

CENTRAL PLANT IMPROVEMENTS
CHAPARRAL BUILDING - 2023
TEXAS A&M UNIVERSITY CORPUS CHRISTI
223 N. CHAPARRAL
CORPUS CHRISTI, TX 78401
OCTOBER 11, 2023

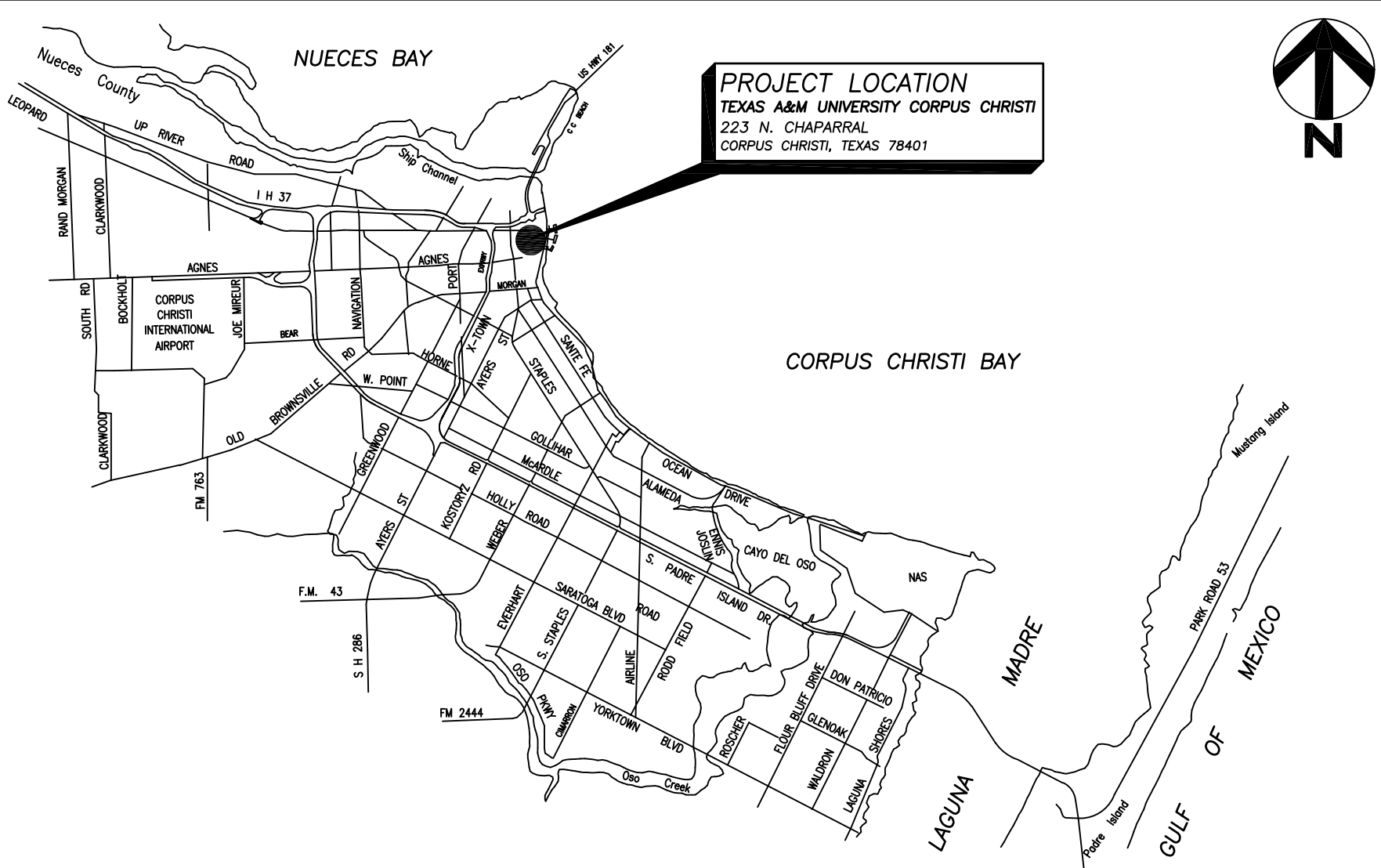
DESCRIPTION OF WORK:

- SCOPE OF WORK INCLUDES THE INSTALLATION OF A NEW CHILL WATER SYSTEM AND ENERGY MANAGEMENT CONTROLS AS WELL AS BUILDING A NEW ELECTRICAL SERVICE.
- WHERE INDICATED ON THE DRAWINGS, A NEW 4000-AMPERE ELECTRICAL SERVICE SHALL BE INSTALLED ON THE SECOND FLOOR. CONTRACTOR SHALL COORDINATE SUCH INSTALLATION WITH THE OWNER AND THE POWER COMPANY, AEP. AEP POINT OF CONTACT IS PATRICK HERNANDEZ AT 361-826-6440. THE UNIVERSITY (ALSO KNOW AS THE OWNER) SHALL FURNISH THE SWITCHBOARDS AND DISTRIBUTION PANELS AS INDICATED ON THE ONE-LINE DIAGRAM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECEIVING AND INSTALLING OWNER FURNISHED GEAR PACKAGE.
- WHERE INDICATED ON THE DRAWINGS, A NEW 450KW NATURAL GAS GENERATOR SHALL BE INSTALLED ON A NEW STRUCTURAL PLATFORM LOCATED ON THE ROOF OF THE BUILDING. CONTRACTOR SHALL COORDINATE SUCH INSTALLATION WITH THE OWNER. THE UNIVERSITY (ALSO KNOW AS THE OWNER) SHALL FURNISH THE GENERATOR AS INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECEIVING AND INSTALLING OWNER FURNISHED GENERATOR PACKAGE INCLUDING THE INSTALLATION OF GAS PIPING AND CONNECTIONS AS WELL AS MAKING ALL ELECTRICAL CONNECTIONS AS REQUIRED.
- WHERE INDICATED ON THE DRAWINGS, THE CONTRACTOR SHALL PROVIDE A NEW GAS SERVICE AND ASSOCIATED GAS PIPING TO THE OWNER FURNISHED GENERATOR. CONTRACTOR SHALL COORDINATE SUCH INSTALLATION WITH THE OWNER AND THE LOCAL GAS COMPANY. CONTRACTOR SHALL INCLUDE COST FOR ALL PERMITS AND TRENCHING AS REQUIRED BY THE GAS COMPANY.
- WHERE INDICATED ON THE DRAWINGS, THE CONTRACTOR SHALL PROVIDE NEW ROOF DRAINS AND ASSOCIATED PIPING.
- WHERE INDICATED ON THE DRAWINGS, TWO (2) NEW 130-TON AIR COOLED SCROLL CHILLERS SHALL BE INSTALLED ON A NEW STRUCTURAL PLATFORM LOCATED ON THE ROOF OF THE BUILDING. CONTRACTOR SHALL INSTALL ASSOCIATED VFDS AND STARTERS. THE UNIVERSITY (ALSO KNOW AS THE OWNER) SHALL FURNISH THE CHILLERS AND VFDS AS INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECEIVING AND INSTALLING OWNER FURNISHED EQUIPMENT. CONTRACTOR SHALL COORDINATE SUCH INSTALLATION WITH THE OWNER.
- WHERE INDICATED ON THE DRAWINGS, THE CONTRACTOR SHALL PROVIDE ASSOCIATED PUMPS, PIPING, HANGERS, SUPPORTS, INSULATION, AND ROOF PENETRATIONS AS INDICATED AND AS REQUIRED TO ACHIEVE SPECIFIED WORK.
- WHERE INDICATED ON THE DRAWINGS, CONTRACTOR SHALL PROVIDE ALL SUPPORTING AND ASSOCIATED ELECTRICAL WORK REQUIRED TO ACHIEVE SPECIFIED WORK SHALL BE INCLUDED.
- WHERE INDICATED ON THE DRAWINGS, CONTRACTOR SHALL PROVIDE ALL SUPPORTING AND ASSOCIATED PLUMBING WORK REQUIRED TO ACHIEVE SPECIFIED WORK SHALL BE INCLUDED.
- WHERE INDICATED ON THE DRAWINGS, CONTRACTOR SHALL PROVIDE ALL ASSOCIATED STRUCTURAL WORK REQUIRED TO ACHIEVE SPECIFIED WORK, INCLUDING BUT NOT LIMITED TO REMOVING AND REPLACING THE EXISTING STRUCTURAL ROOF PLATFORM AND THE INSTALLATION OF A NEW PLATFORM AS REQUIRED TO ACHIEVE THE SCOPE OF WORK.
- WHERE INDICATED ON THE DRAWINGS, CONTRACTOR SHALL PROVIDE A NEW ROOFING SYSTEM. CONTRACTOR SHALL PROVIDE ALL ASSOCIATED ARCHITECTURAL WORK REQUIRED TO ACHIEVE SPECIFIED WORK, INCLUDING BUT NOT LIMITED TO NEW HANDRAILS, ROOF PENETRATIONS, AND SEALING WALL AND FLOORS AS REQUIRED TO ACHIEVE THE SCOPE OF WORK.
- CONTRACTOR SHALL PROVIDE ALL REQUIRED PROTECTION OF EXISTING BUILDING COMPONENTS AS REQUIRED TO ACHIEVE SPECIFIED WORK.
- COORDINATION WITH OWNER FOR RELOCATION AND STORAGE OF ANY CONTENTS LOCATED IN AFFECTED WORK AREAS (RELOCATION COSTS AND STORAGE SPACE PROVIDED BY OWNER, COORDINATED BY CONTRACTOR WITH OWNER).
- BARRICADING AND SIGNAGE AS REQUIRED DURING WORK TO ENSURE SAFETY OF BUILDING OCCUPANTS DURING WORK. MOST AFFECTED AREAS ARE ONLY OCCUPIED A FEW HOURS PER WEEK. CONTRACTOR SHALL COORDINATE CLOSELY WITH OWNER.
- DUST CONTROL TO PREVENT MIGRATION INTO ADJACENT SPACES NOT IN SCOPE OF WORK.
- ON-SITE OR OFF-SITE STORAGE OF EQUIPMENT AND MATERIALS.
- DISPOSAL OF ALL REMOVED ITEMS AND MATERIALS.
- FINAL CLEANING OF ALL AREAS AFFECTED UPON COMPLETION OF WORK.
- REFERENCE BOOK SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS

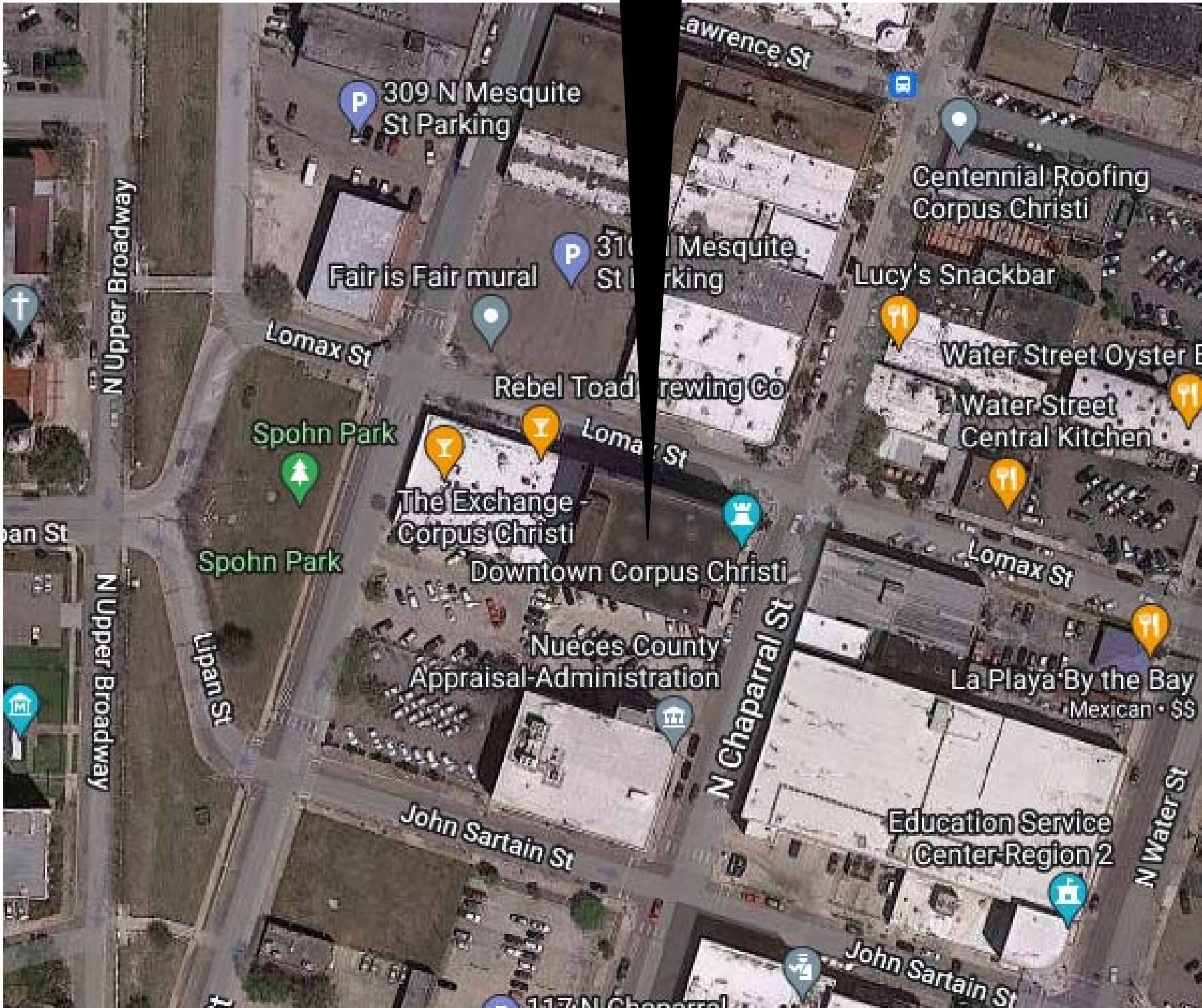
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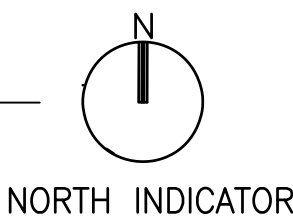
REGIONAL MAP



TEXAS A&M UNIVERSITY CORPUS CHRISTI
CHAPARRAL BUILDING
PROJECT SITE

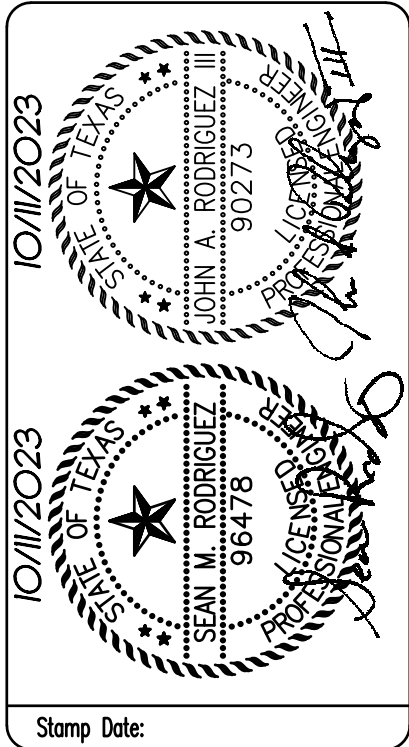
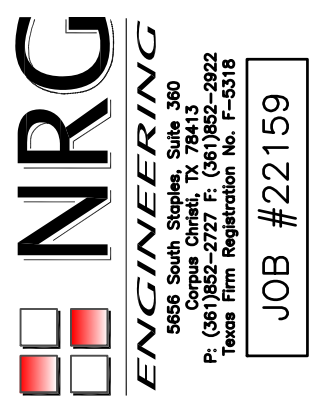


1 AREA MAP – DOWNTOWN CHAPARRAL BUILDING
SCALE: 1" = 30'



REVISIONS DATE	#

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Stamp Date:

GENERAL PROJECT INFORMATION

CENTRAL PLANT IMPROVEMENTS
TEXAS A&M UNIVERSITY CORPUS CHRISTI
223 N. CHAPARRAL
CORPUS CHRISTI, TEXAS

PROJECT #: 22159
FILE NAME: CHAPARRAL
DRAFTING BY: JAR
CHECKED BY: JAR
DATE: MAY 12, 2023

SHEET NUMBER:

G0.1

SHT. No. 1 of 30

ASBESTOS DEMOLITION NOTES - ROOF

1	REFERENCE TABLE 1 - ASBESTOS SAMPLE MATERIAL REPORT SUMMARY INCLUDED IN PROJECT MANUAL FOR FULL REPORT AND EXACT LOCATIONS.
2	ROOF - ASBESTOS CONTAINING MATERIAL MISC. ABATEMENT TO BE INCLUDED IN BASE BID.
3	LOCATIONS: PENTHOUSE AND BRAKE SHOES

DEMOLITION FLOOR LEGEND

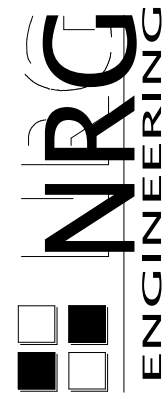
- EXISTING WALL TO REMAIN
- DEMOLISH EXISTING WALL
- DEMOLISH EXISTING DOOR
- DEMOLISH EXISTING DOOR

REVISIONS DATE	#

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DEMO ROOF PLAN KEYED NOTES

KEY	NOTE
2	DEMO EXISTING DOOR, FRAME AND ASSOCIATED HARDWARE COMPLETE
7	EXISTING EXTERIOR WALL TO REMAIN
17	DEMO EXISTING METAL LADDER COMPLETE
19	DEMO EXISTING HVAC; REFER TO MECHANICAL DRAWINGS
21	DEMO EXISTING STEEL ELEMENTS COMPLETE
32	REMOVE EXISTING ROOF DRAINS COMPLETE; REFER TO PLUMBING DRAWINGS
34	EXISTING CONCRETE COLUMN STUBS TO REMAIN; REMOVE EXISTING FLASHING COMPLETE
35	REMOVE EXISTING SHEET METAL ROOF CAP COMPLETE; INFILL OPENING WITH CONCRETE TO MATCH EXISTING THICKNESS AND CONSTRUCTION
37	DEMO EXISTING HANDRAIL AND SUPPORTS COMPLETE
38	DEMO EXISTING DOOR, FRAME AND ASSOCIATED HARDWARE COMPLETE
45	DEMO EXISTING ROOFING SYSTEM COMPLETE INCLUDING PENTHOUSE AND STAIR ROOFING; PREPARE FOR NEW ROOFING SYSTEM
46	DEMO EXISTING ELEVATOR EQUIPMENT
62	EXISTING ROOF VENTS; REFER TO MEP



Stamp Date: 10/4/2023

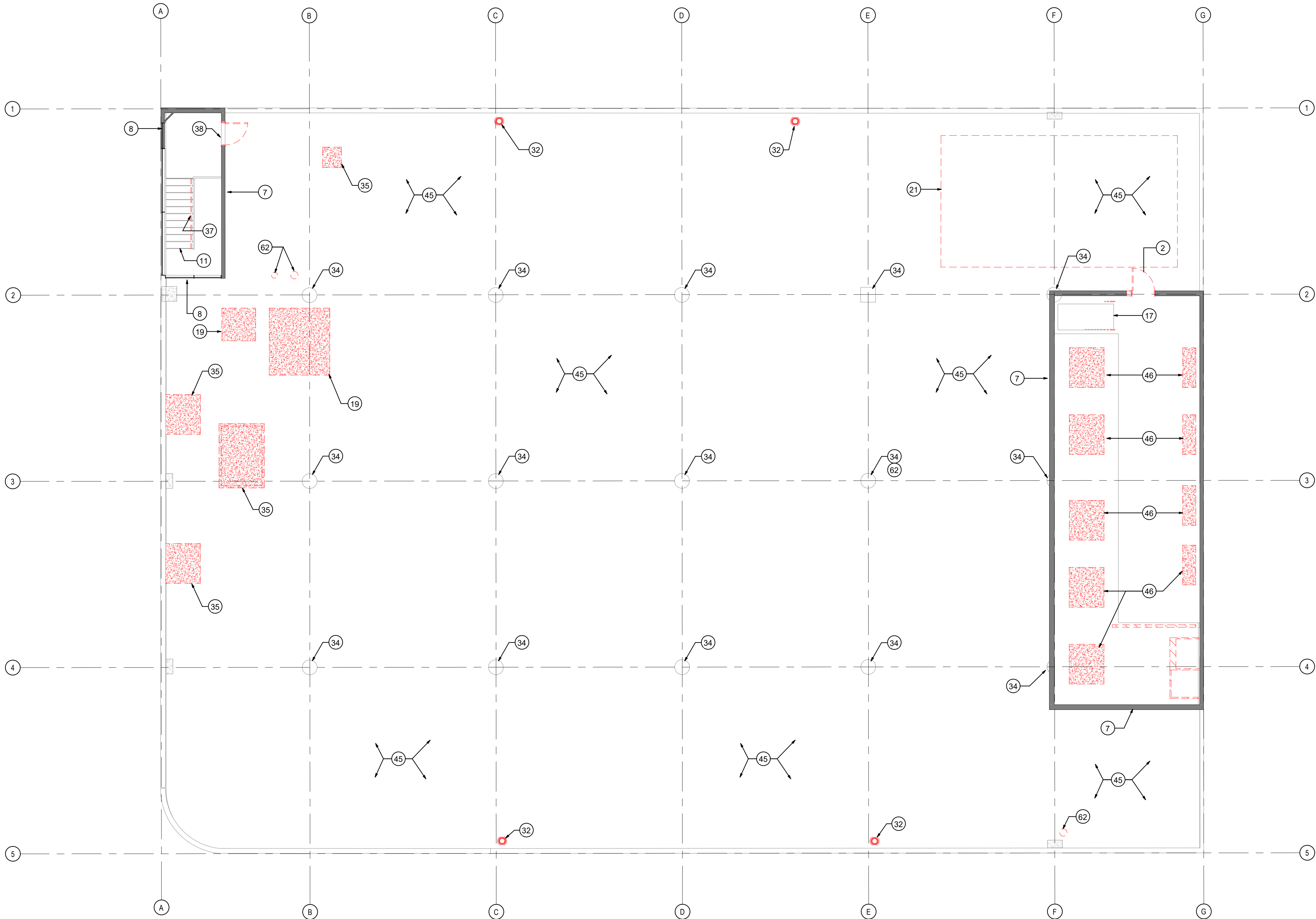
DEMOLITION ROOF PLAN

223 N. CHAPARRAL STREET
CORPUS CHRISTI, TEXAS

PROJECT #: 22159
FILE NAME: CHAPARRAL
DRAFTING BY: CMF
CHECKED BY:
DATE: OCTOBER 2023
SHEET NUMBER:

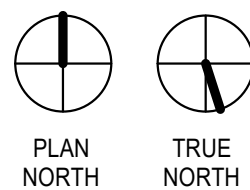
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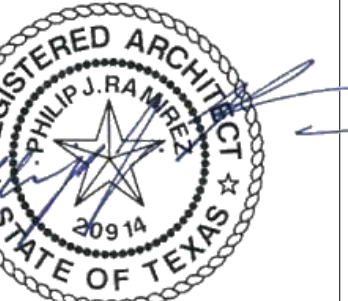
SHT. No. 2 of 30



1 ROOF DECK DEMOLITION

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



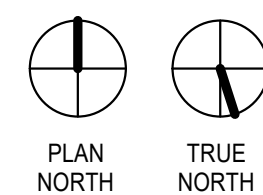


ROOF PLAN

223 N. CHAPARRAL STREET
CORPUS CHRISTI, TEXAS

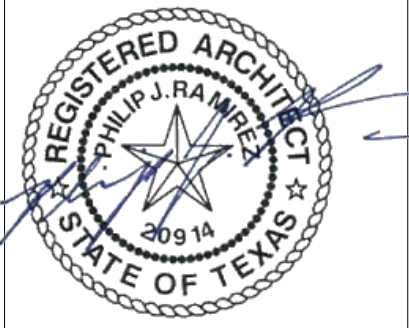
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SH. No. 3 of 30



REVISIONS DATE	#

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Stamp Date: 10/4/2023

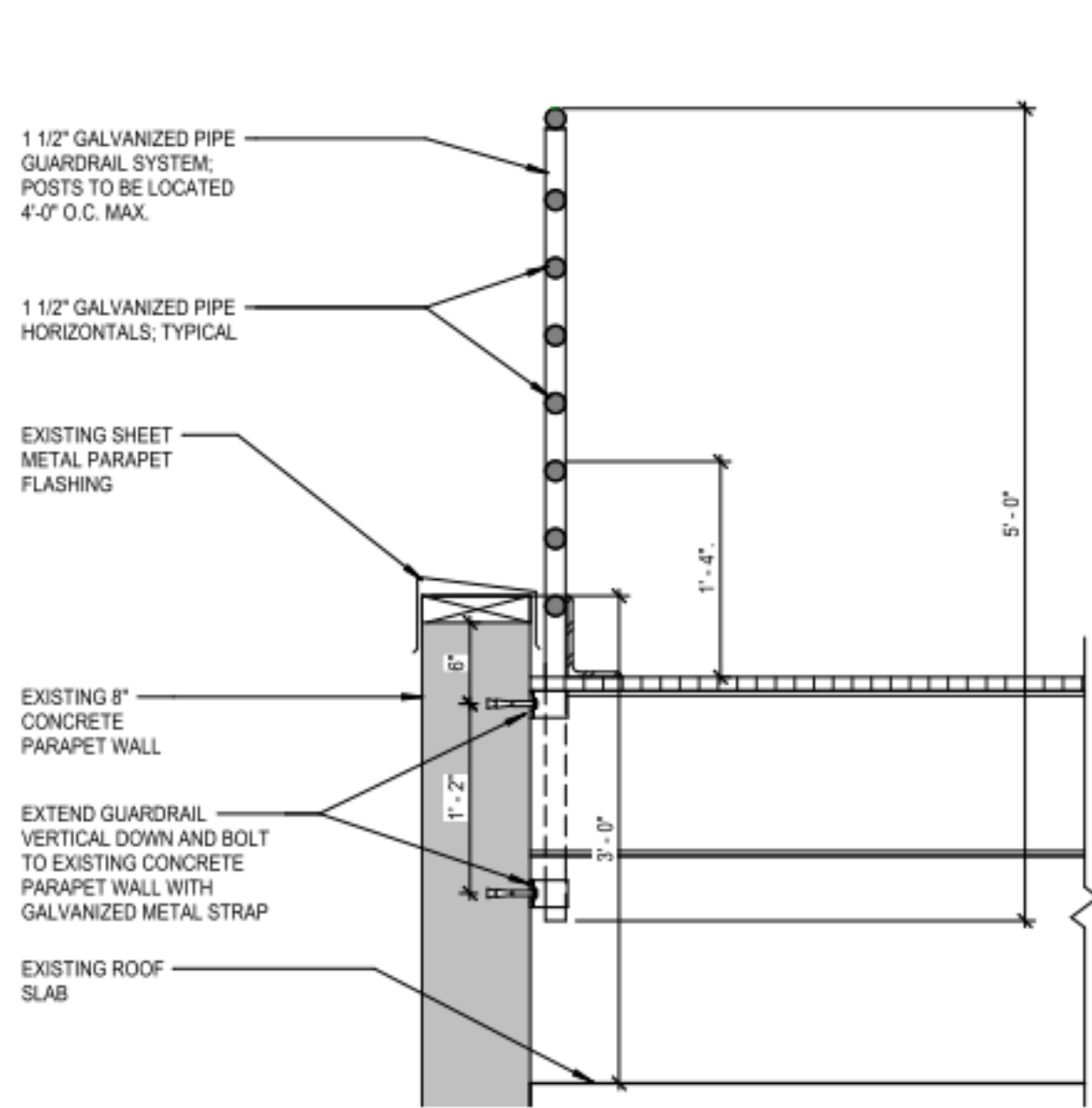
ROOF DETAILS
223 N. CHAPARRAL STREET
CORPUS CHRISTI, TEXAS

PROJECT #: 22159
FILE NAME: CHAPARRAL
DRAFTING BY: CMF
CHECKED BY:
DATE: OCTOBER 2023

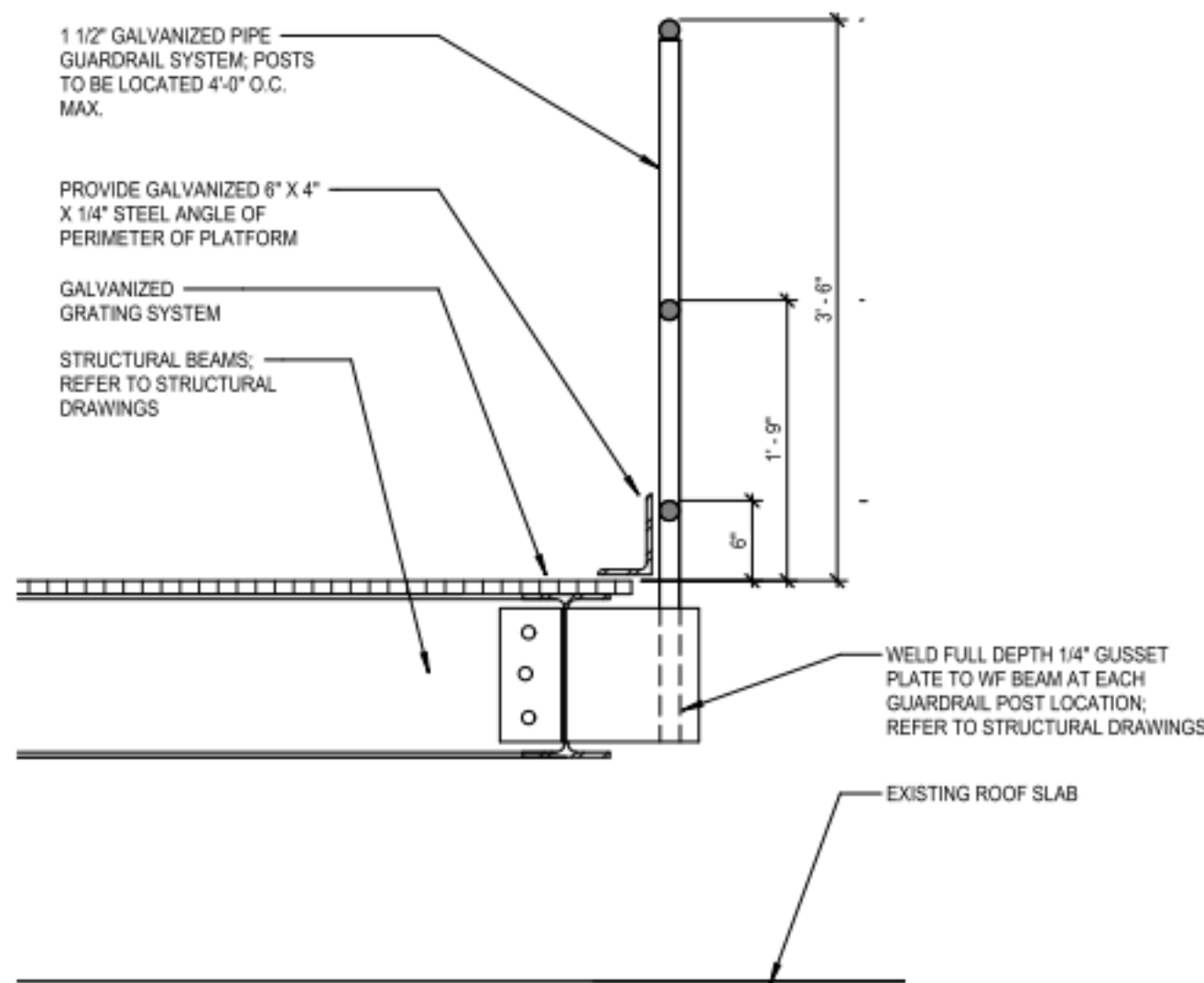
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A2.00

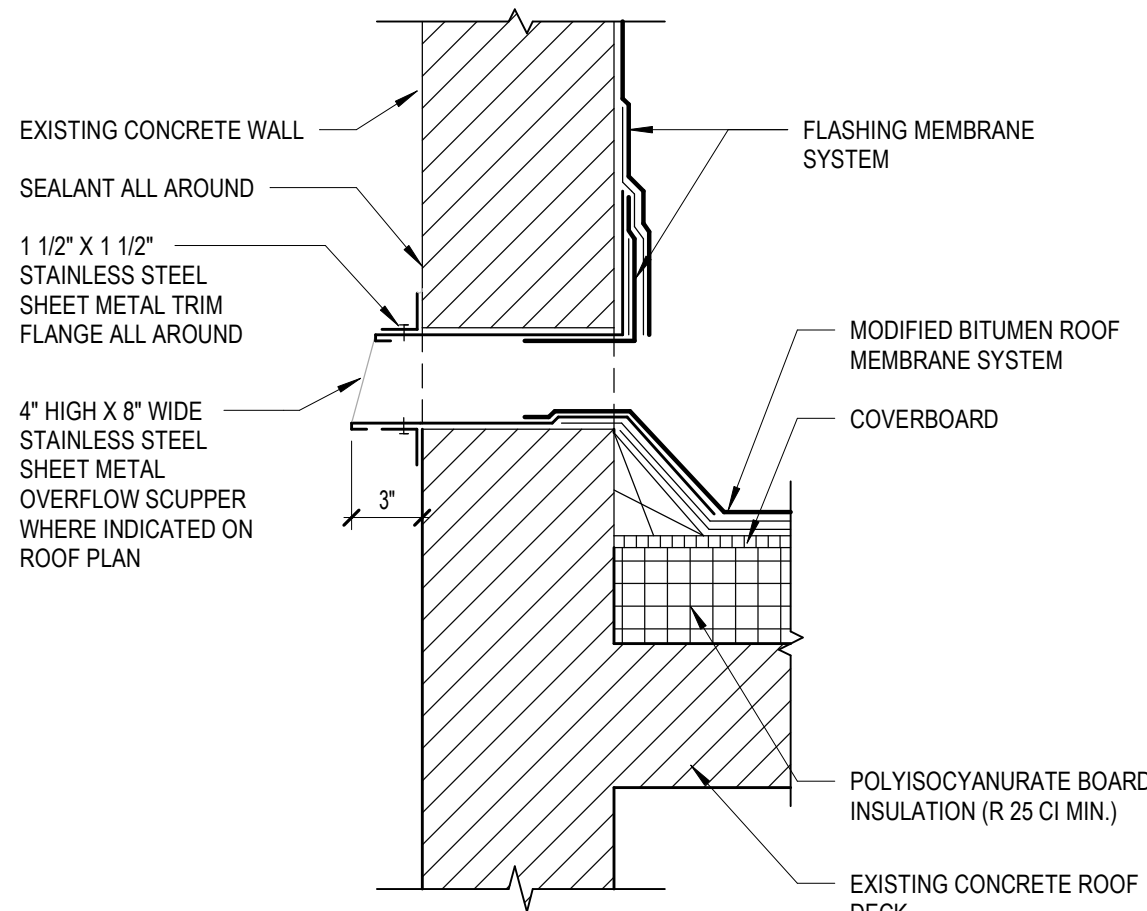
SHT. No. 4 of 30



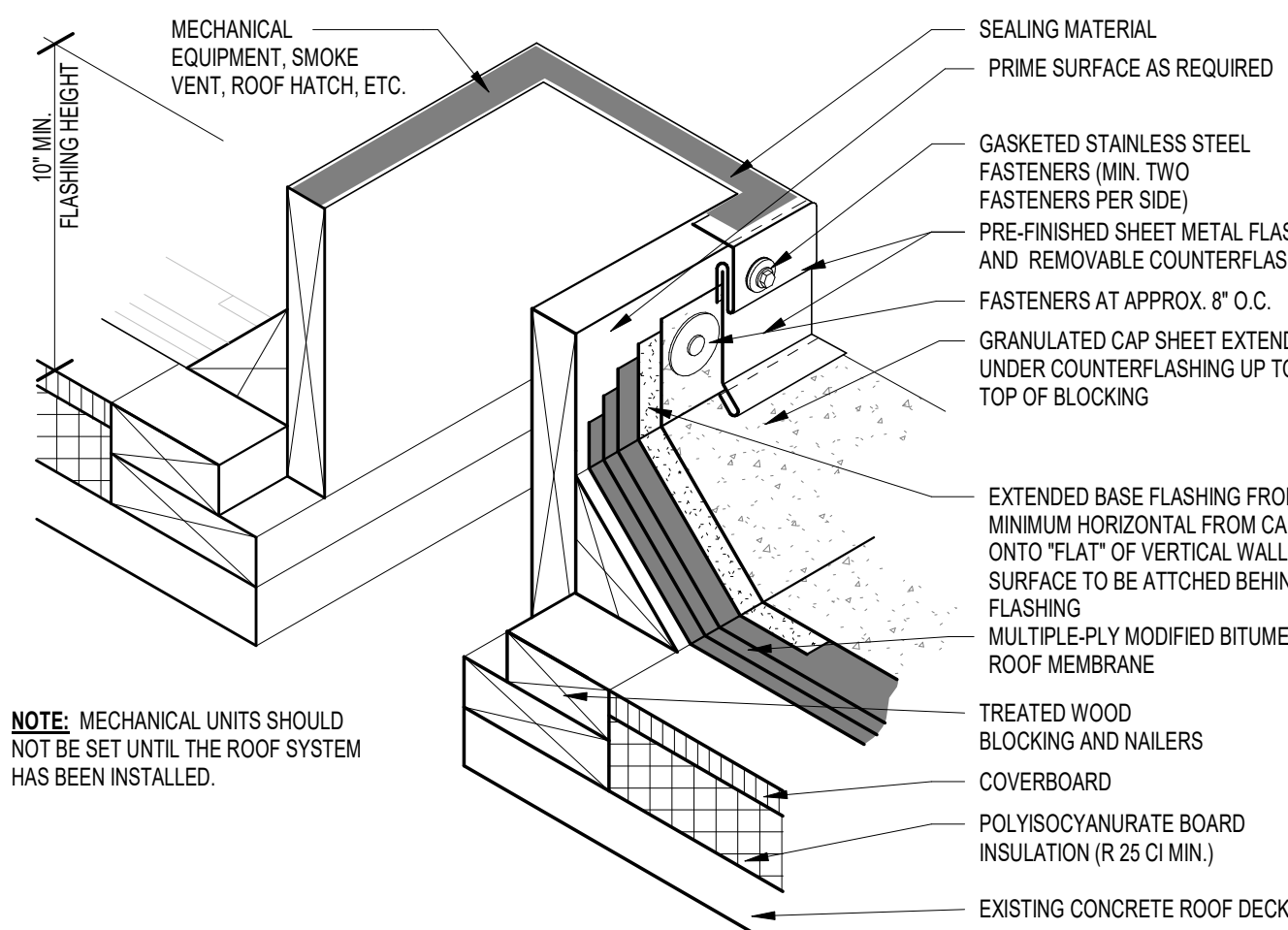
9 GUARDRAIL AT PARAPET
SCALE: 1" = 1'-0"



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

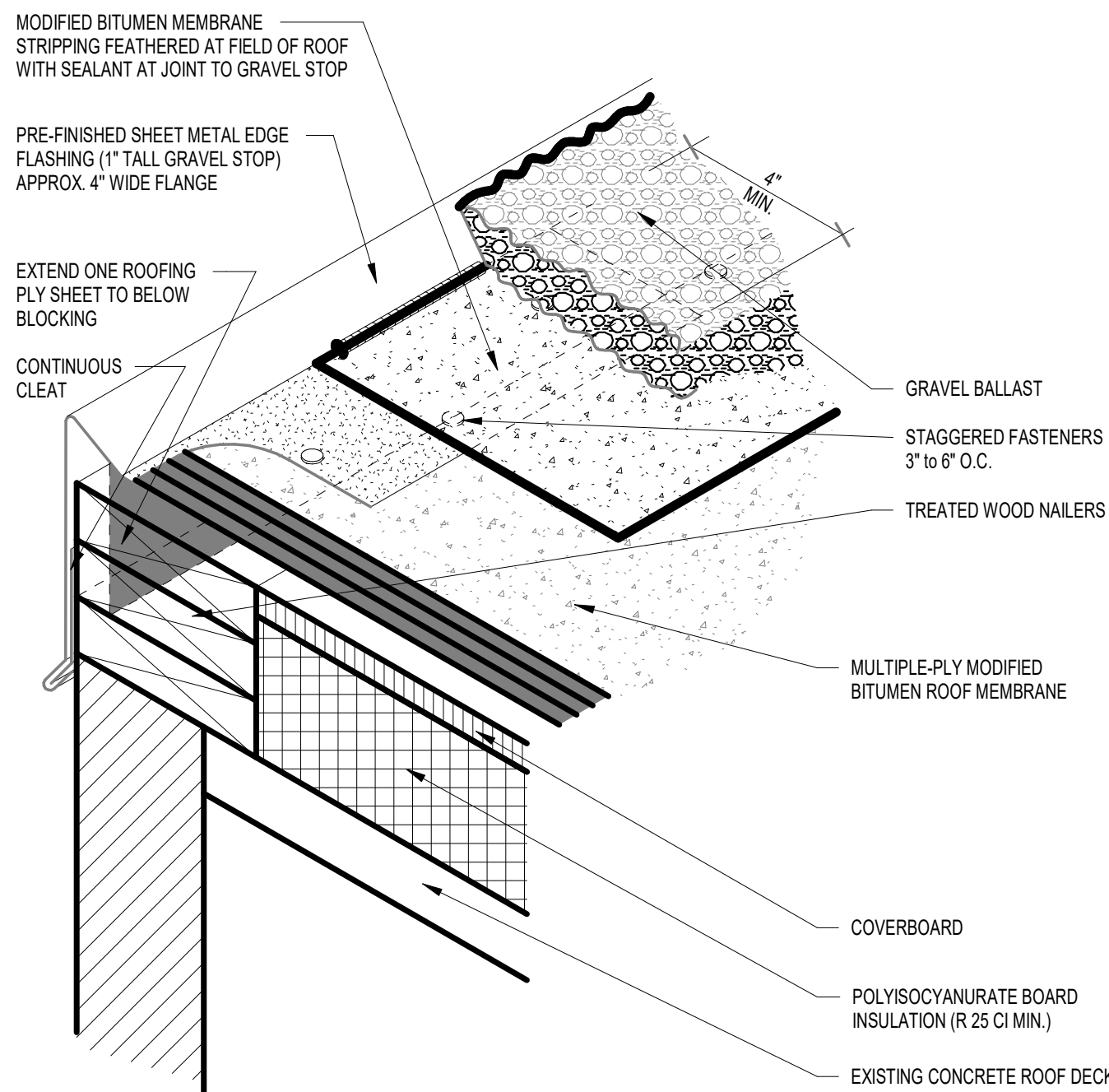


7 SCUPPER DETAIL
SCALE: 1 1/2" = 1'-0"



NOTE: MECHANICAL UNITS SHOULD NOT BE SET UNTIL THE ROOF SYSTEM HAS BEEN INSTALLED.

6 EQUIPMENT CURB
SCALE: 1" = 1'-0"



5 MBUR-PERIMETER EDGE
SCALE: 1" = 1'-0"

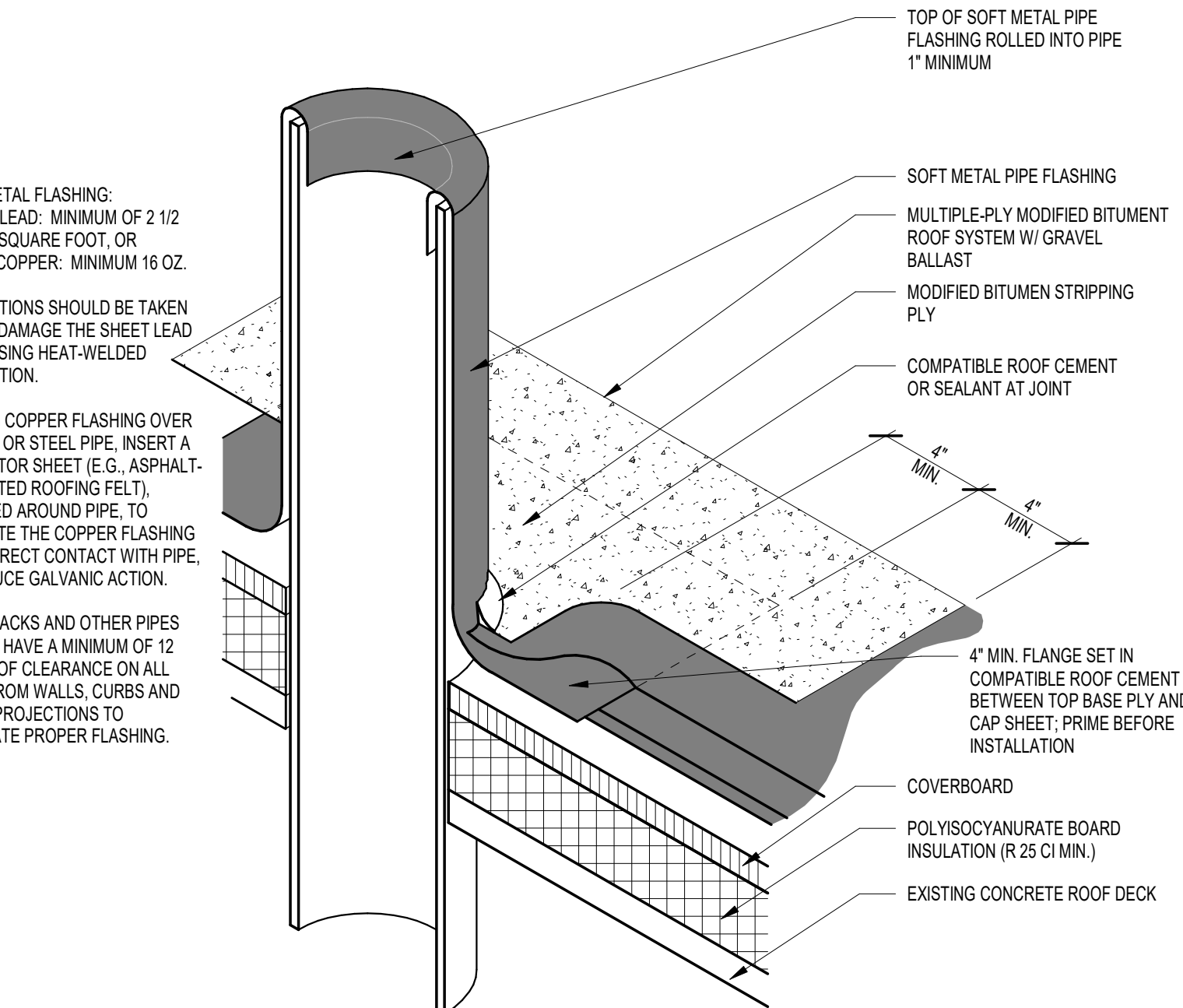
NOTES:

SOFT METAL FLASHING:
- SHEET LEAD: MINIMUM OF 2 1/2 LB. PER SQUARE FOOT, OR
- SHEET COPPER: MINIMUM 16 OZ.

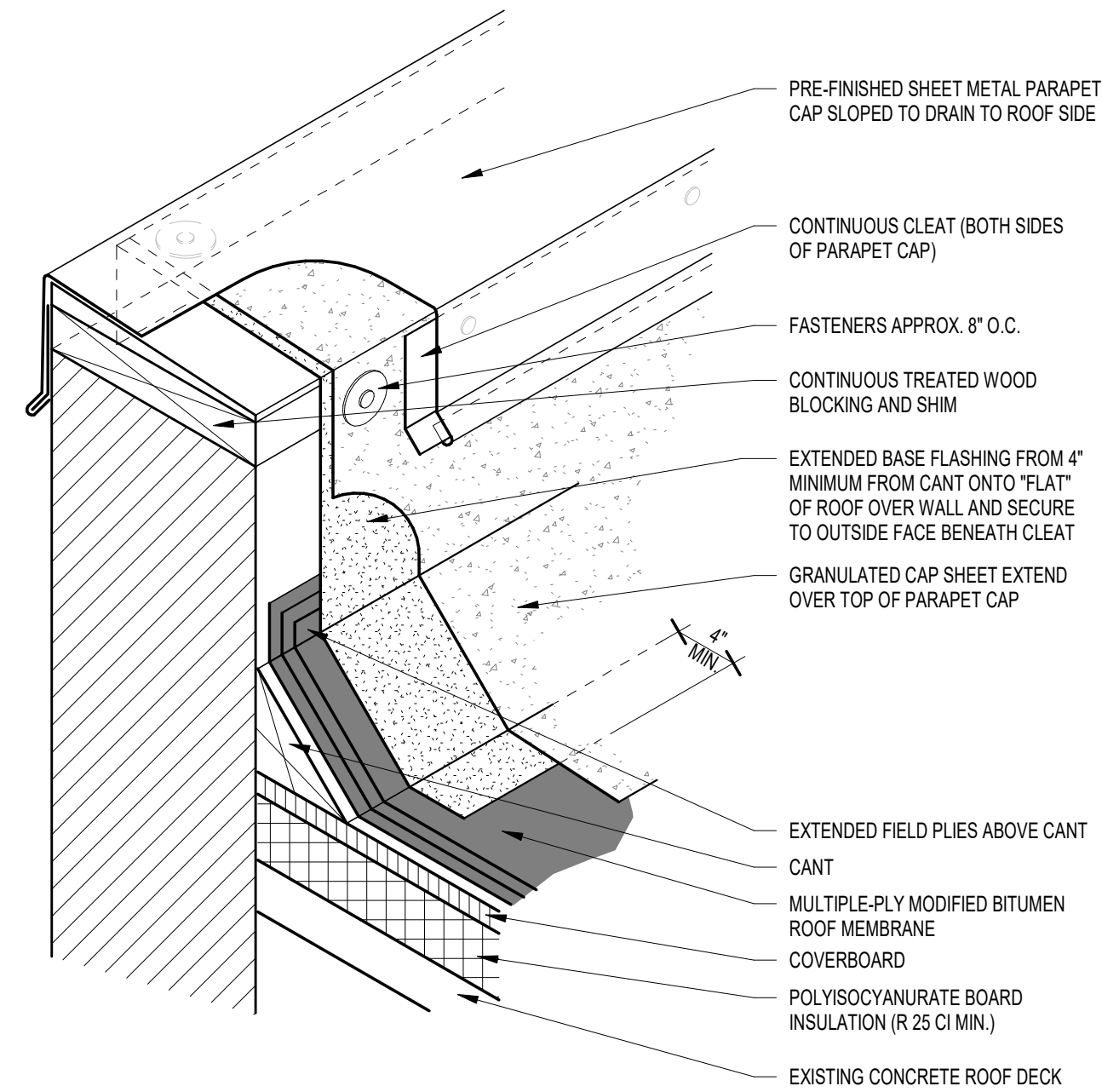
PRECAUTIONS SHOULD BE TAKEN NOT TO DAMAGE THE SHEET LEAD WHEN USING HEAT-WELDED APPLICATION.

IF USING COPPER FLASHING OVER AN IRON OR STEEL PIPE, INSERT A SEPARATOR SHEET (E.G., ASPHALT-SATURATED ROOFING FELT) WRAPPED AROUND PIPE TO SEPARATE THE COPPER FLASHING FROM DIRECT CONTACT WITH PIPE, TO REDUCE GALVANIC ACTION.

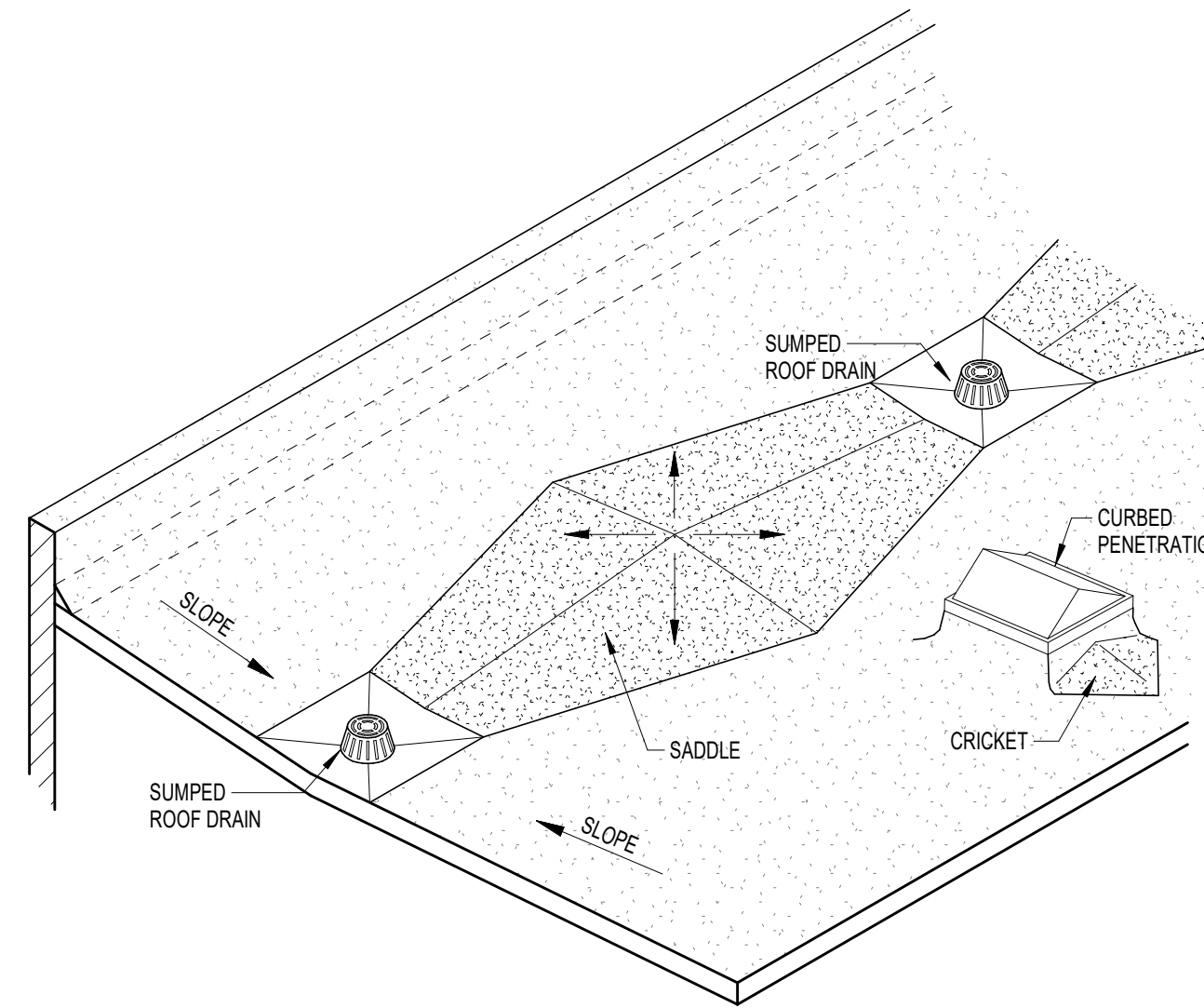
VENT STACKS AND OTHER PIPES SHOULD HAVE A MINIMUM OF 12 INCHES OF CLEARANCE ON ALL SIDES FROM WALLS, CURBS AND OTHER PROJECTIONS TO FACILITATE PROPER FLASHING.



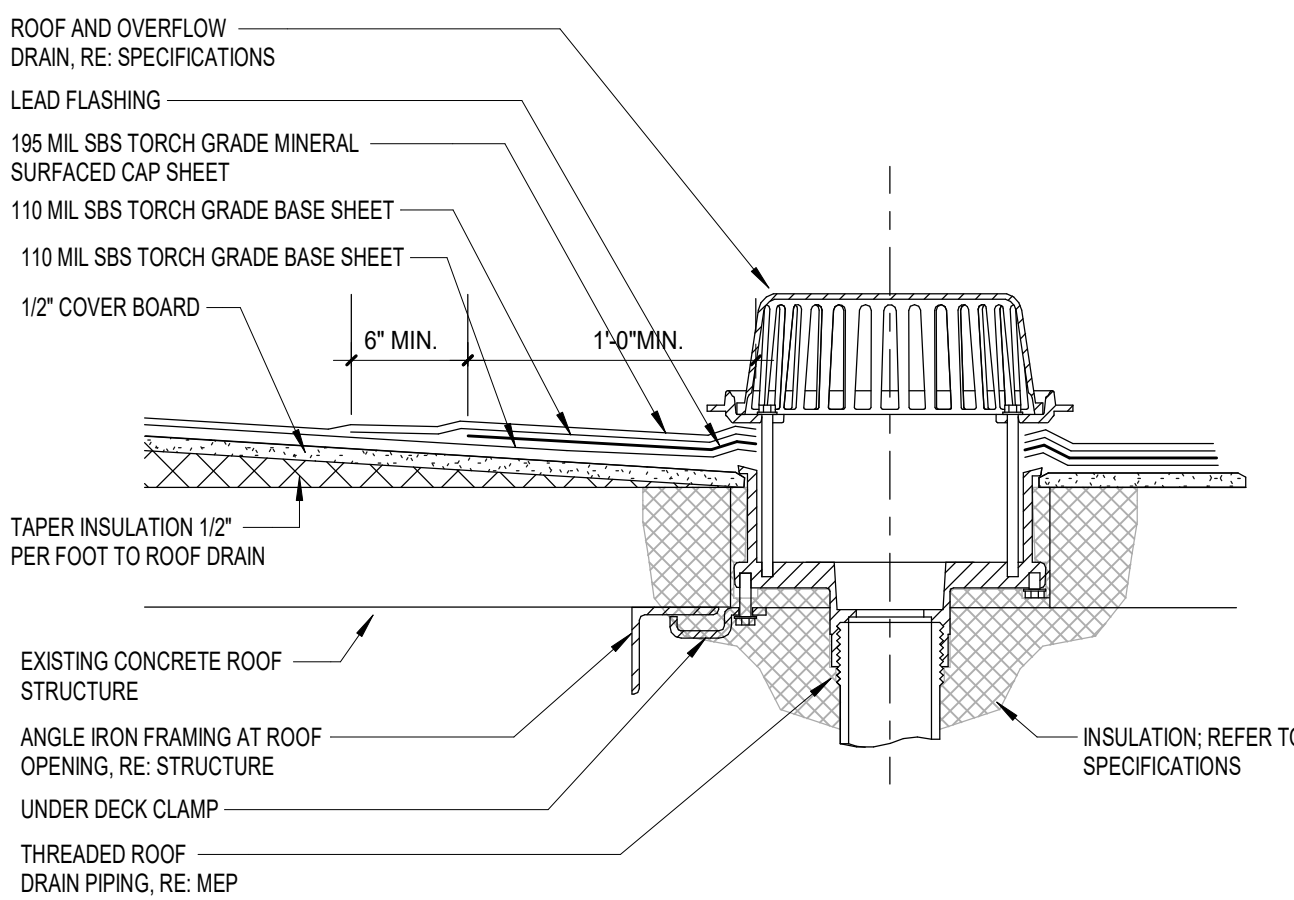
4 PIPE PENETRATION
SCALE: 1" = 1'-0"



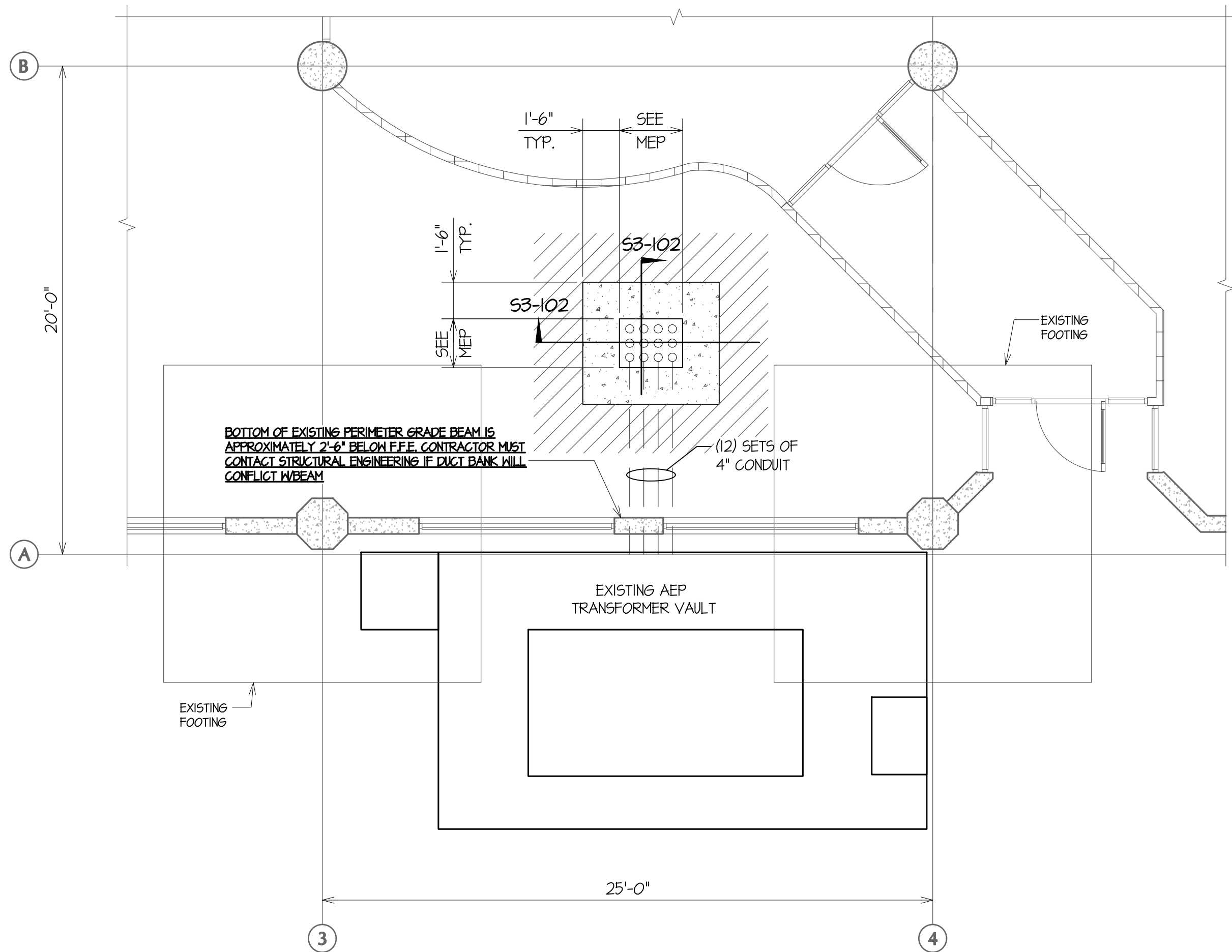
3 MBUR-PARAPET
SCALE: 1" = 1'-0"



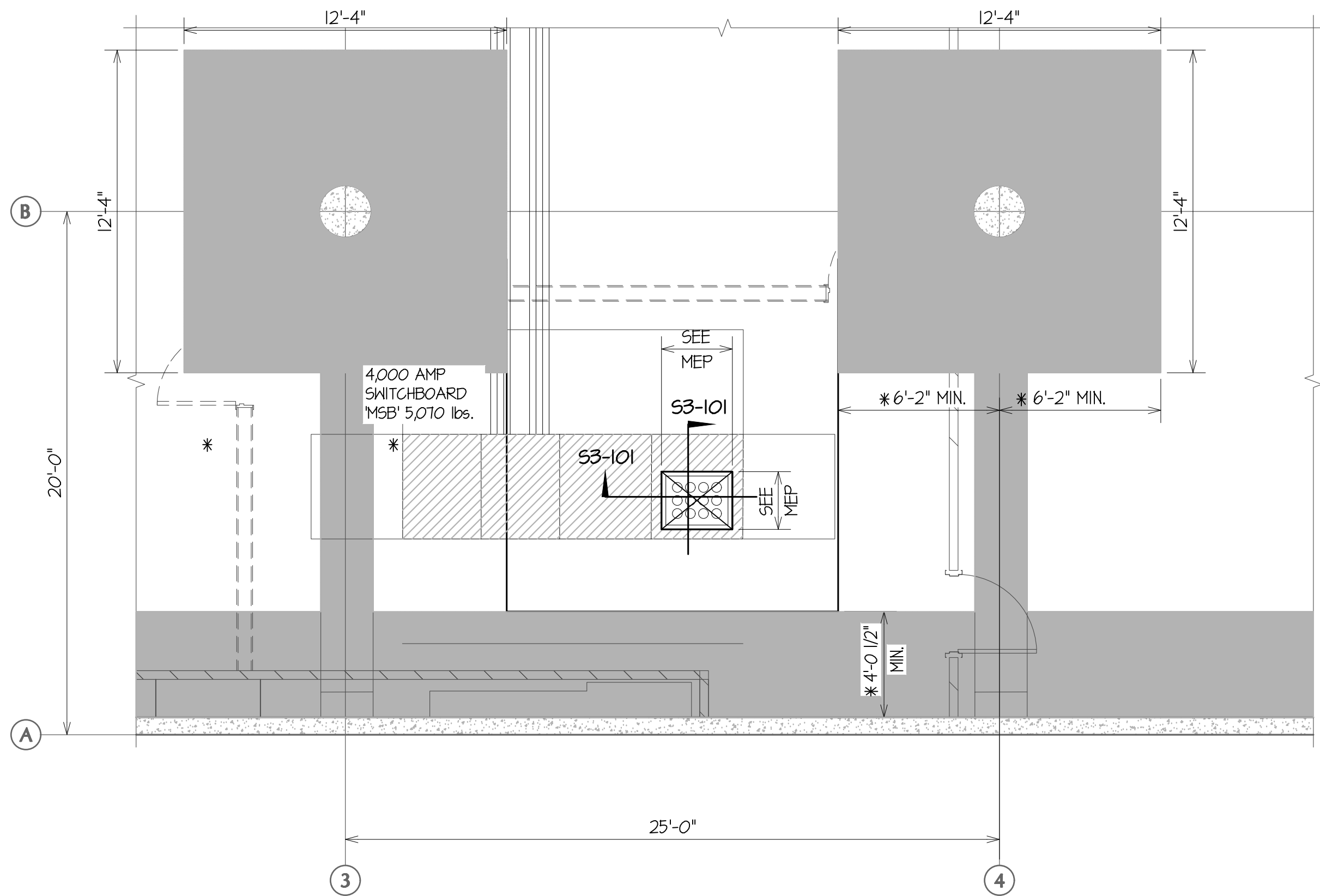
2 GUIDE FOR CRICKETS AND SADDLES1
SCALE: 1" = 1'-0"



1 ROOF DRAIN
SCALE: 1 1/2" = 1'-0"

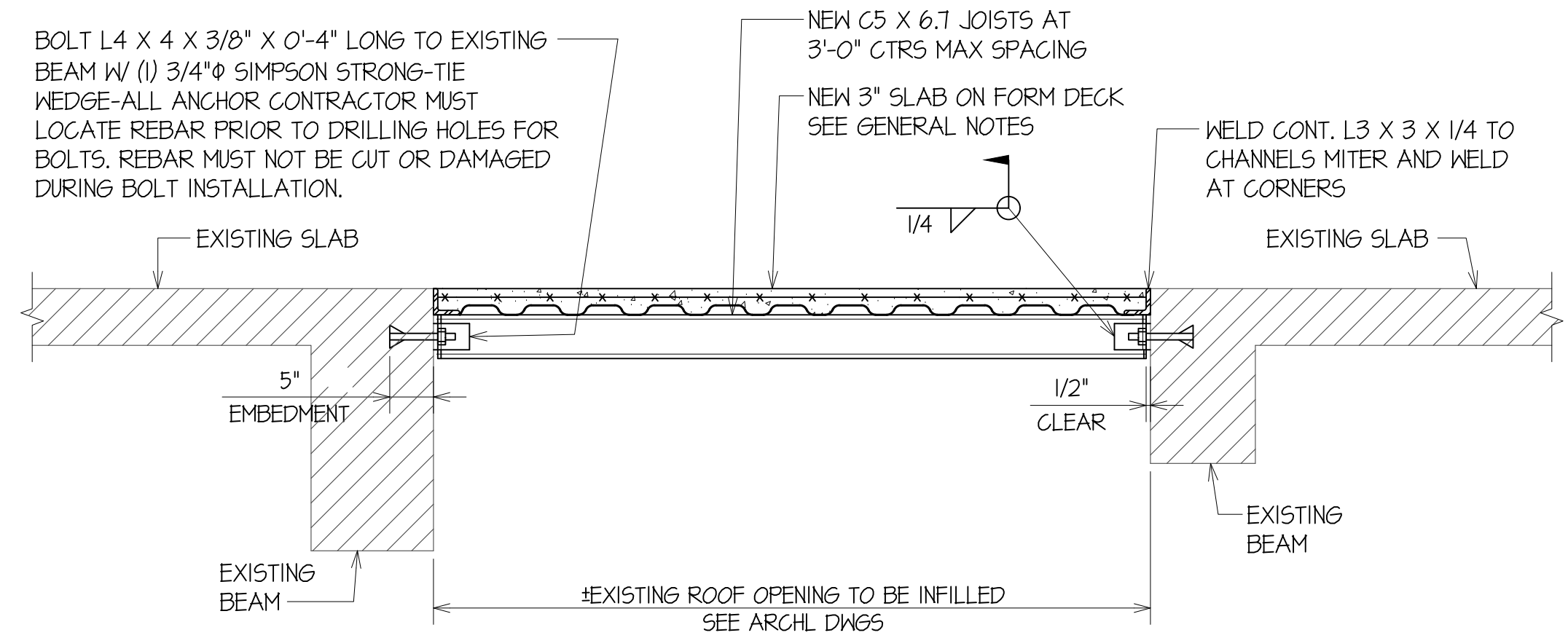


EXISTING 1ST FLOOR PLAN
SCALE : 1/4" = 1'-0"
PLAN NORTH
NOT TRUE NORTH

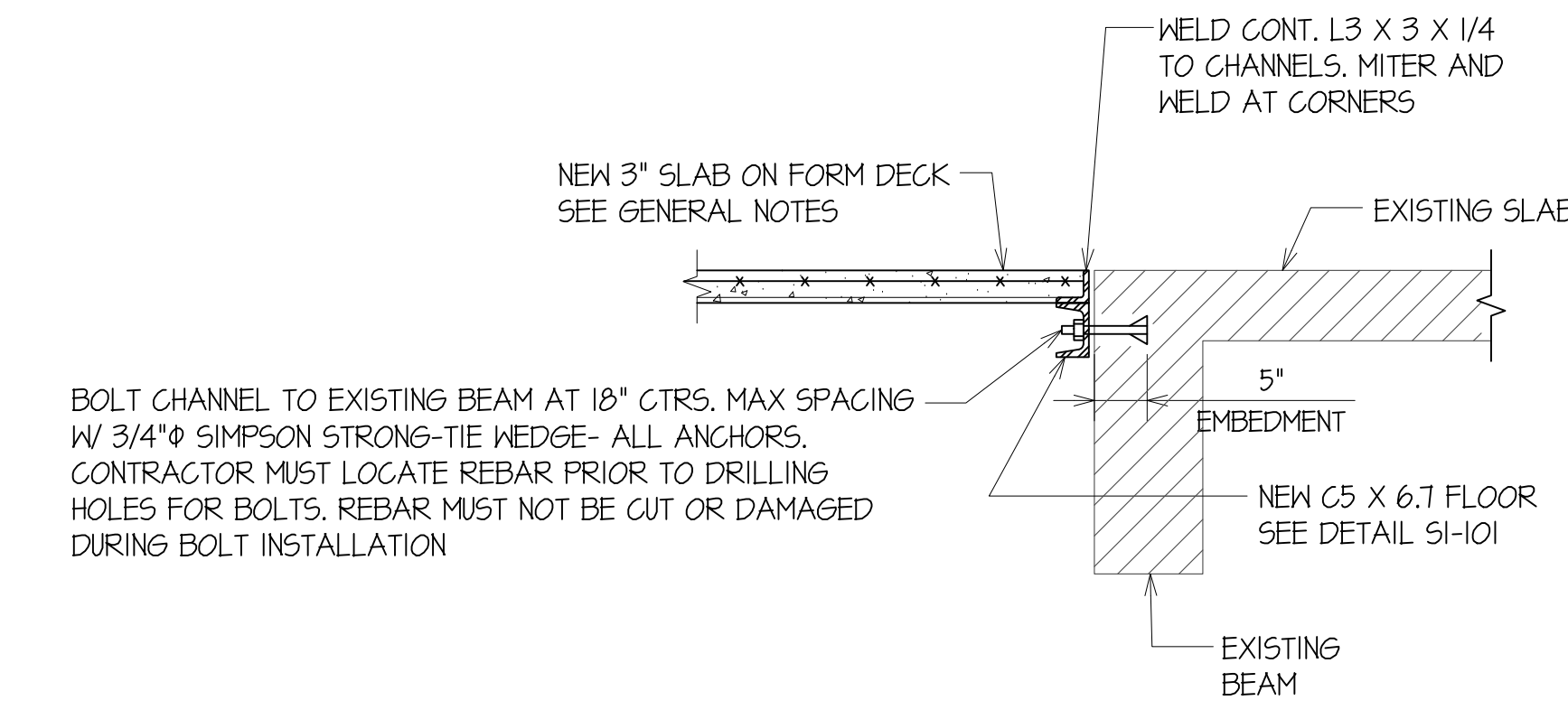


EXISTING 2ND FLOOR PLAN
SCALE : 1/4" = 1'-0"
PLAN NORTH
NOT TRUE NORTH

EXISTING SECOND FLOOR PLAN NOTE :
* SECOND FLOOR PENETRATION MUST BE LOCATED NO CLOSER TO THE COLUMN CENTERLINE AND FRONT WALL THAN SHOWN. DO NOT CUT IN SHADED AREA
SEE NEW OPENING LOCATION CRITERIA ON SHEET S3-1 FOR ADDITIONAL NOTES.



TYPICAL DETAIL AT ROOF OPENING INFILL SI-101



TYPICAL DETAIL AT ROOF OPENING INFILL SI-102

CONTRACTOR MUST VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO STARTING WORK

LOCATE ALL UTILITY LINES PRIOR TO STARTING WORK.

COORDINATE ALL DEMOLITION WORK WITH THE MECHANICAL DEMOLITION PLAN.

EXISTING NOTE :
CONTRACTOR MUST FIELD VERIFY ALL EXISTING DIMENSIONS, ELEVATIONS AND CONDITIONS PRIOR TO FABRICATION OF STEEL. CONTRACTOR MUST EXPOSE ALL EXISTING CONDITIONS AS REQUIRED TO VERIFY THAT CONDITIONS MATCH WHAT ARE SHOWN ON THE STRUCTURAL DRAWINGS. CONDITIONS THAT DEVIATE FROM THOSE SHOWN ON THE DRAWINGS MUST BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. DETAILS SHOWN ON THE CONTRACT DOCUMENTS ARE SUBJECT TO CHANGE PENDING FINAL FIELD VERIFICATION BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE EXISTING CONDITIONS AS EARLY AS POSSIBLE IN THE JOB PRIOR TO ORDERING OR PURCHASING ANY MATERIALS.

REVISIONS DATE	#

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NRG ENGINEERING
Robert E. Martinez, P.E.
Professional Engineer
No. 89387
State of Texas
2023
JOB #22159

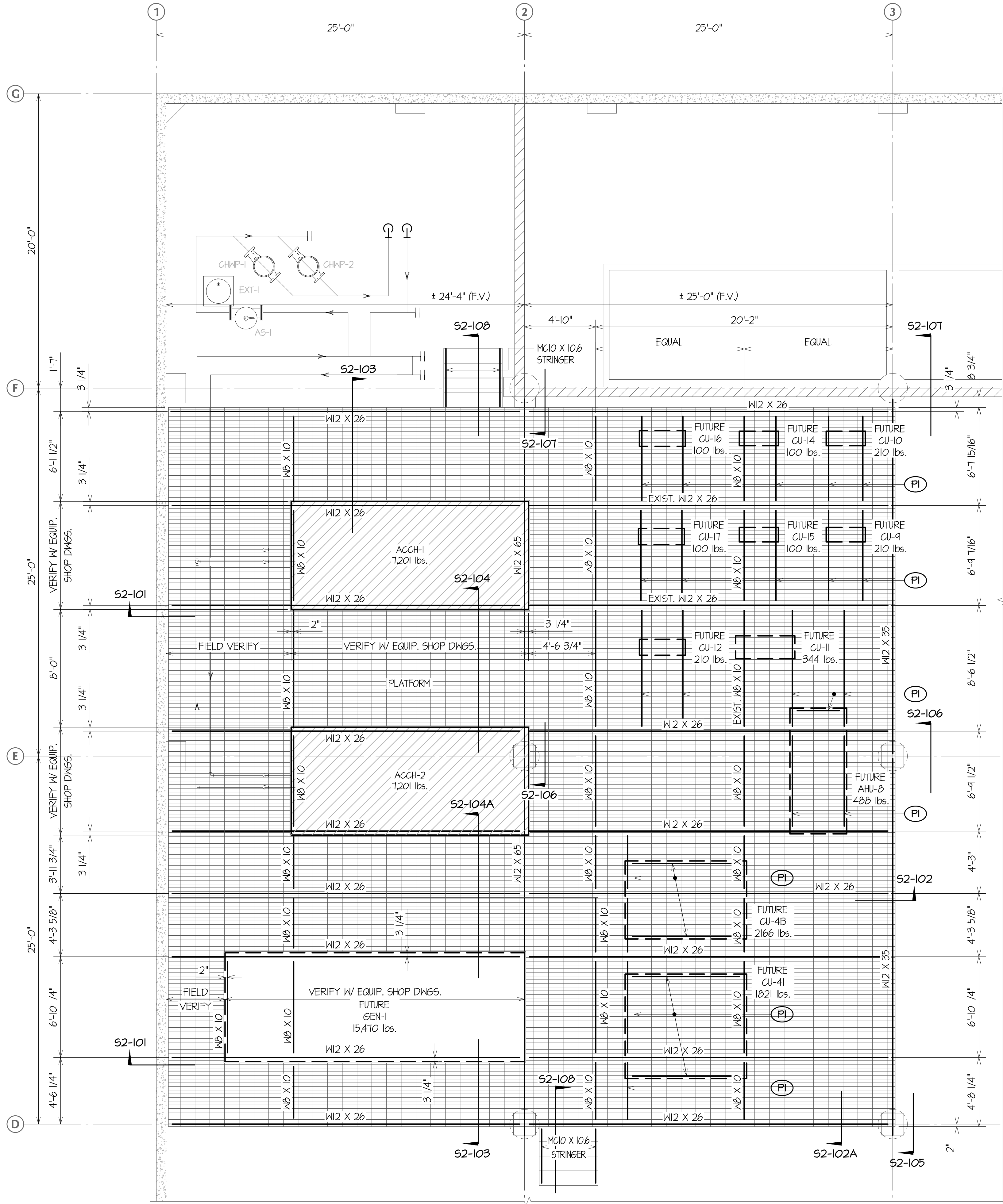
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EXISTING PLANS
CENTRAL PLANT IMPROVEMENTS
TEXAS A&M UNIVERSITY CORPUS CHRISTI
223 N. CHAPARRAL
CORPUS CHRISTI, TEXAS

PROJECT #: 22159
FILE NAME: CHAPARRAL
DRAFTING BY: NS
CHECKED BY: REM
DATE: OCTOBER 6, 2023
SHEET NUMBER:
S1-1
SHT. No. 5 of 30

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY ROBERT E. MARTINEZ, P.E. # 89387 T.B.P.E. FIRM NO. 6944

REM PROJECT NO. 23-050



 **PLATFORM FRAMING PLAN**
SCALE : 1/4" = 1'-0"
PLAN NORTH
NOT TRUE NORTH

CONTRACTOR MUST VERIFY ALL DIMENSIONS
AND ELEVATIONS PRIOR TO STARTING WORK

LOCATE ALL UTILITY LINES PRIOR TO
STARTING WORK.

COORDINATE ALL DEMOLITION WORK WITH
THE MECHANICAL DEMOLITION PLAN.

EXISTING NOTE :

CONTRACTOR MUST FIELD VERIFY ALL EXISTING DIMENSIONS,
ELEVATIONS AND CONDITIONS PRIOR TO FABRICATION OF STEEL.
CONTRACTOR MUST EXPOSE ALL EXISTING CONDITIONS AS REQUIRED TO
VERIFY THAT CONDITIONS MATCH WHAT ARE SHOWN ON THE STRUCTURAL
DRAWINGS. CONDITIONS THAT DEVIATE FROM THOSE SHOWN ON THE
DRAWINGS MUST BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE
ENGINEER. DETAILS SHOWN ON THE CONTRACT DOCUMENTS ARE
SUBJECT TO CHANGE PENDING FINAL FIELD VERIFICATION BY THE
CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE
EXISTING CONDITIONS AS EARLY AS POSSIBLE IN THE JOB PRIOR TO
ORDERING OR PURCHASING ANY MATERIALS.

EXISTING ROOF PLAN NOTES :

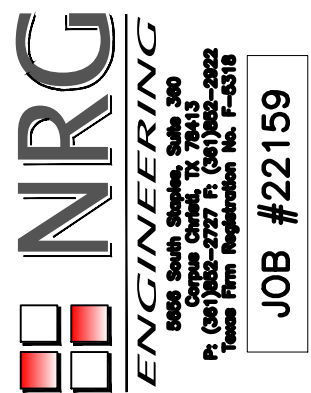
1. **ALL STEEL MEMBERS SHALL BE GALVANIZED.**
2. COORDINATE ALL BEAM DIMENSIONS WITH EQUIPMENT
MFR'S. CUT SHEETS TO ENSURE THAT UNIT BEARS
PROPERLY ON SUPPORTS.

PLATFORM FRAMING KEYED NOTES :

- (PI) WELD GALVANIZED L4 X 4 X 3/8 TO BEAMS / NEW
ANGLES AT UNIT BEARING LOCATIONS. COORDINATE
BEARING LOCATIONS WITH UNIT MFR'S, SHOP DWGS,
UNLESS NOTED OTHERWISE ON UNIT ANCHORAGE
DETAILS. CONNECT UNIT / CURB TO ANGLE / BEAM
WITH MINIMUM OF 3/4" THRU-BOLTS AT EACH END OF
UNIT AND AT 48" CTRS. MAX.

REVISIONS DATE	#

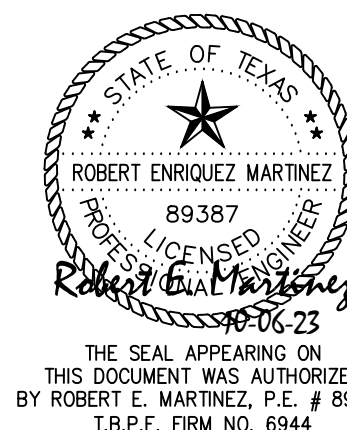
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PLATFORM FRAMING PLAN

CENTRAL PLANT IMPROVEMENTS
TEXAS A+M UNIVERSITY CORPUS CHRISTI
223 N CHAPARRAL
CORPUS CHRISTI, TEXAS



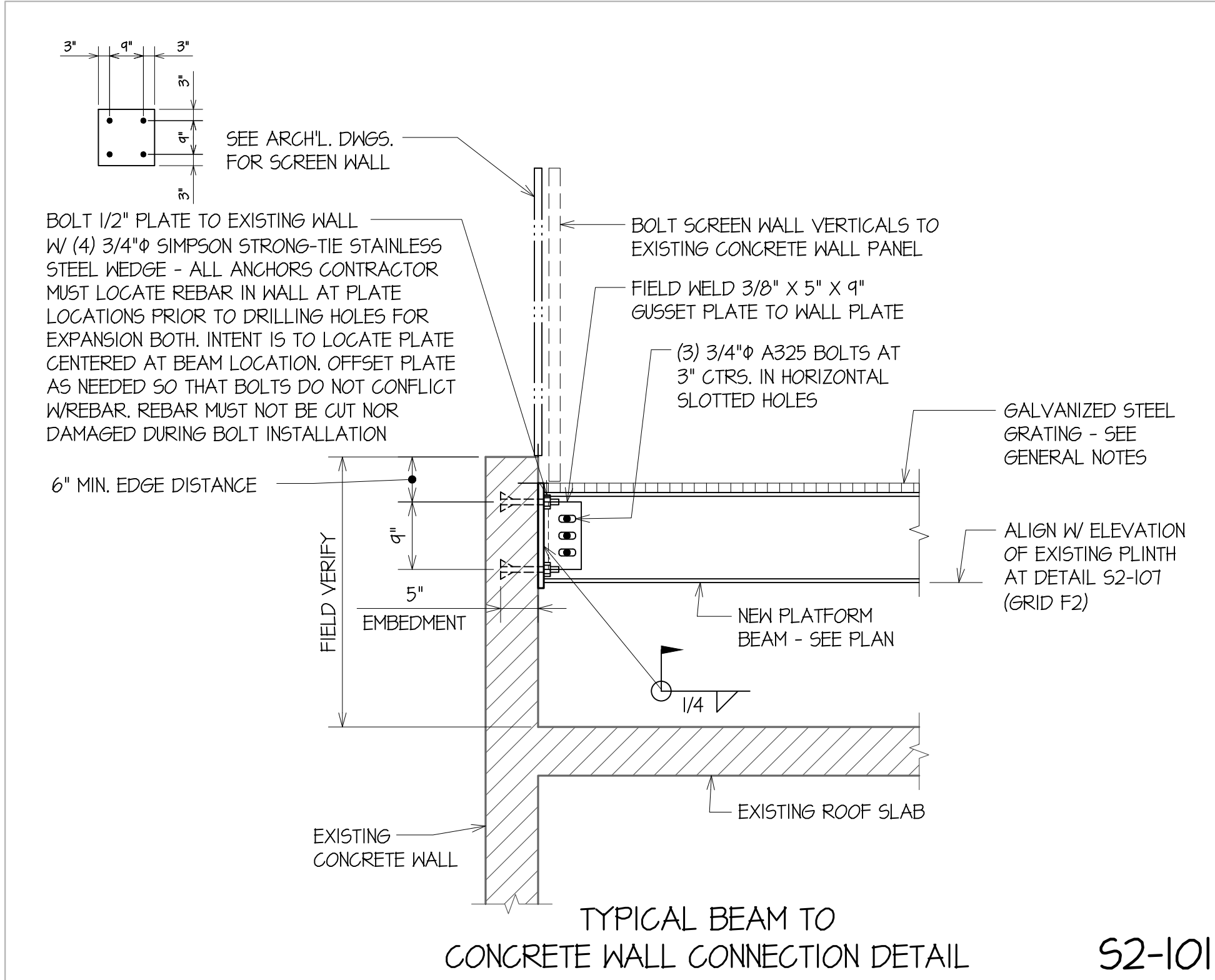
RE ENGINEERING
2218 BASSE RD.
SAN ANTONIO, TX 78213
(210) 320-1199
robert@remengineeringcorp.com
T.B.P.E. FIRM NO. 6944
REM PROJECT NO. 23-050

PROJECT #: 22159
FILE NAME: CHAPARRAL
DRAFTING BY: NS
CHECKED BY: REM
DATE: OCTOBER 6, 2023

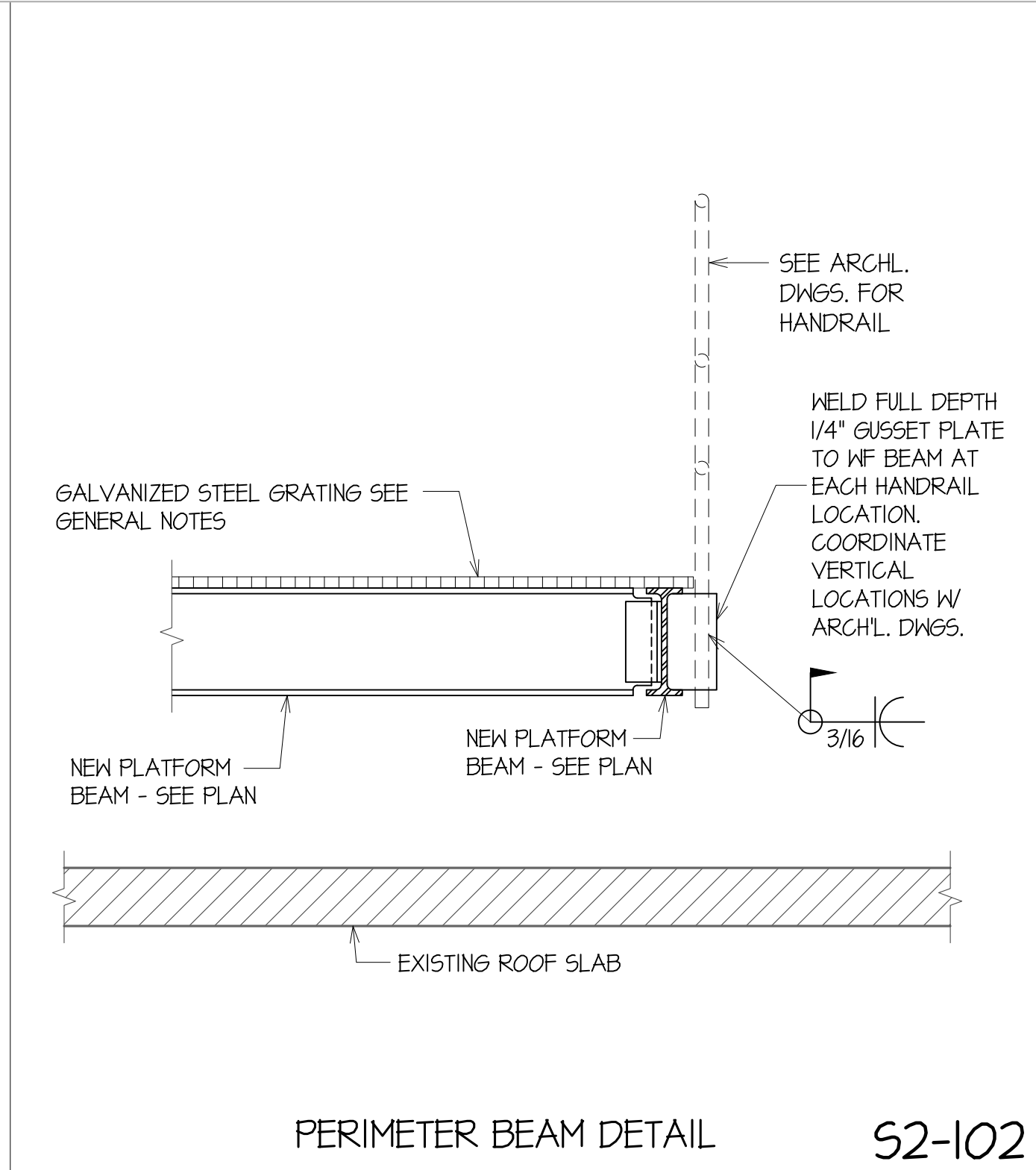
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S1-2

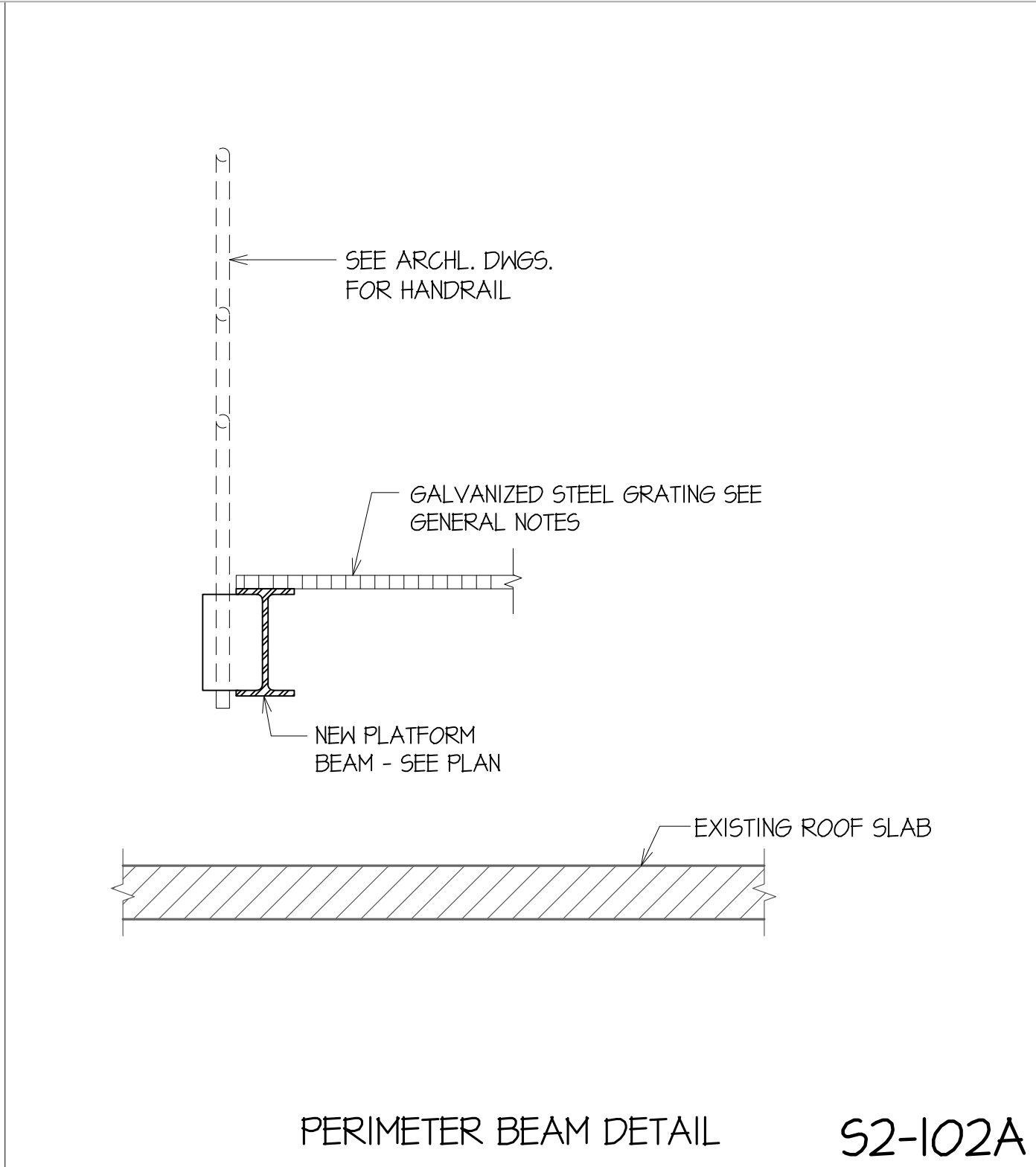
SHT. No. 6 of 30



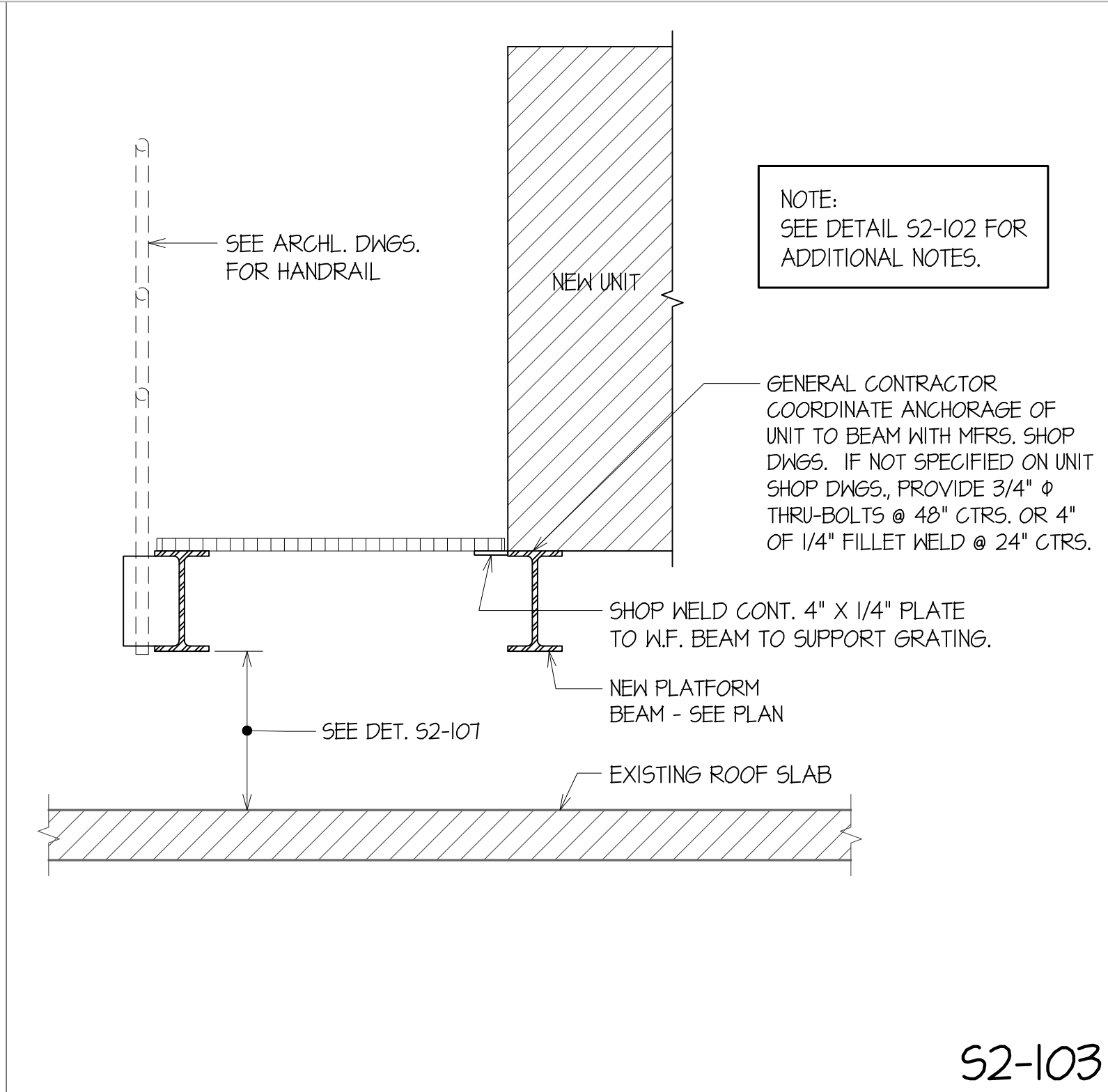
S2-101



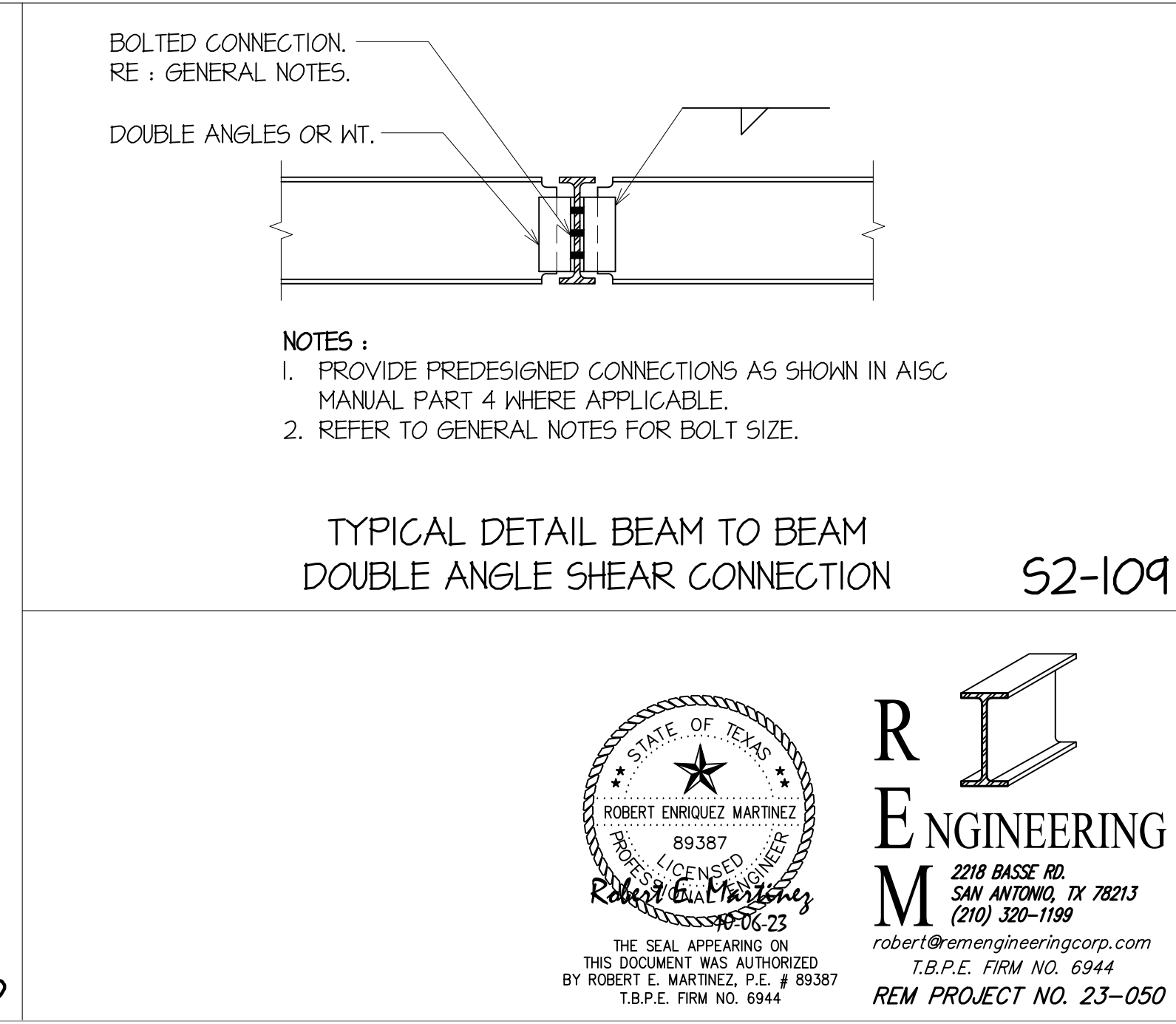
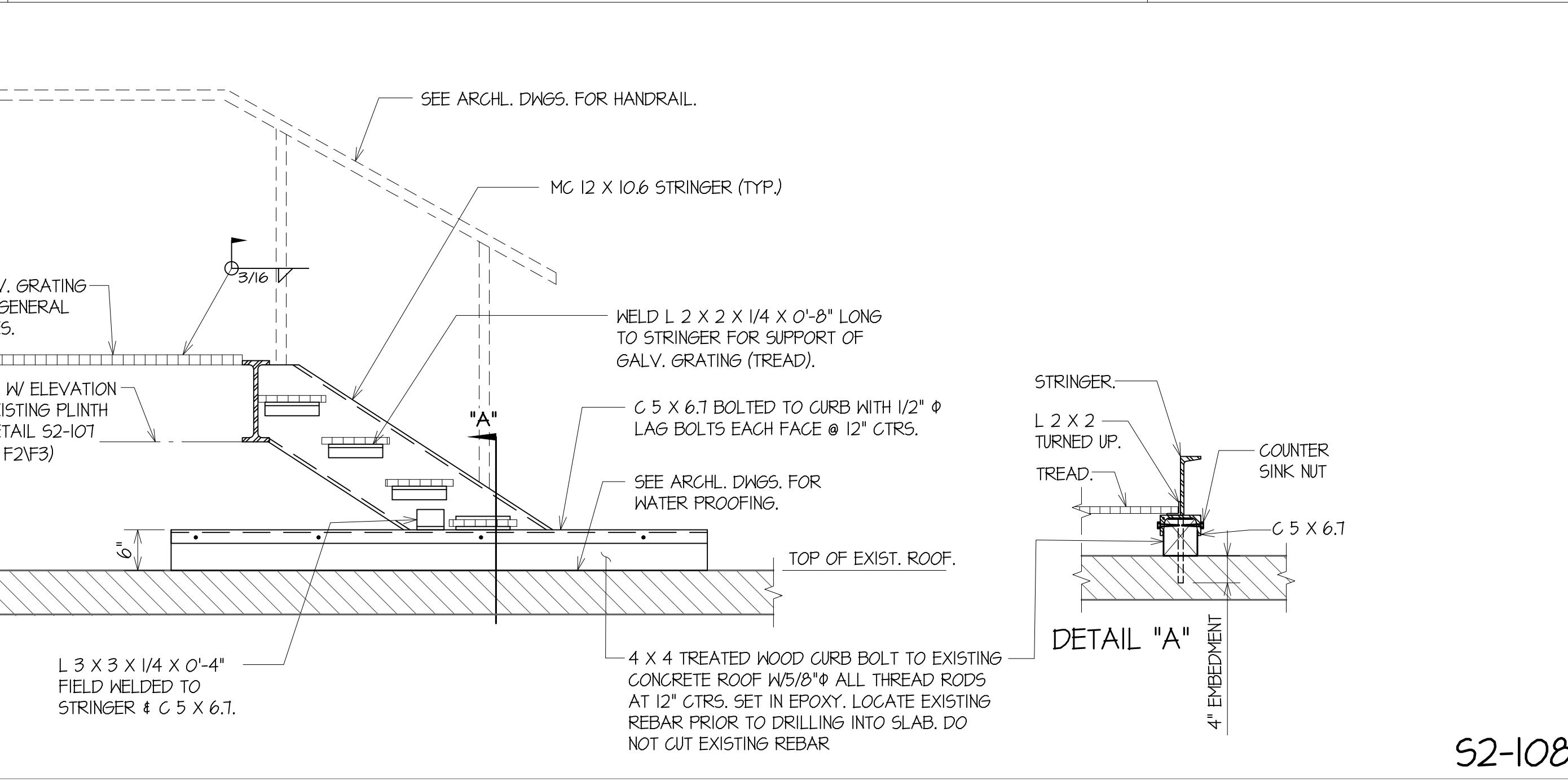
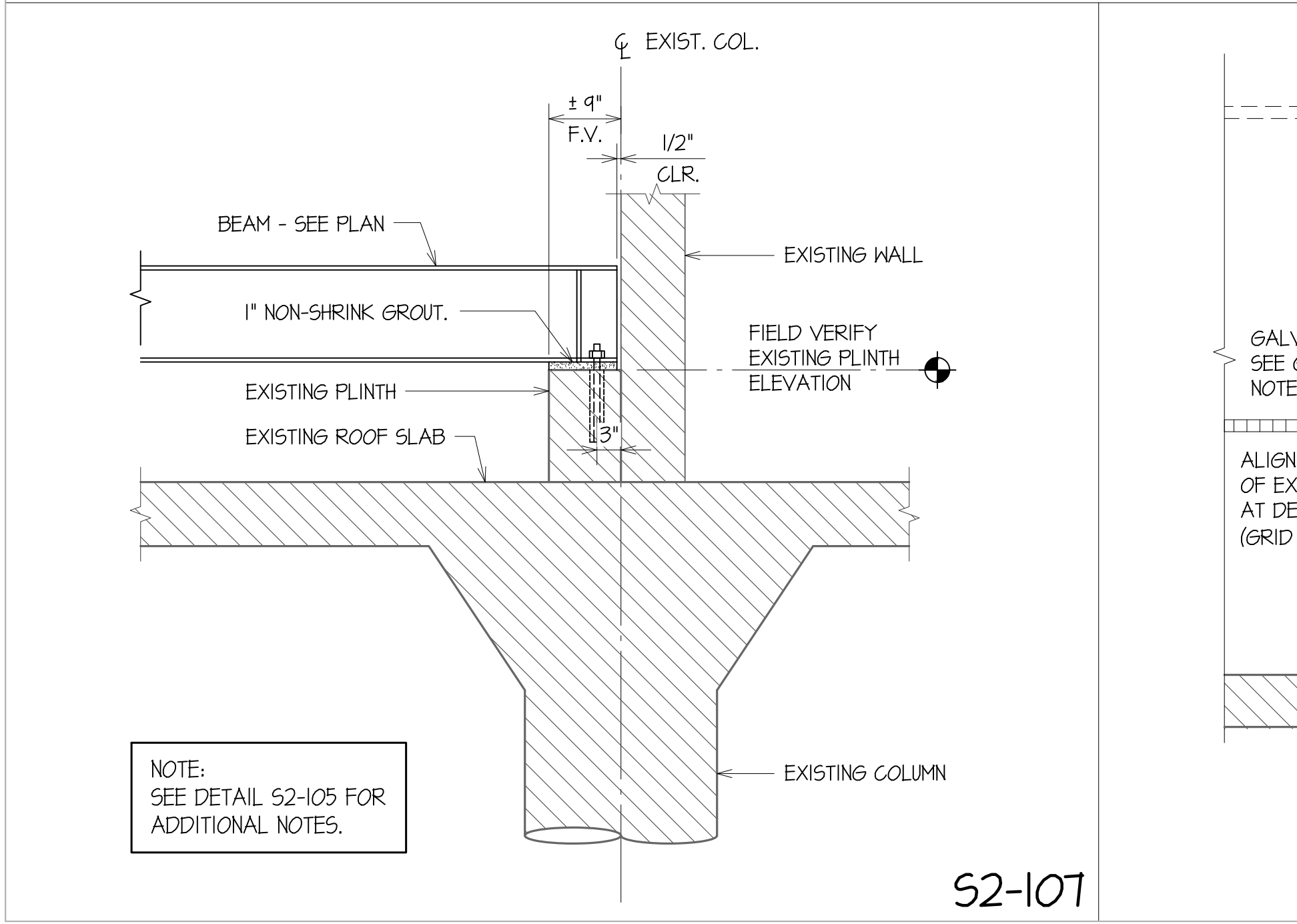
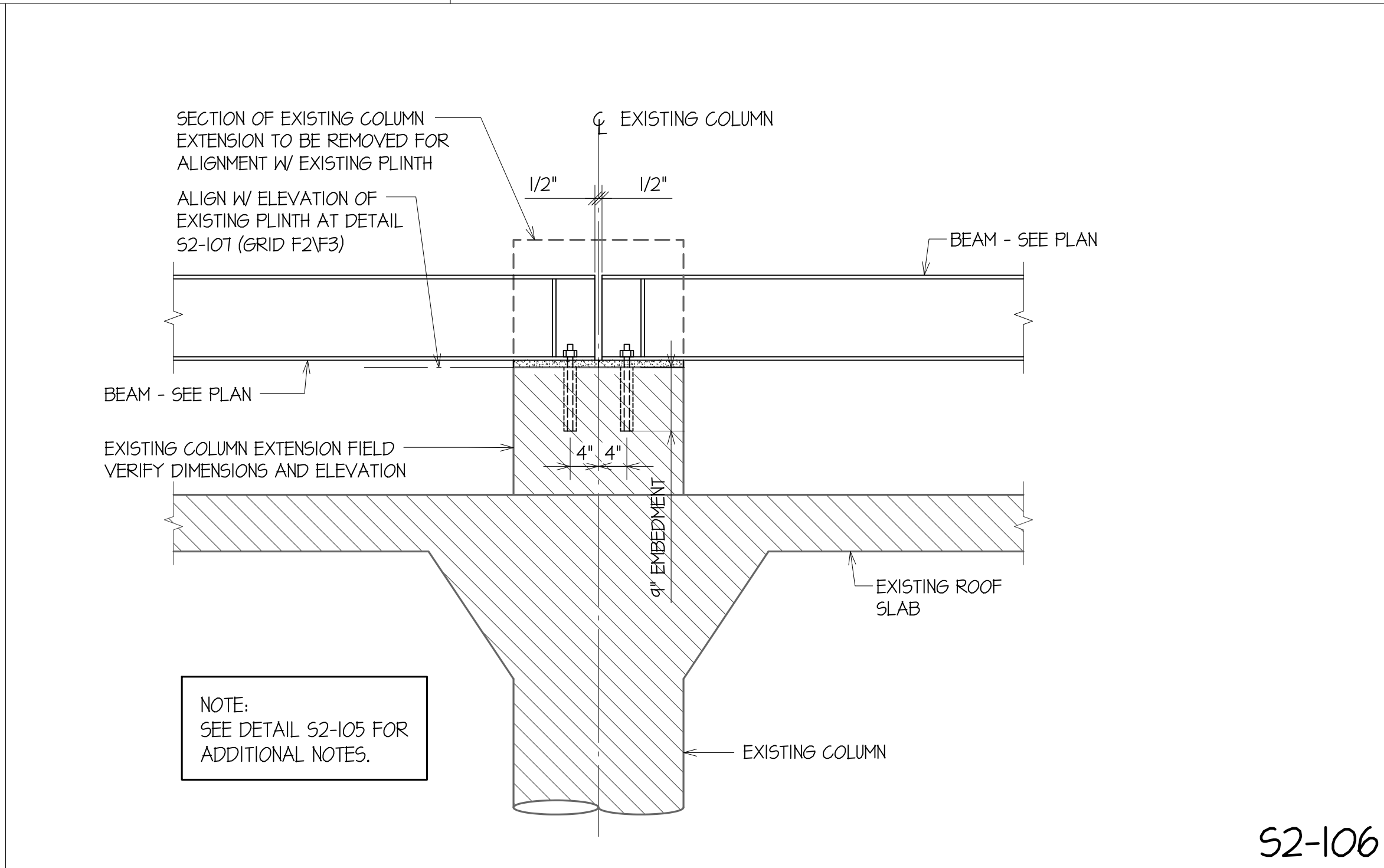
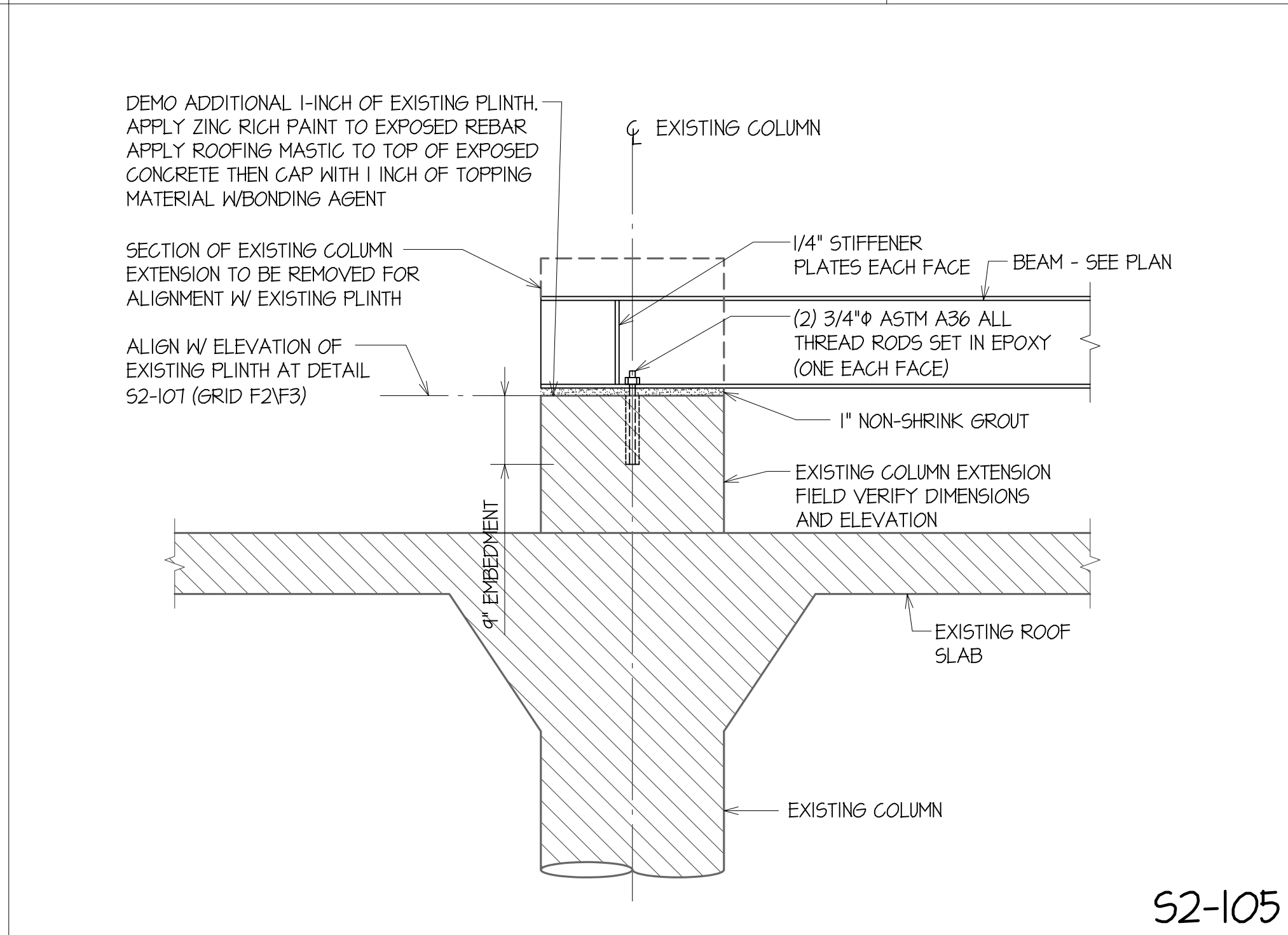
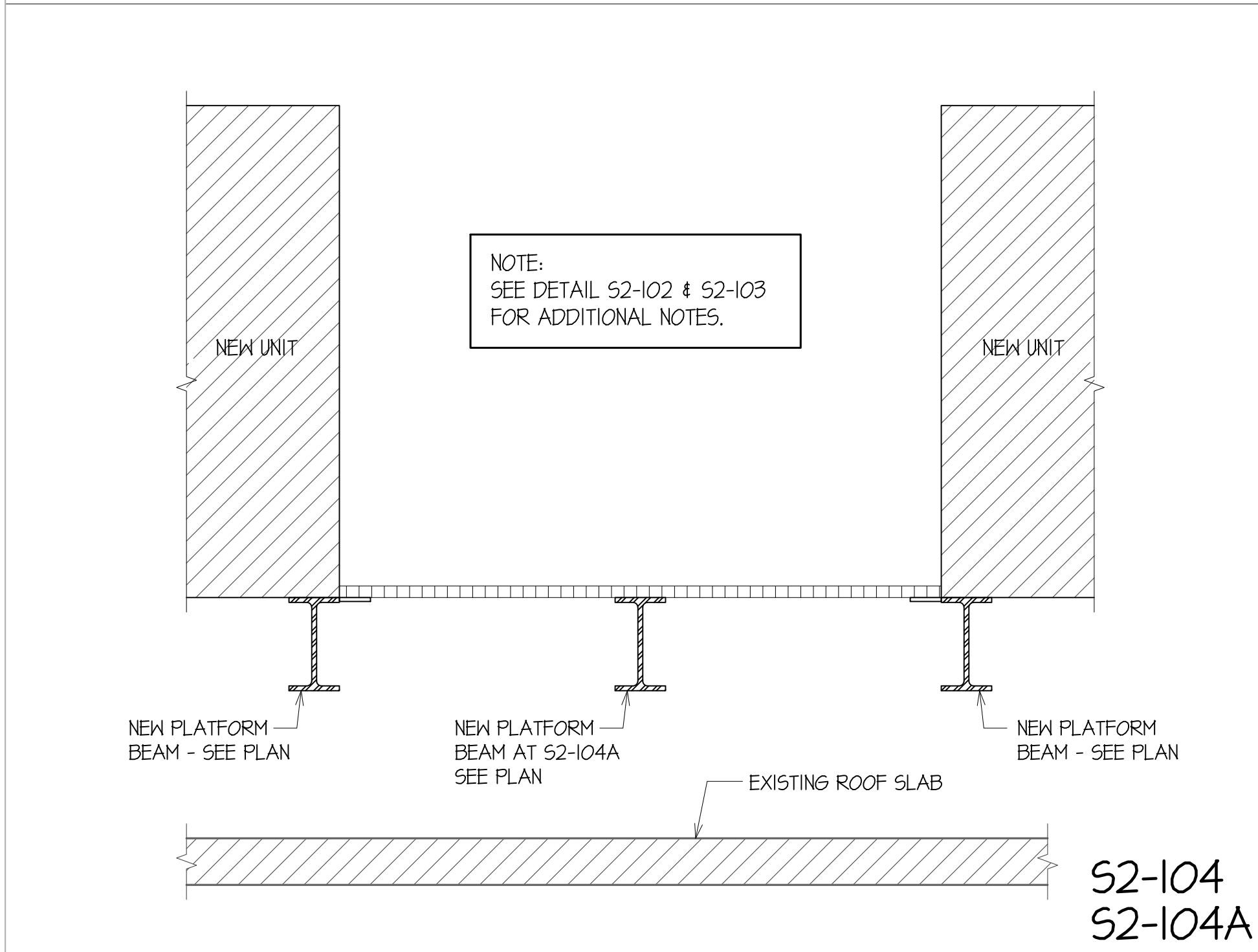
S2-102

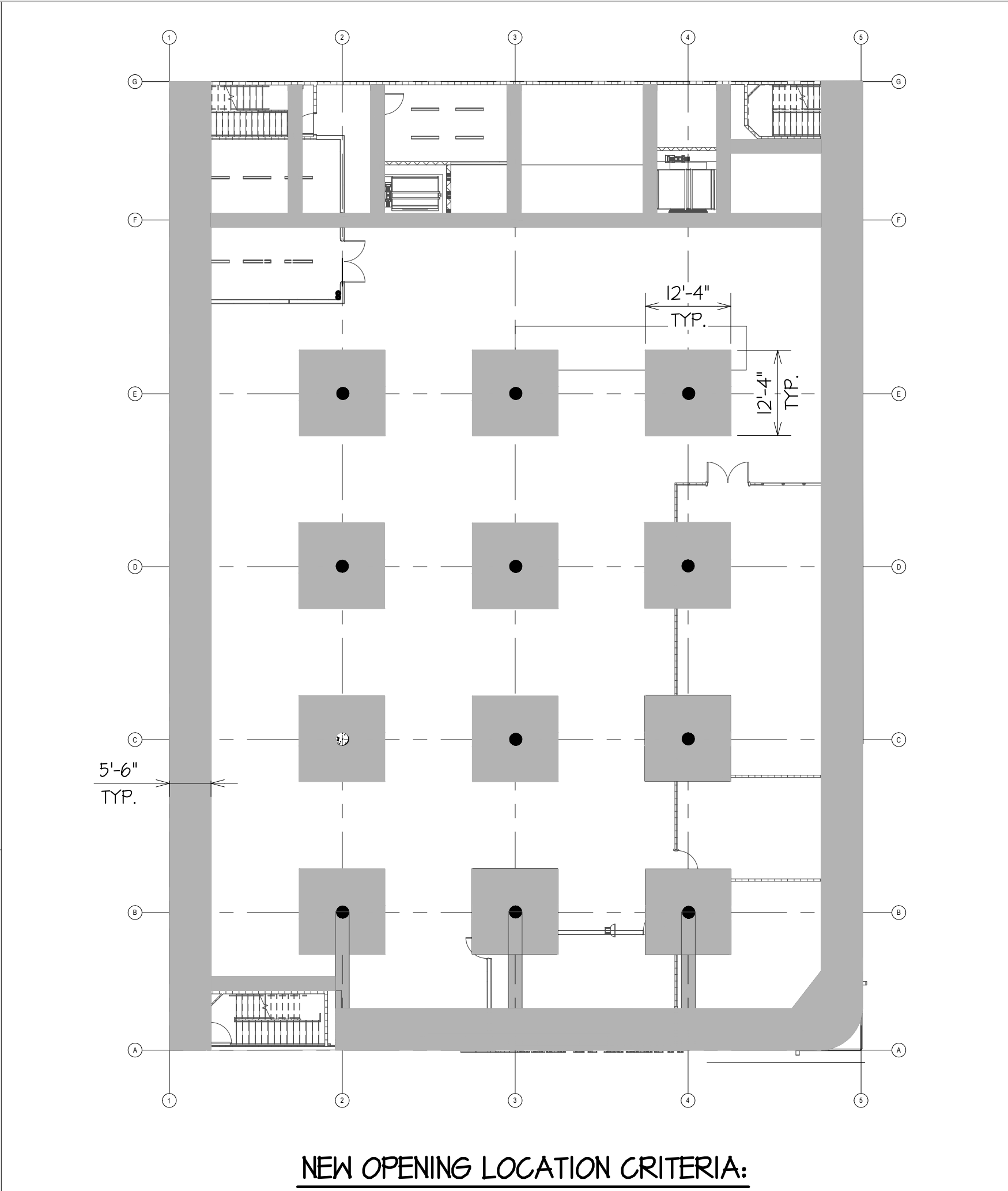
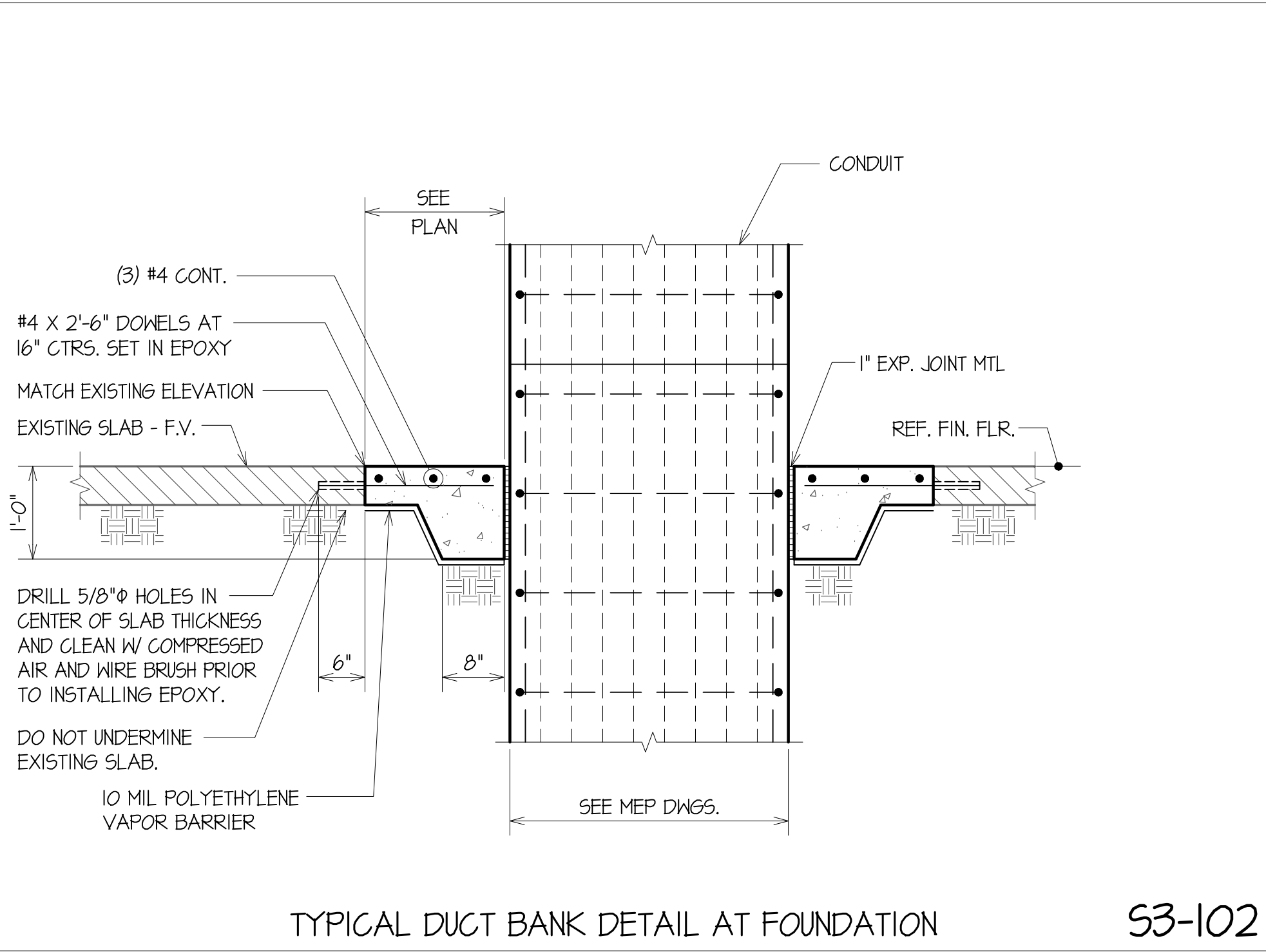
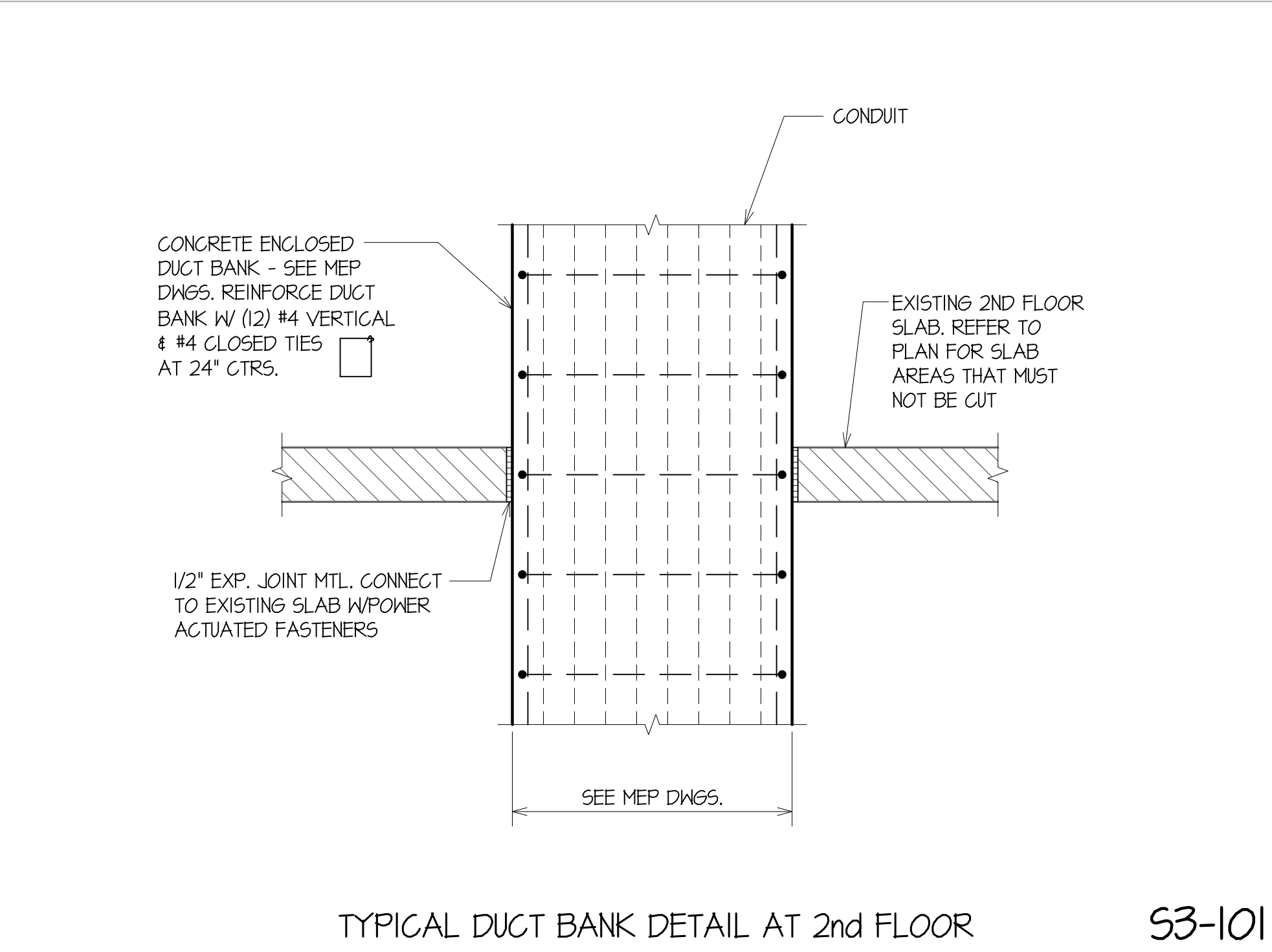


S2-102A



S2-103





GENERAL

GC-1 The contract structural documents represent the finished modifications to the existing structure, and, except where specifically shown, do not indicate the method or means of construction. The Contractor shall supervise and direct the work and shall be solely responsible for all construction means, methods, procedures, techniques, and sequence.

GC-2 The structure has been designed to resist design loads only as a completed structure. Applications of construction loads to the partially completed structure shall be considered by the Contractor and so included in the design of shoring, bracing, formwork, and any other supporting elements provided for construction of the structure. During erection and until all permanent connections are made, the Contractor must provide temporary bracing to brace the structure in all directions.

GC-3 The Engineer shall not have control or charge of, and shall not be responsible for, construction means, methods techniques, sequences, or procedures for safety precautions and programs in connection with the work, for the acts or omission of the Contractor, Subcontractor, or any other persons performing any of the work, or for the failure of any of them to carry out the work in accordance with the contract documents.

GC-4 General Contractor shall check and verify all dimensions, elevations and existing conditions, (both new and existing) reporting any discrepancies to the Engineer before proceeding with any phase of the work as he will be responsible for all work fitting as intended by the construction documents.

GC-5 General Contractor must coordinate all platform dimensions with the shop drawings for the units to confirm that the units will be supported at all bearing locations. The General Contractor shall report any discrepancies to the Engineer before fabrication of materials and before proceeding with any phase of the work as he will be responsible for all work fitting as intended by the drawings.

GENERAL NOTES

GC-6 Refer to the plan for dimensions along the perimeter of the building and at column lines where existing slab cannot be cut. At areas outside of these zones, the Contractor must locate all rebar prior to cutting the slab. All proposed mechanical openings through the slab must be located to clear (not cut) the rebar as much as possible. Contact the Engineer if any proposed openings in the allowable areas (outside of the excluded areas) will cut more than two (2) bars.

STRUCTURAL DESIGN CRITERIA

SD-1 A. Live loads:
1. Mechanical Equipment - Refer to drawings for unit weights
2. Catwalk 40 PSF
3. Combinations in accordance with IBC 1605.3.1

B. Wind loads - ASCE 7-16 (IBC 1609.1)
Design Wind Speed (MPH) 144 (Vult) (IBC Table 1609.3.1)
Exposure classification C

C. Ground Snow Load 0 PSF (IBC Figure 1608.2)

D. Seismic Design Category A

SD-2 Applicable codes:
A. 2015 International Building Code
B. ASCE 7-10
C. ACI 318-14
D. AISC Fourteenth Edition 2011
E. AWS D1.1

CONCRETE/REINFORCING:

CR-1 The Contractor shall remove any loose or cracked sections of concrete from the existing plinths to expose competent, un-cracked concrete. Remove loose materials, apply bonding agent and re-cast sections of plinths if needed with 4,000 PSI concrete.

CR-2 Where expansion bolts (exp. bolt) are shown, they shall be Simpson Strong-Tie stainless steel Wedge-All or approved equal. All anchors shall be zinc plated meeting the requirements of ASTM B633. Expansion anchors shall be installed using minimum depths, edge distances and spacing (unless otherwise noted), as recommended by the anchor manufacturer and shall be tightened to the torque requirements of the manufacturer. The Contractor must locate and mark all existing rebar in areas to receive expansion bolts. Care shall be taken in placing expansion bolts to avoid conflicts with existing rebar.

IN-FILL SLABS ON FORM DECK CONSTRUCTION

FD-1 Roof infill slabs shall be 3", 3000 PSI normal-weight concrete on 9/16" deep, 26 gage galvanized corrugated metal deck 0.6C26 as manufactured by Vulcraft or approved equal. Each deck sheet shall span over at least 4 supports. Deck shall conform to SDI Standards and shall have the following properties:

$I_p = 0.015 \text{ IN}^4/\text{FT}$
 $I_n = 0.015 \text{ IN}^4/\text{FT}$
 $S_p = 0.043 \text{ IN}^3/\text{FT}$
 $S_n = 0.043 \text{ IN}^3/\text{FT}$
 $F_y = 60 \text{ K.S.I.}$

Reinforce slabs with 6" x 6" - W2.9 x W2.9 welded wire mesh flat sheets only lapped one mesh plus 2" at ends and sides. Locate mesh in center of net slab thickness.

FD-2 Attach deck to supports with 5/8" diameter puddle welds in each flute made through the manufacturer's standard weld washers and with #10 TEK screws at 24-inch centers at sidelaps. Lap corrugated metal deck 3" at ends and sides of sheet.

FD-3 Concrete strength tests of the installed concrete by the Testing Lab retained by the Owner must be obtained by the Contractor and submitted to the Engineer. The Contractor shall notify the Engineer and Testing Lab a minimum of 48 hours in advance of any concrete placement. The Contractor shall not place any concrete until all steel placement has been reviewed by the Testing Lab and Engineer AND all corrections made by the Contractor. It is the Contractor's responsibility to ensure that all corrections have been made.

TEXAS DEPARTMENT OF INSURANCE WINDSTORM INSPECTION REQUIREMENTS

TDI-1 Submit TDI compliant roofing documentation on proposed re-roof materials. The installation method to be used must be clearly shown on the shop drawings. The installation method must have accompanying TDI approved documentation.

The Structural Engineer must be allowed to inspect the installation of all roofing materials prior to the installation of any subsequent layers of roofing materials.

EPOXY

EX-1 Embedded steel items shall be set into hardened concrete with epoxy only where detailed on the drawings or where approved by the Engineer. The Contractor must locate and mark all existing rebar in areas to receive post installed anchors. Care shall be taken in placing post-installed anchors to avoid conflicts with existing rebar.

EX-2 All holes shall be drilled with a "Rotary Hammer" percussion drill. All holes shall have a diameter no larger than 1/8" greater than the diameter of the steel member being installed.

EX-3 All holes shall be cleaned with compressed air and shall be dry prior to installation of epoxy. Holes shall be free of all deleterious material such as laitance, dust, dirt, and oil.

EX-4 Steel shall be cleaned to a bright finish with wire brushes prior to installation. Prime surface as required by Manufacturer.

EX-5 Acceptable Products are HILTI HIT RE500SD, HILTI HIT-HY 150 SD-MAX, Simpson Strong-Tie Set-XP or approved equal. Substitutions may be considered provided complete technical information is furnished to the Engineer and approved prior to commencement of work. In using the above products, follow strictly the manufacturer's specifications and directions for mixing and application. Also heed all label warnings by manufacturer. Make application in accordance with applicable safety laws.

STRUCTURAL STEEL

ST-1 All structural steel shall conform to ASTM Specifications A36 except wide flange shapes shall conform to ASTM A992 GR50. Structural steel details and connections shall conform to the standards of the AISC. Splicing of structural steel members is prohibited. Any member having a splice not shown and detailed on the construction documents or approved shop drawings will be rejected. All welding shall conform to the American Welding Society Code. Use E70 series electrodes for all structural steel welds.

ST-2 All connections shall have 3/4" diameter bolts at 3" on center for full depth of beam as a minimum. Field connections shall be equivalent to standard bolted connections using 3/4" diameter ASTM A325X bolts unless otherwise shown. Connections shall be bolted or welded - See details.

ST-3 All structural steel members including bolts and miscellaneous steel members shall be hot-dip galvanized after fabrication. Apply zinc rich field galvanizing over all field welded areas.

ST-4 All connection plates and angles for structural steel shall be 3/8" thick at 3/4" Bolts.

ST-5 The Contractor shall submit product data on the galvanized grating material to be used at the catwalks. The grating must be oriented to span in the directions shown on the plan. Product submittal must include typical anchorage details to wide flange beams. Anchorage details shall include the ability to remove sections of grating as needed to access areas below the catwalk for routine mechanical unit and roof maintenance.

APPLICABILITY OF TYPICAL DETAILS

TD-1 Typical Details shall apply to ALL such situations and conditions which are similar to the condition shown on the detail or verbally described in the title of the detail or notes on the detail. Typical Details shall apply regardless of whether or not the detail section mark is cut on the plans.

MISCELLANEOUS

M-1 Changes shall not be made to the drawings without written approval of the Engineer.

M-2 Shop drawings shall be submitted for all structural items including epoxy, expansion bolts, structural steel, metal deck, roofing materials and steel grating.

The Contractor must submit all shop drawings for review a minimum of ten (10) working days prior to their due date back to the supplier. Failure to do so will be the responsibility of the Contractor.

M-3 Contractor must field verify dimensions and elevations of existing plinths.

SITE OBSERVATION BY THE STRUCTURAL ENGINEER

SV-1 Periodic site observations by field representatives of the Structural Engineer are solely for the purpose of determining if the work of the Contractor is proceeding in general accordance with the structural contract documents. These limited site observations should not be construed as exhaustive or continuous to check the quality or quantity of the work, but rather periodic in an effort to guard the Owner against defects or deficiencies in the work of the Contractor.

SV-2 Do not cover up structural framing until it has been reviewed by the Engineer and Testing Lab.

REPRODUCTION NOTE

R-1 The use of reproductions of these contract drawings by any contractor, subcontractor, erector, fabricator, or material supplier in lieu of preparation of shop drawings signifies his acceptance of all information shown hereon as correct, and obligates himself to any job expense, real or implied, arising due to any errors that may occur hereon.

REVISIONS
DATE

#

PROJECT #: 22159
FILE NAME: CHAPARRAL
DRAFTING BY: NS
CHECKED BY: REM
DATE: OCTOBER 6, 2023
SHEET NUMBER:

S3-1

SHT. No. 8 of 30

GENERAL NOTES & DETAILS

CENTRAL PLANT IMPROVEMENTS
TEXAS A-M UNIVERSITY CORPUS CHRISTI
223 N. CHAPARRAL
CORPUS CHRISTI, TEXAS

THE SEAL APPEARING ON
THIS DOCUMENT WAS AUTHORIZED
BY ROBERT E. MARTINEZ, P.E. # 89387
T.B.P.E. FIRM NO. 6944

STATE OF TEXAS
ROBERT ENRIQUEZ MARTINEZ
89387
REGISTERED PROFESSIONAL ENGINEER
2023-06-23

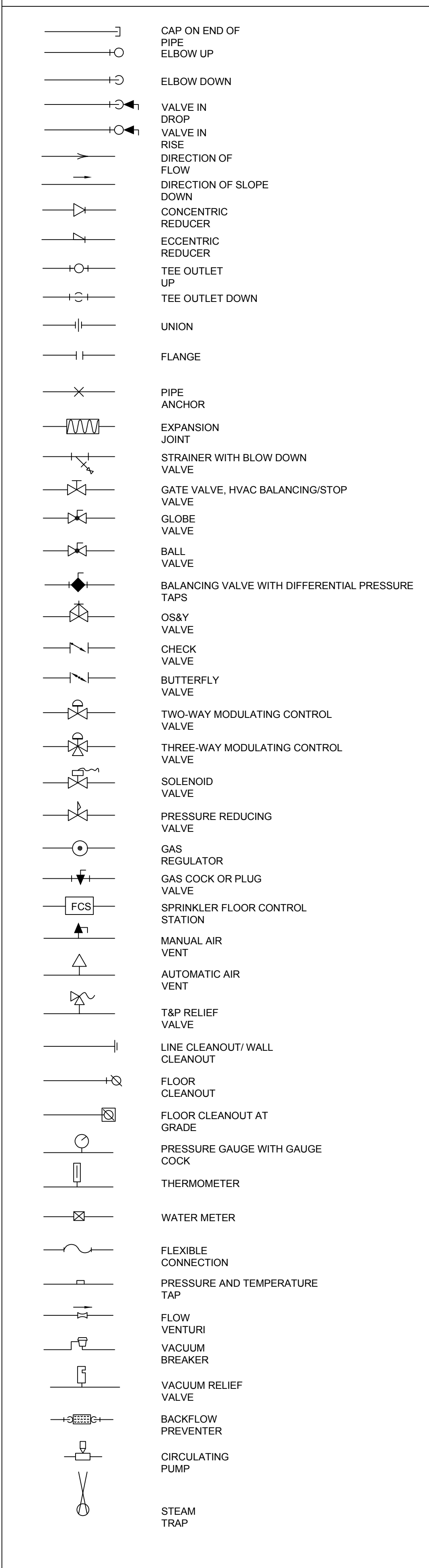
2218 BASSE RD.
SAN ANTONIO, TX 78213
(210) 320-1199
robert@remengineeringcorp.com
T.B.P.E. FIRM NO. 6944
REM PROJECT NO. 23-050

R
ENGINEERING
M

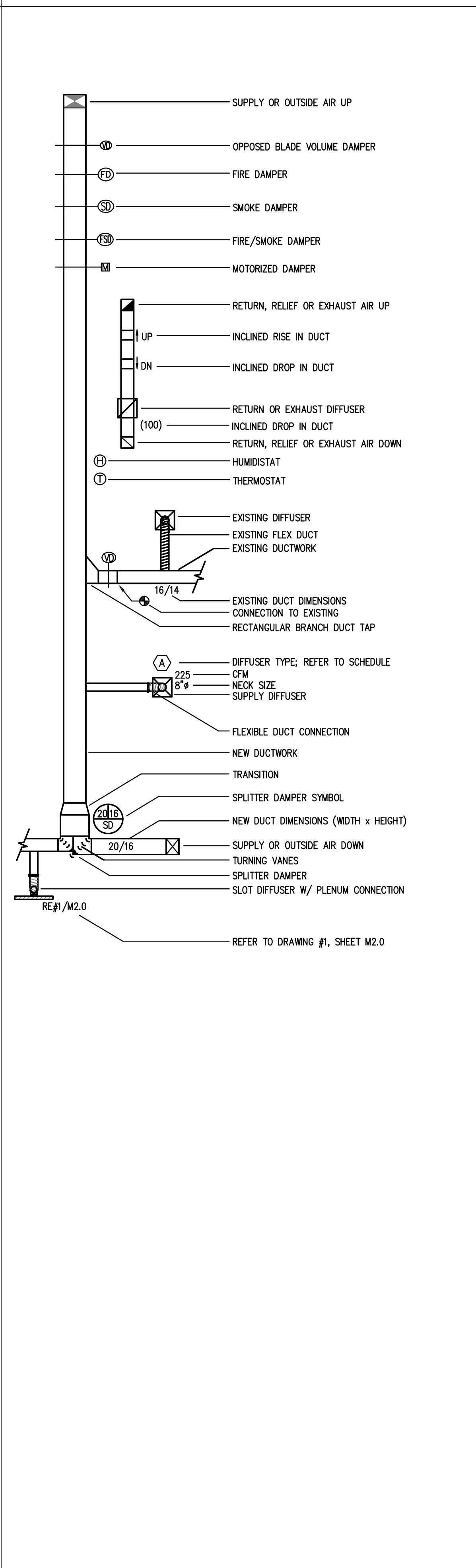
2218 BASSE RD.
SAN ANTONIO, TX 78213
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T.B.P.E. FIRM NO. 6944
REM PROJECT NO. 23-050

MECHANICAL SYMBOLS

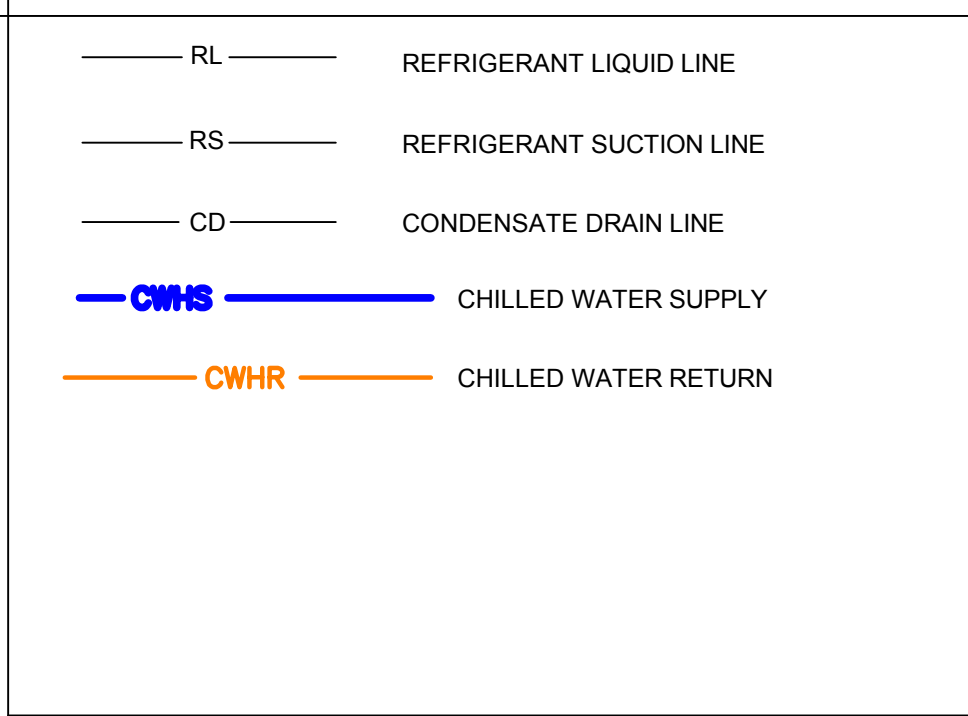
PIPING SYMBOLS



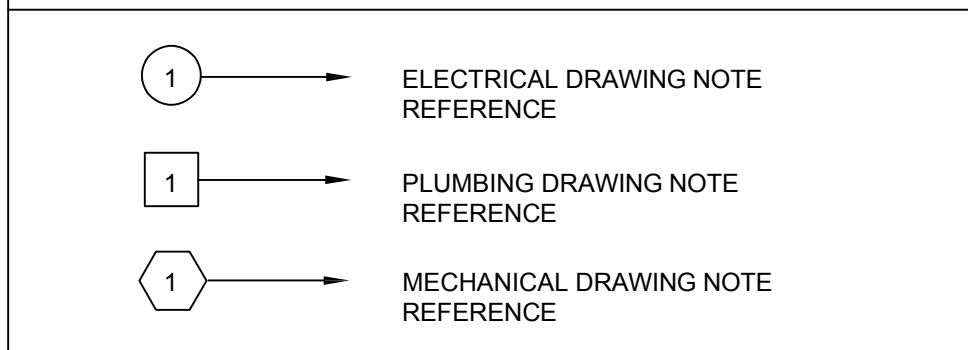
DUCTWORK



PIPING TYPES



MISCELLANEOUS



MECHANICAL GENERAL NOTES

1. PIPING AND DUCTWORK ON DRAWINGS ARE SCHEMATIC ONLY. COORDINATE WITH OTHER TRADES FOR PIPING AND DUCTWORK ROUTING, OFFSET AND RUN PIPING/DUCTWORK INSIDE THE STRUCTURE IF REQUIRED. PROVIDE ALL NECESSARY PIPING, DUCTWORK, FITTINGS, INSULATION, AND OTHER ACCESSORIES.
2. EXACT LOCATIONS OF TERMINAL BOXES, GRILLES, DAMPERS SHALL BE FIELD COORDINATED WITH OTHER TRADES TO AVOID CONFLICTS AND ALLOW ADEQUATE CLEARANCE AND EASY ACCESS.
3. COORDINATE LOCATIONS OF FLOOR AND WALL OPENINGS WITH ARCHITECT AND STRUCTURAL ENGINEER.
4. CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.
5. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF ALL OUTSIDE AIR INTAKES TO MAINTAIN 10 FEET DISTANCE BETWEEN OUTSIDE AIR INTAKES AND ANY EXHAUST AIR OUTLET, FLUES OR PLUMBING VENTS.
6. PROVIDE A CONICAL SPIN-IN SHEETMETAL INLET DUCT TO TERMINAL BOX SHALL BE SAME SIZE AS TERMINAL BOX INLET PROVIDE RIGID ROUND DUCT THAT IS ONE SIZE LARGER THAN THE INLET BOX SIZE IF THE DISTANCE BETWEEN THE SIZE. DUCT AND THE TERMINAL BOX INLET IS MORE THAN MAIN 6'-0".
7. CONTRACTOR SHALL PROVIDE ADEQUATE CLEARANCE AROUND VAV BOXES AS REQUIRED BY MANUFACTURER. COORDINATE EXACT LOCATION WITH OTHER TRADES.
8. ROUTE HYDRONIC PIPING FROM MAINS TO VAV BOXES. REFER TO SCHEDULES FOR PIPE SIZING, WITH AN ISOLATION VALVE THE SUPPLY AND RETURN LINES AND A VENT AT THE HIGH POINT. OFF-SET PIPING AND RUN INSIDE STRUCTURE AS NEEDED TO PROVIDE PROPER CLEARANCES. TYPICAL.
9. ALL SUPPLY AIR DUCT UPSTREAM OF TERMINAL BOXES (PER DIRECTION OF AIRFLOW) SHALL BE SIZED AND CLASSIFIED TO MEDIUM PRESSURE DUCTWORK. THIS DUCT SHALL BE CONSTRUCTED TO MEET THE LATEST SMACNA STANDARDS FOR MEDIUM PRESSURE DUCTWORK.
10. INSTALL TERMINAL BOXES TO ENSURE ACCESS PANELS ARE NOT BLOCKED. MAINTAIN MINIMUM 4'-0" FOR CONTROL PANEL ACCESS.
11. NO PIPE HANGERS SHALL BE SPACED MORE THAN 10'-0". COMPLY WITH PIPE SPACING AS SPECIFIED IN THE PIPE SUPPORT SPECIFICATION.
12. CONTRACTOR SHALL COMPLY WITH ALL STATE, LOCAL, AND FEDERAL CODES AND AUTHORITIES HAVING JURISDICTION.
13. EQUIPMENT SIZES, DIMENSIONS, AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE MANUFACTURER DRAWINGS CUTSHEETS BEFORE FABRICATION OF DUCTWORK, PIPING, OR POURING OF CONCRETE HOUSEKEEPING AND PADS.
14. CONTRACTOR SHALL VERIFY DUCTED RETURN AIR PATH BACK TO ALL UNITS. REFER TO FLOOR PLANS AND AIR DEVICE FOR EXACT SIZING. WHERE RETURN AIR PATH IS ROUTED THROUGH A FIRE RATED WALL, A FIRE DAMPER SHALL BE TAGS IN THE DUCTWORK. PROVIDED
15. COORDINATE EXACT LOCATION, FINISH, AND COLOR OF ALL AIR DEVICES WITH ARCHITECT PRIOR TO INSTALLATION.
16. ALL EXPOSED DUCTWORK SHALL BE INTERNALLY LINED.
17. PROVIDE ACCESS PANEL FOR ALL HVAC EQUIPMENT LOCATED ABOVE HARD CEILING. SIZE PANEL PER RECOMMENDED SERVICE CLEARANCES AND COORDINATE WITH ARCHITECT FOR MANUFACTURER'S FINISH.
18. PROVIDE TEMPERATURE SENSORS, HUMIDISTATS AND CO2 SENSORS AT LOCATIONS INDICATED ON PLANS. MOUNT SENSORS 2'-0" BELOW THE FINISHED CEILING AND NEAR A RETURN AIR GRILLE. ENSURE ALL TEMPERATURE SENSORS TEMPERATURE CLEAR OF CASEWORK PRIOR TO FINAL ROUGH-IN. MOUNT HUMIDISTATS AND CO2 SENSORS AT THE SAME ELEVATION AS ARE SWITCHES. COORDINATE EXACT LOCATIONS WITH LIGHT ARCHITECT.
19. PROVIDE SPIN-IN CONNECTION WITH LOCKING QUADRANT BUTTERFLY FOR ALL ROUND DUCTWORK CONNECTED RECTANGULAR TO DUCT.
20. DUCT SIZES SHOWN ON PLANS ARE CLEAR INSIDE DIMENSIONS.
21. ALL LOW PRESSURE DUCTWORK AND ASSOCIATED ACCESSORIES SHALL BE CONSTRUCTED TO MEET THE LATEST STANDARDS FOR MEDIUM AND LOW PRESSURE SMACNA DUCTWORK.
22. PROVIDE AIRFOIL TYPE TURNING VANES IN ALL 90 DEGREE ELBOWS.
23. FASTEN AND SEAL ALL DUCTWORK JOINTS, LONGITUDINAL AND TRAVERSE SEAMS AND CONNECTIONS PER ASHRAE SECTION 6.4.2.1. DUCT SEALANT SHALL BE INSPECTED PRIOR TO DUCTWORK BEING 90.1 INSULATED.
24. ALL EXPOSED DUCTWORK AND PIPING ALONG WITH ASSOCIATED ACCESSORIES IN AREAS WITH NO CEILING OR PARTIAL SHALL BE PAINTED. REFER TO ARCHITECT FOR CEILING COLOR.
25. PROVIDE REMOTE DAMPER OPERATORS FOR ALL SPIN-IN ROUND DAMPERS CONNECTED TO RECTANGULAR DUCT LOCATED HARD ABOVE A CEILING.
26. ALL EQUIPMENT LOCATED OUTDOORS SHALL BE SELECTED TO WITHSTAND 150 MPH WINDS AND SHALL BE SECURED TO STRUCTURE/GRADE. ALL FANS, RELIEF HOODS, AND INTAKE HOODS SHALL BE SECURED TO CURB USING STEEL DIRECTLY ALL PIPE SUPPORTS AND CONDUIT SUPPORTS SHALL BE ANCHORED TO ROOF DECK. ALL AIR COOLED CONDENSING CABLES. SHALL BE ANCHORED TO ROOF DECK. VIBRATION ISOLATORS SHALL INCLUDE UPLIFT UNITS SECUREMENT.
27. IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE VERIFIED EXISTING JOBSITE CONDITIONS DURING THE BIDDING PERIOD. THEY WILL HAVE OBTAINED THE SCOPE OF MECHANICAL WORK INVOLVED AS A RESULT OF ARCHITECTURAL MODIFICATIONS TO THE EXISTING STRUCTURE. THE SCOPE OF WORK SHALL INCLUDE MATERIALS AND DUCTWORK CONSISTING OF THE EQUIPMENT, OR APPARATUS WHICH MUST BE REROUTED, RELOCATED, OR REMOVED EITHER TEMPORARILY OR PERMANENTLY AND DEVICES WHICH MUST BE PROVIDED SO THAT THE INDICATED REMODELING MAY BE ACCOMPLISHED. NOT ALL EXISTING CONDITIONS ARE NECESSARILY INDICATED ON DRAWINGS, CONTRACTOR SHALL DEMOLISH ONLY WHAT IS INDICATED TO BE DEMOLISHED ON THE DRAWINGS.
28. COORDINATE ALL MOUNTING LOCATIONS AND HEIGHTS OF AIR DEVICES WITH ARCHITECT PRIOR TO FINAL INSTALLATION.
29. AFTER THE HYDRONIC SYSTEM FLUSH IT IS THE MECHANICAL CONTRACTORS RESPONSIBILITY TO PROVE ALL BYPASS LOOPS ON ALL OF THE COIL PIPING IS CLOSED. ONCE THE VALVE IS PROVED CLOSED, REMOVE THE HANDLE OF THE BYPASS ISOLATION VALVE TO ENSURE NO BYPASS LINE CAN BE OPENED DURING REGULAR OPERATION.

EQUIPMENT MATRIX NOTES:

EQUIPMENT	FURNISHED BY	INSTALLED BY
AIR COOLED CHILLERS	OWNER	MECHANICAL CONTRACTOR
PUMPS	MECHANICAL CONTRACTOR	MECHANICAL CONTRACTOR
VARIABLE FREQUENCY DRIVES	OWNER	MECHANICAL CONTRACTOR
BUILDING AUTOMATION (DDC)	MECHANICAL CONTRACTOR	MECHANICAL CONTRACTOR
ELECTRICAL GEAR	ELECTRICAL CONTRACTOR	ELECTRICAL CONTRACTOR
GENERATOR	OWNER	ELECTRICAL CONTRACTOR
EXPANSION TANK	MECHANICAL CONTRACTOR	MECHANICAL CONTRACTOR
AIR AND DIRT SEPERATOR	MECHANICAL CONTRACTOR	MECHANICAL CONTRACTOR
HYDRONIC PIPING & ACESORIES	MECHANICAL CONTRACTOR	MECHANICAL CONTRACTOR

REVISIONS DATE	✿

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MECHANICAL LEGEND

CENTRAL PLANT IMPROVEMENTS
TEXAS A-M UNIVERSITY CORPUS CHRISTI
223 N. CHAPARRAL
CORPUS CHRISTI, TEXAS

MECHANICAL LEGEND

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MECHANICAL LEGEND

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223 N. CHAPARRAL
CORPUS CHRISTI, TEXAS

PROJECT #: 22159
FILE NAME: CHAPARRAL
DRAFTING BY: SMR
CHECKED BY: SMR
DATE: MAY 12, 2023
SHEET NUMBER:
MO.1
SHT. No. 9 of 30

PROJECT #: 22159
FILE NAME: CHAPARRAL
DRAFTING BY: SMR
CHECKED BY: SMR
DATE: MAY 12, 2023
SHEET NUMBER:
MO.1
SHT. No. 9 of 30

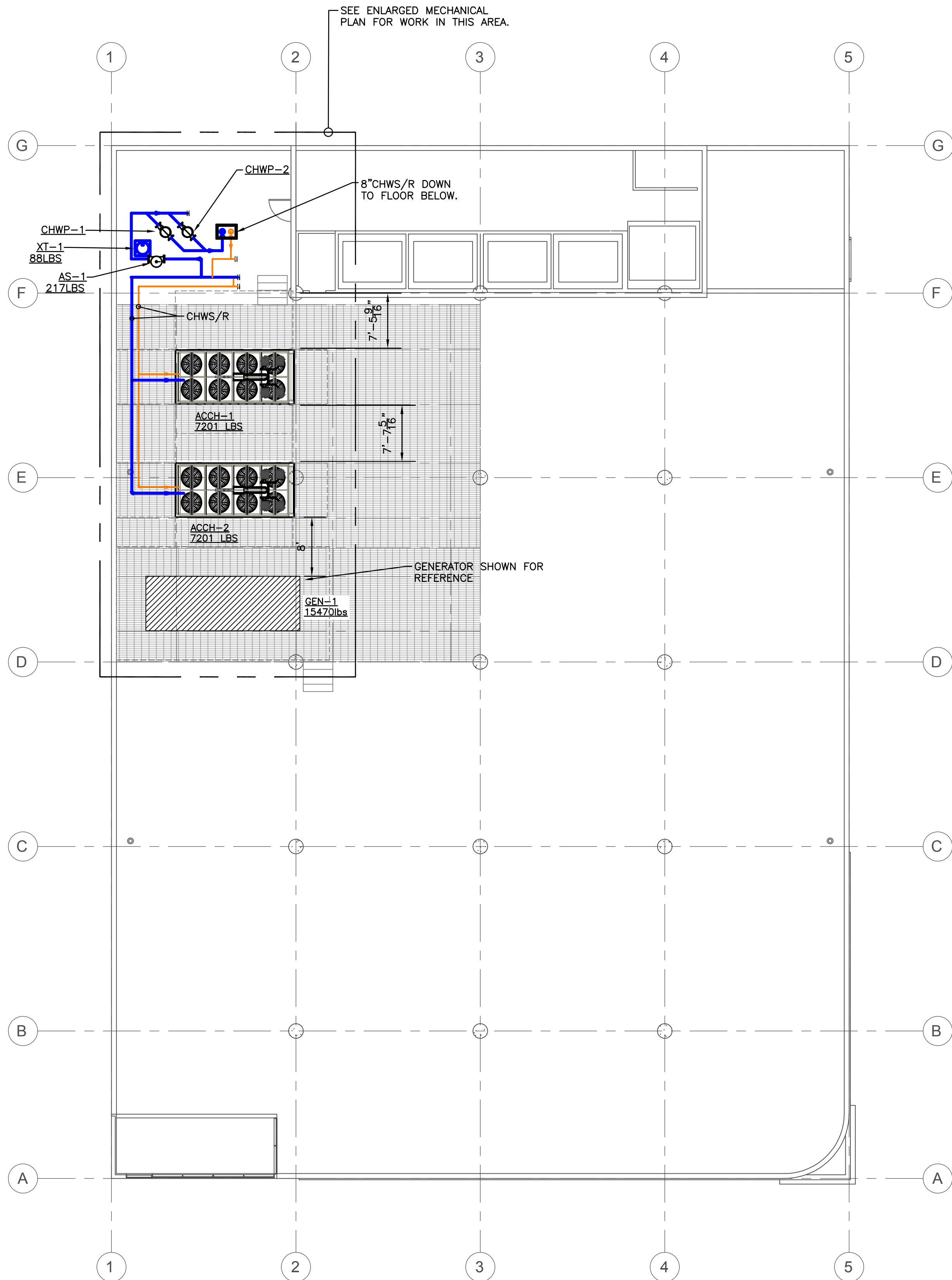
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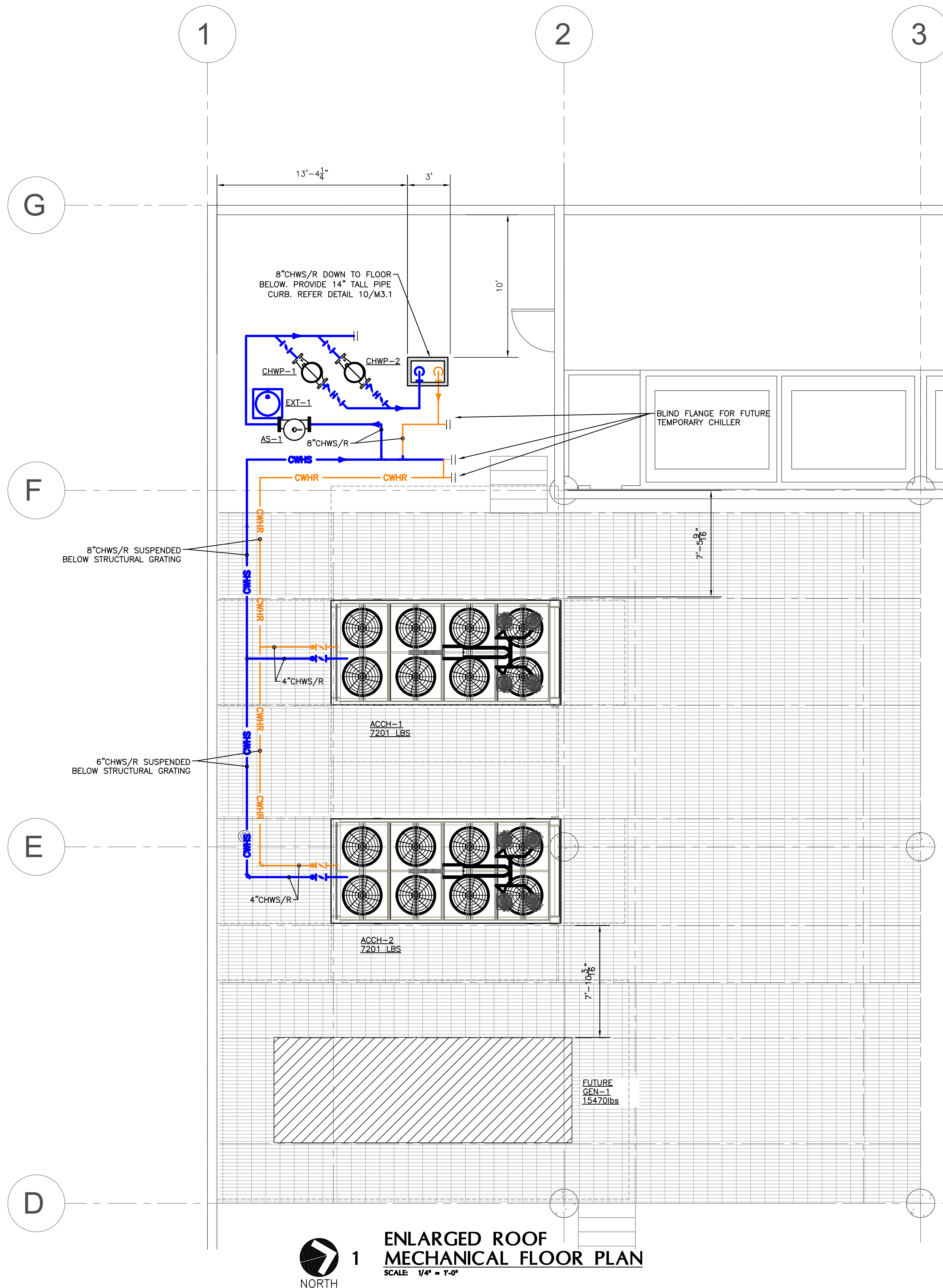
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MO.1
SHT. No. 9 of 30

Oct 06, 2023 -- 6:06pm
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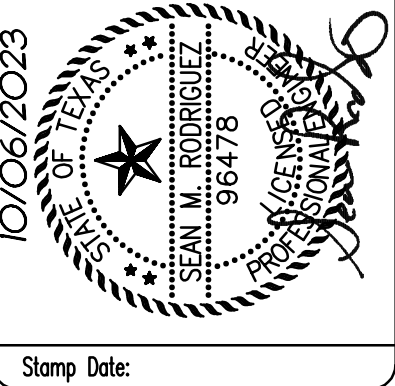
1 **ROOF MECHANICAL FLOOR PLAN**
SCALE: 1" = 10'-0"



1 **ENLARGED ROOF MECHANICAL FLOOR PLAN**
SCALE: 1/4" = 1'-0"

REVISIONS	DATE	#

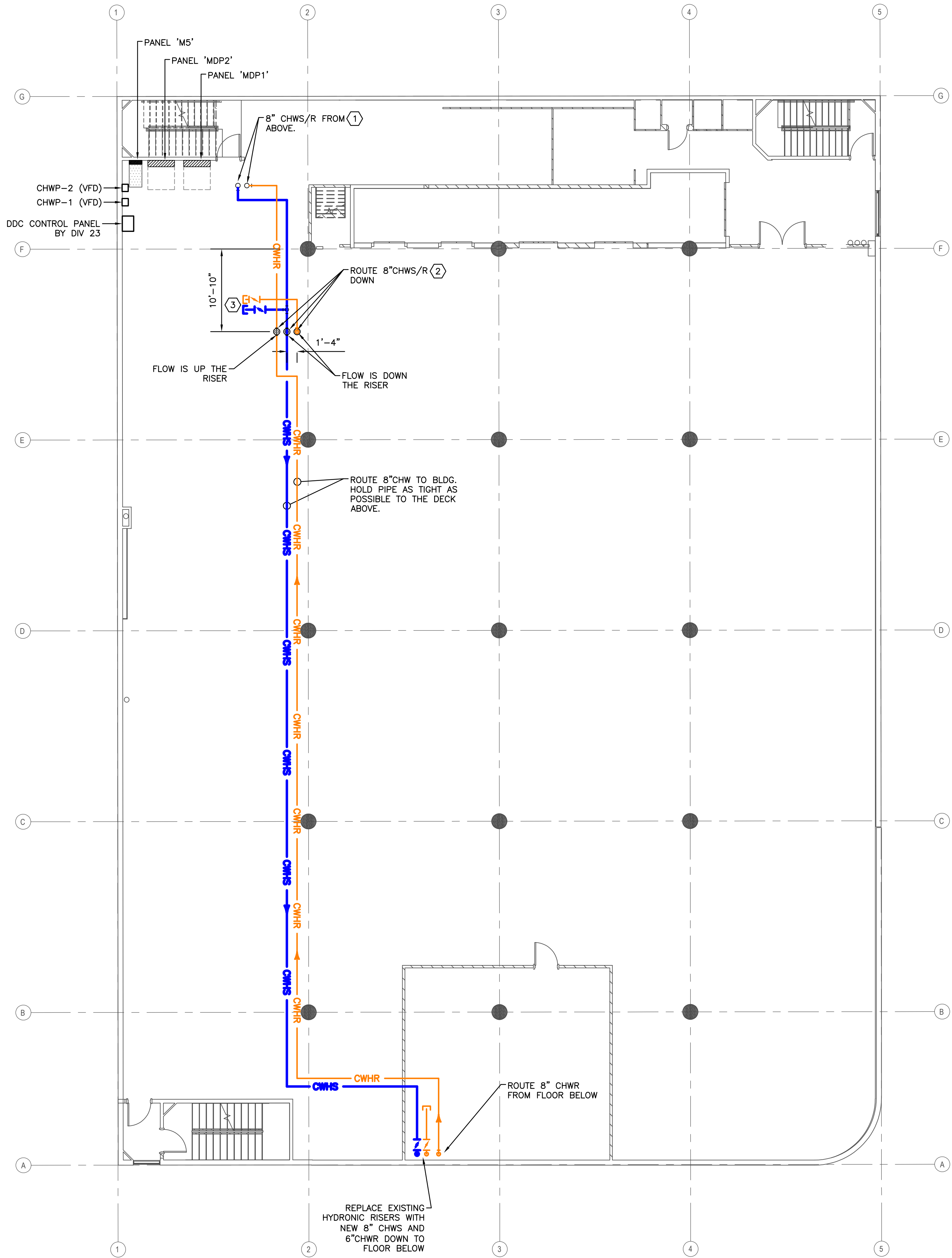
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MECHANICAL ROOF PLAN
CENTRAL PLANT IMPROVEMENTS
TEXAS A+M UNIVERSITY CORPUS CHRISTI
223 N. CHAPARRAL
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PROJECT #: 22159
FILE NAME: CHAPARRAL
DRAFTING BY: SMR
CHECKED BY: SMR
DATE: MAY 12, 2023
SHEET NUMBER:
M1.0
SHT. No. 10 of 30

Oct 06, 2023 -- 6:07pm
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**5TH FLOOR
MECHANICAL FLOOR PLAN**

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

MECHANICAL KEYED NOTES:

- 1 ROUTE 8" CHILLED WATER SUPPLY AND RETURN FROM FLOOR ABOVE. CORE DRILL AT THIS LOCATION AND PROVIDE FIRE RATED SLEEVE LARGE ENOUGH TO PASS PIPE AND INSULATION.
- 2 ROUTE 8" CHILLED WATER SUPPLY AND RETURN DOWN FLOOR BELOW. CORE DRILL AT THIS LOCATION AND PROVIDE FIRE RATED SLEEVE LARGE ENOUGH TO PASS PIPE AND INSULATION.
- 3 PROVIDE 4" BUTTERFLY VALVE AND BLIND FLANGE FOR FUTURE CONNECTION TO MECHANICAL EQUIPMENT.

REVISIONS DATE	#

These drawings and accompanying Specifications are to be an instrument of service and shall remain the property of the Engineer. They are not to be used on other projects or extensions to this project except by agreement in writing and with appropriate compensation to the Engineer. Contractor is responsible for confirming and correcting dimensions at the job site; the Engineer will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the project.



Stamp Date:

5TH FLOOR MECHANICAL PLAN

CENTRAL PLANT IMPROVEMENTS
TEXAS A+M UNIVERSITY CORPUS CHRISTI
223 N. CHAPARRAL
CORPUS CHRISTI, TEXAS

PROJECT #: 22159
FILE NAME: CHAPARRAL
DRAFTING BY: SMR
CHECKED BY: SMR
DATE: MAY 12, 2023

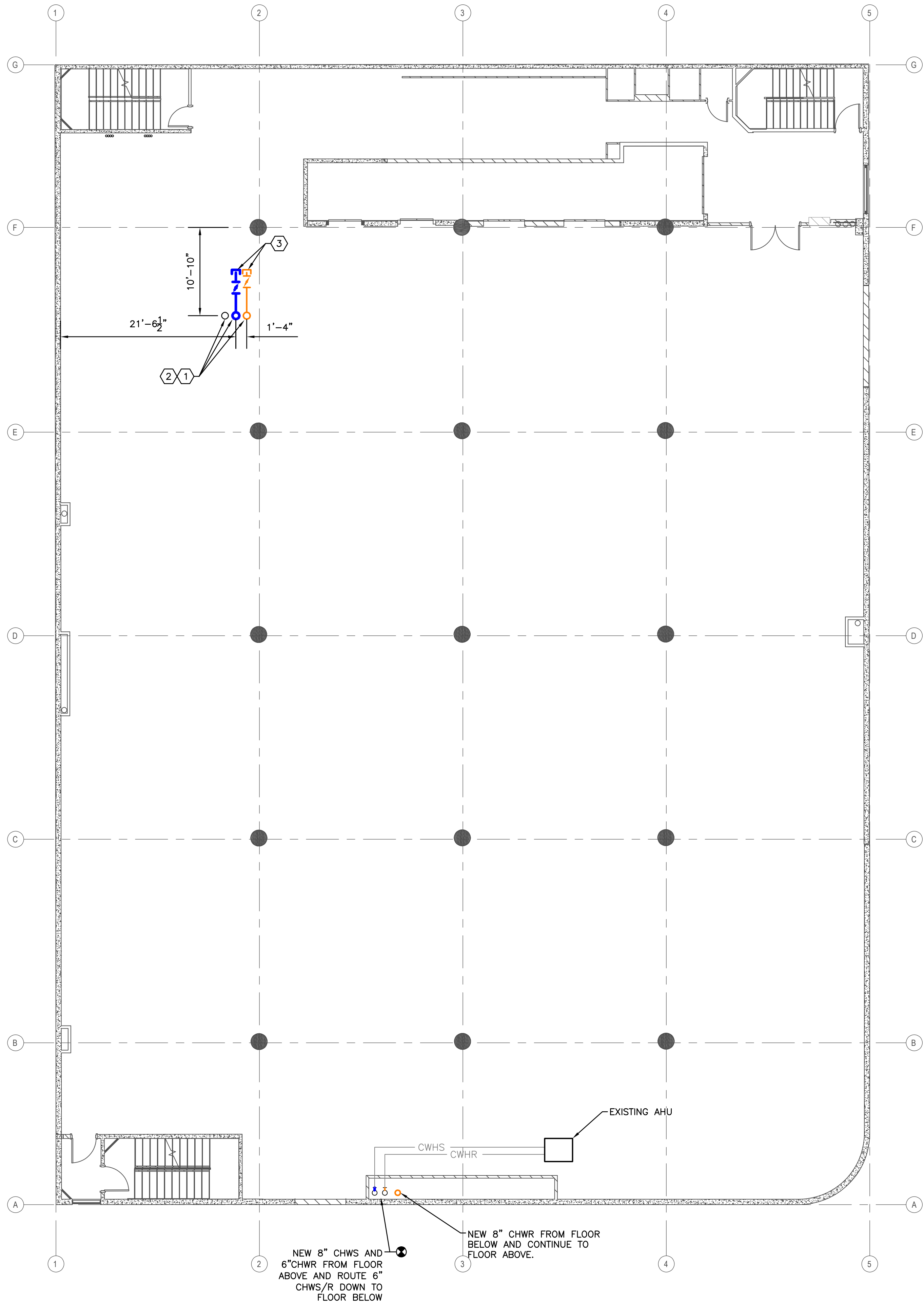
SHEET NUMBER:

M1.1

SHT. No. 11 of 30

Oct 06, 2023 -- 6:07pm

22159_mech.dwg



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4TH FLOOR
MECHANICAL FLOOR PLAN

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

MECHANICAL KEYED NOTES:

- 1 ROUTE 8" CHILLED WATER SUPPLY AND RETURN FROM FLOOR ABOVE. CORE DRILL AT THIS LOCATION AND PROVIDE FIRE RATED SLEEVE LARGE ENOUGH TO PASS PIPE AND INSULATION. OFFSET RISERS TO MATCH LOCATIONS OF PIPES FROM BELOW.
- 2 ROUTE 8" CHILLED WATER SUPPLY AND RETURN DOWN FLOOR BELOW. CORE DRILL AT THIS LOCATION AND PROVIDE FIRE RATED SLEEVE LARGE ENOUGH TO PASS PIPE AND INSULATION. OFFSET RISERS TO MATCH LOCATIONS OF PIPES FROM BELOW.
- 3 PROVIDE 4" BUTTERFLY VALVE AND BLIND FLANGE FOR FUTURE CONNECTION TO MECHANICAL EQUIPMENT.

REVISIONS	DATE	#

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Stamp Date:

4TH FLOOR MECHANICAL PLAN
CENTRAL PLANT IMPROVEMENTS
TEXAS A+M UNIVERSITY CORPUS CHRISTI
223 N. CHAPARRAL
CORPUS CHRISTI, TEXAS

PROJECT #: 22159
FILE NAME: CHAPARRAL
DRAFTING BY: SMR
CHECKED BY: SMR
DATE: MAY 12, 2023

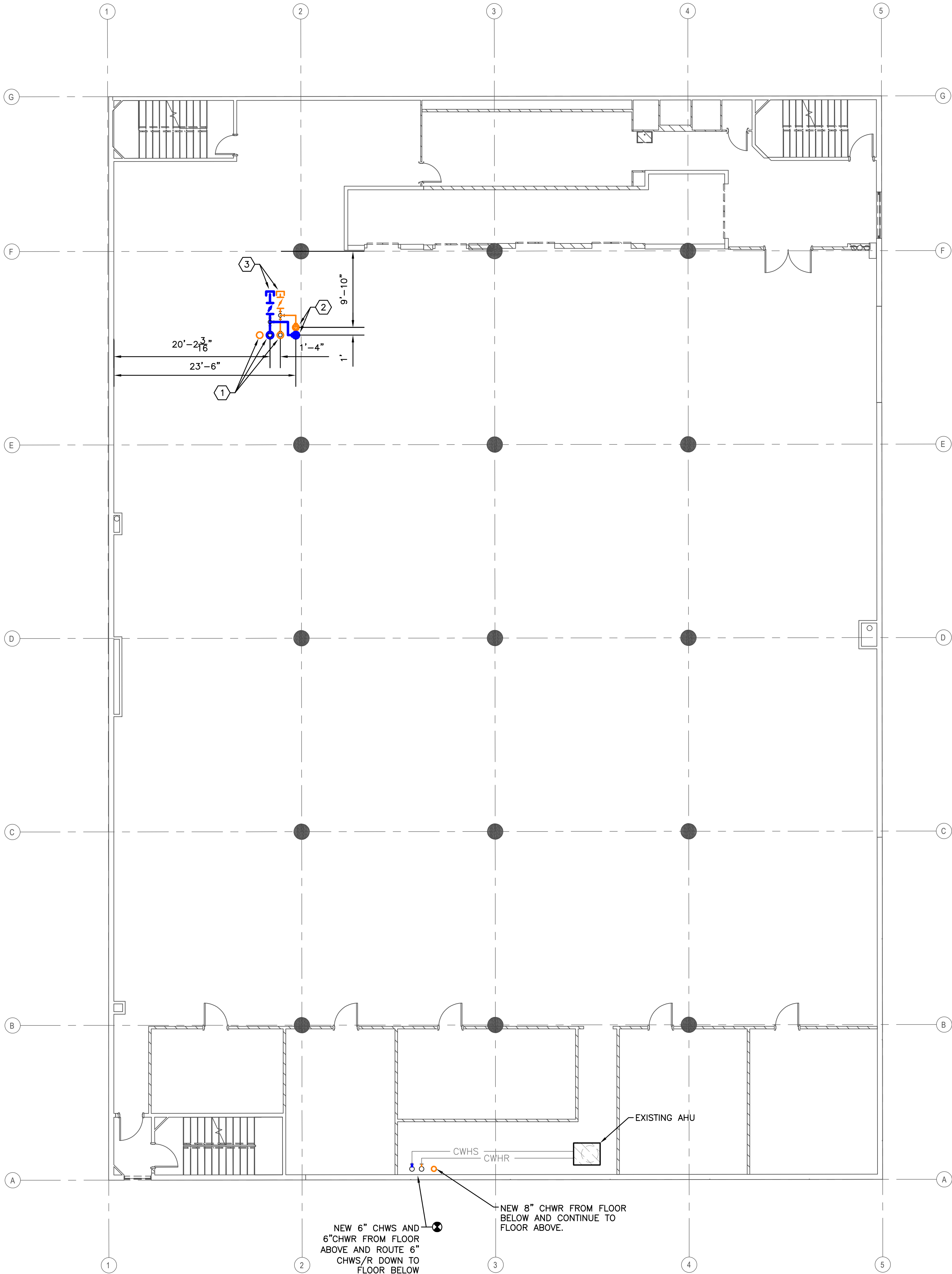
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3RD FLOOR
MECHANICAL FLOOR PLAN

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

MECHANICAL KEYED NOTES:

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- 2 ROUTE 8" CHILLED WATER SUPPLY AND RETURN DOWN FLOOR BELOW. CORE DRILL AT THIS LOCATION AND PROVIDE FIRE RATED SLEEVE LARGE ENOUGH TO PASS PIPE AND INSULATION.
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JOB #22159

10/06/2023

Stamp Date:

3RD FLOOR MECHANICAL PLAN

CENTRAL PLANT IMPROVEMENTS

TEXAS A+M UNIVERSITY CORPUS CHRISTI

223 N. CHAPARRAL

CORPUS CHRISTI, TEXAS

PROJECT #: 22159

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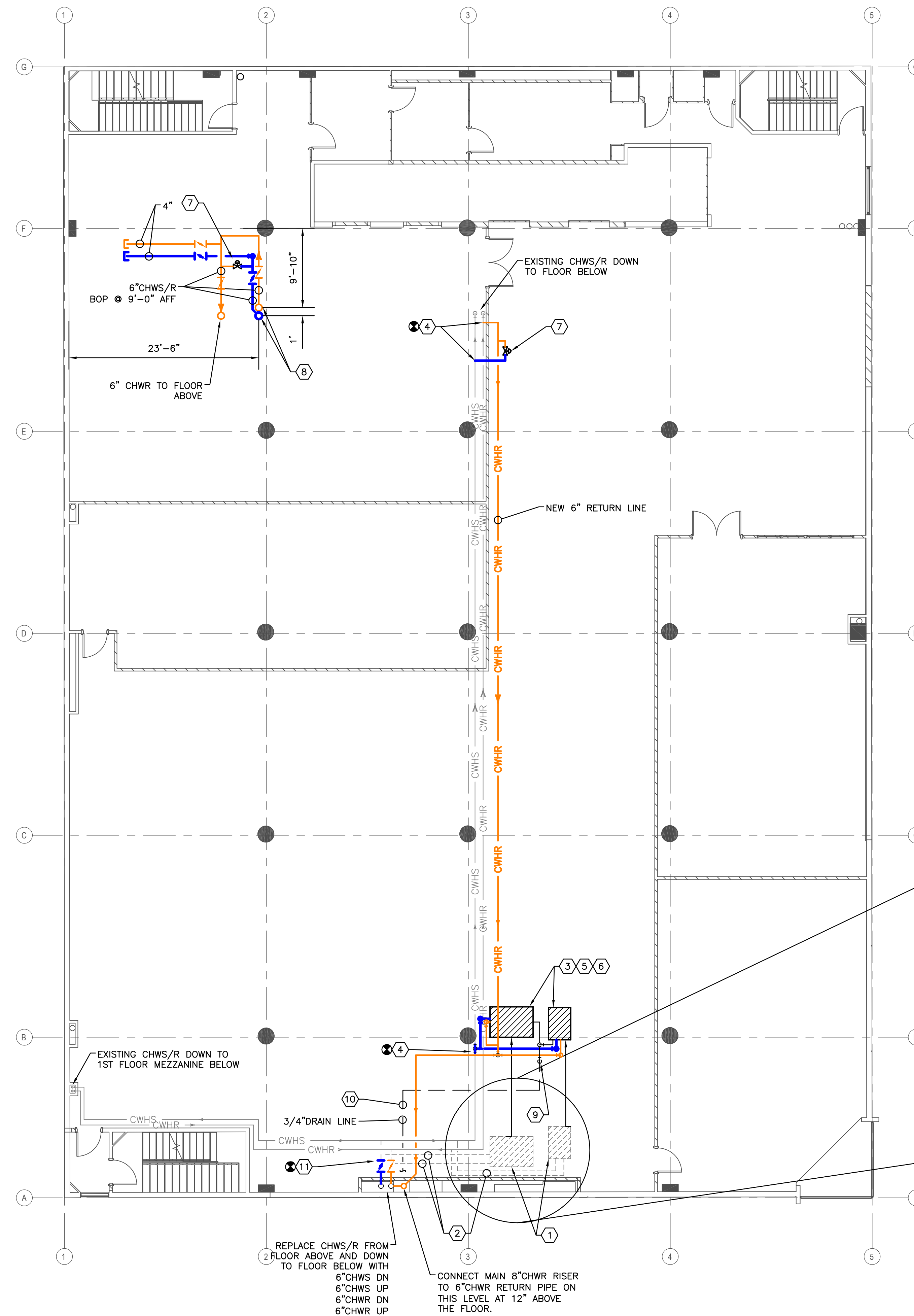
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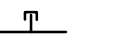
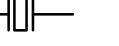

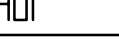
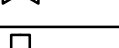
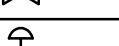
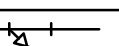
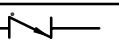
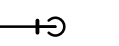
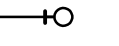
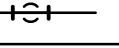
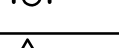
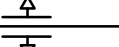
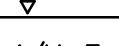
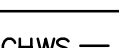
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REVISIONS DATE	#

MECHANICAL KEYED NOTES:

- ① EXISTING AHU TO BE RELOCATED TO LOCATION INDICATED. DISCONNECT EXISTING DUCTWORK FROM MAIN TRUNK OVERHEAD AND PATCH MAIN.
- ② REMOVE EXISTING CHILLED WATER SUPPLY AND RETURN LINES AND CAP EXISTING PIPE AS CLOSE TO THE PIPE CHASE AS POSSIBLE.
- ③ INSTALL EXISTING AHU AT THIS APPROXIMATE LOCATION. ROUTE SUPPLY DUCT UP AND CONNECT TO EXISTING TRUNK MAIN OVERHEAD. CUT AND REMOVE EXISTING SHEETROCK AS NECESSARY FOR NEW DUCT CONNECTION.
- ④ TAP EXISTING CHILLED WATER SUPPLY AND RETURN AT THIS APPROXIMATE LOCATION. PATCH AND REPAIR EXISTING PIPE INSULATION.
- ⑤ ROUTE 2" CHILLED WATER LINES TO AIR HANDLING UNITS AS SHOWN. PROVIDE NEW ISOLATION VALVE, STRAINER, 3-WAY PRESSURE INDEPENDENT CONTROL VALVE AND ACCESSORIES. REFER TO DETAIL 7/M3.1.
- ⑥ ROUTE FULL SIZE CONDENSATE DRAIN FROM AHU TO EXISTING CONDENSATE DRAIN LOCATION. INSULATE DRAIN LINE WITH 3/4" CLOSED CELL INSULATION.
- ⑦ PROVIDE 4" BYPASS VALVE SET FOR 130 GPM. INSTALL VALVE AND PIPES AS HIGH AS POSSIBLE IN AN ACCESSIBLE LOCATION.
- ⑧ ROUTE 6" CHILLED WATER SUPPLY AND RETURN FROM FLOOR ABOVE. CORE DRILL AT THIS LOCATION AND PROVIDE FIRE RATED SLEEVE LARGE ENOUGH TO PASS PIPE AND INSULATION.
- ⑨ CORE DRILL FOR NEW CONDENSATE DRAIN LINE PENETRATION. PENETRATION SHALL BE LARGE ENOUGH FOR PIPE AND INSULATION. PROVIDE FIRE RATED SLEEVE FOR FLOOR PENETRATION.
- ⑩ ROUTE DRAIN LINE BELOW THE FLOOR OF THE SECOND FLOOR AND CONNECT TO THE EXISTING DRAIN STACK.
- ⑪ MAIN CHILLED WATER SUPPLY AND RETURN RISERS ARE TO BE REPLACED. CONNECT TO EXISTING PIPES IN THIS APPROXIMATE LOCATION. PROVIDE NEW FLOOR ISOLATION VALVES.



PIPING LEGEND	
SYMBOL	DESCRIPTION
PCHPW	PRIMARY CHILLED WATER PUMP
SCHWP	SECONDARY CHILLED WATER PUMP
— — — —	EXISTING PIPE OR EQUIPMENT TO REMAIN
— ✕ — ✕ —	EXISTING PIPE OR EQUIPMENT TO BE REMOVED
————	NEW PIPE
(N)	NEW
(E)	EXISTING
(R)	RELOCATED
—  —	POINT OF CONNECTION TO EXISTING
AFR	ABOVE FINISHED ROOF
AFF	ABOVE FINISHED FLOOR
CH	CHILLER
CT	COOLING TOWER
—  —	PRESSURE-TEMPERATURE (P-T) PLUG
—  —	FULL LUR BODY BUTTERFLY VALVE
—  —	BLIND FLANGE
—  —	CAPPED AND VALVED TAP FOR FUTURE USE
—  —	BALL VALVE
—  —	MOTORIZED TWO WAY TWO POSITION VALVE
—  —	MOTORIZED TWO WAY MODULATING CONTROL VALVE
—  —	STRAINER WITH BLOW DOWN BALL VALVE AND HOSE CONNECTION
—  —	NON-SLAM CHECK VALVE
—  —	ELBOW DOWN
—  —	ELBOW UP
—  —	TEE TAP DOWN
—  —	TEE TAP UP
—  —	AUTOMATIC AIR VENT W/ BALL VALVE
—  —	MANUAL DRAIN BALL VALVE W/ HOSE CONNECTION
RE: 1/M-7	REFER TO DETAIL #1 ON DRAWING M-7
— PCHWS —	PRIMARY CHILLED WATER SUPPLY
— PCHWR —	PRIMARY CHILLED WATER RETURN
— SCHWS —	SECONDARY CHILLED WATER SUPPLY
— SCHWR —	SECONDARY CHILLED WATER RETURN
— HWS —	HOT WATER SUPPLY
— HWR —	HOT WATER RETURN
— CWS —	CONDENSER WATER SUPPLY
— CWR —	CONDENSER WATER RETURN
— CD —	COOLING COIL CONDENSATE DRAIN
— AD —	AUXILIARY DRAIN
— D —	DRAIN LINE

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AIR COOLED CHILLER SCHEDULE

MARK	ACCH-1, 2			
SERVES	BUILDING			
REQUIRED CHILLER OPERATION MBH	1462.8			
OPERATION CAPACITY MBH	1560			
NOMINAL TONNAGE	130			
EVAP. GPM	244			
EVAP. EWT/LWT	54/42			
MINIMUM EVAP. GPM	126			
MAXIMUM EVAP. GPM	523			
SYSTEM FLUID TYPE	WATER			
FOULING FACTOR	0.00010			
EVAP. PRESSURE DROP FT. HD.	6.1			
CHILLER TYPE	SCROLL			
AMBIENT AIR TEMPERATURE	100			
NUMBER OF PASSES	2			
NUMBER OF COMPRESSORS	4			
CAPACITY STEPS	MULTIPLE			
REFRIGERANT	410A			
LOW AMBIENT CONTROLS	NO			
LOW AMBIENT OPERATION TEMPERATURE	20 DEG. F			
PUMP PACKAGE INCLUDED	YES			
PUMP FLOW (GPM)	250.4			
PUMP HEAD (FT)	50			
PUMP HP	5			
STARTER TYPE	ACROSS THE LINE			
EER / ILPV	10.32/17.24			
ASHRAE 90.1 / AHRI RATED AND COMPLIANT	YES			
DUAL POWER CONNECTIONS	YES			
MCA	312/316			
MOCP	400/450			
VOLTS/PH/HERTZ	208/3/60			
OPERATING WEIGHT LBS	7201			
MANUFACTURE	DAIKIN			
MODEL No.	AGZ130E			
NOTES:	1,2,3,4,5,6,7,8,9,10			

- NOTES:
1. INTEGRAL DISCONNECTS PROVIDED BY THE MANUFACTURE. PROVIDE UNIT WITH MULTI-POINT POWER CONNECTION.
 2. PROVIDE MANUFACTURERS CONTROLS FOR PROPER OPERATION OF CHILLER, THE DDC SYSTEM SHALL ENABLE AND DISABLE CHILLER BASED ON SCHEDULE. CHILLER SHALL CONTROL DEDICATED PRIMARY PUMP.
 3. PROVIDE MANUFACTURES ADDITIONAL LOW SOUND ATTENUATING PACKAGE.
 4. PROVIDE WITH HIGH/LOW PRESSURE SWITCHES, CRANKCASE HEATERS, AND INTERNAL FLOW SWITCH.
 5. UNIT SHALL BE HIGH WIND RATED. PROVIDE SPRING ISOLATORS FOR MOUNTING ON I-BEAM SUPPORTS.
 6. PROVIDE UNIT STAINLESS STEEL BRAZED PLATE HEAT EXCHANGER.
 7. ALL COILS AND UNIT CASING SHALL BE PROVIDED WITH A 10,000 HOUR SALT SPRAY COATING BY ENERGY GUARD E-COAT OR EQUIVALENT. COILS SHALL BE FACTORY DIPPED.
 8. THE MECHANICAL SPACES HAVE BEEN DESIGNED AROUND THE SPECIFIED MANUFACTURER. EQUIPMENT SUBSTITUTIONS SHALL NOT EXCEED THE SPECIFIED MANUFACTURES PHYSICAL DIMENSIONS AND WEIGHT.
 9. INSTALL THE UNIT AS PER THE MANUFACTURES INSTALLATION INSTRUCTIONS. PROVIDE THE MANUFACTURES MINIMUM CLEARANCES FOR UNIT OPERATION AND SERVICE. COORDINATE THE INSTALLATION LOCATION WITH ALL OTHER TRADES PRIOR TO INSTALLATION.
 10. PUMP PACKAGE SHALL INCLUDE SUCTION VALVE, DISCHARGE VALVE, STRAINER, LINE REACTOR AND PRESSURE GAUGES. CONTRACTOR TO FIELD INSULATE ALL PIPING AND ASSOCIATED DEVICES.

AUTOMATIC TEMPERATURE AND CONTROLS

1. THE CONTROLS CONTRACTOR SHALL INTERFACE WITH THE NEW CHILLER, SECONDARY PUMPS AND EXISTING AIR HANDLING UNITS. CONTRACTOR SHALL INCLUDE ALL WIRING, CONTROLLERS AND DEVICES FOR A COMPLETE AND WORKING SYSTEM.
2. THE EXISTING AIR HANDLING UNITS ARE CONSTANT VOLUME SYSTEMS. PROVIDE NEW CONTROLLERS, THERMOSTATS AND SENSORS FOR A FUNCTIONING SYSTEM.
3. THE DDC SYSTEM SHALL BE EXPANDABLE TO HANDLE A FUTURE BUILDING REMODEL WITH NEW VAV AIR HANDLING UNITS AND MULTIPLE VAV BOXES, EXHAUST FANS AND COMPUTER ROOM UNITS.

GENERAL HYRDONIC PIPING NOTES:

1. COORDINATE ROUTING OF CHILLED WATER PIPING WITH EXISTING PIPE, STRUCTURE, DUCTWORK, EQUIPMENT, ELECTRICAL AND PLUMBING LINES.
2. PAINT NEW CONDENSER WATER PIPING PER SPECIFICATION 23 19 00.
3. INSULATE CHILL WATER PIPING AS PER SPECIFICATION 23 26 00.
4. SUPPORT ALL HYDRONIC PIPING AT EVERY TEE AND ELBOW AS PER SPECIFICATION 23 14 00.

MINIMUM PIPE INSULATION (IN.)a

(TO MEET ASHRAE 90.1 REQUIREMENTS)

INSULATION CONDUCTIVITY			NOMINAL PIPE DIAMETER (IN.)						
Fluid Design Operating Temperature Range, °F	Conductivity Range Btu-in. (hr²ft²°F)	Mean Temperature Rating °F	Runouts(b) up to 1	Less than 1	1 to 1½	1½ to 4	4 to 8	8 & up	
HEATING SYTSTEMS (STEAM, STEAM CONDENSATE, AND HOT WATER)									
Above 350	.32-.34	250	4.5	4.5	5	5	5	5	
251-350	.29-.31	200	3	3	4	4.5	4.5	4.5	
201-250	.27-.30	150	2.5	2.5	2.5	2.5	3	3	
141-200	.25-.29	125	1½	1½	1½	2	2	2	
105-140	.21-.28	100	1	1	1	1½	1½	1½	
DOMESTIC AND SERVICE HOT WATER SYSTEMSc									
105 and Greater	.21-.28	100	1	1	1	1½	1½	1½	
COOLING SYSTEMS (CHILLED WATER, BRINE, REFRIGERANT)									
INTERIOR 40-60	.23-.27	75	½	½	1	1	1½	1½	
Below 40	.21-.26	75	1	1	1	1½	1½	1½	
EXTERIOR 40-60	.20-.26	100	1	1	1.5	2	2	2	

a For minimum thickness of insulations not in the conductivity range, use:

$$T = PR[(1 + t/PR)K/k - 1]$$

where

T is minimum insulation thickness for material with conductivity K, in;

PR is pipe actual outside radius, in;

t is insulation thickness from above table, in.;

K is conductivity of insulation at the mean temperature indicated in above for the applicable fluid temperature range, Btu'E'in./h'E'ft²'E'F);

k is the lower value of the conductivity range listed in the above table for the applicable fluid temperature range, Btu'E'in./h'E'ft²'E'F).

b Runouts to individual terminal units or plumbing fixtures not exceeding 12 ft in length.

c Applies to recirculating sections of service or domestic hot water systems and first 8ft from storage tank for nonrecirculating systems.

MATERIAL TYPES: CS - CALCIUM SILICATE, GF - GLASS FIBER, EC - ELASTOMERIC CELLULAR, PHEN - PHENOLIC, POLYISO - POLYISOCYANURATE

SYSTEM TYPE:	MATERIAL
1. DOMESTIC HOT AND COLD WATER	GF
2. CHILL AND HEATING WATER INSIDE	PHEN
3. CHILL AND HEATING WATER OUTSIDE	POLYISO
4. REFRIGERANT AND CONDENSATE	EC
5. DRAINS RECEIVING CONDENSATE	GF
6. CONDCEALED ROOF DRAINS/LEADERS	PHEN
7. EXPOSED ROOF DRAINS/LEADERS	GF
8. STEAM	GF
9. GENERATOR EXHAUST	CS

ALL INSULATING MATERIAL SHALL MEET ASTM E-84 FLAME AND SMOKE SPREAD RATINGS OF 25/50

ALL EXTERIOR INSULATION SHALL BE COVERED WITH AN ALUMINUM JACKET WITH STAINLESS STEEL BANDS.

INSULATE ALL REFRIGERANT LINES, CHILL WATER PIPING, HEATING WATER, DOMESTIC HOT WATER, HOT WATER RECIRC LINES, AND ANY DOMESTIC COLD WATER LINES EXPOSED TO FREEZING AND/OR LOCATED OUTDOOORS. SEE SPECIFICATION 232600 FOR ADDITIONAL INFORMATION.

EXPANSION TANK SCHEDULE

MARK	EXP1
SERVES	CHILL WATER
TANK VOLUME (GAL.)	22
ACCEPTANCE VOLUME (GAL)	11
MAX OPERATING PRESSURE	125
MAX TEMPERATURE (def F)	150
HYDRONIC CONNECTION	1"
UNIT WEIGHT (LBS)	88
MANUFACTURE	BELL & GOSSET
MODEL NO.	8-85LA
NOTES:	1 THRU 8

- NOTES:
1. UNIT SHALL BE EPOXY COATED AND FULLY INSULATED.
 2. PROVIDE UNIT WITH 6" THICK HOUSEKEEPING PAD THAT EXTENDS 6" PAST THE UNIT ON ALL SIDES.
 3. INSTALL THE UNIT AS PER THE MANUFACTURES INSTRUCTIONS.
 4. COMPLETELY INSULATE THE ENTIRE UNIT. EQUIPMENT LOCATED OUTDOORS SHALL HAVE AN ALUMINUM JACKETING.
 5. PROVIDE ALL REQUIRED ISOLATION VALVES, DRAIN VALVES, AND SERVICE VALVES FOR THE UNIT. REFER TO THE DETAILS FOR MORE INFORMATION.
 6. EQUIVALENT MANUFACTURES ARE AMTROL AND ELBI
 7. TANKS SHALL HAVE A REMOVABLE TYPE BLADDER/DIAPHRAGM.
 8. TANK SHALL BE ASME RATED.

PUMP SCHEDULE

TAG	QTY	MODEL NUMBER	PUMP TYPE	PUMP SIZE	DUTY POINT FLOW	DUTY POINT HEAD	FLOW RATE	TDH	DUTY POINT EFF	PLEV EFF	DUTY POINT PWR	PUMP SPEED	IMPELLER DIAM.	NPSHR	NOL POWER	MOTOR FRAME	MIN FLOW	REMARKS
CHWP-1, 2	2	BGE80-5X5X11-SS256P	e-80	5x5x11	488 US gpm: 1 redundant pump	81ft	488 US gpm	81 ft	77.3	71.4	12.9 bhp	1634	10.25	6	19.9	256JM	113	ALL

NOTES:

1. PUMPS SHALL BE NO OVERLOADING THROUGHOUT THE PUMP CURVE.
2. PROVIDE WITH PREMIUM EFFICIENCY MOTOR WITH SHAFT GROUNDING RINGS FOR OPERATION WITH VFD.
3. PROVIDE PUMP WITH VARIABLE FREQUENCY DRIVE (VFD) WITH BACNET CARD FOR INTERFACING WITH EMCS.
4. PROVIDE PUMP WITH STAINLESS STEE IMPELLER, STAINLESS SHAFT SLEEVE, AND STAINLESS STEEL IMPELLER LOCK WASHER AND CAP SCREW.
5. PUMP 2 SHALL BE 100% REDUNDANT. PUMPS SHALL SWITCH LEAD LAG OPERATION EVERY TWO WEEKS.
6. PUMP AND MOTOR SHALL BE RATED AND CONSTRCTUED FOR OUTDOOR USE.

AIR AND DIRT SEPERATOR SCHEDULE

TAG	QTY	MODEL NUMBER	PART NUMBER	SIZE (in)	CAPACITY GPM	CONNECTION TYPE	ASME RATED	OPTIONS
AS1	1	SRS 6FB	5366-06F-12-002	6	850	Flanged	TRUE	107A- AUTOMATIC AIR VENT, F-3 - COMBINATION VALVE, MBV-1 - MANUAL BLOWDOWN VALVE, INCLUDED BRACKET

REVISIONS DATE	#

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JOB #22159



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MECHANICAL SCHEDULES

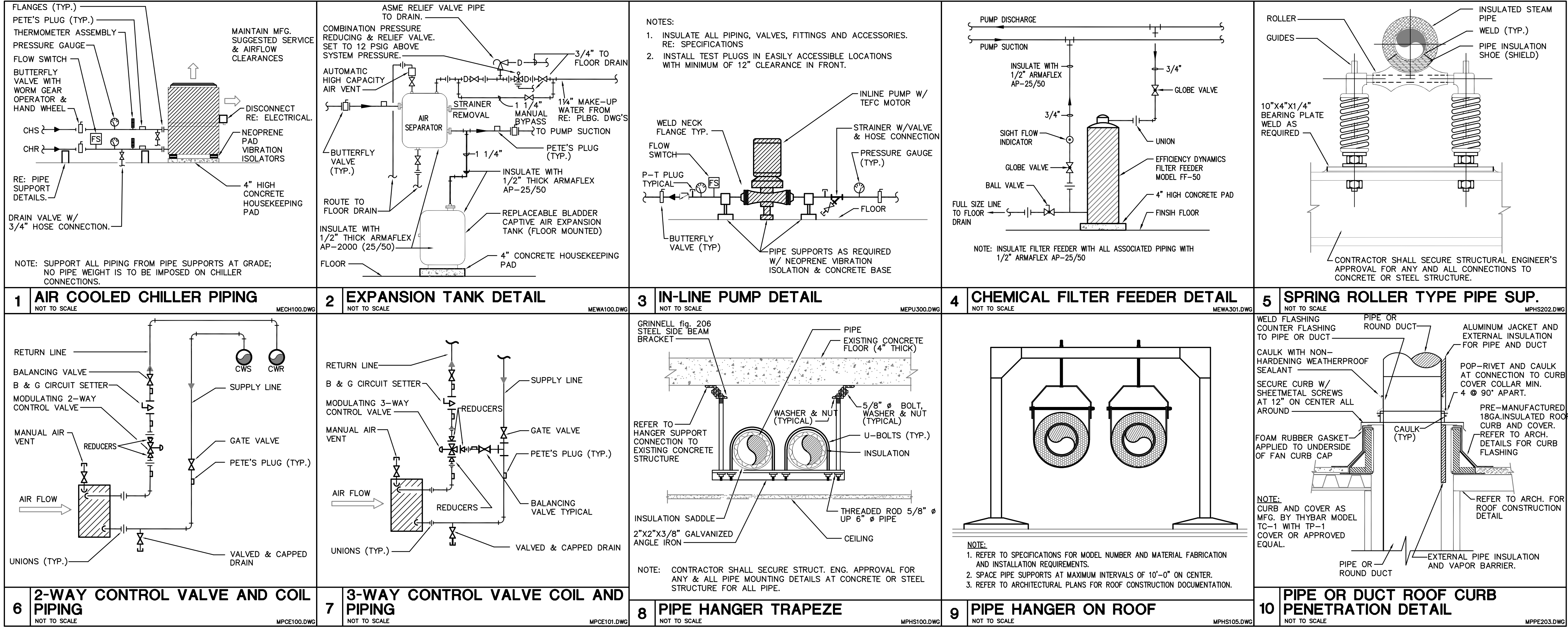
CENTRAL PLANT IMPROVEMENTS
TEXAS A+M UNIVERSITY CORPUS CHRISTI
223 N CHAPARRAL
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PROJECT #: 22159
FILE NAME: CHAPARRAL
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CHECKED BY: SMR
DATE: MAY 12, 2023

SHEET NUMBER:

M2.1

SHT. No.15 of 30



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NRG ENGINEERING
Sergey N. Rodriguez, P.E.
Professional Engineer, No. 96478
Texas State Registration No. 96478

JOB #22159

Stamp Date: 10/06/2023

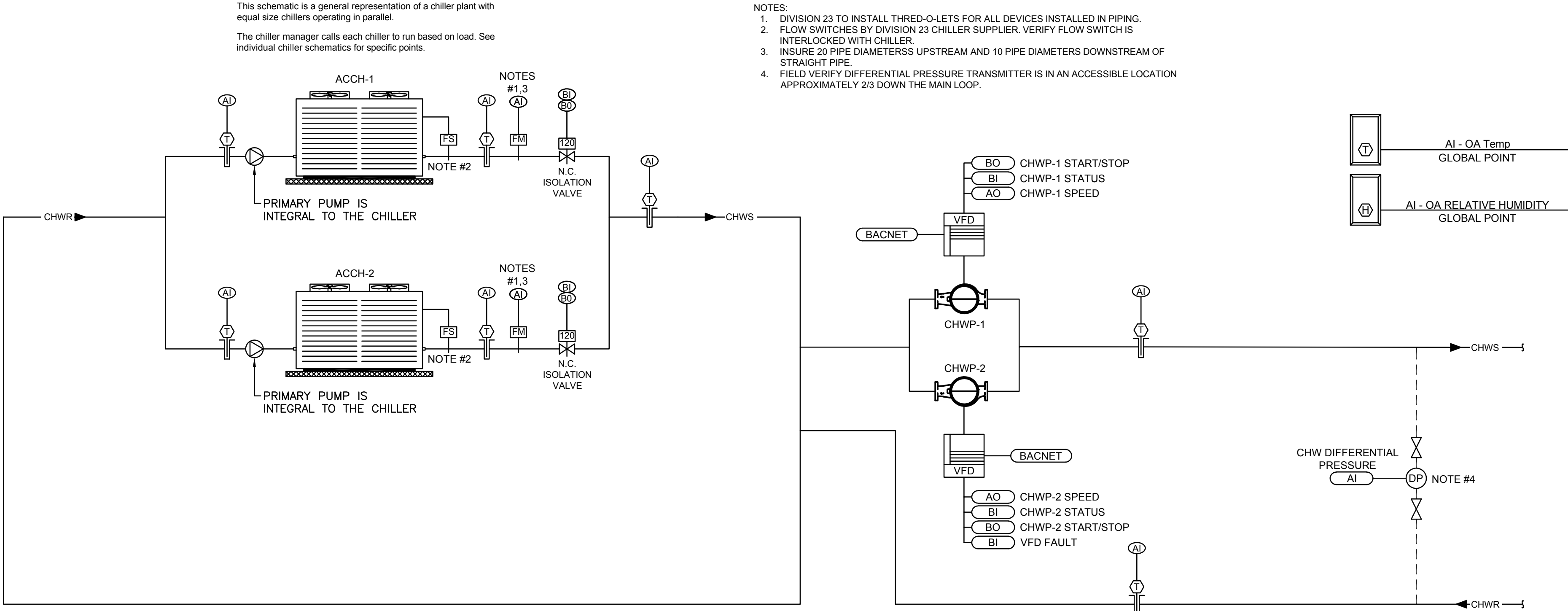
MECHANICAL DETAILS

CENTRAL PLANT IMPROVEMENTS

TEXAS A+M UNIVERSITY CORPUS CHRISTI
223 N CHAPARRAL
CORPUS CHRISTI, TEXAS

PROJECT #: 22159
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SHEET NUMBER:
M3.1
SHT. No. 16 of 30



1 CHILL WATER CONTROLS DIAGRAM
N.T.S.

CHILL WATER SYSTEM SEQUENCE OF OPERATIONS		
<p>CHILLED WATER SYSTEM - CHILLER MANAGER - RUN CONDITIONS:</p> <p>THE CHILLED WATER SYSTEM SHALL BE ENABLED TO RUN WHENEVER:</p> <ul style="list-style-type: none">• A DEFINABLE NUMBER OF CHILLED WATER COILS NEED COOLING• AND THE OUTSIDE AIR TEMPERATURE IS GREATER THAN 50°F (ADJ.). <p>TO PREVENT SHORT CYCLING, THE CHILLER MANAGER SHALL RUN FOR AND BE OFF FOR MINIMUM ADJUSTABLE TIMES (BOTH USER DEFINABLE).</p> <p>EACH CHILLER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.</p> <p>CHILLER LEAD/LAG OPERATION:</p> <p>THE TWO CHILLER TRAINS, (EACH CHILLER AND ITS ASSOCIATED SUPPORT EQUIPMENT), SHALL OPERATE IN A LEAD/LAG FASHION. CHILLER TRAIN SHALL BE REFERRED TO AS CHILLER IN THIS SEQUENCE.</p> <p>THE FOLLOWING SETPOINTS ARE RECOMMENDED VALUES. ALL SETPOINTS SHALL BE FIELD ADJUSTED DURING THE COMMISSIONING PERIOD TO MEET THE REQUIREMENTS OF ACTUAL FIELD CONDITIONS.</p> <p>TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE DELAY (ADJ.) BETWEEN STAGING UP OR DOWN, UNLESS SHUTDOWN ON SAFETIES OR FAILURE. EACH CHILLER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.</p> <ul style="list-style-type: none">• THE LEAD CHILLER SHALL RUN FIRST.• ON FAILURE OF THE LEAD CHILLER, THE LAG CHILLER SHALL RUN AND THE LEAD CHILLER SHALL TURN OFF.• ON INCREASING MAIN CHILLED WATER SUPPLY TEMPERATURE ABOVE 52°F (ADJ.), THE LAG CHILLER SHALL STAGE ON AND RUN IN UNISON WITH THE LEAD CHILLER TO MAINTAIN CHILLED WATER TEMPERATURE SETPOINT. <p>THE DESIGNATED LEAD CHILLER SHALL ROTATE UPON ONE OF THE FOLLOWING CONDITIONS (USER SELECTABLE):</p> <ul style="list-style-type: none">• MANUALLY THROUGH A SOFTWARE SWITCH• IF CHILLER RUNTIME (ADJ.) IS EXCEEDED• DAILY• WEEKLY• MONTHLY <p>ALARMS SHALL BE PROVIDED AS FOLLOWS:</p> <ul style="list-style-type: none">• CHILLER 1 FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.• CHILLER 2 FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.• LEAD CHILLER FAILURE: THE LEAD CHILLER IS IN FAILURE AND THE LAG CHILLER IS ON.• HIGH MAIN CHILLED WATER SUPPLY TEMP: IF THE MAIN CHILLED WATER SUPPLY TEMPERATURE IS GREATER THAN 56°F (ADJ.).• LOW MAIN CHILLED WATER SUPPLY TEMP: IF THE MAIN CHILLED WATER SUPPLY TEMPERATURE IS LESS THAN 38°F (ADJ.).• HIGH MAIN CHILLED WATER RETURN TEMP: IF THE MAIN CHILLED WATER RETURN TEMPERATURE IS GREATER THAN 68°F (ADJ.).• LOW MAIN CHILLED WATER RETURN TEMP: IF THE MAIN CHILLED WATER RETURN TEMPERATURE IS LESS THAN 47°F (ADJ.).	<p>1. SECONDARY CHILLED WATER LOOP PUMPS (TYPICAL OF 2)</p> <p>CHILLED WATER PUMP SYSTEM - RUN CONDITIONS:</p> <p>THE CHILLED WATER PUMPS SHALL BE ENABLED WHENEVER:</p> <ul style="list-style-type: none">• A DEFINABLE NUMBER OF CHILLED WATER COILS NEED COOLING.• AND THE OUTSIDE AIR TEMPERATURE IS GREATER THAN 54°F (ADJ.). <p>TO PREVENT SHORT CYCLING, THE CHILLED WATER PUMP SYSTEM SHALL RUN FOR AND BE OFF FOR MINIMUM ADJUSTABLE TIMES (BOTH USER DEFINABLE).</p> <p>THE PUMPS SHALL RUN FOR FREEZE PROTECTION ANYTIME THE OUTSIDE AIR TEMPERATURE IS LESS THAN 38°F (ADJ.).</p> <p>CHILLED WATER PUMP LEAD/LAG OPERATION:</p> <p>THE TWO VARIABLE SPEED CHILLED WATER PUMPS SHALL OPERATE IN A LEAD/LAG FASHION.</p> <ul style="list-style-type: none">• THE LEAD PUMP SHALL RUN FIRST.• ON FAILURE OF THE LEAD PUMP, THE LAG PUMP SHALL RUN AND THE LEAD PUMP SHALL TURN OFF.• ON DECREASING CHILLED WATER DIFFERENTIAL PRESSURE, THE LAG PUMP SHALL STAGE ON AND RUN IN UNISON WITH THE LEAD PUMP TO MAINTAIN CHILLED WATER DIFFERENTIAL PRESSURE SETPOINT. <p>THE DESIGNATED LEAD PUMP SHALL ROTATE UPON ONE OF THE FOLLOWING CONDITIONS (USER SELECTABLE):</p> <ul style="list-style-type: none">• MANUALLY THROUGH A SOFTWARE SWITCH• IF PUMP RUNTIME (ADJ.) IS EXCEEDED• DAILY• WEEKLY• MONTHLY <p>ALARMS SHALL BE PROVIDED AS FOLLOWS:</p> <ul style="list-style-type: none">• CHILLED WATER PUMP 1• FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.• RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.• RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.• VFD FAULT.• CHILLED WATER PUMP 2• FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.• RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.• RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.• VFD FAULT. <p>CHILLED WATER DIFFERENTIAL PRESSURE CONTROL:</p> <p>THE CONTROLLER SHALL MEASURE CHILLED WATER DIFFERENTIAL PRESSURE AND MODULATE THE CHILLED WATER PUMP VFDS IN SEQUENCE TO MAINTAIN ITS CHILLED WATER DIFFERENTIAL PRESSURE SETPOINT. THE FOLLOWING</p>	<p>SETPOINTS ARE RECOMMENDED VALUES. ALL SETPOINTS SHALL BE FIELD ADJUSTED DURING THE COMMISSIONING PERIOD TO MEET THE REQUIREMENTS OF ACTUAL FIELD CONDITIONS.</p> <p>THE CONTROLLER SHALL MODULATE CHILLED WATER PUMP SPEEDS TO MAINTAIN A CHILLED WATER DIFFERENTIAL PRESSURE OF 12LB/FIN2 (ADJ.). THE VFDS MINIMUM SPEED SHALL NOT DROP BELOW 20% (ADJ.).</p> <p>ON DROPPING CHILLED WATER DIFFERENTIAL PRESSURE, THE VFDS SHALL STAGE ON AND RUN TO MAINTAIN SETPOINT AS FOLLOWS:</p> <ul style="list-style-type: none">• THE CONTROLLER SHALL MODULATE THE LEAD VFD TO MAINTAIN SETPOINT.• IF THE LEAD VFD SPEED IS GREATER THAN A SETPOINT OF 90% (ADJ.), THE LAG VFD SHALL STAGE ON.• THE LAG VFD SHALL RAMP UP TO MATCH THE LEAD VFD SPEED AND THEN RUN IN UNISON WITH THE LEAD VFD TO MAINTAIN SETPOINT. <p>ON RISING CHILLED WATER DIFFERENTIAL PRESSURE, THE VFDS SHALL STAGE OFF AS FOLLOWS:</p> <ul style="list-style-type: none">• IF THE VFDS SPEEDS THEN DROPS BACK TO 60% (ADJ.) BELOW SETPOINT , THE LAG VFD SHALL STAGE OFF.• THE LEAD VFD SHALL CONTINUE TO RUN TO MAINTAIN SETPOINT. <p>ALARMS SHALL BE PROVIDED AS FOLLOWS:</p> <ul style="list-style-type: none">• HIGH CHILLED WATER DIFFERENTIAL PRESSURE: IF THE CHILLED WATER DIFFERENTIAL PRESSURE IS 25% (ADJ.) GREATER THAN SETPOINT.• LOW CHILLED WATER DIFFERENTIAL PRESSURE: IF THE CHILLED WATER DIFFERENTIAL PRESSURE IS 25% (ADJ.) LESS THAN SETPOINT. <p>CHILLED WATER TEMPERATURE MONITORING:</p> <p>THE FOLLOWING TEMPERATURES SHALL BE MONITORED:</p> <ul style="list-style-type: none">• CHILLED WATER SUPPLY.• CHILLED WATER RETURN. <p>ALARMS SHALL BE PROVIDED AS FOLLOWS:</p> <ul style="list-style-type: none">• HIGH CHILLED WATER SUPPLY TEMP: IF THE CHILLED WATER SUPPLY TEMPERATURE IS GREATER THAN 55°F (ADJ.).• LOW CHILLED WATER SUPPLY TEMP: IF THE CHILLED WATER SUPPLY TEMPERATURE IS LESS THAN 38°F (ADJ.).

REVISIONS DATE	#

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Stamp Date:

MECHANICAL CONTROLS SEQUENCES

CENTRAL PLANT IMPROVEMENTS
TEXAS A+M UNIVERSITY CORPUS CHRISTI
223 N CHAPARRAL
CORPUS CHRISTI, TEXAS

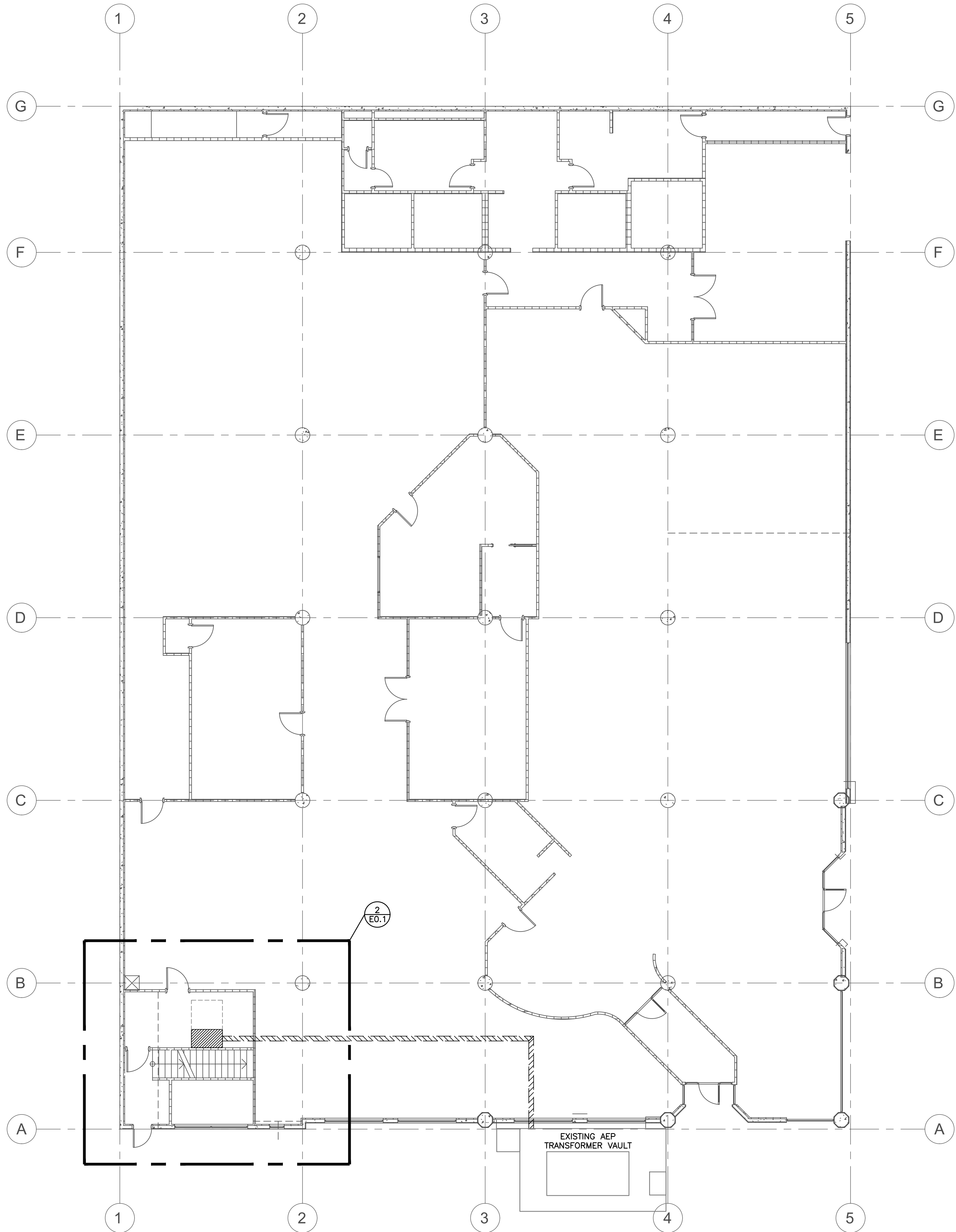
PROJECT #: 22159
FILE NAME: CHAPARRAL
DRAFTING BY: SMR
CHECKED BY: SMR
DATE: MAY 12, 2023

SHEET NUMBER:

M4.1

SHT. No. 17 of 30

Oct 13, 2023 - 4:30pm
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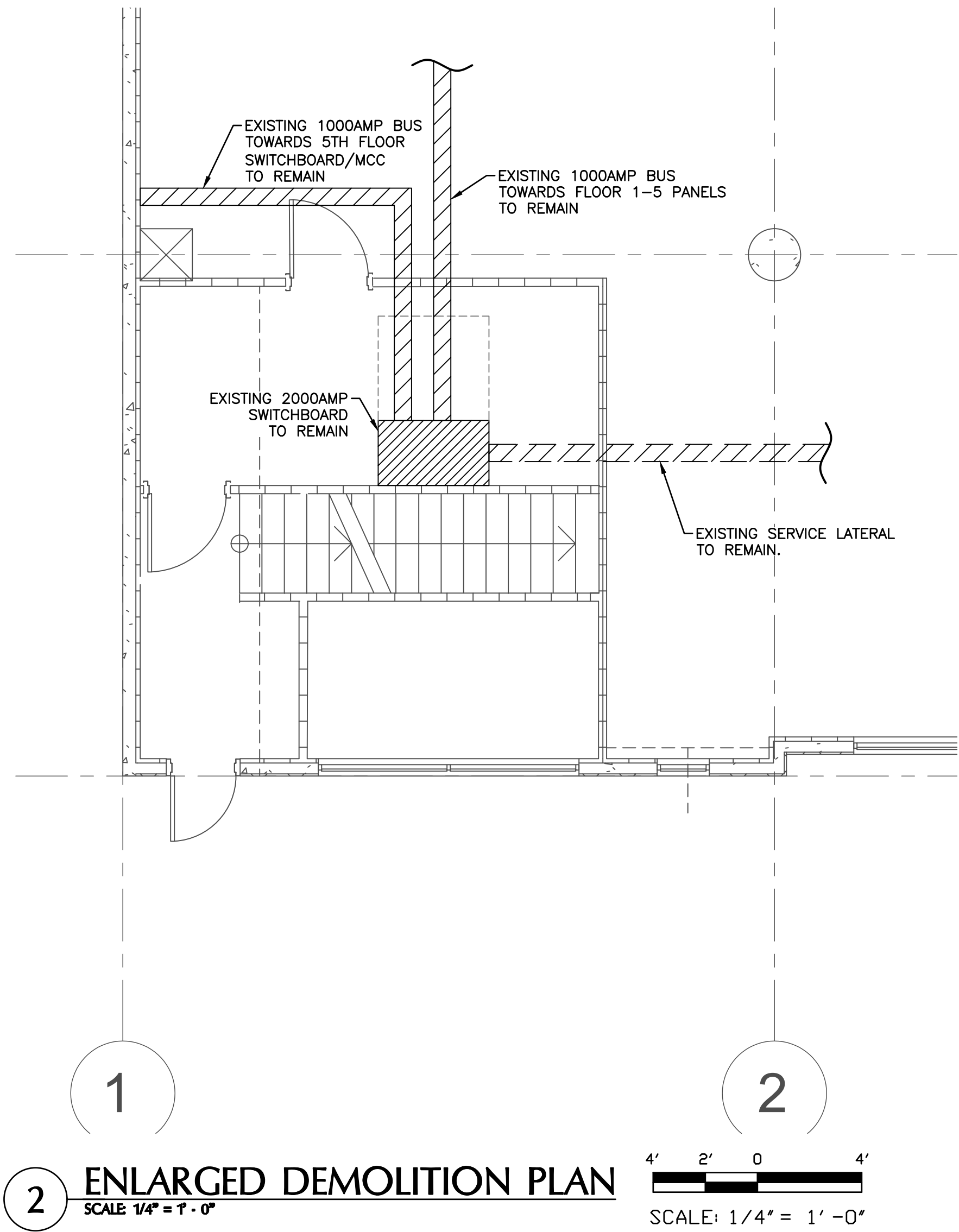
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1ST FLOOR ELECTRICAL DEMOLITION PLAN

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



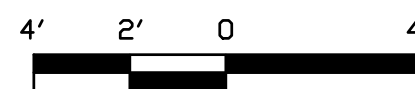
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2

ENLARGED DEMOLITION PLAN

SCALE: 1/4" = 1' - 0"



SCALE: 1/4" = 1' - 0"

DEMOLITION GENERAL NOTES:

- A. IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE VERIFIED EXISTING JOB-SITE CONDITIONS DURING THE BIDDING PERIOD SO HE OR SHE WILL HAVE OBTAINED THE SCOPE OF WORK. THE ELECTRICAL WORK SHALL INCLUDE MATERIALS AND OUTLETS, CONSISTING OF FIXTURES, DEVICES, EQUIPMENT OR APPARATUS. NOT ALL EXISTING OUTLETS ARE NECESSARILY INDICATED ON THE DRAWINGS.
- B. WHEN OUTLETS ARE REMOVED, CONDUIT AND WIRE SHALL BE REMOVED BACK TO THE NEAREST REMAINING ACTIVE J-BOX OR PANEL.
- C. RECONNECT ALL LIGHTS THAT MAY HAVE BEEN INTERRUPTED BECAUSE OF REMODELING WORK.
- D. PROVIDE ALL APPURTENANCES REQUIRED TO REROUTE, RELOCATE, REMOVE, OR REINSTALL ALL ITEMS DESCRIBED IN THESE NOTES.
- E. VERIFY THE LOADING OF EACH CIRCUIT AFFECTED BY REMODELING WORK. THE MAXIMUM LOAD OF ANY BRANCH CIRCUIT MUST NOT EXCEED 80% OF ITS RATING.
- F. REMOVE ALL OUTLETS AND WIRING ASSOCIATED WITH ALL EQUIPMENT BEING REMOVED, INCLUDING MECHANICAL AND PLUMBING EQUIPMENT.

NOT ALL DEVICES, EQUIPMENT AND LIGHTING IS INDICATED. CONTRACTOR SHALL VISIT SITE PRIOR TO BID AND INCLUDE IN HIS OR HER BID A FULL DEMOLITION SCOPE OF WORK.

REVISIONS	DATE	#

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JOB #22159



Stamp Date:

1ST FLOOR DEMOLITION PLAN

CENTRAL PLANT IMPROVEMENTS

TEXAS A+M UNIVERSITY CORPUS CHRISTI
223 N. CHAPARRAL
CORPUS CHRISTI, TEXAS

PROJECT #: 22159
FILE NAME: CHAPARRAL
DRAFTING BY: CEG
CHECKED BY: JAR
DATE: MAY 12, 2023

SHEET NUMBER:

E0.1

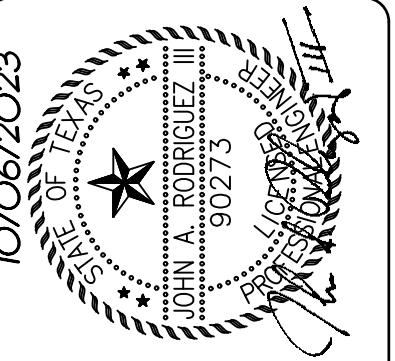
SHT. No. 18 of 30

REVISIONS DATE	#

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NRC
ENGINEERING
5608 South Loop West, Suite 180
Houston, Texas 77057
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Telex Firm Registration No. F-5318

JOB #22159



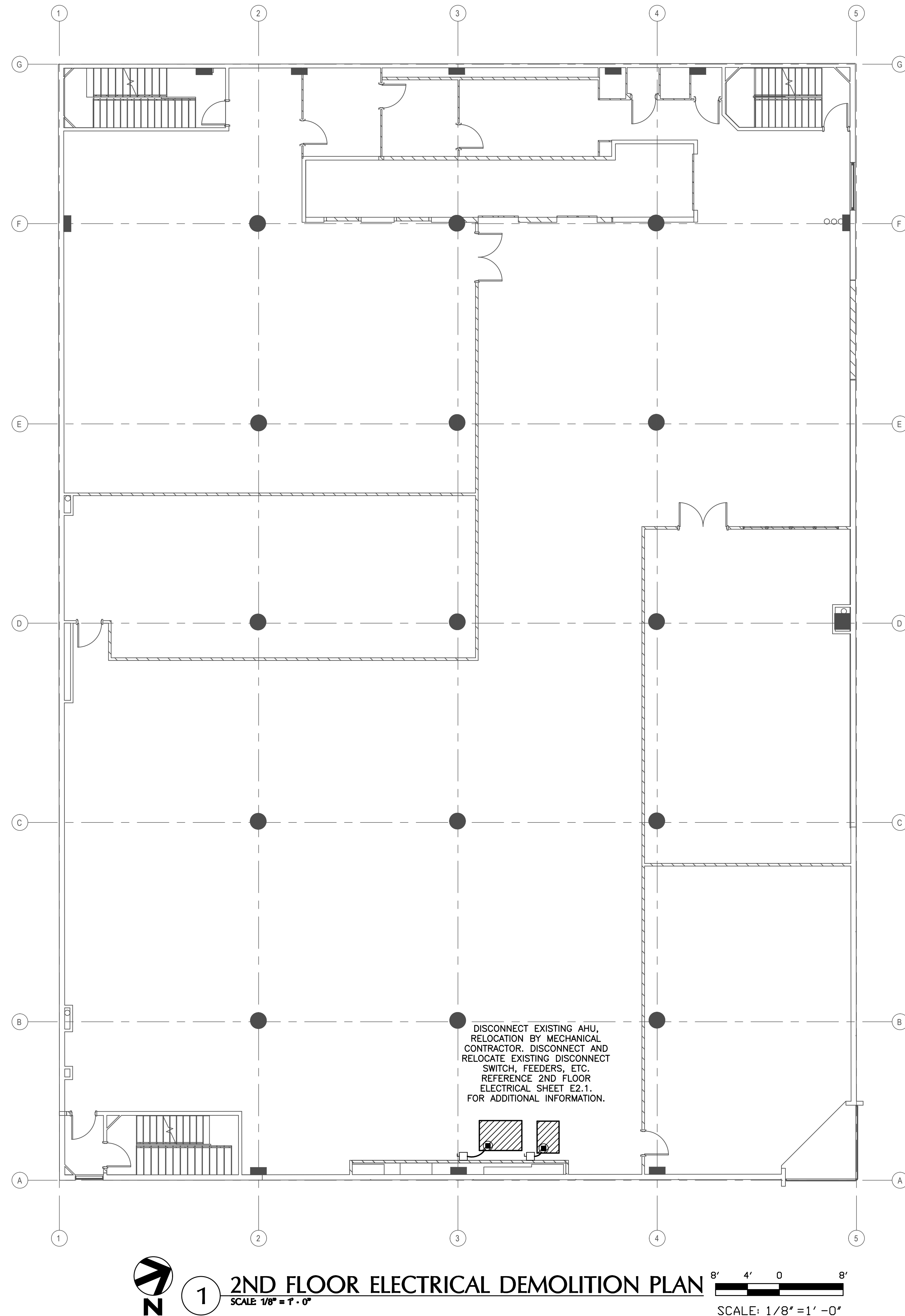
Stamp Date:

2ND FLOOR DEMOLITION PLAN

CENTRAL PLANT IMPROVEMENTS
TEXAS A-M UNIVERSITY CORPUS CHRISTI
223 N. CHAPARRAL
CORPUS CHRISTI, TEXAS

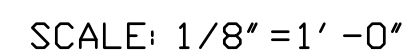
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FILE NAME: CHAPARRAL
DRAFTING BY: CEG
CHECKED BY: JAR
DATE: MAY 12, 2023

SHEET NUMBER:
E0.2
SHT. No. 19 of 30

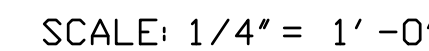




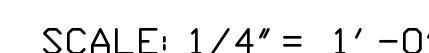
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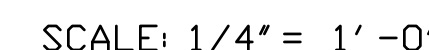
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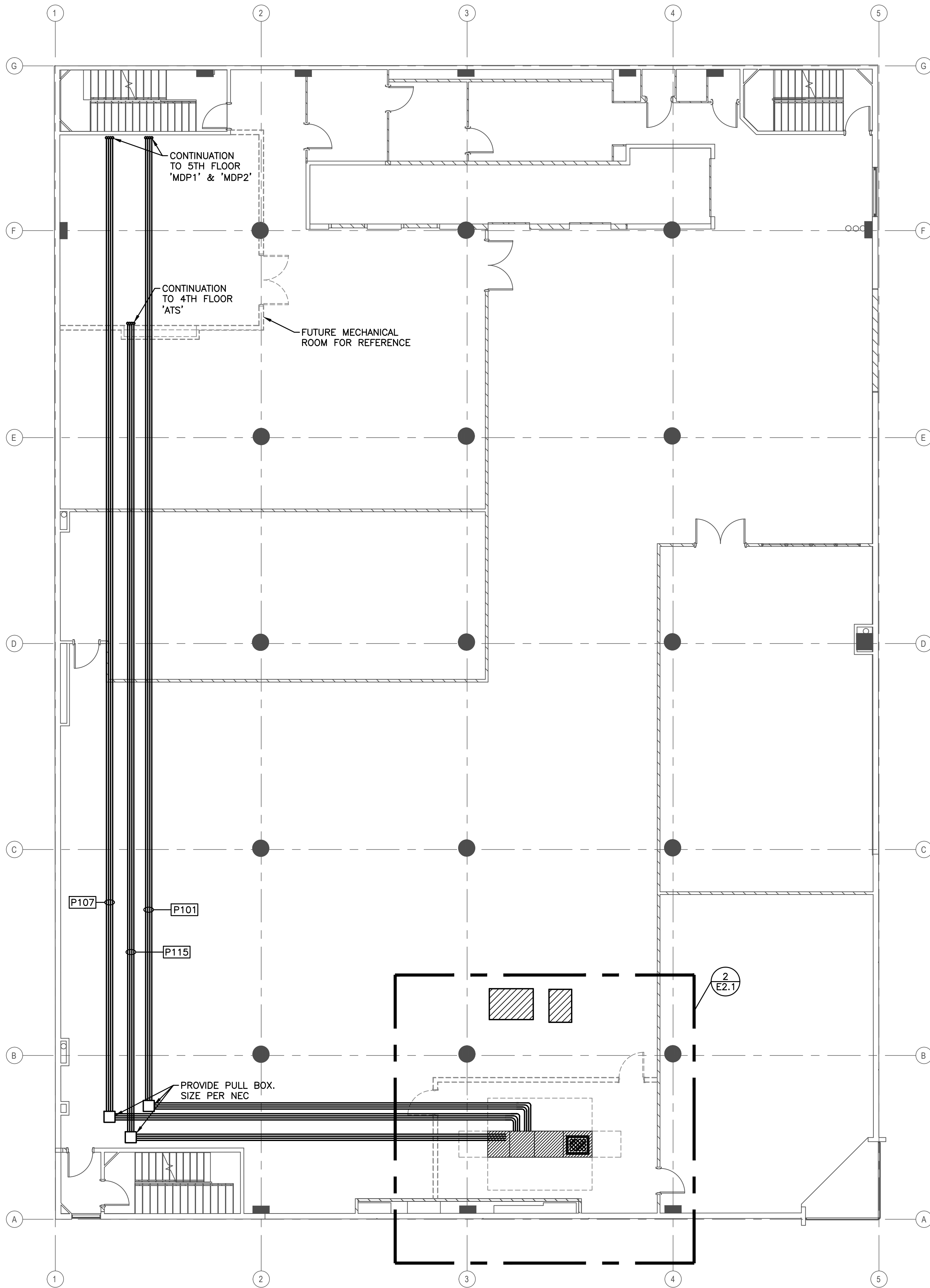
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SCALE: 1/4" = 1' - 0"



- SHT. No. 20 of 30



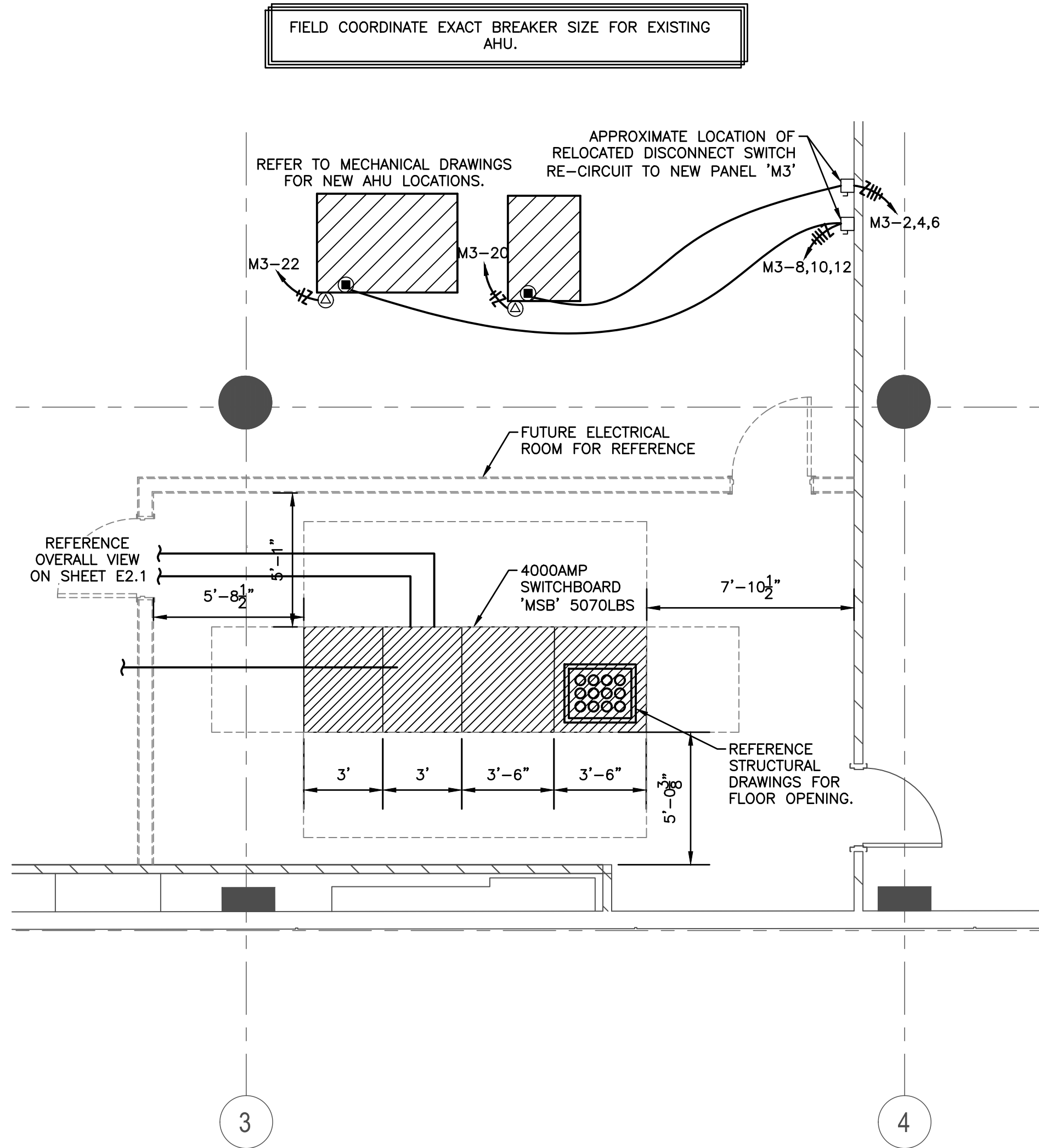
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2ND FLOOR ELECTRICAL PLAN

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



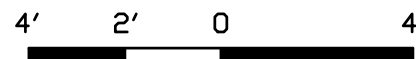
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2

ENLARGED 2ND FLOOR

SCALE: 1/4" = 1' - 0"



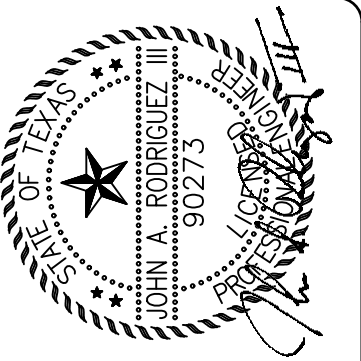
SCALE: 1/4" = 1' - 0"

GENERAL NOTES:

- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AT THE JOB SITE BEFORE COMMENCING ANY PHASE OF THE WORK. ADJUSTMENTS FOR FIT AND COORDINATION SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER. NOTIFY ENGINEER OF ANY CONFLICTS, DISCREPANCIES OR OMISSIONS PRIOR TO COMMENCEMENT OF THE CONTRACT WORK.
- CONTRACTOR SHALL REVIEW ALL ARCHITECTURAL, CIVIL, MECHANICAL & STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR ANY ADDITIONAL REQUIREMENTS.
- CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES.
- ALL CONDUIT SHALL BE AS STRAIGHT AS POSSIBLE AND PARALLEL OR PERPENDICULAR TO BUILDING LINES.
- ALL WORK SHALL COMPLY WITH CURRENTLY ADOPTED VERSION OF NATIONAL ELECTRICAL CODE.
- SEAL ALL WALL, ROOF, AND FLOOR PENETRATIONS WITH UL LISTED FIRE SEALANT.
- ALL CONDUIT SHALL BE ROUTED CONCEALED WITHIN WALLS AND/OR ABOVE CEILINGS. WHERE APPLICABLE
- REFER TO DETAIL #1/SHEET E8.1 FOR EXACT MOUNTING HEIGHTS OF ALL DEVICES.

REVISIONS	DATE	#

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Stamp Date:

2ND FLOOR ELECTRICAL PLAN

CENTRAL PLANT IMPROVEMENTS

TEXAS A+M UNIVERSITY CORPUS CHRISTI
223 N. CHAPARRAL
CORPUS CHRISTI, TEXAS

PROJECT #: 22159
FILE NAME: CHAPARRAL
DRAFTING BY: CEG
CHECKED BY: JAR
DATE: MAY 12, 2023

SHEET NUMBER:

E2.1

SHT. No. 21 of 30

REVISIONS DATE	#

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P: (361)652-2727 F: (361)652-2922
Texas Firm Registration No. F-5318

JOB #22159

JOB #22159



10/06/2023

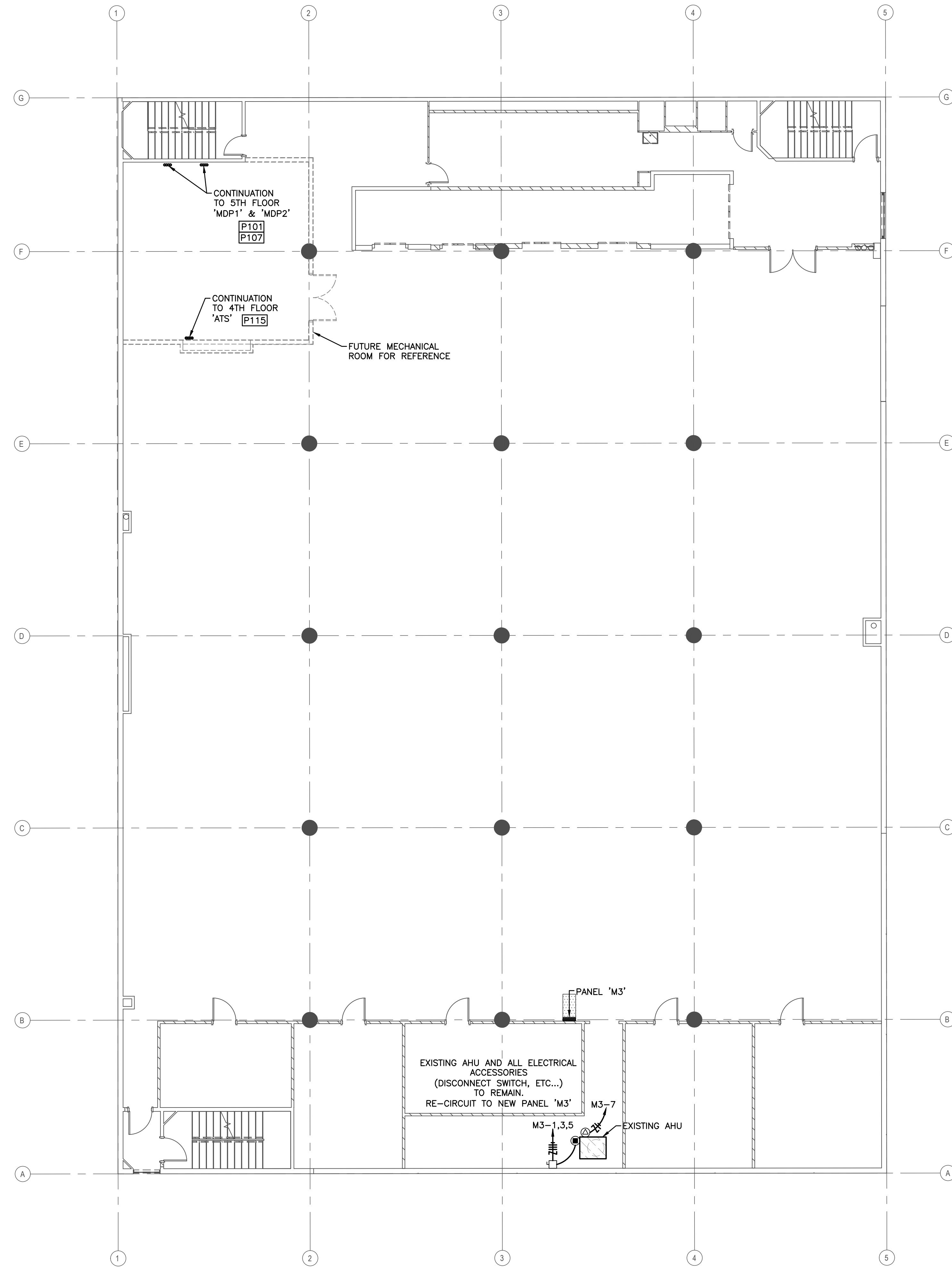
Stamp Date:

3RD FLOOR ELECTRICAL PLAN

CENTRAL PLANT IMPROVEMENTS
TEXAS A-M UNIVERSITY CORPUS CHRISTI
223 N. CHAPARRAL
CORPUS CHRISTI, TEXAS

PROJECT #: 22159
FILE NAME: CHAPARRAL
DRAFTING BY: CEG
CHECKED BY: JAR
DATE: MAY 12, 2023

SHEET NUMBER:
E3.1
SHT. No. 22 of 30



GENERAL NOTES:

- A. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AT THE JOB SITE BEFORE COMMENCING ANY PHASE OF THE WORK. ADJUSTMENTS FOR FIT AND COORDINATION SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER. NOTIFY ENGINEER OF ANY CONFLICTS, DISCREPANCIES OR OMISSIONS PRIOR TO COMMENCEMENT OF THE CONTRACT WORK.
- B. CONTRACTOR SHALL REVIEW ALL ARCHITECTURAL, CIVIL, MECHANICAL & STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR ANY ADDITIONAL REQUIREMENTS.
- C. CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES.
- D. ALL CONDUIT SHALL BE AS STRAIGHT AS POSSIBLE AND PARALLEL OR PERPENDICULAR TO BUILDING LINES.
- E. ALL WORK SHALL COMPLY WITH CURRENTLY ADOPTED VERSION OF NATIONAL ELECTRICAL CODE.
- F. SEAL ALL WALL, ROOF, AND FLOOR PENETRATIONS WITH UL LISTED FIRE SEALANT.
- G. ALL CONDUIT SHALL BE ROUTED CONCEALED WITHIN WALLS AND/OR ABOVE CEILINGS, WHERE APPLICABLE
- H. REFER TO DETAIL #1/SHEET EB.1 FOR EXACT MOUNTING HEIGHTS OF ALL DEVICES.

FIELD COORDINATE EXACT BREAKER SIZE FOR EXISTING AHU.

Oct 13, 2023 - 4:30pm
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REVISIONS DATE	#

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10/06/2023

STATE OF TEXAS

JOHN A. RODRIGUEZ III

90273

PROFESSIONAL ENGINEER

10/06/2023

mp Date:

4TH FLOOR ELECTRICAL PLAN

CENTRAL PLANT IMPROVEMENTS
 TEXAS A+M UNIVERSITY CORPUS CHRISTI
 223 N. CHAPARRAL
 CORPUS CHRISTI, TEXAS

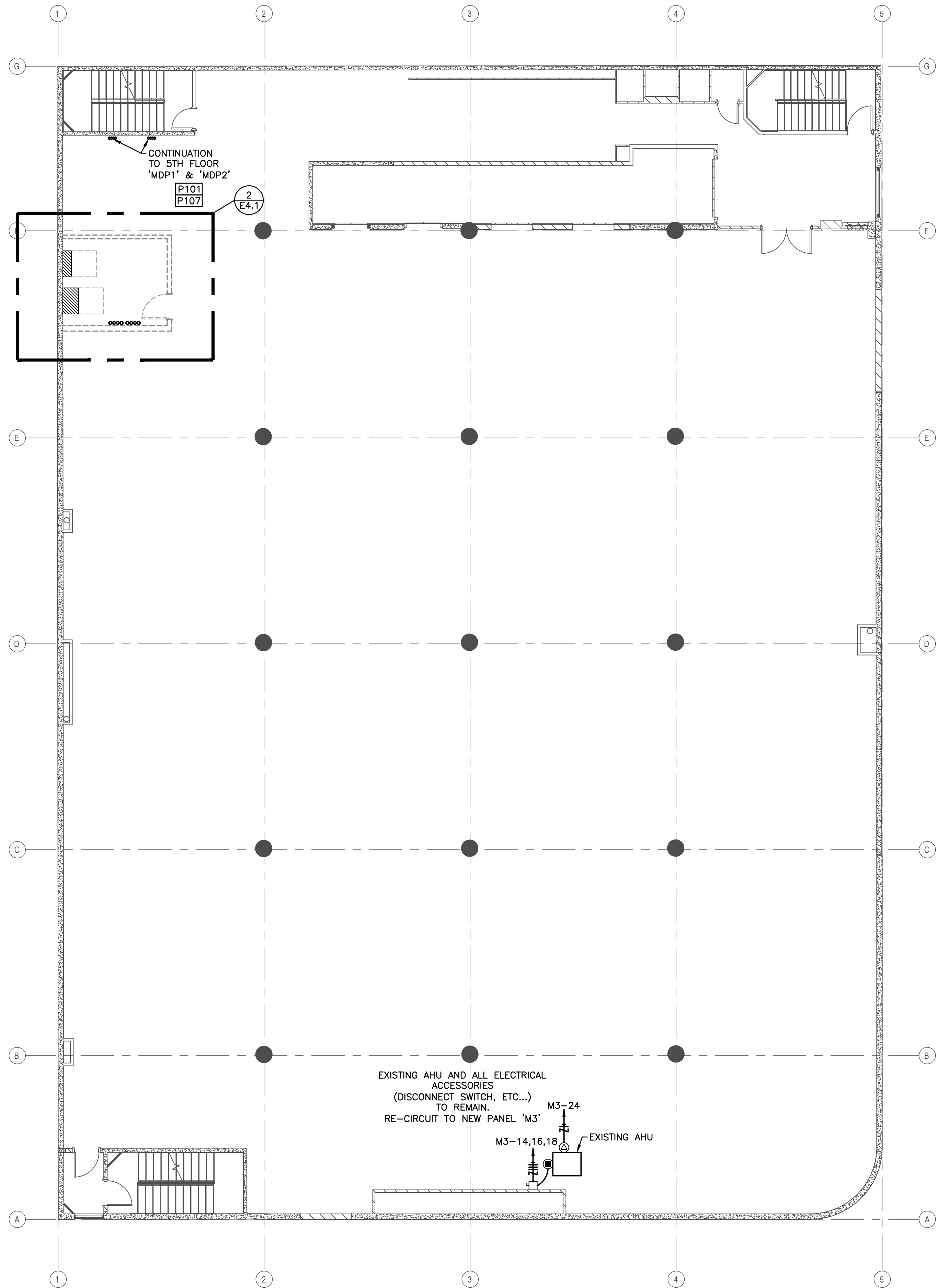
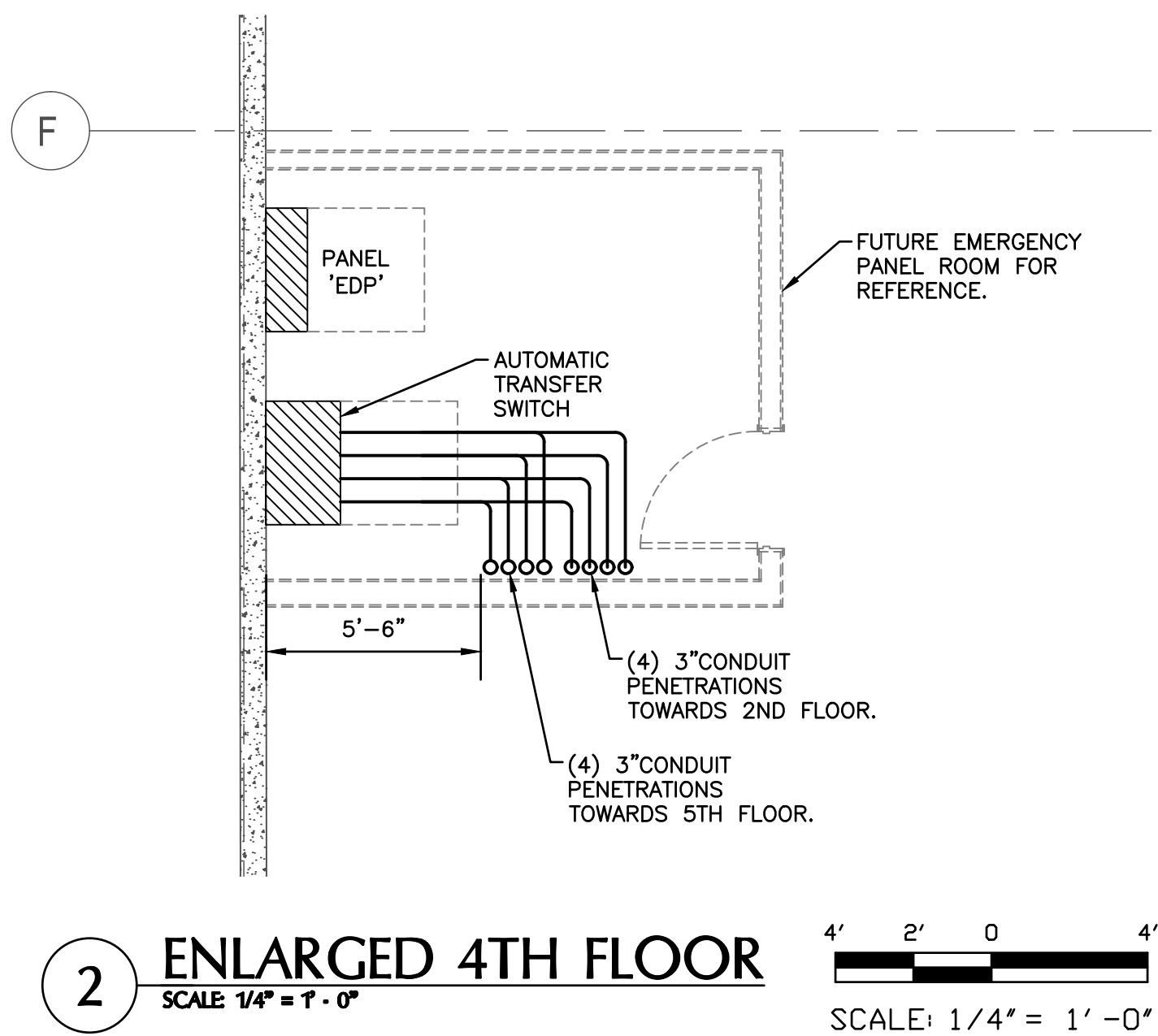
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CHECKED BY: JAR
DATE: MAY 12, 2023

SHEET NUMBER:
E4.1
SHT. No. 23 of 30

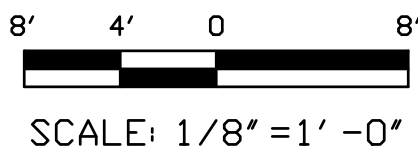
GENERAL NOTES:

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- F. SEAL ALL WALL, ROOF, AND FLOOR PENETRATIONS WITH UL LISTED FIRE SEALANT.
- G. ALL CONDUIT SHALL BE ROUTED CONCEALED WITHIN WALLS AND/OR ABOVE CEILINGS. WHERE APPLICABLE
- H. REFER TO DETAIL #1/SHEET E8.1 FOR EXACT MOUNTING HEIGHTS OF ALL DEVICES.

FIELD COORDINATE EXACT BREAKER SIZE FOR EXISTING
AHU.

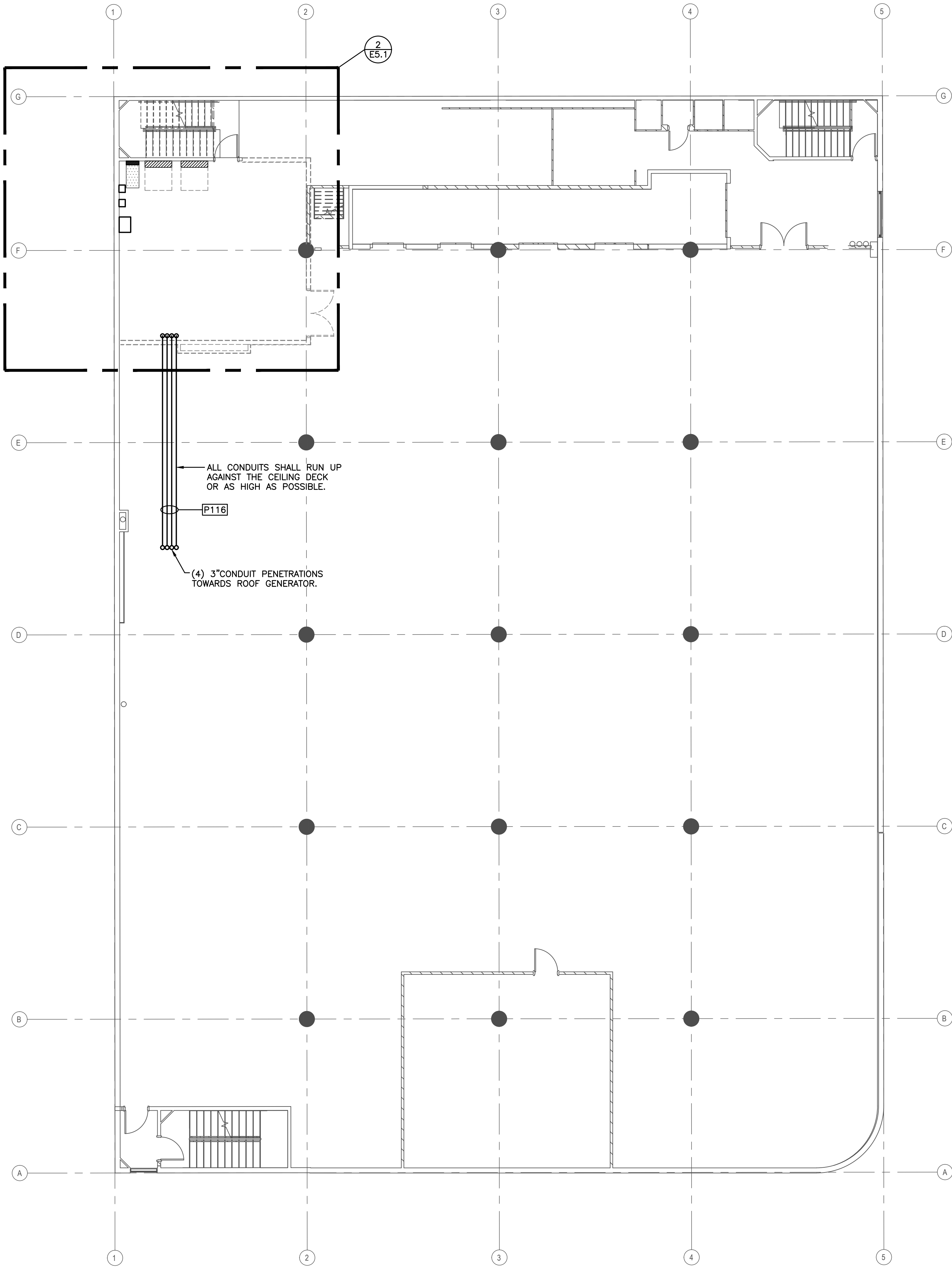


1 4TH FLOOR ELECTRICAL PLAN
SCALE 1/8" = 1'-0"



Oct 13, 2023 - 4:30pm
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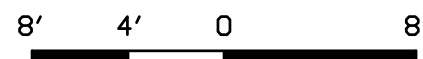
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5TH FLOOR ELECTRICAL PLAN

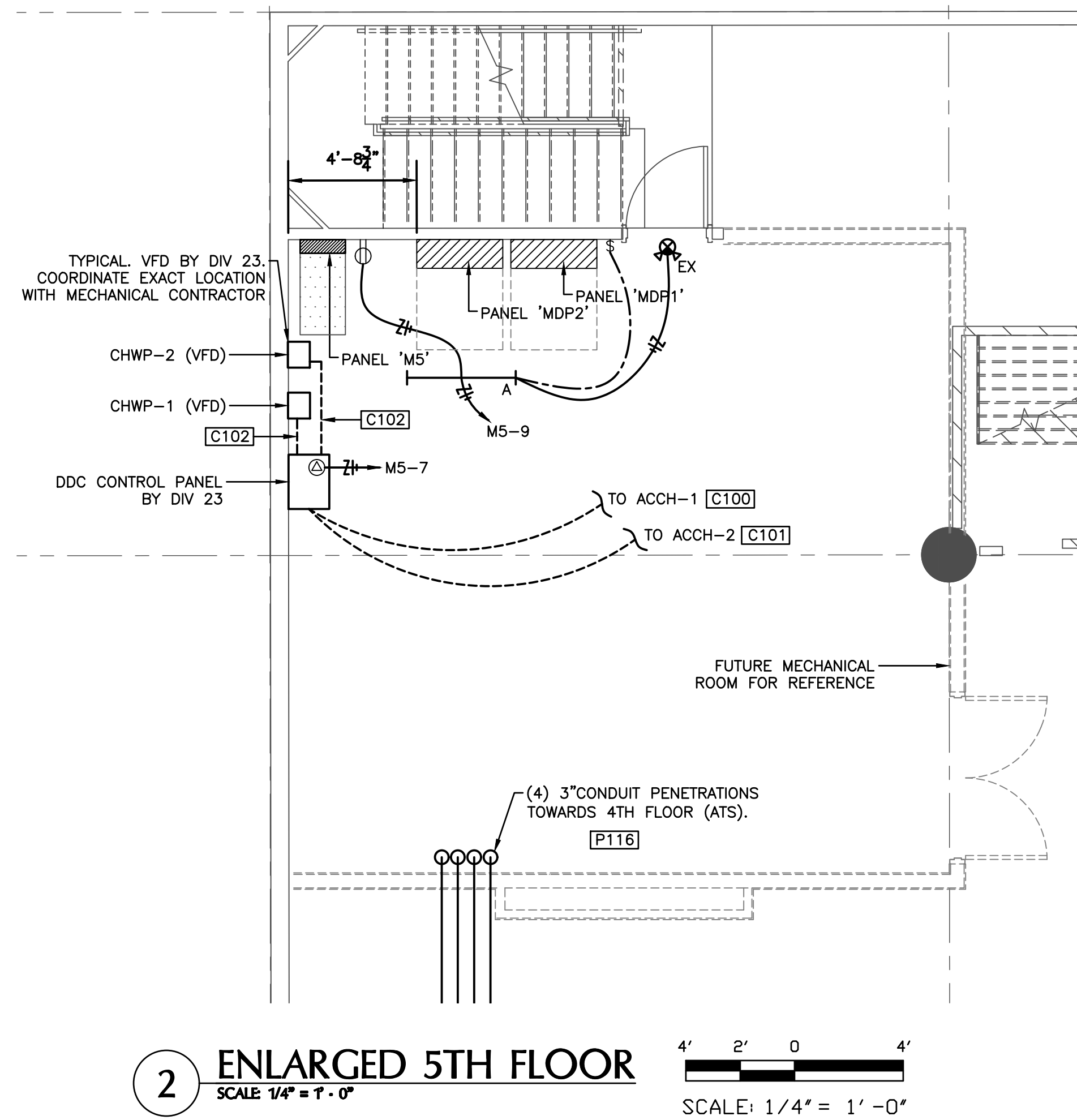
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SCALE: 1/8" = 1' - 0"

GENERAL NOTES:

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- ALL CONDUIT SHALL BE AS STRAIGHT AS POSSIBLE AND PARALLEL OR PERPENDICULAR TO BUILDING LINES.
- ALL WORK SHALL COMPLY WITH CURRENTLY ADOPTED VERSION OF NATIONAL ELECTRICAL CODE.
- SEAL ALL WALL, ROOF, AND FLOOR PENETRATIONS WITH UL LISTED FIRE SEALANT.
- ALL CONDUIT SHALL BE ROUTED CONCEALED WITHIN WALLS AND/OR ABOVE CEILINGS, WHERE APPLICABLE.
- REFER TO DETAIL #1/SHEET E8.1 FOR EXACT MOUNTING HEIGHTS OF ALL DEVICES.

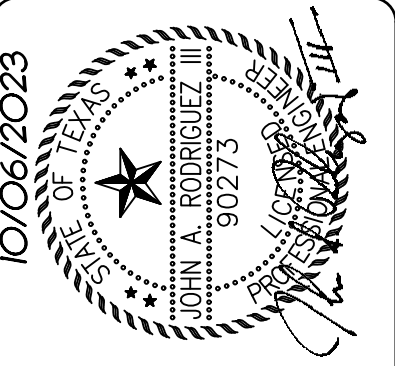


REVISIONS	DATE	#

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JOB #22159



Stamp Date:

5TH FLOOR ELECTRICAL PLAN

CENTRAL PLANT IMPROVEMENTS

TEXAS A+M UNIVERSITY CORPUS CHRISTI
223 N. CHAPARRAL
CORPUS CHRISTI, TEXAS

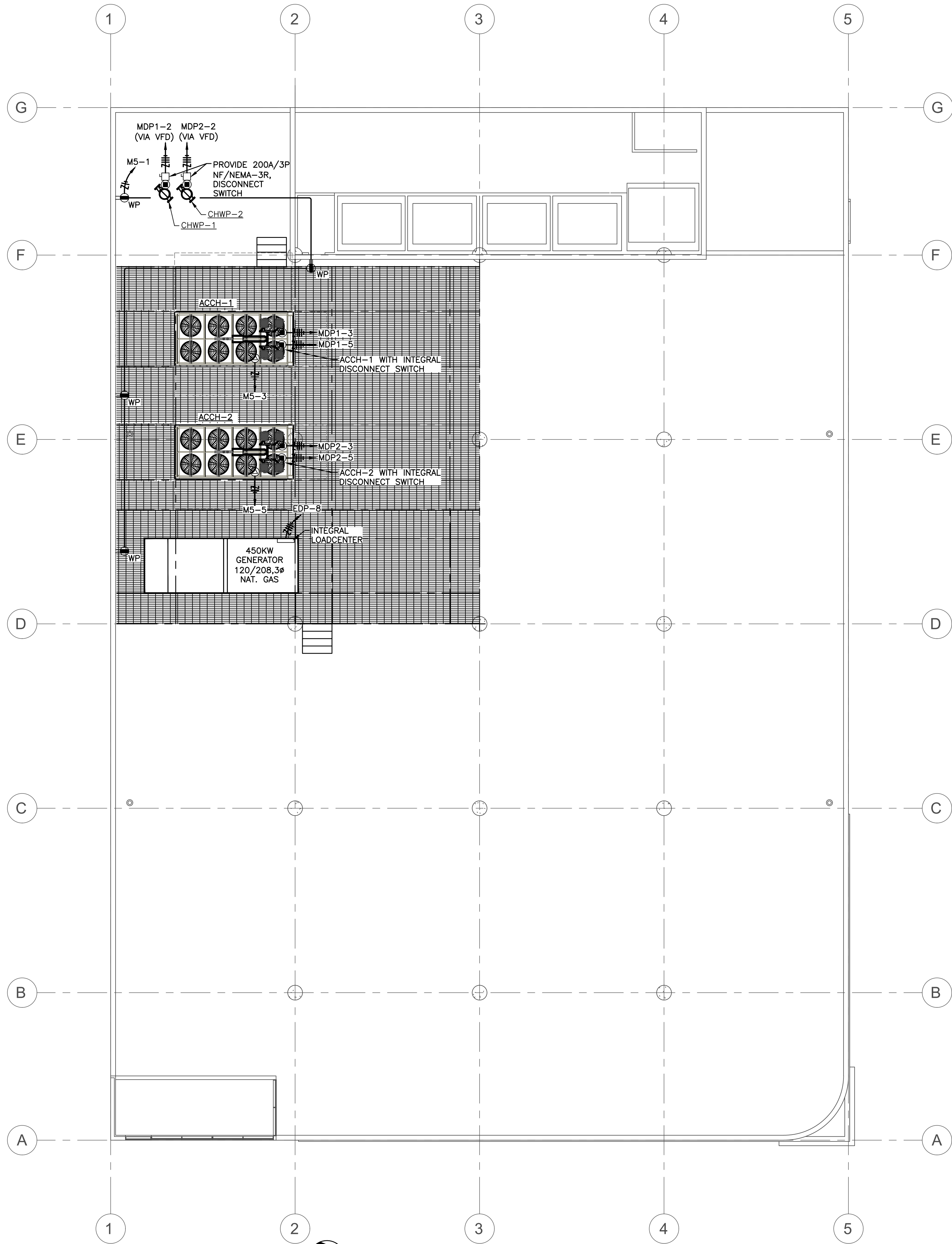
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FILE NAME: CHAPARRAL
DRAFTING BY: CEG
CHECKED BY: JAR
DATE: MAY 12, 2023

SHEET NUMBER:

E5.1

SHT. No. 24 of 30

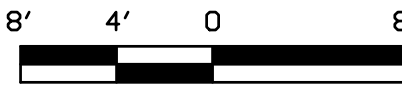
Oct 13, 2023 - 4:30pm
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1

ROOF DECK ELECTIRCAL PLAN

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



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

GENERAL NOTES:

- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AT THE JOB SITE BEFORE COMMENCING ANY PHASE OF THE WORK. ADJUSTMENTS FOR FIT AND COORDINATION SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER. NOTIFY ENGINEER OF ANY CONFLICTS, DISCREPANCIES OR OMISSIONS PRIOR TO COMMENCEMENT OF THE CONTRACT WORK.
- CONTRACTOR SHALL REVIEW ALL ARCHITECTURAL, CIVIL, MECHANICAL & STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR ANY ADDITIONAL REQUIREMENTS.
- CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES.
- ALL CONDUIT SHALL BE AS STRAIGHT AS POSSIBLE AND PARALLEL OR PERPENDICULAR TO BUILDING LINES.
- ALL WORK SHALL COMPLY WITH CURRENTLY ADOPTED VERSION OF NATIONAL ELECTRICAL CODE.
- SEAL ALL WALL, ROOF, AND FLOOR PENETRATIONS WITH UL LISTED FIRE SEALANT.
- ALL CONDUIT SHALL BE ROUTED CONCEALED WITHIN WALLS AND/OR ABOVE CEILINGS. WHERE APPLICABLE
- REFER TO DETAIL #1/SHEET E8.1 FOR EXACT MOUNTING HEIGHTS OF ALL DEVICES.

REVISIONS	DATE	#

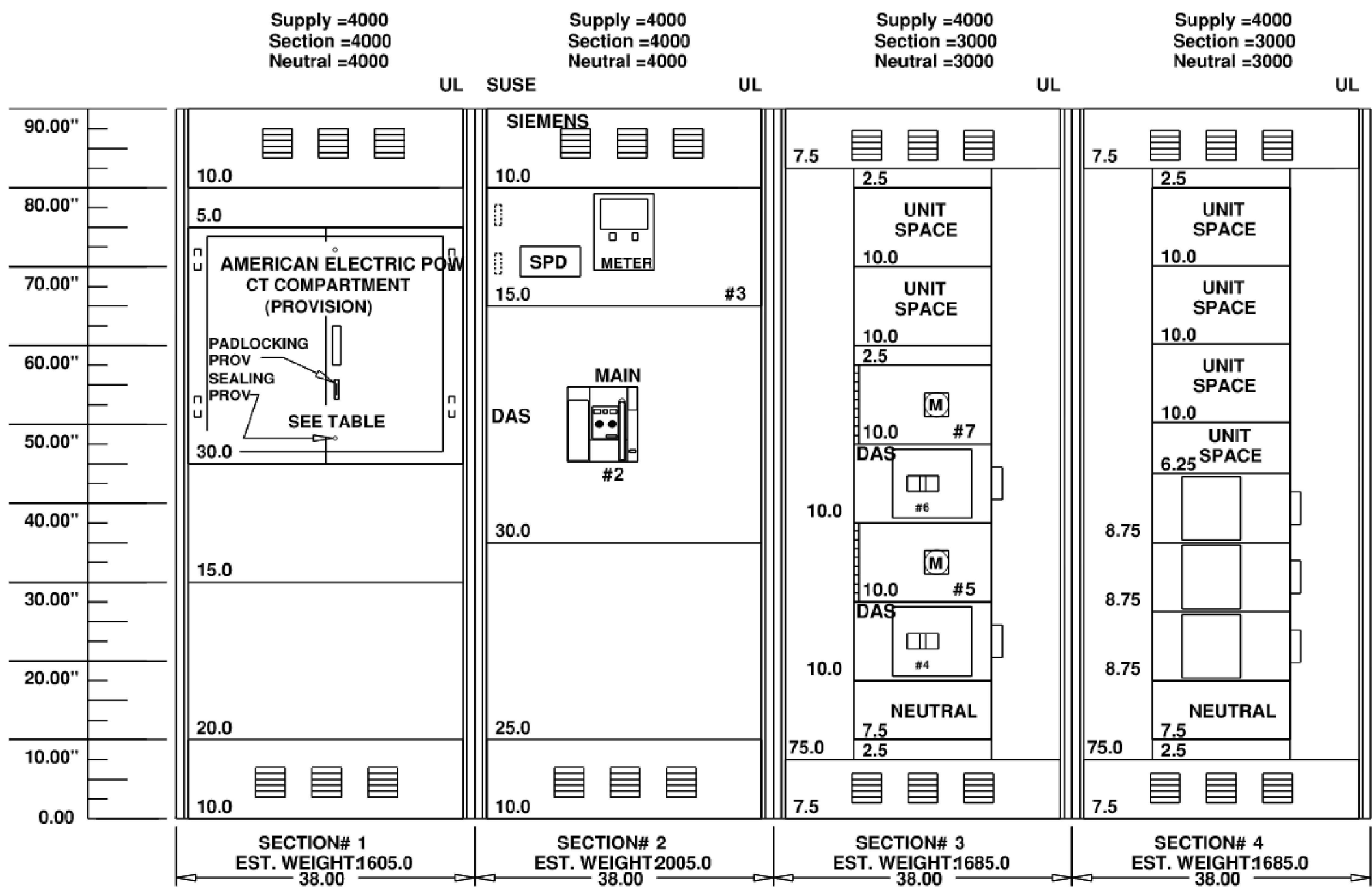
These drawings and accompanying Specifications are to be an instrument of service and shall remain the property of the Engineer. They are not to be used on other projects or extensions to this project except by agreement in writing and with appropriate compensation to the Engineer. Contractor is responsible for confirming and correlating dimensions at the job site; the Engineer will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the project.

NRG ENGINEERING
Sergei N. Gerasimov, P.E.
Professional Engineer, No. 37413
Texas
Job #22159

10/06/2023
STATE OF TEXAS
JOHN A. RODRIGUEZ III
Professional Engineer, No. 30273
Texas
Stamp Date: _____

ROOF DECK ELECTRICAL PLAN
CENTRAL PLANT IMPROVEMENTS
TEXAS A+M UNIVERSITY CORPUS CHRISTI
223 N. CHAPARRAL
CORPUS CHRISTI, TEXAS

PROJECT #: 22159
FILE NAME: CHAPARRAL
DRAFTING BY: CEG
CHECKED BY: JAR
DATE: MAY 12, 2023
SHEET NUMBER:
E6.1
SHT. No. 25 of 30



ESTIMATED ELECTRICAL LOAD			
120/208V, 3ø, 4W			
DESCRIPTION	CONNECTED LOAD	DEMAND FACTOR	NEC DEMAND
LIGHTING	245	125%	306
RECEPTACLES	720	NEC 220-44	720
KITCHEN EQUIPMENT	0	NEC 220-56	0
H.V.A.C.	452160	100%	452160
LARGEST MOTOR	26730	125%	33413
MOTOR LOAD	26730	100%	26730
MISC. SINGLE PHASE LOADS	4200	100%	4200
TOTAL VOLT-AMPERES	510785		517529
517529 VA / (208V*1.732)		=	1436.5 AMPS

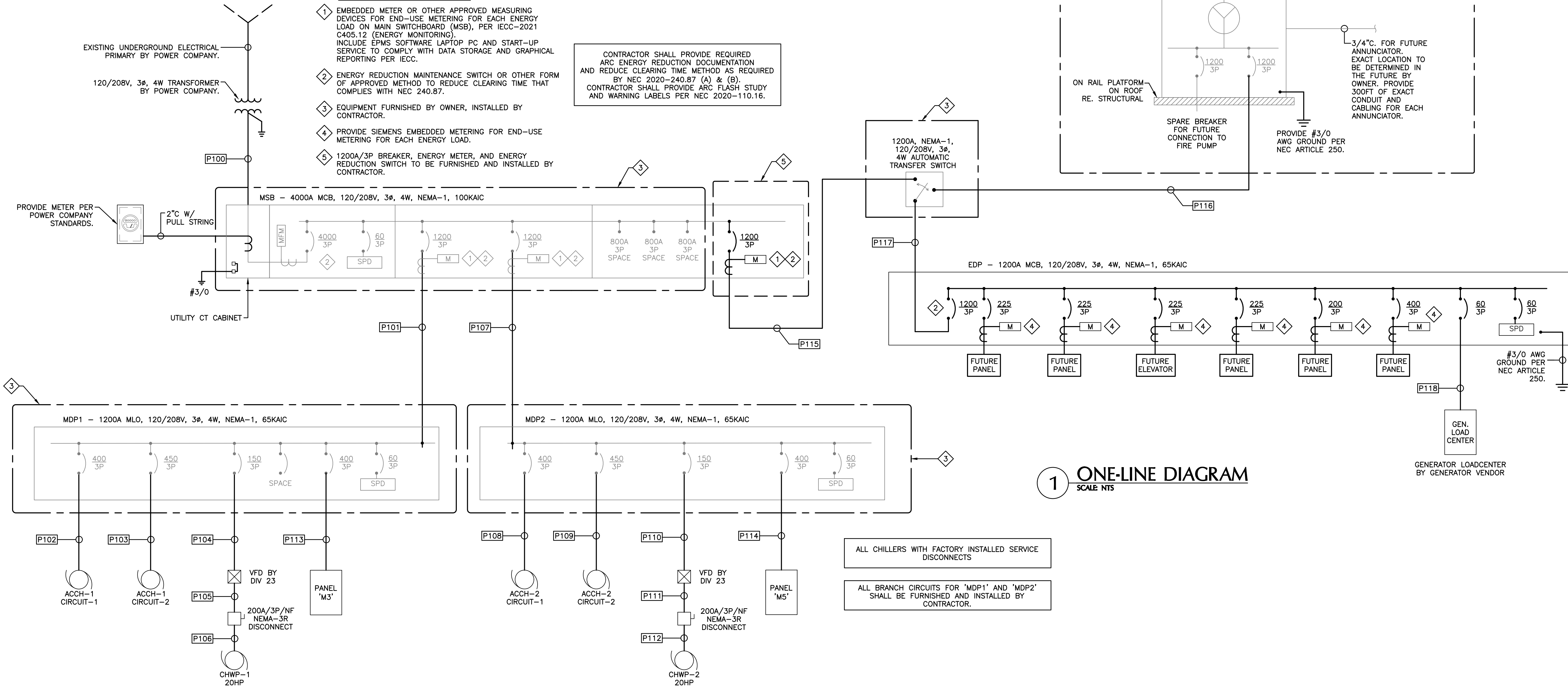
2 MAIN SWITCHBOARD ELEVATION

SCALE NTS

ONE-LINE KEY NOTES

- 1 EMBEDDED METER OR OTHER APPROVED MEASURING DEVICES FOR END-USE METERING FOR EACH ENERGY LOAD ON MAIN SWITCHBOARD (MSB), PER IECC-2021 C405.12 (ENERGY MONITORING). INCLUDE EPMS SOFTWARE LAPTOP PC AND START-UP SERVICE TO COMPLY WITH DATA STORAGE AND GRAPHICAL REPORTING PER IECC.
- 2 ENERGY REDUCTION MAINTENANCE SWITCH OR OTHER FORM OF APPROVED METHOD TO REDUCE CLEARING TIME THAT COMPLIES WITH NEC 240.87.
- 3 EQUIPMENT FURNISHED BY OWNER, INSTALLED BY CONTRACTOR.
- 4 PROVIDE SIEMENS EMBEDDED METERING FOR END-USE METERING FOR EACH ENERGY LOAD.
- 5 1200A/3P BREAKER, ENERGY METER, AND ENERGY REDUCTION SWITCH TO BE FURNISHED AND INSTALLED BY CONTRACTOR.

CONTRACTOR SHALL PROVIDE REQUIRED ARC ENERGY REDUCTION DOCUMENTATION AND REDUCE CLEARING TIME METHOD AS REQUIRED BY NEC 2020-240.87 (A) & (B). CONTRACTOR SHALL PROVIDE ARC FLASH STUDY AND WARNING LABELS PER NEC 2020-110.16.



1 ONE-LINE DIAGRAM

SCALE NTS

REVISIONS	DATE	#

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Stamp Date:

ONE-LINE DIAGRAM

CENTRAL PLANT IMPROVEMENTS

TEXAS A&M UNIVERSITY CORPUS CHRISTI
223 N CHAPARRAL
CORPUS CHRISTI, TEXAS

PROJECT #: 22159
FILE NAME: CHAPARRAL
DRAFTING BY: CEG
CHECKED BY: JAR
DATE: MAY 12, 2023

SHEET NUMBER:

E7.1

SHT. No.26 of 30

PANEL ' EDP ' W/SPD 1200 AMP, M.C.B., 120/208 V, 3ø, 4W, S/N, SURFACE, NEMA 1, 65 KAIC												
CKT #	LOAD SERVED	LOAD	CONDUIT & WIRE SIZE	BKR SIZE	A	B	C	BKR SIZE	CONDUIT & WIRE SIZE	LOAD	LOAD SERVED	CKT #
1	SPD	—	#4 AWG	60/3	A			225/3	—	—	FUTURE PANEL 'E4A'	2
		—	#4 AWG		B				—	—		
		—	#4 AWG		C				—	—		
3	FUTURE PANEL 'L4'	—	—	225/3	A			225/3	—	—	FUTURE PANEL 'E4B'	4
		—	—		B				—	—		
		—	—		C				—	—		
5	FUTURE PANEL 'IT4'	—	—	225/3	A			200/3	—	—	FUTURE PASSENGER ELEVATOR	6
		—	—		B				—	—		
		—	—		C				—	—		
7	FUTURE PANEL EMR	—	—	400/3	A			60/3	PER ONE—LINE	1000	GENERATOR LOADCENTER	8
		—	—		B				PER ONE—LINE	1000		
		—	—		C				PER ONE—LINE	1000		
9	SPACE				A						SPACE	10
					B							
					C							
CONNECTED LOAD = 3000 VA PHASE A = 1000 VA PHASE B = 1000 VA PHASE C = 1000 VA												

CONDUIT SCHEDULE									
POWER									
CABLE #	FROM — ORIGINATION	TO — DESTINATION	PURPOSE	VOLTAGE	ROUTE	QTY	SIZE	CONDUCTOR SIZE	GROUND
P100	AEP TRANSFORMER VAULT	SWITCHBOARD MSB	POWER	208V/3PH	UG	11	4"	500KCMIL	N/A
P101	SWITCHBOARD MSB	PANEL MDP1	POWER	208V/3PH	AG	4	3"	350KCMIL	#3/0
P102	PANEL MDP1	ACCH—1 (CIRCUIT #1)	POWER	208V/3PH	AG	2	2"	#3/0	#3AWG
P103	PANEL MDP1	ACCH—1 (CIRCUIT #2)	POWER	208V/3PH	AG	2	2—1/2"	#4/0	#2AWG
P104	PANEL MDP1	CHWP—1 (VFD)	POWER	208V/3PH	AG	1	2"	#1/0	#6AWG
P105	CHWP—1 (VFD)	CHWP—1 (DISCONNECT)	POWER	208V/3PH	AG	1	2"	#1/0	#6AWG
P106	CHWP—1 (DISCONNECT)	CHWP—1 (PUMP MOTOR)	POWER	208V/3PH	AG	1	2"	#1/0	#6AWG
P107	SWITCHBOARD MSB	PANEL MDP2	POWER	208V/3PH	AG	4	3"	350KCMIL	#3/0
P108	PANEL MDP2	ACCH—2 (CIRCUIT #1)	POWER	208V/3PH	AG	2	2"	#3/0	#3AWG
P109	PANEL MDP2	ACCH—2 (CIRCUIT #2)	POWER	208V/3PH	AG	2	2—1/2"	#4/0	#2AWG
P110	PANEL MDP2	CHWP—2 (VFD)	POWER	208V/3PH	AG	1	2"	#1/0	#6AWG
P111	CHWP—2 (VFD)	CHWP—2 (DISCONNECT)	POWER	208V/3PH	AG	1	2"	#1/0	#6AWG
P112	CHWP—2 (DISCONNECT)	CHWP—2 (PUMP MOTOR)	POWER	208V/3PH	AG	1	2"	#1/0	#6AWG
P113	PANEL MDP1	PANEL M3	POWER	208V/3PH	AG	2	2"	#3/0	#3AWG
P114	PANEL MDP2	PANEL M5	POWER	208V/3PH	AG	2	2"	#3/0	#3AWG
P115	SWITCHBOARD MSB	AUTOMATIC TRANSFER SWITCH	POWER	208V/3PH	AG	4	3"	350KCMIL	#3/0
P116	450KW GENERATOR	AUTOMATIC TRANSFER SWITCH	POWER	208V/3PH	AG	4	3"	350KCMIL	#3/0
P117	ATS	PANEL EDP	POWER	208V/3PH	AG	4	3"	350KCMIL	#3/0
P118	PANEL EDP	GEN. LOAD CENTER	POWER	208V/3PH	AG	1	1"	#6AWG	#10AWG

UG = UNDERGROUND
AG = ABOVE GROUND

CONDUIT SCHEDULE							
CONTROL							
REV #	CABLE #	FROM — ORIGINATION	TO — DESTINATION	PURPOSE	ROUTE	QTY	SIZE
0	C100	DDC CONTROL PANEL	ACCH—1	CONTROL	AG	1	1"
0	C101	DDC CONTROL PANEL	ACCH—2	CONTROL	AG	1	1"
0	C102	DDC CONTROL PANEL	CHWP—1	CONTROL	AG	1	1"
0	C103	DDC CONTROL PANEL	CHWP—2	CONTROL	AG	1	1"

UG = UNDERGROUND
AG = ABOVE GROUND

UTILITY TRANSFORMER SHORT CIRCUIT SCHEDULE (assumes infinite availability)						
Volt[L—L]	KVA	Z(%)	I[f]	M	Isc	
208	500	1.24	1387.9	80.645	111928	

FEEDER SHORT CIRCUIT SCHEDULE											
FROM	TO	Volt[L—L]	#SETS	WIRE SZ	LENGTH	COND. TP	Isc(in)	C(total)	F	M	Isc
UT	MSB	208	11	500	40	P	111928	293766	0.1269	0.8874	99323
MSB	MDP1	208	4	350	210	S	99323	78816	2.2036	0.3121	31003
MSB	MDP2	208	4	350	210	S	99323	78816	2.2036	0.3121	31003
MDP2	M5	208	2	3/0	5	S	31003	25688	0.0502	0.9522	29520
MDP1	M3	208	2	3/0	180	S	31003	25688	1.8090	0.3560	11037

LIGHT FIXTURE SCHEDULE									
TYPE	MANUFACTURER & CATALOG NO.	VOLTAGE	WATTS	LUMENS	TEMP	MOUNTED	DESCRIPTION		
A	LITHONIA #CSS—L48—4000LM—MVOLT—40K—80CRI—IE7WCP—HC36M12	120	35	4300	4000K	CHAIN	4' LED STRIP W/EMERGENCY PACK NOTE#1		
EX	LITHONIA #LHQM—LED—R—SD	120	4	700	—	SURFACE	EXIT/EMERGENCY LIGHT		

NOTE #1: PROVIDE ACCESSORIE #HC36M12 FOR FIXTURE TYPE 'A' (FIXTURE SHALL HANG 10' FROM BOTTOM OF FIXTURE TO AFF)

PANEL ' MSB ' W/SPD 4000 AMP, M.C.B, 120/208 V, 3ø, 4W, S/N, SURFACE, NEMA 1, 100 KAIC												
CKT #	LOAD SERVED	LOAD	CONDUIT & WIRE SIZE	BKR SIZE	A	B	C	BKR SIZE	CONDUIT & WIRE SIZE	LOAD	LOAD SERVED	CKT #
1	SPD	—	#6 AWG	60/3	A	B	C	1200/3	PER ONE—LINE	—	ATS	2
		—	#6 AWG		A	B	C		PER ONE—LINE	—	EDP	
		—	#6 AWG		A	B	C		PER ONE—LINE	—		
3	MDP1	131517	PER ONE—LINE	1200/3	A	B	C				800AMP SPACE	4
		130917	PER ONE—LINE		A	B	C					
		130917	PER ONE—LINE		A	B	C					
5	MDP2	85590	PER ONE—LINE	1200/3	A	B	C				600AMP SPACE	6
		85115	PER ONE—LINE		A	B	C					
		84870	PER ONE—LINE		A	B	C					
CONNECTED LOAD = 648926 VA					PHASE A = 217107 VA			PHASE B = 216032 VA			PHASE C = 215787 VA	

PANEL ' MDP1 ' W/SPD 1200 AMP, M.L.O, 120/208 V, 3ø, 4W, S/N, SURFACE, NEMA 1, 65 KAIC												
CKT #	LOAD SERVED	LOAD	CONDUIT & WIRE SIZE	BKR SIZE	A	B	C	BKR SIZE	CONDUIT & WIRE SIZE	LOAD	LOAD SERVED	CKT #
1	SPD	—	#6 AWG	60/3	A	B	C	150/3	PER ONE—LINE	8910	CHWP—1 20HP	2
		—	#6 AWG		A	B	C		PER ONE—LINE	8910		
		—	#6 AWG		A	B	C		PER ONE—LINE	8910		
3	ACCH—1 CIRCUIT #1	37440	PER ONE—LINE	400/3	A	B	C	400/3	PER ONE—LINE	47247	PANEL 'M3'	4
		37440	PER ONE—LINE		A	B	C		PER ONE—LINE	46647		
		37440	PER ONE—LINE		A	B	C		PER ONE—LINE	46647		
5	ACCH—1 CIRCUIT #2	37920	PER ONE—LINE	450/3	A	B	C				SPACE	6
		37920	PER ONE—LINE		A	B	C					
		37920	PER ONE—LINE		A	B	C					
CONNECTED LOAD = 393351 VA				PHASE A = 131517 VA			PHASE B = 130917 VA			PHASE C = 130917 VA		

PANEL ' MDP2 ' W/SPD 1200 AMP, M.L.O, 120/208 V, 3ø, 4W, S/N, SURFACE, NEMA 1, 65 KAIC												
CKT #	LOAD SERVED	LOAD	CONDUIT & WIRE SIZE	BKR SIZE	A	B	C	BKR SIZE	CONDUIT & WIRE SIZE	LOAD	LOAD SERVED	CKT #
1	SPD	—	#6 AWG	60/3	A	B	C	150/3	PER ONE—LINE	8910	CHWP—2 20HP	2
		—	#6 AWG		A	B	C		PER ONE—LINE	8910		
		—	#6 AWG		A	B	C		PER ONE—LINE	8910		
3	ACCH—2 CIRCUIT #1	37440	PER ONE—LINE	400/3	A	B	C	400/3	PER ONE—LINE	1320	PANEL 'M5'	4
		37440	PER ONE—LINE		A	B	C		PER ONE—LINE	845		
		37440	PER ONE—LINE		A	B	C		PER ONE—LINE	600		
5	ACCH—2 CIRCUIT #2	37920	PER ONE—LINE	450/3	A	B	C				SPACE	6
		37920	PER ONE—LINE		A	B	C					
		37920	PER ONE—LINE		A	B	C					
CONNECTED LOAD = 255575 VA				PHASE A = 85590 VA				PHASE B = 85115 VA		PHASE C = 84870 VA		

PANEL ' M5 ' 400 AMP, M.L.O, 120/208 V, 3Ø, 4W, S/N, SURFACE, NEMA 1, 35 KAIC												
CKT #	LOAD SERVED	LOAD	CONDUIT & WIRE SIZE	BKR SIZE	A	B	C	BKR SIZE	CONDUIT & WIRE SIZE	LOAD	LOAD SERVED	CKT #
1	ROOF DECK RECEP	720	#12 AWG	20/1	A	B	C				SPACE	2
3	ACCH—1 CNTR	600	#12 AWG	20/1	A	B	C				SPACE	4
5	ACCH—2 CNTR	600	#12 AWG	20/1	A	B	C				SPACE	6
7	DDC CONTROL PNL	600	#12 AWG	20/1	A	B	C				SPACE	8
9	5TH FLOOR LIGHT/RECP	245	#12 AWG	20/1	A	B	C				SPACE	10
11	SPACE				A	B	C				SPACE	12
13	SPACE				A	B	C				SPACE	14
15	SPACE				A	B	C				SPACE	16
17	SPACE				A	B	C				SPACE	18
19	SPACE				A	B	C				SPACE	20
21	SPACE				A	B	C				SPACE	22
23	SPACE				A	B	C				SPACE	24
25	SPACE				A	B	C				SPACE	26
27	SPACE				A	B	C				SPACE	28
29	SPACE				A	B	C				SPACE	30
31	SPACE				A	B	C				SPACE	3

ELECTRICAL LEGEND

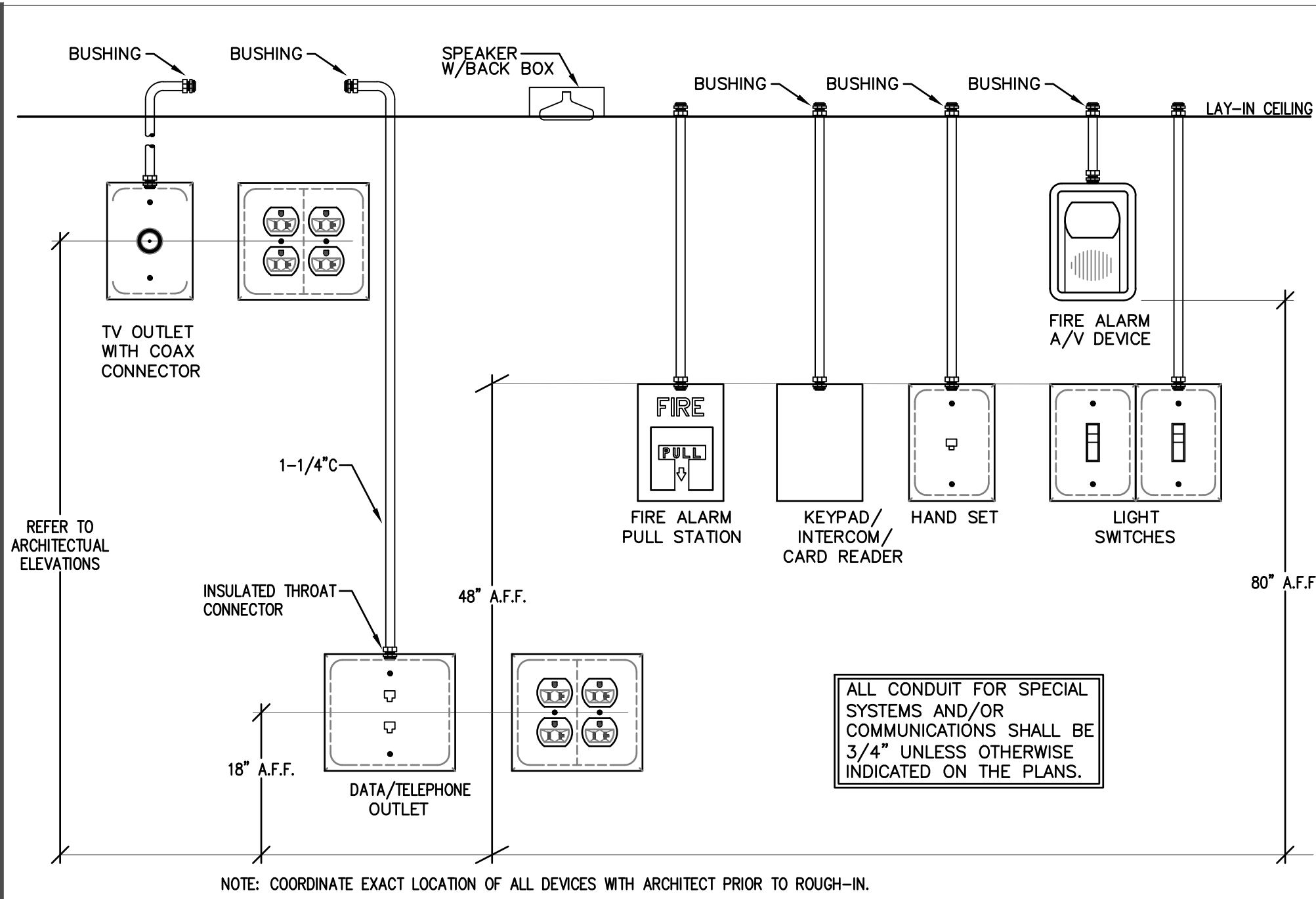
NOTE: NOT ALL SYMBOLS MAY APPLY TO THIS JOB!
SYMBOL DESCRIPTION

B-2	HOMERUN TO CIRCUIT AND PANEL INDICATED
—	NEUTRAL CONDUCTOR
—	HOT CONDUCTOR
—	GROUNDING CONDUCTOR
—	TRAVELER
—	SWITCH LEG
\$	TOGGLE SWITCH — 120/277V, 20A
\$3	THREWAY SWITCH — 120/277V, 20A
\$4	FOURWAY SWITCH — 120/277V, 20A
\$0	DIMMER SWITCH — REFER TO LTG CONTROL FOR ADDITIONAL INFORMATION
\$K	KEY SWITCH — 120/277V, 20A
\$M	MOTOR RATED SWITCH

REFER TO LIGHTING PLAN FOR ADDITIONAL
LOW VOLTAGE LIGHTING CONTROLS SYMBOLS

⊖	DUPLEX RECEPTACLE — 125V,20A,1P
⊖	GROUND FAULT INTERRUPTER DUPLEX RECEPTACLE 125V,20A,1P
⊖	ISOLATED GROUND RECEPTACLE — 125V,20A,1P
⊖	SINGLE RECEPTACLE — 250V, AMPS PER PANEL SCHEDULE
⊖	QUADRAPLEX RECEPTACLE — 125V,20A,1P
⊖	ISOLATED GROUND QUADRAPLEX RECEPTACLE — 125V,20A,1P
⊖	SINGLE RECEPTACLE — 125V,20A,1P
⊖	DUPLEX RECEPTACLE — 125V,20A,1P (FLOOR MOUNTED)
⊖	JUNCTION BOX, SIZED PER N.E.C.
⊖	COMBO RECEPT. & USB CHARGING DEVICE HUBBELL #USB20ACS
▼	TELEPHONE OUTLET BOX WITH CONDUIT TO ACCESSIBLE LOCATION ABOVE CEILING
▼	DATA/TELEPHONE OUTLET BOX WITH CONDUIT TO ACCESSIBLE LOCATION ABOVE CEILING
▼	DATA OUTLET BOX WITH CONDUIT TO ACCESSIBLE LOCATION ABOVE CEILING
▼	TELEVISION OUTLET BOX WITH CONDUIT TO ACCESSIBLE LOCATION ABOVE CEILING
⊖	SPEAKER
⊖	PUSHBUTTON
⊖	HOLD UP BUTTON
AC	ABOVE COUNTER
WP	WEATHER PROOF
EWC	ELECTRIC WATER COOLER
EWB	ELECTRIC WATER HEATER
E.C.	ELECTRICAL CONTRACTOR
NL	NIGHT LIGHT — ON 24 HOURS
RCP	CIRCULATION PUMP

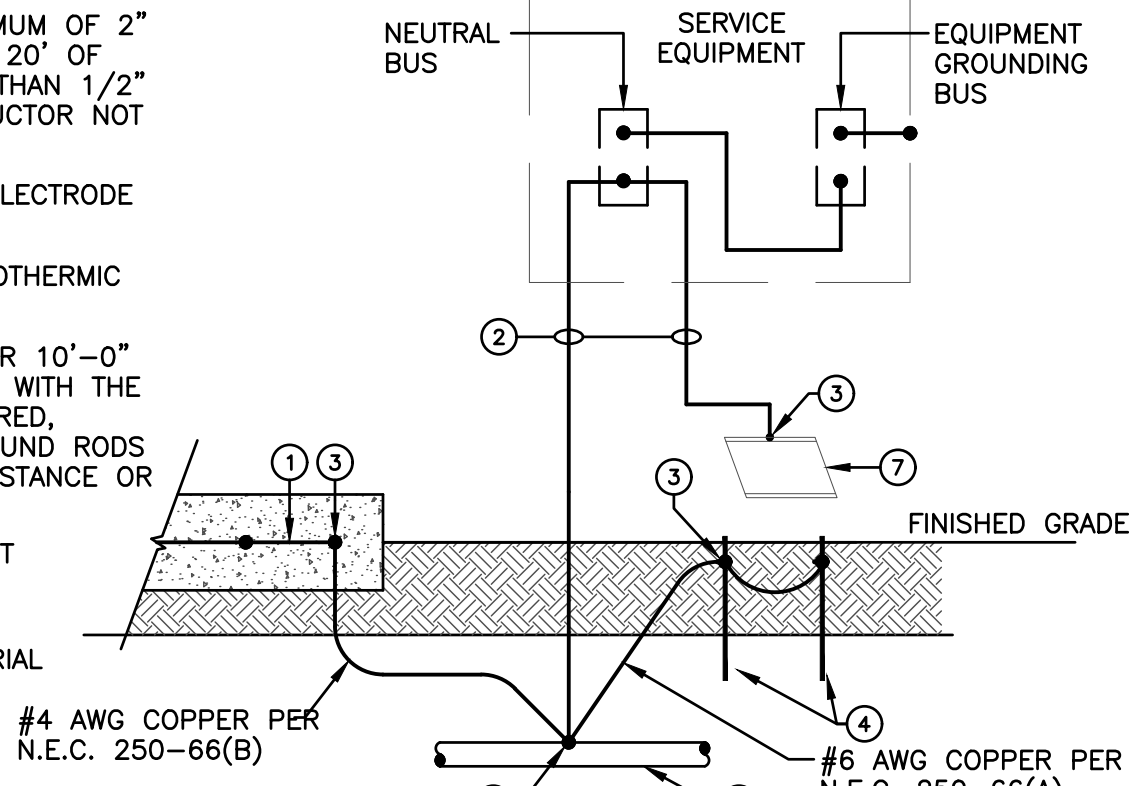
⊕	120V, 1P EQUIPMENT CONNECTION
⊕	240V, 1P EQUIPMENT CONNECTION
⊕	240V, 3P EQUIPMENT CONNECTION
⊕	208V, 1P EQUIPMENT CONNECTION
⊕	208V, 3P EQUIPMENT CONNECTION
⊕	277V, 1P EQUIPMENT CONNECTION
⊕	480V, 3P EQUIPMENT CONNECTION
⊕	480V, 1P EQUIPMENT CONNECTION
⊖	DISCONNECT SWITCH — SIZE AND POLE AS NOTED
⊖	COMBINATION STARTER/DISCONNECT SWITCH
⊖	STARTER
\$M	MANUAL MOTOR STARTER
⊖	PANELBOARD AS SPECIFIED
⊖	EXHAUST FAN
SEC	SECURITY PANEL
PA	GENERAL PAGING SYSTEM
H	FIRE ALARM AUDIO HORN
P	FIRE ALARM PULL STATION
FV	FIRE ALARM AUDIO/VISUAL SIGNAL
M	MOTION DETECTOR
V	FIRE ALARM ADA VISUAL SIGNAL
R	FIRE ALARM SHUT DOWN RELAY
S	SMOKE DETECTOR
H	HEAT DETECTOR
Sb	DUCT MTD. SMOKE DETECTOR
DC	DOOR CONTACTOR ROUGH-IN WITH CONDUIT TO ACCESSIBLE LOCATIONS ABOVE CEILING.
KP	KEY PAD
AAN	FIRE ALARM ANNUCIATOR
FACP	FIRE ALARM CONTROL PANEL
—	CAMERA
FS	FLOW SWITCH
TS	TAMPER SWITCH
PE	PUSH-TO-EXIT BUTTON
AB	ANSUL SUPPRESSION SYSTEM
DR	FIRE ALARM DOOR RELEASE
PA	GENERAL PAGING SYSTEM
KP	KEYPAD (ROUGH-IN W/CONDUIT TO ACCESSIBLE LOCATIONS ABOVE CEILING)
CR	CARD READER (ROUGH-IN W/CONDUIT TO ACCESSIBLE LOCATIONS ABOVE CEILING)
ES	ELECTRONIC STRIKE (ACCESS CONTROL)
MAG	MAGNETIC LOCK (ACCESS CONTROL)



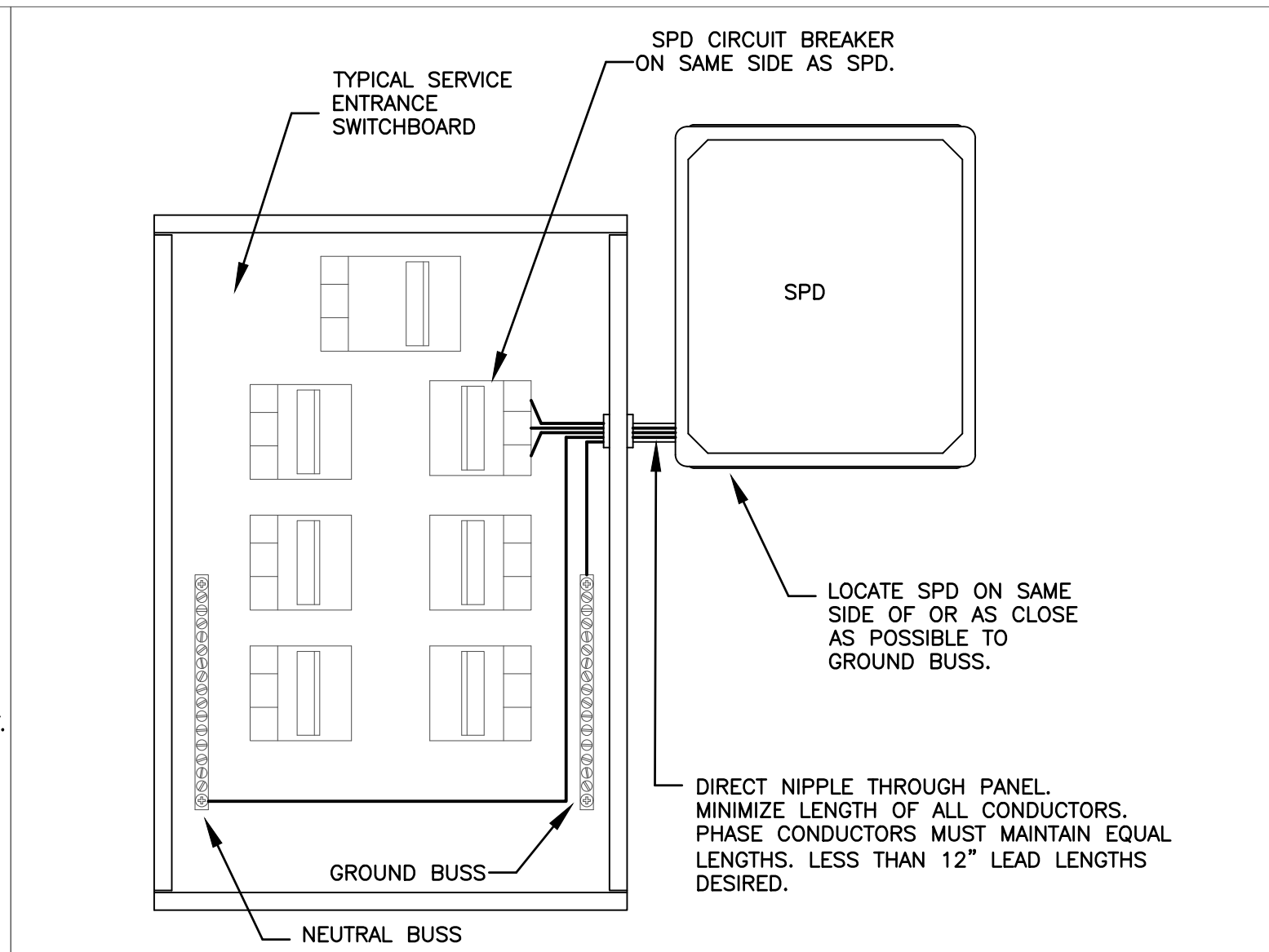
1 TYPICAL DEVICE ELEVATIONS (UNLESS NOTED OTHERWISE)

GROUNDING ELECTRODE KEYED NOTES

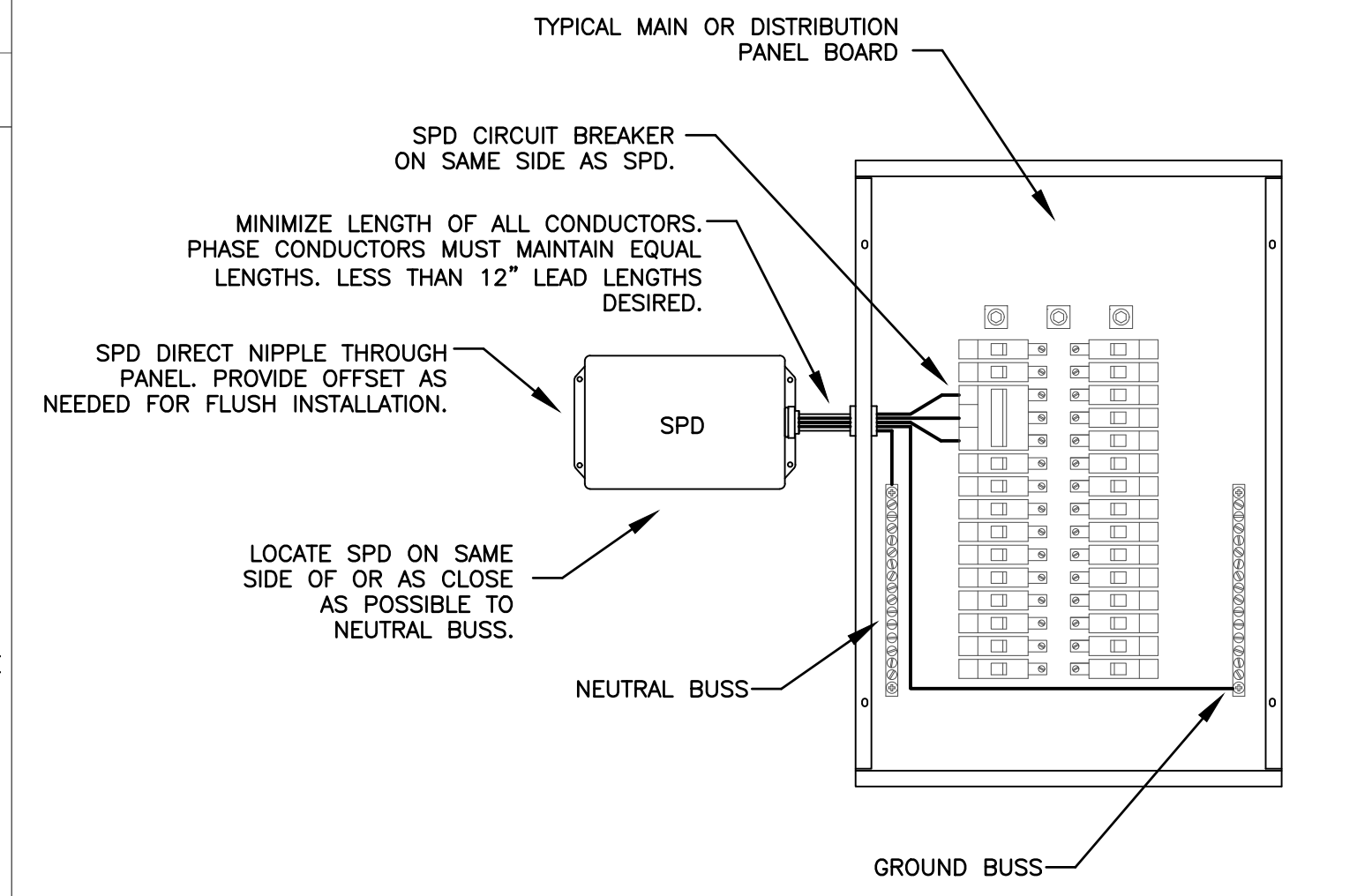
- CONCRETE ENCASED ELECTRODE ENCASED BY A MINIMUM OF 2" CONCRETE OF FOUNDATION CONSISTING OF AT LEAST 20' OF ONE OR MORE STEEL REINFORCING BARS NOT LESS THAN 1/2" DIAMETER OR AT LEAST 20' OF BARE COPPER CONDUCTOR NOT LESS THAN #4 AWG. PER N.E.C. 250.52 (A) (3).
- RGS CONDUIT WITH FULL SIZE COPPER GROUNDING ELECTRODE CONDUCTOR PER N.E.C. TABLE 250-66
- CONNECTION SHALL BE CADWELD COPPER-BASED EXOTHERMIC WELD.
- COPPER BONDED STEEL ELECTRODE 3/4" IN DIAMETER 10'-0" LONG WITH A MINIMUM OF 8'-0" IN DIRECT CONTACT WITH THE EARTH PER N.E.C. 250-52 (A) (5). TWO (2) REQUIRED, SEPARATE BY 6' MINIMUM. PROVIDE ADDITIONAL GROUND RODS AS REQUIRED TO ACHIEVE LESS THAN 25 OHMS RESISTANCE OR PER UTILITY COMPANY REQUIREMENTS.
- METAL UNDERGROUND WATER PIPE IN DIRECT CONTACT WITH THE EARTH FOR 10'-0" OR MORE PER N.E.C. 250.52 (A) (1)
- BOLTED TYPE CONNECTION SUITABLE FOR DIRECT BURIAL OR EXOTHERMIC WELD (TYP)
- METAL FRAME OF BUILDING PER N.E.C. 250.52 (A) (2)



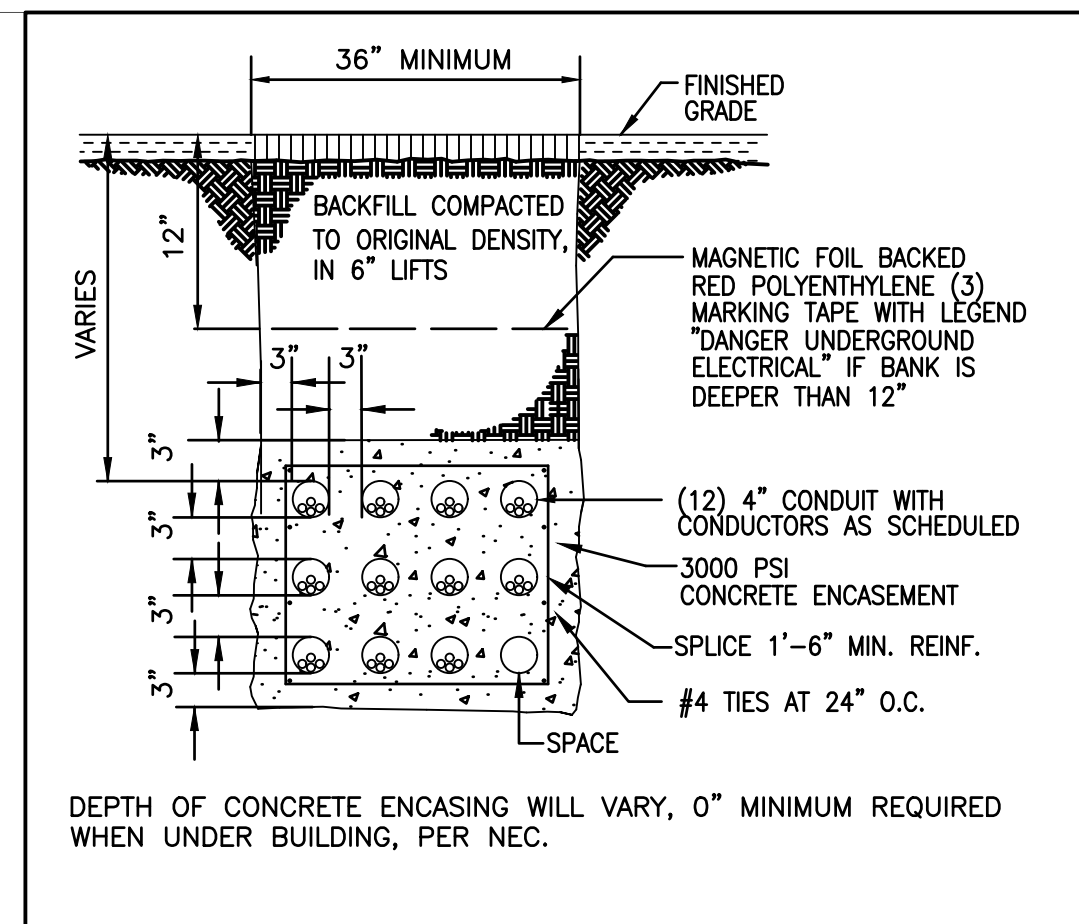
3 GROUNDING ELECTRODE SYSTEM DETAIL



2 INSTALLATION OF SERVICE ENTRANCE SPD



4 INSTALLATION OF BRANCH PANEL SPD



5 DUCT BANK DETAIL

REVISIONS

DATE

#

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NRG

ENGINEERING

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Stamp Date:

10/06/2023

JOB #22159

PROJECT # 22159

FILE NAME: CHAPARRAL

DRAFTING BY: CEG

CHECKED BY: JAR

DATE: MAY 12, 2023

SHEET NUMBER:

E8.1

SHT. No. 28 of 30

ELECTRICAL LEGEND & DETAILS

CENTRAL PLANT IMPROVEMENTS

TEXAS A+M UNIVERSITY CORPUS CHRISTI

223 N CHAPARRAL

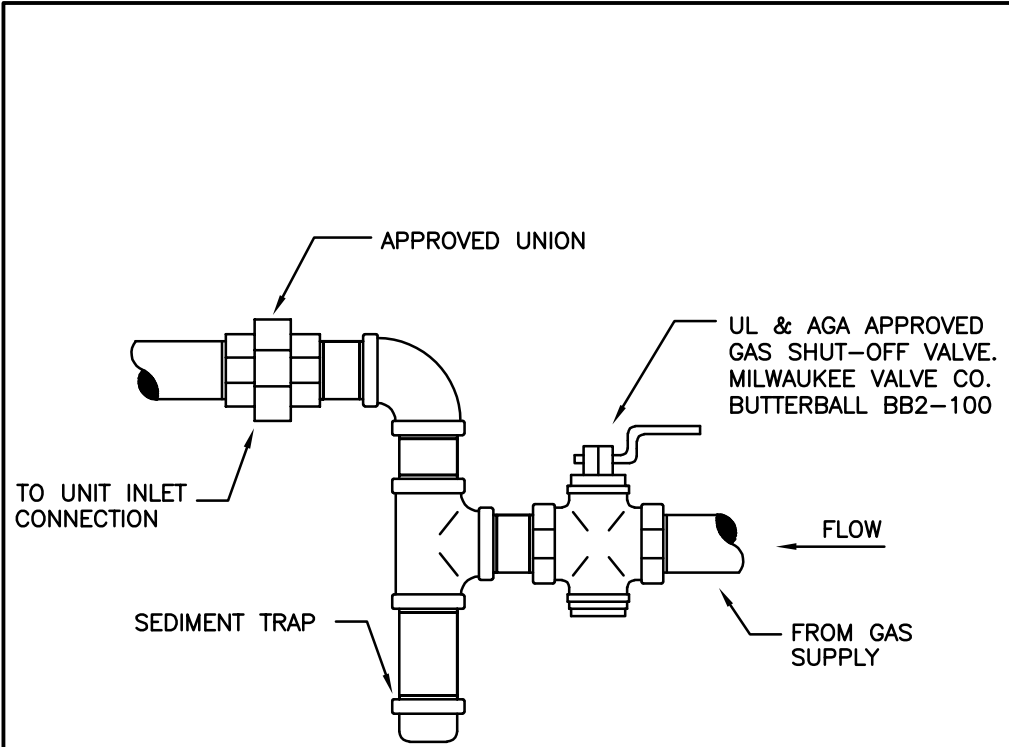
CORPUS CHRISTI, TEXAS

PLUMBING LEGEND		
DISREGARD LEGEND ITEMS NOT INDICATED ON DRAWINGS		
SYMBOL	DESCRIPTION	ABBR.
----	SOIL OR WASTE PIPING B.G.	WST
----	SOIL OR WASTE PIPING A.G.	WST
—GW—	GREASE WASTE PIPING	GW
-----	VENT PIPING	V
—SD—	STORM DRAIN PIPING	SD
—OD—	OVERFLOW STORM DRAIN PIPING	OD
—G—	GAS LINE	G
—F—	FIRE OR SPRINKLER LINE	F
----	DOMESTIC COLD WATER	CW
----	DOMESTIC HOT WATER	HW
-----	DOMESTIC HOT WATER RETURN	HWR
—TW—	TEMPERED DOMESTIC HOT WATER	TW
—GV—	GATE VALVE	GV
—GLV—	GLOBE VALVE	GLV
—BV—	BALL VALVE	BV
—CKV—	CHECK VALVE	CKV
—BAV—	BALANCING VALVE	BAV
—BTV—	BUTTERFLY VALVE	BTV
—PLV—	PLUG VALVE	PLV
—PRV—	PRESSURE REDUCING VALVE	PRV
—T&P—	PRESSURE RELIEF VALVE	T&P
—STR—	STRAINER	STR
—UN—	UNION	UN
—TW—	THERMOMETER WELL	TW
—PG—	PRESSURE GAUGE	PG
—THRM—	THERMOMETER	THRM
—D—	CONDENSATE OR INDIRECT DRAIN	D
—TOP—	BRANCH CONNECTION, TOP	--
—BOT—	BRANCH CONNECTION, BOTTOM	--
—ELBOW UP—	ELBOW UP	--
—ELBOW DOWN—	ELBOW DOWN	--
—FCO—	FLOOR CLEANOUT (INTERIOR)	FCO
—COG—	CLEANOUT AT GRADE (EXTERIOR)	COG
—WCO—	WALL CLEANOUT	WCO
—FD—	FLOOR DRAIN	FD
—FS—	FLOOR SINK	FS
—HB—	HOSE BIBB	HB
—WH—	WALL HYDRANT	WH
—NEW—	NEW TO EXISTING PIPE CONNECTION	--
—P/X—	PLUMBING RISER IDENTIFICATION	P/X
—DS/X—	DOWNSPOUT RISER IDENTIFICATION	DS/X
—F/X—	FIRE RISER IDENTIFICATION	F/X
ABBREVIATIONS		ABBR.
---	ABOVE FINISHED FLOOR	AFF
---	ACCESS PANEL	AP
---	BELOW FINISHED FLOOR	BFF
---	BOTTOM OF PIPE	BOP
---	INDIRECT DRAIN	D
---	EXISTING TO REMAIN	(E)
---	EXISTING TO BE DEMOLISHED	(D)
---	EXISTING TO BE RELOCATED	(R)
---	FINISHED	FIN
---	FLOOR	FLR
---	INVERT ELEVATION	INV. EL.
---	NORMALLY CLOSED	NC
---	SOFT WATER	SW
---	TRAP PRIMER	TP
---	TYPICAL	TYP
---	VENT THRU ROOF	VTR
NOT ALL SYMBOLS MAY BE USED		

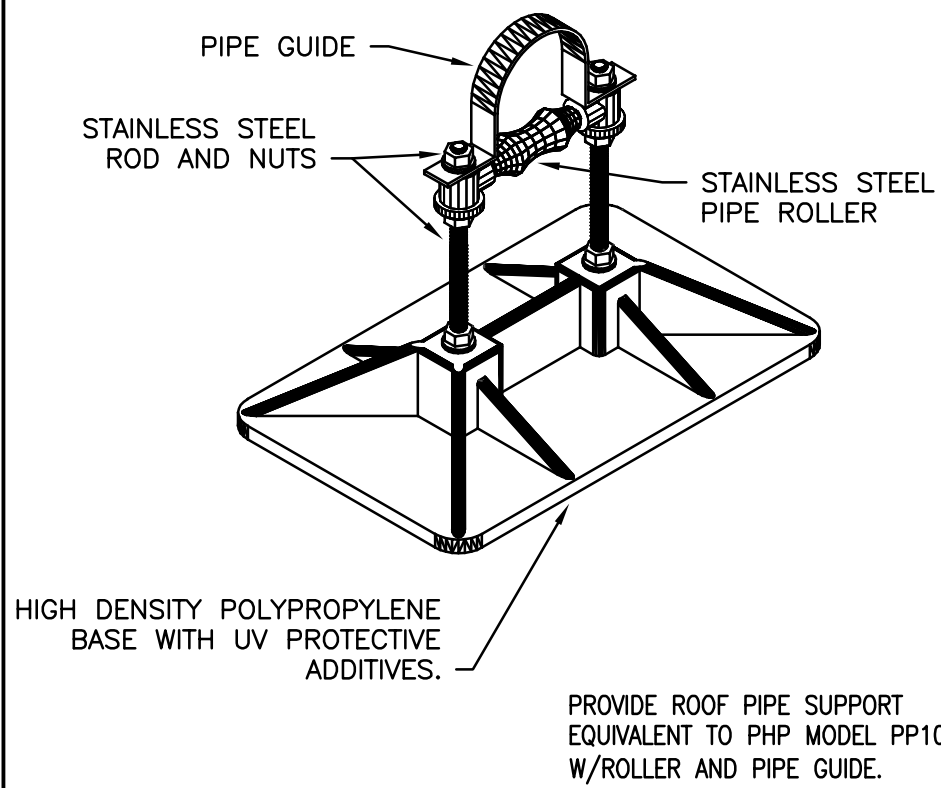
- GENERAL NOTES:
- CONTRACTOR TO FIELD VERIFY ELEVATIONS AND DIMENSIONS OF FINISHED FLOORS AND WALLS. TRUE ALL DRAINS, ROUGH-INS AND CARRIERS IN ACCORDANCE WITH THE PROPOSED ELEVATIONS AND FINISHED SURFACES.
 - MOUNTING HEIGHT ELEVATION OF ALL WALL HUNG OR COUNTER MOUNTED FIXTURES SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO INSTALLATION OF HOUGH-IN WORK.
 - FOR ALL FIXTURES AND EQUIPMENT WITH ASSOCIATED TRIM OR COMPONENT ACCESSORIES, PROVIDE UNDER SEPARATE DIVISIONS AND REQUIRING PLUMBING CONNECTIONS; THIS CONTRACTOR SHALL FIELD COORDINATE EXACT REQUIREMENTS OF, MAKE PROVISIONS FOR, AND SUPPLY ALL MATERIALS AND LABOR FOR MAKING FINAL CONNECTIONS.
 - CONTRACTOR SHALL REFER TO SHOP DRAWINGS OF EQUIPMENT TO BE SUPPLIED FOR FINAL COORDINATION OF ALL ROUGH-IN OPENINGS BEFORE BEGINNING WORK.
 - ALL FIXTURE AND EQUIPMENT STUB-OUTS SHALL BE PROVIDED WITH A STOP VALVE. ALL FIXTURE STOPS SHALL BE SOLID BRASS, LOOSE KEY OPERATED, CHROME PLATED (WERE EXPOSED), AND FITTED TIGHT TO CHROME PLATED BRASS WALL ESCUTCHEON PLATES. SUPPLY RISERS SHALL BE TYPE "L" TUBING, CHROME PLATED. PROVIDE 1/2" FIP X 3/8" OD COMPRESSION FITTINGS FOR ALL SINKS, LAVATORIES, AND SIMILAR FIXTURES.
 - ALL P-TRAPS WITHIN THE BUILDING, ABOVE GRADE AND EXPOSED TO INSPECTION SHALL BE CHROME PLATED ADJUSTABLE, CAST BRASS WITH CLEANOUT PLUG. PROVIDE C.P. CAST BRASS SLIP NUTS AND WASHERS, 17 GAGE SEAMLESS TUBULAR BRASS DRAIN TO WALL AND WALL FLANGE. PROVIDE 1-1/2" P-TRAP FOR ALL LAVATORIES AND SIMILAR FIXTURES. PROVIDE 1-1/2" P-TRAP FOR ALL SINKS AND SIMILAR FIXTURES, MCCUIRE OR EQUAL.
 - ALL ROUGH-IN OPENINGS SHALL BE FITTED WITH CHROME PLATED, WROUGHT BRASS DEEP BELL OR BOX ESCUTCHEON PLATES FITTED TIGHT TO PIPE AND FLUSH TO WALL. STEEL ESCUTCHEON PLATES ARE NOT ACCEPTED.
 - ALL EXPOSED BRASS SHALL BE CHROME PLATED.
 - ALL HANDICAPPED ACCESSIBLE FIXTURES SHALL BE OF APPROVED TYPES AND WITH REQUIRED CONTROLS INSTALLED TO HEIGHTS AND CLEARANCES, AS PRESCRIBED BY THE AMERICANS WITH DISABILITIES ACT (ADA) AND THE TEXAS ACCESSIBILITY STANDARDS (TAS). FIXTURES SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL ACCESSIBILITY CODE REQUIREMENTS. PROVIDE FIXTURES WITH DEPTHS AT MAXIMUM PERMITTED AND AVAILABLE FOR INTENDED FIXTURE USE.
 - INSULATE ALL EXPOSED WATER AND DRAIN LINES ON ADA/TAS ACCESSIBLE LAVATORIES AND SINKS WITH MCCUIRE PRO WRAP OR EQUAL. PROVIDE OFFSET DRAIN FITTINGS WHERE REQUIRED TO PROVIDE MINIMUM CLEARANCES.
 - ALL ADA/TAS SINKS SHALL BE STAMPED WITH DRAIN OUTLET AT THE REAR OF THE BOWL.
 - PLUMBING FIXTURES SHALL BE OF WATER CONSERVATION TYPE IN ACCORDANCE WITH SER. BILL 587 FOR WATER SAVING PERFORMANCE. LAVATORY AND SINK FAUCETS SHALL INCLUDE 0.5 GPM AND 2.2 GPM FLOW CONTROL RESPECTIVELY.
 - ORIENT ADA/TAS WATER CLOSET FLUSH VALVE WITH OPERATOR ON LARGE SIDE OF ENCLOSURE AND BELOW GRAB BARS.
 - SEAL ALL SPACES BETWEEN PLUMBING FIXTURES AND MOUNTING SURFACES WITH WHITE LATEX CAULK WIPED SMOOTH AND FLUSH WITH FIXTURE.
 - FLOOR DRAINS SHALL BE INSTALLED AT LOW POINTS OF UNIFORMLY SLOPED FLOOR. CONTRACTOR SHALL FIELD COORDINATE WITH STRUCTURAL TO INSURE FLOORS ARE UNIFORMLY SLOPED ACROSS ENTIRE TOILET ROOMS OR OVER AS WIDE AN AREA AS PRACTICAL FOR OPEN AREA FLOOR DRAINS. CONVEX FLOOR SLOPE IN THE IMMEDIATE VICINITY OF THE FLOOR DRAIN IS NOT ACCEPTABLE.
 - EQUIVALENT MANUFACTURES OF CHINA FIXTURES ARE KOHLER, AND AMERICAN STANDARD. EQUIVALENT MANUFACTURES OF STAINLESS FIXTURES ARE JUST, ELKAY, AND ADVANCE TABCO.
 - WATER HEATER SHALL BE PROVIDED WITH CODE APPROVED VACUUM BREAKER AND BRASS ASME TEMPERATURE AND PRESSURE RELIEF VALVE. ROUTE TPR DRAIN LINE FULL SIZED TO EXTERIOR OF BUILDING AND TERMINATE 6" ABOVE FINISHED GRADE, OR AS INDICATED ON PLANS.
 - ROOF PENETRATIONS SHALL BE DONE IN STRICT COMPLIANCE WITH THE ARCHITECTS SPECIFICATIONS AND SHALL BE LEAK PROOF.
 - FIELD VERIFY ALL EXISTING CONDITIONS AND LOCATION OF STUB OUTS. NOTIFY ARCHITECT OF ANY DISCREPANCIES IMMEDIATELY WHICH MAY AFFECT THE INTENDED DESIGN.
 - ALL PLUMBING WORK SHALL BE DONE IN STRICT COMPLIANCE WITH ALL STATE AND LOCAL CODES.
 - THE PLUMBING CONTRACTOR SHALL GUARANTEE THE COMPLETE PLUMBING SYSTEM TO BE FREE OF DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF 12 MONTHS FROM DATE OF FINAL ACCEPTANCE.
 - ALL WATER HEATER SUPPLY CONNECTIONS SHALL HAVE HEAT TRAP NIPPLE CONNECTIONS. HEAT TRAP NIPPLES NOT REQUIRED IF HOT WATER RECIRCULATION SYSTEM IS PROVIDED.
 - NO HUB COUPLINGS SHALL BE HEAVY DUTY 4 BAND COUPLINGS WITH STAINLESS STEEL SHIELD.
 - INSULATE CONCEALED ROOF DRAIN BODIES, VERTICAL LEAD AND HORIZONTAL PIPING WITH R-6 FLEXIBLE BLANKET INSULATION. EXPOSED ROOF DRAIN BODIES AND PIPES SHALL BE INSULATED WITH AN R-6 RIGID INSULATION AND PAINTABLE CANVAS JACKET.

GENERAL ROOF PLAN NOTES:

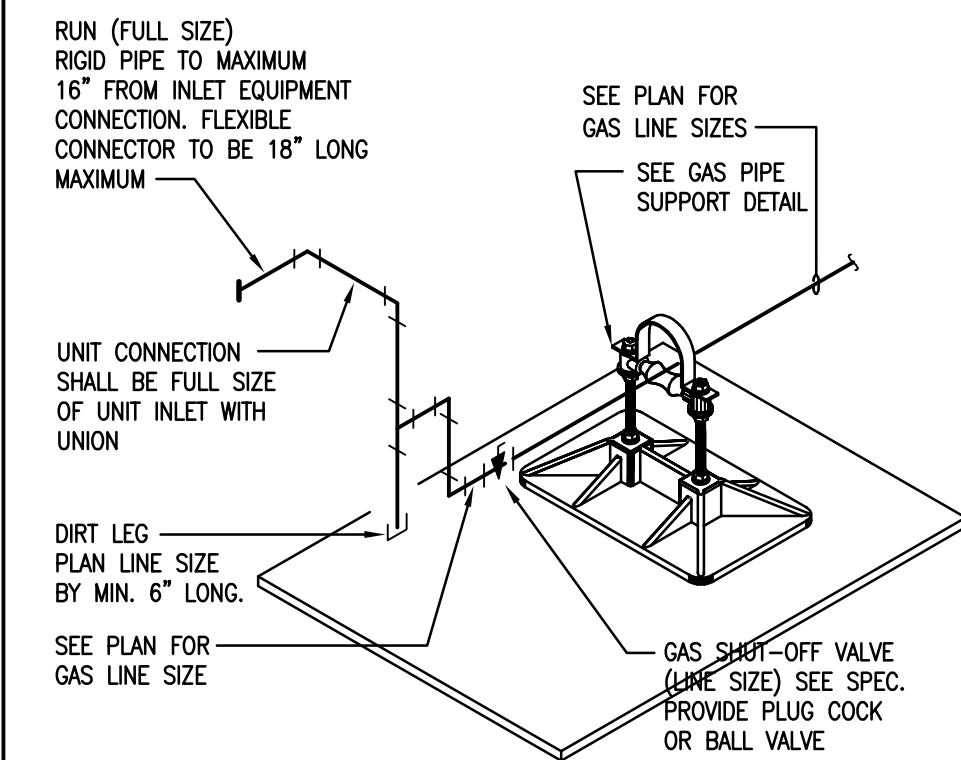
- CONTRACTOR SHALL CAREFULLY REVIEW CONTRACT DOCUMENTS INCLUDING DRAWINGS AND PROJECT MANUAL. INFORMATION REGARDING WORK OF THE VARIOUS TRADES AND SUBCONTRACTORS ARE DISPERSED THROUGHOUT THE DOCUMENTS AND CANNOT BE ACCURATELY DETERMINED WITHOUT REFERENCE TO THE FULL SET OF DOCUMENTS.
- CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES ABOVE THE CEILING TO PROVIDE GREATEST POSSIBLE CLEARANCE FOR INSTALLATION OF AND FUTURE CHANGES IN MECHANICAL EQUIPMENT. CONDUIT AND PIPE TO BE RUN THROUGH TRUSSES, COORDINATE SERVICE AND ACCESS POINTS ABOVE CEILING TO MINIMIZE REQUIRED ACCESS.
- ALL DEVICES INSTALLED ON ROOF TOP EQUIPMENT SHALL BE MOUNTED ON A NON-REMOVABLE PANEL OF THE EQUIPMENT. THIS LOCATION SHALL BE COORDINATED WITH THE MECHANICAL OR PLUMBING CONTRACTOR PRIOR TO ROUGH-IN.
- ROOF DECK PENETRATIONS: CONTRACTOR SHALL SECURE LANDLORD APPROVAL FOR ALL BUILDING ROOF DECK PENETRATIONS. REQUESTS SHALL BE ON A SCALED ROOF PLAN SHOWING EXACT LOCATION & SIZE OF PENETRATION & INCLUDE DETAILS OF MOUNTING, FLASHING & SEALING. CONTRACT WITH THE LANDLORD'S ROOFING CONTRACTOR TO PERFORM ALL WORK AT THIS CONTRACTOR'S SOLE EXPENSE. CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL ROOFTOP EQUIPMENT, NEW ROOF PENETRATIONS, REMOVAL OF EXISTING ROOFTOP EQUIPMENT & INSTALLATION OF ALL ROOFTOP EQUIPMENT WITH THE LANDLORD.



1 GAS CONNECTION - TYP.
NOT TO SCALE




2 GAS PIPING SUPPORT DETAIL
NOT TO SCALE



3 GAS EQUIPMENT CONNECTION
NOT TO SCALE

PPG104

PLUMBING EQUIPMENT SCHEDULE							
SYMB.	PLAN MARK	MINIMUM ROUGH-IN SIZES				DESCRIPTION	
		WST & VENT	DRAIN	CW	HW		
	ROOF DRAIN RD1	SEE PLAN	----- 6" -----	-----	-----	-----	WADE 3000 (JAY R. SMITH MODEL NO 1010)(JOSAM 21500)(MIFAB R1100)(ZURN Z100) ROOF DRAIN. CAST IRON BODY, FLASHING CLAMP, GRAVEL STOP, CAST IRON DOME STRAINER.

GAS LOAD SUMMARY (3 PSI)					
2015 IFGC TABLE 402.4(5)		1 PSI PRESSURE DROP			
APPLIANCE	QTY.	CONN. SIZE	CFH EA	TOT. CFH	MIN. PRES.
GENERATOR 450KW	1	2"	5040	5040	7"W.C.
FUTURE BOILER	1	1-1/2"	2000	2000	5"W.C.
-	0	3/4"	100	0	5"W.C.
-	0	3/4"	100	0	5"W.C.
-	0	3/4"	100	0	5"W.C.
TOTAL CFH				7040	
TOTAL DEV. LENGTH				230'	
PIPE SIZE				2"	

EQUIPMENT MATRIX NOTES:		
EQUIPMENT	FURNISHED BY	INSTALLED BY
AIR COOLED CHILLERS	OWNER	MECHANICAL CONTRACTOR
PUMPS	MECHANICAL CONTRACTOR	MECHANICAL CONTRACTOR
VARIABLE FREQUENCY DRIVES	OWNER	MECHANICAL CONTRACTOR
BUILDING AUTOMATION (DDC)	MECHANICAL CONTRACTOR	MECHANICAL CONTRACTOR
ELECTRICAL GEAR	ELECTRICAL CONTRACTOR	ELECTRICAL CONTRACTOR
GENERATOR	OWNER	ELECTRICAL CONTRACTOR
EXPANSION TANK	MECHANICAL CONTRACTOR	MECHANICAL CONTRACTOR
AIR AND DIRT SEPERATOR	MECHANICAL CONTRACTOR	MECHANICAL CONTRACTOR
HYDRONIC PIPING & ACESORIES	MECHANICAL CONTRACTOR	MECHANICAL CONTRACTOR

PLUMBING PIPE MATERIALS SCHEDULE	
PIPING SYSTEM	PIPING MATERIAL
NATURAL GAS	SCHEDULE 40 BLACK STEEL
STORM DRAIN BELOW GRADE	SCHEDULE 40 DWV PVC
STORM DRAIN ABOVE GRADE	CAST IRON NO-HUB DWV
*SCHEDULE 40 DWV PVC SHALL NOT BE USED IN RETURN AIR PLENUMS. WHERE CEILING PLENUMS ARE USED FOR RETURN AIR, CONTRACTOR SHALL ONLY USE BELL AND SPIGOT SERVICE WEIGHT CAST IRON PIPE.	

REVISIONS DATE	#

These drawings and accompanying Specifications are to be an instrument of service and shall remain the property of the Engineer. They are not to be used on other projects or extensions to this project except by agreement in writing and with appropriate compensation to the Engineer. Contractor is responsible for confirming and correlating dimensions at the job site; the Engineer will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the project.

NRG ENGINEERING
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Texas Professional Registration No. PE-22159

JOB #22159

10/06/2023

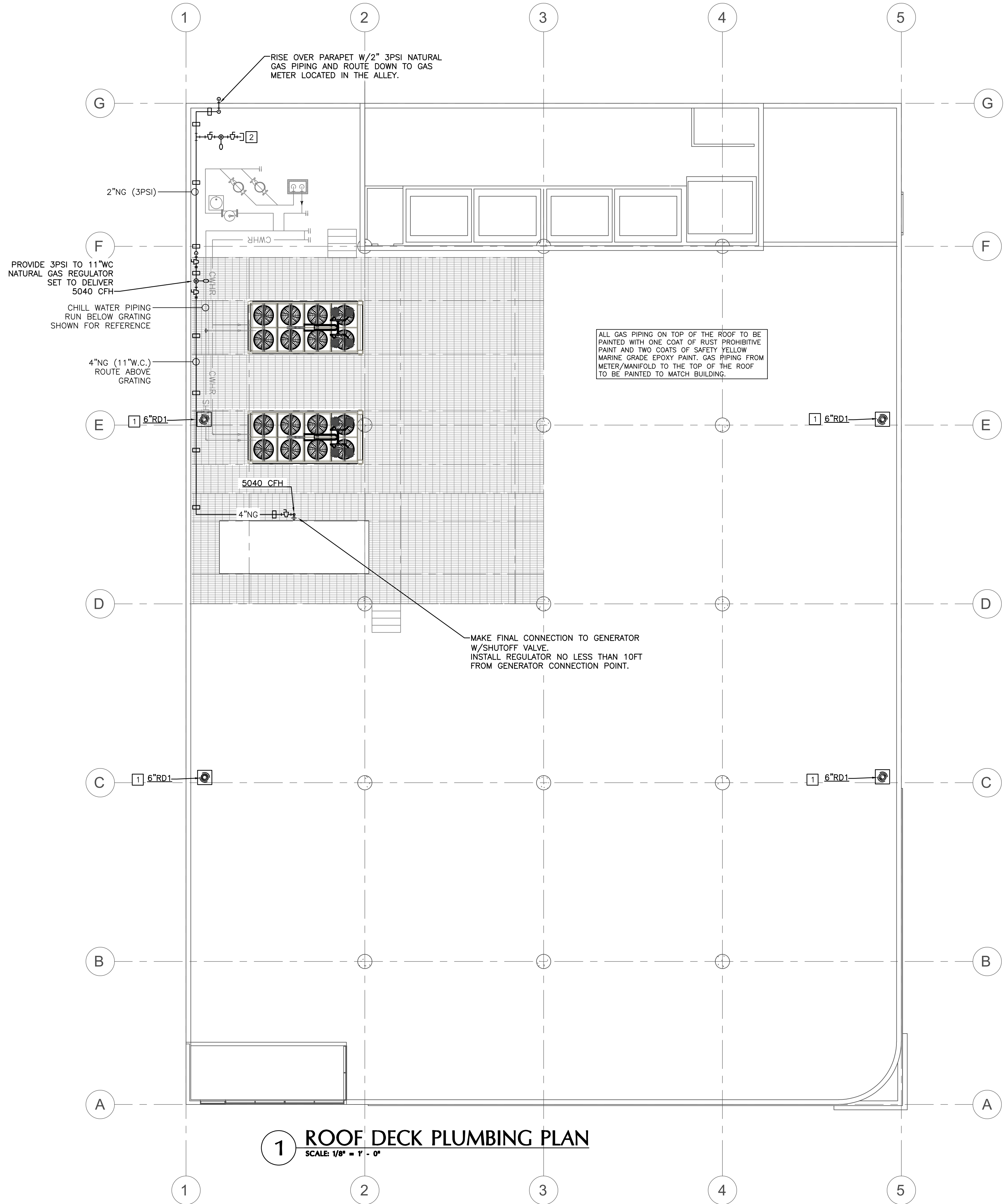
SEAN M. RODRIGUEZ
Professional Engineer, No. 96478
State of Texas

Stamp Date:

PLUMBING LEGEND + DETAILS

CENTRAL PLANT IMPROVEMENTS
TEXAS A+M UNIVERSITY CORPUS CHRISTI
223 N CHAPARRAL
CORPUS CHRISTI, TEXAS

PROJECT #: 22159
FILE NAME: CHAPARRAL
DRAFTING BY: SMR
CHECKED BY: SMR
DATE: MAY 12, 2023
SHEET NUMBER:
P0.1
SHT. No.29 of 30



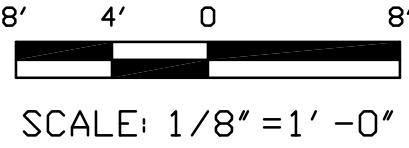
1 ROOF DECK PLUMBING PLAN
SCALE: 1/8" = 1' - 0"

GENERAL PLUMBING NOTES:

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AT THE JOB SITE BEFORE COMMENCING ANY PHASE OF THE WORK. ADJUSTMENTS FOR FIT AND COORDINATION SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER. NOTIFY ENGINEER OF ANY CONFLICTS, DISCREPANCIES OR OMISSIONS PRIOR TO COMMENCEMENT OF THE CONTRACT WORK.
2. CONTRACTOR SHALL REVIEW ALL ARCHITECTURAL, CIVIL, MECHANICAL & STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR ANY ADDITIONAL REQUIREMENTS.
3. CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES.
4. SEAL ALL WALL, ROOF, AND FLOOR PENETRATIONS WITH UL LISTED FIRE SEALANT.
5. CONTRACTOR SHALL COORDINATE GAS METER LOCATION WITH CITY OF CORPUS GAS DEPARTMENT AND PAY ALL ASSOCIATED PERMITS AND ASSOCIATED FEES. CONTRACTOR SHALL PROVIDE ALL NECESSARY TRENCHING AND GROUND COVER FROM METER TO THE UTILITY EASEMENT/STREET, APPROXIMATELY 100 LINEAR FEET.

PLUMBING KEYED NOTES

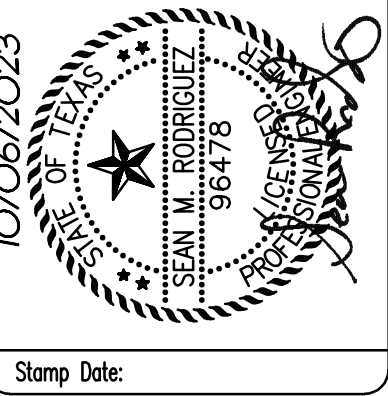
- 1 CONNECT TO EXISTING STORM WATER PIPING AT EXISTING ROOF PENETRATIONS.
- 2 PROVIDE 3LB TO 11"WC NATURAL GAS REGULATOR WITH A 2" INLET AND 3" OUTLET. REGULATOR SHALL BE CAPABLE DELIVERING 2000-2400 CFH. CAP LINE FOR FUTURE BOILER.



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

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PLUMBING ROOF PLAN
CENTRAL PLANT IMPROVEMENTS
TEXAS A+M UNIVERSITY CORPUS CHRISTI
223 N. CHAPARRAL
CORPUS CHRISTI, TEXAS

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FILE NAME: CHAPARRAL
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SHT. No. 30 of 30