

REPLACE HVAC SYSTEM PRAIRIE VIEW STATE SCHOOL MARSHALL, MISSOURI



OWNER: STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR
DEPARTMENT OF
ELEMENTARY & SECONDARY EDUCATION

PROJECT
MANAGEMENT: OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

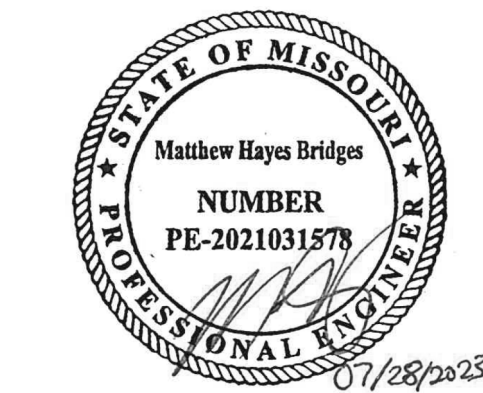
DESIGNER: KLINGNER & ASSOCIATES, P.C.

PROJECT NUMBER: E2319-01

SITE NUMBER: 2044
ASSET NUMBER: 5012044002

SHEET NUMBER:

G-001
SHEET 01 OF 20
JULY 28, 2023



MATTHEW H. BRIDGES - ENGINEER
MO # PE-2021031578

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors
Columbia, Missouri
3622 Endeavor Ave, Suite 117
573.355.5988
www.klinger.com
Quincy, IL, Galesburg, IL
Burlington, IA, Peoria, IA, Hannibal, MO

© 2017 KLINGNER & ASSOCIATES P.C.
This document shall not be used for any purpose or project for which it is not intended. Klinger & Associates P.C. and their Owners shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses and expenses, including attorney fees and costs arising out of such misuse or reuse of this document. In addition, unauthorized reprint, reproduction of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 07/28/23

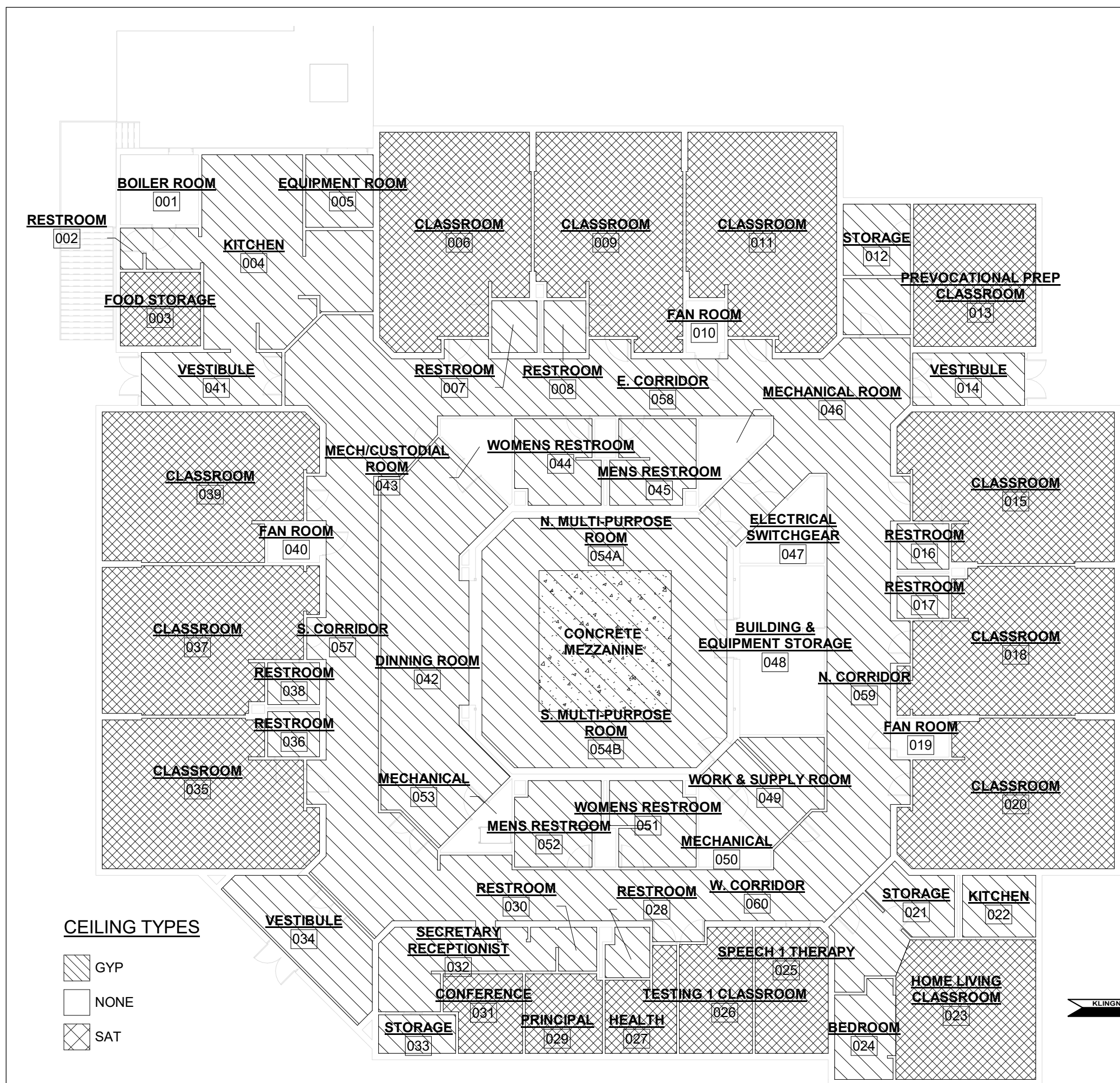
CAD DWG FILE: G002
DRAWING BY: MHB
CHECKED BY: JJJ
DESIGNED BY: MHB

SHEET TITLE:
INDEX PAGE

SHEET NUMBER:

G002

SHEET 02 OF 20
JULY 28, 2023

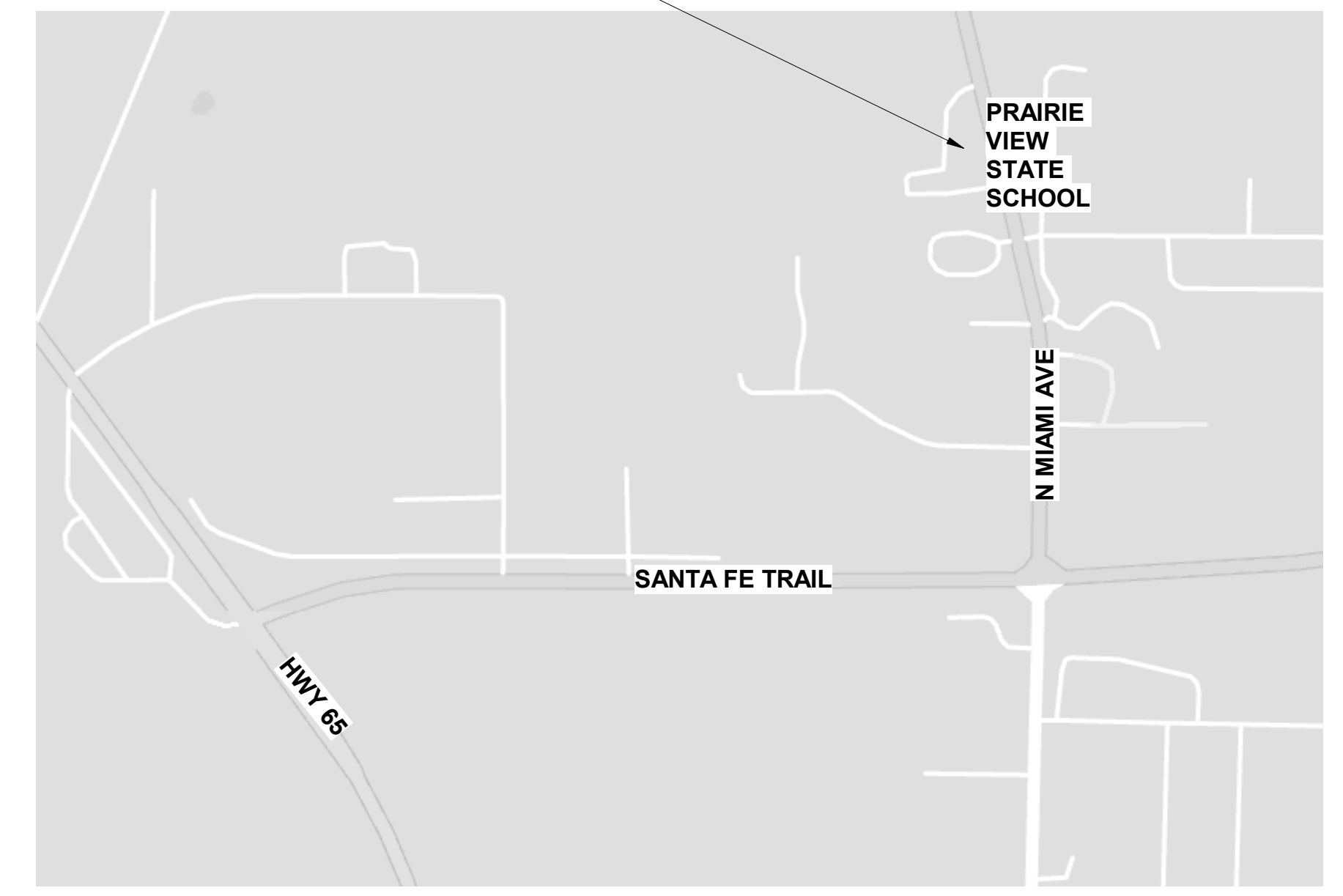


4 CEILING COMPOSITION
1/16" = 1'-0"

SHEET NUMBER	SHEET NAME	CURRENT REVISION DATE
G001	COVER SHEET	07/28/23
G002	INDEX PAGE	07/28/23
S001	STRUCTURAL NOTES	07/28/23
S201	FRAMING PLAN & STRUCTURAL DETAILS	07/28/23
MD101	DEMOLITION PLAN	07/28/23
MD201	ENLARGED DEMOLITION PLANS	07/28/23
M101	MECHANICAL PLAN - NEW WORK	07/28/23
M102	MECHANICAL PLAN - DUCTWORK REPAIR	07/28/23
M201	ENLARGED MECHANICAL ROOM PLAN	07/28/23
M202	ENLARGED MECHANICAL MEZZANINE PLAN	07/28/23
M203	ENLARGED OFFICE PLAN	07/28/23
M501	MECHANICAL DETAILS	07/28/23
M601	MECHANICAL SCHEDULES	07/28/23
M701	HYDRONIC SYS. SCHEMATIC CONTROL DIAGRAM	07/28/23
M702	SCHEMATIC CONTROLS DIAGRAM	07/28/23
M703	SCHEMATIC CONTROLS DIAGRAM	07/28/23
M704	SCHEMATIC CONTROLS DIAGRAM	07/28/23
M705	SCHEMATIC CONTROLS DIAGRAM	07/28/23
M706	SCHEMATIC CONTROLS DIAGRAM	07/28/23
E101	POWER PLAN	07/28/23

APPLICABLE CODE INFORMATION:

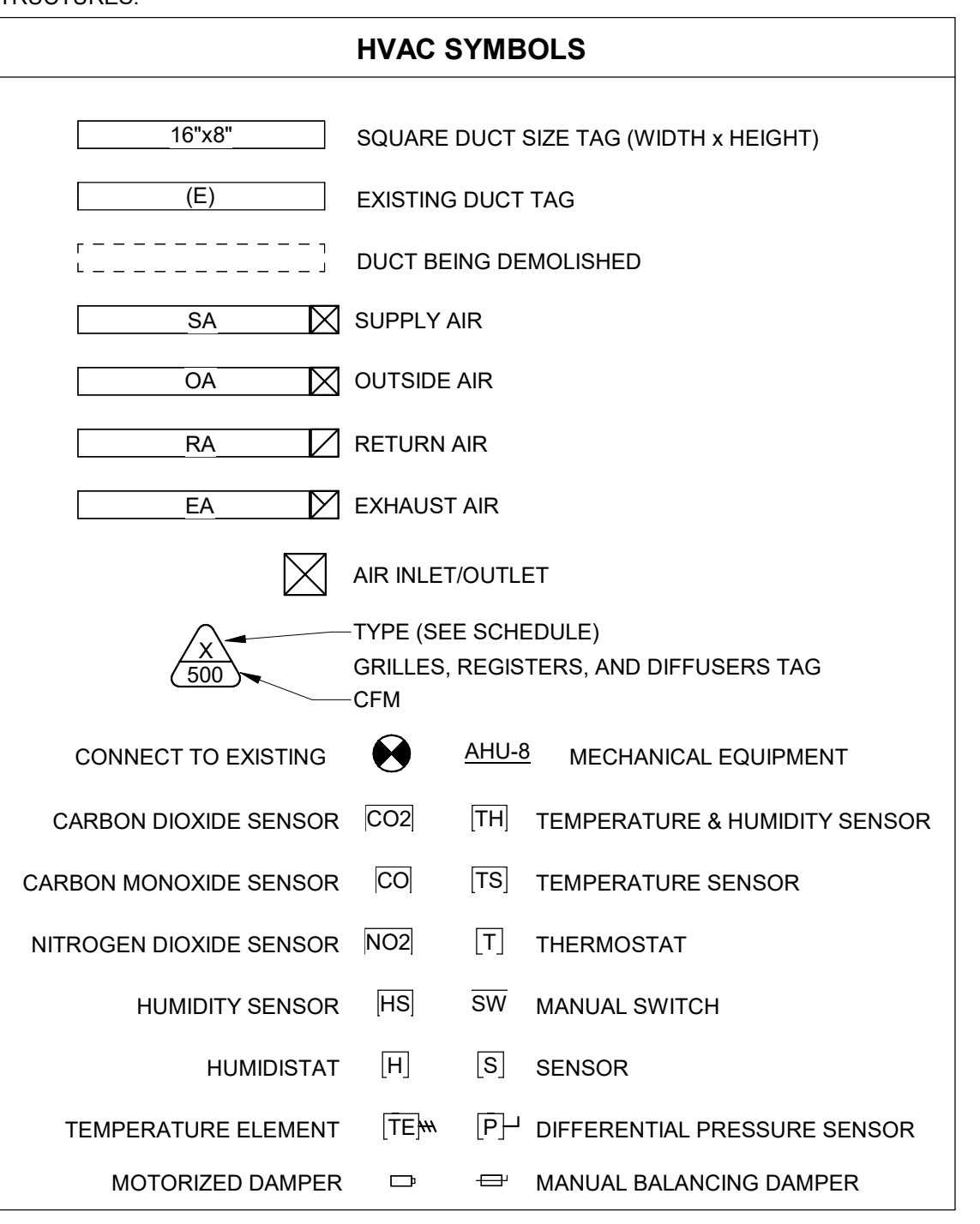
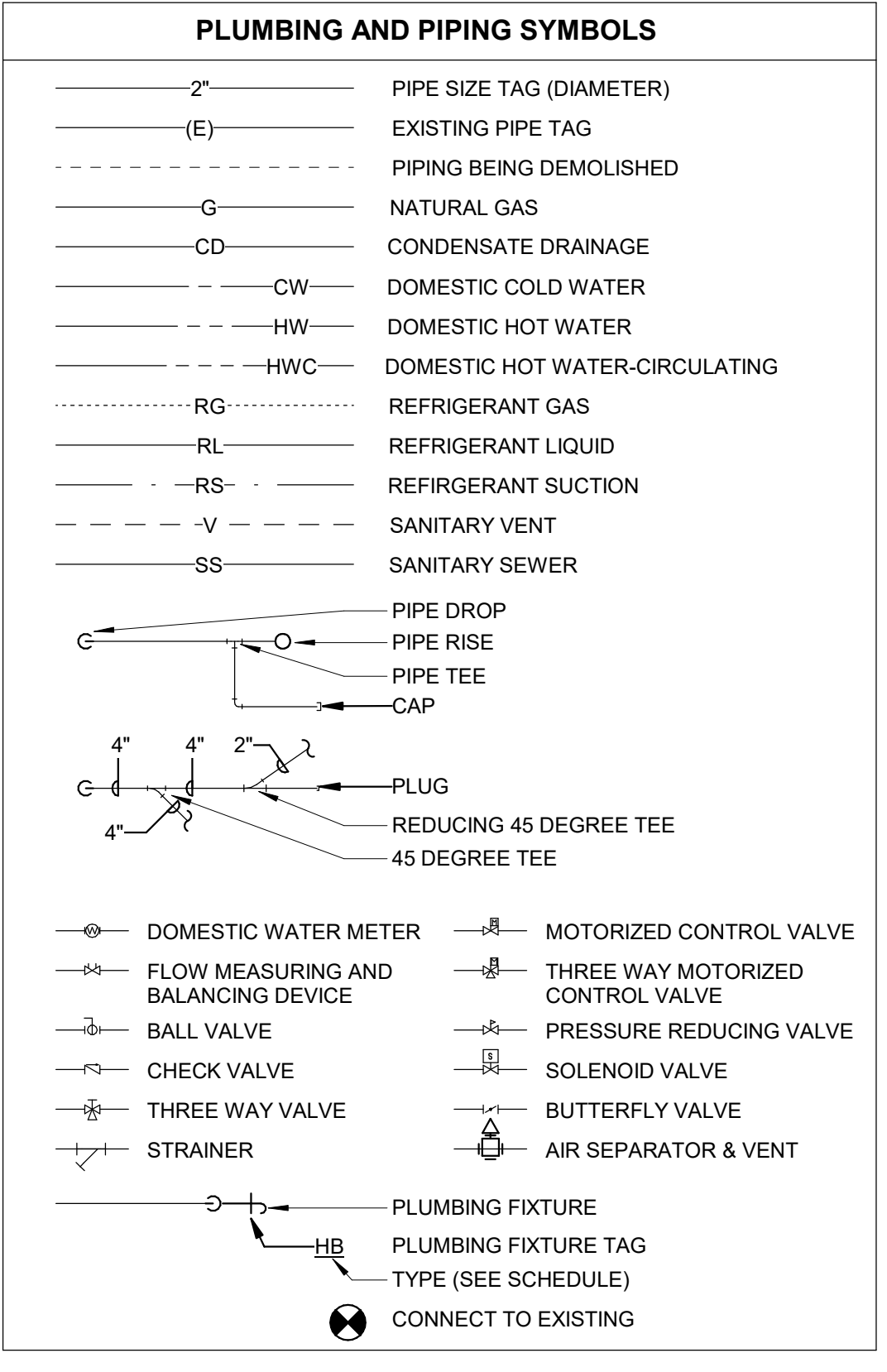
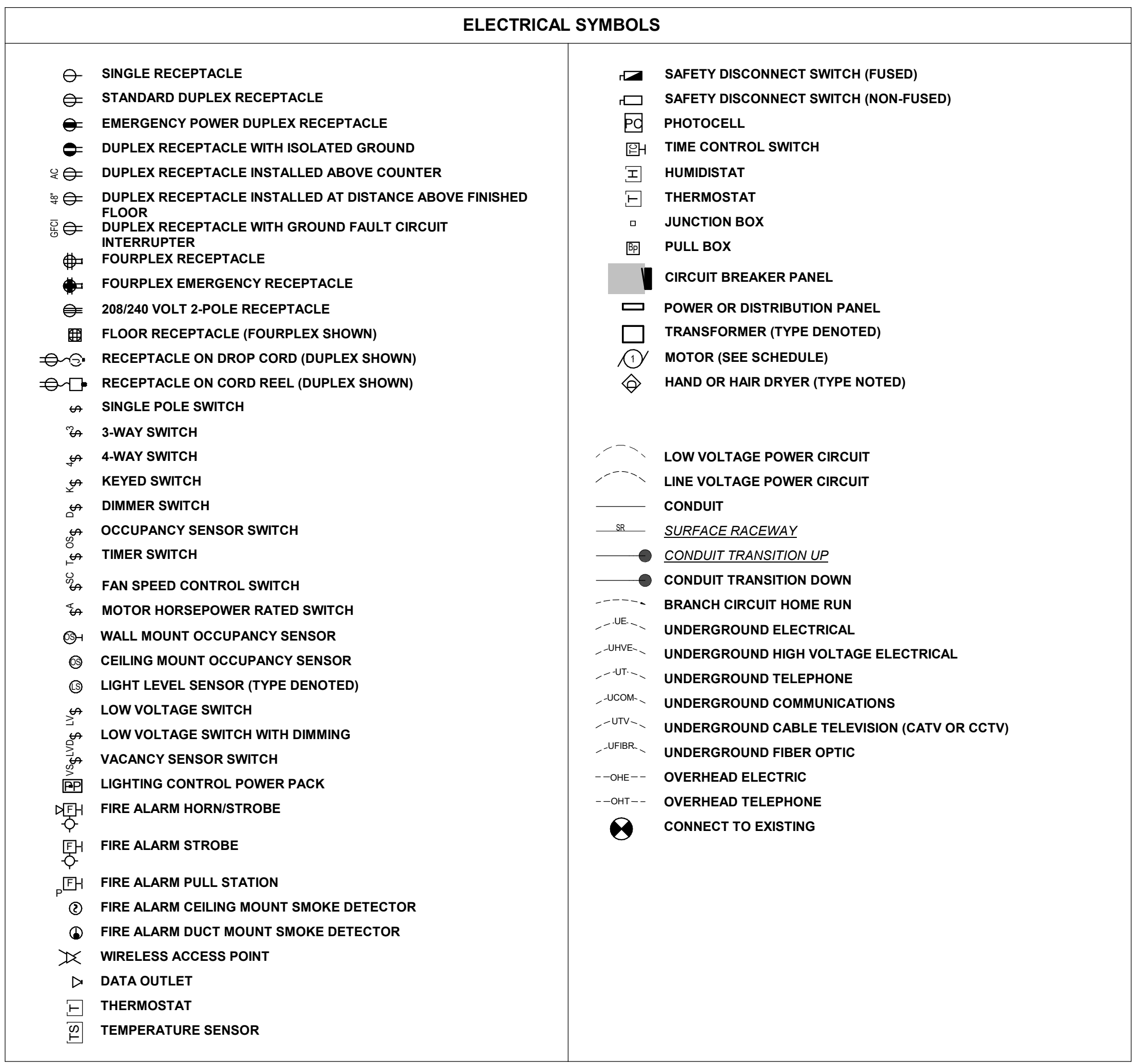
- 2021 INTERNATIONAL BUILDING CODE
- 2021 INTERNATIONAL MECHANICAL CODE
- 2022 ASHRAE 62.1, VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY
- 2022 ASHRAE 90.1, ENERGY STANDARD FOR BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS
- 2020 NFPA 70, NATIONAL ELECTRIC CODE



PROJECT ADDRESS:
PRAIRIE VIEW STATE SCHOOL
945 N MIAMI AVE
MARSHALL, MO 65340

GENERAL NOTES:

- A STRUCTURAL REVIEW OF THE EXISTING MEZZANINE WAS COMPLETED DURING THE DESIGN OF THE PROJECT AND THE CONTRACTOR SHOULD NOTE THAT THE MAXIMUM LOAD RATING OF THE MEZZANINE IS 40 POUNDS PER SQUARE FOOT. THE CONTRACTOR SHALL UTILIZE MEANS AND METHODS NECESSARY TO ENSURE THAT THE LOAD RATING IS NOT EXCEEDED DURING THE CONSTRUCTION PROCESS.
- CONTRACTOR SHALL UTILIZE MEANS AND METHODS TO MINIMIZE IMPACTS TO EXISTING FINISHED WALLS AND CEILINGS. IN THE EVENT THAT WALLS OR CEILINGS ARE DAMAGED OR MODIFIED DURING THE COURSE OF CONSTRUCTION, THE CONTRACTOR SHALL REPAIR THESE SURFACES TO MATCH THE PRE-PROJECT CONDITIONS. REPAIRS CAN INCLUDE BUT ARE NOT LIMITED TO GYPSUM BOARD REPAIR, PAINTING OF REPAIRED AREAS, AND CEILING TILE REPLACEMENT. REPAIR ACTIVITIES SHALL BE PERFORMED BY TRADESMAN SKILLED IN THE PARTICULAR REPAIR MATERIAL. WHEN PAINTING IS REQUIRED TO COMPLETE REPAIR, THE LIMITS OF THE PAINTING SHALL BE EXTENDED AS NECESSARY TO ELIMINATE OBJECTIONABLE VARIATIONS IN PAINT APPEARANCE.
- THE CONTRACTOR MAY ELECT TO INSTALL PERMANENT ACCESS PANELS IN LIEU OF REPAIRING FINISHED SURFACES IN LOCATIONS APPROVED BY THE OWNER'S REPRESENTATIVE. ACCESS PANELS IN FIRE RATED ASSEMBLIES SHALL HAVE AN EQUIVALENT OR GREATER FIRE RATING.
- THE CONTRACTOR SHALL PERFORM ALL CONSTRUCTION FOR THE PROJECT IN A MANNER AND SEQUENCE THAT ARE BASED ON ACCEPTED INDUSTRY STANDARDS THAT RECOGNIZE THE INTERACTION OF THE COMPONENTS THAT COMPRISE THE STRUCTURE, WITHOUT CAUSING DISTRESS, UNANTICIPATED MOVEMENTS OR IRREGULAR LOAD PATHS AS A RESULT OF THE CONSTRUCTION MEANS AND METHODS EMPLOYED.
- USE APPROPRIATE CONSTRUCTION METHODS AND EQUIPMENT AS NECESSARY TO SUPPORT EXISTING STRUCTURES AND TO AVOID OVER STRESSING THE EXISTING STRUCTURES.



DESIGN CRITERIA

- 1. BUILDING CODES:
A. IBC 2015
B. ASCE 7-10
2. DESIGN LOADS:
A. Risk Category II
B. Dead Loads
a. Roof = 20 psf
b. Floor = 40 psf
c. Mechanical Unit = 1,100 lbs each
C. Live Loads
a. Roof = 20 psf
b. Floor = 40 psf
D. Roof Snow Load
a. Ground Snow Load, Pg = 20 psf
b. Flat Roof Snow Load, P1 = 14 psf
c. Minimum Snow Load, Pmin = 20 psf
d. Snow Load Importance, Is = 1.0
e. Snow Exposure Factor, Ce = 1.0
f. Roof Thermal Factor, Ct = 1.0
g. Drifting: As per ASCE 7-10
E. Wind Loading
a. Basic Wind Speed, Vmh = 115 mph
b. Risk Category = I
c. Exposure Category = C
d. Internal pressure Coefficient, GCpi = ±0.18
e. Components and Cladding Design per ASCE 7-10

GENERAL

- 1. The structure is designed to be self-supporting and stable after the building is fully completed. It is solely the contractor's responsibility to determine erection procedure and sequence and insure the safety of the construction personnel, public, building and its components parts, and adjacent buildings and properties. This includes the addition of whatever temporary or permanent shoring, bracing, needling, underpinning, or sheet piling, etc. that may be necessary to brace new construction, adjacent buildings, so that the structure is braced for wind, seismic, gravity, construction loads, etc. and that no horizontal or vertical settlement or any damage occurs to the adjacent existing structure. Temporary supports shall be maintained in place until permanents supports and/or shoring and bracing are installed.
2. It is the contractor's responsibility to enforce all applicable safety codes and regulations during all phases of construction.
3. The contractor shall perform all construction for the project in a manner and sequence that are based on accepted industry standards that recognize the interaction of the components that comprise the structure, without causing distress, unanticipated movements or irregular load paths as a result of the construction means and methods employed.
4. Construction loads shall not exceed design live loads. The contractor shall be responsible for all design required to support construction equipment used in the construction of this project. Shoring and reshoring is the responsibility of the contractor.
5. Principal openings through the framing are shown on these drawings. The general contractor shall examine the structural and mechanical drawings for the required openings and shall verify size and location of all openings with the mechanical contractor. Providing all openings required by the mechanical, electrical, plumbing, or other trades shall be part of the general contract, whether or not shown in the structural drawings. Any deviation from the openings shown on the structural drawings shall be brought to the engineer's attention for review.
6. All contractors are required to examine the drawings and specifications carefully, visit the site and fully inform themselves as to all existing conditions and limitations, prior to agreeing to perform the work. Failure to visit the site and familiarize themselves with the existing conditions and limitations will in no way relieve the contractor from furnishing any materials or performing any work in accordance with drawings and specifications without additional cost to the owner.
7. Contractor shall verify all dimensions and conditions at the job site before commencing work and shall report any discrepancies to the engineer.
8. Omissions or conflicts between various elements of the drawings, notes, details and specifications shall be brought to the attention of the engineer and resolved before proceeding with the work.
9. Details labeled "Typical Details" on drawings apply to situations occurring on the project that are the same or similar to those specifically detailed. Such details apply whether or not details are referenced at each location. Notify engineer of clarification regarding applicability of "Typical Details".
10. Work these drawings with architectural, civil, mechanical, and electrical drawings.
11. Do not scale drawings.
12. Should any of the general notes conflict with any details or instructions on plans, the strictest provision shall govern.
13. Coordinate concrete work with the plumbing. The plumbing shall not be placed inside of exterior reinforced masonry walls where it could freeze. Route plumbing around masonry cells and knock-out bond beams with reinforcing steel. Do not place plumbing in masonry cells with reinforcing steel. Maintain the continuity of the masonry horizontal joint reinforcing. Do not route plumbing vertically through footings. The plumbing engineer needs to be informed when there may be conditions like those described above.
14. Shop drawings and submittals:
A. These drawings shall be checked and coordinated with other materials and contracts by the general contractor and shop drawings and submittals shall bear the contractor's review stamp with the checker's initials before being submitted to the architect for approval.
B. When the fabricator has been authorized to use the architect and engineer's drawings as erection drawings, the fabricator must remove all title blocks, professional seals and any other reference to the architect and engineer from that erection drawing. The fabricator's name and title shall be placed on the erection drawing.

EXISTING WORK

- 1. Existing conditions shown or noted on the drawings were obtained from field measurements or were assumed. If conditions other than those shown exist, immediately notify the Engineer before proceeding with the work at that location. If conditions other than those shown exist, alternate methods of construction may need to be used.
2. Where specifically noted on the drawings that existing construction be verified, notify the Engineer in writing of the findings. Verification shall take place prior to preparation of shop drawings and shop drawings shall show all field verified existing conditions. Modifications to details may be required should actual condition significantly differ from those presumed. Any required modifications will be made during the review of the shop drawings.
3. Use appropriate construction methods and equipment as necessary to support existing structures and to avoid over stressing the existing structures.
4. Existing framing is assumed to be in original condition. If deterioration has occurred notify the Engineer in writing of the findings. For example, some types of deterioration are as follows: (Corroded steel, broken steel members, broken or cracked concrete, spalled concrete)

SPECIAL STRUCTURAL INSPECTIONS AND TESTING

- 1. Owner will engage a qualified testing and inspecting agency to perform field special structural inspections and testing in accordance with the applicable International Building Code and to submit reports.
2. The Contractor shall provide a minimum of 48 hrs. notification to the Special Inspector prior to needing an inspection. The Contractor shall provide access to the work so the Special Inspections can be completed. The Contractor shall verify all Special Inspections have been completed and discrepancies corrected prior to covering the work.
3. See specifications and list of elements below for a summary of the elements of construction that shall require verification or special inspection. The tables shall be considered a guide, and the contractor and inspector shall refer to the IBC for complete requirements, qualifications, exceptions, and submittals. Refer to IBC section 1705 for IBC 2012-2015 codes.
4. Special inspections noted as "Continuous" requires the presence of a qualified inspector in the vicinity of the work being performed for 100% of that work. Special inspections noted as "Periodic" requires part-time observation of the work being performed and observance of the final condition of the work before it is closed from view. Special inspections noted as "N/A" are Not Applicable for this project.
5. Special inspection and testing reports shall be furnished to owner, structural engineer, and contractor. Special Inspector shall inform engineer of record immediately of any items found in non-compliance with construction documents or approved submittals.
6. The special inspector shall submit a final report stating that the structural work was, to the best of the special inspector's knowledge, performed in accordance with the construction documents.
7. Special inspections shall conform to Chapter 17 of the International Building Code, IBC, 2015. Special inspections include:
A. Steel Construction - 1705.2

STRUCTURAL STEEL

- 1. Detailing, fabrication and erection shall conform to the AISC Specifications and Standard Code of Practice for the year referenced in the building code noted, except as modified by these notes and the project specifications.
2. Steel shall conform to the following grades unless otherwise noted:
A. W Shapes - ASTM A992 Grade 50 (Fy=50 ksi)
B. Plate, Angles, M, S and C Shapes - ASTM A36 (Fy=36 ksi)
C. HSS Rectangle Shapes - ASTM A500 Grade C (Fy=50 ksi)
D. Bolts - ASTM F3125, Grade A325-N, 3/4" diameter minimum.
E. Washers - ASTM F844, plain
F. Deformed Bar Anchor (DBA) - ASTM A496 (Fy=60 ksi) and AWS D1.1
G. Anchor Rods (Bolts) - ASTM F1554 Grade 36 (Fy=36 ksi) (If exposed to weather or in contact with treated timber hot dip galvanize per ASTM A123)
H. Welding Electrodes - E70xx
3. Unless being Galvanized, all structural steel shall be primed. Asphaltic paints are not acceptable. Exposed Steel shall be finish painted with color to match existing steel. Field Touch up Primer and Paint.
4. The minimum plate thickness shall be 3/8", unless otherwise noted.
5. The minimum length of connection angle or shear tab shall be equal to 1/2 the depth of the member to be supported.
6. Bolts not designated as slip critical bolts shall be considered bearing bolts. Tighten bearing bolts to a snug condition per AISC Specifications.
7. All welding shall be in accordance with the "Structural Welding Code", AWS D1.1, Latest Edition.
8. Fabricate all beams with the mill camber up.
9. Work these drawings with mechanical drawings.
10. General contractor shall verify all structural beam locations, mechanical units weights and opening sizes and locations with mechanical contractor and vendor's drawings for actual mechanical unit purchased.
11. Splicing of structural members where not detailed on the drawings is prohibited without prior approval of the structural engineer.
12. Cuts, holes, coping, etc. required for work of other trades shall be shown on the shop drawings and made in the shop. Cuts or burning of holes in the structural steel members in the field will not be permitted, unless specifically approved in each case by the engineer.
13. All structural steel, including base plates and top of anchor bolts that are exposed to soil are to be coated with an approved coal tar epoxy, 16 mils minimum thickness.
14. Anchor Rods shall be located using templates with exposed threads (only) of rods greased after concrete has set.

CAST-IN-PLACE CONCRETE

- 1. All concrete construction shall conform to ACI 301, "Specification for Structural Concrete" and ACI 302, "Guide for Concrete Floor and Slab Construction", ACI 305 "Specification for Hot Weather Concreting" and ACI 306, "Standard Specification for Cold Weather Concreting", unless noted otherwise for the year referenced in the building code noted.
2. All detailing, fabrication and placing of reinforcing bars, unless otherwise noted, shall conform to ACI 318, "Building Code Requirements for Structural Concrete", ACI 117, "Specification for Tolerances for Concrete Construction and Materials", and the latest ACI detailing manual.
3. Concrete Types:
A. Concrete Permanently Exposed to Weather & Deicing Chemicals; Exterior Stoops:
a. Min. Cementitious Content = 658 lb/cu yd
b. Max Water-Cement Ratio = 0.40
c. Specified 28-day Compressive Strength, fc = 4000 psi
d. Specified Slump Range for Placement 4" max. w/o W.R. (8" max with W.R.)
e. Specified Air Content % by Volume = 6.0 ± 1.5
f. Max Size Aggregate = 3/4"
B. All cement shall be Type I or Type III Portland Cement per ASTM C150. Types IA and IP are not acceptable. IP is acceptable, if strength is met and total pozzolans do not exceed the specified limits in ACI 301-10. Use one brand of cement throughout the project.
C. Minimum cementitious content shall consist of 100% cement or a combination of flyash see note below, or a combination of cement and ground granulated blast furnace slag (GGBFS) see note below. Flyash shall not be used in combination with GGBFS as a substitute for cement.
D. Flyash is permitted and shall conform to ASTM C618 Type C (for interior use w/no exposure to weather changes) or F, but shall not exceed 20% of cementitious content by weight indicated above on a substitution basis and shall be included in the water-cement ratio.
E. Ground granulated blast furnace slag (GGBFS) is permitted and shall conform to ASTM C989, but shall not exceed 15% of cementitious content by weight indicated above on a substitution basis and shall be included in the water-cement ratio.
F. Concrete used for floors shall have 1800 psi, 3 day strength. Mixes to be pumped shall be so identified on the mix design submittal. All pumped mixes shall have a mid-range or high-range water reducer.
G. All admixtures other than superplasticizers shall be added at the batch plant. Superplasticizers, designed for addition to the mix at the plant, may be added at the batch plant with verifications from the engineer and verification that the water-cement ratio has not been exceeded. Superplasticizers added at the site shall be in pre-measured containers from the batch plant.
H. All concrete used for cast-in-place concrete slabs shall contain the specified water reducing or water reducing/retarding admixture. All concrete slabs, placed at air temperature below 50°F shall contain the specified non-corrosive, non-chloride accelerator. All concrete placed at air temperature above 80°F shall contain specific water-reducing/retarder admixture. All concrete required to be air-entrained shall contain an approved air-entraining admixture. All pumped concrete shall contain the specified high-range water-reducing admixture. Concrete with a water-cement ratio between 0.4 and 0.6 shall contain the specified water-reducer.
I. Calcium chloride shall not be permitted nor shall any admixture containing calcium chloride be permitted.
4. All pipe sleeve openings through concrete slabs shall be formed with standard steel pipe.
5. No electrical conduit shall be placed above the welded wire fabric or top reinforcing of slab.
6. All aluminum in contact with concrete or dissimilar metals shall be coated with two coats of coal tar epoxy, approved by the engineer, unless otherwise noted.
7. Concrete shall be discharged at the site within 1 1/2 hours after water has been added to the cement and aggregates. Addition of water to the mix at the project site will not be permitted. All water must be added at the batch plant. Slump may be adjusted only through the use of additional water reducing admixtures or high range water reducing admixture.
8. All concrete shall be placed without horizontal construction joints, except where specifically noted.
9. All exposed edges of concrete members shall be chamfered 3/4" unless shown otherwise.
10. The placement of sleeves, outlet boxes, box-outs, anchors, etc., for the mechanical, electrical and plumbing trades is the responsibility of the trade involved; however, any box-outs not covered by typical details in structural drawings shall be submitted for approval.
11. Reinforcing bars shall conform to ASTM A615, Grade 60. No tack welding of reinforcing in the field will be permitted.
12. Welded wire fabric reinforcing shall conform to ASTM A185 and be furnished in flat sheets and installed on chairs.
13. Wire bar supports shall be furnished for all reinforcing within slabs, inclusive of welded wire fabric. Bottom bars in slabs-on-grade may be supported by other suitable supports. Reinforcing shall be properly positioned prior to concrete placement and may not be re-positioned once concrete operations have begun. Wire bar and other types of supports shall be in accordance with the concrete reinforcing steel institute manual of standard practice.
14. Reinforcement shall be continuous through all construction joints unless otherwise noted on drawings.
15. All hooks shown on drawings shall be ACI standard hooks, unless otherwise noted.
16. Where continuous bars are called for, they shall run continuously around corners and be lapped at necessary splices. Lap lengths shall be as given in the splice and development table.
17. Provide additional reinforcing at the side and corners of all openings in concrete in accordance with typical details.
A. Minimum additional requirements are as follows:
a. (2)-#5 top and bottom in CIP Concrete Slabs
b. (2)-#5 each face in walls
c. (2)-#5 x 4'-0" long diagonally each corner of opening
B. Extend bars a minimum of 2'-0" beyond openings, hook where extension is not possible.
18. In reinforced concrete walls, grade beams and trench footing provide corner dowels of same size and spacing as horizontal reinforcing. Dowels shall lap with horizontal reinforcing in each direction.
19. The following minimum concrete cover shall be provide for reinforcement, unless otherwise noted:
A. Earth formed and cast directly against soil - 3"
B. Cast against forms but exposed to earth and weather
a. #6 and Larger - 2"
b. #5 and Smaller - 1 1/2"
C. Slabs and walls not exposed to earth or weather - 3/4"
D. Others - 2"
20. Reinforcing bars shall have a minimum clear spacing of 4"
21. SPLICE LENGTHS:
Bar Size Min. Lap
#3 1'-4"
#4 1'-8"
#5 2'-0"
#6 2'-6"
#7 3'-6"
#8 4'-0"
#9 5'-0"
#10 6'-2"
A. When lapping two different size bars, use the lap dimension of the smaller bar or the anchorage dimension of the larger bar, use whichever dimension is larger.

POST INSTALLED ANCHORS

- 1. Concrete adhesive anchors Hilti HY200 or approved equal. Concrete Mechanical Anchors Hilti Kwik Bolt T22 or approved equal.
2. Submit ICC-ES reports for all post installed anchors.
3. Install all post installed anchors per the product's ICC-ES report and the manufacturer's written instructions.
4. Post installed anchors shall be inspected per the product's ICC-ES report.
5. Install adhesive anchors in dry hammer drilled holes.

ABBREVIATIONS

Table with 4 columns: Abbreviation, Description, Abbreviation, Description. Includes entries like & AB AND ANCHOR BOLT, ALT ALTERNATE, ARCH ARCHITECT, @ AT, BLDG BUILDING, BM BEAM, BO BOTTOM OF, BOT BOTTOM, BRG BEARING, BRDG BRIDGING, BTW BETWEEN, BYD BEYOND, CIP CAST IN PLACE, CJ CONSTRUCTION JOINT, CL CENTERLINE, CLR CLEAR, CMU CONCRETE MASONRY UNIT, COL COLUMN, CONC CONCRETE, CTR CENTER, DBA DEFORMED BAR ANCHOR, DBL DOUBLE, DIA DIAMETER, DIAPH DIAPHRAGM, DL DEAD LOAD, DWLS DOWELS, EA EACH, EF EACH FACE, ELEV ELEVATION, EMB EMBEDMENT, EW EACH WAY, EX EXISTING, FB FIELD BEND, FDN FOUNDATION, FF FINISHED FLOOR, FLR FLOOR, FTG FOOTING, FV FIELD VERIFY, GA GAUGE, GALV GALVANIZED, HDG HOT DIP GALVANIZED, HDR HEADER, HGR HANGER, HORIZ HORIZONTAL, HS HEADED STUD, HSS HOLLOW STRUCTURAL SECTION, HT HEIGHT, ID INSIDE DIAMETER, JST JOIST, LG LONG, LL LIVE LOAD, LLH LONG LEG HORIZONTAL, LLV LONG LEG VERTICAL, LONG LONGITUDINAL, LWC LIGHT WEIGHT CONCRETE, MAX MAXIMUM, MECH MECHANICAL, MIN MINIMUM, NO NUMBER, NTS NOT TO SCALE, OC ON CENTER, OH OPPOSITE HAND, OPN OPENING, OPP OPPOSITE, PAR PARALLEL, PEMB PRE-ENGINEERED METAL BUILDING, PERP PERPENDICULAR, PL PLATE, PSF POUNDS PER SQUARE FOOT, PT PRESSURE TREATED, REIN REINFORCING, RO ROUGH OPENING, RTH ROOF TOP UNIT, SCH SCHEDULE, SIM SIMILAR, SL STEEL LINE, STAGG STAGGERED, STD STANDARD, STIFF STIFFENER, TBR TO BE REMOVED, THK THICK, THRU THROUGH, TO TOP OF, TOF TOP OF FOOTING, TOS TOP OF STEEL, TOW TOP OF WALL, TRANS TRANSVERSE, TYP TYPICAL, UNO UNLESS OTHERWISE NOTED, VERT VERTICAL, W WITH, WF WIDE FLANGE, W/ WITHOUT, W/P WORKING POINT, WWF WELDED WIRE FABRIC, W.R. WATER REDUCER

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



Nathan R. Marold - ENGINEER
MO # PE-2022017792

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors
Columbia, Missouri
3622 Endeavor Ave., Suite 117
573.355.5988
Burlington, IA, Fella, IA, Hannibal, MO

© 2017 KLINGNER & ASSOCIATES P.C.

This document shall not be used for any purpose or project for which it is not intended. Klingner & Associates P.C. and their Divisions shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses and expenses, including attorney fees and costs arising out of such misuse or reuse of this document. In addition, unauthorized reproduction of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 07/28/23

CAD DWG FILE: S001
DRAWING BY: NRM
CHECKED BY: KTH
DESIGNED BY: NRM

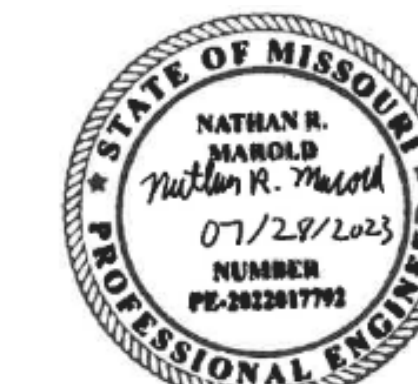
SHEET TITLE:
STRUCTURAL
NOTES

SHEET NUMBER:

S001

SHEET 03 OF 20
JULY 28, 2023

KLINGNER & ASSOCIATES, P.C. - ENGINEERING
MISSOURI STATE CERTIFICATE OF AUTHORITY #000866



Nathan R. Marold - ENGINEER
MO # PE-2022017792

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors

Columbia, Missouri
3622 Endeavor Ave, Suite 117
573.355.5988
www.klinger.com
Quincy, IL Galesburg, IL
Burlington, IA Peoria, IA Hannibal, MO

MISSOURI STATE CERTIFICATE OF AUTHORITY #000866

© 2017 KLINGNER & ASSOCIATES P.C.

This document shall not be used for any purpose or project for which it is not intended. Klinger & Associates P.C. and their Officers shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses and expenses, including attorney fees and costs arising out of such misuse or reuse of this document. In addition, unauthorized reproduction of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:

ISSUE DATE: 07/28/23

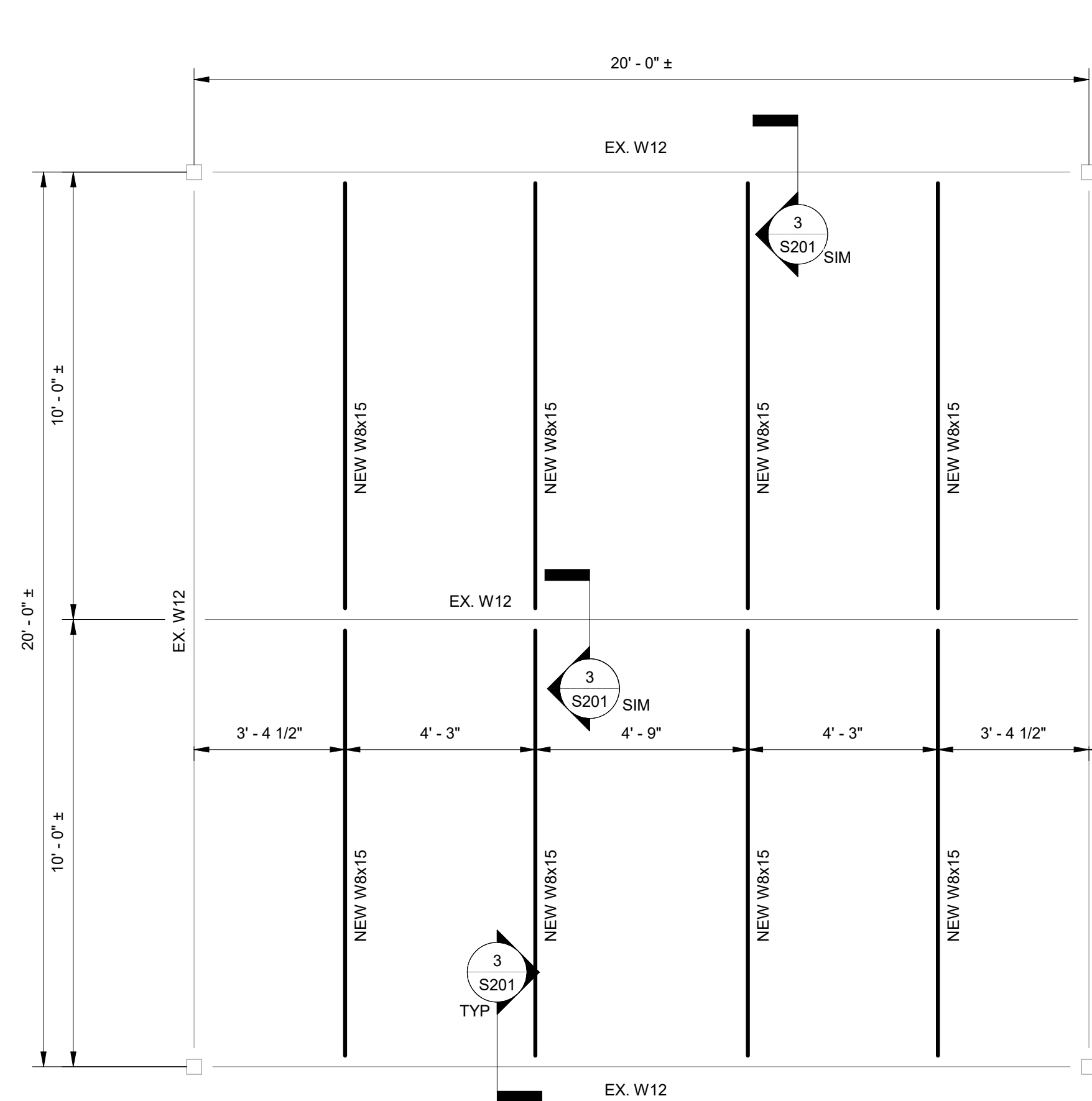
CAD DWG FILE: S201
DRAWING BY: NRM
CHECKED BY: KTH
DESIGNED BY: NRM

SHEET TITLE:
**FRAMING PLAN
& STRUCTURAL
DETAILS**

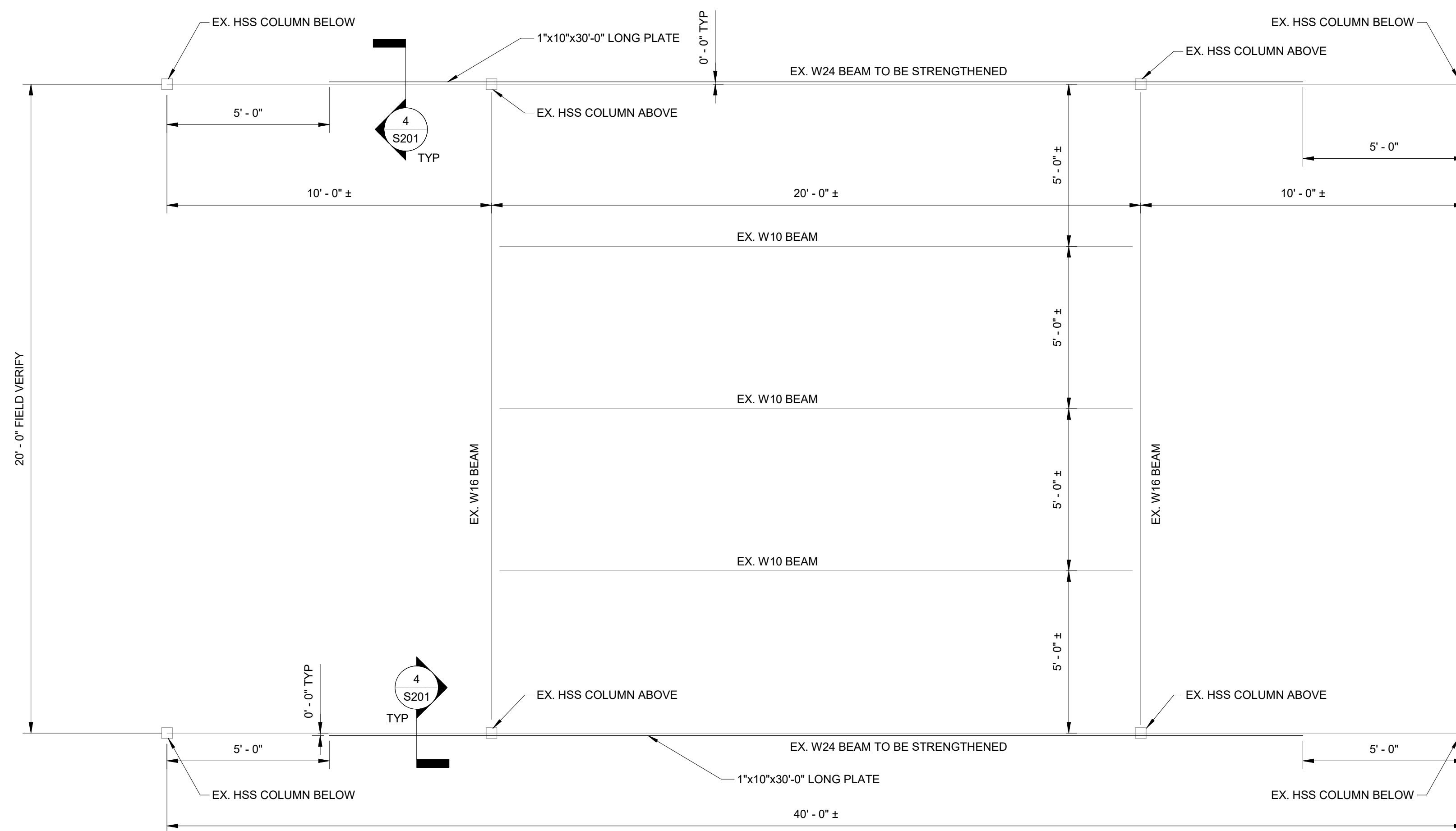
SHEET NUMBER:

S201

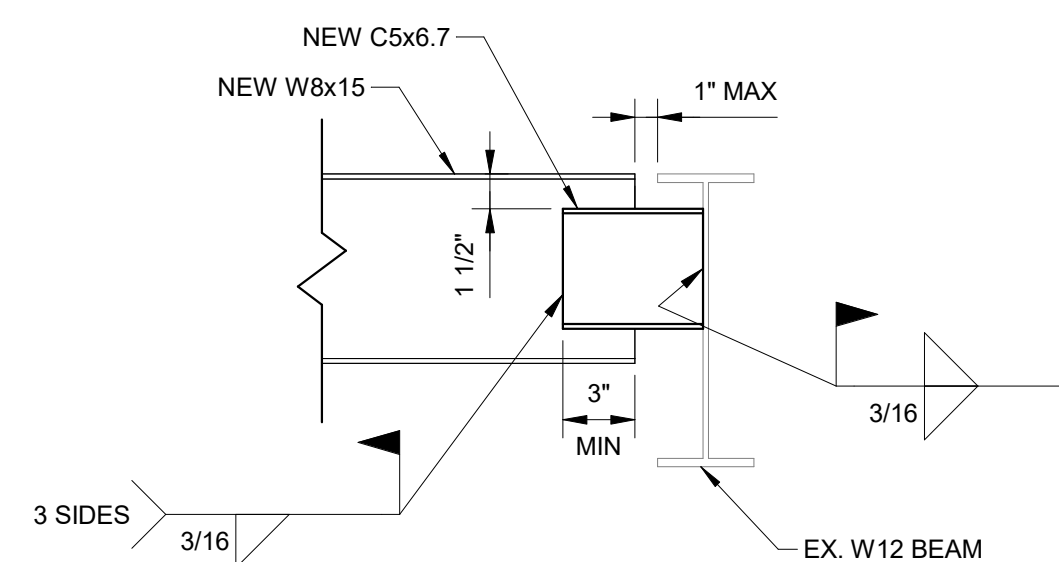
SHEET 04 OF 20
JULY 28, 2023



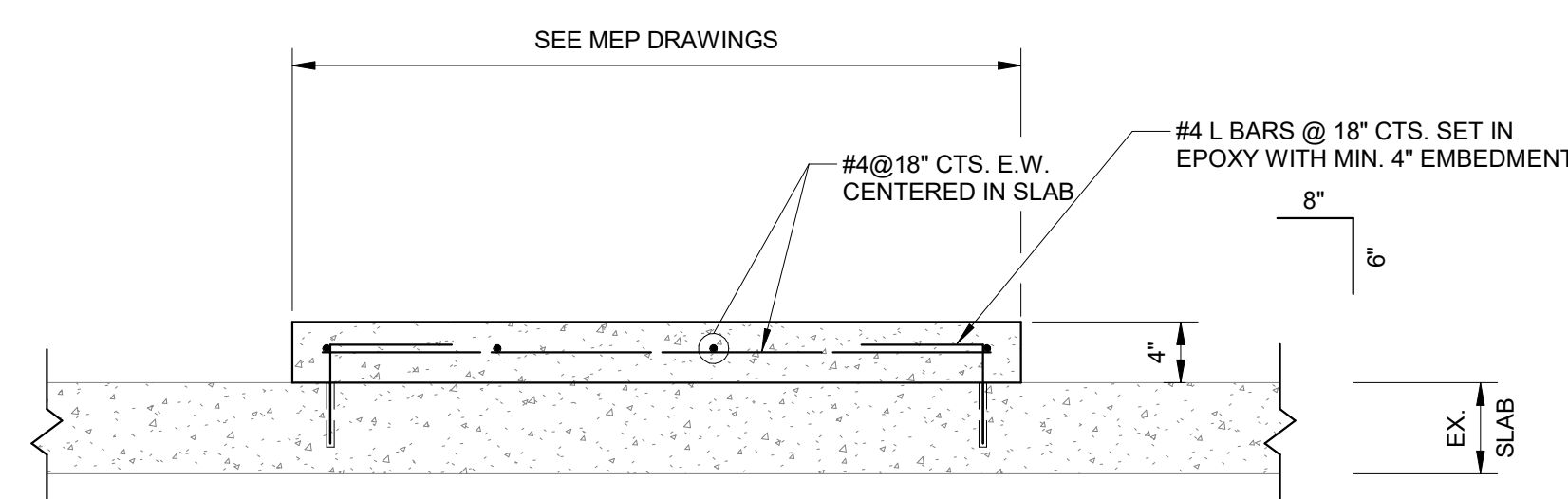
1 PARTIAL UPPER MULTI-PURPOSE ROOF PLAN (EL. 133'-0")
3/8" = 1'-0"



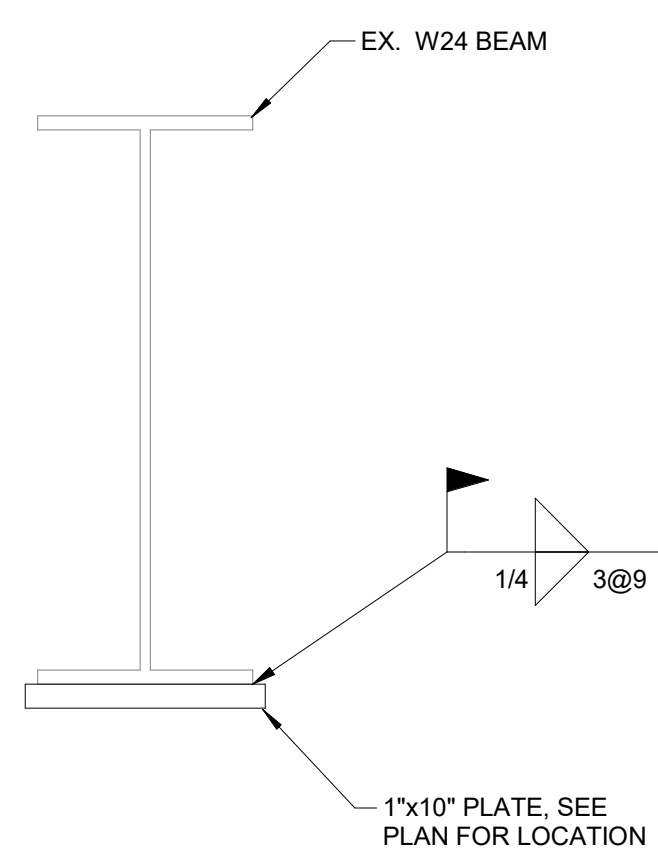
2 PARTIAL MEZZANINE FRAMING PLAN (EL. 122'-0")
3/8" = 1'-0"



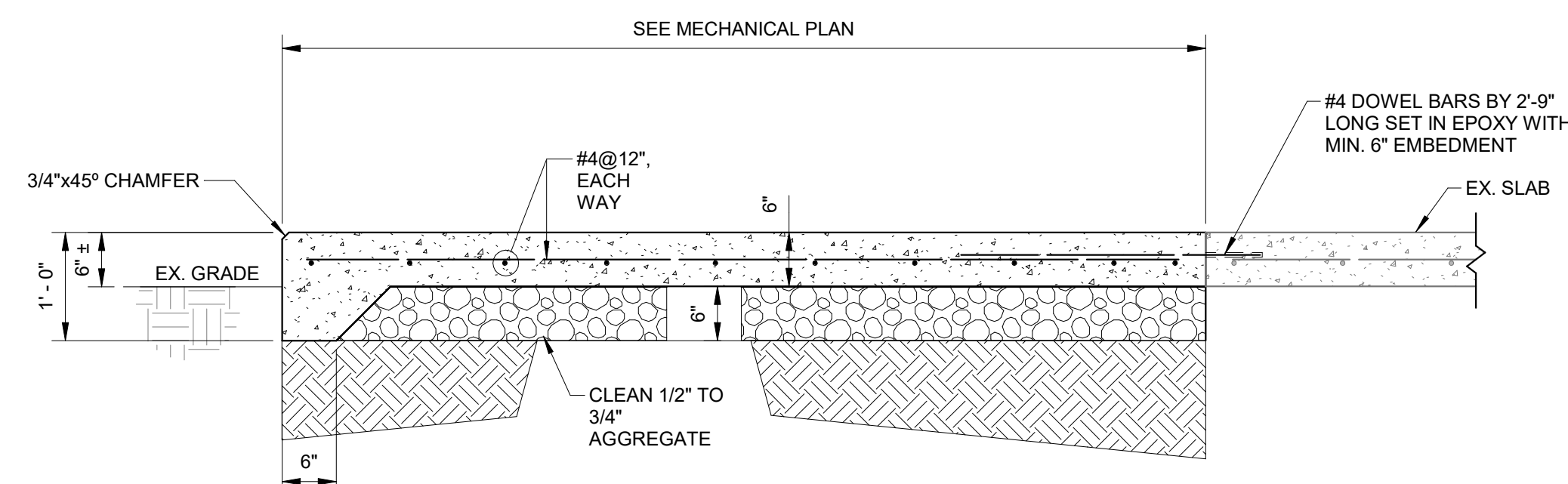
3 SECTION
1 1/2" = 1'-0"



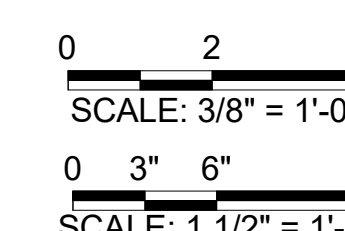
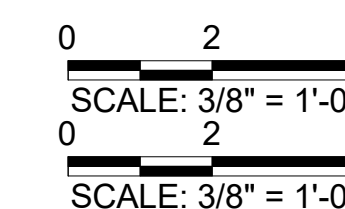
5 TYPICAL NEW EQUIPMENT PAD DETAIL
1" = 1'-0"
NOTE:
1. SEE MECHANICAL PLAN FOR DIMENSIONS AND LOCATION.
2. COORDINATE ANY SLAB PENETRATIONS FOR EQUIPMENT WITH MEP.

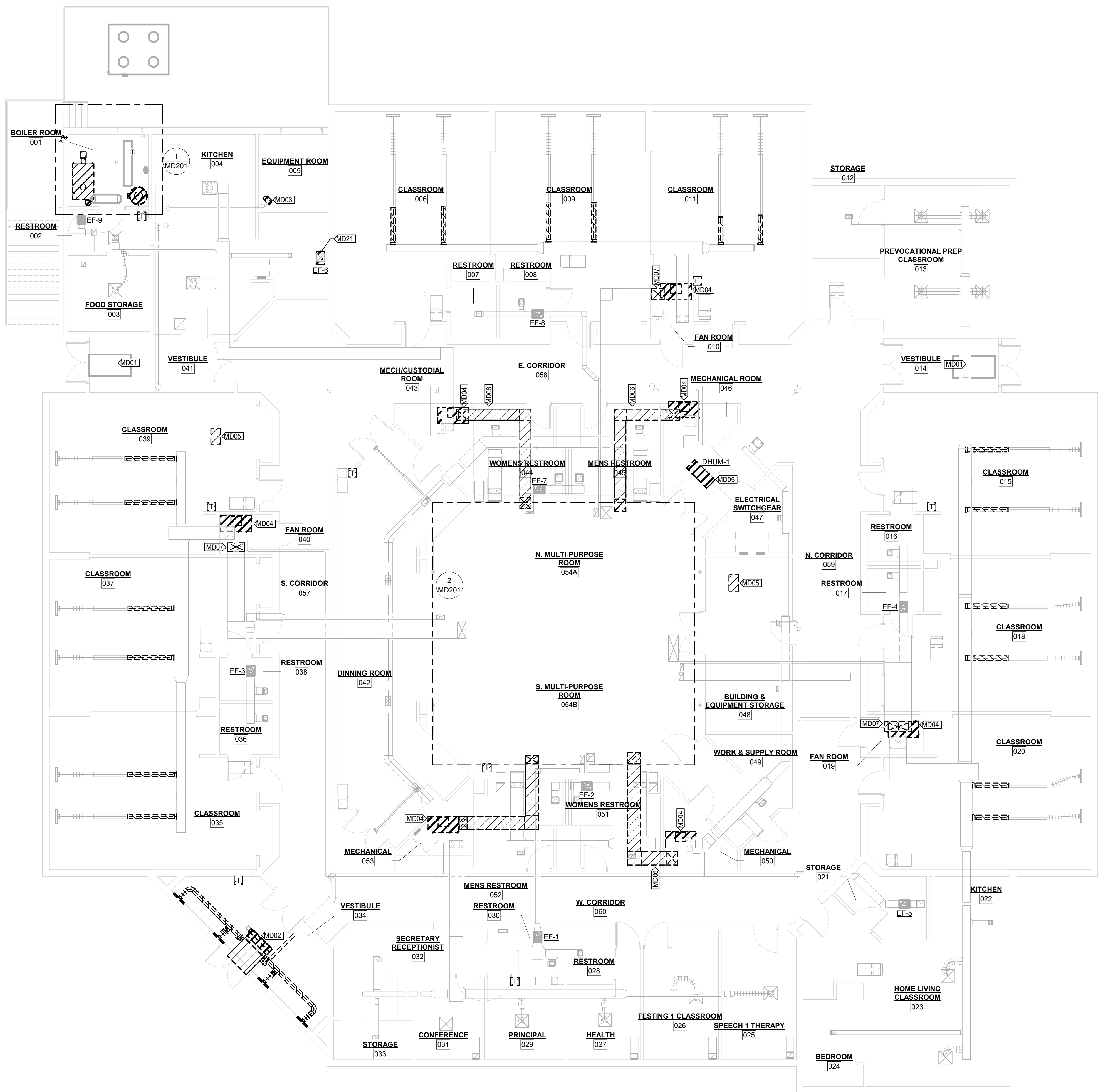


4 SECTION
1 1/2" = 1'-0"



6 EXTERIOR COOLER PAD DETAIL
3/4" = 1'-0"
NOTE:
1. SEE MECHANICAL PLAN FOR DIMENSIONS AND LOCATION.
2. COORDINATE ANY SLAB PENETRATIONS FOR EQUIPMENT WITH MEP.





1 DEMOLITION PLAN
1/8" = 1'-0"

VALUE	DESCRIPTION
MD01	ELECTRIC CABINET UNIT HEATER TO REMAIN.
MD02	FAN COIL UNIT AND ASSOCIATED DUCTS, DIFFUSERS, AND ELECTRICAL COMPONENTS TO BE REMOVED. REPAIR CEILING PENETRATIONS.
MD03	REMOVE EXISTING UNIT HEATER AND PREPARE PIPING AND ELECTRICAL FOR REUSE.
MD04	REMOVE EXISTING AIR HANDLER INCLUDING ASSOCIATED HYDRONIC PIPING UP TO AND INCLUDING ISOLATION VALVES ON THE SUPPLY AND RETURN PIPING AND CONTROL ENCLOSURE. OBSERVE FLOOR DRAIN FLOW CAPACITY AND NOTIFY ENGINEER IF FLOOR DRAIN DOES NOT APPEAR TO BE OPERATING AT FULL CAPACITY. SUPPLY DUCT SHALL BE MODIFIED AS NECESSARY TO ACCOUNT FOR AHU PROVIDED.
MD05	REMOVE DEHUMIDIFICATION UNIT. REMOVE CIRCUIT BACK TO NEAREST JUNCTION BOX AND CAP. REMOVE DRAIN LINE.
MD06	DEMOLISH DUCT AND ASSOCIATED COMPONENTS IN ITS ENTIRETY.
MD07	DEMOLISH DUCT AND ASSOCIATED COMPONENTS DOWNSTREAM OF THIS LOCATION UP TO AND INCLUDING DUCT CONNECTION TO AIR HANDLER.
MD21	REMOVE EXISTING EXHAUST FAN AND PREPARE DUCTWORK AND ELECTRICAL FOR REUSE.

- GENERAL NOTES:
- 1) DUCT DEMOLITION IN CLASSROOMS SHALL BE COORDINATED WITH PROPOSED DUCTWORK MODIFICATIONS TO ALLOW THE CLASSROOM SUPPLY DIFFUSERS TO BE SUPPLIED BY A SINGLE TRUNK CONNECTION.
 - 2) EXISTING EXHAUST FANS ARE TO REMAIN.
 - 3) DEMOLISH ALL ITEMS SHOWN HATCHED.
 - 4) ALL EXISTING THERMOSTATS AND ASSOCIATED CABLES SHALL BE REPLACED.
 - 5) CONTRACTOR IS RESPONSIBLE FOR PROPER DISPOSAL OF ALL DEMOLISHED EQUIPMENT.
 - 6) DEMOLITION SHALL BE COORDINATED WITH OVERALL PHASING PLAN AND SHALL NOT DISRUPT HVAC SYSTEM OPERATION TO ROOMS SCHEDULED TO BE OCCUPIED BY THE OWNER.
 - 7) COORDINATE ALL DEMOLITION WITH PROPOSED SYSTEM MODIFICATIONS.
 - 8) EXISTING RETURN AIR GRILLES AND DUCTS TO REMAIN.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



MATTHEW H. BRIDGES - ENGINEER
MO # PE-2021031578

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors
Columbia, Missouri
3622 Endeavor Ave, Suite 117
573.355.5988
www.klinger.com
Quincy, IL
Burlington, IA
Farmington, MO

© 2017 KLINGNER & ASSOCIATES P.C.
This document shall not be used for any purpose or project for which it is not intended. Klinger & Associates P.C. and their Divisions shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses and expenses, including attorneys fees and costs arising out of such misuse or reuse of this document. In addition, unauthorized reproduction of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

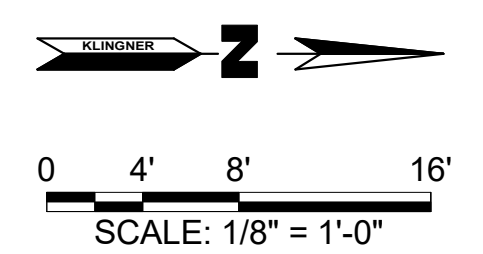
PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

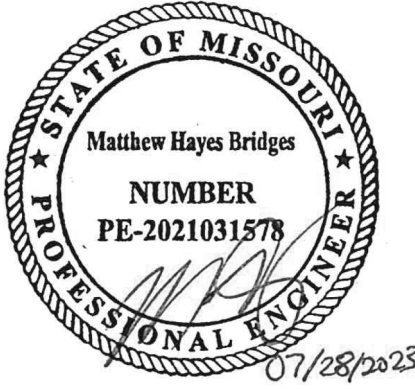
REVISION:
DATE: _____
REVISION:
DATE: _____
REVISION:
DATE: _____
REVISION:
DATE: _____
ISSUE DATE: 07/28/23

CAD DWG FILE: MD101
DRAWING BY: MHB
CHECKED BY: JJN
DESIGNED BY: MHB

SHEET TITLE:
**DEMOLITION
PLAN**

SHEET NUMBER:
MD101
SHEET 05 OF 20
JULY 28, 2023





MATTHEW H. BRIDGES - ENGINEER
MO # PE-2021031578

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors
www.klingner.com
Columbia, Missouri
3622 Endeavor Ave, Suite 117
Quincy, IL Galesburg, IL
573.355.5988
Burlington, IA Peoria, IA Hannibal, MO
MISSOURI STATE CERTIFICATE OF AUTHORITY #000866

© 2017 KLINGNER & ASSOCIATES P.C.
This document shall not be used for any purpose or project for which it is not intended. Klingner & Associates P.C. and their Owners shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses and expenses, including attorneys fees and costs arising out of such measure or reuse of this document. In addition, unauthorized reprint, use of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

REVISION:
DATE: _____
REVISION:
DATE: _____
REVISION:
DATE: _____
REVISION:
DATE: _____
ISSUE DATE: 07/28/23

CAD DWG FILE: MD201
DRAWING BY: MHB
CHECKED BY: JJJ
DESIGNED BY: MHB

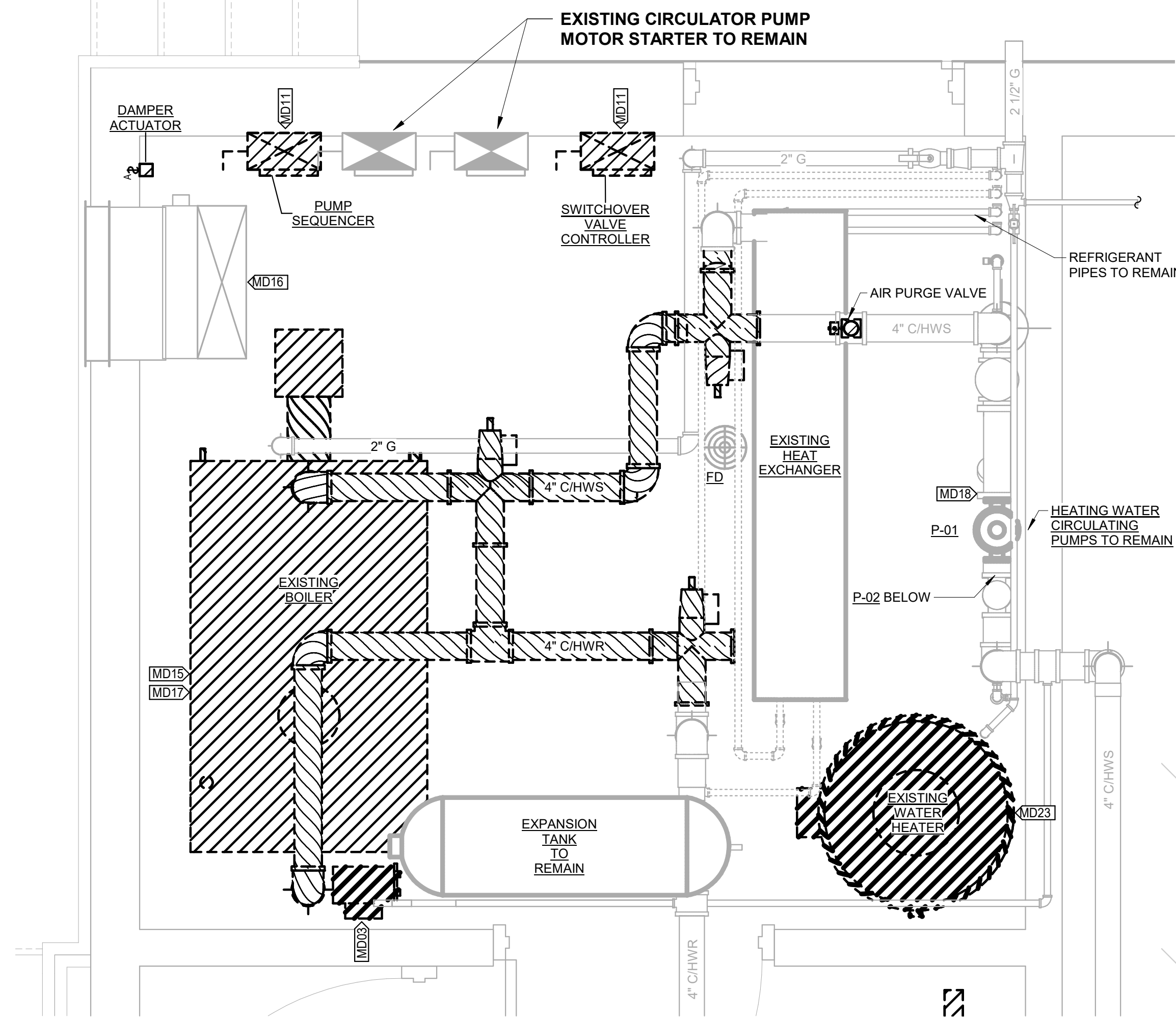
SHEET TITLE:
**ENLARGED
DEMOLITION
PLANS**

SHEET NUMBER:

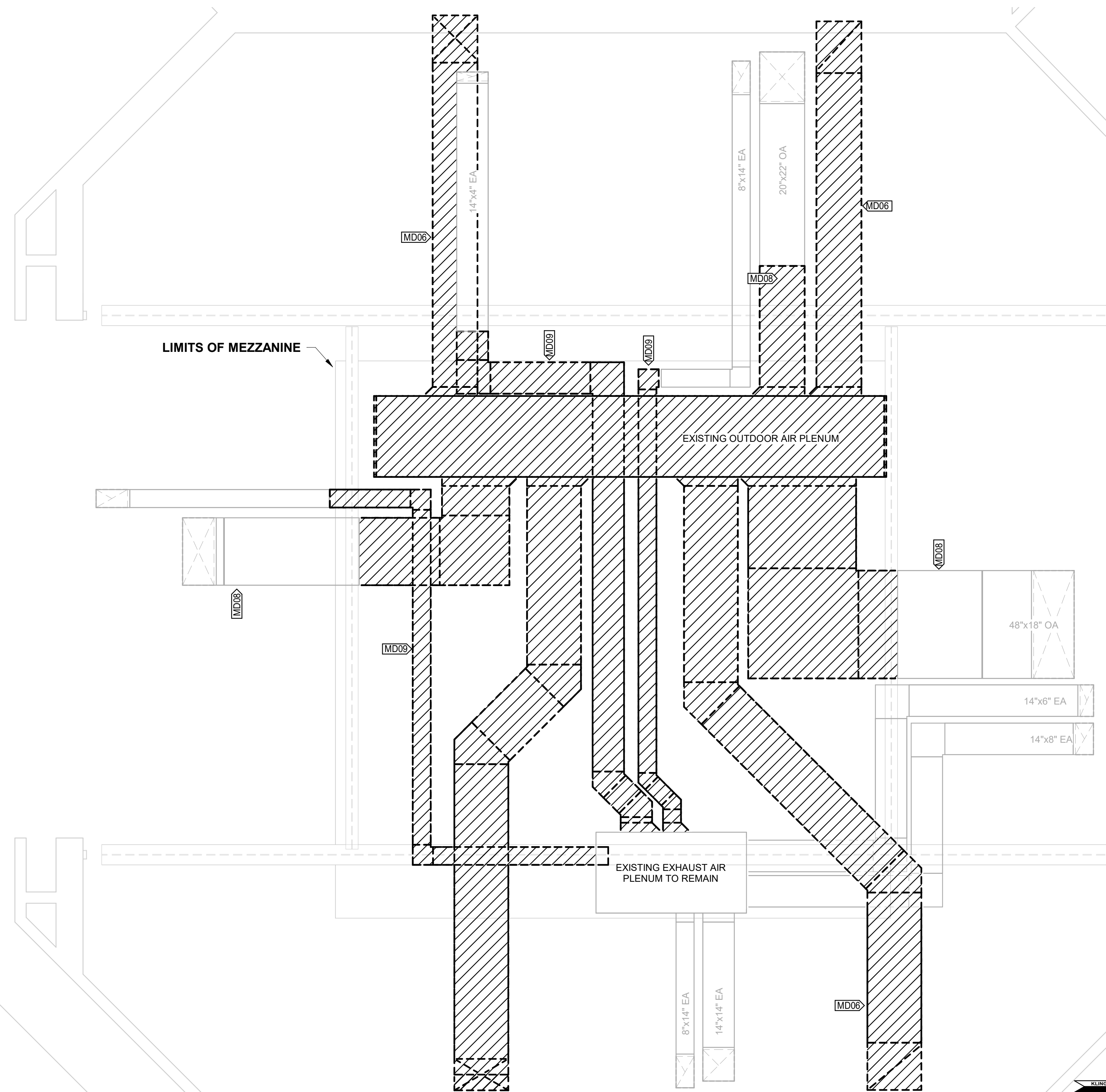
MD201

SHEET 06 OF 20
JULY 28, 2023

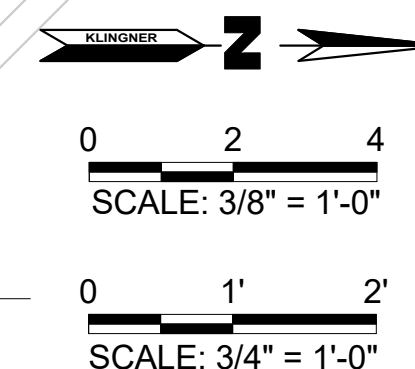
VALUE	DESCRIPTION
MD03	REMOVE EXISTING UNIT HEATER AND PREPARE PIPING AND ELECTRICAL FOR REUSE.
MD06	DEMOLISH DUCT AND ASSOCIATED COMPONENTS IN ITS ENTIRETY.
MD08	DEMOLISH DUCT AND PREPARE END CONNECTION OF EXISTING DUCT TO REMAIN FOR REUSE.
MD09	DEMOLISH DUCT AND PREPARE END CONNECTION OF EXISTING DUCT TO REMAIN FOR REUSE.
MD11	REMOVE EXISTING POWER AND CONTROL CABINETS NOT TO BE REUSED.
MD15	REMOVE EXISTING BOILER FLUE. REPAIR EXISTING ROOF PENETRATION, AND MAKE WATER TIGHT.
MD16	REMOVE EXISTING DAMPER ACTUATOR AND LOCK DAMPER IN OPEN POSITION. CAP TOP AND BOTTOM OF DUCT. CUT 8"X9" HOLE IN SIDE OF DUCT 1" FROM TOP.
MD17	TEST BOILER FOR ASBESTOS. REMOVE EXISTING BOILER, FLUE, CONTROLS, AND ACCESSORIES. REMOVE ASSOCIATED WATER AND NATURAL GAS PIPING, AND ELECTRICAL CONNECTIONS AS REQUIRED TO FACILITATE THE PROPOSED BOILER INSTALLATION SHOWN ON SUBSEQUENT SHEETS.
MD18	REMOVE EXISTING PRESSURE GAUGES ON EACH SIDE OF P-01 AND P-02.
MD23	REMOVE EXISTING DOMESTIC WATER HEATER AND CIRCULATOR PUMP. PREPARE PIPING AND ELECTRICAL FOR REUSE. DEMOLISH EXISTING FLUE VENT.

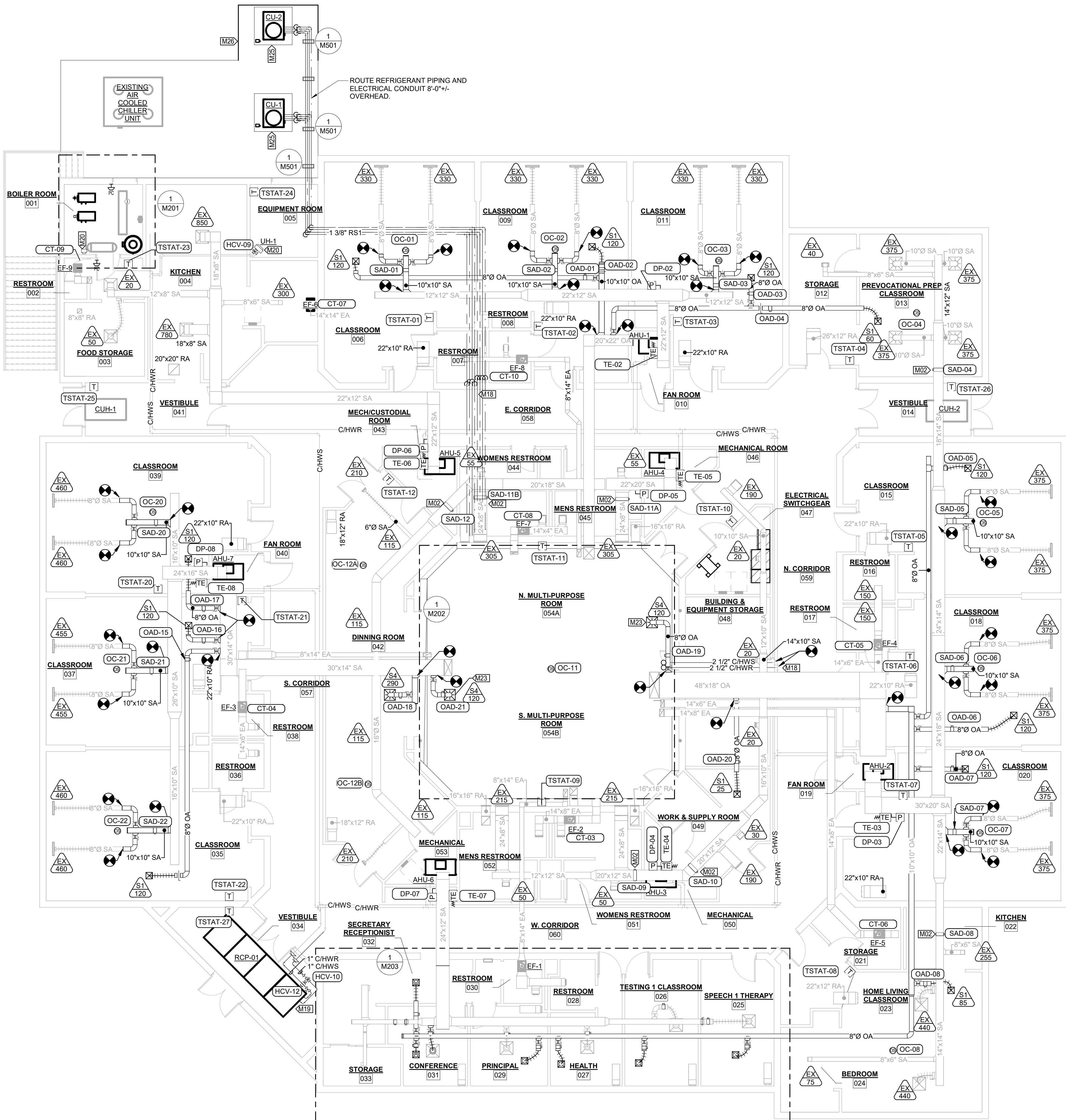


1 ENLARGED MECHANICAL ROOM PLAN - DEMOLITION
3/4" = 1'-0"



2 ENLARGED MECHANICAL MEZZANINE PLAN - DEMOLITION
3/8" = 1'-0"





1 MECHANICAL PLAN - PROPOSED WORK
1/8" = 1'-0"

VALUE	DESCRIPTION
M02	INSTALL A MOTORIZED DAMPER IN EXISTING DUCT.
M18	WALL PENETRATIONS SHALL BE MADE WITH A UL LISTED PENETRATION METHOD TO MAINTAIN FIRE WALL RATING.
M19	INSTALL NEW RADIANT HEATER IN HARD CEILING. CONNECT NEW RADIANT HEATER TO EXISTING PIPING.
M20	CONNECT NEW UNIT HEATER TO EXISTING PIPING AND ELECTRICAL SYSTEM.
M23	CUT HOLE IN GYPSUM BOARD CEILING FOR NEW OUTDOOR AIR DIFFUSER.
M25	INSTALL NEW CONCRETE EQUIPMENT PAD FOR CONDENSING UNIT. REFER TO STRUCTURAL DRAWINGS.
M26	EXTEND EXISTING CONCRETE PAD AS SHOWN. REFER TO STRUCTURAL DRAWINGS.

- GENERAL NOTES:**
- REFRIGERANT LINE SIZES BASED ON BASIS OF DESIGN EQUIPMENT. ADJUST AS NECESSARY TO MATCH MANUFACTURER RECOMMENDATIONS OF EQUIPMENT SUPPLIED.
 - COORDINATE PROPOSED INSTALLATIONS WITH EXISTING CONDITIONS.
 - RELOCATE SMOKE DETECTORS AT EACH AIR HANDLING UNIT TO ACCOMMODATE THE DUCTWORK MODIFICATIONS.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



MATTHEW H. BRIDGES - ENGINEER
MO # PE-2021031578

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors
Columbia, Missouri
3622 Endeavor Ave, Suite 117
573.355.5988
www.klinger.com
Quincy, IL
Burlington, IA
Farmington, MO

© 2017 KLINGNER & ASSOCIATES P.C.
This document shall not be used for any purpose or project for which it is not intended. Klinger & Associates P.C. and their Owners shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses and expenses, including attorney fees and costs arising out of such misuse or reuse of this document. In addition, unauthorized reprint or use of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 07/28/23

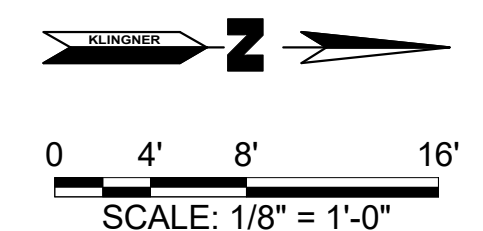
CAD DWG FILE: M101
DRAWING BY: MHB
CHECKED BY: JJN
DESIGNED BY: MHB

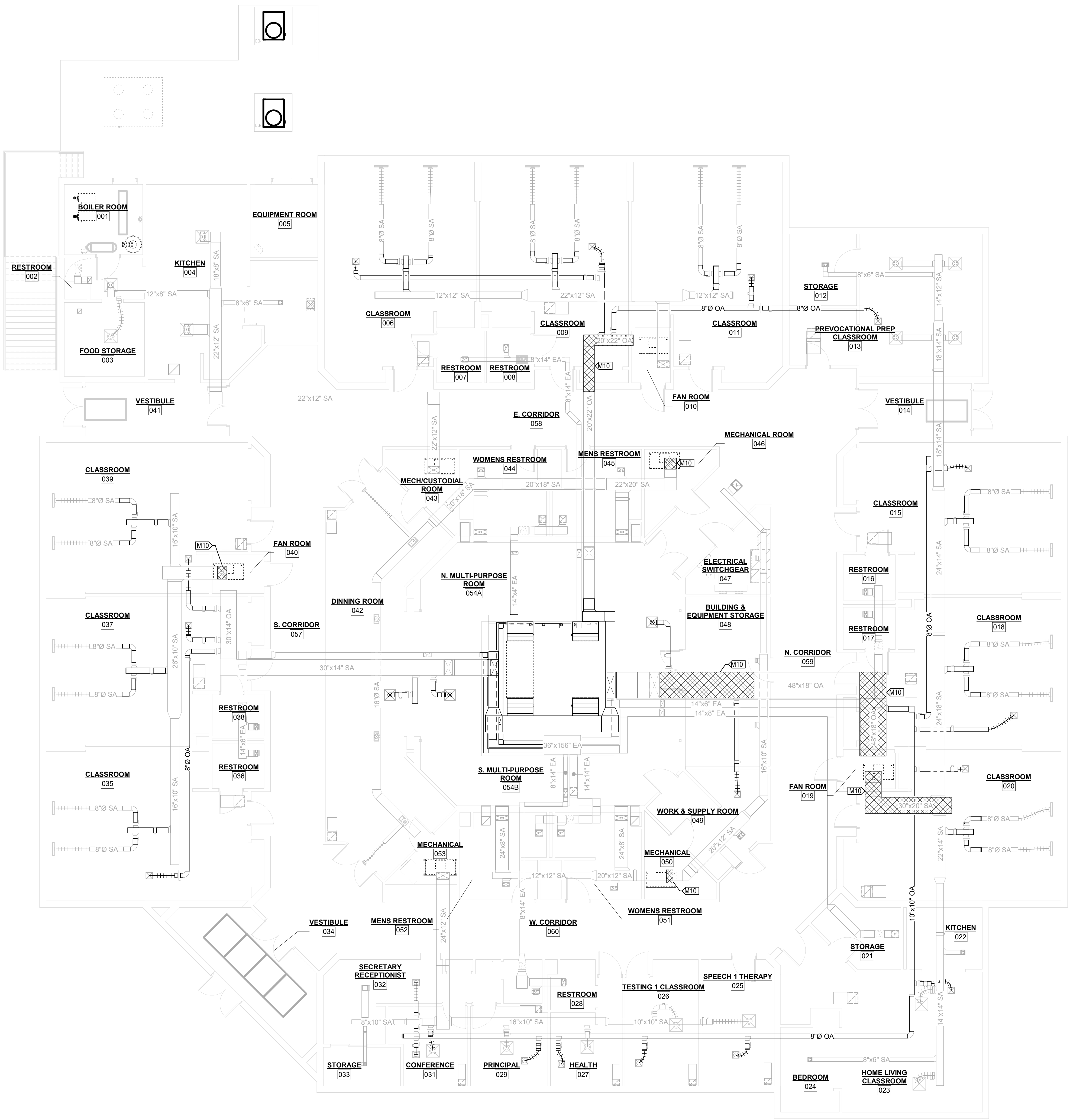
SHEET TITLE:
**MECHANICAL
PLAN - NEW
WORK**

SHEET NUMBER:

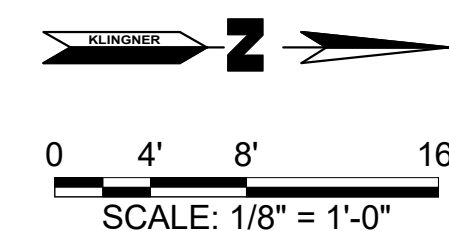
M101

SHEET 07 OF 20
JULY 28, 2023





1 MECHANICAL PLAN - DUCTWORK REPAIR
1/8" = 1'-0"



KEYNOTE LEGEND	
VALUE	DESCRIPTION
M10	REPLACE EXISTING DAMAGED DUCT INSULATION AROUND ENTIRE DUCT WHERE SHOWN.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



MATTHEW H. BRIDGES - ENGINEER
MO # PE-2021031578

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors
Columbia, Missouri
3622 Endeavor Ave, Suite 117
Burlington, IA 52601
www.klinger.com
Quincy, IL 62450
Galesburg, IL 62401
Falls, IA 52501
Klingner & Associates, P.C. - ENGINEERING
MISSOURI STATE CERTIFICATE OF AUTHORITY #000866

© 2017 KLINGNER & ASSOCIATES P.C.
This document shall not be used for any purpose or project for which it is not intended. Klingner & Associates P.C. and their Divisions shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses and expenses, including attorney fees and costs arising out of such misuse or reuse of this document. In addition, unauthorized reproduction of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 07/28/23

CAD DWG FILE: M102
DRAWING BY: MHB
CHECKED BY: JJN
DESIGNED BY: MHB

SHEET TITLE:
**MECHANICAL
PLAN -
DUCTWORK
REPAIR**

SHEET NUMBER:

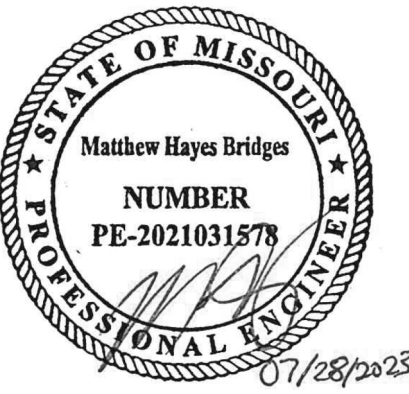
M102

SHEET 08 OF 20
JULY 28, 2023

KEYNOTE LEGEND

VALUE	DESCRIPTION
M11	SPACE HEATING WATER SUPPLY AND RETURN TEES AS CLOSELY AS POSSIBLE WITH A MAXIMUM OF 12" BETWEEN THE TEES.
M14	ROUTE NEUTRALIZED CONDENSATE FROM BOILERS TO EXISTING FLOOR DRAIN.
M20	CONNECT NEW UNIT HEATER TO EXISTING PIPING AND ELECTRICAL SYSTEM.
M22	REMOVE AND REPLACE ALL PIPING INSULATION IN MECHANICAL ROOM FOR ALL PIPING TO REMAIN.
M27	INSTALL CONCENTRIC FLUE VENT THROUGH ROOF.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



MATTHEW H. BRIDGES - ENGINEER
MO # PE-2021031578

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors

Columbia, Missouri
3622 Endeavor Ave, Suite 117
573.355.5988

www.klingner.com
Quincy, IL, Galesburg, IL
Burlington, IA, Peoria, IA, Hannibal, MO
MISSOURI STATE CERTIFICATE OF AUTHORITY #000866

© 2017 KLINGNER & ASSOCIATES P.C.
This document shall not be used for any purpose or project for which it is not intended. Klingner & Associates P.C. and their Divisions shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses and expenses, including attorney fees and costs arising out of such measure or reuse of this document. In addition, unauthorized reprint, reproduction of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 07/28/23

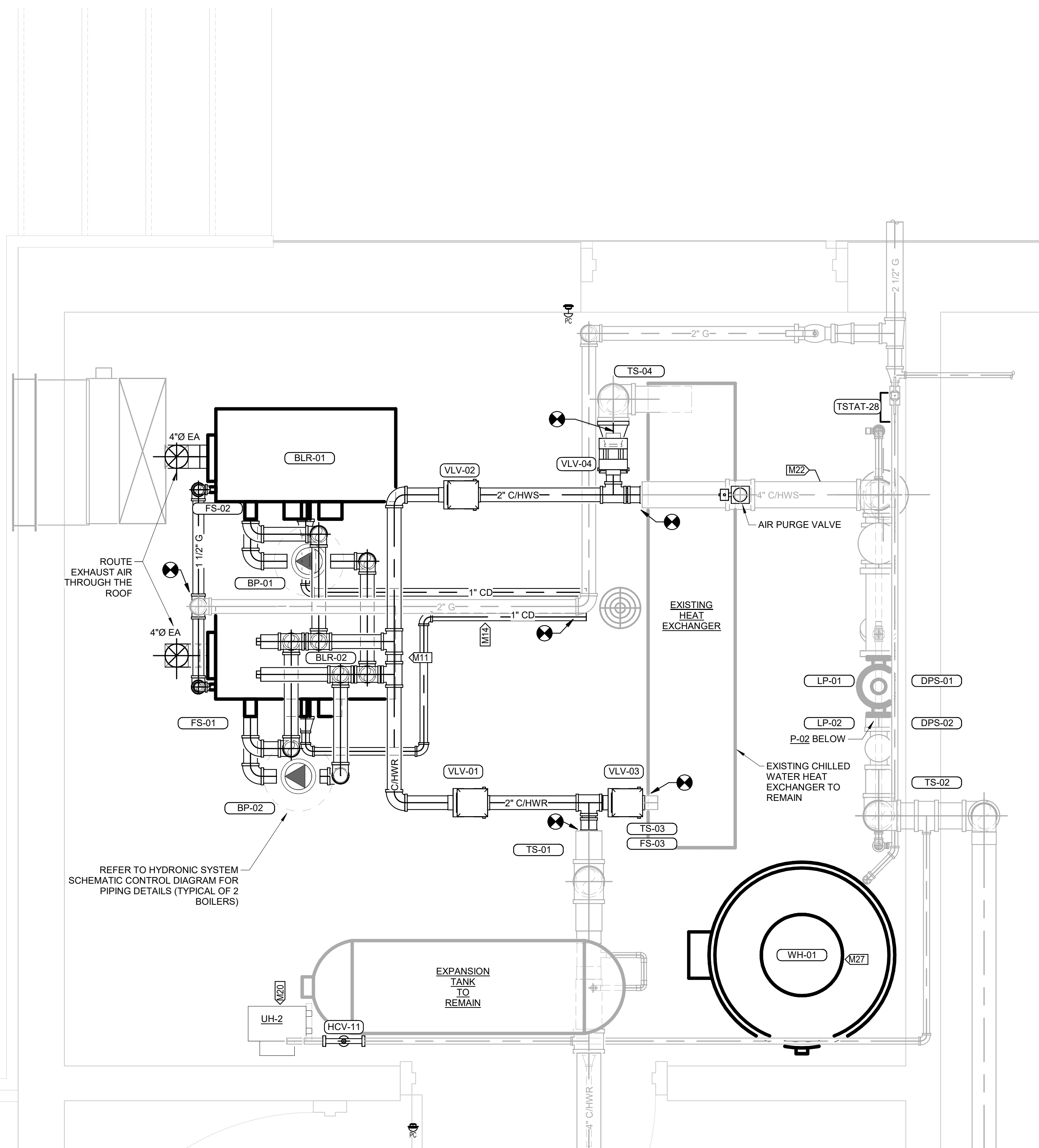
CAD DWG FILE: M201
DRAWING BY: MHB
CHECKED BY: JJN
DESIGNED BY: MHB

SHEET TITLE:
**ENLARGED
MECHANICAL
ROOM PLAN**

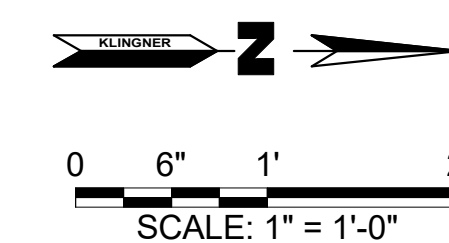
SHEET NUMBER:

M201

SHEET 09 OF 20
JULY 28, 2023



1 ENLARGED MECHANICAL ROOM PLAN - PROPOSED WORK
1" = 1'-0"





MATTHEW H. BRIDGES - ENGINEER
MO # PE-2021031578

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors
Columbia, Missouri
3622 Endeavor Ave, Suite 117
573.355.5988
www.klingner.com
Quincy, IL Galesburg, IL
Burlington, IA Peoria, IA Hannibal, MO
MISSOURI STATE CERTIFICATE OF AUTHORITY #000866

© 2017 KLINGNER & ASSOCIATES P.C.
This document shall not be used for any purpose or project for which it is not intended. Klingner & Associates P.C. and their Divisions shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses and expenses, including attorneys fees and costs arising out of such measure or reuse of this document. In addition, unauthorized reproduction of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 07/28/23

CAD DWG FILE: M202
DRAWING BY: MHB
CHECKED BY: JJN
DESIGNED BY: MHB

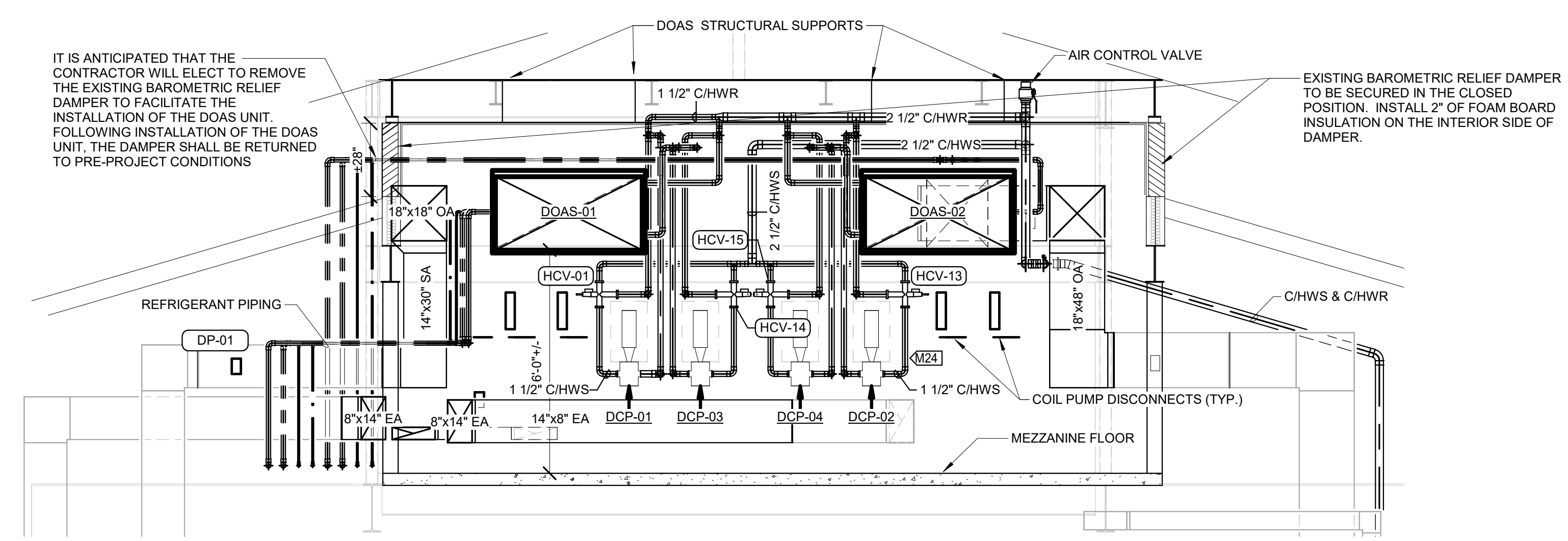
SHEET TITLE:
**ENLARGED
MECHANICAL
MEZZANINE
PLAN**

SHEET NUMBER:

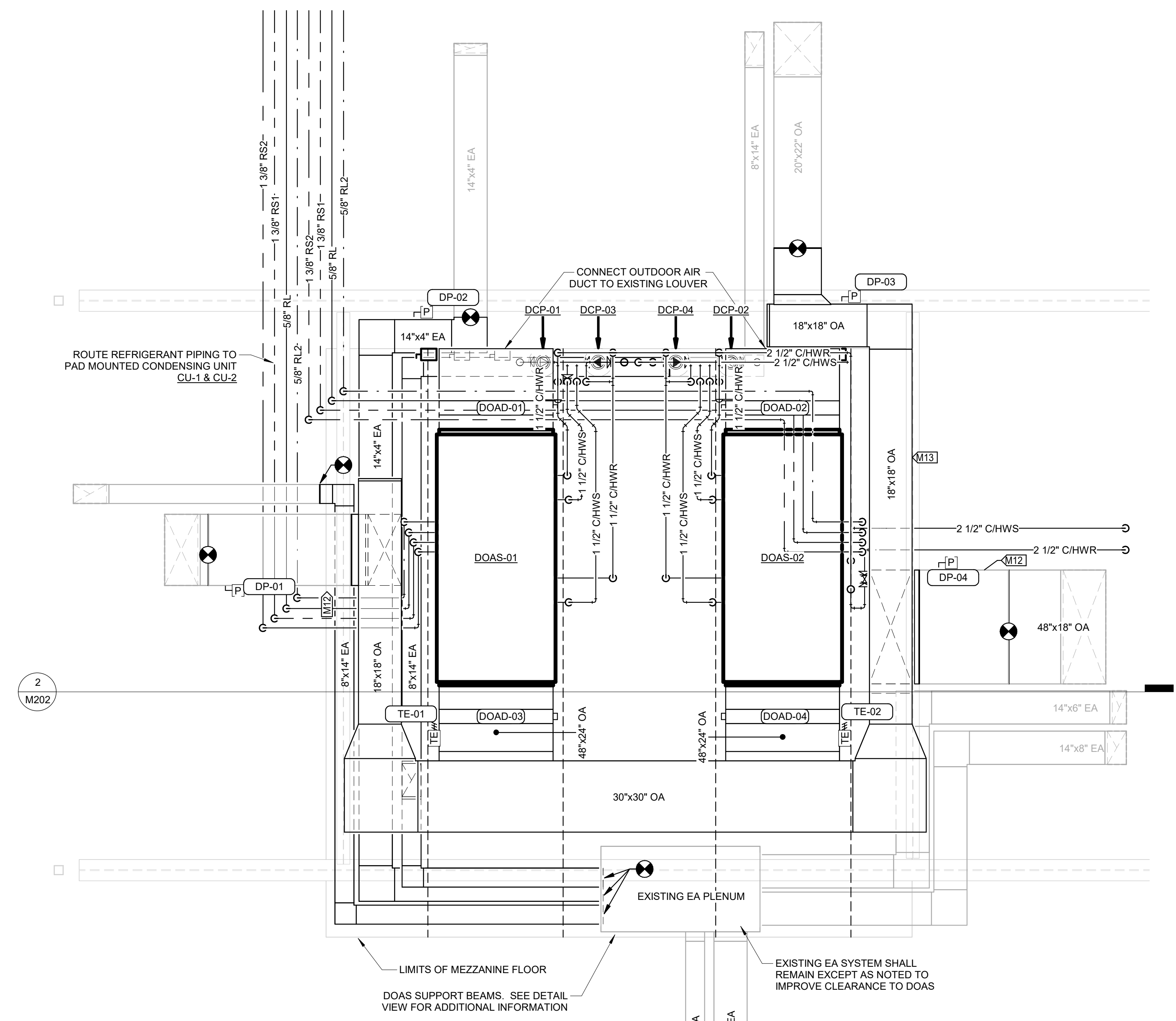
M202

SHEET 10 OF 20
JULY 28, 2023

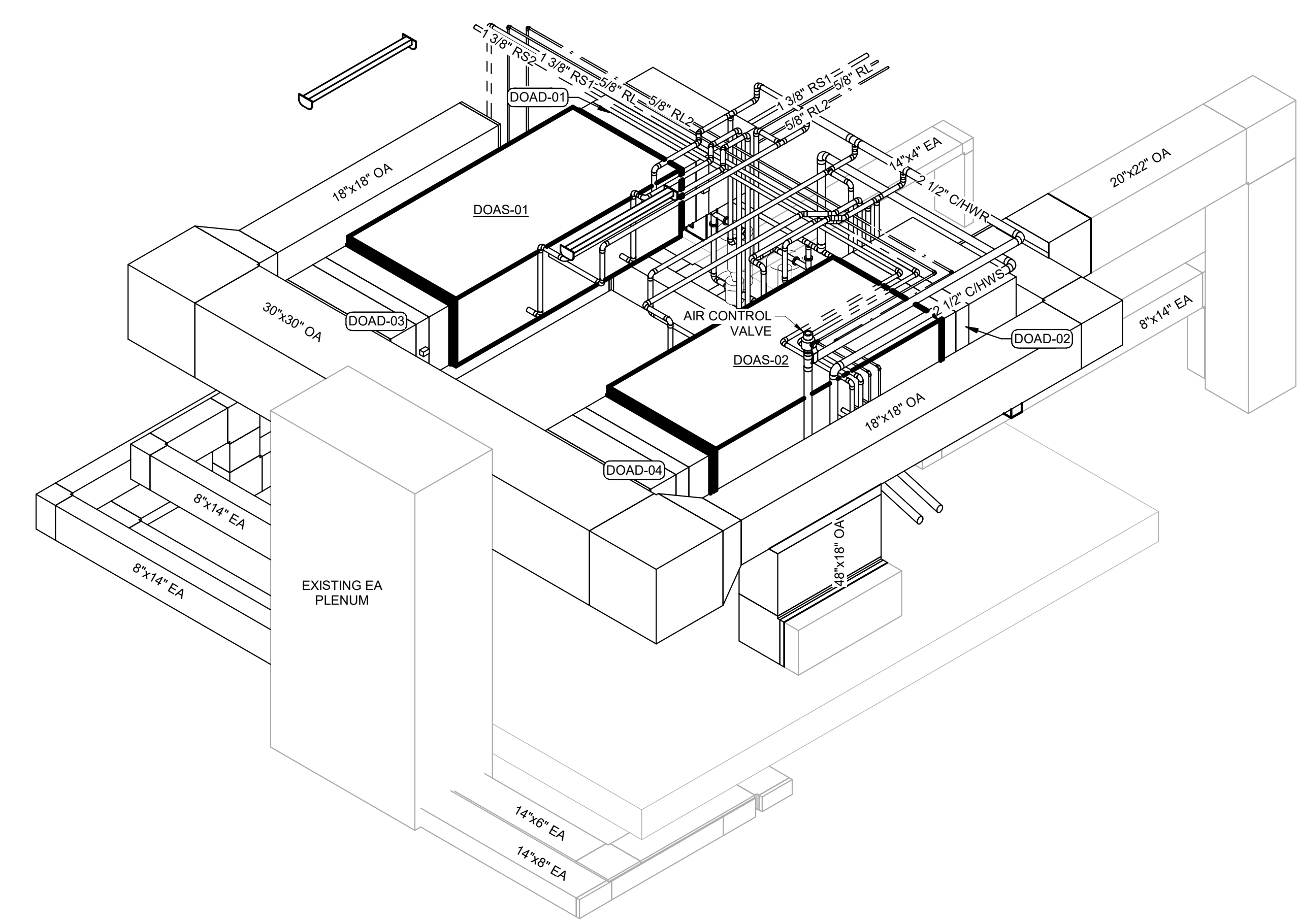
VALUE	DESCRIPTION
M12	BOTTOM OF DUCT SHALL BE MOUNTED 18" ABOVE MEZZANINE FLOOR.
M13	BOTTOM OF DUCT SHALL BE MOUNTED 6" ABOVE MEZZANINE FLOOR.
M24	FURNISH AND INSTALL STRUT FRAME TO MOUNT DEDICATED OUTDOOR AIR HYDRONIC COIL PUMPS AND PUMP DISCONNECTS.



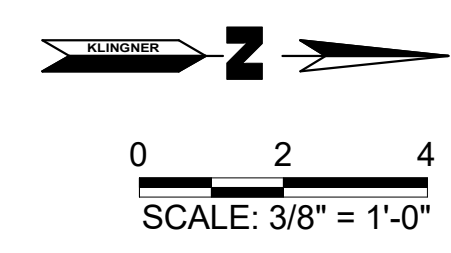
2 ENLARGED MECHANICAL MEZZANINE PLAN SECTION VIEW
3/8" = 1'-0"



1 ENLARGED MECHANICAL MEZZANINE PLAN - PROPOSED WORK
3/8" = 1'-0"



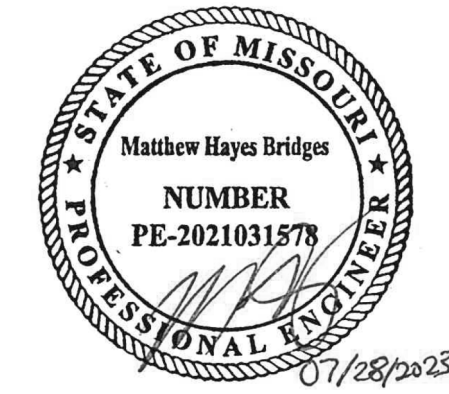
3 MEZZANINE ISOMETRIC VIEW
3/8" = 1'-0"



KEYNOTE LEGEND

VALUE	DESCRIPTION
M02	INSTALL A MOTORIZED DAMPER IN EXISTING DUCT.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



MATTHEW H. BRIDGES - ENGINEER
MO # PE-2021031578

**KLINGNER
& ASSOCIATES, P.C.**
Engineers • Architects • Surveyors

Columbia, Missouri
3622 Endeavor Ave, Suite 117
573.355.5988

www.klinger.com
Quincy, IL Galesburg, IL
Burlington, IA Peoria, IA Hannibal, MO
MISSOURI STATE CERTIFICATE OF AUTHORITY #000866

© 2017 KLINGNER & ASSOCIATES P.C.
This document shall not be used for any purpose or project for which it is not intended. Klinger & Associates P.C. and their Divisions shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses and expenses, including attorney fees and costs arising out of such measure or reuse of this document. In addition, unauthorized reprint, portion of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 07/28/23

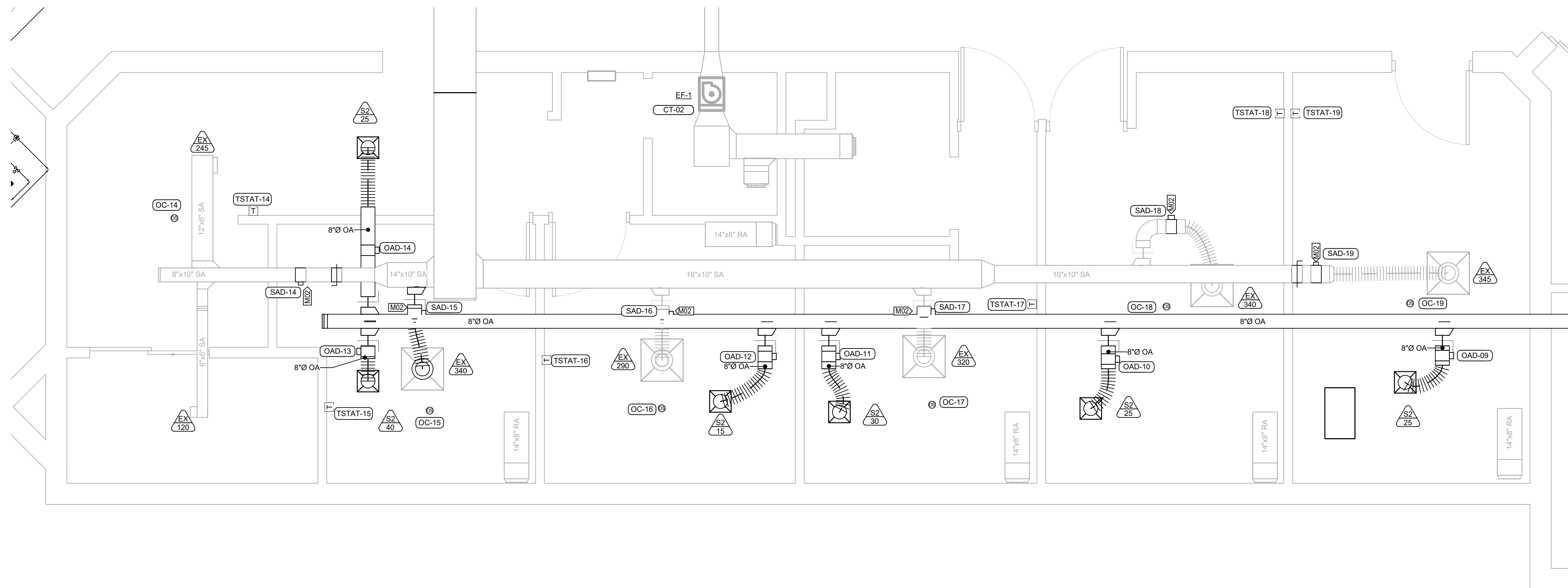
CAD DWG FILE: M203
DRAWING BY: MHB
CHECKED BY: JJN
DESIGNED BY: MHB

SHEET TITLE:
**ENLARGED
OFFICE PLAN**

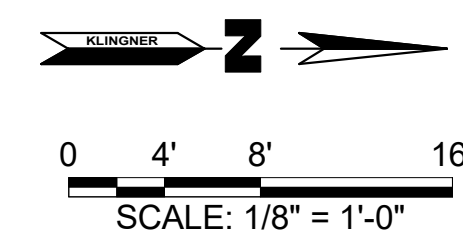
SHEET NUMBER:

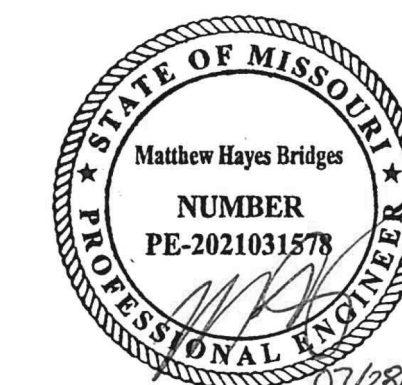
M203

SHEET 11 OF 20
JULY 28, 2023



1 ENLARGED OFFICE PLAN
3/8" = 1'-0"





MATTHEW H. BRIDGES - ENGINEER
MO # PE-2021031578

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors

www.klingner.com
Columbia, Missouri
3622 Endeavor Ave, Suite 117
Quincy, IL, Galesburg, IL
Burlington, IA, Peoria, IA, Hannibal, MO

MISSOURI STATE CERTIFICATE OF AUTHORITY #000866

© 2017 KLINGNER & ASSOCIATES P.C.

This document shall not be used for any purpose or project for which it is not intended. Klingner & Associates P.C. and their Owners shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses and expenses, including attorney fees and costs arising out of such misuse or reuse of this document. In addition, unauthorized reprint, vector of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 07/28/23

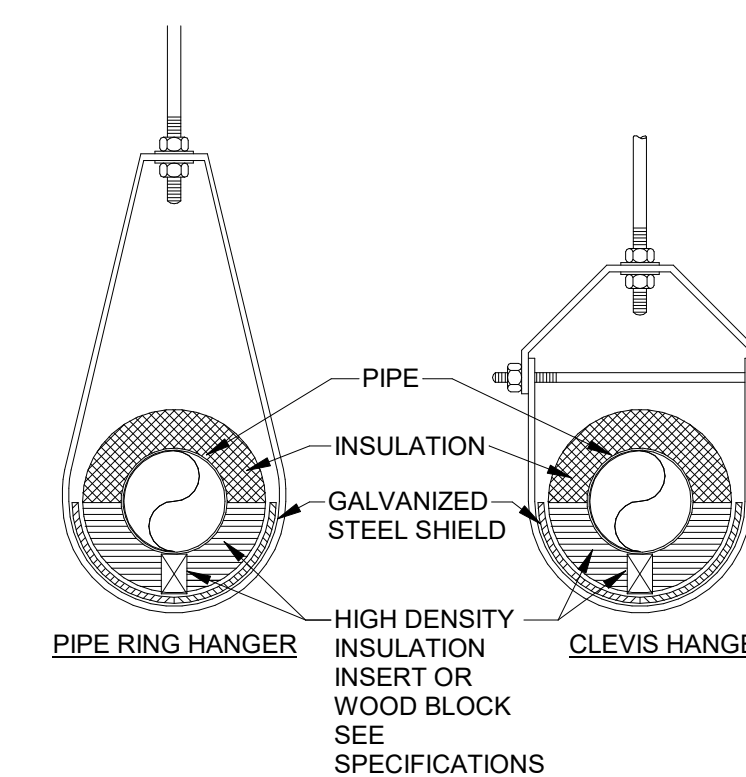
CAD DWG FILE M501
DRAWING BY: MHB
CHECKED BY: JJN
DESIGNED BY: MHB

SHEET TITLE:
**MECHANICAL
DETAILS**

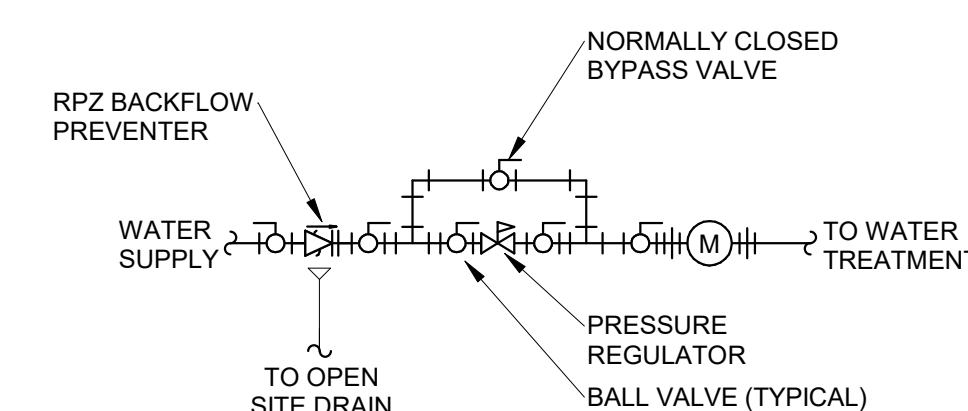
SHEET NUMBER:

M501

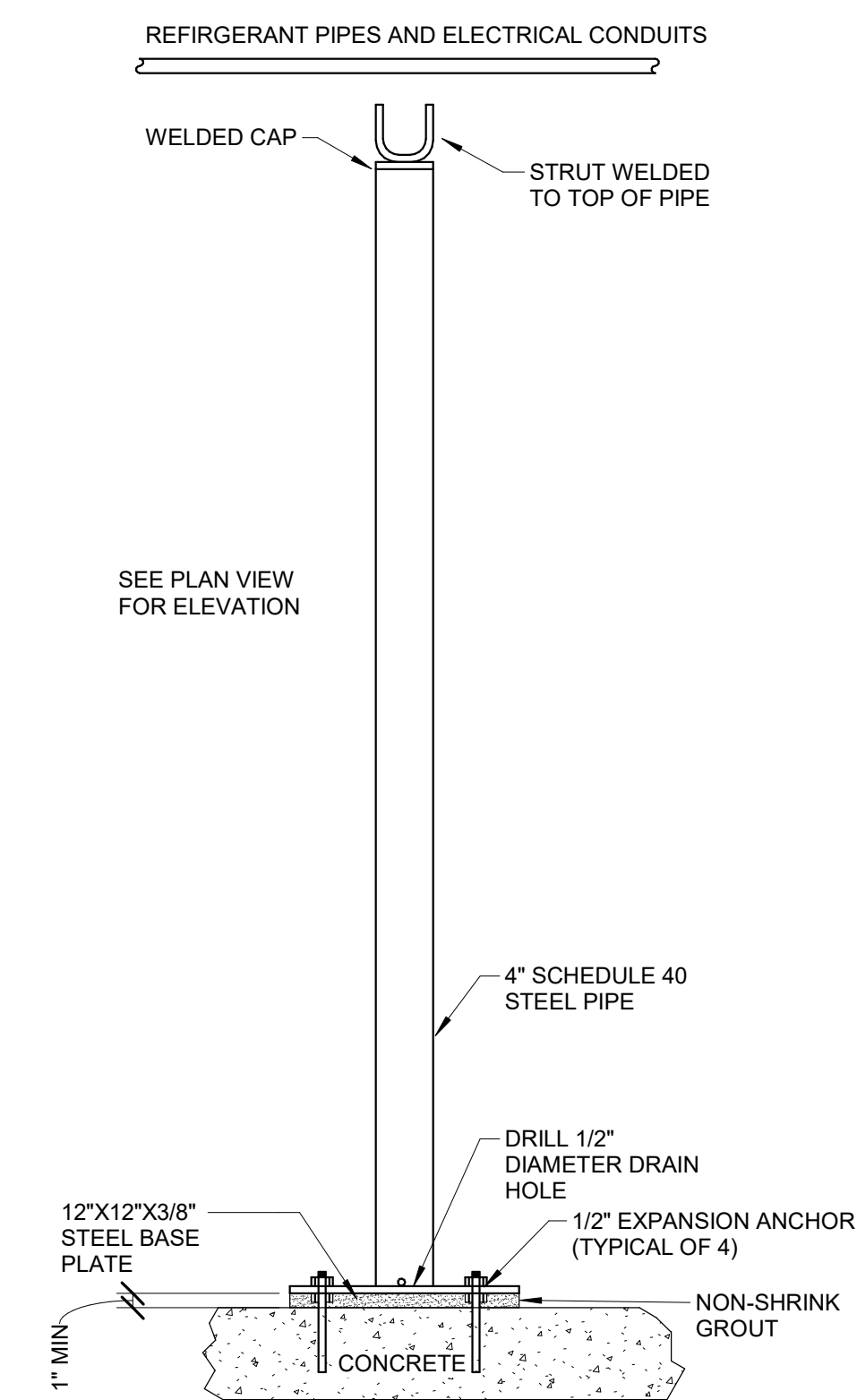
SHEET 12 OF 20
JULY 28, 2023



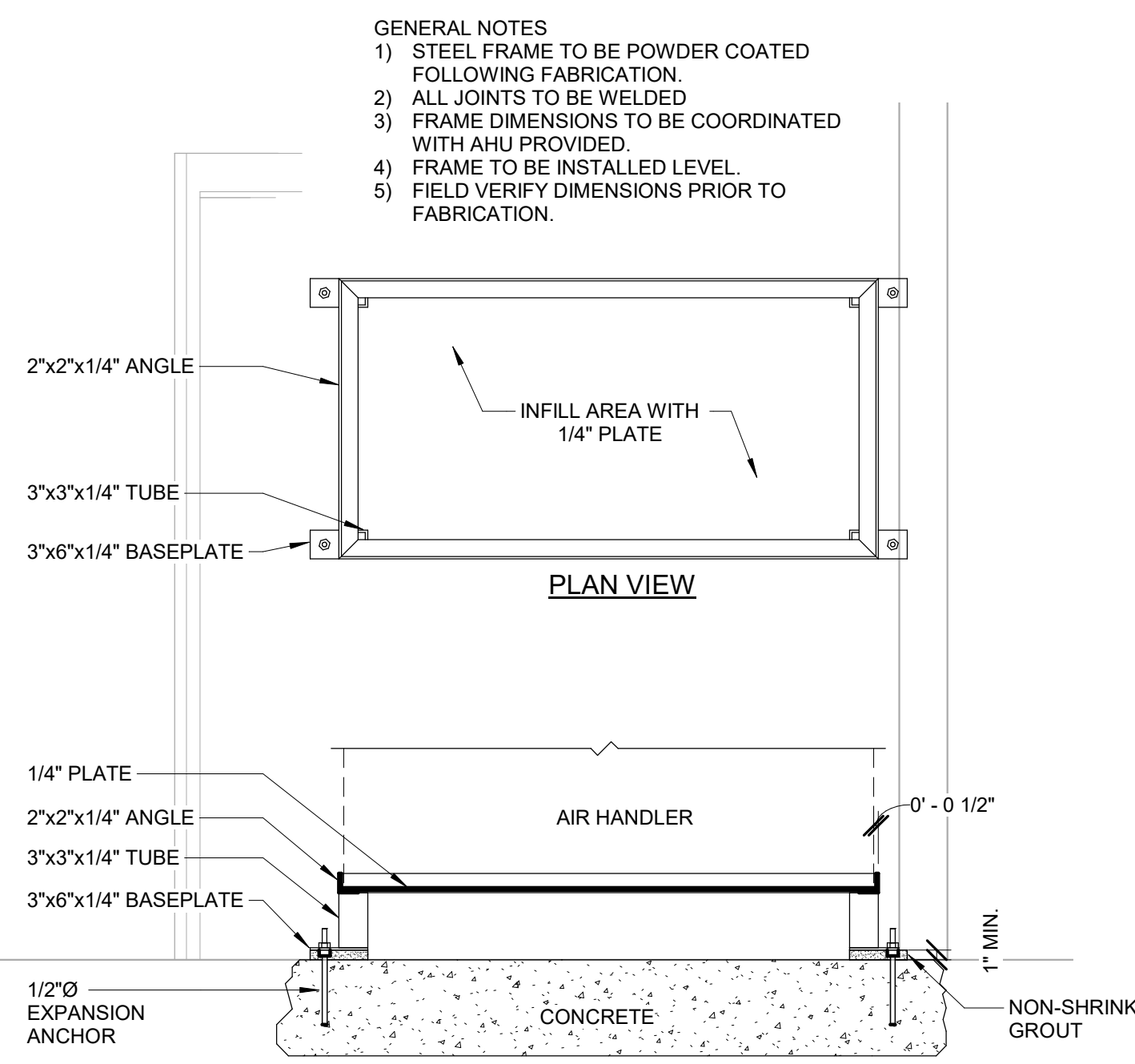
4 INSULATED PIPE AT HANGER DETAIL
1/8" = 1'-0"



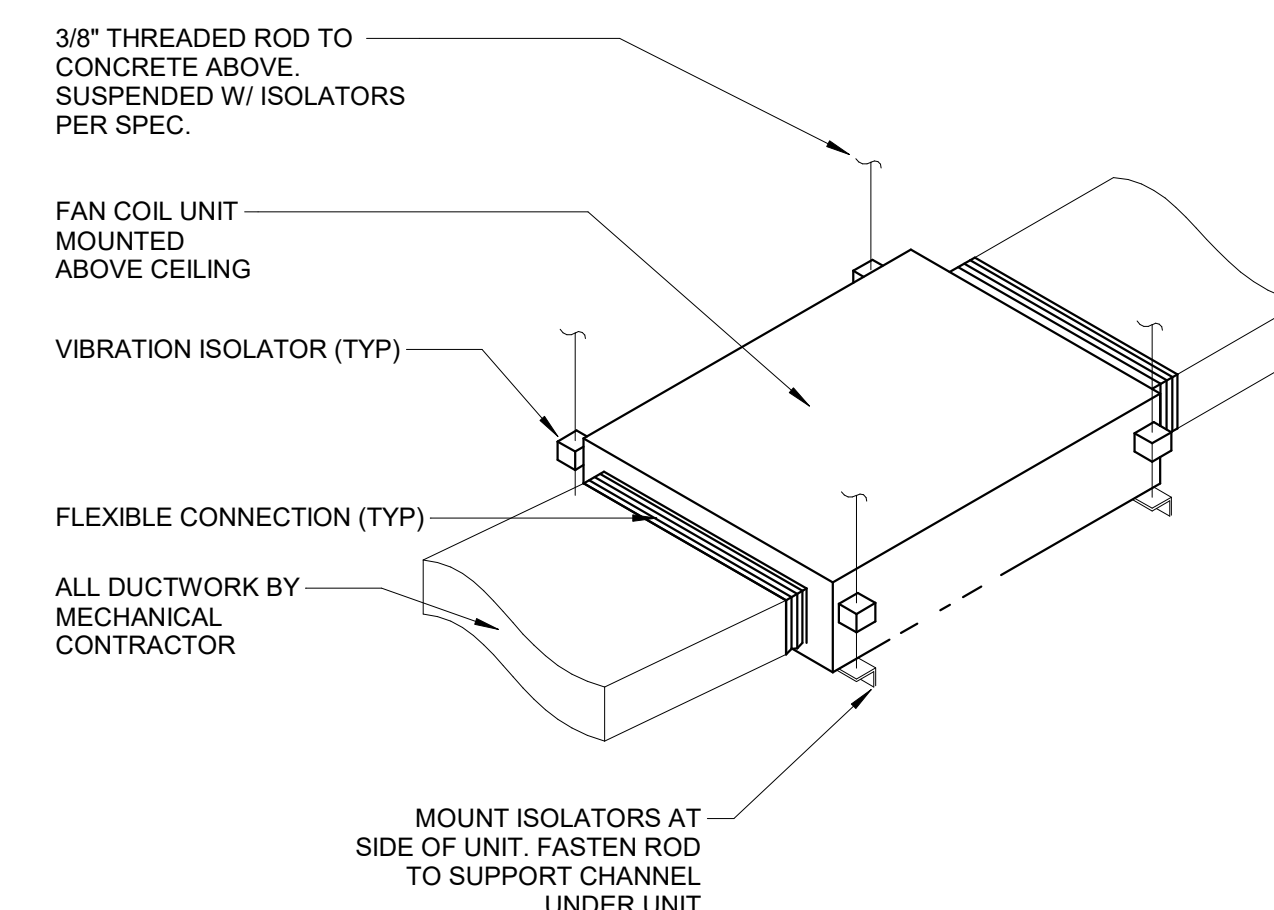
5 MAKE-UP WATER CONNECTION DETAIL
1/2" = 1'-0"



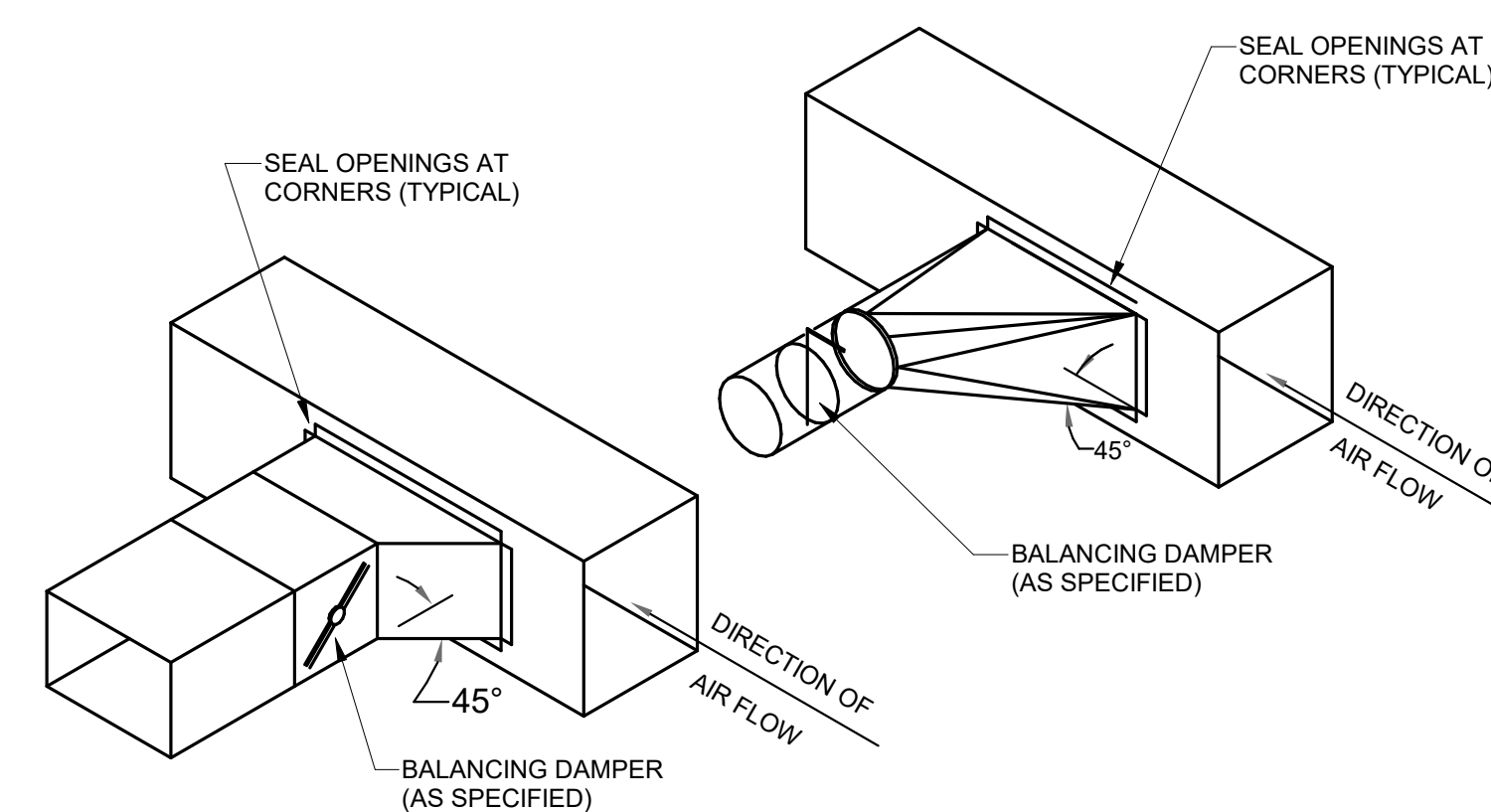
1 REFRIGERANT PIPING SUPPORT
NTS



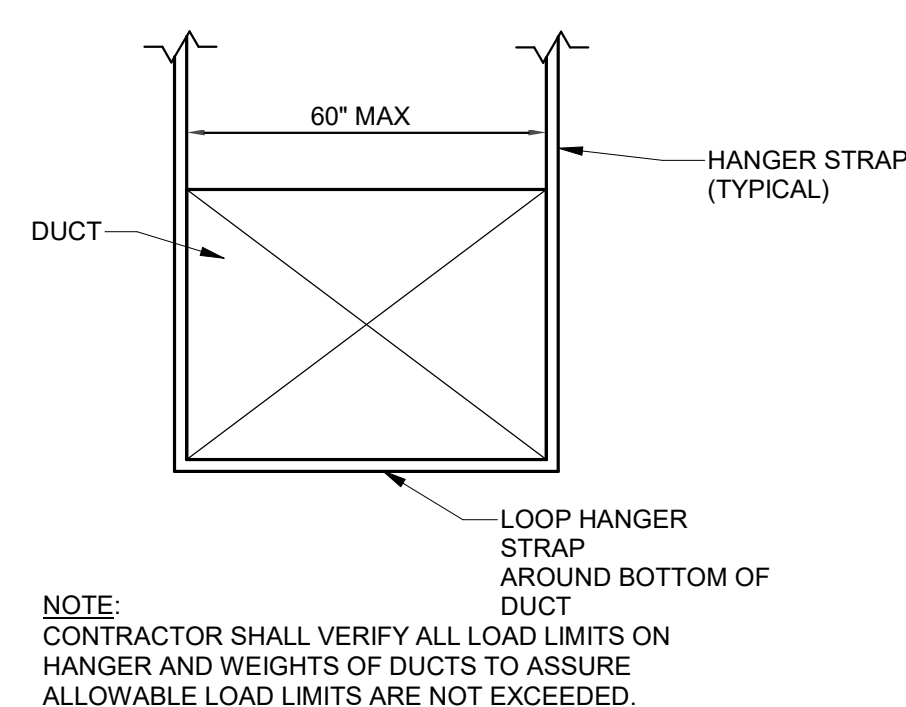
2 AHU SUPPORT FRAME
3/4" = 1'-0"



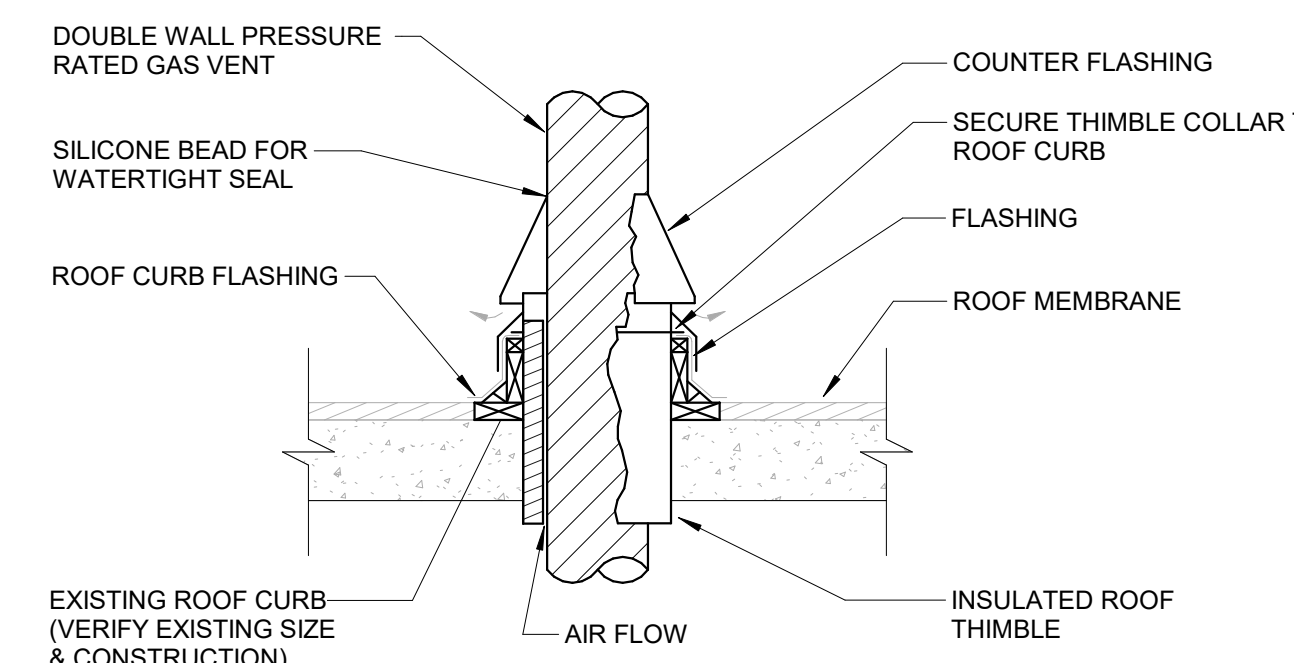
3 DOAS HANGER DETAIL
1/2" = 1'-0"



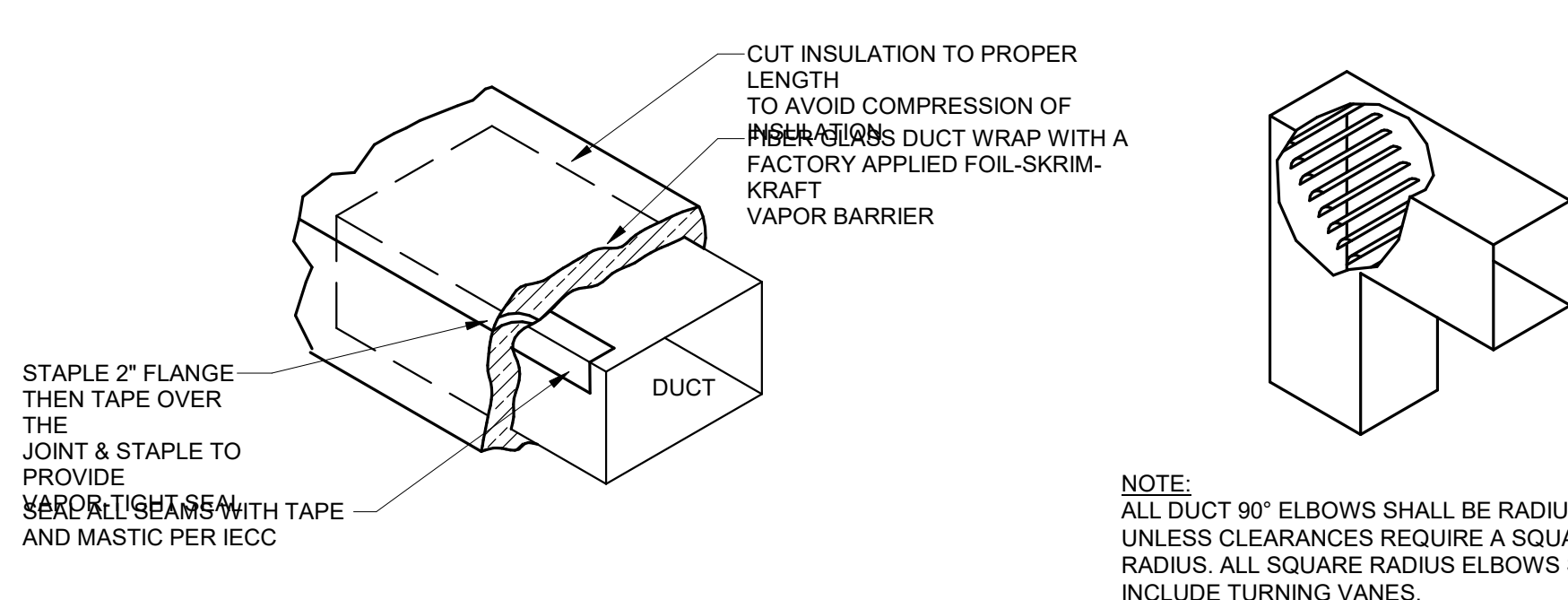
8 HVAC DETAILS
NTS



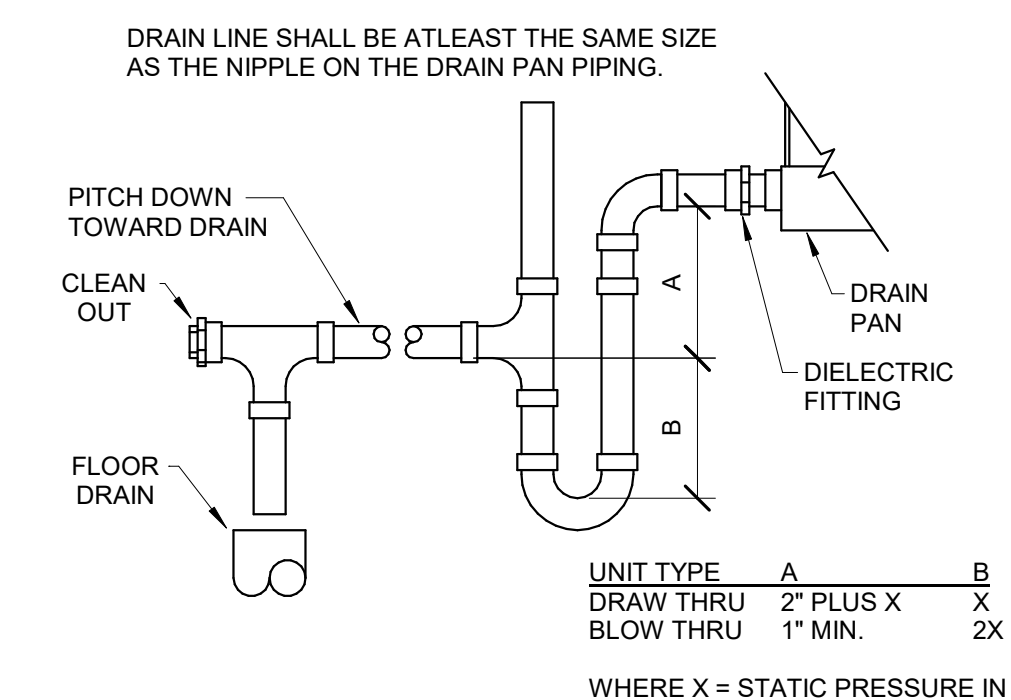
6 IN-LINE PUMP DETAIL
1/2" = 1'-0"



7 GAS VENT THROUGH ROOF THIMBLE DETAIL
1/2" = 1'-0"



9 BOILER & BOILER IN-LINE PUMP CONNECTION DETAIL
1/2" = 1'-0"



10 AHU DRAIN TRAP DETAIL
NTS

UNIT HEATER SCHEDULE													
TAG	DESCRIPTION	EWT	LWT	FLOW RATE	HEATING CAPACITY	AIR FLOW	ELECTRICAL					BASIS OF DESIGN	
							VOLTAGE	PHASE	HZ	MCA	MOP	MAKE	MODEL
UH-1	SUSPENDED PROPELLER UNIT HEATER	120°F	100°F	1.7 GPM	16,500 BTU/HR	370 CFM	120 V	1	60 HZ	8 A	15 A	MODINE	HCH 24
UH-2	SUSPENDED PROPELLER UNIT HEATER	120°F	100°F	1.7 GPM	16,500 BTU/HR	370 CFM	120 V	1	60 HZ	8 A	15 A	MODINE	HCH 24

RADIANT CEILING PANEL SCHEDULE											
TAG	DESCRIPTION	MAX WIDTH	MAX LENGTH	FLOW RATE	EWT	LWT	HEATING CAPACITY	FINISH	MAKE	MODEL	REMARKS

PUMP SCHEDULE												
TAG	DESCRIPTION	DESIGN FLOW		ELECTRICAL PARAMETERS					BASIS OF DESIGN			
		CAPACITY	HEAD	HORSE POWER	RPM	HZ	PHASE	VOLTAGE	FLA	MAKE	MODEL	
BP-01	INLINE CENTRIFUGAL PUMP	30 GPM	18	0.5 HP	1800 RPM	60 HZ	1 PH	120 V	4.9 A MAX	TACO	1911	
BP-02	INLINE CENTRIFUGAL PUMP	30 GPM	18	0.5 HP	1800 RPM	60 HZ	1 PH	120 V	4.9 A MAX	TACO	1911	
DCP-01	INLINE CENTRIFUGAL PUMP	40 GPM	30	0.6 HP	4400 RPM	60 HZ	1 PH	120 V	4.9 A MAX	TACO	VR	
DCP-02	INLINE CENTRIFUGAL PUMP	40 GPM	30	0.6 HP	4400 RPM	60 HZ	1 PH	120 V	4.9 A MAX	TACO	VR	
DCP-03	INLINE CENTRIFUGAL PUMP	40 GPM	30	0.6 HP	4400 RPM	60 HZ	1 PH	120 V	4.9 A MAX	TACO	VR	
DCP-04	INLINE CENTRIFUGAL PUMP	40 GPM	30	0.6 HP	4400 RPM	60 HZ	1 PH	120 V	4.9 A MAX	TACO	VR	

SUPPLY AIR DAMPER SCHEDULE					
TAG	DESCRIPTION	SIZE/SHAPE	OPERATION	VOLTAGE	REMARKS
SAD-01	MOTORIZED SUPPLY AIR DAMPER	10"X10" SQUARE	MODULATING	24V	
SAD-02	MOTORIZED SUPPLY AIR DAMPER	10"X10" SQUARE	MODULATING	24V	
SAD-03	MOTORIZED SUPPLY AIR DAMPER	10"X10" SQUARE	MODULATING	24V	
SAD-04	MOTORIZED SUPPLY AIR DAMPER	18"X14" RECTANGULAR	MODULATING	24V	INSTALL IN EXISTING DUCT
SAD-05	MOTORIZED SUPPLY AIR DAMPER	10"X10" SQUARE	MODULATING	24V	
SAD-06	MOTORIZED SUPPLY AIR DAMPER	10"X10" SQUARE	MODULATING	24V	
SAD-07	MOTORIZED SUPPLY AIR DAMPER	10"X10" SQUARE	MODULATING	24V	
SAD-08	MOTORIZED SUPPLY AIR DAMPER	14"X14" SQUARE	MODULATING	24V	INSTALL IN EXISTING DUCT
SAD-09	MOTORIZED SUPPLY AIR DAMPER	20"X12" RECTANGULAR	MODULATING	24V	INSTALL IN EXISTING DUCT
SAD-10	MOTORIZED SUPPLY AIR DAMPER	20"X12" RECTANGULAR	MODULATING	24V	INSTALL IN EXISTING DUCT
SAD-11A	MOTORIZED SUPPLY AIR DAMPER	24"X8" RECTANGULAR	MODULATING	24V	INSTALL IN EXISTING DUCT
SAD-11B	MOTORIZED SUPPLY AIR DAMPER	24"X8" RECTANGULAR	MODULATING	24V	INSTALL IN EXISTING DUCT
SAD-12	MOTORIZED SUPPLY AIR DAMPER	20"X18" RECTANGULAR	MODULATING	24V	INSTALL IN EXISTING DUCT
SAD-14	MOTORIZED SUPPLY AIR DAMPER	8"X10" RECTANGULAR	MODULATING	24V	INSTALL IN EXISTING DUCT
SAD-15	MOTORIZED SUPPLY AIR DAMPER	8" ROUND	MODULATING	24V	INSTALL IN EXISTING DUCT
SAD-16	MOTORIZED SUPPLY AIR DAMPER	8" ROUND	MODULATING	24V	INSTALL IN EXISTING DUCT
SAD-17	MOTORIZED SUPPLY AIR DAMPER	8" ROUND	MODULATING	24V	INSTALL IN EXISTING DUCT
SAD-18	MOTORIZED SUPPLY AIR DAMPER	8" ROUND	MODULATING	24V	INSTALL IN EXISTING DUCT
SAD-19	MOTORIZED SUPPLY AIR DAMPER	10"X10" SQUARE	MODULATING	24V	INSTALL IN EXISTING DUCT
SAD-20	MOTORIZED SUPPLY AIR DAMPER	10"X10" SQUARE	MODULATING	24V	
SAD-21	MOTORIZED SUPPLY AIR DAMPER	10"X10" SQUARE	MODULATING	24V	
SAD-22	MOTORIZED SUPPLY AIR DAMPER	10"X10" SQUARE	MODULATING	24V	

GRILLES, REGISTERS, AND DIFFUSERS SCHEDULE																
TAG	TYPE	FACE SIZE		CONNECTION SIZE		MAX. AIRFLOW	TOTAL P.D.	THROW				DAMPER	MATERIAL	FINISH	BASIS OF DESIGN	
		LENGTH	WIDTH	NECK SIZE	MAX. AIRFLOW			150 FPM	100 FPM	50 FPM	MAX. NC				MAKE	MODEL
		S1	CEILING DIFFUSER	12"	12"			8"	150 CFM	0.05 in-wg	7"				3"	2"
S2	CEILING DIFFUSER	24"	12"	6"	150 CFM	0.07 in-wg	9"	7"	6"	20	NA	STEEL	WHITE ENAMEL	TITUS	TJD	
S4	CEILING DIFFUSER	20"	20"	6"	<varies>	0.05 in-wg	12"	7"	6"	20	NA	ALUMINUM	WHITE ENAMEL	TITUS	TMS-AA	

CONDENSING UNIT SCHEDULE															
TAG	DESCRIPTION	REFRIGERANT	AMBIENT	COOLING CIRCUITS	COMPRESSORS	COOLING CAPACITY	MIN. CAPACITY TURNDOWN	HEATING CAPACITY	ELECTRICAL					BASIS OF DESIGN	
									VOLT	HZ	PHASE	MCA	MOP	MAKE	MODEL
CU-1	OUTDOOR CONDENSING UNIT	R410a	95°FDB/78°FWB	2	2 VARIABLE SPEED	133.88 MBH	25 MBH (OR LESS)	106.89 MBH	208 V	60 Hz	3	42 A	50 A	AAON	CFA
CU-2	OUTDOOR CONDENSING UNIT	R410a	95°FDB/78°FWB	2	2 VARIABLE SPEED	133.88 MBH	25 MBH (OR LESS)	106.89 MBH	208 V	60 Hz	3	42 A	50 A	AAON	CFA

BOILER SCHEDULE															
TAG	DESCRIPTION	TYPE	PRESSURE	INPUT CAP.	MIN. INPUT CAP.	THERMAL EFF.	VOLT	HZ	PHASE	FLA	MCA	MAKE	MODEL	WEIGHT	ACCESSORIES
BLR-02	COMMERCIAL HIGH EFFICIENCY, CONDENSING BOILER	N.G.	5-7 IN. W.G.	399 MBH	40 MBH	97%	120 V	60 Hz	1	3 A	3.8 A	LOCHINVAR	KBX400	400 LBS	100157616

AIR HANDLING UNIT SCHEDULE																					
TAG	DESCRIPTION	CONTROL	SUPPLY FAN			FILTER	MAX ROWS	MAX F.P.I.	MAX WATER P.D.	WATER FLOW RATE	HYDRONIC COIL				ELECTRICAL				BASIS OF DESIGN		
			COOLING	HEATING	MAX EXTERNAL S.P.						COOLING		HEATING		VOLT	PHASE	HZ	MCA	MOP	MAKE	MODEL
			EWT/LWT	CAPACITY	EWT/LWT						CAPACITY	EWT/LWT	CAPACITY								
AHU-1	VARIABLE AIRFLOW WITH HYDRONIC HEATING/COOLING COIL	VARIABLE SPEED	2,000 CFM	1,000 CFM	0.75 IN.W.C.	2" DISPOSABLE MERV 8	6	10 FT.	7.3 GPM	48°F/58°F	36.32 MBH	120°F/100°F	36.32 MBH	208 V	3	60 Hz	3 A	15 A	AAON	V3-BRB	
AHU-2	VARIABLE AIRFLOW WITH HYDRONIC HEATING/COOLING COIL	VARIABLE SPEED	5,000 CFM	2,500 CFM	0.75 IN.W.C.	2" DISPOSABLE MERV 8	6	10 FT.	19.7 GPM	48°F/58°F	98.29 MBH	120°F/100°F	98.29 MBH	208 V	3	60 Hz	5 A	15 A	AAON	V3-DRB	
AHU-3	VARIABLE AIRFLOW WITH HYDRONIC HEATING/COOLING COIL	VARIABLE SPEED	1,000 CFM	500 CFM	0.75 IN.W.C.	2" DISPOSABLE MERV 8	6	10 FT.	6.1 GPM	48°F/58°F	30.34 MBH	120°F/100°F	30.34 MBH	208 V	3	60 Hz	2 A	15 A	AAON	V3-ARB	
AHU-4	VARIABLE AIRFLOW WITH HYDRONIC HEATING/COOLING COIL	VARIABLE SPEED	1,600 CFM	800 CFM	0.75 IN.W.C.	2" DISPOSABLE MERV 8	6	10 FT.	9.1 GPM	48°F/58°F	45.87 MBH	120°F/100°F	45.87 MBH	208 V	3	60 Hz	2 A	15 A	AAON	V3-BRB	
AHU-5	VARIABLE AIRFLOW WITH HYDRONIC HEATING/COOLING COIL	VARIABLE SPEED	2,000 CFM	1,000 CFM	0.75 IN.W.C.	2" DISPOSABLE MERV 8	6	10 FT.	8.0 GPM	48°F/58°F	40.01 MBH	120°F/100°F	40.01 MBH	208 V	3	60 Hz	3 A	15 A	AAON	V3-BRB	
AHU-6	VARIABLE AIRFLOW WITH HYDRONIC HEATING/COOLING COIL	VARIABLE SPEED	2,000 CFM	1,000 CFM	0.75 IN.W.C.	2" DISPOSABLE MERV 8	6	10 FT.	8.0 GPM	48°F/58°F	40.01 MBH	120°F/100°F	40.01 MBH	208 V	3	60 Hz	3 A	15 A	AAON	V3-BRB	
AHU-7	VARIABLE AIRFLOW WITH HYDRONIC HEATING/COOLING COIL	VARIABLE SPEED	2,750 CFM	1,375 CFM	0.75 IN.W.C.	2" DISPOSABLE MERV 8	6	10 FT.	11.1 GPM	48°F/58°F	55.37 MBH	120°F/100°F	55.37 MBH	208 V	3	60 Hz	3 A	15 A	AAON	V3-CRB	

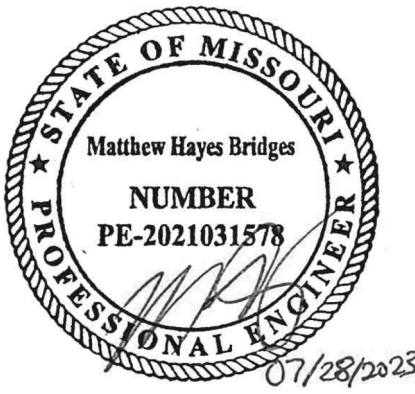
CONTROL VALVE SCHEDULE									
TAG	DESCRIPTION	CONTROL	EQUIPMENT SERVED	COIL WATER P.D.	COIL FLOW RATE	Cv *			
HCV-01	3 WAY MODULATING	2-10 VDC	DOAS-01	20 FT	40 GPM	19			
HCV-02	3 WAY MODULATING	2-10 VDC	AHU-01	1.0 FT	7.3 GPM	7.3			
HCV-03	3 WAY MODULATING	2-10 VDC	AHU-02	1.75 FT	19.7 GPM	14.9			
HCV-04	3 WAY MODULATING	2-10 VDC	AHU-03	0.75 FT	6.1 GPM	7.0			
HCV-05	3 WAY MODULATING	2-10 VDC	AHU-04	1.0 FT	9.1 GPM	9.1			
HCV-06	3 WAY MODULATING	2-10 VDC	AHU-05	1.0 FT	8.0 GPM	8.0			
HCV-07	3 WAY MODULATING	2-10 VDC	AHU-06	1.0 FT	8.0 GPM	8.0			
HCV-08	3 WAY MODULATING	2-10 VDC	AHU-07	1.25 FT	11.1 GPM	9.9			
HCV-09	3 WAY MODULATING	2-10 VDC	RHP-01	0.5 FT	1.8 GPM	2.5			
HCV-10	3 WAY MODULATING	2-10 VDC	UH-01	0.5 FT	1.5 GPM	2.1			
HCV-11	3 WAY MODULATING	2-10 VDC	UH-02	0.5 FT	1.5 GPM	2.1			
HCV-12	2 WAY 2 POSITION	2-10 VDC	RHP-01	0.5 FT	1.8 GPM	2.5			
HCV-13	3 WAY MODULATING	2-10 VDC	DOAS-02	20 FT	40 GPM	19			
HCV-14	3 WAY MODULATING	2-10 VDC	DOAS-01	10 FT	8 GPM	19			
HCV-15	3 WAY MODULATING	2-10 VDC	DOAS-02	10 FT	8 GPM	19			
HCV-18	* Cv SHALL BE BASED ON ACTUAL EQUIPMENT WATER COIL PRESSURE DROP								

DEDICATED OUTDOOR AIR SYSTEM SCHEDULE																																	
TAG	DESCRIPTION	SUPPLY FAN		HYDRONIC COIL								DX HEAT/COOL COIL				HYDRONIC REHEAT COIL		ELECTRICAL					BASIS OF DESIGN			Comments							
		FLOW RATE	ESP	COOLING		HEATING		COOLING		HEATING		EWT <th rowspan="2">LWT <th rowspan="2">TOTAL CAP.</th> <th rowspan="2">VOLT</th> <th rowspan="2">HZ</th> <th rowspan="2">PHASE</th> <th rowspan="2">FLA</th> <th rowspan="2">MCA</th> <th rowspan="2">MOP</th> <th rowspan="2">MAKE</th> <th rowspan="2">MODEL</th> <th rowspan="2">MAX WEIGHT</th> </th>	LWT <th rowspan="2">TOTAL CAP.</th> <th rowspan="2">VOLT</th> <th rowspan="2">HZ</th> <th rowspan="2">PHASE</th> <th rowspan="2">FLA</th> <th rowspan="2">MCA</th> <th rowspan="2">MOP</th> <th rowspan="2">MAKE</th> <th rowspan="2">MODEL</th> <th rowspan="2">MAX WEIGHT</th>	TOTAL CAP.	VOLT	HZ	PHASE	FLA	MCA	MOP	MAKE	MODEL	MAX WEIGHT										
		FLUID P.D.	OAT (DB/WB)	LAT (DB/WB)	TOTAL CAP.	SENSIBLE CAP.	EWT	LWT	EAT	LAT	SENSIBLE CAP.													EWT	LWT		EAT	LAT	MIN. TOTAL CAP.	SENSIBLE CAP.			
DOAS-01	PACKAGED AIR HANDLING UNIT	2,500 CFM	1.75 IN. W.C.	40 GPM	20 FT	95°F/78°F	60°F/58°F	183.26 MBH	96.2 MBH	48°F	58°F	0°F	78°F	214.5 MBH	120°F	100°F	65°F/63°F	43°F/43°F	133.88 MBH	60.5 MBH	120°F	100°F	72.6 MBH	208 V	60 Hz	3	14 A	16 A	20 A	KLIMOR	EVO-S	1,500 LBS	UNIT TO SHIP IN KNOCKDOWN CONFIGURATION. THE LARGEST SECTION SHALL BE NO LARGER THAN 33" X 28". MAXIMUM UNIT ASSEMBLED LENGTH: 10FT
DOAS-02	PACKAGED AIR HANDLING UNIT	2,500 CFM	1.75 IN. W.C.	40 GPM	20 FT	95°F/78°F	60°F/58°F	183.26 MBH	96.2 MBH	48°F	58°F	0°F	78°F	214.5 MBH	120°F	100°F	65°F/63°F	43°F/43°F	133.88 MBH	60.5 MBH	120°F	100°F	72.6 MBH	208 V	60 Hz	3	14 A	16 A	20 A	KLIMOR	EVO-S	1,500 LBS	UNIT TO SHIP IN KNOCKDOWN CONFIGURATION. THE LARGEST SECTION SHALL BE NO LARGER THAN 33" X 28". MAXIMUM UNIT ASSEMBLED LENGTH: 10FT

EXHAUST FAN SCHEDULE									
TAG	DESCRIPTION	FAN DATA			ELECTRICAL			BASIS OF DESIGN	
		AIRFLOW	STATIC PRESSURE	HP	VOLTAGE	PHASE	HZ	MANUFACTURER	MODEL
EF-6	UPBLAST CENTRIFUGAL EXHAUST FAN	450 CFM	0.50 IN. W.C.	1/6 HP	120 V	1	60 Hz	LOREN COOK	ACRUB

DOMESTIC WATER HEATER SCHEDULE															
TAG	DESCRIPTION	WATER VOLUME	FUEL TYPE	INPUT CAPACITY	MIN. UEF	RATINGS		ELECTRICAL			MANUFACTURER	MODEL	REMARKS		
						MAX. PRES.	MAX. TEMP.	VOLTAGE	POLES	FLA				MOP	
WH-01	MODULATING COMMERCIAL GAS WATER HEATER	100 GAL	NAT. GAS	199,000 Btu/h	97	346.0	112ZO	180 F	120	1	7 A	15 A	A.O. SMITH AMERICAN RHEEM	BTH-199 HC63-100T199-3N GHE100SS-200	HOT WATER STORAGE TEMPERATURE: 130F. BURNER PRESSURE: 4.4 TO 14 IN. W.C. PROVIDE WITH NEW DOMESTIC WATER CIRCULATING PUMP SIZED FOR 10 GPM AT 15FT HEAD.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



MATTHEW H. BRIDGES - ENGINEER
MO # PE-2021031578

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors

Columbia, Missouri
3622 Endeavor Ave, Suite 117
573.355.5988

© 2017 KLINGNER & ASSOCIATES P.C.
This document shall not be used for any purpose or project for which it is not intended. Klingner & Associates P.C. and their Divisions shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses and expenses, including attorney fees and costs arising out of such misuse or reuse of this document. In addition, unauthorized reprint, portion of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

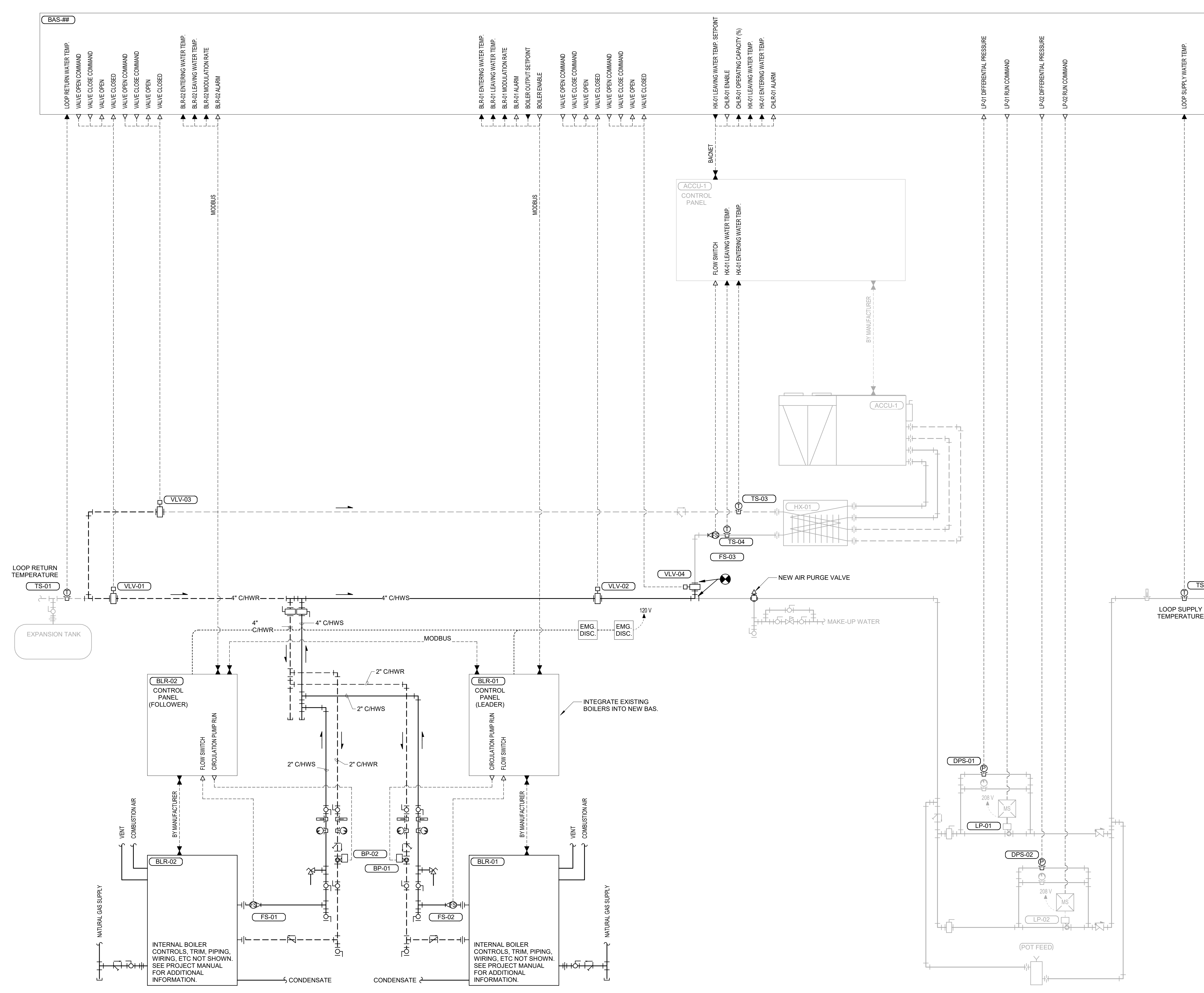
PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 07/28/23

CAD DWG FILE: M601
DRAWING BY: MHB
CHECKED BY: JN
DESIGNED BY: MHB

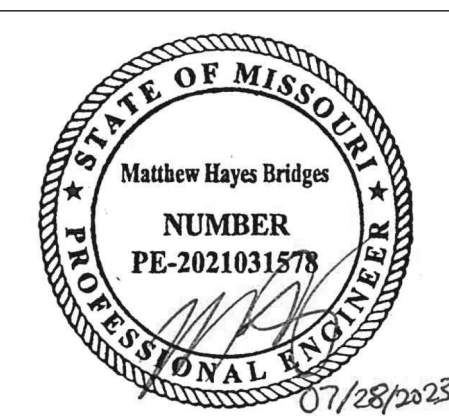
SHEET TITLE:
**MECHANICAL
SCHEDULES**

SHEET NUMBER:
M601
SHEET 13 OF 20
JULY 28, 2023



1 HYDRONIC SYSTEM SCHEMATIC CONTROL DIAGRAM
NTS

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



MATTHEW H. BRIDGES - ENGINEER
MO # PE-2021031578

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors
Columbia, Missouri
3622 Endeavor Ave, Suite 117
573.355.5988
www.kingner.com
Quincy, IL, Galesburg, IL
Burlington, IA, Peoria, IA, Hannibal, MO

© 2017 KLINGNER & ASSOCIATES P.C.
This document shall not be used for any purpose or project for which it is not intended. Kingner & Associates P.C. and their Divisions shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses and expenses, including attorney fees and costs arising out of such misuse or reuse of this document. In addition, unauthorized reprint, reproduction of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 07/28/23

CAD DWG FILE M701
DRAWING BY: MHB
CHECKED BY: JJN
DESIGNED BY: MHB

SHEET TITLE:
**HYDRONIC SYS.
SCHEMATIC
CONTROL
DIAGRAM**

SHEET NUMBER:

M701

SHEET 14 OF 20
JULY 28, 2023



MATTHEW H. BRIDGES - ENGINEER
MO # PE-2021031578

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors
Columbia, Missouri
3622 Endeavor Ave, Suite 117
Burlington, IA 50848
www.klingner.com
Quincy, IL Galesburg, IL
Burlington, IA Peoria, IA Hannibal, MO

© 2017 KLINGNER & ASSOCIATES P.C.
This document shall not be used for any purpose or project for which it is not intended. Klingner & Associates P.C. and their Divisions shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses and expenses, including attorney fees and costs arising out of such misuse or reuse of this document. In addition, unauthorized reproduction of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 07/28/23

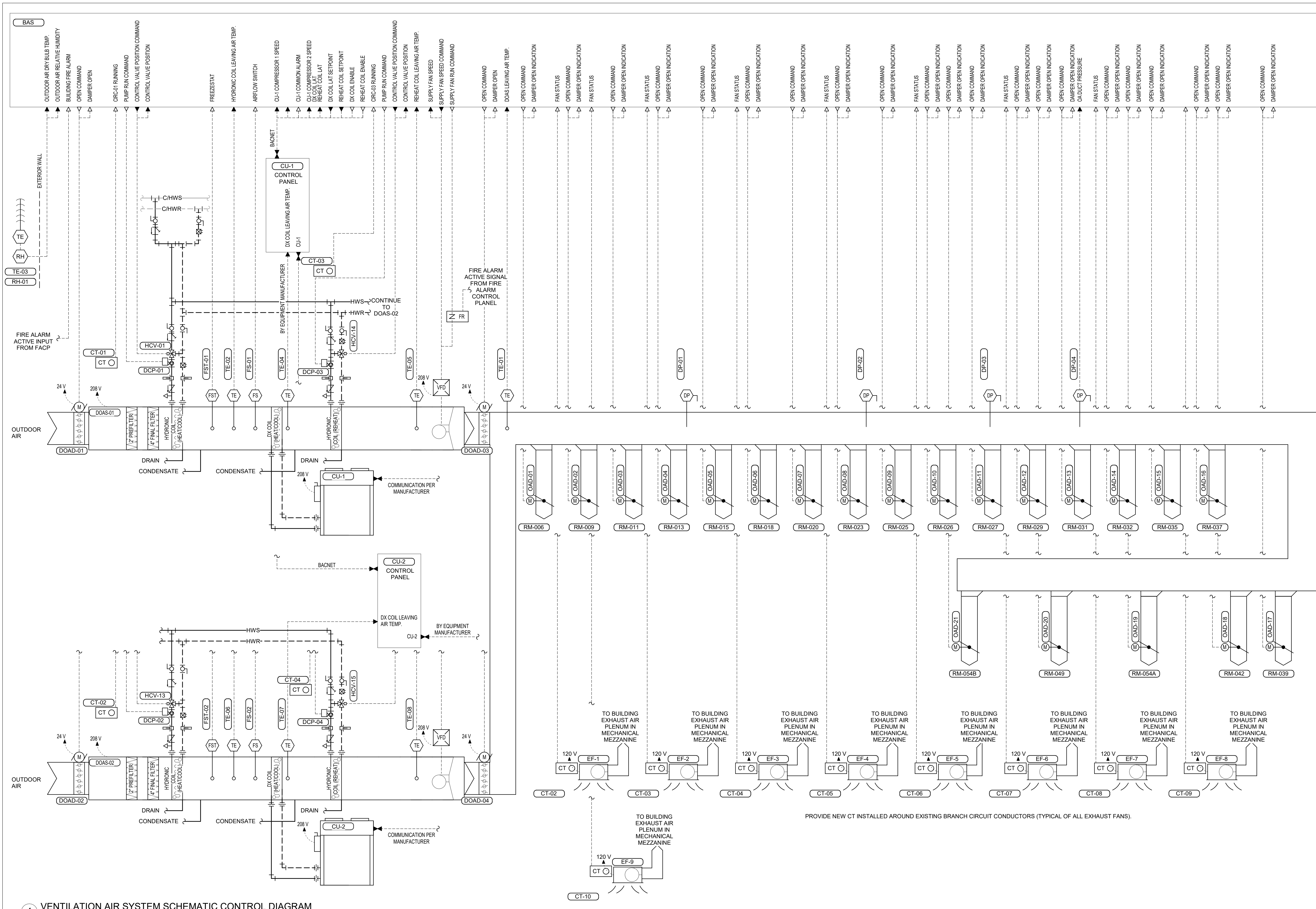
CAD DWG FILE# M702
DRAWING BY: MHB
CHECKED BY: JJN
DESIGNED BY: MHB

SHEET TITLE:
**SCHEMATIC
CONTROLS
DIAGRAM**

SHEET NUMBER:

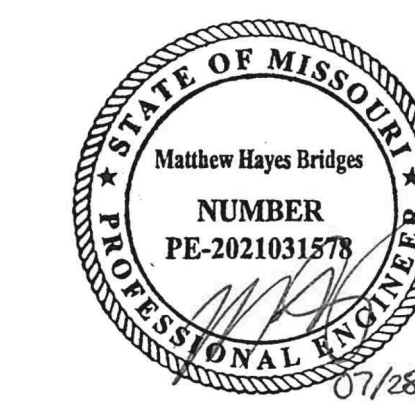
M702

SHEET 15 OF 20
JULY 28, 2023



1 VENTILATION AIR SYSTEM SCHEMATIC CONTROL DIAGRAM
NTS

PROVIDE NEW CT INSTALLED AROUND EXISTING BRANCH CIRCUIT CONDUCTORS (TYPICAL OF ALL EXHAUST FANS).



MATTHEW H. BRIDGES - ENGINEER
MO # PE-2021031578

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors
Columbia, Missouri
3622 Endeavor Ave, Suite 117
573.355.5988
www.klingner.com
Quincy, IL, Galesburg, IL
Burlington, IA, Peoria, IA, Hannibal, MO

© 2017 KLINGNER & ASSOCIATES P.C.
This document shall not be used for any purpose or project for which it is not intended. Klingner & Associates P.C. and their Divisions shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses and expenses, including attorney fees and costs arising out of such measure or reuse of this document. In addition, unauthorized reproduction of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 07/28/23

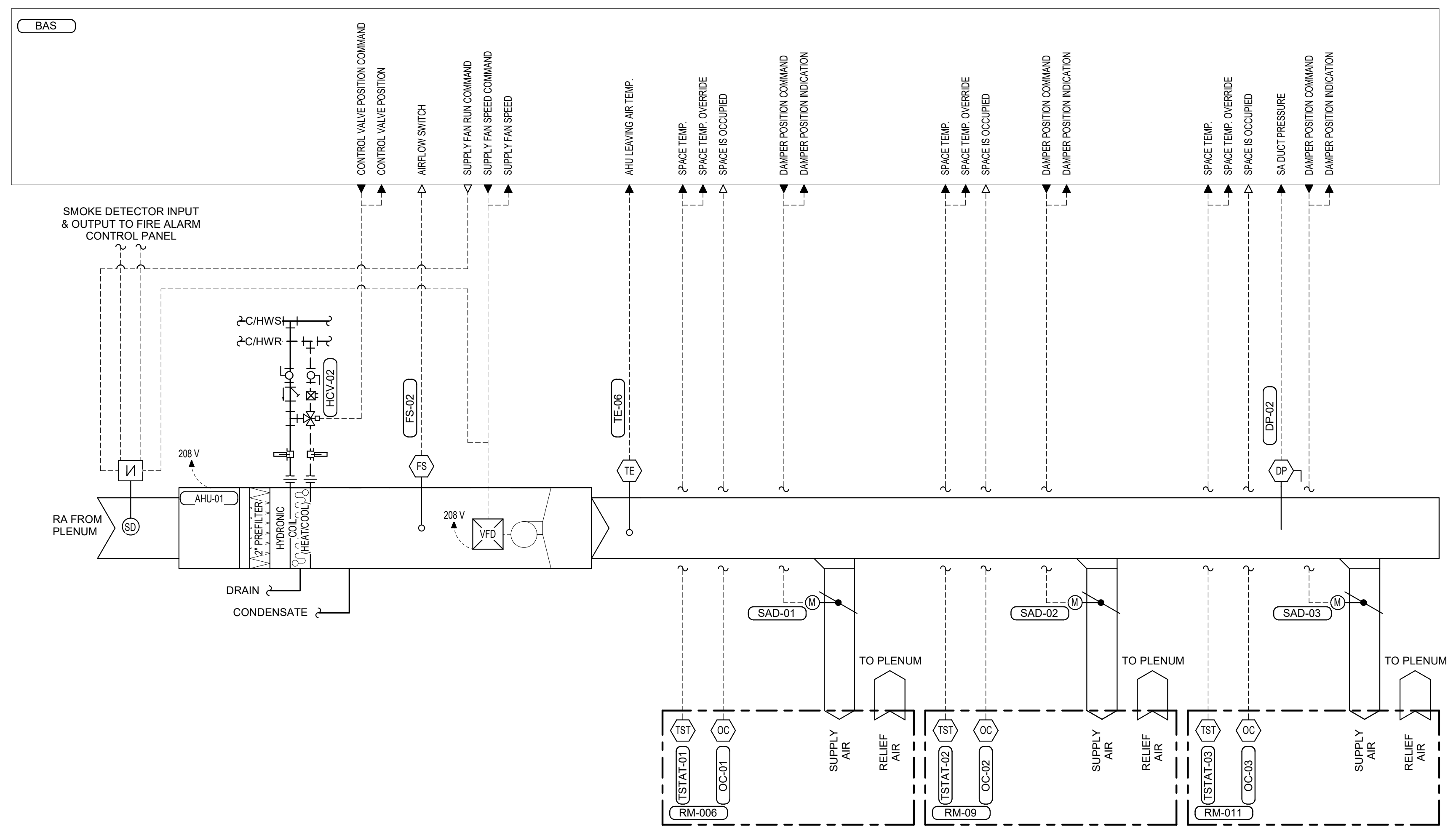
CAD DWG FILE: M703
DRAWING BY: MHB
CHECKED BY: JJN
DESIGNED BY: MHB

SHEET TITLE:
**SCHEMATIC
CONTROLS
DIAGRAM**

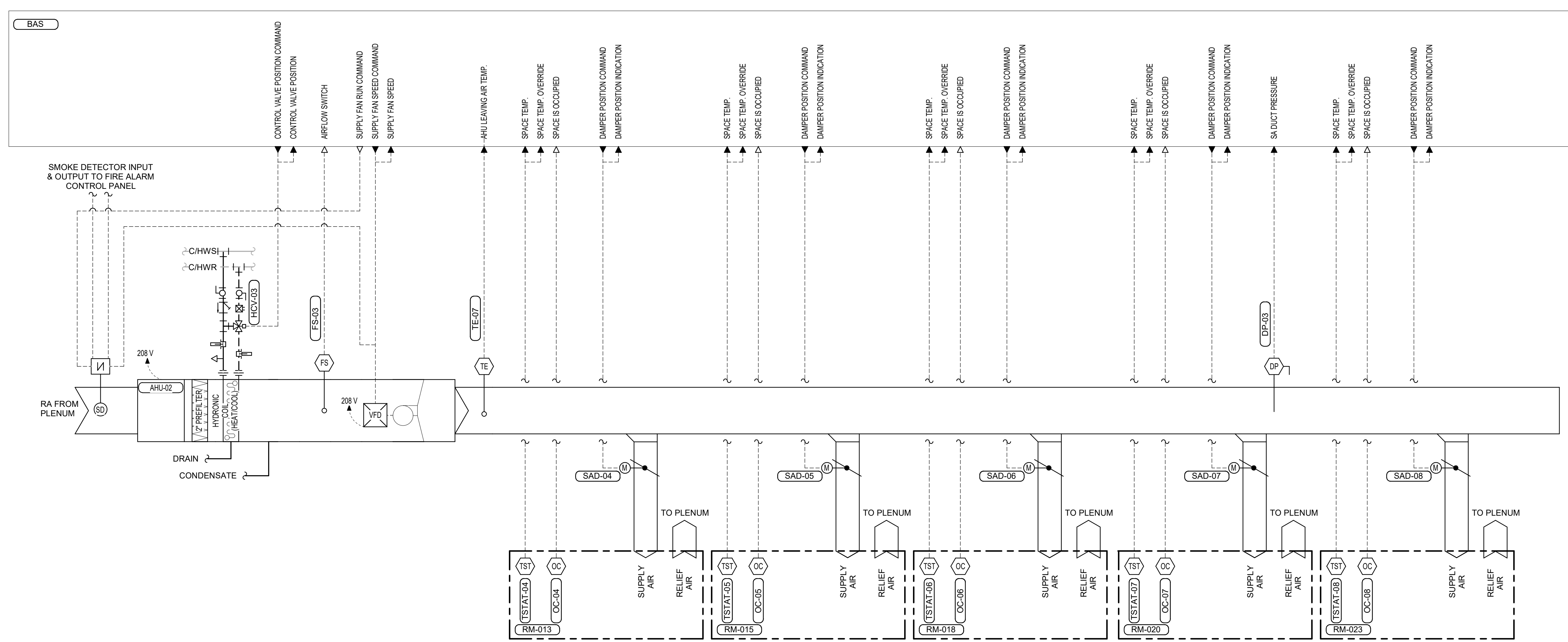
SHEET NUMBER:

M703

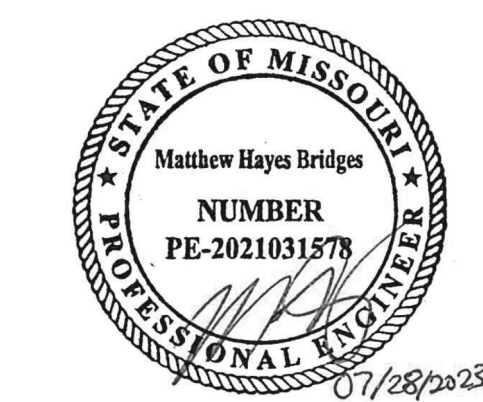
SHEET 16 OF 20
JULY 28, 2023



3 AIR HANDLING UNIT 01 SYSTEM SCHEMATIC CONTROL DIAGRAM
12" = 1'-0"



1 AIR HANDLING UNIT 02 SYSTEM SCHEMATIC CONTROL DIAGRAM
12" = 1'-0"



MATTHEW H. BRIDGES - ENGINEER
MO # PE-2021031578

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors
Columbia, Missouri
3622 Endeavor Ave, Suite 117
Burlington, IA 50888
www.klinger.com
Quincy, IL
Galesburg, IL
Burlington, IA
Farmdale, MO

© 2017 KLINGNER & ASSOCIATES P.C.
This document shall not be used for any purpose or project for which it is not intended. Klinger & Associates P.C. and their Divisions shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses and expenses, including attorney fees and costs arising out of such misuse or reuse of this document. In addition, unauthorized reproduction of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 07/28/23

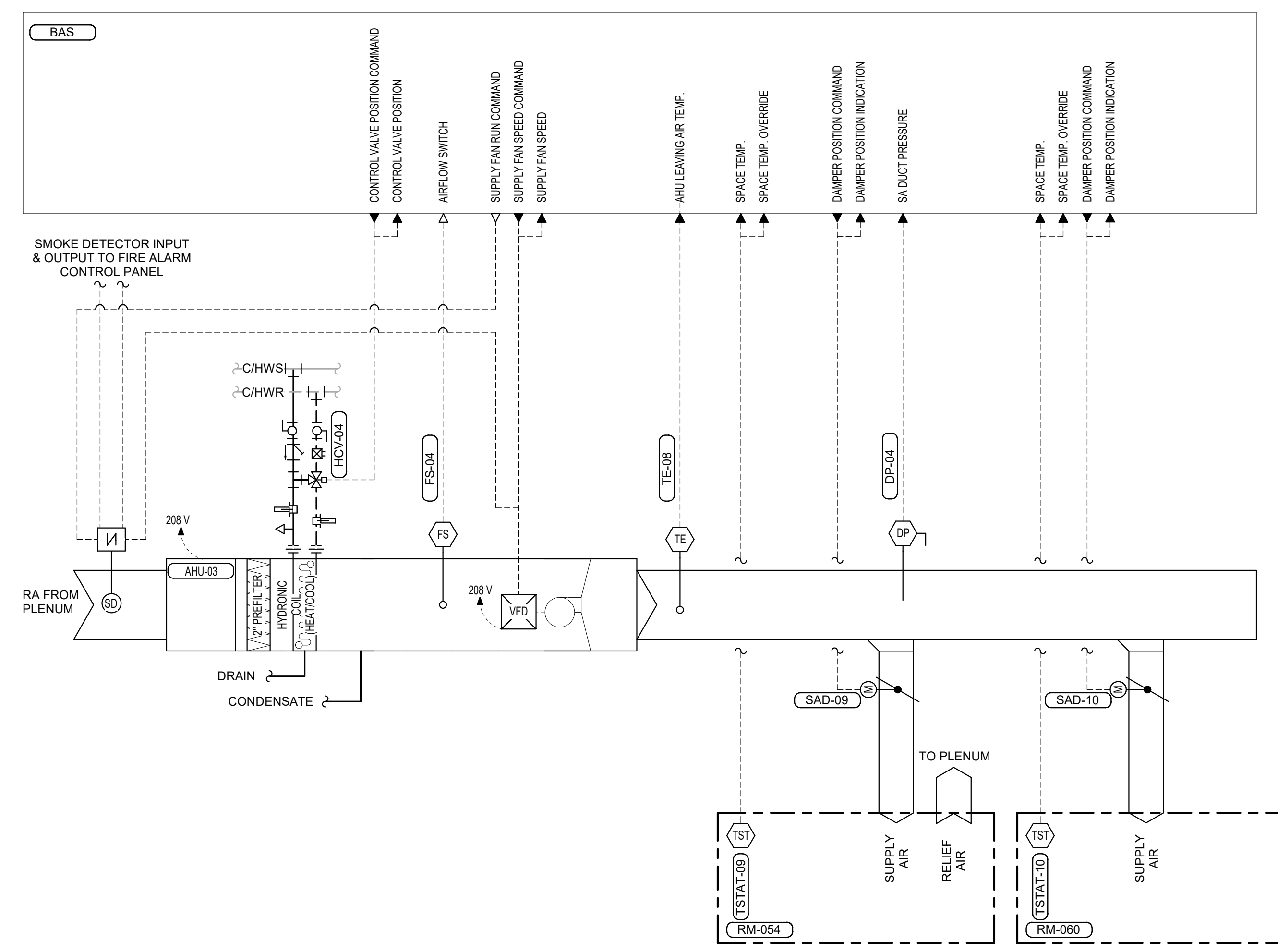
CAD DWG FILE: M704
DRAWING BY: MHB
CHECKED BY: JJN
DESIGNED BY: MHB

SHEET TITLE:
**SCHEMATIC
CONTROLS
DIAGRAM**

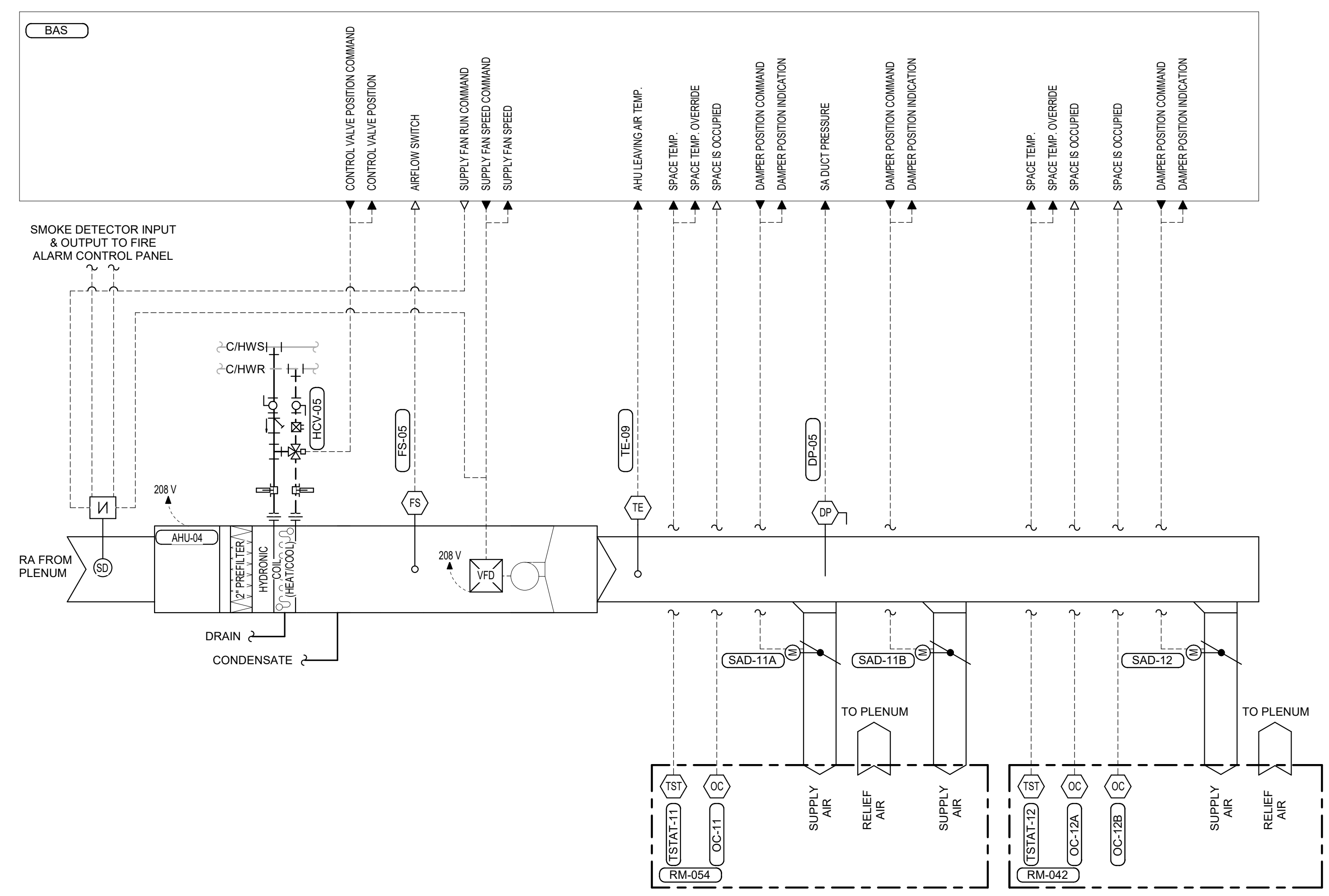
SHEET NUMBER:

M704

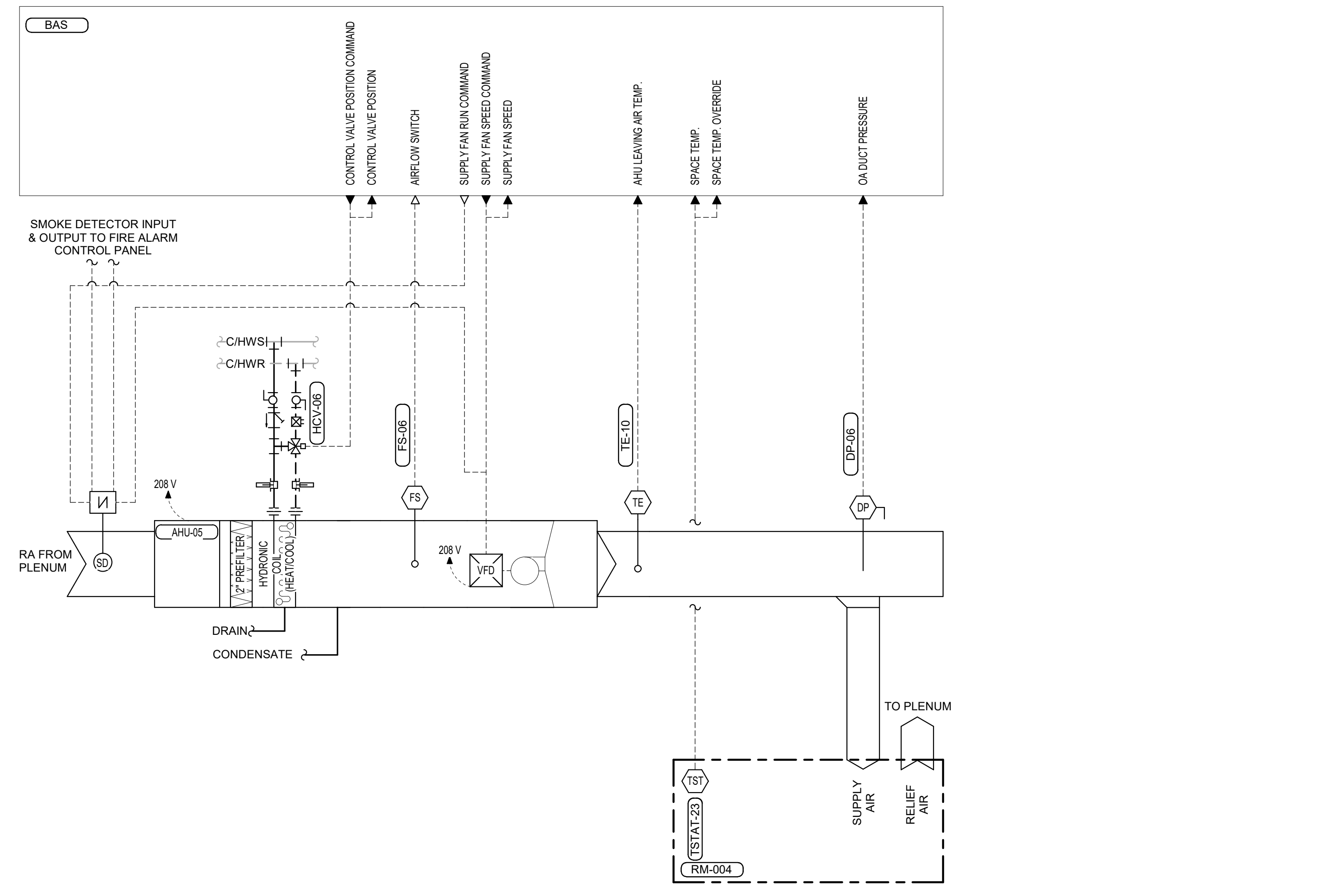
SHEET 17 OF 20
JULY 28, 2023



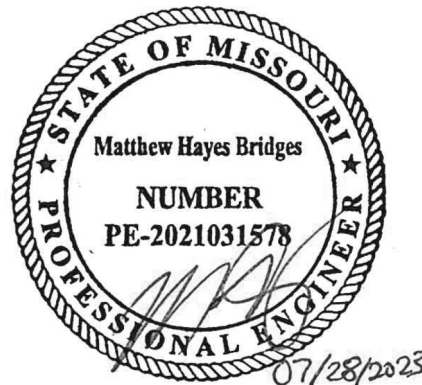
4 AIR HANDLING UNIT 03 SYSTEM SCHEMATIC CONTROL DIAGRAM
12" = 1'-0"



3 AIR HANDLING UNIT 04 SYSTEM SCHEMATIC CONTROL DIAGRAM
12" = 1'-0"



1 AIR HANDLING UNIT 05 SYSTEM SCHEMATIC CONTROL DIAGRAM
12" = 1'-0"



MATTHEW H. BRIDGES - ENGINEER
MO # PE-2021031578

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors
Columbia, Missouri
3622 Endeavor Ave, Suite 117
Burlington, IA, Peoria, IL, Hannibal, MO
www.klinger.com
573.355.5988

© 2017 KLINGNER & ASSOCIATES P.C.
This document shall not be used for any purpose or project for which it is not intended. Klinger & Associates P.C. and their Divisions shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses and expenses, including attorney fees and costs arising out of such means or reuse of this document. In addition, unauthorized reprint, reproduction of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 07/28/23

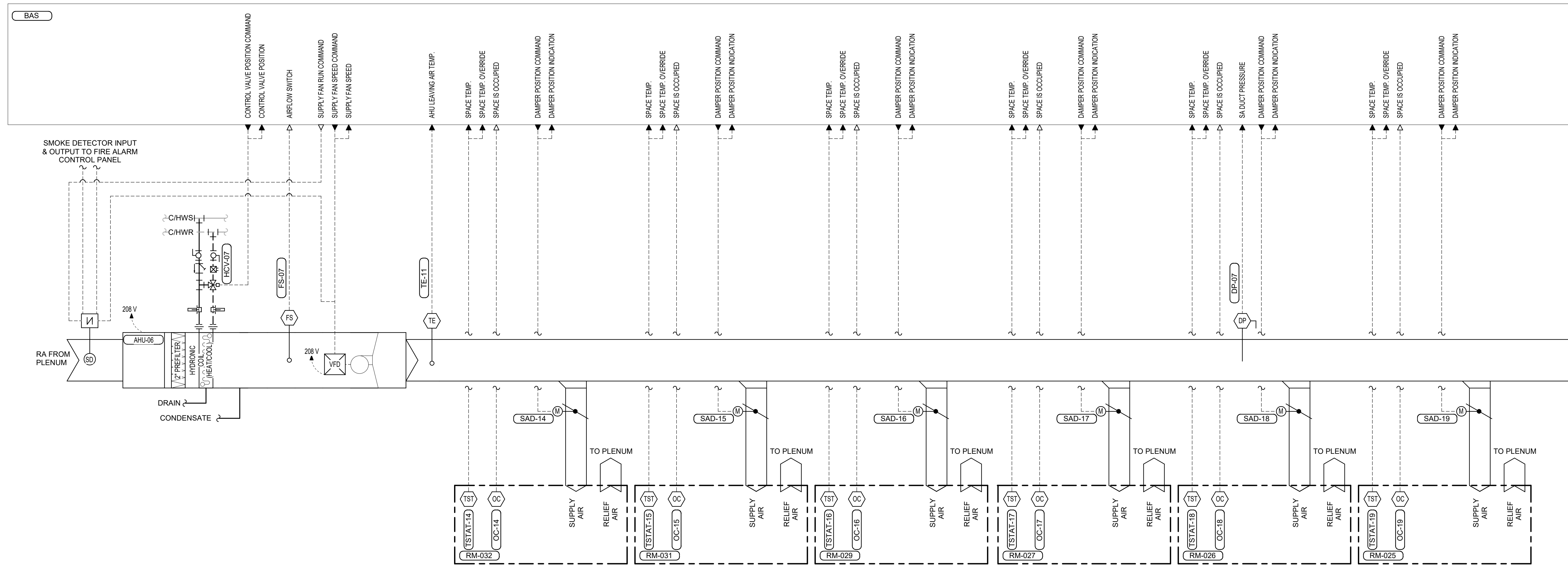
CAD DWG FILE: M705
DRAWING BY: MHB
CHECKED BY: JJN
DESIGNED BY: MHB

SHEET TITLE:
**SCHEMATIC
CONTROLS
DIAGRAM**

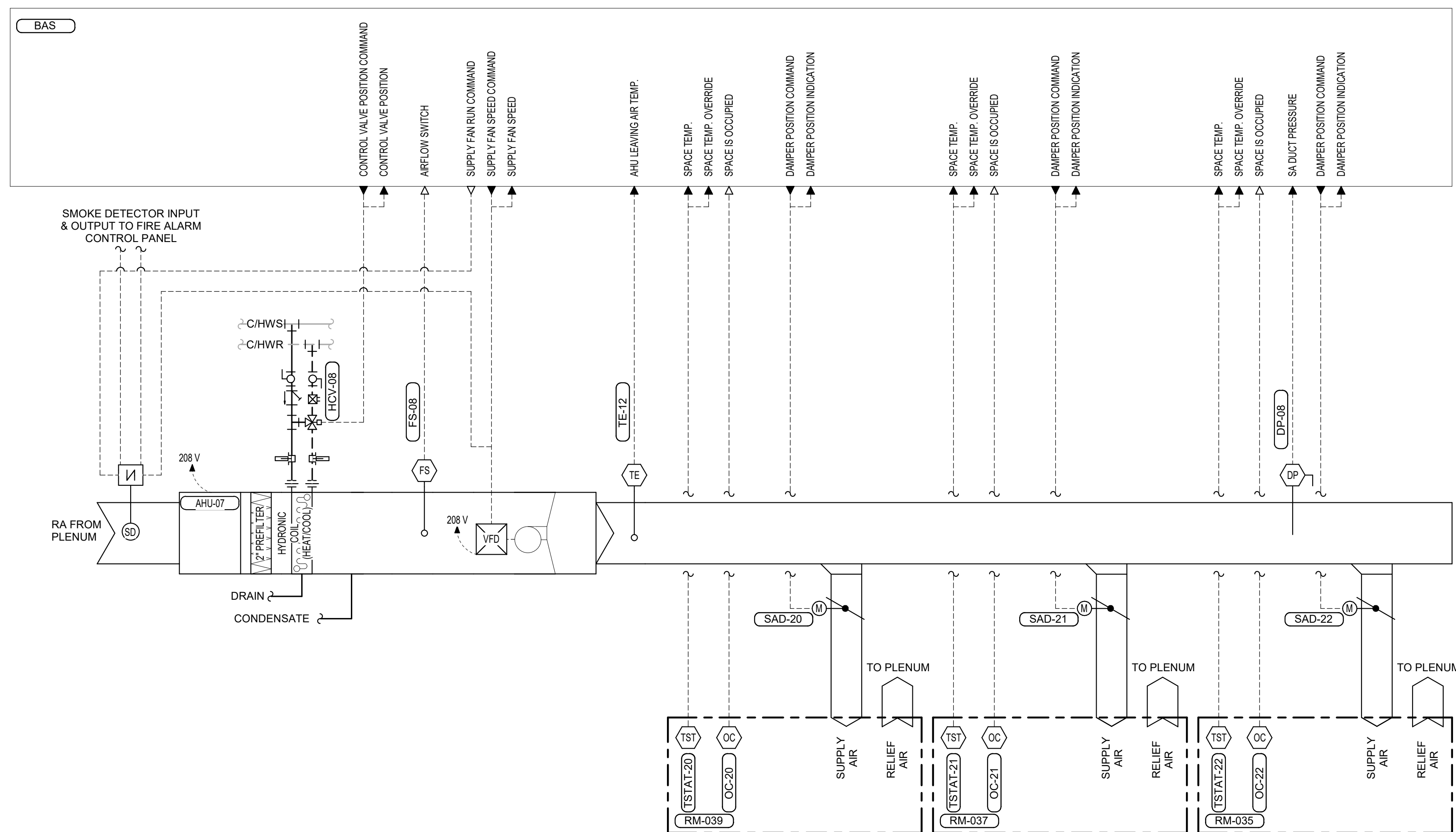
SHEET NUMBER:

M705

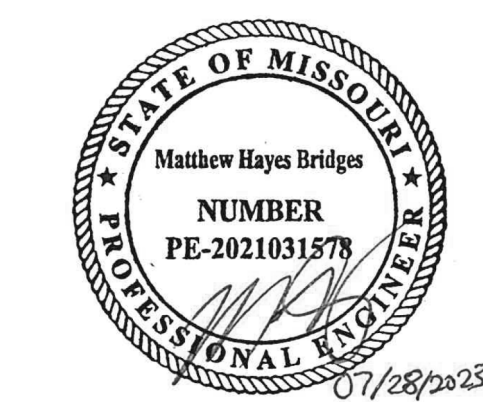
SHEET 18 OF 20
JULY 28, 2023



1 AIR HANDLING UNIT 06 SYSTEM SCHEMATIC CONTROL DIAGRAM
12" = 1'-0"



2 AIR HANDLING UNIT 07 SYSTEM SCHEMATIC CONTROL DIAGRAM
12" = 1'-0"



MATTHEW H. BRIDGES - ENGINEER
MO # PE-2021031578

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors
Columbia, Missouri
3622 Endeavor Ave, Suite 117
Quincy, IL, Galesburg, IL
573.355.5988
Burlington, IA, Peoria, IA, Hannibal, MO
www.klingner.com

© 2017 KLINGNER & ASSOCIATES P.C.
This document shall not be used for any purpose or project for which it is not intended. Klingner & Associates P.C. and their Divisions shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses and expenses, including attorney fees and costs arising out of such misuse or reuse of this document. In addition, unauthorized reprint, reproduction of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 07/28/23

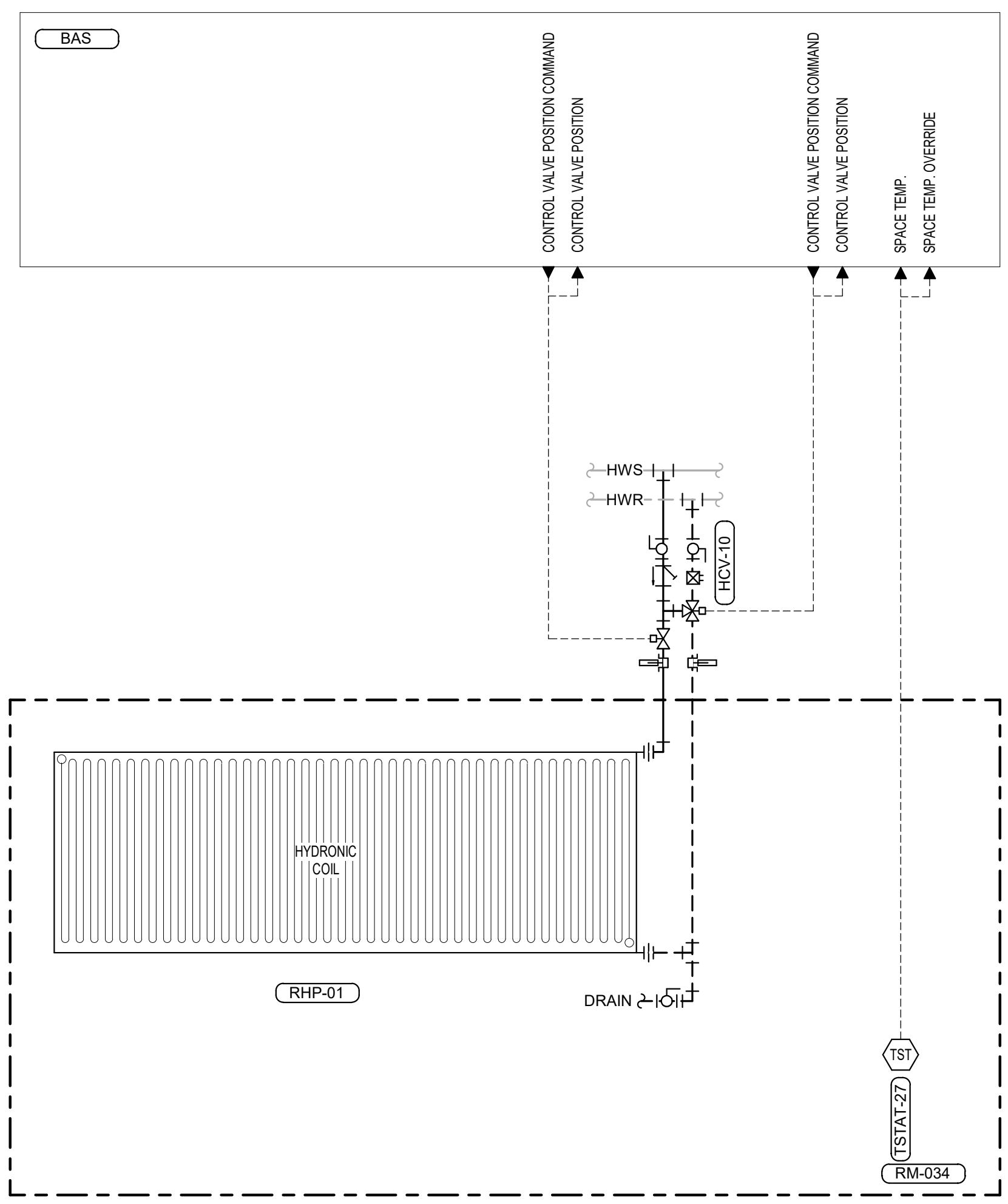
CAD DWG FILE: M706
DRAWING BY: MHB
CHECKED BY: JJN
DESIGNED BY: MHB

SHEET TITLE:
**SCHEMATIC
CONTROLS
DIAGRAM**

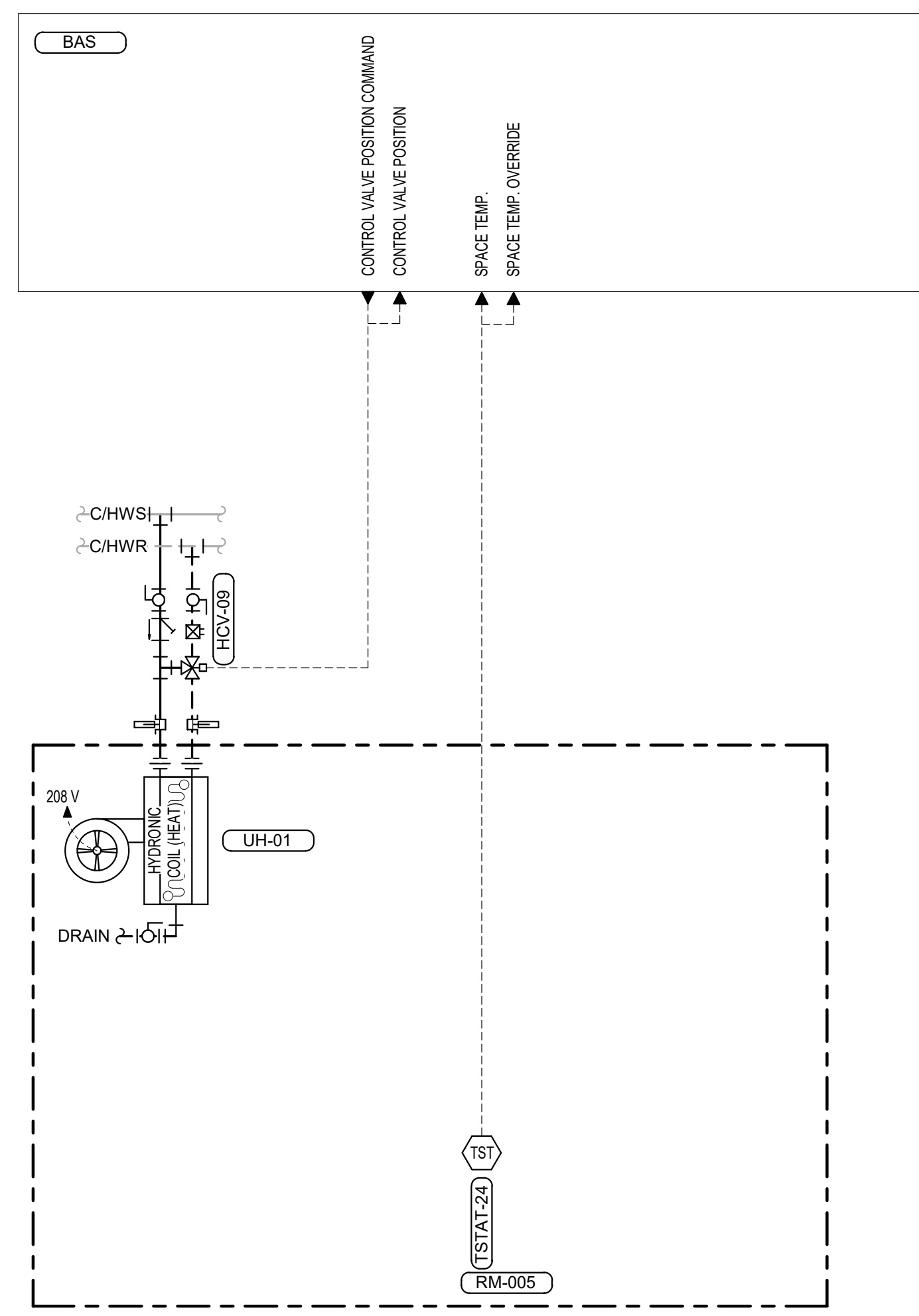
SHEET NUMBER:

M706

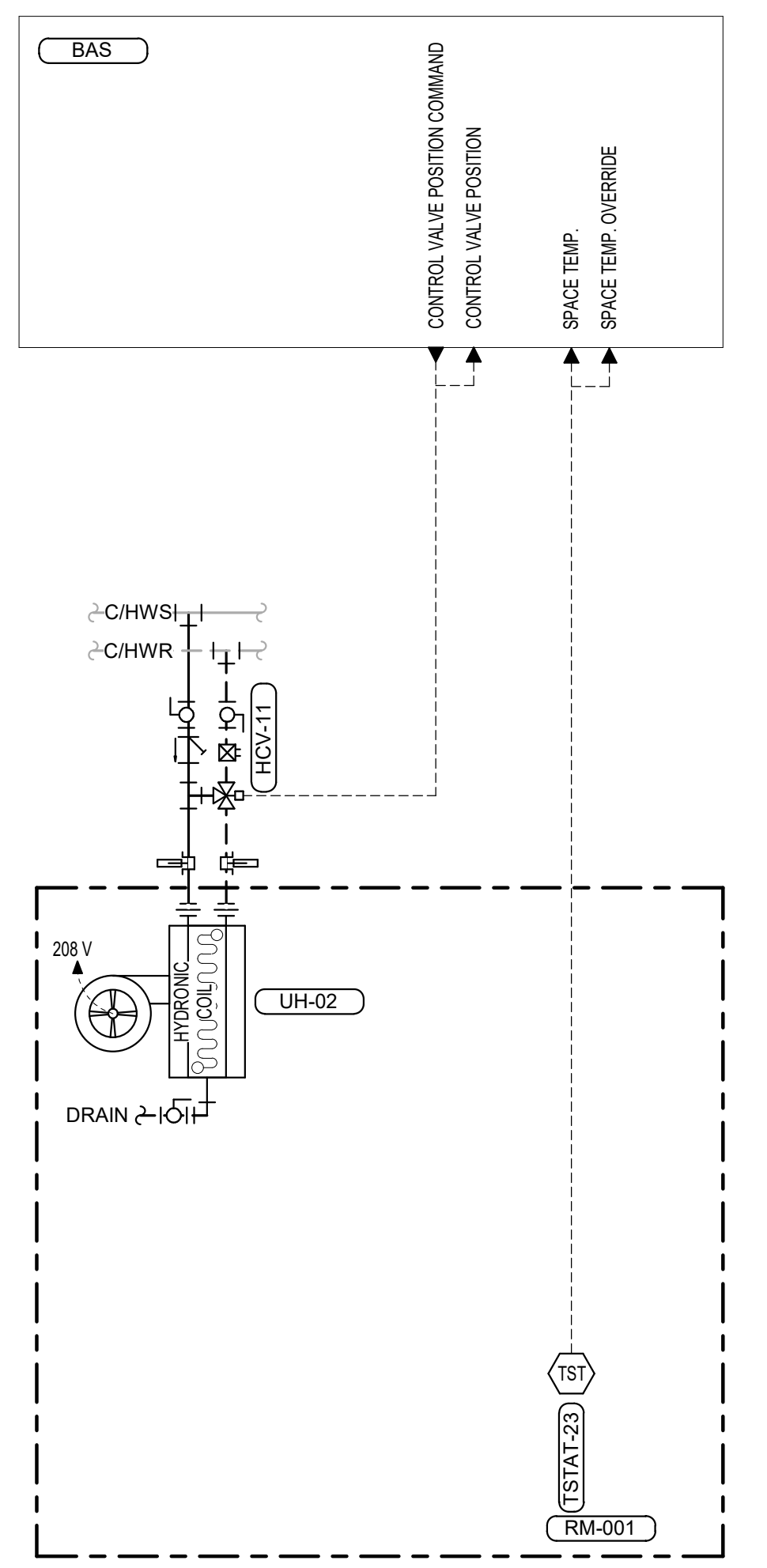
SHEET 19 OF 20
JULY 28, 2023



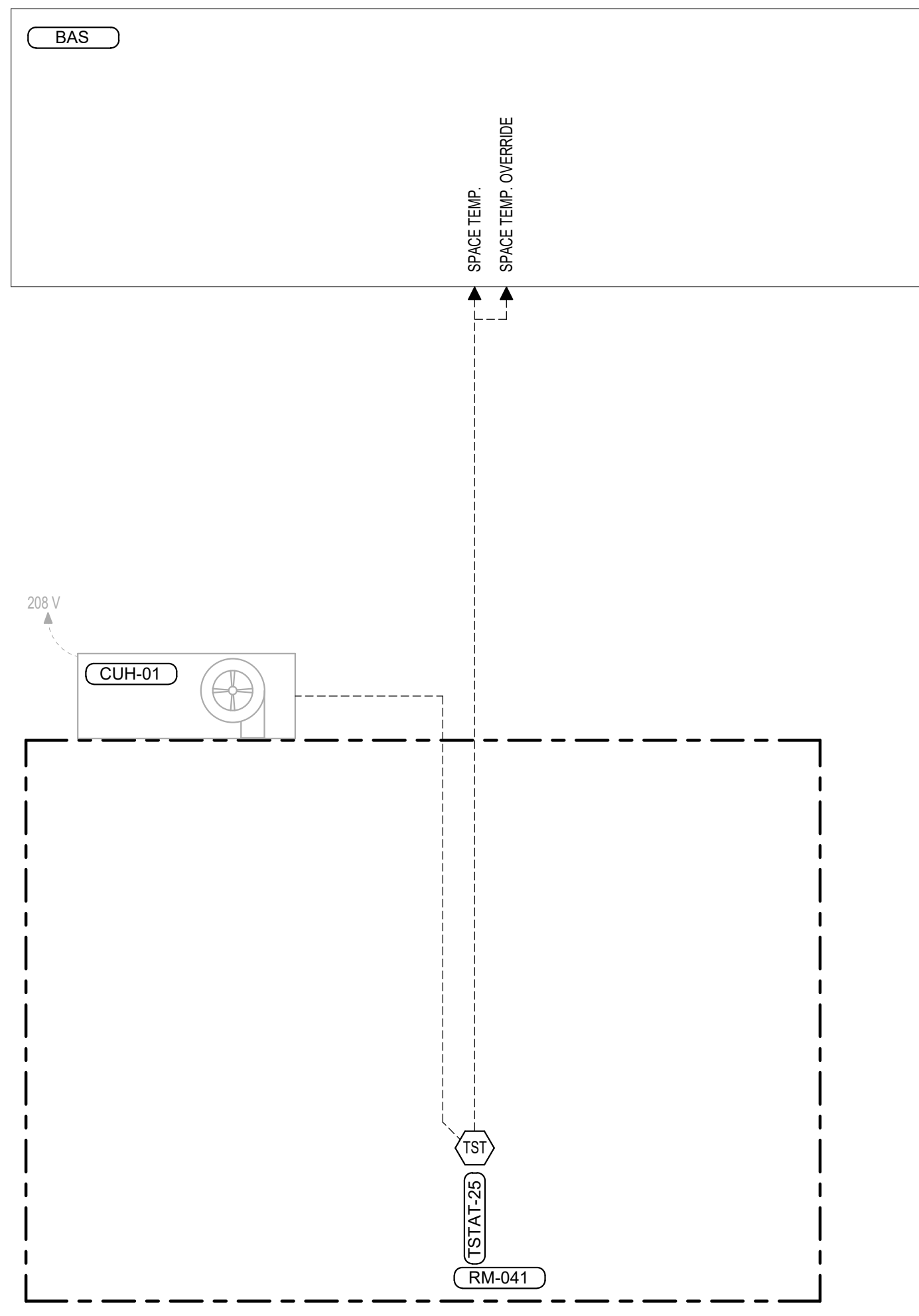
1 RADIANT HEATING PANEL 01 SYSTEM SCHEMATIC CONTROL DIAGRAM
12" = 1'-0"



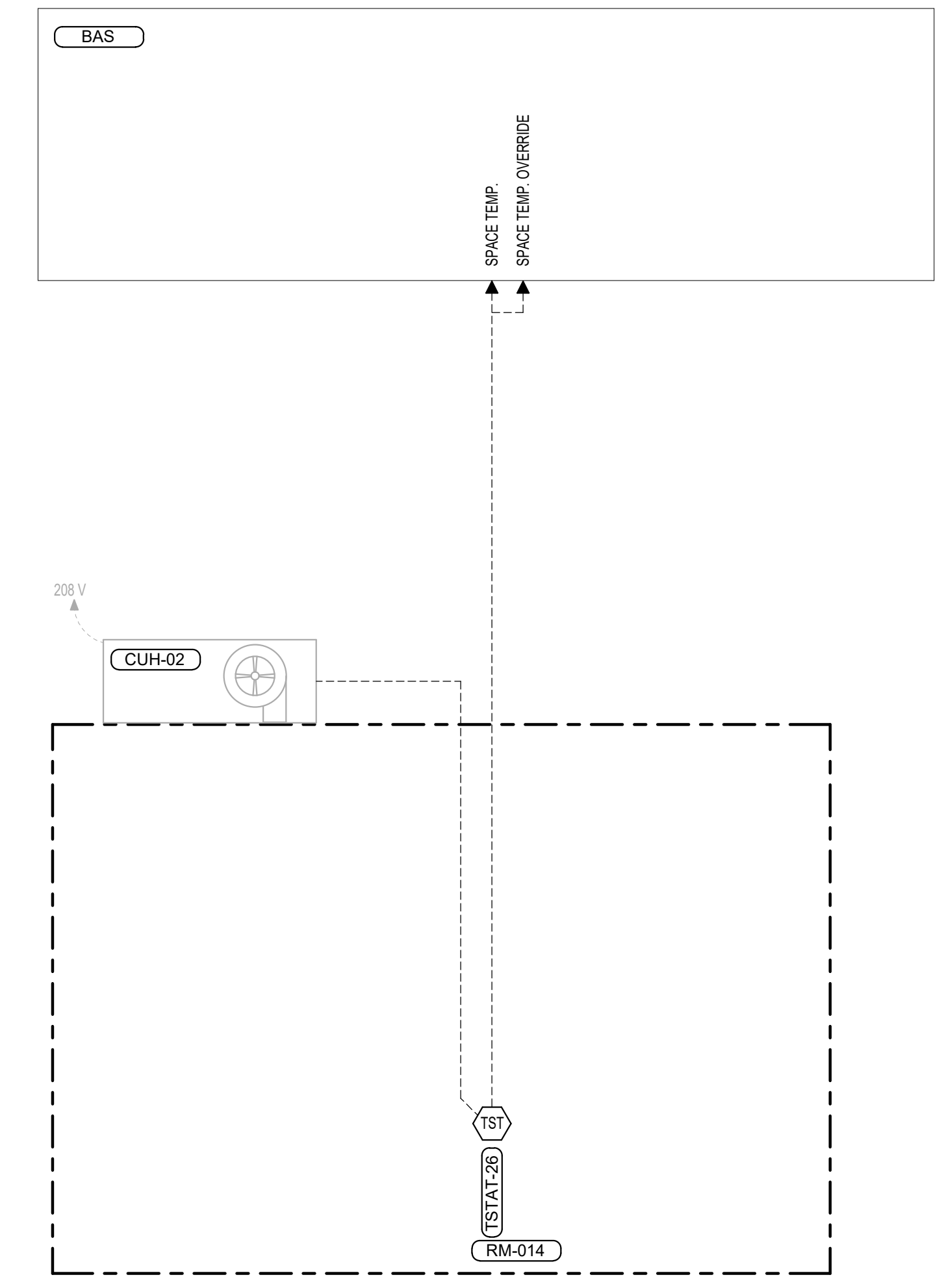
2 UNIT HEATER 01 SYSTEM SCHEMATIC CONTROL DIAGRAM
12" = 1'-0"



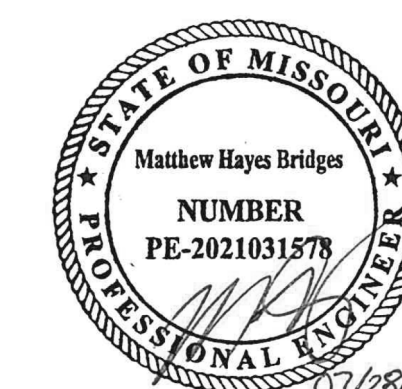
3 UNIT HEATER 02 SYSTEM SCHEMATIC CONTROL DIAGRAM
12" = 1'-0"



4 CABINET UNIT HEATER 01 SYSTEM SCHEMATIC CONTROL DIAGRAM
12" = 1'-0"



5 CABINET UNIT HEATER 02 SYSTEM SCHEMATIC CONTROL DIAGRAM
12" = 1'-0"



MATTHEW H. BRIDGES - ENGINEER
MO # PE-2021031578

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors

www.klingner.com
Columbia, Missouri
3622 Endeavor Ave, Suite 117
Burlington, IA, Peoria, IA, Hannibal, MO

KLINGNER & ASSOCIATES, P.C. - ENGINEERING
MISSOURI STATE CERTIFICATE OF AUTHORITY #000866

© 2017 KLINGNER & ASSOCIATES P.C.

This document shall not be used for any purpose or project for which it is not intended. Klingner & Associates P.C. and their Owners shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses and expenses, including attorney fees and costs arising out of such misuse or reuse of this document. In addition, unauthorized reprint or use of this document, in part or as a whole, is prohibited.

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
ELEMENTARY AND
SECONDARY EDUCATION

REPLACE HVAC SYSTEM

PRAIRIE VIEW STATE
SCHOOL

MARSHALL, MISSOURI

PROJECT # E2319-01
SITE # 2044
ASSET # 5012044002

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 07/28/23

CAD DWG FILE: E101
DRAWING BY: MHB
CHECKED BY: JJN
DESIGNED BY: MHB

SHEET TITLE:
POWER PLAN

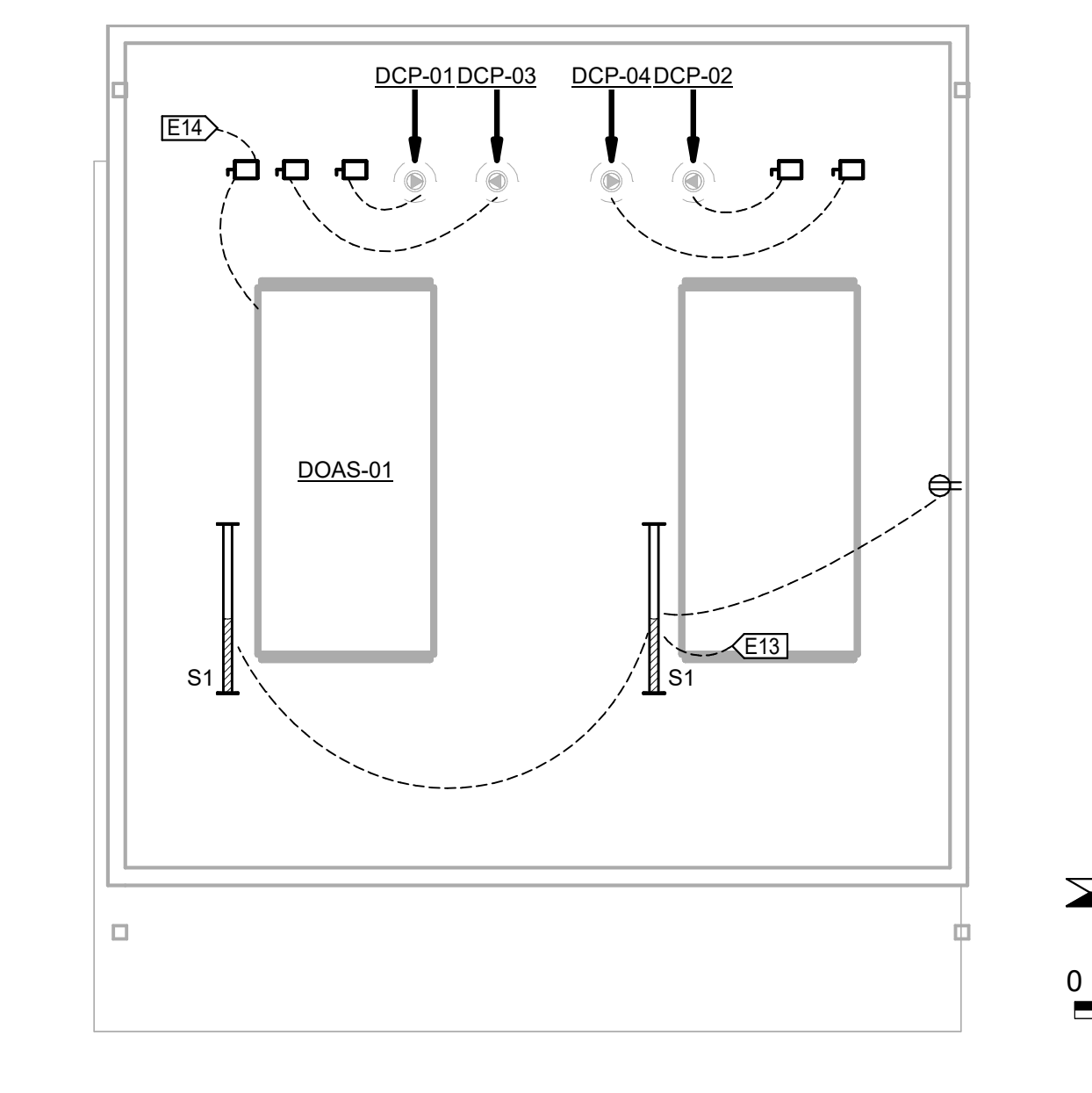
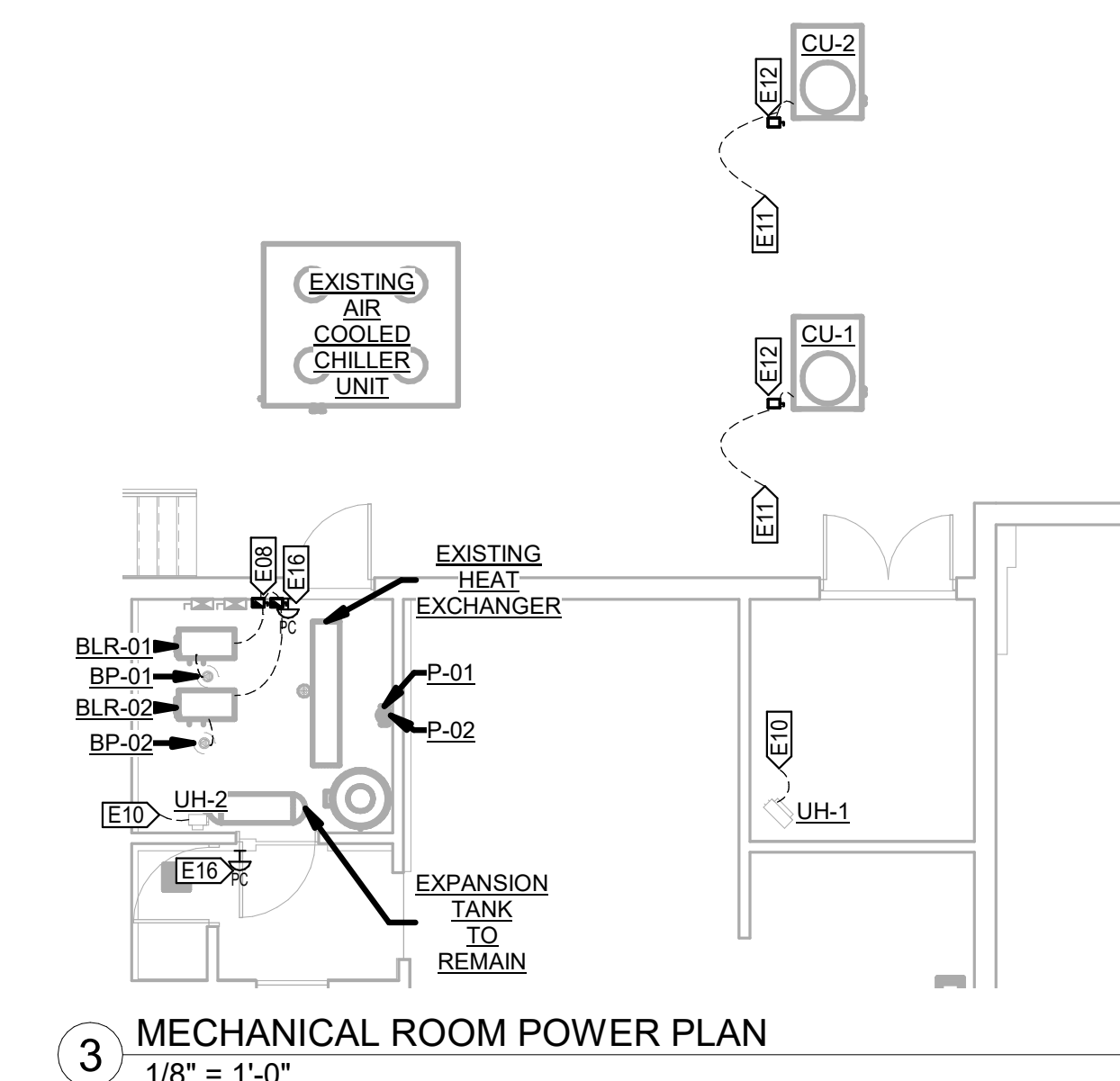
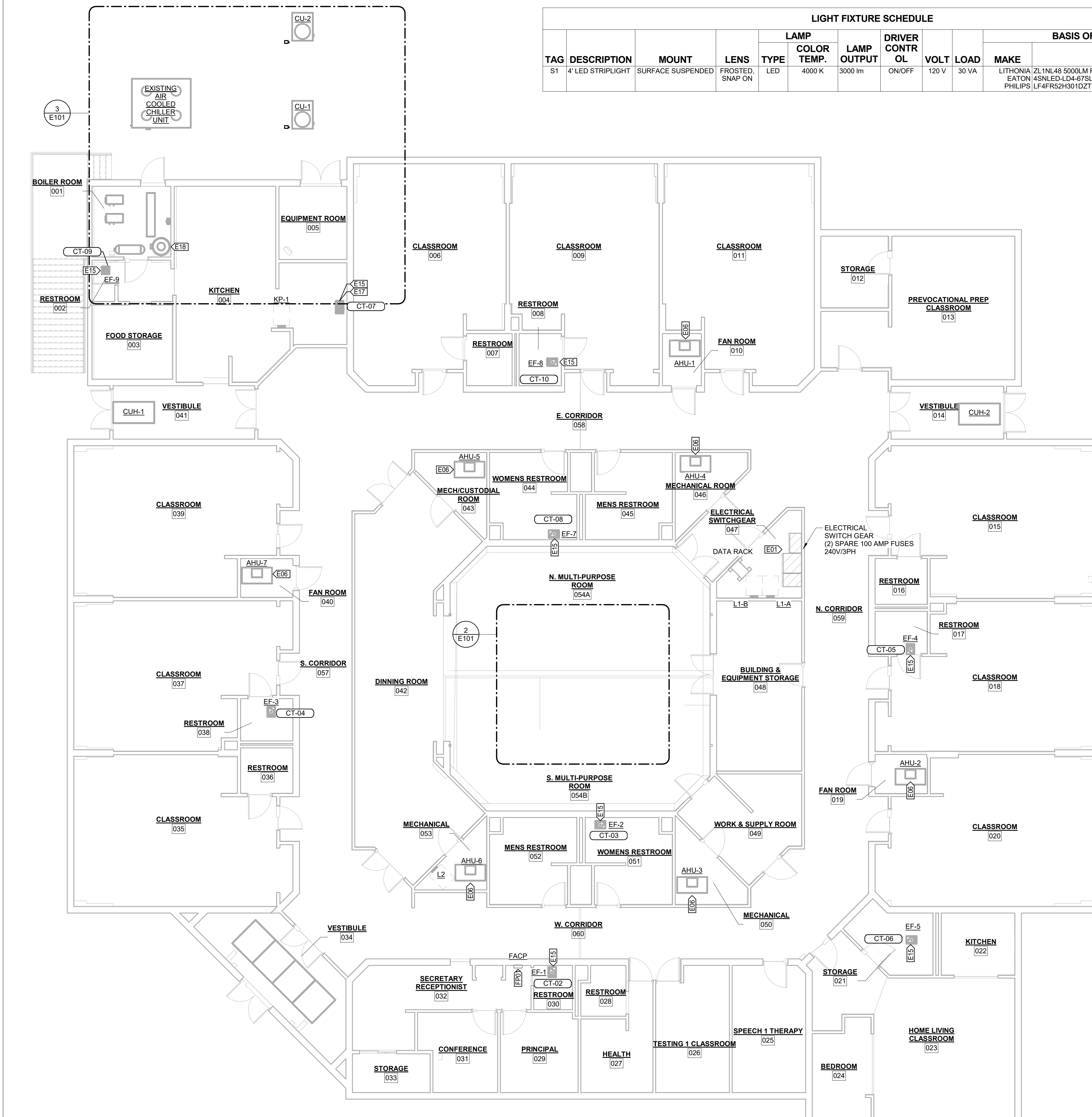
SHEET NUMBER:

E101

SHEET 20 OF 20
JULY 28, 2023

TAG	DESCRIPTION	MOUNT	LENS	LAMP				DRIVER CONTR OL	VOLT	LOAD	BASIS OF DESIGN	
				TYPE	COLOR TEMP.	LAMP OUTPUT	MAKE				MODEL	
S1	4' LED STRIPLIGHT	SURFACE SUSPENDED	FROSTED, SNAP ON	LED	4000 K	3000 lm	ON/OFF	120 V	30 VA	LITHONIA ZL1N148 5000LM FST 120 30K 80CRI WH EATON 4SNLED-LD4-67SL-LW-UNV-L830-CD1-U PHILIPS LF4FR52H301DZT		

VALUE	DESCRIPTION
E01	INSTALL FUSES IN 100 AMP SPARE FUSIBLE SWITCHES TO FEED DOAS-01 AND CU-01. COORDINATE FUSE SIZE WITH EQUIPMENT PROVIDED.
E06	REUSE EXISTING AHU CIRCUITS AND ASSOCIATED WIRING. RELOCATE EXISTING RETURN AIR DUCT SMOKE DETECTORS AT EACH AHU.
E08	REUSE EXISTING BOILER CIRCUIT TO POWER BOTH NEW BOILERS. PROVIDE A NEW DISCONNECT SWITCH FOR EACH BOILER. POWER EACH BOILER CIRCULATOR PUMP FROM ASSOCIATED BOILER.
E10	REUSE EXISTING CIRCUIT TO POWER NEW UNIT HEATER.
E11	PROVIDE NEW CIRCUIT TO CONDENSING UNIT WITH REMOTE MOUNTED DISCONNECT SWITCH.
E12	PROVIDE UNISTRUT FRAMEWORK TO SUPPORT CONDENSING UNIT REMOTE DISCONNECT SWITCH.
E13	REUSE EXISTING LIGHTING CIRCUIT TO FEED NEW LIGHT FIXTURES.
E14	PROVIDE NEW BRANCH FEEDER TO DOAS-1 FROM MAIN SWITCHGEAR.
E15	PROVIDE NEW CT ON EXISTING EXHAUST FAN CIRCUIT TO ALLOW STATUS MONITORING BY BAS.
E16	PROVIDE NEW EMERGENCY BOILER SHUTDOWN SWITCH IN THIS LOCATION.
E17	REUSE EXISTING CIRCUIT TO POWER NEW EXHAUST FAN.
E18	REUSE EXISTING CIRCUIT TO POWER NEW DOMESTIC WATER HEATER AND CIRCULATOR PUMP.
FP01	EXISTING FIRE ALARM CONTROL PANEL: KIDDE KAS-200



1 Level 1
1/8" = 1'-0"

2 ENLARGED MECHANICAL MEZANINE POWER PLAN
1/4" = 1'-0"

