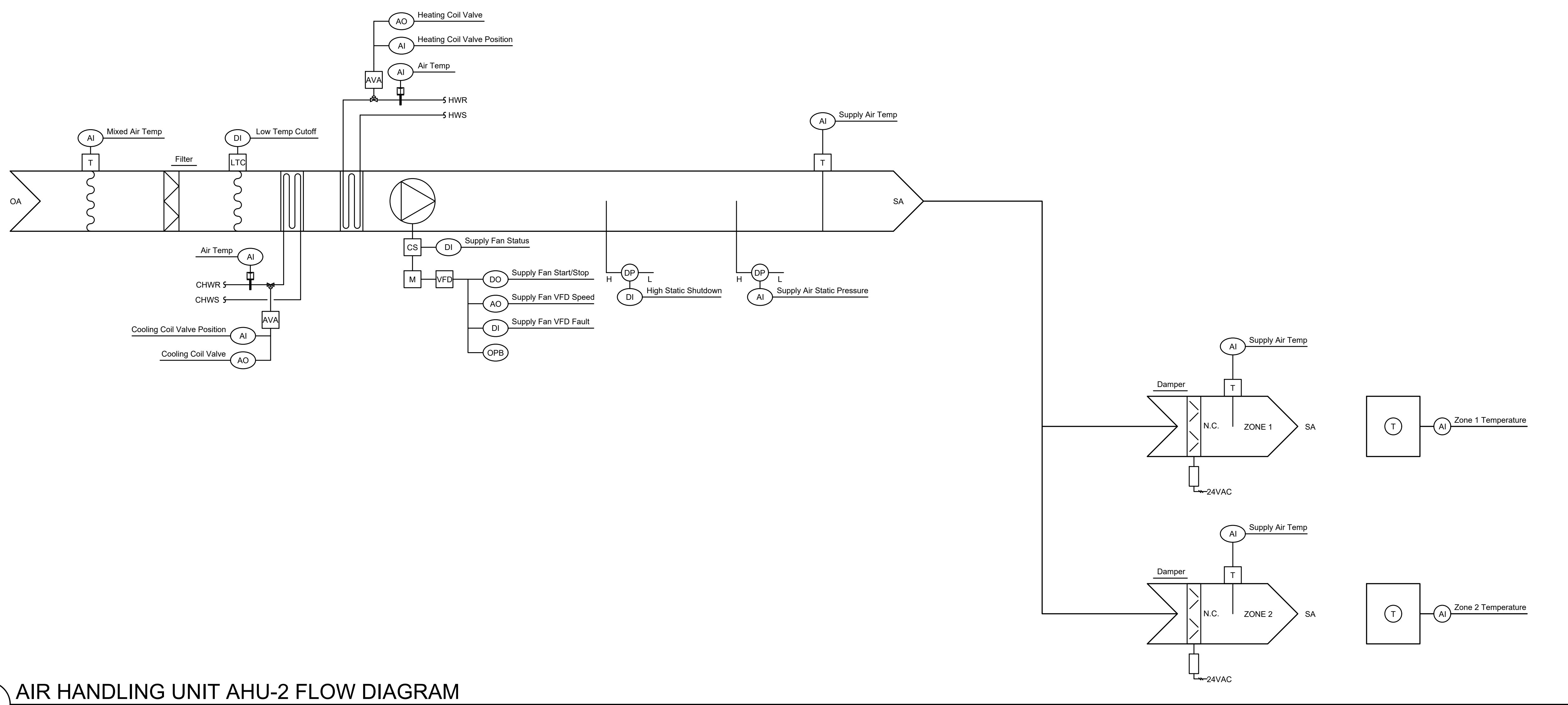
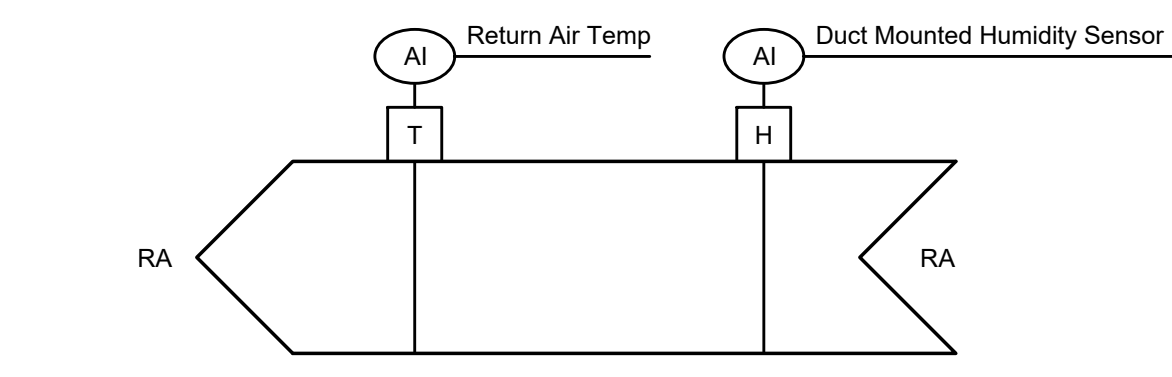
MC / JS / JS

**MEP9.01**





3/8" = 1'-0"  
1/2" = 1'-0"  
3/4" = 1'-0"  
1" = 1'-0"  
1 1/2" = 1'-0"  
2" = 1'-0"  
3" = 1'-0"  
4" = 1'-0"  
6" = 1'-0"  
8" = 1'-0"  
12" = 1'-0"  
16" = 1'-0"  
24" = 1'-0"  
32" = 1'-0"  
48" = 1'-0"



SYMBOL LIST	
SYMBOL	DESCRIPTION
	OPPOSED BLADE DAMPER
	AUTOMATIC 2-WAY VALVE
	FAN OR PUMP MOTOR
	DIFFERENTIAL PRESSURE SENSOR
	DUCT MOUNTED TEMPERATURE SENSOR
	VARIABLE FREQUENCY DRIVE
	ADJUSTABLE VALVE ACTUATION
	DDC DIGITAL INPUT POINT
	DDC DIGITAL OUTPUT POINT
	DDC ANALOG INPUT POINT
	DDC ANALOG OUTPUT POINT
	OPEN PROTOCOL BUS
	MOTOR
	DUCT MOUNTED HUMIDITY SENSOR
	LOW TEMPERATURE CUTOFF
	CURRENT SENSOR
	PIPE MOUNTED TEMPERATURE SENSOR

1 AIR HANDLING UNIT AHU-2 FLOW DIAGRAM  
SCALE: NO SCALE

PROJECT DIRECTORY:

JEFFREY STROHL, P.E.  
MECHANICAL, ELECTRICAL & PLUMBING  
1331 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-686-6291

PROJECT TITLE: CLARK HALL DORMITORY  
MECHANICAL, ELECTRICAL & PLUMBING  
RENOVATION

CLIENT NAME: UNIVERSITY OF NORTH TEXAS  
PROJECT ADDRESS: 1717 MAPLE STREET, DENTON, TX 76201

REVISION SCHEDULE	
No.	Date

Issued by

DRAWING TITLE: MEP CONTROLS





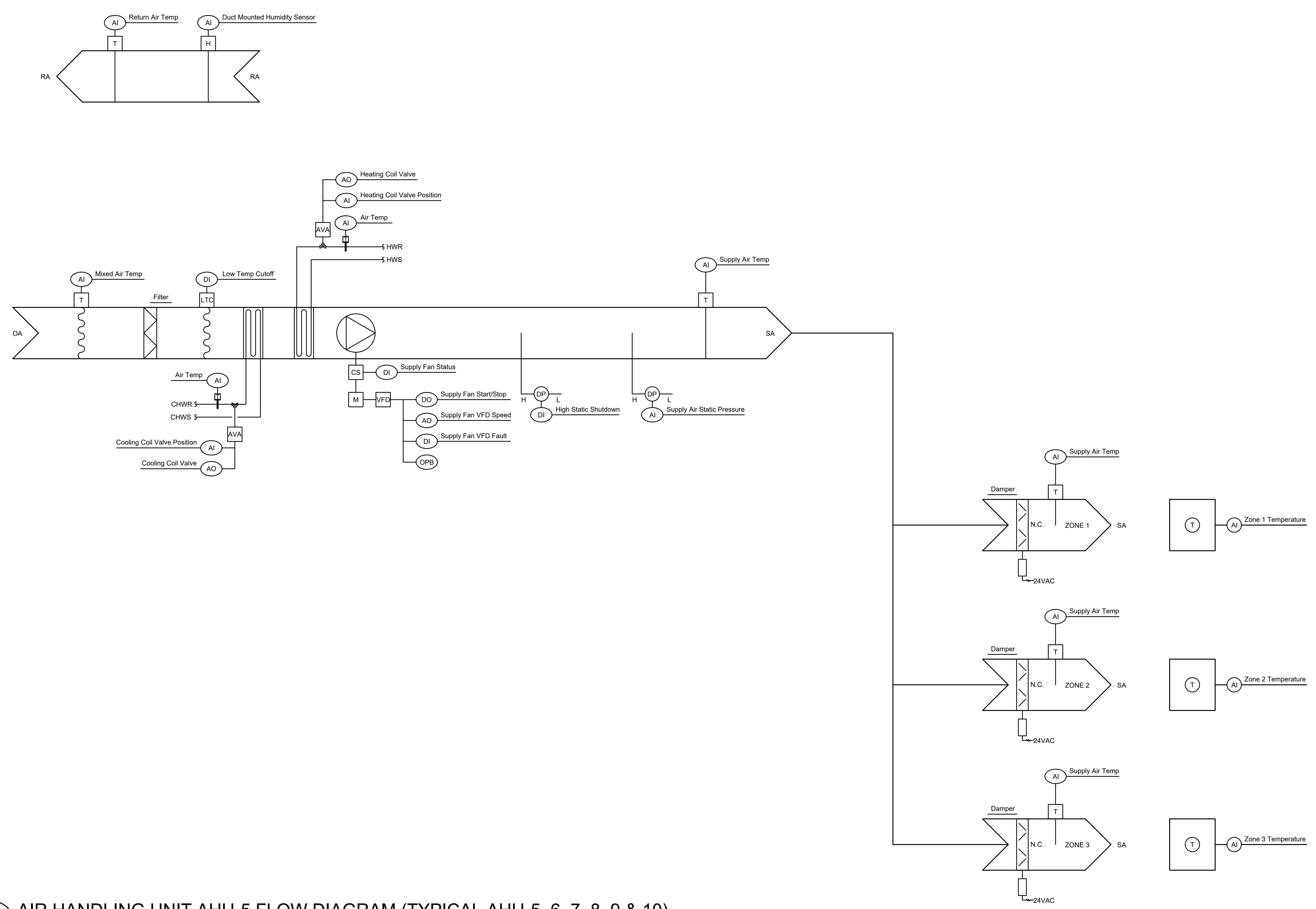
PROJECT DIRECTORY:  
JEFFREY STROM, P.E.  
1331 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-688-6321

PROJECT TITLE: CLARK HALL DORMITORY  
MECHANICAL, ELECTRICAL & PLUMBING  
RENOVATION  
CLIENT NAME: UNIVERSITY OF NORTH TEXAS  
PROJECT ADDRESS: 1717 MAPLE STREET, DENTON, TX 76201

REVISION SCHEDULE	
No.	Description

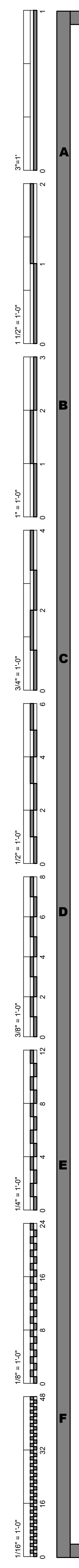
PROJECT NUMBER: CAMPOS D22-2995.00  
ISSUE DATE: 05/09/2023  
100% CONSTRUCTION DOCUMENTS  
DRAWN BY: / CHECKED BY: / APPROVED BY: / JS

MEP9.03

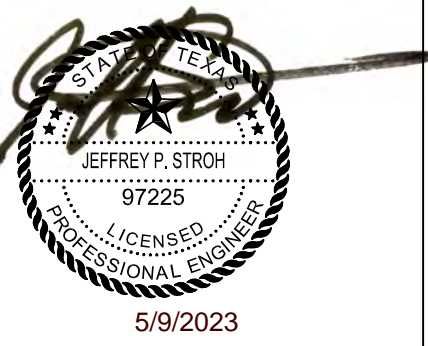


SYMBOL LIST	
SYMBOL	DESCRIPTION
	OPPOSED BLADE DAMPER
	AUTOMATIC 2-WAY VALVE
	FAN OR PUMP MOTOR
	DIFFERENTIAL PRESSURE SENSOR
	DUCT MOUNTED TEMPERATURE SENSOR
	VARIABLE FREQUENCY DRIVE
	ADJUSTABLE VALVE ACTUATION
	DDC DIGITAL INPUT POINT
	DDC DIGITAL OUTPUT POINT
	DDC ANALOG INPUT POINT
	DDC ANALOG OUTPUT POINT
	OPEN PROTOCOL BUS
	MOTOR
	DUCT MOUNTED HUMIDITY SENSOR
	LOW TEMPERATURE CUTOFF
	CURRENT SENSOR
	PIPE MOUNTED TEMPERATURE SENSOR

1 AIR HANDLING UNIT AHU-5 FLOW DIAGRAM (TYPICAL AHU-5, 6, 7, 8, 9 & 10)  
SCALE: NO SCALE







**PROJECT DIRECTORY:**

JEFFREY STROM, P.E.  
1331 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-686-8200

**CLARK HALL DORMITORY  
MECHANICAL, ELECTRICAL & PLUMBING  
RENOVATION**

UNIVERSITY OF NORTH TEXAS

PROJECT ADDRESS: 1717 MAPLE STREET, DENTON, TX 76201

REVISION SCHEDULE

Issued by

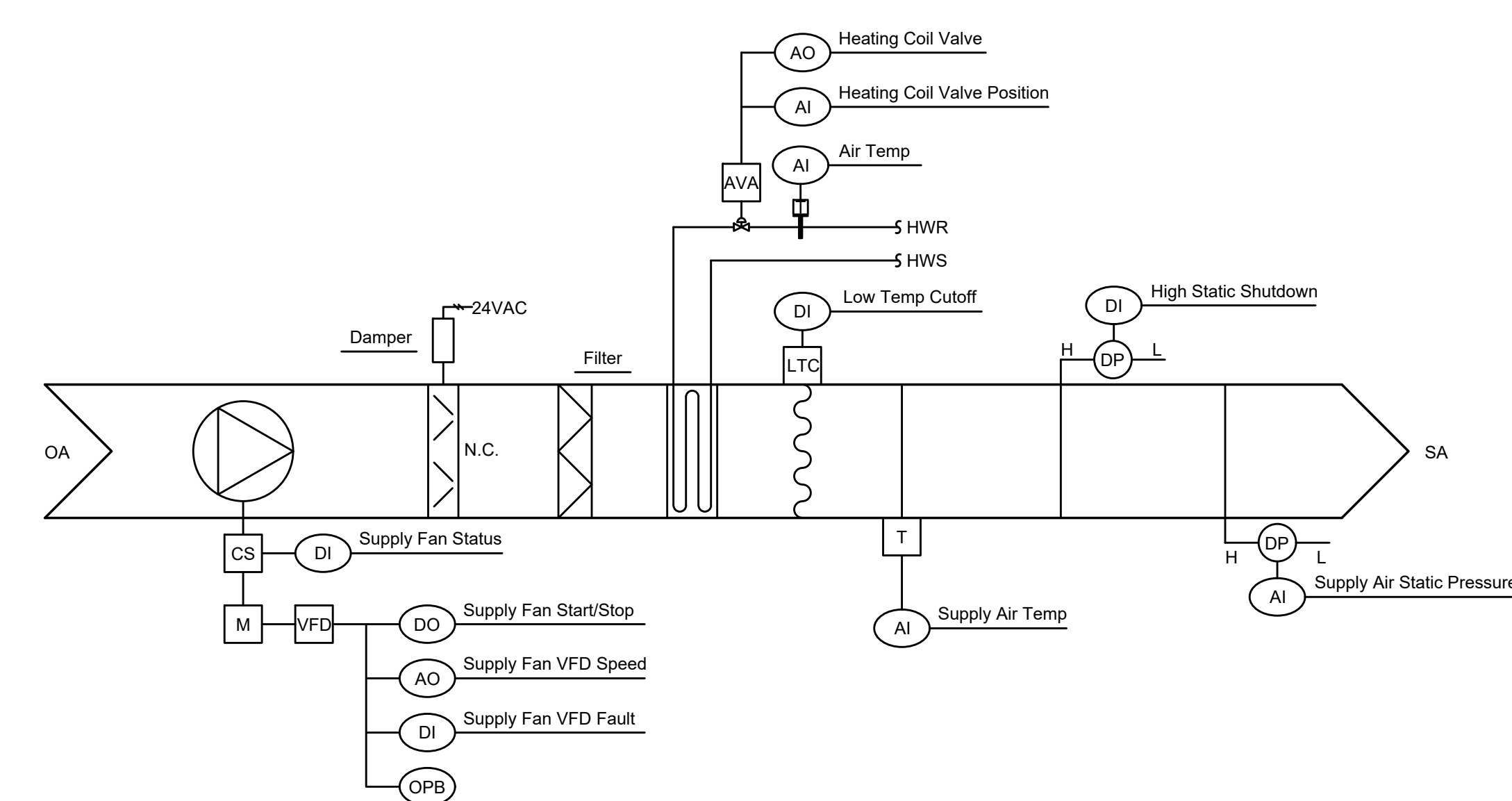
No. | Date

PROJECT NUMBER:  
CAMPOS D22-2995.00  
ISSUE DATE: 05/09/2023  
100% CONSTRUCTION DOCUMENTS  
DRAWN BY / CHECKED BY / APPROVED BY  
MC / JS / JS

DRAWING TITLE: **MEP CONTROLS**

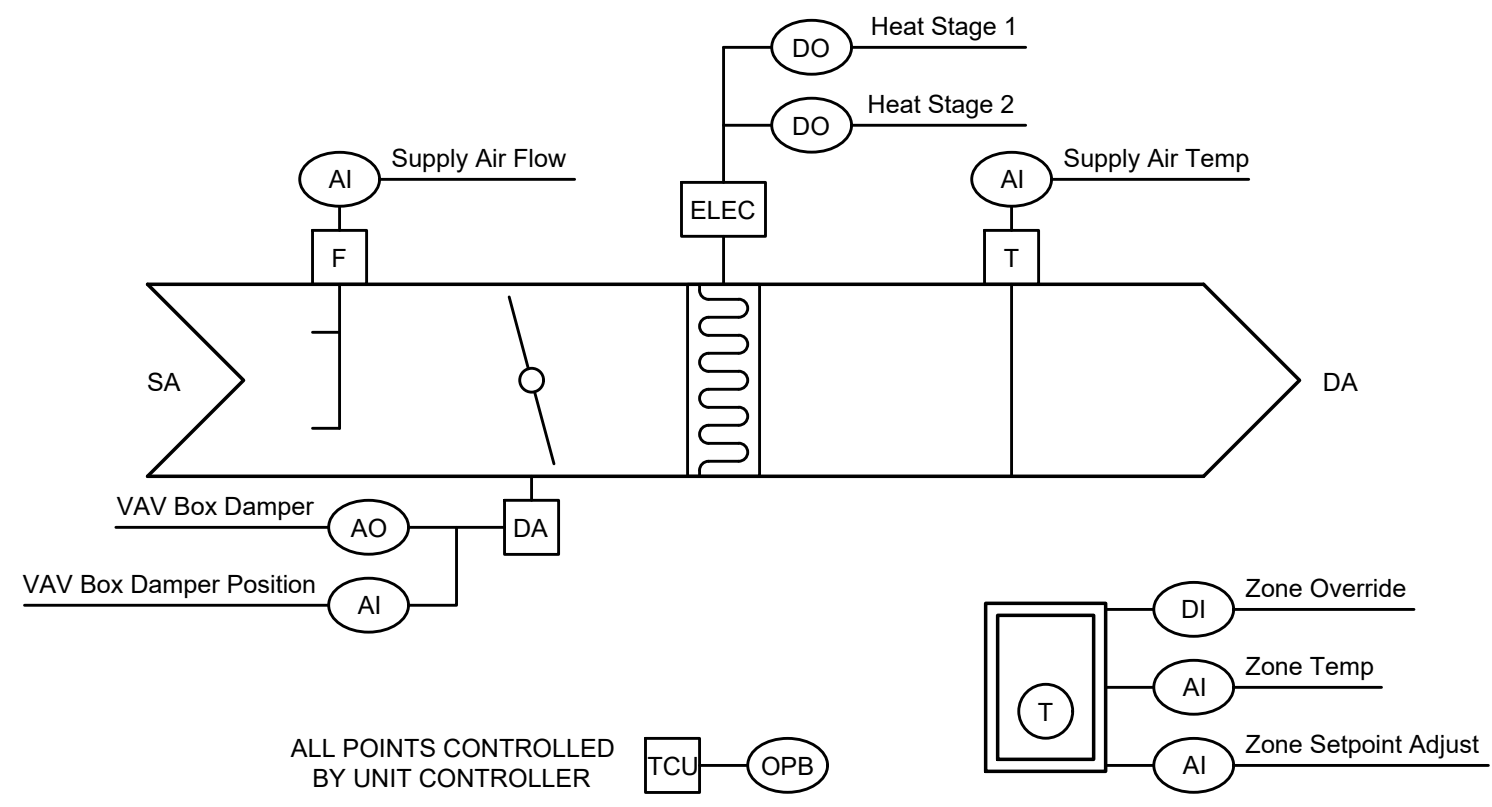
**MEP9.04**

3/8" = 1'-0"  
1/2" = 1'-0"  
3/4" = 1'-0"  
1" = 1'-0"  
1 1/2" = 1'-0"  
2" = 1'-0"  
3" = 1'-0"  
4" = 1'-0"  
6" = 1'-0"  
8" = 1'-0"  
12" = 1'-0"  
16" = 1'-0"  
24" = 1'-0"  
32" = 1'-0"  
48" = 1'-0"

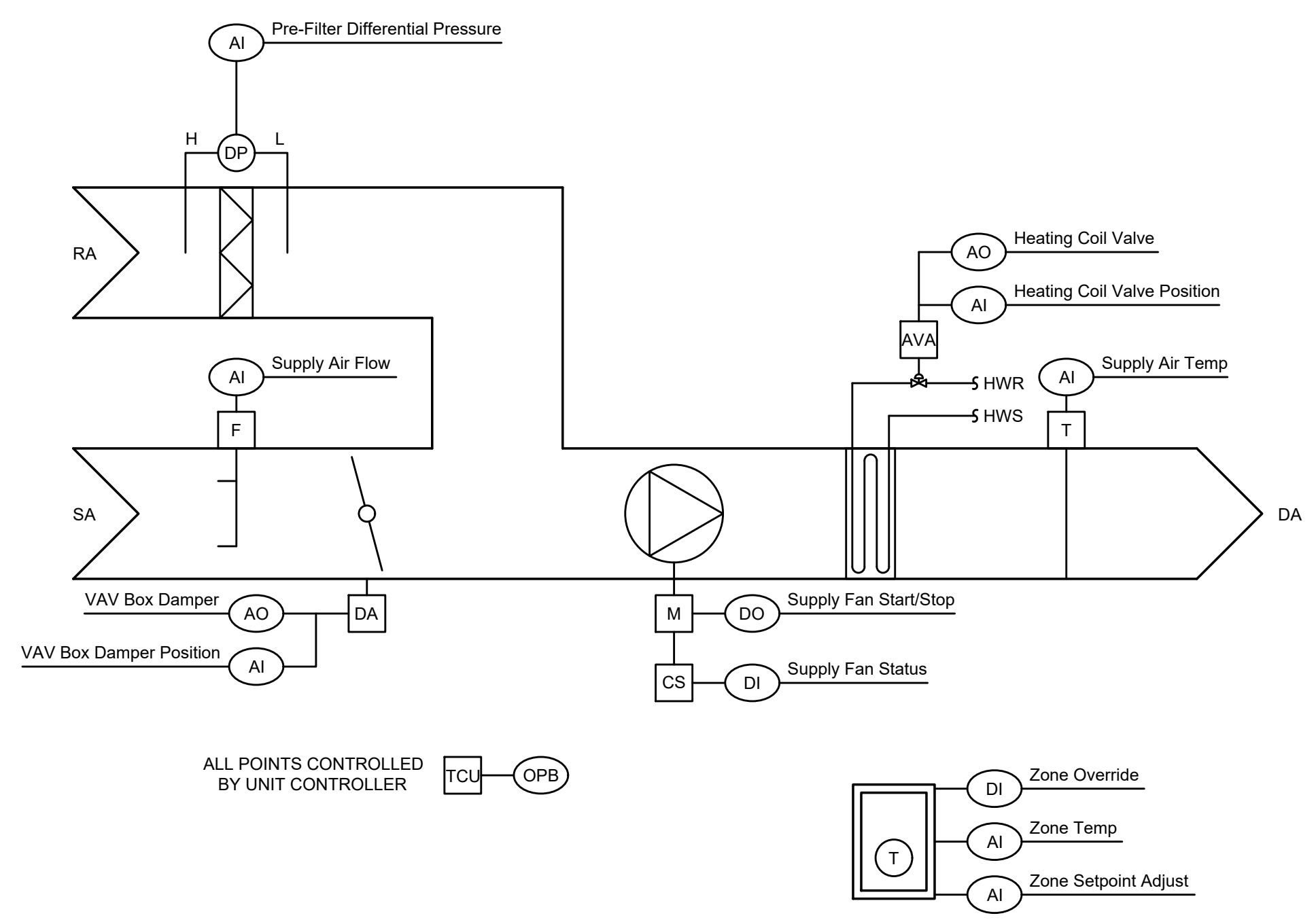


SYMBOL LIST	
SYMBOL	DESCRIPTION
	OPPOSED BLADE DAMPER
	HYDRONIC HEATING OR COOLING COIL
	AUTOMATIC 2-WAY VALVE
	FAN OR PUMP MOTOR
	DIFFERENTIAL PRESSURE SENSOR
	DUCT MOUNTED TEMPERATURE SENSOR
	VARIABLE FREQUENCY DRIVE
	ADJUSTABLE VALVE ACTUATION
	DDC DIGITAL INPUT POINT
	DDC DIGITAL OUTPUT POINT
	DDC ANALOG INPUT POINT
	DDC ANALOG OUTPUT POINT
	OPEN PROTOCOL BUS
	MOTOR
	LOW TEMPERATURE CUTOFF
	CURRENT SENSOR
	FLOW SENSOR
	WALL MOUNTED HUMIDITY SENSOR
	DAMPER ACTUATOR
	TERMINAL CONTROL UNIT

**1 MAKEUP AIR UNIT CONTROL DIAGRAM**  
SCALE: NONE



**2 SINGLE DUCT VAV BOX WITH ELECTRIC REHEAT CONTROL DIAGRAM**  
SCALE: NONE



**3 SERIES FAN POWERED VAV BOX WITH HOT WATER REHEAT CONTROL DIAGRAM**  
SCALE: NONE





### SEQUENCE OF OPERATION

#### AIR HANDLING UNIT ASSOCIATED WITH VAV UNIT SEQUENCE OF OPERATION (SEQUENCE FOR AHU-2 AND AHU-3)

- WHEN THE AHU IS ENABLED, THE SUPPLY FAN VFD WILL MODULATE TO MAINTAIN DUCT STATIC PRESSURE SET-POINT OF 0.5" (ADJUSTABLE) UPSTREAM OF THE ZONE DAMPERS. EXACT SET-POINT TO BE DETERMINED AT COMMISSIONING.
- IF ALL ZONE DAMPERS BEING SERVED BY AHU ARE LESS THAN 50% OPEN, THE STATIC PRESSURE SETPOINT WILL BE DECREASED BY 0.05 INCH. THE RESET STEP SHOULD BE REPEATED AT 5 MINUTE INTERVALS UNTIL AT LEAST ONE ZONE DAMPER IS GREATER THAN 50% OPEN. IF NO DAMPERS ARE LESS THAN 50% OPEN AND ANY DAMPER IS GREATER THAN 90% OPEN, THE STATIC PRESSURE SET-POINT WILL BE INCREASED BY 0.05. THE RESET STEP SHOULD BE REPEATED AT 5 MINUTE INTERVALS UNTIL NO ZONE DAMPER IS GREATER THAN 90% OPEN. AUTOMATIC STATIC SETPOINT ADJUSTMENTS ARE LIMITED BETWEEN ADJUSTABLE MAX (Initially 0.2" WC) AND MIN (Initially 0.1" WC).
- THE BMS WILL CALCULATE ZONE TEMPERATURE ERRORS (ZONE TEMPERATURE MINUS ZONE SET-POINT)
- IF OUTSIDE AIR TEMPERATURE IS LESS THAN WINTER MODE SET-POINT (INITIALLY FIFTY FIVE DEGREES) AND THE AVERAGE ZONE TEMPERATURE ERROR IS LESS THAN ONE DEGREE BELOW ZERO THEN THE AHU WILL ENTER HEATING MODE.
- IF OUTSIDE AIR TEMPERATURE IS TWO DEGREES GREATER THAN WINTER MODE SET-POINT (INITIALLY FIFTY FIVE DEGREES) OR THE AVERAGE ZONE TEMPERATURE ERROR IS GREATER THAN ZERO THEN THE AHU WILL ENTER COOLING MODE.
- WHEN THE AHU IS IN HEATING MODE, THE SUPPLY AIR TEMPERATURE WILL BE RESET BY THE MINIMUM ZONE TEMPERATURE ERROR BETWEEN 72 AND 95 °F.
- WHEN THE MINIMUM ZONE TEMPERATURE ERROR IS AT -0.1, THE SUPPLY AIR SET-POINT WILL BE 72°F. WHEN THE MINIMUM ZONE TEMPERATURE ERROR IS AT -2, THE SUPPLY AIR SET-POINT WILL BE 95°F.
- WHEN THE AHU IS IN COOLING MODE, THE SUPPLY AIR TEMPERATURE WILL BE RESET BY THE MAXIMUM ZONE TEMPERATURE ERROR BETWEEN 48 AND 72 °F. WHEN THE MAXIMUM ZONE TEMPERATURE ERROR IS AT 0.1, THE SUPPLY AIR SET-POINT WILL BE 72°F. WHEN THE MAXIMUM ZONE TEMPERATURE ERROR IS AT 3, THE SUPPLY AIR SET-POINT WILL BE 48°F.
- OA IS DELIVERED TO THE AHU'S THROUGH AN OA FAN POWERED BOX. THE SYSTEM WILL CONTROL TO A POSITIVE PRESSURE OF 0.08" (ADJUSTABLE).
- WHEN THE SENSED HUMIDITY(ON AHU RETURN AIR) OF THE FLOOR IS GREATER THAN 55% (ADJUSTABLE) THE CHW VALVE FOR THE AHU WILL MODULATE FULLY OPEN AND THE HW VALVE WILL MODULATE TO MAINTAIN SUPPLY AIR TEMPERATURE SET-POINT TO SUPPLY DRY AIR TO THE FLOOR. ONCE THE SENSED HUMIDITY HAS DROPPED BELOW 50% (ADJUSTABLE) THE SYSTEM WILL RETURN TO NORMAL OPERATION.
- IN DEHUMIDIFICATION MODE, THE HW VALVE WILL MODULATE TO MAINTAIN COOLING SAT.
- A HARDWIRED FREEZESTAT(WITH MANUAL RESET) WILL DE-ENERGIZE THE UNIT AND OA FPB. ALARM THE BAS, AND COMMAND THE AHU INTO FREEZE PROTECTION MODE IF TEMPERATURE FALLS BELOW 38 °F. (HARDWARE ADJUSTABLE).
- IF TEMPERATURE OF THE MIXED AIR MEASURED AHEAD OF THE COOLING COIL DROPS BELOW 43 °F COMMAND THE AHU INTO FREEZE PROTECTION MODE. WHEN THE MIXED AIR TEMPERATURE RISES ABOVE 45 °F RETURN THE UNIT TO SEQUENCE OF OPERATION AS ABOVE.
- IF SAFETY STATUS IS ACTIVE, THE UNIT WILL GO INTO FREEZE PROTECTION MODE.

#### FREEZE PROTECTION MODE:

1. STOP THE SUPPLY FAN
2. COMMAND CHILLED WATER CONTROL VALVE TO 100 % OPEN
3. COMMAND HEATING WATER CONTROL VALVE TO 100 % OPEN
4. STOP THE FPB AND CLOSE THE FPB DAMPER.
5. OPEN THE FPB HW VALVE TO 100% OPEN.

### SEQUENCE OF OPERATION

#### AIR HANDLING UNIT ASSOCIATED WITH VAV UNIT SEQUENCE OF OPERATION (SEQUENCE FOR AHU-1, AHU-4, AHU-5, AHU-6, AHU-7, AHU-8, AHU-9 AND AHU-10)

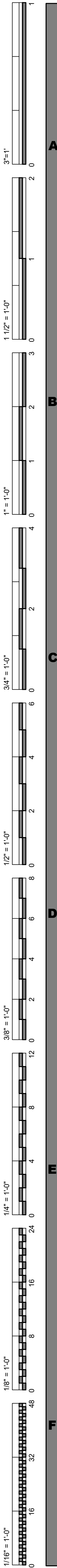
- WHEN THE AHU IS ENABLED, THE SUPPLY FAN VFD WILL MODULATE TO MAINTAIN DUCT STATIC PRESSURE SET-POINT OF 0.5" (ADJUSTABLE) UPSTREAM OF THE ZONE DAMPERS. EXACT SET-POINT TO BE DETERMINED AT COMMISSIONING.
- IF ALL ZONE DAMPERS BEING SERVED BY AHU ARE LESS THAN 50% OPEN, THE STATIC PRESSURE SETPOINT WILL BE DECREASED BY 0.05 INCH. THE RESET STEP SHOULD BE REPEATED AT 5 MINUTE INTERVALS UNTIL AT LEAST ONE ZONE DAMPER IS GREATER THAN 50% OPEN. IF NO DAMPERS ARE LESS THAN 50% OPEN AND ANY DAMPER IS GREATER THAN 90% OPEN, THE STATIC PRESSURE SET-POINT WILL BE INCREASED BY 0.05. THE RESET STEP SHOULD BE REPEATED AT 5 MINUTE INTERVALS UNTIL NO ZONE DAMPER IS GREATER THAN 90% OPEN. AUTOMATIC STATIC SETPOINT ADJUSTMENTS ARE LIMITED BETWEEN ADJUSTABLE MAX (Initially 0.2" WC) AND MIN (Initially 0.1" WC).
- THE BMS WILL CALCULATE ZONE TEMPERATURE ERRORS (ZONE TEMPERATURE MINUS ZONE SET-POINT)
- IF OUTSIDE AIR TEMPERATURE IS LESS THAN WINTER MODE SET-POINT (INITIALLY FIFTY FIVE DEGREES) AND THE AVERAGE ZONE TEMPERATURE ERROR IS LESS THAN ONE DEGREE BELOW ZERO THEN THE AHU WILL ENTER HEATING MODE.
- IF OUTSIDE AIR TEMPERATURE IS TWO DEGREES GREATER THAN WINTER MODE SET-POINT (INITIALLY FIFTY FIVE DEGREES) OR THE AVERAGE ZONE TEMPERATURE ERROR IS GREATER THAN ZERO THEN THE AHU WILL ENTER COOLING MODE.
- WHEN THE AHU IS IN HEATING MODE, THE SUPPLY AIR TEMPERATURE WILL BE RESET BY THE MINIMUM ZONE TEMPERATURE ERROR BETWEEN 72 AND 95 °F.
- WHEN THE MINIMUM ZONE TEMPERATURE ERROR IS AT -0.1, THE SUPPLY AIR SET-POINT WILL BE 72°F. WHEN THE MINIMUM ZONE TEMPERATURE ERROR IS AT -2, THE SUPPLY AIR SET-POINT WILL BE 95°F.
- WHEN THE AHU IS IN COOLING MODE, THE SUPPLY AIR TEMPERATURE WILL BE RESET BY THE MAXIMUM ZONE TEMPERATURE ERROR BETWEEN 48 AND 72 °F. WHEN THE MAXIMUM ZONE TEMPERATURE ERROR IS AT 0.1, THE SUPPLY AIR SET-POINT WILL BE 72°F. WHEN THE MAXIMUM ZONE TEMPERATURE ERROR IS AT 3, THE SUPPLY AIR SET-POINT WILL BE 48°F.
- OA IS DELIVERED TO THE AHU'S THROUGH AN OA VAV. THE SYSTEM WILL CONTROL TO A POSITIVE PRESSURE OF 0.08" (ADJUSTABLE).
- WHEN THE SENSED HUMIDITY(ON AHU RETURN AIR) OF THE FLOOR IS GREATER THAN 55% (ADJUSTABLE) THE CHW VALVE FOR THE AHU WILL MODULATE FULLY OPEN AND THE HW VALVE WILL MODULATE TO MAINTAIN SUPPLY AIR TEMPERATURE SET-POINT TO SUPPLY DRY AIR TO THE FLOOR. ONCE THE SENSED HUMIDITY HAS DROPPED BELOW 50% (ADJUSTABLE) THE SYSTEM WILL RETURN TO NORMAL OPERATION.
- IN DEHUMIDIFICATION MODE, THE HW VALVE WILL MODULATE TO MAINTAIN COOLING SAT.
- A HARDWIRED FREEZESTAT(WITH MANUAL RESET) WILL DE-ENERGIZE THE UNIT AND OA VAV AND ALARM THE BAS AND COMMAND THE AHU INTO FREEZE PROTECTION MODE IF TEMPERATURE FALLS BELOW 38 °F. (HARDWARE ADJUSTABLE).
- IF TEMPERATURE OF THE MIXED AIR MEASURED AHEAD OF THE COOLING COIL DROPS BELOW 43 °F THE AHU WILL BE COMMAND INTO FREEZE PROTECTION MODE. WHEN THE MIXED AIR TEMPERATURE RISES ABOVE 45 °F THE UNIT WILL RETURN SEQUENCE OF OPERATION AS ABOVE.
- IF SAFETY STATUS IS ACTIVE, THE UNIT WILL GO INTO FREEZE PROTECTION MODE.

#### FREEZE PROTECTION MODE:

1. STOP THE SUPPLY FAN
2. COMMAND CHILLED WATER CONTROL VALVE TO 100 % OPEN
3. COMMAND HEATING WATER CONTROL VALVE TO 100 % OPEN
4. COMMAND VAV DAMPER TO 0%(CLOSED)

#### OUTSIDE AIR UNIT SEQUENCE OF OPERATION

- OA IS DELIVERED TO THE AHU VAVS THROUGH A PRESSURIZED OA DUCT SYSTEM. DURING OCCUPIED MODE, THE ROOF MOUNTED SUPPLY FANS WILL PROVIDE 100% OA TO THE DUCTWORK SERVING THE AHU'S WITH VAVS. THE ROOF MOUNTED FANS SHALL HAVE VFD'S THAT WILL CONTROL TO A FIXED DUCT STATIC PRESSURE (ADJUSTABLE) MEASURED AT DPT-2. INITIALLY SET TO 0.5" WC. THE OA ISOLATION DAMPER WILL BE COMMANDED OPEN.
- IF THE SUPPLY AIR TEMPERATURE AS SENSED BY T-6 FALLS BELOW 40°F, THE VALVE FOR THE OA HEATING COIL WILL MODULATE TO MAINTAIN A TEMPERATURE OF 50°F (ADJ.) TO PREVENT THE COILS IN THE AHU FROM FREEZING.
- IF THE FREEZE STAT IN THE OA SYSTEM TRIPS, THE FANS SHALL BE CYCLED OFF AND THE HOT WATER VALVE WILL BE OPENED TO 100%.
- THE OA ISOLATION DAMPER WILL BE WIRED IN SERIES WITH THE FREEZE STAT AND WILL SPRING RETURN CLOSED WHEN FREEZE STAT TRIPS.



#### PROJECT DIRECTORY:

JEFFREY STROM, P.E.  
1331 RIVER BEND DRIVE  
DALLAS, TX 75247  
214-696-6631

PROJECT TITLE: **CLARK HALL DORMITORY  
MECHANICAL, ELECTRICAL & PLUMBING  
RENOVATION**

CLIENT NAME: **UNIVERSITY OF NORTH TEXAS**

PROJECT ADDRESS: 1717 MAPLE STREET, DENTON, TX 76201

No.	Date	Issued by	Description

PROJECT NUMBER: CAMPOS <b>D22-2995.00</b>
ISSUE DATE: 05/09/2023
100% CONSTRUCTION DOCUMENTS
DRAWN BY: / CHECKED BY: / APPROVED BY:
MC / JS / JS

# MEP9.05