

RENOVATE INTERIOR TO CREATE STORAGE GENERAL HEADQUARTERS GARAGE Jefferson City, Missouri



OWNER: STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

DEPARTMENT OF
PUBLIC SAFETY - HIGHWAY PATROL

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

DESIGNER: THE ARCHITECTS ALLIANCE
631 WEST MAIN STREET
JEFFERSON CITY, MISSOURI
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PROJECT NUMBER: R 2506-01

SITE NUMBER: # 6062
ASSET NUMBER: # 8136062001

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VICINITY MAP

- GENERAL NOTE
- MATERIAL NOTE
- DOOR IDENTIFICATION TAG
- WINDOW IDENTIFICATION TAG
- INTERIOR WALL PARTITION TYPE
- CASEWORK ELEVATION
- DETAIL NOTE
- DETAIL KEY
- BRICK VENEER
- CONCRETE MASONRY UNIT
- CONCRETE
- BATT INSULATION
- RIGID INSULATION
- EARTH / SUBGRADE
- GRANULAR FILL
- WOOD BLOCKING

AF - ABOVE FINISH FLOOR	I.D. - INSIDE DIAMETER	T - (STAIR) TREAD
AD - AREA DRAIN	INT - INTERIOR	TB - TRUSS BEARING
AL - ALUM. - ALUMINUM		TD - TRENCH DRAIN
ALT - ALTERNATE	JT - JOINT	TG - TONGUE AND GROOVE
AP - ACCESS PANEL		TJ - TOOLED JOINT
ACT - ACOUSTICAL CEILING TILE	LAV - LAVATORY	TOW - TOP OF WALL
ARCH - ARCHITECTURAL	LB - LOAD BEARING	TYP - TYPICAL
	LF - LINEAR FOOT / FEET	
BFP - BACKFLOW PREVENTER	LVL - LAMINATED VENEER LUMBER	VCT - VINYL COMPOSITION TILE
BLDG - BUILDING	LVR - LOUVER	VERT - VERTICAL
BRG - BEARING	LWC - LIGHTWEIGHT CONCRETE	VIF - VERIFY IN FIELD
CJ - CONTROL JOINT	MAX - MAXIMUM	WD - WOOD
CL - CENTER LINE	MECH - MECHANICAL	WH - WATER HEATER
CLG - CEILING	MIN - MINIMUM	WWF - WELDED WIRE FABRIC
CMU - CONCRETE MASONRY UNIT	MFG - MANUFACTURER	
CO - CLEAN OUT	MISC - MISCELLANEOUS	
CONC - CONCRETE	MR - MOISTURE RESISTANT	
CONTR - CONTRACTOR		
CPT - CARPET		
D, DEG - DEGREES	NIC - NOT IN CONTRACT	
DH - DOUBLE HUNG	NLB - NON-LOAD BEARING	
DIA - DIAMETER	NR - NOT RATED	
DIV - DIVISION	NTS - NOT TO SCALE	
DN - DOWN		
DS - DOWN SPOUT	OF - OUTSIDE FACE	
DWG - DRAWING	OC - ON CENTER	
	OFF - OVERFLOW DRAIN	
	O.D. - OUTSIDE DIAMETER	
	OPP - OPPOSITE	
EF - EACH FACE		
EJ - EXPANSION JOINT	PB - PEG BOARD	
EL - ELEVATION	PERF - PERFORATED	
ELEC - ELECTRICAL	PH - PHASE	
ENG - ENGINEER	PLY - PLYWOOD	
EQ - EQUAL	PLUMB - PLUMBING	
EW - ELECTRIC WATER COOLER	PROJ - PROJECT	
EXT - EXTERIOR	PVC - POLYVINYL CHLORIDE	
FD - FLOOR DRAIN		
FE - FIRE EXTINGUISHER	R - (STAIR) RISER	
FND - FOUNDATION DRAIN	RAD - RADIUS	
FP - FIRE PROTECTION	RCP - REFLECTED CEILING PLAN	
FT - FIRE TREATED	RD - ROOF DRAIN	
	RE - REFERENCE	
	REINF - REINFORCING	
GA - GAUGE	REQ - REQUIRED	
GALV - GALVANIZED	REV - REVERSE	
GC - GENERAL CONTRACTOR	RM - ROOM	
GD - GARBAGE DISPOSAL	RTU - ROOF TOP UNIT	
GLAZ - GLAZING		
GWB - GYPSUM WALL BOARD	SCH - SCHEDULE	
GYP - GYPSUM	SECT - SECTION	
	SH - SINGLE HUNG	
HM - HOLLOW METAL	SIM - SIMILAR	
HDWR - HARDWARE	SPEC - SPECIFICATION	
HGT - HEIGHT	SS - STAINLESS STEEL	
HORIZ - HORIZONTAL	STD - STANDARD	
HR - HOUR	STRUC - STRUCTURAL	
HVAC - HEATING, VENTING, AIR CONDITIONING		

DRAWING INDEX

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STATE OF MISSOURI

CURTIS L.
GOBEN
NUMBER
A-2018040629

ARCHITECT

26 MAR 2020

MISSOURI STATE
HIGHWAY PATROL

**GENERAL HEADQUARTERS
GARAGE RENOVATE INTERIOR
TO CREATE STORAGE
TROOP F HEADQUARTERS,
US HIGHWAY 50 AND
SHAMROCK ROAD,
JEFFERSON CITY, MO 65101**

PROJECT #	R2506-01
SITE #	6062
ASSET #	8136062001

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 03-26-2026

CAD DWG FILE: 2510 G-002
DRAWN BY: _____
CHECKED BY: _____
DESIGNED BY: TAA

SHEET TITLE:

GENERAL
INFORMATION

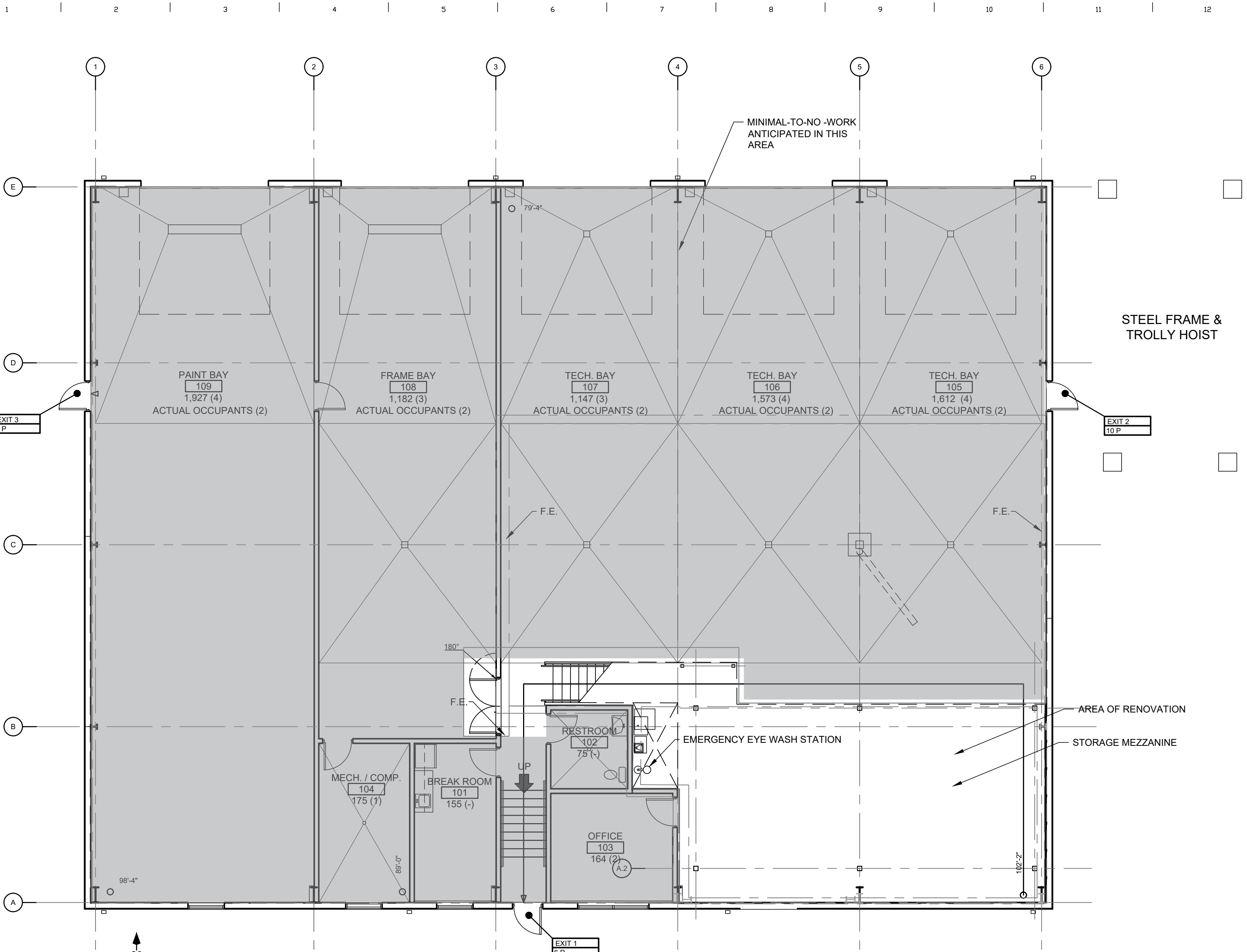
SHEET NUMBER:

G-002

2 OF 27 SHEETS

3-26-2026

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CODE REVIEW PLAN

F1
G-003
1/8" = 1'-0"

GENERAL INFORMATION

CODE DRAWING LEGEND

ROOM TAG	ROOM NAME
OFFICE 015	ROOM NUMBER
1085 (73)	ROOM NET AREA (OCCUPANT)

EXIT COMPONENT

OCCUPANT LOAD	EXIT 1 104 P
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COMPONENT DATA

FIRE RATED WALLS
- ONE HOUR RATED CONSTRUCTION

NOTE:
OCCUPANT TRAVEL PATHS ARE ASSUMED.
ACTUAL PATHS WILL VARY BASED ON
EMERGENCY CONDITIONS.

FIRE STOP SCHEDULE	PENETRATING MATERIAL	PENETRATED ASSEMBLY TYPE	FIRE RATING	UL SYSTEM NUMBER
CABLE	CABLE	GYPSUM BOARD WALL/ CEILING	2 HOUR	W - L - 3032
CABLE	CABLE	CONCRETE WALL/ FLOOR	2 HOUR	C - AJ - 3174
CONDUIT	CONDUIT	GYPSUM BOARD WALL/ CEILING	2 HOUR	W - L - 1027
CONDUIT	CONDUIT	CONCRETE WALL/ FLOOR	2 HOUR	C - AJ - 1347
COPPER PIPE TUBING	COPPER PIPE TUBING	GYPSUM BOARD WALL/ CEILING	2 HOUR	W - L - 1027
COPPER PIPE TUBING	COPPER PIPE TUBING	CONCRETE WALL/ FLOOR	2 HOUR	C - AJ - 1347
INSULATED COPPER PIPE TUBING	INSULATED COPPER PIPE TUBING	GYPSUM BOARD WALL/ CEILING	2 HOUR	W - L - 5114
INSULATED COPPER PIPE TUBING	INSULATED COPPER PIPE TUBING	CONCRETE WALL/ FLOOR	2 HOUR	C - AJ - 5149
STEEL IRON PIPE UP TO 17"	STEEL IRON PIPE UP TO 17"	GYPSUM BOARD WALL/ CEILING	2 HOUR	W - L - 1025
STEEL IRON PIPE UP TO 24"	STEEL IRON PIPE UP TO 24"	CONCRETE WALL/ FLOOR	2 HOUR	C - AJ - 1081
INSULATED STEEL IRON PIPE UP TO 10"	INSULATED STEEL IRON PIPE UP TO 10"	GYPSUM BOARD WALL/ CEILING	2 HOUR	W - L - 5117
INSULATED STEEL IRON PIPE UP TO 10"	INSULATED STEEL IRON PIPE UP TO 10"	CONCRETE WALL/ FLOOR	2 HOUR	C - AJ - 5142
GANDED PIPE TUBING & CONDUIT	GANDED PIPE TUBING & CONDUIT	GYPSUM BOARD WALL/ CEILING	2 HOUR	W - L - 1153
GANDED PIPE TUBING & CONDUIT	GANDED PIPE TUBING & CONDUIT	CONCRETE WALL/ FLOOR	2 HOUR	C - AJ - 1047
RECTANGULAR DUCT UP TO 36" X 30"	RECTANGULAR DUCT UP TO 36" X 30"	GYPSUM BOARD WALL/ CEILING	2 HOUR	W - L - 7008
RECTANGULAR DUCT UP TO 48" X 48"	RECTANGULAR DUCT UP TO 48" X 48"	CONCRETE WALL/ FLOOR	2 HOUR	C - AJ - 7064
NO PENETRATING ITEM	NO PENETRATING ITEM	GYPSUM BOARD WALL/ CEILING	2 HOUR	W - L - 0005
NO PENETRATING ITEM	NO PENETRATING ITEM	CONCRETE WALL/ FLOOR	2 HOUR	C - AJ - 0007

DEVICE MOUNTING HEIGHT REQUIREMENTS

DEVICE	MOUNTING HEIGHT (HEIGHTS ARE TO THE CENTERLINE OF THE DEVICE/SIGNAL, UNLESS NOTED OTHERWISE.)
EXIT SIGN AT WALL	72" A.F.F.
FIRE ALARM HORN LIGHT STROBE	80" A.F.F. (ENTIRE LENS NOT LESS THAN 80" OR MORE THAN 96" A.F.F.)
FIRE ALARM PULL STATION	48" A.F.F.
FIRE EXTINGUISHER CABINET	60" A.F.F. (TO TOP OF CABINET)
FLAG MOUNTED SIGN (E.G. TYPE P)	80" A.F.F. (TO TOP OF MOUNTING BRACKET)
LIGHT SWITCH	48" A.F.F.
PAPER TOWEL DISPENSER	54" A.F.F.
POWER/DATA RECEPTACLES	18" A.F.F.
POWER RECEPTACLES ABOVE COUNTERTOP	4" ABOVE COUNTERTOP
ROOM IDENTIFICATION SIGNAGE	60" A.F.F. (TOP OF SIGNAGE)
SOAP DISPENSER	54" A.F.F.
THERMOSTAT	60" A.F.F.
WALL PHONE	48" A.F.F. (HIGHEST OPERABLE PART)

NEW MARINE MAINTENANCE SHOP HIGHWAY PATROL TROOP F HEADQUARTERS

East Highway 50 & Shamrock Road
Jefferson City, Missouri

GENERAL INFORMATION

BUILDING CODE: 2015 IBC
OCCUPANCY USE GROUP: MIXED OCCUPANCY NON-SEPARATED USE GROUPS
STORAGE S-1 MODERATE HAZARD (311.2)

CONSTRUCTION TYPE:

PROPOSED BUILDING: IULB (NON-COMBUSTIBLE - UNPROTECTED)

FIRE SUPPRESSION SYSTEM: NON-SPRINKLERED

CHAPTER 4: SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

MOTOR-VEHICLE-RELATED OCCUPANCIES (406 & REPAIR GARAGES)

VENTILATION 406.6.3 - REPAIR GARAGES SHALL BE MECHANICALLY VENTILATED IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE. THE VENTILATION SYSTEM SHALL BE CONTROLLED AT THE ENTRANCE TO THE GARAGE.

HEATING EQUIPMENT 406.6.5 - HEATING EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE.

CHAPTER 5: GENERAL BUILDING HEIGHTS AND AREAS

NEW BUILDING - PROPOSED HEIGHT AND AREA

GRADE PLANE (SECTION 502.1)

AVERAGE GRADE LEVEL ALONG EXTERIOR WALLS OF BUILDING: ELEV. 102'-8" (2'-8")

FLOOR ELEVATIONS

MAIN FLOOR ELEVATION: ELEV. 100'-0" (0'-0")

BUILDING HEIGHT

BUILDING HEIGHT NOT TO EXCEED 32'-0"

ALLOWABLE BUILDING HEIGHT = 1 STORY

BUILDING HEIGHT = GRADE PLANE TO AVG. HEIGHT OF ROOF: 1 STORY @ 15'-8"

* AVERAGE HEIGHT OF ROOF SURFACE (SECTION 502)

FLOOR AREA

ALLOWABLE FLOOR AREA: 17,500 S.F.

TOTAL GROSS FLOOR AREA: 8,508 S.F.

CHAPTER 7: FIRE-RESISTANT MATERIALS & CONSTRUCTION

IB CONSTRUCTION TYPE (SECTION TABLE 601 & 602)

STRUCTURAL FRAME (INCLUDING COLUMNS, GIRDERS, AND TRUSSES): 0 HOUR
EXTERIOR BEARING WALLS: 0 HOUR
INTERIOR BEARING WALLS: 0 HOUR
EXTERIOR NON-BEARING WALLS (TABLE 602):
X = 9 FEET: S-1 2 HOUR
9 FEET < X < 10 FEET: 1 HOUR
10 < X < 30 FEET: 0 HOUR
X > 30 FEET: 0 HOUR
INTERIOR NON-BEARING WALLS AND PARTITIONS: 0 HOUR
FLOOR CONSTRUCTION (INCLUDING SUPPORTING BEAMS AND JOISTS): 0 HOUR
ROOF CONSTRUCTION (INCLUDING SUPPORTING BEAMS AND JOISTS): 0 HOUR

FIRE BARRIERS (SECTION 707)

SHAFT ENCLOSURES - 4 STORIES OR LESS (SECTIONS 707.3.1 & 708.4): 1 HOUR
EXIT ENCLOSURES - 4 STORIES OR LESS (SECTIONS 707.3.2 & 1022.1): 1 HOUR
ENCLOSURE UNDER STAIRWAY (SECTIONS 707.3.1 & 1009.6.3): 1 HOUR
INCIDENTAL USE AREAS (TABLE 508.2.2): 1 HOUR OR SPRINKLED
FLUENCE ROOM WHERE EQUIPMENT IS OVER 400,000 BTU / HR: 1 HOUR OR SPRINKLED
* SPRINKLED AREAS TO RESIST PASSAGE OF SMOKE (SECTION 508.2.2.1)
SINGLE OCCUPANCY FIRE AREAS (SECTION 707.3.9 & TABLE 707.3.9): 0 HOUR

FIRE PARTITIONS (SECTION 709)

CORRIDOR FIRE RESISTANCE RATING (SECTION 709.1 & TABLE 1018.1): 0 HOUR
S: 1 HOUR, LESS THAN 30 OCCUPANTS, NON-SPRINKLERED

CHAPTER 9: FIRE PROTECTION SYSTEMS

903.2.2.1 REPAIR GARAGES

AN AUTOMATIC SPRINKLER SYSTEM SHALL BE PROVIDED THROUGHOUT ALL BUILDINGS USED AS REPAIR GARAGES IN ACCORDANCE WITH SECTION 406, AS SHOWN.

2. BUILDINGS NO MORE THAN ONE STORY ABOVE GRADE PLANE, WITH A FIRE AREA CONTAINING A REPAIR GARAGE EXCEEDING 12,000 SF.

PROPOSED BUILDING SF 8,508 SF < 12,000 SF.

AUTOMATIC SPRINKLER SYSTEM IS NOT REQUIRED.

905 PORTABLE FIRE EXTINGUISHERS

TABLE 905.3 (1) ORDINARY (MODERATE) HAZARD

MINIMUM RATED SINGLE EXTINGUISHER: 2-A
MAXIMUM FLOOR AREA PER UNIT OF A: 1,500 SF
MAXIMUM TRAVEL DISTANCE TO EXTINGUISHER: 75 FEET
PORTABLE FIRE EXTINGUISHERS PROVIDED: THREE (3) UL RATED A-A-80-B-C

SMOKE AND HEAT VENTS (SECTION 910)

WHERE REQUIRED (SECTION 910.2.1)
S: 1 HOUR, REQUIRES SMOKE AND HEAT VENTS TO BE INSTALLED IN THE ROOF OF A ONE-STORY BUILDING HAVING MORE THAN 5,000 SQ. FT. IN UNDIVIDED AREAS
LARGEST DIVIDED AREA OF S: 1 HOUR: 4,289 SQ. FT.
LARGEST DIVIDED AREA - ALLOWABLE UNDIVIDED AREA: 4,289 S.F. < 56,000 S.F.
SMOKE AND HEAT VENTS: NOT REQUIRED

CHAPTER 10: MEANS OF EGRESS

OCCUPANT LOAD (SECTION 1004)

FLOOR AREA:
BUILDING FLOOR AREA / OCCUPANT LOAD: 8,508 / 23 OCCUPANTS
ACTUAL OCCUPANT LOAD: 15 OCCUPANTS

EGRESS WIDTH (SECTION 1006)

EXIT 1 DOOR 100-A - SOUTH MAIN ENTRY EXIT

CAPACITY OF EXIT DOOR (TABLE 1005.1)
EGRESS WIDTH / OCCUPANT: 30" (4) NON-SPRINKLERED: 0.2 INCHES / OCCUPANT
CLEAR OPENING PER DOOR WIDTH: 34" CLEAR WIDTH / DOOR
CAPACITY OF EXIT DOOR = 34" CLEAR WIDTH / 0.2": 170 OCCUPANTS / DOOR
NUMBER OF EGRESS DOORS: 1 EGRESS DOOR
OCCUPANT CAPACITY OF DOORS:
1 (egress door) x 170 (occupants / door): 170 OCCUPANTS
OCCUPANT LOAD AT EXIT 1 < OCCUPANT CAPACITY OF DOOR: X < 170

EXIT 2 DOOR 105-A - EAST EXIT DOOR

CAPACITY OF EXIT DOOR A (TABLE 1005.1)
EGRESS WIDTH / OCCUPANT: 30" (4) NON-SPRINKLERED: 0.2 INCHES / OCCUPANT
CLEAR OPENING PER DOOR WIDTH: 34" CLEAR WIDTH / DOOR
CAPACITY OF EXIT DOOR = 34" CLEAR WIDTH / 0.2": 170 OCCUPANTS / DOOR
NUMBER OF EGRESS DOORS: 1 EGRESS DOOR
OCCUPANT CAPACITY OF DOORS:
1 (egress door) x 170 (occupants / door): 170 OCCUPANTS
OCCUPANT LOAD AT EXIT 2 < OCCUPANT CAPACITY OF DOOR: X < 170

EXIT 3 DOOR 108-A - WEST EXIT DOOR

CAPACITY OF EXIT DOOR B (TABLE 1005.1)
EGRESS WIDTH / OCCUPANT: 30" (4) NON-SPRINKLERED: 0.2 INCHES / OCCUPANT
CLEAR OPENING PER DOOR WIDTH: 34" CLEAR WIDTH / DOOR
CAPACITY OF EXIT DOOR = 34" CLEAR WIDTH / 0.2": 170 OCCUPANTS / DOOR
NUMBER OF EGRESS DOORS: 1 EGRESS DOOR
OCCUPANT CAPACITY OF DOORS:
1 (egress door) x 170 (occupants / door): 170 OCCUPANTS
OCCUPANT LOAD AT EXIT 3 < OCCUPANT CAPACITY OF DOOR: X < 170

CORRIDOR WIDTH - S: 1 HOUR

CAPACITY OF CORRIDOR (TABLE 1005.1)
EGRESS WIDTH / OCCUPANT: 30" (4) NON-SPRINKLERED: 0.2 INCHES / OCCUPANT
OCCUPANTS SERVED BY CORRIDOR: 19 OCCUPANTS
REQUIRED CORRIDOR WIDTH:
19 OCCUPANTS x 0.2 INCHES = 4" CORRIDOR WIDTH
CORRIDOR WIDTH (SECTION 1017.2): 44 INCHES MIN. REQUIRED

EXIT AND EXIT ACCESS DOORWAYS (SECTION 1019)

SPACES WITH ONE MEANS OF EGRESS (TABLE 1015.1)
S: 1 HOUR, SPACE < 20 OCCUPANTS: 1 EXIT DOORS REQUIRED

EXIT ACCESS TRAVEL DISTANCE (TABLE 1016.1)

S: 1 USE GROUP, NON-SPRINKLER SYSTEM: 200 FEET

PARKING REQUIREMENTS - CITY OF JEFFERSON, MISSOURI

STORAGE: 1 PARKING SPACE PER 2,000 SQ. FT.
8,508 SF / 2,000 S.F. = 4.254
5 PARKING SPACES REQ.

CHAPTER 11: ACCESSIBILITY

SCOPING REQUIREMENTS (SECTION 1103)

COMPLIANCE: AMERICANS WITH DISABILITIES ACT (ADA) 1990 - TITLE II (Public Accommodations and Services Operated by Private Entities)

GUIDELINES: ADAAG AND/OCAGANS 4-117.1

ACCESSIBLE ENTRANCES (SECTION 1105)

PUBLIC ENTRANCES (SECTION 1105.1)
AT LEAST 60% OF ALL PUBLIC ENTRANCES SHALL BE ACCESSIBLE.

ACCESSIBLE PARKING SPACES (TABLE 1106.1)

5 PARKING SPACES: 1 ACCESSIBLE SPACES REQUIRED

SIGNAGE (SECTION 1110)

DIRECTIONAL SIGNAGE (SECTION 1110.2)
PROVIDE DIRECTIONAL SIGNAGE INDICATING THE ROUTE TO THE NEAREST ACCESSIBLE ELEMENT.

CHAPTER 16: STRUCTURAL DESIGN

SEE STRUCTURAL DRAWINGS

CHAPTER 28: PLUMBING SYSTEMS

NO MODIFICATIONS TO PLUMBING SYSTEMS REQUIRED FOR THIS RENOVATION

STATE OF MISSOURI MIKE KEHOE, GOVERNOR



26 MAR 2020

The Architects Alliance inc.
Jefferson City, Missouri

MISSOURI STATE
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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

MISSOURI STATE
HIGHWAY PATROL

GENERAL HEADQUARTERS
GARAGE RENOVATE INTERIOR
TO CREATE STORAGE
TROOP F HEADQUARTERS,
US HIGHWAY 50 AND
SHAMROCK ROAD,
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PROJECT # R2506-01
SITE # 6062
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REVISION:
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CAD DWG FILE: 2510 G-003
DRAWN BY:
CHECKED BY:
DESIGNED BY: TAA

SHEET TITLE:

CODE REVIEW

SHEET NUMBER:

G-003

3 OF 27 SHEETS

3-26-2026

BID DOCUMENTS



(573)636-5000



MISSOURI STATE CERTIFICATE OF AUTHORITY #2007004004

MISSOURI STATE
HIGHWAY PATROL

ASSET # 8136062001

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SCALE: 1" = 5'

Age Group	Percentage
18-24	2.5
25-34	2.5
35-44	2.5
45-54	2.5
55-64	2.5
65-74	2.5
75-84	2.5
85+	2.5

BID DOCUMENTS



**OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
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**GENERAL HEADQUARTERS
GARAGE RENOVATE INTERIOR
TO CREATE STORAGE
TROOP F HEADQUARTERS,
US HIGHWAY 50 AND
SHAMROCK ROAD,
JEFFERSON CITY, MO 65101**

REVISION: _____
DATE: _____
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DATE: _____
ISSUE DATE: 03-26-2026

SHEET TITLE:
SITE AND GRADING PLAN
SITE ACCESS
TO MEZZANINE

C102

BID DOCUMENTS



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S001

STRUCTURAL DESIGN CRITERIA AND GENERAL SPECIFICATIONS

1. **Building Code:**
A. IBC 2018/ASCE 7-16
B. Alistate Consultants LLC is the structural engineer of record (SER) and assumes responsibility only for what appears on these drawings and disclaims any responsibility for all other plans, specifications, estimates, reports, or other documents or instruments not sealed by an engineer with our firm relating to, or intended to be used for, in any part or parts of the project to which these drawings refer.
2. **Design Loads:**
A. Risk Category II (IBC table 1604.5)
B. Floor dead load
1) Mezzanine = 70 psf
C. Floor live load
1) Mezzanine = 250 psf (Heavy Storage)
D. Typical building wind loading – Analytical Procedure
1) Basic Ultimate wind speed (3 second gust), V = 108 mph
2) Exposure Category B
3) Importance factor, I_w = 1.0
4) Internal pressure coefficient, GC_{pi} = ±0.55 (partially enclosed)
E. Seismic loading – Equivalent Lateral Force Procedure
1) Importance Factor, I_e = 1.0
2) Site Class C, per the geotechnical report
3) S_{ds} = 0.174 (S_s = 2.01%)
4) S_{d1} = 0.109 (S₁ = 10.9%)
5) Seismic Design Category B
6) Base shear
a. System: Steel Ordinary Cantilever Column System
i) Response coefficient, R = 1.25
ii) Deflection amplification factor, C_d = 1.25
iii) System over strength factor, Q_b = 1.25
b. Base shear, V = 0.05W
7) Maximum story drift = 0.020h
F. Foundation design (see geotechnical report)
1) Allowable reinforced soil bearing = 3,000 psf
3. **General Notes:**
A. Substitution requests, for products other than those specified herein, shall be submitted by the contractor to the engineer along with calculations that demonstrate that the substituted product is capable of achieving the pertinent equivalent performance values (minimum) of the specified product having a research report recognizing the product for the appropriate design procedure and/or standard(s) as required by the building code. The submittal should include a side-by-side comparison of the specified versus the proposed product.
B. Floor framing shall be laid out in equal spacing per bay unless noted otherwise.
1) Typ Floor = 6'-0"
C. The notes on the structural drawings are applicable to all drawings in addition to the project specifications. These notes take precedence over the specifications and architectural drawings.
D. Refer to architectural, civil, and MEP drawings for misc. structural materials (e.g., steel, concrete, wood, CMU, cold-formed, etc.) items typical. Materials indicated on structural, architectural, civil and MEP drawings shall be included in this project.
E. Do not hang any mechanical, electrical, etc. from bridging, roof deck, or non-structural load supporting elements. All such items shall be supported from joists, beams, or structural load supporting elements.
F. Drawings provide a system for the in-place structure. Methods of construction to achieve the in-place system are not addressed unless specifically noted.
G. The contractor shall verify that foundation systems adjacent to existing building/structure foundations do not undermine the existing foundation or damage the existing structure.
H. It is the contractor's (installer, subcontractor, tradesman, material supplier, general contractor, etc.) responsibility to be familiar with any local, city, county, state or federal regulations, codes, ordinances, etc. that may apply to their work, materials, equipment or methods of construction.
I. It is the contractor's responsibility to supervise, direct, or have control over all work done by any contractor. The engineer/design professional does not have the authority to stop work. The contractor shall have authority for or shall be responsible for the means, methods, techniques, sequences or procedures of construction selected or used by any contractor for safety precautions and programs incident to the contractor's work.
J. Unless noted, submit shop drawings of all fabricated materials for review. Design drawings shall not be reproduced for use as shop drawings without written consent of engineer. Shop drawings will not be reviewed unless they were checked, bear the initial of the checker and are stamped "approved" by the general contractor. See submittal requirements in the notes as well as the following:
1) Product specifications for engineered systems and accessories including steel and concrete systems.
2) Material certificates for structural materials including steel and concrete.
3) Shop drawing review is only for general conformance with the design concept of the project and general compliance with the information given in the construction documents. Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with the requirements of the plans and specifications and applicable laws, codes and regulations. Review of a specific item shall not include review of an assembly of which the item is a component. The contractor is responsible for: dimensions to be confirmed and correlated at the jobsite; information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction; coordination of the work with that of all other trades and performing all work in a safe and satisfactory manner.
K. Existing construction: prior to fabrication and construction, contractor shall field verify all existing elevations, dimensions, and conditions as shown on the drawings and report any discrepancies to the architect/engineer.
L. Where a detail, typical detail, section, typical section, or a note is shown for one condition, it shall apply for all the like or similar conditions unless noted otherwise.
M. All dimensions shown on these drawings shall be verified by the contractor prior to the approval of shop drawings by the engineer. All of the plans depicting existing adjacent structures were created from assumptions and approximate dimensions. Therefore, confirmation of all dimensions is essential to the proper fit of fabricated items.
N. Footings placed adjacent to existing footings and foundations shall generally be adjusted in elevation to match the bearing elevation of the existing foundation as long as frost depth is provided. The elevations of foundation elements on the plans were created from assumptions and approximate dimensions. Therefore, confirmation of the existing elevations is essential and possible adjustment of the new foundation system may be required.
O. Shop Drawings and Deferred Submittals
1) Alistate Consultants LLC is the only responsible for the design that appears on these drawings. Connections for mechanical, electrical, plumbing (MEP) and miscellaneous architectural items (i.e., mechanical unit curbs, mechanical units, plumbing drains, duct and pipe supports, flashing nailers, bathroom partitions, fixture mounting, ladder mounting, swings, score boards, TV screens, etcetera) are architectural or MEP drawings. If connections are not provided on the architectural, structural, or MEP plans, the contractor shall submit fabrication drawings and calculations for review signed and sealed by a professional engineer registered in the state of Missouri. The fabrication drawings shall include overall member layout, connections, as well as other information necessary for proper coordination and structural adequacy.
4. **Special Inspection General Requirements:**
A. See "Schedule of Special Inspection Services" on sheet S002 for the statement of structural special inspections as required by IBC 1704.
B. Special inspection agencies
1) Agencies shall be under direct supervision of a professional engineer registered in the state of Missouri.
2) Laboratory facilities shall meet applicable ASTM/ICC specifications.
3) Except for registered professional engineers, all testing technicians, inspectors, and engineers performing special inspections shall be certified per building code requirements as applicable for the item tested.
4) The special inspector shall furnish inspection reports in a timely manner as the project progresses to the building official, owner (or owner's agent), architect, engineer, and general contractor. During the construction process, the special inspector shall inform the contractor and the engineer immediately if any deviations or nonconformities from the contract documents are discovered.
5) A final special inspection report (per IBC 1704) shall be submitted after the completion of all of the structural systems described herein.
5. **Structural Engineer Of Record (SER) Site Visits:**
A. Contractor shall notify architect/engineer five (5) working days prior to the following construction milestones:
1) Structural steel framing: after floor deck and reinforcing is in place and before placing concrete.
B. Failure to notify architect/engineer of any construction milestone may result in contractor having to remove work for the purpose of review at contractor's expense.
C. Premature notification for site visit will result in an additional site visit with all expenses and fees paid by the contractor.
6. **Geotechnical Data and Foundation System (Division 2):**
A. The following design information is from the geotechnical report by Alistate Consultants LLC. (PN 12012.16) dated 12-6-12.
B. Footings bearing on reinforced native soil are designed for a maximum net bearing capacity of 3,000 psf for isolated and continuous footings.
C. The bottom of the footing excavation shall be cleaned of all loose soil and then be thoroughly compacted with a mechanical tamper prior to installing reinforcing steel.

- D. Footing excavations shall be neatly placed where possible with sides and top edges free of loose or wet materials. Where neat excavation is not possible, they shall be open cut with edges formed and braced. The bottom excavation shall be clean and dry with all loose material removed for a flat bearing surface. Excavations shall not be left open unless with a minimum unreinforced seal (mud) slab is placed at the bottom of the footing excavation. Where soft or unsuitable bearing surfaces are encountered, the area shall be undercut as required and replaced with compacted fill, flowable fill or concrete as directed by the Geotechnical Engineer. Fill material, if used, shall be compacted in 8" maximum loose lifts to a minimum of 98% of Standard Proctor Density (ASTM D698) unless specified otherwise by the Geotechnical Engineer.
- E. Floor slab-on-grade shall bear on LVCm. The depth of the LVCm shall be adjusted as required based on adjacent excavations.
F. Crushed stone/gravel and low volume change material (LVCm) for reference shall be the following or equivalent.
1) Base rock/well graded rock, ASTM D2940, with at least 95 percent passing a 1 1/2" sieve and not more than 8 percent passing a #200 sieve. Missouri Standard Specification for Highway Construction (MSSH) Type 1 Aggregate for Base is an acceptable equivalent.
2) Drainage course/open graded rock/clean rock, ASTM C33, size 57. MSSH Grade 4 Aggregate for Drainage is an acceptable equivalent.
3) Fine graded course/sand, ASTM D448 unwashed size 10 not clean sand with uniform particle size.
4) Low volume change material (LVCm), dense graded crushed limestone aggregate base, MSSH Section 1007 Type 1 or 5 Aggregate for base or screenings.
G. Slabs-on-grade shall be placed over 6" of compacted drainage course (4" of drainage course with the upper 2" choked off with fine graded course at GC option) typical. A 15 mil reinforced polyethylene vapor barrier (ASTM E 1745, Class A) shall be placed above the drainage course and below the slab. Single ply poly is prohibited. Provide Stego Wrap by Stego Industries or approved equivalent. All joints and penetrations shall be lapped 6" minimum and sealed with seam tape and mastic as recommended by the manufacturer.
7. **Reinforced Concrete (Division 3):**
A. Design codes: Building Code Requirements for Reinforced Concrete (ACI 318), latest adoption.
B. Material strengths:
1) Concrete compressive strength (f'_c) at 28 days:
a. Footings (Exposure Class F2) 3,000 psi
b. Interior slabs-on-grade (Exposure Class F0) 4,000 psi (3/4" aggregate, 540 lbs/cu yd of cementitious content min)
c. Interior slabs-on metal deck (Exposure Class F0) 4,000 psi
2) Slump (plus or minus 1 1/2 inch)
a. All concrete unless noted otherwise, shall have a slump of 5". When water reducing admixture is added to increase concrete slump, concrete shall have a slump of 5" before the admixture is added and 8" after.
3) The contractor/producer is required to furnish concrete that is designed to the average strength level that will meet the higher of the f'_c (a) as specified for structural requirements, (b) values of f'_c associated with the specified exposure classification per ACI 318, or (c.1) values of f'_c that were developed from correlating strength with the results of ASTM C1202 tests, or (c.2) values of f'_c that were developed from correlating strength with water/cement ratio.
4) Reinforcing steel
a. Bars and ties ASTM A615, Grade 60 (F_y=60ksi)
b. Welded wire fabric ASTM A1064 (F_y=70ksi).
c. Mechanical butt splices, Bar-Lock coupler by Bar-Lock (MBT) or Zap Screwlok by BarSplice or equivalent, capacity shall exceed 125% of reinforcing.
C. Grout or non-shrink grout (for setting plates or anchors, filling bearing pockets, etc.) shown on plans shall be SikaGrout 212 by Sika (ASTM C1107) or equivalent.
D. Post-installed anchors --- adhesive/epoxy anchors
1) Post-installed anchors shall only be used where specified on the construction documents. The contractor shall obtain approval from the engineer prior to installing post-installed anchors in place of missing or misplaced cast-in-place anchors. Care shall be taken in placing post-installed anchors to avoid conflicts with existing rebar. Holes shall be drilled (hammer drilled in concrete and core drilled in masonry) and cleaned in accordance with the manufacturer's written instructions. For horizontal or vertically inclined anchor orientation carrying sustained tension loads, the installer must be certified by an ACI/CRSI Adhesive Anchor Installer Certification program. See general notes for substitution requests.
a. Concrete anchors
i) Adhesive/epoxy anchors for use in cracked and uncracked concrete. Simpson Strong-Tie "SET-3G" (tested in accordance with ACI 355.4 and ICC-ES ESR-4057), Hilti HIT-RE 500 V3, or Powers/DEWALT AC100 + Gold, or equivalent.
a) Design bond strength has been based on cracked concrete, ACI 355.4 temperature Category B, and installations into dry holes into concrete that has cured for at least 21 days.
- E. Notes:
1) Placement of concrete and reinforcement shall be in accordance with ACI and CRSI standards. Lap or dowel continuous bars with Class B splices per ACI 318 unless noted otherwise. Lap or dowel bars 50 bar diameters (4) minimum. No welding of reinforcing is permitted. Provide the following lap or dowel bars (based on minimum ACI concrete cover and bar spacing, uncoated bars, and normal weight concrete) unless noted:
a. #3 - 19", #4 - 25", #5 - 32", #6 - 38", #7 - 44", #8 - 50", #9 - 57", #10 - 63", #11 - 69"
2) All reinforcing steel, anchors, anchor bolts, embed plates, inserts, dowels, etc. shall be secured in position prior to placing concrete.
3) Reinforcing shown on details is for concept only, follow CRSI placement and cover requirements unless noted otherwise.
4) Furnish the following concrete cover at reinforcing bars unless shown otherwise on the drawings:
a. Slabs-on-grade place reinforcing in center of slab
b. Slabs on metal deck place WFF reinforcing at center of portion of slab above the deck flutes
c. Footings, 3" cover at bottom and sides
5) Maximum aggregate size shall not exceed 3/4 the concrete cover (i.e. 3/4" max aggregate for 1" cover).
6) Reinforce all composite and non-composite floor slabs with WFFx6-W2.9.
7) Welded Wire Fabric shall be supplied in sheets only, not rolls.
8) Slab-on-grade reinforcing shall be #4@24"o.c. centered in the slab and supported on wire bar-type supports (provide sand plates if required) of sufficient height to insure that reinforcing is at the proper location with maximum spacing of 4'-0" for reinforcement. Reinforcing pull-up method is not permitted.
9) Provide (2) #5x9'-0" long diagonal bars at 3'o.c. at slab-on-grade reentrant corners and corners of openings.
10) Give top of foundation a trowel finish. The foundation must be square, level, and smooth. Anchor bolts must be located by means of a template. DO NOT hand set anchor bolts.
11) Joint Sealant shall be Sikaflex 15LM by Sika Corporation U.S. or equivalent.
12) Concrete should be protected from premature drying in accordance to ACI recommendations (including ACI 308-1). Exposed (concrete) surfaces shall be covered by such as floating, or 15'-21'-362S125-30 (20 ga - drywall) at 16'o.c.
a. Lithiumcure 2000 for interior applications, or equivalent. Alternatively, a 7-day moisture cure can be utilized as an equivalent. Moisture cure with a water saturated, absorptive cover kept continuously wet for a minimum of (7) days. Cover concrete surfaces with 12"lap over adjacent absorptive covers. Concrete to receive finishes such as flooring can utilize Sinak VC-5 for vapor control in lieu of moisture cure, refer to product data sheet.
- F. Shop Drawings
1) Concrete mix designs - Specify placement location of each mix.
G. Post installed anchor special inspections
1) Main building locations (column base plates), twenty-five (25) percent of epoxy anchors shall be tension tested to published working load capacity by a qualified independent testing agency. Anchors tested shall be chosen randomly by the qualified independent testing agency (minimum two anchors per installation).
a. All anchors shall be installed with the manufacturers' maximum tightening torque. This torque shall be recorded by a qualified independent testing agency. 1"Ø epoxy anchors, torque = 150 ft-lb max.
8. **Structural Steel (Division 5):**
A. Design Code: Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings (AISC), latest adoption.
B. Material strengths:
1) Structural Steel Rolled Wide Flange Shapes, ASTM A992 Grade 50 (F_y=50ksi)
2) Angles, ASTM A572 Grade 50 (F_y=50 ksi)
3) Channels
a. Channels less than 8", ASTM A36 (F_y=36ksi)
4) Plates and bars, ASTM A572 Grade 50 (F_y=50 ksi)
5) Rectangular, Square, and round HSS, ASTM A500 Grade C (F_y=50ksi)
6) Connection bolts ASTM F1554 Grade A325, Type 1, ASTM A563 heavy hex carbon-steel nuts and ASTM F436 hardened carbon-steel washers. Bolts are designed as snug tight unless noted otherwise.
7) Anchor rods for column base plates, ASTM F1554 Grade 55 (F_y=55ksi)
8) Adhesive/epoxy anchors and threaded rods, ASTM F1554 Grade 55 (F_y=55ksi)
9) Welds E70XX (F_{exx}=70ksi) electrodes per AWS D1.1 - steel
10) Headed Anchor Studs (HAS)/shear connectors Nelson Type, AWS Type B (F_y=51ksi) and AWS D1.1. Attachment shall develop the full strength of the stud
- C. Notes:
1) All structural steel shall be fabricated and erected according to the specifications of The American Institute of Steel Construction (AISC), latest adoption.
2) The structural steel fabricator shall be certified by AISC as a Category BU (Standard of Steel Building Structures) fabricator at the time of the bid. The installer is not required to be AISC qualified.
3) All structural steel shop and field welding shall be completed by an AWS certified welder.
4) Connection Design (reference the AISC Code of Standard Practice)
a. Option 1 - Moment Connections
i) Structural steel connection design and member reinforcement (stiffeners, web doubler plates, beam bearing stiffeners, etc.) for moment connections are shown in the Structural Drawings. No engineering is necessary for these connections.
b. Option 2 - Shear Connections

- i) Structural steel connections shall be selected or completed by an experienced steel detailer for shear connections. No engineering is necessary for these connections.
ii) Detailer shall use the tables provided in the drawings in the selection or completion of the connection
5) Steel beam-to-column and 2" minimum unreinforced seal (mud) slab is placed at the bottom of the footing excavation. Where soft or unsuitable bearing surfaces are encountered, the area shall be undercut as required and replaced with compacted fill, flowable fill or concrete as directed by the Geotechnical Engineer. Fill material, if used, shall be compacted in 8" maximum loose lifts to a minimum of 98% of Standard Proctor Density (ASTM D698) unless specified otherwise by the Geotechnical Engineer.
- 6) Steel column base plate anchor rod holes and washer plates shall be as follows unless noted otherwise (reference AISC Steel Design Guide 1, Second Edition, Table 2.3.) Washer plates shall be welded to base plates with 1/4" fillet weld on three sides at anchor rods 3/4" diameter or greater.
a. 1"Ø anchor rod, 1 13/16"Ø hole, 3x3x3/8" washer 2" PL ED
7) Steel shop drawings shall include erection plans showing beam to beam/column connections, beam elevations, etc.
8) Refer to architectural drawings for stair layout, configuration, and misc. steel items typical. Minimum sizes and layout for stairs shown on structural drawings are schematic. Steel indicated both on structural and architectural drawings shall be included in this project. Stair stringers and other support members shall be attached with standard AISC connections or with 2 1/2" bearing minimum. Design members/connections and provide calculations or supporting data to verify their adequacy. A live load of 100 psf shall be used in the stair design. A live load of 50 psf or a 200 lb concentrated load shall be used for handrail/guardrail design and applied at the top of the rail. Fully detail stair and handrail/tread connections, including attachments to supporting members.
9) Structural steel supplier shall furnish bolts for OSHA bolted joist connections, deck and joist bearing angles or plates, and column anchor bolts. Stabilizer plates at bottom chord of joist shall be provide per OSHA requirements.
10) Structural steel shall be shipped with standard shop primer. See architectural specifications for primer and paint coating (if required).
11) Bolts shall be placed at 3" spacing, 1 1/4" edge distance, standard gage, and thru standard holes unless noted otherwise.
12) Steel beams shall typically frame into the side of steel columns (i.e., top of column equals top of steel elevation at uppermost level) unless shown otherwise.
13) All tube columns shall have a top plate (minimum thickness of 1/4") UNO.
14) Shop connections may be welded or bolted using 3/4" (A325) diameter bolts. Field connections shall be bolted using 3/4" (A325) diameter bolts.
15) Field cutting of structural members (including holes) and member splices (field or shop splices) will not be permitted unless shown on the shop drawings and without written authorization of architect/engineer.
- D. Shop Drawings:
1) Structural and miscellaneous steel including plan member layout, erection drawings showing lateral system elevations and connection assemblies. Member layout shall clearly show piece marks that are referenced and easily identifiable in the submittal. Multiple submittal shop drawings shall include an overall plan of the entire project showing member sizes and layout.
2) Signed and sealed engineering calculations accompanying the steel shop drawings for the stairs/landing and handrail/guardrail.
9. **Steel Floor Deck System (Division 5):**
A. Design code: Steel Deck Institute (SDI) Design Manual for Roof Decks and Floor Decks, latest adoption.
B. Material strengths: per manufacturer and SDI specifications.
C. Welds E70XX electrodes per AWS D1.3 - sheet steel.
D. Notes:
1) Composite floor deck shall be 1 1/2", 20 gage, Vulcraft type VL, Grade 50 (composite floor deck) steel deck with a (2) span loading condition min or equivalent fabricated and erected according to the specifications of the SDI, latest adoption.
a. Composite floor deck shall be secured to supporting steel with 5/8" puddle welds in a 36/4 layout. Perimeter of steel deck shall be attached at 6'o.c. typical. All sidelaps shall be secured with (3) #10 self-tapping (TEX) screw fasteners evenly spaced along deck span, installed by the deck erector according to manufacturer specifications.
b. Allowable diaphragm shear strength = 375 pif
2) Non-composite floor deck - stair landings - shall be 9/16", 26 gage, Vulcraft Type C (conform) steel deck with a (3) span loading condition min or equivalent fabricated and erected according to the specifications of the SDI, latest adoption.
a. Non-composite floor deck shall be secured to supporting structure with welding washers in a 30/4 layout min. Perimeter of steel deck shall be attached at 6'o.c. typical. No sidelap fasteners are required.
3) Do not hang any mechanical, electrical, etc from floor deck unless noted otherwise.
4) Penetrations at floor decks:
a. Care shall be taken not to damage the metal deck when placing holes.
b. All penetrations without steel H-frame reinforcing as shown on the plans shall have a clear spacing of three times the width of the opening perpendicular to deck ribs. Only one opening shall be permitted per deck span parallel to the ribs.
c. Deck penetrations less than 6" do not need supplemental reinforcement.
d. Provide standard SDI DDP (Deck Damage and Penetrations) plate accessories/attachments at openings between 6" and 13".
5) Contractor may substitute Hilti powder actuated fastening system or equivalent with submittals to be approved by the engineer. See general notes for substitution requests.
6) Floor deck shall be galvanized (G60). See architectural specifications for primer and paint coating (if required).
- E. Shop Drawings:
1) Metal decks showing plan layout, bearing conditions, and connection to other structural elements.
10. **Cold-Formed Metal Framing/Metal Studs, Metal Joists, Metal Trusses (Division 5):**
A. Design, fabrication and erection shall conform to AISI "Specifications for the Design of Cold Formed Steel Structural Members", latest edition. The contractor shall submit fabrication drawings and calculations for review signed and sealed by a professional engineer registered in the state of Missouri. These fabrication drawings shall include overall member layout, wall sections, and all connections as well as other required drawings. Members and connections may differ from the items specified upon approval of submittal with manufacturer's sealed drawings and calculations.
B. Cold-formed metal framing members and connections shall conform to the acceptance criteria ICC AC46 and AC261 respectively.
C. For bidding purposes only, consider the following minimum wall studs and spacing. Related costs such as engineering and shop drawing production shall also be included in the bid.
1) Interior non-bearing walls
a. Minimum, 30 mil (20 ga - drywall) wall studs at 16'o.c.
b. 362S125-43 (18 ga) for spans up to 4'-0".
c. 15'-0" < h < 16'-11": 362S125-43 (18 ga) at 16'o.c.
d. 15'-0" < h < 16'-11": 362S125-43 (18 ga) at 16'o.c.
D. Galvanized material:
1) All galvanized studs and accessories shall have a G60 coating.
2) All galvanized studs, joists and accessories 12, 14 and 16 gage, shall be formed from steel that corresponds to the minimum requirements of ASTM A653, Grade 50, Class 1 or 2 (F_y=50ksi).
3) All galvanized 18 and 20 gage studs and joists, trusses, bridging, and studs and joists and accessories shall be formed from steel that corresponds to the requirements of ASTM A653, Grade 33 (F_y=33ksi).
4) Provide galvanized StiffClip connectors or equivalent by The Steel Network for wall, header/intel, floor, ceiling, and roof framing connections to supporting elements typical.
E. Unless noted, all self-drilling tapping screw fasteners shall be in compliance with ASTM C1513 or an approved / recognized design standard. All screws shall be non-corrosive unless noted otherwise (do not use stainless steel or copper-coated fasteners).
F. The quantity of studs (i.e., king or jamb studs at headers) and joists displaced or cut for opening shall be placed half on each side of opening, or by design.
G. Provide bridging for non-load bearing wall studs per SSMA or as required by cold-formed steel supplier specialty engineer.
H. For bidding purposes only, consider the following minimum headers for non-load bearing walls unless noted, or by design:
1) (2) 362S162-43 (18 ga) for spans up to 4'-0".
2) (2) 600S162-43 (18 ga) for spans up to 8'-0".
3) (2) 1000S162-54 (16 ga) for spans up to 12'-0".
I. Shop Drawings and Deferred Submittals:
1) Cold-formed steel truss drawings including plan layout, truss elevations, and connection assemblies.
11. **Pre-Engineered Metal Building (Division 13):**
A. Design Code: Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings (AISC), North American Specification for the Design of Cold-Formed Steel Structural Members (AISI S100) latest adoptions and the Metal Building Manufacturers Association (MBMA) guidelines.
B. Systems shall be designed for loadings previously described on this sheet.
C. Notes:
1) Steel shall be fabricated and erected according to the specifications of The American Institute of Steel Construction (AISC), North American Specifications for the Design of Cold-Formed Steel Structural Members (AISI S100) latest adoptions and the Metal Building Manufacturers Association (MBMA) guidelines.
2) Pre-engineered metal building supplier shall design the new opening for the loads indicated on the drawings.
3) See General Notes for deferred submittals related to connections for ancillary and miscellaneous MEP and architectural items not shown on the Structural, Architectural, or MEP plans.
4) Structural steel shall be shipped with standard shop primer. See architectural specifications for primer and paint coating (if required).
5) Metal building supplier shall submit shop drawings and calculations that bear the seal of a professional engineer in the state of Missouri to the engineer for approval.
D. Shop Drawings and Deferred Submittals:
1) Pre-engineered metal building drawings and calculations sealed by a professional engineer.
a. The existing PEMB plans were by Alliance Steel Building Systems dated 6/13/2013, PN 313-256.

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MIKE KEHOE,
GOVERNOR




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**OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION**

**MISSOURI STATE
HIGHWAY PATROL**

**GENERAL HEADQUARTERS
GARAGE RENOVATE INTERIOR
TO CREATE STORAGE
TROOP F HEADQUARTERS,
US HIGHWAY 50 AND
SHAMROCK ROAD,
JEFFERSON CITY, MO 65101**

PROJECT # R2506-01

SITE # 6062

ASSET # 8136062001

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 03-26-2026

CAD DWG FILE: _____
DRAWN BY: JPK
CHECKED BY: BK
DESIGNED BY: JPK

SHEET TITLE:

**STRUCTURAL
DESIGN CRITERIA
AND NOTES**

SHEET NUMBER:

S001

7 OF 27 SHEETS

3-26-2026



**OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION**

**GENERAL HEADQUARTERS
GARAGE RENOVATE INTERIOR
TO CREATE STORAGE
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REVISION: _____
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ISSUE DATE: 03-26-2026

SHEET TITLE:

SHEET NUMBER:

9 OF 27 SHEETS
3-26-2026



1. NOTES AND KEYNOTES ON THIS SHT APPLY TO ALL FOUNDATION ELEMENTS OF STRUCTURE (S10x SHEETS) PT
2. SEE SHEET S001 FOR DESIGN LOAD INFORMATION, GENERAL NOTES, AND SOIL ALLOWABLE BEARING CAPACITY
3. PAVING, WALKWAYS, AND SITE RETAINING WALL LOCATIONS/DETAILS SEE SITE PLAN TYPICAL
4. ALL DIMENSIONS SHOWN ON FOUNDATION PLANS SHOULD BE COORDINATED WITH THE ARCHITECTURAL PLANS TO ENSURE CORRECT PLACEMENT OF STRUCTURAL ITEMS (INCLUDING COLUMN FOOTINGS, THICKENED SLABS, WALLS, ETC.)
5. CENTER CONC FOOTINGS ON COLUMNS UNO
6. HEXAGON WITH A NUMBER INDICATES STEEL COL/FT OFF GRID LINE, SEE S601 SHEET
7. EXISTING FOUNDATION SYSTEMS ADJACENT TO NEW FTGS AND CONC WALLS SHALL BE THOROUGHLY CLEANED PRIOR TO INSTALLATION OF NEW FOUNDATION SYSTEMS UNO. SEE DETS FOR REQUIRED EPOXY DOWELS
8. CONSTRUCTION METHODS ARE NOT ADDRESSED HEREIN. WALL BRACING AND EXISTING BUILDING SUPPORT DURING CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. SEE S001 SHEET FOR DETAILS
9. NEW FOOTING BOT ELEVATIONS SHALL BE ADJUSTED IN THE FIELD TO MATCH ADJACENT EXISTING FOOTING BOT ELEVATIONS UNO

1. EXIST 5" THK CONC SLAB-ON-GRADE
2. EXIST FTG STEP
3. STEP BOT NEW FTG WITH EXIST FTG STEP (APPROXIMATE BOT EL 98'-1" TO 98'-17") PROVIDE FLOWABLE FILL FROM THE BOT OF THE NEW FTG TO THE BOT OF THE EXIST FTG. PLACE FLOWABLE FILL SAME DAY AS EXCAVATION
4. EXIST FDM TIE TYP. GC TO TAKE CARE DURING NEW FOOTING EXCAVATION TO DAMAGE EXISTING THE BM REIN (APPROXIMATE TOP EL. OF THE BM = 8" BFF EL.) AT GC OPTION, THE (2) #7 THE BM REIN MAY BE CUT SO THAT REBAR COUPLERS MAY BE USED TO SPLICE NEW THE BM REIN WITH NEW REIN
5. EXIST FTG TIE
6. EXIST CONC WALL TYP
7. EXIST PEMB CLC TYP
8. EXIST 8" TALL CONC CURB TYP
9. SHARPED PERMETER INDICATES EDGE OF EXISTING 6" THK CONC SLAB-ON-GRADE
10. EXISTING HARPIN TO REMAIN. GC TO TAKE CARE DURING SLAB DEMOLITION TO NOT DAMAGE EXISTING HARPIN. AT GC OPTION, EXISTING HARPIN REIN MAY BE CUT A SUFFICIENT DISTANCE AWAY FROM THE EDGE OF THE EXIST FTG SO THAT REBAR
11. GC TO FIELD VERIFY 9" AND 1"-3" DIMENSIONS TO ENSURE NEW STEEL WILL NOT INTERFERE WITH EXISTING COLLARS/STRUCTURES

1. THESE NOTES AND KEYNOTES ON THIS SHEET APPLY TO ALL FRAMING ELEMENTS OF STRUCTURE (SLOX SHEET).
2. SEE SHEET S001 FOR DIMENSIONS AND GENERAL NOTES.
3. SEE FOUNDATION PLAN AND ARCHITECTURAL PLANS TO ENSURE CORRECT PLACEMENT OF STRUCTURAL ITEMS (INCLUDING COLUMNS, FOOTINGS, ETC).
4. ALL STEEL ANGLES SHALL BE 1/2" THICK, 4" LONG, 1/4" ST-36. SHALL BE A CANT 1/5x5x5/16 (LH) WHERE SHOWN AT PERIMETER OF 5" FLOOR UP TYPE. PROVIDE 3/32 1/2x4 1/4 (LH) AT 3" FLR STM SURF OR AS REQUIRED BY DESIGN.
5. ALL STEEL NOTES AND DIMENSIONS SHALL BE IN INCHES. SEE 4/5/2002 AND 4/5/2002 FOR EDGE ANGLE SPACES TYPE. A LONGER HORIZ LEG MAY BE REQUIRED FOR CONNECTION OF MISC ITEMS. SEE ARCH. WELD TO BMT ON CANT SURF WITH 3/16" FILLET 2" LG AT 120°-c.
6. INTERSECTION WITH A NUMBERED INDICATES SHOWN. CANT/FTG OFF GRID LINE. SEE 5/601 SHEET.
7. G.C. SHALL SHUT OFF FLOOR BEAMS WITH SPACING NOT TO EXCEED SPACING INDICATED ON THIS SHEET.
8. MISC WELDS SHALL BE 3/16" FILLET ALL AROUND OR 2" AT 120°-c.

101. TYP ME2 FLOOR SHALL BE 5" THK, NORMAL WEIGHT CONC OVER 1 1/2" PL COMPOSITE METAL DECK (3 1/2" CONC THICKNESS ABOVE DECK FLUTES). SEE SHEET NOTES FOR REBAR ATTACHMENT, AND DECK SPECS FOR PL.

102. CON PERM DECK EDGE ANGLE AT FLR, SEE GENERAL NOTES AND DETAILS PROVIDE 15x3/16" PL AT COL AS REQD TO SUPRT DECK DURING CONC PLACEMENT.

103. EXIST PORTAL FRAME.

104. STAIR SYSTEMS: THE FOLLOWING SIZES ARE FOR RIDING PURPOSES ONLY, SEE S001 NOTES FOR DEFERRED STAIR SUBMITTALS.

a. M22x12 STAIR STRINGERS, TYPICAL, SEE SPEC PAGE C12x20 FOR STAIRSTRINGERS WITH DOG LEGS. PROVIDE 1/2x1/2x1/2x3/16 X-BRACING BETWEEN STAIR TREADS AS REQUIRED FOR LATERAL STABILITY.

105. STAIR RIDING FLOORING SHALL BE 1/2" THK NORMAL WGT CONC OVER 9/16" GALV METAL DECK (2 1/2" CONC THICKNESS ABOVE DECK FLUTES). SEE SHEET S001 NOTES FOR REBAR, ATTACHMENT, AND DECK SPECS TYPE C.

c. C9x20 AT PERIMETER OF LANDING.

d. C5x9@ 4' AT 30° C/C, MAX AT STAIR LANDING FRAMING, SEE ARCH TYPE C.

e. COLUMNS SHALL BE HSS33x3 MIN AND SHALL BEAR ON SLAB-ON-GRADE.

106. EXIST COL TYPE.

107. PROVIDE 2" GAP BETWEEN DECK EDGE ANGLE AND EXIST PEMS COLUMNS, TYPE EDGE OF NEW DOOR OPNG TYP, COORD LOCATION WITH ARCH.

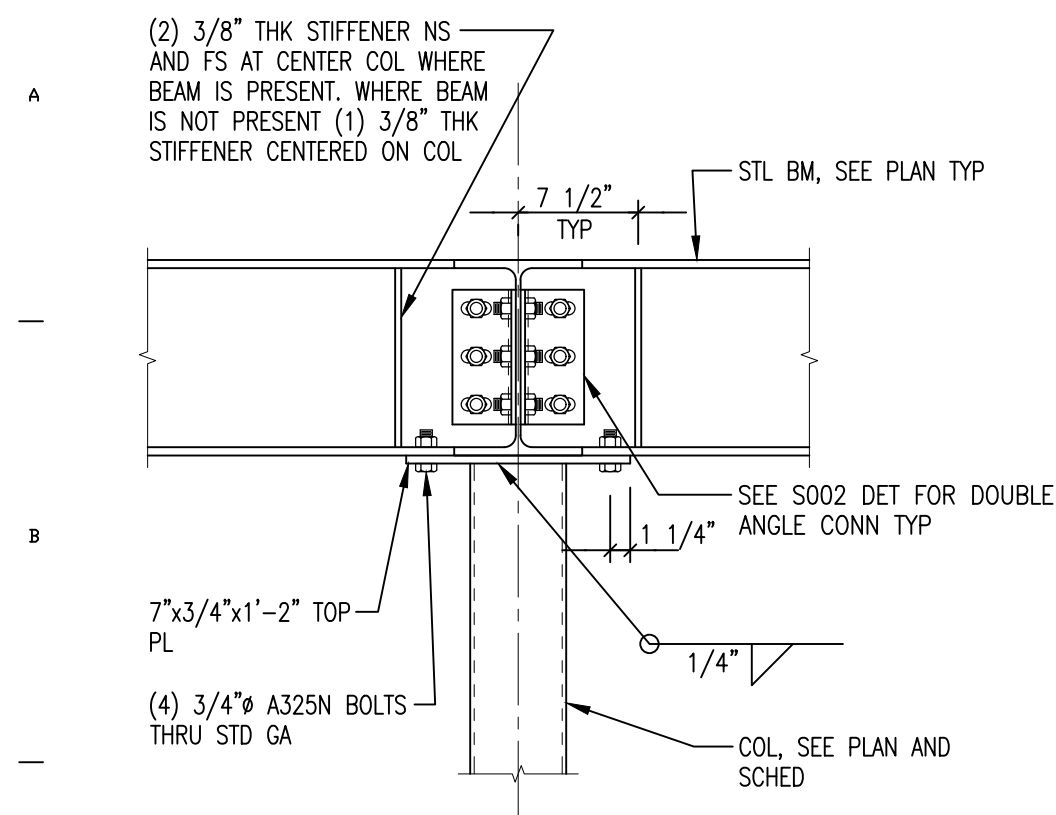
108. W12x40 OUTSIDE.

109. BM IS CONTINUOUS OVER COL, ATTACH BM TO PL W/ PL 7"x7"x1/4" - 2" W/ (4) 5/8" BOLTS AT STD GA. ATTACH COL TO PL W/ PL 1/2" FLAT BAR STD W/ (4) ANCHORS PROVIDE 3" STIFFEN PL AT SIDE OF BM, CENTERED ON COL (2) LOCATIONS, SEE DET 1/8601.

110. HSS12x4x1/4 AT GARAGE DOOR OPNG, SEE S/5002

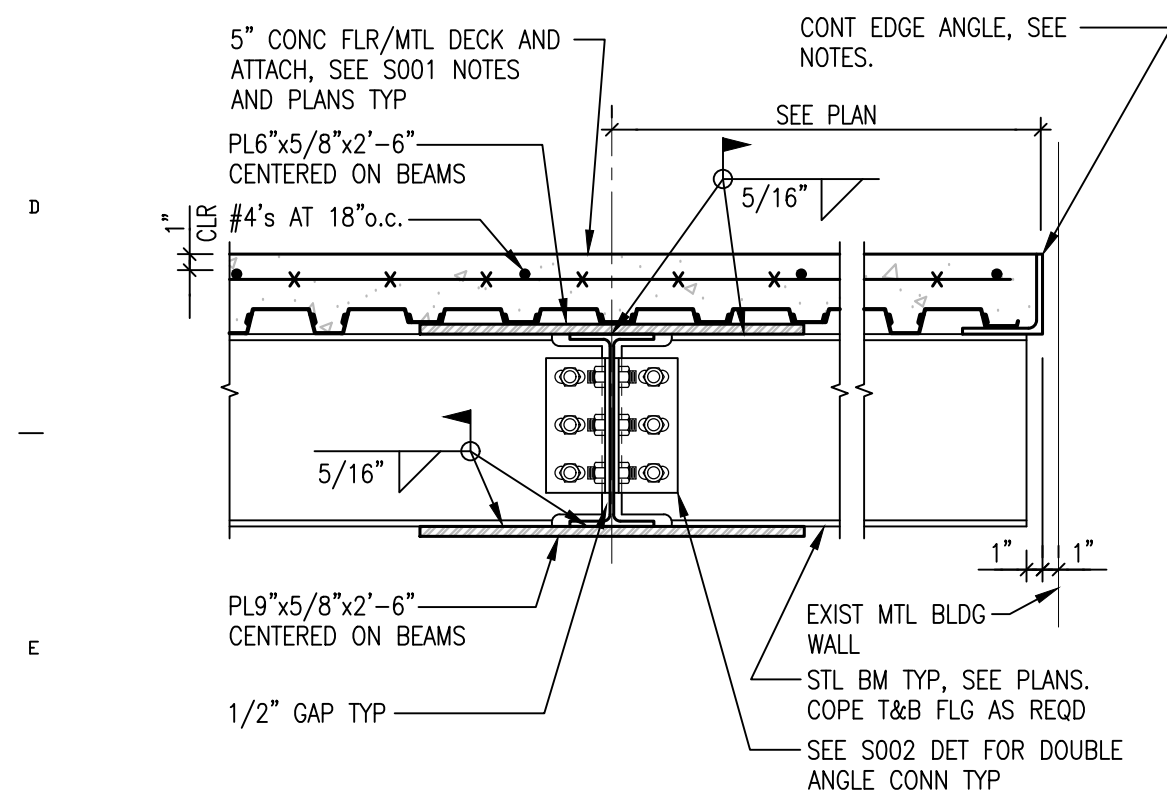


NOTE: SEE S601 SCHED FOR PEDESTAL SIZE AND REINF TYP



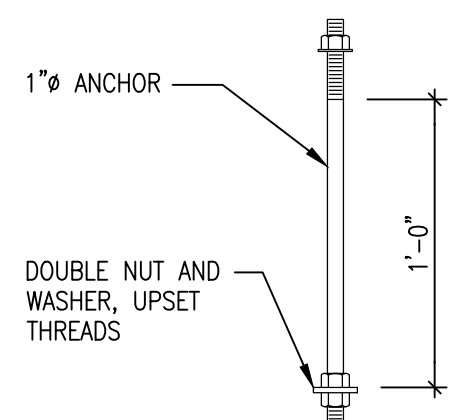
BM CONTINUOUS OVER COLUMN

1" = 1'-0" NOTE: DECK AND EDGE ANGLE NOT SHOWN FOR CLARITY

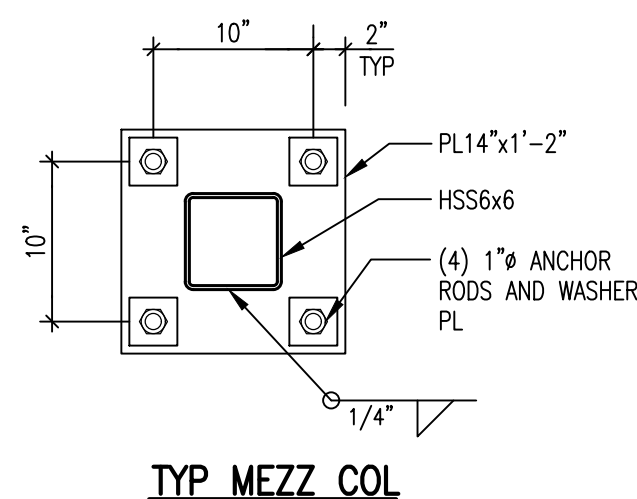


MOMENT CONN AT PERIMETER

$1'' = 1' - 0''$



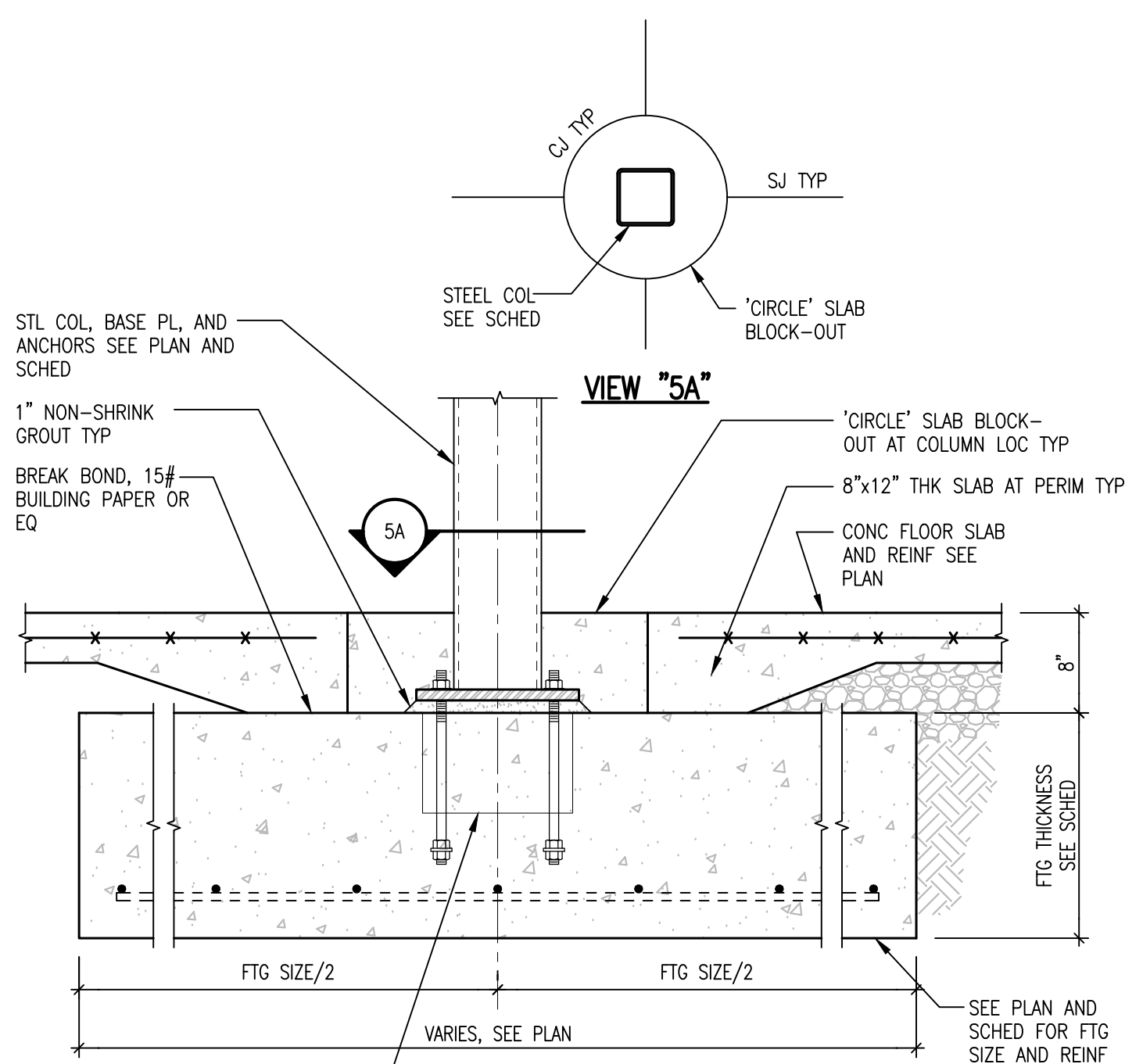
1"Ø ANCHOR
ANCHOR ROD(S)



TYPICAL BASE PLATE(S)

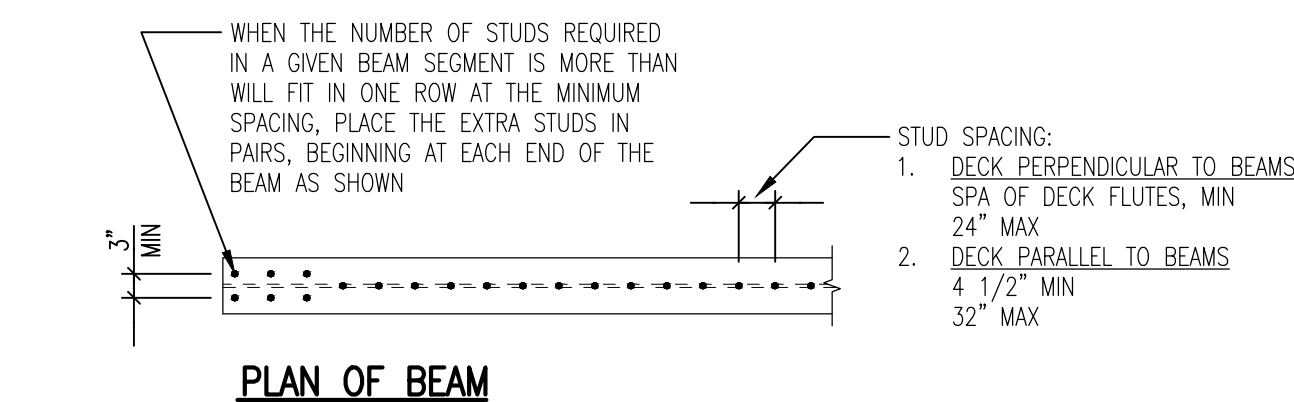
4
S601

1"=1'-0" NOTE: BASE PLATES SHOWN REPRESENT TYPICAL CONFIGURATION. BASE PLATES NOT DEPICTED SHALL BE SIMILAR. SEE S001 NOTES FOR WASHER PLATE CONFIG AND ATTACH TO BASE PLATE TYP.



TYPICAL INTERIOR FOOTING

$$1'' = 1' - 0''$$



SHEAR STUD PLACEMENT

NO SCALE

NOTE: N=NUMBER OF STUDS

[illegible]

NEW FTG CONFIGURATION AT EXIST FTG

$$\frac{8}{S601} \quad 1/2^* = 1' - 0^*$$

CONCRETE FOOTING AND STEEL COLUMN SCHEDULE

[illegible]

NOTES:

1. TYPICAL ANCHOR RODS SEE DETAIL 3/S601.
2. TYPICAL STEEL COLUMN BASE PLATES SEE DETAIL 4/S601.
3. COLUMNS MAY BE SHIFTED 1/2" MAXIMUM ON BASE PLATE TO ACCOUNT FOR MISPLACED ANCHOR BOLT GROUPS PROVIDED THAT COLUMN DOES NOT INTERFERE W/ NUTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IN-SITU ANCHOR BOLT LOCATIONS W/ PLANS. REPORT ERRORS MORE THAN 1/2" TO ENGINEER. NO FIELD CUTTING OR ALTERATIONS TO STRUCTURAL STEEL SHALL BE MADE W/ OUT WRITTEN CONSENT FROM ENGINEER. UNLESS NOTED ALL CONNECTIONS MUST BE MADE IN THE SHOP.
4. STEEL COLUMN BASE PLATES SHALL TYPICALLY BE ANCHORED TO THE FOUNDATION WITH A NUT AND WASHER, SEE PLANS/SPECS. PROVIDE 1" NON-SHRINK GROUT UNDER BASE PLATE TYP.
5. ANCHOR RODS SHALL PENETRATE BASE PLATE AND OVERSIZED HOLES UNLESS NOTED. PROVIDE ASTM F436 WASHERS PER AISC REMEDS BETWEEN THE PLATE AND TOP NUT TYPICAL UNLESS NOTED.
6. BASE PLATE HOLES FOR ANCHOR RODS AND WASHER PLATES SPECIFIED ARE INTENDED TO COMPLY WITH THE RECOMMENDATIONS OF THE AISC STEEL DESIGN GUIDE 1 BASE PLATE AND ANCHOR ROD DESIGN, SEE SECTION TYP.
7. STEEL COLUMN TOP ELEVATIONS (IF PROVIDED) ARE AT COLUMN CENTER LINE UNLESS NOTED OTHERWISE.
8. FOOTINGS ARE CENTERED UNDER COLUMNS UNLESS NOTED OR SHOWN ON PLANS.
9. SEE DET 8/S601 FOR FTG CONFIGURATION.



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CONSULTANTS

3312 LEMONE INDUSTRIAL BLVD. COLUMBIA, MO 65201
(573) 875-8799
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MISSOURI STATE
HIGHWAY PATROL

GENERAL HEADQUARTERS
GARAGE RENOVATE INTERIOR
TO CREATE STORAGE
TROOP F HEADQUARTERS,
US HIGHWAY 50 AND
SHAMROCK ROAD,
JEFFERSON CITY, MO 65101

PROJECT #	R2506-01
SITE #	6062
ASSET #	8136062001

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 03-26-2026

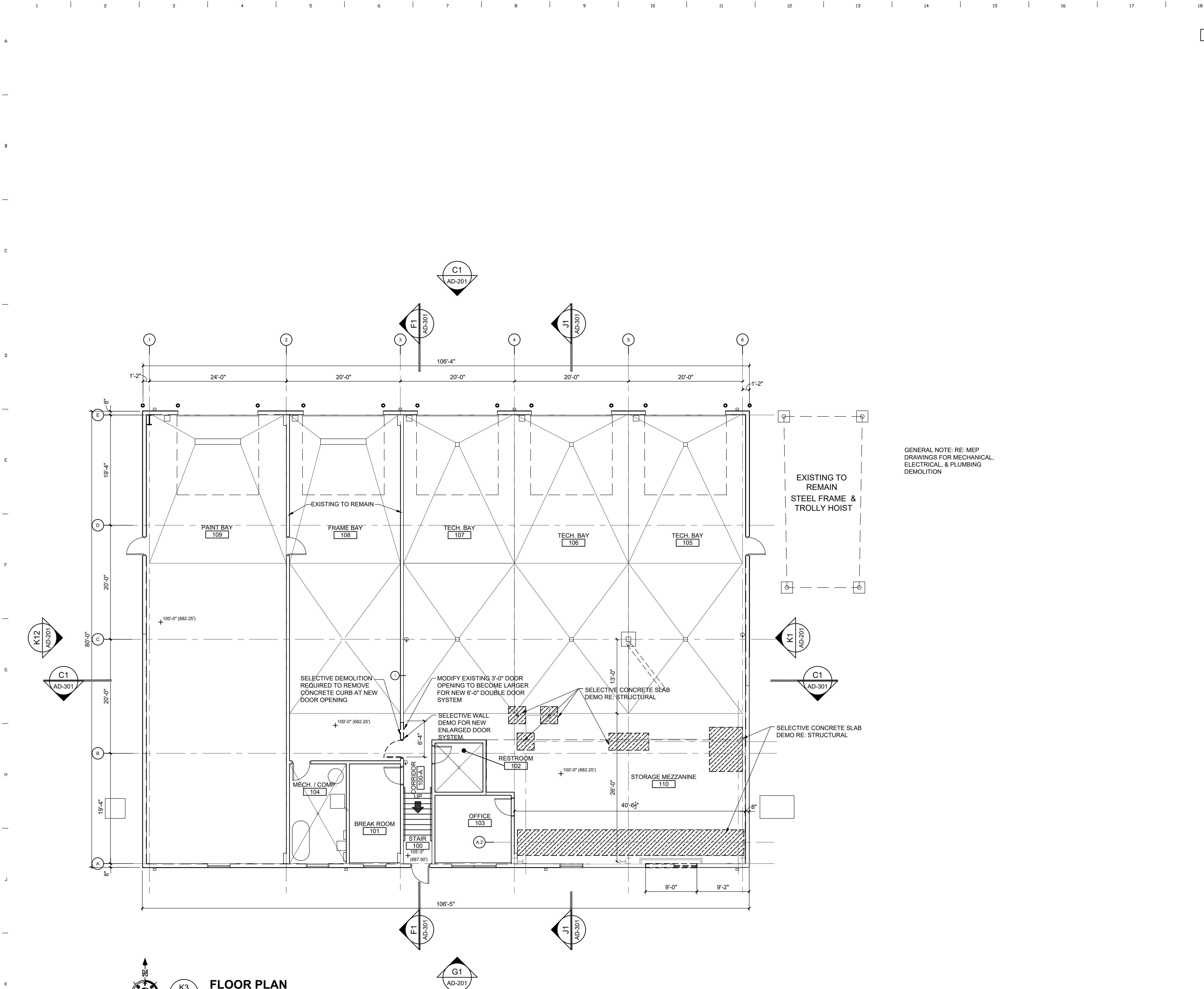
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 CHECKED BY: BK
 DESIGNED BY: JPK

SHEET TITLE:
STRUCTURAL
DETAILS AND
SCHEDULE

SHEET NUMBER:

S601

10 OF 27 SHEETS



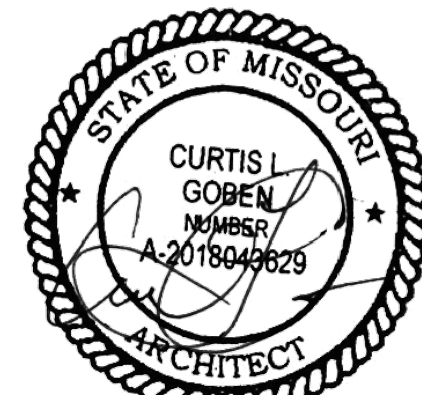
DRAWING NOTES:

- 01 WORK BENCHES FURNISHED BY OWNER. CONTRACTOR SHALL FURNISH CONNECTIONS AS INDICATED - RE: ELECT.
- 02 EQUIPMENT BY OWNER (N.I.C.) CONTRACTOR TO INSTALL.
- 07 EXISTING PAINT BOOTH FURNISHED BY OWNER. CONTRACTOR SHALL RELOCATE FROM EXISTING FACILITY AND FURNISH AND INSTALL ALL NECESSARY PIPING, CONNECTIONS, AND ASSOCIATED ACCESSORIES AND EQUIPMENT AS REQUIRED. RE: CIVIL, STRUCTURAL, MECHANICAL AND ELECTRICAL FOR ADDITIONAL INFORMATION SEE K3A-102 FOR NEW PAINT BOOTH TO BE INSTALLED UNDER ALTERNATE NO. THREE.
- 08 RELOCATE EXISTING HOISTWAY RE: STRUCTURAL. FURNISH AND INSTALL NEW PAINT FINISH AND EXISTING STEEL STRUCTURE.

GENERAL NOTE: RE: MEP DRAWINGS FOR MECHANICAL, ELECTRICAL, & PLUMBING DEMOLITION

EXISTING TO REMAIN STEEL FRAME & TROLLEY HOIST

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR



26 MAR 2020

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PROJECT # R2506-01
SITE # 6062
ASSET # 8136062001

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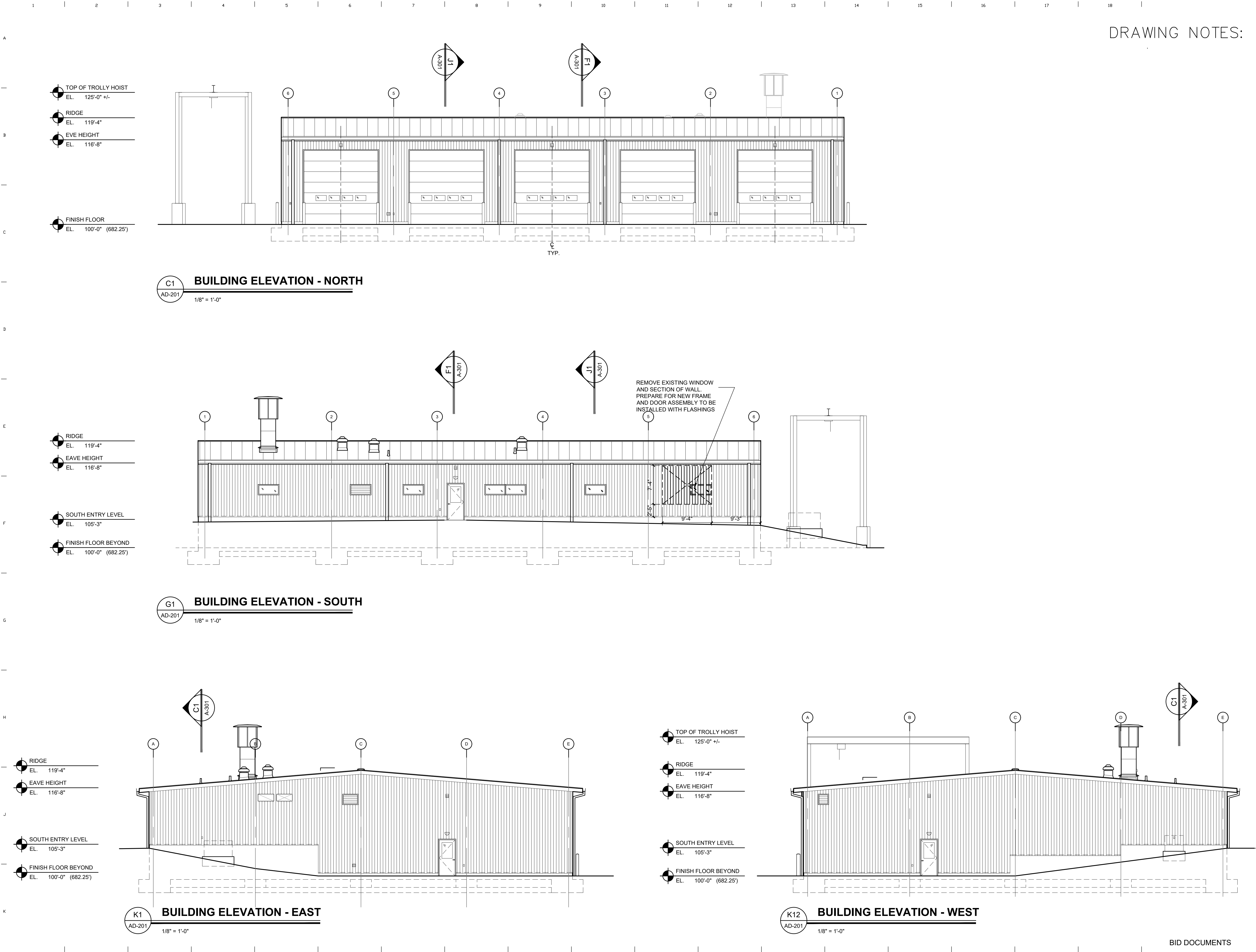
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DEMOLITION PLANS

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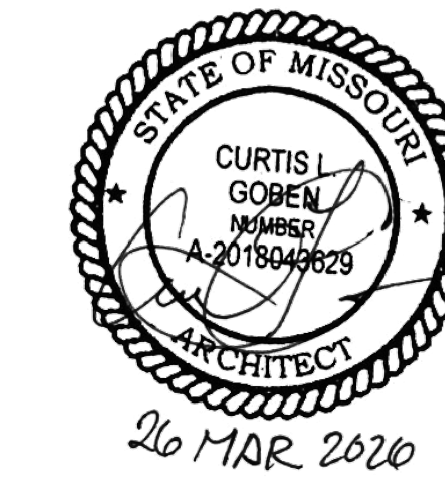
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11 OF 27 SHEETS
3-26-2026



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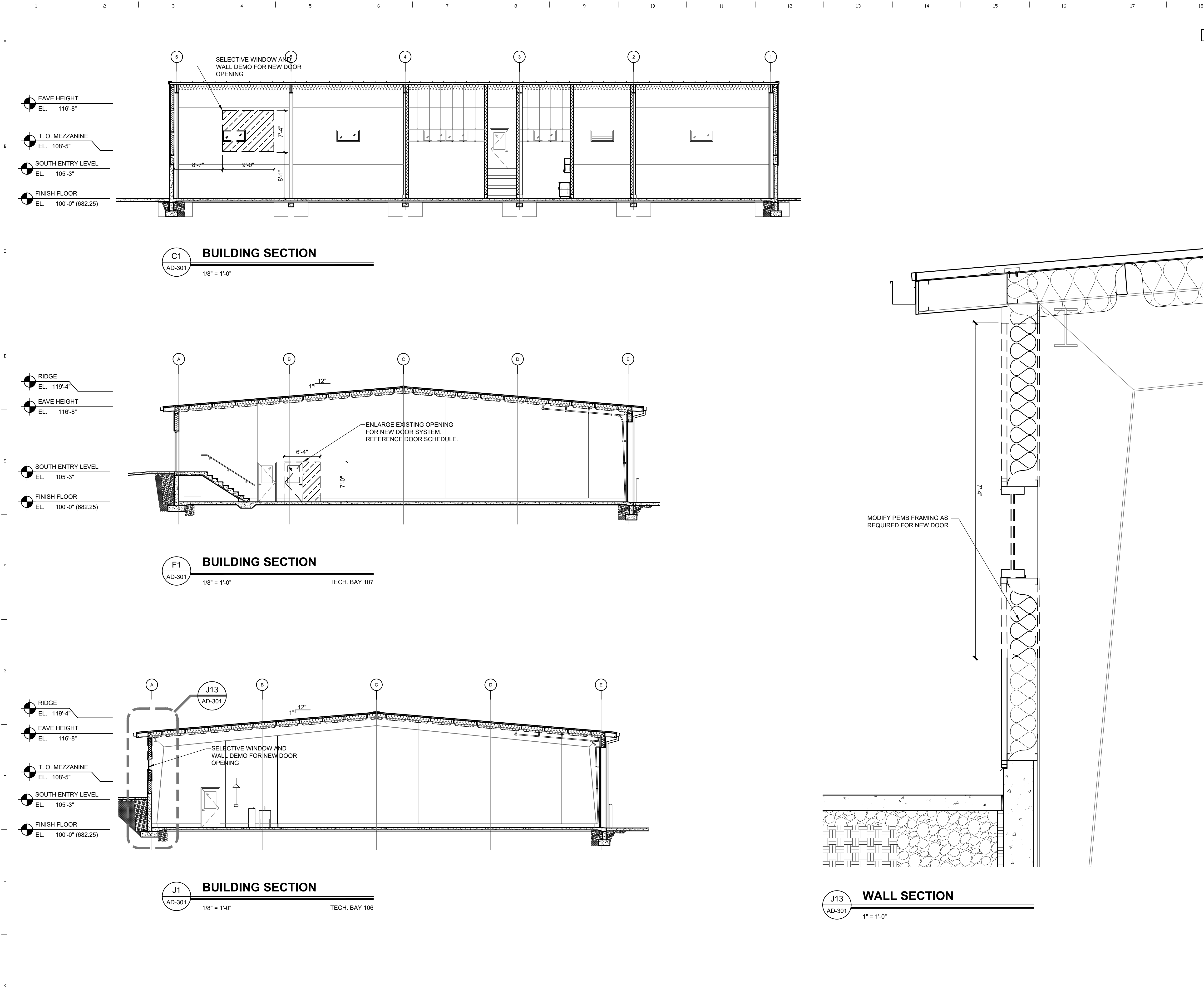
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CHECKED BY: _____
DESIGNED BY: TAA

SHEET TITLE:
**DEMOLITION
ELEVATIONS**

SHEET NUMBER:

AD-201

12 OF 27 SHEETS
3-26-2026



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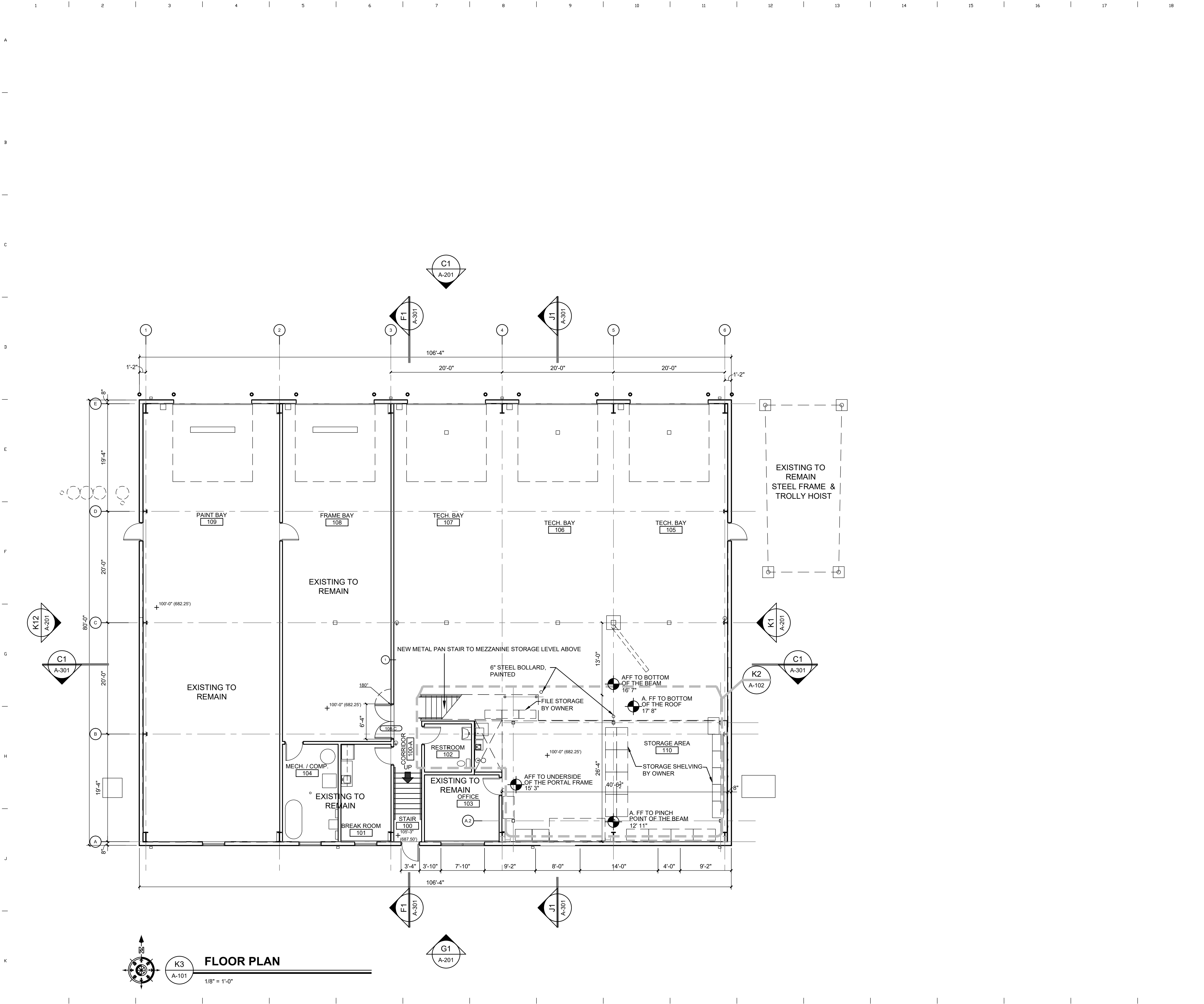
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SHEET TITLE:
DEMOLITION
BLDG. SECTIONS

SHEET NUMBER:

AD-301

13 OF 27 SHEETS
3-26-2026



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ASSET # 8136062001

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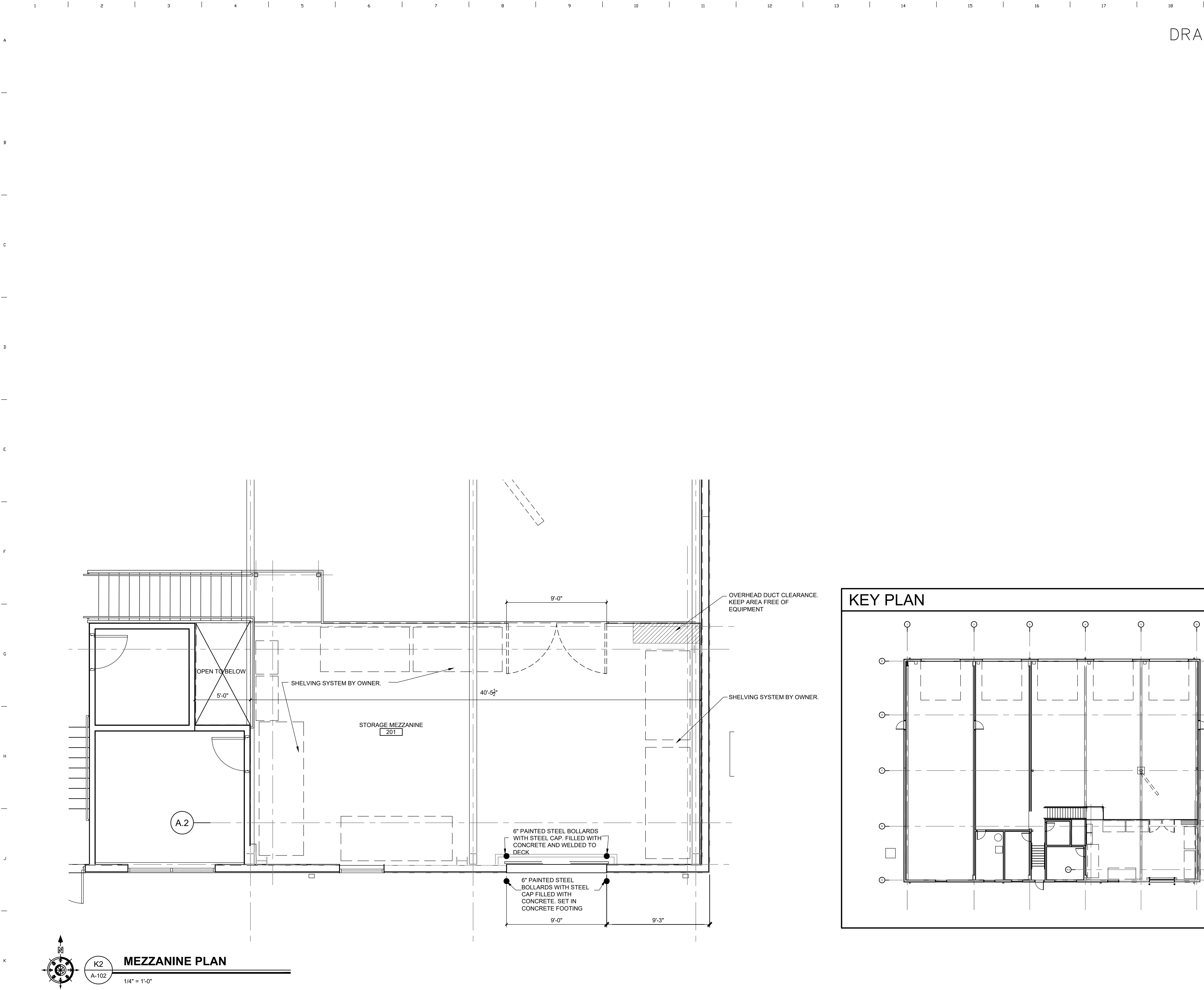
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CHECKED BY: _____
DESIGNED BY: TAA

SHEET TITLE:
FLOOR PLAN

SHEET NUMBER:

A-101

14 OF 27 SHEETS
3-26-2026



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REVISION: _____
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CHECKED BY: _____
DESIGNED BY: TAA

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**ENLARGED PLANS
& ALT. PLANS**

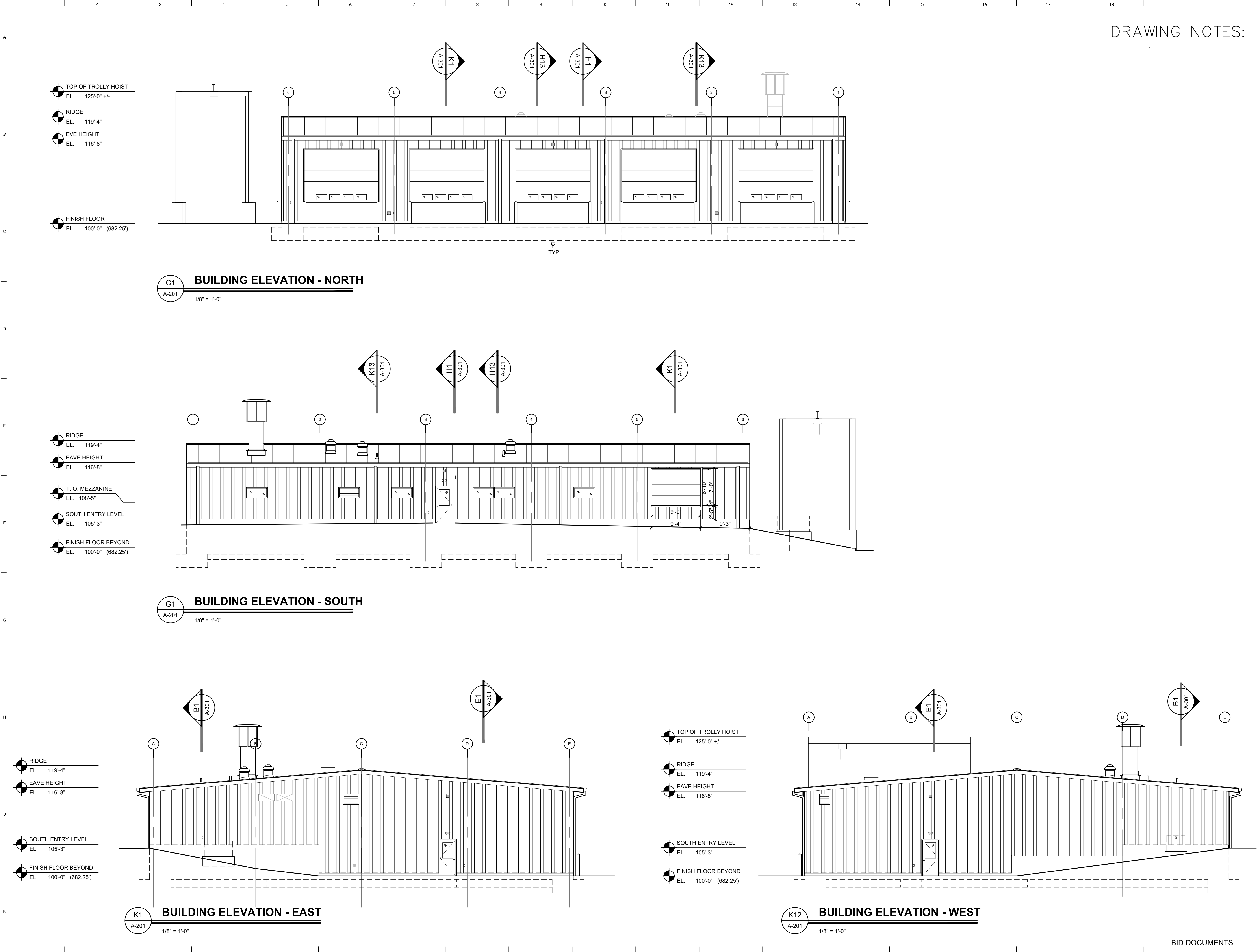
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A-102

15 OF 27 SHEETS

BID DOCUMENTS

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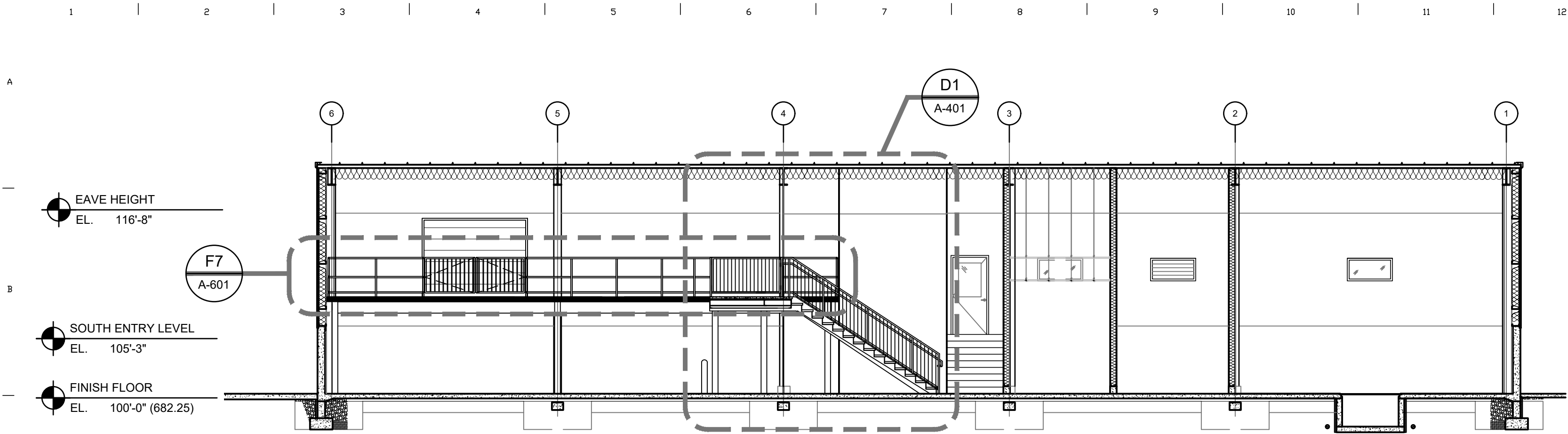
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**EXTERIOR
ELEVATIONS**

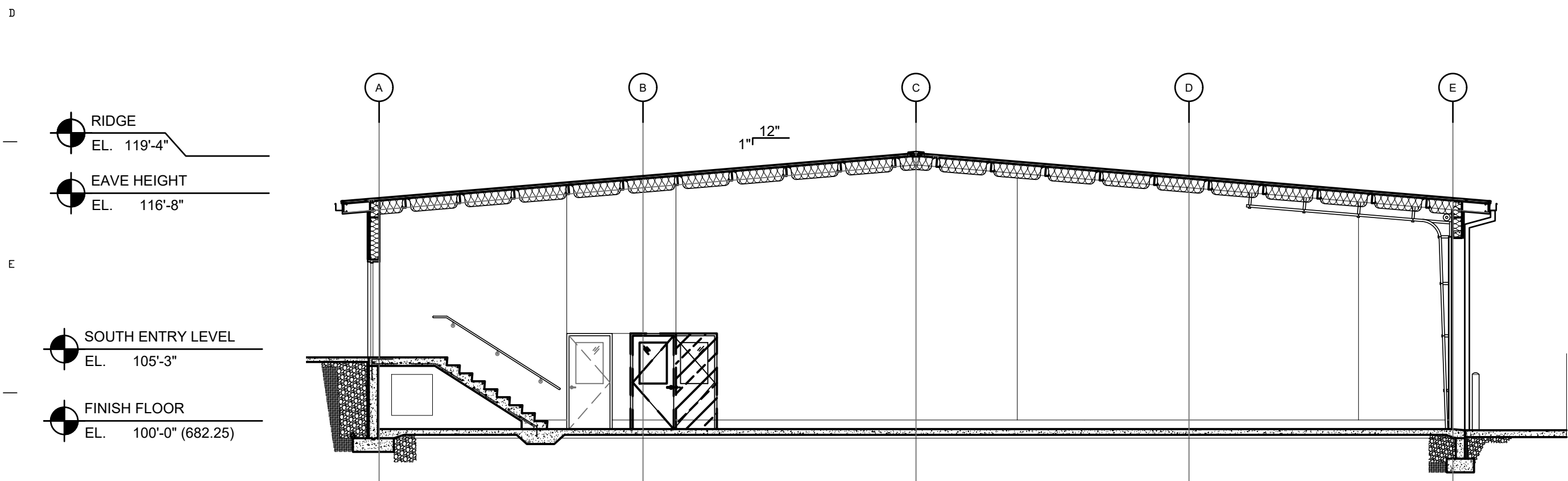
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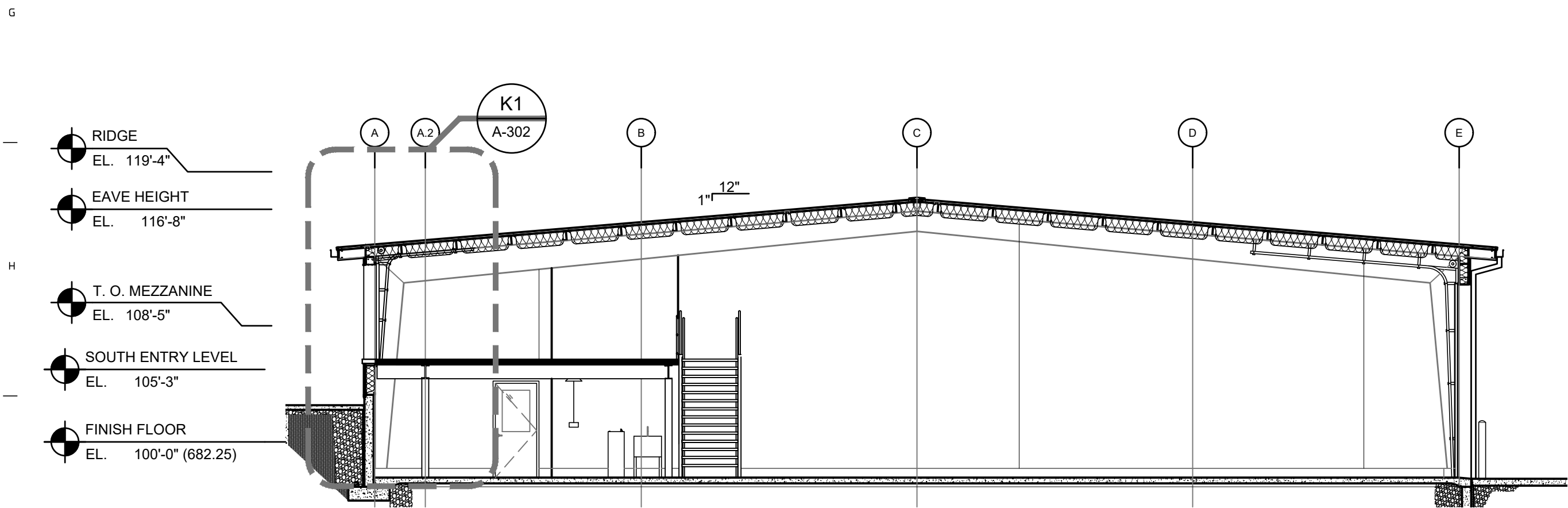
16 OF 27 SHEETS
3-26-2026



C1
A-301
BUILDING SECTION
1/8" = 1'-0"



F1
A-301
BUILDING SECTION
1/8" = 1'-0"
TECH. BAY 107



J1
A-301
BUILDING SECTION
1/8" = 1'-0"
TECH. BAY 106

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ISSUE DATE: 03-26-2026

CAD DWG FILE: 2510 A-301
DRAWN BY: _____
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SHEET TITLE:
BLDG. SECTIONS

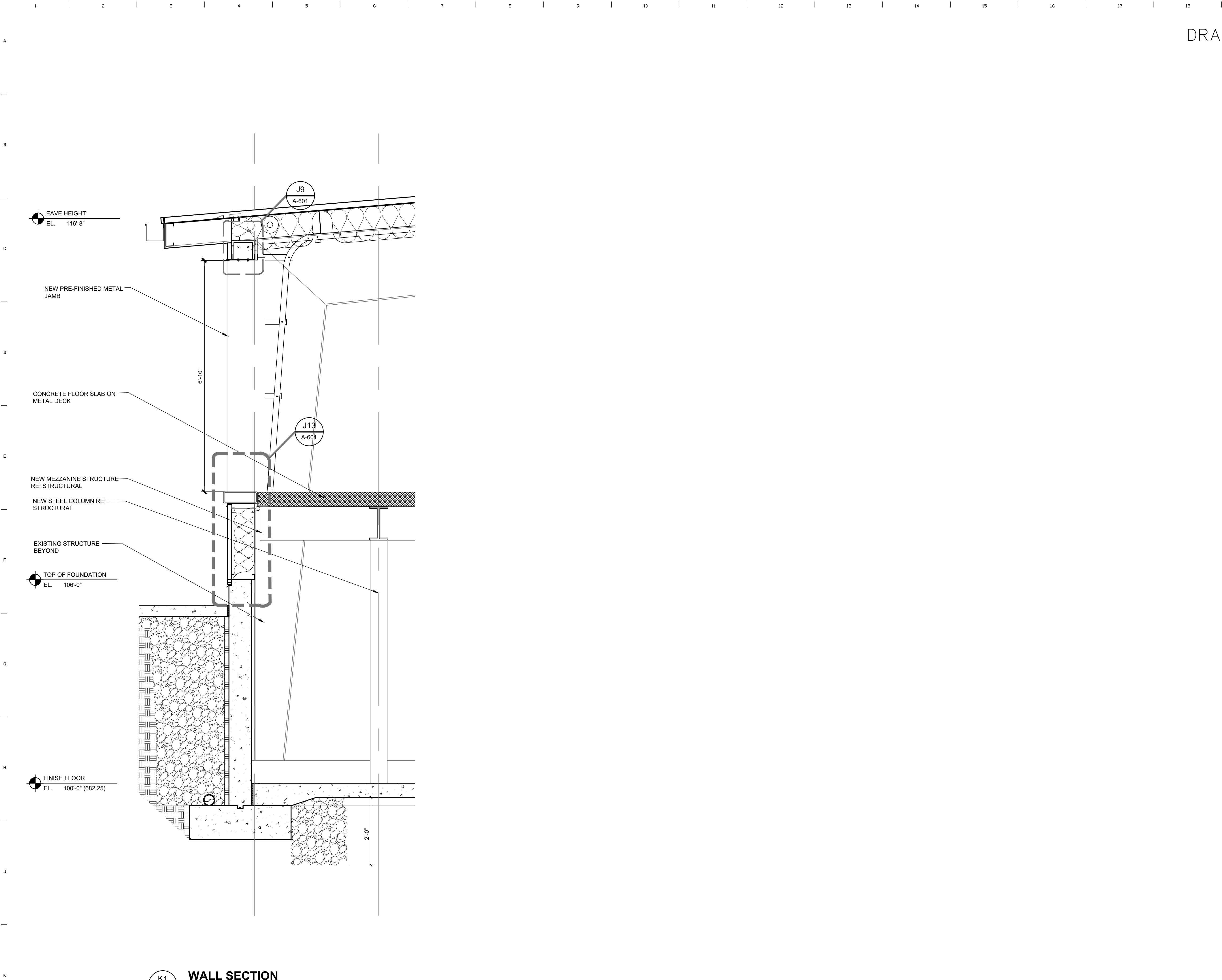
SHEET NUMBER:

A-301

17 OF 27 SHEETS

BID DOCUMENTS

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SITE # 6062
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REVISION: _____
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REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 03-26-2026

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DRAWN BY: _____
CHECKED BY: _____
DESIGNED BY: TAA

SHEET TITLE:
WALL SECTIONS

SHEET NUMBER:

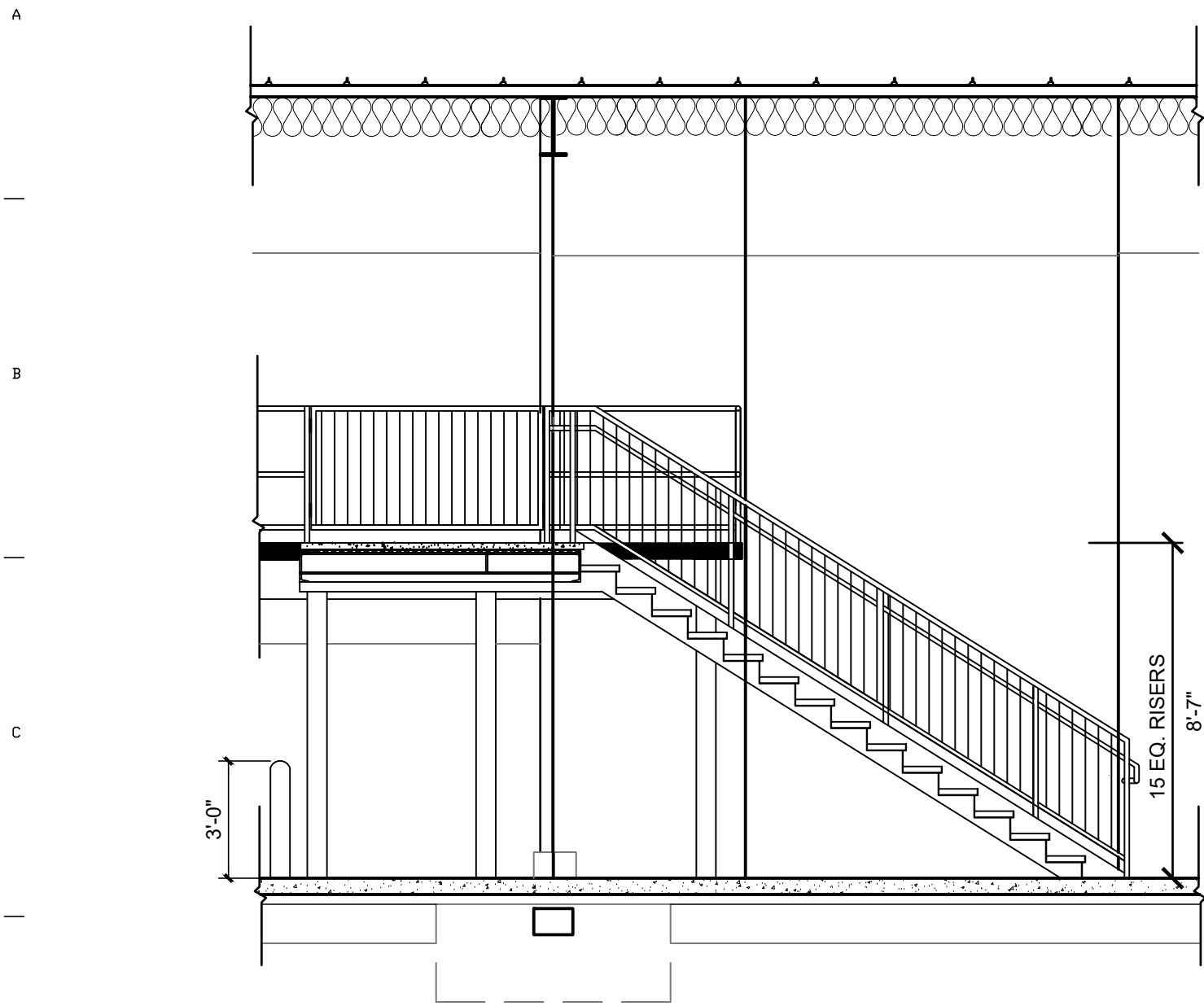
A-302

18 OF 27 SHEETS

BID DOCUMENTS

3-26-2026

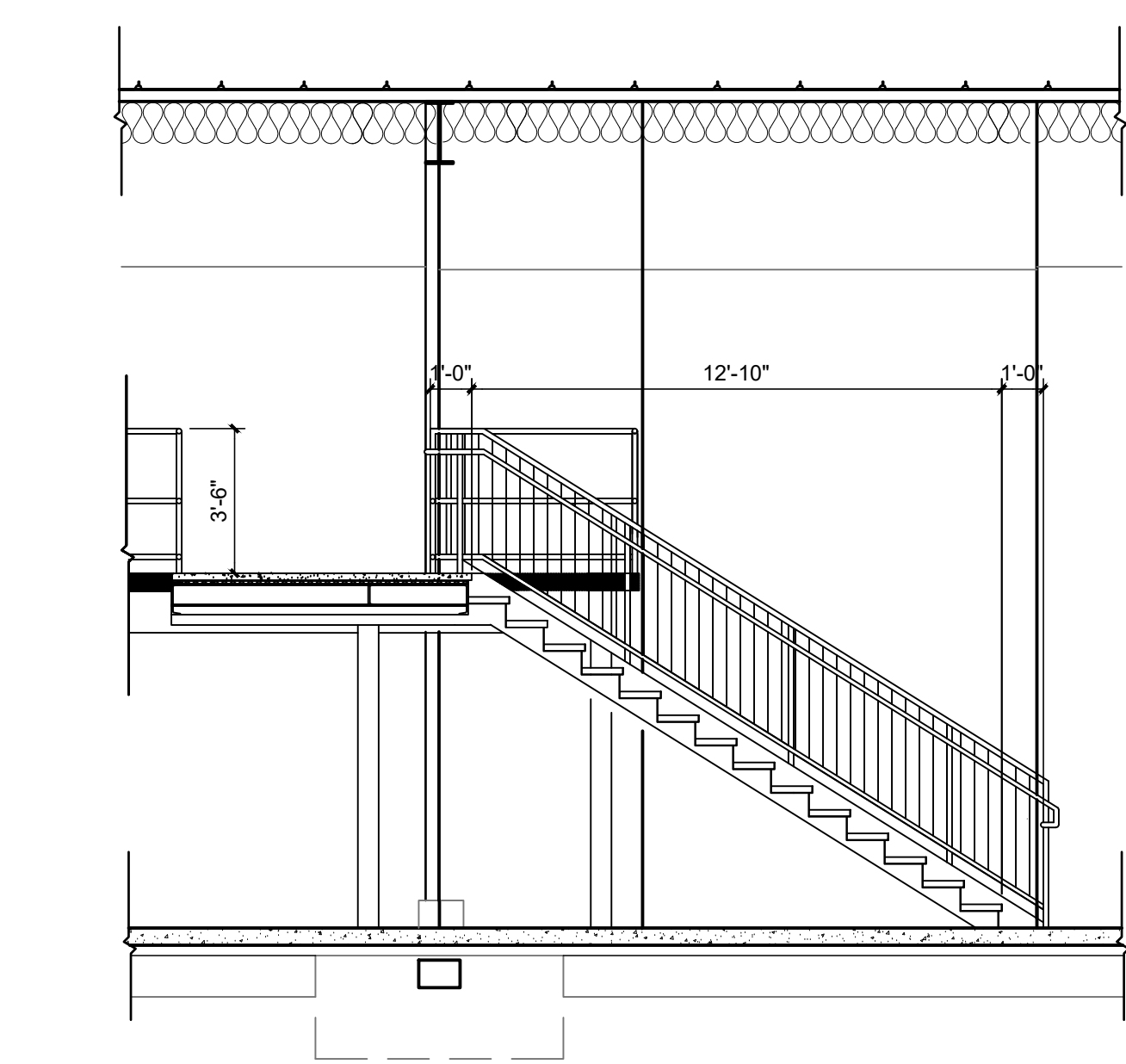
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D1
A-401

STAIR ELEVATION

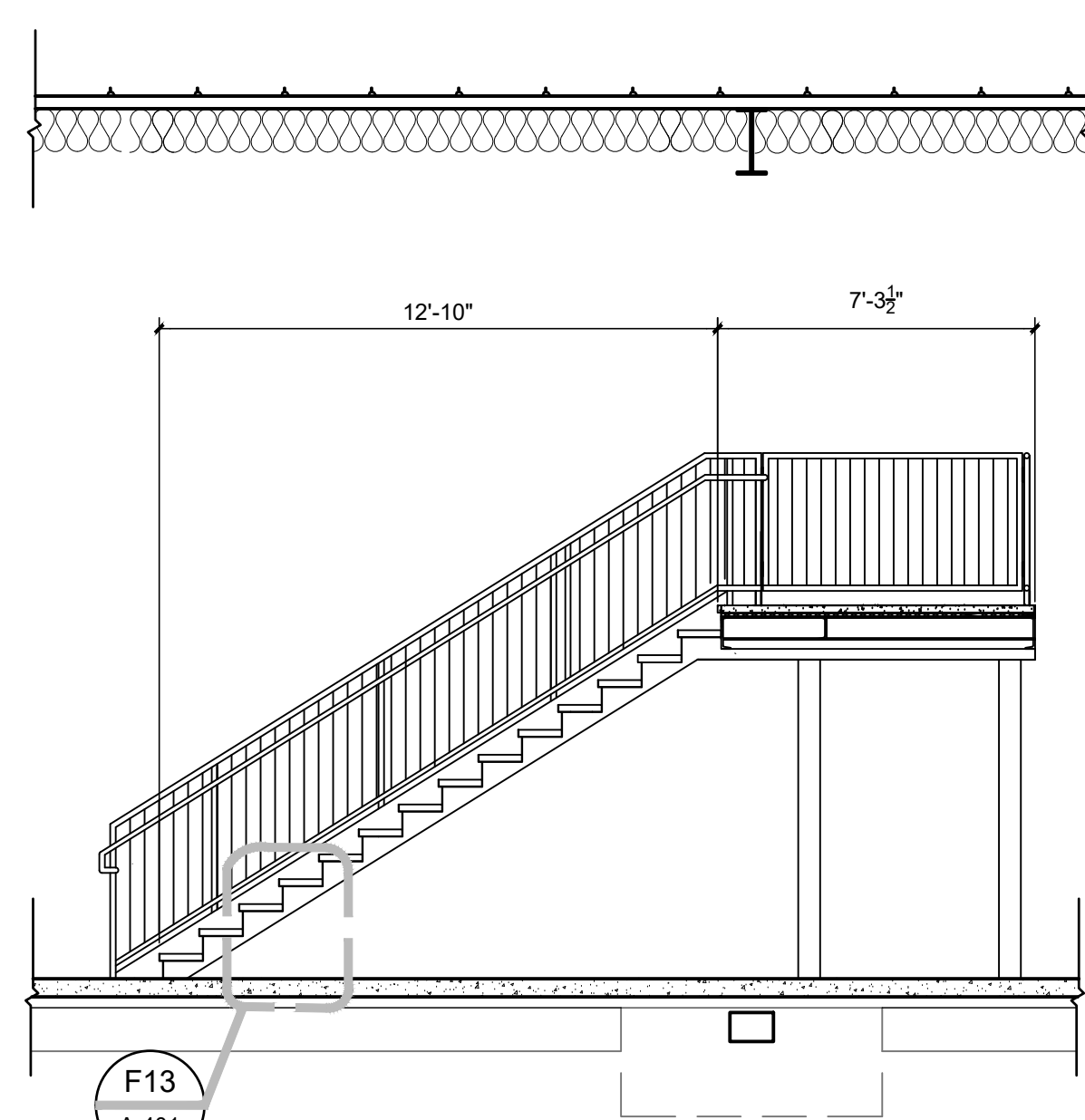
1/4" = 1'-0"



D7
A-401

STAIR SECTION

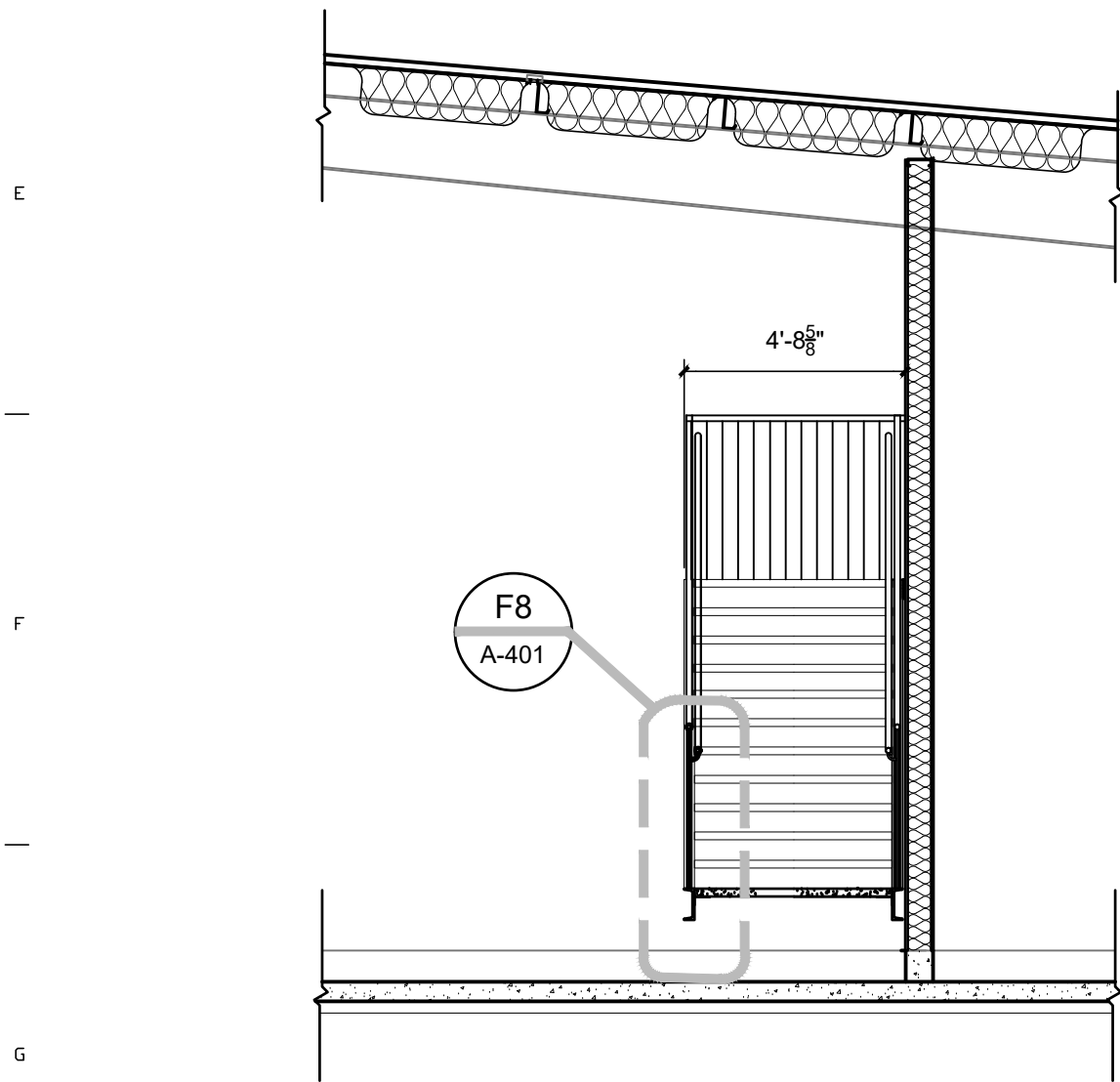
1/4" = 1'-0"



D12
A-401

STAIR SECTION

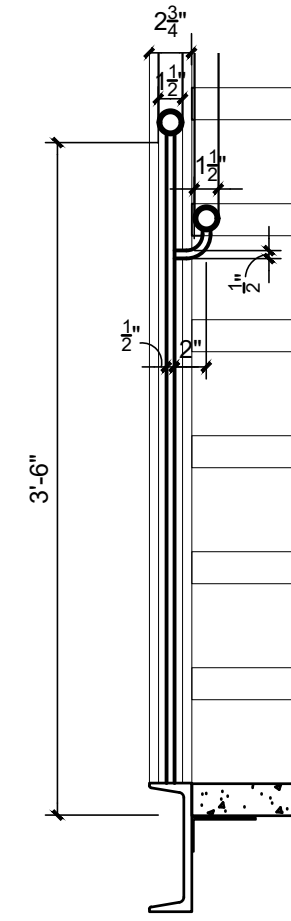
1/4" = 1'-0"



G1
A-401

STAIR SECTION

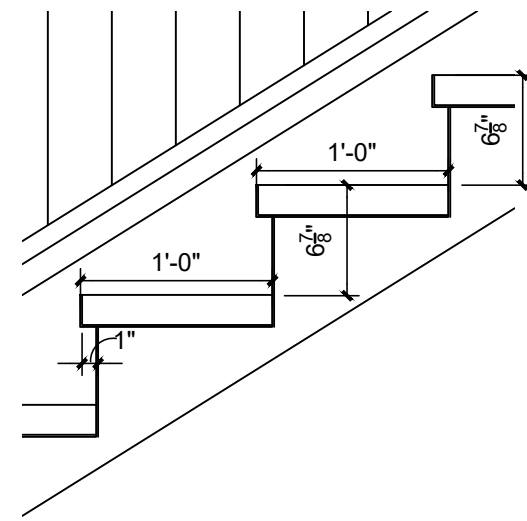
1/4" = 1'-0"



F8
A-401

RAILING DETAIL

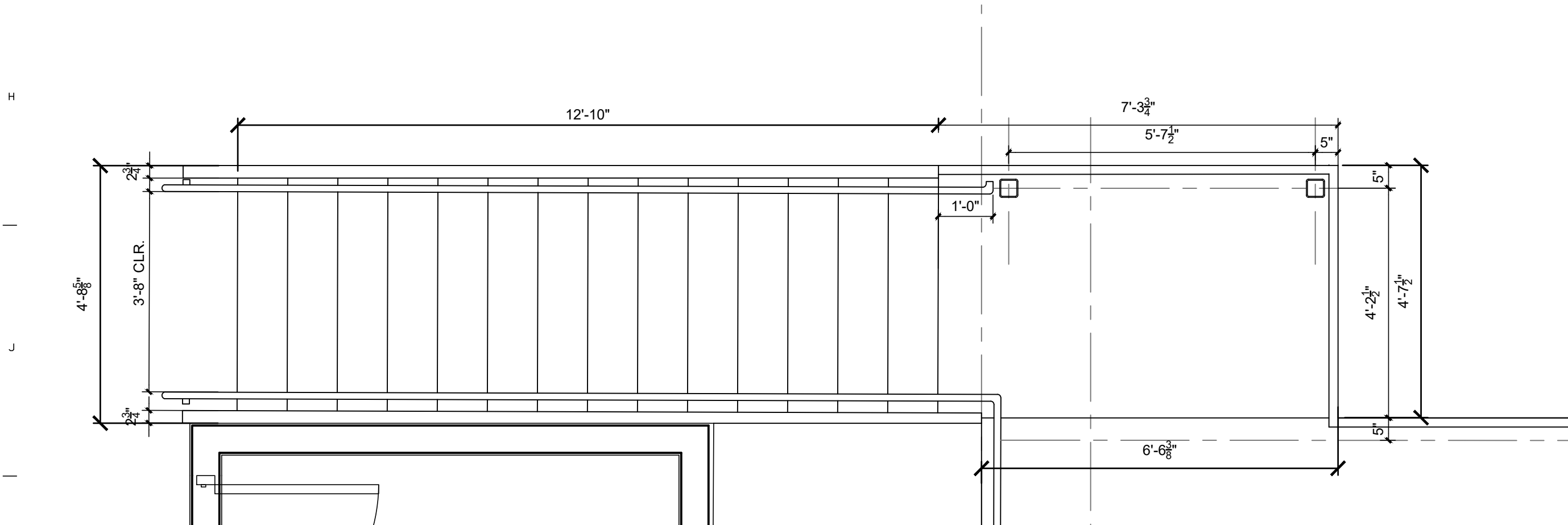
1/4" = 1'-0"



F13
A-401

STAIR DETAIL

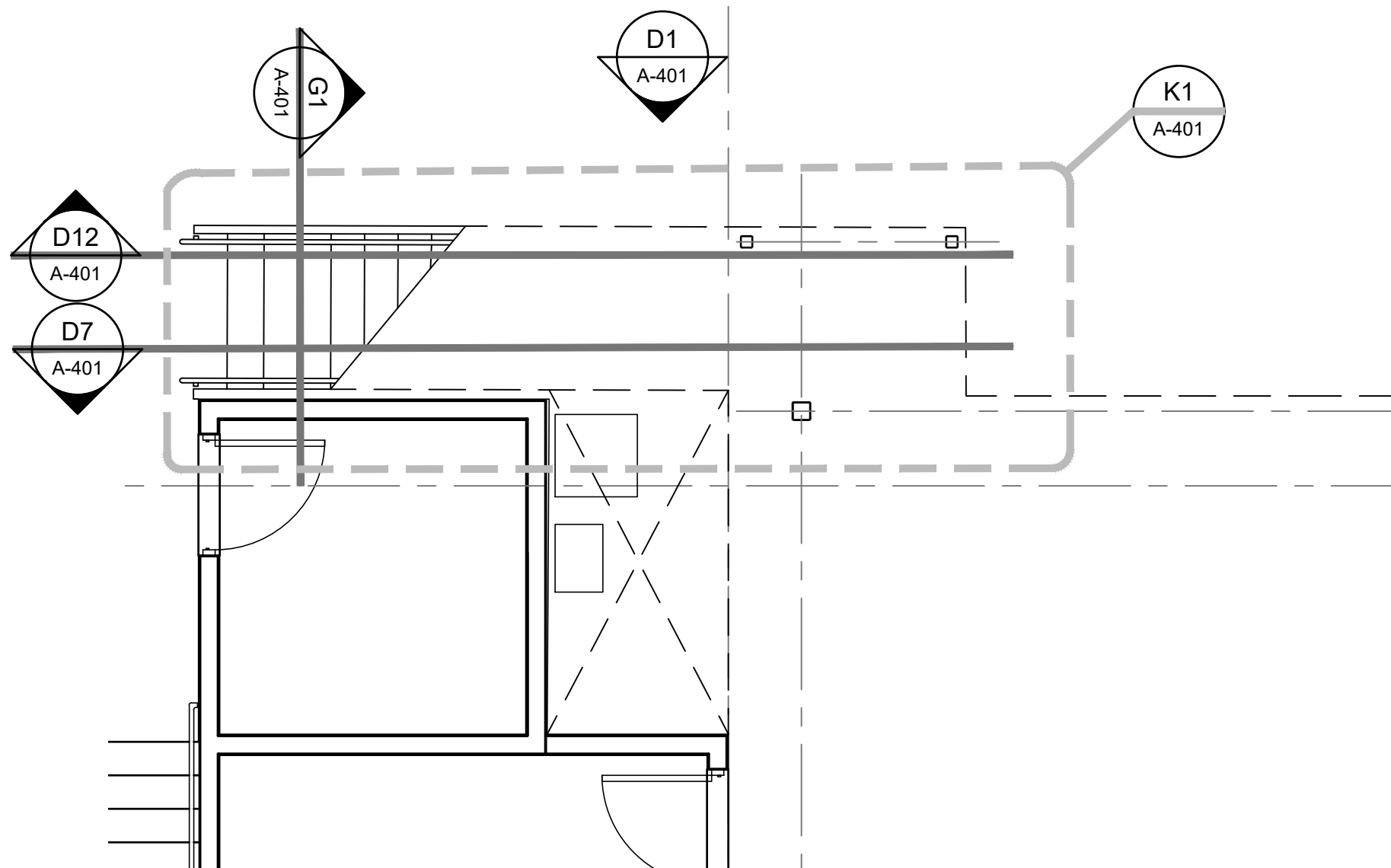
1/4" = 1'-0"



K1
A-401

STAIR PLAN

1/2" = 1'-0"



K11
A-401

MEZZANINE PLAN

1/4" = 1'-0"

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PROJECT # R2506-01
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ASSET # 8136062001

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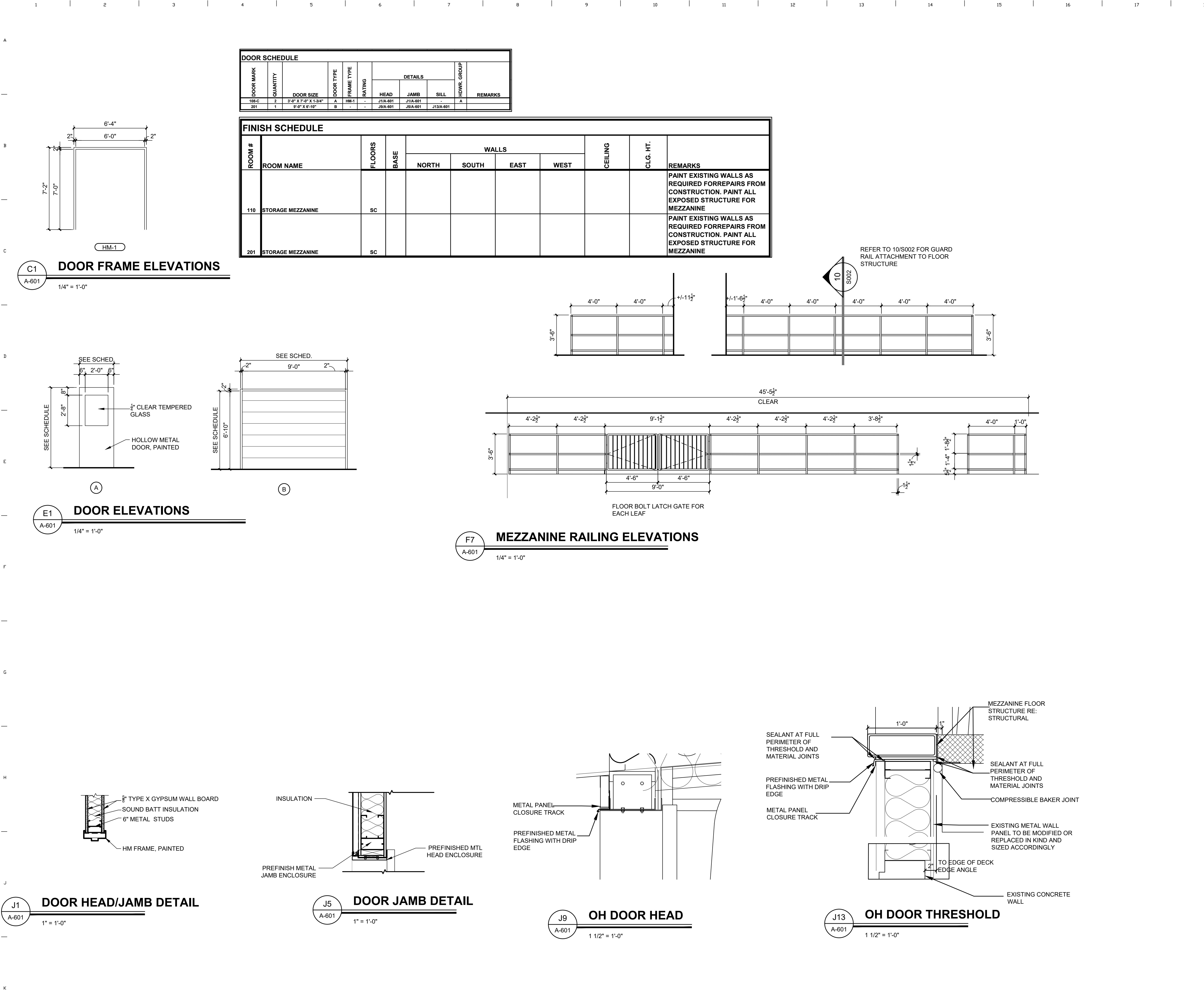
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DESIGNED BY: TAA

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SHEET NUMBER:

A-401

19 OF 27 SHEETS
3-26-2026



DRAWING NOTES:

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR



The Architects Alliance inc.
Jefferson City, Missouri
MISSOURI STATE
CERTIFICATE OF AUTHORITY
#000143
631 West Main Street
Jefferson City, Missouri 65101
(573)636-5000

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DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

MISSOURI STATE
HIGHWAY PATROL

GENERAL HEADQUARTERS
GARAGE RENOVATE INTERIOR
TO CREATE STORAGE
TROOP F HEADQUARTERS,
US HIGHWAY 50 AND
SHAMROCK ROAD,
JEFFERSON CITY, MO 65101

PROJECT # R2506-01
SITE # 6062
ASSET # 8136062001

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 03-26-2026

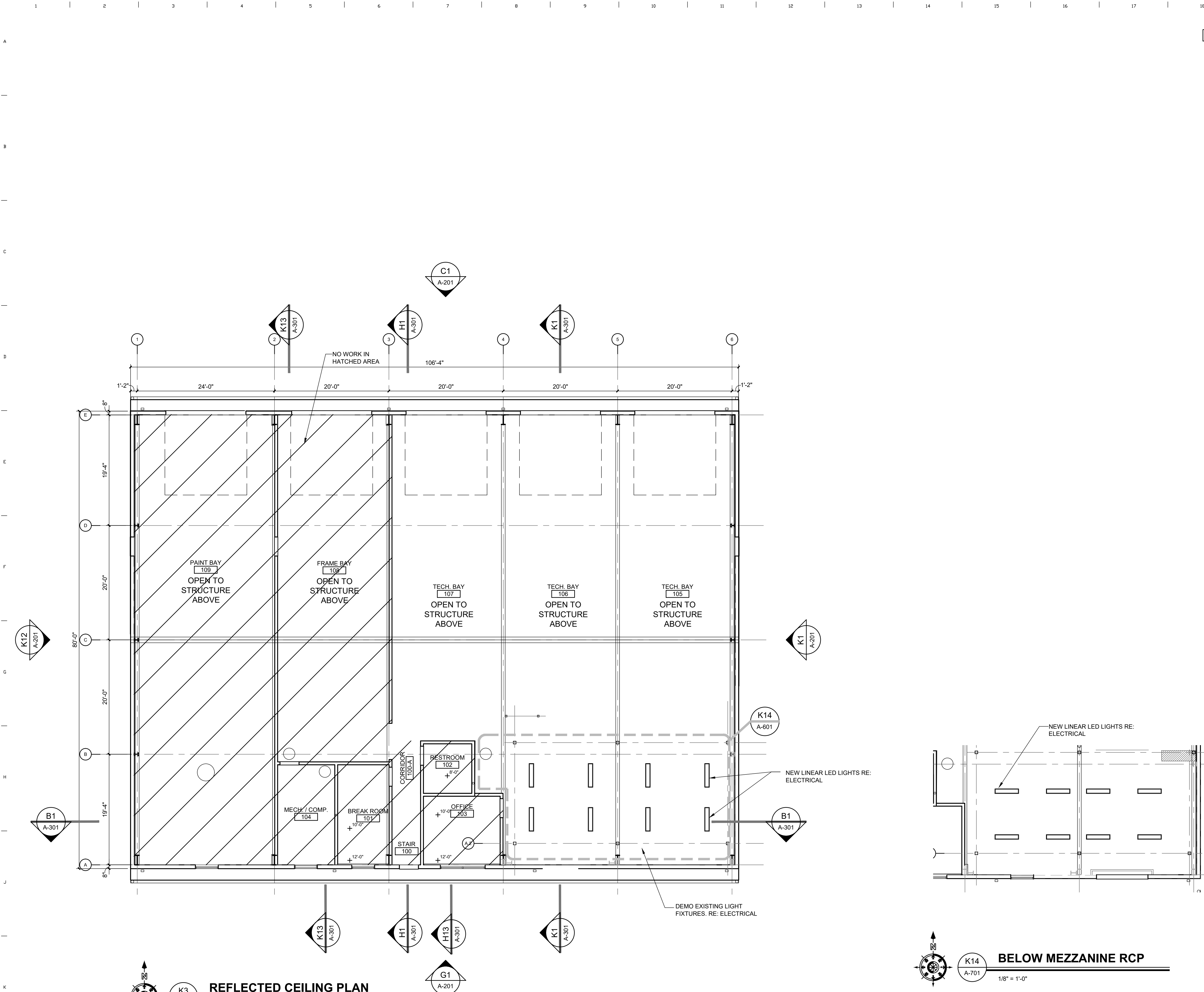
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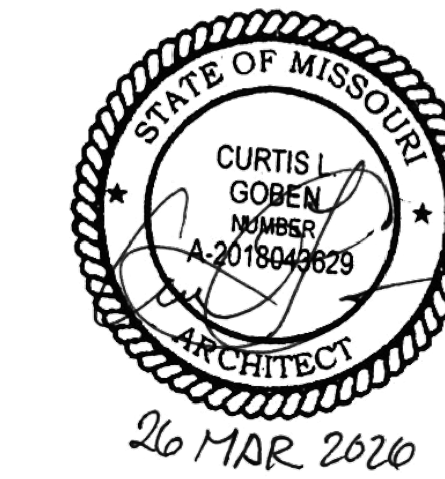
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20 OF 27 SHEETS



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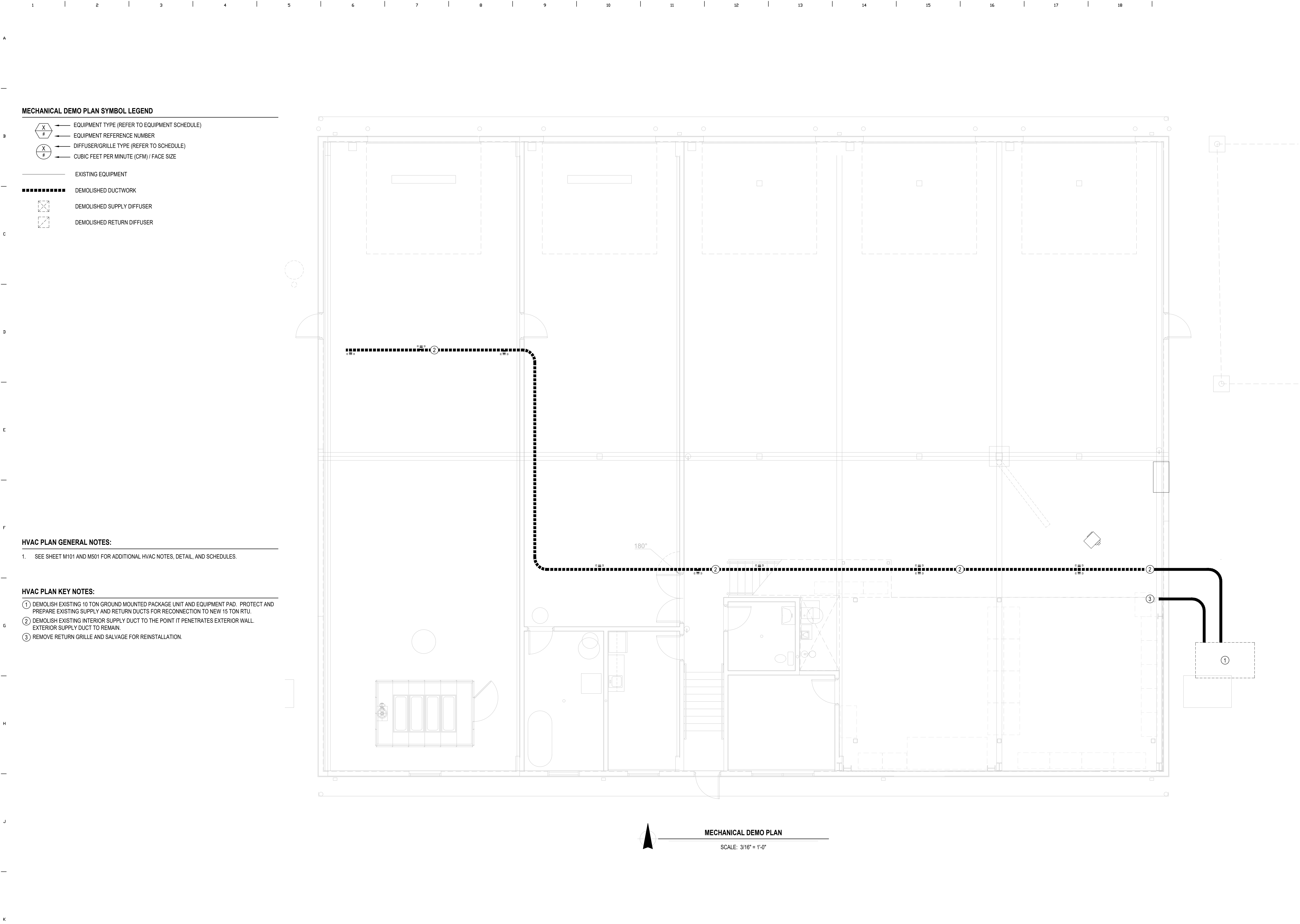
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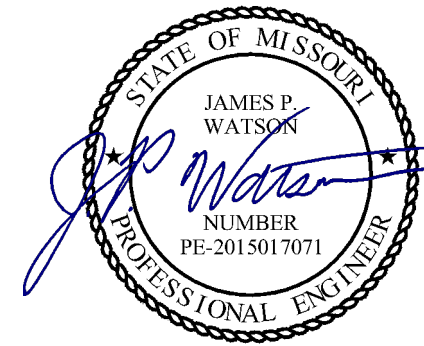
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3-26-2026



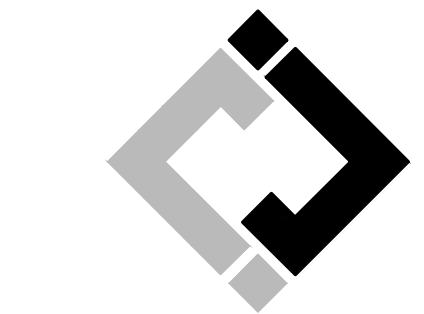
STATE OF MISSOURI
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James Watson, P.E. March 26, 2026
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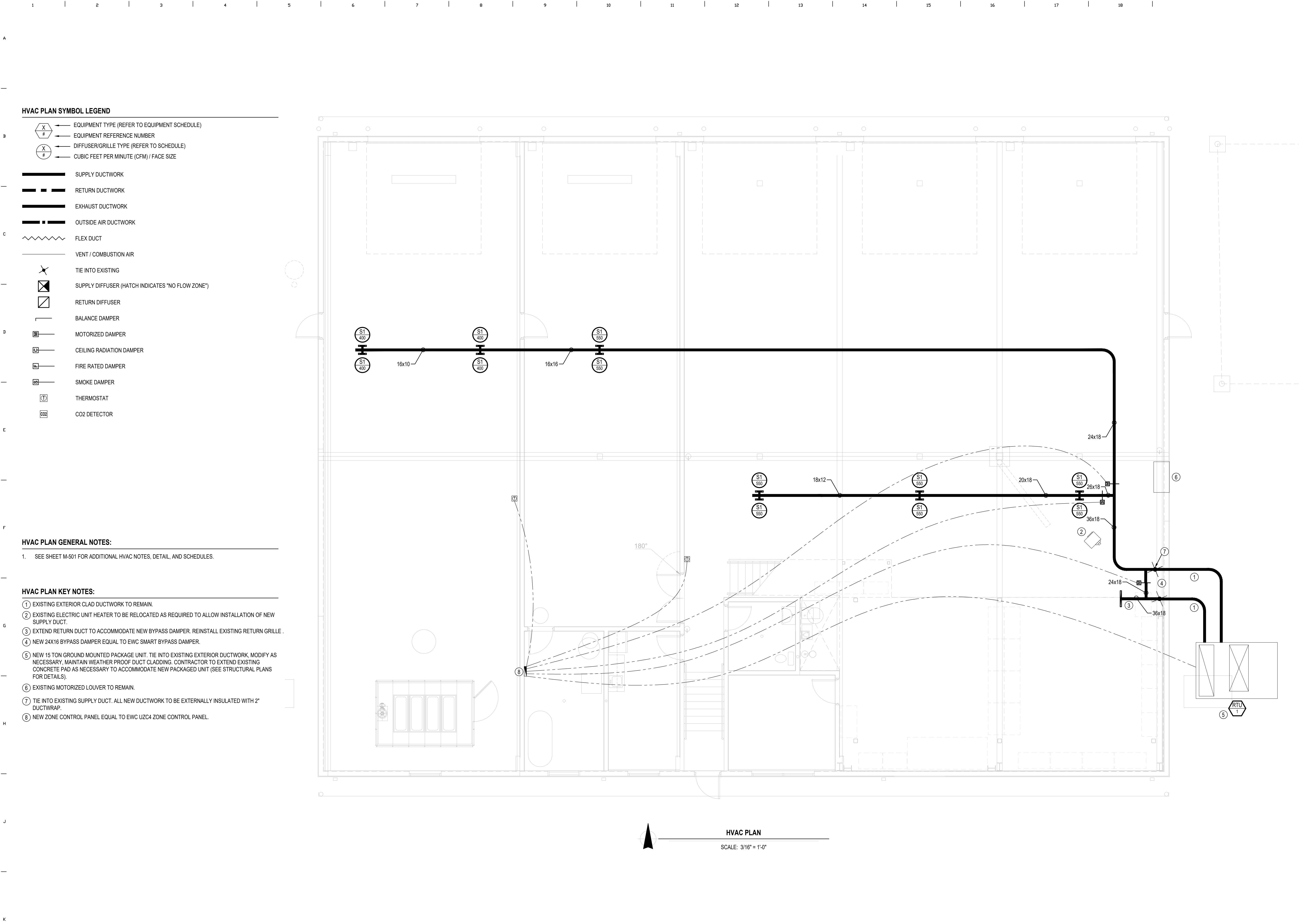
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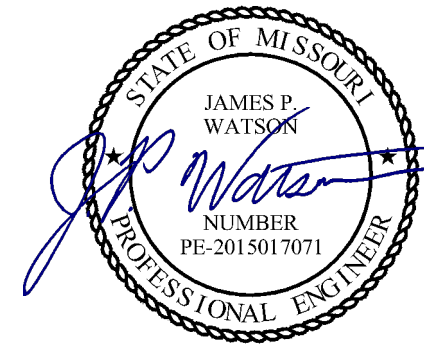
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22 OF 27 SHEETS

3-26-2026



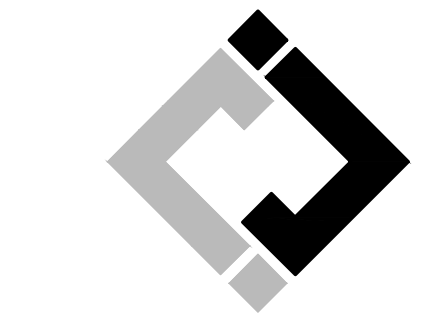
STATE OF MISSOURI
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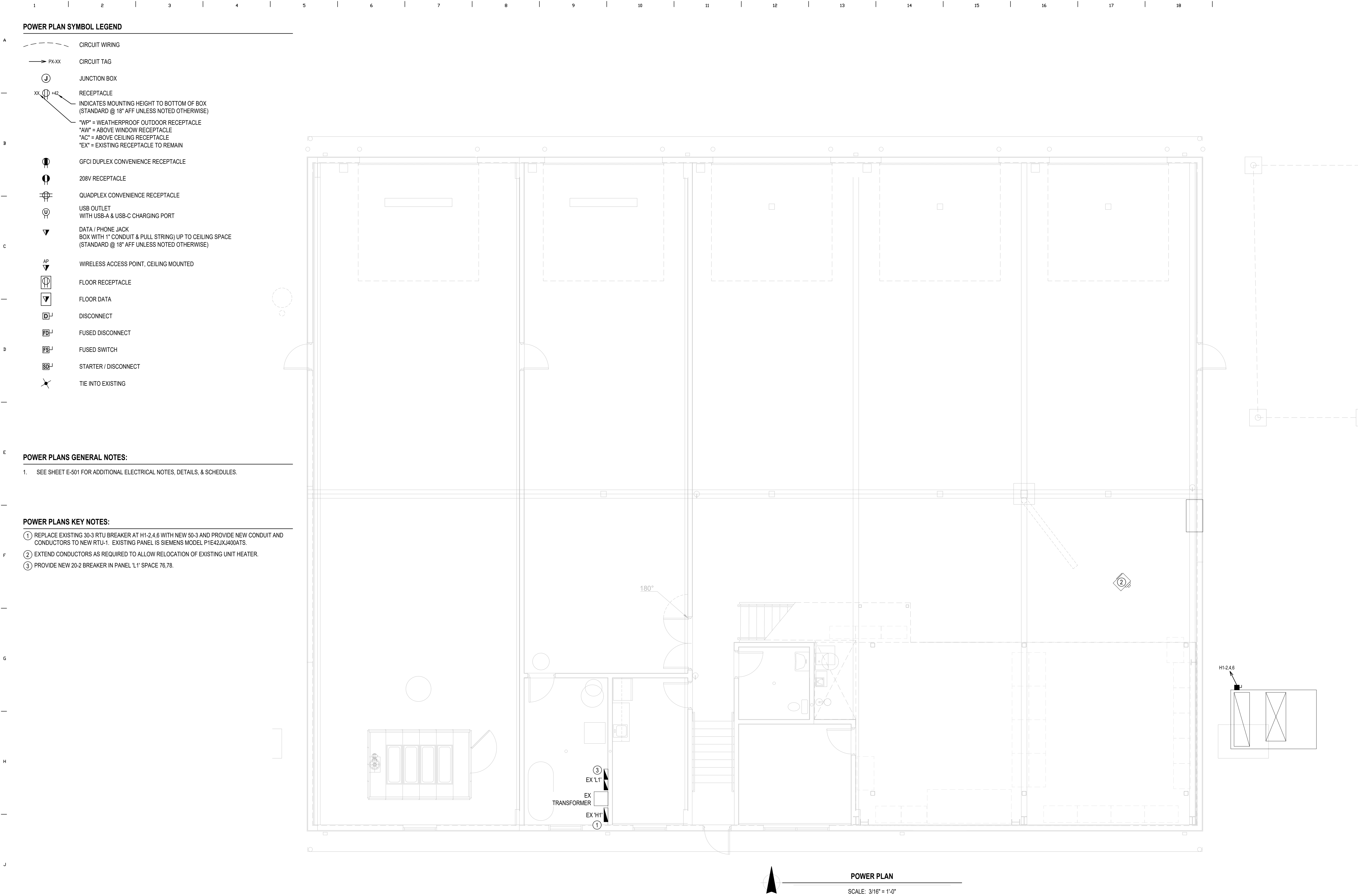
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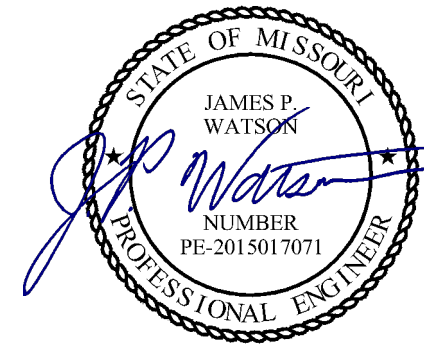
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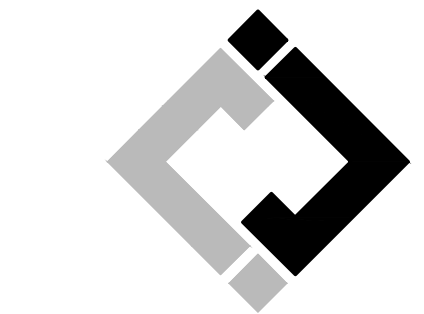
STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR



James Watson, P.E. March 26, 2026
PE-2015017071
MO Certificate of Authority # 2018029680



Missouri State Certificate of Authority
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MISSOURI STATE
HIGHWAY PATROL

GENERAL HEADQUARTERS
GARAGE RENOVATE INTERIOR
TO CREATE STORAGE
TROOP F HEADQUARTERS,
US HIGHWAY 50 AND
SHAMROCK ROAD,
JEFFERSON CITY, MO 65101

PROJECT # R2506-01
SITE # 6062
ASSET # 8136062001

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 03-26-2026

CAD DWG FILE: _____
DRAWN BY: _____
CHECKED BY: _____
DESIGNED BY: _____

SHEET TITLE:
POWER PLAN

SHEET TITLE:

E101

25 OF 27 SHEETS

3-26-2026



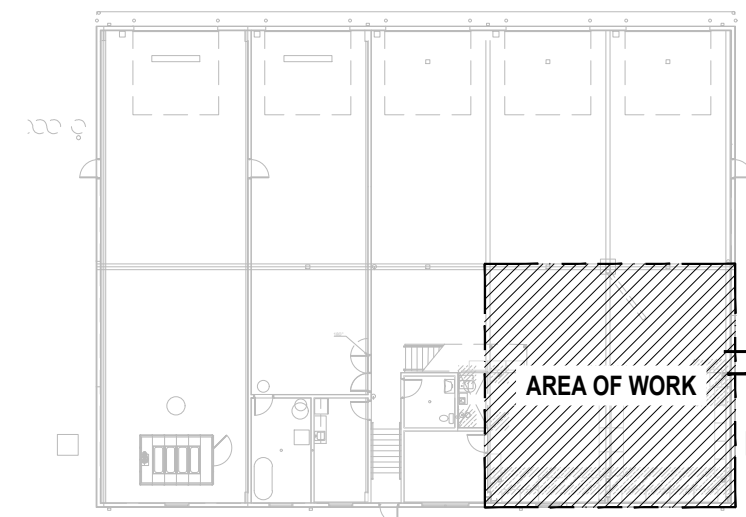
2400 Bluff Creek Drive, Suite 101
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HIGHWAY PATROL

CAD DWG FILE: _____
 DRAWN BY: _____
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E102

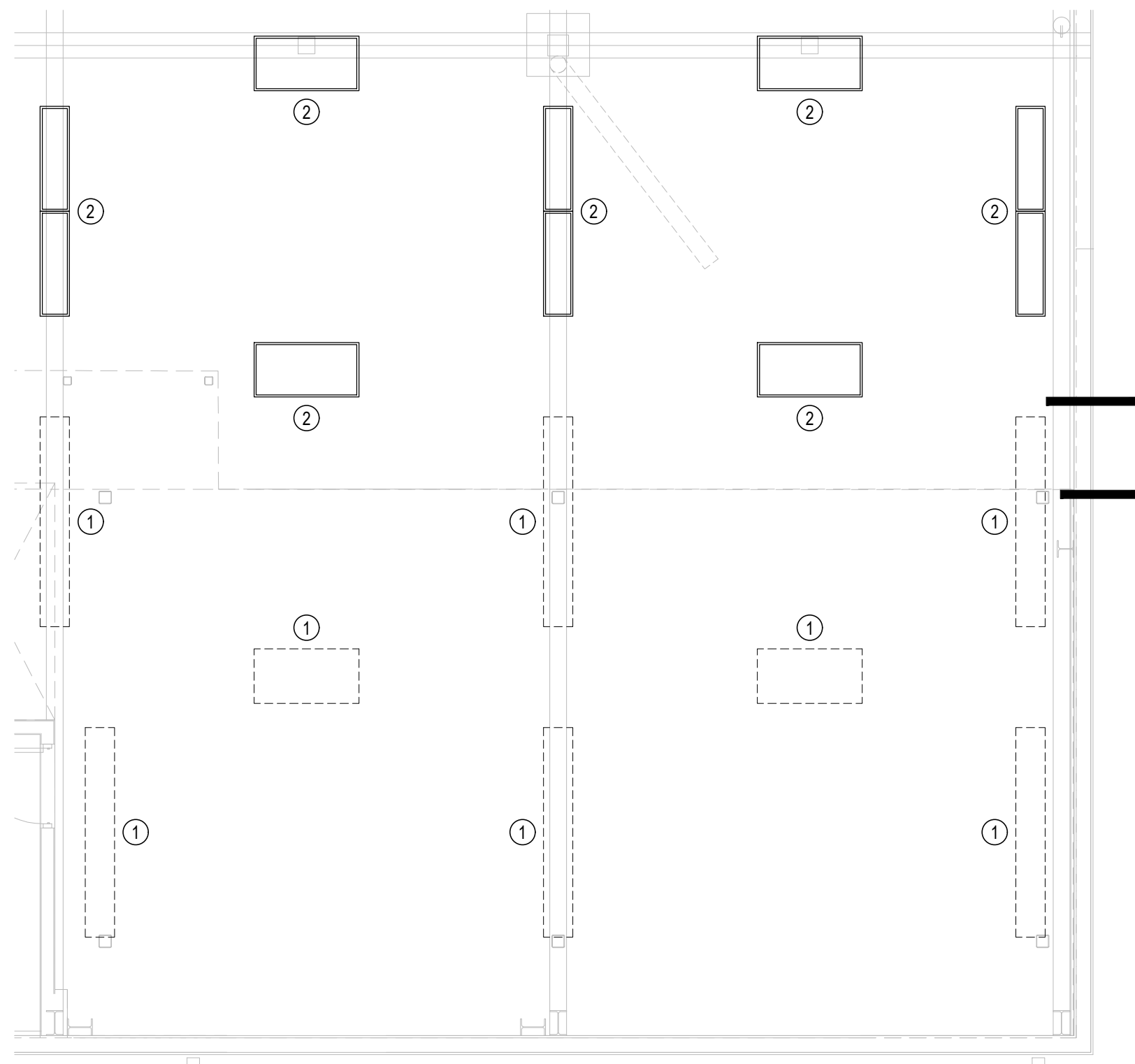
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KEY PLAN

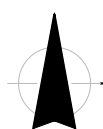
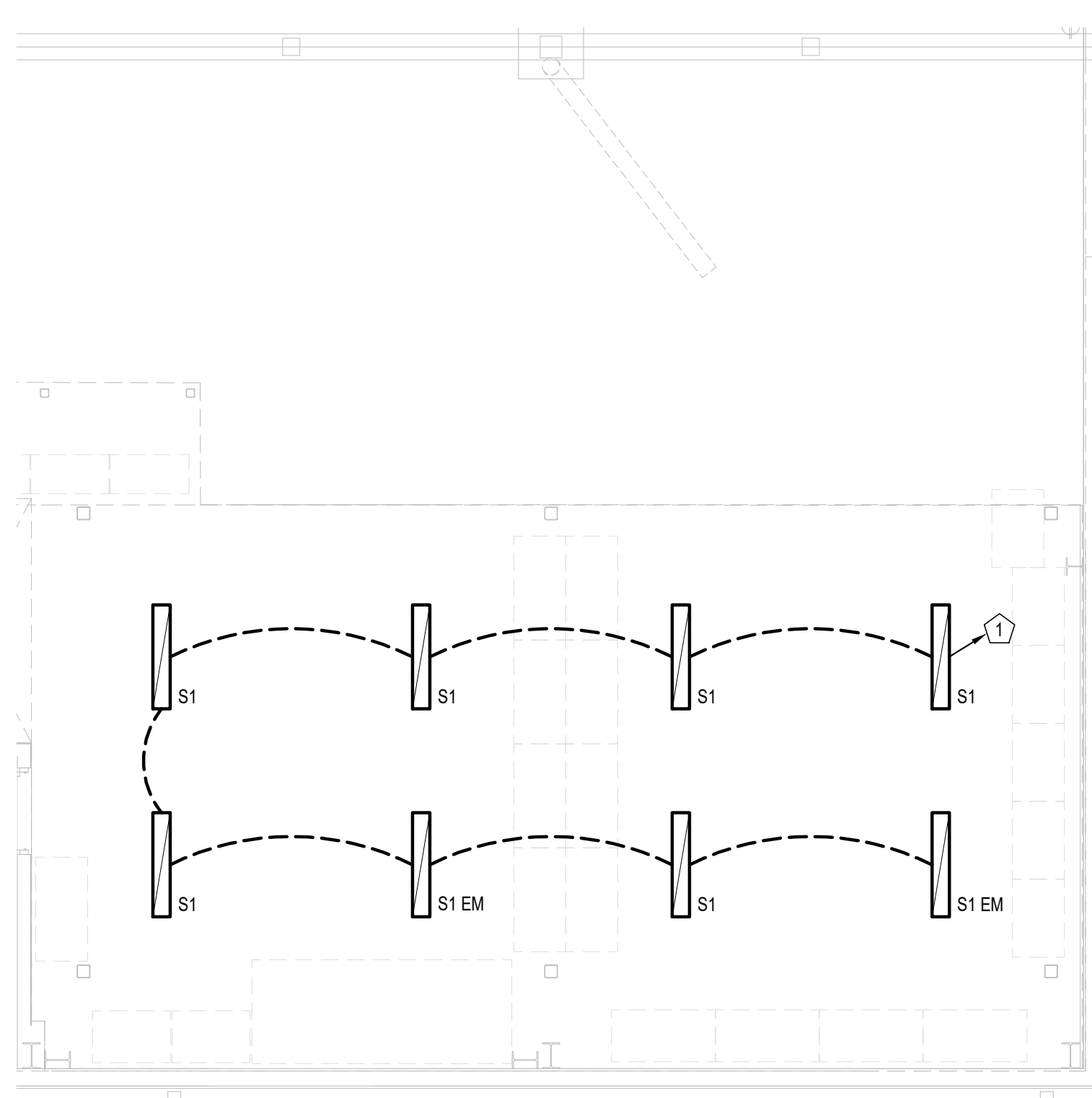
X1 ○ EM NL	← "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE) LIGHTING FIXTURE ← "EM" INDICATES EMERGENCY BATTERY BACKUP ← "NL" INDICATES UN-SWITCHED NIGHT LIGHT
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- ① REMOVE EXISTING FIXTURE AND RETURN TO OWNER.
- ② EXISTING LIGHT FIXTURE TO REMAIN.



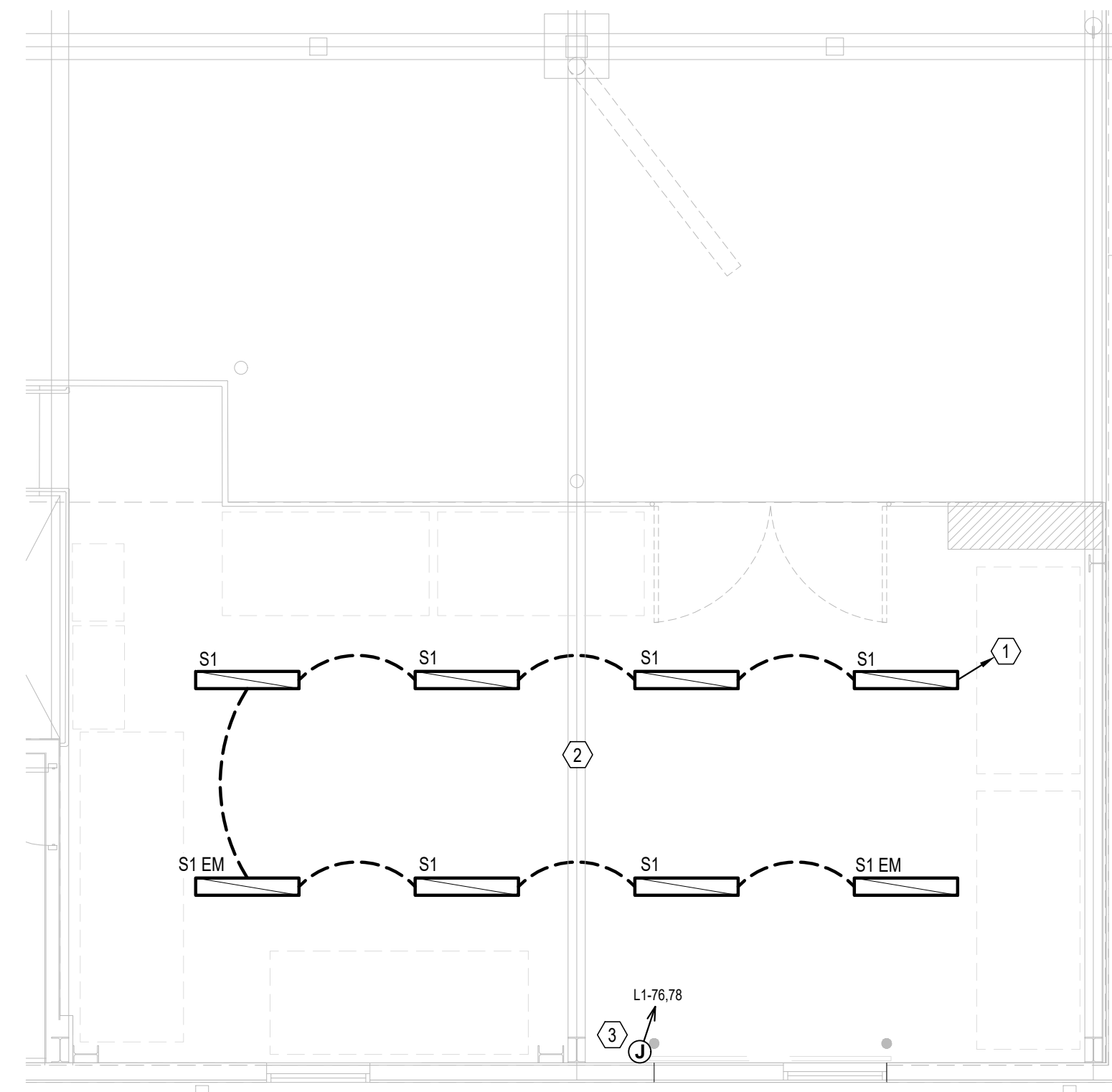
SCALE: 3/16" = 1'-0"

1 WIRE THRU NEW RELAY IN EXISTING LIGHTING CONTROL PANEL IN ELECTRICAL ROOM.



SCALE: 3/16" = 1'-0"

- ① WIRE THRU NEW RELAY IN EXISTING LIGHTING CONTROL PANEL IN ELECTRICAL ROOM.
- ② MOUNT NEW FIXTURES ABOVE MEZZANINE TO BOTTOM OF PURLINS.
- ③ COORDINATE EXACT LOCATION OF OVERHEAD DOOR OPERATOR WITH DOOR PROVIDER. PROVIDE WIRING OF PUSH BUTTON DOOR CONTROLLER AS REQUIRED.



SCALE: 3/16" = 1'-0"

ELECTRICAL SPECIFICATIONS

1. GENERAL

- 1.1. CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL NECESSARY PIECES AND COMPONENTS TO PROVIDE A COMPLETE AND COMPLIANT ELECTRICAL SYSTEM UNLESS OTHERWISE NOTED ON PLANS.
- 1.2. THE ENTIRE ELECTRICAL SYSTEM SHALL BE CONTINUOUSLY GROUNDED. EVERY BRANCH CIRCUIT SHALL INCLUDE A GREEN GROUND CONDUCTOR SIZED PER NEC.
- 1.3. ARC-FAULT CIRCUITS SHALL BE RUN WITH A DEDICATED NEUTRAL AS REQUIRED BY MANUFACTURER
- 1.4. PROVIDE PERMANENT ARC-FLASH LABEL AFFIXED TO EVERY DISCONNECT AND PANEL.
- 1.5. PROVIDE TYPE WRITTEN PANEL SCHEDULE FOR EACH PANEL.

2. WORKMANSHIP

- 2.1. ALL ELECTRICAL SYSTEM COMPONENTS SHALL BE INSTALLED LEVEL, PLUMB, AND PARALLEL/PERPENDICULAR TO BUILDING ORIENTATION WHERE POSSIBLE.
- 2.2. ALL ELECTRICAL DEVICES AND LIGHT FIXTURES SHALL BE INSTALLED IN A SAFE, FIRST-CLASS MANNER WITH ATTENTION GIVEN TO OVERALL AESTHETICS. CARE SHOULD BE TAKEN TO ALLOW FOR FUTURE REPLACEMENT AND ACCESS FOR SERVICE.

3. MATERIALS

- 3.1. CONDUIT & CONDUCTORS
- 3.1.1. ALL CONDUCTORS SIZES INDICATED ARE COPPER UNLESS NOTED OTHERWISE ON PLANS.
- 3.1.2. ABOVE GRADE CONDUCTORS SHALL BE TYPE THHN.
- 3.1.3. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG UNLESS NOTED OTHERWISE. 120-VOLT, 20-AMP CIRCUITS WITH CONDUCTOR LENGTHS GREATER THAN 100' SHALL BE #10 AWG MINIMUM. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR MEASURING ACTUAL CONDUCTOR LENGTH AND INCREASING CONDUCTOR SIZE TO COMPENSATE FOR VOLTAGE DROP AS REQUIRED BY NEC.
- 3.1.4. IN APPLICATIONS OTHER THAN THOSE LISTED IN 3.1.4, EMT OR MC CABLE IS ACCEPTABLE. WHERE CONDUCTORS ARE PROTECTED FROM DAMAGE, ENCLOSED IN BUILDING MATERIALS, AND CONSTRUCTION IS OF A PERMITTED TYPE, NM CABLE MAY BE USED.
- 3.1.5. EXPOSED CONDUIT SHALL BE PAINTED TO MATCH ADJACENT SURFACES. VERIFY COLOR WITH ARCHITECT/OWNER.
- 3.2. DEVICES
- 3.2.1. CONTRACTOR TO PROVIDE J-BOXES, COVER PLATES, AND ANY ACCESSORIES REQUIRED TO PROVIDE A COMPLETE SYSTEM. SEE ARCHITECTURAL PLANS FOR DEVICE COLORS.
- 3.2.1. DUPLEX RECEPTACLES SHALL BE TAMPER RESISTANT, 20-AMP, EQUAL TO LEVITON #BTR-20.
- 3.2.2. DO NOT INSTALL OCCUPANCY/VACANCY SENSORS WITHIN 48" OF HVAC DIFFUSERS/GRILLES OR SIMILAR OBSTRUCTION THAT MAY AFFECT SENSOR FUNCTIONALITY. ALL SENSORS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
- 3.2.3. ALL APPLICABLE SWITCHES, RECEPTACLES, CONTROLS, ETC. SHALL BE MOUNTED AT ADA-ACCESSIBLE HEIGHTS.
- 3.2.4. WIRING DEVICES SHOWN ON PLANS NEXT TO ONE ANOTHER SHALL UTILIZE A SINGLE COVER PLATE UNLESS NOTED OTHERWISE.
- 3.2.5. WIRING DEVICES SHOWN BACK-TO-BACK ON EACH SIDE OF A WALL SHALL BE OFFSET TO REDUCE SOUND TRANSMISSION.
- 3.2.6. EACH RECEPTACLE COVER SHALL BE NEATLY AND LEGIBLY LABELED WITH CORRESPONDING PANEL AND CIRCUIT NUMBER FOR CIRCUIT IDENTIFICATION.

4. EMERGENCY LIGHTING

- 4.1. BRANCH CIRCUIT FEEDING EMERGENCY FIXTURE(S) SHALL BE SAME BRANCH CIRCUIT AS THAT SERVING NORMAL LIGHTING IN SAME AREA AND CONNECTED AHEAD OF ANY LOCAL SWITCHES.
- 4.2. EMERGENCY LIGHTING SYSTEM SHALL PROVIDE 1FC AVERAGE AND 0.1FC MINIMUM ALONG EGRESS PATHS. ADJUST ANY EMERGENCY FIXTURES AS NECESSARY TO PROVIDE PROPER ILLUMINATION WITHOUT OBSTRUCTION FROM FURNITURE OR OBSTACLES.

LIGHT FIXTURE SCHEDULE

[illegible]

NOTES:

1. VERIFY LIGHT FIXTURE FINISHES WITH OWNER / ARCHITECT PRIOR TO INSTALLATION.
2. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR CEILING TYPES THROUGHOUT. COORDINATE EXACT MOUNTING DETAILS WITH GENERAL CONTRACTOR.

BRANCH CIRCUIT CONDUCTOR SCHEDULE

AMPACITY	COPPER AWG SIZE	MAXIMUM DISTANCE (FEET)				MINIMUM CONDUIT SIZE
		1Ø		3Ø		
		120V	277V	208V	480V	
20	12	55'	130'	115'	260'	1/2"
	10	90'	205'	180'	415'	3/4"
30	10	60'	135'	120'	275'	3/4"
	8	95'	220'	190'	445'	1"
35	8	80'	190'	165'	380'	1"
	6	130'	300'	260'	605'	1"
40	8	70'	165'	145'	330'	1"
	6	110'	260'	225'	525'	1"
45	6	100'	235'	200'	470'	1"
	4	160'	370'	325'	750'	1-1/4"
50	6	90'	210'	180'	420'	1-1/4"
	4	145'	335'	290'	675'	1-1/4"
60	6	75'	175'	150'	350'	1-1/4"
	4	120'	280'	240'	560'	1-1/4"
70	4	105'	240'	205'	480'	1-1/4"
	3	130'	300'	260'	605'	1-1/4"
80	4	55'	210'	180'	420'	1-1/4"
	3	90'	260'	230'	530'	1-1/4"
90	3	105'	245'	210'	490'	1-1/4"
	2	130'	300'	260'	600'	1-1/4"
100	2	115'	270'	235'	540'	1-1/4"
	1	140'	330'	285'	660'	1-1/4"

NOTES:

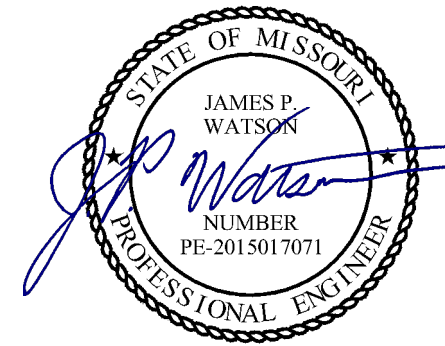
1. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE COPPER. ALL WIRE SIZES SHOWN ARE BASED ON CONDUCTOR TEMPERATURE RATING OF 60°C & AMBIENT TEMPERATURE OF 30°C PER NEC.
2. DISTANCE SHOWN ABOVE IS LENGTH FROM OVERCURRENT PROTECTION TO DEVICE/EQUIPMENT.
3. REFER TO PLAN SHEETS FOR BRANCH CONDUCTOR SIZING LENGTHS GREATER THAN SHOWN ABOVE.
4. VOLTAGE DROP CALCULATIONS BASED ON 3% DROP, 80% CIRCUIT LOAD, THHN/THWN INSULATION, 100% POWER FACTOR, BALANCED LOAD, NEGLIGIBLE REACTANCE, & SIX OR LESS CURRENT-CARRYING CONDUCTORS IN RACEWAY.

EXISTING PANEL 'H1' SCHEDULE

PANEL SPECIFICATIONS								TOTAL CONNECTED LOAD	
VOLTAGE: 277/480V 3-PH		NEMA RATING: 1						PHASE "A" LOAD: 363 AMPS	
AMPA CITY: 400A MCB		PANEL MOUNTING: SURFACE						PHASE "B" LOAD: 350 AMPS	
AIC-RATING: 22KA								PHASE "C" LOAD: 352 AMPS	
CIRCUIT NUMBER	DESCRIPTION	BREA KER SIZE	AMPS	PHASE	AMPS	BREA KER SIZE	DESCRIPTION	CIRCUIT NUMBER	
1	LIGHTING	20-1	14	A	30	50-3	RTU-1	2	
3	LIGHTING	20-1	11	B	30	-	-	4	
5	LIGHTING	20-1	13	C	30	-	-	6	
7	LIGHTING	20-1	10	A	24	35-3	EUH-1	8	
9	EFU-1	25-1	19	B	24	-	-	10	
11	-	-	19	C	24	-	-	12	
13	-	-	19	A	24	35-3	EUH-2	14	
15	AIR COMPRESSOR	70-3	56	B	24	-	-	16	
17	-	-	56	C	24	-	-	18	
19	-	-	56	A	12	20-3	EUH-3	20	
21	SPARE	20-1		B	12	-	-	22	
23	SPARE	20-1		C	12	-	-	24	
25	SPARE	20-1		A	24	35-3	EUH-4	26	
27	SPARE	20-1		B	24	-	-	28	
29	SPARE	20-1		C	24	-	-	30	
31	SPARE	20-1		A	8	35-3	CU-1	32	
33	SPARE	20-1		B	8	-	-	34	
35	SPARE	20-1		C	8	-	-	36	
37	SPARE	20-1		A	142	175-3	PANEL L1 VIA TRANSFORMER	38	
39	SPARE	20-1		B	142	-	-	40	
41	SPARE	20-1		C	142	-	-	42	

NOTES:

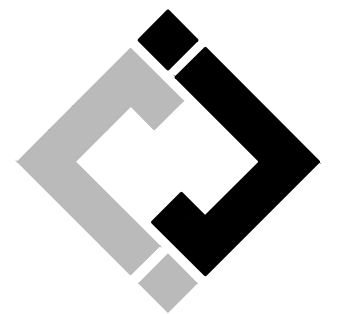
- A: ELECTRICIAN SHALL VERIFY EXACT EQUIPMENT OVERCURRENT PROTECTION REQUIREMENTS PRIOR TO PURCHASE & INSTALLATION OF EQUIPMENT.
B: AFTER COMPLETION OF WORK, ELECTRICIAN SHALL PROVIDE A TYPE WRITTEN PANEL DIRECTORY IN NEW PANEL.
C: EXISTING BREAKERS SHOWN IN *ITALICS*, NEW BREAKERS SHOWN IN **BOLD**.



James Watson, P.E. March 26, 2026
PE-2015017071
MO Certificate of Authority # 2018029680



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JEFFERSON CITY, MO 65101**

PROJECT #	R2506-01
SITE #	6062
ASSET #	8136062001

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 03-26-2026

CAD DWG FILE: _____
 DRAWN BY: _____
 CHECKED BY: _____
 DESIGNED BY: _____

SHEET TITLE:

ELECTRICAL DETAILS & SCHEDULES

SHEET TITLE:

E501

27 OF 27 SHEETS