GENERAL NOTES

1. IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO FULLY EXAMINE THE SITE CONDITION, AND AVAILABLE UTILITIES AND TO NOTIFY THE OWNER'S REPRESENTATIVE, IN WRITING OF ANY AND ALL DISCREPANCIES BETWEEN THE SAID EXISTING CONDITIONS AND THESE DRAWINGS. NO CLAIMS FOR ADDITIONAL COMPENSATION SHALL BE MADE OR SHALL BE VALID UNLESS WRITTEN NOTIFICATION IS RECEIVED BY THE OWNER'S REPRESENTATIVE AND THE ADDITIONAL COMPENSATION IS APPROVED IN ADVANCE OF PROCEEDING WITH THE WORK.

2. IN ADDITION TO THE GENERAL NOTES LISTED HEREIN, A.I.A. DOCUMENT A201 GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION SHALL APPLY.

3. ALL WORK SHALL BE PERFORMED AS TO COMPLY WITH ALL GOVERNING STATUTES, ORDINANCES, REGULATIONS, CODES AND INSURANCE RATING BOARDS. NO WORK SHALL COMMENCE UNTIL ALL GOVERNMENTAL AND JURISDICTIONAL PERMITS AND APPROVALS ARE OBTAINED.

4. ALL WORK SHALL BE PERFORMED IN A FIRST CLASS MANNER AND SHALL BE IN GOOD AND USABLE CONDITION AT THE DATE OF COMPLETION THEREOF.

5. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR INSTALL OR PERMIT TO BE INSTALLED, ANY MATERIALS CONTAINING ASBESTOS.

6. CONTRACTOR SHALL PROVIDE ALL NECESSARY BRACING TO STRUCTURE FOR INTERIOR PARTITIONS, SOFFITS, CEILINGS, PLATFORMS, ETC. WHETHER SHOWN ON THE DRAWINGS OR NOT.

7. THE ABBREVIATION OF "N.I.C." INDICATES WORK AND OR MATERIAL THAT IS NOT IN THE CONTRACT OF THE GENERAL CONTRACTOR, HOWEVER THIS DOES NOT RELIEVE THE G.C. OF THE RESPONSIBILITY OF COORDINATION.

8. THE LOCATIONS OF EXISTING UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDIVIDUALLY VERIFIED BY THE OWNER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES.

9. ALL WALL & CEILING CONSTRUCTION SHALL BE SUPPORTED BY STRUCTURE & NOT BY ROOF DECK IF APPLICABLE.

10. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF ALL LOCAL LAWS, CODES AND REGULATIONS OF ALL AUTHORITIES HAVING JURISDICTION. IN CASE OF CONFLICT BETWEEN REQUIREMENTS, THE MOST RESTRICTIVE SHALL APPLY.

11. 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.

12. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL CONSTRUCTION AND DEVELOPMENT RELATED FEES, INCLUDING, BUT NOT LIMITED TO: CONSTRUCTION PERMIT FEES, HEALTH DEPARTMENT FEES, ETC. THE SELECTED QUALIFIED BIDDER WILL BE REQUIRED TO PROVIDE A COMPLETE LINE-ITEM LIST OF ALL FEES INCLUDED IN BID BASED ON APPROPRIATE SCHEDULES, UNLESS NOTED OTHERWISE

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

14. ALL FINISH SURFACES PENETRATED SUCH AS CEILING TILES AND MILLWORK COUNTERS FOR ANY REASON MUST HAVE AN ASSOCIATED GROMMET APPROVED FOR THAT USE.

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

16. MAINTAIN SAFE EXITING AND APPROPRIATE FIRE PREVENTION PROCEDURES AT ALL TIMES DURING THE CONSTRUCTION PROCESS.

17. 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.

18. 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.

19. CONTRACTOR SHALL PROVIDE ADEQUATE PROTECTION OF WORK, MATERIALS, FIXTURES, ETC. FROM LOSS, DAMAGE, FIRE, THEFT, ETC.

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

21.CONTRACTOR SHALL VERIFY 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.

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

23. CONTRACTOR SHALL NEVER SCALE DRAWINGS. LOCATIONS FOR ALL PARTITIONS, WALLS, CEILINGS, ETC. WILL BE DETERMINED BY DIMENSIONS ON THE DRAWINGS. ANY AREA OF THE PLANS MISSING REQUIRED DIMENSIONS MUST BE REPORTED TO THE ARCHITECT IMMEDIATELY.

24. DIMENSIONS ARE TO FACE OF STUD UNLESS NOTED OTHERWISE.

25. 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.

26. 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.

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

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

29. 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 IS PROVIDED AS REQUIRED TO ENSURE EASE OF INSTALLATION. CONTRACTOR SHALL COORDINATE THE REQUIREMENTS OF ANY AND ALL DRAWINGS INCLUDING ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING. ANY CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND ARCHITECT PRIOR TO EXECUTION OF WORK.

30. CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL OTHER CONTRACTORS AND VENDORS FURNISHING LABOR, MATERIALS, ETC. ON THE PROJECT TO ENSURE THE WORK AS A WHOLE SHALL BE EXECUTED AND COMPLETED WITHOUT CONFLICT OR DELAY.

31. PROVIDE SILICONE SEALANT AT ALL JOINTS AND INTERFACES OF ALL COUNTERTOPS, EQUIPMENT, BOOTHS, WALLS, ETC.

32. PROVIDE AND INSTALL ALL NECESSARY INWALL FRAMING REQUIRED TO CARRY SHELF, HANGING, AND VALANCE LOADS, RAILINGS, ETC. AS PER PLANS.

TEAM DIRECTORY:

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OVERLAND PARK, 66213

ARCHITECT:
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MEP:
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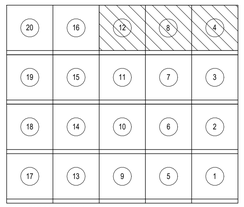
SHEET NUMBERING SYSTEM:

NOTE: DETAIL NUMBERS ARE DETERMINED BY THE BOTTOM RIGHT HAND BOX, PLEASE SEE SAMPLES ABOVE FOR DETERMINING DETAIL NUMBERS

20 BOXES:



EXAMPLE DETAIL # 4/AXXX

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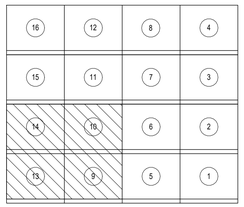
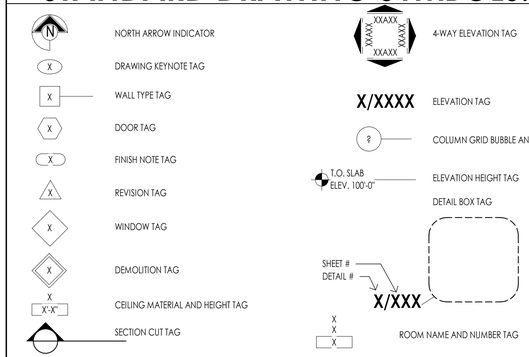


EXAMPLE DETAIL # 9/AXXX

LOT 12 OF WEST PRYOR

NW PRYOR RD AND HIGHWAY 470
LEE'S SUMMIT, MO 64081

STANDARD DRAWING SYMBOLS:



STANDARD ABBREVIATIONS

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

CODE INFORMATION

DEFERRED SUBMITTALS:
FIRE SPRINKLER
FIRE ALARM
TRUSS DESIGN

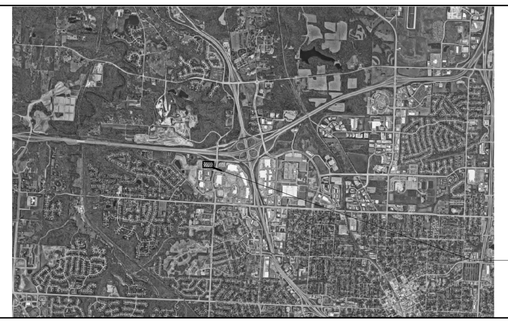
BUILDING DATA
OCCUPANY TYPE: A-2 RESTAURANT
CONSTRUCTION TYPE: V-B SPRINKLERED
PROPOSED NUMBER OF FLOORS AND BUILDING HEIGHT: 1 STORY, 27'-6"
ALLOWED NUMBER OF FLOORS AND BUILDING HEIGHT: 2 STORIES, 60'
PROPOSED BUILDING AREA: 11, 932 SQ FT
ALLOWED BUILDING AREA: 24,000 SQ FT

APPLICABLE CODES

2018 INTERNATIONAL BUILDING CODE
2017 NATIONAL ELECTRICAL CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 UNIFORM PLUMBING CODE
2018 INTERNATIONAL ENERGY CONSERVATION CODE
2018 INTERNATIONAL FIRE CODE
ICC/ANSI A 11.1-2009

APPLICABLE CODES: ALL WORK UNDER THIS CONTRACT SHALL COMPLY WITH THE PROVISIIONS 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 PROCURED AND PAID FOR BY THE CONTRACTOR INVOLVED. APPLICALBE CODES INCLUDE BUT ARE NOT LIMITED TO THE PREVISOUS MENTIONED.

VICINITY MAP



LOCATION MAP

DRAWING INDEX

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
22902.001

drawing issuance
PERMIT 1/27/23

drawing revisions

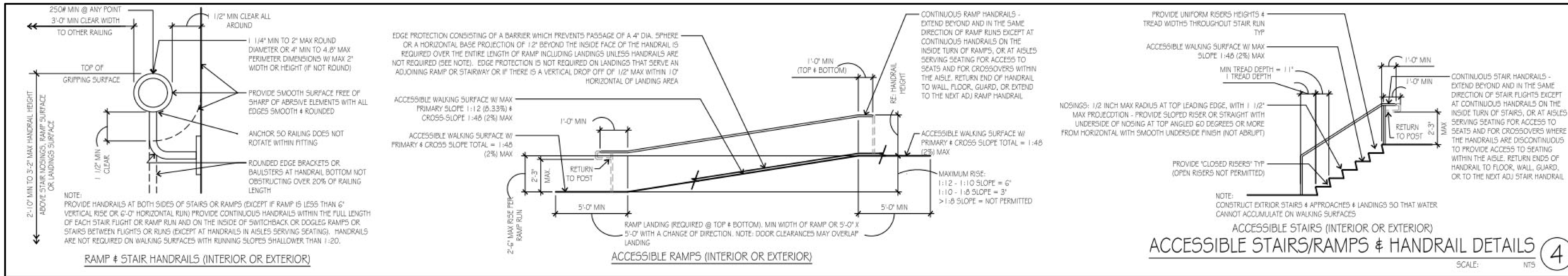
No.	Description:	Date:
1	REV 1	1/10/23
2	REV 2	1/27/23

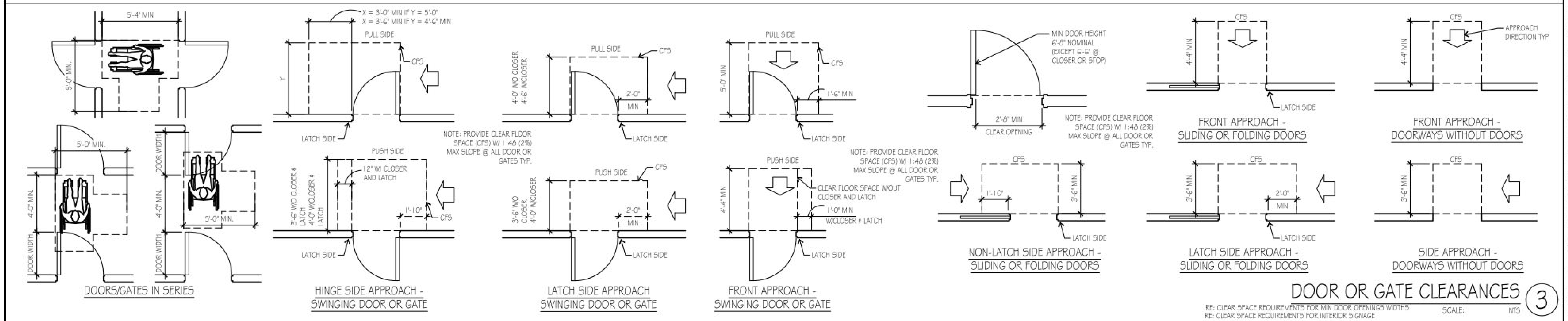
professional seal

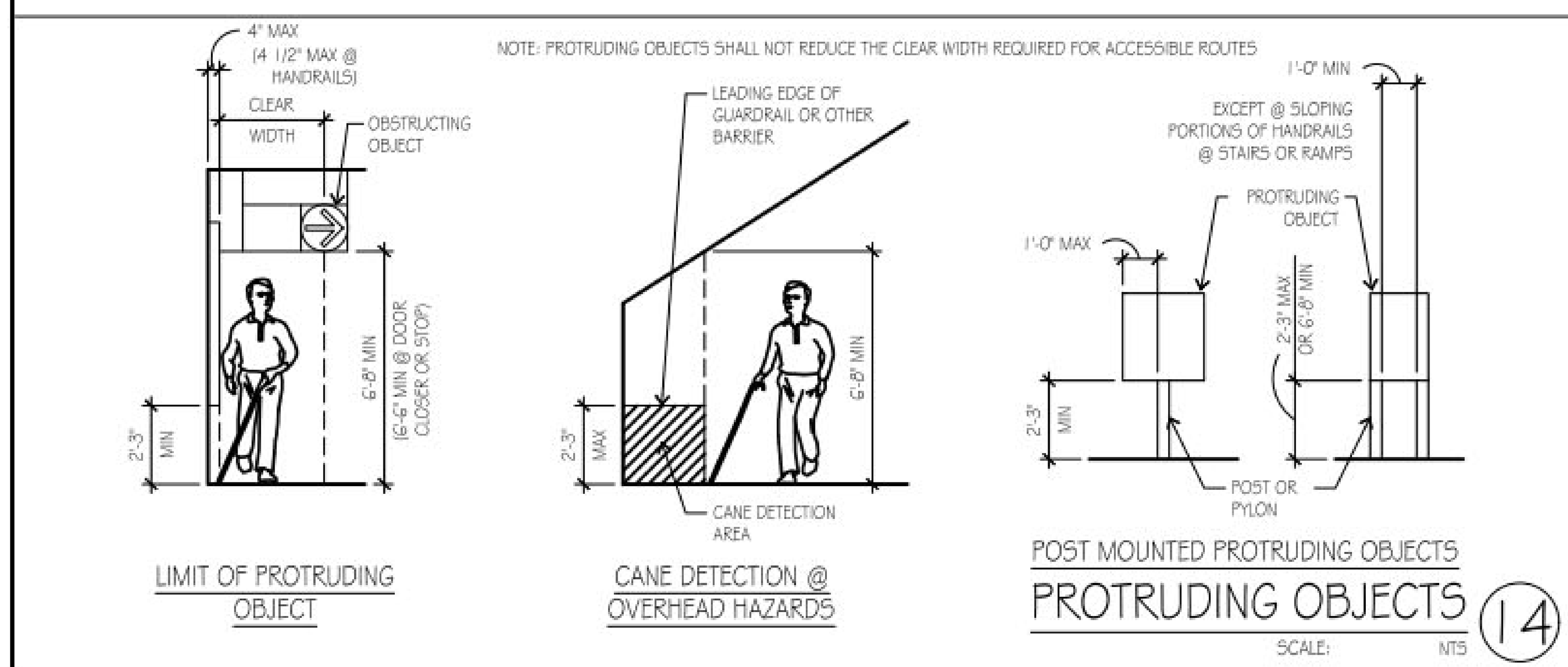
DATE SIGNED: 2/3/2023 10:11:14 AM

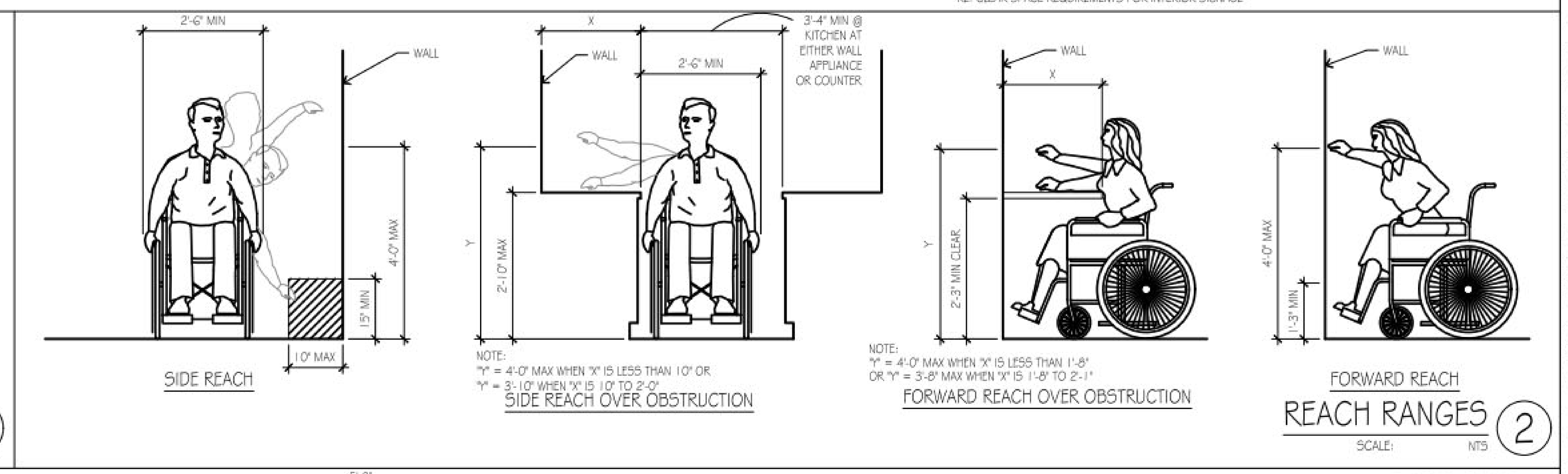
drawing title
COVER SHEET

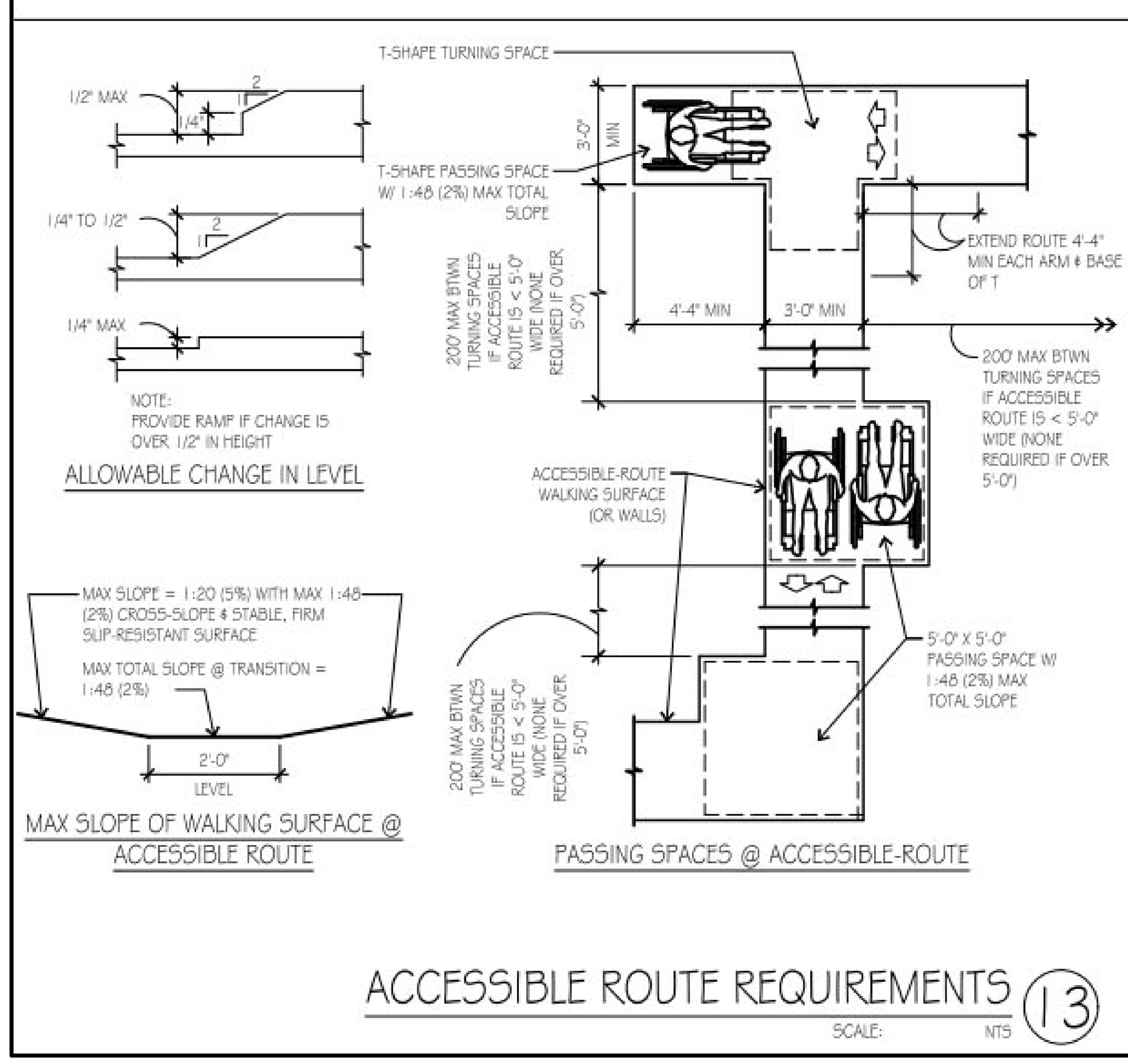
drawing number
G000

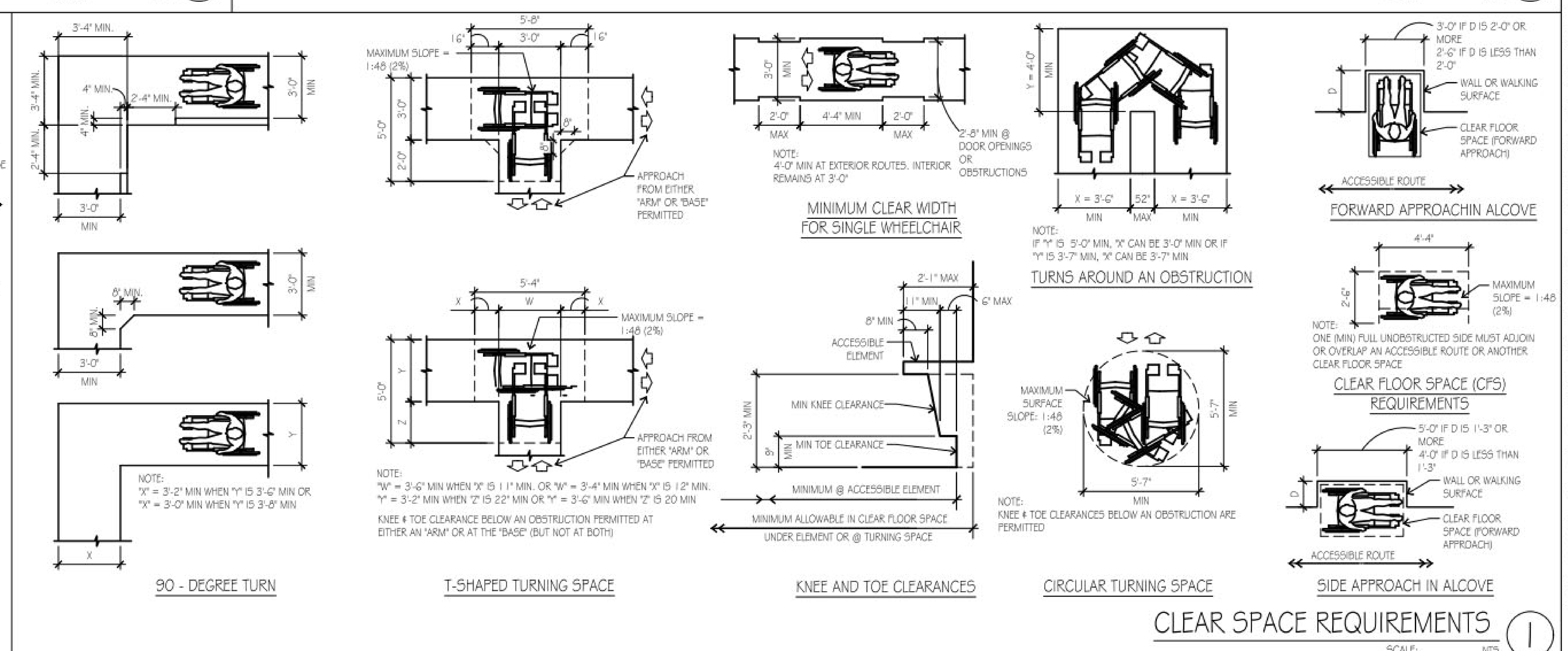












THE INFORMATION ON THESE ACCESSIBILITY DRAWINGS IS PROVIDED AS A GUIDE TO THE CONTRACTOR AND TO ANY OTHER ENTITIES INSTALLING BUILDING EQUIPMENT OR FIXTURES. THESE DRAWINGS ARE ABBREVIATED AND DO NOT INDICATE ALL CONDITIONS THAT MAY BE ENCOUNTERED AND THEY DO NOT INCLUDE ALL REQUIREMENTS OF EITHER THE ADA OR ICC/ANSI A117.1 IN THEIR ENTIRETY.

THE AMERICANS WITH DISABILITIES ACT (ADA) IS A CIVIL-RIGHTS LAW (NOT A BUILDING CODE) AND IS THEREFORE NOT NECESSARILY ENFORCEABLE BY AUTHORITIES HAVING JURISDICTION. EXCEPT IN CERTAIN STATES WITH THEIR OWN ACCESSIBILITY REQUIREMENTS (INCLUDING BUT NOT LIMITED TO CALIFORNIA, TEXAS & ILLINOIS), THE ACCESSIBILITY REQUIREMENTS OF ICC/ANSI A117.1 ARE TYPICALLY REQUIRED THROUGH THE BUILDING CODE.

COMPLY WITH REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (ADA) EVEN IF NOT REQUIRED BY BUILDING CODES, REGULATIONS OR ORDINANCES (ADA IS A FEDERAL LAW), AND AS INDICATED ON THESE DRAWINGS:

ACCESSIBLE ROUTE:

PROVIDE AN ACCESSIBLE ROUTE CONNECTING ALL ACCESSIBLE SPACES AND ELEMENTS, INCLUDING WALKING SURFACES, RAMPS & CURB-RAMPS (EXCLUDING THE FLARED SIDES), DOORS & DOORWAYS, AND/OR ELEVATORS & PLATFORM LIFTS. AN ACCESSIBLE ROUTE MAY BE LOCATED AT EXTERIOR WALKS, AISLES, HALLS, CORRIDORS, SKYWALKS OR TUNNELS

ACCESSIBLE WALKING SURFACES: PROVIDE STABLE, FIRM, & SLIP-RESISTANT SURFACE FINISHES W/ SURFACE OPENINGS (GRATINGS) NOT TO PERMIT PASSAGE OF A 1/2" DIAMETER SPHERE - WITH LONGEST DIMENSION PERPENDICULAR TO DIRECTION OF TRAVEL

MINIMUM WHEELCHAIR TURNING SPACE CAN INCLUDE ALLOWABLE FIXTURE KNEE & TOE CLEARANCES UNO. DOOR SWINGS ARE PERMITTED TO OVERLAP TURNING SPACE UNO.

CARPET OR CARPET TILL SHALL BE SECURELY ATTACHED AND HAVE A FIRM CUSHION, PAD, OR BACKING OR NOT CUSHION OR PAD. CARPET SHALL HAVE A LEVEL LOOP, LEVEL CUT PILE, OR LEVEL CUT/UNCUT PILE TEXTURE. PILE HEIGHT SHALL BE 1/2" MAX. EXPOSED EDGES OF CARPET SHALL BE FASTENED TO THE FLOOR SURFACES.

ACCESSIBLE BUILDING ENTRANCES:

PROVIDE 60% (MIN) OF ALL PUBLIC BUILDING ENTRANCES (EXCLUDING THOSE FOR LOADING OR SERVICE USE) ACCESSIBLE FROM: ACCESSIBLE PARKING, A PUBLIC TRANSPORTATION STOP, OR FROM A PASSENGER LOADING ZONE (AS APPLICABLE) WITHOUT STEPS OR ABRUPT CHANGES IN LEVEL.

PROVIDE ONE (1 - MIN) ACCESSIBLE BUILDING ENTRANCE AT THE GROUND FLOOR LEVEL AND ONE (1 - MIN) ACCESSIBLE ENTRANCE TO EACH PROPOSED TENANT SPACE IN A MULTIPLE-TENANT BUILDING.

PROVIDE ACCESSIBLE ENTRANCE AT SERVICE OR LOADING ENTRIES (NOT INTENDED FOR ENTRANCE BY THE PUBLIC) IF THAT IS THE ONLY ENTRANCE TO A SPACE OR BUILDING.

MULTI-LEVEL BUILDINGS: PROVIDE ONE (1 - MIN) ACCESSIBLE ROUTE (INCLUDING AN ELEVATOR TO CONNECT EACH BUILDING LEVEL ABOVE OR BELOW ACCESSIBLE LEVELS INCLUDING MEZZANINES) UNLESS THE FLOOR-AREA IS LESS THAN 3,000 SF AND DOES NOT INCLUDE FIVE (5) OR MORE MULTIPLE MERCANTILE (GROUP M) TENANTS, OR THE OFFICES OF HEALTH CARE PROVIDERS.

OPERABLE PARTS:

ACCESSIBLE OPERABLE PARTS INCLUDE CONTROLS AND OPERATING MECHANISMS (DOOR HARDWARE, WINDOW OPERATORS, DISPENSERS, LIGHT SWITCHES, CONVENIENCE OUTLETS, THERMOSTATS, ALARM CONTROLS, AND SIMILAR ELEMENTS).

PROVIDE AN ACCESSIBLE CLEAR-FLOOR SPACE AT ALL OPERATIONAL PARTS

OPERATION: BY USE OF ONE (1) HAND WITH A SINGLE EFFORT WITHOUT TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST - WITH FIFTEEN (15.0) POUNDS MAXIMUM OPERATIONAL FORCE.ROTATIONAL MOTION : 28 INCH-POUND MAX. COMPLY WITH ALLOWABLE REACH RANGES FOR HEIGHT OF OPERABLE PARTS.

ACCESSIBLE DOOR & GATE REQUIREMENTS:

REVOLVING DOORS OR GATES ARE NOT ACCESSIBLE.

SECURITY & MAINTENANCE DOORS (INCLUDING SERVICE-ACCESS DOORS) DO NOT NEED TO COMPLY WITH ACCESSIBILITY REQUIREMENTS.

DOUBLE-LEAF DOORS OR GATES: ONLY ONE LEAF (MIN) MUST COMPLY WITH ACCESSIBILITY REQUIREMENTS

RECESSED DOORS: PROVIDE FORWARD APPROACH CLEARANCE WITH ANY OBSTRUCTION WITHIN 18 INCH OF LATCH SIDE OF DOORWAY PROJECTING MORE THAN 8 INCHES BEYOND THE FACE OF DOOR MEASURED PERPENDICULAR TO FACE OF DOOR

DOOR SURFACES: PROVIDE SMOOTH SURFACE WITHIN TEN (10) INCH AFF ON PUSH-SIDE EXTENDING FULL WIDTH WITH MAX 1/16 INCH BETWEEN SURFACE PLANE AND ANY PARTS (KICKPLATE). CAP CAVITIES FORMED BY KICKPLATES EXCEPT AT SLIDING DOORS, TEMPERED GLASS DOORS WITHOUT SIDE STILES WITH A BOTTOM RAIL WITH ITS TOP EDGE SLOPED 60 DEGREES FROM HORIZONTAL OR MORE, OR AT DOORS NOT EXTENDING TO 10 INCHES AFF

SIDELITES OR VISION LITES: AT DOORS AND SIDELITES ADJACENT TO DOORS WITH ONE OR MORE GLAZING PANELS PERMITTING VIEWING, PROVIDE BOTTOM EDGE OF AT LEAST ONE PANEL ON EITHER THE DOOR OR THE ADJACENT SIDELITE AT 43 INCHES MAXIMUM AFF, EXCEPT AT VISION LITES (ONLY) WITH THE LOWEST PART MORE THAN 66 INCHES AFF.

THRESHOLDS SHALL NOT EXCEED 1/2" MAX. HEIGHT.

ACCESSIBLE DOOR & GATE HARDWARE:

PROVIDE ACCESSIBLE HARDWARE WITH AN EASY-TO-GRASP SHAPE COMPLYING WITH OPERABLE PARTS REQUIREMENTS (LEVERS PUSH/PULLS, OR PANIC DEVICES ARE ACCEPTABLE), MOUNTED BETWEEN 2'-10" AND 4'-0" AFF, WITH MAX PROJECTION (INTO REQUIRED MIN CLEARANCES) OF 4 INCH BTWN 34 - 80 INCH AFF

SLIDING DOOR/GATE HARDWARE: OPERABLE PARTS MUST BE EXPOSED AND USABLE FROM BOTH SIDES WHEN DOOR IS FULLY OPEN

DOOR/GATE CLOSERS: ADJUST UNITS TO PROVIDE FIVE (5) SECOND (MIN) TIME TO MOVE DOOR/GATE FROM 90-DEGREE OPEN-POSITION TO 12-DEGREE OPEN-POSITION.

DOOR/GATE SPRING-HINGES: ADJUST TO PROVIDE 1-1/2 SECOND MINIMUM TIME TO MOVE DOOR/GATE FROM 70-DEGREE OPEN-POSITION TO CLOSED-POSITION

OPENING-FORCE OF CLOSERS OR SPRING-HINGES: 5.0 LBS MAX @ INTERIOR HINGED, SLIDING OR FOLDING DOORS OR GATES (NOT APPLICABLE TO LATCH-BOLT RETRACTION FORCE AND NOT APPLICABLE TO OPENING FORCE AT FIRE-DOORS - TO BE AS REQD BY AJH)

THRESHOLDS SHALL NOT EXCEED 1/2" MAX HEIGHT.

AUTOMATIC DOORS OR GATES:

REFERENCED STANDARDS: COMPLY WITH ANSI/BHMA A156.10. AND FOR POWER-ASSIST AND LOW-ENERGY DOORS, COMPLY WITH ANSI/BHMA A156.19 (UNLESS DOORS OR GATES ARE DESIGNED TO BE OPERATED ONLY BY SECURITY PERSONNEL)

COMPLY WITH ACCESSIBLE CLEAR-FLOOR SPACE, THRESHOLD / FLOOR-SURFACE, AND DOORS-IN- SERIES REQUIREMENTS.

MANUAL CONTROLS: COMPLY WITH "OPERABLE PARTS" REQMTS WITH THE CLEAR FLOOR SPACE ADJACENT TO THE CONTROL SWITCH LOCATED BEYOND THE DOOR/GATE SWING.

ACCESSIBLE WINDOWS:

PROVIDE OPERATIONAL PARTS LOCATED PER "OPERABLE PARTS" REQMTS W/ MIN ACCESSIBLE CLEAR-FLOOR SPACE ADJACENT TO THE WINDOW.

ONE WINDOW PER ROOM (EXCEPT: KITCHENS & BATHROOMS) FOR EGRESS & VENTILATION.

FOUR FORCES ON A WINDOW - LOCK/UNLOCK (OPERABLE PARTS) & OPEN/CLOSE (AAMA 513)

SPECIAL ACCESS (PLATFORM) LIFTS (INTERIOR OR EXTERIOR):

COMPLY WITH ASME A17.1 SAFETY CODE FOR ELEVATORS AND ESCALATORS, SECTION XX (WITH ACCESSIBLE KEY-CONTROLS IF LIFT TRAVEL AREA IS NOT ENCLOSED) AND AS FOLLOWS:
- MAXIMUM TRAVEL HEIGHT: 60 INCHES
- MINIMUM CAPACITY: 400 POUNDS
- MINIMUM PLATFORM SIZE: 36 X 52 INCH
- MAXIMUM SPEED: 20 FPM

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
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LEE'S SUMMIT, MO 64081

project number

22902.001

drawing issuance

PERMIT

drawing revisions

No.	Description:	Date:

professional seal

STATE OF MISSOURI
HENRY C. KLOVER
NUMBER
A-5232
ARCHITECT

Date Signed DEC 09 2022

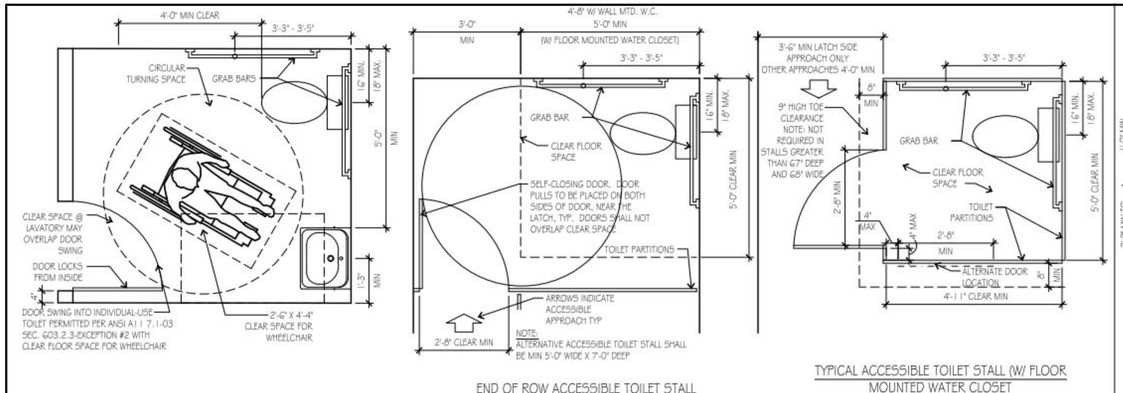
DATE SIGNED: 2/3/2023 10:11:21 AM

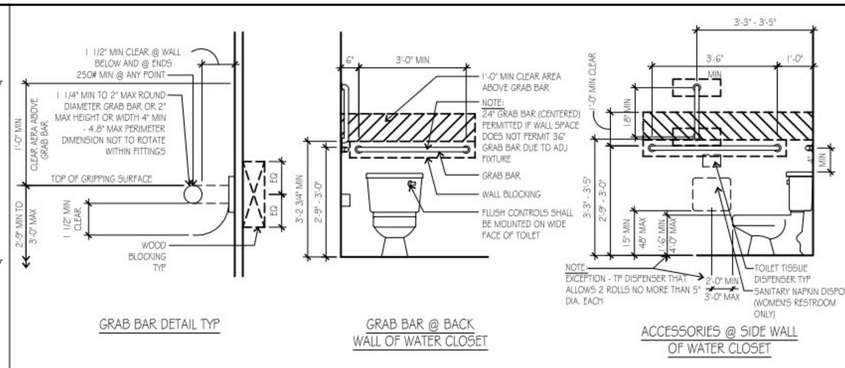
drawing title

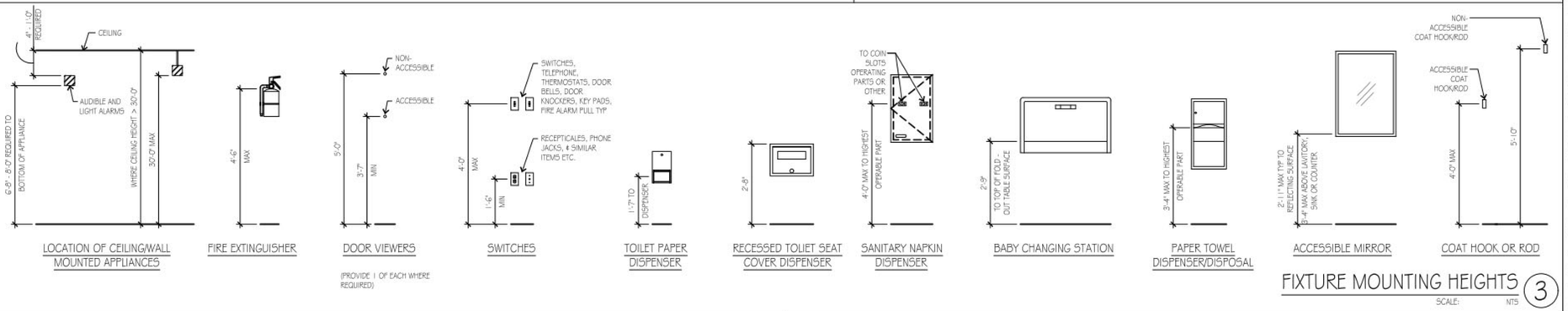
GENERAL ACCESSABILITY

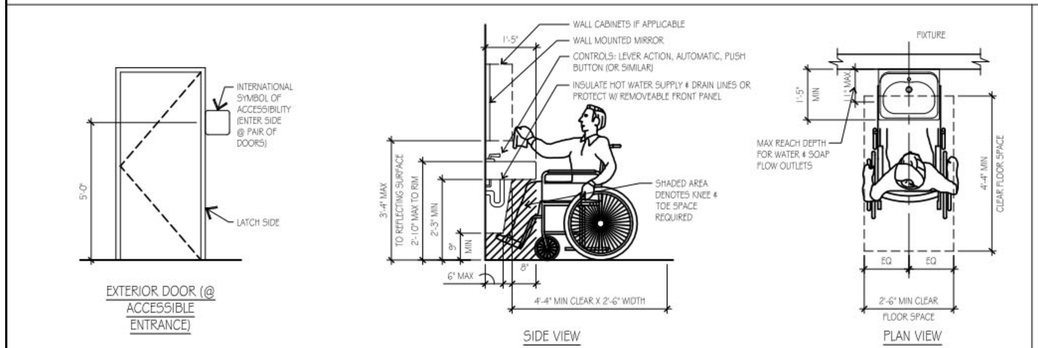
drawing number

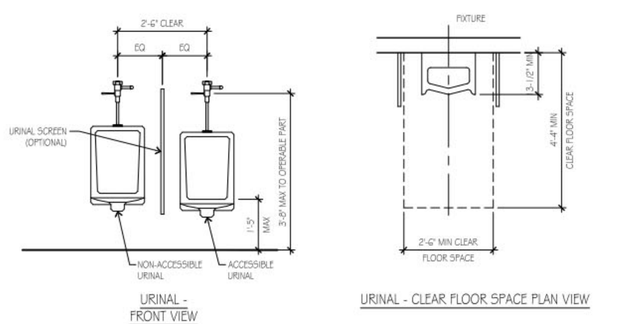
G001

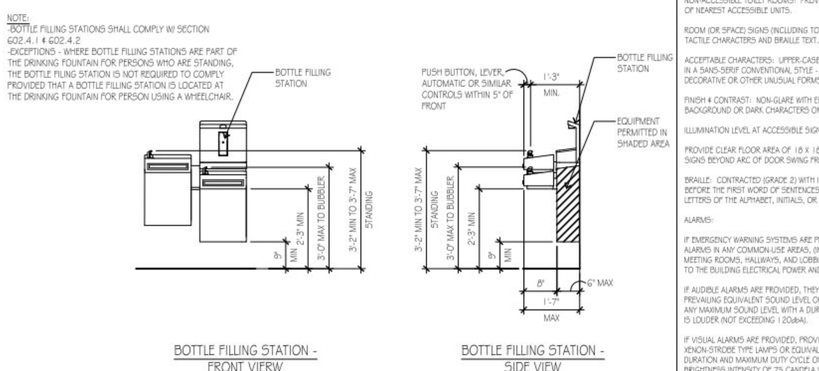












ACCESSIBLE ROUTE WITHIN BUILDING:

SPACES WITHIN BUILDINGS: PROVIDE AN ACCESSIBLE ROUTE TO EACH SPACE OR PORTION WITHIN A BUILDING, TO ACCESSIBLE BUILDING ENTRANCES - NOT PASSING THROUGH KITCHENS, STORAGE ROOMS, RESTROOMS CLOSETS OR SIMILAR SPACES (IF ONLY ONE ACCESSIBLE ROUTE IS PROVIDED).

CONSTRUCT WORK AREAS USED ONLY BY EMPLOYEES SO THAT INDIVIDUALS WITH DISABILITIES CAN APPROACH, ENTER, AND EXIT THE AREA (EXCEPT AT WORK-AREAS LESS THAN 150 SF AND ELEVATED SEVEN (7) INCHES OR MORE ABOVE GROUND OR FINISH FLOOR - WHEN THE RAISED ELEVATION IS ESSENTIAL TO THE FUNCTION OF THE WORK-AREA - PER IBC).

PROVIDE ACCESSIBLE ROUTES AT ALL COMMON-USE CIRCULATION PATHS WITHIN EMPLOYEE WORK AREAS UNLESS WORK AREA IS LESS THAN 300 SF AND DEFINED BY PERMANENTLY INSTALLED PARTITIONS, COUNTERS, CASEWORK OR FURNISHINGS

ACCESSIBILITY IS NOT REQUIRED TO NON-OCCUPIED SPACES ACCESSED ONLY BY LADDERS, CATWALKS, CRAWL SPACES OR FREIGHT (NON-PASSENGER) ELEVATORS THAT ARE FREQUENTED ONLY BY SERVICE PERSONNEL FOR MAINTENANCE PURPOSES, INCLUDING BUT NO LIMITED TO ELEVATOR PITS, ELEVATOR PENTHOUSES, AND PIPING OR EQUIPMENT CATWALKS.

ACCESSIBLE-ROUTE WITHIN BUILDING:

ACCESSIBLE-ROUTES MAY CONSIST OF ONE OR MORE OF THESE COMPONENTS:
WALKING SURFACES
RAMPS
DOORS AND DOORWAYS
ELEVATORS AND PLATFORM LIFTS

MINIMUM CORRIDOR WIDTH: 3'-6"

MINIMUM WIDTH OF ACCESS AISLES: 3'-0"

CARPETED WALKING SURFACES: BROADLOOM OR CARPET-TILE WITH FIRM CUSHION/PAD (OR WITHOUT CUSHION & PAD) WITH LEVEL LOOP, TEXTURED LOOP, LEVEL CUT, OR LEVEL CUT/UNCUT PILE TEXTURE WITH 1/2 INCH MAX PILE HEIGHT. SECURELY ATTACH TO SUBSTRATE AND PROVIDE BEVELED EDGE-TRIM ALONG ENTIRE LENGTH OF EXPOSED EDGE PER ABOVE.

AREA-OF-RESCUE ASSISTANCE

PROVIDE AN "AREA-OF-RESCUE-ASSISTANCE" AT NON-ACCESSIBLE EXIT-DISCHARGE DOORS - EXCEPT IN BUILDINGS WITH A SUPERVISED AUTOMATIC FIRE-SUPPRESSION SYSTEM.

MINIMUM SIZE: PROVIDE MINIMUM OF TWO (2) EA 2'-0" X 4'-4" AREAS OR ONE (1) EACH PER 200 OCCUPANTS PER STORY SERVED NOT ENCROACHING ON ANY REQUIRED EXIT WIDTH

TOILET ROOMS OR COMPARTMENTS:

UNI-SEX TOILET ROOM: PROVIDE AN ACCESSIBLE FACILITY WITH A SINGLE WATER-CLOSET AND LAVATORY IN ANY MERCANTILE OR ASSEMBLY OCCUPANCIES WHERE A TOTAL OF SIX (6) OR MORE MALE AND FEMALE WATER-CLOSETS ARE REQUIRED (PER IBC)

PROVIDE UNI-SEX AND SINGLE-USE TOILET ROOMS WITH DOOR LOCKING FROM INSIDE

WATER-CLOSET COMPARTMENTS: PROVIDE A MINIMUM OF ONE (1) WHEELCHAIR-ACCESSIBLE COMPARTMENT AND WHEN OVER SIX (6) WATER-CLOSETS + URINALS ARE PROVIDED IN A TOILET ROOM, PROVIDE ONE (1) TO BE AMBULATORY-ACCESSIBLE IN ADDITION TO THE WHEELCHAIR-ACCESSIBLE UNIT.

SINKS: PROVIDE NO LESS THAN ONE (1) ACCESSIBLE SINK (OR 5% OF TOTAL) WHERE PROVIDED (MOP OR SERVICE-SINKS ARE NOT REQUIRED TO BE ACCESSIBLE)

DRINKING FOUNTAINS:

IF ONLY ONE DRINKING FOUNTAIN IS PROVIDED IN A SPACE OR BUILDING, PROVIDE A "DUAL HI-LOW" TYPE UNIT ACCESSIBLE TO BOTH WHEELCHAIR USERS AND TO PERSONS WITH DIFFICULTY BENDING OR STOOPING (STANDARD HEIGHT UNIT) OR OTHER MEANS TO ACHIEVE EQUIVALENT ACCESSIBILITY FOR BOTH (PROVIDING AN ACCESSIBLE WATER COOLER, FOR EXAMPLE).
PROVIDE DRINKING FOUNTAINS IN ALCOVE OUT OF COMMON PATH OF TRAVEL
SPACING BETWEEN DRINKING FOUNTAINS: 2'-3" (27") MINIMUM

ACCESSIBLE ELEVATORS:

MINIMUM CAR SIZE:
DEPTH: 4'-3" TO FRONT WALL - 4'-6" TO DOOR
WIDTH: 50 OR MORE OCCUPANTS: 6'-8" MIN (STRETCHER TYPE)
UNDER 50 OCCUPANTS: 4'-6" MIN

MINIMUM DOOR WIDTH:
50 OR MORE OCCUPANTS: 3'-6" MIN
UNDER 50 OCCUPANTS: 2'-10" MIN

HANDRAIL AT REAR: LOCATE BETWEEN 2'-6" TO 2'-10" AFF

ELEVATOR CONTROLS:
LOCATE BETWEEN 2'-1 1" MIN AND 4'-6" AFF MAXIM
PROVIDE EMERGENCY PHONE @ 4'-0" AFF MAX WITH 2'-5" MIN CORD LENGTH
HALL-CALL BUTTONS: CENTER AT 3'-6" AFF
HALL LANTERNS: 6'-0" (72 INCH) AFF - VISUAL AND AUDIBLE
FLOOR INDICATOR SIGNS: 2" HIGH CONTRASTING LETTER SIGN WITH BRAILLE ON SIDE OF DOOR JAMB AT 60" AFF

ACCESSIBLE SEATING:

WHEN PROVIDED AT FIXED OR BUILT-IN TABLES, COUNTERS OR WORK SURFACES, PROVIDE 5% MINIMUM BUT NOT LESS THAN ONE (1) ACCESSIBLE SEATING, DISTRIBUTED THROUGHOUT.

POINT-OF-SALE (POS) OR SERVICE COUNTERS: PROVIDE NOT LESS THAN ONE (1) UNIT TO BE ACCESSIBLE DISPERSED THROUGHOUT IF COUNTERS ARE DISPERSED.

SIGNAGE:

REQUIRED ACCESSIBLE SIGNS (MINIMUM) EXCEPT AT BUILDING DIRECTORIES, MENU BOARDS, OR TEMPORARY SIGNS PROVIDE ACCESSIBLE SIGNS AS FOLLOWS:

ACCESSIBLE ENTRANCES: PROVIDE A 4 X 4" ACCESSIBILITY DECAL AT ALL ACCESSIBLE PUBLIC ENTRANCE DOORS CENTERED AT 60" AFF.

NON-ACCESSIBLE PUBLIC ENTRANCES: PROVIDE DIRECTIONAL SIGNS INDICATING LOCATION OF NEAREST ACCESSIBLE ENTRANCE.

NON-ACCESSIBLE TOILET ROOMS: PROVIDE DIRECTIONAL SIGNS INDICATING LOCATION OF NEAREST ACCESSIBLE UNITS.

ROOM (OR SPACE) SIGNS (INCLUDING TOILET ROOMS): PROVIDE RAISED PICTOGRAMS, TACTILE CHARACTERS AND BRAILLE TEXT.

ACCEPTABLE CHARACTERS: UPPER-CASE, LOWER-CASE, OR A COMBINATION OF BOTH IN A SANS-SERIF CONVENTIONAL STYLE - NO ITALIC, OBLIQUE, SCRIPT, HIGHLY DECORATIVE OR OTHER UNUSUAL FORMS

FINISH & CONTRAST: NON-GLARE WITH EITHER LIGHT CHARACTERS ON DARK BACKGROUND OR DARK CHARACTERS ON LIGHT BACKGROUND

ILLUMINATION LEVEL AT ACCESSIBLE SIGNS: MINIMUM 10 FOOTCANDLES

PROVIDE CLEAR FLOOR AREA OF 18 X 18 INCHES CENTERED ON TACTILE CHARACTER SIGNS BEYOND ARC OF DOOR SWING FROM CLOSED TO 45 DEGREE OPEN POSITION

BRAILLE: CONTRACTED (GRADE 2) WITH INDICATION OF AN UPPERCASE LETTER ONLY BEFORE THE FIRST WORD OF SENTENCES, PROPER NOUNS, AND NAMES, INDIVIDUAL LETTERS OF THE ALPHABET, INITIALS, OR ACRONYMN.

ALARMS:

IF EMERGENCY WARNING SYSTEMS ARE PROVIDED, PROVIDE BOTH AUDIBLE AND VISUAL ALARMS IN ANY COMMON-USE AREAS, (INCLUDING BUT NOT LIMITED TO RESTROOMS, MEETING ROOMS, HALLWAYS, AND LOBBIES). PERMANENTLY CONNECT ALARM SYSTEMS TO THE BUILDING ELECTRICAL POWER AND LIGHTING SYSTEM AS APPROPRIATE.

IF AUDIBLE ALARMS ARE PROVIDED, THEY MUST PRODUCE SOUND EXCEEDING THE PREVAILING EQUIVALENT SOUND LEVEL OF A SPACE BY AT LEAST 15 dbA OR EXCEED ANY MAXIMUM SOUND LEVEL WITH A DURATION OF 60 SECONDS BY 5 dbA, WHICHEVER IS LOUDER (NOT EXCEEDING 120dbA).

IF VISUAL ALARMS ARE PROVIDED, PROVIDE UNFILTERED OR CLEAR-FILTERED WHITE XENON-STRODE TYPE LAMPS OR EQUIVALENT, WITH 0.2 SECOND MAXIMUM PULSE DURATION AND MAXIMUM DUTY CYCLE OF 40 PERCENT, PROVIDING A MINIMUM BRIGHTNESS INTENSITY OF 75 CANDELA WITH A FLASH RATE BETWEEN 1 AND 3 Hz. LOCATE UNITS NO MORE THAN 6'-10" (80") AFF OR 6" BELOW CEILING (WHICHEVER IS LOWER). LOCATE SO FEET MAXIMUM FROM ANY POINT WITHIN A SPACE OR COMMON CORRIDOR, OR IN LARGE SPACES OVER 100 FEET ACROSS (SUCH AS AUDITORIUMS) WITHOUT OBSTRUCTIONS 6 FT AFF, LOCATE AROUND ROOM PERIMETER AT MAXIMUM 100 FT CENTERS. ALL STROBES IN ROOM MUST BE SYNCHRONIZED.

klover architects
8813 PENROSE LANE, SUITE 400 • LENEXA, KS 66219
ph: 913.649.8181 • fx: 913.649.1275 • www.klover.net

project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
22902.001

drawing issuance
PERMIT

drawing revisions

No.	Description:	Date:

professional seal

Date Signed: DEC 09 2022
DATE SIGNED: 2/3/2023 10:11:32 AM

drawing title
INTERIOR ACCESSABILITY

drawing number
G002

CODE ANALYSIS

BUILDING DATA
OCCUPANY TYPE: A-2 RESTAURANT
CONSTRUCTION TYPE: V-B SPRINKLERED
PROPOSED NUMBER OF FLOORS AND BUILDING HEIGHT: 1 STORY, 27'-6"
ALLOWED NUMBER OF FLOORS AND BUILDING HEIGHT: 2 STORIES, 60'
PROPOSED BUILDING AREA: 11, 932 SQ FT
ALLOWED BUILDING AREA: 24,000 SQ FT

APPLICABLE CODES

2018 INTERNATIONAL BUILDING CODE
2017 NATIONAL ELECTRICAL CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 UNIFORM PLUMBING CODE
2018 INTERNATIONAL ENERGY CONSERVATION CODE
2018 INTERNATIONAL FIRE CODE
ICC/ANSI A 11.1-2009

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 PROCURED AND PAID FOR BY THE CONTRACTOR INVOLVED. APPLICALBE CODES INCLUDE BUT ARE NOT LIMITED TO THE PREVISOUS MENTIONED.

EGRESS CALCULATIONS

ROOM NAME	OCCUPANCY TYPE	AREA / IBC LOAD FACTOR	OCCUPANTS	CODE DESCRIPTION	EXITS		EGRESS WIDTH	
					REQ'D	PROVIDED	REQ'D	PROVIDED
TENANT 100	N/A	3,394 / N/A	N/A	2 EXITS REQ'D, PER IBC SECTION 1006.3.2	2	3	N/A	140"
TENANT 101	N/A	3,356 / N/A	N/A	2 EXITS REQ'D, PER IBC SECTION 1006.3.2	2	3	N/A	138"
RISER ROOM 102	N/A	46 / N/A	N/A	1 EXIT REQ'D.	1	1	N/A	34.5"

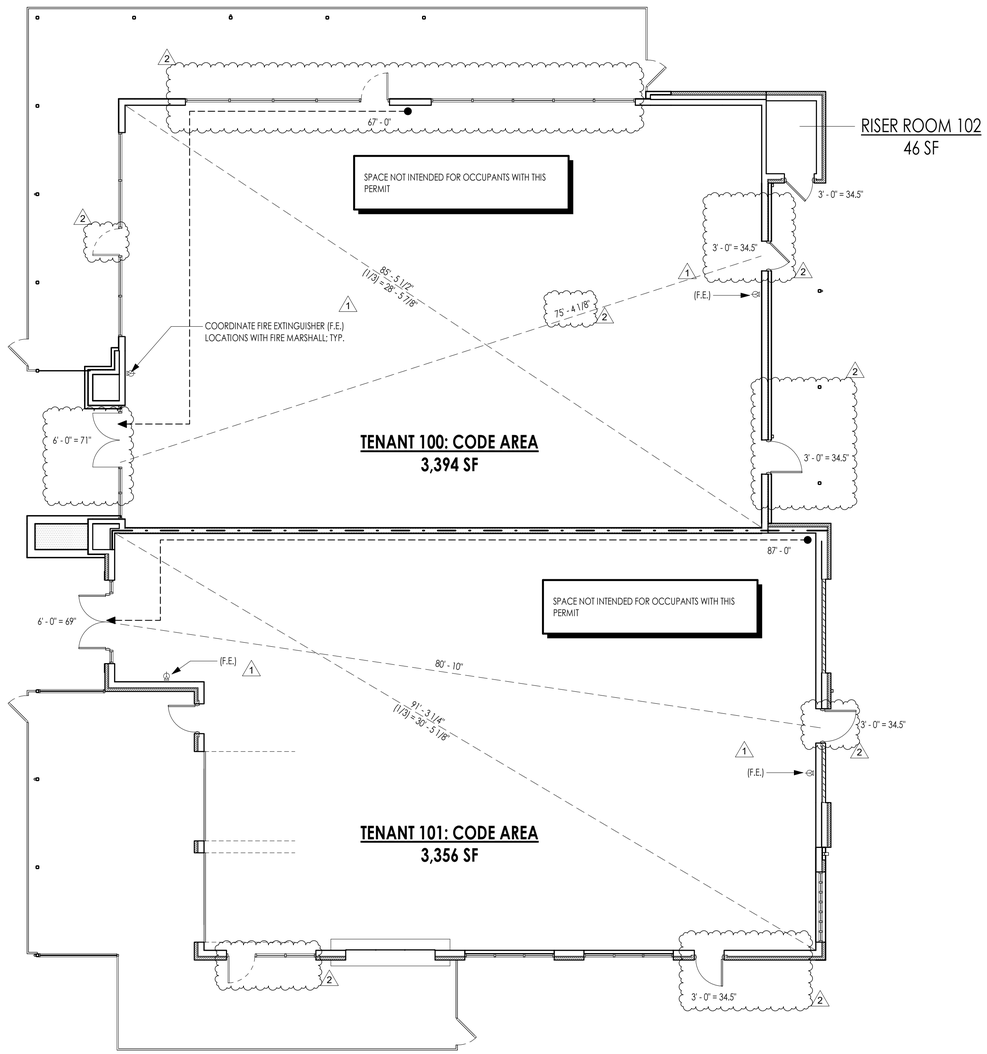
* ACCURATE LOAD CALCULATIONS TO BE DONE AT TIME OF TENANT IMPROVEMENT DRAWINGS

CODE SYMBOLS:

1-HR SEPARATION - UL U305

PATH OF TRAVEL

DOOR SIZE = EGRESS WIDTH



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

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project title

LOT 12 OF WEST PRYOR
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drawing issuance
PERMIT 1/10/23

drawing revisions

No.	Description:	Date:
1	REV 1	1/10/23
2	REV 2	1/27/23

professional seal

DATE SIGNED: 2/3/2023 10:11:38 AM

drawing title
CODE PLAN

drawing number
G100

UL Product iQ®

BXUV.U305 - Fire-resistance Ratings - ANSI/UL 263

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

Fire-resistance Ratings - ANSI/UL 263

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

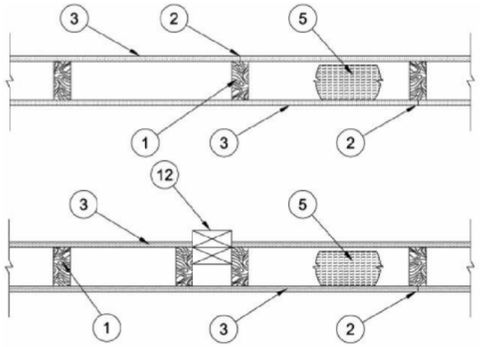
Design No. U305

December 01, 2022

Bearing Wall Rating — 1 Hr
Finish Rating — See Items 3, 3A, 3D, 3E, 3F, 3G, 3H, 3J and 3L.
STC Rating - 56 (See Item 9)

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Wood Studs —** Nom 2 by 4 in. spaced 16 in. OC max, effectively firestopped.

2. **Joints and Nail-Heads —** Joints covered with joint compound and paper tape. Joint compound and paper tape may be omitt when square edge boards are used. As an alternate, nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surfa Classified veneer baseboard with the joints reinforced with paper tape. Nailheads exposed or covered with joint compound.

3. **Gypsum Board* —** 5/8 in. thick paper or vinyl surfaced, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam he When used in widths other than 48 in., gypsum panels are to be installed horizontally. For an alternate method of attachment of gypsum panels, refer to Items 6 through 6F, **Steel Framing Members***.
When Items 6, 6B, 6C, 6D, 6E, or 6F, **Steel Framing Members***, are used, gypsum panels attached to furring channels with 1 in. long Type S I head steel screws spaced 12 in. OC.

When Item 6A, **Steel Framing Members***, is used, two layers of gypsum panels attached to furring channels. Base layer attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC. Face layer attached to furring channels with 1-5/8 in. long Type S I head steel screws spaced 12 in. OC. All joints in face layers staggered with joints in base layers. One layer of gypsum board attached to oppc side of wood stud without furring channels as described in Item 3.

When Item 7, resilient channels are used, 5/8 in. thick, 4 ft wide gypsum panels applied vertically. Screw attached furring channels with 1 in. l self-drilling, self-tapping Type S or S-12 steel screws spaced 8 in. OC, vertical joints located midway between studs.

AMERICAN GYPSUM CO — Types AGX-1(finish rating 23 min.), M-Glass (finish rating 23 min.), Type AGX-11 (finish rating 26 min), Type AG (finish rating 22 min), Type LightRoc (finish rating 23 min.) or Type AG-C

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO — Type DBX-1 (finish rating 24 min)

CABOT MANUFACTURING ULC — Type X (finish rating 22 min), 5/8 Type X, Moisture Resistant Type X, Gypsum Sheathing Type X, Mold & Mildew Resistant Type X and Mold & Mildew Resistant AR Type X, Type Blueglass Exterior Sheathing

CERTAINTEED GYPSUM INC — Type C, Type X-1 (finish rating 26 min); Type EGRG or GlasRoc (finish rating 23 min), GlasRoc-2, Type Habito (finish rating 26 min), Type LWTX (finish rating 18 min), Type LGFC6A (finish rating 34 min), Type LGFC2A, Type LGFC-C/A, Type LGFC-WD, Type LGLLX (finish rating 21 min), Type CLLX (finish rating 24 min)

CGC INC — Type AR (finish rating 24 min), Type C (finish rating 24 min), Type IP-AR (finish rating 24 min), Type IPC-AR (finish rating 24 min), Type IP-X1 (finish rating 24 min), Type IP-X2 (finish rating 24 min), Type SCX (finish rating 24 min), Type SHX (finish rating 24 min), Type ULX (finish rating 22 min), Type WRC (finish rating 24 min), Type WRX (finish rating 24 min), Type ULIX (finish rating 20 min)

GEORGIA-PACIFIC GYPSUM L L C — Type 5 (finish rating 26 min), Type 6 (finish rating 23 min), Type 9 (finish rating 26 min), Type C (finish rating 26 min), Type DGG (finish rating 20 min), Type GPFS1 (finish rating 20 min), Type GPFS2 (finish rating 20 min), Type GPFS6 (finish rating 26 min), Type DS, Type DAP, Type DD (finish rating 20 min), Type DA, Type DAPC, Type LS (finish rating 23 min), Type X, Veneer Plaster Base - Type X, Water Rated - Type X, Sheathing - Type X, Soffit - Type X, Type LWX (finish rating 22 min), Veneer Plaster Base-Type LWX (finish rating 22 min), Water Rated-Type LWX (finish rating 22 min), Sheathing Type-LWX (finish rating 22 min), Soffit-Type LWX (finish rating 22 min), Type DGLW (finish rating 22 min), Water Rated-Type DGLW (finish rating 22 min), Sheathing Type- DGLW (finish rating 22 min), Soffit-Type DGLW (finish rating 22 min), Type LWX (finish rating 22 min), Type LW2X (finish rating 22 min), Veneer Plaster Base - Type LW2X (finish rating 22 min), Water Rated - Type LW2X (finish rating 22 min), Sheathing - Type LW2X (finish rating 22 min), Soffit - Type LW2X (finish rating 22 min), Type DGL2W (finish rating 22 min), Water Rated - Type DGL2W (finish rating 22 min), Sheathing - Type DGL2W (finish rating 22 min)

NATIONAL GYPSUM CO — Type FSK (finish rating 20 min), Type FSK-G (finish rating 20 min), Type FSW (finish rating 20 min), Type FSW-2 (finish rating 24 min), Type FSW-3 (finish rating 20 min), Type FSW-5 (finish rating 22 min), Type FSW-G (finish rating 20 min), Type FSK-C (finish rating 20 min), Type FSW-C (finish rating 20 min), Type FSMR-C, Type FSW-6 (finish rating 20 min), Type FSL (finish rating 24 min), Type FSW-8, Type FSLX (finish rating 21 min), Type RSX (finish rating 26 min).

NATIONAL GYPSUM CO — Riyadh, Saudi Arabia — Type FR, or WR.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types C, PG-2 (finish rating 20 min), PG-3 (finish rating 20 min), Types PG-3W, PG-5W (finish rating 20 min), Type PG-4 (finish rating 20 min), Type PG-6 (finish rating 23 min), Types PG-3WS, PG-5WS, PGS-WRS (finish rating 20 min), Types PG-5, PG-9 (finish rating 26 min), PG-11 PG-13 (Nails increased to 2 in.), Type PG-C or PGI (finish rating 26 min)

PANEL REY S A — Type ARX, GREX, GRIX, PRX, PRC, PRC2; Types RHX, Guard Rey, MDX, ETX (finish rating 22 min), PRX2 (finish rating 21 min)

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD — Type EX-1 (finish rating 26 min)

THAI GYPSUM PRODUCTS PCL — Type C, Type X (finish rating 26 min)

UNITED STATES GYPSUM CO — Type AR (finish rating 24 min), Type C (finish rating 24 min), Type FRX-G (finish rating 29 min), Type IP-AR (finish rating 24 min), Type IPC -AR (finish rating 24 min), Type IP-X1 (finish rating 24 min), Type IP-X2 (finish rating 24 min), Type SHX (finish rating 24 min), Type SCX (finish rating 24 min), Type SGX (finish rating 24 min), Type ULX (finish rating 22 min), Type WRX (finish rating 24 min), Type WRC (finish rating 24 min), Type ULIX (finish rating 20 min)

USG BORAL DRYWALL SFZ LLC — Type SGX (finish rating 24 min).

USG MEXICO S A DE C V — Type AR (finish rating 24 min), Type C (finish rating 24 min), Type WRX (finish rating 24 min), Type WRC (finish rating 24 min), Type IP-X1 (finish rating 24 min), Type IP-X2 (finish rating 24 min), Type SHX (finish rating 24 min), SCX (finish rating 24 min), Type IP-AR (finish rating 24 min), Type IPC -AR (finish rating 24 min), Type ULX (finish rating 22 min)

3A. **Gypsum Board* —** (As an alternate to Item 3) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. When used in widths of other than 48 in., gypsum boards are to be installed horizontally.

AMERICAN GYPSUM CO — Types AGX-1 (finish rating 25 min.), M-Glass (finish rating 25 min.), AG-C (finish rating 25 min.), LighttRoc (finish rating 25 min.)

CERTAINTEED GYPSUM INC — Type C, Type X-1 (finish rating 26 min), Type EGRG or GlasRoc.

CGC INC — Type AR (finish rating 24 min), Type C (finish rating 24 min), Type IP-AR (finish rating 24 min), Type IPC-AR (finish rating 24 min), Type IP-X1 (finish rating 24 min), Type IP-X2 (finish rating 24 min), Type SCX (finish rating 24 min), Type SHX (finish rating 24 min), Type WRC (finish rating 24 min), Type WRX (finish rating 24 min)

NATIONAL GYPSUM CO — Type FSW (finish rating 24 min)

UNITED STATES GYPSUM CO — Type AR (finish rating 24 min), Type SCX (finish rating 24 min), Type SGX (finish rating 24 min), Type C (finish rating 24 min), Type WRX (finish rating 24 min), Type WRC (finish rating 24 min), Type IP-X1 (finish rating 24 min), Type IP-X2 (finish rating 24 min), Type SHX (finish rating 24 min), Type FRX-G (finish rating 24 min), Type IP-AR (finish rating 24 min), Type IPC-AR (finish rating 24 min)

USG BORAL DRYWALL SFZ LLC — Types C, SCX, SGX (finish rating 24 min).

USG MEXICO S A DE C V — Type AR (finish rating 24 min), Type C (finish rating 24 min), Type WRX (finish rating 24 min), Type WRC (finish rating 24 min), Type IP-X1 (finish rating 24 min), Type IP-X2 (finish rating 24 min), Type SHX (finish rating 24 min), Type SCX, Type IP-AR (finish rating 24 min), Type IPC-AR (finish rating 24 min)

3B. **Gypsum Board* —** (As an alternate to Item 3) — Nom 3/4 in. thick, installed with 1-7/8 in. long cement coated nails as described in Item 3 or 1-3/8 in. long Type W coarse thread gypsum panel steel screws as described in Item 3A.
CGC INC — Types AR, IP-AR

UNITED STATES GYPSUM CO — Types AR, IP-AR

USG MEXICO S A DE C V — Types AR, IP-AR

3C. **Gypsum Board* —** (As an alternate to Items 3, 3A and 3B) — 5/8 in. thick, 2 ft wide, tongue and groove edge, applied horizontally to one side of the assembly. Installed with 1-7/8 in. long cement coated nails as described in Item 3 or 1-1/4 in. long Type W coarse thread gypsum panel steel screws as described in Item 3A. Joint covering (Item 2) not required.
CGC INC — Type SHX

UNITED STATES GYPSUM CO — Type SHX

USG MEXICO S A DE C V — Type SHX

3D. **Gypsum Board* —** (As an alternate to Items 3, 3A, 3B, or 3C — Not Shown) — For Direct Application to Studs Only- Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-5/8 in. long Type W coarse thread gypsum panel steel screws spaced 8 in. OC at perimeter and in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. placed on the face of studs and attached to the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs or tabs may be used in lieu of or in addition to the lead batten strips or optional at other locations. Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards underneath screw locations prior to the installation of the screws. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".
RAY-BAR ENGINEERING CORP — Type RB-LBG (finish rating 24 min)

3E. **Gypsum Board* —** (As an alternate to Items 3, 3A, 3B, 3C, and 3D) — 5/8 in. thick gypsum panels, with square edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last 2 screws 1 and 4 in. from edge of board or nailed 7 in. OC with 6d cement coated nails 1-7/8

in. long, 0.0915 in. shank diam and 15/64 in. diam heads. When used in widths of other than 48 in., gypsum boards are to be installed horizontally.
GEORGIA-PACIFIC GYPSUM L L C — Type DGG (finish rating 20 min), GreenGlass Type X (finish rating 23 min)

3F. **Gypsum Board* —** (As an alternate to Items 3, 3A, 3B, 3C, 3D, and 3E) — 5/8 in. glass-mat faced with square edges, applied either horizontally or vertically. Gypsum panels nailed 7 in. OC around the perimeter and in the field with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads. Nails shall be placed 1 inch and 3 inch from horizontal joints and 7 inch OC thereafter.
CGC INC — Type USGX (finish rating 22 min)

UNITED STATES GYPSUM CO — Type USGX (finish rating 22 min.)

USG BORAL DRYWALL SFZ LLC — , Type USGX (finish rating 22 min.)

USG MEXICO S A DE C V — Type USGX (finish rating 22 min.)

3G. **Gypsum Board* —** (As an alternate to Items 3 through 3F) — 5/8 in. thick paper surfaced applied vertically. Gypsum panels nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads.
GEORGIA-PACIFIC GYPSUM L L C — Type X ComfortGuard Sound Deadening Gypsum Board (finish rating 27 min)

3H. **Gypsum Board* —** (As an alternate to Items 3) — Not to be used with items 6 or 7. 5/8 in. thick paper surfaced applied vertically only. Gypsum panels nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads.
NATIONAL GYPSUM CO — Type SBWB

3I. **Gypsum Board* —** (As an alternate to Items 3 through 3H, Not Shown) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically. Panels nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads. Panel joints covered with paper tape and two layers of joint compound. Nailheads covered with two layers of joint compound.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock ES (finish rating 20 min)

3J. **Gypsum Board* —** (As an alternate to Item 3) — 5/8 in. thick paper surfaced applied vertically or horizontally. Gypsum panels secured with 1-1/4 in. Type W coarse thread gypsum panel steel screws spaced a maximum of 12 in. OC.
CERTAINTEED GYPSUM INC — Type SilentFX

3K. **Gypsum Board* —** (As an alternate to Item 3) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a maximum 8 in. OC with the last screw 1 in. from the edge of the board. When used in widths other than 48 in., gypsum panels are to be installed horizontally.
NATIONAL GYPSUM CO — Type FSK (finish rating 20 min), Type FSK-G (finish rating 20 min), Type FSW (finish rating 20 min), Type FSW-2 (finish rating 24 min), Type FSW-3 (finish rating 20 min), Type FSW-5 (finish rating 22 min), Type FSW-G (finish rating 20 min), Type FSK-C (finish rating 20 min), Type FSW-C (finish rating 20 min), Type FSMR-C, Type FSW-6 (finish rating 20 min), Type FSL (finish rating 24 min).

3L. **Gypsum Board* —** (As an alternate to Item 3) — For Direct Application to Studs Only — Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-5/8 in. long Type W coarse thread gypsum panel steel screws spaced 8 in. OC at perimeter and in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 10 ft long with a max thickness of 0.140 in. placed on the face of studs and attached to the stud with two 1 in. long Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, max 5/16 in. diam by max 0.140 in. thick. compression fitted or adhered over the screw heads. Lead batten strips to have a purity of 99.5% meeting the Federal specification QQ-L-201f, Grades "B, C or D".
MAYCO INDUSTRIES INC — "X-Ray Shielded Gypsum"

3M. **Gypsum Board* —** (As an alternate to Items 3) — For Direct Application to Studs Only — For use as the base layer or as the face layer. Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-5/8 in. long Type W coarse thread gypsum panel steel screws spaced 8 in. OC at perimeter and in the field when applied as the base layer. When applied as the

face layer screw length to be increased to 2-1/2 in. Lead batten strips required behind vertical joints of lead backed gypsum wall and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201 Grade "C". Fasteners for face layer gypsum panels (Items 4, 4A or 4B) when installed over lead backed board to be min 2-1/2 in. S-12 bugle head steel screws spaced as described in Item 4.
RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

3N. **Gypsum Board* —** (As an alternate to Item 3) — 5/8 in. thick, 4 ft. wide, applied horizontally or vertically with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Secured as described in Item 3 or 3A.
CERTAINTEED GYPSUM INC — Easi-Lite Type X (finish rating 24 min), Easi-Lite Type X-2 (finish rating 24 min)

3O. **Wall and Partition Facings and Accessories* —** (As an alternate to Item 3, Not Shown) — Nominal 5/8 in. thick, 4 ft wide p applied vertically. Panels nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam hea Panel joints covered with paper tape and two layers of joint compound. Nailheads covered with two layers of joint compound.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527 (finish rating 24 min).

3P. **Gypsum Board* —** (As an alternate to Item 3, Not Shown) — Two layers nom. 5/16 in. thick gypsum panels applied vertically horizontally. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by wo studs. Horizontal joints on the same side between face and base layers need not be staggered. Base layer gypsum panels fastene studs with 1-1/4 in. long drywall nails spaced 8 in. OC. Face layer gypsum panels fastened to studs with 1-7/8 in. long drywall nai spaced 8 in. OC starting with a 4" stagger.
NATIONAL GYPSUM CO — Type FSW (finish rating 25 min)

3Q. **Gypsum Board* —** (As an alternate to Item 3) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applie either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a maximum 10 in. OC with the last two screws 4 and 1 in. from the edges of the board. When used in widths other 48 in., gypsum panels are to be installed horizontally.
CERTAINTEED GYPSUM INC — Type LGFC6A (finish rating 21 min), Type LGFC2A, Type LGFC-C/A, Type LGFC-WD, Type LGLLX

3R. **Gypsum Board* —** (As an alternate to Item 3. For use with Item 5H) — Any 5/8 in. thick, 4 ft. wide, Gypsum Board listed in Ite above. Applied either horizontally or vertically, and screwed to panels with 1-5/8 in. long Type W coarse thread steel screws at 8 at perimeter and in the field with the last two screws 4 and 3/4 in. from the edges of the board when applied as the base layer. W used in widths other than 48 in., gypsum panels are to be installed horizontally.

3S. **Gypsum Board* —** 3/4 in. thick paper or vinyl surfaced, with beveled, square, or tapered edges, applied either horizontally o vertically. Gypsum panels secured as described in Item 3 with nail length increased to 2 in.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type PG-13

3T. **Wall and Partition Facings and Accessories* —** (As an alternate to 5/8 in. thick board as outlined in Item 3) — Nominal 1-3 thick, 4 ft wide panels, applied vertically or horizontally. Fastened with #6 x 2 in. long drywall screws spaced 8 in. OC along the perimeter and 12 in. OC in the field.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 545

3U. **Gypsum Board* —** (As an alternate to Item 3 - For use with Foamed Plastic products, Item 5J) — 5/8 in. thick, 4 ft. wide, app vertically with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Gypsum panels nailed OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads.
AMERICAN GYPSUM CO — Types AGX-1

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO — Type DBX-1

CABOT MANUFACTURING ULC — Type X

CERTAINTEED GYPSUM INC — Type X

CGC INC — Type SCX

PANEL REY S A — Type ARX, PRX

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD — Type EX-1

THAI GYPSUM PRODUCTS PCL — Type X

UNITED STATES GYPSUM CO — Types SCX and SGX

USG BORAL DRYWALL SFZ LLC — Types SCX and SGX

USG MEXICO S A DE C V — Type SCX

3V. **Gypsum Board* —** (As an alternate to Item 3. For use with Item 5K) — Any 5/8 in. thick, 4 ft. wide, Gypsum Board listed in Item 3 above. Applied vertically with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Gypsum panels secured to studs with 1-5/8 in. long Type W coarse thread gypsum panel steel screws spaced 8 in. OC at perimeter and in the field.

3W. **Gypsum Board* —** (As an alternate to Item 3. For use with Item 5L) — Any 5/8 in. thick, 4 ft. wide, Gypsum Board listed in Item 3 above. Applied vertically with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Gypsum panels secured to studs with 1-1/4 in. long Type W screws spaced 8 in. OC at perimeter and in the field.

4. **Steel Corner Fasteners —** (Optional) — For use at wall corners. Channel shaped, 2 in. long by 1 in. high on the back side with two 1/8 in. wide cleats protruding into the 5/8 in. wide channel, fabricated from 24 gauge galv steel. Fasteners applied only to the end or cut edge (not along tapered edges) of the gypsum board, no greater than 2 in. from corner of gypsum board, max spacing 16 in. OC. Nailed to adjacent stud through tab using one No. 6d cement coated nail per fastener. Corners of wall board shall be nailed to top and bottom plate using No. 6d cement coated nails.

5. **Batts and Blankets* —** (Optional — Required when Item 6A is used (RC-1)) — Glass fiber or mineral wool insulation. Placed to completely or partially fill the stud cavities. When Item 6A is used, glass fiber or mineral wool insulation shall be friction-fitted to completely fill the stud cavities.
CERTAINTEED CORP

JOHNS MANVILLE

KNAUF INSULATION LLC

MANSON INSULATION INC

ROCKWOOL — Types Acoustical Fire Batts and Type AFB, min. density 1.69 pcf / 27.0 kg/m^3

ROCKWOOL MALAYSIA SDN BHD — Type Acoustical Fire Batts

ROCK WOOL MANUFACTURING CO — Delta Board

THERMAFIBER INC — Type SAFB, SAFB FF

5A. **Fiber, Sprayed* —** (Not Shown — Not for use with Item 6) — As an alternate to Batts and Blankets (Item 5) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft^3. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft^3, in accordance with the application instructions supplied with the product. When Item 6B is used, Fiber, Sprayed shall be INS735, INS745, INS750LD, INS765LD, INS773LD or SANCTUARY.

Applegate Greenfiber Acquisition LLC — INS735, INS745, INS750LD, Insulmax, and SANCTUARY for use with wet or dry application. INS515LD, INS541LD, INS735, INS765LD, and INS773LD are to be used for dry application only

5B. **Fiber, Sprayed* —** (Not Shown - Not for use with Item 6) — As an alternate to Batts and Blankets (Item 5) - Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.
NU-WOOL CO INC — Cellulose Insulation

5C. **Batts and Blankets* —** Required for use with resilient channels, Item 7, 3 in. thick mineral wool batts, friction-fitted to fill interior of wall.
THERMAFIBER INC — Type SAFB, SAFB FF

5D. **Glass Fiber Insulation —** (As an alternate to Item 5C) — 3 in. thick glass fiber batts bearing the UL Classification Marking as to Surface Burning and/or Fire Resistance, friction-fitted to fill the interior of the wall. See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

5E. **Batts and Blankets* —** (Required for use with Wall and Partition Facings and Accessories, Item 3D) — Glass fiber insulation, nom 3-1/2 in. thick, min. density of 0.80 pcf, with a flame spread of 25 or less and a smoke developed of 50 or less, friction-fitted to completely fill the stud cavities. See Batts and Blankets Category (BKNV) for names of manufacturers.

5F. **Fiber, Sprayed* —** (Optional, Not Shown — Not for use with Items 6, 6A, 6B, 6C, or 6D) — As an alternate to Batts and Blankets (Item 5) and Item 5A - Spray applied granulated mineral fiber material. The fiber is applied with adhesive, at a minimum density of 4.0 pcf, to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. See **Fiber, Sprayed** (CCAZ).
AMERICAN ROCKWOOL MANUFACTURING, LLC — Type Rockwool Premium Plus

5G. **Fiber, Sprayed* —** (Optional, Not Shown — Not for use with Items 6, 6A, 6B, 6C, or 6D). — As an alternate to Batts and Blankets (Item 5) and Item 5A - Brown Colored Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed stud cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft^3.
INTERNATIONAL CELLULOSE CORP — Celbar-RL

5H. **Foamed Plastic* —** (Optional -For use with Item 3R) — Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity.
SES FOAM INC — Nexseal™ 2.0 or Nexseal™ 2.0 LE Spray Foam and Sucraseal Spray Foam.

5I. **Fiber, Sprayed* —** (Not Shown — Not for use with Item 6) — As an alternate to Batts and Blankets (Item 5) - Spray-applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. To facilitate the installation of the material, any thin, woven or non-woven netting may be attached by any means possible to the outer face the studs. The material shall reach equilibrium moisture content before the installation of materials on either face of the studs. The minimum dry density shall be 5.79 lbs/ft^3.
APPLEGATE HOLDINGS L L C — Applegate Advanced Stabilized Cellulose Insulation

5J. **Foamed Plastic* —** (Optional, Not Shown - For use with Item 3U) — Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity.
GACO WESTERN L L C — Types GacoEZSpray F4500, GacoProFill FR6500R, Gaco 052N, GacoOnePass F1850, GacoOnePass Low GWP F1880, and Gaco WallFoam 183M

5K. **Foamed Plastic* —** (Optional, Not Shown - For use with Item 3V) — Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity.
CARLISLE SPRAY FOAM INSULATION — Types SealTite Pro Closed Cell (CC), SealTite Pro Open Cell (OC), SealTite Pro OCX, SealTite Pro No Trim 21, SealTite Pro One Zero, Foamsulate Closed Cell, Foamsulate OCX, Foamsulate 70, and Foamsulate HFO.

5L. **Foamed Plastic*** - (Optional, Not Shown – For use with Item 3W) - Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity.

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470

project number
22902.001

drawing issuance

PERMIT	01/27/23

drawing revisions

No.	Description:	Date:
2	REV 2	1/27/23

professional seal

"Date Clipped" JAN 27 2023

DATE SIGNED: 2/3/2023 10:11:43 AM

drawing title
UL DETAIL U305

drawing number 2
G105

BASF CORP – Types Enertite® NM, Enertite® G, FE178®, Spraytite® 178, Spraytite® 81206, Walltite® 200, Walltite® US, Walltite® US-N, and Walltite® HP+.

6. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6a) to studs. Clips spaced 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. RSIC-V and RSIC-V (2.75) clips secured to studs with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips. RSIC-1 and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips for use with 2-23/32 in. wide furring channels.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-V, RSIC-1 (2.75), RSIC-V (2.75)

6A. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members on one side of studs as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. Batts and Blankets placed in stud cavity as described in Item 5. Two layers of gypsum board attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Aa) to one side of studs only. Clips spaced 48 in. OC., and secured to studs with two No. 8 x 2-1/2 in. coarse drywall screws, one through the hole at each end of the clip. Furring channels are friction fitted into clips.
KINETICS NOISE CONTROL INC — Type Isomax

6B. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Ba) to studs. Clips spaced 48 in. OC. Genie clips secured to studs with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
PLITEQ INC — Type Genie Clip

6C. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Ca) to studs. Clips spaced 48 in. OC., and secured to studs with No. 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips.
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237 or A237R

6D. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with a double strand of No. 18 AWG twisted steel wire. Gypsum board attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Da) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.

REGUPOL AMERICA — Type SonusClip

6E. **Steel Framing Members* —** (Optional, Not Shown) — Resilient channels and Steel Framing Members as described below:
a. **Resilient Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No. 8 15 x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach resilient channels (Item 6Ea) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Resilient channels are secured to clips with one No. 10 x 1/2 in. pan-head self-drilling screw.
KEENE BUILDING PRODUCTS CO INC - Type RC+ Assurance Clip

6F. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Fa) to studs. Clips spaced 48 in. OC. Clips secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips.
CLARKDIETRICH BUILDING SYSTEMS — Type ClarkDietrich Sound Clip

6G. **Steel Framing Members* —** (Optional, Not Shown) — Used as an alternate method to attach resilient channels to wall studs. A resilient sound isolation accessory shall be used at each attachment point of the resilient channels and spaced max 16 in. O.C. Channel ends butted and centered under the structural members and attached with one accessory at each end. Additional accessories used to hold resilient channels that support the gypsum board end joints. The accessory envelops the mounting edge of the resilient channel. The accessory and resilient channel are fastened to the structural members with the screws supplied with the accessory and per the accessory manufacturer's installation instructions.
PAC INTERNATIONAL L L C — Type RC-1 Boost

7. **Furring Channel —** Optional — Not Shown — For use on one side of the wall - Resilient channels, 25 MSG galv steel, spaced vertically 24 in. OC, flange portion screw attached to one side of studs with 1-1/4 in. long diamond shaped point, double lead Phillips head steel screws. When resilient channels are used, insulation, Items 5C or 5D is required.

8. **Caulking and Sealants —** (Not Shown, Optional) — A bead of acoustical sealant applied around the partition perimeter for sound control.

9. **STC Rating —** The STC Rating of the wall assembly is 56 when it is constructed as described by Items 1 through 6, except:

A. Item 2, above — Nailheads Shall be covered with joint compound.

B. Item 2, above — Joints As described, shall be covered with fiber tape and joint compound.

C. Item 5, above — Batts and Blankets* The cavities formed by the studs shall be friction fit with R-19 unfaced fiberglass insulation batts measuring 6-1/4 in. thick and 15-1/4 in. wide.

D. Item 6, above — Steel Framing Members* Type RSIC-1 clips shall be used to attach gypsum board to studs on either side of the wall assembly.

E. Item 8, above — Caulking and Sealants (Not Shown) A bead of acoustical sealant shall be applied around the partition perimeter for sound control.

F. Steel Corner Fasteners (Item 4), Fiber, Sprayed (Items 5A and 5B) and Steel Framing Members (Item 6A), not evaluated as alternatives for obtaining STC rating.

10. **Wall and Partition Facings and Accessories* —** (Optional, Not Shown) — Nominal 1/2 in. thick, 4 ft wide panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-500 or QR-510 panel is installed between the wood framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock QR-500 and QR-510

11. **Cementitious Backer Units* —** (Optional Item Not Shown — For Use On Face Of 1 Hr Systems With All Standard Items Required) - 7/16 in., 1/2 in., 5/8 in., 3/4 in. or 1 in. thick, min. 32 in. wide. Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with cement board screws of adequate length to penetrate stud by a minimum of 3/8 in. for steel framing members, and a minimum of 3/4 in. for wood framing members spaced a max of 8 in. OC. When 4 ft. wide boards are used, horizontal joints need not be backed by framing.
NATIONAL GYPSUM CO — Type DuraBacker, PermaBase, DuraBacker Plus, or PermaBase Plus

12. **Non-Bearing Wall Partition Intersection —** (Optional) —Two nominal 2 by 4 in. studs or nominal 2 by 6 in. studs nailed together with two 3 in. long 10d nails spaced a max. 16 in. OC. vertically and fastened to one side of the minimum 2 by 4 in. stud with 3 in. long 10d nails spaced a max. 16 in. OC. vertically. Intersection between partition wood studs to be flush with the 2 by 4 in. studs. The wall partition wood studs are to be framed by with a second 2 by 4 in. wood stud fastened with 3 in. long 10d nails spaced a max. 16 in. OC. vertically. Maximum one non-bearing wall partition intersection per stud cavity. Non-bearing wall partition stud depth shall be at a minimum equal to the depth of the bearing wall.

13. **Mesh Netting —** (Not Shown) — Any thin, woven or non-woven fibrous netting material attached with staples to the outer face of one row of studs to facilitate the installation of the sprayed fiber from the opposite row.

14. **Mineral and Fiber Board* —** (Optional, Not Shown) — For optional use as an additional layer on one side of wall. Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to framing with 2 in. long Type W steel screws, spaced 12 in. OC. The required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
HOMASOTE CO — Homasote Type 440-32

14A. **Mineral and Fiber Board* —** (Optional, Not Shown) — For use with Items 14B-14E) — For optional use as an additional layer on one side of wall. Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to framing with minimum 1-3/8 in. long ring shanked nails or 1-1/4 in. long Type W steel screws, spaced 12 in. OC along board edges and 24 in. OC in field of board along intermediate framing. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
HOMASOTE CO — Homasote Type 440-32

14B. **Glass Fiber Insulation —** (For use with Item 14A) — 3-1/2 in. thick glass fiber batts bearing the UL Classification Marking as to Surface Burning and/or Fire Resistance, placed to fill the interior of the wall. See Batts and Blankets (BKNV or BZJZ) categories for names of Classified companies.

14C. **Batts and Blankets* —** (As an alternate to Item 14B, For use with Item 14A), 3 in. thick mineral wool batts, placed to fill interior of wall, attached to the 3-1/2 in. face of the studs with staples placed 24 in. OC.
THERMAFIBER INC — Type SAFB, SAFB FF

14D. **Adhesive —** (For use with Item 14A) — Construction grade adhesive applied in vertical, serpentine, nominal 3/8 in. wide beads down the length of both vertical edges of Mineral and Fiber Board (Item 14A).

14E. **Gypsum Board* —** (For use with Item 14A) — 5/8 in. thick, 4 ft wide, applied vertically over Mineral and Fiber Board (Item 14A) with vertical joints located anywhere over stud cavities. Secured to mineral and fiber boards with 1-1/2 in. Type G Screws spaced 8 in. OC along edges of each vertical joint and 12 in. OC in intermediate field of the Mineral and Fiber Board (Item 14A). Secured to outermost studs and bearing plates with 2 in. long Type S screws spaced 8 in. OC. Gypsum Board joints covered with paper tape and joint compound. Screw heads covered with joint compound. Finish Rating 30 Min.
AMERICAN GYPSUM CO — Type AG-C

CGC INC — Types C, IP-X2, IPC-AR

CERTAINTEED GYPSUM INC — Type LGFC-C/A

GEORGIA-PACIFIC GYPSUM L L C — Types 5, DAPC, TG-C

NATIONAL GYPSUM CO — Types FSK-C, FSW-C

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type PG-C

PANEL REY S A — Type PRC

THAI GYPSUM PRODUCTS PCL — Type C

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR

14F. **Mineral and Fiber Board —** (Optional, Not Shown) — For optional use as an additional layer on one side of wall - Nom 1/2 in. thick, 4 ft wide, square edge fiber boards applied vertically to studs on one side of the wall in between the wood studs and the UL Classified Gypsum Board (Item 3). Fiber boards installed with 1-1/4 in. long, Type W, bugle head, coarse thread gypsum board screws spaced 12 in. OC max, with the last screws spaced 2 in. and 6 in. from edge of board. Gypsum board (Item 3) installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
BLUE RIDGE FIBERBOARD INC — SoundStop

14G. **Building Units –** (Optional Item Not Shown – For use over Gypsum Board, Item 3) 1 in., 2 in. or 3 in. thick, 4 ft. wide – Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with wafer head screws of adequate length to penetrate framing by a minimum of of ¼ in., spaced a max 8 in. o.c.

NATIONAL GYPSUM CO – Type PBCI

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2022-12-02

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ph: 913.649.8181 • fx: 913.649.1275 • www.klover.net

project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470

project number
22902.001

drawing issuance
PERMIT 01/27/23

drawing revisions

No.	Description:	Date:
2	REV 2	1/27/23

professional seal

DATE SIGNED: 2/3/2023 10:11:47 AM

drawing title
UL DETAIL U305

drawing number 2
G106

FINAL DEVELOPMENT PLANS

FOR

LOT 12 OF WEST PRYOR

LEE'S SUMMIT

UTILITIES
Electric Service
EVERGY
Nathan Michael
913-347-4310
Nathan.michael@kcpl.com

Gas Service
Spire
Katie Darnell
816-969-2247
Katie.darnell@spireenergy.com

Water/Sanitary Sewer
Water Utilities Department
1200 SE Hamblen Road
Lee's Summit, Mo 64081
Jeff Thorn
816-969-1900
jeff.thorn@cityofls.net

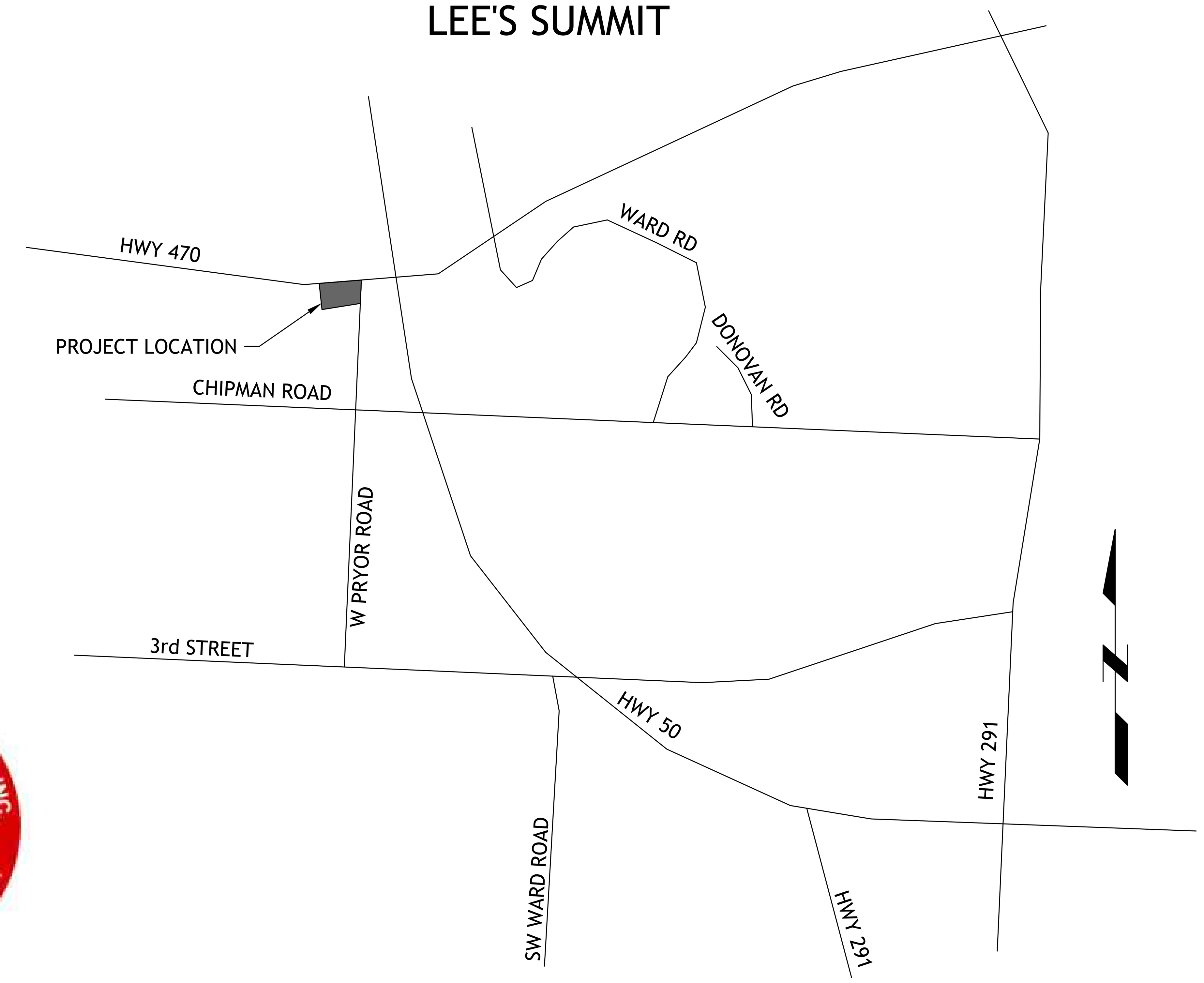
Communication Service
AT&T Carrie Cilke
816-703-4386
cc3527@att.com

Time Warner Cable
Steve Baxter
913-643-1928
steve.baxter@charter.com

Comcast
Ryan Alkire
816-795-2218
ryan.alkire@cable.comcast.com

Google Fiber
Becky Davis
913-725-8745
rebeccadavis@google.com

MISSOURI ONE CALL SYSTEM, INC.
1-800-344-7483
STOP-CALL BEFORE YOU DIG!



LOCATION MAP

INDEX OF SHEETS

UTILITY STATEMENT:
THE UNDERGROUND UTILITIES SHOWN HEREON ARE FROM FIELD SURVEY INFORMATION OF ONE-CALL LOCATED UTILITIES, FIELD SURVEY INFORMATION OF ABOVE GROUND OBSERVABLE EVIDENCE, AND/OR THE SCALING AND PLOTTING OF EXISTING UTILITY MAPS AND DRAWINGS AVAILABLE TO THE SURVEYOR AT THE TIME OF SURVEY. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. FURTHERMORE, THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES BY EXCAVATION UNLESS OTHERWISE NOTED ON THIS SURVEY.
SAFETY NOTICE TO CONTRACTOR
IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICE, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

WARRANTY/DISCLAIMER
THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENEDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER SM ENGINEERING NOR ITS PERSONNEL CAN OR DO WARRANTY THESE DESIGNS OR PLANS AS CONSTRUCTED, EXCEPT IN THE SPECIFIC CASES WHERE SM ENGINEERING PERSONNEL INSPECT AND CONTROL THE PHYSICAL CONSTRUCTION ON A CONTEMPORARY BASIS AT THE SITE.

CAUTION- NOTICE TO CONTRACTOR
THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLANS. THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICTS PRIOR TO ANY CONSTRUCTION.

LEGAL DESCRIPTION:
LOT 12, STREETS OF WEST PRYOR, LEE'S SUMMIT, JACKSON COUNTY MISSOURI

ALL EXISTING TOPOGRAPHIC DATA AND INFRASTRUCTURE IMPROVEMENTS SHOWN BASED ON INFORMATION BY KAW VALLEY ENGINEERING

BENCHMARKS:
#1 CHISELED "SQUARE" ON TOP OF CURB POINT OF INTERSECTION OF WEST PARK PARKING LOT AT EAST DRIVE ENTRANCE
ELEVATION 985.05

#2 CHISELED "SQUARE" ON NORTHWEST CORNER AREA INLET, 25' EAST OF CURB LINE AND ON-LINE WITH SOUTH CURB OF LOWENSTEIN DRIVE AT 90° BEND IN ROAD
ELEVATION 971.06

NOTE
1. ALL CONSTRUCTION SHALL FOLLOW THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813. WHERE DISCREPANCIES EXIST BETWEEN THESE PLANS AND THE DESIGN AND CONSTRUCTION MANUAL, THE MORE STRINGENT SHALL PREVAIL.
2. THERE ARE NO GAS/OIL WELLS PER MDNR DATABASE OF OIL & GAS PERMITS
3. SITE IS LOCATED WITHIN FEMA ZONE X, AREAS OF MINIMAL FLOODING PER FEMA 29095C0416G DATED 1-20-17.

DEVELOPER
STREETS OF WEST PRYOR, LLC
DAVID N. OLSON
7200 W 133rd ST, SUITE 150
CELL: OVERLAND PARK, KS 66213
314-413-3598

ENGINEER
SM ENGINEERING
5507 High Meadow Circle
Manhattan Kansas, 66503
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785.341.9747

1-24-23

SAMUEL D. MALINOWSKY
PROFESSIONAL ENGINEEER

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Revisions
10-11-22 CITY COMMENTS
1-9-23 SURVEY W/ GRADES
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3 1-24-23 PER CLIENT

LOT 12 OF WEST PRYOR
LEE'S SUMMIT, MISSOURI

sheet
C1.0
Civil
COVER SHEET
permit
16 SEPTEMBER 2022

1"=30'
0 15' 30'

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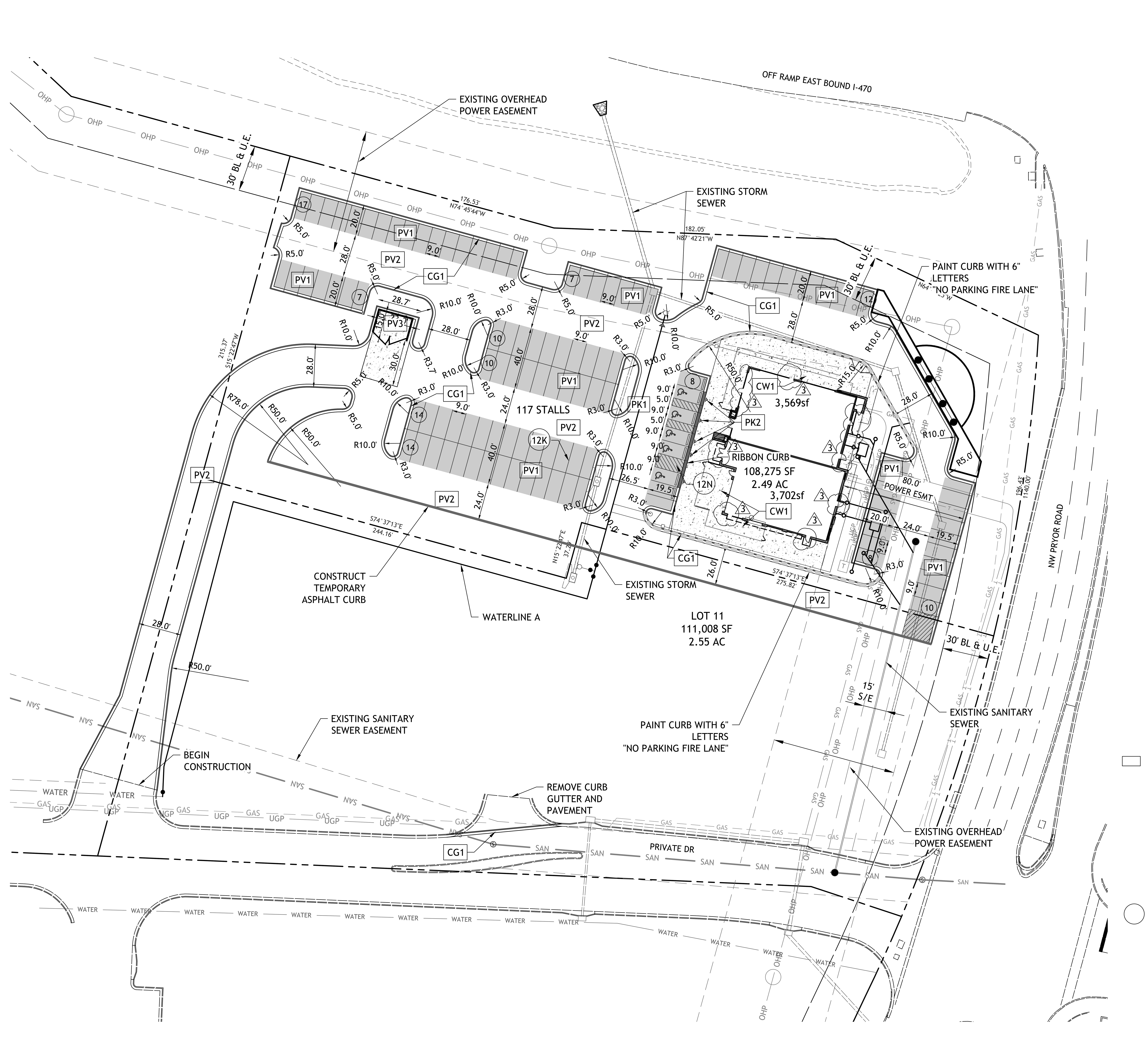

SITE DATA

LOT 12	
TOTAL SITE	2.49ac (108,275sf)
PAVEMENT AREA	60,372sf
TOTAL BUILDING	7,000sf
OPEN SPACE	40,903sf (37.7%)
TOTAL PARKING	117 (16.71 STALLS / 1000sf)
TOTAL PARKING REQUIRED	98

CONSTRUCTION NOTES:

1. COORDINATE START-UP AND ALL CONSTRUCTION ACTIVITIES WITH OWNER.

2. CONSTRUCTION METHODS AND MATERIALS NOT SPECIFIED IN THESE PLANS ARE TO MEET OR EXCEED THE STANDARD SPECIFICATIONS.

3. ALL CONSTRUCTION WORK AND UTILITY WORK OUTSIDE OF PROPERTY BOUNDARIES SHALL BE PERFORMED IN COOPERATION WITH AND IN ACCORDANCE WITH REGULATIONS OF THE AUTHORITIES CONCERNED.

4. PUBLIC CONVENIENCE AND SAFETY: THE CONTRACTOR SHALL CONDUCT THE WORK IN A MANNER THAT WILL INSURE, AS FAR AS PRACTICABLE, THE LEAST OBSTRUCTION TO TRAFFIC, AND SHALL PROVIDE FOR TI-1E CONVENIENCE AND SAFETY OF THE GENERAL PUBLIC AND RESIDENTS ALONG AND ADJACENT TO STREETS IN THE CONSTRUCTION AREA.

5. ALL DIMENSIONS SHOWN ARE TO THE BACK OF CURB UNLESS OTHERWISE NOTED.

6. ACCESSIBLE STALLS SHOWN WITH A "VAN" SHALL BE 16'-0" MIN. AND SHALL HAVE A SIGN DESIGNATING "VAN-ACCESSIBLE". SEE DETAIL102.

NOTE:

1. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF ENTRANCE. SLOPED PAVING, EXIT PORCHES AND RAMPS, PRECISE BUILDING DIMENSIONS AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.

2. THESE PLANS HAVE NOT BEEN VERIFIED WITH FINAL ARCHITECTURAL CONTRACT DRAWINGS. CONTRACTOR SHALL VERIFY AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR IS FULLY RESPONSIBLE FOR REVIEW AND COORDINATION OF ALL DRAWINGS AND CONTRACTOR DOCUMENTS.

3. ALL DIMENSIONS ARE PERPENDICULAR TO PROPERTY LINE.

4. ACTUAL SIGN LOCATIONS TO BE COORDINATED WITH CONSTRUCTION MANAGER.

SEE DETAIL SHEET FOR THE FOLLOWING DETAILS:

PK-1	96" ACCESSIBLE & VAN ACCESSIBLE SPACE STRIPING
PK-2	ACCESSIBLE SIGN
SG-1	BOLLARD DETAIL
CG-1	TYPE B CURB AND GUTTER
CW1	CURB WALK AT BUILDING
PV1	REGULAR DUTY PAVEMENT
PV2	HEAVY DUTY ASPHALT PAVEMENT
PV3	HEAVY DUTY CONCRETE PAVEMENT
CW2	SIDEWALK

NOTES:

8A	DOOR (SEE ARCH. PLANS)
12K	YELLOW PARKING LOT STRIPING (SHERWIN-WILLIAMS TM 2160 LEAD FREE OR APPROVED EQUAL)
12N	4" YELLOW STRIPES 3'-0" O.C.
510	CLEAN-OUT (SEE GRADING PLAN)
11	PAINT CURB RED

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LOT 12 OF WEST PRYOR

LEE'S SUMMIT, MISSOURI

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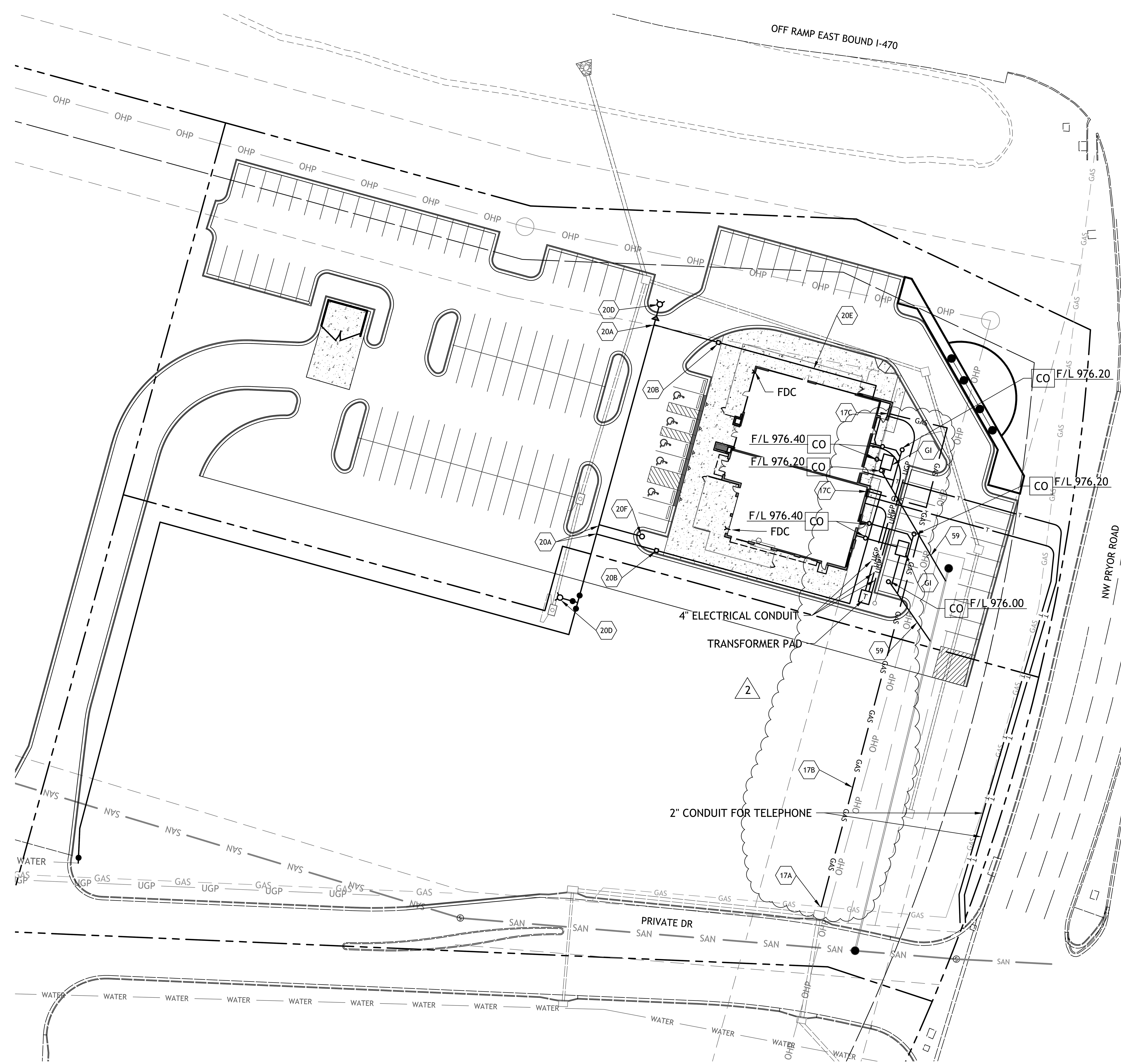

UTILITY NOTES:

1. ALL UTILITY AND STORM SEWER TRENCHES CONSTRUCTED UNDER AREAS THAT RECEIVE PAVING SHALL BE BACKFILLED TO 18 INCHES ABOVE THE TOP OF THE PIPE WITH SELECT GRANULAR MATERIAL PLACED ON EIGHT-INCH LIFTS, AND COMPACTED TO 95% MODIFIED PROCTOR DENSITY.

2. CONTRACTOR SHALL NOT OPEN, TURN OFF, INTERFERE WITH, OR ATTACH ANY PIPE OR HOSE TO OR TAP ANY WATER MAIN BELONGING TO THE CITY UNLESS DULY AUTHORIZED TO DO SO BY THE CITY. ANY ADVERSE CONSEQUENCE OF ANY SCHEDULED OR UNSCHEDULED DISRUPTIONS OF SERVICE TO THE PUBLIC ARE TO BE THE LIABILITY OF THE CONTRACTOR. SM ENGINEERING AND OWNER ARE TO BE HELD HARMLESS.

3. ALL WATER AND SANITARY SEWER SYSTEMS THAT ARE TO BE PUBLIC LINES SHALL BE CONSTRUCTED IN ACCORDANCE WITH SPECIFICATIONS PREVIOUSLY APPROVED BY THE CITY OF LEE'S SUMMIT AND THE STATE OF MISSOURI AND SHALL BE INSPECTED BY THE CITY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSURE THAT THIS INSPECTION OCCURS.

4. LOCATIONS SHOWN FOR PROPOSED WATER LINES ARE APPROXIMATE. VARIATIONS MAY BE MADE, WITH APPROVAL OF THE ENGINEER, TO AVOID CONFLICTS.

5. CONTRACTOR TO INSTALL TRACING TAPE ALONG ALL NON-METALLIC WATER MAINS AND SERVICE LINES PER SPECIFICATIONS.

6. CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICT AND POINTS OF CONNECTION PRIOR TO ANY CONSTRUCTION OF NEW UTILITIES.

7. WATER LINES SHALL HAVE A MINIMUM COVER OF 42 INCHES. ALL VALVES ON MAINS AND FIRE HYDRANT LEADS SHALL BE WITH VALVE BOX ASSEMBLIES. THE SIZE OF VALVE BOX ASSEMBLY TO BE INSTALLED IS DETERMINED BY THE TYPE AND SIZE OF VALVE. VALVE BOX CAPS SHALL HAVE THE WORD "WATER".

8. A MINIMUM HORIZONTAL DISTANCE OF 10 FEET SHALL BE MAINTAINED BETWEEN PARALLEL WATER AND SANITARY SEWER LINES. WHEN IT IS NECESSARY FOR ANY WATER LINE TO CROSS A SANITARY SEWER LINE, THE SEWER LINE SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE AT LEAST 10 FEET EITHER SIDE OF THE WATER LINE UNLESS THE WATER LINE IS AT LEAST 2 FEET CLEAR DISTANCE ABOVE THE SANITARY SEWER LINE.

9. INSTALL 2" TYPE "K" COPPER FROM THE MAIN TO 10' BEYOND METER AND EITHER TYPE "K" OR POLYETHYLENE PLASTIC TUBING (PE 3608) TO STOP AND WASTE VALVE INSIDE BUILDING.

10. CONTRACTOR RESPONSIBLE FOR PROVIDING CASEMENT FOR ELECTRICAL SERVICE PER KCP&L

11. SANITARY SEWER SERVICE CONNECTIONS WILL BE MADE WITH A CUT IN WYE

DETAILS

MS1	TRENCH AND BEDDING DETAILS
SS2	2-WAY CLEAN-OUT
WAT-11	WATER SERVICE CONNECTION
WAT-7	FIRE HYDRANT
CO	CLEANOUT
GI	GREASE INTERCEPTOR (1500 GAL)

NOTES

17A	POINT OF GAS CONNECTION
17B	GAS SERVICE LINE
17C	GAS METER
20A	POINT OF CONNECTION - WATER SERVICE
20B	1" TAP AND METER WITH 1.5" SERVICE LINE
20C	8" C-900 WATERLINE
20D	FIRE HYDRANT ASSEMBLY
59	4" SANITARY SEWER SERVICE LINE-SDR-26 PVC
20E	6" FIRE SERVICE LINE
20F	1" TAP AND METER FOR IRRIGATION

UTILITY STATEMENT:

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1"=30'
0 15' 30'

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STATE OF MISSOURI SAMUEL D. MALINOWSKY NUMBER PE-2013037729 REGISTERED PROFESSIONAL ENGINEER
1-24-23

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LOT 12 OF WEST PRYOR
LEE'S SUMMIT, MISSOURI

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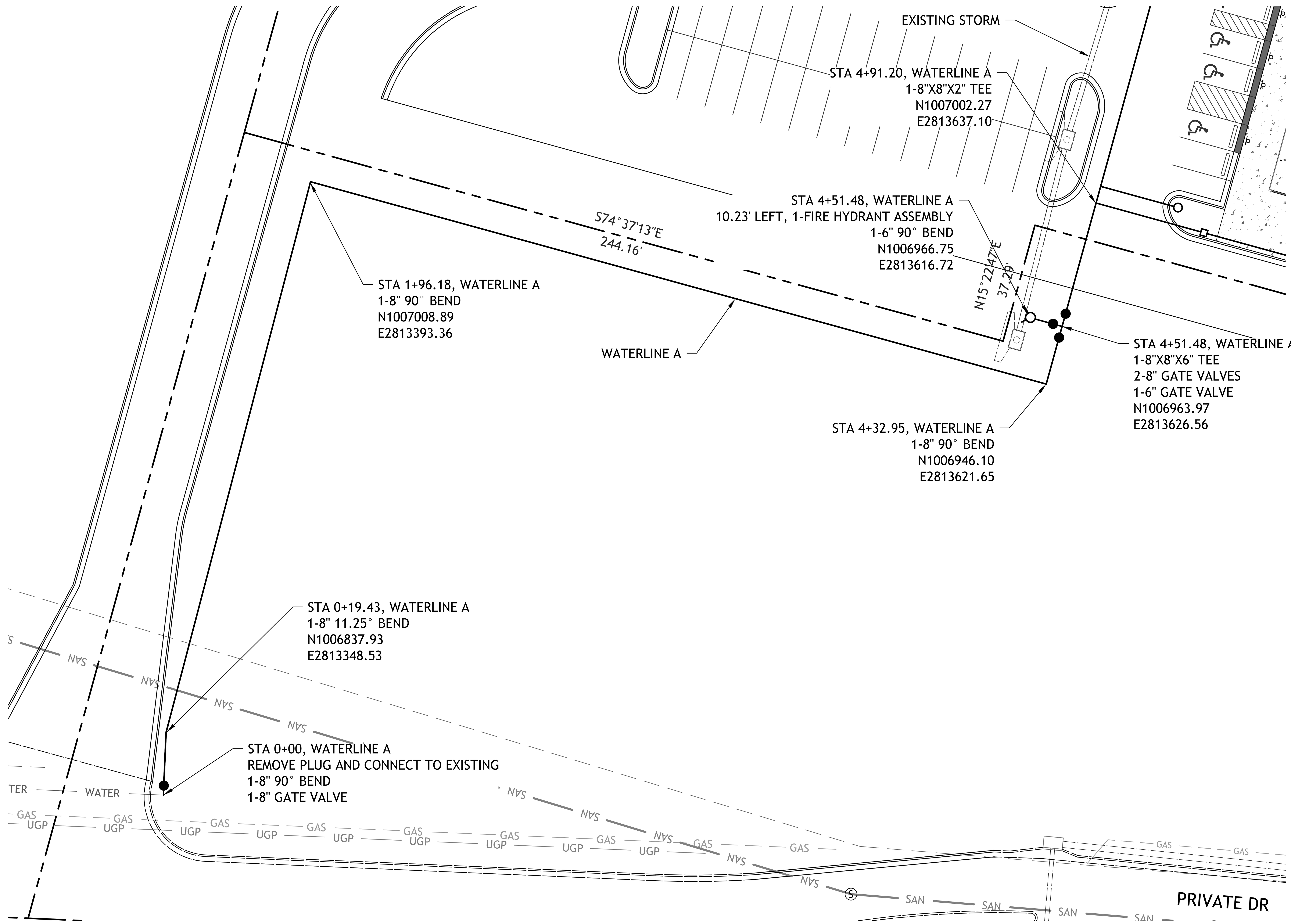
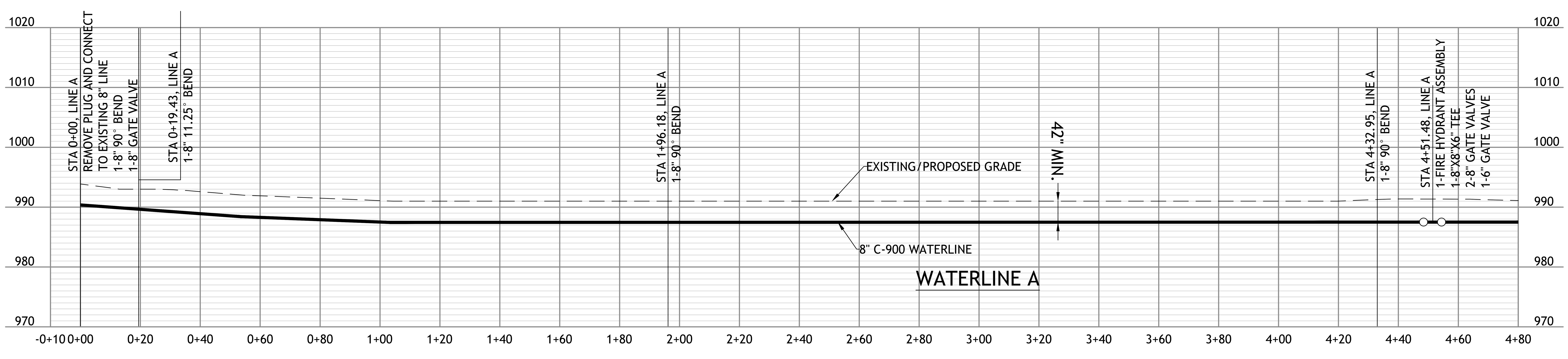
16 SEPTEMBER 2022





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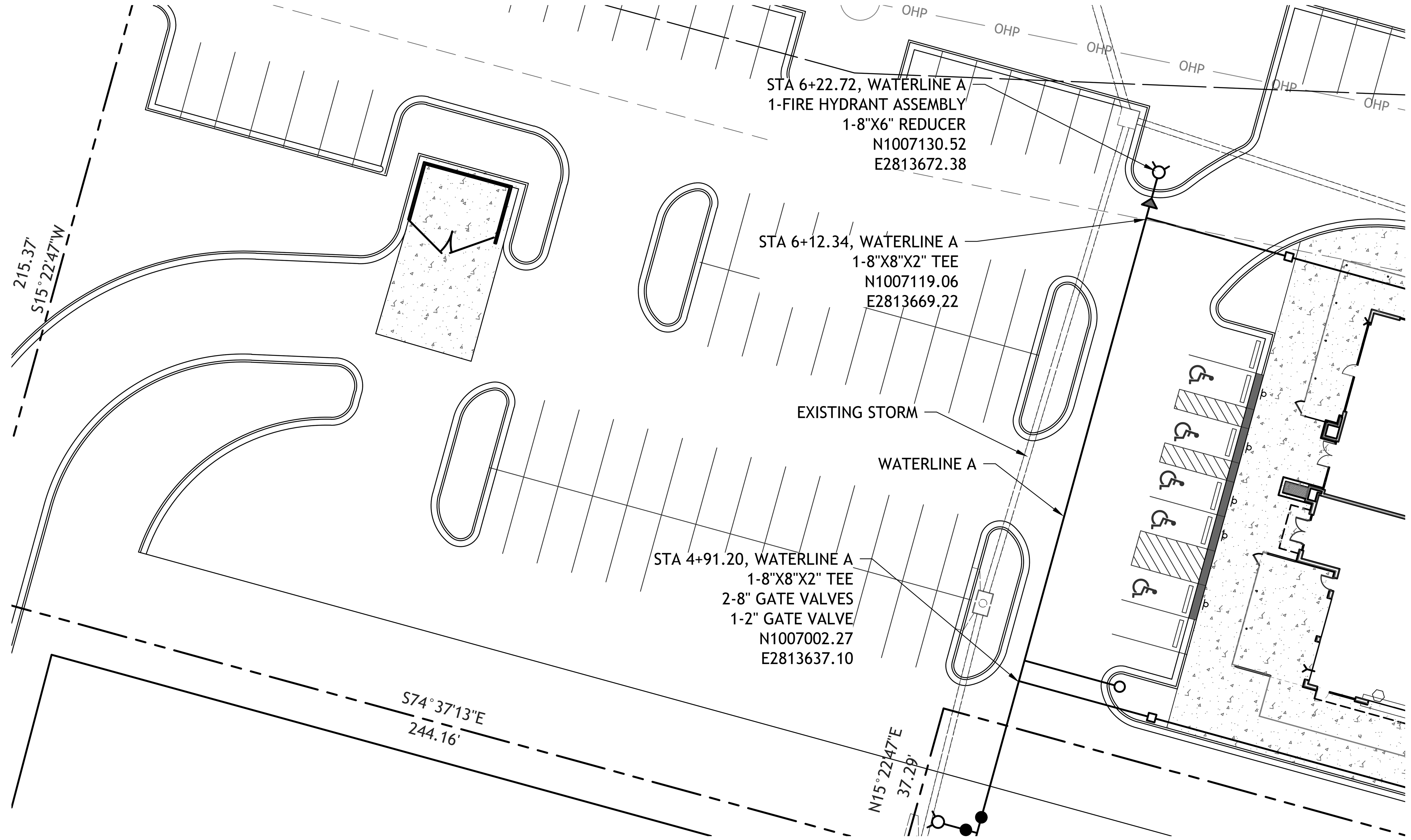

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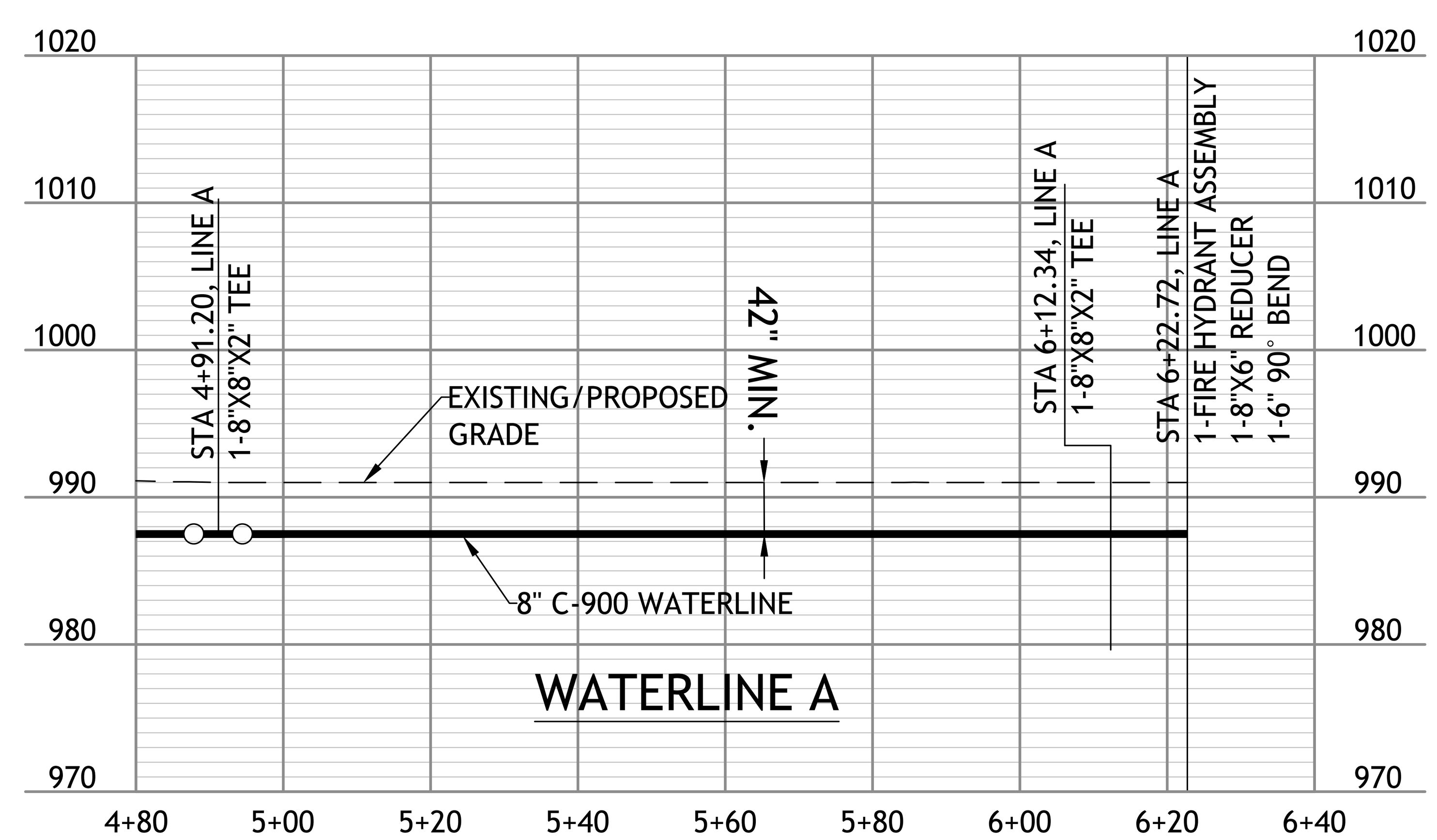

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GRADING NOTES:

1. EARTHWORK UNDER THE BUILDING SHALL COMPLY WITH THE PROJECT ARCHITECTURAL PLANS. OTHER FILL MATERIAL SHALL BE MADE IN LIFTS NOT TO EXCEED EIGHT INCHES DEPTH COMPACTED TO 95% STANDARD PROCTOR DENSITY. FILL MATERIAL MAY INCLUDE ROCK FROM ON-SITE EXCAVATION IF CAREFULLY PLACED SO THAT LARGE STONES ARE WELL DISTRIBUTED AND VOIDS ARE COMPLETELY FILLED WITH SMALLER STONES, EARTH, SAND OR GRAVEL TO FURNISH A SOLID EMBANKMENT. NO ROCK LARGER THAN THREE INCHES IN ANY DIMENSION NOR ANY SHALE SHALL BE PLACED IN THE TOP 12 INCHES OF EMBANKMENT.

2. AREAS THAT ARE TO BE CUT TO SUBGRADE LEVELS SHALL BE PROOF ROLLED WITH A MODERATELY HEAVY LOADED DUMP TRUCK OR SIMILAR APPROVED CONSTRUCTION EQUIPMENT TO DETECT UNSUITABLE SOIL CONDITIONS.

3. IN ALL AREAS OF EXCAVATION, IF UNSUITABLE SOIL CONDITIONS ARE ENCOUNTERED. A QUALIFIED GEOTECHNICAL ENGINEER SHALL RECOMMEND TO THE OWNER THE METHODS OF UNDERCUTTING AND REPLACEMENT OF PROPERLY COMPACTED, APPROVED FILL MATERIAL. ALL PROOF ROLLING AND UNDERCUTTING SHOULD BE PERFORMED DURING A PERIOD OF DRY WEATHER.

4. CONTRACTOR SHALL USE SILT FENCE OR OTHER MEANS OF CONTROLLING EROSION ALONG THE EDGE OF THE PROPERTY OR OTHER BOTTOM OF SLOPE LOCATIONS.

5. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS.

6. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES TO THE ADJACENT PROPERTIES OCCURRING DURING THE CONSTRUCTION PHASES OF THIS PROJECT.

7. IT IS NOT THE DUTY OF THE ENGINEER OR THE OWNER TO REVIEW THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN, ON OR NEAR THE CONSTRUCTION SITE AT ANY TIME DURING CONSTRUCTION.

8. PIPE LENGTHS ARE CENTER TO CENTER OF STRUCTURE OR TO END OF END SECTIONS.

9. HANDICAP STALLS SHALL MEET ADA REQUIREMENTS AND SHALL NOT EXCEED 2% SLOPE IN ANY DIRECTION AT THE BUILDING ENTRY AND ACCESSIBLE PARKING STALLS. SLOPES EXCEEDING 2.0% WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

10. ALL CONSTRUCTION TRAFFIC, TEMPORARY TRAFFIC CONTROL DEVICES AND PAVEMENT MARKINGS SHALL CONFORM TO REQUIREMENTS OF THE LATEST MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

11. CONTRACTOR TO PLACE 8" LOW PERMEABILITY LVC FOR BUILDING PAD

12. CONTRACTOR TO CONSTRUCT THROATS TO CURB INLETS.

2 REVISED BASE FILE

1"=30'
0 15' 30'

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Manhattan Kansas, 66503
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785.341.9747

STATE OF MISSOURI
SAMUEL D. MALINOWSKY
NUMBER
PE-2013035729
REGISTERED PROFESSIONAL ENGINEER
1-24-23

Revisions
10-11-22 CITY COMMENTS
2 1-9-23 SURVEY W/ GRADES
2 1-11-23 GAS SERVICE LINE
3 1-24-23 PER CLIENT

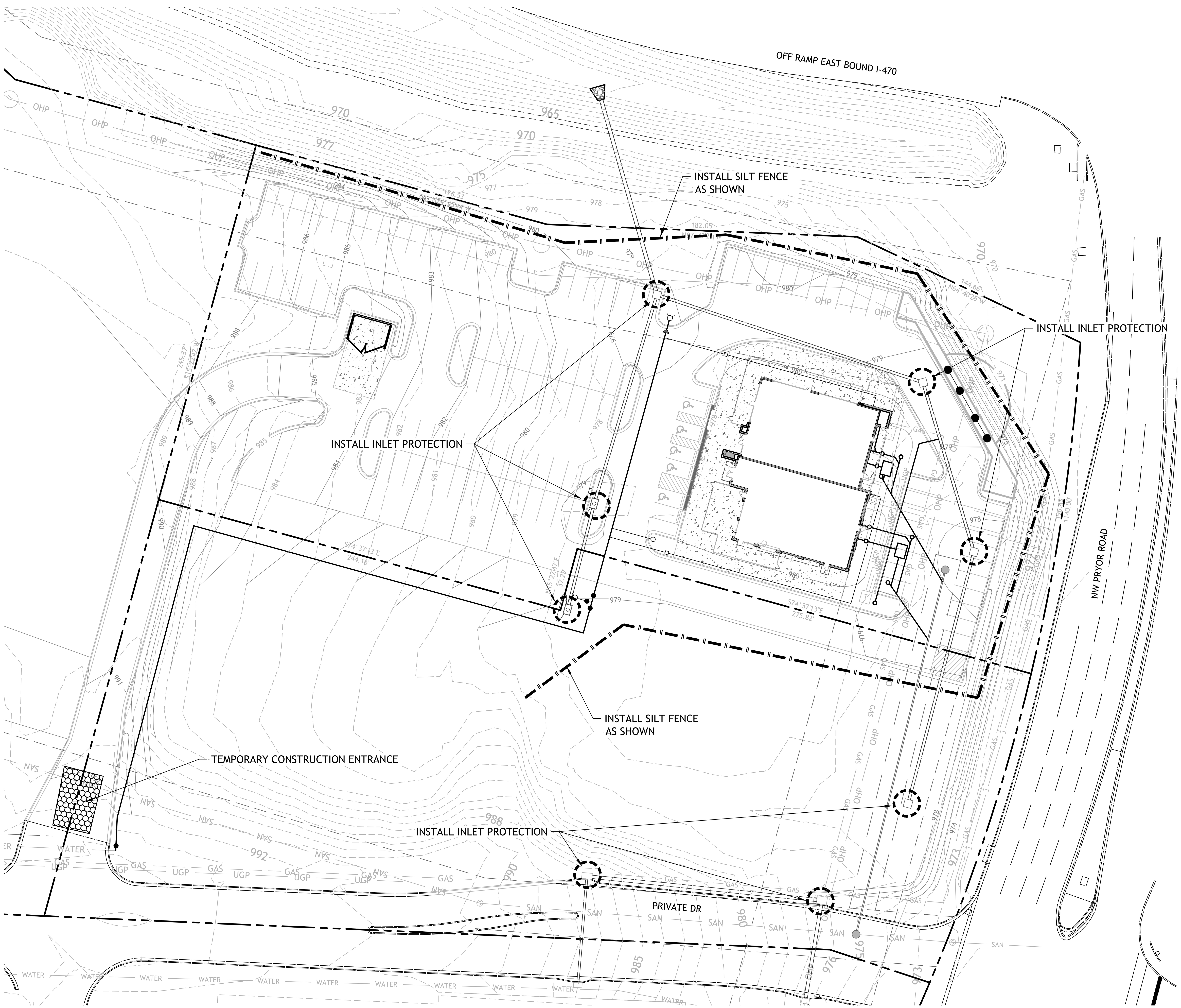
LOT 12 OF WEST PRYOR

LEE'S SUMMIT, MISSOURI

sheet
C7.0
Civil

GRADING PLAN

permit
16 SEPTEMBER 2022



NOTES:

1. Prior to Land Disturbance activities, the following shall occur:
   a) Identify the limits of construction on the ground with easily recognizable indications such as construction staking, construction fencing and placement of physical barriers or other means acceptable to the City inspector and in conformance with the erosion and pollution control plan;
   b) Construct a stabilized entrance/parking/staging area;
   c) Install perimeter controls and protect any existing stormwater inlets;
   d) Request an initial inspection of the installed Phase I pollution control measures designated on the approved erosion and pollution control plan. Land disturbance work shall not proceed until there is a passed inspection
2. The site shall comply with all requirements of the MoDNR general requirements
   a) Immediate initiation of temporary stabilization BMPs on disturbed areas where construction activities have temporarily ceased on that portion of the project site if construction activities will not resume for a period exceeding 14 calendar days. Temporary stabilization may include establishment of vegetation, geotextiles, mulches or other techniques to reduce or eliminate erosion until either final stabilization con be achieved or until further construction activities take place to re-disturb the area. This stabilization must be completed within 14 calendar days;
   b) Inspection of erosion and sediment control measures shall be performed to meet or exceed the minimum inspection frequency in the MoDNR General Permit. At a minimum, inspections shall be performed during all phases of construction at least once every 14 days and within 24 hours of each precipitation event.
   c) An inspection log shall be maintained and shall be available for review by the regulatory authority;
   d) The erosion and pollution control plan shall be routinely updated to show all modifications and amendments to the original plan. A copy of the erosion and pollution control plan shall be kept on site and made available for review by the regulatory authority.
3. Temporary seeding shall only be used for periods not to exceed 12 months. For final stabilization. temporary seeding shall only be used to establish vegetation outside the permanent seeding or sodding dates as specified in the Standard Specifications. Final stabilization requires a uniform perennial vegetative cover with a density of 70% over 100% of disturbed area.

4. Erosion and pollution control shall be provided for the duration of a project. All installed erosion and pollution control BMPs shall be maintained in a manner that preserves their effectiveness. If the City determines that the BMPs in place do not provide adequate erosion and pollution control at any time during the project, additional or alternate measures that provide effective control shall be required.

5. Concrete wash or rinse water from concrete mixing equipment. Tools and/or ready-mix trucks. etc. may not be discharged into or be allowed to run to any existing water body or portion of the storm water system. One or more locations for concrete washout will be designated on site, such that discharges during concrete washout will be contained in a small area where waste concrete can solidify in place. Proper signage will be installed to direct users to the concrete washout. Concrete washouts must be handled prior to pouring any concrete.

6. Silt fences and sediment control BMPs which are shown along the back of curb must be installed within two weeks of curb backfill and prior to placement of base asphalt. Exact locations of these erosion control methods may be field adjusted to minimize conflicts with utility construction. However, anticipated disturbance by utility construction shall not delay installation.

7. Required sediment basins and traps shall be installed as early as possible during mass grading. Sediment basins and traps shall be cleaned out when the sediment capacity has been reduced by 20% of its original design volume.

8. All manufactured BMPs such as erosion control blankets, TRMs, biodegradable logs, filter socks, synthetic sediment barriers and hydraulic erasion control shall be installed as directed by the manufacturer.

9. The above requirements are the responsibility of the permittee for the site. Responsibility may be transferred to another party by the permittee, but the permittee shall remain liable by the City of Lee's Summit if any of the above conditions are not met.

LEGEND

- SILT FENCE
- INLET PROTECTION
- TEMPORARY CONSTRUCTION ENTRANCE

1"=30'
0 15' 30'

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Revisions
10-11-22 CITY COMMENTS
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2 1-11-23 GAS SERVICE LINE
3 1-24-23 PER CLIENT

LOT 12 OF WEST PRYOR
LEE'S SUMMIT, MISSOURI

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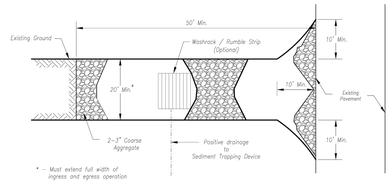
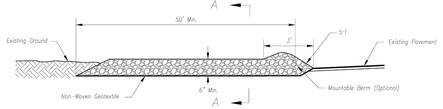
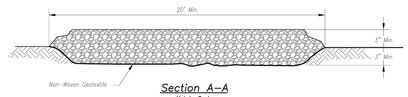
C8.0
Civil
EROSION CONTROL PLAN
permit
16 SEPTEMBER 2022



Plan View
Not to Scale



Side Elevation
Not to Scale



Section A-A
Not to Scale

Notes for Construction Entrance:

1. Avoid locating on steep slopes, at curves on public roads, or downhill of disturbed area.
2. Remove all vegetation and other unsuitable material from the foundation area, grade, and crown for positive drainage.
3. If slope towards the public road exceeds 2%, construct a 6- to 8-inch high ridge with 3H:1V side slopes across the foundation approximately 15 feet from the edge of the public road to divert runoff from it.
4. Install pipe under the entrance if needed to maintain drainage ditches along public roads.
5. Place stone to dimensions and grade as shown on plans. Leave surface sloped for drainage.
6. Divert all surface runoff and drainage from the entrance to a sediment control device.
7. If conditions warrant, place geotextile fabric on the graded foundation to improve stability.

Maintenance for Construction Entrance:

1. Reshape entrance as needed to maintain function and integrity of installation. Top dress with clean aggregate as needed.

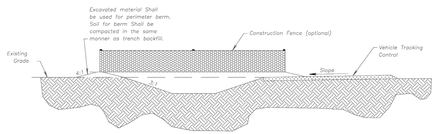
CONSTRUCTION ENTRANCE

Notes for Concrete Washout:

1. Concrete washout areas shall be installed prior to any concrete placement on site.
2. Concrete washout area shall include a flat subsurface pit sized relative to the amount of concrete to be placed on site. The slopes leading out of the subsurface pit shall be 3:1. The vehicle tracking pad shall be sloped towards the concrete washout area.
3. Vehicle tracking control is required at the access point to all concrete washout areas.
4. Signs shall be placed at the construction site entrance, washout area and elsewhere as necessary to clearly indicate the location(s) of the concrete washout area(s) to operators of concrete truck and pump rigs.
5. A one-piece impervious liner may be required along the bottom and sides of the subsurface pit in sandy or gravelly soils.

Maintenance for Concrete Washout:

1. Concrete washout materials shall be removed once the materials have filled the washout to approximately 75% full.
2. Concrete washout areas shall be enlarged as necessary to maintain capacity for wasted concrete.
3. Concrete washout water, wasted pieces of concrete and all other debris from the washout facility shall be transported from the job site in a water-tight container and disposed of properly.
4. Concrete washout areas shall remain in place until all concrete for the project is placed.
5. When concrete washout areas are removed, excavations shall be filled with 6" of compacted backfill and topsoil, any disturbed areas associated with the installation, maintenance, and/or removal of the concrete washout areas shall be stabilized.



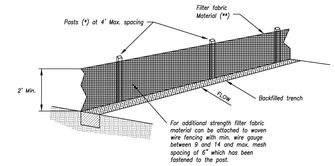
CONCRETE WASHOUT

Construction Entrance modified from 2015 Overland Park Standard Details for Erosion and Sediment Control, Concrete Washout modified from 2009 City of Great Bend Standard Drawings.

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER

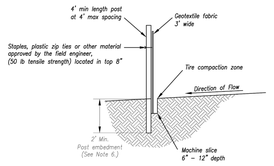
CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT

STANDARD DRAWING NUMBER ESC-01
ADOPTED: 10/24/2016



(*) POSTS
- MIN. LENGTH 4'
- HARDWOOD 1 ½" x 1 ½"
- NO.2 SOUTHERN PINE 2 ⅛" x 2 ⅛"
- STEEL 1.33 LB/FT

(**) – Geotextile Fabric shall meet the requirements of AASHTO M288



Notes:

1. In order to contain water, the ends of the silt fence must be turned uphill (Figure A).
2. Long perimeter runs of silt fence must be limited to 100', Runs should be broken up into several smaller segments to minimize water concentrations (Figure A).
3. Long slopes should be broken up with intermediate rows of silt fence to slow runoff velocities.
4. Attach fabric to upstream side of post.
5. Install posts a minimum of 2' into the ground.
6. Trenching will only be allowed for small or difficult installation, where slicing machine cannot be reasonably used.

SILT FENCE DETAILS
Not to Scale

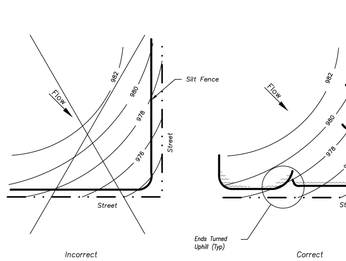
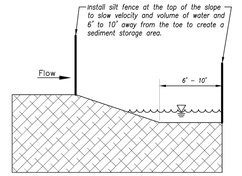


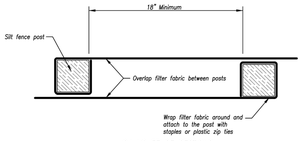
Figure A

SILT FENCE LAYOUT
Not to Scale



Maintenance:

1. Remove and dispose of sediment deposits when the deposit approaches ½ the height of silt fence.
2. Repair as necessary to maintain function and structure.



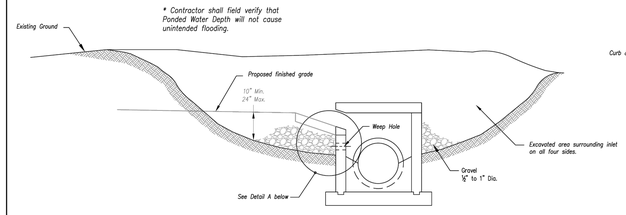
JOINING FENCE SECTIONS
Not to Scale

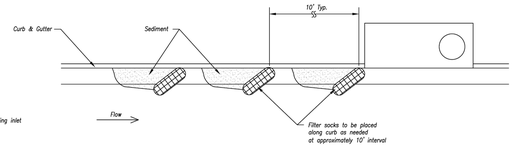
Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER

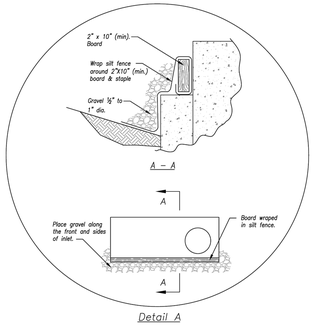
SILT FENCE

STANDARD DRAWING NUMBER ESC-03
ADOPTED: 10/24/2016





On Grade Curb Inlet Protection



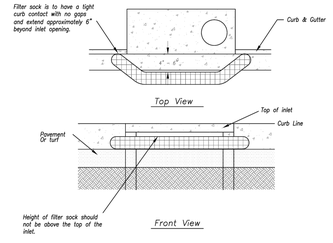
EARLY STAGE CURB INLET
(Open Box and Prior to Pouring Curb and Inlet Throat)

Notes:

1. Immediately following inlet construction and prior to construction of curb and inlet throat, protect inlet opening by installing 2" X 10" (min.) board wrapped in silt fence. Structures shall have excavated storage area on all four sides to allow settling of sediment (Early Stage Curb Inlet).
2. When inlet is completed and curb poured, filter socks or approved equal should be used (Late Stage Curb Inlet). Straw wattles are not approved for curb inlet use.
3. Contractor to field verify ponding water shall not create a traffic hazard.

Maintenance:

1. Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
2. Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
3. Repair or replace as necessary to maintain function and integrity of installation.



Sump Inlet Sediment Filter

LATE STAGE CURB INLET
(After Pouring Curb and Inlet Throat)

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

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Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER

CURB INLET PROTECTION

STANDARD DRAWING NUMBER ESC-06
ADOPTED: 10/24/2016

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Revisions
10-11-22 CITY COMMENTS

LOT 12 OF WEST PRYOR
LEES SUMMIT, MISSOURI

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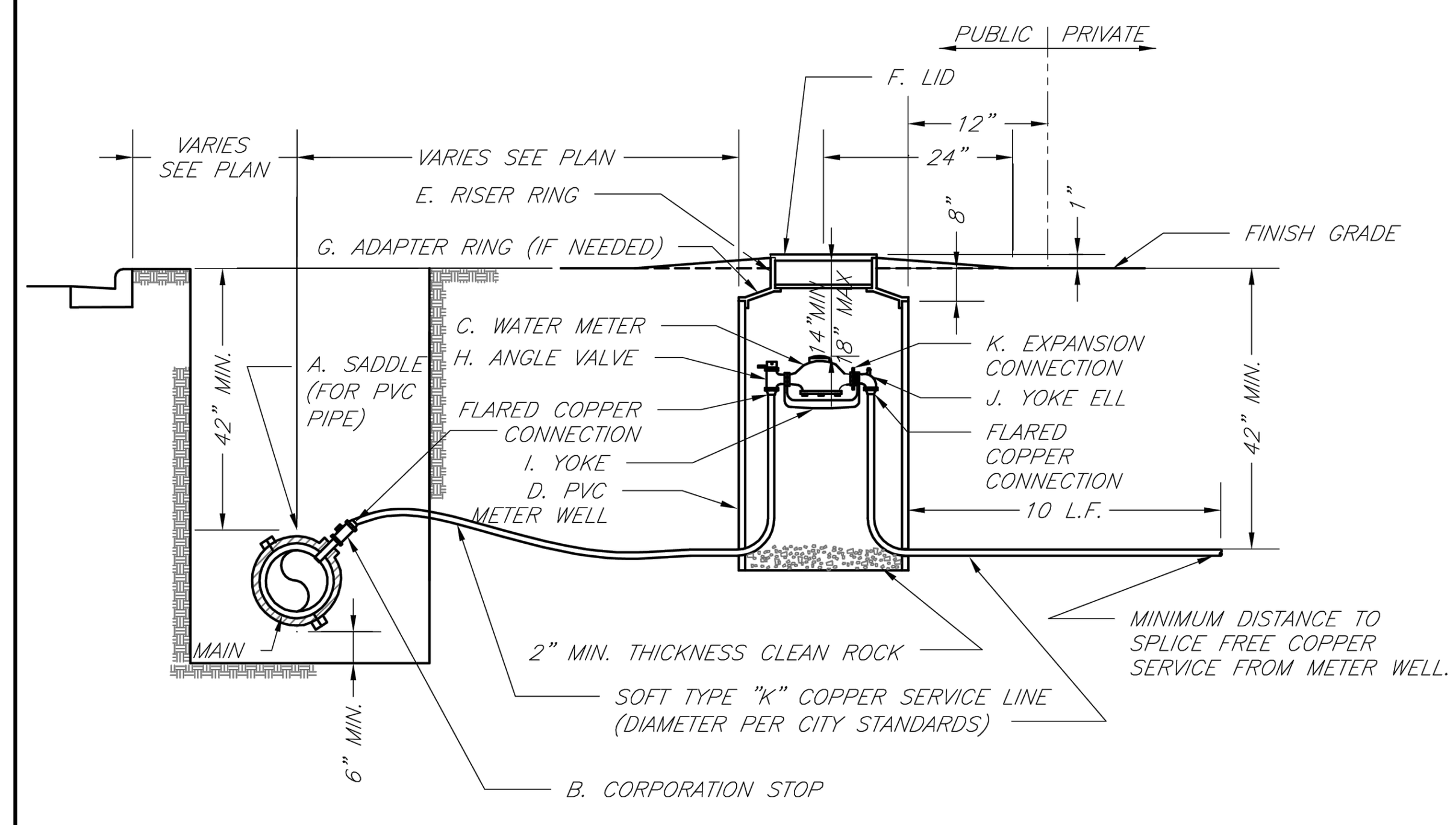
Civil
EROSION CONTOL DETAILS
permit
16 SEPTEMBER 2022



TYPICAL METER INSTALLATION – 2" AND SMALLER
NOT TO SCALE

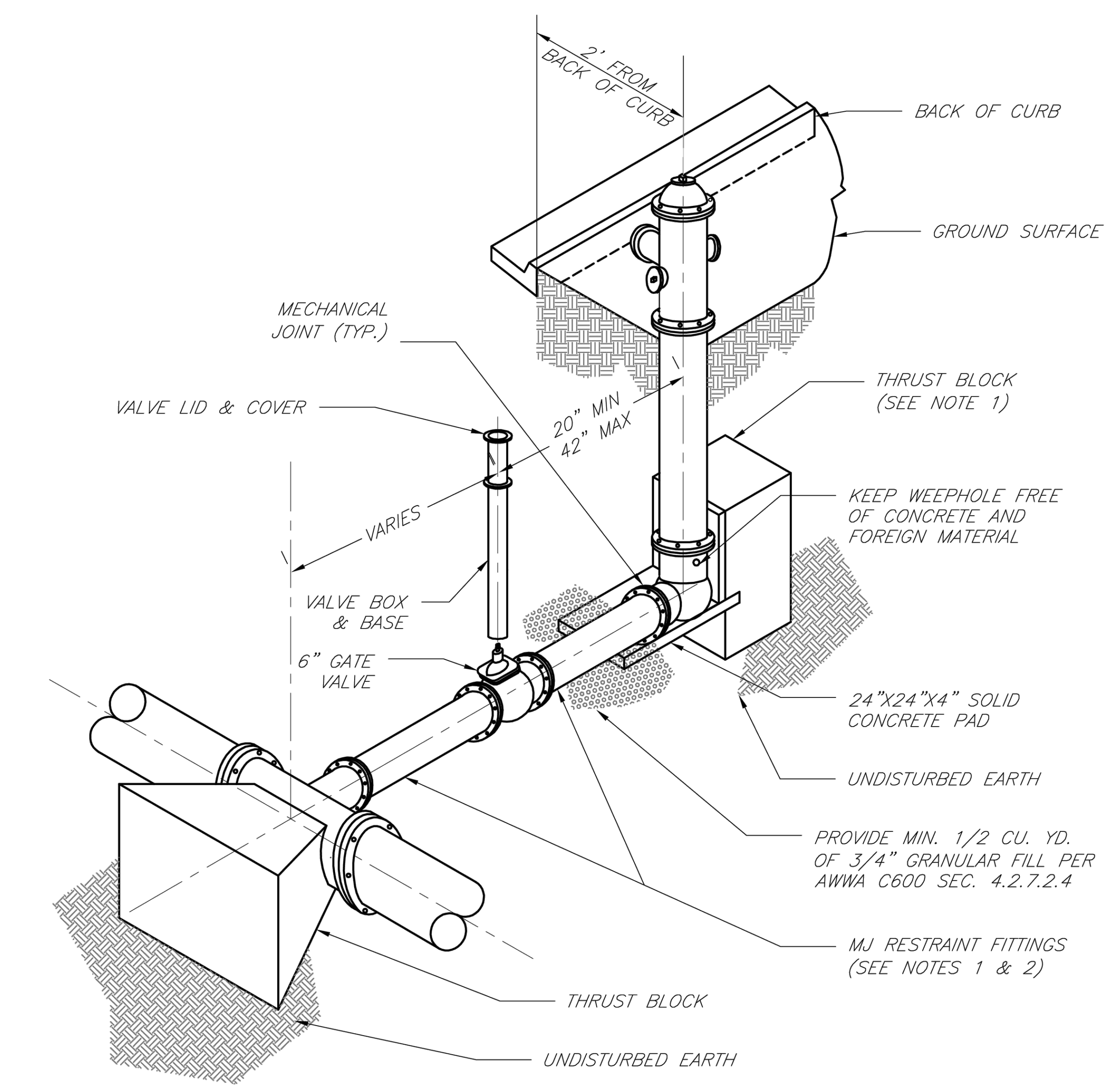
NOTES:

1. METER INSTALLATION SHALL NOT BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC OR IN CONCRETE PAVEMENT WITHOUT CITY APPROVAL.
2. IF METER IS TO BE LOCATED OTHER THAN IN FRONT OF PROPERTY LINE, CITY APPROVAL SHALL BE OBTAINED.
3. CITY TO FURNISH ITEMS A–K.
4. NO OTHER EQUIPMENT SHALL BE INSTALLED IN THIS PIT.
5. 42" MINIMUM BURY DEPTH FOR ALL SERVICE LINES.
6. EXCAVATION FOR TAP TO EXPOSE 4 LINEAR FEET OF MAIN.
7. NO SPLICES ALLOWED BETWEEN METER AND MAIN.
8. SERVICE CONNECTION TAP AT APPROXIMATELY 45 DEGREES.
9 LID AND RISER RING SHALL BE SET SO THAT GROUND WATER WILL DRAIN AWAY FROM THE WELL.
10. CONTACT WATER UTILITIES, 816-969-1900, FOR REQUIREMENTS OF A METER LARGER THAN 2"

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

SERVICE CONNECTION/METER WELL

Date: 02/13
Drawn By: JN
Checked By: DL
FILE: WAT-11
Rev: 1/14
Rev:



NOTES:

1. WHEN RETAINER GLANDS ARE USED IN LIEU OF MECHANICAL JOINT (MJ) RESTRAINT FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.
2. GATE VALVE MAY BE BOLTED DIRECTLY TO MJ RESTRAINT TEE.
3. SEE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR FIRE HYDRANT, VALVES, VALVE BOX LID, AND COVER.
4. BOTTOM HYDRANT FLANGE SHALL BE 2" TO 6" ABOVE FINISHED GRADE.
5. FOR STREETS WITHOUT CURBS FIRE HYDRANTS SHALL BE PLACED WITHIN 1 FOOT OF THE R/W LINE, BUT NOT MORE THAN 10' FROM EDGE OF PAVEMENT. FIRE HYDRANT SHALL NOT BE PLACED IN BOTTOM OF DITCH.
6. HYDRANT SHALL BE ROTATED AS DIRECTED BY INSPECTOR.

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PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

HYDRANT INSTALLATION – STRAIGHT SET

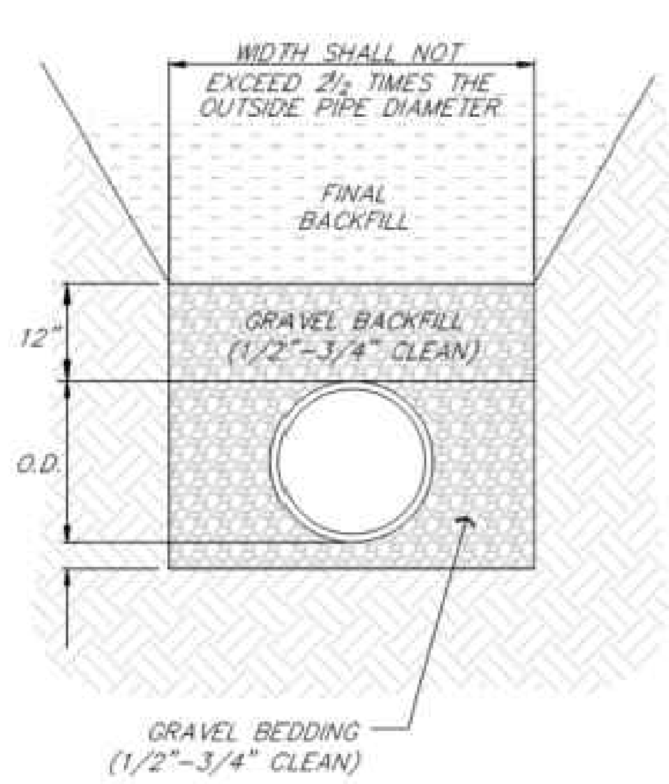
Date: 02/13
Drawn By: JN
Checked By: DL
FILE: WAT-7
Rev: 1/14
Rev:

BEDDING
1/2"-3/4" CLEAN AGGREGATE, HAND TAMPED OR MECHANICALLY COMPACTED IN MAX. 4" LIFTS

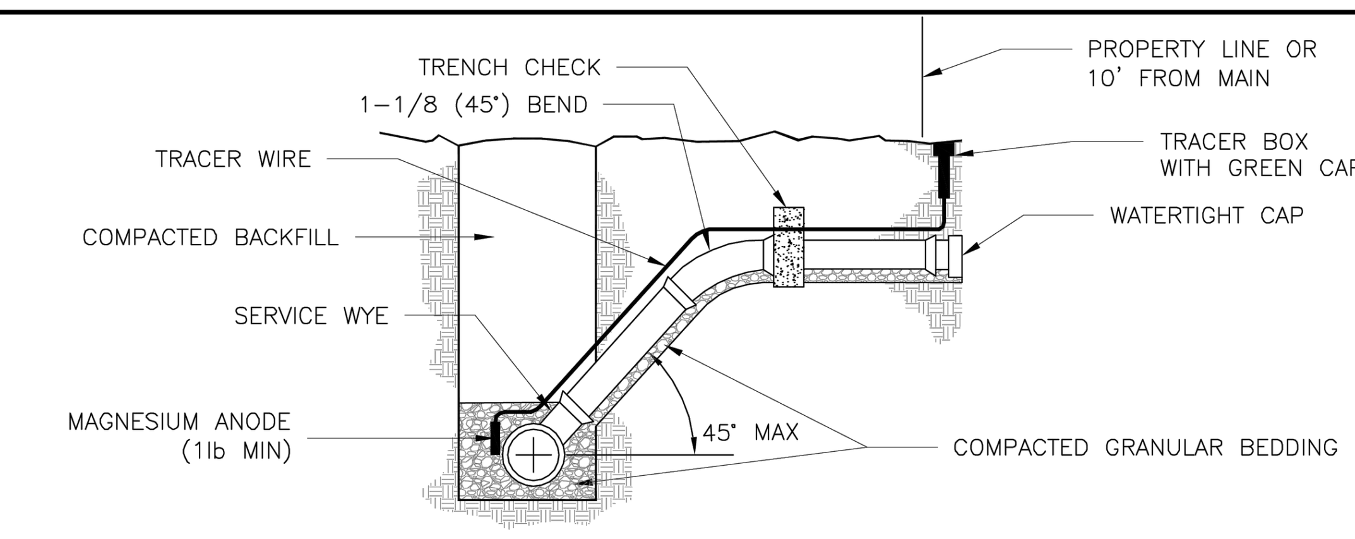
INITIAL BACKFILL
–UNDER PAVED AREAS OR WITHIN 4' HORIZONTAL OF PAVED AREAS
1/2"-3/4" CLEAN AGGREGATE, HAND TAMPED OR MECHANICALLY COMPACTED IN MAX. 4" LIFTS
–UNDER OPEN AREAS
1/2"-3/4" CLEAN AGGREGATE, HAND TAMPED OR MECHANICALLY COMPACTED IN MAX. 4" LIFTS

FINAL BACKFILL
–UNDER PAVED AREAS OR WITHIN 4' HORIZONTAL OF PAVED AREAS
ON-SITE OR IMPORTED MATERIAL FREE OF MUCK, FROZEN MATERIAL, EXCESS MOISTURE, ORGANICS, TOPSOIL, RUBBISH, CONSTRUCTION DEBRIS, ROCK OR BRICK LARGER THAN 8", COMPACTED TO 95% OF STANDARD DENSITY PER ASTM D-698
–UNDER OPEN AREAS
ON-SITE OR IMPORTED MATERIAL FREE OF MUCK, FROZEN MATERIAL, EXCESS MOISTURE, ORGANICS, TOPSOIL, RUBBISH, CONSTRUCTION DEBRIS, ROCK OR BRICK LARGER THAN 8", COMPACTED TO 90% OF STANDARD DENSITY PER ASTM D-698

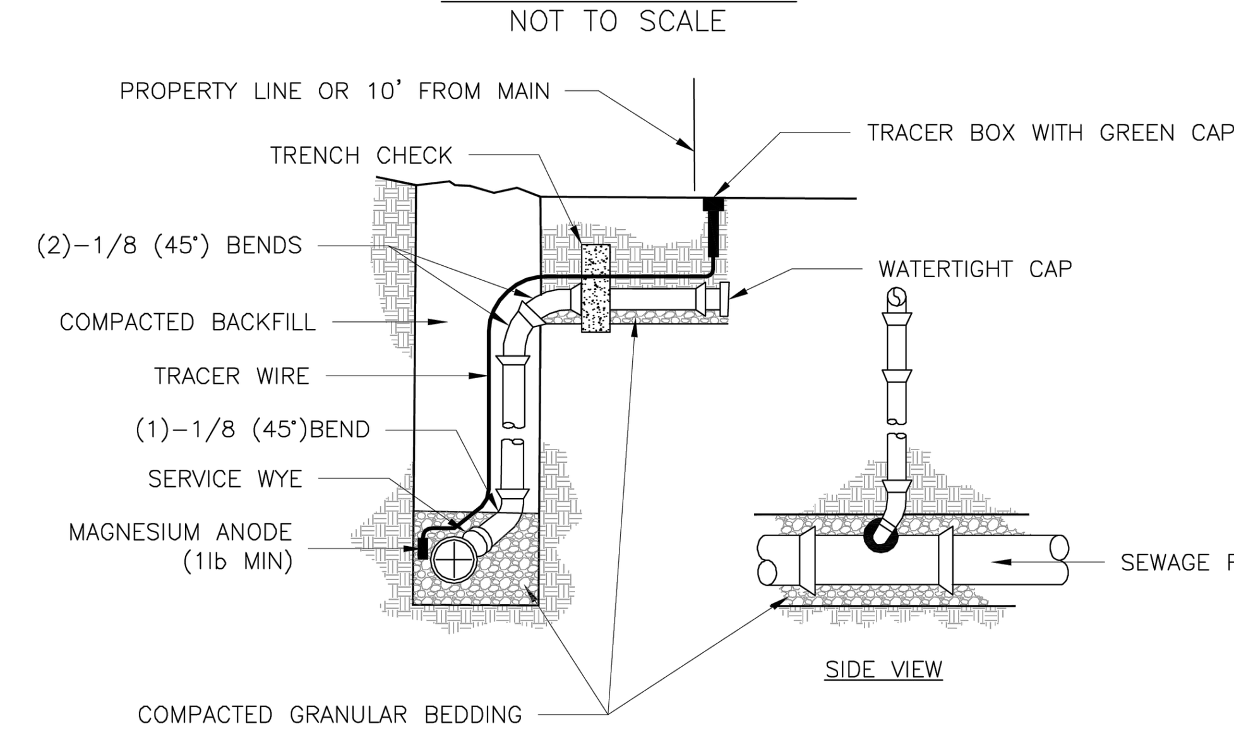
BEDDING DEPTH BELOW PIPE		
PIPE DIAMETER	IN SOIL	IN ROCK
24" AND LESS	6"	6"
27" THRU 60"	6"	9"



PIPE BEDDING DETAIL
NOT TO SCALE



STANDARD INSTALLATION
NOT TO SCALE



VERTICAL RISER
NOT TO SCALE

NOTES:
1. ALL SEWER STUBS SHALL BE CONSTRUCTED TO PROPERTY LINE OR 10' MINIMUM FROM THE MAIN. WHERE SIDEWALKS ARE PRESENT, CONTRACTOR SHALL EXTEND SERVICE LINE UNDER EXISTING SIDEWALK TO TWO FEET BEYOND.
2. ALL NEW CONSTRUCTION OFF SEWER STUBS SHALL BE TEMPORARILY MARKED WITH A MARKING STAKE, 36" ABOVE GROUND AND PAINTED GREEN.
3. IMPERVIOUS TRENCH CHECKS SHALL BE PLACED ON BUILDING SEWER STUBS (AT LEAST 5' AWAY FROM THE SANITARY SEWER MAIN).
4. TRENCH CHECKS ON THE BUILDING SEWER STUBS SHALL EXTEND 6" BELOW THE BOTTOM OF THE PIPE. LENGTH SHALL BE A MINIMUM OF 12". THE HEIGHT OF THE TRENCH CHECK SHALL EXTEND 12" ABOVE THE TOP OF THE PIPE. THE WIDTH OF THE TRENCH CHECK SHALL BE THE WIDTH OF THE TRENCH.
5. SEE SPECIFICATION SECTION 2100 FOR SEWER MAIN BEDDING AND BACKFILL.
6. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED. TRACER WIRE TERMINAL BOXES SHALL BE INSTALLED DIRECTLY ABOVE THE SEWER SERVICE OR AS DETERMINED BY THE ENGINEER.
7. FOR SERVICES, TRACER WIRE SHALL RUN FROM THE WYE AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON LOCKABLE TOP. WIRE SHALL BE TAPED OR TIED TO THE PIPE AT 5' INTERVALS.
8. TRACER WIRE BOX SHALL BE INSTALLED WITHIN 1.0' OF PROPERTY LINE.
9. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

BUILDING SEWER STUB AND RISER

Date: 04/17
Drawn By: MJF
Checked By: DL
SAN-1

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Revisions
10-11-22 CITY COMMENTS

LOT 12 OF WEST PRYOR
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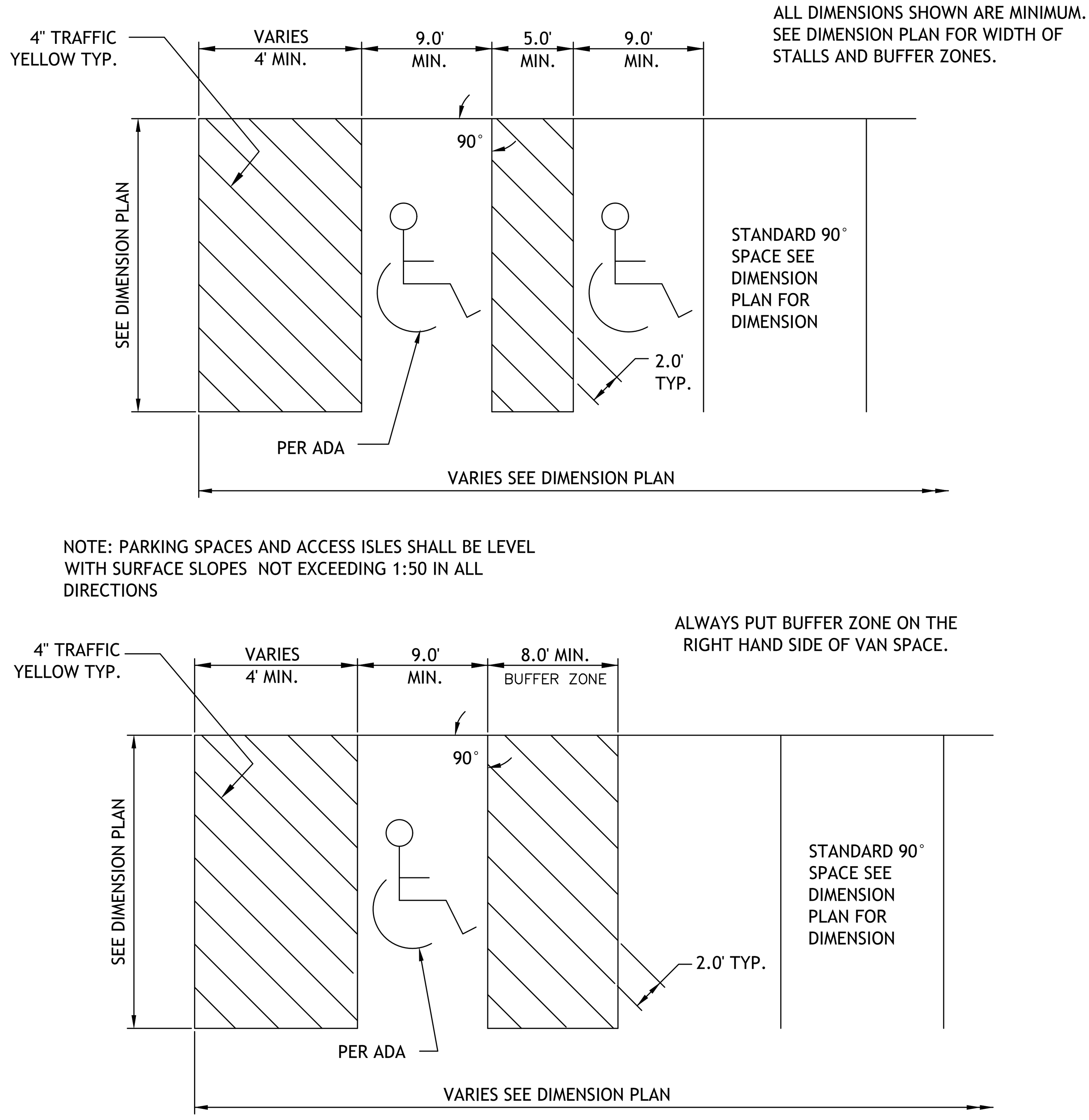
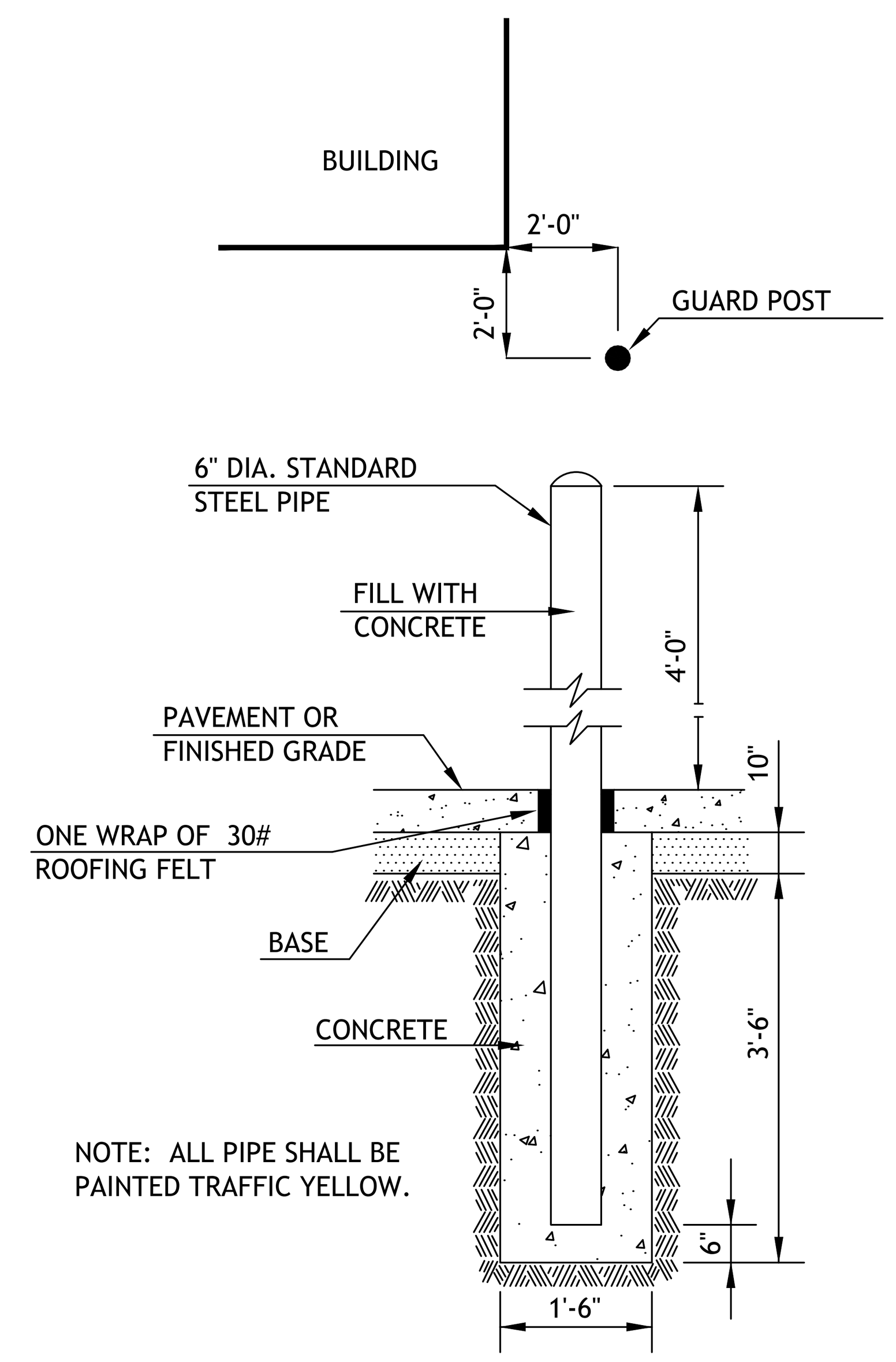


ALL DIMENSIONS SHOWN ARE MINIMUM. SEE DIMENSION PLAN FOR WIDTH OF STALLS AND BUFFER ZONES.

NOTE: PARKING SPACES AND ACCESS ISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:50 IN ALL DIRECTIONS

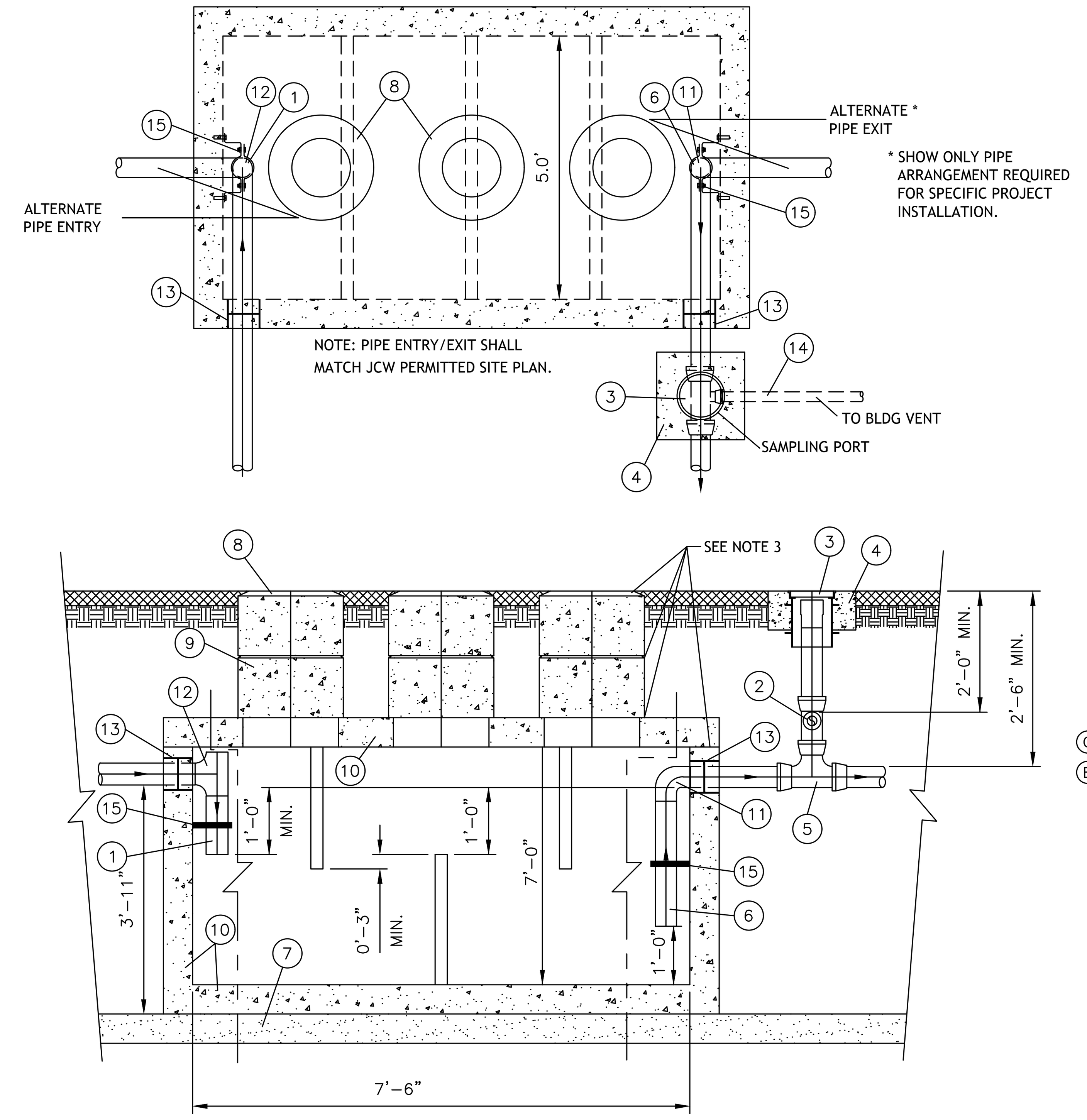
ALWAYS PUT BUFFER ZONE ON THE RIGHT HAND SIDE OF VAN SPACE.

90° ACCESSIBLE & VAN ACCESSIBLE SPACE STRIPING PK1



NOTE: ALL PIPE SHALL BE PAINTED TRAFFIC YELLOW.

BOLLARD DETAIL SG1



* SHOW ONLY PIPE ARRANGEMENT REQUIRED FOR SPECIFIC PROJECT INSTALLATION.

ITEM	DESCRIPTION
1	4" ABS INLET PIPE*
2	4"x4"x2" TEE WITH 2" PIPE TO BUILDING VENT*
3	THREADED C/O CAP JOSAM 58860 OR APP EQUAL**
4	CONCRETE PAD
5	4"x4"x4" TWO-WAY CLEANOUT TEE*
6	4" ABS OUTLET*
7	4" - 6" GRAVEL BEDDING
8	HEAVY-DUTY CAST IRON FRAME AND COVER ***
9	CONCRETE ADJUSTMENT RINGS
10	REINFORCE AS REQUIRED FOR SERVICE CONDITIONS
11	4" ABS 90° ELBOW*
12	4" ABS TEE*
13	A-LOK OR PRESS SEAL PSX PIPE/WALL CONNECTOR
(G) 14	2" VENT PIPE (IDENTIFY PIPE TYPE, CLASS & JOINT AS REQUIRED FOR PROJECT)
(F) 15	STAINLESS STEEL PIPE SUPPORT CLAMP ****

* 6" PIPE MAY BE SUBSTITUDED TO MATCH UPSTREAM PIPE DIAMETER.
** REFER TO CLEAN OUT DETAIL(S) ON STANDARD DETAIL SHEET.
*** CLAY & BAILEY 2008 BV OR EQUAL (FROST PROOF COVERS OPTIONAL)
(F) ****FM STAINLESS FASTNERS #63 OR EQUAL. 1/2"x2-1/2" SS BRACKET W/ 1/2"x1-1/2" FULLY THREADED SS HEX BOLT WITH 1/2" SS WASHER AND 1/2"X1-3/4" SS ANCHORS. CLAMP TO BE FACTORY INSTALLED.

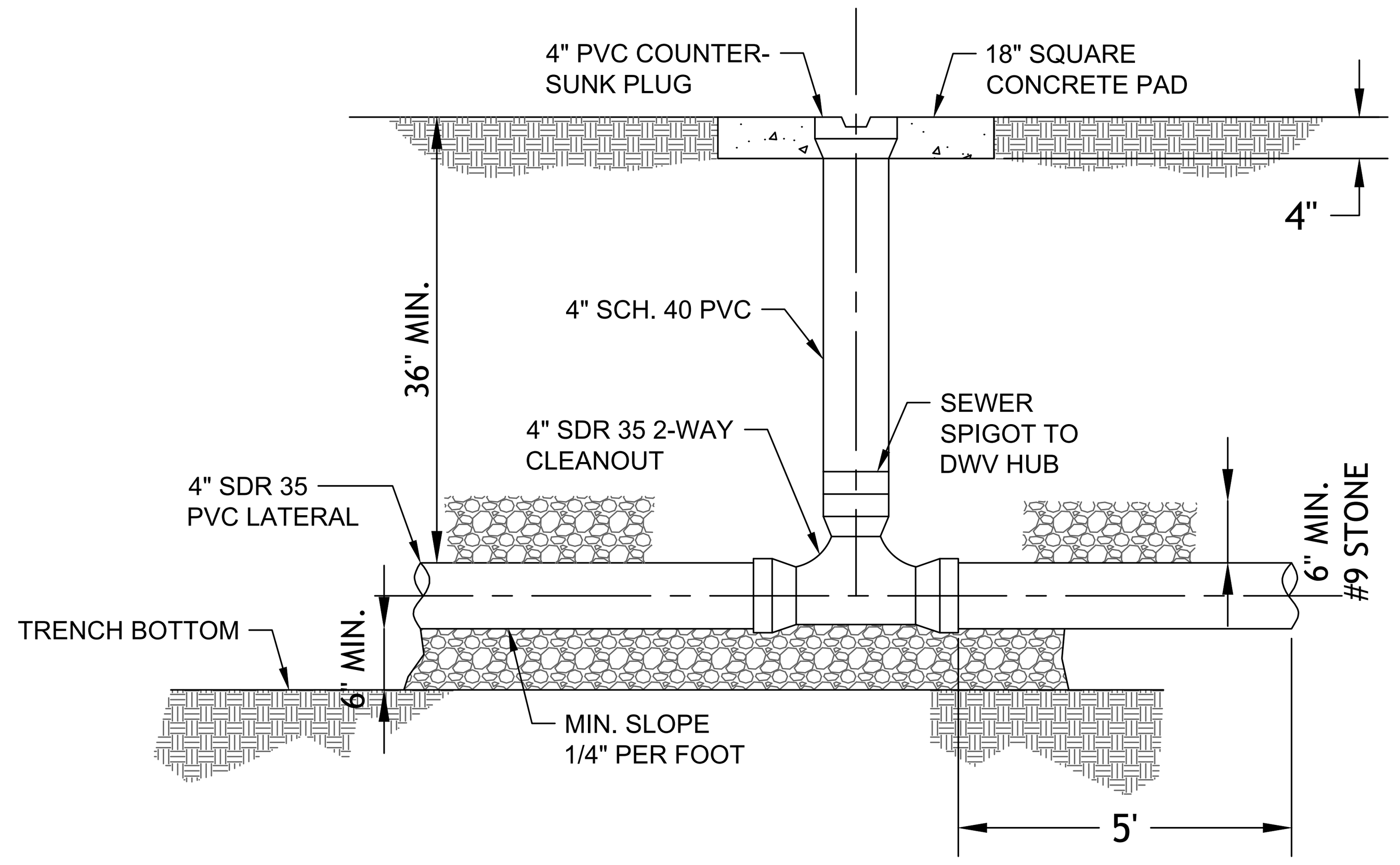
NOTES:
1. THREE COVERS AND RISERS SHOWN. TWO COVERS AND RISERS CENTERED OVER UPPER TWO BAFFLES ARE OPTIONAL.
(B) 2. INTERCEPTOR SIZE - 1000 GAL MINIMUM (REVISE THE SIZE DIMENSIONS, AS NEEDED, FOR LARGER CAPACITY INTERCEPTORS)
(D) 3. ALL JOINTS AT THE FRAME & COVER*, CONCRETE ADJUSTMENT RINGS AND THE LID OF THE INTERCEPTOR SHALL BE SEALED WITH A MINIMUM OF TWO (2) ROWS OF 3/4 TO 1 INCH PREFORMED BUTYL JOINT SEALER AND A 6" BUTYL JOINT WRAP AROUND SLEEVE (EZ WRAP). THE ENDS OF THE 6" EZ WRAP SHALL OVERLAP BY 12".
4. PIPING ON THE INTERIOR OF THE INTERCEPTOR SHALL BE ABS WITH SOLVENT-CEMENTED JOINTS.
(B) (C) (D) (E) 5. GREASE INTERCEPTOR INCLUDING ADJUSTMENT RINGS AND CASTINGS SHALL BE VACUUM TESTED FOR WATER TIGHTNESS AFTER THE BACKFILL OPERATIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH JCW TECHNICAL SPECIFICATIONS. A VACUUM OF 10 INCHES OF MERCURY SHALL BE DRAWN AND WITH THE VACUUM PUMP SHUT OFF THE MERCURY SHALL NOT DROP BELOW 9 INCHES WITHIN 1 MINUTE OR BELOW 5 INCHES WITHIN 5 MINUTES.

GREASE INTERCEPTOR GI

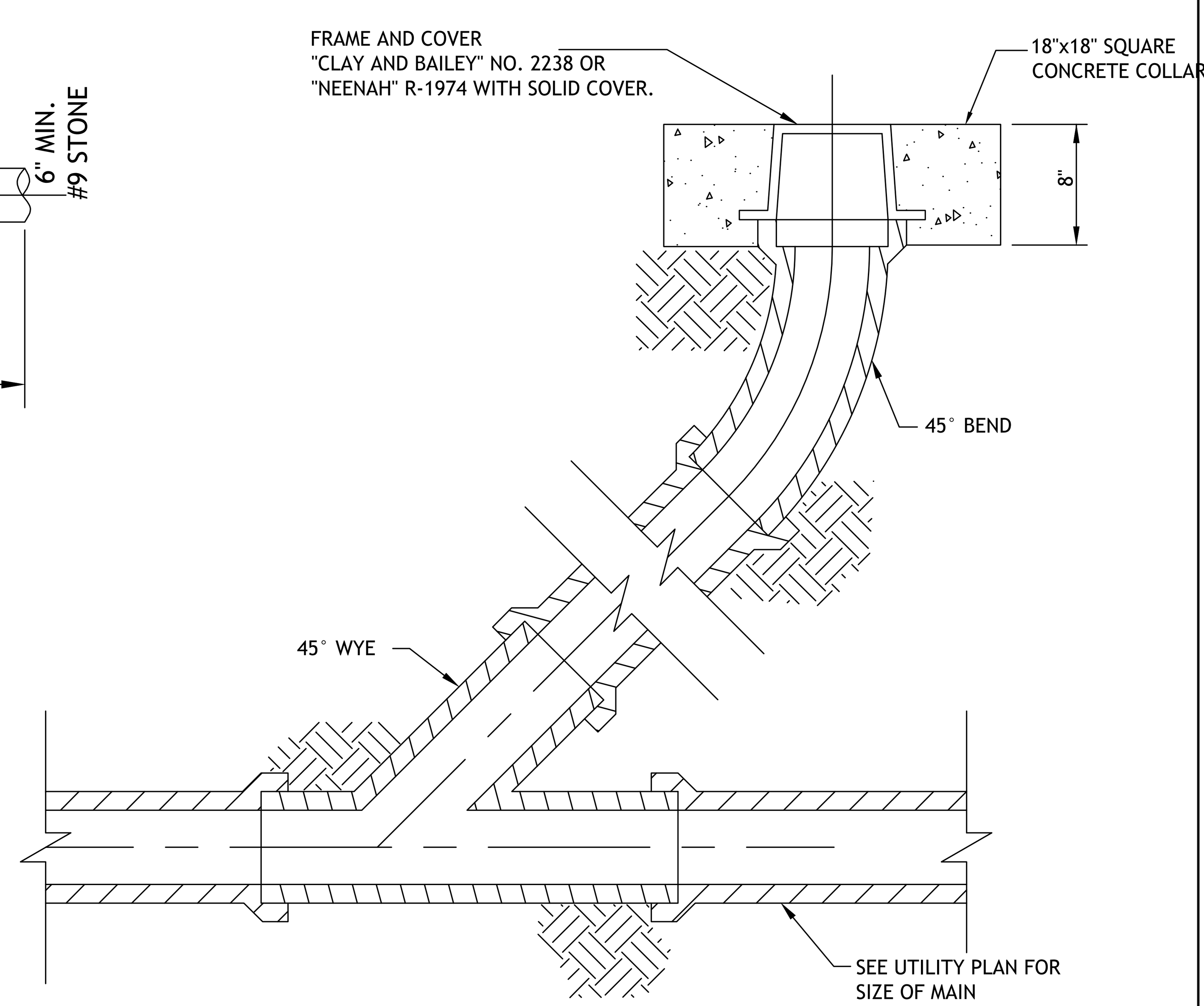
GREASE INTERCEPTOR SCHEDULE

MANUFACTURER	MODEL NO.	CAPACITY US gal.	FULL WT (LBS)	LENGTH L	WIDTH W	HEIGHT H	INLET FL	OUTLET FL
OLD CASTLE	Q-1500	1500	20,255	90"	60"	84"	977.4	977.4

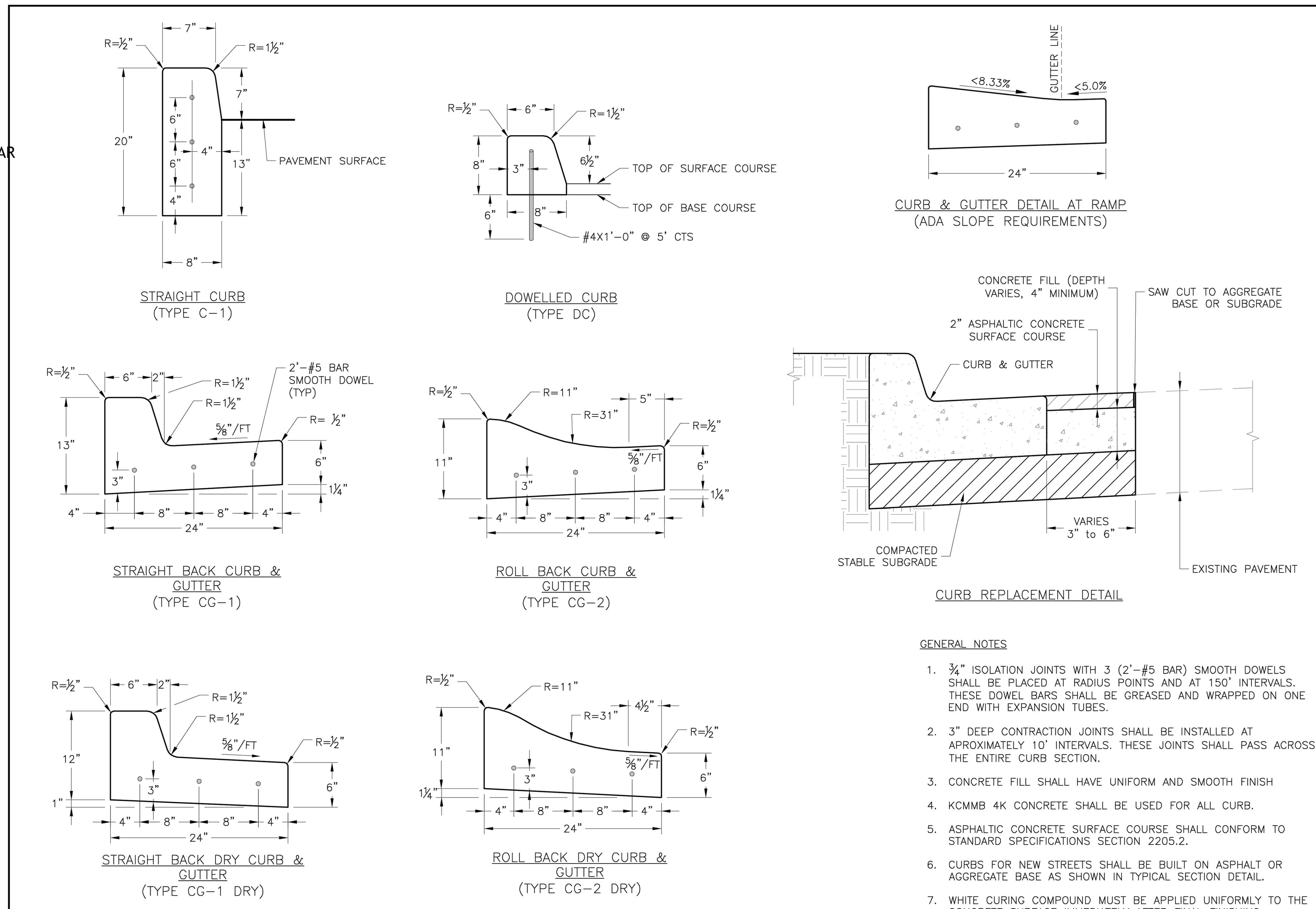
NOTE: REINFORCED TANK WITH MESH THROUGHOUT. REINFORCED LID FOR DRIVE AREA. 4000 LB CONCRETE



TWO WAY CLEANOUT SS2



CLEAN-OUT CO



GENERAL NOTES

1. ¾" ISOLATION JOINTS WITH 3 (2'-#5 BAR) SMOOTH DOWELS SHALL BE PLACED AT RADIUS POINTS AND AT 150' INTERVALS. THESE DOWEL BARS SHALL BE GREASED AND WRAPPED ON ONE END WITH EXPANSION TUBES.
2. 3" DEEP CONTRACTION JOINTS SHALL BE INSTALLED AT APROXIMATELY 10' INTERVALS. THESE JOINTS SHALL PASS ACROSS THE ENTIRE CURB SECTION.
3. CONCRETE FILL SHALL HAVE UNIFORM AND SMOOTH FINISH
4. KCMMB 4K CONCRETE SHALL BE USED FOR ALL CURB.
5. ASPHALTIC CONCRETE SURFACE COURSE SHALL CONFORM TO STANDARD SPECIFICATIONS SECTION 2205.2.
6. CURBS FOR NEW STREETS SHALL BE BUILT ON ASPHALT OR AGGREGATE BASE AS SHOWN IN TYPICAL SECTION DETAIL.
7. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.

LS LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

Project: STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Sheet Name: CURB & GUTTER DETAIL

Drawn By: MJF
Checked By: DL
Date: 04/17
Proj. #:

GEN-4

SM Engineering
SME
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Manhattan Kansas, 66503
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Revisions
10-11-22 CITY COMMENTS

LOT 12 OF WEST PRYOR
LEE'S SUMMIT, MISSOURI

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DETAILS

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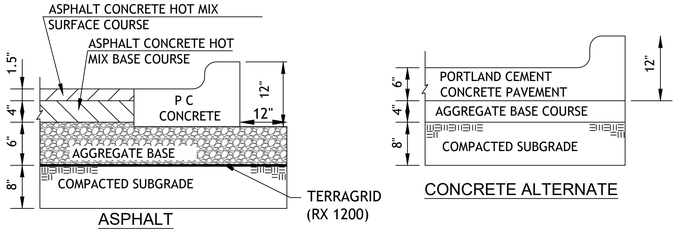
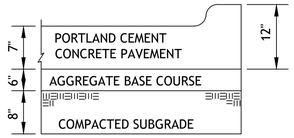
16 SEPTEMBER 2022



REGULAR DUTY PAVING PV1

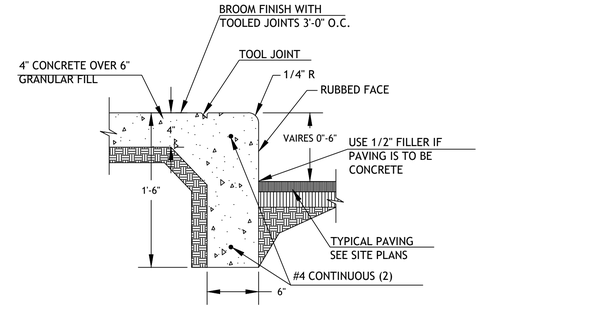


HEAVY DUTY CONCRETE PV3

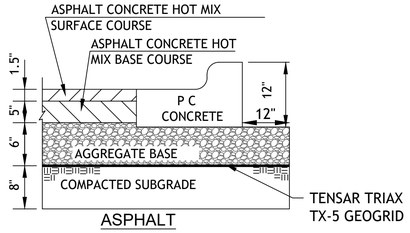
1. FLEXIBLE PAVEMENT SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MISSOURI DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

ASPHALT SURFACE COURSE - APWA TYPE 3-01
ASPHALT BASE COURSE - APWA TYPE 2-01
AGGREGATE BASE MoDOT TYPE 5 OR EQUIVALENT

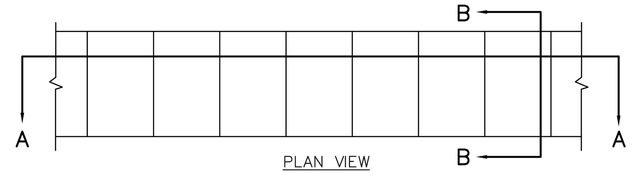
2. PORTLAND CEMENT CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS WITH 6% ENTRAINED AIR ±2% AND SHALL MEET OR EXCEED THE SPECIFICATIONS SET FORTH IN THE LATEST EDITION OF THE MISSOURI DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

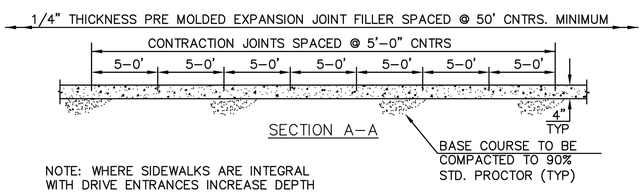


CURB WALK/CURB (AT BUILDING) CW1

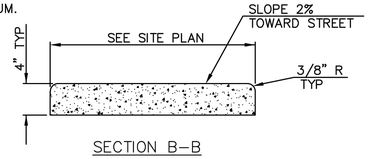


HEAVY DUTY ASPHALT PAVING PV2



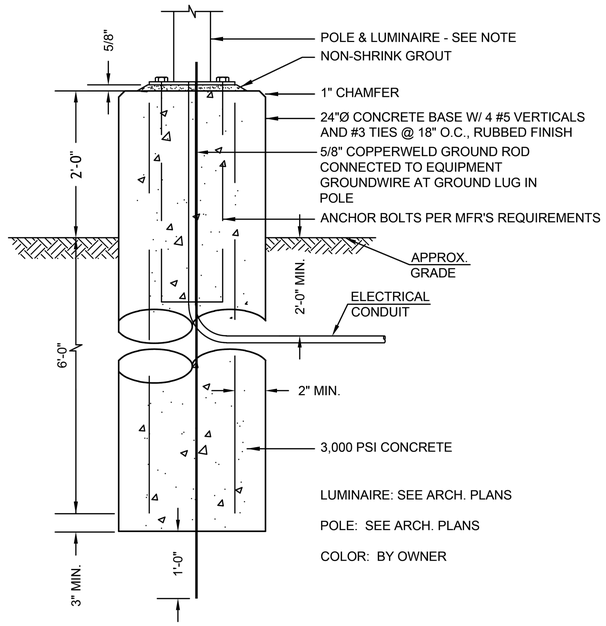


NOTE: WHERE SIDEWALKS ARE INTEGRAL WITH DRIVE ENTRANCES INCREASE DEPTH TO 6" AND PROVIDE REINFORCING USING 6x6 #10 WIRE MINIMUM.

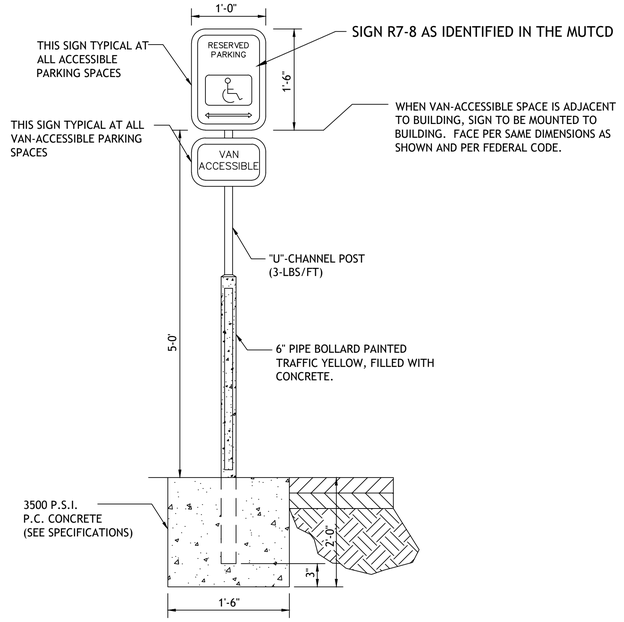


CONCRETE SIDEWALK CW2

NOTE: CONCRETE SHALL BE CLASS A WITH f'c = 3000 PSI.



LIGHT POLE BASE 700



ACCESSIBLE PARKING SIGN PK2

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Revisions
10-11-22 CITY COMMENTS

LOT 12 OF WEST PRYOR
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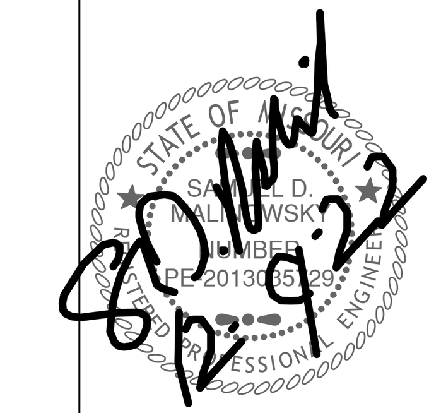

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10-11-22 CITY COMMENTS

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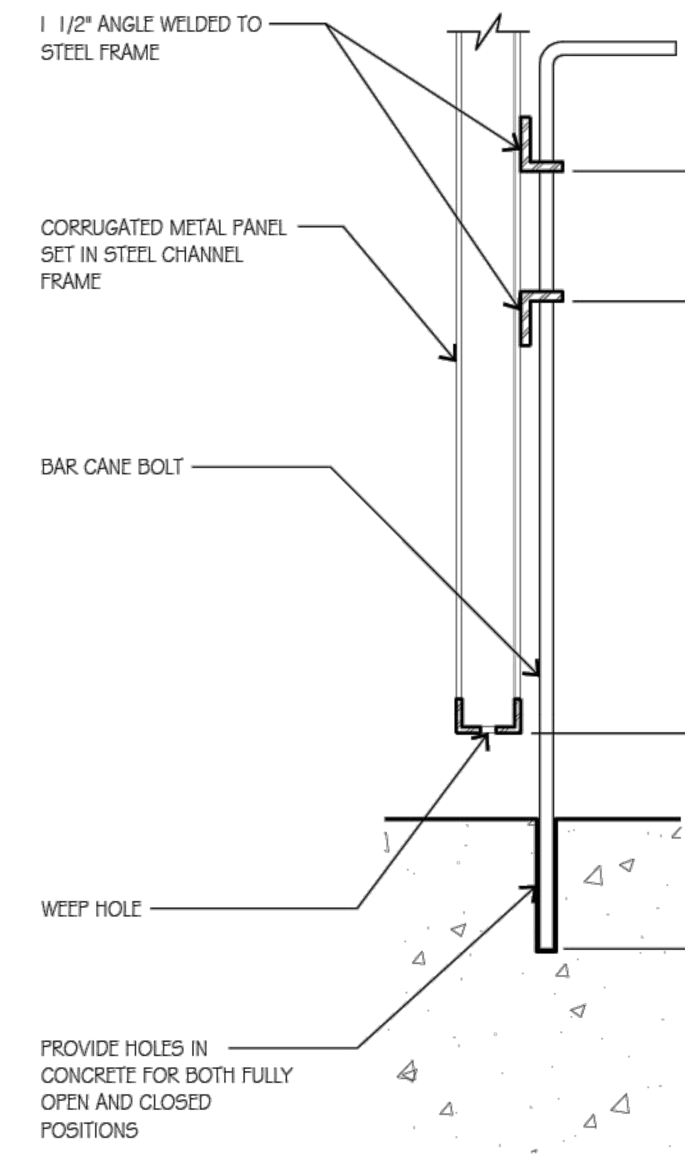
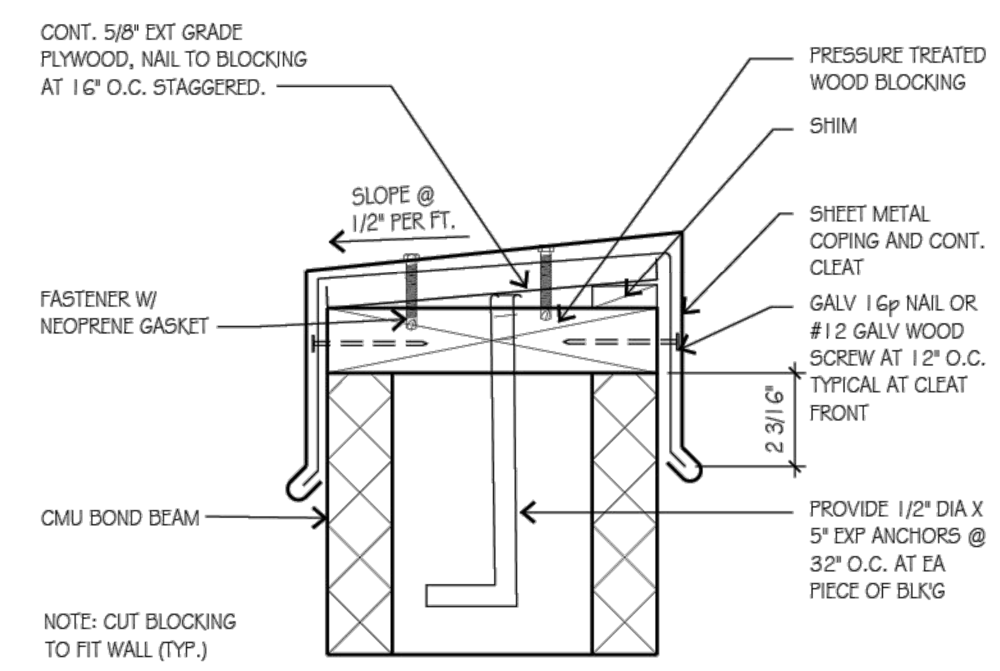
16 SEPTEMBER 2022

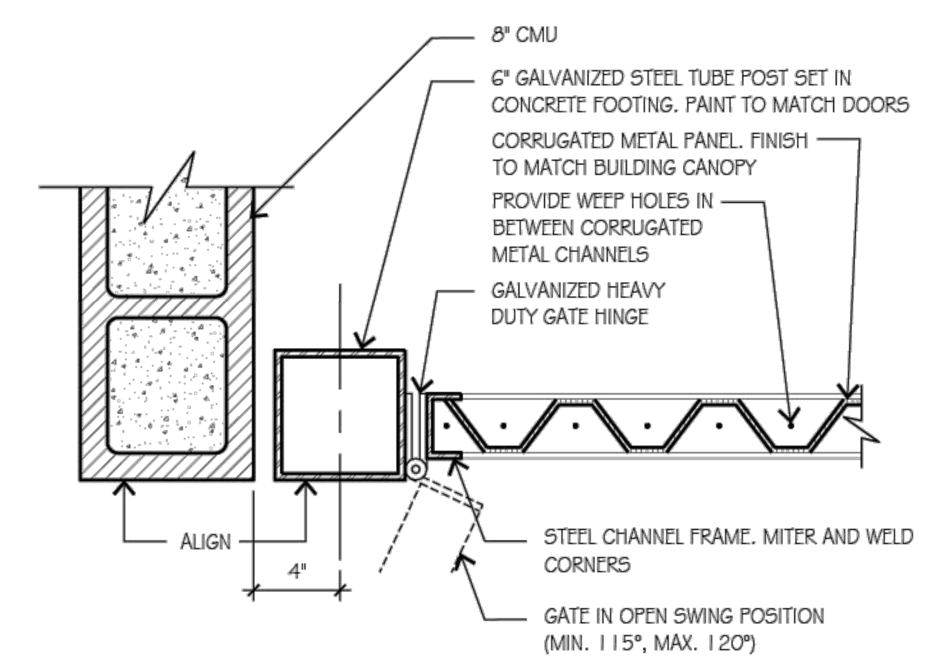
NOT USED (20)
SCALE: NTS



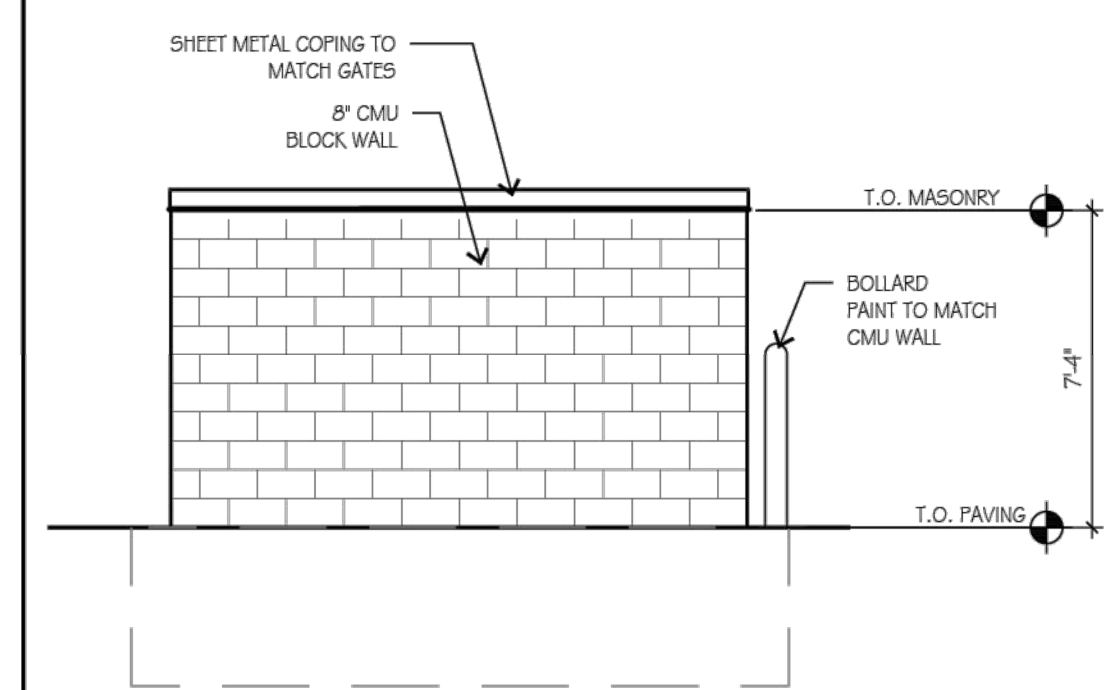
CANE BOLT DETAIL (15)
SCALE: 1 1/2"=1'-0"



WALL CAP DETAIL (12)
SCALE: 3"=1'-0"



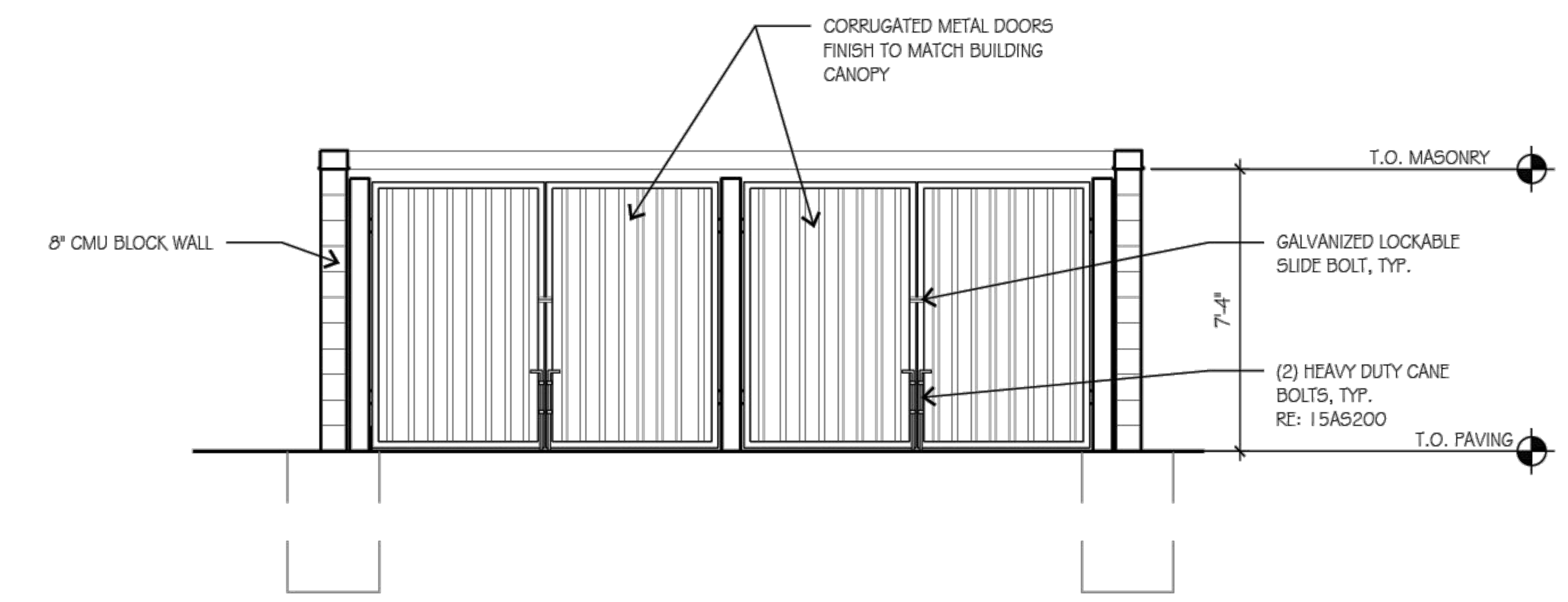
GATE HINGE DETAIL (8)
SCALE: 1 1/2"=1'-0"



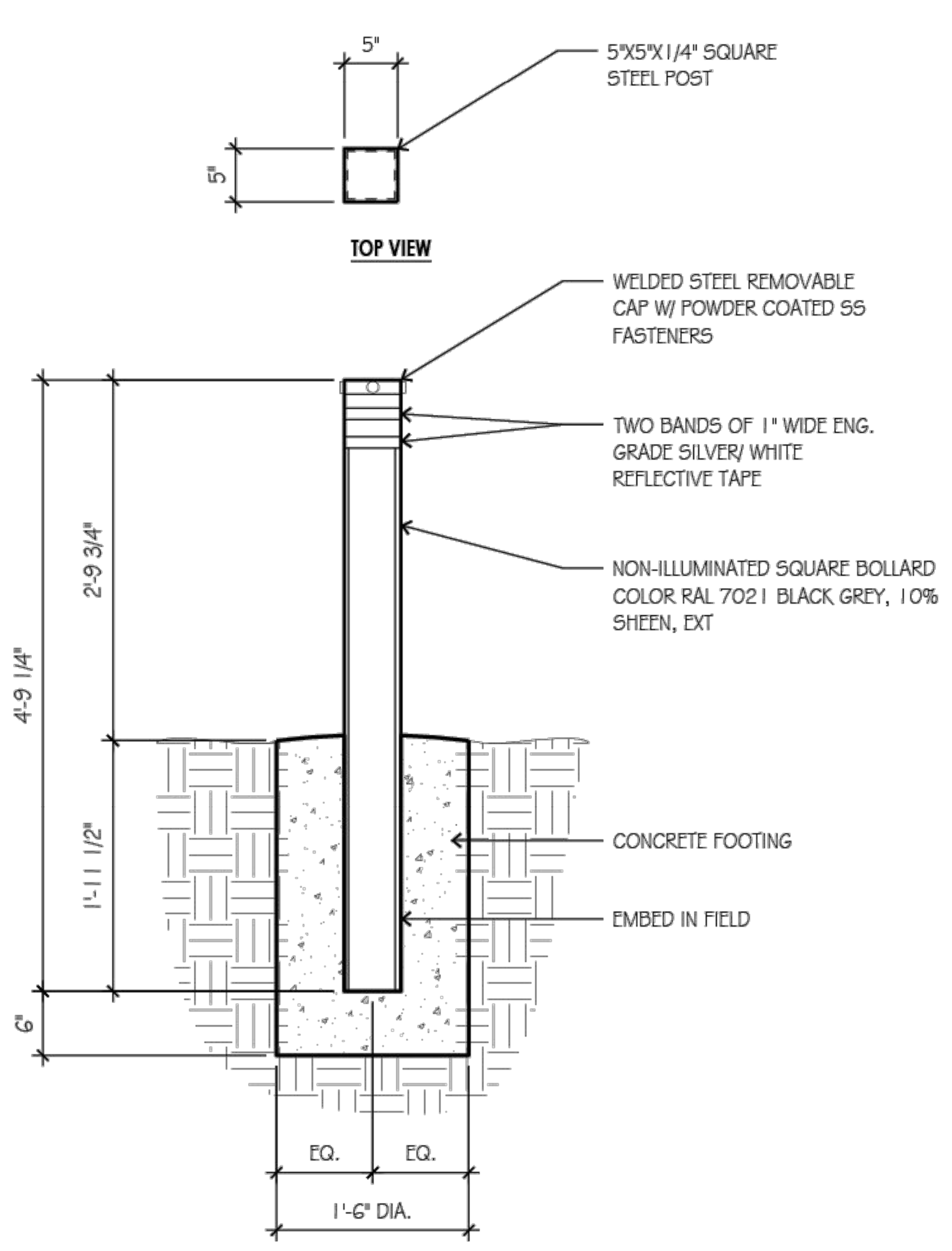
ELEVATION (4)
SCALE: 1/4"=1'-0"

NOT USED (19)
SCALE: NTS

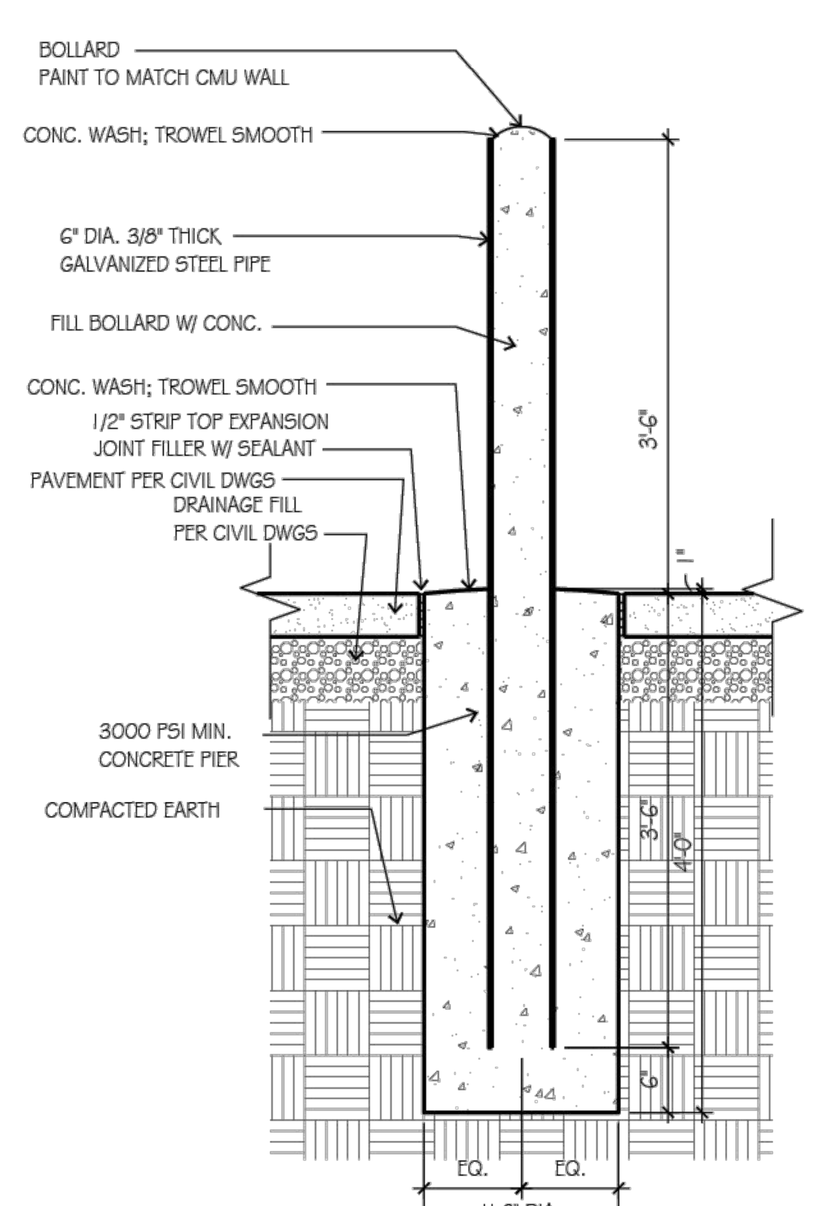
NOT USED (11)
SCALE: NTS



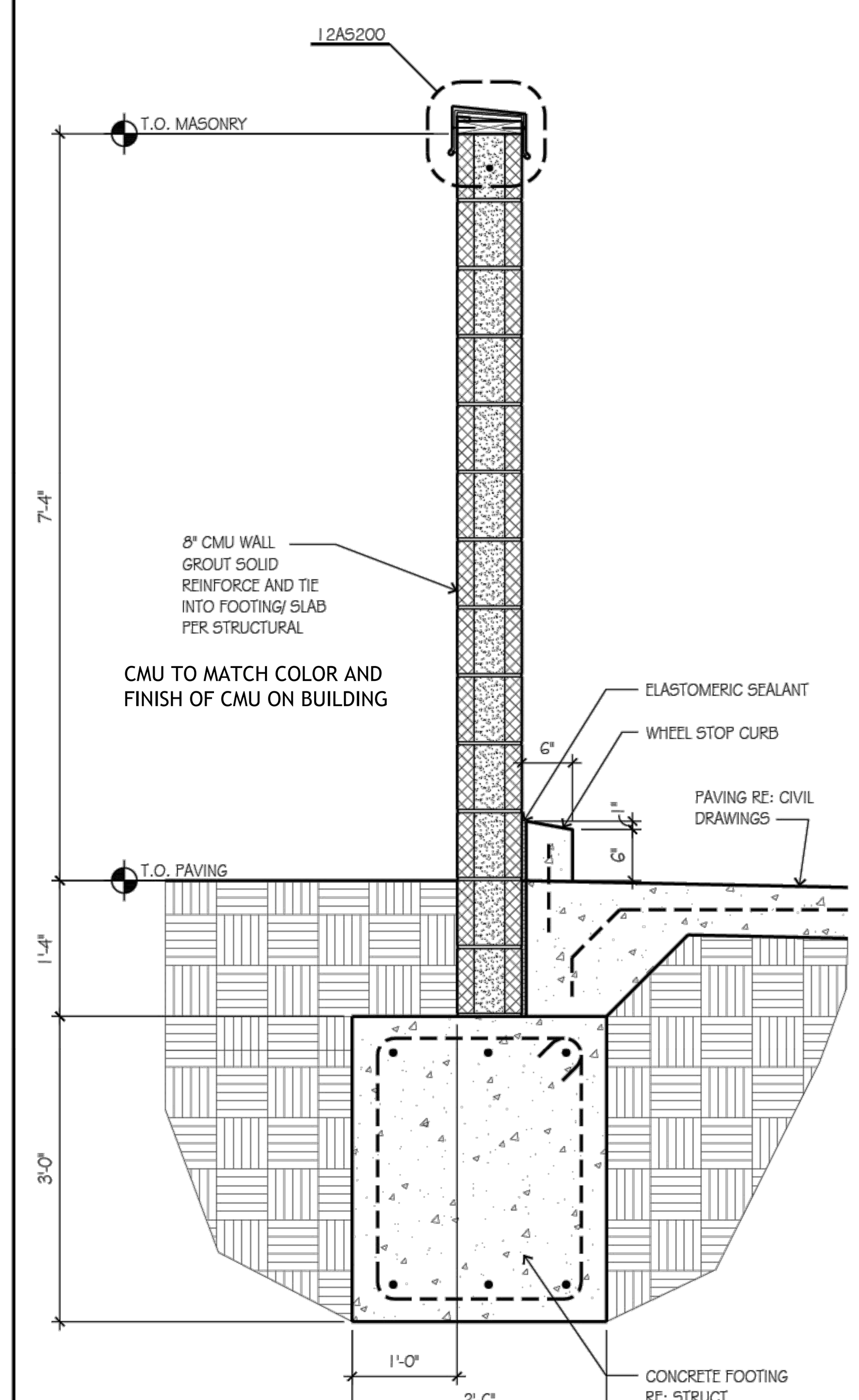
ELEVATION (3)
SCALE: 1/4"=1'-0"



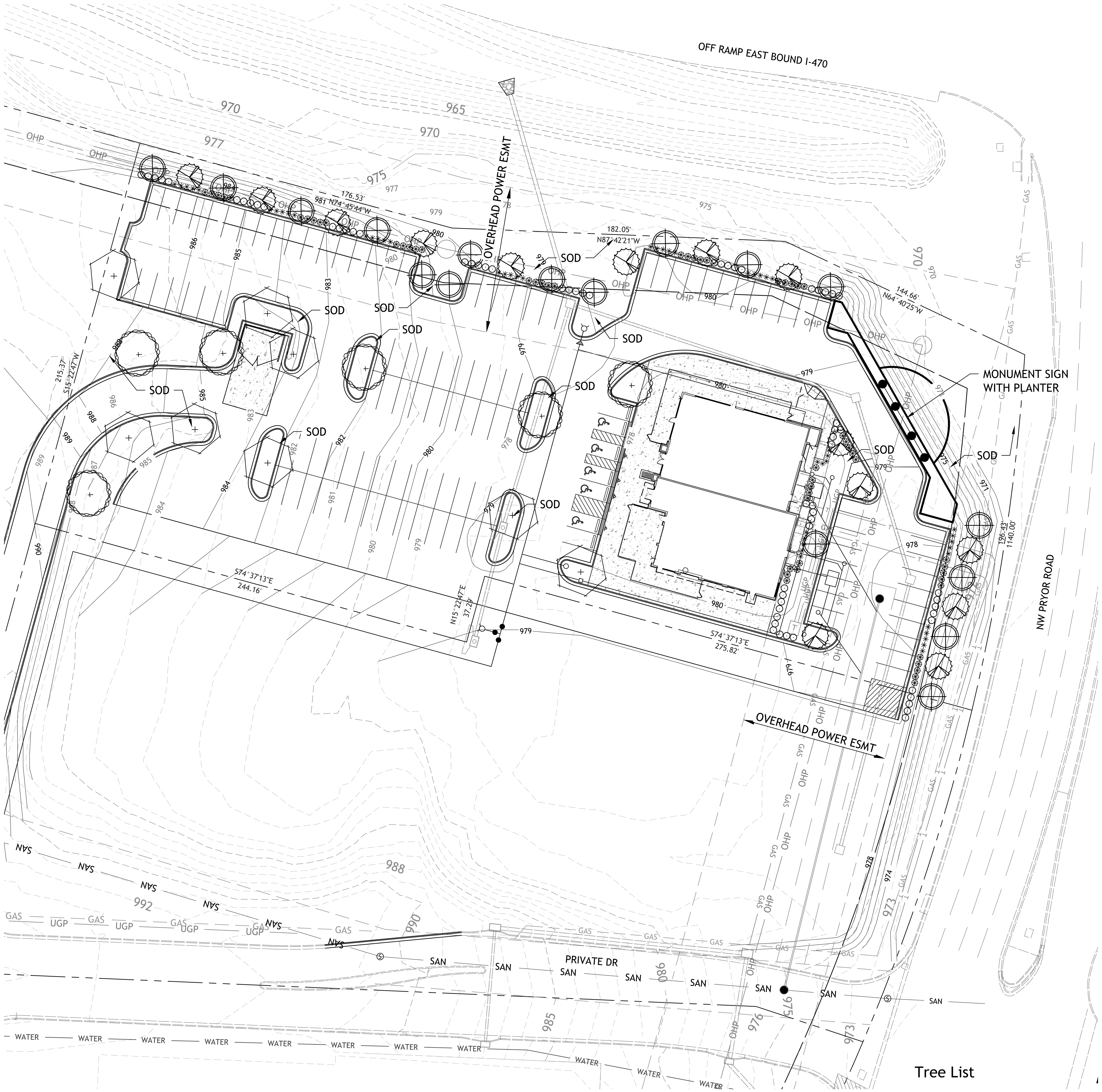
NON-ILLUMINATED BOLLARD DETAIL (17)
SCALE: 3/4"=1'-0"



BOLLARD DETAIL (13)
SCALE: 3/4"=1'-0"



CMU WALL SECTION (9)
SCALE: 3/4"=1'-0"



LOT 9C

PRYOR ROAD 196'

REQUIRED:		
STREET TREES 1/30'	=	7
SHRUBS 1/20'	=	10
PROVIDED:		
ORNAMENTALS	=	7
SHRUBS	=	30

470 OFF RAMP 540'

REQUIRED:		
STREET TREES 1/30'	=	18
SHRUBS 1/20'	=	27
PROVIDED:		
ORNAMENTALS	=	18
SHRUBS	=	95

INTERIOR PARKING

TOTAL PARKING SURFACE	=	41,873 SF
REQUIRED		
5% LANDSCAPE AREA	=	2,093 SF
PROVIDED	=	3,423 SF

OPEN SPACE TREES

OPEN SPACE		101,275SF
REQUIRED		
TREES 1 / 5,000SF	=	20
PROVIDED		
SHADE TREES	=	14
ORNAMENTALS	=	6

OPEN SPACE SHRUBS

REQUIRED		
2 / 5,000SF	=	41
PROVIDED	=	45

LANDSCAPE NOTES

CONTRACTOR REQUIRED TO LOCATE ALL UTILITIES BEFORE INSTALLATION TO BEGIN.

Contractor shall verify all landscape material quantities and shall report any discrepancies to the Landscape Architect prior to installation.

No plant material substitutions are allowed without Landscape Architect or Owners approval.

Contractor shall guarantee all landscape work and plant material for a period of one year from date of acceptance of the work by the Owner. Any plant material which dies during the one year guarantee period shall be replaced by the contractor during normal planting seasons.

Contractor shall be responsible for maintenance of the plants until completion of the job and acceptance by the Owner.

Successful landscape contractor shall be responsible for design that complies with minimum irrigation requirements, and installation of an irrigation system. Irrigation system to be approved by the owner before starting any installation.

All plant material shall be specimen quality stock as determined in the "American Standards For Nursery Stock" published by The American Association of Nurseryman, free of plant diseases and pest, of typical growth of the species and having a healthy, normal root system.

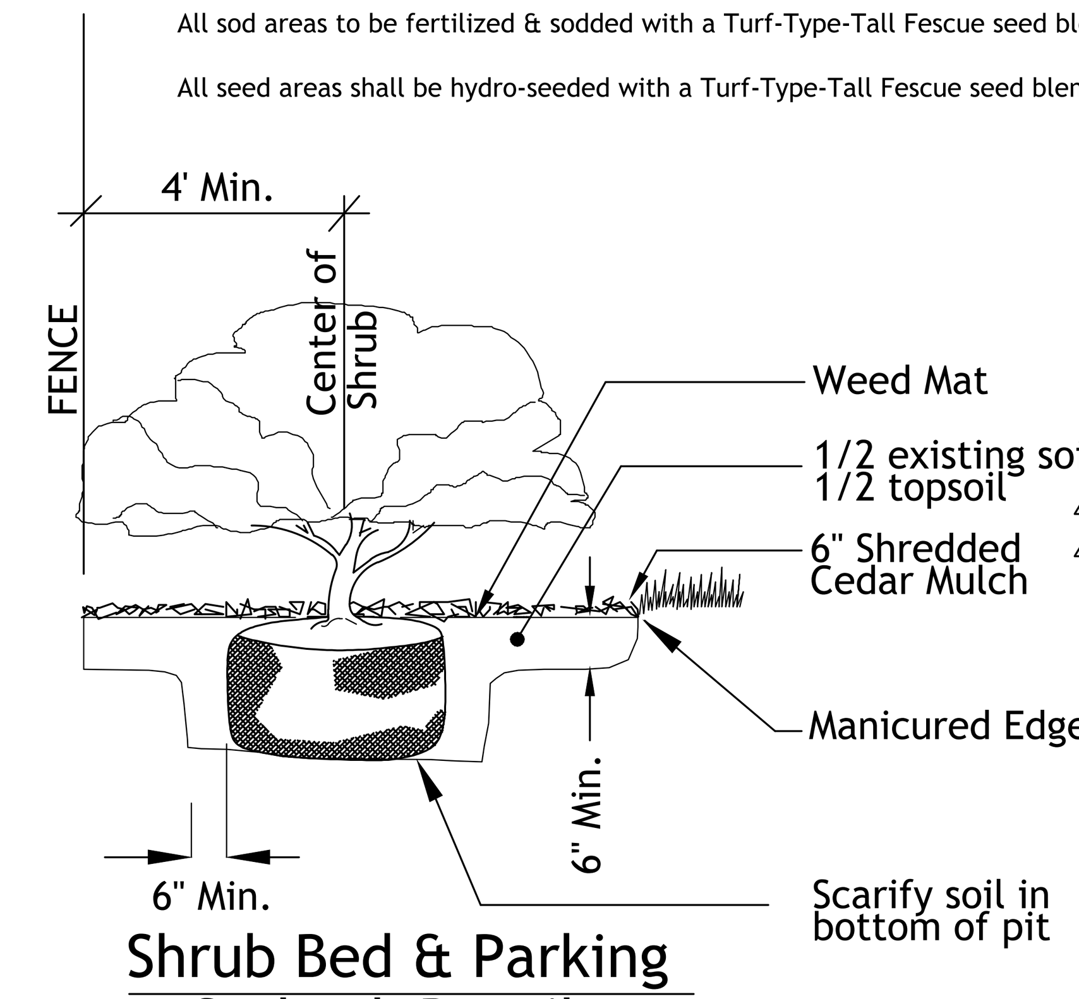
Sizes indicated on the plant list are the minimum, acceptable size. In no case will sizes less than specified be accepted.

All shrub beds within lawn areas to receive a manicured edge.

All shrub beds shall be mulched with 3" of shredded cedar mulch.

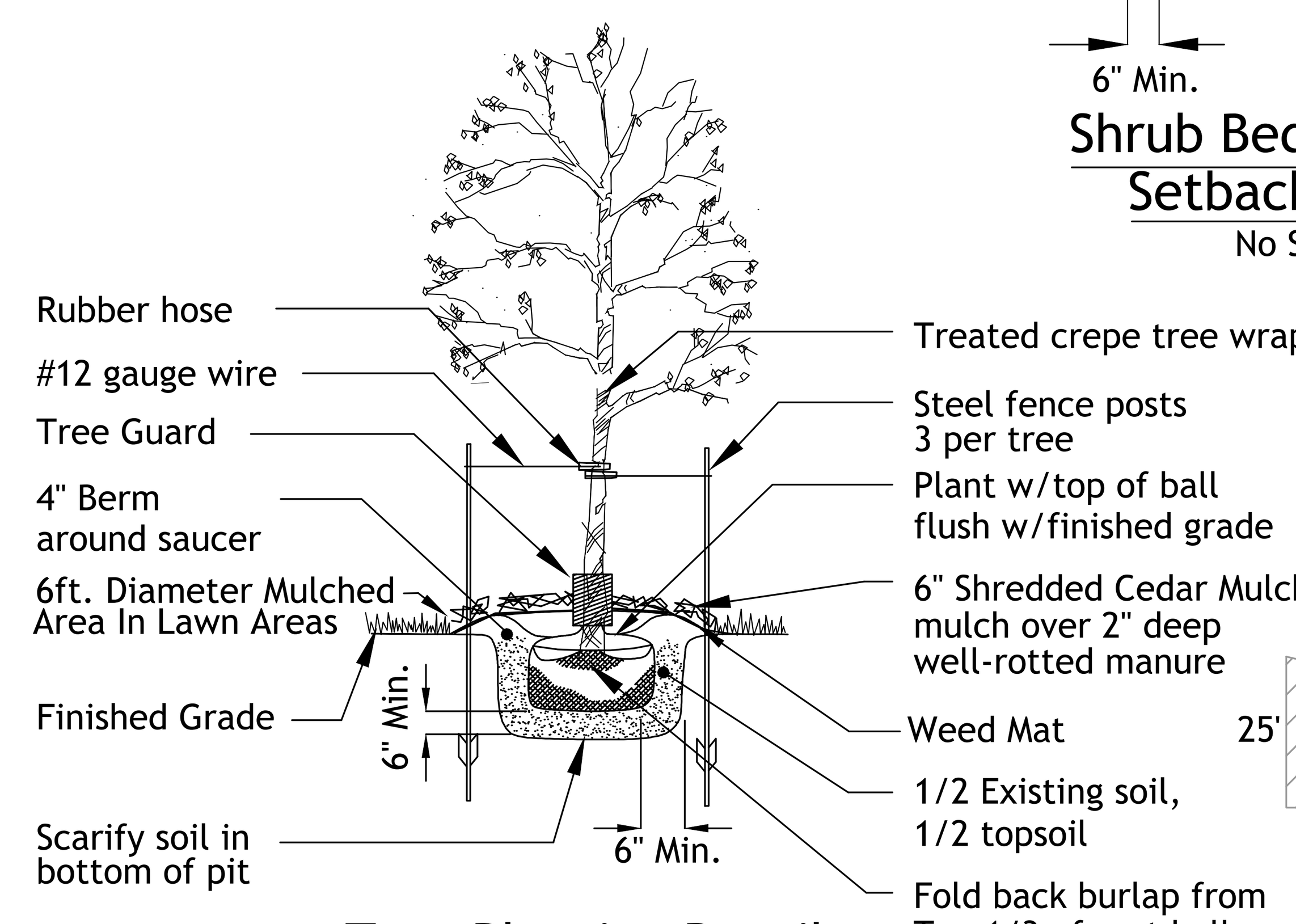
All sod areas to be fertilized & sodded with a Turf-Type-Tall Fescue seed blend.

All seed areas shall be hydro-seeded with a Turf-Type-Tall Fescue seed blend.



Shrub Bed & Parking Setback Detail

No Scale



Tree Planting Detail

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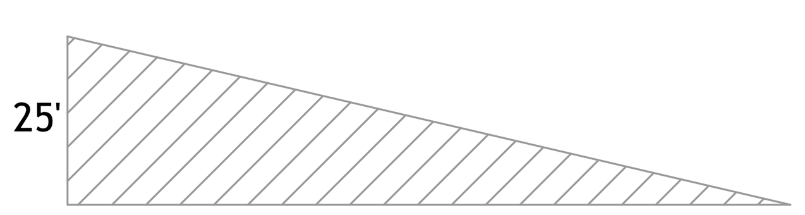
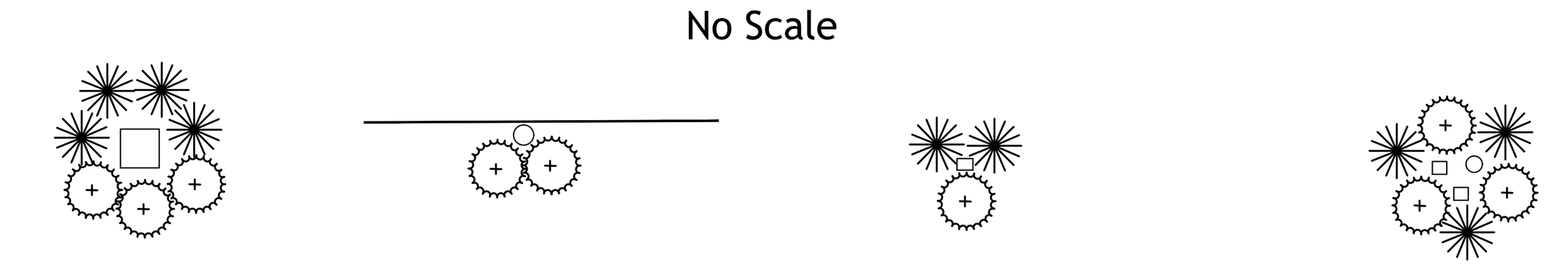


SIGHT TRIANGLE

Typical Utility Box Screening Details

No Scale



UTILITY BOXES SHALL BE CLUSTERED AS MUCH AS POSSIBLE

Tree List

Symbol	Quantity	Common Name	Botanical Name	Size	Condition	Spacing
	6	October Glory Maple	Acer Rubrum 'October Glory'	3" cal	BB	As Shown
	13	Skyline Honeylocust	Gleditsia Triacanthos 'Skyline'	3" cal	BB	As Shown
	14	Golden Raintree	Koelreuteria Paniculata	3"cal	BB	As Shown
	17	Prairiefire Crabapple	Malus Sp. 'Priariefire'	3"cal	BB	As Shown

Shrub List

Symbol	Quantity	Common Name	Botanical Name	Size	Condition	Spacing
	— 65	Seagreen Juniper	Juniperus Chinensis 'Seagreen'	18"-24"sp.	Cont.	4'o.c.
	— 55	Dwarf Winged Euonymus	Euonymus Alatus 'Compactus'	18"-24"sp.	Cont.	4'o.c.
	— 55	Morning Light Maiden Grass	Miscanthos Sinensis 'Morning Light'	18"-24"sp.	Cont.	4'o.c.

1"=30'

0 15' 30'

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Revisions

10-11-22 CITY COMMENTS
1-9-23 SURVEY W/ GRADES
2 1-11-23 GAS SERVICE LINE
3 1-24-23 PER CLIENT

LOT 12 OF WEST PRYOR

LEE'S SUMMIT, MISSOURI

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LANDSCAPE PLAN

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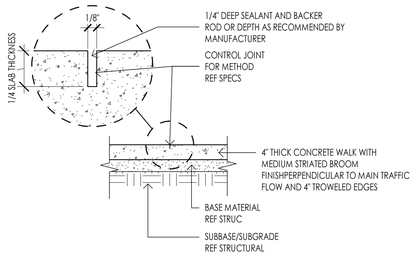
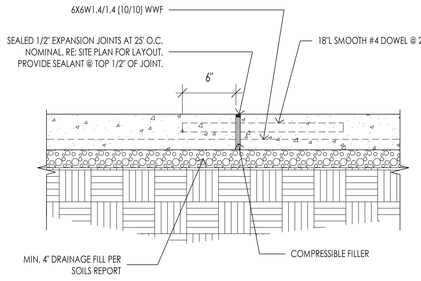


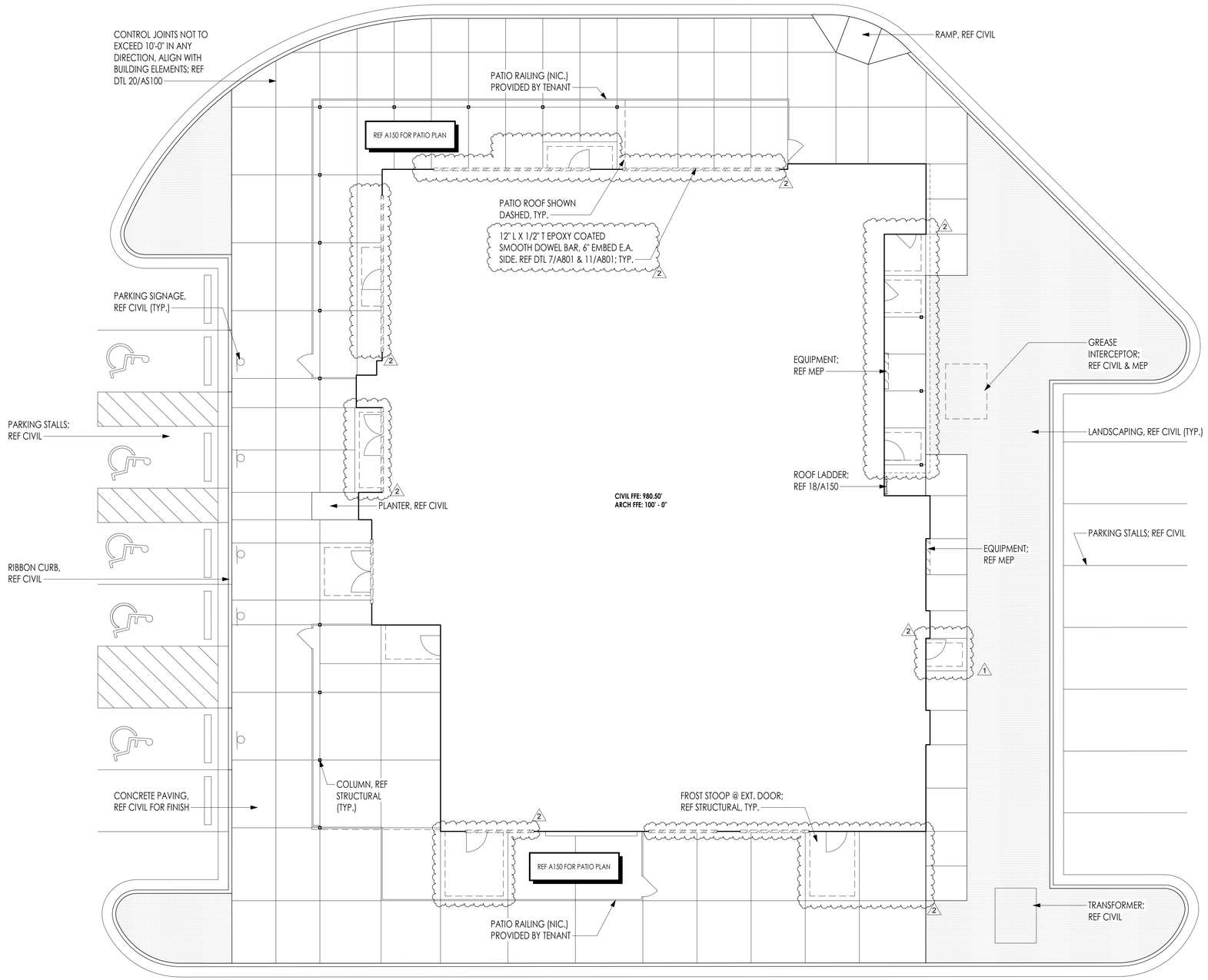
CONTROL JOINT DETAIL 20

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



EXPANSION JOINT DETAIL 19

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



ARCHITECTURAL SITE PLAN 1

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

klover architects
8813 PENROSE LANE, SUITE 400 • LENEXA, KS 66219
ph: 913.649.8181 • fx: 913.649.1275 • www.klover.net

project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number

22902.001

drawing issuance

PERMIT	09/26/22

drawing revisions

No.	Description:	Date:
1	REV 1	1/10/23
2	REV 2	1/27/23

professional seal

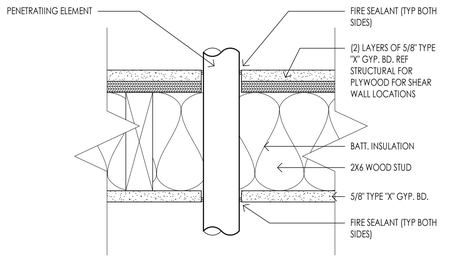
DATE SIGNED: 2/3/2023 10:10:56 AM

drawing title

SITE PLAN

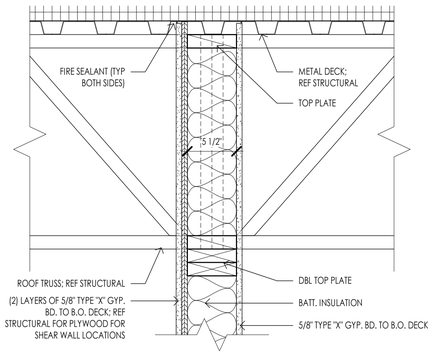
drawing number

AS100



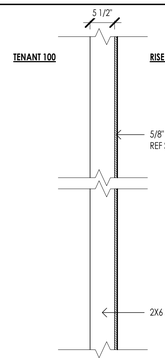
1-HR WALL PENETRATION (20)

SCALE: 3" = 1'-0"



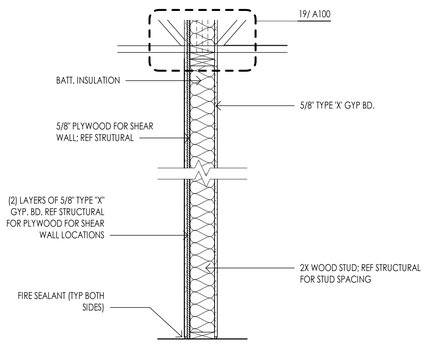
1-HR WALL HEAD DETAIL (19)

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



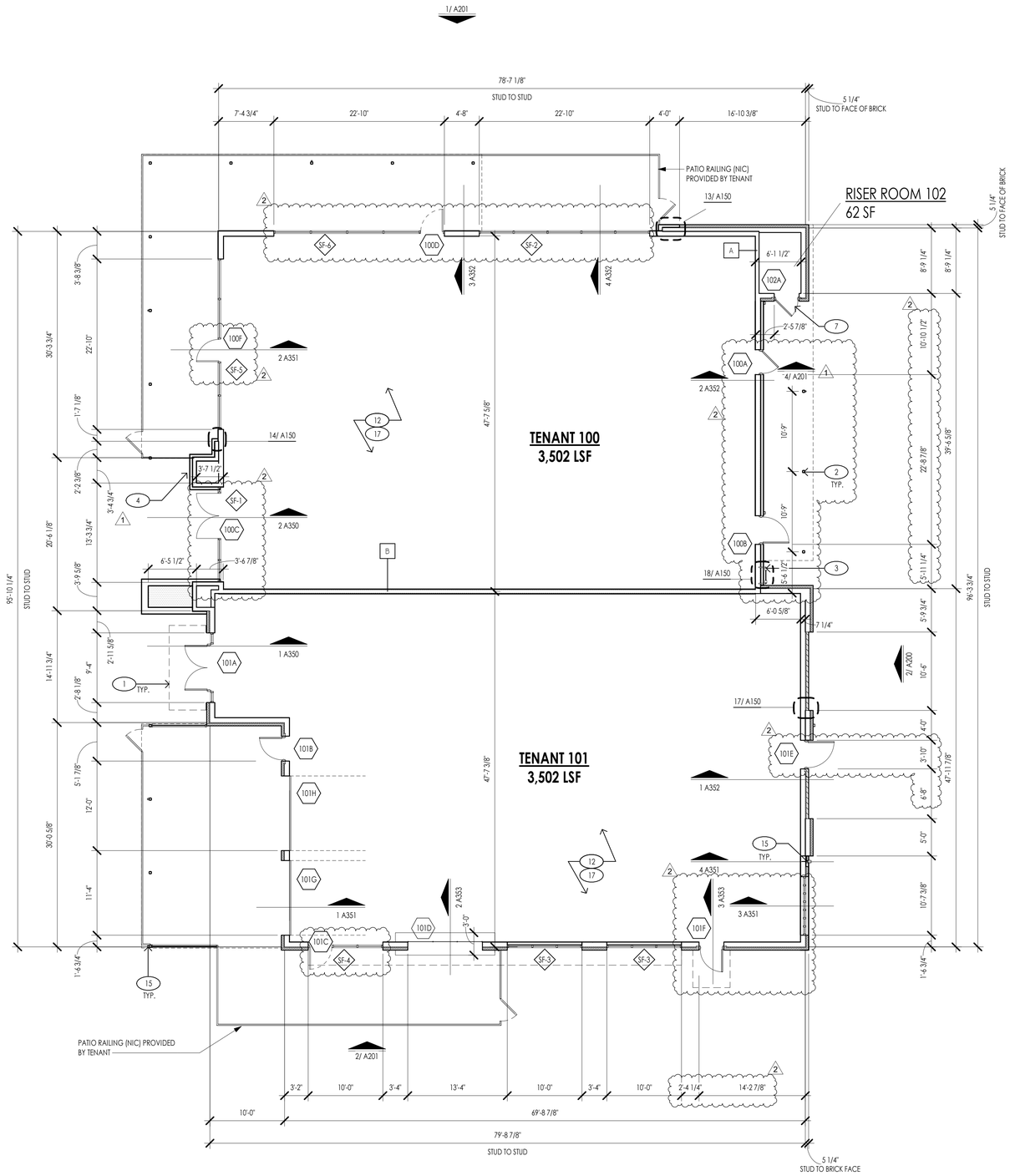
NON-RATED - WALL PARTITION (A)

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



1-HR RATED - WALL PARTITION - UL U305 (B)

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



FLOOR PLAN (1)

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

FLOOR PLAN KEYNOTES

Key Value	Keynote Text
1	DASHED LINE INDICATES CANOPY OR AWNING ABOVE; RE: ELEVATIONS
2	COLUMN PER STRUCTURAL
3	ROOF LADDER; RE: DTL 18/A150
4	PROVIDE KNOX BOX. COORDINATE LOCATION AND NUMBER WITH AUTHORITY HAVING JURISDICTION
7	PROVIDE 4" LETTERS LABELING "FIRE RISER ROOM" ALONG WITH STREET ADDRESS. COORDINATE WITH FIRE MARSHALL
12	PROVIDE TEMPORARY 2A:10B:C FIRE EXTINGUISHER. FINAL LOCATION PER TENANT TI PLANS UNDER SEPARATE SUBMITTAL - VERIFY LOCATION WITH AUTHORITY HAVING JURISDICTION
15	DOWNSPOUT TIED TO STORM; REF CIVIL
17	5" CONCRETE SLAB OVER VAPOR BARRIER. RE:STRUCTURAL

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LOT 12 OF WEST PRYOR
NW PRYOR RD AND
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LEE'S SUMMIT, MO 64081

project number

229D2.001

drawing issuance

PERMIT	09/20/22

drawing revisions

No.	Description:	Date:
1	REV 1	1/10/23
2	REV 2	1/27/23

professional seal

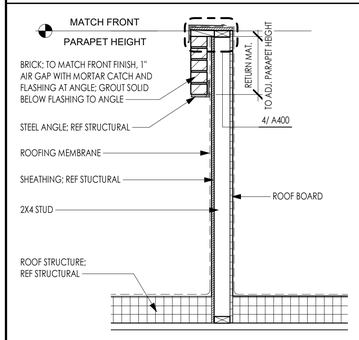
DATE SIGNED: 2/3/2023 10:08:19 AM

drawing title

FLOOR PLAN

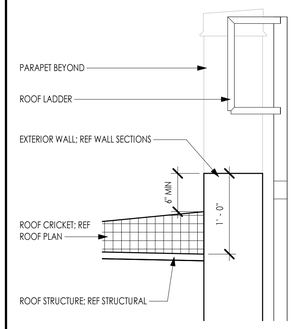
drawing number

A100



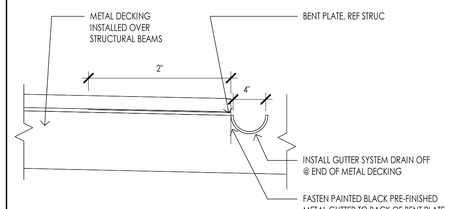
PARAPET MATERIAL RETURN 15

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



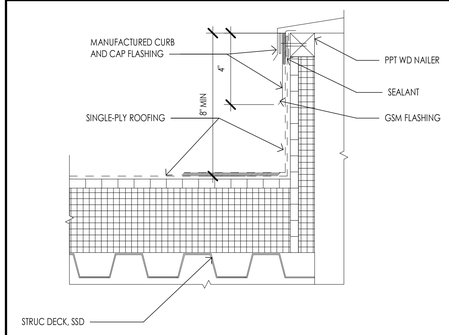
PARAPET @ ROOF LADDER 14

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



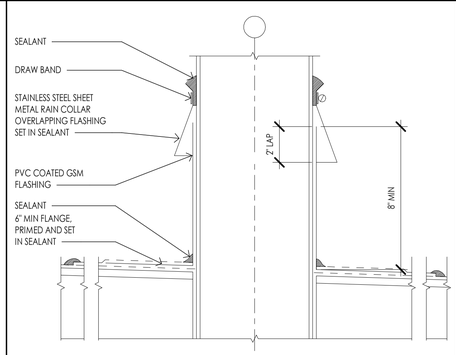
GUTTER SECTION 10

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



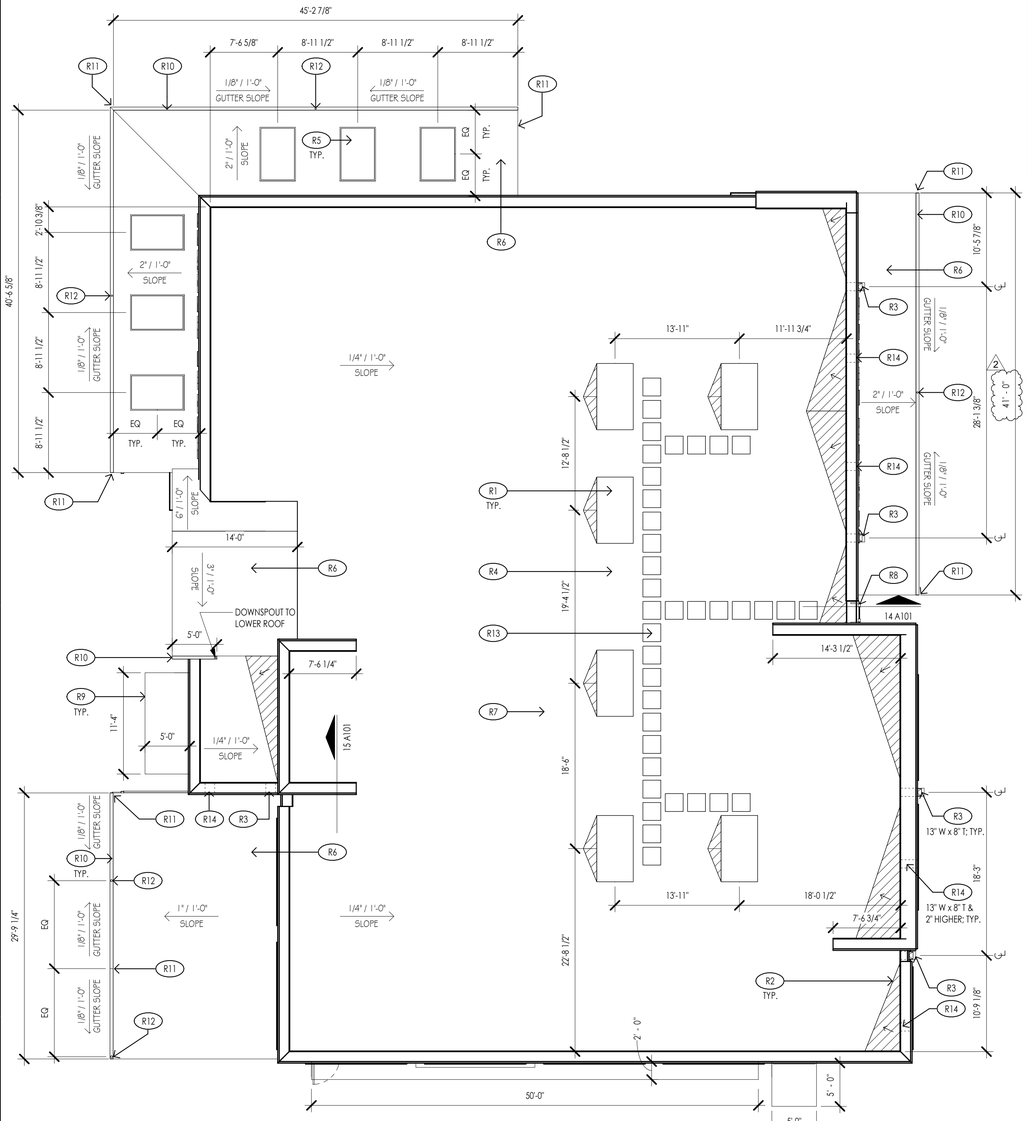
ROOF CURB MECHANICAL EQUIPMENT 13

SCALE: 3" = 1'-0"



ROOF PENETRATION 9

SCALE: 3" = 1'-0"



Roof Plan 1

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

ROOF PLAN KEYNOTES

Key Value	Keynote Text
R1	R1U, PROVIDE CRICKET AT HIGH SIDE. COORDINATE LOCATION WITH STRUCTURAL ELEMENTS, REF MECH. VERIFY LOCATION WITH TENANT PRIOR TO INSTAL. REF 13/A101 FOR ROOF CURB DETAIL; PROVIDE ADDITIONAL LAYER OF ROOF MEMBRANE FOR WALK WAY, REFER SPEC. GRAPHICALLY SHOWN FOR REFERANCE
R2	ROOF CRICKET; 1/4" / 1'0" SLOPE; TYP.
R3	THRU WALL SCUPPER AND DOWNSPOUT
R4	MECHANICAL ZONE
R5	SKYLIGHT; MANUF: MAJOR INDUSTRIES; OR EQ | MODEL: AUBURN | SIZE: 4'-0" W x 6'-0" T | FINISHED TO MATCH A.D.J. STANDING SEAM ROOF
R6	STANDING SEAM ROOF
R7	RIGID INSULATION & ROOF MEMBRANE; ADD PROTECT MEMB 6" ALL-AROUND UTILITY SUPPORTS, TYP; PONDING AT ROOF WILL NOT BE ALLOWED, CONSTRUCT ROOF SLOPE AND TAPERED INSULATION TO PREVENT PONDING. AREAS OBSERVED WITH PONDING SHALL BE RECONSTRUCTED UNTIL PONDING IS NOT PRESENT TO THE OWNERS SATISFACTION.
R8	ROOF LADDER
R9	CANOPY/AWNING BELOW; TYP.
R10	GUTTER; REF DTL 10/A101
R11	GUTTER HIGH POINT
R12	DOWNSPOUT, CENTERED ON COLUMNS BELOW; REF SHEETS A100 & A150 FOR COLUMN LOCATIONS; REF DTL 15/A353 FOR DOWNSPOUT BASE
R13	24" X 24" WALKWAY PADS AT 30" O.C. TYP.
R14	THRU WALL SCUPPER OVERFLOW

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
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2	REV 2	1/27/23

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ROOF PLAN AND DETAILS

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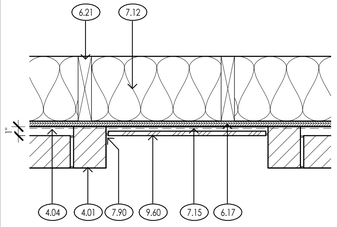
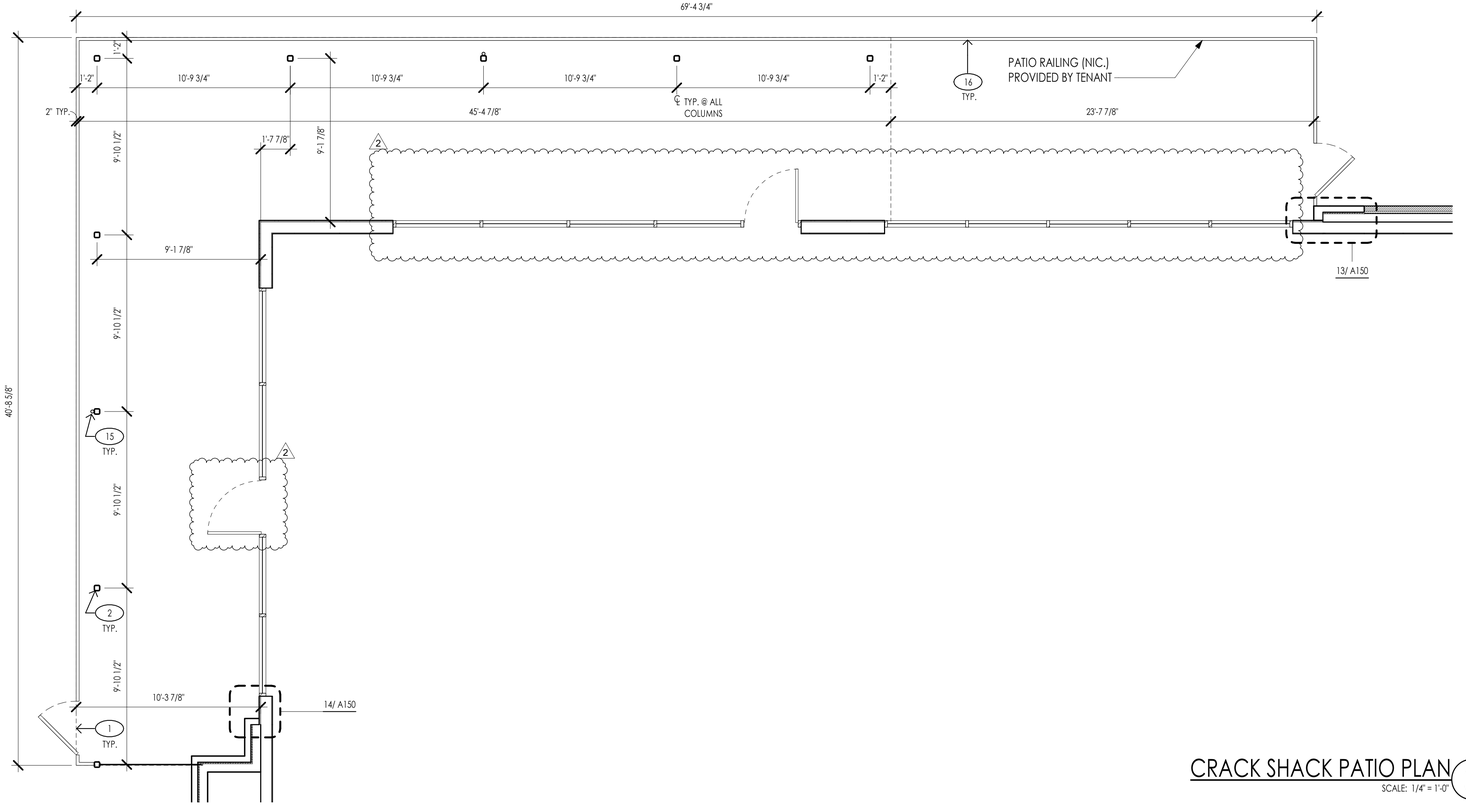
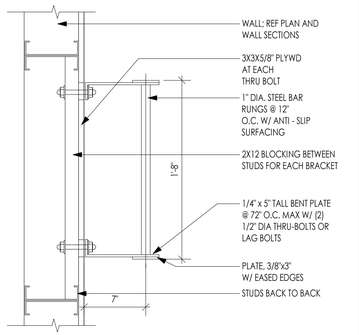
A101



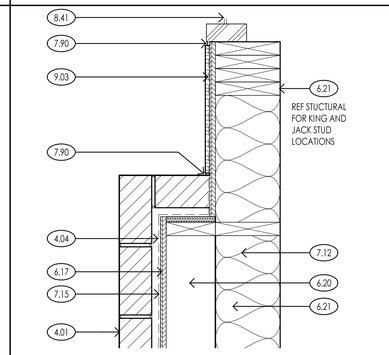
BRICK TO METAL TRANSITION 19
SCALE: 1 1/2" = 1'-0"



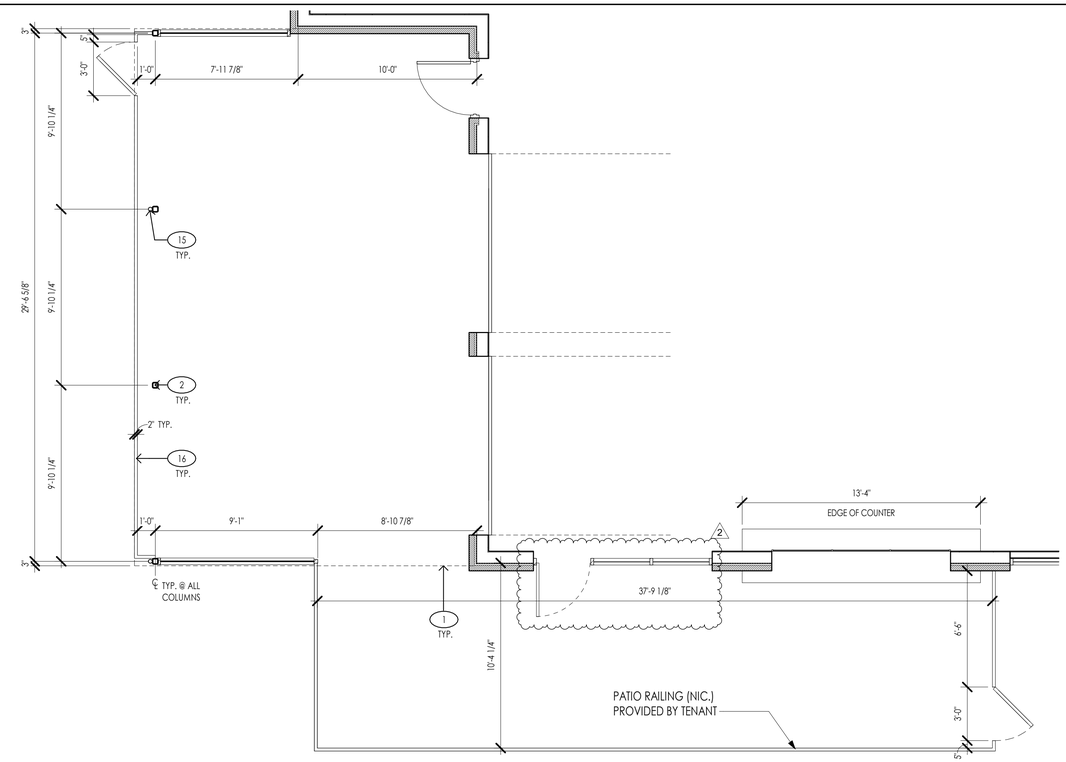
CRACK SHACK PATIO PLAN 3
SCALE: 1/4" = 1'-0"



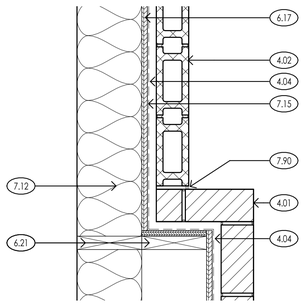
ROOF LADDER 18
SCALE: 1 1/2" = 1'-0"



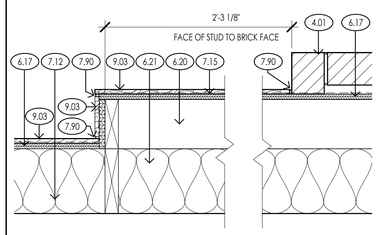
WAINSCOT TO WOOD 14
SCALE: 1 1/2" = 1'-0"



VIA313 PATIO PLAN 1
SCALE: 1/4" = 1'-0"



CMU TO BRICK 17
SCALE: 1 1/2" = 1'-0"



WOOD STEP TO BRICK 13
SCALE: 1 1/2" = 1'-0"

FLOOR PLAN KEYNOTES

Key Value	Keynote Text
1	DASHED LINE INDICATES CANOPY OR AWNING ABOVE; RE: ELEVATIONS
2	COLUMN PER STRUCTURAL
4.01	MASONRY WALL W/ HORIZ JOINT REINF @ 24" OC; RE: STRUCTURAL FOR VERT REINF (WIDTH); REF ELEVATIONS FOR COLOR AND FINISH
4.02	SMOOTH-FACE CMU W/ SOLID GROUT FILL @ ALL CELLS, W/ HORIZ JOINT REINF @ 24" OC; RE: STRUCTURAL FOR VERT REINF (WIDTH)
4.04	1" MIN CAVITY W/ DRAINAGE MESH @ BASE
6.17	5/8" SHEATHING PER STRUCTURAL
6.20	2X6 WOOD STUD
6.21	2X8 WOOD STUD
7.12	(R-20) BATT INSULATION W/ VAPOR BARRIER TO WARM SIDE
7.15	FLUID WEATHER-RESISTIVE BARRIER @ SHEATHING
7.90	CONT SEALANT W/ BACKER ROD
8.41	SINGLE PANE LOW-E GLASS (TEMPER AT "T") IN ALUM. FRAMING - SHIM/SEAL ALL AROUND TYP.
9.03	WOOD FINISH; REF ELEVATIONS
9.60	METAL PANEL SYSTEM, REF ELEVATIONS
15	DOWNSPOUT TIED TO STORM; REF CIVIL
16	FENCING; (NIC.) PROVIDED BY TENANT

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
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LEE'S SUMMIT, MO 64081

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ENLARGED PLANS AND DETAILS

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A150

EXTERIOR FINISH LEGEND

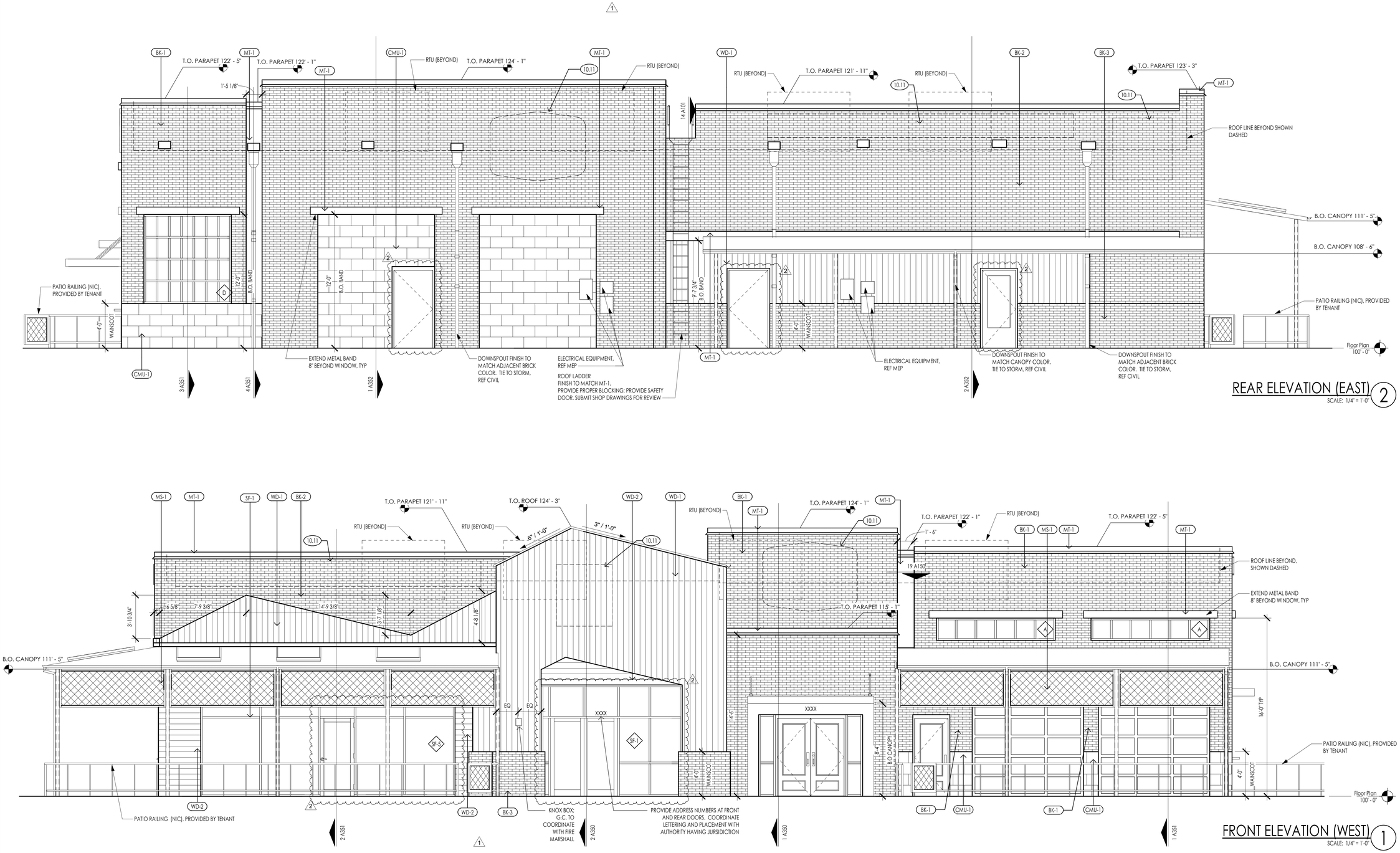
MARK	DESCRIPTION	MANUFACTURER	MODEL/COLOR	COMMENTS
BK-1	FULL BRICK	INTERSTATE BRICK	90% WILLOW CREEK, 5% UINTAH, AND 5% LEWISTON	
BK-2	FULL BRICK	ACME BRICK	COVENTRY COTTAGE	
BK-3	FULL BRICK	INTERSTATE BRICK	COAL	MODULAR 4 X 2¼ X 8
CMU-1	CONCRETE MASONRY UNIT	INTERSTATE BRICK	PLATINUM	SUPER EMPEROR 4 X 8 X 16
CP-1	METAL COPING	FIRESTONE METAL PRODUCTS	TRICORN BLACK	SHEETMETAL PARAPET COPING AND CLEAT
MS-1	MESH SCREEN	---	BLACK	4X4 POWDER COATED WIRE MESH
MT-1	METAL PANEL	LAWRENCE FABRIC AND METAL STRUCTURES	PREFINISHED TRICORN BLACK	
PL-1	PLASTIC SCREEN	FENETEX	CLEAR WEATHER CURTAINS	
SF-1	STOREFRONT	TBD	PREFINISHED TRICORN BLACK	
WD-1	VERTICAL WOOD SIDING	BINGHAM	RECLAIMED FADED RED BARNBOARD	CLEAR SEAL AND DYNA SEAL
WD-2	HORIZONTAL WOOD SIDING	BINGHAM	RECLAIMED BROWN BARNBOARD	CLEAR SEAL AND DYNA SEAL

SHEET NOTES

1. ALL EXPOSED MTL TO BE HOT DIP GALV & PAINTED TO MATCH ADJ MATERIAL UNO.
2. ALL MATERIALS SHOWN ON ELEVATIONS RETURN BEYOND, UNO.
3. ALL EXPOSED UTILITIES AND ASSOICATED CONDUITS OR RUNS SHOULD BE PAINTED TO MATCH ADJACENT BUILDING COLOR.
4. PROVIDE A WEATHER PROOF ENCLOSURE FOR ALL CANOPY LIGHT FIXTURES ANCHORED AND SEALED WEATHER TIGHT TO CANOPY.

DIV 10 - SPECIALTIES

10.11 TYPICAL SIGNAGE (NIC) - PROVIDE PLYWD BACKING & ELEC POWER CONNECTION



REAR ELEVATION (EAST) 2

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

FRONT ELEVATION (WEST) 1

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

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

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EXTERIOR ELEVATIONS

drawing number
A200

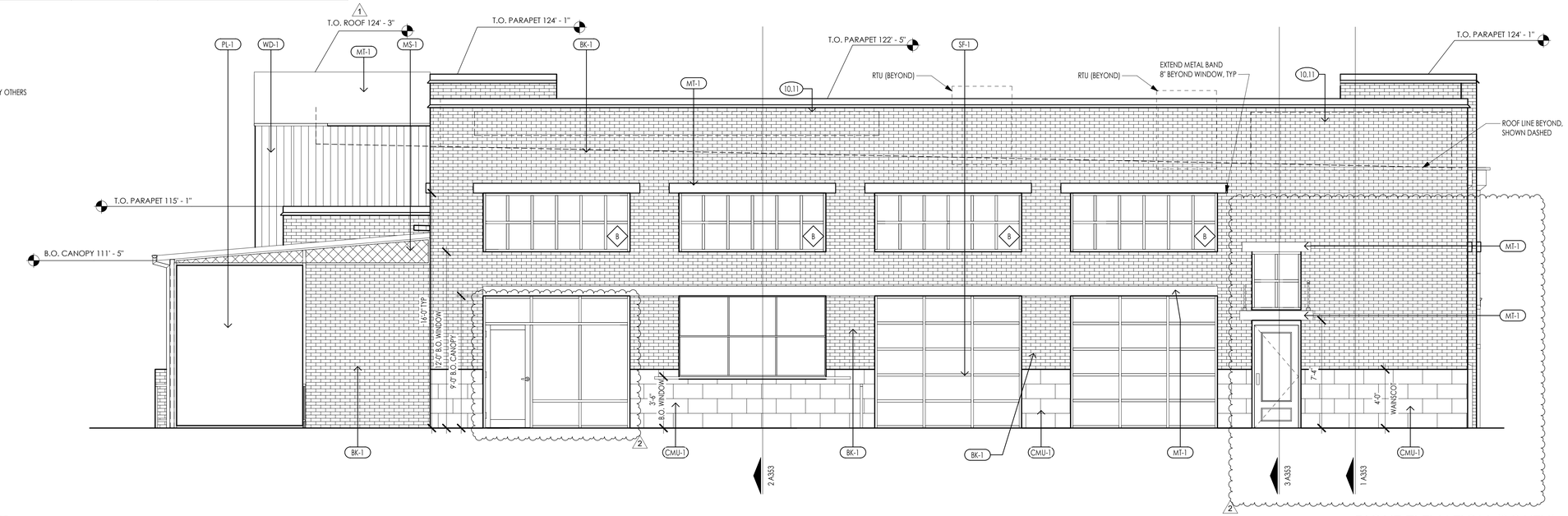
EXTERIOR FINISH LEGEND

MARK	DESCRIPTION	MANUFACTURER	MODEL/COLOR	COMMENTS
BK-1	FULL BRICK	INTERSTATE BRICK	90% WILLOW CREEK, 5% UINTAH, AND 5% LEWISTON	
BK-2	FULL BRICK	ACME BRICK	COVENTRY COTTAGE	
BK-3	FULL BRICK	INTERSTATE BRICK	COAL	MODULAR 4 X 2¼ X 8
CMU-1	CONCRETE MASONRY UNIT	INTERSTATE BRICK	PLATINUM	SUPER EMPEROR 4 X 8 X 16
CP-1	METAL COPING	FIRESTONE METAL PRODUCTS	TRICORN BLACK	SHEETMETAL PARAPET COPING AND CLEAT
MS-1	MESH SCREEN	--	BLACK	4X4 POWDER COATED WIRE MESH
MT-1	METAL PANEL	LAWRENCE FABRIC AND METAL STRUCTURES	PREFINISHED TRICORN BLACK	
PL-1	PLASTIC SCREEN	FENETEX	CLEAR WEATHER CURTAINS	
SF-1	STOREFRONT	TBD	PREFINISHED TRICORN BLACK	
WD-1	VERTICAL WOOD SIDING	BINGHAM	RECLAIMED FADED RED BARNBOARD	CLEAR SEAL AND DYNA SEAL
WD-2	HORIZONTAL WOOD SIDING	BINGHAM	RECLAIMED BROWN BARNBOARD	CLEAR SEAL AND DYNA SEAL

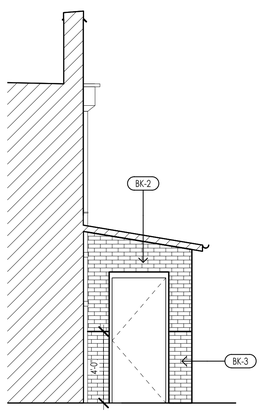
DIV 10 - SPECIALTIES

10.11 TYPICAL SIGNAGE (NIC) - PROVIDE PLYWD BACKING & ELEC POWER CONNECTION

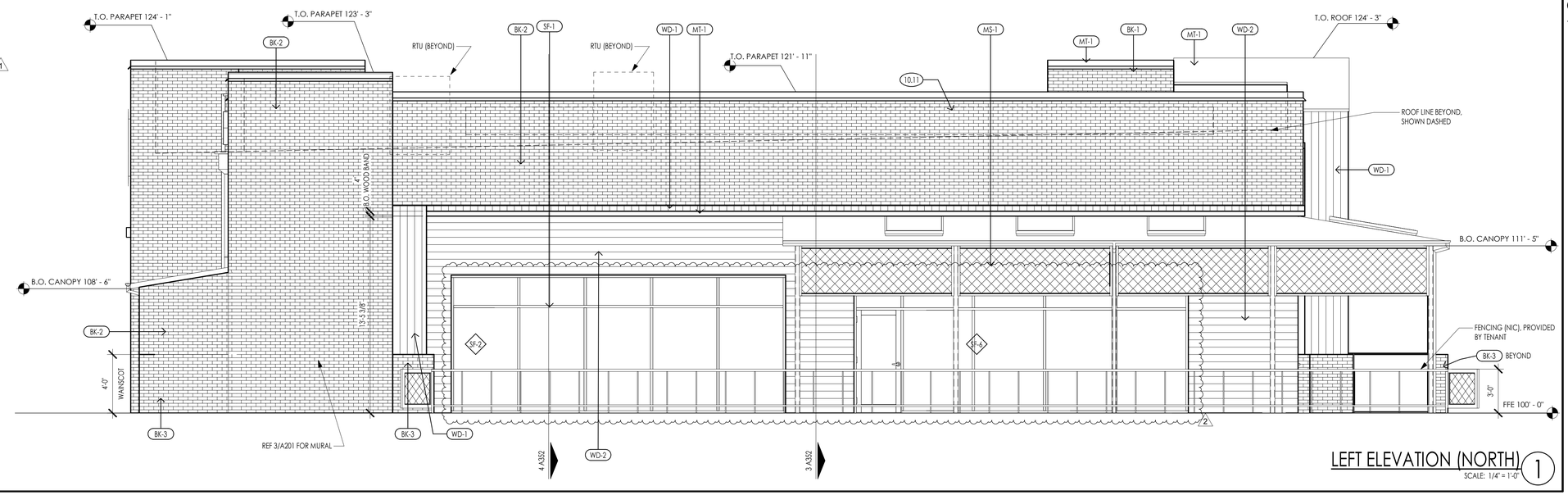
NORTH ELEVATION MURAL 3
SCALE: 1/4" = 1'-0"



RIGHT ELEVATION (SOUTH) 2
SCALE: 1/4" = 1'-0"



RISER ROOM EXT. ELEVATION 4
SCALE: 1/4" = 1'-0"



LEFT ELEVATION (NORTH) 1
SCALE: 1/4" = 1'-0"

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LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

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EXTERIOR ELEVATIONS

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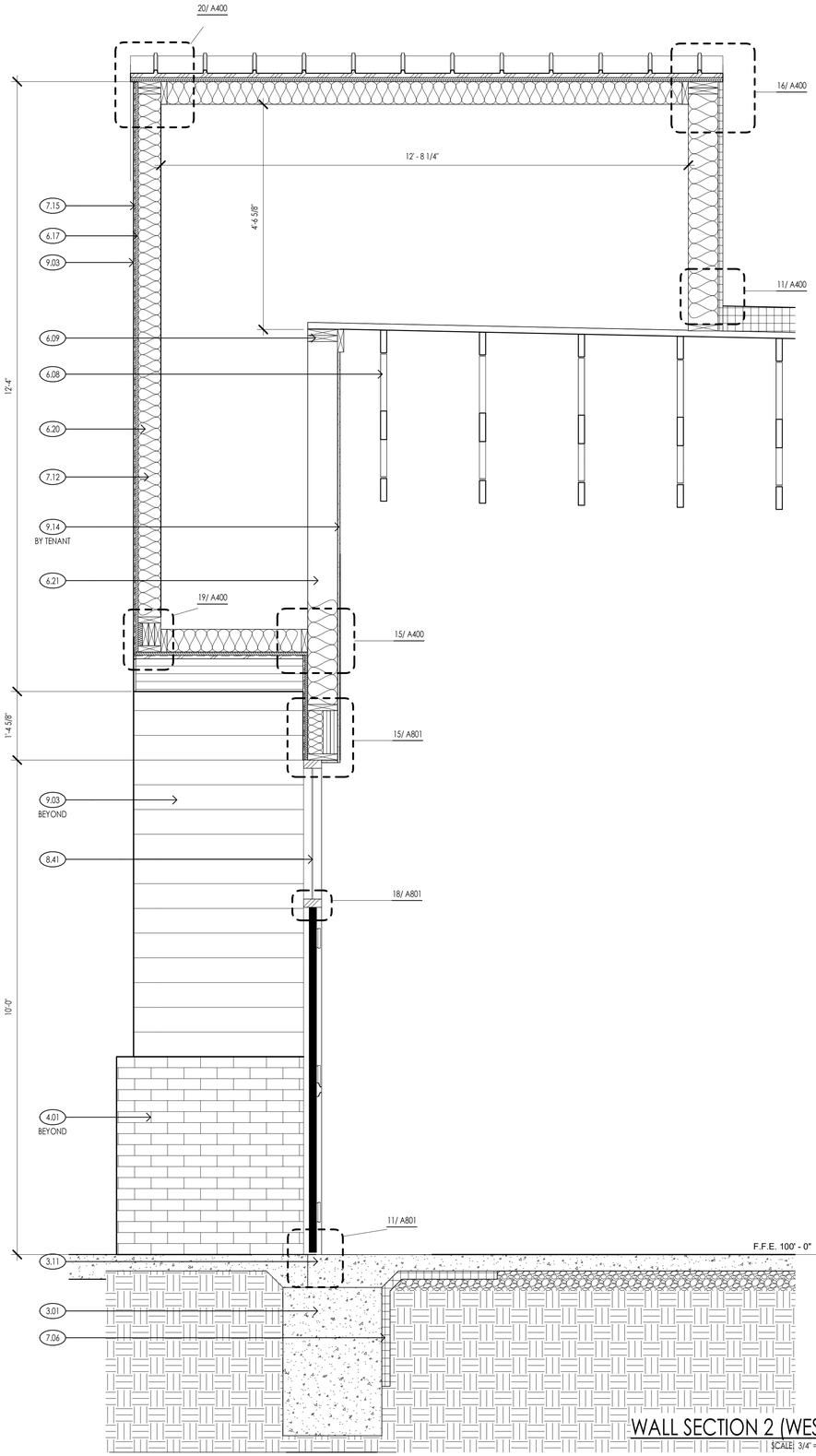
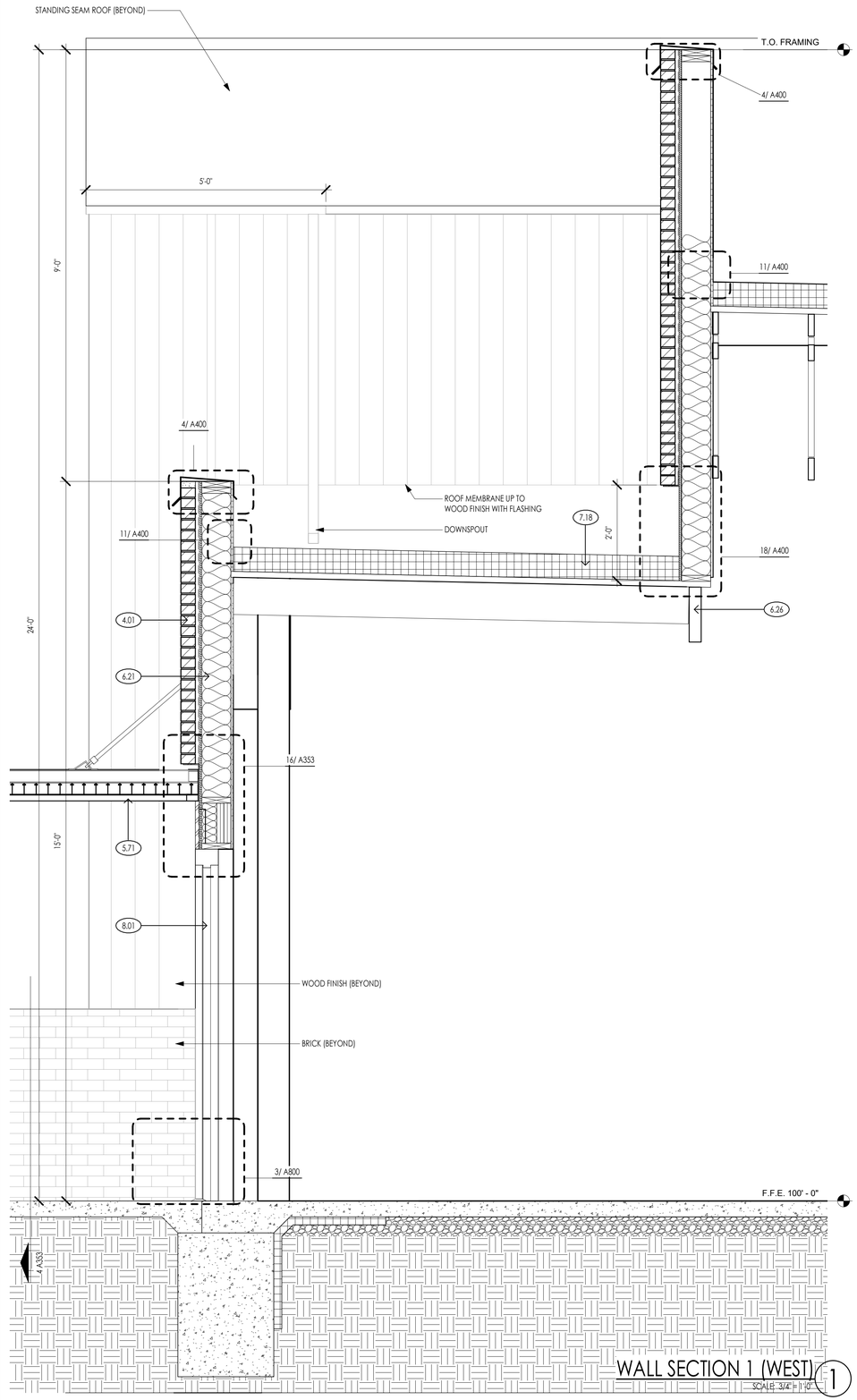
A201



WALL SECTION 2 (WEST) 2
SCALE: 3/4" = 1'-0"



WALL SECTION 1 (WEST) 1
SCALE: 3/4" = 1'-0"

DIV 03 - CONCRETE RE STRUC DWG

3.01 CONC FOOTING & FOUNDATION RE: STRUCT
3.11 CONC SLAB OVER VAPOR BARRIER RE: STRUCTURAL

DIV 04 - MASONRY REF EXT FINISH SCHEDULE

4.01 MASONRY WALL W/ HORIZ JOINT REINF @ 24" OC; RE: STRUCTURAL FOR VERT REINF (WIDTH); REF ELEVATIONS FOR COLOR AND FINISH

DIV 05 - METALS

5.71 PREFIN. METAL CANOPY

DIV 06 - WOOD, PLASTIC AND COMPOSITES

6.08 ENGINEERED WOOD TRUSS (RE: STRUC.)
6.09 DOUBLE 2X WOOD PLATE
6.17 5/8" SHEATHING PER STRUCTURAL
6.20 2X6 WOOD STUD
6.21 2X8 WOOD STUD
6.26 WOOD BEAM; PER STRUCTURAL

DIV 07 - THERMAL AND MOISTURE PROTECTION

7.06 (R-10) RIGID INSULATION
7.12 (R-20) BATT INSULATION W/ VAPOR BARRIER TO WARM SIDE
7.15 FLUID WEATHER-RESISTIVE BARRIER @ SHEATHING
7.18 (R-30ci) RIGID INSULATION & ROOF MEMBRANE - ADD PROTECT MEMB 6" ALL-AROUND UTILITY SUPPORTS, TYP

DIV 08 - OPENINGS

8.01 PTD HOLLOW METAL DOOR & FRAME, GALV., @ EXT, TYP.
8.41 SINGLE PANE LOW-E GLASS (TEMPER AT "T") IN ALUM. FRAMING - SHIM/SEAL ALL AROUND TYP.

DIV 09 - FINISHES

9.03 WOOD FINISH; REF ELEVATIONS
9.14 5/8" TYPE 'X' GYP BOARD; BY TENANT

REF 2/350 FOR REMAINDER OF NOTES AND INFORMATION

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LOT 12 OF WEST PRYOR
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WALL SECTIONS

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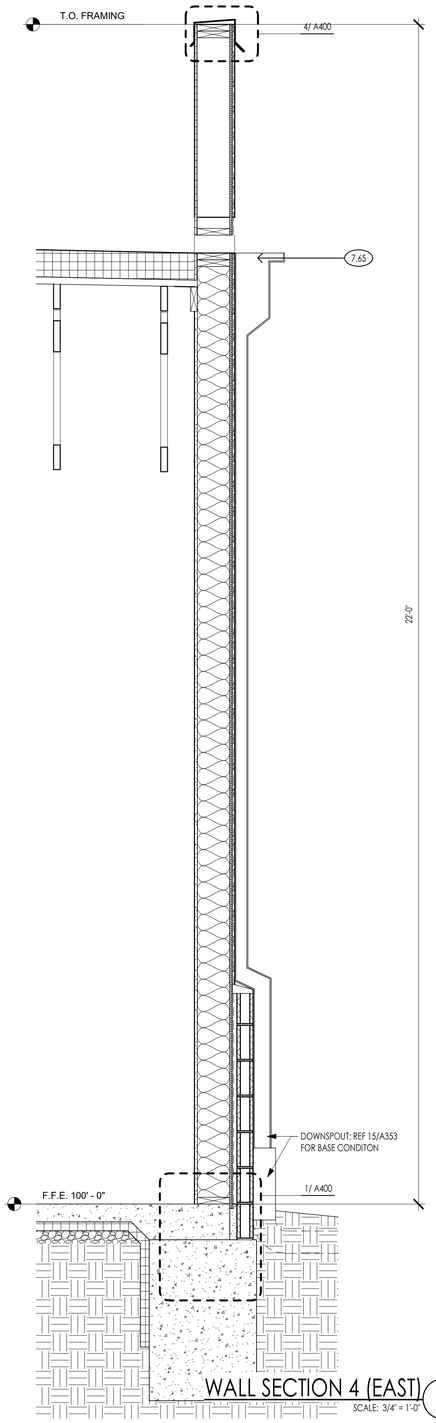
A350



WALL SECTION 4 (EAST) 4
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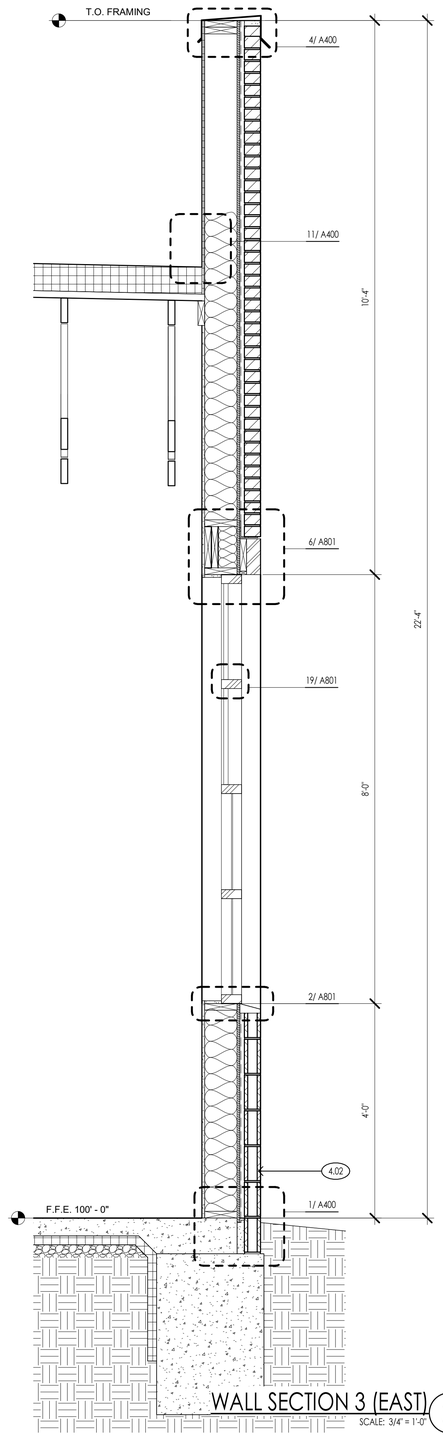

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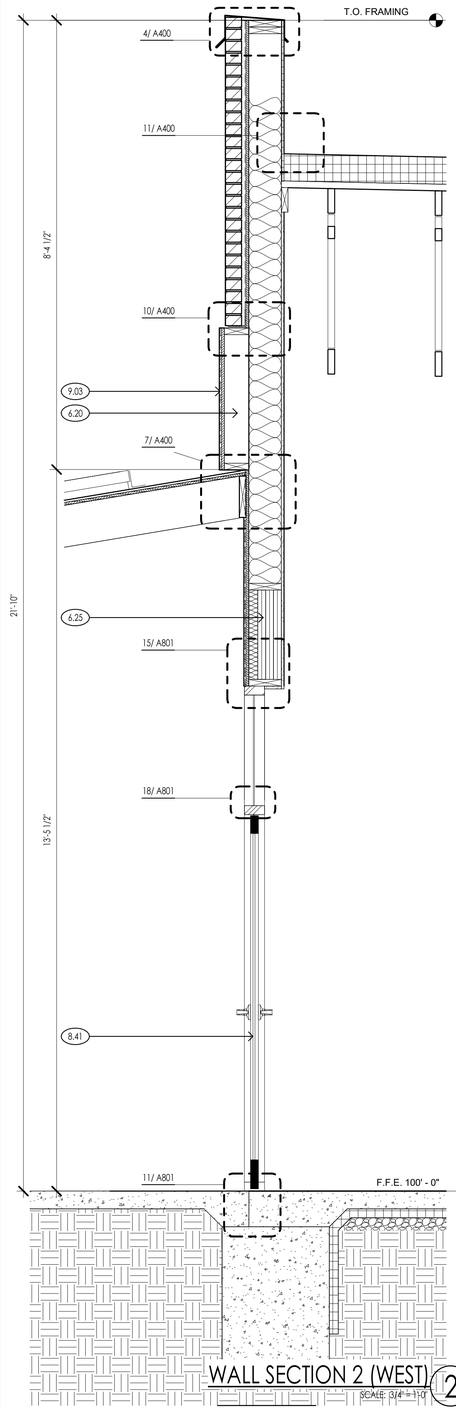

WALL SECTION 2 (WEST) 2
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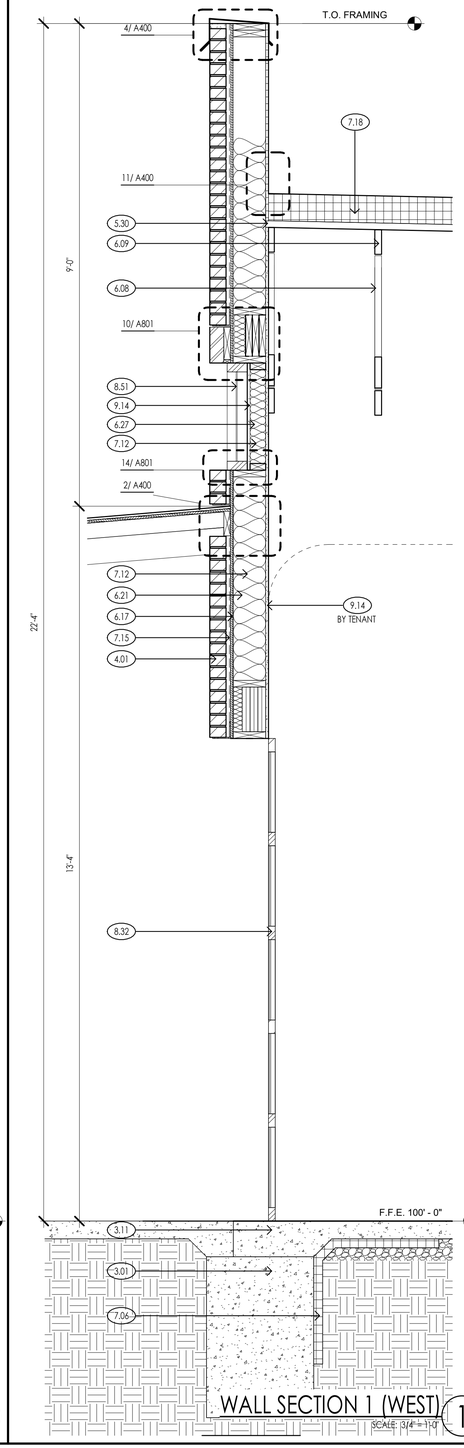

WALL SECTION 1 (WEST) 1
SCALE: 3/4" = 1'-0"

DIV 03 - CONCRETE RE STRUC DWG

3.01 CONC FOOTING & FOUNDATION RE: STRUCT
3.11 CONC SLAB OVER VAPOR BARRIER RE: STRUCTURAL

DIV 04 - MASONRY REF EXT FINISH SCHEDULE

4.01 MASONRY WALL W/ HORIZ JOINT REINF @ 24" OC; RE: STRUCTURAL FOR VERT REINF (WIDTH); REF ELEVATIONS FOR COLOR AND FINISH
4.02 SMOOTH-FACE CMU W/ SOLID GROUT FILL @ ALL CELLS, W/ HORIZ JOINT REINF @ 24" OC; RE: STRUCTURAL FOR VERT REINF (WIDTH)

DIV 05 - METALS

5.30 STRUCTURAL STEEL DECK (RE: STRUC.)

DIV 06 - WOOD, PLASTIC AND COMPOSITES

6.08 ENGINEERED WOOD TRUSS (RE: STRUC.)
6.09 DOUBLE 2X WOOD PLATE
6.17 5/8" SHEATHING PER STRUCTURAL
6.20 2X6 WOOD STUD
6.21 2X8 WOOD STUD
6.25 HEADER; PER STRUCTURAL
6.27 2X4 WOOD STUD

DIV 07 - THERMAL AND MOISTURE PROTECTION

7.06 (R-10) RIGID INSULATION
7.12 (R-20) BATT INSULATION W/ VAPOR BARRIER TO WARM SIDE
7.15 FLUID WEATHER-RESISTIVE BARRIER @ SHEATHING
7.18 (R-30ci) RIGID INSULATION & ROOF MEMBRANE - ADD PROTECT MEMB 6" ALL-AROUND UTILITY SUPPORTS, TYP
7.65 SCUPPER THRU PARAPET, TIED TO STORM; REF CIVIL

DIV 08 - OPENINGS

8.32 OVERHEAD DOOR
8.41 SINGLE PANE LOW-E GLASS (TEMPER AT "T") IN ALUM. FRAMING - SHIM/SEAL ALL AROUND TYP.
8.51 ALUMINUM OR VINYL WINDOW RE: SCHEDULE

DIV 09 - FINISHES

9.03 WOOD FINISH; REF ELEVATIONS
9.14 5/8" TYPE "X" GYP BOARD

REF 1/351 FOR REMAINDER OF NOTES AND INFORMATION

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WALL SECTIONS

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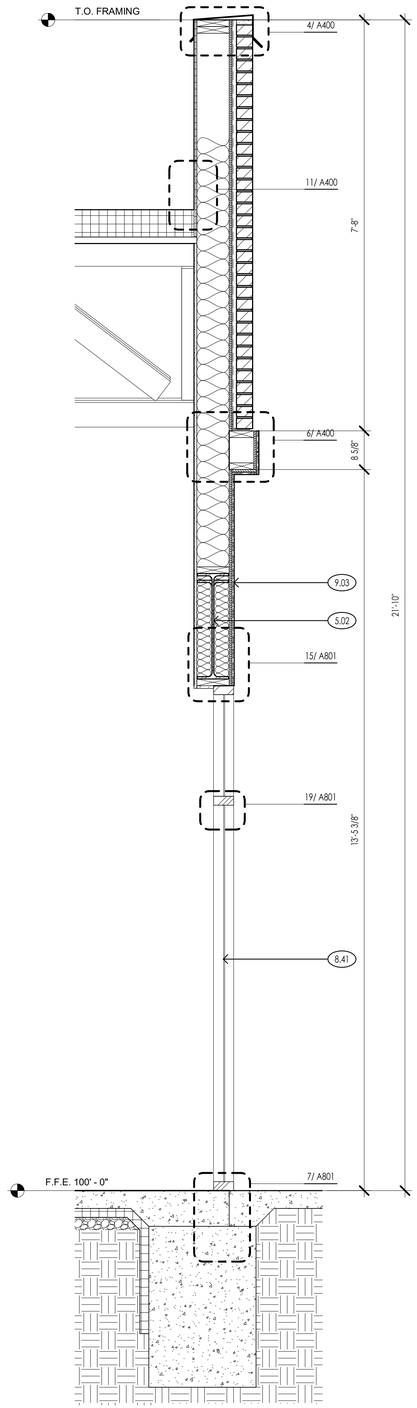
A351



WALL SECTION 4 (NORTH) 4
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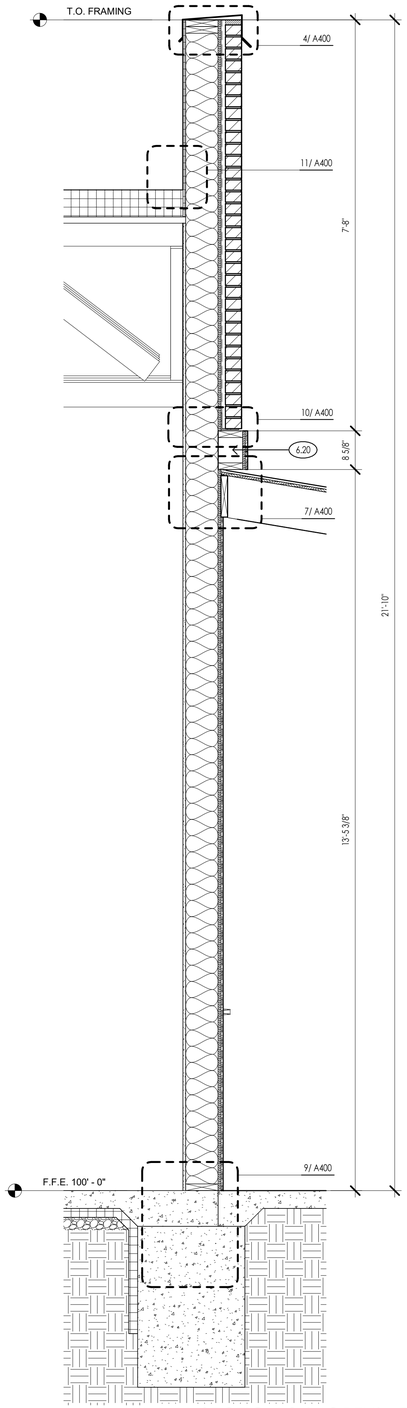
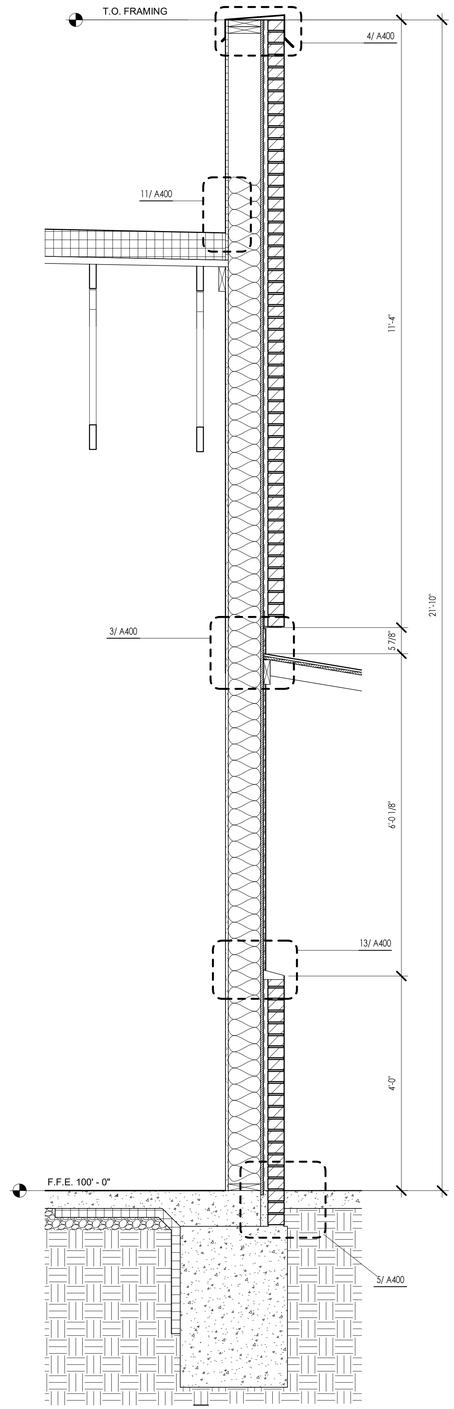
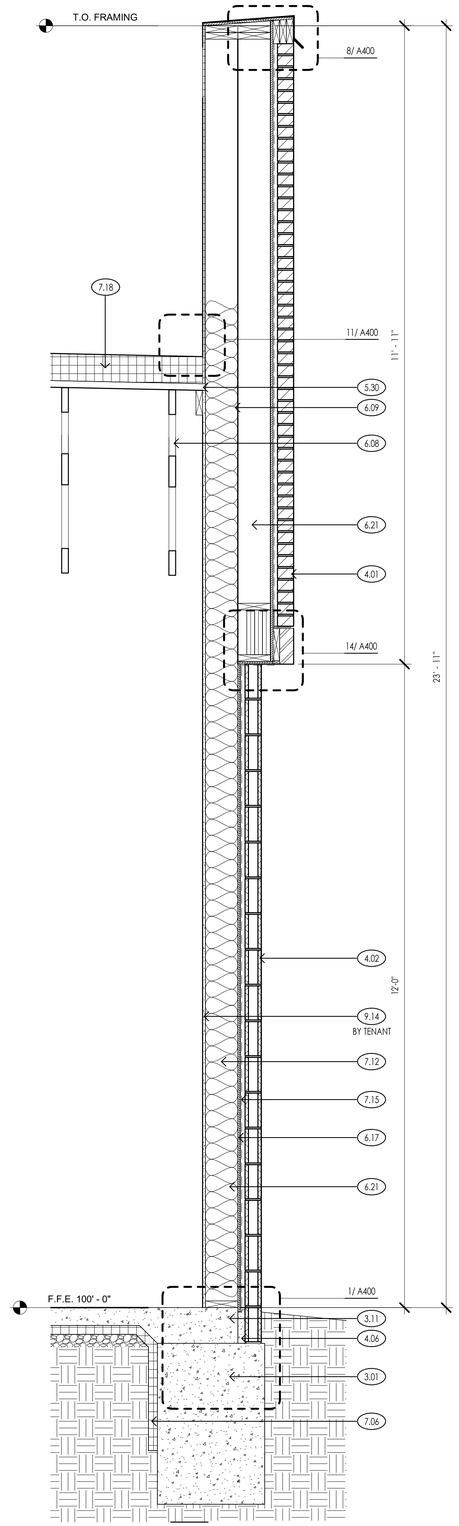


WALL SECTION 3 (NORTH) 3
SCALE: 3/4" = 1'-0"



WALL SECTION 2 (EAST) 2
SCALE: 3/4" = 1'-0"



WALL SECTION 1 (EAST) 1
SCALE: 3/4" = 1'-0"

REF 1/352 FOR REMAINDER OF NOTES AND INFORMATION

DIV 03 - CONCRETE RE STRUC DWG

3.01 CONC FOOTING & FOUNDATION RE: STRUCT
3.11 CONC SLAB OVER VAPOR BARRIER RE: STRUCTURAL

DIV 04 - MASONRY REF EXT FINISH SCHEDULE

4.01 MASONRY WALL W/ HORIZ JOINT REINF @ 24" OC; RE: STRUCTURAL FOR VERT REINF (WIDTH); REF ELEVATIONS FOR COLOR AND FINISH
4.02 SMOOTH-FACE CMU W/ SOLID GROUT FILL @ ALL CELLS, W/ HORIZ JOINT REINF @ 24" OC; RE: STRUCTURAL FOR VERT REINF (WIDTH)
4.06 SOLID GROUT FILL BELOW THRU-WALL FLASHING

DIV 05 - METALS

5.02 STRUCTURAL STEEL BEAM (RE: STRUC.)
5.30 STRUCTURAL STEEL DECK (RE: STRUC.)

DIV 06 - WOOD, PLASTIC AND COMPOSITES

6.08 ENGINEERED WOOD TRUSS (RE: STRUC.)
6.09 DOUBLE 2X WOOD PLATE
6.17 5/8" SHEATHING PER STRUCTURAL
6.20 2X6 WOOD STUD
6.21 2X8 WOOD STUD

DIV 07 - THERMAL AND MOISTURE PROTECTION

7.06 (R-10) RIGID INSULATION
7.12 (R-20) BATT INSULATION W/ VAPOR BARRIER TO WARM SIDE
7.15 FLUID WEATHER-RESISTIVE BARRIER @ SHEATHING
7.18 (R-30ci) RIGID INSULATION & ROOF MEMBRANE - ADD PROTECT MEMB 6" ALL-AROUND UTILITY SUPPORTS, TYP

DIV 08 - OPENINGS

8.41 SINGLE PANE LOW-E GLASS (TEMPER AT "T") IN ALUM. FRAMING - SHIM/SEAL ALL AROUND TYP.

DIV 09 - FINISHES

9.03 WOOD FINISH; REF ELEVATIONS
9.14 5/8" TYPE "X" GYP BOARD; BY TENANT

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
22902.001

drawing issuance
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No. Description: Date:

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WALL SECTIONS

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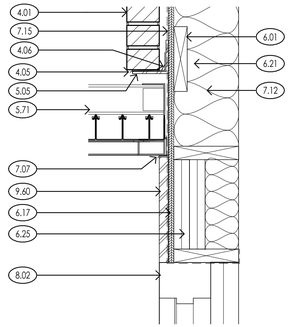
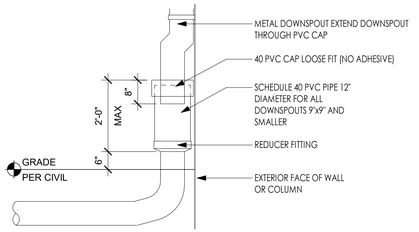
A352

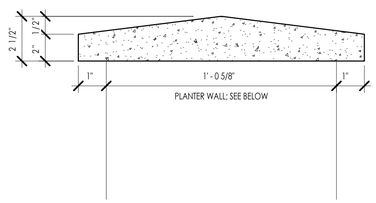


DOOR HEAD @ CANOPY (16)
SCALE: 1 1/2" = 1'-0"

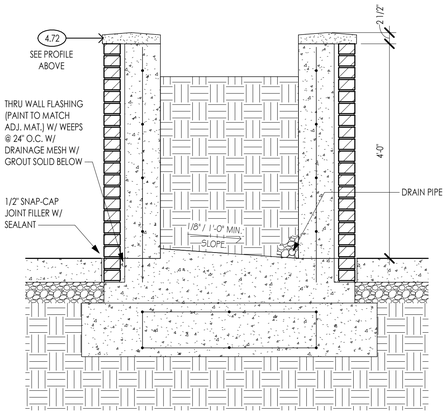


NOTE:
FOR DRAINAGE PIPE SIZE AND ELEVATION REF CIVIL

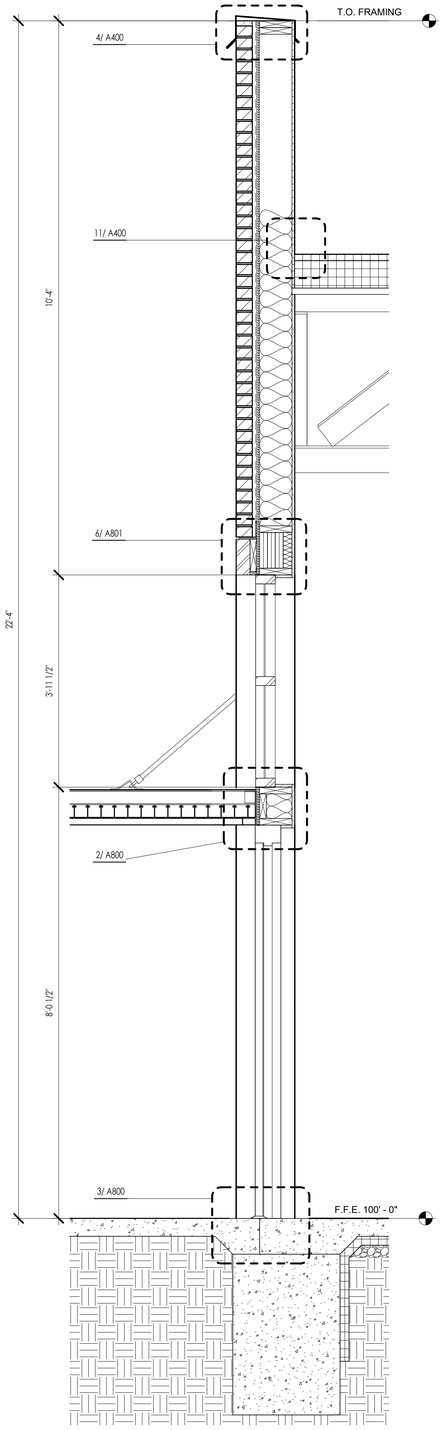
DOWNSPOUT BASE (15)
SCALE: 1/2" = 1'-0"



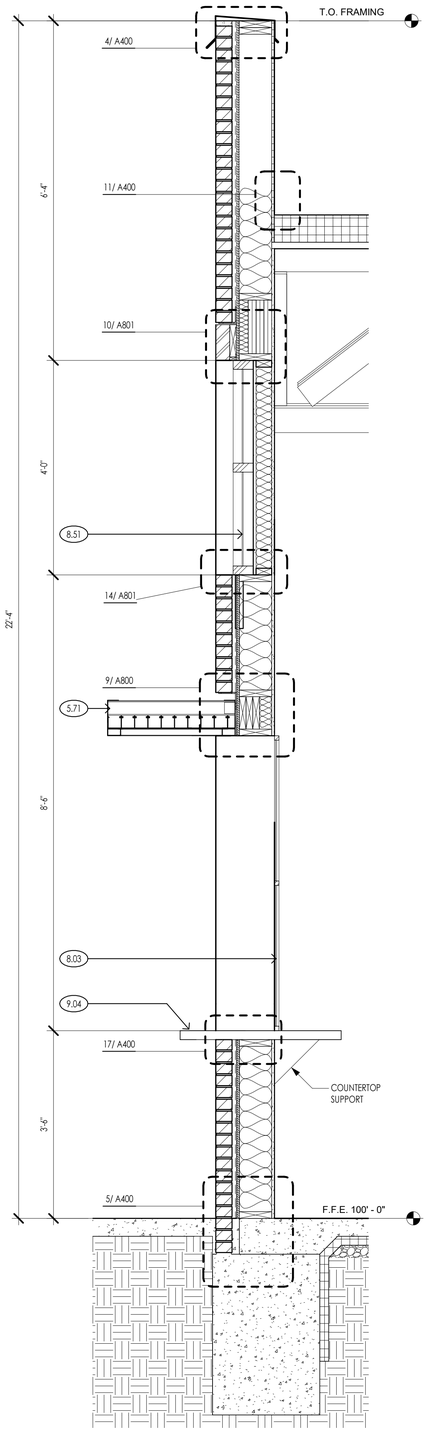
SIMULATED STONE CAP PROFILE (14)



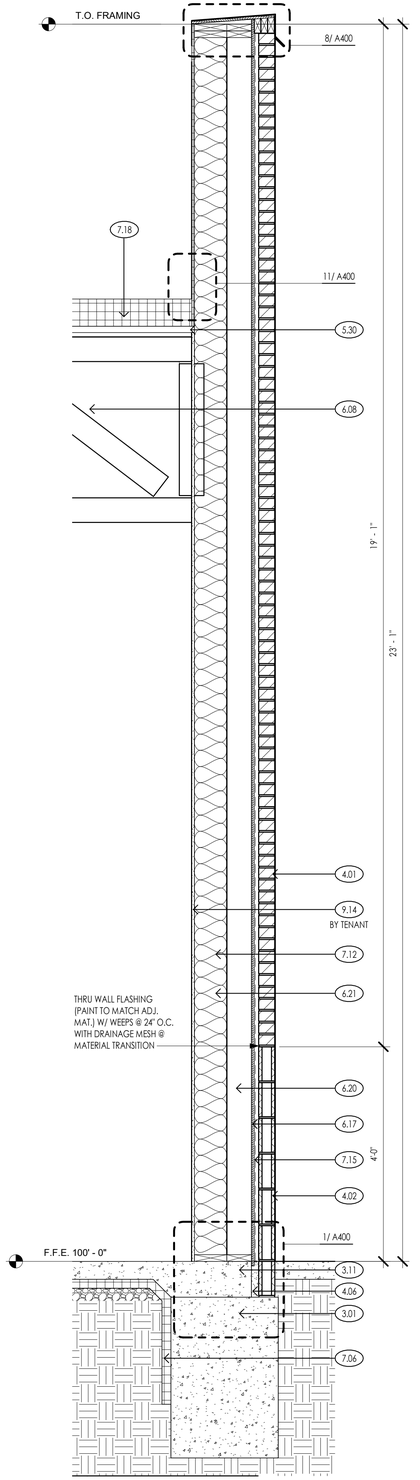
PLANTER SECTION (4)
SCALE: 3/4" = 1'-0"



WALL SECTION 3 (SOUTH) (3)
SCALE: 3/4" = 1'-0"



WALL SECTION 2 (SOUTH) (2)
SCALE: 3/4" = 1'-0"



WALL SECTION 1 (NORTH) (1)
SCALE: 3/4" = 1'-0"

DIV 03 - CONCRETE RE STRUC DWG
3.01 CONC FOOTING & FOUNDATION RE: STRUCT
3.11 CONC SLAB OVER VAPOR BARRIER RE: STRUCTURAL

DIV 04 - MASONRY REF EXT FINISH SCHEDULE
4.01 MASONRY WALL W/ HORIZ JOINT REINF @ 24" OC; RE: STRUCTURAL FOR VERT REINF (WIDTH); REF ELEVATIONS FOR COLOR AND FINISH
4.02 SMOOTH-FACE CMU W/ SOLID GROUT FILL @ ALL CELLS. W/ HORIZ JOINT REINF @ 24" OC; RE: STRUCTURAL FOR VERT REINF (WIDTH)
4.05 MASONRY THRU-WALL FLASHING W/ MTL DRIP EDGE & WEEPS @ 24" OC MAX
4.06 SOLID GROUT FILL BELOW THRU-WALL FLASHING
4.72 SIMULATED STONE TRIM UNIT & MORTAR BED

DIV 05 - METALS
5.05 STRUCTURAL STEEL ANGLE (RE: STRUC.)
5.30 STRUCTURAL STEEL DECK (RE: STRUC.)
5.71 PREFIN. METAL CANOPY

DIV 06 - WOOD, PLASTIC AND COMPOSITES
6.01 WOOD BLOCKING
6.08 ENGINEERED WOOD TRUSS (RE: STRUC.)
6.17 5/8" SHEATHING PER STRUCTURAL
6.20 2X6 WOOD STUD
6.21 2X8 WOOD STUD
6.25 HEADER; PER STRUCTURAL

DIV 07 - THERMAL AND MOISTURE PROTECTION
7.06 (R-10) RIGID INSULATION
7.07 FLASHING, PAINT TO MATCH ADJ. MATERIAL, ADHERE TO WEATHER BARRIER
7.12 (R-20) BATT INSULATION W/ VAPOR BARRIER TO WARM SIDE
7.15 FLUID WEATHER-RESISTIVE BARRIER @ SHEATHING
7.18 (R-30ci) RIGID INSULATION & ROOF MEMBRANE - ADD PROTECT MEMB 6" ALL-AROUND UTILITY SUPPORTS, TYP

DIV 08 - OPENINGS
8.02 DOOR; RE: DOOR SCHEDULE
8.03 SERVING DOOR; REF: DOOR SCHEDULE
8.51 ALUMINUM OR VINYL WINDOW RE: SCHEDULE

DIV 09 - FINISHES
9.04 COUNTERTOP BY OWNER; INSTALLED BY G.C.
9.14 5/8" TYPE 'X' GYP BOARD; BY TENANT
9.60 METAL PANEL SYSTEM. REF ELEVATIONS

REF 1/353 FOR REMAINDER OF NOTES AND INFORMATION

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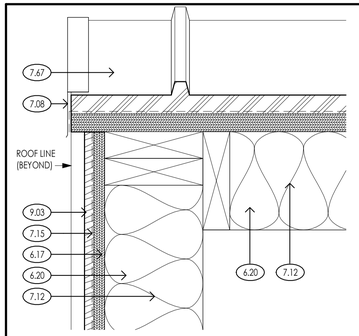
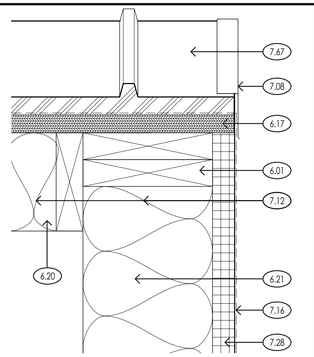
WALL SECTIONS

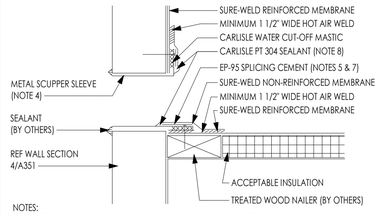
drawing number
A353



GABLE TO EXT. WALL 20
SCALE: 3" = 1'-0"

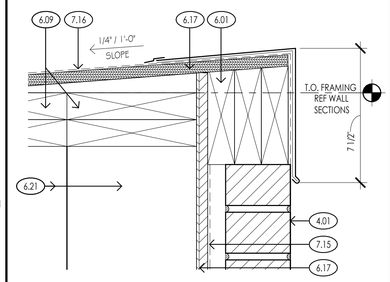


GABLE TO ROOF WALL 16
SCALE: 3" = 1'-0"

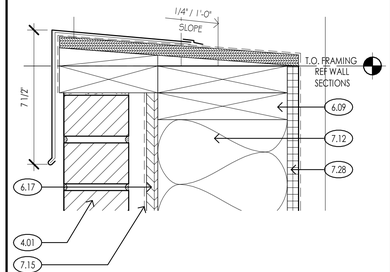


NOTES:
1. TREATED WOOD NAILER MUST EXTEND PAST TOTAL WIDTH OF DECK FLANGE.
2. INSTALL WALL FLASHING PRIOR TO SCUPPER INSTALLATION.
3. DISCONTINUE FASTENING PLATES AT SCUPPER OPENING AS SHOWN.
4. METAL SCUPPER BOX MUST HAVE CONTINUOUS SIDES; METAL FLANGE MUST BE CONTINUOUS WITH ROUNDED CORNERS.
5. PRIOR TO APPLYING EP-95 SPLICING CEMENT, CLEAN METAL SCUPPER SLEEVE WITH WEATHERED MEMBRANE CLEANER OR SPLICE CLEANER.
6. WATER CUT-OFF MASTIC UNDER SCUPPER FLANGE MUST BE UNDER CONSTANT COMPRESSION.
7. MINIMUM 2" SPLICE FROM NAIL HEAD.
8. PT 304 SEALANT IS REQUIRED AT FLASHING EDGE ON SCUPPER EDGE. CARLISLE HP-250 PRIMER MUST BE USED TO PREPARE SURFACES PRIOR TO APPLYING PT 304 SEALANT.

THRU WALL SCUPPER 12
SCALE: 1/2" = 1'-0"



PARAPET FLASHING @ DBL WALL 8
SCALE: 3" = 1'-0"



PARAPET FLASHING 4
SCALE: 3" = 1'-0"

DIV 03 - CONCRETE RE STRUC DWG

3.01 CONC FOOTING & FOUNDATION RE: STRUCT
3.11 CONC SLAB OVER VAPOR BARRIER RE: STRUCTURAL
3.15 1/2" SNAP-CAP JOINT FILLER W/ SEALANT

DIV 04 - MASONRY REF EXT FINISH SCHEDULE

4.01 MASONRY WALL W/ HORIZ JOINT REINF @ 24" OC; RE: STRUCTURAL FOR VERT REINF (WIDTH); REF ELEVATIONS FOR COLOR AND FINISH
4.02 SMOOTH-FACE CMU W/ SOLID GROUT FILL @ ALL CELLS. W/ HORIZ JOINT REINF @ 24" OC; RE: STRUCTURAL FOR VERT REINF (WIDTH)
4.04 1" MIN CAVITY W/ DRAINAGE MESH @ BASE
4.05 MASONRY THRU-WALL FLASHING W/ MTL DRIP EDGE & WEEPS @ 24" OC MAX
4.06 SOLID GROUT FILL BELOW THRU-WALL FLASHING

DIV 05 - METALS

5.05 STRUCTURAL STEEL ANGLE (RE: STRUC.)
5.06 JOIST HANGER
5.07 BREAK METAL, PAINT TO MATCH ADJ. MATERIAL
5.08 METAL BAND; EXTEND 8" PAST EDGE OF WINDOW; PAINT TRICORN BLACK
5.30 STRUCTURAL STEEL DECK (RE: STRUC.)

DIV 06 - WOOD, PLASTIC AND COMPOSITES

6.01 WOOD BLOCKING
6.09 DOUBLE 2X WOOD PLATE
6.17 5/8" SHEATHING PER STRUCTURAL
6.20 2X6 WOOD STUD
6.21 2X8 WOOD STUD
6.25 HEADER; PER STRUCTURAL
6.26 WOOD BEAM; PER STRUCTURAL
6.28 2X LEDGER
6.29 2X JOIST

DIV 07 - THERMAL AND MOISTURE PROTECTION

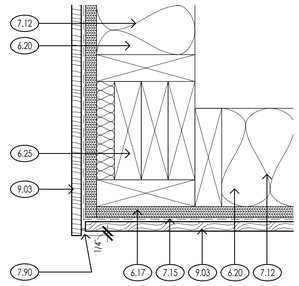
7.07 FLASHING, PAINT TO MATCH ADJ. MATERIAL, ADHERE TO WEATHER BARRIER
7.08 FLASHING; REF MANUF DETAILS; PAINT TO MATCH ADJ. MATERIAL
7.12 (R-20) BATT INSULATION W/ VAPOR BARRIER TO WARM SIDE
7.15 FLUID WEATHER-RESISTIVE BARRIER @ SHEATHING
7.16 ROOF MEMBRANE
7.18 (R-30ci) RIGID INSULATION & ROOF MEMBRANE - ADD PROTECT MEMB 6" ALL-AROUND UTILITY SUPPORTS, TYP
7.28 ROOF BOARD
7.67 STANDING-SEAM MTL ROOFING
7.90 CONT SEALANT W/ BACKER ROD

DIV 08 - OPENINGS

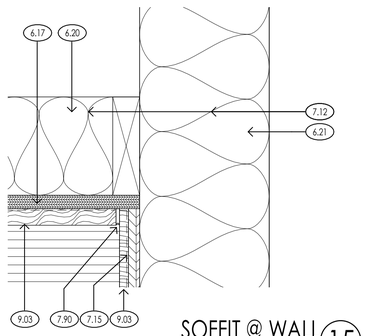
8.03 SERVING DOOR; REF: DOOR SCHEDULE

DIV 09 - FINISHES

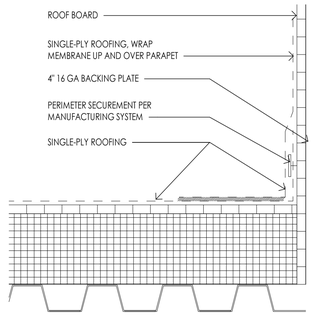
9.03 WOOD FINISH; REF ELEVATIONS
9.04 COUNTERTOP BY OWNER; INSTALLED BY G.C.
9.60 METAL PANEL SYSTEM, REF ELEVATIONS



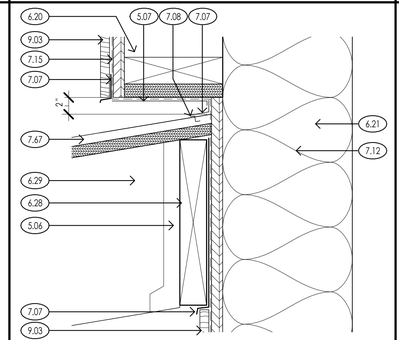
HEADER @ SOFFIT ENTRANCE 19
SCALE: 3" = 1'-0"



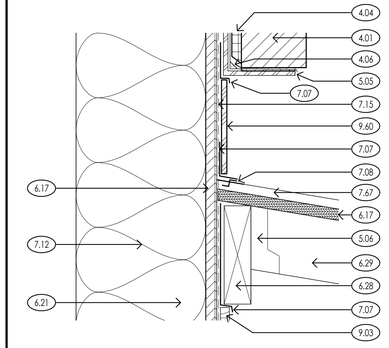
SOFFIT @ WALL 15
SCALE: 3" = 1'-0"



ROOF PARAPET FLASHING 11
SCALE: 3" = 1'-0"



PATIO ROOF @ DBL WALL BAND 7
SCALE: 3" = 1'-0"



PATIO ROOF @ METAL TO BRICK 3
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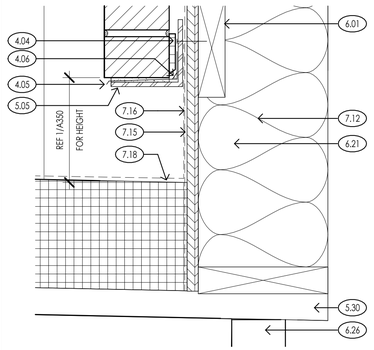
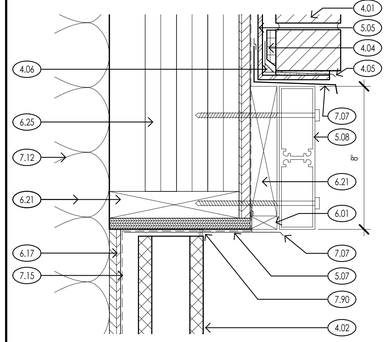
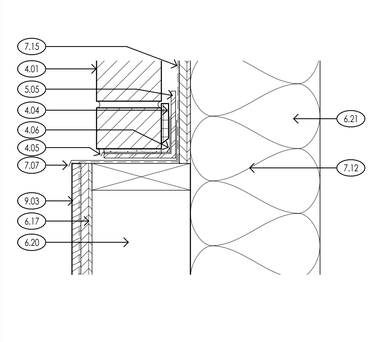


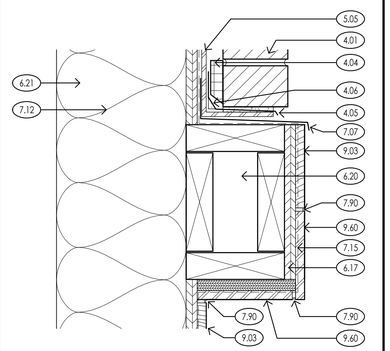
BRICK AT ROOF 18
SCALE: 3" = 1'-0"



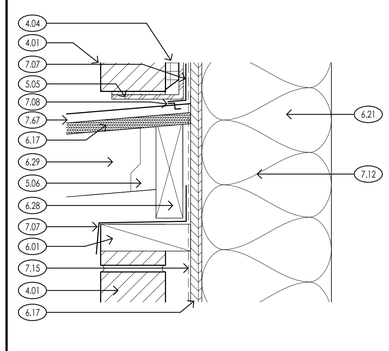
BRICK @ CMU INSET 14
SCALE: 3" = 1'-0"



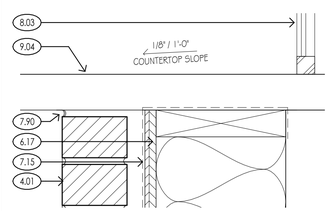
FLASHING @ DBL WALL BAND 10
SCALE: 3" = 1'-0"



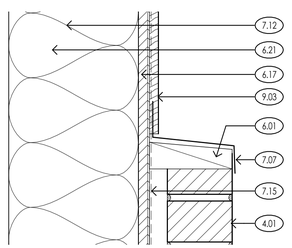
DBL WALL BAND 6
SCALE: 3" = 1'-0"



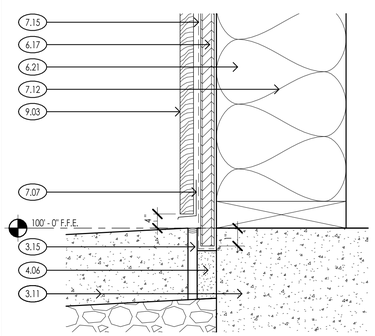
PATIO ROOF @ EXT. WALL 2
SCALE: 3" = 1'-0"



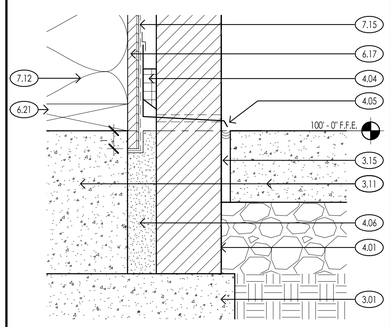
COUNTER @ EXT. WALL 17
SCALE: 3" = 1'-0"



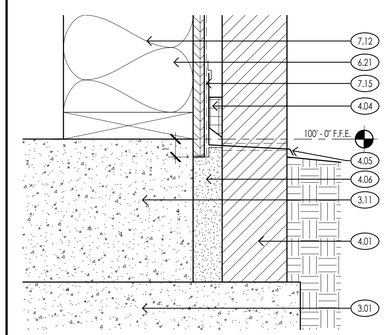
WAINSCOT FLASHING 13
SCALE: 3" = 1'-0"



NON-MASONRY WALL @ PAVING 9
SCALE: 3" = 1'-0"



MASONRY WALL @ PAVING 5
SCALE: 3" = 1'-0"



MASONRY WALL @ GRADE 1
SCALE: 3" = 1'-0"

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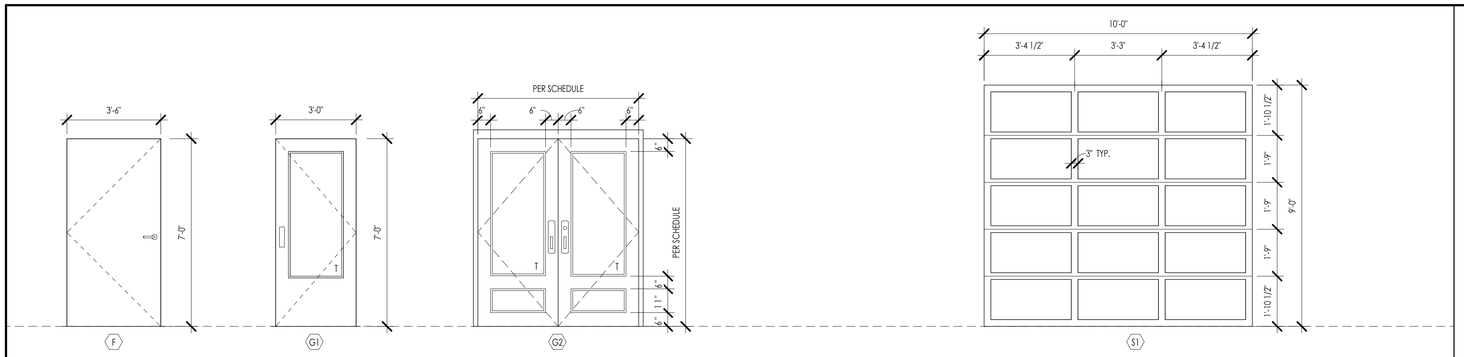
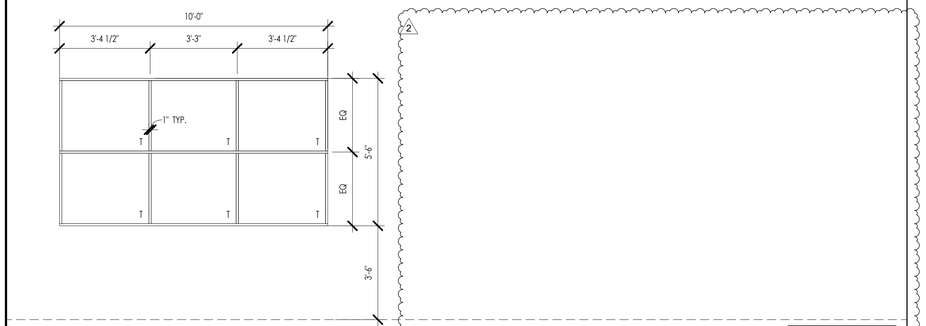
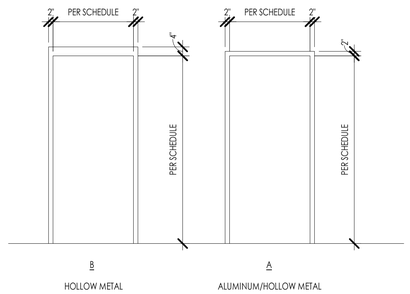
DATE SIGNED: 2/3/2023 10:10:20 AM

drawing title
SECTION DETAILS

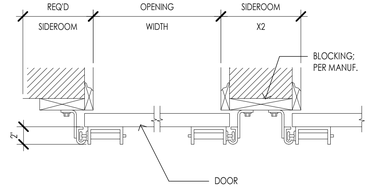
drawing number
A400



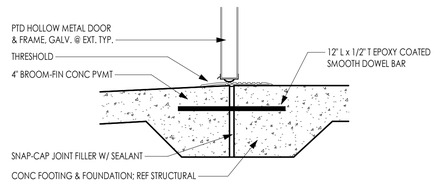




FRAME TYPES 7
SCALE: 3/8" = 1'-0"



OVERHEAD DOOR JAMB 4
SCALE: 1 1/2" = 1'-0"



DOOR THRESHOLD 3
SCALE: 1 1/2" = 1'-0"

DIV 04 - MASONRY REF EXT FINISH SCHEDULE

4.01 MASONRY WALL W/ HORIZ JOINT REINF @ 24" OC; RE: STRUCTURAL FOR VERT REINF (WIDTH); REF ELEVATIONS FOR COLOR AND FINISH
4.04 1" MIN CAVITY W/ DRAINAGE MESH @ BASE
4.05 MASONRY THRU-WALL FLASHING W/ MTL DRIP EDGE & WEEPS @ 24" OC MAX
4.06 SOLID GROUT FILL BELOW THRU-WALL FLASHING

DIV 05 - METALS

5.05 STRUCTURAL STEEL ANGLE (RE: STRUC.)
5.07 BREAK METAL, PAINT TO MATCH ADJ. MATERIAL
5.71 PREFIN. METAL CANOPY

DIV 06 - WOOD, PLASTIC AND COMPOSITES

6.06 2X__ WD FRAMING @ __" OC (RE: STRUC.)
6.21 2X8 WOOD STUD
6.25 HEADER; PER STRUCTURAL

DIV 07 - THERMAL AND MOISTURE PROTECTION

7.07 FLASHING, PAINT TO MATCH ADJ. MATERIAL, ADHERE TO WEATHER BARRIER
7.12 (R-20) BATT INSULATION W/ VAPOR BARRIER TO WARM SIDE
7.90 CONT SEALANT W/ BACKER ROD

DIV 08 - OPENINGS

8.01 PTD HOLLOW METAL DOOR & FRAME, GALV. @ EXT. TYP.
8.03 SERVING DOOR; REF: DOOR SCHEDULE
1

DOOR HARDWARE

HARDWARE GROUP - 01		FINISH	MANF
3 EA	HINGES - FBB179 4 1/2 X 4 1/2	US26D	ST
1 EA	EXIT DEVICE - 2103 X 4903D	626	PR
1 EA	RIM CYLINDER - 12E-72	626	BE
1 EA	DOOR CLOSER - 4040XP-MC-HCUSH	689	LCN
1 EA	SET OF GASKETING - 5050 B HEAD & JAMBS		NGP
1 EA	THRESHOLD - 272	689	PEM
1 EA	DOOR SWEEP - 200NA		NGP

HARDWARE GROUP - 02		FINISH	MANF
3 EA	HINGES - FBB179 4 1/2 X 4 1/2	US26D	ST
1 EA	STOREROOM LOCK - L9080T-06	626	SCH
1 EA	RIM CYLINDER - 12E-72	626	BE
1 EA	DOOR CLOSER - 4040XP-MC-HCUSH	689	LCN
1 EA	SET OF GASKETING - 5050 B HEAD & JAMBS		NGP
1 EA	THRESHOLD - 272	689	PEM
1 EA	DOOR SWEEP - 200NA		NGP

HARDWARE GROUP - 03		FINISH	MANF
2 EA	HINGE - FULL HEIGHT GATE HINGE	622	
1 EA	LATCH - 1/2" GALVANIZED SWING BAR LATCH		
2 EA	CASTER - HEAVY DUTY CASTER AT EACH GATE		
2 EA	BOLT - PADLOCKABLE CANE BOLTS	622	

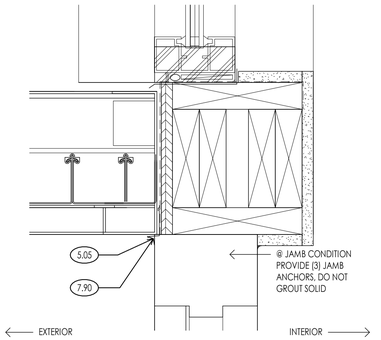
HARDWARE GROUP - 04		FINISH	MANF
1 EA	HINGE - FULL HEIGHT GATE HINGE	622	
1 EA	LOCKSET - ND80PD-F86 RHO	622	SCH
2 EA	CASTER - HEAVY DUTY CASTER AT EACH GATE		
2 EA	BOLT - PADLOCKABLE CANE BOLTS	622	

HARDWARE GROUP - 05		FINISH	MANF
1 EA	CONTINUOUS HINGE		
1 EA	EXIT DEVICE		
1 EA	DOOR PULL		
1 EA	SURFACE CLOSER		
1 EA	THRESHOLD		
1 EA	BOTTOM SWEEP W/ RAIN DRIP		
	STOREFRONT DOOR (BY STOREFRONT MANUFACTURER) NOTE: HARDWARE FINISH TO MATCH STOREFRONT		

HARDWARE GROUP - 05		FINISH	MANF
2 EA	CONTINUOUS HINGE		
2 EA	EXIT DEVICE		
2 EA	DOOR PULL		
2 EA	SURFACE CLOSER		
1 EA	THRESHOLD		
2 EA	BOTTOM SWEEP W/ RAIN DRIP		
	STOREFRONT DOOR (BY STOREFRONT MANUFACTURER) NOTE: HARDWARE FINISH TO MATCH STOREFRONT		

HARDWARE GROUP - 06		FINISH	MANF
2 EA	CONTINUOUS HINGE 112HD	710	IVE
2 EA	HEADER/THRESH BOLT - 4015 X 4-8S	BLACK	ADA
1 EA	DEADLOCK - MS1851S 1-1/8 BS	BLACK	ADA
2 EA	MORTISE CYLINDER - 20-001 118	BLACK	SCH
2 EA	PULL 8305-10	BLACK	IVE
2 EA	PUSH PLATE 8200	BLACK	IVE
2 EA	SURFACE CLOSER - 4111 AVB SCUSH	BLACK	LCN
2 EA	MOUNTING PLATE - 4110-18	BLACK	LCN
2 EA	CUSH SHOE SUPPORT - 4110-30	BLACK	LCN
2 EA	BLADE STOP SPACER - 4110-61	BLACK	LCN
1 EA	SIGN - "THIS DOOR TO REMAIN UNLOCKED DURING..."		ADA
1 SET	PREIMETER SEALS		
1 EA	THRESHOLD - 655A	BLACK	ZER
2 EA	DOOR SWEEP - 39A	DKB	ZER
2 EA	FLOOR STOP - 1462		DJ

NO PANIC HARDWARE IS PROVIDED AT THIS DOOR IN ACCORDANCE WITH IBC SECTION 1010.1.10 EXCEPTION #1 AND SECTION 1010.1.9.4 ITEM #2



CANOPY @ DOOR AND WINDOW 2
SCALE: 3" = 1'-0"

DOOR SCHEDULE																
		DOOR							FRAME							
MARK	ROOM NAME	TYPE	MATERIAL	COLOR	QTY	WIDTH	HEIGHT	GLASS	TYPE	MATERIAL	COLOR	HEAD	JAMB	THRESHOLD	FIRE RATING (MIN)	HW SET	NOTES
100A	TENANT 100	G1	AL	GRAY	1	3'-0"	7'-0"	TEMP	A	AL	GRAY	2/A800	1/A800	3/A800	---	1	SW 7016 - SEMI-GLOSS
100B	TENANT 100	F	HM	GRAY	1	3'-6"	7'-0"	---	A	HM	GRAY	2/A800	1/A800	3/A800	---	2	SW 7016 - SEMI-GLOSS
100C	TENANT 100	G1	AL	DARK BRONZE	PR	6'-0"	7'-0"	TEMP	A	AL	---	15/A801	18/A801	11/A801	---	1	KAWNEER DARK BRONZE - PERMACOAT POWDER COATING
100D	TENANT 100	G1	AL	DARK BRONZE	1	3'-0"	7'-0"	TEMP	A	AL	---	15/A801	18/A801	11/A801	---	5	
100F	TENANT 100	G1	AL	DARK BRONZE	1	3'-0"	7'-0"	TEMP	A	AL	---	15/A801	18/A801	11/A801	---	5	
101A	TENANT 101	G2	AL	BRICK RED	PR	6'-0"	7'-0"	TEMP	A	AL	BRICK RED	2/A800	1/A800	3/A800	---	6	KAWNEER BRICK RED - PERMACOAT POWDER COATING
101B	TENANT 101	G1	AL	TRAFFIC RED	1	3'-0"	7'-0"	TEMP	B	AL	TRAFFIC RED	2/A800	1/A800	3/A800	---	6	SW 3020 - SEMI-GLOSS
101C	TENANT 101	G1	AL	TRAFFIC RED	1	3'-0"	7'-0"	TEMP	A	AL	---	15/A801	18/A801	11/A801	---	5	
101D	TENANT 101	S2	AL/GLASS	---	1	10'-0"	5'-6"	TEMP	---	---	---	9/A800	---	---	---	---	MANUF: OVERHEAD DOOR MODEL ALUMINUM GLASS DOOR 521
101E	TENANT 101	F	HM	TRAFFIC RED	1	3'-6"	7'-0"	---	B	HM	TRAFFIC RED	2/A800	1/A800	3/A800	---	2	SW 3020 - SEMI-GLOSS
101F	TENANT 101	G1	AL	BRICK RED	1	3'-0"	7'-0"	TEMP	B	AL	BRICK RED	2/A800	1/A800	3/A800	---	6	KAWNEER BRICK RED - PERMACOAT POWDER COATING
101G	TENANT 101	S1	AL/GLASS	---	1	10'-0"	9'-0"	TEMP	---	---	---	5/A800	4/A800	---	---	---	MANUF: OVERHEAD DOOR MODEL ALUMINUM GLASS DOOR 521
101H	TENANT 101	S1	AL/GLASS	---	1	10'-0"	9'-0"	TEMP	---	---	---	5/A800	4/A800	---	---	---	MANUF: OVERHEAD DOOR MODEL ALUMINUM GLASS DOOR 521
102A	RISER ROOM 102	F	HM	BLACK	1	3'-0"	7'-0"	---	B	HM	BLACK	2/A800	1/A800	3/A800	---	2	SW 6258 - GLOSS

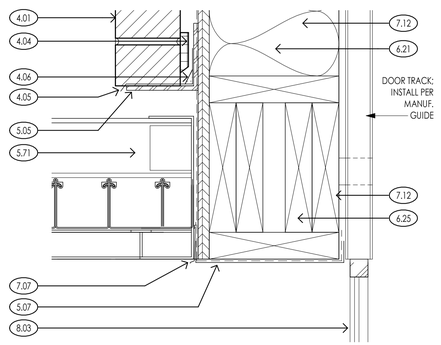
DOOR 100E REMOVED
2

1

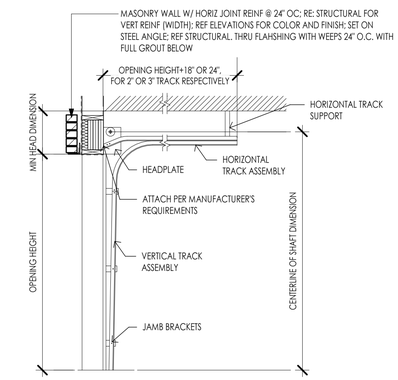
DOOR SCHEDULE NOTES

NOTE 1: HOLLOW METAL FRAME TO BE GALVANIZED.
NOTE 2: MEDIUM STIL ALUM STOREFRONT DOOR W/ 1/4" TEMPERED GLASS RE: ELEVATIONS AND SECTIONS FOR REMAINDER INFORMATION.
NOTE 3: FOR ALL DOOR THRESHOLDS, SEAL WATER TIGHT FOR NO MOISTURE PENETRATION.
NOTE 4: HOLLOW METAL FRAME TO BE GALVANIZED. HOLLOW METAL FRAME TO BE KNOCK DOWN (WRAP AROUND) TYPE.

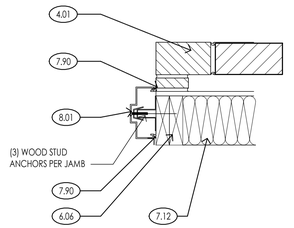
2
NOT USED 13



SERVING DOOR HEAD @ CANOPY 9
SCALE: 3" = 1'-0"



OVERHEAD DOOR HEAD 5
SCALE: 1/2" = 1'-0"



DOOR JAMB 1
SCALE: 1 1/2" = 1'-0"

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
22902.001

drawing issuance

PERMIT	09/26/22

drawing revisions

No.	Description:	Date:
1	REV 1	1/10/23
2	REV 2	1/27/23

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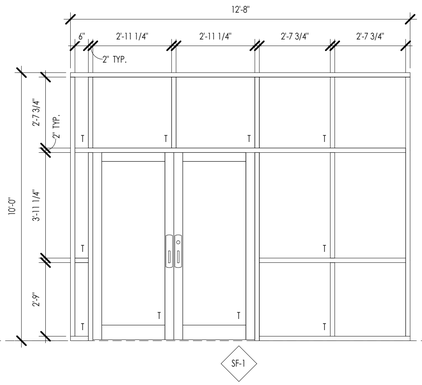
DATE SIGNED: 2/3/2023 10:10:29 AM

drawing title
DOOR SCHEDULE AND DETAILS

drawing number
A800



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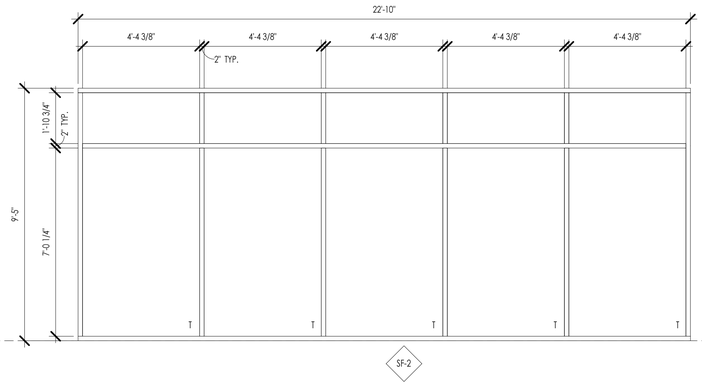

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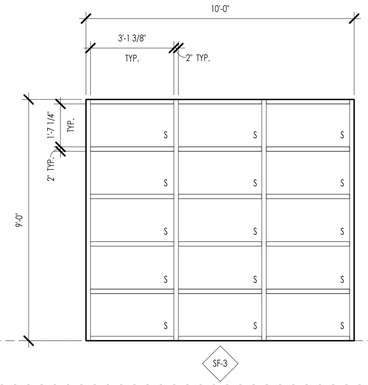


SF-3

T = TEMPERED GLAZING
S= SPANDEL GLAZING

DIV 04 - MASONRY REF EXT FINISH SCHEDULE

4.01 MASONRY WALL W/ HORIZ JOINT REINF @ 24" OC; RE: STRUCTURAL FOR VERT REINF (WIDTH); REF ELEVATIONS FOR COLOR AND FINISH
4.05 MASONRY THRU-WALL FLASHING W/ MTL DRIP EDGE & WEEPS @ 24" OC MAX
4.06 SOLID GROUT FILL BELOW THRU-WALL FLASHING

DIV 05 - METALS

5.05 STRUCTURAL STEEL ANGLE (RE: STRUC.)
5.08 METAL BAND; EXTEND 8" PAST EDGE OF WINDOW; PAINT TRICORN BLACK

DIV 06 - WOOD, PLASTIC AND COMPOSITES

6.01 WOOD BLOCKING
6.04 PRESERVATIVE TREATED WD SHIMS @ 16" OC MAX FOR 1/2"/FT MIN SLOPE AT BLKG ABV
6.17 5/8" SHEATHING PER STRUCTURAL
6.21 2X8 WOOD STUD
6.25 HEADER; PER STRUCTURAL
6.27 2X4 WOOD STUD

DIV 07 - THERMAL AND MOISTURE PROTECTION

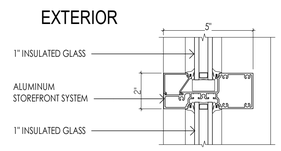
7.07 FLASHING; PAINT TO MATCH ADJ. MATERIAL. ADHERE TO WEATHER BARRIER
7.12 (R-20) BATT INSULATION W/ VAPOR BARRIER TO WARM SIDE
7.15 FLUID WEATHER-RESISTIVE BARRIER @ SHEATHING
7.90 CONT SEALANT W/ BACKER ROD

DIV 08 - OPENINGS

8.41 SINGLE PANE LOW-E GLASS (TEMPER AT "T") IN ALUM. FRAMING - SHIM/SEAL ALL AROUND TYP.
8.81 SPANDRAL GLASS PANEL IN ALUM FRAMING - SHIM/SEAL ALL AROUND

DIV 09 - FINISHES

9.03 WOOD FINISH; REF ELEVATIONS
9.14 5/8" TYPE "X" GYP BOARD



HORIZ. MULLION 19
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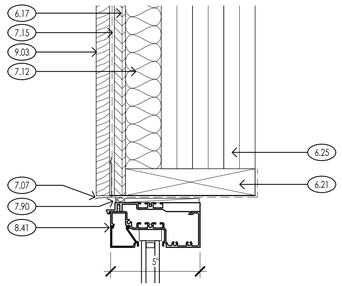
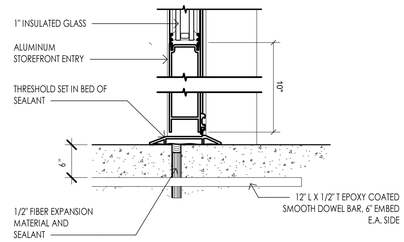


STOREFRONT HEAD 15
SCALE: 3" = 1'-0"



STOREFRONT DOOR THRESHOLD 11
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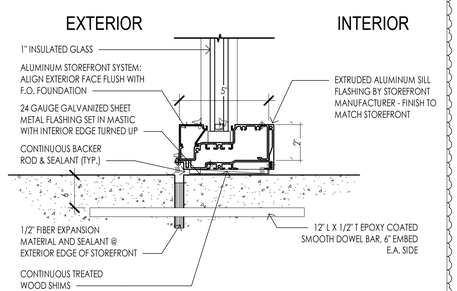

STOREFRONT SILL 7
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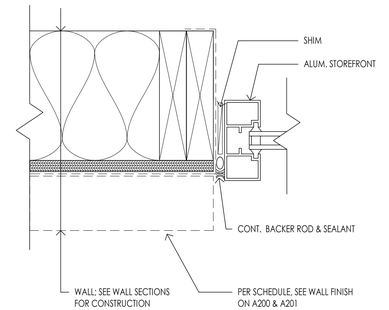

STOREFRONT JAMB 3
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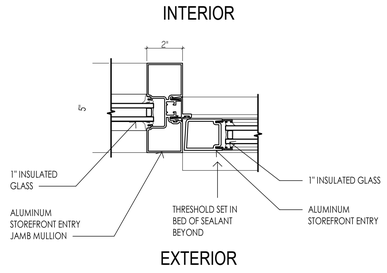

STOREFRONT JAMB MULLION 18
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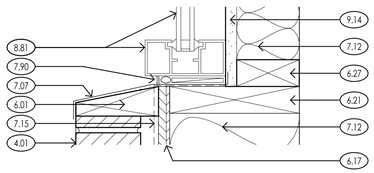
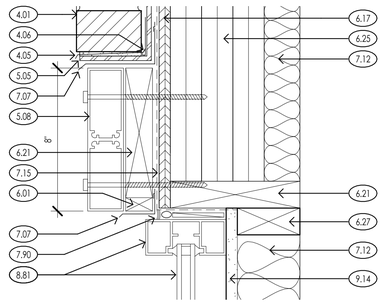


FAUX WINDOW SILL 14
SCALE: 3" = 1'-0"



FAUX WINDOW HEAD 10
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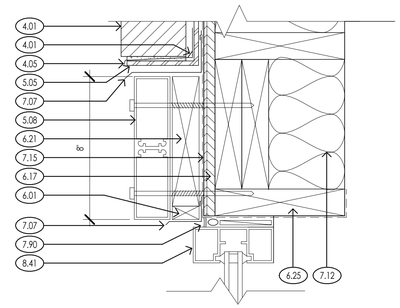
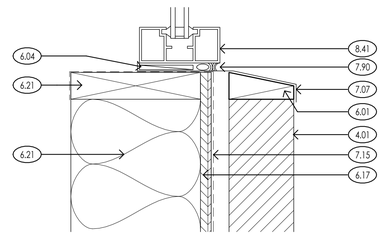
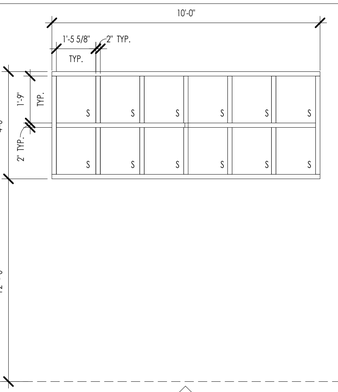
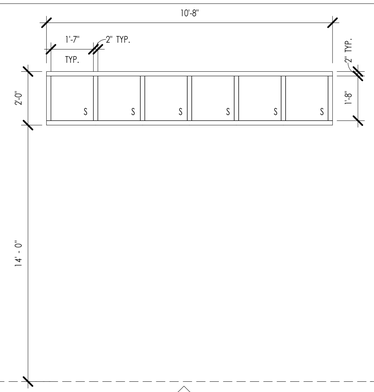


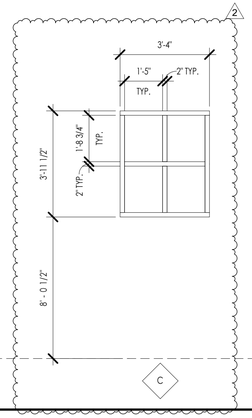
WINDOW HEAD @ MASONRY 6
SCALE: 3" = 1'-0"

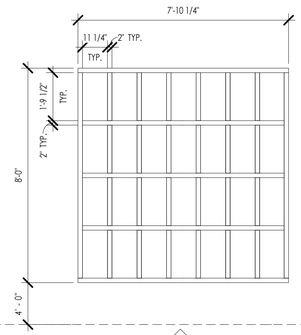


WINDOW SILL @ MASONRY 2
SCALE: 3" = 1'-0"

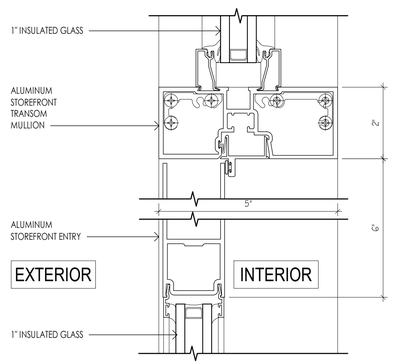








T = TEMPERED GLAZING
S= SPANDEL GLAZING



TRANSON MULLION 1
SCALE: 6" = 1'-0"

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
22PRO.001

drawing issuance
PERMIT 09/26/22

drawing revisions

No.	Description:	Date:
2	REV 2	1/27/23

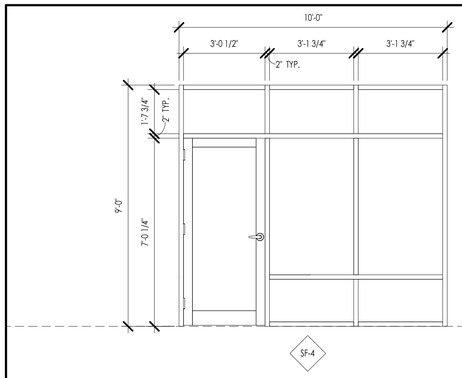
professional seal

"Date Clipped" JAN 2 7 2023

DATE SIGNED: 2/3/2023 10:10:38 AM

drawing title
WINDOW & STOREFRONT SCHED. AND DETAILS

drawing number
A801



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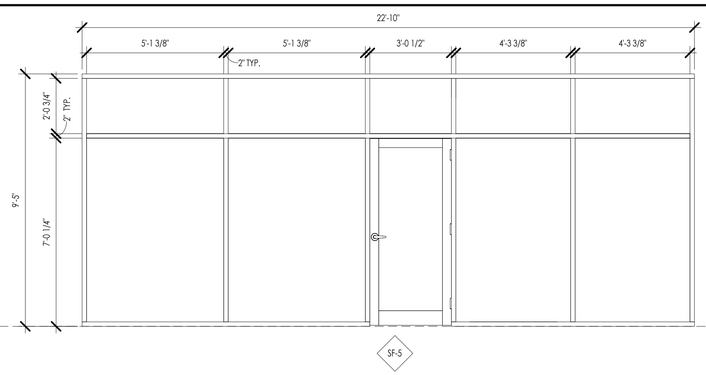

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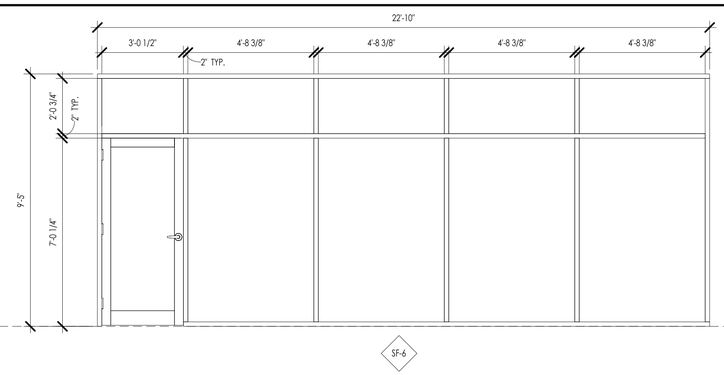

SF-6

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470

project number

22902.001

drawing issuance

PERMIT	01/19/23

drawing revisions

No.	Description:	Date:
2	REV 2	1/27/23

professional seal

DATE SIGNED: 2/3/2023 10:10:44 AM

drawing title

STOREFRONT SCHEDULE

drawing number

A802 2

PART 1 - GENERAL

GENERAL CONDITIONS: AIA Document A 201-1997 Edition: "General Conditions of the Contract for Construction" - consisting of 14 Articles, is hereby included as a part of the Contract Documents by reference. Copies are available from the office of the Architect, and from the American Institute of Architects.

The following "Supplementary Conditions" modify the "General Conditions" as if originally written therein. Where a portion of the General Conditions is modified or deleted by these Supplementary Conditions, the unaltered portions of the General Conditions shall remain in effect. The General Conditions may also be modified elsewhere in the Contract Documents by provisions located in other Sections of the Specifications.

ARTICLE 1 - CONTRACT DOCUMENTS

ADD to paragraph 1.2, CORRELATION AND INTENT . . . the following:

"1.2.4 Notes written in the imperative mood refer to action(s) to be performed by the Contractor, the words 'the Contractor shall' are always implied, unless otherwise noted within the Construction Documents.

1.2.5 Figured dimensions and marked data shall take precedence over scaled measurements, and details shall take precedence over smaller scale general drawings."

1.2.6 In case of conflict in or between contract requirements (General and Supplementary Conditions), General Requirements (Division-1 Specification Sections), Drawings, Specifications or manufacturer's product requirements, the Contractor will be deemed to have estimated on, and agreed to provide, the greater quantity and better quality of materials and Work.

1.2.7 If Work is required in conditions making it impossible to execute in an reasonably acceptable manner considering normal industry trade-practices, request an interpretation and clarifications from the Architect before proceeding. If no request is made, no excuses will be subsequently entertained for performance of unacceptable Work."

REPLACE Paragraph 1.5.2 with the following:

"1.5.2 Execution of the Contract by the Contractor is a representation that the Contractor has carefully examined and understands the intent of the Contract Documents, that the Contractor has visited the project site and has thoroughly reviewed the conditions under which the Work will be performed (including but not necessarily limited to labor availability, codes and regulations, hazards, procedures, construction means and methods necessary and weather conditions), and that he/she has correlated his/her personal observations with the requirements of the Contract Documents. No claims will be approved for additional time or costs resulting from the Contractor's lack of familiarization as required herein."

ADD to Paragraph 1.6 - OWNERSHIP AND USE OF DRAWINGS . . . the following:

"1.6.2 If the Contractor obtains any Drawings in electronic media format from the Architect or the Architect's consultants, the Contractor hereby agrees to the following conditions:

1.6.2.1 Electronic media files are considered "Instruments of Service" by the Architect or the Architect's consultants, and the Architect or the Architect's consultant's retain all common law, statutory law and other rights, including the copyright. The transfer of electronic media is not considered a sale by the Architect of tangible goods, and neither the Owner or the Architect or the Architect's consultants makes any warranties, express or implied, of merchantability or of fitness for a particular purpose of the electronic media data.

1.6.2.2 No representation is made regarding the accuracy or completeness of electronic media data. Electronic media data may represent only a portion of the Construction Document information and, as such, it may be incomplete. Electronic media files are not to be considered as official Construction Documents, as differences may exist between the electronic file data and the corresponding hard-copy, signed, sealed and approved Construction Documents used for the project's construction.

1.6.2.3 Any transfer or translation of electronic media data from one computer to another can result in loss of important information and the Contractor assumes that risk. Further, the Contractor understands that the Contractor is responsible for any translation or modification of the electronic media data necessary for use by the Contractor.

1.6.2.4 The Contractor will not use the Electronic Media data for any purpose other than preparation of shop drawings, coordination drawings, or Record Drawings for this Project. The Contractor agrees not to transfer the electronic media data to any entity not involved in the construction Work without the prior written consent of the Architect. The Contractor further agrees to waive all claims against the Owner, the Architect, or the Architect's consultants resulting in any way from any use of the use of the electronic media data. Use of electronic media data

does not reduce or minimize in any way the Contractor's responsibility to take field measurements, check dimensions, and to coordinate with other construction work at the Project Site.

1.6.2.5 Use of electronic media data will be at the Contractor's sole risk and without any liability, risk or legal exposure to the Owner or Architect or Architect's consultants.

1.6.2.6 The Contractor hereby agrees to waive and release all claims or potential claims against the Owner, the Architect, The Architect's consultants, and their respective officers, directors, employees, and agents relating to, or arising out of, the use of electronic media data, by reason of any act or omission of such parties, under any legal theories whatsoever, specifically including the negligence of any party, and including costs for defense.

1.6.2.7 In addition, the Contractor will require all subcontractors or suppliers to whom the Contractor furnishes the electronic media data to sign an identical copy of these terms and conditions. For any party who does not agree in writing to such terms and conditions, the Contractor hereby agrees to defend, indemnify and hold harmless the Owner, the Architect and the Architect's consultants from all claims, suits, expense, damages or loss, including attorney's fees, arising out of Contractor's furnishing such data to third parties."

ARTICLE 2 - OWNER

DELETE the first two (2) sentences of Paragraph 2.4.1 and ADD the following:

"If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seventy-two (72) hour period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies."

ADD to Paragraph 2.2.5. the following:

"The Owner will provide one (1) printed set of Drawings and Specifications to the Contractor. Additional copies of Drawings and Specifications may be made by the Contractor at no additional cost to the Owner."

ARTICLE 3 - CONTRACTOR

ADD to Paragraph 3.1 - GENERAL, the following:

"3.1.4 DUTY OF COOPERATION: Issuance of the Construction Documents to the Contractor implies and anticipates continuing and periodic communication between the Contractor and the Architect. Failure to communicate or otherwise notify the Architect of discrepancies or changes made to the project relieves the Architect of responsibility for consequences of such changes.

ADD to Paragraph 3.2 the following:

"3.2.4 Submission of any bid or proposal for the Work of this Project is deemed as a representation that the entity has examined the premises and has satisfied itself as to existing site conditions under which that entity will be obliged to operate. No additional costs for labor, materials or equipment will be allowed for failure to fully examine the site.

3.2.5 Geotechnical information will be made available to the Contractor. The Contractor is to comply with the recommendations of the geotechnical report unless otherwise indicated by the Owner. In the event of conflicting recommendations or several optional methods in such report(s), the Contractor shall submit those options to the Architect in writing. The Contractor shall obtain written clarification from the Architect regarding any conflicting geotechnical recommendations before starting that portion of the Work."

ADD to Paragraph 3.4.2 the following:

"3.4.2.1 After the Contract has been executed, the Owner will consider written requests for substitution of products in place of those specified only under the conditions set in the General Requirements (Division 1 of these Specifications).

3.4.2.2. By making requests for substitutions based on Subparagraph 3.4.3 above, the Contractor: (.1) represents that he has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified, (.2) represents that the Contractor will provide the same warranty for the substitution that the Contractor would have provided for the specified product, (.3) certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect's redesign costs, and waives all claims for additional costs related to the substitution which subsequently become apparent; and (.4) will coordinate the

installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects."

ADD to Paragraph 3.5 the following:

"3.5.2 The Contractor's warranty required in Paragraph 3.5.1 does not replace, change or otherwise limit any statutory warranty rights of the Owner, or any other Contract requirements. Such warranty is not limited to one (1) year as it is to be governed by the applicable statute of limitations for breach of contract.

3.5.3 The Contractor's contractual obligation to correct Work as defined in Paragraph 12.2 does not limit the Contractor's liability under any applicable statute of limitations, or limit any longer warranty periods required by the Contract Documents, and does not waive any of the Owner's rights under Paragraph 3.5.1 or elsewhere in the Contract Documents or as otherwise provided by law.

3.5.4 It is hereby understood that the failure of any piece of equipment, material, or service provided in this Contract to pass the applicable inspection by Owner and Architect and by any public authorities will constitute a default in performance and that the Contractor warrants that in the event of such failure, it will cause same to be corrected expeditiously and in a manner acceptable to such authorities and to the Owner. If the Contractor does not provide corrections within thirty (30) days after written notice of the default condition, the Owner may provide the corrections and charge the Contractor for all costs incurred plus a ten percent (10%) administrative fee or $500, whichever is greater.

3.5.5 The Contractor's usual warranties (express and implied) shall remain in full force and effect even if a material or equipment item is required by the Owner to be manufactured by a specific entity, and no other acceptable equivalent product manufactured by any other entity is acceptable."

ADD to subparagraph 3.7.1 the following:

"3.7.1.1 The Contractor shall pay for all hook-up charges, 'tap-in' fees, permits and other related expenses related to the construction and full connection or hook-up of all utilities."

ADD to Paragraph 3.10 the following:

"3.10.4 In the event that the Contractor fails to adhere to the schedule, the Contractor will furnish such additional labor and/or services, or work sufficient overtime as may be necessary to make progress conform to the schedule. Failure to adhere to the schedule, or failure to take steps to regain the schedule, shall constitute default within the terms of the Contract."

ADD to Paragraph 3.12.10 the following:

"3.12.10.1 The Contractor will require that any entity engaged to provide design services per Paragraph 3.12.10 will maintain Professional Liability Insurance with minimum limits of $1,000,000 per claim and annual aggregate. Insurance coverage must be maintained not less than one (1) year after Substantial Completion. The Contractor shall provide the Architect with a Certificate of Insurance evidencing coverage prior to performance of services."

ADD to Paragraph 3.15.2 the following:

"Clean-up costs paid by the Owner will be deducted from the Contract Sum if the Contractor fails to respond to the Owner's notice (forwarded via email) within twenty-four (24) hours."

ADD to Paragraph 3.18 the following:

"3.18.3 The indemnitees of Paragraph 3.18.1 will include the Owner, the Architect, the Architect's consultants, and agents and employees of any of them. In addition to the indemnity provided by paragraph 3.18.1, the Contractor shall indemnify and hold harmless the indemnitees from and against claims, damages, losses, liabilities and expenses, including attorney's fees, in the nature of economic loss, damage to the Work itself, and administrative or civil fines and penalties, which the indemnitee suffers or incurs as a result of the acts, errors or omissions of Contractor, its Subcontractors, suppliers of any tier, their agents and employees. Any indemnitee who incurs attorney's fees and legal costs in any action to enforce the Contractor's indemnity obligations shall be entitled to recover the same from the Contractor.

3.18.4 The Contractor agrees to require all Subcontractors performing Work on this Project to include in their contracts with the Contractor a provision requiring the Subcontractors to indemnify and defend the Owner and Architect for any claims arising out of the negligence or breach of contract by the Subcontractors or their employees."

ARTICLE 4 - ADMINISTRATION OF THE CONTRACT

OWNER ADMINISTRATION OF CONSTRUCTION CONTRACT: REVISE Article 4 from Paragraph 4.2, through Paragraph 4.6 inclusive, by substituting the word "Owner", wherever the word "Architect" is used, as the Owner will administer the Construction Contract.

or

ARCHITECT'S LIMITED-SCOPE CONSTRUCTION ADMINISTRATION SERVICES: The Architect's services during construction may be "limited" to a specific hourly maximum, or on an "as-need" basis upon the Owner's request. As the services of the Architect are intended solely for the benefit of the Owner, the Contractor may not rely upon performance of Architect's services. In instances when the Architect is not involved, REVISE Article 4 from Paragraph 4.2, through Paragraph 4.6 inclusive, by substituting the word "Owner", wherever the word "Architect" is used."

REVISE the next to the last sentence of Paragraph 4.2.7 to read as follows:

"The Architect's review does not constitute approval of safety precautions or, unless otherwise specifically agreed to in writing, signed by the Architect, with specific reference to the submittal, of any construction means, methods, techniques, sequences or procedures."

ADD to Paragraph 4.3.7.1 the following:

"Notice of the Contractor's intent to make a claim for additional time must be received by the Architect within seven (7) days of commencement of the event or condition forming the basis for the claim."

ADD the following to Paragraph 4.3.7.2:

"Extensions of time for adverse weather conditions will not considered as a justification for additional compensation to the Contractor for administrative or other 'office overhead' expenses."

DELETE paragraph 4.3.10 and replace as follows:

"4.3.10 The Contractor will be liable to Owner for all direct and indirect, including consequential, damages caused by Contractor's negligence or by its breach of contract, warranty or other actionable conduct. Consequential damages to Owner shall include, but are not limited to, damages for lost revenue or income, rental expenses, loss of use, lost profit, financing and interest charges, damage to business or reputation, loss of management or employee productivity or lost services of such persons."

ADD the following Paragraph 4.7:

"4.7 DEDUCTIONS FOR COSTS OF ARCHITECT'S ADDITIONAL SERVICES:

4.7.1 THE CONTRACTOR WILL BE RESPONSIBLE for costs incurred by the Owner for the additional services of the Architect and its consultants due to the following:

.1 Review of Submittals after an initial review and one (1) re-submittal review;

.2 Responses to Contractor's requests for information when the information was available to the Contractor from careful study and comparison of the Contract Documents, field conditions, or prior project correspondence;

.3 Evaluation of substitutions proposed by the Contractor and subsequent modifications to the Construction Documents resulting from such substitutions;

.4 Additional Site Observation visits due to defects in the Work by the Contractor, or due to the failure of the Contractor to meet the project schedule;

.5 Substantial Completion observations and reports beyond one (1) initial observation and one (1) follow-up observation and report.

4.7.2 THE OWNER WILL DEDUCT the above fees and expenses after submitting a Claim to the Architect for approval by Change Order, without the Contractor's signature or approval. The Contractor may contest any deduction by making a Claim in accordance with Article 4."

ADD the following Paragraph 4.4.9:

"4.4.9 During resolution of any dispute, the Contractor agrees to continue performance of the Work pending resolution. Failure to proceed will constitute a material breach of the Contract, regardless of the ultimate decision on the dispute, it being understood and agreed that any controversy between the parties shall not be deemed a basis to delay or suspend the work, unless agreed to in writing by Owner."

ARTICLE 6 – CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

ADD to Paragraph 6.1 the following:

"6.1.5. This Contractor is not responsible for the control or management of Separate Contractors, and the Owner releases this Contractor from any liabilities related to work by Separate Contractors. The Owner will require Separate Contractors to provide liability insurance equal to that required for this Contract before starting any work at the project site. Separate Contractors will be required to comply with all safety requirements established by this Contractor (as applicable), and will not be allowed to interfere with this Contractor's construction operations."

ARTICLE 8 – TIME

Delete Subparagraph 8.3.3 in its entirety.

ADD the following to Paragraph 8.3 – Delays and Extensions of Time:

"8.3.5 The Owner may direct Contractor to work overtime, and to accelerate the Work, and if so instructed, Contractor agrees to work overtime and accelerate the Work. If such direction is not due to causes within the Contractor's control, the Owner agrees to pay for overtime and accelerated Work, but only for related overtime charges which shall consist of the premium or extra hourly wage incurred by the Contractor only. No insurance, taxes, overhead or profit shall be paid by Owner based on any premium wage paid. Written authorization for payment of overtime charges must be received by the Contractor from the Owner in writing prior to performing the Work.

8.3.6 Normal inclement weather and associated site conditions will not be considered as a valid cause for delay of the Work, as it is anticipated that the Contractor will estimate sufficiently for work stoppages due to reasonably anticipated inclement weather within the Construction Schedule.

8.3.7 Notwithstanding the foregoing, if Contractor is delayed in the performance or progress of the Work by Abnormal Weather Conditions (as defined herein) then the Contractor will be entitled to an extension of the completion date for the impacted portion of the Work provided the Contractor makes claim not more than seven (7) days after the cause of the delay begins. "Abnormal Weather Conditions" are hereby defined as temperature and precipitation that are abnormal for the location of the Work as determined by the National Climatic Data Center, Asheville, North Carolina, based on the previous ten (10) year mean for the Work location. Abnormal Weather Conditions and causes beyond the control of the Contractor which delay the work, including but not limited to catastrophic weather events, fire or vandalism, theft, actions or stoppages by public officials, shall extend the completion date by equal periods of time as the delay impacts the critical path of the Construction Schedule, provided the Contractor makes claim not more than seven (7) days after the cause of the delay begins and provides proof of impact on the critical path Work, which is not concurrent with a Contractor-caused delay.

8.3.8 To qualify as an adverse weather day, weather conditions or related site conditions must prevent Work on critical path activities for 50 percent or more of the Contractor's scheduled work day".

ARTICLE 9 - PAYMENT AND COMPLETION

ADD to Subparagraph 9.3.1, the following:

"9.3.1.3 The Owner will retain ten percent (10%) of the amount of each progress payment application until fifty percent (50%) of the Work has been completed. When the Project reaches 50% completion as determined by the Architect, and only if the character and progress of the Work are satisfactory to the Owner and the Architect, the Owner may waive additional retainage for the balance of the Contract, upon recommendation of the Architect and with the concurrence of the Contractor's surety (if any).

9.3.1.4 Funds retained during the initial 50% of the Project shall be held by the Owner until Substantial Completion. If, after 50% completion, the Contractor's performance at any time is deemed deficient by Owner, the Owner reserves the right to reinstate the full ten percent (10%) retainage for the balance of the Project.

9.3.1.5 Upon Substantial Completion, and with the concurrence of the Architect and the Contractor's surety (if any), retainage may be reduced to an amount equal to 200% of the value of the Work remaining to be completed, including defective work not yet remedied (whether covered by a warranty or not) and Work yet to be performed or completed, plus an amount sufficient to protect the Owner for liquidated damages or other charges, liens or offsets due the Owner."

ADD the following to Paragraph 9.3 – Applications for Payment:

"9.3.4 LIENS

Bodily injury:	$ 5,000,000.00	$ 1,000,000.00
Comprehensive Automobile Liability:		
Property Damage:	$ 1,000,000.00	$ 500,000.00
Bodily injury:	$ 1,000,000.00	$ 500,000.00

11.1.5 Any person engaged in construction Work at the site must be covered under applicable Workmen's Compensation insurance, either through the General Contractor's own policy, or that of appropriate sub-contractors."

ADD to Subparagraph 11.1.3, the following:

"11.1.3.1 All certificates of insurance required herein shall name the Owner and the Architect as additional insured."

DELETE Paragraph 11.3 - Project Management Protective Liability Insurance, in its entirety.

DELETE Subparagraph 11.4.1.3 and ADD the following:

"11.4.1.3 The Contractor's responsibility for payment of the deductible amount on the Owner's Property Insurance (Builder's Risk) policy is limited to a maximum amount of $ 10,000.00 per claim. Provide a separate Builder's Risk Property Insurance policy to insure that payment, or provide a notarized statement indicating Contractor's self-insurance for up to that amount."

DELETE from Paragraph 11.4 - Property Insurance, Subparagraph 11.4.3 and 11.4.5 in their entirety.

ADD the following to Subparagraph 11.4.7 – Waivers of Subrogation:

"Waivers of subrogation will also apply to claims covered by the Contractor's Comprehensive General Liability (CGL) insurance and the Contractor hereby agrees to include this provision in agreements with the Contractor's Subcontractors and material suppliers, as applicable. The Contractor will be responsible for all costs associated with obtaining such endorsements."

REVISE Subparagraph 11.4.9 by DELETING part of line 5 and 6 of the third sentence after the words "in interest may reach" through the words "Paragraph 4.6".

DELETE Subparagraph 11.4.10 in its entirety, and ADD the following:

"11.4.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers."

ARTICLE 12 – UNCOVERING AND CORRECTION OF WORK

ADD the following to Paragraph 12.2.1:

"12.2.1.2 Work that fails to pass inspection or approval from authorities having jurisdiction will be automatically considered as being "rejected" with or without any action by the Architect. Such failure will constitute a default in performance, and the Contractor will expeditiously correct such Work in a manner acceptable both to the authorities having jurisdiction and to the Owner."

MODIFY Subparagraph 12.2.2.1 by DELETING the second to the last sentence that begins: "During the one-year period . . ." and ADD the following:

"The "reasonable time" allowed for Correction of Work by the Contractor will be no more than thirty (30) days after receipt of notice."

ADD the following to Paragraph 12.2 – Correction of Work:

"12.2.6 As a part of the Work of this Contract, the Contractor will perform an inspection with the Owner between ten (10) to eleven (11) months after Substantial Completion of the Work. The purpose of this inspection is to ascertain any defects or failures of the Work that may be covered by the Contractor's, Subcontractors' or any manufacturer's warranties. If such defects, deficiencies or failures are discovered, the Contractor shall promptly remedy such defect and will assist the Owner in notifying the appropriate Subcontractor or manufacturer, if any, of the nature of the problem and the applicable warranty requirements.

12.2.7 If the Work covered by this Contract has staggered Substantial Completion dates, then the provisions of paragraph 12.2 shall apply separately to each separate portion or area of the Work."

ARTICLE 13 - MISCELLANEOUS PROVISIONS:

ADD to Paragraph 13.4, the following:

"13.4.3 The services to be performed by the Architect pursuant to the service agreement with the Owner intended solely for the benefit of the Owner, and no benefit is conferred thereby upon any person or entity r party to that agreement. No other person or entity shall be entitled to rely on the Architect's performance of services thereunder, and no right to assert claim against him shall accrue to the Contractor or to any subcontra consultant, Engineer, supplier, fabricator, manufacturer, lender, tenant, insurer, surety, or any other third party result of that agreement or the performance or non-performance of his services thereunder."

ARTICLE 14 - TERMINATION OR SUSPENSION OF THE CONTRACT:

ADD the following to Subparagraph 14.2.1:

"14.2.1.5 If the Contractor's Experience Modification Rating (EMR) increases above a rating of 1.0."

DELETE from Paragraph 14.2.2 the phrase: "upon certification by the Architect . . . to justify s action," as the Owner may terminate the Contractor without the Architect's certification."

DELETE Subparagraph 14.4.3 in its entirety and ADD the following:

"14.4.3 In the event of termination for the Owner's convenience, the Contractor shall be entitled to receive payr for the Work already executed, and for costs incurred by reason of such termination including reasonable overl and profit related thereto. In no event will payment be provided to cover costs for overhead or potential lost pr related to the Work that is not executed."

END OF SUPPLEMENTARY CONDITIONS

PART 1 - GENERAL

RELATED DOCUMENTS: The Drawings, and general provisions of the Contract, including the General and Supplementary Conditions, and other Division-1 Sections of the Specifications, apply to this Section.

PROJECT / WORK IDENTIFICATION:

SUMMARY BY REFERENCES: The Work of this Contract can be summarized by references to the Contract, General Conditions, Supplementary Conditions, Specification Sections, Drawings, Addenda and other modifications to the Contract Documents issued subsequent to the initial printing of this Project Manual, and including but not necessarily limited to printed material referenced by any of these. It is recognized that the Work of the Contract is also unavoidably affected or influenced by governing regulations, natural phenomenon including weather conditions and other forces in addition to these Contract Documents.

ABBREVIATED SUMMARY OF THE WORK: Briefly and without force and effect upon the Contract Documents, the Work of the Contract can be summarized to include the following:

GENERAL BUILDING CONSTRUCTION of a retail tenant center space, complete with associated mechanical, plumbing, fire-protection/alarm and electrical systems as indicated in the Contract Documents.

WARM-DARK-SHELL: The Work includes storefront enclosure with operational rooftop HVAC equipment, typically without interior ceilings, lighting, ductwork distribution, or finishes.

CODES & ORDINANCES: All Work for this project shall conform to all applicable codes, and ordinances and with applicable requirements of the National Fire Protection Association's "Life Safety Code".

COSTS FOR ALL PERMITS, utility hook-up charges, and expenses shall be included in the Work of the Contract.

CONTRACT TYPE: The Work will be constructed under a single (prime) general construction contract.

USE OF PREMISES: Contractor shall have full and unrestricted use of project site for construction operations during construction period. Contractor's use of premises is limited only by Owner's right to perform work or to retain other contractors on other portions of construction at the Project. Parking of workmen's automobiles will be confined to defined areas.

SEPARATE CONTRACTS:

THE OWNER WILL AWARD Separate Contracts (or a single separate Contract, or in combination with this Contract) for the following Scopes of Construction Work, which include but are not limited to the following:

ROUGH GRADING: includes site clearing, rough grading, excavation, filling and compaction, removal from site of un-used earthwork materials, and temporary storage of topsoil.

HARDSCAPES: to include concrete pavement and curbs, asphalt pavement, sidewalks and miscellaneous site appurtenances.

SITE DEVELOPMENT: including fine grading, lawns and landscaping, and irrigation systems

FUTURE WORK BY SEPARATE CONTRACTS

THE OWNER RESERVES THE RIGHT TO AWARD separate contracts for performance of certain construction operations at Project site, including but not necessarily limited to:

TENANT FINISHES: finishing of individual tenant spaces after substantial completion by this Contractor. Those construction operations may be conducted simultaneously with Work under this Contract.

COOPERATE FULLY WITH SEPARATE CONTRACTORS so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

CAREFULLY STUDY AND COMPARE ALL DRAWINGS (including but not limited to Architectural, Structural, Mechanical or Electrical) and other Contract Documents with the existing conditions at the project-site. Report errors, inconsistencies or omissions discovered for clarification. The Contractor will be responsible for repair or

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number

22902.001

drawing issuance

PERMIT 12/08/22

drawing revisions

No. Description: Date:

professional seal

STATE OF MISSOURI
HENRY C. KLOVER
NUMBER
A-5242
ARCHITECT
Date Signed DEC 09 2022

DATE SIGNED: 2/3/2023 10:14:17 AM

drawing title

SPECIFICATIONS

drawing number

SP100

correction costs if work is executed with knowledge that it involves an error, inconsistency or omission - without the above notice.

THE INTENT OF THE CONSTRUCTION DOCUMENTS is to include all items necessary for the proper execution and completion of the Work – and to provide all products, materials, equipment or accessories required for proper operation, in accordance with their manufacturer's requirements. The Contract Documents are complementary – what is required by one shall be as binding as if required by all. While prepared with due care and diligence, perfection is not possible. Design and construction are complex - every possible condition or contingency cannot be anticipated or fully indicated. Any work or material which is not directly or indirectly noted in the Contract Documents, but is necessary for the proper carrying out of the work, is to be understood as "implied" and is to be provided by the contractor in his proposal as fully as if specified, described or delineated.

SPECIFICATION FORMATS AND CONVENTIONS

THE SPECIFICATIONS ARE ORGANIZED into Divisions and Sections based in general on the 50-division format and CSI's "2004 MasterFormat" numbering system.

SECTION IDENTIFICATION: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the Table Of Contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.

SPECIFICATION CONTENT: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

ABBREVIATED LANGUAGE: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

IMPERATIVE MOOD AND STREAMLINED LANGUAGE are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

THE WORDS "SHALL," "SHALL BE," OR "SHALL COMPLY WITH," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 01 11 00

SECTION 01 29 00 – PAYMENT PROCEDURES

15 DAYS (MINIMUM) PRIOR TO SUBMITTAL OF THE INITIAL APPLICATION FOR PAYMENT, the following items shall be submitted: (1) listing of subcontractors and principal suppliers and fabricators, (2) the progress schedule, (3) preliminary schedule of values, (4) performance and/or payment bonds, if required, and (5) copies of acquired building permits for performance of the Work.

SCHEDULE OF VALUES: Provide a breakdown of the Contract Sum, as required by the General Conditions. Coordinate preparation and correlate line item breakdown with Specification Sections, and as required to facilitate continued evaluation of payment requests and progress reports. Break down principal subcontract amounts into several line items, to the approval of the Owner and/or Architect. Provide a separate line-item for each allowance, or for each unit-cost allowance as a product of the unit cost multiplied by the measured quantity. Indicate temporary facilities or other major cost items that are not a direct cost of actual work-in-place as separate line items. Show overhead and profit as a separate line item amount – to facilitate review of lien-waivers from sub-contractors and material suppliers. Round-off individual amounts to the nearest whole dollar, but with the total equal to the Contract Sum. Arrange the schedule with columns to indicate the generic name of the item, related specification sections, the subcontractor, supplier, manufacturer or fabricator, change orders (numbers) which have affected the value, the dollar value of the item, and the percentage of the Contract Sum to the nearest one- hundredth percent and adjusted to total 100 percent.

PRIOR TO INITIAL PAYMENT APPLICATION SUBMITTAL, the following are required:

- List of subcontractors.
- Schedule of Values.
- Contractor's Construction Schedule.
- Products list.
- Schedule of unit prices.
- Submittals Schedule .
- List of Contractor's staff assignments, and principal consultants.
- Copies of all applicable building permits (except for those obtained directly by the Owner)
- Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
- Initial progress report.
- Report of preconstruction conference.
- Certificates of Insurance (AIA G705) and evidence that Contractor's insurance has been secured.
- Performance and payment bonds (if required).

APPLICATIONS FOR PAYMENTS: Use AIA Document G702 and AIA Document G703 Continuation Sheets or an equivalent document approved in advance. Complete every entry on the form, matching data on the Schedule of Values and correlated with the Contractor's Construction Schedule – using updated schedules if revisions have been approved. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Each Application shall be consistent with previous applications. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements. Include amounts of Change Orders and Construction Change Directives as separate line-items.

- TIMING: Unless otherwise noted in the Agreement Form, the required date for submittal will be the tenth (10^{th}) day of each month.
- TIME PERIOD: Unless otherwise noted in the Agreement Form, the time-period covered by each Application for Payment starts on the first (1^{st}) day of a month and ends on the last day of the same month.
- SUBMIT an email and deliver THREE (3) notarized originals for receipt within 24 hours of the email
- ATTACHMENTS: Include a transmittal letter listing attachment and appropriate information regarding the Application, with an updated Schedule-of-Values and Construction Progress Schedule (if applicable) and partial lien-waivers (if required by Owner).

PAYMENT APPLICATION AT SUBSTANTIAL COMPLETION: After the Certificate of Substantial Completion is issued, submit an Application for Payment showing 100 percent completion. Provide a copy of the Certificate of Occupancy from the applicable AHJ indicating that the Project can be occupied by the Owner, and a current accounting statement showing all changes to the Contract Sum.

INCLUDE WITH THE FINAL PAYMENT APPLICATION the following:

- Unconditional lien-releases for all subcontractors and material suppliers
- Evidence of completion of Project closeout requirements.
- Insurance certificates for products and completed operations
- Proof that all taxes, fees, and similar obligations were paid.
- Updated final statement, accounting for final changes to the Contract Sum.
- AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
- AIA Document G706A, "Contractor's Affidavit of Release of Liens."
- AIA Document G707, "Consent of Surety to Final Payment." (if Bonds are provided)
- Evidence that claims have been settled.
- Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
- Final, liquidated damages settlement statement.

PARTIAL LIEN WAIVERS: At any time throughout the project, and concurrent with applications for Payment, the Owner reserves the right to require submittal of partial lien waivers indicating that lien rights are "unconditionally released" for all amounts previously paid by the Owner (less any retainage amounts), and "conditionally released" or contingent only upon receipt and bank clearance of the current payment-application amounts then due. The Owner reserves the right to designate which entities involved in the Work must submit waivers. Submit all waivers on the 1990 Edition of the "Waiver and Release of Lien" form as issued by the Construction Industry Affairs Council of Greater Kansas City Inc (CIAC) or other form provided or approved by the Owner, fully executed in a manner acceptable to Owner.

SUBMIT FINAL, UNCONDITIONAL LIEN RELEASES from all sub-contractors or material suppliers, with the application for Final Payment, together with the Contractor's final, conditional lien-release - contingent only upon receipt and bank clearance of the final-payment amount.

SECTION 01 31 00 – PROJECT MANAGEMENT AND COORDINATION

THE INTENT OF THE CONSTRUCTION DOCUMENTS is to include all items required for completion of the Work. Although the Drawings have been prepared with due care and diligence, design and construction is complex. Consequantially, the Drawings are often diagrammatic - every potential condition or contingency cannot be anticipated or fully indicated, and all components required for complete installation may not be fully indicated.

SCHEDULE AND COORDINATE the Work of the complete Project, including preparation of general coordination drawings, schedules, and control of site utilization, from beginning of construction activities through project close-out.

COORDINATE THE CONSTRUCTION WORK to assure an efficient and orderly sequence of installation of the various construction elements, with provisions for accommodating items to be installed later. Coordinate space requirements and installation of mechanical and electrical Work. Follow routing shown for pipes, ducts, and conduits, as closely as practical; make runs parallel with lines of the building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs. Conceal pipes, conduits and similar elements whenever possible within the new construction, in finished areas.

PRE-CONSTRUCTION MEETING: Meet with the Owner's and/or Landlord/Developer's construction representatives before starting construction. Discuss procedures and requirements for site access, work hours, parking, deliveries and receiving, debris and waste receptacles, temporary barricade, and construction operations that may be offensive.

MAINTENANCE OF CONSTRUCTION DOCUMENTS: Maintain at the Project Site a "Record Set" of Construction Documents. In addition, maintain copies of the the following related drawings or documents prepared by others:

- Construction Requirements of the Landlord (if applicable)
- Casework shop drawings prepared by the Casework fabricator
- Food Service Equipment layout and rough-in drawings
- Signage shop drawings prepared by the Signage Contractor, and
- Sprinkler and fire-alarm system shop drawings (if applicable)

DO NOT construct or install any portion of the Work related to these drawings at any time without such drawings being available at the site.

MARK REVISIONS made during construction on the Record Set of Documents with colored pencil - do not conceal any Work before revisions have been recorded. Note actual routing of underslab plumbing and utility lines, if different from design drawings.

SECTION 01 32 16 – CONSTRUCTION & SUBMITTAL SCHEDULE

CONSTRUCTION SCHEDULE: Prepare and submit a bar-chart type progress schedule for the entire Project within fourteen (14) calendar days after award of Contract. Provide a separate line-item for each Work item listed in the Schedule of Values. Include appropriate time for project mobilization, procurement of products, review and approval of shop drawings, fabrication, installation, testing, and final cleanup. Identify each calendar day throughout the schedule. Highlight "critical path" elements of the schedule that are important to complete the Work on time. Correlate the schedule with critical "milestone dates" including but not limited to the Notice to Proceed, Substantial Completion, and the Final Completion dates.

SUBMITTAL SCHEDULE: Submit a schedule of planned submittals, arranged in chronological order by dates required by the Construction Schedule. Coordinate the Submittal Schedule with the Construction Schedule durve, and include time required for review and re-submittal (if necessary) when establishing dates. Submit the Submittal Schedule concurrently with the Construction Schedule above - identifying any submittals required during the first sixty (60) calendar days of construction. List any submittals that are required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication. Failure to provide a Submittal Schedule relives the Architect and/or Engineer of responsibility for timely submittal review..

SECTION 01 60 00 – PRODUCT REQUIREMENTS

PRODUCT OPTIONS - "OR EQUAL" SUBSTITUTIONS PERMITTED: When a material, article, system or piece of equipment is identified in the Drawings or Specifications, it is identified for the purpose of establishing a standard of required function, availability, physical properties, dimension, color, appearance, quality, in-service performance, operation and maintenance. Unless that product is indicated as "no substitutions" or "no-options" within the Construction Documents, the Contractor may substitute ANY product of other manufacturers or vendors which will perform adequately the duties imposed by the specified item, and which will not cause a delay in the construction schedule due to procurement of such item. Substituted products not meeting the intent of the Construction Documents may be rejected by the Architect.

PRODUCT OPTIONS – NO SUBSTITUTIONS: When a material, article, system or piece of equipment is identified in the Construction Documents, it is identified for the purpose of establishing a standard of required function, availability, physical properties, dimension, color, appearance, quality, in-service performance, operation and maintenance. No substitutions will be considered for "named products" (including a manufacturer's product name, make or model number as applicable) unless they are noted as "or equal" or otherwise approved in advance by the Architect. If multiple manufacturers or vendors are listed, provide products only by one of the listed manufacturers or vendors. For products noted as "or equal" or "basis-of-design" products, or for products that are specified by performance requirements, characteristics, and/or referenced standards, provide products of any manufacturer or vendor meeting those requirements and characteristics, which will perform adequately the duties imposed by the specified item, and which will not cause a delay in the construction schedule due to procurement of such item. Substituted products not meeting the intent of the Construction Documents may be rejected by the Architect.

APPLICATION / ACCEPTANCE: Application of a material or equipment item to Work installed by others constitutes acceptance of that Work and assumption of full responsibility for satisfactory installation.

PRODUCTS IN QUANTITIES shall be alike and interchangeable. Where additional amounts of a product are likely to be needed by the Owner at a later date for maintenance and repair, provide standard, domestically produced products which are likely to be available to the Owner at such later date.

SUPPLY PRODUCTS COMPLETE with all standard devices, trim finish, and all accessories indicated in the latest edition of the manufacturer's catalog or brochure published at the date of the award of the Contract. Furnish such items complete with component parts necessary for the obvious and intended use and installation, whether or not descriptions or catalog numbers contain all supplemental information and/or numbers of such components.

EQUIPMENT NAMEPLATES: Provide permanent nameplates on each item of service-connected or power operated equipment. Indicate manufacturer, product name, model number, serial number, capacity, speed, rating, and similar essential operating data. Locate nameplates on an easily accessible surface.

LABELS: Locate required labels and stamps on an accessible surface which, in occupied spaces, is not conspicuous.

MANUFACTURER'S INSTRUCTIONS: Whenever products are required to be installed and/or perform in accordance with a specified manufacturer's instruction or procedure, procure, distribute and maintain at the site copies of such information.

NO ALLOWANCE or consideration will be made for claimed ignorance as to what a cited standard contains, as each tradesman is considered to be experienced and familiar with the published standards of quality and workmanship for his own trade.

PRODUCT WARRANTIES: Submit a draft copy of product warranties or guarantees to the Architect for review when required by other sections of the Contract Documents, prior to execution by required parties.

THE OWNER RESERVES THE RIGHT TO REJECT PRODUCT WARRANTIES that in the opinion of the Owner tend to detract from, or confuse interpretation, of the requirements of the Contract Documents.

STORE PRODUCTS in accordance with manufacturer's instructions, maintaining sensitive materials within temperatures and humidity ranges required by the manufacturer. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; with ventilation to avoid condensation. Arrange storage to provide access for inspection.

SECTION 01 71 23 – FIELD ENGINEERING

SURVEY THE EXISTING BUILDING FACILITY prior to the start of construction, to document any existing conditions such as cracks, sags, loose materials or other defects of the existing construction. This record shall serve as a basis for determination of subsequent damage resulting from the Contractor's operations at the site.

VERIFY existing horizontal and vertical control points, grades, elevations, dimensions, and other figures shown on the Drawings. Report inconsistencies to the Architect for resolution before commencing work.

WORK LAYOUT: Establish and maintain chalk-lines and other markers necessary to locate all elements of the project, including partitions, casework, electrical and plumbing connections and fixtures. Calculate and measure required dimensions.

DO NOT SCALE THE DRAWINGS to determine dimensions, unless directed to do so.

ESTABLISH & MAINTAIN new benchmarks and other markers to set lines and levels for the Work as needed to properly locate all elements of the Project. Calculate and measure required dimensions by instrumentation or other appropriate means. Do not scale the drawings to determine dimensions, unless directed by the Architect.

TAKE FIELD MEASUREMENTS as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

SECTION 01 73 00 – EXECUTION REQUIREMENTS

INSTALLERS INSPECTION OF SUBSTRATE CONDITIONS: Before installation, inspect substrate material and the conditions under which the Work will be performed, report unsatisfactory condition to the Architect. Do not proceed until unsatisfactory conditions have been corrected. Application of a material or equipment item to work installed by others constitutes acceptance of that Work and assumption of responsibility for satisfactory installation.

INSPECT each item of material or equipment immediately prior to installation. Reject damaged and defective items.

PERFORM INSTALLATION WORK by persons qualified to produce workmanship of specified quality, in accordance with manufacturer's printed instructions. Install Work during conditions of temperature, humidity, exposure, forecasted weather, and status of the project completion which will ensure the best possible results for each unit of work.

COMPLY WITH MANUFACTURER'S installation recommendations and requirements, as applicable.

ISOLATE each unit of work from non-compatible work, as required to prevent deterioration.

MAKE ALLOWANCE for expansion, contraction, and building movements.

PROVIDE ATTACHMENT AND CONNECTION devices and methods for securing the work properly as it is installed, true to line and level. Provide uniform joint widths in exposed work, organized for best possible visual effect. Refer questionable visual-effect choices to the Architect for final decision.

COORDINATE CLOSING-IN of work with required inspections and tests, so as to minimize the necessity of uncovering completed work.

PROTECTION: After installation, provide coverings to protect installed products from damage from traffic and construction operations, remove when no longer required.

REPAIR AND REPLACE damaged items, at no additional cost to the Owner. Additional time required to secure replacements and to make repairs will not be considered to justify an extension of time to complete the Work.

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
22902.001

drawing issuance

PERMIT	12/08/22

drawing revisions

No.	Description:	Date:

professional seal

Date Signed DEC 09 2022

DATE SIGNED: 2/3/2023 10:14:22 AM

drawing title
SPECIFICATIONS

drawing number
SP101

SECTION 01 73 29 - CUTTING & PATCHING

DEFINITION: "Cutting and patching" is hereby defined to include cutting into existing construction elements to provide for the installation or performance of other work and the subsequent fitting and patching required to restor surfaces to their original condition. "Cutting and patching" is performed for coordination of the Work, to uncover Work for access or inspection, to obtain samples for testing, to permit alterations to be performed, or for other similar purposes.

DO NOT cut and patch structural elements in a manner that would reduce their load-carrying capacity or load-deflection ratio. Do not cut and patch operating elements or safety related components in a manner that woul result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operation life or safety. Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting an patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.

"CUTTING AND PATCHING" DOES NOT INCLUDE work performed during the manufacturing of products. It does not include the drilling of holes for installation of fasteners or similar operations. Demolition of selected portions of the building for alterations is included in Division-2 Specification Sections.

USE MATERIALS that are identical to existing materials. If identical materials are not available or cannot be use where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existi materials.

INSPECTION: Before cutting existing surfaces, examine surfaces to be cut and patched and conditions under whi cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.

PROVIDE TEMPORARY SUPPORT AND PROTECTION of Work to be cut. Protect existing construction durin cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.

TAKE ALL PRECAUTIONS necessary to avoid cutting existing pipe, conduit or ductwork serving the building, b scheduled to be removed or relocated until provisions have been made to bypass them. Employ skilled workmen t perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.

CUT existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition. Cut existir construction using methods least likely to damage elements to be retained or adjoining construction.

IN GENERAL, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover opening when not in use. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces. Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.

BY-PASS UTILITY SERVICES such as pipe or conduit, before cutting, where services are shown or required to b removed, relocated or abandoned. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.

PATCH with durable seams that are as invisible as possible. Comply with specified tolerances. Where feasible, inspect and test patched areas to demonstrate integrity of the installation. Restore exposed finishes of patched area and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

WHERE REMOVAL OF WALLS or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary to achieve uniform color and appearance.

PAINTED SURFACES: Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken containing the patch, after the patched area has received primer and second coat.

AT EXISTING CEILINGS, patch, repair or rehang as necessary to provide an even plane surface of uniform appearance.

THOROUGHLY CLEAN all areas and spaces where cutting and patching is performed or used as access. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

SECTION 01 77 00 – CLOSEOUT PROCEDURES

FINAL CLEANING:

PRIOR TO OWNER OCCUPANCY, clean all surfaces including fixtures and equipment, for use by the Owner. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of work to the condition expected from a normal, commercial building cleaning and maintenance program. Comply with the manufacturer's instructions for operations.

CLEAN TRANSPARENT MATERIALS, including mirrors and glass in doors and windows, to a polished condition. Remove putty and other substances which are noticeable as vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.

CLEAN EXPOSED EXTERIOR and interior hard-surfaced finishes to a dust-free condition, free of dust, stains, films and similar noticeable distracting substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.

MECHANICAL AND ELECTRICAL EQUIPMENT shall be wiped clean. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.

CLEAN THE PROJECT SITE, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas to a broom clean condition; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

SUBSTANTIAL COMPLETION PROCEDURES:

AFTER final cleaning operations have been completed, and when the Project is ready for owner occupancy, obtain an occupancy permit on behalf of the Owner, and approval by any other governmental authorities having jurisdiction over the Project.

SUBMIT a written request for inspection, stating that the Work is Substantially Complete and ready for the Owner's beneficial use and occupancy. Accompany notice with a listing of all items to be completed or corrected.

OWNER'S OR ARCHITECT'S ACTION: Following observation of the Work, the Owner or Architect will either prepare the certificate of substantial completion, or will advise the Contractor of work which must be performed before the certificate will be issued. Results of the observation report will form the initial "punch-list" for final acceptance.

PREREQUISITES TO FINAL COMPLETION:

COMPLETE ALL WORK ITEMS as expeditiously as possible, providing labor at times when the facility is not in operation, if necessary. Coordinate with the Owner's representative and perform the Work so that it will not interfere with the Owner's operations.

COMPLETE FINAL TESTING of systems, and instruct Owner's personnel in the operation, adjustment, maintenance of all mechanical, plumbing, fire protection, monitoring and electrical systems.

REMOVE TEMPORARY FACILITIES and controls, and temporary utility services from the project site, along with construction tools, field office, mock-ups and similar elements.

TOUCH-UP AND REPAIR or restore marred exposed finishes. Deliver spare parts, tools, extra stock of materials and similar physical items.

INSTRUCTION OF OWNER'S PERSONNEL: Arrange for each installer of operating equipment and other work that requires regular or continuing maintenance, to meet at the site with the Owner's personnel to provide necessary basic instructions in the proper operation and maintenance of the entire Work. Where installers are not experienced in the required procedures, include instruction by the manufacturer's representatives.

OPERATION AND MAINTENANCE DATA: Include the following types of information in operation and maintenance manuals: emergency instructions, spare parts listings, copies of warranties, wiring diagrams, inspection procedures, shop drawings and product data.

FINAL CLOSEOUT SUBMITTALS:

ELECTRONIC CLOSEOUT SUBMITTALS: In addition to 1 set of paper originals of the documents indicated below, provide Operation and Maintenance Data, Warranties, and the list of sub-contractors and material suppliers, in electronic media (CD) at close-out. Provide jewel-case covers and label each CD and cover with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents, as appropriate. Provide two (2) sets of electronic documents.

SUBMIT FINAL OCCUPANCY PERMIT, and other legal releases necessary for the Owner' complete and unrestricted use.

SUBMIT WARRANTIES, guarantees, maintenance bonds, maintenance agreements, final product certifications and similar documents.

SUBMIT MARKED-UP RECORD DRAWINGS, operations and maintenance manuals, damage or settlement survey, extra copies of drawings and specifications, and similar final record information.

SUBMIT A FINAL LISTING of all sub-contractors and material suppliers used on the project.

SUBMIT AN UPDATED FINAL STATEMENT accounting for additional changes (additions and deductions) to the Contract Sum. Identify amounts for change orders, liquidated damages (addition or deduction), deductions for uncorrected work, deductions for reinspection payments, and previous payments.

SUBMIT FINAL PAYMENT REQUEST with final unconditional lien releases from all sub-contractors and material suppliers, and other supporting documentation not previously submitted or accepted.

SUBMIT FINAL LIEN RELEASE, contingent only upon receipt and bank clearance of final payment amount.

SUBMIT THE ARCHITECT'S PUNCH□LIST(s) with the Contractor's signed statement indicating that all items have been completed or otherwise resolved for acceptance.

SUBMIT EVIDENCE OF CONTINUING INSURANCE COVERAGE complying with requirement of the Contract Documents. Include certificates of insurance for products and completed operations when required.

SUBMIT WRITTEN CERTIFICATION that: (1) the Contract Documents have been reviewed, (2) the Work has been inspected for compliance with the Contract Documents, (3) the Work has been completed in accordance with the Contract Documents, (4) equipment and systems have been tested in the presence of the Owner's representative and are operational, and (5) the Work is completed and ready for final inspection.

OWNER'S OR ARCHITECT'S ACTION: Following final inspection, the Owner or Architect will either prepare the certificate of final acceptance, or will advise the Contractor of work which must be performed before the certificate will be issued.

REINSPECTION FEES: Should the Architect perform reinspections (for either Substantial Completion or for Final Completion) due to the failure of the Work to comply with the claims of status of completion made by the Contractor, the Owner will compensate the Architect for such additional services and will deduct the amount of such compensation from the final payment to the Contractor.

SECTION 03 30 00 – CAST-IN-PLACE CONCRETE

PROVIDE concrete for new floor slabs (where required), for patching existing floor slabs, where installation of new plumbing and electrical lines require removal of existing concrete materials, and for concrete curbs when shown on the drawings.

CONCRETE MATERIALS: ASTM C-150, Type 1, Portland cement, with ASTM C-33 sand and crushed stone aggregates, mixed to provide 3000 PSI minimum compressive strength at 28 days.

WELDED WIRE FABRIC: ASTM A-185 welded steel wire fabric, min. 6 x 6 - W1.4/W1.4

MOISTURE BARRIER: 6 mils thick polyethylene sheet.

SELF-LEVELING FLOOR TOPPING: Provide "Ardex" SD-L topping at all floor surfaces too rough or too un-even to finish with the indicated materials. Install topping in accordance with manufacturer's directions.

COMPLY with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete", and as herein specified.

INSTALL concrete Work to match and meet existing adjoining surfaces. Do not transport wet concrete through public areas of malls without prior approval of the Landlord and without extensive protection of the existing flooring.

TROWEL FINISH: Apply trowel finish to slab surfaces that are to be exposed to view and to slab surfaces that are to be covered with resilient flooring, carpet, ceramic or quarry tile, wood flooring or other floor finishes. Provide finished-surface plane tolerance not exceeding 1/8" in ten (10) feet, in two different angles.

PROTECT the freshly placed concrete from premature drying from wind, excessive cold and hot temperature, and maintain for a period of time necessary for hydration of cement and proper hardening.

CURBS: Where concrete curbs are indicated on the Drawings, strip forms while concrete is still green and steel-trowel surfaces to a hard, dense finish with corners, intersections and terminations slightly rounded.

SECTIONAL 03 36 13 SECTIONAL DOORS

WORK INCLUDED: Provide sectional overhead door(s) as a complete unit including frames, sections, brackets, guides, tracks, counterbalance mechanisms, hardware, operators and installation accessories, to suit openings and head room allowable, as shown on the drawings and specified herein, and as needed to meet the requirements of the construction shown in the Contract Documents.

WIND LOADING: Design and reinforce sectional overhead doors to withstand a 20 lb. per sq. ft. wind loading pressure.

ALUMINUM FRAMED GLAZED SECTIONAL DOOR: Construct with ASTM B 221 extruded-aluminum shapes with wall thickness not less than 0.065 inch with door section of 1-3/4 inches face width by manufacturer's standard depth. Join stiles and rails with concealed, 1/4-inch- +minimum diameter, aluminum or nonmagnetic stainless-steel through bolts, full height of door section, or welding. Form meeting rails to provide a weather-tight-seal joint. Provide reinforcement for hardware attachment.

TYPICAL HIGH-PERFORMANCE ORGANIC FINISH: Provide manufacturer's standard high-performance organic coating finish complying with AAMA 605.2:
Color: "Tricorn Black" Sherwin Williams Tricorn Black NO SW6258

ACCEPTABLE PRODUCT/MANUFACTURERS: Subject to compliance with requirements herein, provide Model 350 NL as manufactured by "Finishline Industries, Inc." of Conyers, GA, Toll-Free: 800-523-5836, website: www.finishline-doors.com, or approved equivalent by Clopay, Overhead Door, Raynor, Wayne-Dalton, or Windsor Door.

INSULATED STEEL SPANDREL PANELS: Fabricate from a steel sheet with continuous thermal-break construction separating faces, in sections not more than 24 inches high and nominally 2 inches deep. Roll horizontal meeting edges to a continuous, interlocking, keyed, rabbeted, shiplap, or tongue-in-groove weathertight seal, with a reinforcing flange return. Insulate inner core with rigid polyisocyanurate thermal insulation, with maximum flame-spread and smoke-developed indices of 75 and 450, respectively, according to ASTM E 84. Enclose insulation completely, with no exposed insulation material evident. Provide units as as manufactured by "Lurie Panels" or approved equal
Finish & Color: Tricorn Black" Sherwin Williams Tricorn Black NO SW6258

TRACKS: manufacturer's standard galvanized steel track system, sized for door size and weight, and designed for clearances shown. Provide complete track assembly including brackets, bracing and reinforcing for rigid support of ball bearing roller guides, for required door type and size. Slot vertical sections of track at 2" o.c. for door drop safety device. Slope tracks at proper angle from vertical, or otherwise design to ensure tight closure at jambs when door unit is closed. Weld or bolt to track supports.

TRACK REINFORCEMENT AND SUPPORTS: galvanized steel track reinforcement and support members. Secure, reinforce and support tracks as required for size and weight of door to provide strength and rigidity, and to ensure against sag, sway, and detrimental vibration during opening and closing of doors.

SUPPORT AND ATTACH tracks to opening jambs with continuous angle welded to tracks and attached to wall. Support horizontal (ceiling tracks) with continuous angle welded to track and supported by laterally-braced attachments to overhead structural members at curve and end of tracks.

WEATHER SEALS: continuous rubber adjustable weatherstrip gasket at tops and compressible astragal on bottoms of each overhead door. In addition, provide continuous flexible seals at door jamb edges for a fully weathertight installation.

HARDWARE:

HINGES: heavy-duty stainless-steel hinges at each end stile and at each intermediate stile, per manufacturer's recommendations for size of door. Attach hinges to door sections through stiles and rails with bolts and lock nuts or lock washers and nuts. Use rivets or self-tapping fasteners where access to nuts is not possible.

ROLLERS: heavy-duty rollers, with steel ball bearings in case-hardened steel races, mounted with varying projections to suit slope of track. Extend roller shaft through both hinges where double hinges are required. Provide case- hardened steel tires to suit size of track.

PULL HANDLES, LOCKS AND LATCHES: For manually-operated doors, furnish lifting handles, locks, and locking devise including lifting handles, and with cremone type locking bars, operable from inside only. Lock cylinder is specified in other Division-08 sections.

FABRICATE locking device assembly with mortise lock, spring loaded dead bolt, chromium-plated operating handle, cam plate, and adjustable locking bar to engage through slots in tracks.

COUNTERBALANCING MECHANISMS:

TORSION SPRING: Hang door assembly for operation by torsion spring counterbalance mechanism, consisting of adjustable tension tempered steel torsion springs mounted on a case-hardened steel shaft, and connected to door with galvanized aircraft type lift cable.

PROVIDE cast aluminum or grey iron casting cable drums, grooved to receive cable. Mount counterbalance mechanism with manufacturer's standard ball- bearing brackets at each end of shaft with one additional mid-point bracket for shafts up to 16' long and 2 additional brackets at 1/3-points to support shafts over 16' long, unless closer spacing recommended by door manufacturer.

INCLUDE a spring-loaded steel or bronze cam mounted to bottom door roller assembly on each side, designed to stop door automatically if either cable breaks. Provide either a compression spring or leaf spring bumper installed at end of each horizontal track to cushion door at end of opening operation.

MANUAL DOOR OPERATORS:

PUSH-UP OPERATION: Provide lift handles and pull rope for raising and lowering doors, operating with not more than 25 lbs. lift or pull.

INSTALLATION:

INSTALL door, track, and operating equipment complete with necessary hardware, jamb and head mold stops, anchors, inserts, hangers, and equipment supports in accordance with final shop drawings, manufacturer's instructions and as herein specified.

FASTEN vertical track assembly to framing at not less than 24" o.c. Hang horizontal track from structural overhead framing with angle or channel hangers, welded and bolt-fastened in place. Provide sway bracing, diagonal bracing, and reinforcing as required for rigid installation of track and door operating equipment.

UPON COMPLETION OF INSTALLATION, including work by other trades, lubricate, test and adjust doors to operate easily, free from warp, twist, or distortion and fitting weathertight for entire perimeter.

SECTION 04 20 00 – UNIT MASONRY

PROVIDE UNIT MASONRY where indicated on the drawings and as specified herein. Install related materials intended to be installed within masonry assemblies, including but not limited to stone trim units, steel lintels, shelf angles, and sheet metal reglets and flashings, as appropriate.

SUBMIT PRODUCT DATA for each different masonry unit, accessory, and other manufactured product specified.

PROTECTION OF MASONRY: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress. Extend cover a minimum of 24 inches down both sides and hold cover securely in place. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.

PREVENT GROUT, MORTAR, AND SOIL FROM STAINING the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry. Protect base of walls from rain-splashed mud and from mortar splatter by coverings spread on ground and over wall surface. Protect sills, ledges, and projections from mortar droppings. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

COLD-WEATHER REQUIREMENTS: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602. Use liquid cleaning methods only when air temperature is 40 deg F and above and will remain so until masonry has dried, but not less than 7 days after completing cleaning.

HOT-WEATHER REQUIREMENTS: Protect unit masonry work when temperature and humidity conditions produce excessive evaporation of water from mortar and grout. Provide artificial shade and wind breaks and use cooled materials as required. When ambient temperature exceeds 100 deg F, or 90 deg F with a wind velocity greater than 8 mph, do not spread mortar beds more than 48 inches ahead of masonry. Set masonry units within one minute of spreading mortar.

PRODUCTS

CONCRETE MASONRY UNITS (CMU): Normal weight, (unless otherwise indicated) ASTM C 90 open-ended per allowable shrinkage rate of C-90 paragraph 5.2, with minimum average net-area compressive strength of 1900 PSI; face size: 8 inches nominal – 7-5/8 inches actual height x 16" nominal – 15-5/8 inch actual width, in total nominal wall thickness as indicated in the Drawings. Provide manufacturer's standard light-gray colored units with "smooth" (not textured) exposed face surface suitable for painting typically, and, provide textured-face units made with gap-graded aggregates where units are indicated to receive a direct application of plaster or similar material.

PROVIDE SPECIAL SHAPES for lintels, corners, jambs, sash, control joints, headers, bonding, and other special conditions. Provide bullnose units for outside corners, unless otherwise indicated. Provide square-edged units for outside corners, unless indicated as bullnose.

PRECAST CMU LINTELS OR BOND BEAMS: Provide either prefabricated concrete lintels or built-in place masonry lintels using bond beam shapes with reinforcing bars indicated and filled with coarse grout. Fabricate from concrete matching CMU color, texture, joint pattern and compressive strength, and with reinforcing bars as required. Cure precast lintels by same method used for the concrete masonry units.

DECORATIVE CONCRETE MASONRY UNITS:

SPLIT-FACED AND SMOOTH-FACED CMU'S: ASTM C-90 or ASTM C-145 Grade N, 8" high x 16" wide units with integral water-repellent admixture, in thickness as indicated on the Drawings. Provide finished face and finished corner end units, chamfered top units with finished top face, and exterior corner units with finished ends, as applicable.
SCORED FACES: Provide 8" x 8" scored faces, where indicated on the Drawings.
COLOR: Provide units with integral color as selected by Architect from manufacturer's full range of color options.

STONE MASONRY UNITS: High-density pre-finished calcium-silicate masonry units conforming to ASTM C90-96. Provide units with integral water-repellent admixture, and with special shapes and special sizes at archways, bands and where indicated in the Drawings.
"Renaissance" units as manufactured by "Arriscraft International" (www.arriscraft.com) or approved equal in size, series, surface finish/texture and color as indicated on the Drawings

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project title

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NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

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GLAZED CONCRETE MASONRY UNITS: Lightweight or medium weight units per ASTM C90 with an integral water-repellent admixture, with a smooth, satin-gloss, externally heat-polymerized, cast-on facing conforming with ASTM C 744:
Astra-Glaze SW units as manufactured by Trenwyth Industries, or approved equal, in color(s) as indicated on the Drawings

FACE BRICK: ASTM C 216, Grade SW, Type FBX, FBS, FBA, with initial rate of absorption less than 30 g/30 sq. In. per minute when tested per ASTM C 67, "not efflorescec" when tested per ASTM C-79, and with no observable surface coloring difference in applied finish when viewed from 10 feet after 50-cycles of freezing and thawing per ASTM C-67 (except for flashed or sand-finished units).
MODULAR UNIT SIZE: Provide units manufactured to actual dimensions of 3-1/2 to 3-5/8 inches wide x 2-1/4 high by 7-1/2 to 7-5/8 inches long, except when indicated otherwise.

MANUFACTURER/PRODUCT COLOR & TEXTURE: Provide brick as indicated in the Drawings. Do not substitute materials without approval of the Architect.

PROVIDE SPECIAL BRICK SHAPES where standard units cannot be modified by saw-cutting un-exposed portions of the brick do not expose saw-cut surfaces). At sills or caps, provide uncored or unfrogged units with all exposed surfaces finished. Provide special shapes at lintels, corners, jambs, sash, control joints, headers, bonding, and other special conditions. Provide square-edged units at outside corners, except where indicated as bullnose.
LIPPED BRICK UNITS: Provide manufactured "soldier" or "stretcher" lipped units at shelf angles as appropriate – field cut units are not acceptable

MORTAR AND GROUT MATERIALS

PORTLAND CEMENT: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated. (masonry cement is not permitted).

HYDRATED LIME: ASTM C 207 Type S

PORTLAND CEMENT-LIME MIX: Packaged blend of Portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207, Type S

COLORED CEMENT: Provide packaged blend made from Portland cement and lime and mortar pigments, all complying with specified requirements, and containing no other ingredients. Formulate blend as required to produce color indicated or, if not indicated, as selected from manufacturer's standard colors. Pigments shall not exceed 10 percent of Portland cement by weight.

AGGREGATE FOR MORTAR: ASTM C 144. For mortar exposed to view, use washed aggregate consisting of natural sand or crushed stone. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve. Provide natural white sand if necessary to produce required mortar color.

AGGREGATE FOR GROUT: ASTM C 404.

COLD-WEATHER ADMIXTURE: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494, Type C, and recommended by the manufacturer for use in masonry mortar of composition indicated Available products include:
Accelguard 80; Euclid Chemical Co.
Morseled; W. R. Grace & Co., Construction Products Division.
Trimix-NCA; Sonneborn, Div. of ChemRex, Inc.

WATER-REPELLENT ADMIXTURE: Liquid water-repellent mortar admixture intended for use with concrete masonry units, containing integral water repellent by same manufacturer. Available products include:
Mortar Tite; Addiment Inc.
Dry-Block Mortar Admixture; W. R. Grace & Co., Construction Products Division.
Rheopel; Master Builders.

WATER: Potable.

MASONRY-CELL INSULATION: ASTM C-578 Type I, rigid, molded, expanded-polystyrene insulation units specially shaped for installing in cores of masonry units: "Korfil" by Concrete Block Insulating Systems, "Omni Core" by Shelter Enterprises Inc, or equal.

REINFORCING STEEL: Uncoated steel reinforcing bars: ASTM A 615/A 615M; ASTM A 616/A 616M, including Supplement 1; or ASTM A 617/A 617M, Grade 60 (Grade 400).

JOINT REINFORCEMENT: ASTM A 951, hot-dip galvanized, carbon-steel wire for both interior and exterior walls, with W2.8 or 0.188-inch diameter side-rods and W2.8 or 0.188-inch diameter cross-rods. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units where indicated. For single-wythe masonry, provide either ladder or truss type with single pair of side rods and cross rods spaced not more than 16 inches o.c. At multi-wythe masonry, provide ladder type with perpendicular cross rods spaced not more than 16 inches o.c. and 1 side rod for each face shell of hollow masonry units more than 4 inches (in width, plus 1 side rod for each wythe of masonry 4 inches (or less in width).

TIES AND ANCHORS - GENERAL: ASTM A-82 hot-dip galvanized carbon-steel wire with ASTM A 153, Class B-2 coating; ASTM A-653 steel sheet with G60 hot-dipped galvanized coating, and ASTM A-36 steel plates, shapes, and bars with G60 hot-dipped galvanized. coating.

BENT WIRE TIES: Rectangular units with closed ends and not less than 4 inches wide. Z-shaped ties with ends bent 90 degrees to provide hooks not less than 2 inches long may be used for masonry constructed from solid units or hollow units laid with cells horizontal. Fabricated from 3/16-inch- diameter, hot-dip galvanized steel wire.

ADJUSTABLE ANCHORS FOR CONNECTING TO STEEL FRAME: Two-piece assemblies that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall. Fabricate anchor section of crimped 1/4-inch- diameter, hot-dip galvanized steel wire for welding to steel. Fabricate tie section of triangular-shaped 0.1875-inch diameter hot-dip galvanized steel wire, sized to extend within 1 inch of masonry face.

ANCHORS FOR CONNECTING TO CONCRETE: Two-piece assemblies that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall. Fabricate dovetail anchor section from 0.0966-inch- thick, steel sheet, galvanized after fabrication. Fabricate tie section from triangular-shaped 0.1875-inch- diameter, hot-dip galvanized steel wire, sized to extend within 1 inch of masonry face, made from.

ADJUSTABLE MASONRY-VENEER ANCHORS: Two-piece assemblies that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall, for attachment over sheathing to wood or metal studs, capable of withstanding a 100-lbf load in both tension and compression without deforming or developing play in excess of 0.05 inch. Fabricate anchor section from rib-stiffened, 0.0677-inch thick sheet metal plate galvanized after fabrication with screw holes top and bottom, 2-3/4 inches wide by 3 inches high; with projecting tabs having slotted holes for inserting vertical legs of wire tie specially formed to fit anchor section.. Fabricate wire-tie section from triangular- shaped 0.1875-inch-diameter hot-dip galvanized steel wire tie sized to extend at least halfway through veneer but with at least 5/8-inch cover on outside face.

STEEL DRILL SCREWS FOR STEEL STUDS: No 10 diameter minimum ASTM C 954 except manufactured with hex washer head and neoprene washer, length required to penetrate steel stud flange by not less than 3 exposed threads, and with organic polymer coating with salt-spray resistance to red rust of more than 800 hours per ASTM B 117.
Dril-Flex; Elco Industries, Inc.
Traxx; ITW-Buildex.

ANCHOR BOLTS: Headed type steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153, Class C; of diameter and length indicated.

THRU-WALL MASONRY FLASHING SYSTEM: Provide an fully integrated thru-wall masonry flashing system throughout the project as manufactured by "Illinois Products Corporation" (IPCO), phone: 800-383-8183, website: www.illinoisproducts.com or equivalent system as manufactured by "Polyguard Products Inc, phone: 800-541-4994, website: www.polyguardproducts.com, including the following components:
Solvent based rubber flashing primer,
30-mil self-adhesive rubberized asphalt flashing composite
Pre-formed flashing corners and end-dams
3/8" (exposed) x 0.015 x 1-5/8-inch deep sheet metal drip-edge
Stainless steel at light colored masonry, or
Copper sheet metal at dark colored masonry units
Pre-formed inside and outside drip-edge corners
15 mil (28 gage) Type 304 stainless steel cavity bridges, and
Rubberized asphalt flashing mastic, to sealing edges of flashing

COMPRESSIBLE FILLER: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 50 percent; of width and thickness indicated; formulated from neoprene urethane or PVC.

PREFORMED CONTROL-JOINT GASKETS: Material as indicated below, designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
STYRENE-BUTADIENE-RUBBER COMPOUND: ASTM D 2000, Designation M2AA-805.
PVC: ASTM D 2287, Type PVC-65406.

BOND-BREAKER STRIPS: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).

RECTANGULAR PLASTIC WEEP/VENT TUBING: Clear butyrate, 3/8 by 1-1/2 by 3-1/2.

CAVITY DRAINAGE MATERIAL: 1-inch- thick, free-draining mesh; made from polyethylene strands and shaped to avoid being clogged by mortar droppings.

REINFORCING BAR POSITIONERS: Wire units designed to fit into mortar bed joints spanning masonry unit cells with loops for holding reinforcing bars in center of cells. Units are formed from 0.142-inch steel wire, hot-dip galvanized after fabrication. Provide units with either two loops or four loops as needed for number of bars indicated.

MASONRY CLEANER: Provide standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by manufacturer of masonry units being cleaned.

MORTAR AND GROUT MIXES

DO NOT USE admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated. Do not use calcium chloride in mortar or grout.

ADD COLD-WEATHER ADMIXTURE (IF USED) at the same rate for all mortar, regardless of weather conditions, to ensure that mortar color is consistent.

PREBLENDED, DRY MORTAR MIX: Furnish dry mortar ingredients in the form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

MORTAR FOR UNIT MASONRY: Comply with ASTM C 270, Property Specification.
For masonry below grade, in contact with earth, and where indicated, use Type M.
For reinforced masonry and where indicated, use Type S.
For brick masonry veneer and where otherwise indicated, use Type N.

GROUT FOR UNIT MASONRY: Comply with ASTM C 476, and provide material with 2,000 PSI compressive strength when tested at 28 days, unless noted otherwise. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 5 of ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143.

EPOXY POINTING MORTAR: Mix epoxy pointing mortar to comply with mortar manufacturer's directions.

INSTALLATION:

VERIFY that foundations are within tolerances specified and that reinforcing dowels are properly placed. Examine rough-in and built-in construction to verify actual locations of piping connections. Proceed with installation only after unsatisfactory conditions have been corrected.

THICKNESS: Build cavity and composite walls and other masonry construction to the full thickness shown. Build single-wythe walls to the actual widths of masonry units, using units of widths indicated.

BUILD CHASES AND RECESSES to accommodate items specified in this Section and in other Sections of the Specifications.

LEAVE OPENINGS FOR EQUIPMENT TO BE INSTALLED before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to the opening.

CUT MASONRY UNITS with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide a continuous pattern and to fit adjoining construction. Where possible, use full-size units without cutting. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

SELECT AND ARRANGE UNITS for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

AT EXISTING MASONRY, match coursing, bonding, color, and texture of existing materials.

WETTING OF BRICK: Wet brick before laying if the initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at the time of laying.

INSTALL MASONRY-CELL INSULATION units into masonry unit cells before laying units.

CONSTRUCTION TOLERANCES

COMPLY WITH TOLERANCES IN ACI 530.1/ASCE 6/TMS 602 and the following:

FOR CONSPICUOUS VERTICAL LINES, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/4 inch in 20 feet, nor 1/2 inch maximum.

FOR VERTICAL ALIGNMENT OF EXPOSED HEAD JOINTS, do not vary from plumb by more than 1/4 inch in 10 feet, nor 1/2 inch maximum.

FOR CONSPICUOUS HORIZONTAL LINES, such as exposed lintels, sills, parapets, and reveals, do not vary from level by more than 1/4 inch in 20 feet, nor 1/2 inch maximum.

FOR EXPOSED BED JOINTS, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch. Do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.

FOR EXPOSED HEAD JOINTS, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.

LAYING MASONRY WALLS

LAY OUT WALLS IN ADVANCE for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

BOND PATTERN FOR EXPOSED MASONRY: Lay exposed masonry in the following bond pattern; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
Running Bond, or as otherwise indicated on Drawings

LAY CONCEALED MASONRY with all units in a wythe in running bond or bonded by lapping not less than 2 inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

STOPPING AND RESUMING WORK: In each course, rack back one-half-unit length for one-half running bond or one-third-unit length for one-third running bond; do not tooth. Clean exposed surfaces of set masonry, wet clay masonry units lightly if required, and remove loose masonry units and mortar before laying fresh masonry.

BUILT-IN WORK: As construction progresses, build in items specified under this and other Sections of the Specifications. Fill in solidly with masonry around built-in items.

FILL SPACE BETWEEN HOLLOW-METAL FRAMES and masonry solidly with mortar, unless otherwise indicated.

WHERE BUILT-IN ITEMS ARE TO BE EMBEDDED in cores of hollow masonry units, place a layer of metal lath in the joint below and rod mortar or grout into core.

FILL CORES IN HOLLOW CONCRETE MASONRY UNITS with grout 24 inches under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.

BUILD NON-LOAD-BEARING INTERIOR PARTITIONS full height of story to underside of solid floor or roof structure above, unless otherwise indicated. Install compressible filler in joint between top of partition and underside of structure above. At fire-rated partitions, install firestopping in joint between top of partition and underside of structure above to comply with Division 7 Section "Firestopping."

MORTAR BEDDING AND JOINTING

LAY HOLLOW MASONRY UNITS with full mortar coverage on horizontal and vertical face shells. Bed webs in mortar in starting course on footings and in all courses of piers, columns, and pilasters, and where

INSTALL REGLETS AND NAILERS for flashing and other related construction where they are shown t
be built into masonry.

MASONRY JOINT REINFORCEMENT

PROVIDE CONTINUOUS MASONRY JOINT REINFORCEMENT by installing entire length o
longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inc
elsewhere. Lap reinforcement a minimum of 6 inches. Space reinforcement not more than 16 inches o.c
typically, and at not more than 8 inches o.c. in foundation walls, free-standing enclosure walls, and parape
walls. Provide reinforcement not more than 8 inches above and below wall openings and extending 1
inches beyond openings, in addition to continuous reinforcement.

CUT OR INTERRUPT JOINT REINFORCEMENT at control and expansion joints, unless otherwis
indicated. Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections
Cut and bend reinforcing units as directed by manufacturer for continuity at returns, offsets, colum
fireproofing, pipe enclosures, and other special conditions.

ANCHOR MASONRY VENEERS to wall framing with masonry-veneer anchors by fastening screw
attached anchors through sheathing to wall framing with a minimum of two (2) metal fasteners unles
anchor design only uses one fastener. Embed tie sections in masonry joints. Locate anchor sections to allow
maximum vertical differential movement of ties up and down. Space anchors as indicated, but not mor
than 16 inches o.c. vertically and 24 inches o.c. horizontally. Install additional anchors within 12 inches o
openings and at intervals, not exceeding 8 inches around perimeter.

CONTROL AND EXPANSION JOINTS

INSTALL CONTROL AND EXPANSION JOINTS in unit masonry where indicated. Build-in relate
items as masonry progresses. Do not form a continuous span through movement joints unless provision
are made to prevent in-plane restraint of wall or partition movement.

FORM CMU CONTROL JOINTS by (1) fitting bond-breaker strips into hollow contour at ends of units o
one side of control joint, filling resultant core with grout, and raking joints in the exposed faces., or (2) b
using control-joint gaskets designed to fit standard sash block, or (3) by installing special shape
interlocking units designed specifically for control joints. Install bond-breaker strips at all control joints
Keep head joints free and clear of mortar or rake out joint for application of sealant. Install temporar
foam-plastic filler in head joints and remove filler when unit masonry is complete.

FORM EXPANSION JOINTS IN BRICK by forming open joint of not less than 3/8 inch for installation o
sealant and backer rod specified in Division 7 Section "Joint Sealants." Keep joint free and clear of mortar.

CONSTRUCT HORIZONTAL, PRESSURE-RELIEVING JOINTS where indicated by inserting
compressible filler of 3/8-inch high minimum for installing sealant and backer rod specified in Division
Section "Joint Sealants." Locate horizontal, pressure-relieving joints beneath shelf angles supportin
masonry veneer and attached to structure behind masonry veneer.

LINTELS

INSTALL STEEL LINTELS IN BRICK MASONRY if precast lintel or other structural support is no
indicated on the Drawings and opening is greater than 12 inches.

PROVIDE PRECAST LINTELS IN CMU WALLS except where steel lintels or other structural support i
indicated on the Drawings and opening is greater than 24 inches. Temporarily support built-in-place lintel
until cured.

PROVIDE MINIMUM BEARING of 8 inches at each jamb, unless otherwise indicated.

REINFORCED UNIT MASONRY INSTALLATION

TEMPORARY FORMWORK AND SHORES: Construct formwork and shores to support reinforce
masonry elements during construction. Construct formwork to conform to shape, line, and dimension
shown. Make it sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms t
maintain position and shape during construction and curing of reinforced masonry. Do not remove form
and shores until reinforced masonry members have hardened sufficiently to carry their own weight a
other temporary loads that may be placed on them during construction.

PLACING REINFORCEMENT: Comply with requirements of ACI 530.1/ASCE 6/TMS 602.

GROUTING: Do not place grout until entire height of masonry to be grouted has attained sufficie
strength to resist grout pressure. Comply with requirements of ACI 530.1/ASCE 6/TMS 602 for cleano
and for grout placement, including minimum grout space and maximum pour height.

FIELD QUALITY CONTROL

THE OWNER WILL ENGAGE a qualified independent testing agency to perform field quality-cont
testing indicated below. Payment for these services will be made by Owner. Retesting of materials faili
to meet specified requirements shall be done at Contractor's expense.
Testing Frequency: Tests and Evaluations listed in this Article will be performed during construction t
each 5000 sq. ft. of wall area or portion thereof.
Mortar properties will be tested per ASTM C 780.
Grout will be sampled and tested for compressive strength per ASTM C 1019.
Brick Tests: For each type and grade of brick indicated, units will be tested according to ASTM C 67.
Concrete Masonry Unit Tests: For each type of concrete masonry unit indicated, units will be test
according to ASTM C 140.
Prism-Test Method: For each type of wall construction indicated, masonry prisms will be tested per AST
C 1314, and as follows:
Prepare 1 set of prisms for testing at 7 days and 1 set for testing at 28 days.

REPAIRING, POINTING, AND CLEANING

REMOVE AND REPLACE MASONRY UNITS that are loose, chipped, broken, stained, or otherwi
damaged or that do not match adjoining units. Install new units to match adjoining units; install in fre
mortar, pointed to eliminate evidence of replacement.

POINTING: During the tooling of joints, enlarge voids and holes, except weep holes, and completely f
with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a ne
uniform appearance. Prepare joints for sealant application.

IN-PROGRESS CLEANING: Clean unit masonry as work progresses by dry brushing to remove mor
fins and smears before tooling joints.

FINAL CLEANING: After mortar is thoroughly set and cured, clean exposed masonry as follows:
Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purpos
Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liqu
strippable masking agent, polyethylene film, or waterproof masking tape.
Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing the surfa
thoroughly with clear water.
Clean brick by the bucket-and-brush hand-cleaning method described in BIA Technical Notes No. 2
using job-mixed detergent solution.
Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.
Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2 applicable to type of stain
exposed surfaces.

MASONRY WASTE DISPOSAL

RECYCLING: Unless otherwise indicated, excess masonry materials are Contractor's property.
completion of unit masonry work, remove from Project site.

END OF SECTION 04200

SECTION 04 72 00 - CAST STONE

WORK INCLUDED: Provide cast stone as shown on the drawings, as specified herein, and as needed to meet the requirements of the construction indicated in the Contract Documents.

REFERENCE STANDARDS: Comply with "Standard Specifications for Cast Stone," as published by the Cast Stone Institute, Pavilions at Greentree, Suite 408, Marlton, NJ 08053, Phone: (609) 858-0271, except as otherwise indicated.

SOURCE QUALITY CONTROL: Comply with ACI's Committee # 311 "Manual of Concrete Inspection" and with PCI's MNL - 117 "Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products."

SUBMIT SHOP DRAWINGS to indicate sizes, profiles, setting mark, and locations of each cast stone item required, with dimensioned plans, elevations, sections and large scale details., as applicable. Show arrangement of joints, bonding, details of anchors, inserts, joints, connections to adjoining materials, reinforcing, and methods of installation and anchoring. Indicate actual, verified in-place field dimensions of adjacent construction elements as applicable.

HANDLE cast stone and related materials to prevent damage or deterioration due to moisture, temperature changes, contaminants, corrosion, breakage, chipping, or other causes. Do not use pinch or wrecking bars. Lift with wide-belt-type slings where possible; do not use wire rope or ropes containing tar or other substances that might cause staining. If required to move cast stone, use wood rollers with cushions at end of wood slides.

STORE cast stone on wood skids or pallets covered with nonstaining, waterproof membrane. Place and stack skids and stones to distribute weight evenly and to prevent breakage or cracking of stones. Protect stored stone from weather with waterproof, nonstaining covers or enclosures, but allow air to circulate around stones.

REPLACEMENTS: In the event of damage, immediately make all repairs and replacements necessary at no additional cost to the Owner.

MATERIALS:

CEMENT: ASTM C 150 Portland cement Type I or Type II white and/or grey color.

FINE & COARSE AGGREGATES: ASTM C 33 graded and washed natural sand or manufactured granite, quartz or limestone sands, except that gradation may very to achieve desired finish and texture.

COLORED PIGMENT: ASTM C 979 inorganic (natural or synthetic) iron oxide excluding the use of a cement grade of carbon black pigment, guaranteed by the pigment manufacturer to be lime-proof. The total amount of pigments shall not exceed ten percent (10%) by weight of the cement used.

ADMIXTURES: ASTM C 494.

WATER: Potable tap-water, free from impurities.

AIR-ENTRAINMENT: five percent (5%) to seven percent (7%) ASTM C 260 type admixture for exterior, wet-cast, cast stone units exposed to freeze-thaw conditions.

STEEL REINFORCING: Billet steel bars complying with ASTM A 615, grade 40 or grade 60, cold drawn steel wire reinforcement meeting ASTM A 82, welded wire fabric meeting ASTM A 185 or ASTM A 497 or steel bar or rod mat reinforcement meeting ASTM A 184, as required for safe handling, setting and structural stress. Provide epoxy-coated billet steel complying with ASTM A 615 and ASTM A 775 at exterior stone units with less than 2" of concrete cover, in accordance with ACI 318.

STONE ANCHORS: Provide non-ferrous standard, commercially produced building stone anchors in non-corrosive materials including brass or type 302 or 304 stainless steel.

POINTING MORTAR: 1 part non-staining cement meeting ASTM C 91, 1 part hydrated lime meeting ASTM C 207 - type S, and 4 parts of clean, washed sand meeting ASTM C 144. Provide coloring pigments as required for approved mortar color.

MANUFACTURED UNITS:

FABRICATE AND INSTALL cast stone work to withstand loads from wind, gravity, movement of building structure, and thermally induced movement as well as to resist deterioration under conditions of normal use including exposure to weather, without failure.

CORNER UNITS: Provide premolded corners where units wrap corner elements. Do not field miter corners.

PREVENT GALVANIC and other forms of corrosion as well as staining by insulating metals and other materials from direct contact with incompatible materials. Use materials that are nonstaining to exposed surfaces of stone and joint materials.

COMPRESSIVE STRENGTH & WATER ABSORPTION: 6,500 psi compressive strength at 28 days and 6 percent water absorption by dry weight, per ASTM C 1194, ASTM C 1195, and ASTM C 642.

MINIMUM PANEL THICKNESS & STEEL REINFORCEMENT: 2-1/2" minimum thickness, reinforced as required for handling, temperature changes, and structural stresses. Provide minimum steel reinforcement of 0.25% of the sectional area, in both directions.

FINISHES of exposed, in-place materials shall match approved samples and shall exhibit a typically fine grained texture similar to natural stone with no bugholes permitted.

FABRICATION:

EXPOSED FACES of cast stone units shall be fabricated by the "vibrant dry-tamp" method, in accordance with the Cast Stone Institute.

PROVIDE positive wash on all exterior sills, copings, projected courses and pieces with exposed surfaces.Provide drips under outer edge of all projecting units or soffit stones. Provide raised fillets at back side (inside) of all window sills.

DIMENSIONAL TOLLERANCE: Plus or minus .125" allowable out of plane or length / 360, whichever amount is greater.

SHOP CURE cast stone with a direct fired steam generator at a minimum temperature of 105 degrees F for a minimum of 6 hours within 12 hours of product fabrication. Perform curing in the presence of carbon-dioxide gas to allow carbonation to occur on the surface of the product for efflorescence control.

INSTALLATION:

CAREFULLY COORDINATE with all other trades to ensure proper and adequate interface of the Work of other trades with the Work of this Section.

MIXING MORTAR: Use of mechanical mixer of one sack minimum capacity. Mix mortar for at least three (3) minutes after all materials have been added. Mix only as much mortar as can be used in one hour after water has been first mixed into the batch. Do not retemper mortar.

INSTALL ALL CAST STONE UNITS plumb and true to the lines and dimensions as indicated on the Drawings. Do not use chipped or broken units. If any such units are discovered in the finished wall, remove and replace such units with new units at no additional cost to the Owner. Protect all stones from splashing mortar or damage by other trades. Remove any foreign matter on stones immediately.

PLACE all cast stone units in a full bed of mortar, with all vertical joints flushed full, unless otherwise indicated. All anchors and dowels shall be firmly placed and all anchor holes, dowel holes and similar holes shall be filled completely with mortar or non-shrink grout.

WET ALL STONES thoroughly when setting with mortar, prior to setting.

RAKE all joints to a depth of 3/4" from the face for pointing after each stone is set. Sponge clean the face of each cast stone to remove splashed mortar or mortar smears. Only the end of lugged sills and similar stones shall be embedded in mortar. The balance of joints is to be left open until pointing of stone work, then tuck pointed on the face only to a depth of 3/4."

SEALANT FILLED JOINTS: Provide unfilled vertical joints for sealant filling at all cornices, copings, projecting belt courses, steps, platforms and in general, all stones that are either partially or totally horizontal. After setting stone, insert properly sized backer material to proper depth, prime ends of the stone, and apply sealant in joint, in accordance with applicable Division-7 Sections of these Specifications.

INSTALL CONCEALLED FLASHINGS indicated in accordance with other Division-4 Sections of these Specifications.

POINTING:

SCRUB exposed faces of all cast stone units with a fiber brush, using soap powder and water and thoroughly rinse and remove. No acids or prepared cleaners shall be used without the approval of the cast stone manufacturer.

DAMPEN joints and carefully apply pointing mortar to a slight concave unless otherwise indicated. Do not point in freezing weather or in locations exposed to the hot sun, unless properly protected.

CLEANING: Upon completion of the Work, clean all surfaces of cast stone, joints and adjacent surfaces. Perform cleaning in accordance with the recommendations of the cast stone manufacturer.

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
22902.001

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SECTION 05 30 00 - METAL DECKING

PROVIDE METAL DECKING and related accessories, as shown on the drawings, as specified herein, and as needed to meet the requirements of the construction shown in the Contract Documents.

AISI SPECIFICATIONS: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

PROVIDE CERTIFICATION that welders to be employed in work have satisfactorily passed AWS qualification tests.

SUBMIT PRODUCT DATA including manufacturer's specifications and installation instructions for each type of decking and accessories. Include manufacturer's certification to show compliance with these specifications.

SUBMIT SHOP DRAWINGS showing layout and types of deck panels, anchorage details, and conditions requiring closure panels, supplementary framing, sump pans, cant strips, cut openings, special jointing or other accessories.

Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with "SDI Specifications and Commentary for Steel Roof Deck," in SDI Publication No. 31, and with the following:

Prime-Painted Steel Sheet: ASTM A 1008/A 1008M, Structural Steel (SS), Grade 33 (230) minimum, shop primed with manufacturer's standard baked-on, rust-inhibitive primer
Profile Depth: 1-1/2 inches.
Design Uncoated-Steel Thickness: 0.0295 inch (22 gage) minimum
Span Condition: Triple span or more.
Side Laps: Nested

MECHANICAL FASTENERS: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.

SIDE-LAP FASTENERS: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 minimum diameter, unless indicated otherwise on structural drawings.

MISCELLANEOUS SHEET METAL DECK ACCESSORIES: Steel sheet, minimum yield strength of 33,000 psi, not less than 0.0359-inch (20-gage nominal) design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.

STEEL SHEET ACCESSORIES: Steel sheet, of same material, finish, and thickness as deck, unless otherwise indicated.

WELD WASHERS: Uncoated steel sheet, shaped to fit deck rib, 0.0747 inch thick, with factory-punched hole of 3/8-inch minimum diameter.

RECESSED SUMP PANS: Single-piece steel sheet, 0.0747 inch thick, of same material and finish as deck, with 3-inch- wide flanges and level recessed pans of 1-1/2- inch minimum depth. For drains, cut holes in the field.

FLAT SUMP PLATE: Single-piece steel sheet, 0.0747 inch thick, of same material and finish as deck. For drains, cut holes in the field.

REPAIR PAINT: Lead- and chromate-free rust-inhibitive primer complying with performance requirements of FS TT-P-664.

FORM DECK UNITS in lengths to span 3 or more supports, with flush, telescoped or nested 2" laps at ends and interlocking or nested side laps, unless otherwise indicated.

ROOF DECK UNITS shall comply with SDI "Roof Deck Specifications", of metal thickness, depth, and width as shown. All roof deck units shall be galvanized steel.

FABRICATE METAL CLOSURE STRIPS for openings between decking and other construction, of not less than 0.045" min. (18 gage) sheet steel. Form to provide tight-fitting closures at open ends of cells or flutes and sides of decking.

ROOF SUMP PANS: fabricated from single piece of 0.071" min. (14 gage) galvanized sheet steel with level bottoms and sloping sides to direct water flow to drain, unless otherwise shown. Provide sump pans of adequate size to receive roof drains and with 1-1/2" below roof deck surface, unless otherwise shown or required by deck configuration. Holes for drains will be cut in the field.

INSTALLATION, GENERAL

INSTALL DECK PANELS and accessories according to applicable specifications and commentary in SDI Publication No. 31, manufacturer's written instructions, and requirements in this Section.

PLACE DECK PANELS on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.

PLACE DECK PANELS FLAT AND square and fasten to supporting frame without warp or deflection.

CUT AND NEATLY FIT deck panels and accessories around openings and other work projecting through or adjacent to deck.

PROVIDE ADDITIONAL REINFORCEMENT and closure pieces at openings as required for strength, continuity of deck, and support of other work.

COMPLY WITH AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.

MECHANICAL FASTENERS may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's written instructions.

ROOF SUMP PANS AND SUMP PLATES: Install over openings provided in roof deck and weld flanges to top of deck. Space welds not more than 12 inches apart with at least one weld at each corner.

INSTALL REINFORCING CHANNELS or zees in ribs to span between supports and weld or mechanically fasten.

MISCELLANEOUS ROOF-DECK ACCESSORIES: Install ridge and valley plates, finish strips, end closures, and reinforcing channels according to deck manufacturer's written instructions. Weld or mechanically fasten to substrate to provide a complete deck installation.

WELD COVER PLATES at changes in direction of roof-deck panels unless otherwise indicated.
POUR STOPS AND GIRDER FILLERS: Weld steel-sheet pour stops and girder fillers to supporting structure according to SDI recommendations unless otherwise indicated.

CLOSURE STRIPS: Provide metal closure strips at open uncovered ends and edges of roof decking, and in voids between decking and other construction. Weld into position to provide a complete decking installation.

TOUCH-UP PAINTING: After decking installation, wire brush, clean and paint scarred areas, welds and rust spots on top and bottom surfaces of decking units and supporting steel members. Touch-up galvanized surfaces with galvanizing repair paint applied in accordance with manufacturer's instructions. Touch up painted surfaces with same type of shop paint used on adjacent surfaces.

SECTION 05 50 00 - METAL FABRICATIONS

PROVIDE metal fabrications where shown on the drawings and as specified herein. Provide all anchorage, setting drawings, diagrams, templates, instructions and directions for installation of anchorages.

COMPLY WITH latest AICS Specifications for fabrication and installation of all Work.

FIELD MEASUREMENTS: Check actual locations of walls and other construction to which metal fabrications must fit, by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of Work.

MATERIALS: Limit materials that will be exposed to view to those which are free from surface blemished, pitting, rolled trade names, and roughness. Provide steel plate, shapes and bars meeting ASTM A36, steel pipe meeting ASTM A53 - grade A schedule 40, and steel tube meeting ASTM A500.

WELDING ELECTRODES AND FILLER METAL: Provide type and alloy of filler metal and electrodes as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.

SHOP PRIMER: Manufacturer's standard rust- inhibiting primer; compatible with finish coats of paint. Coordinate selection of metal primer with finish paint requirements specified in Division 9.

NONSHRINK NONMETALLIC GROUT: Pre-mixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with CE CRD C621. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this section.

FASTENERS shall be zinc-coated fasteners for exterior use or when built into exterior walls.

ROUGH HARDWARE: Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing, supporting or anchoring.

RAIN-HOOD AT REAR-DOORS: 36 inch deep (projecting) x 12 inch high (overall) x 5 feet wide sloped-top rain-hood unit with front-edge gutter profile. Provide Model # 36 by Perma Tech Inc (1-800-362-7325) or equivalent unit custom-fabricated with 0.067 inch thick (14 gage) minimum galvanized sheet steel with end panels at both sides and with an intermediate gusset panel.
FINISH: Provide electrostatic-applied polyester power-coat finish over fully galvanized metal plate
COLOR: match building-standard pre-finished metal flashings (verify color before ordering)

FABRICATE metalwork from steel shapes, plates, and steel bars, with continuously welded joints and smooth exposed edges. Form Work true to line and level with accurate angles and surfaces. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Ease exposed edges to a radius of approx. 1/4" unless otherwise shown. Weld corners and seams continuously, coping connections, unless otherwise indicated. Grind exposed welds smooth and flush to match and blend with adjoining surfaces. Provide cutouts, fittings, and anchorages as required for coordination of assembly and installation with other work.

USE CONCEALED FIELD-SPLICES wherever possible, and otherwise, use exposed fasteners of type shown or, if not shown, Phillips flat-headed (countersunk) screws or bolts.

GALVANIZE metalwork at exterior locations unless otherwise indicated.

PROVIDE SHOP-COAT PRIMER if not galvanized and touch-up at project site as required.

LADDERS WITH ABRASIVE SURFACED RUNGS: Comply with ANSI A-14.3, providing 1/2" x 3" continuous steel flat bar side rails with eased edges or equivalent tube steel components, spaced 18" apart. Provide 3/4" round abrasive surfaced rungs at 12" OC. Support at top and bottom and at intermediate points spaced not more than 3'- 0" OC. Extend rails 42" above top rung if applicable, and return rails to wall or structure, or as otherwise indicated in the Drawings

PIPE BOLLARDS: Fabricate pipe bollards from Schedule 80 steel pipe. Anchor bollards in place with concrete footings. Support and brace bollards in position in footing excavations until concrete has been placed and cured

FIELD FIT exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication, and are intended for screwed connections in the field.

FIELD WELDING: Comply with AWS Code for procedures of manual shielded metallic-arc welding, appearance and quality of welds made, and methods used in correcting welding work.

PROTECT finishes of metalwork during construction period by use of temporary protective coverings. Remove protective covering at time of Substantial Completion. Restore finishes damaged during installation and construction period so that no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit or provide new units.

SECTION 05 70 00 - DECORATIVE METAL

WORK INCLUDED: Provide ornamental metalwork, where indicated on the Drawings, as specified herein, and as necessary for complete installation. Types of applications include but are not limited to the following:
Metal Canopies or "Marquees"

SUBMITTALS
Product Data: For each type of product indicated, including finishing materials.
Shop Drawings: Include plans, elevations, component details, and attachments to other work.
Indicate materials and profiles of each ornamental metal member, fittings, joinery, finishes, fasteners, anchorages, and accessory items.
Provide templates for anchors and bolts specified for installation under other Sections.

QUALITY ASSURANCE

FABRICATOR QUALIFICATIONS: A firm experienced in producing ornamental metal similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

WELDING: Qualify procedures and personnel according to the following:
AWS D1.1, "Structural Welding Code--Steel."

MOCKUP: Construct a full-size mockup to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

PROJECT CONDITIONS

FIELD MEASUREMENTS: Verify actual locations of walls and other construction contiguous with ornamental metal by field measurements before fabrication and indicate measurements on Shop Drawings.

ESTABLISHED DIMENSIONS: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating railings without field measurements. Coordinate wall and other contiguous construction to ensure that actual dimensions correspond to established dimensions. If practical, provide allowance for trimming and fitting at site.

COORDINATION

COORDINATE INSTALLATION OF ANCHORAGES for ornamental metal items. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

PROVIDE MATERIALS with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

FERROUS METALS
Steel Plates, Shapes, and Bars: ASTM A 36
Steel Tubing: Cold-formed steel tubing complying with ASTM A 500.
Castings: Either gray or malleable iron, unless otherwise indicated.
Gray Iron: ASTM A 48, Class 30, unless another class is indicated or required by structural loads.
Malleable Iron: ASTM A 47.

FASTENERS
Fastener Materials: Unless otherwise indicated, provide the following:
Uncoated Steel Items: Plated steel fasteners complying with ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating where concealed, Type 304 stainless-steel fasteners where exposed.
Dissimilar Metals: Type 304 stainless-steel fasteners.
Fasteners for Anchoring to Other Construction: Unless otherwise indicated, select fasteners of type, grade, and class required to produce connections suitable for anchoring indicated items to other types of construction indicated.
Provide concealed fasteners for interconnecting components and for attaching ornamental metal items to other work, unless otherwise indicated.
Anchors: Provide anchors, fabricated from corrosion-resistant materials with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed.

WELDING RODS AND BARE ELECTRODES: Select according to AWS specifications for metal alloy welded. For aluminum, provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.

SHOP PRIMER FOR GALVANIZED STEEL: Zinc-dust, zinc-oxide primer formulated for priming zinc-coated steel and for compatibility with finish paint systems indicated, and complying with SSPC-Paint 5.

GALVANIZING REPAIR PAINT: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.

ORNAMENTAL METAL FABRICATION:

ASSEMBLE ITEMS IN THE SHOP to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.

FORM ORNAMENTAL METAL to required shapes and sizes, true to line and level with true curves and accurate angles and surfaces. Finish exposed surfaces to smooth, sharp, well-defined lines and arris.
Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
Form simple and compound curves in bars and extruded shapes by bending members in jigs to produce uniform curvature for each configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces.

CUT, DRILL, AND PUNCH METALS cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch, unless otherwise indicated. Remove sharp or rough areas on exposed surfaces. Mill joints to a tight, hairline fit. Cope or miter corner joints. Fabricate connections that will be exposed to weather in a manner to exclude water.

PROVIDE weep holes where water may accumulate. Provide necessary rebates, lugs, and brackets to assemble units and to attach to other work. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items, unless otherwise indicated.

COMPLY WITH AWS for recommended practices in shop welding. Weld behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded joints of flux, and dress exposed and contact surfaces.

WELDING: Interconnect members with full-length, full-penetration welds, unless otherwise indicated. Use welding method appropriate for metal and finish indicated and that develops full strength of members joined. Finish exposed welds and surfaces smooth, flush, and blended to match adjoining surfaces.

BRACKETS, FITTINGS, AND ANCHORS: Provide wall brackets, fittings, and anchors to connect units to other work, unless otherwise indicated. Furnish inserts and other anchorage devices to connect units to substrate. Coordinate anchorage devices with supporting structure.

FINISHES, GENERAL

COMPLY WITH NAAMM'S "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

STEEL AND IRON FINISHES

COMPLY WITH NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Finish metal fabrications after assembly.

STEEL AND IRON FINISHES: Provide hot-dipped galvanized finish typically for all exterior ornamental steel, to comply with applicable standard listed below:
ASTM A 123, for galvanizing steel and iron products.
ASTM A 153, for galvanizing steel and iron hardware.

PREPARATION FOR SHOP PRIMING: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface-preparation specifications and environmental exposure conditions of installed metal fabrications:
Exteriors (SSPC Zone 1B): SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."

APPLY SHOP PRIMER to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1," for shop painting. Stripe paint corners, crevices, bolts, welds, and sharp edges.

EXECUTION

EXAMINE SUBSTRATES AND CONDITIONS, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of ornamental metal. Proceed with installation only after unsatisfactory conditions have been corrected.

PROVIDE ANCHORAGE DEVICES and fasteners where needed to secure ornamental metal to in-place construction.

PERFORM CUTTING, DRILLING, AND FITTING REQUIRED to install ornamental metal. Set products accurately in location, alignment, and elevation; measured from established lines and levels. Provide temporary bracing or anchors in formwork for items to be built into concrete, masonry, or similar construction.

FIT EXPOSED CONNECTIONS ACCURATELY TOGETHER to form tight, hairline joints or, where indicated, with uniform reveals and spaces for sealants and joint fillers. Where cutting, welding, and grinding are required for proper shop fitting and jointing of ornamental metal, restore finishes to eliminate evidence of such corrective work.

DO NOT CUT OR ABRADE FINISHES that cannot be completely restored in the field. Return items with such finishes to the shop for required alterations, followed by complete refinishing, or provide new units as required.
Install concealed gaskets, joint fillers, insulation, and flashings as work progresses.

RESTORE PROTECTIVE COVERINGS that have been damaged during shipment or installation. Remove protective coverings only when there is no possibility of damage from other work yet to be performed at same location.

CORROSION PROTECTION: Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

INSTALLING ORNAMENTAL AWNINGS:

MOUNT UNITS AT HEIGHTS and in positions indicated. Secure to framing and blocking with specified fasteners.

CLEANING

CLEAN METALS BY WASHING THOROUGHLY with clean water and soap, rinsing with clean water, and drying with soft cloths, unless otherwise recommended by the fabricator or metal finish manufacturer.

TOUCHUP PAINTING: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material.

GALVANIZED SURFACES: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

PROTECTION

PROTECT FINISHES OF ORNAMENTAL METAL from damage during construction period with temporary protective coverings approved by ornamental metal fabricator. Remove protective covering at time of Substantial Completion.

RESTORE FINISHES DAMAGED DURING INSTALLATION and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

SECTION 06 10 00 - ROUGH CARPENTRY

PROVIDE wood framing, nailers, blocking, backing, and plywood required for completion of the Work, which is generally not exposed; where noted on the Drawings, and as specified herein.

LUMBER: Comply with PS 20 of "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by the ALSC board of Review. Provide dressed lumber, S4S typically, seasoned with 19% moisture content for sizes 2" or less.

WOOD FRAMING: Douglas fir-larch, No. 2 or better grade

STRUCTURAL ROOF & WALL SHEATHING: APA rated exterior sheathing, T & G, CDX Plugged, thickness as indicated on the drawings. When exposed, provide APA A-D EXT grade, with "A" surface on exposed face.

PLYWOOD BACKING PANELS: For mounting electrical or telephone equipment, provide fire- retardant treated plywood, APA C-D PLUGGED INT with exterior glue, 3/4" thick. Provide minimum 3/4" plywood, or 2 x lumber material as a minimum for backing at grab bars.

FASTENERS AND ANCHORS: Provide size, type material and finish as recommended by applicable standards. Provide fasteners and anchorages with a hot-dip zinc coating meeting ASTM A-153.

JOIST HANGERS: as indicated on the Drawings and as manufactured by "Simpson" or equal.

BUILDING PAPER: ASTM D-226, Type I; asphalt saturated felt, non-perforated, 15-lb. type typically, 30 pound material on roof decks.

SILL SEALER: Glass fiber resilient insulation in strip form, 1" nominal thickness compressible to 1/32"; selected from standard widths to suit width of sill members indicated.

PRESERVATIVE TREATMENT: Water borne preservatives complying with AWPB LP-2, kiln-dried to 19% maximum moisture content for lumber and 15% for plywood. Treat wood cants, nailers, curbs, blocking, stripping and similar members in connection with roofing, flashing, vapor barriers and waterproofing. Treat wood sills, sleepers, blocking, furring, stripping and similar concealed members in contact with masonry or concrete.

DISCARD UNITS of material with defects which might impair quality of work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.

SET rough carpentry Work accurately to required levels and lines, with members plumb and true and accurately cut and fitted.

SECURELY attach carpentry Work to substrate by anchoring and fastening as required.

USE common wire nails, except as otherwise indicated. Use finishing nails for finish work. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; predrill as required.

PROVIDE FRAMING MEMBERS of sizes and on spacings shown, and frame openings as shown, or if not shown, comply with recommendations of "Manual for House Framing" of National Forest Products Association (N.F.P.A). Do not splice structural members between supports.

ANCHOR AND NAIL as shown, and to comply with "Recommended Nailing Schedule" of "Manual for House Framing" and "National Design Specifications for Wood Construction" published by N.F.P.A.

WOOD STUD FRAMING:

GENERAL: Provide stud framing of size and spacing indicated or, if not otherwise indicated, of the following sizes and spacings. Arrange studs so that wide face of stud is perpendicular to direction of wall or partition and narrow face is parallel. Provide single bottom plate and double top plates using 2" thick members with widths equaling that of studs; except single top plate may be used for non-load-bearing partitions. Nail or anchor plates to supporting construction.

CONSTRUCT CORNERS and intersections with not less than 3 studs. Provide miscellaneous blocking and framing as shown and as required for support of facing materials, fixtures, specialty items and trim.

FRAME OPENINGS with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Set headers on edge and support on jamb studs.

FOR NON BEARING partitions, provide double-jamb studs and headers not less than 4" deep for openings 3' and less in width, and not less than 6" deep for wider openings.

FOR LOAD BEARING partitions, provide double-jamb studs for openings 6' and less in width, and triple-jamb studs for wider openings. Provide headers of depth shown, or if not shown, provide as recommended by N.F.P.A. "Manual for House Framing".

PROVIDE FIRE STOPS of not less than 2" nominal thickness and no less in width than the enclosed spaces within partitions. Provide continuous rows of bridging to form a complete and effective separation in the intire width of partitions, placed so that there will be no concealed air spaces greater than 8 feet in vertical dimension. Intermediate stops may be in line with opening headers. Provide furred spaces between stud walls and partitions with continuous fire stops at the same elevation as thowe in the enclosing walls which must be installed horizontally, thus forming a solid stop from outside to outside of studs. Fire stop all partitions at all suspended ceiling system locations.

RAFTER AND CEILING JOIST FRAMING:

RAFTERS: Provide member size and spacing shown. Notch to fit exterior wall plates and toe nail or use special metal framing anchors. Double rafters to form headers and trimmers at openings in roof framing (if any), and support with metal hangers. Where rafters abut at ridge, place directly opposite each other and nail to ridge member or use metal ridge hangers.

AT VALLEYS, provide valley rafter twice as thick as regular rafters and 2" deeper. Bevel ends of jack rafters for full bearing against valley rafter.

AT HIPS, provide hip rafters of same thickness as regular rafters and 2" deeper. Bevel ends of jack rafters for full bearing against hip rafters.

PROVIDE COLLAR BEAMS (ties) of 1 x 6" boards between every third pair of rafters. Locate below ridge member, one-third of distance to ceiling joists. Cut ends to fit slope and nail to rafters.

PROVIDE SPECIAL FRAMING as shown for eaves, overhangs, dormers and similar conditions, if any.

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
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drawing issuance
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No. Description: Date:

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drawing title
SPECIFICATIONS

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SP104

SECTION 06 13 23 - HEAVY TIMBER CONSTRUCTION

WORK INCLUDED: Provide heavy-timber wood construction, where indicated on the drawings, as specified herein, and as needed to meet the requirements of the construction indicated in the Contract Documents.

DEFINITION: TIMBERS: Lumber of 5 inches nominal or greater in least dimension.

INSPECTION AGENCIES, and the abbreviations used to reference them, include the following:
- Nel.MA - Northeastern Lumber Manufacturers Association.
- NHLA - National Hardwood Lumber Association.
- NLGA - National Lumber Grades Authority.
- SPIB - Southern Pine Inspection Bureau.
- WCLIB - West Coast Lumber Inspection Bureau.
- WWPA - Western Wood Products Association.

SUBMITTALS

SUBMIT PRODUCT DATA for preservative-treated wood products and timber connectors, including installation instructions.

SUBMIT SHOP DRAWINGS showing layout of layout, dimensions of each member, and large-scale details of connections.

QUALITY ASSURANCE - TIMBER STANDARD: Comply with AITC 108, "Standard for Heavy Timber Construction."

DELIVERY, STORAGE, AND HANDLING: Comply with provisions of AITC 111. Individually wrap members using plastic-coated paper covering with water-resistant seams.

PRODUCTS

TIMBER: Comply with DOC PS 20 and with grading rules of lumber grading agencies certified by ALSC's Board of Review as applicable. Factory mark each item of timber with grade stamp of grading agency. For exposed timber indicated to receive a stained or natural finish, apply grade stamps to surfaces that will not be exposed to view, or omit grade stamps and provide certificates of grade compliance issued by grading agency.
- Timber Species and Grade: Western Red-Cedar; No. 2 or better
- Dressing: Provide dressed timber (S4S) to match existing wood timber at the project site, unless otherwise indicated.

END SEALER: Manufacturer's standard, transparent, colorless wood sealer that is effective in retarding the transmission of moisture at cross-grain cuts and is compatible with indicated finish.

PENETRATING SEALER: Manufacturer's standard, transparent, penetrating wood sealer that is compatible with indicated finish.

TIMBER CONNECTORS: Unless otherwise indicated, fabricate from the following materials:
- Structural-steel shapes, plates, and flat bars complying with ASTM A 36.
- Round steel bars complying with ASTM A 575, Grade M 1020.
- Hot-rolled steel sheet complying with ASTM A 1011, Structural Steel, Type SS, Grade 33.
- Fabricate beam seats from steel with 3/8-inch minimum bearing plates, 3/4-inch- diameter-by-12-inch- long deformed bar anchors, and 0.239-inch side plates.
- Fabricate beam hangers from steel with 0.179-inch stirrups and 0.239-inch top plates.
- Fabricate strap ties from steel, 2-1/2 inches wide by 0.179 inch thick minimum.
- Fabricate tie rods from round steel bars with upset threads connected with forged-steel turnbuckles complying with ASTM A 668.
- Provide bolts, 3/4 inch unless otherwise indicated, complying with ASTM A 307, Grade A; provide nuts complying with ASTM A 563; and, where indicated, provide flat washers.
- Provide shear plates, 2-5/8 inches minimum in diameter, complying with ASTM D 5933.
- EXTERIOR APPLICATION: Hot-dip galvanize steel assemblies and fasteners after fabrication to comply with ASTM A 123 or ASTM A 153.

FABRICATION: Shop fabricate members by cutting and restoring exposed surfaces to match specified surfacing. Finish exposed surfaces to remove planing or surfacing marks, and to provide a finish equivalent to that produced by machine sanding with No. 120 grit sandpaper. Predrill for fasteners and assembly of units.
- Where preservative-treated members are indicated, fabricate (cut, drill, surface, and sand) before treatment to greatest extent possible.
- Where fabrication must be done after treatment, apply a field-treatment preservative to comply with AWPA M4.
- Use inorganic boron (SBX) treatment for members not in contact with the ground and continuously protected from liquid water.
- Use copper naphthenate treatment for members in contact with the ground or not continuously protected from liquid water.
- Coat crosscuts with end sealer.

EXAMINATION: Examine substrates in areas to receive heavy-timber Work, with Installer present, for compliance with requirements, installation tolerances, and other conditions affecting performance of heavy-timber Work. Proceed with installation only after unsatisfactory conditions have been corrected.

INSTALLATION

ERECT heavy timber construction true and plumb. Provide temporary bracing to maintain lines and levels until permanent supporting members are in place. Handle and temporarily support heavy timber construction to prevent surface damage, compression, and other effects that might interfere with indicated finish.

INSTALL HEAVY TIMBER CONSTRUCTION to comply with Shop Drawings. Install horizontal and sloping members with crown edge up and provide not less than 4 inches of bearing on supports. Provide continuous members unless otherwise indicated; tie together over supports if not continuous. Fit members by cutting and restoring exposed surfaces to match specified surfacing. Predrill for fasteners and assembly of units.

FINISH EXPOSED SURFACES to remove planing or surfacing marks, and to provide a finish equivalent to that produced by machine sanding with No. 120 grit sandpaper. Coat crosscuts with end sealer.
- Where preservative-treated members must be cut during erection, apply a field-treatment preservative to comply with AWPA M4.
- Use inorganic boron (SBX) treatment for members not in contact with the ground and continuously protected from liquid water.
- Use copper naphthenate treatment for members in contact with the ground or not continuously protected from liquid water.

Install timber connectors as indicated. Unless otherwise indicated, install bolts with same orientation within each connection and in similar connections.

ADJUSTING: Repair damaged surfaces after completing erection. Replace damaged heavy-timber construction if repairs are not approved.

SECTION 07 27 00 - AIR-MOISTURE BARRIER

PROVIDE FLUID-APPLIED AIR AND MOISTURE BARRIER on all exterior sheathing, as specified herein, and as necessary for complete installation.

MANUFACTURER: Specification is based on products manufactured by STO. Subject to compliance with requirements, equivalent products of the Dryvit or Senergy are also acceptable. Other manufacturers may be proposed only as a substitution request.

ACRYLIC JOINT FILLER: "Sto Gold Fill" or equal ready-mixed, acrylic based material flexible joint compound.

ACRYLIC WATERPROOF COATING: "Sto Gold Coat" or equal ready-mixed, acrylic based waterproofing coating material.

SUBSTRATE JOINT REINFORCEMENT: "Sto Guard Mesh" or equal 4.2 oz/sq. yd. (nominal) self-adhesive, flexible, symmetrical, interlaced glass fiber fabric, with alkaline resistant coating compatible with other materials.

CEMENT BASED SUBSTRATE COATING (for use over concrete or CMU's): "Sto-PAB" or equal one-component, polymer-modified, cement based, factory blend, material with less than 33 percent Portland cement content.

COMPLY WITH MANUFACTURER'S REQUIREMENTS for combining and mixing materials. Do not introduce admixtures, water, or other materials except as recommended by manufacturer. Mix materials in clean containers. Use materials within time period specified by manufacturer or discard.

PREPARE AND CLEAN SUBSTRATES to comply with manufacturer's written requirements to obtain optimum bond for insulation. Verify suitability of substrate by performing bond and moisture tests recommended by manufacturer.

TAPE AND SEAL JOINTS, exposed edges, terminations, and inside and outside corners of sheathing, unless otherwise indicated by manufacturer's written instructions.

TROWEL APPLY JOINT COMPOUND, embed reinforcing mesh and trowel smooth. Spot trowel all sheathing fasteners with joint compound and strike flush.

APPLY ACRYLIC JOINT FILLER with reinforcing mesh at all rough-openings in substrate sheathing, at all joints and penetrations in substrate sheathing not previously sealed, and at all inside and outside corners of substrate sheathing not previously sealed

APPLY ACRYLIC WATERPROOF COATING after joint compound is dry. Comply with manufacturer's recommendations, providing a uniform wet-mil thickness of 10 mils in one single coating. Protect from weather until dry.

INSTALLATION NOT REQURED: Note that installation of acrylic waterproof coating is not required over properly sealed glass-mat gypsum sheathing surfaces. However, do apply acrylic waterproof coating over all acrylic joint filler between sheathing panels, and over all surfaces of plywood sheathing, and at parapet tops under sheet-metal flashings.

APPLY CEMENT BASED WATERPROOF COATING over all CMU or concrete substrates.

SECTION 07 54 00 – THERMOPLASTIC ROOFING SYSTEM

WORK INCLUDED: Provide roof insulation and a mechanically-fastened, single-ply thermoplastic membrane roofing system, of TPO sheet, where indicated on the Drawings, as specified herein, and as necessary for complete installation. Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.

MATERIAL COMPATIBILITY: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.

FM/GLOBAL LISTING: Provide roofing membrane, base flashings, and component materials that comply with requirements in FMG 4450 and FMG 4470 as part of a membrane roofing system and that are listed in FMG's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FMG markings, and as follows:
- Fire/Windstorm Classification: Class 1A-90 with increased anchorage at perimeters/corners
- Hail Resistance: SH (severe hazard).

SUBMIT PRODUCT DATA: For each type of product indicated.

SUBMIT SHOP DRAWINGS of roofing system, including plans, elevations, sections, details, and attachments to other Work. Show embrane seaming plan, indicating additional perimeter and corner attachments required for compliance with FM/Global's requirements. Indicate base flashings and membrane terminations, location and thicknesses of tapered insulation, including slopes, insulation fastening patterns, and membrane seaming plan.

INSTALLER CERTIFICATES: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.

SUBMIT REPORT by roofing system manufacturer's field-representative indicating review and acceptance of completed roofing system installation.

INSTALLER QUALIFICATIONS: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.

EXTERIOR FIRE-TEST CHARACTERISTICS: "Class B" per ASTM E-108 by testing identical products to the approval of authorities having jurisdiction.

CONDUCT PREINSTALLATION CONFERENCE at Project site to review methods and procedures related to roofing system installation. Review manufacturer's written instructions. Review and finalize construction schedule and verify availability of materials. Review Installer's personnel, equipment, and facilities needed to make progress and avoid delays. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.

SPECIAL ROOF SYSTEM AND FLASHING WARRANTY: Manufacturer's warranty to include labor and material payment without monetary limitation (NDL), in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks. Special warranty includes roofing membrane, base flashings, roofing membrane accessories, roof insulation, fasteners, metal edge and associated sheet metal flashings, and other components of the membrane roofing system, and as follows:
- Non-prorated, and fully transferable (not limited to original Owner)
- Warranty limit up to 72 MPH wind speed (calculated at ground level)
- No Owner's signature required for execution of warranty, and
- Dispute settlement to be held in the state where the project is located
- WARRANTY PERIOD: Fifteen (15) years from date of Substantial Completion.

MATERIALS:

PVC ROOF MEMBRANE: ASTM D 4434, Type III, fabric reinforced, as manufactured by Duro-Last Inc., Firestone, IB Roof Systems, Sarnafil, or Stevens.
- Thickness: 60 mils, nominal
- Exposed Face Color on roof deck: White
- Exposed Face Color on back side of parapets (at fully adhered membrane): Tan or Beige

TPO ROOF MEMBRANE: Uniform, flexible sheet formed from a thermoplastic polyolefin, internally fabric or scrim reinforced, sheet thickness of 60 mils, nominal, in White color. Provide membrane as manufactured by one of the following:
- Carlisle SynTec Incorporated.
- GenFlex Roofing Systems.
- Firestone Building Products Company
- GAF Material Corporation
- Sarnafil Inc.
- Stevens Roofing Systems; Div. of JPS Elastomerics.

PROVIDE AUXILIARY MEMBRANE MATERIALS recommended by roofing system manufacturer for intended use and compatible with membrane roofing. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.

TYPICAL SHEET FLASHING: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as primary roofing sheet membrane.

BONDING ADHESIVE: Manufacturer's standard solvent-based bonding adhesive for membrane, and solvent-based bonding adhesive for base flashings.

METAL TERMINATION BARS: Manufacturer's standard predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.

METAL BATTENS: Manufacturer's standard aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05 inch thick, prepunched.

WALKWAY PADS: Factory-formed, nonporous, heavy-duty, slip-resisting walkway material of approximately 3/16 inch thick, intended for heat-welding to membrane surface and approved for use by membrane roofing system manufacturer. Provide units 24" x 24" minimum or as otherwise indicated on the Drawings.

ROOF PROTECTION PADS: Provide non-porous protection pads consisting of a minimum 45 mil membrane matching primary roofing material and color, approved for use by membrane roofing system manufacturer. , intended either for heat-welded or self-sticking application to the roof membrane, and as approved for use by membrane roofing system manufacturer. factory-formed or field-cut with corners trimmed to a 2" radius minimum,
- WALKWAYS: 24" x 24" minimum or as otherwise indicated on the Drawings.
- PIPING SUPPORT REINFORCEMENT: size to extend 6" outside of all piping supports.

FASTENERS: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.

MISCELLANEOUS ACCESSORIES: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, termination reglets, cover strips, and other accessories.

AIR BARRIER: Vapor Retarder: ASTM D 4397 polyethylene sheet, 6 mils thick minimum, with maximum permeance rating of 0.13 perm.

ROOF INSULATION:

PROVIDE PREFORMED ROOF INSULATION BOARDS that comply with primary roofing membrane manufacturer's requirements and referenced standards, selected from manufacturer's standard sizes.

2-LAYER POLY-ISO BOARD SYSTEM: 2 layers minimum, staggered, rigid, closed cell polyisocyanurate-board insulation meeting ASTM C 1289, Type II, with felt or glass-fiber mat facer on both major surfaces.

ALTERNATIVE POLYSTYRENE BOARD SYSTEM: 1/4 inch thick minimum "Dens-Deck Prime" roof board, installed per manufacturer's and FM/Global requirements for wind uplift rating indicated, installed with joints staggered above double-layer of molded polystyrene board insulation meeting ASTM C 578 Type 8, 1.25 lb./cu. ft. min. density, with an aged r-value of 4.25 and 3.9 at 40 and 75 deg F respectively, and meeting requirements of FM/Global 4450 or UL 1256 for foam-plastic insulation in direct contact with metal deck (provide written confirmation to authorities having jurisdiction upon request).

MINIMUM INSULATION THICKNESS: Minimum 1-1/2 inch thickness at drains or roof edge scuppers or as otherwise required to maintain an overall average minimum aged insulation value (not including supporting or other materials) of:
R = 30

fabric or scrim reinforced, sheet thickness of 60 mils, nominal, in White color. Provide membrane as manufactured by one of the following:
- Carlisle SynTec Incorporated.
- GenFlex Roofing Systems.
- Firestone Building Products Company
- GAF Material Corporation
- Sarnafil Inc.
- Stevens Roofing Systems; Div. of JPS Elastomerics.

PROVIDE AUXILIARY MEMBRANE MATERIALS recommended by roofing system manufacturer for intended use and compatible with membrane roofing. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.

TYPICAL SHEET FLASHING: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as primary roofing sheet membrane.

BONDING ADHESIVE: Manufacturer's standard solvent-based bonding adhesive for membrane, and solvent-based bonding adhesive for base flashings.

METAL TERMINATION BARS: Manufacturer's standard predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.

METAL BATTENS: Manufacturer's standard aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05 inch thick, prepunched.

WALKWAY PADS: Factory-formed, nonporous, heavy-duty, slip-resisting walkway material of approximately 3/16 inch thick, intended for heat-welding to membrane surface and approved for use by membrane roofing system manufacturer. Provide units 24" x 24" minimum or as otherwise indicated on the Drawings.

ROOF PROTECTION PADS: Provide non-porous protection pads consisting of a minimum 45 mil membrane matching primary roofing material and color, approved for use by membrane roofing system manufacturer. , intended either for heat-welded or self-sticking application to the roof membrane, and as approved for use by membrane roofing system manufacturer. factory-formed or field-cut with corners trimmed to a 2" radius minimum,
- WALKWAYS: 24" x 24" minimum or as otherwise indicated on the Drawings.
- PIPING SUPPORT REINFORCEMENT: size to extend 6" outside of all piping supports.

FASTENERS: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.

MISCELLANEOUS ACCESSORIES: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, termination reglets, cover strips, and other accessories.

AIR BARRIER: Vapor Retarder: ASTM D 4397 polyethylene sheet, 6 mils thick minimum, with maximum permeance rating of 0.13 perm.

ROOF INSULATION:

PROVIDE PREFORMED ROOF INSULATION BOARDS that comply with primary roofing membrane manufacturer's requirements and referenced standards, selected from manufacturer's standard sizes.

2-LAYER POLY-ISO BOARD SYSTEM: 2 layers minimum, staggered, rigid, closed cell polyisocyanurate-board insulation meeting ASTM C 1289, Type II, with felt or glass-fiber mat facer on both major surfaces.

ALTERNATIVE POLYSTYRENE BOARD SYSTEM: 1/4 inch thick minimum "Dens-Deck Prime" roof board, installed per manufacturer's and FM/Global requirements for wind uplift rating indicated, installed with joints staggered above double-layer of molded polystyrene board insulation meeting ASTM C 578 Type 8, 1.25 lb./cu. ft. min. density, with an aged r-value of 4.25 and 3.9 at 40 and 75 deg F respectively, and meeting requirements of FM/Global 4450 or UL 1256 for foam-plastic insulation in direct contact with metal deck (provide written confirmation to authorities having jurisdiction upon request).

MINIMUM INSULATION THICKNESS: Minimum 1-1/2 inch thickness at drains or roof edge scuppers or as otherwise required to maintain an overall average minimum aged insulation value (not including supporting or other materials) of:
R = 30

PROVIDE PREFORMED SADDLES, crickets, tapered edge strips, and other insulation shapes where indicated for positive sloping to drain. Fabricate to slopes indicated, minimum 1/4 inch per foot.

MECHANICAL FASTENERS: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.

AIR BARRIER INSTALLATION:

LOOSELY LAY air barrier in a single layer, side and end lapping each sheet a minimum of 4 inches. Do not seal joints or seams.

INSULATION INSTALLATION

COORDINATE INSTALLING MEMBRANE ROOFING system components so insulation is not exposed to precipitation or left exposed at the end of the workday.

COMPLY WITH membrane roofing system manufacturer's written instructions for installing roof insulation.

INSTALL MULTIPLE LAYERS OF INSULATION under area of roofing to achieve required thickness, with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.

TRIM SURFACE OF INSULATION where necessary at roof drains so completed surface is flush and does not restrict flow of water.

INSTALL INSULATION WITH LONG JOINTS of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.

FASTEN INSULATION PER FMG's "Approval Guide" for specified Windstorm Resistance Classification.

MECHANICALLY FASTENED ROOFING MEMBRANE INSTALLATION

INSTALL ROOFING MEMBRANE over area to receive roofing according to roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing. Accurately align roofing membranes and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

MECHANICALLY OR ADHESIVELY FASTEN roofing membrane securely at terminations, penetrations, and perimeter of roofing.

APPLY ROOFING MEMBRANE WITH SIDE LAPS SHINGLED with slope of roof deck where possible.

SEAMS: Clean seam areas, overlap roofing membrane, and hot-air weld side and end laps of roofing membrane according to manufacturer's written instructions to ensure a watertight seam installation. Probe all seams after welds have cooled to verify seam weld continuity. Apply lap sealant to seal cut edges of roofing membrane. Verify field strength of seams a minimum of twice daily and repair seam sample areas. Repair tears, voids, and lapped seams in roofing membrane that does not meet requirements.

SPREAD SEALANT BED OVER DECK DRAIN FLANGE at deck drains and securely seal roofing membrane in place with clamping ring.

IN-SPLICE ATTACHMENT: Secure one edge of roofing membrane using fastening plates or metal battens centered within membrane splice and mechanically fasten roofing membrane to roof deck. Field-splice seam.

THROUGH-MEMBRANE ATTACHMENT: Secure roofing membrane using fastening plates or metal battens and mechanically fasten roofing membrane to roof deck. Cover battens and fasteners with a continuous cover strip.

BASE FLASHING INSTALLATION

INSTALL SHEET FLASHINGS AND PREFORMED FLASHING ACCESSORIES and adhere to substrates according to membrane roofing system manufacturer's written instructions.

APPLY SOLVENT-BASED BONDING ADHESIVE to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.

FLASH PENETRATIONS and field-formed inside and outside corners with sheet flashing.

CLEAN SEAM AREAS AND OVERLAP and firmly roll sheet flashings into the adhesive. Weld side and end laps to ensure a watertight seam installation.

TERMINATE AND SEAL TOP OF SHEET FLASHINGS and mechanically anchor to substrate through termination bars.

PROVIDE WALKWAY PADS at all traffic concentration points (including but not limited to roof hatches, access doors, rooftop ladders and around all sides of mechanical equipment) and where indicated on the Drawings. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions. Place individual units with 6" minimum space between each pad.

INSTALL PIPING SUPPORT PROTECTION PADS (self-stick waste sheet) below all piping supports units provided by others. Clean roofing of dirt and debris prior to installation. Peel-back protective sheeting from protection pad and apply pad securely to surface of roofing membrane.

FIELD QUALITY CONTROL

MANUFACTURER'S FINAL ROOF INSPECTION: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect.

REPAIR OR REMOVE AND REPLACE components of membrane roofing system that do not comply with specified requirements. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

PROTECT MEMBRANE ROOFING SYSTEM from damage and wear during remainder of construction period. Repair substrates, and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
22902.001

drawing issuance

PERMIT	12/09/22

drawing revisions

No.	Description:	Date:

professional seal

STATE OF MISSOURI
HENRY C. KLOVER
NUMBER
A-2007
NOTARY PUBLIC

Date Signed DEC 09 2022

DATE SIGNED: 2/3/2023 10:14:39 AM

drawing title
SPECIFICATIONS

drawing number
SP105

SECTION 07 21 00 THERMAL INSULATION

WORK INCLUDED: Provide insulation work, as shown on the drawings, as specified herein, and as needed to meet the requirements of the construction shown in the Contract Documents. Applications of insulation specified in this section include the following: blanket-type building insulation and rigid-type building insulation at wall furring

THERMAL CONDUCTIVITY: Thicknesses indicated are for thermal conductivity (k-value at 75 degrees F or 24 degrees C) specified for each material. Provide adjusted thicknesses as directed for equivalent use of material having a different thermal conductivity. Where insulation is identified by "R" value, provide thickness required to achieve indicated value.

FIRE AND INSURANCE RATINGS: Comply with fire-resistance, flammability and insurance ratings indicated, and comply with regulations as interpreted by governing authorities.

SUBMIT PRODUCT DATA including manufacturer's product specifications and installation instructions for each type of insulation and vapor barrier material required.

GENERAL PROTECTION: Protect insulations from physical damage and from becoming wet, soiled, or covered with ice or snow. Comply with manufacturer's recommendations for handling, storage and protection during installation.

PERIMETER INSULATION: EXTRUDED POLYSTYRENE BOARD INSULATION: Rigid, closed-cell, extruded, polystyrene insulation board with integral high-density skin; complying with FS HH-I-524, Type IV, min. 20 psi compressive strength, k-value of 0.20; 0.3% maximum water absorption; 1.1 perm-inch max. water vapor transmission; manufacturer's standard lengths and widths, minimum 2" thickness.

MOLDED POLYSTYRENE BOARD INSULATION: Rigid, cellular thermal insulation formed by the expansion of polystyrene resin beads or granules in a closed mold to comply with ASTM-C-578, Type I, 0.9 pcf min. density, aged r-values of 4.0 and 3.6 at 40 and 75 deg F (4.4 and 23.9 deg C), respectively, minimum 1-1/2" thickness, or as otherwise indicated.

GLASS FIBER BLANKET BATT INSULATION: Glass fibers formed with binders into resilient flexible blankets or semi-rigid batts; FS HH-I-521, type I, unfaced units, densities of not less than 0.5 lb. per cu. ft., k-value of 0.27; manufacturer's standard lengths and widths as required to coordinate with spaces to be insulated.

AUXILIARY INSULATING MATERIALS:

POLYETHYLENE VAPOR BARRIER: 6-mil polyethylene film, with laboratory-tested vapor transmission rating of 0.2 perms, natural color.

ADHESIVE FOR BONDING INSULATION: Type recommended by insulation manufacturer, and complying with fire-resistance requirements.

MECHANICAL ANCHORS: Type and size shown or, if not shown, as recommended by insulation manufacturer for type of application and condition of substrate.

EXAMINE SUBSTRATES and conditions under which insulation work is to be performed, and must notify contractor in writing of unsatisfactory conditions. Do not proceed with insulation work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

CLEAN SUBSTRATES of substances harmful to insulations or vapor barriers, including removal of projections which might puncture vapor barriers.

INSTALLATION:

COMPLY WITH MANUFACTURER'S INSTRUCTIONS for particular conditions of installation in each case. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with work.

EXTEND INSULATION FULL THICKNESS as shown over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections which interfere with placement.

APPLY A SINGLE LAYER of insulation of required thickness, unless otherwise shown or required to make up total thickness.

APPLY INSULATION UNITS to substrate by method indicated, complying with manufacturer's recommendations. If not specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

SET VAPOR BARRIER FACED UNITS with vapor barrier to warm inside of construction, except as otherwise shown. Do not obstruct ventilation spaces, except for firestopping.

STUFF LOOSE MINERAL FIBER INSULATION into miscellaneous voids and cavity spaces where shown. Compact to approximately 40% of normal maximum volume (to a density of approximately 2.5 lbs. per cu. ft.).

VAPOR BARRIER INSTALLATIONS:

GENERAL: Extend vapor barriers to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend vapor barriers to cover miscellaneous voids in insulated substrates, including those which have been stuffed with loose fiber-type insulation.

SEAL JOINTS/SEAMS in vapor barriers, seal to objects penetrating barriers, and seal to other surfaces at extremities of coverage by lapping with adhesive or taping to form a continuous barrier.

REPAIR PUNCTURES and tears in vapor barriers, immediately before concealment by other work. Cover with adhesive applied vapor barrier material or with self-adhesive vapor barrier tape.

PROTECTION:

SECTION 07 72 00 - ROOF ACCESSORIES

WORK INCLUDED: Provide roof specialties and accessories as shown on the drawings, as specified herein, and as needed to meet the requirements of the construction shown in the Contract Documents.

SUBMIT PRODUCT DATA including manufacturer's technical product data, rough-in diagrams, details, installation instructions and general product recommendations.

QUALITY STANDARDS: Comply with SMACNA "Architectural Sheet Metal Manual" details for fabrication of units, including flanges and cap- flashing to coordinate with type of roofing indicated. Comply with "NRCA Roofing and Waterproofing Manual" details for installation of units. Provide manufacturers' standard units, modified as necessary to comply with requirements. Shop fabricate each unit to greatest extent possible.

ROOF CURBS AND EQUIPMENT SUPPORTS: Provide units capable of supporting superimposed live and dead loads, including equipment loads and other construction to be supported. Coordinate dimensions with equipment to be supported. Unless otherwise indicated or required for strength, fabricate units from minimum 18 gauge thick, structural-quality, hot-dip galvanized, or "Galvalume"; factory primed and prepared for painting with welded or sealed mechanical corner joints. Provide manufacturer's standard rigid or semi-rigid insulation typically. Provide preservative-treated wood nailers at tops of units and formed flange at perimeter bottom for mounting to roof. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile. Fabricate units to minimum height of 14 inches above roof, unless otherwise indicated. Fabricate support units with height tapered to match slope to level tops of units. Subject to compliance with requirements, provide products by one of the following:

- Curbs Plus, Inc.
- Custom Curb, Inc.
- LMCurbs.
- Thycurb Corporation.
- RPS, Portals Plus, Incorporated.

ROOF HATCH:30 x 36" size (or as otherwise indicated) prefabricated, single-leaf type unit designed for 40 lbs. per sq. ft. external loading and 20 lbs. per sq. ft. internal loading pressure. Frame with 12 inch high integral-curb of double-wall construction with 1-1/2" insulation, cant strips and cap flashing (roofing counter-flashing), with welded corner joints. Reinforce unit frame at corners for mounting safety railing Provide interior and exterior latch handles. Provide gasketing all around lid. Fabricate units of zinc-coated steel.

FASTENERS: Same metal as metals being fastened, or nonmagnetic stainless steel or other noncorrosive metal as recommended by manufacturer. Match finish of exposed fasteners with finish of material being fastened. Where removal of exterior exposed fasteners affords access to building, provide nonremovable fastener heads.

INSTALLATION: Comply with manufacturer's instructions and recommendations. Coordinate with installation of roof deck and other substrates to receive accessory units, and vapor barriers, roof insulation, roofing and flashing; as required to ensure that each element of the work performs properly, and that combined elements are waterproof and weathertight. Anchor units securely to supporting structural substrates, adequate to withstand lateral and thermal stresses as well as inward and outward loading pressures.

INSTALL ROOF ACCESSORY ITEMS in accordance with construction details of "NRCA Roofing and Waterproofing Manual", and in accordance with requirements of the manufacturer of the prime roofing materials.

ISOLATION: Where metal surfaces of units are to be installed in contact with noncompatible metal or corrosive substrates, including wood, apply bituminous coating on concealed metal surfaces, or provide other permanent separation.

OPERATIONAL UNITS: Test operate units with operable components. Clean and lubricate joints and hardware. Adjust for proper operation.

CLEAN exposed metal and plastic surfaces in accordance with manufacturer's instructions. Touch up damaged metal coatings. Clean and polish plastic skylight units, inside and out, not more than 5 days prior to date of substantial completion.

SECTION 08 14 00 - WOOD DOORS

PROVIDE wood doors where noted on the Drawings, as specified herein and in compliance with applicable requirements of AWI "Architectural Woodwork Quality Standards".

LABELS: Where noted in the Drawings, or where required by the Building Code to be constructed of fire-resistive construction, provide "UL" or "Warnock-Hersey" tested and labeled products that are acceptable to local authorities having jurisdiction.

SOLID CORE DOORS FOR OPAQUE FINISH: AWI Economy Grade, with faces of any closed-grain hardwood of mill option. Apply medium-density overlay to standard thickness, closed-grain, hardwood face veneers. Provide particleboard cores complying with ANSI A208.1, Grade LD-2.

INTERIOR P-LAM-FACED DOORS: AWI Custom Grade, with particleboard core, three ply faces with stiles and rails bonded to core, then entire unit abrasive planed before faces are applied. Apply 0.048-inch-thick minimum plastic-laminate meeting NEMA LD 3, Grade HGS, first to stiles – then to both faces.

NATURAL-FINISHED FLUSH WOOD DOORS: AWI Custom Grade 5 Ply hardwood face veneer solid core units, as manufactured by VT Industries or equivalent.
Species of face veneer: As indicated on the Drawings

INSTALL doors to comply with manufacturer's instructions. Fit doors to frames with uniform clearances and bevels. Machine doors for hardware, if required. Seal cut surfaces of door edges after fitting and machining. Refer to Division-9 section "Painting" for finishing requirements.

ADJUSTING: Rehang or replace doors which do not swing or operate freely. Refinish or replace doors damaged during installation.

PROTECT doors as recommended by door manufacturer to ensure that wood doors will be without damage or deterioration at time of Substantial Completion.

FIELD-FINISHED DOORS: Refer to Division-9 section "Painting" for finishing requirements.

SECTION 08 11 00 – METAL DOORS & FRAMES

PROVIDE metal door frames and hollow metal doors, where noted on the Drawings and as specified herein. Comply with applicable requirements of the Steel Door Institute "Recommended Specifications: Standard Steel Doors and Frames."

LABELS: Where noted in the Drawings, or where required by the Building Code to be constructed of fire-resistive construction, provide "UL" or "Warnock-Hersey" tested and labeled products.

EXTERIOR DOORS: 1-3/4" thick insulating assembly, with 0.053 inch thick (16 gage) cold-rolled hot-dipped galvanized sheet steel faces both sides, flush type with top, bottom and all edges fully welded and ground smooth. Provide weep holes at bottom, to allow escape of entrapped moisture. Door panel shall provide thermal insulating resistance factor of not less than R-11.

EXTERIOR FRAMES: 0.053 inch thick (16 gage) hot-dipped galvanized cold-rolled steel, fully welded. Provide minimum of 4 galv. wire type, corrugated sheet metal, or expansion type anchors per jamb.

INTERIOR DOORS: 1-3/4 in. thick, with 20 gage cold-rolled sheet steel faces, flush type with visible edge seams, equal to Steelcraft # L-20-4.

INTERIOR METAL DOORS: 1-3/4 in. thick, with minimum 0.042 inch thick (18 gage) cold-rolled sheet steel faces, flush type with visible edge seams.

DOUBLE SWING DOOR: 3'-0" wide x 7'-0" high x 3/4" thick (nominal - unless noted otherwise) "Eliason Easy Swing" # SCP 8 - constructed of exterior grade plywood clad with high-pressure plastic laminate both sides (color to match cabinets) with stainless steel edge trim, 18" S/S kickplate both sides, & optional 10" round view window in black rubber gasket.

DRYWALL KNOCK-DOWN FRAMES: Minimum 0.053 (16 gage) cold-rolled steel, with 3 resilient bumpers on each strike jamb, units to be reinforced with integral tabs for secure locking of jamb to head, complying with SDI-100. Provide .043" (18 gage) drywall frame anchors welded to frame, 4 anchors per jamb minimum.

DRYWALL FRAMES: 18 gage cold-rolled steel, knock-down type, with resilient bumpers, equal to Steelcraft series DW-16-4 "Easy-Set" drywall frames. Provide 18 gage, drywall frame anchors welded to frame, 4 anchors per jamb minimum.

FRAME FOR DOUBLE SWING DOOR: Provide hollow metal frame as specified above for typical interior drywall frames, except that profile shall not have stops. Reinforce both sides of jambs at top and bottom to allow for field installation of pivot hardware on either side.

GENERAL FABRICATION: Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warp or buckle. Where possible, fit and assemble units in manufacturer's plant. Shop prime all hollow metal doors and frames.

HARDWARE PREPARATION: Unless otherwise indicated, all doors and frames shall be mortised and reinforced for hardware in the factory.

PREFIT doors at factory with clearance of 1/8" at vertical edges and at top, 1/8" in 2" bevel at lock edge, bottom clearance : 3/8" without threshold, 3/4" with threshold.

INSTALL hollow metal doors and frames in accordance with manufacturer's recommendations. Set frames accurately in position, plumbed, aligned, and braced securely. Fit doors accurately within frames, in accordance with clearances indicated herein. Sand smooth all rust or damaged areas of prime coat and apply touch-up coat of compatible primer.

SECTION 07 92 00 - JOINT SEALANTS

PROVIDE sealants complying with requirements included herein, in order to establish and maintain airtight, vermin proof, and waterproof continuous seals on a permanent basis. Failures of installed sealants to comply with this requirement will recognized as failures of materials and workmanship.

PROVIDE SEALANTS where noted on the drawings and at the following locations:
- Pavement joints
- Control joints in unit masonry (interior and exterior)
- Joints in exterior insulation and finish systems
- Perimeter joints at doors and window frames (interior and exterior)
- Control joints in ceilings, soffits and other overhead surfaces
- Joints at Ceramic Tile Work
- Joints between plumbing fixtures and walls, floors, and counters.
- Countertops and backsplashes to adjacent walls
- Countertops to loose backsplashes
- Pipes, sleeves, conduits, duct and other wall penetrations

URETHANE TRAFFIC SEALANT: Comply with ASTM C 920 Type S (single component), grade P (pourable), class 25, use T (traffic). Acceptable products:
- Pecora Corporation; Urexpan NR-201.
- Polymeric Systems Inc.; Flexiprene 952.
- Tremco; Tremflex S/L.
- Tremco; Vulkem 45.

EXTERIOR SILICONE SEALANT: Comply with ASTM C 920 Type S (single component), grade NS (nonsag), class 100/50, Use NT (nontraffic) and use related to joint substrates of M, G, A, and, as applicable to joint substrates indicated, O. Acceptable products:
- Dow Corning Corporation; 790.
- GE Silicones; SilPruf LM SCS2700.
- Tremco; Spectrem 1 (Basic).

ACRYLIC - LATEX SEALANT: permanently flexible emulsion type, nonstaining and nonbleeding; recommended by manufacturer for general interior exposure.

SANITARY SILICONE SEALANT: Comply with ASTM C 920 Type S (single-component) and Grade NS (nonsag), Class 25, white colored (unless otherwise indicated) mildew-resistant, acid-curing silicone sealant. Available Products include:
- Dow Corning Corporation; 786 Mildew Resistant
- GE Silicones; Sanitary SCS1700
- Tremco; Tremsil 200

SILICON RUBBER FOR FOOD SERVICE USE: (Silicone F): G. E. SCS 1200 or equal single-component one-part silicone-rubber based air-curing non-sag clastomeric sealant complying with FDA requirements for direct contact with food products. DO NOT provide sealant with mold and mildew-resistant materials, when materials will be in food-preparation areas of the project.

BUTYL RUBBER SEALANT: Polymerized butyl rubber and inert fillers, solvent-based with minimum 75% solids, non-sag consistency, tack-free time of 24 hours or less, paintable, non-staining; complying with FS TT-S-001657.

JOINT BACKER: Use only those back-up materials which are specifically recommended for this installation by the manufacturer or the sealant used, and which are non-absorbent and non-staining.

INSTALLATION: Clean joint surfaces immediately before installation. Prime or seal joint surfaces as recommended by manufacturer. Comply with manufacturer's instructions. Fill sealant rabbet to a slightly concave surface, slightly below adjoining surfaces. Where horizontal joints are between a horizontal surface and vertical surface, fill joint to form a minimum 1/4" radius convex cove, so that joint will not trap moisture and dirt.

CLEAN UP: Do not allow sealants to overflow joints or to spill onto adjoining Work, or to migrate into voids of exposed finishes. Clean adjoining surfaces by whatever means may be necessary to eliminate evidence of spillage.

CURE AND PROTECT: Cure sealants in compliance with manufacturer's instructions and recommendations, to obtain high early bond strength, internal cohesive strength and surface durability.

Exterior Pavement Joints:	Urethane
Exterior Building Joints:	Exterior Silicone
Exterior Door Thresholds:	Butyl Rubber
Interior frames to walls or partitions:	Acrylic-latex
Typical Interior joints:	Acrylic-latex
Plumbing fixtures to wall joints:	Sanitary Silicone

SECTION 08 41 00 - ALUMINUM ENTRANCE AND STOREFRONT

PROVIDE ALUMINUM-FRAMED ENTRANCE DOORS and storefront framing as shown on Drawings, as required herein, needed to meet the requirements of the construction shown in the Contract Documents.

SYSTEM PERFORMANCE REQUIREMENTS FOR STOREFRONT SYSTEM: Provide assemblies designed and fabricated to c with the following, as demonstrated by testing corresponding stock systems:
- THERMAL MOVEMENT: Allow for expansion and contraction resulting from ambient temperature range of 120 deg.
- WIND LOAD: Provide capacity to withstand uniform pressure loading as indicated on the Drawings, and not less than of 2 inward and outward (per Exposure C w/ 90 MPH wind).
- DEFLECTION LIMITS OF FRAMING MEMBERS – NORMAL TO WALL PLANE: Limit to 1/175 of clear span for spans up to 13 feet 6 inches and to 1/240 of clear span plus 1/4 inch for spans greater than 6 inches or an amount that restricts edge deflection of individual glazing lites to 3/4 inch whichever is less.
- DEFLECTION LIMITS OF FRAMING MEMBERS – PARALLEL TO GLAZING PLANE: Limited to 1/360 of clear span or 1/8 inch, whichever is smaller
- AIR & WATER LEAKAGES – FIXED FRAMING: Air infiltration of not more than 0.06 CFM per sq. ft. of fixed ar ASTM E 283 and no uncontrolled water penetration per ASTM E 331 at pressure differential of 6.24 PSF.
- AIR & WATER LEAKAGES - ENTRANCES: Air infiltration per linear foot of perimeter crack of not more than 0.50 CI single doors and 1.0 CFM for pairs of doors per ASTM E 283 at pressure differential of 1.567.

PRODUCT BASIS: Unless otherwise indicated therein, the Drawings are based on the use of products manufactured by "Ka Company, Inc." (www.kawneer.com) as follows:

STOREFRONT & FIXED-UNIT WINDOW FRAMING: "Trifab VersaGlaze 450 (1-3/4 inch wide sightline) for 1/4 inch glazing, or "Trifab VersaGlaze 451 (2 inch sightline) for "center-plane" one (1) inch thick insulated glass, with composit reinforcement to accommodate wind loads

ENTRANCE DOORS: "350 Series" Medium stile (3" min width) units for single pane 1/4" glazing, WITH ten (10) inc minimum bottom rail for accessibility compliance.

CURTAINWALL SYSTEM:
- 1600 Wall - System 1 (at horizontal units) and
- 1600 Wall - System 2 (at vertical units) for insulated glass with exposed vertical butt-glazing

FRONT-ACCESS DISPLAY WINDOWS: Stile and rail type, 1 3/4" thick, narrow-stile (2-1/8 inch width) tubular frame mc with mechanically fastened and reinforced joints, for 1 inch insulated glazing.
BASIS OF DESIGN: Kawneer # 190 Series door units, with 2 pivot hinges and single keyed deadbolt

ACCEPTABLE MANUFACTURERS: Subject to compliance with unit size of products indicated and other requirements specified products of one of the following alternative manufacturers are also acceptable:
- Arch Amarlite – Arch Aluminum and Glass Inc. (www.archamarlite.com)
- Vistawall Architectural Products (www.vistawall.com)
- EFCO Corporation (www.efcocorp.com)
- Tubelite Architectural Systems (www.tubeliteinc.com)
- YKK AP America Inc. (www.ykkap.com)

PROVIDE DOOR MANUFACTURER'S STANDARD heavy-duty hardware units, including the following items of sizes, numb type recommended by manufacturer for service required, finished to match door, unless otherwise indicated:

- SEE DOOR AND HARDWARE SCHEDULE for the following items:
- CONTINUOUS HINGES: Continuous geared, heavy-duty units of anodized aluminum finished to match color of door & fr equal to "Select" SL11HD.
- PIVOTS: mfgr's std. top and bottom offset pivots – provide intermediate if door is over 7 feet
- LOCKSET AT SINGLE EXTERIOR DOORS: Deadbolt lock with outside cylinder (Adams Rite # 1850S), inside lev indicator (Adams Rite # 4550) and sign above door reading: "THIS DOOR TO REMAIN UNLOCKED V BUILDING IS OCCUPIED"
- LOCKSET AT DISPLAY-WINDOWS: Deadbolt lock with outside cylinder (Adams Rite # 1850S) without
- CONTRACTOR'S OPTIONAL EXIT DEVICES: Delete deadbolt lock or 3-point lockset system indicated above and push-bars, and provide manufacturer's standard "push-bar" type rim or concealed rod exit devices (equal to Dor-O 1590 Rim or 1490 CVR) with exterior cylinder, (not required by Building Code except at "Assembly" occupar
- EXIT DEVICES: Manufacturer's standard concealed rod exit devices with exterior cylinder, where indicated on Drawin required typically except at "Assembly" occupancies).
- CLOSERS: manufacturer's standard heavy duty surface mounted parallel-arm type unit with cast-iron body and cy (aluminum cylinder not acceptable) with integral stop, to comply with local codes and national handicapped acces requirements, as applicable.
- PULLS: 12 inch high min. x 1 inch diameter satin-stainless steel offset tubular pull
- PUSH-BARS: 1 inch diam. satin-stainless steel tubular push bar x 3"LDW (except at exit devices)
- BOTTOM-RAIL SWEEP (at exterior doors): Manufacturer's standard door bottom sweep with concealed fasteners on mo strip
- THRESHOLD: 1/2" H x 5" wide "saddle" type with seal
- FLOOR STOP: rubber cushioned cast bronze, 26D finish, 2-1/8" H x 2-3/8" long min.

ALUMINUM TRIM: Fabricate flat aluminum sheet in profiles indicated on Drawings or as required to provide closure at adjace construction elements.

FASTENERS: Aluminum, non-magnetic stainless steel, or other materials warranted by manufacturer to be noncorrosive and comp with aluminum components. Exposed fasteners shall match finish of members and hardware being fastened.

CONCEALED FLASHING: Dead-soft stainless steel, 26 gage minimum, or extruded aluminum, 0.062" minimum, as selected by manufacturer for compatibility with other components.

BRACKETS AND REINFORCEMENTS: Manufacturer's high-strength aluminum units where feasible; or non-magnetic stainless steel or hot-dipped galvanized steel complying with ASTM A-386.

CONCRETE/MASONRY INSERTS: Cast-iron, malleable iron, or hot-dipped galvanized steel complying with ASTM A-386.

BITUMINOUS COATINGS: Cold-applied asphalt mastic complying with SSPC-PS 12, compounded for 30-mil thickness per coat.

GLAZING SYSTEM: Provide manufacturer's standard compression type molded or extruded glazing gaskets that maintain uniform pressure and watertight seal, inside-outside matched, with provisions for glass replacement. Provide elastomeric type spacers and setting blocks.

PREFABRICATION: Complete fabrication, assembly, finishing, hardware application, and other work before shipment to project site. Disassemble components only as necessary for shipment and installation. Comply with AWS recommendations to avoid discoloration; grind exposed welds smooth and restore mechanical finish. Install reinforcing if required for performance requirements; separate dissimilar metals with bituminous paint or other separator which will prevent corrosion. Maintain accurate relation of planes and angles, with hairline fit of contacting members. Conceal fasteners wherever possible.

WEATHER-STRIPPING: For exterior doors, provide compression weather-stripping against fixed stops; at other edges, provide sliding weather-stripping retained in adjustable strip mortised into door edge.

DOOR FABRICATION: Provide tubular frame members, fabricated with mechanical joints using heavy inserted reinforcing plates and concealed tie-rods or j-bolts, or fabricate with structurally welded joints, at manufacturer's option.

TYPICAL ALUMINUM FINISH: Provide Class 1 Color Anodized Finish per AA-M12C22A42/A44 (Mechanical Finish: as fabricated, nonspecular; Chemical Finish: etched, medium matte; Anodic Coating: Class I Architectural, film thicker than 0.7 mil with integral color or electrolytically deposited) complying with AAMA 606.1 or AAMA 608.1. Provide color as indicated on the Drawings.

TAKE FIELD MEASUREMENTS prior to fabrication, to ensure proper fitting of Work.

INSTALLATION:

COMPLY with manufacturer's instructions and recommendations for installation of aluminum entrances and storefronts.

SET UNITS PLUMB, level, and true to line, without warp or rack of framing members, doors, or panels. Anchor securely in place, separating aluminum and other corrodible metal surfaces from sources of corrosion of electrolytic action at points of contact with other materials.

DRILL AND TAP frames and doors and apply surface-mounted hardware items, complying with hardware manufacturer's instructions and template requirements. Use concealed fasteners wherever possible.

SET SILL MEMBERS in bed of sealant as indicated, or with joint fillers or gaskets as indicated to provide weathertight construction. Comply with requirements of Division 7 for sealants, fillers, and gaskets.

ADJUST OPERATING HARDWARE to function properly, without binding, and to prevent tight fit at contact points and weather-stripping.

CLEAN COMPLETED SYSTEM, inside and out, promptly after erection and installation of glass and sealants. Remove excess glazing and joint sealants, dirt, and other substances from aluminum surfaces.

INSTITUTE PROTECTIVE MEASURES and precautions required to assure that aluminum entrances and storefronts will be without damage or deterioration, other than normal weathering, at time of acceptance.

Metal Doors & Frames SECTION 08 11 00

SECTION 08 11 00 – METAL DOORS & FRAMES

PROVIDE metal door frames and hollow metal doors, where noted on the Drawings and as specified herein. Comply with applicable requirements of the Steel Door Institute "Recommended Specifications: Standard Steel Doors and Frames."

LABELS: Where noted in the Drawings, or where required by the Building Code to be constructed of fire-resistive construction, provide "UL" or "Warnock-Hersey" tested and labeled products.

EXTERIOR DOORS: 1-3/4" thick insulating assembly, with 0.053 inch thick (16 gage) cold-rolled hot-dipped galvanized sheet steel faces both sides, flush type with top, bottom and all edges fully welded and ground smooth. Provide weep holes at bottom, to allow escape of entrapped moisture. Door panel shall provide thermal insulating resistance factor of not less than R-11.

EXTERIOR FRAMES: 0.053 inch thick (16 gage) hot-dipped galvanized cold-rolled steel, fully welded. Provide minimum of 4 galv. wire type, corrugated sheet metal, or expansion type anchors per jamb.

INTERIOR DOORS: 1-3/4 in. thick, with 20 gage cold-rolled sheet steel faces, flush type with visible edge seams, equal to Steelcraft # L-20-4.

INTERIOR METAL DOORS: 1-3/4 in. thick, with minimum 0.042 inch thick (18 gage) cold-rolled sheet steel faces, flush type with visible edge seams.

DOUBLE SWING DOOR: 3'-0" wide x 7'-0" high x 3/4" thick (nominal - unless noted otherwise) "Eliason Easy Swing" # SCP 8 - constructed of exterior grade plywood clad with high-pressure plastic laminate both sides (color to match cabinets) with stainless steel edge trim, 18" S/S kickplate both sides, & optional 10" round view window in black rubber gasket.

DRYWALL KNOCK-DOWN FRAMES: Minimum 0.053 (16 gage) cold-rolled steel, with 3 resilient bumpers on each strike jamb, units to be reinforced with integral tabs for secure locking of jamb to head, complying with SDI-100. Provide .043" (18 gage) drywall frame anchors welded to frame, 4 anchors per jamb minimum.

DRYWALL FRAMES: 18 gage cold-rolled steel, knock-down type, with resilient bumpers, equal to Steelcraft series DW-16-4 "Easy-Set" drywall frames. Provide 18 gage, drywall frame anchors welded to frame, 4 anchors per jamb minimum.

FRAME FOR DOUBLE SWING DOOR: Provide hollow metal frame as specified above for typical interior drywall frames, except that profile shall not have stops. Reinforce both sides of jambs at top and bottom to allow for field installation of pivot hardware on either side.

GENERAL FABRICATION: Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warp or buckle. Where possible, fit and assemble units in manufacturer's plant. Shop prime all hollow metal doors and frames.

HARDWARE PREPARATION: Unless otherwise indicated, all doors and frames shall be mortised and reinforced for hardware in the factory.

PREFIT doors at factory with clearance of 1/8" at vertical edges and at top, 1/8" in 2" bevel at lock edge, bottom clearance : 3/8" without threshold, 3/4" with threshold.

INSTALL hollow metal doors and frames in accordance with manufacturer's recommendations. Set frames accurately in position, plumbed, aligned, and braced securely. Fit doors accurately within frames, in accordance with clearances indicated herein. Sand smooth all rust or damaged areas of prime coat and apply touch-up coat of compatible primer.

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
22902.001

drawing issuance

PERMIT	12/09/22

drawing revisions

No.	Description:	Date:

professional seal

STATE OF MISSOURI
HENRY C. KLOVER
NUMBER
ARCHITECT

Date Signed DEC 09 2022

DATE SIGNED: 2/3/2023 10:14:43 AM

drawing title
SPECIFICATIONS

drawing number
SP106

This product guide specification is written according to the Construction Specifications Institute (CSI) Format, including MasterFormat 2012 Edition and SectionFormat/PageFormat 2005, in the CSI Project Resource Manual. The section must be carefully reviewed and edited by the Architect to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the drawings.

SECTION 08 63 00

METAL FRAMED SKYLIGHTS

PART 1 GENERAL

1.1 SECTION INCLUDES
- A. Metal-framed skylights with glass glazing.

1.2 RELATED REQUIREMENTS
- A. Structural Steel/Metal Fabrications/Rough Carpentry - Section ___________.
- B. Sheet Metal Flashing and Trim - Section ___________.
- C. Roof Accessories: Manufactured curbs - Section ___________.
- D. Joint Sealants - Section ___________.

1.3 ADMINISTRATIVE REQUIREMENTS FOR SEQUENCING
- A. Ensure that locating templates and other information required for installation of skylight(s) are furnished to affected trades in time to prevent interruption of construction progress.
- B. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.4 SUBMITTALS
- A. Product Data: Manufacturer's data sheets on each product to be used, including preparation instructions and recommendations, storage and handling requirements, installation methods and maintenance instructions.
- B. Shop Drawings: Include plans, elevations, sections, and details, indicating dimensions, tolerances, profiles, anchorage, connections, fasteners, provisions for expansion and contraction, drainage, flashing, finish, glazing, and attachments to other Work.
- C. Samples:
  1. Submit sample sets of color chips for initial selection representing manufacturer's full range of available colors and finishes.
- D. Design Data:
  1. Submit manufacturer's structural calculations showing sizes of framing members and loads applied to supporting structure based on design loads.
  2. Submit any required signed and sealed structural calculations prepared by a qualified professional engineer who is licensed in the state where system is to be installed.
- E. Manufacturer's Certificates: Submit documentation in writing certifying that products meet or exceed the specified requirements.
- F. Sustainable Design Submittals:
  1. Submit material as requested – including percentages by weight of post-consumer/ post-industrial recycled content, locally manufactured/ harvested materials and any applicable VOC content.
- G. Test Reports: Submit certified test reports from a qualified independent testing agency, indicating skylights comply with specified requirements. Submit results from the following:
  1. Air infiltration, ASTM E 283.
  2. Water penetration, ASTM E 331.
  3. Standard Test Method for Structural Performance, E 330.
  4. Simulated Field Test, ASTM E 501.2.

1.5 QUALITY ASSURANCE
- A. Manufacturer Qualifications: Minimum ten years documented experience in the fabrication of skylights of the type required for this project and capable of providing field service representation during installation.
- B. Installer Qualifications: Minimum five years documented experience in the work of this section, specializing in work similar

to project requirements and approved by manufacturer.

1.6 DELIVERY, STORAGE AND HANDLING
- A. Delivery: Deliver to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name, manufacturer, and installation location.
- B. Storage/Handling: Store products above the floor and under cover in a clean, dry area until installation. Protect materials finish from damage during handling and installation.

1.7 SITE CONDITIONS
- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.8 WARRANTIES
- A. Material Workmanship (select one):
  1. Provide manufacturer's standard 1 year warranty.
  2. Optional: 5 years / 10 years.
- B. Metal Finishes: (Please consult Major Industries for assistance).
  1. 50% Kynar® Paint: Provide manufacturer's standard 5 year / optional 10 year warranty.

PART 2 PRODUCTS

2.1 METAL-FRAMED SKYLIGHTS

- A. Standard Skylights:
  1. Style: Single Slope.
  2. Overall Dimensions: 4'-0" width x 6'-0"length]
  [As indicated on the drawings]

2.2 DESIGN / PERFORMANCE REQUIREMENTS

- A. Design Requirements:
  1. Extruded aluminum members with integral screw race for secure attachment of exterior caps and setting blocks.
  2. Integral guttering system within skylight framing for positive condensation drainage.
- B. Performance Requirements:
  1. Framing Members: Sufficient sizes as required to support design loads.
  2. Deflection of a Framing Member in a Direction Normal to Plane of Glass: When subjected to uniform load, deflection shall not exceed L/175 or 1 inch of clear spans less than 20 feet, or L/240 of clear spans greater than feet.
  3. Deflection of a Framing Member in a Direction Parallel to Plane of Glass: When carrying its full dead load, deflection shall not exceed an amount that will reduce glass or panel bite below 75 percent of design dimension member shall have a 1/8 inch minimum clearance between itself and edge of fixed panel, glass, or component immediately adjacent, nor shall it impair function of or damage joint seals.
- C. Design Loads: Framing components shall be designed to support following loads:
  1. Live Load:
     a. ___20/ 300_______ psf.
     b. As indicated on the Drawings.
  2. Wind Load:
     a. ___31______ _______ psf.
     b. As indicated on the Drawings.

  3. Alternate Design Loads: Conform to applicable state and local codes.
- D. Physical Properties: Allowable stresses shall incorporate following safety factors, unless otherwise specified:
  1. Air Infiltration:
     a. ASTM E 283: Not to exceed 0.05 cfm/sq ft at a static pressure of 6.24 psf (50 mph).
     b. AAMA/WDMA 1600/I.S. 7, SKG-HC40: Not to exceed 0.10 cfm/sq ft at a static pressure of 6.24 psf (50 mph).
  2. Static Water Penetration:
     a. ASTM E 331: No uncontrolled water leakage at a static pressure of 12 psf (69.3 mph) and a minimum water flow rate of 5 gal/hr/sq ft for 15 minutes.
     b. AAMA/WDMA 1600/I.S. 7, SKG-HC40: No uncontrolled water leakage at a static pressure of 6 psf and a minimum water flow rate of 5 gal/hr/sq ft for 15 minutes.
  3. Structural Load Test:
     a. ASTM E 330: Maximum allowable deflection of any member shall not exceed L/175.
     b. AAMA/WDMA 1600/I.S. 7, SKG-HC40: Permanent set of any frame member shall not exceed 0.4 percent of its unsupported span at 60 psf positive and negative test pressures.
  4. Simulated Field Test: Test skylights for dynamic water resistance at a static pressure of 12 psf in accordance with AAMA 501.2. No uncontrolled water leakage.
- E. Expansion and Contraction: Design and install components with provisions for expansion and contraction due to a 100 degree F (56 degrees C) temperature variation.

2.3 MANUFACTURERS

- A. Acceptable Manufacturer: Major Industries Inc., 7120 Stewart Ave, Wausau, WI 54401; 888-759-2678; Tel: 715-842-4616; Fax: 715-848-3336; info@majorskylights.com; www.majorskylights.com
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.4 COMPONENTS

- A. Framing Materials:
  1. Extruded Aluminum: ASTM B 221, Alloy 6063-T5/T6, 6061-T5/T6, or equivalent. Material alloy, temper and thickness shall be as required for loading, deflection, cross-sectional configuration and finish.
- B. Glazing Strips:
  1. Extruded EPDM rubber, ASTM C 864 and C 1115.
  2. Durometer: 70 plus or minus.
  3. Color: Black.
- C. Flashing:
  1. Formed Aluminum Components and Flashing: Alloy 5005-H34 or equivalent.
  2. Minimum Thickness: 0.040 inch or as required for proper performance.
  3. Rigid foam insulated. (Auburn® E+ systems)
- D. Setting Blocks: Extruded Type II EPDM
  1. Support glass and provide proper edge clearances and glass bites in accordance with manufacturer's instructions.
  2. Hardness, ASTM D 2240, Type A: Durometer 80 plus or minus
  3. Color: Black.
- E. Condensation Control System:
  1. Mechanically design entire condensation control system to function properly with minimal dependency upon sealants.
  2. Integral guttering system provided on all framing members, including rafters.

- F. Custom Designs:
  1. Perform fitting and assembly of custom designs at factory, insofar as practicable.
  2. Completely assemble, mark, and disassemble components which cannot be permanently factory assembled, before delivery to site to ensure proper assembly in field.
- G. Glazing Caps:
  1. Extruded aluminum, Alloy 6063-T6. (Auburn® Engineered)
  2. Fiber reinforced thermoset profiles with extruded aluminum fastener covers to match system framing. (Auburn® E+ Systems)
  3. Attach glazing caps with glazing cap fasteners located at a maximum of 12 inches on center or as required to resist negative loading.
- H. Curb:
  1. Continuous aluminum curb with expansion joints as required.
  2. Locate weep holes in curb to positively drain condensation to exterior of skylight at each rafter connection.
- I. Fasteners:
  1. For Framing Connections: As required by connection.
     a. Aluminum: ASTM B 211, Alloy 2024-T4.
     b. Stainless Steel: ASTM A 193, Series B8 300.
     c. Aluminum Rivets: ASTM B 316.
  2. For Exterior Cap Retainers: Stainless steel screws, ASTM A 193, Series B8 300.
  3. Finish: Exposed fasteners to match aluminum finish
- J. Sealants:
  1. Structural Flush Glazed Joints: High performance silicone sealant applied in accordance with manufacturer's recommendations.
     a. Sealant is capable of withstanding 50 percent movement in both extension and compression (total of 100 percent movement) when tested for adhesion and cohesion under maximum cyclic movement according to ASTM C 719.
     b. Non-sag and neutral-curing silicone sealants. Complies with ASTM C 920, Type S, Grade NS, Class 50, Use NT; SWRI validated.
     c. Structural silicone shall not be used to support dead weight of vertical glass or panels.
  2. Non-Structural Sealants: Silicone sealants applied in accordance with manufacturer's recommendations.

2.5 ALUMINUM FINISHES

- A. Anodized Coating: Architectural Class I pigmented anodized, Type AA-M10C22A42/A44.
  1. Color: _Sherwin Williams color #SW7034 Status Bronze__(Tenant 100)
  2. Color:_Sherwin Williams color #SW6258 Tricorn Black (Tenant 101.
  3. Color: As selected by Architect from manufacturer's standard colors.
  4. Color: As indicated on the Drawings.

2.6 GLASS
- D. Insulating Glass:
  1. CBA Rated by Insulating Glass Certification Council (IGCC): ASTM E 773 and E 774.
  2. Seals: Dual edge seals with silicone secondary seal.

  3. Exterior Lite: [Fully-tempered glass]
  4. Interior Lite: [Fully-tempered glass].
- E. Glazing Unit Configuration – Insulated Glass:
  1. Type: [1-inch (25.4mm)] [other] insulating glass.
  2. Exterior Lite: 1/4-inch (6mm) [fully-tempered glass] [other].
     a. Tint: ______________ .
     b. Reflective Coating: ______________ .
     c. Surface Applied To: ______________ .
  3. Air Space: [1/2 inch (13mm)] [other] sealed.
  4. Interior Lite: [1/4-inch (6mm)] [other] [fully-tempered glass].

PART 3 EXECUTION

3.1 EXAMINATION
- A. Do not begin installation until substrates have been properly prepared.
- B. If required, examine areas to receive skylights with installer and manufacturer's representative present, including support structure and substrate for dimensions, tolerances, material conditions.
- C. Notify Architect of conditions adversely affect installation or subsequent utilization of skylights. Do not proceed with installation until unsatisfactory conditions are corrected.

3.2 PREPARATION
- A. Clean surfaces thoroughly prior to installation.
- B. Ensure supports to receive skylights are clean, flat, level, plumb, and square.
- C. Apply a protective coating of bituminous paint or other neutral material to dissimilar materials coming in contact with aluminum or separate with a non-absorbent isolator.

3.3 INSTALLATION
- A. Install skylights in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. Install skylights level, plumb, square, accurately aligned, correctly located, and without warp or rack.
- C. Do not install skylight components with deficiencies or dimensional errors. Do not proceed with installation until unsatisfactory components are replaced.
- D. Anchor skylights securely to supports. Use attachment methods permitting adjustment for construction tolerances, irregularities, alignment, and expansion and contraction.
- E. Install skylights including flashings, fasteners, hardware, sealants, and glazing materials required for a complete, weatherproof installation.
- F. Isolate, with protective barrier, contact areas between aluminum and dissimilar metals.
- G. Sheet Metal Flashing: Install sheet metal flashing at perimeter as specified in Sect. 07620.
- H. Sealants: Install sealants at sill flashing and perimeter framing as required to prevent air and water intrusion as specified in Sect. 07920.

3.4 FIELD QUALITY CONTROL
- A. Inspect installed system for required fasteners, wet-sealing and uniformity of retaining caps.
- B. Inspect skylight framing members for level and plumb.
- C. Inspect installation of sheet metal flashing and sealants.
- D. Inspect glazing units for cracks, deep scratches, and other damage.

3.5 CLEANING
- A. Clean skylights inside and outside, per manufacturer's instructions, including member connections and inside corners, immediately after installation and after sealants have cured.
- B. Remove temporary protective coverings and strippable coatings from metal surfaces.
- C. Remove labels and part number markings from components.
- D. Remove excess sealant in accordance with sealant manufacturer's instructions.
- E. Do not use harsh cleaning materials or methods that would damage finishes or glazing.

3.6 PROTECTION
- A. Protect installed products until completion of project in accordance with manufacturer's instructions, and maintain protection to ensure that, except for normal weathering, skylights will be without deterioration at time of substantial completion.
- B. Remove and replace glass units that are chipped, cracked, abraded or otherwise damaged.

3.7 SCHEDULES
- A. :
- B. :

END OF SECTION

SECTION 08 71 00 – DOOR HARDWARE

WORK INCLUDED: Provide finish hardware throughout the Work as indicated in the Drawings, as specified herein and as required for a complete installation.

PROVIDE finish hardware throughout the Work as needed for a complete installation and as specified herein.

REQUIRE HARDWARE SUPPLIER TO MEET WITH THE OWNER to review and confirm hardware functions and to verify keying requirements. Include time for a minimum of two (2) meetings, each to take not less than two (2) hours, meetings to be held at the project site.

FIRE-RATED OPENINGS: Comply with NFPA Standard No. 80 and local codes for installation of hardware in fire-rated assemblies. Provide only hardware which has been tested and listed by UL or FM in compliance with requirements of door and door frame labels.

PRODUCTS & MANUFACTURERS: Subject to compliance with requirements indicated in the Door Hardware Schedule, provide products as follows:

CONTINUOUS GEARED HINGES: "Pemko" or equal by "Hager/Roton"

BUTT HINGES: "Stanley" or equal by Hager, McKinney, or PBB

CYLINDERS LOCKS: "Schlage" or equal by Corbin/Russwin, Sargent, or Yale

KEYING: Provide 7-pin interchangeable cores with 3 keys where indicated below. Provide all other locksets keyed alike. Provide six (6) total change-keys to Owner.

LOCKSETS/LATCHSETS: "PDQ" or equal by Schlage, Corbin/Russwin, Sargent or Yale.

STOPS & BOLTS: If a wall stop is scheduled but is not possible to install, provide a floor stop equal to "Ives" # 438 x 626 or equal where scheduled below. Typically, provide "Ives" or equal units by Hager, Quality, Stanley.

EXIT/PANIC DEVICES: "Von Duprin" or equal by Corbin/Russwin, Sargent, or Yale

PUSH/PULL UNITS. DOOR TRIM, AND FLATGOODS: "Rockwood" or equal by Brookline, Hager, Ives

CLOSERS: Provide units only with high-strength, cast-iron bodies, tamper resistant regulating screws for speed, back-check and latch speed, and with "all-temperature" fluid. Provide "LCN" or equal units or Sargent – Series 281.

DOOR STRIPPING & SEALS: "Pemko" or equal by Hager, National Guard, Reese or Zero

LOCKGUARDS: "Rockwood" or equal by Don-Jo or Latchguard

FASTENERS: Provide necessary screws, bolts and other fasteners of suitable size and type to anchor hardware in position for long life under hard use. Provide concealed fasteners for hardware units which are exposed when door is closed.

AT FIRE-RATED DOORS provide UL-listed surface mounted closers and UL-listed head/jamb gasketing in addition to hardware indicated in Schedule below.

INSTALL hardware items at heights as recommended by the Door and Hardware Institute, except as specifically required to comply with local codes. Install hardware in compliance with the manufacturer's instructions and recommendations. Set units level, plumb and true. Consult with owner as to keying instructions.

ADJUST and check operation of every unit. Replace units which cannot be adjusted to operate freely and smoothly.

HARDWARE SCHEDULE:

SET # 1 – KEYED ENTRY DOOR # 100C, 101A:

1 ea Continuous hinge	"Pemko" heavy-duty, full-mortise type - field paint to match door/frame color
1 ea Exit Device	"Von Duprin" # CD-99NL-OP x 626
1 ea Cylinder	20-001 6-pin Mortise type (for cylinder dogging)
1 ea IC Cylinder	20-057 7-pin interchangeable-core rim type
1 ea Closer	"LCN" # 4040 series x H-S-CHUSH
1 ea Kickplate	"Rockwood" #K1125-8"Hx2"LDW x B4E x Polished Aluminum Diamond plate
1 ea Threshold	"Pemko" # 227D (1/2" H x 4" wide)
1 ea Dr Bottom Shoe	"Pemko" # 216AV – paint door color
1 ea Head W-strip	"Pemko" # 2892AV – continuous above closer
2 ea Jamb W-strips	"Pemko" # 2902AV
1 ea Fire-Dept Access	"Knox-Box" # 3200 Series - with optional recessed mounting kit - coordinate with local authorities
1 ea Pull	Install unit furnished by Owner (to clear cylinder)

SET # 3: PUBLIC EXIT DOOR (W/ PANIC) # 100A:

1 ea Continuous hinge	"Pemko" heavy-duty, full-mortise type - field paint to match door/frame color
1 ea Exit Device	"Von Duprin" # CD-99EO x 626
1 ea Cylinder	20-001 6-pin Mortise type (for cylinder dogging)
1 ea Offset Pull	"Rockwood" # BF158 – 12" H x 1"diam x 630
1 ea Closer	"LCN" # 4040x H-S-CHUSH
1 ea Kickplate	"Rockwood" #K1125-8"Hx2"LDW x B4E x Polished Aluminum Diamond plate
1 ea Head W-strip	"Pemko" # 2892AV – continuous above closer
2 ea Jamb W-strips	"Pemko" # 2902AV
1 ea Threshold	"Pemko" # 227A (1/2" H x 4" wide)
1 ea Door Bottom Shoe	"Pemko" # 216DV

SET # 4 - SERVICE DOOR # 100B, 101E:

1 ea Continuous Hinge	"Pemko" heavy-duty full mortise
1 ea Exit device	"Von Duprin" CD-99L x 626
1 ea Cylinder	20-001 6-pin Mortise type (for cylinder dogging)
1 ea Cylinder	20-057 7-pin IC (interchangeable) core rim type
1 ea Closer	"LCN" # 4040 series x H-S-CHUSH
2 ea Armor plate	"Rockwood" K1062-38"Hx2"LDWxB4E
2 ea Door edge	"Rockwood # 310 - 38" H x 630 (verify profile w/ door fabricator)
1 ea Head W-strip	"Pemko" # 2892AV – continuous above closer
2 ea Jamb W-strips	"Pemko" # 2902AV
1 ea Cast Threshold	"Wooster" # 115M x 4" (1/2" high)
1 ea Door Bottom Shoe	"Pemko" # 216AV
1 ea Viewer	"Ives" # 698 x 626
1 ea Lockguard	"Rockwood" # 320 x 630

SET # 5: MECHANICAL ROOM DOOR # 102A:

1-1/2 pr Butts	"Stanley" # FBB179 x 4.5" x 4.5" x 630
1 ea Lever Lockset	"PDQ" #SP-115 (storeroom) x BSN x TB x 626
1 ea OH Hold/stop	"Glynn-Johnson" 70H Series x 626 x SB1
1 set Weatherstripping	"Pemko" # 303AV - jambs & head
1 ea Threshold	"Pemko" # 205AT x 5" x 1/2" high
1 ea Door Bottom Shoe	"Pemko" # 216AV – paint to match door
1 ea Lockguard	"Rockwood" # 320 x 630

SET # 14 - OVERHEAD GARAGE DOOR # 101D, 101G, 101H:

1 ea Cylinder	20-001 6-pin Mortise type

All other hardware by Door Manufacturer

SECTION 08 80 00 - GLAZING

WORK INCLUDED: Provide glass and glazing as shown on the drawings, as specified herein, and as needed to meet the requirements of the construction.

GLAZING STANDARDS: Comply with recommendations of Flat Glass Marketing Association (FGMA) "Glazing Manual" and "Sealant Manual" except where more stringent requirements are indicated. Refer to those publications for definitions of glass and glazing terms not otherwise defined in this section or other referenced standards.

SAFETY GLAZING STANDARDS: Where safety glass is indicated or required by authorities having jurisdiction, provide type of products indicated which comply with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for category II materials.

FLOAT/PLATE GLASS: Type I, Quality q3, clear unless otherwise indicated,

TYPICAL LOW-E CLEAR FLOAT GLASS: ASTM C 1036, Type I (transparent glass, flat), Quality q3 (glazing select) in clear (not tinted) color, in minimum 6 mm thickness, with a pyrolitic low-E coating on the # 2 surface, providing a minimum 0.70 Solar Heat Gain Coefficient, equal to "Comfort E2" by AFG Glass Co.

TEMPERED GLASS: Provide prime glass of color and type indicated, which has been heat treated to strengthen glass in bending to not less than 4.5 times annealed strength.

INSULATING GLASS: Provide two (2) sheets of glass and 1/2" dry air of gas-filled space with -20 degrees F dew point, with Class A sealant-type edge construction to maintain a hermetic seal, utilizing one layer of clear glass and one layer of clear, low-E glass with a pyrolitic low-E coating on the # 3 surface, providing a minimum of 0.35 U-factor (winter night-time - R-value: 2.86), 0.79 Shading Coefficient, and 38% UV Transmission (summer-daytime), equal to Dual Glazed "Comfort E2" by AFG Glass Co.

GLAZING SEALANT: Elastomeric silicone sealant complying with ASTM C 920, Type S (single component), Grade NS (nonsag), Class 25, Use NT (non-traffic); specially compounded and tested to show a minimum of 20 years resistance to deterioration in normal glazing applications. Provide at exterior glazing. Available Products include: Dow Corning 790, GE Silicones Silpruf, Pecora Corporation 895, Tremco, Spectrum 2, and Sonneborn Omniplus.

GLAZING TAPE: Preformed, butyl-based elastomeric tape with solids content of 100%, complying with ASTM C 1281 and AAMA 800.

MISCELLANEOUS GLAZING MATERIALS: Provide cleaners, primers and sealers, setting blocks, spacers and edge blocks of size and shape complying with referenced glazing standards, and with requirements of glass manufacturer for application indicated.

INSTALLATION

WATERTIGHT AND AIRTIGHT INSTALLATION of each glass product is required, except as otherwise shown. Each installation must withstand normal temperature changes, wind loading, impact loading (for operating sash and doors), without failure including loss or breakage of glass, failure of sealants or gaskets to remain watertight and airtight, deterioration of glazing materials and other defects in the work.

COMPLY with FGMA "Glazing Manual" and manufacturers instructions and recommendations. Use manufacturer's recommended spacers, blocks, primers, sealers, gaskets and accessories.

PROVIDE TEMPERED GLASS in all door openings, and within five (5) feet of any door opening, within 18" from finished floor, and where otherwise indicated to be provided by the Drawings, or as required by the standards indicated herein.

CLEAN GLAZING CHANNEL and other framing members to receive glass, immediately before glazing. Remove coatings which are not firmly bonded to substrate. Remove lacquer from metal surfaces where elastomeric sealants are used.

INSTALL glass with uniformity of pattern, draw, bow and roller marks. Install sealants to provide complete wetting and bond and to create a substantial wash away from glass. Install pressurized tapes and gaskets to protrude slightly out of channel, so as to eliminate dirt and moisture pockets.

INSTALL INSULATING GLASS UNITS to comply with recommendations by Sealed Insulating Glass Manufacturers Association, except as otherwise specifically indicated or recommended by glass and sealant manufacturers

PROTECT EXTERIOR GLASS FROM BREAKAGE immediately upon installation, by use of crossed streamers attached to framing and held away from glass. Do not apply markers to surfaces of glass. Remove nonpermanent labels and clean surfaces. Cure sealants for high early strength and durability.

REMOVE and replace damaged glass and glazing. Wash and polish glass on both faces not more than 4 days prior to date scheduled for inspections intended to establish date of substantial completion. Comply with glass product manufacturer's recommendations for final cleaning.

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
22902.001

drawing issuance
PERMIT 12/09/22

drawing revisions
No. Description: Date:

professional seal

Date Signed DEC 09 2022

DATE SIGNED: 2/3/2023 10:14:48 AM

drawing title
SPECIFICATIONS

drawing number
SP107

DESIGN PARAMETERS

1. DESIGN CODES AND STANDARDS

A. BUILDING CODE: IBC 2018 WITH CITY OF LEE'S SUMMIT LOCAL AMENDMENTS	
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

STEEL:

AISC 360-16 - SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS

WOOD:

ANSI/AWC NDS-2018 - NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION

ANSI/AWC SDPWS-2015 - SPECIAL DESIGN PROVISIONS FOR WIND AND SEISMIC

2. GRAVITY LOADS

A. ROOF DEAD LOADS

ROOFING AND INSULATION	5.0 PSF
MECH., ELEC. AND PLUMBING	5.0 PSF
CEILINGS	5.0 PSF
MISCELLANEOUS	5.0 PSF
TOTAL SUPERIMPOSED ROOF DEAD LOAD	20.0 PSF

B. LIVE LOADS (UNIFORM/CONCENTRATED)

ROOF	20 PSF / 300 LB
STAIRS	100 PSF / 300 LB

3. ROOF SNOW LOAD

A. GROUND SNOW LOAD, Pg	20.0 PSF
B. FLAT ROOF SNOW LOAD, Pf	14.0 PSF
C. SNOW EXPOSURE FACTOR, Ce	1.0
D. SNOW LOAD IMPORTANCE FACTOR, I	1.0
E. THERMAL FACTOR, Ct	1.0

4. WIND DESIGN DATA

A. ULTIMATE DESIGN WIND SPEED (3 SECOND GUST), Vult	110 MPH / 85 MPH
NOMINAL DESIGN WIND SPEED (3 SECOND GUST), Vasd	85 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.	≥500 SQ. FT.
ZONE 1	-43.6 PSF	-27.3 PSF
ZONE 1'	-25.0 PSF	-16.9 PSF
ZONE 2	-57.5 PSF	-36.6 PSF
ZONE 3	-78.3 PSF	-36.6 PSF
ZONE 1, 2 & 3	16.0 PSF	16.0 PSF

WALL PRESSURES (1.0W)

	EFFECTIVE WIND AREA	
	≤10 SQ. FT.	≥500 SQ. FT.
ZONE 4	-27.1 PSF	-20.9 PSF
ZONE 5	-33.4 PSF	-20.9 PSF
ZONE 4 & 5	25.0 PSF	18.8 PSF

NOTES:
1. RE: 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

E. WIDTH OF END ZONE	7.5 FT

5. EARTHQUAKE DESIGN DATA

A. SEISMIC IMPORTANCE FACTOR, Ie	1.0
B. MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETER, Ss	9.9%
C. MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETER, S1	6.8%
D. SITE CLASS	D
E. DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETER, Sds	0.106
F. DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETER, Sd1	0.109
G. SEISMIC DESIGN CATEGORY	B
H. STRUCTURAL SYSTEM	--
1.) VERTICAL ELEMENT TYPE	BEARING WALL SYSTEM
2.) BASIC SEISMIC FORCE-RESISTING SYSTEM TYPE	LIGHT FRAME WALLS WITH WOOD STRUCTURAL PANELS
3.) RESPONSE MODIFICATION FACTOR, R	6.5
4.) SEISMIC RESPONSE COEFFICIENT, Cs	0.016
5.) DESIGN BASE SHEAR, 1.0E	0.016 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.
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, SUBGRADE PREPARATION NOTES, AND STRUCTURAL EARTH MOVING SPECIFICATION ARE BASED ON THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT NUMBER 18-5125-2022, BY: COOK, FLATT, AND STROBEL ENGINEERS, P.A. DATED: SEPTEMBER 30, 2022.
2. FOOTING DESIGNS ARE BASED ON A NET [MAX] ALLOWABLE SOIL BEARING CAPACITY OF 2000 PSF.
3. CONTRACTOR AND TESTING LABORATORY REPRESENTATIVE SHALL READ THE GEOTECHNICAL REPORT AND BECOME THOROUGHLY FAMILIAR WITH SITE AND SUBGRADE INFORMATION GIVEN THEREIN. 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 STRUCTURAL EARTH MOVING SPECIFICATION.
4. 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 ENGINEER-OF-RECORD OF ANY CONDITIONS NOT IN ACCORDANCE WITH FOUNDATION DESIGN CRITERIA OR CONTRACT DOCUMENTS.

5 THE SUBGRADE SHALL BE PREPARED AS INDICATED IN THE STRUCTURAL EARTH MOVING SPECIFICATION.

6 USE ONLY STRUCTURAL FILL MATERIAL IDENTIFIED IN THE STRUCTURAL EARTH MOVING SPECIFICATION FOR FILL BELOW BUILDING AND FIVE FEET BEYOND THE EDGES OF THE BUILDING AND 1 FOOT BEYOND THE EDGES OF PAVING.

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 STRUCTURAL EARTH MOVING SPECIFICATION.

8 FOUNDATION WALLS SHALL HAVE ADEQUATE TEMPORARY BRACING INSTALLED BY THE CONTRACTOR BEFORE BACKFILL IS PLACED AGAINST THEM. TEMPORARY BRACING SHALL NOT BE REMOVED UNTIL WALL IS PERMANENTLY BRACED.

9 AVOID DAMAGE TO UNDERGROUND UTILITIES INCLUDING, BUT NOT LIMITED TO, WATER MAINS, SANITARY SEWERS AND BURIED CABLES WHICH MIGHT EXTEND ACROSS OR ADJOIN SITE.

CONCRETE

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

A. FOOTINGS	4000 PSI
B. FOUNDATION WALLS AND PEDESTALS	4000 PSI
C. INTERIOR SLABS-ON-GRADE	3000 PSI
D. EXTERIOR STRUCTURAL CONCRETE	4500 PSI

REFERENCE SPECIFICATIONS FOR MAXIMUM WATER/CEMENT RATIOS, MINIMUM CEMENT CONTENTS AND OTHER MIX DESIGN REQUIREMENTS. CONCRETE SHALL BE NORMAL WEIGHT (145 PCF), UNLESS NOTED OTHERWISE.

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 △1
A. DEFORMED BARS	A615, GRADE 60
B. WELDABLE DEFORMED BARS	A706, GRADE 60
C. WELDED WIRE REINFORCEMENT	A1064

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. PROVIDE #3 Z-BAR SPACERS AT 24 INCHES ON CENTER EACH WAY FOR CONCRETE WALLS HAVING REINFORCING STEEL IN BOTH FACES.
11. 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.

GENERAL NOTES

STRUCTURAL STEEL

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

	YIELD	ASTM SPECIFICATION △1
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. ANCHOR RODS:	36 KSI, WELDABLE	F1554
E. ALL-THREAD RODS:	36 KSI	A36

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.
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.

WOOD FRAMING

1. WOOD FRAMING SHALL MEET THE NDS MINIMUM STRESS PROPERTIES UNLESS NOTED OTHERWISE IN CONTRACT DOCUMENTS
   - A. DOUGLAS FIR SOUTH #2 OR BETTER, PER THE NDS
   - B. GLULAM BEAMS: 24F-V4 DF/DF, PER THE NDS
     - . 1. E = 1,800,000 PSI
   - C. LAMINATED VENEER LUMBER (LVL):
     - . 1. Fb = 2,600 PSI
     - . 2. Ft = 1,555 PSI
     - . 3. Fc = 2,510 PSI (PARALLEL TO GRAIN)
     - . 4. Fc = 750 PSI (PERPENDICULAR TO GRAIN)
     - . 5. Fv = 285 PSI (PARALLEL TO GRAIN)
     - . 6. E = 2,000,000 PSI
   - D. PARALLEL STRAND LUMBER (PSL):
     - . 1. Fb = 2,900 PSI
     - . 2. Ft = 2,025 PSI
     - . 3. Fc = 2,900 PSI (PARALLEL TO GRAIN)
     - . 4. Fc = 625 PSI (PERPENDICULAR TO GRAIN)
     - . 5. Fv = 290 PSI (PARALLEL TO GRAIN)
     - . 6. E = 2,000,000 PSI
2. PROVIDE SIMPSON STRONG-TIE CONNECTORS OR EQUIVALENT FOR WOOD FRAMING CONNECTING TO SUPPORTING MEMBERS. INSTALL WITH MANUFACTURER'S SPECIFIED FASTENERS ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS. SUBSTITUTION REQUESTS FOR CONNECTORS SHALL BE SUBMITTED BY THE CONTRACTOR TO THE STRUCTURAL ENGINEER-OF-RECORD 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.
3. ALL ROOF, FLOOR AND EXTERIOR WALL SHEATHING SHALL BE APA RATED EXPOSURE 1 SHEATHING [U.N.O.] AND SHALL BEAR THE STAMP OF AN APPROVED TESTING AGENCY.
4. INSTALL ROOF AND FLOOR SHEATHING WITH THE LONG DIMENSION OF THE PANEL PERPENDICULAR TO SUPPORTS UNLESS NOTED OTHERWISE IN CONTRACT DOCUMENTS, AND WITH PANEL CONTINUOUS OVER TWO OR MORE SPANS. STAGGER END JOINTS, UNLESS NOTED OTHERWISE. SPACE PANELS 1/8" APART AT EDGES AND ENDS.
5. ALL ROOF SHEATHING SHALL HAVE A MINIMUM THICKNESS OF 3/8 INCH WITH A SPAN RATING OF AT LEAST 32/16 AND BE FASTENED TO ROOF FRAMING NAILED WITH 8d GALVANIZED COMMON NAILS AT 2" O.C. AT PANEL EDGES AND 12 INCHES ON CENTER AT INTERMEDIATE SUPPORTS. PROVIDE BLOCKING AT UNSUPPORTED PANEL EDGES, 8d COMMON NAILS SHALL HAVE A MINIMUM 0.138 INCH DIAMETER AND 1 3/8 INCH MINIMUM PENETRATION INTO SUPPORTING FRAMING.
6. ALL EXTERIOR NON-SHEAR WALL SHEATHING SHALL MATCH SHEARWALL THICKNESS PER SCHEDULE/PLAN AND BE FASTENED TO WALL STUDS WITH 8d GALVANIZED COMMON NAILS AT 6 INCHES ON CENTER AT EDGES AND 12 INCHES ON CENTER AT INTERMEDIATE SUPPORTS. PROVIDE BLOCKING AT UNSUPPORTED PANEL EDGES. 8d COMMON NAILS SHALL HAVE A MINIMUM 0.138 INCH DIAMETER AND 1 3/8 INCH MINIMUM PENETRATION INTO SUPPORTING FRAMING.
7. INSTALL ALL JOISTS, RAFTERS, HEADERS AND BEAMS CROWN UP.
8. ALL JOISTS SHALL HAVE DIAGONAL BRIDGING OR FULL DEPTH BLOCKING AT 8'-0" ON CENTER MAXIMUM ALONG THE SPAN AND AT SUPPORTING BEAMS OR WALLS.
9. REFERENCE DETAILS FOR CUTTING, BORING OR NOTCHING OF FRAMING MEMBERS, WALL STUDS AND TOP PLATES.
10. FASTEN PLIES OF ENGINEERED WOOD PRODUCTS TOGETHER PER THE MANUFACTURER'S RECOMMENDATIONS OR AS DETAILED IN THE CONSTRUCTION DOCUMENTS. REFERENCE BUILT-UP COLUMN AND BEAM DETAILS FOR NAILED BUILT-UP COLUMN AND BEAM REQUIREMENTS. SPLICES IN MULTIPLE BUILT-UP MEMBERS ARE NOT PERMITTED, U.N.O.
11. PROVIDE SLIP CONNECTION AT TOP OF ALL NON-LOAD BEARING WALLS TO ALLOW FOR 1 1/2" DEFLECTION OF FRAMING ABOVE.
12. ALL WOOD IN CONTACT WITH CONCRETE AND EXTERIOR MASONRY SHALL BE PRESERVATIVE TREATED.
13. ALL STEEL CONNECTORS AND FASTENERS USED WITH PRESERVATIVE TREATED WOOD SHALL BE GALVANIZED (G90).
14. NAILING SHALL COMPLY WITH REQUIREMENTS OF NAILING SCHEDULE UNLESS NOTED OTHERWISE IN CONTRACT DOCUMENTS.
15. ALL NAILS SHOWN ON PLAN ARE 'COMMON', UNLESS NOTED OTHERWISE. REFERENCE NAIL SIZE SCHEDULE FOR REQUIRED COMMON NAIL SIZES.

GENERAL NOTES

SHOP-FABRICATED WOOD TRUSSES

1. ALL TRUSSES SHALL BE PRE-ENGINEERED AND SHOP FABRICATED. TRUSSES AND CONNECTIONS SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST REVISION OF THE AF&PA N.D.S. TRUSSES SHALL CONFORM TO THE SPACING, DIMENSIONS AND CONFIGURATIONS SPECIFIED IN THESE NOTES AND ON THE PLANS AND SHALL BE DESIGNED FOR ALL SPECIFIED LOADS. FRAMING PLANS INDICATE THE REQUIRED BASIC TRUSS LAYOUT. SIGNIFICANT DEVIATIONS FROM THESE PLANS WILL NOT BE PERMITTED.

2 TRUSS MANUFACTURER SHALL SUBMIT STRUCTURAL CALCULATIONS AND SHOP DRAWINGS, INCLUDING AN ERECTION DRAWING SHOWING TRUSS LAYOUT PREPARED AS NOTED IN THE DEFERERED SUBMITTAL NOTE.

3. ROOF TRUSS DESIGN LOADS (ASD):
   - A. TOP CHORD
     - . 1. ROOF LIVE LOAD = 20 PSF
     - . 2. DEAD LOAD = 10 PSF
     - . 3. SNOW LOAD = CALCULATE PER GOVERNING BUILDING CODE.
   - B. BOTTOM CHORD
     - . 1. DEAD LOAD = 10 PSF
     - . 2. LIVE LOAD = AS REQUIRED PER GOVERNING BUILDING CODE
   - C. SELF WEIGHT OF THE TRUSSES SHALL BE ADDED TO THE ABOVE LOADS.
   - D. WIND LOADS = RE: DESIGN PARAMETERS
   - E. ROOF TRUSS SHALL BE DESIGNED TO LIMIT THE MAXIMUM LIVE LOAD DEFLECTION TO SPAN/240 AND MAXIMUM TOTAL LOAD DEFLECTION TO SPAN/180
   - F. REFERENCE PLANS AND DETAILS FOR ADDITIONAL DESIGN LOADS OR SHEAR TRUSS/BLOCKING REQUIREMENTS
4. TRUSS TOP CHORD SHALL BE DOUGLAS FIR SOUTH OR SOUTHERN PINE.
5. TRUSSES SHALL BE FABRICATED WITH MINIMUM 20 GAUGE TRUSS PLATES HAVING A MINIMUM WOOD PENETRATION OF 0.37 INCH.
6. TRUSSES AND CONNECTOR PLATES SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST REVISION OF ANSI/TPI 1: NATIONAL DESIGN STANDARD FOR METAL PLATE CONNECTED WOOD TRUSS CONSTRUCTION.
7. TRUSS BEARING POINTS SHALL BE PINNED FOR THE DESIGN OF THE TRUSSES.
8. CEILINGS WILL NOT BRACE BOTTOM CHORDS. TRUSS MANUFACTURER SHALL DESIGN PERMANENT BOTTOM CHORD BRIDGING TO BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.
9. TRUSS DESIGNER SHALL DESIGN AND SPECIFY THE TRUSS TO TRUSS AND THE TRUSS TO SUPPORT CONNECTIONS, U.N.O. ON THE DETAILS.
10. PROPER ERECTION BRACING SHALL BE INSTALLED TO HOLD THE TRUSSES TRUE AND PLUMB AND IN SAFE CONDITION UNTIL PERMANENT TRUSS BRACING AND BRIDGING HAVE BEEN INSTALLED TO FORM A STRUCTURALLY SOUND FRAMING SYSTEM. ALL ERECTION AND PERMANENT BRACING SHALL BE INSTALLED AND ALL COMPONENTS PERMANENTLY FASTENED BEFORE THE APPLICATION OF ANY LOADS TO THE TRUSSES. ALL BRACING SHALL BE DESIGNED BY MANUFACTURER AND INDICATED ON SHOP DRAWINGS. ALL PREFABRICATED WOOD TRUSSES ARE TO BE INSTALLED IN ACCORDANCE WITH THE BUILDING COMPONENT SAFETY INFORMATION (BCSI), "GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING & BRACING OF METAL PLATE CONNECTED WOOD TRUSSES".
11. REFERENCE ARCHITECTURAL DRAWINGS FOR TRUSS GEOMETRY REQUIREMENTS. TRUSS MANUFACTURER SHALL ARRANGE TRUSS WEB MEMBERS AS REQUIRED BY DESIGN. REFERENCE ARCH. AND MECH. DRAWINGS FOR DUCT LAYOUT. PROVIDE CHASES IN TRUSSES TO ACCOMODATE DUCTS AS REQUIRED.
12. DO NOT CUT, NOTCH OR OTHERWISE ALTER THE TRUSSES WITHOUT WRITTEN PERMISSION FROM THE FABRICATOR AND THE STRUCTURAL ENGINEER OR RECORD.

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.

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. STOREFRONT AND CURTAINWALL FRAMING, ACCESSORIES, AND ATTACHMENTS TO STRUCTURE.
   - D. SHOP FABRICATED WOOD ROOF TRUSSES.
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.

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JAMES M. GRANICH
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PROFESSIONAL ENGINEER

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GENERAL NOTES

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SPECIAL INSPECTION REQUIREMENTS (2018)

SPECIAL INSPECTIONS REQUIREMENTS (IBC 2018 CHAPTER 17)

1. THE OWNER SHALL EMPLOY ONE OR MORE SPECIAL INSPECTORS TO PROVIDE INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE STATEMENT OF SPECIAL INSPECTIONS PER SECTION 1704 OF THE IBC. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION. THESE INSPECTIONS ARE IN ADDITION TO THE INSPECTIONS SPECIFIED IN THE PROJECT SPECIFICATIONS.
2. REPORT REQUIREMENTS SHALL CONFORM TO SECTIONS 1704.2.4 AND 1704.5 OF THE IBC. SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS DONE IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THE DISCREPANCIES ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO COMPLETION OF THAT PHASE OF WORK. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED AT A POINT IN TIME AGREED UPON BY THE PERMIT APPLICANT AND THE BUILDING OFFICIAL PRIOR TO THE START OF WORK.
3. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE SPECIAL INSPECTOR REGARDING INDIVIDUAL INSPECTION FOR ITEMS LISTED ON THE STATEMENT OF SPECIAL INSPECTIONS AND AS NOTED ON THE BUILDING DEPARTMENT APPROVED PLANS. ADEQUATE NOTICE AND ACCESS TO APPROVED PLANS SHALL BE PROVIDED SO THAT THE SPECIAL INSPECTOR HAS TIME TO BECOME FAMILIAR WITH THE PROJECT.
4. FABRICATORS OF STRUCTURAL LOAD-BEARING OR LATERAL LOAD RESISTING MEMBERS OR ASSEMBLIES SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1704.2.5 OF THE IBC.
5. SPECIAL INSPECTION REPORTS AND A FINAL REPORT IN ACCORDANCE WITH SECTION 1704.2.4 SHALL BE SUBMITTED TO THE BUILDING OFFICIAL PRIOR TO THE TIME THAT PHASE OF WORK IS APPROVED FOR OCCUPANCY.

IBC 2018 REQUIRED SPECIAL INSPECTIONS

			FREQUENCY OF INSPECTION	
			CONTINUOUS	PERIODIC
		STEEL CONSTRUCTION - STRUCTURAL STEEL (IBC SECTION 1705.2.1)		
1.		SPECIAL INSPECTION AND NONDESTRUCTIVE TESTING OF STRUCTURAL STEEL ELEMENTS IN BUILDINGS, STRUCTURES AND PORTIONS THEREOF SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTION REQUIREMENTS OF AISC 360-16.		
		STEEL CONSTRUCTION - COLD FORMED STEEL DECK (IBC SECTION 1705.2.2)		
1.		SPECIAL INSPECTION AND QUALIFICATIONS OF WELDING SPECIAL INSPECTORS FOR COLD-FORMED STEEL FLOOR AND ROOF DECK SHALL BE IN ACCORDANCE WITH WITH THE QUALITY ASSURANCE INSPECTION REQUIREMENTS OF SDI. QA/QC.		
		CONCRETE CONSTRUCTION (IBC TABLE 1705.3)		
1.		INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.	---	X
2.		REINFORCING BAR WELDING:		
	A.	VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706;	---	X
	B.	INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"; AND		X
	C.	INSPECT ALL OTHER WELDS	X	
3.		INSPECT ANCHORS CAST IN CONCRETE.	---	X
4.		INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS. (a)		
	A.	ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	X	
	B.	MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4 A.		X
5.		VERIFY USE OF REQUIRED DESIGN MIX.	---	X
6.		PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	---
7.		INSPECT CONCRETE AND SHOTCRETE PLACEMENT OF PROPER APPLICATION TECHNIQUES.	X	---
8.		VERIFY MAINTENANCE OF SPECIFIED CUREING TEMPERATURE AND TECHNIQUES.	---	X
9.		INSPECT PRESTRESSED CONCRETE FOR:		
	A.	APPLICATION OF PRESTRESSING FORCES; AND	X	---
	B.	GROUTING OF BONDED PRESTRESSING TENDONS.	X	---
10.		INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	---	X
11.		VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	---	X
12.		INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	---	X
		a. SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH 17.8.2 IN ACI 318. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, CONTACT THE STRUCTURAL ENGINEER-OF-RECORD FOR SPECIAL INSPECTION REQUIREMENTS.		
		MASONRY CONSTRUCTION (IBC SECTION 1705.4)		
1.		MASONRY CONSTRUCTION SHALL BE INSPECTED AND VERIFIED IN ACCORDANCE WITH TMS 402/602-16.		
		WOOD CONSTRUCTION - IBC SECTION 1705.5		
1.		SPECIAL INSPECTION OF THE FABRICATION PROCESS OF PREFABRICATED WOOD STRUCTURAL ELEMENTS AND ASSEMBLIES SHALL BE IN ACCORDANCE WITH SECTION 1704.2.5. SPECIAL INSPECTION OF SITE BUILT ASSEMBLIES SHALL BE IN ACCORDANCE WITH SECTION 1705.5		
2.		INSPECTION OF WOOD STRUCTURAL PANEL SHEATHING GRADE AND THICKNESS. (required at wood high load diaphragms designed in accordance with 2306.2.)	---	X
3.		VERIFICATION OF THE NOMINAL SIZE OF FRAMING MEMBERS AT ADJOINING PANEL EDGES AGREES WITH THE APPROVED CONSTRUCTION DOCUMENTS. (required at wood high load diaphragms designed in accordance with 2306.2.)	---	X
4.		VERIFICATION OF THE NAIL OR STAPLE DIAMETER AND LENGTH, THE NUMBER OF FASTENER LINES AND THE SPACING BETWEEN FASTENERS IN EACH LINE AND AT EDGE MARGINS AGREES WITH THE APPROVED CONSTRUCTION DOCUMENTS. (required at wood high load diaphragms designed in accordance with 2306.2.)	---	X
5.		VERIFICATION THAT THE INSTALLATION OF THE PERMANENT INDIVIDUAL TRUSS RESTRAINT/BACKING HAS BEEN INSTALLED IN ACCORDANCE WITH THE APPROVED TRUSS SUBMITTAL PACKAGE FOR WOOD TRUSSES WITH OVERALL HEIGHTS OF 60 INCHES OR GREATER.	---	X
6.		VERIFICATION THAT THE TEMPORARY INSTALLATION RESTRAINT/BRACING AND THE PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT/BRACING ARE INSTALLED IN ACCORDANCE WITH THE APPROVED TRUSS SUBMITTAL PACKAGE AT METAL-PLATE-CONNECTED WOOD TRUSSES WITH A CLEAR SPAN OF 60'-0" OR GREATER.	---	X
		SOILS (IBC TABLE 1705.6)		
1.		VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	---	X
2.		VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	---	X
3.		PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	---	X
4.		VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	---
5.		PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	---	X
		** CONTINUOUS SPECIAL INSPECTION: SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS PRESENT WHEN AND WHERE THE WORK TO BE INSPECTED IS BEING PERFORMED.		
		** PERIODIC SPECIAL INSPECTION: SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS INTERMITTENTLY PRESENT WHERE THE WORK TO BE INSPECTED HAS BEEN OR IS BEING PERFORMED.		

AISC 360-16 SPECIAL INSPECTION REQUIREMENTS

1. QUALITY CONTROL (QC) SHALL BE PROVIDED BY THE FABRICATOR AND ERECTOR.
2. QUALITY ASSURANCE (QA) SHALL BE PROVIDED BY OTHERS.
3. NONDESTRUCTIVE TESTIING (NDT) SHALL BE PERFORMED BY THE AGENCY OR FIRM RESPONSIBLE FOR QUALITY ASSURANCE (QA).
4. THE QUALITY ASSURANCE INSPECTOR (QAI) SHALL REVIEW MATERIAL TEST REPORTS AND CERTIFICATIONS AS LISTED IN SECTION N3.2 FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS.
5. FOR WORK PERFORMED BY APPROVED FABRICATORS AND ERECTORS:
   A. QA INSPECTIONS, MAY BE WAIVED WHEN THE WORK IS PERFORMED IN A FABRICATING SHOP OR BY AN ERECTOR APPROVED BY THE AUTHORITY HAVING JURISDICTION (AHJ) TO PERFORM THE WORK WITHOUT QA.
   B. NDT OF WELDS COMPLETED IN AN APPROVED FABRICATOR'S SHOP MAY BE PERFORMED BY THAT FABRICATOR WHEN APPROVED BY THE AHJ. WHEN THE FABRICATOR PERFORMS THE NDT, THE QA AGENCY SHALL REVIEW THE FABRICATOR'S NDT REPORTS.
   C. AT COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE AHJ STATING THAT THE MATERIALS SUPPLIED AND WORK PERFORMED BY THE FABRICATOR ARE IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.
   D. AT COMPLETION OF ERECTION, THE APPROVED ERECTOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE AHJ STATING THAT THE MATERIALS SUPPLIED AND WORK PERFORMED BY THE ERECTOR ARE IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.

AISC 360-16, CHAPTER N SPECIAL INSPECTION REQUIREMENTS

			FREQUENCY OF INSPECTION	
			PERFORM	OBSERVE
		N5.4 - INSPECTION OF WELDING		
		AISC 360-16, TABLE N5.4-1 - INSPECTION TASKS PRIOR TO WELDING		
1.		WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	---	X
2.		WELDING PROCEDURE SPECIFICATIONS (WPSs) AVAILABLE	X	---
3.		MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	X	---
4.		MATERIAL IDENTIFICATION (TYPE/GRADE)	---	X
5.		WELDER IDENTIFICATION SYSTEM (a)	---	X
6.		FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY)		
	A.	JOINT PREPARATION	---	X
	B.	DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL)	---	X
	C.	CLEANLINESS (CONDITION OF STEEL SURFACES)	---	X
	D.	TACKING (TACK WELD QUALITY AND LOCATION)	---	X
	E.	BACKING TYPE AND FIT (IF APPLICABLE)	---	X
7.		FIT-UP OF CJP GROOVE WELDS OF HSS, T-, Y- AND K-JOINTS WITHOUT BACKING (INCLUDING JOINT GEOMETRY)		
	A.	JOINT PREPARATIONS	---	X
	B.	DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL)	---	X
	C.	CLEANLINESS (CONDITION OF STEEL SURFACES).	---	X
	D.	TACKING (TACK WELD QUALITY AND LOCATION)	---	X
8.		CONFIGURATION AND FINISH OF ACCESS HOLES	---	X
9.		FIT-UP OF FILLET WELDS		
	A.	DIMENSIONS (ALIGNMENT, GAPS AT ROOT)	---	X
	B.	CLEANLINESS (CONDITION OF STEEL SURFACES)	---	X
	C.	TACKING (TACK WELD QUALITY AND LOCATION)	---	X
		AISC 360-16, TABLE N5.4-2 - INSPECTIONS DURING WELDING		
1.		CONTROL AND HANDLING OF WELDING CONSUMABLES		
	A.	PACKAGING	---	X
	B.	EXPOSURE CONTROL	---	X
2.		NO WELDING OVER CRACKED TACK WELDS	---	X
3.		ENVIRONMENTAL CONDITIONS		
	A.	WIND SPEED WITHIN LIMITS	---	X
	B.	PRECIPITATION AND TEMPERATURE	---	X
4.		WELDING PROCEDURE SPECIFICATION (WPS) FOLLOWED		
	A.	SETTINGS ON WELDING EQUIPMENT	---	X
	B.	TRAVEL SPEED	---	X
	C.	SELECTED WELDING MATERIALS	---	X
	D.	SHIELDING GAS TYPE / FLOW RATE	---	X
	E.	PREHEAT APPLIED	---	X
	F.	INTERPASS TEMPERTURE MAINTAINED (MIN./MAX.)	---	X
	G.	PROPER POSITION (F, V, H, OH)	---	X
5.		WELDING TECHNIQUES		
	A.	INTERPASS AND FINAL CLEANING	---	X
	B.	EACH PASS WITHIN PROFILE LIMITATIONS	---	X
	C.	EACH PASS MEETS QUALITY REQUIREMENTS	---	X
6.		PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	X	---
		AISC 360-16, TABLE N5.4-3 - INSPECTION TASKS AFTER WELDING		
1.		WELDS CLEANED	---	X
2.		SIZE, LENGTH AND LOCATION OF WELDS	X	---
3.		WELDS MEET VISUAL ACCEPTANCE CRITERIA		
	A.	CRACK PROHIBITION	X	---
	B.	WELD/BASE-METAL FUSION	X	---
	C.	CRATER CROSS SECTION	X	---
	D.	WELD PROFILES	X	---
	E.	WELD SIZE	X	---
	F.	UNDERCUT	X	---
	G.	POROSITY	X	---
4.		ARC STRIKES	X	---
5.		k-AREA (b)	X	---
6.		WELD ACCESS HOLES IN ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES (c)	X	---
7.		BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	X	---
8.		REPAIR ACTIVITIES	X	---
9.		DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	X	---
10.		NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT THE APPROVAL OF THE EOR.	---	X
11.		ULTRASONIC TESTING (UT) ON ALL CJP GROOVE WELDS IN BUTT, T- AND CORNER JOINTS, IN MATERIALS 5/16 INCH THICK OR GREATER (required in Risk Catgory III or IV)	X	---
12.		ULTRASONIC TESTING (UT) ON 10% OF CJP GROOVE WELDS IN BUTT, T- AND CORNER JOINTS, IN MATERIALS 5/16 INCH THICK OR GREATER (required in Risk Catgory II)	---	X
13.		THERMALLY CUT SURFACES OF ACCESS HOLES SHALL BE TESTED USING MAGNETIC PARTICLE TESTING (MT) OR PENETRANT TESTING (PT). WHEN FLANGE THICKNESS EXCEEDS 2 INCHES FOR ROLLED SHAPES, OR WHEN THE WEB THICKNESS EXCEEDS 2 INCHES FOR BUILT-UP SHAPES	X	---
14.		(see AISC 360-16, section N5-5c for additional special inspections for welded joints subject to fatigue)		
	(a)	THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW STRESS TYPE.		
	(b)	WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE k-AREA, VISUALLY INSPECT THE WEB k-AREA FOR CRACKS WITHIN 3 INCHES OF THE WELD.		
	(c)	AFTER ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES HAVE BEEN WELDED, VISUALLY INSPECT THE WELD ACCESS HOLE PER CRACKS.		
		** PERFORM - PERFORM THESE TASKS FOR EACH WELDED JOINT OR MEMBER.		
		** OBSERVE - OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.		
		N5.6 - INSPECTION OF HIGH-STRENGTH BOLTS		
		AISC 360-16, TABLE N5.6-1 - INSPECTION TASKS PRIOR TO BOLTING		
1.		MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	X	---
2.		FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	---	X
3.		CORRECT FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH) IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE	---	X
4.		CORRECT BOLTING PROCEDURES SELECTED FOR JOINT DETAIL	---	X
5.		CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	---	X
6.		PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	X	X
7.		PROTECTED STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	---	X

AISC 360-16, CHAPTER N SPECIAL INSPECTION REQUIREMENTS

			FREQUENCY OF INSPECTION	
			PERFORM	OBSERVE
		AISC 360-16, TABLE N5.6-2 - INSPECTIONS DURING BOLTING		
1.		FASTENER ASSEMBLIES PLACED IN ALL HOLES AND WASHERS AND NUTS ARE POSITIONED AS REQUIRED	---	X
2.		JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	---	X
3.		FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	---	X
4.		FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	---	X
		AISC 360-16, TABLE N5.6-3 - INSPECTIONS AFTER BOLTING		
1.		DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	X	---
		** PERFORM - PERFORM THESE TASKS FOR EACH BOLTED CONNECTION.		
		** OBSERVE - OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.		
		N5.7 - OTHER INSPECTION TASKS		
1.		INSPECTION OF GALVANIZED STEEL STRUCTURAL MAIN MEMBERS EXPOSED CUT SURFACES OF GALVANIZED MAIN MEMBERS AND EXPOSED CORNERS OF HSS SHALL BE VISUALLY INSPECTED FOR CRACKS SUBSEQUENT TO GALVANIZING.	X	---
		N5.8 - OTHER INSPECTION TASKS		
1.		INSPECT THE STEEL TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN ON THE CONSTRUCTION DOCUMENTS.	X	---
2.		INSPECT THE PLACEMENT OF ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS. THE DIAMETER, GRADE, TYPE AND LENGTH OF THE ANCHOR ROD OR EMBEDDED ITEM, AND THE EXTENT OR DEPTH OF EMBEDMENT INTO THE CONCRETE, SHALL BE VERIFIED AND DOCUMENTED PRIOR TO PLACEMENT OF CONCRETE	X	---
		** PERFORM - PERFORM THESE TASKS FOR EACH CONNECTION.		
		** OBSERVE - OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.		

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
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LEE'S SUMMIT, MO 64081

project number
2220265

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JAMES M. GRANICH
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PROFESSIONAL ENGINEER

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STRUCTURAL SPECIAL INSPECTIONS

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TMS 402/602-16 SPECIAL INSPECTION REQUIREMENTS

			CONTINUOUS	PERIODIC
MASONRY CONSTRUCTION - LEVEL 1 QUALITY ASSURANCE (ACI 530 TABLE 3.1.1) MINIMUM VERIFICATION REQUIREMENTS				
1.		PRIOR TO CONSTRUCTION, VERIFICATION OF COMPLIANCE OF SUBMITTALS.		
MASONRY CONSTRUCTION - LEVEL 2 QUALITY ASSURANCE (ACI 530 TABLE 3.1.2 - RISK CATEGORY I, II OR III) MINIMUM VERIFICATION REQUIREMENTS				
1.		PRIOR TO CONSTRUCTION, VERIFICATION OF COMPLIANCE OF SUBMITTALS		
2.		PRIOR TO CONSTRUCTION, VERIFICATION OF f'm and f'AAC, EXCEPT WHERE SPECIFICALLY EXEMPTED BY CODE		
3.		DURING CONSTRUCTION, VERIFICATION OF SLUMP FLOW AND VISION STABILITY INDEX (VSI) WHEN SELF-CONSOLIDATED GROUT IS DELIVERED TO THE PROJECT SITE		
		SPECIAL INSPECTION REQUIREMENTS		
1.		AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:		
	A.	PROPORTIONS OF SITE-PREPATED MORTAR	---	X
	B.	GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES	---	X
	C.	GRADE, TYPE AND SIZE OF REINFORCEMENT CONNECTORS, ANCHOR BOLTS, AND PRESRESSING TENDONS AND ANCHORAGES	---	X
	D.	PRESTRESSING TECHNIQUE.	---	X
	E.	PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY	X	X
	F.	SAMPLE PANEL CONSTRUCTION	---	X
2.		PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:		
	A.	GROUT SPACE	---	X
	B.	PLACEMENT OF PRESTRESSING TENDONS AND ANCHORAGES	---	X
	C.	SIZE AND LOCATION OF STRUCTURAL MEMBERS	---	X
	D.	PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS	---	X
3.		VERIFY COMPLIANCE OF THE FOLLOWING DURING CONSTRUCTION:		
	A.	MATERIALS AND PROCEDURES WITH THE APPROVED SUBMITTALS	---	X
	B.	PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION	---	X
	C.	SIZE AND LOCATION OF STRUCTURAL MEMBERS	---	X
	D.	TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	---	X
	E.	WELDING OF REINFORCEMENT	X	X
	F.	PREPARATION, CONSTRUCTION, AND PROTECTIONS OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 50 DEGREES) OR HOT WEATHER (TEMPERATURE ABOVE 90 DEGREES)	---	X
	G.	APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE	X	---
	H.	PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS IS IN COMPLIANCE	X	---
	I.	PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS	X	X
4.		OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS	---	X

ABBREVIATIONS

A.F.F.	ABOVE FINISHED FLOOR
A.O.R.	ARCHITECT OF RECORD
A.R.	ANCHOR RODS
AESS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL
ARCH.	ARCHITECTURAL
B.L.	BLOCK LINTEL
B.O.D.	BOTTOM OF DECK
B.O.S.	BOTTOM OF STEEL
B.P.	BASE PLATE
BAL.	BALANCE
BLDG.	BUILDING
BRG.	BEARING
C.J.	CONTRACTION JOINT
C.L.	CENTER LINE
CFMF	COLD FORMED METAL FRAMING
CLR.	CLEAR
CMU	CONCRETE MASONRY UNIT
COL.	COLUMN
CONC.	CONCRETE
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
D.B.A.	DEFORMED BAR ANCHOR
D.B.E.	DECK BEARING ELEVATION
DIA.	DIAMETER
DTL.	DETAIL
DWG.	DRAWING
E.F.	EACH FACE
E.J.	EXPANSION JOINT
E.O.D.	EDGE OF DECK
E.O.R.	ENGINEER OF RECORD
E.O.S.	EDGE OF SLAB
E.W.	EACH WAY
EA.	EACH
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
ELEC.	ELECTRICAL
ELEV.	ELEVATION
EQ.	EQUAL
EXIST.	EXISTING
F.F.E.	FINISHED FLOOR ELEVATION
F.S.	FAR SIDE
F.V.	FIELD VERIFY
FDN.	FOUNDATION
FT.	FOOT/FEET
FTG.	FOOTING
G.B.	GRADE BEAM
G.C.	GENERAL CONTRACTOR
GA.	GAGE
GALV.	GALVANIZED
H.S.A.	HEADED STUD ANCHOR
HORIZ.	HORIZONTAL
I.F.	INSIDE FACE
IN.	INCH/INCHES
INFO.	INFORMATION
J.B.E.	JOIST BEARING ELEVATION
JT.	JOINT
K	UNIT OF 1,000 POUNDS (KIP)
KSI	KIPS PER SQUARE INCH
LBS.	POUNDS

ABBREVIATIONS

LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG.	LONGITUDINAL
LSH	LONG SIDE HORIZONTAL
LSL	LONG SLOT
LSV	LONG SIDE VERTICAL
MAX.	MAXIMUM
MECH.	MECHANICAL
MEP	MECHANICAL/ELECTRICAL/PLUMBING
MFR.	MANUFACTURER
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MTL.	METAL
N.I.C.	NOT IN CONTRACT
N.S.	NEAR SIDE
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
O.F.	OPPOSITE FACE
O.H.	OPPOSITE HAND
OPP.	OPPOSITE
P.A.F.	POWER/POWDER ACTUATED FASTENER
PCF	POUNDS PER CUBIC FOOT
PEMB	PRE-ENGINEERED METAL BUILDING
PL	PLATE
PLF	POUNDS PER LINEAR FOOT
PLUMB.	PLUMBING
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
R	RADIUS
R.O.	ROUGH OPENING
RE:	REFER
REINF.	REINFORCING
REQD.	REQUIRED
RTU	ROOF TOP UNIT
S.D.S.	SELF-DRILLING SCREWS
S.S.	STAINLESS STEEL
SCHED.	SCHEDULE
SIM.	SIMILAR
SP.	SPACE/SPACING
SPECS.	SPECIFICATIONS
SSL	SHORT SLOT
STD.	STANDARD
STL.	STEEL
T&B	TOP AND BOTTOM
T.O.	TOP OF
T.O.C.	TOP OF CONCRETE
T.O.M.	TOP OF MASONRY
T.O.P.	TOP OF PIER
T.O.S.	TOP OF STEEL
T.O.W.	TOP OF WALL
TRANS.	TRANSVERSE
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VERT.	VERTICAL
W.P.	WORK POINT
W.S.	WATERSTOP
W.W.R.	WELDED WIRE REINFORCEMENT
WT.	WEIGHT

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FOOTING SCHEDULE					
MARK	SIZE			BOTTOM REINFORCING	
	LENGTH	WIDTH	THICKNESS	LONGITUDINAL	TRANSVERSE
F3.0	3' - 0"	3' - 0"	2' - 6"	(3) #5	(3) #5
F3.5	3' - 6"	3' - 6"	2' - 6"	(4) #5	(4) #5
F4.0	4' - 0"	4' - 0"	2' - 6"	(5) #5	(5) #5
F5.0 *	5' - 0"	5' - 0"	2' - 6"	(6) #5	(6) #5
F6.0 *	6' - 0"	6' - 0"	2' - 6"	(7) #5	(7) #5
F8.5 *	8' - 6"	8' - 6"	2' - 6"	(9) #8	(9) #8

NOTE:
* FOOTINGS TO HAVE TOP REINFORCEMENT TO MATCH BOTTOM REINFORCEMENT

FOUNDATION PLAN NOTES

1. THE CONCRETE SLABS SHOWN ON THE STRUCTURAL DRAWINGS HAVE BEEN DESIGNED FOR FINISHED STRUCTURE AND HAVE NOT BEEN DESIGNED FOR MEANS AND METHODS OF CONSTRUCTION. INCLUDING BUT NOT LIMITED TO, FORK LIFTS, MAN LIFTS, CRANES 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. RE: 1/S301 FOR REINFORCING LAP SCHEDULE.
3. PROVIDE CORNER BARS IN ALL CONT. FOOTINGS, RE: 4/ S301.
4. RE: 5 AND 6/301 FOR ANY MEP PIPING OR CONDUITS PENETRATIONS UNDER OR THRU A FOOTING.
5. PROVIDE (2) #4x5'-0" MID SLAB AT ALL REENTRANT SLAB CORNERS.
6. CONTRACTOR SHALL COORDINATE SHEARWALL POST ANCHOR BOLT EMBEDMENTS WITH THE FOUNDATIONS PRIOR TO POURING.
7. ALL EXTERIOR AND INTERIOR BEARING WALLS SHALL BE 2x8 WOOD STUDS, U.N.O.
8. PROVIDE 2x8 STUD BELOW EACH ROOF TRUSS BEARING LOCATIONS WITH (2) 2x8 TOP PLATES SPLICED RE: 1/S401.
9. ALL EXTERIOR WALLS NOT DESIGNATED AS SHEAR WALLS SHALL HAVE PLYWOOD PANELS RE: 8/S401 SHEAR WALLS SHALL BE BLOCKED RE: 7/S401.
10. ALL EXTERIOR WALLS NOT DESIGNATED AS SHEAR WALLS SHALL HAVE SILL ANCHORS RE: 4/S302 ALONG THE ENTIRE WALL LENGTH.
11. RE: SHEET S303 FOR ADDITIONAL WOOD FRAMING TYPICAL DETAILS.
12. NON-LOAD BEARING WALL, RE: ARCH AND RE: 3/S302

PLAN LEGEND

SW# = LATERAL SHEAR WALL RE: 7/S401 AND RE: 8/S401 FOR SCHEDULE. 2x8 LOAD BEARING STUD WALL, U.N.O.

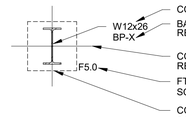
C.J. = SAW CUT CONTROL JOINT,RE: 2/S301

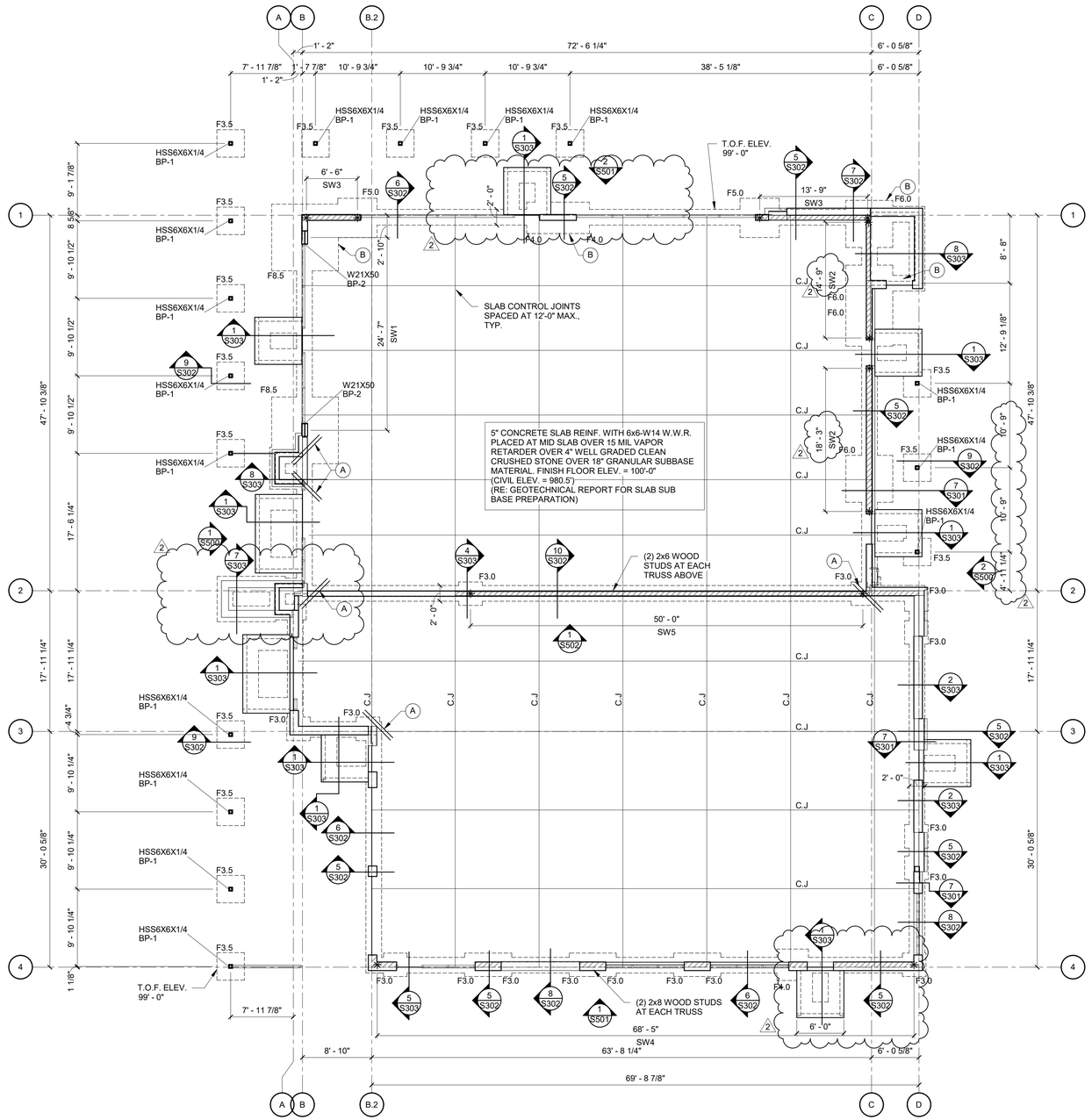
F# = FOOTING MARK, RE: FOOTING SCHEDULE

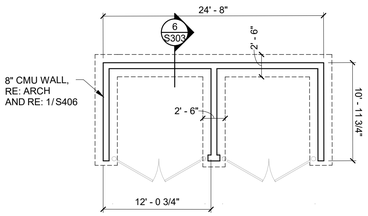
✳ = HOLDDOWN LOCATION, RE: 1/S302

(A) = PROVIDE (2) #4x5'-0" BARS AT MID DEPTH AT ALL RE- ENTRANT CORNERS

(B) = FOOTINGS SHALL BE POURED MONOLITHICALLY







2 TRASH ENCLOSURE FOUNDATION PLAN
1/8" = 1'-0"

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

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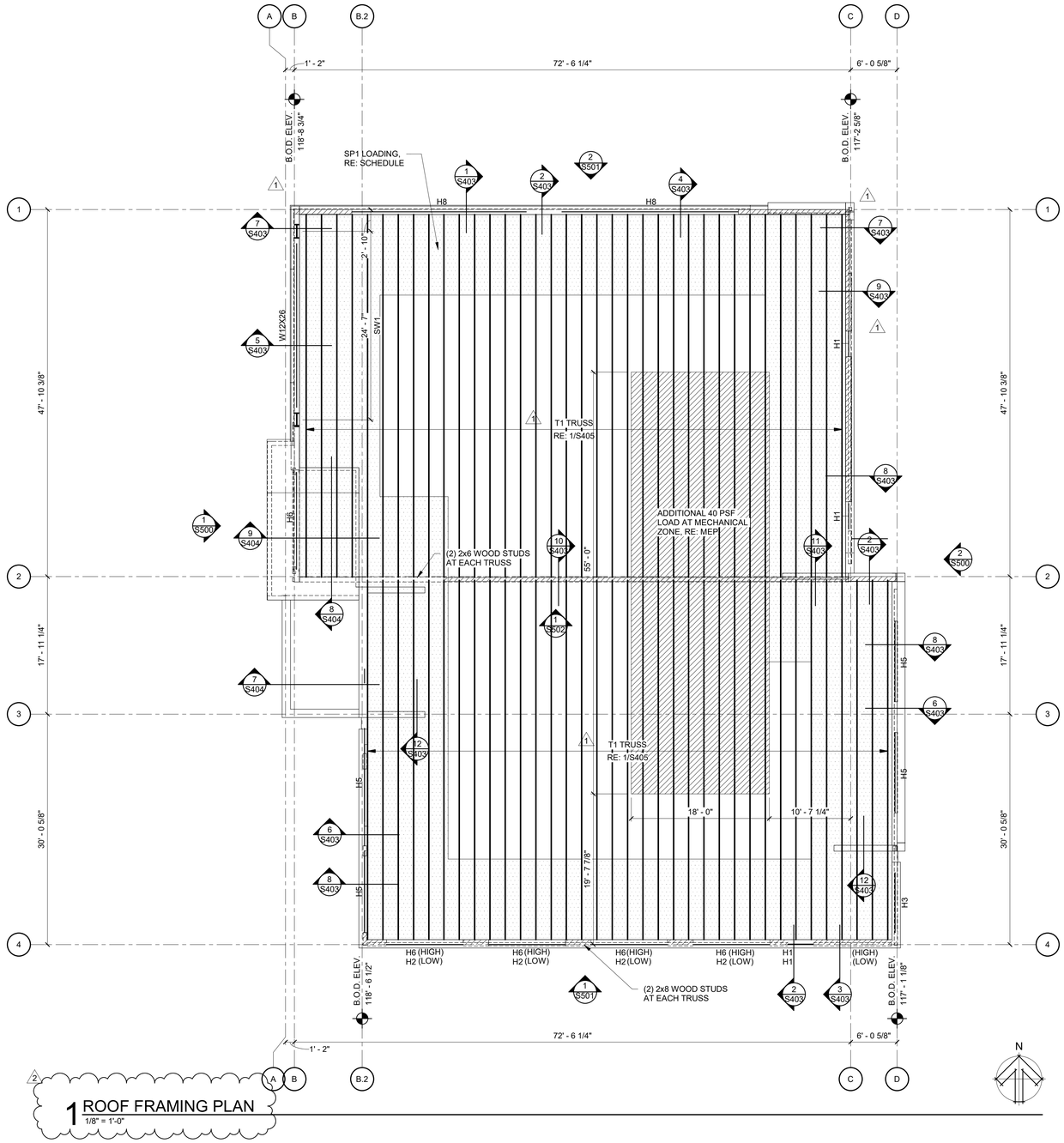


1 ROOF FRAMING PLAN
1/8" = 1'-0"

PLAN LEGEND

SW# = LATERAL SHEAR WALL RE: 7/S401 AND RE: 8/S401 FOR SCHEDULE. 2x8 LOAD BEARING STUD WALL, U.N.O.

= NON-LOAD REINFORCING WALL, RE: ARCH AND RE: 6/S401

HX = HEADER OVER OPENING RE: 2 AND 4/S401

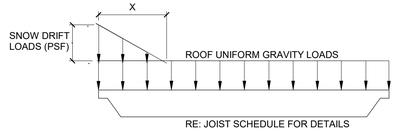
ROOF FRAMING PLAN NOTES

1. UNLESS SHOWN OR NOTED OTHERWISE, ALL NAILS ARE COMMON NAILS, UNLESS SHOWN OR NOTED OTHERWISE, WOOD MEMBERS SHALL BE CONNECTED AS SHOWN BELOW:

TRUSS TO TOP PLATE	PER TRUSS MFR.
TOP PLATE TO STUD, END NAIL	2-16d
STUD TO SOLE PLATE, END NAIL	2-20d
BUILT-UP STUDS, FACE NAIL	2-16d AT 16" O.C.
TRIPLE TOP PLATES, FACE NAIL (EXCEPT AT SPLICE	2-16d AT 16" O.C.
RAFTER TO PLATE	3-8d TOE NAIL

2. FOR FASTENER CONDITIONS NOT SHOWN, PROVIDE CONNECTIONS PER 2018 IBC TABLE 2304.9.1.
3. ALL EXTERIOR AND INTERIOR LOAD BEARING WALLS U.N.O. SHALL BE 2x8 WOOD STUDS WITH (1) STUD BELOW EACH ROOF TRUSS AND. PROVIDE (2) 2x6 TOP PLATES SPLICED PER 1/S401.
4. ALL EXTERIOR WALLS NOT DESIGNATED AS SHEAR WALLS SHALL HAVE PLYWOOD PANELS RE: 8/S401. SHEAR WALLS SHALL BE BLOCKED RE: 7/S401.
5. THE ROOF DIAPHRAGM SHALL BE BLOCKED OVER SHEAR WALLS RE: 9/S401. ROOF SHEATHING SHALL RUN PERPENDICULAR TO TRUSSES AND STAGGER ENDS.
6. ROOD DECK SHALL BE 24/0 STRUCTURAL I GRADE SHEATHING 3/8" MINIMUM NOMINAL THICKNESS. ATTACH WITH 8d COMMON OR DEFORMED SHANK NAILS WITH 3/8" PENETRATION (MIN.) AT 2" ON CENTER AT BOUNDARY LOCATIONS, 2" ON CENTER AT PANEL EDGES AND 12" ON CENTER IN FIELD, U.N.O. STAGGER PANELS AS REQUIRED TO AVOID LINING UP END JOINTS. WOOD STRUCTURAL PANEL ROOF SHEATHING SHALL BE BONDED BY EXTERIOR GLUE.
7. ROOF DIAPHRAGM NAILING TO BE INSPECTED BEFORE COVERING.
8. CONTRACTOR SHALL COORDINATE UNDER HUNG EQUIPMENT WITH ARCH AND TRUSS SUPPLIER.
9. TRUSS SUPPLIER SHALL COORDINATE RTU OPENING REQUIREMENTS WITH TRUSS SPACING. TRUSSES MAY REQUIRE SPACING LARGER THAN 24" O.C. THEREFORE TRUSS SUPPLIER SHALL PROVIDE GIRDER TRUSSES, BLOCKING AND BRIDGING AS REQUIRED FOR OPENINGS COORDINATE WITH MEP DRAWINGS.

SPECIAL JOIST LOADS		
MARK	SNOW DRIFT (PSF)	SNOW WIDTH (X)
SP1	43.5	10'-6"



JOIST DIAGRAM

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
2220265

drawing issuance

ISSUED FOR PERMIT	12/09/2022

drawing revisions

No.	Description:	Date:
1	CITY COMMENTS	01/10/23
2	ADD2	01/27/23

professional seal

STATE OF MISSOURI
JAMES M. GRANICH
NUMBER PE-2014023909
PROFESSIONAL ENGINEER

DATE SIGNED: 1/27/2023 8:29:32 AM

drawing title
FRAMING PLAN

drawing number
S200

wallace design collective

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816.421.8282 · 800.364.5858

PLAN LEGEND

SW# = LATERAL SHEAR WALL RE 7 AND 8/S401 FOR SCHEDULE

= NON-LOAD BEARING WALL, RE: ARCH AND 5/S401

= 2x8 LOAD BEARING STUD WALL

HX = HEADER OVER OPENING RE: 2 AND 4/S401

ROOF FRAMING PLAN NOTES

1. UNLESS SHOWN OR NOTED OTHERWISE, ALL NAILS ARE COMMON NAILS, UNLESS SHOWN OR NOTED OTHERWISE, WOOD MEMBERS SHALL BE CONNECTED AS SHOWN BELOW:

TRUSS TO TOP PLATE	PER TRUSS MFR.
TOP PLATE TO STUD, END NAIL	2-16d
STUD TO SOLE PLATE, END NAIL	2-20d
BUILT-UP STUDS, FACE NAIL	2-16d AT 16" O.C.
TRIPLE TPO PLATES, FACE NAIL (EXCEPT AT SPLICE	2-16d AT 16" O.C.
RAFTER TO PLATE	3-8d TOE NAIL

2. FOR FASTENER CONDITIONS NOT SHOWN, PROVIDE CONNECTIONS PER 2018 IBC TABLE 2304.9.1.
3. ALL EXTERIOR AND INTERIOR LOAD BEARING WALLS U.N.O. SHALL BE 2x8 WOOD STUDS WITH (1) STUD BELOW EACH ROOF TRUSS AND (3) STUDS BELOW EACH GIRDER TRUSS BEARING LOCATION (RE: 5/S401). PROVIDE (2) 2x6 TOP PLATES SPLICED PER 1/S401.
4. ALL EXTERIOR WALLS NOT DESIGNATED AS SHEAR WALLS SHALL HAVE PLYWOOD PANELS RE: 7/S401. SHEAR WALLS SHALL BE BLOCKED RE: 3/S402.
5. THE ROOF DIAPHRAGM SHALL BE BLOCKED OVER SHEAR WALLS RE: 9/S401. ROOF SHEATHING SHALL RUN PERPENDICULAR TO TRUSSES AND STAGGER ENDS.
6. ROOD DECK SHALL BE 24/0 STRUCTURAL I GRADE SHEATHING 3/8" MINIMUM NOMINAL THICKNESS. ATTACH WITH 8d COMMON OR DEFORMED SHANK NAILS WITH 1 3/8" PENETRATION (MIN.) AT 2" ON CENTER AT BOUNDARY LOCATIONS, 2" ON CENTER AT PANEL EDGES AND 12" ON CENTER IN FIELD, U.N.O. STAGGER PANELS AS REQUIRED TO AVOID LINING UP END JOINTS. WOOD STRUCTURAL PANEL ROOF SHEATHING SHALL BE BONDED BY EXTERIOR GLUE.
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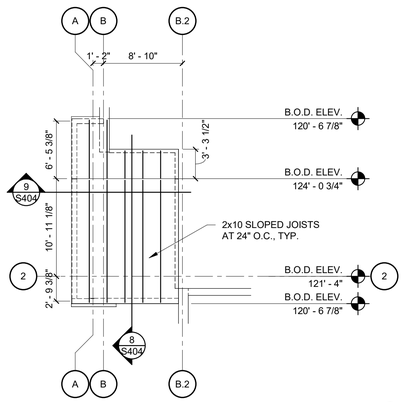
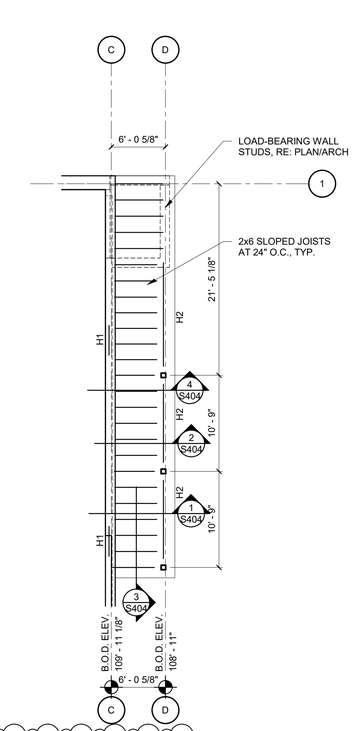
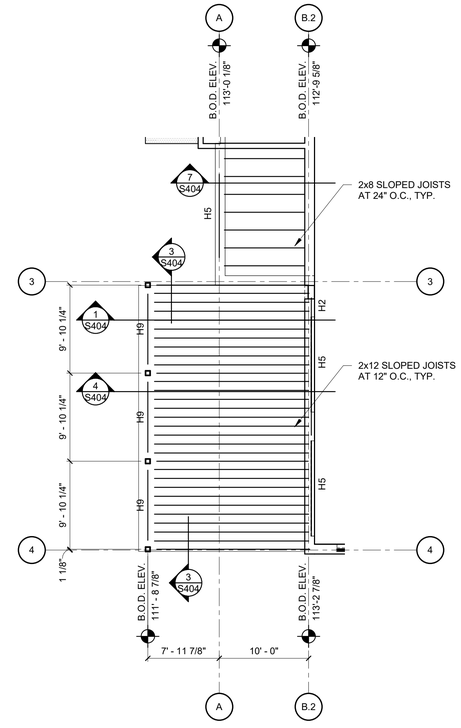


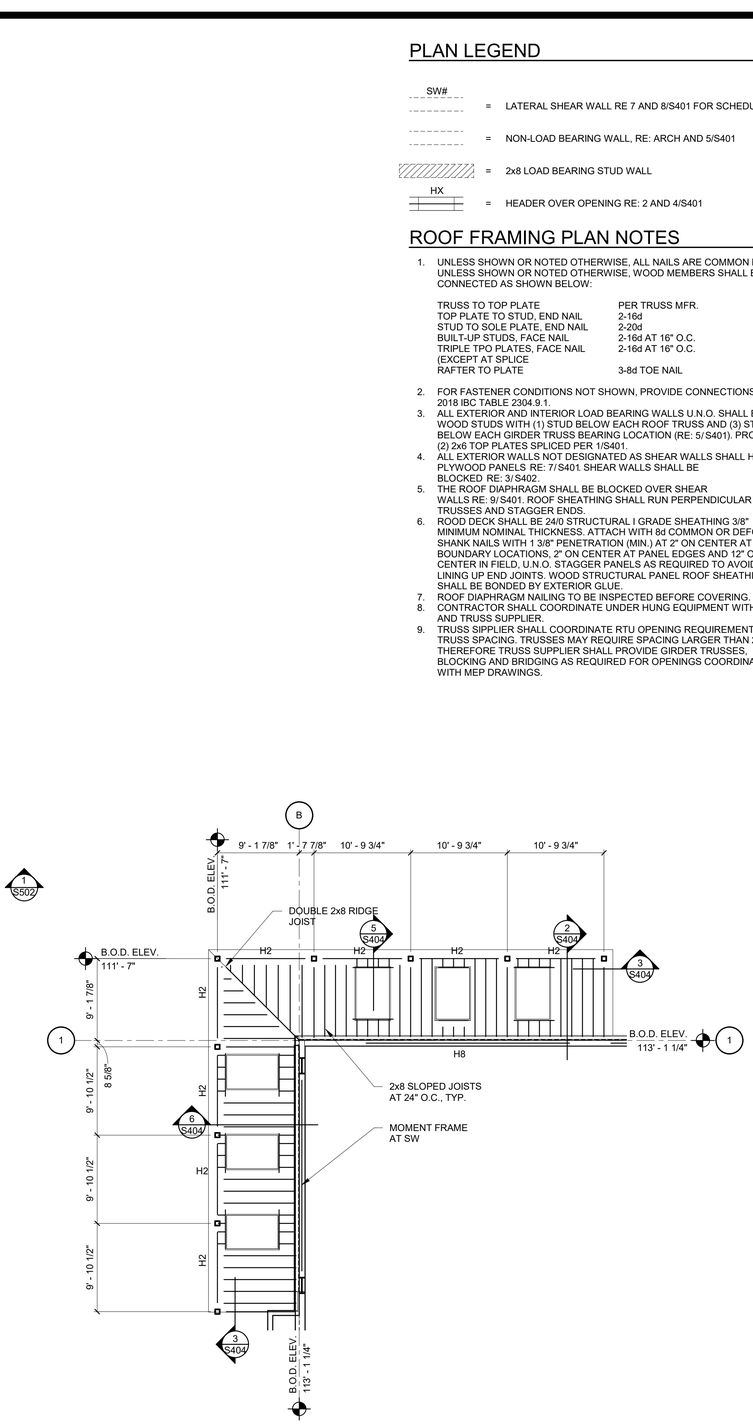
4 HIGH ROOF FRAMING PLAN
1/8" = 1'-0"



3 CANOPY FRAMING PLAN
1/8" = 1'-0"



2 CANOPY FRAMING PLAN
1/8" = 1'-0"



1 CANOPY FRAMING PLANS
1/8" = 1'-0"

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professional seal

STATE OF MISSOURI
JAMES M. GRANICH
NUMBER PE-2014023909
PROFESSIONAL ENGINEER

DATE SIGNED: 1/27/2023 8:29:35 AM

drawing title
CANOPY FRAMING PLANS

drawing number
S201

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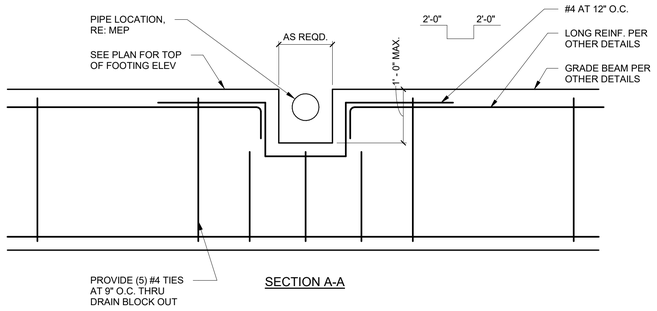
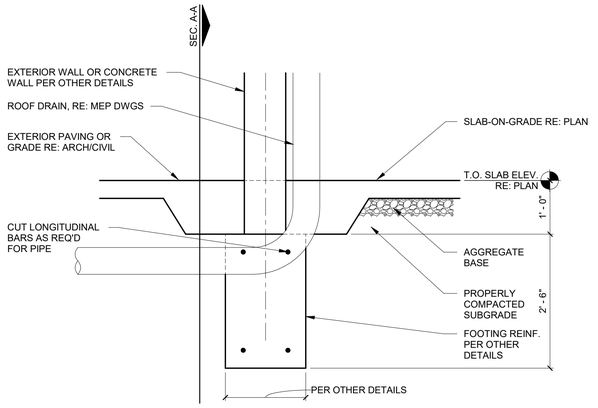
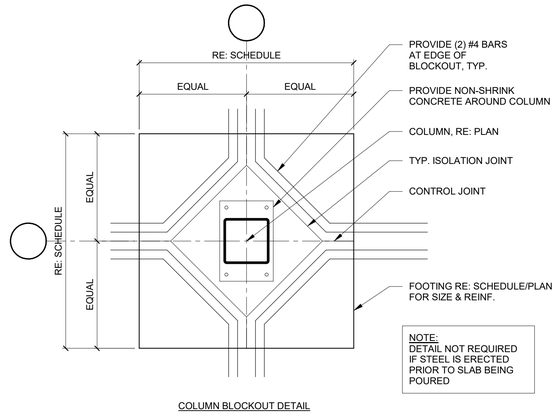


SECTION A-A

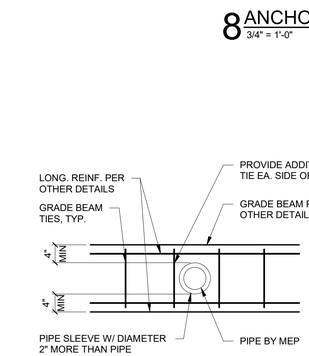


7 FOUNDATION SECTION AT DRAIN
3/4" = 1'-0"

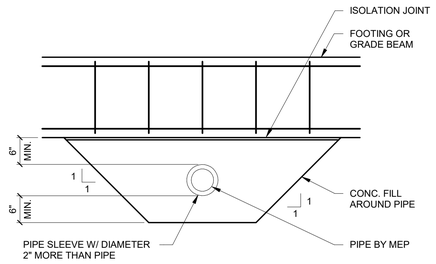


COLUMN BLOCKOUT DETAIL

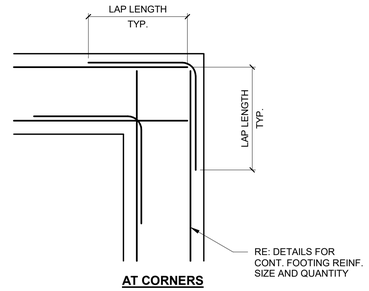
3 COLUMN BLOCKOUT DETAIL
3/4" = 1'-0"



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

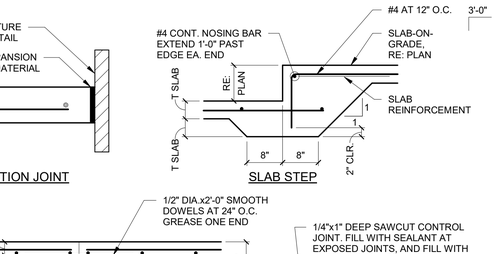


5 PIPE UNDER GRADE BEAM DETAIL
3/4" = 1'-0"



AT CORNERS

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



ISOLATION JOINT

SLAB STEP

CONSTRUCTION JOINT (CONST. JT.)

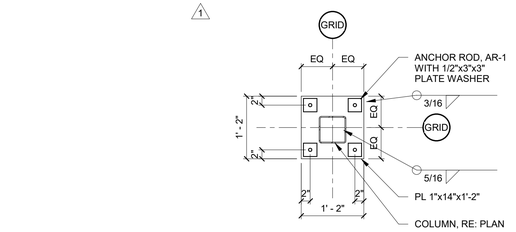
CONTROL JOINT (C.J.)

2 SLAB-ON-GRADE JOINT DETAILS
3/4" = 1'-0"

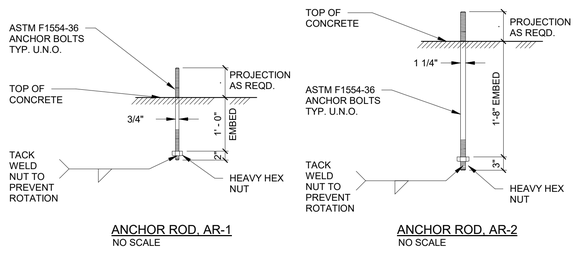
CONCRETE REINFORCING LAP LENGTH SCHEDULE						
BAR SIZE	STRUCTURAL ELEMENT MINIMUM COMPRESSIVE STRENGTH (f'c)					
	3000psi		4000psi		4500psi	
	TOP BARS	OTHER	TOP BARS	OTHER	TOP BARS	OTHER
#3	28"	22"	25"	19"	23"	18"
#4	38"	29"	33"	25"	31"	24"
#5	47"	36"	41"	31"	38"	30"
#6	56"	43"	49"	37"	46"	35"
#7	81"	63"	71"	54"	67"	51"
#8	93"	72"	81"	62"	76"	59"
#9	105"	81"	91"	70"	86"	66"
#10	118"	91"	102"	79"	96"	74"

NOTES:
1. LAP LENGTH FOR TOP BARS SHALL BE USED WHEN MORE THAN 12 INCHES OF FRESH CONCRETE IS PLACED BELOW HORIZONTAL REINFORCEMENT.

1 CONCRETE REINFORCING LAP SCHEDULE
3/4" = 1'-0"

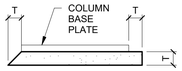


BASE PLATE TYPE-1



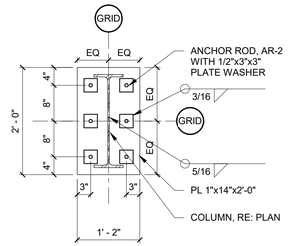
ANCHOR ROD, AR-1
NO SCALE

ANCHOR ROD, AR-2
NO SCALE



GROUT MAY BE BEVELED OR FORMED BUT SHALL EXTEND A MIN. OF "T" BEYOND FACE OF BASE PLATE. "T" = 1 1/2" FOR ANCHOR BOLT DIA. UP TO 1" AND 2 1/2" FOR 1 1/4" DIA. ANCHOR BOLT.

GROUT PLACEMENT
NO SCALE



BASE PLATE TYPE-2

8 ANCHOR ROD AND BASE PLATE DIAGRAMS AND SCHEDULE
3/4" = 1'-0"

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project title

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project number
2220265

drawing issuance
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drawing revisions

No.	Description:	Date:
1	CITY COMMENTS	01/10/23

professional seal

DATE SIGNED: 1/27/2023 8:29:37 AM

drawing title
FOUNDATION DETAILS

drawing number
S301

wallace design collective
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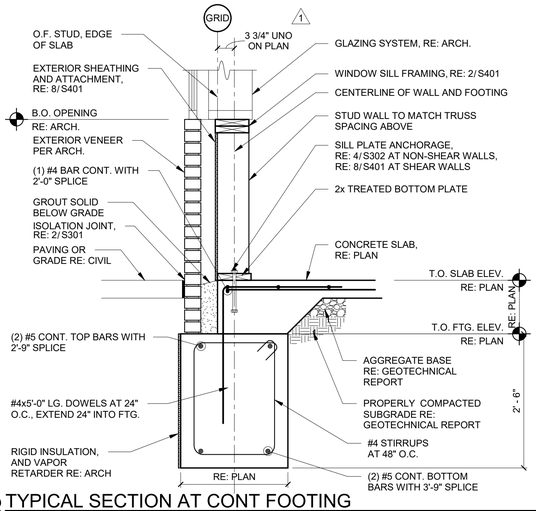
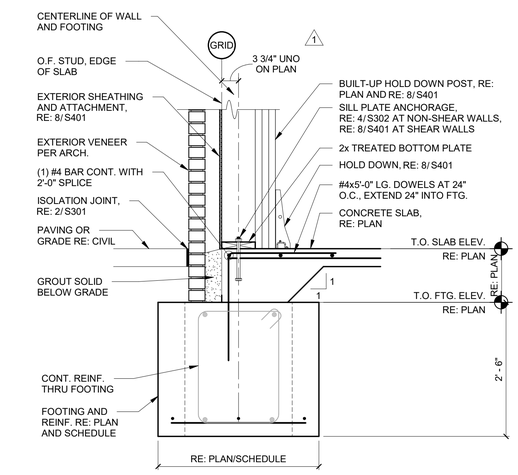
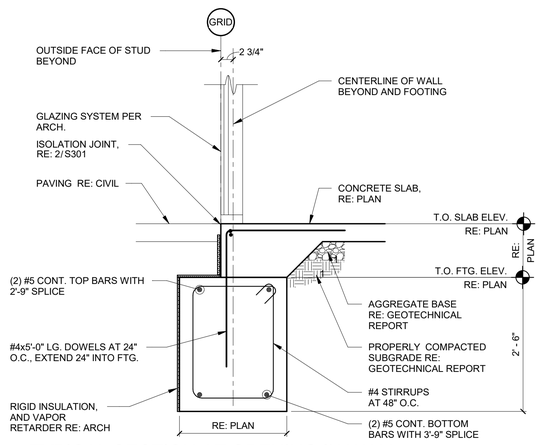


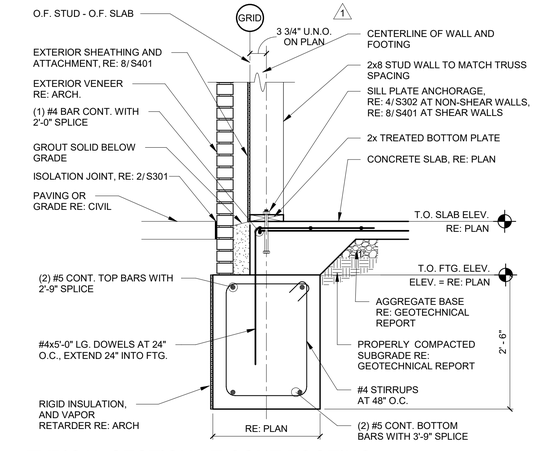
8 TYPICAL SECTION AT CONT FOOTING
3/4" = 1'-0"



7 TYPICAL SECTION AT CONT FOOTING
3/4" = 1'-0"



6 TYPICAL SECTION AT OPENING IN WALL
3/4" = 1'-0"

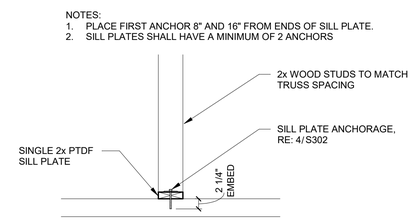


5 TYPICAL SECTION AT CONT FOOTING
3/4" = 1'-0"

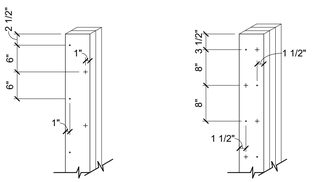
SILL PLATE ANCHOR SCHEDULE AT NON-SHEAR WALLS					
ATTACHMENT ANCHOR TYPE	EMBEDMENT	EXTERIOR WALLS	INTERIOR BEARING WALLS	INTERIOR NON LOAD BEARING WALLS	NOTES
5/8" DIA SIMPSON TITEN HD CONCRETE SCREW ANCHORS	6"	48" O.C.	72" O.C.	N/A	2,3
1/2"DIA. SIMPSON STRONG BOLT 2 EXPANSION ANCHORS	2 1/4"	N/A	72" O.C.	N/A	1,2,3
0.177"DIA. POWDER ACTUATED FASTENERS	1 1/2"	N/A	24" O.C. STAGGERED	48" O.C. STAGGERED	2,3

NOTES:
1. EXPANSION ANCHORS SHALL NOT BE ALLOWED WITHIN 6 INCHES OF SLAB EDGE.
2. REFER TO SHEARWALL SCHEDULE FOR ANCHORAGE REQUIREMENTS ABOVE AND BEYOND THIS SCHEDULE.
3. ALL HARDWARE IN CONTACT WITH ACQ TREATED LUMBER CLASS G185 MUST BE SIMPSON ZMAX PRODUCTS THAT MEET ASTM A653.
4. OVERSIZE WASHERS AT TOP OF SILL PLATE SHALL BE USED FOR ALL ANCHOR TYPES.

4 SILL PLATE ANCHOR SCHEDULE AT NON-SHEAR WALLS
3/4" = 1'-0"



3 NON-LOAD BEARING WALL CONNECTION
3/4" = 1'-0"



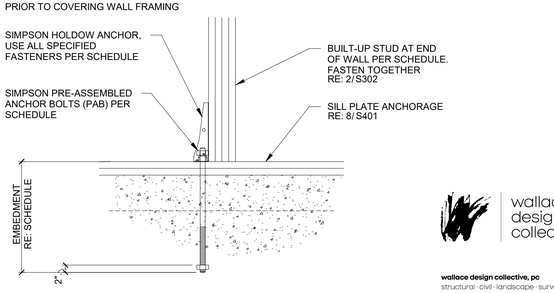
(2)-2x LAMINATIONS WITH ONE ROW OF STAGGERED 10d COMMON NAILS.

(3) OR MORE 2x LAMINATIONS WITH TWO ROWS OF 30d COMMON NAILS

"+" DENOTES NAILS DRIVEN FROM BACK FACE

2 BUILT UP COLUMN
3/4" = 1'-0"

NOTE:
HOLDOWN CONNECTOR BOLTS SHALL BE TIGHTENED TO FINGER-TIGHT PLUS ONE-HALF W/RENCH TURN PRIOR TO COVERING WALL FRAMING



1 HOLD-DOWN CONNECTION DETAIL
3/4" = 1'-0"

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drawing title
FOUNDATION DETAILS

drawing number
S302

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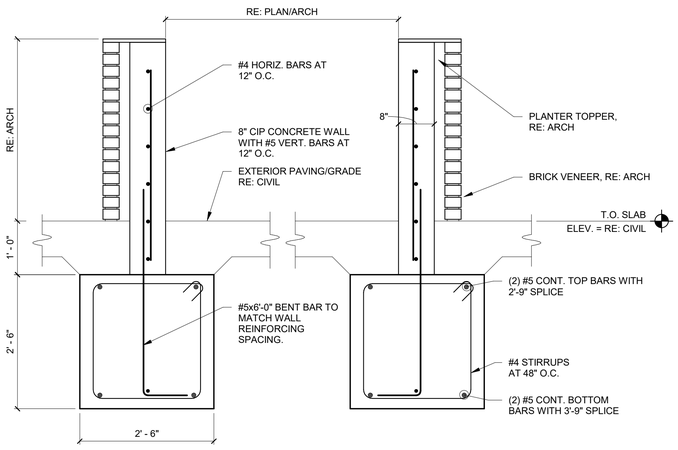
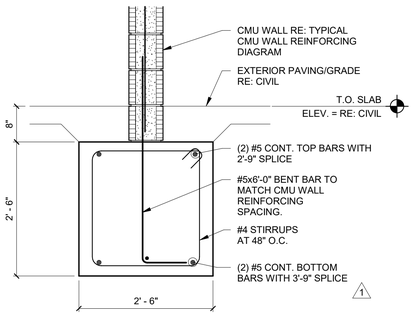
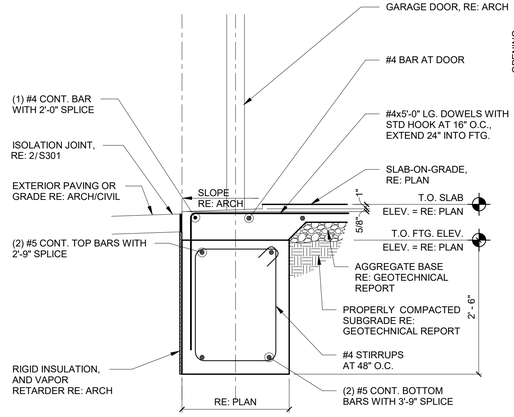


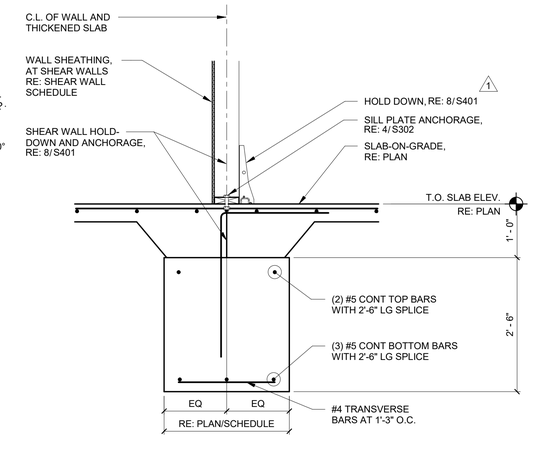
7 FOUNDATION SECTION
3/4" = 1'-0"



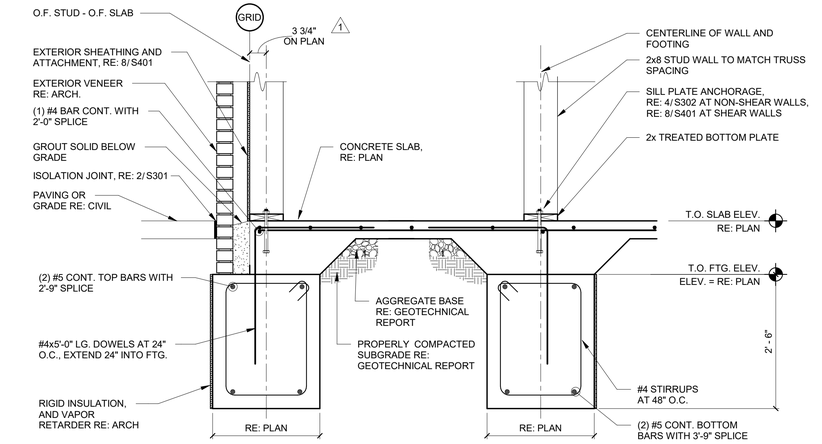
6 FOUNDATION SECTION
3/4" = 1'-0"



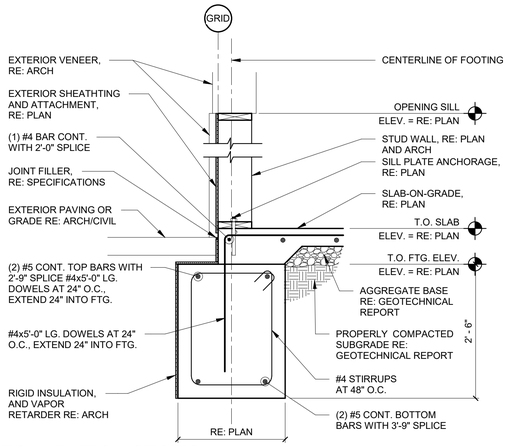
5 FOUNDATION SECTION
3/4" = 1'-0"



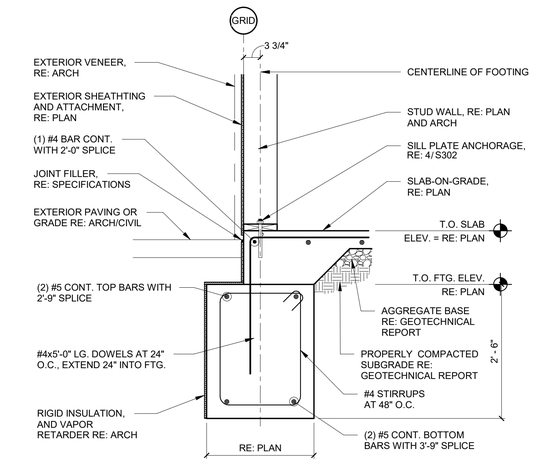
4 SPOT FTG. AT SHEAR WALL HOLD-DOWN
3/4" = 1'-0"



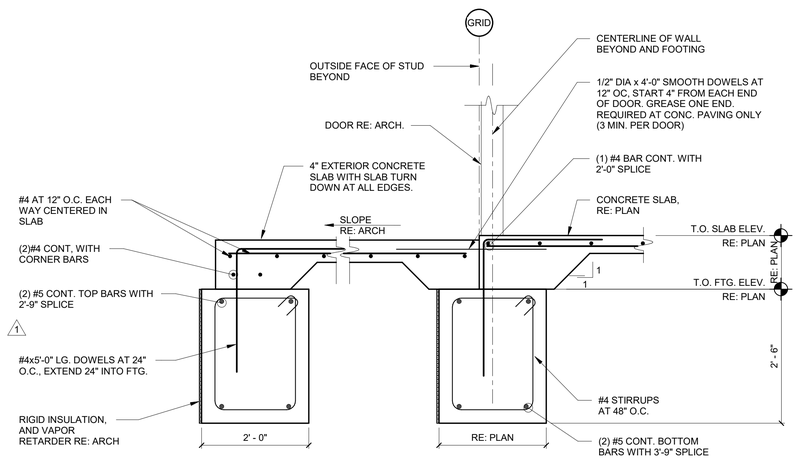
8 FOUNDATION SECTION
3/4" = 1'-0"



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



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



1 SLAB FROST STOOP SECTION
3/4" = 1'-0"

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
2222065

drawing issuance
ISSUED FOR PERMIT 12/09/2022

drawing revisions

No.	Description:	Date:
1	CITY COMMENTS	01/10/23

professional seal

STATE OF MISSOURI
JAMES M. GRANICH
NUMBER PE-2014023909
PROFESSIONAL ENGINEER

DATE SIGNED: 1/27/2023 8:29:41 AM

drawing title
FOUNDATION DETAILS

drawing number
S303

wallace design collective
wallace design collective, pc
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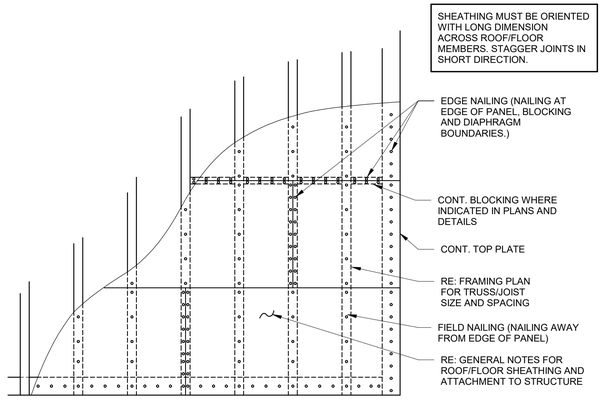


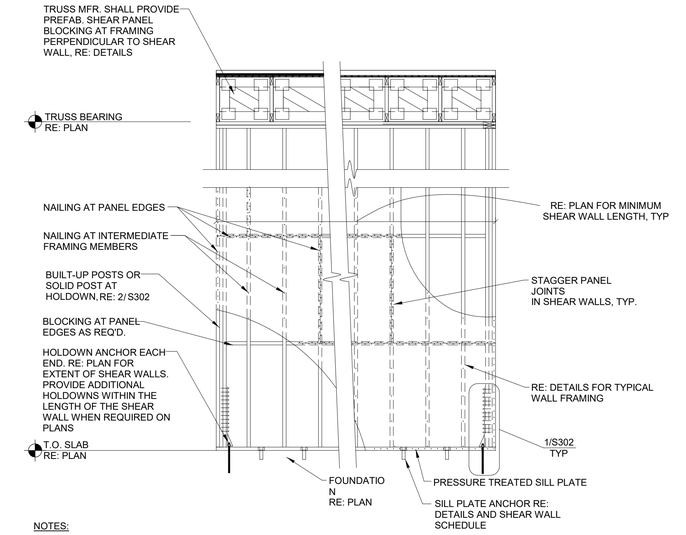
9 TYPICAL WOOD SHEATHING ATTACHMENT DIAGRAM
3/4" = 1'-0"

SHEAR WALL SCHEDULE						
MARK	MATERIAL	NAILING		ANCHORS		
		AT PANEL EDGES AND BOUNDARIES	AT INTERMEDIATE FRAMING MEMBERS	SILL PLATE	HOLDOWNS (RE: SHEARWALL ELEV. AND PLANS FOR LOCATIONS)	HOLDOWN POST AT EA. STRAP/ANCHOR
SW1	15/32" STRUCTURAL SHEATHING (2 SIDES)	8d AT 4" O.C. WITH 1 1/2" PENETRATION	8d AT 12" O.C.	--	--	(2) 2x8
SW2	3/8" STRUCTURAL SHEATHING (2 SIDES)	8d AT 6" O.C. WITH 1 1/2" PENETRATION	8d AT 12" O.C.	SET-3G 5/8" DIA. ANCHOR BOLTSx3 1/4" EMBEDMENT AT 24" O.C.	(1) SIMPSON HDU11-SDS2.5 WITH 1" DIA. SET-3G ANCHORx12" EMBEDMENT	(2) 2x8
SW3	15/32" STRUCTURAL SHEATHING (2 SIDES)	8d AT 2" O.C. WITH 1 1/2" PENETRATION	8d AT 12" O.C.	SET-3G 5/8" DIA. ANCHOR BOLTSx3 1/4" EMBEDMENT AT 36" O.C.	(1) SIMPSON HDU8-SDS2.5 WITH 7/8" DIA. SET-3G ANCHORx9" EMBEDMENT	(3) 2x8
SW4	3/8" STRUCTURAL SHEATHING (2 SIDES)	8d AT 3" O.C. WITH 1 1/2" PENETRATION	8d AT 12" O.C.	SET-3G 5/8" DIA. ANCHOR BOLTSx3 1/4" EMBEDMENT AT 16" O.C.	(1) SIMPSON HDU4-SDS2.5 WITH 5/8" DIA. SET-3G ANCHORx6" EMBEDMENT	(3) 2x8
SW5	5/8" STRUCTURAL SHEATHING (1 SIDE)	8d AT 4" O.C. WITH 6" PENETRATION	8d AT 12" O.C.	SET-3G 5/8" DIA. ANCHOR BOLTSx3 1/4" EMBEDMENT AT 36" O.C.	(1) SIMPSON HDU4-SDS2.5 WITH 5/8" DIA. SET-3G ANCHORx6" EMBEDMENT	(5) 2x6
NON SHEAR WALL	---	10d AT 6" O.C.	10d AT 12" O.C.	RE: 4/ S302	---	---

NOTE:

1. RE: PLANS FOR ANCHOR BOLT AND HOLD DOWN LOCATIONS.
2. PROVIDE GALVANIZED NAILS AT EXTERIOR FACE OF WALL.
3. ALL SHEATHING TO BE 24/0 SPAN RATED, EXTERIOR.
4. HOLDOWN POSTS SHALL BE ATTACHED TOGETHER PER BUILT-UP POST DETAIL, RE: 2/ S302
5. NAILS SHALL BE COMMON WIRE NAILS FROM AN AMERICAN OR CANADIAN MNR. ONLY.
6. PANEL BLOCKING SHALL BE FULL DEPTH CENTERED ON THE JOINT AND IS REQUIRED AT ALL PANEL EDGES.
7. SHEAR WALL SHEATHING SHALL RUN CONTINUOUS THROUGH BREAKS CAUSED BY INTERSECTING WALLS.
8. FOR HOLES IN PLATES OR STUDS AT HOLDOWN MEMBERS, STRAP ACROSS HOLE WITH SIMPSON ST2115, NO NAILS AT HOLE. NOTCHING OF SHEAR WALL POSTS NOT ALLOWED.
9. SHEAR WALL SHEATHING AND NAILING SHALL BE CONTINUOUS BETWEEN HOLDOWN LOCATIONS AS SHOWN ON PLAN.
10. ALL HOLDOWNS, TENSION TIES AND MUDSILL ANCHORS ARE TO BE PROVIDED BY SIMPSON STRONG-TIE.
11. ALL THRAEDED ROD ANCHORS MAY BE CAST IN PLACE OR POST-INSTALLED USING SIMPSON SET XP EPOXY ADHESIVE FOR EMBEDMENT DEPTH SOWN IN SCHEDULE.
12. HOLD DOWN POSTS SHALL BE CONSTRUCTED OF WOOD MEMBERS WITH MINIMUM DESIGN PROPERTIES LISTED ON SHEET S001 AND SHALL MATCH THE WIDTH OF THE WALL.
13. ALL THREADED ROD HOLDOWNS SHALL BE CHECKED FOR SNUG TIGHTNESS ONCE BUILDING IS IN A DRY-IN STATE AND BEFORE DRY WALL IS INSTALLED.

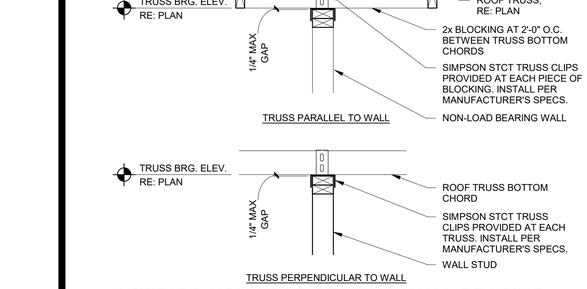
8 SHEARWALL SCHEDULE
3/4" = 1'-0"



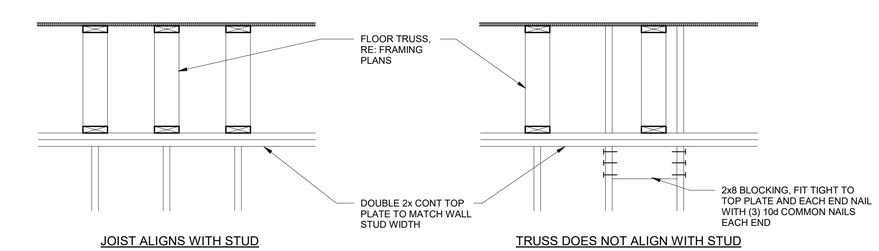
NOTES:

1. RE: PLANS FOR THE LOCATION AND EXTENT OF SHEAR WALLS. SHEAR WALL SHALL BE CONNECTED TO MINIMUM DIMENSIONS SHOWN ON PLANS.
2. PROVIDE GALVANIZED NAILS AT EXTERIOR FACE OF WALL.
3. RE: 8/ S401 FOR SHEATHING.
4. HOLDOWN POSTS SHALL BE ATTACHED TOGETHER PER BUILT-UP COLUMN DETAIL RE: 2/ S302
5. NAILS SHALL BE COMMON FROM AN AMERICAN OR CANADIAN MFR ONLY.
6. PANEL BLOCKING SHALL BE FULL DEPTH AND BE PLACED FLAT CENTERED ON THE JOINT.
7. SHEAR WALL SHEATHING SHALL RUN CONTINUOUS THROUGH BREAKS CAUSED BY INTERSECTING WALLS.
8. SHEAR WALL SHEATHING AND NAILING SHALL BE CONTINUOUS BETWEEN HOLDOWN POST LOCATIONS AS SHOWN ON PLAN.
9. ALL THREADED ROD ANCHORS SHALL BE DRILLED IN USING SIMPSON SET XP EPOXY ADHESIVE.
10. NOTCHING OF SHEAR WALL END POSTS IS NOT ALLOWED.

7 SHEARWALL ELEVATION
3/4" = 1'-0"



6 INTERIOR NON-LOAD BEARING WALL BRACING
1" = 1'-0"



5 BEARING WALL FRAMING ALIGNMENT
NTS

HEADER SCHEDULE				
PLAN MARK	# OF SILLS (IF REQUIRED)	(# OF HEADERS) HEADER SIZE	# OF 2x8 TRIMMER STUDS	# OF 2x8 JAMBS
H1	-	(2)-2x6	(1)-2x8 EA. SIDE OF OPENING	(2)-2x8 EA. SIDE OF OPENING
H2	(3)-2x8	(3)-2x8	(1)-2x8 EA. SIDE OF OPENING	(2)-2x8 EA. SIDE OF OPENING
H3	(3)-2x8	(3)-2x10	(1)-2x8 EA. SIDE OF OPENING	(2)-2x8 EA. SIDE OF OPENING
H4	-	(3)-1 3/4"x8" LVL	(2)-2x8 EA. SIDE OF OPENING	(2)-2x8 EA. SIDE OF OPENING
H5	-	(3)-1 3/4"x10" LVL	(2)-2x8 EA. SIDE OF OPENING	(2)-2x8 EA. SIDE OF OPENING
H6	(3)-2x8	(3)-1 3/4"x12" LVL	(2)-2x8 EA. SIDE OF OPENING	(2)-2x8 EA. SIDE OF OPENING
H7	-	(3)-1 3/4"x20" LVL	(2)-2x8 EA. SIDE OF OPENING	(2)-2x8 EA. SIDE OF OPENING
H8	-	W24x55	(2)-2x8 EA. SIDE OF OPENING	(2)-2x8 EA. SIDE OF OPENING
H9	-	(3)-2x12	(1)-2x8 EA. SIDE OF OPENING	(2)-2x8 EA. SIDE OF OPENING

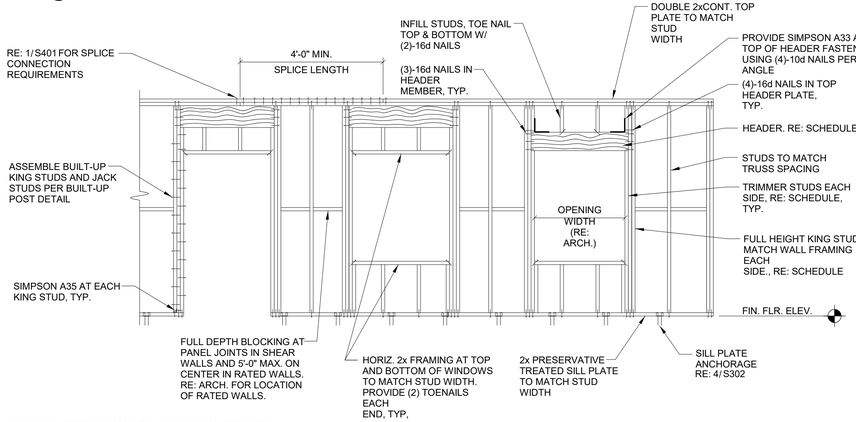
NOTE:
1. USE 1/4" THICK BEADS OF LIQUID NAILS CONSTRUCTION ADHESIVE BETWEEN EA. PLY OF BUILT-UP HEADERS TO PRODUCE MEMBERS SAME THICKNESS AS WALL STUDS.
2. VERIFY LENGTH OF HEADERS W/ STRUCTURAL & ARCHITECTURAL PLANS.
3. WALL OPENING FRAMING ELEVATION PER 2/S401.

4 HEADER SCHEDULE
3/4" = 1'-0"

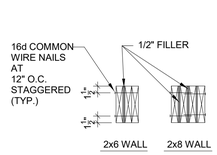
JOIST HANGER SCHEDULE		
JOIST SIZE	TOP FLANGE HANGER	FACE MOUNT HANGER
2x4	PF24	LUS24
2x6	JB26	LUS26
2x8	JB28	LUS26
2x10	JB210A	LUS28
2x12	JB212A	LUS210
(2)-2x8	HUS28-2TF	LUS26-2
(2)-2x10	HUS210-2TF	LUS28-2
(2)-2x12	HUS212-2TF	LUS210-2

NOTES:
1. THE ABOVE ARE MINIMUM HANGER REQUIREMENTS. REFER TO DETAILS FOR FRAMING MEMBERS NOT SHOWN.
2. ALL JOIST HANGERS ARE SIMPSON STRONG-TIE PRODUCTS. ALTERNATE HANGERS MAY BE USED THAT MEET OR EXCEED THE LISTED SIMPSON CAPACITY. ALTERNATE CONNECTIONS SHALL BE APPROVED BY THE ENGINEER OF RECORD.
3. ONLY USE FACE MOUNTED HANGERS WHERE ALL FACE NAILING CAN BE INSTALLED PER THE MANUFACTURER'S REQUIREMENTS.
4. FILL ALL HOLES WITH FASTENERS PER MANUFACTURER'S REQUIREMENTS.
5. PROVIDE CONCEALED FASTENERS AND FINISH FOR EXPOSED CONNECTORS TO COMPLY WITH ARCHITECT'S OR OWNER'S REQUIREMENTS.

3 FRAMING HANGER SCHEDULE
3/4" = 1'-0"

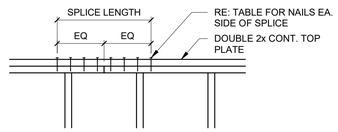


2 WALL FRAMING ALIGNMENT
NTS



TYP. HEADER SECTION

LOCATION	SPLICE LENGTH	NAILS EA. SIDE OF SPLICE
TYPICAL	4'-0"	(8)-16d
AT SHEAR WALLS	X'-X"	(X)-16d



NOTES
1. END JOINTS IN DOUBLE TOP PLATES SHALL OFFSET A MINIMUM OF 48".
2. INSTALL DOUBLE TOP PLATE SPLICE AT ALL SHEAR WALLS, EXTERIOR WALLS AND BEARING WALLS.
3. SPECIFIC SPLICE REQUIREMENTS DO NOT APPLY TO INTERIOR NON-SHEAR WALLS UNLESS NOTED OTHERWISE

1 TYPICAL TOP PLATE SPLICE
3/4" = 1'-0"

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
2220265

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1	CITY COMMENTS	01/10/23
2	ADD2	01/27/23

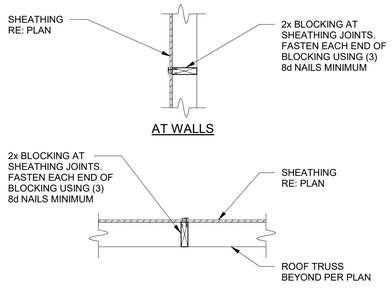
professional seal

STATE OF MISSOURI
JAMES M. GRANICH
NUMBER PE-2014023909
PROFESSIONAL ENGINEER

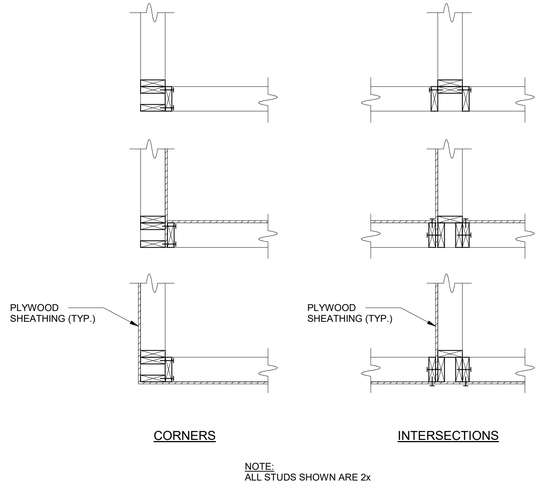
DATE SIGNED: 1/27/2023 8:29:42 AM

drawing title
FRAMING DETAILS

drawing number
S401

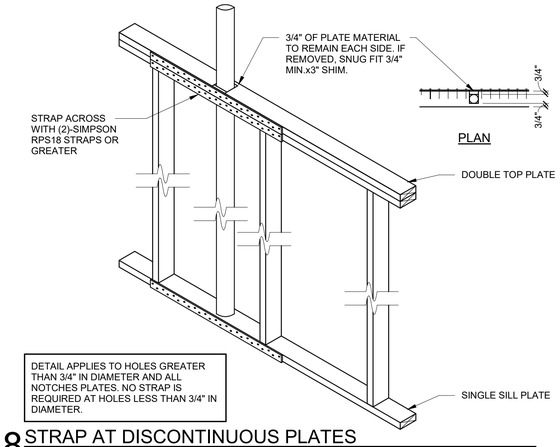


10 TYPICAL WALL FRAMING BLOCKING
3/4" = 1'-0"



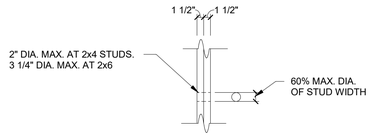
NOTE:
ALL STUDS SHOWN ARE 2x

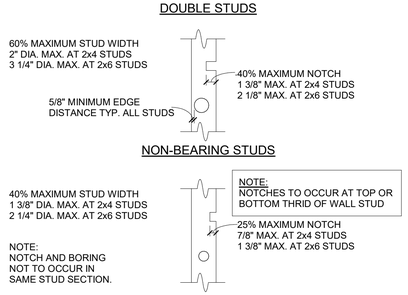
9 TYPICAL WALL FRAMING CONNECTION
3/4" = 1'-0"



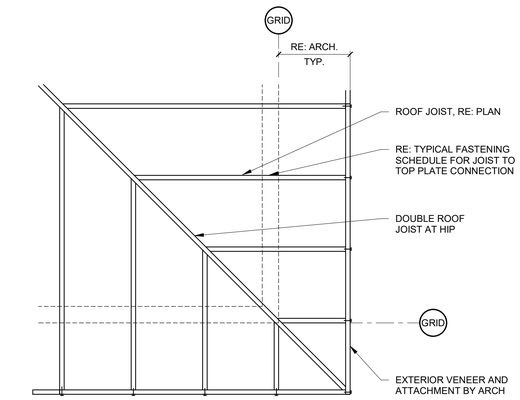
DETAIL APPLIES TO HOLES GREATER THAN 3/4" IN DIAMETER AND ALL NOTCHES PLATES. NO STRAP IS REQUIRED AT HOLES LESS THAN 3/4" IN DIAMETER.

8 STRAP AT DISCONTINUOUS PLATES
3/4" = 1'-0"





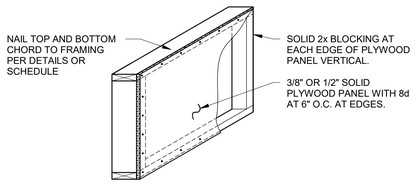
7 TYPICAL WALL FRAMING OPENINGS
3/4" = 1'-0"

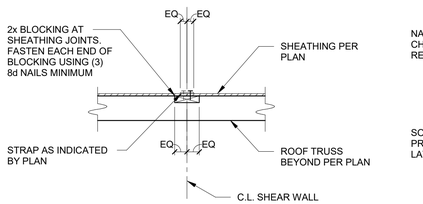


6 FRAMING DETAIL
1/2" = 1'-0"

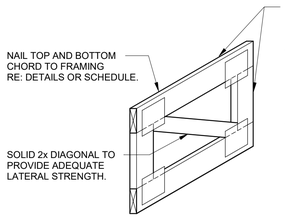
NAIL SIZE SCHEDULE	
6d COMMON	0.133" DIA. x 2"
8d COMMON	0.131" DIA. x 2 1/2"
10d COMMON	0.148" DIA. x 3"
12d COMMON	0.148" DIA. x 3 1/4"
16d COMMON	0.162" DIA. x 3 1/2"
20d COMMON	0.192" DIA. x 4"
30d COMMON	0.207" DIA. x 4 1/2"

5 NAIL SIZE SCHEDULE
3/4" = 1'-0"





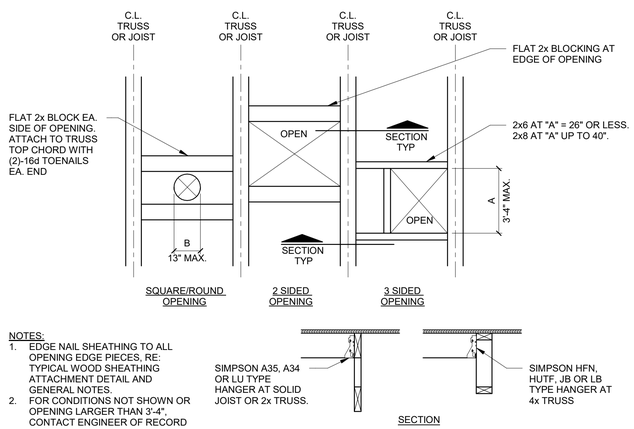
4 FRAMING DETAIL
3/4" = 1'-0"



SOLID 2x FRAMING AT EDGES OF BLOCK - TRUSS PLATE AT CORNERS PER MFR.

NOTES
1. SHEAR PANEL USING EITHER PLYWOOD PANEL OR PREFABRICATED TRUSS BLOCKING TO BE INSTALLED PER DETAILS U.N.O.
2. BLOCKING AT TOP EDGE TO BE VERTICAL WHERE INSTALLED UNDER LOAD BEARING WALLS. OTHERWISE, BLOCKING MAY LAY VERTICAL OR HORIZONTAL.
3. TRUSS MANUFACTURER TO DESIGN PREFABRICATED BLOCKING FOR LATERAL FORCE INDICATED ON FRAMING PLAN.

3 TYPICAL SHEAR PANEL BLOCKING
3/4" = 1'-0"



NOTES:
1. EDGE NAIL SHEATHING TO ALL OPENING EDGE PIECES, RE: TYPICAL WOOD SHEATHING ATTACHMENT DETAIL AND GENERAL NOTES.
2. FOR CONDITIONS NOT SHOWN OR OPENING LARGER THAN 3'-4", CONTACT ENGINEER OF RECORD (E.O.R.).

2 SMALL ROOF OPENING IN WOOD SHEATHING
3/4" = 1'-0"

TYPICAL NAILING SCHEDULE	
CONNECTION	NAILING
TRUSS/JOIST/RAFTER TO SILL, TOP PLATE OR GIRDER	(3) 8d TOE NAIL
BRIDGING OR BLOCKING TO JOIST	(2) 8d TOE NAIL EA. END
BRIDGING OR BLOCKING BETWEEN JOIST TO TOP PLATE	(3) 8d TOE NAIL EA. END
BOTTOM PLATE TO JOIST OR BLOCKING	16d AT 24" O.C.
STUD TO TOP OR BOTTOM PLATE	(2) 16d END NAIL / (4) 8d TOE NAIL
STUD TO STUD AND BUILT-UP CORNER STUDS	10d AT 16" O.C. FACE NAIL OR 16d AT 24" O.C., FACE NAIL
DOUBLE TOP PLATES, MIN. 24" OFFSET OF END JOISTS	10d AT 12" O.C. FACE NAIL 16d AT 16" O.C. FACE NAIL
DOUBLE TOP PLATES AT END JOIST, MIN 24" OFFSET	(8) 16d EA. SIDE OF JOINT FACE NAIL
TOP PLATES, LAPS AND INTERSECTIONS	(2) 16d FACE NAIL
RIM JOISTS TO TOP PLATE	8d AT 6" O.C. TOE NAIL
JOISTS TO BAND JOIST OR RIM JOIST	(3) 16d END NAIL
BUILT-UP HEADER (2x TO 2x WITH 1/2" MAX. SPACER)	16d AT 16" O.C., FACE NAIL EA. EDGE
DOUBLE TRUSSES (2x TO 2x CHORD MEMBERS)	16d AT 16" O.C., FACE NAIL EA. CHORD
BUILT-UP BEANS, (2x LAYERS WITH 3 OR MORE PLYS) (RE: NOTE 4)	20d AT 32" O.C. FACE NAIL AT TOP AND BOTTOM AND STAGGERED ON OPPOSITE SIDES. TWO NAILS AT EA. END AND AT EA. SPLICE
CONTINUOUS HEADER TO STUD	(4) 8d TOE NAIL
CEILING JOIST TO TOP PLATE	(3) 8d TOE NAIL
CEILING JOIST LAP OF PARTITION	(3) 16d FACE NAIL
CEILING JOIST TO PARALLEL RAFTERS	AS REQUIRED RE: IBC
COLLAR TIE TO PARALLEL RAFTERS	(3) 10d FACE NAIL
RAFTER TO 2x RIDGE BEAM	(2) 16D END NAIL / (3) 10d TOE NAIL
RAFTER TO VALLEY OR HIP RAFTER	(2) 16D END NAIL / (3) 10d TOE NAIL
1" BRACE TO EA. STUD PLATE	(2) 8d FACE NAIL
LEDGER STRIP	(3) 16d FACE NAIL AT EA. JOIST
1"x6" SUBFLOOR OR LESS	(2) 8d FACE NAIL, EA. JOIST
WIDER THAN 1"x6" SUBFLOOR	(2) 8d FACE NAIL, EA. JOIST
2" SUBFLOOR TO JOIST OR GIRDER	(2) 16d BLIND AND FACE NAIL
2" PLANKS	(2) 16d FACE NAIL EA. BEARING
1"x6" SHEATHING	(2) 8d FACE NAIL EA. BEARING
1"x8" AND WIDER SHEATHING	(2) 8d FACE NAIL EA. BEARING

NOTE:
1. THE ABOVE ARE MIN. NAILING REQUIREMENTS. REFER TO GENERAL NOTES, DETAILS, AND SCHEDULES FOR MORE STRINGENT REQUIREMENTS.
2. PROVIDE COMMON WIRE NAILS FROM U.S.A. OR CANADIAN MFR., U.N.O. NAIL SIZES SHALL BE AS FOLLOWS:
   A. 6d COMMON 0.113" DIA.x2"
   B. 8d COMMON 0.131" DIA.x2 1/2"
   C. 10d COMMON 0.148" DIA.x3"
   D. 12d COMMON 0.148" DIA.x3 1/4"
   E. 16d COMMON 0.162" DIA.x3 1/2"
   F. 20d COMMON 0.192" DIA.x4"
   G. 30d COMMON 0.207" DIA.x4 1/2"
3. RE: IBC FASTENING SCHEDULE FOR MINIMUM WOOD FASTENING REQUIREMENTS NOT SHOWN.
4. PROVIDE ADDITIONAL ROW OF NAILS WHEN DEPTH IS 14" OR GREATER.
5. PROVIDE HOT-DIPPED ZINC-COATED GALVANIZED NAILS AT EXTERIOR FACE OF WALLS.
6. RE: GENERAL NOTES AND SHEAR WALL SCHEDULE FOR SHEATHING ATTACHMENT.
7. IN LIEU OF NAILS SHOWN, CONTRACTOR MAY USE EQUIVALENT PNEUMATIC NAILS RE: -/--- .

1 TYPICAL NAILING SCHEDULE
3/4" = 1'-0"

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drawing revisions

No.	Description:	Date:
1	CITY COMMENTS	01/10/23

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STATE OF MISSOURI
JAMES M. GRANICH
NUMBER PE-2014023909
PROFESSIONAL ENGINEER

DATE SIGNED: 1/27/2023 8:29:43 AM

drawing title
FRAMING DETAILS

drawing number
S402

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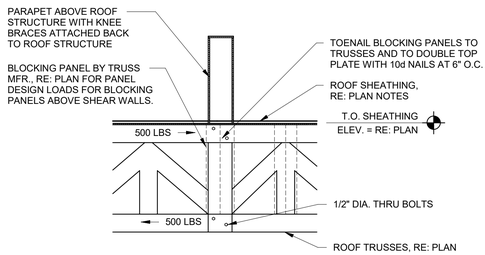

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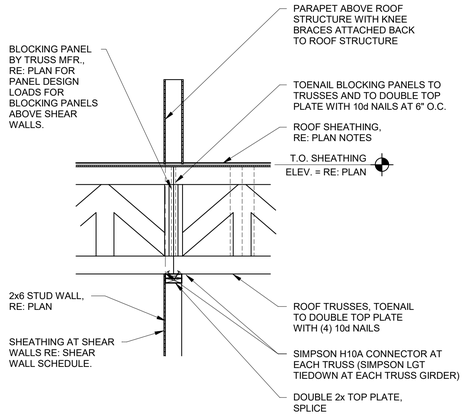
1/2" = 1'-0"



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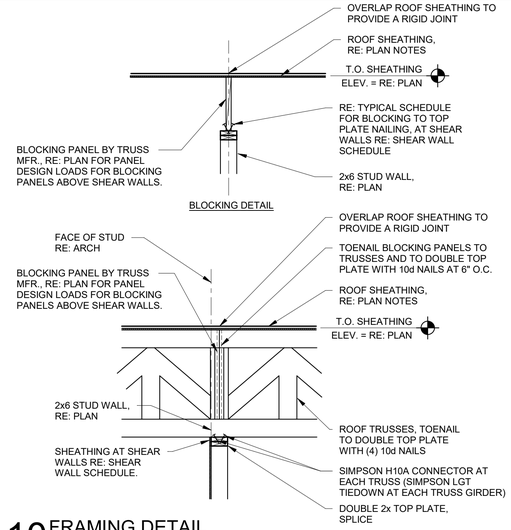

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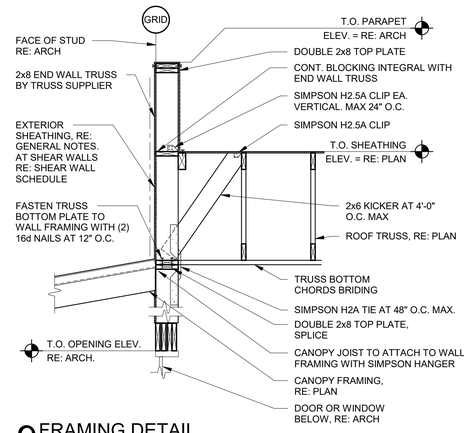

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1/2" = 1'-0"

8 FRAMING DETAIL
1/2" = 1'-0"

7 FRAMING DETAIL
1/2" = 1'-0"

6 FRAMING DETAIL
1/2" = 1'-0"

5 FRAMING DETAIL
1/2" = 1'-0"

4 FRAMING DETAIL
1/2" = 1'-0"

3 FRAMING DETAIL
1/2" = 1'-0"

2 FRAMING DETAIL
1/2" = 1'-0"

1 FRAMING DETAIL
1/2" = 1'-0"

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
2220265

drawing issuance

ISSUED FOR PERMIT	12/09/2022

drawing revisions

No.	Description:	Date:
1	CITY COMMENTS	01/10/23

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STATE OF MISSOURI
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drawing number
S403

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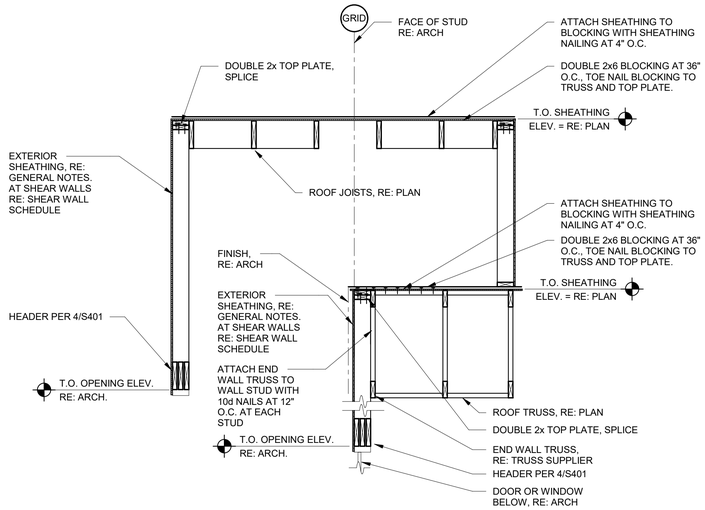

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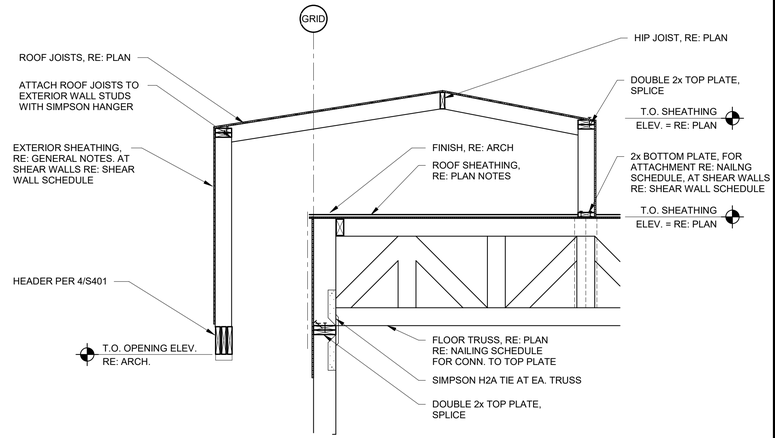

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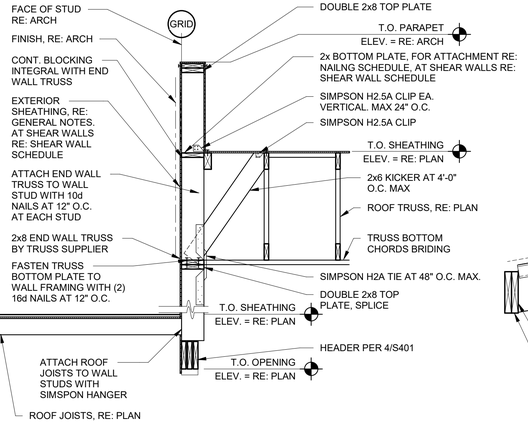
1/2" = 1'-0"



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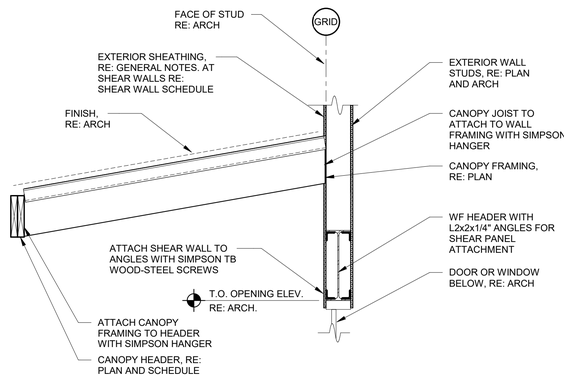
1/2" = 1'-0"



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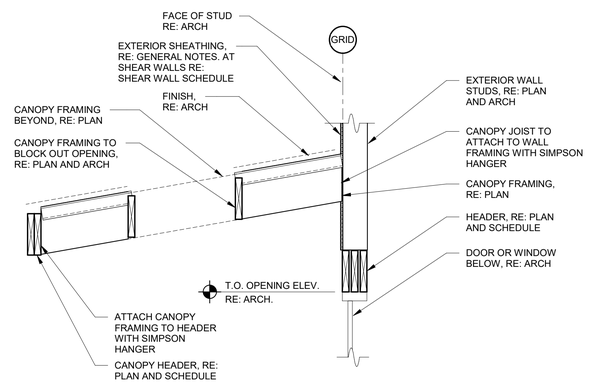
3/4" = 1'-0"



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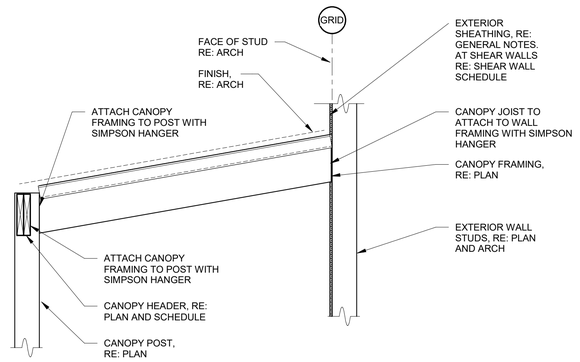
3/4" = 1'-0"



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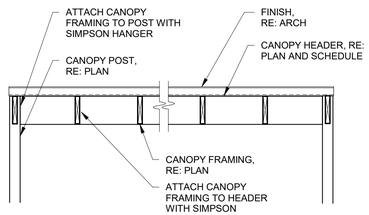
3/4" = 1'-0"



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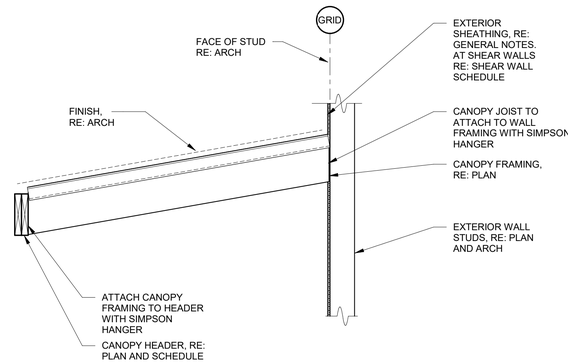
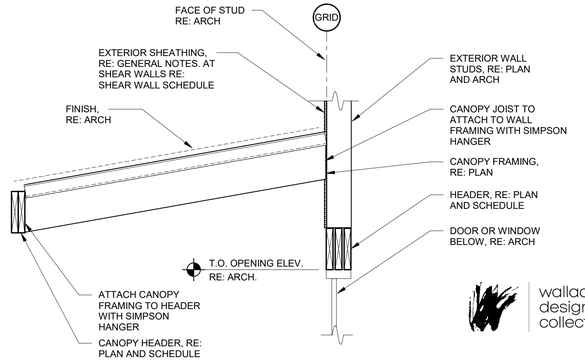


2 FRAMING DETAIL
3/4" = 1'-0"



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

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
2220265

drawing issuance

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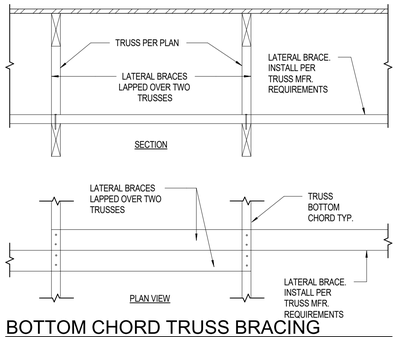
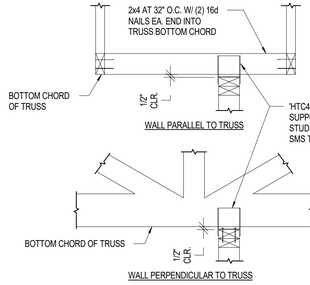
S404

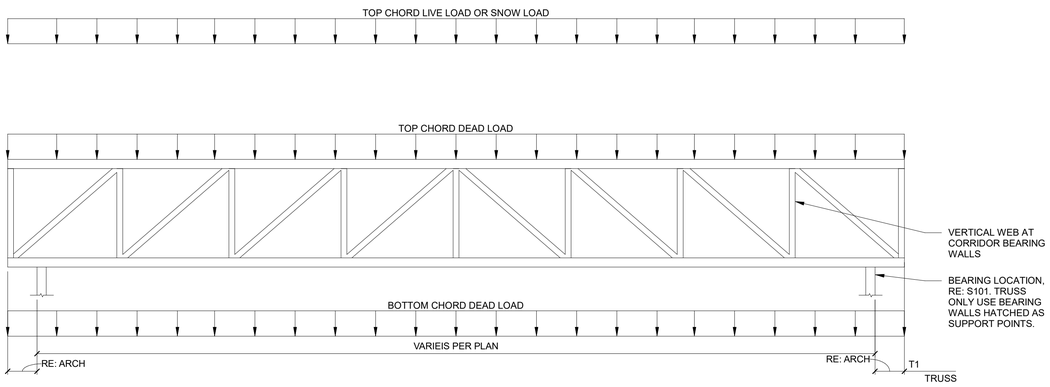


4 BOTTOM CHORD TRUSS BRACING
NTS



3 WALL SUPPORT
NTS

2 MECHANICAL CURB ATTACHMENT
NTS



ROOF TRUSS NOTES:

1. RE: SHEET S001, FOR PREFABRICATED WOOD TRUSS REQUIREMENTS:
2. ROOF PITCH, AND SOFFIT GEOMETRY SHOWN FOR REFERENCE ONLY. SEE ARCHITECTURAL DRAWINGS FOR ACTUAL GEOMETIRES.
3. TRUSS WEB MEMBERS ARE SHOWN FOR REFERENCE ONLY. DESIGN AND ARRANGEMENT OF TRUSS WEB MEMBERS ARE REPOSIBILITY OF THE WOOD TRUSS SUPPLIER.
4. TRUSS CONNECTIONS TO BEARING LOCATIONS, HEADERS, OR GIRDER TRUSS SHALL BE PER THE TRUSS SUPPLIER.
5. TRUSS DESIGNER SHALL ACCOUNT FOR TRUSS SELF WEIGHT DEAD LOAD.
6. TRUSS DESIGNER SHALL CONFORM TO THE 2018 IBC CODE FOR LOAD COMBINATOINS, UNBALANCED SNOW LOAD REQUIREMENTS, AND SPECIAL WIND CONDITIONS AT EAVES AND RIDGES.
7. DESIGN OF ROOF TRUSSES SHALL INCLUDE ALL NECESSARY BRACING, BRIDGING AND/OR CONNECTIONS TO TRANSMIT THE REQUIRED LOADS INTO THE STRUCTURE.
8. TRUSS SPACING SHALL NOT EXCEED 24" O.C. UNLESS SPECIFIED OTHERWISE ON THE DETAILS.
9. SUBMITTAL DOCUMENTS SHALL INCLUDE SUBSTANTIATING STRUCTURAL CALCULATIONS AND DRAWINGS SHALL BE STAMPED AND SIGNED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF MISSOURI.
10. GIRDER TRUSSES SHALL BE DESIGNED FOR MINIMUM DEAD LOADS ADN LIVE LOADS SHOWN PLUS CONCENTRATED GIRDER LOADS, SEE DIAGRAMS THIS SHEET.
11. TRUSS GIRDER SUPPLIER MUST PROVIDE CONNECTIONS FOR TRUSS-TO-TRUSS AND TRUSS BEARING CONECTIONS.
12. TRUSS SHALL BE LIMITED TO LIVE LOAD DEFLECTION OF 1/2".
13. TRUSS SUPPLIER SHALL DESIGN TRUSSES FOR MECHANICAL EQUIPMENT SUSPENDED FROM TRUSSES (RE: MEP DRAWINGS).

1 ROOF TRUSS DIAGRAMS & NOTES
3/16" = 1'-0"

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S405

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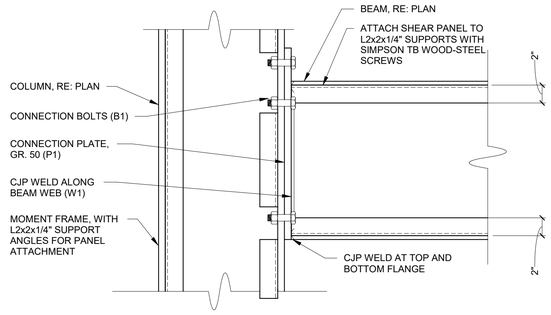
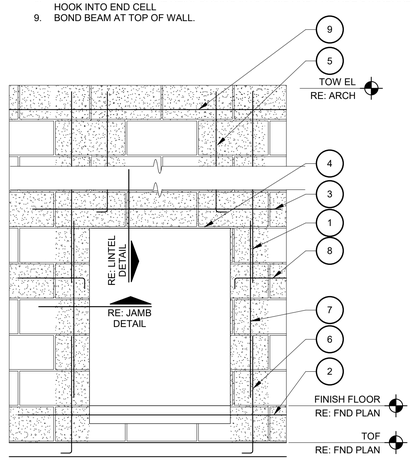
MOMENT SCHEDULE				
CONNECTION	PLATES	WELDS/BOLTS		
	P1	W1	B1	S
C1	PL1/2"x7"x1'-4"	CJP	5/8" DIA.	2"

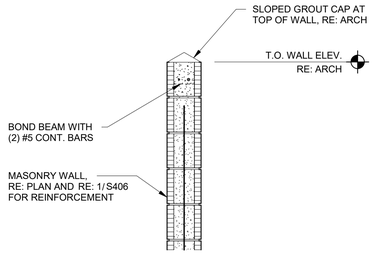


3 BEAM/COLUMN MOMENT CONNECTION DETAIL
1 1/2" = 1'-0"

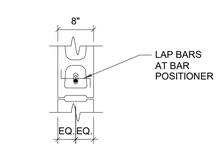
NOTES:
1. REFER CMU REINFORCING LAP SCHEDULE FOR SPLICES IN VERTICAL REINFORCING.
2. BOND BEAM.
3. EXTEND GROUTED LINTEL A MINIMUM OF 2'-0" BEYOND FACE OF OPENING EACH SIDE FOR STRAIGHT LINTEL REINFORCEMENT AND 1'-4" FOR HOOKED LINTEL, UNO REINFORCEMENT WITH STANDARD ACI HOOK.
4. USE LINTEL BLOCKS ONLY 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 TOP OF WALL.



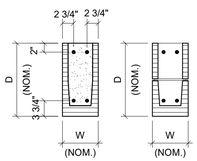
1 CMU WALL REINFORCING DIAGRAM
3/4" = 1'-0"



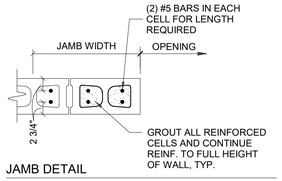
2 CMU WALL DETAIL
3/4" = 1'-0"



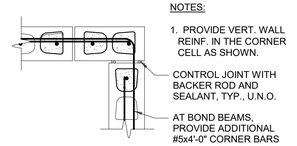
VERTICAL BAR PLACEMENT



LINTEL DETAIL



JAMB DETAIL



TYPICAL CORNER

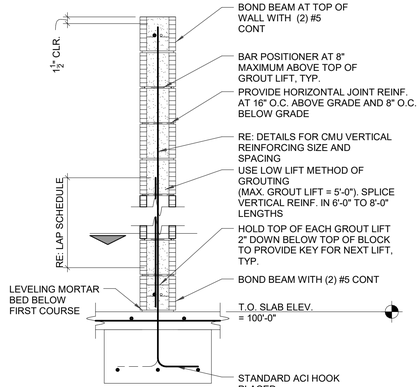
CORNER DETAIL

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 4'-0"	8"	(2) #5	(1) #5	8"	1

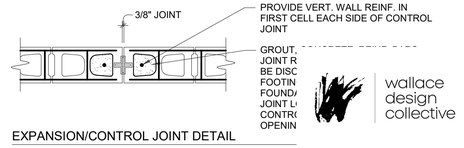
1. RE: PLAN FOR LINTEL, JAMB LOCATIONS AND TYPE.
2. USE TYPE A LINTEL, U.N.O. ON PLAN.

CMU VERTICAL REINFORCING SCHEDULE	
MW-1	8" CMU WITH (1) #4 VERTICAL AT 16" O.C. WITH #4 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



BOND BEAM STEP (NOT AT CONTROL JOINT)



EXPANSION/CONTROL JOINT DETAIL

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drawing number
S406

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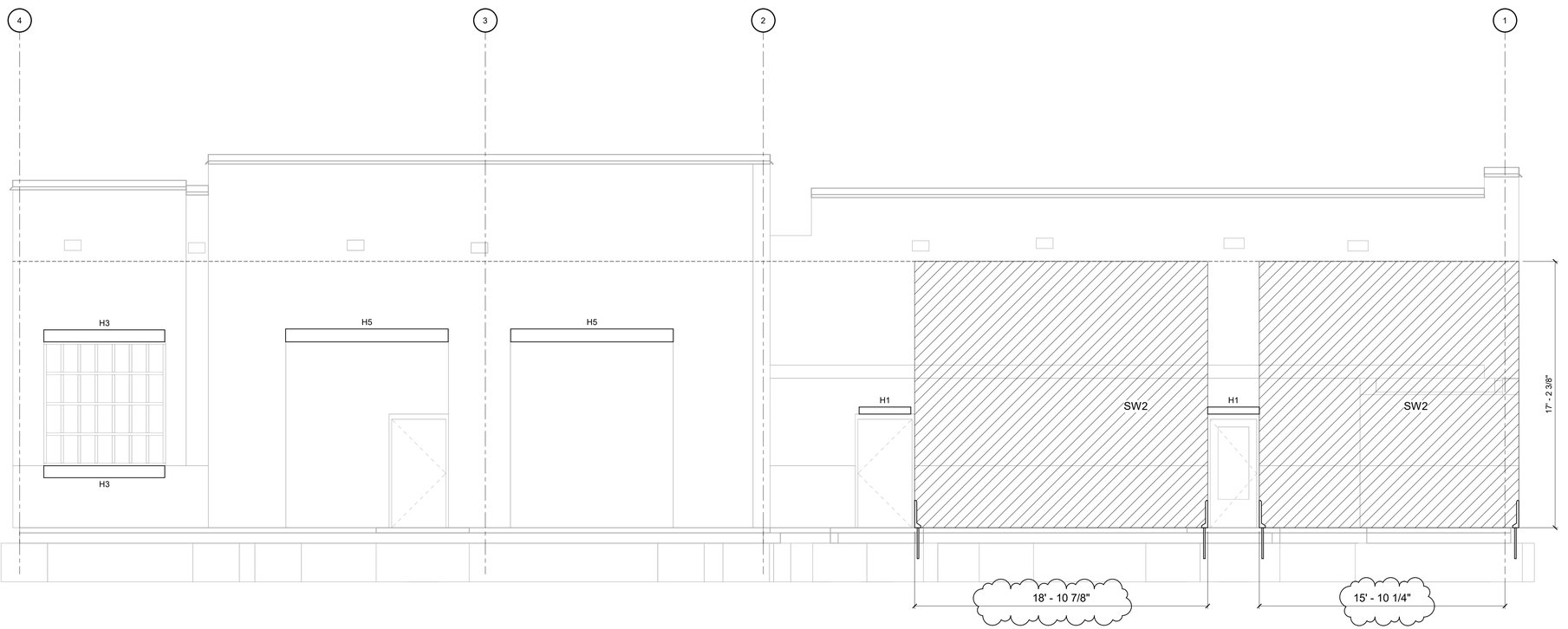
1 BUILDING ELEVATION - WEST
1/4" = 1'-0"

1



2 BUILDING ELEVATION - EAST
1/4" = 1'-0"

1

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No.	Description:	Date:
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2	ADD2	01/27/23

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drawing title
BUILDING ELEVATIONS

drawing number
S500

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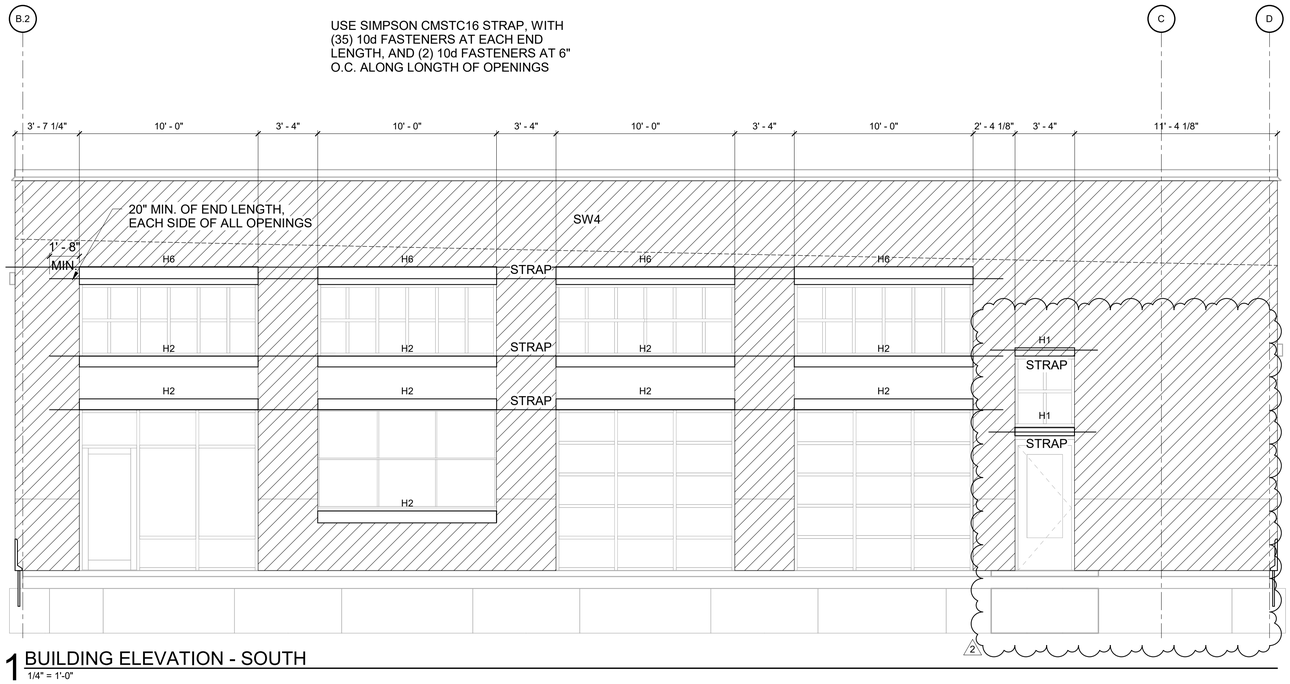
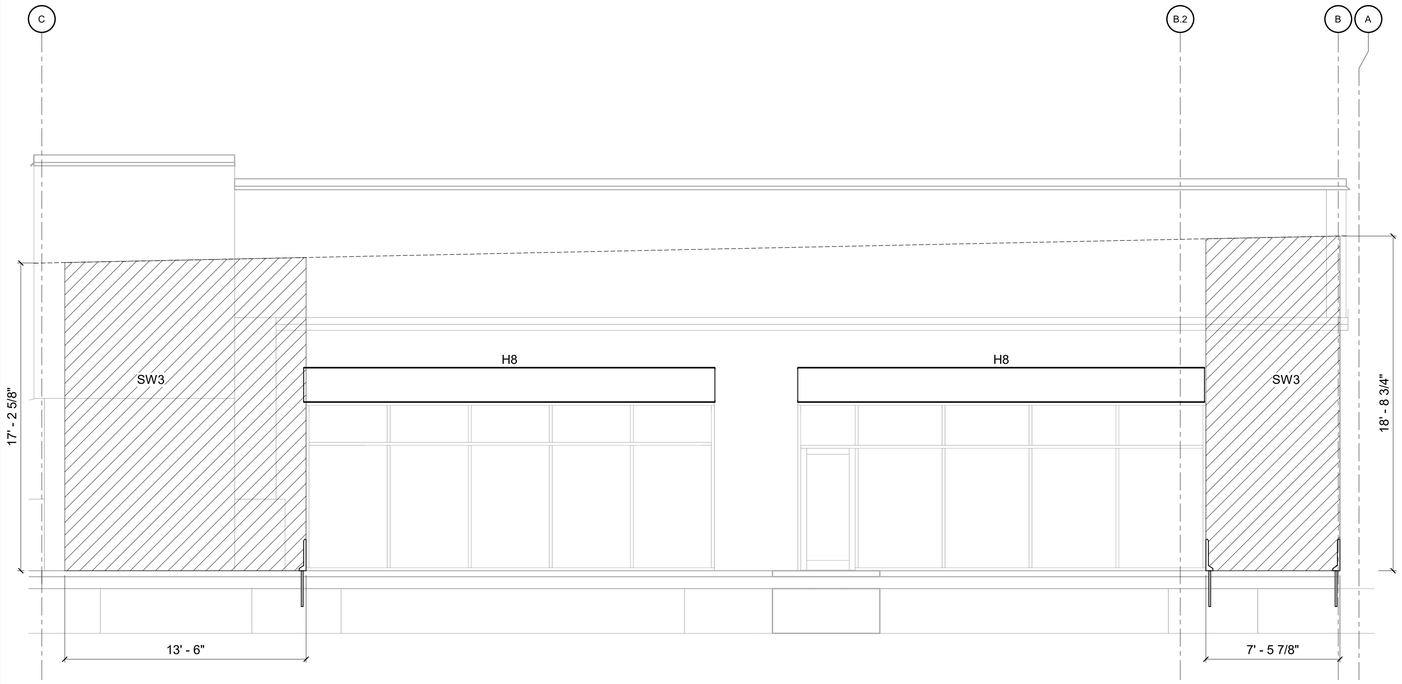


1 BUILDING ELEVATION - SOUTH

1/4" = 1'-0"

1



2 BUILDING ELEVATION - NORTH

1/4" = 1'-0"

1

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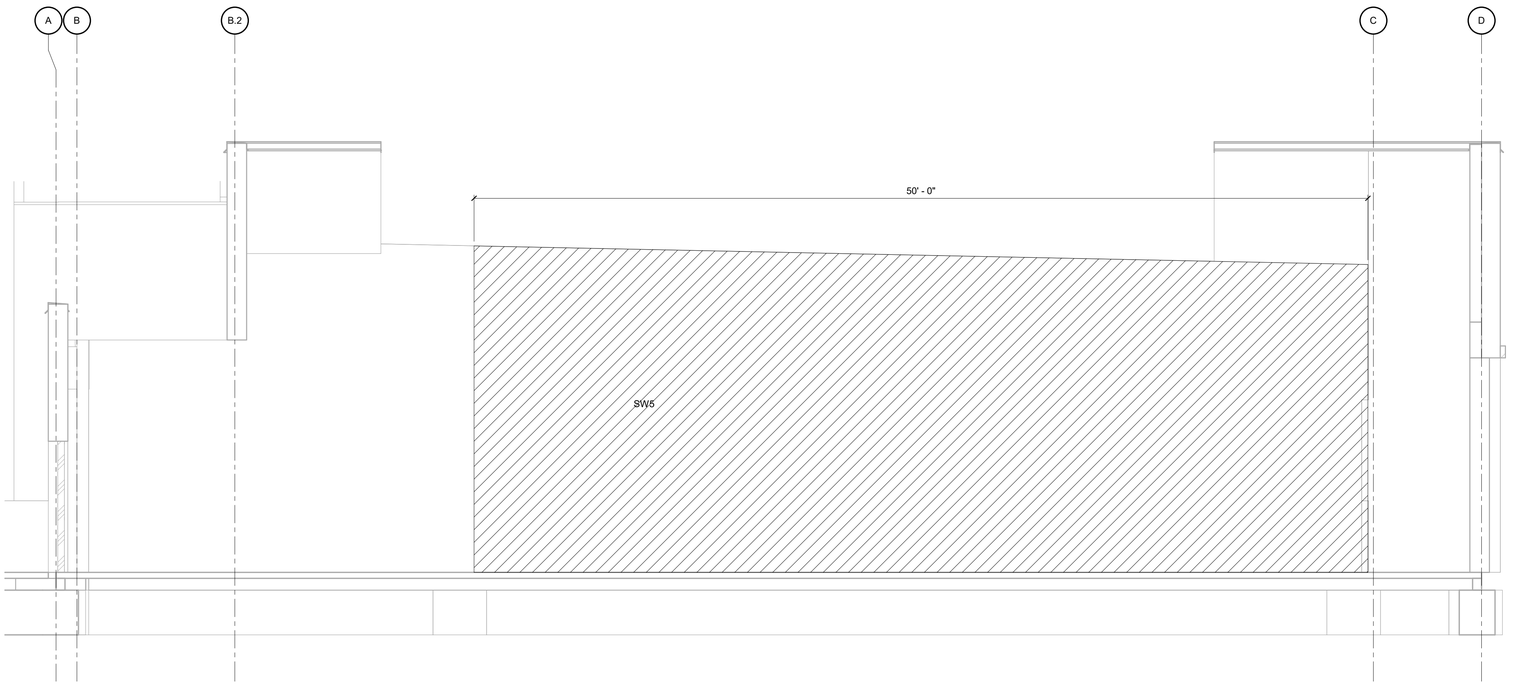

1 BUILDING ELEVATION - DEMISING WALL
1/4" = 1'-0"

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BUILDING ELEVATIONS

drawing number
S502

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15400 - PLUMBING WORK

DESCRIPTION
ALL PLUMBING AND ASSOCIATED WORK IN DIVISION 15 IS GOVERNED BY THIS SECTION. PROVIDE LABOR AND MATERIALS NECESSARY TO PROVIDE THE WORK AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN. REFER TO OTHER DIVISIONS FOR CONTINUATION OF EXTERIOR AND ALLIED WORK.

QUALITY ASSURANCE
OBTAIN AND PAY FOR ALL PERMITS, INSPECTIONS AND CONNECTION FEES REQUIRED BY GOVERNING BODIES IN CONNECTION WITH THE WORK. DELIVER CERTIFICATES OF INSPECTION TO THE OWNER'S REPRESENTATIVE. ALL WORK SHALL COMPLY WITH GOVERNING CODES, ORDINANCES, AND REGULATIONS OF CITY, COUNTY AND STATE.

GENERAL
PLUMBING SYSTEMS SHALL BE PROVIDED COMPLETE. SHOULD A SYSTEM, OR ANY PART THEREOF FAIL TO MEET PERFORMANCE REQUIREMENTS, NECESSARY REPLACEMENTS, ALTERATIONS OR REPAIRS, AS REQUIRED BY THE OWNER'S REPRESENTATIVE, SHALL BE MADE TO BRING PERFORMANCE UP TO SPECIFIED REQUIREMENTS AND ALL BUILDING CONSTRUCTION AND FINISHES DAMAGED OR MARRED BY SUCH REPLACEMENTS, ALTERATIONS OR REPAIRS SHALL BE RESTORED TO PRIOR CONDITION, AT NO ADDITIONAL COST TO THE OWNER.

INSERTS, PIPE SLEEVES, HANGERS, SUPPORTS, FIXTURES, TRIM DRAINS AND ANCHORAGE OF PLUMBING SHALL BE PROVIDED AS SPECIFIED HEREIN. WHERE SUCH ITEMS ARE TO BE SET OR EMBEDDED IN CONCRETE, MASONRY OR SIMILAR WORK, THE ITEMS SHALL BE FURNISHED AND LAYOUT MADE AT THE PROPER TIME FOR THE SETTING OR EMBEDMENT THEREOF SO AS TO CAUSE NO DELAY IN THE WORK.

INSTALLATION AND WORKMANSHIP
THE WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ANY MATERIAL, APPARATUS OR EQUIPMENT WHICH, IN THE OPINION OF THE OWNER'S REPRESENTATIVE, IS IMPROPERLY INSTALLED SHALL BE REMOVED AND REINSTALLED IN AN APPROVED MANNER AT NO ADDITIONAL COST TO THE OWNER.

THE LOCATION OF PLUMBING PIPING SHALL BE COORDINATED TO ENSURE THAT IT CLEARS OPENINGS AND STRUCTURAL MEMBERS; THAT PIPING INDICATED AS CONCEALED CAN BE PROPERLY CONCEALED IN WALLS OR PARTITIONS AND THAT IT DOES NOT INTERFERE WITH LIGHTS, DUCTWORK OR EQUIPMENT HAVING FIXED LOCATIONS. MAKE NECESSARY HORIZONTAL OR VERTICAL OFFSETS WITH PIPE FITTINGS TO INSTALL THE SYSTEM IN THE AVAILABLE SPACE. CONCEAL OR INSTALL TIGHT TO STRUCTURE (IF EXPOSED) UNLESS OTHERWISE NOTED.

EACH FIXTURE, EQUIPMENT DRAIN OR FLOOR DRAIN SHALL BE SEPARATELY TRAPPED UNLESS OTHERWISE INDICATED OR SPECIFIED.

WATERPROOFING
DO NOT CUT OR PENETRATE WATERPROOFED SURFACES OR WATERPROOFING MEMBRANES WITHOUT FIRST MAKING ARRANGEMENTS FOR REPAIR BY A METHOD APPROVED BY THE OWNER'S REPRESENTATIVE.

PIPING PROVISIONS FOR FIXTURES AND EQUIPMENT SPECIFIED IN OTHER SECTIONS OR FURNISHED BY THE OWNER
ROUGH IN LOCATIONS SHALL BE DETERMINED FOR SERVICES. PROVIDE ALL NECESSARY PLUMBING SERVICES, ACCESSIBLE VALVES ON PLUMBING BRANCHES AND MAKE ALL FINAL CONNECTIONS.

PLUMBING PIPING

DESCRIPTION
FURNISH AND INSTALL PLUMBING PIPING WHERE SHOWN ON DRAWINGS AND AS SPECIFIED.

PIPING MATERIALS
OPTIONS
1. CAST IRON HUBLESS SANITARY PIPE AND FITTINGS: CISPI STD. 301.
2. CAST IRON SOIL PIPE AND FITTINGS, SERVICE WEIGHT: ASTM A 74.
3. CAST IRON SOIL PIPE AND FITTINGS, EXTRA HEAVY WEIGHT: ASTM A 74.
4. STEEL PIPE: ASTM A 53.
5. MALLEABLE IRON FITTINGS, 150 LB.: ASTM A 197.
6. PIPE THREADS: ANSI B2.1.
7. NIPPLES, PIPE (THREADED): FED SPEC. WW-N-351.
8. COPPER WATER TUBE: ASTM B 88.
9. WROUGHT COPPER AND BRONZE SOLDER-JOINT PRESSURE FITTINGS: ANSI B16.29.
10. WROUGHT COPPER AND WROUGHT COPPER ALLOY SOLDER-JOINT DRAINAGE FITTINGS: ANSI BL6.29.
11. WHERE ACCEPTABLE BY LOCAL AUTHORITY HAVING JURISDICTION SOLID WALL ABS PIPING MAY BE USED FOR WASTE PIPING.
11.A. PVC/ABS PIPING CANNOT BE USED IN RETURN AIR PLENUM APPLICATION.

JOINTS AND CONNECTIONS
OPTIONS
1. CAST IRON, HUB AND SPIGOT: PACKED WITH OAKUM AND FINISHED WITH LEAD NOT LESS THAN 1 INCH DEEP; WELL CAULKED.
2. CAST IRON, NO-HUB: NEOPRENE GASKET AND CORRUGATED 304 STAINLESS STEEL SHIELD IN CONJUNCTION WITH 4 STAINLESS STEEL CLAMPS FOR 4" AND SMALLER, 6 CLAMPS FOR 5" AND LARGER.
3. SCREWED JOINTS: AMERICAN NATIONAL STANDARD WITH PIPE FREE FROM CUTTING AND BURRS. THREE THREADS EXPOSED MAXIMUM.
4. SOLDERED JOINTS: 95-5 TIN-ANTIMONY SOLDER. SLIP JOINTS: USE FOR PLUMBING TRAP SEALS ON INLET SIDE ONLY.
5. BETWEEN COPPER AND FERROUS MATERIALS: INSULATING DIELECTRIC UNION.
6. ASSEMBLY FOR HUBLESS PIPING: AS RECOMMENDED BY THE MANUFACTURER.
7. CHANGES IN PIPE SIZE SHALL BE MADE WITH REDUCERS, INCREASERS OR REDUCING FITTINGS. BUSHINGS WILL NOT BE PERMITTED.

INSTALLATION
BEFORE INSTALLING PIPE IN ANY PART OF THE SYSTEM, THE PIPE SHALL BE CLEANED INSIDE AND MADE FREE OF OIL, DIRT, AND FOREIGN MATTER. PROPERLY ALIGN AND INSTALL IN NEAT ARRANGEMENT, TRUE TO THE LINES OF THE BUILDING. PITCH LINE AT A CONSTANT SLOPE FOR PROPER DRAINAGE.

EXCEPT AS NOTED OTHERWISE ON DRAWINGS, PIPING SHALL BE HELD AS HIGH AS POSSIBLE, BETWEEN STRUCTURES AND THROUGH JOIST WEBBING, WITH DUE REGARD TO CONFLICTS WITH OTHER SYSTEMS AND THEIR REQUIREMENTS FOR SPACE.

PIPING, INCLUDING NO-HUB PIPING, SHALL BE INSTALLED STRAIGHT AND TRUE TO VERTICAL AND HORIZONTAL LINES. DEFLECTION SHALL NOT EXCEED ONE DEGREE. WHEN NECESSARY TO ACHIEVE THIS ALIGNMENT PROVIDE ADDITIONAL HANGERS OR BRACING.

PLUMBING SPECIALITIES

PIPE SLEEVES
SCHEDULE 40 BLACK STEEL, GALVANIZED 26 GAGE STEEL, PROVIDE FOR ALL PIPES THROUGH WALLS AND FLOORS.

UNIONS
PROVIDE GROUND JOINT BRASS UNIONS OR FLANGES ON EACH PIPING CONNECTION TO EQUIPMENT.

FLASHING
VENT FLASHING SHALL COMPLY WITH ROOFING MANUFACTURER'S WRITTEN SPECIFICATIONS

PLUMBING VALVES

DESCRIPTION
INSTALL IN ACCESSIBLE LOCATION.
VALVES SHALL NOT BE INSTALLED WITH THE STEMS BELOW THE HORIZONTAL POSITION.

VALVES, BALL (MAY BE USED IN LIEU OF GATE VALVES UP TO 2"): 2" AND SMALLER NIBCO #T580; TWO PIECE BRONZE BODY, WITH SCREEWED ENDS, CHROME PLATED BRONZE BALL WITH CONVENTIONAL PORT, 400 PSI, BLOW OUT PROOF STEM.

VALVES, GLOBE 150# TEFLON DISC. UNION BONNET
3 INCH OR SMALLER:
1. SCREWED: ITT GRINELL #3240 OR APPROVED EQUAL.
2. SOLDER JOINT: ITT GRINELL #3240 SJ OR APPROVED EQUAL.

VALVES, CHECK 125# REMOVABLE REGRINDABLE DISC A. 3 INCH AND SMALLER, HORIZONTAL:
1. SCREWED: ITT GRINELL #3300 OR APPROVED EQUAL.
2. SOLDER JOINT: ITT GRINELL #3300 SJ OR APPROVED EQUAL.

3 INCH AND SMALLER, VERTICAL:
1. FOR SCREWED AND SOLDER JOINT INSTALLATION. SAME AS SECTION A OR APPROVED EQUAL. PROVIDE ADAPTERS FOR SOLDER JOINT CONNECTION. 2.05 HOSE BIBBS A. SEE FIXTURE SCHEDULE ON DRAWINGS. B. PLUG COCKS, 125# BRONZE COCKS. TWO (2) INCH AND SMALLER SHALL BE CRANE NO. 250 OR APPROVED EQUAL.

PLUMBING HANGERS AND SUPPORTS

DESCRIPTION
PROVIDE HANGERS FOR ALL PIPING NOT INDICATED BELOW GRADE. USE HANGERS CAPABLE OF ADJUSTMENT.

HANGERS AND SUPPORTS
HANGERS FOR BLACK OR GALVANIZED STEEL PIPE SHALL BE GRINNELL, MODEL NO. 65 OR APPROVED EQUAL.

HANGERS FOR CAST IRON PIPE SHALL BE GRINNELL, MODEL NO. 260 OR APPROVED EQUAL.

HANGERS FOR COPPER TUBING SHALL BE GRINNELL, MODEL NO. 97 C OR APPROVED EQUAL.

PROVIDE ISOLATION HANGER WITH PROTECTIVE SHIELD, GRINNELL, MODEL NO. 300 103 OR APPROVED EQUAL, FOR ALL INSULATED PIPING. AT HANGER POINTS, PROVIDE 6 INCH LONG SECTION OF 1/2 INCH THICK CALCIUM SILICATE SECTIONAL PIPE INSULATION WITH FACTORY LONGITUDINAL LAP. SEAL BUTT JOINTS WITH INSULATING CEMENT.

STRAP HANGERS: NOT PERMITTED.

INSERTS: IN CONCRETE, GRINNELL MODEL NO. 285 OR APPROVED EQUAL, HAVING ADJUSTMENT FROM 3/4 INCH THROUGH 1-1/4 INCH. IN METAL DECKS READHEAD SDI OR APPROVED EQUAL. POWDER PROPELLED PERMITTED IN NEW CONSTRUCTION WHERE TYPE AND LOCATION ARE APPROVED PRIOR TO INSTALLATION. IN EXISTING CONSTRUCTION, START SLUGIN NO. 6800 SERIES OR APPROVED EQUAL.

SIDE BEAM CLAMPS: PROVIDE WHEN SUPPORTING FROM STRUCTURAL STEEL MEMBERS, GRINNELL, MODEL 225 OR APPROVED EQUAL.

SPACING OF HANGERS
PROVIDE HANGER AT EACH CHANGE OF DIRECTION.

SPACE HANGERS AND SUPPORTS TO PREVENT SAGGING AND REDUCE STRAIN ON VALVES AND SPECIALTIES WITH SPACING NO GREATER AND ROD NO SMALLER THAN SHOWN ON THE FOLLOWING TABLE. HANGERS SHALL ALLOW FOR EXPANSION AND CONTRACTION.

FERROUS PIPING AND COPPER TUBING:

DIAMETER OF PIPE	MAXIMUM SPACING	ROD SIZE
1/2" THROUGH 1-1/2"	6 FT.	3/8"
2" THROUGH 3"	10 FT.	1/2"

CAST IRON PIPING:

DIAMETER OF PIPE	MAXIMUM SPACING	ROD SIZE
2" AND 3"	EACH JOINT	3/8"
4" AND 5"	EACH JOINT	1/2"

TESTING OF PLUMBING PIPING

DESCRIPTION
CONDUCT ALL TESTS AFTER PIPING IS INSTALLED AND BEFORE PIPING IS CONCEALED OR COVERED.

PROVIDE ALL NECESSARY TEMPORARY PIPING CLOSURES.

PROVIDE ALL TESTING EQUIPMENT, MATERIALS AND SUPPLIES.

SYSTEMS SHALL REMAIN UNDER TEST FOR SUFFICIENT LENGTH OF TIME TO PROVE TIGHTNESS THEREOF AND FOR ADEQUATE OBSERVATION BY THE ARCHITECT-ENGINEER.

MATERIALS OTHER THAN THOSE SPECIFIED FOR JOINING WILL NOT BE PERMITTED IN THE PIPING SYSTEMS FOR THE PURPOSE OF STOPPING LEAKS.

ALL LEAKS DISCLOSED BY THE TESTING PROCEDURES SHALL BE REPAIRED AND TESTING REPEATED UNTIL THE SYSTEM IS PROVEN TIGHT.

TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION.

SUBMITTALS
STERILIZATION: PROVIDE A DATED LETTER TO THE ARCHITECT-ENGINEER'S REPRESENTATIVE STATING THAT PIPING SYSTEM HAS BEEN STERILIZED AND FLUSHED AS SPECIFIED.

PIPING TEST
DOMESTIC COLD WATER PIPING SHALL BE FILLED, THEN TESTED TO A HYDROSTATIC PRESSURE OF 150 PSIG. MAINTAIN TEST PRESSURE FOR A MINIMUM OF ONE HOUR.

SANITARY PIPING, PREVIOUS TO CONNECTION OF FIXTURES, SHALL BE FILLED WITH WATER TO THE TOP OF THE SYSTEM AND PROVEN TIGHT. WHEN TESTING THE SYSTEM BY SECTIONS THE MINIMUM HEIGHT OF THE WATER COLUMN SHALL BE 10 FEET. EXAMINE ALL JOINTS FOR LEAKS.

GAS PIPING SHALL BE TESTED WITH NITROGEN TO 50 PSIG. PRESSURE SHALL BE MEASURED WITH A MANOMETER. MAINTAIN TEST PRESSURE FOR A MINIMUM OF 30 MINUTES.

STERILIZATION
AFTER TESTS ARE COMPLETED ALL WATER SUPPLY SYSTEMS SHALL BE FILLED WITH A SOLUTION CONTAINING 100 PPM OF AVAILABLE CHLORINE AND ALLOWED TO STAND FOR A PERIOD TO TWO HOURS BEFORE BEING FLUSHED WITH CLEAN WATER.

PLUMBING, FIXTURES, TRIM AND DRAINS

MANUFACTURER
MANUFACTURER SHALL BE AS SCHEDULED OR BY APPROVED EQUAL.

PIPING
PIPING TO SERVE FIXTURES AND EQUIPMENT AND EXPOSED TO VIEW IN FINISHED AREAS SHALL BE BRASS, CHROMIUM PLATED.

SUPPORTS
PROVIDE ALL BRACKETS, PLATES, ANCHORS AND FASTENING DEVICES REQUIRED FOR ANCHORING THE FIXTURES RIGIDLY IN PLACE. RISERS TO SHOWER HEADS SHALL BE ANCHORED TO THE WALL CONSTRUCTION TO PREVENT MOVEMENT.

FIXTURES
PROVIDE PLUMBING FIXTURES AS SCHEDULED ON DRAWINGS, AMERICAN STANDARD, KOHLER, ELJER OR APPROVED EQUAL.

GAS PIPING

PIPING
SHALL COMPLY WITH THE REQUIREMENTS OF NFPA NO. 54 AND THE LOCAL GAS COMPANY.

PIPE SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH MALLEABLE FITTINGS

INSTALLATION
PIPING SHALL COMPLY WITH THE REQUIREMENTS OF NFPA NO. 54 AND THE LOCAL GAS COMPANY.

INSTALL GAS SHUT-OFF AND GAS MANIFOLDS AS INDICATED OR REQUIRED.

DOMESTIC WATER

DESCRIPTION
THE WORK INCLUDES FURNISHING AND INSTALLING WATER PIPING AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN.

PIPING
WATER PIPING SHALL BE COPPER WATER TUBE HARD TEMPER, TYPE "L" WITH WROUGHT SOLDER FITTINGS ABOVE FLOOR AND SOFT TEMPER TYPE "K" WITH WROUGHT SOLDER FITTINGS BELOW GRADE.

HOT WATER BRANCH CONNECTIONS TO DISTRIBUTION MAINS SHALL BE TOP TAKE-OFF, SWING JOINT TYPE.

ALL PIPING INSTALLED BELOW GROUND SHALL RECEIVE TWO COATS OF KOPPERS NO. 50 OR APPROVED EQUAL.

PLUMBING INSULATION

DESCRIPTION
INSULATION SHALL NOT BE INSTALLED UNTIL TESTING PROCEDURES HAVE BEEN COMPLIED WITH AND ALL SURFACES HAVE BEEN CLEANED AND FREE OF DIRT, GREASE AND COMPLETELY DRIED.

MATERIALS SHALL COMPLY WITH UL 723, FLAME SPREAD RATING, HOT SURFACE TEST PERFORMANCE, AND SMOKE DEVELOPED RATING.

ADHESIVE SHALL BE BENJAMIN FOSTER 30-36, OR APPROVED EQUAL, WHITE INSULATION LAGGING ADHESIVE.

VAPOR BARRIER MASTIC SHALL BE BENJAMIN FOSTER NO. 82-07, WHITE, OR APPROVED EQUAL.

INSTALLATION
COLD WATER PIPING: SHALL BE INSULATED WITH 1/2 INCH THICK GLASS FIBER INSULATION HAVING A FACTORY APPLIED, ALL PURPOSE, FIRE RETARDANT JACKET WITH A MINIMUM R-4.0 PER INCH. CONCEALED AND EXPOSED PIPING SHALL HAVE THE INSULATION APPLIED WITH SIDE AND END JOINTS BUTTED TIGHTLY. SEAL JACKET LEGS AND BUTT JOINT STRIPS WITH ADHESIVE.

INSULATE FITTINGS FOR PIPING UP TO 3 INCHES IPS WITH MOLDED GLASS FIBER. EXPOSED INSULATED PIPING AND FITTINGS SHALL BE JACKETED WITH 6 OUNCE CANVAS PIPING INCLUDING THE FITTING CHANGE FROM HORIZONTAL TO VERTICAL. CONCEALED AND EXPOSED PIPING SHALL HAVE THE INSULATION APPLIED WITH SIDE AND END JOINTS BUTTED TIGHTLY. SEAL OFF ENDS OF INSULATION WITH VAPOR BARRIER MASTIC AT EACH FITTING AND AT 21 FOOT INTERVALS ON CONTINUOUS RUNS.

PLUMBING ABBREVIATIONS

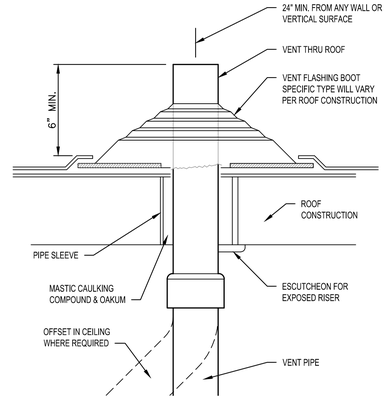
AD	AREA DRAIN, ACCESS DOOR	IE	INVERT ELEVATION
AFC	ABOVE FINISH CEILING	LP	LIQUIFIED PETROLEUM
AFG	ABOVE FINISH GRADE	MBH	1000 BTU PER HOUR
AHU	AIR HANDLING UNIT	N/A	NOT APPLICABLE
BFP	BACKFLOW PREVENTER	ORD	OVERFLOW ROOF DRAIN
BOP	BOTTOM OF PIPE	OST	STORM OVERFLOW
BOS	BOTTOM OF STRUCTURE	PD	PUMP DISCHARGE
CD	CONDENSATE	PIV	POST INDICATOR VALVE
CO	CLEANOUT	PRV	PRESSURE REDUCING VALVE
CW	DOMESTIC COLD WATER	REV	REVISION
DD	DECK DRAIN	RPM	REVOLUTIONS PER MINUTE
DN	DOWN	RTU	ROOF TOP UNIT
ETR	EXISTING TO REMAIN	SAN	SANITARY
EWC	ELECTRIC WATER COOLER	SCW	SOFT DOMESTIC COLD WATER
FCO	FLOOR CLEANOUT	SHW	SOFT DOMESTIC HOT WATER
FFA	FROM FLOOR ABOVE	SDHWR	SOFT RECIRC. HOT WATER
FP	FIRE PROTECTION	ST	STORM
FS	FLOOR SINK	TFA	TO FLOOR ABOVE
G	GAS (NATURAL)	TFB	TO FLOOR BELOW
GCO	GRADE CLEANOUT	TW	TEMPERED WATER
GPM	GALLONS PER MINUTE	UH	UNIT HEATER
HB	HOSE BIBB	V	VENT PIPE
HW	DOMESTIC HOT WATER	VTR	VENT THROUGH ROOF
HWR	HOT WATER RETURN	WCO	WALL CLEANOUT
HWS	HOT WATER SUPPLY	WH	WALL HYDRANT

GENERAL PLUMBING NOTES

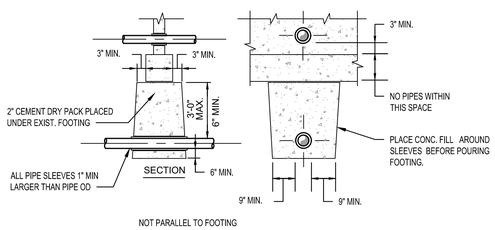
1. ALL WORK SHALL BE IN CONFORMANCE WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION.
2. PROVIDE TO OWNER A COPY OF ALL REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE INSPECTIONS AND ALL PLUMBING SYSTEMS EQUIPMENT MANUALS INCLUDING WARRANTIES.
3. COORDINATE THE COMPLETE INSTALLATION OF SYSTEMS TO AVOID CONFLICT WITH OTHER TRADES.
4. COORDINATE ALL ABOVE SLAB AND UNDER SLAB SANITARY, AND WATER PIPING SYSTEMS TO AVOID CONFLICT WITH ALL OTHER TRADES SYSTEMS, AND COLUMN FOOTINGS. ALL SOIL AND WASTE PIPING SHALL BE GRADED TO A UNIFORM SLOPE OF NOT LESS THAN 1/8" PER FOOT FOR PIPING 4" OR LARGER, AND NOT LESS THAN 1/4" PER FOOT FOR PIPING 3" OR SMALLER.
5. COORDINATE ALL FLOOR DRAINS, CLEANOUTS, AND FLOOR MOUNTED FIXTURES WITH FINISHED FLOOR SLAB ELEVATION TO ENSURE THEY ARE INSTALLED PLUM AND FLUSH WITHOUT CRACKS, RISE IN THE SLAB, OR VOIDS AROUND GRATES OR TOPS. ALL CLEANOUTS SHALL BE INSTALLED ALONG MAINS AT 50'-0" DISTANCE MAXIMUM. ALL FLOOR AND WALL CLEANOUTS SHALL BE ACCESSIBLE FOR MAINTENANCE AND NOT INSTALLED BENEATH EQUIPMENT. ANY DRAIN GRATES THAT ARE DAMAGED AS A RESULT OF OTHER CONSTRUCTION PRIOR TO RELEASE OF THE BUILDING TO THE OWNER SHALL BE REPLACED WITH LIKE GRATE AT NO EXPENSE OF THE OWNER.
6. ALL EXPOSED PIPES PENETRATING FINISHED WALLS SHALL BE EQUIPPED WITH WALL ESCUTCHEONS.
7. PROVIDE TRAP AND SEAL PRIMERS ON ALL FLOOR DRAINS IF REQUIRED BY CODE OR OWNER.
8. PLUMBING VENTS THROUGH THE ROOF ARE LOCATED AT A MINIMUM OF 5'-0" FROM BUILDING PARAPETS AND 10'-0" FROM FRESH AIR INTAKES AND AS REQUIRED TO MEET LOCAL CODES.
9. ALL SHUT-OFF OR BALANCING VALVES TO PLUMBING ROUTED IN PIPE CHASES SHALL BE ACCESSIBLE FROM CEILING AREA OR ACCESS DOORS PROVIDED IN WALL.
10. PROVIDE FINAL CONNECTIONS FOR ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. PROVIDE ALL REQUIRED SHUT-OFFS, BACKFLOW PREVENTERS, PRESSURE REGULATORS, AND CONDENSATE DRAINS AS REQUIRED BY LOCAL CODES FOR COMPLETE EQUIPMENT INSTALLATION. CONSULT EQUIPMENT SUPPLIER OR OWNER FOR ADDITIONAL FINAL CONNECTION REQUIREMENTS NOT SHOWN ON THESE DRAWINGS.
11. CONTRACTOR TO FULLY INVESTIGATE ALL EXISTING PIPING TO REMAIN TO INSURE EXISTING PIPING IS IN GOOD REPAIR. IF ANY EXISTING PIPING IS FOUND TO BE DAMAGED REPLACE WITH LIKE.

PLUMBING SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	GATE VALVE		FLOOR DRAIN / AREA DRAIN
	CHECK VALVE		FLOOR SINK
	PRESSURE	RD	ROOF DRAIN
	SOLENOID VALVE	ORD	OVERFLOW ROOF DRAIN
	GLOBE VALVE (STRAIGHT PATTERN)		HOT WATER RECIRCULATION PUMP
	BUTTERFLY VALVE	VTR	PLUMBING VEVT THRU ROOF
	BALL VALVE		POINT OF CONNECTION (CONNECT NEW TO EXISTING)
	GAS COCK	XXX	PLUMBING EQUIPMENT DESIGNATION
	PLUG VALVE	X / X	PLUMBING RISER OR DETAIL DESIGNATION
FCO	FLOOR CLEAN OUT	S	SANITARY SEWER PIPING
WCO	WALL CLEAN OUT	ST	STORM SEWER PIPING
CO	CLEAN OUT	V	VENT PIPING
	HOSE BIBB	VBF	VENT PIPING (BELOW SLAB)
	FREEZE PROOF WALL HYDRANT	CW	COLD WATER PIPING
	SHOWER HEAD	HW	HOT WATER PIPING
	ELBOW DOWN	CWBF	COLD WATER PIPING (BELOW SLAB)
	ELBOW UP	HWBF	HOT WATER PIPING (BELOW SLAB)
	TEE UP	HWR	HOT WATER RECIRCULATING PIPING
	TEE DOWN	FW	FILTERED WATER PIPING
	STRAINER	FWBF	FILTERED WATER PIPING BELOW GRADE
	UNION	GAS	GAS PIPING
	REDUCER	CD	CONDENSATE PIPING
	CAP		
	FLEX PIPE		

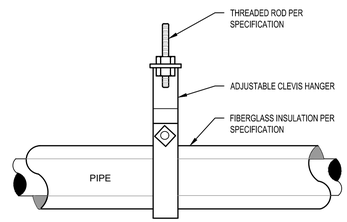


3 VENT THROUGH ROOF DETAIL (VTR)
NOT TO SCALE

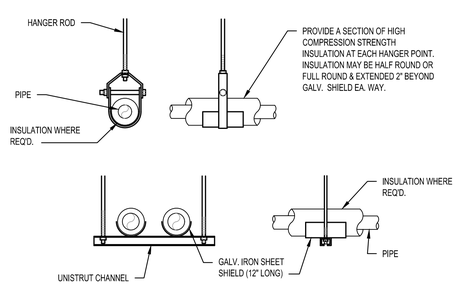


NOT PARALLEL TO FOOTING

2 PIPE AT CONCRETE FOOTING
NOT TO SCALE



WATER PIPING (COPPER TYPE "L")				
PIPE SIZE	WEIGHT / FT. WITH WATER (IN LBS.)	MAX SPACING	LOAD / HGR	ROD SIZE
1/2"	.38	6'	2.28	3/8"
3/4"	.66	6'	3.96	3/8"
1"	1.04	6'	6.24	3/8"
1-1/4"	1.43	6'	8.58	3/8"
1-1/2"	1.92	6'	19.2	3/8"
2"	3.09	10'	30.8	3/8"
2-1/2"	4.52	10'	45.2	3/8"



NOTES:
1. ATTACH SUPPORTS FOR ALL PIPING SUSPENDED FROM THE STEEL STRUCTURE TO THE TOP CORD OF JOISTS OR BEAMS.
2. PROVIDE COPPER OR PLASTIC COATED HANGERS FOR NON-INSULATED COPPER PIPE.

1 PIPE HANGING DETAIL
NOT TO SCALE

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
22P03.001

drawing issuance

PERMIT	12/08/22

drawing revisions

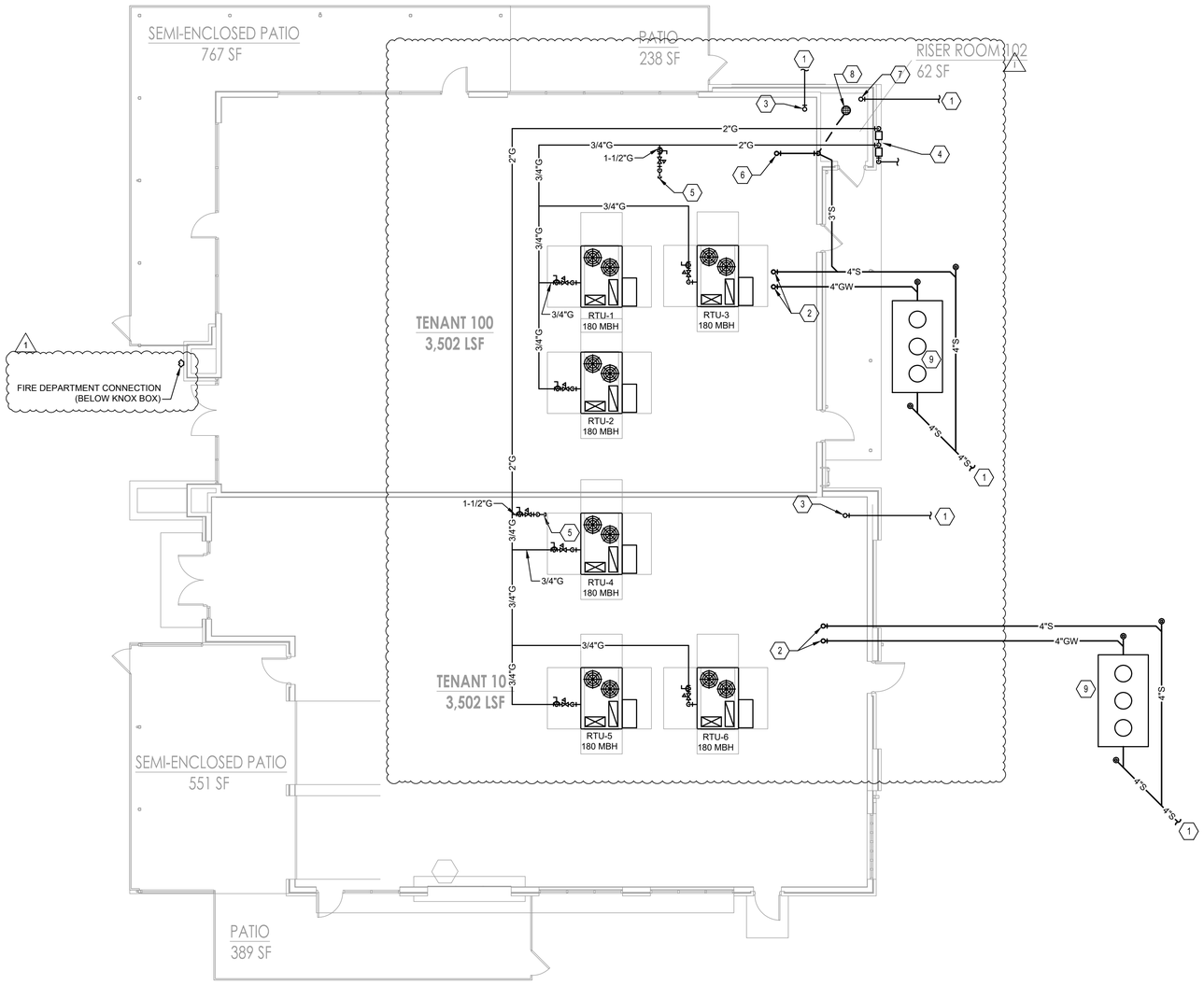
No.	Description:	Date:
1	City Comments	01/10/23
2	ADD 2	01/27/23

STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2012001759
PROFESSIONAL ENGINEER

DATE SIGNED: 01/27/2023

drawing title
PLUMBING NOTES, SYMBOLS AND ABBREVIATIONS

drawing number
P101



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

GENERAL NOTES
(NOT ALL NOTES APPLY)

1. REFERENCE SHEET P1.01 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. ALL WORK PERFORMED UNDER THIS CONTRACT SHALL BE IN CONFORMANCE WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES HAVING JURISDICTION AND INSPECTION.
3. COORDINATE THE COMPLETE INSTALLATION OF SYSTEMS TO AVOID CONFLICT WITH OTHER TRADES.
4. PROVIDE TO OWNER A COPY OF ALL REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE INSPECTIONS AND ALL PLUMBING SYSTEMS EQUIPMENT MANUALS INCLUDING WARRANTIES.
5. COORDINATE ALL ABOVE SLAB AND UNDER SLAB SANITARY, AND WATER PIPING SYSTEMS TO AVOID CONFLICT WITH ALL OTHER TRADES SYSTEMS, AND COLUMN FOOTINGS. ALL SOIL AND WASTE PIPING SHALL BE GRADED TO A UNIFORM SLOPE OF NOT LESS THAN 1/8" PER FOOT FOR PIPING 4" OR LARGER, AND NOT LESS THAN 1/4" PER FOOT FOR PIPING 3" OR SMALLER. COORDINATE FINAL INVERTS WITH EXISTING PIPING PRIOR TO ROUGH-IN OF UNDER SLAB INSTALLATION.
6. COORDINATE ALL FLOOR DRAINS, CLEANOUTS, AND FLOOR MOUNTED FIXTURES WITH FINISHED FLOOR SLAB ELEVATION TO ENSURE THEY ARE INSTALLED PLUM AND FLUSH WITHOUT CRACKS, RISE IN THE SLAB, OR VOIDS AROUND GRATES OR TOPS. ALL CLEANOUTS SHALL BE INSTALLED ALONG MAINS AT 50'-0" DISTANCE MAXIMUM. ALL FLOOR AND WALL CLEANOUTS SHALL BE ACCESSIBLE FOR MAINTENANCE AND NOT INSTALLED BENEATH EQUIPMENT. ANY DRAIN GRATES THAT ARE DAMAGED AS A RESULT OF OTHER CONSTRUCTION PRIOR TO RELEASE OF THE BUILDING TO THE OWNER SHALL BE REPLACED WITH LIKE GRATE AT NO EXPENSE OF THE OWNER.
7. PROVIDE TRAP AND SEAL PRIMERS ON ALL FLOOR DRAINS IF REQUIRED BY CODE OR OWNER.
8. PLUMBING VENTS THROUGH THE ROOF ARE LOCATED AT A MINIMUM OF 5'-0" FROM BUILDING PARAPETS AND 10'-0" FROM FRESH AIR INTAKES AND AS REQUIRED TO MEET LOCAL CODES.
9. ALL EXPOSED PIPES PENETRATING FINISHED WALLS SHALL BE EQUIPPED WITH WALL ESCUTCHEONS.
10. PROVIDE FINAL CONNECTIONS FOR ALL EQUIPMENT SPECIFIED IN PLUMBING FIXTURES AND EQUIPMENT SCHEDULES ON THESE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. PROVIDE ALL REQUIRED SHUT-OFFS, BACKFLOW PREVENTERS, PRESSURE REGULATORS, AND CONDENSATE DRAINS INDICATED ON PLUMBING SCHEDULES AND AS REQUIRED BY LOCAL CODES FOR COMPLETE EQUIPMENT INSTALLATION. CONSULT EQUIPMENT SUPPLIER OR OWNER FOR ADDITIONAL FINAL CONNECTION REQUIREMENTS NOT SHOWN ON THESE DRAWINGS.

KEYED NOTES:

1. REFERENCE CIVIL DRAWINGS FOR CONTINUATION.
2. TEMPORARILY CAP 4" SANITARY AND 4" GREASE WASTE LINES FOR CONTINUATION BY TENANT. MINIMUM INVERT 48" AT THIS POINT.
3. INSTALL 1-1/2" WATTS 009 BACKFLOW PREVENTER (OR EQUAL) CAP LINE AFTER BACKFLOW FOR CONTINUATION BY TENANT.
4. COORDINATE WITH GAS UTILITY FOR INSTALLATION OF NEW GAS SERVICE. TOTAL ESTIMATED LOAD 3,040 MBH PER TENANT, PIPING SIZED AT 2 PSI.
5. CAP 3" GAS PIPING WITH SHUTOFF FOR CONTINUATION BY TENANT. 2,500 MBH ESTIMATED LOAD.
6. 3" VENT UP TO 3"VTR MAINTAIN A MINIMUM 10' FROM ALL FRESH AIR INTAKES AND 1' FROM ALL VERTICAL SURFACES.
7. FIRE PROTECTION LINE SHOWN FOR REFERENCE ONLY.
8. PROVIDE ZURN FD-2220-PV3 FLOOR DRAIN OR EQUAL.
9. PROVIDE GRAVITY GREASE INTERCEPTOR, PRECAST CONCRETE 1,500 GALLON MINIMUM, OF TYPE COMPLYING WITH ALL LOCAL AND STATE CODES.

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project title
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project number
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drawing issuance

PERMIT	12/08/22

drawing revisions

No.	Description:	Date:
1	City Comments	01/10/23
2	ADD 2	01/27/23

STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2020010759
PROFESSIONAL ENGINEER

DATE SIGNED: 01/27/2023

drawing title
PLUMBING PLAN

drawing number
P201

MECHANICAL ABBREVIATIONS

(ALPHABETICAL BY ABBREVIATION)

ABBREVIATION	LONG FORM
ABV	ABOVE
AC OR ACU	AIR-CONDITIONING UNIT
AHAP	AS HIGH AS POSSIBLE
AHU	AIR-HANDLING UNIT
AUTO	AUTOMATIC
BLW	BELOW
C	CHILLER
CD	CONDENSATE
CF	CABINET FAN
CFM	CUBIC FEET PER MINUTE
CH	CABINET HEATER
CHP	CHILLED WATER PUMP
CLNG OR CLG	CEILING
CONC	CONCRETE
CP OR CWP	CONDENSER WATER PUMP
CS	CONDENSER WATER SUPPLY
CR	CONDENSER WATER RETURN
CRAC OR CACU	COMPUTER ROOM AIR-CONDITIONING UNIT
CREF	CHILLER ROOM EXHAUST FAN
CRU	CONDENSATE (STEAM) RETURN UNIT
CT	COOLING TOWER CELL
CTU	CONDENSATE (STEAM) TRANSFER UNIT
CU	CONDENSING UNIT
∅V	CONSTANT VOLUME TERMINAL BOX
	DEPTH
DEF	DISHWASER EXHAUST FAN
DMPR	DAMPER
DN	DOWN
EA	EACH
EBH	ELECTRIC BASEBOARD HEATER
EDH	ELECTRIC DUCT-MOUNTED HEATER
EF	EXHAUST FAN
EG	EXHAUST GRILLE
ER	EXHAUST REGISTER
EUH	ELECTRIC UNIT HEATER
EXH	EXHAUST
	FILTER
FD	FIRE DAMPER
FCU	FAN-COIL UNIT
FF	FINAL FILTER
FFCH	FORCED-FLOW CABINET HEATER
FFU	FAN FILTER UNIT
FP	FAN POWERED TERMINAL BOX
GPM	GALLONS PER MINUTE
HC	HEATING COIL
HUM	HUMIDIFIER
HWP OR HP	HEATING WATER PUMP
HX	HEAT EXCHANGER
KEF	KITCHEN (GREASE HOOD) EXHAUST FAN
KW	KILOWATTS
LD	LINEAR SUPPLY DIFFUSER
MOT	MOTORIZED
MTD	MOUNTED
MUAF	MAKE-UP AIR FAN
MUAHU	MAKE-UP AIR-HANDLING UNIT
OA	OUTSIDE AIR
OAF	OUTSIDE AIR FAN
OPG OR OPNG	OPENING
PF	PRE-FILTER
PLNM	PLENUM
RA	RETURN AIR
RAF	RETURN AIR FAN
RAG OR RG	RETURN AIR GRILLE
RAR OR RR	RETURN AIR REGISTER
RAS	RETURN AIR SILENCER
RE:	IN REFERENCE TO
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SAF OR SF	SUPPLY AIR FAN
SAG OR SG	SUPPLY AIR GRILLE
SAR OR SR	SUPPLY AIR REGISTER
SAS	SUPPLY AIR SILENCER
SCHP	SECONDARY CHILLED WATER PUMP
SD	SMOKE DAMPER OR DETECTOR
SPCHP	SPECIAL PROCESS CHILLED WATER PUMP
TA	THROW AWAY (FILTER TYPE)
TDEF	TRUCK DOCK EXHAUST FAN
TEF	TOILET EXHAUST FAN
TRANS	TRANSITION OR TRANSFER
TYP	TYPICAL
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
VF	VENTILATION FAN
VFD	VARIABLE FREQUENCY DRIVE
V V	VARIABLE VOLUME TERMINAL BOX
W/	WITH

NOT ALL ABBREVIATIONS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT

DUCTWORK LEGEND

(REFER TO SPECIFICATIONS SECTIONS 15815 AND 15820 FOR ADDITIONAL INFORMATION)

SINGLE LINE	DESCRIPTION	DOUBLE LINE
	ROUND ELBOW DOWN	
	ROUND ELBOW UP	
	OFFSET TO CHANGE ELEVATION (AT 30° WHEN POSSIBLE. ARROW SLOPES DN, U.N.O.)	
	ROUND RADIUS ELBOW	
	90° STRAIGHT TEE	
	90° CONICAL TEE	
	45° LATERAL TAP	
	45° LATERAL CONICAL TEE	
	SIZE OR SHAPE TRANSITION	
	ROUND FLEXIBLE DUCT	
	RECTANGULAR ELBOW DOWN	
	RECTANGULAR ELBOW UP	
	OFFSET TO CHANGE ELEVATION (AT 30° WHERE POSSIBLE. ARROW SLOPES DN., U.N.O.)	
	RECTANGULAR RADIUS ELBOW	
	RECTANGULAR ELBOW WITH TURNING VANES	
	SPLIT BRANCH TAKE-OFF WITH SQUARE ELBOW & SPLITTER DAMPER	
	SPLIT BRANCH TAKE-OFF WITH RADIUS ELBOW & SPLITTER DAMPER	
	SPLIT BRANCH TAKE-OFF TEE WITH STATIONARY SPLITTER DAMPER	
	BRANCH TAKE-OFF WITH 45° LEAD IN TAP	
	INSULATED/LINED DUCTWORK (U.N.O.)	
	SQUARE FACED CEILING DIFFUSER 4-WAY DIRECTIONAL THROW (U.N.O.)	
	ROUND FACED CEILING DIFFUSER	
OR	CEILING RETURN OR EXHAUST AIR GRILLE OR REGISTER	
	SIDEALL SUPPLY GRILLE OR REGISTER	
	SUPPLY DUCT RISER	
	RETURN, EXHAUST OR OUTSIDE AIR DUCT RISER	
	MANUAL BALANCING DAMPER	
	AUTOMATIC (MOTOR-OPERATED) DAMPER	
	FIRE DAMPER	
	GRAVITY BACKDRAFT DAMPER	
	COMBINATION FIRE AND SMOKE DAMPER WITH SMOKE DETECTOR	
	SMOKE DAMPER (AUTOMATIC) WITH SMOKE DETECTOR	
S	DUCT MOUNTED SMOKE DETECTOR	S OR S

NOT ALL SYMBOLS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT

STANDARD MECHANICAL SYMBOLS

SYMBOL	DESCRIPTION
	GATE VALVE
	BALL VALVE
	GLOBE VALVE
	BUTTERFLY VALVE
	PLUG VALVE
	ANGLE VALVE
	CHECK VALVE
	AUTOMATIC CONTROL VALVE (STRAIGHT THROUGH)
	AUTOMATIC CONTROL VALVE (3-WAY)
	AUTOMATIC CONTROL VALVE (ANGLE)
	AUTOMATIC CONTROL VALVE (STRAIGHT THROUGH)
	SOLENOID VALVE
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	GAUGE COCK
	PRESSURE GAUGE WITH GAUGE COCK
	THERMOMETER
	THERMOMETER WELL
	TEST PLUG
F	FLOW METER
T	TEMPERATURE SENSOR
P	PRESSURE SENSOR
DP	DIFFERENTIAL PRESSURE SWITCH
T	IMMERSION THERMOSTAT
	MANUAL AIR VENT
	AUTOMATIC AIR VENT
FS	FLOW SWITCH
	ORIFICE
	PIPE SLEEVE THRU WALL OR FLOOR
	EXPANSION JOINT
	FLEXIBLE PIPE JOINT
	PIPE GUIDE
	ANCHOR
	STRAINER (Y-TYPE)
	STRAINER (BASKET TYPE)
	UNION
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
T	THERMOSTAT
H	HUMIDISTAT
FSC	FAN SPEED CONTROLLER
CS	CONDENSER WATER SUPPLY
CR	CONDENSER WATER RETURN
D	CONDENSATE DRAIN

VALVES, FITTINGS, & DEVICES

PIPING

NOT ALL SYMBOLS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT

OTHER SYMBOLS

SYMBOL	DESCRIPTION
	INDICATES CONNECTION TO EXISTING DUCT OR PIPE

GENERAL EQUIPMENT DESIGNATION KEY:

EQUIPMENT ABBREVIATION

AHU-R-2 — SCHEDULE DESIGNATION NUMBER.

LEVEL OR BUILDING:

GENERAL MECHANICAL NOTES:

1. REFER TO ARCHITECTURAL PLANS FOR RATED WALLS AND PARTITIONS.VERIFY FIRE AND/OR SMOKE DAMPER LOCATIONS AT DUCTS OR OPENINGS PENETRATING THESE WALLS.
2. REFER TO ARCHITECTURAL PLANS FOR ROOM NAMES AND NUMBERS.
3. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF CEILING DIFFUSERS, REGISTERS, AND GRILLES.
4. VERIFY LOCATIONS OF THERMOSTATS WITH ARCHITECT AND OWNER PRIOR TO INSTALLATION.
5. VERIFY LOCATIONS OF EXPOSED DUCTS WITH ARCHITECT PRIOR TO INSTALLATION.
6. DUCT DIMENSIONS INDICATED ON PLANS ARE FREE AREA DIMENSIONS.
7. SUPPLY AND RETURN AIR DUCT SHALL BE INTERNALLY LINED WHERE SPECIFIED.
8. ALL LOUVER SIZES ON MECHANICAL PLANS ARE GIVEN IN FREE AREA REQUIRED. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONS AND LOCATIONS.
9. COORDINATE TERMINAL BOX AND BALANCING DAMPER LOCATIONS CAREFULLY TO INSURE PROPER AND ADEQUATE ACCESS TO FILTERS, MOTORS, CONTROL VALVES, CONTROL PANLES, ETC. PROVIDE ACCESS PANELS AS SPECIFIED WHERE REQUIRED TO ASSURE THIS ACCESS.
10. CEILING PLENUM SPACE IS VERY TIGHT. WHERE REQUIRED, DUCTS OR PIPES SHALL BE ROUTED BETWEEN LIGHT FIXTURES AND UP AND OVER OTHER DUCTS OR PIPES USING THE SPACES BETWEEN STRUCTURAL JOISTS OR BEAMS WHERE APPLICABLE. CONTRACTOR SHALL BE RESPONSIBLE FOR CAREFULLY COORDINATING ALL TRADES. EXISTING UNKNOWN CONDITIONS MAY AFFECT EXACT DUCT OR PIPE ROUTING, OR EXISTING CONDITIONS MAY NEED TO BE MODIFIED TO ACCOMMODATE DUCTS AND PIPES.

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STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2010010759
PROFESSIONAL ENGINEER

DATE SIGNED: 01/27/2023

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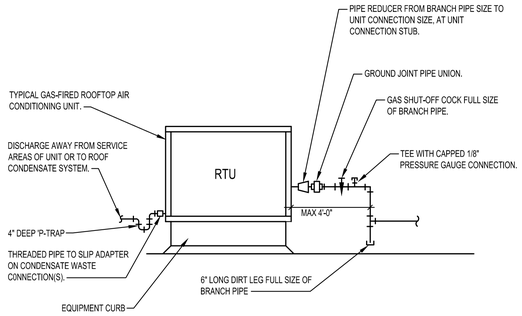
MECHANICAL NOTES, SYMBOLS AND ABBREVIATIONS

drawing number

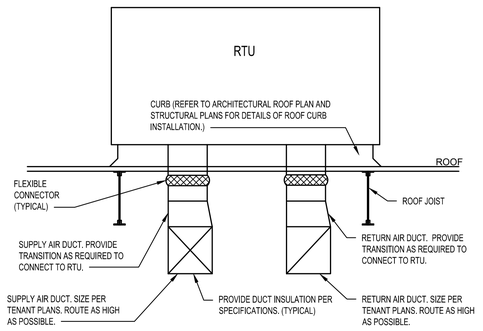
M101



PIPING ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST AS REQUIRED. VERIFY CONNECTION LOCATIONS BEFORE INSTALLING PIPE RUNS.

2 ROOFTOP UNIT PIPING DETAIL

NOT TO SCALE



3 ROOFTOP UNIT DUCTWORK DETAIL

NOT TO SCALE

ELECTRIC WALL UNIT HEATER SCHEDULE

MARK	MANUFACTURER	MODEL	KW	CFM	WEIGHT	ELECTRICAL				NOTES
						AMPS	MOCP	PHASE	VOLTAGE	
EWH-1	QMARK	AWH3150F	1.8	100	30.0	15	20	1	120	1,2,3

NOTES:
1 PROVIDE WITH SURFACE MOUNTING FRAME FOR SURFACE INSTALLATION.
2 PROVIDE WITH BUILT-IN TAMPER-RESISTANT THERMOSTAT.
3 INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

ROOFTOP AIR CONDITIONING UNIT SCHEDULE - GAS HEAT

MARK	MANUFACTURER	MODEL	NOMINAL TONNAGE	SUPPLY AIR	MIN OA	SUPPLY FAN		COOLING COIL				HEATING DATA		UNIT ELECTRICAL DATA			WEIGHT (LBS)	NOTES
						ESP	HP	TOTAL (MBH)	SENS. (MBH)	EAT (DB/WB)	EER	INPUT MBH	OUTPUT MBH	V/PH/HZ	MCA	MOCP		
RTU-1	CARRIER	48FCEM09	8.5	3400	600	0.8	2.4	97.8	78.6	78.7/65.0	11.4	180	148	208/3/60	44	50	1400	1,2,3,4,5,6,7,8,9,10
RTU-2	CARRIER	48FCEM09	8.5	3400	600	0.8	2.4	97.8	78.6	78.7/65.0	11.4	180	148	208/3/60	44	50	1400	1,2,3,4,5,6,7,8,9,10
RTU-3	CARRIER	48FCEM09	8.5	3400	600	0.8	2.4	97.8	78.6	78.7/65.0	11.4	180	148	208/3/60	44	50	1400	1,2,3,4,5,6,7,8,9,10
RTU-4	CARRIER	48FCEM09	8.5	3400	600	0.8	2.4	97.8	78.6	78.7/65.0	11.4	180	148	208/3/60	44	50	1400	1,2,3,4,5,6,7,8,9,10
RTU-5	CARRIER	48FCEM09	8.5	3400	600	0.8	2.4	97.8	78.6	78.7/65.0	11.4	180	148	208/3/60	44	50	1400	1,2,3,4,5,6,7,8,9,10
RTU-6	CARRIER	48FCEM09	8.5	3400	600	0.8	2.4	97.8	78.6	78.7/65.0	11.4	180	148	208/3/60	44	50	1400	1,2,3,4,5,6,7,8,9,10
		1									1				1			

NOTES:
1 ALL COOLING CAPACITIES SHOWN ARE BASED ON AN AMBIENT OUTDOOR TEMPERATURE OF 105°F, 96.0°F DB & 76.5°F WB SUMMER DESIGN TEMPERATURE AND A WINTER DESIGN TEMPERATURE OF 7.5°F.
2 PROVIDE MERV 8 FILTERS PRIOR TO TEST AND BALANCE WORK.
3 PROVIDE UNIT WITH UNPOWERED GFCI CONVIENCE OUTLET.
4 PROVIDE WITH DIFFERENTIAL ENTHALPY ECONOMIZER WITH POWER EXHAUST.
5 PROVIDE UNIT WITH 14" HIGH ROOF CURB.
6 PROVIDE UNIT WITH FACTORY INSTALLED HINGED ACCESS PANELS.
7 PROVIDE WITH FACTORY MOUNTED DISCONNECT SWITCH.
8 PROVIDE WITH FACTORY INSTALLED SUPPLY AND RETURN SMOKE DETECTORS.
9 PROVIDE WITH MANUFACTURER'S LOUVERED HAIL GUARDS.
10 PROVIDE FLOAT SWITCH IN DRAIN PAN. UNIT SHALL SHUT-OFF UPON ALARM FROM FLOAT SWITCH.

1 MECHANICAL PLAN

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

GENERAL NOTES

(NOT ALL NOTES APPLY)

1. REFERENCE SHEET M101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.

KEYED NOTES:

1. EXTEND SUPPLY AND RETURN DUCTWORK FOR ROOFTOP UNIT 3'-0" BELOW ROOF DECK FOR FUTURE TENANT CONNECTION AND CONTINUATION. FURTHER DUCTWORK DISTRIBUTION AND THERMOSTATS SHALL BE RESPONSIBILITY OF TENANT.
2. MOUNT ELECTRIC WALL UNIT HEATER AT 18" AFF. LOCATE UNIT TO AVOID OTHER EQUIPMENT IN RISER ROOM.

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15000 - BASIC MECHANICAL REQUIREMENTS

DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND ALL OTHER SPECIFICATION SECTIONS, APPLY TO THIS AND THE OTHER SECTIONS OF DIVISION 15.

READ THE SPECIFICATIONS AND REVIEW DRAWINGS FOR ALL DIVISIONS OF WORK AND COORDINATE AND THE WORK OF SUBCONTRACTORS WITH ALL DIVISIONS OF WORK. PROVIDE SUBCONTRACTORS WITH A COMPLETE SET OF BID DOCUMENTS.

SCHEDULE THE COMPLETION AND INSPECTION OF WORK AND THE WORK OF SUBCONTRACTORS WORK TO COMPLY WITH THE SCHEDULE AND THE PROJECT COMPLETION DATE.

VISIT THE SITE PRIOR TO SUBMITTAL OF BID TO DETERMINE CONDITIONS AFFECTING THE WORK. ANY ITEMS WHICH ARE NOT COVERED IN THE BID DOCUMENTS OR ANY PROPOSED SUBSTITUTIONS SHALL BE LISTED SEPARATELY AND QUALIFIED IN THE BID. SUBMITTAL OF BID SHALL SERVE AS EVIDENCE OF KNOWLEDGE OF EXISTING CONDITIONS AND ANY MODIFICATIONS WHICH ARE REQUIRED TO MEET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. FAILURE TO VISIT THE SITE DOES NOT RELIEVE RESPONSIBILITY IN PERFORMANCE OF WORK.

READ ALL RELEVANT DOCUMENTS, BECOME FAMILIAR WITH THE JOB, SCOPE OF WORK, TYPE OF GENERAL CONSTRUCTION, AND THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS. ALSO UNDERSTAND THE PURPOSE FOR WHICH THESE DOCUMENTS HAVE BEEN PREPARED AND BECOME COGNIZANT OF ALL THE DETAILS INVOLVED. COORDINATE WORK WITH THAT OF OTHERS.

DEFINITIONS:

FURNISH - PURCHASE AND DELIVER TO PROJECT SITE COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT.
INSTALL - UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION NECESSARY TO ESTABLISH SECURE MOUNTING AND CORRECT OPERATION AT THE PROPER LOCATION IN THE PROJECT.
PROVIDE - FURNISH AND INSTALL

GENERAL REQUIREMENTS

PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION, INCIDENTALS AND DETAILS NECESSARY TO PROVIDE A COMPLETE MECHANICAL SYSTEM AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS, AND AS REQUIRED BY JOB CONDITIONS. ALL WORK NOT SPECIFICALLY NOTED AS BEING BY THE OTHERS SHALL BE PROVIDED. CLOSELY COORDINATE THE ENTIRE INSTALLATION WITH THE ARCHITECT-ENGINEER, AS REQUIRED.

THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND ANY MATERIAL OR LABOR CALLED FOR IN ONE SHALL BE FURNISHED AND INSTALLED EVEN THOUGH NOT SPECIFICALLY MENTIONED IN BOTH. ANY MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS, BUT WHICH IS OBVIOUSLY NECESSARY TO COMPLETE THE WORK, AND WHICH IS USUALLY INCLUDED IN WORK OF SIMILAR CHARACTER, SHALL BE FURNISHED AND INSTALLED AS PART OF CONTRACT.

WHERE THE DRAWINGS OR SPECIFICATIONS CALL FOR ITEMS WHICH EXCEED CODES OR THE OWNERS CRITERIA, PROVIDE THE SYSTEM WITH THE MORE STRINGENT REQUIREMENTS AS DESIGNED AND DESCRIBED ON THESE DRAWINGS, UNLESS SPECIFICALLY NOTED OTHERWISE.

ALL MECHANICAL WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATING, SERVICING, MAINTAINING, AND REPAIRING. THIS CONTRACTOR IS RESPONSIBLE FOR PROVIDING SUFFICIENT SERVICE ACCESS TO ALL EQUIPMENT.

ALL WORK SHALL BE PERFORMED IN A NEAT PROFESSIONAL MANNER USING GOOD ENGINEERING PRACTICES.

UNLESS SPECIFICALLY NOTED OTHERWISE, MATERIALS, PRODUCTS, AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW, UNDERWRITERS LABORATORIES LISTED AND LABELED AND SIZED IN CONFORMITY WITH REQUIREMENTS OF STATE AND LOCAL CODES, WHICHEVER IS MORE STRINGENT.

CODES

ALL WORK SHALL CONFORM TO THE OWNER'S CRITERIA, THE STATE'S, COUNTY'S, CITY'S AND LOCAL CODES AND ORDINANCES, SAFETY AND HEALTH CODES, NFPA CODES, ENERGY CODES AND ALL OTHER APPLICABLE CODES AND REQUIREMENTS. INQUIRE INTO AND COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, AND REGULATIONS. INCLUDE ANY CHANGES REQUIRED BY CODES IN THE BID AND IF THESE CHANGES ARE NOT INCLUDED IN THE BID, THEY MUST BE QUALIFIED AS A SEPARATE LINE ITEM IN THE BID. AFTER CONTRACT IS ISSUED, NO ADDITIONAL COST DUE TO CODE ISSUES SHALL BE REIMBURSED BY THE OWNER.

LICENSES, PERMITS, COMMISSIONING, INSPECTIONS & FEES

OBTAIN AND PAY FOR ALL LICENSES, PERMITS, COMMISSIONING, INSPECTIONS, AND FEES REQUIRED OR RELATED TO THIS WORK.

PROVIDE TO THE OWNER-ARCHITECT A COMMISSIONING PLAN, PRELIMINARY COMMISSIONING REPORT, FINAL COMMISSIONING REPORT, AND CERTIFICATES OF INSPECTION AND FINAL INSPECTION APPROVAL AT COMPLETION OF PROJECT.

TRADE NAMES, MANUFACTURERS AND SHOP DRAWINGS

WHERE TRADE NAMES AND MANUFACTURERS ARE USED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THE EXACT EQUIPMENT SHALL BE USED AS A MINIMUM FOR THE BASE BID. MANUFACTURERS CONSIDERED AS AN EQUAL OR BETTER IN ALL ASPECTS TO THAT SPECIFIED WILL BE SUBJECT TO APPROVAL IN WRITING BY ARCHITECT-ENGINEER PRIOR TO BID THROUGH SHOP DRAWING SUBMITTAL PROCESS, FOR ACCEPTANCE PRIOR TO INSTALLATION. ANY CHANGES TO ELECTRICAL SERVICE, STRUCTURAL FRAMING, ETC. OR ANY OTHER MODIFICATION THAT IS REQUIRED BY THE USE OF ALTERNATE EQUIPMENT SHALL BE COORDINATED WITH OTHER TRADES AND SHALL INCLUDE ALL COSTS IN BID FOR THE REQUIRED CHANGES. THE USE THE USE OF ANY UNAUTHORIZED EQUIPMENT SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT AT NO EXPENSE TO THE OWNER.

GUARANTEE

GUARANTEE ALL MATERIALS AND WORK PROVIDED UNDER THIS CONTRACT AND MAKE GOOD, REPAIR OR REPLACE AT NO EXPENSE TO THE OWNER, ANY DEFECTIVE WORK, MATERIAL, OR EQUIPMENT WHICH MAY BE DISCOVERED WITHIN A PERIOD OF TWELVE (12) MONTHS FROM THE DATE OF ACCEPTANCE (IN WRITING) OF THE INSTALLATION. EXTENDED WARRANTIES ARE AS SPECIFIED WITH INDIVIDUAL EQUIPMENT.

QUALITY ASSURANCE

INDUSTRY STANDARDS AND CODES: UNLESS MODIFIED BY THESE SPECIFICATIONS, THE DESIGN, MANUFACTURER, TESTING AND METHOD OF INSTALLING ALL MATERIALS, APPARATUS AND EQUIPMENT SHALL CONFORM TO THE FOLLOWING:

1. ARI CODE FOR REFRIGERATION APPARATUS
2. ANSI B9.1 SAFETY CODE FOR MECHANICAL REFRIGERATION
3. STANDARDS OF NATIONAL FIRE PROTECTION ASSOCIATION
4. SMACNA
5. ASHRAE

RECORD DRAWINGS

MAINTAIN ONE COPY OF DRAWINGS ON THE JOB SITE TO RECORD DEVIATIONS FROM CONTRACT DRAWINGS, SUCH AS: LOCATION OF CONCEALED PIPING VALVES AND DUCTS, REVISIONS, ADDENDUMS, AND CHANGE ORDERS, AND SIGNIFICANT DEVIATIONS MADE NECESSARY BY FIELD CONDITIONS, APPROVED EQUIPMENT SUBSTITUTIONS, AND CONTRACTOR'S COORDINATION WITH OTHER TRADES.

AT COMPLETION OF THE PROJECT AND BEFORE FINAL APPROVAL, MAKE ANY FINAL CORRECTIONS TO DRAWINGS AND CERTIFY THE ACCURACY OF EACH PRINT BY SIGNATURE THEREON. A SET OF REPRODUCIBLE DRAWINGS ALONG WITH ONE SET OF BLULINES OF THE MOST RECENT SET OF DRAWINGS WITH TEMPERATURE CONTROL DRAWINGS INCLUDED SHALL BE DELIVERED TO THE ARCHITECT UPON COMPLETION OF THE WORK AND PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.

DISCREPANCIES IN DOCUMENTS

DRAWINGS (PLANS, SPECIFICATIONS, AND DETAILS) ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. WHERE DRAWINGS, EXISTING SITE CONDITIONS, SPECIFICATIONS OR OTHER TRADES CONFLICT OR ARE UNCLEAR, ADVISE THE ARCHITECT-ENGINEER IN WRITING, OF VARIATIONS TO CONTRACT DOCUMENTS PRIOR TO SUBMISSION OF BID. OTHERWISE, ARCHITECT-ENGINEER'S INTERPRETATION OF CONTRACT DOCUMENTS OR CONDITIONS SHALL BE FINAL WITH NO ADDITIONAL COMPENSATION PERMITTED.

PHASING REQUIREMENTS

INCLUDE IN BID ALL NECESSARY SERVICE REQUIRED TO KEEP THE OPERATING PHASE OF THE PROJECT'S HVAC, PLUMBING AND SPRINKLER SERVICE IN OPERATION. IF APPLICABLE, SCHEDULE IN WRITING WITH ARCHITECT ONE WEEK PRIOR TO ANY SHUT DOWN OF THE HVAC, PLUMBING OR FIRE PROTECTION SYSTEMS.

DEMOLITION

COORDINATE THE DEMOLITION OF EXISTING WORK AND THE DEMOLITION PROVIDED BY OTHER. COORDINATE ANY EXISTING EQUIPMENT REQUIRED TO BE LEFT INTACT.

VERIFY SCOPE OF AND THE REMOVAL OF ALL EXISTING FIRE PROTECTION, PLUMBING FIXTURES, PIPING, HVAC UNITS, REFRIGERANT RECAPTURE, EXHAUST FANS, ETC. AND ASSOCIATED ROOF CURBS NOT TO BE REUSED ON THIS PROJECT, UNLESS SPECIFICALLY NOTED OTHERWISE. VERIFY ALL PRESUMED ABANDONED EQUIPMENT, PIPES, DUCTWORK, AND EQUIPMENT PRIOR TO REMOVAL. ROOF CURBS SHALL BE REMOVED AND THE ROOF PATCHED. ALL EXTRANEOUS ITEMS IN THE SPACE OR ON THE ROOF NOT APPLICABLE TO THE NEW WORK MUST BE REMOVED AND ROOF/WALL/FLOOR PATCHED/REPAIRED TO MATCH EXISTING STRUCTURE. EXISTING ABANDONED PIPES, DUCTS, OR EQUIPMENT IN THE FLOOR, EMBEDDED IN CONCRETE, OR OTHERWISE INACCESSIBLE ARE TO BE CUT OFF AND SEALED BELOW OR WITHIN FLOOR OR WALL LEVEL WHEN THEY ARE NOT TO BE REUSED IN THIS PROJECT. ABANDONED PIPING AND/OR DUCTWORK MUST BE REMOVED TO POINT OF ORIGIN. CONFIRM THE EXTENT OF DEMOLITION PRIOR TO BID AND INCLUDE IN BID PROPOSAL.

CUTTING AND PATCHING

PERFORM ALL CUTTING AND PATCHING AS REQUIRED FOR THE INSTALLATION OF THE WORK UNDER THIS SPECIFICATION. NO CUTTING OF THE STRUCTURE SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER OR ARCHITECT.

PATCHING SHALL BE OF THE SAME WORKMANSHIP, MATERIAL AND FINISH AND SHALL MATCH ACCURATELY ALL SURROUNDING CONSTRUCTION IN A MANNER SATISFACTORY TO THE ARCHITECT.

EXISTING UTILITIES, ETC. THAT ARE DAMAGED DURING THE CONSTRUCTION PERIOD, WHETHER OR NOT DUE TO NEGLIGENCE SHALL BE REPAIRED OR REPLACED AND LEFT IN A CONDITION SUITABLE TO THE ARCHITECT.

SLEEVES

PROVIDE SLEEVES TO PROTECT EQUIPMENT OR FACILITIES IN THE INSTALLATION. EACH SLEEVE SHALL EXTEND THROUGH ITS RESPECTIVE FLOOR, WALL OR PARTITION AND SHALL BE CUT FLUSH WITH EACH SURFACE EXCEPT SLEEVES THAT PENETRATE THE FLOOR, WHICH SHALL EXTEND 2" ABOVE THE FLOOR. COORDINATE THROUGH THE ARCHITECT ANY CORE DRILLING OR CUTTING OF OPENINGS IN MASONRY FLOORS OR WALLS.

ALL SLEEVES AND OPENINGS THROUGH FIRE RATED WALLS AND/OR FLOORS SHALL BE FIRE SEALED WITH CALCIUM SILICATE, SILICONE "RTV" FOAM, "3M" FIRE RATED SEALANTS OR EQUAL, SO AS TO RETAIN THEIR FIRE RATING.

SLEEVES IN BEARING AND MASONRY WALLS, FLOORS, AND PARTITIONS SHALL BE STANDARD WEIGHT STEEL PIPE FINISHED WITH SMOOTH EDGES. FOR OTHER THAN MASONRY PARTITIONS, THROUGH SUSPENDED CEILINGS, OR FOR CONCEALED VERTICAL PIPING, SLEEVES SHALL BE NO. 22 U.S.G. GALVANIZED STEEL MINIMUM.

HANGERS

HANGERS SHALL INCLUDE ALL MISCELLANEOUS STEEL SUCH AS ANGLE IRON, BANDS, C-CLAMPS WITH RETAINING CLIPS, CHANNELS, HANGER RODS, ETC., NECESSARY FOR THE INSTALLATION OF WORK.

HANGERS SHALL BE FASTENED TO BUILDING STEEL, CONCRETE, OR MASONRY, BUT NOT TO PIPING. HANGING FROM METAL DECK IS NOT PERMITTED. HANGERS MUST BE ATTACHED TO UPPER CHORD OF BAR JOIST. WHERE INTERFERENCES OCCUR, AND IN ORDER TO SUPPORT DUCTWORK OR PIPING, INSTALL TRAPEZE TYPE HANGERS OR SUPPORTS WHICH SHALL BE LOCATED WHERE THEY DO NOT INTERFERE WITH ACCESS TO FIRE DAMPERS, VALVES, AND OTHER EQUIPMENT. HANGER TYPES AND INSTALLATION METHODS ARE ALSO SUBJECT TO LANDLORD CRITERIA.

HANGERS FOR ALL INSULATED PIPING SHALL BE SIZED AND INSTALLED FOR THE OUTER DIAMETER OF INSULATION. INSTALL 6" LONG SPLIT CIRCLE GALVANIZED SADDLE BETWEEN THE HANGER AND THE PIPE INSULATION.

HANGERS AND PIPING OF DISSIMILAR METALS SHALL BE DI-ELECTRICALLY SEPARATED.

PROVIDE SWAY AND SEISMIC BRACING WHERE REQUIRED BY CODE.

JOB CONDITIONS

PROTECT MATERIALS, APPARATUS AND EQUIPMENT FROM DAMAGE, MOISTURE, DIRT, DEBRIS AND WORK OF OTHER TRADES.

OPERATION MANUALS AND INSTRUCTIONS

PROVIDE OPERATING AND MAINTENANCE INSTRUCTIONS AT THE COMPLETION OF THE PROJECT. SUBMIT THREE HARD BOUND COPIES TO ARCHITECT.

SCHEDULE A MEETING WITH THE OWNER'S REPRESENTATIVE AT THE SITE TO PROVIDE DETAILED INFORMATION ON THE OPERATING AND MAINTENANCE OF EQUIPMENT.

SUBMITTALS

SUBMIT WITHIN THIRTY (30) DAYS AFTER THE DATE OF NOTICE TO PROCEED AND BEFORE PURCHASING ANY MATERIALS OR EQUIPMENT, SUBMIT TO THE ARCHITECT FOR REVIEW, A COMPLETE LIST, IN SIX (6) COPIES, OF ALL MATERIALS INCORPORATED IN THE WORK. THIS LISTING SHALL BE ARRANGED BY THE ORDER OF OCCURRENCE IN THE SPECIFICATIONS, FOLLOWED BY THE ITEMS ON THE DRAWING NOT SPECIFICALLY INCLUDED IN THE SPECIFICATIONS.

AFTER THE LIST HAS BEEN PROCESSED BY THE ARCHITECT, SUBMIT COMPLETE SHOP DRAWINGS AND PRODUCT DATA OF ALL EQUIPMENT. THESE SUBMITTALS SHALL BE SUBMITTED WITHIN THIRTY (30) DAYS AFTER THE PROCESSING DATE OF THE ORIGINAL SUBMITTAL LIST. SUBMISSIONS SHALL BE MADE EARLY ENOUGH IN PROJECT TO ALLOW FOR (10) WORKING DAYS FOR REVIEW BY ARCHITECT-ENGINEER WITHOUT CAUSING DELAYS OR CONFLICTS IN THE PROJECT'S PROGRESS.

ALL SUBMITTALS SHALL BE COMPLETE AND SHALL BE IN THREE-RING, LOOSE -LEAF BINDERS, NO CONSIDERATION WILL BE GIVEN TO PARTIAL SUBMITTALS, UNLESS NOTED OTHERWISE BY ARCHITECT. EACH ITEM SHALL HAVE A COVER PAGE STATING PROJECT, SPECIFICATION AND PARAGRAPH REFERENCE NUMBER, OR DRAWING REFERENCE NUMBER, AND SCHEDULED EQUIPMENT IDENTIFICATION NUMBER, IF APPLICABLE.

THE REVIEW OF SUBMITTALS DOES NOT RELIEVE RESPONSIBILITY OF SHOP DRAWING ERRORS IN DETAILS, SIZES, QUANTITIES, WIRING DIAGRAM ARRANGEMENTS AND DIMENSIONS WHICH DEVIATE FROM THE SPECIFICATIONS, CONTRACT DRAWINGS AND/OR JOB CONDITIONS AS THEY EXIST.

IF APPARATUS OR MATERIALS ARE SUBSTITUTED FOR THOSE SPECIFIED UNDER THIS SECTION, AND SUCH SUBSTITUTIONS NECESSITATE CHANGES IN OR ADDITIONAL CONNECTIONS, PIPING SUPPORTS OR CONSTRUCTIONS, SAME SHALL BE PROVIDE AT NO ADDITIONAL COST TO THE OWNER. ASSUME COST AND ENTIRE RESPONSIBILITY THEREOF. ARCHITECT'S PERMISSION TO MAKE SUCH SUBSTITUTION SHALL NOT RELIEVE FULL RESPONSIBILITY FOR WORK.

TEST AND BALANCE REPORT: SUBMIT AT FINAL INSPECTION OPERATION AND MAINTENANCE MANUALS: SUBMIT COPIES IN COMPLIANCE WITH SECTION, OPERATION AND MAINTENANCE MANUALS.

15400 - HEATING VENTILATION AND & AIR CONDITIONING

PRODUCTS:

ALL MATERIALS AND EQUIPMENT SHALL BE NEW. SYSTEMS SHALL FUNCTION CORRECTLY AS A WHOLE, AND IN ALL ITS PARTS, UP TO THE SPECIFIED CAPACITY. SYSTEMS OR DEVICES FAILING TO MEET PERFORMANCE REQUIREMENTS SHALL BE REPLACED, ALTERED OR REPAIRED AS REQUIRED TO BRING PERFORMANCE UP TO SPECIFIED REQUIREMENTS.

WORK DAMAGED OR MARRED BY SUCH REPLACEMENTS, ALTERATIONS, OR REPAIRS SHALL BE RESTORED TO PRIOR CONDITIONS, AT NO ADDITIONAL COST TO THE OWNER. WHERE MULTIPLE ITEMS OF EQUIPMENT OR MATERIALS ARE REQUIRED, THEY SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER. BEFORE ORDERING EQUIPMENT, THE PHYSICAL DIMENSIONS SHALL BE CHECKED TO VERIFY FIT IN SPACES ALLOTTED ON THE DRAWINGS. INSERTS, PIPE SLEEVES, AND SUPPORTS OF AIR CONDITIONING EQUIPMENT SHALL BE PROVIDED AS SPECIFIED. WHERE SUCH ITEMS ARE TO BE SET OR EMBEDDED IN CONCRETE, MASONRY OR SIMILAR WORK, THE ITEMS SHALL BE FURNISHED AT THE PROPER TIME FOR SETTING OR EMBEDMENT SO AS TO CAUSE NO DELAY. DUCTWORK AND EQUIPMENT ASSEMBLIES SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC. ADDITIONAL DUCTWORK AND APPURTENANCES REQUIRED FOR PROPER OPERATION OF EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST.

MANUFACTURER'S NAMES AND CATALOG NUMBERS

SPECIFIC REFERENCES HAVE BEEN MADE TO ONE OR MORE MANUFACTURER'S NAMES AND MODEL OR CATALOG NUMBERS. THIS DOES NOT INDICATE THAT THE MATERIAL AND EQUIPMENT SPECIFIED IS NECESSARILY AN "OFF THE SHELF" ITEM; REQUIREMENTS FOR SPECIFIC FINISHES, MATERIALS OR OTHER MODIFICATIONS MAY INTRODUCE VARIANCES FROM MANUFACTURER'S STANDARDS. ASCERTAIN THAT SUCH MODIFICATIONS ARE FULLY CONSIDERED.

DIAGRAMS, NAMEPLATES AND LABELS

EACH MAJOR COMPONENT OF EQUIPMENT SHALL HAVE THE MANUFACTURER'S NAME, ADDRESS AND CATALOG NUMBER ON A PLATE SECURELY AFFIXED IN A CONSPICUOUS PLACE. THE NAMEPLATE OF A DISTRIBUTING AGENT WILL NOT BE ACCEPTED. ALL PIECES OF EQUIPMENT, VALVES, STARTERS, DISCONNECTS, AND ALL PNEUMATIC AND ELECTRIC CONTROL INSTRUMENTS AND APPARATUS SHALL BE IDENTIFIED WITH 1/16" THICK BLACK LAMINATED PLASTIC NAMEPLATES, WITH 3/16" HIGH WHITE LAMINATED LETTERS. SIMILAR AND LIKE EQUIPMENT SHALL BE DESIGNATED WITH NUMERICAL SUFFIX (EXAMPLE: THERMOSTAT, T-1). THE NAMEPLATE IDENTIFICATIONS SHALL COINCIDE WITH ITEMS APPEARING ON DIAGRAMS. PROVIDE A LABEL FOR THE MECHANICAL SYSTEM STATING: (NAME, ADDRESS AND PHONE NUMBER OF CONTRACTOR). LETTERS SHALL BE 1/4" HIGH AND LOCATED IN A CONSPICUOUS PLACE NEAR THE HVAC EQUIPMENT.

EXECUTION

INSTALLATION AND WORKMANSHIP

THE WORK SHALL BE PERFORMED BY QUALIFIED MECHANICS. ALL MATERIALS, APPARATUS AND EQUIPMENT SHALL BE INSTALLED IN NEAT, WORKMANLIKE MANNER. MATERIALS, DEVICES OR EQUIPMENT WHICH, IN THE OPINION OF THE ARCHITECT-ENGINEER, IS IMPROPERLY INSTALLED SHALL BE REMOVED AND REINSTALLED IN AN APPROVED MANNER AT NO ADDITIONAL COST TO THE OWNER. THE WORK SHALL BE COORDINATED WITH THE WORK OF OTHER TRADES. WHERE THE WORK IS DEPENDENT UPON WORK OF OTHER TRADES OR WORK ALREADY IN PLACE, SUCH OTHER WORK AND WORK IN PLACE SHALL BE EXAMINED AND SHALL BE IN PROPER CONDITION AND STATE OF COMPLETION BEFORE CONTINUING THE INSTALLATION. THE INSTALLATION OF WORK SHALL, IN GENERAL, BE AS HIGH AS POSSIBLE AND LOCATED IN ACCORDANCE WITH THE DRAWINGS. DUCTWORK INDICATED SHALL BE FOLLOWED AS ACCURATELY AS POSSIBLE. ANY NECESSARY DEVIATIONS SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT-ENGINEER. PROVIDE DRAWINGS SHOWING PROPOSED CHANGES. APPROVAL IS REQUIRED BEFORE CHANGES SHALL TAKE EFFECT.

CUTTING AND PATCHING

LAYOUT OPENINGS FOR CUTTING BY OTHER TRADES AS REQUIRED. CUTTING OF STEEL, CONCRETE OR ANY OTHER STRUCTURAL PART MUST BE APPROVED IN WRITING BY ARCHITECT-ENGINEER PRIOR TO CUTTING.

WATERPROOFING

DO NOT CUT OR PENETRATE WATERPROOFED SURFACES, OR WATERPROOFING MEMBRANES, WITHOUT FIRST MAKING ARRANGEMENTS FOR REPAIR BY A METHOD APPROVED BY ARCHITECT-ENGINEER.

PROVIDE ALL NECESSARY FLASHING AND COUNTERFLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPES, DUCTS, LOUVERS, CONDUIT, AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AND DUNNAGE STEEL AS REQUIRED.

ELECTRICAL WORK

POWER WIRING FROM PANELS TO MOTOR CONTROLLERS AND FROM CONTROLLERS TO MOTORS IS SPECIFIED IN DIVISION 16. MOTOR STARTERS NOT SPECIFIED TO BE FURNISHED WITH THE MOTORS FROM THE FACTORY ARE SPECIFIED IN DIVISION 16. SUBMIT WIRING DIAGRAMS FOR APPROVAL AND FURNISH APPROVED DIAGRAMS TO THE ELECTRICAL CONTRACTOR FOR COORDINATION. ELECTRICAL CONTROL WIRING FOR CONNECTION OF TEMPERATURE CONTROLLERS, PUSH BUTTONS, INTERLOCKS IN MOTOR CONTROLLERS, AND LIKE ITEMS IS SPECIFIED IN THE CONTROL SECTION(S) IN THIS DIVISION. FURNISH ALL EQUIPMENT WITH COMPLETE INTERNAL CONTROL WIRING. ELECTRICAL WORK SPECIFIED IN THIS DIVISION SHALL CONFORM TO APPLICABLE PROVISIONS OF DIVISION 16. ALL CONTROL WIRING SHALL BE IN CONDUIT. PROVIDE MOTORS CONFORMING TO CHARACTERISTICS SHOWN ON ELECTRICAL DRAWINGS.

ACCESS DOORS (ACCESS PANELS)

PROVIDE ACCESS REQUIRED FOR MAINTENANCE, ADJUSTMENT, REMOVAL AND REPAIR OF VALVES, CONTROLS, DAMPERS, EQUIPMENT AND LIKE ITEMS. PROVIDE ACCESS DOORS (ACCESS PANELS) CONFORMING TO REQUIREMENTS OF DIVISION 8 SPECIFICATIONS. PANELS SHALL BE LOCATED TO MAKE ALL ITEMS EASILY ACCESSIBLE.

CLEAN UP

REFER TO GENERAL CONDITIONS FOR CLEAN-UP. CLEAN ALL MATERIALS AND EQUIPMENT OF DIRT, DUST, PAINT, SPOTS AND STAINS, SOIL MARKS AND OTHER FOREIGN MATTER.

FINAL INSPECTION

GIVE NOTICE TO THE ARCHITECT-ENGINEER THAT THE WORK IS READY FOR FINAL INSPECTION.

1. SUBMIT TEST AND BALANCE REPORT AND COMPLETE REQUIREMENTS AS NOTED.
2. SUBMIT LETTER FROM CONTROL MANUFACTURER CERTIFYING THAT CONTROLS HAVE BEEN CHECKED FOR OPERATION AND CALIBRATION, AND THAT THE SYSTEM IS OPERATING AS INTENDED.

FURNISH NECESSARY MECHANICS TO OPERATE SYSTEM, MAKE NECESSARY ADJUSTMENTS AND ASSIST WITH FINAL INSPECTION.

INSTRUCTION OF OWNER'S OPERATING PERSONNEL

INCLUDE THE COST OF THE SERVICES OF QUALIFIED INSTRUCTOR(S) TO INSTRUCT THE OWNER'S OPERATING PERSONNEL IN THE OPERATION, ADJUSTMENT, CARE AND MAINTENANCE OF ALL HVAC EQUIPMENT AND SYSTEMS. INSTRUCTION SHALL BE PERFORMED AT A TIME APPROVED BY THE OWNER AND AFTER ALL HVAC EQUIPMENT AND SYSTEMS ARE INSTALLED, COMPLETE, ADJUSTED AND OPERATING TO SPECIFIED REQUIREMENTS. NOTIFY THE ARCHITECT-ENGINEER WHEN INSTRUCTIONS WILL BE GIVEN. QUALIFICATIONS OF INSTRUCTORS SHALL BE SUBJECT TO APPROVAL OF THE OWNER AND EQUIPMENT MANUFACTURER. ADDITIONAL REQUIREMENTS CONCERNING OPERATION AND MAINTENANCE OF MECHANICAL EQUIPMENT AND SYSTEMS MAY BE SPECIFIED IN OTHER SECTIONS. TWO COPIES OF ACKNOWLEDGMENT OF ALL REQUIRED INSTRUCTIONS TO OWNER'S OPERATING PERSONNEL, SIGNED BY THE OWNER OR HIS AUTHORIZED REPRESENTATIVE, SHALL BE SUBMITTED TO THE ARCHITECT-ENGINEER PRIOR TO SUBMITTING APPLICATION FOR FINAL PAYMENT. AN ADDITIONAL COPY OF THIS ACKNOWLEDGMENT IS REQUIRED IN EACH COPY OF OPERATION AND MAINTENANCE MANUALS REQUIRED IN THE SECTION, OPERATION AND MAINTENANCE MANUALS.

OPERATION AND MAINTENANCE MANUALS

FURNISH THREE COPIES OF COMPLETE OPERATION AND MAINTENANCE MANUALS TO THE ARCHITECT-ENGINEER, FOR APPROVAL AND FOR THE OWNER, ON ALL EQUIPMENT AND SYSTEMS. THE MANUALS SHALL BE BOUND IN HARD-BACK, THREE RING LOOSE-LEAF BINDERS. MANUALS SHALL CONTAIN A TITLE SHEET WITH JOB NAME, AND THE NAMES, ADDRESSES AND PHONE NUMBERS OF THE CONTRACTOR, SUBCONTRACTOR, CONTROL SUBCONTRACTOR, RELATED CONTRACTORS AND MATERIAL AND EQUIPMENT SUPPLIERS.

A COPY OF ACKNOWLEDGMENT OF INSTRUCTION TO THE OWNER'S OPERATING PERSONNEL IN THE OPERATION OF ALL MECHANICAL EQUIPMENT AND SYSTEMS, SIGNED BY THE OWNER OR HIS AUTHORIZED REPRESENTATIVE. TYPEWRITTEN OPERATING INSTRUCTIONS FOR THE OWNER'S PERSONNEL DESCRIBING HOW TO STOP AND START EACH PIECE OF EQUIPMENT; HOW TO SET THE TEMPERATURE CONTROL SYSTEM FOR NORMAL OPERATION AND NORMAL RESTARTING PROCEDURES, CAUTION AND WARNING NOTICES. APPROVED SHOP DRAWINGS, PRODUCT DATA AND PARTS AND MAINTENANCE BOOKLET FOR EACH ITEM OF MATERIAL AND EQUIPMENT FURNISHED UNDER DIVISION 15000. RECORD DRAWINGS OF ALL SYSTEMS INCLUDING ELECTRICAL AND CONTROL DIAGRAMS. TEST AND BALANCE REPORT. COPIES OF CERTIFICATES OF INSPECTION. GUARANTEES, INCLUDING EXTENDED GUARANTEES.

DELIVER THE MANUALS TO THE OWNER PRIOR TO SUBMITTING APPLICATION FOR FINAL PAYMENT.

HVAC/HYDRONIC PIPING

CONDENSATE DRAIN

PROVIDE CONDENSATE DRAINS FOR ALL AIR CONDITIONING UNITS AND PIPE AS DENOTED ON DRAWINGS. CONDENSATE DRAIN PIPING SHALL BE INSTALLED WITH TRAP AT THE COIL CONNECTION AND SHALL HAVE A MINIMUM SEAL DEPTH EQUAL TO THE RESPECTIVE AIR HANDLING UNIT FAN STATIC PRESSURE. DEPTH SHALL BE A MINIMUM OF 2".

CONDENSER WATER PIPING

PROVIDE SUPPLY AND RETURN CONDENSER WATER PIPING AS SHOWN ON DRAWINGS AND SPECIFIED HEREIN. HYDRONIC PIPING FOR CHILLED WATER, CONDENSER WATER AND/OR HEATING WATER SHALL BE ASTM A-120, SCHEDULE 40, ERW, BLACK STEEL PIPE WITH PLAIN ENDS. INSTALL STEEL PIPE WITH WELDED JOINTS WHERE PIPE IS 2-1/2 INCH AND LARGER. INSTALL STEEL PIPE WITH THREADED JOINTS AND FITTINGS FOR 2 INCH AND SMALLER PIPE. PROVIDE DIELECTRIC UNIONS BETWEEN DISSIMILAR METALS. ALL PIPING SHALL BE IN STRICT CONFORMANCE WITH ASTM, AND ASA, WHICHEVER IS MOST STRINGENT. UNIONS OR FLANGES MUST BE USED AT EQUIPMENT CONNECTIONS WHERE SERVICE OR REMOVAL MAY BE REQUIRED.

ALL PIPING AND EQUIPMENT SHALL BE PRESSURE TESTED WITHOUT LEAKAGE AT A MINIMUM PRESSURE OF 125 PSI.

ALL HYDRONIC PIPING AND EQUIPMENT CONNECTED TO THE HVAC PIPING SYSTEM SHALL BE CLEANED AND FLUSHED. REMOVE, CLEAN, AND REPLACE STRAINER SCREENS. FILL TENANT'S SYSTEM WITH DOMESTIC WATER OR PER LANDLORD'S REQUIREMENTS AND VENT ALL PIPING AND EQUIPMENT PRIOR TO CONNECTION TO THE LANDLORD'S SYSTEM. DO NOT FILL SYSTEM WITH WATER FROM THE BASE BUILDING SYSTEM UNLESS SPECIFICALLY INSTRUCTED TO DO SO.

PRIOR TO CONNECTION TO THE BASE BUILDING SYSTEM, OBTAIN WRITTEN CONFIRMATION THAT ALL TESTING, FLUSHING, AND PROPER FILLING OF THE SYSTEM HAS BEEN COMPLETED IN ACCORDANCE TO THE BASE BUILDING REQUIREMENTS AND THAT THE SYSTEM IS READY TO BE CONNECTED TO THE BASE BUILDING SYSTEM.

VALVES

GATE VALVES (2-INCH AND SMALLER): CLASS 150, BODY AND UNION BONNET OF ASTM B 62 CAST BRONZE WITH THREADED OR SOLDER ENDS, INTEGRAL SEAT, RENEWABLE SOLID BRONZE WEDGE DISC, RISING STEM, SCREWED BONNET AND RE-PACKABLE UNDER PRESSURE. BALL VALVES ARE ACCEPTED AS AN EQUAL SUBSTITUTION.

GATE VALVES (2-1/2 INCH AND LARGER): CLASS 125 CAST IRON BODY, RENEWABLE BRONZE SEATS AND SOLID WEDGE DISC, RISING STEM, FLANGED ENDS, AND RE-PACKABLE UNDER PRESSURE.

SWING CHECK VALVES (2-INCH AND SMALLER): CLASS 150, CAST BRONZE BODY AND CAP CONFORMING TO ASTM B 62 WITH HORIZONTAL SWING, Y-PATTERN, RENEWABLE BRONZE DISC, AND HAVING THREADED OR SOLDERED ENDS.

SWING CHECK VALVE (2-1/2 INCH AND LARGER): CLASS 125 CAST IRON BODY AND BOLTED CAP, HORIZONTAL SWING, RENEWABLE BRONZE DISC, FLANGED ENDS AND CAPABLE OF BEING REFITTED WHILE THE VALVE REMAINS IN THE LINE.

COMBINATION BALANCING AND SHUT-OFF VALVES: BELL & GOSSETT CIRCUIT SETTER WITH LOCKING SET POINT. A CIRCUIT SETTER BALANCE WHEEL MUST BE INCLUDED WITH O & M MANUAL. TACO OR GRISWALD ARE CONSIDERED AS EQUAL.

PIPING SPECIALTIES

PRESSURE/TEMPERATURE TEST PLUGS (PETE'S PLUG) - 1/4 INCH NPT FITTINGS TO RECEIVE EITHER A TEMPERATURE OR PRESSURE PROBE, 1/8 INCH O.D. FITTING AND CAPS SHALL BE BRASS WITH VALVE CORE OF NORDEL, RATED AT 400 PSIG, 0°F TO 200°F.

STRAINERS - "Y" PATTERN STRAINERS, 125 PSIG, CAST IRON BODY WITH PERFORATED STAINLESS STEEL SCREEN, THREADED FOR 2 INCHES AND SMALLER, FLANGED FOR 2-1/2 INCHES AND LARGER. SCREEN OPENING SIZE AT 0.033 INCH FOR HEATING AND 1/8 INCH FOR CHILLED OR CONDENSER WATER. PROVIDE WITH BLOWDOWN VALVE WITH HOSE END FITTING.

THERMOFLO INDICATOR - BELL & GOSSETT MODEL "TFI".

PIPING INSULATION

ALL HYDRONIC PIPING FOR CHILLED WATER AND/OR HEATING WATER (NOT INCLUDING CONDENSER WATER UNLESS SPECIFICALLY NOTED OTHERWISE), VALVES, FITTINGS, AND ACCESSORIES SHALL BE INSULATED. FOR PIPE SIZES UP TO 2 INCHES, INSULATE WITH 1 INCH THICK (K=0.23 @ 75 F) FIBERGLASS INSULATION WITH ALL SERVICE JACKET AND VAPOR BARRIER. FOR PIPE SIZES 2-1/2 INCHES AND LARGER, INSULATE WITH 1-1/2 INCH THICK (K=0.23 @ 75 F) FIBERGLASS INSULATION WITH ALL SERVICE JACKET AND VAPOR BARRIER.

INSULATION AT ALL HANGERS FOR PIPING 2 1/2 INCHES AND LARGER SHALL BE HARD AND NON-COMPRESSIBLE.

ALL INSULATION SHALL HAVE A FLAME SPREAD RATING OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING OF NO HIGHER THAN 50 TO CONFORM WITH THE REQUIREMENTS OF THE NFPA.
PROVIDE ZESTON OR EQUAL INSULATION FITTINGS FOR ALL TEES, ELLS OR SPECIALTY FITTINGS.

GENERAL INSTALLATION

INSTALL WATER MAINS WITHOUT PITCH. USE ECCENTRIC REDUCING COUPLINGS AT CHANGES IN SIZE WITH THE TOP OF PIPES AT SAME ELEVATION.

BRANCHES TO UNITS BELOW MAINS TO BE TAKEN FROM BOTTOM OF MAINS AT A 45° ANGLE, PITCH DOWNWARDS TOWARDS UNITS. BRANCHES TO UNITS ABOVE MAINS TO BE TAKEN FROM TOP OF MAINS AT A 45° ANGLE PITCHED UPWARDS TOWARDS UNITS. PITCH NOT LESS THAN 1" TO 10 FEET.

SEE MECHANICAL DETAIL DRAWINGS FOR APPLICABLE DETAILS.

HVAC INSULATION

LOW PRESSURE DUCTWORK INSULATION

EXTERNAL INSULATION SHALL BE R-6 MINIMUM SCHULLER TYPE SMALLLITE, FSK SPIN-GLAS OR APPROVED EQUAL WITH AN EMBOSSED ALUMINUM FOIL FACING. INTERNAL INSULATION SHALL BE R-6 MINIMUM LINER WITH A COATED AIR SIDE SURFACE TO PREVENT EROSION. APPLY ADHESIVES AND FASTENERS PER SMACNA AND THE MANUFACTURER. ALL TRANSVERSE EDGES TO BE COATED WITH ADHESIVE. ALL CONCEALED DUCTWORK SHALL HAVE EXTERNAL INSULATION, UNCONCEALED DUCTWORK SHALL BE INTERNALLY LINED. DUCTWORK INSTALLED IN UNCONDITIONED SPACES SHALL BE R-12 MINIMUM SCHULLER TYPE SMALLLITE, FSK SPIN-GLAS OR APPROVED EQUAL WITH AN EMBOSSED ALUMINUM FOIL FACING.

ALL AIR SUPPLY DIFFUSERS BACKS AND NECKS, SHALL BE INSULATED WITH R-6 MINIMUM MANVILLE R-SERIES SMALLITE, OR APPROVED EQUAL FIBERGLASS BLANKET INSULATION.

ADHESIVES, MASTIC, SEALANTS

ADHESIVE SHALL BE FOSTER'S 85-20. STUDWELD PINS SHALL BE SEALED WITH FOSTER'S 30-36 ADHESIVE. ALL JOINTS, SEAMS AND BREAKS IN THE VAPOR BARRIER SHALL BE SEALED WITH FOSTER'S 35-00, REINFORCED WITH 4 INCH WIDE GLASS FABRIC.

TERMINAL HEAT TRANSFER UNITS

DESCRIPTION

INSTALL AIR CONDITIONING UNITS OF THE CAPACITIES INDICATED, COMPLETE WITH GAS-FIRED HEATING SYSTEM, WHERE INDICATED ON THE DRAWINGS. UNIT SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPLICABLE ASME AND ANSI CODES AND SHALL BE LISTED BY UNDERWRITER'S LABORATORIES. UNIT SHALL BE RATED IN ACCORDANCE WITH THE LATEST ARI STANDARD 21. WHERE SPECIFIED OPERATING CONDITIONS ARE OTHER THAN ARI STANDARD CONDITIONS, CAPACITIES SHALL BE INTERPOLATED FROM ARI CONDITIONS.

MANUFACTURER

UNITS SHALL BE TRANE, LENNOX, AAON OR APPROVED EQUAL.

EXHAUST FANS

INLINE EXHAUST FAN

INSTALL DIRECT DRIVE CENTRIFUGAL INLINE EXHAUST FAN BY GREENHECK OR APPROVED EQUAL WITH GALVANIZED STEEL HOUSING, BACKWARD INCLINED ALUMINUM WHEEL, ACCESS PANELS, INTEGRAL DUCT CONNECTION FLANGES, BALL BEARING MOTORS, AND CORROSION RESISTANT FASTENERS. FAN SHALL COME INSTALLED WITH NEMA-1 TOGGLE SWITCH, MOUNTED AND WIRED. SOLID STATE SPEED CONTROLLER SHIPPED LOOSE AND PSC MOTOR.

WATER SOURCE HEAT PUMPS

DESCRIPTION

INSTALL WATER SOURCE HEAT PUMP OF CAPACITIES INDICATED MANUFACTURED BY FLORIDA HEAT PUMP, MCQUAY OR AN APPROVED EQUAL. FACTORY ASSEMBLED AND RATED ACCORDING TO ARI-ISO13526-1. GALVANIZED-STEEL CASING WITH ACCESS PANELS FOR MAINTENANCE AND FILTER REPLACEMENT, KNOCKOUTS FOR ELECTRICAL AND PIPING CONNECTIONS, FLANGED DUCT CONNECTIONS AND CABINET INSULATION OF ½" THICK, MULTI DENSITY, COATED GLASS FIBER. THE UNIT SHALL BE DESIGNED TO OPERATE WITH ENTERING FLUID TEMPERATURES BETWEEN 50°F AND 100°F IN COOLING AND BETWEEN 50°F AND 80°F IN HEATING.

THE UNITS SHALL BE WARRANTED BY THE MANUFACTURER AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR ON ALL PARTS AND FIVE (5) YEARS ON COMPRESSOR.

REFRIGERATION CIRCUITS SHALL UTILIZE R-410A. THE UNIT SHALL CONTAIN SEALED REFRIGERANT CIRCUITS INCLUDING HERMETIC COMPRESSORS, THERMAL EXPANSION VALVE METERING DEVICES, REFRIGERANT DRIER, FINED TUBE AIR-TO-REFRIGERANT HEAT EXCHANGERS, REFRIGERANT REVERSING VALVES AND SERVICE PORTS. COMPRESSORS SHALL BE HIGH EFFICIENCY, DESIGNED FOR HEAT PUMP DUTY, INTERNALLY SPRING ISOLATED (EXCEPT FOR SCROLL TYPE COMPRESSORS) FOR MAXIMUM SOUND ATTENUATION AND MOUNTED ON RUBBER VIBRATION ISOLATORS. COMPRESSOR MOTORS SHALL BE EQUIPPED WITH OVERLOAD PROTECTION. THE FINNED TUBE COIL SHALL BE CONSTRUCTED OF LANCED ALUMINUM FINS NOT EXCEEDING 14 FINS PER INCH. COILS SHALL HAVE A BAKED POLYESTER ENAMEL COATING FOR PROTECTION AGAINST MOST AIRBORNE CHEMICALS. THE COAXIAL WATER-TO-REFRIGERANT HEAT EXCHANGERS SHALL BE CONSTRUCTED OF A CONVOLUTED COPPER INNER TUBE AND STEEL OUTER TUBE WITH A DESIGNED REFRIGERANT WORKING PRESSURE OF 450 PSIG AND A DESIGNED WATER SIDE WORKING PRESSURE OF NO LESS THAN 400 PSIG.

UNITS 6 TONS AND LARGER: THE FANS SHALL BE BELT DRIVEN FORWARD CURVE TYPE WITH DYNAMICALLY BALANCED WHEEL(S). THE FAN HOUSINGS SHALL BE REMOVABLE FROM THE UNIT WITHOUT DISCONNECTING THE SUPPLY AIR DUCTWORK FOR SERVICING OF FAN MOTORS. MOTORS SHALL BE PERMANENTLY LUBRICATED AND HAVE THERMAL OVERLOAD PROTECTION.

UNITS SMALLER THAN 6 TONS: THE FAN SHALL BE DIRECT DRIVE CENTRIFUGAL FORWARD CURVED TYPE WITH A DYNAMICALLY BALANCED WHEEL. FAN HOUSE SHALL BE REMOVABLE FROM UNIT WITHOUT DISCONNECTING THE SUPPLY AIR DUCTWORK FOR SERVICING OF FAN MOTOR. THE MOTOR SHALL BE THREE SPEED PSC TYPE AND BE PERMANENTLY LUBRICATED AND HAVE THERMAL OVERLOAD PROTECTION.

DUCTWORK, LOW PRESSURE, GALVANIZED STEEL

QUALITY ASSURANCE

DUCTS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH "HVAC DUCT CONSTRUCTION STANDARDS" PUBLISHED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC. (SMACNA)

JOB CONDITIONS

INSPECT THE DRAWINGS AND VERIFY EXISTING CONDITIONS IN THE FIELD. REPORT CONFLICTS BEFORE STARTING FABRICATION.

DUCT MATERIAL

WEIGHTS AND GAGES SHALL BE IN ACCORDANCE WITH TABLE I OF "HVAC DUCT CONSTRUCTION STANDARDS" PUBLISHED BY SMACNA. DUCT MATERIAL SHALL BE GALVANIZED STEEL.

SPLITTER DAMPERS

SPLITTERS SHALL BE 18 GAGE GALVANIZED STEEL WITH HORIZONTAL AND VERTICAL DIMENSIONS SUFFICIENT TO CLOSE OFF AIR TO BRANCH. PROVIDE VENTLOK NO. 607 END BEARINGS AND VENTLOK NO. 690 DAMPER ASSEMBLY.

VOLUME DAMPERS

VOLUME DAMPERS SHALL BE 18 GAGE STEEL; SINGLE BLADE UP TO 8" X 8", OPPOSED BLADE ON ALL DUCTS OVER 8" X 8". PROVIDE VENTLOK NO. 607 END BEARINGS AND VENTLOK NO. 641 SELF-LOCKING REGULATOR. DAMPER RODS SHALL BE 1/2" SQUARE BARS WITH BLADES SECURELY RIVETED TO BAR.

TURNING VANES

SQUARE AND RECTANGULAR ELBOWS SHALL CONTAIN TITUS NO. AG-225 TURNING VANES.

HANGERS

IN ACCORDANCE WITH CHAPTER IV OF SMACNA.

FLEXIBLE CONNECTIONS

FLEXIBLE CONNECTIONS SHALL BE PROVIDED FOR EACH AIR HANDLING DEVICE TO PREVENT TRANSMISSION OF VIBRATIONS. MAKE FLEXIBLE CONNECTION A MINIMUM OF 4 INCHES WIDE OF VENTGLAS AS MADE BY VENTFABRICS, INC.

INSTALLATION

GENERAL: SPLIT, DIVIDE OR TURN DUCTS AS NECESSARY TO AVOID OBSTRUCTIONS AND, IN SUCH CASES, PROVIDE AIR STREAM DEFLECTORS AND INCREASE SIZE OF DUCT TO AN EQUIVALENT AREA.

SPLITTERS: RIGIDLY ATTACH SPLITTERS TO PIVOT ROD AND OPERATING LINKAGE. SET DAMPER ASSEMBLY ON RAISED INSULATED BASE ON INSULATED DUCTWORK. VOLUME

DAMPERS: SUPPLY AND MAKE-UP AIR DUCTWORK IN CONCEALED SPACES. SET REGULATOR ON RAISED BASE ON INSULATED DUCTWORK. MARK END OF DAMPER ROD TO SHOW DAMPER POSITION.

FLEXIBLE CONNECTIONS: SECURE FLEXIBLE CONNECTIONS TO DUCT AND UNIT WITH GALVANIZED STEEL STRAPS HOLDING THE MATERIAL IN FORMED GALVANIZED STEEL CHANNELS. TEST TO ENSURE PROPER INSTALLATION.

PLUGS: PROVIDE SQUARE HEAD TYPE TEST PLUGS AS REQUIRED FOR INSERTION OF TEST APPARATUS. PROVIDE A RING AND A REMOVABLE INSULATION PLUG WHERE DUCTS ARE INSULATED.

PAINTING: PAINT INTERIOR OF DUCTWORK FLAT BLACK WHERE VISIBLE THROUGH GRILLES AND REGISTERS.

SEALING: DUCTWORK SHALL BE SEALED IN ACCORDANCE WITH SMACNA "SEAL CLASS B".

CORRECTIONS

REMOVE ALL DUCTWORK FOUND TO VIBRATE, CHATTER OR PULSATE AND REPLACE WITH NEW DUCTWORK.

DUCTWORK, LOW PRESSURE, FLEXIBLE

DESCRIPTION

PROVIDE WHERE INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN, FACTORY FABRICATED AND PRE INSULATED FLEXIBLE DUCTS.

QUALITY ASSURANCE

FLEXIBLE DUCTS, INCLUDING INSULATION AND SEALANTS, SHALL CONFORM TO THE REQUIREMENTS OF NFPA 90A AND UL STANDARD 181 FOR CLASS 1 DUCTS. PERFORMANCE DATA SHALL BE BASED ON TEST PERFORMED IN ACCORDANCE WITH AIR DIFFUSION COUNCIL FLEXIBLE AIR DUCT TEST CODE FD72.

LOW PRESSURE FLEXIBLE DUCTWORK

LOW PRESSURE FLEXIBLE DUCTWORK SHALL CONSIST OF CORROSION RESISTANT SPRING STEEL HELIX BONDED TO A GLASS REINFORCED NEOPRENE SLEEVE INSULATED WITH A MINIMUM OF 1 INCH THICK, 1 POUND DENSITY FIBERGLASS INSULATION WHICH IS IN TURN COVERED WITH AN OUTER VAPOR BARRIER OF FIBER REINFORCED FOIL-SCRIM-KRAFT LAMINATE. INSULATION SHALL HAVE A THERMAL CONDUCTIVITY (K) NO GREATER THAN 0.25 AT 75 DEGREES F. DUCT FOR LOW VELOCITY SYSTEM CONNECTORS SHALL HAVE A WORKING PRESSURE OF NOT LESS THAN 1-1/2 INCHES OF WATER GAGE AND A MAXIMUM OPERATING TEMPERATURE OF NOT LESS THAN 250 DEGREES F.

DUCT CONNECTORS

WHERE FLEXIBLE DUCTS CONNECT TO LOW PRESSURE DUCTS TO FORM RUNOUTS TO INDIVIDUAL OUTLETS, PLENUMS OR LOW PRESSURE TERMINALS, PROVIDE FACTORY FABRICATED FITTINGS COMPLETE WITH MANUAL BALANCING DAMPERS HAVING LOCKING QUADRANTS. WHERE LOW PRESSURE DUCTS ARE INTERNALLY INSULATED THE CONNECTOR SHALL BE FURNISHED WITH AIR EXTENSION TO PROJECT THROUGH AND PROTECT THE INSULATION. FOR CONNECTION TO EQUIPMENT, AUXILIARY SLEEVES SHALL BE PROVIDED TO ALLOW AT LEAST 2 INCHES OF SURFACE FOR CLAMPING OF FLEXIBLE DUCTWORK. SLEEVES SHALL BE SCREWED OR BOLTED TO EQUIPMENT LIP FRAME.

CLAMPS

PROVIDE GALVANIZED SPRING STEEL CLAMPS OR PANDUIT STRAPS AT CONNECTIONS TO DUCT FITTINGS OR DEVICES.

MANUFACTURER

FLEXIBLE DUCTWORK AND COMPONENTS SHALL BE AS MANUFACTURED BY GENERAL ENVIRONMENTAL CORPORATION OR APPROVED EQUAL.

INSTALLATION

INSTALL DUCT CONNECTORS TO LOW PRESSURE DUCTS USING MANUFACTURER'S TEMPLATE FOR ALL HOLES AND SECURE THE CONNECTOR WITH SHEET METAL SCREWS HAVING FIRST APPLIED FOSTER'S 30-02 DUCT SEALANT TO THE ADJOINING SURFACES. DO NOT PRESSURIZE THE SYSTEM FOR 48 HOURS. STRETCH NEW DUCT WHEN REMOVING IT FROM CARTONS WHERE IT MAY HAVE BEEN SHIPPED IN A COMPRESSED STATE. USE THE MINIMUM LENGTH OF FLEXIBLE DUCT REQUIRED TO MAKE THE SPECIFIC CONNECTION UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS. THE MAXIMUM DEVELOPED LENGTH OF FLEX DUCT IS 5'-0". AVOID SHARP BENDS. USE A MINIMUM INSIDE BEND RADIUS EQUAL TO (1) TIMES THE INSIDE DIAMETER OF THE DUCT. SUPPORT HORIZONTAL DUCT RUNS AS DETAILED IN THE CONSTRUCTION DOCUMENTS. ALLOW THE FLEXIBLE DUCT TO EXTEND STRAIGHT AWAY FROM CONNECTORS FOR A FEW INCHES PRIOR TO INITIATING ANY BEND. MAKE CONNECTIONS OF FLEXIBLE DUCT TO RIGID DUCT OR TERMINALS AS FOLLOWS:

1. APPLY FOSTER'S 30-02 SEALANT TO THE INSIDE OF THE FLEXIBLE DUCT TO DEPTH OF 3 INCHES.
2. SLIDE THE FLEXIBLE DUCT OVER THE CONNECTOR AND WRAP WITH MINIMUM OF TWO REVOLUTIONS OF REINFORCED FOIL DUCT TAPE STARTING ABOUT 2 INCHES BACK FROM END OF FLEXIBLE DUCT AND SEALING OVERLAP WITH LAST WRAP.
3. PLACE A CLAMP OR STRAP OVER THE TAPED END AND SECURE FIRMLY.
4. REPAIR ALL DAMAGE TO VAPOR BARRIER WITH FOSTER'S 35-00 REINFORCED WITH 4 INCH WIDE GLASS FABRIC AND A SECOND COAT OF FOSTER'S 35-00.

AIR DISTRIBUTION DEVICES

DESCRIPTION

AIR DISTRIBUTION DEVICES SHALL BE PROVIDED TO DELIVER THE INDICATED VOLUME OF SUPPLY AIR WITHOUT EXCEEDING THE NC RATING AS FOLLOWS:
EMPLOYEE AND CUSTOMER AREAS: NC-30.

DIFFUSERS, GRILLES AND REGISTERS

MANUFACTURER SHALL BE TITUS OR APPROVED EQUIVALENT. FOR MODEL NUMBERS AND TYPES SEE AIR DISTRIBUTION SCHEDULE ON DRAWING. DIFFUSERS, GRILLES, AND REGISTERS SHALL BE OF THE SURFACE, FLUSH, OR LAY-IN MOUNTING CORRESPONDING TO THE CEILING IN WHICH THEY ARE LOCATED. THE FINISH OF THE DIFFUSERS, GRILLE, OR REGISTER FACE PANEL SHALL BE BAKED ENAMEL, OFF WHITE COLOR. WHERE MOUNTING SCREWS ARE REQUIRED IN AIR DISTRIBUTION DEVICES, THEY SHALL BE FINISHED TO MATCH THE ADJACENT SURFACE OF THE DEVICES. SUPPLY AND RETURN GRILLES AND REGISTERS WHICH ARE SURFACE MOUNTED SHALL BE PROVIDED WITH SPONGE RUBBER GASKETED FRAMES TO PREVENT SMUDGING.

DRAINABLE LOUVERS

MANUFACTURER SHALL BE RUSKIN OR APPROVED EQUAL. FOR MODEL NUMBER AND TYPE SEE DRAWING. LOUVER FINISH SHALL BE SANDSTONE COLORED BAKED ENAMEL CONTAINING 50% KYNAR RESINS. LOUVER SHALL INCLUDE GASKETED BACKDRAFT DAMPERS WITH ADJUSTABLE WEIGHTS OR SPRINGS TO PREVENT OUTWARD AIR FLOW. ADJUST AS DIRECTED BY OWNER OR AUTHORITY HAVING JURISDICTION.

INSTALLATION

INSTALL WHERE SHOWN ON DRAWINGS. DIFFUSERS, REGISTERS AND FITTINGS SHALL BE SECURELY ATTACHED TO FINISH SURFACES, OR STRUCTURAL MEMBERS BEHIND FINISH SURFACES. LAY-IN DIFFUSERS MOUNTED IN ACOUSTICAL TILE CEILINGS SHALL BE RIGIDLY MOUNTED, ABOVE THE FACE PANEL, TO THE CEILING SUSPENSION SYSTEM. DRAINABLE LOUVERS SHALL BE INSTALLED AS RECOMMENDED BY MANUFACTURER.

CONTROLS, ELECTRIC

DESCRIPTION

THE WORK CONSISTS OF INSTALLING CONTROLS FOR THE HVAC SYSTEM.

ELECTRICAL

ELECTRICAL WORK AND MATERIALS ASSOCIATED WITH THE CONTROL SYSTEM SHALL BE INSTALLED AS WORK OF THIS SECTION BUT IN ACCORDANCE WITH DIVISION 16. POWER WIRING IS SPECIFIED UNDER DIVISION 16 AND SHOWN ON ELECTRICAL DRAWINGS. ELECTRICAL CONTROL WIRING CONDUIT AND FITTINGS ASSOCIATED WITH THE SPACE TEMPERATURE AND HUMIDITY CONTROL INCLUDING INTERLOCKING WITH MOTOR CONTROLLERS, CONTROL ACCESSORIES AND APPURTENANCES ARE TO BE PROVIDED UNDER THIS SECTION. CONTROL WIRING SHALL BE IN CONDUIT IF REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.

ELECTRIC ROOM THERMOSTATS

THERMOSTAT SHALL BE AS SPECIFIED IN THE DRAWINGS, THERMOSTATS FOR WATER SOURCE HEAT PUMPS SHALL HAVE AUTOMATIC HEATING/COOLING CHANGEOVER AND SHALL E PROVIDED WITH A LOCKABLE COVER.

SMOKE DETECTOR

SMOKE DETECTOR SHALL BE FURNISHED AND WIRED BY ELECTRICAL CONTRACTOR AND INSTALLED BY MECHANICAL CONTRACTOR AS SHOWN IN THE DRAWINGS. WIRING AND REMOTE ALARM INDICATOR FOR DUCT MOUNTED SMOKE DETECTOR SHALL BE BY ELECTRICAL CONTRACTOR. SMOKE DETECTOR SHALL BE POWERED AS SPECIFIED IN DRAWINGS.

TESTING, ADJUSTING AND BALANCING

TESTING, ADJUSTING AND BALANCING OF ALL WORK SHALL BE MADE BY AN INDEPENDENT CONTRACTOR, WHO IS A CURRENTLY LICENSED ASSOCIATED AIR BALANCING COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) BALANCING CONTRACTOR. NO OTHER BALANCE REPORTS WILL BE REVIEWED OR ACCEPTED. ALL BALANCING WORK MUST BE COMPLETE AND DONE IN ACCORDANCE WITH THE MOST RECENT STANDARDS OF THEIR SOCIETY AND AS A MINIMUM SHALL INCLUDE THE INFORMATION AS SHOWN IN THE AIR BALANCE REVIEW CHECKLIST BELOW. PAYMENT OF ALL COSTS FOR TESTING AND BALANCING SHALL BE INCLUDED IN THE BID.

TESTING, ADJUSTING AND BALANCING REPORT MUST BE COMPLETE AND TURNED OVER TO TENANT'S PROJECT MANAGER ONE (1) WEEK PRIOR TO MERCHANDISING DATE. VERIFY THAT ALL EQUIPMENT AND SYSTEMS ARE COMPLETE AND OPERATIONAL ONE WEEK PRIOR TO FINAL BALANCING. IF ALL SYSTEMS ARE NOT OPERATIONAL AT THE TIME OF THE SCHEDULED BALANCING, ADDITIONAL TESTING AND BALANCING, INCLUDING ALL LABOR, TRAVEL EXPENSES, MEALS, HOTEL COSTS, ETC SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.

PRESENT FOR AIR BALANCE TO VERIFY ACCESSIBILITY TO ALL DEVICES, VERIFY ALL OPERATING SEQUENCES AND INSTALL NEW FILTERS IN ALL UNITS JUST PRIOR TO THE AIR BALANCE. ALLOW TWO DAYS ON SITE FOR BALANCING. THE COMPLETE AIR BALANCE SHALL TAKE PLACE WITH OUTSIDE AIR DAMPERS IN MINIMUM POSITION, EXCEPT AS NOTED OTHERWISE. INSTALL A NEW SET OF FILTERS ONE DAY PRIOR TO TURNOVER.

BALANCE AIR AND WATER QUANTITIES TO WITHIN +/- 10% OF THAT INDICATED ON THE DRAWINGS. ANY REQUIRED CHANGES IN SHEAVES, BELTS OR PULLEYS NEEDED TO ACHIEVE SPECIFIED FLOW RATES SHALL BE PERFORMED WITH NO ADDITIONAL COST TO THE OWNER. ALL CONTROL SEQUENCES SHALL BE TESTED (INTERLOCKED EQUIPMENT, SMOKE DETECTORS, SMOKE EVACUATION, ECONOMIZER, ETC.) AND OPERATING STATUS RECORDED IN THE REPORT.

SEVEN (7) COPIES OF THE BALANCE REPORT SHALL BE SUBMITTED FOR APPROVAL.

PERFORM ALL APPLICABLE TESTING AND BALANCING FUNCTIONS REQUIRED FOR THE SYSTEM DESIGNED ON THESE DRAWINGS. ALL SYSTEMS UNABLE TO BE COMPLETELY BALANCED AT THE TIME OF ORIGINAL BALANCE MUST BE BALANCED IN FUTURE AT NO ADDITIONAL EXPENSE TO THE OWNER. RECHECK ANY ITEMS THAT OWNER DEEMS NECESSARY AT NO ADDITIONAL COST TO OWNER.

THE BALANCE REPORT SHALL BE ON THE AABC NATIONAL STANDARD REPORT FORMS OR THE NEBB CERTIFIED REPORT FORMS AS PUBLISHED IN THEIR MOST CURRENT EDITIONS.

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number

22902.001

drawing issuance

PERMIT 12/08/22

drawing revisions

No.	Description:	Date:
1	City Comments	01/10/23
2	ADD 2	01/27/23

RYAN BREWER
NUMBER PE-2020010759
Ryan Brewer

DATE SIGNED: 01/27/2023

drawing title

MECHANICAL
SPECIFICATIONS

drawing number

M301

ELECTRICAL ABBREVIATIONS

AC	ALTERNATING CURRENT
AHU	AIR HANDLING UNIT
A. OR AMPS.	AMPERES
AFC	ABOVE FINISH COUNTER
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR
AIC	AMPERES INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
BTC	BRANCH TO CONNECTION POINT AND CONNECT EQUIPMENT
C	CONDUIT ("E.C." IS EMPTY CONDUIT)
CF	CEILING FAN
CM	COFFEE MAKER
CT	COOKTOP
D	DEDICATED CIRCUIT
DCO	DUPLEX CONVIENCE OUTLET
DP	DISPOSAL
DW	DISHWASHER
DY	DRYER
EMT	ELETRICAL METALLIC TUBING
EF	EXHAUST FAN
EWC	ELECTRIC WATER COOLER (WATER-COOLED DRINKING FOUNTAIN)
EX	EXISTING
FCU	FAN COIL UNIT
GFI/GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFIP	GROUND FAULT INTERRUPTER PROTECTED
GRD	GROUND
H	HORIZONTAL MOUNT (RECEPTACLE)
HD	VENTILATION HOOD
HP	HORSEPOWER
HT	HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER)
HVAC	HEATING, VENTILATING, & AIR CONDITIONING
HZ	HERTZ
IG	ISOLATED GROUND (DUPLEX RECEPTS. - NEMA 5-20RIG)
KCM	THOUSAND CIRCULAR MILLS
KVA	KILOVOLT-AMPERES (1000 VOLT-AMPERES)
KW	KILOWATTS (1000 WATTS)
MLO	MAIN LUGS ONLY
MCB	MAIN CIRCUIT BREAKER
MW	MICROWAVE (COORD MTG HT W/ ARCHITECT)
NIC	NOT IN CONTRACT
NEC	NATIONAL ELECTRICAL CODE
NF	NOT FUSED
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
PNL	PANEL
PH OR Ø	PHASE
P	POLE
PVC	POLYVINYL CHLORIDE
RF	REFRIGERATOR
RG	RANGE
SPD	SURGE PROTECTIVE DEVICE
T	TAMPERPROOF RECEPTACLE
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION RECEPTACLE
UC	UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE)
UL	UNDERWRITERS LABORATORIES
U.N.O.	UNLESS NOTED OTHERWISE
V	VOLTS
VA	VOLT-AMPERES
VD	VENDING MACHINE (24"AFF)
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS
WA	WASHER
WD	WARMING DRAWER
WO	WALL OVEN
WP	WEATHERPROOF
WP/WR	WEATHERPROOF/WEATHER RESISTANT
W/UNIT	DISCONNECT IS SUPPLIED WITH THE UNIT

GENERAL ELECTRICAL NOTES

1. COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, REQUIREMENTS OF THE AHJ AND ALL LOCAL & STATE CODES.
2. DO NOT SCALE FROM THESE DRAWINGS.
3. REFER TO ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF ALL LIGHTING FIXTURES AND ELECTRICAL DEVICES.
4. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH PULL STRINGS AND BUSHINGS.
5. ALL JUNCTION BOXES SHALL HAVE A COVER.
6. COORDINATE EACH LIGHT FIXTURE INSTALLATION(S) W/ ACTUAL CEILING TO BE FURNISHED.
7. ALL BRANCH CIRCUITS WITHOUT A CONDUCTOR & CONDUIT INDICATED SHALL BE ROUTED TO A 20A-1P BREAKER W/ 2#12,1#12EG,3/4"C.
8. ALL BRANCH CIRCUIT CONDUCTORS SHALL NOT BE SMALLER THAN #12 AWG AND ALL CONDUIT SHALL NOT BE SMALLER THAN 3/4"C, UNLESS SPECIFICALLY NOTED OTHERWISE.
9. ALL CIRCUITS (LIGHTING AND POWER) SHALL BE PROVIDED WITH DEDICATED NEUTRALS UNLESS NOTED OTHERWISE. WHERE NEUTRALS ARE INDICATED TO BE SHARED, MULTIWIRE BRANCH CIRCUITS SHALL BE PROVIDED WITH 2P OR 3P BREAKERS AS REQUIRED PER NEC210.4.
10. ALL CIRCUITS (LIGHTING AND POWER) SHALL BE PROVIDED WITH AN INSULATED EQUIPMENT GROUND CONDUCTOR SIZED IN ACCORDANCE WITH THE NEC. THE RACEWAY SHALL NOT BE USED AN EQUIPMENT GROUND.
11. ALL FIXTURES SHALL BE SUPPORTED FROM EACH CORNER (INDEPENDENT OF THE SUSPENDED CEILING) WITH 12 GAUGE WIRE CONNECTED TO STRUCTURAL SYSTEM OF BUILDING. THE INSTALLATION SHALL MEET OR EXCEED THE SEISMIC REQUIREMENTS OF LOCAL AND NATIONAL CODES.
12. ELECTRICAL DEVICE MOUNTING HEIGHTS, UNO:
    - PANELBOARDS — 78" AFF TO TOP OF PANEL
    - SWITCHES — 48" AFF TO CENTER OF SWITCH
    - RECEPTACLES — 18" AFF TO CENTER OF RECEPTACLE
    - TELE/DATA OUTLETS — 18" AFF TO CENTER OF RECEPTACLE
13. ELECTRICAL EQUIPMENT (PANELBOARDS, TRANSFORMERS, DISTRIBUTION EQUIPMENT, ETC.) IS SHOWN TO SCALE ON THE FLOOR PLANS.
14. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING EQUIPMENT THAT WILL FIT WITHIN THE SPACES SHOWN ON THE PLANS AND COMPLYING WITH ALL CODE REQUIRED CLEARANCES.
15. ELECTRICAL CONTRACTOR TO LABEL ALL DEVICES (RECEPTACLES, SWITCHES, PANELBOARDS, DISCONNECTS, ETC.) WITH CIRCUIT NUMBER AND PANELBOARD DESIGNATION. RECEPTACLES, SWITCHES, AND SIMILAR DEVICES TO HAVE PRE-PRINTED, SELF ADHESIVE LABEL.
16. PANELBOARDS, DISCONNECT SWITCHES, AND SIMILAR DEVICES TO HAVE ENGRAVED, SELF-ADHESIVE, LAMINATED ACRYLIC LABEL (BLACK W/ WHITE LETTERING).
17. PROVIDE TYPE-WRITTEN PANELBOARD SCHEDULES FOR ALL ELECTRICAL PANELBOARDS.

ELECTRICAL SYMBOLS

LIGHTING FIXTURES/DEVICES

SYMBOL	DESCRIPTION	MOUNTING
A	DOWNLIGHT (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING
A	DIRECTIONAL DOWNLIGHT (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING
A	WALL MOUNTED LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	WALL
A	LINEAR LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING OR SUSPENDED
A	2X4 LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING
A	2X2 LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING
	HATCHING ON FIXTURE INDICATES FIXTURE TO HAVE EMERGENCY BACK-UP	
X3	TWO HEAD EMERGENCY LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	WALL OR CEILING
X1 X1	EMERGENCY EXIT SIGN. PROVIDE ARROW(S) AS INDICATED. SHADING INDICATES FACE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	WALL OR CEILING
S	SINGLE POLE SWITCH 20A (120/277V)	WALL - 48" AFF
S_3	THREE WAY SWITCH 20A (120/277V)	WALL - 48" AFF
S_4	FOUR WAY SWITCH 20A (120/277V)	WALL - 48" AFF
	WALL BOX DIMMER SWITCH	WALL - 48" AFF
V_X V_X	CEILING OR WALL MOUNTED OCCUPANCY SENSOR (LETTER INDICATES SENSOR TYPE) REFER TO LIGHTING CONTROLS SCHEDULE	WALL OR CEILING
LCX	LOW-VOLTAGE CONTROL STATION (LETTER INDICATES CONTROL STATION TYPE) REFER TO LIGHTING CONTROLS SCHEDULE	WALL - 48" AFF
PCX	PHOTOCELL SENSOR (LETTER INDICATES SENSOR TYPE) REFER TO LIGHTING CONTROLS SCHEDULE	FIELD VERIFY
PP	POWERPACK (LETTER INDICATES POWERPACK TYPE) REFER TO LIGHTING CONTROLS SCHEDULE	ACCESSIBLE CEILING

COMMUNICATION/LOW-VOLTAGE DEVICES

SYMBOL	DESCRIPTION	MOUNTING
CR	CARD READER (VERIFY EXACT REQUIREMENTS)	
	DATA, TELEPHONE, OR COMBO TELE/DATA OUTLET PROVIDE PULLSTRING IN CONDUIT TO ACCESSIBLE CEILING	WALL - 18" AFF
	DATA, TELEPHONE, OR COMBO TELE/DATA OUTLET PROVIDE PULLSTRING IN CONDUIT TO ACCESSIBLE CEILING	FLOOR OR CEILING
TV TV	TELEVISION OUTLET	WALL OR CEILING
	SPEAKER OUTLET	FIELD VERIFY
'TTB'	TELEPHONE TERMINAL BOARD	WALL
	SECURITY CAMERA OUTLET	FIELD VERIFY
	PUSH BUTTON	

POWER EQUIPMENT/DEVICES

SYMBOL	DESCRIPTION	MOUNTING
	SWITCHBOARD OR DISTRIBUTION PANEL REFER TO PANEL SCHEDULES	
	DRY-TYPE TRANSFORMER REFER TO PLANS FOR KVA RATING	
	120/208V, 3Ø, 4W PANELBOARD REFER TO PANEL SCHEDULES	
	277/480V, 3Ø, 4W PANELBOARD REFER TO PANEL SCHEDULES	
J	JUNCTION BOX	WALL OR CEILING
30/20/3L	FUSED SAFETY SWITCH (E.G. 30/20/3 INDICATES A 30A, 3-POLE SWITCH WITH 20A FUSES)	
30/NF/3L	NON-FUSED SAFETY SWITCH (E.G. 30/NF/3 INDICATES A 30A, 3-POLE SWITCH WITHOUT FUSES)	
SM	MOTOR RATED SWITCH	
	MOTOR	
	NEMA 5-20R SIMPLEX RECEPTACLE	WALL - 18" AFF
	NEMA 5-20R DUPLEX RECEPTACLE	WALL - 18" AFF
	NEMA 5-20R DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER	WALL - 6" ABOVE FINISHED COUNTER U.N.O.
	NEMA 5-20R QUAD-PLEX RECEPTACLE	WALL - 18" AFF
	NEMA 5-20R SPLIT RECEPTACLE. TOP OUTLET WIRED HOT. BOTTOM OUTLET SWITCHED.	WALL - 18" AFF
	SPECIAL PURPOSE RECEPTACLE REFER TO PLANS FOR NEMA CONFIGURATION	WALL - 18" AFF OR CEILING
USB	NEMA 5-20R - DUPLEX RECEPTACLE WITH USB PORTS SIMILAR TO HUBBELL #USB20AC5W	WALL - 18" AFF
	NEMA 5-20R DUPLEX RECEPTACLE MOUNTED ON CEILING	CEILING - FLUSH
FB	HUBBELL CFB4 SERIES FLOOR BOX (OR EQUAL) WITH (2) DUPLEX RECEPTACLES AND DATA/COMMUNICATION CONNECTION CAPABILITY	FLOOR - FLUSH
FBJ	HUBBELL B24 SERIES FLOOR BOX (OR EQUAL) WITH (1) DUPLEX RECEPTACLE AND DATA/COMMUNICATION CONNECTION CAPABILITY	FLOOR - FLUSH
FBJ	HUBBELL B24 SERIES FLOOR BOX (OR EQUAL) FOR POWER AND DATA CONNECTIONS TO PRE-WIRED FURNITURE VERIFY EXACT CONNECTION WITH FURNITURE VENDOR	FLOOR - FLUSH
PCU	HUBBELL S1PT SERIES 4" POKE-THRU (OR EQUAL) WITH (2) DUPLEX RECEPTACLES AND DATA/COMMUNICATION CONNECTION CAPABILITY	FLOOR - FLUSH
PCU	HUBBELL S1PT SERIES 4" POKE-THRU (OR EQUAL) FOR POWER AND DATA CONNECTIONS TO PRE-WIRED FURNITURE VERIFY EXACT CONNECTION WITH FURNITURE VENDOR	FLOOR - FLUSH
PCU	HUBBELL S1R6 SERIES 6" POKE-THRU (OR EQUAL) WITH (2) DUPLEX RECEPTACLES AND DATA/COMMUNICATION AND A/V CONNECTION CAPABILITY	FLOOR - FLUSH
	CONDUIT IN OR UNDER FLOOR/GRADE	
	CONDUCTOR HOME RUN - (/) HOT, (\) NUETRAL, (/) EQUIPMENT GROUND, & ( ) ISOLATED GROUND	
	EQUIPMENT CONNECTION	
	CONDUIT IN CEILING OR WALL	

NOTE: NOT ALL SYMBOLS MAY BE USED.

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
22902.001

drawing issuance

PERMIT	12/08/22

drawing revisions

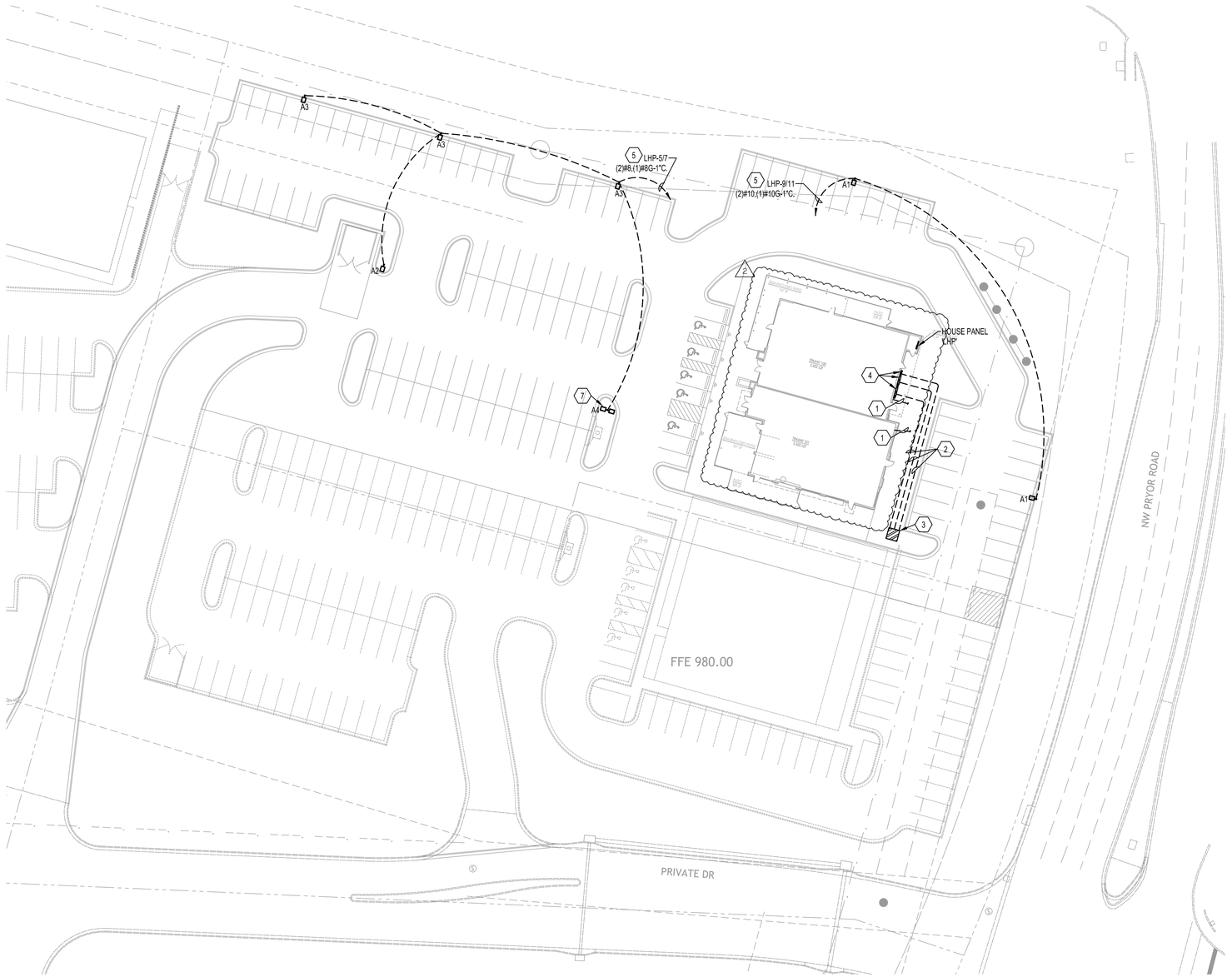
No.	Description:	Date:
1	City Comments	01/10/23
2	ADD 2	01/27/23

STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2020010759
PROFESSIONAL ENGINEER

DATE SIGNED: 01/27/2023

drawing title
ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS

drawing number
E101

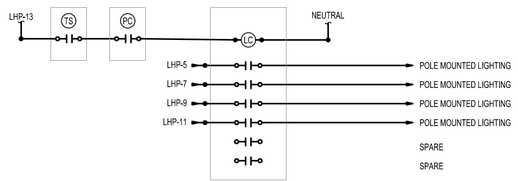


1 ELECTRICAL SITE PLAN

SCALE: 1/32" = 1'-0"

NOTES:

1. THIS DETAIL IS SCHEMATIC IN NATURE. PROVIDE ALL NECESSARY WIRING, CONDUIT, DEVICES, BOXES, ETC FOR A COMPLETE & OPERATIONAL LIGHTING CONTROL SYSTEM.
2. TIMESWITCH - (TS)
   PROVIDE INTERMATIC #ET1105C TIME SWITCH IN A STEEL, NEMA 1 ENCLOSURE.
3. CONTACTOR - (LC)
   PROVIDE SQUARE D MODEL 8903 ELECTRICALLY HELD LIGHTING CONTACTORS WITH POLE QUANTITY AS INDICATED. PROVIDE NEMA 1 ENCLOSURE TO ACCOMMODATE ALL CONTACTORS.
4. PHOTOCELL - (PC)
   PROVIDE INTERMATIC #K4236C PHOTOCELL MOUNTED ON A WEATHERPROOF BOX.



2 LIGHTING CONTROLS DIAGRAM

SCALE: NO SCALE

GENERAL NOTES

(NOT ALL NOTES APPLY)

1. REFERENCE SHEET E101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. COORDINATE MOUNTING HEIGHTS AND LOCATIONS FOR ALL DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS PRIOR TO ROUGH-IN.
3. ALL FEEDERS ROUTED ACROSS THE SITE SHALL BE INSTALLED AND CONCEALED BELOW GRADE.

KEYED NOTES:

1. PROVIDE (1) 2" CONDUIT WITH PULL STRING FOR TELE/DATA SERVICE TO TENANT SPACE. CONDUIT SHALL TERMINATE INSIDE THE BUILDING. FIELD VERIFY EXACT STUB-UP LOCATION WITH TENANT PRIOR TO ROUGH-IN. REFER TO CIVIL DRAWINGS FOR CONTINUATION.
2. ELECTRICAL SERVICE CONDUCTORS. REFER TO SHEET E301 FOR ADDITIONAL INFORMATION.
3. APPROXIMATE LOCATION OF UTILITY CO. TRANSFORMER. REFER TO CIVIL DRAWINGS FOR EXACT LOCATION.
4. ELECTRICAL SERVICE DISCONNECT. REFER TO SHEET E301 FOR ADDITIONAL INFORMATION.
5. CONTROL INTENT FOR PARKING AREA LIGHT FIXTURES IS FOR FIXTURES TO BE ON A TIME-OF-DAY SCHEDULE WITH PHOTOCELL OVERRIDE. REFER TO DETAIL 2 (THIS SHEET) FOR ADDITIONAL INFORMATION.
6. NOT USED.
7. POLE MOUNTED SITE LIGHTING FIXTURE (TYPICAL).

2

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RYAN BREWER
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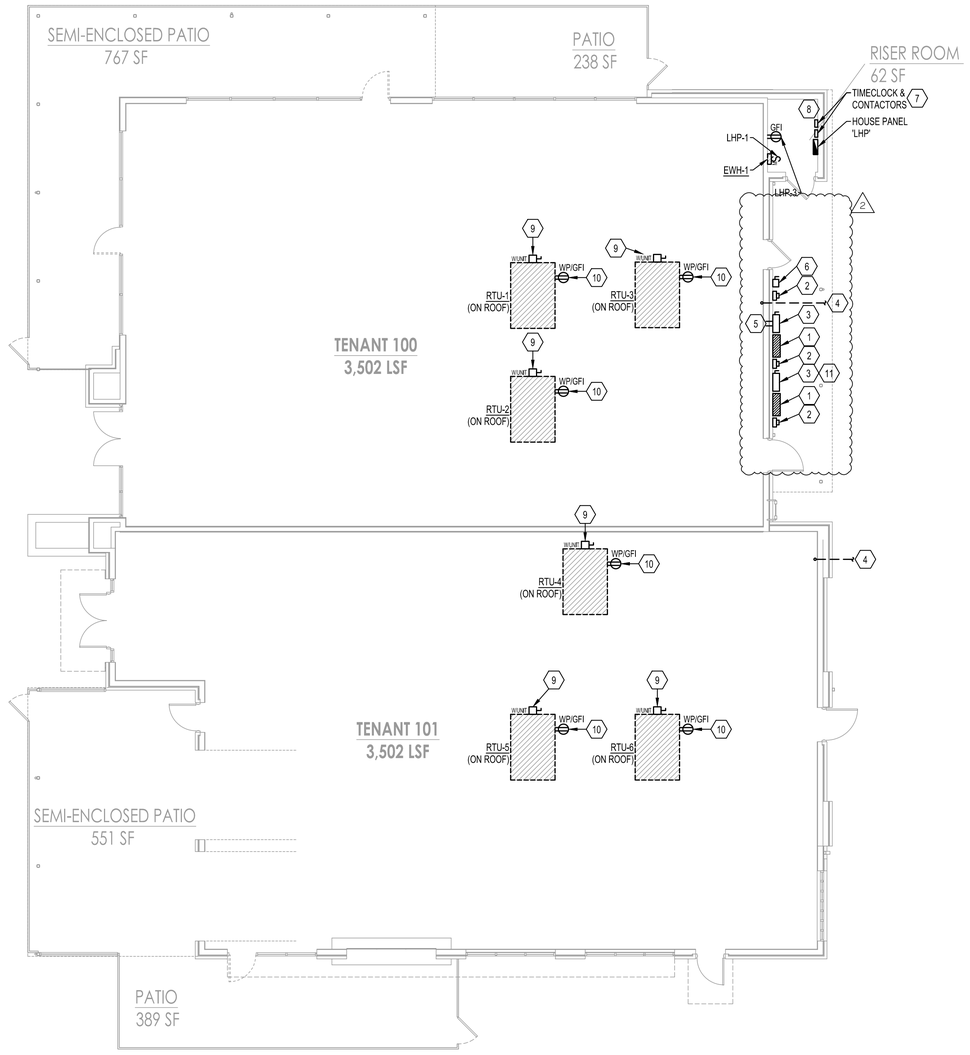
drawing title
ELECTRICAL SITE PLAN

drawing number
E102



1 ELECTRICAL POWER PLAN

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

GENERAL NOTES

(NOT ALL NOTES APPLY)

1. REFERENCE SHEET E101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. COORDINATE MOUNTING HEIGHTS AND LOCATIONS FOR ALL DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS PRIOR TO ROUGH-IN.
3. PROVIDE AND INSTALL 3/4" CONDUIT AND PULL STRINGS FROM TELEPHONE/DATA OUTLETS TO ABOVE ACCESSIBLE CEILING. VERIFY EXACT REQUIREMENTS WITH TELEPHONE EQUIPMENT SUPPLIER AND/OR TENANT.

KEYED NOTES:

1. PROVIDE UTILITY CO. APPROVED CT CABINET FOR TENANT METERING.
2. UTILITY COMPANY METER.
3. 600 AMP SERVICE DISCONNECT. REFER TO SHEET E301 FOR ADDITIONAL INFORMATION.
4. PROVIDE (1) 2" EMPTY CONDUIT WITH PULL STRING FOR TELE/DATA SERVICE TO TENANT SPACE. COORDINATE EXACT STUB-IN LOCATION WITH TENANT PRIOR TO ROUGH-IN.
5. STUB (2) 3" EMPTY CONDUITS WITH PULL STRINGS INTO CRACK SHAKE SPACE FOR FUTURE CONNECTION TO TENANT PROVIDED ELECTRICAL PANEL(S). COORDINATE EXACT STUB-IN LOCATION WITH TENANT PRIOR TO ROUGH-IN. REFER TO SHEET E301 FOR ADDITIONAL INFORMATION.
6. 100 AMP SERVICE DISCONNECT. REFER TO SHEET E301 FOR ADDITIONAL INFORMATION.
7. REFER TO DETAIL 2 ON SHEET E102 FOR ADDITIONAL INFORMATION.
8. FIELD COORDINATE EXACT LAYOUT IN THIS ROOM WITH FIRE SPRINKLER CONTRACTOR TO ENSURE ALL REQUIRED CLEARANCES ARE MAINTAINED AND NO PIPING IS ROUTED OVERHEAD OF THE PANELBOARD.
9. DISCONNECT PROVIDED WITH UNIT. STUB (1) 1" EMPTY CONDUIT WITH PULL STRING FROM RTU INTO SPACE FOR FUTURE TENANT WIRING.
10. WEATHERPROOF GFI RECEPTACLE PROVIDED WITH UNIT. STUB (1) 3/4" EMPTY CONDUIT WITH PULL STRING FROM RECEPTACLE INTO SPACE FOR FUTURE TENANT WIRING.
11. STUB (2) 3" EMPTY CONDUITS WITH PULL STRINGS INTO VIA 313 SPACE FOR FUTURE CONNECTION TO TENANT PROVIDED ELECTRICAL PANEL(S). COORDINATE EXACT STUB-IN LOCATION WITH TENANT PRIOR TO ROUGH-IN. REFER TO SHEET E301 FOR ADDITIONAL INFORMATION.

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project title

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RYAN BREWER
NUMBER PE-2009010759
PROFESSIONAL ENGINEER

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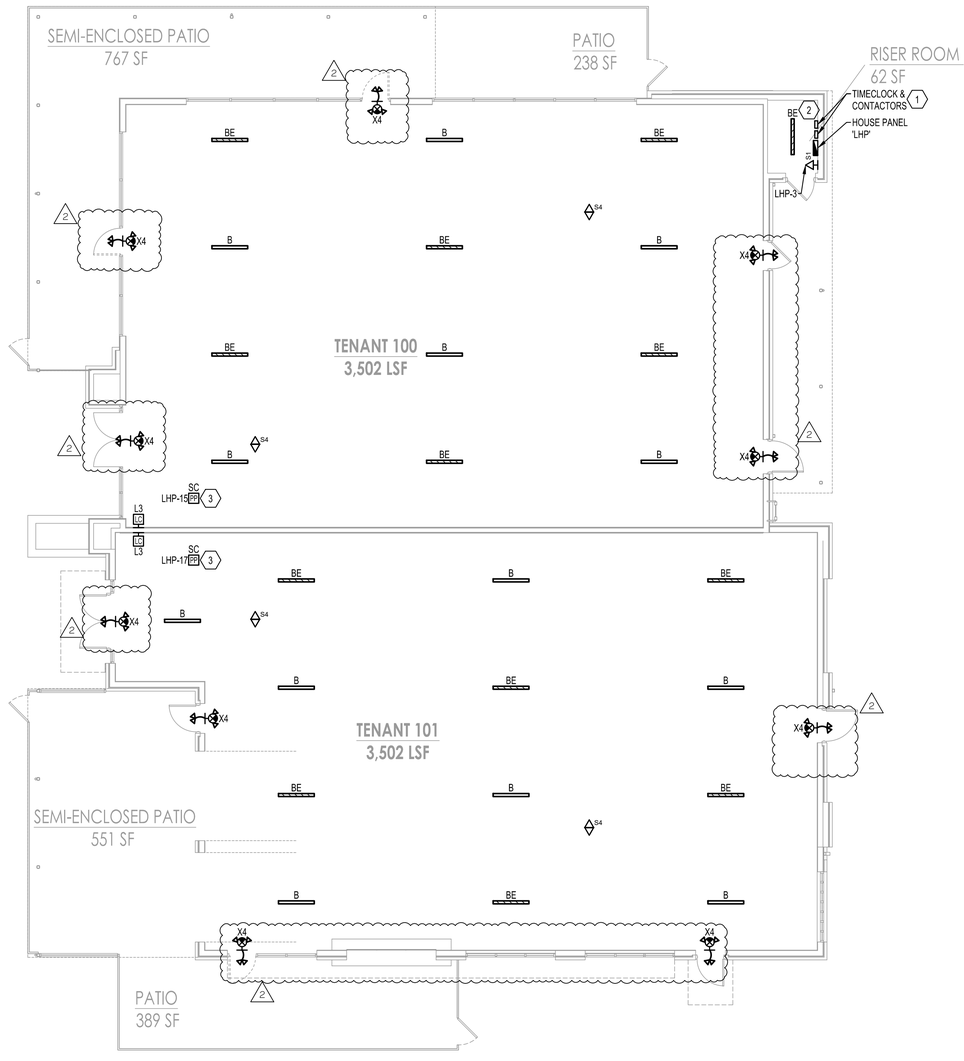
ELECTRICAL POWER PLAN

drawing number

E201



1 ELECTRICAL LIGHTING PLAN

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

GENERAL NOTES

(NOT ALL NOTES APPLY)

1. REFERENCE SHEET E101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. COORDINATE MOUNTING HEIGHTS AND LOCATIONS FOR ALL DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS PRIOR TO ROUGH-IN.
3. CIRCUIT ALL EXIT SIGNS TO NEAREST EMERGENCY LIGHTING CIRCUIT (OR NEAREST LIGHTING CIRCUIT IF NO GENERATOR).

KEYED NOTES:

1. REFER TO DETAIL 2 ON SHEET E102 FOR ADDITIONAL INFORMATION.
2. FIELD COORDINATE EXACT LAYOUT IN THIS ROOM WITH FIRE SPRINKLER CONTRACTOR TO ENSURE ALL REQUIRED CLEARANCES ARE MAINTAINED AND NO PIPING IS ROUTED OVERHEAD OF THE PANELBOARD.
3. CONTROL INTENT FOR THE TEMPORARY LIGHTING IS FOR FIXTURES TO BE MANUAL 'ON' / AUTO 'OFF' VIA OCCUPANCY SENSOR WITH MANUAL OVERRIDE AVAILABLE AT THE LOW-VOLTAGE CONTROL STATION.

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NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

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NUMBER PE-2020010759
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ELECTRICAL LIGHTING PLAN

drawing number

E202

PANEL LHP

VOLTAGE/PHASE: **208Y/120V, 3PH, 4W** | AFC VALUE: **4,745A** | GROUNDS: **EG (PER T250.122)**
BUS AMPERAGE: **100A** | AIC RATING: **10,000A** | ISOLATED GROUND BUS: **NO**
MAIN TYPE: **MLO** | MOUNTING: **SURFACE (NEMA 1)** | SERVICE ENTRANCE RATED: **NO**

ALL LOADS IN VA

	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV	DESCRIPTION	AMP	P	WIRE	CKT #	PHASE	CKT #	WIRE	P	AMP	DESCRIPTION	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV
				1800					RISER ROOM HEATER	20	1	12	1	A	2				SPACE ONLY								
	34	180							RISER RM LT/RCPT	20	1	12	3	B	4				SPACE ONLY								
TC	441								POLE MOUNTED SITE LIGHTING	20	2	SP	5	C	6				SPACE ONLY								
TC	441												7	A	8				SPACE ONLY								
TC	147								POLE MOUNTED SITE LIGHTING	20	2	SP	9	B	10				SPACE ONLY								
TC	147												11	C	12				SPACE ONLY								
						200			TIMECLOCK	20	1	12	13	A	14				SPACE ONLY								
	408								CRACK SHACK TEMP LTG	20	1	12	15	B	16				SPACE ONLY								
	442								VIA 313 TEMP LTG	20	1	12	17	C	18				SPACE ONLY								
									SPACE ONLY				19	A	20				SPACE ONLY								
									SPACE ONLY				21	B	22				SPACE ONLY								
									SPACE ONLY				23	C	24				SPACE ONLY								
									SPACE ONLY				25	A	26				SPACE ONLY								
									SPACE ONLY				27	B	28				SPACE ONLY								
									SPACE ONLY				29	C	30				SPACE ONLY								
	2060	180	0	1800	0	200	0	0	TOTALS										TOTALS	0	0	0	0	0	0	0	0

NEC CODE REFERENCES

* 100% OF 1ST 10 KVA, 50% OF REMAINING
** 125% OF LARGEST MOTOR + 100% SUM OF REMAINING MOTORS
*** ELEVATOR DEMAND FACTOR BASED ON NEC T620.14.

PANEL ABBREVIATIONS

GF - GROUND FAULT BREAKER	EM - PROVIDE EMERGENCY LOCKING TAB
ST - SHUNT TRIP BREAKER	FA - FIRE ALARM, PROVIDE RED LOCKING TAB
AF - ARC FAULT BREAKER	LCK - PROVIDE PADLOCKABLE BREAKER
GF/AF - COMBO ARC/GROUND FAULT BREAKER	OL - REFER TO ONE-LINE DIAGRAM FOR WIRE SIZE
SP - REFER TO SITE PLAN FOR WIRE SIZE	TC - CIRCUIT CONTROLLED VIA TIME CLOCK

PANEL NOTES

PHASE LOAD SUMMARY

TOTAL	PHASE	LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV
2441	A	441	0	0	1800	0	200	0	0
769	B	589	180	0	0	0	0	0	0
1030	C	1030	0	0	0	0	0	0	0

PANEL LOAD SUMMARY

		LTG	RCPT	MOTOR	HEAT	COOL	MISC	KITCHEN	ELEV
4240	CONNECTED VA	2060	180	0	1800	0	200	0	0
--	DEMAND FACTORS	1.25	*	**	1.00	1.00	1.00	1.00	1.00
4755	DEMAND VA	2575	180	0	1800	0	200	0	0
0	SHOW WINDOW DEMAND								
0	TRACK LTG DEMAND								
0%	SPARE								
4755	DEMAND VA + SPARE								
13.2	TOTAL DESIGN AMPS								

LIGHTING FIXTURE SCHEDULE

FIXT. TYPE	DESCRIPTION & MANUFACTURER OPTIONS	LAMPS NO.	LAMPS TYPE	FIXT. VOLT	TOTAL WATTS	FINISH	REMARKS/MOUNTING	NOTES
A1	Pole Mounted, LED Site Luminaire M# **LITHONIA #RSX2-LED-P3-40K-R3-MVOLT-AASP**	1	LED	**208V 1 PH**	**147W**	Bronze	Pole Mounted. Provide 10' Pole	**2,3,4,5**
A2	Pole Mounted, LED Site Luminaire M# **LITHONIA #RSX2-LED-P3-40K-R4-MVOLT-SPA**	1	LED	**208V 1 PH**	**147W**	Bronze	Pole Mounted. Provide 25' Pole	**2,3,4**
A3	Pole Mounted, LED Site Luminaire M# **LITHONIA #RSX2-LED-P3-40K-R4-MVOLT-AASP**	1	LED	**208V 1 PH**	**147W**	Bronze	Pole Mounted. Provide 10' Pole	**2,3,4,5**
A4	Pole Mounted, LED Site Luminaire M# **LITHONIA #RSX2-LED-P3-40K-R4-MVOLT-SPA (2-HEADS)**	1	LED	**208V 1 PH**	**147W/ HEAD**	Bronze	Pole Mounted. Provide 25' Pole	**2,3,4**
B	Linear LED Strip Light M# **FSC LTG#L285-48-45W-AOK-S5**	1	LED	**UNV**	**34W**	Standard	Coord. w/ Architect	
BE	Linear LED Strip Light w/ Emergency Battery Pack M# **FSC LTG#L285-48-45W-AOK-S5-EM10W**	1	LED	**UNV**	**34W**	Standard	Coord. w/ Architect	**1**
X4	Combination LED Exit Sign and Emergency Light Fixture w/ Exterior Rated Remote Emergency Heads, Universal Mount, Emergency Battery Pack. Provide Arrows as Indicated. M# **EVENLITE #TCXCOM-R-U-W-PRWLED2MV DUAL LITE #EVC-U-R-W-D4 WITH EVO-D-X**	1	LED	**UNV**	**5W**		Wall/Ceiling/Pendant	**1**

NOTES:
1. Circuit Emergency Battery Packs and Exit Signs to Local Lighting Circuit Ahead of Any Means of Control for Proper Operation.
2. Provide Wet Location Rated Fixture.
3. Provide Cold Location Rated Ballast.
4. Provide Square, Straight Steel Pole Rated for 100 MPH Wind Gusts, Primed and Painted to Match Fixture.
5. Provide With Adjustable Mounting Arm. Mount at 15 Degrees From Horizontal.

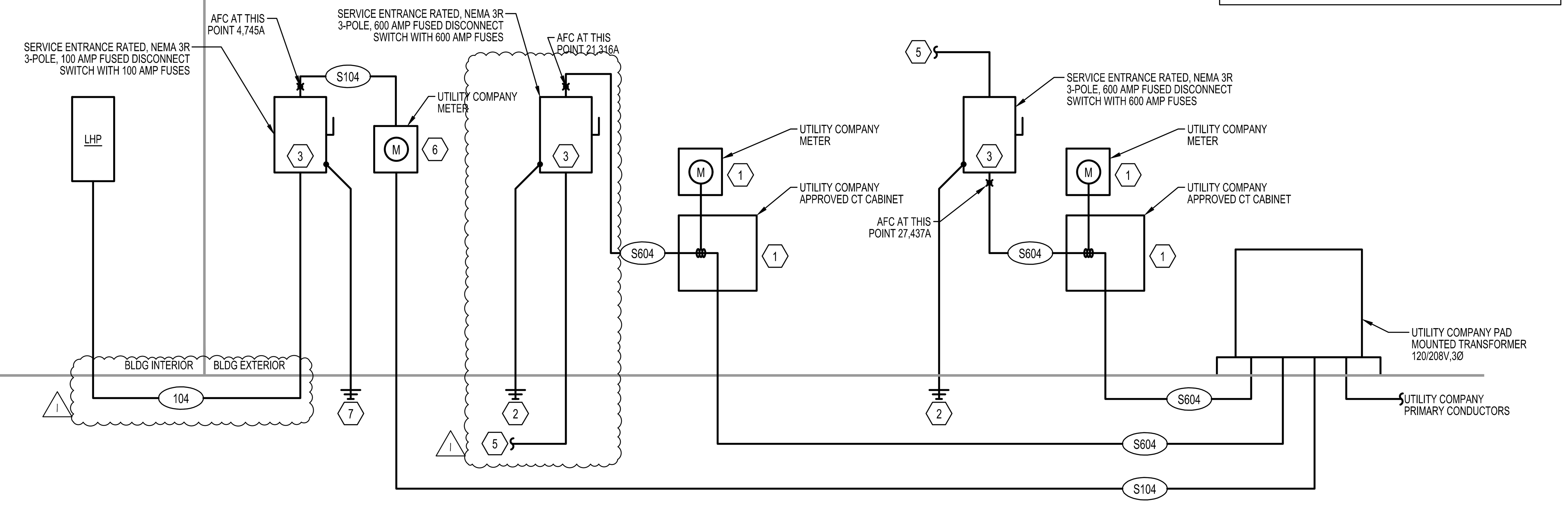
LIGHTING CONTROLS SCHEDULE

1

FIXTURE TAG	MANUFACTURER	MODEL #	SETTINGS	DESCRIPTION	NOTES
SC	ACUITY BRANDS: nLIGHT	nPP16 SERIES	ON: MANUAL OFF: 20 MINUTE DELAY	ON/OFF ROOM SWITCH CONTROLLER LINE VOLTAGE - SINGLE RELAY	1,2,4
L3	ACUITY BRANDS: nLIGHT	nPODM	-	ON/OFF LOW VOLTAGE SWITCH WITH 1-CHANNEL CONTROL	1,6
S1	SENSOR SWITCH	WSX SERIES	REFER TO PLANS	WALL MOUNT OCCUPANCY SENSOR LINE VOLTAGE - SINGLE RELAY	1
S4	ACUITY BRANDS: nLIGHT	nCM-10 SERIES	-	CEILING MOUNT OCCUPANCY SENSOR - LARGE MOTION LOW VOLTAGE	3
WIRE	-	-	-	CAT5, CAT5e, OR CAT 6. STANDARD OR SOLID. TERMINATED AS RJ45 TIA/EIA-568B	

NOTES:
1. COORDINATE ALL MODEL NUMBERS WITH MANUFACTURER PRIOR TO ORDERING. PROVIDE DEVICES TO MEET CONTROL INTENT INDICATED ON THE DRAWINGS.
2. PROVIDE 6'-0" OF EXCESS CONTROL WIRING, COILED AND TIED, BETWEEN CEILING MOUNTED OCCUPANCY SENSOR AND CORRESPONDING LOAD CONTROLLER.
3. MODIFY LOCATIONS OF CEILING MOUNTED OCCUPANCY SENSORS AS REQUIRED SO THAT NO OCCUPACNY SENSORS IS WITHIN 4'-0" OF AN HVAC SUPPLY DIFFUSER.
4. LOCATE DEVICE ABOVE CEILING OR AT STRUCTURE IN ACCESSIBLE LOCATION. LOCATIONS SHOWN ON DRAWINGS ARE SCHEMATIC. ADD ACCESS PANEL WITHIN CEILING IF NECESSARY. COORDINATE ACCESS PANEL LOCATION AND SPECIFICATION DIRECTLY WITH ARCHITECT.
5. LOCATION SHOWN ON PLAN FOR REFERENCE ONLY. CONTRACTOR MAY RELOCATE BRIDGE PORTS FOR A MORE ECONOMICAL LAYOUT IF DESIRED.
6. PROVIDE DEVICES WITH DEFAULT MANUFACTURE MARKINGS ON BUTTONS.
7. ROUTE RECEPTACLE CIRCUIT INDICATED ON PLAN AS "CONTROLLED RECEPTACLES" THROUGH PLUG LOAD CONTROLLER FOR AUTOMATIC ON/OFF CONTROL VIA OCCUPACNY SENSOR. ONE CONTROLLED CIRCUIT PER PLUG CONTROLLER.

ARC FAULT CALCULATIONS ARE BASED ON AN ASSUMED AVAILABLE FAULT CURRENT OF 50,000A FROM THE UTILITY COMPANY TRANSFORMER AND A DISTANCE OF 55', 90' AND 110' BETWEEN THE UTILITY TRANSFORMER AND THE SERVICE DISCONNECTS. FIELD VERIFY ALL ASSUMPTIONS AND NOTIFY ENGINEER IF ACTUAL INFORMATION DOES NOT MATCH ASSUMPTIONS.



1 **ELECTRICAL RISER DIAGRAM**
SCALE: NO SCALE

FEEDER SCHEDULE

THHN/THWN COPPER CONDUCTORS W/ EG CONDUCTOR
XHHW ALUMINUM CONDUCTORS W/ EG CONDUCTOR

CODE	SETS	CONDUCTORS & GROUND: CONDUCTORS	CONDUCTORS & GROUND: RACEWAY	AMPS
104	-	4#3,1#8G. (CU)	1-1/4"	100
S104	-	4#3 (CU)	1-1/4"	100
S604	2	4#350KCM. (CU)	3"	620

NOTES:
1. ALL CONDUCTORS AMPACITY BASED ON THE NEC TABLE 310-16 FOR CONDUCTORS W/ 75°C INSULATION.
2. ALL RACEWAY SIZES (EMT/RMC/PVC 40) BASED ON THE NEC TABLE 4(CHAPTER 9), 40% FILL COLUMN.
3. ELECTRICAL CONTRACTOR TO VERIFY ALL EQUIPMENT CONDUCTOR TERMINATION TEMPERATURE RATINGS (IE, 60°C OR 75°C). ADJUST CONDUCTOR AMPACITY AND CONDUIT SIZES ACCORDINGLY.
4. VERIFY MAXIMUM NO. OF SETS OF SERVICE ENTRANCE CONDUCTORS ALLOWED W/ UTILITY CO.
5. EQUIPMENT GROUNDING CONDUCTORS BASED ON T250.122. GROUND TO BE ADJUSTED PER T250.66 FOR SEPARATELY DERIVED SYSTEMS.
6. ALUMINUM FEEDERS NOT TO BE USED ON TRANSFORMER SECONDARY CONDUCTORS.

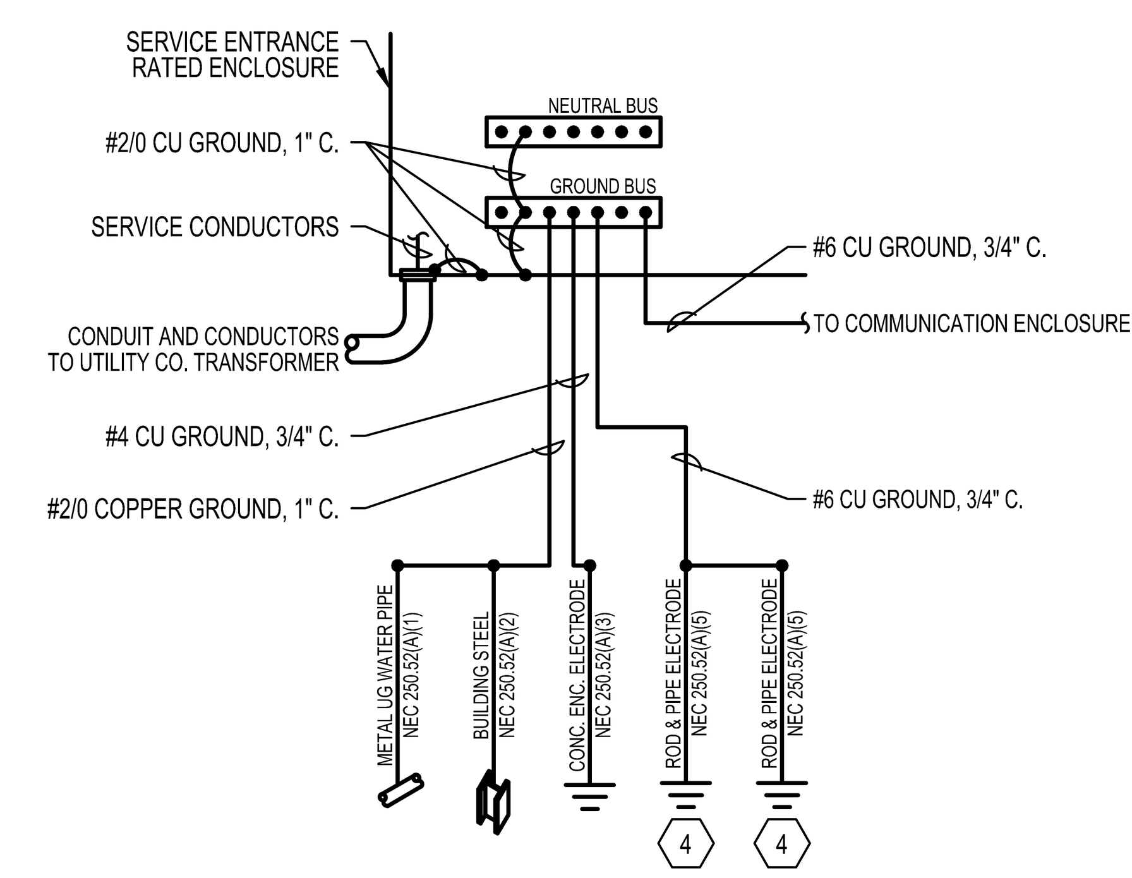
VOLTAGE DROP CHART

BRANCH CIRCUIT VOLTAGE DROP WIRING SCHEDULE FOR 1Ø CIRCUITS

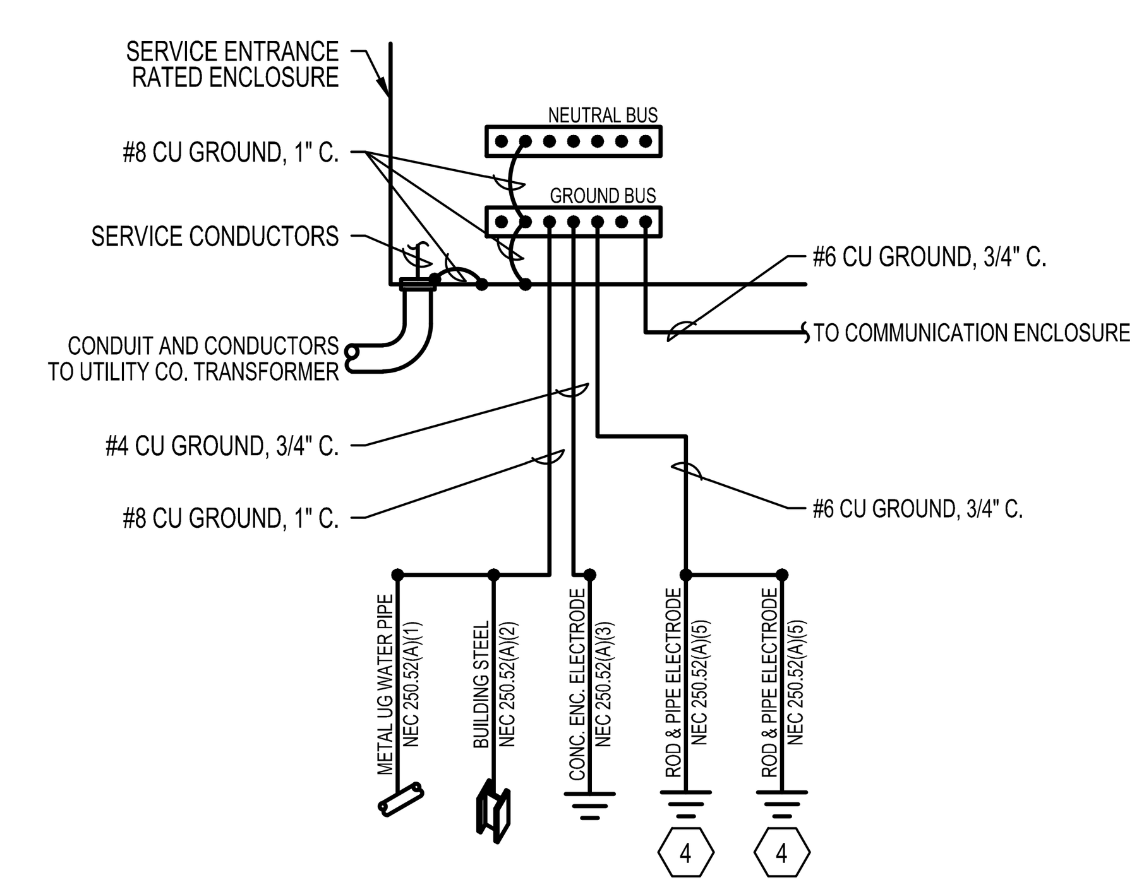
BRANCH CIRCUIT RATING (AMPS)	WIRE SIZE (AWG)	MAXIMUM LENGTH OF BRANCH CIRCUIT (FEET)				
		120V	208V	240V	277V	480V
20A	#12	50	90	110	125	200
	#10	80	150	175	200	350
	#8	140	230	280	320	550
	#6	215	375	430	500	870
30A	#10	50	100	110	130	225
	#8	80	160	180	210	360
	#6	135	250	280	325	560
	#4	220	400	450	525	910

NOTES:
1. PROVIDE BRANCH CIRCUIT CONDUCTORS AS INDICATED IN THE TABLE ABOVE FOR ALL LIGHTING AND RECEPTACLE BRANCH CIRCUITS. WHERE BRANCH CIRCUITS SERVE DEDICATED EQUIPMENT, THE CONTRACTOR MAY PERFORM VOLTAGE DROP CALCULATIONS BASED ON ACTUAL EQUIPMENT CONNECTED LOAD AND PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO A MAXIMUM OF 3%.
2. CONDUCTOR SIZES ARE BASED ON SOLID COPPER CONDUCTORS FOR WIRES SMALLER THAN #6 AND STRANDED COPPER CONDUCTORS FOR WIRES #6 AND LARGER, IN A SINGLE METAL CONDUIT.
3. LIMITS FOR CONDUCTOR LENGTH SHOWN ARE BASED ON A MAXIMUM OF 3% VOLTAGE DROP TO COMPLY WITH THE NEC FOR CIRCUITS LOADED UP TO 80% OF THE BRANCH BREAKER RATING. FIELD VERIFY EXACT BRANCH CIRCUIT LENGTHS AND PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO 3%.

UNLESS NOTED OTHERWISE, WIRE SIZES CALLED OUT IN PANEL SCHEDULES DO NOT ACCOUNT FOR VOLTAGE DROP. CONTRACTOR SHALL INCREASE WIRE SIZES AS REQUIRED UTILIZING VOLTAGE DROP TABLE PROVIDED.



2 **SERVICE GROUNDING DETAIL**
SCALE: NO SCALE



3 **SERVICE GROUNDING DETAIL**
SCALE: NO SCALE

GENERAL NOTES

(NOT ALL NOTES APPLY)

1. REFERENCE SHEET E101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. COORDINATE MOUNTING HEIGHTS AND LOCATIONS FOR ALL DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS PRIOR TO ROUGH-IN.
3. FIELD COORDINATE ALL ELECTRICAL WORK WITH OWNER AND UTILIITY COMPANY PRIOR TO START OF PROJECT.

KEYED NOTES:

1. PROVIDE UTILITY CO. METER AND CT CABINET PER UTILITY COMPANY STANDARDS. INSTALLATION SHALL MEET ALL UTILITY COMPANY REQUIREMENTS AND LOCAL CODES.
2. REFER TO DETAIL 2 (THIS SHEET) FOR ADDITIONAL INFORMATION.
3. PROVIDE NEMA 3R, SERVICE ENTRANCE RATED, FUSED DISCONNECT (SIZE AS SHOWN) FOR ELECTRICAL SERVICE DISCONNECTING MEANS.
4. REFER TO NEC 250.53 FOR ADDITIONAL INFORMATION.
5. STUB (2) 3" CONDUITS INTO TENANT SPACE FOR FUTURE CONNECTION TO TENANT PROVIDED PANEL.
6. PROVIDE UTILITY CO. METER PER UTILITY CO. STANDARDS.
7. REFER TO DETAIL 3 (THIS SHEET) FOR ADDITIONAL INFORMATION.

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project title

LOT 12 OF WEST PRYOR
NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
22902.001

drawing issuance
PERMIT 12/08/22

drawing revisions

No.	Description:	Date:
1	City Comments	01/10/23
2	ADD 2	01/27/23

STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2020010759
PROFESSIONAL ENGINEER

DATE SIGNED: 01/27/2023

drawing title
ELECTRICAL RISER DIAGRAM AND SCHEDULES

drawing number
E301

16000 - ELECTRICAL

GENERAL

DESCRIPTION
DIVISION 16 OF THE SPECIFICATIONS COVERS ALL ELECTRICAL WORK FOR THE PROJECT. WORK SHALL INCLUDE LABOR, MATERIAL AND ACCESSORIES NECESSARY TO ACCOMPLISH THE WORK AS SPECIFIED AND SHOWN ON THE DRAWINGS, INCLUDING CONNECTION AND CHECKOUTS OF EQUIPMENT FURNISHED BY OTHERS (OTHER TRADES, THE OWNER AND OTHER CONTRACTORS), AND TO ALL EQUIPMENT ITEMS AND AS INDICATED ON DRAWINGS OR AS REQUIRED.

THE ARCHITECTURAL SPECIFICATIONS AND DRAWINGS INCLUDING THE GENERAL - CONDITIONS, INCLUDING ALL SUPPLEMENTS ISSUED THERETO, INSTRUCTIONS TO BIDDERS, AND OTHERS PERTINENT DOCUMENTS ISSUED BY THE ARCHITECT ARE A PART OF THESE SPECIFICATIONS AND ELECTRICAL DRAWINGS. THIS TRADE SHALL CONSULT THEM FOR INSTRUCTIONS WHICH APPLY. DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF THE ELECTRICAL LAYOUT AND WORK INCLUDED. ELECTRICIAN SHALL FOLLOW DRAWINGS IN LAYOUT THE ELECTRICAL WORK AND CONSULT THE DRAWINGS AND LAYOUTS OF OTHER TRADES TO VERIFY LOCATION AND SPACES IN WHICH WORK WILL BE INSTALLED.

CODES, PERMITS, INSPECTION AND COMMISSIONING
INSTALLATION SHALL COMPLY WITH ALL LAWS APPLYING TO ELECTRICAL WORK IN EFFECT, INCLUDING THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (N.E.C.), THE NATIONAL ELECTRICAL SAFETY CODE, ALL LOCAL GOVERNING CODES AND ORDINANCES, WITH THE REGULATIONS OF THE SERVING ELECTRICAL UTILITY COMPANY. PROVIDE ALL REQUIRED PERMITS AND INCLUDE THE COST OF SAME IN THE COST OF THE PROJECT. OBTAIN AND PAY FOR (WITHOUT ADDITIONAL EXPENSE TO THE OWNER) ALL REQUIRED INSPECTIONS AND REVIEWS. PROVIDE FOR AND PAY ALL EXPENSES (WITHOUT ADDITIONAL EXPENSE TO THE OWNER) ASSOCIATED WITH LIGHTING AND LIGHTING CONTROLS COMMISSIONING. ALL COMMISSIONING DOCUMENTATION SHALL BE CERTIFIED AND GIVEN TO OWNER AND DESIGN PROFESSIONAL.

QUALITY ASSURANCE
THE FOLLOWING INDUSTRY STANDARDS AS APPLICABLE TO ELECTRICAL WORK SHALL APPLY TO THE WORK OF THIS DIVISION EXCEPT THAT, WHERE THE REQUIREMENTS OF THESE SPECIFICATIONS ARE MORE THAN THE LISTED STANDARD, THESE SPECIFICATIONS SHALL TAKE PRECEDENCE:

UL - UNDERWRITERS' LABORATORIES
NEMA - NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION
NECA - NATIONAL ELECTRICAL CONTRACTOR'S ASSOCIATION
ANSI - AMERICAN NATIONAL STANDARDS INSTITUTE
ASTM - AMERICAN SOCIETY OF TESTING MATERIALS.

ALL MATERIALS SHALL BE NEW, UL LISTED AND LABELED WHERE LABELED MATERIALS ARE AVAILABLE, UNDAMAGED AND FREE OF DEFECTS AT TIME OF INSTALLATION. MATERIALS OR EQUIPMENT DAMAGED IN SHIPMENT OR OTHERWISE DAMAGED PRIOR TO OR DURING INSTALLATION SHALL NOT BE REPAIRED AT THE JOB SITE, BUT SHALL BE REPLACED WITH NEW MATERIALS. WHEN THE MANUFACTURER'S NAME APPEARS IN THESE SPECIFICATIONS AND DRAWINGS, IT SHALL BE CONSTRUED THAT THE MANUFACTURER HAS TO MEET THE FULL REQUIREMENTS OF THE SPECIFICATIONS AND DRAWINGS.

SUBMITTALS
SUBMIT SHOP DRAWINGS AND PRODUCT DATA FOR EQUIPMENT TO THE ARCHITECT FOR ENGINEER'S REVIEW ELECTRONICALLY OR HARD COPIES. INCLUDE SUFFICIENT INFORMATION TO INDICATE COMPLETE COMPLIANCE WITH SPECIFICATIONS. PROVIDE SUBMITTALS AS EARLY AS REQUIRED TO SUPPORT THE PROJECT SCHEDULE. ALLOW ONE WEEK FOR ENGINEER REVIEW TIME. THE ENGINEER'S SUBMITTAL REVIEWS WILL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS IN DIMENSIONS, DETAILS, SIZE OF MEMBERS, OR QUANTITIES; OR FOR OMITTING COMPONENTS OR FITTINGS; OR FOR NOT COORDINATING ITEMS WITH ACTUAL BUILDING CONDITIONS AND/OR OTHER TRADES.

OWNER RECORDS
ACCUMULATE DURING THE PROGRESS OF THE JOB, THE FOLLOWING DATA IN DUPLICATE, AND PREPARE IN A NEAT BROCHURE OR PACKET FOLDER TO BE TURNED OVER TO THE OWNER AT SUBSTANTIAL COMPLETION: RECORD DRAWINGS PER ABOVE.

ALL WARRANTIES, GUARANTEES, AND MANUFACTURER'S DIRECTION ON EQUIPMENT & MATERIAL FURNISHED.

COMPLETE PLAIN ENGLISH STEP-BY-STEP OPERATING INSTRUCTIONS FOR THE ELECTRICAL SYSTEM. ONE COPY OF THESE INSTRUCTIONS SHALL BE FRAMED AND POSTED AS DIRECTED ON THE PREMISES.

CERTIFIED LIGHTING AND LIGHTING CONTROLS COMMISSIONING AS REQUIRED BY CURRENTLY ADOPTED ENERGY CODE REQUIREMENTS.

MANUFACTURERS' NAMES AND CATALOG NUMBERS
IN SOME INSTANCES, SPECIFIC REFERENCES HAVE BEEN MADE TO ONE OR MORE MANUFACTURER'S NAME AND MODEL OR CATALOG NUMBERS. USE OF NAMES AND CATALOG NUMBERS DOES NOT INDICATE THAT THE EQUIPMENT SPECIFIED IN NECESSARILY AN "OFF THE SHELF" ITEM. VARIANCES MAY BE DUE TO REQUIREMENT OF DESIRED FINISH, MATERIAL OR OTHER MODIFICATION.

IN THE CASE OF PANELBOARDS, SAFETY SWITCHES AND OTHER EQUIPMENT REQUIRING WIRE AND CABLE TERMINATIONS, ASCERTAIN THAT LUG SIZES AND WIRING GUTTERS OR WIRING SPACE ALLOWED IS PROPER FOR THE WIRES AND CABLES CONTAINED THEREIN.

WHEN APPROVAL IS GIVEN FOR THE USE OF EQUIPMENT DIFFERING FROM THAT SHOWN ON DRAWINGS IN REGARD TO FOUNDATIONS, SPACE FOR PIPING, DUCTWORK, WIRING, INSULATION, ETC. CHANGES REQUIRED TO ACCOMPLISH SUCH DIFFERENCES SHALL BE ACCOMPLISHED AT NO COST TO THE OWNER.

PROTECTION OF EQUIPMENT
ELECTRICAL EQUIPMENT SHALL BE PROTECTED FROM THE WEATHER, IN PARTICULAR, DRIPPING OR SPLASHING WATER, AT ALL TIMES DURING SHIPMENT, STORAGE AND CONSTRUCTION. MANUFACTURER'S RECOMMENDATIONS WITH REGARD TO STORAGE, PROTECTION, AND HANDLING SHALL BE FOLLOWED.

SHOULD ANY APPARATUS BE SUBJECTED TO POSSIBLE INJURY DUE TO WATER, IT SHALL BE THOROUGHLY DRIED AND PUT THROUGH A DIELECTRIC TEST, AT THE EXPENSE OF THE CONTRACTOR, TO ASCERTAIN THE SUITABILITY OF THE APPARATUS OR IT SHALL BE REPLACED WITHOUT ADDITIONAL COST TO THE OWNER.

DAMAGED OR DEFECTIVE EQUIPMENT: INSPECT ALL ELECTRICAL EQUIPMENT AND MATERIALS PRIOR TO INSTALLATION. INSTALLATION OR PLACEMENT INTO SERVICE OF DAMAGED MATERIALS WITHOUT THE PRIOR WRITTEN CONSENT OF THE OWNER IS PROHIBITED. REPLACE OR REPAIR TO NEW CONDITION, AS CERTIFIED BY THE MANUFACTURER, AND TEST DAMAGED EQUIPMENT IN COMPLIANCE WITH INDUSTRY STANDARDS AT NO ADDITIONAL COST TO THE OWNER. EQUIPMENT REQUIRED FOR THE TESTING SHALL BE PROVIDED BY THE CONTRACTOR.

WORKING CLEARANCE
THE SIZE OF ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS IS BASED ON DIMENSIONS OF A PARTICULAR MANUFACTURER, (GENERALLY THE FIRST NAMED). WHILE OTHER MANUFACTURERS MAY BE ACCEPTABLE, IT IS THE RESPONSIBILITY OF THE TRADE TO DETERMINE IF THE EQUIPMENT PROPOSED WILL FIT IN THE ALLOCATED SPACE.

INSTALL ALL EQUIPMENT IN A MANNER TO PERMIT ACCESS TO ALL SURFACES. MAINTAIN PROPER CLEARANCE TO MEET ALL SAFETY AND OPERATING CODES, PARTICULARLY N.E.C. INCLUDE ALL REQUIREMENTS DICTATED BY OPERATION, CONTROL, ADJUSTMENT, MAINTENANCE AND POSSIBLE REPLACEMENT OF EQUIPMENT IN DETERMINING CLEARANCE.

SHOULD THERE BE APPARENT VIOLATIONS OF N.E.C. CLEARANCE, NOTIFY THE ARCHITECT-ENGINEER BEFORE PROCEEDING WITH CONNECTION OR PLACEMENT OF EQUIPMENT.

COORDINATION
INSTALLATION STUDIES ARE REQUIRED TO COORDINATE THE ELECTRICAL WORK WITH THE WORK OF OTHER TRADES. PREPARE COORDINATION DRAWINGS AT ACCURATE SCALE WHERE SEVERAL ELEMENTS OF ELECTRICAL OR COMBINED MECHANICAL/STRUCTURAL/ELECTRICAL WORK MUST BE SEQUENCED AND POSITIONED WITH PRECISION IN ORDER TO FIT INTO THE AVAILABLE SPACE.

SHOW THE ACTUAL PHYSICAL DIMENSIONS REQUIRED FOR PROPER INTEGRATION OF EQUIPMENT WITH BUILDING SYSTEMS.

PROVIDE APPROVED SHOP DRAWINGS TO ALL REQUIRED DISCIPLINES AND VERIFY FINAL ELECTRICAL CHARACTERISTICS BEFORE ROUGHING POWER FEEDS TO ANY EQUIPMENT. WHEN ELECTRICAL DATA ON APPROVED SHOP DRAWINGS DIFFERS FROM CONTEMPLATED DESIGN, MAKE NECESSARY ADJUSTMENTS TO THE WIRING, DISCONNECTS, AND BRANCH-CIRCUIT PROTECTION FOR THE EQUIPMENT ACTUALLY INSTALLED AT NO ADDITIONAL COST TO THE OWNER.

DAMAGE FROM INTERFERENCE CAUSED BY INADEQUATE COORDINATION SHALL BE RECTIFIED AT NO ADDITIONAL COST TO THE OWNER.

WORKMANSHIP
ALL WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL PRESENT A NEAT MECHANICAL APPEARANCE WHEN COMPLETED.

ANY MATERIAL ITEMS OR WORK NOT SHOWN ON THE DRAWINGS, BUT MENTIONED IN THESE SPECIFICATIONS OR VISA-VERSA, OR ANY ACCESSORIES NECESSARY TO MAKE THE WORK COMPLETE IN ALL RESPECTS AND READY FOR OPERATION SHALL BE PROVIDED WITHOUT ADDITIONAL COST TO THE OWNER.

THIS TRADE SHALL DO OR HAVE DONE BY COMPETENT TRADESMEN ALL CUTTING AND PATCHING NECESSARY FOR THE INSTALLATION OF THIS WORK. NO CUTTING IN CONSTRUCTIVE PARTS OF THE BUILDING LIKELY TO IMPAIR ITS STRENGTH SHALL BE DONE WITHOUT THE ARCHITECT-ENGINEER'S WRITTEN APPROVAL.

EXCAVATION AND BACKFILL
EXCAVATION, TRENCHING AND BACKFILLING ARE SPECIFIED IN SECTION EXCAVATION TRENCHING AND BACKFILLING FOR UTILITIES. CONDUIT IS TO BE INSTALLED AS SPECIFIED FOR PIPELINES. CONDUIT INSTALLED BENEATH FLOOR SLAB SHALL BE A MINIMUM OF 6" BELOW SLAB. BACKFILL OVER CONDUIT SHALL BE COMPACTED AS FOR SLAB BEDDING MATERIAL. REFER TO STRUCTURAL DRAWINGS FOR DETAILS OF CONDUIT (PIPE) PENETRATION OF EXTERIOR FOOTINGS. COMPLETE INSTALLATION SHALL CONFORM TO N.E.C.

PENETRATIONS
COORDINATE SLEEVE SELECTION AND APPLICATION WITH SELECTION AND APPLICATION OF FIRE-STOPPING SPECIFIED IN ARCHITECTURAL SPECIFICATIONS.

ROOFS: COORDINATE ALL ROOF PENETRATIONS WITH ENGINEER, OWNER, AND AS APPLICABLE, THE ROOFING CONTRACTOR PROVIDING A ROOF WARRANTY. KEEP ALL RACEWAY PENETRATIONS WITHIN MECHANICAL EQUIPMENT CURBS WHEREVER POSSIBLE. COORDINATE WITH DIVISION 15. FLASH AND COUNTERFLASH ALL OPENINGS THROUGH ROOF, AND/OR PROVIDE PRE-FABRICATED MOLDED SEALS COMPATIBLE WITH THE ROOF CONSTRUCTION INSTALLED, OR AS REQUIRED BY THE ENGINEER, OWNER, OR ROOFING CONTRACTOR. ALL ROOF PENETRATIONS SHALL BE LEAKTIGHT AT THE TERMINATINO OF THE WORK AND SHALL NOT VOID ANY NEW OR EXISTING ROOF WARRANTIES.

WALLS AND FLOORS - SLEEVES FOR RACEWAYS AND CABLES:
STEEL PIPE SLEEVES: ASTM A 53/A 53M, TYPE E, GRADE B, SCHEDULE 40, GALVANIZED STEEL, PLAIN ENDS AND DRIP RINGS.

CAST IRON PIPE SLEEVES: CAST OR FABRICATED “WALL PIPE”, EQUIVALIENT TO DUCTILE-IRON PRESSURE PIPE, WITH PLAIN ENDS AND INTEGRAL SATERSTOP, UNLESS OTHERWISE INDICATED.

FIRESTOPPING: FIRE RESISTANT THROUGH PENETRAION SEALANTS - TWO PART, FOAMED-IN-PLACE, SILICONE SEALANT FORMULATED FOR USE IN THROUGH-PENETRAION FIRE-STOPPING AROUND CABLES, RACEWAYS, AND CABLE TRAY PENETRAIONS THROUGH FIRE-RATED WALLS AND FLOORS. SEALANTS AND ACCESSORIES SHALL HAVE FIRE-RESISTANCE RATINGS INDICATED, AS ESTABLISHED BY TESTING IDENTICAL ASSEMBLIES IN ACCORDANCE WITH ASTM E 814, BY UNDERWRITER'S LABORATORIES, INC., OR OTHER NRTL ACCEPTABLE TO AHJ.
ACCEPTABLE MANUFACTURERS - HILTI, INC., 3M CORP, RECTORSEAL, SPECIFY TECHNOLOGY INC., UNITED STATES GYPSUM COMPANY.

ELECTRICAL SERVICE
SERVICE SHALL BE AS SHOWN ON DRAWINGS.

PROVIDE SECONDARY SERVICE INTO THE BUILDING WITH CONDUIT AND WIRING AS SHOWN ON THE PLANS, INCLUDING, BUT NOT LIMITED TO, UNDERGROUND RACEWAYS AND CABLES AND SECONDARY CONNECTIONS TO UTILITY TRANSFORMERS AS REQUIRED BY SERVING ELECTRICAL UTILITY COMPANY. COORDINATE ALL REQUIREMENTS WITH UTILITY COMPANY PRIOR TO BID.

PROVIDE ALL REQUIRED GROUNDING FOR A COMPLETE SERVICE ENTRANCE GROUNDING SYSTEM. PERMANENTLY AND EFFECTIVELY GROUND AND BOND THE ELECTRICAL INSTALLATION IN A THOROUGH AND EFFICIENT MANNER, AND IN CONFORMANCE (AT A MINIMUM) WITH N.E.C. OR THESE DOCUMENTS, WHERE THEY EXCEED CODE REQUIREMENTS. USE BARE OR INSULATED CONDUCTORS, AS SPECIFIED HEREIN, AND OTHER MATERIALS INDICATED ON THE DRAWINGS.

PROVIDE ALL NECESSARY ENCLOSURES REQUIRED BY THE OWNER FOR THE UTILITY COMPANY METERING. REFER TO DRAWINGS FOR MINIMUM REQUIREMENTS. COORDINATE WITH UTILITY COMPANY PRIOR TO BID FOR ALL REQUIREMENTS.

PRODUCTS

GENERAL
ALL EQUIPMENT OF A PARTICULAR KIND, SUCH AS WIRING DEVICES AND PANELBOARDS AND ALL LIGHTING FIXTURES OF THE SAME TYPE, SHALL BE THE PRODUCT OF THE SAME MANUFACTURER.

PROVIDE ACCESS PANELS FOR ALL EQUIPMENT AND DEVICES REQUIRING SUCH PANELS. SIZE AS REQUIRED FOR PROPER ACCESS AND MAINTENANCE, MINIMUM ACCEPTABLE IS 12 IN BY 12 IN CLEAR OPENING WHERE HAND ACCESS ONLY IS REQUIRED.

PROVIDE LABELS FOR EACH MOTOR CONTROLLER, SAFETY SWITCH, RELAY, PANELBOARD, CONTACTOR, TIMER, CONTROL DEVICE, METER AND CIRCUIT BREAKER. LABELS SHALL BE LAMINATED, PHENOLIC STRIPS 1/16” THICK, AND ENGRAVED TO SHOW BLACK LETTERS ON A WHITE BACKGROUND NOT LESS THAN 1/4” HIGH. SIZE STRIPS TO PROPERLY FIT MANUFACTURER'S BRACKETS AND BE LEGIBLE. WHERE MANUFACTURER'S BRACKETS ARE NOT PROVIDED, MOUNT LABELS WITH PROPER SCREWS, OR AN APPROVED ADHESIVE.

RACEWAYS
CONDUIT, RIGID STEEL; GALVANIZED OR SHERADIZED AND MANUFACTURED IN ACCORDANCE WITH ANSI STANDARD C80.L. FITTINGS SHALL BE PIPE THREADED, MALLEABLE IRON. CONNECTORS SHALL BE INSULATED THROAT TYPE.

CONDUIT, PVC: POLYVINYLCHLORIDE SCHEDULE 40 PIPE SPECIFICALLY MANUFACTURED AND LABELED (UL STANDARD 651) FOR USE AS ELECTRICAL CONDUIT. FITTINGS SHALL BE EITHER SOCKET WELDED TYPE OR PIPE THREADED WITH INSULATED THROAT.

CONDUIT, FLEXIBLE METALLIC: GALVANIZED, INTERLOCKED SPIRALLY WOUND STEEL STRIP WITH GALVANIZED OR SHERADIZED FITTINGS. LISTED PER UL-L. FITTINGS SHALL BE OF THE SQUEEZE TYPE WITH INSULATED THROATS.

CONDUIT, LIQUIDTIGHT FLEXIBLE METALLIC: GALVANIZED, INTERLOCKED SPIRALLY WOUND STEEL STRIP WITH OVERALL JACKET OF LIQUID TIGHT PVC, UL LISTED. FITTINGS SHALL BE STEEL OR MALLEABLE IRON INSULATED THROAT, WATERTIGHT.

ELECTRIC METALLIC TUBING: GALVANIZED OR SHERADIZED AND MANUFACTURED IN ACCORDANCE WITH ANSI STANDARD C80.3. FITTINGS 1/2 INCH THROUGH 2 INCH TRADE SIZE SHALL BE COMPRESSION TYPE, MANUFACTURED FROM MALLEABLE IRON OR STEEL, AND RAIN AND/OR CONCRETE-TIGHT AS REQUIRED BY INSTALLATION. POT METAL OR DIE CAST TYPE FITTINGS ARE PROHIBITED. CONNECTORS SHALL BE INSULATED THROAT TYPE.

CONDUCTORS AND CABLES
GENERAL: SERVICE LATERALS AND PANELBOARD FEEDERS SHALL BE OF ANNEALED (SOFT) COPPER COMPLYING WITH ICEA S-95-658/NEMA WC70; SOLID CONDUCTOR FOR NO. 10 AWG AND SMALLER; CONCENTRIC, COMPRESSED STRANDED FOR NO. 8 AWG AND LARGER. ALL FEEDER CONDUCTORS NO 8 AWG AND LARGER; STRANDED, TYPE THWN-2 OR XHHW-2 INSULATION.

ALL BRANCH CIRCUITS SHALL BE ANNEALED (SOFT) COPPER COMPLYING WITH ICEA S-95-658/NEMA WC70; SOLID CONDUCTOR FOR NO. 10AWG AND SMALLER; CONCENTRIC, COMPRESSED STRANDED FOR NO. 8 AWG AND LARGER. ALL BRANCH CIRCUIT CONDUCTORS NO 8 AWG AND LARGER; STRANDED, TYPE THWN-2 OR XHHW-2 INSULATION. ALL CONDUCTORS, NO 10 AWG AND SMALLER, USED FOR POWER AND LIGHTNG CIRCUITS; SOLID COPPER, TYPE THWN-2 INSULATION (WET OR DAMP LOCATIONS, OR IN CONDUIT BELOW GRADE OR SLAB), TYPE THHN INSULATION (DRY LOCATIONS ONLY ABOVE GRADE), OR DUAL RATED TYPE THHN/THWN-2. ALL BRANCH CIRCUIT WIRING SHALL NOT BE SMALLER THAN NO 12 AWG. IF NO CONDUCTOR SIZE IS INDICATED ON THE DRAWINGS FOR A BRANCH CIRCUIT, PROVIDE CONDUCTORS AND CONDUIT SIZED PER NFPA 70 AND BASED ON THE INDICATED BRANCH CIRCUIT OVERCURRENT PROTECTIVE DEVICE RATING AND NUMBER OF POLES. WHERE NO CIRCUIT SIZE (CONDUCTORS AND OVERCURRENT PROTECTIVE DEVICE) IS INDICATED ON THE DRAWINGS FOR A BRANCH CIRCUIT, PROVIDE THREE NO 12 AWG CONDUCTORS IN 3/4" RACEWAY, AND A 20A SINGLE POLE CIRCUIT BREAKER.

CONDUCTOR INSULATION TYPES; 90-DEGREE C-RATED, TYPE THHN/THWN-2 OR XHHW-2 COMPLYING WITH ICEA S-95-658/NEMA WC70.

COLORS FOR 208/120V CONDUCTORS
PHASE A: BLACK
PHASE B: RED
PHASE C: BLUE
NEUTRAL: WHITE
EQUIPMENT GROUND: GREEN
ISOLATED GROUND: GREEN WITH YELLOW STRIPE

COLORS FOR 480/277V CONDUCTORS
PHASE A: BROWN
PHASE B: ORANGE
PHASE C: YELLOW
NEUTRAL: WHITE
EQUIPMENT GROUND: GREEN

UNLESS NOTED OTHERWISE, SPECIAL PURPOSE CONDUCTORS AND CABLES, SUCH AS LOW VOLTAGE CONTROL AND SHIELDED INSTRUMENT WIRING, SHALL BE AS RECOMMENDED BY THE SYSTEM EQUIPMENT MANUFACTURER.

CONTROL WIRING; STRANDED COPPER CONDUCTORS, 600V INSULATION, OF THE PROPER TYPE, SIZE AND NUMBER AS REQUIRED TO ACCOMPLISH SPECIFIED FUNCTION. MINIMUM SIZE; NO. 14 AWG UNLESS NOTED OTHERWISE.

MC TYPE CABLE CAN BE USED IF ACCEPTED BY LOCAL AUTHORITY AND GOVERNING CODES FOR WHIPS FROM JUNCTION BOX TO LIGHT FIXTURES ONLY. TYPE MC CABLE; 600V, UNJACKETED; ANSI E119 AND E814, UL STANDARDS 44 OR 83 (AS APPLICABLE), AND 1569, NFPA 70 ARTICLE 330; ALUMINUM OR GALVANIZED STEEL INTERLOCKED ARMOR; THHN- OR XHHW-INSULATED CONDUCTORS; COLOR CODE; ICEA METHOD 1, WITH GREEN INSULATED GROUDING CONDUCTOR.

PROVIDE A DEDICATED EQUIPMENT-GROUNDING CONDUCTOR, OR BONDING JUMPER, AS APPLICABLE, IN ALL BRANCH CIRCUITS AND FEEDERS, SIZED IN ACCORDANCE WITH NFPA 70, UNLESS INDICATED AS LARGER ON THE DRAWINGS.

PROVIDE A DEDICATED NEUTRAL (WHERE REQUIRED) AND DEDICATED GROUNDING CONDUCTOR FOR EACH BRANCH CIRCUIT.

VOLTAGE DROP IN BRANCH CIRCUITS SHALL NOT EXCEED 2%.

GFCI CIRCUITS: DO NOT USE MULTI-CONDUCTOR CIRCUITS, WITH A SHARED NEUTRAL FOR ANY GFCI CIRCUIT BREAKER OR RECEPTACLE CIRCUIT. BRANCH CIRCUITS FED FROM GFCI CIRCUIT BREAKERS, LIMIT THE ONE-WAY CONDUCTOR LENGTH TO 100 FEET BETWEEN THE PANELBOARD AND THE MOST REMOTE RECEPTACLE OR LOAD ON THE GFCI CIRCUIT.

BOXES
OUTLET BOXES: GALVANIZED PRESSED STEEL WITH GALVANIZED STEEL EXTENSION RINGS OR PLASTER RINGS OR TILE RINGS TO PROVIDE EXPOSED SURFACE FLUSH WITH WALL OR CEILING FINISH. PROVIDE ALL CEILING OUTLET BOXES WITH "NO-BOLT" OR THROUGH AND LOCKNUTTED TYPE FIXTURE STUDS.

JUNCTION AND PULL BOXES: FABRICATE IN ACCORDANCE WITH NEMA AND N.E.C. STANDARDS AND REQUIREMENTS INSOFAR AS MATERIAL, GAUGES, DIMENSIONS, AND FABRICATION METHODS. BOXES SHALL BEAR THE UL LABEL. WHERE BOXES ARE NOT SIZED ON THE DRAWINGS, THEY SHALL BE SIZED IN ACCORDANCE WITH N.E.C. REQUIREMENTS. FINISH IN STANDARD GRAY ENAMEL, WITH SIDES AND BACK SPOT-WELDED IN POSITION AND THE REMOVABLE SCREW COVER MOUNTED WITH BRASS MACHINE SCREWS.

WIRING DEVICES
SWITCHES: HEAVY DUTY AC, RATED 20 AMPERES, 120/277 VOLTS, SINGLE-POLE, DOUBLE-POLE, THREE-POLE, OR FOUR-WAY AS NOTED ON DRAWINGS OR AS REQUIRED FOR THE SWITCHING ARRANGEMENTS IN EACH SPACE. HUBBELL #HBL122** OR EQUAL. COORDINATE SWITCH COLORS WITH COVERPLATES AS DESCRIBED BELOW UNDER "PLATES".

SWITCHES, SPECIAL PURPOSE: KEY OPERATED, HEAVY-DUTY AC, RATED 20 AMPERES, 120/277 VOLTS, SINGLE OR MULTI-POLE AS NOTED OR AS REQUIRED. HUBBELL #HBL122** OR EQUAL.

RECEPTACLES: THREE WIRE GROUNDING TYPE, 120 VOLT RATED, SPECIFICATION GRADE 20 AMPERES DUPLEX UNLESS NOTED OTHERWISE ON DRAWINGS. HUBBELL #5362 OR EQUAL. COORDINATE RECEPTACLE COLOR WITH COVERPLATE AS DESCRIBED BELOW UNDER "PLATES". SINGLE RECEPTACLE, 20 AMPERE, 120 VOLT, SPECIFICATION GRADE. HUBBELL #5361 OR EQUAL.

DUST AND MOISTURE RESISTANT, MELAMINE BODY, GRAY NYLON FACE BACKED BY FABRIC REINFORCED NEOPRENE GASKET SLIT TO PROVIDE WIPING ACTION ON CAP BLADES. PASS & SEYMOUR #6307 OR APPROVED EQUAL. GROUND FAULT CIRCUIT INTERRUPTER, NYLON FACE CLASS A, NEMA 5-20R, SPECIFICATION GRADE. HUBBELL #GF-5362* OR EQUAL.

CORROSION RESISTANT, SIMILAR AND APPROVED EQUAL TO STANDARD RECEPTACLE, EXCEPT FABRICATED FROM YELLOW MELAMINE PLASTIC WITH YELLOW NYLON FACE AND EXPOSED METAL PARTS FINISHED TO RESIST CORROSION. (NEMA 5-15R = HUBBELL #52CM61).

ISOLATED GROUND, DUPLEX OR SIMPLEX THREE WIRE GROUNDING TYPE, SPECIFICATION GRADE, ORANGE FACE, GROUND CONTACT FULLY ISOLATED FROM STRAP AND EQUIPPED WITH SCREW TERMINAL. HUBBELL #IG-5362* OR EQUAL.

RECEPTACLES, SPECIAL PURPOSE: SPECIAL PURPOSE OUTLETS SHALL BE AS SCHEDULED ON DRAWINGS.

PLATES: PROVIDE PLATES FOR ALL OUTLET BOXES. PLATES SHALL BE OF SUITABLE CONFIGURATION FOR THE NUMBER AND TYPE OF DEVICES SERVED, SHALL BE ONE PIECE, SHALL OVERLAP OUTLET BOX EDGE AND ROOM SURFACES, AND SHALL BE SMOOTH FINISH NYLON TYPE OF SAME MANUFACTURER AS THE WIRING DEVICES. VERIFY DESIRED MATERIALS AND COLORS WITH ARCHITECT PRIOR TO INSTALLATION.

STANDARD INTERIOR: IVORY FINISHED ON LIGHT COLORED WALLS - COORDINATE ALL COLORS WITH ARCHITECT

INTERIOR DAMP LOCATIONS: STAINLESS STEEL.

EXTERIOR LOCATIONS: FOR UNATTENDED WET LOCATIONS, PROVIDE IN-USE NEMA 3R, UL LABELED PLATES MOLDED FROM A CLEAR HIGH IMPACT ULTRAVIOLET STABILIZED POLYCARBONATE MATERIAL FOR EASY VERIFICATION THAT CORDS ARE PLUGGED IN AND THAT THE GFCI IS FUNCTIONING. COVER PLATES SHALL BE BY THE SAME MANUFACTURER AS THE WIRING DEVICES; COMPLYING WITH NFPA 70 406.8 (A) OR (B) REQUIREMENTS FOR ATTENDED OR UNATTENDED USE AS APPLICABLE.

ACCEPTABLE MANUFACTURERS: HUBBELL, PASS & SEYMOUR, LEVITON AND COOPER.

CABINETS AND ENCLOSURES
FURNISH AND INSTALL FLUSH CABINETS AND ENCLOSURES AS SHOWN ON THE PLANS AND AS HEREIN SPECIFIED. UNIT SHALL BE PROVIDED WITH DEAD FRONT SUB PANEL, RECESSED AS REQUIRED, TO HOUSE CONTROLS. DOOR SHALL BE PROVIDED WITH CONCEALED HINGES AND FLUSH KEY OPERATED LOCK. DOOR AND TRIM SHALL BE PRIME PAINTED FOR FIELD PAINTING TO MATCH WALL FINISHES. PROVIDE KNOCK-OUTS, LOUVERS AND IDENTIFICATION ENGRAVING AS REQUIRED TO MEET FIELD CONDITIONS. EXACT BACKBOX SIZE TO BE COORDINATED WITH EQUIPMENT SUPPLIER.

CIRCUIT DISCONNECTS
SAFETY SWITCHES: SAFETY SWITCHES SHALL CONSIST OF A BOX, FRONT COVER, AND CIRCUIT PROTECTOR DEVICE ALL MANUFACTURED AND ASSEMBLED IN ACCORDANCE WITH NEMA STANDARDS

THE BOX SHALL BE FABRICATED FROM CODE GAUGE GALVANIZED SHEET STEEL IN ACCORDANCE WITH U.L. LISTING AND LABEL. THE CIRCUIT PROTECTOR DEVICE SHALL BE HEAVY DUTY, QUICK-MAKE, QUICK-BREAK FUSED OR UNFUSED SWITCH RATED FOR MOTOR CIRCUITS AND/OR SERVICE ENTRANCE DUTY, IF REQUIRED. UNITS SHALL BE FURNISHED FOR SURFACE OR FLUSH MOUNTING WITH EITHER GENERAL PURPOSE OR RAINTIGHT ENCLOSURES, AS REQUIRED. FUSED UNITS SHALL BE FURNISHED COMPLETE WITH PROPER FUSES.

PANELBOARDS
SHALL CONSIST OF BOX, INTERIOR, FRONT, AND CIRCUIT PROTECTIVE DEVICES. THE ASSEMBLY SHALL BE U.L. LABELED AND BE LISTED FOR SERVICE. THE ASSEMBLY SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH NEMA STANDARD PB-1. THE LATEST UL STANDARD (UL-50) AND SHALL HAVE A TURNED EDGE AROUND THE FRONT FOR RIGIDITY AND FOR CLAMPING ON FRONT. PROVIDE STANDARD KNOCKOUTS ON REMOVABLE BOX ENDS. FABRICATE FROM SHEET STEEL AND FINISH WITH BAKED ON GRAY ENAMEL OVER RUST INHIBITOR. EACH FRONT SHALL HAVE A DOOR MOUNTED ON SEMI-CONCEALED HINGES WITH A CYLINDER LOCK, INDEX CARD CIRCUIT DIRECTORY MOUNTED BEHIND CLEAR PLASTIC AND HELD IN A METAL FRAME, AND CONCEALED TRIM CLAMPS FOR MOUNTING TO THE BOX. ALL LOCKS SHALL BE MASTER KEYED AND ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN.

ALL INTERIORS SHALL BE COMPLETELY FACTORY ASSEMBLED. THE DESIGN OF THE INTERIOR SHALL PERMIT REPLACEMENT OF INDIVIDUAL BRANCH BREAKERS WITHOUT DISTURBING ADJACENT UNITS AND WITHOUT MACHINE DRILLING OR TAPPING. BUS BARS FOR PANELS RATED 600 AMPERES OR MORE SHALL BE TIN PLATED 98% CONDUCTIVITY COPPER OR TIN FINISH ALUMINUM (57% CONDUCTIVITY) OF RECTANGULAR CROSS-SECTION. BUS BARS FOR PANELS RATED LESS THAN 600 AMPERES SHALL BE TIN PLATED 98% CONDUCTIVITY COPPER OF RECTANGULAR CROSS-SECTION. BUS BAR CONNECTIONS TO BRANCH CIRCUIT BREAKERS SHALL BE THE PHASE SEQUENCE TYPE AND ACCEPT BOLT-ON TYPE BREAKERS ONLY. PANELBOARD BUS STRUCTURE AND MAIN BREAKER OR MAIN LUGS SHALL BE RATED AS SCHEDULED ON DRAWING. SUCH RATINGS SHALL BE ESTABLISHED BASED ON HEAT RISE TESTS IN ACCORDANCE WITH UL STANDARDS. GROUP INCOMING CABLE LUGS AT ONE END FOR SEPARATION FROM LOAD SIDE CABLES. EQUIPMENT NEUTRAL BUSSING WITH A LUG FOR EACH BRANCH BREAKER POSITION. INTERIOR SHALL MOUNT TO BOX WITHOUT TOOLS.

BREAKERS SHALL BE QUICK-MAKE, QUICK-BREAK, BOLT-ON THERMAL-MAGNETIC MOLDED CASE CIRCUIT BREAKERS ONE, TWO OR THREE POLE WITH INTEGRAL CROSSBAR FOR MULTI-POLE UNITS, EQUIPPED WITH AN OVERCENTER, TRIP-FREE, TOGGLE-TYPE OPERATING ACTION AND POSITIVE HANDLE INDICATION OF BREAKER STATUS. CIRCUIT BREAKERS SHALL BE UL LISTED IN ACCORDANCE WITH UL STANDARDS.

EACH PANELBOARD, AS A COMPLETE UNIT, SHALL HAVE A SHORT CIRCUIT RATING EQUAL TO OR GREATER THAN THE INTEGRATED EQUIPMENT RATING SHOWN ON DRAWINGS. THE RATING SHALL BE ESTABLISHED BY TESTING WITH THE OVERCURRENT DEVICES MOUNTED IN THE PANELBOARD. THE SHORT CIRCUIT TESTS ON THE OVERCURRENT DEVICES ON THE STRUCTURE SHALL BE MADE SIMULTANEOUSLY BY CONNECTING THE FAULT TO EACH OVERCURRENT DEVICE WITH THE PANELBOARD CONNECTED TO ITS RATED SUPPLY VOLTAGE.

REFER TO PANELBOARD SCHEDULES FOR FULLY RATED OR SERIES-RATED REQUIREMENTS. SERIES-RATED SYSTEMS ARE NOT ALLOWED UNLESS SPECIFICALLY INDICATED ON PANELBOARD SCHEDULES. WHERE ALLOWED, SERIES-RATED SYSTEMS SHALL BE PROPERLY LABELLED BY NEC REQUIREMENTS.

METHOD OF TESTING SHALL BE PER UL STANDARDS. PANELBOARDS SHALL BE MARKED WITH THEIR MAXIMUM SHORT CIRCUIT CURRENT RATING AT THE SUPPLY VOLTAGE.

APPROVED MANUFACTURERS: SQUARE-D CO. OR EQUAL BY GE, SIEMENS AND/OR EATON.

OVERCURRENT PROTECTIVE DEVICES
FUSES OF THE PROPER SIZE, RATING AND ELECTRICAL CHARACTERISTICS SHALL BE PROVIDED IN EACH FUSIBLE DEVICE. FUSES OF 600 VOLTS AND BELOW SHALL BE UL CLASS RK-1, CURRENT-LIMITING, TIME-DELAY, DUAL-ELEMENT, 200,000 AMPERE RMS SYMMETRICAL INTERRUPTING CAPACITY ON NON-MOTOR CIRCUITS AND UL CLASS RK-5, TIME-DELAY, DUAL-ELEMENT, 200,000 AMPERES RMS SYMMETRICAL INTERRUPTING CAPACITY ON MOTOR CIRCUITS.

APPROVED MANUFACTURERS: BUSSMANN, LITTLEFUSE OR FERRAZ-SHAWMUT (ALL FUSES SHALL BE OF SAME MANUFACTURER TO ENSURE SELECTIVE COORDINATION).

CIRCUIT BREAKERS: CIRCUIT BREAKERS OF THE PROPER SIZE, RATING, AND ELECTRICAL CHARACTERISTICS SHALL BE PROVIDED WHERE CALLED FOR ON DRAWINGS. BREAKERS SHALL BE THERMAL MAGNETIC MOLDED-CASE WITH QUICK-MAKE, QUICK-BREAK, OVER CENTER TOGGLE TYPE MECHANISM AND TRIP-FREE HANDLE MECHANISM. THE BREAKER SHALL BE ENCLOSED IN A SUITABLE NEMA RATED ENCLOSURE. BREAKERS SHALL BE OF SAME MANUFACTURER AS THOSE IN THE PANELBOARDS.

TIMESWITCHES
ELECTRONIC TIME SWITCHES: ELECTRONIC, SOLID STATE PROGRAMMABLE UNITS WITH ALPHANUMERIC DISPLAY; COMPLYING WITH UL917. SPST, 30 AMPERE INDUCTIVE OR RESISTIVE, 240VAC, CONTACT RATING. 2 PROGRAMMABLE ON-OFF SET POINTS ON A 24-HOUR SCHEDULE, ALLOWING DIFFERENT SET POINTS FOR EACH DAY OF THE WEEK. ALLOW CONNECTION OF A PHOTOELECTRIC RELAY AS SUBSTITUE FOR ON-OFF FUNCTION OF A PROGRAM. ASTRONOMIC TIME ON ALL CHANNELS. BATTERY BACKUP FOR SCHEDULES AND TIME CLOCK.

OUTDOOR PHOTOELECTRIC SWITCHES
SOLID STATE, WITH SPST DRY CONTACT RATED FOR 1800-VA TUNGSTEN OR 1000-VA INDUCTIVE, TO OPERATE CONNECTED RELAY, CONTACTOR COILS OR MICROPROCESSOR INPUT, COMPLYING WITH UL 773A.

TELEPHONE AND DATA SYSTEMS
FURNISH AND INSTALL A SYSTEM OF PROPERLY SIZED AND PROPERLY LOCATED OUTLETS WITH ASSOCIATED CONNECTING CONDUIT RUNS, EXTENDING TO PULL BOXES AND TELEPHONE BACKBOARD. FURNISH AND INSTALL RACEWAYS, FOR INCOMING SERVICE WHERE INDICATED.
OUTLET BOXES: UNLESS OTHERWISE INDICATED, ALL TELEPHONE OUTLETS AND JUNCTION BOXES SHALL BE PROVIDED AS REQUIRED TO ACCOMMODATE INTERNAL TERMINAL STRIPS BY TELEPHONE CO.

OUTLET COVER PLATES: TELEPHONE OUTLET COVER PLATES SHALL MATCH THOSE SPECIFIED FOR ADJACENT WIRING DEVICES, INCLUDING THOSE WITH SPECIAL FINISHES.

RACEWAYS: MATERIALS FOR TELEPHONE RACEWAY SYSTEM WORK SHALL BE IN ACCORDANCE WITH CORRESPONDING RACEWAYS SPECIFIED HEREIN AND IN OTHER SECTIONS.

VERIFY LOCATION OF WALL OUTLETS BEFORE ROUGHING IN TO ENSURE COORDINATION WITH OWNER'S FINAL INTENDED FURNITURE LAYOUT. PLAN INDICATIONS SHALL NOT BE SCALED UNLESS DIRECTED. OUTLETS SHALL BE RELOCATED WITHIN ROOMS BEFORE ROUGH-IN WHERE DIRECTED BY ARCHITECT-ENGINEER WITHOUT ADDITIONAL COST TO OWNER.

TELEPHONE SERVICE CONDUIT LAYOUT SHALL HAVE THE JOB SITE APPROVAL OF AN AUTHORIZED REPRESENTATIVE OF THE TELEPHONE CO. COORDINATE WORK SO THAT BOTH TELEPHONE CO. AND OWNER'S REPRESENTATIVES ARE PRESENT AT THE SAME TIME FOR APPROVAL OR CHANGES IN AMPLE TIME FOR ANY REQUIRED CORRECTIONS BEFORE COMPLETION OF PROJECT.

FROM EACH TELEPHONE OUTLET, PROVIDE 3/4" EMT CONDUIT CONCEALED IN WALL TO 6" ABOVE ACCESSIBLE CEILING OR UP TO STRUCTURE WHERE NO CEILING EXISTS, UNLESS SHOWN OTHERWISE ON DRAWINGS.

TELEPHONE TERMINAL BOARD: PRIOR TO INSTALLATION OF TELEPHONE TERMINAL BOARD, THE EXACT LOCATION SHALL BE VERIFIED WITH THE TELEPHONE CO. THE TELEPHONE TERMINAL BOARD SHALL BE PROVIDED WITH A DOUBLE DUPLEX RECEPTACLE LOCATED WHERE INDICATED ON THE DRAWINGS. THE TERMINAL BOARD SHALL BE CONSTRUCTED OF 4' X 8' X 3/4" PLYWOOD WITH TWO (2) COATS OF FLAME RETARDANT PAINT UNLESS NOTED OTHERWISE ON DRAWINGS.

LIGHTING
FIXTURES ARE SPECIFIED IN THE SCHEDULE BY MANUFACTURER'S NAME AND CATALOG NUMBER.

ALL RECESSED LIGHT FIXTURES SHALL BE PROVIDED WITH FACTORY INSTALLED THERMAL PROTECTION.

ALL LAMPS USED ON THIS PROJECT SHALL BE NEW, DELIVERED TO THE JOB SITE IN THE ORIGINAL PACKING CASES AND SLEEVES AND SHALL BE OF THE SAME MANUFACTURER.

PROVIDE FLUORESCENT FIXTURES WITH ELECTRONIC BALLASTS SUITABLE FOR OPERATION OF LAMPS SPECIFIED; TOTAL HARMONIC DISTORTION LESS THAN 20%; FREQUENCY OF OPERATION OF 20 KHZ OR GREATER WITH NO VISIBLE FLICKER; LINE TRANSIENT WITHSTAND RATINGS AS DEFINED IN ANSI/IEEE, CATEGORY A. APPROVED MANUFACTUERERS: ADVANCE OR EQUAL BY MAGNETEK, MOTOROLA OR OSRAM.

HID BALLASTS SHALL BE AUTO TRANSFORMER REACTOR, HIGH POWER FACTOR POTTED AND ENCASED TO MINIMIZE SOUND. APPROVED MANUFACTURERS: GE, SYLVANIA, OR OSRAM.

LED LIGHT FIXTURES ARE TO BE PROVIDED WITH COMPATIBLE DRIVER AND MUST BE COORDINATED WITH CONTROL TYPE INDICATED. CONTRACTOR IS RESPONSIBLE TO ENSURE CONTROLS ARE CAPABLE OF PROPERLY CONTROLLING LIGHT FIXTURES AS INDICATED WITHIN THESE DRAWINGS.

CONTACTORS AND RELAYS
ALL CONTACTORS AND RELAYS SHALL BE UL LISTED AND LABELED, GENERAL PURPOSE, ELECTRICALLY HELD TYPE, IN NEMA 1 ENCLOSURES. WHERE SPECIFICALLY NOTED ON DRAWINGS, UNITS SHALL BE ELECTRICALLY HELD OR MOMENTARY OPERATIONAL TYPE. UNITS SHALL BE FURNISHED WITH LINE OR LOW VOLTAGE CONTROL AS NOTED AND WITH THE CORRECT NUMBER OF POLES AND CURRENT CHARACTERISTICS. WHERE LOW VOLTAGE OPERATION IS INDICATED, PROVIDE PROPER STEPDOWN TRANSFORMERS AND RECTIFIERS. APPROVED MANUFACTURERS: ASCO, OR MANUFACTURER OF APPROVED PANELBOARDS FURNISHED.

TRANSFORMERS
GENERAL PURPOSE, UL-LISTED/LABELED 150 DEGREES C TEMPERATURE RISE ABOVE 40 DEGREES C AMBIENT. INSULATING MATERIALS: EXCEED NEMA ST-020 STANDARDS, RATED FOR 220 DEGREES C, UL-COMPONENT RECOGNIZED INSULATION SYSTEM. PHASES, VOLTAGES, AND SIZES: AS INDICATED ON THE DRAWINGS. SOUND LEVEL: NOT EXCEEDING NEMA STANDARDS FOR THE SIZES INDICATED. FULL-CAPACITY PRIMARY TAPS: BELOW 25 KVA - MINIMUM OF TWO 5% (2-); 25 KVA TO 300 KVA - MINIMUM OF SIX 2.5% (2+, 4-); ABOVE 300 KVA - FOUR 2.5% (2+, 2-). TRANSFORMER CORE AND COIL ASSEMBLIES: MOUNTED ON INTEGRAL VIBRATION-ABSORBING PADS. MAKE FINAL CONDUIT CONNECTIONS TO TRANSFORMERS WITH FLEXIBLE CONDUIT, WITH AT LEAST 6” OF SLACK IN ALL DIRECTIONS. TRANSFORMER ENCLOSURES: FULLY ENCLOSED (EXCEPT FOR VENTILATION OPENINGS), NEMA 2, DRIP-PROOF, FABRICATED OF HEAVY GAUGE SHEET STEEL CONSTRUCTION. MANUFACTURERS: SQUARE D, GENERAL ELECTRIC, ACME, SIEMENS.

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WIRING OF MECHANICAL EQUIPMENT
PROVIDE ALL RACEWAYS AND POWER WIRING FOR ALL DIVISION 15 EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS, INCLUDING, BUT NOT LIMITED TO, PUMPS, WATER HEATERS, AND HVAC EQUIPMENT, AND ALL LINE-VOLTAGE CONTROL AND INTERLOCK WIRING NOT PROVIDED UNDER DIVISION 15. CONNECT PER MANUFACTURER'S WIRING DIAGRAMS. COORDINATE WITH DIVISION 15 FOR DISCONNECTS FURNISHED WITH EQUIPMENT, AND PROVIDE ALL DISCONNECT SWITCHES AS REQUIRED. AFTER INSTALLING WIRING, VERIFY THAT EACH MOTOR LOAD HAS THE CORRECT PHASE ROTATION.

VERIFY THE ACTUAL "MAXIMUM OVERCURRENT PROTECTION" DEVICE RATINGS AND "MINIMUM CIRCUIT AMPACITY" CONDUCTOR SIZING FOR MECHANICAL EQUIPMENT FROM THE EQUIPMENT NAMEPLATE. BASE ELECTRICAL INSTALLATIONS ON ACTUAL REQUIRED AMPERAGES, WHICH MAY VARY SOMEWHAT FROM THE CONDUCTOR AND EQUIPMENT SIZES SHOWN ON THE DRAWINGS; HOWEVER, IN NO CASE, REDUCE THE SIZE OF CONDUCTORS INDICATED ON THE DRAWINGS WITHOUT AUTHORIZATION FROM THE ENGINEER. PROVIDE PROPERLY SIZED ELECTRICAL WIRING AND EQUIPMENT WITHOUT EXTRA COST TO THE OWNER. NOTIFY THE ENGINEER OF ALL CHANGES REQUIRED IN THE ELECTRICAL INSTALLATION DUE TO EQUIPMENT VARIANCES SO THAT THE EFFECTS ON FEEDERS, BRANCH CIRCUITS, PANELBOARDS, FUSES AND CIRCUIT BREAKERS CAN BE CHECKED PRIOR TO PURCHASING AND INSTALLATION. BE RESPONSIBLE FOR COORDINATING WITH DIVISION 15 TO VERIFY THE ACTUAL AMPACITIES AND CORRECT SIZES OF ALL CONDUCTORS AND OVERCURRENT PROTECTIVE DEVICES FOR ALL EQUIPMENT, AND CORRECT OVERLOAD HEATERS FOR ALL MOTORS, WHEN STARTERS ARE PROVIDED UNDER DIVISION 16.

PROVIDE ALL RACEWAYS, POWER WIRING, AND LINE-VOLTAGE CONTROL AND INTERLOCK WIRING NOT PROVIDED UNDER DIVISION 15, FOR ALL THERMOSTATS, TEMPERATURE CONTROL DEVICES, AND CONTROLS, INCLUDING, BUT NOT LIMITED TO, NIGHT-STATS, WATER HEATER INTERLOCKS, TIME SWITCHES AND OVERRIDE TIMERS. SEE MECHANICAL DRAWINGS FOR LOCATIONS AND TEMPERATURE CONTROL DIAGRAMS. LOW-VOLTAGE CONDUCTORS FOR THERMOSTATS AND TEMPERATURE CONTROL SYSTEMS MAY BE RUN EXPOSED ABOVE FINISHED ACCESSIBLE CEILINGS, IF APPROVED AND LISTED FOR THIS PURPOSE, BUT SHALL BE INSTALLED IN CONDUIT WITHIN WALLS AND WHERE EXPOSED IN THE WORK AREAS.

EXECUTION

METHOD OF PROCEDURE
ERECT EQUIPMENT PARTS AT SUCH TIME AND IN SUCH MANNER AS TO MINIMIZE INTERFERENCES AND DELAYS IN THE EXECUTION OF THE WORK CARE SHALL BE USED IN THE ERECTION AND INSTALLATION OF ALL EQUIPMENT AND MATERIALS TO AVOID MARRING SURFACES OF THE WORK. DAMAGES SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.

EQUIPMENT REQUIRING ELECTRICAL SERVICE SHALL NOT BE ENERGIZED OR PLACED IN SERVICE UNTIL ALL INTERESTED PARTIES HAVE BEEN DULY NOTIFIED AND ARE PRESENT OR HAVE WAIVED THEIR RIGHT TO BE PRESENT. WHERE EQUIPMENT TO BE PLACED IN SERVICE INVOLVES SERVICE OR CONNECTION FROM ANOTHER CONTRACTOR OR THE OWNER, NOTIFY THE OWNER IN WRITING WHEN THE EQUIPMENT WILL BE READY. THE OWNER SHALL BE NOTIFIED AS FAR IN ADVANCE AS POSSIBLE, OF THE DATE THE VARIOUS ITEMS OF EQUIPMENT WILL BE COMPLETE.

THE WORK OF THIS TRADE INCLUDES ROUGH-IN FOR AND FINAL CONNECTION AND REQUIRED TO ALL MISCELLANEOUS EQUIPMENT FURNISHED BY OTHERS, OR UNDER OTHER DIVISIONS OF THE WORK. THIS SHALL INCLUDE POWER AND CONTROL WIRING. WIRING DEVICES AND COVER-PLATES FOR BUILT-IN EQUIPMENT ARE INCLUDED IN THE WORK OF THIS DIVISION. SAFETY DISCONNECTS AND OTHER MISCELLANEOUS PROTECTIVE DEVICES REQUIRED BY N.E.C. ARE INCLUDED IN THE WORK OF THIS DIVISION. DO ALL ROUGHING-IN AND FINAL CONNECTIONS FROM APPROVED SHOP DRAWINGS ONLY.

COMPLIANCE WITH THE DRAWING AND ANY NOTES THEREON IS REQUIRED. PROVIDE OPENINGS THROUGH WALLS, PARTITIONS, FLOORS, AND ROOFS AS REQUIRED FOR ELECTRICAL WORK.

PROVIDE SLEEVES FOR ELECTRICAL WORK PASSING THROUGH WALLS, PARTITIONS, ROOFS, AND FLOORS. SLEEVES SHALL EXTEND THROUGH FLOORS, WALLS AND PARTITIONS AND SHALL BE CUT FLUSH WITH EACH SURFACE UNLESS OTHERWISE SPECIFIED. FIRE WALL AND/OR FLOOR INTEGRITY SHALL BE RESTORED AFTER PENETRATION. SLEEVES IN CONCRETE AND MASONRY WALLS, CONCRETE FLOORS AND ROOFS, SHALL BE FABRICATED FROM STANDARD GALVANIZED STEEL PIPE WITH ENDS FINISHED SMOOTH, BURR FREE, WITHOUT SHARP EDGES. SLEEVES IN WALLS, ROOFS, AND FLOORS OF OTHER CONSTRUCTION AND THROUGH SUSPENDED CEILINGS SHALL BE FABRICATED FROM 22 U.S. GAUGE GALVANIZED STEEL. FLOOR SLEEVES SHALL EXTEND THREE INCHES ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. SPACE BETWEEN FLOOR SLEEVES AND PASSING CONDUIT SHALL BE FILLED WITH DUCT SEAL PACKING AND CAULKED WITH WATERPROOF COMPOUND AS APPROVED. WHERE CONDUITS PASS THROUGH WATERPROOFED FLOORS OR WALLS, SLEEVES SHALL BE FABRICATED SUCH THAT WATERPROOFING CAN BE FLASHED ONTO AND AROUND THE SLEEVE.

RACEWAYS
ALL POWER AND LIGHTING CIRCUITS SHALL BE RUN IN METALLIC RACEWAYS EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE. THESE RACEWAYS SHALL BE RUN CONCEALED IN ALL FINISHED AREAS, AND WHERE RUN EXPOSED SHALL BE SQUARE TO THE BUILDING AND HELD TIGHT TO THE BUILDING CONSTRUCTION. LOW VOLTAGE, TELEPHONE, INTERCOM, MUSIC, ALARM AND SECURITY WIRING RUN ABOVE ACCESSIBLE CEILINGS SHALL BE RUN USING INSULATED, PLENUM RATED CABLE. PROVIDE LOW VOLTAGE CABLE IN CONDUIT IF REQUIRED BY LOCAL AHJ. VERIFY ALL REQUIREMENTS PRIOR TO INSTALLATION. METALLIC CONDUIT FOR THESE SYSTEMS SHALL BE PROVIDED ONLY WHERE RUN INSIDE WALLS. THE DRAWINGS INDICATE THE REQUIRED SIZE OF ALL RACEWAYS (EXCEPT AS HEREINAFTER SPECIFIED). THE POINTS OF TERMINATION AND THE SUGGESTED ROUTING. HOWEVER, THE INSTALLER IS RESPONSIBLE FOR PROPER COORDINATION WITH BUILDING STRUCTURE AND THE WORK OF OTHER TRADES. FURNISH ALL REQUIRED BENDS, ELBOWS, FITTINGS, JUNCTION AND PULL BOXES, WHETHER OR NOT SPECIFICALLY SHOWN ON DRAWINGS, THAT MAY BE REQUIRED TO SATISFY CODES AND THE STANDARDS OF GOOD PRACTICE. WHERE CONDUITS FOR BOTH BRANCH AND FEEDER CIRCUITS ARE RUN CONCEALED, THEY MAY BE RUN OUT OF SQUARE TO THE BUILDING PROVIDING THE SHORTEST POSSIBLE RUN IS UTILIZED, RACEWAY SIZES ARE BASED ON THE USE OF COPPER CONDUCTORS AND N.E.C. FILL.

CONDUIT SHALL BE CONSTRUED AS ELECTRICAL RACEWAYS AND SHALL CONFORM TO THE FOLLOWING: CONCEALED IN SUSPENDED CEILINGS AND INTERIOR PARTITIONS - EMT WITH SET SCREW TYPE FITTINGS. UNDERGROUND OR BELOW INTERIOR SLABS - GRS. (NOTE: PVC CONDUIT IS PERMITTED OUTSIDE FOR PARKING AREA LIGHTING, SIGNS, ETC. ELBOWS SHALL BE GRS). EXPOSED ON BUILDING EXTERIOR - GRS.

CONDUIT BENDS SHALL BE MADE TO THE LARGEST POSSIBLE RADIUS FOR EASE IN PULLING CONDUCTORS AND TO PROVIDE A NEATLY INSTALLED APPEARANCE. EQUIPMENT AND CONDITIONS PERMITTING. POWER CONDUIT BENDS SHALL CONFORM TO THE FOLLOWING: 1-1/2 IN. - 18 IN. RADIUS; 2 IN. - 24 IN. RADIUS; 2-1/2 IN. - 24 IN. RADIUS; 3 IN. - 36 IN. RADIUS.

GRS CONDUIT SHALL BE CUT WITH POWER OR HACKSAW AND CLEANLY REAMED TO REMOVE ALL "BURRS" AND ALL FIELD CUT THREADS SHALL BE PAINTED WITH WHITE LEAD BEFORE COUPLINGS ARE APPLIED.

EMPTY CONDUIT SYSTEMS INSTALLED FOR COMMUNICATION SYSTEMS, PUBLIC TELEPHONES, OWNER ITEMS AND OTHER SYSTEMS AS INDICATED ON DRAWINGS SHALL BE INSTALLED COMPLETE WITH NYLON PULL WIRES PROPERLY TAGGED AT BOTH ENDS FOR IDENTIFICATION.

WHERE BUILDING VENTILATION CONDITIONS ARE SUCH THAT AIR MAY FLOW CONTINUOUSLY IN CONDUITS, CAUSING CONDENSATION AND THE COLLECTION OF MOISTURE, THE CONDUITS SHALL BE SEALED AT EACH END WITH A PLIABLE X DUCT SEALING COMPOUND. ALSO SEAL ALL CONDUITS ENTERING AND LEAVING REFRIGERATED EQUIPMENT AND PROVIDE EXPANSION JOINTS PER N.E.C.

ALL CONNECTIONS TO MOTORS, SOLENOID VALVES, PRESSURE SWITCHES, LIMIT SWITCHES, AND SIMILAR APPARATUS SHALL BE FLEXIBLE CONDUIT WHERE PERMITTED. WHERE EQUIPMENT IS INSTALLED OUTDOORS OR EXPOSED TO MOISTURE, USE LIQUIDTIGHT FLEXIBLE CONDUIT WITH WATERTIGHT FITTINGS.

EQUIPMENT LEVELING, HANGERS AND SUPPORTS
SET EACH PIECE INSTALLED UNDER THIS DIVISION TRUE AND LEVEL. ADEQUATELY SUPPORT ALL RACEWAYS FROM THE STRUCTURE USING SCREW CLAMPS TO SECURE TO SAME. ARRANGE SUPPORTS TO PREVENT MOISTURE COLLECTION AND ALLOW ENTRANCE TO BOXES WITHOUT BENDS. INSTALL MULTIPLE CONDUITS USING CHANNEL TRAPEZE SUPPORTS TIGHT TO STRUCTURE ABOVE. USE APPROVED SPACERS TO INSULATE FROM CONTACT WITH BUILDING. SIZE CLAMPS, INSERTS, CHANNELS AND ALL OTHER MEMBERS TO SUPPORT A LOAD EQUAL TO 200% OF THE COMBINED WEIGHT OF ALL SUPPORTED MATERIAL PLUS THE WEIGHT OF A MAN.

WHERE SEVERAL RACEWAYS ARE SUPPORTED ON A COMMON TRAPEZE HANGER, SUPPORTS SHALL BE SPACED TO ACCOMMODATE THE SMALLEST SIZE RACEWAY INVOLVED. SPACE HANGERS AS FOLLOWS:
RIGID CONDUIT: 1/2 AND 3/4 IN. SIZE; 6'-0" ON CENTERS; 1 AND 1-1/4 IN. SIZE; 9'-0" ON CENTERS
ELECTRIC METALLIC TUBING:
1/2 AND 3/4 IN. SIZE; 5'-0" ON CENTERS; 1 AND 1-1/4 IN SIZE; 6'-0" ON CENTERS.

SECURELY ATTACH HANGERS AND SUPPORTS TO CONSTRUCTION BY METHODS RECOMMENDED IN THE "NECA STANDARDS OF INSTALLATION" MANUAL COORDINATION WITH MECHANICAL TRADES: THE INTENT OF THE ABOVE CEILING SUPPORTS IS TO COMBINE AS MANY PIPES, CONDUITS, ETC., AS IS POSSIBLE WITHIN SAFE STRUCTURAL LIMITS, ON EACH HORIZONTAL SECTION OF A TRAPEZE HANGER. PRIOR TO SELECTING THE HORIZONTAL MEMBER, ALL TRADES, MECHANICAL AND ELECTRICAL, SHALL COORDINATE ACTUAL NUMBER OF PIPES, CONDUITS, ETC., SUCH THAT FINAL SELECTION RESULTS IN A NEATLY GROUPED, DISCIPLINED AND ACCESSIBLE INSTALLATION.

WIRING INSTALLATION
EXCEPT FOR SUCH ITEMS AS ARE NORMALLY WIRED AT THEIR POINT OF MANUFACTURE AND SO DELIVERED - AND UNLESS SPECIFICALLY NOTED TO THE CONTRARY HEREIN - THE ELECTRICAL TRADE SHALL DO ALL ELECTRICAL WIRING OF EVERY CHARACTER. IT IS THE INTENT OF THESE SPECIFICATIONS AND DRAWINGS THAT ALL SYSTEMS AND EQUIPMENT SHALL BE PROVIDED WITH ALL NECESSARY UTILITY CONNECTIONS, COMPLETED TO ALLOW SAFE AND PROPER OPERATION OF SAID SYSTEMS. WHEN IT IS NECESSARY FOR TRADES PERFORMING WORK COVERED BY THIS DIVISION TO MAKE FINAL CONNECTIONS TO ITEMS OF EQUIPMENT BEING FURNISHED BY OTHERS, OR BY OTHER TRADES UNDER OTHER DIVISIONS, ALL SUCH WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THIS DIVISION AND ALL MATERIALS USED SHALL BE AS SPECIFIED HEREIN.

MINIMUM WIRE SIZE FOR BRANCH CIRCUITS SHALL BE #12 AWG, EXCEPT THAT HOMERUNS LONGER THAN 100 FT. LENGTH FROM THE PANEL TO THE CIRCUIT'S ELECTRICAL LOAD CENTER SHALL BE #10 AWG MINIMUM. WHERE RUNS EXCEED 150', CONTRACTOR MUST ENSURE WIRE SIZE BEING UTILIZED DOES NOT CREATE A VOLTAGE DROP GREATER THAN 3%. REQUEST PROPER WIRE SIZE PRIOR TO INSTALLATION IF A 3% VOLTAGE DROP MAY OCCUR FOR ANY BRANCH CIRCUIT. WHERE MORE THAN THREE CURRENT CARRYING CONDUCTORS ARE ENCLOSED IN THE SAME RACEWAY, CONDUCTORS ARE TO BE DERATED PER N.E.C. AND WIRE SIZE INCREASED AS REQUIRED. WHERE THE INCREASED CONDUCTOR SIZE REQUIRES, INCREASE THE RACEWAY SIZE AS WELL. FOR CONTROL WIRING, USE #14 AWG MINIMUM. FOR FIXTURE WIRING, AS PERMITTED BY N.E.C., USE #18 AWG MINIMUM. FOR SIGNAL AND COMMUNICATIONS SYSTEMS USE WIRE SIZE AS SPECIFICALLY REQUIRED BY THE SYSTEM SUPPLIER.

MAKE CONNECTIONS TO TERMINALS USING PRESSURE TYPE CONNECTORS. SOLDERED JOINTS ARE PROHIBITED. ALL JOINTS IN CONDUCTORS SHALL BE MADE AT AN ACCESSIBLE LOCATION WITHIN A BOX BY TWISTING THE BARE CONDUCTOR ENDS TOGETHER AND APPLYING A WIRE CONNECTOR IN ALL SIZES UP TO THE MAXIMUM CAPACITY OF THE CONNECTOR. JOINTS SHALL BE TAPED WITH AN APPROVED ELECTRICAL TAPE. SPLICES FOR CONDUCTORS LARGER THAN #10 AWG SHALL BE MADE WITH AN APPROVED COMPRESSION (SQUEEZE) CONNECTOR INSULATED WITH NOT LESS THAN TWO LAYERS OF ELECTRICAL FILL TAPE TO 1.5 TIMES THE THICKNESS OF INSULATION, FOLLOWED BY TWO (MINIMUM) LAYERS OF HALF-LAPPED ELECTRICAL TAPE FOR MECHANICAL PROTECTION. LOCATE ALL SPLICES IN BOXES OR FITTINGS OF PROPER SIZE PER N.E.C.

IDENTIFY ALL WIRES AND CABLES WITH BRADY ADHESIVE WIRE MARKERS AT EACH BOX, PANEL, AND OUTLET. IDENTIFICATION SHALL, AS A MINIMUM, INDICATE THE PANEL AND CIRCUIT SUPPLYING THE OUTLET, AT THE PANEL END, THE LOAD SERVED AND ITS LOCATION SHALL BE INDICATED. PROVIDE A MINIMUM OF 8 IN. SLACK WIRE AT EACH OUTLET FOR MAKING CONNECTION TO THE DEVICE OR TO PROVIDE FOR A FUTURE DEVICE IN THE BOX.

BOXES
EACH BOX SHALL BE OF PROPER SIZE TO ACCOMMODATE THE DEVICE AND FUNCTION FOR WHICH IT IS SHOWN. BOXES FOR WALL DEVICES SHALL BE FURNISHED COMPLETE WITH PLASTER RING OR TILE RING ACCORDING TO WALL CONSTRUCTION WHERE REQUIRED. BOXES FOR INSTALLATION IN MASONRY WALLS SHALL BE SPECIAL SQUARE CORNER MASONRY TYPE. BOXES FOR MOUNTING OF LIGHTING FIXTURES SHALL BE FOUR INCH OCTAGON, EQUIPPED WITH 3/8 IN. "NO-BOLT" FIXTURE STUD. BOXES FOR FLOOR OUTLETS SHALL BE CONCRETE PROOF STEEL BOXES WITH ADJUSTABLE TOPS AND DEVICES AS HEREINAFTER NOTED OR SHOWN. ALL BOXES SHALL BE FURNISHED COMPLETE WITH PROPER COVER AND/OR DEVICE PLATE AND DEVICE. UNLESS OTHERWISE NOTED, PLACE OUTLET BOXES AT THE FOLLOWING HEIGHTS (BOX CENTER TO FINISH FLOOR): WALL SWITCHES 48" AND CONVENIENCE OUTLETS 18" UNLESS NOTED OTHERWISE ON DRAWINGS.

TELEPHONE, ALARM, AND SIGNAL SYSTEM OUTLET BOXES SHALL BE STANDARD OUTLET BOX TYPE WHERE ONLY ONE CONDUIT ENTERS SAME. UNLESS OTHERWISE SPECIFIED OR INDICATED ON DRAWINGS, WHERE TWO OR MORE CONDUITS ENTER, BOX SHALL BE 4-11/16 IN. SQUARE MINIMUM WITH SUITABLE ADAPTER RING.

LOCATE ALL OUTLETS AS INDICATED ON DRAWINGS, HOWEVER, AT INSTALLATION INSPECT ARCHITECTURAL DRAWINGS AND LOCATE LOCAL SWITCHES ON THE STRIKE SIDE OF THE DOOR.

SYSTEM GROUNDING
EQUIPMENT, RACEWAY SYSTEMS, WIRING SYSTEM NEUTRALS, RECEPTACLES AND POWER OUTLETS, MOTORS AND MOTORIZED EQUIPMENT, SHALL BE GROUNDED IN ACCORDANCE WITH N.E.C. ARTICLE 250.

GROUND RECEPTACLES AND POWER OUTLETS TO THE CONDUIT SYSTEM WITH A GREEN GROUNDING CONDUCTOR SIZE IN ACCORDANCE WITH N.E.C. AND CONNECTED BETWEEN THE DEVICE GROUNDING SCREW AND THE OUTLET BOX. CONNECTION TO THE BOX MAY BE A 10" CLIP OR BY A 10/24 SCREW THREADED INTO A HOLE IN THE BACK OF THE BOX AND USED FOR NO OTHER PURPOSE. EQUIPMENT CONNECTED TO THE ELECTRICAL SYSTEM SHALL BE GROUNDED WITHIN INSULATED GREEN GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH N.E.C. AND INSTALLED WITHIN THE RACEWAY. CONDUCTOR SHALL BE CONTINUOUS BETWEEN A GROUNDING SCREW IN THE EQUIPMENT JUNCTION BOX AND A GROUND ATTACHMENT IN THE NEAREST OUTLET BOX IN THE RIGID METALLIC CONDUIT SYSTEM. THIS REQUIREMENT INCLUDES ALL FLEXIBLE CONDUIT.

GENERALLY FOR TELEPHONE AND SUPPLEMENTAL COMMUNICATION SYSTEMS NO 6 AWG CONDUCTOR TO EACH PROTECTOR CABINET, OTHER CABINET, OR DEVICE INSTALLATION SHALL BE CONSIDERED SUFFICIENT, FROM THE SERVICE GROUND (UNLESS INDICATED OTHERWISE).

GROUNDING MATERIAL:
GROUND-RODS - 1/2" DIA., 10' LONG, COPPERWELD
GROUND CONDUCTOR - SIZE AS PER N.E.C. REQUIREMENTS, SOFT DRAWN OR SOFT ANNEALED, COPPER WIRE.
JOINTS AND CONNECTIONS - MOLDED FUSION WELDING PROCESS USING PROPER MOLD AND THE NUMBER, SIZE AND TYPE CARTRIDGE FOR THE JOINT OR CONNECTION. WATERPIPE CONNECTION, SILICON BRONZE APPROVED MECHANICAL CONNECTOR DESIGNED FOR THE PIPE AND CABLE TO BE BONDED.

PANELBOARD INSTALLATION:
MOUNT PANELBOARDS WITH CENTERLINE AT 5 FT.-6IN. ABOVE FINISH FLOOR, EXCEPT THAT THE HIGHEST BREAKER HANDLE SHALL BE BELOW 6 FT.-5 IN. ABOVE FINISH FLOOR. ARRANGE BREAKERS SO THAT THE BREAKER RATING IS VISIBLE WITH THE PANEL FRONT IN PLACE.

PANEL DIRECTORIES, AS A MINIMUM, SHALL BE TYPEWRITTEN AND INDICATE BREAKER POSITION NUMBER AND EQUIPMENT SERVED. THE PANEL IDENTIFICATION SHALL BE LOCATED ON THE PANEL TRIM AND SHALL CONSIST OF A BLACK LAMINATED PHENOLIC LABEL, SCREW MOUNTED, WITH THE PANEL IDENTIFICATION MATCHING PANEL IDENTIFICATION ON DRAWINGS. LABEL ALL CONDUCTORS WITH ADHESIVE WRAP LABELS WITHIN 2 IN. OF THE CONDUCTOR TERMINATION PRIOR TO INSTALLATION OF TRIM.

LIGHTING FIXTURE INSTALLATION
PROVIDE A LIGHTING FIXTURE FOR EACH AND EVERY OUTLET IN ACCORDANCE WITH TYPE DESIGNATION AND FIXTURE SCHEDULE ON THE DRAWINGS. VERIFY THE ARCHITECTURAL FINISHES AND CEILING CONSTRUCTION AND - REGARDLESS OF THE CATALOG NUMBER PREFIXES AND SUFFIXES SHOWN - PROVIDE FIXTURES WITH THE PROPER TRIM, FRAMES, SUPPORTS, AND HANGER AND OTHER MISCELLANEOUS APPURTENANCES TO PROPERLY COORDINATE WITH SAID FINISHES. REINFORCE CEILING CONSTRUCTION AS REQUIRED TO PROPERLY SUPPORT THE WEIGHT OF FIXTURES INSTALLED THEREON.

IMMEDIATELY PRIOR TO FINAL INSPECTION: THOROUGHLY CLEAN ALL FIXTURES INSIDE AND OUT, INCLUDING PLASTICS AND GLASSWARE. ADJUST TRIM TO FIT ADJACENT SURFACES. REPLACE BROKEN OR DAMAGED PARTS. INSTALL NEW LAMPS. ELECTRICALLY AND MECHANICALLY TEST THE SYSTEM FOR PROPER OPERATION.

THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING APPROVAL FROM LOCAL CODE AUTHORITIES AND MAKING ANY REVISIONS DIRECTED BY THEM ON EMERGENCY AND EXIT LIGHTING.

CLEANING
THOROUGHLY CLEAN ALL FIXTURES, SWITCHES, OTHER DEVICES, PANELBOARDS, AND EQUIPMENT PROVIDED OR CONNECTED IN THIS CONTRACT. ALL SURFACES SHALL BE PROPERLY POLISHED AND SHALL BE FREE OF PAINT AND ALL OTHER DIRT OR DEBRIS. TOUCHUP OR COMPLETELY REFINISH ALL EQUIPMENT FURNISHED WITH FACTORY FINISHES THAT IS DAMAGED DURING DELIVERY OR CONSTRUCTION. PROPERLY PROTECT THE FRONTS OF ALL PANELBOARDS, SWITCHBOARDS AND SIMILAR EQUIPMENT TO PREVENT MARRING AND OTHER DEFACING.

AT ALL TIMES, KEEP THE PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIALS OR RUBBISH CAUSED BY THE WORK OF THE TRADESMEN DOING ELECTRICAL WORK. AT COMPLETION OF THE WORK, REMOVE ALL RUBBISH, TOOLS, EQUIPMENT, AND SURPLUS MATERIALS. BROOM CLEAN ALL ASSIGNED SPACES PRIOR TO LEAVING THE PREMISES.

TESTING AND LOAD BALANCING

TEST ALL CIRCUITS TO ASSURE THEM TO BE FREE OF GROUNDS AND SHORTS. LIGHT AND TEST EACH LAMP. PROVE AND TEST THE AVAILABLE VOLTAGE ON THE LOAD SIDE OF EACH DISCONNECT. VERIFY PROPER OPERATION OF THE DISCONNECT. VERIFY THE PHASE SEQUENCE, VOLTAGE, AND ROTATION AT EACH MOTOR IN THE PRESENCE OF THE INSTALLER. RUN EACH MOTOR WITH ITS CONTROL AS NEARLY AS POSSIBLE UNDER OPERATING CONDITIONS FOR A SUFFICIENT LENGTH OVER TIME TO DEMONSTRATE CORRECT ALIGNMENT, WIRING CAPACITY, SPEED, AND OVERALL SATISFACTORY OPERATION. CHECK THAT THE PROPER OVERLOAD HEATERS HAVE BEEN INSTALLED BY READING THE MOTOR NAMEPLATE. ADJUST THE SIZE OF THE OVERLOAD HEATER AS REQUIRED TO MATCH THE MOTOR NAMEPLATE. OPERATE ALL MAIN AND FEEDER SWITCHES AND BREAKERS.

THE VARIOUS BRANCH CIRCUITS SERVED FROM THE LIGHTING PANELBOARDS VARY IN LOADING. CAREFULLY BALANCE THE ACTUAL OPERATING LOAD ON EACH PANELBOARD WHEN ALL LOAD IS TURNED ON AND THE SYSTEM IS OPERATING AT 100% DEMAND, THE UNBALANCE SHALL NOT EXCEED 10%. DURING FINAL INSPECTION, FURNISH THE TEST INSTRUMENTS AND QUALIFIED PERSONNEL TO PERFORM COMPLETE TESTING. COSTS OF ALL TESTING, INCLUDING THE INCIDENT COSTS FOR RETESTING OCCASIONED BY DEFECTS AND FAILURES OF THE EQUIPMENT TO MEET THE SPECIFICATIONS, SHALL BE BORNE BY THE CONTRACTOR.

FURNISH AT THE COMPLETION OF THE PROJECT A FINAL INSPECTION CERTIFICATE FROM THE LOCAL INSPECTING AUTHORITY.

END OF SECTION 16000

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NW PRYOR RD AND
HIGHWAY 470
LEE'S SUMMIT, MO 64081

project number
22902.001

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STATE OF MISSOURI
RYAN BREWER
NUMBER PE-2010010759
PROFESSIONAL ENGINEER

DATE SIGNED: 01/27/2023

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