

PERMIT DRAWINGS

D B A. PROJECT NO. 24044

JULY 9, 2024

BUILDING OWNER

GROVE USA, LLC
1564 BUCHANAN TRAIL EAST
SHADY GROVE, PA 17256
717.532.9041

ENGINEERING CONSULTANT

DAVID BLACK ASSOCIATES INC.
501 LINCOLN WAY EAST
CHAMBERSBURG, PA 17201
717. 267. 0202

MEP ENGINEER

L. S. GRIM, INC.
CONSULTING ENGINEERS
19922 JEFFERSON BLVD.
HAGERSTOWN, MD 21742
301. 797. 1702

ACS COVER SHEET, REFERRAL INFORMATION

CONTRACT NO. 24044-A: GENERAL CONSTRUCTION

ARCHITECTURAL DRAWINGS

X11 LOCATION PLAN & CODE COMPLIANCE DATA
X12 EGRESS PLAN
A11 DEMOLITION PLAN & FIRST FLOOR PLAN
A12 FLOOR PLANS
A21 REFLECTED CEILING PLANS & LIGHT GAGE FRAMING NOTES
A31 BUILDING SECTION
A41 ELEVATIONS & SECTION
A51 WALL SECTIONS

STRUCTURAL DRAWINGS

S11 FOUNDATION & SECOND FLOOR FRAMING PLANS
S12 FOUNDATION, CRANE FRAMING PLANS & ELEVATION
S13 PAINT BOOTH FOUNDATION PLAN
S21 GENERAL STRUCTURAL NOTES
S51 FOUNDATION DETAILS
S52 STRUCTURAL DETAILS

MECHANICAL DRAWINGS

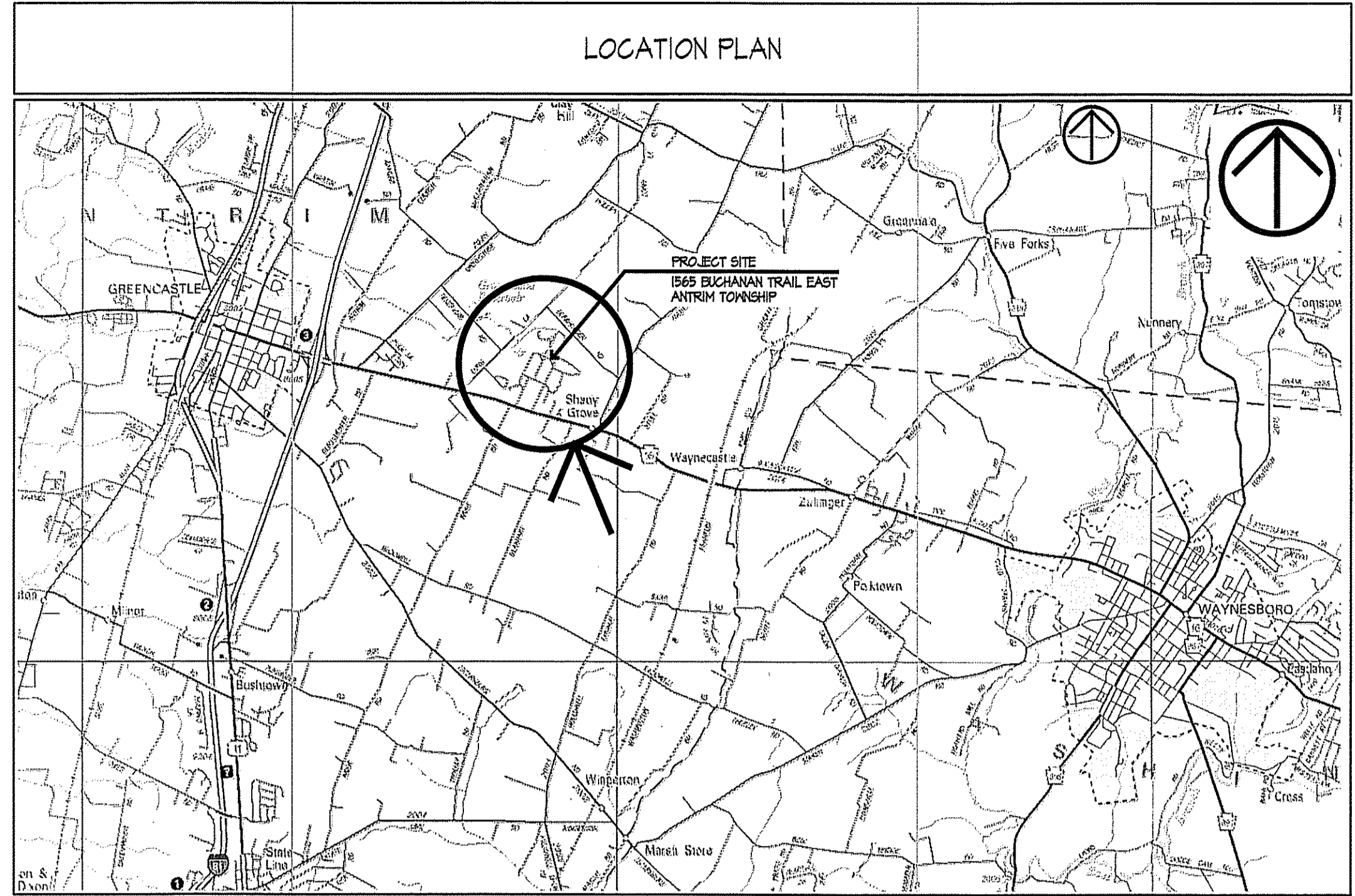
M01 MECHANICAL COVER SHEET
M02 TYPICAL MECHANICAL DETAILS
M03 MECHANICAL SCHEDULES
M11 SITE MECHANICAL PLAN
M21 STORAGE/OFFICE MECHANICAL PLANS

ELECTRICAL DRAWINGS

E01 ELECTRICAL COVER SHEET
E02 TYPICAL ELECTRICAL DETAILS
E11 SITE ELECTRICAL POWER PLAN
E12 CRANE ROOM ELECTRICAL POWER PLAN
E21 STORAGE/OFFICE ELECTRICAL POWER PLANS
E22 STORAGE/OFFICE ELECTRICAL HVAC POWER PLANS
E23 STORAGE/OFFICE ELECTRICAL LIGHTING PLANS
E31 ELECTRICAL SCHEDULES + POWER RISER
E32 ELECTRICAL SCHEDULES

**PAINT SHOP ALTERATIONS &
OUTDOOR PAINT BUILDING**

1564 BUCHANAN TRAIL EAST
SHADY GROVE, PA



CODE COMPLIANCE DATA

PROJECT NAME: EXISTING PAINT SHOP ALTERATIONS
 LOCATION: 1565 BUCHANAN TRAIL EAST, SHADY GROVE, PA 17256
 TOWNSHIP: ANTRIM
 COUNTY: FRANKLIN
 OWNER: GROVE USA, LLC, 1565 BUCHANAN TRAIL EAST, SHADY GROVE, PA 17256

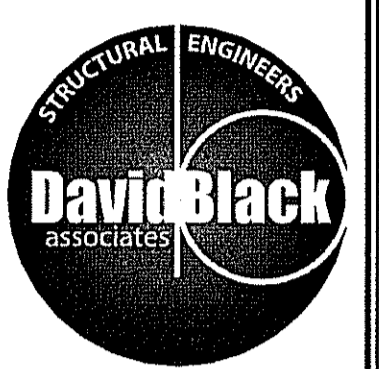
DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE: DAVID J. BLACK P.E., DAVID BLACK AND ASSOCIATES, INC., 501 LINCOLN WAY EAST, CHAMBERSBURG, PA 17201, (717) 267-0202, (717) 267-9846 (FAX), INFO@DBA-AE.COM

1. BACKGROUND BUILDING INFORMATION:
 - PRIOR OCCUPANCY CERTIFICATE YES NO
 - HISTORIC STRUCTURE YES NO
2. APPLICABLE CODES:
 - A. PENNSYLVANIA INFORM CONSTRUCTION CODE (ICC) OF 1999 WITH AMENDING STATUTES AND ADOPTED REGULATIONS, EXISTING CERTIFIED BUILDING WITH AN EXISTING 1 & 1 D-0/IBC F-2 OCCUPANCY.
 - B. CODE COMPLIANCE PER 2018 IBC FOR LEVEL 2 ALTERATIONS AND SECOND FLOOR ADDITION IN EXISTING BUILDING.
3. USE GROUP (IBC):
 - EXISTING F-2
 - MIXED USES: YES NO
 - SEPARATED USES: YES NO
 - INCIDENTAL USES: YES NO IF YES, LIST: _____
 - SPECIAL USES: YES NO IF YES, LIST: _____
4. CONSTRUCTION TYPE (IBC):
 - EXTERIOR BRNG. WALL CONSTRUCTION: IIB
 - EXTERIOR NON-BRNG. WALL CONSTRUCTION: 0 HOUR
 - FLOOR CONSTRUCTION: 0 HOUR
 - ROOF CONSTRUCTION: 0 HOUR
 - INTERIOR BRNG. WALL CONSTRUCTION: 0 HOUR
 - INTERIOR NON-BRNG. WALL CONSTRUCTION: -
5. BUILDING AREA & HEIGHT LIMITS:

NUMBER OF STORIES (LIMIT):	F-2 - 3 ST	B - 3 ST
NUMBER OF STORIES (ACTUAL):	2 ST	2 ST
BUILDING HEIGHT (LIMIT):	59 FEET	55 FEET
BUILDING HEIGHT (ACTUAL):	59 FEET	55 FEET
BUILDING AREA (AI) (LIMIT):	B - 23000 SF	B - 25000 SF
100% OPEN PERIMETER, 15% INCREASE:	B - 17250 SF	B - 17250 SF
TOTAL ALLOWABLE AREA =	40250 SF	40250 SF

6. SQUARE FOOTAGE - (NET)	
FIRST FLOOR:	30645 SF
SECOND FLOOR:	1608 SF
7. FIRE SEPARATIONS:	NOT REQUIRED UNSEPARATED MIXED OCCUPANCY IN COMPLIANCE WITH ALLOWABLE HEIGHT AND AREA.
8. SPRINKLERS:	NOT REQUIRED UNSEPARATED MIXED OCCUPANCY IN COMPLIANCE WITH ALLOWABLE HEIGHT AND AREA.
9. ENERGY COMPLIANCE METHOD:	COMCHECK
10. OCCUPANCY LOAD:	OCCUPANTS
FIRST FLOOR	153 P
OFFICE	16 P
TOTAL	169 P
SECOND FLOOR	5 P
STORAGE	5 P
11. EGRESS CAPACITY:	230 (TWO EXITS REQUIRED & PROVIDED)
12. ACCESSIBILITY:	INTERIOR SIGNAGE, HANDICAP PARKING SPACE & ACCESSIBLE ENTRY
13. AUTOMATIC SMOKE DETECTION SYSTEM:	NOT REQUIRED
14. MANUAL FIRE ALARM SYSTEM:	NOT REQUIRED
15. DELAYED SUBMISSION:	NONE

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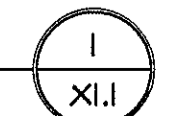


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PAINT SHOP ALTERATIONS &
 OUTDOOR PAINT BUILDING
 GROVE USA, LLC
 SHADY GROVE, PENNSYLVANIA

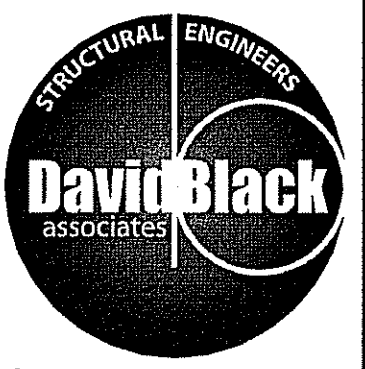
REVISION DATE _____
 ISSUE DATE _____
JULY 9, 2024
 DRAWING TITLE
SITE PLAN + CODE COMPLIANCE DATA
 PROJECT NO. _____
 24044
 SHEET NUMBER

SITE PLAN
 SCALE 1/8" = 1'-0"



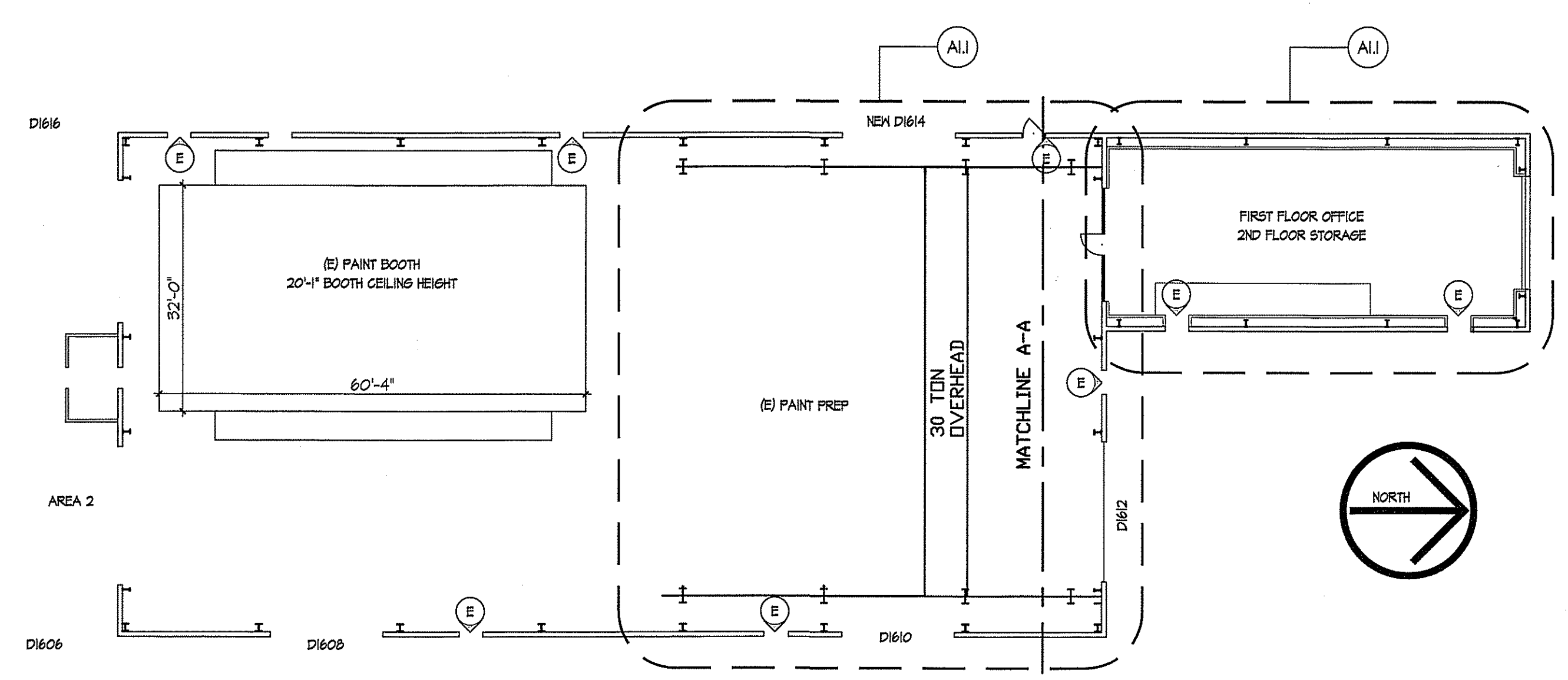
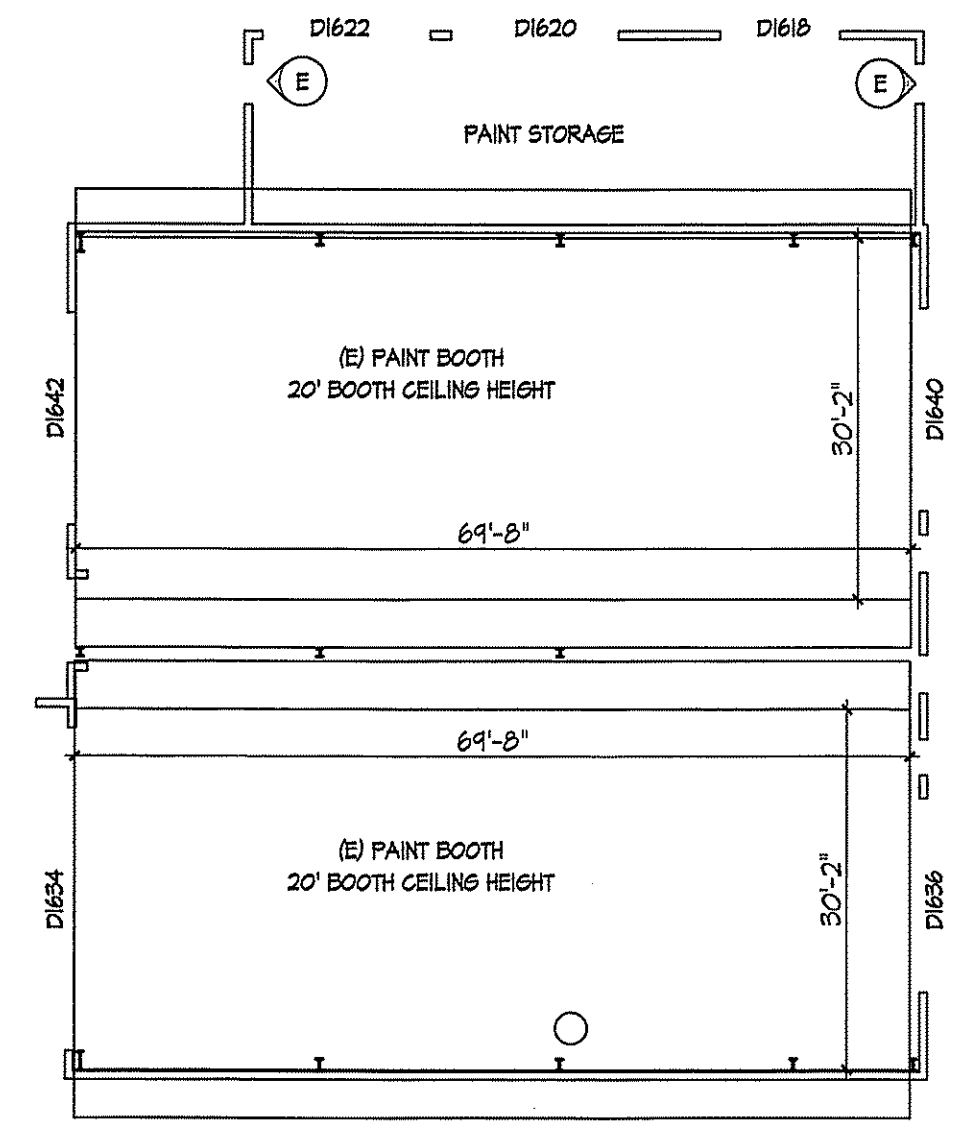
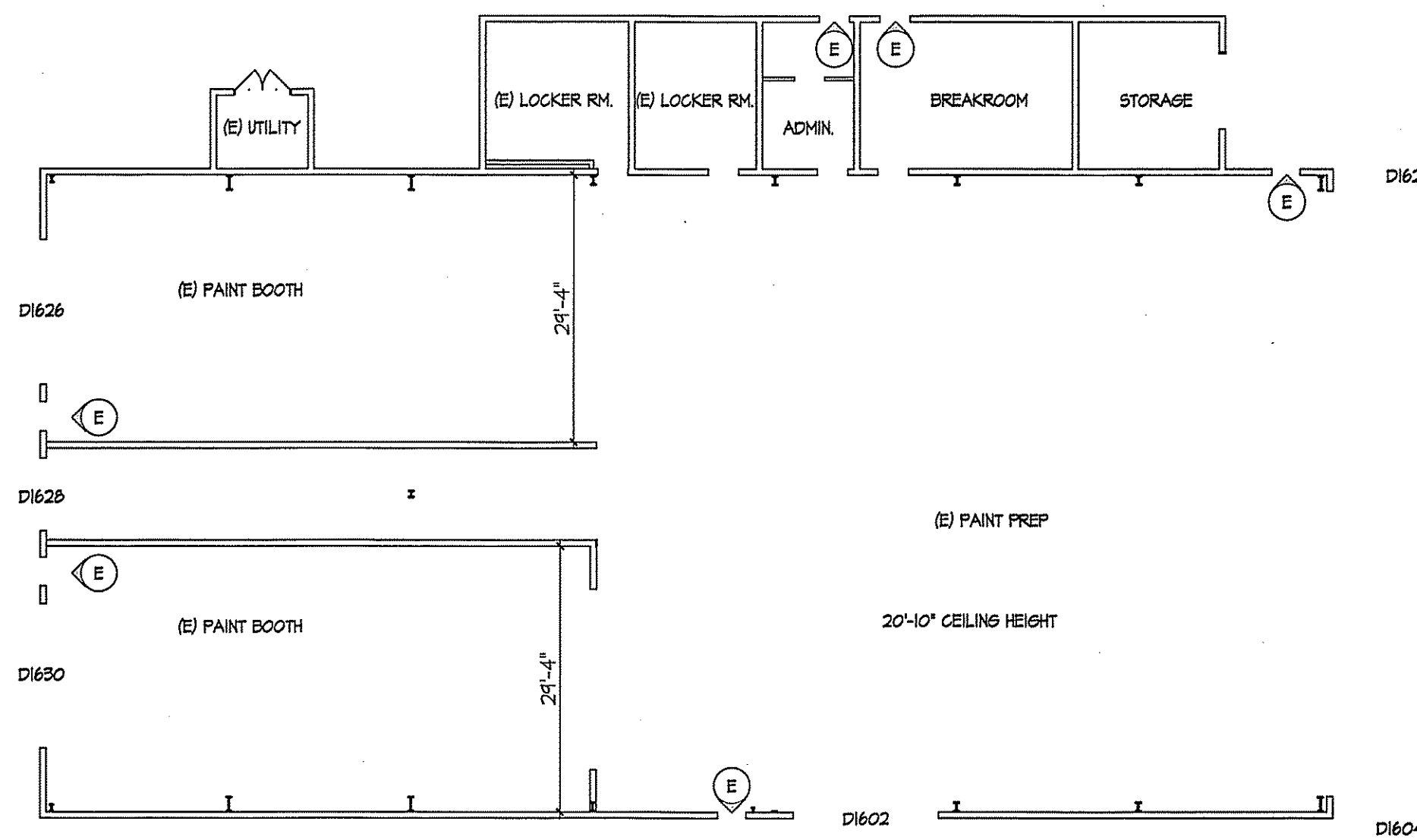
XII

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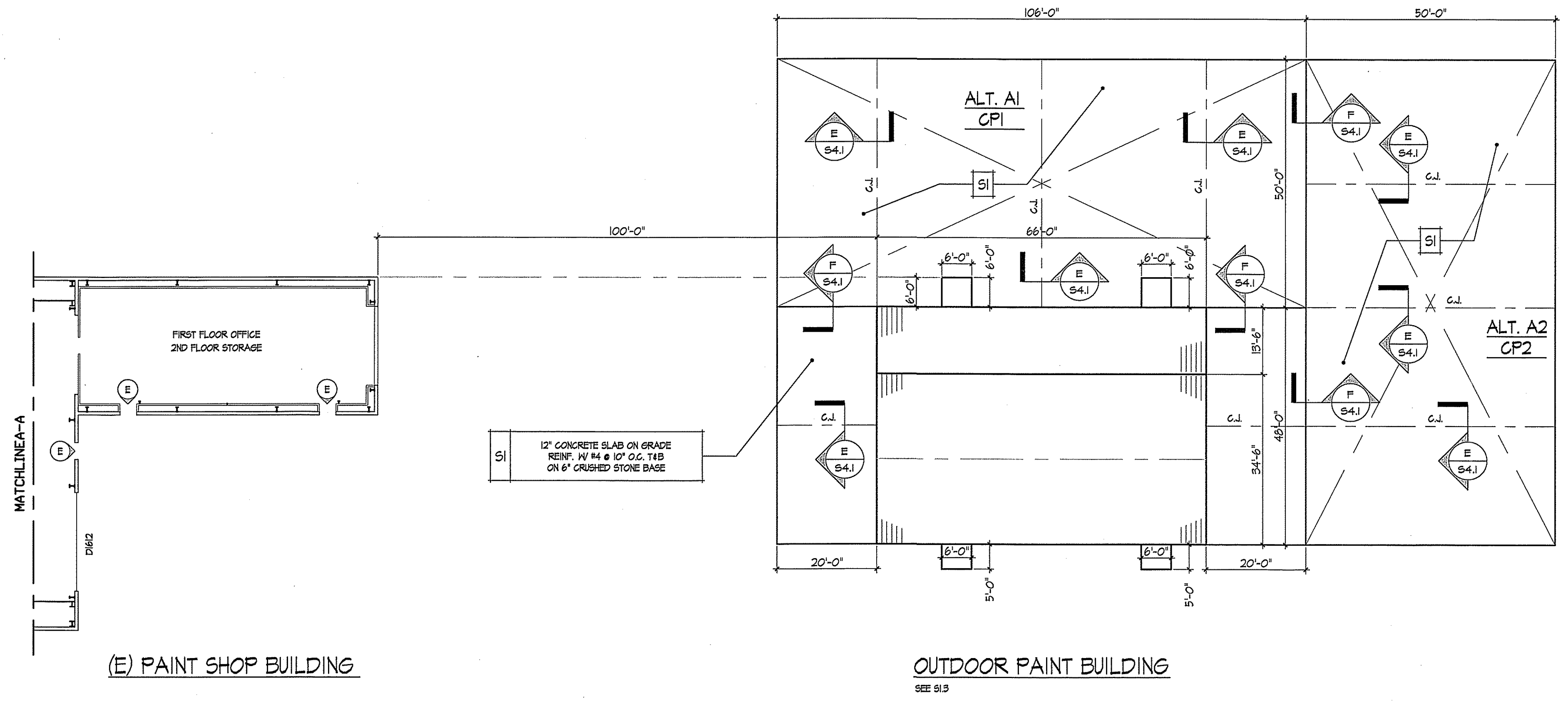


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(E) PAINT SHOP BUILDING

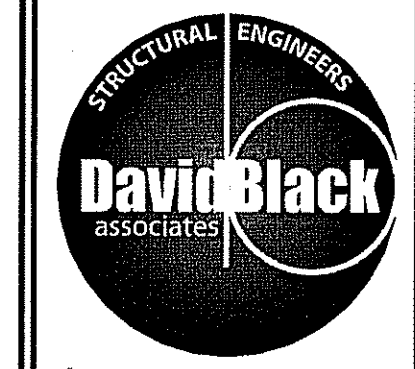


EGRESS PLAN
 SCALE 1/16" = 1'-0"

1
 X1.2

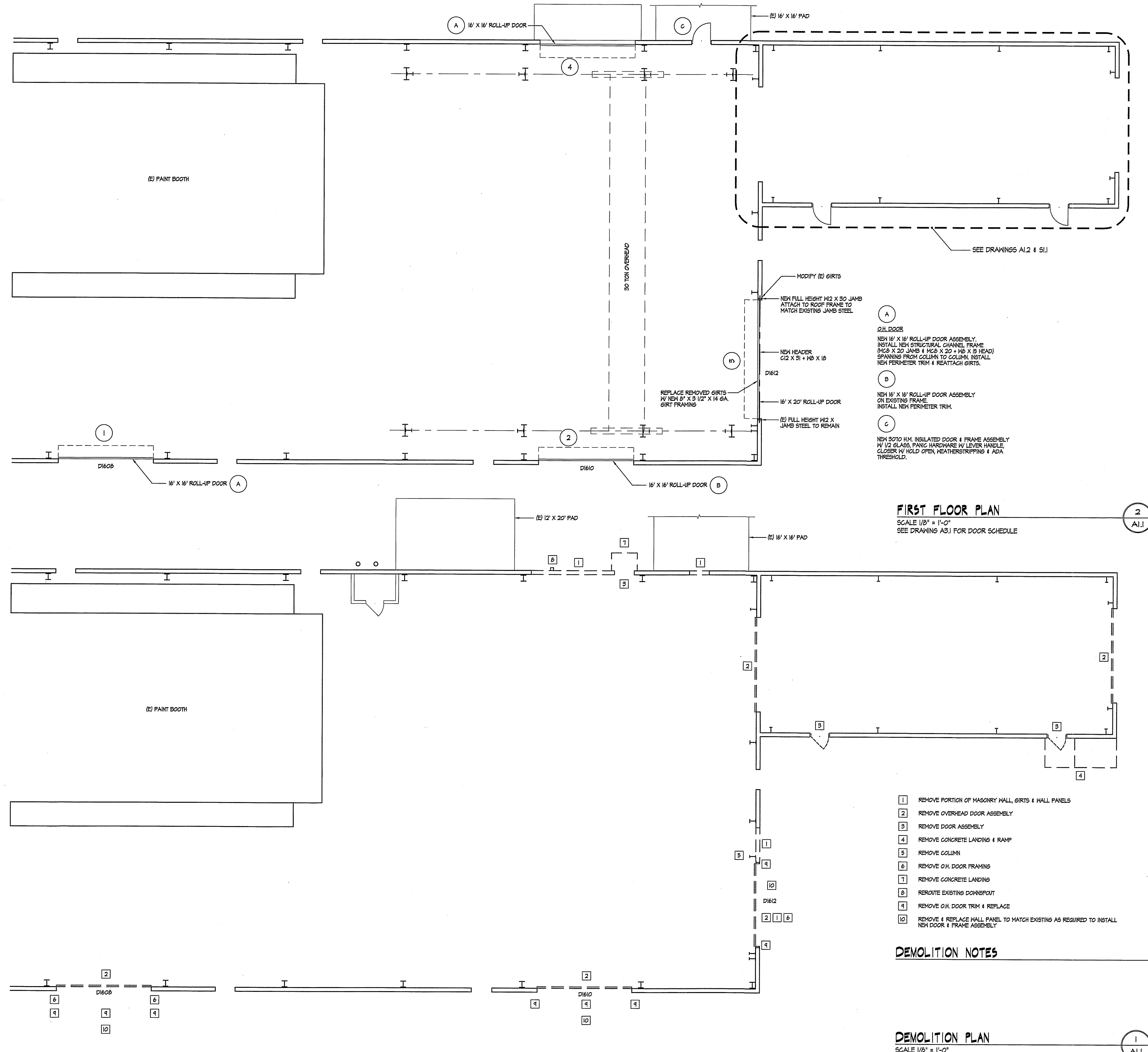
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EGRESS PLAN
 PROJECT NO.
24044
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PAINT SHOP ALTERATIONS &
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 GROVE USA, LLC
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- A**
 O.H. DOOR
 NEW 16' X 16' ROLL-UP DOOR ASSEMBLY. INSTALL NEW STRUCTURAL CHANNEL FRAME (MCS X 20 JAMB + MCS X 20 + 1/2" X 1/8" HEAD) SPANNING FROM COLUMN TO COLUMN. INSTALL NEW PERIMETER TRIM & REATTACH GIRTS.
- B**
 NEW 16' X 16' ROLL-UP DOOR ASSEMBLY ON EXISTING FRAME. INSTALL NEW PERIMETER TRIM.
- C**
 NEW 3070 H.M. INSULATED DOOR & FRAME ASSEMBLY W/ 1/2" GLASS, PANG HARDWARE W/ LEVER HANDLE, CLOSER W/ HOLD OPEN, WEATHERSTRIPPING & ADA THRESHOLD.

FIRST FLOOR PLAN
 SCALE 1/8" = 1'-0"
 SEE DRAWING A3.1 FOR DOOR SCHEDULE

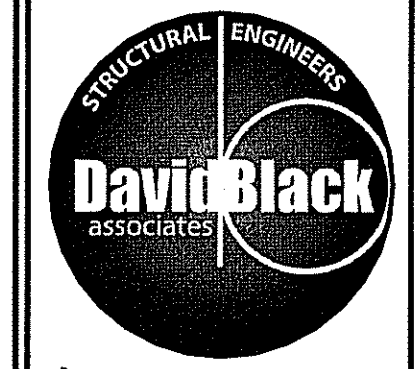
- 1 REMOVE PORTION OF MASONRY WALL, GIRTS & WALL PANELS
- 2 REMOVE OVERHEAD DOOR ASSEMBLY
- 3 REMOVE DOOR ASSEMBLY
- 4 REMOVE CONCRETE LANDINGS & RAMP
- 5 REMOVE COLUMN
- 6 REMOVE O.H. DOOR FRAMING
- 7 REMOVE CONCRETE LANDING
- 8 REROUTE EXISTING DOWNSPOUT
- 9 REMOVE O.H. DOOR TRIM & REPLACE
- 10 REMOVE & REPLACE WALL PANEL TO MATCH EXISTING AS REQUIRED TO INSTALL NEW DOOR & FRAME ASSEMBLY

DEMOLITION NOTES

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

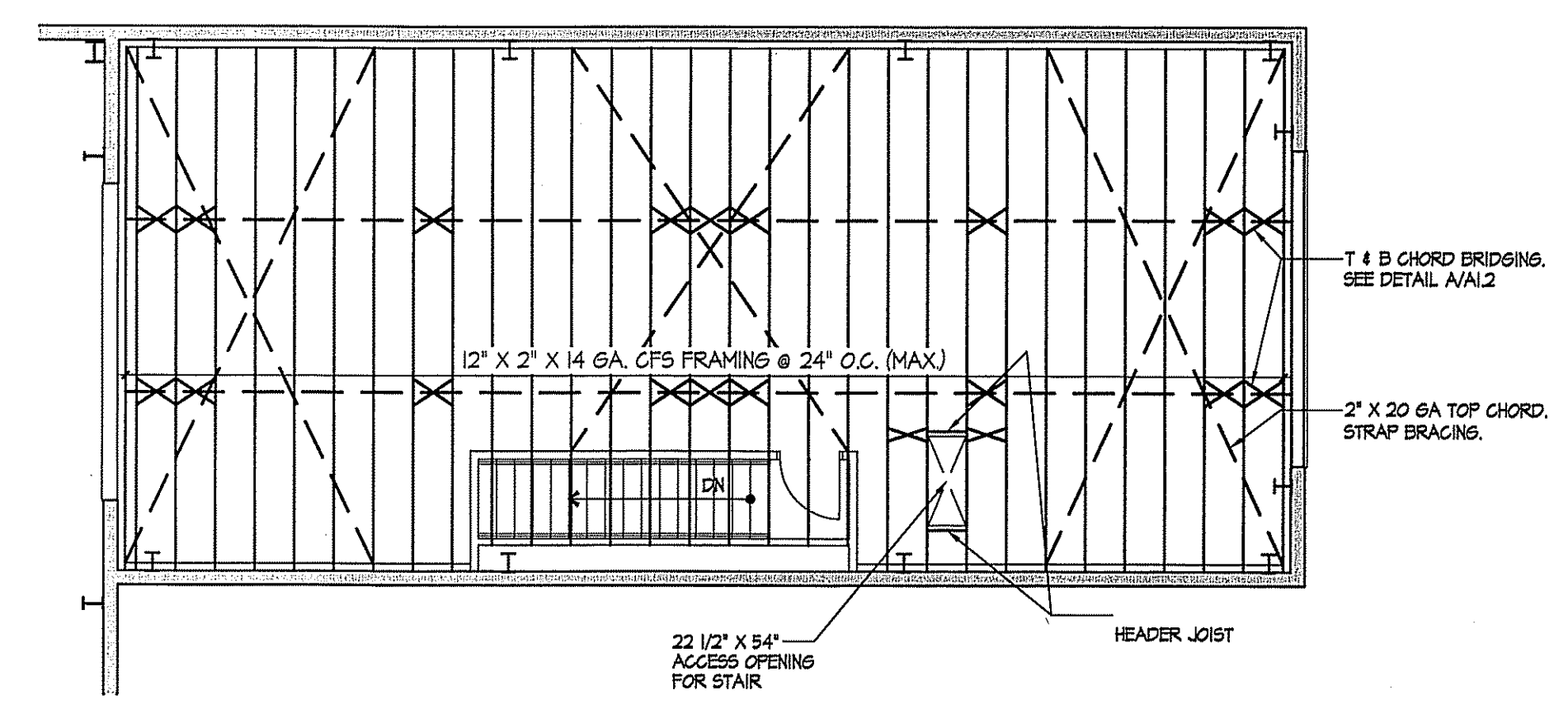
REVISION DATE
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JULY 9, 2024
 DRAWING TITLE
DEMOLITION PLAN + FIRST FLOOR PLAN
 PROJECT NO.
 24044
 SHEET NUMBER
A11

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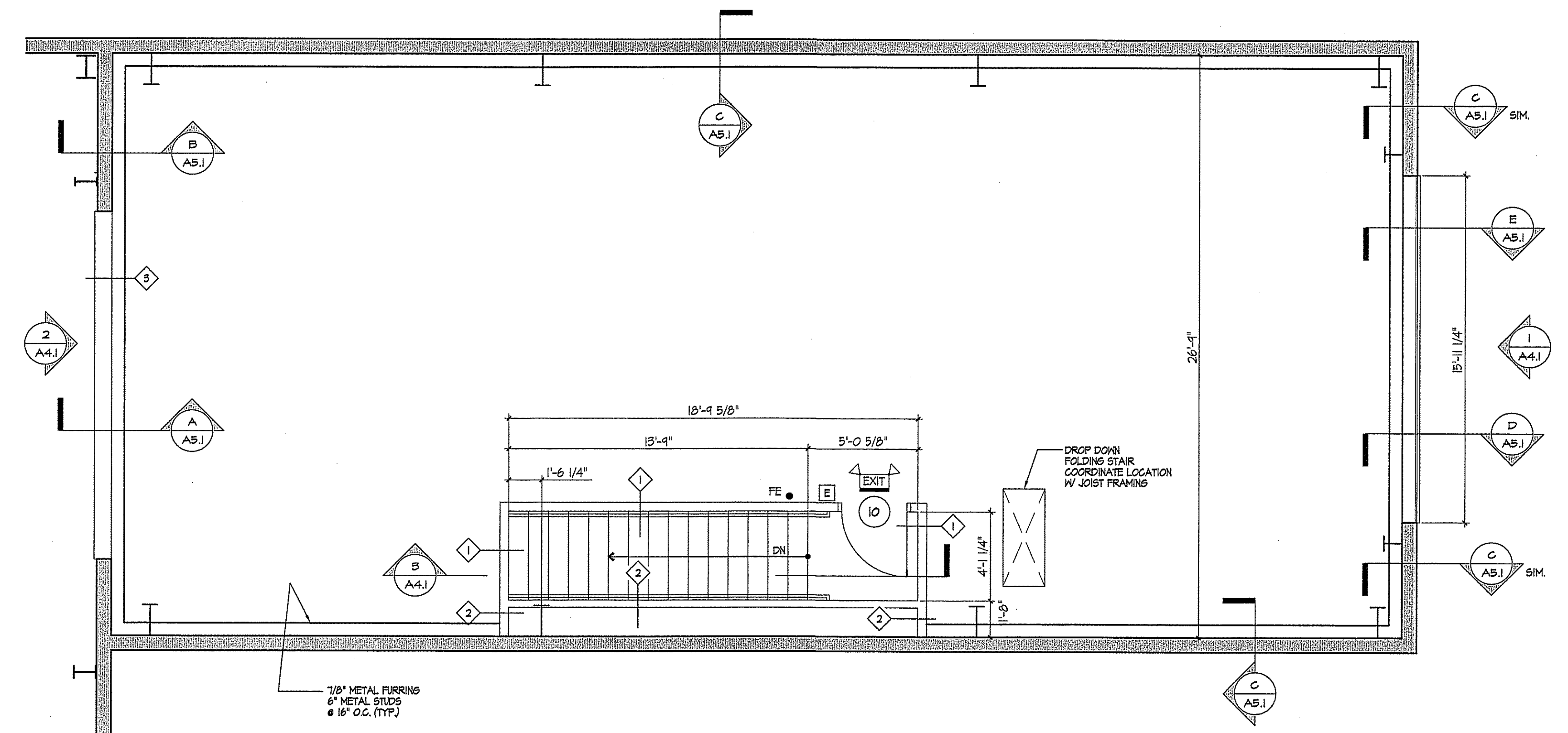


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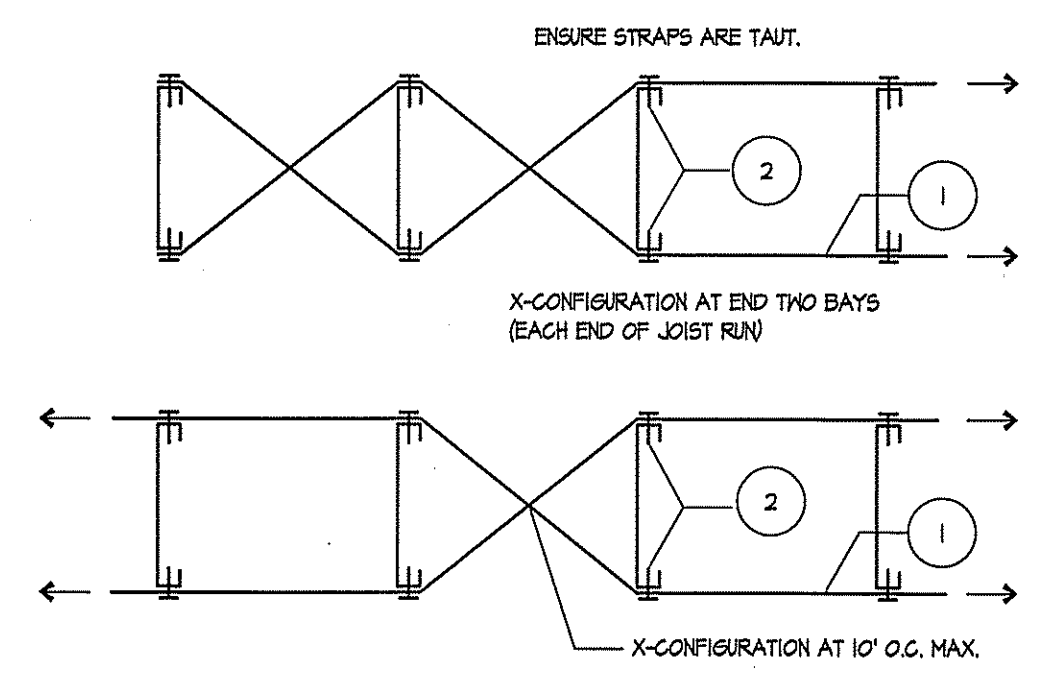
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SECOND FLOOR FRAMING PLAN
 SCALE 1/8" = 1'-0"



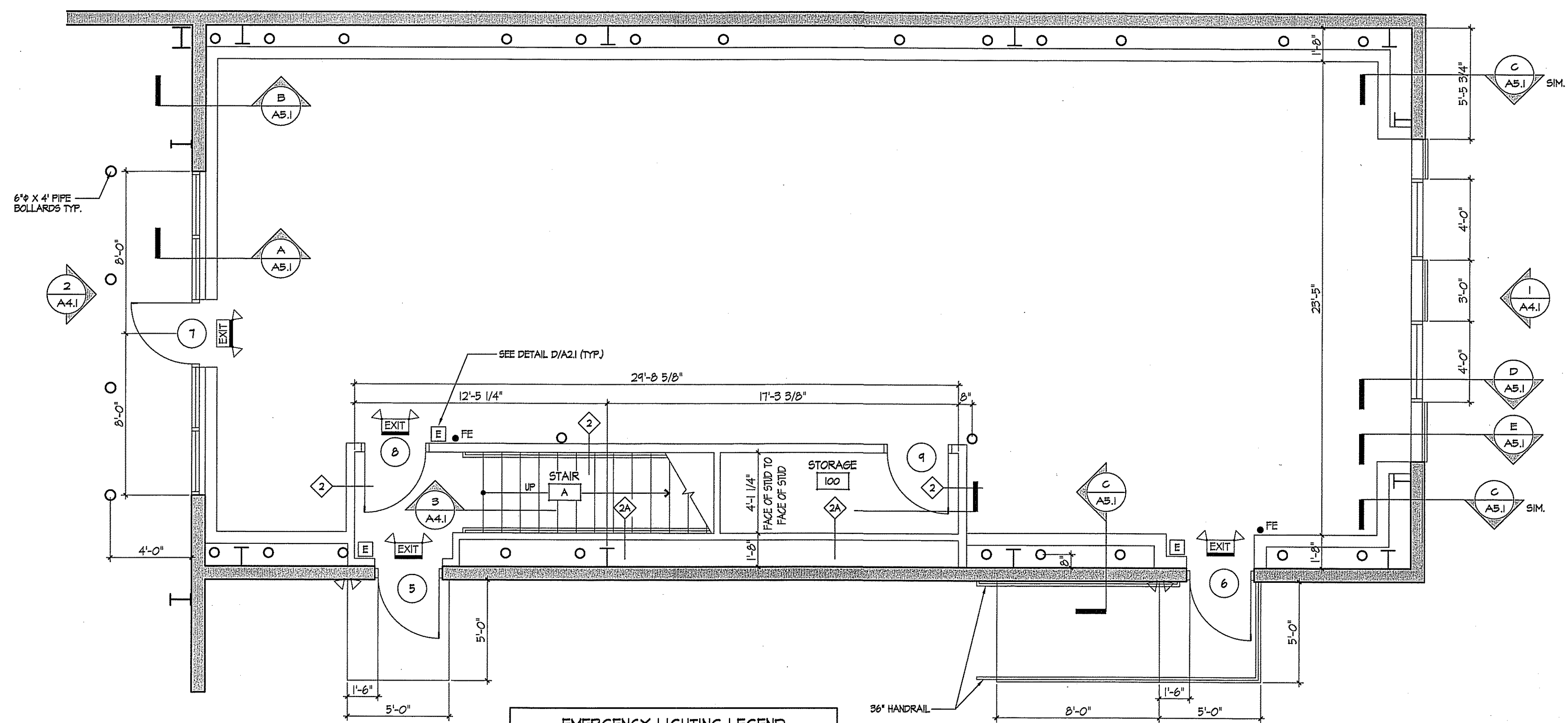
SECOND FLOOR PLAN
 SCALE 1/4" = 1'-0"



JOIST BRIDGING
 NO SCALE

WALL TYPE	DESCRIPTION	INSULATION	OTHER
INTERIOR MALL	6" 20 GA. METAL STUDS @ 16" O.C. (1) LAYER 5/8" GNB EA. SIDE	* 3 1/2" INSULATION	EXTEND PARTITION TO UNDERSIDE OF SHAFT WALL LINER
1 HR. RATED INTERIOR MALL	4" 20 GA. METAL SHAFT WALL STUDS @ 16" O.C. (1) LAYER 5/8" GNB BOTH SIDES (2) (1) LAYER 5/8" GNB ONE SIDES (2A) 1" SHAFT WALL LINER	2 1/2" INSULATION	EXTEND PARTITION TO UNDERSIDE OF DECK.
1 HR. RATED INTERIOR MALL	3 5/8" X 2 X 20 GA. METAL STUDS @ 16" O.C. (1) LAYER 5/8" GNB BOTH SIDES (2) 1" SHAFT WALL LINER	2 1/2" INSULATION	EXTEND PARTITION TO UNDERSIDE OF DECK.

WALL TYPES
 NO SCALE



EMERGENCY LIGHTING LEGEND

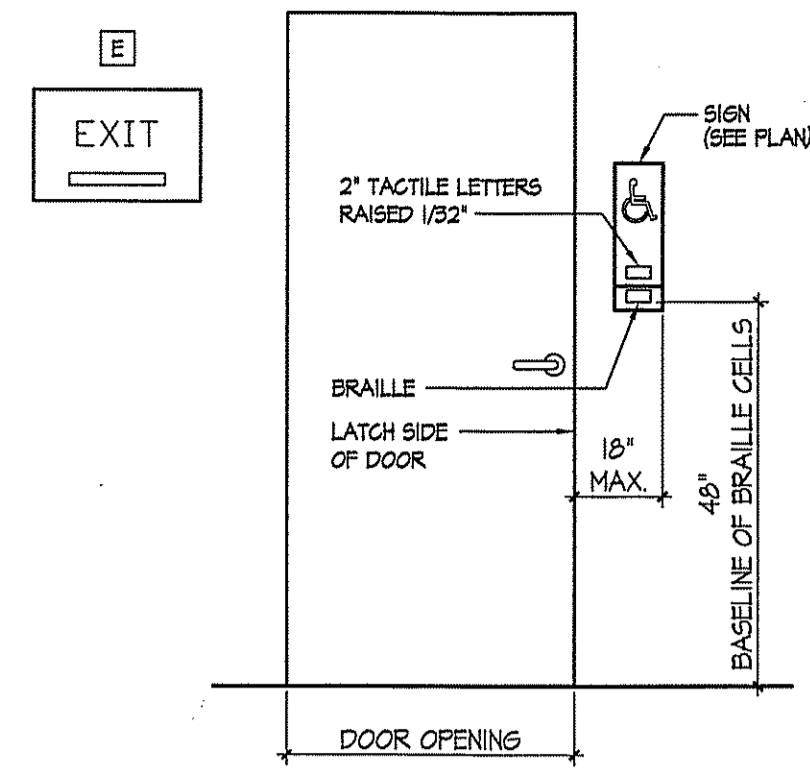
- EXIT: NEW ILLUMINATED EXIT SIGN W/ DUAL HEAD EMERGENCY LIGHTING PAK. PROVIDE DIRECTIONAL ARROWS AS REQ'D.
- EXIT: DUAL HEAD EMERGENCY LIGHTING PAK W/ REMOTE BATTERY BACKUP & (4) HEAD REMOTE CAPACITY.
- FE: 10# ABC TYPE FIRE EXTINGUISHER W/ MIN. 2-A/10-B RATING, SURFACE MOUNTED.
- EXIT: EXTERIOR EMERGENCY LIGHTING HEADS, WIRE TO BATTERY PAK.

FIRST FLOOR PLAN
 SCALE 1/4" = 1'-0"

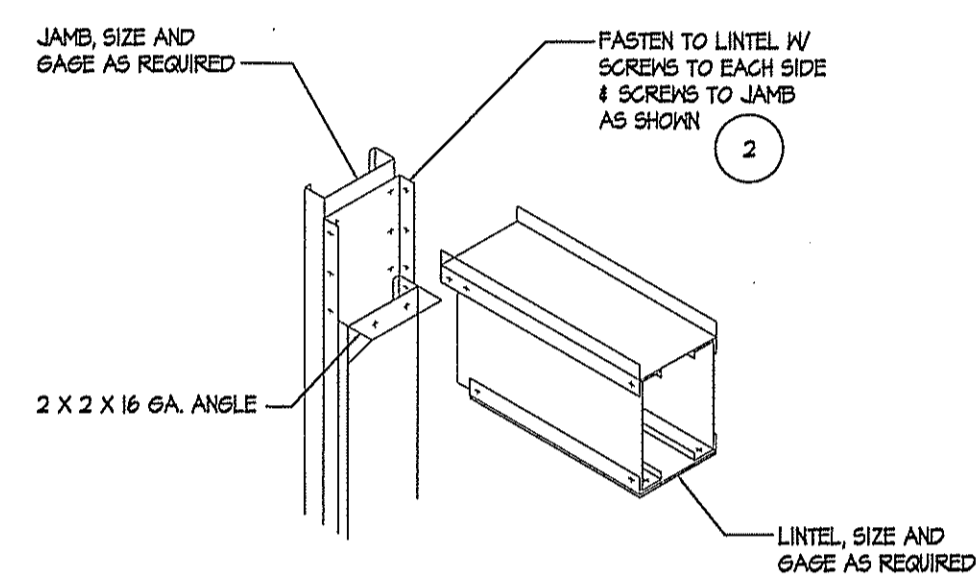
ABBREVIATIONS

AE	ACID ETCH	HM	HOLLOW METAL
ATC	ACOUSTICAL TILE CEILING	LVT	LUXURY VINYL TILE
ANT	ACOUSTICAL WALL TREATMENT	MELP	METAL BUILDING LINER PANEL
CMU	CONCRETE MASONRY UNIT	P	PAIN
CONC	CONCRETE	R	RUBBER
CS	CONCRETE SEALER	RAD	RADIAL RUBBER
CT	CERAMIC TILE	SV	SHEET VINYL
(E)	EXISTING TO REMAIN	VGT	VINYL COMPOSITION TILE
ES	EXPOSED STRUCTURE	VEN	VENEER
EPOXY	EPOXY FLOORING SYSTEM. SEE SPECIFICATIONS	WC	WALL COVERING
FRP	FIBERGLASS REINFORCED PANELS	WOM	WALK OFF MAT
GNB	GYPSUM WALL BOARD	WD	WOOD

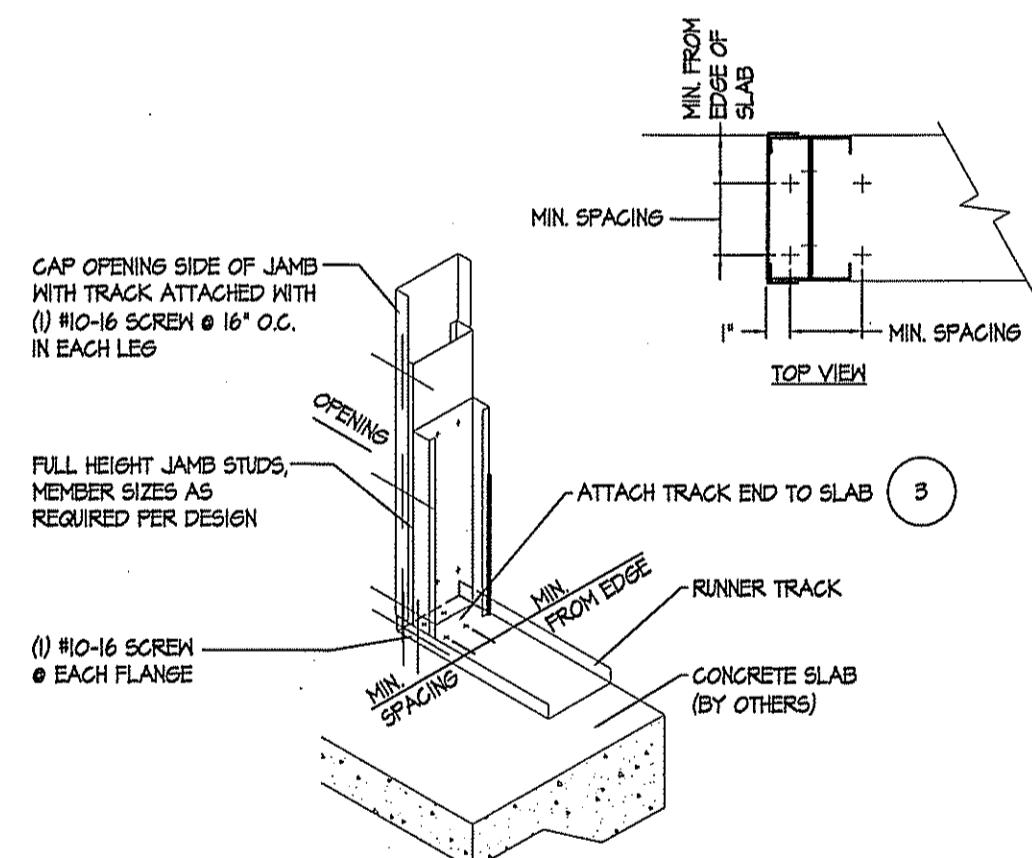
REVISION DATE
 ISSUE DATE
JULY 9, 2024
 DRAWING TITLE
FLOOR PLANS & FRAMING PLANS
 PROJECT NO.
24044
 SHEET NUMBER
A1.2



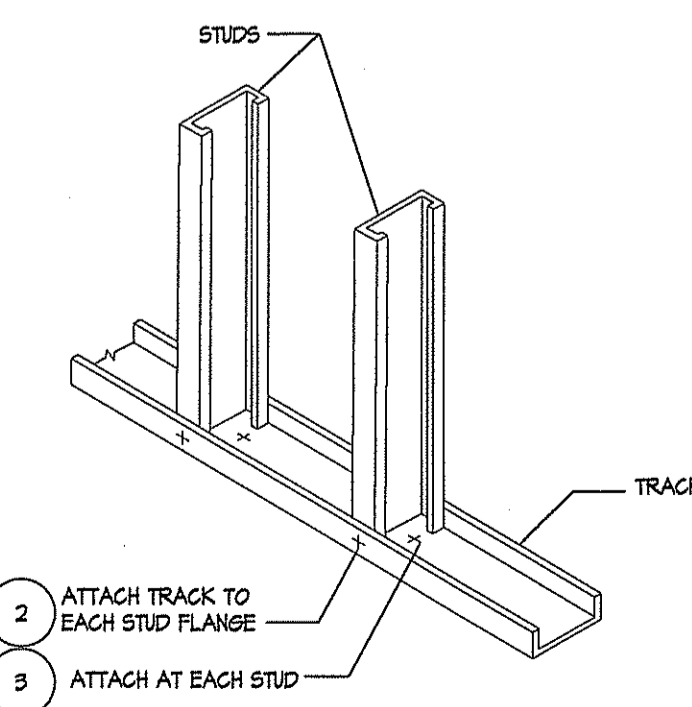
TYPICAL HANDICAP SIGNAGE DETAIL (D) A2.1
NO SCALE



LINTEL DETAIL (C) A2.1
NO SCALE



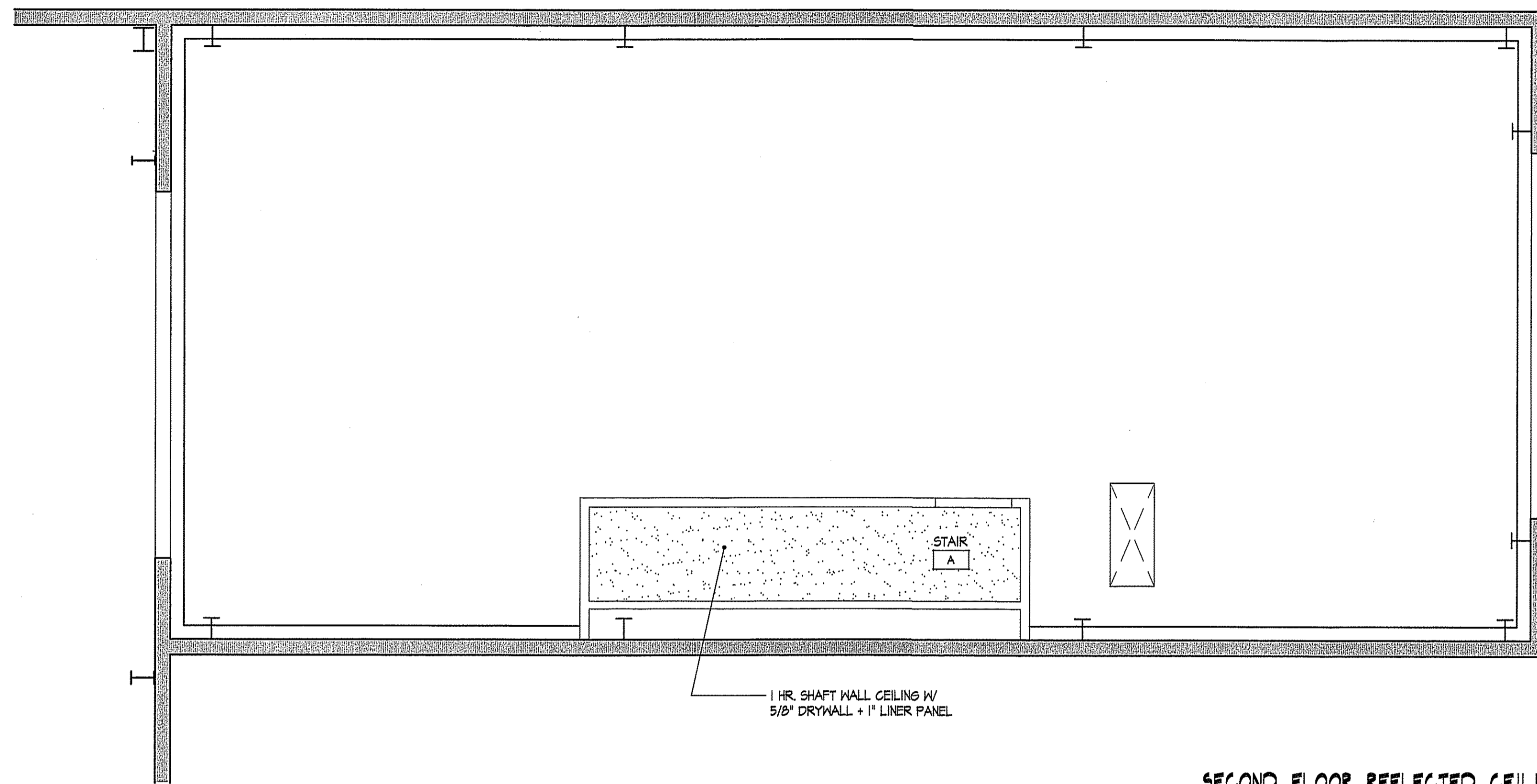
DOOR JAMB ANCHORAGE (B) A2.1
NO SCALE (2) JAMB ANCHORAGE TO STRUCTURE W/ (4) FASTENERS



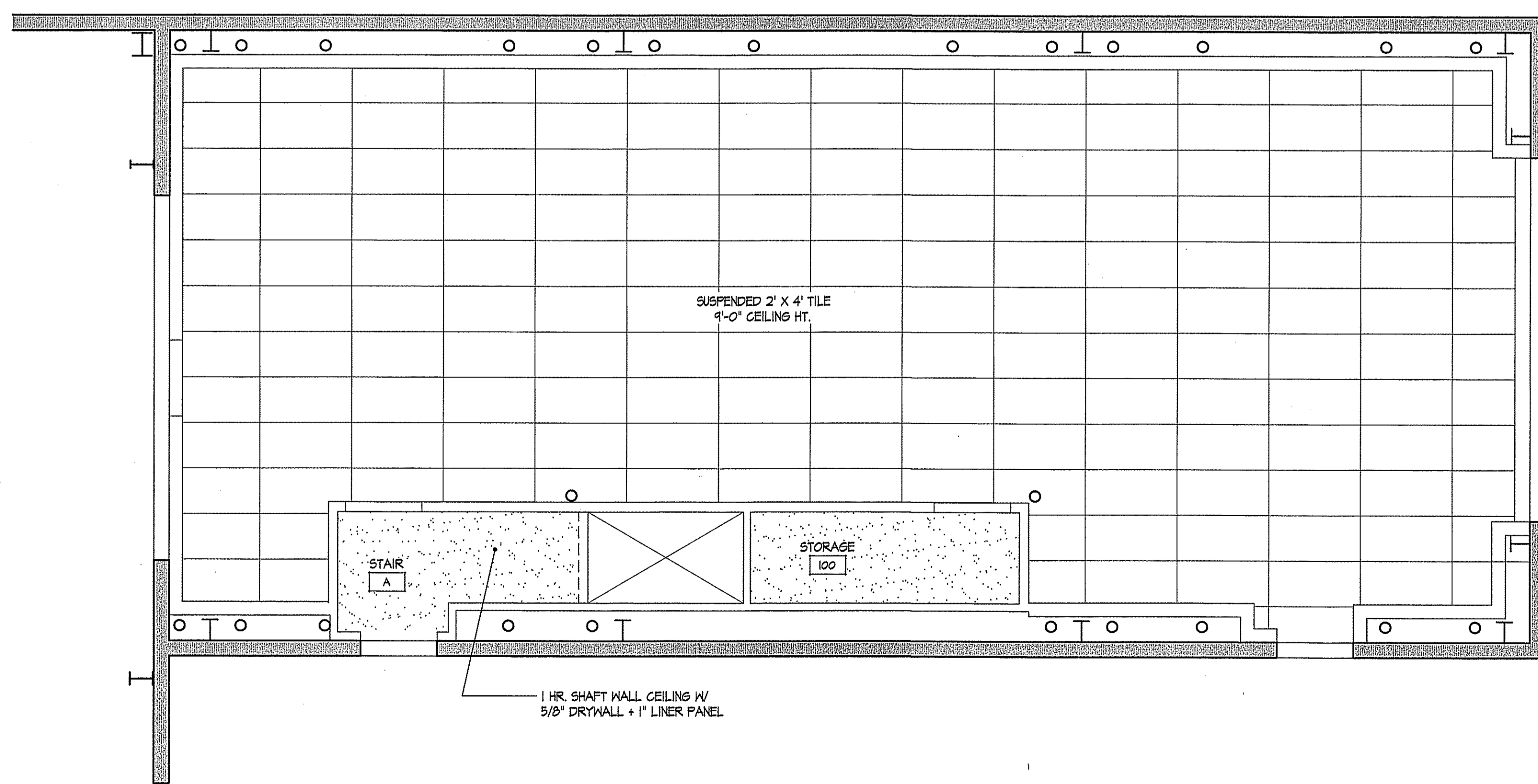
LOAD BEARING WALL (A) A2.1
NO SCALE

LIGHT GAGE FRAMING NOTES

1. 2" X 20 GA CONTINUOUS STRAPPING
2. #10 SCREWS
3. TAPCON SCREWS 1/4" X 1 3/4"

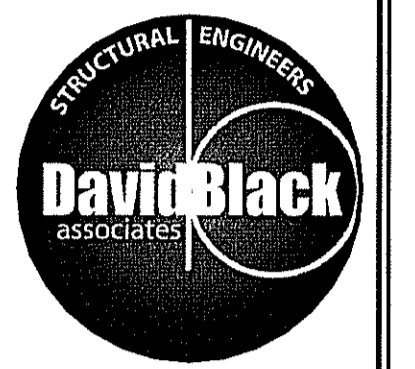


SECOND FLOOR REFLECTED CEILING PLAN (2) A2.1
SCALE 1/4" = 1'-0"



FIRST FLOOR REFLECTED CEILING PLAN (1) A2.1
SCALE 1/4" = 1'-0"

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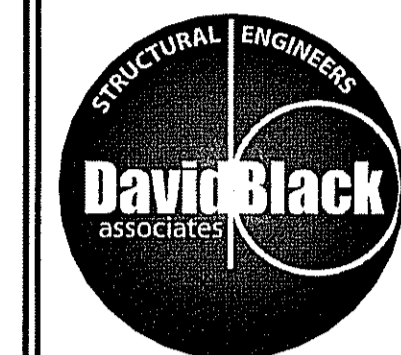


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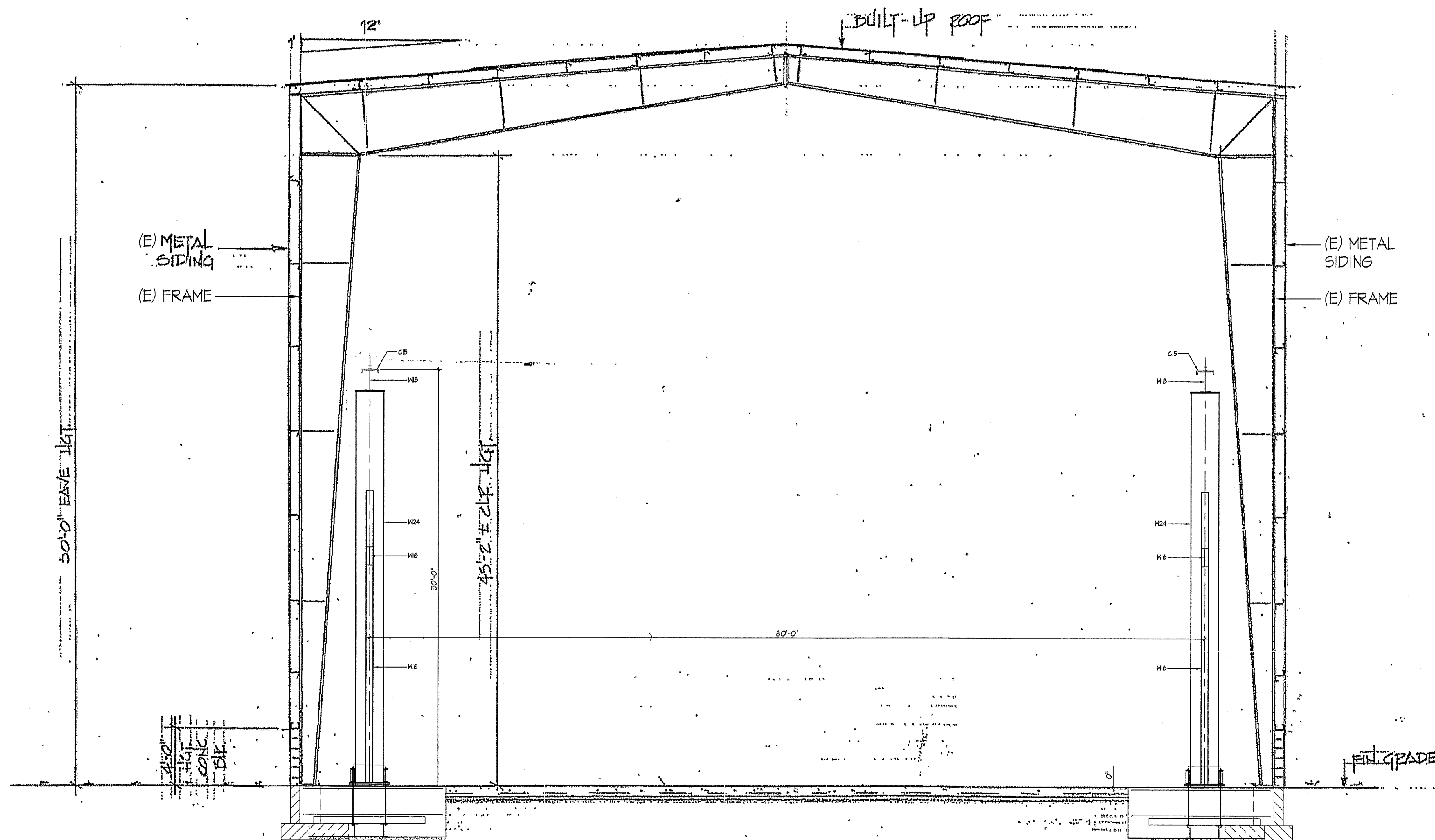
REVISION DATE	
ISSUE DATE	JULY 9, 2024
DRAWING TITLE	REFLECTED CEILING PLANS + LIGHT GAGE FRAMING NOTES
PROJECT NO.	24044
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PAINT SHOP ALTERATIONS &
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 GROVE USA, LLC
 SHADY GROVE, PENNSYLVANIA



BUILDING SECTION
 SCALE 1/4" = 1'-0"

1
 A3.1

REVISION DATE

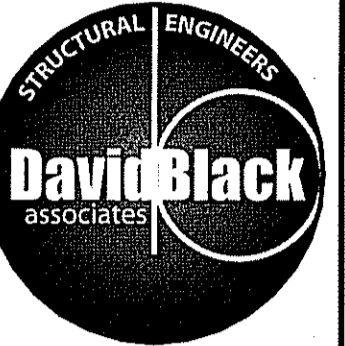
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 BUILDING SECTION

PROJECT NO.
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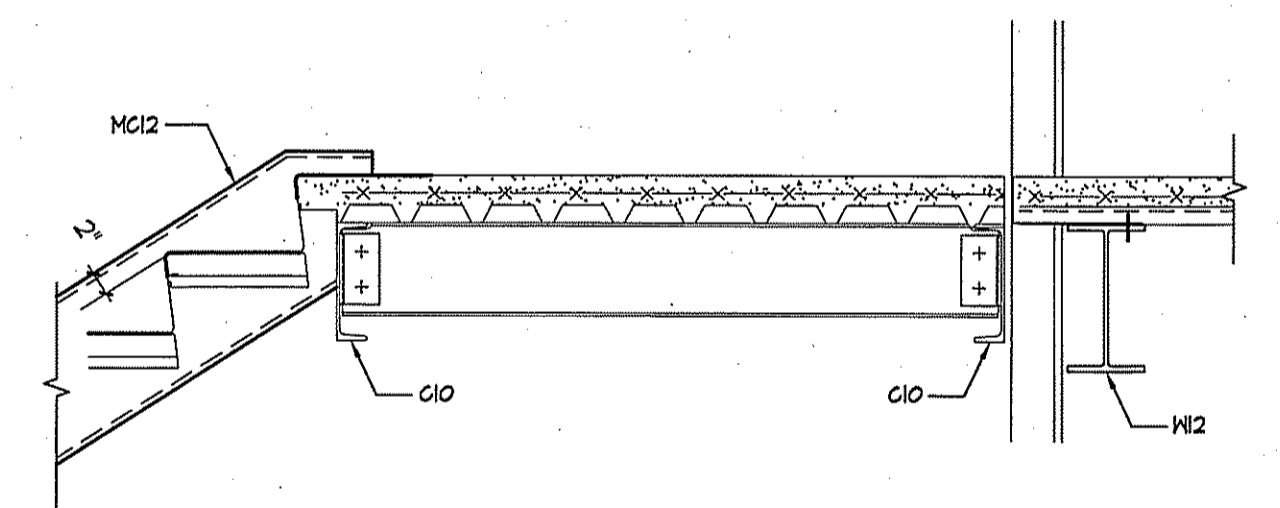
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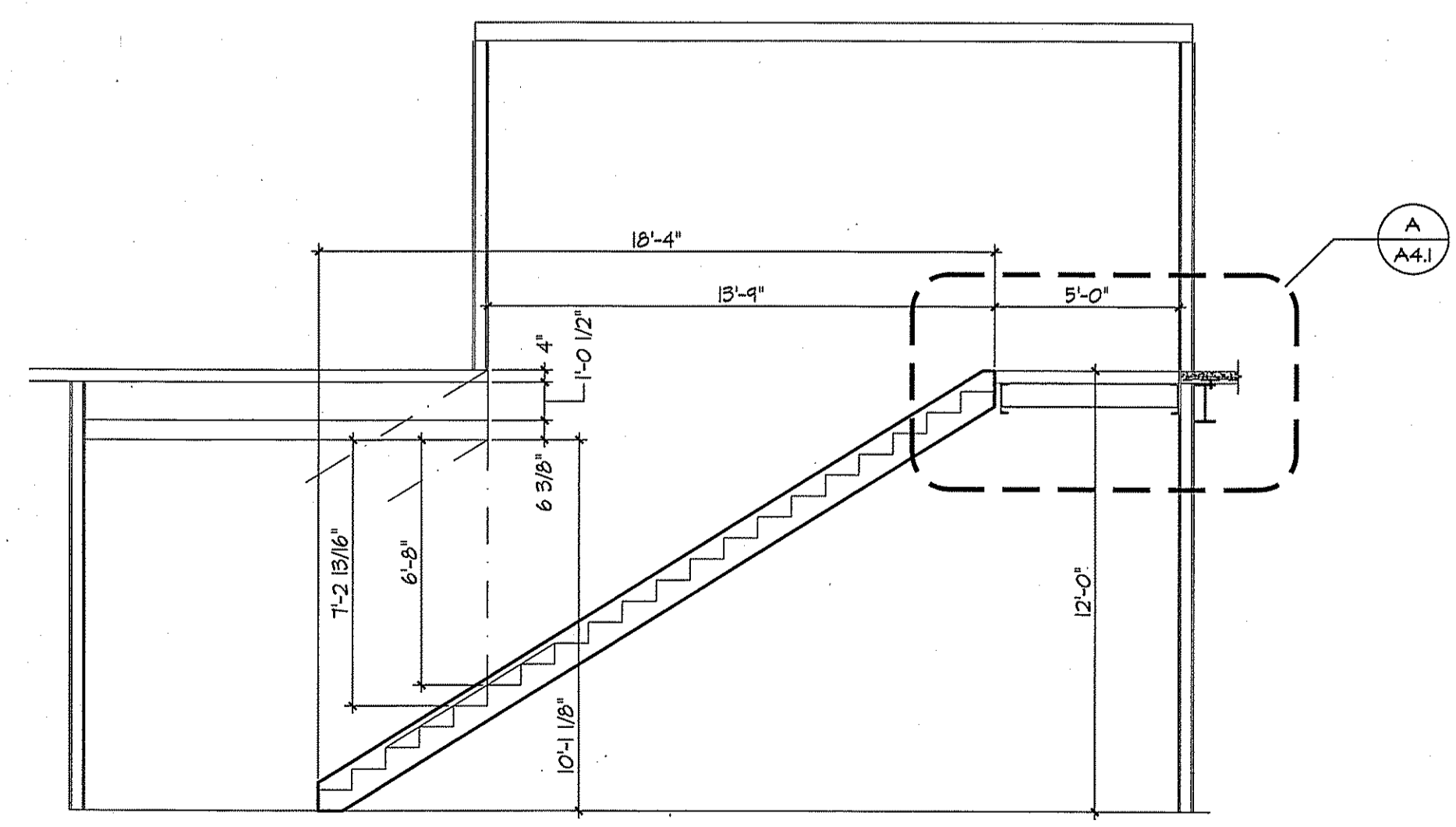


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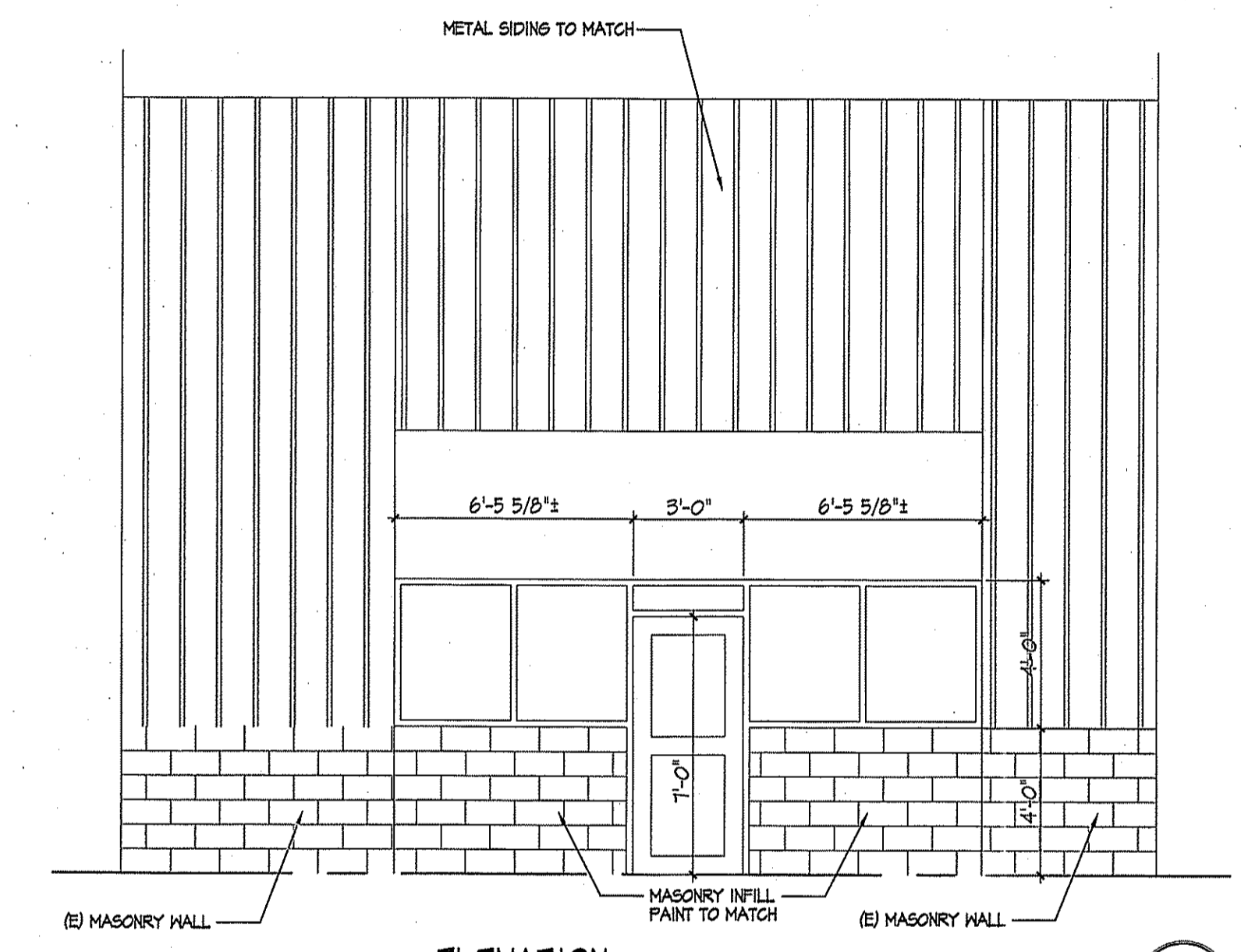
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 SHADY GROVE, PENNSYLVANIA



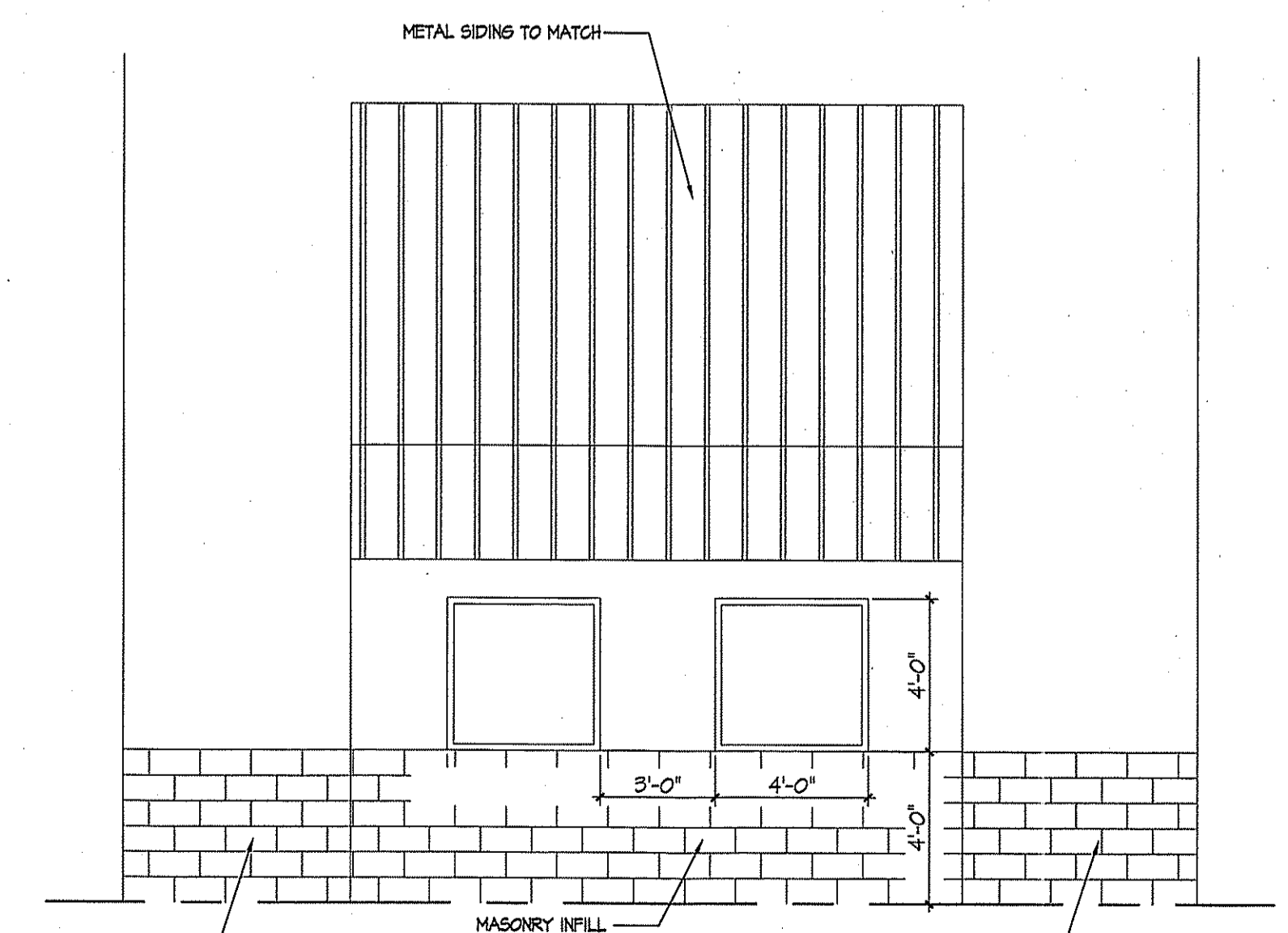
DETAIL
 SCALE 3/4" = 1'-0"
 A
 A4.1



STAIR SECTION
 SCALE 1/4" = 1'-0"
 B
 A4.1



ELEVATION
 SCALE 1/4" = 1'-0"
 2
 A4.1



ELEVATION
 SCALE 1/4" = 1'-0"
 1
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REVISION DATE

ISSUE DATE

JULY 9, 2024

DRAWING TITLE

ELEVATIONS + SECTION

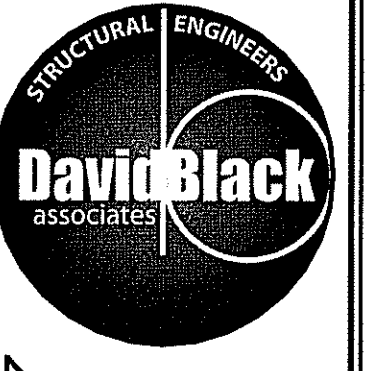
PROJECT NO.

24044

SHEET NUMBER

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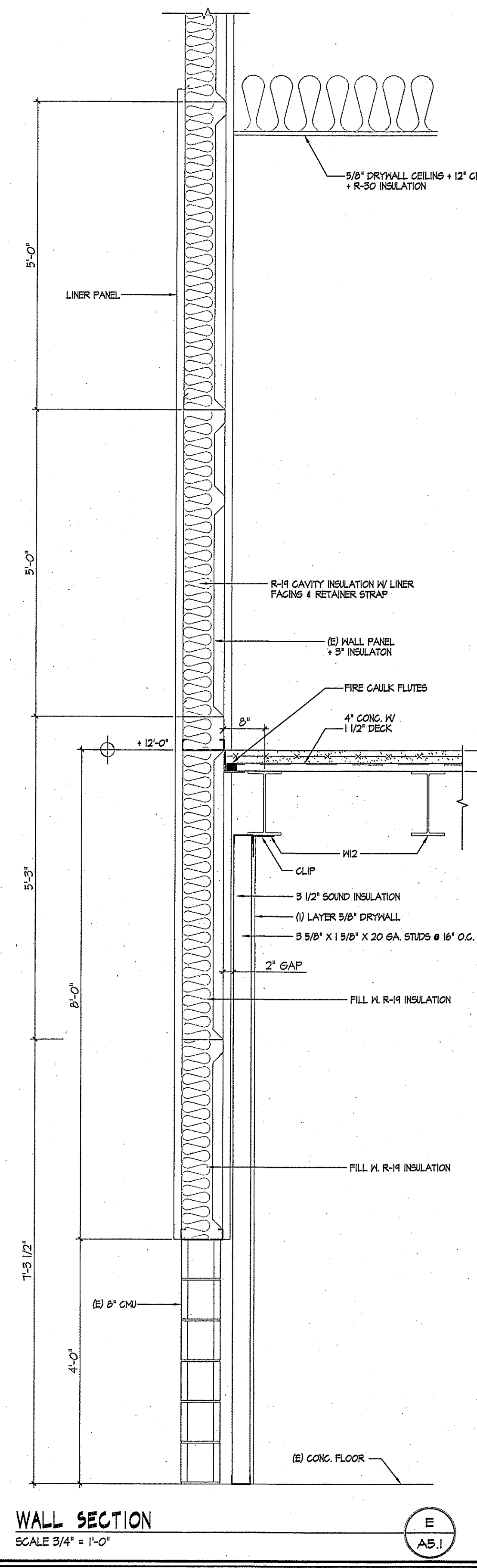
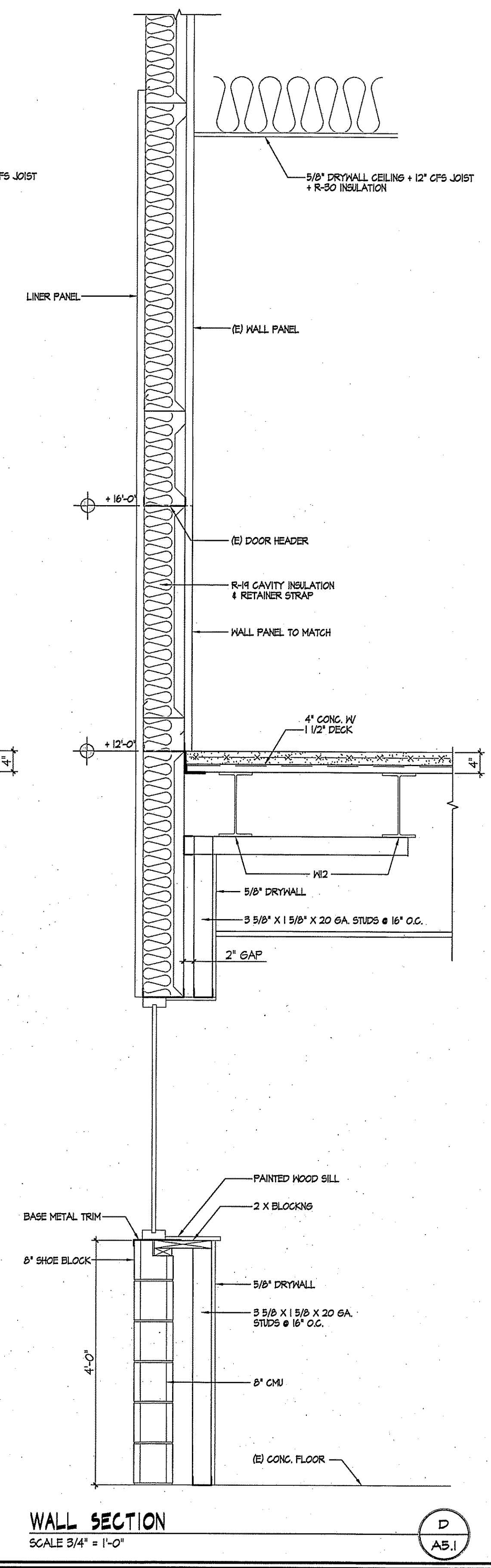
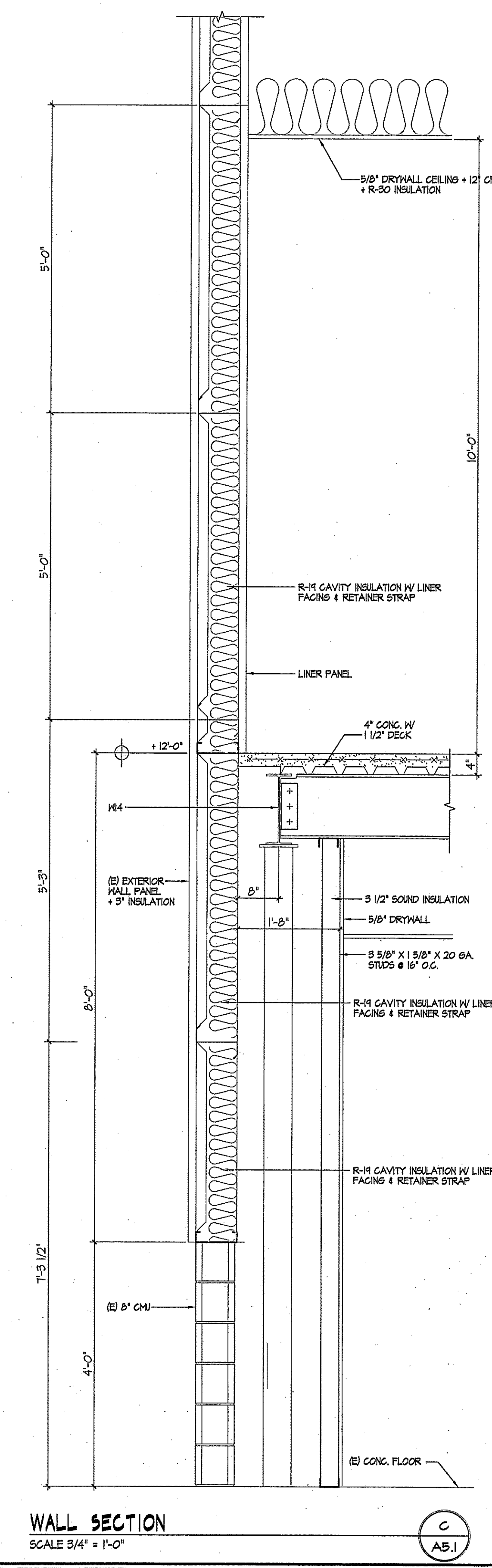
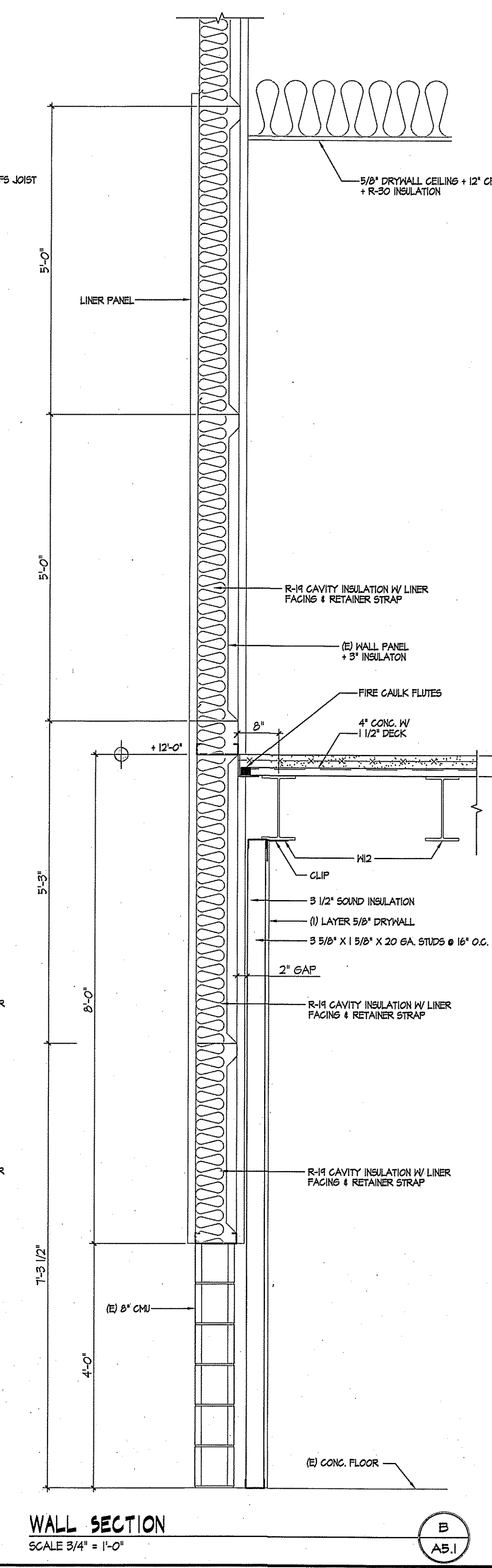
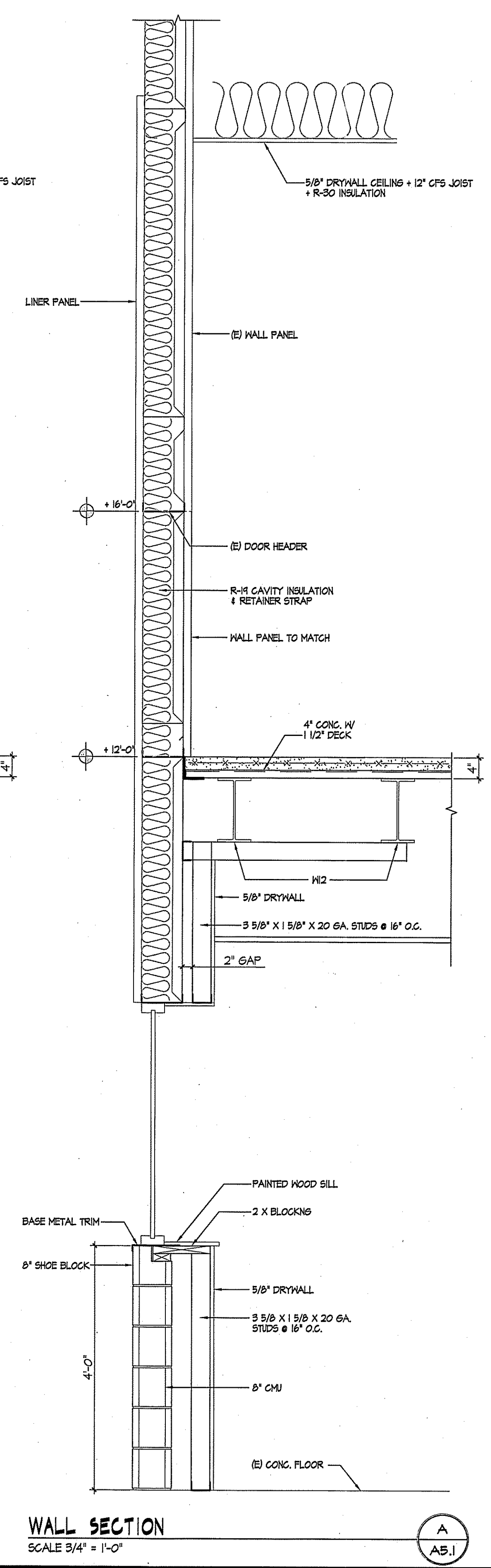
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PAINT SHOP ALTERATIONS &
 OUTDOOR PAINT BUILDING
 GROVE USA, LLC
 SHADY GROVE, PENNSYLVANIA

REVISION DATE
 ISSUE DATE
JULY 9, 2024
 DRAWING TITLE
WALL SECTIONS
 PROJECT NO.
 24044
 SHEET NUMBER
A5.1



WALL SECTION
 SCALE 3/4" = 1'-0"

E
 A5.1

WALL SECTION
 SCALE 3/4" = 1'-0"

D
 A5.1

WALL SECTION
 SCALE 3/4" = 1'-0"

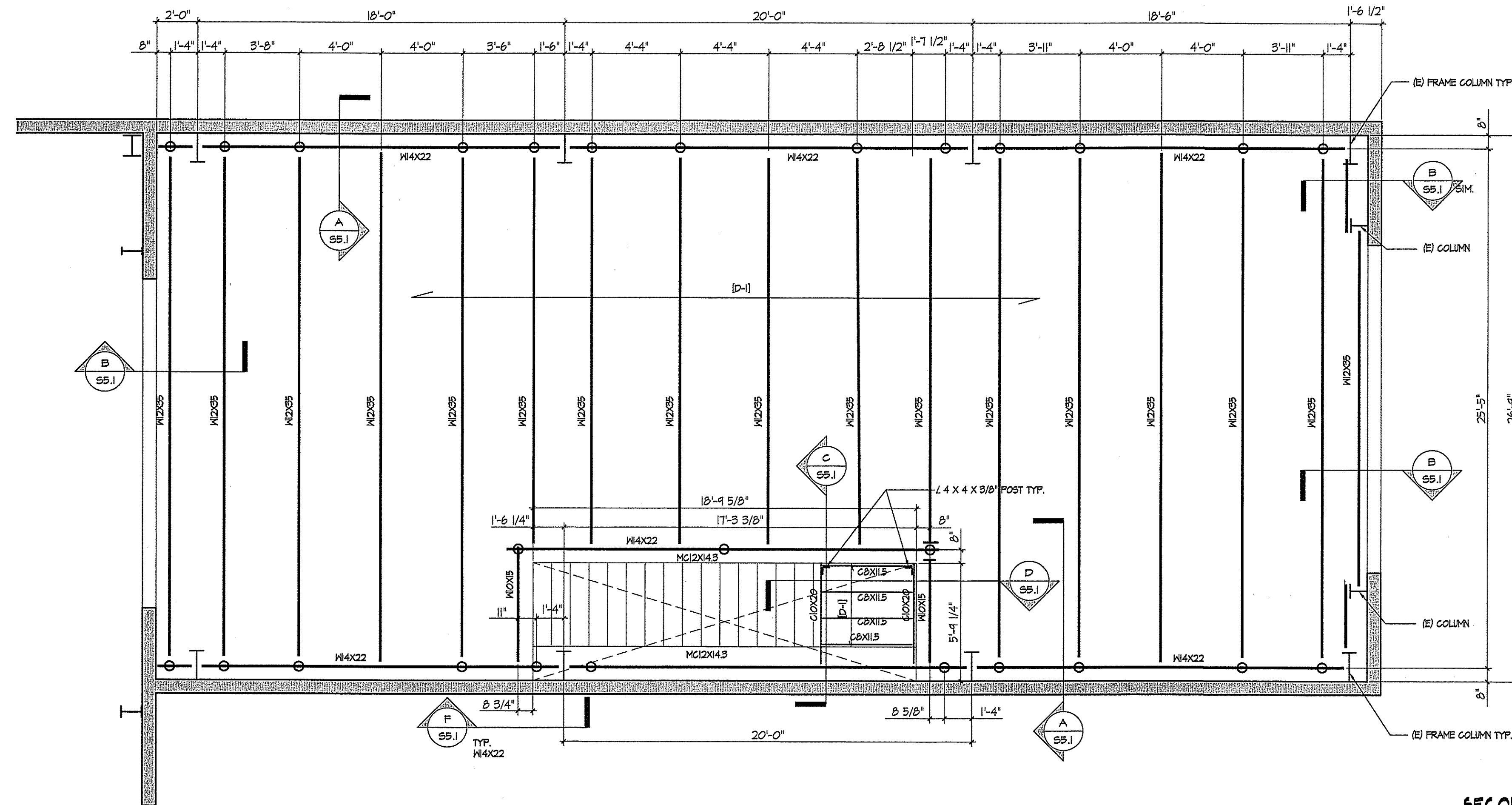
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 A5.1

WALL SECTION
 SCALE 3/4" = 1'-0"

B
 A5.1

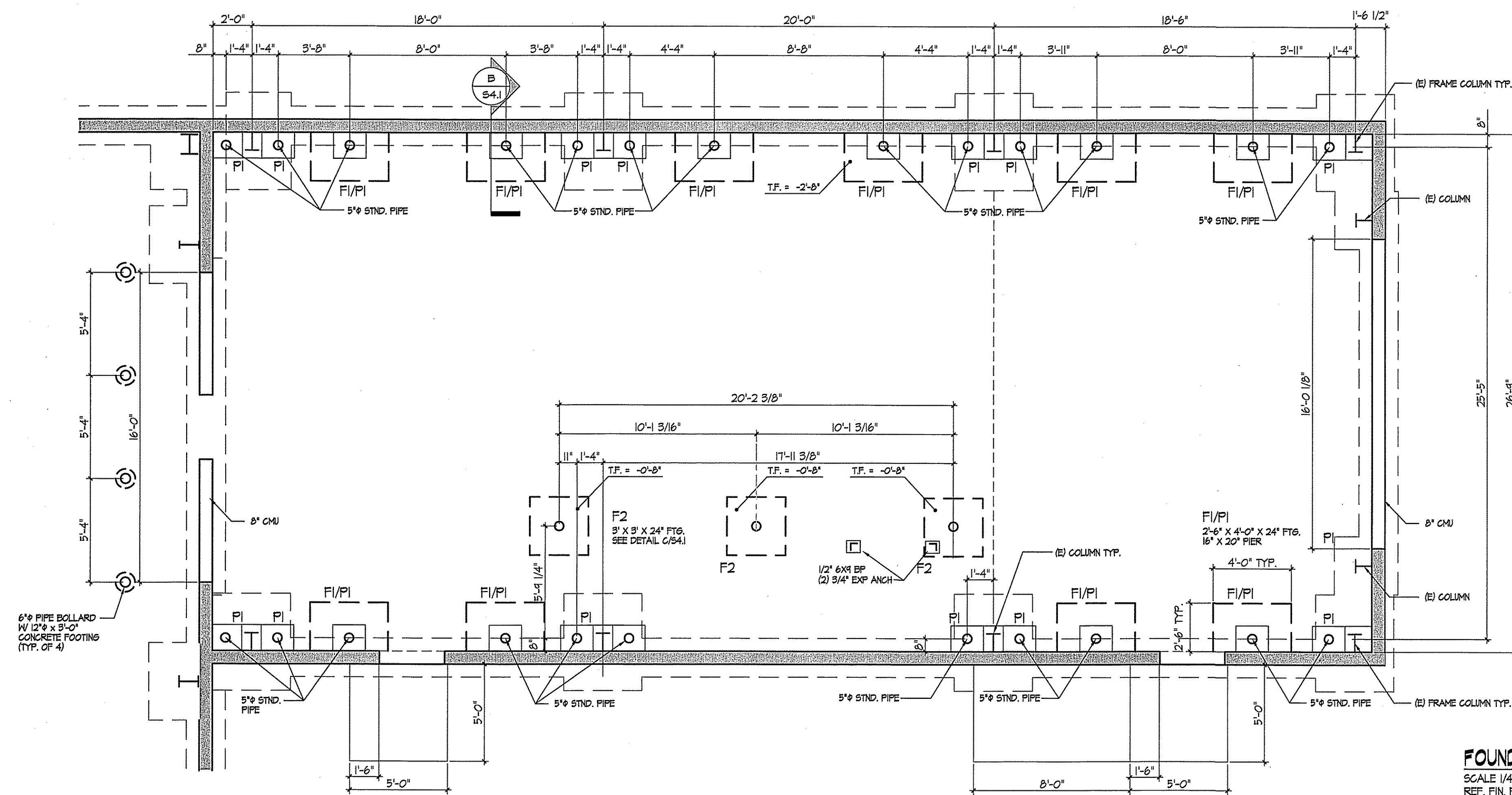
WALL SECTION
 SCALE 3/4" = 1'-0"

A
 A5.1



SECOND FLOOR FRAMING PLAN
 SCALE 1/4" = 1'-0"
 REF. TOP OF STEEL ELEVATION = +11'-8"

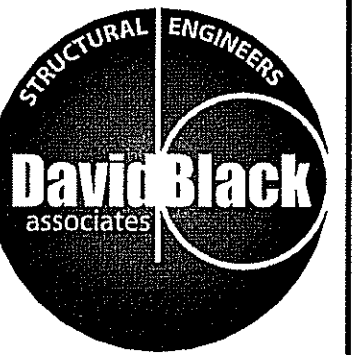
2
S.I.



FOUNDATION PLAN
 SCALE 1/4" = 1'-0"
 REF. FIN. FLOOR ELEVATION = 0'-0"

1
S.I.

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DRAWING TITLE

FOUNDATION + SECOND FLOOR FRAMING PLANS

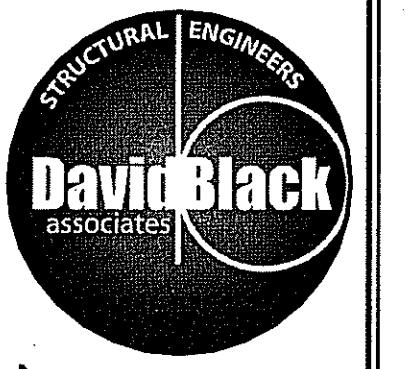
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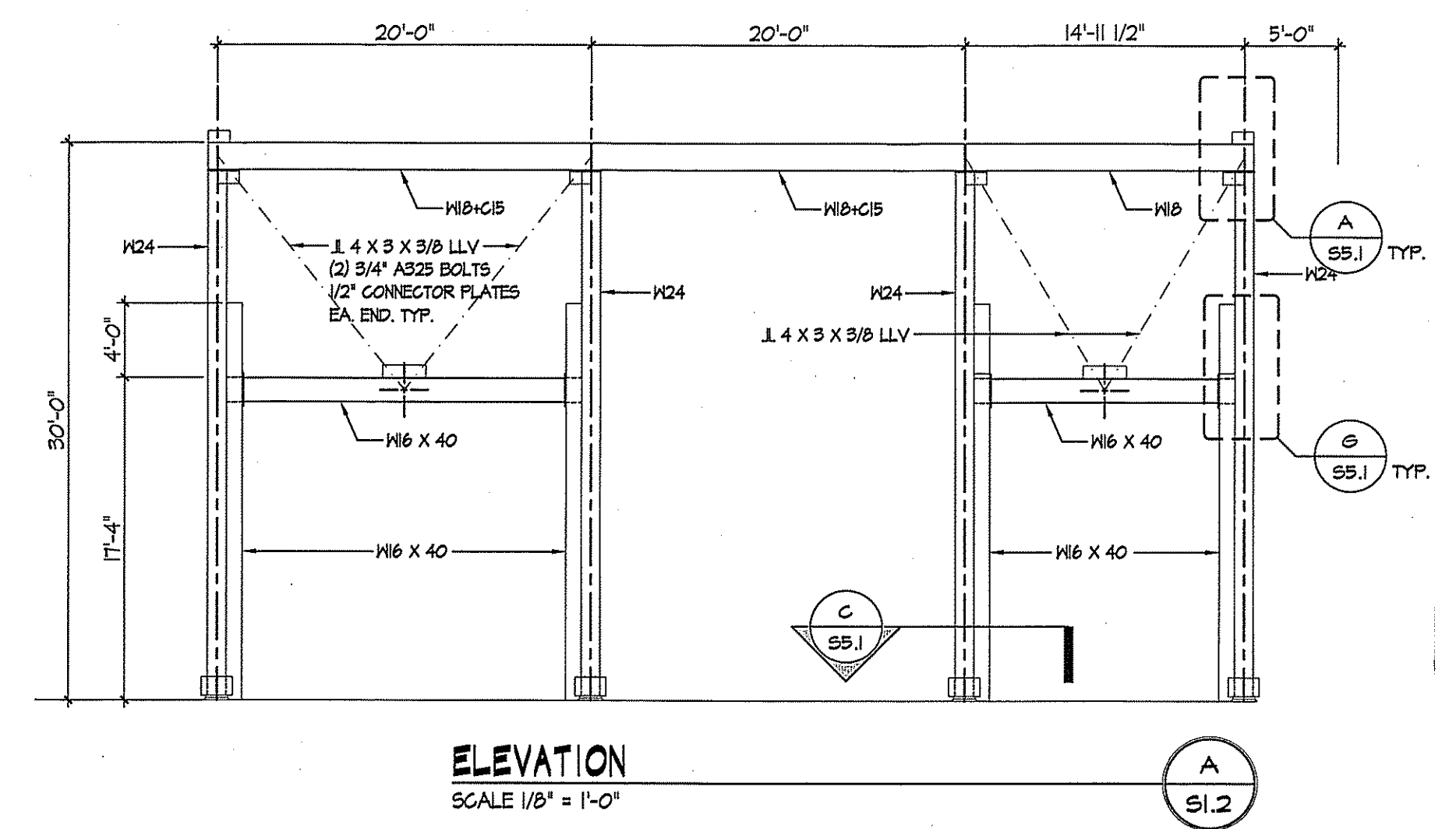
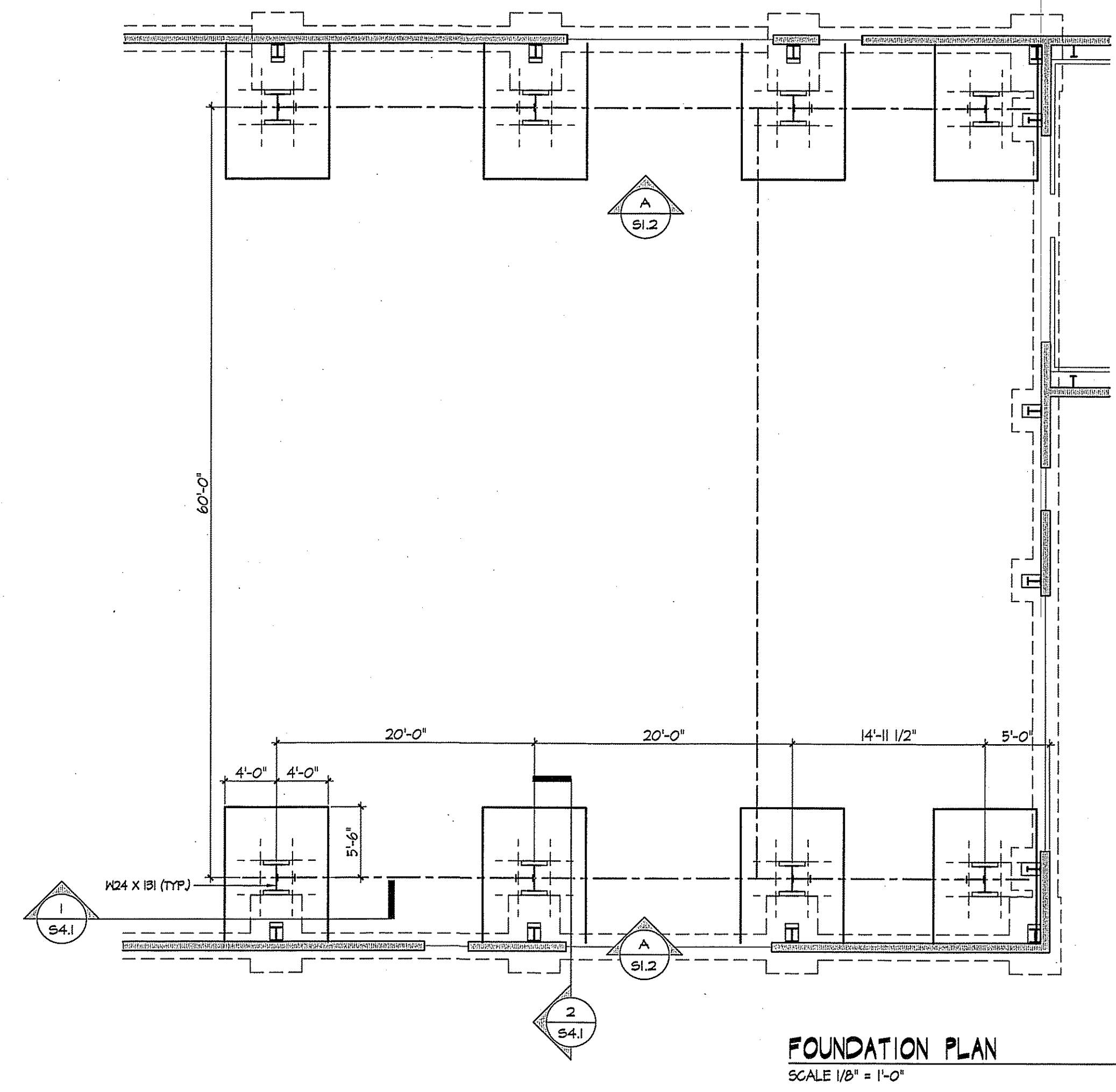
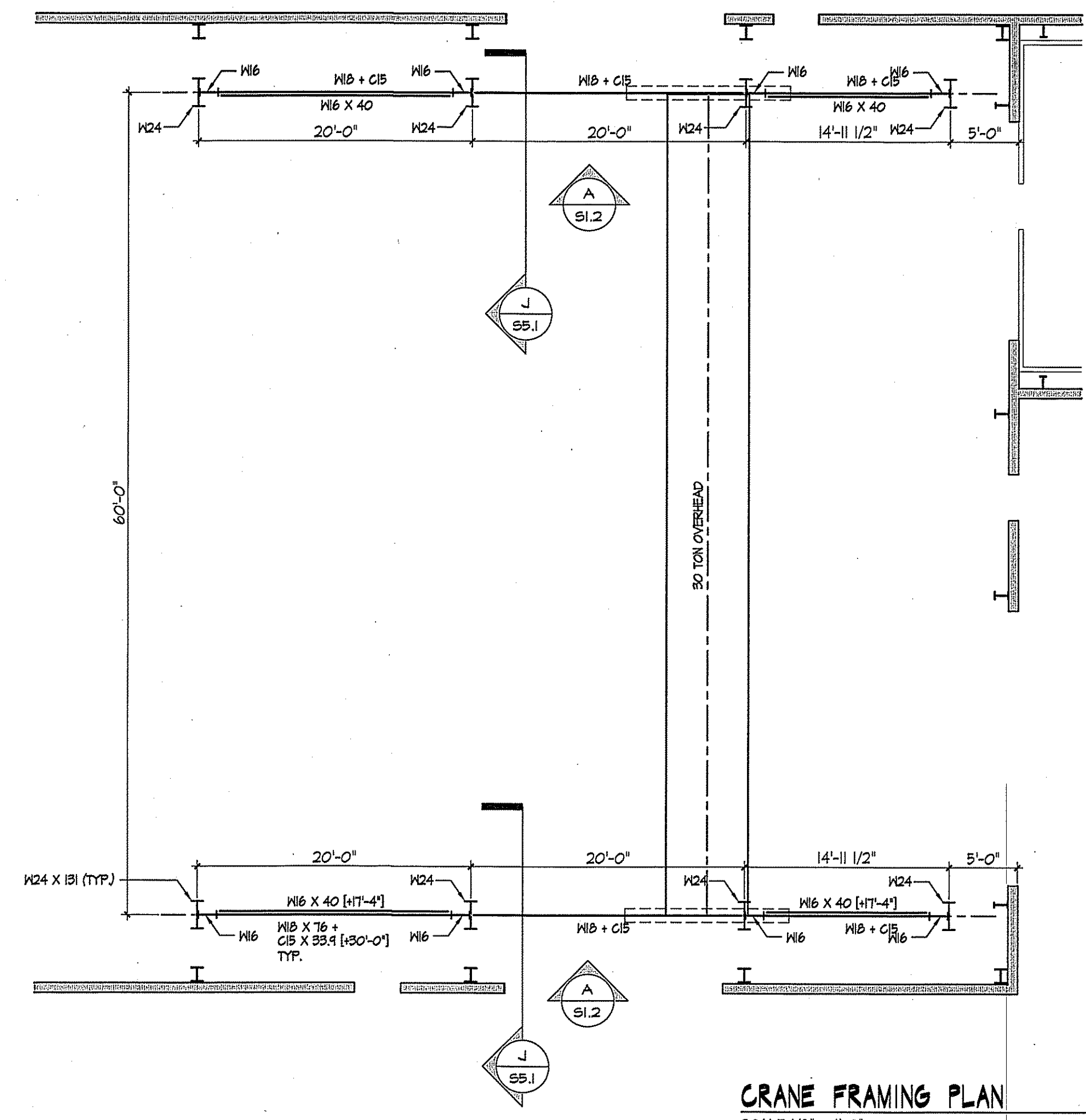
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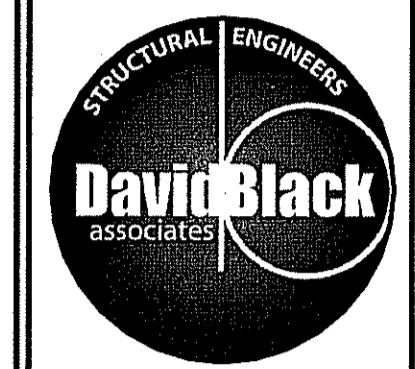
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REVISION DATE _____
 ISSUE DATE **JULY 9, 2024**
 DRAWING TITLE **FOUNDATION PLAN, CRANE FRAMING PLAN & ELEVATION**
 PROJECT NO. _____
 SHEET NUMBER **24044**
S1.2

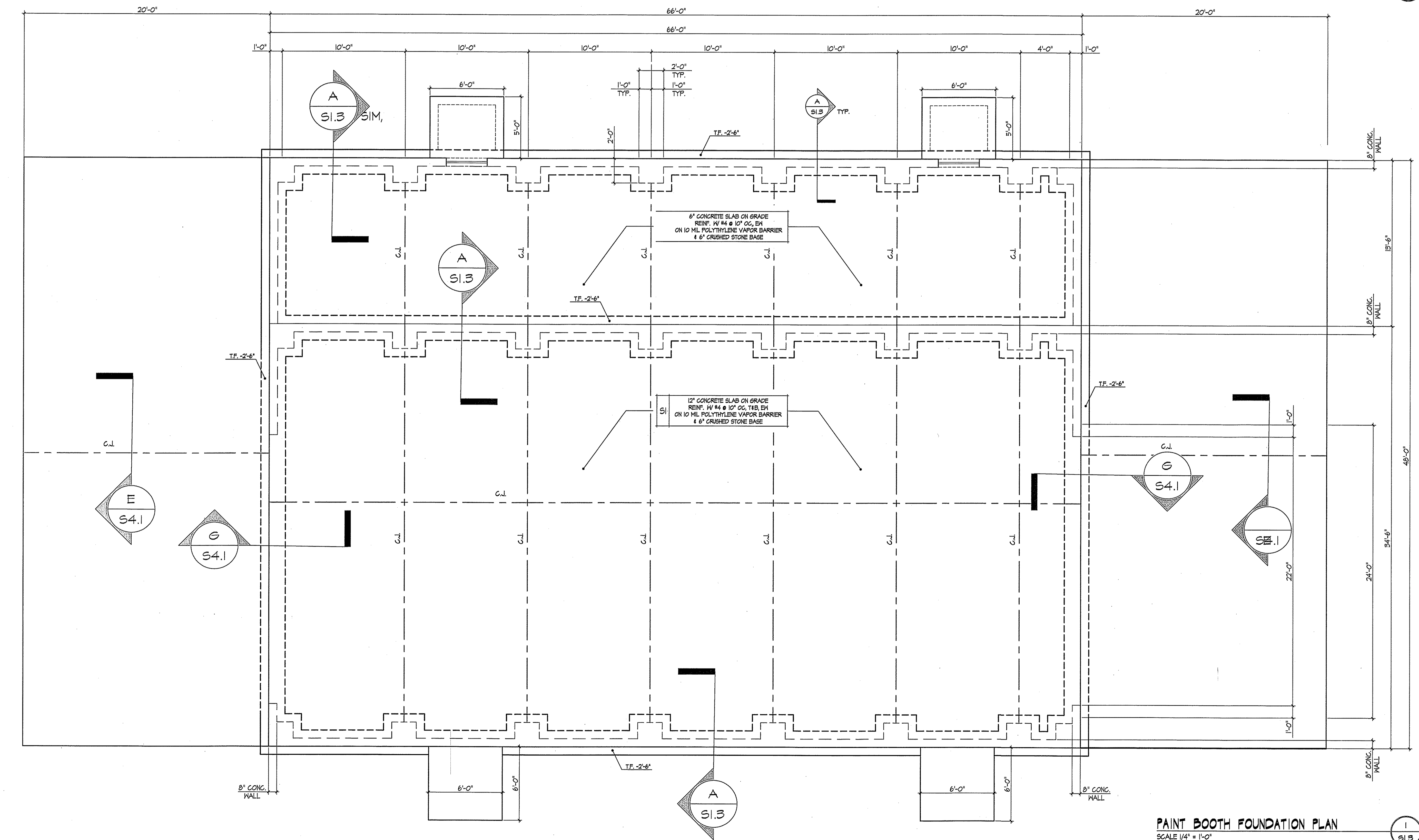
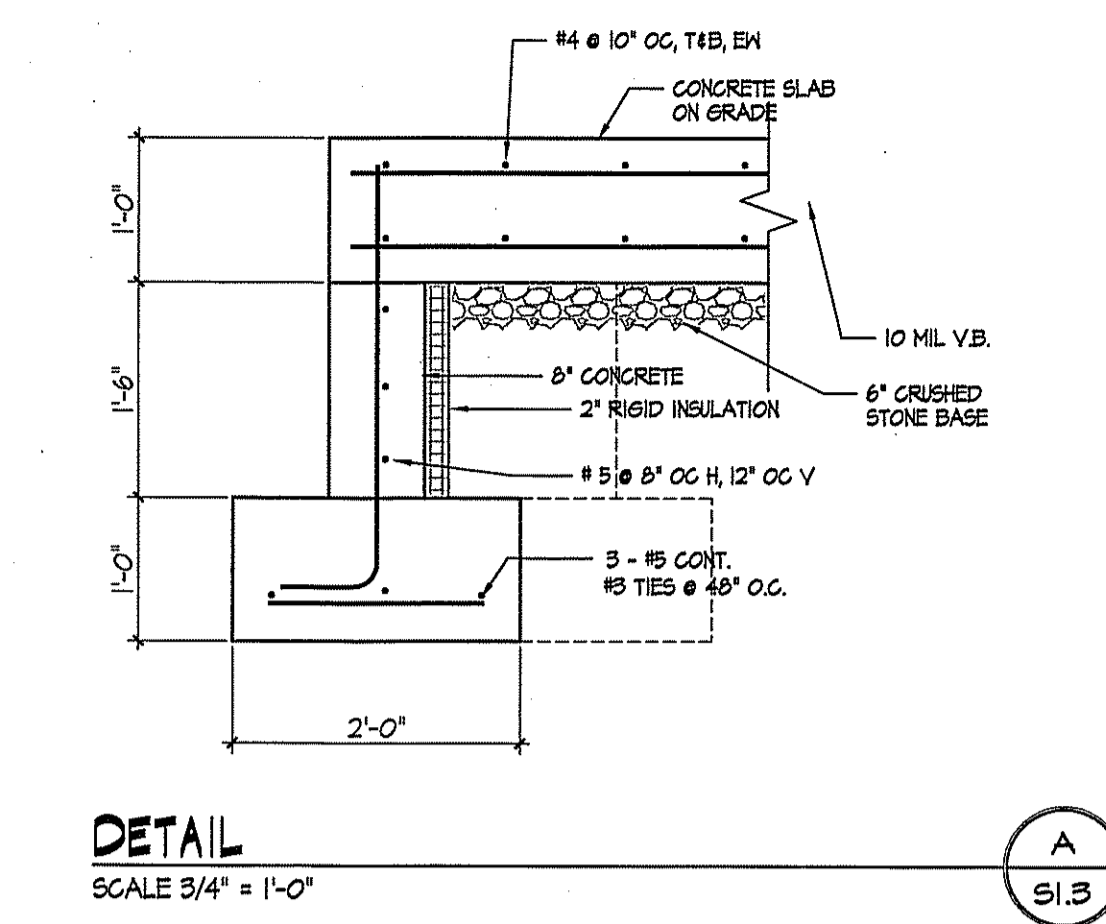
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REVISION DATE
 ISSUE DATE
JULY 9, 2024
 DRAWING TITLE
PAINT BOOTH FOUNDATION PLAN
 PROJECT NO.
24044
 SHEET NUMBER
S1.3



PAINT BOOTH FOUNDATION PLAN
 SCALE 1/4" = 1'-0" 1
S1.3

DESIGN CRITERIA

- GOVERNING CODES:
INTERNATIONAL BUILDING CODE, 2015
ASCE 7 - 2010
- DESIGN LIVE LOADS:
SECOND FLOOR 100 PSF
STAIRS 125 PSF
STORAGE 125 PSF
- SEISMIC LOADING:
SEISMIC IMPORTANCE FACTOR: 1.0
OCCUPANCY CATEGORY: II
 $S_s = 0.166$
 $S_1 = 0.091$
SITE CLASS: D
 $S_{ds} = 0.19$
 $S_{d1} = 0.04$
SEISMIC DESIGN CATEGORY: B
BASIS: SEISMIC-FORCE-RESISTING SYSTEMS:
B) ORDINARY STEEL BRACED FRAMES
SIMPLIFIED ALTERNATE DESIGN CRITERIA

CONCRETE NOTES

- ALL CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301 SPECIFICATIONS FOR STRUCTURAL CONCRETE BUILDINGS, EXCEPT AS MODIFIED BY THE FOLLOWING SUPPLEMENTAL REQUIREMENTS.
- ALL CONCRETE SHALL HAVE THE FOLLOWING 28 DAY COMPRESSIVE STRENGTHS:
 - ALL CONCRETE FOR FOUNDATIONS SHALL BE NORMAL WEIGHT WITH A COMPRESSIVE STRENGTH OF FC = 3000 PSI, A MINIMUM CEMENT CONTENT OF 500 POUNDS PER C.Y. AND A MAXIMUM SLUMP OF 4".
 - ALL CONCRETE FOR SLABS ON GRADE SHALL BE NORMAL WEIGHT WITH A COMPRESSIVE STRENGTH OF FC = 4000 PSI, A MINIMUM CEMENT CONTENT OF 540 POUNDS PER C.Y. AND A SLUMP OF 4".
 - ALL CONCRETE FOR SLAB ON METAL DECK SHALL BE NORMAL WEIGHT WITH A COMPRESSIVE STRENGTH OF 3500 PSI.
 - ALL EXTERIOR CONCRETE FOR SLABS ON GRADE SHALL BE NORMAL WEIGHT WITH A COMPRESSIVE STRENGTH OF FC = 3000 PSI, A MINIMUM CEMENT CONTENT OF 540 POUNDS PER C.Y., 6% AIR AND A SLUMP OF 4".
- ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60.
- MINIMUM CONCRETE PROTECTION FOR REINFORCING (EXCEPT AS OTHERWISE NOTED) SHALL CONFORM TO THE PROVISIONS OF ACI 301.
- SPLICING OF REINFORCEMENT, EXCEPT AS SHOWN IN THE DRAWINGS, IS NOT PERMITTED UNLESS SPECIFICALLY APPROVED BY THE ENGINEER. UNLESS OTHERWISE SHOWN IN THE DRAWINGS, THE TYPICAL SPLICE LENGTHS SHALL BE AS FOLLOWS:
 $\#4 L = 20"$ $\#5 L = 25"$ $\#6 L = 31"$ $\#7 L = 34"$
- DETAILING OF ALL REINFORCING STEEL SHALL CONFORM TO "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" (ACI 318).
- PROVIDE CORNER REINFORCING WITH REQUIRED LAP SPLICE LENGTHS AT ALL CORNERS AND INTERSECTIONS OF FOOTINGS AND WALLS.
- C.J. DESIGNATES A FLOOR CONTROL JOINT. CONTRACTOR IS TO UTILIZE EITHER THE SAW CUT JOINT OR THE CONSTRUCTION JOINT DETAIL AT THE LOCATIONS INDICATED ON THE DRAWINGS.

FOUNDATION PLAN NOTES

- COORDINATE ALL DIMENSIONS AND DETAILS WITH THE ARCHITECTURAL DRAWINGS AND DETAILS.
- ALL FOOTING ELEVATIONS ARE INDICATED ON THE PLANS AND ARE GIVEN AS A DISTANCE RELATIVE TO THE TOP OR BOTTOM OF THE REFERENCE FINISH FLOOR ELEVATION.
- ENGINEER TO EXAMINE FOUNDATION SUBGRADES IN THE FIELD. PROOF-ROLL THE EXPOSED SUBGRADE, OVER-EXCAVATE AND RE-FILL ALL EXPOSED SOFT AREAS OR OTHER IRREGULARITIES ENCOUNTERED AS DIRECTED BY THE ENGINEER.
- ALL STRUCTURAL FILL MATERIAL TO BE APPROVED BY ENGINEER.
- COMPACT ALL FILL AND BACKFILL PLACED IN STRUCTURAL AREAS OF THE BUILDING, INCLUDING THE AGGREGATE CUSHIONS UNDER FOOTINGS AND FLOOR SLABS, USING LOOSE 3" THICK LIFTS, TO AT LEAST 100% OF THE MAXIMUM DRY DENSITY AT WITHIN PLUS OR MINUS 3% OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE STANDARD COMPACTION TEST, ASTM D 698.
- WHERE BEDROCK IS ENCOUNTERED AT THE FOOTING OR SLAB SUBGRADE LEVELS, REMOVE AND UNDERCUT GRADE A MINIMUM OF 12" BELOW FOOTINGS AND 12" BELOW SLABS. BACKFILL UNDERCUT AREAS WITH A CUSHION LAYER OF CRUSHED AGGREGATE, PLACED AND COMPACTED AS SPECIFIED. MANUALLY PROBE ALL FOOTING SUBGRADES TO ENSURE THAT NO BEDROCK IS PRESENT WITHIN 12" OF THE PROPOSED BASE LEVELS. IF BEDROCK IS PRESENT WITHIN THIS DEPTH, FOLLOW THE PROCEDURE DEFINED ABOVE.
- FOUNDATION DESIGN IS BASED ON A NET ALLOWABLE BEARING CAPACITY OF 2000 PSF.
- (*) DESIGNATES DIMENSIONS TO BE VERIFIED IN THE FIELD BY GENERAL CONTRACTOR.

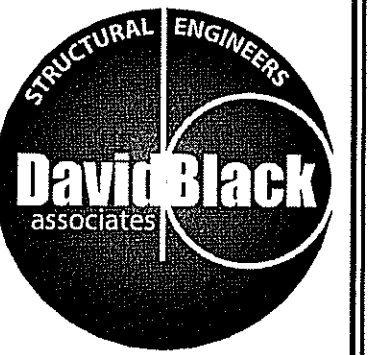
STRUCTURAL STEEL NOTES

- ALL ANGLES AND PLATE MATERIAL ARE ASTM A36, F706, UNLESS OTHERWISE NOTED. STRUCTURAL PIPE MATERIAL IS ASTM A501 OR ASTM A513, TYPE E OR S, GRADE B. HOLLOW STRUCTURAL SECTIONS (HSS) ARE ASTM A500, GRADE B, F746. ALL ROLLED SHAPES (A, C, M) ARE ASTM A242 OR ASTM A992, GRADE 50.
- UNLESS OTHERWISE NOTED, ALL BOLTED CONNECTIONS OF BEAMS OR GIRDERS TO COLUMNS ARE TO BE MADE WITH 3/4" DIA. A325-N BOLTS. UNLESS NOTED OTHERWISE, THE FRAMED CONNECTIONS SHALL BE IN ACCORDANCE WITH FRAMED BEAM CONNECTION TABLES OF THE AISI MANUAL, 9TH EDITION. ALL CONNECTIONS SHALL BE PROPORTIONED TO SUPPORT LOAD CAPACITY SHOWN ON THE DRAWINGS. (N, N') "Y" VERTICAL LOAD, "H" HORIZONTAL LOAD ALONG LENGTH OF MEMBER.
- ANCHOR ROD MATERIAL TO BE ASTM F 1554, GR. 36.
- PROVIDE REINFORCING AT CONNECTIONS WHERE CUTS HAVE REDUCED THE SHEAR OR MOMENT CAPACITY BELOW THAT REQUIRED TO SUSTAIN THE REACTION.
- ELECTRODES, FLUX AND SHIELDING GAS WELDING SHALL CONFORM TO AWS A5.1, AWS A5.18 OR AWS A5.20 (LATEST EDITION), AS APPLICABLE, AND SHALL PROVIDE PHYSICAL PROPERTIES AFTER WELDING EQUIVALENT TO OR BETTER THAN E70XX LOW HYDROGEN ELECTRODES.
- ALL MEMBERS SHALL BE FABRICATED AND PLACED WITH NATURAL CAMBER UP.
- DOUBLE ANGLE MEMBERS SHALL BE CONNECTED IN ACCORDANCE WITH THE PROVISIONS OF AISI SECTION 11B.2.
- FILLET WELDS ON GUSSET PLATES, BASE PLATES, SEATED CONNECTIONS AND OTHER PLATE EXTENSIONS SHALL BE RETURNED AROUND THE ENDS OF PLATE.
- PROVIDE FULL DEPTH STIFFENER PLATES AT ALL BEAMS SUPPORTED ON TOP OF COLUMNS AND ALIGN WITH COLUMN FLANGES.

METAL DECK NOTES

- METAL FLOOR DECK [D-1]:
ALL METAL FLOOR DECK DESIGNATED [D-1] SHALL BE 1/2 INCHES DEEP, 22 GAUGE, GALVANIZED (660) PAINT READY COMPOSITE DECK. THE PATTERN FOR SECURING THE DECK TO THE STRUCTURE AT THE SHEET END LAPS SHALL BE 36/4 OR 30/4 AND AT ALL INTERMEDIATE FRAMING THE PATTERN SHALL BE 36/3 OR 30/3. THE METAL DECK SHALL BE CONTINUOUS OVER A MINIMUM OF THREE SPANS. PROVIDE 6X6, 12.0X12.0 W4X SET AT MID DEPTH OF 4" CONCRETE FLOOR SLAB USING CHAIRS.
- FLOOR DECK IS TO BE SECURED USING FM APPROVED POWDER ACTIVATED FASTENERS.
FASTENERS: USE FM APPROVED HILTI FASTENERS AS FOLLOWS:
ROOF: ENF12-21-L-15 OR ENF2K-20-L15 OR FM APPROVED EQUAL FOR RESPECTIVE THICKNESS OF SUPPORTING STEEL.
FLOOR: ENF2R OR 50K2-FDN OR APPROVED EQUAL FOR RESPECTIVE THICKNESS OF SUPPORTING STEEL.
- ERECT METAL DECK IN ACCORDANCE WITH SDI DESIGN MANUAL.
- BEAR DECKING ON STEEL SUPPORTS WITH A 2" MINIMUM BEARING. ALIGN AND LEVEL.
- MECHANICALLY FASTEN MALE/FEMALE SIDE LAPS AT MID-SPAN AND AT SUPPORTS PER FM REQUIREMENTS.
- INSTALL 20 GA. STEEL CLOSURE AND ANGLE FLASHINGS TO CLOSE ALL OPENINGS BETWEEN DECK AND COLUMNS AND OPENINGS.

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GENERAL
STRUCTURAL NOTES

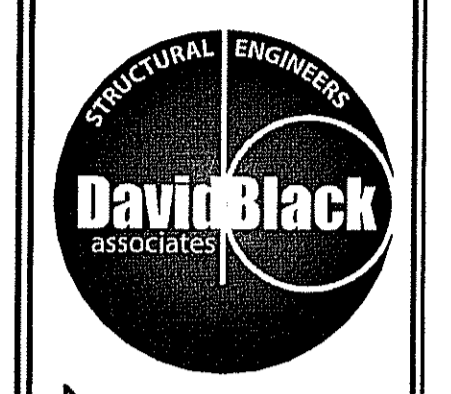
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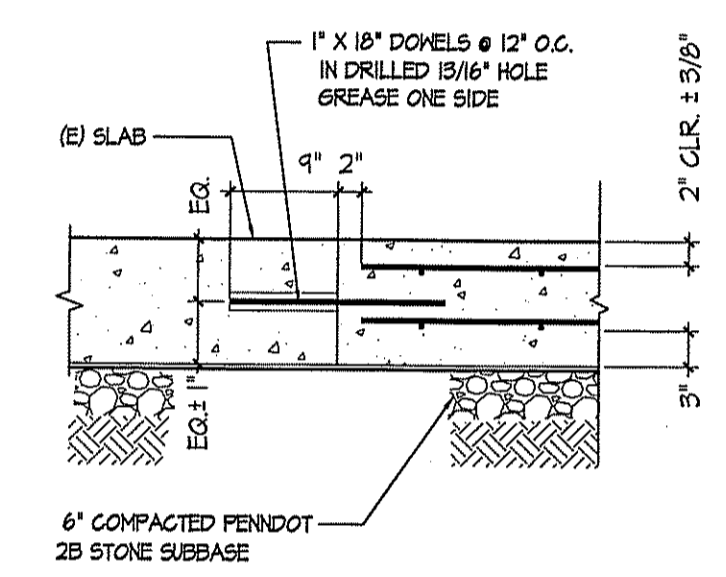
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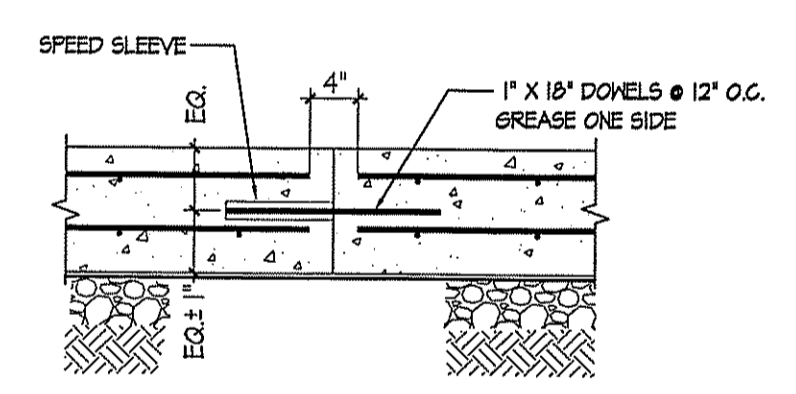


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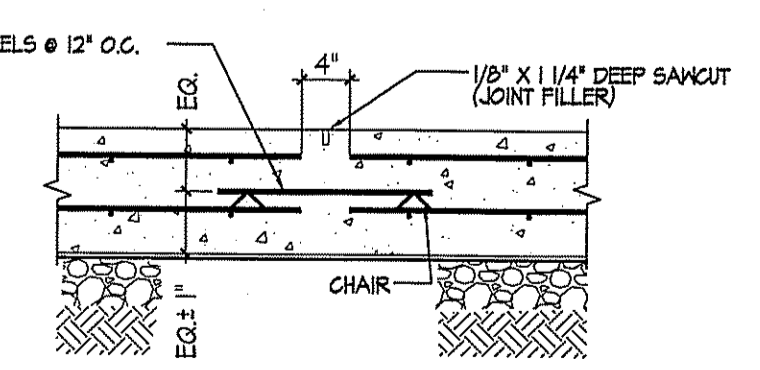


DETAIL S1.1
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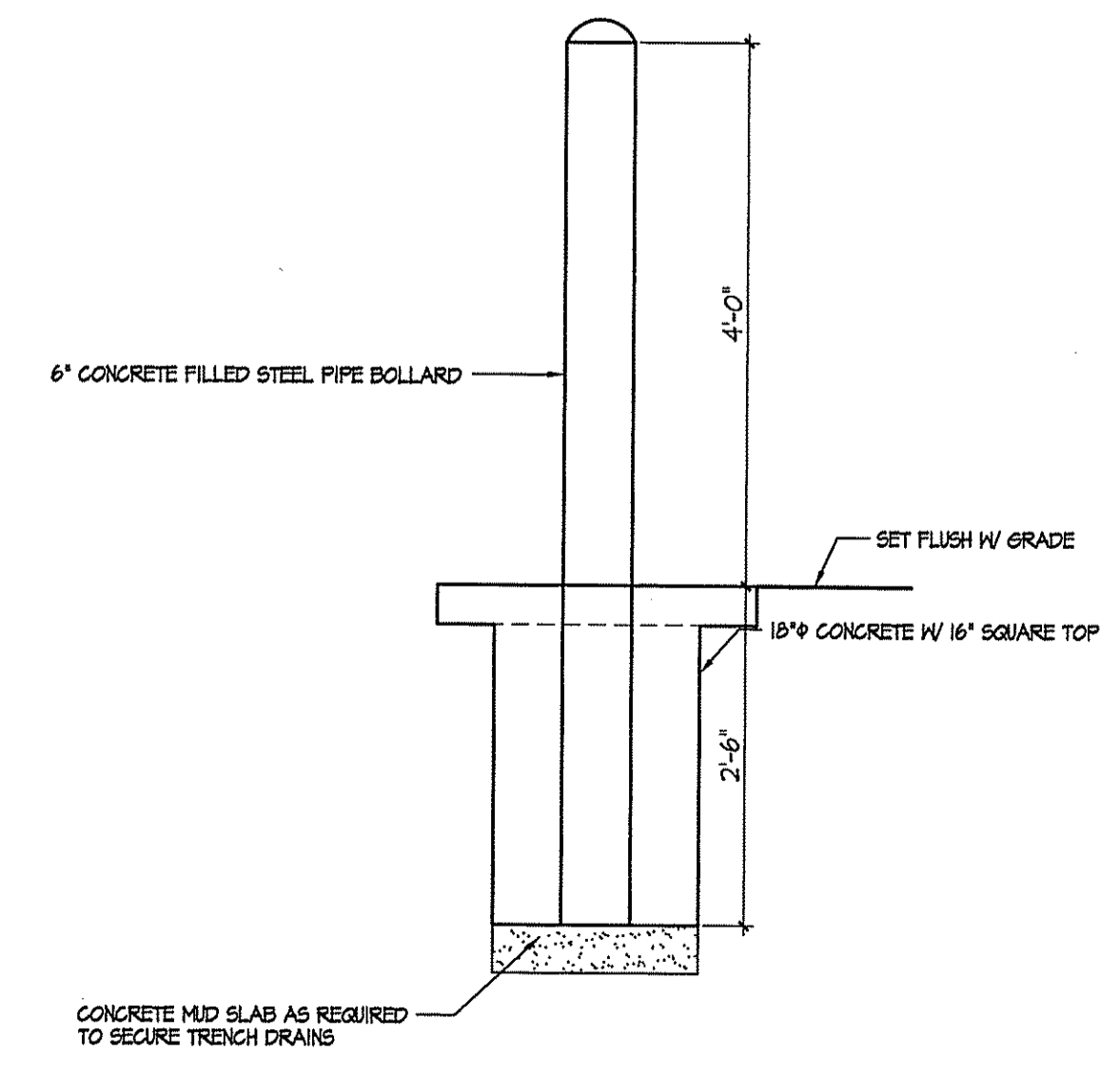
CONSTRUCTION DOWELED JOINT (CDJ)

DETAIL F S4.1
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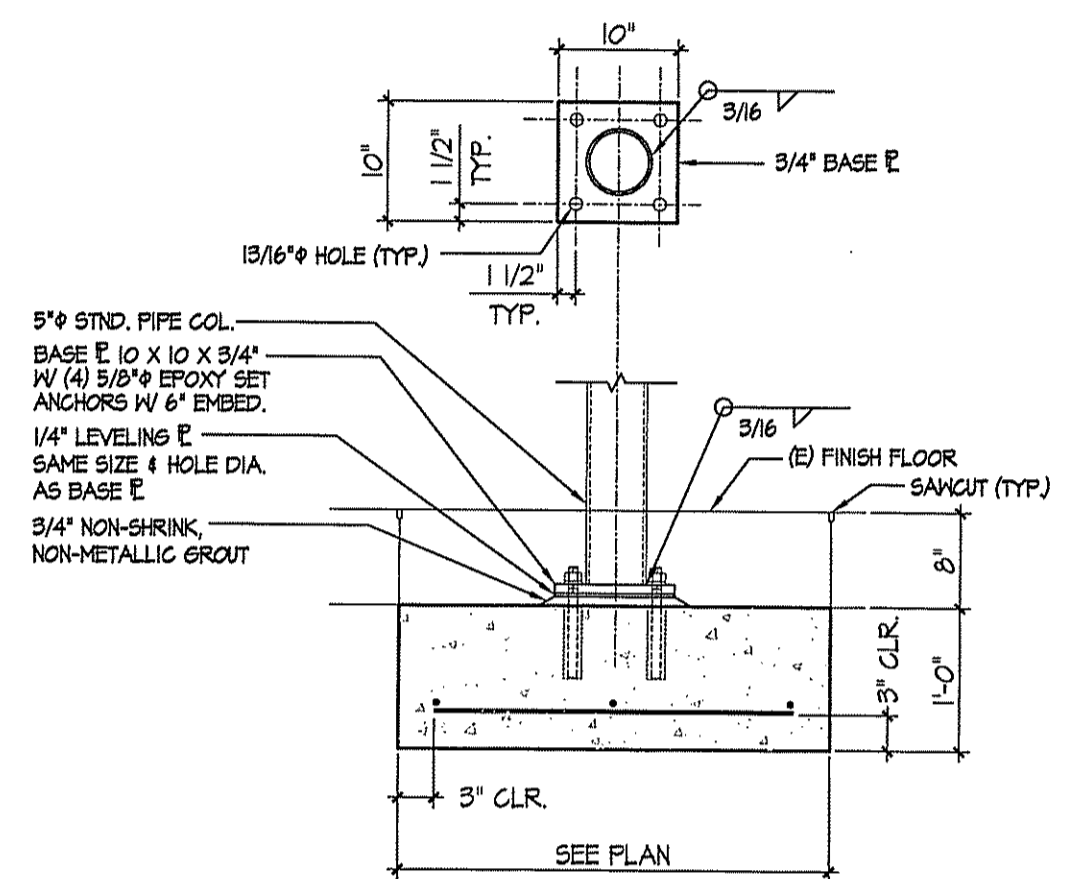


DOWELED CONTROL JOINT (DCJ)

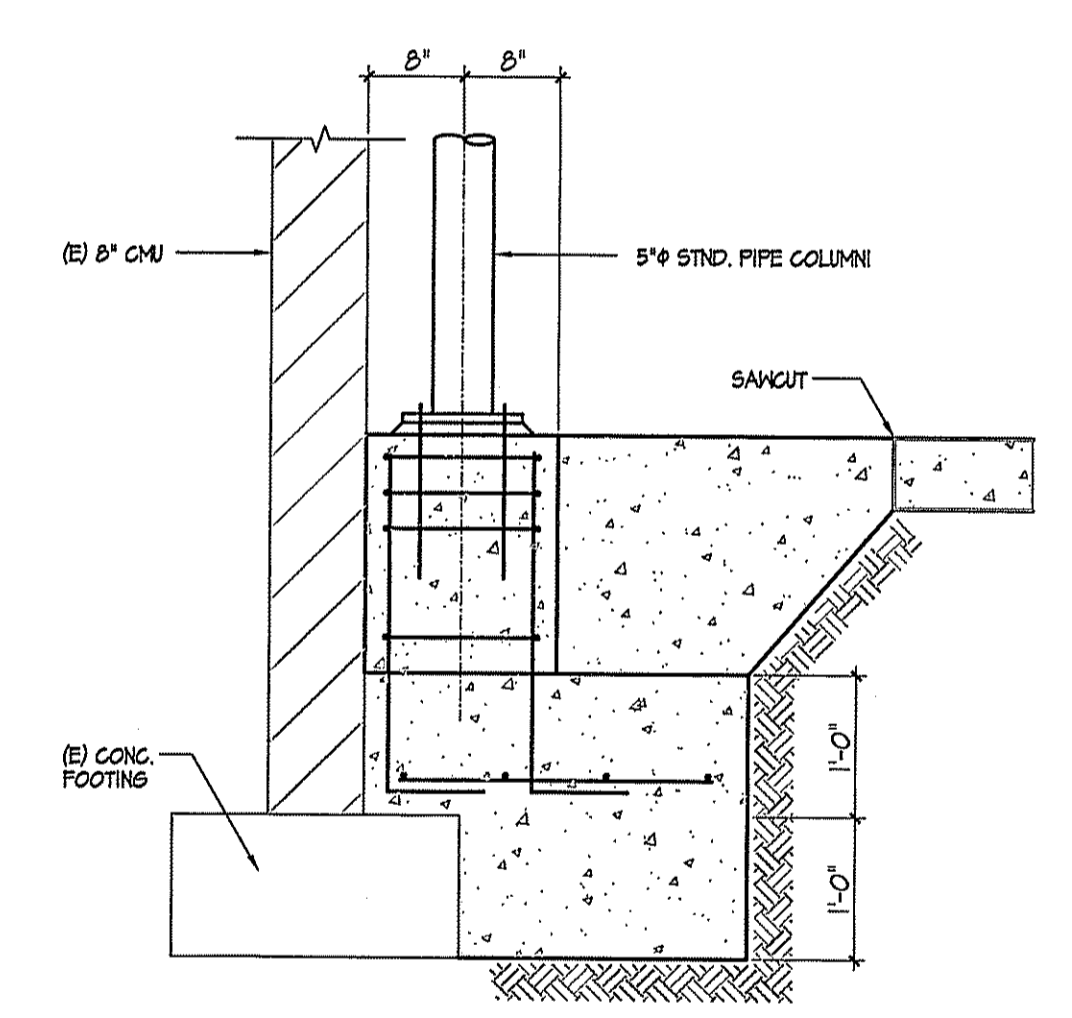
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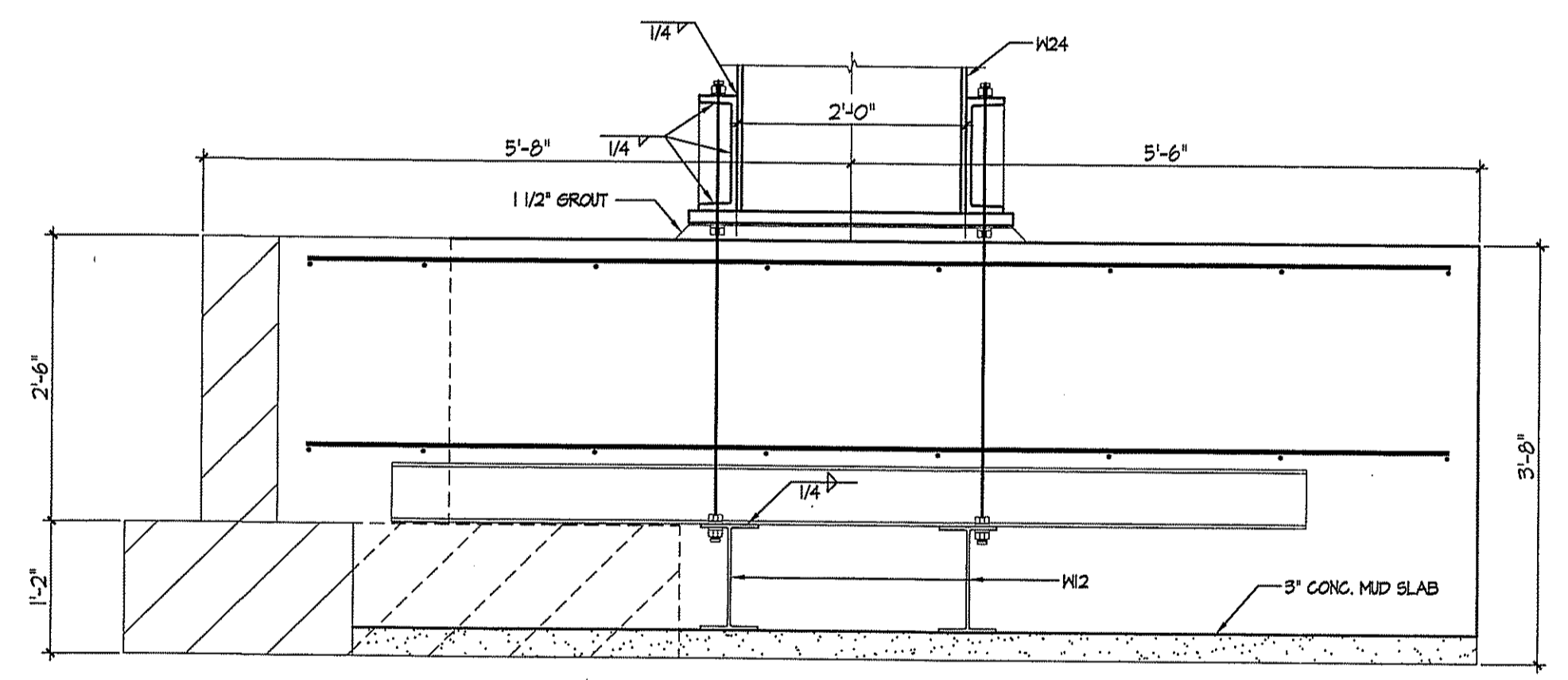
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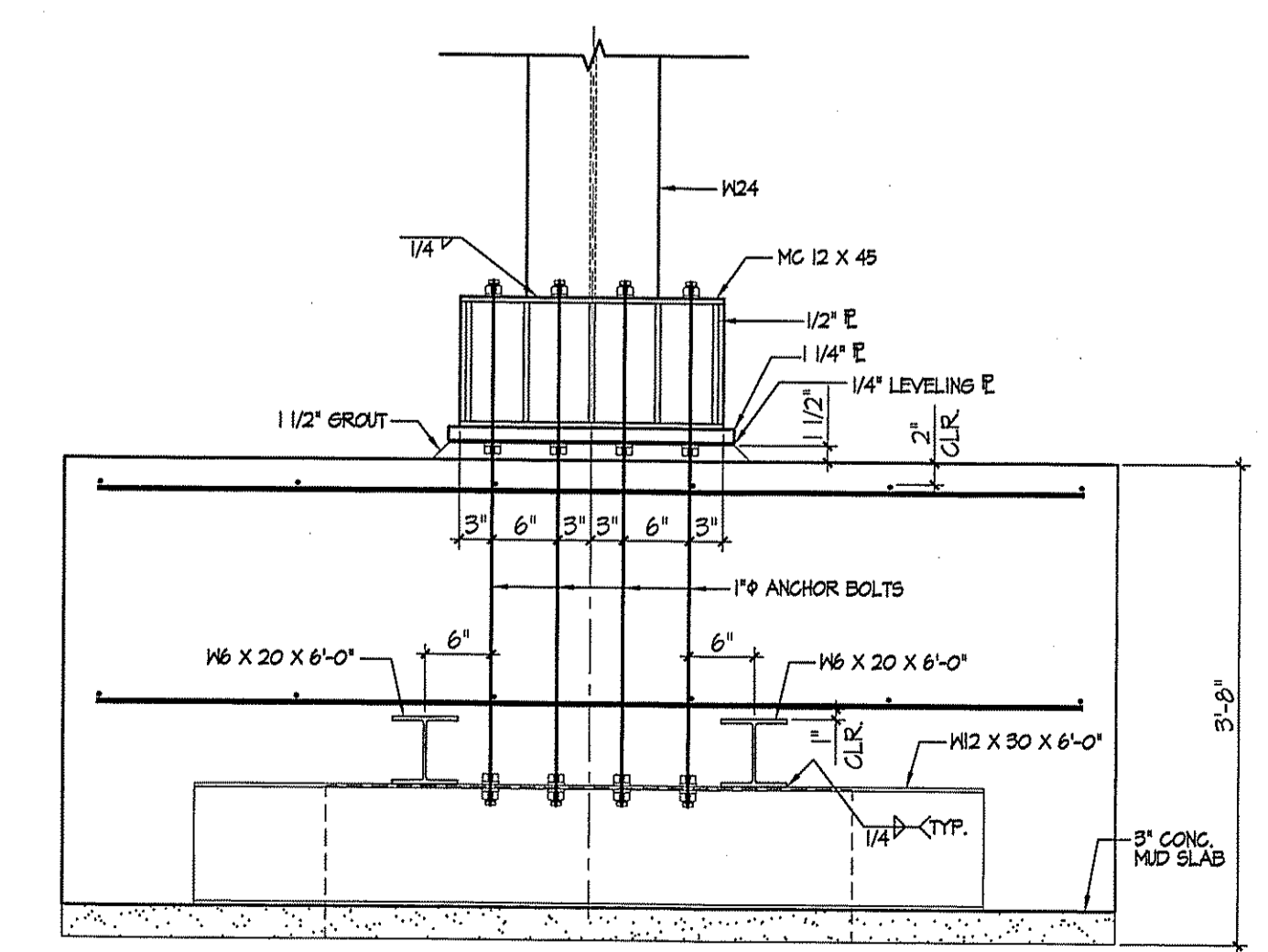
FOOTING DETAIL C S4.1
 SCALE 3/4" = 1'-0"



SECTION B S4.1
 SCALE 3/4" = 1'-0"



SECTION 2 S4.1
 SCALE 3/4" = 1'-0"



SECTION 1 S4.1
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REVISION DATE

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FOUNDATIONS DETAILS

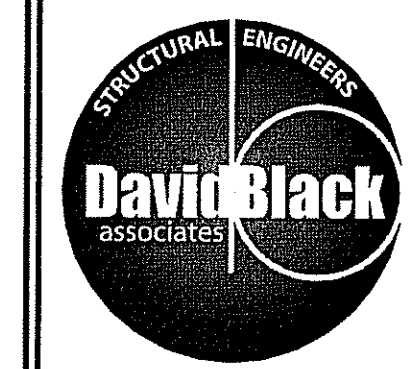
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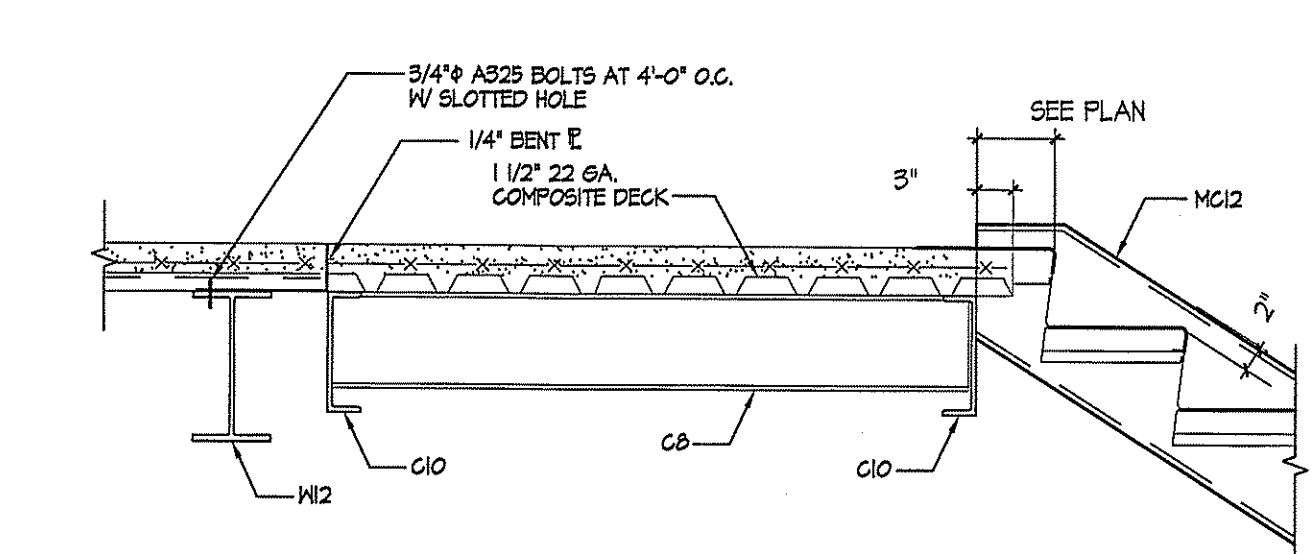
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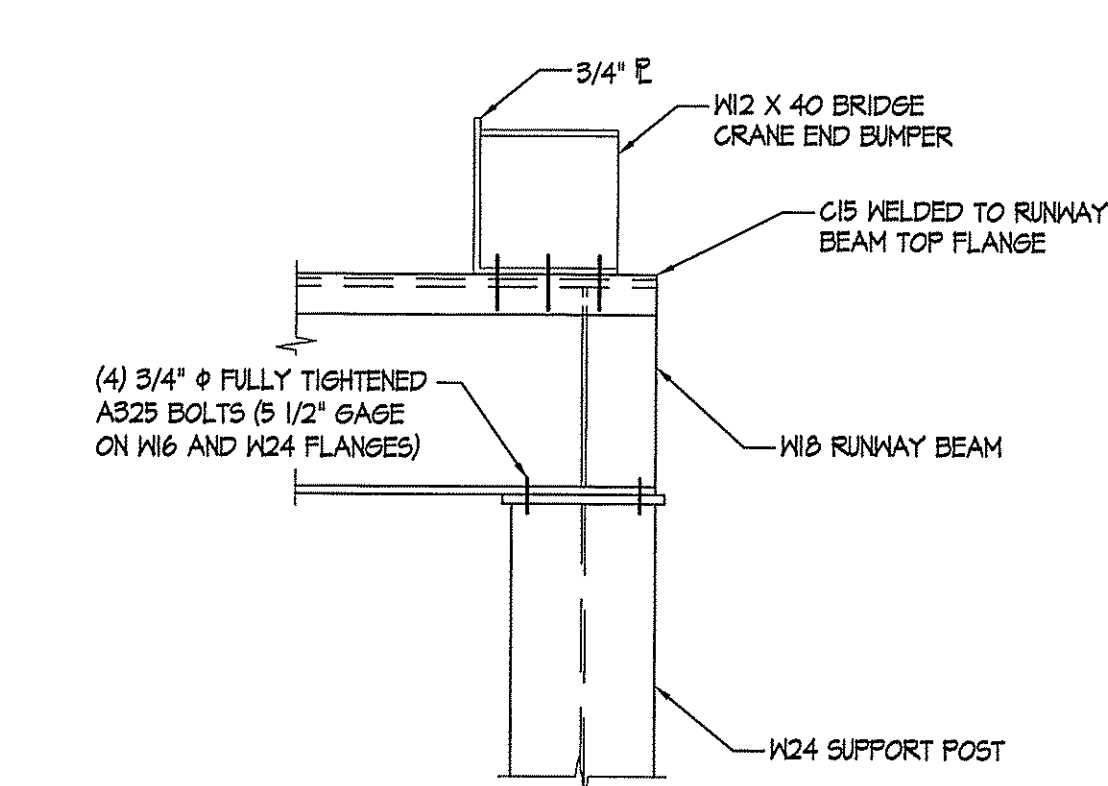


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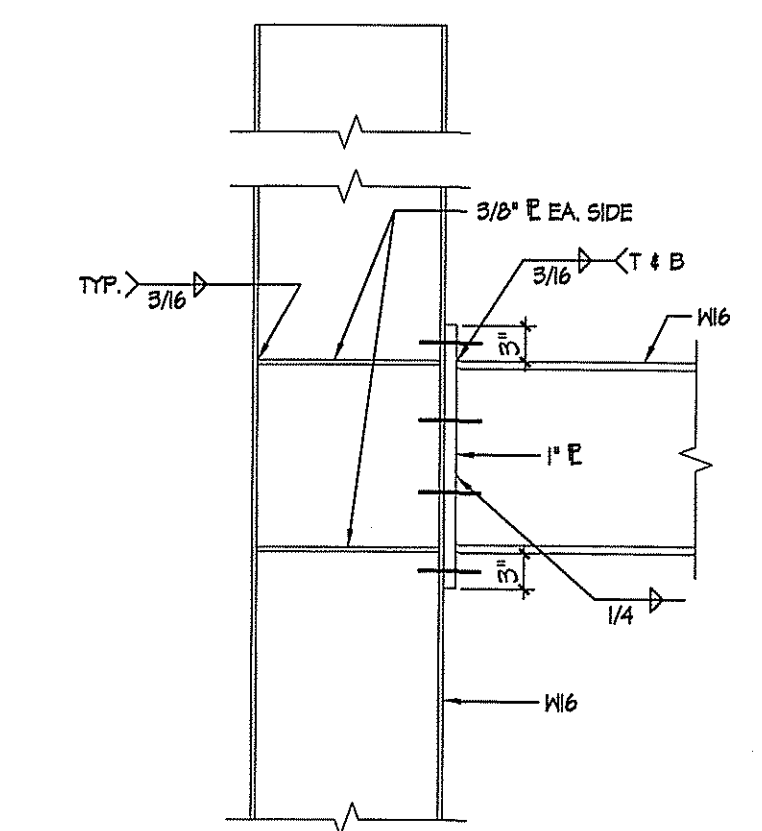
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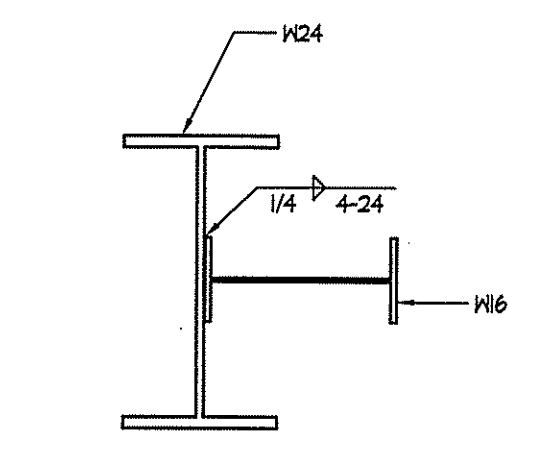
DETAIL D
 SCALE 3/4" = 1'-0"



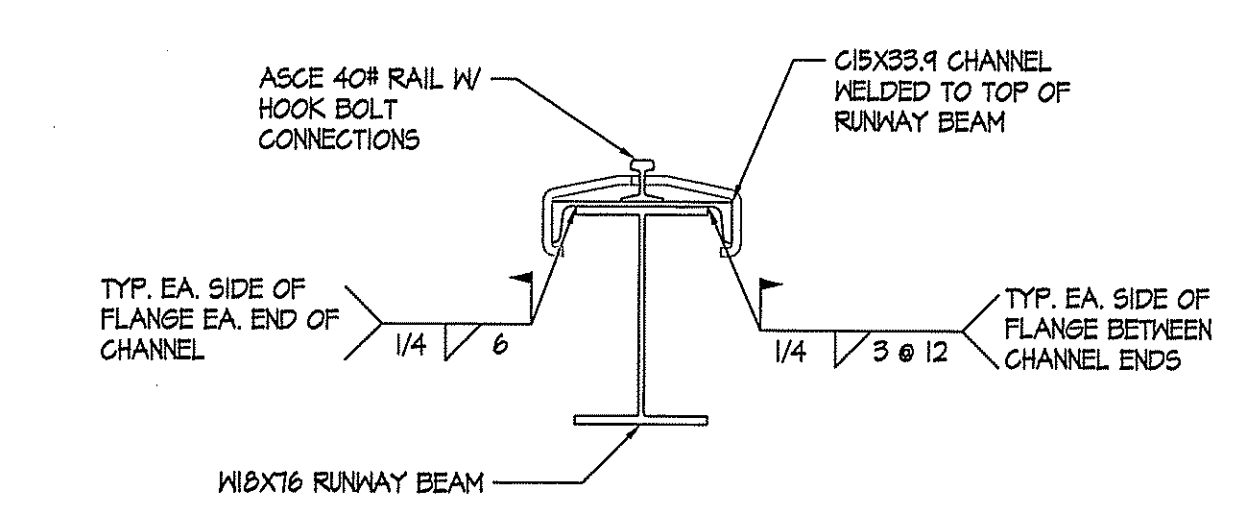
SECTION K
 SCALE 3/4" = 1'-0"



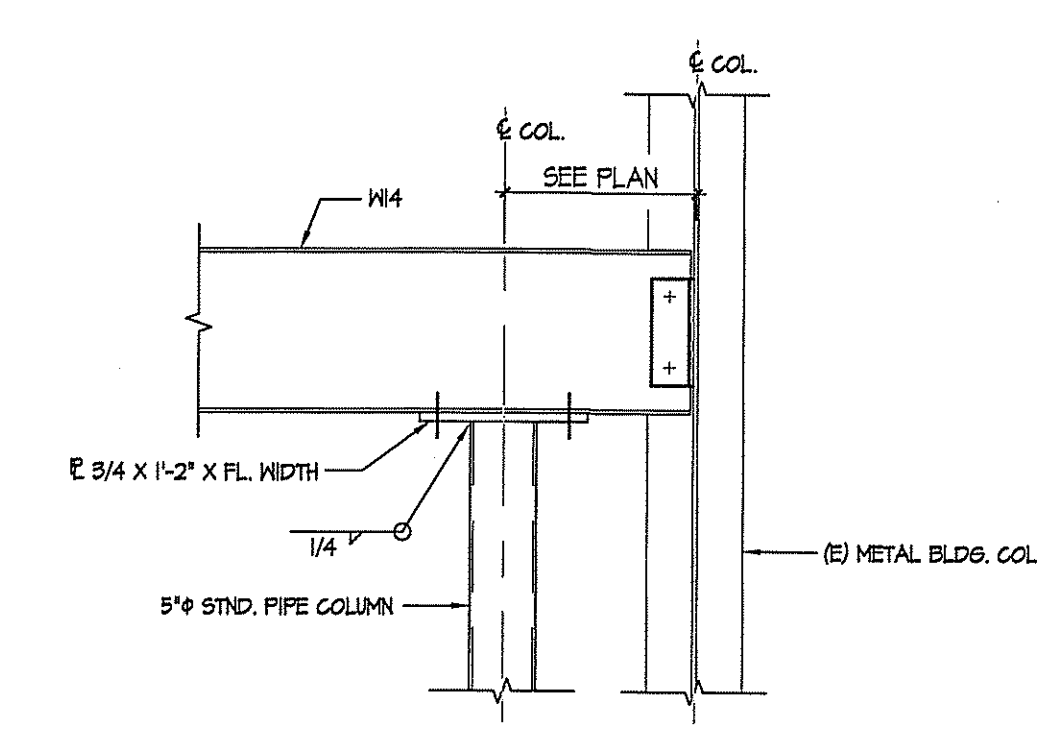
DETAIL E
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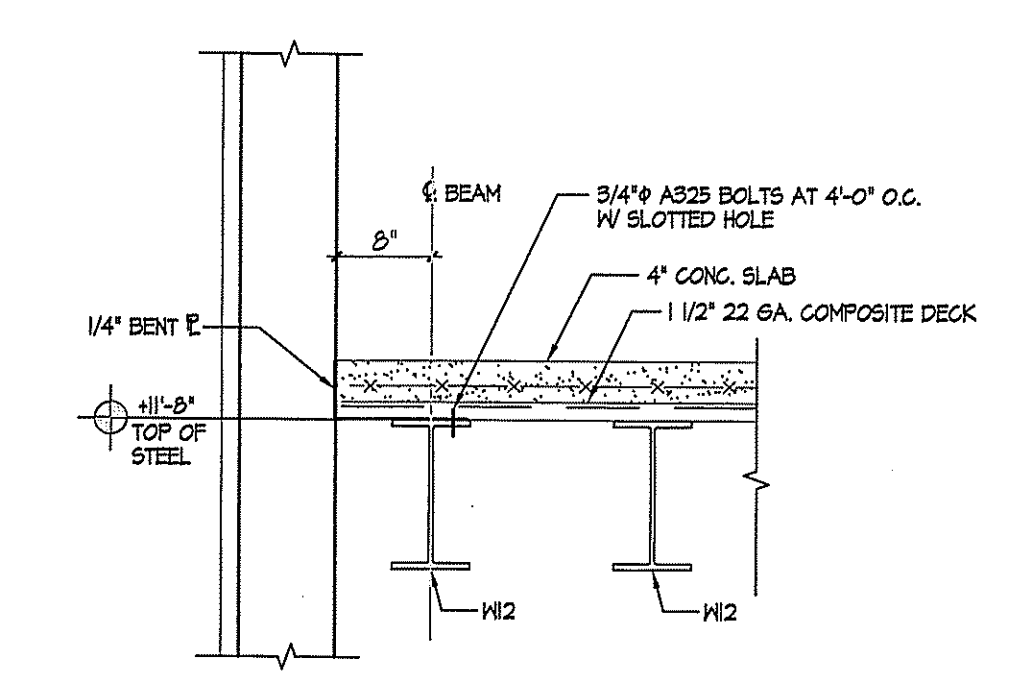
DETAIL C
 SCALE 3/4" = 1'-0"



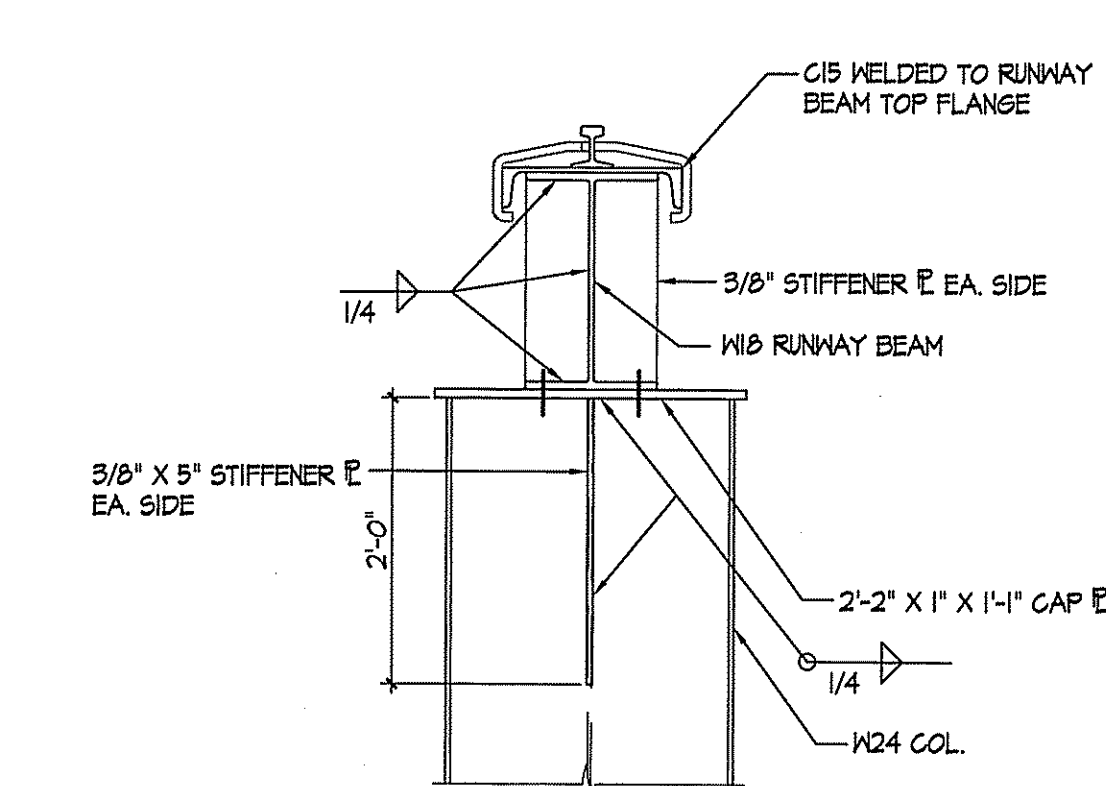
SECTION J
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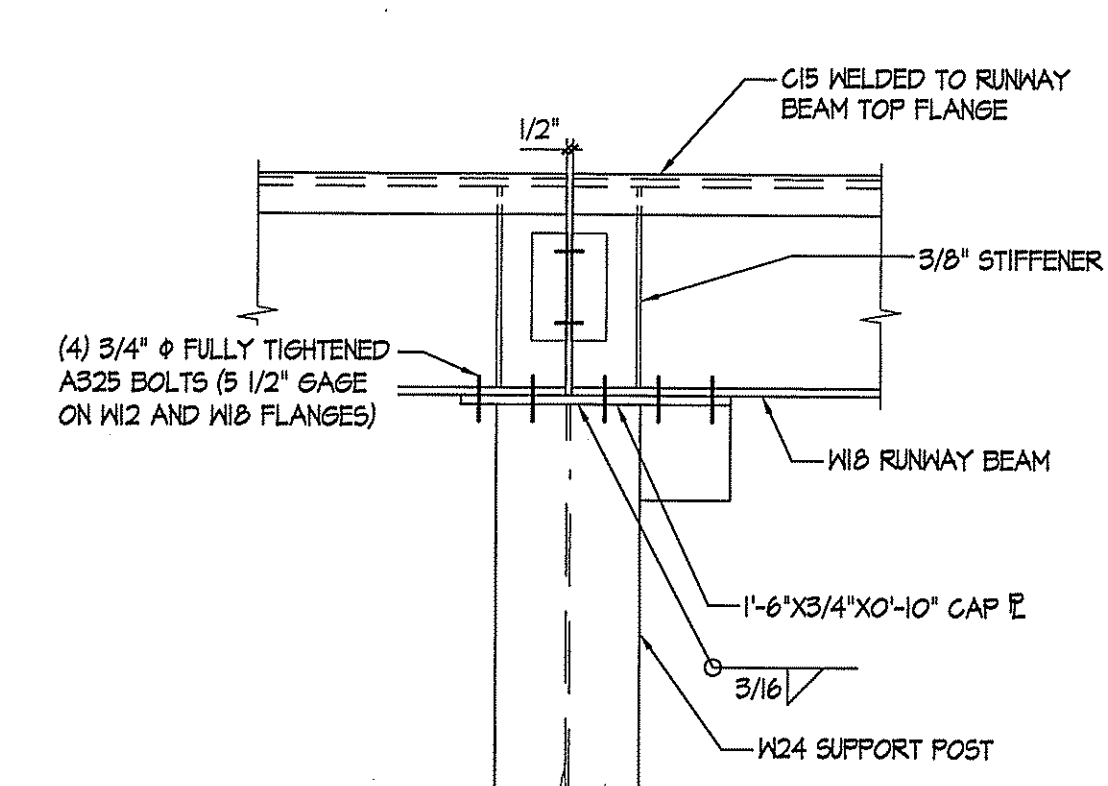
DETAIL F
 SCALE 3/4" = 1'-0"



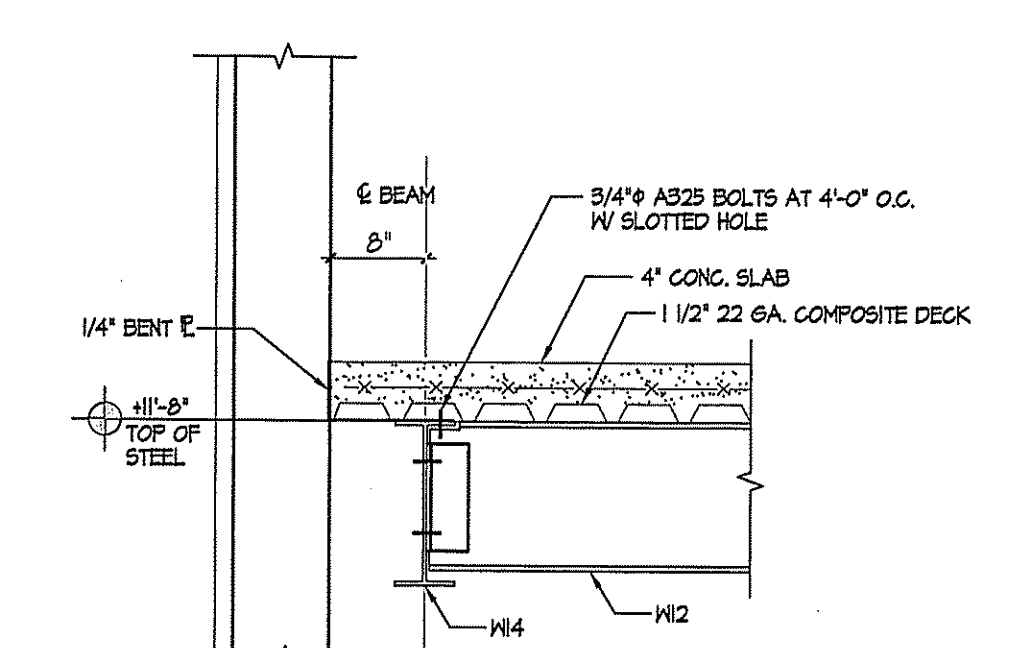
DETAIL B
 SCALE 3/4" = 1'-0"



DETAIL L
 SCALE 3/4" = 1'-0"

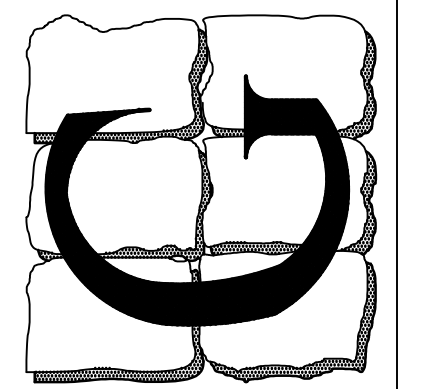


DETAIL H
 SCALE 3/4" = 1'-0"



DETAIL A
 SCALE 3/4" = 1'-0"

REVISION DATE
 ISSUE DATE
JULY 9, 2024
 DRAWING TITLE
STRUCTURAL DETAILS
 PROJECT NO.
 24044
 SHEET NUMBER
55.1

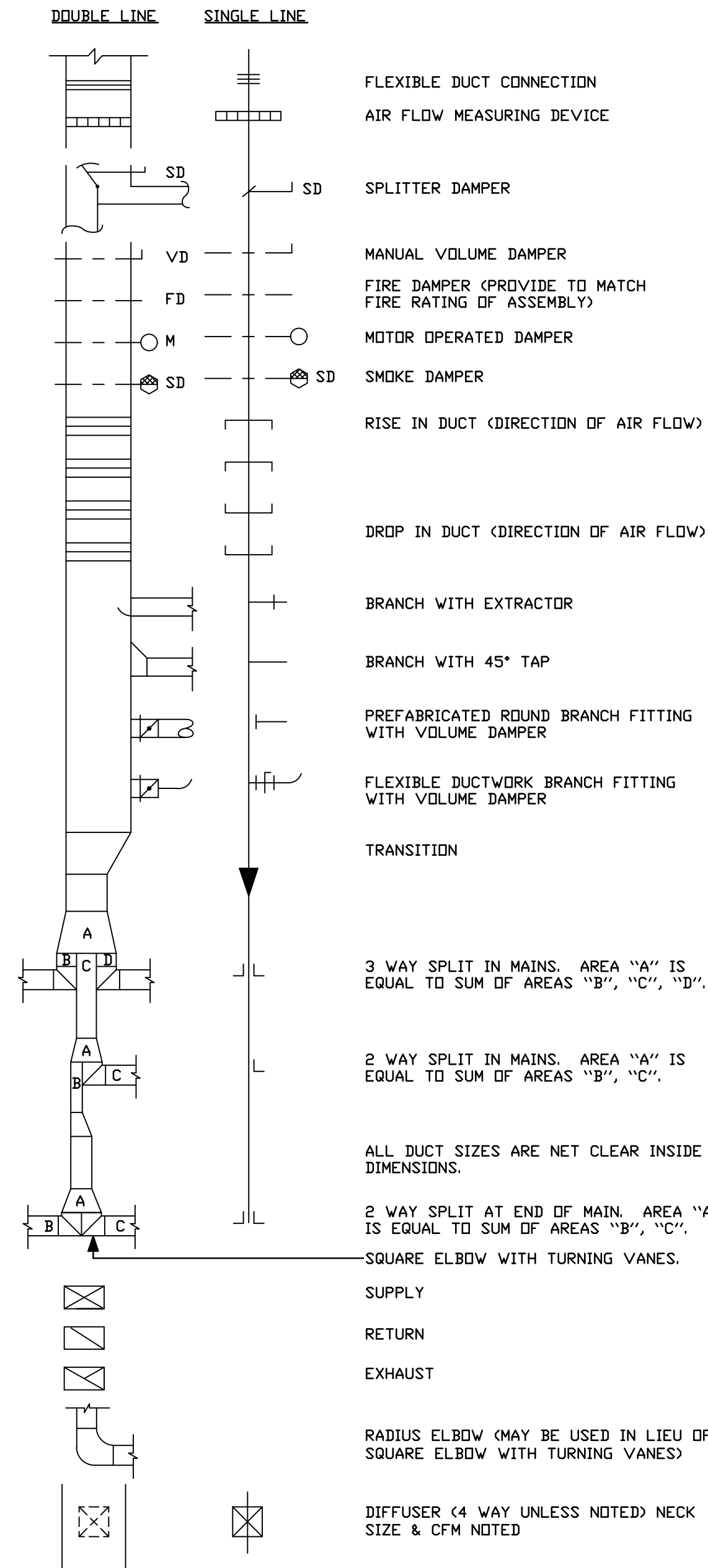


REV.	DATE	COMMENT
	07/10/2024	BID SET

MECHANICAL SYMBOLS

- ☒ SUPPLY
- ☒ RETURN
- ☒ EXHAUST
- ⊕ FLEXIBLE DUCT
- ⊖ SPIRAL DUCT
- ⊕ VOLUME DAMPER
- ⊖ FIRE DAMPER
- ⊕ SPLITTER DAMPER
- ⊖ TURNING VANES
- ⊕ REFRIGERANT LINES
- ⊖ CANVAS CONNECTION
- ⊕ CONDENSATE LINE
- ⊖ NATURAL GAS LINE
- ⊕ LP GAS LINE
- ⊕ POINT OF CONNECTION
- D-# SUPPLY DIFFUSER
- R-# RETURN AIR GRILLE WITH FILTER
- G-# SUPPLY GRILLE
- AIR FLOW INDICATION
- ⊕ GAS COCK
- ⊕ UNION
- E.F. EXHAUST FAN
- A.H.U. AIR HANDLING UNIT
- ⊕ ELECTRIC BASEBOARD
- ⊕ UNIT HEATER
- ⊕ ELECTRIC WALL HEATER
- ⊕ THERMOSTAT
- ⊕ AVERAGING THERMOSTAT REMOTE SENSOR
- C.U. CONDENSING UNIT
- ⊕ UNDERCUT DOOR

DUCTWORK SYMBOLS



MECHANICAL NOTES AND REQUIREMENTS

- FOR RENOVATION WORK THE MECHANICAL CONTRACTOR SHALL INSPECT ANY EXISTING MECHANICAL ITEMS TO BE REUSED FOR DEFECTS AND REPORT TO THE ARCHITECT/ENGINEER AND THE OWNER ANY DEFICIENCIES PRIOR TO PERFORMING ANY WORK.
- CONTRACTOR SHALL BALANCE THE AIR DISTRIBUTION SYSTEM TO AIR QUANTITIES INDICATED ON THE DRAWINGS AND SUBMIT (3) COPIES OF THE BALANCE REPORT TO THE ENGINEER FOR APPROVAL.
- CONTRACTOR SHALL SPRAY PAINT INSIDE OF DUCT BLACK, BEHIND ALL GRILLES AND REGISTERS.
- ALL DUCTWORK SHALL BE GALVANIZED SHEET METAL, FABRICATED AND INSTALLED IN ACCORDANCE WITH ASHRAE STANDARDS AND SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" EXCEPT THAT DUCTWORK SHALL BE A MINIMUM THICKNESS OF 24 GAUGE. TRUNK DUCTS OVER 18" SHALL BE "DUCTMATE" OR EQUIVALENT GASKETED JOINTS.
- FLEXIBLE DUCTWORK SHALL BE RATED CLASS I, WHEN TESTED UNDER THE REQUIREMENTS OF UL 181. FLEXIBLE DUCT SHALL NOT EXCEED (6) FEET IN LENGTH. FLEX DUCT SHALL BE EQUAL TO CERTAINTIED "CERTAFLEX" G25 FLEXIBLE HOSE PREINSULATED WITH 1-1/2 INCH THICK FIBERGLASS INSULATION WITH POLYETHYLENE JACKET. HOSE SHALL BE POLYESTER WITH EMBEDDED HELICAL STEEL WIRE.
- HVAC UNIT FLEXIBLE DUCT CONNECTIONS SHALL BE A MINIMUM OF 6 INCHES LONG AND HELD IN PLACE WITH HEAVY METAL BANDS, SECURELY ATTACHED TO PREVENT ANY LEAKAGE AT THE CONNECTION POINTS. FLEXIBLE CONNECTIONS SHALL BE FABRICATED FROM APPROVED FLAME PROOF FABRIC CONFORMING TO NFPA 90A.
- ALL PIPING SHALL BE INSTALLED AS INDICATED ON THE DRAWINGS IN A NEAT WORKMANSHIP-LIKE MANNER AND BE SUPPORTED AS REQUIRED BY CODES. PIPING SHALL BE SET UP AND DOWN AND OFFSET AS REQUIRED TO SUIT FIELD CONDITIONS. DIELECTRIC COUPLINGS SHALL BE USED WHERE DISSIMILAR METALS ARE JOINED.
- PIPING HANGERS SHALL BE SPACED SO AS TO PREVENT SAG AND PERMIT PROPER DRAINAGE AND SHALL NOT BE SPACED MORE THAN EIGHT FEET APART UNLESS A GREATER SPACE IS INDICATED ON THE DRAWINGS. A HANGER SHALL BE PLACED WITHIN (1) FOOT OF EACH HORIZONTAL ELBOW.
- ISOLATE AND DRAIN EXISTING PIPING SYSTEM AS REQUIRED TO ACCOMMODATE INSTALLATION OF THE NEW WORK.
- HOT WATER AND CHILLED WATER SUPPLY AND RETURN PIPING SHALL BE BLACK STEEL PIPE, SCHEDULE 40 FOR 2-1/2 INCH AND LARGER, SEAMLESS COPPER TYPE 'L' FOR 2 INCH AND BELOW.
- REFRIGERANT PIPING OTHER THAN PRECHARGED TUBING SETS FURNISHED BY AIR CONDITIONING MANUFACTURER SHALL BE TYPE 'A' HARD DRAWN COPPER TUBING WITH WROUGHT COPPER FITTINGS. PIPING SHALL BE INSTALLED IN ACCORDANCE WITH ARI STANDARDS. USE EASY-FLO DR SAFETY SILVER BRAZING ALLOY TO MAKE JOINTS. RUN ALL HORIZONTAL LINES DEAD LEVEL TO ENSURE PROPER GAS RETURN TO COMPRESSOR.
- CONDENSATE DRAIN PIPING AND FITTINGS SHALL BE SCHEDULE 40 PVC DR TYPE M COPPER, COPPER SHALL BE USED IN PLENUM CEILINGS.
- THE TOP OF ALL DUCTWORK EXPOSED TO WEATHER SHALL BE PITCHED TO PREVENT PONDING OF WATER ON DUCTWORK.
- THE INSTALLATION OF ALL INSULATION SHALL BE PERFORMED BY A EXPERIENCED CRAFTSMAN IN A NEAT WORKMANSHIP-LIKE MANNER AND SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN PUBLISHED RECOMMENDATIONS FOR SERVICE INTENDED.
- ALL MATERIALS OF INSULATION SHALL BE OF THE TYPE AND QUALITY AS MANUFACTURED BY ARMSTRONG, CERTAINTIED, OWENS-CORNING OR MANVILLE. ALL MATERIALS AND EQUIPMENT SPECIFIED TO BE INSULATED SHALL BE THOROUGHLY TESTED AND APPROVED PRIOR TO APPLYING THE INSULATION.
- ACoustically LINED DUCTWORK DIMENSIONS SHOWN ON DRAWINGS ARE INSIDE CLEAR DIMENSIONS. SHEET METAL DIMENSIONS SHALL BE INCREASED TO ACCOMMODATE LINING THICKNESS.
- REFRIGERATION SUCTION AND HOT GAS BY-PASS SHALL BE INSULATED WITH 1 INCH THICK ARMSTRONG "ARMAFLEX" OR EQUAL. EXTERIOR INSULATION SHALL BE COATED WITH ULTRAVIOLET RESISTANT MATERIAL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, OR USE UL RATED PRODUCT. DO NOT INSULATE THE LIQUID LINE.
- ALL EXTERIOR EXPOSED WATER PIPING SHALL BE INSULATED WITH 2 INCH PREFORMED FIBERGLASS INSULATION WITH VAPOR JACKET AND SELF-SEALING TAPE EQUAL TO OWENS-CORNING ASJ/SSL-II COVER INSULATION WITH .016 INCH THICK ALUMINUM JACKET.
- MECHANICAL CONTRACTOR SHALL FURNISH A COMBINATION STARTER SIZED IN ACCORDANCE WITH THE MOTOR RATING OF THE MECHANICAL EQUIPMENT. STARTER SHALL BE SUPPLIED WITH FUSES OR CIRCUIT BREAKERS, CONTROL TRANSFORMER, OVERLOADS, ONE N.C. AND ONE N.C. AUXILIARY CONTACT AND H.O.A. SWITCH MOUNTED IN THE COVER. STARTER ENCLOSURE SHALL BE NEMA RATED FOR ITS LOCATION. STARTER SHALL BE INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR.
- CONTRACTOR SHALL PROVIDE ALL AIR TEMPERATURE CONTROLS INCLUDING WIRING, TUBING AND THERMOSTATS (WITH LOCKING COVERS) AND ALL MISCELLANEOUS APPURTENANCES TO MEET THE INTENT OF THESE DOCUMENTS.
- EQUIPMENT AND MAINS - SHUT OFF VALVES SHALL BE EQUAL TO NIBCO MODEL S-113 LF SOLDERED JOINT, MODEL T-113 LF THREADED JOINT, BRONZE GATE VALVE NONRISING STEM, 300 PSI W.D.G., 125 PSI S.W.P. CONTRACTOR MAY SWAP AN EQUIVALENT BALL VALVE FOR THE GATE VALVE.
- BALL VALVES SHALL BE EQUAL TO NIBCO, S-585-66-LF, BRONZE, RATED FOR 600 W.D.G.
- VIBRATION ISOLATORS FOR HANGING EQUIPMENT SHALL BE EQUAL TO MASON INDUSTRIES MODEL 30N, COMBINATION SPRING AND DOUBLE DEFLECTION NEOPRENE HANGER, OR DEFLECTION AS RECOMMENDED BY MANUFACTURER.
- VIBRATION ISOLATORS FOR BASE MOUNTED EQUIPMENT SHALL BE EQUAL TO MASON INDUSTRIES MODEL SLF, DEFLECTION AS RECOMMENDED BY MANUFACTURER.
- KITCHEN RANGE HOOD EXHAUST DUCTS SHALL BE CONSTRUCTED WITH 16 GAUGE STEEL UP TO 155 SQUARE INCHES, 14 GAUGE UP TO 225 SQUARE INCHES AND 10 GAUGE FOR GREATER CROSS SECTION. DUCT AND SHALL BE PROVIDED WITH WELDED SEAMS AND JOINTS. PROVIDE CLEANOUTS AT ALL CHANGES IN DIRECTION AND CLEANOUT DOORS EVERY 20 LINEAR FEET OF RUN OR AS PER CODE REQUIREMENTS, WHICHEVER IS THE MOST STRINGENT. HORIZONTAL DUCT SHALL BE GRADED BACK TO HOOD FOR DRAINAGE. PROVIDE RESIDUE TRAP AND CLEANOUT AT BASE OF ALL VERTICAL RISERS. PROVIDE FIRE WRAP INSULATION AS REQUIRED.
- DUCTWORK EXPOSED TO WEATHER SHALL BE WEATHERPROOFED AS FOLLOWS: RUBBER ROOFING OR EQUIVALENT OVERDUCT INSULATION.
- ALL EQUIPMENT AND MATERIAL FURNISHED SHALL BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIAL. ALL EQUIPMENT AND MATERIALS SHALL MEET THE REQUIREMENTS OF ALL CODES AND STANDARDS OF LOCAL AND STATE AGENCIES HAVING JURISDICTION.
- WHERE A SUBCONTRACTOR PROPOSES TO USE AN ITEM OR EQUIPMENT OTHER THAN THE SPECIFIED OR DETAILED ITEM ON THE DRAWINGS THAT IS APPROVED BY THE ENGINEER AND THAT REQUIRES REVISION OF THE STRUCTURE, PARTITIONS, FOUNDATIONS, PIPING, WIRING OR ANY OTHER PART OF THE MECHANICAL, ELECTRICAL, OR ARCHITECTURAL LAYOUT, THEN SUCH REVISION, NEW DRAWINGS, AND DETAILING REQUIRED FOR IT SHALL BE PREPARED BY THE SUBCONTRACTOR WITHOUT EXTRA COMPENSATION.
- THE SUBMITTAL WHICH HAS BEEN REVIEWED BY THE ENGINEER, WITH OR WITHOUT COMMENTS, DOES NOT RELIEVE THE CONTRACTOR FROM THE REQUIREMENTS OF COMPLYING WITH THE CONTRACT DOCUMENTS. ONLY SUBMITTALS WHICH EXPLICITLY REQUEST THE ENGINEER TO REVIEW DEVIATIONS WITH THE CONTRACT DOCUMENTS RELIEVE THE CONTRACTOR FROM THE SPECIFIC ITEM OF COMPLIANCE.
- THE LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE AND ARE TO SERVE AS A GUIDE FOR THE INSTALLATION. THE SHIFTING OF LOCATIONS TO MEET CONDITIONS (BEFORE INSTALLATION) WILL BE EXPECTED AND THIS SHALL BE DONE AT NO ADDITIONAL COST.
- FOR PURPOSES OF CLEARNESS AND LEGIBILITY, MECHANICAL DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND INDICATE ONLY SIZES, CONNECTION POINTS, AND ROUTES. IT IS NOT INTENDED OR IMPLIED THAT ALL OFFSETS, RISES, AND DROPS ARE AS SHOWN.
- PROVIDE HOLLOW-FORMED CURVED METAL TURNING VANES IN ALL RECTANGULAR ELBOWS.
- THE CONTRACTOR SHALL BALANCE THE SYSTEM IN ACCORDANCE WITH THE AIR VOLUMES AS SHOWN ON THE DRAWINGS AND MAKE OTHER MINOR ADJUSTMENTS AS DIRECTED.
- CONTRACTOR SHALL PROVIDE SMOKE DETECTOR WITH RESET AND ONE SET OF DRY CONTACTS FOR ALL HVAC OVER 2000 CFM EACH OR SERVING A COMMON PLENUM EXCEEDING 2000 CFM IN PLENUM. PROVIDE DETECTOR ON RETURN AND SUPPLY OF EACH UNIT (2 PER UNIT)
- CONTRACTOR SHALL SUBMIT A MINIMUM OF TWO AIR BALANCING CONTRACTORS. THE ENGINEER WILL MAKE THE FINAL SELECTION OF THE AIR BALANCING CONTRACTOR TO BE USED. REFER TO SPECIFICATIONS.

GENERAL MECHANICAL NOTES - WORKMANSHIP/COORDINATION

- ALL WORK SHALL BE PERFORMED IN A CLEAN AND WORKMANLIKE MANNER. CARE SHALL BE EXERCISED TO MINIMIZE ANY INCONVENIENCE OR DISTURBANCE TO OTHER AREAS OF THE BUILDING WHICH ARE TO REMAIN IN OPERATION. ISOLATE WORK AREAS BY MEANS OF TEMPORARY PARTITIONS AND/OR TARPS TO KEEP DUST AND DIRT WITHIN THE CONSTRUCTION AREA.
- NO PIPING, EQUIPMENT, ETC. SHALL BE REMOVED, DISCONNECTED OR SHUT DOWN WITHOUT PRIOR REVIEW WITH THE OWNER AND/OR ENGINEER TO CONFIRM THAT AREAS TO REMAIN IN OPERATION WILL NOT BE AFFECTED. IF ANY AREAS NOT WITHIN THE SCOPE OF WORK ARE AFFECTED BY ANY SHUTDOWN, REMOVAL OR DISCONNECTION, SUFFICIENT ADVANCE NOTICE MUST BE GIVEN TO THE OWNER INDICATING WHICH AREAS WILL BE AFFECTED, WHEN THE PROPOSED SHUTDOWN WILL OCCUR, AND FOR HOW LONG A PERIOD OF TIME.
- ALL ITEMS REMOVED SHALL BECOME PROPERTY OF THE OWNER AND SHALL BE DISPOSED OF AS PER THE OWNER'S INSTRUCTIONS, UNLESS INDICATED OTHERWISE. ALL ITEMS WHICH ARE NOT TO BE STORED ON SITE BY OWNER SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.
- CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH ANY WORK. WHERE DISCREPANCIES OCCUR BETWEEN THESE DOCUMENTS AND EXISTING CONDITIONS, THE DISCREPANCY SHALL BE REPORTED TO THE OWNER AND/OR ENGINEER FOR EXPEDITING AND RESOLVE.
- ALL SHUT DOWNS OF EXISTING SYSTEMS SHALL BE SCHEDULED AND APPROVED BY THE OWNER PRIOR TO COMMENCING WITH WORK.
- CLEAN THE JOB SITE DAILY AND REMOVE FROM THE PREMISES ANY DIRT AND DEBRIS CAUSED BY THE PERFORMANCE OF THE WORK INCLUDED IN THIS CONTRACT.
- USE OF THE OWNER'S ELEVATORS AND BUILDING CORRIDORS FOR HANDLING/REMOVAL OF EQUIPMENT AND MATERIALS SHALL BE AT THE DIRECTION OF THE OWNER AND SHALL BE COORDINATED WITH HIS OPERATIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFEKEEPING OF HIS OWN PROPERTY ON THE JOB SITE. OWNER ASSUMES NO RESPONSIBILITY FOR PROTECTION OF PROPERTIES AGAINST FIRE, THEFT AND ENVIRONMENTAL CONDITIONS.
- SUCCESSFULLY PRESSURE TEST ALL PIPING SYSTEMS. TEST SHALL BE PERFORMED AT NORMAL SYSTEM OPERATING PRESSURES. REPAIR AND RETEST AS REQUIRED UNTIL SYSTEMS PROVE TIGHT.
- EXISTING MATERIALS THAT ARE REMOVED SHALL NOT BE REUSED IN NEW SYSTEMS, EXCEPT WHERE INDICATED AS BEING RELOCATED.
- PROVIDE ALL NECESSARY TEMPORARY OR PERMANENT CAPS OR PLUGS FOR PIPING. DO NOT LEAVE PIPING OPEN ENDED.
- WHERE USED, THE TERM "PROVIDE" SHALL MEAN "FURNISH AND INSTALL".
- CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL OTHER TRADES PRIOR TO FABRICATION, PURCHASE AND/OR INSTALLATION OF ALL WORK.
- CONTRACTOR SHALL COORDINATE ELECTRICAL REQUIREMENTS OF ANY EQUIPMENT WITH GENERAL AND ELECTRICAL CONTRACTORS PRIOR TO ROUGH-IN.
- CONTRACTOR SHALL REFER TO PROJECT SPECIFICATIONS FOR ANY ADDITIONAL PROJECT REQUIREMENTS.

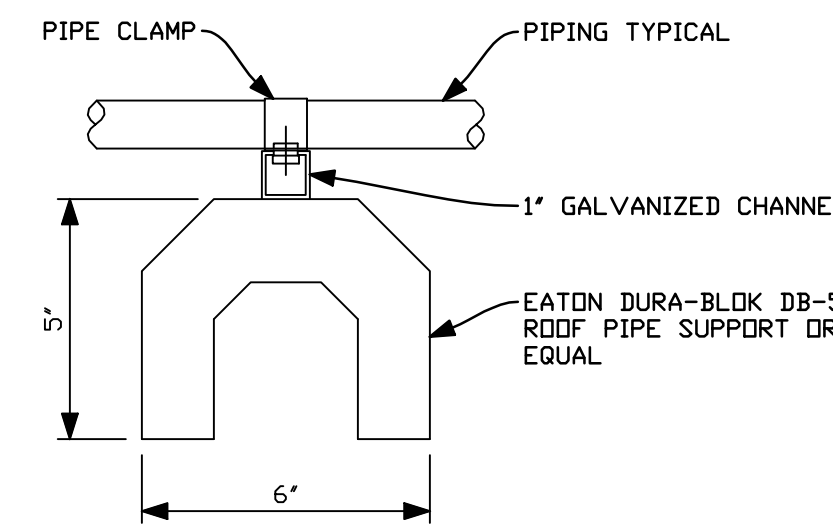
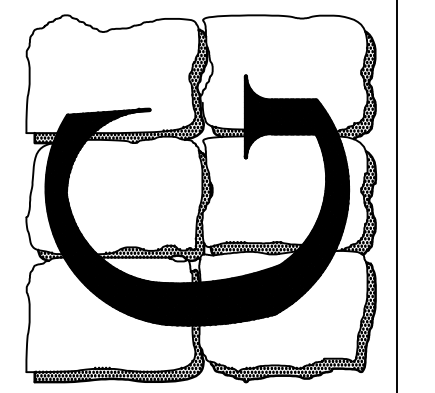
FIRE STOPPING NOTES

- ALL PIPES, DUCTS, CONDUITS AND CABLES PASSING THROUGH RATED FLOORS/WALLS/CEILINGS SHALL BE FIRE STOPPED WITH 3M FIRE BARRIER CAULK CP 25 OR EQUAL. INSTALL PER MANUFACTURER'S INSTRUCTIONS AND TO SATISFY THE FIRE RATING REQUIREMENTS OF THE ASSEMBLY:
- | | |
|---------------------------|---|
| 1) ELEVATOR MACHINE ROOM | 2 HOUR FIRE RATING FOR WALLS AND CEILING, UNLESS NOTED OTHERWISE ON THE PLANS |
| 2) MECHANICAL ROOM | 1 HOUR FIRE RATING FOR WALLS AND CEILING, UNLESS NOTED OTHERWISE ON THE PLANS |
| 3) STAIR TOWER | 2 HOUR FIRE RATING, UNLESS NOTED OTHERWISE ON THE PLANS |
| 4) OTHER FIRE SEPARATIONS | PROVIDE TO MATCH ASSEMBLY RATING INDICATED ON THE PLANS OR REQUIRED BY CODE. |

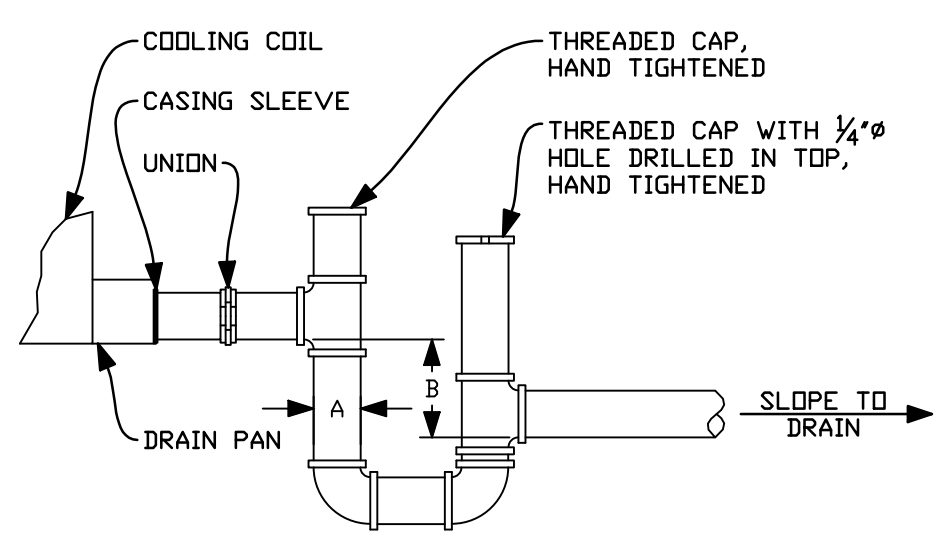
MECHANICAL DRAWING LIST

- M-0.1 MECHANICAL COVER SHEET
- M-0.2 TYPICAL MECHANICAL DETAILS
- M-0.3 MECHANICAL SCHEDULES
- M-1.1 SITE MECHANICAL PLAN
- M-2.1 STOR./OFF. MECHANICAL PLANS

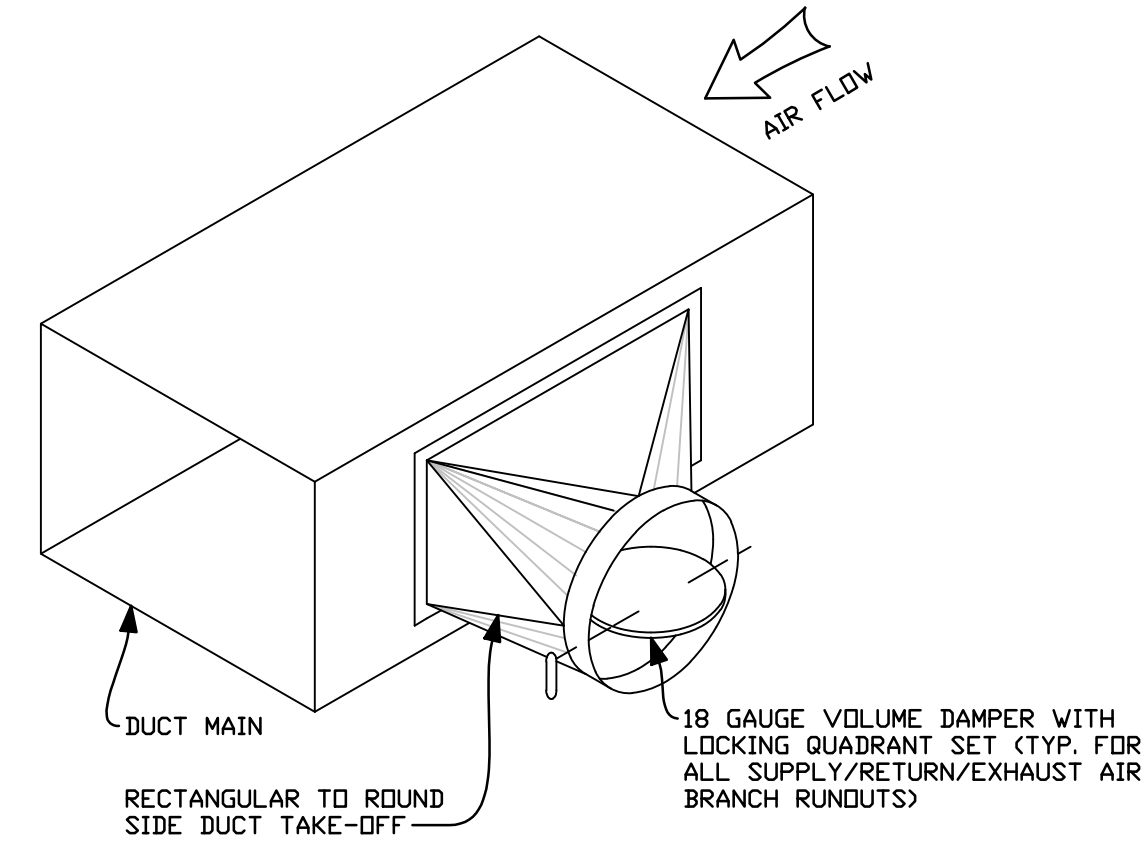
SEAL:



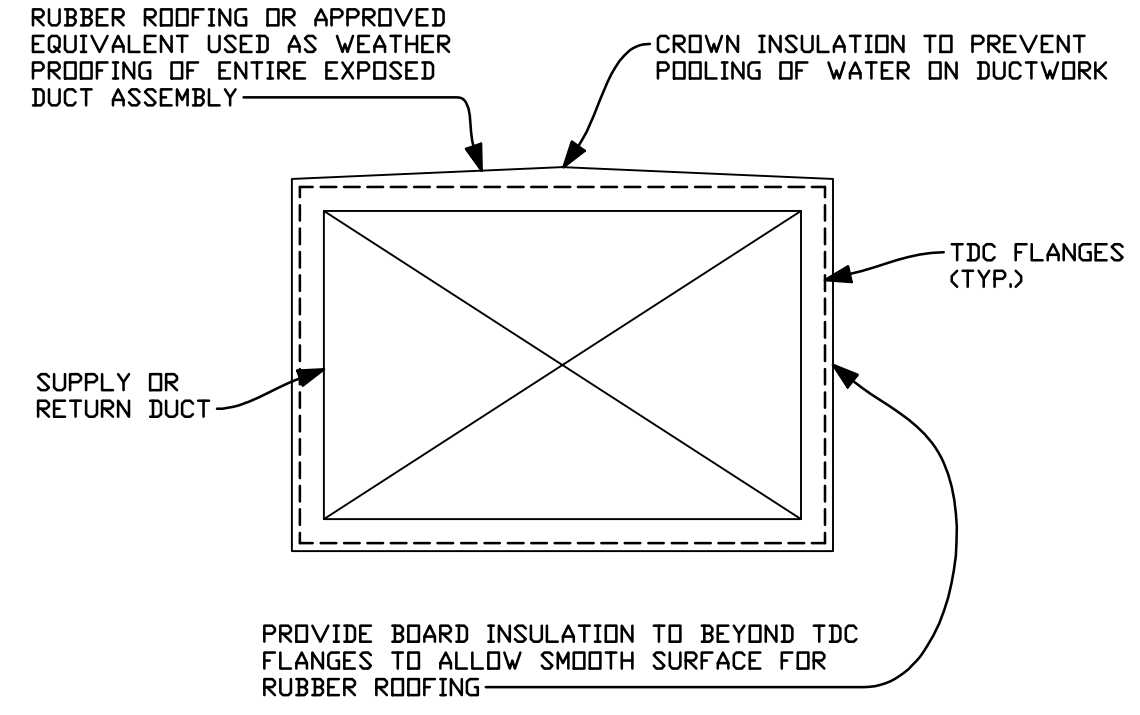
ROOF PIPING SUPPORT
 NOT TO SCALE



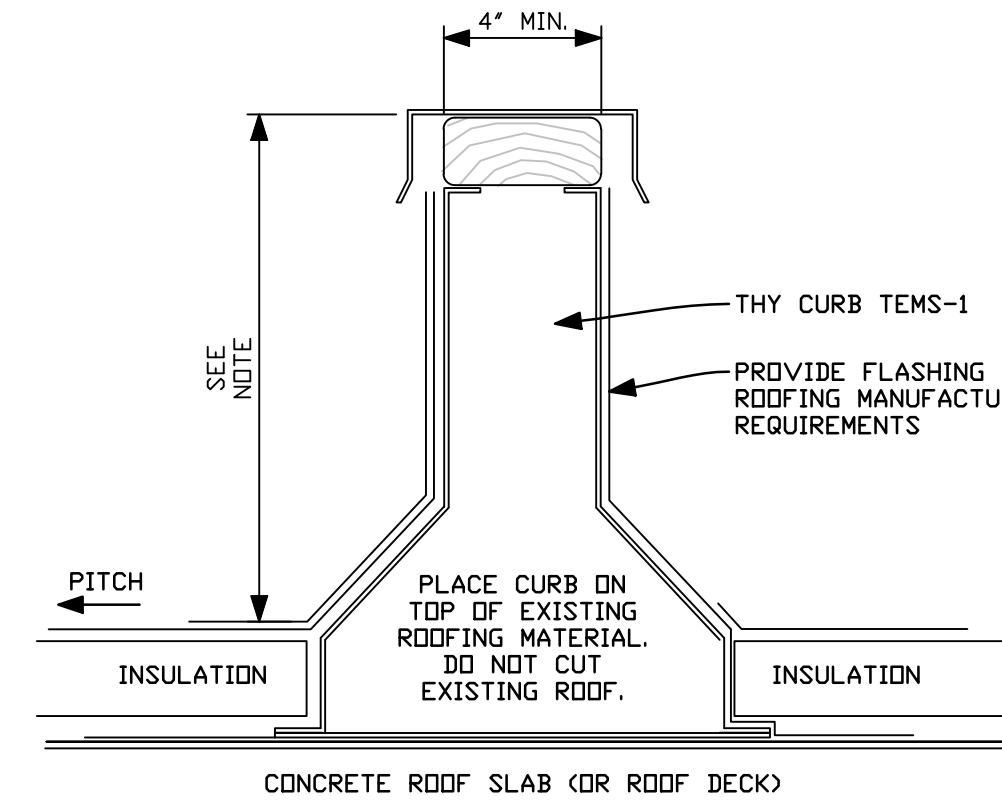
AHU CONDENSATE DRAIN TRAP
 NOT TO SCALE



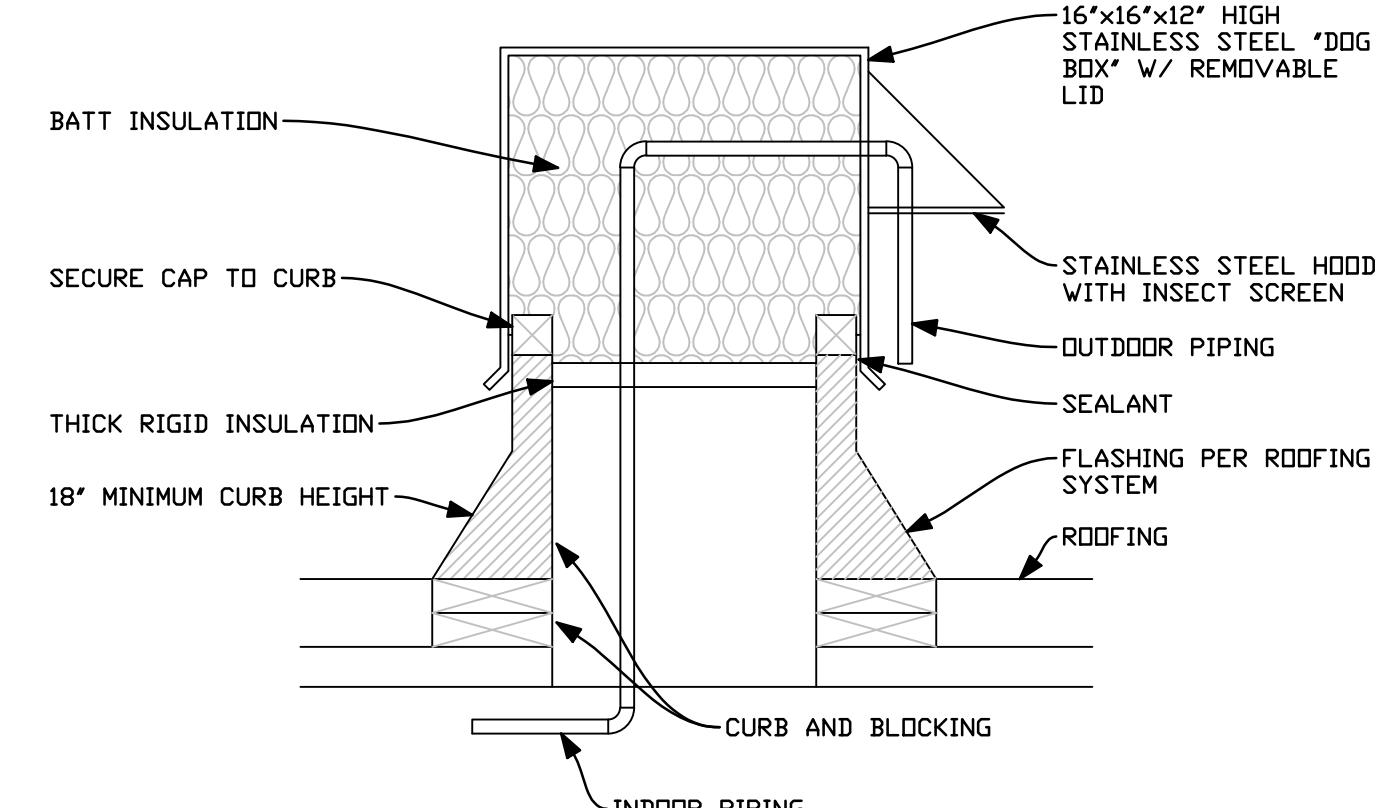
DUCT TAKE OFF DETAIL
 (TOP/BOTTOM TAKE OFF SIMILAR)
 NOT TO SCALE



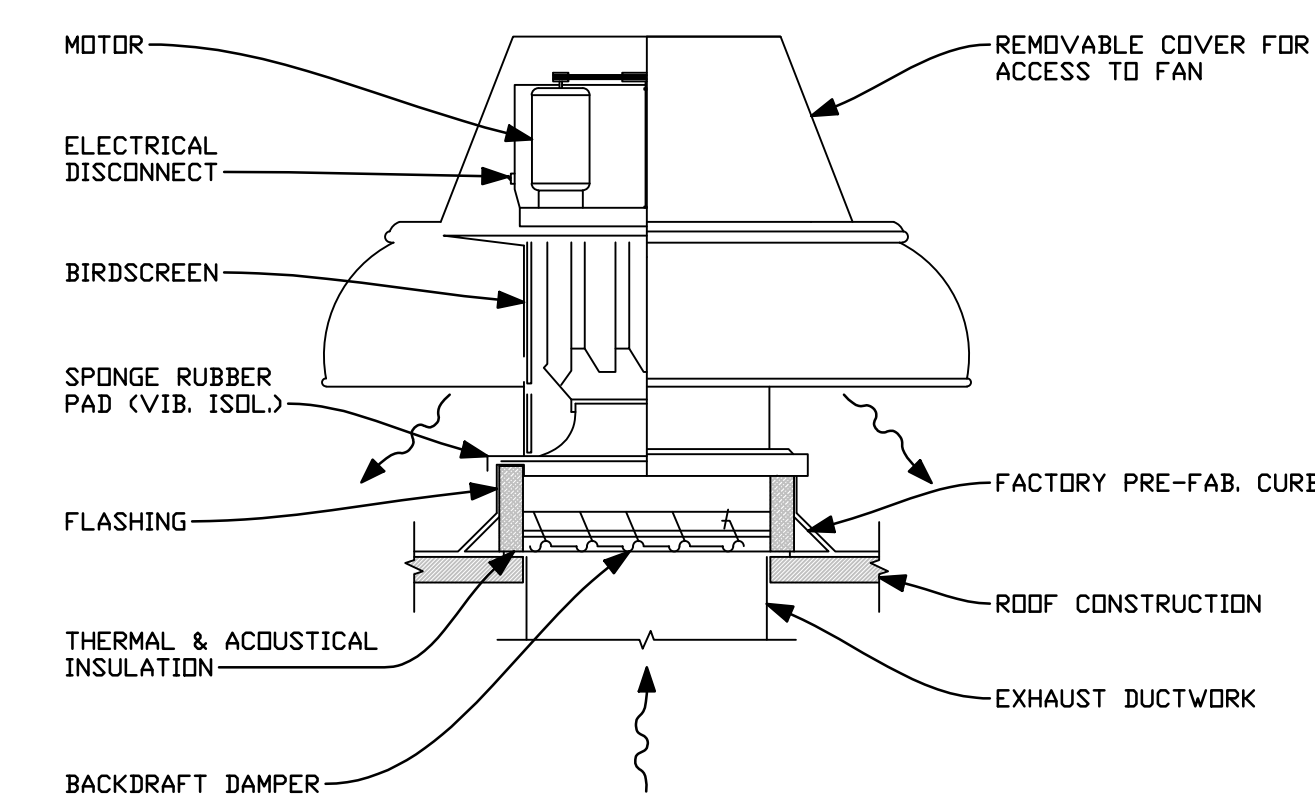
EXPOSED DUCTWORK
WEATHER PROOFING DETAIL
 NOT TO SCALE



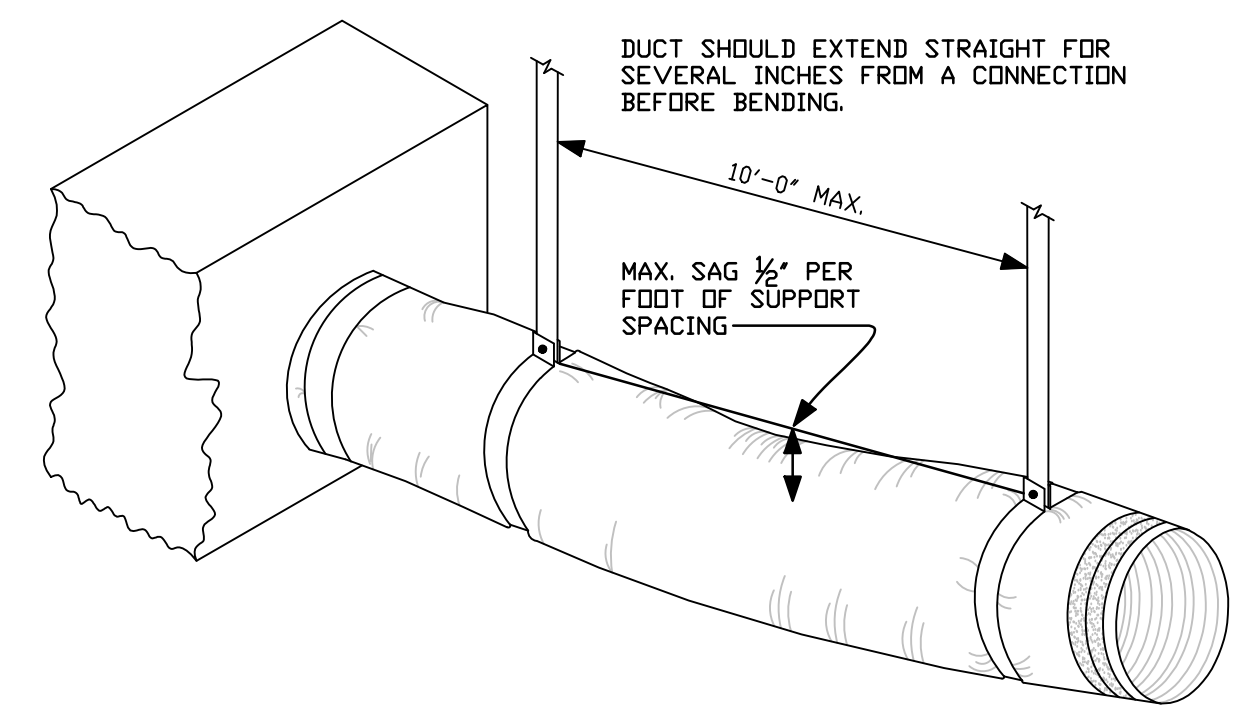
EQUIPMENT MOUNTING CURB DETAIL
 NOT TO SCALE



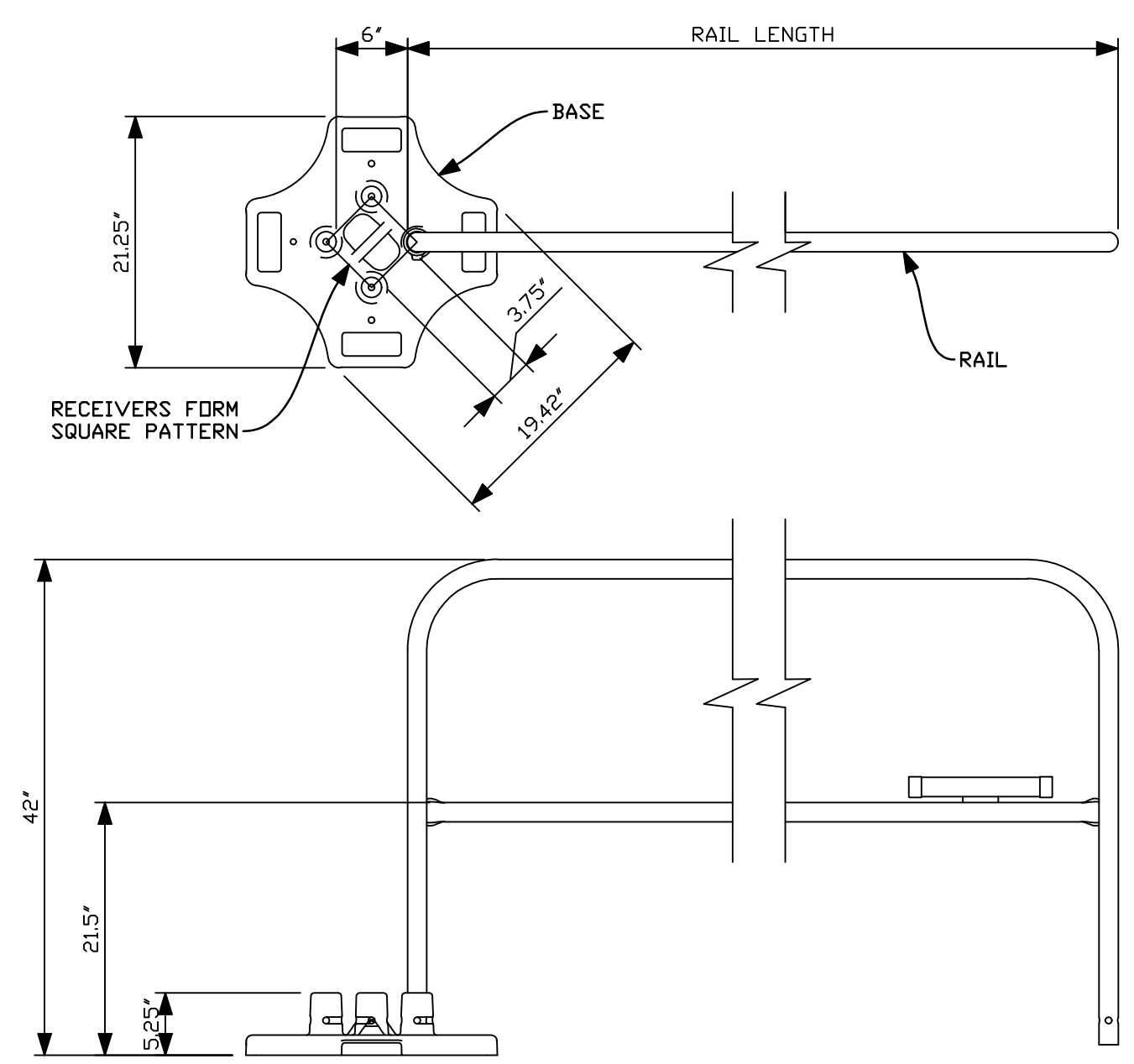
ROOF PIPE PENETRATION DETAIL
 (CONTRACTOR MAY USE STANDARD PITCH POCKETS FOR UP TO FOUR (4) PIPES, FIVE OR MORE PIPES USE THIS DETAIL)
 NOT TO SCALE



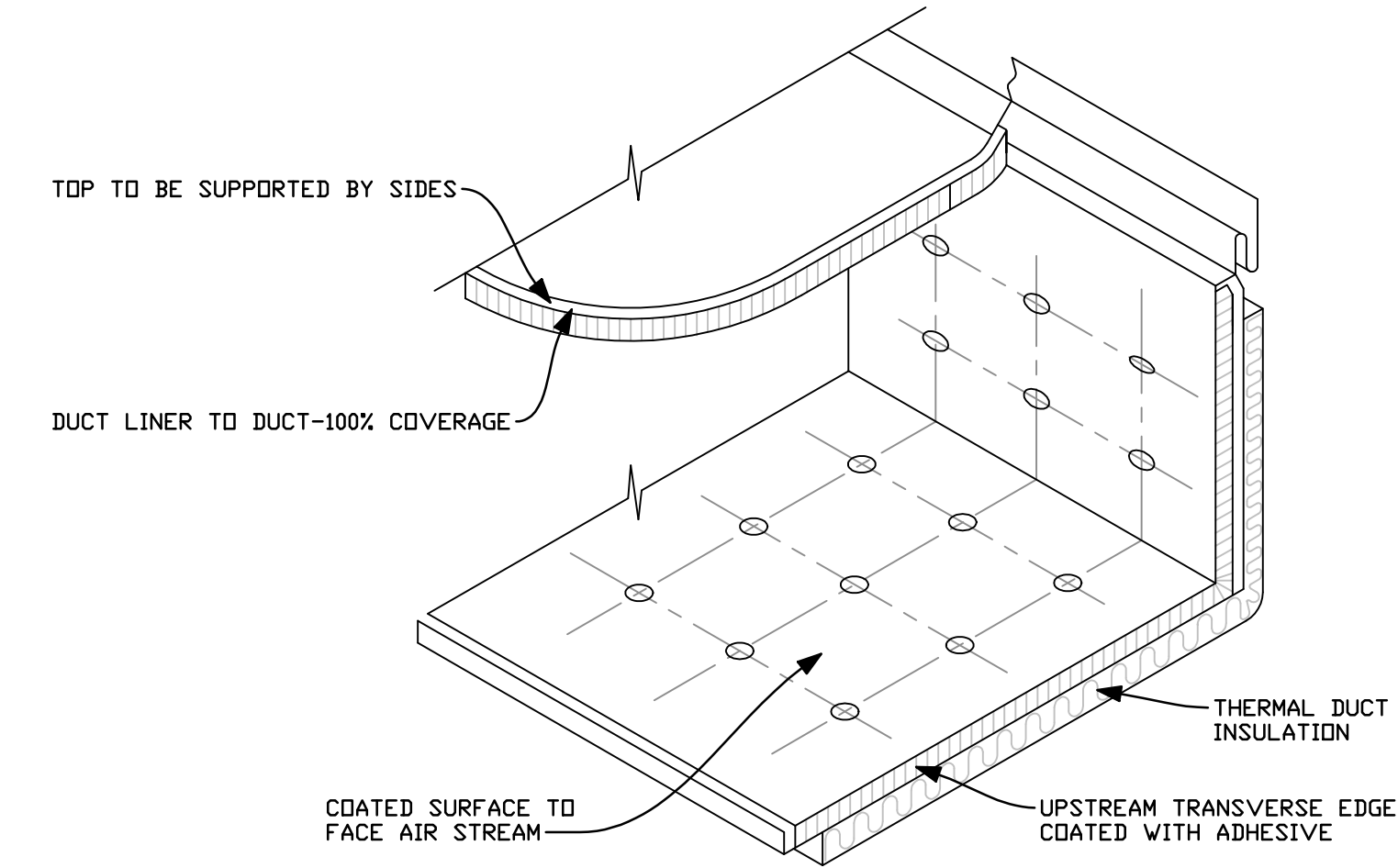
ROOF MOUNTED EXHAUST FAN
 NOT TO SCALE



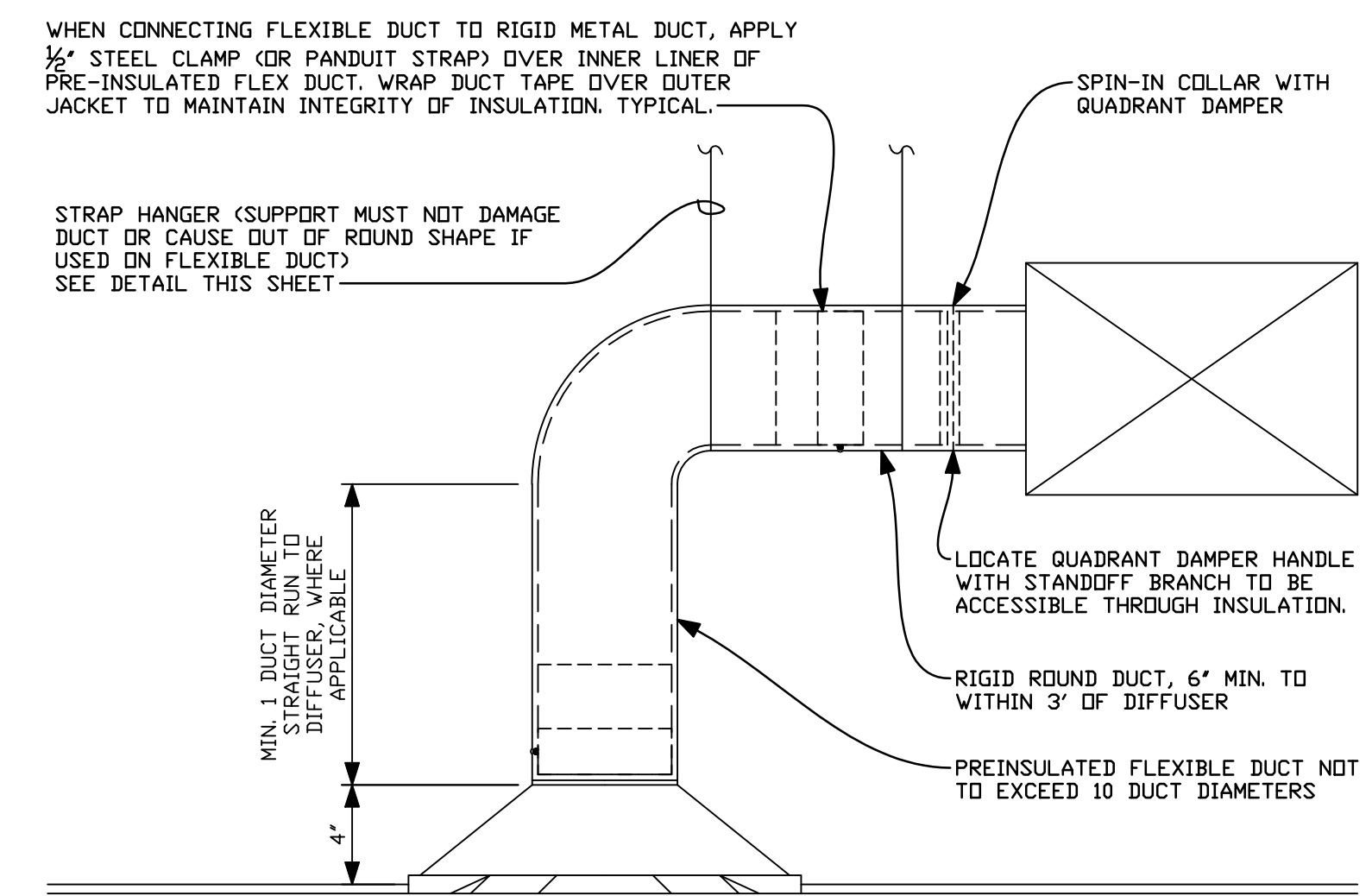
FLEXIBLE DUCT SUPPORTS
 (CONTRACTOR SHALL REFER TO PLAN SHEET FOR EXTENT OF FLEX DUCT TO BE USED.)
 NOT TO SCALE



SAFETY RAIL DETAIL (BLUE WATER OR EQUAL)
 (CONTRACTOR SHALL PROVIDE SUBMITTALS FOR SAFETY RAILING SYSTEM TO BE USED.)
 NOT TO SCALE



ACOUSTICAL DUCT LINER DETAIL
 (CONTRACTOR SHALL REFER TO SPECIFICATIONS FOR APPROVED LOCATIONS FOR THE USE OF DUCT LINER)
 NOT TO SCALE



CEILING DIFFUSER CONNECTION DETAIL
 NOT TO SCALE

REV.	DATE	COMMENT
	07/10/2024	BID SET

COMMERCIAL REGISTERS, GRILLES, & DIFFUSERS

MARK SEE NOTES	DESCRIPTION	CFM SEE NOTES	NECK	BLOW	COLOR	MATERIAL	MANUFACTURER & MODEL NO.
D-1	24"x24" LAY-IN SUPPLY DIFFUSER	75 TO 125	6"φ	4-W	WHITE	STEEL	KRUEGER MODEL #1400F23 W/ INTERGRAL ROUND NECK COLLAR AND PRN100 DAMPER
D-2	24"x24" LAY-IN SUPPLY DIFFUSER	130 TO 210	8"φ	4-W	WHITE	STEEL	KRUEGER MODEL #1400F23 W/ INTERGRAL ROUND NECK COLLAR AND PRN100 DAMPER
D-3	24"x24" LAY-IN SUPPLY DIFFUSER	215 TO 300	10"φ	4-W	WHITE	STEEL	KRUEGER MODEL #1400F23 W/ INTERGRAL ROUND NECK COLLAR AND PRN100 DAMPER
D-4	24"x24" LAY-IN SUPPLY DIFFUSER	305 TO 425	12"φ	4-W	WHITE	STEEL	KRUEGER MODEL #1400F23 W/ INTERGRAL ROUND NECK COLLAR AND PRN100 DAMPER
D-5	24"x24" LAY-IN SUPPLY DIFFUSER	500 TO 1000	14"φ	4-W	WHITE	STEEL	KRUEGER MODEL #1400F23 W/ INTERGRAL ROUND NECK COLLAR AND PRN100 DAMPER
D-6	CEILING SURFACE MOUNTED SUPPLY DIFFUSER	50 TO 100	6"x6"	4-W	WHITE	STEEL	KRUEGER MODEL#SH4 F22 DBD (ROUND TO SQUARE ADAPTER MAY BE REQUIRED SEE PLAN)
D-7	CEILING SURFACE MOUNTED SUPPLY DIFFUSER	110 TO 225	9"x9"	4-W	WHITE	STEEL	KRUEGER MODEL#SH4 F22 DBD (ROUND TO SQUARE ADAPTER MAY BE REQUIRED SEE PLAN)
D-8	CEILING SURFACE MOUNTED SUPPLY DIFFUSER	200 TO 400	12"x12"	4-W	WHITE	STEEL	KRUEGER MODEL#SH4 F22 DBD (ROUND TO SQUARE ADAPTER MAY BE REQUIRED SEE PLAN)
D-9	CEILING SURFACE MOUNTED SUPPLY DIFFUSER	310 TO 625	15"x15"	4-W	WHITE	STEEL	KRUEGER MODEL#SH4 F22 DBD (ROUND TO SQUARE ADAPTER MAY BE REQUIRED SEE PLAN)
D-10	CEILING SURFACE MOUNTED SUPPLY DIFFUSER	450 TO 900	18"x18"	4-W	WHITE	STEEL	KRUEGER MODEL#SH4 F22 DBD (ROUND TO SQUARE ADAPTER MAY BE REQUIRED SEE PLAN)
D-11	24"x24" LAY-IN PERFORATED SUPPLY DIFFUSER	UP TO 125	6"φ	4-W	WHITE	STEEL	KRUEGER MODEL#6604 (ROUND TO SQUARE ADAPTER MAY BE REQUIRED SEE PLAN)
D-12	24"x24" LAY-IN PERFORATED SUPPLY DIFFUSER	125 TO 230	8"φ	4-W	WHITE	STEEL	KRUEGER MODEL#6604 (ROUND TO SQUARE ADAPTER MAY BE REQUIRED SEE PLAN)
D-13	24"x24" LAY-IN PERFORATED SUPPLY DIFFUSER	230 TO 350	10"φ	4-W	WHITE	STEEL	KRUEGER MODEL#6604 (ROUND TO SQUARE ADAPTER MAY BE REQUIRED SEE PLAN)
D-14	4'-0" LINEAR SLOT DIFFUSER	300 TO 400	12" DVAL	2-W	WHITE	-	KRUEGER MODEL#PTBS-Y-48-3 -12-100-S0-QD
G-1	COMMERCIAL SIDE WALL SUPPLY REGISTER	75 TO 110	8"x4"	2-W	WHITE	STEEL	KRUEGER MODEL #880V0BD
G-2	COMMERCIAL SIDE WALL SUPPLY REGISTER	110 TO 140	10"x4"	2-W	WHITE	STEEL	KRUEGER MODEL #880V0BD
G-3	COMMERCIAL SIDE WALL SUPPLY REGISTER	140 TO 170	12"x4"	2-W	WHITE	STEEL	KRUEGER MODEL #880V0BD
G-4	COMMERCIAL SIDE WALL SUPPLY REGISTER	170 TO 220	10"x6"	2-W	WHITE	STEEL	KRUEGER MODEL #880V0BD
G-5	COMMERCIAL SIDE WALL SUPPLY REGISTER	220 TO 265	12"x6"	2-W	WHITE	STEEL	KRUEGER MODEL #880V0BD
G-6	COMMERCIAL SIDE WALL SUPPLY REGISTER	265 TO 310	14"x6"	2-W	WHITE	STEEL	KRUEGER MODEL #880V0BD
G-7	COMMERCIAL SIDE WALL SUPPLY REGISTER	310 TO 355	16"x6"	2-W	WHITE	STEEL	KRUEGER MODEL #880V0BD
G-8	COMMERCIAL SIDE WALL SUPPLY REGISTER	355 TO 450	20"x6"	2-W	WHITE	STEEL	KRUEGER MODEL #880V0BD
G-9	COMMERCIAL SIDE WALL SUPPLY REGISTER	450 TO 610	20"x8"	2-W	WHITE	STEEL	KRUEGER MODEL #880V0BD
G-10	LINEAR BAR GRILLE	600 TO 800	60"x8"	2-W	-	-	KRUEGER MODEL #1800-60-8-P-00-X -XX-0-15
R-1	24"x24" LAY-IN RETURN GRILLE	100 TO 200	8"φ	N/A	WHITE	ALUM	KRUEGER MODEL #S80HSFFF23 #3
R-2	24"x24" LAY-IN RETURN GRILLE	200 TO 400	10"φ	N/A	WHITE	ALUM	KRUEGER MODEL #S80HSFFF23 #3
R-3	24"x24" LAY-IN RETURN GRILLE	400 TO 800	12"φ	N/A	WHITE	ALUM	KRUEGER MODEL #S80HSFFF23 #3
R-4	24"x24" LAY-IN RETURN GRILLE	800 TO 1200	16"φ	N/A	WHITE	ALUM	KRUEGER MODEL #S80HSFFF23 #3
R-5	24"x24" LAY-IN RETURN GRILLE	1200 TO 1500	20"x20"	N/A	WHITE	ALUM	KRUEGER MODEL #S80HSFFF23 #3
R-6	24"x48" LAY-IN RETURN GRILLE	2000 TO 3000	22"x22"	N/A	WHITE	ALUM	KRUEGER MODEL #S80HSFFF23 #3
R-7	24"x48" LAY-IN RETURN GRILLE	3000 TO 5000	22"x32"	N/A	WHITE	ALUM	KRUEGER MODEL #S80HSFFF23 #3
R-8	COMMERCIAL SURFACE MOUNTED RETURN GRILLE	200 TO 300	12"x6"	N/A	WHITE	STEEL	KRUEGER MODEL #S80H #3
R-9	COMMERCIAL SURFACE MOUNTED RETURN GRILLE	300 TO 600	12"x12"	N/A	WHITE	STEEL	KRUEGER MODEL #S80H #3
R-10	COMMERCIAL SURFACE MOUNTED RETURN GRILLE	600 TO 900	18"x12"	N/A	WHITE	STEEL	KRUEGER MODEL #S80H #3
R-11	COMMERCIAL SURFACE MOUNTED RETURN GRILLE	900 TO 1200	18"x18"	N/A	WHITE	STEEL	KRUEGER MODEL #S80H #3
R-12	COMMERCIAL SURFACE MOUNTED RETURN GRILLE	1200 TO 1600	24"x20"	N/A	WHITE	STEEL	KRUEGER MODEL #S80H #3
R-13	COMMERCIAL SURFACE MOUNTED RETURN GRILLE	1600 TO 2400	24"x24"	N/A	WHITE	STEEL	KRUEGER MODEL #S80H #3
R-14	COMMERCIAL SURFACE MOUNTED RETURN GRILLE	2500 TO 3200	30"x48"	N/A	-	ALUM	KRUEGER MODEL #S580-H-30-40-F22 -01-15
R-15	24"x24" LAY-IN PERFORATED RETURN GRILLE	UP TO 1600	24"x24"	N/A	WHITE	STEEL	KRUEGER MODEL #6790 F-3 #3

- EXACT CFMS DESIGNATED ON PLAN AT DIFFUSER LOCATION.
- REGISTERS, GRILLES, AND DIFFUSERS DESIGNATIONS MAY APPEAR ON SCHEDULE BUT MAY NOT BE UTILIZED ON THE PLAN. REFER TO PLAN FOR QUANTITY AND DESIGNATION.
- REFER TO PLAN TO DETERMINE IF FILTERS ARE REQUIRED IN RETURN GRILLES, PROVIDE APPROPRIATE STYLE /MODEL TO ACCOMMODATE FILTERS.
- ALL DIFFUSERS TO BE 4-WAY THROW, UNLESS NOTED OTHERWISE ON PLAN.

MECHANICAL UNIT SCHEDULE

MARK	CFM	DESCRIPTION	CFM OF OUTDOOR AIR	D.A. CONNECTION SIZE	ESP	VOLTS	MAX FUSE/ MIN CIRCUIT	COOLING CAPACITY	HEATING CAPACITY MBH IN/OUT	EFFICIENCY RATING	MANUFACTURER & MODEL#	NOTES
DS-1 THRU DS-8	300	VRF HEAT PUMP CEILING CASSETTE	N/A	N/A	N/A	208V 1φ	1A	12 MBH	12 MBH	26.6 IEER	LG#ARNUI23TRD4	#7
HR-1	N/A	VRF CONTROLLER	N/A	N/A	N/A	208V 1φ	1A	120 MBH	120 MBH	N/A	LG#PRHRD23A MULLTI-V HEAT RECOVERY UNIT	-
ERV-1	470	ERV UNIT	470	12"φ	0.2	208V 1φ	2.8A	N/A	N/A	N/A	LG ERV #ARVU053ZEAE	-

- MECHANICAL UNIT NOTES:**
- ROOF CURB
 - ECONOMIZER, IECC FAULT DETECTION AND DIAGNOSTICS REQUIREMENTS
 - BAROMETRIC RELIEF
 - POWER EXHAUST
 - CO2 SENSOR CONTROL OF OUTDOOR AIR (ROUND TO SQUARE ADAPTER MAY BE REQUIRED SEE PLAN)
 - WITH SERVICE OUTLET AND DISCONNECT
 - PROGRAMMABLE THERMOSTAT
 - PROGRAMMABLE AVERAGING THERMOSTAT W/ REMOTE SENSORS (SEE PLAN FOR QUANTITY)
 - SINGLE ZONE VAV FUNCTION, VFD DRIVE
 - REFRIGERANT TUBING W/ UV DUTY INSULATION

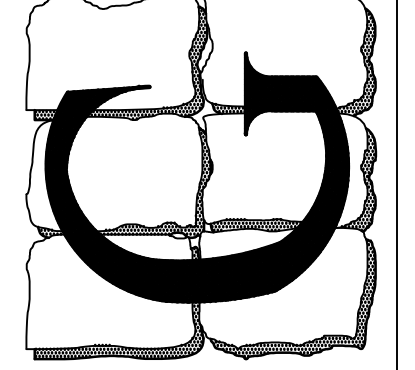
CONDENSING UNIT SCHEDULE

MARK	COOLING CAPACITY	VOLTS	MAXIMUM FUSE	MINIMUM CIRCUIT	MANUFACTURER & MODEL #
CU-1	8 TONS	208V 3φ	40	28.5	LG#ARUM096BTES HEAT RECOVERY PUMP

- FAN NOTES:**
- ROOF CURB
 - LDW LEAK BACK DRAFT DAMPER
 - LDW LEAK MOTOR OPERATED DAMPER
 - PROTECTIVE GUARD/CAGE
 - SPEED SWITCH
 - HUMIDISTAT TO CYCLE FAN

24-005

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MANITOWOC CRANES
PAINTING BUILDING
SHADY GROVE, PENNSYLVANIA
MECHANICAL SCHEDULES

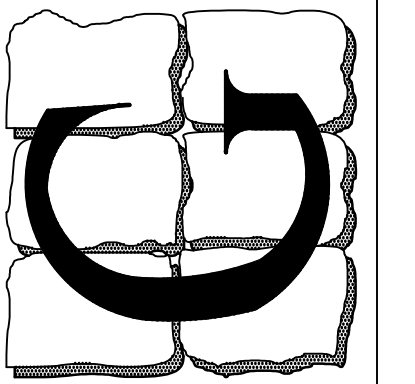
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DE. PROF. ENG. NO. 19513
GA. PROF. ENG. NO. PE032682
HI. PROF. ENG. NO. PE13043
MD. PROF. ENG. NO. 14401
NE. PROF. ENG. NO. 03364
NJ. PROF. ENG. NO. 38497
NY. PROF. ENG. NO. 075414
PA. PROF. ENG. NO. PE032636E
VA. PROF. ENG. NO. 022240
WV. PROF. ENG. NO. 10764

REV.	DATE	COMMENT
	07/10/2024	BID SET

DRAWN BY: -

M-0.3
3 OF 5 SHEETS
DATE: JULY 10, 2024

SEAL:

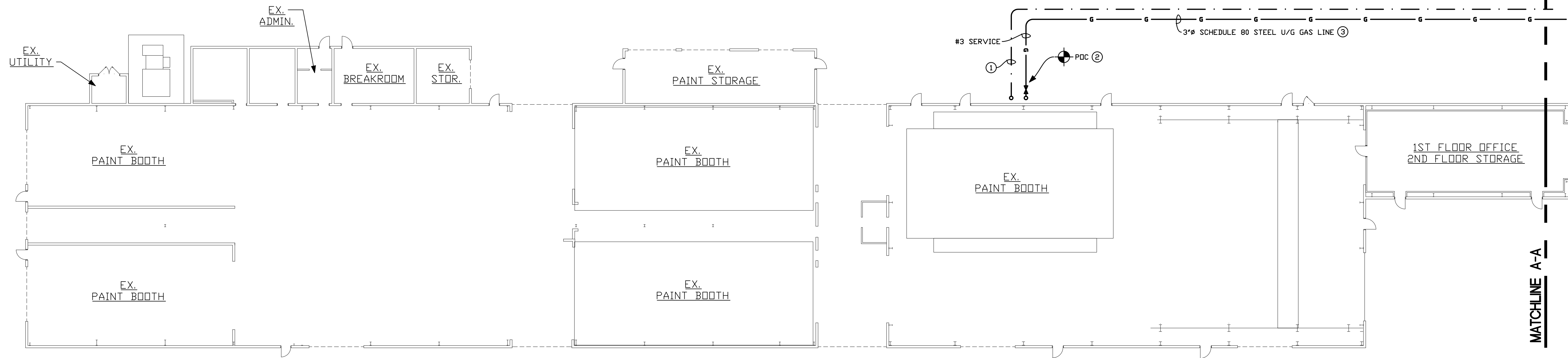


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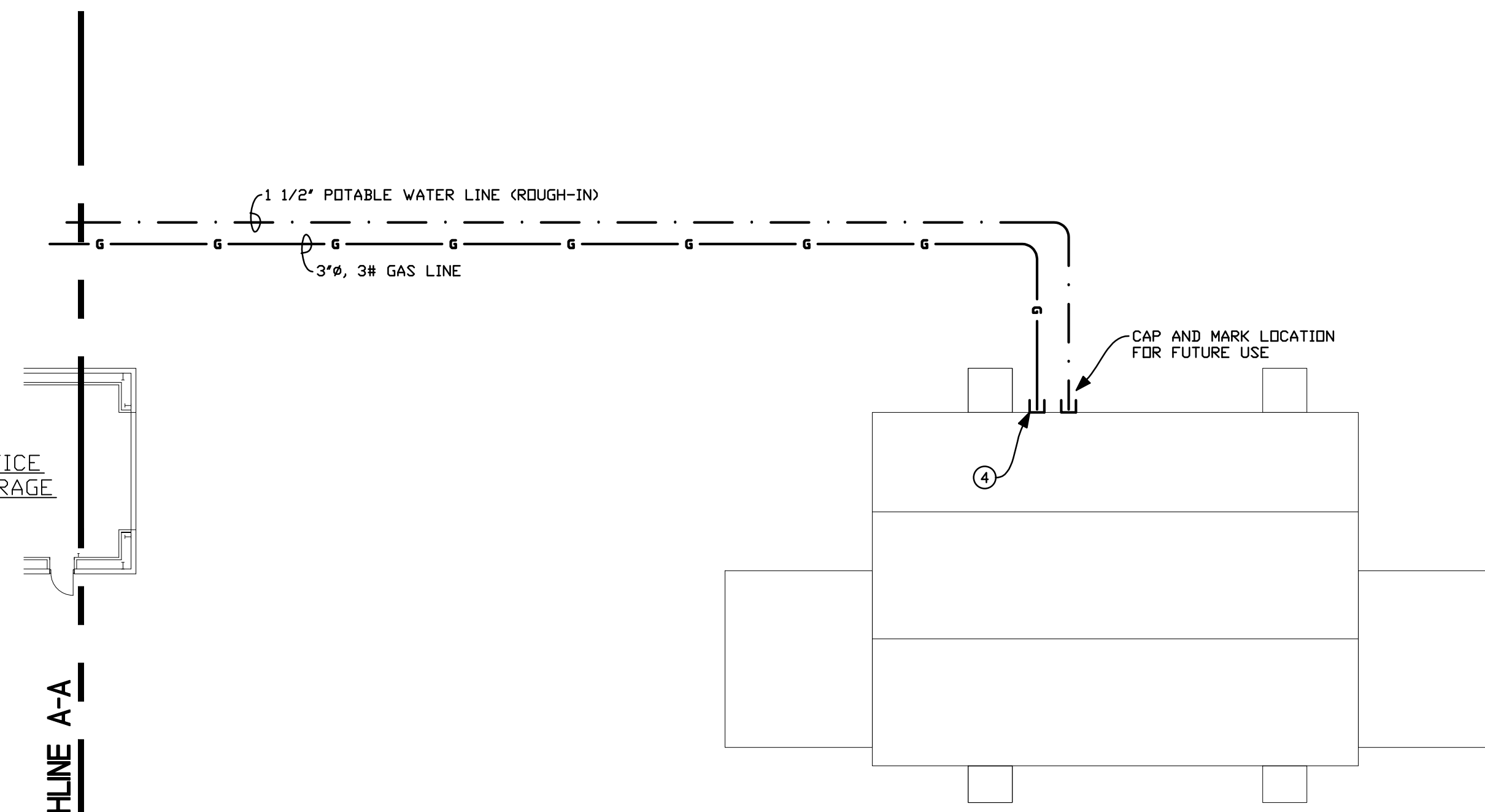
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	07/10/2024	BID SET

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M-1.1
 4 OF 5 SHEETS
 DATE: JULY 10, 2024



EXISTING PAINT SHOP BUILDING



NEW OUTDOOR PAINT ROOM BUILDING

EXISTING PAINT SHOP BUILDING

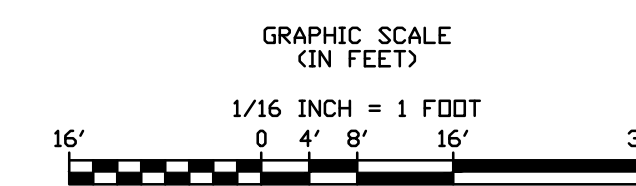
PLAN KEYED NOTES

- ① APPROXIMATE POINT OF CONNECTION, PROVIDE 1 1/2" PLASTIC POTABLE WATER LINE FROM EXISTING BUILDING TO NEW PAINT BUILDING FOR FUTURE USE, FOLLOW GAS LINE TRENCHING AND PROVIDE CAPS ON EACH END.
- ② APPROXIMATE POINT OF CONNECTION, NEW POINT BUILDING GAS LINE TO EXISTING BUILDING GAS MAIN.
- ③ PROVIDE COATING OF GAS LINE TO PROTECT FROM CORROSION.
- ④ ASSUMED GAS LINE ROUTING - ACTUAL GAS LINE SIZE AND ROUTE TO BE CONFIRMED WITH ACTUAL PAINT BUILDINGS SHEP DRAWINGS.

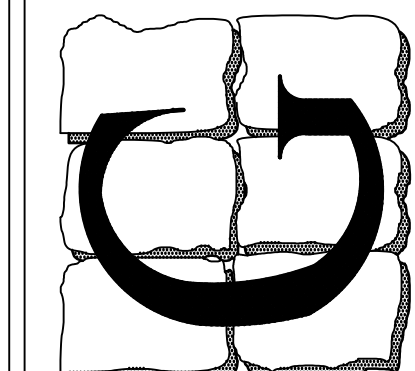
PLAN GENERAL NOTES

- 1) CONTRACTOR SHALL SHIFT AND ADJUST LAYOUT TO SUIT FIELD CONDITIONS.

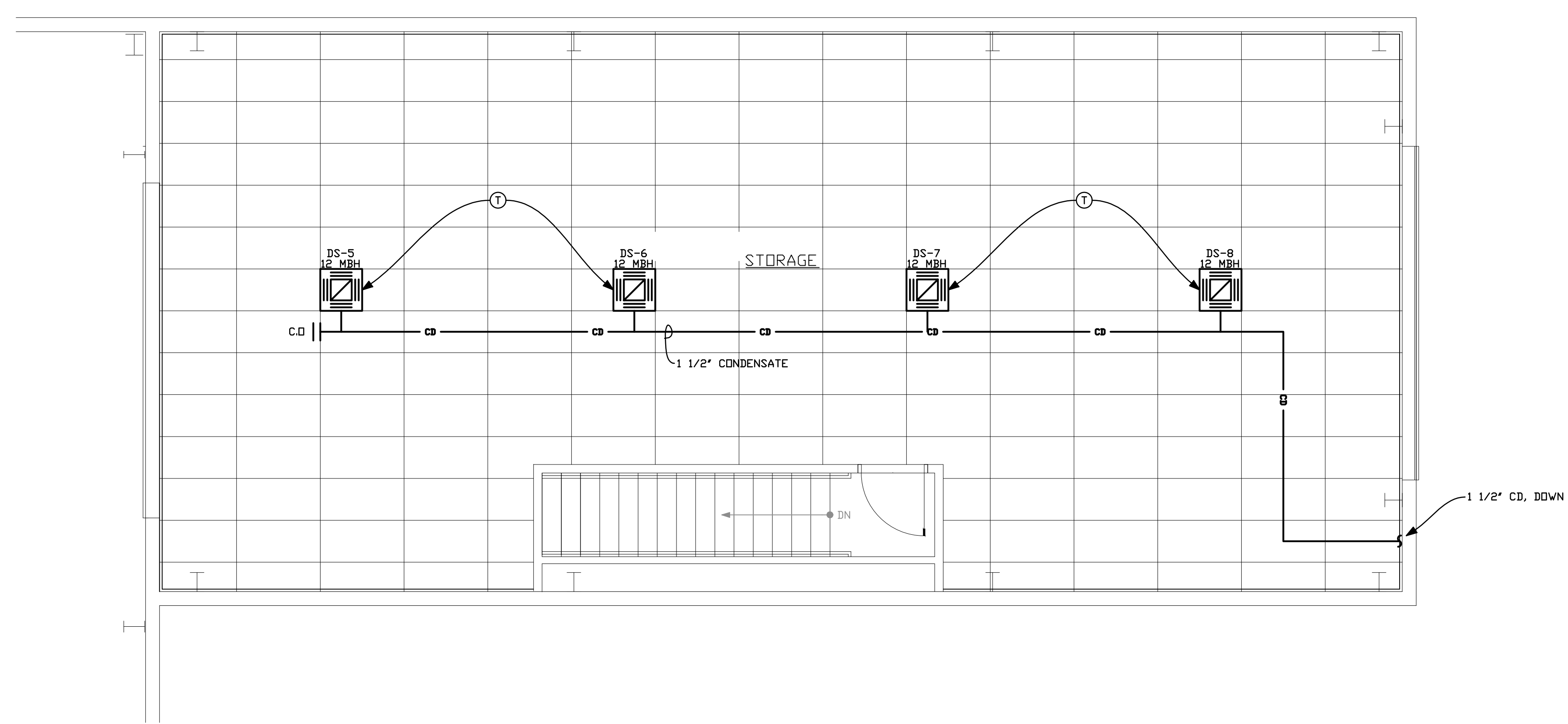
SITE MECHANICAL/PLUMBING PLAN
 SCALE: 1/16" = 1'-0"



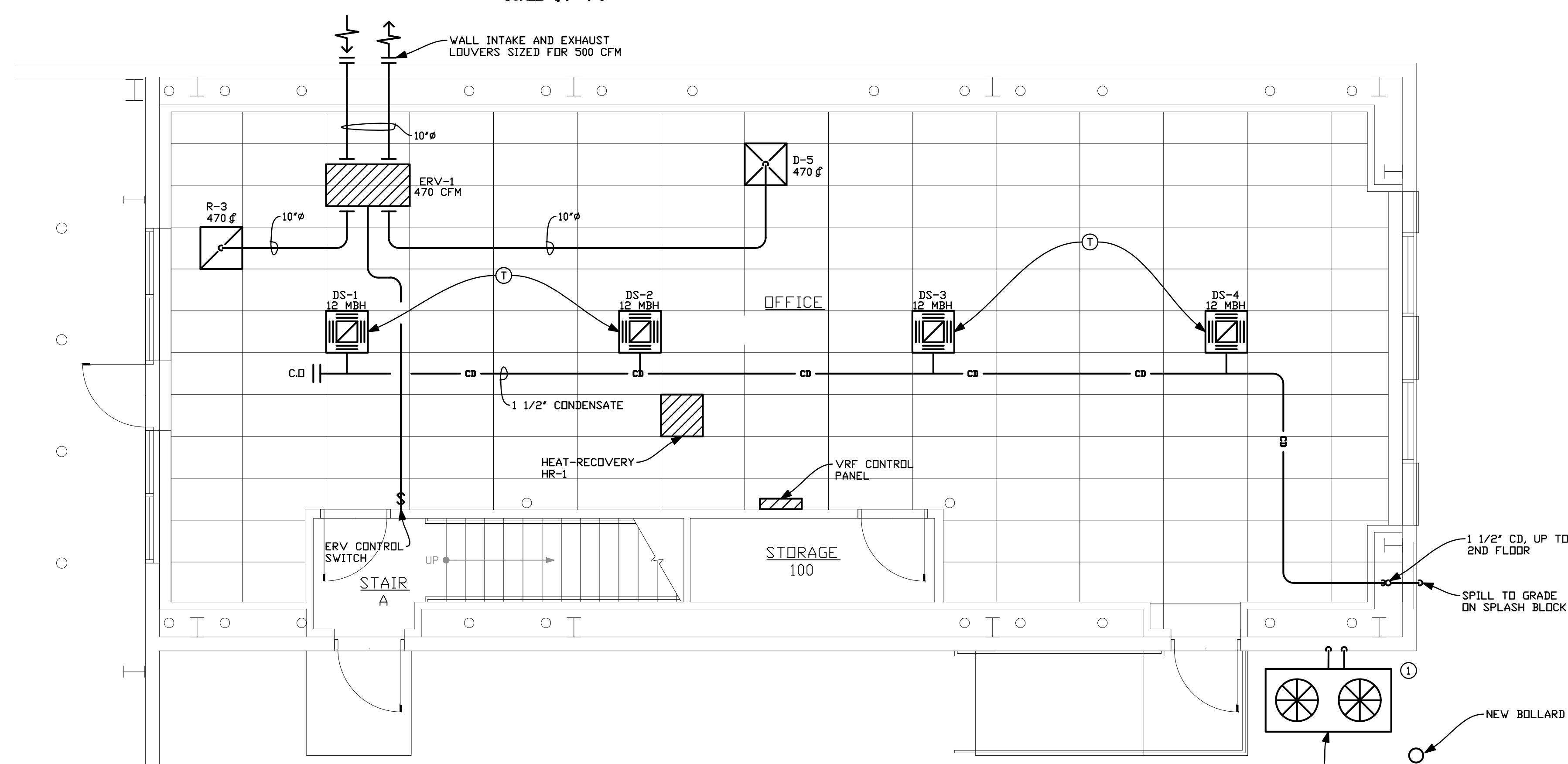
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2ND FLOOR STORAGE MECHANICAL PLAN
 SCALE 1/4" = 1'-0"



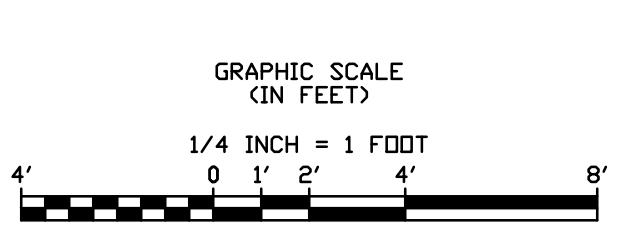
1ST FLOOR OFFICE MECHANICAL PLAN
 SCALE 1/4" = 1'-0"

PLAN GENERAL NOTES

- 1) CONTRACTOR SHALL SHIFT AND ADJUST LOGOUT ON NECESSARY TO SUIT EXISTING CONDITIONS.
- 2) CONTRACTOR SHALL SUBMIT REFRIGERANT PIPING DIAGRAMS FOR APPROVAL.

PLAN KEYED NOTES

- ① PROVIDE CONCRETE HOUSE KEEPING PAD, MOUNT UNIT ON SUPPORTS ABOVE GRADE, PROVIDE PROTECTIVE BOLLARD.



SEAL:

REV.	DATE	COMMENT
	07/10/2024	BID SET

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GENERAL ELECTRICAL NOTES

- MATERIALS, EQUIPMENT, AND SYSTEMS SHALL MEET ALL PERTINENT REQUIREMENTS OF THE AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM), **2020-NATIONAL-ELECTRIC-CODE (N.E.C.)**, THE UNDERWRITERS LABORATORY (UL), THE NATIONAL ELECTRIC MANUFACTURER'S ASSOCIATION (NEMA), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), AND OTHER NATIONALLY RECOGNIZED AGENCIES AS WELL AS APPLICABLE LOCAL CODES.
- ANYTHING DRAWN OR SPECIFIED SHALL NOT BE CONSTRUED TO CONFLICT WITH ANY LOCAL, MUNICIPAL OR STATE LAW, REGULATION OR ORDINANCE WHICH GOVERNS THE INSTALLATION OF ANY ELECTRICAL OR RELATED WORK. ITEMS SHALL NOT BE INSTALLED IN CONFLICT WITH THE **N.E.C.** RESOLVE ANY AND ALL CONFLICTS BEFORE INSTALLATION AT NO ADDITIONAL EXPENSE TO THE OWNER.
- ALL ELECTRICAL EQUIPMENT SHALL BE LISTED AND LABELED FOR THE QUALIFIED USE. VERIFY CIRCUIT BREAKER INTERRUPT CAPACITY NEEDED FOR EACH PANEL WITH LOCAL UTILITY. FOR BID PURPOSES, ASSUME **65,000** AIC FOR SERVICE ENTRANCE EQUIPMENT, AND **25,000** AIC ELSEWHERE. BALANCE THE POWER EQUALLY (+/- 10%) ON ALL PHASES.
- THE SYSTEMS SHOWN ON DRAWINGS SHALL BE PROVIDED TO SERVE ALL FIXTURES, EQUIPMENT, AND AREAS WITHIN THE CONTRACT LIMIT LINES AS SET FORTH BY THE ARCHITECTURAL SOLUTION FOR THE PROJECT. THE BIDDING AND CONTRACT REQUIREMENTS, GENERAL REQUIREMENTS, AND GENERAL PROVISIONS SHALL APPLY TO THIS SECTION. SYSTEMS SHALL INCLUDE ALL EQUIPMENT APPURTENANCES, SAFETY DEVICES, AND CONTROLS NECESSARY FOR THE INTENDED SERVICE.
- ALL PERMITS AND FEES REQUIRED FOR THE WORK SHALL BE SECURED AND PAID FOR BY THE ELECTRICAL CONTRACTOR AND INCLUDED IN BID PRICE.
- WHERE JOB CONDITIONS REQUIRE CHANGES FROM THE CONTRACT DOCUMENTS THAT DO NOT CHANGE THE SCOPE OF INSTALLATION OR NATURE OF WORK REQUIRED, THE CONTRACTOR SHALL MAKE SUCH CHANGES WITHOUT ADDITIONAL COST TO THE OWNER. NO OTHER CHANGES MAY BE MADE WITHOUT WRITTEN PERMISSION OF THE OWNER.
- BIDDERS SHALL BE LICENSED CONTRACTORS IN ACCORDANCE WITH LOCAL AND STATE LAWS.
- ALL EQUIPMENT SHALL BE NEW AND UNUSED. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT CONFORMANCE TO MANUFACTURER'S RECOMMENDATIONS, EXCEPT WHERE THESE SPECIFICATIONS REQUIRE A HIGHER QUALITY INSTALLATION THAN RECOMMENDED BY THE MANUFACTURER.
- ALL INSTALLED SYSTEMS, DEVICES AND RELATED ITEMS SHALL BE TESTED IN PLACE ON SITE. REPLACE ANY AND ALL CONTRACTOR-SUPPLIED DEFECTIVE DEVICES, ITEMS OR SYSTEMS AT CONTRACTOR'S OWN EXPENSE BEFORE COMPLETION OF THE PROJECT.
- CONTRACTOR SHALL GUARANTEE ALL WORK FOR WHICH MATERIALS ARE FURNISHED, FABRICATED OR FIELD ERRECTED, ALL FACTORY ASSEMBLED EQUIPMENT FOR WHICH NO SPECIFIC MANUFACTURER'S GUARANTEE IS FURNISHED, AND ALL WORK IN CONNECTION WITH INSTALLING MANUFACTURER'S GUARANTEED EQUIPMENT. THIS CONTRACTOR'S GUARANTEE SHALL EXIST FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL OWNER ACCEPTANCE OF THE WORK AND SHALL APPLY TO DEFECTS IN MATERIAL AND TO DEFECTIVE WORKMANSHIP OF ANY KIND.
- VERIFY FINAL LOCATIONS FOR ROUGH-INS WITH FIELD MEASUREMENTS AND WITH THE REQUIREMENTS OF THE ACTUAL EQUIPMENT TO BE CONNECTED. VERIFY ALL DIMENSIONS BY FIELD MEASUREMENTS.
- SEQUENCE, COORDINATE, AND INTEGRATE INSTALLATIONS OF ELECTRICAL MATERIALS AND EQUIPMENT FOR EFFICIENT FLOW OF THE WORK. GIVE PARTICULAR ATTENTION TO LARGE EQUIPMENT REQUIRING POSITIONING PRIOR TO CLOSING-IN THE BUILDING. COORDINATE THE CUTTING AND PATCHING OF BUILDING COMPONENTS TO ACCOMMODATE INSTALLATION OF ELECTRICAL EQUIPMENT AND MATERIALS.
- COORDINATE THE INSTALLATION OF ELECTRICAL MATERIALS AND EQUIPMENT ABOVE CEILINGS WITH SUSPENSION SYSTEM, MECHANICAL EQUIPMENT AND SYSTEMS, AND STRUCTURAL COMPONENTS. COORDINATE ELECTRICAL EQUIPMENT AND MATERIALS INSTALLATION WITH OTHER BUILDING COMPONENTS.
- WHERE MOUNTING HEIGHTS ARE NOT DETAILED OR DIMENSIONED, INSTALL ELECTRICAL SERVICES AND OVERHEAD EQUIPMENT TO PROVIDE THE MAXIMUM HEADROOM POSSIBLE. INSTALL ELECTRICAL EQUIPMENT TO FACILITATE MAINTENANCE AND REPAIR OR REPLACEMENT OF EQUIPMENT COMPONENTS. AS MUCH AS PRACTICAL, CONNECT EQUIPMENT FOR EASE OF DISCONNECTING, WITH MINIMUM OF INTERFERENCE WITH OTHER INSTALLATIONS.
- COORDINATE CONNECTION OF ELECTRICAL SYSTEMS WITH EXTERIOR UNDERGROUND AND OVERHEAD UTILITIES AND SERVICES. COMPLY WITH REQUIREMENTS OF GOVERNING REGULATIONS, FRANCHISED SERVICE COMPANIES, AND CONTROLLING AGENCIES. PROVIDE REQUIRED CONNECTION FOR EACH SERVICE.
- DO NOT ENDANGER OR DAMAGE INSTALLED WORK THROUGH PROCEDURES AND PROCESSES OF CUTTING AND PATCHING. ARRANGE FOR REPAIRS REQUIRED TO RESTORE OTHER WORK, BECAUSE OF DAMAGE CAUSED AS A RESULT OF ELECTRICAL INSTALLATIONS.
- BIDDERS SHALL THOROUGHLY ACQUAINT THEMSELVES WITH THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. THEY SHALL EXAMINE ALL SERVICES, EQUIPMENT, SURFACES, ETC., WHICH THIS WORK IS IN ANY WAY DEPENDENT UPON, AND BRING ANY DISCREPANCIES DETERMINED OR OMISSIONS FOUND IN THE DRAWINGS TO THE OWNER'S ATTENTION BEFORE SUBMITTING BID.
- VERIFY MECHANICAL EQUIPMENT SWITCH AND CONNECTION REQUIREMENTS, ITEM BY ITEM, WITH THE MECHANICAL CONTRACTOR, BEFORE WIRING EQUIPMENT. RESOLVE ALL DISCREPANCIES WITHOUT FURTHER COST TO OWNER.
- ALL WIRING SHALL BE IN MC CABLE OR CONDUIT, ½" EMT MINIMUM WITH SET SCREW FITTINGS SUPPORTED AT 10'-0" INTERVALS.
- ALL WIRING SHALL BE THIN/THWN COPPER (NO. 12 AWG MINIMUM) UNLESS OTHERWISE NOTED. WIRE AND CONDUIT SIZES ARE SHOWN ON THE PANEL SCHEDULE.
- ALL LIGHTS SHALL BE SUPPORTED AND SECURED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. THE SUPPORT SHALL BE FROM A BUILDING SUPPORT MEMBER AND NOT THE FIRE PROTECTION SYSTEM OR OTHER PIPES.
- ALL PANELS, CONTROL DEVICES AND MISCELLANEOUS ELECTRICAL APPARATUS SHALL BE CLEARLY MARKED FOR EASY IDENTIFICATION AND SAFETY. USE BLACK PLASTIC OR BAKELITE NAME PLATE ENGRAVED WITH WHITE LETTERS ¾" HIGH. PUNCHED TAPE IS NOT ACCEPTABLE.
- PANELS SHALL BE PROVIDED WITH A TYPEWRITTEN DIRECTORY AFFIXED TO INSIDE OF PANEL DOOR WITH A CLEAR PLASTIC SLEEVE.
- THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND ARE FOR CIRCUIT ALLOCATION ONLY. DO NOT SCALE DRAWINGS.
- ELECTRICAL CONTRACTOR SHALL FURNISH RECORD SET OF DRAWINGS WITH ANY DEVIATIONS MARKED IN RED INK.

ELECTRICAL NOTES:

- SCOPE OF WORK:**
 - CONTRACTOR SHALL VISIT SITE PRIOR TO BIDDING. BIDS SHALL SERVE AS EVIDENCE OF KNOWLEDGE OF EXISTING CONDITIONS TO THE EXTENT POSSIBLE, CONCEALED CONDITIONS EXCLUDED. FIELD VERIFY ALL ELECTRICAL EQUIPMENT.
 - FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND TOOLS TO PERFORM ELECTRICAL WORK SHOWN, NOTED OR SCHEDULED FOR A COMPLETE AND FINISHED INSTALLATION.
 - MATERIALS, PRODUCTS AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND SUCH AS APPEAR ON THE UNDERWRITERS LABORATORIES LIST OF APPROVED ITEMS AND SHALL BE SIZED IN CONFORMITY WITH REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND OTHER APPLICABLE CODES, WHICHEVER ARE MORE STRINGENT.
 - ALL WORK TO BE IN ACCORDANCE WITH NATIONAL ELECTRIC CODE (2020) AND THE UNIFORM CONSTRUCTION CODE (LATEST EDITION).
 - ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN STRICT COMPLIANCE WITH THE MANUFACTURER'S INSTALLATION PROCEDURES.
 - THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS NECESSARY FOR A COMPLETE ELECTRICAL SYSTEM, WHETHER SPECIFIED OR IMPLIED.
- PERMITS:**
 - SECURE AND PAY FOR ALL REQUIRED PERMITS AND INSPECTION CERTIFICATES.
- SHOP DRAWINGS:**
 - SUBMIT MATERIAL LIST AND SHOP DRAWINGS FOR MAJOR EQUIPMENT TO THE ARCHITECT FOR APPROVAL. SUBMITTALS SHALL BE IN ACCORDANCE WITH GENERAL CONDITIONS AND SHALL BEAR STAMP OF THE GENERAL CONTRACTOR SHOWING THAT HE HAS REVIEWED AND APPROVED THEM. LACK OF SUCH CONTRACTOR'S APPROVAL WILL BE CAUSE FOR REJECTION WITHOUT REVIEW BY THE ARCHITECT OR ENGINEER.
 - SUBMIT SIX(6) SETS OF SHOP DRAWINGS.
- CONDUITS:**
 - TYPE OF CONDUIT SHALL BE AS FOLLOWS FOR ALL FEEDERS AND DISTRIBUTION CIRCUITS, UNLESS OTHERWISE SPECIFIED:

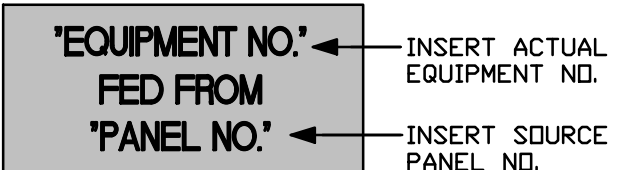
APPLICATION	TYPE OF CONDUIT
BURIED IN CONCRETE	PVC - SCHEDULE 40
IN MASONRY	EMT OR IMC
EXPOSED ABOVE GRADE	ARC
UNDERGROUND	PVC - SCHEDULE 40
SUPPLY TO DISTRIBUTION PANELS	EMT
INTERIOR BRANCH CIRCUITS (CONCEALED)	MC
INTERIOR BRANCH CIRCUITS (EXPOSED)	EMT
- WIRE:**
 - WIRE SHALL BE SINGLE CONDUCTOR COPPER WITH 600 VOLT INSULATION. #10 AND SMALLER SHALL BE SOLID. #8 AND LARGER SHALL BE STRANDED. MINIMUM WIRE SIZE SHALL BE #12 EXCEPT #14 MAY BE USED FOR CONTROL. ALL WIRE AND CABLE SHALL BE NEW AND SHALL BE BROUGHT TO THE SITE IN UNBROKEN PACKAGES. ALL WIRING OF ANY TYPE SHALL BE IN CONDUIT.
 - GENERAL WIRING SHALL BE THW OR THHN (ALUMINUM CONDUCTORS ARE NOT PERMITTED).
 - WIRE CONNECTORS SHALL BE EQUAL TO SCOTCHLOCK FOR #6 AND SMALLER AND T & B 'LOCK-LITE' FOR #8 AND LARGER.
- LIGHTING:**
 - LIGHTING FIXTURES AND LAMPS (UNLESS NOTED OTHERWISE) SHALL BE FURNISHED BY THE ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL INSTALL ALL FIXTURES AND LAMPS.
- WIRE DEVICES:**
 - RECEPTACLES SHALL BE 20 AMP, 3-WIRE GROUNDING TYPE EQUAL TO HUBBELL 5362 (MOUNTING @ 18" A.F.F.).
 - SWITCHES SHALL BE STANDARD GRADE RATED 20 AMP AT 120 VOLT (MOUNTING @ 18" A.F.F.).
 - SPECIAL DEVICES SHALL BE A SPECIFICATION GRADE.

- SAFETY SWITCHES:**
 - PROVIDE SAFETY AND DISCONNECT SWITCHES, FUSED OR NONFUSED, AS CALLED FOR ON DRAWINGS AND AS REQUIRED BY CODE. SWITCHES SHALL BE HEAVY DUTY, LOAD AND HORSEPOWER RATED AS MANUFACTURED BY SQUARE D, GUILD, ITE OR EQUAL.
 - MANUAL MOTOR STARTERS WITH OVERLOAD PROTECTION MAY BE USED FOR FRACTIONAL HORSEPOWER MOTORS. SINGLE PHASE STARTERS SHALL BE SQUARE D OR EQUAL. THREE PHASE STARTERS SHALL BE PROVIDED WITH OVERLOAD DEVICES IN EACH PHASE. MAGNETIC MOTOR STARTERS SHALL BE USED FOR INTEGRAL HORSEPOWER MOTORS, COMBINATION STARTERS, WHEN USED, SHALL CONTAIN FUSIBLE SWITCHES.
- BOXES:**
 - OUTLET BOXES AND COVERS SHALL BE GALVANIZED, ONE-PIECE PRESSED STEEL KNOCKOUT.
 - JUNCTION, PULL BOXES AND COVERS SHALL BE GALVANIZED STEEL, CODE GAUGE SIZE.
- SERVICES:**
 - PROVIDE ELECTRICAL SERVICE AS SHOWN ON THE DRAWINGS. ALL WORK NOT SPECIFICALLY NOTED AS BEING BY THE OWNER OR POWER COMPANY SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. CLOSELY CO-ORDINATE ENTIRE INSTALLATION WITH OWNER AND POWER COMPANY AS REQUIRED.

- INSTALLATION:**
 - ALL ELECTRICAL WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATING, SERVICING, MAINTAINING AND REPAIRING. HANGERS SHALL INCLUDE ALL MISCELLANEOUS STEEL SUCH AS CHANNELS, RODS, ETC., NECESSARY FOR THE INSTALLATION OF WORK AND SHALL BE FASTENED TO STEEL, CONCRETE OR WOOD, BUT NOT TO PIPING. ALL CONDUIT SHALL BE CONCEALED WHEREVER POSSIBLE. EXPOSED CONDUIT SHALL BE IN STRAIGHT LINES PARALLEL WITH OR AT RIGHT ANGLES TO COLUMN LINES OR BEAMS AND SEPARATED AT LEAST 3 INCHES FROM WATER LINES WHEREVER THEY RUN ALONG SIDE OR ACROSS SUCH LINES. CONDUCTORS SHALL BE IN CONDUIT, DUCTS OR APPROVED RACEWAYS.
 - THE CONTRACTOR SHALL DO ALL CUTTING, CHASING OR CHANNELING AND PATCHING REQUIRED FOR ANY WORK UNDER THIS DIVISION. ANY CUTTING SHALL HAVE PRIOR APPROVAL OF OWNER. SLEEVES SHALL EXTEND AT LEAST TWO (2") INCHES ABOVE FINISHED FLOOR AND ALL SLEEVES, OPENINGS, ETC., THROUGH FIRE RATED WALLS AND FLOORS SHALL BE SEALED AFTER CONDUIT INSTALLATION TO MAINTAIN THEIR FIRE RATING.
 - THE FOLLOWING EQUIPMENT SHALL BE IDENTIFIED WITH ENGRAVED BAKELITE NAMEPLATES AS TO NAME AND/OR FUNCTION: DISTRIBUTION PANEL, LIGHTING PANELS, MOTOR STARTERS, TIME CLOCKS, AND DISCONNECT SWITCHES.
 - THE LOCATION OF OUTLETS AND EQUIPMENT SHOWN ON THE DRAWINGS ARE APPROXIMATE AND THE ARCHITECT SHALL HAVE THE RIGHT TO RELOCATE ANY OUTLETS OR FIXTURES BEFORE THEY ARE INSTALLED WITHOUT ADDITIONAL COST.
 - ELECTRICAL CONTRACTOR SHALL RECORD ALL FIELD CHANGES IN HIS WORK AS THE JOB PROGRESSES.
- GUARANTEE:**
 - MATERIALS, EQUIPMENT AND INSTALLATION SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE. DEFECTS WHICH APPEAR DURING THAT PERIOD SHALL BE CORRECTED AT THIS CONTRACTOR'S EXPENSE.
 - FOR THE SAME PERIOD, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO PREMISES CAUSED BY DEFECTS IN WORKMANSHIP OR IN THE WORK OR EQUIPMENT FURNISHED AND/OR INSTALLED BY HIM.

- FINALLY:**
 - IT IS THE INTENT THAT THE FOREGOING WORK SHALL BE COMPLETE IN EVERY RESPECT AND THAT ANY MATERIAL OR WORK NOT SPECIFICALLY MENTIONED OR SHOWN ON THE DRAWINGS, BUT NECESSARY TO FULLY COMPLETE THE WORK SHALL BE FURNISHED.

NAME PLATES



PANEL/GEAR NOTES

- MAIN PANEL/GEAR SHALL BE FACTORY ASSEMBLED, METAL ENCLOSED BRACED FOR THE REQUIRED AVAILABLE FAULT CURRENT, AND WITH ALL EQUIPMENT, BUSSING CONNECTIONS, CURRENT LIMITING FUSES, CIRCUIT BREAKERS, AND ALL SIMILAR COMPONENTS REQUIRED FOR PROPER OPERATION. THE SWITCHBOARD SHALL BE SUITABLE FOR USE AS SERVICE ENTRANCE EQUIPMENT AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST NEMA PB-2 AND UL-891 STANDARDS.
- MAIN PROTECTIVE DEVICE SHALL BE EITHER A BOLTED PRESSURE SWITCH WITH CURRENT LIMITING CLASS L FUSES OR AN INSULATED CASE POWER CIRCUIT BREAKER. THE MAIN PROTECTIVE DEVICE SHALL INCLUDE INTEGRAL GROUND FAULT PROTECTION IN ACCORDANCE WITH NEC 230-95.
- BRANCH CIRCUIT PROTECTIVE DEVICE SHALL BE MOLDED CASE CIRCUIT BREAKERS (WITH CURRENT LIMITING FUSES, IF REQUIRED).
- FUSES, AS REQUIRED, SHALL BE CURRENT LIMITING AND SHALL BE MANUFACTURED BY BUSSMAN, GUILD-SHAWMUT, OR LITTELFUSE.
- NAMEPLATES: ALL BRANCH CIRCUIT AND MAIN PROTECTIVE DEVICES SHALL HAVE AN ENGRAVED LAMACIOD (BLACK LETTERING ON WHITE BACKGROUND).
- FOR DIMENSIONAL AND WIRING DETAILS OF C.T. COMPARTMENT AND METERING EQUIPMENT AND CONNECTION OF SYSTEM GROUNDING CONDUCTOR SEE POWER COMPANY HAVING JURISDICTION STANDARD DRAWINGS AND SPECIFICATIONS. GROUNDING ELECTRODE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE. GROUND ROD ELECTRODES SHALL BE ¾", 10' LONG COPPER WITH STEEL CORE.

ELECTRICAL SYSTEM GROUNDING NOTES

- ONE OF THE MOST IMPORTANT PARTS IN THE INSTALLATION OF ELECTRICAL SYSTEMS IS GROUNDING. PROPER GROUNDING WILL PROVIDE PROTECTION OF PERSONNEL, EQUIPMENT, AND CIRCUITS BY ELIMINATING THE POSSIBILITY OF DANGEROUS OR EXCESSIVE VOLTAGES.
- GROUNDING SYSTEM MUST BE IN ACCORDANCE WITH APPLICABLE NATIONAL, STATE OR LOCAL ELECTRICAL CODES.
 - THE GROUND PATH MUST BE PERMANENT AND CONTINUOUS, AND THE RESISTANCE OF THE GROUND PATHS MUST NOT EXCEED TWO (2) OHMS.
 - ALL GROUNDING ELECTRODES OF DIFFERENT SYSTEMS MUST BE BONDED TOGETHER.
 - METALLIC CONDUIT USED TO ENCLOSE A GROUNDING CONDUCTOR MUST BE BONDED TO THE GROUNDING CONDUCTOR AT BOTH ENDS TO REDUCE IMPEDANCE.
 - ALL ISOLATED GROUNDING TYPE RECEPTACLES MUST BE INDIVIDUALLY CONNECTED TO GROUND (NOT SERIALY) TO ASSURE THE CONTINUITY OF THE GROUND PATH.
 - RECEPTACLE BOXES MUST BE GROUNDED BY RACEWAY BACK TO THE GROUNDED PANEL.
 - IF FLEXIBLE OR PVC CONDUIT IS USED, OR WHERE REQUIRED BY LOCAL CODE, THEN A SEPARATE MECHANICAL GROUND WIRE MUST CONNECT THE OUTLET BOX TO THE PANEL MECHANICAL GROUND BUS.
 - ISOLATED GROUNDING SYSTEM FOR THE ISO GRD PANEL MUST BE BONDED TO THE MAIN DISTRIBUTION PANELBOARD GROUNDING SYSTEM AND IN TURN BONDED TO THE SYSTEM'S NEUTRAL.

FIRE STOPPING NOTES

ALL PIPES, DUCTS, CONDUITS AND CABLES PASSING THROUGH RATED FLOORS/WALLS/CEILINGS SHALL BE FIRE STOPPED WITH 3M FIRE BARRIER CAULK CP 25 OR EQUAL. INSTALL PER MANUFACTURER'S INSTRUCTIONS AND TO SATISFY THE FIRE RATING REQUIREMENTS OF THE ASSEMBLY.

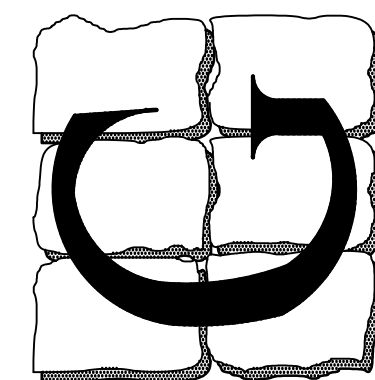
- | | |
|---------------------------|---|
| 1) ELEVATOR MACHINE ROOM | 2) 2 HOUR FIRE RATING FOR WALLS AND CEILING - UNLESS NOTED OTHERWISE ON THE PLANS |
| 2) MECHANICAL ROOM | 1) 1 HOUR FIRE RATING FOR WALLS AND CEILING - UNLESS NOTED OTHERWISE ON THE PLANS |
| 3) STAIR TOWER | 2) 2 HOUR FIRE RATING - UNLESS NOTED OTHERWISE ON THE PLANS |
| 4) OTHER FIRE SEPARATIONS | PROVIDE TO MATCH ASSEMBLY RATING INDICATED ON THE PLANS OR REQUIRED BY CODE. |

ELECTRICAL DRAWING LIST

- E-01 ELECTRICAL COVER SHEET
- E-02 TYPICAL ELECTRICAL DETAILS
- E-11 SITE ELECTRICAL POWER PLAN
- E-12 CRANE ROOM ELECTRICAL POWER PLAN
- E-2.1 STOR./OFF. ELECTRICAL POWER PLANS
- E-2.2 STOR./OFF. ELECTRICAL HVAC POWER PLANS
- E-2.3 STOR./OFF. ELECTRICAL LIGHTING PLANS
- E-3.1 ELECTRICAL SCHEDULES + POWER RISER
- E-3.2 ELECTRICAL SCHEDULES

24-005

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MANITOWOC CRANES
PAINTING BUILDING
SHADY GROVE, PENNSYLVANIA
ELECTRICAL COVER SHEET

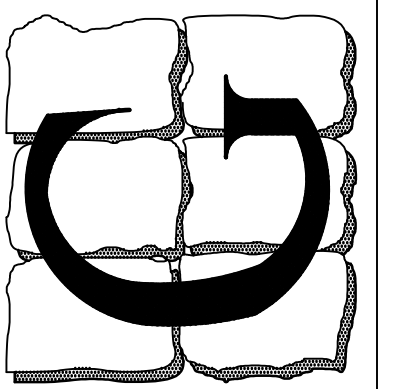
LESLIE SCOTT GRIM, P.E.
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GA PROF. ENG. NO. PE003582
HI PROF. ENG. NO. PE13043
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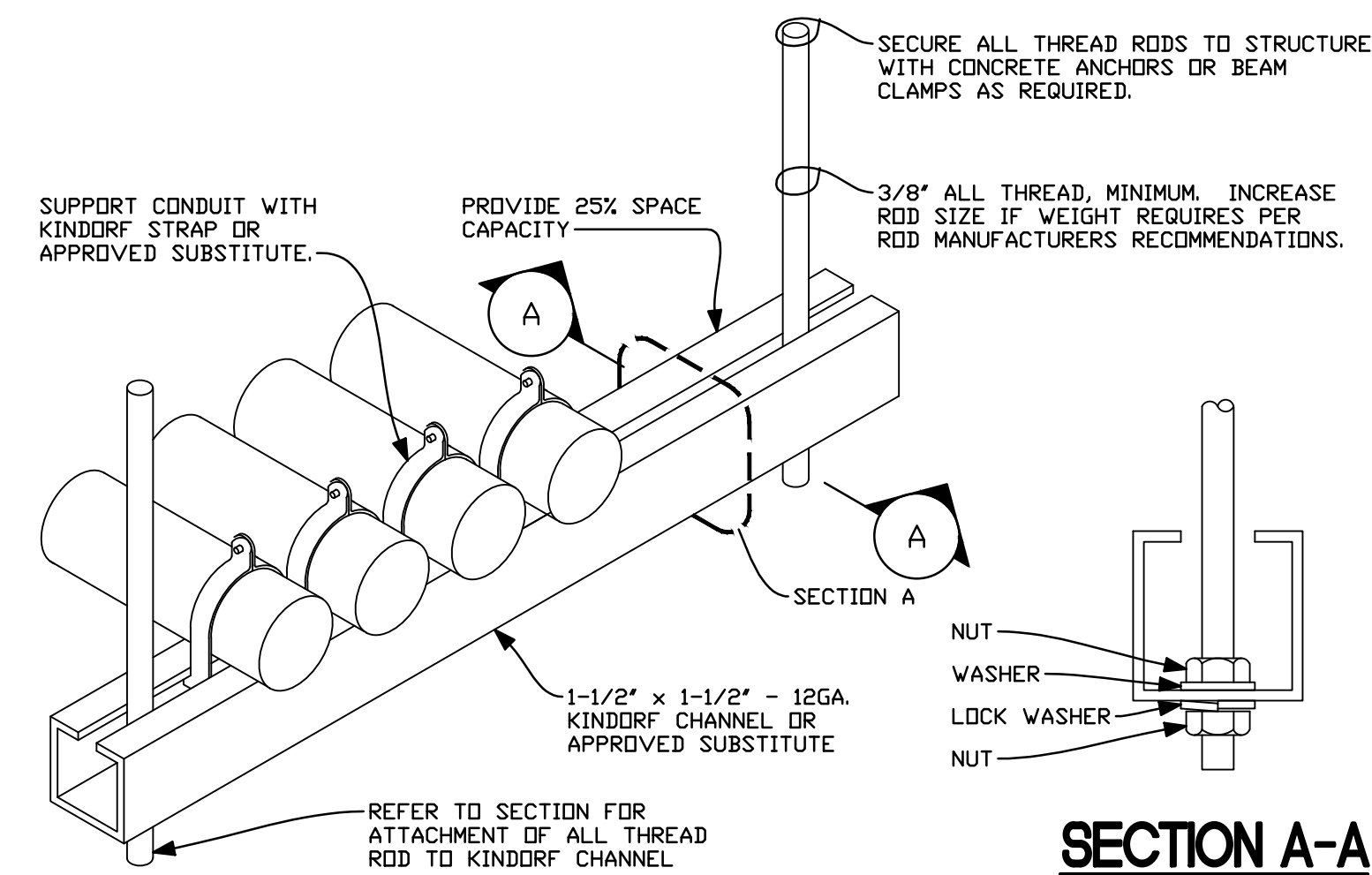
E-01
1 OF 9 SHEETS
DATE: JULY 10, 2024

SEAL:

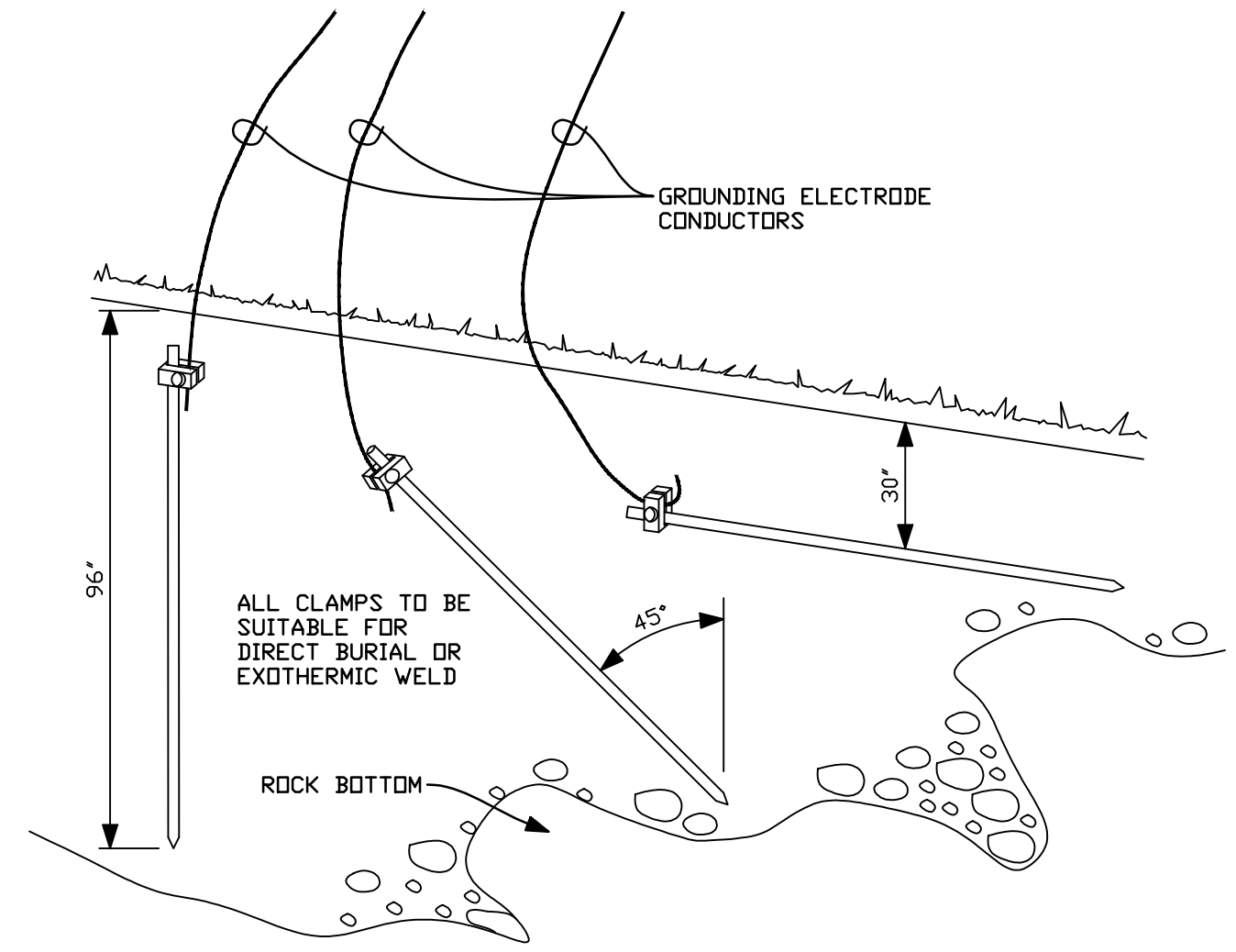


ELECTRICAL POWER SYMBOLS

	POWER WIRING LEG
	HOME RUN TO PANEL/CKT. NUMBER OF TICK MARKS = NUMBER OF CONDUCTORS EXCLUDING GROUND, PROVIDE 'GREEN' GROUND WIRE FOR ALL CIRCUITS, NUMBER OF ARROW HEADS = NUMBER OF HOME RUNS
	DUPLEX GROUNDED RECEPTACLE
	DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER
	QUAD DUPLEX GROUNDED RECEPTACLE
	SPECIAL PURPOSE OUTLET, CONFIRM OUTLET CONFIGURATION (TYPE) WITH EQUIPMENT TO BE SERVED PRIOR TO INSTALLATION
	DISCONNECT SWITCH
	JUNCTION BOX
	EXHAUST FAN
	MOTOR OR MISCELLANEOUS LOAD
	TELEPHONE/DATA/TV BOX
	LUTRON CEILING MOUNTED MOTION SENSOR
	LUTRON WALL MOUNTED MOTION SENSOR
	RADIO POWER SAVER WIRELESS DAYLIGHT SENSOR
	LUTRON POWPAK DIMMING MODULE WITH 0-10V DIMMING
	SINGLE POLE SWITCH
	DOUBLE SWITCH
	THREE WAY SWITCH
	FOUR WAY SWITCH
	LUTRON DIMMER SWITCH
	KEYED SWITCH
	JAMB SWITCH
	TIMER SWITCH
	LUTRON MOTION SWITCH
	LUTRON DIMMING MOTION SWITCH
	TOUCHLESS WAVE LIGHT SWITCH
	LED EMERGENCY EXIT LIGHT
	LED COMBINATION EXIT/EMERGENCY LIGHT
	LED EMERGENCY LIGHT
	OUTDOOR LED REMOTE DOUBLE-HEAD

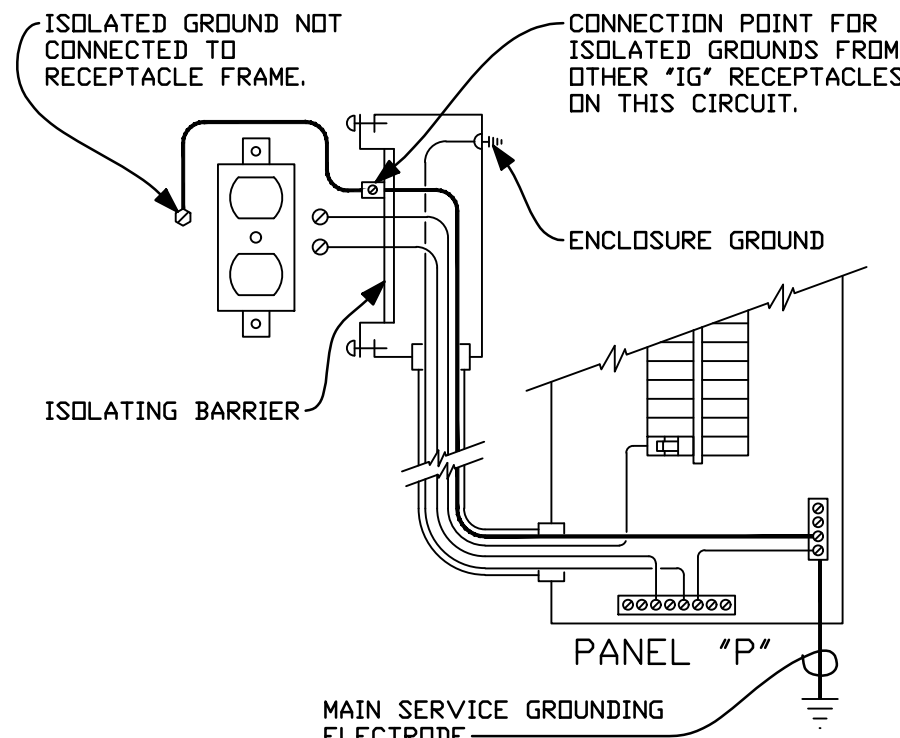
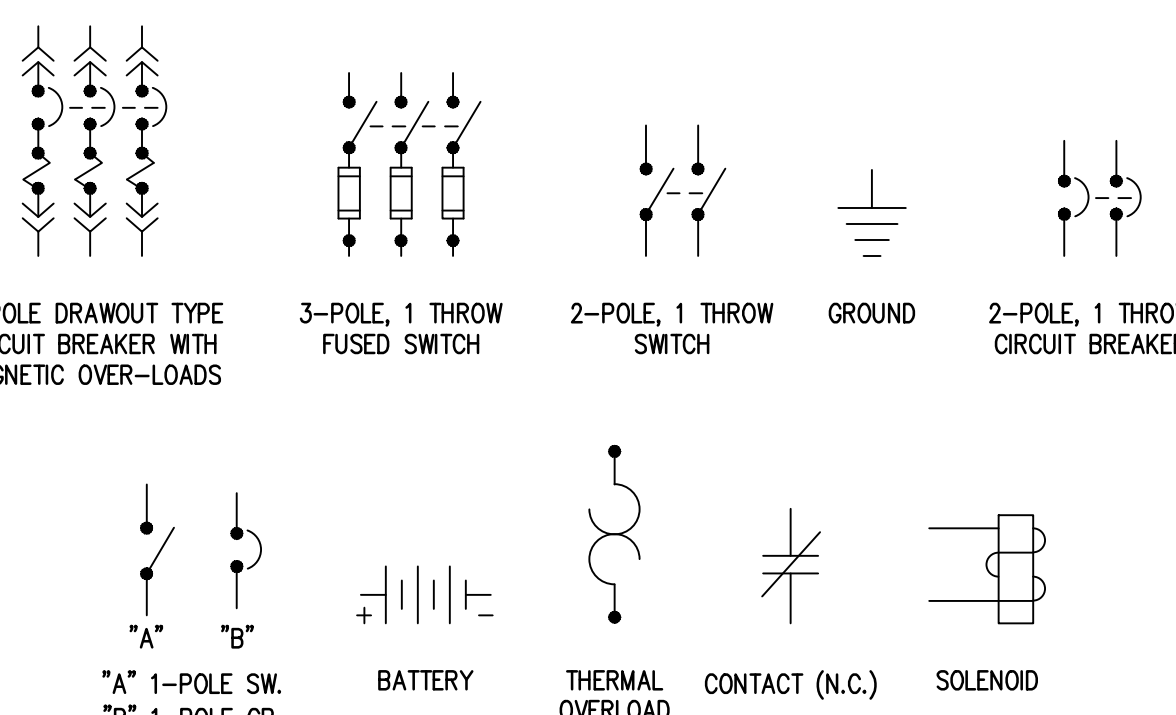


TRAPEZE SUPPORT DETAIL
NOT TO SCALE

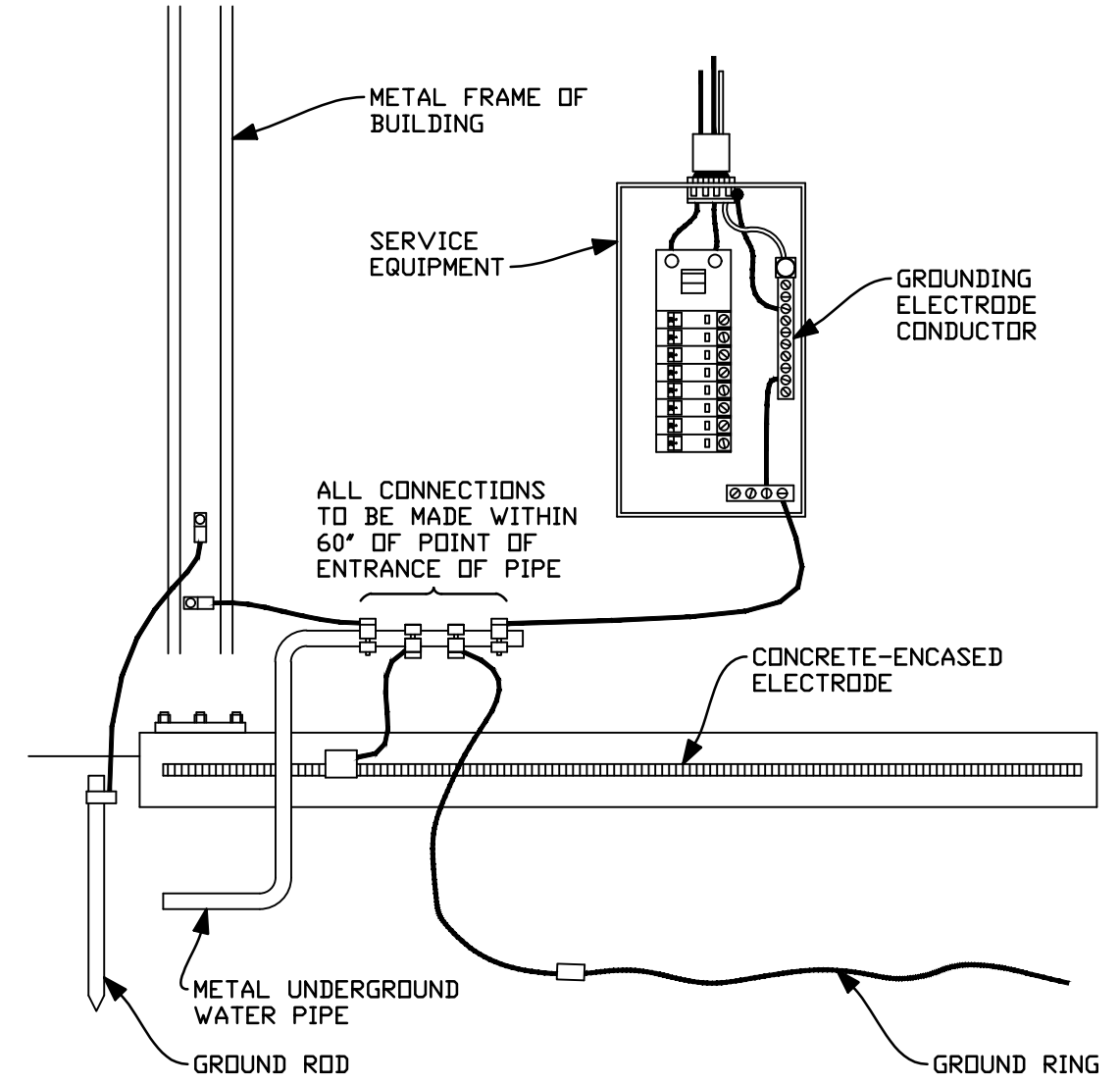


INSTALLATION DETAIL FOR ROD + PIPE ELECTRODES
NOT TO SCALE

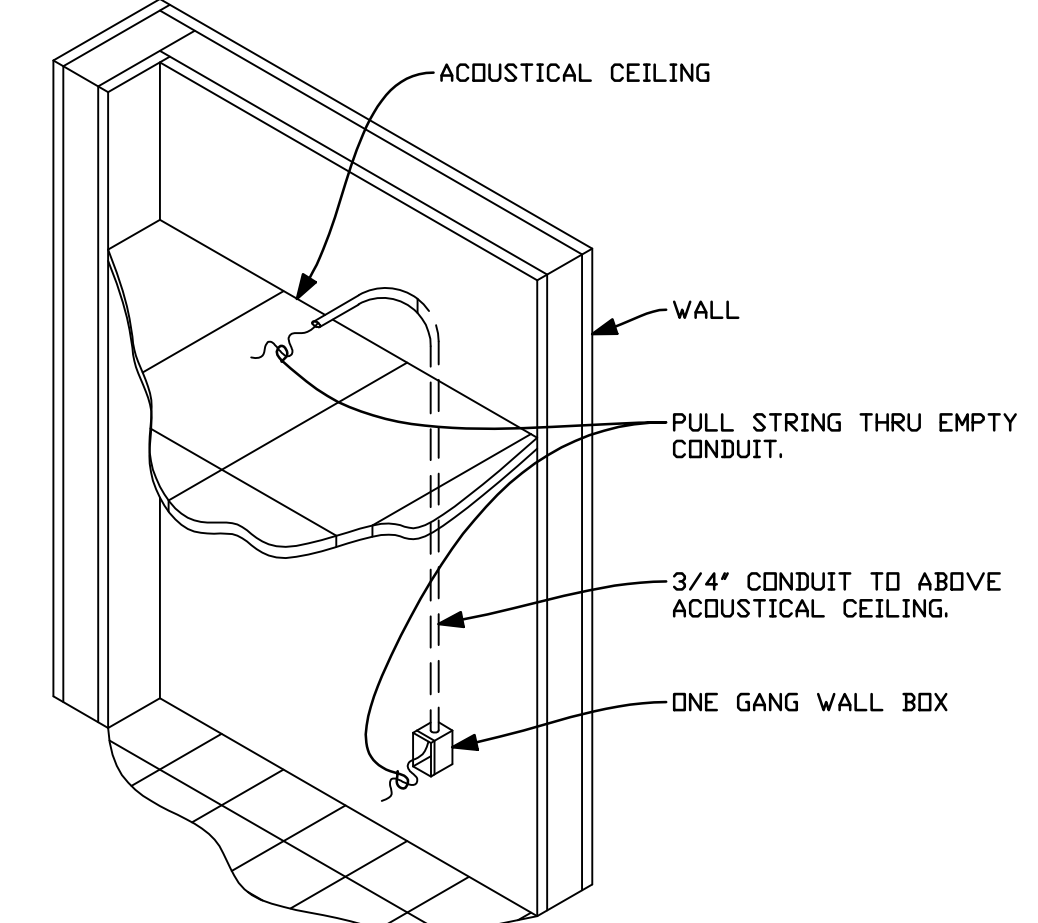
ELECTRICAL WIRING DIAGRAM SYMBOLS



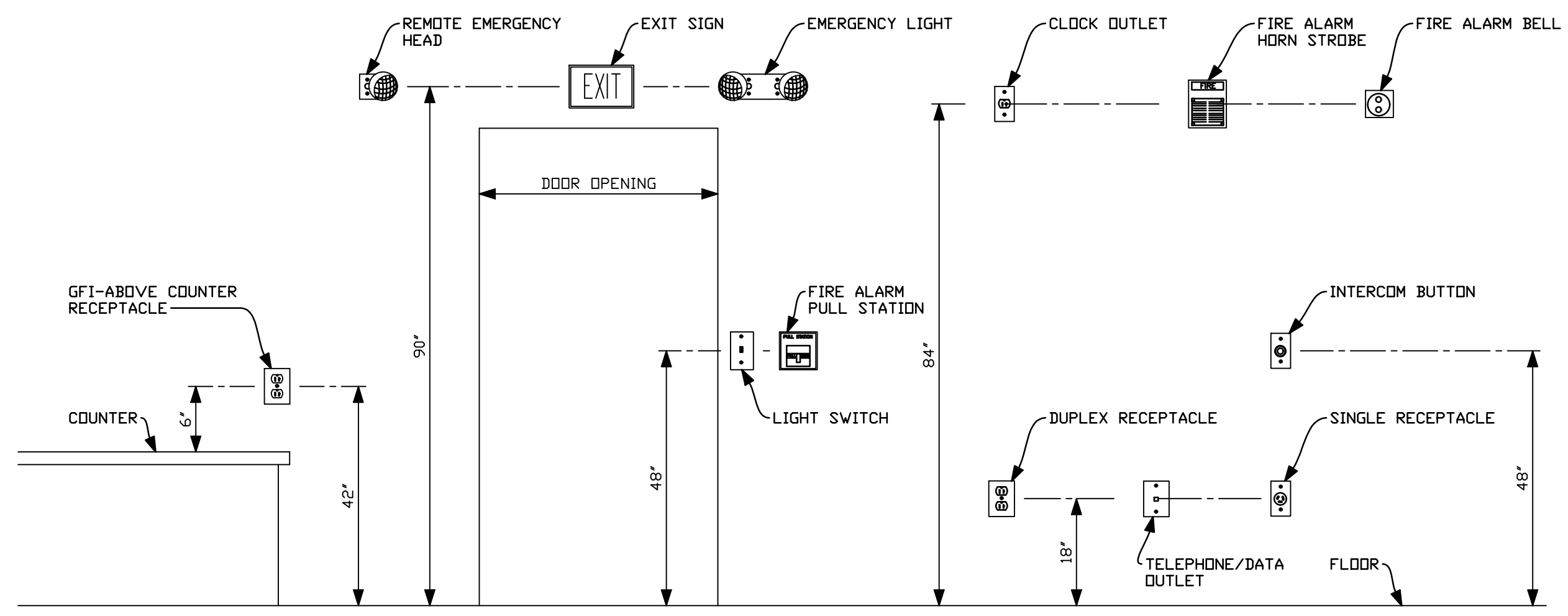
ISOLATED GROUND RECEPTACLE PANEL
NOT TO SCALE



GROUNDING ELECTRODE SYSTEM DETAIL
NOT TO SCALE



TELEPHONE/DATA JACK WALL BOX ROUGH-IN DETAIL
NOT TO SCALE

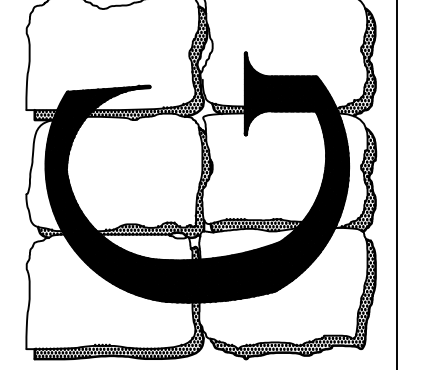


MOUNTING HEIGHT DETAIL
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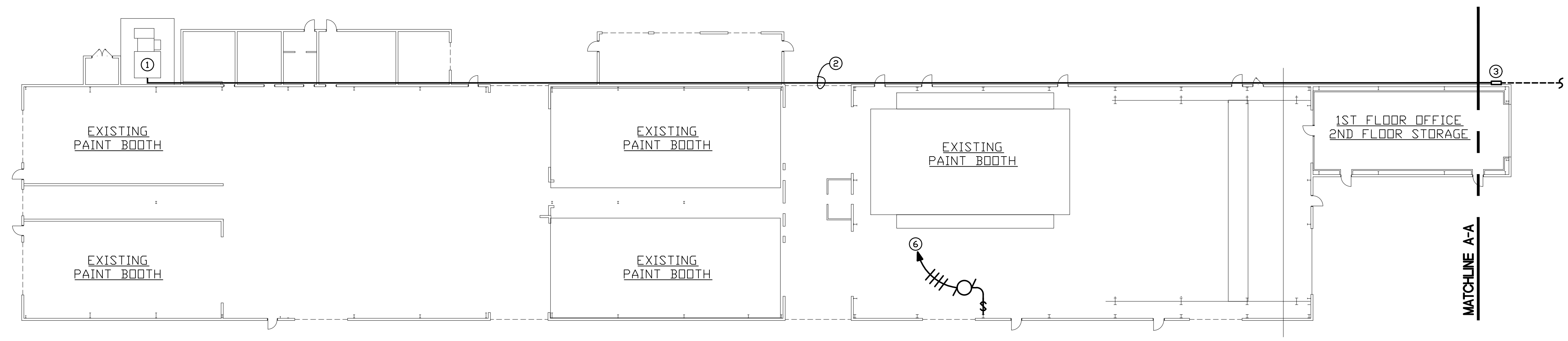
ELECTRICAL ABBREVIATIONS

A	AMPERES	ESB	ENERGY SAVING BALLAST	MCA	MINIMUM CIRCUIT AMPACITY	SWBD	SWITCHBOARD
AC	ABOVE COUNTER OR ALTERNATING CURRENT	EF	EXHAUST FAN	MCC	MOTOR CONTROL CENTER	SWGR	SWITCHGEAR
AF	ABOVE FINISHED FLOOR	EX	EXISTING	MH	METAL HALIDE	2S2W	TWO SPEED, TWO WINDINGS
AFG	ABOVE FINISHED GRADE	FAAR	FIRE ALARM ANNUNCIATOR PANEL	MIN	MINIMUM	TC	TIME CLOCK
AHU	AIR HANDLING UNIT	FACP	FIRE ALARM CONTROL PANEL	MLO	MAIN LUGS ONLY	TBD	TO BE DETERMINED
AL	ALUMINUM	FP	FIRE PUMP	MOV	MOTORIZED VALVE	TBI	TO BE INSTALLED
AIC	AMPERES INTERRUPTING CAPACITY	FL	FLOOR	MTD	MOUNTED	TBR	TO BE REMOVED
ATS	AUTOMATIC TRANSFER SWITCH	FLUOR	FLUORESCENT	NEC	NATIONAL ELECTRICAL CODE	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
BKR	BREAKER	FVNR	FULL VOLTAGE NON-REVERSING	NIC	NOT IN CONTRACT	TYP	TYPICAL
BLDG	BUILDING	FVR	FULL VOLTAGE REVERSING	NL	NIGHT LIGHT	UNO	UNLESS NOTED OTHERWISE
BAS	BUILDING AUTOMATION SYSTEM	FEW	FURNISHED WITH EQUIPMENT	NEUT	NEUTRAL	UPS	UNINTERRUPTABLE POWER SUPPLY
BMS	BUILDING MANAGEMENT SYSTEM	GFI	GROUND FAULT CIRCUIT INTERRUPTER	NTS	NOT TO SCALE	UH	UTILITY HEATER
CLG	CEILING	GRND	GROUND	PVC	POLYVINYL CHLORIDE CONDUIT	VAV	VARIABLE AIR VOLUME
CK	CIRCUIT	HOA	HAND-OFF-AUTOMATIC	PB	PULL BOX	V	VOLTS
CB	CIRCUIT BREAKER	HOR	HAND-OFF-REMOTE	PC	PHOTOELECTRICAL CONTROL	VFD	VARIABLE FREQUENCY DRIVE
CP	CIRCULATOR PUMP	HP	HORSEPOWER	P	POLE	VF	VENTILATION FAN
CCTV	CLOSED CIRCUIT TELEVISION	HPF	HIGH POWER FACTOR	PLC	PROGRAMMABLE LOGIC CONTROLLER	WH	WATER HEATER
C	CONDUIT	HPS	HIGH PRESSURE SODIUM	PNL	PANEL	W	WIRE OR WATTS
CU	COPPER OR CONDENSING UNIT	IG	ISOLATED GROUND	PH	PHASE	WP	WEATHERPROOF
DIA	DIAMETER	INST	INSTRUMENTATION	QTY	QUANTITY		
DS	DISCONNECT SWITCH OR DUCTLESS SPLIT UNIT	KVA	KILO VOLT-AMPERES	REC	RECEPTACLES		
DPDT	DOUBLE POLE DOUBLE THROW	KW	KILOWATT	RGS	RIGID GALVANIZED CONDUIT		
ELEC	ELECTRICAL	LAN	LOCAL AREA NETOWRK	RTU	ROOF TOP UNIT		
EC	ELECTRICAL CONTRACTOR	LTG	LIGHTING	SH	SHIELDED		
EH	ELECTRIC HEATER	LTS	LIGHTS	ST	SHUNT TRIP		
EMT	ELECTRICAL METALLIC TUBING	MAX	MAXIMUM	SF	SQUARE FEET		
EP	EXPLOSION PROOF	MOP	MAXIMUM OVERCURRENT PROTECTION	SS	STAINLESS STEEL		
ES	EMERGENCY STOP	MCB	MAIN CIRCUIT BREAKER	SW	SWITCH		

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SITE ELECTRICAL POWER PLAN
 SCALE: 1" = 20'-0"

- DRAWING KEYED NOTES:**
- CONTRACTOR SHALL PLACE NEW 250A 480V BREAKER IN EXISTING MAIN DISTRIBUTION PANEL TO SERVE THE NEW OUTDOOR PAINT ROOM BUILDING. CONTRACTOR SHALL CONFIRM POWER REQUIREMENTS WITH PAINT BUILDING SHOP DRAWINGS BEFORE INSTALLATION.
 - CONTRACTOR SHALL RUN 4" CONDUIT WITH ONE SET OF 4#300 MCM + #2 CU GROUND FOR NEW PAINT BUILDING POWER FEEDER HIGH ON WALL.
 - CONTRACTOR SHALL PLACE JUNCTION BOX TO SERVE AS PULL BOX.
 - CONTRACTOR SHALL EXTEND 4" CONDUIT AND POWER WIRING UNDERGROUND IN ENCASED CONCRETE. CONTRACTOR WILL ALSO PROVIDE ONE 4" CONDUIT WITH PULL SPRING AS A SPARE, AND ONE 3" CONDUIT WITH PULL STRING FOR DATA.
 - ASSUMED ELECTRICAL FEEDER ROUTING. ACTUAL CONNECTION POINT TO BE CONFIRMED WITH PAINT BUILDING SHOP DRAWINGS.
 - CONTRACTOR SHALL DISCONNECT POWER TO EXISTING OVERHEAD DDDR. CONTRACTOR SHALL RE-WORK EXISTING CIRCUIT AS NECESSARY TO RECONNECT NEW OVERHEAD DDDR.

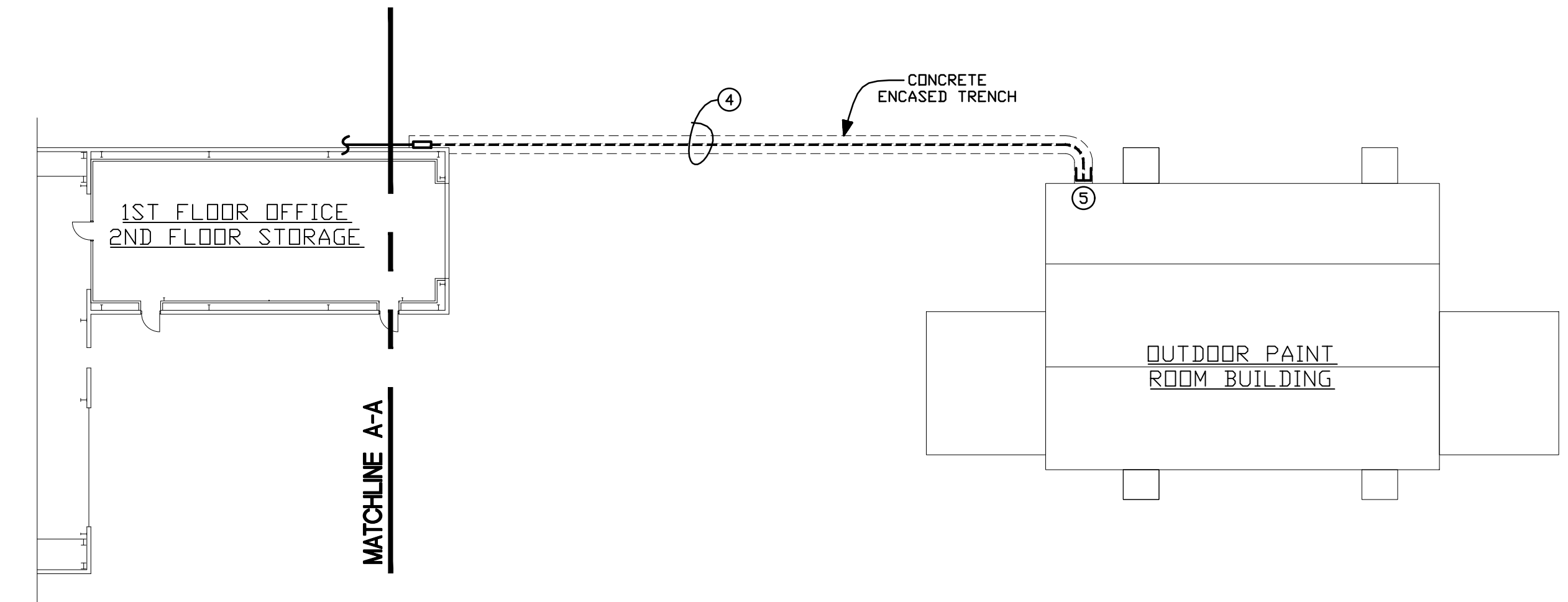
3Ø VOLTAGE DROP CALCULATION

$$3\phi VD = \frac{(2 \times L \times R \times I)}{1000} \times 0.866$$

L (ONE WAY LENGTH OF CIRCUIT) = 620'
 R (CONDUCTOR RESISTANCE IN OHMS PER 1000 FT) = #300 MCM = 0.0429 OHMS/kFT
 I (LOAD CURRENT - AMPERES) = 200A

$$VD = \frac{(2 \times 620 \times 0.0429 \times 200)}{1000} \times 0.866$$

VDX = 921/480V
 VDX = 1.92%

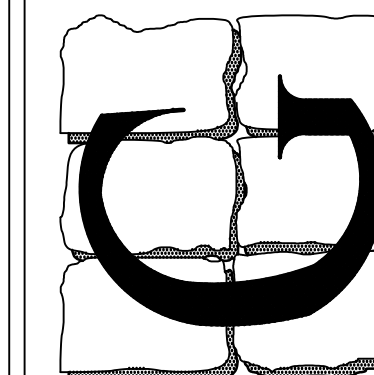


SITE ELECTRICAL POWER PLAN CONTINUED
 SCALE: 1" = 20'-0"

REV.	DATE	COMMENT
	07/10/2024	BID SET

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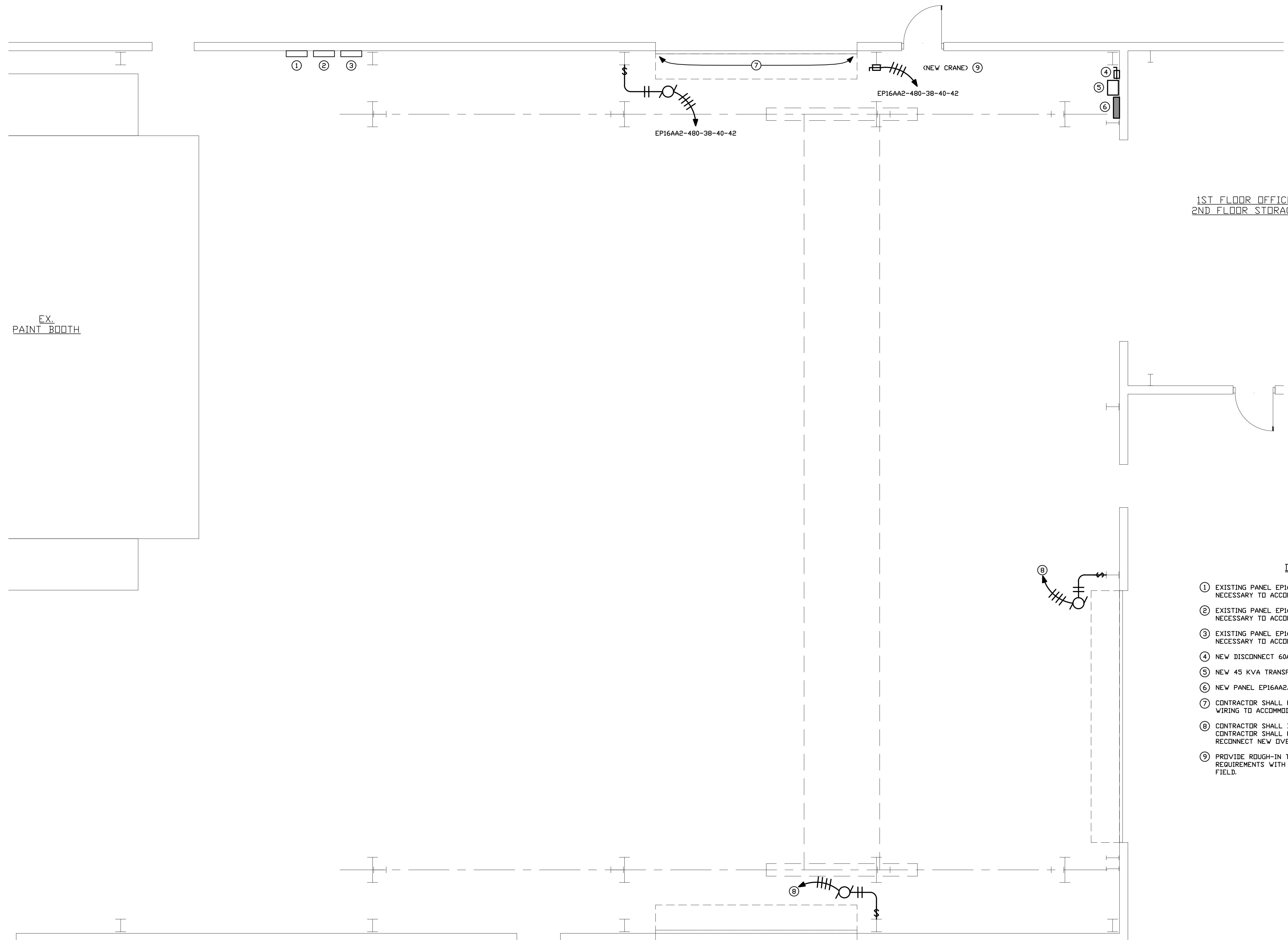
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1ST FLOOR OFFICE
 2ND FLOOR STORAGE

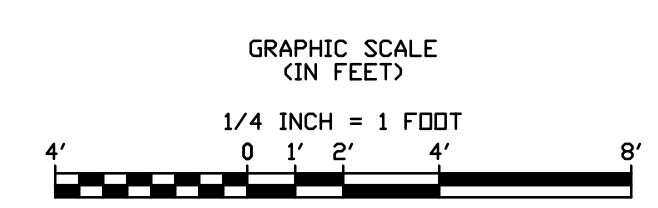
EX.
 PAINT BOOTH

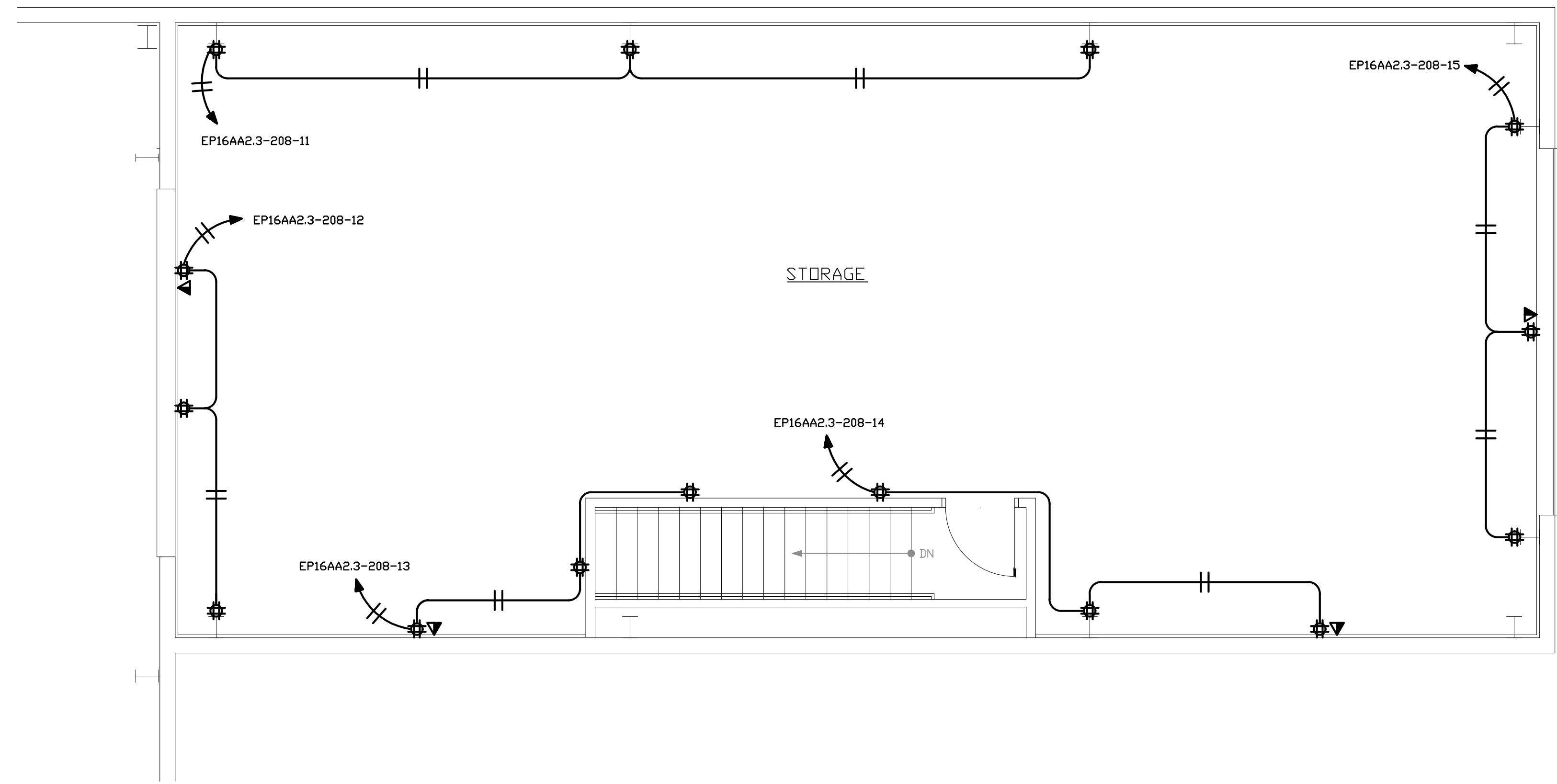
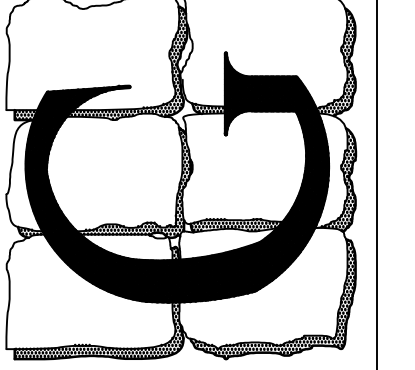
DRAWING KEYED NOTES:

- ① EXISTING PANEL EP16AA2-480. CONTRACTOR SHALL RE-WORK PANEL AS NECESSARY TO ACCOMMODATE NEW WORK.
- ② EXISTING PANEL EP16AA2-1-208. CONTRACTOR SHALL RE-WORK PANEL AS NECESSARY TO ACCOMMODATE NEW WORK.
- ③ EXISTING PANEL EP16AA2-2-480. CONTRACTOR SHALL RE-WORK PANEL AS NECESSARY TO ACCOMMODATE NEW WORK.
- ④ NEW DISCONNECT 60A 480V.
- ⑤ NEW 45 KVA TRANSFORMER.
- ⑥ NEW PANEL EP16AA2.3-208, FED FROM EXISTING PANEL EP16AA2-480.
- ⑦ CONTRACTOR SHALL RE-WORK EXISTING ELECTRICAL CONDUITS AND WIRING TO ACCOMMODATE NEW GARAGE DOOR.
- ⑧ CONTRACTOR SHALL DISCONNECT POWER TO EXISTING OVERHEAD DOOR. CONTRACTOR SHALL RE-WORK EXISTING CIRCUIT AS NECESSARY TO RECONNECT NEW OVERHEAD DOOR.
- ⑨ PROVIDE ROUGH-IN TO ACCOMMODATE NEW CRANE, CONFIRM ACTUAL REQUIREMENTS WITH CRANE MANUFACTURER. VERIFY LOCATION IN THE FIELD.

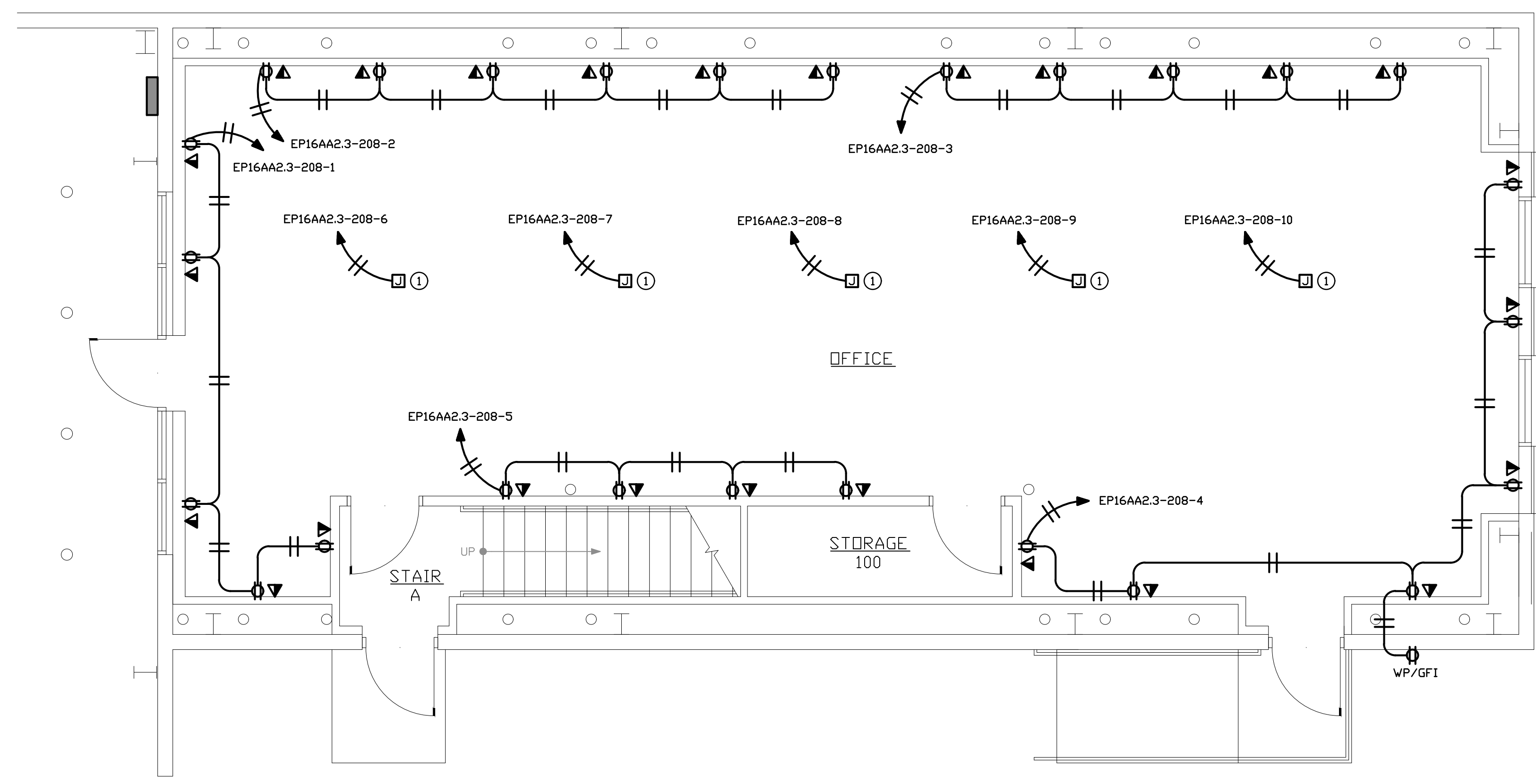
SEAL:

CRANE ROOM ELECTRICAL POWER PLAN
 SCALE: 1/4" = 1'-0"



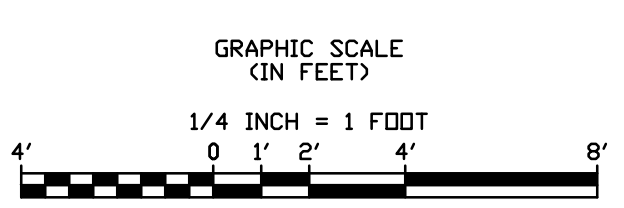


2ND FLOOR STORAGE ELECTRICAL POWER PLAN
 SCALE 1/4" = 1'-0"



1ST FLOOR OFFICE ELECTRICAL POWER PLAN
 SCALE 1/4" = 1'-0"

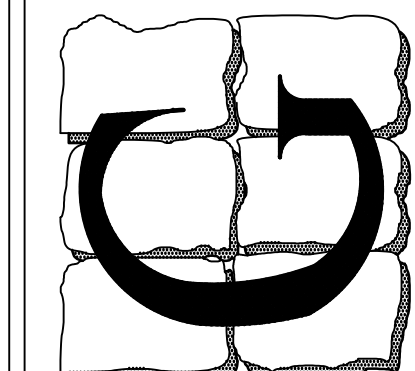
DRAWING KEYED NOTES:
 ① CONTRACTOR SHALL PLACE JUNCTION BOX ABOVE CEILING FOR FUTURE POWER POLES IN OPEN SPACE OFFICE AREA.



SEAL:

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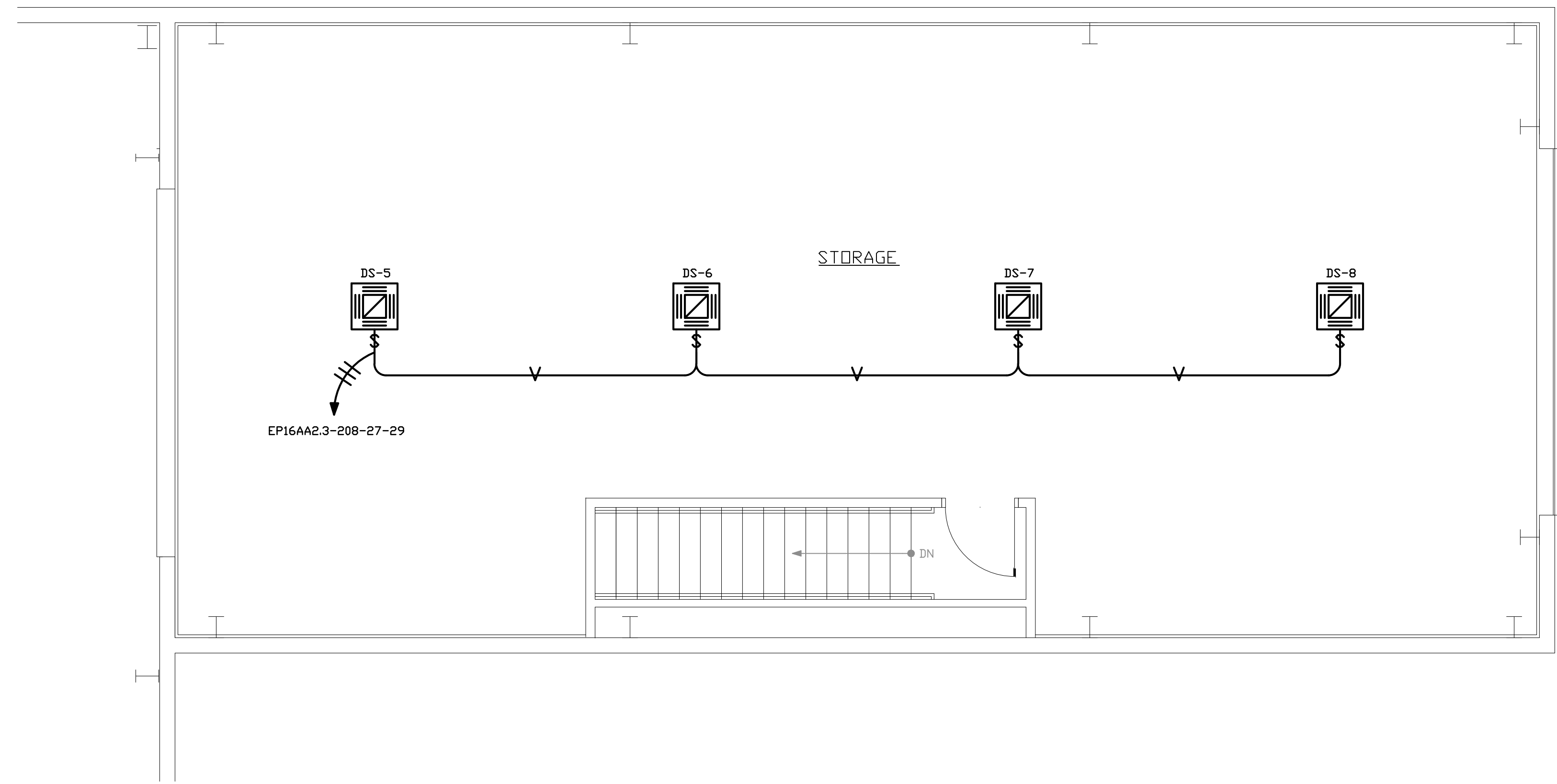
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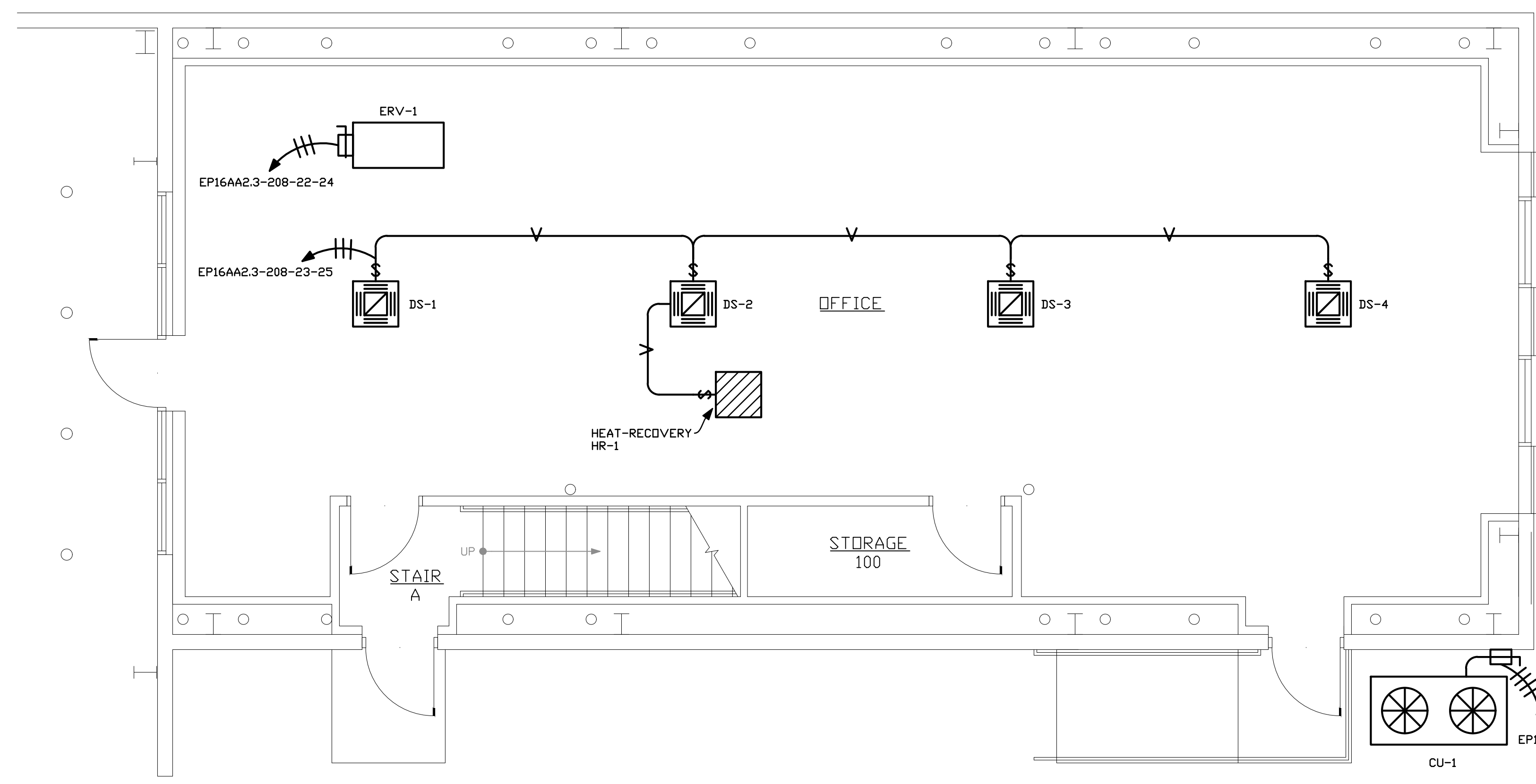
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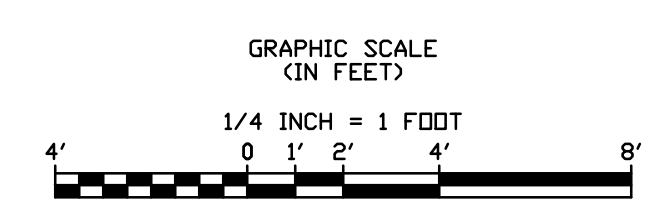
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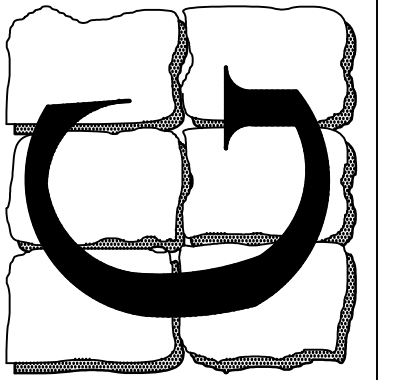
2ND FLOOR STORAGE ELECTRICAL HVAC POWER PLAN
 SCALE: 1/4" = 1'-0"



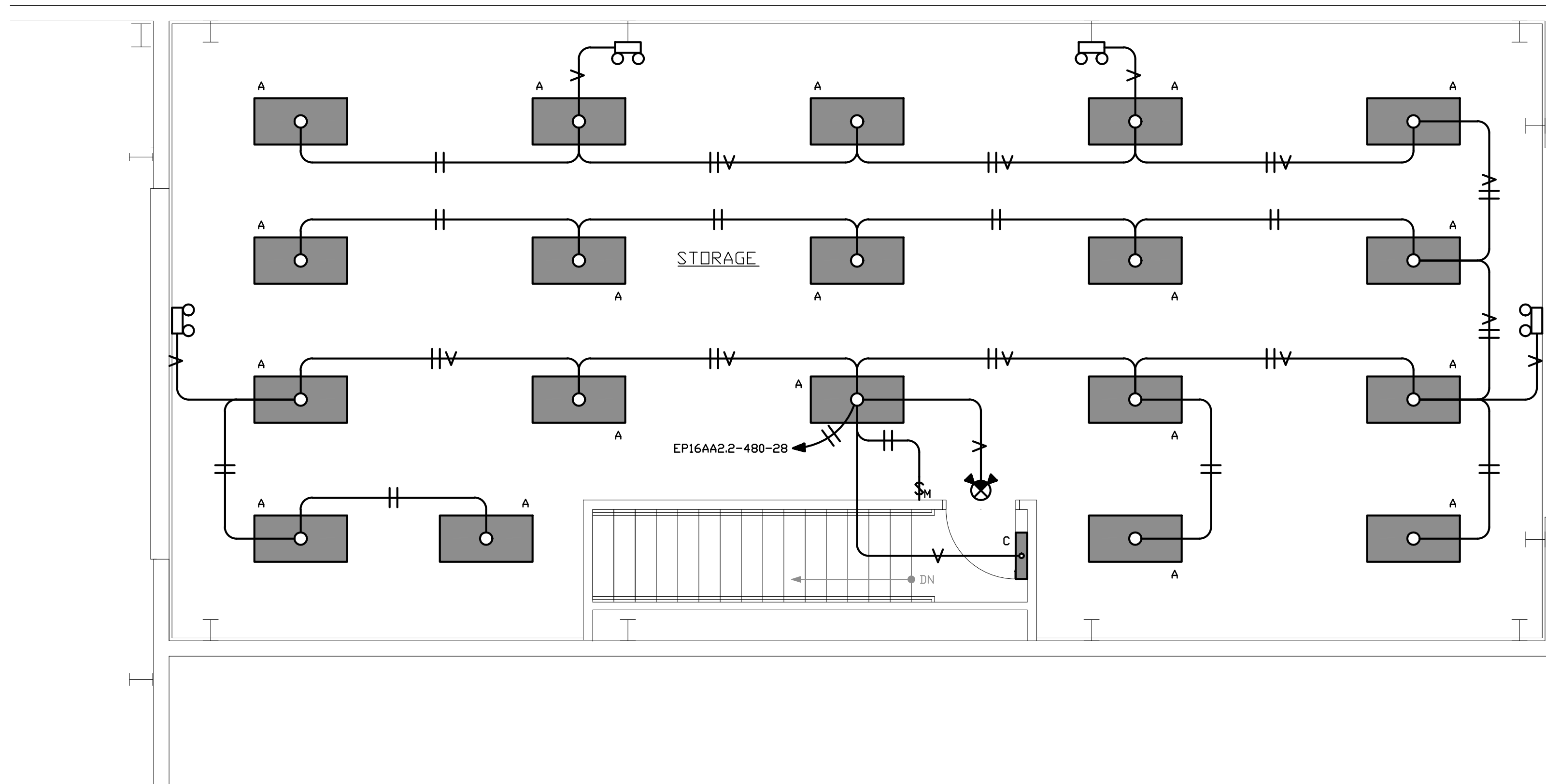
1ST FLOOR OFFICE ELECTRICAL HVAC POWER PLAN
 SCALE: 1/4" = 1'-0"



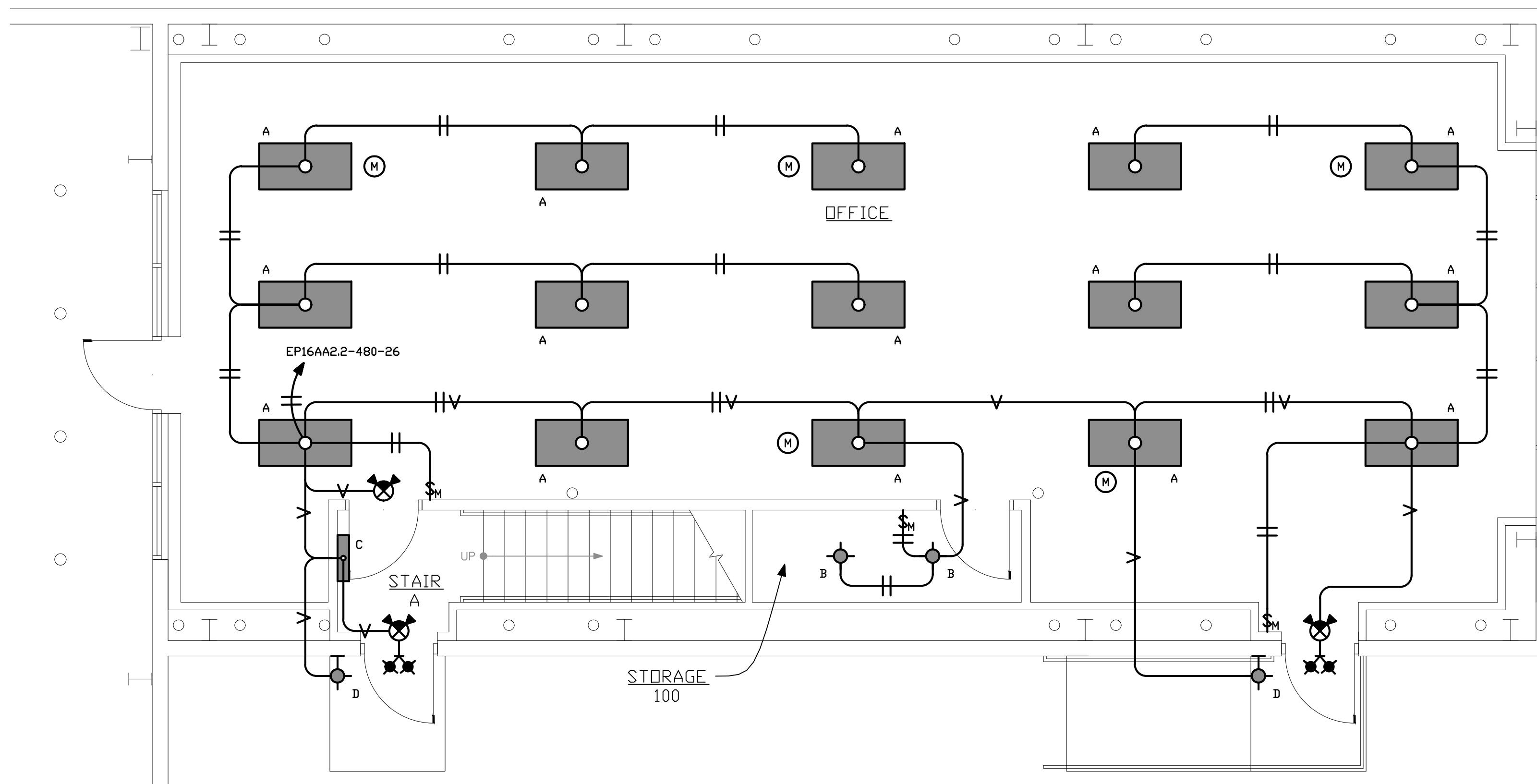
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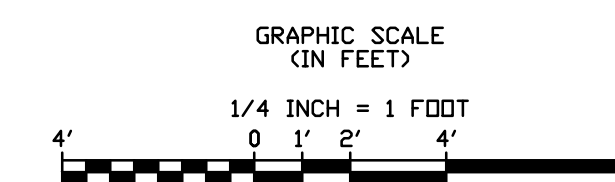
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2ND FLOOR STORAGE ELECTRICAL LIGHTING PLAN
 SCALE 1/4" = 1'-0"



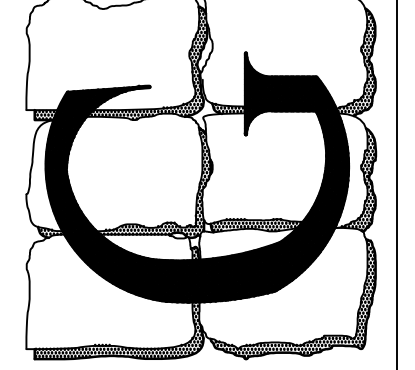
1ST FLOOR OFFICE ELECTRICAL LIGHTING PLAN
 SCALE 1/4" = 1'-0"



SEAL:

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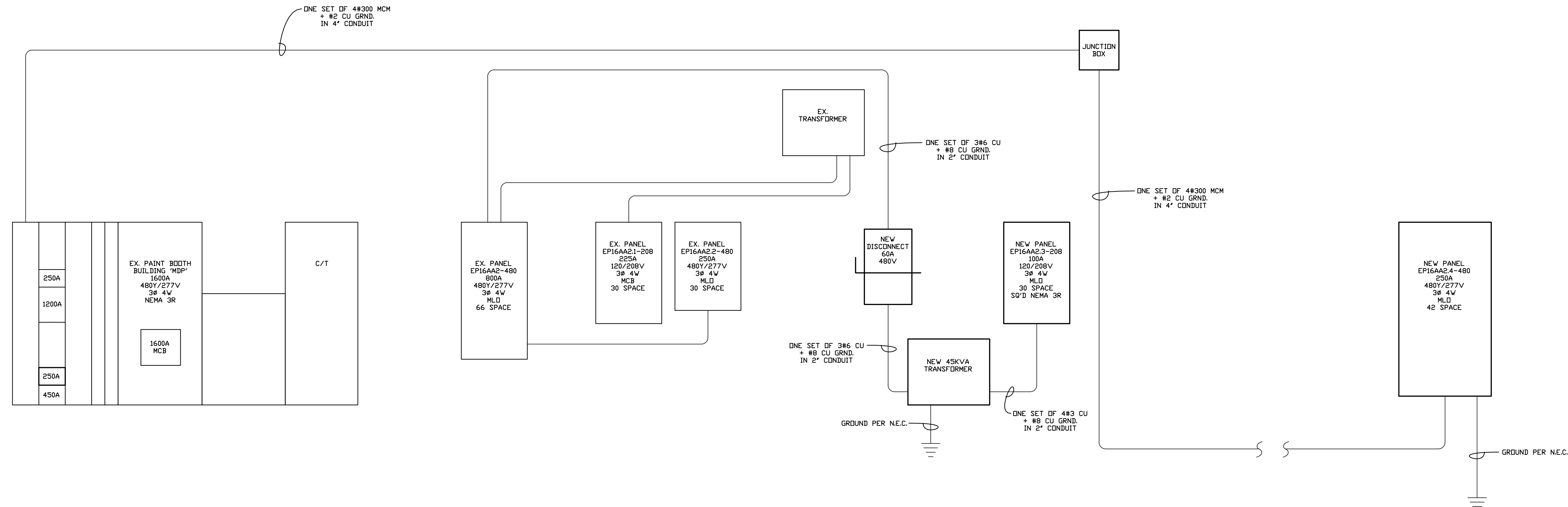


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 PA. PROF. ENG. NO. PE032636E
 VA. PROF. ENG. NO. 023240
 WV. PROF. ENG. NO. 10764

PANEL: EX. EP16AA2-480															
LOCATION: ELEC. CLOSET															
SERVICE: POWER/LTS															
277/480V 3PH 4W 800A MLO 66 SPACE SQ'D															
WIRE	CIRCUIT	DESCRIPTION	TRIP	KVA A	KVA B	KVA C	KVA A	KVA B	KVA C	TRIP	DESCRIPTION	CIRCUIT	WIRE		
#6 CU	1	NEW OFFICE TRANSFORMER FEED	60	8.92	8.92					100	TRANSFORMER FEED	2			
	3										4				
	5											6			
	7											8			
	9											10			
	11	PSL LOT LIGHTING PANEL	100							60	OVERHEAD HEAT SYSTEM	12			
	13											14			
	15											16			
	17											18			
	19											20			
	21	SPARE	20							80	RAPID SYSTEM	22			
	23											24			
	25											26			
	27											28			
	29											30			
	31	SPARE	20							30	OVEN NORTH CURE ROOFTOP UNIT #5	32			
	33											34			
	35											36			
	37											38			
	39								4.43	4.43		20	NEW OVERHEAD DOOR	40	#12 CU
	41	SPARE	20									42			
	43											44			
	45											46			
	47											48			
	49											50			
	51	SPARE	20									52			
	53											54			
	55											56			
	57											58			
	59											60			
	61	SPARE	20							200	PANEL EP16AA2-2-480	62			
	63											64			
	65											66			
TOTAL KVA PER PHASE:					8.92	8.92	8.92	11.90	11.90	11.90		TOTAL CONNECTED LOAD:	62.46		

PANEL: EX. EP16AA2-1-208															
LOCATION: ELEC. CLOSET															
SERVICE: POWER / LTS															
208Y/120V 3PH 4W 200A MCB 30 SPACE SQ'D															
WIRE	CIRCUIT	DESCRIPTION	TRIP	KVA A	KVA B	KVA C	KVA A	KVA B	KVA C	TRIP	DESCRIPTION	CIRCUIT	WIRE		
	1	REC. LEFT OF PANEL	20								OUTSIDE JUNCTION BOX	2			
	3	REC. LEFT OF PANEL	20								CONTACTOR LEFT OF PANEL	4			
	5	REC. LEFT OF PANEL	20								OUTSIDE JUNCTION BOX	6			
	7	30A OUTLET #1 COLUMN C-18	20								SPARE	8			
	9											20	OUTSIDE JUNCTION BOX	10	
	11											20	LIGHT, NE WALL & REC. A12.A11	12	
	13											20	REC. NORTH WEST CORNER	14	
	15			30A OUTLET #2 COLUMN C-18	20								REC. NORTH WEST CORNER	16	
	17											20	REC. WEST WALL	18	
	19											20	REC. NORTH WEST CORNER	20	
	21											20	REC. NORTH WEST CORNER	22	
	23											20	SPARE	24	
	25	SPARE	20								SPARE	26			
	27											20	SPARE	28	
	29											20	SPARE	30	
TOTAL KVA PER PHASE:					0.00	0.00	0.00	0.00	0.00	0.00		TOTAL CONNECTED LOAD:	0.00		

PANEL: EX. EP16AA2-2-480														
LOCATION: ELEC. CLOSET														
SERVICE: POWER / LTS														
277/480V 3PH 4W 250A MLO 30 SPACE SQ'D														
WIRE	CIRCUIT	DESCRIPTION	TRIP	KVA A	KVA B	KVA C	KVA A	KVA B	KVA C	TRIP	DESCRIPTION	CIRCUIT	WIRE	
	1	1000 WATT LIGHT	20								1000 WATT LIGHT	2		
	3	1000 WATT LIGHT	20								1000 WATT LIGHT	4		
	5	1000 WATT LIGHT	20								1000 WATT LIGHT	6		
	7	1000 WATT LIGHT	20								1000 WATT LIGHT	8		
	9	400 WATT REFLECTOR	20								SPARE	10		
	11	1000 WATT LIGHT LOWER BAY	20								NORTH END LTS	12		
	13	400 WATT REFLECTOR	20								400 WATT REFLECTOR	14		
	15	400 WATT REFLECTOR	20								400 WATT REFLECTOR	16		
	17	OUTSIDE LTS PHOTO/EYE	20									18		
	19	400 WATT REFLECTOR	20								OUTSIDE LTS	20		
	21	SPARE	20								OUTSIDE LTS	22		
	23											20	NEW OFFICE LTS	24
	25											20	NEW STORAGE LTS	26
	27											20		28
	29											20		30
TOTAL KVA PER PHASE:				0.00	0.00	0.00	0.00	0.00	0.00		TOTAL CONNECTED LOAD:	0.00		

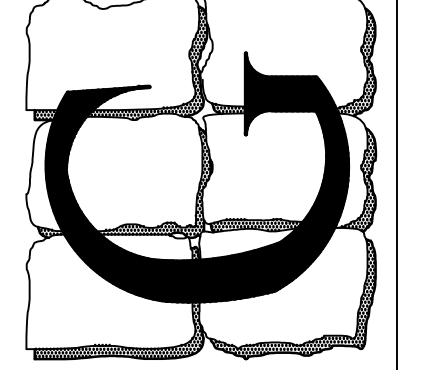


ONE LINE POWER RISER
NOT TO SCALE

SEAL:

REV.	DATE	COMMENT
	07/10/2024	BID SET

L.S. GRIM, INC.
Consulting Engineers
 MAIN OFFICE
 8922 JEFFERSON BLVD. HAGERSTOWN, MD. 21742-4387
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**MANITOWOC CRANES
 PAINTING BUILDING
 SHADY GROVE, PENNSYLVANIA
 ELECTRICAL SCHEDULES**

PANEL: NEW EP16AA2.3-208		LOCATION: EXTERIOR OF OFFICE											
		SERVICE: POWER											
208Y/120V 3PH 4W 100A MLO 30 SPACE SQ'D NEMA 3R													
WIRE	CIRCUIT	DESCRIPTION	TRIP	KVA A	KVA B	KVA C	KVA A	KVA B	KVA C	TRIP	DESCRIPTION	CIRCUIT	WIRE
#12 CU	1	OPEN OFFICE REC.	20	0.90							OPEN OFFICE REC.	2	#12 CU
#12 CU	3	OPEN OFFICE REC.	20		0.90			1.26			OPEN OFFICE REC.	4	#12 CU
#12 CU	5	OPEN OFFICE REC.	20			0.72			0.72		FUTURE POWER POLE CIRCUIT	6	#12 CU
#12 CU	7	FUTURE POWER POLE CIRCUIT	20	0.72			0.72				FUTURE POWER POLE CIRCUIT	8	#12 CU
#12 CU	9	FUTURE POWER POLE CIRCUIT	20		0.72			0.72			FUTURE POWER POLE CIRCUIT	10	#12 CU
#12 CU	11	STORAGE QUAD REC.	20			1.08			1.08		STORAGE QUAD REC.	12	#12 CU
#12 CU	13	STORAGE QUAD REC.	20	1.08			1.08				STORAGE QUAD REC.	14	#12 CU
#12 CU	15	STORAGE QUAD REC.	20		1.08							16	
	17											18	
	19											20	
	21							0.29			ERV-1	22	#12 CU
#12 CU	23	DS-1 THRU DS-4 & HR-1	20			0.52	3.42		0.29			24	
	25			0.52								26	
#12 CU	27	DS-5 THRU DS-8	20			0.42	3.42				CU-1	28	#8 CU
	29					0.42						30	
TOTAL KVA PER PHASE:				3.22	3.12	2.74	6.48	5.69	5.51	TOTAL CONNECTED LOAD:			26.76

COMMERCIAL LIGHT FIXTURE SCHEDULE						
MARK	DESCRIPTION	VOLTAGE	NO. OF LAMPS	WATTAGE	LAMP TYPE	MANUFACTURERS AND MODEL NUMBERS
A	2X4 LED LAY-IN	120	INCLUDED		LED	AS SELECTED BY MANITOWOC COMPANY
B	4" LED DOWNLIGHT	120	INCLUDED	14.3	LED	DMF LIGHTING MANCRN MD-12-9-35-GA-O MATRS-WH
C	2" LED STAIR LIGHT	120	INCLUDED	18.2	LED	COLUMBIA LIGHTING ESL2-40MW-FAW-EDUELL14-HFU
D	EXTERIOR LED SCENCE	120	INCLUDED	12.1	LED	MODERN FORMS FLUE WS-W36406-40-BK
COMBO	LED COMBINATION EXIT/EMERGENCY LIGHT	120	2	4.1	LED	COMPASS CCRSO
EM	LED EMERGENCY LIGHT	120	2	2	LED	COMPASS CU2SD
REM	OUTDOOR LED REMOTE DOUBLE-HEAD	9.6V	2	2	LED	COMPASS CWRD

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REV.	DATE	COMMENT
	07/10/2024	BID SET

DRAWN BY: **TMM**
E-3.2
 9 OF 9 SHEETS
 DATE: JULY 10, 2024

SEAL: