BOB SIGHT FORD ADDITION

610 NW BLUE PARKWAY
LEE'S SUMMIT, MO

GENERAL NOTES

1 ALL CONSTRUCTION AND INSTALLATIONS SHALL MEET THE REQUIREMENTS OF APPLICABLE CODES AND ORDINANCES

2 CONTRACTOR AND SUBCONTRACTORS TO FIELD VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO FABRICATIONS AND INSTALLATIONS

3 ALL MATERIAL SHALL BE NEW AND UNUSED UNLESS INDICATED OTHERWISE; CONSTRUCTION, INSTALLATIONS, FIT, AND FINISHES SHALL EXHIBIT FIRST CLASS WORKMANSHIP

4 DRAWINGS INDICATE DESIGN INTENT ONLY: OPERATIONS, METHODS, AND INSTALLATIONS SOLE RESPONSIBILITY OF GENERAL AND SUB CONTRACTORS

5 UNLESS NOTED OR INDICATED OTHERWISE DIMENSIONS ARE TO FACE OF FINISHED WALLS AND OTHER VERTICAL ELEMENTS

6 SUBCONTRACTORS SHALL VISIT PROJECT SITE, ACQUAINT THEMSELVES WITH AND VERIFY EXISTING CONDITIONS PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK - NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES DISCOVERED

7 DO NOT SCALE DRAWINGS - PERFORM LAYOUTS FROM DIMENSIONS ONLY - NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES DISCOVERED

8 UNLESS INDICATED OTHERWISE, NEW WALL CONSTRUCTION NOT SPECIFICALLY DIMENSIONED ALIGNS WITH EXISTING CONSTRUCTION

9 EACH TRADE RESPONSIBLE FOR PROTECTING EXISTING WORK IN PLACE FROM DAMAGE AND RESPONSIBLE FOR REPAIRING TO ORIGINAL CONDITION ANY AFFECTED MATERIALS AND/OR INSTALLATIONS INCLUDING EXISTING LANDSCAPING

10 SUBCONTRACTORS SHALL COORDINATE THEIR WORK WITH THAT OF OTHER TRADES

11 SUBCONTRACTORS SHALL REMOVE DAILY FROM PREMISES TRASH, WASTE, AND DEBRIS GENERATED FROM THEIR WORK

12 ALL WORK SHALL CONFORM WITH LATEST PUBLISHED SAFETY STANDARDS AS ESTABLISHED BY OSHA AND ANSI

13 PROCEDURE WITH WORK CONSTITUTES ACCEPTANCE OF EXISTING CONDITIONS . SUBSTRATES

14 PREMISES SHALL BE LEFT FULLY CLEANED AND READY FOR OWNER ACCEPTANCE AT COMPLETION OF WORK

15 ALL MATERIALS AND ASSEMBLIES TO BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER REQUIREMENTS AND INDUSTRY STANDARDS UNLESS SPECIFICALLY INDICATED OTHERWISE

16 THE CONTRACTOR SHALL ADHERE TO THE CONSTRUCTION DOCUMENTS. SHOULD ANY ERROR OR INCONSISTENCY APPEAR REGARDING THE MEANING OR INTENT OF THE CONSTRUCTION DOCUMENTS, THE CONTRACTOR SHALL IMMEDIATELY REPORT SAME TO THE ARCHITECT WHO WILL MAKE ANY NECESSARY CLARIFICATION, OR REVISIONS AS REQUIRED.

17 CONTRACTOR AND HIS SUBCONTRACTORS AND AGENTS SHALL HOLD ALL APPLICABLE AND REQUIRED LICENSES FOR THE JURISDICTION WHERE THE WORK WILL BE PERFORMED.

18 TO ENSURE COORDINATION BETWEEN DISCIPLINES, CONTRACTOR SHALL SUPPLY EACH SUBCONTRACTOR OR AGENT WITH A FULL SET OF CONSTRUCTION DOCUMENTS FOR THEIR USE.

19 ALL WORK LISTED, SHOWN OR IMPLIED IN THE CONSTRUCTION DOCUMENTS SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR EXCEPT WHERE OTHERWISE NOTED. THE CONTRACTOR SHALL CLOSELY COORDINATE HIS WORK WITH THAT OF OTHER CONTRACTORS AND VENDORS TO ASSURE THAT ALL SCHEDULES ARE MET AND THAT ALL WORK IS DONE IN CONFORMANCE WITH THE MANUFACTURER'S REQUIREMENTS.

20 CONTRACTOR SHALL PROTECT THE EXISTING CONSTRUCTION AND REPAIR ANY DAMAGE OCCURRING AS A RESULT OF THEIR OPERATIONS AT NO COST TO THE TENANT OR LANDLORD. CONTRACTOR SHALL ALSO ENSURE THAT THEIR OPERATIONS DO NOT INTERFERE WITH THE OPERATION OF THE REMAINDER OF THE DEVELOPMENT/MALL. BARRIERS TO NOISE, DUST AND SECURITY BETWEEN CONSTRUCTION AREAS AND PUBLIC AREAS SHALL BE ERECTED, MAINTAINED AND REMOVED PER THE DEVELOPMENT CRITERIA BY THE CONTRACTOR.

21 CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, PATCHING AND FITTING NECESSARY TO ACHIEVE THE INTENT OF THE CONSTRUCTION DOCUMENTS

22 ALL AREAS OF EXISTING LANDSCAPING DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION.

23 CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES IN THE FIELD AND PROVIDE ADDITIONAL UTILITY SERVICE AS REQUIRED TO MEET THE SCOPE AND INTENT OF THE WORK AND PROVIDE ALL UTILITY CONNECTIONS (PLUMBING, ELECTRICAL, GAS, ETC. IN THE FORM OF SUPPLY AND DRAIN PIPES, CONDUIT AND PULLING WIRES, ETC.) RELATED TO EQUIPMENT AND APPLIANCES.

24 CONTRACTOR SHALL COORDINATE THE DELIVERY AND STORAGE OF EQUIPMENT WITH EQUIPMENT SUPPLIER AND TAKE MEASURES TO ENSURE THE PROTECTION OF EQUIPMENT FROM DAMAGE DURING THE CONSTRUCTION PHASE PRIOR TO AND AFTER EQUIPMENT INSTALLATION.

25 CONTRACTOR SHALL PROVIDE DRAFT/FIRE STOPS, AS REQ'D BY GOVERNING CODES AND JURISDICTIONS. NEW AND EXISTING PENETRATIONS IN FIRE-RATED PARTITIONS OR DRAFT STOPS SHALL BE PROTECTED BY A SYSTEM LISTED BY A RECOGNIZED TESTING AGENCY.

26 PROVIDE FIRE EXTINGUISHERS PER APPLICABLE CODES. VERIFY FINAL LOCATION WITH A.H.J.

27 CONTRACTOR SHALL REVIEW THE DIMENSIONS OF ALL EQUIPMENT IN THE PROJECT REGARDLESS OF THE SOURCE AND COORDINATE ACCESS TO THE SPACE AND VERIFY CLEAR FLOOR SPACE & APPROPRIATE CLEARANCE IS PROVIDED AS REQUIRED TO ENSURE EASE OF INSTALLATION.

28 ALL JOINTS AND OTHER OPENINGS IN THE BUILDING ENVELOPE SHALL BE SEALED IN ACCORDANCE WITH THE BUILDING CODE AND ENERGY CODE.

29 ALL WOOD IN CONTACT WITH CONCRETE MASONRY SHALL BE PRESSURE TREATED, MOISTURE RESISTANT WOOD.

30 CONTRACTOR SHALL PROVIDE WOOD BLOCKING, BRACING AND NAILERS AS REQD FOR MILLWORK, EQUIPMENT, SHELVING, ETC. COORDINATE WITH TENANT.

31 ALL MILLWORK, CONTRACTOR TO COORDINATE PLUMBING AND ELECTRICAL W/ MILLWORK SUPPLIER

32 ALL SURFACES WHICH ARE INDICATED TO BE FINISHED OR PAINTED SHALL BE PREPARED, SANDED, TREATED, AND PRIMED IN STRICT ACCORDANCE WITH COMMERCIAL QUALITY STANDARDS, AND IN STRICT ACCORDANCE WITH FINISH MATERIAL MANUFACTURER'S INSTRUCTIONS.

33 PROVIDE OCCUPANCY SIGN IN A CONSPICUOUS LOCATION IN ACCORDANCE WITH STATE & LOCAL CODES.

DRAWING SYMBOLS

NORTH ARROW INDICATOR

DRAWING KEYNOTE TAG

WALL TYPE TAG

DOOR TAG

FINISH NOTE TAG

WINDOW TAG

SPOT TAG

REVISION TAG

CEILING MATERIAL AND HEIGHT TAG

ROOM NAME AND NUMBER TAG

SECTION CUT TAG

ELEVATION TAG

4-WAY ELEVATION TAG

COLUMN GRID

ELEVATION HEIGHT TAG (T.O. SLAB ELEV. 100'-0")

DETAIL BOX TAG

DETAIL TAG

ABBREVIATIONS

AFF	Above Finished Floor	FE	Fire Extinguisher	PL	Plate
ACT	Acoustical Ceiling Tile	FEC	Fire Extinguisher & Cabinet	PLAM	Plastic Laminate
ACOUST	Acoustical	FFE	Furniture, Fixtures & Equipment	PLWD	Plywood
ADJ	Adjustable	FIN	Finish	PLUMB	Plumbing
ALUM	Aluminum	FLUOR	Fluorescent	PNL	Panel
AMB	Air-moisture barrier	FLR	Floor	PR	Pair
ANC	Anchor	FRP	Fiberglass Reinforced Plastic	PREP	Preparation
ANOD	Anodized	FRT	Fire Retardant Treated	PREFIN	Prefinished
ARCH	Architect(ural)	FS	Floor Sink	PTD	Painted
ASSY	Assembly	FSE	Food Service Equipment	QT	Quarry Tile
BD	Board	FT	Feet	QTY	Quantity
BFG	Below Finished Grade	FV	Field Verify	RA	Return Air
BFF	Below Finished Floor	GA	Gage	RAD	Radius
BLDG	Building	GALV	Galvanized	RCP	
BLKG	Blocking	GC	General Contractor	REF	Reference
BM	Beam	GL	Glass	RECPT	Receptacle
BOT	Bottom	GYP BD	Gypsum Board	REFL	
BRG	Bearing	HC	Hollow Core	REINF	
BS	Both Sides	HM	Hollow Metal	RELOC	Relocate
BTWN	Between	HT	Height	REQ'D	Required
CAB	Cabinet	HDWD	Hardwood	REV	Revision, Reversed
CJ	Control Joint	HR	Hour	RO	Rough Opening
℄	Center Line	HVAC	Heating, Ventilation and Air Conditioning	RTU	Roof Top Unit
CLG	Ceiling	IN	Inch	SC	Solid Core
CLO	Closet	INSUL	Insulation, Insulate	SF	Square Foot
CLR	Clear	INT	Interior	SHT	Sheet
CMU	Concrete Masonry Unit	JST	Joist	SHTH	Sheathing
COL	Column	LAM	Laminated	SS	Stainless Steel
CONC	Concrete	LAV	Lavatory	SCHED	Schedule
CONT	Continuous	LLH	Long Leg Horizontal	SIM	Similar
CONST	Construction, Construct	LLV	Long Leg Vertical	SM	Sheet Metal
CT	Ceramic Tile	MANUF	Manufacturer	SPECD	Specified
DBL	Double	MAX	Maximum	STD	Standard
DEMO	Demolition	MECH	Mechanical	STL	Steel
DIA	Diameter	MEP	Mechanical, Electrical, and Plumbing	STRUCT	Structural
DN	Down	MILL	Millwork	SUSP	Suspended
DR	Door	MIN	Minimum	TBD	To be determined
DS	Downspout	MISC	Miscellaneous	TEMP	Tempered
DTL	Detail	MLD	Molding	T&B	Top and Bottom
DWG	Drawing	MO	Masonry Opening	TYP	Typical
EA	Each	MTD	Mounted	VCT	Vinyl Composition Tile
EIFS	Exterior Insulation and Finish System	MTL	Metal	VERT	Vertical
EF	Exhaust Fan	MUL	Mullion	VWC	Vinyl Wall Covering
EJ	Expansion Joint	NIC	Not In Contract	UNO	Unless Noted Otherwise
EL	Elevation	NOM	Nominal	W	With
ELEC	Electrical	NTS	Not To Scale	W/O	Without
ELEV	Elevator	OC	On Center	WC	Water Closet
EQ	Equal	OD	Outside Diameter	WD	Wood
EQUIP	Equipment	OFCI	Owner Furnished, Contractor Installed	WH	Water Heater
EW	Each Way	OPNG	Opening	WDW	Window
EWC	Electric Water Cooler	OPP	Opposite	WP	Waterproofing or Waterproof
EXIST	Existing	OPT	Optional	WSCT	Wainscot
EXP	Expansion	OTS	Open to Structure	WT	Weight
EXT	Exterior	PBD	Particle Board	WWF	
FBD	Fiber Board				
FBO	Furnished by Others				
FD	Floor Drain				

CODE DATA

APPLICABLE CODES: ALL WORK UNDER THIS CONTRACT SHALL COMPLY WITH THE PROVISIONS OF THE SPECIFICATIONS AND DRAWINGS, AND SHALL SATISFY ALL APPLICABLE CODES, ORDINANCES AND REGULATIONS OF ALL GOVERNING BODIES INVOLVED. ALL PERMITS AND LICENSES NECESSARY FOR THE PROPER EXECUTION OF THE WORK SHALL BE SECURED AND PAID FOR BY THE CONTRACTOR INVOLVED. APPLICABLE CODES INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:

BUILDING CODE	2018 International Building Code
ELECTRICAL CODE	2017 NATIONAL ELECTRICAL CODE
MECHANICAL CODE	2018 INTERNATIONAL MECHANICAL CODE
PLUMBING CODE	2018 INTERNATIONAL PLUMBING CODE
FUEL GAS CODE	2018 INTERNATIONAL FUEL GAS CODE
FIRE PROTECTION	2018 INTERNATIONAL FIRE CODE
ENERGY CODE	2018 INTERNATIONAL ENERGY CONSERVATION CODE
ACCESSIBILITY	2009 ACCESSIBLE ICC/ANSI A1117.1
USE GROUP	M - MERCANTILE
TENANT AREA	Existing building area to remain Addition area 754 gross square feet
CONSTRUCTION TYPE	IIB-SPRINKLERED.

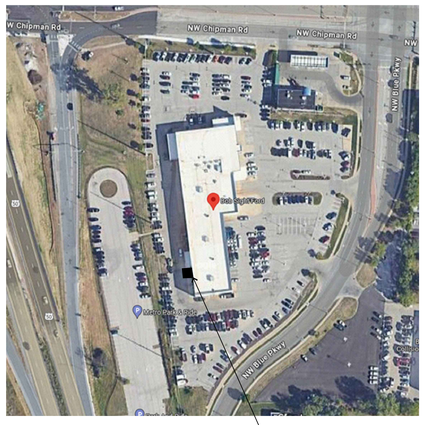
NOTE:
SPRINKLER SYSTEM MODIFICATIONS SHALL BE DESIGN BUILD BY G.C. - DEFERRED SUBMITTAL

OCCUPANT LOAD:

ADDITION AREA = 754 SF

STORAGE/ACCESSORY - 754/300 =		3 OCC
TOTAL:	=	3 OCC

PROJECT LOCATION KEY



DRAWING INDEX

David Eskov
Architect
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913-284-3660

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STATE OF MISSOURI
DAVID L ESKOV
NUMBER A-2021003214
ARCHITECT

DATE SIGNED 01/30/24

ADA Compliance Certification
To best of my professional knowledge, the facility as indicated is in compliance with the Americans with Disabilities Act, including the current ADA Title III Design Guidelines.

PERMIT
01/31/24

REVISIONS

ADDITION
BOB SIGHT FORD
610 NW BLUE PARKWAY
LEE'S SUMMIT, MO

sheet
A0.0
Cover Sheet

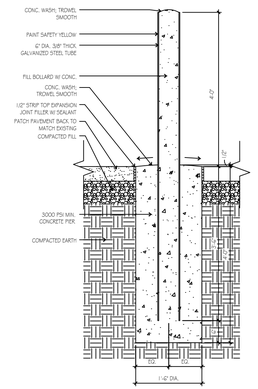
DOOR		DOOR				FRAME			HARDWARE	REMARKS
NO.	WIDTH	HEIGHT	TYPE	MATERIAL	FINISH	MATERIAL	FINISH	HEAD		
100	10'-0"	10'-0"	OVERHEAD DOOR, INSULATED SECTIONAL MODEL 470 OR EQ	-	PREFIN	HM	PAINT	RE: STRUCT	-	

DOOR SCHEDULE

SCALE: N.T.S.

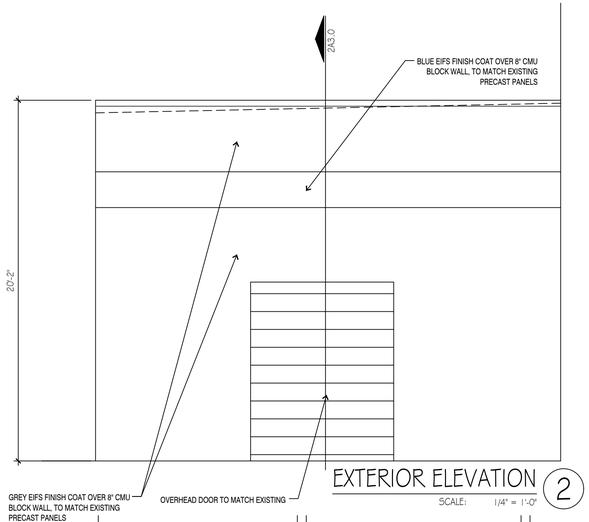
GENERAL MISCELLANEOUS STEEL NOTES: (FOR ALL EXPOSED STEEL UNLESS NOTED OTHERWISE)

1. ALL WELDS SHALL BE GROUND SMOOTH, TO UNIFORM FLAT FINISH FREE OF RUST, SCALE, AND IMPERFECTIONS.
2. ALL WELDS SHALL BE CONTINUOUS 3/16" FILLET WELDS MINIMUM OR AT PRIMARY AND SECONDARY FRAMES, USE 3/16" x 3" FILLET WELDS AT 16" O.C. MIN.
3. GALVANIZE UNEXPOSED SIDE OF STEEL FRAMING MEMBERS PRIOR TO INSTALLATION.
4. ALL STAIRS AND HANDRAILS SHALL CONFORM TO THE 2018 IBC, AND ADA.
5. TOUCH UP ALL FIELD WELDS AND MARS AT GALVANIZED STEEL WITH GALV. REPAIR
6. ALL MISCELLANEOUS STEEL SHALL BE PREPPED WITH SPC METHOD PER MANUFACTURER IN STRICT ACCORDANCE WITH THEIR INSTRUCTIONS.



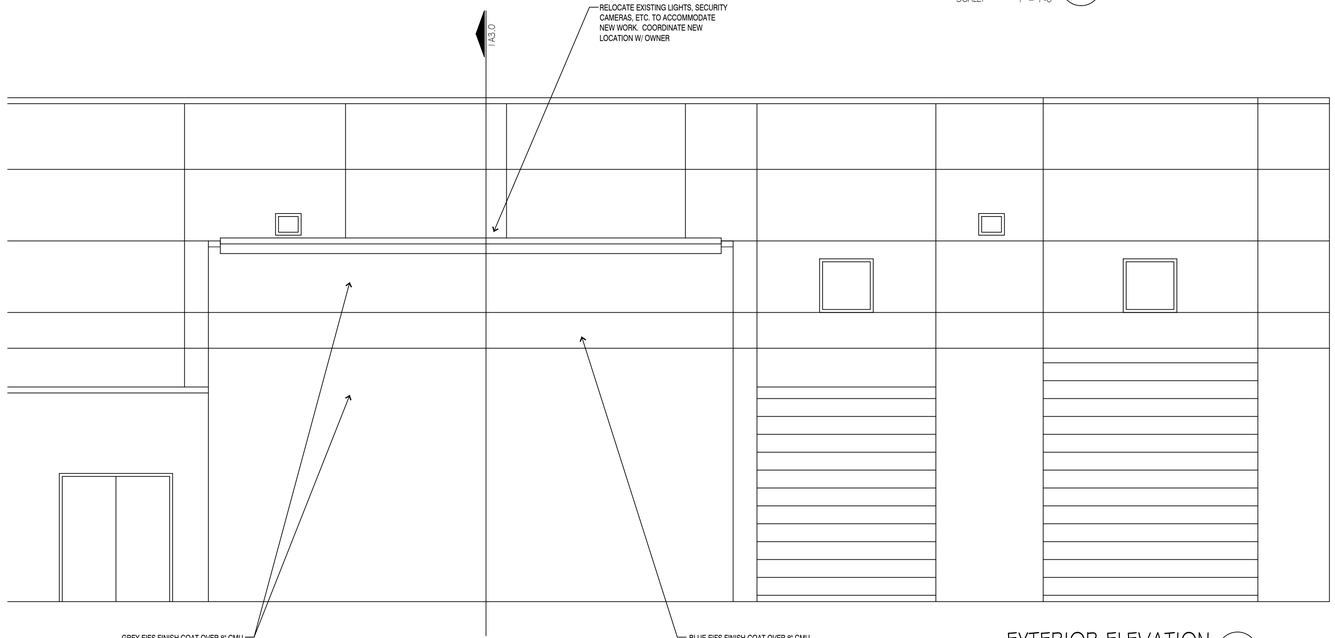
TYP BOLLARD DETAIL 4

SCALE: 1" = 1'-0"



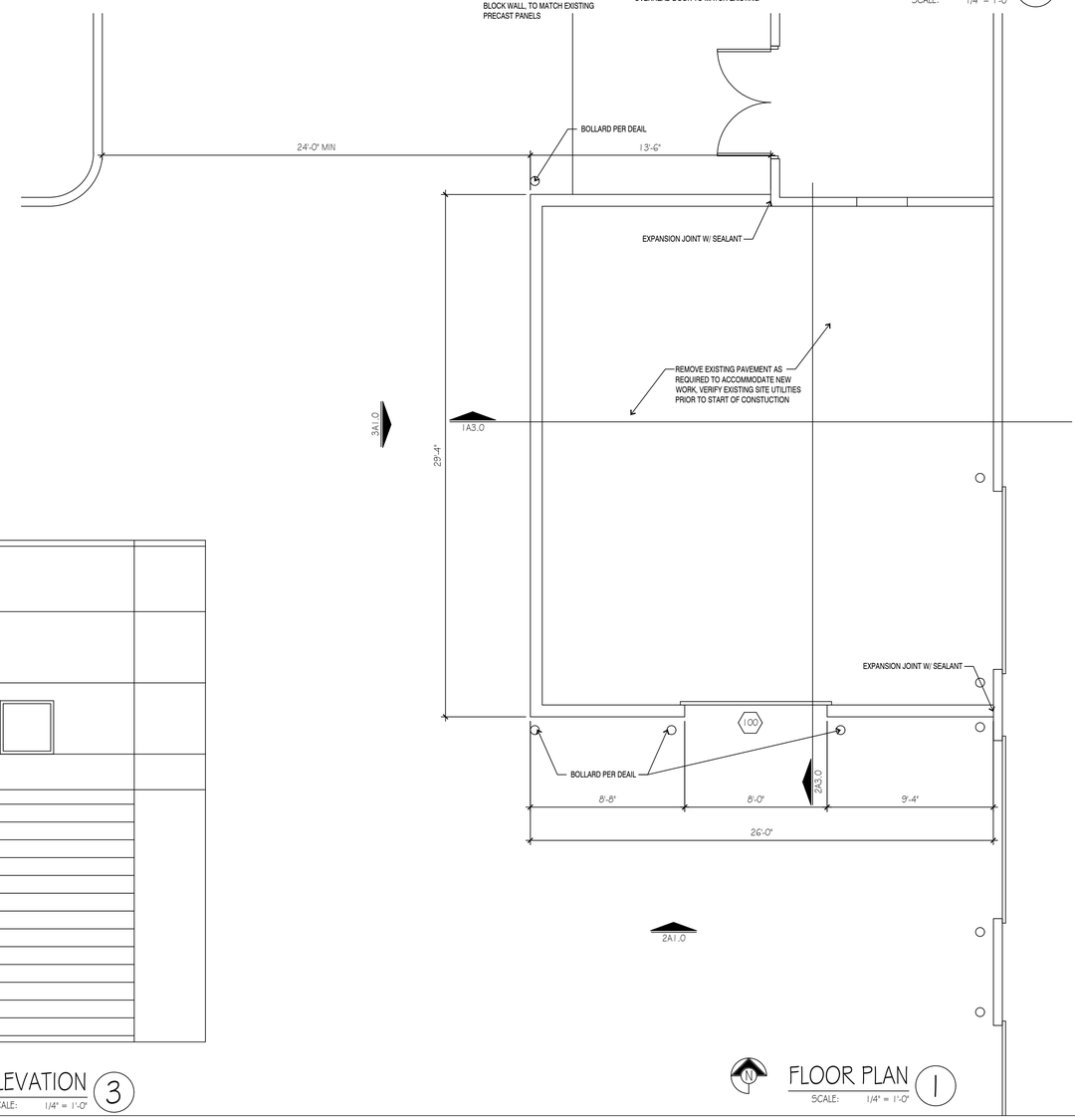
EXTERIOR ELEVATION 2

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



EXTERIOR ELEVATION 3

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



FLOOR PLAN 1

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

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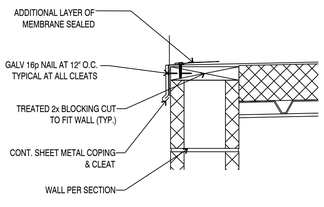
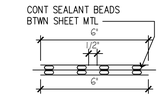
sheet
A1.0
FLOOR PLAN & ELEVATIONS

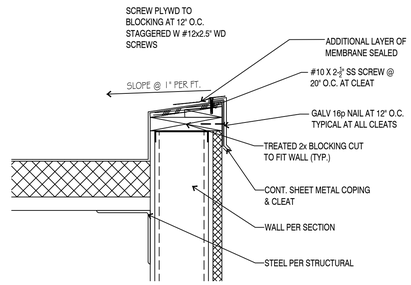


CAP FLASHING 4
SCALE: 1 1/2"= 1'-0"

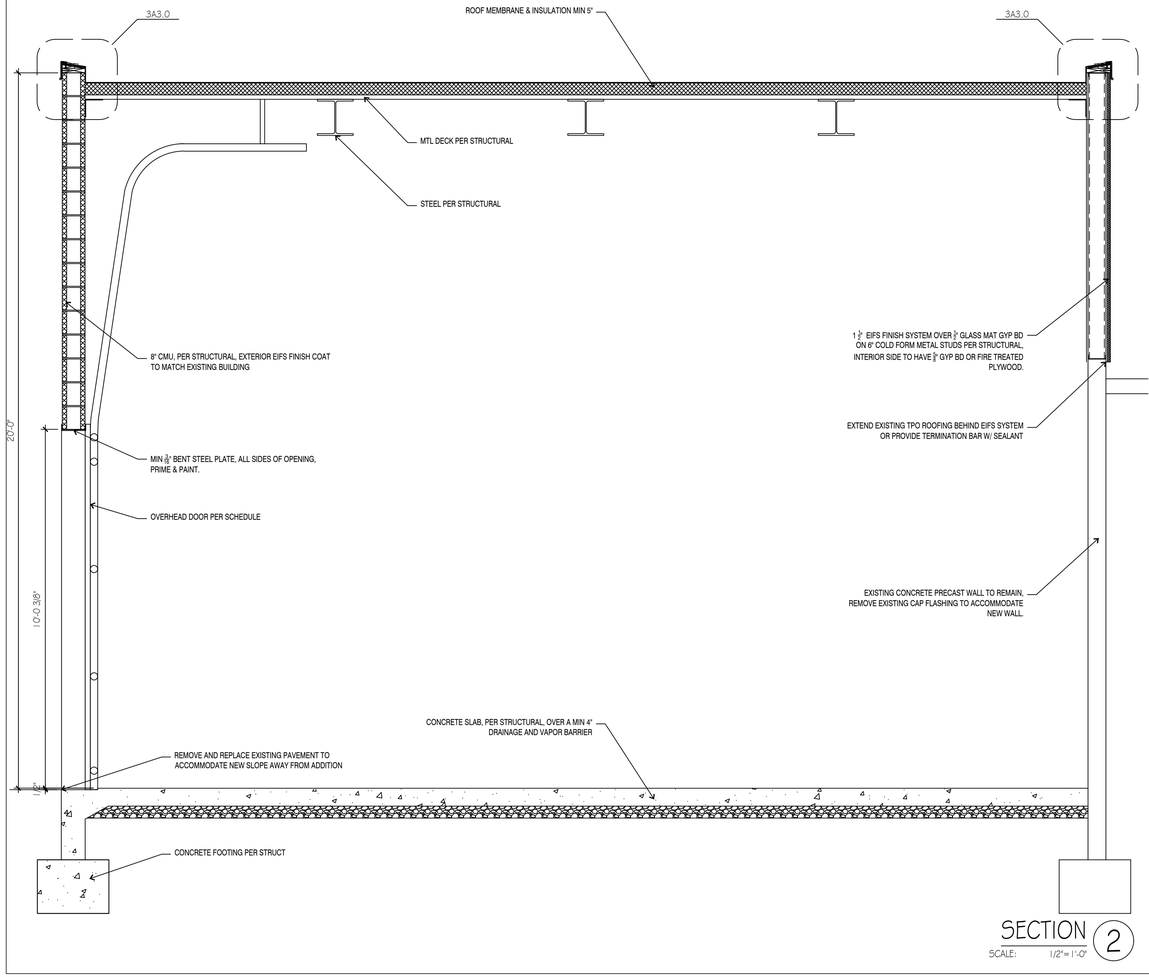


COPING JOINT DETAIL PER SMACNA TYPE "J5" (BACKUP AND COVER PLATE), MAX 10'-0" O.C.

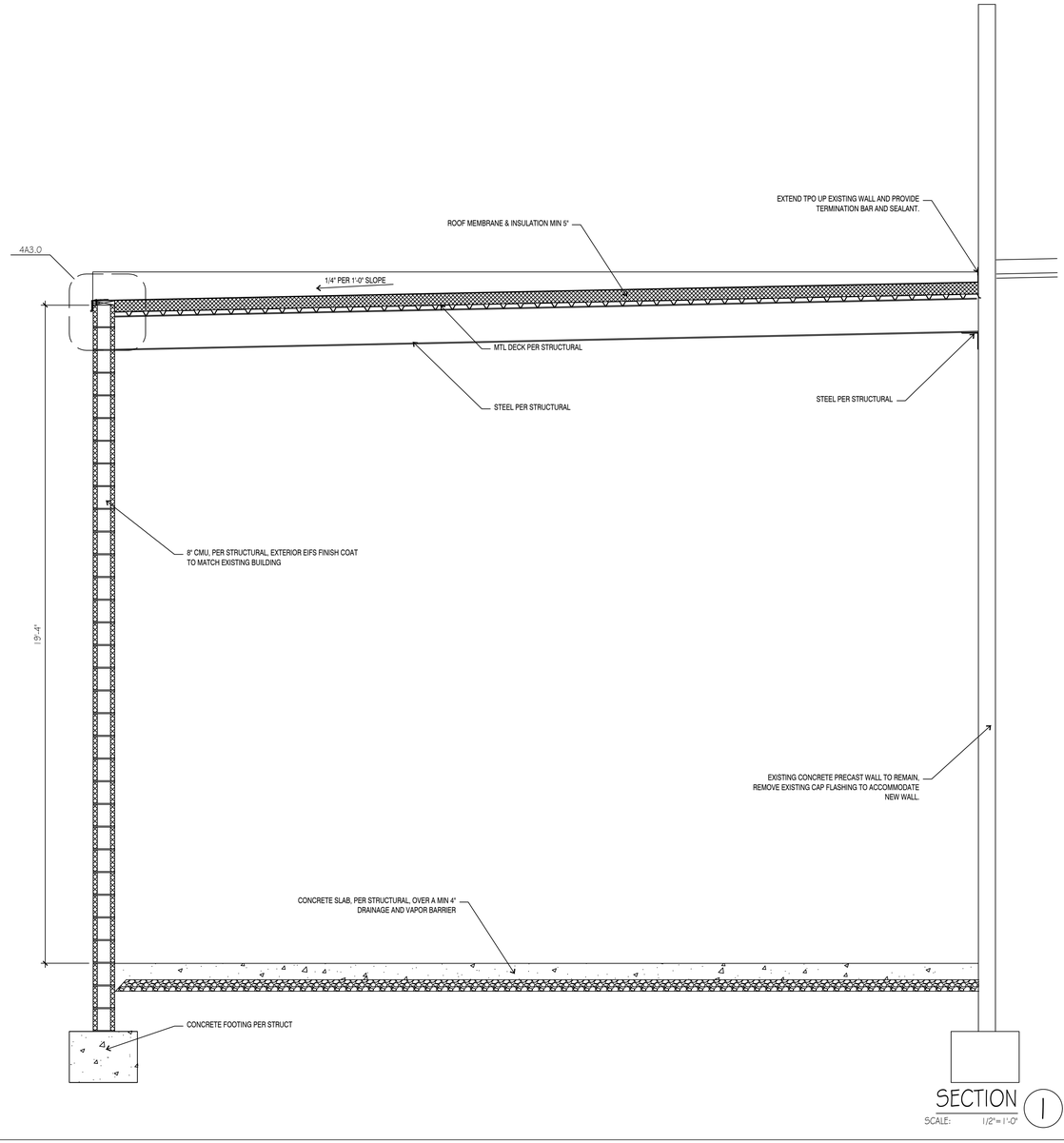
COPING CORNERS SHALL BE SMACNA STYLE C1, EDGE STYLE E1. COPING STYLE TO BE PER FIG 3-4A.



TYP CAP FLASHING 3
SCALE: 1 1/2"= 1'-0"



SECTION 2
SCALE: 1/2"= 1'-0"



SECTION 1
SCALE: 1/2"= 1'-0"

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sheet
A3.0
SCHEDULES, & DETAILS

DESIGN PARAMETERS

1. DESIGN CODES AND STANDARDS

A. BUILDING CODE: IBC 2018
RISK CATEGORY — II

B. MATERIAL CODES AND STANDARDS
DESIGN LOADS:
ASCE/SEI 7–16 – MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
CONCRETE:
ACI 318–14 – BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
MASONRY:
TMS402/602–16 – BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES
STEEL:
AISC 360–16 – SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS
AISC 341–16 – SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS

2. GRAVITY LOADS

A. ROOF:

ROOFING AND INSULATION	3.0 PSF
METAL DECK	2.0 PSF
MEP AND SPRINKLERS	5.0 PSF
CEILINGS	5.0 PSF
MISC.	5.0 PSF
TOTAL DEAD LOAD	20.0 PSF

B. LIVE LOADS (UNIFORM/CONCENTRATED)
ROOF — 20 PSF

3. ROOF SNOW LOAD

A. GROUND SNOW LOAD, Pg	20 PSF
B. FLAT ROOF SNOW LOAD, Pf	VARIES, RE: PLAN
C. SNOW EXPOSURE FACTOR, Ce	1.0
D. SNOW LOAD IMPORTANCE FACTOR, I	1.1
E. THERMAL FACTOR, Ct	
1. TYPICAL	1.1

4. WIND DESIGN DATA

A. ULTIMATE DESIGN WIND SPEED (3 SECOND GUST), Vult	110 MPH
NOMINAL DESIGN WIND SPEED (3 SECOND GUST), Vasd	95 MPH
B. WIND EXPOSURE CATEGORY	C
C. INTERNAL PRESSURE COEFFICIENT, GCpi	+/– 0.18
D. DESIGN WIND PRESSURE ON COMPONENTS AND CLADDING	

ROOF PRESSURES (1.0W)			
	EFFECTIVE WIND AREA		
	≤10 SQ. FT.	≤100 SQ. FT.	≥500 SQ. FT.
ZONE 1'	–25.0 PSF	–25.1 PSF	–17.0 PSF
ZONE 1	–43.7 PSF	–34.1 PSF	–27.4 PSF
ZONE 2	–57.7 PSF	–45.4 PSF	–36.7 PSF
ZONE 3	–78.6 PSF	–54.0 PSF	–36.7 PSF
ZONE 1, 2 & 3	16.0 PSF	16.0 PSF	16.0 PSF

WALL PRESSURES (1.0W)		
	EFFECTIVE WIND AREA	
	≤10 SQ. FT.	≥500 SQ. FT.
ZONE 4	–27.2 PSF	–20.9 PSF
ZONE 5	–33.5 PSF	–20.9 PSF
ZONE 4 & 5	25.1 PSF	18.8 PSF

NOTES:
1. REF ASCE 7–16 FIGURES 30.3–1 AND 30.3–2A
2. REFER TO CODE FOR EFFECTIVE TRIBUTARY AREAS NOT LISTED
3. POSITIVE VALUES SIGNIFY PRESSURES ACTING TOWARD THE NOTED SURFACE AND NEGATIVE VALUES SIGNIFY PRESSURES ACTING AWAY FOR THE NOTED SURFACE
4. THE PRESSURES ABOVE CONFORM TO FM STANDARDS

E. WIDTH OF END ZONE — 3.0 FT

5. EARTHQUAKE DESIGN DATA

A. SEISMIC IMPORTANCE FACTOR, Ie	1.1
B. MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETER, Ss	10.0%
C. MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETER, S1	6.8%
D. SITE CLASS	D (ASSUMED)
E. DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETER, Sds	0.107
F. DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETER, Sd1	0.109
G. SEISMIC DESIGN CATEGORY	B
H. STRUCTURAL SYSTEM	
1.) VERTICAL ELEMENT TYPE	BUILDING FRAME SYSTEM
2.) BASIC SEISMIC FORCE–RESISTING SYSTEM TYPE	ORDINARY REINFORCED MASONRY SHEAR WALLS
3.) RESPONSE MODIFICATION FACTOR, R	2.0
4.) SEISMIC RESPONSE COEFFICIENT, Cs	0.054
5.) DESIGN BASE SHEAR, 1.0E	0.054 W
J. ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE

GENERAL NOTES

GENERAL

1. STRUCTURAL ELEMENTS ARE NON–SELF SUPPORTING AND REQUIRE INTERACTION WITH OTHER ELEMENTS FOR STABILITY AND RESISTANCE TO LATERAL FORCES. FRAMING AND WALLS SHALL BE TEMPORARILY BRACED BY THE CONTRACTOR UNTIL PERMANENT BRACING, FLOOR AND ROOF DECKS, AND WALLS HAVE BEEN INSTALLED AND CONNECTIONS BETWEEN THESE ELEMENTS HAVE BEEN MADE.
2. THE CONTRACT DOCUMENTS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE THE METHOD OF CONSTRUCTION, UNLESS NOTED OTHERWISE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND OPERATION OF CONSTRUCTION AND SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO.
3. THE STRUCTURE HAS BEEN DESIGNED FOR THE INDICATED LOADS ONLY. USE OF HEAVY EQUIPMENT AND SCAFFOLDING, OR STORAGE OF MATERIALS THAT TRANSFER EXCESSIVE LOADS TO THE STRUCTURE SHALL BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE CALCULATIONS SIGN AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED TO VERIFY THE ADEQUACY OF THE STRUCTURE FOR ALL APPLIED CONSTRUCTION LOADS THAT EXCEED THE LOADS INDICATED IN THE CONSTRUCTION DOCUMENTS AND SHALL BE APPROVED BY THE ARCHITECT AND ENGINEER–OF–RECORD PRIOR TO ANY CONSTRUCTION ACTIVITY.
4. THE SPECIFICATIONS ARE AN INTEGRAL PART OF THE CONTRACT DOCUMENTS AND SHALL BE USED IN CONJUCTION WITH THE CONTRACT DRAWINGS. WHERE REQUIREMENTS INDICATED ON THE CONTRACT DRAWINGS DIFFER FROM THE SPECIFICATIONS, NOTIFY THE ARCHITECT AND THE ENGINEER–OF–RECORD.
5. STRUCTURAL DRAWINGS ARE NOT STAND–ALONE DOCUMENTS AND ARE INTENDED TO BE USED IN CONJUNCTION WITH CIVIL, ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND DRAWINGS FROM OTHER DISCIPLINES. THE CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS INTO SHOP DRAWINGS AND WORK.
6. ALL WELDS SHALL BE PERFORMED BY QUALIFIED WELDERS IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (A.W.S) SPECIFICATIONS.
7. THE SIZE AND LOCATION OF EQUIPMENT PADS AND PENETRATIONS THROUGH THE STRUCTURE FOR MECHANICAL, ELECTRICAL, AND PLUMBING WORK SHALL BE VERIFIED BY THE CONTRACTOR. PENETRATIONS SHALL BE SUBJECT TO APPROVAL BY THE ARCHITECT AND THE ENGINEER–OF–RECORD. REFERENCE MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR OPENING LOCATIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
8. USE ONLY DIMENSIONS INDICATED IN THE CONTRACT DOCUMENTS. DO NOT SCALE CONTRACT DOCUMENTS OR USE ANY DIMENSIONS TAKEN FROM ELECTRONIC DRAWING FILES. CONTRACTOR SHALL COORDINATE IN–PLACE DIMENSIONS BASED ON TOLERANCES OF THE RESPECTIVE TRADES.

GENERAL NOTES

9. ASSUME EQUAL SPACING IF NOT INDICATED IN CONTRACT DOCUMENTS.
10. ARCHITECTURAL, MECHANICAL AND ELECTRICAL COMPONENTS AND SYSTEMS SHALL BE DESIGNED AND CONSTRUCTED TO RESIST SEISMIC FORCES AS DETERMINED IN CHAPTER 13 OF ASCE 7.
11. REFERENCE ARCHITECTURAL DRAWINGS FOR NON–LOAD BEARING PARTITION FRAMING. CONNECTION OF NON–LOAD BEARING PARTITION FRAMING TO THE PRIMARY STRUCTURE SHALL ALLOW FOR VERTICAL LIVE LOAD DEFLECTIONS OF THE FLOOR AND ROOF FRAMING.
12. CONTRACTOR SHALL COORDINATE ALL DIMENSIONS, OPENING, BLOCKOUTS, RECESSES, ELEVATIONS, ANCHOR RODS AND EMBED LOCATIONS PRIOR TO CONSTRUCTION.

FOUNDATIONS

1. FOUNDATION DESIGNS ARE BASED ON AN ASSUMED STABLE, NON–EXPANSIVE SOIL WITH AN ALLOWABLE FOUNDATION PRESSURE OF 2000 PSF. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING WHEATHER OR NOT SOIL MEETS THIS MINIMUM CRITERIA AND IF IT DOES NOT, SHALL NOTIFY THE ENGINEER SO THAT FOUNDATION MAY BE REDESIGNED..
2. A QUALIFIED AND REGISTERED GEOTECHNICAL ENGINEER, LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED AND WORKING FOR THE TESTING LABORATORY, SHALL DETERMINE CONFORMANCE OF THE FOUNDATION BEARING STRATA WITH THE FOUNDATION DESIGN CRITERIA ABOVE, AND ALL OTHER CONTRACT DOCUMENTS. TESTING LABORATORY SHALL NOTIFY CONTRACTOR, ARCHITECT AND CONSULTING ENGINEER OF ANY CONDITIONS NOT IN ACCORDANCE WITH FOUNDATION DESIGN CRITERIA OR CONTRACT DOCUMENTS.
3. USE ONLY STRUCTURAL FILL MATERIAL FOR FILL BELOW BUILDING AND FIVE FEET BEYOND THE EDGES OF THE BUILDING.
4. FOOTINGS SHALL BEAR AT OR BELOW MINIMUM BEARING DEPTH. MINIMUM BEARING DEPTH IS 36 INCHES BELOW ADJACENT FINISHED GRADE. THICKENED SLAB EDGE FOR STOOPS, CANOPIES, ETC. SHALL EXTEND 18 INCHES BELOW GRADE UNLESS NOTED OTHERWISE.
5. FOOTINGS SHALL BE POURED AGAINST UNDISTURBED SOIL, UNLESS NOTED OTHERWISE..
6. AVOID DAMAGE TO UNDERGROUND UTILITIES SUCH AS WATER MAINS, SANITARY SEWERS, BURIED CABLES, ETC., WHICH MIGHT EXTEND ACROSS OR ADJOIN SITE.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT QUANTITIES OF CUT AND FILL FOR ESTIMATING AND CONSTRUCTION. SUBGRADE SHALL BE PREPARED AS NOTED IN THE GEOTECHNICAL REPORT.

CONCRETE

1. MINIMUM COMPRESSIVE STRENGTH (f'c) AT THE END OF 28 DAYS SHALL BE AS FOLLOWS:

A. FOOTINGS, GRADE BEAMS	4000 PSI
B. INTERIOR SLABS–ON–GRADE	4000 PSI
C. EXTERIOR STRUCTURAL CONCRETE	4000 PSI

CONCRETE SHALL BE NORMAL WEIGHT (145 PCF), UNLESS NOTED OTHERWISE. CEMENTITOUS MATERIAL CONTENT SHALL NOT BE LESS THAN 520 POUNDS PER CUBIC YARD. USE OF ANY FLY ASH IN FLOOR SLAB MIXES SHALL BE NO MORE THAN 20%.

2. EXTERIOR CONCRETE AND CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL BE AIR–ENTRAINED. REFERENCE CAST–IN–PLACE CONCRETE SPECIFICATION FOR AIR CONTENT.
3. MATERIALS OR ADMIXTURES SHALL NOT CONTAIN ANY CALCIUM CHLORIDE.
4. REINFORCING STEEL SHALL MEET THE FOLLOWING:

	ASTM SPECIFICATION
A. DEFORMED BARS	A615, GRADE 60
B. WELDABLE DEFORMED BARS	A706, GRADE 60
C. WELDED WIRE REINFORCEMENT	A1064
D. STEEL FIBERS	A820

5. PROVIDE MINIMUM CONCRETE CLEAR COVER FOR REINFORCEMENT PER ACI 318, UNLESS NOTED OTHERWISE.
6. WELDING SHALL MEET ANSI / AWS D1.1, STRUCTURAL WELDING CODE AND ANSI / AWS D1.4 "STRUCTURAL WELDING CODE FOR REINFORCING STEEL" LATEST REVISION. ELECTRODES FOR DEFORMED BAR ANCHORS SHALL BE 90 KSI, LOW HYDROGEN.
7. WHERE DOWELS ARE INDICATED BUT NOT SIZED, PROVIDE DOWELS THAT MATCH SIZE AND LOCATION OF MAIN REINFORCING STEEL AND LAP SPLICE WITH THE MAIN REINFORCING STEEL. REINFORCING STEEL SHALL BE SPLICED AS NOTED IN THE REINFORCING LAP SCHEDULE.
8. "C.J." INDICATES SAW CUT CONTRACTION JOINT OR DOWELED CONSTRUCTION JOINT IN SLAB–ON–GRADE. REFERENCE CAST–IN–PLACE CONCRETE SPECIFICATION FOR ACCEPTED SAW CUT METHODS. SLAB POURS SHALL BE SEPARATED BY A DOWELED CONSTRUCTION JOINT. CONTRACTION/CONSTRUCTION JOINTS SHALL BE LOCATED AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER–OF–RECORD.
9. PROVIDE CORNER BARS THAT MATCH AND LAP CONTINUOUS REINFORCEMENT SIZE AND QUANTITY AT INTERSECTIONS AND CORNERS OF WALLS AND FOUNDATIONS.
10. ANCHOR BOLTS AND EMBED PLATES SHALL BE TIED INTO THE REINFORCING STEEL CAGE AND HELD IN PLACE WITH A RIGID TEMPLATE TO PREVENT MOVEMENT DURING CONCRETE PLACEMENT.
11. MAXIMUM WATER/CEMENT RATIO = 0.48 TO 0.50 FOR FOOTINGS AND 0.52 FOR SLABS–ON–GRADE.
12. AIR–ENTRAINED IS NOT REQUIRED FOR STRUCTURAL CONCRETE.
13. AGGREGATES SHALL COMPLY WITH ASTM C 33 AND SHALL BE FREE OF DELETRIOUS MATTER AND SHALL BE MADE OF COARSE LIMESTONE OR GRANITE AGGREGATES.
14. MATERIALS OR ADMIXTURES SHALL NOT CONTAIN ANY CALCIUM CHLORIDE. IF ADMIXTURES ARE UTILIZES, THEY SHOULD BE COMPATIBLE WITH OTHER ADMIXTURES AND MUST NOT CONTRIBUTE WATER–SOLUBLE CHLORIDE IONS EXCEEDING THOSE PERMITTED IN HARDENED CONCRETE.
15. REFER TO ACI 318 LATEST EDITION FOR CONCRETE COVER, ACI 315 LATEST EDITION FOR DETAILING, FABRICATION, PLACEMENT AND SUPPORT PRACTICES, ACI 347 FOR FRAMEWORK, ACI 305 FOR HOT WEATHER CONCRETING, ACI 306 FOR COLD WEATHER CONCRETING, AND ACI 301 LATEST EDITION FOR STANDARD PRACTICE FOR MIXING AND PLACING CONCRETE. PROVIDE CONCRETE COVER DIMENSIONS IN SHOP DRAWINGS FOR STRUCTURAL ENGINEER REVIEW.
16. NON–SHRINK GROUT SHALL BE PRE–MIXED, NON–SHRINKING WITH A MINIMUM COMPRESSIBLE STRENGTH OF 5000 PSI IN 28 DAYS CONFORMING TO USACE SPECIFICATIONS NO. CRD–C621.
17. REINFORCING BAR SUPPORTS SHALL BE BOLSTERS, CHAIRS, SPACERS AND OTHER DEVISED TO HOLD REINFORCING BARS AND WELDED WIRE REINFORCEMENT IN PLACE. MANUFACTURE BAR SUPPORTS FROM STEEL, PLASTIC OR PRECAST CONCRETE ACCORDING TO CRSI'S "MANUAL OF STANDARD PRACTICE" OF GREATER COMPRESSIVE STRENGTH THAN THE CONCRETE PLACED IN.
18. CHAMFER EXTERIOR CORNERS AND EDGES OF PERMANENTLY EXPOSED CONCRETE.
19. THE CONCRETE SLABS SHOWN ON THE STRUCTURAL DRAWINGS HAVE BEEN DESIGNED FOR THE FINISHED STRUCTURE AND HAVE NOT BEEN DESIGNED FOR MEANS AND METHODS OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO, FORK LIFTS, MAN LIFTS, AND OTHER VEHICULAR TRAFFIC.
20. A VAPOR RETARDER NOT LESS THAN 10 MILS THICK SHALL BE INSTALLED ONLY AT AREAS NOTATED ON THE CONSTRUCTION DOCUMENTS. THE RETARDER SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATION WITH JOINTS USING THE RECOMMENDED ADHESIVE OR PRESSURE SENSITIVE JOINT TAPE AND INCLUDING THE MANUFACTURER'S PROPRIETARY PENETRATION FLASHING FOR ALL THROUGH–SLAB PENETRATIONS. LAP VAPOR RETARDER JOINTS 6 INCHES MINIMUM.
21. CONCRETE SLAB–ON–GRADE SHALL BE CONSTRUCTED WITH A HARD TROWEL FINISH AND BE FINISHED ACCORDING TO ASTM E 1155 TO ACHIEVE THE MINIMUM TOLERANCES AS INDICATED IN THE BID INSTRUCTIONS.
22. THE CONCRETE SLAB–ON–GRADE SHALL BE CURED WITH AN APPROVED CURING MATERIAL THAT HAS BEEN SUBMITTED AND APPROVED BY THE ARCHITECT AND ENGINEER OF RECORD.
23. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, OPENINGS, BLOCKOUTS, RECESSES, ELEVATIONS, ANCHOR RODS AND EMBED LOCATIONS PRIOR TO CONCRETE PLACEMENT. THE CONTRACTOR SHALL VERIFY WITH ARCHITECTURAL, STRUCTURAL, AND MEP DRAWINGS FOR LOCATIONS OF REQUIRED COORDINATION ITEMS. CONTRACTOR SHALL CONTACT THE ARCHITECT OR ENGINEER IF AN ERROR OR OMISSION OCCURS AFTER CONCRETE PLACEMENT.

GENERAL NOTES

MASONRY

1. CONCRETE MASONRY UNITS SHALL MEET ASTM SPECIFICATION C90, WITH A MINIMUM UNIT COMPRESSIVE STRENGTH = 1900 PSI. THE SPECIFIED DESIGN COMPRESSIVE STRENGTH OF THE CONCRETE MASONRY ASSEMBLY (f'm) SHALL BE 1500 PSI.
2. MORTAR SHALL BE A PREBLENDED DRY MIX CONFORMING TO ASTM C1714 AND MEETING THE PROPERTY SPECIFICATIONS OF ASTM C270 TYPE "S" MORTAR. MASONRY CEMENT SHALL NOT BE USED FOR MORTAR.
3. GROUT SHALL MEET ASTM SPECIFICTION C476 AND HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2000 PSI.
4. SOLID GROUT HOLLOW MASONRY CELLS AS NOTED ON STRUCTURAL DRAWINGS. USE GROUT METHOD OF CONSTRUCTION CONFORMING TO REQUIREMENTS OF CURRENT MSJC. GROUT SPACE DIMENSIONS AND MAXIMUM POUR HEIGHTS SHALL COMPLY WITH MSJC.
A. LIMIT THE HEIGHT OF VERTICAL GROUT POURS TO 12'–8" OR THE DISTANCE BETWEEN BOND BEAMS, WHICHEVER IS LESS. PROVIDE CLEANOUTS AT THE GROUT LIFTS THAT EXCEED 5'–4" IN HEIGHT.
B. PROVIDE CLEANOUTS AT THE BOTTOM COURSE OF MASONRY FOR EACH GROUT POUR OVER 5'–4" IN HEIGHT. PROVIDE CLEANOUTS AT 32 INCHES ON CENTER ALONG THE BOTTOM COURSE OF THE GROUT LIFTS IN FULLY GROUTED MASONRY. USE CLEANOUTS TO REMOVE ALL MORTAR DROPPINGS AND DEBRIS AND ENSURE PROPER PLACEMENT OF REINFORCEMENT.
C. DO NOT PLACE GROUT UNTIL HEIGHT OF MASONRY TO BE GROUTED HAS ATTAINED ENOUGH STRENGTH TO RESIST GROUT PRESSURE. ALLOW MASONRY TO CURE A MINIMUM OF 4 HOURS PRIOR TO PLACING GROUT FOR LIFTS BETWEEN 5'–4" AND 12'–8. INCREASE CURING TIME TO A MINIMUM OF 8 HOURS IN COLD OR DRY WEATHER CONDITIONS.. THE GROUT SLUMP SHALL BE MAINTAINED BETWEEN 10 AND 11 INCHES FOR GROUT LIFTS BETWEEN 5'–4" AND 12'–8".
D. GROUTING SHALL BE A CONTINUOUS PROCEDURE FOR EACH LIFT. DO NOT ALLOW HORIZONTAL CONSTRUCTION JOINT TO FORM BY DISCONTINUING GROUTING.
E. VERTICAL GROUT POUR EXCEEDING 12 INCHES SHALL BE MECHANICALLY CONSOLIDATED USING A VIBRATOR WITH A MAXIMUM 3/4 INCH DIAMETER HEAD.
5. CONTRACTOR SHALL CLEAN THE GROUT SPACES SUCH THAT THEY ARE FREE OF MORTAR DROPPINGS, DEBRIS, LOOSE AGGREGATES AND ANY MATERIAL THAT WOULD PREVENT CONTINUITY OF THE GROUT.
6. HORIZONTAL JOINT REINFORCEMENT SHALL BE LADDER TYPE. JOINT REINFORCEMENT SHALL BE SPACED AT 8 INCHES ON CENTER BELOW FINISHED FLOOR AND IN PARAPETS, AND 16 INCHES ON CENTER ABOVE FINISHED FLOOR.
7. CONCRETE MASONRY SHALL BE LAID IN RUNNING BOND.
8. CONCRETE MASONRY BELOW FINISHED FLOOR SHALL BE NORMAL WEIGHT UNITS AND SHALL HAVE ALL THE CELLS FULLY GROUTED. CONCRETE MASONRY ABOVE FINISHED FLOOR SHALL BE MEDIUM WEIGHT AND IS TO BE GROUTED ONLY AT REINFORCED CELLS AND BOND BEAMS, UNLESS NOTED OTHERWISE. ALL CELLS WITH REINFORCING OR EMBEDDED ITEMS SHALL BE GROUTED SOLID.
9. REFERENCE WALL SECTIONS AND DETAILS FOR MISCELLANEOUS BOND BEAM LOCATIONS AND EMBEDDED ITEMS. USE OPEN KNOCK OUT BOND BEAM BLOCK. DO NOT USE TROUGH TYPE BLOCKS FOR BOND BEAMS. DO NOT CONTINUE BOND BEAM REINFORCING THROUGH CONTROL JOINTS, UNLESS NOTED OTHERWISE.
10. REINFORCING STEEL SHALL MEET ASTM SPECIFICATION A615, GRADE 60. REINFORCING STEEL SHALL BE SPLICED AS NOTED IN THE REINFORCING LAP SCHEDULE.
11. PROVIDE TEMPORARY BRACING FOR WALLS, LINTELS, AND OTHER MASONRY DURING ERECTION. BRACING SHALL BE DESIGNED IN ACCORDANCE WITH THE MASON CONTRACTORS ASSOCIATION OF AMERICA STANDARD PRACTICE FOR BRACING MASONRY WALLS UNDER CONSTRUCTION. DESIGN SHALL BE PERFORMED BY AN ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED. BRACING SHALL REMAIN UNTIL ROOFING AND OTHER STRUCTURAL ELEMENTS ARE COMPLETE AND PROVIDE PERMANENT STABILITY.

COLD FORMED METAL FRAMING

1. COLD FORMED METAL FRAMING AND THE CONNECTIONS TO THE STRUCTURE HAVE BEEN DESIGNED AND DETAILED TO COMPLY WITH ALL APPLICABLE CODES.
2. ALL COLD FORMED METAL FRAMING SHALL HAVE A MINIMUM THICKNESS OF 33 MILS (20 GA) AND SHALL BE SPACED AT A MAXIMUM OF 12 INCHES ON CENTER UNLESS NOTED OTHERWISE IN CONTRACT DOCUMENTS AND SHALL MEET THE MINIMUM STRUCTURAL PROPERTIES FROM THE AMERICAN IRON AND STEEL INSTITUTE – NORTH AMERICAN STANDARD FOR COLD–FORMED STEEL FRAMING LATEST EDITION. MINIMUM FLANGE WIDTH OF FRAMING MEMBERS SHALL BE 1 5/8" INCH AND THE LIP LENGTH OF THE C–SHAPE PORTION SHALL BE A MINIMUM OF 1/2 INCH.
3. WALL STUDS AS BACKING TO MASONRY VENEER SHALL HAVE A MINIMUM THICKNESS OF 43 MILS (18 GA).
4. COLD FORMED METAL FRAMING SHALL BE IN ACCORDANCE WITH THE FOLLOWING, UNLESS NOTED OTHERWISE:

	ASTM SPECIFICATION
A. 54 MILS (16 GA) AND HEAVIER	A1003, GRADE 50 TYPE H (ST50H)
B. 43 MILS (18 GA) AND LIGHTER	A1003, GRADE 33 TYPE H (ST33H)
C. ACCESSORIES, TRACK AND OTHER MEMBERS	A1003, GRADE 33 TYPE H (ST33H), MINIMUM

5. DO NOT WELD 33 MILS (20 GA) AND LIGHTER FRAMING, UNLESS SPECIFICALLY NOTED IN THE CONTRACT DOCUMENTS.
6. COLD FORMED METAL FRAMING AND BRACING SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN RECOMMENDATIONS AND SPECIFICATIONS.
7. HORIZONTAL BRACING FOR WALL STUDS SHALL BE PLACED AT 48 INCHES ON CENTER OR AS PER MANUFACTURER'S WRITTEN RECOMMENDATIONS IF LESS THAN 48 INCHES ON CENTER. HORIZONTAL BRIDGING FOR JOISTS SHALL BE PLACED AT 8'–0" ON CENTER OR AS PER MANUFACTURER'S WRITTEN RECOMMENDATIONS IF LESS THAN 8'–0" ON CENTER. APPLIED FINISH MATERIALS SHALL NOT BE CONSIDERED BRIDGING OR FLANGE BRACING UNLESS NOTED OTHERWISE IN THE CONTRACT DOCUMENTS.
8. ALL AXIALLY LOADED WALL STUDS SHALL HAVE FULL FLANGE BEARING AGAINST UPPER AND LOWER TRACK WEB PRIOR TO ATTACHMENT TO TRACK. SPLICES IN AXIALLY LOADED WALL STUDS ARE NOT ALLOWED.
9. TRACK SHALL BE 54 MILS (16 GA) MINIMUM FOR WALL STUDS 54 MILS (16 GA) OR LIGHTER. TRACK SHALL MATCH WALL STUD THICKNESS FOR WALL STUDS 68 MILS (14 GA) AND HEAVIER. TRACKS SHALL BE ANCHORED AS FOLLOWS:
TO STEEL – HILTI X–U (ESR–2269), 0.157 INCH DIAMETER KNURLED SHANK FASTENERS AT 12 INCHES ON CENTER OR APPROVED EQUAL, UNLESS NOTED OTHERWISE IN CONTRACT DOCUMENTS.
TO CONCRETE – HILTI X–U (ESR–2269), 0.157 INCH DIAMETER KNURLED SHANK FASTENERS AT 16 INCHES ON CENTER WITH 1 1/2 INCH EMBEDMENT OR APPROVED EQUAL, UNLESS NOTED OTHERWISE IN CONTRACT DOCUMENTS.
10. CONNECTIONS SHALL CONSIST OF ANY OF THE FOLLOWING AS NOTED IN THE CONTRACT DOCUMENTS:
A. SELF–DRILLING SCREWS OF TYPE AND SIZES AS SHOWN IN THE CONTRACT DOCUMENTS.
B. WELDS SHALL BE PERFORMED BY OPERATORS QUALIFIED IN ACCORDANCE WITH SECTION 6.0 OF AWS D1.3, SHEET METAL.

STRUCTURAL STEEL

1. STRUCTURAL STEEL SHALL MEET THE FOLLOWING MINIMUM YIELD STRESS (Fy):

	YIELD	ASTM SPECIFICATION
A. W, WT SHAPES:	50 KSI	A992
B. BARS, PLATES, CHANNELS, ANGLES:	36 KSI	A36
C. SQUARE, RECTANGULAR HSS:	50 KSI	A500, GRADE C
D. ROUND HSS:	46 KSI	A500, GRADE C
E. STRUCTURAL STEEL PIPE:	35 KSI	A53, GRADE B
F. ANCHOR RODS:	36 KSI [55KSI, 105 KSI], WELDABLE	F1554
G. ALL–THREAD RODS:	36 KSI	A36
H. HEADED STUD ANCHORS:	65 KSI TENSILE STRESS	A108, GRADES 1010–1020

2. BOLTS FOR STEEL BEAM AND COLUMN CONNECTIONS SHALL BE 3/4–INCH DIAMETER (MIN.) ASTM F3125, GRADE A325–N HIGH–STRENGTH BOLTS UNLESS NOTED OTHERWISE IN CONTRACT DOCUMENTS.
3. ALL BOLTED JOINTS SHALL BE SNUG TIGHT UNLESS NOTED OTHERWISE IN CONTRACT DOCUMENTS . FOR PRETENSIONED OR SLIP–CRITICAL JOINTS, THE METHOD OF INSTALLATION SHALL BE TURN–OF–NUT WITH MATCH MARKING, TWIST–OFF–TYPE TENSION CONTROL BOLT ASSEMBLIES (ASTM F3125, GRADE F1852), OR DIRECT TENSION INDICATORS (ASTM F959).
4. WELDING SHALL MEET ANSI / AWS D1.1, STRUCTURAL WELDING CODE LATEST REVISION. ELECTRODES SHALL BE 70 KSI, LOW HYDROGEN.
5. WELDS NOT SPECIFICALLY SIZED ON THE STRUCTURAL DRAWINGS SHALL BE THE MINIMUM SIZE PER THE LATEST AWS D1.1.
6. PROVIDE DOUBLE NUTS AND DOUBLE WASHERS FOR STEEL COLUMN ANCHOR BOLTS TO ALLOW FOR ADJUSTMENT IN BASE PLATE ELEVATION. PROVIDE 1 1/2 INCH NON–SHRINK GROUT UNDER BASE PLATE AFTER ERECTION. USE 2 1/2 INCH NON–SHRINK GROUT WHEN COLUMN ANCHOR BOLTS ARE 1 1/4 INCH DIAMETER OR LARGER. NON–SHRINK GROUT SHALL BE NON–METALLIC WITH A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI AT 28 DAYS.
7. LEDGER ANGLES AND LINTELS IN EXTERIOR WALL SYSTEMS SHALL BE HOT DIP GALVANIZED PER ASTM A123.
8. ALL CONNECTIONS NOT FULLY DETAILED IN THE CONTRACT DOCUMENTS SHALL BE DESIGNED AND DETAILED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED. THE CONNECTION DESIGN ENGINEER SHALL BE EMPLOYED OR RETAINED BY THE STEEL FABRICATOR. THE DESIGN AND DETAILING SHALL COMPLY WITH ALL APPLICABLE CODES AND SPECIFICATION SECTIONS.

GENERAL NOTES

9. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCLUDING THE COSTS FOR ALL MISCELLANEOUS STEEL SHOWN IN THE CONTRACT DOCUMENTS. THESE COSTS SHALL INCLUDE, BUT ARE NOT LIMITED TO, MISCELLANEOUS STEEL ITEMS SHOWN ON THE STRUCTURAL, ARCHITECTURAL, CIVIL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS AND IN THE SPECIFICATIONS.
10. AT ALL GALVANIZED OR PAINTED STEEL MEMBERS WITH FIELD WELDED CONNECTIONS, REMOVE GALVANIZING, PAINT OR PRIMER PRIOR TO FIELD WELDING AS REQUIRED. AFTER WELDING IS COMPLETE AND INSPECTOR APPROVED, PREPARE AND REPAINT THE FRAMING SURFACES, WITH GALVANIZED PAINT WHERE REQUIRED.

STEEL JOISTS

1. STEEL JOISTS SHALL BE AS INDICATED ON THE PLANS AND SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS OF THE STEEL JOIST INSTITUTE (SJI) AND MEET THE FOLLOWING:
A. JOISTS SHALL BE DESIGNED FOR THE SUPERIMPOSED LOADS SHOWN IN THE CONTRACT DOCUMENTS.
B. JOISTS THAT SUPPORT CONCENTRATED LOADS SHALL HAVE THEIR CHORDS DESIGNED TO WITHSTAND ALL BENDING STRESSES, OR THE LOADS SHALL OCCUR WITHIN 3 INCHES OF JOIST PANEL POINTS, OR THE JOIST SHALL BE REINFORCED PER THE "JOIST REINFORCING DETAIL" SHOWN HEREIN. CONCENTRATED LOADS SHALL BE CENTERED ON JOISTS AND NOT ATTACHED TO THE EDGE OF CHORD ANGLES.
C. JOISTS SHALL RESIST THE UPLIFT PRESSURE AS INDICATED IN THE DESIGN PARAMETERS FOR "DESIGN WIND PRESSURE ON COMPONENTS AND CLADDING". AN ALLOWABLE STRESS INCREASE IS NOT PERMITTED.
D. FOR ALL MEMBERS THAT REQUIRE SPECIFIC ORIENTATION, PROVIDE TAG AT ONE END AND DEFINE LOCATION OF TAGGED END ON ERECTION DRAWINGS.
E. JOIST MANUFACTURER SHALL DETERMINE THE SEAT DEPTH AND WIDTH OF BEARING AND COORDINATE THE SAME WITH THE STEEL FABRICATOR. THE FOLLOWING SEAT DEPTHS ARE ASSUMED IN THE CONTRACT DOCUMENTS: 2 1/2 INCH FOR K–SERIES JOISTS AND 5 INCH FOR LH AND DLH SERIES JOISTS AND 7 1/2 INCH FOR JOIST GIRDERS UNLESS NOTED OTHERWISE IN CONTRACT DOCUMENTS.
F. JOISTS SHALL BE FABRICATED TO PROVIDE OPENINGS FOR DUCTS AS SHOWN IN THE REQUIRED OPENING IN JOIST DETAIL.
2 JOISTS SHALL BE ATTACHED TO SUPPORTING MEMBER PER SJI SPECIFICATIONS, UNLESS NOTED OTHERWISE IN CONTRACT DOCUMENTS. BOLT JOIST TO SUPPORTING MEMBER IN CONFORMANCE WITH THE OCCUPATIONAL SAFETY AND HAZARD ADMINISTRATION (OSHA) AND SJI REQUIREMENTS. BOLTS SHALL REMAIN AFTER INSTALLATION.
3. JOIST BRIDGING AND ERECTION STABILITY SHALL BE PROVIDED IN ACCORDANCE WITH OSHA AND THE SPECIFICATIONS OF SJI.
4. STEEL JOIST MANUFACTURER SHALL COORDINATE MECHANICAL DUCT LOCATIONS TO AVOID CONFLICT WITH BRIDGING.
5. JOIST MANUFACTURER SHALL DESIGN THE COMPRESSION CHORD OF ALL JOISTS SUPPORTING ROOF TOP UNITS, SKY LIGHTS, AND OTHER STRUCTURES FOR AN UNBRACED LENGTH APPLICABLE TO THE CONDITIONS AT THE PROJECT WHERE THE UNBRACED LENGTH IS GREATER THAN THE SJI MAXIMUM. REFERENCE ARCHITECTURAL AND MEP DRAWINGS FOR JOIST SUPPORTED ITEMS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
6. DESIGN JOISTS FOR INTERNAL ROOF DRAIN LINE LOCATIONS, IF REQUIRED. ADD DRAIN LINE WEIGHT OF 10 PLF FOR 4 INCH DIAMETER AND 25 PLF FOR 6 INCH DIAMETER, ADD 45 PLF FOR 8 INCH DIAMETER, ADD 70 PLF FOR 10 INCH DIAMETER, ADD 95 PLF FOR 12 INCH DIAMETER. ADD 110 PLF FOR 14 INCH DIAMETER, ADD 170 PLF FOR 18" DIAMETER. REFERENCE MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATION.
7. SHOP DRAWINGS SHALL BE REVIEWED BY THE ARCHITECT AND THE ENGINEER–OF–RECORD AND GENERAL CONTRACTOR PRIOR TO JOIST FABRICATION.

STEEL DECK

1. STEEL DECK AND ITS ANCHORAGE SHALL BE MANUFACTURED AND ERECTED PER THE STEEL DECK INSTITUTE (SDI) MANUALS FOR "ROOF DECK DESIGN", "FLOOR DECK DESIGN" AND "DIAPHRAGM DESIGN", CURRENT EDITION.
2. STEEL ROOF DECK
A. STEEL ROOF DECK SHALL BE GALVANIZED (80 KSI) TYPE "B" UNLESS NOTED OTHERWISE. DEPTH SHALL BE AS SHOWN IN THE CONTRACT DOCUMENTS.
B. ROOF DECK IS REQUIRED TO ACT AS A DIAPHRAGM. CONNECTIONS SHALL BE IN ACCORDANCE WITH STEEL DECK INSTITUTE SPECIFICATIONS. REFER TO THE ROOF DIAPHRAGM CONNECTION DIAGRAM FOR ATTACHMENT.
C. DECKING SHALL BE CONTINUOUS OVER A MINIMUM OF (3) SPANS UNLESS NOTED OTHERWISE IN THE CONTRACT DOCUMENTS. DECK SPLICES ARE TO BE OVER SUPPORTS.
D. NO HANGING LOADS SHALL BE ATTACHED TO ROOF DECK.

POST INSTALLED ANCHORS

1. ANCHORS SHALL ONLY BE INSTALLED WHERE SPECIFIED ON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE STRUCTURAL ENGINEER PRIOR TO INSTALLING POST INSTALLED ANCHORS IN PLACE OF MISSING OR MIS–PLACED CAST–IN–PLACE ANCHORS. CARE SHALL BE TAKEN IN PLACING POST–INSTALLED ANCHORS TO AVOID CONFLICTS WITH EXISTING REINFORCING. ANY CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE EOR PRIOR TO COMPLETION OF WORK.
2. THE CONTRACTOR SHALL SUBMIT PRODUCT DATA WITH DESIGN VALUES AND PHYSICAL PROPERTIES FOR ALL POST INSTALLED ANCHORS. ADDITIONALLY, THE CONTRACTOR SHALL SUBMIT CERTIFIED ICC ES OR ESR REPORTS WHICH VERIFY COMPLIANCE WITH THE SPECIFIED CRITERIA.
3. SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE SPECIFIED ON THE CONTRACT DRAWINGS SHALL BE SUBMITTED BY THE CONTRACTOR TO THE STRUCTURAL ENGINEER ALONG WITH CALCULATIONS THAT ARE SIGNED AND SEALED BY A QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR PREPARATION AND LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED. THE CALCULATIONS SHALL DEMONSTRATE THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERTINENT EQUIVALENT PERFORMANCE VALUES OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARDS AS REQUIRED BY THE BUILDING CODE.
4. ALL HOLES SHALL BE DRILLED, DRY AND CLEANED AND ANCHORS SHALL BE INSTALLED IN ACCORDANCE PER ANCHOR MANUFACTURER'S WRITTEN SPECIFICATIONS. THE LATEST VERSION OF THE WRITTEN SPECIFICATION SHALL BE ON–SITE AND FOLLOWED DURING THE INSTALLATION OF THE ANCHORS.
5. THE ANCHOR EMBEDMENT DEPTH SHALL BE DEFINED AS THE DEPTH FROM THE SURFACE FACE OF THE LOAD BEARING BASE MATERIAL TO THE DEEPEST PART OF THE ANCHOR AFTER THE ANCHOR HAS BEEN FULLY INSTALLED INTO THE HOLE PER MANUFACTURER'S SPECIFICATIONS.
6. ANCHORS EXPOSED TO WEATHER SHALL BE STAINLESS STEEL.
7. CONTRACTOR SHALL FOLLOW THE LATEST VERSION OF MANUFACTURER'S SPECIFICATION DURING INSTALLATION OF ANCHORS.
8. OVERHEAD ADHESIVE ANCHORS MUST BE INSTALLED BY PERSONNEL CERTIFIED BY THE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM.

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JOB # : 2320374

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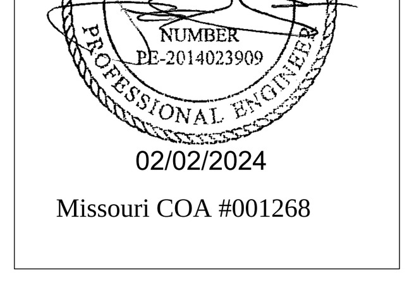

02/02/2024
Missouri COA #001268

SHEET NO.

S001

GENERAL NOTES

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GENERAL NOTES

DEFERRED STRUCTURAL SUBMITTALS (IBC 2018 SECTION 107.3.4.1)

1. THE FOLLOWING STRUCTURAL COMPONENTS SHALL BE DESIGNED AND SUBMITTED BY OTHERS FOR APPROVAL IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
   A. STRUCTURAL STEEL CONNECTIONS OF FRAMING AND BRACING ELEMENTS.
   B. STEEL, SELF-SUPPORTING STAIRS.
   C. MECHANICAL SUPPORTS, FRAMES, AND BRACING ELEMENTS.
2. DOCUMENTS FOR DEFERRED STRUCTURAL SUBMITTAL ITEMS SHALL BE DESIGNED, SEALED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED. THE DEFERRED SUBMITTAL DOCUMENTS SHALL BE SUBMITTED TO THE ARCHITECT OR ENGINEER-OF-RECORD WHO SHALL REVIEW THEM AND FORWARD THEM TO THE BUILDING OFFICIAL AS REQUESTED WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED FOR DESIGN LOADS AND BEEN FOUND TO BE IN GENERAL CONFORMANCE TO THE DESIGN CRITERIA OF THE BUILDING. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

STRUCTURAL OBSERVATION REQUIREMENTS (IBC 2018 SECTION 1704.6)

1. A REPRESENTATIVE OF THE ENGINEER OF RECORD EMPLOYED BY THE OWNER WILL PERFORM THE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS AT SIGNIFICANT CONSTRUCTION STAGES AND AT COMPLETION OF THE STRUCTURAL SYSTEM. STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR THE INSPECTION REQUIRED OF THE BUILDING OFFICIAL OR THE SPECIAL INSPECTOR.
2. A PRE-CONSTRUCTION MEETING SHALL BE HELD AND ATTENDED BY THE ARCHITECT, ENGINEER OF RECORD, GENERAL CONTRACTOR, SUBCONTRACTORS, AND SPECIAL INSPECTORS.
3. THE GENERAL CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD OR OWNER'S REPRESENTATIVE AT LEAST 48 HOURS PRIOR TO COMPLETING CONSTRUCTION OPERATIONS THAT REQUIRE STRUCTURAL OBSERVATION.
4. AT A MINIMUM, THE FOLLOWING SIGNIFICANT CONSTRUCTION STAGES REQUIRE A SITE VISIT AND AN OBSERVATION REPORT FROM THE STRUCTURAL OBSERVER:
   A. AFTER INSTALLATION OF FIRST FOUNDATION REINFORCING AND BEFORE CONCRETE PLACEMENT.
   B. AFTER ERECTION OF FIRST LIFT OF CMU WALL AND BEFORE GROUT PLACEMENT.
   C. AFTER ERECTION OF STRUCTURAL STEEL AND BEFORE METAL DECK PLACEMENT.
   D. AFTER INSTALLATION AND FASTENING OF METAL DECK AND BEFORE PLACING INSULATION.
5. AT THE CONCLUSION OF THE WORK INCLUDED IN THE PERMIT, THE STRUCTURAL OBSERVER SHALL SUBMIT TO THE BUILDING OFFICIAL A WRITTEN STATEMENT THAT THE SITE VISITS HAVE BEEN MADE AND IDENTIFY ANY REPORTED DEFICIENCIES THAT, TO THE BEST OF THE STRUCTURAL OBSERVER'S KNOWLEDGE, HAVE NOT BEEN RESOLVED.

ABBREVIATIONS

A.B.	ANCHOR BOLTS
ACI	AMERICAN CONCRETE INSTITUTE
AESS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL
A.F.F.	ABOVE FINISHED FLOOR
ARCH.	ARCHITECTURAL
BAL.	BALANCE
B.L.	BLOCK LINTEL
BLDG.	BUILDING
B.O.	BOTTOM OF
B.O.D.	BOTTOM OF DECK
BRG.	BEARING
C.J.	CONTRACTION JOINT
C.L.	CENTER LINE
CLR.	CLEAR
CMU	CONCRETE MASONRY UNIT
COL.	COLUMN
CONC.	CONCRETE
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
D.B.A.	DEFORMED BAR ANCHOR
DIA.	DIAMETER
DWG.	DRAWING
E.F.	EACH FACE
E.J.	EXPANSION JOINT
ELEV.	ELEVATION
E.O.D.	EDGE OF DECK
E.O.S.	EDGE OF SLAB
EQ.	EQUAL
E.W.	EACH WAY
EXIST.	EXISTING
FDN.	FOUNDATION
F.F.E.	FINISHED FLOOR ELEV.
F.S.	FAR SIDE
FTG.	FOOTING
GA.	GAGE
GALV.	GALVANIZED
G.B.	GRADE BEAM
HORIZ.	HORIZONTAL
H.S.A.	HEADED STUD ANCHOR
IBC	INTERNATIONAL BUILDING CODE
INFO.	INFORMATION
J.B.E.	JOIST BEARING ELEVATION
JT.	JOINT
K	UNIT OF 1,000 POUNDS (KIP)
KSI	KIPS PER SQUARE INCH
LBS.	POUNDS
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG.	LONGITUDINAL
MAX.	MAXIMUM
MECH.	MECHANICAL
MFR.	MANUFACTURER
MIN.	MINIMUM
MISC.	MISCELLANEOUS
N.I.C.	NOT IN CONTRACT
NO.	NUMBER
N.T.S.	NOT TO SCALE
N.S.	NEAR SIDE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
O.H.	OPPOSITE HAND
P.A.F.	POWER ACTUATED FASTENER
PCF	POUNDS PER CUBIC FOOT
PLF	POUNDS PER LINEAR FOOT
P.M.E.J.	PREMOLDED EXPANSION JOINT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
QTY.	QUANTITY
RE:	REFER
REINF.	REINFORCING
REQD.	REQUIRED
R.O.	ROUGH OPENING
RTU	ROOF TOP UNIT
SCHED.	SCHEDULE
S.D.S.	SELF-DRILLING SCREWS
SIM.	SIMILAR
SPECS.	SPECIFICATIONS
STD.	STANDARD
STL.	STEEL
T&B	TOP AND BOTTOM
T.O.	TOP OF
T.O.P.	TOP OF PIER
T.O.W.	TOP OF WALL
TRANS.	TRANSVERSE
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VERT.	VERTICAL
W.P.	WORK POINT
WT.	WEIGHT
W.W.R.	WELDED WIRE REINFORCEMENT

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Missouri COA #001268

SHEET NO.

S002

GENERAL NOTES

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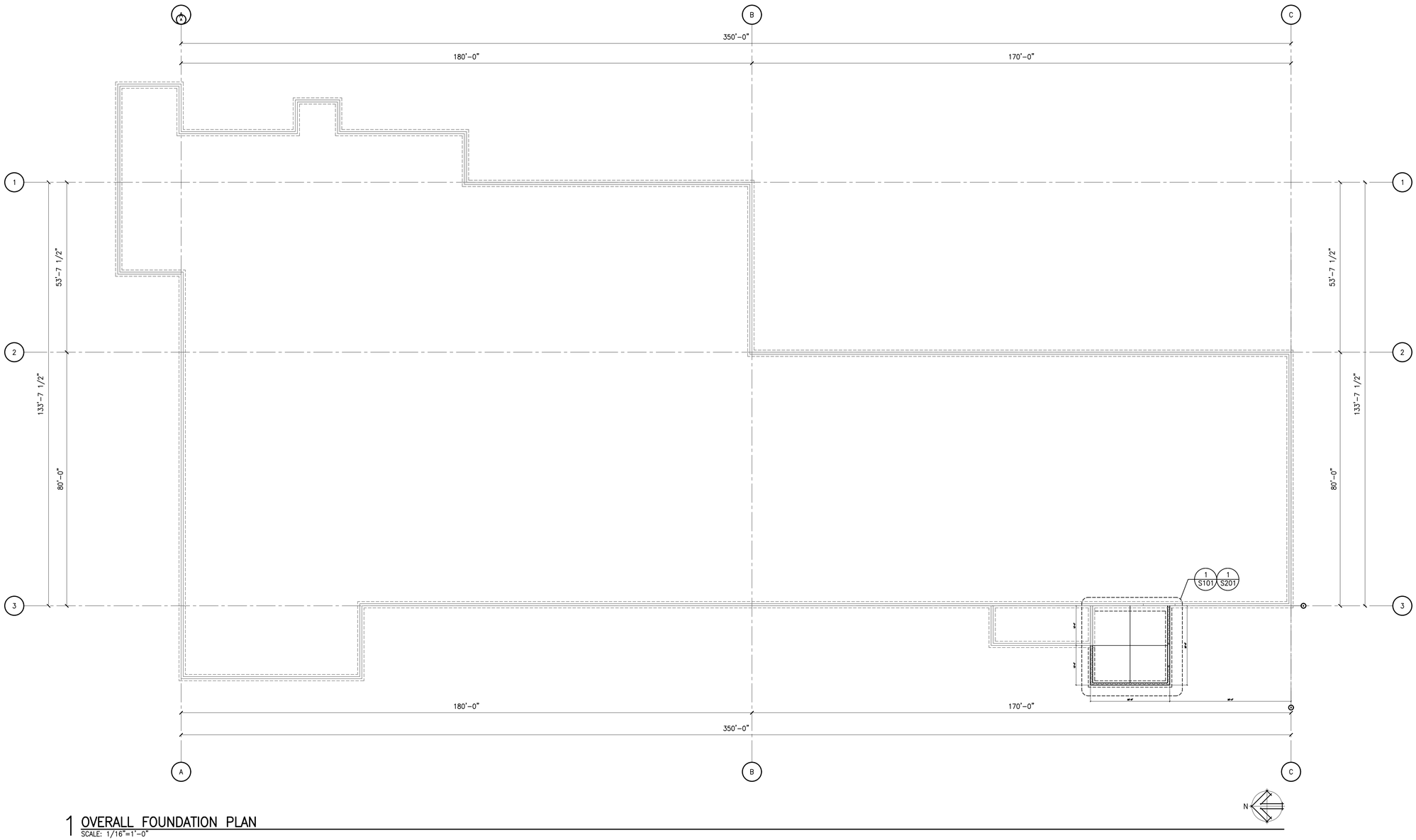

1 OVERALL FOUNDATION PLAN
SCALE: 1/16"=1'-0"

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S100

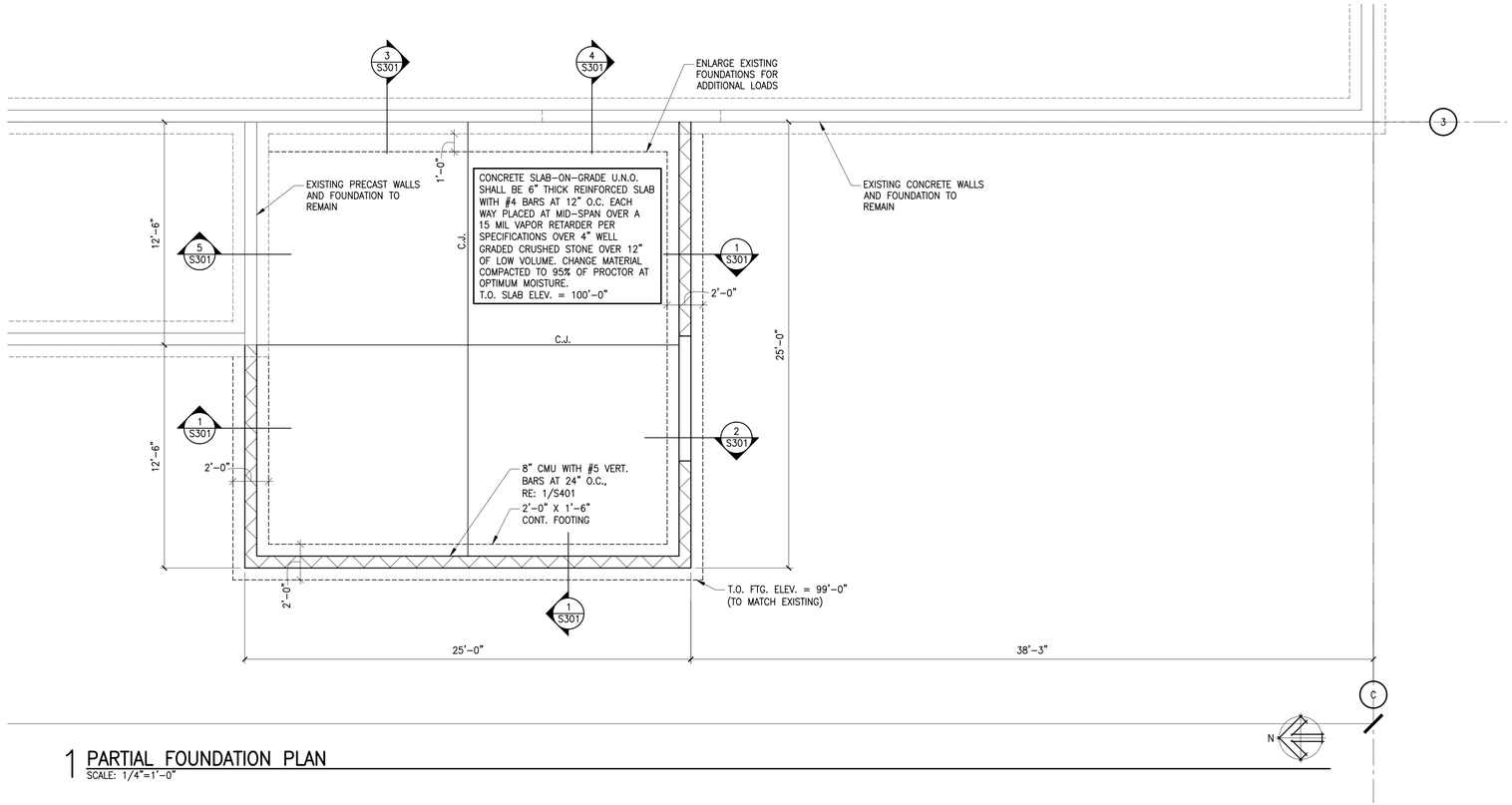
OVERALL FOUNDATION PLAN

PLAN NOTES:

1. THE CONCRETE SLABS SHOWN ON THE STRUCTURAL DRAWINGS HAVE BEEN DESIGNED FOR THE FINISHED STRUCTURE AND HAVE NOT BEEN DESIGNED FOR MEANS AND METHODS OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO, FORK LIFTS, MAN LIFTS, AND OTHER VEHICULAR TRAFFIC. THE CONTRACTOR SHALL VERIFY THE SLAB DESIGN MEETS THE CONSTRUCTION NEEDS AND SHALL SUBMIT TO THE ENGINEER OF RECORD FOR REVIEW.
2. TOP OF FOOTING ELEV. = 99'-0", UNLESS NOTED OTHERWISE.
3. ALL PIPING OR CONDUITS THAT OCCUR THROUGH OR UNDER A GRADE BEAM OR FOOTING SHALL BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO PLACEMENT.
4. RE: 1/S300 FOR REINFORCING LAP SCHEDULE.
5. PROVIDE CORNER BARS IN ALL CONCRETE WALLS AND FOUNDATIONS, RE: 6/S300.
6. PROVIDE BLOCKOUT IN FOOTINGS FOR ROOF DRAIN PIPING, RE: 3/S300. RE: ARCH/MEP FOR PIPING LOCATIONS.
7. DIMENSIONS AND DETAILS OF THE EXISTING STRUCTURE ARE BASED UPON EXISTING DOCUMENTS AND PRELIMINARY FIELD SURVEY. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND REPORT TO THE ENGINEER ANY VARIATIONS FROM THE DATA SHOWN HEREIN FOR POSSIBLE REDESIGN.

LEGEND

C.J. = SAW CUT CONTROL JOINT; RE: DETAIL 2/S3.00



1 PARTIAL FOUNDATION PLAN
SCALE: 1/4"=1'-0"

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STATE OF MISSOURI
JAMES M. GRANICH
NUMBER PE-2014023909
PROFESSIONAL ENGINEER
02/02/2024
Missouri COA #001268

SHEET NO.

S101

PARTIAL FOUNDATION PLAN

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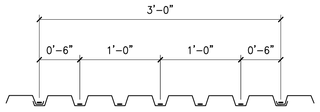
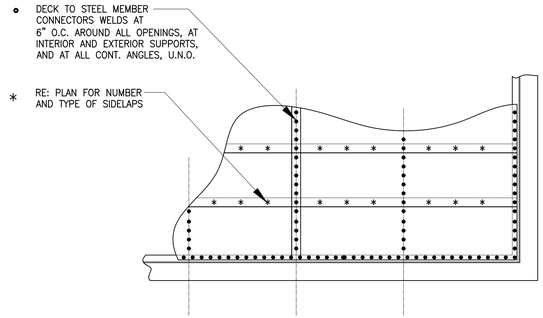
NOTE:

CONTRACTOR SHALL COORDINATE THE TYPE OF PINS USED WITH THE THICKNESS OF THE JOISTS AND JOIST GIRDERS. FOR AREAS IN WHICH THE SUPPORTING STRUCTURE IS THICKER THAN 3/8", THE X-HSN24 PINS SHALL BE SUBSTITUTED FOR X-ENP-19-L15 PINS AT THE SAME FASTENING PATTERNS SPECIFIED.



CONNECTOR PATTERN DIAGRAM (36/7)

1½" TYPE B ROOF DECK



ROOF DIAPHRAGM CONNECTION DIAGRAM

PLAN NOTES:

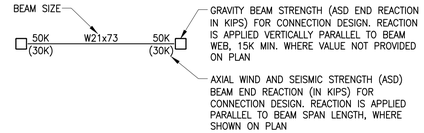
1. ALL CONNECTIONS ON THE STRUCTURAL DRAWINGS, UNLESS NOTED OTHERWISE, SHALL BE DESIGNED AND DETAILED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED, EMPLOYED OR RETAINED BY THE STEEL FABRICATOR. THE DESIGN AND DETAILING SHALL COMPLY WITH ALL APPLICABLE CODES AND SPECIFICATION SECTIONS.
2. ALL EDGE ANGLES SHALL BE CONTINUOUS AND SPLICED PER 5/S400.
3. VERIFY ALL WALL OPENING AND INTERIOR WALL DIMENSIONS AND LOCATIONS WITH ARCHITECTURAL DRAWINGS.
4. ALL STEEL FRAMING MEMBERS, PLATES, CONNECTIONS, BOLTS, ETC. SHALL BE SHOP PRIMED STEEL.
5. DIMENSIONS AND DETAILS OF THE EXISTING STRUCTURE ARE BASED UPON EXISTING DOCUMENTS AND PRELIMINARY FIELD SURVEY. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND REPORT TO THE ENGINEER ANY VARIATIONS FROM THE DATA SHOWN HEREIN FOR POSSIBLE REDESIGN.

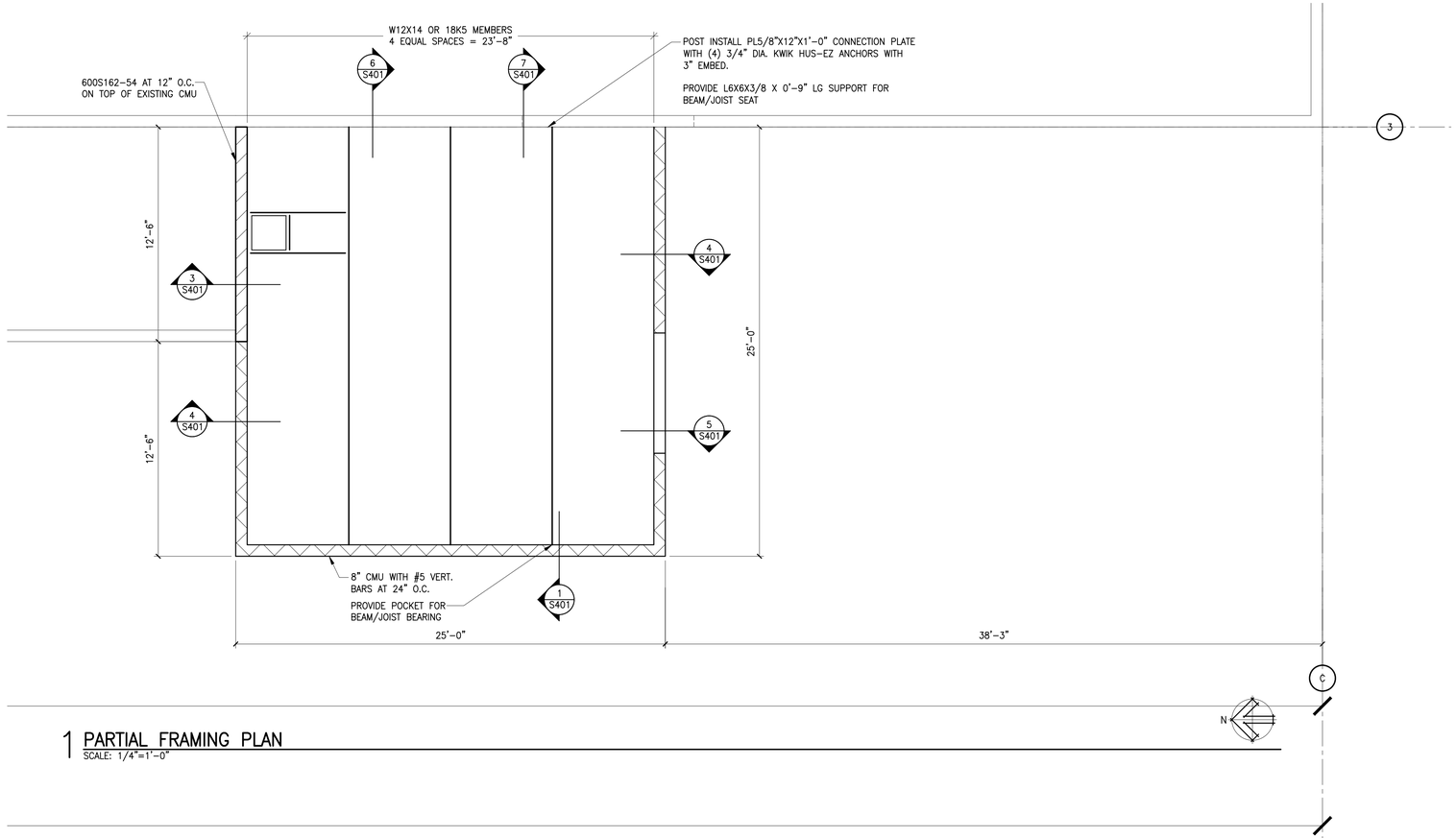
LEGEND

BEAM REACTION LEGEND

STEEL FABRICATOR SHALL DESIGN THE BEAM CONNECTIONS FOR THE STRENGTH LEVEL LOADS (ASD) SHOWN ON THIS PLAN, TYP. (RE: XX)

USE MINIMUM TWO BOLT CONNECTION





1 PARTIAL FRAMING PLAN

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

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S201

PARTIAL FRAMING PLAN

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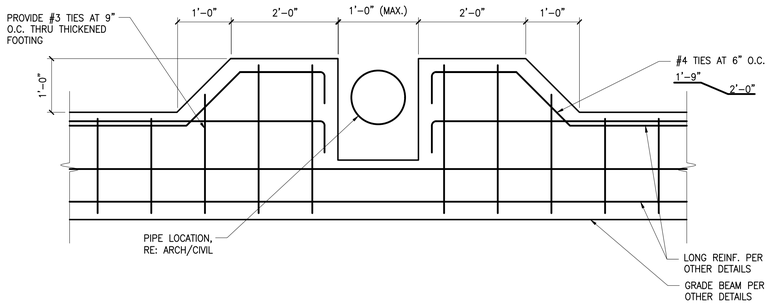
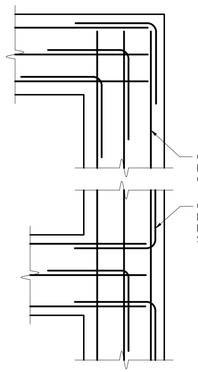
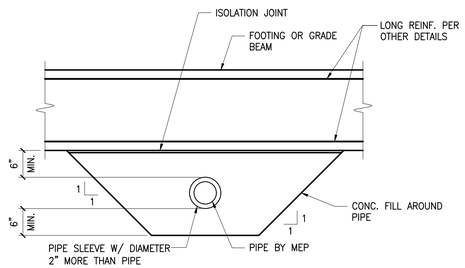


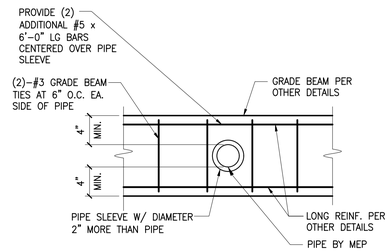
PLAN A–A



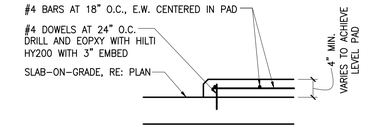
6 CORNER BAR DETAIL
3/4" = 1'-0"



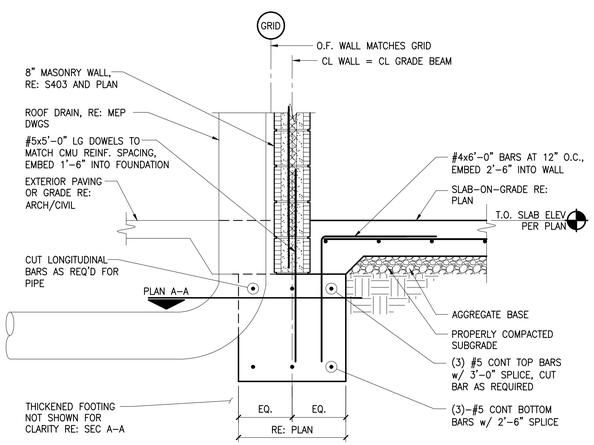
5 PIPE UNDER GRADE BEAM DETAIL
3/4" = 1'-0"



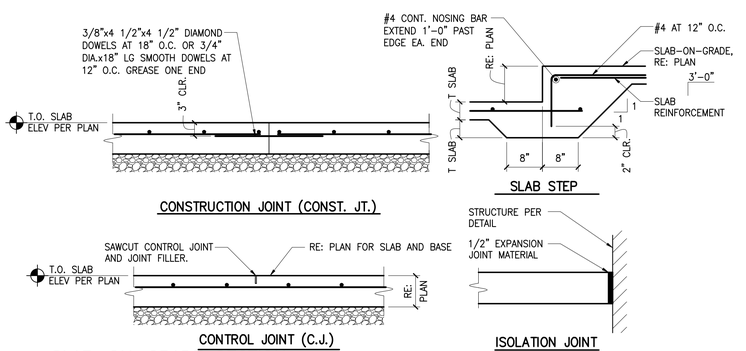
4 PIPE THRU GRADE BEAM DETAIL
3/4" = 1'-0"



7 MECHANICAL PAD
3/4" = 1'-0"



3 FOUNDATION SECTION AT DRAIN
3/4" = 1'-0"



2 SLAB–ON–GRADE SECTION
3/4" = 1'-0"

STEEL REINF. LAP SCHEDULE (INCHES)

BAR SIZE	CONCRETE f'c = 3000 PSI TOP	f'c = 3000 PSI OTHER	f'c = 4000 PSI TOP	f'c = 4000 PSI OTHER	f'c = 5000 PSI TOP	f'c = 5000 PSI OTHER
#3	22	17	20	16	17	13
#4	29	22	27	21	23	17
#5	36	28	33	26	28	22
#6	43	33	40	31	34	26
#7	63	48	58	45	49	38
#8	72	55	66	51	56	43
#9	91	70	79	61	71	54

1 CONC. LAP SCHEDULE
3/4" = 1'-0"

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JAMES M. GRANICH
NUMBER PE-2014023009
PROFESSIONAL ENGINEER
02/02/2024
Missouri COA #001268

SHEET NO.
S300
FOUNDATION DETAILS

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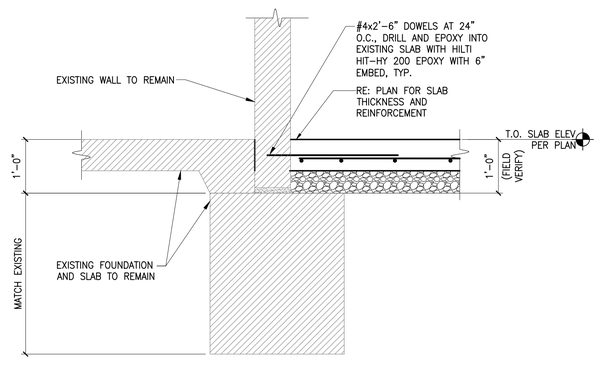
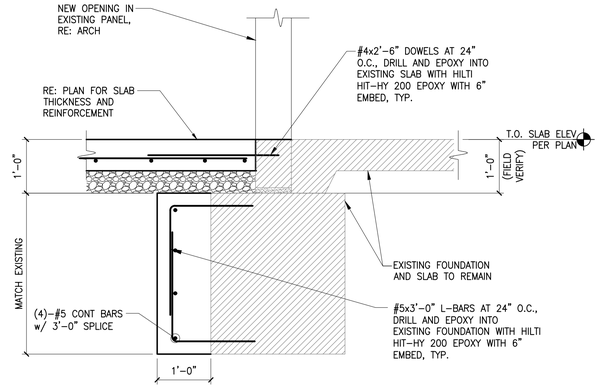
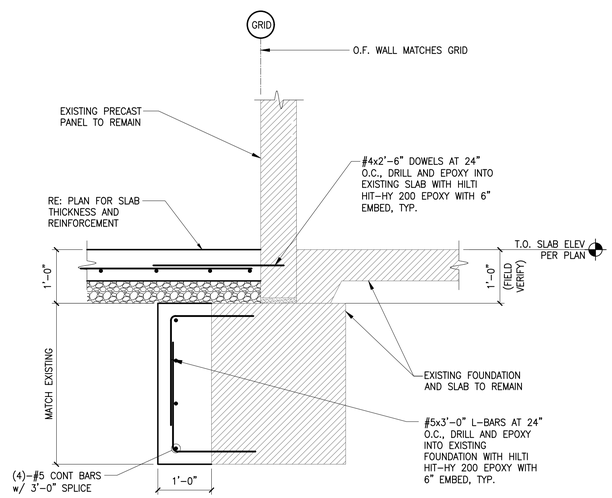


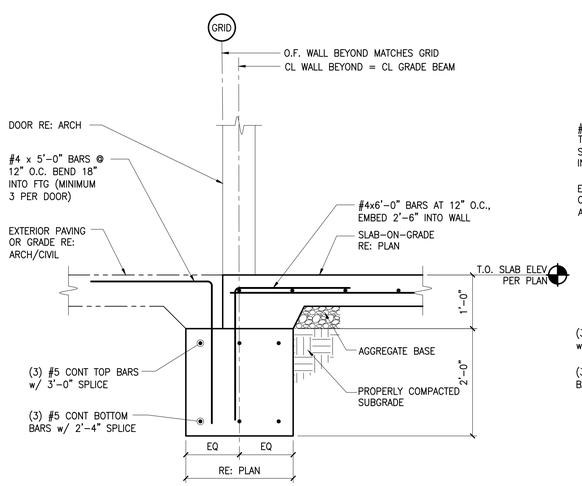
5 FOUNDATION SECTION
3/4" = 1'-0"



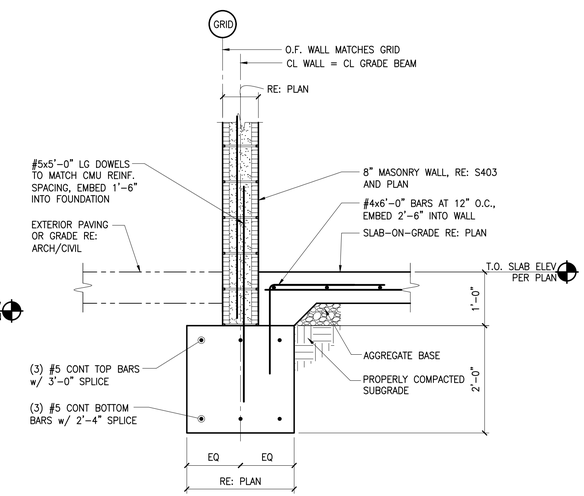
4 FOUNDATION DETAIL AT OPENING
3/4" = 1'-0"



3 FOUNDATION SECTION
3/4" = 1'-0"



2 FOUNDATION SECTION
3/4" = 1'-0"



1 FOUNDATION SECTION
3/4" = 1'-0"

CONTRACTOR SHALL COORDINATE SLAB BLOCKOUT EXTENTS FOR CONSTRUCTION MEANS AND METHODS. BLOCKOUTS SHALL TERMINATE AT CONTROL JOINT LOCATIONS.

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STATE OF MISSOURI · JAMES M. GRANICH · NUMBER 2014023909 · PROFESSIONAL ENGINEER

02/02/2024

Missouri COA #001268

SHEET NO.

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FOUNDATION DETAILS

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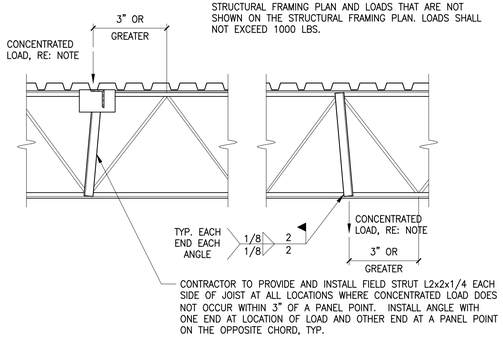
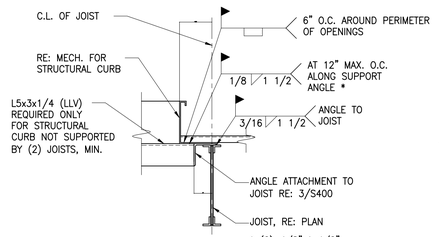
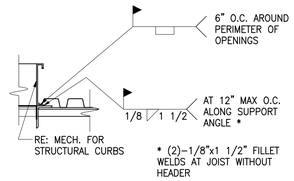


8 JOIST REINFORCING DETAIL
3/4" = 1'-0"

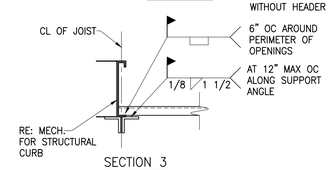
7 ROOF OPENING DETAIL
3/4" = 1'-0"



SECTION 1



SECTION 2



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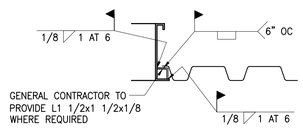
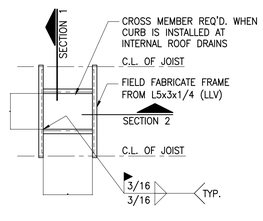
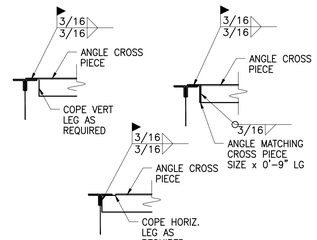


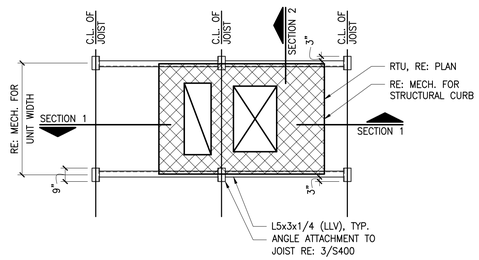
DETAIL 1



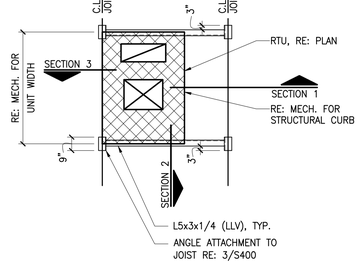
OPENING IN ROOF LARGER THAN 10"x10"



ANGLE ATTACHMENT TO JOIST DETAIL



TYP. AT UNIT SPANNING MULTIPLE JOISTS

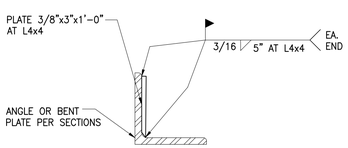


TYP. AT UNIT BETWEEN JOISTS

6 MECHANICAL UNIT SUPPORT DETAIL
3/4" = 1'-0"

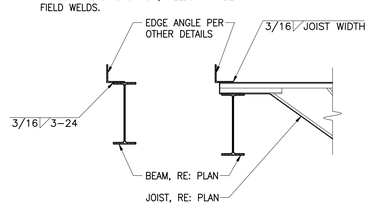
NOTES:
1. INSTALL CURBS, HEADERS, AND FRAMES AND WELD TO SUPPORT STEEL BEFORE DECK IS PLACED.
2. DESIGN JOISTS SUPPORTING RTU'S FOR TWO POINT LOADS. THE LOCATION OF THE LOADS AND THE SPACING BETWEEN THEM VARY.
   RE: RTU JOIST DIAGRAM THIS DETAIL AND ROOF FRAMING PLAN FOR POINT LOADS AND LOCATIONS.
3. RTU CURBS SHALL BE STRUCTURAL, DESIGNED TO SPAN BETWEEN JOISTS AND SUPPORT EDGES OF DECK. CURBS TO BE FABRICATED
   WITH LEDGE ANGLES (L2x2x1/4) AT MECHANICAL OPENINGS TO SUPPORT METAL DECK INSIDE OPENING NOT USED BY SUPPLY OR
   RETURN DUCT WORK. HEADERS ARE NOT REQUIRED FOR STRUCTURAL CURBS EXCEPT WHEN THE CURB DOES NOT SPAN BETWEEN TWO
   JOISTS OR THE CURB CANTILEVERS MORE THAN TWO FEET PAST JOIST.
4. ATTACH DECK AROUND OPENING PER ROOF DIAPHRAGM CONNECTION DETAIL.
5. IF CURB IS NOT PLACED WITHIN 3" OF A JOIST PANEL POINT, RE: JOIST REINFORCING DETAIL RE: 8/S400.
6. GENERAL CONTRACTOR SHALL COORDINATE RTU DIMENSIONS AND FRAMING LOCATIONS WITH THE STEEL FABRICATOR, MECHANICAL, AND ERECTION SUBCONTRACTORS.
7. STEEL SUPPLIER TO FURNISH STOCK ANGLE FOR FIELD FABRICATED SUPPORT FRAMES.
8. RE: DETAIL 1 FOR CONN. OF DECK PARALLEL TO CURB (WHERE REQ'D.).
9. RE: MECH. FOR ROOF TOP UNIT ANCHORAGE TO CURBS.

NOTES:
1. 1/2" MAX. GAP BETWEEN ANGLES
2. AT CONTRACTOR'S OPTION, SPLICE MAY BE COMPLETE JOINT PENETRATION WELD.

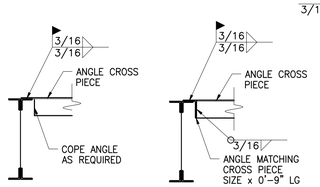


5 SPLICE DETAIL
3/4" = 1'-0"

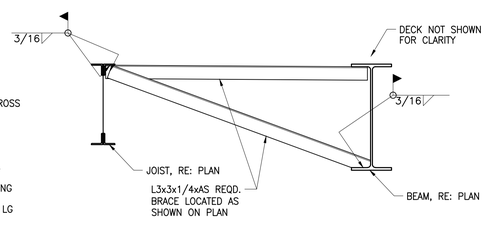
NOTE:
AT CONTRACTOR'S OPTION, WELDS MAY BE FIELD WELDS.



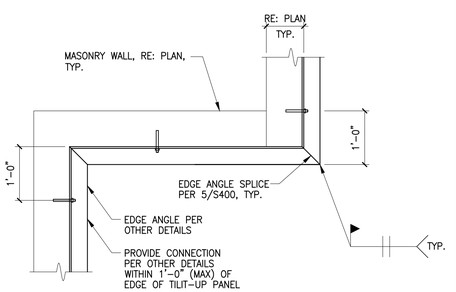
4 EDGE ANGLE CONNECTION DETAIL
3/4" = 1'-0"



3 ANGLE CONNECTION DETAILS
3/4" = 1'-0"



2 BOTTOM FLANGE BRACING DETAIL
3/4" = 1'-0"



1 DECK CORNER DETAIL
SCALE: 3/4" = 1'-0"

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Bob Sight Ford Expanslon

610 NW Blue Pkwy, Lee's Summit, MO 64063

PROGRESS SET ISSUED 01-31-2024

ISSUE LOG

△ #	DATE	FOR

JOB # : 2320374

DWN. BY AJG CHK. BY JMG

STATE OF MISSOURI · JAMES M. GRANICH · NUMBER 2014023909 · PROFESSIONAL ENGINEER

02/02/2024

Missouri COA #001268

SHEET NO.

S400

FRAMING DETAILS

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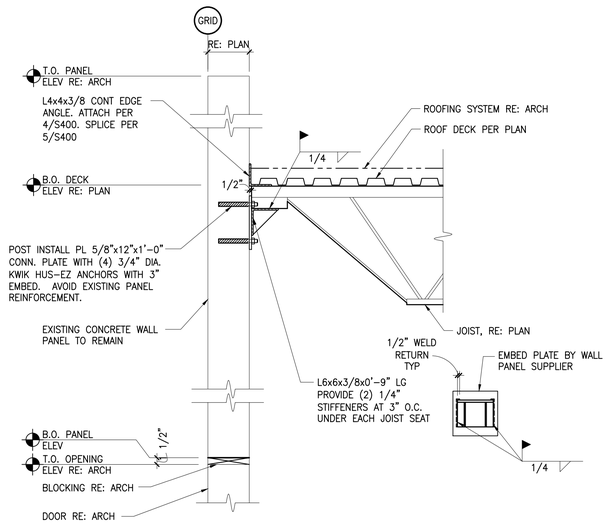
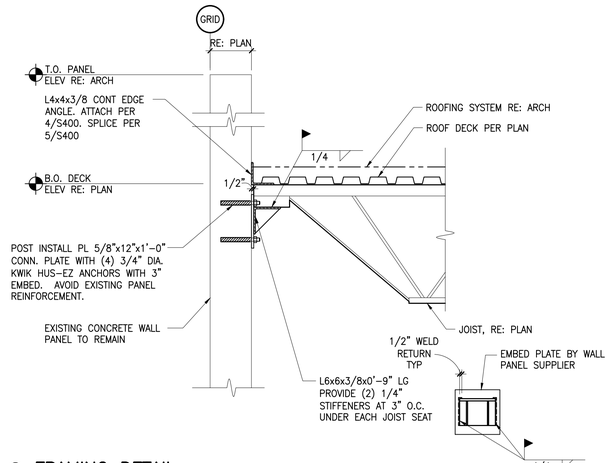
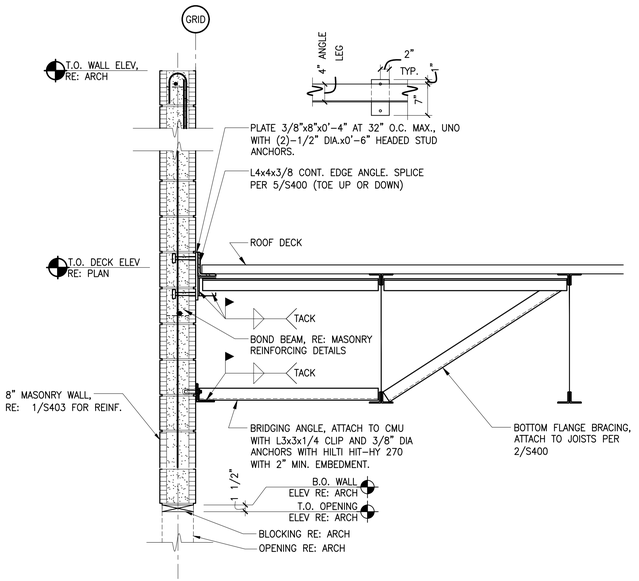


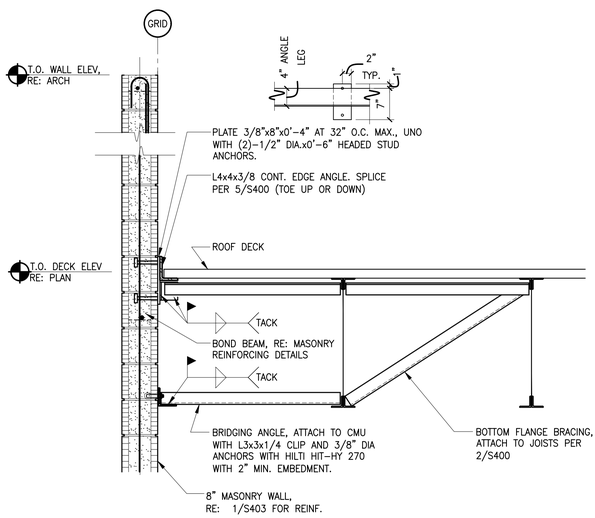
7 FRAMING DETAIL
3/4" = 1'-0"



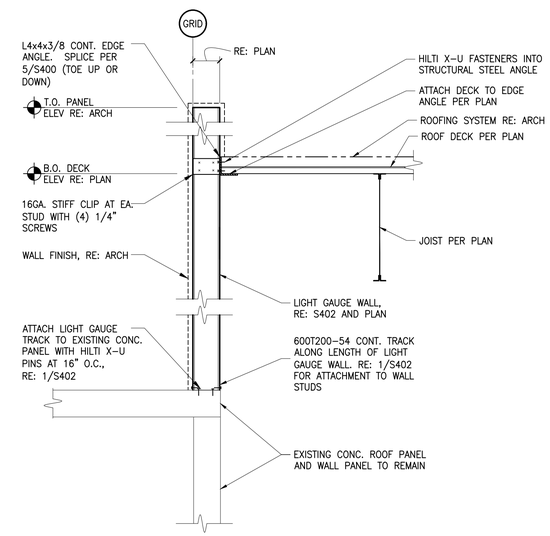
6 FRAMING DETAIL
3/4" = 1'-0"



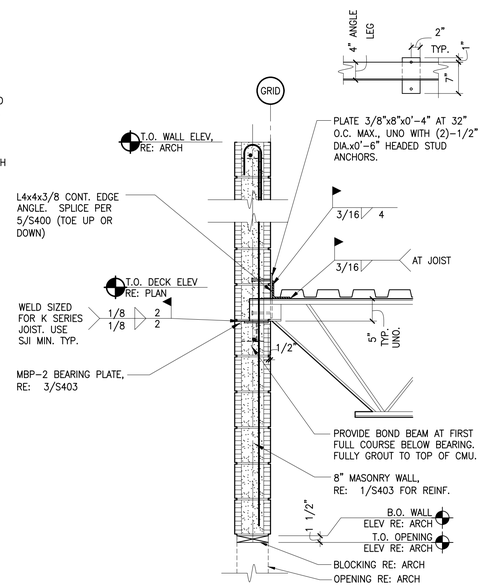
5 FRAMING DETAIL
3/4" = 1'-0"



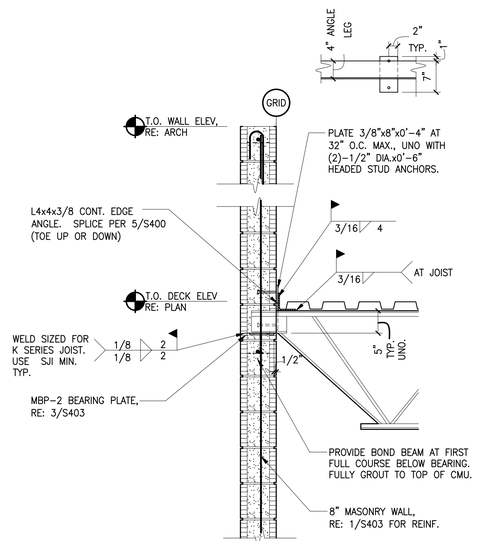
4 FRAMING DETAIL
SCALE: 3/4"=1'-0"



3 FRAMING DETAIL
3/4" = 1'-0"



2 FRAMING DETAIL
SCALE: 3/4"=1'-0"



1 FRAMING DETAIL
SCALE: 3/4"=1'-0"

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Bob Sight Ford Expansion

610 NW Blue Pkwy, Lee's Summit, MO 64063

PROGRESS SET
ISSUED
01-31-2024

ISSUE LOG

△#	DATE	FOR

JOB # : 2320374

DWN. BY AJG CHK. BY JMG

STATE OF MISSOURI
JAMES M. GRANICH
NUMBER 2012-014023909
PROFESSIONAL ENGINEER
02/02/2024
Missouri COA #001268

SHEET NO.

S401

FRAMING DETAILS

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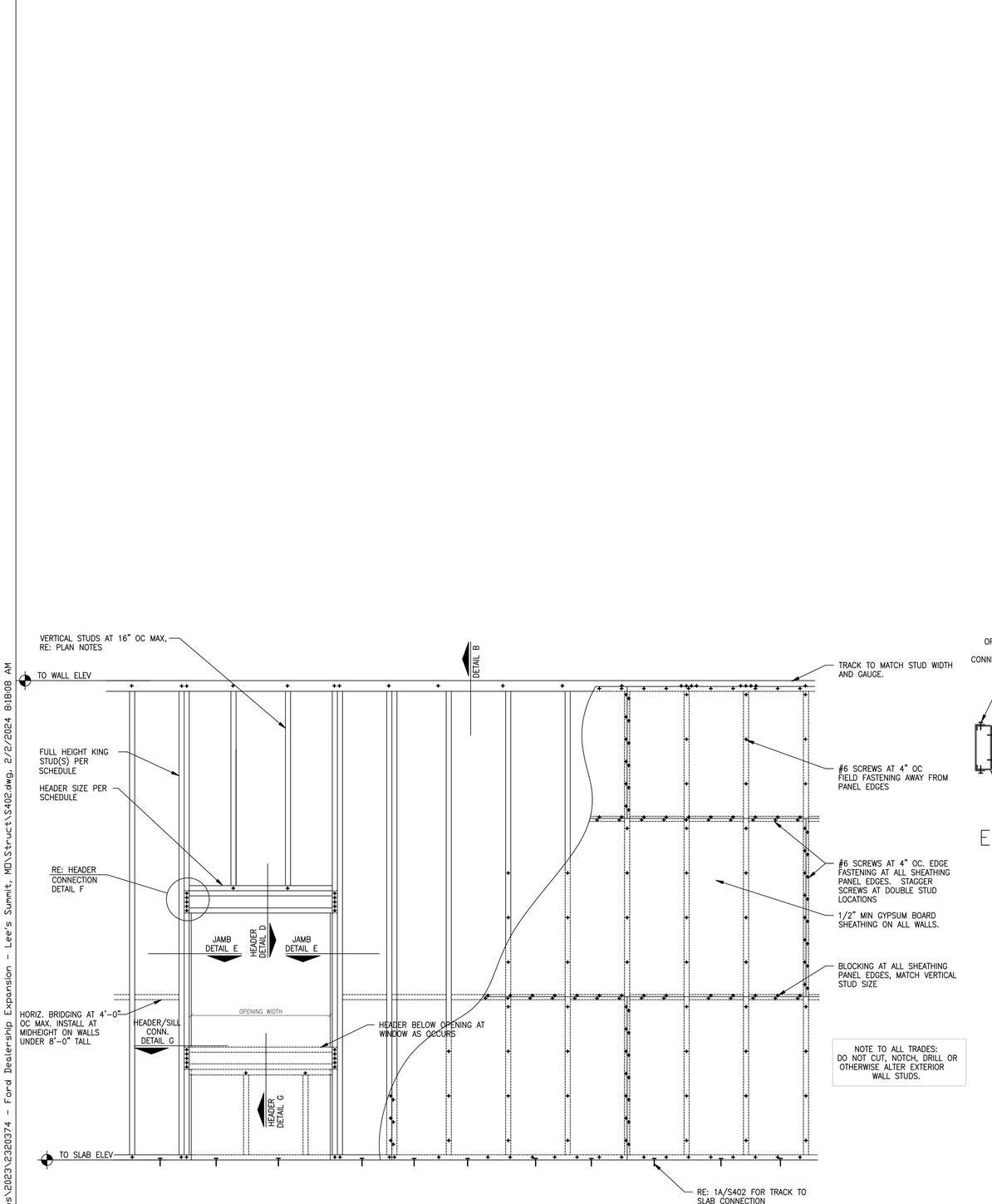
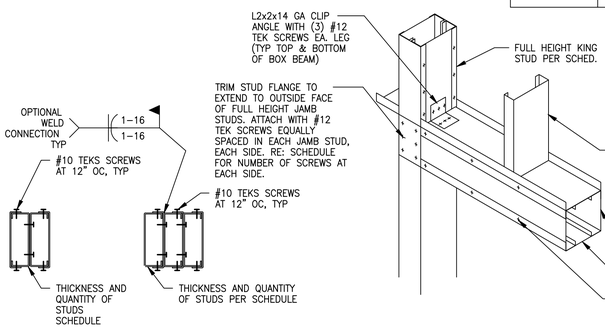


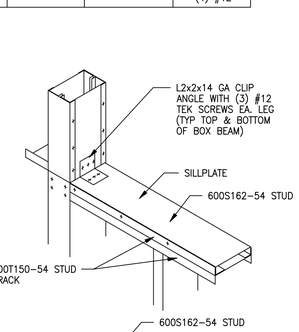
9 LIGHT GAUGE STRUCTURAL WALL ELEVATION
3/4" = 1'-0"

STRUCTURAL HEADER AND JAMB SCHEDULE					
HEADER MARK	OPENING	HEADER	TRACKS	KING STUDS	SCREW QUANTITY
H1	9' – 6" MAX	(2) 600S162–43	600T150–54	(2) 600S162–54	(4) #12

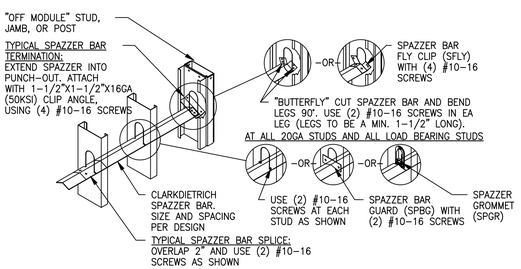


E BUILT–UP JAMB ASSEMBLY

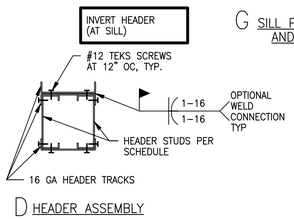
F HEADER CONNECTION



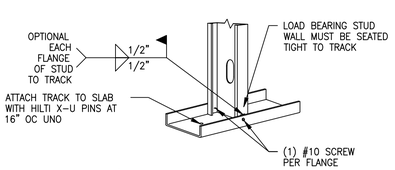
G SILL PLATE ASSEMBLY AND CONNECTION



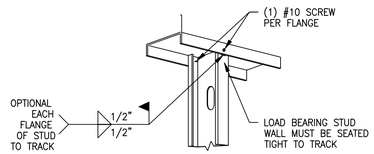
C WALL BRIDGING DETAIL



D HEADER ASSEMBLY



A STUD TO TRACK AT BOTTOM



B STUD TO TRACK AT TOP

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Lee's Summit, MO 64063

PROGRESS SET
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STATE OF MISSOURI
JAMES M. GRANICH
NUMBER PE-2014023909
PROFESSIONAL ENGINEER
02/02/2024
Missouri COA #001268

SHEET NO.

S402

FRAMING DETAILS

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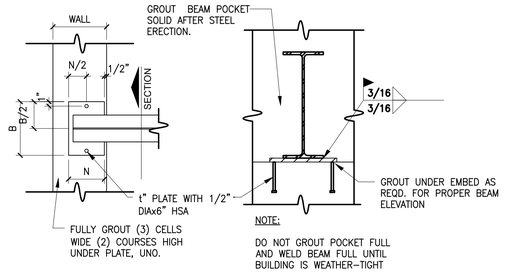
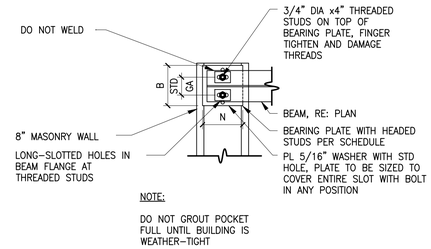


TYPICAL BEARING PLATE PLAN

TYPICAL SECTION

SCHEDULE			
MARK	N	B	t
MBP-1	9	16	3/4"
MBP-2	6	9	3/4"



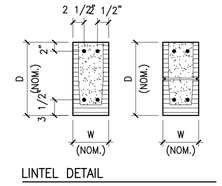
SLOTTED BEARING PLATE CONNECTION (AS NOTED ON PLAN)

2 BEARING PLATE SCHEDULE

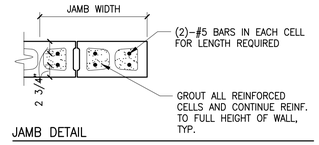
SCALE: 3/4"=1'-0"

CMU LINTEL SCHEDULE								
TYPE	DESCRIPTION	WALL WIDTH (W)	CLEAR SPAN	DEPTH (D)	BOTTOM REINF.	TOP REINF.	JAMB WIDTH	NOTES
A	WALL OPENING	8"	UP TO 5'-0"	8"	(2) #5	-----	8"	1

1. RE: PLAN FOR LINTEL, JAMB LOCATIONS AND TYPE.
2. USE TYPE A LINTEL, U.N.O. ON PLAN.



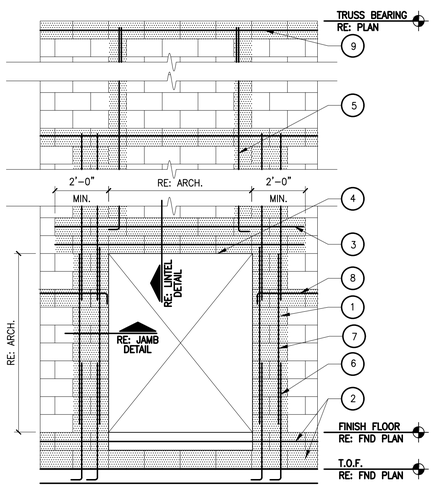
LINTEL DETAIL



JAMB DETAIL

MASONRY REINFORCING LAP SCHEDULE *		
TMS 402/602-16 AND IBC 2018		
BAR SIZE	12" BLOCK	
	SINGLE REINF.	DOUBLE REINF.
#3	19"	19"
#4	25"	25"
#5	31"	31"
#6	52"	57"
#7	61"	79"
#8	75"	112"

* BASED ON f'm = 1900 PSI



1 CMU WALL REINFORCING DIAGRAM

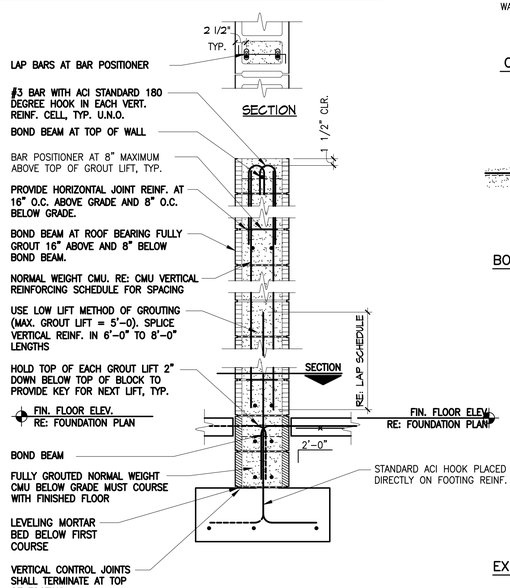
N.T.S.

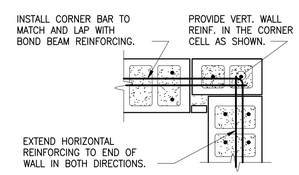
NOTES:
1. REFER CMU REINFORCING DIAGRAM FOR SPLICES IN VERTICAL REINFORCING.
2. BOND BEAM.
3. EXTEND GROUTED LINTEL A MINIMUM OF 2'-0" BEYOND FACE OF OPENING EACH SIDE FOR STRAIGHT LINTEL REINFORCEMENT AND 1'-4" FOR HOOKED LINTEL, U.N.O. REINFORCEMENT WITH STANDARD ACI HOOK.
4. USE LINTEL BLOCKS ONLY FOR BOTTOM COURSE OF LINTEL BEAMS.
5. CONTINUE VERTICAL REINFORCING INTO LINTEL BEAM WITH STANDARD ACI HOOK.
6. PROVIDE DOWELS TO MATCH ALL VERTICAL REINFORCING LOCATIONS.
7. ALL VERTICAL BARS AT JAMBS AND PILASTERS SHALL EXTEND FROM THE BOND BEAM BELOW THE OPENING TO THE BOND BEAM ABOVE THE OPENING.
8. CONTINUE HORIZONTAL REINFORCING INTO JAMB AND PROVIDE STANDARD ACI HOOK INTO END CELL.
9. BOND BEAM AT FIRST FULL COURSE BELOW ROOF FRAMING. VERTICALLY REINFORCE AND GROUT UP TO TOP OF WALL PER REINFORCING SCHEDULE
10. BOND BEAM AT TOP OF WALL.

GENERAL NOTES:
11. GROUT SOLID ALL CELLS WITH REINFORCING.
12. USE BOND BEAM BLOCKS WITH OPEN BOTTOMS ONLY AT BOND BEAM LOCATIONS. DO NOT USE TROUGH-TYPE BLOCKS AT BOND BEAMS.
13. DO NOT CONTINUE BOND BEAM REINFORCING THROUGH CONTROL JOINTS.
14. ALL MASONRY SHALL BE LAID IN RUNNING (COMMON) BOND.
15. REFER TO DETAILS FOR LOCATION OF ADDITIONAL BOND BEAMS.
16. HORIZ. JOINT REINFORCING SHALL BE GALV. LADDER TYPE SPACED AT 16" O.C. ABOVE GRADE AND 8" O.C. BELOW GRADE.
17. MASONRY REQUIRES SPECIAL INSPECTION. RE: SPECIFICATIONS.
18. MASONRY DESIGN IS BASED UPON A MINIMUM COMPRESSIVE STRENGTH OF f'm=1900 PSI, ESTABLISHED IN ACCORDANCE WITH THE UNIT STRENGTH METHOD, U.N.O.
19. MASONRY UNITS SHALL MEET THE REQUIREMENTS OF ASTM C90 (UBC STANDARD 21-4) WITH A NET AREA COMPRESSIVE STRENGTH OF 1,900 PSI, U.N.O. MASONRY UNITS SHALL BE LIGHT WEIGHT (LESS THAN 105 PCF) -OR- MEDIUM WEIGHT (103 TO 125 PCF) -OR- NORMAL WEIGHT (MORE THAN 125 PCF).
20. MORTAR SHALL BE PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM C270 (USE STANDARD 21-15) FOR TYPE "S" MORTAR FOR BELOW GRADE. TYPE "N" MORTAR FOR ABOVE GRADE.
21. GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI AT 28 DAYS. BATCHING AND MIXING SHALL MEET THE REQUIREMENTS OF ASTM C476 (UBC STANDARD 21-19)

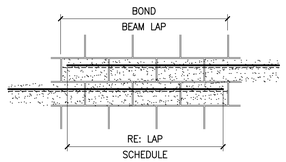
CMU VERTICAL REINFORCING SCHEDULE	
MW-1	8" CMU WITH (1) #5 VERT. AT 24" O.C. EA FACE WITH #5 DOWELS TO MATCH.

REINFORCING NOTES:
1. ALL BOND BEAMS SHALL HAVE (2) #5 BAR CONTINUOUS.
2. USE LINTEL BLOCKS ONLY FOR BOTTOM COURSE OF LINTEL BEAMS AND REINFORCE WITH (2) #5 BAR CONTINUOUS AT ALL OPENINGS

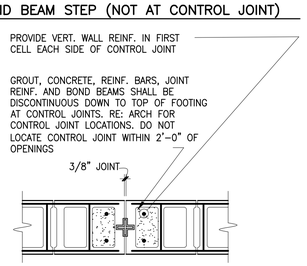




CORNER DETAIL



BOND BEAM STEP (NOT AT CONTROL JOINT)



EXPANSION/CONTROL JOINT DETAIL

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Lee's Summit, MO 64063

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STATE OF MISSOURI
JAMES M GRANICH
NUMBER PE-2014023009
PROFESSIONAL ENGINEER
02/02/2024
Missouri COA #001268

SHEET NO.
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MASONRY DETAILS

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ELECTRICAL SPECIFICATIONS

1. GENERAL PROVISIONS:

A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, NECESSARY FOR THE COMPLETE INSTALLATION OF THE ELECTRICAL SYSTEMS OUTLINED.

B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATES OF COMPLIANCE OR APPROVAL AS REQUIRED BY THE AUTHORITIES.

C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRIC CODE (NEC), AND ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.

D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.

E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, CONDUIT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.

F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.

G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECTS FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.

H. CONTRACTOR SHALL PROVIDE ACCESS PANELS WHERE NECESSARY FOR CONCEALED ELECTRICAL COMPONENTS.

I. CONTRACTOR SHALL PROMPTLY CALL ENGINEERS ATTENTION TO ANY APPARENT CONTRADICTIONS, AMBIGUITIES, ERRORS, DISCREPANCIES, OR OMISSIONS IN THE PLANS OR SPECIFICATIONS.

2. OPERATION AND MAINTENANCE MANUALS:

A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.

B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATION AND MAINTENANCE MANUALS.

C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE COLLATED AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER, CONTRACTORS, ETC. CONTRACTORS, ETC. DOCUMENTS SHALL BE COMPILED AND BOUND IN DIGITAL FILE OR 3 RING BINDER.

3. MANUFACTURERS:

A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN, UNLESS NOTED OTHERWISE.

4. TESTING, AND BALANCING:

A. ALL CIRCUITS SHALL BE TESTED FOR CONTINUITY, SHORTS, AND GROUNDS BEFORE CONNECTING TO THE PROPER PHASE AS DESIGNED TO BALANCE THE LOADING BETWEEN PHASES.

B. POWER AND LIGHTING PANELS SHALL BE PROPERLY PHASED TO DISTRIBUTE THE LOAD AND SHALL BE CONNECTED AND ADJUSTED TO OPERATE AS SPECIFIED.

C. ALL MOTORS AND SIMILAR EQUIPMENT SHALL BE CHECKED FOR PROPER PHASE ROTATION AND OPERATION.

5. RACEWAYS:

A. CONDUIT INSIDE THE BUILDING SHALL BE METALLIC TUBING (EMT), BEARING THE UL LABEL. WITH COMPRESSION TYPE FITTINGS OR SCREW SET FITTINGS.

B. CONDUIT EXPOSED TO THE WEATHER, INSTALLED UNDERGROUND, IN CONCRETE, OR USED FOR SERVICE ENTRANCE SHALL BE STANDARD RIGID CONDUIT (GALVANIZED) WITH THREADED FITTINGS.

C. UNDERGROUND CONDUIT MAY BE POLYVINYL CHLORIDE WITH A DEFLECTION TEMPERATURE, UNDER LOAD AT 264 PSI, OF 78 DEGREES C, AND A TENSILE STRENGTH OF 5,200 PSI. JOINTS SHALL BE FLUSH SOLVENT WELDED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE EQUAL TO CARLON POWER AND COMMUNICATIONS DUCT TYPE DB (DIRECT BURIAL). CONDUIT AND FITTINGS SHALL BE PRODUCED BY THE SAME MANUFACTURER.

D. FLEXIBLE METAL CONDUIT SHALL ONLY BE USED FOR CONNECTIONS TO MOTORS, TRANSFORMERS, AND LIGHT FIXTURES. MAXIMUM LENGTH SHALL BE 6'-0".

6. CONDUCTORS:

A. WIRES SHALL BE CONTINUOUS WITHOUT SPLICES OR TAPS IN CONDUIT RUNS. ALL SPLICES SHALL BE MADE IN JUNCTION, PULL, OR OUTLET BOXES. ALL WIRE SHALL BE INSTALLED IN CONDUIT, WIREWAYS, OR OTHER PROTECTIVE COVER SANCTIONED BY CODES.

B. CONDUCTORS FOR LIGHTING AND POWER SHALL BE COPPER, MINIMUM NO. 12 A.W.G., 600 VOLT.

C. NO. 10 GAUGE AND SMALLER CONDUCTORS SHALL BE TYPE THWN (WET LOCATIONS) OR THHN (DRY LOCATIONS), SOLID CONDUCTOR, UNLESS OTHERWISE INDICATED.

D. NO. 8 GAUGE AND LARGER CONDUCTORS SHALL BE TYPE THWN (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED, UNLESS OTHERWISE INDICATED.

E. SERVICE ENTRANCE AND PANEL FEEDER CONDUCTORS, NO. 3 GAUGE AND LARGER SHALL BE TYPE XHHW-2 (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED COPPER, UNLESS OTHERWISE INDICATED.

7. MC CABLE:

A. MC CABLE SHALL CONSIST OF INTERLOCK ARMORED CABLE MADE OF THREE OR FOUR TYPE THHN SOLID (#8 AWG AND LARGER MAY BE STRANDED) COPPER CONDUCTORS RATED 90°C FOR DRY LOCATIONS, WITH NYLON OR EQUIVALENT UL LISTED JACKET, PER UL STANDARD 83 THE THREE CONDUCTORS SHALL BE TWISTED TOGETHER WITH THE COPPER GROUNDING CONDUCTOR, SUITABLE FILLERS, AND WRAPPED IN BINDER TAPE. THE ASSEMBLY SHALL BE ARMORED WITH SPIRALLY WRAPPED INTERLOCKED ARMOR OF ALUMINUM OR GALVANIZED STEEL.

B. CABLES SHALL BE TESTED IN ACCORDANCE WITH UL STANDARD 1569 FOR TYPE MC CABLE AND RATED AT 600 VOLTS, 90 DEG. C FOR DRY LOCATIONS AND 75 DEG. C FOR WET LOCATIONS.

8. WIRING DEVICES:

A. WALL SWITCHES SHALL BE SPECIFICATION GRADE, QUIET TYPE, FLUSH TOGGLE SWITCH, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES.

1) SINGLE POLE: HUBBELL #CS1221-V, OR EQUAL.
2) THREE WAY: HUBBELL #CS1223-X, OR EQUAL.
3) AS SPECIFIED ON PLANS

B. RECEPTACLES SHALL BE SPECIFICATION GRADE, DUPLEX, GROUNDING, THREE-WIRE TYPE, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES. HUBBELL #CR5352-X, OR EQUAL.

C. GROUND FAULT INTERRUPTER RECEPTACLES (GFI) SHALL BE HUBBELL #GF20-XL. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.

D. ISOLATED GROUND RECEPTACLES (IG) SHALL BE HUBBELL #CR5352IG, ORANGE COLOR. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.

E. RECEPTACLES OUTSIDE BUILDING AND WHERE NOTED AS WEATHERPROOF, SHALL BE LISTED 'WEATHER-RESISTANT' HUBBEL #GFTR20-X OR EQUAL AND SHALL BE INSTALLED IN A WEATHERPROOF ENCLOSURE WHICH SHALL BE INTERMATIC #WP1010MXD OR #WP1016MXD DIECAST METAL WEATHERPROOF RECEPTACLE COVER. COVER SHALL BE WEATHER PROOF RATED WHILE IN USE.

F. VERIFY DEVICES AND DEVICE COVERPLATES COLOR AND STYLE WITH ARCHITECT.

9. BOXES:

A. HOT DIPPED GALVANIZED STEEL BOXES. PROVIDE TYPE TO SUIT CONDITIONS FOR INSTALLATION.

B. ALL BOXES SHALL BE FLUSH MOUNTED, UNLESS INDICATED OTHERWISE.

10. PANELBOARDS:

A. PANELBOARDS ARE EXISTING AND SHALL BE REUSED. PROVIDE ADDITIONAL BREAKERS AS REQUIRED TO CONNECT CIRCUITS AS SHOWN ON THE DRAWINGS. ADDITIONAL BREAKERS SHALL BE THERMAL MAGNETIC, QUICK-BREAK BOLT ON CIRCUIT BREAKERS WITH ONE HANDLE FOR SINGLE OR MULTI-POLE RATINGS AND SHALL BE COMPATIBLE WITH EXISTING PANELS.

B. COMPLETE EXISTING DIRECTORY AS REQUIRED TO IDENTIFY NEW CIRCUIT, LISTING LOAD SERVED AND OTHER PERTINENT DATA.

11. DISCONNECTS:

A. DISCONNECTS SHALL BE EXTERNALLY OPERATED, QUICK-MAKE, QUICK-BREAK, SAFETY, WITH PROVISIONS FOR PAD LOCKING. FUSED AND NON-FUSED DISCONNECT SWITCHES SHALL BE PROVIDED AS INDICATED.

B. INDOOR SWITCHES SHALL BE NEMA I AND OUTDOOR SWITCHES SHALL BE NEMA 3R, UNLESS INDICATED OTHERWISE.

12. FUSES:

A. FUSES PROTECTING CIRCUIT BREAKER PANELS SHALL BE CURRENT LIMITING U.L. CLASS RK-1 FUSES WITH 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE SILVER FOR RATINGS ABOVE 60 AMPERES.

B. ALL OTHER FUSES SHALL BE U.L. CLASS RK-5, DUAL-ELEMENT WITH A MINIMUM TIME-DELAY OF 10 SECONDS AT 500% RATING. FUSES SHALL HAVE CURRENT-LIMITING SHORT-CIRCUIT LINKS AND 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE COPPER.

ELECTRICAL SPECIFICATIONS (CONTINUED)

13. LIGHT FIXTURES:

A. WHERE LIGHT FIXTURES ARE MOUNTED IN A LAY-IN CEILING, PROVIDE A MINIMUM OF 2 SUPPORT WIRES ATTACHED DIRECTLY BETWEEN EACH LIGHT FIXTURE AND THE BUILDING STRUCTURE. SUPPORT WIRES SHALL BE A MINIMUM OF 12 GAUGE GALVANIZED STEEL WIRE, SOFT ANNEALED.

B. FIXTURES ARE REQUIRED AT ALL LIGHTING OUTLETS SHOWN ON THE DRAWINGS. APPROVED LIGHTING FIXTURE WIRE IS REQUIRED IN ALL FIXTURES AND FIXTURE RACEWAYS. WEATHERPROOF WIRING IS REQUIRED FOR EXTERIOR FIXTURES. ALL PARTS OF FIXTURES AND WIRING SHALL BE IN ACCORDANCE WITH NEC REQUIREMENTS.

C. ALL FIXTURES SHALL CARRY UL AND ETL LABELS.

14. SLEEVES:

A. PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK.

B. INTERIOR PARTITIONS: 16 GAGE GALVANIZED STEEL, PACK BETWEEN CONDUIT AND SLEEVE WITH FIRE SAFING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT.

C. ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WEATHERPROOF SEAL. COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.

15. GROUNDING:

A. GROUND ALL ELECTRICAL APPARATUS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 250, AND ANY LOCAL REQUIREMENTS. INSURE CONTINUOUS BOND WHERE FLEXIBLE CONDUIT IS USED. PROVIDE BONDING JUMPER INSIDE ALL FLEXIBLE CONDUIT.

B. BOND METAL PIPING SYSTEMS IN COMPLIANCE WITH NEC 250.4(A)(4).

16. REMODELING WORK:

A. DEMOLITION: DISCONNECT, DEMOLISH AND REMOVE ABANDONED ELECTRICAL MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN.

B. EQUIPMENT TO BE SALVAGED:

1) DISCONNECT AND REMOVE EXISTING ELECTRICAL EQUIPMENT INDICATED TO BE REMOVED AND SALVAGED. DELIVER EQUIPMENT TO THE LOCATION DESIGNATED BY THE OWNER FOR STORAGE.

2) ALL MATERIALS AND EQUIPMENT DESIGNATED TO BE RELISED OR RELOCATED SHALL BE CAREFULLY REMOVED, AND STORED UNTIL NEEDED FOR REMODELING WORK. ALL ITEMS SHALL BE RESTORED TO "LIKE NEW" CONDITION WITH RUST OR CORROSION REMOVED, SURFACE PAINT TOUCHED UP OR REPAINTED AS REQUIRED TO MATCH NEW CONSTRUCTION, AND THOROUGHLY CLEANED AND INSPECTED. ANY ITEMS WHICH BECOME DAMAGED BEYOND REPAIR AS A RESULT OF CONSTRUCTION OR DEMOLITION ACTIVITY SHALL BE REPLACED WITH NEW MATERIAL EQUIVALENT IN EVERY RESPECT.

C. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED.

D. PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE PROTECTION AND BARRIERS AFTER REMODELING OPERATIONS ARE COMPLETE.

E. PROVIDE ALL ALTERATIONS AND REWORK INDICATED AND/OR REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF ALL EXISTING ELECTRICAL SYSTEMS; INTEGRATING THE NEW AND EXISTING AREAS, LOCATE, IDENTIFY, AND PROTECT ELECTRICAL SERVICES PASSING THROUGH REMODELING AREA AND SERVING OTHER AREAS OUTSIDE THE REMODELING LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE REMODELING LIMITS. WHEN SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR AFFECTED AREAS.

1) ABANDONED CONDUIT SHALL HAVE WIRE REMOVED AND SHALL BE CAPPED. ABANDONED OUTLETS IN WALLS OR PARTITIONS SHALL HAVE DEVICES AND WIRE REMOVED, AND SHALL BE COVERED.

2) WHERE EXISTING CONDUITS TERMINATE AT AN EXISTING OUTLET IN A WALL, CEILING, OR FLOOR TO BE REMOVED, DISCONNECT AND REMOVE DEVICE AND WIRE FROM CONDUIT. CONDUIT SHALL BE CUT BACK AND CAPPED (BELOW THE FLOOR OR ABOVE THE CEILING) SO NOT TO CREATE AN OBSTRUCTION. PATCH FLOOR TO MATCH EXISTING.

3) WHERE EXISTING CIRCUITS EXTEND BEYOND THE OUTLET IN THE EXISTING WALL, CEILING, OR FLOOR TO BE REMOVED, FURNISH AND INSTALL NEW CONDUIT AND WIRE TO EITHER REROUTE THE CIRCUIT OR FEED THE REMAINING OUTLET(S) FROM ANOTHER ELECTRICAL SOURCE, BUT IN SUCH A MANNER AS NOT TO REVISE THE CIRCUIT. ALL REROUTED CONDUIT SHALL BE APPROVED BY THE ARCHITECT.

4) WHERE EXISTING OUTLETS IN A WALL, CEILING, OR FLOOR TO BE REMOVED ARE ESSENTIAL TO MAINTAIN OPERATION OF OTHER REMAINING OUTLETS, RELOCATE THE OUTLET TO A NEW CONVENIENT LOCATION. EXISTING WIRING DEVICES SHALL NOT BE REUSED, UNLESS OTHERWISE INDICATED.

5) WHERE LIGHTING FIXTURES ARE INDICATED TO BE DEMOLISHED, REMOVE ALL WIRE AND MODIFY THE EXISTING CONDUIT (IF APPLICABLE) FOR THE NEW LIGHTING. ALL UNUSED CONDUIT SHALL BE REMOVED.

6) WHERE A TELEPHONE CIRCUIT EXTENDS BEYOND AN OUTLET IN AN EXISTING WALL, CEILING, OR FLOOR TO BE REMOVED, PROVIDE NECESSARY EMPTY CONDUIT AND NOTIFY THE OWNER WHO WILL REQUEST THE OWNER TO ARRANGE WITH THE TELEPHONE COMPANY FOR NEW WIRING TO OUTLETS THAT REMAIN.

7) WHERE EXISTING CONDUIT AND WIRE RUNS ARE LOCATED IN OR ATTACHED TO AN EXISTING WALL, CEILING OR FLOOR TO BE REMOVED, THEY SHALL BE REROUTED IN EITHER NEW OR EXISTING CONSTRUCTION TO MAINTAIN CONTINUITY OF CIRCUITS UNLESS OTHERWISE INDICATED.

8) CONDUIT SHALL BE CONCEALED WITHIN THE EXISTING BUILDING CONSTRUCTION WHEREVER POSSIBLE. EXCEPT WHERE OTHERWISE INDICATED.

9) EXISTING WIRE SHALL BE DISCONNECTED AND REMOVED WHEREVER EXISTING CIRCUITS ARE ABANDONED.

ELECTRICAL GENERAL NOTES:

1. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
2. IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO PROPERLY BALANCE ALL BRANCH CIRCUITS BETWEEN THE PHASES OF THE SYSTEM REGARDLESS OF CIRCUITING INDICATED.
3. ALL EXPOSED RACEWAYS SHALL BE IN EMT CONDUIT, MC CABLE IS NOT PERMITTED IN EXPOSED AREAS.
4. ELECTRICAL CONTRACTOR SHALL REMOVE ALL EXISTING ELECTRICAL EQUIPMENT, FIXTURES, SYSTEMS, CONDUIT AND WIRE, ETC. NOT BEING REUSED. DO NOT JUST ABANDON.
5. ELECTRICAL CONTRACTOR TO COORDINATE MANUFACTURER ELECTRICAL REQUIREMENTS FOR HVAC EQUIPMENT BEING FURNISHED WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. EQUIPMENT DISCONNECTS TO BE PROVIDED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE IN MECHANICAL SCHEDULES.
6. ALL ELECTRICAL DEVICES ARE EXISTING AND TO REMAIN UNLESS NOTED OTHERWISE OR CONFLICT WITH NEW CONSTRUCTION. MAINTAIN PROPER OPERATION OF ALL EXISTING ELECTRICAL.
7. EACH BRANCH CIRCUIT SHALL HAVE A DEDICATED NEUTRAL PER NEC 210.4.
8. ALL BRANCH CIRCUITS SHALL BE SIZED TO ALLOW FOR A MAXIMUM OF 3% VOLTAGE DROP. ALL FEEDERS SHALL BE SIZED TO ALLOW FOR A MAXIMUM OF 2% VOLTAGE DROP. ELECTRICAL CONTRACTOR SHALL VERIFY WIRING INDICATED IS SUFFICIENT AND INCREASE CONDUCTOR SIZE AS REQUIRED BASED OFF ACTUAL INSTALLED LENGTH OF CONDUCTORS.
9. WHEREVER POSSIBLE, CONDUIT SHALL BE RUN CONCEALED WITHIN WALLS, CEILINGS, SOFFITS, ETC. SURFACE MOUNTED CONDUIT IN FINISHED SPACES MUST BE APPROVED BY THE ENGINEER OR ARCHITECT PRIOR TO INSTALLATION. EXTERIOR CONDUIT SHALL NOT BE RUN EXPOSED IN PUBLICLY VISIBLE AREAS WITHOUT APPROVAL OF THE ARCHITECT OR ENGINEER.

ELECTRICAL SYMBOLS LIST

CIRCUITING & NOTES

+46"	SPECIAL MOUNTING HEIGHT FOR ASSOCIATED DEVICE (CENTERLINE OF DEVICE)
GFI	GROUND FAULT CIRCUIT INTERRUPTER DEVICE
WP	WEATHERPROOF ENCLOSURE ON DEVICE
WR	WEATHERPROOF RESISTANT DEVICE
(TIE)	PARTIAL HOMERUN. REFER TO PLANS FOR ADDITIONAL DEVICES CONNECTED TO THIS CIRCUIT.
X	ELECTRICAL FLOOR PLAN NOTE WITH DESIGNATION
2 LP	CONDUIT CONCEALED WHERE POSSIBLE OR AS NOTED, ARROWS INDICATE HOME RUN TO PANEL. CIRCUIT NUMBERS INDICATED
	#12 WIRE IN CONDUIT, UNLESS NOTED OTHERWISE ON DRAWINGS OR SPECIFICATION
	GROUNDING CONDUCTOR, #12 WIRE UNLESS NOTED OTHERWISE ON DRAWINGS OR SPECIFICATION
	CONDUIT ROUTED UNDER FLOOR/GRADE

LIGHTING

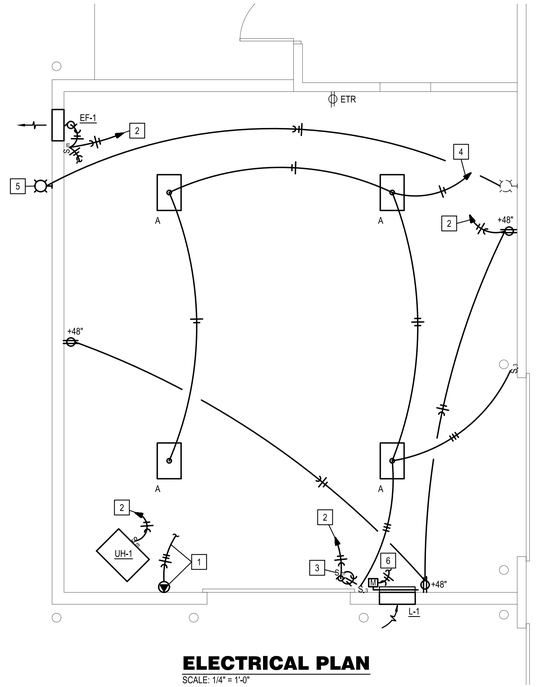
	EMERGENCY TWIN HEAD LIGHT FIXTURE
	EXIT LIGHT WITH DIRECTIONAL ARROWS INDICATED
A	STRIP FIXTURE WITH TYPE DESIGNATION
A	RECESSED OR SURFACE MOUNTED FIXTURE WITH TYPE DESIGNATION
A NL	NIGHT LIGHT, CONNECT TO UNSWITCHED CIRCUIT
A	CEILING OR RECESSED FIXTURE WITH TYPE DESIGNATION
A	WALL MOUNTED FIXTURE WITH TYPE DESIGNATION

POWER DEVICES

	DUPLEX RECEPTACLE, BOTTOM OF BOX AT 16" AFF, UNLESS NOTED OTHERWISE
	HEAVY DUTY OUTLET - NEMA CONFIGURATION SIZE PER EQUIPMENT MANUFACTURER'S RECOMMENDATION
	PANEL BOARD, TOP OF BOX 6'-0" AFF
J	JUNCTION BOX
	NON-FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	MAGNETIC STARTER
	MOTOR WITH DESIGNATION

CONTROLS

S	SINGLE POLE WALL SWITCH, TOP OF BOX AT 48" AFF
S 3	THREE-WAY WALL SWITCH, TOP OF BOX AT 48" AFF
S M	MANUAL MOTOR STARTER WITH OVERLOADS



ELECTRICAL PLAN

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

ELECTRICAL PLAN NOTES:

1. EXISTING 220V RECEPTACLE LOCATED IN SERVICE SHOP TO BE RELOCATED AS SHOWN. INTERCEPT AND EXTEND EXISTING BRANCH CIRCUIT, FIELD VERIFY REQUIREMENTS.
2. 2#12, 1#12G IN 3/4"C TO NEW 20A/1P BREAKER IN NEAREST 120/208V, 3Ø, 4W ELECTRICAL PANEL. FIELD VERIFY EXISTING CONDITIONS, ROUTING & DISTANCE. PROVIDE ADDITIONAL COMPATIBLE BREAKERS AS REQUIRED.
3. CONNECT TO OVERHEAD DOOR OPERATOR AS REQUIRED FOR PROPER OPERATION. COORDINATE LOCATION & REQUIREMENTS WITH EQUIPMENT SUPPLIER. PROVIDE CONTROL WIRING TO PUSHBUTTON OPERATOR AT LOCATION DIRECTED BY OWNER.
4. 2#12, 1#12G IN 3/4"C TO NEW 20A/1P BREAKER IN NEAREST 277/480V, 3Ø, 4W ELECTRICAL PANEL. FIELD VERIFY EXISTING CONDITIONS, ROUTING & DISTANCE. PROVIDE ADDITIONAL COMPATIBLE BREAKERS AS REQUIRED.
5. RELOCATE EXISTING EXTERIOR LIGHT FIXTURE TO NEW BUILDING FACE AND RECONNECT TO EXISTING CIRCUIT.
6. INTERLOCK WITH EXHAUST FAN - REFER TO MECHANICAL DRAWINGS FOR SEQUENCE OF OPERATION.

LIGHT FIXTURE SCHEDULE

MARK NO.	MANUFACTURER & CATALOG NUMBER	VOLTS WATTS	LIGHT SOURCE	DESCRIPTION	EQUIVALENT MANUFACTURERS
A	LITHONIA CPHB-15000LM-SEF-GCL-MD-MVOLT-GZ10-40K-80CRI-DWH	UNV 102	LED 15000LUM 4000K	COMPACT LED HIGH BAY WITH UNIVERSAL VOLTAGE DRIVER	WILLIAMS LIGHTOLIER OR EQUAL

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1/26/2024

STATE OF MISSOURI
DARIN T. SEIDEL
NUMBER PE-2009003629
REGISTERED PROFESSIONAL ENGINEER

PERMIT
1/26/2024

REVISIONS

ADDITION
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LEE'S SUMMIT, MO

BC PROJECT #: 24035
MISSOURI PE COA #2009003629

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sheet
E1.0
ELECTRICAL PLAN

MECHANICAL SPECIFICATIONS

1. GENERAL PROVISIONS:
   A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, NECESSARY FOR THE COMPLETE INSTALLATION OF THE PLUMBING AND MECHANICAL SYSTEMS OUTLINED.
   B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATES OF COMPLIANCE OR APPROVAL AS REQUIRED BY THE AUTHORITIES.
   C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.
   D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.
   E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, PIPE, DUCT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.
   F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.
   G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECTS FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.
2. OPERATION AND MAINTENANCE MANUALS:
   A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.
   B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATION AND MAINTENANCE MANUALS.
   C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE BOUND IN A 3-RING BINDER AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER, CONTRACTORS, ETC.
3. MANUFACTURERS:
   A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN, UNLESS NOTED OTHERWISE.
4. MOTORS:
   A. PROVIDE THERMAL OVERLOAD PROTECTION FOR EACH MOTOR PROVIDED BY THIS WORK.
5. TESTING, BALANCING, AND CLEANING:
   A. ALL PIPING SHALL BE TESTED FOR LEAKS BEFORE BEING CONCEALED IN WALL CONSTRUCTION OR COVERED WITH INSULATION.
   B. DUCTWORK AND PIPING SHALL BE BALANCED BY QUALIFIED BALANCING PERSONNEL WHO HAVE PREVIOUS EXPERIENCE WITH BALANCING PROCEDURES.
   C. FIRE PROTECTION PIPING SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA.
   D. NATURAL GAS PIPING SHALL BE PNEUMATICALLY TESTED AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 50 PSI, FOR A PERIOD OF NOT LESS THAN 2 HOURS, WITH NO LEAKS.
6. PIPING:
   A. NATURAL GAS.
      1) BLACK STEEL PIPE, SCHEDULE 40, ASTM A53.
         a) PIPE 3" AND SMALLER; 150 LB. MALLEABLE IRON, THREADED FITTINGS.
         b) PIPE 4" AND SMALLER; VIEGA MEGAPRESS G FOR WATER AND GAS. CSA LC4, TSSA/ASME B31 FOR USE WITH ASTM A53 SCHEDULE 40 BLACK IRON PIPE.
         c) PIPE 2-1/2" AND LARGER, WELDED.
         d) PLUG VALVE: ROCKWELL NORDSTROM FIGURE NO. 142 OR 143.
         e) BALL VALVE: JOMAR T-100NE. APPROVALS- UL842, FM, CSA, NSF 61-8, MSS SP-110
      2) GAS PIPING LABELING:
         a) ALL ELEVATED PRESSURE GAS PIPING SHALL BE LABELED EVERY 40 FEET WITH SIGNS INDICATING "ELEVATED PRESSURE"
      3) GAS PIPING PAINTING:
         a) ALL BLACK STEEL GAS PIPING LOCATED EXTERIOR TO THE BUILDING SHALL BE PRIMED AND PAINTED TO EITHER MATCH ADJACENT EXTERIOR WHERE LOCATED ON OR NEAR EXTERIOR WALL AND PAINTED SAFETY YELLOW WHERE LOCATED ON THE ROOF.
   B. ALL PIPE HANGERS AND SUPPORTS SHALL BE STANDARD PRODUCTS OF GRINNELL, FEE AND MASON, OR ELCEN. HANGER SPACING SHALL BE IN ACCORDANCE WITH MSS-SP-69.
   C. SLEEVES
      1) PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK. ALL SLEEVES SHALL BE OF SUFFICIENT SIZE TO PERMIT PIPE MOVEMENT DUE TO EXPANSION AND CONTRACTION AND TO ACCOMMODATE PIPE INSULATION.
      2) INTERIOR PARTITIONS: 16 GAGE GALVANIZED STEEL, PACK BETWEEN PIPE AND SLEEVE WITH FIRE SAFING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT.
      3) ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WATERPROOF SEAL. COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.
      4) PROTECTION AGAINST CONTACT: METALLIC PIPING, EXCEPT FOR CAST IRON, DUCTILE IRON AND GALVANIZED STEEL, SHALL NOT BE PLACED IN DIRECT CONTACT WITH STEEL FRAMING MEMBERS, CONCRETE, OR CINDER WALLS AND FLOORS OR OTHER MASONRY. METALLIC PIPING SHALL NOT BE PLACED IN DIRECT CONTACT WITH CORROSIVE SOIL. SHEATHING USED TO PREVENT DIRECT CONTACT SHALL HAVE A THICKNESS OF GREATER THAN .008 AND THE SHEATHING SHALL BE MADE OF PLASTIC. ANY PIPE THAT PASSES THROUGH A FOUNDATION WALL OR FOOTING SHALL BE PROVIDED WITH A RELIEVING ARCH, OR A PIPE SLEEVE SHALL BE BUILT INTO THE FOUNDATION WALL. THE SLEEVE SHALL BE TWO SIZES GREATER THAN THE PIPE PASSING THOUGH THE WALL OR FOOTING.
      5) PLUMBING VENTS: FLASH ROOF VENT INTO ROOFING SYSTEM AS REQUIRED BY THE ROOFING CONTRACTOR TO MAINTAIN EXISTING ROOF WARRANTY. ALL PLUMBING VENT TERMINALS SHALL TERMINATE A MINIMUM OF 12" ABOVE ROOF OR EQUAL TO HEIGHT OF PARAPET, WHICHEVER IS GREATER.
   D. PROVIDE CHROME PLATED ESCUTCHEONS ON ALL PIPE ENTERING FINISHED AREAS.

MECHANICAL SPECIFICATIONS (CONTINUED)

7. DUCTWORK:
   A. ALL DUCTWORK, UNLESS OTHERWISE INDICATED, SHALL BE FABRICATED FROM GALVANIZED SHEET STEEL COMPLYING WITH ASTM A 527, LOCKFORMING QUALITY, WITH G-60 ZINC COATING IN ACCORDANCE WITH ASTM A 525, AND MILL PHOSPHATIZED FOR EXPOSED LOCATIONS.
   B. DUCTWORK, METAL GAUGES, REINFORCING, ETC. SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," LATEST EDITION FOR A 2 INCH WATER GAUGE STATIC PRESSURE.
   C. ALL FITTINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," LATEST EDITION.
   D. SEAL ALL CONCEALED DUCTWORK JOINTS WITH NON-HARDENING, NON-MIGRATING MASTIC SEALANT, AS RECOMMENDED FOR SEALING SEAMS AND JOINTS IN DUCTWORK. OIL BASE CAULKING AND GLAZING COMPOUNDS SHALL NOT BE ACCEPTABLE. DUCTS SHALL BE SEALED TO THE CLASS LEVEL LISTED BELOW.

1) UNCONDITIONED SPACES	CLASS B	CLASS A	CLASS C	CLASS B	
2) CONDITIONED SPACES (PLENUM)	CLASS C	CLASS B	CLASS B	CLASS C	
	SUPPLY ≤ 2" W.C.	SUPPLY > 2" W.C.	EXHAUST	RETURN	

   E. DUCT SIZES SHOWN ON THE DRAWINGS ARE SHEETMETAL SIZES, ALLOWANCE FOR DUCT LINER HAS BEEN MADE WHERE APPLICABLE.
   F. ALUMINUM DUCTS WHERE INDICATED: ANSI/ASTM B209; ALUMINUM SHEET, ALLOY 3003-H14. ALUMINUM CONNECTORS AND BAR STOCK: ALLOY 6061-T6 OR OF EQUIVALENT STRENGTH.
8. FLUES AND ACCESSORIES:
   A. FLUES SHALL BE DOUBLE WALL TYPE B EQUAL TO METALBESTOS. PROVIDE MANUFACTURER'S STANDARD FITTINGS AND ACCESSORIES (ROOF THIMBLE, STORM COLLAR, COUNTERFLASHING, ETC.) AS REQUIRED FOR A COMPLETE INSTALLATION.
   B. PROVIDE MANUFACTURER'S STANDARD ACCESSORY ITEMS INCLUDING BIRD PROOF TOP, STORM COLLAR, ROOF THIMBLE, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION. ROOF THIMBLES THROUGH THE BUILDING ROOF SHALL BE SUITABLE FOR USE WITH THE ROOF PROVIDED.
9. EXHAUST FANS:
   A. PROPELLER WALL EXHAUSTERS SHALL BE ELECTRICALLY POWERED PROPELLER TYPE FAN SUITABLE FOR MOUNTING IN THE WALL WITH A METAL GRILLE WITH A THUMBSCREW ATTACHMENT FOR EASY ACCESS TO FAN HOUSING. UNIT SHALL CONSIST OF A GALVANIZED STEEL HOUSING LINED WITH ACOUSTICAL INSULATION AND SHALL INCLUDE AN INTEGRAL BACKDRAFT DAMPER ON FAN DISCHARGE. MOTOR SHALL BE A PERMANENT SPLIT-CAPACITOR TYPE MOTOR, PERMANENTLY LUBRICATED, WITH THERMAL OVERLOAD PROTECTION. PROVIDE WALL SLEEVE, WEATHER HOOD, OSHA SCREEN, AND DISCONNECT SWITCH OR OTHER MEANS OF DISCONNECT AT MOTOR IN FAN HOUSING.
10. CONTROL WIRING:
   A. ELECTRICAL WIRING AND WIRING CONNECTIONS REQUIRED FOR THE INSTALLATION OF THE TEMPERATURE CONTROL SYSTEM, SHALL BE PROVIDED BY THIS CONTRACTOR, UNLESS SPECIFICALLY SHOWN ON THE ELECTRICAL DRAWINGS OR SPECIFICATIONS.
   B. INSTALL CONTROL WIRING, WITHOUT SPLICES BETWEEN TERMINAL POINTS, COLOR CODED. INSTALL IN NEAT WORKMANLIKE MANNER, SECURELY FASTENED. INSTALL IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE AND THE ELECTRICAL SPECIFICATIONS.
      1) INSTALL CIRCUITS OVER 25 VOLT WITH COLOR CODED NUMBER 12 WIRE.
      2) INSTALL CIRCUITS UNDER 25 VOLT WITH COLOR CODED NUMBER 18 WIRE WITH 0.031 INCH HIGH TEMPERATURE 105 DEGREES F PLASTIC INSULATION ON EACH CONDUCTOR AND PLASTIC SHEATH OVER ALL.
      3) INSTALL ELECTRONIC CIRCUITS WITH COLOR CODED NUMBER 22 WIRE WITH 0.023 INCH POLYETHYLENE INSULATION ON EACH CONDUCTOR WITH PLASTIC JACKETED COPPER SHIELD OVER ALL.
      4) INSTALL LOW VOLTAGE CIRCUITS, LOCATED IN CONCRETE SLABS AND MASONRY WALLS, OR EXPOSED IN OCCUPIED AREAS, IN ELECTRIC CONDUIT.
      5) ALL WIRING IN AREAS USED AS AIR PLENUMS SHALL BE IN ELECTRIC CONDUIT EXCEPT THAT LOW VOLTAGE WIRING MAY BE TEFLON COATED, ALUMINUM SHEATHED CABLE OR OTHER WIRE SPECIFICALLY APPROVED FOR INSTALLATION IN AIR PLENUMS, WHERE ACCEPTABLE BY LOCAL CODES.
      6) ALL WIRING IN AREAS NOT USED FOR AIR MOVEMENT SHALL BE IN ELECTRIC METALLIC TUBING EXCEPT LOW VOLTAGE WIRING MAY BE IN APPROVED SIGNAL CABLE WHERE ACCEPTED BY LOCAL CODES.
11. REMODELING WORK:
   A. DEMOLITION, DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MECHANICAL MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN.
   B. EQUIPMENT TO BE SALVAGED:
      1) DISCONNECT AND REMOVE, EXISTING MECHANICAL EQUIPMENT INDICATED TO BE REMOVED AND SALVAGED. DELIVER EQUIPMENT TO THE LOCATION DESIGNATED BY THE OWNER FOR STORAGE.
      2) ALL MATERIALS AND EQUIPMENT DESIGNATED TO BE REUSED OR RELOCATED SHALL BE CAREFULLY REMOVED, AND STORED UNTIL NEEDED FOR REMODELING WORK. ALL ITEMS SHALL BE RESTORED TO "LIKE NEW" CONDITION WITH RUST OR CORROSION REMOVED, SURFACE PAINT TOUCHED UP OR REPAINTED AS REQUIRED TO MATCH NEW CONSTRUCTION, AND THOROUGHLY CLEANED AND INSPECTED. ANY ITEMS WHICH BECOME DAMAGED BEYOND REPAIR AS A RESULT OF CONSTRUCTION OR DEMOLITION ACTIVITY SHALL BE REPLACED WITH NEW MATERIAL EQUIVALENT IN EVERY RESPECT.
   C. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED.
   D. PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE PROTECTION AND BARRIERS AFTER REMODELING OPERATIONS ARE COMPLETE.
   E. LOCATE, IDENTIFY, AND PROTECT MECHANICAL SERVICES PASSING THROUGH REMODELING AREA AND SERVING OTHER AREAS OUTSIDE THE REMODELING LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE REMODELING LIMITS. WHERE MECHANICAL SERVICES ARE LOCATED IN A WALL, ETC. TO BE DEMOLISHED, REROUTE PIPING TO NEW OR EXISTING CONSTRUCTION TO MAINTAIN CONTINUITY OF THE SYSTEM. WHEN SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR AFFECTED AREAS.
   F. REMOVE ALL PIPING TO BE DEMOLISHED BACK TO PIPE MAIN OR EDGE OF PROJECT AREA, AND CAP PIPE.
   G. PIPING AND DUCTS EMBEDDED IN FLOORS, WALLS, AND CEILINGS MAY REMAIN IF SUCH MATERIALS DO NOT INTERFERE WITH NEW INSTALLATIONS. PIPING AND DUCTS TO REMAIN SHALL BE APPROVED BY THE ARCHITECT. REMOVE MATERIALS ABOVE ACCESSIBLE CEILINGS. DRAIN AND CAP PIPING AND DUCTS ALLOWED TO REMAIN ABOVE CEILING OR BELOW FLOOR, CONCEALED FROM VIEW, EXCEPT AS OTHERWISE NOTED. PATCH FLOOR TO MATCH EXISTING.
   H. PIPE AND DUCT SHALL BE CONCEALED WITH NEW OR EXISTING CONSTRUCTION WHENEVER POSSIBLE, UNLESS INDICATED OTHERWISE.

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NUMBER
PE-2004026504
REGISTERED PROFESSIONAL ENGINEER

PERMIT
1/26/2024

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ADDITION
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LEE'S SUMMIT, MO

BC PROJECT #: 24035
MISSOURI PE COA #2009003629

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MECH & PLBG SPECS

OUTDOOR AIR CALCULATIONS

UNIT	Area (sqft)	OCCUPANCY CLASSIFICATION	Occupant Density #/1000 sqft	People outdoor airflow rate in breathing zone, (Rp) cfm/person	Area outdoor airflow rate in breathing zone, (Ra) cfm/sqft	Exhaust airflow rate cfm/sqft	Breathing zone outdoor airflow (Vbz)	Zone air distribution effectiveness (Ez)	Zone outdoor airflow (cfm)
EF-1	710	Warehouses	0	10	0.06		43	0.8	53
								Total	53

EXHAUST FAN SCHEDULE

MARK	MFGR	MODEL	CFM	EXTERNAL STATIC P. IN. WG.	RPM	ELECTRICAL		FAN TYPE	CONTROLS	NOTES
						VOLT/Ø/HZ	PWR			
EF-1	COOK	16A11D	300	0.15	779	120/1/60	1/6 HP	WALL PROP	SWITCH	1,2

NOTES:
1. PROVIDE VFD SPEED CONTROL, WALL SLEEVE, REAR GUARD HOUSING, BACKDRAFT DAMPER, DISCONNECT SWITCH, BIRD SCREEN.
2. COORDINATE WITH E.C. TO INTERLOCK EF-1 WITH L-1. L-1 DAMPER TO OPEN WHEN EF-1 IS ENERGIZED.

LOUVER SCHEDULE

MARK	MFGR	MODEL	FRAME	SIZE	NOTES
L-1	RUSKIN	EME220DD	STD	24"W x 12"H	1,2,3

NOTES:
1. PROVIDE WITH BIRD SCREEN.
2. ARCHITECT TO SELECT COLOR.
3. PROVIDE WITH CD40 DAMPER AND RLH-120-S, 120V MOTORIZED, TWO POSITION, SPRING RETURN ACTUATOR SIZED TO MATCH LOUVER.

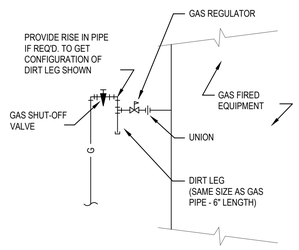
GAS FIRED UNIT HEATER SCHEDULE

MARK	MFGR	MODEL	CFM	HEATING (GAS)		ELECTRICAL		NOTES
				BTUH INPUT	BTUH OUTPUT	VOLT/Ø/HZ	HP	
UH-1	LENNOX	LF25-105A	1,500	105,000	87,675	120/1Ø/60	1/10	1,2

NOTES:
1. PROVIDE EACH UNIT ELECTRONIC PILOT IGNITION & ALUMINIZED STEEL HEAT EXCHANGER.
2. PROVIDE EACH UNIT WITH REMOTE MOUNTED THERMOSTAT & CONTROL VOLTAGE TRANSFORMER.

FIRE PROTECTION NOTES:

1. THE EXISTING SPACE IS PROTECTED WITH AN EXISTING WET PIPE SPRINKLER SYSTEM. RELOCATE AND PROVIDE ADDITIONAL SPRINKLER HEADS AND PIPING AS REQUIRED FOR THE NEW CONSTRUCTION. SPRINKLER HEADS IN FINISHED CEILINGS SHALL BE SEMI-RECESSED PENDENT TYPE (VERIFY FINISH). SPRINKLER HEADS IN ROOMS WITHOUT CEILINGS SHALL BE UPRIGHT BRASS TYPE HEADS.
2. SPRINKLER WORK SHALL BE PERFORMED BY A LICENSED SPRINKLER CONTRACTOR PRE-APPROVED BY THE OWNER/LANDLORD.
3. REFER TO THE ARCHITECTURAL DRAWINGS FOR NEW WALL CONSTRUCTION.
4. SPRINKLER PIPING SHALL MATCH EXISTING AND COMPLY WITH NFPA 13.
5. SPRINKLER SYSTEM (SHOP DRAWINGS) SHALL BE APPROVED BY THE LOCAL FIRE AUTHORITY AND OWNERS/LANDLORD'S INSURANCE CARRIER PRIOR TO START OF WORK.



GAS CONNECTION DETAIL

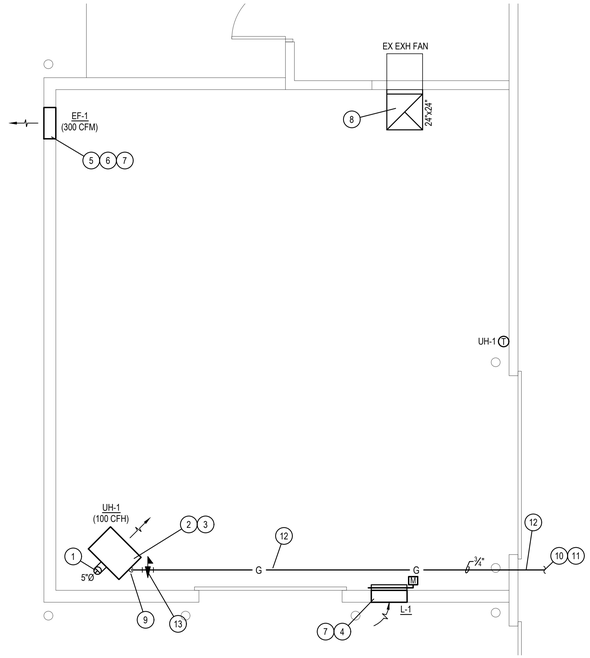
SCALE: NONE

MECHANICAL/PLUMBING GENERAL NOTES:

1. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
2. THIS CONTRACTOR SHALL PERFORM ALL WORK INDICATED AND/OR AS REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF THE MECHANICAL SYSTEMS.
3. INSTALL ALL DUCT, PIPE, ETC. AS HIGH AS POSSIBLE.
4. PROVIDE FLEXIBLE CONNECTION BETWEEN DUCTWORK AND EXHAUST FANS AND OTHER MOTORIZED EQUIPMENT.
5. NO DUCT OR PIPING SHALL BE ROUTED OVER THE TOP OF ELECTRICAL PANELS.
6. REFER TO ARCHITECTURAL & STRUCTURAL DRAWINGS FOR REQUIREMENTS FOR SUPPORTING PIPING, EQUIPMENT, ETC. FROM THE STRUCTURE. PROVIDE ADDITIONAL STEEL AS REQUIRED TO PROPERLY SUPPORT SYSTEMS FROM THE STRUCTURE.

MECHANICAL & PLUMBING SYMBOLS

T	THERMOSTAT, MOUNTED AT 48" AFF
M	MOTORIZED DAMPER/LOUVER
	NEW DUCTWORK
32"x14"	SIZE OF RECTANGULAR DUCT
6"Ø	SIZE OF ROUND DUCT
3	FLOOR PLAN NOTE DESIGNATION
S.A.	SUPPLY AIR
R.A.	RETURN AIR
EXH.	EXHAUST AIR
	EXHAUST AIR DUCT UP/DOWN
RTU-1	SCHEDULED MECHANICAL EQUIPMENT
G	GAS PIPING
	VALVE
	PRESSURE REGULATOR



MECHANICAL & PLUMBING FLOOR PLAN

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

MECHANICAL PLAN NOTES:

1. 5"Ø TYPE 'B' DOUBLE WALL FLUE UP THROUGH ROOF. PROVIDE ROOF THIMBLE, FLASHING, COUNTER FLASHING & WEATHERHEAD. LOCATE WEATHERHEAD 36" ABOVE EVERYTHING WITHIN 10'. VERIFY 10'-0" FROM ALL OUTDOOR AIR INTAKES.
2. SUPPORT UNIT FROM STRUCTURE AND PROVIDE VIBRATION ISOLATION AS REQUIRED BY THE MANUFACTURER. PROVIDE ADDITIONAL SUPPORT STEEL AS REQUIRED.
3. INSTALL BOTTOM OF UNIT HEATER 8' A.F.F.
4. INSTALL BOTTOM OF LOUVER 8' A.F.F.
5. INSTALL BOTTOM OF EXHAUST FAN 16'-6" A.F.F.
6. SUPPORT FAN FROM STRUCTURE AS REQUIRED BY THE MANUFACTURER.
7. COORDINATE WITH E.C. TO INTERLOCK EF-1 AND L-1. L-1 DAMPER TO OPEN WHEN EF-1 IS ENERGIZED.
8. CONNECT DUCT TO OUTLET OF EXISTING EXHAUST FAN. ROUTE FULL SIZE DUCT UP TIGHT TO WALL AND OUT THROUGH ROOF. TERMINATE UP ON ROOF WITH A GOOSENECK. PROVIDE BIRDSCREEN COVER OVER OPENING. FIELD VERIFY DUCT SIZE REQUIRED.

PLUMBING PLAN NOTES:

9. CONNECT GAS TO EQUIPMENT WITH REGULATOR AS REQUIRED AND AS DETAILED.
10. COORDINATE WITH GAS COMPANY TO VERIFY EXISTING METER HAS CAPACITY FOR AN ADDITIONAL 105 CFH AT 2 PSI. ALL CONCEALED JOINTS ARE TO BE WELDED OR USE FITTINGS APPROVED FOR CONCEALED USE. VERIFY ALL EQUIPMENT GAS CAPACITIES AND OPERATING PRESSURES PRIOR TO INSTALLATION OF ANY PIPING.
11. CONNECT GAS TO EXISTING GAS PIPING AS REQUIRED. VERIFY EXACT LOCATION PRIOR TO INSTALLATION OF ANY PIPING. GAS METER IS APPROXIMATELY 400 LINEAR FEET AWAY FROM UNIT HEATER.
12. VERIFY CLEARANCE WITH OVERHEAD DOOR PRIOR TO INSTALLATION OF ANY PIPING.
13. PROVIDE GAS PRESSURE REGULATOR TO DROP 105 CFH FROM 2 PSI TO 7" W.C. ¾" TO REGULATOR, ¾" FROM REGULATOR. ROUTE VENT FROM REGULATOR TO DAYLIGHT AND SEAL PENETRATION WEATHERTIGHT.

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