Joe Frogge Digitally signed by Joe Frogge DN: CN=Joe Frogge, OU=Development, OU=LS Users, DC=COLS, DC=LOC Date: 2024.12.18 10:47:16-06'00'

RELEASED FOR CONSTRUCTION
As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri
12/18/2024

THE VILLAGE AT DISCOVERY - LOT 1

LEE'S SUMMIT, MO

PRINTS ISSUED

11/20/24 - CITY SUBMITTAL

REVISIONS:

1 12/12/24 City Comment Response

PROJECT CERTIFICATION

I, **David E. Hendrikse**, hereby specify pursuant to the governing requirements of the state, that the documents intended to be authenticated by my seal are limited to:

G-001	G-203	A-105	A-600
G-002	G-204	A-106	A-601
G-003	G-205	A-120	A-602
G-004	G-206	A-200	
G-005	G-300	A-300	
G-006	G-301	A-301	
G-100	G-302	A-302	
G-101	G-303	A-500	
G-200	AS-100	A-501	
G-201	A-101	A-502	
G-202	A-102	A-503	

and I hereby disclaim any responsibility for all other plans, specifications, reports or other documents or instruments relating to or intended to be used for any part or parts of the architectural or engineering project or survey.

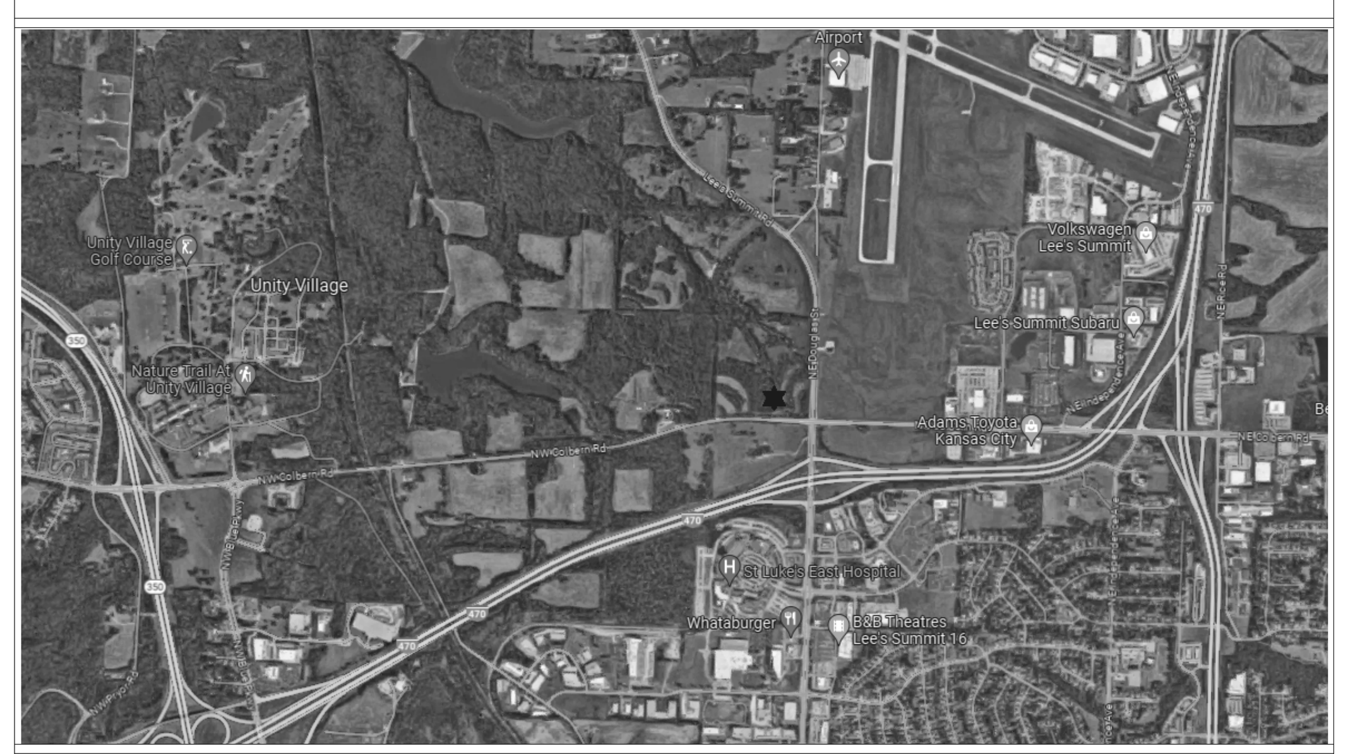
SEAL

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT

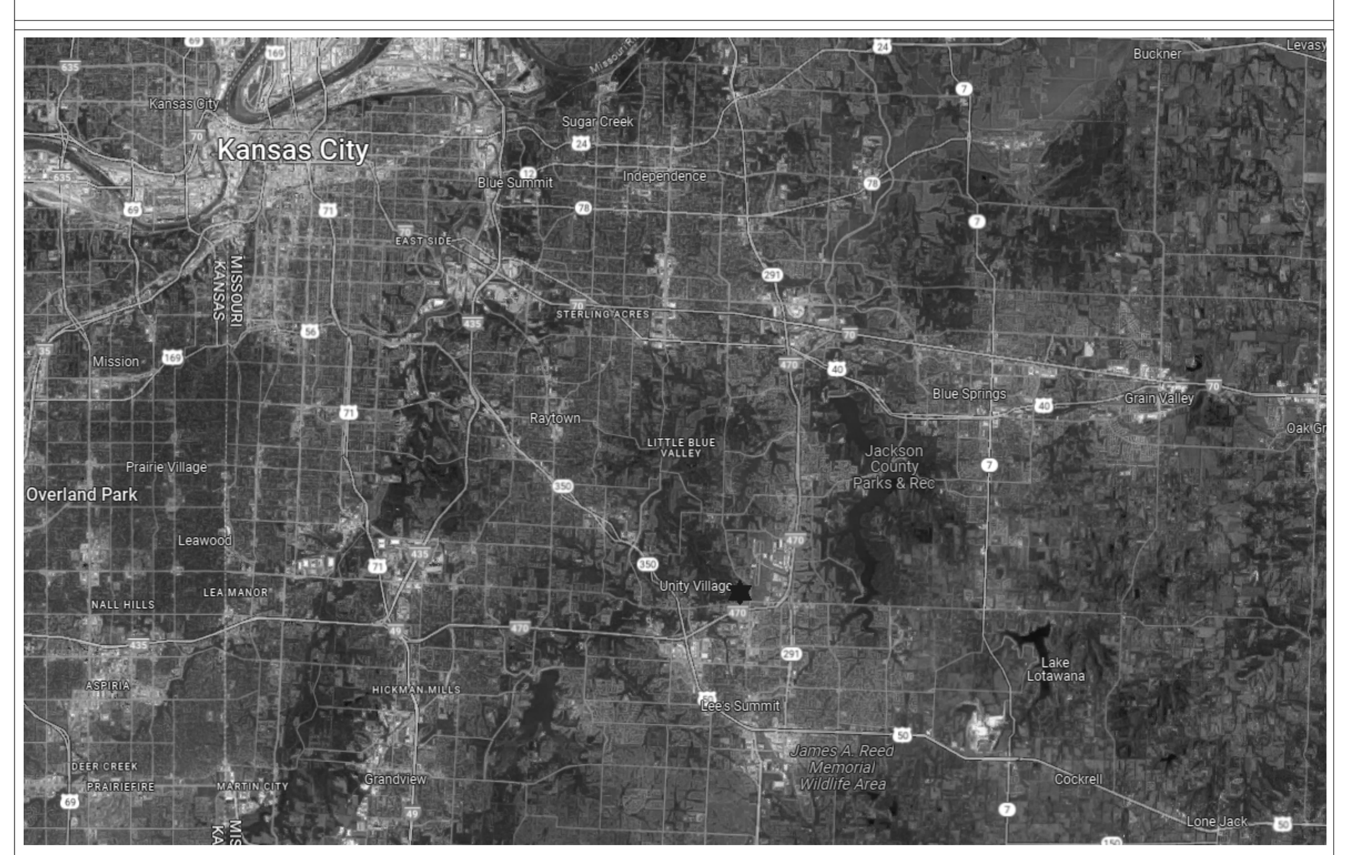
11/20/24

David E. Hendrikse, AIA

REGIONAL MAP



VICINITY MAP



THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

N

SHEET INDEX

GENERAL

	Sheet Issue Date	Sheet Number	Sheet Name	Rev.	Current Revision Date
■	11/20/24	G-001	TITLE SHEET	1	12/12/24
■	11/20/24	G-002	GENERAL INFORMATION		
■	11/20/24	G-003	PLAN GENERAL NOTES		
■	11/20/24	G-004	GENERAL INFORMATION		
■	11/20/24	G-005	GENERAL INFORMATION		
■	11/20/24	G-006	GENERAL INFORMATION		
■	11/20/24	G-100	CODE ANALYSIS	1	12/12/24
■	11/20/24	G-101	ASSEMBLIES	1	12/12/24
■	11/20/24	G-200	UL ASSEMBLIES - U423	1	12/12/24
■	11/20/24	G-201	UL ASSEMBLIES - U415 (1)		
■	11/20/24	G-202	UL ASSEMBLIES - U415 (2)		
■	11/20/24	G-203	UL ASSEMBLIES - D916	1	12/12/24
■	11/20/24	G-204	UL ASSEMBLIES - D916	1	12/12/24
■	11/20/24	G-205	UL ASSEMBLIES - AER 09038 (1)		
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■	11/20/24	G-300	ACCESSIBILITY STANDARDS		
■	11/20/24	G-301	ACCESSIBILITY STANDARDS		
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■	11/20/24	G-303	ACCESSIBILITY STANDARDS		

CIVIL UNDER SEPARATE REVIEW
REFERENCE FDP

STRUCTURAL

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■	11/20/24	S001	GENERAL NOTES		
■	11/20/24	S002	GENERAL NOTES		
■	11/20/24	S003	STRUCTURAL SPECIAL INSPECTIONS SCHEDULES		
■	11/20/24	S100	FOUNDATION PLAN		
■	11/20/24	S101	LEVEL 2 FRAMING PLAN		
■	11/20/24	S102	ROOF FRAMING PLAN	1	12/12/24
■	11/20/24	S103	WIND GIRT FRAMING PLAN		
■	11/20/24	S200	STEEL BRACED FRAME ELEVATIONS		
■	11/20/24	S201	STEEL BRACED FRAME DETAILS		
■	11/20/24	S500	FOUNDATION DETAILS		
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■	11/20/24	S511	FLOOR FRAMING DETAILS		
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■	11/20/24	S521	ROOF FRAMING DETAILS		
■	11/20/24	S530	STEEL TYPICAL DETAILS		
■	11/20/24	S541	MASONRY TYPICAL DETAILS		

ARCHITECTURAL

	Sheet Issue Date	Sheet Number	Sheet Name	Rev.	Current Revision Date
■	11/20/24	AS-100	ARCHITECTURAL SITE AMENITIES		
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■	11/20/24	A-102	SECOND FLOOR PLAN	1	12/12/24
■	11/20/24	A-105	ROOF PLAN		
■	11/20/24	A-106	ROOFING & FLASHING DETAILS		
■	11/20/24	A-120	REFLECTED CEILING PLANS		
■	11/20/24	A-200	EXTERIOR ELEVATIONS		
■	11/20/24	A-300	SECTIONS		
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■	11/20/24	A-302	STAIR PLANS & SECTIONS		
■	11/20/24	A-500	WALL DETAILS		
■	11/20/24	A-501	BRICK DETAILS		
■	11/20/24	A-502	ELEVATOR DETAILS		
■	11/20/24	A-503	WATERPROOFING DETAILS		
■	11/20/24	A-600	DOOR / FINISH SCHEDULES	1	12/12/24
■	11/20/24	A-601	STOREFRONT ELEVATIONS & DETAILS		
■	11/20/24	A-602	DOOR DETAILS		

MECHANICAL

	Sheet Issue Date	Sheet Number	Sheet Name	Rev.	Current Revision Date
■	11/20/24	MEP1	MECHANICAL, ELECTRICAL, PLUMBING COVER SHEET		
■	11/20/24	MEP2	SITE UTILITIES PLAN		
■	11/20/24	MEP3	SITE LIGHTING PLAN		
■	11/20/24	MEP4	MEP PLAN - ROOF		
■	11/20/24	M101	HVAC PLAN - FIRST FLOOR		
■	11/20/24	M102	HVAC PLAN -SECOND FLOOR		
■	11/20/24	M501	HVAC DETAILS & SCHEDULES		

ELECTRICAL

	Sheet Issue Date	Sheet Number	Sheet Name	Rev.	Current Revision Date
■	11/20/24	EP101	POWER PLAN - FIRST FLOOR		
■	11/20/24	EP102	POWER PLAN - SECOND FLOOR		
■	11/20/24	EL101	LIGHTING PLAN - FIRST FLOOR		
■	11/20/24	EL102	LIGHTING PLAN - SECOND FLOOR		
■	11/20/24	E501	ELECTRICAL DETAILS & SCHEDULES	1	12/12/24

FIRE PROTECTION

	Sheet Issue Date	Sheet Number	Sheet Name	Rev.	Current Revision Date
■	11/20/24	FA101	FIRE ALARM PLAN		

PLUMBING

	Sheet Issue Date	Sheet Number	Sheet Name	Rev.	Current Revision Date
■	11/20/24	P101	PLUMBING PLAN - FIRST FLOOR		
■	11/20/24	P102	PLUMBING PLAN - SECOND FLOOR		
■	11/20/24	P501	PLUMBING DETAILS & SCHEDULES		

SOLID FILL INDICATES INCLUSION IN ISSUE
SHEET ISSUE DATE

■ 10 / 10/ 2020 | A-000 SHEET NAME | - 10 / 10/ 2020

SHEET NUMBER AND NAME
CURRENT REVISION NUMBER & REVISION DATE ON SHEET

SHEET INDEX LEGEND

PROJECT DATA

PROJECT DESIGN INFORMATION

NEW CONSTRUCTION:

ZONING: PMIX - PLANNED MIXED USE DISTRICT

CODE:

- 2018 INTERNATIONAL BUILDING CODE
- 2018 INTERNATIONAL PLUMBING CODE
- 2018 INTERNATIONAL MECHANICAL CODE
- 2018 INTERNATIONAL FUEL GAS CODE
- 2018 INTERNATIONAL FIRE CODE
- 2017 NATIONAL ELECTRIC CODE
- 2009 ACCESSIBILITY CODE ICC/ANSI 117-1
- LEE'S SUMMIT AMENDMENTS TO ENERGY CODE

OCCUPANCY GROUP: B, BUSINESS
A-2, UNCONCENTRATED

TYPE OF CONSTRUCTION: TYPE VB

BUILDING SUMMARY:

(1) TOTAL BUILDING, (2) STORIES

HEIGHT: 42'

SQUARE FOOTAGES:	GROSS	NET
2-STORY		
FIRST FLOOR	14,014 S.F.	13,756 S.F.
SECOND FLOOR	14,014 S.F.	13,756 S.F.
BUILDING TOTAL	28,028 S.F.	27,512 S.F.

SEE CIVIL FOR SITE SUMMARY

PROJECT TEAM

OWNER

INTRINSIC DEVELOPMENT
ADDRESS: 3622 ENDEAVOR AVE., STE. 101
COLUMBIA, MO 65201
CONTACT: **BRIAN MAENNER**
EMAIL: bpmaenner@intrinsicdevelopment.com
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PHONE: 816.472.1448

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PHONE: 573.881.0280

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PHONE: 573.234.2609

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PHONE: 573.447.0292

LANDSCAPE ARCHITECT

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SIGNATURE BLOCK

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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

THE VILLAGE AT DISCOVERY - LOT 1
221 NE ALURA WAY
LEE'S SUMMIT, MO

SHEET TITLE
TITLE SHEET

PROJECT NUMBER: 23096

SHEET NUMBER:

G-001

ABBREVIATIONS

A

ABV	ABOVE
ACC	ACCESSIBLE
ACT	ACOUSTICAL CEILING TILE
AD	AREA DRAIN
ADA	AMERICANS WITH DISABILITIES ACT
ADAAG	ADA ACCESSIBILITY GUIDELINES
ADF	ACCESSIBLE DRINKING FOUNTAIN
ADH	ADHESIVE
ADJ	ADJUSTABLE/ADJACENT
AEWC	ACCESSIBLE ELECTRIC WATER COOLER
AFF	ABOVE FINISH FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AL	ASSISTED LIVING
ALAV	ACCESSIBLE LAVATORY
ALT	ALTERNATE
ALUM	ALUMINUM
AMI	ACCESSIBLE MIRROR
ANN	FIRE ANNUNCIATOR PANEL
ANO	ANNODIZED
APPD	APPROVED
APPROX	APPROXIMATE(LY)
ASD	ACCESSIBLE SOAP DISPENSER
ASH	ACCESSIBLE SHOWER HEAD
ATTEN	ATTENUATION
ATTN	ATTENTION
AU	ACCESSIBLE URINAL

B

B.O.	BOTTOM OF
BD	BOARD
BLDG	BUILDING
BLK	BLOCK / BLACK
BLKG	BLOCKING
BM	BENCH MARK
BO	BY OTHERS
BOD	BOTTOM OF DECK(ING)
BOH	BACK OF HOUSE
BOT	BOTTOM (OF)
BRG	BEARING
BRKT	BRACKET
BRZ	BRONZE
BSMT	BASEMENT
BTWN / BTW	BETWEEN
BUR	BUILT UP ROOFING
BUS	BUSINESS

C

C TO C	CENTER TO CENTER
CAB	CABINET
CB	CERAMIC BASE/CORNER BEAD/CHALKBOARD
CEM / CEMT	CEMENT / CEMENTITIOUS
CFM	CUBIC FEET PER MINUTE
CI	CAST IRON
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CL	CENTERLINE
CLG	CEILING
CLO	CLOSET
CLR	CLEAR
CLRM	CLASSROOM
CMP	CORRUGATE METAL PIPE
CMU	CONCRETE MASONRY UNIT
CNTR	COUNTERTOP
CO	CLEANOUT
COL	COLUMN
COMB	COMBINATION
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE / COORDINATOR
CORR	CORRIDOR
CPT	CARPET
CSK	COUNTERSINK / COUNTER SUNK
CT	CERAMIC TILE
CTG	COATING
CTR	CENTER
CY	CUBIC YARD(S)

D

DBL	DOUBLE
DEMO	DEMOLITION / DEMOLISH
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIMS	DIMENSIONS
DN	DOWN
DP	DEEP
DR	DOOR
DS	DOWNSPOUT
DTL	DETAIL
DWG	DRAWING

E

E	EAST
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC(AL)
ELEV	ELEVATOR
ENLG	ENLARGED
EPDM	ETHYLENE PROPYLENE DIENE TERPOLYMER
EQ	EQUAL
ES	EACH SIDE
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR

F

FA	FIRE ALARM
FACP	FIRE ACCESS CONTROL PANEL
FAWCM	FULLY ADHERED WATER CONTROL MEMBRANE
FBG	FIBERGLASS
FD	FLOOR DRAIN / FIRE DEPARTMENT
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR
FGL	FIBERGLASS
FH	FIRE HOSE
FHA	FAIR HOUSING ACT
FHC	FIRE HOSE CABINET
FIN	FINISH
FIXT	FIXTURE
FLASH	FLASHING
FLEX	FLEXIBLE
FLR	FLOOR
FND	FOUNDATION
FO	FACE OF
FRP	FIBER-REINFORCED PLASTIC
FT	FOOT
FTG	FOOTING

G

GA	GAUGE
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GEN	GENERAL
GFRC	GLASS FIBER REINFORCED CONCRETE
GL	GLASS
GLZ	GLAZED TILE
GPM	GALLONS/MINUTE
GR	GRADE
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
GYP BD	GYPSUM BOARD

H

HB	HOSE BIBB
HC	HOLLOW CORE
HCWD	HOLLOW CORE WOOD
HD	HEAVY DUTY OR HAND DRYER
HDBD	HARD BOARD
HDNR	HARDENER
HDW	HARDWARE
HDWD	HARDWOOD
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HR	HOUR
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HYD	HYDRANT

I

IBC	INTERNATIONAL BUILDING CODE
ID	INTERIOR DESIGNER
ID	INSIDE DIAMETER
IDF	INDIVIDUAL DISTRIBUTION FRAME
IL	INDEPENDENT LIVING
IN	INCHES
INDIV	INDIVIDUAL
INSUL	INSULATION / INSULATED
INT	INTERIOR
INV	INVERT

J

JAN	JANITOR
JST	JOIST
JT	JOINT

K

KD	KNOCKED DOWN
KIT	KITCHEN
KN	KNOX BOX

L

LA	LANDSCAPE / LANDSCAPE ARCHITECT
LAM	LAMINATE
LAV	LAVATORY
LF	LINEAR FOOT/FEET
LG	LONG
LGTH	LENGTH
LKR	LOCKER
LSC	LIFE SAFETY CODE
LT	LIGHT

M

MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MB	MARKER BOARD / MAIL BOX
MC	MEMORY CARE
MDF	MAIN DISTRIBUTION FRAME
MECH	MECHANICAL
MFR	MANUFACTURE(ER)
MH	MANHOLE
MI	MIRROR
MIN	MINIMUM
MO	MASONRY OPENING
MTD	MOUNTED
MTG HT	MOUNTING HEIGHT
MTL	METAL

N

N	NORTH
N/A	NOT APPLICABLE
NIC	NOT IN COUNT / NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE

O

OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFD	OVERFLOW ROOF DRAIN
OFF	OFFICE
OH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
OSB	ORIENTED STRAND BOARD

P

PA	PUBLIC ADDRESS
PAR	PARALLEL
PCP	PORTLAND CEMENT PLASTER
PERP	PERPENDICULAR
PH	PRE-HUNG
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLBG	PLUMBING
PLBG	PLUMBING
PLYWD	PLYWOOD
PNL	PANEL
PNLG	PANELING
PR	PAIR
PRE-FIN	PRE-FINISHED
PREFAB	PREFABRICATED
PREFIN	PREFINISHED
PT	PAINT
PTD	PAINTED
PTN	PARTITION
PTR	PAPER TOWEL RECEPTACLE

R

R	RADIUS
RA	RETURN AIR
RC	RESILIENT CHANNEL
RCP	REFLECTED CEILING PLAN / REINFORCED CONCRETE PIPE(ING)
RD	ROOF DRAIN
RE / REF	REFER TO
RECPT	RECEPTACLE
RECS	RECOMMENDATION(S)
REF	REFRIGERATOR / REFER TO
REINF	REINFORCING
REQD	REQUIRED
REV	REVISION
RFG	ROOFING
RO	ROUGH OPENING
RR	RESTROOM
RTU	ROOF TOP UNIT

S

S	SOUTH
SAF	SELF ADHERED FLASHING
SAFP	SPRAYED APPLIED FIRE-PROOFING
SC	SOLID CORE
SCHED	SCHEDULE
SCR	SHOWER CURTAIN ROD
SCWD	SOLID CORE WOOD
SD	SOAP DISPENSER
SECT	SECTION
SF	SQUARE FEET
SH	SINGLE HUNG
SHR	SHOWER
SHT	SHEET
SIM	SIMILAR
SND	SANITARY NAPKIN DISPENSER
SOG	SLAB ON GRADE
SP CTG	SPECIAL COATING
SPEC	SPECIFICATION
SPKR	SPEAKER
SQ	SQUARE
SQIN	SQUARE INCHES
SST	STAINLESS STEEL
STC	SOUND TRANSMISSION COEFFICIENT
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURAL
SUBFLR	SUBFLOOR
SUSP	SUSPEND(ED)
SY	SQUARE YARD
SYM	SYMMETRICAL

T

T	TREAD
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
T.O.	TOP OF
TB	TOWEL BAR
TBD	TO BE DETERMINED
TEL / TELE	TELEPHONE
TER / TRZ	TERRAZZO (TERRACE)
TERM	TERMINATE / TERMINAL
TOC	TOP OF CURB / TOP OF CONC
TOM	TOP OF MASONRY
TOW	TOP OF WALL
TP / TPD	TOILET PAPER DISPENSER
TPO	THERMOPLASTIC POLYOLEFIN
TRANS	TRANSFORMER / TRANSPARENT / TRANSOM
TS	TUBE STEEL
TYP	TYPICAL

U

UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
UR	URINAL
US	UTILITY SHELF

V

VCT	VINYL COMPOSITE TILE
VENT	VENTILATE / VENTILATION
VER	VERIFY
VIF	VERIFY IN FIELD
VP	VISION PANEL
VTR	VENT THRU ROOF

W

W	WEST
W/	WITH
W/IN	WITHIN
W/O	WITHOUT
WC	WATER CLOSET
WD	WOOD
WDW	WINDOW
WF	WIDE FLANGE / WATER FOUNTAIN
WH	WALL HUNG / HYDRANT / WATER HEATER / WEEP HOLE
WLD	WELD(ED)
WRB	WEATHER-RESISTANT BARRIER
WT	T SECTION
WWF	WELDED WIRE FABRIC

X

X	BY (EX: 2X4)

Y

YD	YARD / YARD DRAIN

MATERIAL LEGEND AND SYMBOLS

- MASONRY BLOCK - PLAN 1/2" = 1'-0" AND BELOW
- BRICK - SECTION
- CONCRETE ABOVE 1-1/2" = 1'-0"
- STUD WALL
- GYPSUM BOARD
- PLYWOOD
- RIGID INSULATION
- BATT INSULATION
- STANDING SEAM METAL ROOF
- EARTH
- CRUSHED ROCK
- SAND
- CONTINUOUS LUMBER
- NON-CONTINUOUS LUMBER (SHIM)
- FINISH LUMBER
- STEEL OR METAL

- 9999A.2 Room Name — ROOM NUMBER
- ACCESSIBLE UNIT OR TYPE-A UNIT
- HEARING IMPAIRED UNIT
- VISUALLY IMPAIRED UNIT
- 101 — DOOR NUMBER
- A1 — WINDOW TYPE
- P7 — WALL TYPE
- 01.00 — ELEVATION KEYNOTE
- 01.00 — PLAN KEYNOTE
- ELEVATION NUMBER / SHEET NUMBER (1 / A101, SIM) — SIMILAR TO WALL SECTION INDICATED; WALL SECTION CUT LINE
- ELEVATION NUMBER / SHEET NUMBER (1 / A101, SIM) — SIMILAR TO BUILDING SECTION INDICATED; BUILDING SECTION CUT LINE
- ELEVATION NUMBER / SHEET NUMBER (A-101, 3) — EXTERIOR ELEVATION
- ELEVATION NUMBER / SHEET NUMBER (A-101, 3) — INTERIOR ELEVATION
- ELEVATION NUMBER / SHEET NUMBER (1 / A101, SIM) — SIMILAR TO BUILDING SECTION INDICATED; ENLARGED PLAN OR DETAIL CALLOUT
- Name Elevation — ELEVATION MARK

GENERAL NOTES

STANDARDS AND REGULATIONS

1. CONTRACTOR SHALL PERFORM ALL WORK IN COMPLIANCE WITH APPLICABLE BUILDING CODES, REGULATIONS, ORDINANCES, UTILITY PROVIDER REQUIREMENTS, AND SIMILAR STANDARDS.
2. CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND SIMILAR RELEASES REQUIRED FOR CONSTRUCTION AND OCCUPANCY. CONTRACTOR SHALL FURNISH ALL COPIES OF SUCH ITEMS TO OWNER AND ARCHITECT WITHIN 10 DAYS OF RECEIPT. IF PERMITS ARE ISSUED SUBJECT TO CERTAIN CONDITIONS OR REVISIONS TO THE WORK OR PERMITS ARE DELAYED FOR ANY REASON, CONTRACTOR SHALL NOTIFY CONTRACTING OFFICER IMMEDIATELY.
3. CONTRACTOR SHALL OBTAIN ALL REQUIRED INSPECTIONS OF THE WORK. CONTRACTOR SHALL REGULARLY UPDATE OWNER AND ARCHITECT REGARDING THE STATUS OF THE INSPECTIONS.
4. CONTRACTOR SHALL COORDINATE WORK WITH APPLICABLE UTILITY PROVIDERS.
5. CONTRACTOR SHALL BE FAMILIAR WITH AND WORK SHALL BE IN COMPLIANCE WITH REFERENCED FIRE-RATED ASSEMBLY TESTS AND STANDARDS.

ADMINISTRATION OF THE WORK

1. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS AND SEQUENCES OF CONSTRUCTION.
2. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE SAFETY OF ALL CONSTRUCTION PERSONNEL AND AUTHORIZED VISITORS.
3. CONTRACTOR SHALL BECOME FULLY ACQUAINTED WITH THE CONDITIONS RELATED TO THE WORK. ANY KNOWN DISCREPANCIES BETWEEN THE DOCUMENTS AND ACTUAL CONDITIONS SHALL BE REPORTED TO THE OWNER FOR RESOLUTION PRIOR TO PROCEEDING WITH WORK RELATED TO THE DISCREPANCY.
4. CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL CONSTRUCTION AND DEMOLITION DEBRIS. CONTRACTOR SHALL OBTAIN APPROVAL OF OWNER (AND GOVERNING AUTHORITIES, IF APPLICABLE) FOR DETAILS RELATED TO REMOVAL OF TRASH, INCLUDING SUCH ISSUES AS PATH OF TRAVEL.
5. CONTRACTOR SHALL BECOME FAMILIAR WITH AND COMPLY WITH GOVERNMENT'S PROCEDURES FOR MAINTAINING A SECURE SITE AND BUILDING.
6. EACH INSTALLER SHALL EXAMINE SUBSTRATE CONDITION AND/OR SITE CONDITIONS WHICH AFFECT THE QUALITY OF EACH PRODUCT TO BE INSTALLED. IF ANY CONDITIONS EXIST WHICH WILL HAVE A DETRIMENTAL EFFECT ON THE QUALITY OF THE INSTALLATION, THE INSTALLER SHALL IMMEDIATELY NOTIFY THE CONTRACTOR. INSTALLER SHALL NOT PROCEED UNTIL THE UNSATISFACTORY CONDITIONS ARE CORRECTED. PROCEEDING WITH THE INSTALLATION SHALL SIGNIFY ACCEPTANCE OF THE CONDITIONS.
7. CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS ON SITE AT ALL TIMES.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING COORDINATION EFFORTS OF ALL SUBCONTRACTORS.
9. CONTRACTOR SHALL NOT CLOSE UP CEILING UNTIL ARCHITECT HAS AN OPPORTUNITY TO INSPECT ALL WORK WHICH WILL BE CONCEALED BY CEILING. CONTRACTOR SHALL NOTIFY ARCHITECT AT LEAST TWENTY-FOUR HOURS PRIOR TO CLOSE-UP.
10. CONTRACTOR SHALL LAY OUT WORK AS SOON AS POSSIBLE. ANY DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT FOR RESOLUTION PRIOR TO PROCEEDING WITH THE WORK IN QUESTION.

USE OF CONSTRUCTION DOCUMENTS

1. CONTRACTOR SHALL NOT SCALE DRAWINGS. ONLY WRITTEN DIMENSIONS OR KEYED NOTES SHALL BE USED. CONTACT ARCHITECT IF CLARIFICATION OR ADDITIONAL INFORMATION IS REQUIRED.
2. DRAWINGS SHALL NOT BE REPRODUCED FOR SUBMITTALS. DRAWINGS OR PORTIONS OF DRAWINGS USED FOR SUBMITTALS WILL BE REJECTED AND RETURNED TO CONTRACTOR.
3. DIMENSIONS ARE AS FOLLOWS UNLESS NOTED OTHERWISE:
   A. FACE OF STUD
   B. TO CENTERLINE OF COLUMNS, PARTY WALL, WINDOWS AND DOORS
   C. TO TOP OF STRUCTURAL DECK
   D. TO BOTTOM OF FINISHED CEILING

DEFINITIONS

1. "ALIGN" AS USED IN THESE DOCUMENTS SHALL MEAN TO ACCURATELY LOCATE AND FINISH FACES IN THE SAME PLANE AND/OR TO INSTALL NEW CONSTRUCTION ADJACENT TO EXISTING CONSTRUCTION WITHOUT ANY VISIBLE JOINTS OR SURFACE IRREGULARITIES.
2. "CLEAR" AS USED IN THESE DOCUMENTS SHALL MEAN THAT THE CONDITION IS NOT ADJUSTABLE WITHOUT THE APPROVAL OF THE ARCHITECT, CLEAR DIMENSIONS ARE TYPICALLY TO FINISH FACE.
3. "MAXIMUM" OR "MAX" AS USED IN THESE DOCUMENTS SHALL MEAN THAT THE CONDITION IS SLIGHTLY ADJUSTABLE BUT MAY NOT VARY TO A DIMENSION OR QUANTITY GREATER THAN THAT SHOWN WITHOUT APPROVAL OF THE ARCHITECT.
4. "MINIMUM" OR "MIN." AS USED IN THESE DOCUMENTS SHALL MEAN THAT THE CONDITION IS SLIGHTLY ADJUSTABLE BUT MAY NOT VARY TO A DIMENSION OR QUANTITY LESS THAN THAT SHOWN WITHOUT APPROVAL OF THE ARCHITECT.
5. "TYPICAL" OR "TYP" AS USED IN THESE DOCUMENTS SHALL MEAN THAT THE CONDITION OR DIMENSION IS THE SAME OR REPRESENTATIVE FOR SIMILAR CONDITIONS THROUGHOUT.
6. "+/-" AS USED IN THESE DOCUMENTS SHALL MEAN THE DIMENSION OR QUANTITY IS SLIGHTLY ADJUSTABLE TO ACCOMMODATE ACTUAL CONDITIONS.

GENERAL CONSTRUCTION ISSUES

1. HATCHED AREAS INDICATE AREA TO BE FURRED DOWN ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE.
2. ALL PLUMBING SUPPLY LINES IN EXTERIOR WALLS TO RECEIVE FULL INSULATION.
3. DO NOT ALLOW EXTERIOR SHEATHING TO BE IN CONTACT WITH CONCRETE SURFACE.
4. HOLD ALL WOOD TRIM A MINIMUM OF 1/4-INCH ABOVE CONTACT WITH HORIZONTAL CONCRETE SURFACES.

PASSIVE SUB SLAB DEPRESSURIZATION RADON CONTROL SYSTEM

1. PROVIDE UNDERSLAB RADON MITIGATION SYSTEM WITH REQUIRED VENTING.
2. DESIGN OF SUB SLAB DEPRESSURIZATION RADON CONTROL SYSTEM WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. PROVIDE ELECTRICAL JUNCTION BOX IN ATTIC FOR POSSIBLE FUTURE INSTALLATION OF WARNING DEVICE FOR EACH VERTICAL STACK.
4. PROVIDE 15 AMP, 115 VOLT ELECTRIC CIRCUIT AND JUNCTION BOX FOR FUTURE INSTALLATION OF VENT FAN.
5. ALL CONCRETE SLABS THAT COME IN CONTACT WITH THE GROUND SHALL BE LAID OVER A GAS PERMEABLE MATERIAL MADE UP OF EITHER A MINIMUM 4" THICK UNIFORM OF CLEAN AGGREGATE OR A MINIMUM 4" THICK UNIFORM LAYER OF SAND, OVERLAIN BY A LAYER OR STRIPS OF MANUFACTURED MATTING DESIGNED TO ALLOW THE LATERAL FLOW OF SOIL GASES.
6. ALL CONCRETE FLOOR SLABS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH LOCAL BUILDING CODES.
7. ALL OPENINGS, GAPS, AND JOISTS IN FLOOR AND WALL ASSEMBLIES IN CONTACT WITH SOIL OR GAPS AROUND PIPES, TOILETS, BATHTUBS OR DRAINS PENETRATING THESE ASSEMBLIES SHALL BE FILLED OR CLOSED WITH MATERIALS THAT PROVIDE A PERMANENT AIR-TIGHT SEAL. SEAL LARGE OPENINGS WITH NON-SHRINK MORTAR, GROUTS OR EXPANDING FOAM MATERIALS AND SMALLER GAPS WITH ELASTOMERIC JOINTS SEALANT, AS DEFINED ASTM C920-A7.
8. VENT PIPES SHALL BE INSTALLED SO THAT ANY RAINWATER OR CONDENSATION DRAINS DOWNWARD INTO THE GROUND BENEATH THE SLAB OR SOIL - GAS - RETARDER MEMBRANE.
9. EXHAUST CLEARANCES MUST CONFORM TO THE CURRENT NATIONAL STANDARD PLUMBING CODE, FOR EXHAUST TERMINATION LIMITATION AND REQUIREMENTS.

PRINTS ISSUED
11/20/24 - CITY SUBMITTAL

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
GENERAL INFORMATION

PROJECT NUMBER: 23096

SHEET NUMBER:

G-002

ROOF PLAN GENERAL NOTES

1. ALL NEW WORK TO MEET ALL APPLICABLE BUILDING, PLUMBING, MECHANICAL, HANDICAP, AND LIFE SAFETY CODES AND REQUIREMENTS.
2. CONTRACTOR TO INSTALL GUTTERS, DOWNSPOUTS AND ALL FLASHING PER APPLICABLE SMACNA GUIDELINES. IF ADDITIONAL DOWNSPOUTS ARE REQUIRED, CONTRACTOR SHALL CONFIRM LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION.
3. MEMBRANE ROOFING SYSTEM ON RIGID INSULATION, ALL ROOF LOCATIONS TYP. U.O.N.
4. COLORS T.B.D., COORDINATE WITH ARCHITECT.

REFLECTED CEILING PLAN GENERAL NOTES

1. SEE MEP SET FOR LOCATIONS OF ALL LIGHT FIXTURES AND MECHANICAL DIFFUSERS.
2. COORDINATE ANY DISCREPANCIES WITH MEP AND ARCHITECT PRIOR TO INSTALLATION.
3. ALL CEILINGS TO CONFORM TO 2018 IBC TABLE 803.13
4. ALL UN-HATCHED REGIONS ARE TO BE OPEN UNFINISHED CEILING TO THE STRUCTURAL DECK AND STRUCTURAL MEMBERS ABOVE. SURFACES TO BE CLEANED AND PATCHED/REPAIRED .
5. ALL MECH DUCTS WHICH FEED TO PLENUM SPACE VIA MECH SHAFTS SHALL BE ENCLOSED ON THE BOTTOM ACCORDING TO PROGRESSIVE ENGINEERING REPORT AER-09-038.
6. ACCESS TO EQUIPMENT SHALL BE THROUGH ACT WHERE AVAILABLE. WHERE NECESSARY, ACCESS THROUGH GWB CEILING TO USE ACCESS HATCHES. GC TO PROVIDE HATCHES AND HATCH LOCATION DIAGRAM PRIOR TO INSTALL.
7. ALL DROPPED SOFFIT FRAMING IN COMMON AREAS SHALL BE OUT OF METAL STUDS. ONE (1) HOUR RATED CEILING THROUGHOUT BUILDING AT UNDERSIDE OF ROOF TRUSSES AND ARE PART OF THE FIRE RATED FLOOR-CEILING ASSEMBLY
8. ALL GYPSUM BOARD CEILINGS TO BE PAINTED PA-1 (U.O.N.).
9. MISCELLANEOUS SYMBOLS INDICATED ON REFLECTED CEILING PLAN ARE MECHANICAL IN NATURE. REFER TO MEP DRAWING SHEETS FOR FURTHER CLARIFICATION FOR ITEM IDENTIFICATION AND LOCATIONS.

PLAN GENERAL NOTES

01 - GENERAL
A. ALL NEW WORK TO MEET ALL APPLICABLE BUILDING, PLUMBING, MECHANICAL, ELECTRICAL, HANDICAP, AND LIFE SAFETY CODES AND REQUIREMENTS.
B. ALL WALL DIMENSIONS ARE TO FACE OF STUD, UNLESS NOTED OTHERWISE.
C. DO NOT SCALE DRAWINGS.
D. NOTIFY ARCHITECT OF ANY DISCREPANCIES BETWEEN PROJECT DOCUMENTS AND EXISTING CONDITIONS. ANY MODIFICATIONS DUE TO DIMENSIONAL CHANGES SHOULD BE PART OF THE PROJECT COST.
E. GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL THOROUGHLY FAMILIARIZE THEMSELVES TO ALL SITE SPECIFIC REQUIREMENTS AND EXTENTS OF THE NEW WORK PRIOR TO BIDDING. NO CHANGES IN THE CONTRACT WILL BE CONSIDERED FOR INFORMATION DISCERNABLE FROM THE EXISTING CONDITIONS OR THE PROJECT DOCUMENTS.
F. CONTRACTORS SHALL BE FAMILIAR AND INCORPORATE ALL PROVISIONS AND REQUIREMENTS ESTABLISHED BY CODES APPLICABLE TO THE PROJECT INCLUDING FAIR HOUSING, UFAS, ANSI, & ADAAG
G. REPORT ALL EXISTING CONDITIONS THAT ARE DAMAGED OR MARRED TO THE ARCHITECT PRIOR TO COMMENCEMENT OF THE NEW WORK.
H. TYPICAL TOP OF FIRST FLOOR SUBFLOOR ELEVATION IS REFERENCED AS 100'-0". CONTRACTOR SHALL VERIFY BUILDING FINISH FLOOR ELEVATION WITH ACTUAL CONDITIONS. COORDINATE ACTUAL GRADE WITH CIVIL DRAWINGS.
I. MAIN LEVEL ELEVATION IS T.O. GYPCRETE, OR T.O. CONCRETE SLAB, RESPECTIVELY.
J. LEVELS ABOVE MAIN LEVEL ARE MEASURED TO T.O. SUBFLOOR.
K. WHOLE BUILDING TO MEET FAIR HOUSING ACT.
L. ALL PENETRATIONS INTO FIRE-RATED ASSEMBLIES ARE TO BE FIRESTOPPED WITH UL APPROVED FIRESTOPPING ASSEMBLIES. UL INFORMATION SHALL BE PROVIDED BY TRADE RESPONSIBLE FOR PENETRATION. REFERENCE THE G200 SERIES.
M. THROUGH PENETRATIONS NOT LOCATED WITHIN WALL CAVITY OR FLOOR/CEILING/ROOF ASSEMBLY SHALL BE REQUIRED TO HAVE FIRE RESISTIVE PENETRATION WITH A T-RATING EQUAL TO OR EXCEEDING THE ASSEMBLY THAT IS PENETRATED.
N. CONTROL JOINTS IN GWB SHALL BE LOCATED AT INSIDE CORNERS AND ACROSS TOP OF DROP SOFFIT. CONTROL JOINTS SHALL OCCUR AT THE CORNERS OF ALL STOREFRONT, RUNNING TO THE T.O. THE PARTITION. GC TO VERIFY WITH ARCHITECT DURING CONSTRUCTION ALL CONTROL JOINT LOCATIONS PRIOR TO INSTALL.
O. PROVIDE FIREBLOCKING AND DRAFTSTOPPING AS REQUIRED AND IN ACCORDANCE WITH 2018 IBC, SECTION 718.
P. CONTRACTOR TO PROVIDE FIRE BLOCKING AT FIRE SEPARATION PARTITION AT 10' ON CENTER VERTICALLY, TYPICAL. CONTRACTOR TO PROVIDE FIRE BLOCKING AT FIRE SEPARATION PARTITION AT ALL BACK-TO-BACK ELECTRICAL OUTLETS.
Q. SEE SHEET G-101 FOR PARTITION SCHEDULE.
R. ALL EXTERIOR MATERIALS TO BE APPLIED PER MANUFACTURER RECOMMENDATIONS AND WITH ASSOCIATED PRODUCTS (SUCH AS STAPLES, NAILS, TAPER, SEALANT).

03 - CONCRETE
A. CONCRETE SEALANT TO BE USED ON FIRST FLOOR WHERE RECEIVING RESILIENT VINYL FLOORING.
B. AT SLAB ON GRADE, LEVEL CONCRETE SURFACE AT AREAS WHERE VCT FLOORING TO BE INSTALLED.

04 - MASONRY
A. ALL EXTERIOR BRICK TO HAVE WEEP HOLES AT MAX 2' ABOVE GRADE
B. ALL EXTERIOR BRICK TO EXTEND BELOW GRADE BY 3 COURSES (8") MIN. AND HAVE A BRICK LEDGE.
C. ALL LOCATIONS WITH EXTERIOR BRICK TO BE GROUTED SOLID FROM BELOW GRADE CONDITION TO LOWEST WEEP HOLE.

05 - METALS
A. STAIR HANDRAILS, TREADS, STRINGERS TO BE PRE-FINISHED OR PAINTED STEEL.
B. ALL DOWNSPOUTS TO BE CONNECTED TO UNDERDRAINS, SLOPED AWAY FROM BUILDING.
C. ALL EXTERIOR METAL TO BE PRE-FINISHED OR PRIMED/PAINTED. COLOR PER ARCH.

06 - WOOD, PLASTICS AND COMPOSITES
A. ALL COMMON SPACE, UNIT TOILET ROOMS, AND BATHROOMS TO HAVE BLOCKING FOR GRAB BARS. SEE G301 FOR HEIGHTS AND LOCATIONS. GRAB BARS TO BE INSTALLED IN ALL COMMON SPACE.
B. CONTRACTOR TO COORDINATE BLOCKING AT ALL ADJACENT POCKET DOORS, MEDICINE CABINETS, AND OTHER ELEMENTS.
C. AT ALL MECH/ELEC ROOMS; INTERIOR FINISH TO BE FIRE-TREATED PLYWOOD PAINTED WHITE ON ALL WALLS
D. ALL SHEAR WALL LOCATIONS & EXTENT OF SHEATHING TO BE COORDINATE WITH STRUCTURAL DRAWINGS.

07 - THERMAL AND MOISTURE PROTECTION
A. CAULK ALL JOINTS BETWEEN DISSIMILAR MATERIALS FOR WEATHER TIGHT, WATERTIGHT, AIRTIGHT, ETC. PERFORMANCE.
B. ALL EXTERIOR WRB TO BE APPLIED, TAPERED AND SEALED PER INSTRUCTIONS
C. PROVIDE SOUND ATTENUATION INSULATION OVER ALL BATHROOM CEILINGS AND IN BATHROOM WALLS, TYPICAL ALL BATHROOMS
D. AT EXTERIOR WALLS, CAULK CONTROL JOINTS IN FLOOR SLAB 12" INTO BUILDING TO PREVENT AGAINST WATER INFILTRATION.

08 - OPENINGS
A. DOORS- ELECTRICIAN IS REQUIRED TO COORDINATE WITH DOOR HARDWARE SCHEDULE FOR ALL ELECTRICAL ROUGH IN REQUIREMENTS FOR DOORS, INCLUDING AUTO OPERATORS, MAG HOLD OPENS, ELECTRONIC STRIKES, KEYPADS AND MAG LOCKS.
B. ALL DOOR HARDWARE SHALL BE COORDINATED W/ OWNER BY DESIGN BUILD CONTRACTOR.

09 - FINISHES
A. PRIME, PAINT AND SEAL ALL WALLS, COLUMNS AND CEILINGS AS REQUIRED PRIOR TO INSTALLATION OF M/E/P/F/TELEPHONE/SECURITY INSTALLATION.
B. CONTRACTOR TO COORDINATE ALL WET WALLS WITH ADJACENT RATINGS AND TO ACCOMMODATE PLUMBING FIXTURES. WALLS TO BE ALIGNED.
C. ALL WALLS TO BE ALIGNED AS INDICATED ON DRAWINGS - IF WALL IS MISALIGNED MID-WALL AND WILL AFFECT VISUAL APPEARANCE IN ROOM (I.E. 'JOG' WILL APPEAR) GC TO BRING TO ARCH ATTENTION PRIOR TO FINISHING
D. FLOOR TRANSITION SHALL OCCUR AT MIDDLE OF WALL WHERE OCCURS IN DOORWAY. PROVIDE VINYL REDUCER STRIP.

PLAN GENERAL NOTES - (CONT.)

10 - SPECIALTIES
A. TOILET PAPER DISPENSER TO BE INSTALLED PER A4/G-301 AND 2009 ICC ANSI 117.1
B. SEE G300 FOR SIGNAGE REQUIREMENTS. NUMBERING OF UNITS AND ROOMS SHALL BE UPDATED TO MEET AHJ AND OWNER REQUIREMENTS PRIOR TO SIGNAGE PRODUCTION.

21 - FIRE SUPPRESSION
A. FIRE EXTINGUISHERS SHALL BE LOCATED SO THAT THE MAXIMUM TRAVEL DISTANCE SHALL NOT EXCEED 75 FEET. GENERAL CONTRACTOR TO PROVIDE SEMI-RECESSED TYPE THROUGHOUT WITH RATED CABINET. PROVIDE (1) TYPE "CLASS K" WITHIN 30 FEET OF COMMERCIAL COOKING EQUIPMENT. PROVIDE RESIDENTIAL TYPE ANSUL SYSTEM AT ALL RESIDENTIAL RANGES AS REQUIRED BY FIRE DEPARTMENT HEIGHT TO MEET ANSI.
B. CONCEALED SPRINKLER HEADS TO BE USED U.N.O.
C. DRY SPRINKLERS TO BE COORDINATED WITH DESIGN-BUILD CONTRACTOR. ALL SPRINKLERS IN BUILDING CAN BE WET. SPRINKLER LOCATIONS AND SPRINKLER EQUIP TO BE COORDINATED W/ ARCH PRIOR TO INSTALL - GC TO PROVIDE LOCATIONS OF HEADS ON RCPS FOR ARCH REVIEW PRIOR TO INSTALL. GC TO COORD FIRE SPRINKLER LINER W/ ALL MEP IN CORRIDOR SPACE TO MAINTAIN CEILING TYPE & HT. PER ARCH DWGS

22 - PLUMBING
A. PLUMBING VENT STACKS, FLUES, FRESH AIR INTAKES, ETC. NOT SHOWN FOR CLARITY. SEE MEP DRAWINGS FOR HVAC/ELECTRICAL/PLUMBING REQUIREMENTS/EQUIPMENT/LOCATIONS. GC TO VERIFY LOCATIONS OF ALL SIDEWALL VENTS PRIOR TO INSTALL.
B. PROVIDE FLOOR DRAINS AS INDICATED ON PLUMBING DRAWINGS AND PER APPLICABLE PLUMBING CODE.
C. DRAINAGE SHALL BE PER 2018 IBC 3201.4 - DRAINAGE WATER COLLECTED FROM A ROOF, AWNING, CANOPY OR MARQUEE AND CONDENSATE FROM MECHANICAL EQUIPMENT SHALL NOT FLOW OVER A PUBLIC WALKING SURFACE
D. CONTRACTOR TO COORDINATE MECHANICAL DUCT, SPRINKLER, PLUMBING, AND ELECTRICAL SUCH THAT CEILING HEIGHTS AND LOCATIONS ARE MAINTAINED PER REFLECTED CEILING PLANS.
E. ALL DOWNSPOUTS INTO COURTYARDS AND AT HARDSCAPE TO BE HARDPIPED TO STORM SEWER. GUTTERS/DOWNSPOUTS SHALL NOT FLOW OVER SIDEWALKS OR OTHER HARDSCAPE.

23 - HVAC
A. GC TO COORDINATE MECHANICAL PADS FOR ROOFTOP AND GROUND MOUNTED UNITS.

26 - ELECTRICAL
A. SEE ELECTRICAL PLANS FOR ELECTRIC DEVICE LAYOUTS.
B. SEE C1/G300 FOR ELECTRICAL MOUNTING HEIGHT REQUIREMENTS.
C. PROVIDE EXIT SIGNS AT LOCATIONS AND PER **1011.3, IBC. -** A TACTILE SIGN STATING 'EXIT' AND COMPLYING WITH ICC A117.1 SHALL BE PROVIDED ADJACENT TO EACH DOOR TO AN AREA OF REFUGE, AN EXTERIOR AREA FOR ASSISTED RESCUE, AN EXIT STAIRWAY, AN EXIT RAMP, AN EXIT PASSAGEWAY AND THE EXIT DISCHARGE
D. PROVIDE DIMMER CAPABILITY FOR ALL COMMON AREA DECORATIVE AND DOWNLIGHTS/SPOTS (CAN LIGHTS).
E. TIMECLOCK AND PHOTOCELL FOR EXTERIOR LIGHTS. MULTIPLE ZONES MAY BE NECESSARY. INSTALL PER MANUFACTURERS RECOMMENDATIONS.
F. ALL ELECTRICAL AND IDF/MDF ROOMS TO HAVE SOLID BLOCKING TO ACCOMMODATE PANEL ATTACHMENT. BLOCKING TO BE PAINTED TO MATCH WALLS. WALLS TO REMAIN RATED AS INDICATED PER PLAN.
G. FIRE PULL STATIONS TO BE PROVIDED PER 2009 IFC AND A.H.J.
H. ALL LIGHTING, T-STATS AND OTHER SWITCHES TO BE INSTALLED PER ANSI 117.1, 2010 ADAAG, AND THE FAIR HOUSING ACT. LOCATIONS AND GROUPINGS OF SWITCHES TO BE ACCEPTED BY ARCH PRIOR TO INSTALL.

PRINTS ISSUED
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STATE OF MISSOURI
DAVID EUGENE
NUMBER
REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1

LEE'S SUMMIT, MO

SHEET TITLE
PLAN GENERAL NOTES

PROJECT NUMBER: 23096

SHEET NUMBER:

G-003

WEATHER-RESISTIVE BARRIER INSTALLATION GUIDELINES

WEATHER-RESISTIVE BARRIER INSTALLATION ON VERTICAL WALLS

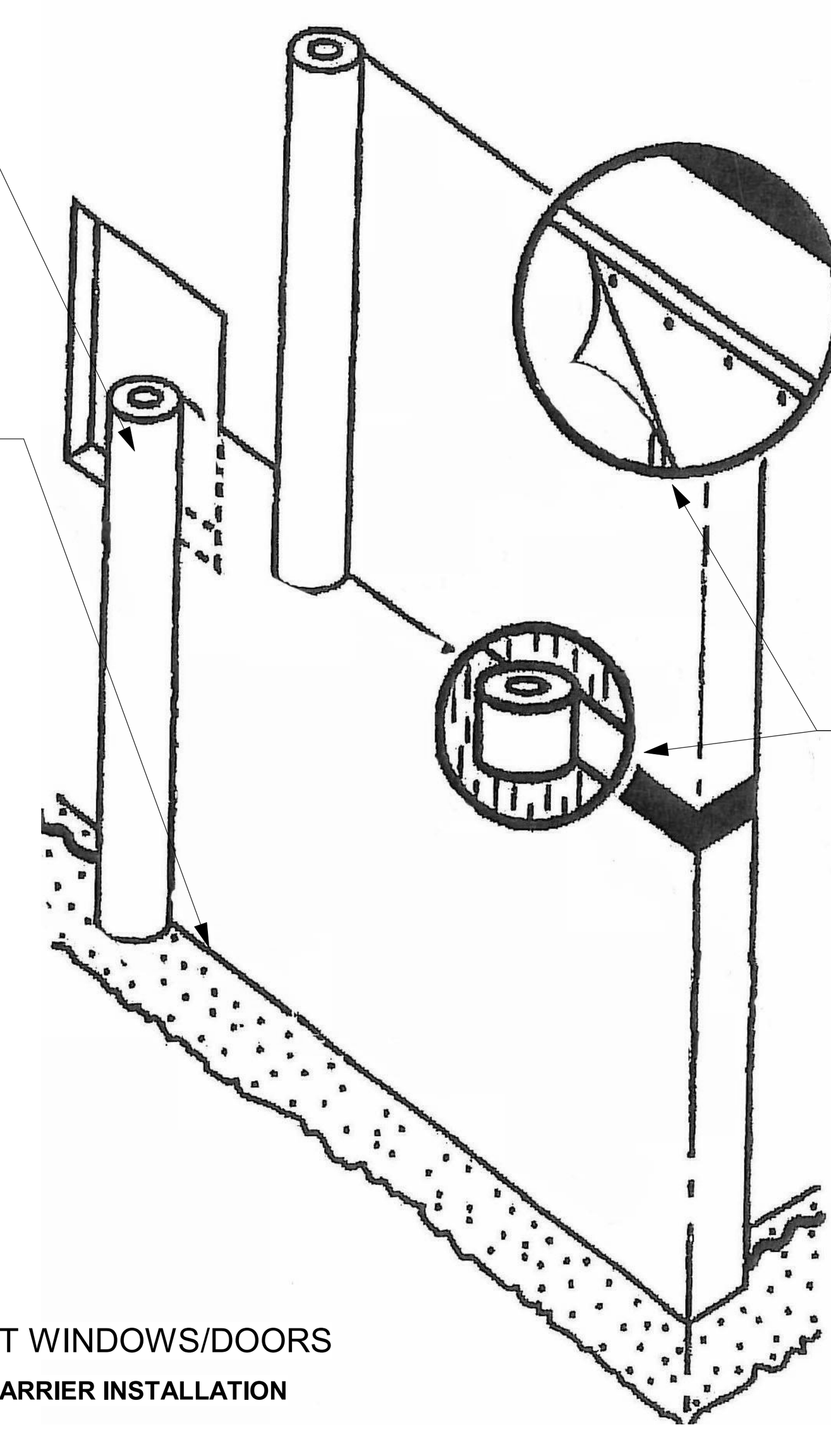
PRIOR TO INSTALLATION OF WINDOWS OR DOORS

STEP 1
UNWRAP ROLL AT CORNER, LEAVE 6" TO 12" OVERLAP - PRINTED STUD MARKS TO LINE UP WITH FIRST STUD.

STEP 2
ROLL SHOULD BE PLUMB - EXTEND BOTTOM ROLL EDGE OVER SILL PLATE INTERFACE AT LEAST 2" TO 3".

STEP 3A
WEATHER-RESISTIVE BARRIER TO BE SECURED ON VERTICAL STUD LINE EVERY 12" TO 18". WHEN USING WOOD, INSULATED SHEATHING BOARD, OR EXTERIOR GYPSUM BOARD; LARGE HEAD OR PLASTIC WEATHER HEAD NAIL USE IS BEST PRACTICE. ALSO, 1" MIN. CROWN WIDE STAPLES MAY BE USED.

STEP 3B
WHEN USING MASONRY, TEMPORARILY ATTACH BARRIER WITH ADHESIVES CONTAINING POLYURETHANE, ELASTOMERIC, OR LATEX BASE IN VERTICAL STRIPS - SPACE APPROXIMATELY 24" APART (CONSULT BUILDING WRAP MANUFACTURER FOR LIST OF SUGGESTED ADHESIVES). AS A PERMANENT ATTACHMENT, USE CLADDING FASTENERS.



STEP 4
DIRECTLY UNROLL BARRIER OVER WINDOWS AND DOORS - UPPER ROLL TO OVERLAP BOTTOM ROLL 6" HORIZONTALLY.

STEP 5
UPPER OF UPPER AND LOWER PLATES TO BE COVERED BY BARRIER - TAPE ALL HORIZONTAL SEAMS AT BAND JOISTS, HEADERS AND ROLL OVERLAPS USING 2" OR 3" MANUFACTURER APPROVED TAPE. ALL ACCIDENTAL TEARS, DAMAGE OR PENETRATIONS TO BE TAPED.

FLASHING SYSTEM INSTALLATION AT WINDOWS/DOORS

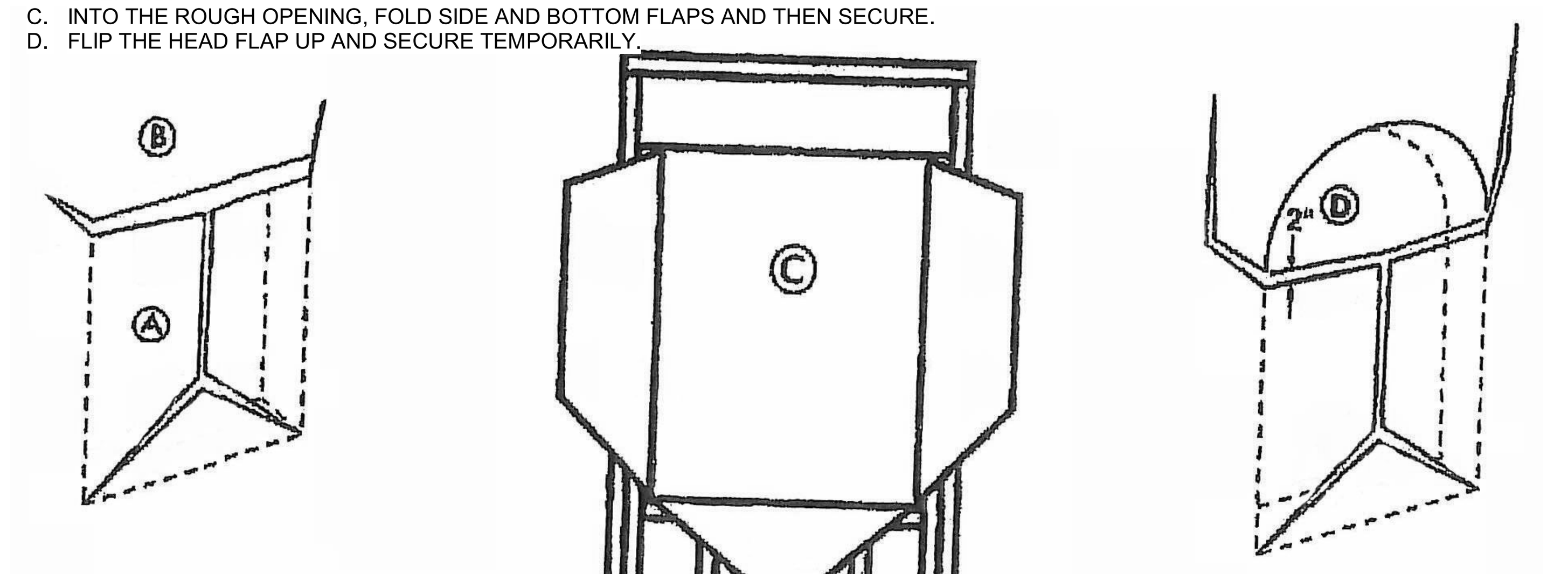
UPON COMPLETION OF WEATHER-RESISTIVE BARRIER INSTALLATION

GENERAL INSTRUCTIONS

- USE AND INSTALL APPROVED FLASHING PER WEATHER-RESISTIVE BARRIER MANUFACTURER'S RECOMMENDATIONS.
- INSTALL FLASHING ON CLEAN, DRY SURFACES. SURFACES TO BE WIPED TO REMOVE MOISTURE, DIRT, GREASE AND OTHER DEBRIS WHICH MAY INTERFERE WITH ADHESION.
- PRESSURE TO BE APPLIED ALONG ENTIRE SURFACE TO ACHIEVE A GOOD BOND.
- SMOOTH/REPOSITION SURFACE AS NECESSARY TO ELIMINATE ALL WRINKLES AND BUBBLES.

STEP 6
PREPARE WEATHER-RESISTIVE BARRIER FOR WINDOW OR DOOR INSTALLATION:

A. MAKE A MODIFIED 'I-CUT' IN THE BARRIER, BEGINNING WITH A HORIZONTAL CUT ACROSS THE TOP OF THE WINDOW FRAME. (FOR ROUNDTOP WINDOWS, BEGIN THE CUT 2" ABOVE THE MULL JOINT; SEE D). CUT STRAIGHT DOWN FROM THE CENTER APPROXIMATELY 2/3 OF THE WAY, THEN ANGLE THE CUT TO THE CORNERS (SEE A).
B. TO EXPOSE SHEATHING, OR FRAMING MEMBERS, AND TO ALLOW FOR HEAD FLASHING INSTALLATION, CUT A FLAP ABOVE THE ROUGH OPENING.
C. INTO THE ROUGH OPENING, FOLD SIDE AND BOTTOM FLAPS AND THEN SECURE.
D. FLIP THE HEAD FLAP UP AND SECURE TEMPORARILY.

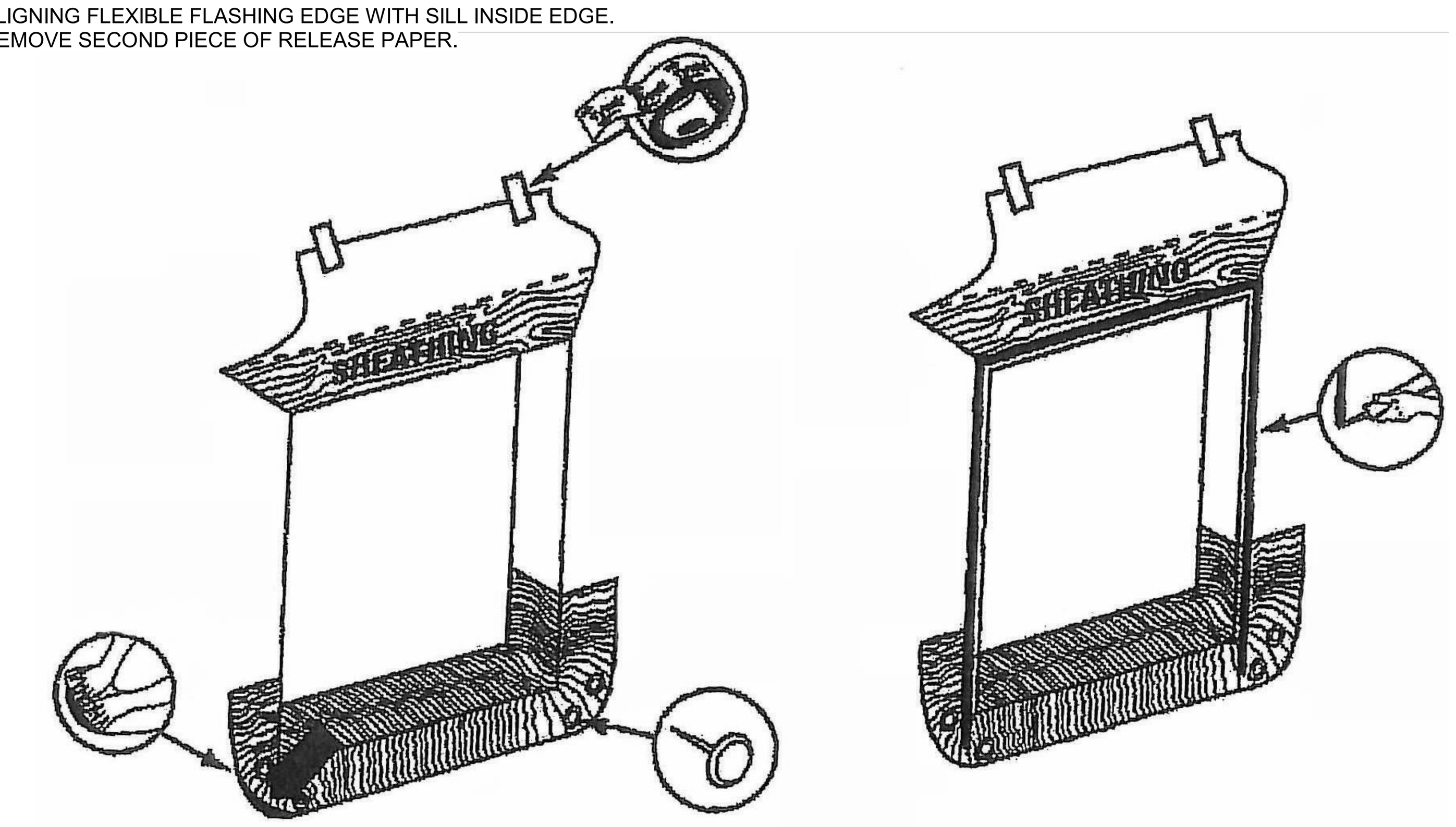


FOR RECTANGULAR WINDOWS

FOR ROUNDTOP WINDOWS

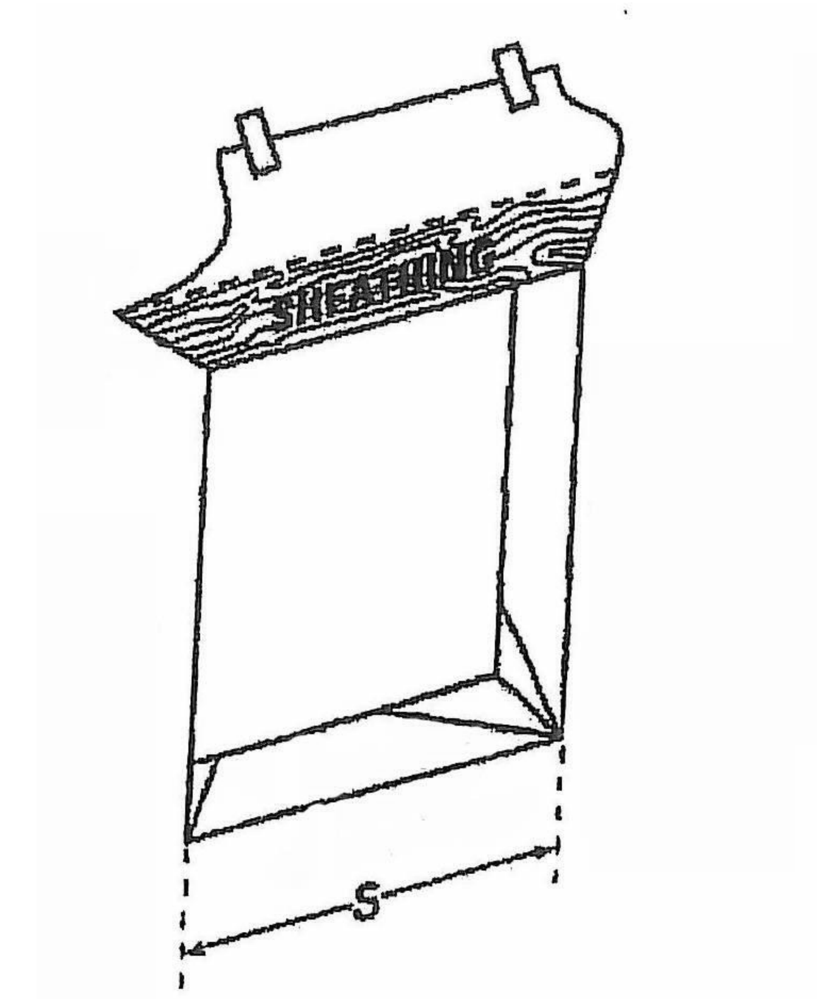
STEP 7

A. CUT FLEXIBLE FLASHING AT LEAST 12" LONGER THAN SILL ROUGH OPENING WIDTH.
B. REMOVE FIRST PIECE OF RELEASE PAPER, COVER HORIZONTAL SILL BY ALIGNING INSIDE EDGE OF SILL, AND SECURE IN ROUGH OPENING ACROSS SILL AND TURN UP JAMBS - MINIMUM 6". COVER HORIZONTAL SILL BY ALIGNING FLEXIBLE FLASHING EDGE WITH SILL INSIDE EDGE.
C. REMOVE SECOND PIECE OF RELEASE PAPER.



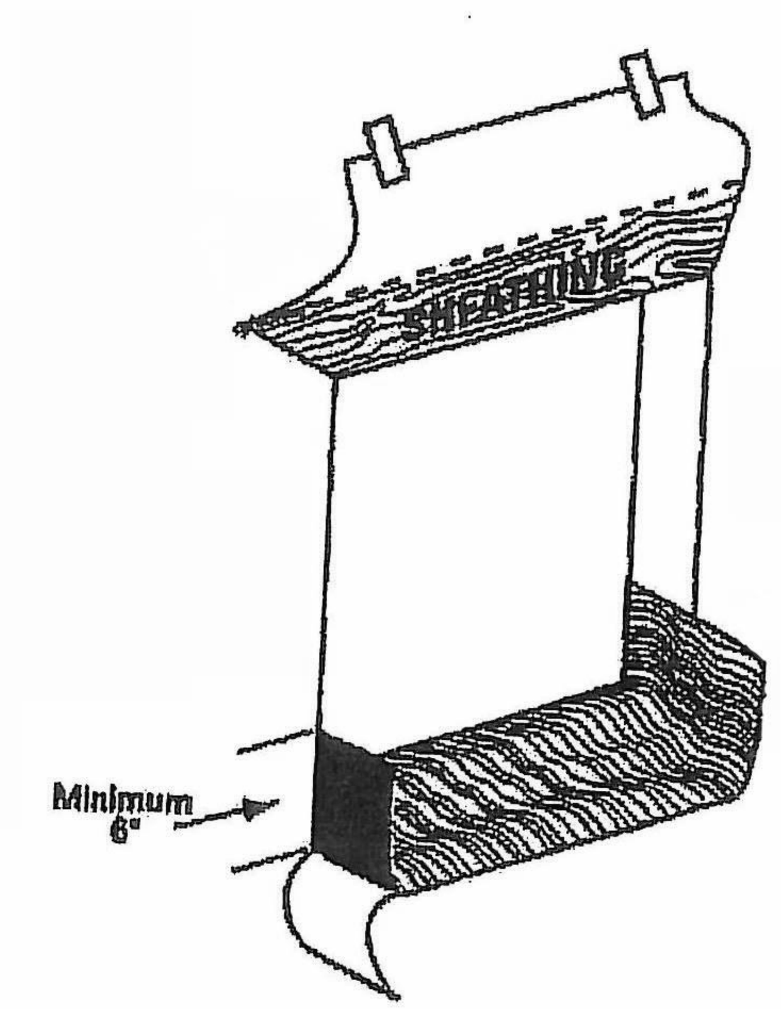
STEP 8

A. FAN FLEXIBLE FLASHING ONTO WALL FACE AT BOTTOM CORNERS.
B. PRESS SILL FLASHING FIRMLY TO ENSURE FULL ADHESION.
C. **FANNED EDGES TO BE SECURED WITH MECHANICAL FASTENERS.**



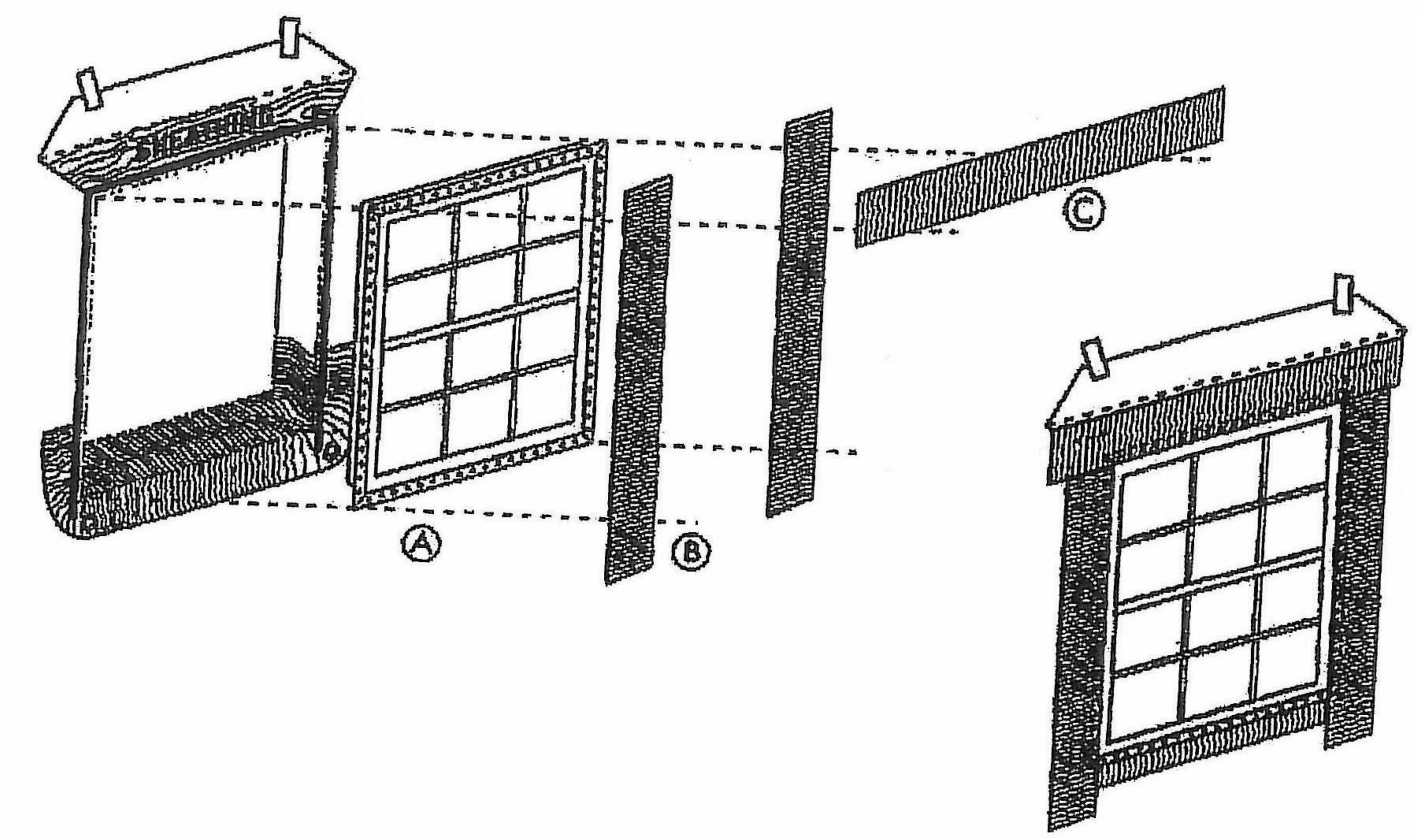
STEP 9

A. AT WALL OR BACK SIDE OF WINDOW MOUNTING FLANGE, APPLY A CONTINUOUS BEAD OF CAULK ACROSS JAMBS AND HEAD - BOTTOM SILL FLANGE TO REMAIN UNCAULKED.
B. **CAULK NOT TO BE APPLIED TO BOTTOM SILL FLANGE.**



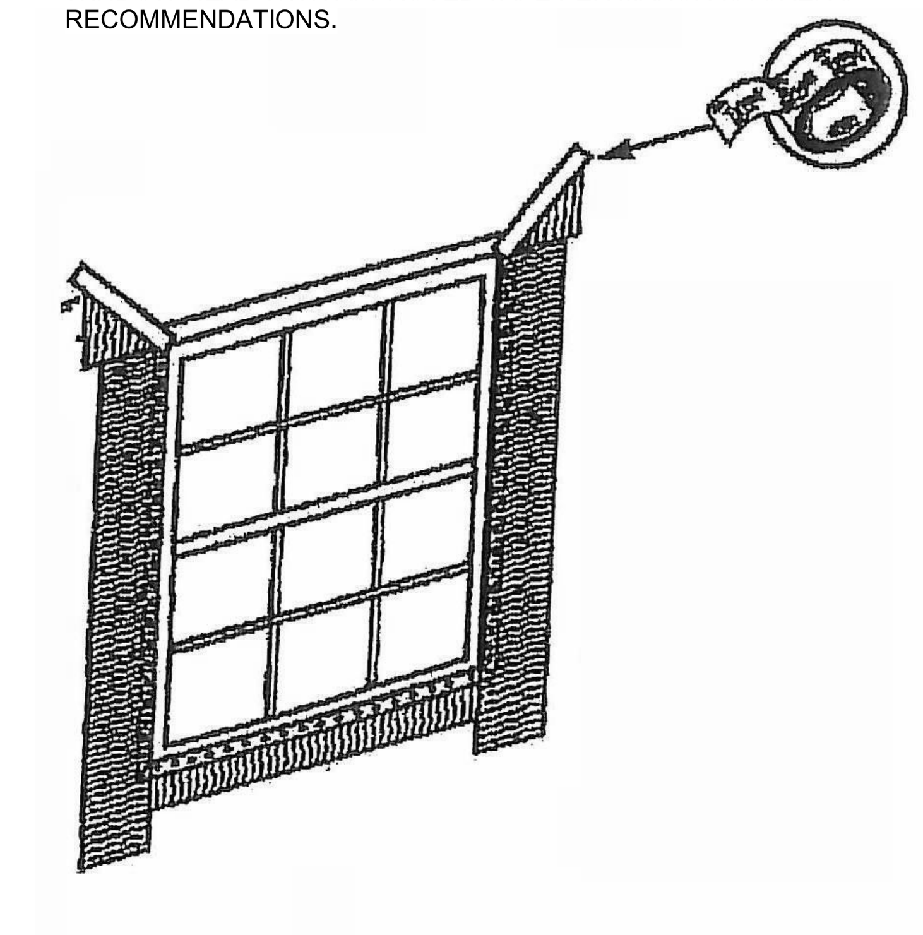
STEP 10

A. INSTALL WINDOW/DOOR PER MANUFACTURER'S INSTRUCTIONS. (IMAGE A)
B. CUT TWO PIECES OF FLASHING OR FLEXIBLE FLASHING FOR JAMB FLASHING TO EXTEND 1" ABOVE WINDOW HEAD FLANGE AND BELOW BOTTOM EDGE OF SILL FLASHING. REMOVE RELEASE PAPER AND TIGHTLY PRESS ALONG SIDES OF WINDOW FRAME. (IMAGE B)
C. CUT A PIECE OF FLASHING OR FLEXIBLE FLASHING FOR HEAD FLASHING, TO EXTEND BEYOND OUTER EDGES OF JAMB FLASHING. REMOVE RELEASE PAPER AND INSTALL COMPLETELY COVERING MOUNTING FLANGE AND ADHERING TO EXPOSED SHEATHING OR FRAMING MEMBERS. (IMAGE C)



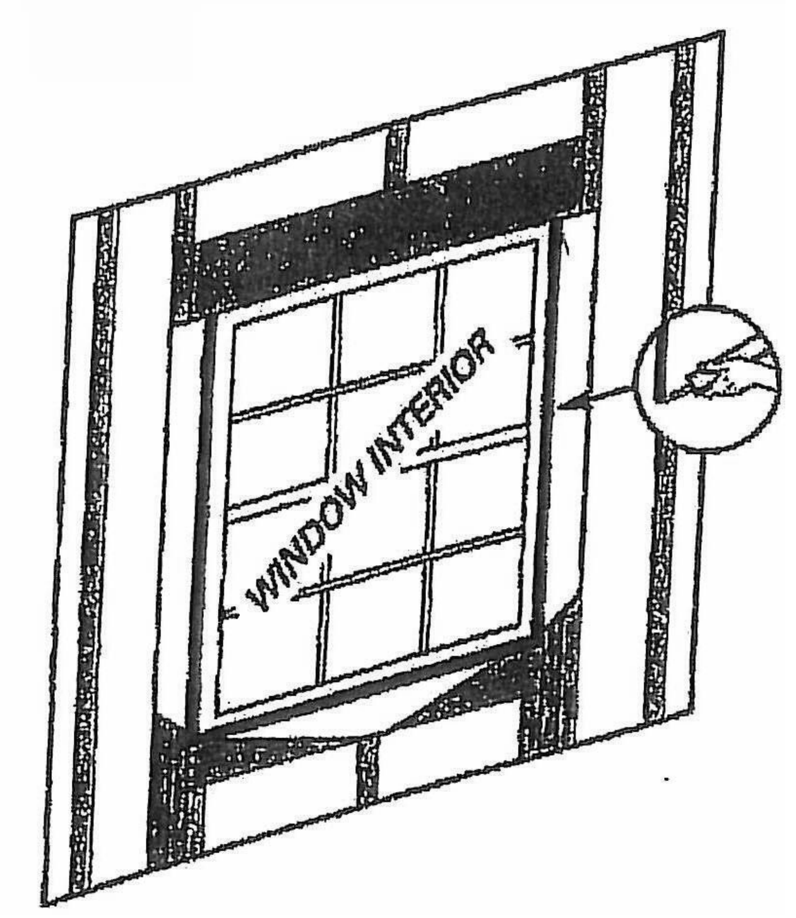
STEP 11

A. FLIP DOWN WEATHER-RESISTIVE BARRIER UPPER FLAP SO THAT IT LAYS FLAT ACROSS HEAD FLASHING.
B. TAPE ALONG ALL CUTS IN WEATHER-RESISTIVE BARRIER AND ACROSS WINDOW HEAD WITH APPROVED TAPE PER MANUFACTURER'S RECOMMENDATIONS.



STEP 12

CAULK (BACKER ROD, AS NECESSARY) AT REAR OF WINDOW/DOOR FRAME TO SEAL INSIDE OF ROUGH OPENING ACROSS BOTTOM AND A MINIMUM 12" TURN UP AT SIDES TO FORM A BACK DAM. IN ORDER TO AIR SEAL AROUND WINDOW OPENING, COMPLETELY CAULK AROUND BACK EDGE OF WINDOW PERIMETER.



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As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri
12/18/2024

PRINTS ISSUED
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REVISIONS:

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER
A-7305
REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
GENERAL INFORMATION

PROJECT NUMBER: 23096

SHEET NUMBER:

G-004

11/20/2024 4:29:43 PM
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PRINTS ISSUED
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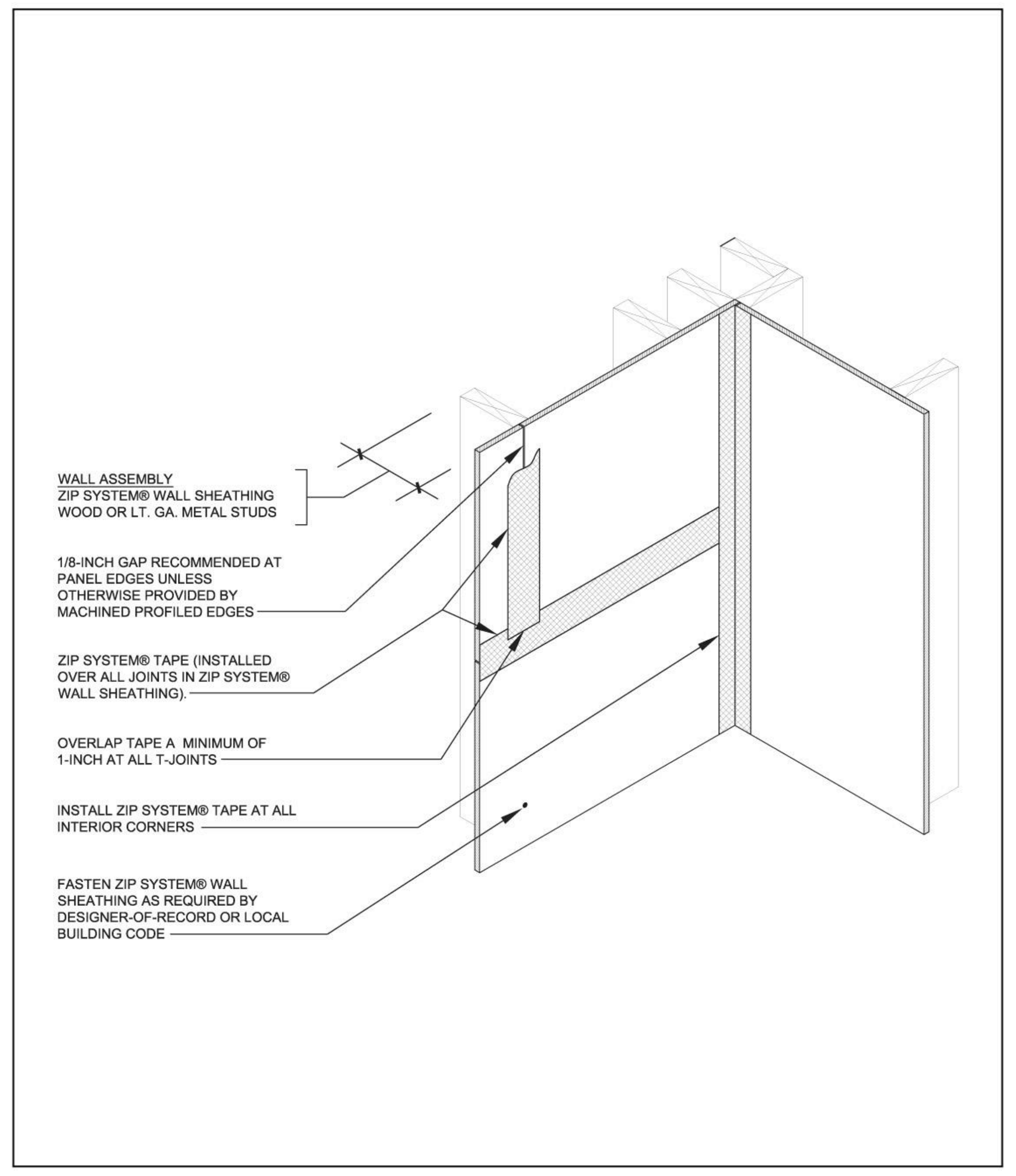
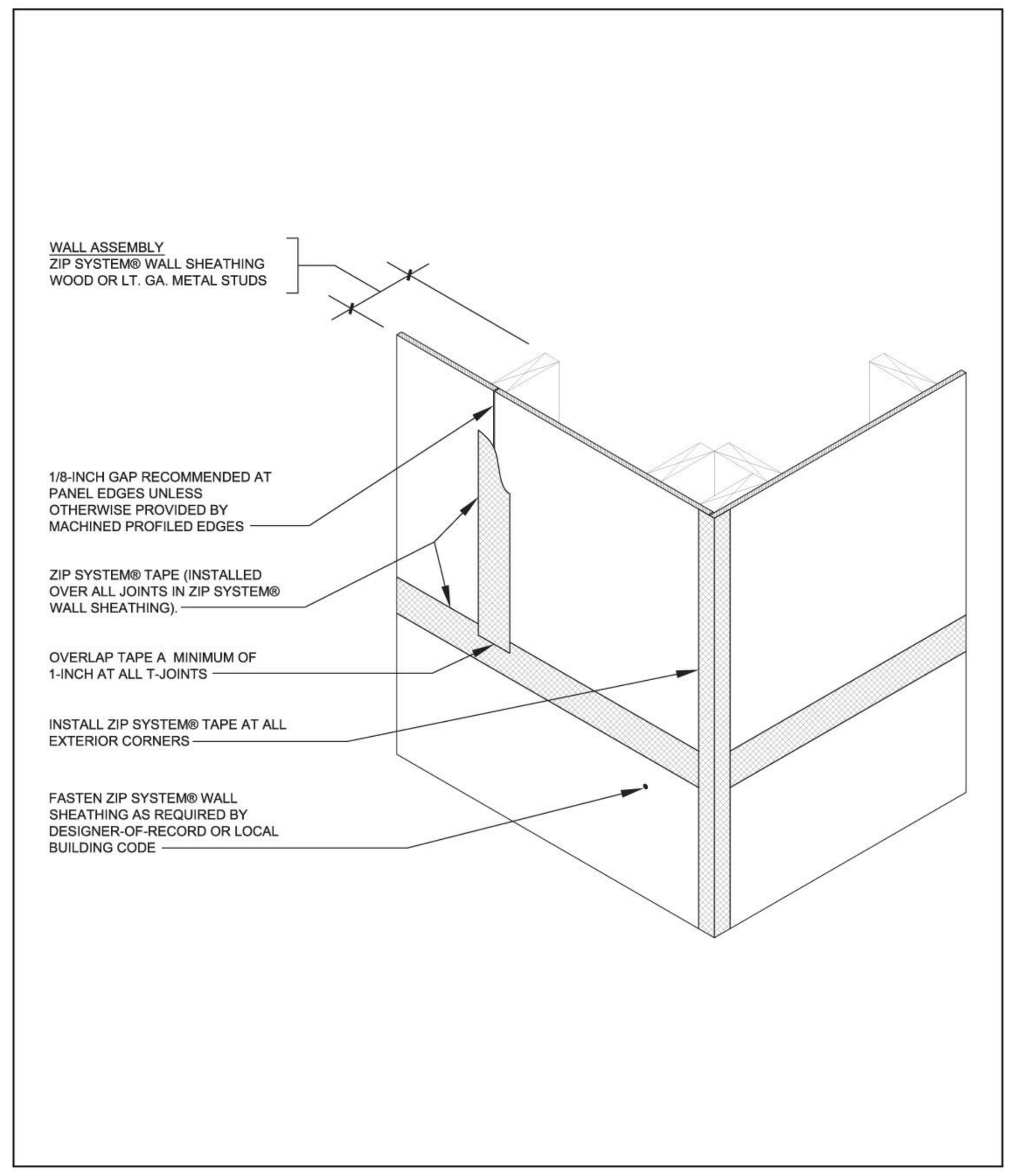
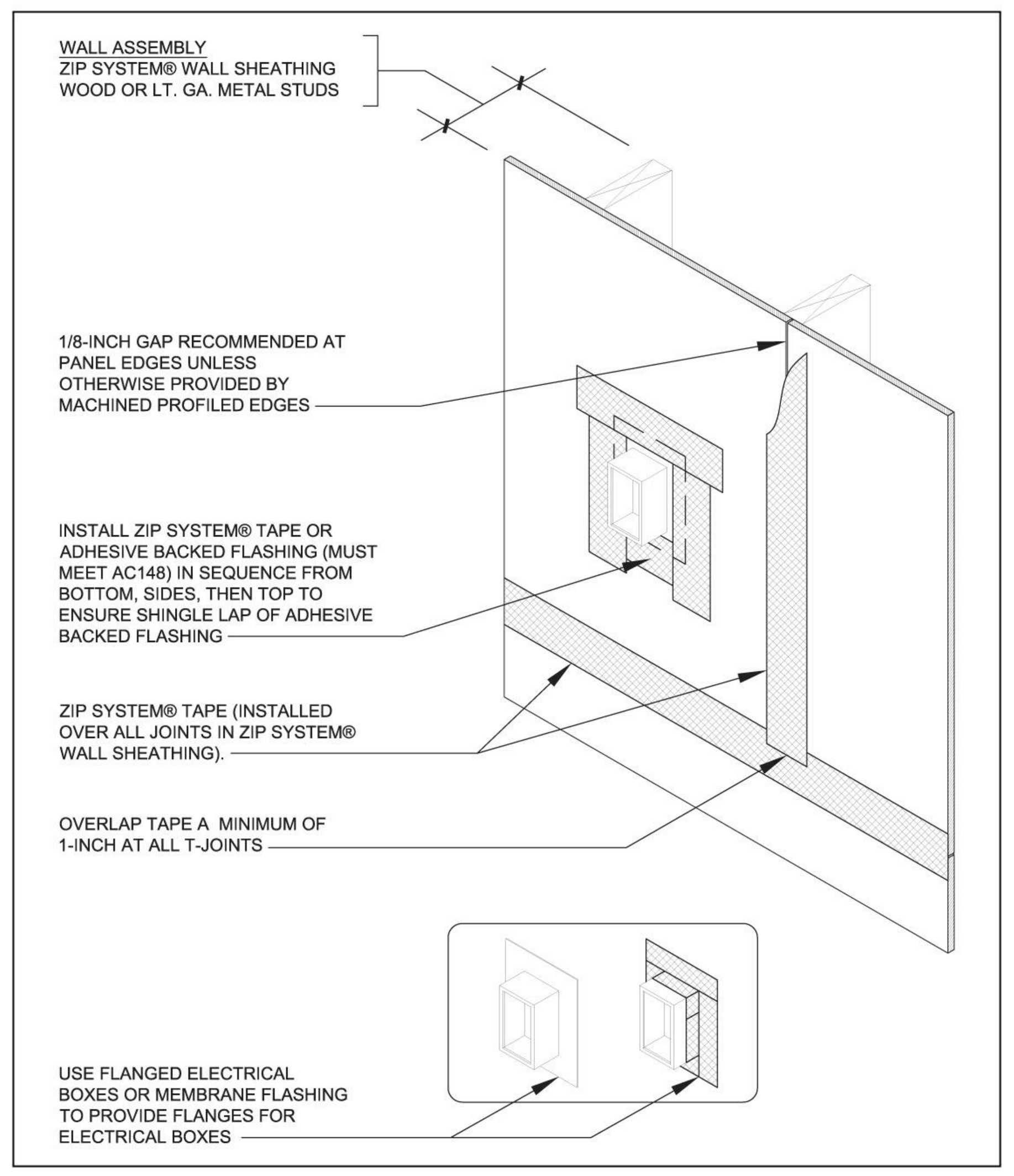
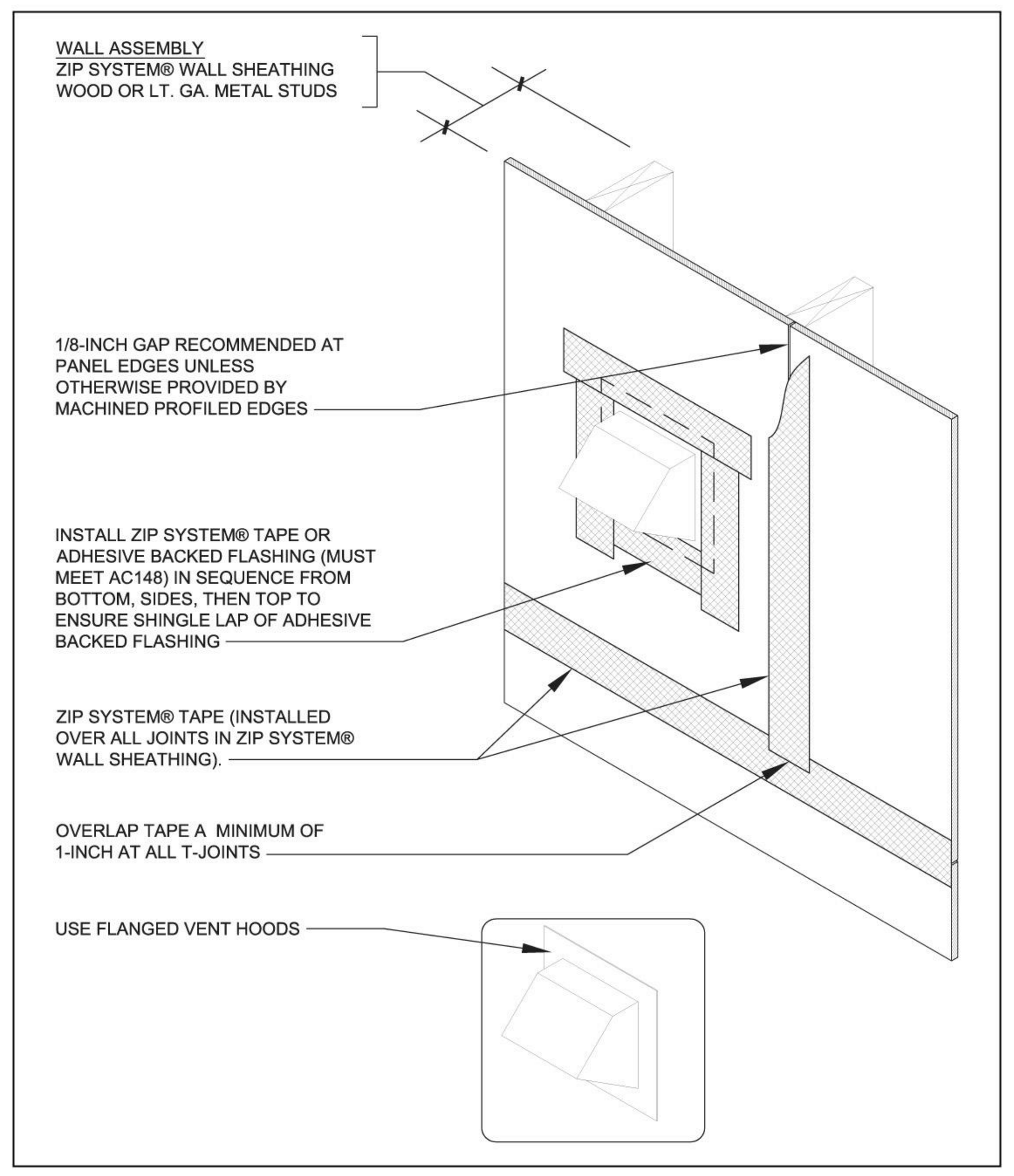
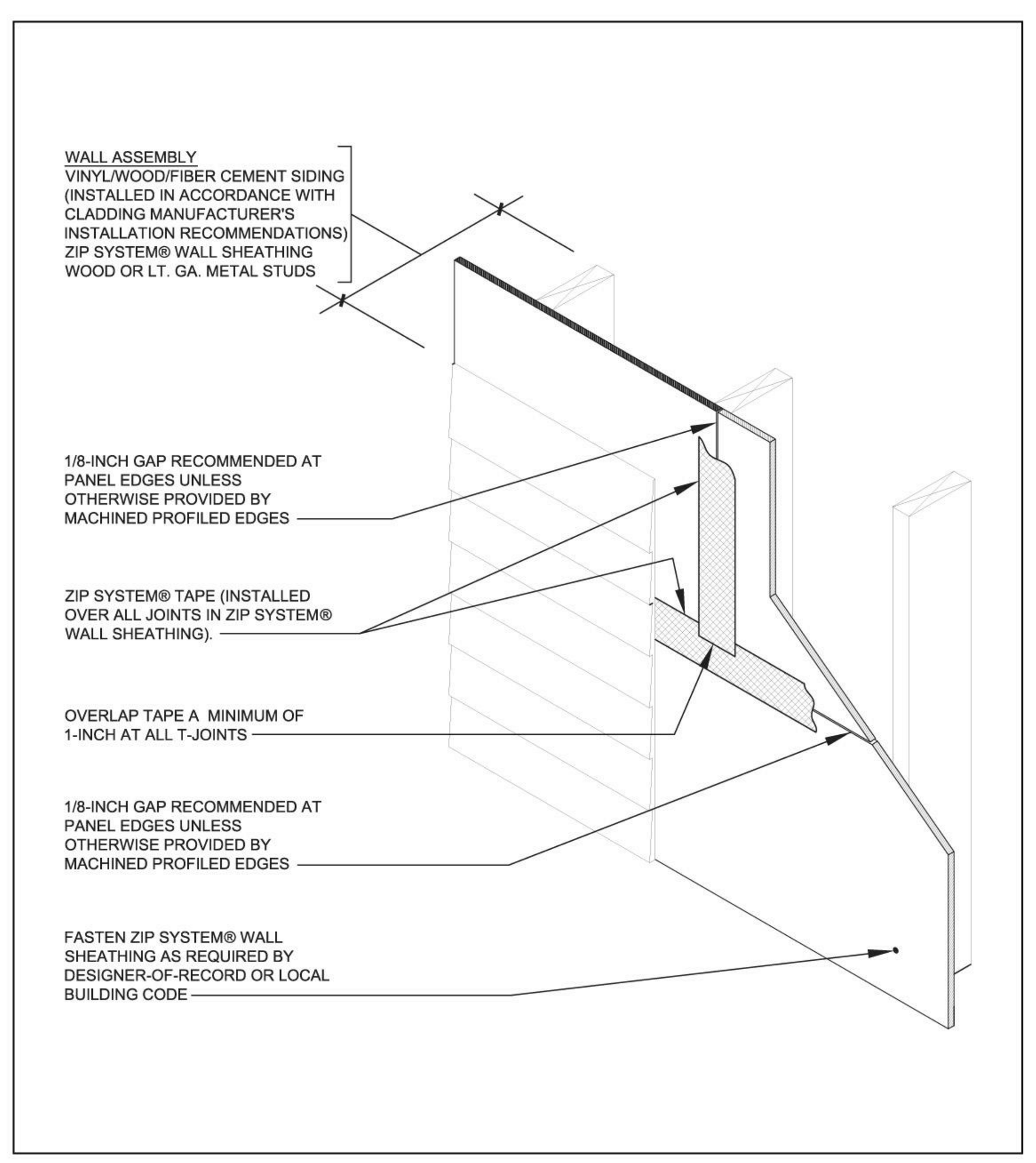
REVISIONS:

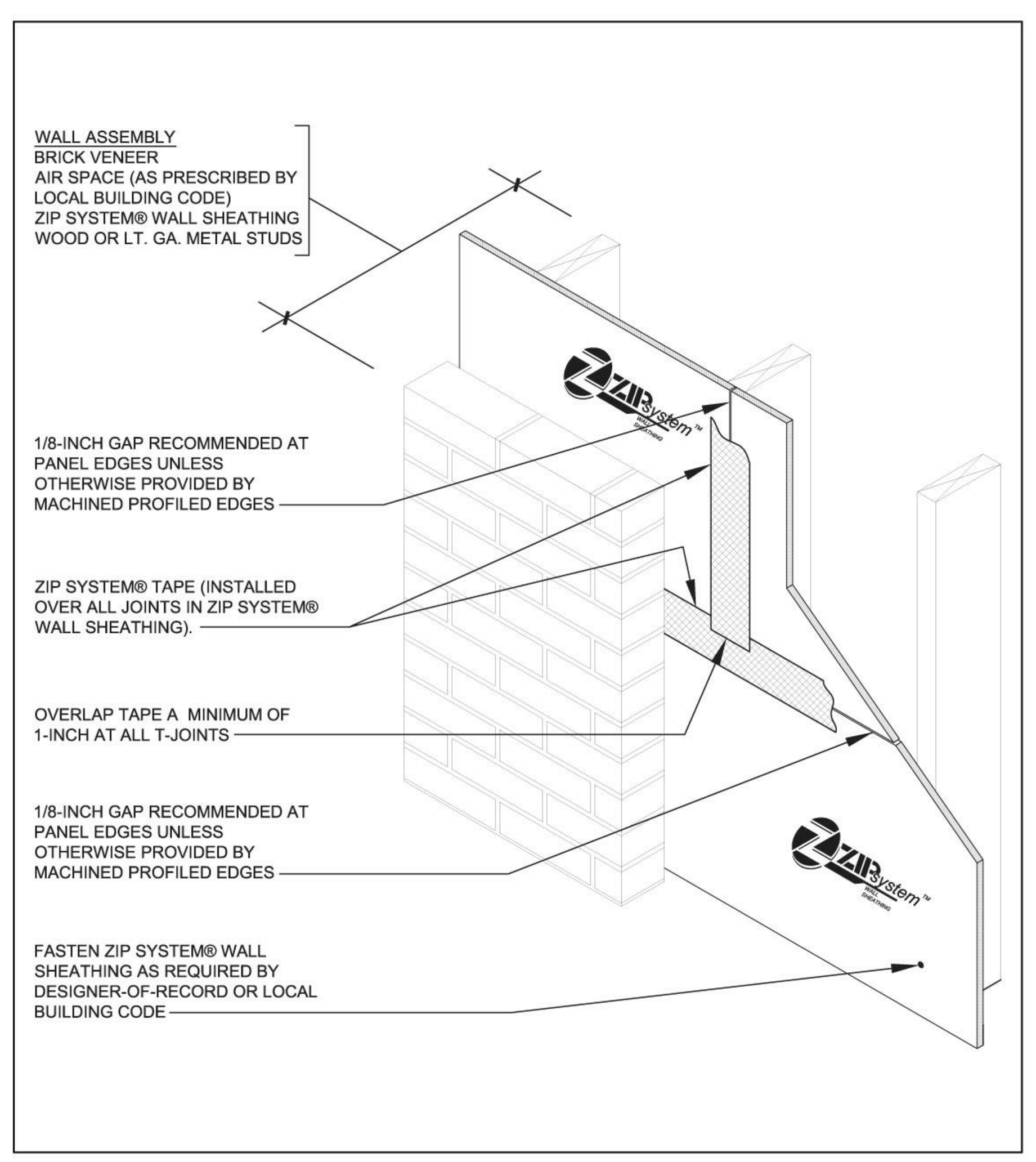






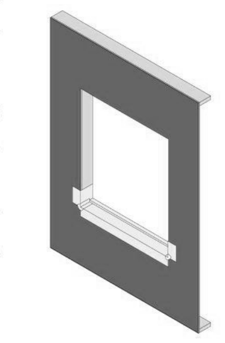






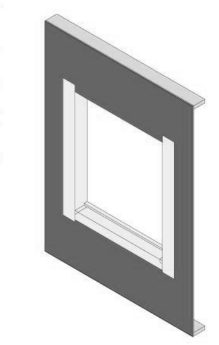
Brick Mould Windows (continued)

3. ZIP System tape may be used as pan flashing if installed in accordance with brick mould window installation details posted on zipsystem.com. Other adhesive-based flashing tapes (must meet ICC-ES Acceptance Criteria for Flashing Materials (AC148)) may be used as pan flashing if installed per ASTM 2112-07. Apply the flashing to cover the bottom of the opening, overhanging onto the sheathing by at least 2" and extending a minimum of 6" up each jamb.

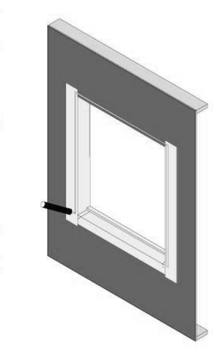


4. For vertical jambs, cut ZIP System tape or another adhesive-backed flashing tape (must meet ICC-ES Acceptance Criteria for Flashing Materials (AC148)) and apply to each of the window jambs. Ensure that they cover the entire inside of the rough opening as well as overlap onto the sheathing by at least 2". Flashing shall also extend above the rough opening, such that it will project 1" beyond the exterior trim of the window.

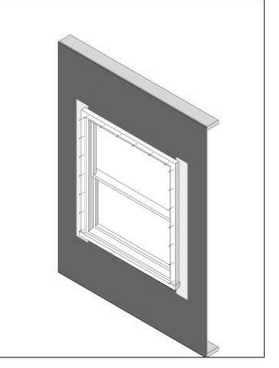
Once the tape is in place, use the tape gun or roller to seal the flashing to the sheathing.



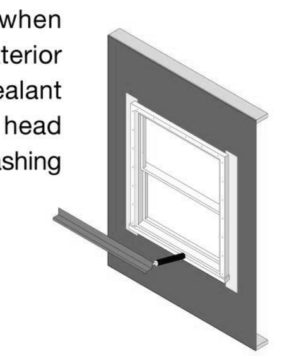
5. Apply sealant to jambs and header allowing for drainage at the sill in accordance with window manufacturer's installation instructions. When using ZIP System tape, use a butyl, polyurethane or silicone sealant. Do not use latex sealants with ZIP System tape. When using another flashing tape, follow the flashing manufac-turer's recommendations in selecting a sealant compatible with that flashing.



6. Install and level window per manufacturer's installation instructions.



7. Cut a piece of rigid head flashing so that when installed, it is flush with the edges of the exterior moulding of the window. Apply a bead of sealant to the back and bottom surface of the rigid head flashing. Use sealant recommended by the flashing manufacturer.



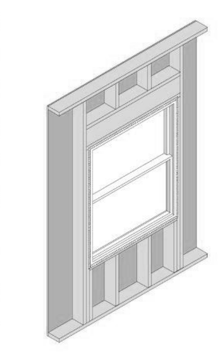
8. Secure the rigid head flashing to ZIP System wall sheathing.

9. Cut a length of ZIP System tape or another adhesive-backed flashing tape (must meet ICC-ES Acceptance Criteria for Flashing Materials (AC148)) and apply to the rigid head flashing, ensuring that the adhesive-backed flashing overlaps the jamb flashings.

Once the tape is in place, use the tape gun or roller to seal the flashing to the sheathing.

10. From the interior, apply low-pressure polyurethane foam (for windows) between the rough opening and the window frame. (Caulk sealant compatible with the sill flashing may be used at the sill if the opening between the sill flashing and window is too narrow to allow the use of low-pressure polyurethane foam.)

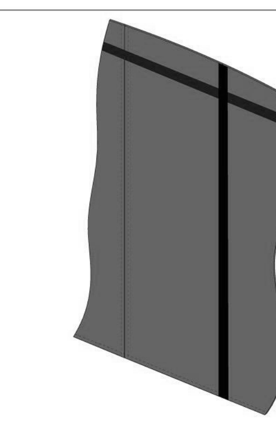
When using ZIP System tape, butyl, silicone or polyurethane sealants are acceptable. Do not use latex sealants with ZIP System tape. If using another flashing tape, follow the flashing manufacturer's recommendation in selecting a sealant compatible with that flashing.



Apply ZIP System tape after all ZIP System wall sheathing panels are fully fastened to wall-framing members. Only ZIP System tape should be used to seal the seams of ZIP System panels. Ensure that the panel surface is dry and free of sawdust and dirt prior to taping. **ZIP System tape is a contact tape that requires pressure for an adequate seal.**

Step 1. Tape all seams using ZIP System tape. Ensure that the tape is centered over the seam within +/- 1/2" to provide adequate coverage and that wrinkles in tape are minimal.

Use the ZIP System tape gun or roller to apply pressure to the tape and smooth out any wrinkles.

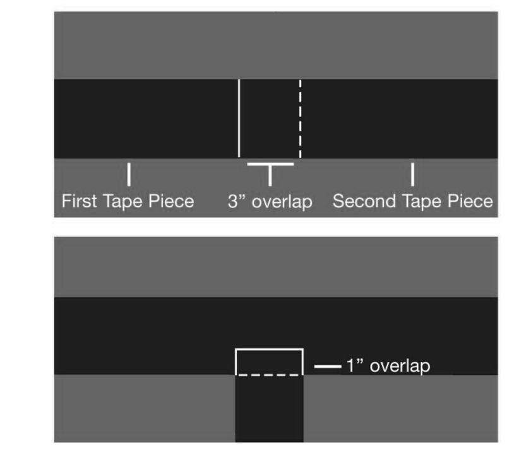


Step 2. Wherever tape splices occur at a horizontal or vertical seam, create an overlapping splice of at least 3".

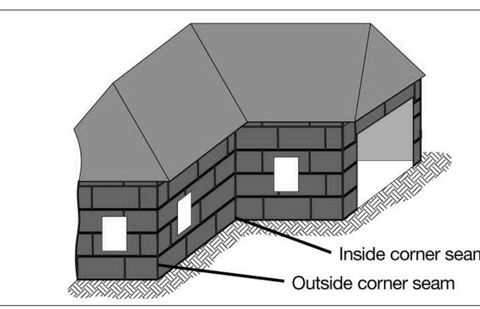
At T-joints, the tape pieces should overlap by at least 1". Apply moderate pressure onto the surface of the tape to ensure a secure bond between the panel and the tape.

Use the ZIP System tape gun or roller to apply pressure to the tape and smooth out any wrinkles.

Take special care to remove any voids and/or trapped air at splice areas and T-joints.

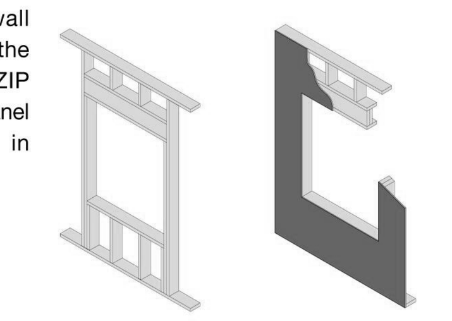


Step 3. Tape inside and outside corner seams.

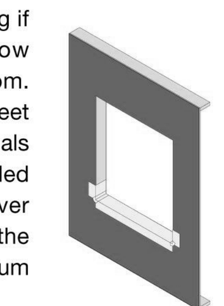


Flanged Windows

1. Fasten the ZIP System wall sheathing sheathing to the wood frame and install ZIP System tape to all wall panel seams, as de-tailed in sections 02 and 03.



2. ZIP System tape may be used as pan flashing if installed in accordance with flanged window installation details posted on zipsystem.com. Other adhesive-based flashing tapes (must meet ICC-ES Acceptance Criteria for Flashing Materials (AC148)) may be used as pan flashing if installed per ASTM 2112-07. Apply the flashing to cover the bottom of the opening, overhanging onto the sheathing by at least 2" and extending a minimum of 6" up each jamb.



3. Apply sealant around inside face of mounting flange. Sealant must be gapped at the sill to permit drainage. Install and level window per manufacturer's installation instructions. Verify sealant compatibility with window manufacturer. When using ZIP System tape as pan flashing, butyl, silicone or polyurethane sealants are acceptable. Do not use latex sealants.

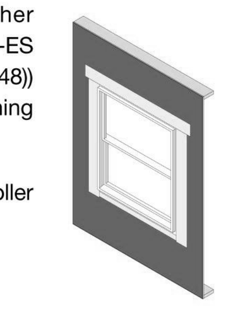
4. Cut two pieces of ZIP System tape or another adhesive-backed flashing tape (must meet ICC-ES Acceptance Criteria for Flashing Materials (AC148)) and apply to each of the window jamb flanges, ensuring the jamb flashings overlap the sill flashing.

Once the tape is in place, use the tape gun or roller to seal the flashing to the sheathing.

5. Cut a length of ZIP System tape or another adhesive-backed flashing tape (must meet ICC-ES Acceptance Criteria for Flashing Materials (AC148)) and apply to the header, ensuring that the flashing overlaps the jamb flashings.*

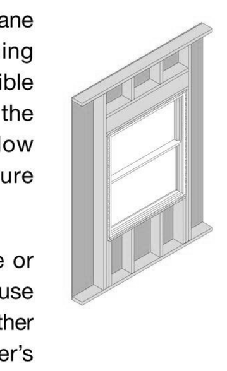
Once the tape is in place, use the tape gun or roller to seal the flashing to the sheathing.

*DO NOT tape bottom flange.



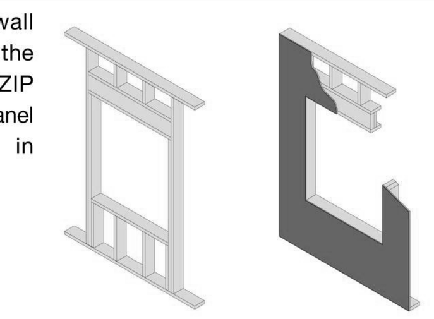
6. From the interior, apply low-pressure polyurethane foam (for windows) between the rough opening and the window frame. (Caulk sealant compatible with the sill flashing may be used at the sill if the opening between the sill flashing and window is too narrow to allow the use of low-pressure polyurethane foam.)

When using ZIP System tape, butyl, silicone or polyurethane sealants are acceptable. Do not use latex sealants with ZIP System tape. If using another flashing tape, follow the flashing manufacturer's recommendation in selecting a sealant compatible with that flashing.

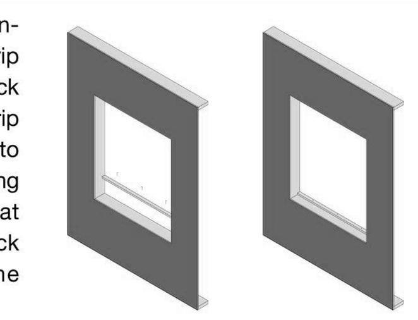


Brick Mould Windows

1. Fasten the ZIP System wall sheathing sheathing to the wood frame and install ZIP System tape to all wall panel seams, as de-tailed in sections 02 and 03.



2. If recommended by the win-dow manufacturer, cut a strip of wood to function as a back dam at the sill. The wood strip should have a length equal to the width of the rough opening and a height and width of at least 1/2". Position the block at the inside edge of the window frame.



THIS SHEET IS PROVIDED FOR REFERENCE ONLY. ALL INSTALLATION TO BE PER MANUFACTURER RECOMMENDATION

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1

LEE'S SUMMIT, MO

SHEET TITLE
GENERAL INFORMATION

PROJECT NUMBER: 23096

SHEET NUMBER:

G-005

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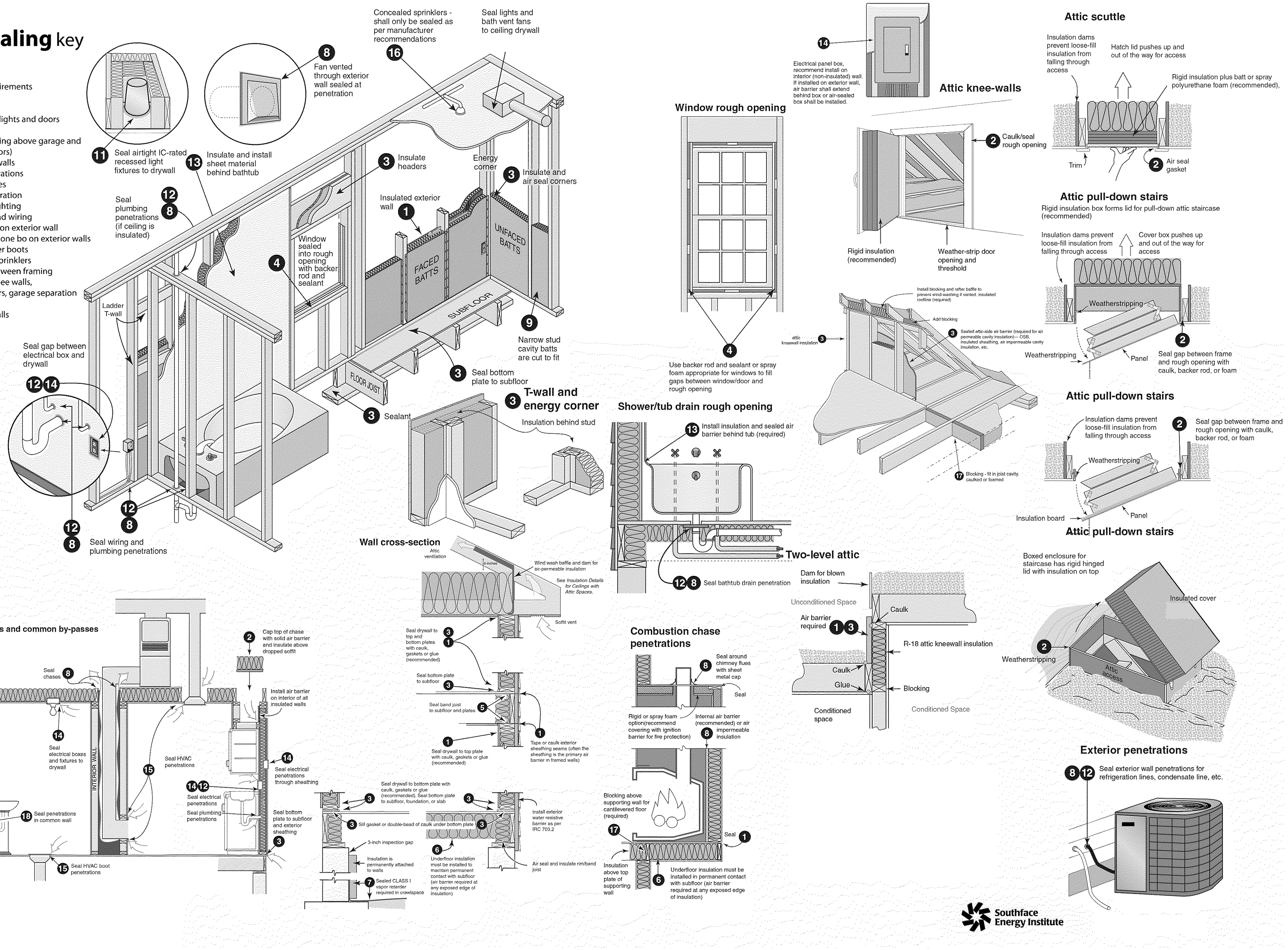
Appendix

Air Sealing key points

1. General Requirements
2. Ceiling/attic
3. Walls
4. Windows, skylights and doors
5. Rim joists
6. Floors (including above garage and cantilevered floors)
7. Crawl Space walls
8. Shafts, penetrations
9. Narrow cavities
10. Garage separation
11. Recessed lighting
12. Plumbing and wiring
13. Shower/tub on exterior wall
14. Electrical/phone bo on exterior walls
15. HVAC register boots
16. Concealed sprinklers
17. Blocking between framing (e.g. beneath knee walls, cantilevered floors, garage separation walls)
18. Common walls
19. Fireplaces



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STATE OF MISSOURI — REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
GENERAL INFORMATION

PROJECT NUMBER: 23096

SHEET NUMBER:
G-006

REFERENCE G-003 FOR GENERAL NOTES

CODE REVIEW

PROJECT NAME:	THE VILLAGE AT DISCOVERY - LOT 1
PROJECT LOCATION:	LEE SUMMIT, MO
CODE:	2018 IBC
CODE REVIEW COMPLETED BY:	AJ DOLPH

CHAPTER THREE

SECTION 302 CLASSIFICATION:	B, BUISNESS A-2, UNCONCENTRATED

CHAPTER FOUR

SECTIONS 402 - 428:	N/A

CHAPTER FIVE

TABLE 504.3 ALLOWABLE HEIGHT IN FEET ABOVE GRADE PLANE:	CONSTRUCTION TYPE VB B: ACTUAL: 42' ALLOWABLE: 60'-0" A: ACTUAL: 42' ALLOWABLE: 60'-0"
TABLE 504.4 ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE:	CONSTRUCTION TYPE VA B: ACTUAL: 2 ALLOWABLE: 3 STORIES A-2: ACTUAL: 1 ALLOWABLE: 2 STORIES
506.2 ALLOWABLE AREA FACTOR:	CONSTRUCTION TYPE VB B: ACTUAL: 14,014SF ALLOWABLE: 27,000SF A-2:ACTUAL: 14,014SF ALLOWABLE: 18,000SF
TABLE 508.4 REQUIRED SEPARATION OF OCCUPANCIES:	B - B: 0 HOUR A - B: 1 HOUR A - A: 0 HOUR
TABLE 509 INCIDENTAL USES: STORAGE > 100 SF, 1HR	

CHAPTER SIX

TABLE 601 FIRE RESISTANCE REQS. FOR BUILDING ELEMENTS (HOURS):	CONSTRUCTION TYPE VB PRIMARY STRUCTURAL FRAME: 0 HOUR INTERIOR BEARING WALL: 0 HOUR EXTERIOR BEARING WALL: 0 HOUR NON-BEARING WALL: 0 HOUR FLOOR CONSTRUCTION: 0 HOUR ROOF CONSTRUCTION: 0 HOUR
TABLE 602 FIRE RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE:	0 HOUR <30 FEET, 0 >30 FEET

CHAPTER SEVEN

704 FIRE-RESISTANCE RATING OF STRUCTURAL MEMBERS:	0 HOUR RATED
705.5 EXTERIOR WALLS FIRE-RESISTANCE RATING:	FIRE SEPARATION DISTANCE > 10'-0" RATED EXPOSURE FROM INSIDE ONLY
TABLE 705.8 MAX AREA OF EXTERIOR WALL OPENINGS:	FIRE SEPARATION DISTANCE > 25'-0" UNPROTECTED, NO LIMIT
SECTION 707 FIRE BARRIERS:	1 HOUR RATED
SECTION 708 FIRE PARTITIONS:	1 HOUR RATED
SECTION 711 HORIZONTAL ASSEMBLIES:	1 HOUR RATED
SECTION 713 SHAFT ENCLOSURES:	1 HOUR RATED
SECTION 714 PENETRATIONS:	MATCH ASSEMBLY RATING
SECTION 715 FIRE-RESISTANT JOINT SYSTEMS:	MATCH ASSEMBLY RATING
TABLE 716.1(2) OPENING FIRE PROTECTION & RATING:	1 HOUR FIRE BARRIER:60 MINUTE DOOR 1 HOUR PARTITION: 45 MINUTE DOOR
717 DUCTS AND AIR TRANSFER OPENINGS:	REQUIRED AT RATED PENETRATIONS, 1.5 HOUR DAMPER RATING
SECTION 718 CONCEALED SPACES:	FIREBLOCK

CHAPTER NINE

903 AUTOMATIC SPRINKLER SYSTEM:	A-2, B, REQUIRED: NFPA 13
905 STANDPIPE SYSTEM:	CLASS I REQUIRED
906 PORTABLE FIRE EXTINGUISHERS:	REQUIRED PER NFPA 10, 75'-0" MAX TRAVEL
907 FIRE ALARM & DETECTION SYSTEM:	REQUIRED PER NFPA 72
909 SMOKE CONTROL SYSTEM:	COMPLY WITH IMC

CHAPTER TEN

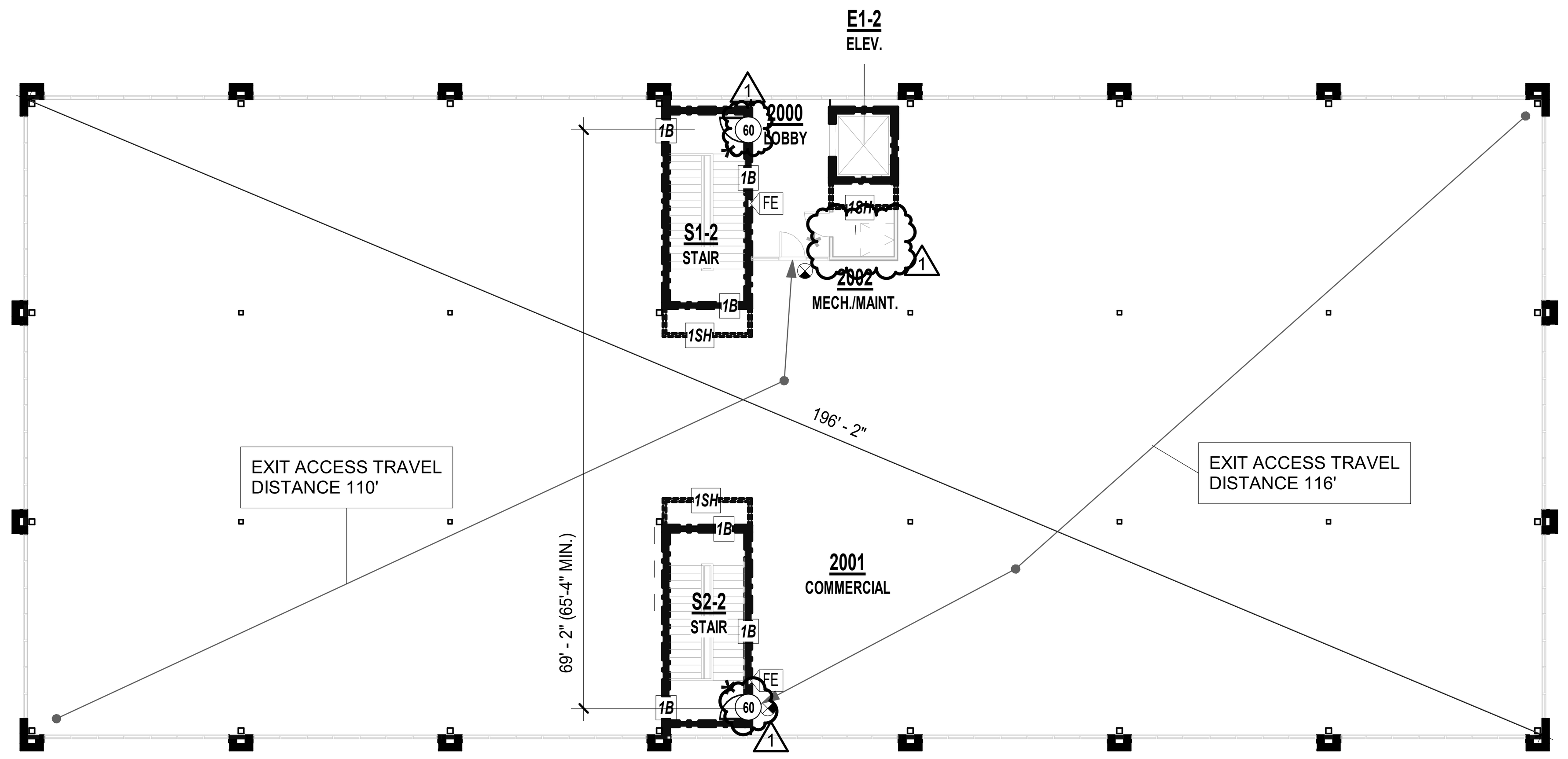
TABLE 1004.5 MAX FLOOR AREA ALLOWANCES PER OCCUPANT:	A-2, 15 NET B, 150 GROSS
SECTION 1005 MEANS OF EGRESS SIZING:	STAIRS 0.2/OCC., W/ SPRINKLER EXCEPTION OTHER EGRESS 0.15/OCC., W/ SPRINKLER EXCP.
TABLE 1006.2.1 SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY:	A-2: 49 OCC., 75' MAX. PATH OF EGRESS B: 49 OCC., 100' MAX. PATH OF EGRESS
TABLE 1006.3.2 MINIMUM NUMBER OF EXITS PER STORY:	2 EXITS REQ.D W/ OCCUPANT LOAD/STORY 1-500 3 EXITS REQ.D W/ OCCUPANT LOAD/STORY 500-1000
1009.3.3 AREA OF REFUGE:	NOT REQUIRED W/ SPRINKLER EXCEPTION
1009.8 TWO-WAY COMMUNICATION:	REQ'D. AT EACH ELEV. LANDING ABOVE GRADE
1011.2 STAIRWAY WIDTH CAPACITY:	44" MIN.
1011.12 STAIRWAY TO ROOF:	UNOCCUPIED ROOF, ACCESS VIA ROOF HATCH
1014.2 HANDRAIL HEIGHT:	34" MIN. - 38" MAX.
1014.6 HANDRAIL EXTENSIONS:	EXTEND HORIZONTALLY 12" BEYOND TOP RISER CONTINUE SLOPE 1 DEPTH TREAD AT BOTTOM
1015 GUARDS:	42" MIN. HEIGHT, 4" MAX. OPENING
TABLE 1017.2 EXIT ACCESS TRAVEL DISTANCE:	A: 250' W/ 13 SPRINKLER B: 300' W/ 13 SPRINKLER
1019 EXIT ACCESS STAIRWAYS:	1 HOUR RATED PER 713
TABLE 1020.1 CORRIDOR RATING:	A & B: NO RATING REQ.D W/ 13 SPRINKLER
1020.1.1 HOISTWAY OPENING PROTECTION:	NOT REQUIRED PER 3006.2
TABLE 1020.2 MIN. CORRIDOR WIDTH:	44" MIN.
1020.4 DEAD ENDS:	A: 20'-0" MAX. B: 50'-0" MAX.

CHAPTER ELEVEN

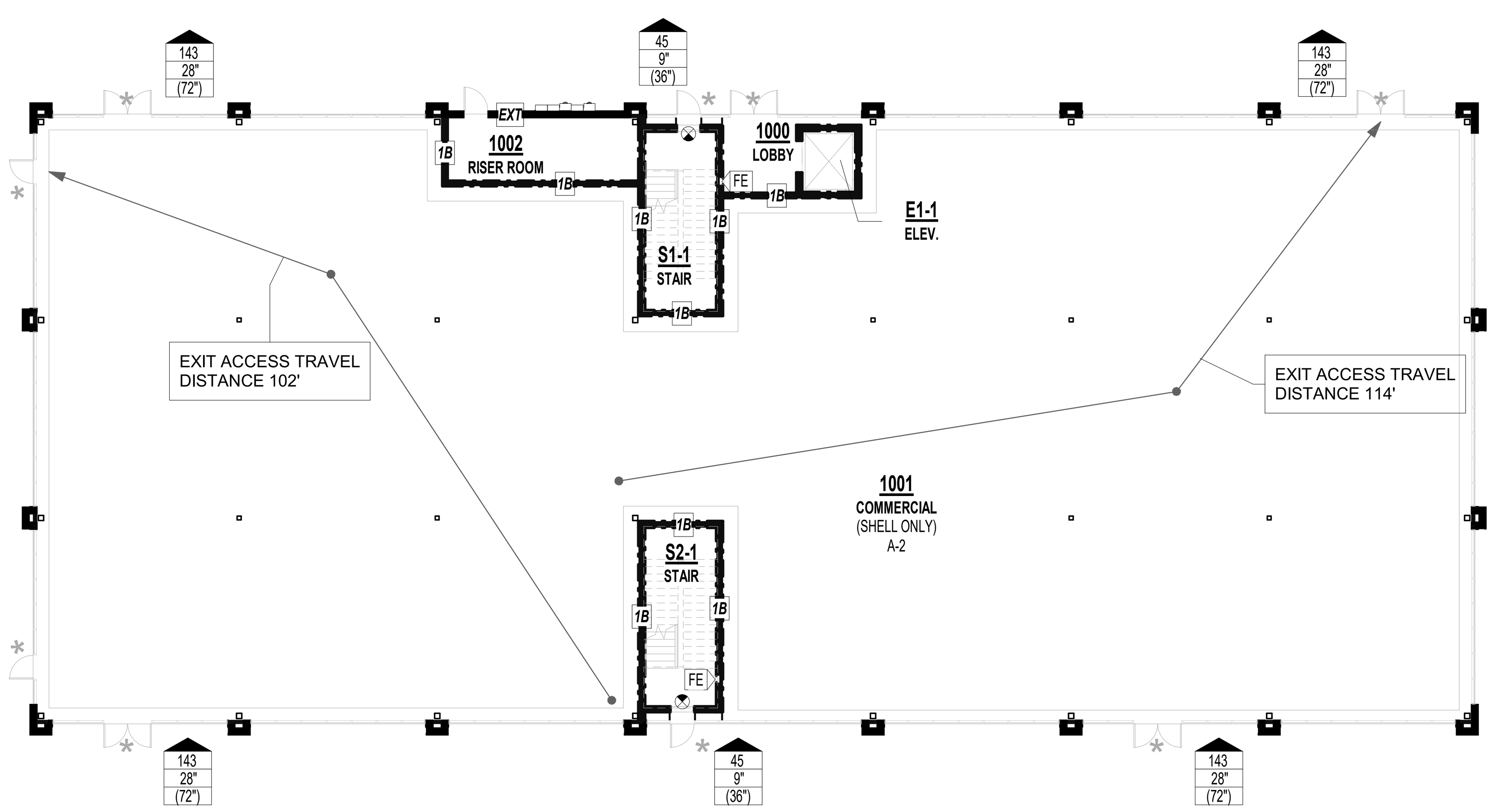
ACCESSIBILITY TO COMPLY WITH THIS CH. OF IBC, ICC A117.1, ADA, & FAIR HOUSING	
TABLE 1106.1 ACCESSIBLE PARKING SPACES:	AS PER CIVIL

CODE PLAN GENERAL NOTES:

1. FIRE EXTINGUISHERS SHALL BE LOCATED SO THAT THE MAXIMUM TRAVEL DISTANCE SHALL NOT EXCEED 75 FEET. GENERAL CONTRACTOR TO PROVIDE SEMI-RECESSED FIRE EXTINGUISHER CABINETS WITH FIRE EXTINGUISHERS THROUGHOUT AT ACCESSIBLE HEIGHT.
2. SIGNS IDENTIFYING FIRE PROTECTION EQUIPMENT, CONTROLS FOR AIR CONDITIONING SYSTEMS, SPRINKLER RISERS AND VALVES, OR OTHER FIRE DETECTION, SUPPRESSION OR CONTROL ELEMENTS SHALL BE IDENTIFIED FOR THE USE OF THE FIRE DEPARTMENT PER 2018 IBC. SIGNAGE SHALL ALSO MEET 2018 IFC REQUIREMENTS FOR HEIGHT AND LETTERING. GC TO COORDINATE WITH AUTHORITY HAVING JURISDICTION ON ALL SIGNAGE.
3. KNOX BOX QUANTITY AND LOCATION TO BE COORDINATED BY THE GENERAL CONTRACTOR WITH AUTHORITY HAVING JURISDICTION.
4. ANNUNCIATOR PANEL AND FACP QUANTITY AND LOCATION TO BE COORDINATED BY THE GENERAL CONTRACTOR WITH AUTHORITY HAVING JURISDICTION PRIOR TO INSTALL.
5. ALL DIMENSIONS ARE APPROXIMATE ON CODE PLAN. ACTUAL ARCHITECTURAL DIMENSIONS PER ARCHITECTURAL AND STRUCTURAL PLAN.



2 2ND FLOOR CODE PLAN
1/16" = 1'-0"



1 1ST FLOOR CODE PLAN
1/16" = 1'-0"

ROOM NO.	OCCUPANCY CHP.3	ROOM NAME	Room Occupancy	Area	IBC occupant load factor	Occupant Load calc	EXITS REQ'D
Occupancy Tabulation per 2018 IBC Table 1004.5							
1000	A-2	LOBBY	Assembly Unconcentrated	89 SF	15	6	
1001	A-2	COMMERCIAL	Assembly Unconcentrated	12769 SF	15	852	4
1002	U	RISER ROOM	Accessory Storage Areas, Mechanical Equipment Room	192 SF	300	1	
E1-1	B	ELEV.	(none)	52 SF			
S1-1	B	STAIR	(none)	224 SF			
S2-1	B	STAIR	(none)	227 SF			
				13553 SF		859	
2000	B	LOBBY	Business Areas	177 SF	150	2	
2001	B	COMMERCIAL	Business Areas	12833 SF	150	86	
2002	B	MECH./MAINT.	Accessory Storage Areas, Mechanical Equipment Room	42 SF	300	1	
E1-2	B	ELEV.	(none)	50 SF			
S1-2	B	STAIR	(none)	225 SF			
S2-2	B	STAIR	(none)	227 SF			
				13554 SF		89	
Building total				27106 SF		948	

CODE PLAN LEGEND

- NUMBER OF OCCUPANTS EXITING
- REQUIRED EXIT WIDTH
- EXIT WIDTH PROVIDED BY DESIGN
- EXT. - RATED PARTITION (IBC CH. 6)
- NON - RATED PARTITION
- 1 HR RATED PARTITION (IBC 708)
- 1 HR RATED BARRIER (IBC 707)
- 1 HR RATED SHAFT ENCLOSURE (IBC 713)
- 1234 — ROOM NUMBER
- FE — FIRE EXTINGUISHER CABINET OR SURFACE MTD. AT CONC.
- KB — FIRE DEPARTMENT KNOX BOX (DEFER SUBMITTAL FOR LOC.)
- FIRE DEPARTMENT CONNECTION
- DOOR RATING
- * — DOOR WITH PANIC HARDWARE (SEE DOOR SCHEDULE)
- EXIT SIGNAGE; SEE ELECTRICAL
- EGRESS STARTING POINT
- EGRESS DISTANCE OF TRAVEL
- EGRESS DIRECTION OF TRAVEL

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REVISIONS:
1 12/12/24 City Comment Response

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DAVID EUGENE HENDRIKSE
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11/20/24

THE VILLAGE AT DISCOVERY - LOT 1

LEE'S SUMMIT, MO

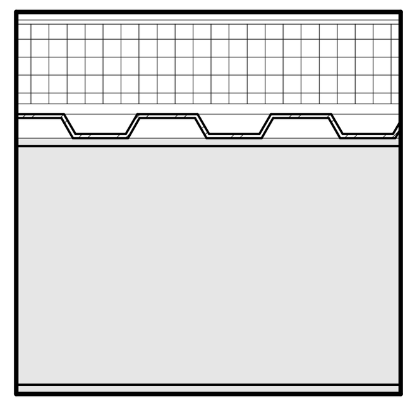
SHEET TITLE
CODE ANALYSIS

PROJECT NUMBER: 23096

SHEET NUMBER:

G-100

ROOF/CEILING ASSEMBLY - METAL



R38

METAL DECK - NON-RATED - TPO
- TPO ROOFING PER SPECIFICATIONS, TO MEET IECC
- EPDM ROOFING MEMBRANE PER SPECIFICATIONS
- PRE-SLOPED POLYISO RIGID INSULATION FOR CRICKETS
- RIGID INSULATION, THICKNESS TO MEET IECC ROOFING REQUIREMENTS
- VAPOR BARRIER
- METAL DECKING PER STRUCTURAL DWGS.
- STEEL JOISTS PER STRUCTURAL DWGS.

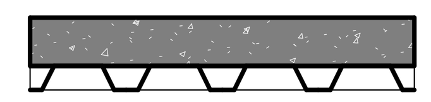
NOTES:
a. CRICKETS AS INDICATED ON ROOF PLAN TO BE FORMED OUT OF PRE-SLOPED POLYISO RIGID INSULATION. SLOPE TO DRAIN

FLOOR/CEILING ASSEMBLY

F1

CONCRETE - NON-RATED - SLAB ON GRADE
- CONCRETE SLAB ON GRADE PER STRUCT. DWGS.

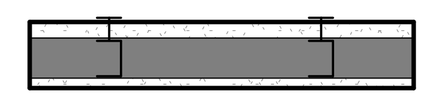
NOTES
a. SEE STRUCTURAL FOR REINFORCING AND THICKNESS
b. VERIFY SLAB ELEVATIONS WITH CIVIL AND LANDSCAPE



F32

METAL DECK AND CONCRETE - 1HR
- 3" CONCRETE TOPPING SLAB PER STRUCT.
- WELDED WIRE FABRIC PER STRUCT. DWGS.
- 1 1/2" METAL DECKING PER STRUCT. DWGS.

NOTES:
a. SHALL COMPLY WITH UL DESIGN D916 (MAY 16, 2023)



F51

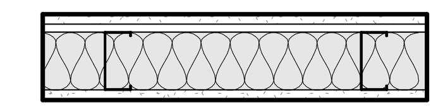
METAL 2-1/2" C-H STUD - 1HR - HORIZ ASSEM
- (1) LAYER 1" GWB LINER PANEL
- 2-1/2" MIN C-H STUD @ 24" O.C. PER AER 09038
- (1) LAYER 5/8" TYPE 'C' GWB PER ASSEMBLY

NOTES:
a. ASSEMBLY TO COMPLY WITH AER 09038 (OCT 2021)
b. MAX SPAN TO BE PER AER 09038

INTERIOR PARTITION ASSEMBLIES (METAL-NON-RATED)

P59

METAL 6" - NON-RATED - INTERIOR (INSIDE PILASTER)
- 6" METAL STUDS, SPACED 16" O.C. (GAUGE DETERMINED BY WALL HEIGHT)



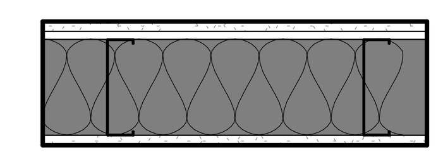
P52

METAL 3 5/8" STUD - NON-RATED PARTITION - INTERIOR SOUND DAMPENING
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD
- (1) LAYER 1/2" RESILIENT CHANNEL, 25 MSG, SPACED 24" O.C.
- 3-5/8" METAL STUDS SPACED 16" O.C. (GAUGE DETERMINED BY WALL HEIGHT)
- 3-1/2" BATT INSULATION, NON FACED
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD

NOTES:
a. ATTACH GYPSUM WITH 1-1/4" TYPE 'W' STEEL SCREWS SPACED 12" O.C.

1

INTERIOR BARRIER ASSEMBLIES (METAL-RATED)

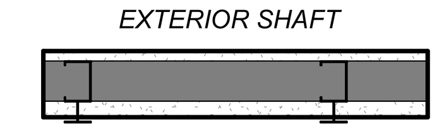


P70

METAL 6" STUD - 1HR BARRIER - INTERIOR
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD PER UL
- (1) LAYER 1/2" RESILIENT CHANNEL, 25 MSG, SPACED 24" O.C.
- 6" METAL STUDS SPACED PER UL AND STRUCTURAL ENGINEER (MIN 20 MSG)
- 6" BATT INSULATION PER UL
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD PER UL

NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN U423 (FEB 14, 2022)
b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS
c. STC SHALL BE 50 OR OVER AT UNITS, MEETING ASTM E90 (STC 50 BASED UPON TESTING NGC 2013019 WITH STUDS SPACED 24" O.C.)
d. WHERE BARRIER IS USED FOR STRUCTURAL SHEAR, GC TO COORDINATE ADDITIONAL LAYERS OF STRUCTURAL MATERIAL PER STRUCTURAL DRAWINGS. THESE LAYERS TO BE ADDITIVE TO THE ASSEMBLY LISTED ABOVE AND SHALL BE INCORPORATED PER UL 263.

INTERIOR SHAFT ASSEMBLIES (METAL-RATED)

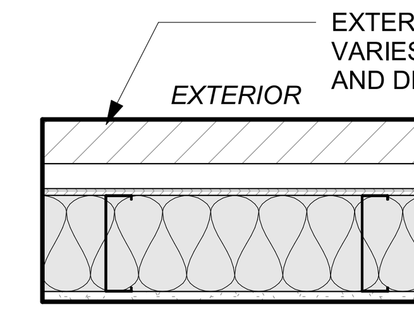


P74

METAL 2 1/2" C-H STUD - 1HR RATED SHAFT - INTERIOR
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD PER UL
- 2-1/2" C-H STUDS SPACED 24" O.C.
- (1) LAYER 1" SHAFT WALL LINER

NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN U415, SYSTEM A (FEB 14, 2022)
b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS

EXTERIOR PARTITION ASSEMBLIES (METAL)

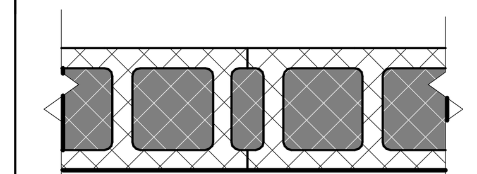


P80

METAL 6" STUD - NON-RATED PARTITION - EXTERIOR
- EXTERIOR FINISH SYSTEM PER ELEVATIONS - BRICK SHOWN
- WEATHER RESISTANT BARRIER PER SPECIFICATIONS
- (1) LAYER SHEATHING PER STRUCT. DRAWINGS
- 6" METAL STUDS SPACED PER STRUCTURAL ENGINEER (MIN 20 MSG)
- BATT INSULATION PER IECC

NOTES:
a. R-11 MIN. INSULATION R-VALUE
b. STUD CAVITIES TO BE LEFT EXPOSED

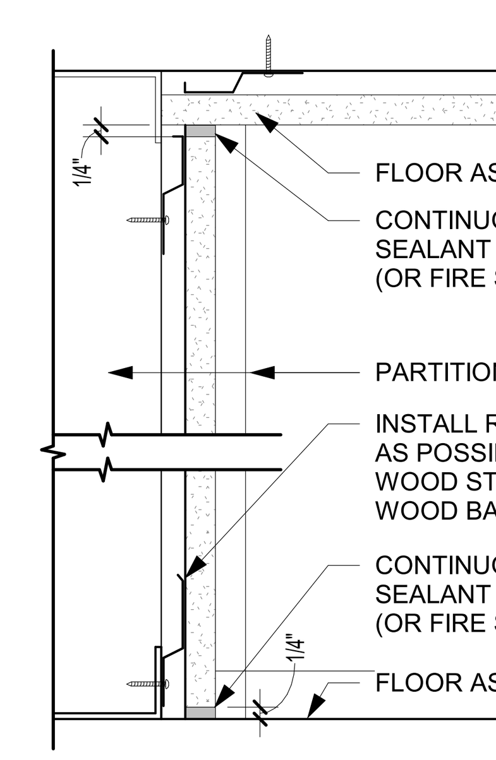
INTERIOR ASSEMBLIES (CMU)



P40

CMU 8" BLOCK - 1HR FIRE BARRIER - INTERIOR
- 8" CMU (REINFORCING PER STRUCT)

NOTES: 1
a. RATING SHALL MEET IBC 2018 SECTION 721 - PRESCRIPTIVE FIRE RESISTANCE FOR 1HR RATING. SHALL MEET TABLE 721.1(2).3. - CONCRETE MASONRY UNITS. ALL TIES. MORTAR TO MEET IBC SECTION 721.
b. APPLY WATERPROOFING AT ALL SUBGRADE PORTION OF WALLS



1 ACOUSTIC SEALANT @ FLOOR/CEILING
3" = 1'-0"

PRINTS ISSUED
11/20/24 - CITY SUBMITTAL

REVISIONS:
1 12/12/24 City Comment Response

rosemann & ASSOCIATES P.C.
ARCHITECTURE
INTERIOR DESIGN
ENGINEERING
PLANNING
1526 Grand Boulevard
Kansas City, MO 64108-1404
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w: www.rosemann.com

DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER
REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
ASSEMBLIES

PROJECT NUMBER: 23096

SHEET NUMBER:
G-101

UL Product iQ®

BXUV.U423 - 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

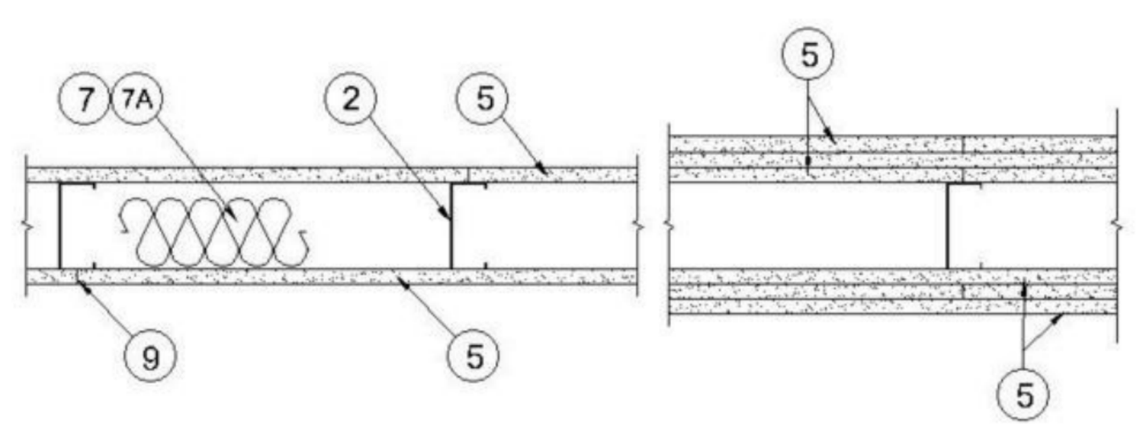
See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

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

Design No. **U423**
February 14, 2022

Bearing Wall Ratings — 3/4 Hr, 1, 1-1/2 or 2 Hr (See Items 5 & 7)
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. **Floor and Ceiling Runners —** (Not Shown) — Channel shaped, fabricated from min 0.0329 in., bare metal thickness (No. 20 MSG) corrosion-protected steel, that provide a sound structural connection between steel studs and adjacent assemblies such as floors, ceilings and/or other walls. Attached to floor and ceiling assemblies with steel fasteners spaced not greater than 24 in. OC.

1A. **Floor and Ceiling Runners —** (Not Shown, As an alternate to Item 1, For Use With Item 5A and 5C) — Channel shaped runners min 3-1/2 in. deep with 1-1/4 in. flanges fabricated from min No. 20 MSG corrosion-protected steel. Attached to floor and ceiling assemblies with steel fasteners spaced not greater than 24 in. OC.

2. **Steel Studs —** Min 0.0329 in., bare metal thickness (No. 20 MSG) corrosion-protected steel studs, min 3-1/2 in. wide, cold formed, designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute (AISI). All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing shall not exceed 24 in. OC. Studs attached to floor and ceiling runners with 1/2 in. long Type S-12 steel screws on both sides of the studs or by welded or bolted connections designed in accordance with the AISI specifications.

2A. **Steel Studs —** (As an alternate to Item 2, For use with Item 5A, 5C, 5D, and 5E) — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min width, min 1-1/2 in. flanges and 1/4 in. return, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners.

2B. **Steel Studs —** (As an alternate to Item 2 and 2A, For Use With Item 5B) — Min 0.0329 in., (No. 20 MSG) corrosion-protected cold formed steel studs, min 3-1/2 in. deep by 1-5/8 in. wide with 1/2 in. returns. Braced at mid-height and designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute (AISI). All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing shall not exceed 24 in. OC. Studs attached to floor and ceiling runners with 1/2 in. long Type S-12 steel screws on both sides of the studs or by welded or bolted connections designed in accordance with the AISI specifications.

2C. **Framing Members - Steel Studs —** (As an alternate to Item 2, For use with Item 5C) — Channel shaped, fabricated from min 20 MSG (0.0327 in. thick) corrosion-protected or galv steel, 3-1/2 in. min width, min 1-1/2 in. flanges and 1/4 in. return, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height.

3. **Lateral Support Members —** (Not shown) — Where required for lateral support of studs, support shall be provided by means of steel straps, channels or other similar means as specified in the design of a particular steel stud wall system.

4. **Wood Structural Panel Sheathing —** (Optional, For use with Item 5 only) — (Not Shown) — 4 ft wide, 7/16 in. thick oriented strand board (OSB) or 15/32 in. thick structural 1 sheathing (plywood) complying with DOC PS1 or PS2, or APA Standard PRP-108, manufactured with exterior glue, applied horizontally or vertically to the steel studs. Vertical joints centered on studs, and staggered one stud space from wallboard joints. Attached to studs with flat-head self-drilling tapping screws with a min. head diam. of 0.292 in. at maximum 6 in. OC. in the perimeter and 12 in. OC. in the field. When used, gypsum panels attached over OSB or plywood panels and fastener lengths for gypsum panels increased by min. 1/2 in.
The maximum loading on the steel studs was evaluated with the steel studs braced at mid-height and not braced by the plywood sheathing.

5. **Gypsum Board* —** Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered when load is reduced to 90 percent of max stud capacity. When load is at 100 percent, horizontal edge joints and horizontal butt joints on opposite sides of studs staggered a min of 12 in. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered at 100 percent load with Type ULIX. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) with Type ULIX need not be staggered. When used in widths other than 48 in., gypsum panels to be installed horizontally. The thickness and number of layers and percent of design load for the 45 min, 1 hr, 1-1/2 hr, and 2 hr ratings are as follows:

Wallboard Protection on Each Side of Wall

Rating	No. of Layers & Thkns of Panel	% of Design Load
45 Min	1 layer, 1/2 in. thick	100
1 hr	1 layer, 5/8 in. thick	100
1-1/2 hr	2 layers, 1/2 in. thick	100
2 hr	2 layers, 5/8 in. thick	80
2 hr@	2 layers, 5/8 in. thick	100
2 hr	3 layers, 1/2 in. thick	100
2 hr	2 layers, 3/4 in. thick	100

@Rating applicable when Batts and Blankets (Item 7) are used.

CGC INC — 1/2 in. thick Type IP-X2, IPC-AR, C, WRC, or; 5/8 in. thick Type SCX, SHX, WRX, IP-X1, AR, C, IP-AR, IP-X2, IPC-AR, ULIX, ULX, or WRC; 3/4 in. thick Types AR, IP-AR, IP-X3, ULTRACODE

UNITED STATES GYPSUM CO — 1/2 in. thick Type C, IP-X2, IPC-AR, or WRC; 5/8 in. thick Type AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, ULIX, ULX, WRX, or WRC; 3/4 in. thick Types AR, IP-AR or IP-X3, ULTRACODE

USG BORAL DRYWALL SFZ LLC — 1/2 in. Type C; 5/8 in. Types C, SCX, SGX, ULTRACODE

USG MEXICO S A DE C V — 1/2 in. thick Type C, IP-X2, IPC-AR, WRC; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRX or WRC; 3/4 in. thick Types AR, IP-AR, IP-X3, ULTRACODE

5A. **Gypsum Board* —** (As an alternate to Item 5 when used as the base layer on one or both sides of wall, For direct attachment only, not to be used with Item 4) — Nom 5/8 in. or 3/4 in. may be used as alternate to all 5/8 in. or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 in. or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. See Items 1A, 2A 8, 8A(a). Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 12) or Lead Discs or Tabs (see Item 13).
RAY-BAR ENGINEERING CORP — Type RB-LBG

5B. **Gypsum Board* —** (As an alternate to Items 5 and 5A) — Nom 5/8 in. thick gypsum panels with square edges, applied horizontally or vertically. For the1 hour single layer system -when the gypsum board panels are installed horizontally the joints are to be staggered by a minimum of 12 in. on opposite sides of assembly, they are to be secured on each side of the studs with 1-1/4 in. long Type S-12 bugle head steel screws spaced 8 in. OC to the top and bottom tracks and in the field with screws 1 in. and 4 in. from the horizontal joints. When the gypsum board panels are installed vertically all vertical joints must be centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC to the top and bottom tracks and in the field with screws 1 in and 4 in. from the perimeter. For the 2 hour double layer system - when the gypsum board panels are installed horizontally the joints need not be staggered on opposite sides of assembly. Base layer secured on each side of the studs with 1-1/4 in. long Type S-12 bugle head steel screws spaced 16 in. OC to the top and bottom track and in the field with screws beginning 1 in. and 8 in. from the horizontal joints. Face layer horizontal joints staggered 8 in from base layer joints and secured with 1-5/8 in. long Type S-12 bugle head steel screws spaced 16 in. OC to the top and bottom tracks and in the field with screws beginning 1 in. and 8 in. from the horizontal joints. Face layer screws offset 8 in. from base layer screws. When the gypsum board panels are installed vertically all vertical joints must be centered over studs and staggered min 1 stud cavity on opposite sides of studs. Face layer gypsum boards secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 16 in. OC with screws 2 in. and 16 in. from the perimeter. Base layer gypsum boards secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 16 in. OC with screws 1-1/2 in and 8 in. from the perimeter. Face layer screws offset 8 in. from base layer screws.
CGC INC — Type USGX

UNITED STATES GYPSUM CO — 5/8 in. thick Type USGX (Joint tape and compound, Item 9, optional with Type USGX)

USG BORAL DRYWALL SFZ LLC — 5/8 in. thick Type USGX (Joint tape and compound, Item 9, optional with Type USGX)

USG MEXICO S A DE C V — Type USGX

5C. **Gypsum Board* —** (As an alternate to Item 5 when used as the base layer on one or both sides of wall, For direct attachment only, not to be used with Item 4) — Nominal 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 1-1/4 in. long Type S-12 (or #6 by 1-1/4 in. long bugle head fine driller) steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.
NEW ENGLAND LEAD BURNING CO INC, DBA NELCO — Nelco

5D. **Gypsum Board* —** (As an alternate to Item 5 when used as the base layer on one or both sides of wall, For direct attachment only, not to be used with Item 4) — Nom 5/8 or 3/4 in. may be used as alternate to all 5/8 or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. See Items 1A, 2A 8, 8A(a). Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 12A) or Lead Discs (see Item 13A).
MAYCO INDUSTRIES INC — Type X-Ray Shielded Gypsum

5E. **Gypsum Board* —** (As an alternate to Item 5 when used as the base layer on one or both sides of wall, For direct attachment only, not to be used with Item 4) — Nom 5/8 in. may be used as alternate to all 5/8. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. See Items 1A, 2A 8, 8A(a). Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC 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 8 ft long with a max thickness of 0.14 in. placed on 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 the 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-201f, Grade "C".
RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

5F. **Gypsum Board* —** (As an alternate to Item 5 when Foam Plastic insulation (Item 17) is used) — Any 5/8 in. thick, 4 ft. wide, Gypsum Board listed in Item 5 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 in. long Type S steel screws spaced 8 in. OC at perimeter and in the field. For 2 layer assemblies outer layer will be attached to studs over inner layer with the 1-5/8 in. long steel screws spaced 8 in. OC.

6. **Fasteners —** (Not Shown) — For use with Item 5 - Type S-12 steel screws used to attach panels to runners (Item 1 or 1A) and studs (Item 2 or 2A) or furring channels (Item 8). **Single layer systems:** 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 8 in. OC when panels are applied horizontally, or 12 in. OC when panels are applied vertically. **Single layer system with Type ULIX:** 1 in. long, spaced 12 in. OC along the perimeter and in the field when panels are applied horizontally or vertically. **Two layer systems:** First layer- 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC. Second layer- 1-5/8 in. long for 1/2 in. and 5/8 in. thick panels or 2-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC with screws offset 8 in. from first layer. **Three-layer systems:** First layer- 1 in. long for 1/2 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below.

7. **Batts and Blankets* —** (Required as indicated under Item 5) — Nom 2 in. thick mineral wool batts, friction fitted between studs and runners. See **Batts and Blankets (BKNV or BZJZ) Categories** for names of Classified companies.

7A. **Batts and Blankets* —** (Optional, Not Shown) — Placed in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. See **Batts and Blankets (BKNV or BZJZ) Categories** for names of Classified companies.

7B. **Batts and Blankets* —** (Optional, Not Shown) — Placed in stud cavities, glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.
OWENS CORNING — Type QuietZone Acoustic Batts

7C. **Fiber, Sprayed* —** (Optional) — As an alternate to Batts and Blankets (Item 7) — Not for use with Items 8A or 8B) — Spray applied mineral wool insulation. 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

8. **Furring Channels —** (Optional on one or both sides, not shown, for single or double layer systems) — Resilient furring channels fabricated from min 25 MSG corrosion-protected steel, spaced vertically a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 panhead steel screws. Not for use with type FRX-G gypsum panels and Item 5A, 5C, 5D, or 5E.

8A. **Steel Framing Members (Not Shown)* —** (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 8, 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 max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with type FRX-G gypsum panels and Item 5A, 5C, 5D, or 5E.

b. **Steel Framing Members* —** Used to attach furring channels (Item 8a) to studs (Item 2). Clips spaced max. 48 in. OC., and secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-1 (2.75).

8B. **Steel Framing Members* —** (Not Shown) — (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 8, 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 max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with type FRX-G gypsum panels and Item 5A, 5C, 5D, or 5E.

b. **Steel Framing Members* —** Used to attach furring channels to studs (Item 2). Clips spaced max. 48 in. OC., and secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips.
PLITEQ INC — Type GENIECLIP

8C. **Steel Framing Members* —** (Not Shown) — (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 8, furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, spaced max. 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 6. Not for use with type FRX-G gypsum panels and Item 5A, 5C, 5D, or 5E.

b. **Steel Framing Members* —** Used to attach furring channels to studs (Item 2). Clips spaced max. 48 in. OC., and secured to studs with 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 A237R

8D. **Steel Framing Members* —** (Not Shown) — (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 8, furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 8Db. 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 6. Not for use with type FRX-G gypsum panels and Item 5A, 5C, 5D, or 5E.

b. **Steel Framing Members* —** Used to attach furring channels to studs (Item 2). Clips spaced max. 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

8E. **Steel Framing Members* —** (Not Shown) — (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 8, 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 5. Not for use with type FRX-G gypsum panels and Item 5A, 5C, 5D, or 5E.

b. **Steel Framing Members* —** Used to attach resilient channels (Item 8Ea) 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

8F **Steel Framing Members* —** (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 8, 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 5.

b. **Steel Framing Members* —** Used to attach furring channels (Item 8Fa) to studs. Clips spaced maximum 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

9. **Joint Tape and Compound —** Vinyl or casein, dry or premixed joint compound applied in two coats to joints and screw heads of outer layers. Paper tape, nom 2 in. wide, embedded in first layer of compound over all joints of outer layers. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.

10. **Siding, Brick or Stucco —** (Optional, Not Shown) — Aluminum, vinyl or steel siding, brick veneer or stucco, meeting the requirements of local code agencies. Brick veneer attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick.

11. **Caulking and Sealants* —** (Optional, Not Shown) — A bead of acoustical sealant applied around the partition perimeter for sound control.
UNITED STATES GYPSUM CO — Type AS

12. **Lead Batten Strips —** (Not Shown, For Use With Item 5A) — Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of 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 batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5A) and optional at remaining stud locations. Required behind vertical joints.

12A. **Lead Batten Strips —** (Not Shown, for use with Item 5D) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.5% meeting the Federal specification QQ-L-201f, Grades "B, C or D". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 6) and optional at remaining stud locations.

13. **Lead Discs or Tabs —** (Not Shown, For Use With Item 5A) — Used in lieu of or in addition to the lead batten strips (Item 12) 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 (Item 5A) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

13A. **Lead Discs —** (Not Shown, for use with Item 5D) — Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.5% meeting the Federal Specification QQ-L-201f, Grades "B, C or D".

14. **Lead Batten Strips —** (Not Shown, For Use With Item 5C) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.142 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5C) and optional at remaining stud locations.

15. **Lead Tabs —** (Not Shown, For Use With Item 5C) — 2 in. wide, 5 in. long with a max thickness of 0.142 in. Tabs friction-fit around front face of stud, the stud folded back flange, and the back face of the stud. Tabs required at each location where a screw (that secures the gypsum boards, Item 5C) will penetrate the steel stud. Lead tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead tabs may be held in place with standard adhesive tape if necessary.

16. **Wall and Partition Facings and Accessories* —** (CLBV) (Optional, Not Shown) — For use with Item 1, Item 2 to 2C, Item 3, Item 5,Item 6, Item 7A, Item 8 and Item 9. For a maximum fire rating of 1 hour. On one side of the wall, over the first layer of Gypsum Board (Item 5), install RefleXor membrane with the gold side facing outwards. Membrane installed with T50 staples spaced 12 inches on center in both directions as per manufacturer's instructions, seams in membrane to be overlapped by 2 inches. When RefleXor membrane is used an additional layer of Gypsum Board identical to the one used in the first layer and as specified in Item 5 shall be installed over the membrane. Additional layer of Gypsum Board to be installed through the membrane to the stud as specified in Item 5 except the fastener length shall be increased by a minimum of 5/8 inch. Install Batts and Blankets in the stud cavity as per Item 7A.

On the other side of the wall prior to the installation of the Gypsum Board install Resilient Channels as per Item 8. Over the Resilient Channels install 3/4 inch thick SONOpan panel secured to the Resilient Channels with min. 1-1/4 in. long drywall screws and washers spaced at 16 in. OC on the perimeter of the panel and 8 in. OC in the field of the panel. Over the SONOpan panel install the same Gypsum Board as specified in Item 5 with the fastener length increased by minimum 3/4 inch. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

Alternately, on the other side of the wall prior to the installation of the Gypsum Board (Item 5), install 3/4 in. thick SONOpan panels, secured to one side of studs either horizontally or vertically. Panels secured to each stud with min. 1-1/4 in. long drywall screws spaced 12 in. OC. Over the SONOpan, install 25 MSG galv steel, Resilient Channels, spaced vertically 24 in. OC. Resilient Channels fastened through panels to each stud with min. 2 in. long drywall screws or self-tapping screws. Over the Resilient Channels install Gypsum Board as specified in Item 5 with drywall screws as specified in Item 6. Panels not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

MSL — RefleXor membrane, SONOpan panel.

17. **Foamed Plastic*** – (Optional, Not Shown) 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

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

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PRINTS ISSUED
11/20/24 - CITY SUBMITTAL

REVISIONS:
1 12/12/24 City Comment Response

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THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - U423

PROJECT NUMBER: 23096

SHEET NUMBER:

G-200

UL Product iQ®

BXUV.U415 - Fire-resistance Ratings - ANSI/UL 263

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

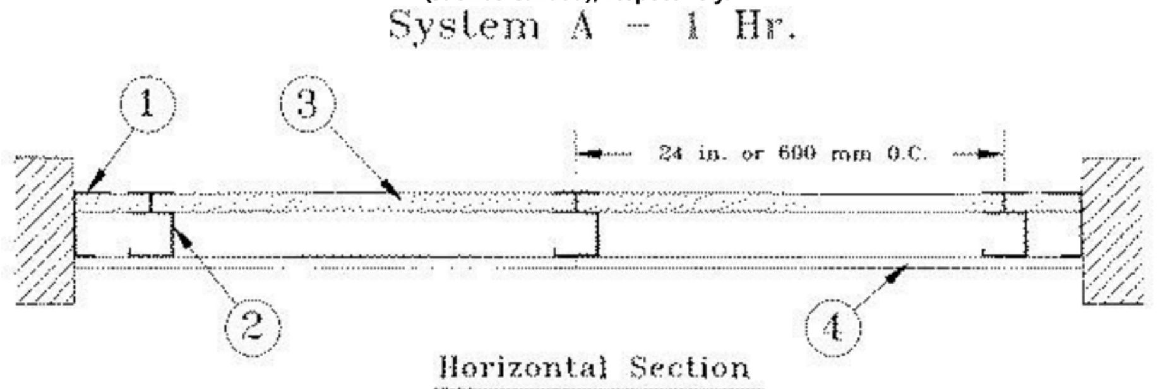
Design No. **U415**

February 14, 2022

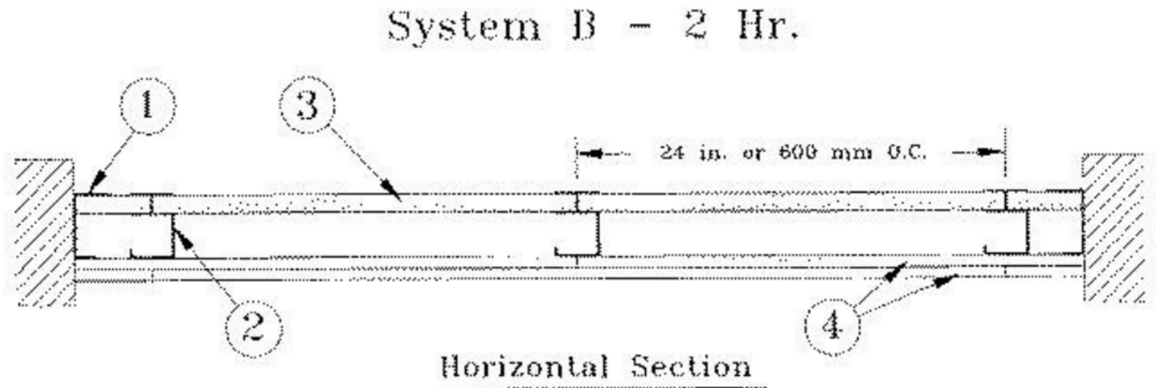
Nonbearing Wall Ratings — 1, 2, 3 or 4 Hr

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

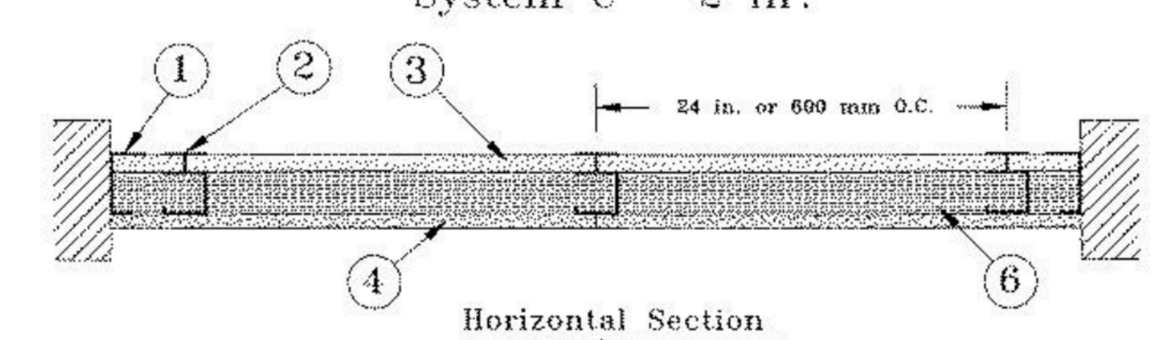
System A — 1 Hr.



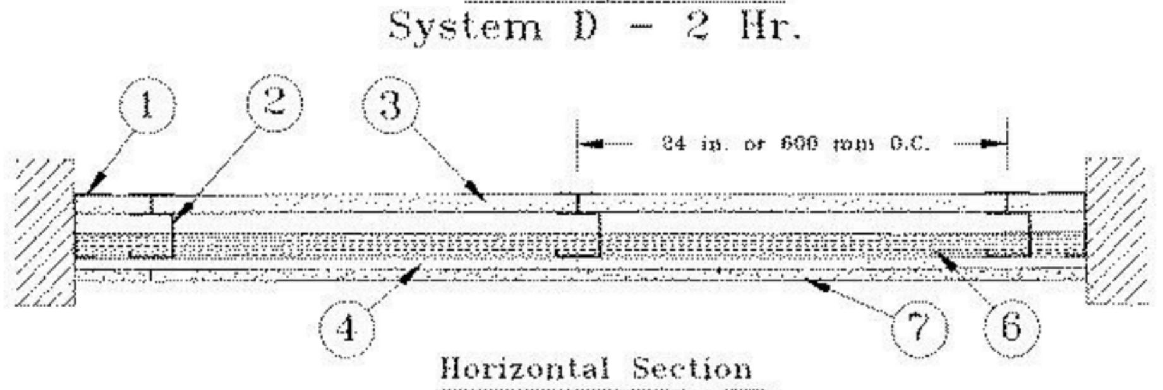
System B — 2 Hr.



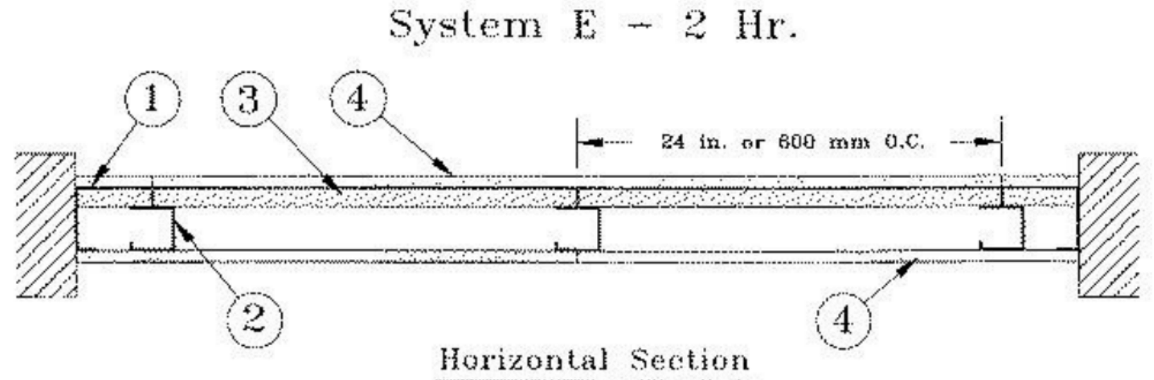
System C — 2 Hr.



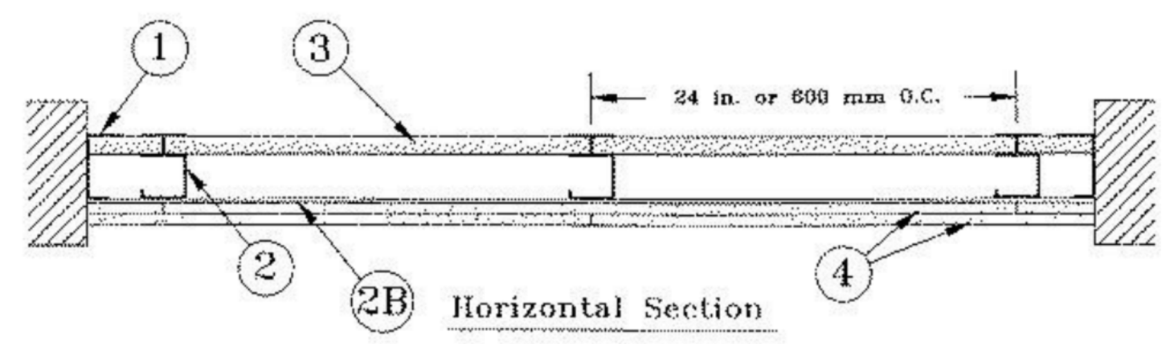
System D — 2 Hr.



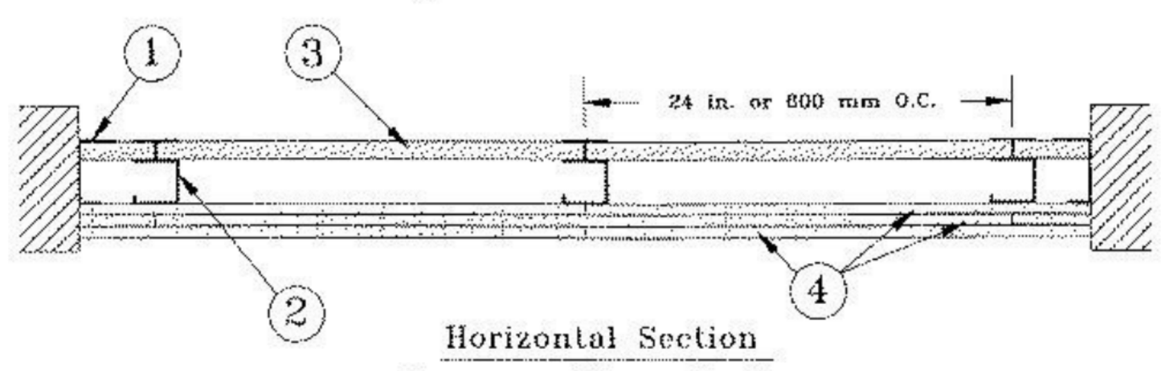
System E — 2 Hr.



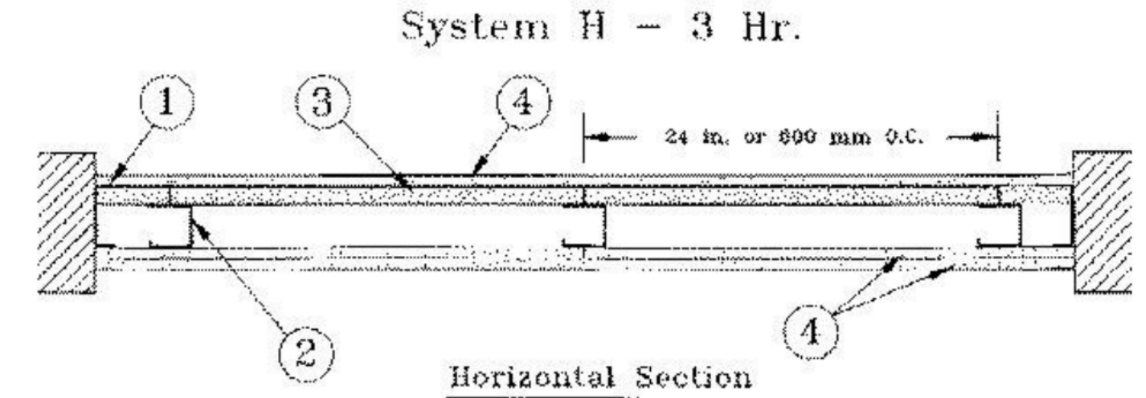
System F — 2 Hr.



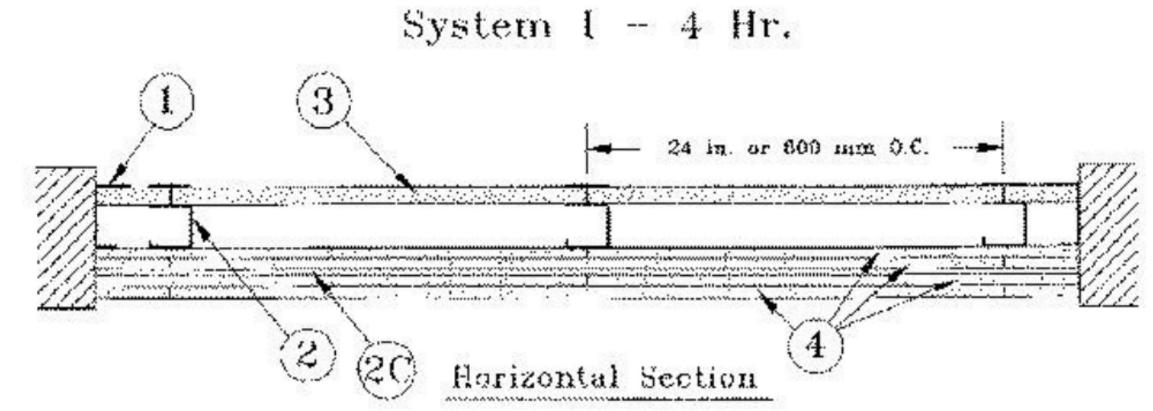
System G — 3 Hr.



System H — 3 Hr.



System I — 4 Hr.



1. **Floor, Side and Ceiling Runners —** "J" - shaped runner, min 2-1/2 in. deep (min 4 in. deep when System C is used), with unequal legs of 1 in. and 2 in., fabricated from min 24 MSG (min 20 MSG when Item 4A, 4B, 4C, 4D or 7 are used) galv steel. Runners positioned with short leg toward finished side of wall. Runners attached to structural supports with steel fasteners located not greater than 2 in. from ends and not greater than 24 in. OC. "E" - shaped studs (Item 2A) may be used as side runners in place of "J" - shaped runners.

2. **Steel Studs —** "C-H" - shaped studs, min 2-1/2 in. deep (min 4 in. deep when System C is used), fabricated from min 25 MSG (min 20 MSG when Items 2D, 4A, 4B, 4C, 4D or 7 is used) galv steel. Cut to lengths 3/8 to 1/2 in. less than floor-to-ceiling height and spaced 24 in. or 600 mm OC (max 16 in. OC when Items 4A, 4B, 4C, or 4D are used).

2A. **Steel Studs —** (Not Shown) — "E" - shaped studs installed back to back in place of "C-H" - shaped studs (Item 2) "E" - shaped studs secured together with steel screws spaced a maximum 12 in. OC. Fabricated from min 25 MSG (min 20 MSG when Item 2D, 4A, 4B or 7 is used) galv steel, min 2-1/2 in. deep (min 4 in. deep when System C is used), with one leg 1 in. long and two legs 3/4 in. long. Shorter legs 1 in. apart to engage gypsum liner panels. Cut to lengths 3/8 to 1/2 in. less than floor to ceiling heights.

2B. **Furring Channels —** (Optional, Not Shown) — For use with single or double layer systems. Resilient furring channels fabricated from min 25MSG corrosion protected steel, installed horizontally, and spaced vertically a max 24 in. OC. Flange portion of channel attached to each intersecting "C-H" or "E" stud on side of stud opposite the 1 in. liner panels with 1/2 in. long Type S or S-12 pan-head steel screws. When furring channels are used, wallboard to be installed vertically only. . Not to be used with Type FRX-G gypsum board, lead backed gypsum boards (Items 4A-4D), or cementitious backer units (Item 7).

2C. **Furring Channels —** For use with System I - "Hat" - shaped, 25 MSG galv steel furring channels attached directly over the inner layers of wallboard to each stud with 2 in. long Type S pan head steel screws. Screws alternate from top flange to bottom flange at each stud intersection. Furring channels spaced vertically max 24 in. OC.

2D. **Steel Framing Members* —** (Optional, Not Shown) — For use with single or double layer systems. Furring channels and Steel Framing Members as described below. Not to be used with Type FRX-G gypsum board, lead backed gypsum boards (Items 4A-4D), or cementitious backer units (Item 7).
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 max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board installed vertically only and attached to furring channels as described in Item 4.

b. **Steel Framing Members* —** Used to attach furring channels (Item 2Da) to studs (Item 2 or 2A). Clips spaced max. 24 in. OC., and secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-1 (2.75)

2E. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below. . Not to be used with Type FRX-G gypsum board, lead backed gypsum boards (Items 4A-4D), or cementitious backer units (Item 7).
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 4.

b. **Steel Framing Members* —** Used to attach furring channels (Item 2Ea) to studs. Clips spaced 24 in. OC., and secured to studs with 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 A237R

2F. **Steel Framing Members* —** (Optional, Not Shown) — For use with single or double layer systems. Furring channels and Steel Framing Members as described below. Not to be used with Type FRX-G gypsum board, lead backed gypsum boards (Items 4A-4D), or cementitious backer units (Item 7).
a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board installed vertically only and attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 2Da) to studs (Item 2 or 2A). Clips spaced max. 24 in. OC. GENIECLIPS secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips.
PLITEQ INC — Type GENIECLIP

2G. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below. Not to be used with Type FRX-G gypsum board, lead backed gypsum boards (Items 4A-4D), or cementitious backer units (Item 7).
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 2Gb. 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 4.

b. **Steel Framing Members* —** Used to attach furring channels (Item 2Ga) to studs. Clips spaced 24 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

2H. **Steel Framing Members* —** (Optional, Not Shown) — Resilient channels and Steel Framing Members as described below. Not to be used with Type FRX-G gypsum board, lead backed gypsum boards (Items 4A-4D), or cementitious backer units (Item 7).
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 4.

b. **Steel Framing Members* —** Used to attach resilient channels (Item 2Ha) 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

2I. **Steel Framing Members* —** (Optional, Not Shown) — For use with single or double layer systems. Furring channels and Steel Framing Members as described below. Not to be used with Type FRX-G gypsum board, lead backed gypsum boards (Items 4A-4D), or cementitious backer units (Item 7).
a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-23/32 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board installed vertically only and attached to furring channels as described in Item 4.

b. **Steel Framing Members* —** Used to attach furring channels (Item 2Ia) to studs (Item 2 or 2A). Clips spaced max. 24 in. OC., and secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips.
CLARKDIETRICH BUILDING SYSTEMS — Type ClarkDietrich Sound Clip

3. **Gypsum Board* —** Gypsum liner panels, nom 1 in. thick, 24 in. or 600 mm (for metric spacing) wide. Panels cut 1 in. less in length than floor to ceiling height. Vertical edges inserted in "H" portion of "C-H" studs or the gap between the two 3/4 in. legs of the "E" studs. Free edge of end panels attached to long leg of vertical "J" - runners with 1-5/8 in. long Type S steel screws spaced not greater than 12 in. OC. When wall height exceeds liner panel length, liner panel may be butted to extend to the full height of the wall. Horizontal joints need not be backed by steel framing. In System I, butt joints in liner panels are staggered min 36 in. Butt joints backed with 6 in. by 22 in. strips of 3/4 in. thick gypsum wallboard (Item 4). Wallboard strips centered over butt joints and secured to liner panels with six 1-1/2 in. long Type G steel screws, three screws along the 22 in. dimension at the top and bottom of the strips.
CGC INC — Type SLX

UNITED STATES GYPSUM CO — Type SLX

USG BORAL DRYWALL SFZ LLC — Type SLX

USG MEXICO S A DE C V — Type SLX

4. **Gypsum Board* —**

System A — 1 Hr

Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally, attached to studs with 1 in. long Type S steel screws spaced 12 in. when installed vertically or 8 in OC when installed horizontally. Horizontal joints need not be backed by steel framing.

CGC INC — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULIX, ULX, USGX, WRC, WRX

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Types C and SCX

UNITED STATES GYPSUM CO — Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, ULIX, ULX, WRC, WRX, USGX.

USG BORAL DRYWALL SFZ LLC — Types C, SCX, SGX, USGX

USG MEXICO S A DE C V — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, USGX, WRC, WRX

System B — 2 Hr

Gypsum panels, with beveled, square or tapered edges, nom 1/2 in. or 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally in two layers. Inner or base layer attached to studs with 1 in. long Type S steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Outer or face layer attached to studs with 1-5/8 in. long Type S steel screws spaced 12 in. OC when installed vertically and staggered 12 in. from base layer screws or 8 in. OC when installed horizontally and staggered 8 in. from base layer screws. Horizontal joints between inner and outer layers staggered a min of 12 in. Horizontal joints need not be backed by steel framing. Vertical joints centered over studs and staggered 24 in.

CGC INC — 1/2 in. Type C, IP-X2, IPC-AR or WRC; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, USGX, WRC, WRX

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Types C and SCX

UNITED STATES GYPSUM CO — 1/2 in. Types C, IP-X2, IPC-AR, or WRC; 5/8 in. Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, ULIX, ULX, USGX, WRC, WRX.

USG BORAL DRYWALL SFZ LLC — 1/2 in. Type C; 5/8 in. Types C, SCX, SGX, USGX

USG MEXICO S A DE C V — 1/2 in. Types C, IP-X2, IPC-AR or WRC; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, USGX, WRC, WRX

System C — 2 Hr

Gypsum panels, with beveled, square or tapered edges, nom 3/4 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally, secured with 1-1/4 in. long Type S steel screws spaced 8 in. OC along vertical edges and 12 in. OC in the field when installed vertically or 8 in. OC along the vertical edges and in the field when installed horizontally. Horizontal joints need not be backed by steel framing. Screws along side joints offset 4 in. Requires min 4 in. deep framing per Items 1, 2 and 3. Requires min 3 in. thick mineral wool batts per Item 6.

CGC INC — Types IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO — Types IP-X3 or ULTRACODE

USG BORAL DRYWALL SFZ LLC — Type ULTRACODE

USG MEXICO S A DE C V — Types IP-X3 or ULTRACODE

System D — 2 Hr

Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally, attached directly to studs with 1 in. long Type S steel screws spaced 24 in. when installed vertically or 16 in. OC when installed horizontally. Horizontal joints need not be backed by steel framing. Requires face layer of 1/2 or 5/8 in. thick cementitious backer units per Item 7 and min 1-1/2 in. thick mineral wool batts per Item 6.

CGC INC — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, USGX, WRC, WRX

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Types C and SCX

UNITED STATES GYPSUM CO — Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, ULIX, ULX, USGX, WRC, WRX.

USG BORAL DRYWALL SFZ LLC — Types C, SCX, SGX, USGX

USG MEXICO S A DE C V — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, USGX, WRC, WRX

System E — 2 Hr

Gypsum panels, with beveled, square or tapered edges, nom 1/2 in. or 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally, attached to studs with 1 in. long Type S steel screws spaced 12 in. OC when installed vertically or 8 in. when installed horizontally. Horizontal joints need not be backed by steel framing.

CGC INC — 1/2 in. Types C, IP-X2, IPC-AR; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, USGX, WRC, WRX

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Types C and SCX

UNITED STATES GYPSUM CO — 1/2 in. Types C, IP-X2, IPC-AR; 5/8 in. Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, ULIX, ULX, USGX, WRC, WRX.

USG BORAL DRYWALL SFZ LLC — 1/2 in. Type C; 5/8 in. Types C, SCX, SGX, USGX

USG MEXICO S A DE C V — 1/2 in. Types C, IP-X2, IPC-AR; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, USGX, WRC, WRX

System F — 2 Hr

Gypsum panels, with beveled, square or tapered edges, nom 1/2 in. or 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically in two layers. Inner or base layer attached to resilient furring channels (Item 2B) with 1 in. long Type S steel screws spaced 24 in. Outer or face layer attached to resilient furring channels (Item 2B) with 1-5/8 in. long Type S steel screws spaced 12 in. OC and staggered 12 in. from base layer screws. Joints between inner and outer layers staggered 24 in.

CGC INC — 1/2 in. Type C, IP-X2, IPC-AR or WRC; 5/8 in. Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, USGX, WRC, WRX

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Types C and SCX

UNITED STATES GYPSUM CO — 1/2 in. Type C, IP-X2, IPC-AR or WRC; 5/8 in. Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, ULIX, ULX, USGX, WRC, WRX.

USG BORAL DRYWALL SFZ LLC — 1/2 in. Type C; 5/8 in. Types C, SCX

USG MEXICO S A DE C V — 1/2 in. Types C, IP-X2, IPC-AR or WRC; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, USGX, WRC, WRX

System G — 3 Hr

Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally in three layers. Inner or base layer attached to studs with 1 in. long Type S steel screws spaced 24 in. OC when installed vertically or 16 in OC when installed horizontally. Middle layer attached to studs with 1-5/8 in. long Type S steel screws spaced 24 in. when installed vertically or 16 in. OC when installed horizontally. Outer or face layer attached to studs with 2-1/4 in. long Type S steel screws spaced 16 in. when installed vertically or 12 in. OC when installed horizontally. Screws offset 6 in. from layer below. Horizontal joints on adjacent layers staggered a min of 12 in. . Horizontal joints need not be backed by steel framing. Vertical joints centered over studs and staggered 24 in. on adjacent layers.

CGC INC — Types C, IP-X2, IPC-AR, ULIX, WRC

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Type C

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

USG BORAL DRYWALL SFZ LLC — Type C

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

System H — 3 Hr

Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally, two layers over the flange of the "C" section of the studs, one layer over the flange of the "H" section of the studs. Inner or base layer attached to studs with 1 in. long Type S steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Face layer attached to studs with 1-5/8 in. long Type S steel screws spaced 16 in. when installed vertically or 12 in. OC when installed horizontally. Screws offset 6 in. from layer below. Horizontal joints on adjacent layers staggered a min of 12 in. Horizontal joints need not be backed by steel framing. Vertical joints centered over studs and staggered 24 in. on adjacent layers.

CGC INC — Types C, IP-X2, IPC-AR, ULIX, WRC

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Type C

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

USG BORAL DRYWALL SFZ LLC — Type C

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

System I — 4 Hr

Gypsum panels, with beveled, square or tapered edges, nom 3/4 in. thick, 4 ft wide (or 1200 mm for metric spacing) wallboard with square or tapered edges. Total of four layers to be used. First and second (inner) layers applied vertically or horizontally over the steel studs. Horizontal joints need not be backed by steel framing. When applied vertically, joints centered over studs and staggered min 24 in., otherwise all joints staggered min 12 in. First layer secured to studs with 1-1/4 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 24 in. OC. Second layer secured to studs with 2-1/4 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC. Third layer applied vertically over the furring channels (Item 2C) with a 1-1/4 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC. Fourth layer applied vertically or horizontally with 2-1/4 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC. When applied vertically, joints to be staggered min 24 in. from third layer, otherwise all joints staggered min 12 in.

CGC INC — Types IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO — Types IP-X3 or ULTRACODE

USG BORAL DRYWALL SFZ LLC — Type ULTRACODE

USG MEXICO S A DE C V — Types IP-X3 or ULTRACODE

4A. **Gypsum Board* —** (As an alternate to Item 4 Systems A, B, C, D, E, G, H, and I when used as the base layer, For direct attachment only) — Nom 5/8 in. or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. See Items 1, 2, 2A, 2B and 2D. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. For Joint Compound see Item 5. To be used with Lead Batten Strips (see Item 9) or Lead Discs or Tabs (see Item 10).
RAY-BAR ENGINEERING CORP — Type RB-LBG

PRINTS ISSUED

11/20/24 - CITY SUBMITTAL

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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - U415 (1)

PROJECT NUMBER: 23096

SHEET NUMBER:

G-201

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4B. **Gypsum Board* —** (As an alternate to Item 4 Systems A, B, C, D, E, G, H, and I when used as the base layer, For direct attachment only) — Nominal 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 1-1/4 in. long Type S-12 (or #6 by 1-1/4 in. long bugle head fine driller) steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.
NEW ENGLAND LEAD BURNING CO INC, DBA NELCO — Type Nelco

4C. **Gypsum Board* —** (As an alternate to Item 4 Systems A, B, C, D, E, G, H, and I when used as the base layer, For direct attachment only) — Nom 5/8 or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. See Items 1, 2, 2A, 2B and 2D. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. For Joint Compound see Item 5. To be used with Lead Batten Strips (see Item 9A) or Lead Discs (see Item 10A). 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.
MAYCO INDUSTRIES INC — Type X-Ray Shielded Gypsum

4D. **Gypsum Board* —** (As an alternate to Item 4 Systems A, B, C, D, E, G, H, and I when used as the base layer, For direct attachment 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 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC 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 8 ft long with a max thickness of 0.14 in. placed on 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 the 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-201f, Grade "C".
RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

5. **Joint Tape and Compound —** (Not Shown)

Systems A, B, C, E, F, G, H, I

Joints on outer layers of gypsum boards (Item 4 and 4A) covered with paper tape and joint compound. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges. Exposed screw heads covered with joint compound.

6. **Batts and Blankets* —**

Systems A, B, E, F, G, H, I

(Optional) — Mineral wool or glass fiber batts partially or completely filling stud cavity. Any mineral wool or glass fiber batt mineral bearing the UL Classification Marking as to Fire Resistance.

Systems C & D

Min 3 in. (System C) and min 1-1/2 in. (System D) thick mineral wool batts, friction fitted between the studs and floor and ceiling runners.

ROCKWOOL — Type AFB, min. density 1.8 pcf / 28.8 kg/m^3

THERMAFIBER INC — Type SAFB, SAFB FF

7. **Cementitious Backer Units* —** (System D) — Nom 1/2 or 5/8 in. thick panels, square edge, attached to studs over gypsum wallboard with 1-5/8 in. long, Type S-12, corrosion resistant steel screws spaced 8 in. OC and staggered 8 in. from gypsum wall board screws. Joints covered with glass fiber mesh tape. Vertical joints staggered one stud cavity from gypsum wallboard joints. Horizontal joints staggered a min of 12 in. from the gypsum wallboard joints.
UNITED STATES GYPSUM CO — Type DCB

8. **Laminating Adhesive* —** (Optional, Not Shown) — Used to bond outer layer of Cementitious Backer Units (Item 7) to inner layers of Gypsum Board (Item 4) in System D. ANSI A136.1 Type 1 organic adhesive applied with 1/4 in. square notched trowel. See Adhesives (BYWR) in the Fire Resistance Directory or Adhesives (BJLZ) in the Building Materials Directory for names of Classified companies.

9. **Lead Batten Strips —** (Not Shown, For Use With Item 4A) — Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of 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 batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 4A) and optional at remaining stud locations. Required behind vertical joints.

9A. **Lead Batten Strips —** (Not Shown, for use with Item 4C) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.5% meeting the Federal specification QQ-L-201f, Grades "B, C or D".. Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 6) and optional at remaining stud locations.

10. **Lead Discs or Tabs —** (Not Shown, For Use With Item 4A) — Used in lieu of or in addition to the lead batten strips (Item 9) 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 (Item 4A) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

10A. **Lead Discs —** (Not Shown, for use with Item 4C) — Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.5% meeting the Federal Specification QQ-L-201f, Grades "B, C or D".

11. **Lead Batten Strips —** (Not Shown, For Use With Item 4B) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.142 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 4B) and optional at remaining stud locations.

12. **Lead Tabs —** (Not Shown, For Use With Item 4B) — 2 in. wide, 5 in. long with a max thickness of 0.142 in. Tabs friction-fit around front face of stud, the stud folded back flange, and the back face of the stud. Tabs required at each location where a screw (that secures the gypsum boards, Item 4B) will penetrate the steel stud. Lead tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead tabs may be held in place with standard adhesive tape if necessary.

*** 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 2022-02-14

PRINTS ISSUED
11/20/24 - CITY SUBMITTAL

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STATE OF MISSOURI
DAVID EUGENE HENDRICKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - U415 (2)

PROJECT NUMBER: 23096

SHEET NUMBER:
G-202

UL Product iQ®

UL Solutions

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.

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

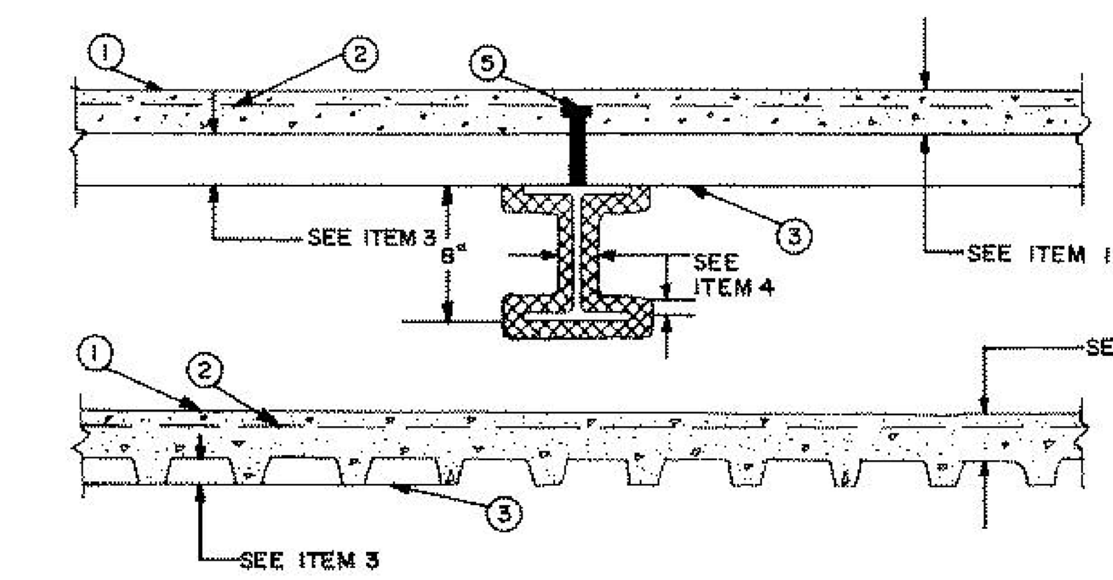
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada Design Criteria and Allowable Variances

Design No. D916

May 16, 2023

Restrained Assembly Ratings — 3/4, 1, 1-1/2, 2 or 3 Hr.
(See Items 1, 6, 7, 8 and 11)
Unrestrained Assembly Rating — 0 Hr. (See Items 3, 4 and 4A)
Unrestrained Beam Ratings — 1, 1-1/2, 2 and 3 Hr.
(See Items 4, 4A, 7 and 11)
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.**



Supports — 8x28 min size steel beams. Or steel joists or joist girders (not shown), composite or noncomposite. Welded or bolted to end supports. Designed per S.J.I. specifications for a max tensile stress of 30 ksi. May be either uncoated or provided with a shop coat of paint. For the 2 h or less Restrained or Unrestrained Beam Ratings, top and bottom chords shall each consist of two angles with a min total area of 0.96 and 0.77 sq in., respectively. Web members shall be either round bars or angles. Min area of the end diagonal web shall be 0.444 sq in. Min area of each of the first six interior diagonal webs shall be 0.406 sq in. All other interior webs shall have a min area of 0.196 sq in. For the 3 h Restrained or Unrestrained Beam Ratings, each of the top and bottom chords shall each consist of two angles with a min total area of 1.74 sq in. Web members shall be either round bars or angles. Min area of each of the first five end diagonal webs shall be 0.886 sq in. All other interior webs shall have a min area of 0.441 sq in. Bridging per S.J.I. specifications is required when noncomposite joists are used. For noncomposite joists, steel filler pieces of proper size, 1 to 2 in. long shall be welded to and between the top chord angles at midway between all top chord panel points.

1. **Normal Weight or Lightweight Concrete —** Normal weight concrete carbonate or siliceous aggregate, 3500 psi compressive strength, vibrated. Lightweight concrete, expanded shale, or slate aggregate by rotary-kiln method, or expanded clay aggregate by rotary-kiln or sintered-grate method, or pelletized expanded blast furnace slag aggregate, 3000 psi compressive strength, vibrated, 4 to 7 percent entrained air.

Restrained Assembly Rating Hr	Concrete (Type)	Concrete Unit Weight pcf	Concrete Thkns In.
1	Normal Weight	147-153	3-1/2
1-1/2	Normal Weight	147-153	4
2	Normal Weight	147-153	4-1/2
3	Normal Weight	147-153	5-1/4
3/4 or 1 (See Item 6)	Lightweight	107-113	2-1/2
1	Lightweight	107-120	2-5/8
1-1/2	Lightweight	107-113	3
2	Lightweight	107-113	3-1/4
2	Lightweight	107-116	3-1/4*
2	Lightweight	114-120	3-1/2
3	Lightweight	107-113	4-3/16
3	Lightweight	114-120	4-7/16

*For use with 2 or 3 in. steel floor and form units only.

2. **Welded Wire Fabric —** 6x6 - W1.4xW1.4.

3. **Steel Floor and Form Units* —** Composite or non-composite, 1-1/2, 1-5/8, 1-13/16, 2 or 3 in. deep galv units or 4-1/2 in. deep noncomposite galvanized units. Fluted units may be uncoated or phosphatized/painted. Min gauges are 22 MSG for fluted and 20/20 MSG for cellular units. The following combinations of units may be used:
(1) all 18, 24, 26, 28 or 36 in. wide cellular.

(2) all fluted.

(3) one or two 3 in. deep, 12 in. wide, 18/18 MSG min cellular units, alternating with 3 in. deep fluted or other cellular.

(4) any blend of fluted and 18, 24, 26, 28, or 36 in. wide cellular.

(5) 3 in. deep, 30 in. wide cellular with 8-1/8 in. wide valley along side joints may be used when 3/8 in. diam reinforcing bars are placed 1-1/2 in. to each side of side joints and 1 in. above bottom of unit.

(6) Corrugated, 1-5/16 in. deep, 30 in. wide, 24 MSG min galv units with shear wires factory welded to deck corrugations. Welded to supports 12 in. OC. through welding washers. For shear wire spacing of 8 in. or less the steel deck stress shall not exceed 20 KSI. For shear wire spacing greater than 8 in. OC. but less than or equal to 12 in. OC., steel deck stress shall not exceed 12 KSI.
ASC STEEL DECK, DIV OF ASC PROFILES L L C — 32 in. wide Types NH-32, NHN-32, NHF-32; 36 in. wide Types BH-36, BHN-36, BHN-35-1/4, BHF-36, BHF-36A, 2WH-36, 2WHS-36, 2WHF-36, 2WHF-36A, 3WxH-36, 3WxHF-36, 3WxHF-36A, 3WH-36, 3WHF-36, 3WHF-36A, 3W-36, 3WF-36, DG3W-36, DG3WF-36. All units may be galvanized or Prime Shield. Non-cellular decks may be vented designated with a "V" suffix to the product name. Cellular deck top and bottom sections may be riveted together (designated with "Fr") vs. arc spot welded, "F".

CANAM GROUP INC — 36 in. wide Type P-3623, P-3606, P-3615 and 24 in wide Type P-2432 composite; 24 or 36 in. wide Type 3 in. LOK-Floor; 36 in. wide Types 1.5B, 1.5BI, 1.5BL and 1.5BL.

CANAM STEEL CORP — 24 in. wide, Types 1-1/2 , 2 or 3 in. LOK-Floor and LOK-Floor Cell; 36 in. wide, Types 2 or 3 in. LOK-Floor and LOK-Floor Cell; 24 in. wide, Types N-LOK and N-LOK Cell; 24, 30 or 36 in. wide, Type 1-1/2 in. B-LOK and B-LOK Cell.

KAM INDUSTRIES LTD, DBA CORDECK — QL Types, 24 in. wide 3 or 3 inverted, UKX, UKX-3, 2 in. 99, AKX, 21 or 21 inverted, 121, NKX, TKX; 24 or 30 in. wide GKX, GKXH, GKX-A; 36 in. wide 99, AKX, WKX; 24, 26, or 36 in. wide NKX; 1.5NKC, NKC, AKX, 2 or 3 in. TKC; 12 in. wide noncomposite Sec. 12; 17 in. wide 21; 26 or 28 in. wide UKX, 87.5 cm wide. Side joints of QL, 99, 121, WKX, TKX, TKC, and Metric units - QL-77-900; QLC-78-900 may be welded together 60 in. OC. Side joints of 99, AKX, WKX, GKX, GKX-A, TKX and Metric units - QL-77-900 and QLC-78-900 may be fastened together with min 1 in. long No. 12x14 self-drilling, self-tapping steel screws 36 in. OC.

CHIA TEH CONSTRUCTION MATERIAL CO LTD — 24 or 36 in. wide Mac-Lok 3; 24 in. wide CFD-3.

DECK WEST INC — 36 in. wide Type B-DW, Inverted B-DW, BA-DW, Inverted BA-DW, 2-DW or 3-DW. Side joints of Type 2-DW and 3-DW may be fastened together with min 1 in. long No. 12 x 14 self-drilling, self-tapping steel screws 36 in. OC.

DECKCO LLC – 36 in. wide, Types DC 1.5B, DC 1.5 Form, DC 1.5 Inverted Composite, DC 1.5 Inverted Form, DC 1.5 Composite, DC 2 Form, DC 2 Composite, DC 3 Form, DC 3 Composite.

DESIGN ASSISTANCE CONSTRUCTION SYSTEMS INC — 36 in. wide Type DACS1.5CD, or 24 in. wide Type DACS2.0CD, or DACS3.0CD.

EPIC METALS CORP — 24 in. wide Types EC150, ECP150, EC300, ECP300, EC366, ECP366, EC150, EC300 inverted, ECA, 30 in. wide Types ECB150, ECBR150; 36 in. wide Type EC266.

HAMBRO STRUCTURAL SYSTEMS, DIV OF CANAM STEEL CORP — 36 in. wide, 1-1/2 in. Type P3615HB. The max superimposed loadings for Type P3615HB units shall not exceed 250 PSF. For single spans, the use of the units shall be limited to 5 ft 6 in., 6 ft 0 in. and 6 ft 6 in. max spans for the 22, 20 and 18 gauge units, respectively. For multiple spans, 18 gauge units may be used on a max 7 ft 6 in. spans with a max total superimposed loading of 240 PSF.

INTSEL STEEL EAST LLC — 36 in. wide Types 1.5" COMPOSITE/FLOOR, 2" COMPOSITE/FLOOR, 3" COMPOSITE/FLOOR.

KAM INDUSTRIES LTD, DBA CORDECK — 24 in. wide, Types 2 or 3 in. WDR.

MARLYN STEEL DECKS INC — Type 1.5 CF, 2.0 CF or 3.0 CF.

NEW MILLENNIUM BUILDING SYSTEMS L L C — 24 in. wide Type Versa-Dek.

NEW MILLENNIUM BUILDING SYSTEMS L L C — 24 or 36 in. wide Types 2.0CD, 3.0CD, 2.0CFD, 3.0CFD, 3.0CFDES; 24, 30 or 36 in. wide Types 1.5CD, 1.5CDI, 1.5CDR, 1.5CFD. Fluted units may be phos/painted or galvanized.

ROOF DECK INC — 36 in. wide Types LOK 1 1/2, LOK 1 1/2 R; 24 in. wide Types LOK-2, LOK-3.

STEEL MASTERS INTERNATIONAL DEPENDABLE STEEL — 36 in. wide Types 2WH-36, 3WH-36. Units may be phos/painted or galvanized.

TATA STEEL INTERNATIONAL MIDDLE EAST FZE — 36 in. wide, Type ComFlor 46.

VALLEY JOIST+DECK — 24 or 36 in. wide Types WVC 1-1/2 or WVC 2.

VERCO DECKING INC - A NUCOR CO — FORMLOK™ deck types PLB, B, BR, PLN3, N3, PLN, N, PLW2, W2, PLW3, W3. Units may be galvanized, phos./ptd., or mill finish. Units may be cellular or acoustical cellular, with the suffix "CD" or "CD-AC" added to the product name, respectively. All non-cellular deck may be vented or non-vented. 12 in. wide PLW2, W2, PLW3 or W3 units may be blended with 24 or in. wide PLW2, W2, PLW3 or W3 units, respectively; or Types N3, PLN3.

VICWEST INC. — Types HB938, HB938CL, HB938-INV, HB308-INV, HB306, HB30V; Types HBS938, HBS938CL and HBS938CL-IN Composite Steel Decks; Types RDS938, RDS938CL and RDS938CL-IN Non-Composite Steel Decks.

VULCRAFT, DIV OF NUCOR CORP — 24, 30 or 36 in. wide Types 1.5VL, 1.5VLI, 1.5PLVLI, 1.5VLP, 1.5PLVLP, 1.5VLR; 24 or 36 in. wide Types 1.5VLPA, 1.5PLVLPA, 2VLI, 2.0PLVLI, 2VLJ, 2VLP, 2.0PLVLP, 2VLPA, 2.0PLVLPA, 3VLI, 3.0PLVLI, 3VLJ, 3VLP, 3.0PLVLP, 3VLPA, 3.0PLVLPA. Types 1.5VL, 1.5VLI, 1.5PLVLI, 1.5VLR, 2VLI, 2.0PLVLI, 2VLJ, 3VLI, 3.0PLVLI, 3VLJ units may be phos/ptd. 24 or 36 in. wide Types 2VLJ, 3VLJ units ++ may be used for max 2 hr Restrained Assembly Rating. Side joints of Type 1.5VL may be fastened together with min 1 in. long No. 12x14 self-drilling, self-tapping steel screws 36 in. OC max. 36 in. wide Types 1.5 SB, 1.5 SBR; 24 or 36 in wide Types 2.0 SB, 3.0 SB, 36 in. wide Type High Strength 1.5 SBI, 36 in. wide Type High Strength 1.5 SBN.

Spacing of welds attaching units to supports shall be 12 in. OC for 12, 24, and 36 in. wide units, four welds per sheet for 30 in. wide units, 6 in. OC for 18 in. wide and Sec. 12 units. Unless noted otherwise, adjacent units button-punched or welded together 36 in. OC along side joints. Adjacent 18 in. wide units welded together 30 in. OC along side joints. For **3 Hr. Rating,** units with overlapping type side joints welded together 24 in. OC max.

When a superimposed load of 250 PSF is desired the spacing of welds or button-punches shall not exceed 24 in. OC along side joints.

++ Side joints of Types 2VLJ or 3VLJ units may be fastened together with No. 8, 3/4 in. long self-drilling Tek screws driven diagonally from the top side through the joint of the units at 36 in. O. C. max.

The Unrestrained Assembly Rating is equal to the Unrestrained Beam Rating for a max of 3 Hr. and is limited to the following units and limitations:

(a) 1-1/2 in. deep, 24 or 36 in. wide, 22 MSG or thicker fluted with clear spans not more than 7 ft 8 in.

(b) 1-1/2 in. deep, 24 or 36 in. wide, 20 MSG or thicker fluted with clear spans not more than 8 ft 8 in.

(c) 1-1/2 in. deep, 24 or 36 in. wide, 16 MSG or thicker fluted and 18/18 MSG or thicker cellular with clear spans not more than 9 ft 11 in.

(d) 3 in. deep, 36 in. wide, 18 MSG or thicker fluted and 24 in. wide, 20/18 MSG or thicker cellular with clear spans not more than 13 ft 2 in.

4. **Spray-Applied Fire Resistive Materials* —** Applied by mixing with water and spraying in one or more coats to a final thickness as shown in the tables below, in the tables below to steel beam surfaces which must be clean and free of dirt, loose scale and oil. Min avg and min ind density of 15/14 pcf respectively. Min avg and min ind density of 19/18 pcf respectively for Type 7GP and 7HD. For method of density determination, refer to Design Information Section.

Restrained Assembly Rating Hr	Unrestrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Spray Applied Fire Resistive Mtl Thkns on Beam In.
1	1	1	1/2
1-1/2	1	1	1/2
1-1/2	1-1/2	1-1/2	13/16
2	1	1	1/2
2	2	2	1-1/16
3	1-1/2	1-1/2	13/16
3	3	3	1-9/16

The thicknesses of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the thickness applied to the beams' lower flange edges is reduced by 1/2 that shown in the table:

Restrained Assembly Rating Hr	Unrestrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Spray Applied Fire Resistive Mtl Thkns on Beam In.
1	1	1	9/16
1-1/2	1	1	9/16
1-1/2	1-1/2	1-1/2	7/8
2	1	1	9/16
2	2	2	1-3/16
3	1-1/2	1-1/2	7/8
3	3	3	1-3/4

The thicknesses of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the thickness applied to the beams' lower flange edges is reduced by 1/2 that shown in the table and the beams are supporting all fluted floor or form units w/lightweight concrete only:

Restrained Assembly Rating Hr	Unrestrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Spray Applied Fire Resistive Mtl Thkns on Beam In.
1	1	1	7/16+
1-1/2	1	1	7/16+
1-1/2	1-1/2	1-1/2	3/4
2	1	1	7/16+
2	2	2	1
3	1-1/2	1-1/2	3/4
3	3	3	1-9/16

+Thickness applied to beams' lower flange edge to be 1/4 in. min.

The thickness of material required on the steel joist for the various ratings are shown in the following table:

Restrained or Unrestrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Spray Applied Fire Resistive Mtl Thkns on Joist & Bridging In.
1	1	1-1/8
1-1/2	1-1/2	1-3/4
2	2	2-1/4
3	3	2-7/8

GCP KOREA INC — Types MK-6/CBF, MK-6/ED, MK-6/HY, MK-6s, Monokote Acoustic 1.

PYROK INC — Type LD.

SOUTHWEST FIREPROOFING PRODUCTS CO — Types 4, 5, 5EF, 5GP, 5MD, 7GP, 7HD, 8EF, 8GP, 8MD, 9EF, 9GP, 9MD.

GCP APPLIED TECHNOLOGIES INC — Types MK-6/HY, MK-6s, RG, Monokote Acoustic 1.

4A. **Alternate Spray-Applied Fire Resistive Materials* —** Applied by mixing with water and spraying in one or more coats to a final thickness as shown in the tables below to steel beam surfaces which must be clean and free of dirt, loose scale and oil. When fluted steel deck is used the area between the steel deck and the beams top flange shall be sprayed min avg and min ind density of 19/18 pcf, respectively for Types 7GP, 7HD, 105. Min avg and min ind density of 22/19 pcf, respectively for Types Z-106, Z-106/G, Z-106/HY. For method of density determination, refer to Design Information Section.

Restrained Assembly Rating Hr	Unrestrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Spray Applied Fire Resistive Mtl Thkns on Beam In.
1	1	1	1/2
1-1/2	1	1	1/2
1-1/2	1-1/2	1-1/2	13/16
2	1	1	1/2
2	2	2	1-1/16
3	1-1/2	1-1/2	13/16
3	3	3	1-9/16

The thicknesses of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the beams are supporting all fluted floor or form units w/lightweight concrete only:

Restrained Assembly Rating Hr	Unrestrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Spray Applied Fire Resistive Mtl Thkns on Beam In.
1	1	1	7/16
1-1/2	1	1	7/16
1-1/2	1-1/2	1-1/2	3/4
2	1	1	7/16
2	2	2	1
3	1-1/2	1-1/2	3/4
3	3	3	1-5/16

+Thickness applied to beams lower flange edge to be 1/4 in. min.

The thickness of material required on the steel joist for the various Ratings are shown in the following table:

Restrained or Unrestrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Type of Concrete Slab	Spray Applied Fire Resistive Mtl Thkns In. Joist & Bridging
1	1	NW or LW	1-1/8
1-1/2	1-1/2	NW or LW	1-3/4
2	2	NW or LW	2-1/4
3	3	NW or LW	2-7/8

GCP KOREA INC — Types Z-106, Z-106/G, Z-106/HY, Monokote Acoustic 5.

SOUTHWEST FIREPROOFING PRODUCTS CO — Types 7GP, 7HD.

GCP APPLIED TECHNOLOGIES INC — Types Z- 105, Z-106, Z-106/G, Z-106/HY, Monokote Acoustic 5.

4B. **Alternate Spray-Applied Fire Resistive Materials —** Applied by mixing with water and spraying in one or more coats to a final thickness as shown in the tables below to steel beam surfaces which must be clean and free of dirt, loose scale and oil. The thicknesses shown in the table below are applicable to beams supporting all fluted floor or form units. Min avg and min ind density of 40/36 pcf, respectively. Min avg and min ind density of 40/36 pcf respectively for Types Z-146, Z-146PC and Z-146T cementitious mixture. Min avg and min ind density of 50/45 pcf respectively for Types Z-156, Z-156T and Z-156PC.
For density determination refer to Design Information Section.

Unrestrained Beam Rating Hr	Restrained Assembly Rating Hr	Concrete Type	Spray Applied Fire Resistive Mtl Thkns on Beam In.
1	1, 1-1/2, 2	LW	9/16
1-1/2	1, 1-1/2, 2, 3	LW	7/8
1	1, 1-1/2, 2	LW	3/4
1-1/2	1, 1-1/2, 2, 3	LW	1

GCP KOREA INC — Type Z-146 investigated for exterior use

GCP APPLIED TECHNOLOGIES INC — Types Z-146, Z-146T, Z146PC, Z-156, Z-156T and Z-156PC investigated for exterior use

5. **Shear-Connector Studs — Optional —** Studs 3/4 in. diam by 3 in. long, for 1-1/2 in. deep form units to 5-1/4 in. long for 3 in. deep form units, headed type or equivalent per AISC specifications. Welded to the top flange of the beam through the steel form units.

6. **Electrical Inserts —** (Not shown) Classified as **"Outlet Boxes and Fittings Classified for Fire Resistance."**
KAM INDUSTRIES LTD, DBA CORDECK — Preset Inserts

For use with 2-1/2 in. lightweight concrete topping over QL-WKX steel floor units. Installed over factory-punched holes in floor units per accompanying installation instructions.

Spacing shall not be more than one insert in each 14 sq ft. of floor area with spacing along floor units not less than 48 in. OC. The holes cut in insert cover for passage of wires shall be no more than 1/8 in. larger diam. than wire. Restrained Assembly Rating is 3/4 hr with Tapmate II-FS-1 and 1 hr with Tapmate II-FS-2 inserts.

KAM INDUSTRIES LTD, DBA CORDECK — Tapmate II-FS-1, II-FS-2; Series KEB.

(2) **Wiremold Co.** — After set Inserts.

Single-service after set inserts installed per accompanying installation instructions in 2-1/2 in. diam hole core-drilled through min 3-1/4 in. thick concrete topping to top of cell of any min 3 in. deep cellular steel floor unit specified under Item 3. Spacing shall be no more than one insert in each 10 sq ft of floor area in each span with a min center to center spacing of 16 in. If the high potential and low potential raceways of the cellular steel floor unit are separated by a valley filled with concrete, the center to center spacing of the high potential and low potential single-service after set inserts may be reduced to a min of 7-1/2 in. Restrained Assembly Rating is 2 hr or less with internally protected type 436 after set insert with Type M4-, M6- or M8- Series single-service activation fitting.

WIREMOLD CO — Internally protected Type 436 after set insert with Type M4-, M6- or M8- Series single-service activation fitting.

7. **Mineral and Fiber Boards* —** (Optional, not shown). Applied over concrete floor with no restriction on board thickness. When mineral and fiber boards are used, the unrestrained beam rating shall be increased by a minimum of 1/2 hr.
See Mineral and Fiber Board (CERZ) category for names of manufacturers.

8. **Roof Covering Materials* —** (Optional, not shown)Consisting of materials compatible with insulations described herein which provide Class A, B or C coverings. See Built-Up Roof Covering Materials in Building Materials Directory.

9. **Insulating Concrete —** (not shown) Optional. Various types of insulating concrete prepared and applied in the thickness indicated:
A. **Vermiculite Concrete —** (not shown) Optional.
1. Blend 6 to 8 cu. ft. of Vermiculite Aggregate* to 94 lb. Portland Cement and air entraining agent. Min thickness of 2 in. as measured to the top surface of the structural concrete or foamed plastic (Item 10) when it is used.
ELASTIZELL CORP OF AMERICA

SIPLAST INC

VERMICULITE PRODUCTS INC

2. Blend 3.5 cu. ft. of Type NVC Concrete Aggregate* or Type NVS Vermiculite Aggregate* coat, 1/8 in. thickness beneath foamed plastic (Item 10) when used, 1 in. min topping thickness.
SIPLAST INC

VERMICULITE PRODUCTS INC

Vermiculite concrete may be covered with Roof Covering Materials (Item 8).

RELEASED FOR CONSTRUCTION
As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri

PRINTS ISSUED
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REVISIONS:
1 12/12/24 City Comment Response

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - D916

PROJECT NUMBER: 23096

SHEET NUMBER:

G-203

B. **Cellular Concrete — Roof Topping Mixture* —** concentrate mixed with water and Portland cement per manufacturers specifications. Min. thickness of 2-in. as measured to the top surface of the structural concrete or foamed plastic (Item 10A) when used. Cast dry density and 28— day min. compressive strength of 190 psi as determined with ASTM C495— 66.
AERIX INDUSTRIES — Cast dry density of 37 (+ or -) 3.0 pcf.

CELCORE INC — Type Celcore with cast dry density of 31 (+ or - 3.0) pcf or Type Celcore MF with cast dry density of 29 (+ or - 3.0) pcf.

ELASTIZELL CORP OF AMERICA — Type II. Mix #1 of cast dry density 39 (+ or -) 3.0 pcf, Mix #2 of cast dry density 40 (+ or -) 3.0 pcf, Mix #3 of cast dry density 47 (+ or -) 3.0 pcf.

C. **Cellular Concrete-Roof Topping Mixture* —** Concentrate mixed with water and Portland cement per manufacturers specifications. 28-day min. compressive strength of 190 psi as determined with ASTM C495-66.
SIPLAST INC — Mix No. 1 or 2. Cast dry density of 32+3 (Mix No. 1) or 36+3 (Mix No. 2) pcf.

D. **Perlite Concrete —** 6 cu ft. of Perlite Aggregate* to 94 lb of Portland Cement and 1-1/2 pt air entraining agent. Min. thickness 2 in. as measured to the top surface of structural concrete or foamed plastic (Item 10A) when it is used.
See Perlite Aggregate (CFFX) in Fire Resistance Directory for names of manufacturers.

E. **Cellular Concrete — Roof Topping Mixture* —** Foam Concentrate mixed with water, Portland Cement and UL Classified Vermiculite Aggregate per manufacturer's application instructions. Cast dry density of 33 (+ or -) 3.0 pcf and 28-day compressive strength of min 250 psi as determined in accordance with ASTM C495-86.
AERIX INDUSTRIES — Mix No. 3.

SIPLAST INC — Mix No. 3.

F. **Floor Topping Mixture* —** (Optional, not shown) — Approx 4.5 gal of water to 41 lbs of NVS Premix floor topping mixture. Slurry coat 1/8 in. thickness beneath foamed plastic (Item 10) when used , 1 in. min topping thickness.
SIPLAST INC

Floor Topping Mixture may be covered with Built-Up or Single Membrane Roof Covering.

10. **Foamed Plastic* —** (optional — Not Shown) For use only with vermiculite (Item 9A) or cellular (Item 9C) concretes — Rigid polystyrene foamed plastic insulation having slots and/or holes sandwiched between vermiculite concrete slurry which is applied to the normal or lightweight concrete surface and vermiculite concrete topping (Item 9A).
SIPLAST INC

VERMICULITE PRODUCTS INC

10A. **Foamed Plastic* —** For use only with cellular concrete. Nominal 24 by 48 in. polystyrene foamed plastic insulation boards having a density of 1.0 + 0.1 pcf encapsulated within cellular concrete topping (Item 9B). Each insulation board shall contain six nominal 3 in. diameter holes oriented in two rows of three holes each with the holes spaced 12 in. OC, transversely and 16 in. OC longitudinally.
See Foamed Plastic* (BRYX) category in Building Materials Directory or Foamed Plastic* (CCVW) category in Fire Resistance Directory for list of manufacturers.

11. **Foamed Plastic* —** (Optional, not shown). Polyisocyanurate roof insulation, applied over concrete floor with no restriction on insulation thickness. When polyisocyanurate insulation is used, the unrestrained beam rating shall be increased by a minimum of 1/2 hr.

12. **Metal Lath —** (Not Shown) — (Required with Z-146, Z-146T, Z146PC, Z-156, Z-156T and Z-156PC, otherwise optional) - Metal lath may be used to facilitate the spray application of Spray-Applied Fire Resistive Materials on steel bar joist and trusses. The diamond mesh, 3/8 in. expanded steel lath, 1.7 to 3.4 lb per sq yd is secured to both sides of each steel joist with No. 18 SWG galv steel wire at joist web and bottom chord members spaced 15 in. OC max. When used, the metal lath is to be fully covered with Spray-Applied Fire Resistive.
See **Foamed Plastic** (CCVW) category for list of manufacturers.

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

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1 12/12/24 City Comment Response

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STATE OF MISSOURI
DAVID EUGENE HENDRICKSE
NUMBER
REGISTERED ARCHITECT
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THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - D916

PROJECT NUMBER: 23096

SHEET NUMBER:
G-204

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REVISIONS:

ICC PEI LLC

Initial Approval April, 2009 | **Re-Approved** October, 2021

See all Reports at: www.p-e-i.com

Report Owner
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Chicago, IL 60661

For Evaluation Report Questions
usg4you@usg.com
USG Support: 800.USG4YOU

Assemblies
USG Shaft Walls, Stair Walls & Corridors

Assemblies Evaluated For

1. Non Axial Load Bearing Wall 2. Transverse Load Capacity 3. Fire Resistance 4. Abuse Resistance

Code Compliance

2012 & 2015 International Building Code			2018 International Building Code		
Section 403.2.3	Section 707.3.1	Section 713	Section 403.2.3	Section 707.3.1	Section 713
Section 703.2	Section 707.3.2	Section 2203	Section 703.2	Section 707.3.2	Section 2202
Section 703.3	Section 707.5	Section 708, 1020.1	Section 703.3	Section 707.5	Section 708, 1020.1

1. **USG Shaft & Stair Walls Systems** meet the requirements of 1-hour, 2-hour, and 3-hour fire resistive rated assemblies when tested in accordance with ASTM E119 and constructed in accordance with the requirements of the applicable UL Design Number (or equivalent).
2. Meets the requirements for structural integrity of exit enclosures and elevator hoist way enclosures for High-Rise Buildings (Section 403.2.3. of the 2012, 2015 and 2018 IBC) when installed in accordance with the abuse resistant assemblies listed on page two (2) of this **Assembly Evaluation Report** (**AER**). Approved abuse resistant assemblies have been tested in accordance with ASTM C1629.

Component Descriptions

USG Shaft & Stair Wall Systems are generally constructed with the following components.

1. J-Runners

The metal framing members used in construction of **USG Shaft & Stair Wall Systems** are manufactured from cold roll-formed light gauge galvanized steel conforming to ASTM A653 SS Grade 33 for 24ga. minimum thickness and ASTM A653 SS Grade 40 for 20ga minimum thickness. The galvanization coating shall be a G40 minimum. The available sizes are 2-1/2-in, 4-in and 6-in deep and a length of 16-ft in 24 or 20 gauge. Position steel J-runners at floor and ceiling with the 1-in leg towards the finished side of the wall. Securely attach the runners to the structure supports as design use describes.

For attachment to steel framed construction install floor and ceiling J-runners and End wall J-Runners or E-Studs, on columns and beams before the steel is fireproofed, except where Z-Clips are used as in UL Design HW-D-0609.

2. Steel Studs

USG Steel C-H and E Studs are manufactured from cold roll-formed light gauge steel conforming to ASTM A653 SS Grade 33 for 25ga thickness and ASTM A653 SS Grade 40 for 20ga minimum thickness. The galvanization coating shall be a G40 minimum. The available sizes are 2-1/2-in, 4-in and 6-in deep and a length of 16-ft in 25 or 20 gauge.

Cut the C-H Studs 3/8-in to 1/2-in shorter than the floor-to-ceiling height. Install C-H Studs interlocked between the SHEETROCK® Brand Gypsum Liner Panels with the liner panels securely engaged. The C-H Studs must have a current evaluation report for use in any **USG** assemblies shown within this report.

Terminations: Install full length steel E-Studs or J-Runners vertically at T-Intersections, corners, door jambs and
Openings: Frame with vertical E-Stud or J-Runner at vertical edges, horizontal J-runner at head or sill.
Control Joints: Install full length steel E-Stud or J-Runner at edges of control joints, to fully support gypsum panels.
C-H Studs: Based on stud size shown in Table 1 and Figure 7 of this **AER**.

Component Descriptions Continued

3. Gypsum Liner Panels

Tested for Composite Limiting Heights Tables 2, 3, & 4:

Sheetrock® Brand Gypsum Liner Panels- UL Type SLX, a high performance panel that is composed of a non-combustible gypsum core encased in a water resistant 100% recycled **green** face and back paper. Gypsum Liner Panels are a nominal thickness of 1-in x 24-in wide x 8-ft to 14-ft long. Must meet the minimum requirements of ASTM C1396.

Alternatives for UL Fire Resistance:

Sheetrock® Brand Mold Tough™ Gypsum Liner Panels- UL Type SLX feature a non-combustible, moisture and mold-resistant gypsum core encased in moisture and mold-resistant, 100% recycled **blue** face and back papers. Available 1-in thick, 24-in wide and in lengths up to 14-ft. Must meet the minimum requirements of ASTM C1396.

Sheetrock® Brand Glass-Mat Liner Panel- UL Type SLX have a noncombustible, moisture- and mold-resistant gypsum core that is encased in moisture- and mold-resistant glass mat. Available 1-in thick, 24-in wide, and lengths up to 14-ft. Must meet the minimum requirements of ASTM C1658.

Note: All of these panels should be cut 1-in shorter than the floor-to-ceiling height, to allow for the panel to be fitted between the top and bottom J-runners. Where shaft wall height exceeds the length of the liner panel; it must be butted together with meeting factory end cuts. The joints should be staggered and positioned in the upper or lower 1/3 of the wall. Panels must be UL/ULC classified for fire resistance and identified as Type SLX on the UL marking and UL Fire Resistance Directory.

4. Gypsum Wallboard

Tested for Composite Limiting Heights Tables 2, 3, & 4:

Sheetrock® Brand Firecode® C Panels-UL Type C have been tested to generate the shaft/stairwell limiting heights for wall assemblies shown in Figures 1, 2, 3, 4, and 5. Panels are available in 1/2-in and 5/8-in thicknesses, 48-in wide and lengths up to 14-ft. Product must be UL/ULC Classified for fire-rated construction (Type C) and must meet the requirements of ASTM C1396.

Sheetrock® Brand Firecode® X Panels- UL Type SCX have been tested to generate the shaft/stair wall limiting heights for the wall assembly described by Figure 6. Panels are available 5/8-in thick, 48-in or 54-in wide and lengths up to 14-ft. Product must be UL/ULC Classified for fire-rated construction (Type SCX) and must meet the requirements of ASTM C1396.

Alternatives for UL Fire Resistance and/or Abuse Resistance:

Sheetrock® Brand Mold Tough® Gypsum Panels, have a non-combustible, moisture-resistant gypsum core encased in moisture and mold-resistant, 100 percent recycled **green** face and **brown** back paper. Available in **Firecode** - UL Type SCX and **Firecode C** - UL Type C core formulations in the same widths, thicknesses and lengths listed above. The panels have been tested for use in abuse resistant assemblies in accordance with ASTM C 1629, Class 2 Impact Rating (Soft Body), Class 1 Impact Rating (Hard Body). Product must be UL/ULC Classified for fire-rated construction (Type C or Type SCX) and must meet the requirements of ASTM C1396.

Sheetrock® Brand Mold Tough® VHI (Very High Impact) AR (Abuse Resistant) Gypsum Panels- UL Type AR have a non-combustible, moisture-resistant core encased in moisture and mold-resistant, 100 percent recycled **green** face and **brown** back papers. A fiberglass reinforcing mesh is imbedded in the core adjacent to the back paper. Available in **Firecode** core formulation in the same widths, thicknesses, and lengths listed above. The panels have been tested for use in abuse resistant assemblies in accordance with ASTM C 1629, Class 3 Impact Rating (Soft Body), Class 3 Impact Rating (Hard Body). Product must be UL/ULC Classified for fire-rated construction (Type AR) and must meet the requirements of ASTM C1396.

Fiberock® Brand AR (Abuse-Resistant) Interior Panels- UL Type FRX-G are high performance abuse resistant panels. Available panels are 5/8-in thick x 48-in wide and available in lengths up to 12-ft. The panels have been tested for use in abuse resistant assemblies in accordance with ASTM C 1629, Class 3 Impact Rating (Soft Body) and Class 2 Impact Rating (Hard Body). Product must be UL/ULC Classified for fire-rated construction (Type FRX-G) and must meet the requirements of ASTM C1278 as well as ASTM C473.

Tested Abuse Resistant Assemblies:

1. Single layer of **5/8-in Fiberock VHI**- UL Type AR on 24-in o.c. 400CH20-34 Studs - Passed ASTM C1629 Hard Body Impact Level 2.
2. Single layer of **5/8-in Sheetrock Firecode Core Face**- UL Type SCX and a single layer of **5/8-in Fiberock VHI**- UL Type AR Base on 24-in o.c. 400CH20-34 Studs - Passed ASTM C1629 Hard Body Impact Level 3 and Soft Body Impact Level 2.
3. **Two layers of 5/8-in Fiberock VHI**- UL Type AR on 24-in o.c. 400CH20-34 Studs - Passed ASTM C1629 Hard Body Impact Level 3 and Soft Body Impact Level 2.

~ *Cavity Shaft Wall Systems* ~

One-Hour Cavity Shaft Wall (Non-Load Bearing), See Figure 1

1. A minimum 2-1/2" wide 24 gauge floor and ceiling J-runners, attached to structure as described above.
2. Apply one (1) layer, 5/8" thick Sheetrock® Brand Panels- UL Type C, SCX, AR or FRX-G installed vertically with 1" long Type S screws spaced 12" o.c. in field and at edges for vertical application, and 8" o.c. for horizontal application.
3. A minimum 2-1/2-in deep **USG** C-H Studs 25 gauge 24" o.c., with the H-Section of C-H Stud towards the shaft side of the assembly. E-shaped studs may be used for closure panels at end of the walls or columns. (If J-runners are used at end walls, the gypsum liner is fastened at the ends with 1-5/8" long Type S Screws 12" o.c.)
4. 1" thick Sheetrock® Brand Gypsum Liner Panel- UL Type SLX, Friction-fitted in "H" portion of C-H studs.
5. For Fire Resistance details and construction methods, refer to UL Design #U415 System A and the **USG** installation instructions.

Two-Hour Cavity Shaft Wall (Non-Load Bearing), See Figure 2

1. A minimum 2-1/2-in deep 24 gauge floor and ceiling J-runners, attached to structure as described above.
2. Apply two (2) layers, 1/2" thick Sheetrock® Brand **Firecode®** C Core Gypsum Panels - UL Type C. Apply base layer with 1" long Type S screws 24" o.c. in field and at the edges for vertical application and 16" o.c. for horizontal applications. Apply face layer to C-H studs and J-runners with 1-5/8" long Type S screws. Space the screws 12" o.c. at the edges and in the field when applied vertically, 8" o.c. when applied horizontally. All joints between the base and face layers must be staggered.
3. A minimum 2-1/2-in deep **USG** C-H studs 25 gauge, spaced 24-in o.c., with the H-Section of the C-H stud towards the shaft side of the assembly. E-shaped studs may be used for closure panels at the end of walls or columns. (If J-runners are used at end walls, the gypsum liner needs to be fastened at the ends with 1-5/8-in long Type S screws that are spaced 12-in o.c.).
4. 1-in thick Sheetrock® Brand Gypsum Liner Panel- UL Type SLX, Friction-fitted in "H" portion of C-H studs.
5. For Fire Resistance details and construction methods, refer to UL Design #U415 System B and the **USG** installation instructions.

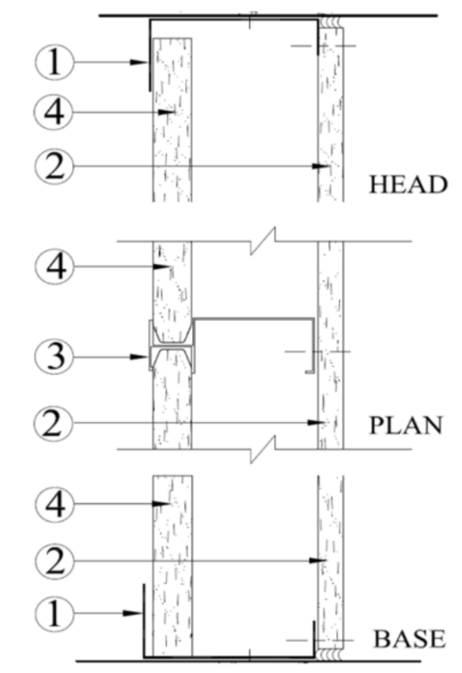


Figure 1 - One Hour Cavity Shaft Wall (Non-Load Bearing)

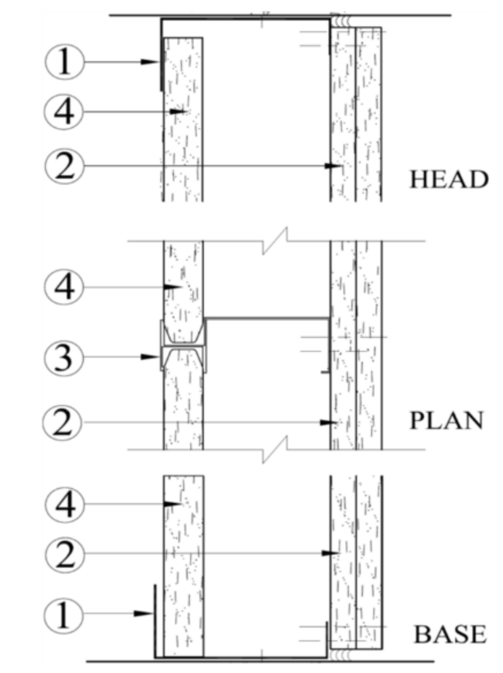


Figure 2 - Two Hour Cavity Shaft Wall (Non-Load Bearing)

Two-Hour Cavity Stair Wall (Non-Load Bearing), See Figure 3

1. A minimum 2-1/2" deep, 24 gauge floor and ceiling J-runners, attached to the structure as described.
2. Apply one (1) layer of 1/2" Sheetrock® Brand **Firecode®** Gypsum Panels (Type C) to each side of the C-H stud. Attach the C-H stud with 1" long Type S screws 12" o.c. in the field and at the edges for a vertical application and 8-in o.c. center for a horizontal
3. A minimum of 2-1/2" deep **USG** C-H studs 25 gauge, spaced 24" o.c., with the H-section of the C-H stud towards the shaft side of the assembly. E-shaped studs may be used for closure panels at the end of walls or columns. (If J-runners are used at end walls, the gypsum liner needs to be fastened at the ends with 1-5/8" long Type S screws that are 12" o.c.).
4. 1" thick Sheetrock® Brand Gypsum Liner Panel-UL Type SLX Friction-fitted in "H" portion of C-H studs.
5. For Fire Resistance details and construction methods, refer to UL Design #U415 System E and the **USG** installation instructions.

Three-Hour Cavity Shaft Wall (Non-Load Bearing), See Figure 4

1. A minimum 2-/12" deep 24 gauge floor and ceiling J-runners, attached to the structure as described in the Figure 4.
2. Apply three (3) layers of 5/8" thick Sheetrock® Brand **Firecode®** C Core Gypsum Panels (Type C), vertically or horizontally to the room side of the C-H stud. First layer shall be attached with a 1-in long Type S screw placed 24" o.c. in the field and at the edges when applied vertically, for horizontal applications the screws shall be spaced 16" o.c. The second layer shall be applied with 1-5/8" long Type S screws spaced 24" o.c. when applied vertically or spaced 16" o.c. when the applied horizontally. The Face layer shall be applied with 2-1/4" long Type S screws that are spaced 16" o.c. when the board is applied vertically, and spaced 12" o.c. when the board is applied horizontally. All joints must be staggered a minimum of 24" o.c. from the adjacent layers, where screws are offset a minimum of 6" from the layer below.
3. A minimum 2-1/2" **USG** C-H studs 25 gauge that are spaced 24" o.c., with the H-section of the C-H stud towards the shaft side of the assembly. E-shaped studs may be used for closure panels at the end of walls or columns. (If J-runners are used at the end walls, the gypsum liner needs to be fastened at the ends with 1-5/8" Type S screws spaced 12" o.c.)
4. 1" thick Sheetrock® Brand Gypsum Liner Panel-UL Type SLX Friction-fitted in "H" portion of C-H studs.
5. For Fire Resistance details and construction methods, refer to UL Design #U415 System G and the **USG** installations instructions.

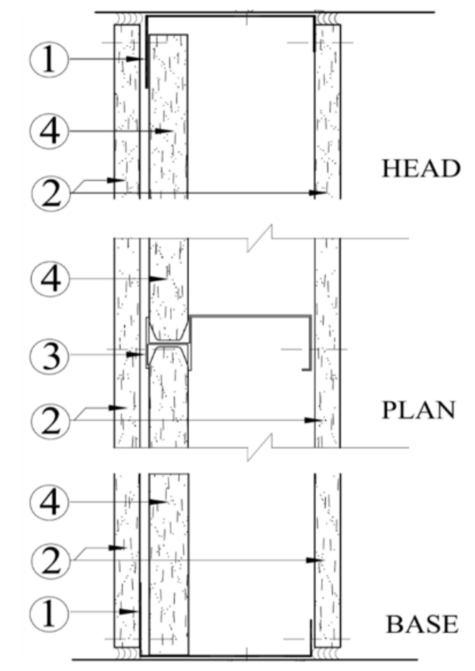


Figure 3 - Two Hour Cavity Stair Wall (Non-Load Bearing)

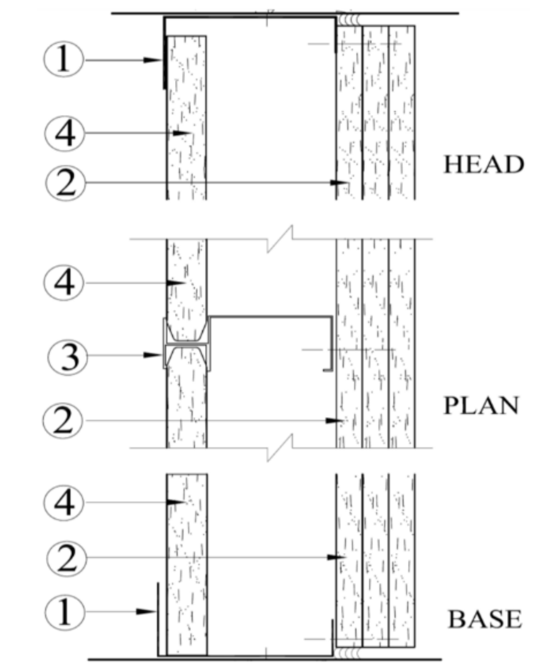


Figure 4 - Three Hour Cavity Shaft Wall (Non-Load Bearing)

Three-Hour Cavity Stair Wall (Non-Load Bearing), See Figure 5

1. A minimum 2-1/2" deep 24 gauge floor and ceiling J-runners attached to the structure as described above.
2. Apply two (2) layers of 5/8" thick Sheetrock® Brand **Firecode®** C Core Gypsum Panels (Type C), vertically or horizontally to the "room" side of the C-H stud, and one (1) layer over the flange of the "H" section of the stud. The Base layer on the "room" side and the single layer of the "shaft" side shall be attached with a 1" long Type S screw spaced 24" o.c. in the field and at the edges when installed vertically, or 16" o.c. when installed horizontally. The face layer on the "room" side shall be attached with 1-5/8" long Type S steel screws spaced 16" o.c. when installed vertically, or 12" o.c. when installed horizontally with screws offset 6" from the base layer. Vertical joints are centered over the studs and staggered 24" o.c. on adjacent layers. Horizontal joints on adjacent layers are staggered a minimum of 12" o.c.
3. A minimum 2-1/2" deep **USG** C-H Stud 25 gauge spaced 24" o.c., where the H-section of the C-H stud faces the shaft. E-shaped studs may be used for closure panels at the end of the walls or columns. (If J-runners are used at end walls, the gypsum liner should be fastened at the ends with a 1-5/8" long Type S screw, spaced 12" o.c.)
4. 1" thick Sheetrock® Brand Gypsum Liner Panel- UL Type SLX Friction-fitted in "H" portion of C-H studs.
5. For Fire Resistance details and construction methods, refer to UL Design #U415 System H and the **USG** installation instructions.

Two-Hour Horizontal Stud Shaft Wall Assembly (Non-Load Bearing), See Figure 6

1. A minimum 4" deep 20 gauge J-runner to be installed vertically, on the ends of the wall.
2. Apply two (2) layers of 5/8" thick Sheetrock® Brand **Firecode®** Core Gypsum Panels - UL Type SCX, AR, or FGX-G vertically or horizontally to the room side of the C-H stud, with 1" long Type S screws spaced 12" o.c. in the field and at the edges for the BASE layer. The FACE layer shall be installed with 1-5/8" long Type S screws spaced 8" o.c. All joints must be staggered a minimum of 24" from the adjacent layers.
3. A minimum 4" deep **USG** C-H stud or E Studs 20 gauge, are to be installed horizontally with the "C" section of the studs facing down. Studs cut to length to allow a 3/8" to 1/2" maximum gap at each end of the wall. As an option, the studs may be screw attached to the side J-Runners with (4) total 1/2" long pan head Type S screws. One at each end of the stud on each side of the wall.
4. 1" thick Sheetrock® Brand Gypsum Liner Panel- UL Type SLX Friction-fitted in "H" portion of C-H studs.
5. Horizontal Stud Wall Assembly - The wall width is limited to the length of the Gypsum Liner Panel.
6. For Fire Resistance details and construction methods, refer to UL Design #U437 and the **USG** installation instructions.

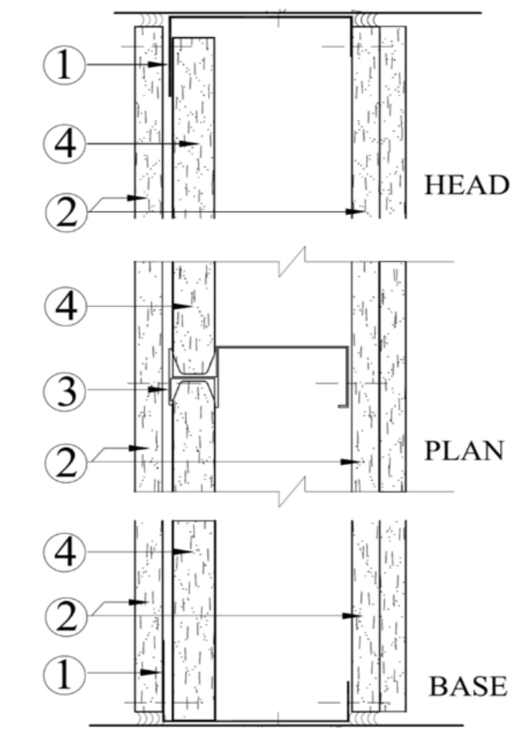


Figure 5 - Three Hour Cavity Stair Wall (Non-Load Bearing)

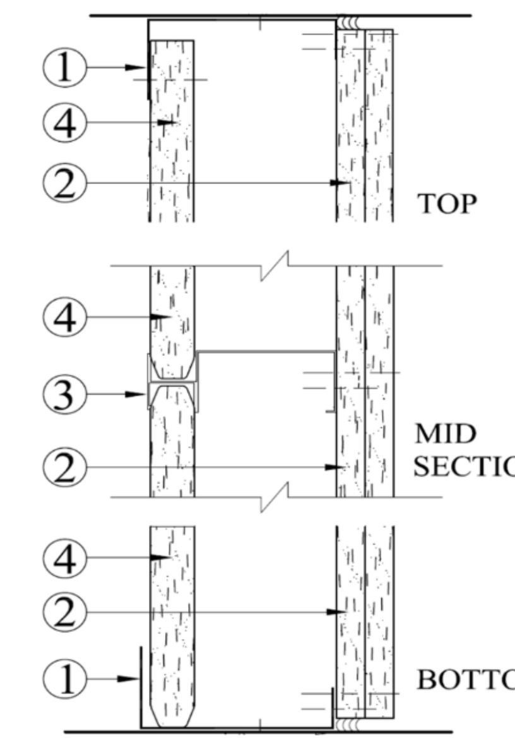


Figure 6 - Two Hour Horizontal Stud Shaft Wall Assembly (Non-Load Bearing)

Table 1 - Nominal C-H Stud Dimensions[1] (inches)

Stud Designation	A	B	C	D	E	F[2]
212CH25-18	2 1/2	1 3/8	1 29/64	31/32	7/32	25ga
212CH20-34	2 1/2	1 3/8	1 29/64	31/32	7/32	20ga
400CH25-18	4	1 3/8	1 29/64	31/32	7/32	25ga
400CH20-34	4	1 3/8	1 29/64	31/32	7/32	20ga
600CH20-34	6	1 3/8	1 29/64	31/32	7/32	20ga

Notes:
1. Refer to Figure 7 for location of tabulated dimensions.
2. Dimension "F" refers to the minimum steel thickness and is shown as the minimum nominal gauge thickness of the material allowable.

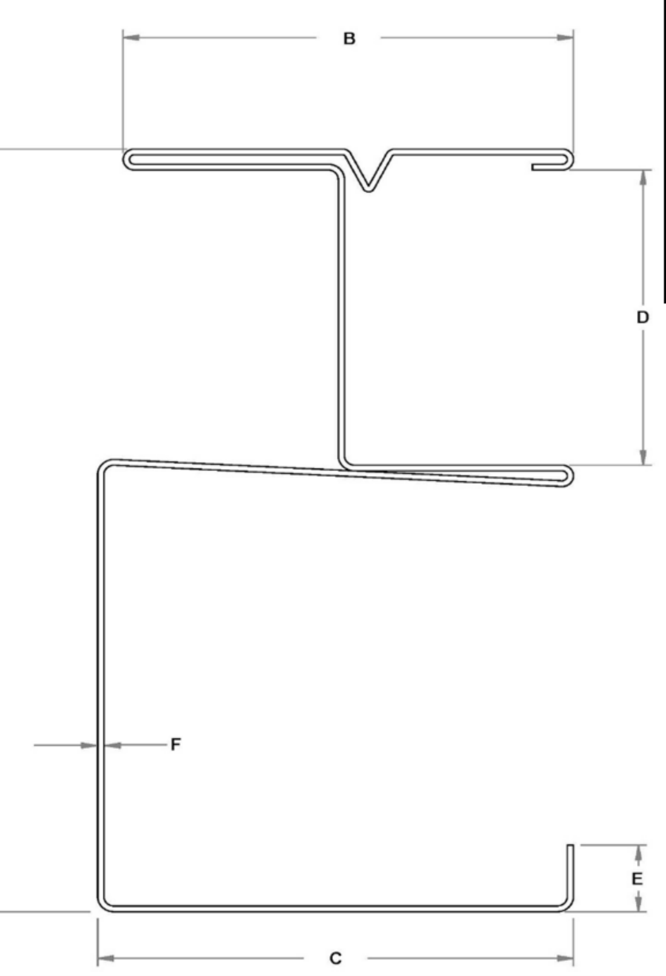


Figure 7 - Nominal C-H Stud Dimension Locations
(See Table 1 for Values)

Table 2 - Limiting Heights Vertical Shaft Walls[1,2]

Stud Description	Allowable Deflection	1-hr Shaft Wall / Stair Wall: 5psf design (ft - in)	7.5psf design (ft - in)	10psf design (ft - in)	15psf design (ft - in)
212CH25-18	L/120	13 10	9 4	7 0	4 8
	L/240	11 0	9 4	7 0	4 8
	L/360	9 7	8 4	7 0	4 8
212CH20-34	L/120	16 0	14 0	12 9	11 1
	L/240	12 9	11 1	10 1	8 8
	L/360	11 1	9 8	8 8	7 5
400CH25-18	L/120	10 6	7 0	5 3	3 6
	L/240	10 6	7 0	5 3	3 6
	L/360	10 6	7 0	5 3	3 6
400CH20-34	L/120	22 3	19 5	17 8	14 3
	L/240	17 8	15 5	14 0	12 3
	L/360	15 5	13 6	12 3	10 8
600CH20-34	L/120	30 11	21 5	16 1	10 8
	L/240	24 6	21 5	16 1	10 8
	L/360	21 5	18 8	16 1	10 8

Notes:
1. See Figure 1 for vertical stud installation details within shaft/stair wall.
2. Tabulated limiting heights are based upon the tested composite behavior of the 1 hour wall assemblies described in this **AER** only. Alternative designs are outside the scope of this **AER**.

Table 3 - Limiting Heights - Shaft Walls with Vertical & Horizontal Stud Orientation[1,2,3]

Stud Description	Allowable Deflection	2-hr Stair Wall: 5psf design (ft - in)	7.5psf design (ft - in)	10psf design (ft - in)	15psf design (ft - in)	2-hr Shaft Wall: 5psf design (ft - in)	7.5psf design (ft - in)	10psf design (ft - in)	15psf design (ft - in)
212CH25-18	L/120	14 4	12 6	10 5	6 11	14 6	12 8	10 5	6 11
	L/240	11 4	9 11	9 0	6 11	11 6	10 0	9 1	6 11
	L/360	9 11	8 8	7 10	6 10	10 0	8 9	8 0	6 11
212CH20-34	L/120	19 0	16 7	14 7	12 3	17 1	14 11	13 6	11 10
	L/240	14 7	12 3	10 10	9 3	13 6	11 10	10 9	9 4
	L/360	12 3	10 4	9 3	7 10	11 10	10 4	9 4	7 10
400CH25-18	L/120	19 0	15 7	13 2	8 9	18 4	15 0	13 0	8 9
	L/240	17 4	14 7	12 11	8 9	16 1	14 1	12 9	8 9
	L/360	14 7	12 3	10 11	8 9	14 1	12 4	11 2	8 9
400CH20-34	L/120	23 0	23 0	21 0	17 4	23 0	21 0	19 1	16 5
	L/240	21 0	17 7	15 8	13 3	19 1	16 8	15 2	13 3
	L/360	17 7	14 11	13 3	11 3	16 8	14 7	13 3	11 7
600CH20-34	L/120	31 0	29 3	21 11	14 7	31 0	27 4	21 11	14 7
	L/240	28 0	23 10	21 4	14 7	25 8	22 5	20 5	14 7
	L/360	23 10	20 5	18 3	14 7	22 5	19 7	17 10	14 7

Notes:
1. See Figure 2 and 3 for vertical stud installation details within shaft/stair wall.
2. See Figure 6 for horizontal stud installation details within shaft/stair wall. The horizontal wall width is limited to the length of the Gypsum Liner Panel and only 400CH20-34 and 600CH20-34 steel studs are permitted for horizontal stud installations.
3. Tabulated limiting heights are based upon the tested composite behavior of the 2 hour wall assemblies described in this **AER** only. Alternative designs are outside the scope of this **AER**.

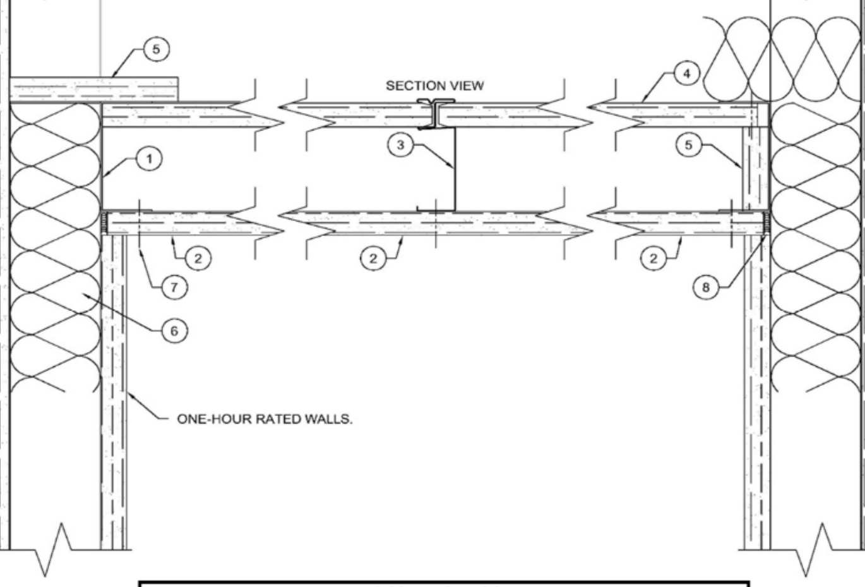
Table 4 - Limiting Heights Vertical Shaft Walls[1,2] - Applicable to Fig. 4 & 5

Stud Description	Allowable Deflection	3-hr Stair Wall: 5psf design (ft - in)	7.5psf design (ft - in)	10psf design (ft -in)	15psf design (ft - in)	3-hr Shaft Wall: 5psf design (ft - in)	7.5psf design (ft - in)	10psf design (ft - in)	15psf design (ft - in)
212CH25-18	L/120	14 4	12 6	10 5	6 11	14 6	12 8	10 5	6 11
	L/240	11 4	9 11	9 0	6 11	11 6	10 0	9 1	6 11
	L/360	9 11	8 8	7 10	6 10	10 0	8 9	8 0	6 11
212CH20-34	L/120	19 0	16 7	14 7	12 3	17 1	14 11	13 6	11 10
	L/240	14 7	12 3	10 10	9 3	13 6	11 10	10 9	9 4
	L/360	12 3	10 4	9 3	7 10	11 10	10 4	9 4	7 10
400CH25-18	L/120	19 0	15 7	13 2	8 9	18 4	15 0	13 0	8 9
	L/240	17 4	14 7	12 11	8 9	16 1	14 1	12 9	8 9
	L/360	14 7	12 3	10 11	8 9	14 1	12 4	11 2	8 9
400CH20-34	L/120	23 0	23 0	21 0	17 4	23 0	21 0	19 1	16 5
	L/240	21 0	17 7	15 8	13 3	19 1	16 8	15 2	13 3
	L/360	17 7	14 11	13 3	11 3	16 8	14 7	13 3	11 7
600CH20-34	L/120	31 0	29 3	21 11	14 7	31 0	27 4	21 11	14 7
	L/240	28 0	23 10	21 4	14 7	25 8	22 5	20 5	14 7
	L/360	23 10	20 5	18 3	14 7	22 5	19 7	17 10	14 7

Notes:
1. See Figure 4 and 5 for vertical stud installation details within shaft/stair wall.
2. Tabulated limiting heights are based upon the tested composite behavior of the 3 hour wall assemblies described in this **AER** only. Alternative designs are outside the scope of this **AER**.

One-Hour Corridor Assembly, See Figure 8

1. A minimum 2-1/2" deep 24 gauge J-runner attached horizontally to perimeter or boundary walls with a power actuated fasteners.
2. Gypsum Wall Board:
   a. For a one (1) hour assembly: Attach one (1) layer of 5/8" thick Sheetrock® Brand Panel - UL Type C, SCX, AR or FRX-G to the underside of the "Corridor Ceiling" of the C-H stud and the perimeter J-runners. Use 1" long Type S screws that are spaced 12" o.c. in the field and at the edges.
3. Install the C-H studs perpendicular to the J-runner spaced 24" o.c. with the C-section of the C-H stud facing downward towards the corridor side of the assembly with two (2) screws a minimum 1/2" long Type S-12 screws, one on each side.
4. 1" thick Sheetrock® Brand Gypsum Liner Panel - UL Type SLX Friction-fitted in "H" portion of C-H studs.
5. Ripper Board:
   a. Where the liner panel (item 4) is cut short to be installed, gaps must be filled by using a strip of 1" thick Sheetrock® Brand Gypsum Liner Panel - UL Type SLX.
   b. As an alternative you can use mineral fiber insulation to prevent exposure to the top leg of the J-runner that forms the ceiling.
   c. Where the wall section extends above the corridor ceiling, above corridor height a rip of board must be used to cap the opening between studs and a strip of mineral fiber insulation as described in item 6 must be used.
6. In order to prevent the passage of heat and gases, a 12" minimum long strip of mineral fiber insulation must be used to fill in the stud cavity of the walls.
7. Liner panel fastened to J section with 1-5/8" Type S screw @ 12" o.c.
8. **USG** Sheetrock® Brand **Firecode®** Smoke-Sound Sealant, USG Sheetrock® Brand Acoustical Sealant or equivalent.



1-Hour Corridor	
Single layer 5/8-in gypsum panels	Max. Span between Studs
212CH25-18 <2>	8-ft - 6-in
212CH20-34 <3>	10-ft - 4-in
400CH25-18 <2>	9-ft - 3-in
400CH20-34 <3>	14-ft - 11-in
600CH20-34 <3>	20-ft - 10-in

Notes:
1. Based on L/240 allowable deflection, full length studs only at 24-in o.c.max spacing and JR24 runner. Calculated allowing for gypsum panel and framing weight only.
2. J-Runner connection to wall/building must meet or exceed 189-lbs capacity at every stud location (24-in o.c.).
3. J-Runner connection to wall/building must meet or exceed 386-lbs capacity at every stud location (24-in o.c.).
4. C-H studs are not designed to carry live loads, mechanical equipment or provide material storage area. See USG SA926.

Figure 8 - One Hour Corridor Assembly and Limiting Spans

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11/20/24

UL ASSEMBLIES
RENUMBER SHEETS IN SEQUENCE STARTING WITH G-200

SHEET TITLE
UL ASSEMBLIES - AER 09038 (1)

PROJECT NUMBER: 23096

SHEET NUMBER:
G-205

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PRINTS ISSUED

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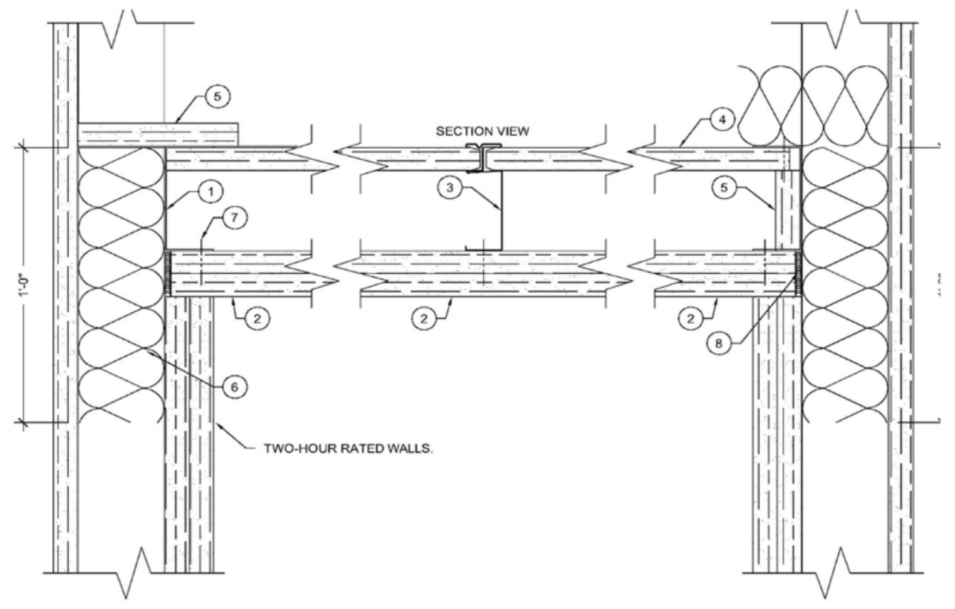
REVISIONS:

AER-09038

Two Hour Corridor Assembly, See Figure 9

1. A minimum 2-1/2" deep 24 gauge J-runner attached horizontally to perimeter or boundary walls with a power actuated fasteners.
2. Gypsum Wall Board:
   - **a.** For a two (2) hour assembly: Attached two (2) layers of minimum 1/2" thick Sheetrock® Brand Firecode® C Core Gypsum Panels (Type C) to the underside of the "Corridor Ceiling" of the C-H stud and the perimeter J-runner for the Base layer, use a 1" long Type S screw that is spaced 24" o.c. along the perimeter and the edges. The Face layer should be applied with a 1-5/8" long Type S screw that is spaced 12" o.c. in the field and perimeter. All joints must be staggered a minimum of 24" o.c. from the adjacent layer.
3. Install the C-H studs perpendicular to the J-runner spaced 24" o.c. with the C-section of the C-H stud facing downward towards the corridor side of the assembly with two (2) screws a minimum of 1/2" long Type S-12 screws, one on each side.
4. 1" thick Sheetrock® Brand Gypsum Liner Panel - UL Type SLX Friction-fitted in "H" portion of C-H studs.
5. Ripper Board:
   - **a.** Where the liner panel (item 4) is cut short to be installed, gaps must be filled by using a strip of 1" thick Sheetrock® Brand Gypsum Liner Panel- UL Type SLX.
   - **b.** As an alternative you can use mineral fiber insulation to prevent exposure to the top leg of the J-runner that forms the ceiling.
   - **c.** Where the wall section extends above the corridor ceiling, above corridor height a rip of board must be used to cap the opening between studs and a strip of mineral fiber insulation as described in item 6 must be used.
6. In order to prevent the passage of heat and gases, a 12" minimum long strip of mineral fiber insulation must be used to fill in the stud cavity of the walls.
7. Liner panel fastened to J section with 1-5/8" Type S screw @ 12"o.c.
8. **USG** Sheetrock® Brand **Firecode®** Smoke-Sound Sealant, USG Sheetrock® Brand Acoustical Sealant or equivalent.



2-Hour Corridor	
Double layer 1/2-in gypsum panels	Max. Span between Studs
212CH25-18<2>	7-ft - 10-in
212CH20-34<3>	9-ft - 8-in
400CH25-18<2>	7-ft - 7-in
400CH20-34<3>	14-ft - 0-in
600CH20-34<3>	19-ft - 7-in

Notes:

1. Based on L/240 allowable deflection, full length studs only at 24-in o.c.max spacing and JR24 runner. Calculated allowing for gypsum panel and framing weight only.
2. J-Runner connection to wall/building must meet or exceed 189-lbs capacity at every stud location (24-in o.c.).
3. J-Runner connection to wall/building must meet or exceed 386-lbs capacity at every stud location (24-in o.c.).
4. C-H studs are not designed to carry live loads, mechanical equipment or provide material storage area. See USG SA926.

Figure 9 - Two-Hour Corridor Assembly and Limiting Spans

General Product Usage and Limitations

1. These products shall be installed in accordance with ASTM C 840 *Standard Specification for Application and Finishing of Gypsum Board,* and in accordance with **USG** Application Guide Specifications.
2. The **USG** SHEETROCK® Brand Cavity Shaftwall system is designed to enclose stair walls, elevator shafts, mechanical components and other vertical shafts.
3. For horizontal ceiling and ductwork applications, please see manufacturer's product brochure *SA926 Shaft Wall Systems*.
4. Non-load bearing are limited to fire-resistance only. Structural and other requirements shall be in accordance with pertinent building code and manufacturer's requirements.

Product Labeling

Each assembled **USG** Drywall Shaft Partition System that is covered by this **AER**, must be marked with the following information:

Gypsum Board & Liner Panels:
1. **USG** Name
2. Product Name
3. Plant Identifier & Date Code
4. UL/ULC Classification (or equivalent) label for Firecode Resistance, surface burning characteristics and non-combustibility.

Steel C-H Studs:
1. Each bundle of steel studs contains a label with the steel gauge and yield strength.
2. Each stud is identified at a maximum spacing of 96-in with the manufacturer name, product code, minimum thickness, and yield strength.

Tested to

ICC-ES (Formerly ICBO) AC86 (1995) - Acceptance Criteria for determining limiting height of composite walls constructed of gypsum and steel studs to revision - Date: July, 1995.
ASTM E330-97 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Differences, following procedure A. (Test Reports 2004-0329 B-L were based on this test method)
ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials
ASTM C473-10 - Standard Specification for Gypsum Board, Section 5 Gypsum Wallboard, Predecorated Gypsum Board and Laminated Gypsum Wallboard.
ASTM C1278-17 - Standard Specification for Fiber-Reinforced Gypsum Panel.
ASTM C1629-06 - Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels.

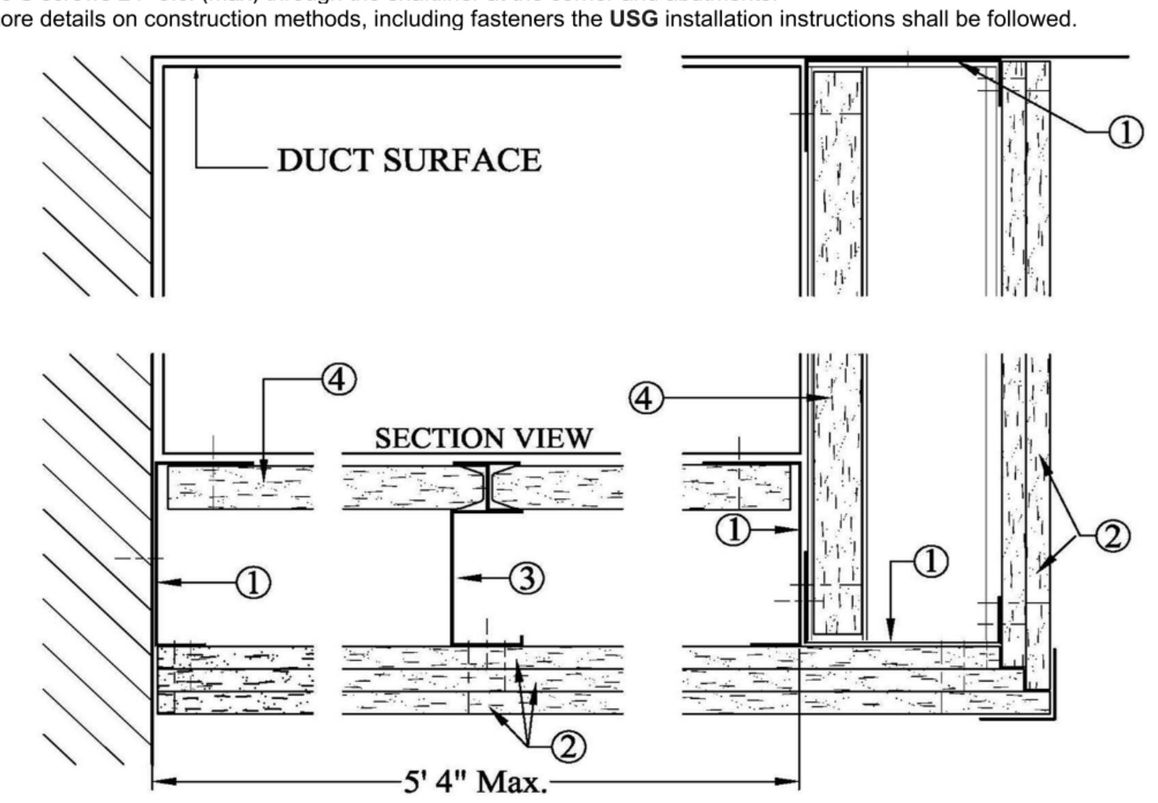
Product Documentation

An Assembly Evaluation Service Agreement between *Pei* **Evaluation Service®** and **United States Gypsum Company**
USG Drywall Shaft Partition System Product Installation Guidelines - SA926-USA-ENG - Revised: 2/2017
Various Test Reports, Opinion Letters, & Third Party Product Listings Used as Verification of Fire Resistance, Abuse Resistance, and Transverse Load Capacity.
Various Engineering Calculations for Limiting Heights and Horizontal Spans.

AER-09038

Two Hour Horizontal Gypsum Duct Enclosure, See Figure 10

1. A minimum 2-1/2-in deep 24 gauge J-runners attached horizontally to the perimeter or boundary wall, with power actuated fasteners. Connection of the vertical C-H stud to the top J-runner and connection of the top J-runner to the structure shall be capable of carrying the weight of the duct enclosure and verified by a registered design professional.
2. Apply three (3) layers of 1/2-in Sheetrock® Brand **Firecode®** C Core Gypsum Panels - UL Type C to the underside "ceiling" side of the assembly. The base layer is attached parallel to the C-H studs with 1-in long Type S Screws that are spaced 24-in o.c. in the field and at the edges. The second layer is attached parallel to the C-H studs with 1-5/8-in long Type S screws that are spaced 12" o.c. in the field and edges, with all the joints staggered 24-in o.c. from the base layer. The face layer is applied perpendicular to the C-H studs and attached with 2" long Type S screws spaced 12-in o.c., starting 1-in and 6-in from the paper edge with the butt joints located mid-span between the C-H studs and attached with 1-1/2-in long Type G screws spaced 8-in o.c. and spaced 3-in. on each side of butt joint. Butt joints in the face layer staggered a minimum of 24".
3. Install the C-H studs perpendicular to the J-runners, spacing them 24-in o.c. with the C-section of the C-H stud facing downward towards the corridor side of the assembly with two (2) screws a minimum of 1/2-in. long Type S-12 screws, connecting the C-section to the 1-in leg of the J-runner, one on each end. A 2-1/2-in. wide, 30 gauge flat metal strap is attached perpendicular and at the mid-span to the H-section of the C-H stud on the shaft side with 1/2-in. long Type S-12 screws, one at each C-H stud and one screw to the 2-1/4-in. long leg of J-runner at each end.
4. 1-in thick Sheetrock® Brand Gypsum Liner Panel - Friction-fitted in "H" portion of C-H studs and screw attached to the 2-1/4-in leg of the J-runner with 1-5/8-in Type S screws spaced 12-in o.c., spaced 6-in away from C-H stud.
5. Install the boundary wall side of the assembly in accordance with the "Two-Hour Cavity Shaftwall" as shown in Figure 2. Drive 1-5/8" Type S screws 24" o.c. (max) through the shaftliner at the corner and abutments.
6. For more details on construction methods, including fasteners the **USG** installation instructions shall be followed.



2-Hour Metal Duct Enclosure	
Triple layer 1/2-in gypsum panels	Maximum Span
All Stud Sizes	5-ft - 4-in

Notes:

1. Horizontal membrane maximum span based upon the maximum 5-ft - 4-in span tested in accordance with ASTM E119.
2. J-Runner connection to vertical C-H Stud shall consist of two #8 screws (or equivalent). J-Runner connection to wall/building shall meet the same requirements as the ceiling applications in Figures 8 and 9.

Figure 10 - Two Hour Horizontal Duct Enclosure Assembly and Limiting Span

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - AER 09038 (2)

PROJECT NUMBER: 23096

SHEET NUMBER:

G-206

REFERENCE G-003 FOR GENERAL NOTES

DIAGRAMS BELOW ARE APPLICABLE TO PUBLIC SPACES AND ALL UNIT TYPES UNLESS NOTED OTHERWISE

PRINTS ISSUED
11/20/24 - CITY SUBMITTAL

REVISIONS:

GENERAL NOTES

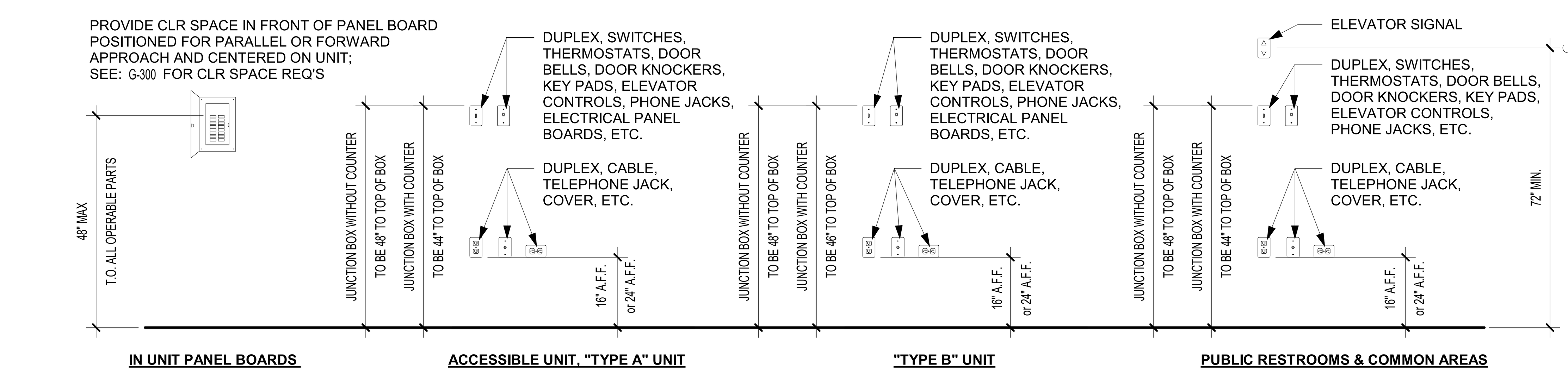
1. THE PROJECT SHALL MEET ALL APPLICABLE CODES SPECIFIED BY LOCAL AND FEDERAL REQUIREMENTS, INCLUDING BUT NOT LIMITED TO THE INFORMATION PRESENTED ON THE FOLLOWING G-300 SHEETS.
   A. LOCAL AND FEDERAL REQUIREMENTS SHALL SUPERCEDE ANY CONFLICTING INFORMATION
2. ALL DIMENSIONS PROVIDED ON THE FOLLOWING G-300 SHEETS REPRESENT CLEAR DIMENSIONS AND ARE TAKEN FROM FACE OF FINISH/COMPONENT

UNIVERSAL DESIGN REQ'S

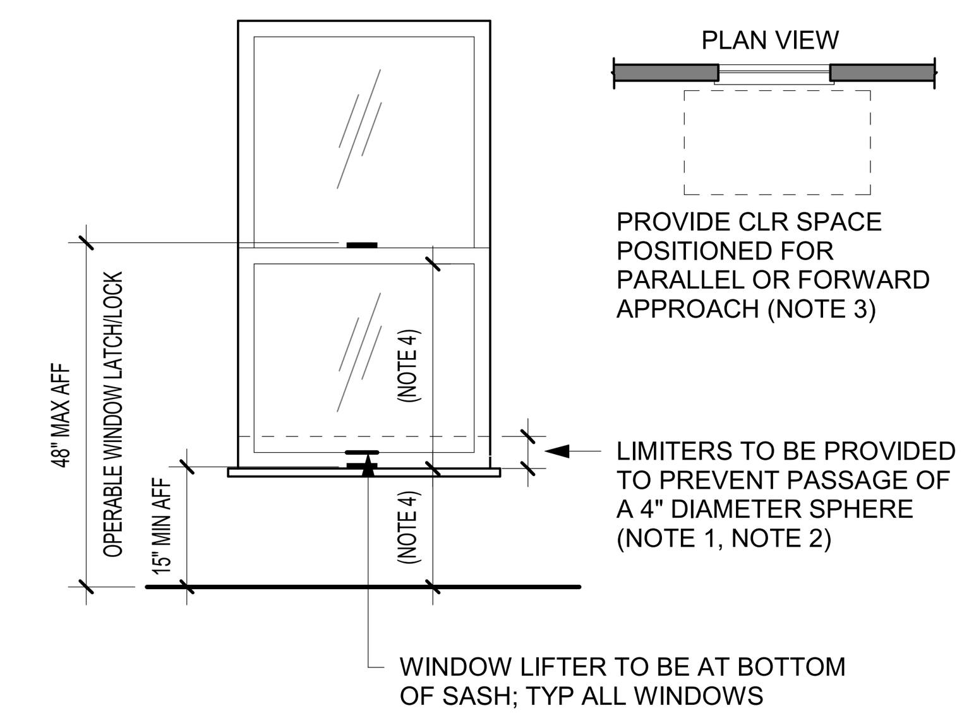
REQUIREMENTS FOR UNIVERSAL DESIGN HOUSING FOR THE ELDERLY AND SINGLE FAMILY DWELLINGS.

1. EQUITABLE USE
   A. FLAT LANDING SURFACES LEADING TO DOORWAYS
   B. LEVER ACTION DOOR HARDWARE
   C. LEVER ACTION PLUMBING FIXTURE CONTROLS
   D. NO THRESHOLDS AND/OR CHANGE OF WALKING SURFACE GREATER THAN 1/2 INCH
2. FLEXIBILITY IN USE
   A. BLOCKING IN BATHROOM WALLS TO ACCEPT GRAB RAILS
   B. BLOCKING IN OR BEHIND SHOWER/TUB ENCLOSURES TO ACCEPT GRAB RAILS
   C. DOOR ASSEMBLIES AND CABINET DOOR ASSEMBLIES THAT WILL ACCEPT LEVER OR KNOB HARDWARE WITHOUT ALTERATION OR REPLACEMENT
3. SIMPLE AND INTUITIVE
   A. BUTTONS ON CONTROL PANELS THAT CAN BE DISTINGUISHED BY TOUCH
4. PERCEPTIBLE INFORMATION
   A. SIGNAGE WITH LARGE CONTRASTING PRINT IN ADDITION TO GENERALLY RECOGNIZED ICONS
   B. CONTRASTING COLORS BETWEEN WIRING DEVICES [RECEPTACLES AND LIGHT SWITCHES] AND SURROUNDING SURFACES
   C. CONTRASTING COLORS BETWEEN STEPS AND LANDINGS
   D. CONTRASTING COLORS BETWEEN DIFFERENT FLOOR COVERINGS
   E. CONTRASTING COLORS BETWEEN COUNTERTOPS AND FLOORING
   F. CONTRASTING COLORS BETWEEN PLUMBING FIXTURES AND FLOORING/COUNTERTOPS
5. TOLERANCE FOR ERROR
   A. LIGHT SWITCHES WITH LARGE FLAT PADS
   B. NON-SLIP WALKING SURFACES
6. LOW PHYSICAL EFFORT
   A. SELF CLOSING FIRE RATED DOORS MUST BE ON LOWEST SETTING WHILE COMPLYING WITH THE ENFORCED BUILDING CODE
   B. NO INTERIOR RAMPS
7. SIZE AND SPACE FOR APPROACH AND USE
   A. 36 INCH WIDE DOORS
   B. FLOOR SPACE TO ACCOMMODATE A 60 INCH DIAMETER CIRCLE FOR WHEEL CHAIR TURNING IN KITCHEN AND BATHROOM
   C. 42 INCH WIDE RESIDENTIAL UNIT AND COMMON HALLWAYS

OTHER HEIGHTS



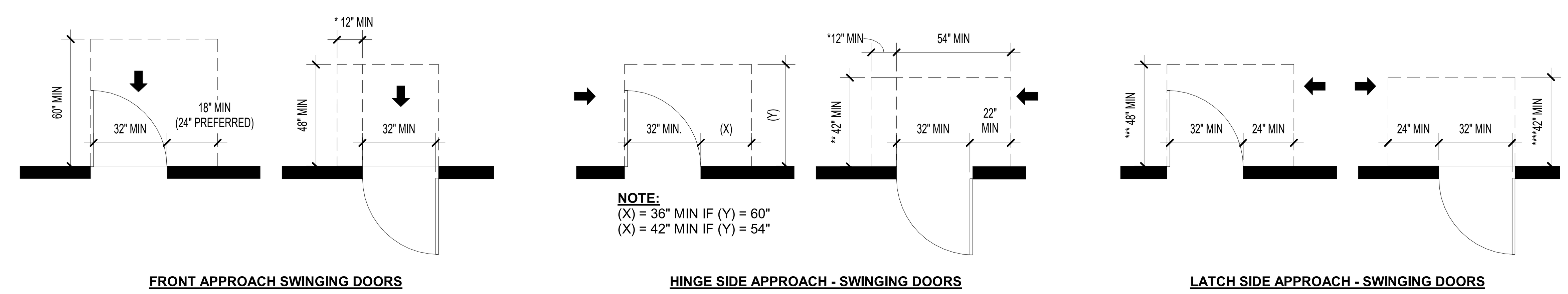
D4 MOUNTING HEIGHTS
NOT TO SCALE



NOTES:
1. *PROVIDE LIMITERS AT R-2 OCCUPANCIES WHERE BOTTOM OF CLEAR OPENING OF OPERABLE PORTION OF WINDOW IS LOCATED LESS THAN 36" AFF AND GREATER THAN 72" FROM FINISHED GRADE OR OTHER SURFACE BELOW.*
2. *PROVIDE LIMITERS AT ALL WINDOWS FOR I1-CONDITION 2 OCCUPANCIES. CONFIRM WITH OWNER FOR I1-CONDITION 1 OCCUPANCIES.*
3. *CLEAR SPACE REQUIRED WHERE OPERATION OF WINDOW IS REQUIRED FOR EGRESS AND/OR NATURAL VENTILATION*
4. AT WINDOWS REQUIRED FOR EGRESS:
   A. 44" MAX AFF TO BOTTOM OF CLEAR OPENING
   B. 24" MIN OPERABLE BOTTOM PANE
   C. MINIMUM NET CLEAR OPENING OF 5.7 SQ.FT. (CAN REDUCE TO 5.0 SQ.FT. AT GRADE LEVEL WINDOWS)

A4 WINDOW LATCH/LOCK REQ'S
NOT TO SCALE

DOORS

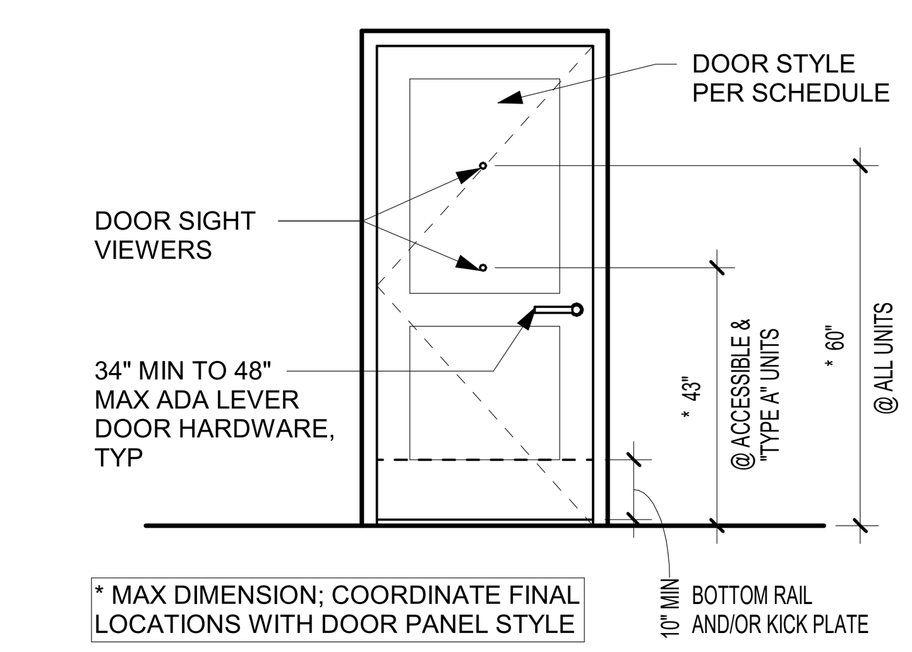


NOTE:
DOOR CLEARANCES ARE REQUIRED FOR ALL DOORS AT THE FOLLOWING LOCATIONS:
PUBLIC AREAS, ACCESSIBLE UNITS, "TYPE A" UNITS

"TYPE B" UNIT DOOR PUSH/PULL CLEARANCES ARE REQUIRED FOR UNIT ENTRY DOORS ONLY; SEE UNIT PLANS FOR MORE INFORMATION

GENERAL LEGEND:
* = IF BOTH CLOSER & LATCH ARE REQUIRED
** = 48" MIN IF BOTH CLOSER & LATCH PROVIDED
*** = 54" MIN IF CLOSER IS PROVIDED
**** = 48" MIN IF CLOSER PROVIDED

D3 DOOR CLEARANCES
NOT TO SCALE



* MAX DIMENSION; COORDINATE FINAL LOCATIONS WITH DOOR PANEL STYLE

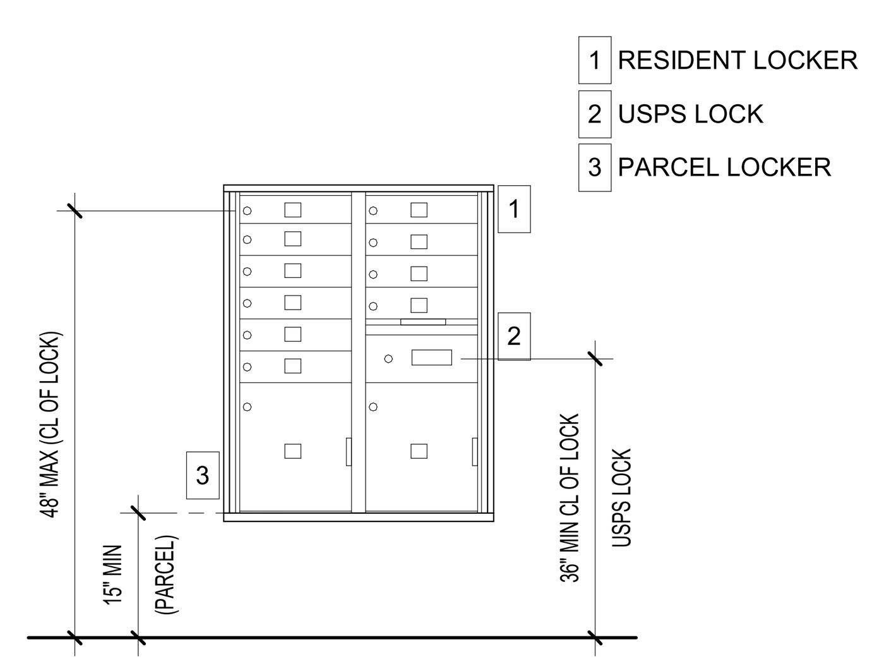
A3 DOOR HARDWARE HEIGHTS
NOT TO SCALE

MAIL BOXES

100% OF MAILBOXES PROVIDED MEET ACCESSIBILITY GUIDELINES

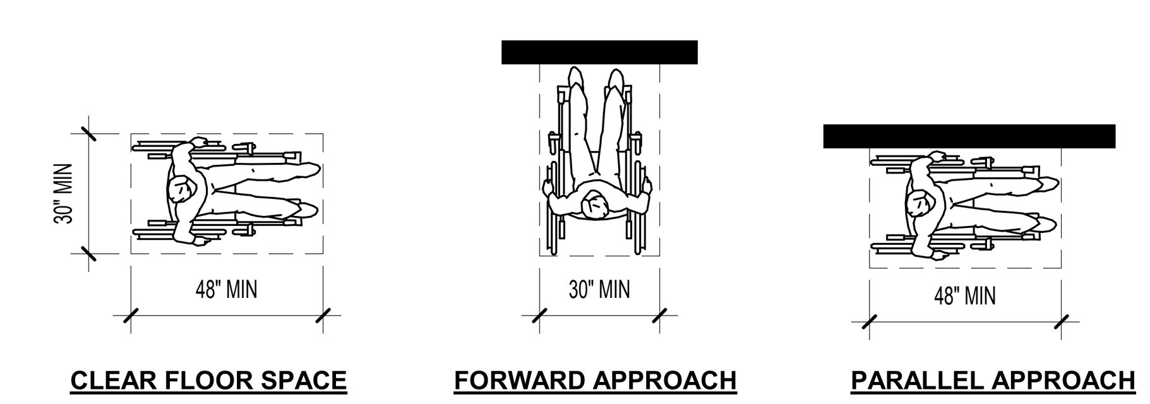
ACCESSIBLE MAILBOXES
48" MAX AFF (CL OF LOCK)
PROVIDE **30"x48"** CLEAR FLOOR SPACE AT ALL ACCESSIBLE LOCKERS, CENTERED ON MAILBOX

USPS ARROW LOCK
36" MIN & 48" MAX AFF (CL OF LOCK)
PARCEL LOCKER
15" AFF MIN (T.O. BOTTOM SHELF
MINIMUM OF 1 PARCEL LOCKER FOR EVERY 5 MAILBOXES



E2 FULLY ACCESSIBLE MAIL BOXES
NOT TO SCALE

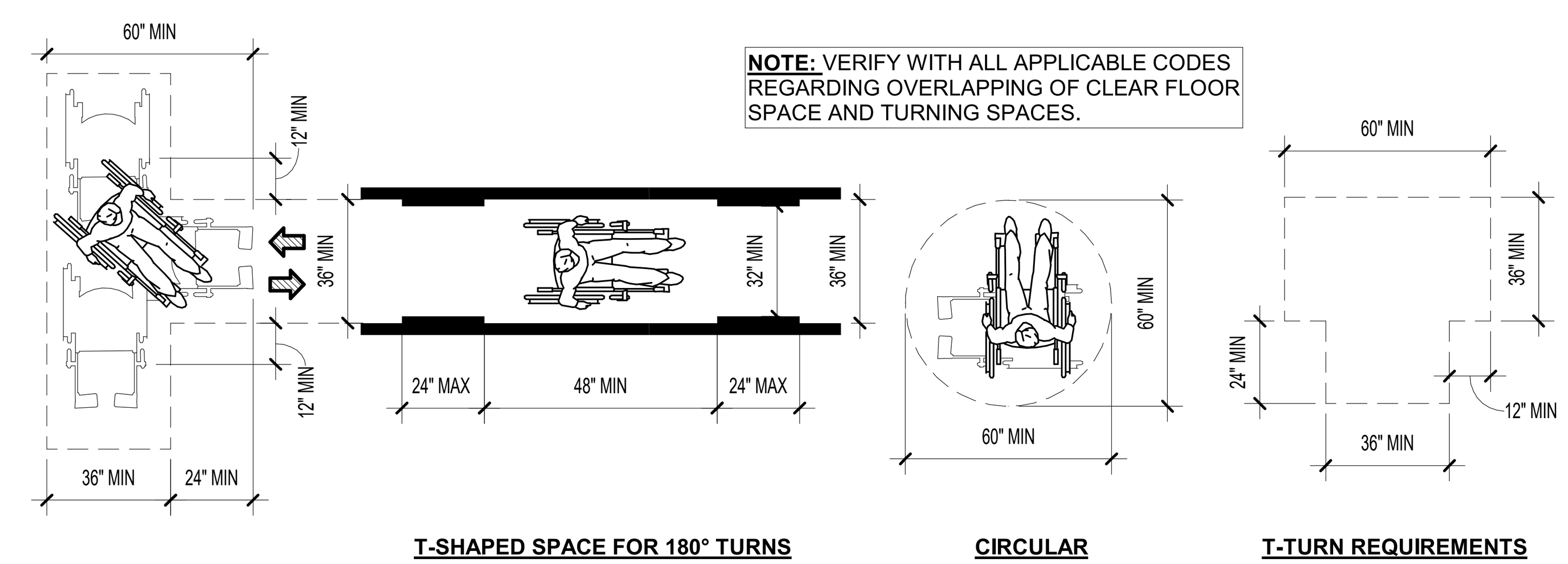
CLEAR FLOOR SPACES



NOTE: ALL CLEAR SPACES ARE 30"x48" UNLESS SPECIFIED OTHERWISE.

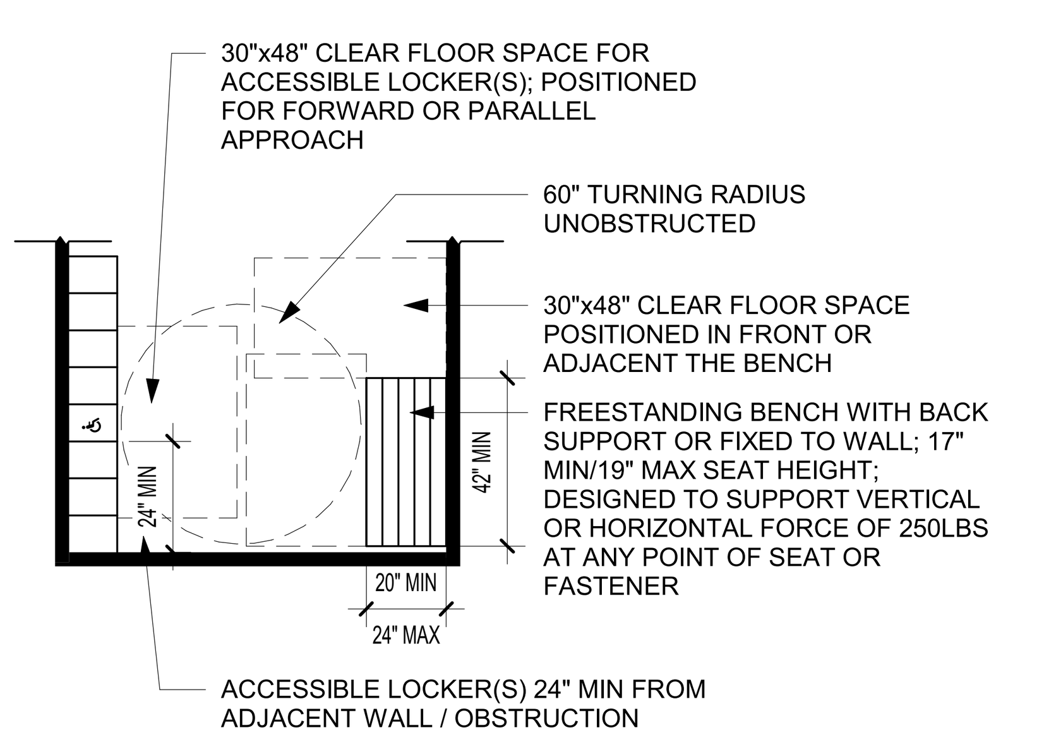
C2 CLEAR FLOOR SPACE
NOT TO SCALE

NOTE: VERIFY WITH ALL APPLICABLE CODES REGARDING OVERLAPPING OF CLEAR FLOOR SPACE AND TURNING SPACES.



A2 WHEELCHAIR TURNING SPACE
NOT TO SCALE

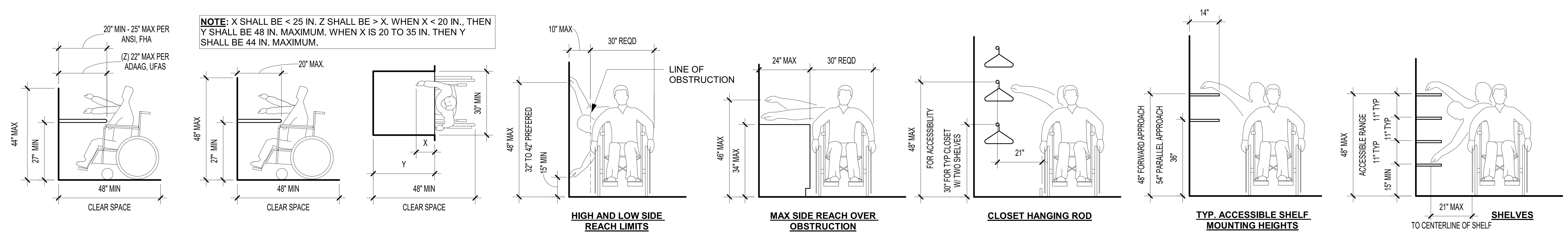
LOCKER ROOMS



E1 LOCKER ROOM BENCH
NOT TO SCALE

REACH RANGES

NOTE: X SHALL BE < 25 IN. Z SHALL BE > X. WHEN X < 20 IN., THEN Y SHALL BE 48 IN. MAXIMUM. WHEN X IS 20 TO 35 IN. THEN Y SHALL BE 44 IN. MAXIMUM.



D1 REACH REQUIREMENTS
NOT TO SCALE

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STATE OF MISSOURI
DAVID EUGENE HENDRICKS
NUMBER A-7305
REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
ACCESSIBILITY STANDARDS

PROJECT NUMBER: 23096

SHEET NUMBER:

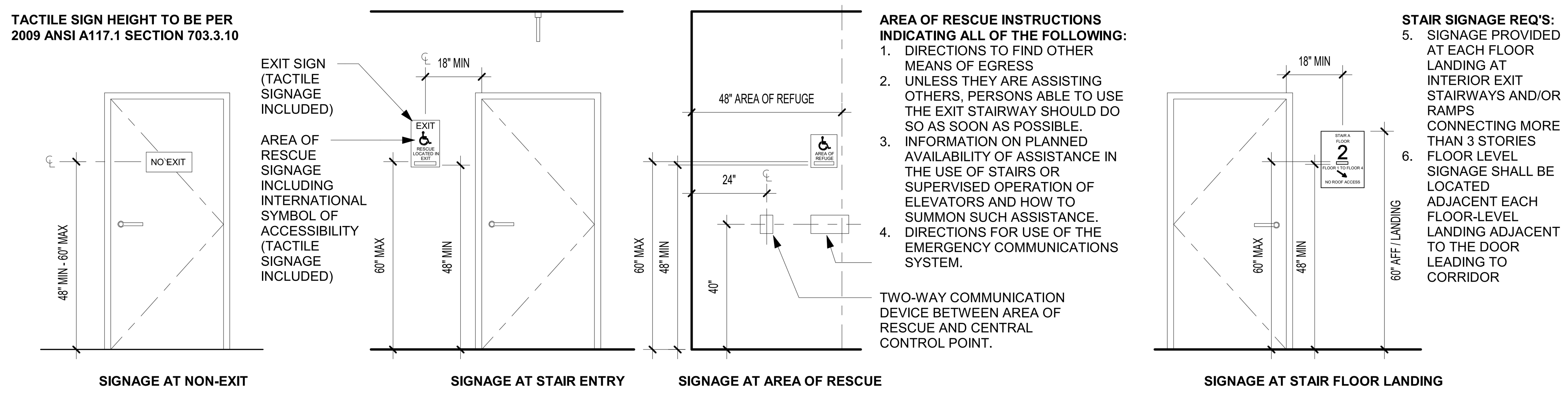
G-300

REFERENCE G-003 FOR GENERAL NOTES
DIAGRAMS BELOW ARE APPLICABLE TO PUBLIC SPACES AND ALL UNIT TYPES UNLESS NOTED OTHERWISE

PRINTS ISSUED
11/20/24 - CITY SUBMITTAL

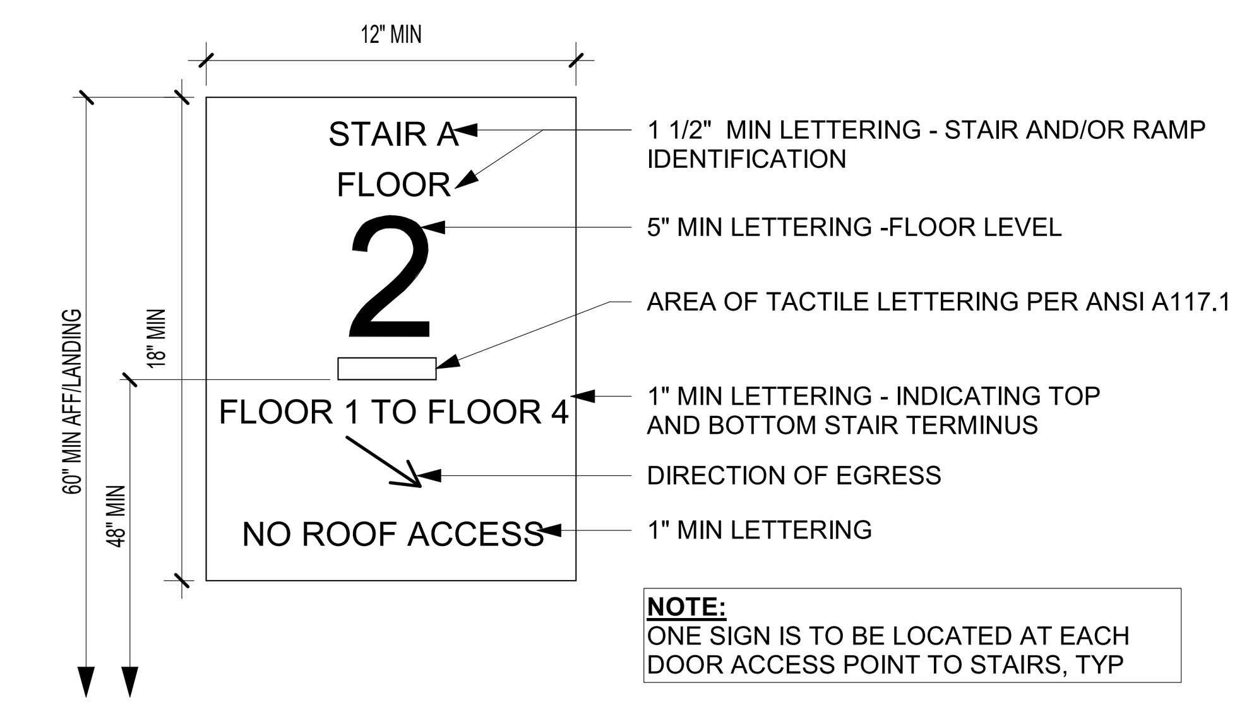
REVISIONS:

SIGNAGE



NOTE: SIGNS CONTAINING RAISED CHARACTERS AND BRAILLE SHALL BE LOCATED ON LATCH SIDE OF DOOR WITH A 18x18 CLEAR FLOOR SPACE OUTSIDE THE SWING OF THE DOOR

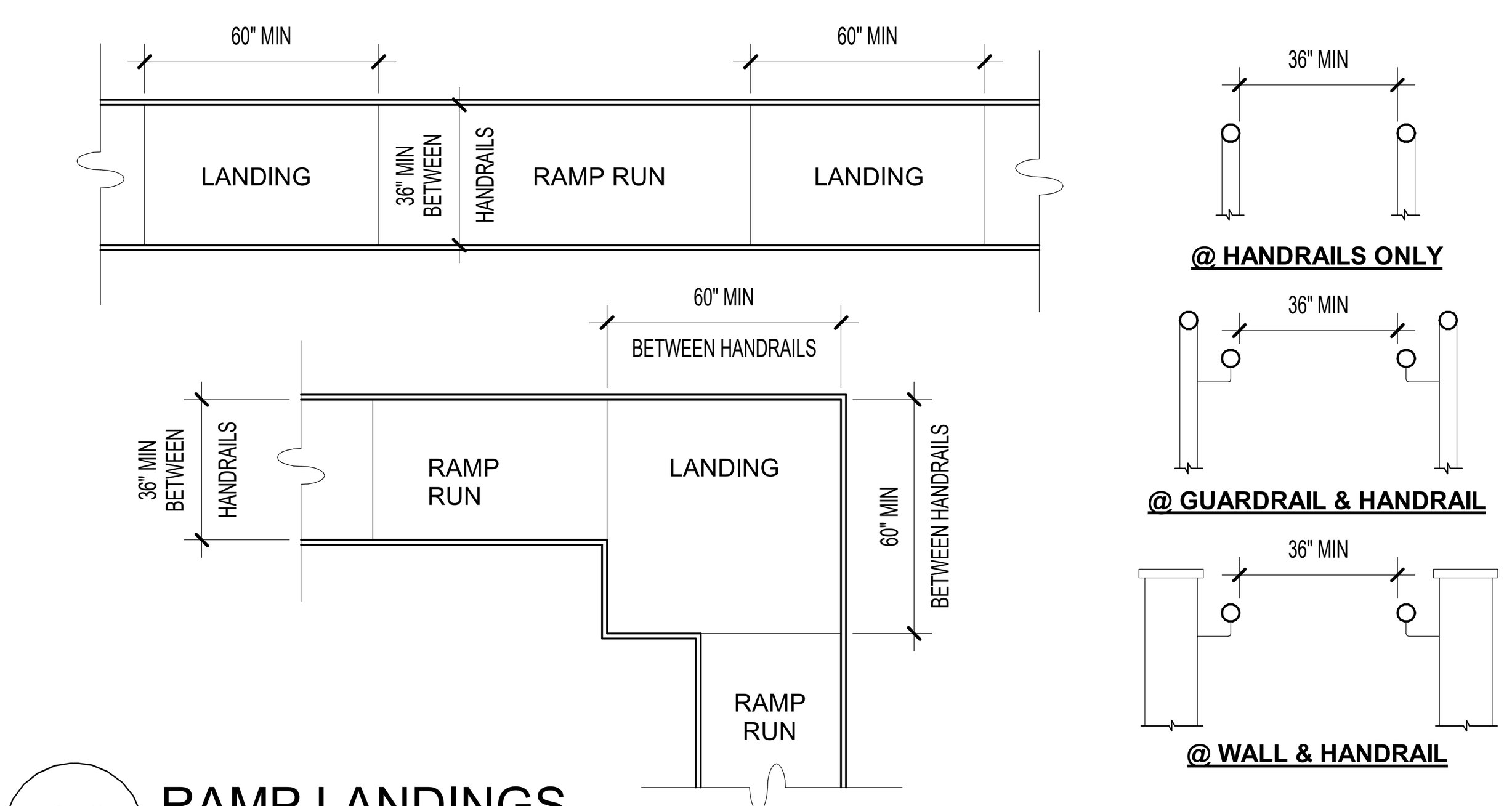
D4 CODE COMPLIANT SIGNAGE
NOT TO SCALE



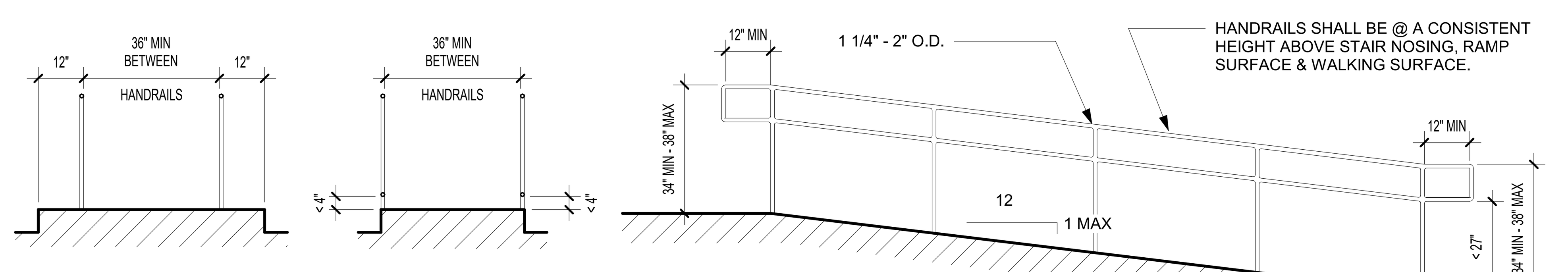
NOTE:
ONE SIGN IS TO BE LOCATED AT EACH DOOR ACCESS POINT TO STAIRS, TYP

A4 EGRESS STAIR SIGNAGE
NOT TO SCALE

RAMPS



D3 RAMP LANDINGS
NOT TO SCALE



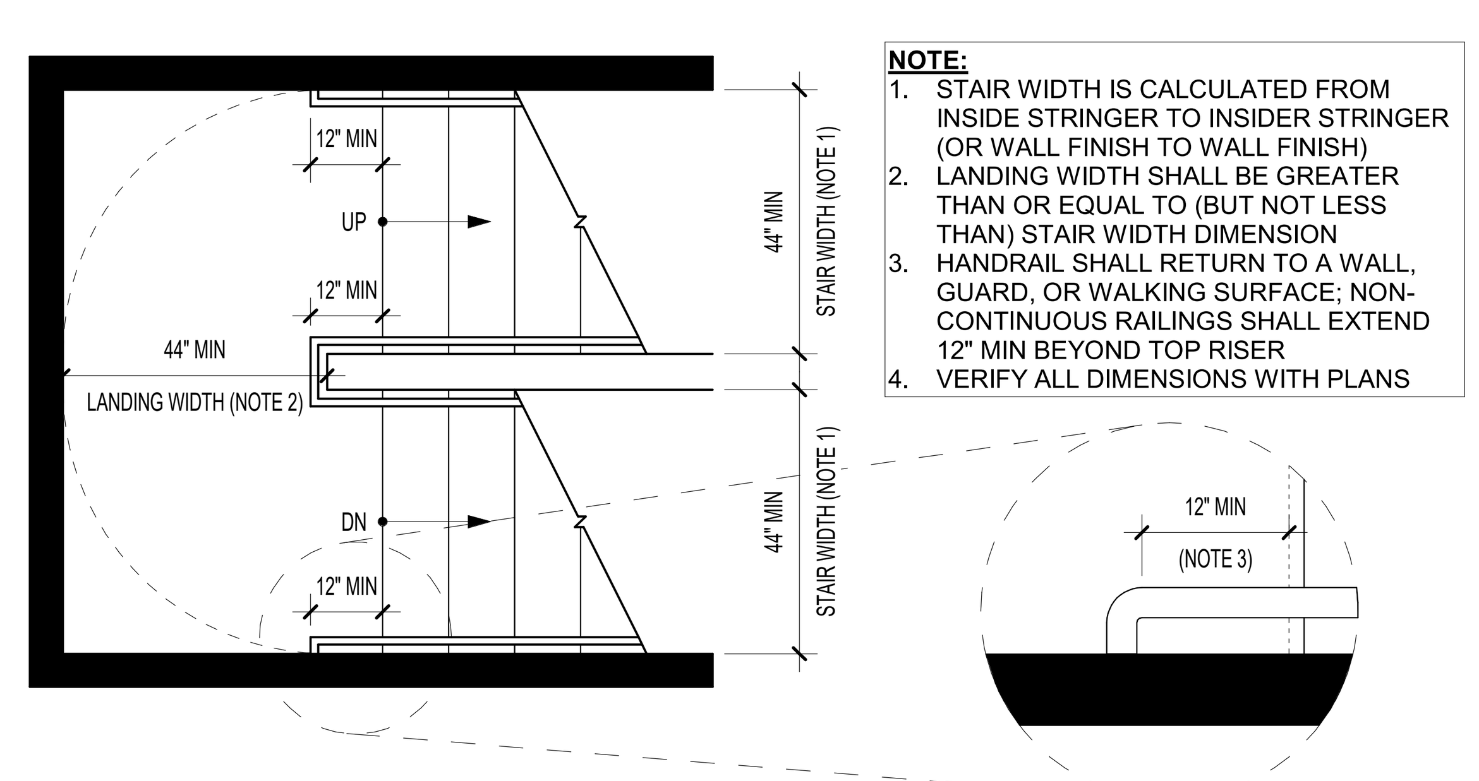
NOTES:
1. WIDTH BETWEEN HANDRAILS IS 36" MIN; HANDRAILS AND HANDRAIL SUPPORTS SHALL NOT PROJECT INTO THE REQUIRED CLEAR WIDTH OF THE RAMP RUN.
2. CROSS SLOPE OF RAMP SURFACES SHALL BE NO GREATER THAN 1:48 AND SHALL BE STABLE, FIRM, AND SLIP-RESISTANT. IF THE SLOPE IS EQ. OR GREATER THAN 1:20 YOU ARE REQ. TO HAVE HANDRAILS ON BOTH SIDES OF RAMP.
3. RAMP RUNS WITH A RISE GREATER THAN 6 INCHES SHALL HAVE HANDRAILS.

C3 RAMP & HANDRAIL SPECS
NOT TO SCALE

ADDITIONAL REQUIREMENTS

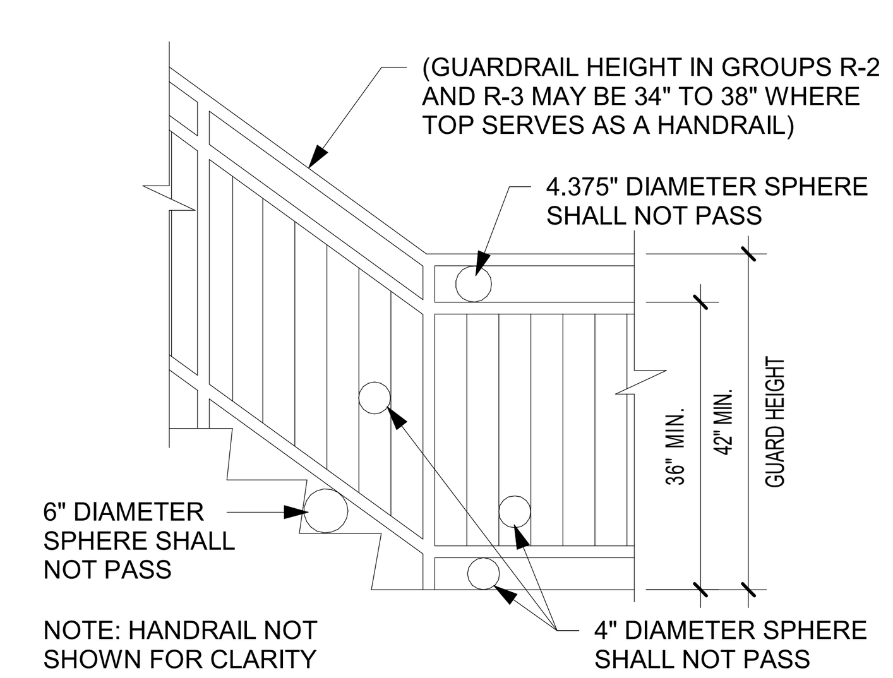
CARPET	MAX PILE HEIGHT SHALL BE 1/2 IN. EXPOSED EDGES OF CARPET SHALL BE FASTENED TO FLOOR SURFACES AND HAVE TRIM ALONG THE ENTIRE LENGTH OF THE EXPOSED EDGE. IF CARPET TILE IS USED ON AN ACCESSIBLE GROUND OF FLOOR SURFACE, IT SHALL HAVE A MAXIMUM COMBINED THICKNESS OF PILE, CUSHION, AND BACKING HEIGHT OF 1/2 IN.
RAMPS	SLOPE / MAX RISE / MAX HORIZONTAL PROJECTION: 1:12 TO <1:16 / 30 IN. / 30 FT. 1:16 TO <1:20 / 30 IN. / 40 FT. 1:12 TO 1:20 - REQUIRES A HANDRAIL
INTERIOR SIGNAGE	**CHARACTER PROPORTION AND COLOR CONTRAST** LETTERS AND NUMBERS ON SIGNS SHALL HAVE A WIDTH-TO-HEIGHT RATIO BETWEEN 3:5 AND 1:1 AND A STROKE WIDTH-TO-HEIGHT RATIO BETWEEN 1:5 AND 1:10. CHARACTERS AND SYMBOLS SHALL CONTRAST WITH THEIR BACKGROUND AND BE NON-GLARE. CHARACTERS SHALL BE UPPER CASE. CHARACTER HEIGHT, MEASURED VERTICALLY FROM THE BASELINE OF THE CHARACTER, SHALL BE 5/8 IN. MINIMUM, AND 2 IN. MAXIMUM, BASED ON THE UPPERCASE LETTER "I". **RAISED OR INDENTED CHARACTERS OR SYMBOLS** LETTERS AND NUMBERS ON SIGNS SHALL BE RAISED OR INCISED 1/32 IN. MIN AND SHALL BE SANS SERIF CHARACTERS. RAISED CHARACTERS OR SYMBOLS SHALL BE AT LEAST 5/8 IN HIGH, BUT NO HIGHER THAN 2 IN. INDENTED CHARACTERS OR SYMBOLS SHALL HAVE A STROKE WIDTH OF AT LEAST 1/4 IN. SYMBOLS OR PICTOGRAPHS ON SIGNS SHALL BE RAISED OR INDENTED 1/32 IN MIN **MOUNTING LOCATION AND HEIGHT** INTERIOR SIGNAGE SHALL BE LOCATED ALONGSIDE THE DOOR ON THE LATCH SIDE AND SHALL BE MOUNTED AT A HEIGHT OF BETWEEN 54 IN. AND 66 IN. ABOVE THE FINISHED FLOOR PER UFAS AND BETWEEN 48 IN. AND 60 IN. PER ANSI. REFER TO **ICC/ANSI A117.1-2009, 703.2.8** FOR MORE REQUIREMENTS ON MOUNTING LOCATION.

STAIRS AND RAILINGS

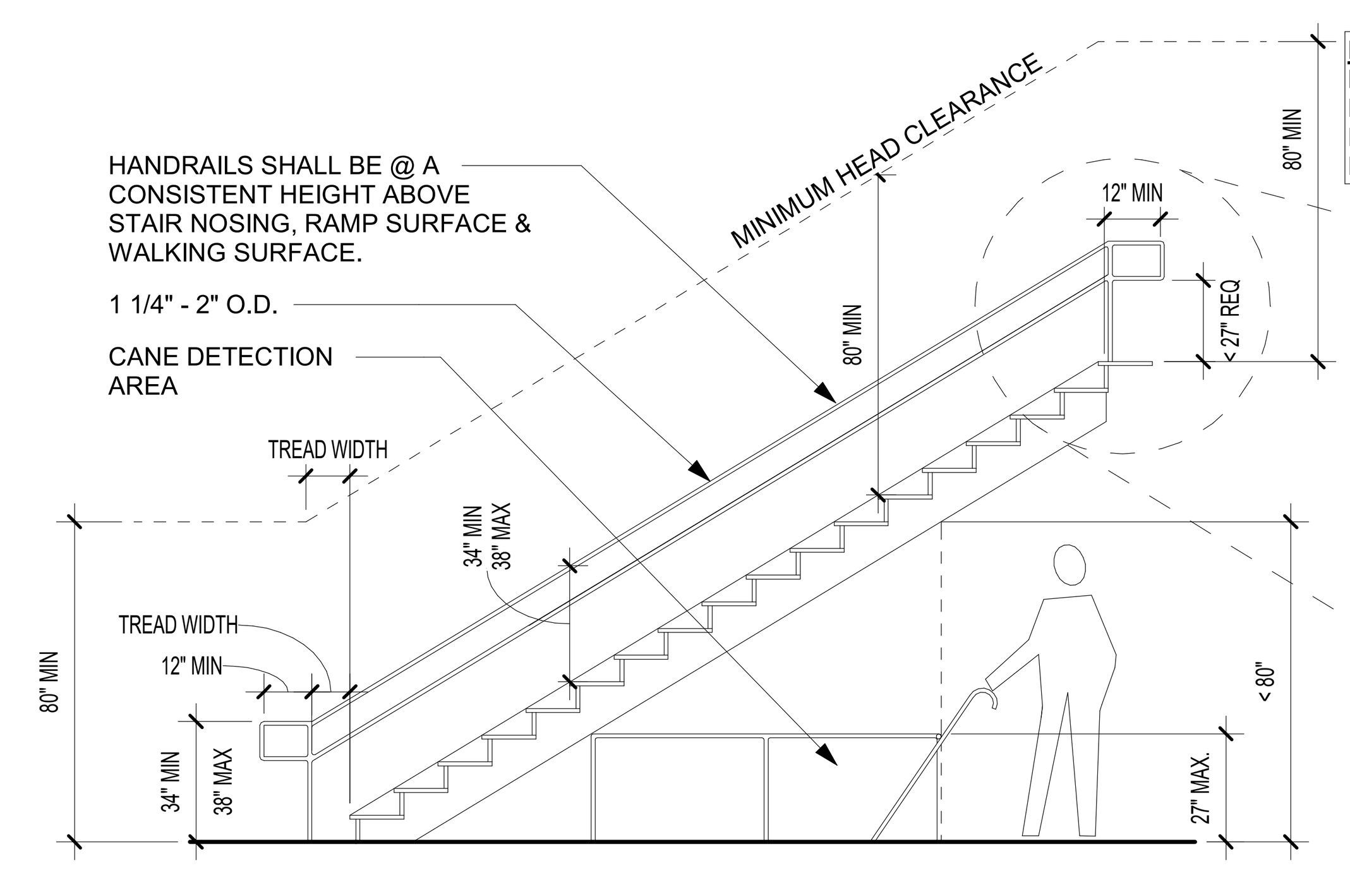


NOTE:
1. STAIR WIDTH IS CALCULATED FROM INSIDE STRINGER TO INSIDER STRINGER (OR WALL FINISH TO WALL FINISH)
2. LANDING WIDTH SHALL BE GREATER THAN OR EQUAL TO (BUT NOT LESS THAN) STAIR WIDTH DIMENSION
3. HANDRAIL SHALL RETURN TO A WALL, GUARD, OR WALKING SURFACE; NON-CONTINUOUS RAILINGS SHALL EXTEND 12" MIN BEYOND TOP RISER
4. VERIFY ALL DIMENSIONS WITH PLANS

D2 EGRESS STAIR REQ'S
NOT TO SCALE

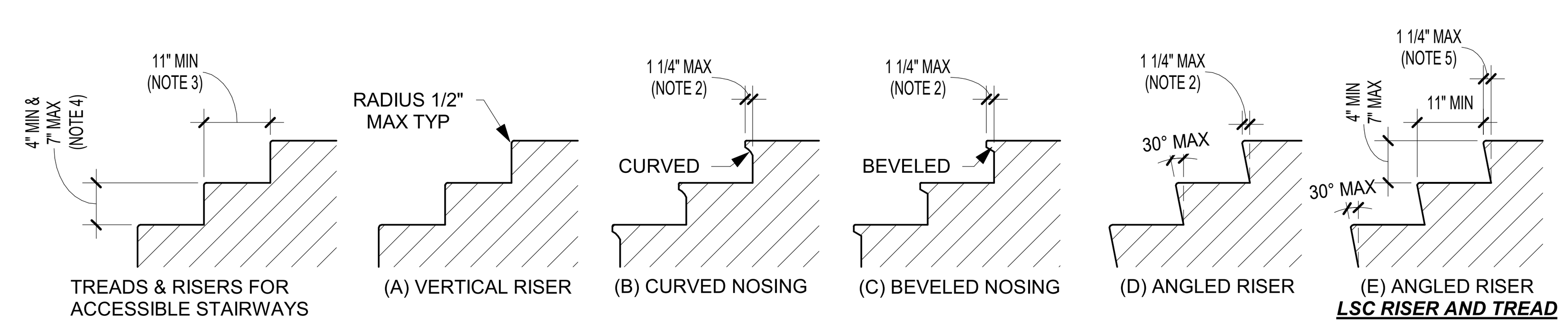


C2 STAIR OPENING GUARD LIMITATIONS
NOT TO SCALE

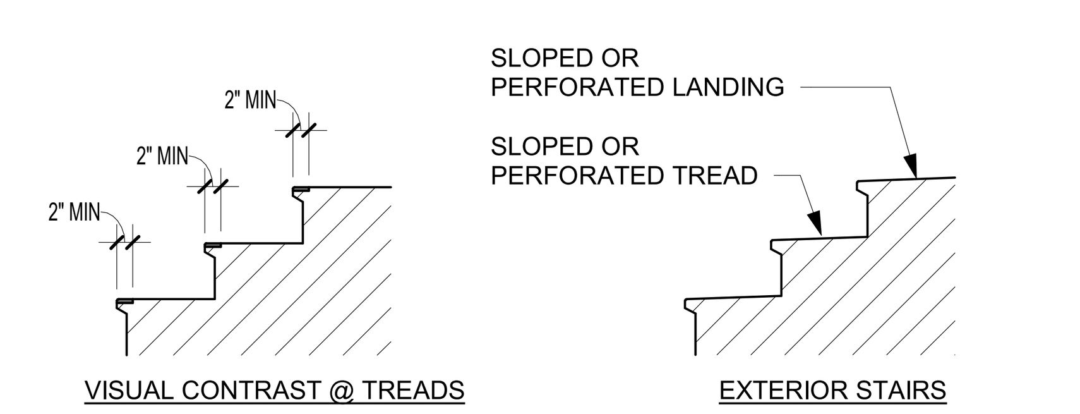


NOTE:
MINIMUM HANDRAIL EXTENSION OF 12 IN. PLUS THE WIDTH OF TREAD IS REQUIRED AT EACH BOTTOM RISER PER, UFAS, ADAAG; RE: PLANS FOR ADDITIONAL REQUIREMENTS.

B2 STAIR PROTECTION & HANDRAIL DETAIL
NOT TO SCALE



NOTES:
1. **REFER TO THE CODE OF THE CITY & STAIR DETAILS BEFORE DETERMINING THE STYLE OF THE STAIR**
2. 3/4" MIN NOSING PROJECTION WITHIN R-2 DWELLING UNITS WITH SOLID RISERS WHERE THE TREAD DEPTH IS LESS THAN 11"
3. 10" MIN TREAD DEPTH WITHIN INDIVIDUAL R-2 DWELLING UNITS.
4. 7 3/4" MAX RISER HEIGHT WITHIN INDIVIDUAL R-2 DWELLING UNITS
5. 1 1/2" PER LIFE SAFETY CODE WHERE ALLOWABLE

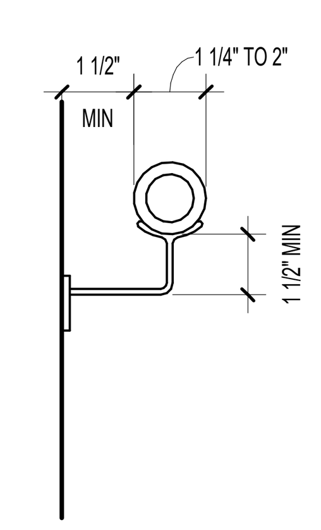


THE LEADING 2" OF TREADS SHALL HAVE VISUAL CONTRAST OF DARK-ON-LIGHT OR LIGHT-ON-DARK FROM THE REMAINDER OF THE TREAD

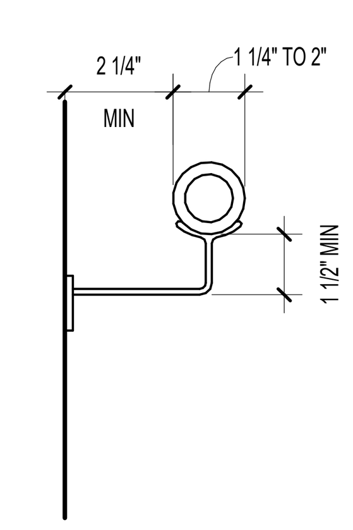
MATERIAL CHANGES SHALL PROVIDE A FLUSH SURFACE

TREADS AND LANDINGS SUBJECT TO WET CONDITIONS SHALL BE DESIGNED TO PREVENT ACCUMULATION OF WATER

D1 STAIR RISER AND TREAD REQ
NOT TO SCALE



B1 IBC HANDRAIL DETAIL
NOT TO SCALE



A1 LSC HANDRAIL DETAIL
NOT TO SCALE

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STATE OF MISSOURI
DAVID EUGENE HENDRIX
NUMBER A-7305
REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
ACCESSIBILITY STANDARDS

PROJECT NUMBER: 23096

SHEET NUMBER:

G-301

RELEASED FOR CONSTRUCTION
As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri

REFERENCE G-003 FOR GENERAL NOTES

DIAGRAMS BELOW ARE APPLICABLE TO PUBLIC SPACES AND ALL UNIT TYPES UNLESS NOTED OTHERWISE

AGE APPROPRIATE REQ'S

AGE APPROPRIATE SPEC. FOR WATER CLOSETS

	AGES 3-4	AGES 5-8	AGES 9-12	ADULTS
WATER CLOSET-CENTERLINE TO WALL	12 IN.	12-15 IN.	15-18 IN.	18 IN.
TOILET SEAT HEIGHT FROM AFF	11-12 IN.	12-15 IN.	15-17 IN.	17-19 IN.
GRAB BAR HEIGHT FROM AFF	18-20 IN.	20-25 IN.	25-27 IN.	33-36 IN.
DISPENSER HEIGHT FROM AFF	14 IN.	14-17 IN.	17-19 IN.	24 IN.

CHILDREN'S REACH RANGES FROM A WHEELCHAIR

FORWARD OR SIDE REACH	AGES 3-4	AGES 5-8	AGES 9-12
HIGH (MAXIMUM)	36 IN.	40 IN.	44 IN.
LOW (MINIMUM)	20 IN.	18 IN.	16 IN.

TOILET, BATH, LAUNDRY ACCESSORY SCHEDULE

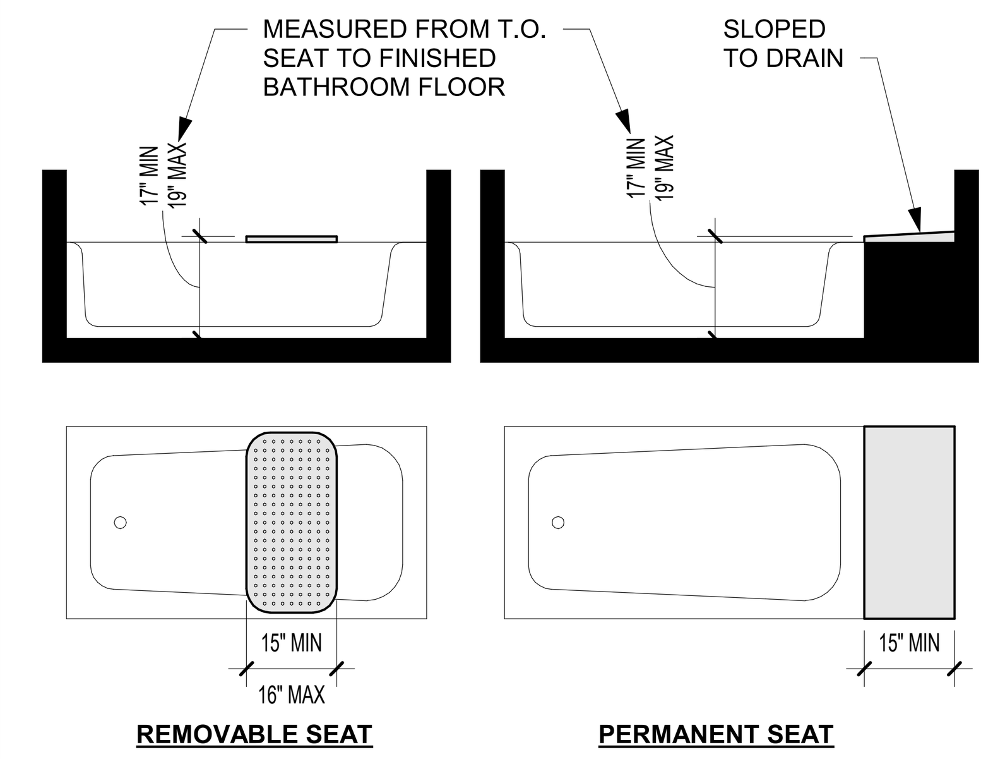
ACCESSORY	MOUNTING HEIGHT	LOCATION
MIRROR	SEE A1/G-303	PUBLIC & UNIT
PAPER TOWEL DISP/RECP	40" AFF MIN TO CONTROLS	PUBLIC
TOILET PAPER DISPENSER (TPD)	SEE D1/G-302	PUBLIC
TOILET PAPER HOLDER (TP)	SEE D1/G-302	UNIT
DIAPER CHANGING STATIONS	34" MAX TO CHANGING SURFACE	PUBLIC
GRAB BARS	SEE G-302	PUBLIC & UNIT
SANITARY NAPKIN RECEPTOR	18" MIN AFF & 24" MIN / 42" MAX FROM REAR WALL	PUBLIC
DRINKING FOUNTAIN	SEE C1/G303	PUBLIC
DRINKING FOUNTAIN - ACCESSIBLE	SEE C1/G-303	PUBLIC
WATER CLOSET (FLOOR-MOUNTED)	1'-4" AFF MIN TO RIM	PUBLIC & UNIT
WATER CLOSET - ACCESSIBLE (FLOOR-MOUNTED)	SEE D1/G-302	PUBLIC & UNIT
LAVATORY	SEE INTERIOR ELEVATIONS	PUBLIC & UNIT
LAVATORY - ACCESSIBLE	SEE A1/G-303	PUBLIC & UNIT
SOAP DISPENSER	40" AFF MIN TO CONTROLS	PUBLIC
MEDICINE CABINET	42" AFF MIN TO TOP OF BOTTOM SHELF	UNIT
MEDICINE CABINET - ACCESSIBLE	40" AFF MIN TO TOP OF BOTTOM SHELF	UNIT

REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION

GENERAL NOTES

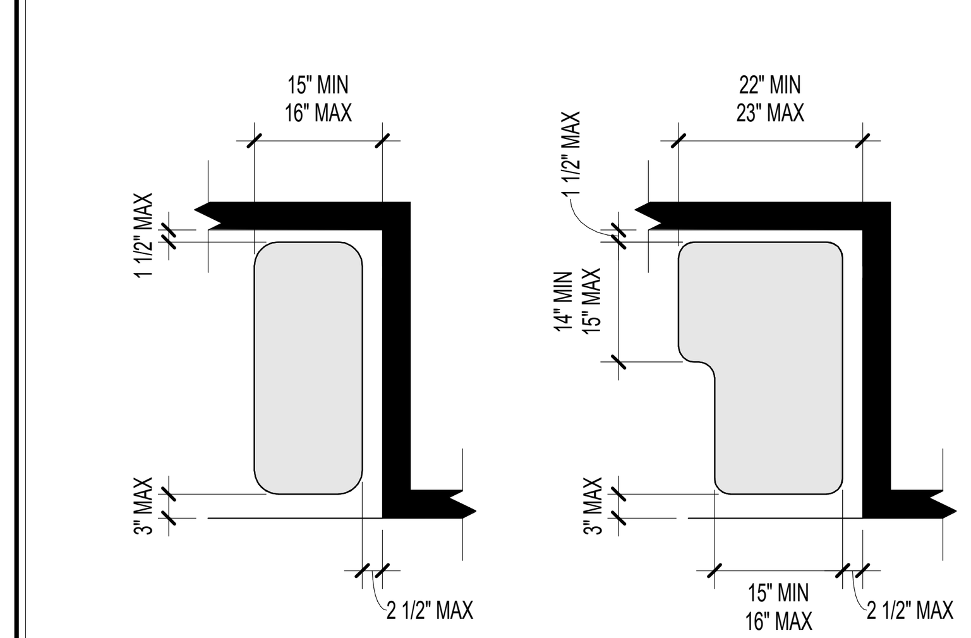
1. GRAB BAR BLOCKING IS REQUIRED AT ALL TOILET, SHOWER AND BATHTUB GRAB BAR LOCATIONS; APPLICABLE AT ALL PUBLIC SPACES, ACCESSIBLE UNITS, "TYPE A" UNITS, AND "TYPE B" UNITS.
2. CONTRACTOR SHALL BE FAMILIAR AND INCORPORATE ALL PROVISIONS AND REQUIREMENTS ESTABLISHED BY CODES APPLICABLE TO THE PROJECT INCLUDING FAIR HOUSING, UFAS, ANSI, & ADAAG

TUB SEAT



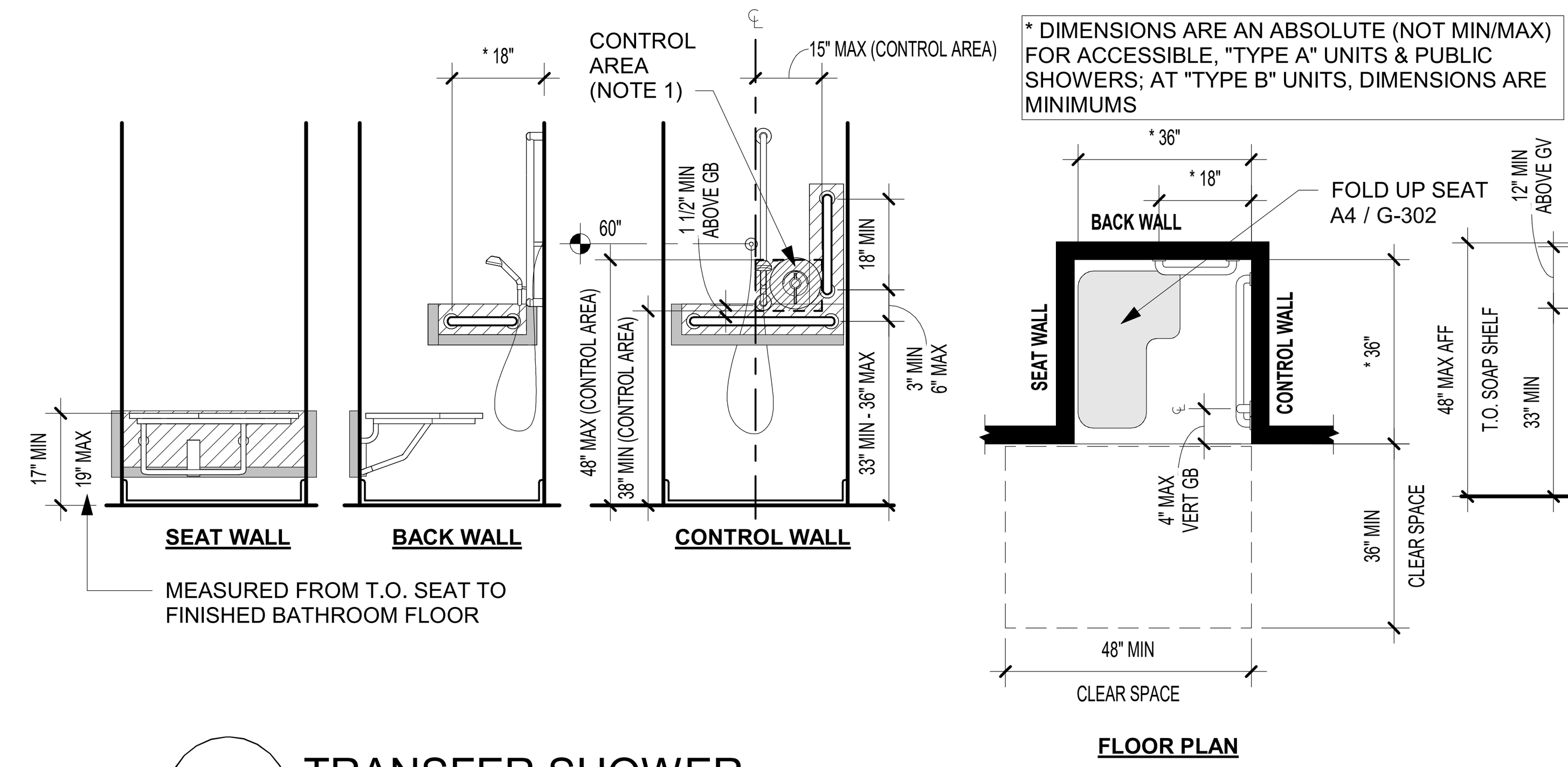
B4 BATHTUB SEAT
NOT TO SCALE

SHOWER SEAT

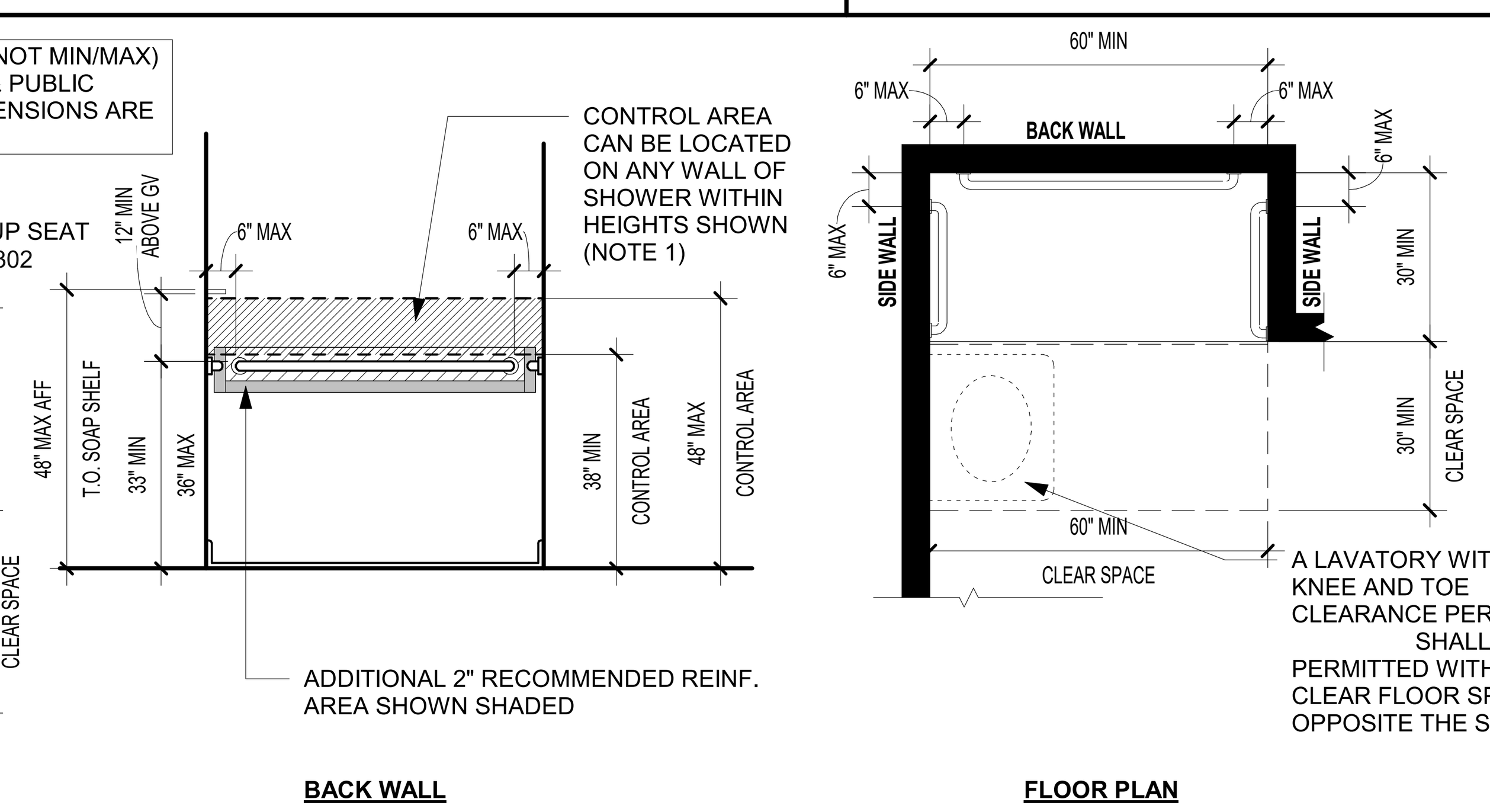


A4 SHOWER SEAT
NOT TO SCALE

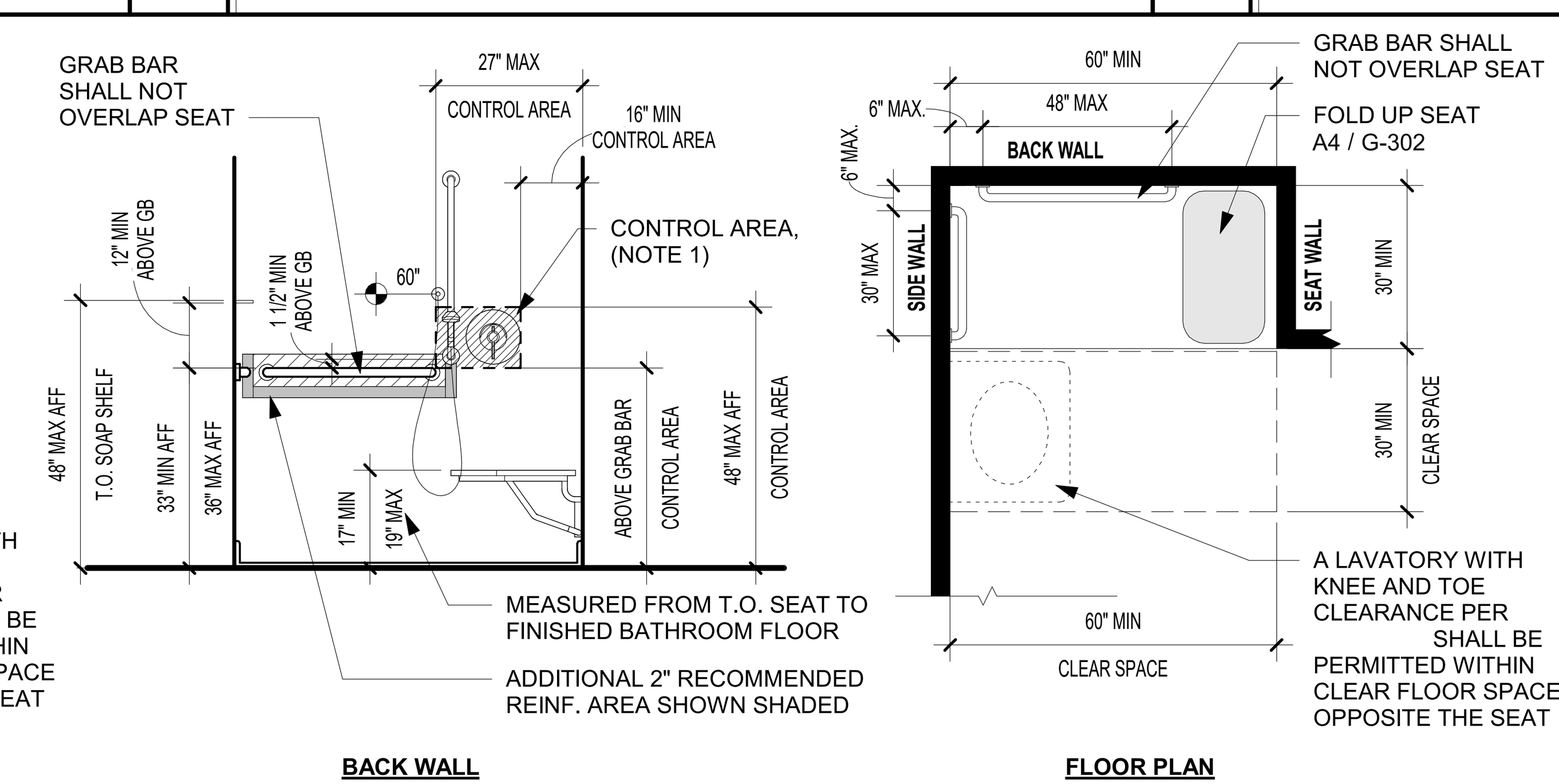
SHOWERS



D3 TRANSFER SHOWER
NOT TO SCALE



C3 ROLL-IN SHOWER W/O SEAT
NOT TO SCALE



B3 ROLL-IN SHOWER W/ SEAT
NOT TO SCALE

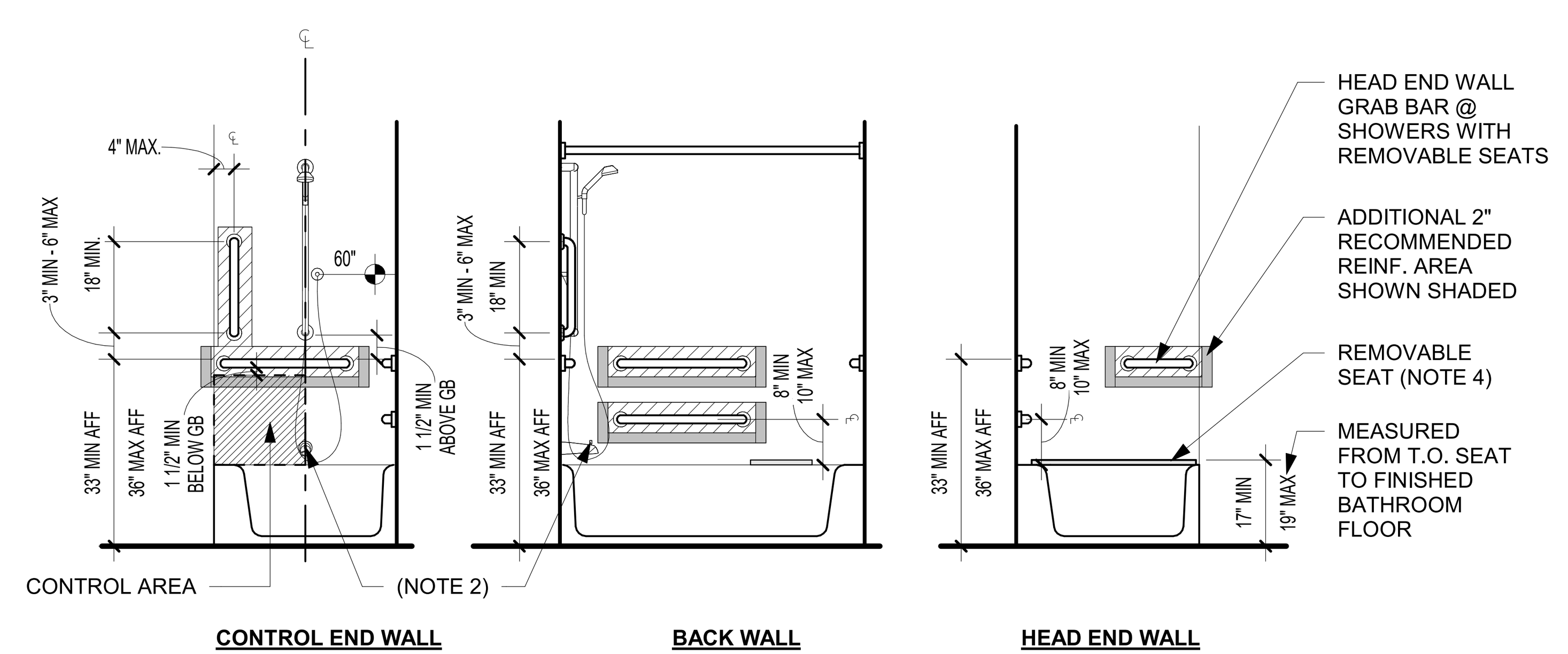
SHOWER NOTES

SHOWER DIAGRAMS & NOTES BELOW ARE APPLICABLE TO PUBLIC, ACCESSIBLE, AND "TYPE A" COMPLIANT BATHROOMS.

SEE UNIT PLANS AND/OR PLUMBING SCHEDULE FOR "TYPE B" OR EXEMPT SHOWER REQUIREMENTS

1. AN ADJUSTABLE-HEIGHT HAND SHOWER, MOUNTED ON A VERTICAL BAR, SHALL BE INSTALLED SUCH THAT THE HANDLE OF THE HAND SHOWER (POSITIONED AT ITS LOWEST POSITION) SHALL BE LOCATED WITHIN THE CONTROL AREA SHOWN
   A. FIXED SHOWER HEAD MOUNTED AT 48" MAX ABOVE SHOWER FLOOR PERMITTED AT PUBLIC SHOWERS.
2. A HAND SHOWER WITH A HOSE OF 59" MINIMUM IN LENGTH TO BE PROVIDED.
   A. HAND SHOWER SHALL HAVE A CONTROL WITH A NONPOSITIVE SHUT OFF FEATURE.
3. ADDITIONAL 2" RECOMMENDED REINFORCED AREA AROUND GRAB BARS (SHOWN SHADED)
4. SEE UNIT PLANS AND/OR INTERIOR ELEVATIONS FOR ADDITIONAL INFORMATION
5. THRESHOLDS SHALL BE 1/2" MAX

TUB

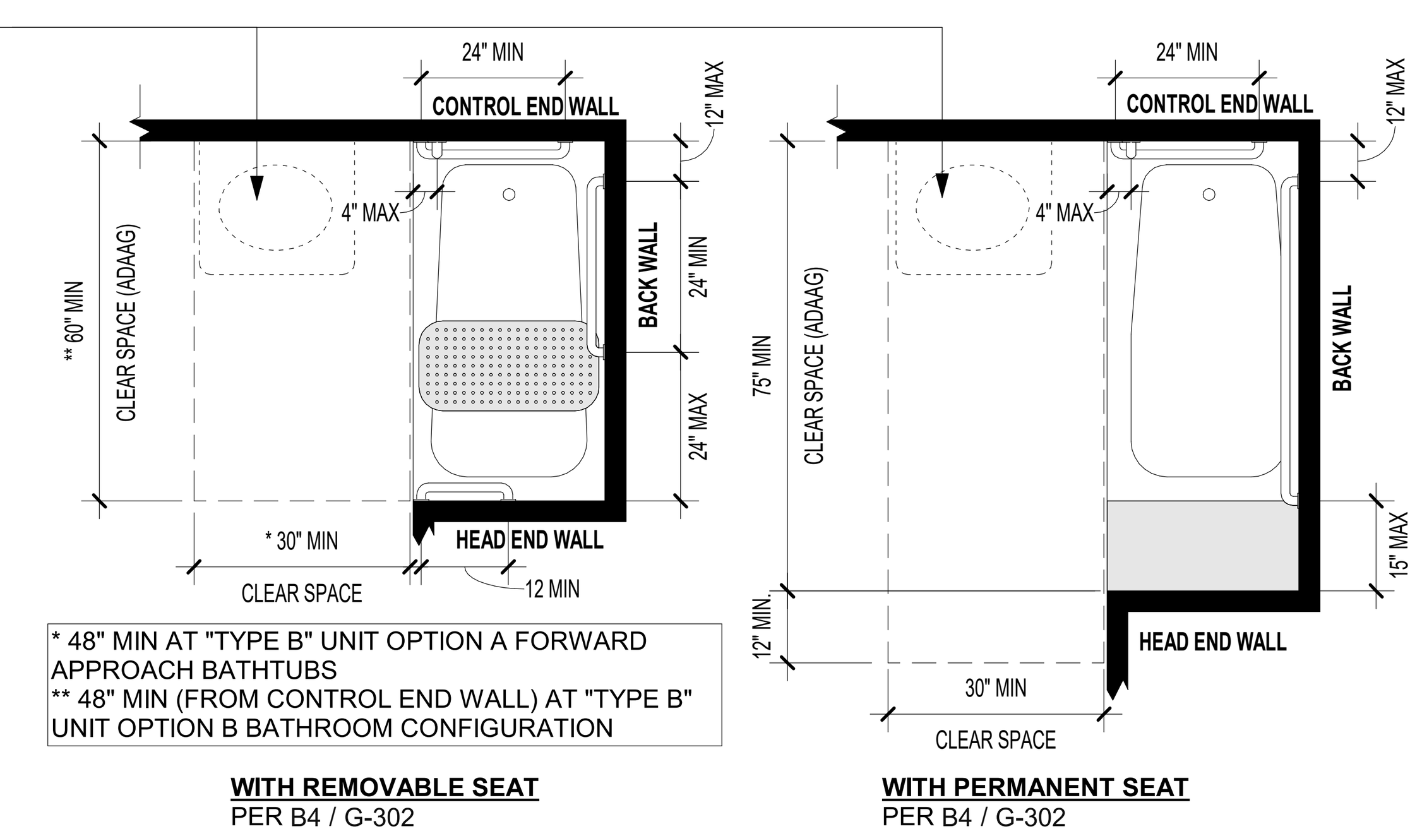


D2 BATHTUB HEIGHT REQ'S
NOT TO SCALE

ACCESSIBLE UNITS:
SINK OR CABINETRY NOT ALLOWED WITHIN CLEAR FLOOR SPACE

"TYPE A" UNITS:
COUNTER TOPS AND CABINETRY PERMITTED WITHIN CLEAR FLOOR SPACE PROVIDED ALL OF THE FOLLOWING:
A. REMOVABLE COUNTER TOP & CABINETRY
B. FLOOR AND WALL FINISHES EXTEND UNDER AND BEHIND THE REMOVABLE CABINETRY & COUNTER TOP.

"TYPE B" UNITS:
OPTION A - PARALLEL APPROACH TUB:
LAVATORY PERMITTED WITHIN CLEAR FLOOR SPACE PROVIDED A 48"X30" CLEAR SPACE IS PROVIDED IN FRONT OF THE TUB
OPTION A - FORWARD APPROACH TUB:
WATER CLOSET AND LAVATORY PERMITTED WITHIN CLEAR FLOOR SPACE
OPTION B:
SINK OR CABINETRY NOT ALLOWED WITHIN 30"X48" CLEAR FLOOR SPACE



C2 BATHTUB CLEARANCES
NOT TO SCALE

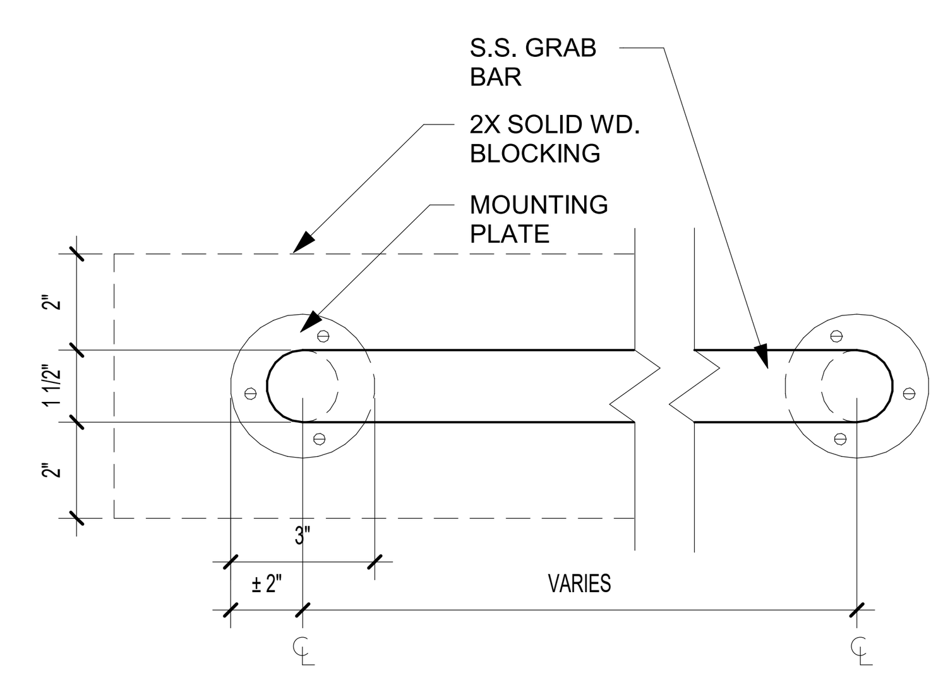
TUB NOTES

TUB DIAGRAMS & NOTES BELOW ARE APPLICABLE TO ACCESSIBLE, AND "TYPE A" COMPLIANT BATHROOMS.

SEE UNIT PLANS AND/OR PLUMBING SCHEDULE FOR "TYPE B" OR EXEMPT TUB REQUIREMENTS.

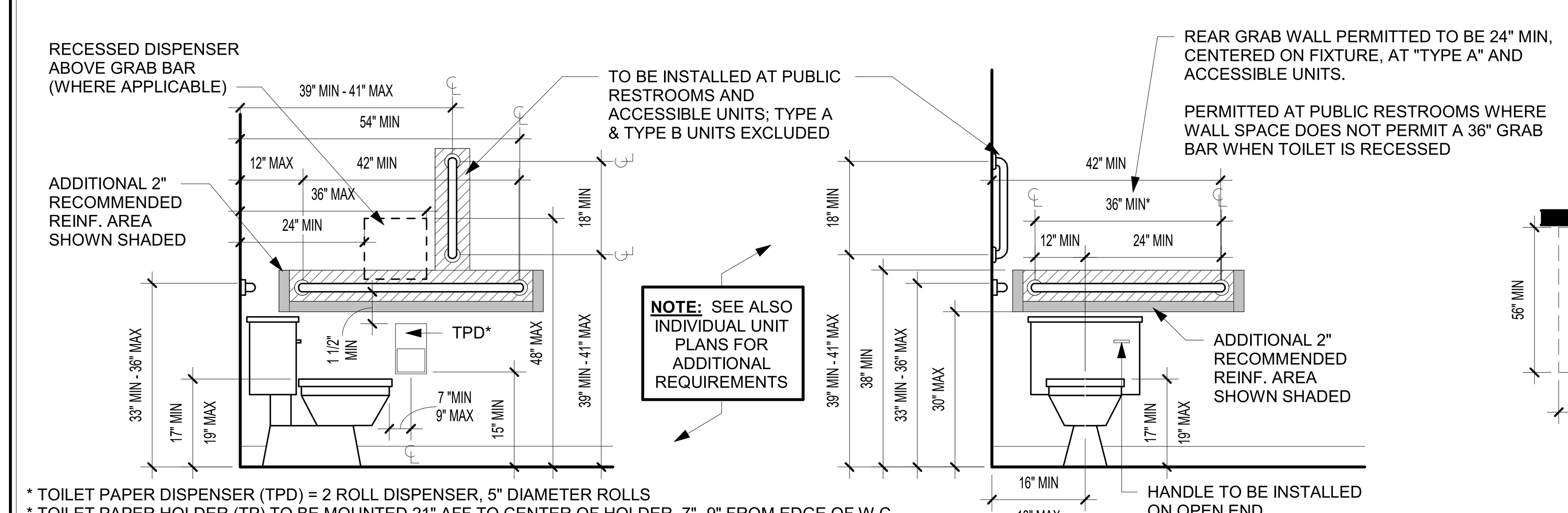
1. A HAND SHOWER WITH A HOSE OF 59" MINIMUM IN LENGTH TO BE PROVIDED.
   A. HAND SHOWER SHALL HAVE A CONTROL WITH A NONPOSITIVE SHUT OFF FEATURE.
2. NO PIN KNOB DIVERTERS IN ACCESSIBLE OR "TYPE A" UNITS AT TUB FAUCETS.
3. ADDITIONAL 2" RECOMMENDED REINFORCED AREA AROUND GRAB BARS (SHOWN SHADED).
4. REMOVABLE SEAT NOT REQUIRED AT "TYPE A" UNITS.
5. SEE UNIT PLANS AND/OR INTERIOR ELEVATIONS FOR ADDITIONAL INFORMATION.

GRAB BAR



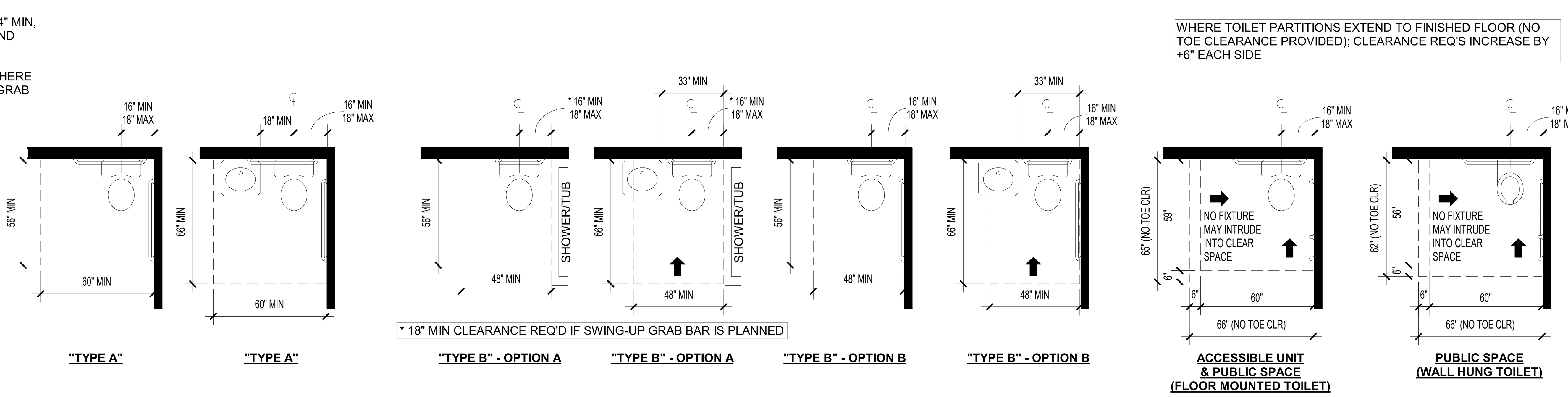
A2 GRAB BAR DETAIL
NOT TO SCALE

TOILET



* TOILET PAPER DISPENSER (TPD) = 2 ROLL DISPENSER, 5" DIAMETER ROLLS
* TOILET PAPER HOLDER (TP) TO BE MOUNTED 21" AFF TO CENTER OF HOLDER, 7"- 9" FROM EDGE OF W.C.
* ALL OTHER DISPENSERS MOUNTED 18" MIN / 48" MAX AFF, AND 24" MIN / 42" MAX FROM BACK WALL TO OUTLET

D1 TOILET STANDARDS
NOT TO SCALE



C1 TOILET APPROACHES
NOT TO SCALE

PRINTS ISSUED
11/20/24 - CITY SUBMITTAL

REVISIONS:

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER
REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
ACCESSIBILITY STANDARDS

PROJECT NUMBER: 23096

SHEET NUMBER:

G-302

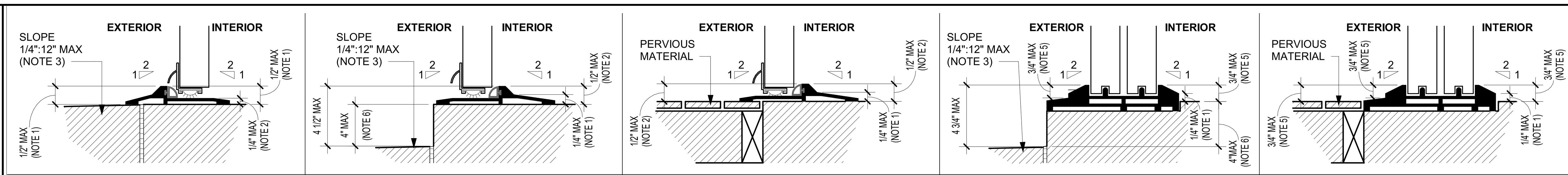
RELEASED FOR CONSTRUCTION
As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri

REFERENCE G-003 FOR GENERAL NOTES
DIAGRAMS BELOW ARE APPLICABLE TO PUBLIC SPACES AND ALL UNIT TYPES UNLESS NOTED OTHERWISE

PRINTS ISSUED
11/20/24 - CITY SUBMITTAL

REVISIONS:

THRESHOLD



SWINGING @ IMPERVIOUS MATERIAL	SWINGING SECONDARY DOOR @ IMPERVIOUS MATERIAL	SWINGING SECONDARY DOOR @ PERVIOUS MATERIAL	SLIDING SECONDARY DOOR @ IMPERVIOUS MATERIAL	SLIDING SECONDARY DOOR @ PERVIOUS MATERIAL
ALL DOORS INTENDED FOR PASSAGE	BALCONY OR OTHER EXTERIOR DOORS	BALCONY OR OTHER EXTERIOR DOORS	BALCONY OR OTHER EXTERIOR DOORS	BALCONY OR OTHER EXTERIOR DOORS
✓ PUBLIC DOORS		✓ PUBLIC DOORS		
✓ ACCESSIBLE UNITS (ALL DOORS)		✓ ACCESSIBLE UNITS		
✓ "TYPE A" UNITS (ALL DOORS)		✓ "TYPE A" UNITS		
✓ "TYPE B" UNITS (UNIT ENTRY DOORS ONLY)	✓ "TYPE B" UNITS	✓ "TYPE B" UNITS	✓ "TYPE B" UNITS	✓ "TYPE B" UNITS

SEE ARCHITECTURAL DRAWINGS FOR PROJECT SPECIFIC THRESHOLD DETAILS AND WEATHER PROOFING

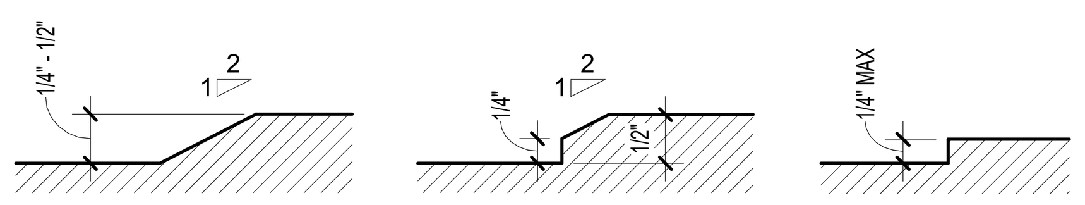
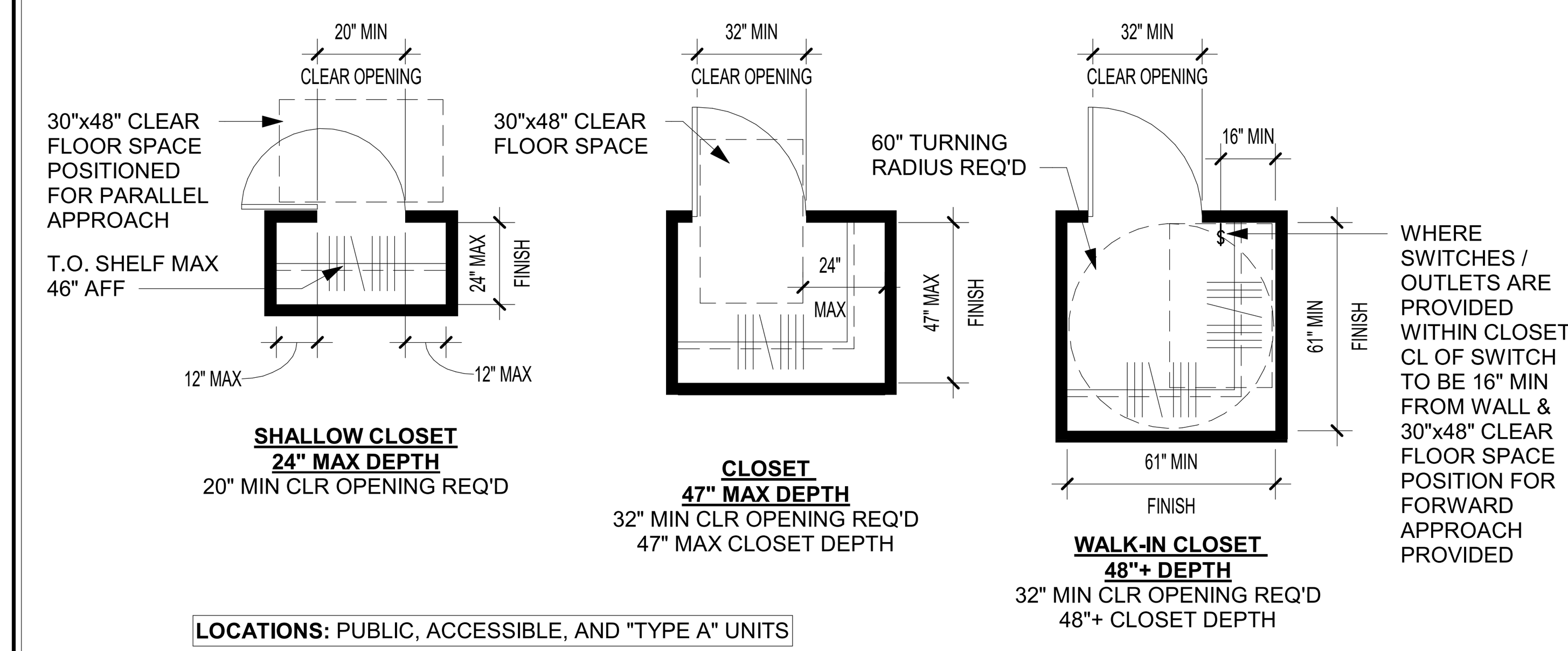


IMAGE 3 IMAGE 2 IMAGE 1

NOTES:
1. CHANGES IN LEVEL OF 1/4" MAXIMUM IN HEIGHT SHALL BE PERMITTED TO BE VERTICAL WITH NO BEVEL PROVIDED **(IMAGE 1)**
2. CHANGES IN LEVEL GREATER THAN 1/4" SHALL BE BEVELED WITH A 1:2 SLOPE FOR UP TO 1/2" MAX **(IMAGE 2,3)**
3. FINISHED SURFACE OUTSIDE OF PRIMARY ENTRY DOOR MAY BE SLOPED AT A MAXIMUM OF 1/4" PER 12"
4. **EXISTING BUILDINGS ONLY**: EXISTING OR ALTERED THRESHOLDS SHALL BE PERMITTED TO BE 3/4" MAX WITH A 1:2 BEVELED EDGE ON EA SIDE OF HEIGHT EXCEEDING 1/4"
5. **SLIDING DOORS ONLY**: THRESHOLD SHALL BE PERMITTED TO BE 3/4" MAX WITH A 1:2 BEVELED EDGE ON EACH SIDE FOR HEIGHT EXCEEDING 1/4"
6. ALLOWABLE AT SECONDARY EXTERIOR RESIDENTIAL DOORS ONLY **(ANSI A117.1 1004.4.2 & FHA 4.11)**

C4 CHANGES IN LEVEL & THRESHOLDS
NOT TO SCALE

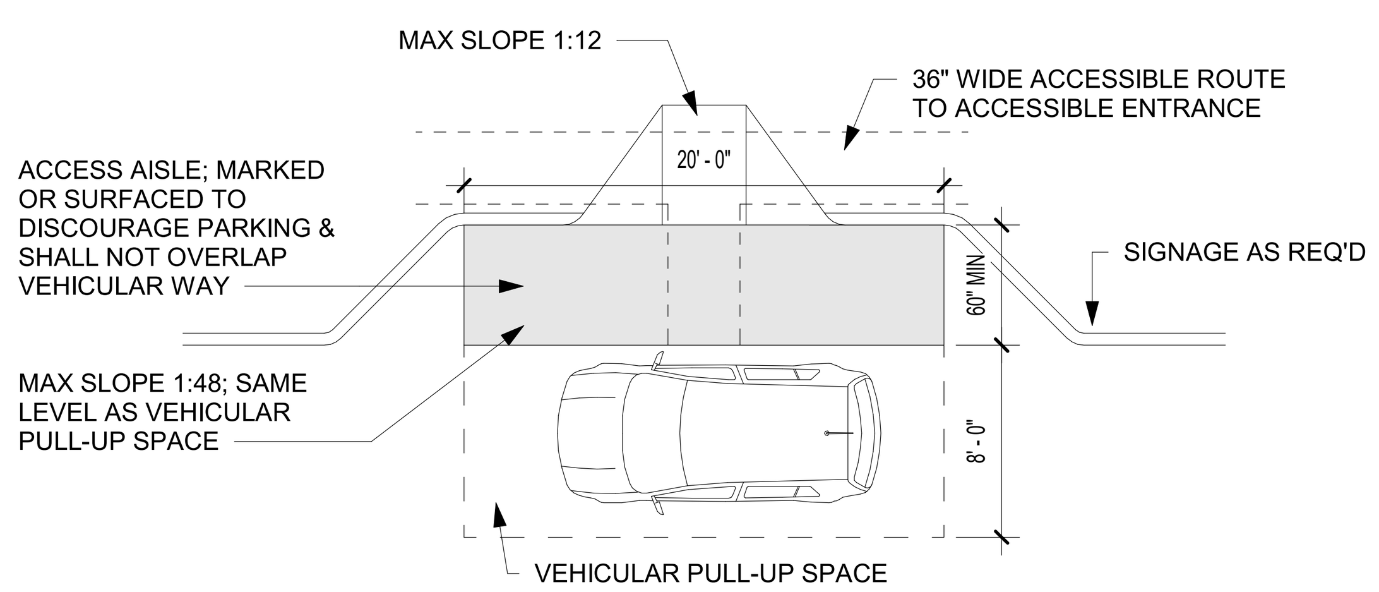
CLOSETS



LOCATIONS: PUBLIC, ACCESSIBLE, AND "TYPE A" UNITS

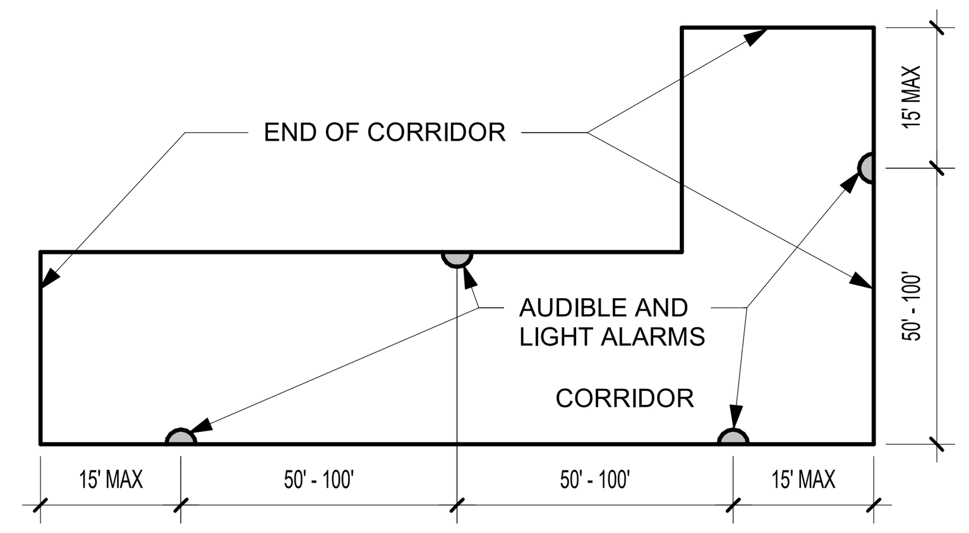
A4 CLOSET DIMENSIONS
NOT TO SCALE

PASSENGER LOADING ZONE

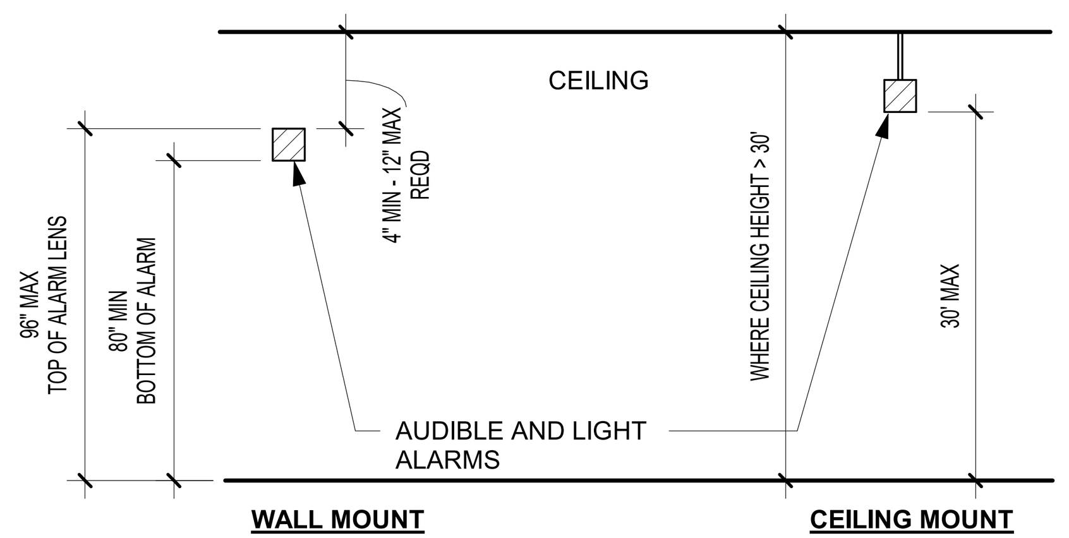


D3 PASSENGER LOADING ZONE
NOT TO SCALE

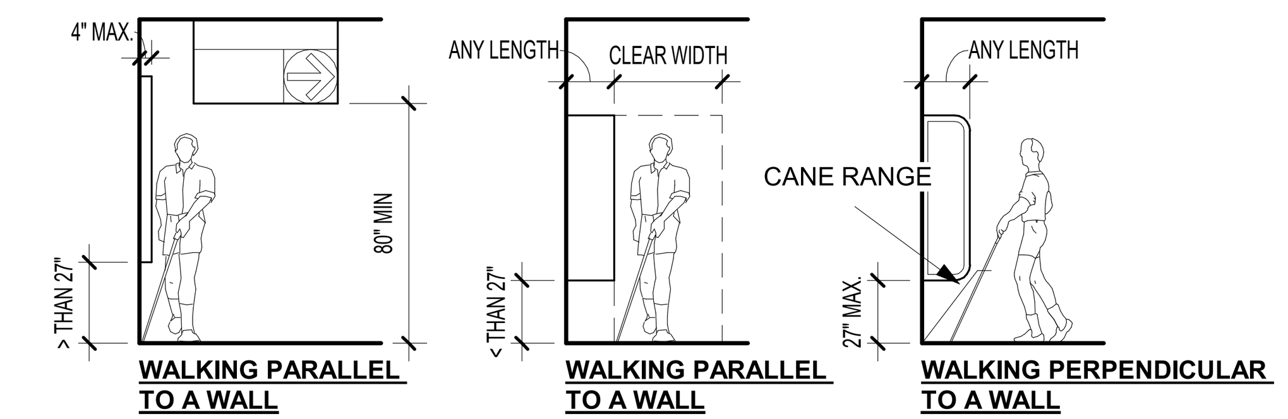
HEARING & VISION IMPAIRED



C3 ALARM SPACING IN CORRIDOR
NOT TO SCALE

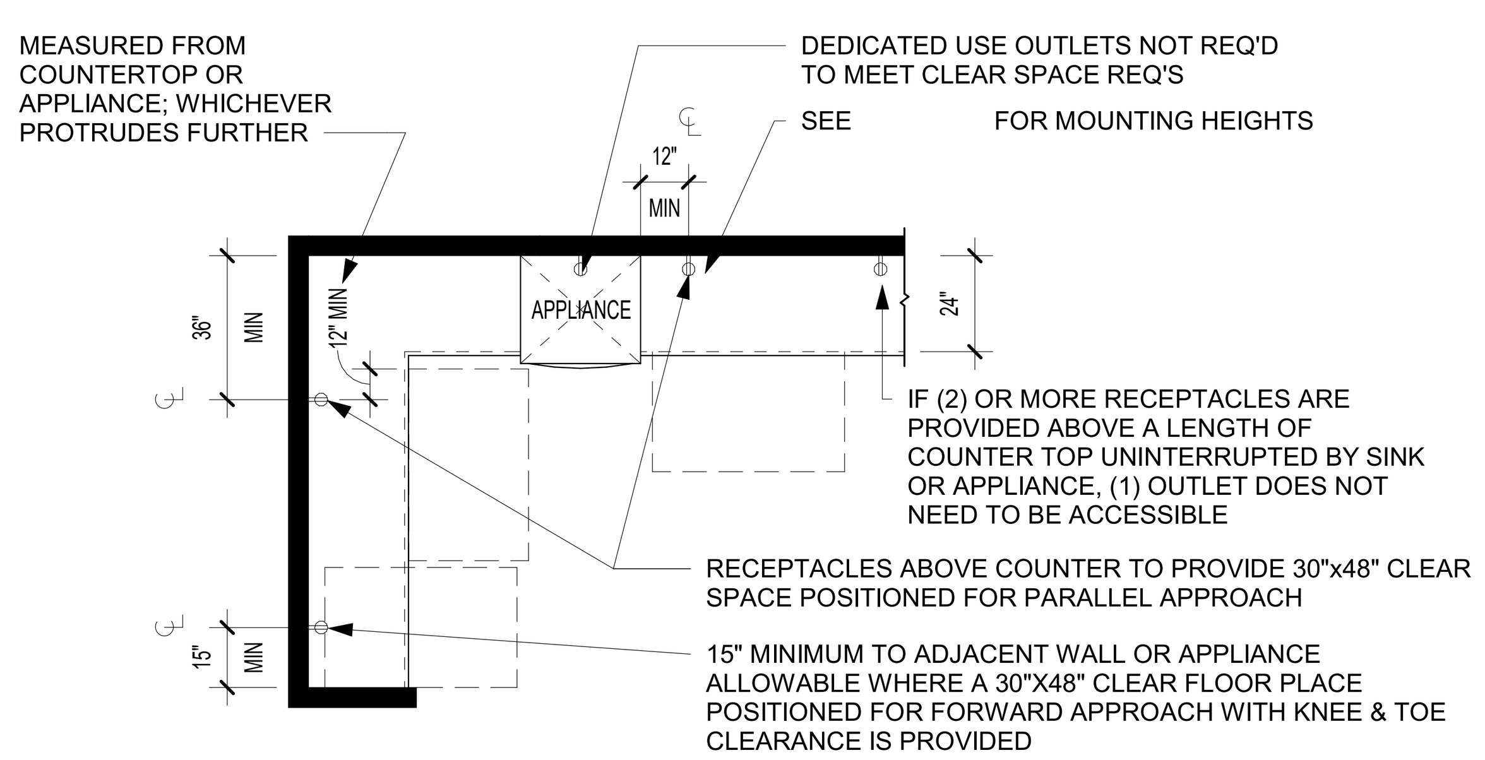


B3 CEILING/ WALL MOUNTED ALARM LOCATIONS
NOT TO SCALE



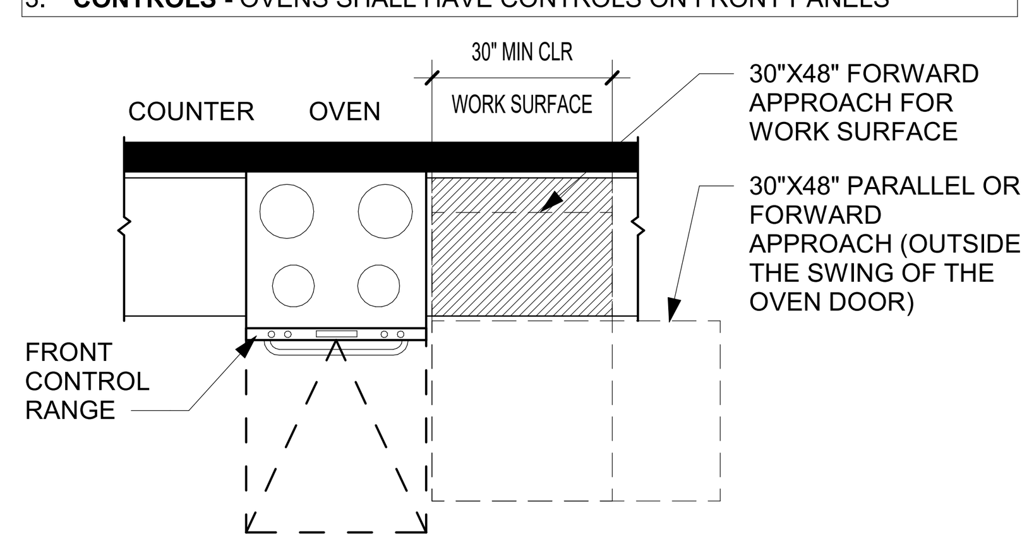
A3 PROTRUDING OBJECTS
NOT TO SCALE

KITCHENS



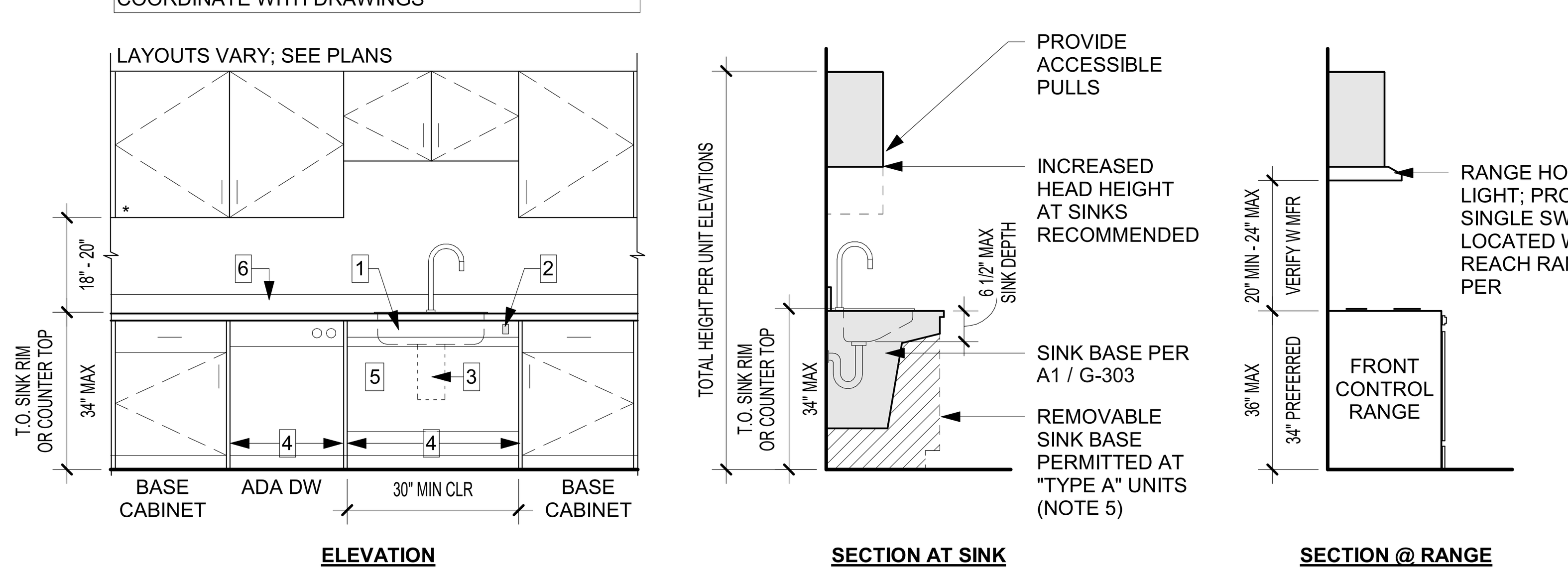
D2 ABOVE COUNTER RECEPTACLES
NOT TO SCALE

NOTE:
FOR PUBLIC SPACES, ACCESSIBLE UNITS, AND "TYPE A" UNITS:
1. **SIDE-HINGED DOOR OVENS** - WORK SURFACE IS TO BE POSITIONED ADJACENT TO THE LATCH SIDE OF THE OVEN DOOR.
2. **BOTTOM-HINGED DOOR OVENS** - WORK SURFACE IS TO BE POSITIONED ADJACENT TO ONE SIDE OF THE OVEN DOOR.
3. **CONTROLS** - OVENS SHALL HAVE CONTROLS ON FRONT PANELS



C2 OVEN WITH WORK SPACE
NOT TO SCALE

* AT PUBLIC SPACES, 50% OF SHELF SPACE SHALL BE WITHIN REACH RANGE (2010 ADA 804.5); COORDINATE WITH DRAWINGS



B2 KITCHEN REQUIREMENTS
NOT TO SCALE

KITCHEN NOTES

KITCHEN DIAGRAMS AND NOTES APPLICABLE TO PUBLIC SPACES, ACCESSIBLE, AND "TYPE A" COMPLIANT KITCHENS

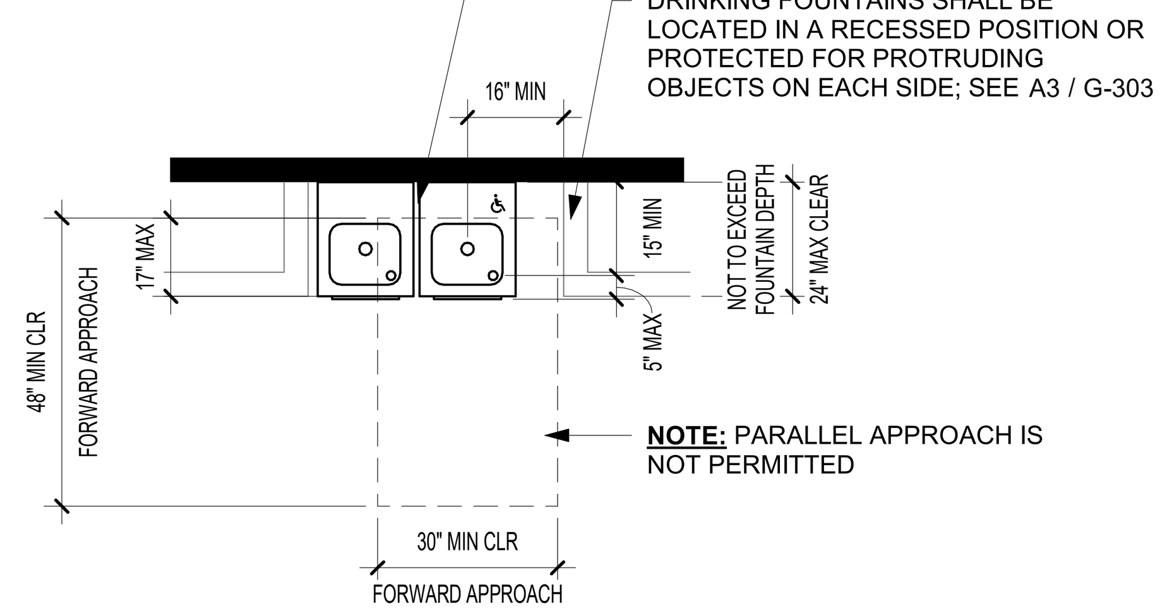
SEE UNIT PLANS AND/OR INTERIOR ELEVATIONS FOR "TYPE B" OR EXEMPT KITCHENS

NOTES:
1. SINK DEPTH MAX 6 1/2" AND HAVE REAR LOCATED DRAINS
2. GARBAGE DISPOSAL SWITCH TO BE LOCATED WITHIN REACH RANGE; COORDINATE FINAL LOCATION WITH ARCHITECT
3. INSULATE ALL PIPES AND DRAIN EXPOSED BELOW SINK
4. PROVIDE FINISHED END PANELS EACH SIDE OF SINK PANEL AND DISHWASHER
   A. WALL BASE, WALL FINISH & FLOOR FINISH TO CONTINUE TO UNDERSIDE OF SINK
5. CABINETRY PERMITTED UNDER SINK AT "TYPE A" UNITS PROVIDED ALL THE FOLLOWING:
   A. REMOVABLE CABINETRY WITHOUT REPLACING SINK
   B. FLOORING, WALL FINISH, AND WALL BASE TO CONTINUE TO UNDERSIDE OF SINK
6. BACKSPLASH VARIES; COORDINATE WITH DRAWINGS
7. SEE INDIVIDUAL UNIT PLANS AND INTERIOR ELEVATIONS FOR SPECIFIC LAYOUTS

DRINKING FOUNTAINS

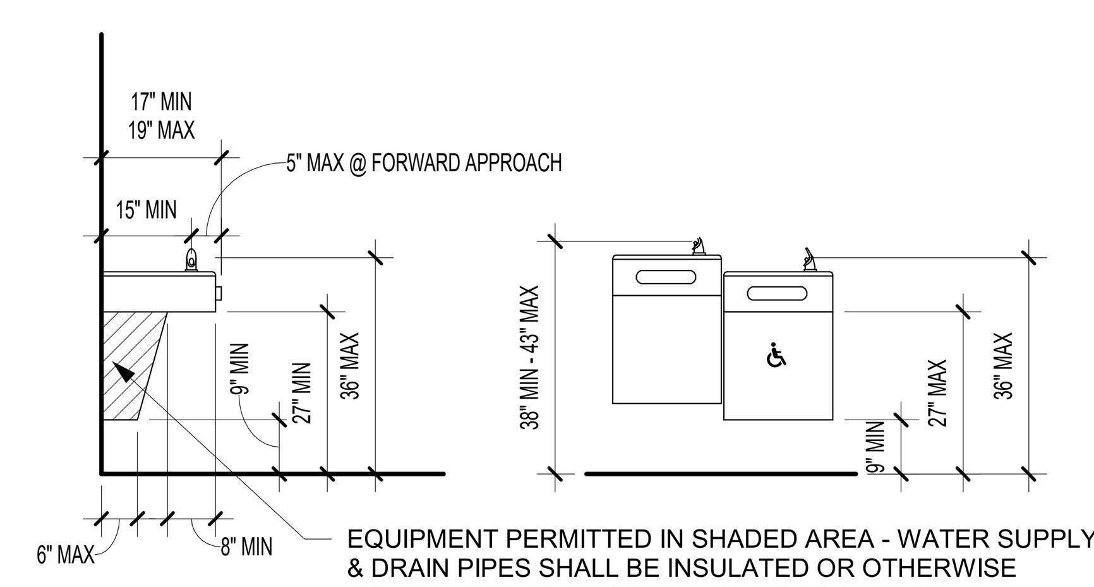
DRINKING FOUNTAIN TO COMPLY WITH HIGH AND LOW REQUIREMENTS PER THE INTERNATIONAL PLUMBING CODE

DRINKING FOUNTAINS SHALL BE LOCATED IN A RECESSED POSITION OR PROTECTED FOR PROTRUDING OBJECTS ON EACH SIDE; SEE A3 / G-303



NOTE: PARALLEL APPROACH IS NOT PERMITTED

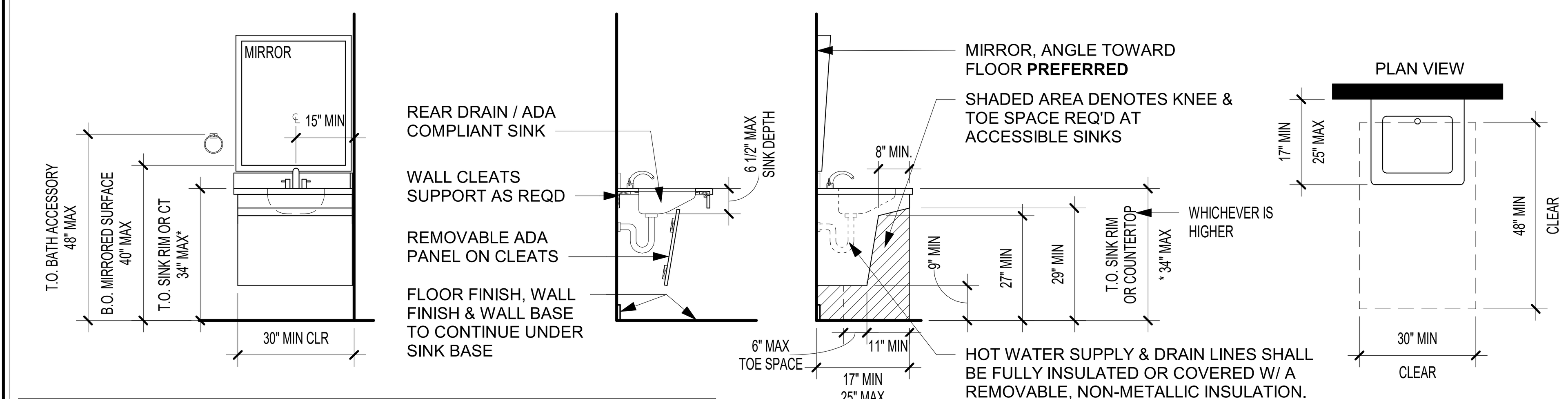
D1 DRINKING FOUNTAINS CLEAR SPACE REQUIREMENTS
NOT TO SCALE



EQUIPMENT PERMITTED IN SHADED AREA - WATER SUPPLY & DRAIN PIPES SHALL BE INSULATED OR OTHERWISE CONFIGURED TO PROTECT AGAINST CONTACT.

C1 DRINKING FOUNTAIN HEIGHT REQUIREMENTS
NOT TO SCALE

SINKS



* 36" MAX T.O. SINK OR COUNTERTOP AT "TYPE B" UNITS

NOTES:
1. 34" MAX AFF TO TOP OF WALL MOUNTED SINKS
2. SEE PLANS & ELEV. FOR PROJ. SPECIFIC DETAILS
3. SINKS SHALL BE 6 1/2" DEEP MAX

FOR "TYPE B" UNITS:
1. PARALLEL APPROACH CENTERED ON SINK PERMITTED WHEN CENTERLINE OF SINK IS 24" MIN FROM ADJACENT WALL
2. IF FORWARD APPROACH IS PROVIDED, CABINETRY ALLOWED UNDER THE LAVATORY PROVIDED:
   A. CABINETRY CAN BE REMOVED WITHOUT REPLACEMENT OF THE LAVATORY
   B. FLOOR FINISH EXTENDS UNDER THE CABINETRY
   C. WALLS BEHIND AND SURROUNDING THE CABINETRY ARE FINISHED

A1 SINK KNEE & TOE CLEARANCES & HEIGHT REQUIREMENTS
NOT TO SCALE
LOCATIONS: PUBLIC AREAS, ACCESSIBLE UNITS, "TYPE A" UNITS

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STATE OF MISSOURI
DAVID EUGENE HENDRICKS
NUMBER
REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

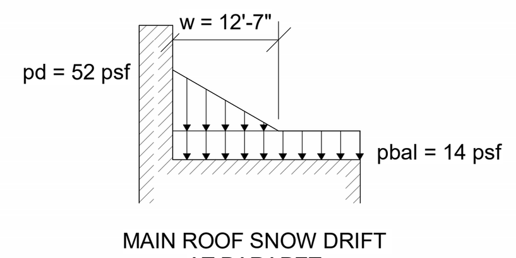
SHEET TITLE
ACCESSIBILITY STANDARDS

PROJECT NUMBER: 23096

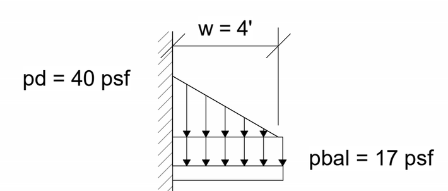
SHEET NUMBER:
G-303

A. DESIGN CRITERIA

1. Design Codes:
   a. International Building Code: IBC 2018
   b. Minimum Design Loads for Buildings and Other Structures: ASCE 7-16
2. Design Loads:
   a. Dead Loads
      - Composite Concrete Deck on Steel Joists = 60 psf
      - Metal Roof Deck on Steel Joist = 25 psf plus mechanical equipment shown on roof plan
      - King Size Brick Veneer = 36 psf max
   b. Live Loads (reducible per code UNO)
      - Office = 80 psf
      - Mechanical/Storage = 125 psf (non-reducible)
      - Typical Roof = 20 psf
   c. Roof Snow Load
      - Ground Snow Load (p_g) = 20 psf
      - Flat Roof Snow Load (p_f) = 14 psf
      - Snow Exposure Factor (C_e) = 1.0
      - Snow Load Importance (I_s) = 1.0
      - Thermal Factor (C_t) = 1.0
      - Slope Factor (C_s) = 1.0
      - Rain on Snow Surcharge = 5.0 psf



MAIN ROOF SNOW DRIFT
AT PARAPET

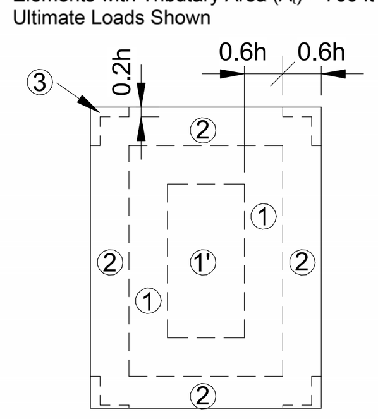


CANOPY SNOW DRIFT

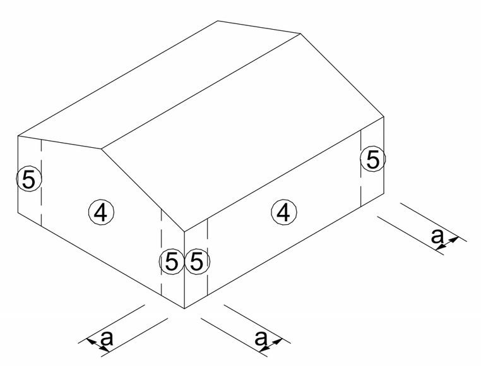
   d. Wind Load
      - Basic Design Wind Speed, V = 109 mph (3 sec. Gust)
      - ASD Wind Speed, V_{asd} = 85 mph
      - Risk Category = II
      - Wind Exposure = C
      - Internal pressure Coefficient (GC_{pi}) = ±0.18
      - Design Base Shear, V_w = 190 kips
      - Components and Cladding (psf):

Zone	A=10ft²	A=50 ft²	A=100 ft²
1	+16/-50	+16/-42	+16/-39
1'	+16/-29	+16/-29	+16/-29
2	+29/-66	+28/-56	+28/-52
3	+29/-66	+28/-56	+28/-52
4	+29/-31	+26/-28	+25/-27
5	+29/-28	+26/-33	+25/-30

Notes:
1. A is the Effective Wind Area as defined in ASCE 7 Ch. 26.
2. Linear interpolation between tabulated values is permitted.
3. Elements with Tributary Area (A_t) > 700 ft² shall be permitted to be designed using provisions for MWFRS.
4. Ultimate Loads Shown



GABLE, SAWTOOTH AND MULTISPAN
GABLE θ ≤ 7 DEGREES &
MONOSLOPE ≤ 3 DEGREES
h ≤ 60' & ALT DESIGN h < 90'



WALLS h ≤ 60'
& ALT DESIGN h < 90'

   e. Earthquake Load
      - Risk Category = II
      - Seismic Importance Factor (I_e) = 1.0
      - Soil Site Class: D
      - S_S = 0.099g S_1 = 0.068g
      - S_{DS} = 0.109 S_{D1} = 0.109
      - Seismic Design Category B
      - Basic Seismic Force Resisting System(s)
        - Ordinary Reinforced Masonry Shear Walls (ASCE 7 Table 12.2-1 Line A.9)
          R = 2.0 Ω_0 = 2.5 C_d = 1.75
        - Structural Steel Systems not Specifically Detailed for Seismic Resistance (ASCE 7 Table 12.2-1 Line H)
          R = 3.0 Ω_0 = 3.0 C_d = 3.0
      - Seismic Response Coefficient, C_s = 0.054
      - Design Base Shear, $V_{eq} = C_s \times W$ = 93 kips
      - Analysis Procedure = Equivalent Lateral Force Procedure (ASCE 7-16 Chapter 12.8)
   f. Rain Load
      - 100 Year 15 min. Rain Intensity (i) = 7.50 in/hr
3. Allowable Deflections:

	Total Load	Live/Snow/Wind Load	Absolute Maximum
Floor Joists/Trusses	L/360	L/480	1"
Roof Joists/Trusses	L/240	L/360	1.5"

   Cantilever deflection limits are the more restrictive of 2 x the appropriate L/--- limit (e.g. 2L/360 = L/180) or absolute maximum value listed above, measured at the tip of the cantilever U.N.O.
4. Soil Properties:
   a. Soil properties are based on the project geotechnical report entitled The Village at Discovery Park Lot 1, prepared by Intrinsic Development on April 15, 2024 (herein known as "Geotechnical Report").
   b. Allowable Soil Bearing Pressure = 2500 psf

B. STRUCTURAL ENGINEERING DESIGN NARRATIVE

1. McClure Engineering Company (McClure, MEC) is the Structural Engineer of Record (EOR) responsible for the documentation of structural design criteria, strength and stability of the primary vertical and lateral load-carrying systems in their completed form, and conformance of the structural design to the applicable building codes. These drawings produced by McClure convey the structural engineering design for the project, which includes the following components and systems:
   a. Foundations consisting of concrete spread footings and mat slabs.
   b. Slabs on grade.
   c. Structural steel beams and columns.
   d. Steel open web floor joists.
   e. Steel decking composite with concrete.
   f. The lateral force resisting system of the structure consisting of masonry walls, structural steel braced frames and concrete diaphragms.
2. The following items are Deferred Submittals. Framing intent and additional requirements for these structural components are provided within these drawings*:
   a. Structural steel connections – see general notes section "Structural Steel"
   b. Structural steel stair framing and connections – see general notes section "Structural Steel"
   c. All premanufactured canopy and awning framing including connections to the structure.

   * Reference section "D. Submittal Requirements." Coordinate requirements of these drawings with those of other design consultant drawings and the Project Specifications.
3. The following items are specifically excluded from McClure's design scope as represented on these drawings:
   a. Requirements for fire rating of assemblies or fire protection of structural members.
   b. Global stability of soil mass.
   c. Any exterior slabs, bollards, curbs, and any enclosures not shown on these drawings.
   d. Interior nonload-bearing cold-formed steel or wood framed walls and furring.
   e. Shoring design, formwork design, temporary bracing, and other means and methods items.

C. GENERAL NOTES

1. All construction shall conform to the Design Codes in Section "A. Design Criteria," including all applicable standards and documents referenced within those codes.
2. Plan and detail notes provided on specific sheets within these drawings supplement information in these General Notes. Always coordinate the requirements of these notes with what is shown within the drawings.
3. Unless noted specifically on a plan, all floor plans show framing for the floor indicated and vertical framing (walls, openings, posts, columns) below that floor.
4. Contract Document Coordination:
   a. The drawings contained herein are intended to be utilized in conjunction with other design consultant's drawings (architectural, civil, mechanical, etc.). It is the responsibility of the Contractor to coordinate the requirements of the drawings into their shop drawings and construction.
      i. Refer to the Project Specifications issued as part of the contract documents for information supplemental to these drawings. Should conflicts between these drawings and the Specifications exist, the Contractor shall bring them to the attention of the structural engineer for clarification.
   b. Refer to the architectural, mechanical, electrical, and civil drawings for location and size of block outs, inserts, openings, curbs, bases & pads, and dimensions not shown on these drawings.
   c. Refer to the architectural drawings for size and location of doors and window openings, exterior wall assemblies, and floor, wall, and roof finishes. Refer to the mechanical and electrical drawings for additional information including locations of mechanical units, generators, etc.
   d. Omissions or conflicts between various elements of the drawings, notes and details shall be brought to the attention of the structural engineer and resolved before proceeding with the work.
5. Use of Drawings in Construction:
   a. The Contractor shall verify all dimensions and conditions at the job site before commencing work and shall report any discrepancies to the engineer responsible for the design of that work.
   b. Do not use scaled dimensions; use written dimensions or, where no dimension is provided, consult the structural engineer for clarification before proceeding with the work.
      i. Where member locations are not specifically dimensioned, members are either located on columns lines or are equally spaced between located members.
   c. Details and keynotes shown shall be incorporated into the project at all appropriate locations, whether or not they are specifically referenced on the drawings.
   d. McClure may provide the contractor with electronic files for their convenience and use in the preparation of shop drawings. These electronic files are not construction documents; the contractor is not relieved of his/her duty to fully comply with the contract documents, including the need to confirm and coordinate all dimensions and details, take field measurements, verify field conditions, and coordinate the contractor's work with that of other contractors for the project.
6. Changes During Construction:
   a. Openings shall not be cut or otherwise made in any structural member unless that opening is specifically shown on these drawings. The Contractor shall seek approval in writing from the structural engineer for any design incorporating additional openings.
   b. Support details shown for Architectural, Mechanical, Electrical, and Plumbing equipment as well as elevators is based upon available information from the manufacturer (if any). The Contractor shall coordinate requirements of actual equipment supplied with details and shall provide any additional framing required.
   c. The Contractor has the responsibility to notify the structural engineer of any architectural, mechanical, electrical, or plumbing load imposed on the structure that is not documented on the Contract Documents or differs from what is originally shown. Provide documentation of location, load, size, and anchorage of all undocumented loads in excess of 250 lbs.
7. Construction Sequence and Methods:
   a. These drawings and the related Specifications represent the finished structure and, except where specifically shown, do not indicate the method or means of construction. Loads on the structure during construction shall not exceed the design loads indicated in Section "A. Design Criteria" as a maximum. The Contractor shall supervise and direct the work and shall be solely responsible for all construction means, methods, procedures, techniques, and sequence.
      i. Structural components requiring composite action to achieve their full strength (e.g. concrete on composite steel deck, composite steel beams, vertical Beton Wall studs, etc.) have been designed for the following Construction Live Load allowance. These loads are considered adequate for typical construction that consists of concrete transport and placement by hose and concrete finishing using hand tools. Bulk dumping of concrete using buckets, chutes, or handcarts, and the use of motorized finishing equipment (such as power screeds) may require design for greater construction live loads and/or additional shoring during concrete placement. Requests for approval to use concrete placement or finishing methods requiring analysis using increased loading must be made by the contractor to prior to submittal of related shop drawings to be considered.
         1. Uniform load of 20 psf
         2. Concentrated load of 150 lbs
   a. The Contractor is responsible for compliance with all applicable job-related safety standards proceeding from governing organizations (e.g. OSHA).
   b. It is the responsibility of the Contractor to ensure the stability of the structural elements during construction as a result of means and sequence by providing shoring, bracing, etc. as required.
      i. Stability considerations should include all applicable temporary construction and environmental loads per ASCE 37 which may include wind and seismic forces.
      ii. Temporary bracing shall remain in place until positive connection is made between the braced element and the floor/roof diaphragm or foundation above and below, and those diaphragms in turn are structurally complete and connected to the vertical elements of the lateral force resisting system. This is a means and methods item.
      iii. The Contractor may at their discretion employ a Specialty Structural Engineer, licensed in the state where the project is located, for the design of any temporary bracing, lifting, rigging, and shoring. Any sealed drawings, calculations, reports, etc. prepared for construction stability shall be submitted to the structural engineer for review.
   c. The Contractor shall consider the effects of thermal movements due to hot or cold weather construction and the potential for extreme temperature variations before the structure is complete.
   d. Any foundation wall restrained by a floor is not designed to be backfilled prior to the complete construction of the floor and the lateral bracing elements (shear walls, braced frames, etc.) below it. For backfilling before this time, temporary bracing shall be designed and provided by the Contractor.
   e. The Contractor is responsible for the protection and repair of any adjacent existing structures, surfaces, and areas which may be damaged as a result of the work.

D. SUBMITTAL REQUIREMENTS

1. Submittal Procedures:
   a. The Contractor shall provide all submittals in PDF format unless otherwise requested or indicated in the Project Specifications.
   b. All submittals must be reviewed by the Contractor prior to McClure's review. The Contractor is responsible for reviewing each submittal for basic coordination with these drawings and to verify that all the required components of the submittal are incorporated. The submittal must bear the electronic review stamp of the Contractor before McClure will proceed with the review.
   c. Incomplete submittals or submittals not meeting the requirements of this section will not be reviewed. McClure will notify the contractor that the submittal is incomplete or unacceptable and that resubmission is required.
      i. Submittals requiring engineering calculations for all or a portion of the work are considered incomplete without the sealed calculations and will not be reviewed.
      ii. Shop Drawings shall be original drawings. Submissions incorporating any portion or reproduction of the contract documents will not be reviewed.
      iii. Deferred Submittals not meeting the seal requirements of section D.2.b are considered incomplete and will not be reviewed.
      iv. Resubmittals with comments from a previous review left unaddressed or without any response will not be reviewed.
   d. Allow two weeks for review of all submittals unless an agreement for expedited review is made in writing by McClure.
   e. McClure's submittal review scope of work includes a single submittal review and one review of the revised submittal if required (two reviews total of the same submittal). Time required for more than two reviews of a submittal is considered an additional service and will be billed hourly. McClure reserves the right to withhold review of a submittal surpassing this allowance until proper billing to the responsible party can be established.
   f. Submittals must be returned to the Contractor by McCure bearing a stamp marked "Reviewed No Exception Taken" or "Reviewed With Comments/Exceptions" prior to proceeding with the work. Submittals marked "Reject/Resubmit" must be revised according to the comments provided prior to commencing with the respective scope of work.
2. Deferred Submittals:
   a. See Section "B. Structural Engineering Design Narrative" for the list of items considered Deferred Submittals.
   b. Deferred Submittals shall bear the seal of a professional engineer licensed in the state where the project is located. If the project requires a licensed Structural Engineer (S.E.) as the Engineer of Record according to state laws, the same qualification level applies to the engineer sealing the Deferred Submittals.
   c. Deferred Submittal items shall not be installed until the Deferred Submittal documents have been approved by the Building Official.
3. Submittal List:
   a. Submittals (product data, test records, shop drawings, and/or calculations) are required for the following:

Submittal Name	Items Required:				
	Product Data	Shop Drawings	Test Records	Engineering Drawings	Engineering Calculations
1. Concrete Mix Designs	X		X		
2. Concrete Break Reports			X		
3. Concrete Reinforcing Layout		X			
4. Concrete Anchor Bolts & Embedded Plates	X	X			
5. Concrete & CMU Anchors (Post-Installed)	X				
6. Post-Installed Anchor Substitutions	X				X
7. Post-Installed Connection Geometry Alteration	X			X	X
8. Masonry Wall Materials	X		X		
9. Masonry Reinforcing		X			
10. Brick & Stone Veneer	X				
11. Structural Steel Framing	X	X			
12. Structural Steel Framing Connections		X			X
13. Steel Floor Deck	X	X			
14. Steel Stair Framing incl. Connections to Supports				X	X
15. Metal Railings & Connections	X	X			X
16. Metal Ladders & Connections	X	X			X
17. Metal Canopies & Awnings	X	X			X
18. Fall Arrest Systems		X			X
19. Wood Framing Materials	X				

   b. "Product Data" may indicate mill certifications, material data sheets, Evaluation Service Reports (ESRs), etc. See requirements of each material section of the general notes for further information.
   c. Where "Engineering Drawings" and/or "Engineering Calculations" are indicated, the submittal must comply with the requirements of item "2. Deferred Submittals" above.
4. Submittals For Record:
   a. The following items impact the structural design and therefore must be submitted to the engineer; however, they do not require review. They will be returned stamped as "Received For Record".
      i. Elevator Shop Drawings with Loads to Structure
      ii. Mechanical Equipment Shop Drawings with Weight

E. CONCRETE

1. Reinforced concrete shall have the following minimum 28 day compressive strengths:
   a. Slab on grade, unless noted otherwise 4000 psi normal weight
   b. Foundations and Spread Footings 5000 psi normal weight
   c. Slabs on metal deck 3000 psi normal weight
2. All concrete exposed to weather shall have 6% (+- 1%) air entrainment.
3. Submit mix designs for all concrete mixes prior to placement. All submittals shall include the following:
   a. Batch quantities including admixture dosage rates.
   b. Strength test results for trial mixes.
   c. Cured unit weight results (for lightweight concrete mixes only).
   d. Aggregate source(s) and gradation(s).
   e. Product data for cement, fly ash and other cementitious materials.
   f. Product data for all admixtures.
4. Provide protection for reinforcing bars as follows:
   a. Concrete cast against and permanently exposed to earth 3"
   b. Concrete exposed to earth and weather (formed)
      i. #5 and smaller 1-1/2"
      ii. #6 and larger 2"
   c. Concrete not exposed to weather and not in contact with ground:
      i. Slabs and walls 3/4"
      ii. Beams and columns 1-1/2"
5. Provide construction or control joints in slab on grade as shown on plans. If joint pattern is not shown, provide joints at 10'-0" x 10'-0" and at locations to conform to bay spacing wherever possible (at column centerlines, half bays, third bays, etc.).
6. Interface of all slab and beam construction joints shall be roughened with 1/4" amplitude. Surface of construction joints shall be clean and free of laitance. Immediately before new concrete is placed, construction joints shall be wetted and standing water removed.
7. Construction joints in walls shall be keyed and placed at locations approved by the Architect and Structural Engineer.
8. Provide control joints in all retaining walls at 15 ft to 20 ft intervals.
9. Provide PVC waterstops in all below grade construction joints and at other locations as shown.
10. Provide compressible filler and sealant in all slab-on-grade and wall and column interfaces that are not doweled together.
11. All column pockets shall be filled with concrete after column is erected.
12. Sleeves and openings in slabs not shown on structural drawings or outside the parameters of typical sleeve details are not permitted, unless approved by the Structural Engineer.
13. Conduit and pipes embedded in slabs, walls, or grade beams shall be no larger in outside dimension than 1/3 the overall member thickness and shall be placed no closer than 3 diameters or widths on center.
14. Conduits and pipes shall not be permitted in concrete pilasters or columns.
15. Provide concrete housekeeping pads under all mechanical, plumbing, fire protection, and electrical equipment per plans. Pads shall extend beyond equipment a nominal 6" on all sides. Apply a bonding agent to existing concrete slab prior to pouring of housekeeping pad. Provide reinforcing per details.
16. At floor drains, locally slope floor towards drain. See architectural and plumbing drawings for drain locations.
17. Foundation walls shall be temporarily braced until positive attachment is made to floor framing per details. This is a means and methods item.

Slab on Grade

1. Slab shall be constructed as shown on plans.
2. Slab-on-grade shall be founded on 6" deep ¾" clean aggregate base.
3. The upper 24" of subgrade extending 5' beyond the footprint of the building shall consist of low volume change material such as rollstone or wastelime. Granular fill shall be compacted to a minimum of 95% of the ASTM D698 maximum dry Standard Proctor density. The 6" aggregate base shall be included in the 24" depth required for the low volume change layer.
4. Provide joints at 30 x slab thickness (+-) in both directions and located to conform to bay spacing wherever possible (at column centerlines, half bays, third bays, etc.). Submit control joint layout to Architect for any exposed concrete surface.
5. Saw cut control joints shall be done late enough to prevent raveling of the cut edges and early enough to prevent cracking of the slab ahead of the saw blade.
6. Concrete slab to be cured according to ACI Standards. Concrete slab cure to be compatible with any sealer, grout, or adhesive that may be used on the floor later.
7. At floor drains, locally slope floor towards drain. See architectural and plumbing drawings for drain locations.

F. REINFORCING FOR CONCRETE

1. General
   a. All reinforcing steel to be ASTM A615, Grade 60, deformed bars, unless noted otherwise.
      i. Any reinforcing to be welded shall be ASTM A706 and welded with E80 electrodes.
      ii. Alternatively, ASTM A615 reinforcing may be welded with E90 electrodes and proper preheat according to AWS D1.4.
      iii. E70 electrodes are not permitted for welding rebar.
   b. Welded wire fabric shall be ASTM A1064. Welded wire fabric shall be in flat sheets.
   c. All reinforcing bars to be detailed and placed in accordance with the ACI "Manual of Standard Practice for Detailing Reinforced Concrete Structures" specifications.
   d. All reinforcing, including dowels, shall be securely tied and cast with the lower member. Placing reinforcing after concrete has been placed will not be permitted.
   e. Field bending of reinforcing partially embedded in concrete will not be allowed unless specifically noted on the drawings or approved by the Structural Engineer.
   f. All reinforcing bars shall be contact lap spliced or doweled as follows, unless noted otherwise:

Tension Development and Splice Lengths for f'c = 3,000psi

Bar Size	Development Top Bar	Development Other Bar	Class "B" Splice Top Bar	Class "B" Splice Other Bar	Standard 90 deg. Hook Embed.	Leg Length	Bend Dia.
#3	22	17	28	22	6	6	2-1/4
#4	29	22	37	29	8	8	3
#5	36	28	47	36	10	10	3-3/4
#6	43	33	56	43	12	12	4-1/2
#7	63	48	81	63	14	14	5-1/4
#8	72	55	93	72	16	16	6
#9	81	62	105	81	18	19	9-1/2
#10	91	70	118	91	20	22	10-3/4
#11	101	78	131	101	22	24	12
#14	121	93	---	---	37	31	18-1/4
#18	161	124	---	---	50	41	24

1. Straight development and Class "B" splice lengths shown in above tables are based on uncoated bars assuming center-to-center bar spacing ≥ 3*d_b without ties or stirrups or ≥ 2*d_b with ties or stirrups, and bar clear cover ≥ 1.0*d_b Normal weight concrete as well as no transverse reinforcing are both assumed.
2. Standard 90 deg. hook embedment lengths are based on bar side cover ≥ 2.5" and bar end cover ≥ 2" without ties around hook.
1. For special seismic considerations, refer to ACI 318 Code Chapter 21.
3. All tension splices shall be Class "B" splices unless noted otherwise on plans.

Tension Development and Splice Lengths for f'c = 4,000psi

Bar Size	Development Top Bar	Development Other Bar	Class "B" Splice Top Bar	Class "B" Splice Other Bar	Standard 90 deg. Hook Embed	Leg Length	Bend Dia.
#3	19	15	24	19	6	6	2-1/4
#4	25	19	32	25	7	8	3
#5	31	24	40	31	9	10	3-3/4
#6	37	29	48	37	10	12	4-1/2
#7	54	42	70	54	12	14	5-1/4
#8	62	48	80	62	14	16	6
#9	70	54	91	70	15	19	9-1/2
#10	79	61	102	79	17	22	10-3/4
#11	87	67	113	87	19	24	12
#14	105	81	---	---	32	31	18-1/4
#18	139	107	---	---	43	41	24

2. Straight development and Class "B" splice lengths shown in above tables are based on uncoated bars assuming center-to-center bar spacing ≥ 3*d_b without ties or stirrups or ≥ 2*d_b with ties or stirrups, and bar clear cover ≥ 1.0*d_b Normal weight concrete as well as no transverse reinforcing are both assumed.
3. Standard 90 deg. hook embedment lengths are based on bar side cover ≥ 2.5" and bar end cover ≥ 2" without ties around hook.
4. For special seismic considerations, refer to ACI 318 Code Chapter 21.
5. All tension splices shall be Class "B" splices unless noted otherwise on plans.

Tension Development and Splice Lengths for f'c = 5,000psi

Bar Size	Development Top Bar	Development Other Bar	Class "B" Splice Top Bar	Class "B" Splice Other Bar	Standard 90 deg. Hook Embed.	Leg Length	Bend Dia.
#3	17	13	22	17	6	6	2-1/4
#4	22	17	29	22	6	8	3
#5	28	22	36	28	8	10	3-3/4
#6	33	26	43	33	9	12	4-1/2
#7	49	37	63	49	11	14	5-1/4
#8	55	43	72	55	12	16	6
#9	63	48	81	63	14	19	9-1/2
#10	70	54	91	70	15	22	10-3/4
#11	78	60	101	78	17	24	12
#14	94	72	---	---	29	31	18-1/4
#18	125	96	---	---	39	41	24

1. Straight development and Class "B" splice lengths shown in above tables are based on uncoated bars assuming center-to-center bar spacing ≥ 3*d_b without ties or stirrups or ≥ 2*d_b with ties or stirrups, and bar clear cover ≥ 1.0*d_b Normal weight concrete as well as no transverse reinforcing are both assumed.
2. Standard 90 deg. hook embedment lengths are based on bar side cover ≥ 2.5" and bar end cover ≥ 2" without ties around hook.
6. For special seismic considerations, refer to ACI 318 Code Chapter 21.
3. All tension splices shall be Class "B" splices unless noted otherwise on plans.

   g. All welded wire fabric shall be lapped 12" or 48 wire diameters, whichever is greater.
   h. Provide (2) #5 x 6'-0" diagonals at all corners of openings and re-entrant corners, unless noted otherwise.
   i. Dowels between foundation and walls shall be installed and shall be the same grade, size, and spacing as the vertical wall reinforcing, unless noted otherwise.
   j. Provide corner bars to match longitudinal reinforcing in all footings. Provide (2) corner bars at tee intersections.
   k. Provide 500 pounds of miscellaneous straight bar reinforcing (#4 & #5) to be used in field for special conditions. Labor for placing same to be included.
2. Slabs and Slabs-on-Grade
   a. Concrete slab on composite metal deck to be reinforced with 6x6 – W2.9xW2.9 welded wire fabric typical unless noted otherwise.
   b. All slabs on grade to be reinforced with 6x6 – W2.9xW2.9 welded wire fabric, unless noted otherwise.

G. FOUNDATIONS

1. Soil Properties
   a. Foundation design is based on the following to be considered part of the construction documents:
      i) Geotechnical Report prepared by Intrinsic Development, dated April 15, 2024.
2. A geotechnical representative shall be retained on site for all construction activity to verify that all proper requirements have been met to meet the design requirements outlined in the geotechnical report. Representative shall be someone familiar with all documents of the geotechnical investigation provided for the project.
3. The Contractor shall provide dewatering of excavations from surface water and ground water. Do not place concrete if water is present at base of excavation.
4. Footings
   a. All footings shall bear on suitable subgrade prepared in accordance with the geotechnical report. The underlying soils and the structural fill shall have a minimum safe load bearing capacity of 2,500 psf.
   b. Remove all existing topsoil, pavement, organic materials, and other soil that appears to be unsuitable prior to preparing the footing subgrade. If exposed soil cannot be maintained in a moist conditions as verified by the geotechnical engineer, the upper 18 inches of fill below the foundation shall be low volume control material.
   c. If any adverse soil conditions are encountered which extend below footing level such as those listed above, the general contractor shall contact the geotechnical engineer immediately for determination of how to remedy the condition before continuation of work.
   d. No footings shall be placed in water or on frozen ground. All exterior construction shall be carried down to minimum 3'-0" below finished adjacent exterior grade.
5. Slab on Grade
   a. Slabs shall be constructed as shown on the plans.
   b. Slabs-on-grade shall be placed on subgrade prepared in accordance with the requirements of the geotechnical report and the details in these construction documents.
   c. A 10mil minimum vapor retarder shall be installed under all slabs on grade in occupied or conditioned spaces per the drawings. See the geotechnical report for additional information regarding the installation of the vapor retarder.
   d. Slab on grade shall be founded on 6" deep ¾" clean aggregate base.
   e. Per Geotechnical engineer, the upper 24" of compacted fill below the building slab-on-grade shall be low volume change material. Concrete slab should be underlain by a minimum of 6" of compacted granular fill compacted to at least 98% of maximum dry density.
   f. Provide joints at 30 x slab thickness (+/-) in both directions and located to conform to bay spacing wherever possible (at column centerlines, half bays, third bays, etc.). Submit control joint layout for approval by the Structural Engineer.
   g. Saw cut control joints shall be done late enough to prevent raveling of the cut edges and early enough to prevent racking of the slab ahead of the saw blade.
   h. Plumbing and utilities passing through the slab on grade shall be constructed with flexible fittings to allow for slab movement. The expected slab movement for the parking slab shall be considered up to 2" minimum for fittings.
   i. Concrete slab to be cured according to ACI Standards. Concrete slab cure to be compatible with any sealer, grout, or adhesive that may be used in the floor later.
   j. Locally slope floor towards any floor drains. See architectural and plumbing drawings for drain locations.
6. Geotechnical Testing Agency Requirements
   a. If the geotechnical representative on site takes exception to anything in the Geotechnical Report and requires additional field investigation to clarify those exceptions, the cost of such investigation shall be included in the additional fee for field quality control and testing and identified as such. All other exceptions shall be documented and approved by the geotechnical engineer.
   b. The geotechnical representative must have read all documents pertaining to the geotechnical report for the project and have understood and accepted the criteria contained in the report.
   c. The geotechnical representative must understand and be able to make decisions affecting the work for field observations and conditions described in the report during construction. The representative must be capable of advising the owner or contractor for procedures regarding, but not limited to, sub-grade preparation, dewatering activities, and other construction considerations.

H. CONCRETE MASONRY

1. All construction shall comply with applicable provisions of the following latest ACI standards:
   a. ACI 530/ASCE 52/TMS 402 – Building Code Requirements for Masonry Structures.
   b. ACI 530.1/ASCE 6/TMS 602– Specifications for Masonry Structures.
   c. IBC Chapter 21 Masonry
2. Concrete block units shall conform to the requirements for Grade N Type 1, load-bearing normal-weight units per ASTM C-90. Use Grade S blocks below grade. All below grade block shall be solid grouted.
3. Net area compressive strength of masonry, f'_m = 2,000 psi.
4. Standard units shall have nominal face dimensions of 16 x 8 inches high. The minimum compressive strength of the masonry units shall be as follows:

Net Area Compressive Strength Of Masonry (f'_m psi)	Net Area Compressive Strength Of Concrete Masonry Units (psi) Type M or S mortar	Type N mortar
1,500	2000	2000
2,000	2000	2650
2,500	3250	4350

5. Mortar for unit masonry shall be proportioned per ASTM C270. The minimum mortar compressive strength is as follows:
   a. Type N: 750 psi
   b. Type S: 1,800 psi
   c. Type M: 2,500 psi
6. Grout for unit masonry shall be proportioned per ASTM C476. The minimum grout compressive strength is the larger of 2,000 psi or f'_m.
7. Maximum coarse aggregate size is 3/8".
8. Reinforce all CMU walls with vertical rebar full height, centered in cell as shown on the drawings. Grout reinforced cells solid.
   a. When reinforcing is not specified, provide #5 @ 48" o.c., minimum.
9. All vertical cells to be filled shall have vertical alignment to maintain an unobstructed cell area not less than 2 in. x 3 in.
10. All bond beams shall be grouted solid and reinforced.
    a. Provide bent dowels at all wall intersections – one per bond beam at corners, and two at tee intersections.
11. Provide bond beams at all walls supporting roof and floor slabs.
12. Grout solid under all beams and lintels for full height of wall.
13. All masonry walls shall have ladder type horizontal joint reinforcement with two 9 gage wires spaced at 16" o.c. vertically, unless noted otherwise.
    a. All wall intersections shall be reinforced with prefabricated tee or corner units.
14. Use low lift method of grouting. Maximum grout lift = 5'-0". Alternative methods of grouting may be acceptable. Submit method for approval two weeks in advance.
15. Masonry reinforcing lap lengths shall be as follows:

Bar Size	Masonry Strength, f'_m (psi) 2,000	2,500	3,000
#3	12"	12"	12"
#4	18"	16"	15"
#5	28"	25"	23"
#6	52"	46"	42"
#7	63"	63"	57"
#8	72"	72"	72"
#9	82"	82"	82"

Notes:
1. Development length is based on 2½" masonry cover for all bars. Use bar spacers to maintain cover.

16. Brace all masonry walls until floor and roof framing and metal deck are installed.
    a. Design and installation of bracing is the responsibility of the masonry contractor.
    b. Submit bracing plan for review.
17. When grouting is stopped for more than one hour, horizontal construction joints shall be formed by stopping the pour of grout 1-1/2" below the top of the uppermost course.
18. Provide control joints in wall every 40 ft. Provide vertical reinforcing in first cell each side of control joint. Do not locate control joint within 2'-0" of end or opening.
19. Conduit pipes and sleeves in masonry shall not displace more than 2 percent of the net cross-sectional area and shall be placed no closer than 3 diameters or widths on center.
20. The Contractor shall include in his bid an allowance of 300 lbs of reinforcing steel "in place" to be used in the field as the architect or structural engineer may direct.

RELEASED FOR CONSTRUCTION
As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri
12/18/2024

PRINTS ISSUED
11/20/2024 PERMIT SUBMITTAL

REVISIONS:

McCLURE™
2001 W Broadway
Columbia, MO 65203
P 573-814-1568

MISSOURI CERTIFICATE OF AUTHORITY
NO. E-2006023253
EXPIRES: DECEMBER 31, 2024

STATE OF MISSOURI
CELESTE KAY SPICKERT
NUMBER PE-2008002213
PROFESSIONAL ENGINEER
11/20/2024

THE VILLAGE AT DISCOVERY - LOT #1
LEE SUMMIT, MO 64064

SHEET TITLE
GENERAL NOTES

PROJECT NUMBER: 2023000333

SHEET NUMBER:
S001

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I. STRUCTURAL STEEL

1. Materials:
   a. Materials shall conform to the following, unless noted otherwise.
      i. Rolled WF shapes — ASTM A992
      ii. Plates and Angles — ASTM A572 Grade 50
      iii. Channels — ASTM A36
      iv. HSS: Rectangular — ASTM A500, Grade C
      v. HSS: Round — ASTM A500, Grade C
      vi. Bolts — ASTM F3125
         1. All bolts shall be Grade A325 or F1852, UNO
         2. Bolts designed as "A490" shall be Grade A490 or F2280
      vii. Nuts — ASTM A563 DH or A194
      viii. Washers — ASTM F436
      ix. Anchor Bolts — ASTM F1554 Grade 36, UNO
      x. Threaded Rod — ASTM A36
      xi. Studs — ASTM A108, Type B Nelson headed shear stud connectors or equal.
      xii. Electrodes — Matching weld metal, 70 ksi minimum strength.
   b. Finishes
      i. Prepare all surfaces that will be exposed in accordance with SSPC SP3 "Power Tool Cleaning".
      ii. Do not prime surfaces to be fireproofed, field welded, in contact with concrete, or high-strength bolted.
      iii. All exterior steel components exposed to view or weather shall be galvanized in accordance with ASTM A123 for framing members and ASTM A153 for bolts and threaded fasteners.
      iv. All exterior welded connections shall be cold galvanized in accordance with ASTM A780.
2. Fabricator:
   a. Steel Fabricator shall be AISC Certified.
   b. Structural members shall be detailed, fabricated, and erected in accordance with the latest edition AISC 303 "Code of Standard Practice for Steel Buildings and Bridges."
   c. Structural steel fabrication drawings must be submitted to the engineer for review prior to fabrication.
   d. The Fabricator shall engage a professional engineer registered in the state where the project is located for the design and detailing of:
      i. Steel connections.
      ii. Temporary bracing.
      iii. Steel deck (for continuity and load transfer).
3. Connections:
   a. The contractor has the option to use bolted or welded connections. Any connections not specifically detailed on the drawings shall be designed by a professional structural engineer licensed in the project state and retained by the fabricator. In general, any connections shown on the drawings are schematic and are intended to show only the relative relationship of the connected members.
   b. Structural design calculations for all beam and bracing connections shall be submitted to the engineer prior to fabrication and should include the following (as a minimum):
      i. All plate dimensions and grades (minimum plate thickness shall be 3/8").
      ii. All weld sizes, lengths, pitches and returns.
      iii. Number and type of bolts.
   c. Connection design forces:
      i. Beam shear connections shall be designed for the actual reactions indicated on the drawings or 20 kips minimum. Connection forces shown on drawings are envelope reactions based on ASD load combinations.
      ii. Connections indicated on the drawings as moment-resisting shall be designed for the moment shown. If moment is not indicated on the drawings, connection shall be designed to develop the full capacity of the member.
      iii. Columns have not been checked for local effects at connections. Fabricator shall verify if stiffener or web doubler plates are required and provide as necessary. Column size may also be increased with approval of the engineer of record.
      iv. Connection loads indicated on the drawings include compensation for Code permitted stress increases and load reductions for connection design.
   d. Bolted Connections:
      i. Minimum bolt diameter shall be 3/4".
      ii. Slip critical connections shall be used for bracing members, moment-resisting connections, cantilevers, and as indicated on the drawings. Standard oversized and long-slotted holes are permitted for friction-type connections.
      iii. All non-slip-critical connections shall be typical bearing type. Oversized or slotted holes are not permitted unless indicated on the drawings.
      iv. The fabricator is responsible for verifying the tensile capacity of axially loaded members with the presence of bolt holes. Increase member size; add plates (etc) as required.
   e. Welded Connections:
      i. All fillet welds shall be sized according to AISC minimums, but never less than 3/16" (UNO).
      ii. All welds shall be performed in accordance with the latest edition of the AWS Structural Welding Code.
4. Erection:
   a. All structural steel to be fabricated and erected in accordance with latest AISC specifications.
      i. It is the responsibility of the contractor to ensure that structure is maintained in a safe, stable configuration at all times.
      ii. Any shoring required shall be submitted with engineering calculations for approval.
   b. Splicing of steel members not specifically shown on the drawings is prohibited without prior approval from the engineer.
   c. All beams shall be installed with the mill camber up.
5. Steel Lintels:
   a. Loose lintels for masonry at all openings shall be the following, one angle per 4" wythe of masonry:
      i. L 3-1/2 x 3-1/2 x 5/16 for spans less than 5'-9"
      ii. L 5 x 3-1/2 x 5/16 for spans between 5'-9" and 7'-11"
      iii. L 6 x 3-1/2 x 5/16 for spans between 8'-0" and 9'-7"
      iv. L 7 x 4 x 3/8 for spans between 9'-8" and 11'-10"
   b. Lintel sizes are based on 36 psf brick weight with 8'-0" max height of brick above the lintel.
   c. Lintels shall bear 8" minimum each end.
   d. Lintels carrying brick shall be galvanized.
   e. All double angle lintels back-to-back shall be bolted at 32" o.c. maximum spacing, with 5/8" diameter A307 bolts, a minimum of two bolts per span.
   f. See architectural and mechanical drawings for opening sizes and locations.
6. Steel Stairs:
   a. Design of steel stairs shown on drawings is the responsibility of the fabricator.
   b. Unless noted otherwise, treads and landings shall be filled with 2 in. of concrete (4,000 psi).
   c. Submit complete, sealed, shop drawings including engineering calculations for each stair. Drawings shall include all members and connections, including connections to supporting structure.
   d. Unless noted, all connections to steel structure shall be welded and all connections to concrete or masonry shall be post-installed anchors (screw, expansion or epoxy type).
      i. Connections shall only be to grouted masonry. Indicate clearly if additional grouting is required.
   e. Supporting members have been designed for all loads imposed by stair system.
      i. Check supporting members for local effects at connections and provide stiffeners, doublers, etc. as necessary.
   f. Design stairs for the following loads:
      i. Live Load = 100 psf or 300 lb. point load on 4" square area.
      ii. Dead Load = Self weight plus 10 psf superimposed dead load.
   g. Design stairs for the following deflection criteria:
      i. Live Load = L/480
      ii. Total Load = L/360

J. STEEL FLOOR & ROOF DECK

1. General:
   a. Install steel deck according to procedures outlined in the latest edition of the "SDI Manual of Construction with Steel Deck" published by the Steel Deck Institute. One copy shall be maintained on site.
   b. All steel roof deck shall be welded to supporting beams and joists and erected in accordance with manufacturer's latest recommendations.
   c. Deck shall be continuous over 3 spans, unless noted otherwise.
   d. Provide welds or screws at parallel edges equal to specified fastening as supports. Fasten to all parallel supports – both at edges and in the field of the deck. Raise steel supports or provide shims at weld points if the deck valley does not engage the support.
   e. Provide welding washers as required by manufacturer's recommendations.
   f. All miscellaneous accessories -- pour stops, column closures, etc. -- will be installed in accordance with mfg recommendations and the Steel Deck Institute.
   g. Pour stops shall be A36 steel angles (1/4") to finish floor height unless otherwise noted.
   h. The use of any equipment weighing over 150 pounds for installation or finishing of concrete or roofing is prohibited without prior approval from the Engineer. Request MUST be made prior to submittal of shop drawings for deck and supporting structure to be considered.
   i. Composite deck has been designed for a uniform construction live load of 20 psf and concentrated construction live load of 150 lbs. These loads are considered adequate for typical construction that consists of concrete transport and placement by hose and concrete finishing using hand tools. Bulk dumping of concrete using buckets, chutes, or handcarts, and the use of motorized finishing equipment (such as power screeds) may require design for larger construction live loads and the addition of deck shoring during concrete placement. Requests for approval to use concrete placement or finishing methods requiring analysis using increased loading must be made by the contractor to the engineer prior to submittal of deck and supporting structure shop drawings to be considered.
   j. Concrete placed on steel deck shall have a constant thickness. Thickness shall be maintained by probing the deck at supports and at mid-span between supports. It is not permissible to finish the deck to be flat unless a design is submitted demonstrating that the deck and supporting structure can support the additional concrete weight.

2. Floor Deck:
   a. Floor deck properties shall be as follows based on deck type indicated on plans:
      i. Level 2 Floor Slab: 4 1/2" Total depth light weight concrete slab on 1 1/2" 20 gauge composite metal deck w/ 6x6-W1.4xW1.4 welded wire reinforcing.
         a. Deck: 9/16" Non-Composite 26 Ga
            t_{min} = 0.0359", I_p=0.197 in^4/ft, I_n=0.217 in^4/ft, S_p=0.224 in^3/ft, S_n=0.229 in^3/ft, F_y=60 ksi
   b. Floor deck shall be welded to supports with 5/8"Ø puddle welds with 36/4 pattern, with 2 sidelap fasteners.
   c. Metal floor deck shall be galvanized in accordance with the requirements of ASTM A653-94 G90.

3. Roof Deck:
   a. Roof deck properties shall be as follows based on deck type indicated on plans.
      b. Deck: 1 1/2" Wide Rib 20 Ga
         t_{min} = 0.0358", I_p=0.197 in^4/ft, I_n=0.217 in^4/ft, S_p=0.224 in^3/ft, S_n=0.229 in^3/ft, F_y=50 ksi
   b. Roof Deck shall be phosphatized / painted unless noted. Coordinate with roof system – galvanized deck is required for some insulating concrete roof systems.
   c. Roof deck shall be welded to supports with 5/8"Ø puddle welds and fasteners at sidelaps with #10 screws as follows:
      i. 36/4 weld pattern W/ 1 sidelap fasteners per span

MINIMUM DESIGN REACTION SCHEDULE
(FOR BEAM REACTIONS NOT SHOWN ON PLANS OR DETAILS)

Beam	Min. No. of Bolts	Shear Tab to Column	Double Angle to Beam
W8	2	12.4 Kips	12.4 Kips
W10	2	13.8 Kips	13.8 Kips
W12	3	23.0 Kips	23.0 Kips
W14	3	26.4 Kips	26.4 Kips
W16	4	39.0 Kips	39.0 Kips
W18	5	53.0 Kips	59.1 Kips
W21	6	63.6 Kips	83.6 Kips
W24	7	74.2 Kips	110.6 Kips
W27	7	74.2 Kips	128.6 Kips
W30	8	84.8 Kips	151.3 Kips
W33	9	95.4 Kips	185.0 Kips
W36	10	103.0 Kips	205.0 Kips

Note: Unless reactions are noted on plan, beam connections shall be designed for these reactions & provided with these minimum bolt quantities. Fabricator shall provide shop drawings indicating the provided capacity of all typical connections.
Table assumptions:
- Least web thickness for beam depth series
- 3/8" 36 ksi single shear plate or 5/16" 36 ksi double angles
- 3/4" dia. A325 bolts with threads included
- Standard size bolt holes
- Beam coped top & bottom
- Distance from end of beam to center of bolt holes = 1 1/2" minimum...

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MISSOURI CERTIFICATE OF AUTHORITY
NO. E-2006023253
EXPIRES: DECEMBER 31, 2024

STATE OF MISSOURI
CELESTE KAY SPICKERT
NUMBER PE-2008002213
PROFESSIONAL ENGINEER

11/20/2024

THE VILLAGE AT DISCOVERY - LOT #1
LEE SUMMIT, MO 64064

SHEET TITLE
GENERAL NOTES

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S002

STATEMENT OF SPECIAL INSPECTIONS

Project Name: Discovery Park Lee's Summit Lot 4   Address: 1921 NE Discovery Ave, Lee's Summit, MO 64064

1. This Statement of Special Inspections is submitted as a condition for permit issuance in accordance with the Special Inspection and Structural Testing requirements of the Building Code. It includes a schedule of Special Inspection services applicable to this project as well as the name of the Special Inspector to be retained for conducting these inspections and tests. This Statement of Special Inspections encompasses only the structural discipline.

2. The Special Inspector shall keep records of all inspections and shall furnish inspection reports to the Building Official and the Registered Design Professional in Responsible Charge. Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Registered Design Professional in Responsible Charge. The Special Inspection program does not relieve the Contractor of his or her responsibilities.

3. Interim reports shall be submitted to the Building Official and the Registered Design Professional in Responsible Charge.

4. A Final Report of Special Inspections documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy.

5. Job site safety and means and methods of construction are solely the responsibility of the Contractor. This Statement of Special Inspections includes the following building systems:

x Fabricators
x Cast-In-Place Foundations Elements
o Helical Pile Foundations
x Concrete Construction
x Masonry Construction - Level 2-3
o Steel Construction Other than Structural Steel
x Seismic Resistance
x Soils
x Rammed Aggregate Piers
o Cast-In-Place Deep Foundation Elements
x Masonry Construction - Level 1
x Structural Steel Construction
x Wood Construction
x Wind Resistance

6. The following components are wind-resisting components or part of the main wind-force resisting system and are subject to special inspections in accordance with the Special Inspection Schedule - Wind Resistance:

Wood Shear Walls with Structural Plywood or Gypsum Board Sheathing
Masonry Walls

7. The following components are designated seismic systems or part of the seismic-force resisting system that are subject to special inspections in accordance with the Special Inspection Schedule - Seismic Resistance:

Wood Shear Walls with Structural Plywood or Gypsum Board Sheathing
Masonry Walls

Special Inspection Schedule: Fabricators

Verification And Inspection Task	Applicable To This Project?	Frequency	
		Continuous	Periodic
1. Verify fabrication and implementation procedures:			
a. Steel Construction	X	-	X
b. Concrete Construction (including rebar fabrication)	X	-	X
c. Masonry Construction	X	-	X
d. Wood Construction	X	-	X
e. Cold Formed Metal Construction	-	-	X
f. Other Construction	-	-	X

Special Inspection Schedule: Soils

Verification And Inspection Task	Applicable To This Project?	Frequency	
		Continuous	Periodic
1. Verify materials below shallow foundations are adequate to achieve the desig...	X	-	X
2. Verify excavations are extended to proper depth and have reached proper...	X	-	X
3. Perform classification and testing of compacted fill materials.	X	-	X
4. Verify use of proper materials, densities and lift thickness during placement...	X	X	-
5. Prior to placement of compacted fill, observe subgrade and verify that site has been prepared properly.	X	-	X

Special Inspection Schedule: Cast-In-Place Foundation Elements

Verification And Inspection Task	Applicable To This Project?	Frequency	
		Continuous	Periodic
1. Special Inspections and verifications for concrete foundation construction in accordance with the Special Inspection Schedule: Cast-In-Place Concrete for th...			
a. Isolated spread concrete footings.	-	-	X
b. Continuous concrete Grade Beams.	X	-	X
c. Concrete foundation walls.	X	X	-

Special Inspection Schedule: Rammed Aggregate Piers

Verification And Inspection Task	Applicable To This Project?	Frequency	
		Continuous	Periodic
1. Observed installation operations and maintain complete and accurate records for each element.	X	X	-
2. Verify placement locations, pre-auger diameter and soil conditions encountered during drilling (if applicable), pier lengths, and planned and actual...	X	X	-
3. Document average lift thickness of each pier, volume of aggregate used in each pier, and any unusual conditions encountered including cave-in...	X	X	-
4. Perform modulus test, bottom stabilization test for Geopier replacement elements, and crowd stabilization test for Geopier replacement elements.	X	X	-

Special Inspection Schedule: Concrete Construction

Verification And Inspection Task	Applicable To This Project?	Frequency	
		Continuous	Periodic
1. Inspect reinforcing steel, including prestressing tendons and placement.	X	-	X
2. Inspect reinforcing steel welding in accordance with the Special Inspection...	X	-	-
3. Inspect anchors cast in concrete where allowable loads have been increased...	X	-	X
4. Inspect anchors post-installed in hardened concrete members.	X	-	X
5. Verify use of required design mix.	X	-	X
6. At the time fresh concrete is sampled to fabricate specimens for strength test...	X	X	-
7. Inspect concrete and shotcrete placement for proper application techniques.	X	X	-
8. Inspect for maintenance of specified curing temperature and techniques.	X	-	X
9. Inspection of Prestressed Concrete:			
a. Observe application of prestressing forces.	-	X	-
b. Observe grouting of bonded prestressing tendons in the seismic force...	-	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...	-	-	X
12. Inspect formwork for shape, location, and dimensions of the concrete member being formed.	X	-	X

Special Inspection Schedule: Masonry Construction - Level 1

Verification And Inspection Task	Applicable To This Project?	Frequency	
		Continuous	Periodic
1. Compliance with required inspection provisions of the Construction Documen...	X	-	X
2. Verify f'm and f'aac prior to construction except where specifically exempted ...	X	-	X
3. Verify slump flow and VSI as delivered to the site for self-consolidating grout.	X	X	-
4. As masonry construction begins, the following shall be verified to ensure...			
a. Proportions of site-prepared mortar.	X	-	X
b. Construction of mortar joints.	X	-	X
c. Location of reinforcement, connectors, prestressing tendons, and...	X	-	X
d. Prestressing technique.	-	-	X
e. Grade and size of prestressing tendons and anchorages.	-	-	X
5. During construction, the inspection program shall verify:			
a. Size and location of structural elements.	X	-	X
b. Type, size, and location of anchors, including other details of anchorage o...	X	-	X
c. Specified size, grade, and type of reinforcement, anchor bolts, prestressin...	X	-	X
d. Welding of reinforcing bars.	-	X	-
e. Preparation, construction, and protection of masonry during cold weather...	X	-	X
f. Application and measurement of prestressing force.	-	X	-
6. Prior to grouting, the following shall be verified to ensure compliance:			
a. Grout space is clean.	X	-	X
b. Placement of reinforcement, connectors, prestressing tendons, and...	X	-	X
c. Proportions of site-prepared grout and prestressing grout for bonded...	X	-	X
d. Construction of mortar joints.	X	-	X
7. Grout placement shall be verified to ensure compliance with Building Code a...			
a. Grouting of prestressing bonded tendons.	-	X	-
8. Preparation of any required grout specimens, mortar specimens, and/or prisms shall be observed.	X	-	X

Special Inspection Schedule: Structural Steel Construction

Verification And Inspection Task	Applicable To This Project?	Frequency	
		Continuous	Periodic
1. Material verification of high-strength bolts, nuts and washers:			
a. Identification markings to conform to ASTM standards specified in the...	X	-	X
b. Manufacturer’s certificate of compliance required.	X	-	X
2. Inspection of high-strength bolting:			
a. Snug-tight joints.	X	-	X
b. Pretensioned and slip-critical joints using turn-of-nut with match marking,...	-	-	X
c. Pretensioned and slip-critical joints using turn-of-nut without match markin...	-	X	-
3. Material verification of structural steel:			
a. Identification markings to conform to ASTM standards specified in the...	X	-	X
b. Manufacturer's certified test reports.	X	-	X
4. Material verification of weld filler materials:			
a. Identification markings to conform to AWS specification in the approved...	X	-	X
b. Manufacturer's certificate of compliance required.	X	-	X
5. Inspection of welding, structural steel:			
a. Complete and partial penetration groove welds.	X	X	-
b. Multi-pass fillet welds.	X	X	-
c. Single-pass fillet welds > 5/16".	X	X	-
d. Single-pass fillet welds < 5/16".	X	-	X
6. Inspection of steel frame joint details for compliance with approved...			
a. Details such as bracing and stiffening.	X	-	X
b. Member locations.	X	-	X
c. Application of joint details at each connection.	X	-	X

Special Inspection Schedule: Wood Construction

Verification And Inspection Task	Applicable To This Project?	Frequency	
		Continuous	Periodic
1. Inspection of high-load diaphragms:			
a. Verify wood structural panel sheathing is of the grade and thickness show...	X	-	X
b. Verify nominal size of framing members at adjoining panel edges agrees...	X	-	X
c. Verify fastener diameter and length, number of fastener lines, the spacin...	X	-	X
2. Inspection of metal-plate-connected wood trusses spanning 60 feet or greater:			
a. Verify temporary installation restraint/bracing are installed in accordance...	-	-	X
b. Verify permanent individual truss member restraint/bracing are installed in accordance with approved truss submittal package.	-	-	X

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1 XX/XX/XX Revision 1

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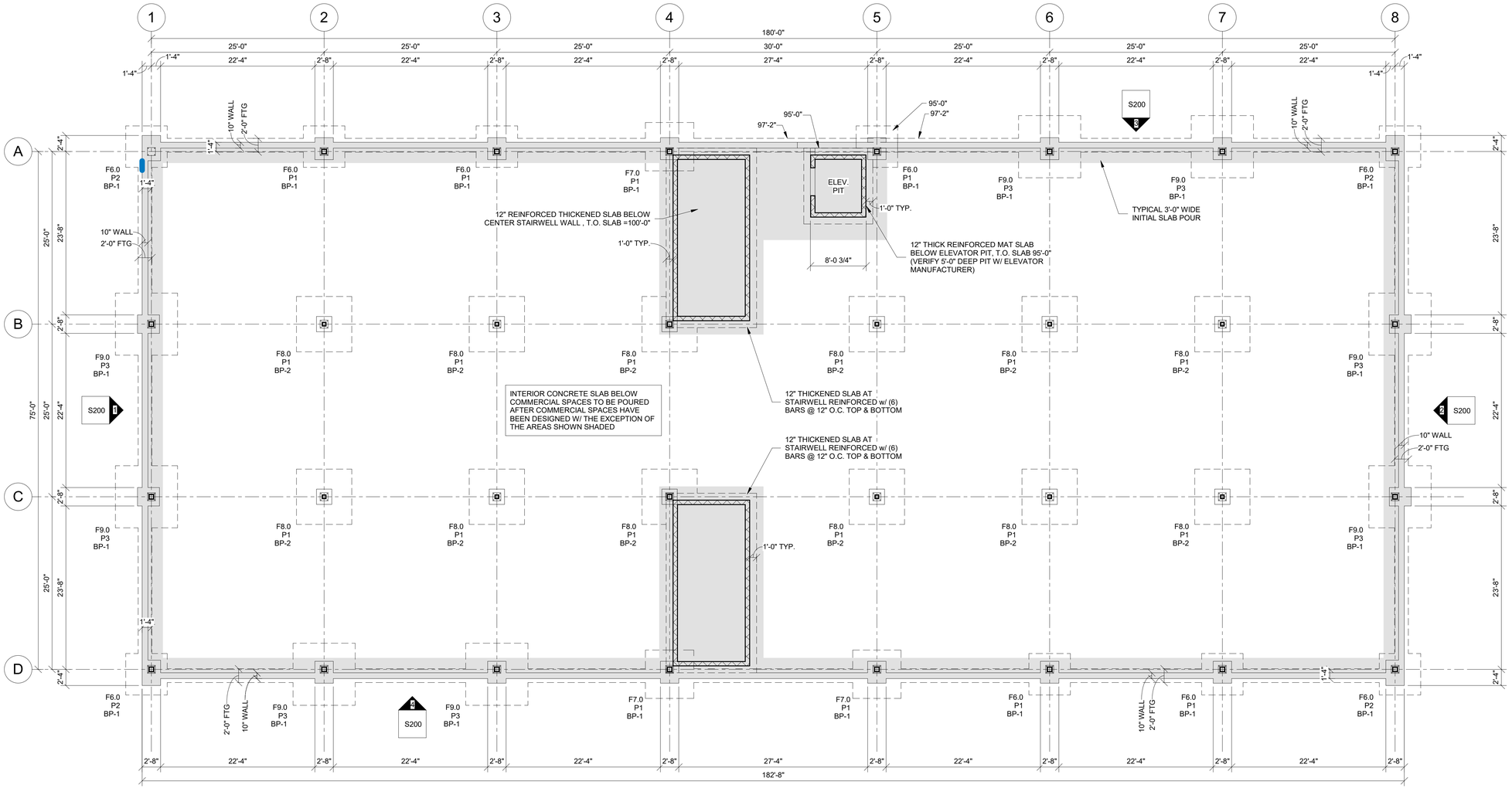
PROFESSIONAL ENGINEER
11/20/2024

THE VILLAGE AT DISCOVERY - LOT #1
LEE SUMMIT, MO 64064

SHEET TITLE
STRUCTURAL SPECIAL INSPECTIONS SCHEDULES

PROJECT NUMBER: 2023000333

SHEET NUMBER:
S003



1 / S100 1.0 FOUNDATION PLAN
1/8" = 1'-0"

FOOTING SCHEDULE		
MARK	SIZE	REINFORCING
F6.0	6'-0"X6'-0"X1'-0"	(6) #5 BARS, BOTTOM EACH WAY
F7.0	7'-0"X7'-0"X1'-0"	(7) #5 BARS BOTTOM EACH WAY
F8.0	8'-0"X8'-0"X1'-0"	(8) #7 BARS, BOTTOM EACH WAY
F9.0	9'-0"X9'-0"X1'-0"	(9) #7 BARS, BOTTOM EACH WAY

NOTES:
1. ALL FOOTINGS MUST BE CENTERED UNDER WALLS AND COLUMNS, U.N.O.

FOUNDATION PLAN LEGEND

F#.#.	FOOTING TYPE
P#	PEDESTAL TYPE
BP#	BASE PLATE TYPE (SEE SHEET S530)
	CMU WALL ABOVE

FOUNDATION PLAN NOTES

1. SEE ARCHITECTURAL DRAWING FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATIONS, SEE BELOW (VERIFY ALL ELVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS).
   - LEVEL 1.0 T.O. SLAB = 100'-0"
2. SEE SHEET S500 FOR FOUNDATION WALL DIMENSIONS.
3. PROVIDE CONTROL JOINTS IN SLAB ON GRADE PER DETAIL E / S500 AND GENERAL NOTES.
4. PLUMBING FIXTURES AND FLOOR DRAWINGS ARE TO BE COORDINATED PER ARCH. & MEP DRAWINGS.
5. SEE SHEETS S500 FOR FOUNDATION DETAILS.

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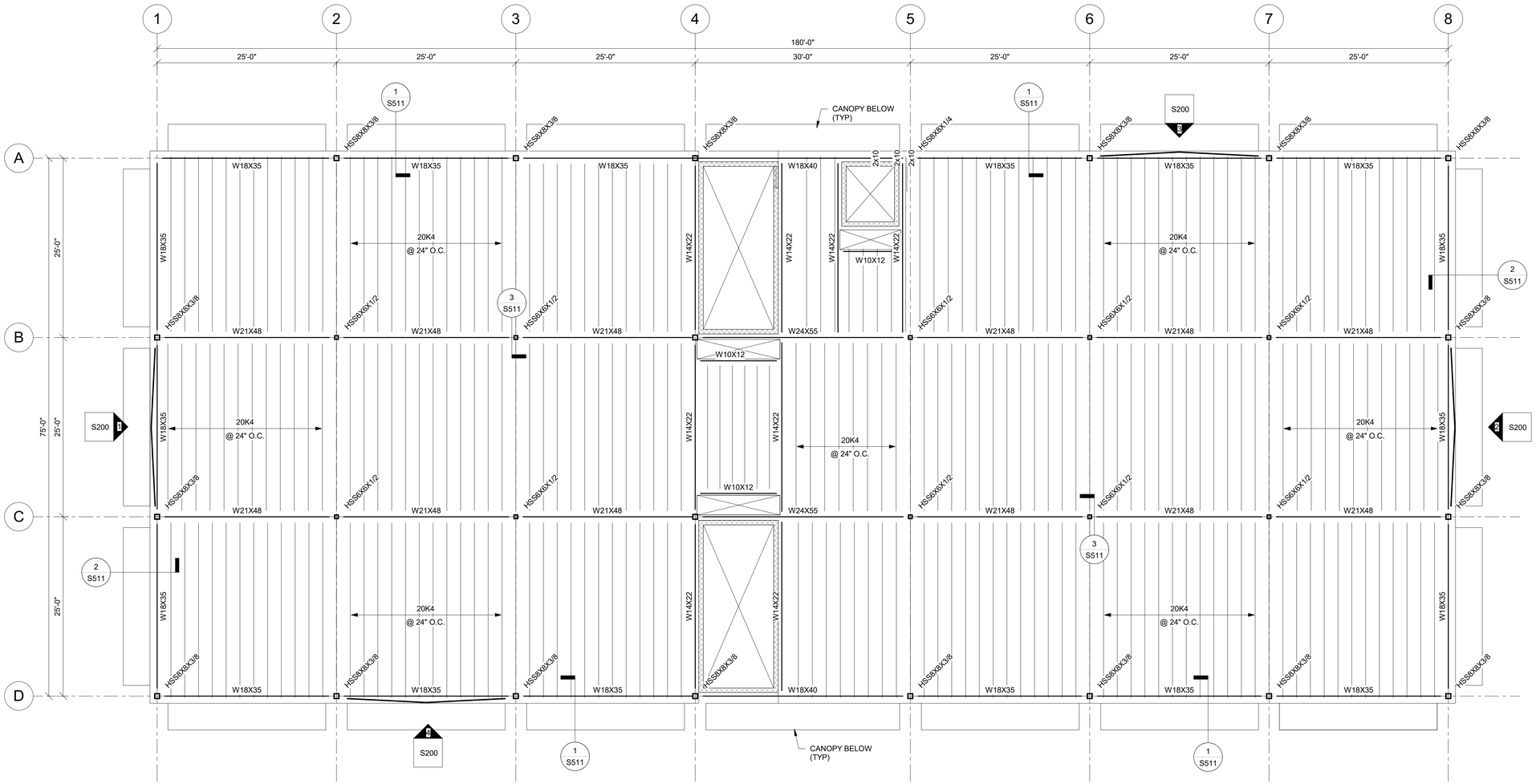
SHEET TITLE
FOUNDATION PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S100



1 S101 LEVEL 2 FRAMING PLAN
1/8" = 1'-0"

LEVEL 2 FRAMING PLAN NOTES

1. SEE ARCHITECTURAL DRAWING FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATIONS, SEE BELOW (VERIFY ALL ELVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS).
   - LEVEL 2.0 TOP OF CONCRETE = 118'-0"
2. T.O.S. FOR STRUCTURAL STEEL BEAMS IS -0'-6" (117'-6") UNLESS NOTED OTHERWISE ON PLAN.
3. LEVEL 2 FLOOR SLAB: 4-1/2" TOTAL DEPTH LIGHT WEIGHT CONCRETE SLAB ON 1-1/2" 20 GA COMPOSITE DECK W/ 6x6-W1.4xW1.4 WELDED WIRE REINFORCING. SEE GENERAL NOTES SECTION "J" FOR DECK FASTENING.
4. PLUMBING FIXTURES AND FLOOR DRAINS NOT SHOWN. COORDINATE WITH ARCH. & MEP DRAWINGS.
5. SEE ARCHITECTURAL DRAWINGS FOR NON-BEARING WALL, DOOR, AND WINDOW LOCATIONS.
6. REFER TO ARCHITECTURAL PLANS FOR STAIR DIMENSIONS AND REQUIREMENTS. REFER TO STRUCTURAL GENERAL NOTES SECTION "I" FOR STAIR DESIGN CRITERIA.

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NUMBER PE-2008002213
PROFESSIONAL ENGINEER
11/20/2024

THE VILLAGE AT DISCOVERY - LOT #1
LEE SUMMIT, MO 64064

SHEET TITLE
LEVEL 2 FRAMING PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S101

1 ROOF FRAMING PLAN
S102 1/8" = 1'-0"

ROOF FRAMING NOTES:
1. TOP OF STEEL BEAMS SHALL BE AT ELEVATION 137'-0" UNLESS NOTED THUS (+/+ 0") ON PLAN
2. SEE SHEETS S001 AND S002 FOR STRUCTURAL GENERAL NOTES
3. SEE SHEET S002 FOR BEAM REACTION SCHEDULE
4. LOCATION OF FLOOR AND ROOF PENETRATIONS TO BE DETERMINED. ADDITIONAL FRAMING MAY BE REQUIRED
5. JOIST BRIDGING AND BRACING PER JOST MANUFACTURER
6. LOCATION OF STEEL FRAMING FOR SUPPORT OF ROOF TOP MECHANICAL UNITS AND PENETRATIONS MUST BE COORDINATED AND VERIFIED BY THE GENERAL CONTRACTOR BEFORE STEEL FABRICATION

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1 12/12/2024 Addendum 1

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THE VILLAGE AT DISCOVERY - LOT #1
LEE SUMMIT, MO 64064

SHEET TITLE
ROOF FRAMING PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:
S102

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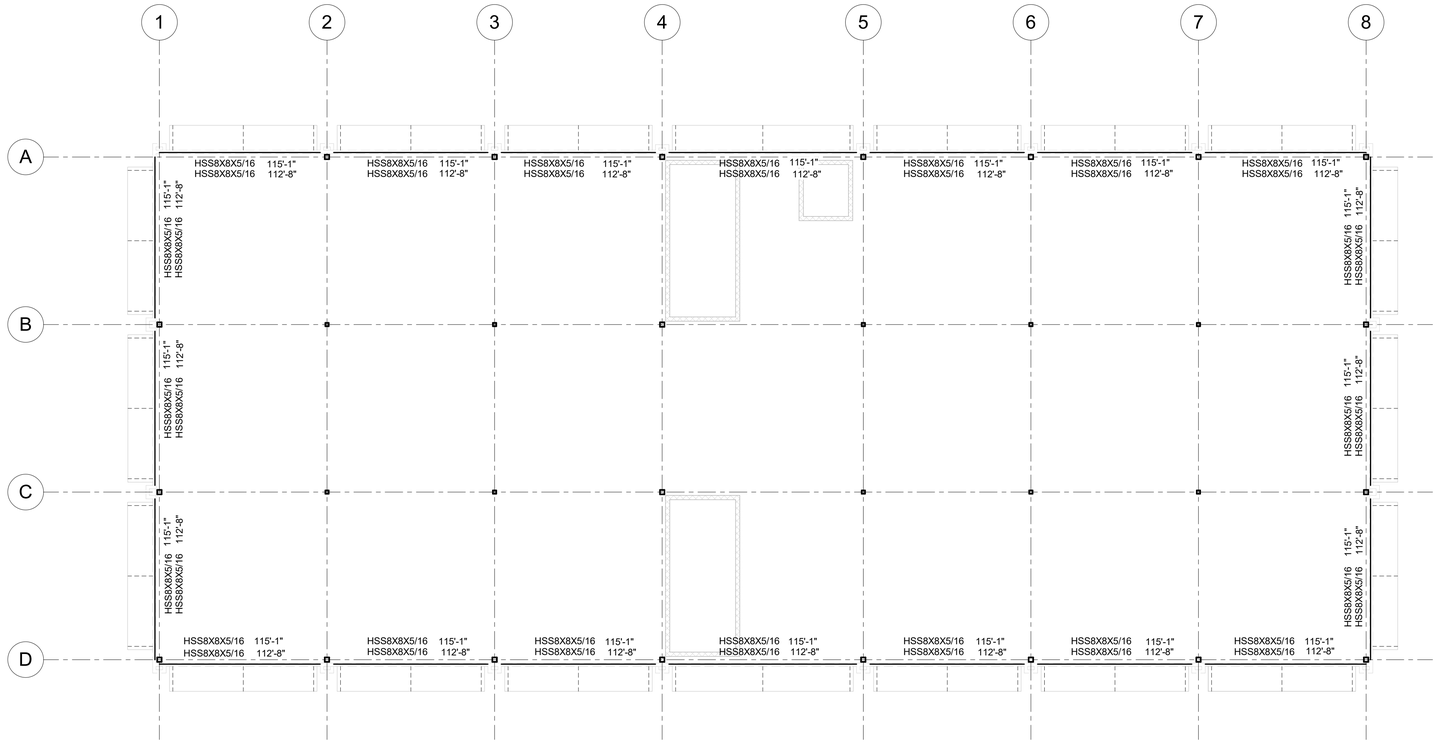
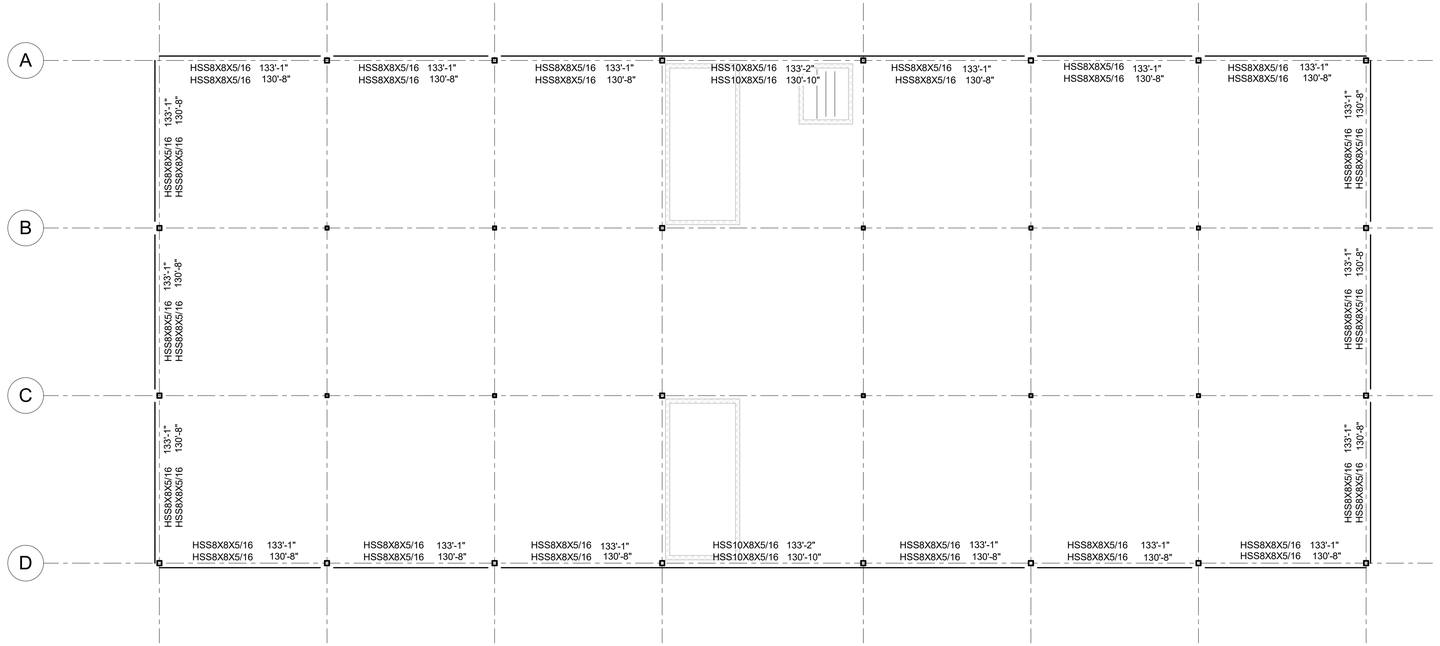


1 S103 LEVEL 1 WIND GIRT FRAMING PLAN
3/32" = 1'-0"



2 S103 LEVEL 2 WIND GIRT FRAMING PLAN
3/32" = 1'-0"

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Lee's Summit, Missouri
11/20/2024

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MISSOURI CERTIFICATE OF AUTHORITY
NO. E-2006023253
EXPIRES: DECEMBER 31, 2024

STATE OF MISSOURI
CELESTE KAY SPICKERT
NUMBER PE-2008002213
PROFESSIONAL ENGINEER

11/20/2024

THE VILLAGE AT DISCOVERY - LOT #1
LEE SUMMIT, MO 64064

SHEET TITLE
WIND GIRT FRAMING PLANS

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S103

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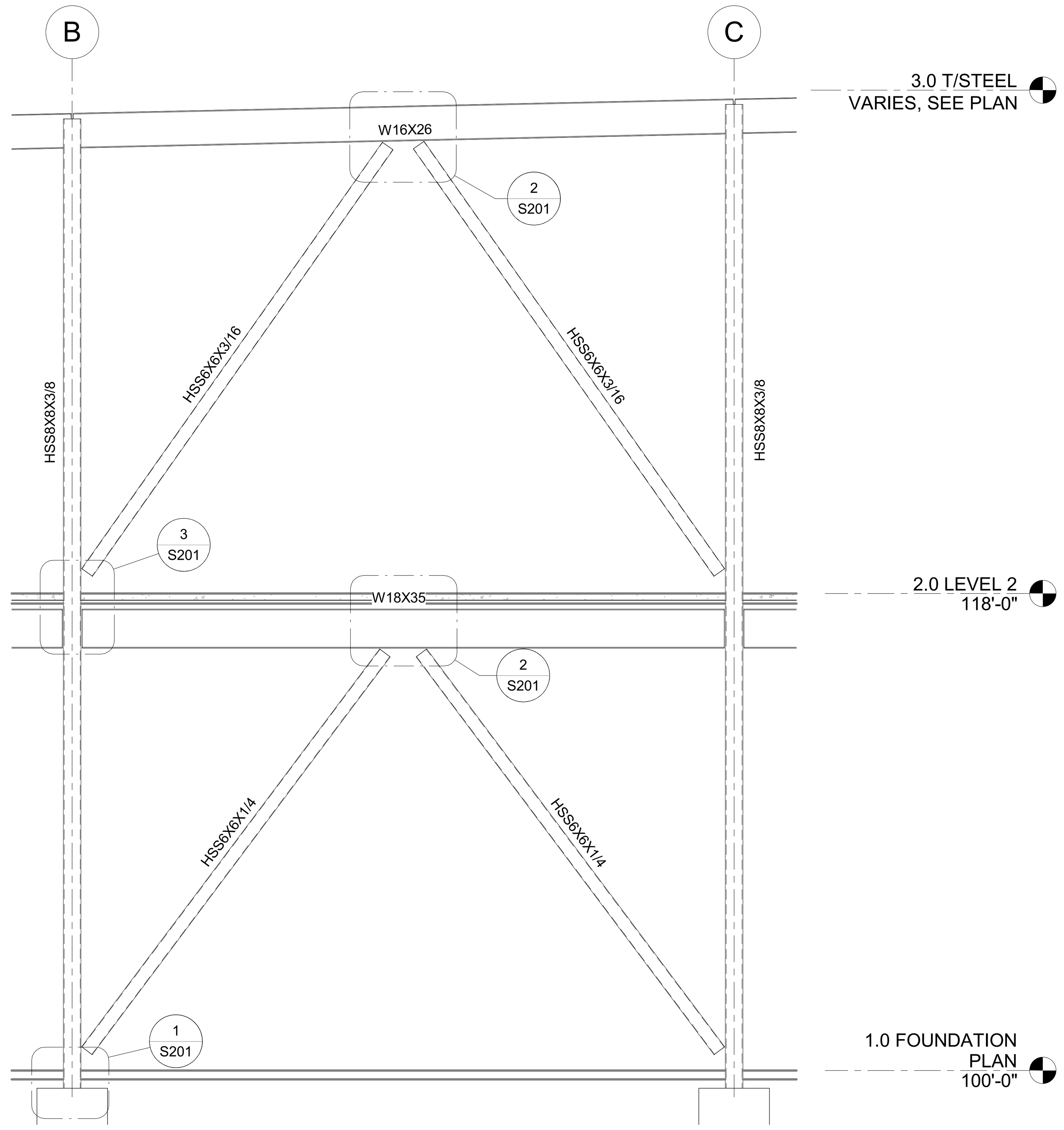
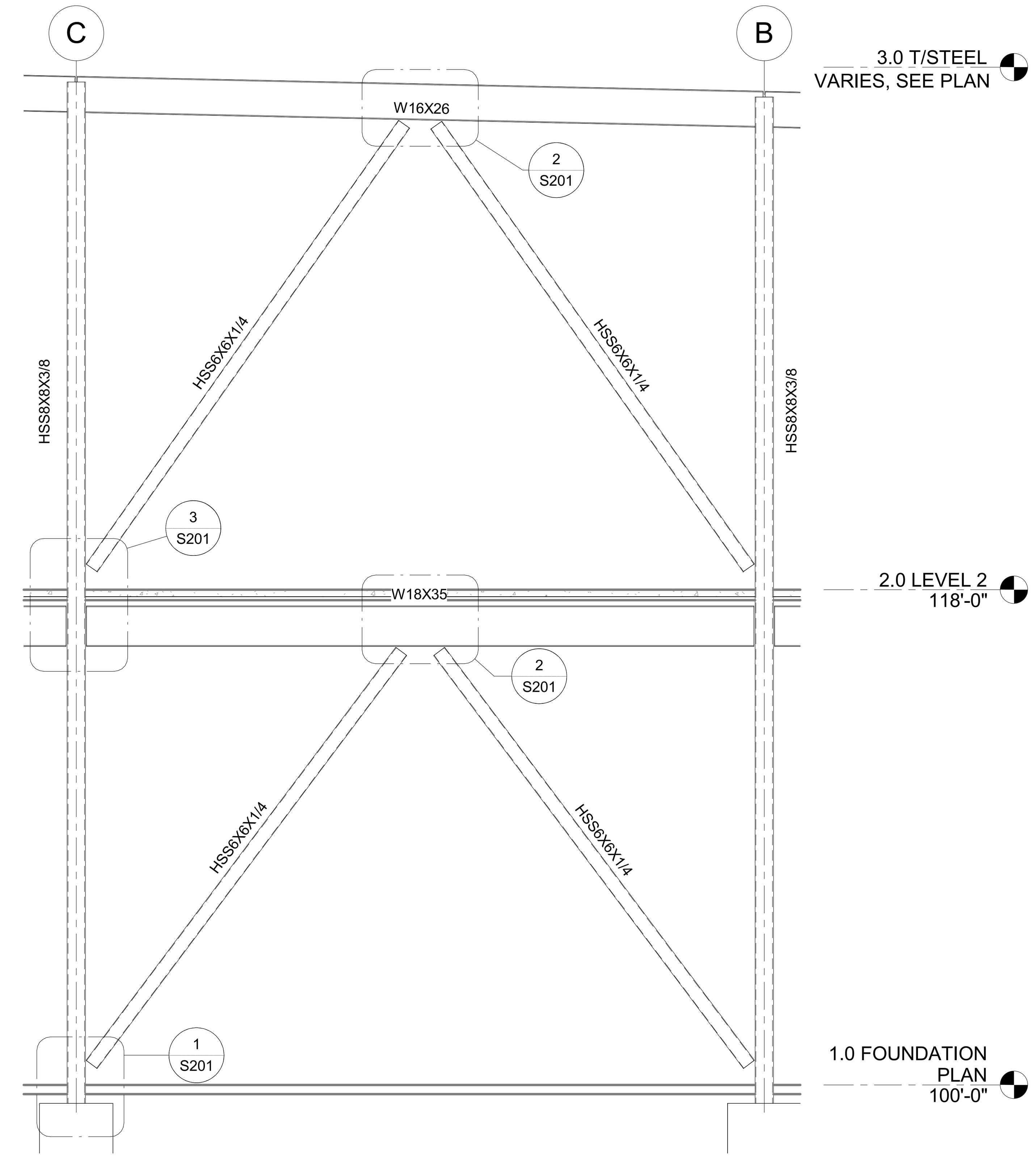
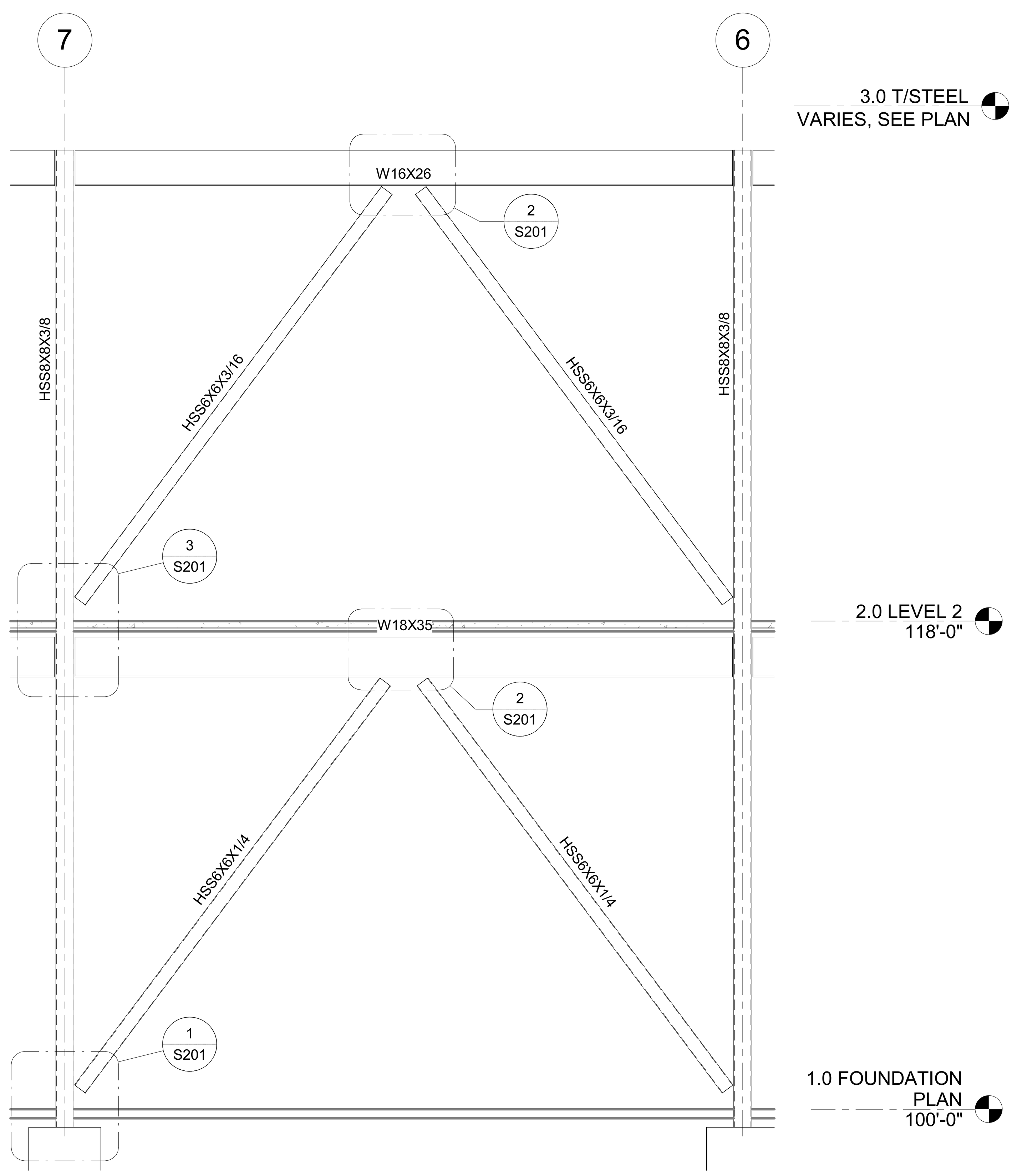
Autodesk Docs://2023000333 - FB24 Discovery Park Lee's Summit/2023000333 - Revemann - Lot 1_FB24.rvt



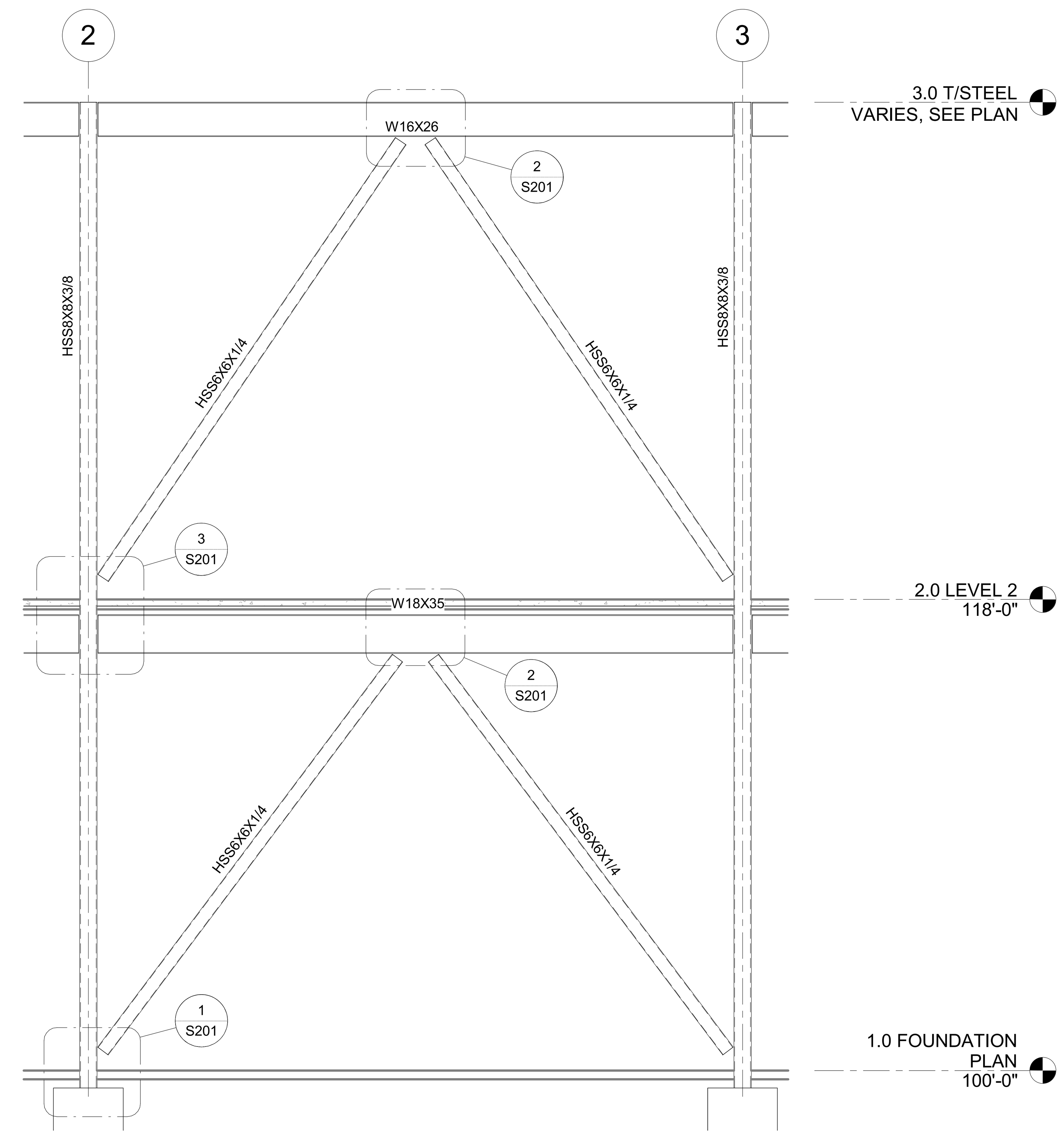
1 S200 BRACED FRAME 1 ELEVATION
1/4" = 1'-0"



2 S200 BRACED FRAME 2 ELEVATION
1/4" = 1'-0"



3 S200 BRACED FRAME 3 ELEVATION
1/4" = 1'-0"



4 S200 BRACED FRAME 4 ELEVATION
1/4" = 1'-0"

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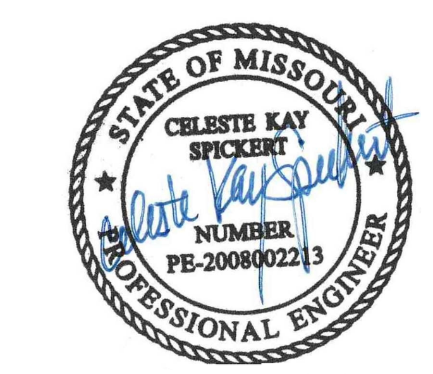

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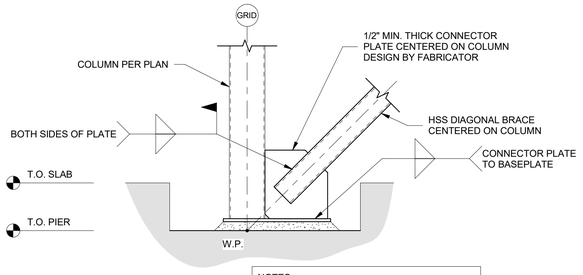
THE VILLAGE AT DISCOVERY - LOT #1
LEE SUMMIT, MO 64064

SHEET TITLE
STEEL BRACED FRAME ELEVATIONS

PROJECT NUMBER: 2023000333

SHEET NUMBER:

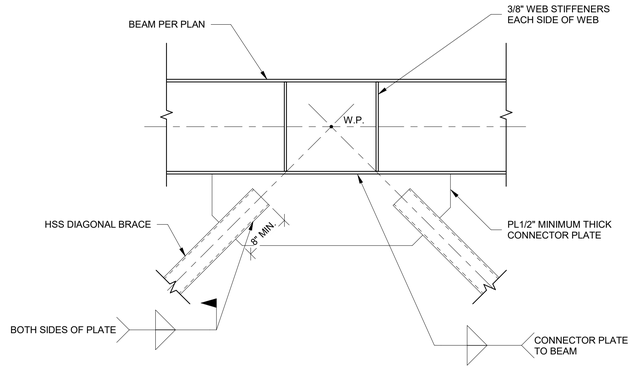
S200



NOTES:

1. SLOT ALOING CENTERLINE OF BRACE TO FIT OVER CONNECTOR PLATE
2. SLOT SHALL BE 1/16" WIDER THAN PLATE

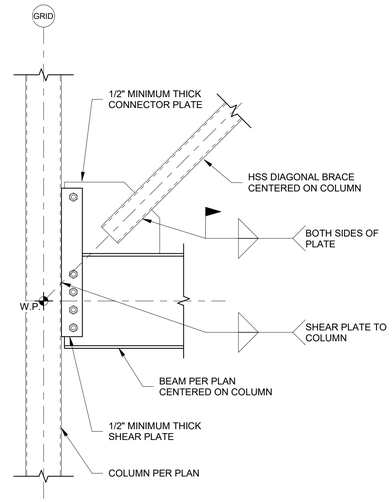
1 S201 CHEVRON BRACED FRAME CONNECTION TO COLUMN
1" = 1'-0"



NOTES:

1. 9/16" SLOT ALONG CENTERLINE OF BRACE TO FIT OVER CONNECTOR PLATE

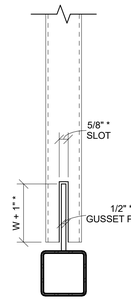
2 S201 CHEVRON BRACED FRAME TOP CONNECTION
1" = 1'-0"



NOTES:

1. BOLTED FASTENER SIZE AND QUANTITY BY CONNECTION DESIGNER

3 S201 CHEVRON BRACED FRAME CONNECTION AT FLOOR LEVEL
1" = 1'-0"

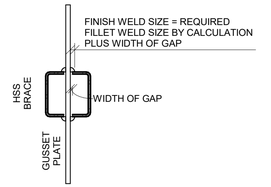


EXAMPLE

BRACE CONNECTION NOTES:

1. DESIGN AND DETAILING OF ALL CONNECTIONS IS THE RESPONSIBILITY OF THE FABRICATOR'S ENGINEER.
2. ALL GUSSET PLATES SHALL BE MIN. 1/2" THICK OR LARGER AS SPECIFIED BY FABRICATOR'S ENGINEER.
3. SLOTS IN TUBE BRACES SHALL BE MAXIMUM OF 1/8" WIDER THAN THE GUSSET PLATE THICKNESS. SLOTS SHALL BE SHOP CUT AND NOT ALTERED IN THE FIELD WITHOUT PRIOR APPROVAL BY BOTH THE FABRICATOR'S ENGINEER AND JSN ASSOCIATES, LLC.
4. BRACE CONNECTIONS MUST BE DESIGNED TO ACCOMMODATE THE TYPICAL GAP BETWEEN TUBE AND GUSSET PLATES. WELDER MUST INCREASE THE INDICATED FILLET WELD SIZE BY ADDING THE GAP WIDTH TO INDICATED SIZE OF FILLET WELD ON THE DRAWING OR SHOP DRAWINGS (SEE "WELD DETAILS").
5. TUBES SHALL LAP ONTO GUSSET PLATES FOR A MINIMUM LENGTH EQUALING THE BRACE SIZE PLUS ONE (1) INCH. REFER TO SHOP DRAWING FOR ADDITIONAL LAP LENGTH REQUIRED BY THE CONNECTION DESIGNER.
6. IN ALL CASES GUSSET PLATE MUST BE CENTERED IN THE GAP - SHIM AS REQUIRED.

*MINIMUM DIMENSIONS - ADJUST AS INSTRUCTED BY THE CONNECTION ENGINEER OF RECORD.



WELD DETAIL

4 S201 TYPICAL BRACE CONNECTION DETAIL
1 1/2" = 1'-0"

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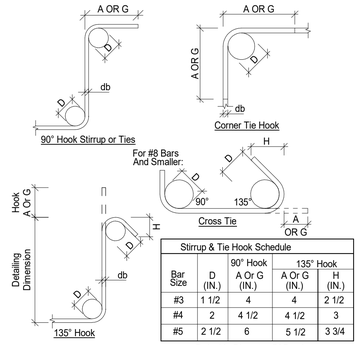
THE VILLAGE AT DISCOVERY - LOT #1
LEE SUMMIT, MO 64064

SHEET TITLE
STEEL BRACED FRAME DETAILS

PROJECT NUMBER: 2023000333

SHEET NUMBER:

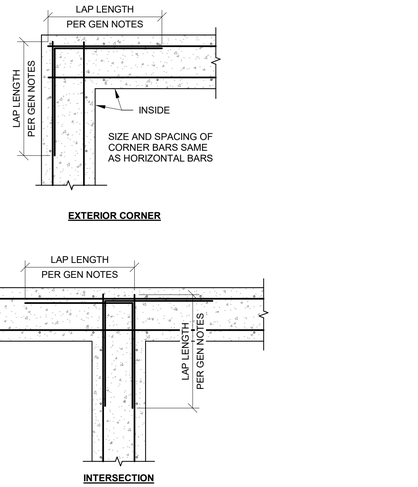
S201



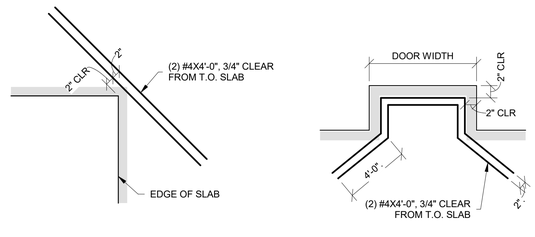
Stirrup & Tie Hook Schedule				
		90° Hook	135° Hook	
Bar Size	D (IN.)	A Or G (IN.)	A Or G (IN.)	H (IN.)
#3	1 1/2	4	4	2 1/2
#4	2	4 1/2	4 1/2	3
#5	2 1/2	6	5 1/2	3 3/4

D=Inside Diameter Of Bend
#3 THRU #8 D = 4db
#9 THRU #11 D = 5db
#14 THRU #18 D = 6db

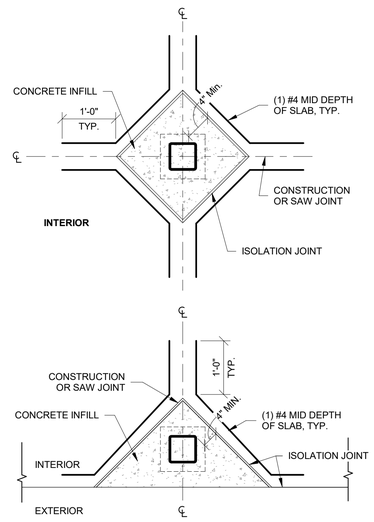
A S500 TYPICAL BAR BENDING DETAIL
3/4" = 1'-0"



B S500 CORNER BAR DETAIL
3/4" = 1'-0"



C S500 ADDITIONAL REINFORCING IN SLABS
3/4" = 1'-0"

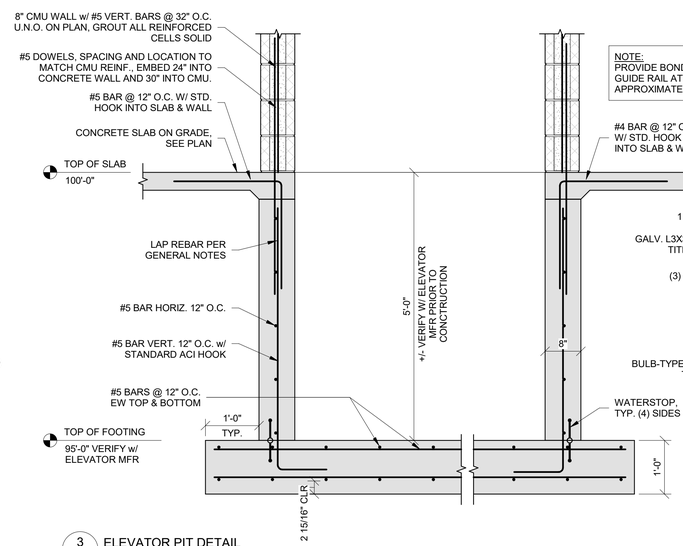


D S500 SLAB ON GRADE ISOLATION JOINT AT COLUMNS
3/4" = 1'-0"

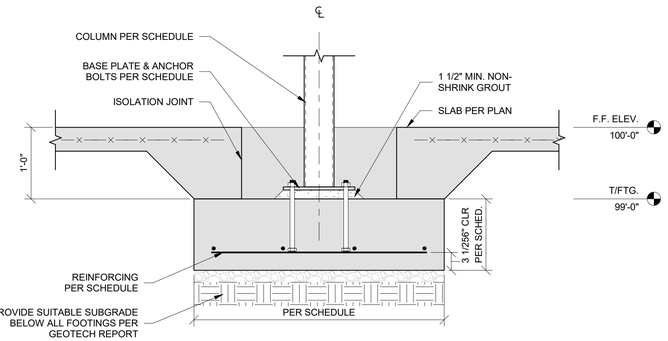
NOTES:
1. LOCATE CONSTRUCTION JOINTS AT SAW JOINT LOCATIONS. MATCH SAW JOINT PROFILE. ALL CONSTRUCTION JOINT LOCATIONS TO BE REVIEWED AND APPROVED BY ER PRIOR TO CONSTRUCTION.
2. MAXIMUM SPACING BETWEEN SAW JOINTS = 15'-0" FOR 6" SLABS & 10'-0" FOR 4" SLABS. SEE PLAN FOR LOCATIONS.
3. CONTINUE SLAB ON GRADE REINFORCING, UNO. PROVIDE TENSION LAP SPLICE AS REQUIRED.
4. DO NOT PLACE DOWELS WITHIN 12" OF A SLAB CORNER.

E S500 TYPICAL SLAB ON GRADE JOINTS
1" = 1'-0"

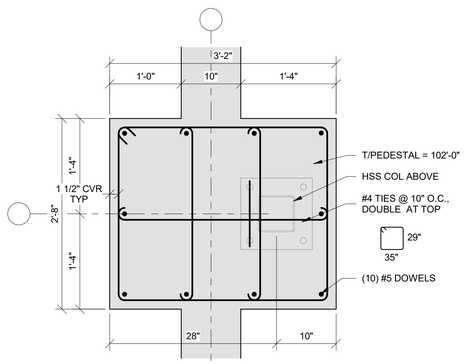
1 S500 FOUNDATION - EXTERIOR WALL SECTION
1" = 1'-0"



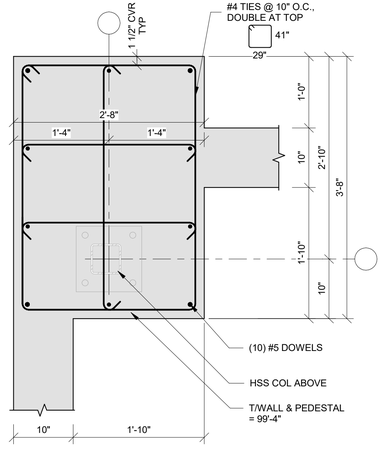
3 S500 ELEVATOR PIT DETAIL
3/4" = 1'-0"



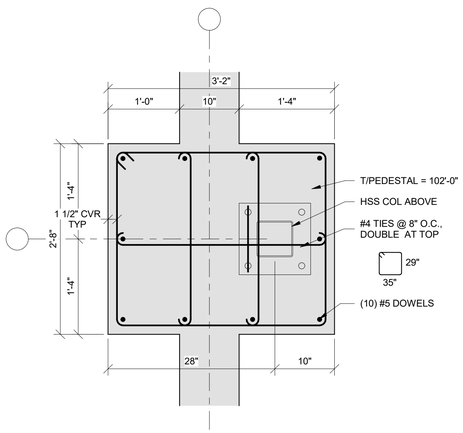
4 S500 FOUNDATION - INTERIOR COLUMN FOOTING
1" = 1'-0"



5 S500 PEDESTAL P1
1" = 1'-0"



6 S500 PEDESTAL P2
1" = 1'-0"



7 S500 PEDESTAL P3
1" = 1'-0"

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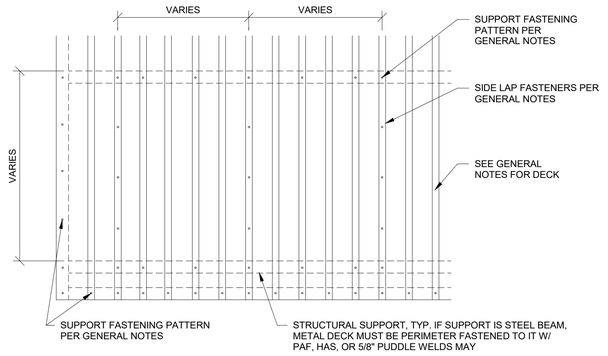
THE VILLAGE AT DISCOVERY - LOT #1
LEE SUMMIT, MO 64064

SHEET TITLE
FOUNDATION DETAILS

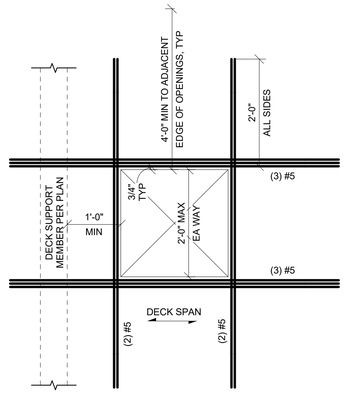
PROJECT NUMBER: 2023000333

SHEET NUMBER:

S500

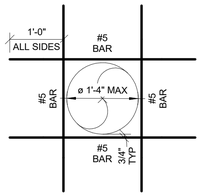


1 S510 DECK FASTENING DETAIL
1" = 1'-0"



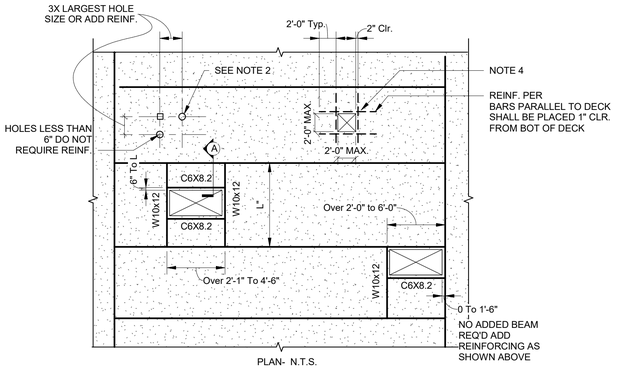
RECTANGULAR FLOOR PENETRATION

NOTES:
1. METAL DECK TO REMAIN UNCUT AND IN PLACE UNTIL CONCRETE HAS OBTAINED F'C OF 3 KSI.
2. OPENING PLACEMENT MUST BE COORDINATED TO AVOID INTERUPTING DIAPHRAGM REINFORCING.

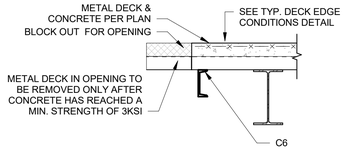


CIRCULAR FLOOR PENETRATION

2 S510 TYPICAL FLOOR DECK OPENING LESS THAN 6'-0"
3/4" = 1'-0"



PLAN- N.T.S.



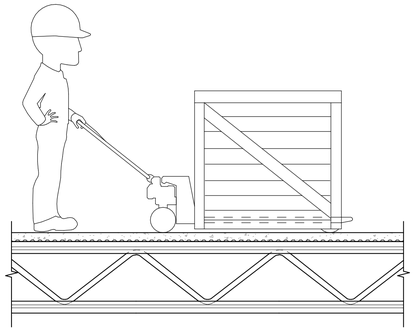
SECTION A

NOTES:
1. BLOCK OUT OPENING BEFORE PLACING CONCRETE.
2. REMOVE BLOCKOUT & CUT DECK AFTER CONCRETE HAS CURED
3. CONTRACTOR SHALL COORDINATE OPENING SIZE & LOCATION W/ MECH. & ELEC. CONTRACTORS & ARCH DRAWINGS
4. THE OPENING NOTED REQUIRES A CLEAR SPACING FROM ADJACENT OPENING OF THREE TIMES THE MAX OPENING DIMENSION. IF REQUIRED LAYOUT CANNOT CONFORM TO THESE REQUIREMENTS. REINFORCE GROUP AS IF ONE COMBINED PENETRATION.

3 S510 TYPICAL FLOOR DECK OPENING
3/4" = 1'-0"

ALLOWABLE CONSTRUCTION LOAD PER JOIST (FOR SINGLE JOISTS @ 24" O.C., DIVIDE BY TWO FOR DOUBLES)

- **UNIFORMLY DISTRIBUTED LIVE LOAD ALLOWANCE PER LOAD PLANS OR**
- **POINT LOADS WITH THE FOLLOWING TOTAL MAGNITUDE:**
  1. **P_{TOTAL} (LBS)=JOIST LENGTH (FT) X LIVE LOAD ALLOWANCE (PSF)**
  2. **EXAMPLE FOR 20FT JOIST AND 40PSF LIVE LOAD ALLOWANCE:**
     A. **P_{TOTAL} = 20FT * 40 = 800LB PER JOIST**
  3. **IF EQUIPMENT/STORED MATERIAL IS LARGE ENOUGH TO ENGAGE MULTIPLE JOISTS, TOTAL LOAD CAN BE MULTIPLIED BY NUMBER OF JOISTS ENGAGED.**
- **IF TOTAL LOADS EXCEED ABOVE VALUE, INDIVIDUAL EVALUATION BY MEC REQD**
- **NOTE THAT SHORTER JOISTS CAN SUPPORT LESS TOTAL LOAD. GC TO COORDINATE HOIST LOCATION SO HEAVY LOADS DO NOT NEED MOVED OVER SHORT JOISTS THAT ARE NOT DESIGNED TO SUPPORT THEM.**



4 S510 JOIST CONSTRUCTION LOADING
1/2" = 1'-0"

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LEE SUMMIT, MO 64064

SHEET TITLE
FLOOR FRAMING DETAILS

PROJECT NUMBER: 2023000333

SHEET NUMBER:

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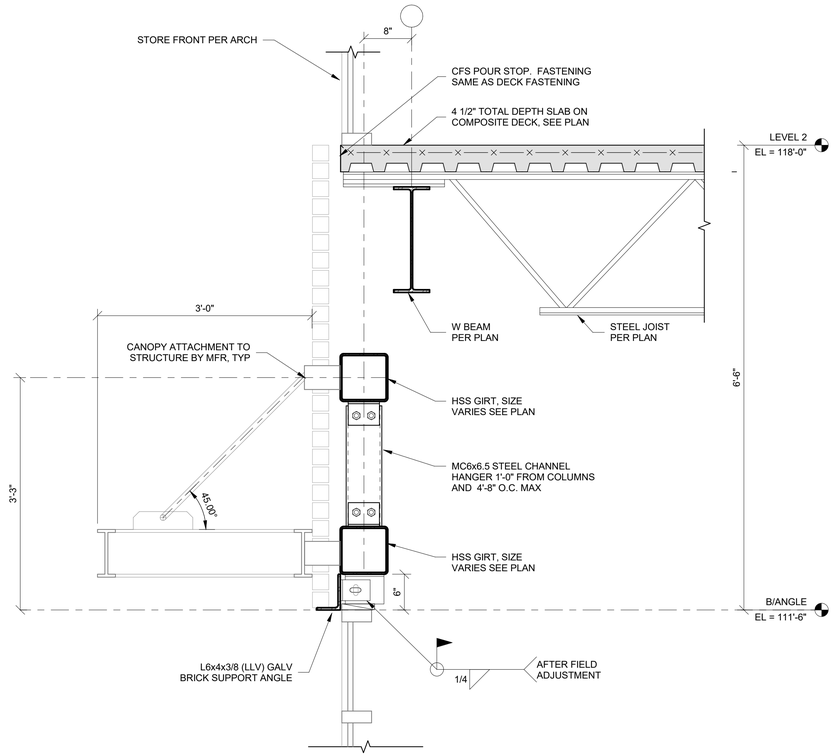
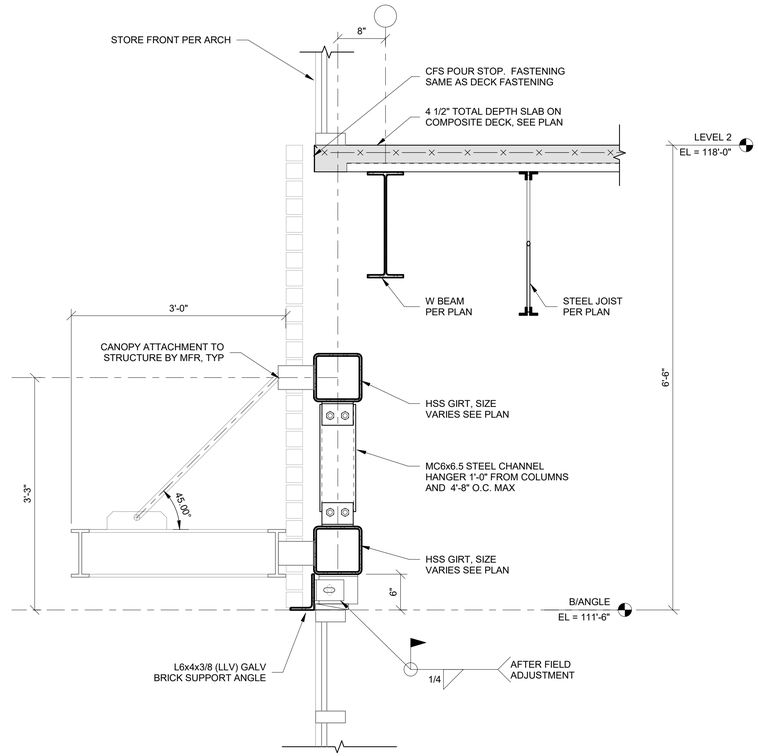
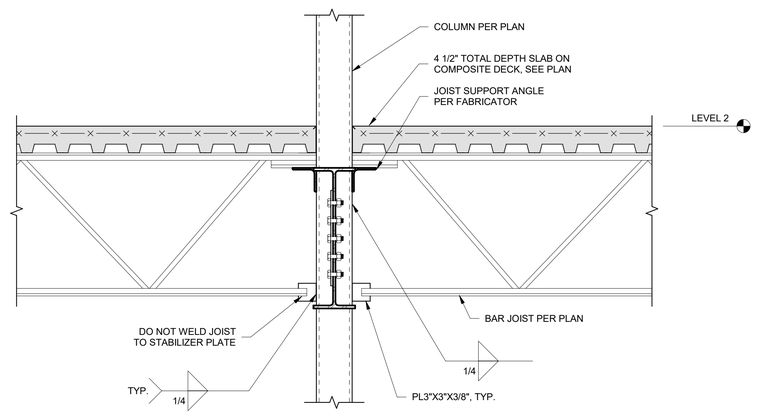


1 S511 LEVEL 2 - EXTERIOR WALL SECTION PERPENDICULAR TO JOIST FRAMING
1" = 1'-0"



2 S511 LEVEL 2 - EXTERIOR WALL SECTION PARALLEL TO JOIST FRAMING
1" = 1'-0"



3 S511 TIE JOIST CONNECTION TO COLUMN
1" = 1'-0"

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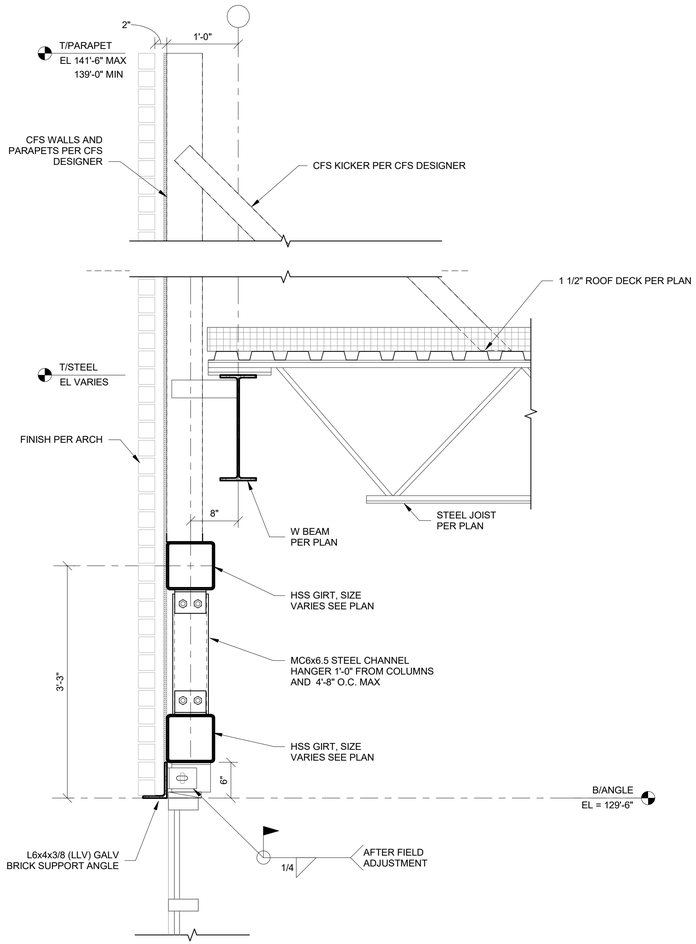
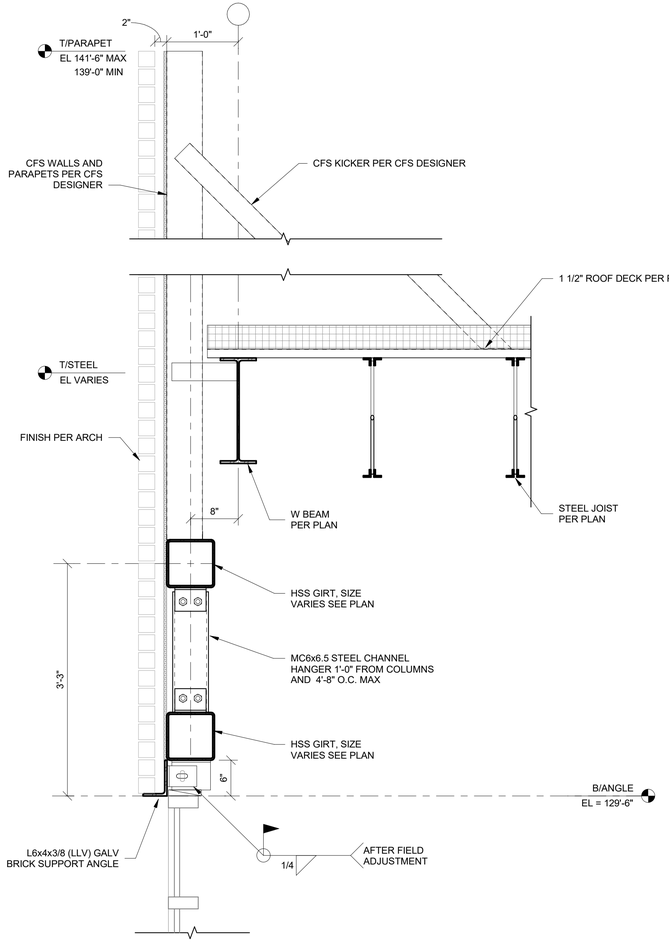
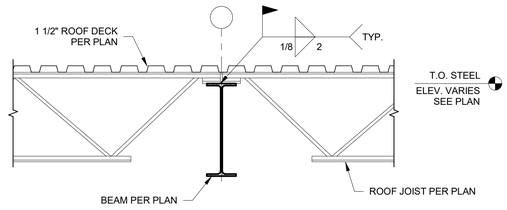


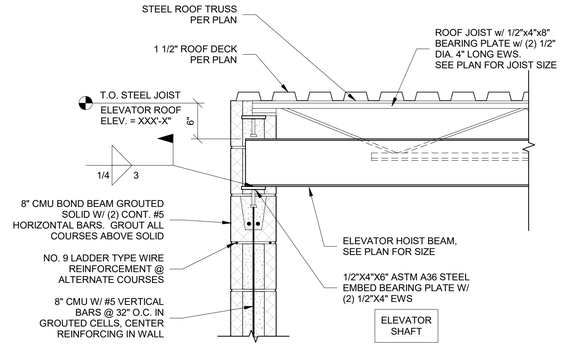
1 S520 ROOF SECTION AT KICKER
1" = 1'-0"



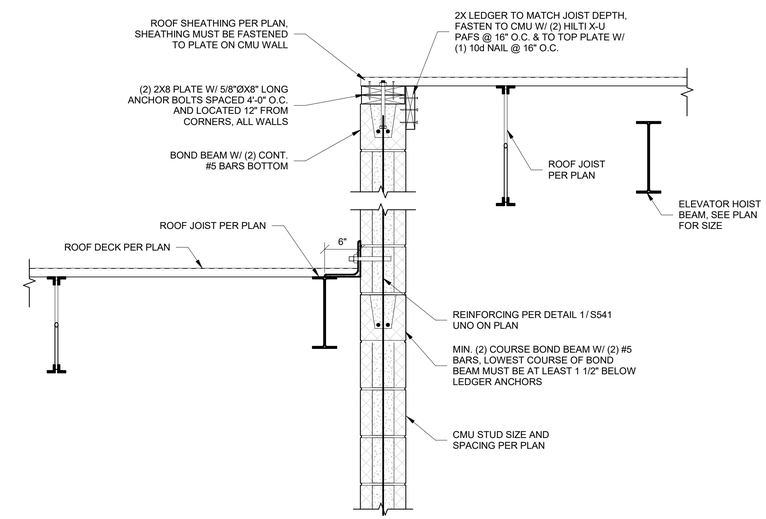
2 S520 ROOF SECTION - JOISTS PARALLEL
1" = 1'-0"



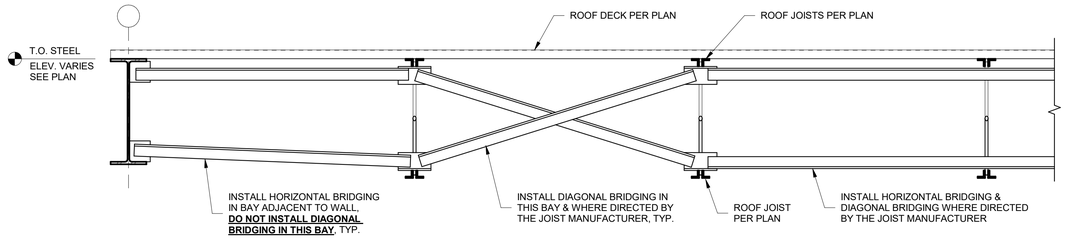
3 S520 ROOF JOISTS BEARING AT INTERIOR BEAM
3/4" = 1'-0"



5 S520 SECTION AT ELEVATOR ROOF
1" = 1'-0"



4 S520 ROOF FRAMING AT ELEVATOR
1" = 1'-0"



6 S520 ROOF JOIST BRACING
1" = 1'-0"

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SHEET TITLE
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PROJECT NUMBER: 2023000333

SHEET NUMBER:

S520

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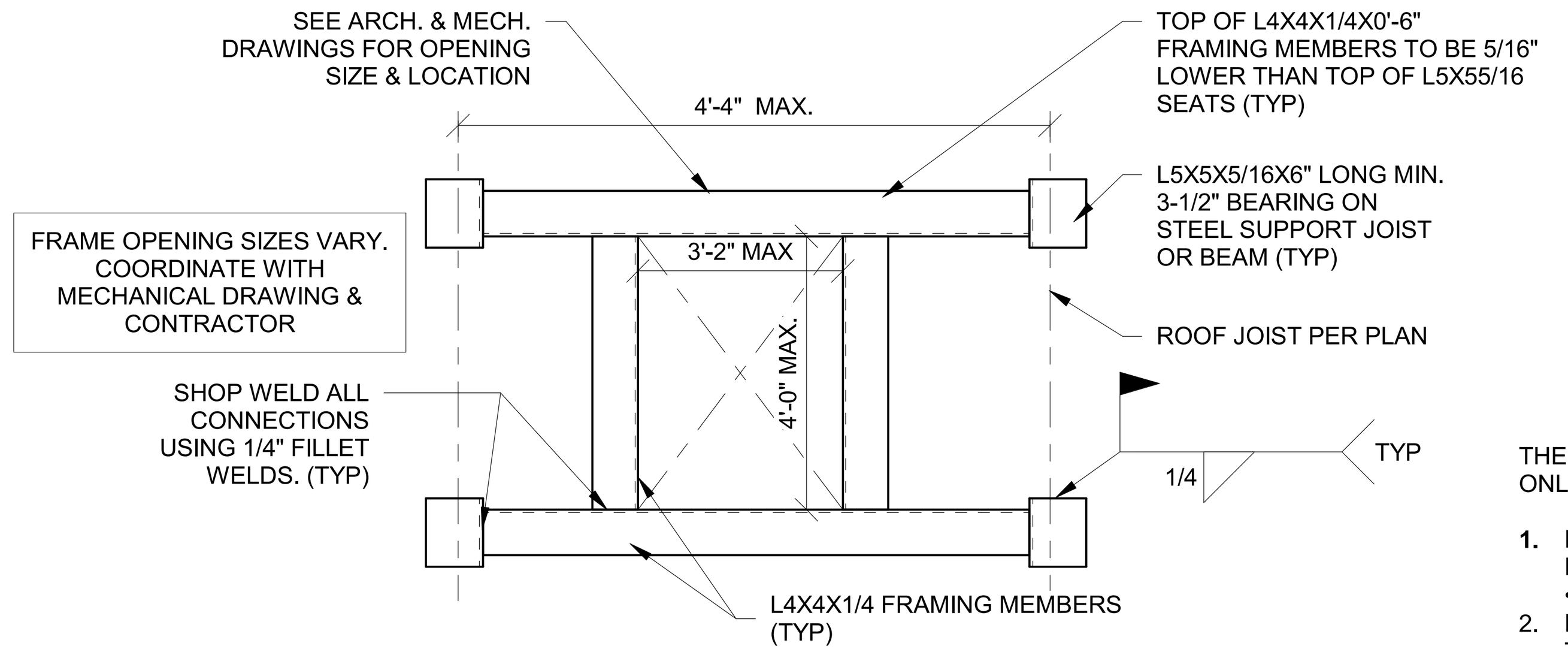
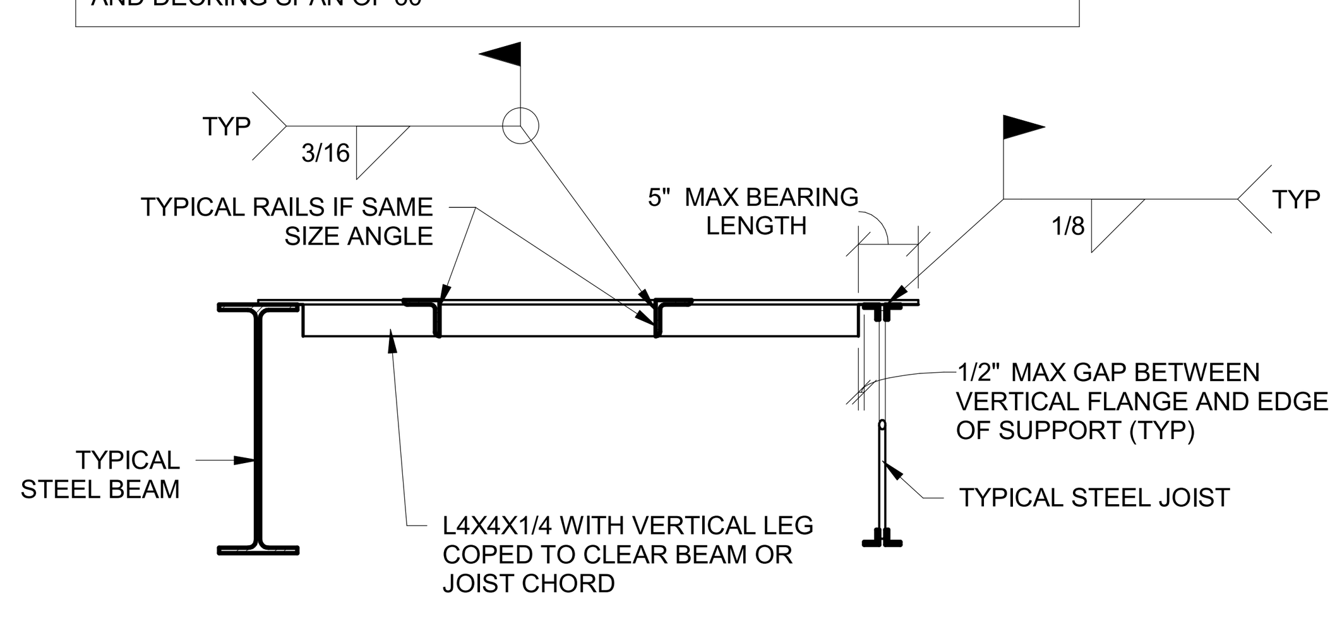


FRAMING REQUIREMENTS FOR ROOF DECK OPENINGS

NOTES:
G.C. SHALL COORDINATE FINAL ANGLE LOCATION WITH FIELD LOCATIONS OF MECHANICAL UNITS AND OPENINGS

NOTES:
PROVIDE ANGLES BENEATH EDGE OF DECK AT DECK PENETRATIONS AND BENEATH MECHANICAL UNITS LOCATED BETWEEN JOIST - PROVIDE ADDITIONAL ANGLES AS REQUIRED TO MAINTAIN A MAXIMUM ANGLES SPAN AND DECKING SPAN OF 60"



ANGLE SUPPORTS AT MECHANICAL UNIT ROOF OPENINGS

TABLE - 1

GUIDELINES FOR REINFORCEMENT OF DECK DUE TO PENETRATIONS OR DAMAGE

THESE GUIDELINES APPLY TO ROOF AND COMPOSITE FLOOR DECKS ONLY. CONSULT ENGINEER REGARDING NON-COMPOSITE (FORM) DECKS:

1. IF CUT OPENINGS OR DAMAGED AREA IS LESS THAN OR EQUAL TO 6" IN. DIAMETER OR SQUARE (ONLY ONE PER DECK SHEET)
   - **NO REINFORCEMENT NECESSARY**
2. IF CUT OPENING OR DAMAGED AREA'S **WIDTH** PERPENDICULAR TO THE FLUTES IS LARGER THAN 12" BUT LESS THAN OR EQUAL TO 18" (ONLY ONE PER DECK SHEET):
   - **IN ROOF DECK, COVER WITH A 16 GAUGE PLATE EXTENDING 6" BEYOND EACH EDGE OF OPENING OR DAMAGED AREA. FASTEN TO EACH CELL AROUND PERIMETER USING #12 TEK SCREWS @ 6" O.C. IN COMPOSITE DECK, NO REINFORCEMENT IS REQUIRED.**
3. IF CUT OPENING OR DAMAGED AREA'S **WIDTH** PERPENDICULAR TO THE FLUTES IS LARGER THAN 12" BUT LESS THAN OR EQUAL TO 18" (ONLY ONE PER DECK SHEET):
   - **FRAME OPENING WITH L2x2x1/4 STEEL ANGLES ON ALL SIDES AND WELD HEADERS TO JOIST ON EACH SIDE.** (Similar to Angle Supports at Mechanical Unit Roof Opening in this detail)
4. IF CUT OPENING OR DAMAGED AREA'S **WIDTH** PERPENDICULAR TO THE FLUTES IS LARGER THAN 18" BUT LESS THAN OR EQUAL TO 36" (ONLY ONE PER SHEET):
   - **FRAME OPENING WITH L3x3x1/4 STEEL ANGLES ON ALL SIDES AND WELD HEADERS TO JOISTS ON EACH SIDE.** (Similar to Angle Supports at Mechanical Unit Roof Opening in this detail)
5. IF CUT OPENING OR DAMAGED AREA'S **WIDTH** PERPENDICULAR TO THE FLUTES LARGER THAN 36" BUT LESS THAN OR EQUAL TO 48"
   - **FRAME OPENING WITH L4x4x1/4 STEEL ANGLES ON ALL SIDES AND WELD HEADERS TO JOIST ON EACH SIDE.** (Similar to Angle Supports at Mechanical Unit Roof Opening in this detail)
6. IF CUT OPENING OR DAMAGED AREA'S **WIDTH** PERPENDICULAR TO THE FLUTES IS LARGER THAN 48":
   - **CONSULT STRUCTURAL ENGINEER OF RECORD FOR FRAMING REQUIREMENTS.**

GUIDELINES FOR DECK REINFORCEMENT

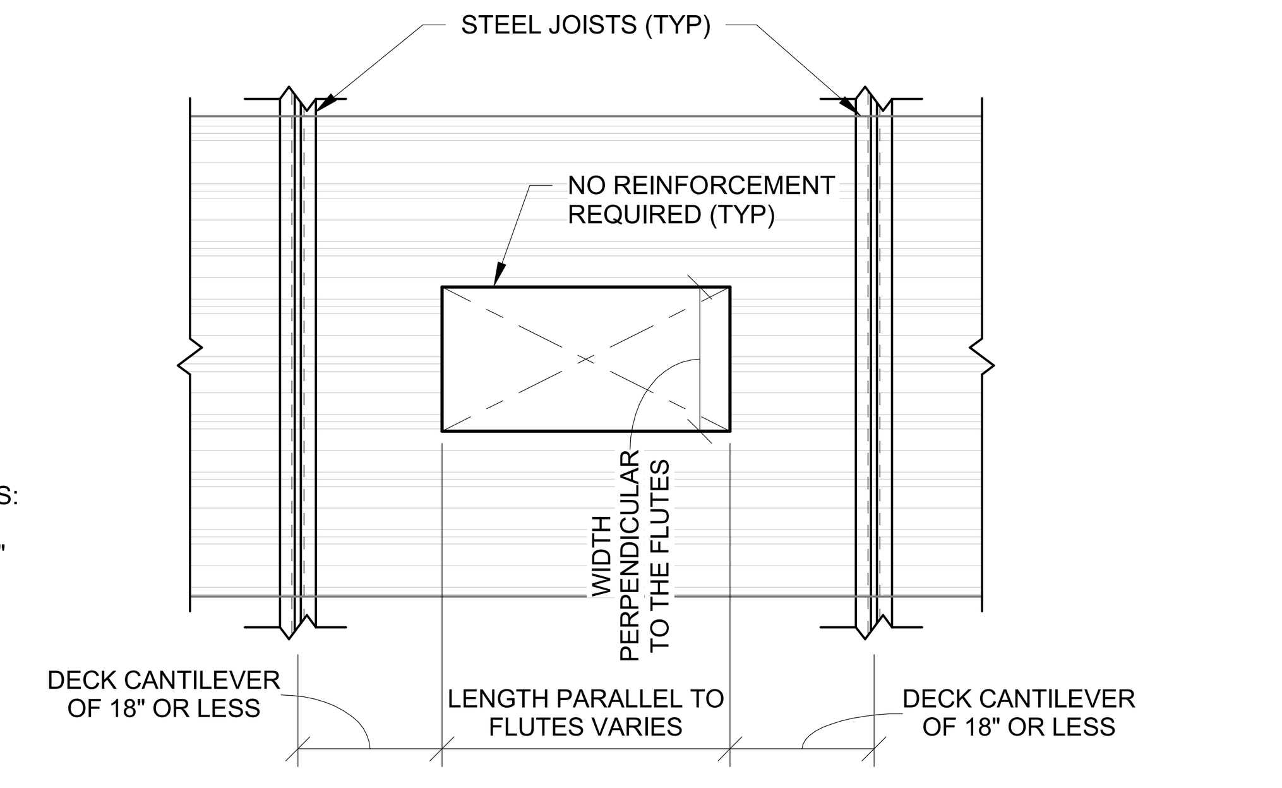


FIGURE - 1 : EXCEPTION TO DECK REINFORCEMENT REQUIREMENTS
APPLICABLE TO ROOF AND COMPOSITE DECKS (1-1/2" MIN. DEPTH)

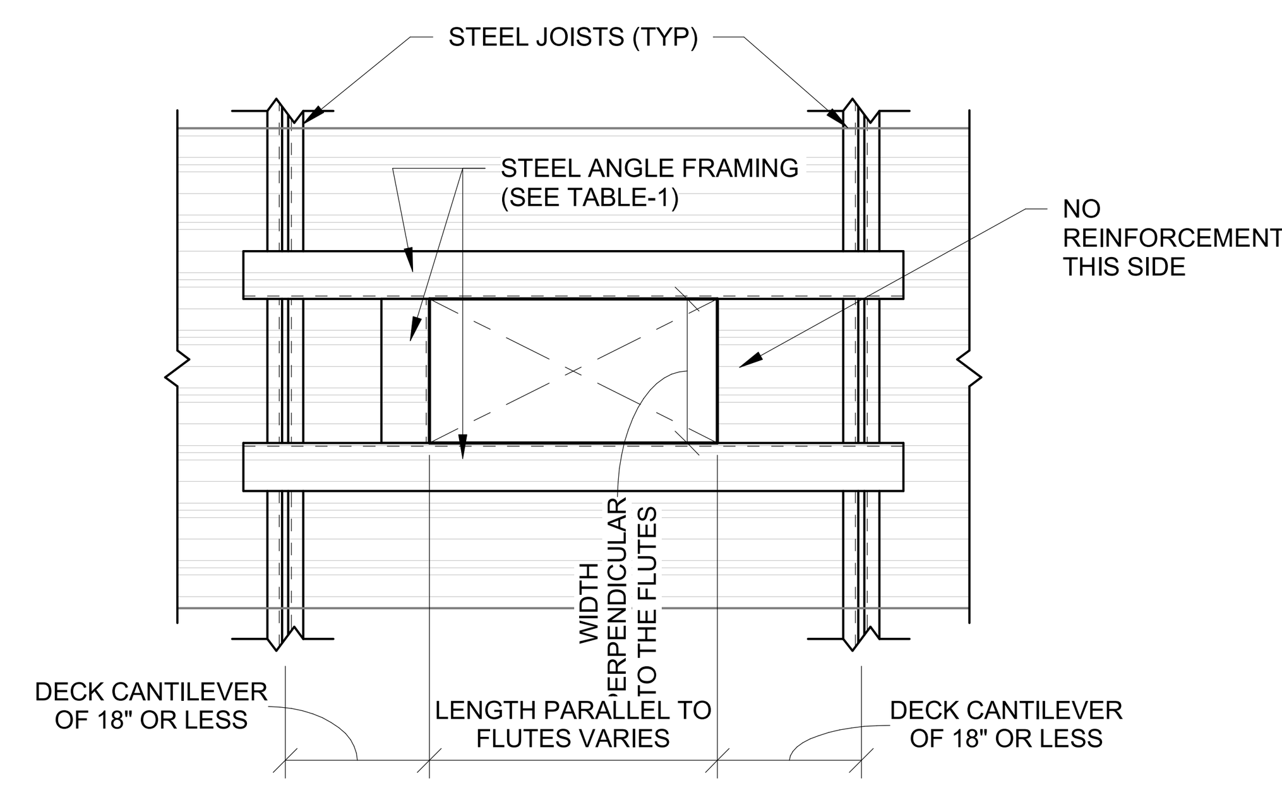
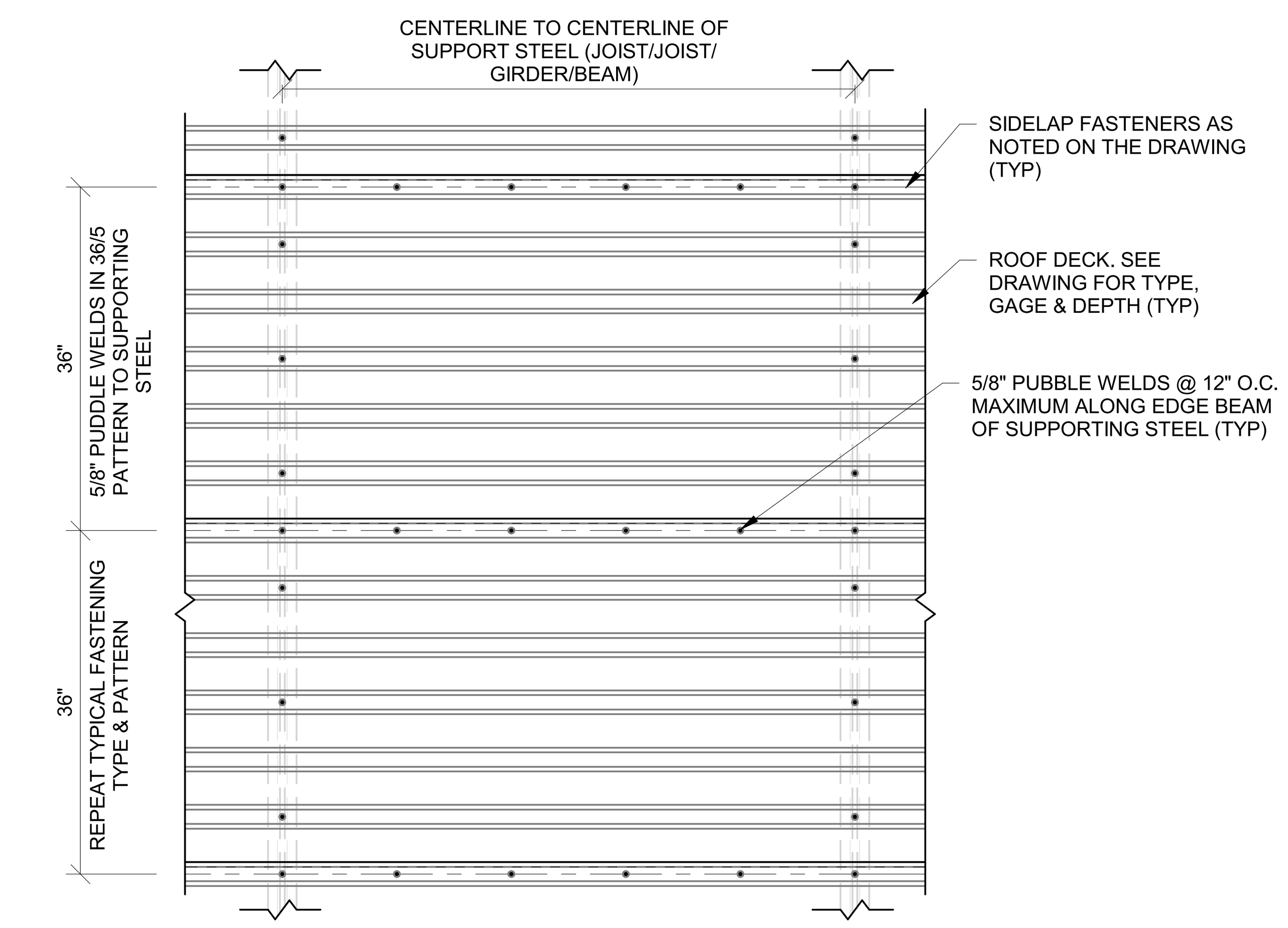
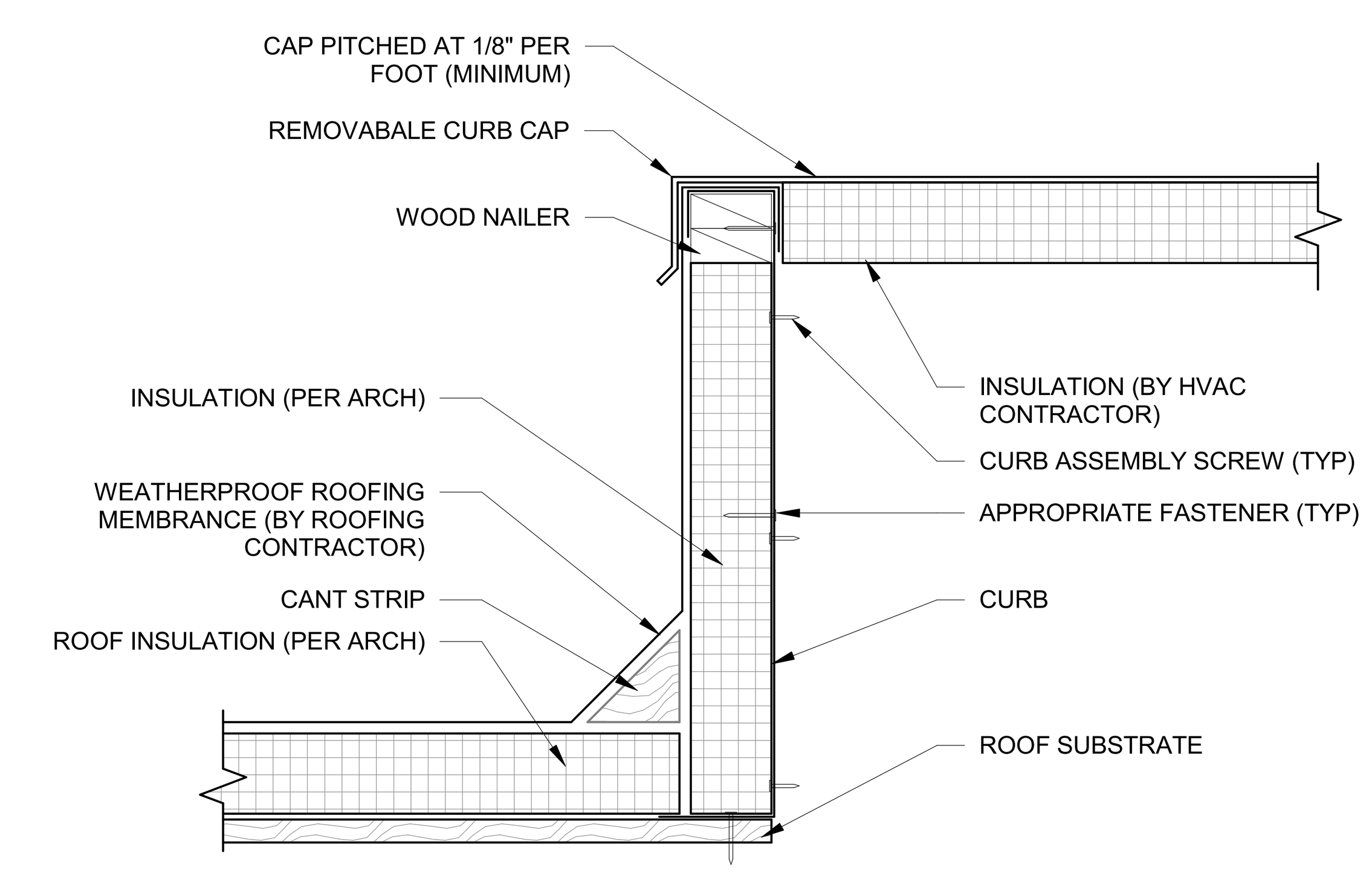


FIGURE - 2 : EXCEPTION TO DECK REINFORCEMENT REQUIREMENTS
APPLICABLE TO ROOF AND COMPOSITE DECKS (1-1/2" MIN. DEPTH)

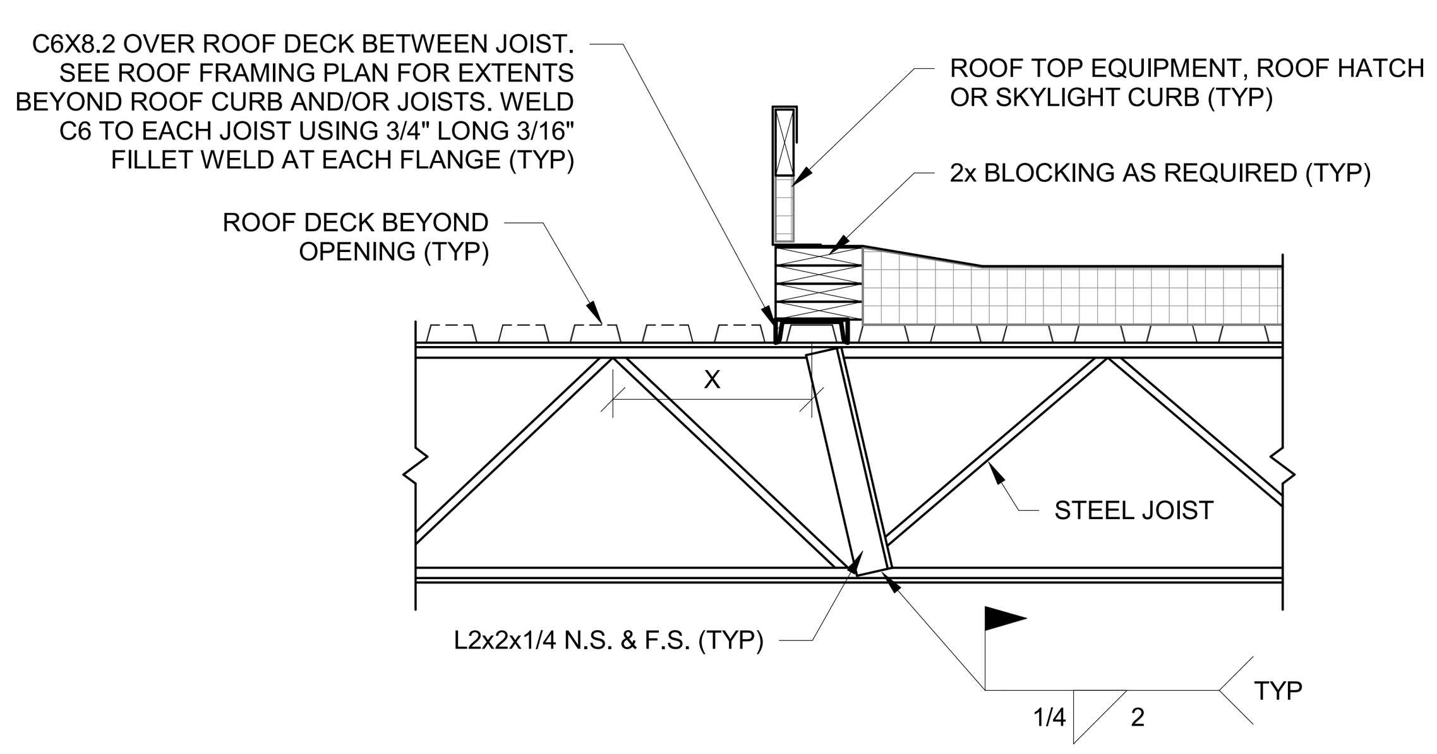
1 TYPICAL ROOF OPENING DETAIL
S521 3/4" = 1'-0"



2 ROOF DECKING ATTACHMENT DETAIL
S521 3/4" = 1'-0"

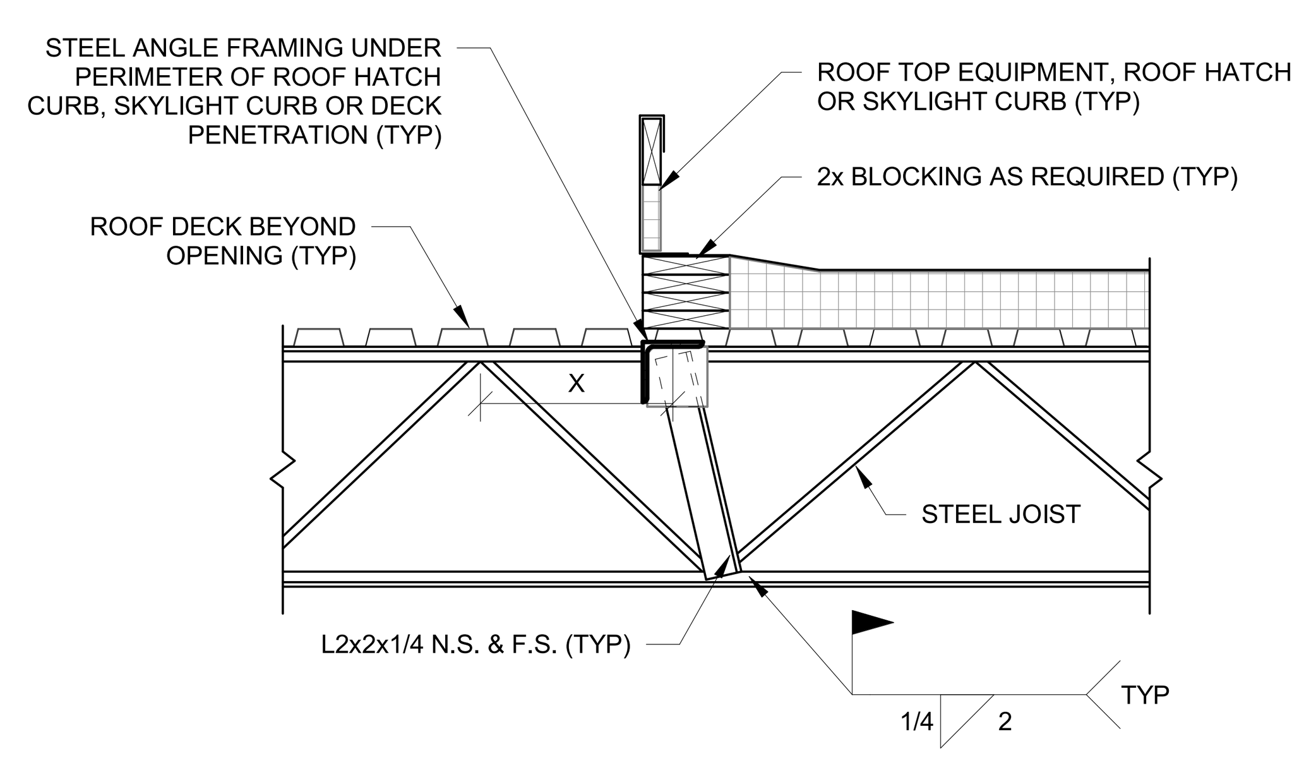


3 CURB DETAIL EXAMPLE, DESIGN BY OTHERS
S521 1 1/2" = 1'-0"



THE L2x2'S ARE REQUIRED WHEN DIMENSION "X" IS 6" OR LARGER.

4 JOIST REINFORCEMENT & CURB SUPPORT DETAIL
S521 3/4" = 1'-0"



THE L2x2'S ARE REQUIRED WHEN DIMENSION "X" IS 6" OR LARGER.

5 JOIST REINFORCEMENT & CURB SUPPORT DETAIL
S521 3/4" = 1'-0"

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REVISIONS:

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Columbia, MO 65203
P 573-814-1568

MISSOURI CERTIFICATE OF AUTHORITY
NO. E-2006023253
EXPIRES: DECEMBER 31, 2024

STATE OF MISSOURI
CELESTE KAY SPICKERT
NUMBER PE-2008002213
PROFESSIONAL ENGINEER
11/20/2024

THE VILLAGE AT DISCOVERY - LOT #1
LEE SUMMIT, MO 64064

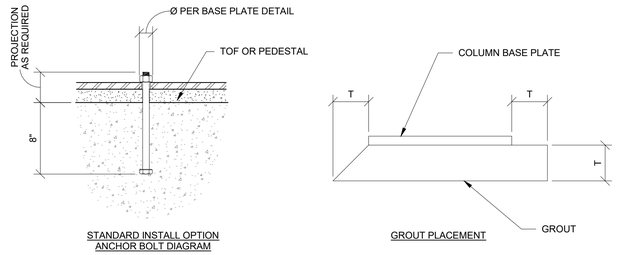
SHEET TITLE
ROOF FRAMING DETAILS

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S521

11/20/2024 4:42:51 PM
Autodesk Docs://2023000333 - R2024 Discovery Park Lee's Summit/2023000333 - Rosemann - Lot 1_R24.rvt

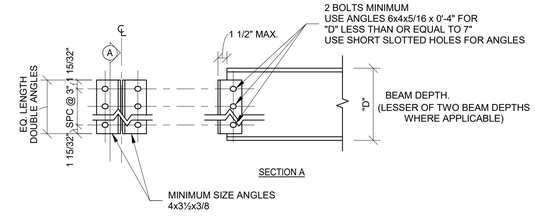


STANDARD INSTALL OPTION
ANCHOR BOLT DIAGRAM

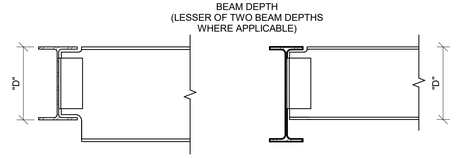
GROUT PLACEMENT

GROUT MAY BE BEVELED OR FORMED BUT SHALL EXTEND A MIN "T" BEYOND FACE OF BASE PLATE. "T"=1 1/2" FOR ANCHOR BOLT Ø UP TO 1"

1 S530 COLUMN ANCHOR BOLT DETAILS
1 1/2" = 1'-0"

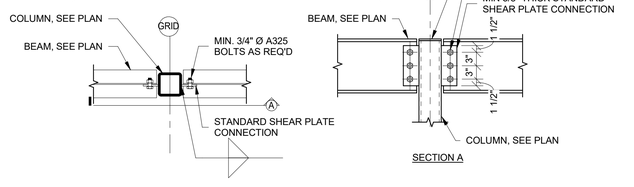


SECTION A



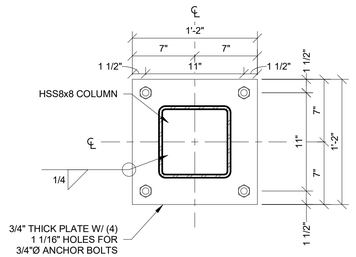
2 S530 BEAM TO BEAM CONNECTION
1" = 1'-0"

NOTES:
1. SEE PLAN OR GENERAL NOTES FOR CONNECTION FORCES
2. ALL CONNECTIONS TO BE DESIGNED BY STEEL FABRICATOR'S ENGINEER AS "CONVENTIONAL" TO PREVENT ADDITIONAL ECCENTRICITY IN CONNECTION.
3. THE NUMBER OF BOLTS SHOWN IS SCHEMATIC AND WILL VARY WITH DEPTH OF BEAM AND REACTION.

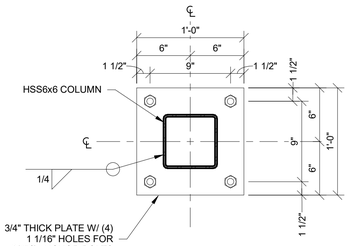


SECTION A

3 S530 TYPICAL BEAM TO COLUMN SHEAR CONNECTION
3/4" = 1'-0"



4 S530 COLUMN BASE PLATE - HSS8x8
1 1/2" = 1'-0"



5 S530 COLUMN BASE PLATE - HSS6x6
1 1/2" = 1'-0"

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As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri
11/20/2024

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REVISIONS:

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MISSOURI CERTIFICATE OF AUTHORITY
NO. E-2006023253
EXPIRES: DECEMBER 31, 2024

STATE OF MISSOURI
CELESTE KAY SPICKERT
NUMBER PE-2008002213
PROFESSIONAL ENGINEER
11/20/2024

THE VILLAGE AT DISCOVERY - LOT #1
LEE SUMMIT, MO 64064

SHEET TITLE
STEEL TYPICAL DETAILS

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S530

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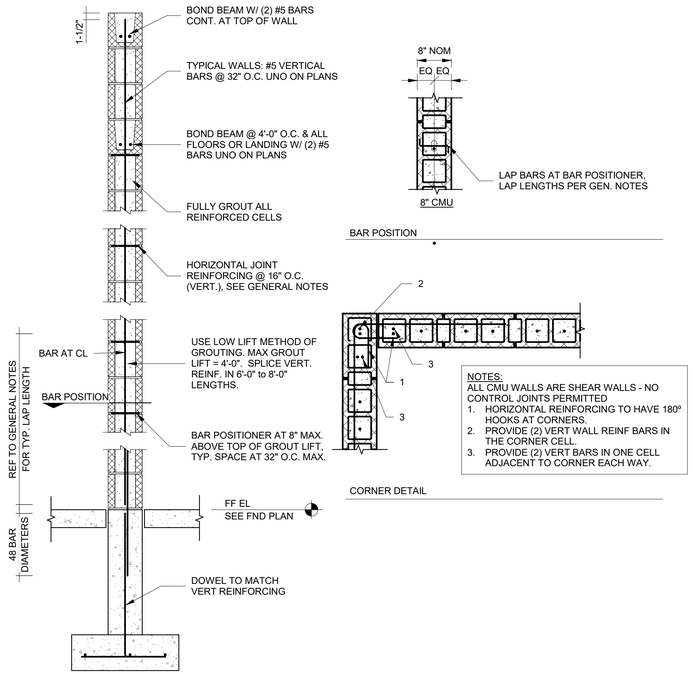
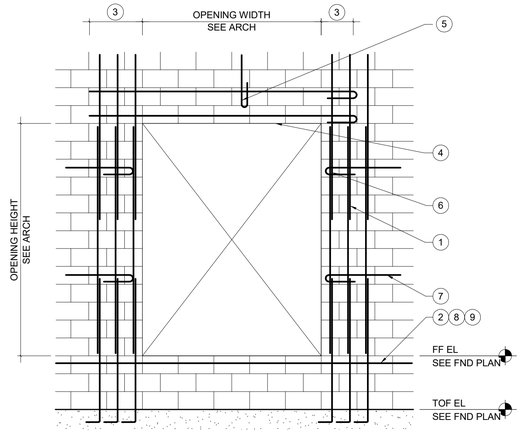
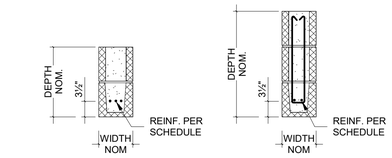


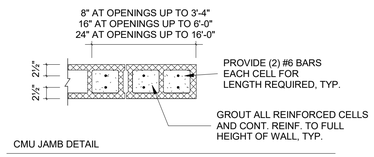
1 S541 CMU WALL REINFORCING DIAGRAM
3/4" = 1'-0"

CMU LINTEL SCHEDULE				
MARK	WIDTH	DEPTH	REINFORCING	STIRRUPS
ALL	8"	16"	(2) #5	-





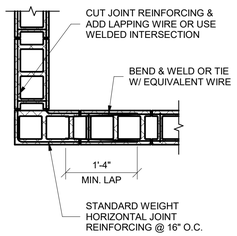
8" CMU LINTEL DETAIL



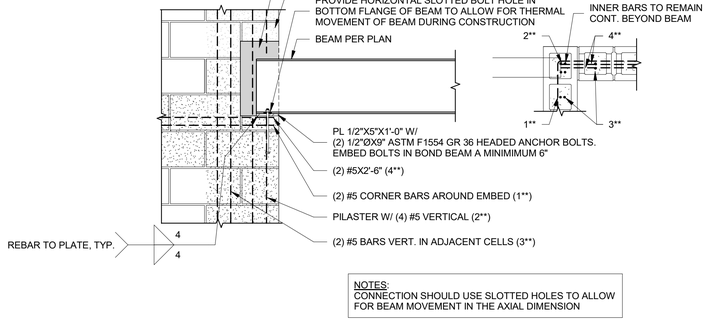
CMU JAMB DETAIL

NOTES:
1. SPLICES IN VERT REINF, SEE GENERAL NOTES
2. BOND BEAM, SEE 1 / S541
3. EXTEND GROUTED LINTEL A MINIMUM OF 2'-0" BEYOND FACE OF OPENING EACH SIDE FOR STRAIGHT LINTEL REINF AND 1'-4" FOR LINTEL REINF WITH STANDARD 180° ACI HOOK.
4. USE LINTEL BLOCKS ONLY FOR BOTTOM COURSE OF LINTEL BEAMS OVER OPENING.
5. CONTINUE VERT WALL REINF OVER OPENING. ANCHOR VERT REINF INTO LINTEL BEAM WITH STANDARD 180° ACI HOOK.
6. ALL VERT BARS AT CMU JAMB TO EXTEND 24" ABOVE OPENING.
7. WHERE HORIZONTAL REINFORCING IS TERMINATED BY OPENING OR CONTROL JOINT, PROVIDE STANDARD 180° ACI HOOK WITH VERTICAL WALL REINFORCING IN THE END CELL.
8. PROVIDE (2) #5 AT BOTTOM OF ALL OPENINGS ABOVE FINISH FLOOR. EXTEND MINIMUM OF 2'-0" BEYOND FACE OF OPENING EACH SIDE FOR STRAIGHT REINFORCING AND 1'-4" FOR HOOKED REINFORCING WITH STANDARD 180° ACI HOOK.
9. PROVIDE (2) #5 BAR IN BOND BEAM AT SILL LOCATIONS.
10. DO NOT OVERSIZE OPENINGS AT ELEVATORS DURING CONSTRUCTION WITHOUT EXPLICIT PERMISSION FROM MEC

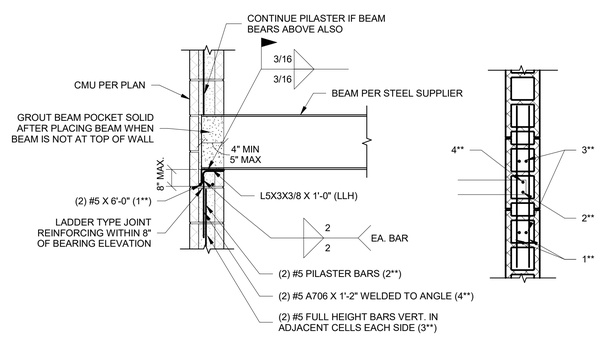
2 S541 TYPICAL MASONRY OPENING DIAGRAM & SCHEDULE
3/4" = 1'-0"



3 S541 JOINT REINFORCING AT INTERSECTION CMU WALLS
3/4" = 1'-0"



4 S541 BEAM CONNECTION TO MASONRY - CORNER
3/4" = 1'-0"



5 S541 BEAM CONNECTION TO MASONRY - MID WALL
3/4" = 1'-0"

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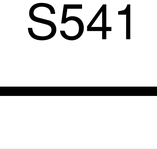
NO. E-2006023253
EXPIRES: DECEMBER 31, 2024



11/20/2024

THE VILLAGE AT DISCOVERY - LOT #1
LEE SUMMIT, MO 64064

SHEET TITLE
MASONRY TYPICAL DETAILS

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S541

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11/20/24 - CITY SUBMITTAL

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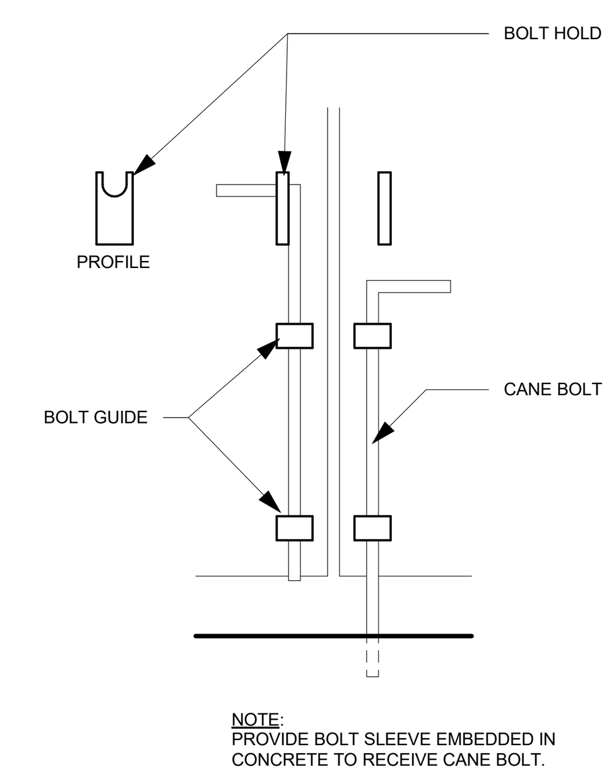
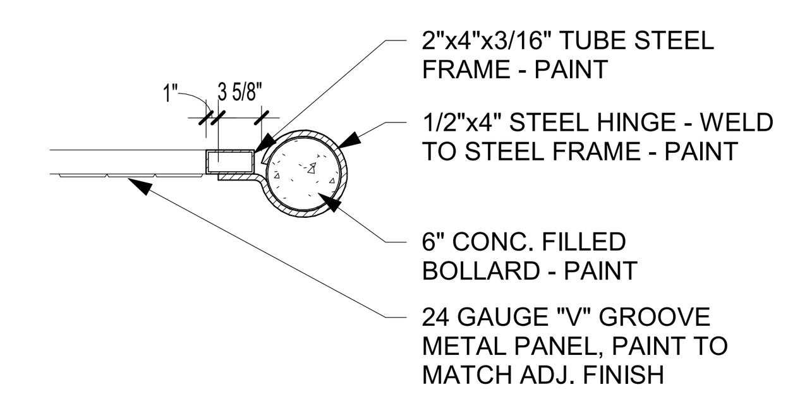
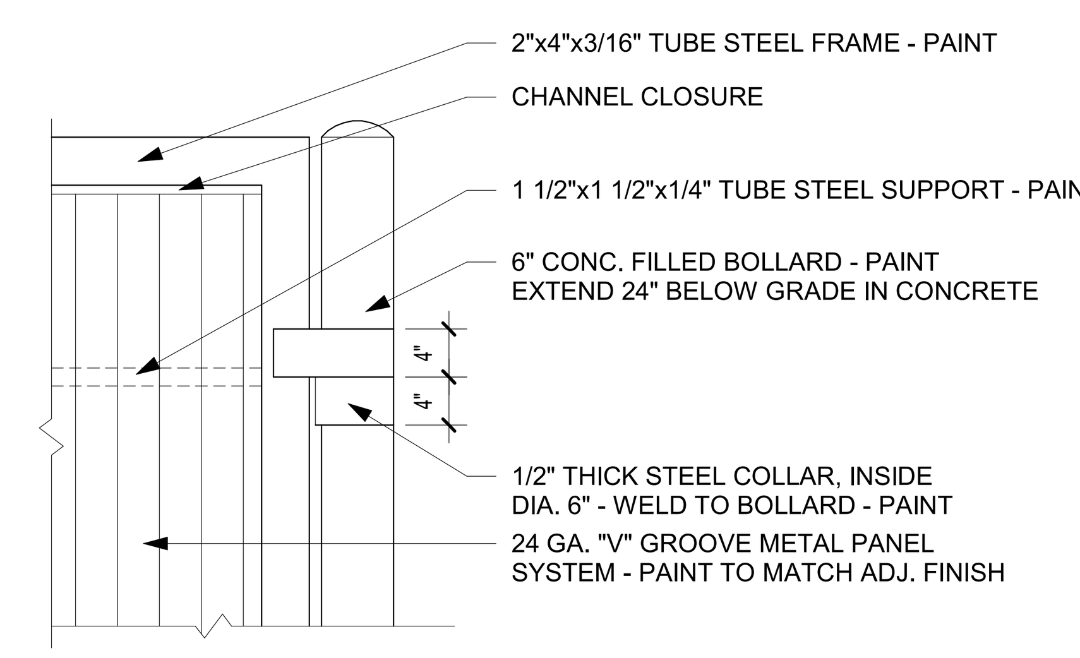


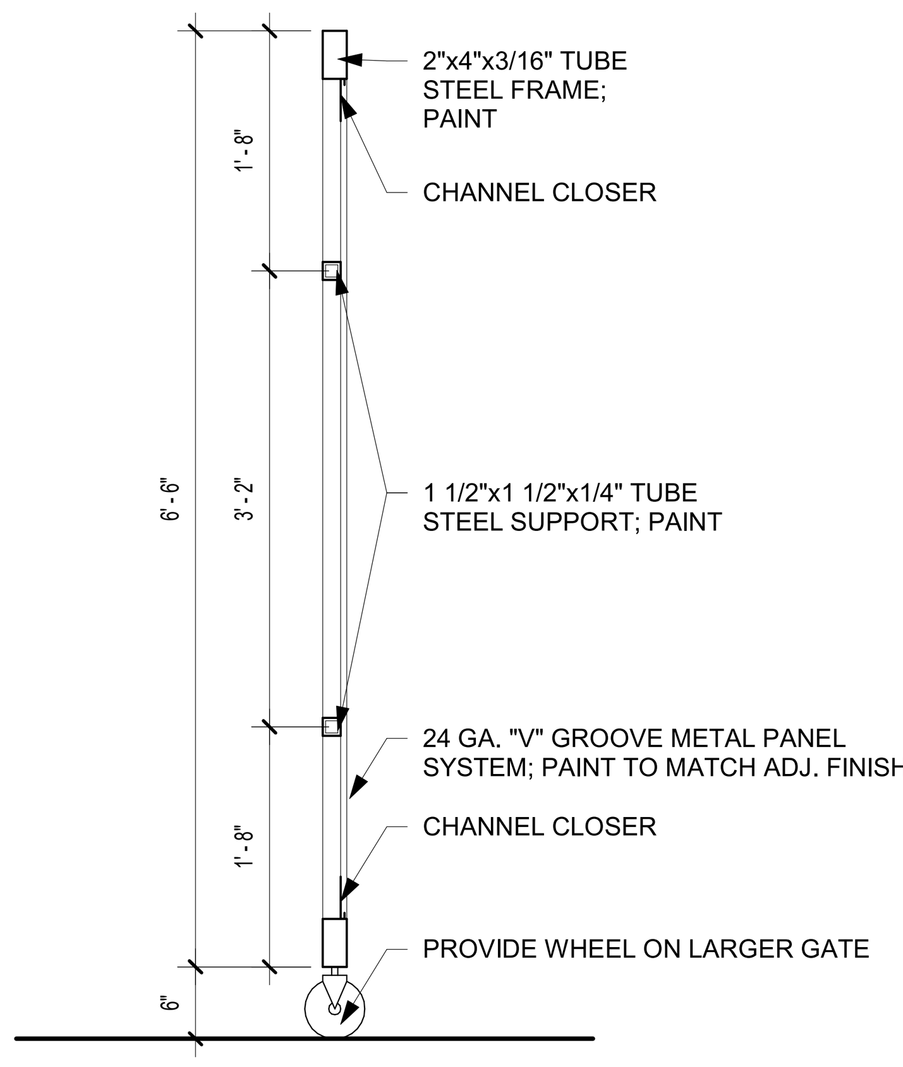
A4 SITE - CANE BOLT DETAIL
3" = 1'-0"



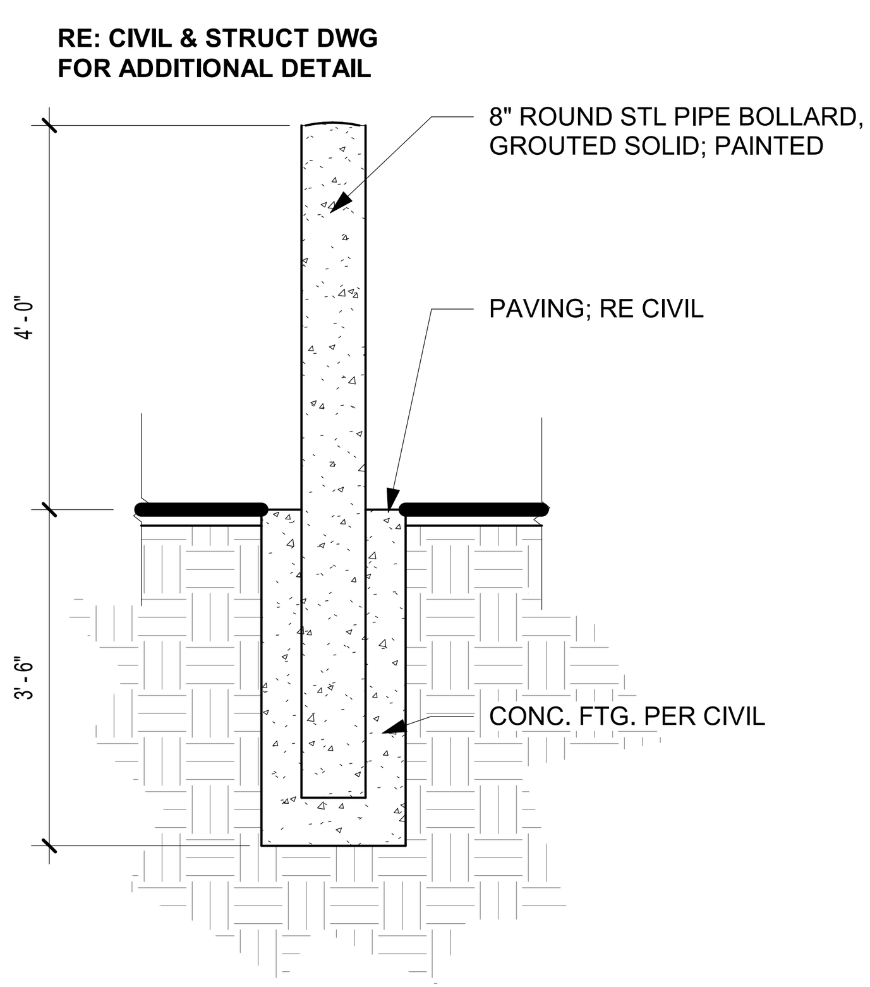
A3 TRASH GATE CROSS SECTION
3/4" = 1'-0"



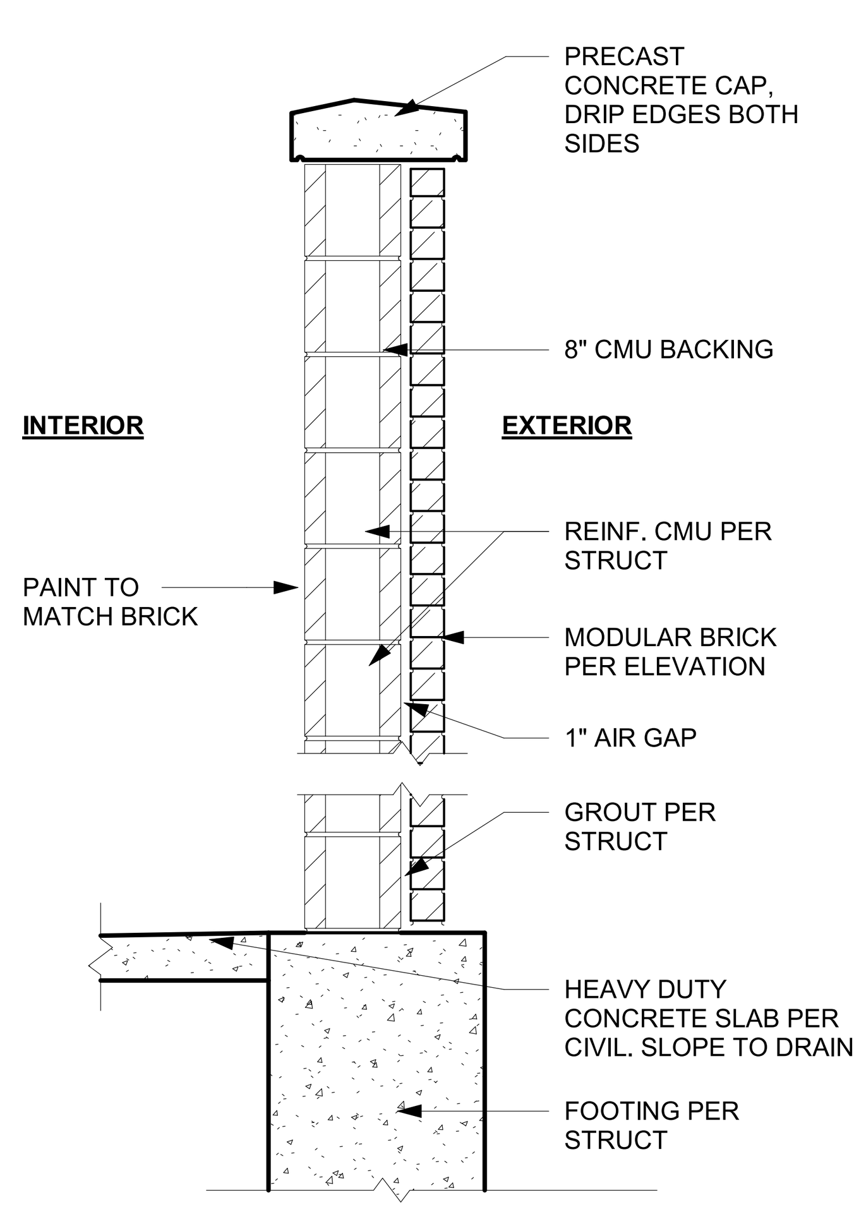
A2 TRASH GATE DETAIL
3/4" = 1'-0"



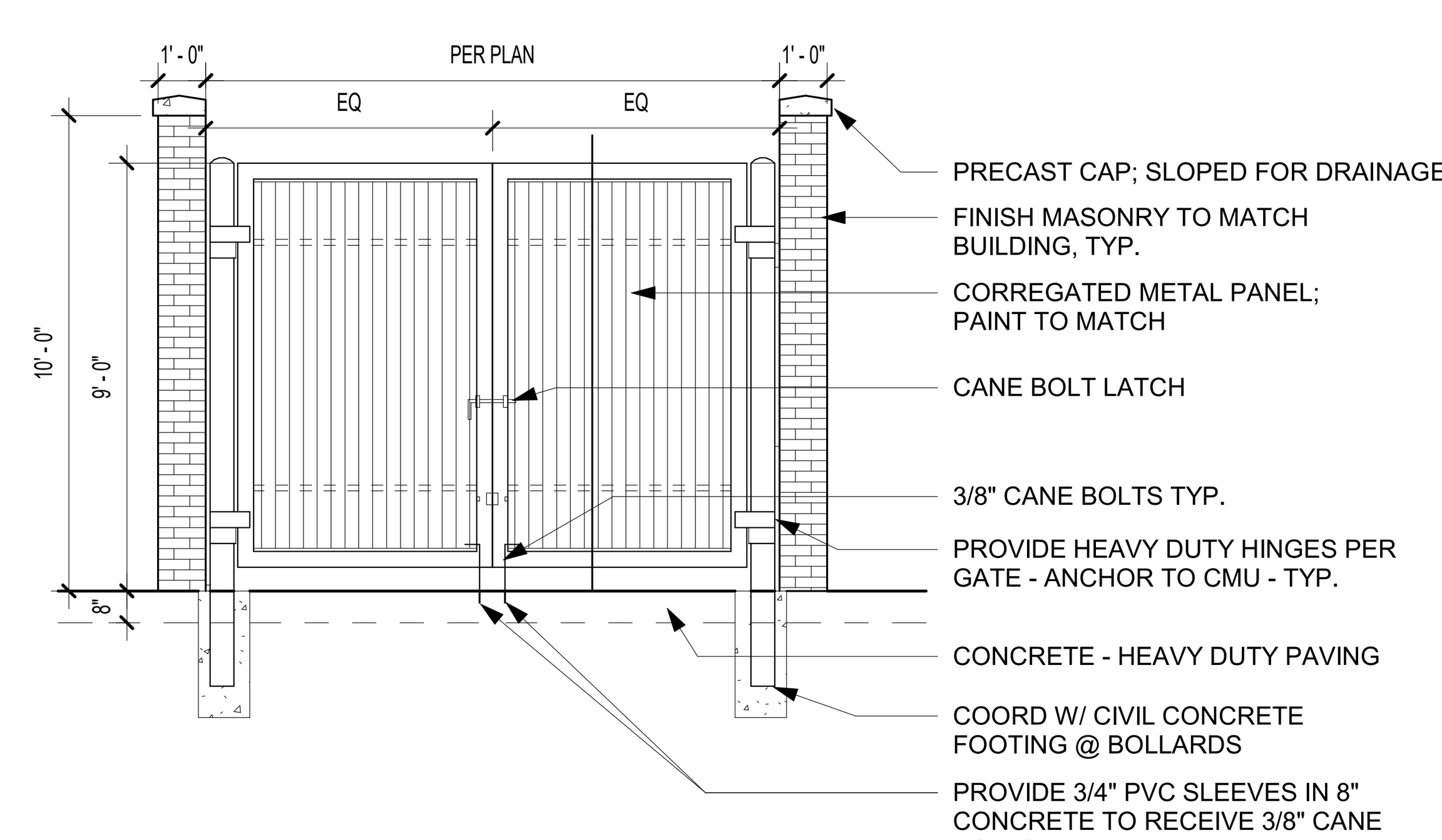
C2 TRASH GATE SECTION
3/4" = 1'-0"



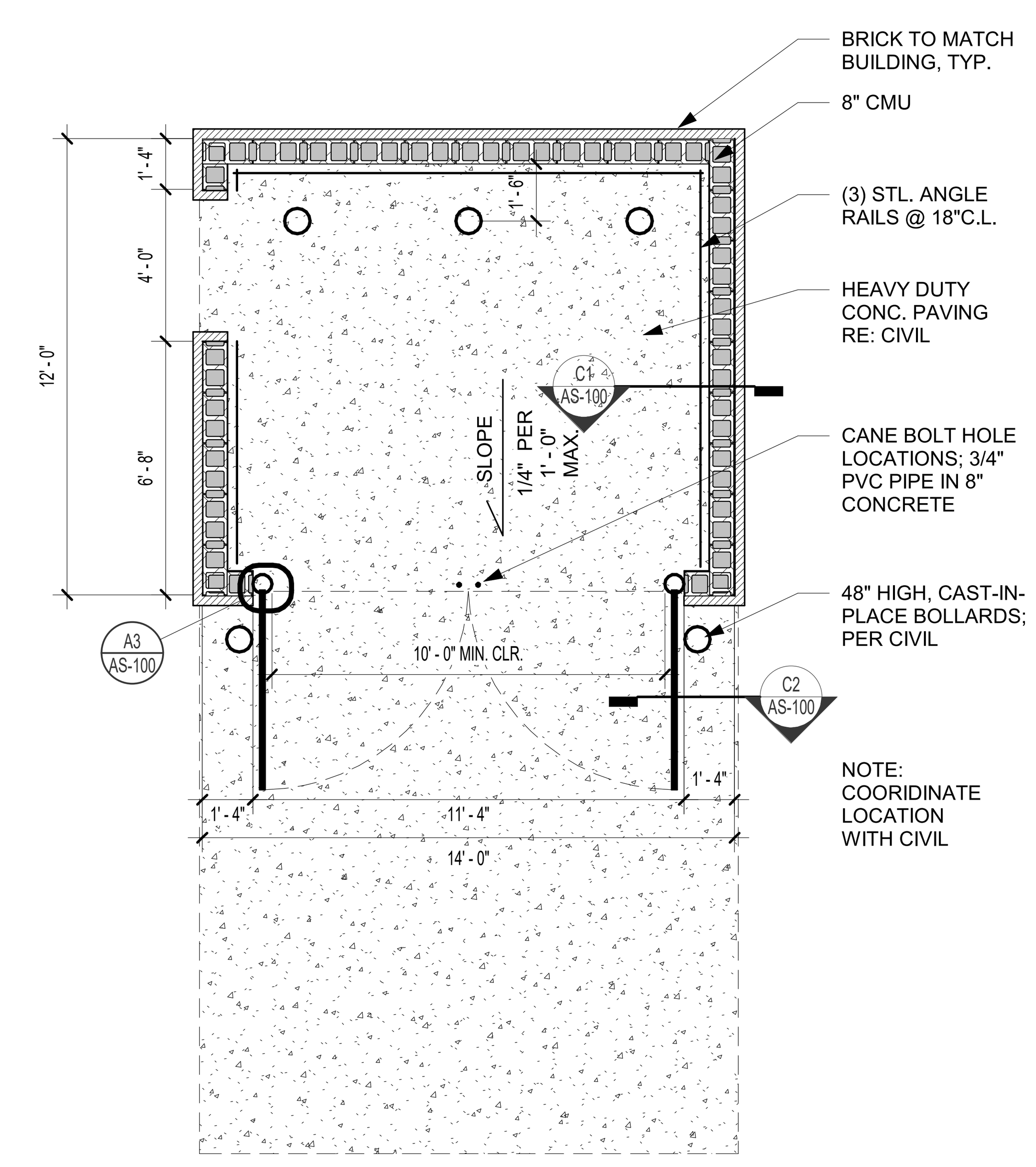
B2 SITE - BOLLARD - STEEL
1/2" = 1'-0"



C1 SITE - ENCLOSURE - CMU - WALL SECTION
3/4" = 1'-0"



B1 ENCLOSURE FRONT ELEVATION
1/4" = 1'-0"



A1 SINGLE DUMPSTER TRASH ENCLOSURE PLAN
1/4" = 1'-0"

r o s e m a n n & ASSOCIATES p.c.
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ENGINEERING
PLANNING
1526 Grand Boulevard
Kansas City, MO 64108-1404
p: 816.472.1448
w: www.rosemann.com

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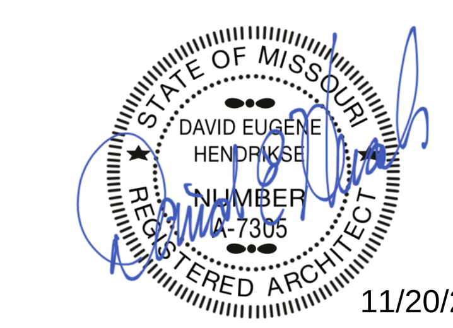

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
ARCHITECTURAL SITE AMENITIES

PROJECT NUMBER: 23096

SHEET NUMBER:

AS-100

11/20/2024 4:30:56 PM
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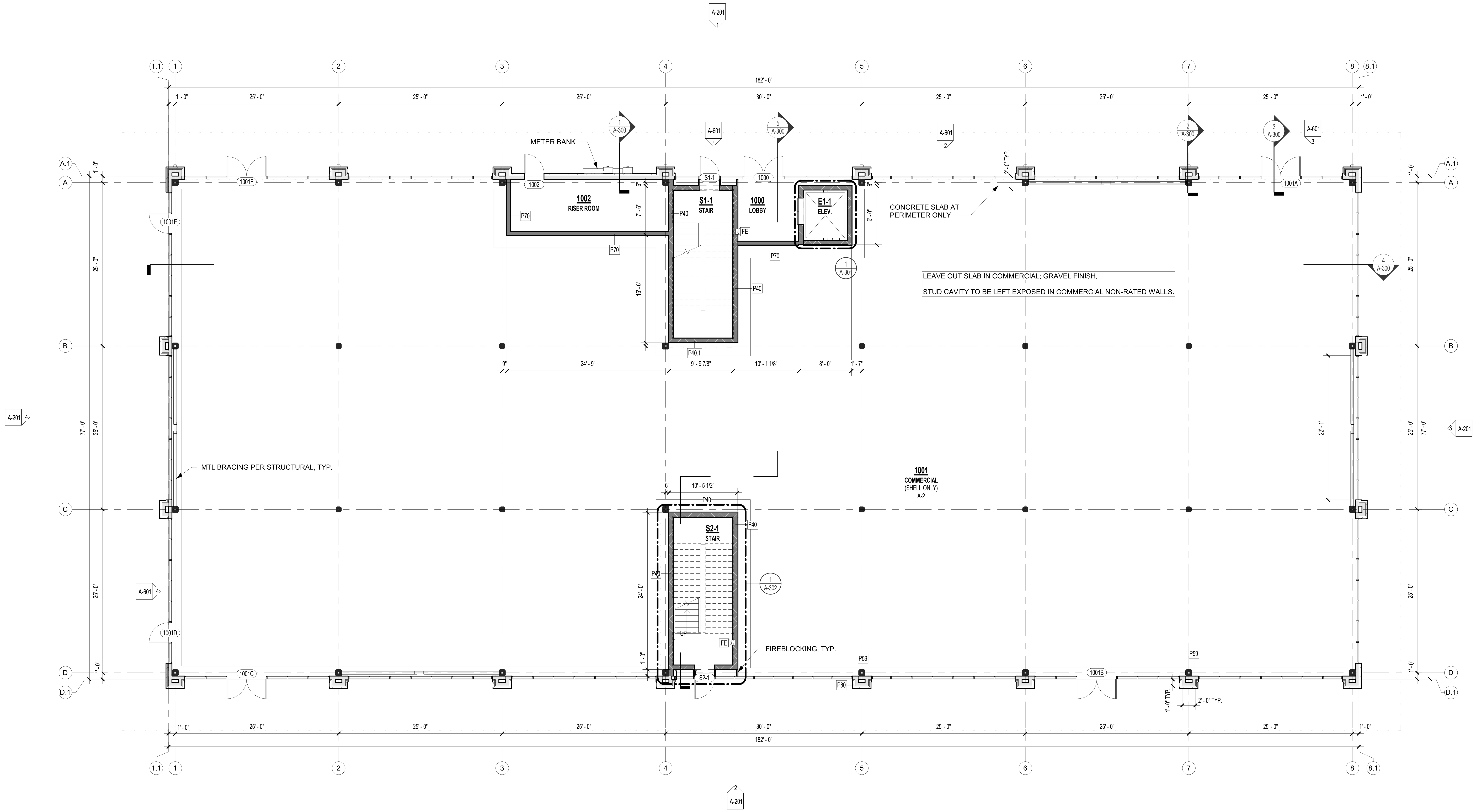
REFERENCE G-003 FOR GENERAL NOTES

PLAN LEGEND

- NON-RATED PARTITION; SEE ASSEMBLIES
- 1 HR RATED PARTITION; SEE ASSEMBLIES
- 101 — DOOR TYPE; SEE DOOR SCHEDULE
- P7 — PARTITION TYPE; SEE ASSEMBLIES
- 6' - 0" — FRAMING DIMENSIONS

PRINTS ISSUED
11/20/24 - CITY SUBMITTAL

REVISIONS:



1 **1ST FLOOR PLAN**
1/8" = 1'-0"

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Kansas City, MO 64108-1404
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STATE OF MISSOURI
DAVID EUGENE HENDRICKS
NUMBER A-7305
REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1

LEE'S SUMMIT, MO

SHEET TITLE
FIRST FLOOR PLAN

PROJECT NUMBER: 23096

SHEET NUMBER:

A-101

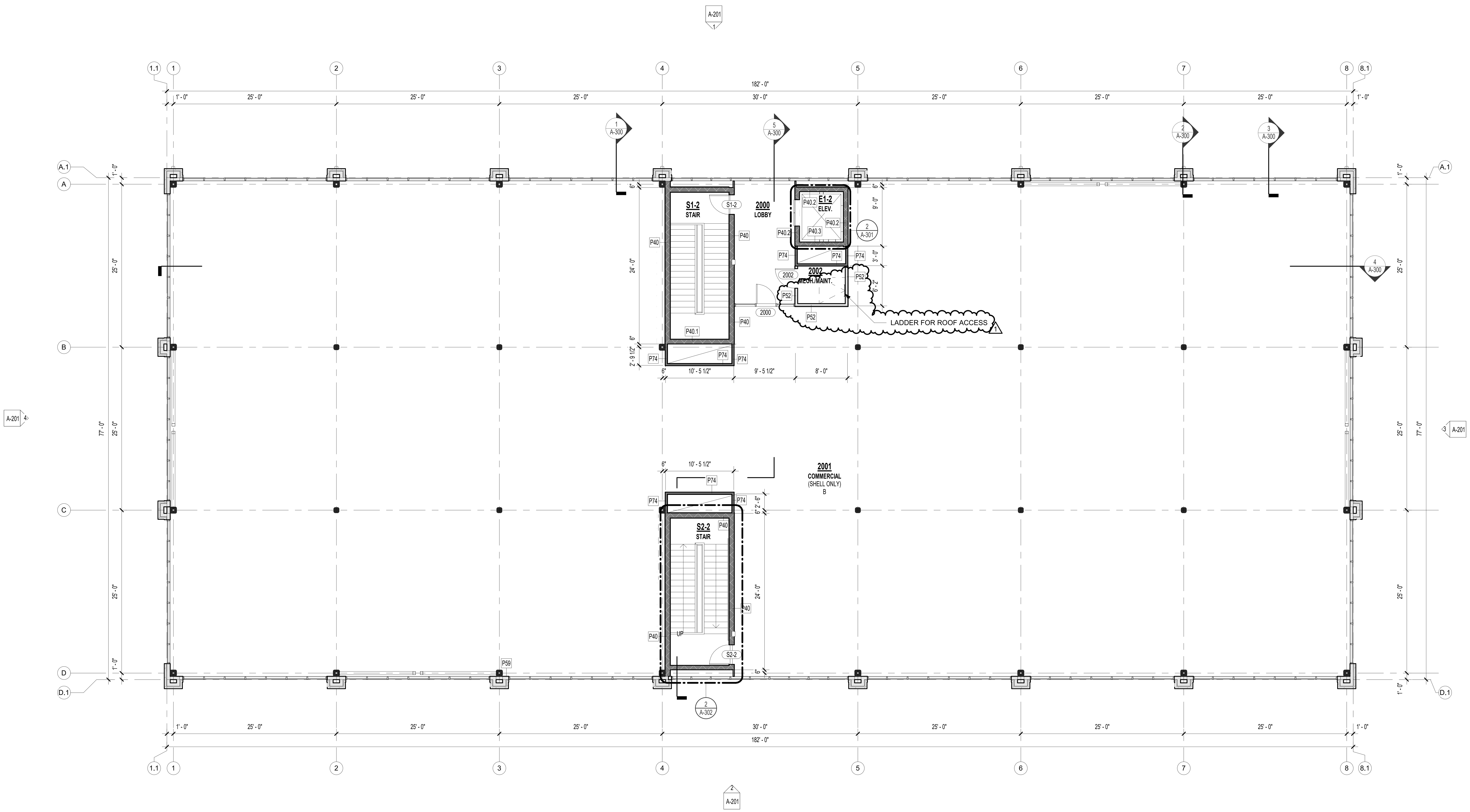
PRINTS ISSUED
11/20/24 - CITY SUBMITTAL

REVISIONS:
1 12/12/24 City Comment Response

REFERENCE G-003 FOR GENERAL NOTES

PLAN LEGEND

- NON-RATED PARTITION; SEE ASSEMBLIES
- 1 HR RATED PARTITION; SEE ASSEMBLIES
- 101 — DOOR TYPE; SEE DOOR SCHEDULE
- P7 — PARTITION TYPE; SEE ASSEMBLIES
- 6' - 0" — FRAMING DIMENSIONS



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

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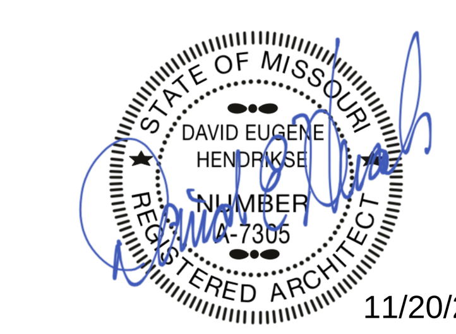


11/20/24

THE VILLAGE AT DISCOVERY - LOT 1

LEE'S SUMMIT, MO

SHEET TITLE
SECOND FLOOR PLAN

PROJECT NUMBER: 23096

SHEET NUMBER:

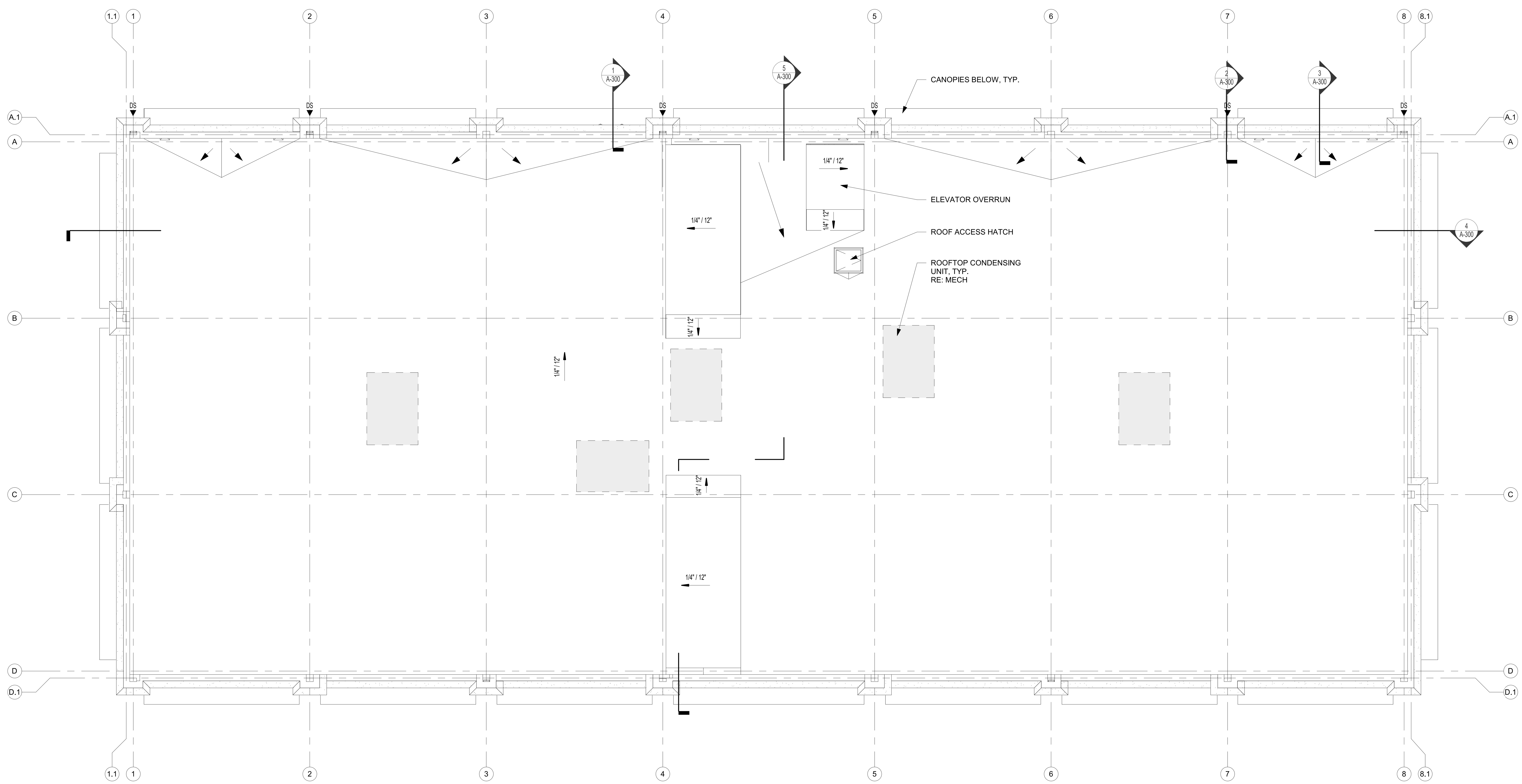
A-102

RELEASED FOR CONSTRUCTION
As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri

REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-101 FOR PLAN LEGEND

PRINTS ISSUED
11/20/24 - CITY SUBMITTAL

REVISIONS:



1 ROOF PLAN
1/8" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1

LEE'S SUMMIT, MO

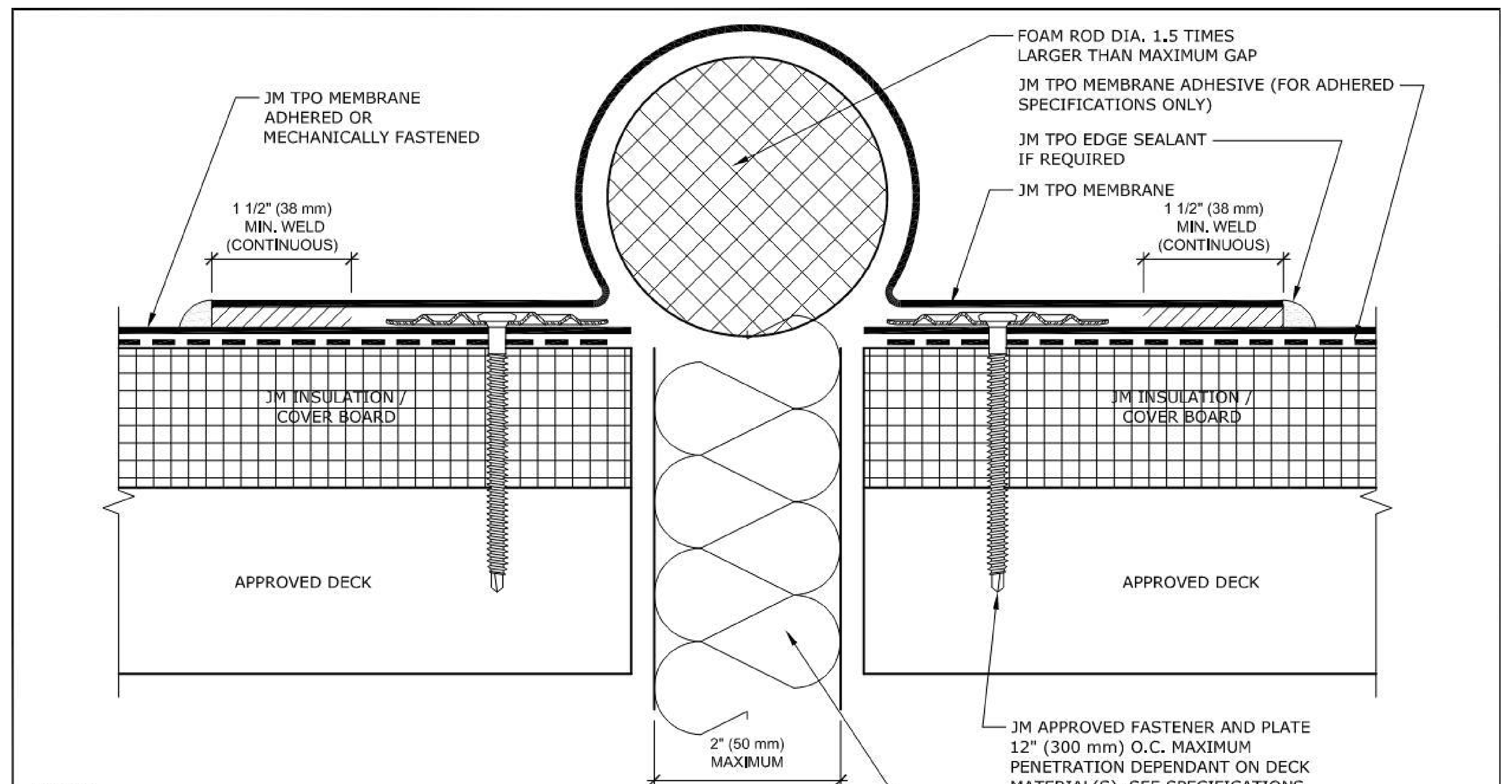
SHEET TITLE
ROOF PLAN

PROJECT NUMBER: 23096

SHEET NUMBER:

A-105

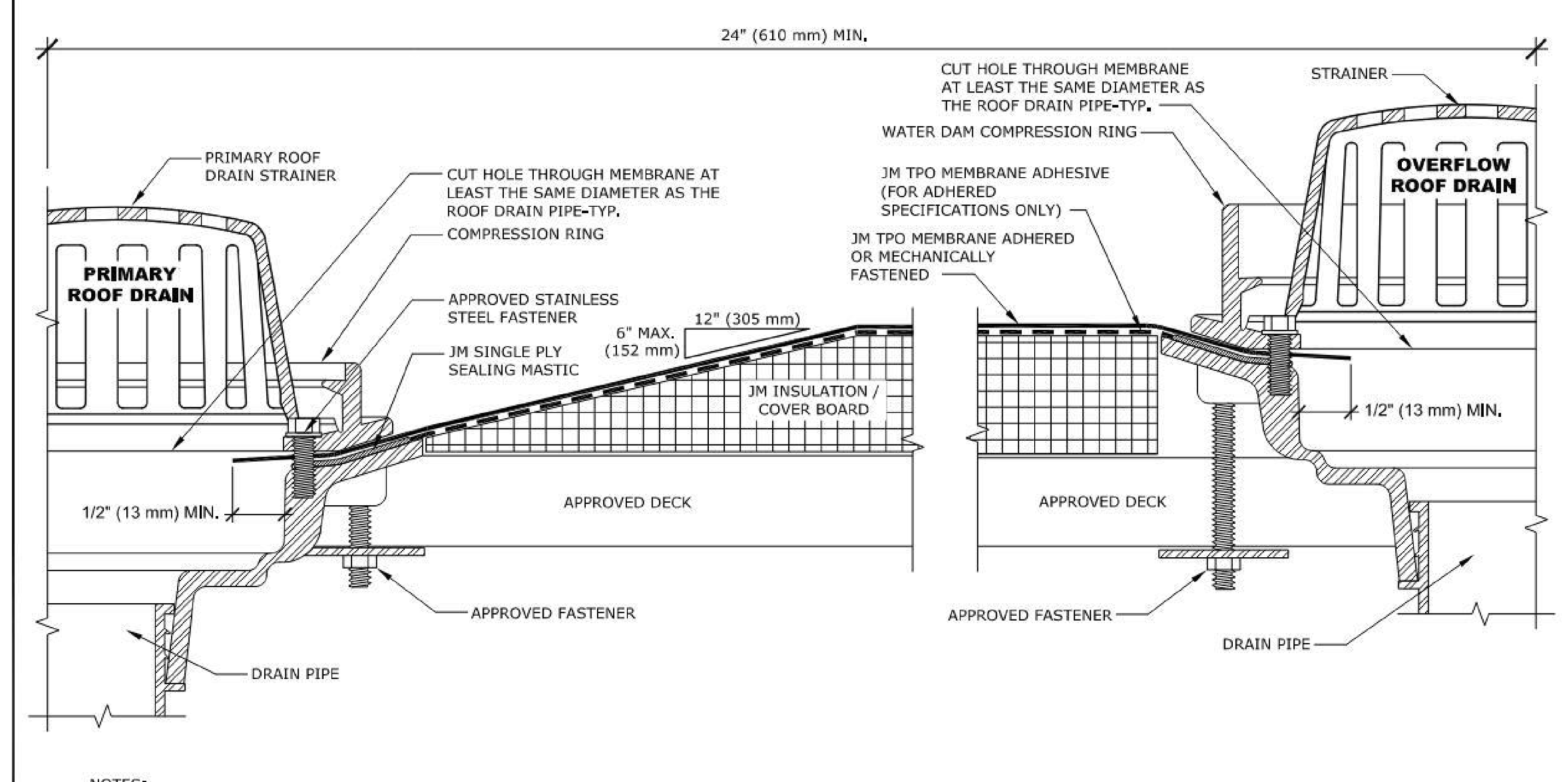
NOTE: DETAILS PROVIDED FOR REFERENCE ONLY. FOLLOW MANUF. RECOMMENDED DETAILS FOR FLASHING/PENETRATION/SEALING DETAILS, TYP.



NOTES:
1. REFER TO JOHNS MANVILLE WEBSITE (www.jm.com) FOR MOST UP-TO-DATE INFORMATION.
2. PLEASE SEE SINGLE PLY FLASHING SPECIFICATIONS FOR A FULL DESCRIPTION OF INSTALLATION INSTRUCTIONS AND REQUIREMENTS WHICH ARE CONSIDERED A PART OF THIS DETAIL.
3. ANY CARPENTRY OR METAL WORK SHOULD BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS AND/OR PROJECT SPECIFICATIONS. THESE COMPONENTS SHOULD BE REVIEWED AND APPROVED BY A LICENSED DESIGN PROFESSIONAL.
4. JM TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON-ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCLUDES FACTORY CUT MEMBRANE (SEE DETAIL T-MS-01).

EXPANSION JOINT (ROOF TO ROOF)

DRAWING NO. **T-EJ-02** REPLACES TT-71 | MEMBRANE TYPE: JM TPO | MAXIMUM GUARANTEE TERM: 30 YEAR | ISSUE DATE 7-17-17 | SCALE N.T.S



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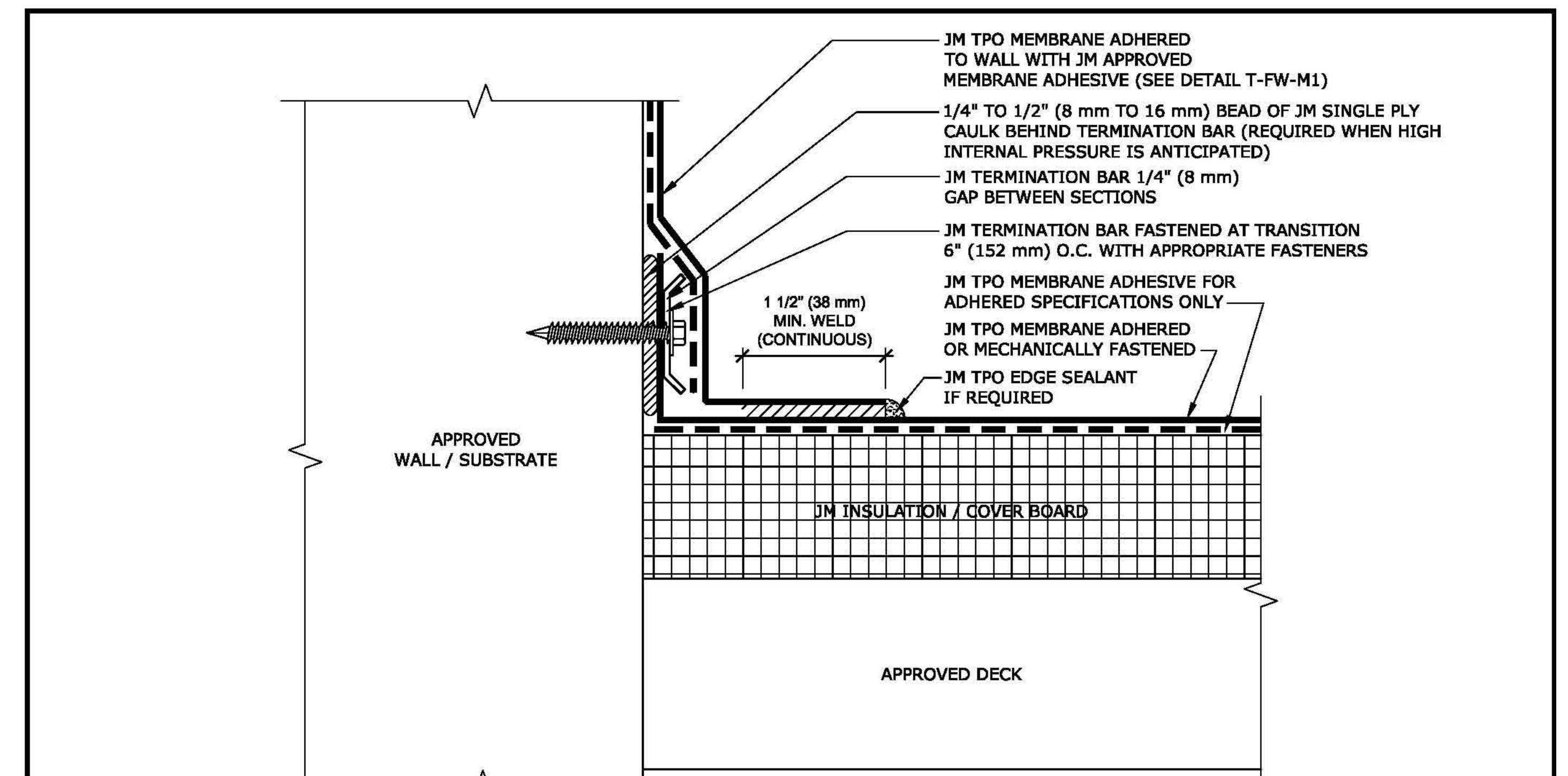
4. DRAIN AREA MUST BE PROPERLY TAPERED SO THAT THE DRAIN FLASHING IS NOT INSTALLED UNDER TENSION.
5. NO SEAMS OR FOLDS UNDER THE COMPRESSION RING.

PRIMARY AND OVERFLOW ROOF DRAIN

DRAWING NO. **T-DV-17** DRAINS-VENTS | MEMBRANE TYPE: JM TPO | MAXIMUM GUARANTEE TERM: 30 YEAR | ISSUE DATE 12-15-22 | SCALE N.T.S



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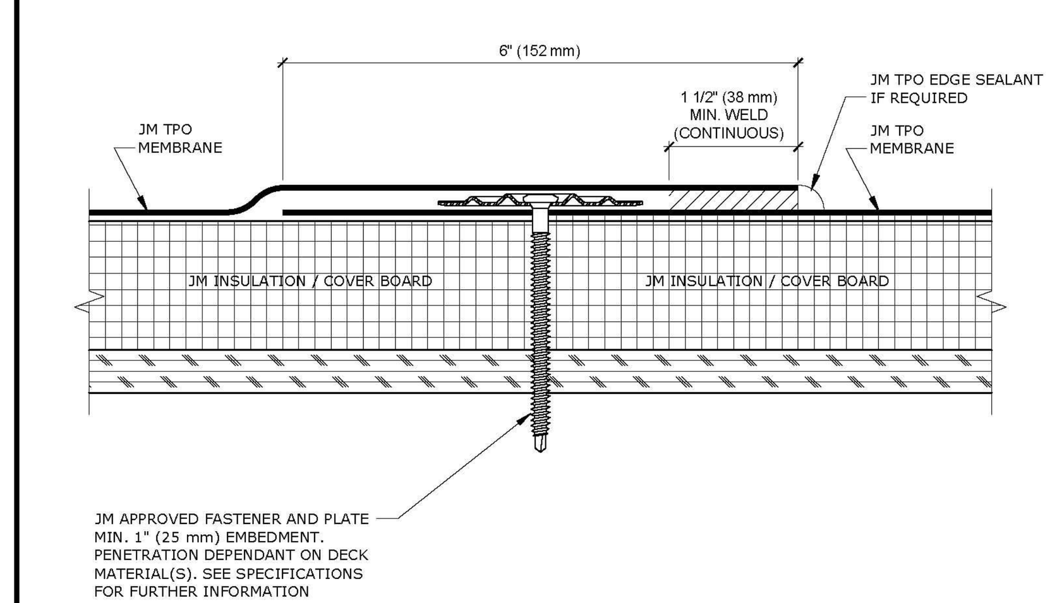
4. JM TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON-ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCLUDES FACTORY CUT MEMBRANE (SEE DETAIL T-MS-01).
5. THIS DETAIL IS ALSO SUITABLE FOR TERMINATION OF FLEECE BACKED MEMBRANES. NON FLEECE BACK MEMBRANE IS REQUIRED FOR WALL FLASHINGS.

MEMBRANE FLASHING BASE TIE-IN (HIGH INTERNAL PRESSURE)

DRAWING NO. **T-FW-B5** REPLACES TB-26A | MEMBRANE TYPE: JM TPO | MAXIMUM GUARANTEE TERM: 30 YEAR | ISSUE DATE 7-14-17 | SCALE N.T.S



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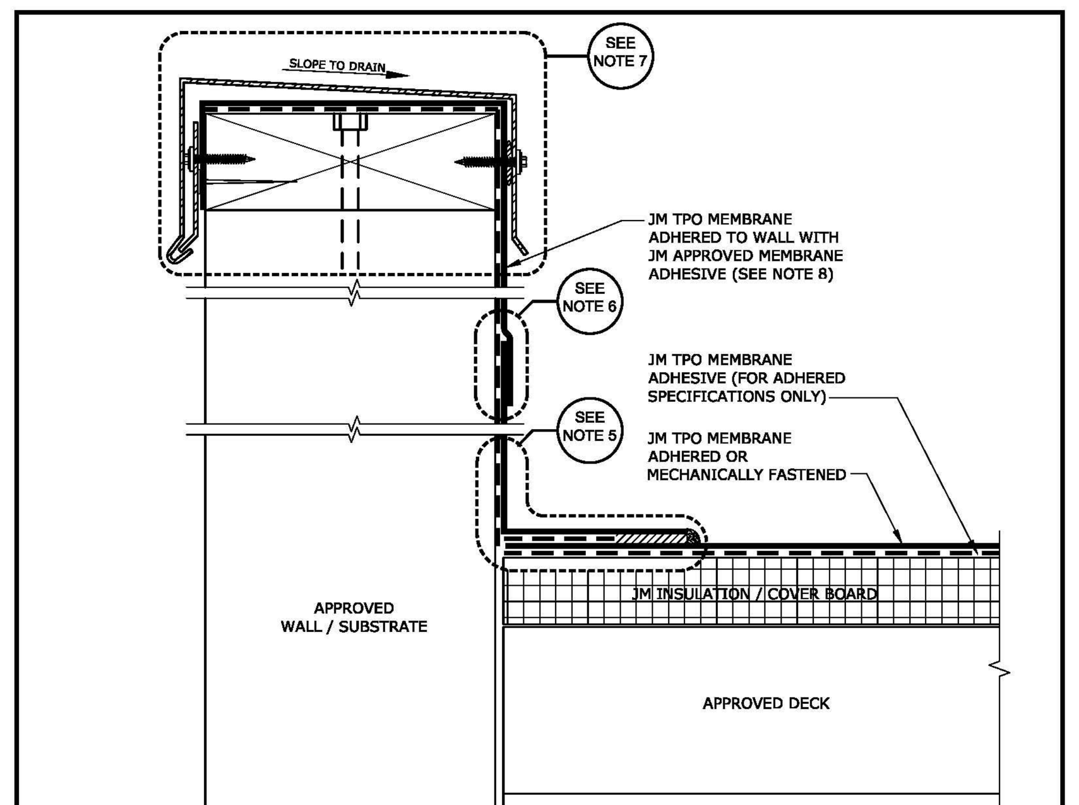
4. JM TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON-ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCLUDES FACTORY CUT MEMBRANE (SEE DETAIL T-MS-01).

IN LAP FASTENING METHOD-PLYWOOD DECK

DRAWING NO. **T-MS-03** REPLACES TA-1A | SCALE N.T.S | ISSUE DATE 1-2-15 | MEMBRANE TYPE: JM TPO | MAXIMUM GUARANTEE TERM: 30 YEAR



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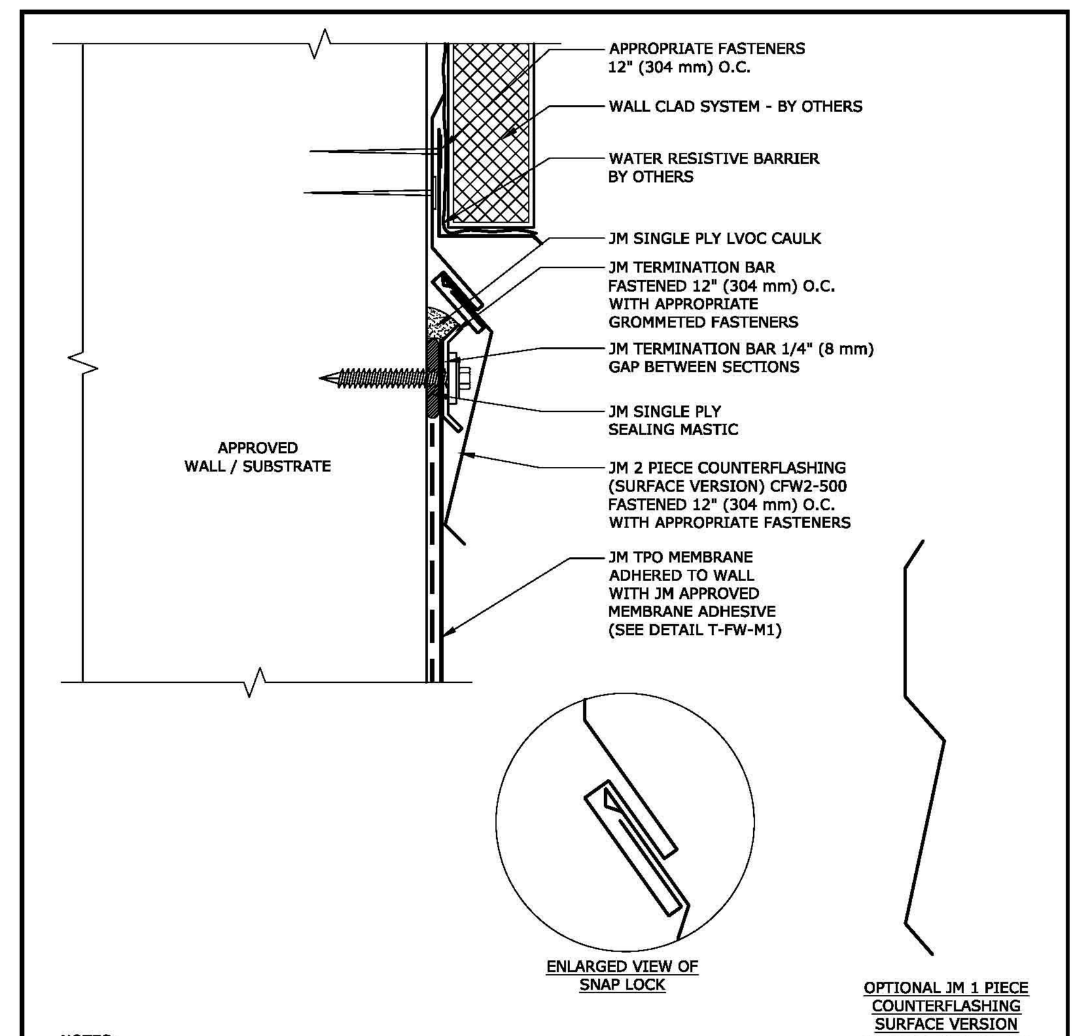
4. JM TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON-ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCLUDES FACTORY CUT MEMBRANE (SEE DETAIL T-MS-01).
5. FOR JM APPROVED BASE FLASHING FASTENING METHODS SEE T-FW-B DETAILS. A SUFFICIENT BACKER FASTENING STRIP MUST BE INSTALLED BEHIND SUBSTRATES DIRECTLY TO STUDS FOR INSTALLATION OF TERMINATION BARS AND FLASHINGS WHEN SUBSTRATES WILL NOT SUPPORT A PROPER, SECURE INSTALLATION. SEE DETAIL T-FW-M2I FOR BACKER DETAIL.
6. FOR JM APPROVED INTERMEDIATE FLASHING FASTENING METHODS SEE T-FW-I DETAILS. MINIMUM FLASHING TERMINATION HEIGHT IS 8" (203 mm) ABOVE ROOF SURFACE. INTERMEDIATE ADHERED MEMBRANE FASTENING REQUIRED AT 5'-0" (1.52 m) INTERVALS MAXIMUM, AND 18" (457 mm) HIGH MAXIMUM FOR NON ADHERED MEMBRANE ON CMU, BRICK, SMOOTH CONCRETE WALLS, OR ANY JM APPROVED SUBSTRATE, IE. PLYWOOD, SECUROCK®GYPSUM-FIBER AND DENSDECK®. SEE DETAIL T-FW-M2I FOR JM APPROVED FASTENING METHODS.
7. FOR JM APPROVED TOP OF WALL FLASHING METHODS SEE T-FW-T DETAILS.
8. JM APPROVED ADHESIVES FOR USE ON VERTICAL FLASHING APPLICATIONS INCLUDES JM LVOC MEMBRANE ADHESIVE (TPO & EPDM), JM MEMBRANE BONDING ADHESIVE (TPO & EPDM), AND JM TPO WATER BASED MEMBRANE ADHESIVE.

TPO BASE & WALL FLASHING WITH COPING

DRAWING NO. **T-FW-M1** NEW DETAIL | SCALE N.T.S | ISSUE DATE 7-13-17 | MEMBRANE TYPE: JM TPO | MAXIMUM GUARANTEE TERM: N/A



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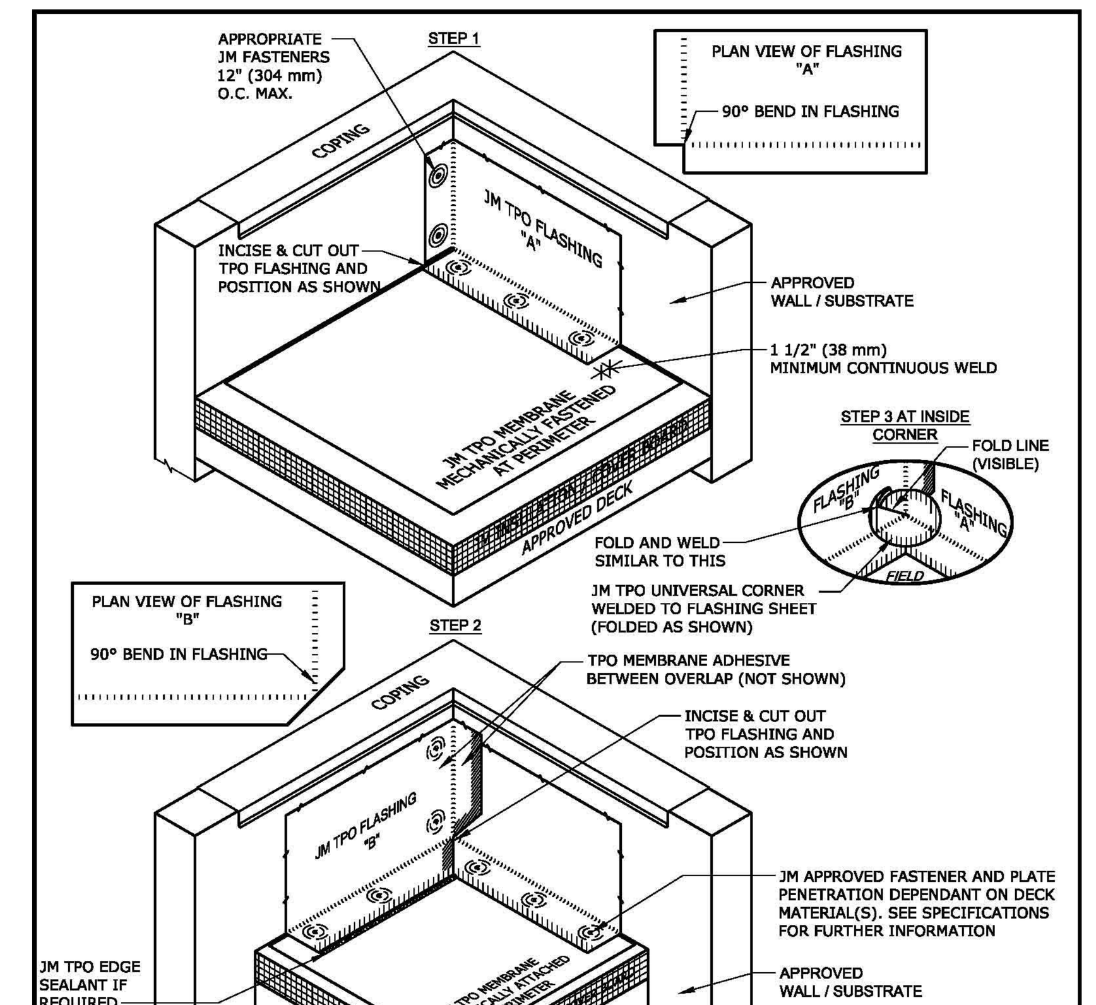
2. PLEASE SEE JM SINGLE PLY FLASHING SPECIFICATIONS FOR A FULL DESCRIPTION OF INSTALLATION INSTRUCTIONS AND REQUIREMENTS WHICH ARE CONSIDERED A PART OF THIS DETAIL.
3. ANY CARPENTRY OR METAL WORK SHOULD BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS AND/OR PROJECT SPECIFICATIONS. THESE COMPONENTS SHOULD BE REVIEWED AND APPROVED BY A LICENSED DESIGN PROFESSIONAL.
4. ALL SEALANTS / CAULKING SHALL BE PERIODICALLY INSPECTED AND MAINTAINED BY THE BUILDING OWNER THROUGHOUT THE LIFE OF THE ROOF.
5. MINIMUM FLASHING HEIGHT IS 8" (203 mm) ABOVE ROOF SURFACE.

TPO INTERMEDIATE TERMINATION BELOW WALL CLADDING

DRAWING NO. **T-FW-I11** NEW DETAIL | SCALE N.T.S | ISSUE DATE 7-13-17 | MEMBRANE TYPE: JM TPO | MAXIMUM GUARANTEE TERM: 30 YEAR



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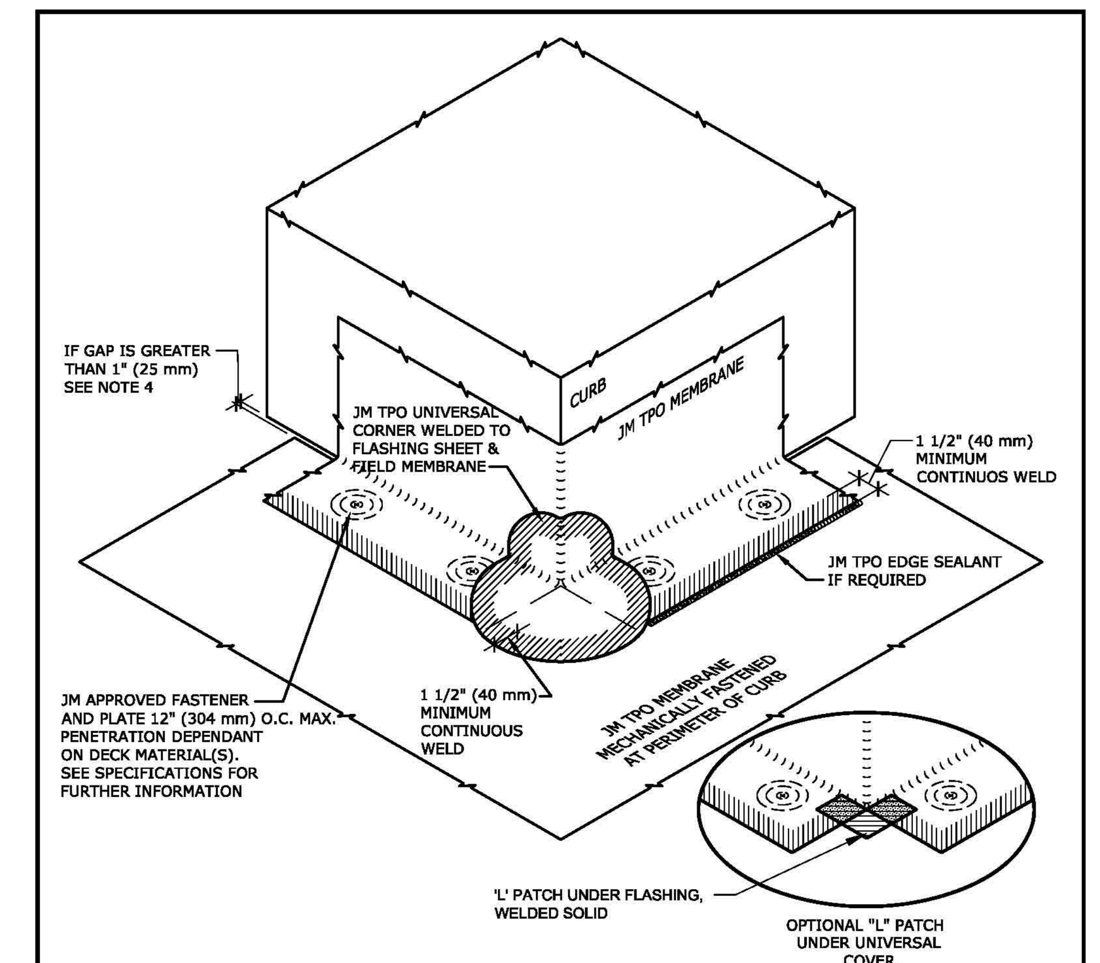
4. JM TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCLUDES FACTORY CUT EDGES (SEE DETAIL T-MS-01).

INSIDE CORNER

DRAWING NO. **T-FC-04** REPLACES TF-63 | SCALE N.T.S | ISSUE DATE 1-2-15 | MEMBRANE TYPE: JM TPO | MAXIMUM GUARANTEE TERM: 30 YEAR



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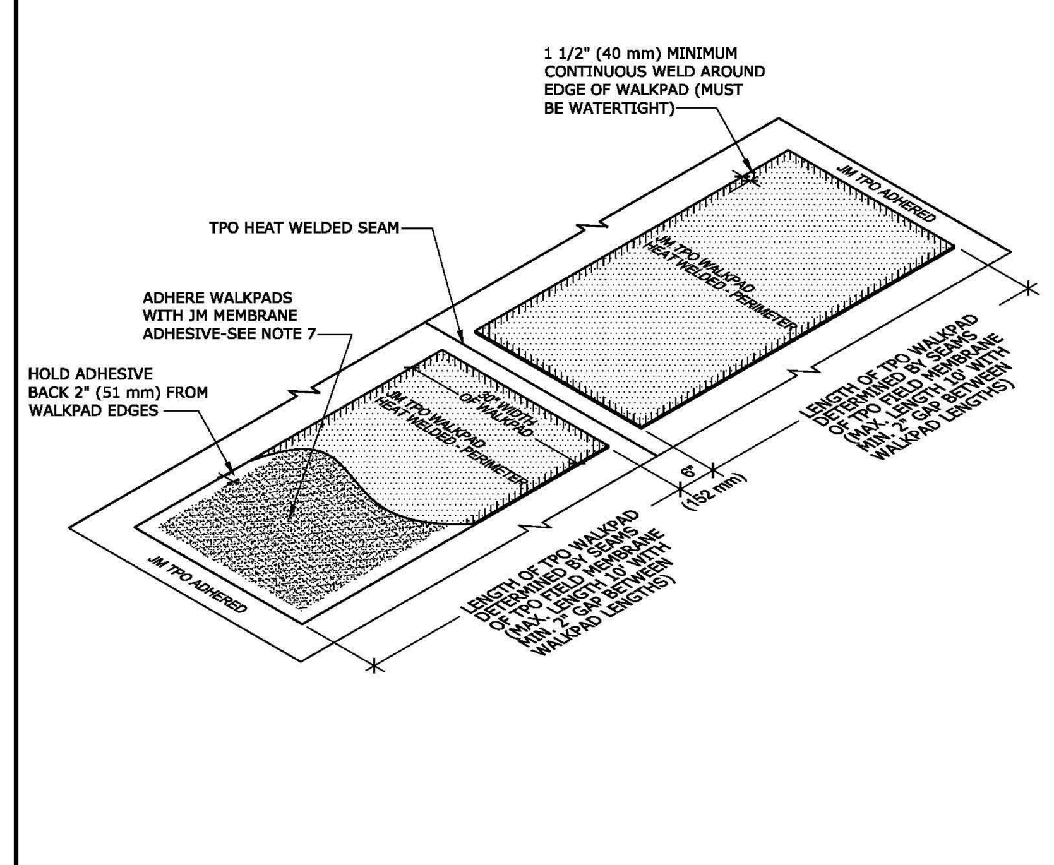
4. IF GAP OR CUT IN MEMBRANE IS GREATER THAN 1" UNDER TPO UNIVERSAL CORNER, AN "L" PATCH THAT EXTENDS OUT ONTO THE MEMBRANE A MINIMUM OF 2" MUST BE INSTALLED AT OUTSIDE CORNER. ("L" PATCH SHOWN AT RIGHT WITHOUT TPO UNIVERSAL CORNER)
5. JM TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCULDES FACTORY CUT MEMBRANE (SEE DETAIL T-MS-01).

OUTSIDE CORNER

DRAWING NO. **T-FC-03** REPLACES TF-62A | SCALE N.T.S | ISSUE DATE 1-2-15 | MEMBRANE TYPE: JM TPO | MAXIMUM GUARANTEE TERM: 30 YEAR



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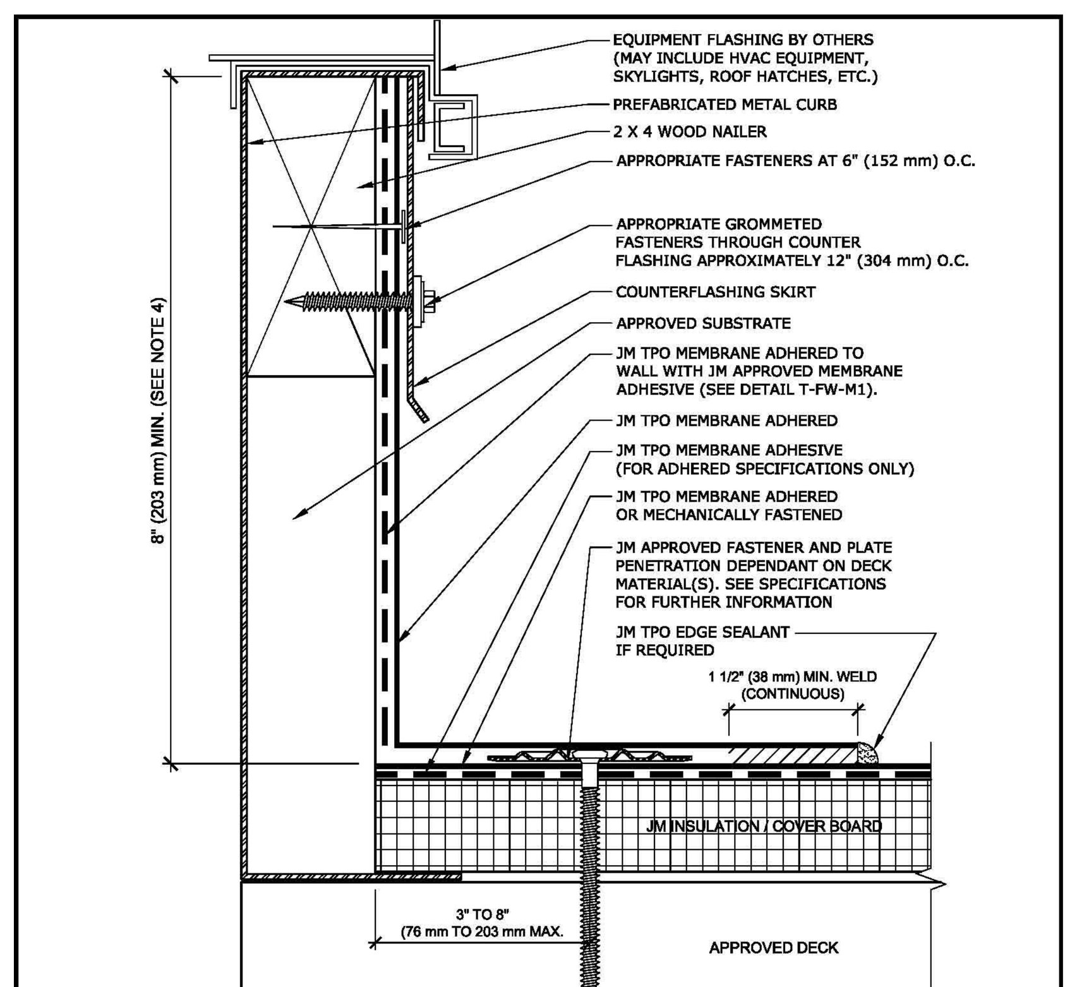
4. JM TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON-ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCLUDES FACTORY CUT MEMBRANE (SEE DETAIL T-MS-01).
5. CLEAN MEMBRANE SURFACE PRIOR TO WALKPAD INSTALLATION WITH TPO MEMBRANE CLEANER.
6. DO NOT INSTALL WALKPADS OVER MEMBRANE SEAMS.
7. JM APPROVED ADHESIVES FOR ADHERING TPO WALKPADS ARE JM LVOC MEMBRANE ADHESIVE (TPO & EPDM), JM MEMBRANE BONDING ADHESIVE (TPO & EPDM) AND JM TPO WATER BASED MEMBRANE ADHESIVE.

TPO WALKPADS OVER ADHERED TPO MEMBRANE

DRAWING NO. **T-PT-05** REPLACES TM-93A | SCALE N.T.S | ISSUE DATE 7-14-17 | MEMBRANE TYPE: JM TPO | MAXIMUM GUARANTEE TERM: 20 YEAR



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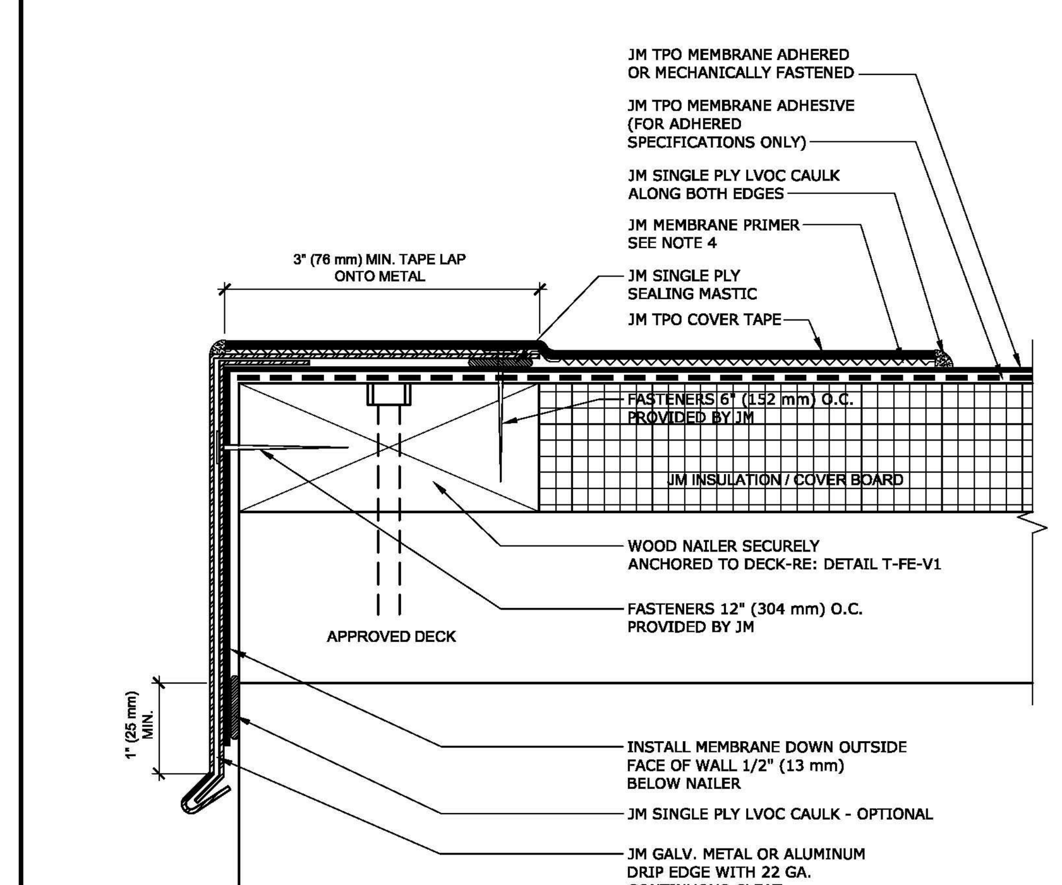
4. HEIGHT OF CURB TO BE ADJUSTED WITH NAILERS. IT IS PREFERRED TO RAISE CURB ONTO NAILERS TO EXTEND FLASHING HEIGHT.
5. TPO EDGE SEALANT IS REQUIRED ON ALL CUT AND NON ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCLUDES FACTORY CUT MEMBRANE (SEE DETAIL T-MS-01).
6. SEE T-FW-B DETAILS FOR JM APPROVED BASE FLASHING TIE IN TERMINATION METHODS.

PREFABRICATED METAL CURB BASE FLASHING

DRAWING NO. **T-FC-01** REPLACES TF-64-ADH | SCALE N.T.S | ISSUE DATE 7-14-17 | MEMBRANE TYPE: JM TPO | MAXIMUM GUARANTEE TERM: 30 YEAR



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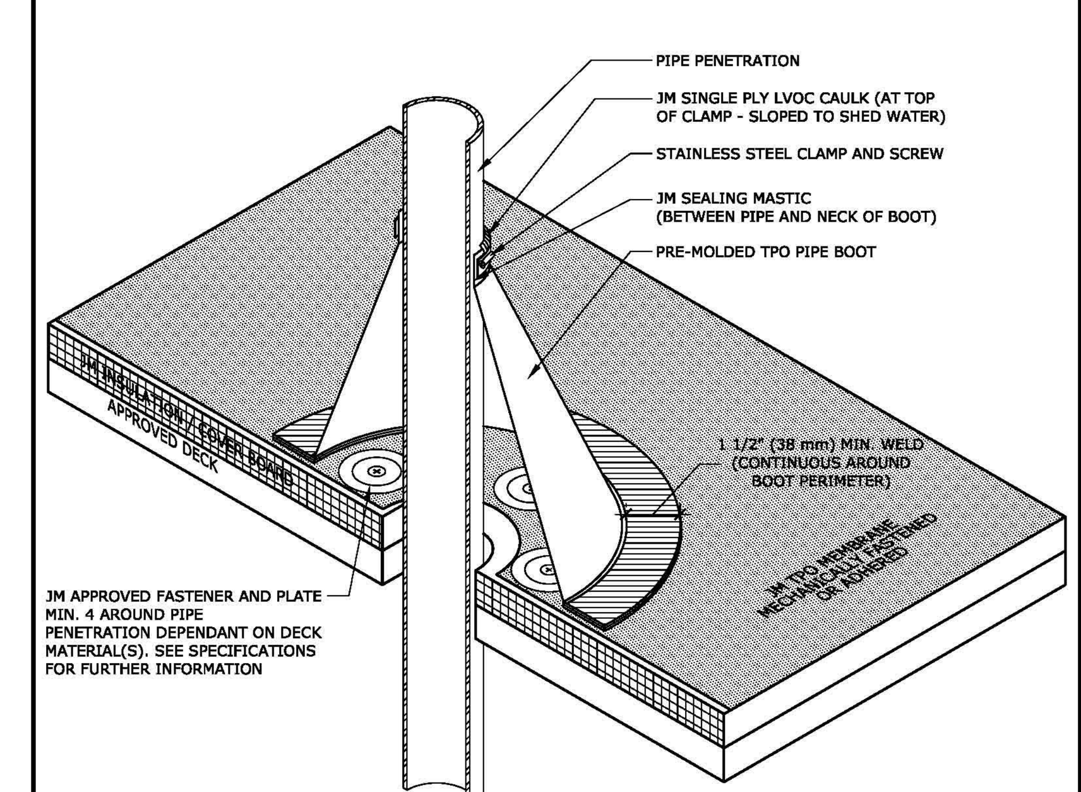
4. JM TPO MEMBRANE PRIMER OR JM SINGLE PLY MEMBRANE PRIMER (LOW VOC) MUST BE APPLIED ON ALL SURFACES COMING INTO CONTACT WITH TPO PEEL & STICK PRODUCTS. ROLL MEMBRANE WITH HAND ROLLER UNDER PRESSURE AT SEAM.

JM METAL DRIP EDGE WITH JM TPO COVER TAPE

DRAWING NO. **T-FE-P5** NEW DETAIL | SCALE N.T.S | ISSUE DATE 7-14-17 | MEMBRANE TYPE: JM TPO | MAXIMUM GUARANTEE TERM: 20 YEAR



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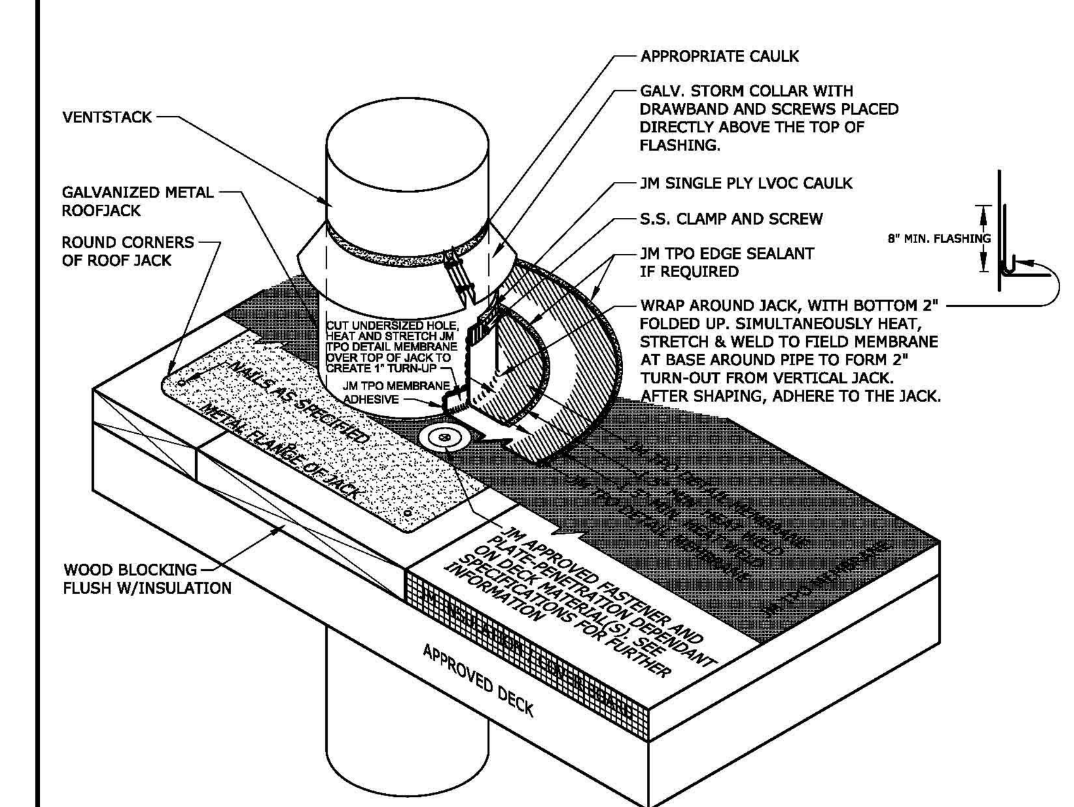
TPO PIPE BOOT

DRAWING NO. **T-FP-01** REPLACES TF-50S | SCALE N.T.S | ISSUE DATE 7-17-17 | MEMBRANE TYPE: JM TPO | MAXIMUM GUARANTEE TERM: 30 YEAR



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VENT PIPE

DRAWING NO. **T-DV-01** REPLACES TF-52 | SCALE N.T.S | ISSUE DATE 11-17-16 | MEMBRANE TYPE: JM TPO | MAXIMUM GUARANTEE TERM: 20 YEAR

PRINTS ISSUED
11/20/24 - CITY SUBMITTAL

REVISIONS:

rosemann & ASSOCIATES p.c.
ARCHITECTURE
INTERIOR DESIGN
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PLANNING
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Kansas City, MO 64108-1404
p: 816.472.1448
w: www.rosemann.com

DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
ROOFING & FLASHING DETAILS

PROJECT NUMBER: 23096

SHEET NUMBER:

A-106

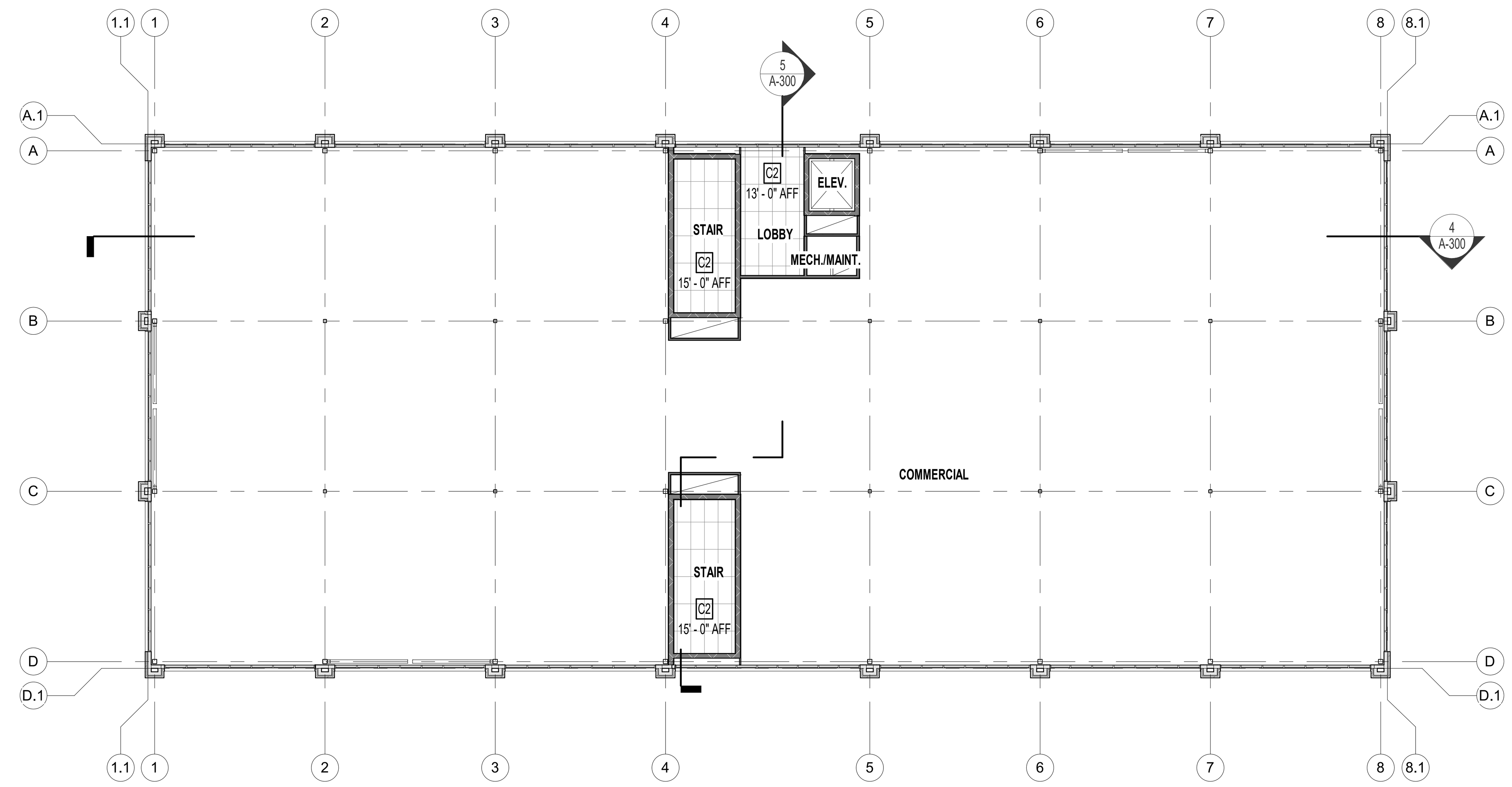
RELEASED FOR CONSTRUCTION
As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri

REFERENCE G-003 FOR GENERAL NOTES

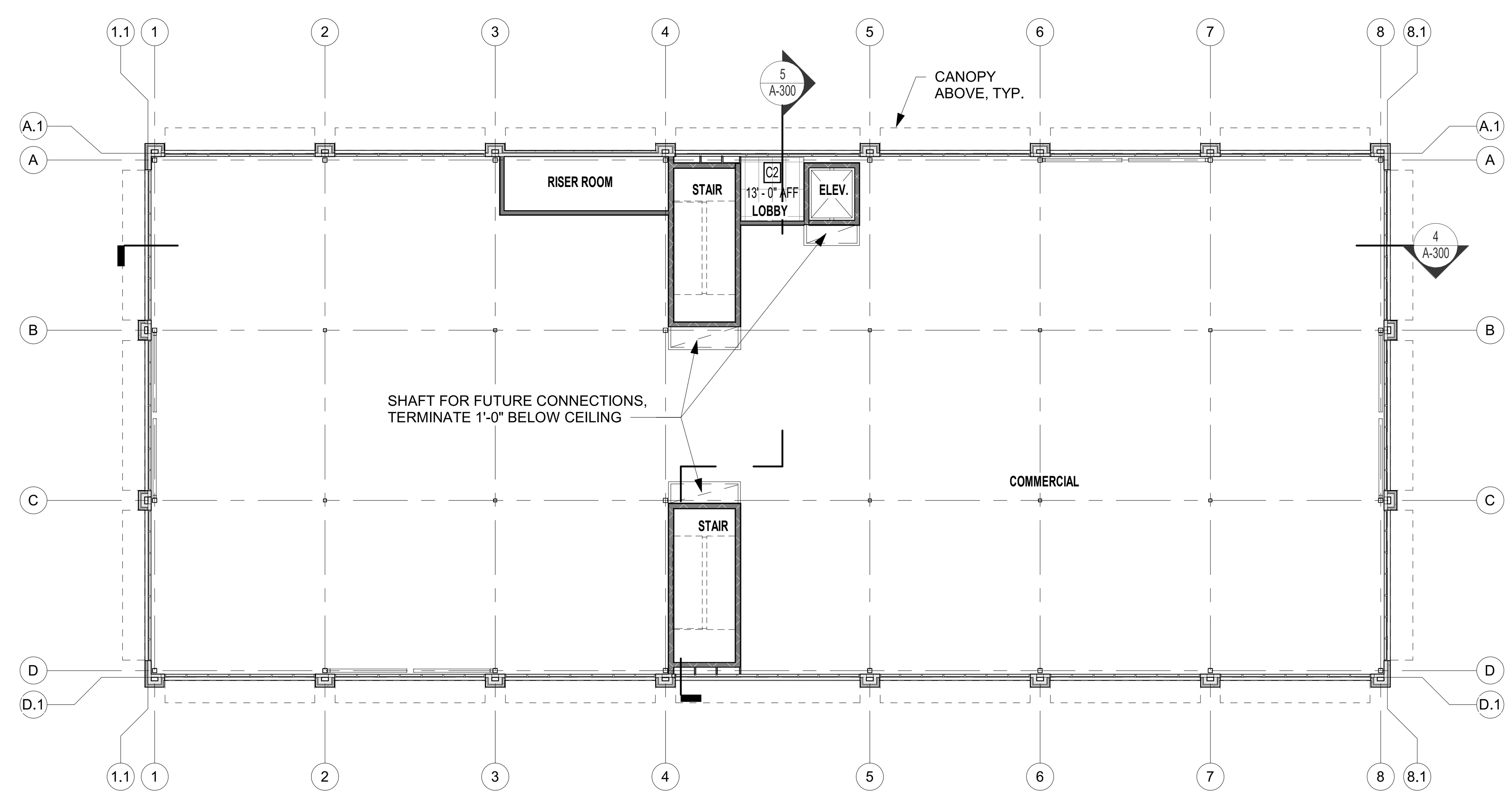
RCP LEGEND

[grid symbol]	**C2** - ACT 2'X4' GRID
9' - 0"	INDICATES CEILING HEIGHT

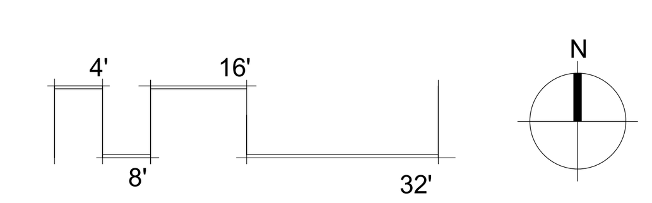
NOTE:
CEILINGS TO BE LEFT EXPOSED UON; DROP CEILINGS BY TENANTS.



2 SECOND FLOOR REFLECTED CEILING PLAN
1/16" = 1'-0"



1 FIRST FLOOR REFLECTED CEILING PLAN
1/16" = 1'-0"



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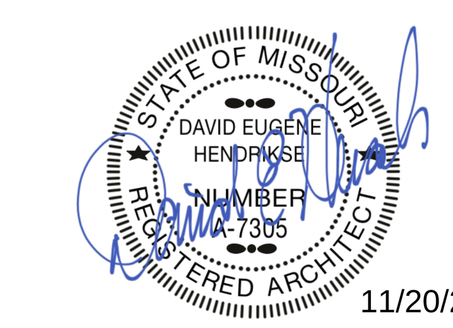


11/20/24

THE VILLAGE AT DISCOVERY - LOT 1

LEE'S SUMMIT, MO

SHEET TITLE
REFLECTED CEILING PLANS

PROJECT NUMBER: 23096

SHEET NUMBER:

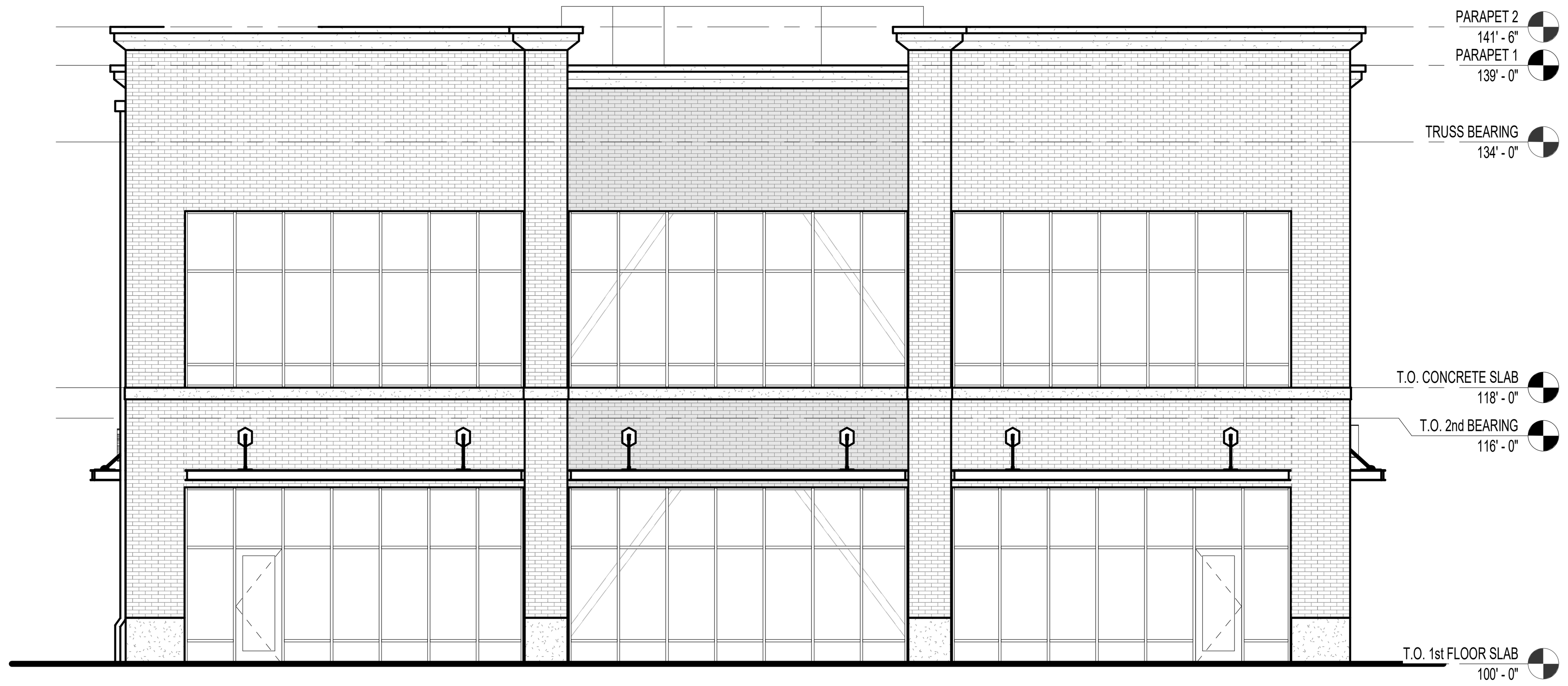
A-120

MATERIAL LEGEND

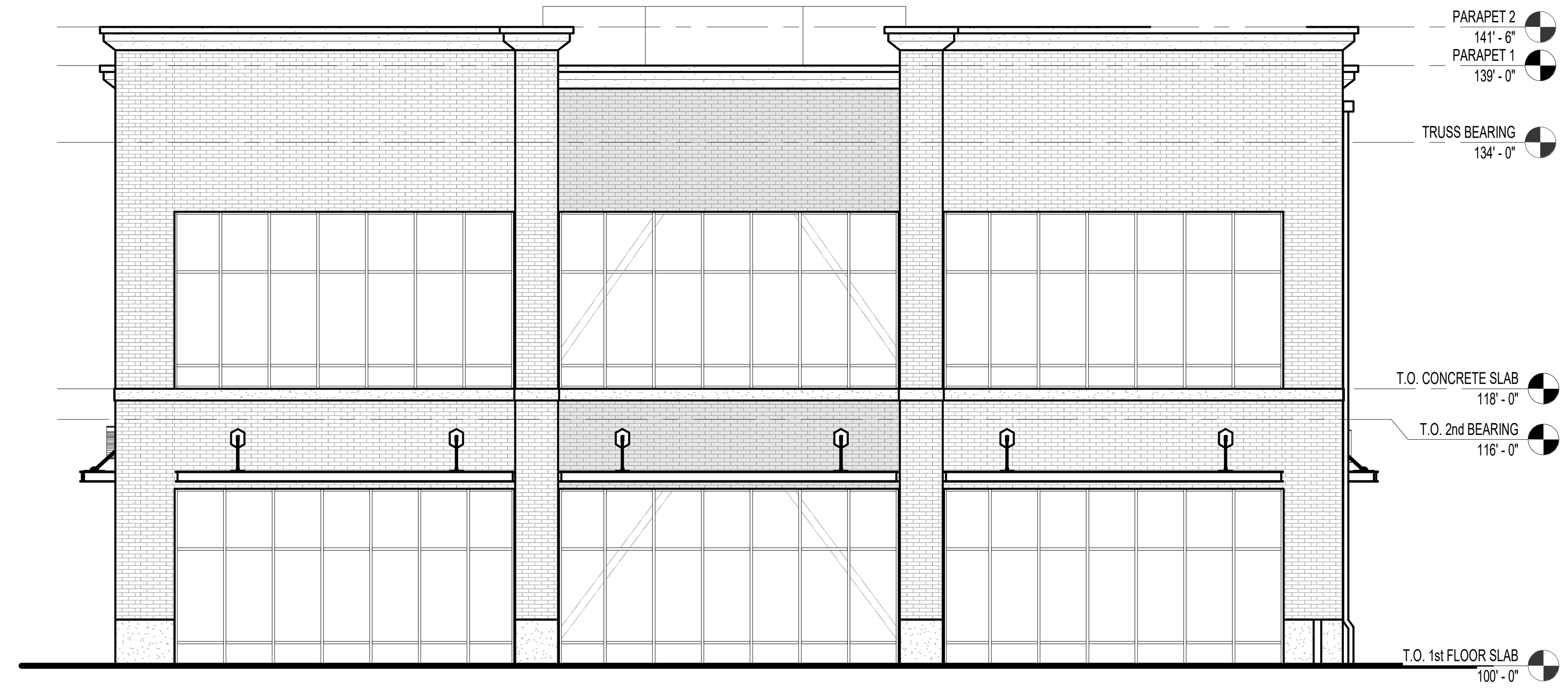
- KING SIZE BRICK - COLOR 1
- KING SIZE BRICK - COLOR 2
- STONE
- EIFS BANDING

PRINTS ISSUED
11/20/24 - CITY SUBMITTAL

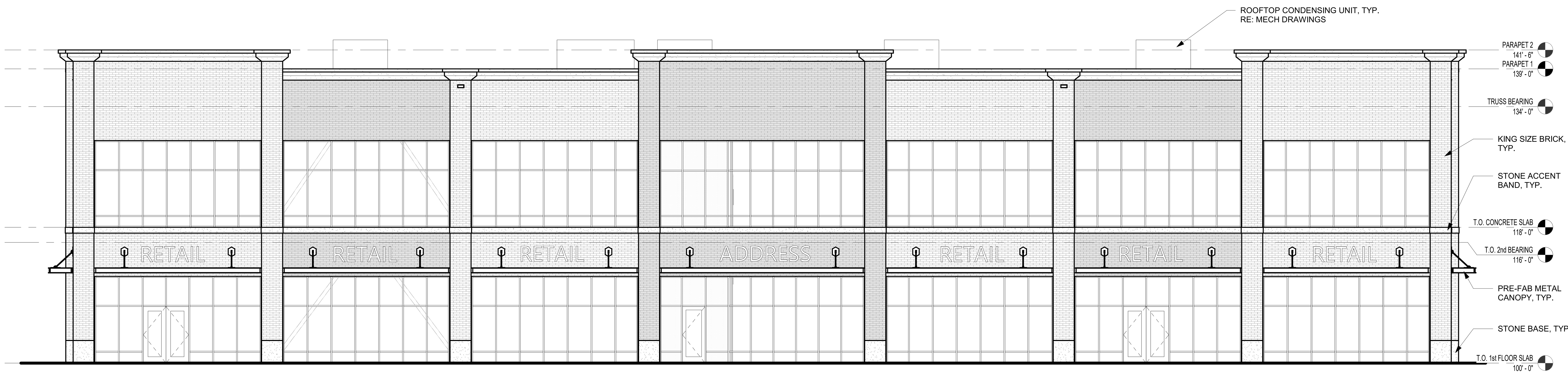
REVISIONS:



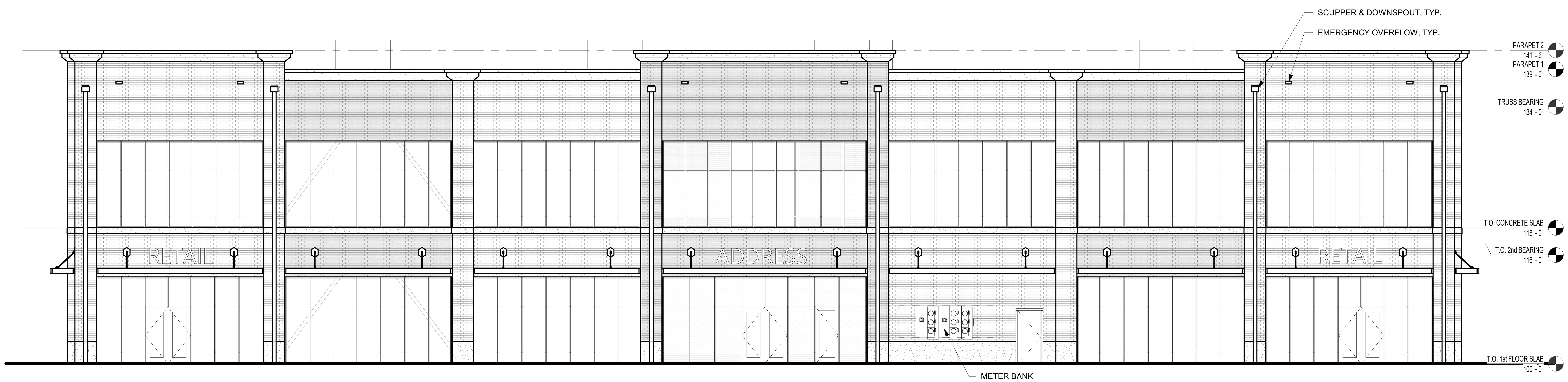
4 SOUTH ELEVATION
1/8" = 1'-0"



3 NORTH ELEVATION
1/8" = 1'-0"



2 EAST ELEVATION
1/8" = 1'-0"



1 WEST ELEVATION
1/8" = 1'-0"

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DAVID EUGENE HENDRIKSE
NUMBER A-7305
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11/20/24

THE VILLAGE AT DISCOVERY - LOT 1

LEE'S SUMMIT, MO

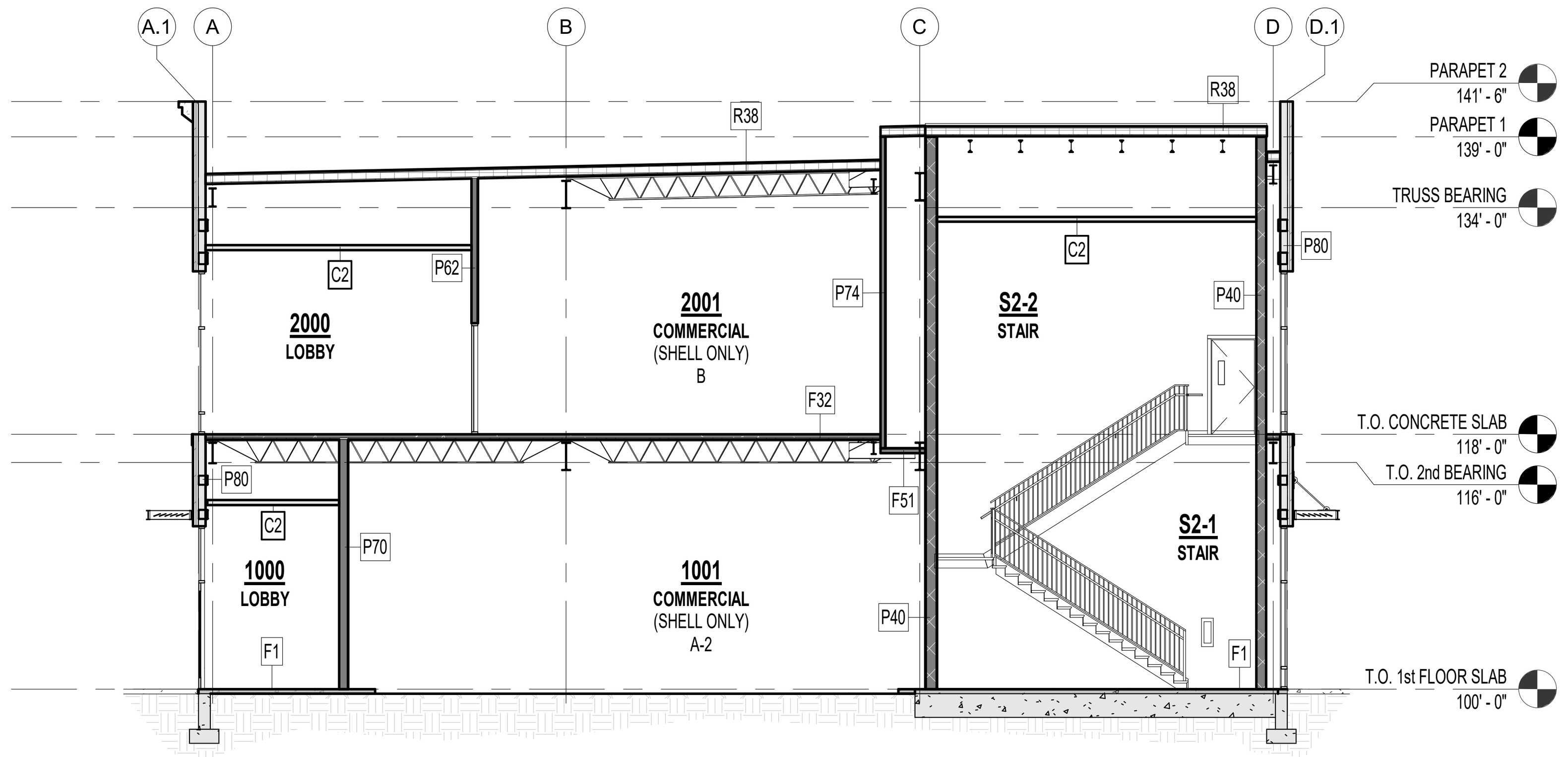
SHEET TITLE
EXTERIOR ELEVATIONS

PROJECT NUMBER: 23096

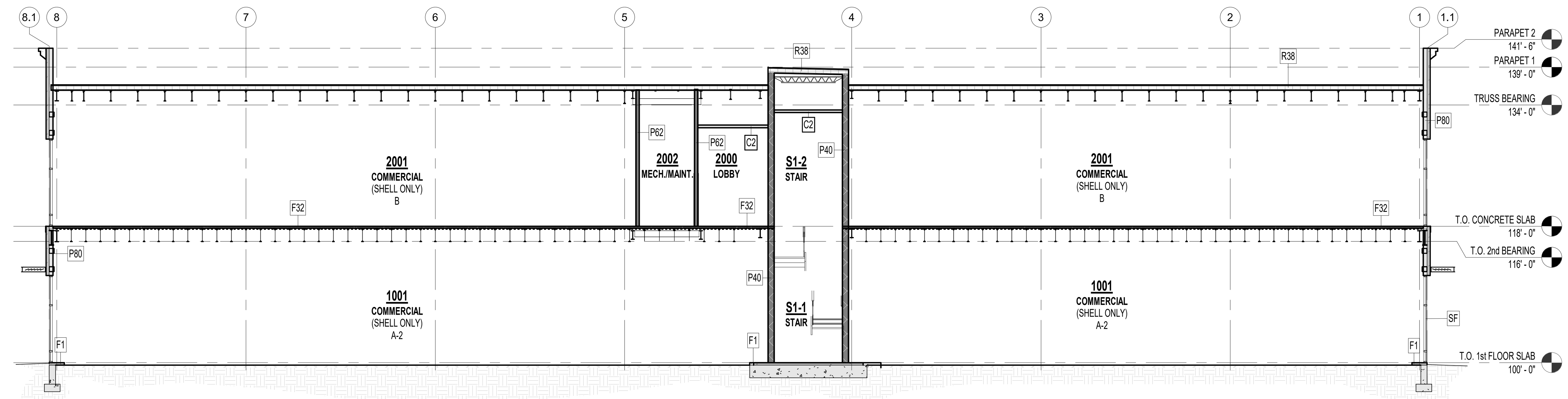
SHEET NUMBER:

A-200

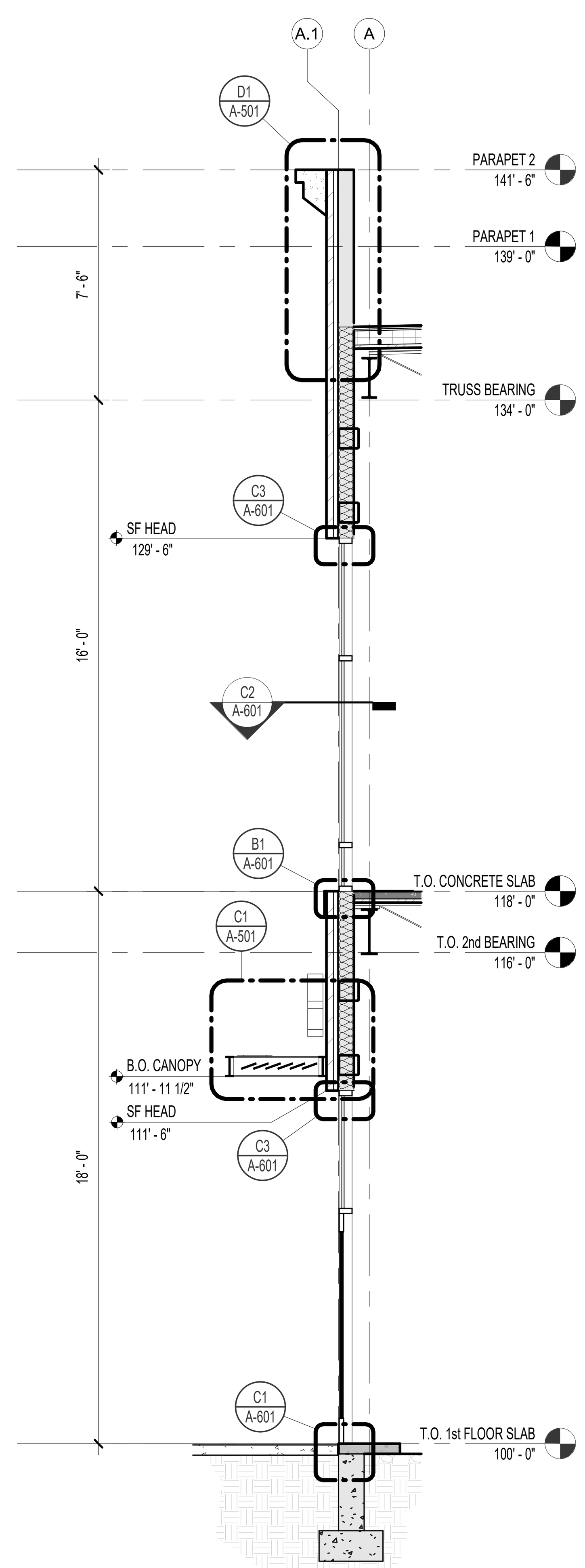
REFERENCE G-003 FOR GENERAL NOTES



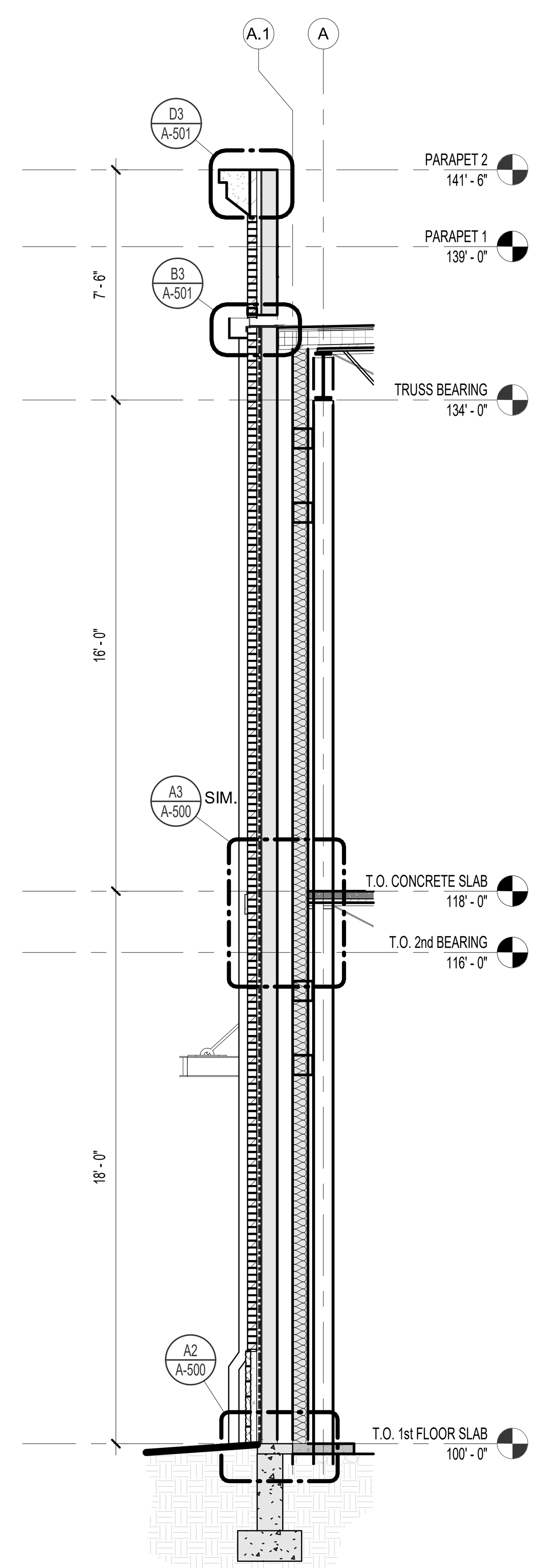
5 BUILDING SECTION 2
3/32" = 1'-0"



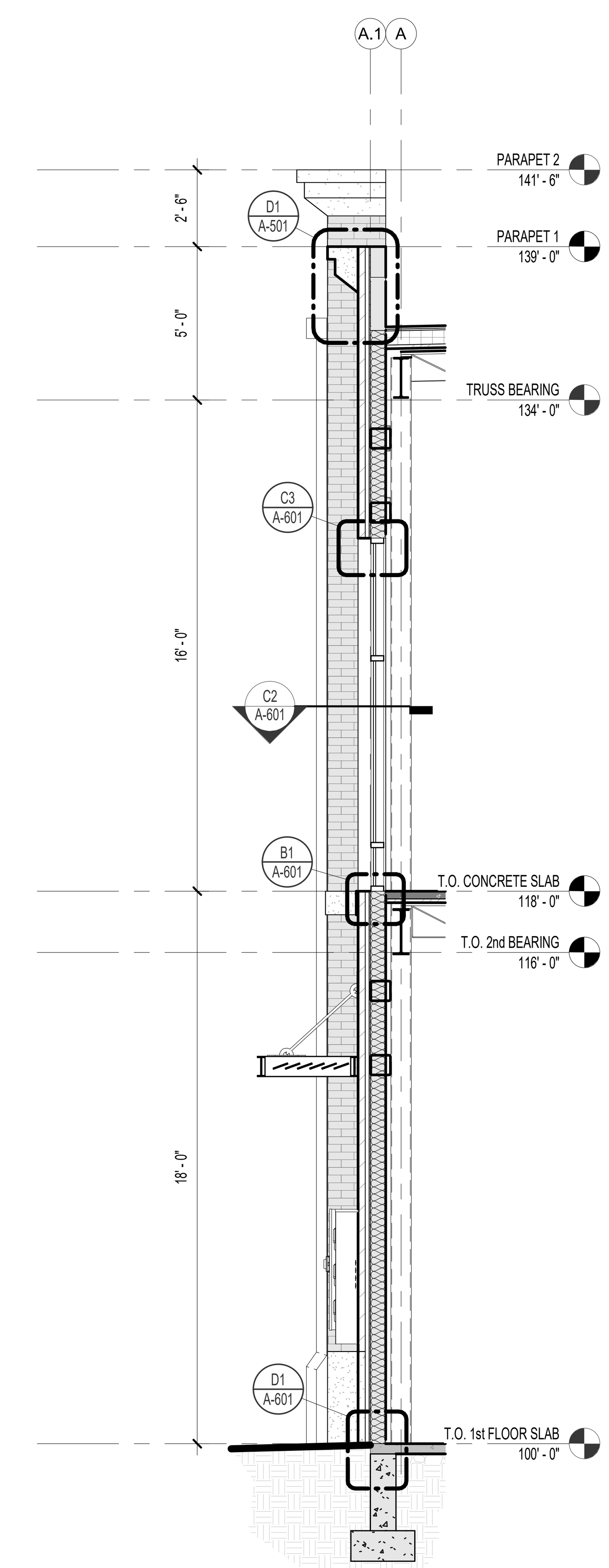
4 BUILDING SECTION 1
3/32" = 1'-0"



3 WALL SECTION @ SF DOOR
1/4" = 1'-0"



2 WALL SECTION @ PILASTER
1/4" = 1'-0"



1 WALL SECTION @ RISER ROOM
1/4" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/20/24

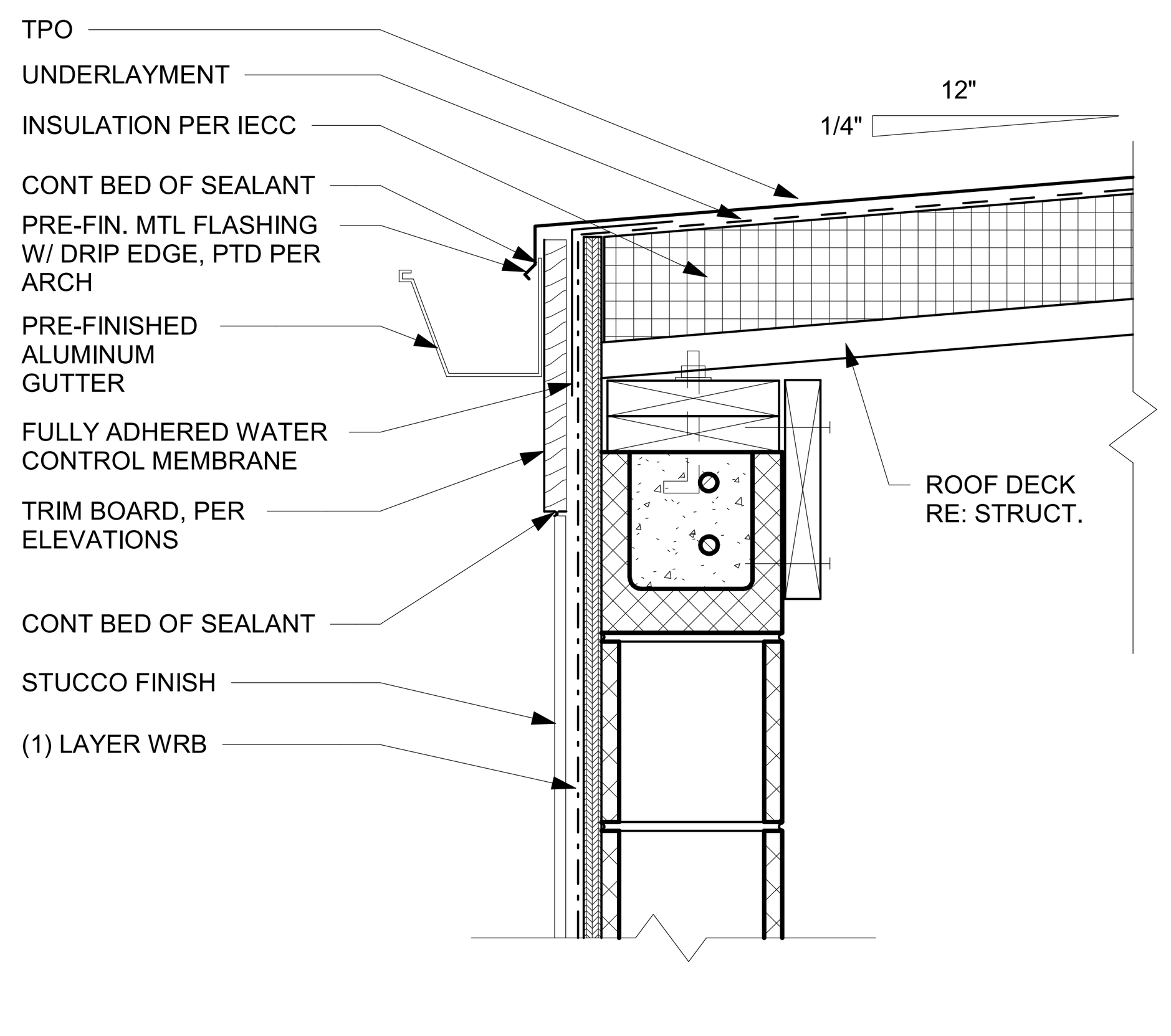
THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
SECTIONS

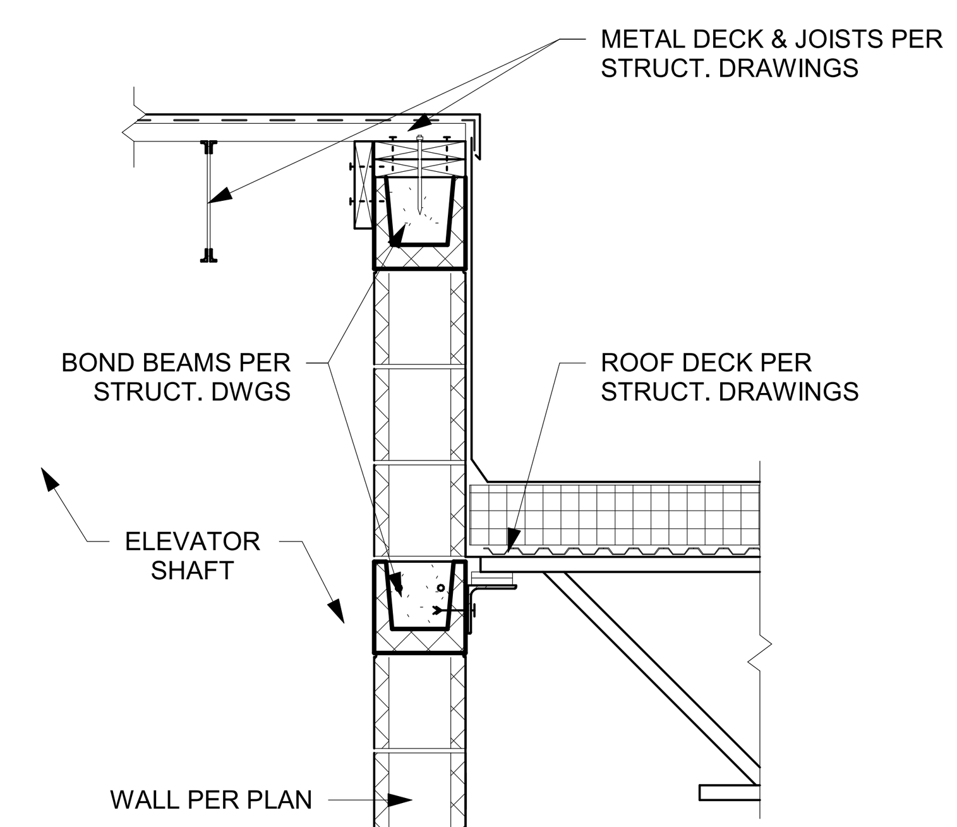
PROJECT NUMBER: 23096

SHEET NUMBER:
A-300

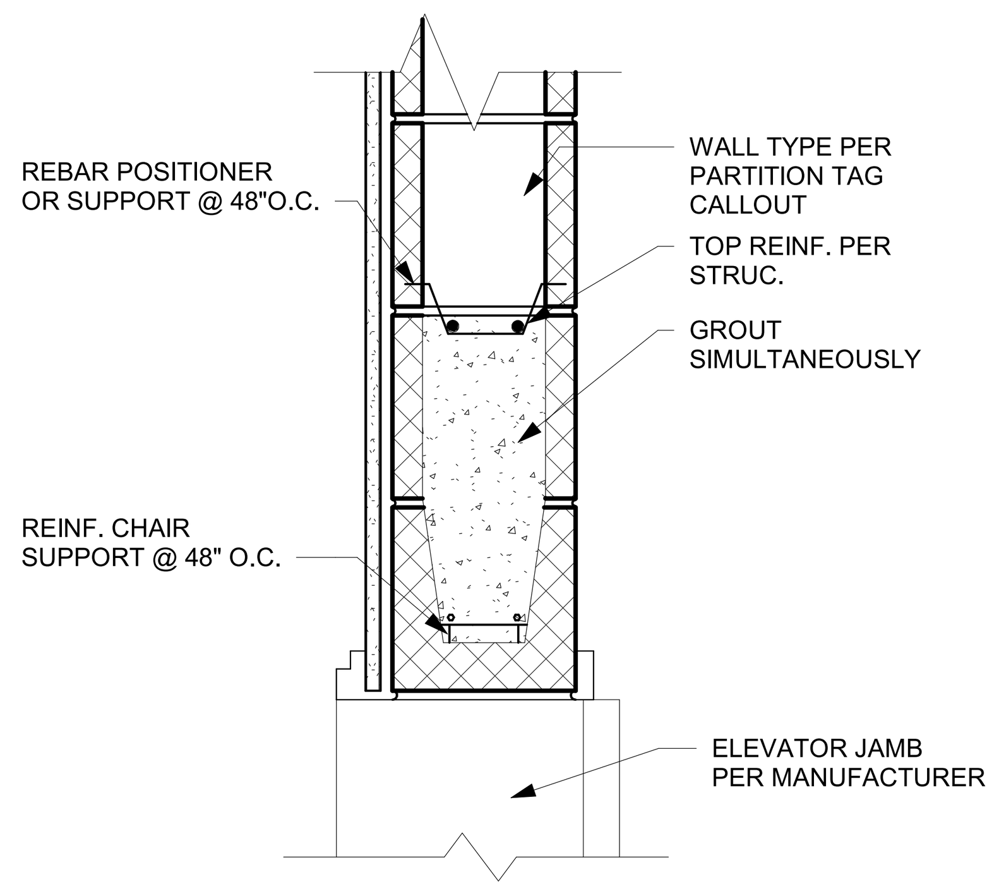
REFERENCE G-003 FOR GENERAL NOTES



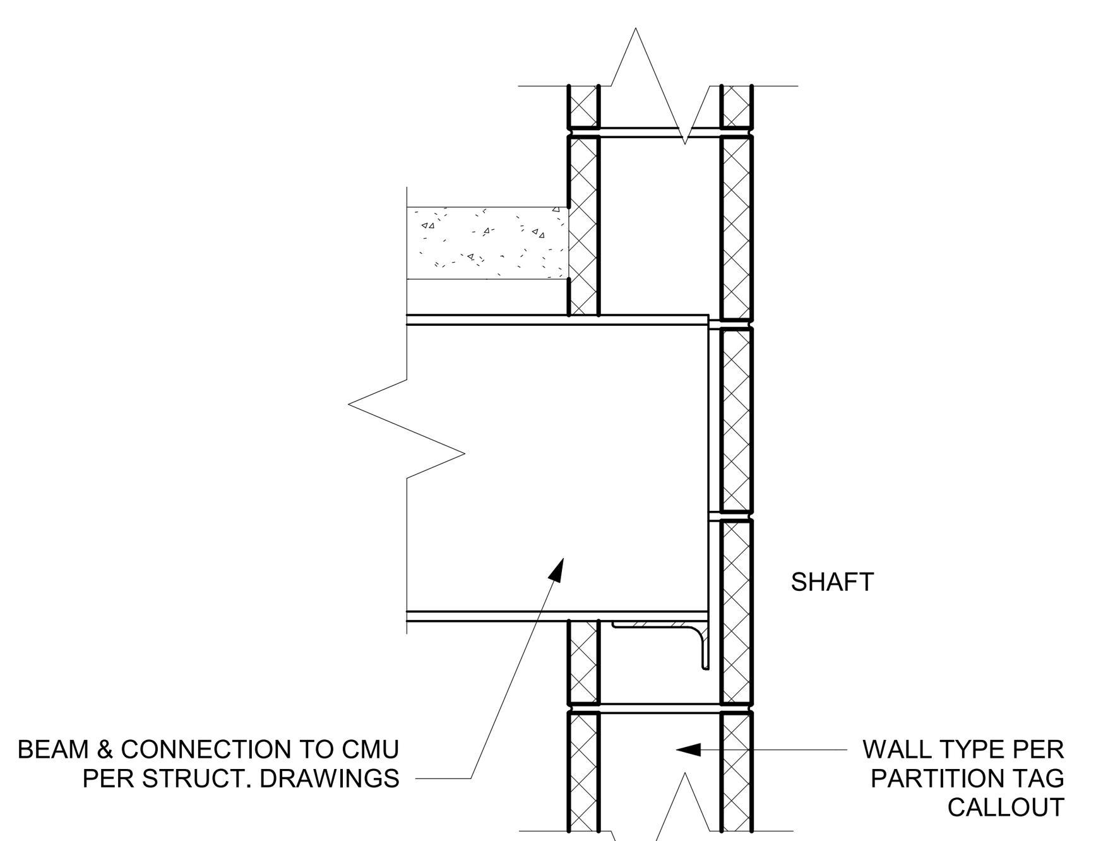
9 ELEVATOR - CMU AT LOW SLOPE ROOF @ GUTTER
1 1/2" = 1'-0"



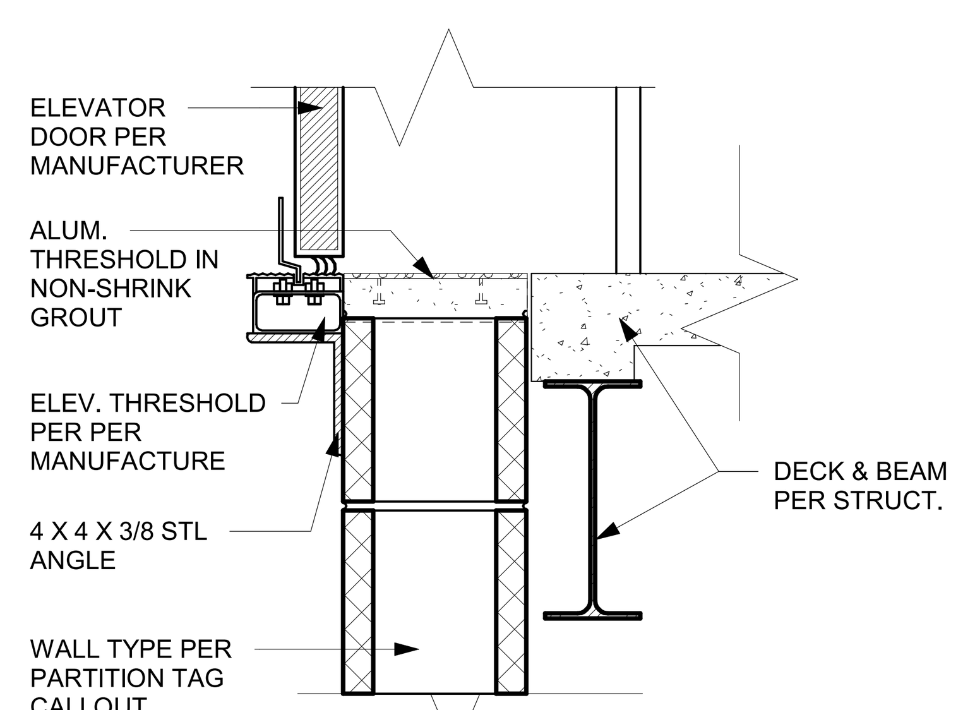
10 ELEV. ROOF DETAIL
3/4" = 1'-0"



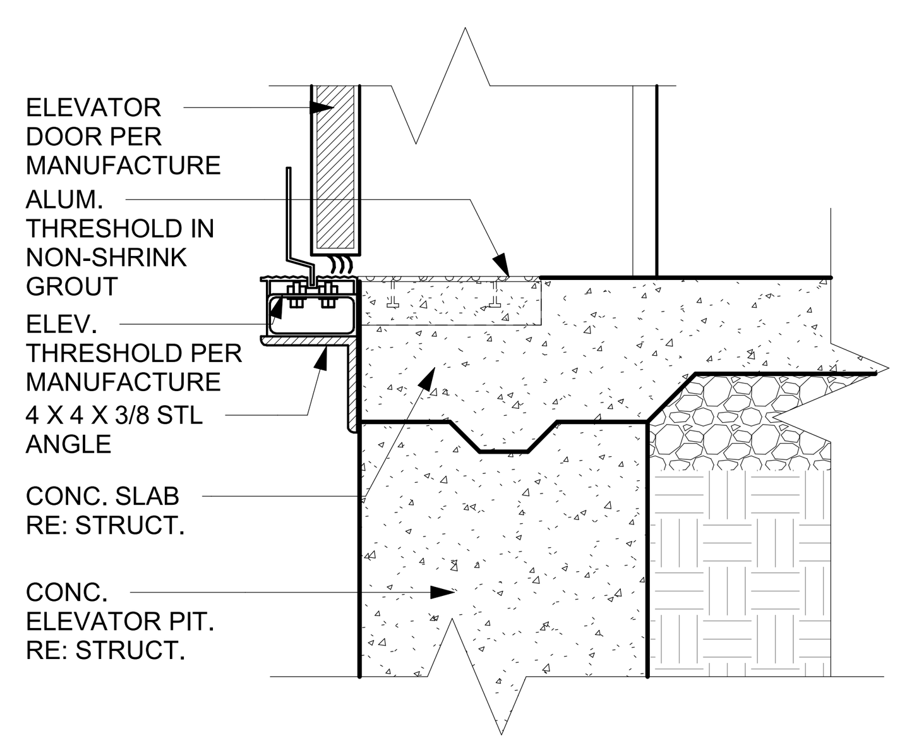
8 ELEVATOR DOOR HEAD DETAIL
1 1/2" = 1'-0"



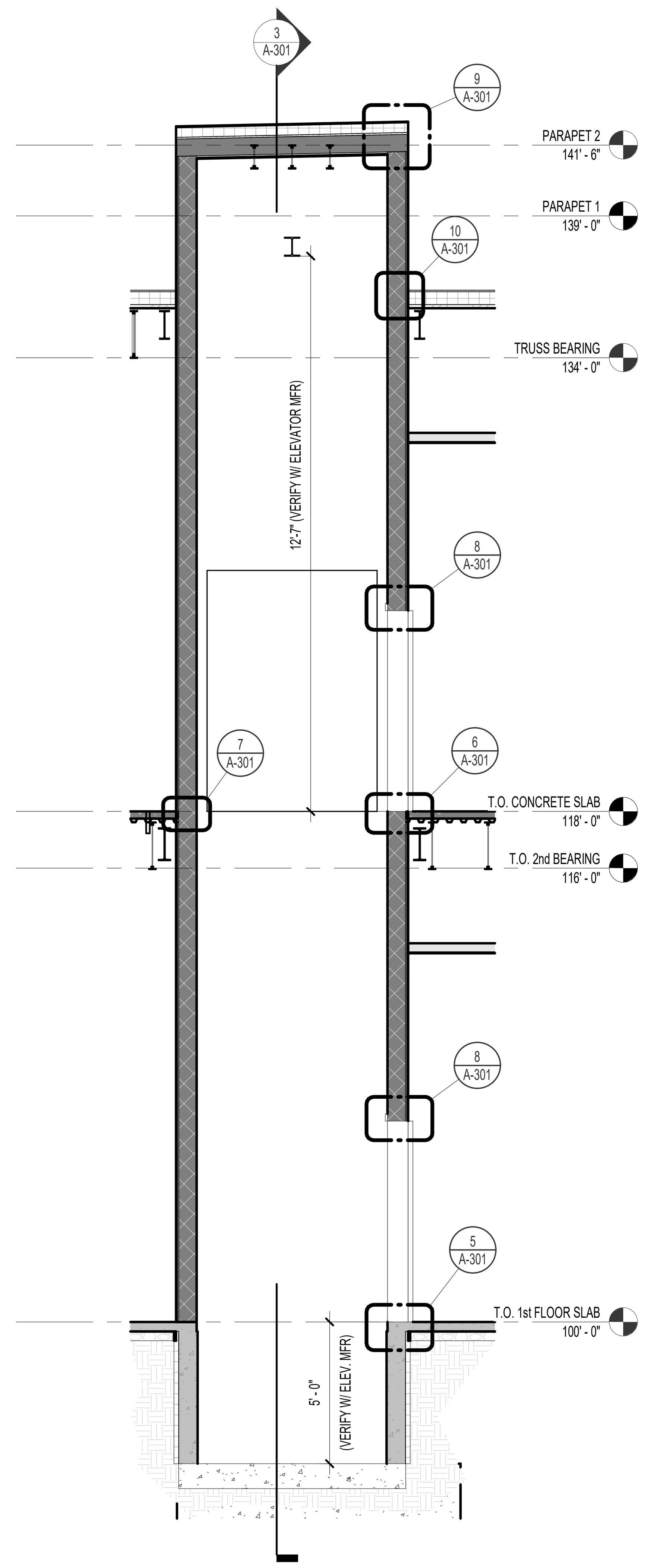
7 ELEVATOR SHAFT DETAIL
1 1/2" = 1'-0"



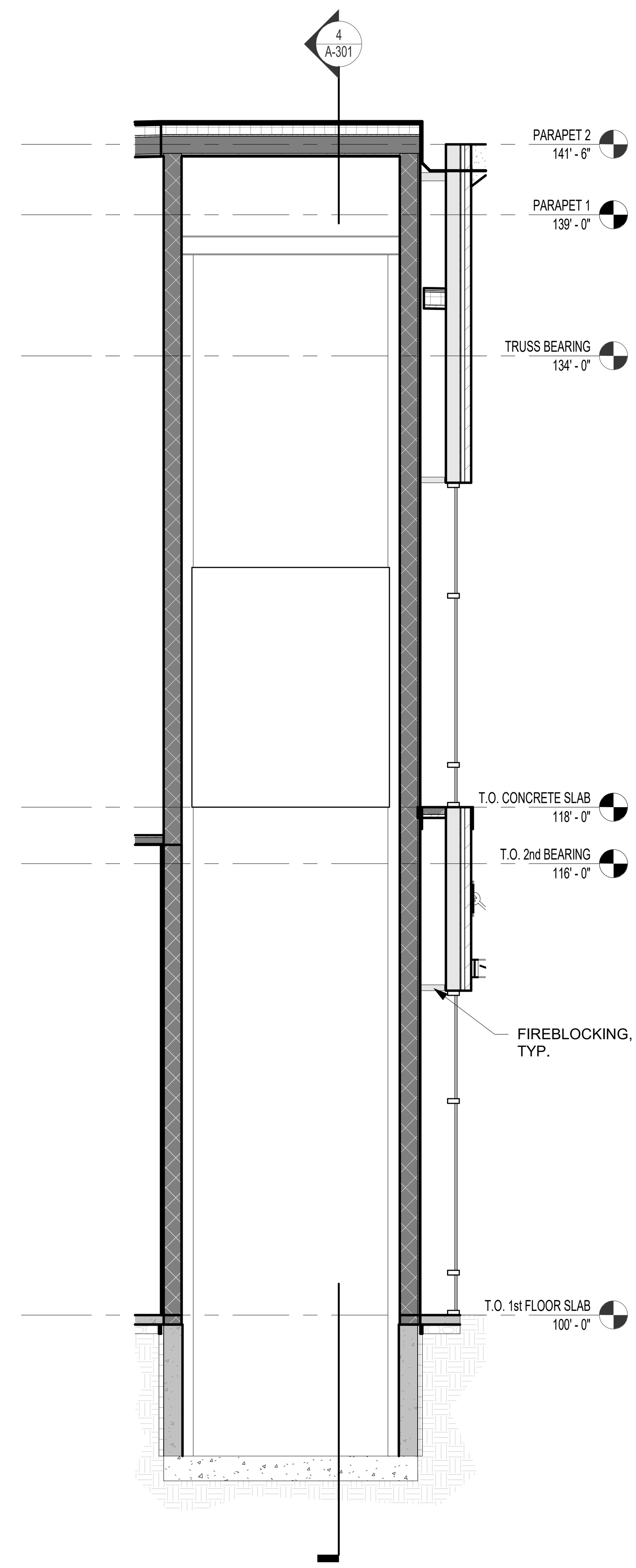
6 ELEVATOR SHAFT AT THRESHOLD DETAIL
1 1/2" = 1'-0"



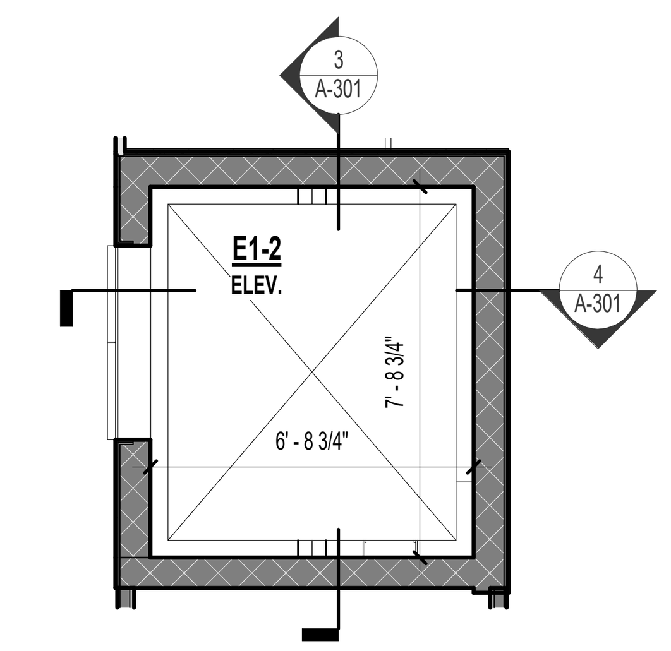
5 ELEVATOR SHAFT THRESHOLD AT PIT
1 1/2" = 1'-0"



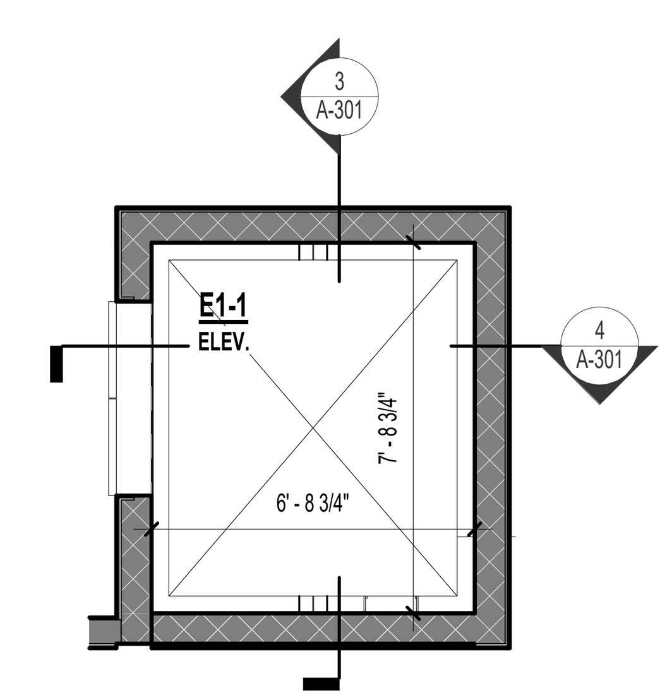
4 ELEVATOR SECTION 2
1/4" = 1'-0"



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



2 ELEVATOR - 2ND FL PLAN
1/4" = 1'-0"



1 ELEVATOR - 1ST FL PLAN
1/4" = 1'-0"

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Lee's Summit, Missouri
12/18/2024

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STATE OF MISSOURI
DAVID EUGENE HENDRICKSE
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11/20/24

THE VILLAGE AT DISCOVERY - LOT 1

LEE'S SUMMIT, MO

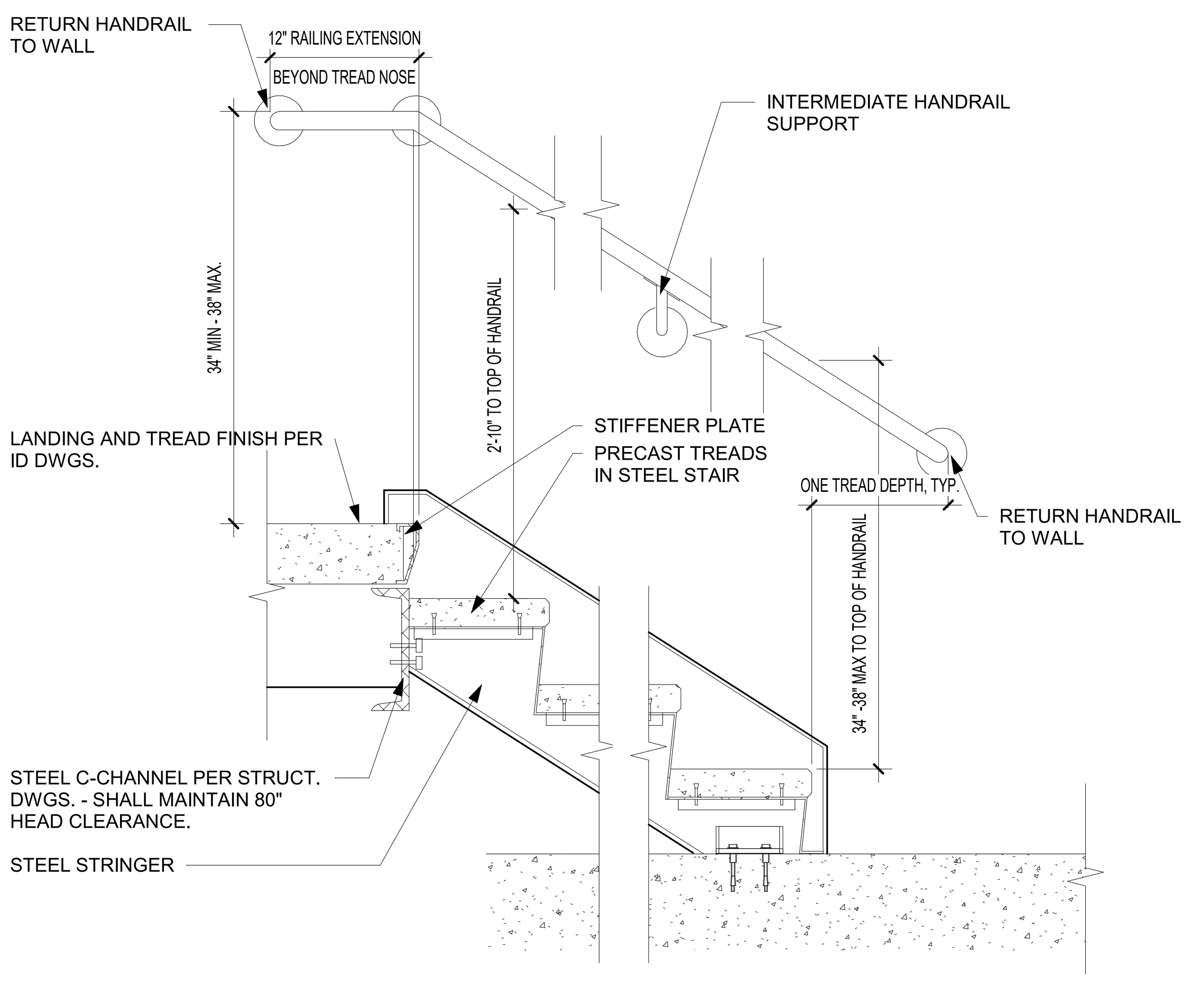
SHEET TITLE
ELEVATOR SECTION & DETAILS

PROJECT NUMBER: 23096

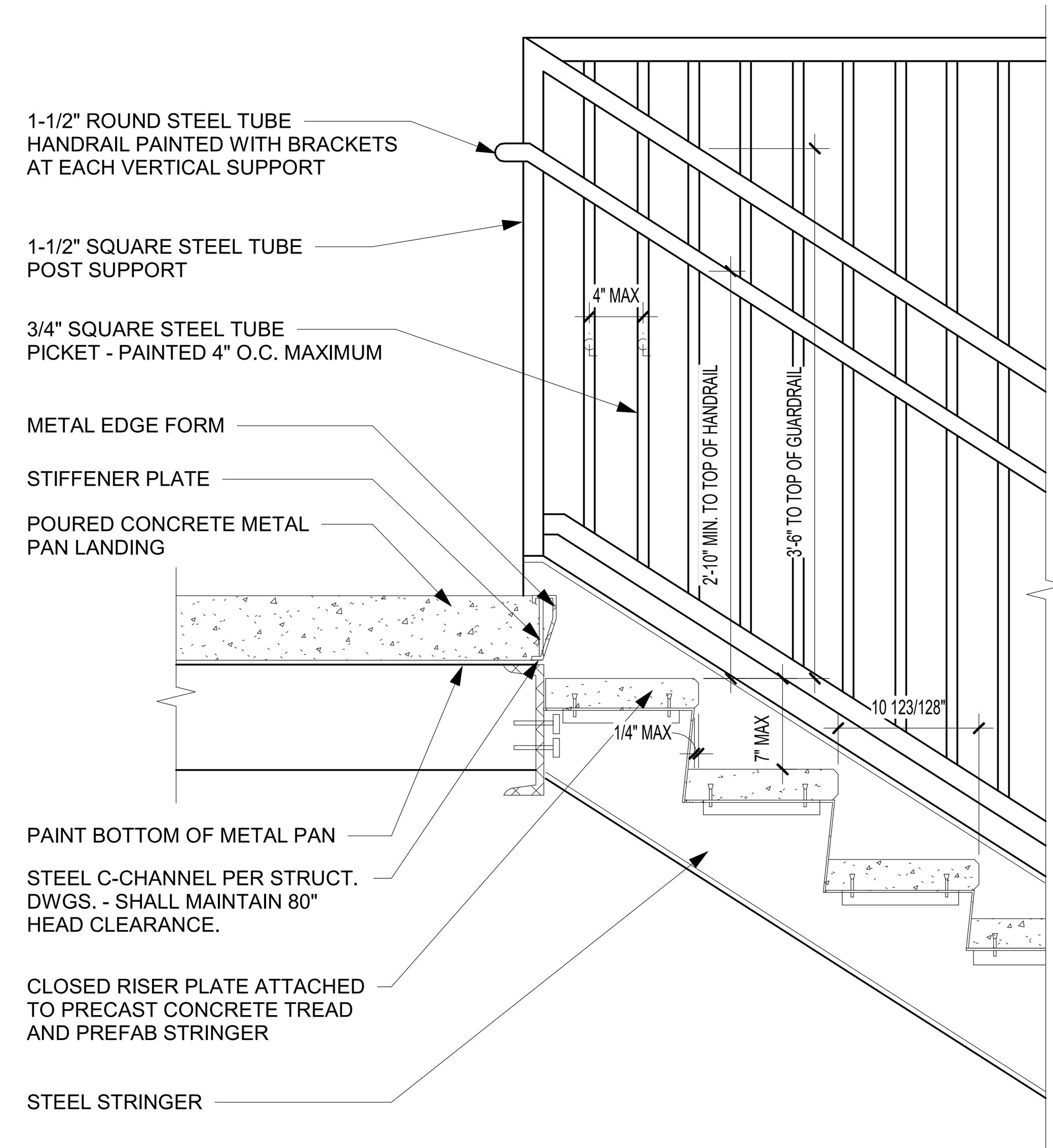
SHEET NUMBER:

A-301

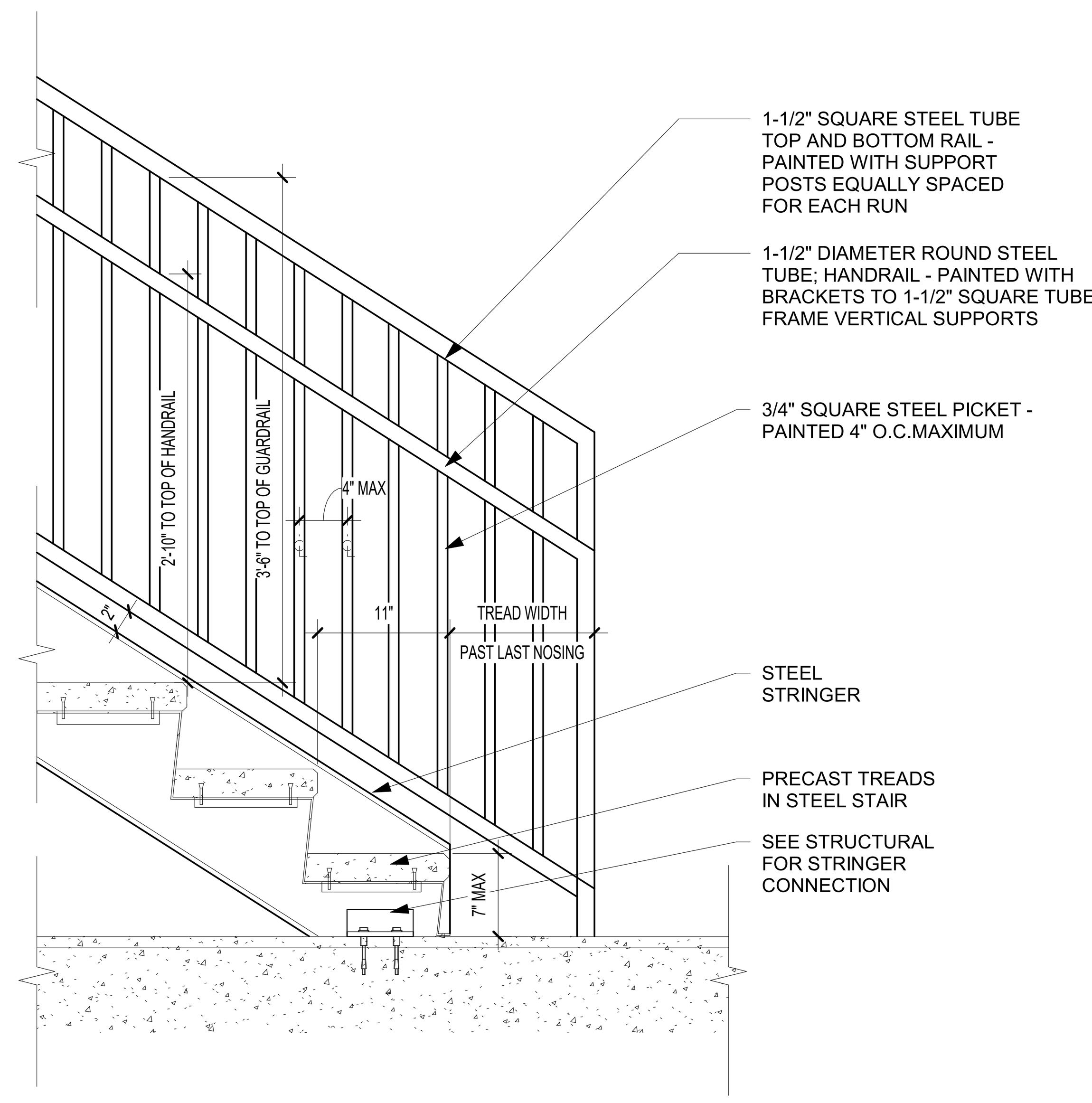
REFERENCE G-003 FOR GENERAL NOTES



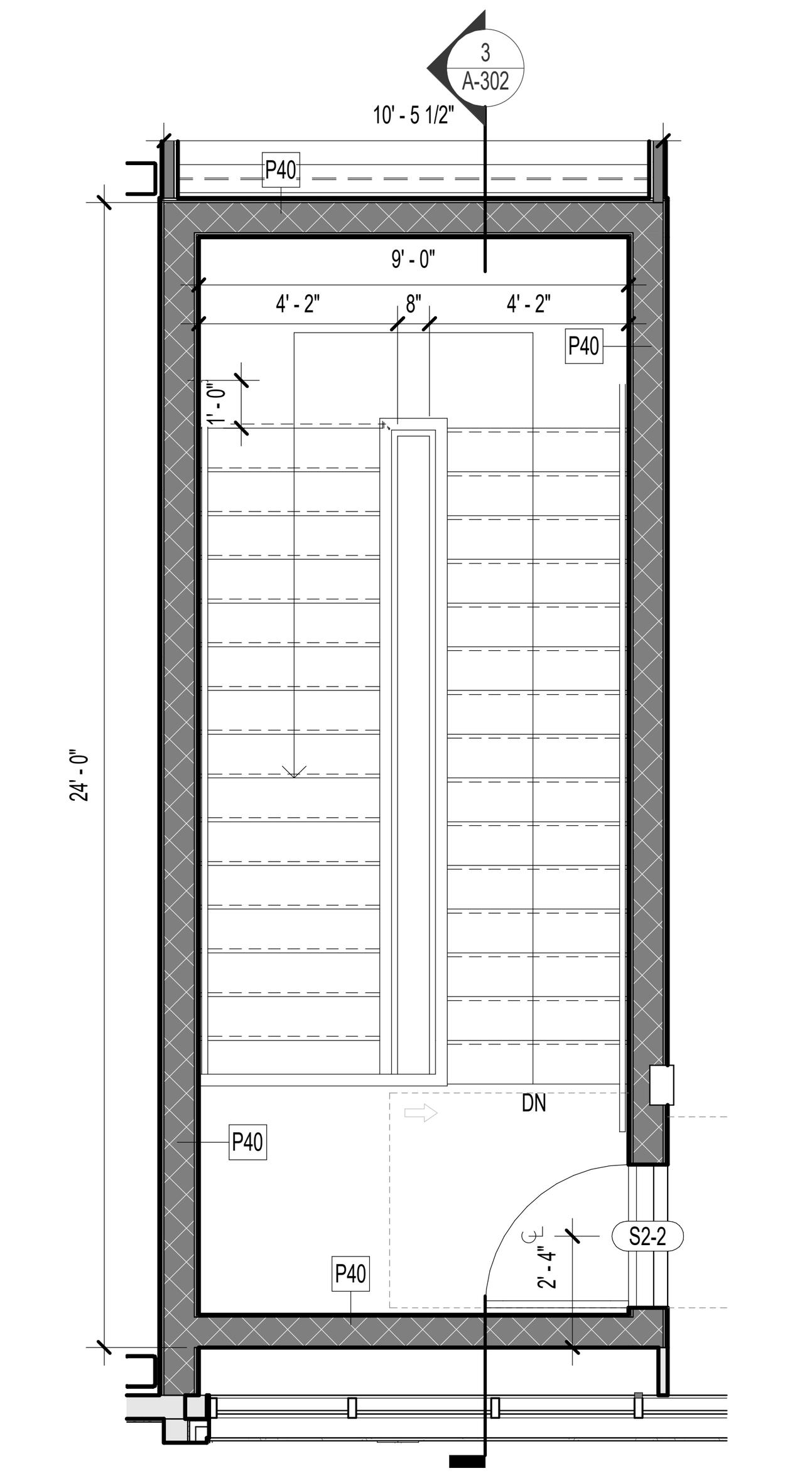
9 STAIR - (STEEL) & HANDRAIL (WALL MOUNTED)1
1" = 1'-0"



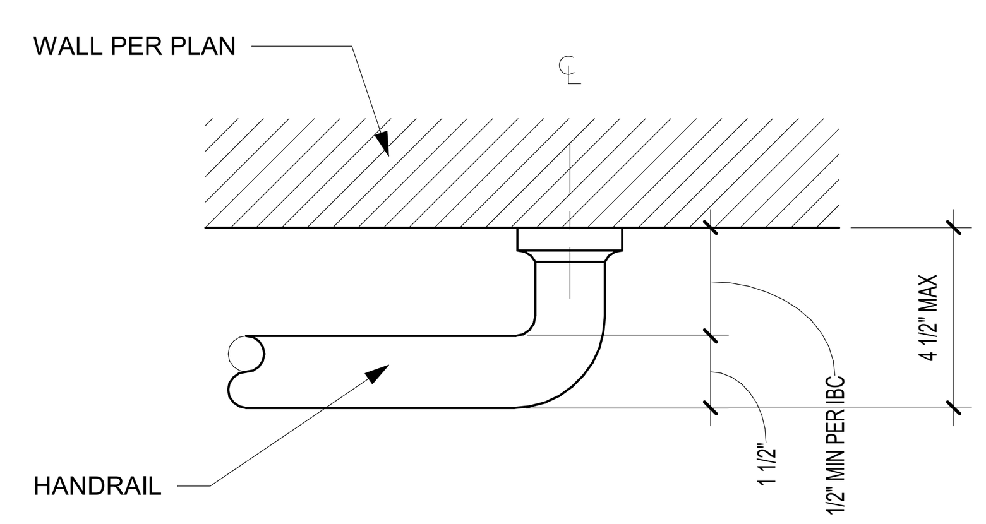
8 STAIR - (STEEL) & HANDRAIL (FLOOR MOUNTED) @ LANDING1
1" = 1'-0"



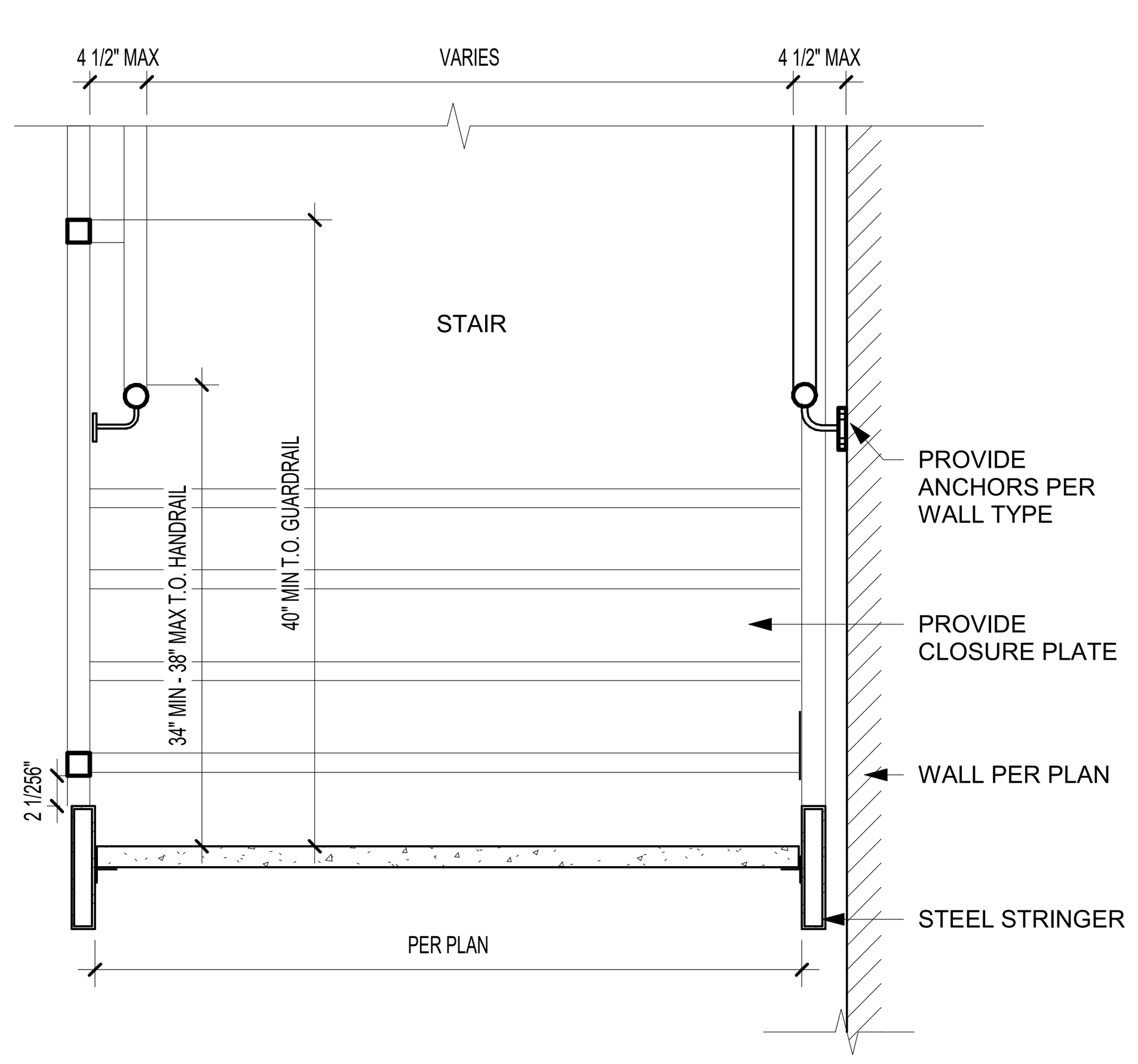
7 STAIR - STEEL & HANDRAIL (FLOOR MOUNTED) @ CONC SLAB1
1" = 1'-0"



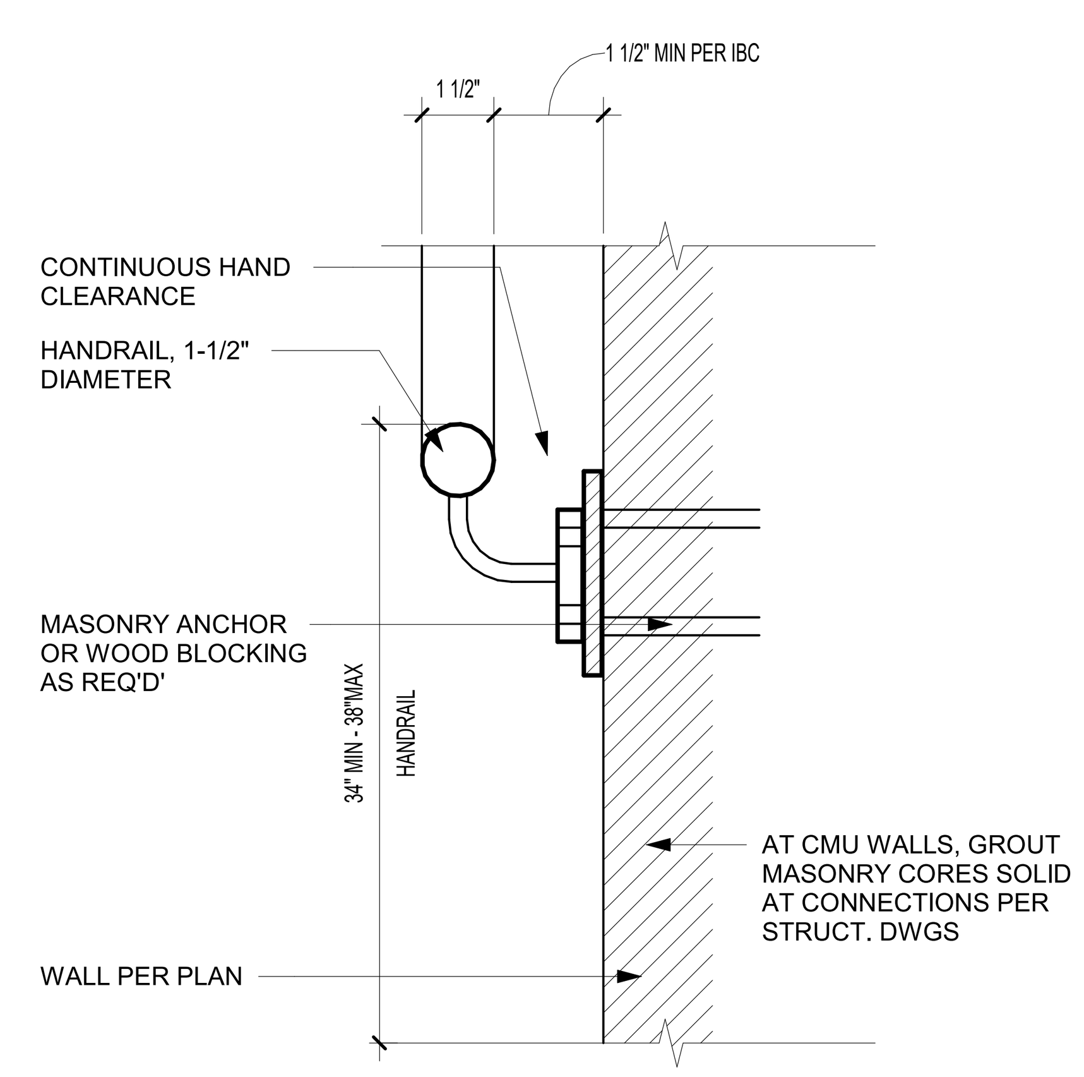
2 TYPICAL STAIR - 2ND FLOOR PLAN
1/4" = 1'-0"



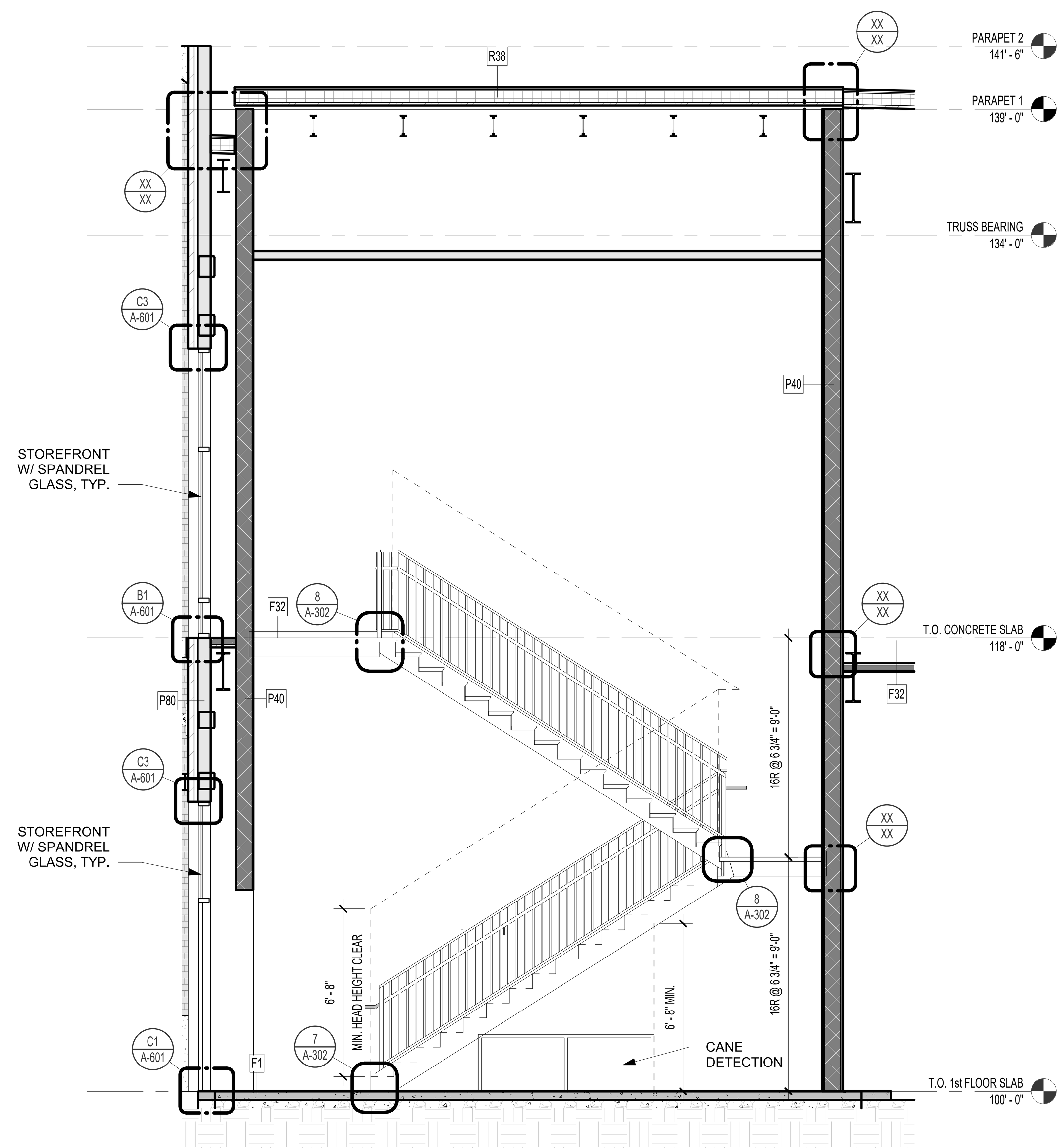
5 HANDRAIL - (WALL MOUNTED) END TERMINATION1
3" = 1'-0"



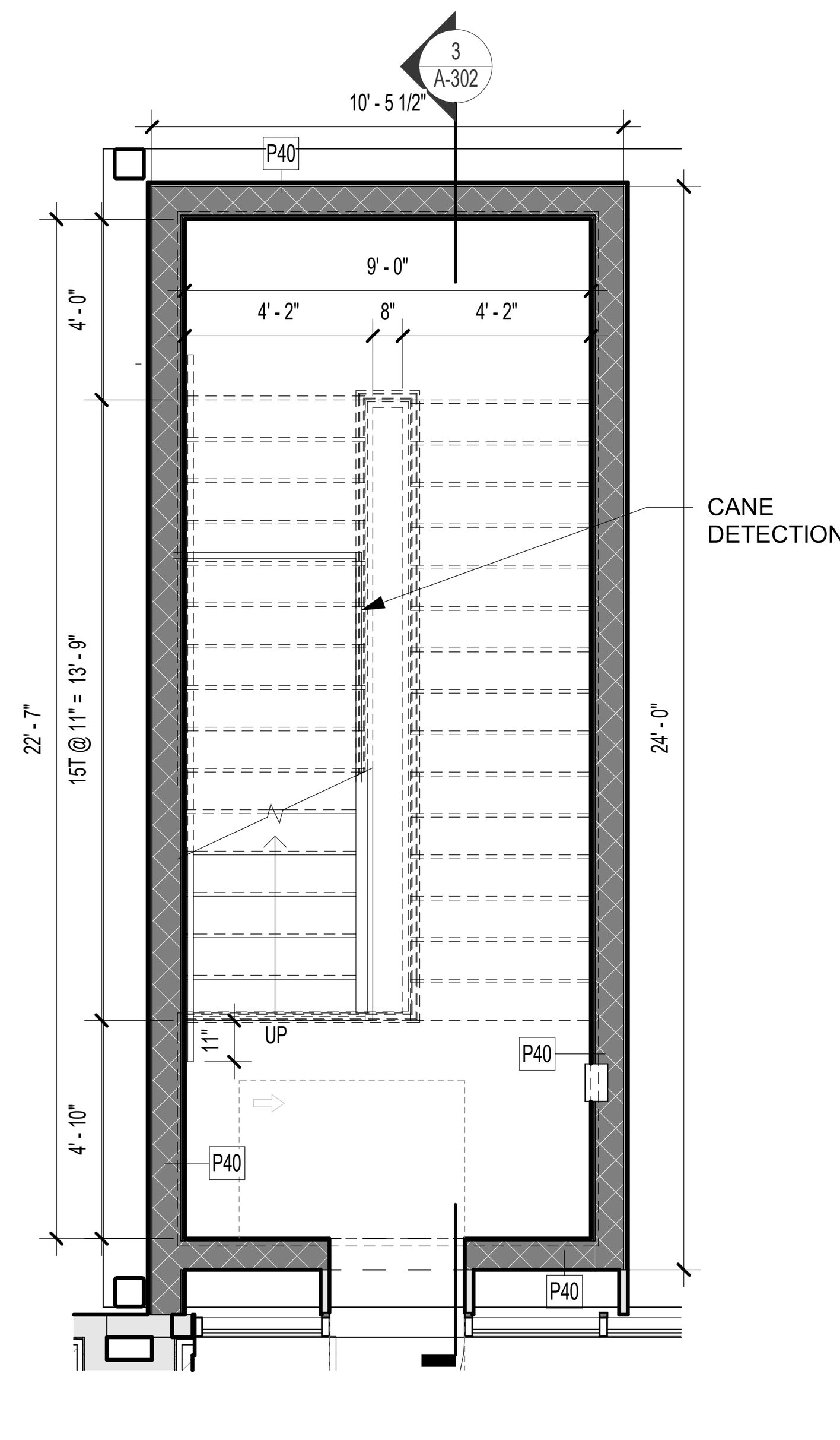
6 STAIR - (STEEL) & HANDRAIL @ CMU WALL1
1" = 1'-0"



4 HANDRAIL - (WALL MOUNTED) ATTACHMENT @ CMU WALL1
3" = 1'-0"



3 TYPICAL STAIR - SECTION
1/4" = 1'-0"



1 TYPICAL STAIR - 1ST FLOOR PLAN
1/4" = 1'-0"

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Lee's Summit, Missouri

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11/20/24

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
STAIR PLANS & SECTIONS

PROJECT NUMBER: 23096

SHEET NUMBER:

A-302

PRINTS ISSUED
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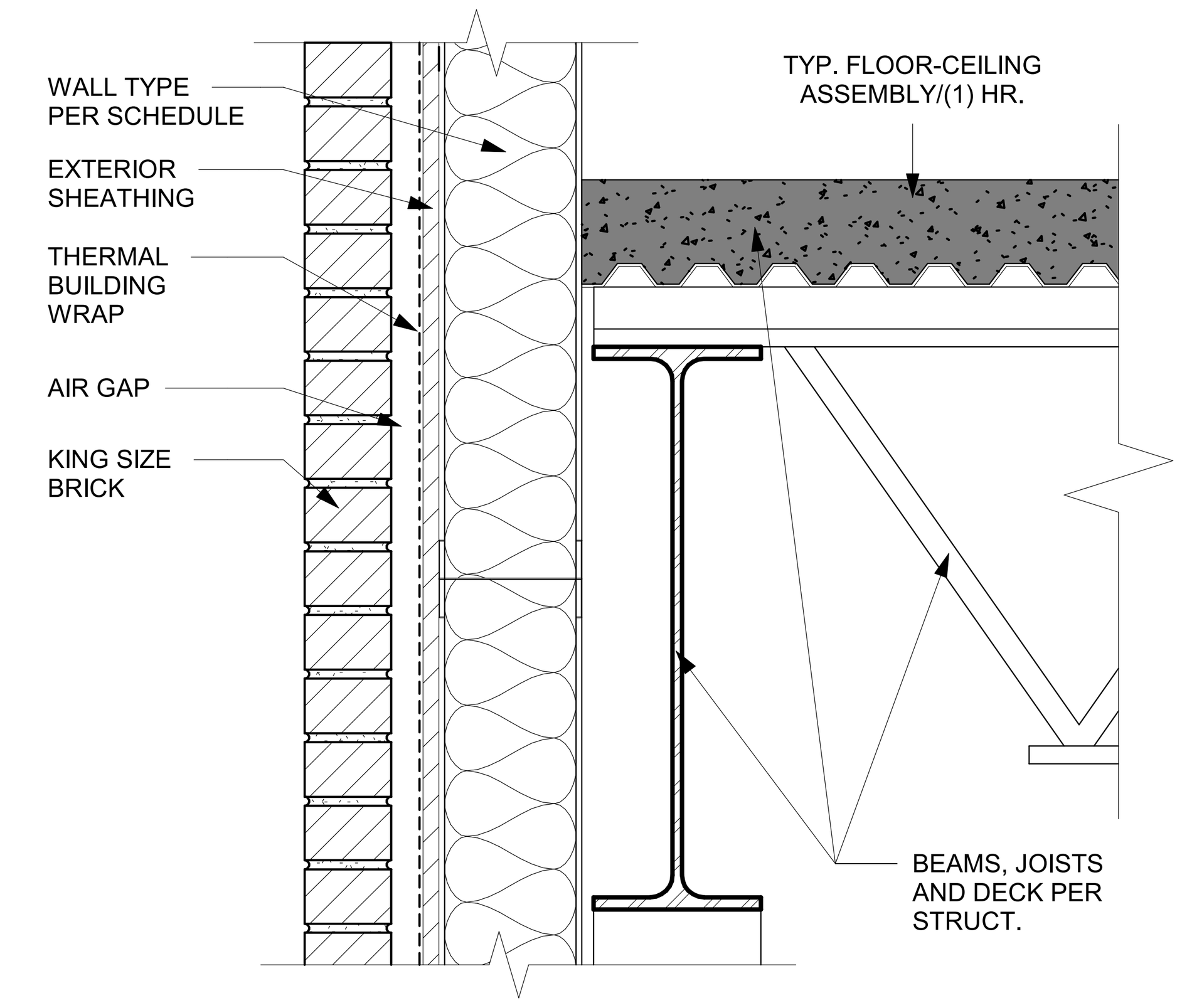
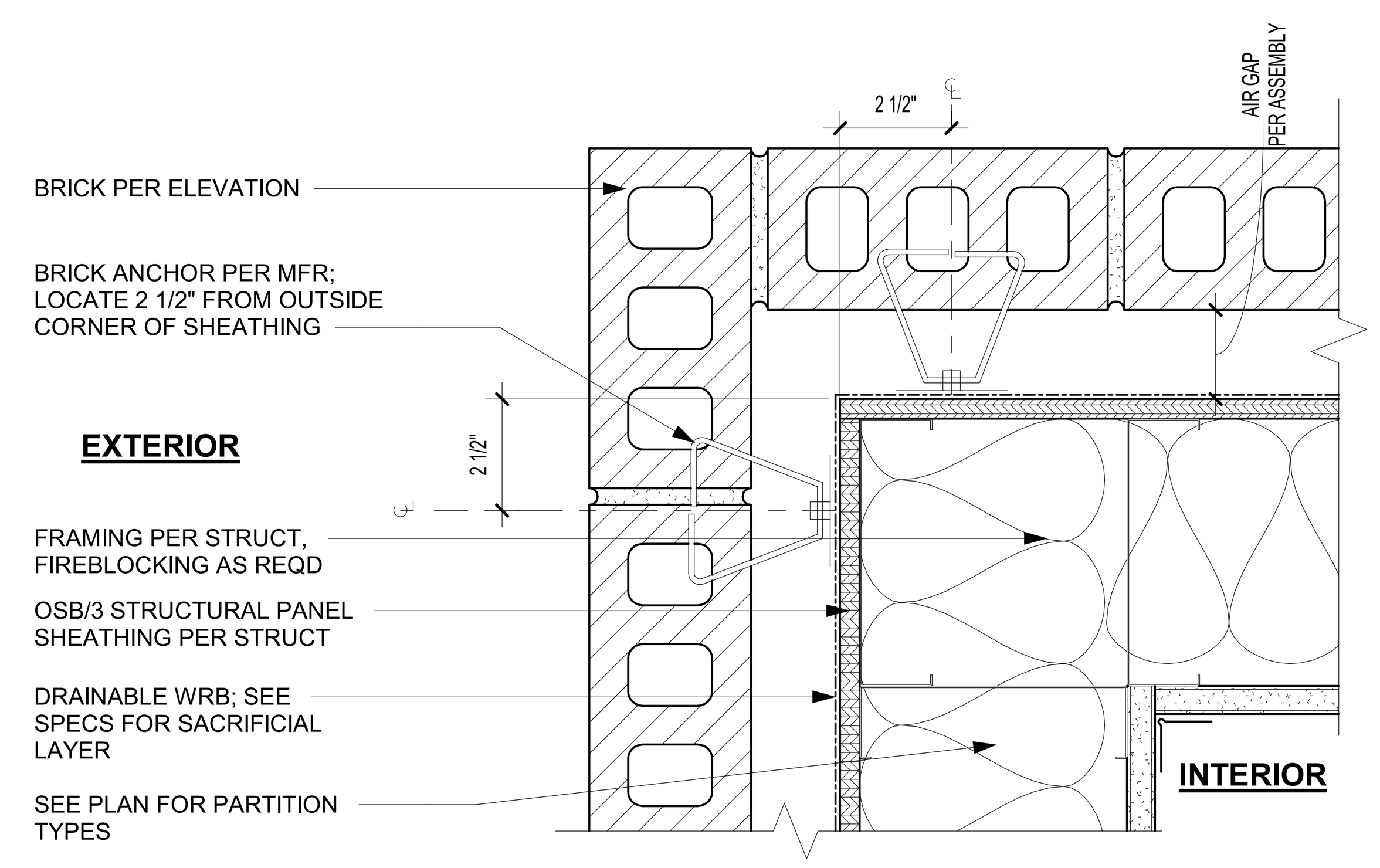
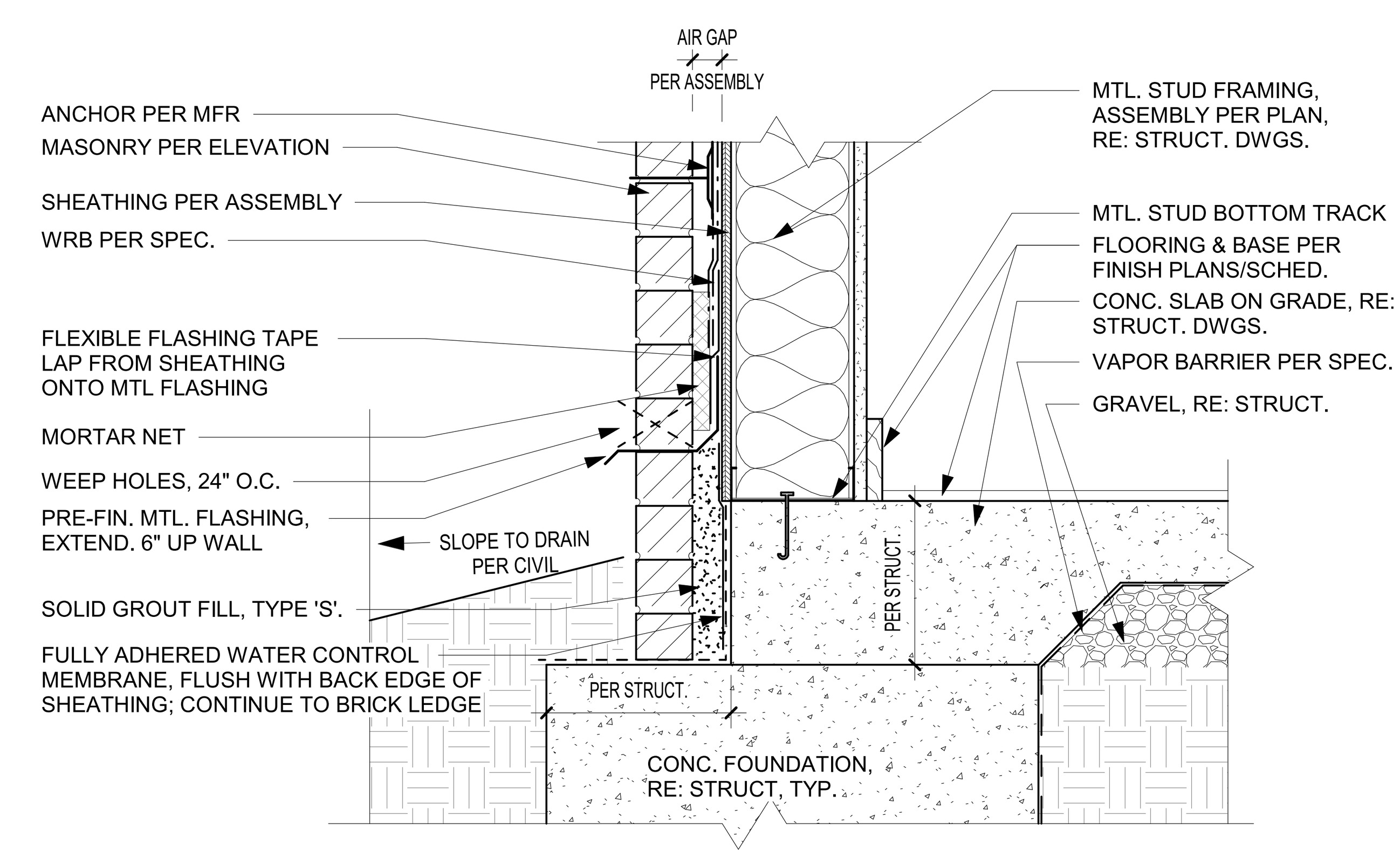
REVISIONS:



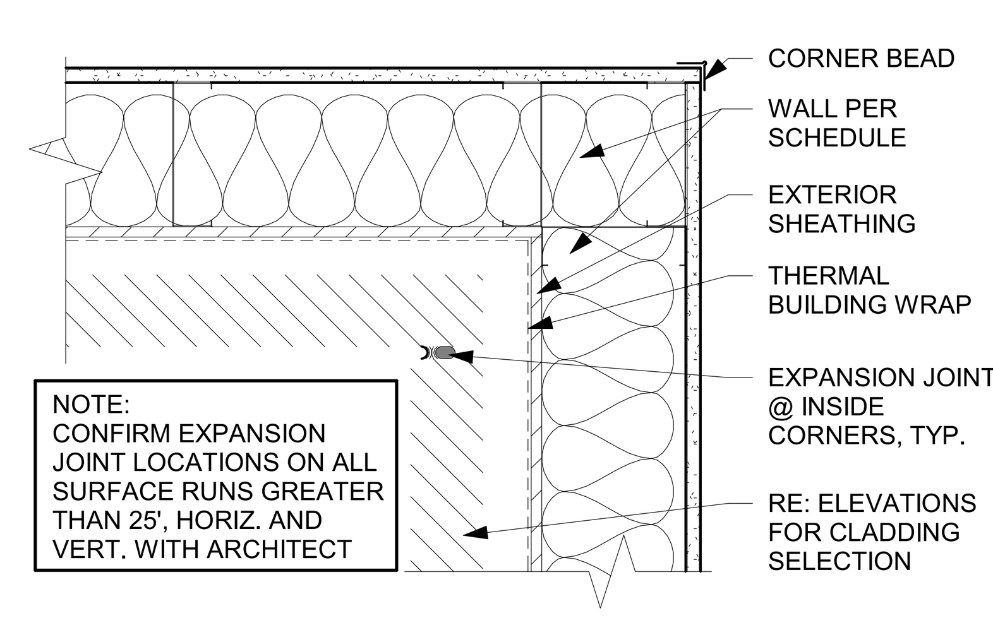
A3 FRAMING FLOOR/CLG DTL.
1 1/2" = 1'-0"



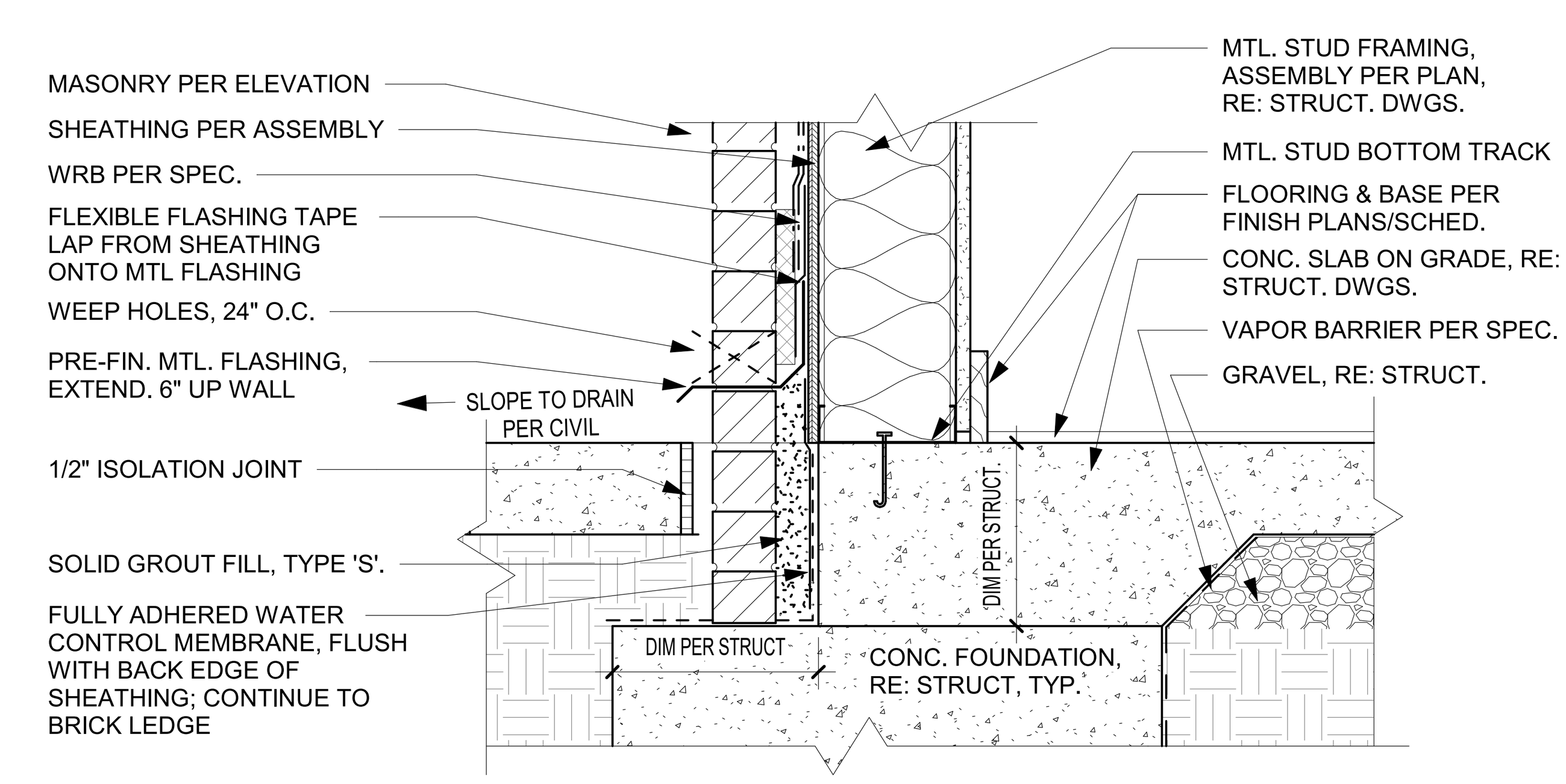
B2 BRICK - OUTSIDE CORNER (PLAN)
3" = 1'-0"



A2 FOUNDATION AT GRADE
1 1/2" = 1'-0"



B1 FRAMING INSIDE CORNER (PLAN)
1 1/2" = 1'-0"



A1 FOUNDATION AT HARDSCAPE
1 1/2" = 1'-0"

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11/20/24

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
WALL DETAILS

PROJECT NUMBER: 23096

SHEET NUMBER:

A-500

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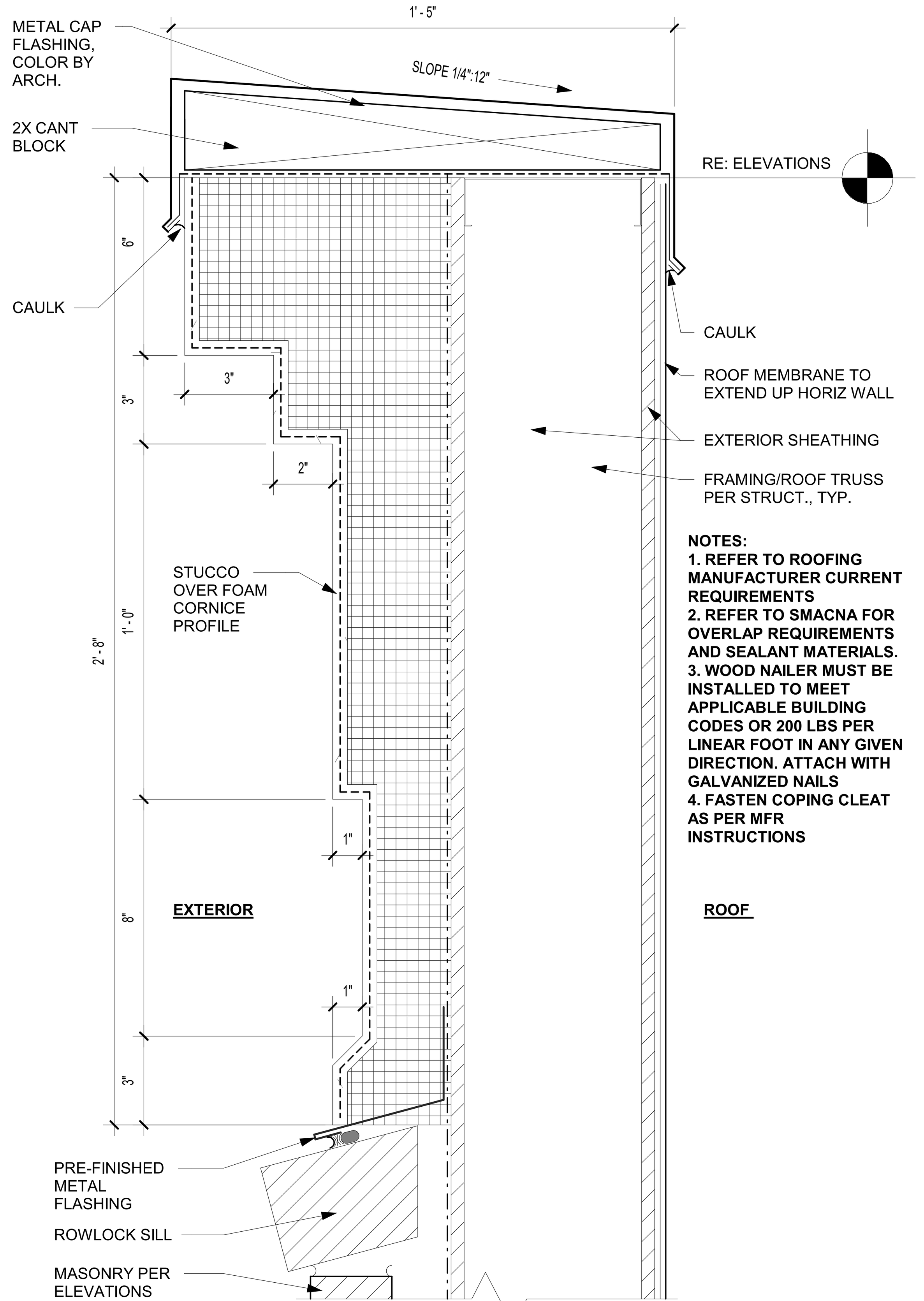
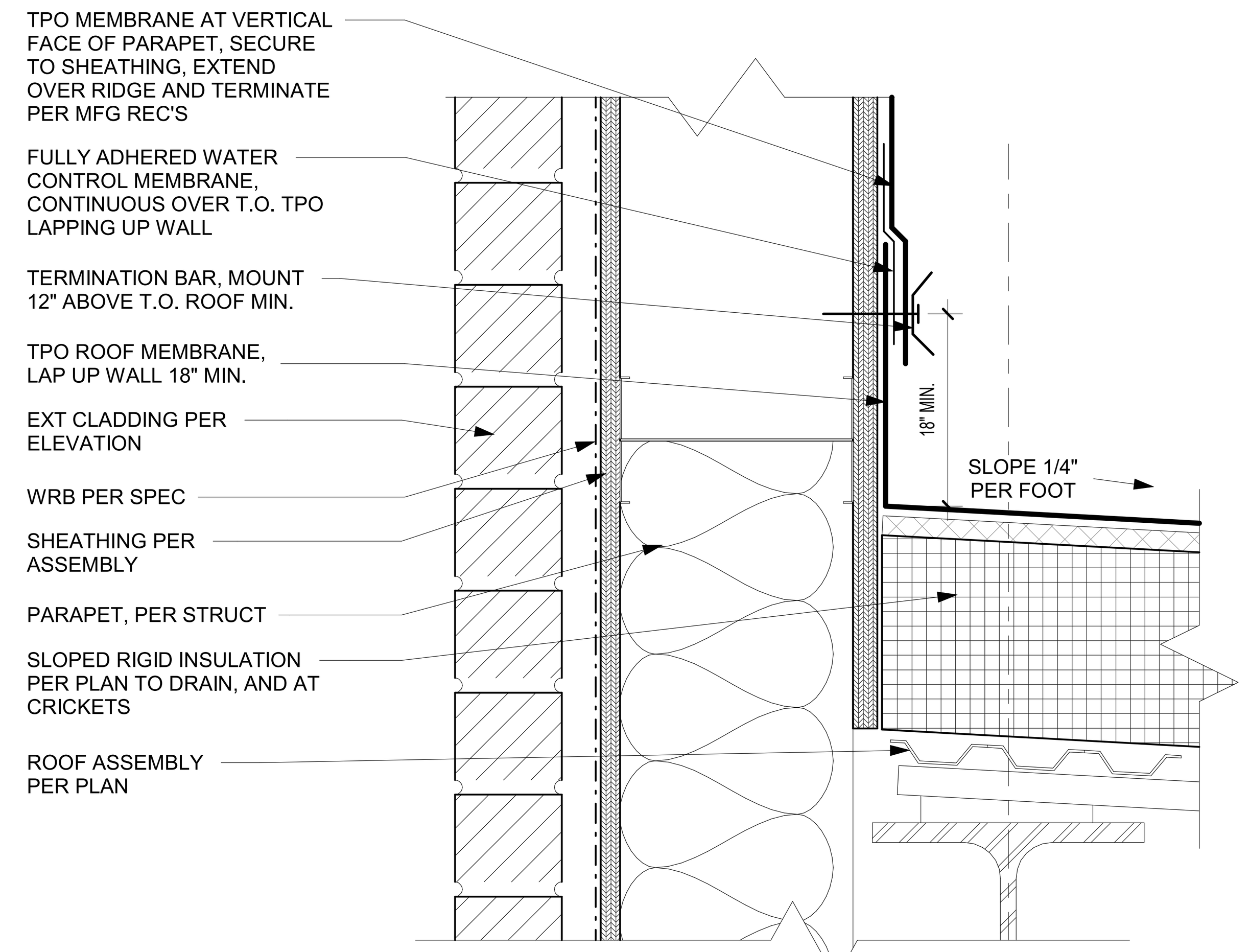
Lee's Summit, Missouri
12/12/2024



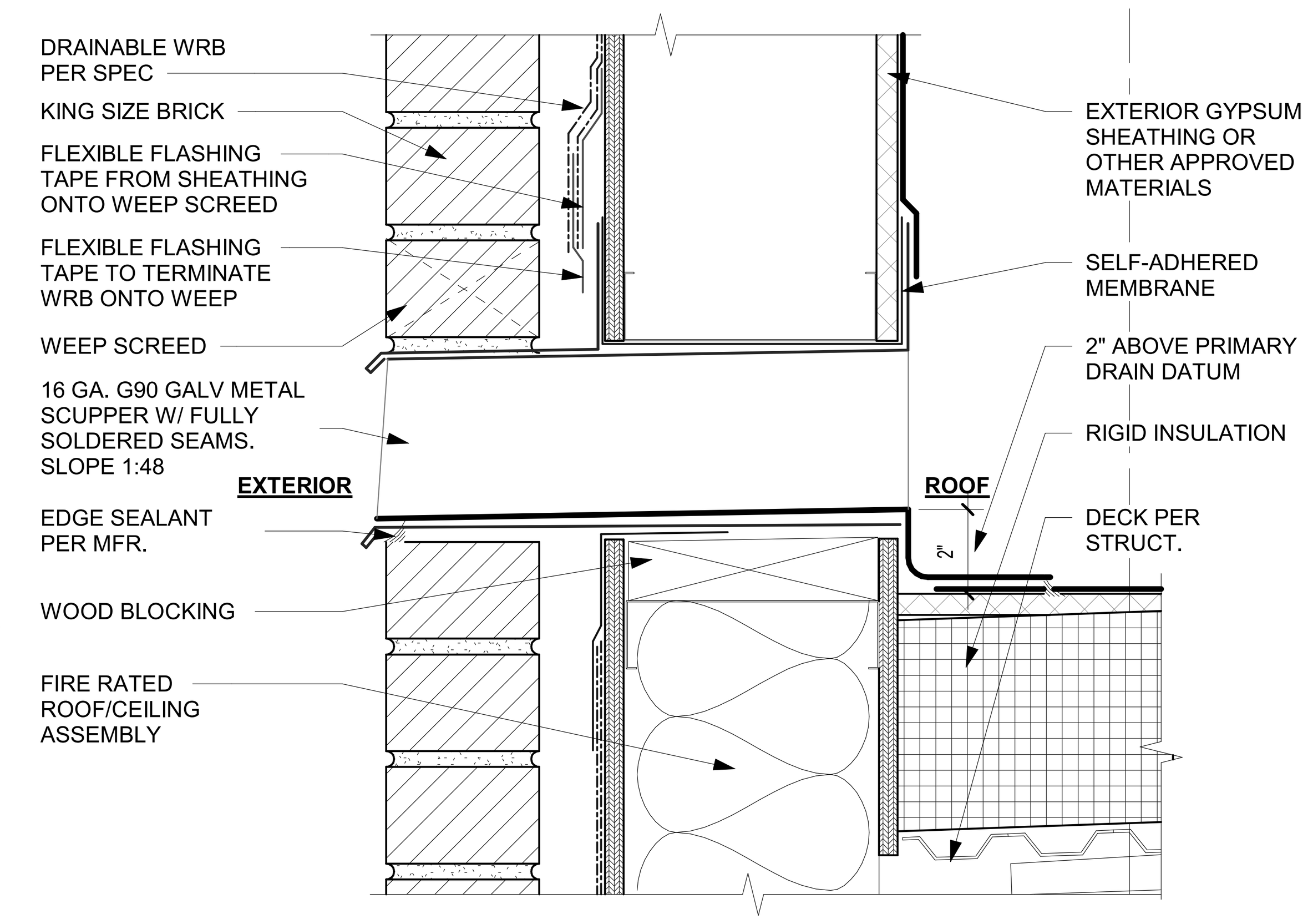
NOTES:
1. REFER TO ROOFING MANUFACTURER CURRENT REQUIREMENTS
2. REFER TO SMACNA FOR OVERLAP REQUIREMENTS AND SEALANT MATERIALS.
3. WOOD NAILER MUST BE INSTALLED TO MEET APPLICABLE BUILDING CODES OR 200 LBS PER LINEAR FOOT IN ANY GIVEN DIRECTION. ATTACH WITH GALVANIZED NAILS
4. FASTEN COPING CLEAT AS PER MFR INSTRUCTIONS

D3 PARAPET CORNICE
3" = 1'-0"

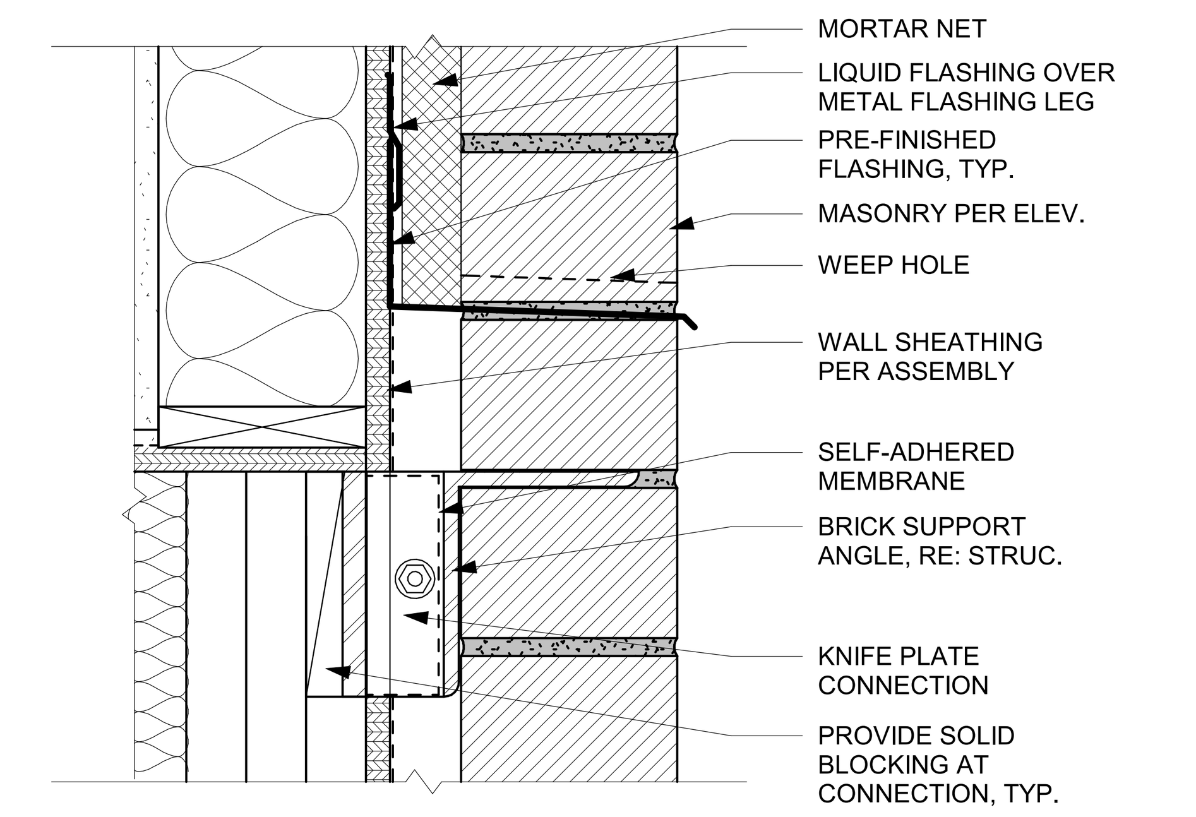


C4 ROOF - TPO PARAPET BASE AT WALL
3" = 1'-0"

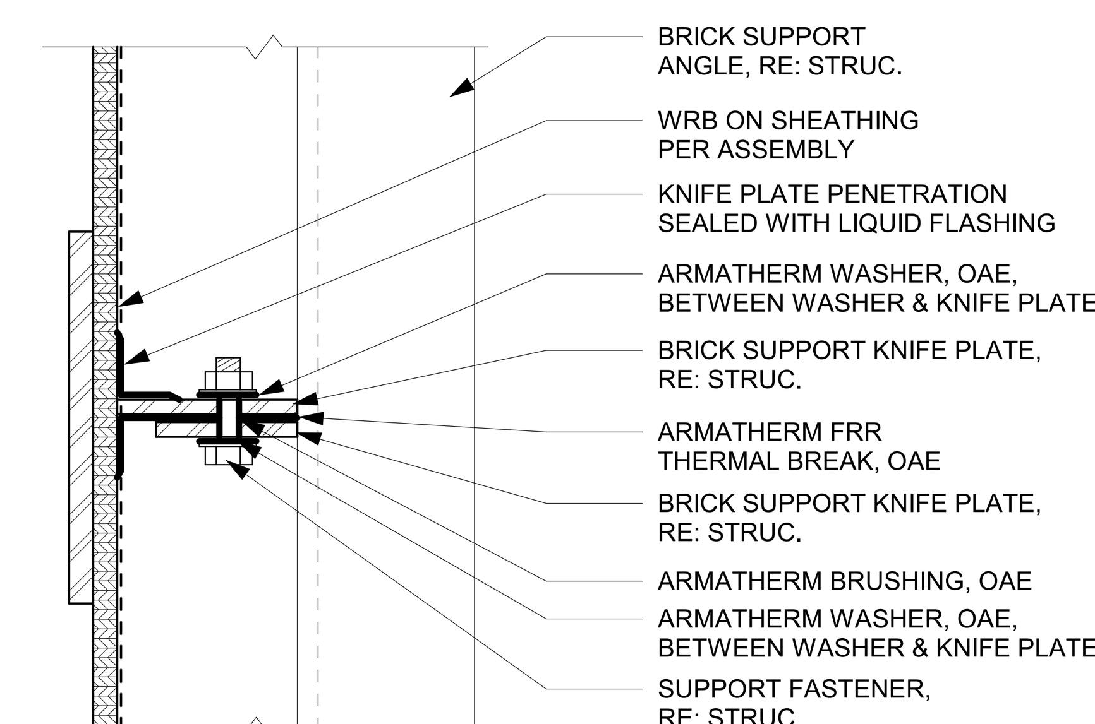
NOTES:
1. METAL SCUPPER BOX MUST HAVE CONTINUOUS SIDES; METAL FLANGE MUST BE CONTINUOUS WITH ROUNDED CORNERS
2. A MIN 2" LAP IS REQUIRED PAST THE ATTACHMENT ON THE METAL FLANGE OF THE SCUPPER
3. SCUPPER CONTRUCTION SHALL MEET OR EXCEED SMACNA STANDARDS AND REGULATIONS
4. MIN SCUPPER SIZE PER 2018 IPC 1108.3 & 2018 IBC 1502.3



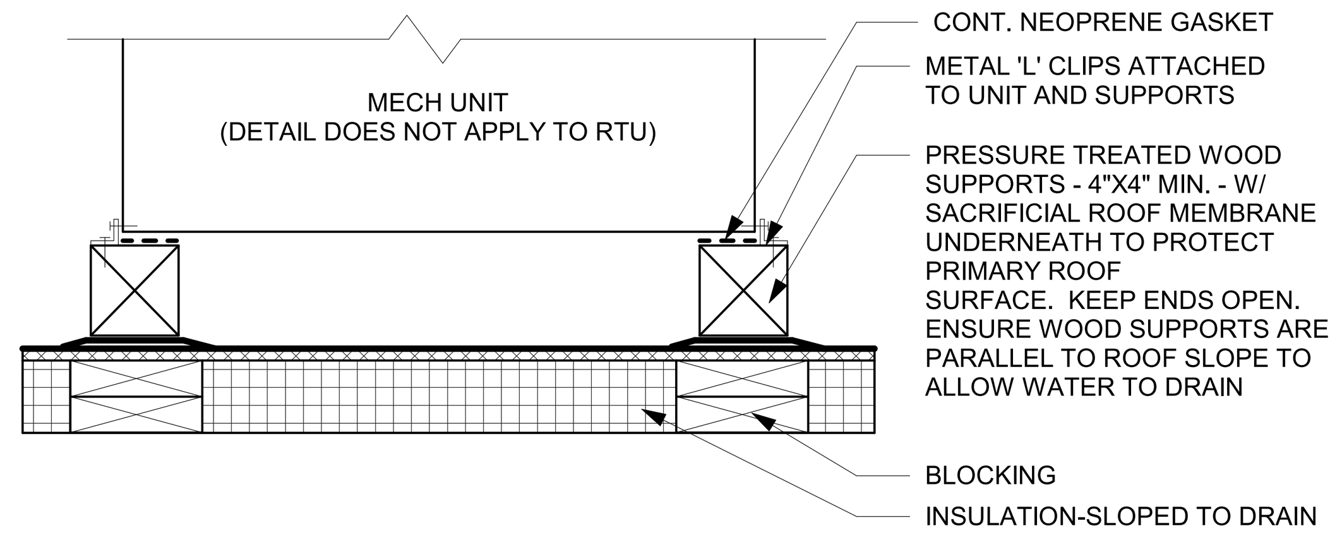
B4 EMERGENCY SCUPPER @ ROOF
3" = 1'-0"



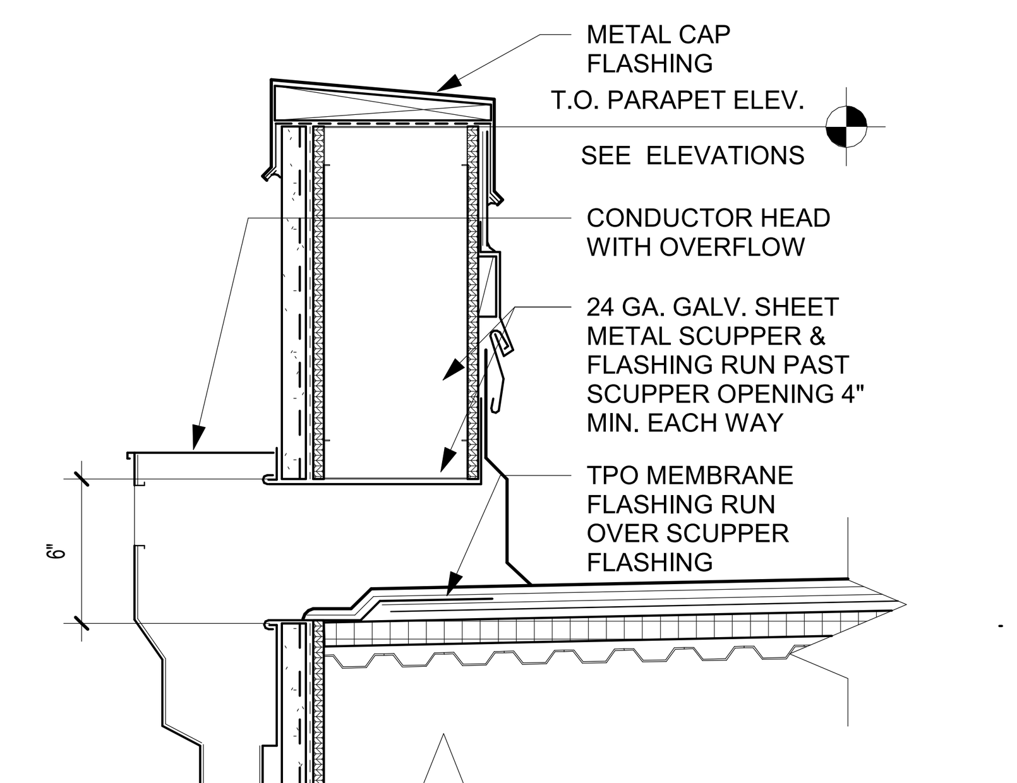
A4 BRICK SUPPORT ANGLE
N.T.S.



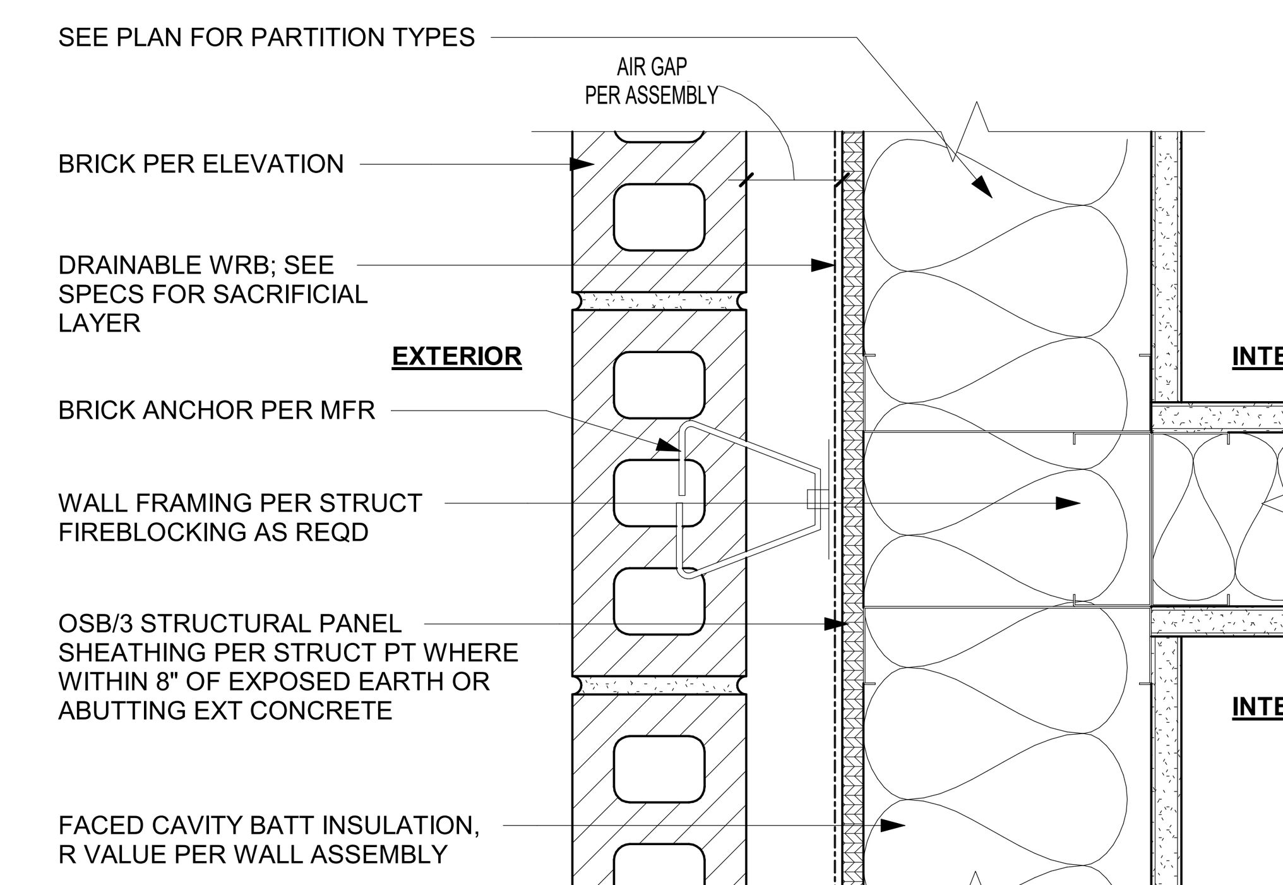
A3 KNIFE PLATE CONNECTION
N.T.S.



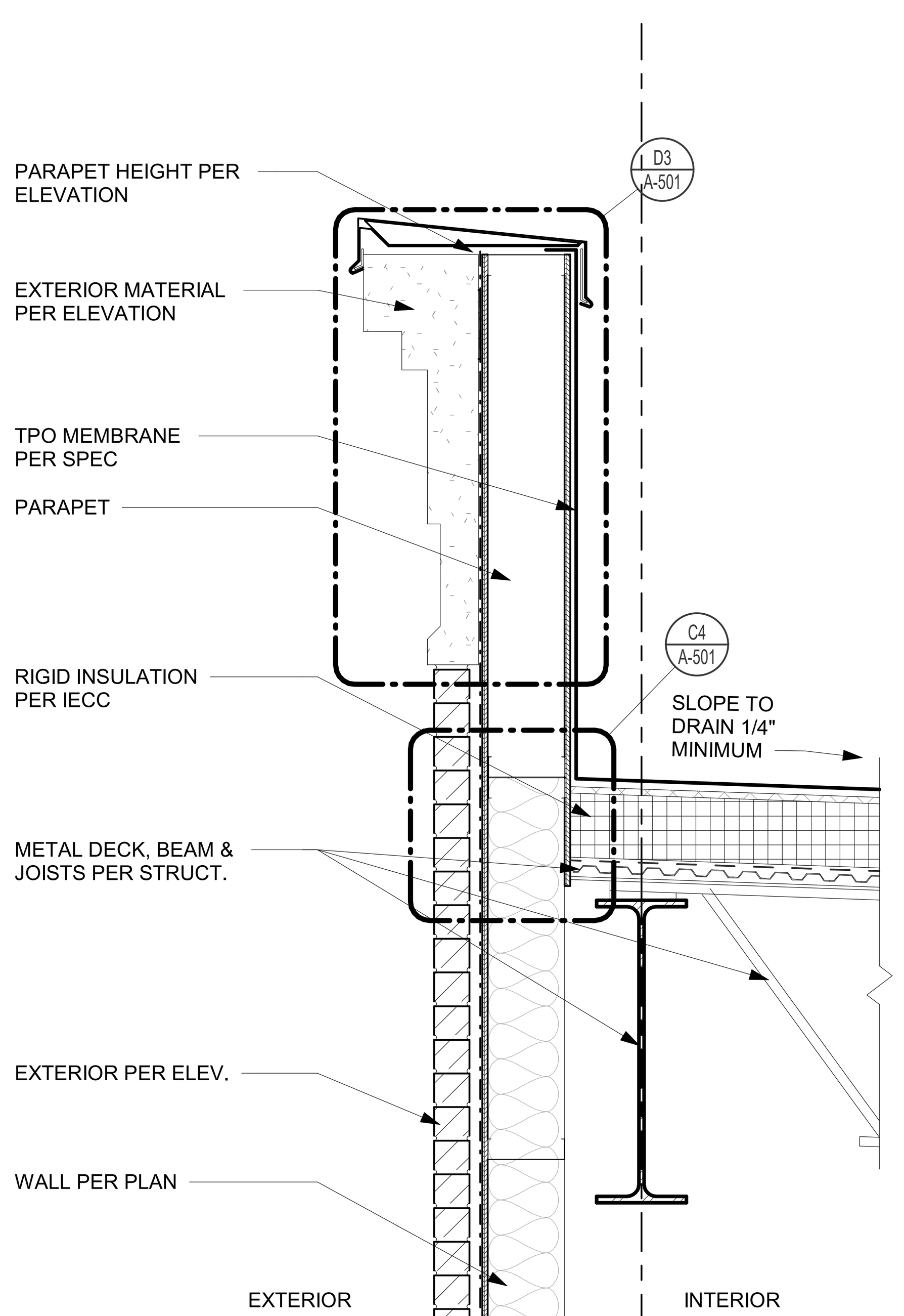
C3 ROOF - MECH UNIT ROOF SUPPORT BLOCKS
1 1/2" = 1'-0"



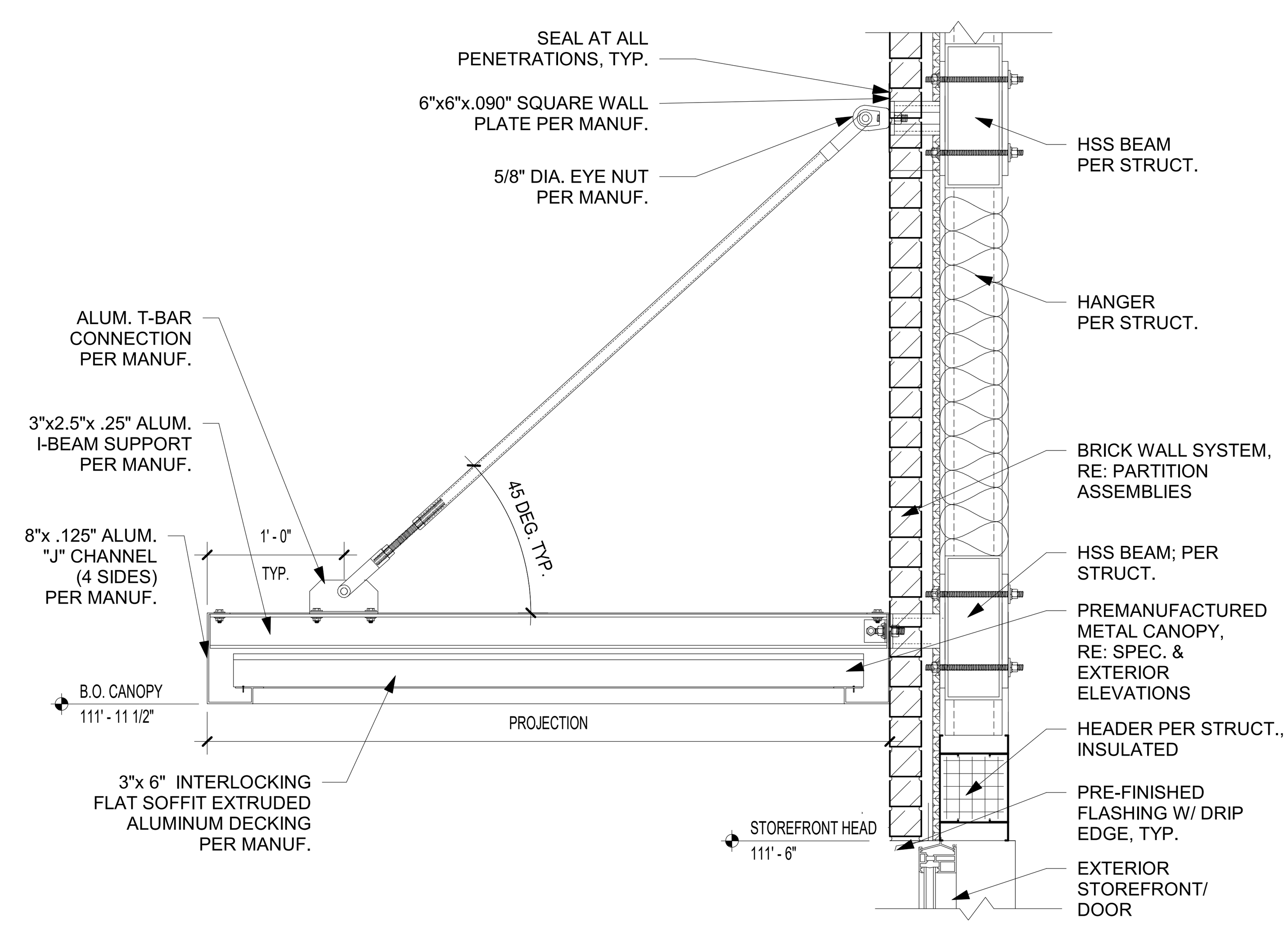
B3 PARAPET DETAIL @ SCUPPER
1 1/2" = 1'-0"



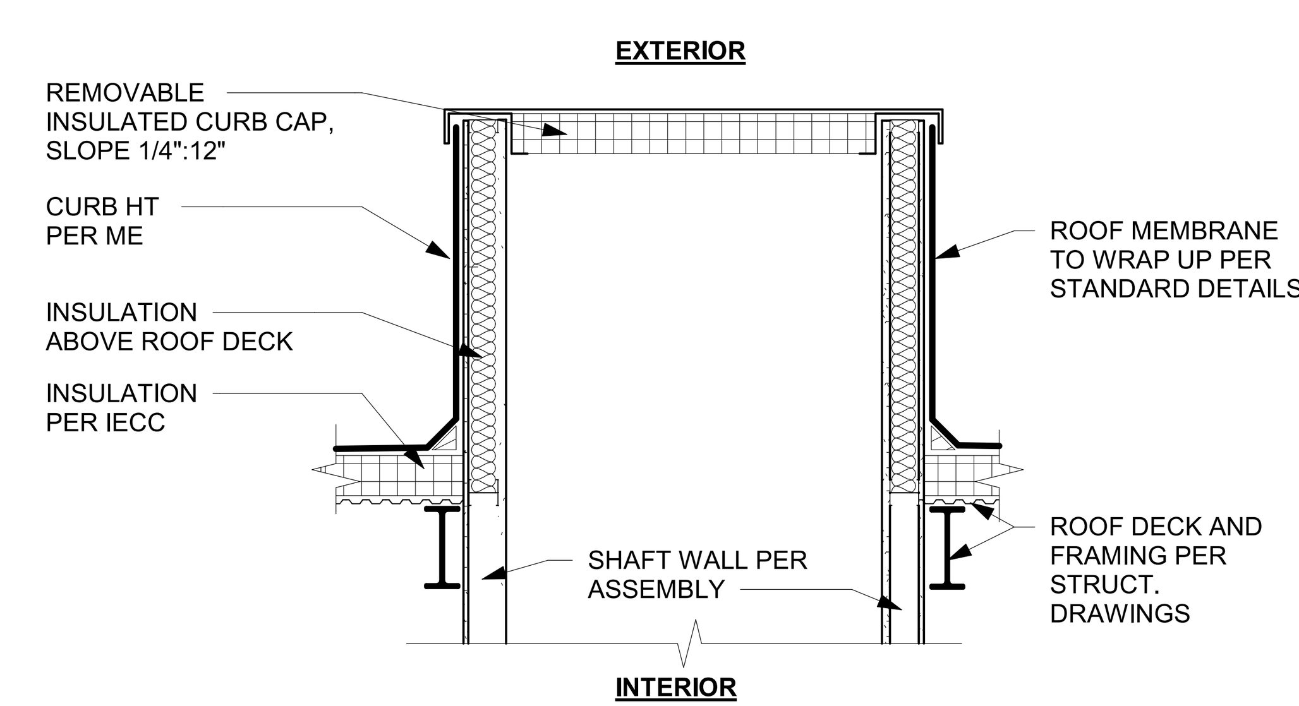
A2 BRICK - INTERIOR PARTITION TO EXTERIOR WALL (PLAN)
3" = 1'-0"



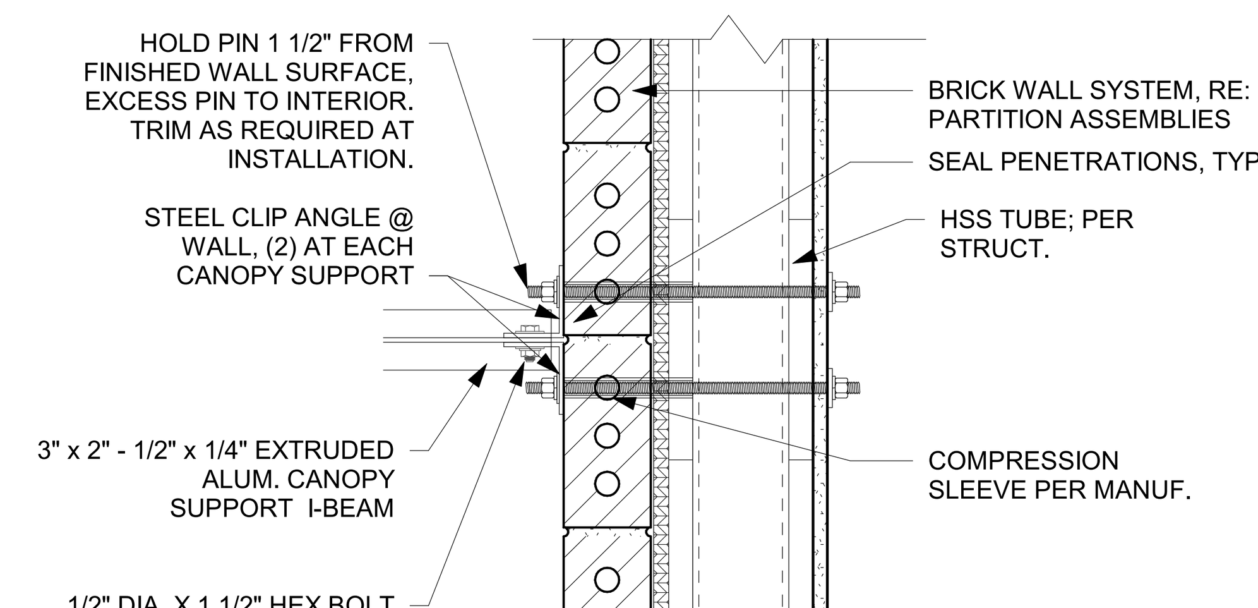
D1 PARAPET (SECTION)
1" = 1'-0"



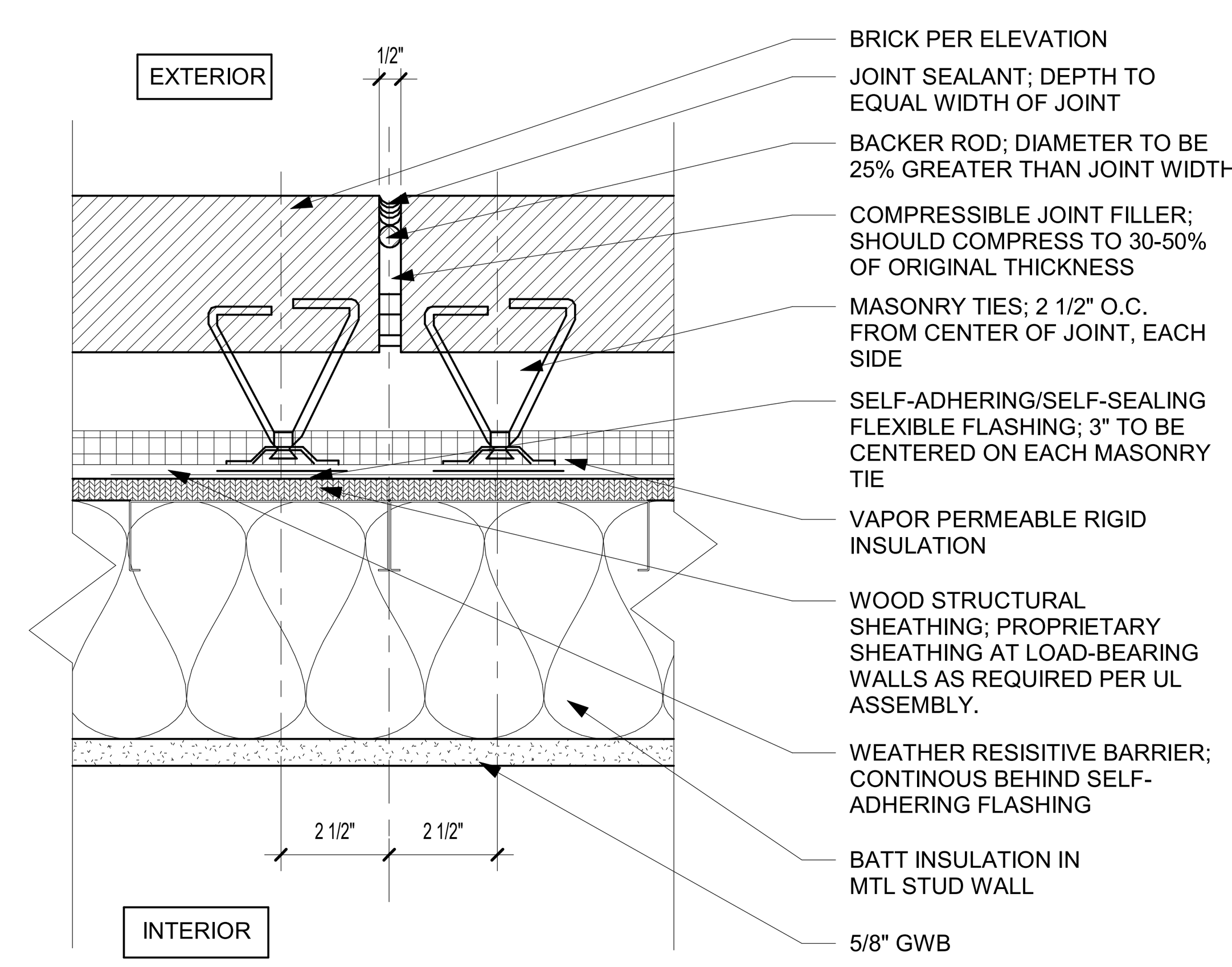
C1 CANOPY @ STEEL (SECTION)
1" = 1'-0"



B2 CURB @ MECH'L SHAFT
1/2" = 1'-0"



B1 CANOPY DETAIL @ STEEL (PLAN)
1 1/2" = 1'-0"



A1 WALL/EXTERIOR - STUD/BRICK @ VERTICAL CONTROL JOINT (PLAN)
3" = 1'-0"

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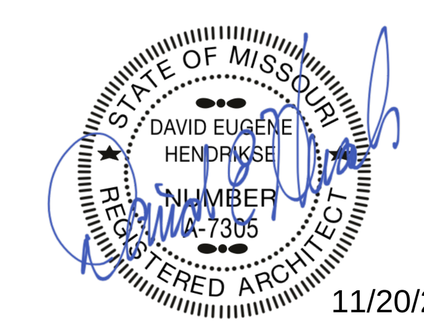


11/20/24

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
BRICK DETAILS

PROJECT NUMBER: 23096

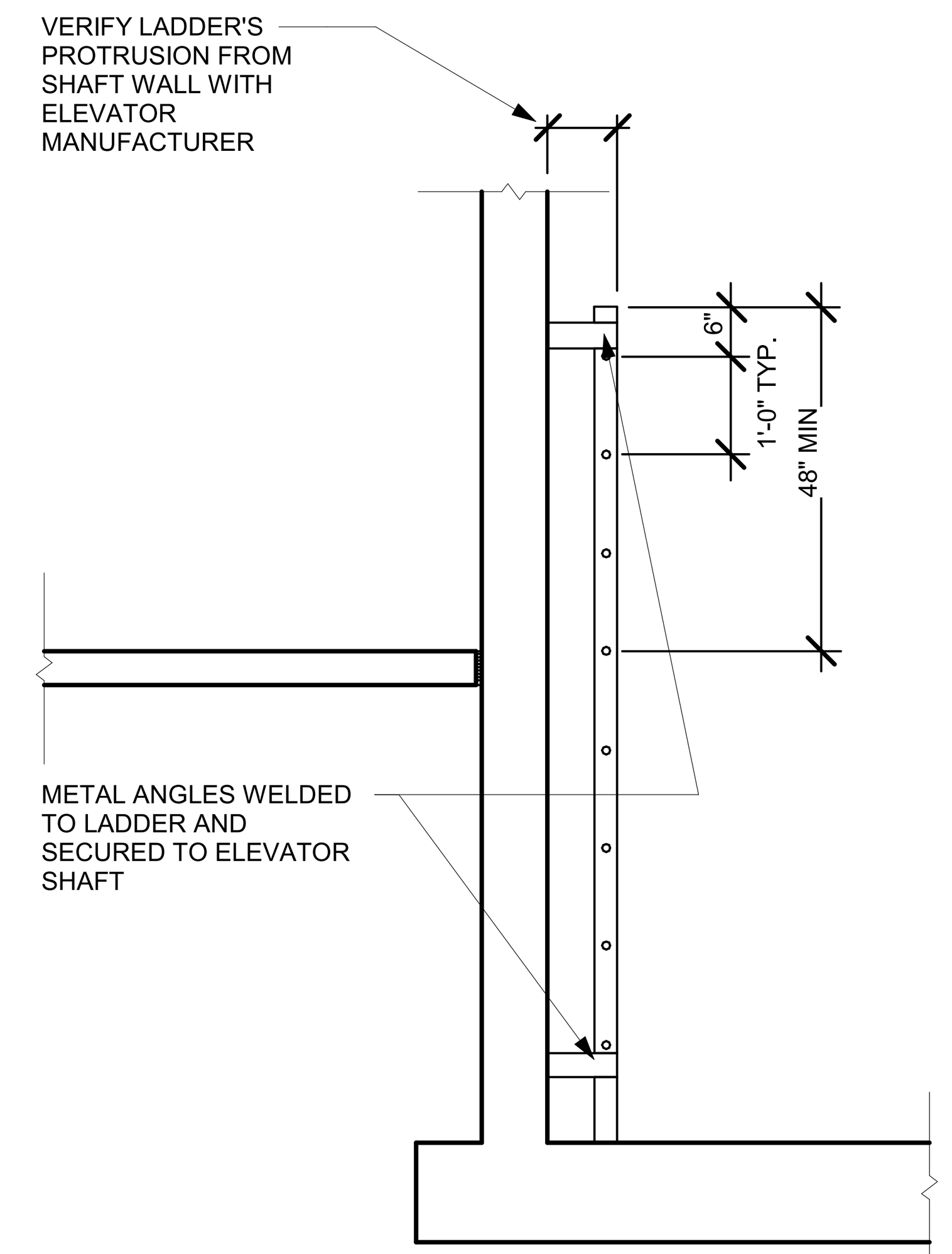
SHEET NUMBER:

A-501

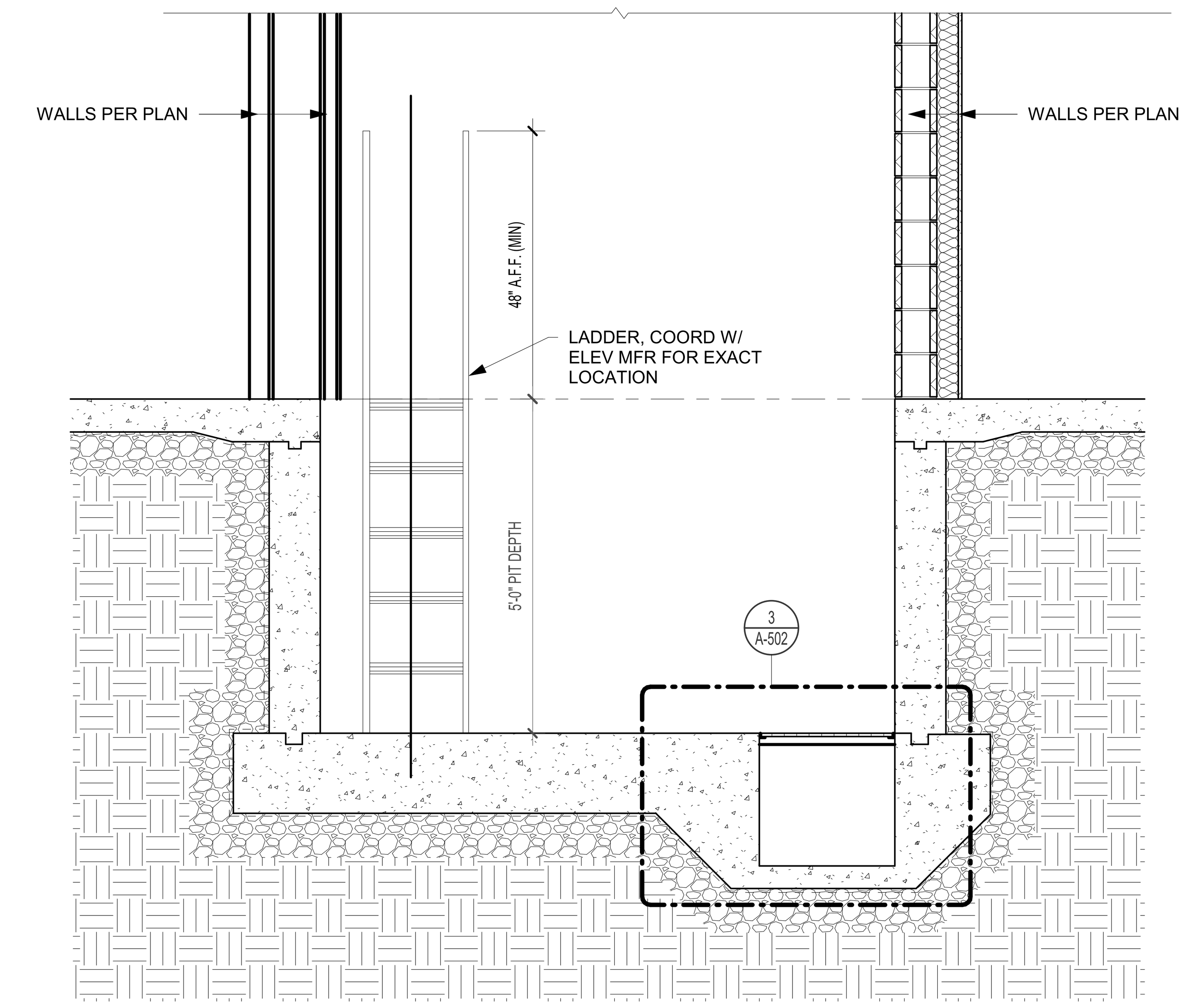
11/20/2024 4:30:41 PM

PRINTS ISSUED
11/20/24 - CITY SUBMITTAL

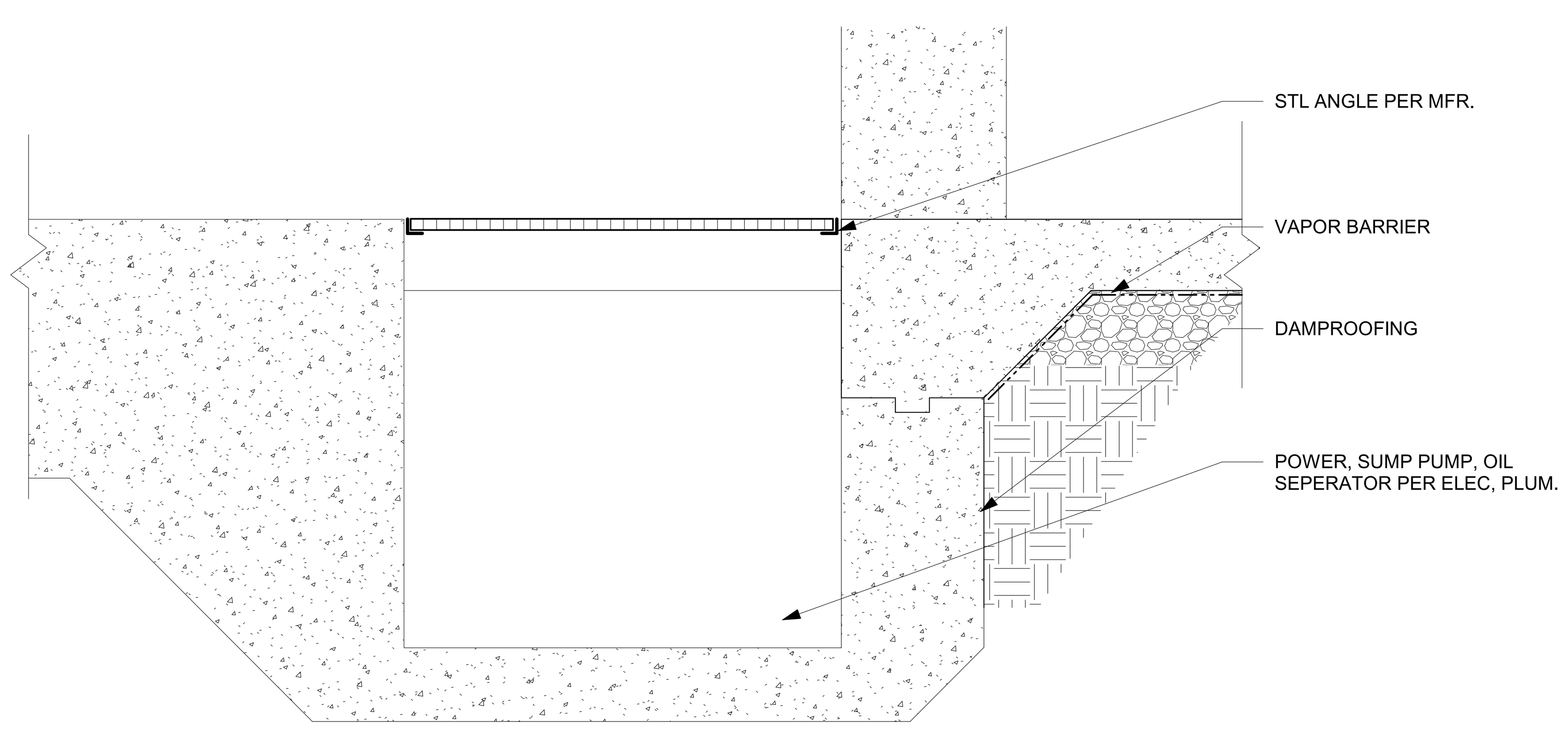
REVISIONS:



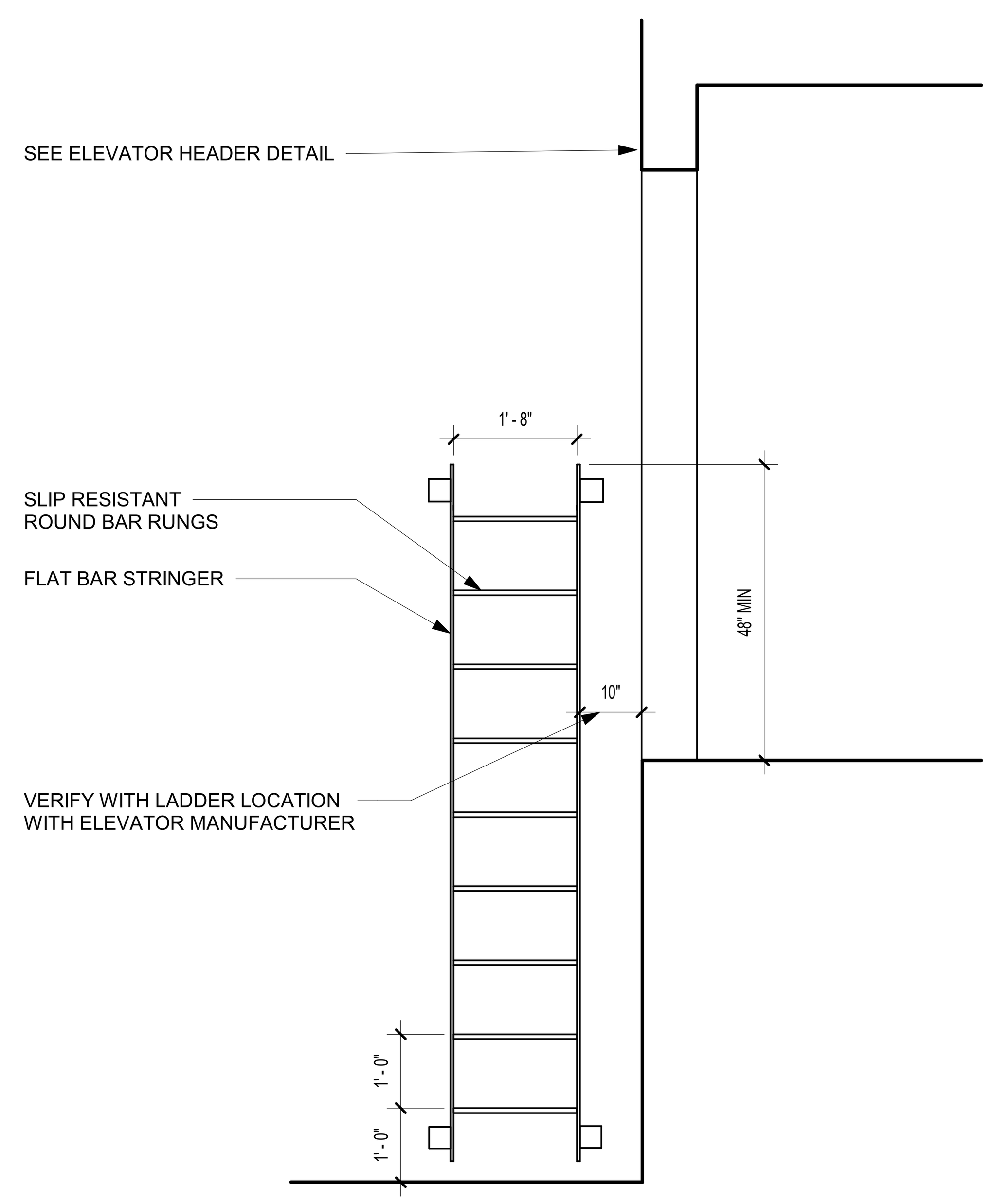
6 ELEVATOR - CONC/PIT @ LADDER (SECTION)
1/2" = 1'-0"



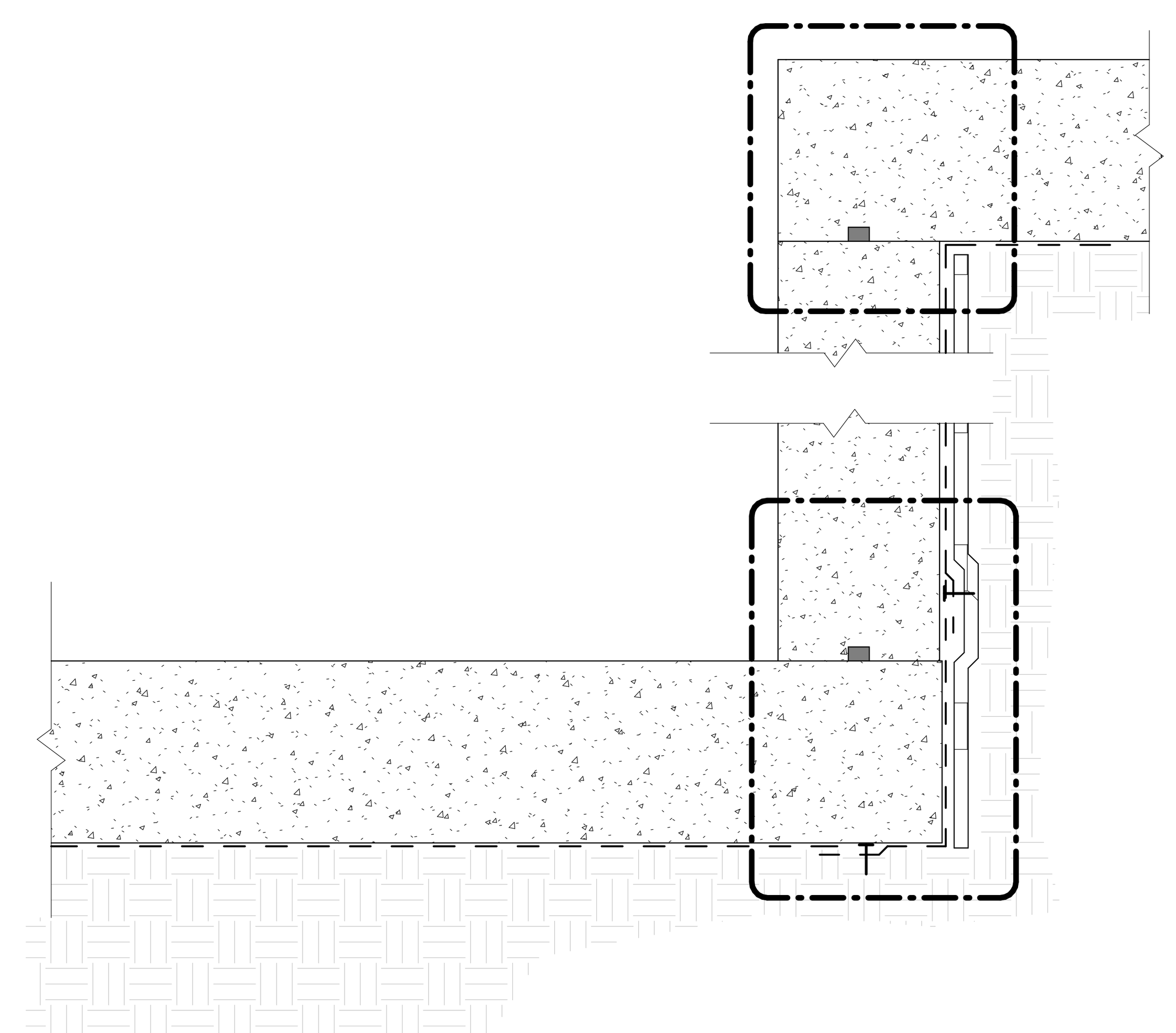
4 ELEVATOR - CONC/PIT (SECTION)
1/2" = 1'-0"



3 ELEVATOR - CONC/PIT @ SUMP
1 1/2" = 1'-0"



5 ELEVATOR - CONC/PIT @ LADDER (ELEVATION)
1/2" = 1'-0"



1 ELEVATOR PIT WATERPROOFING
N.T.S.

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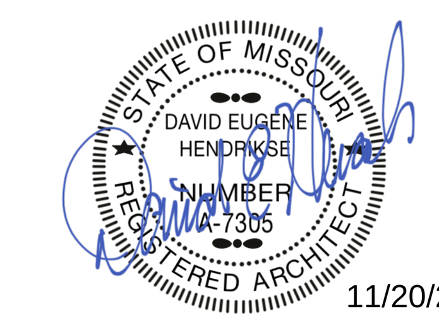


11/20/24

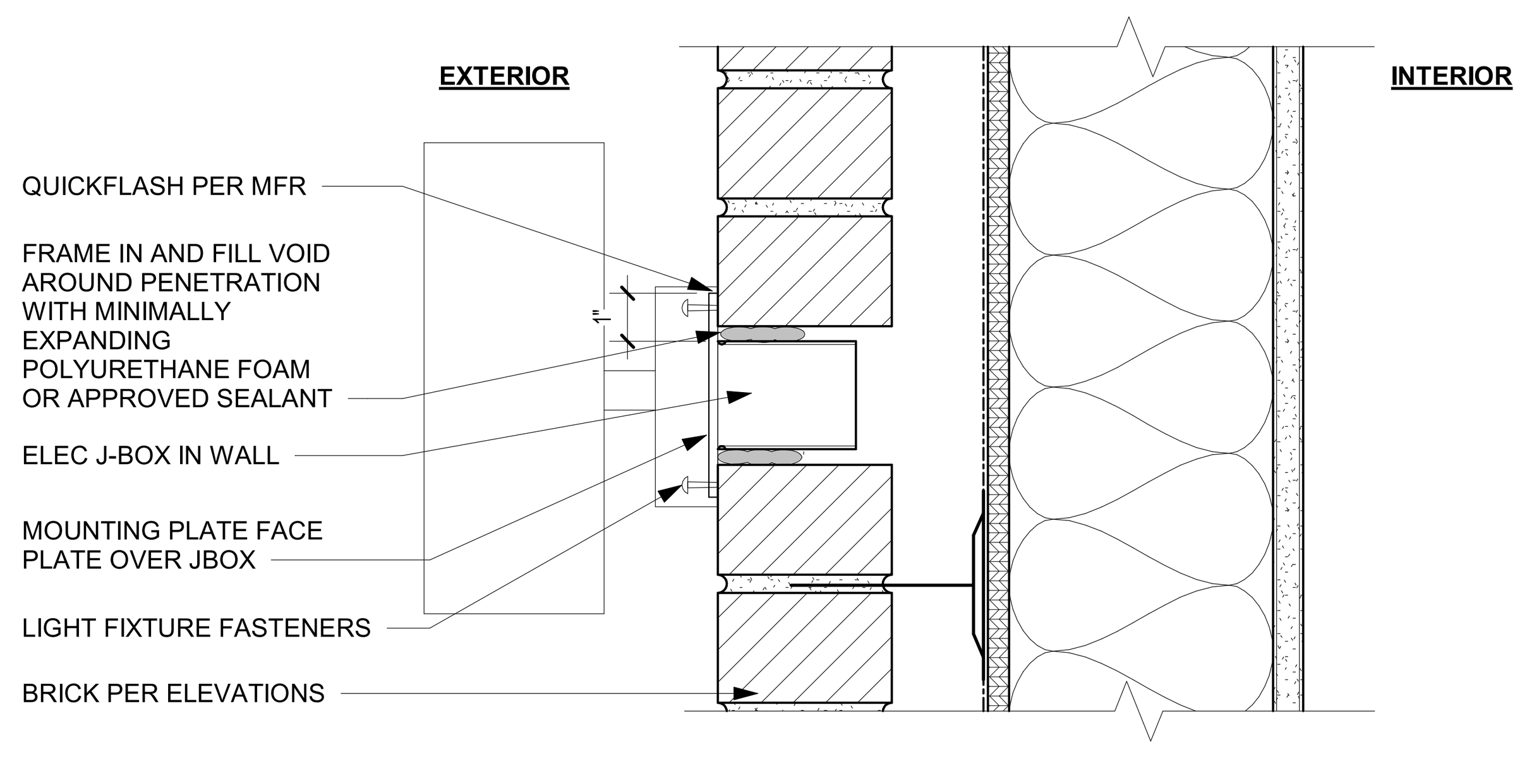
THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
ELEVATOR DETAILS

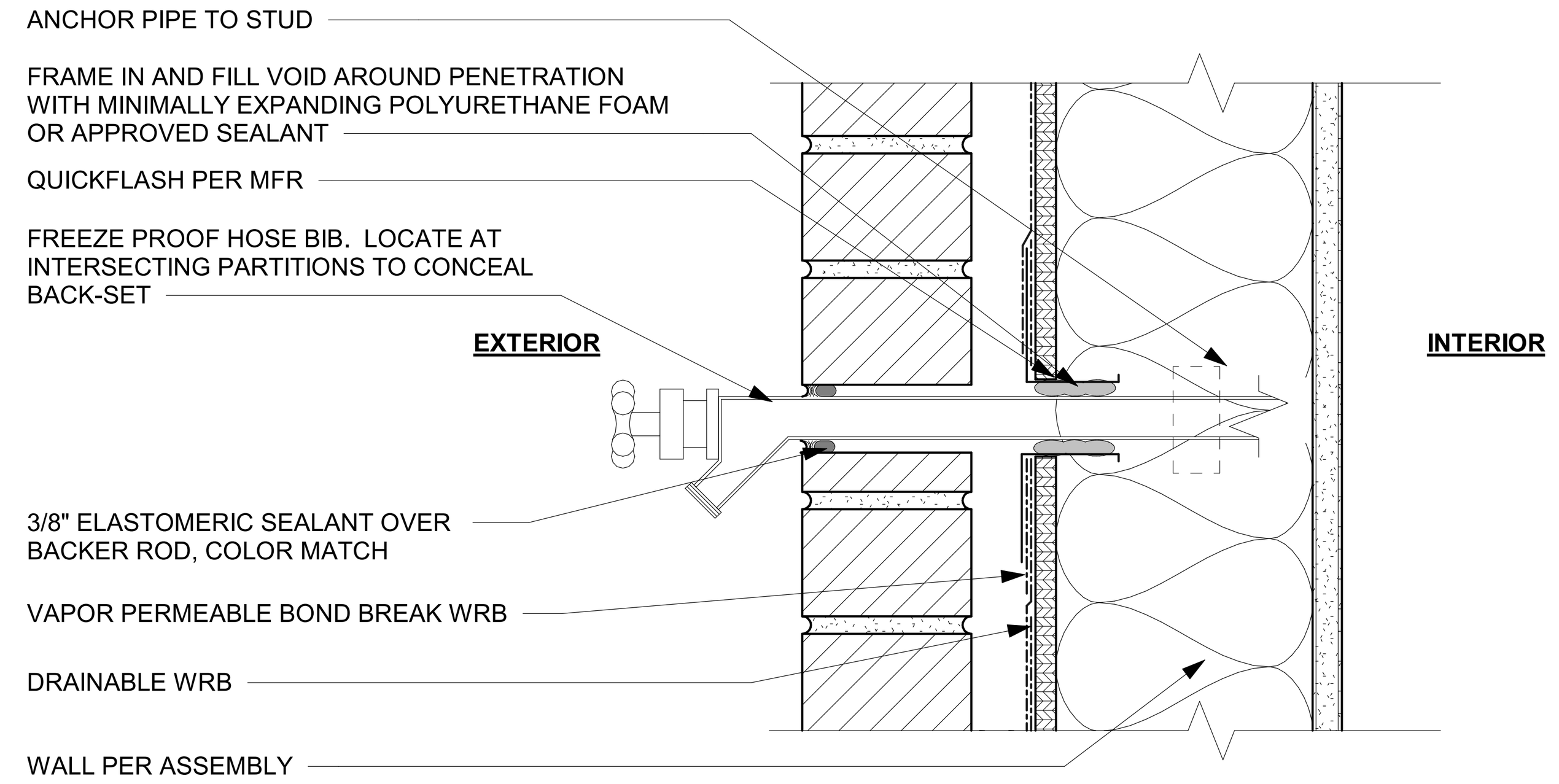
PROJECT NUMBER: 23096

SHEET NUMBER:

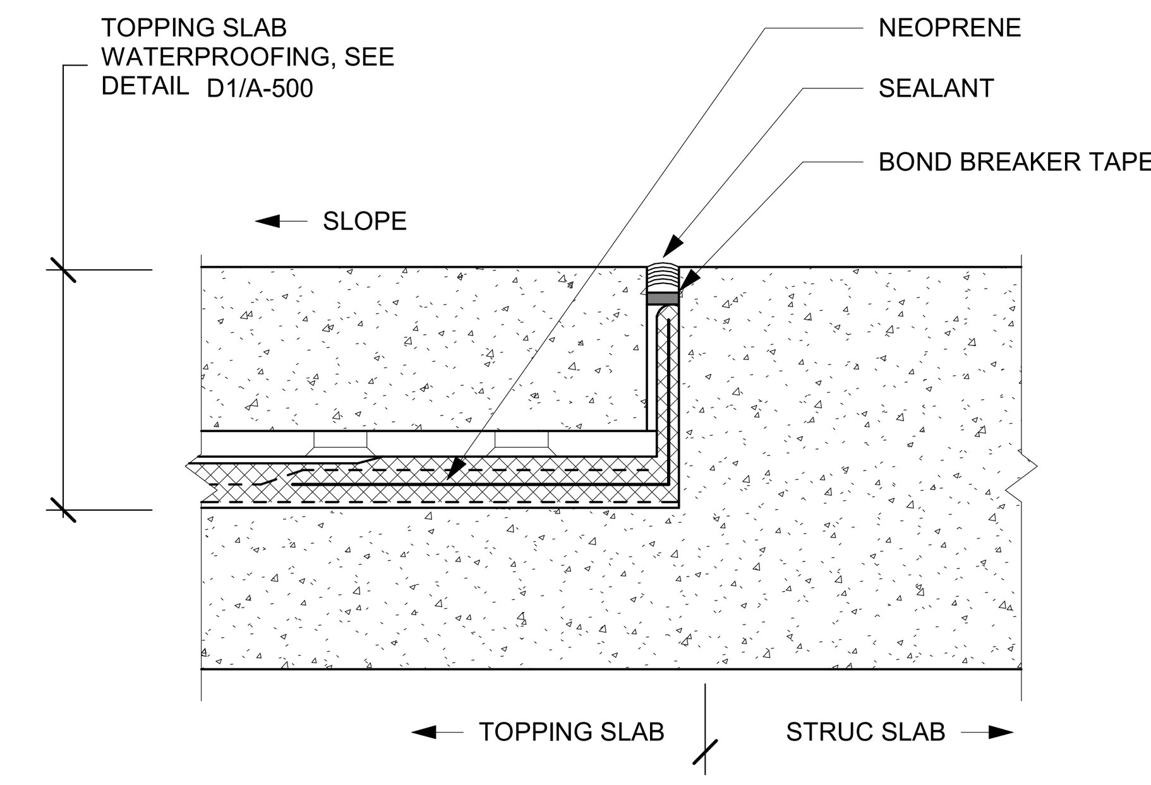
A-502



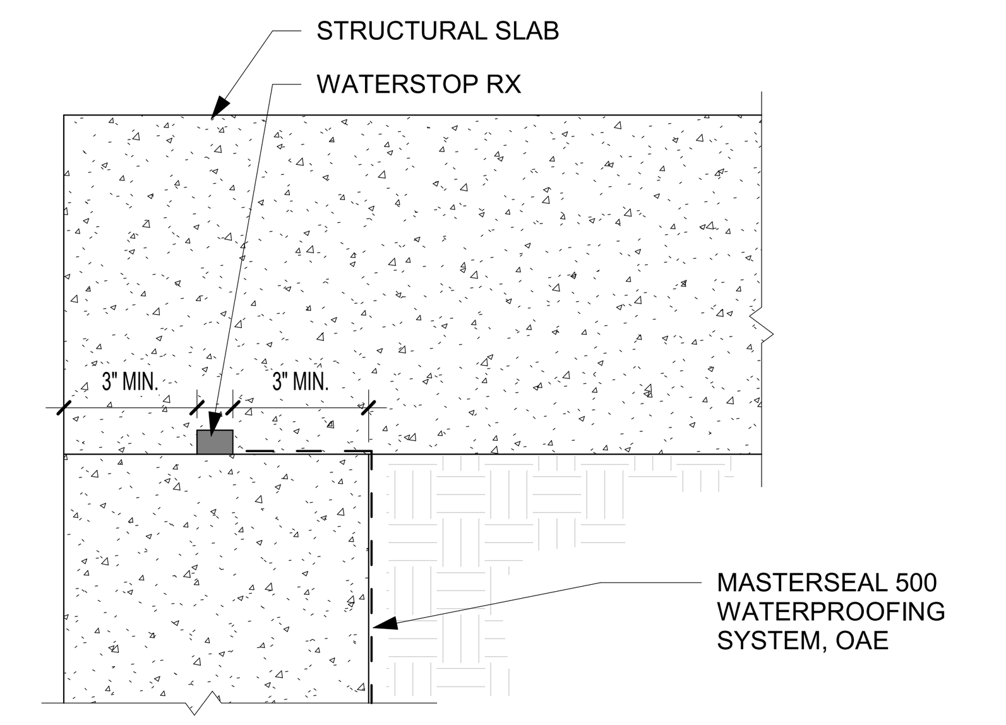
D4 FIXTURE PENETRATION
3" = 1'-0"



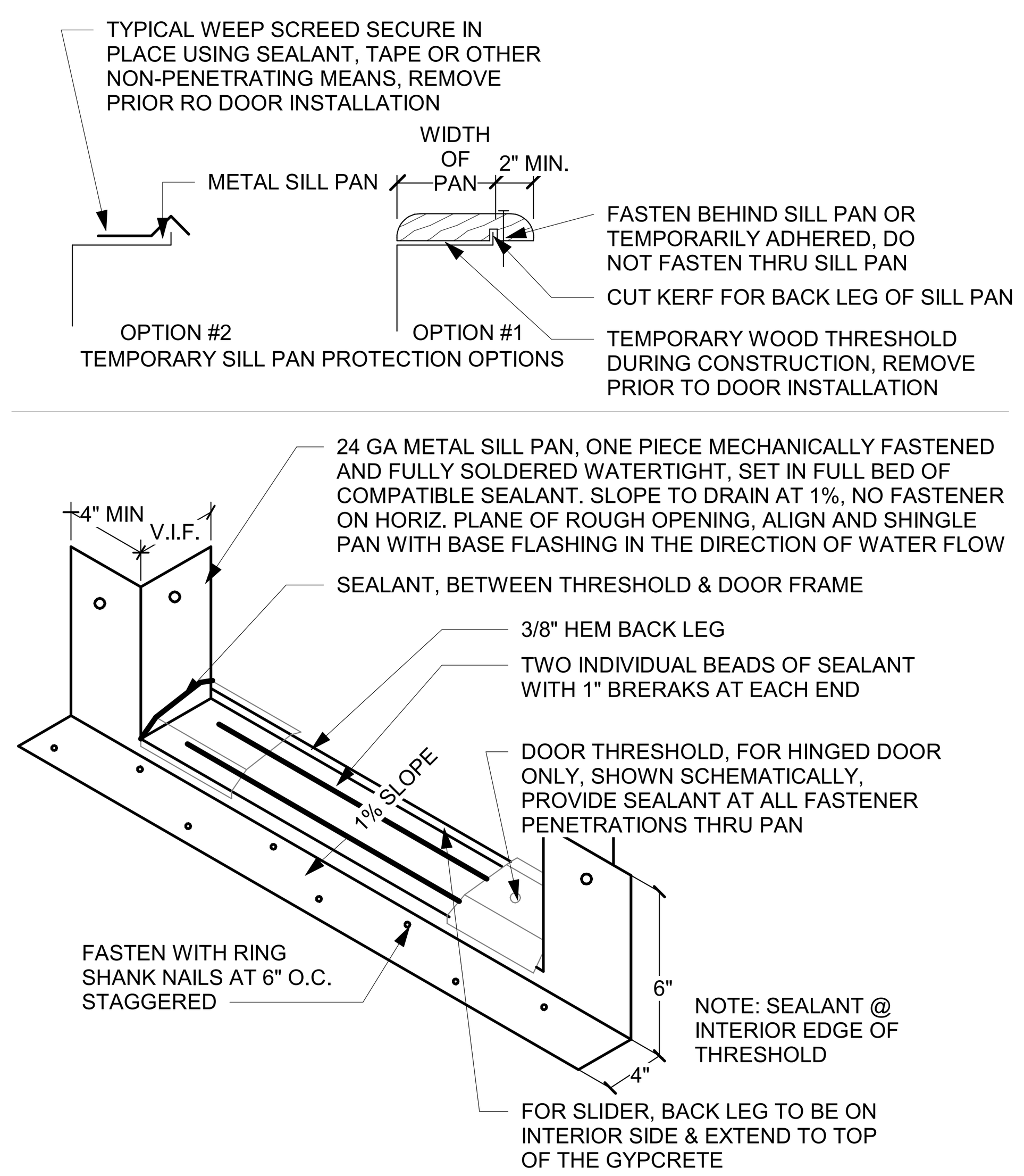
C4 HOSEBIB PENETRATION
3" = 1'-0"



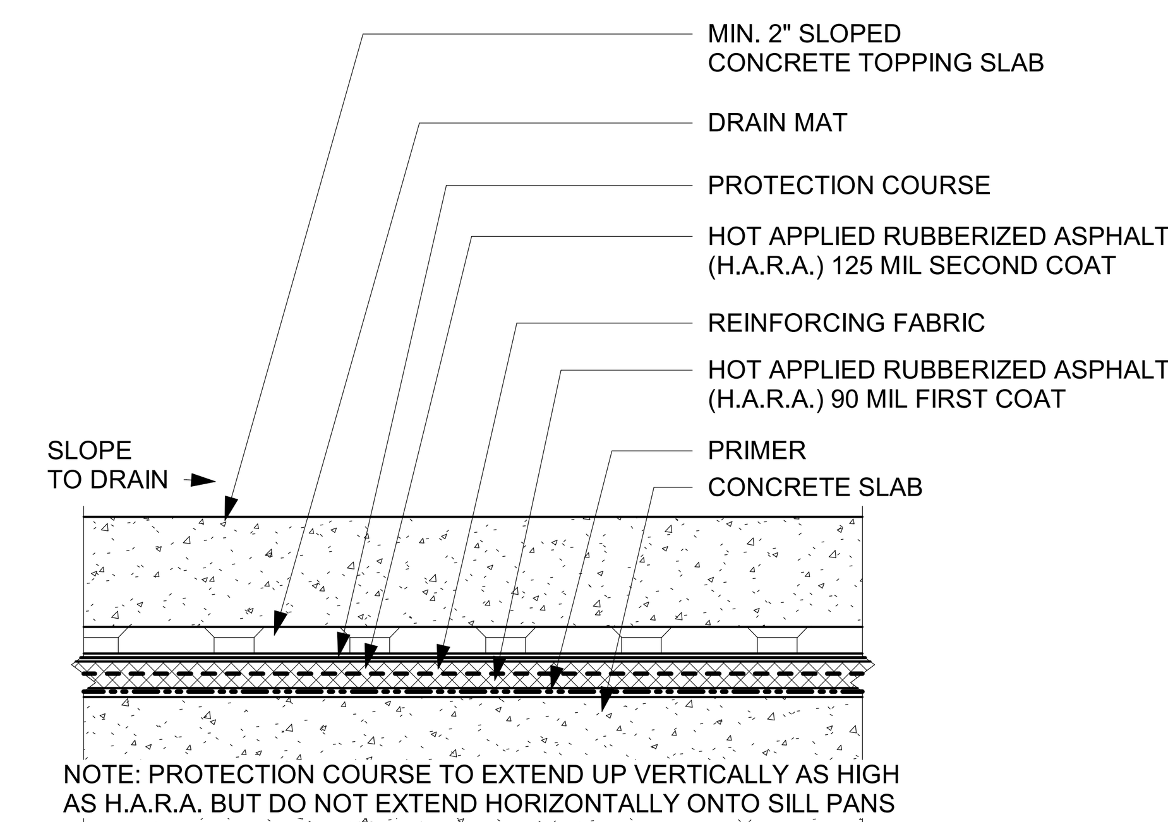
B4 TOPPING SLAB TRANSITION
N.T.S.



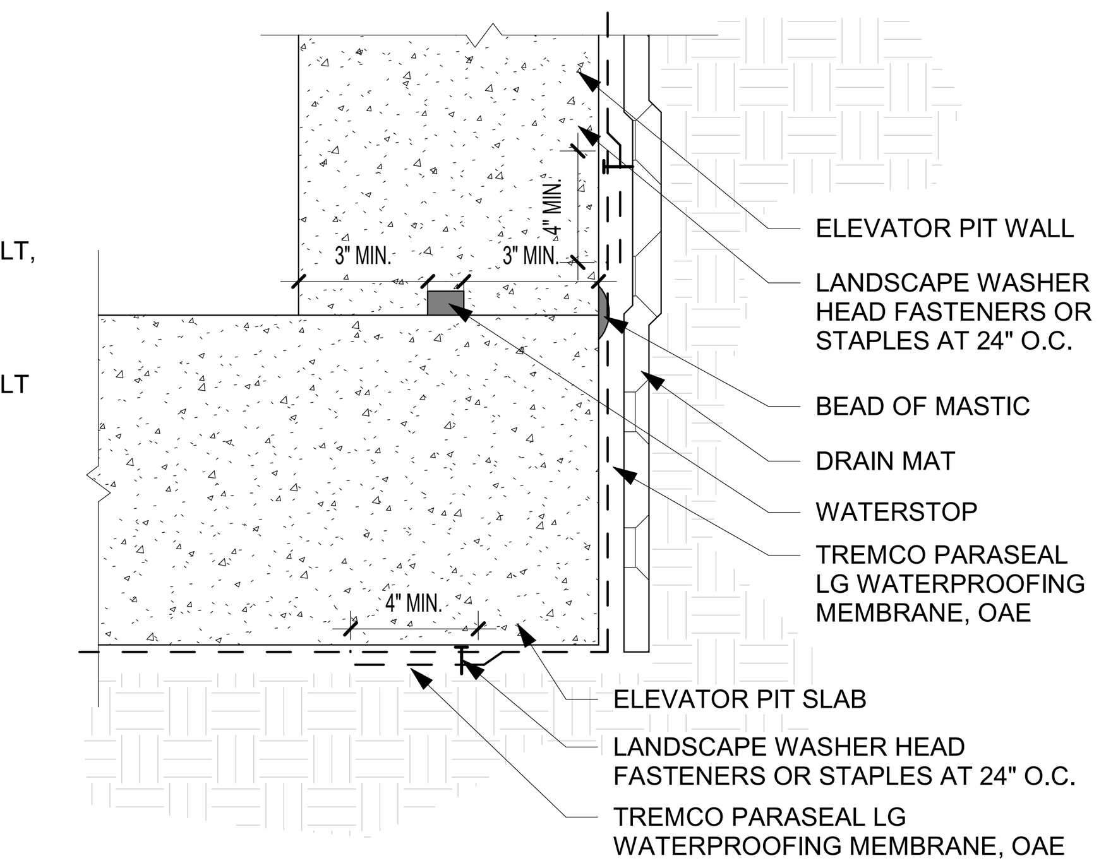
A4 WATERPROOFING TERMINATION
N.T.S.



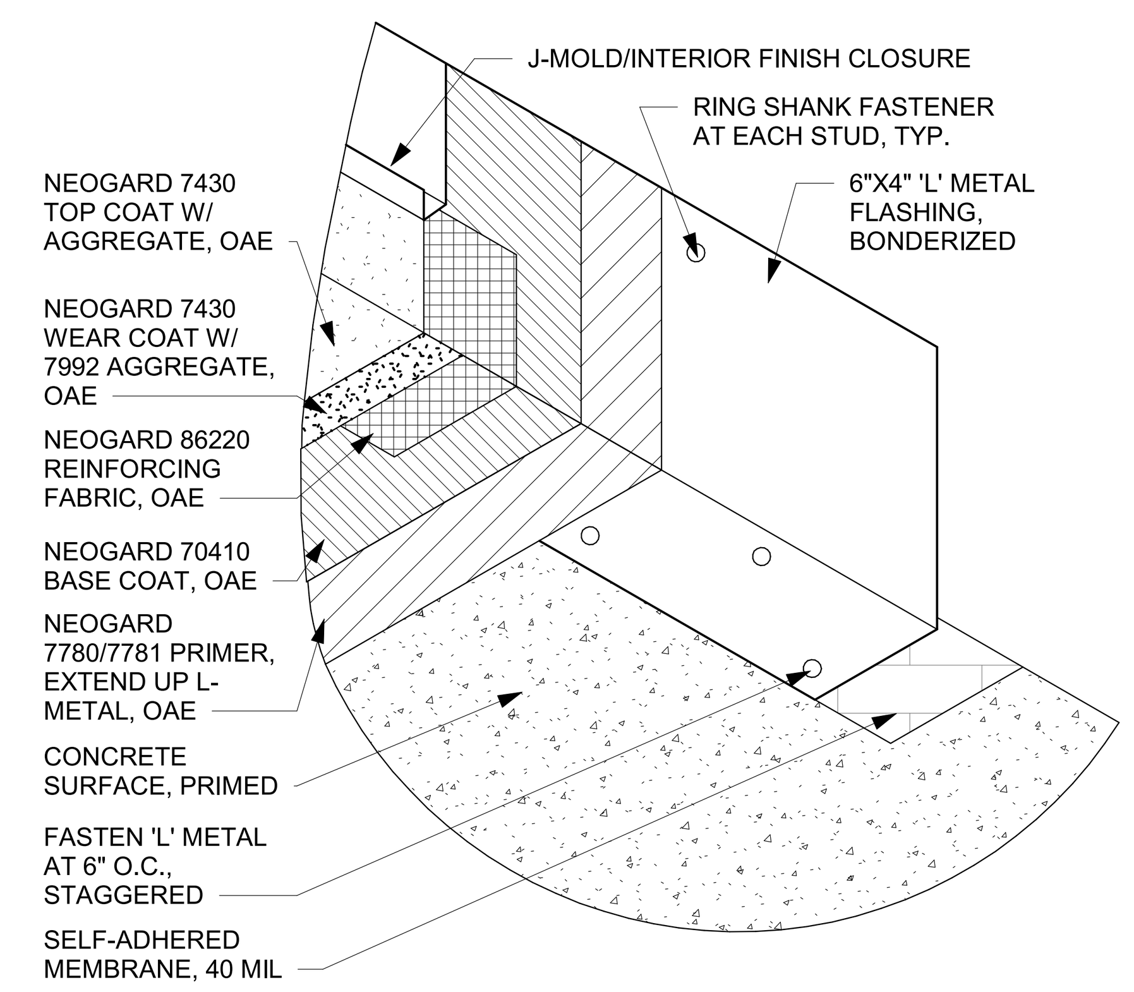
D2 PODIUM SILL PAN
3/4" = 1'-0"



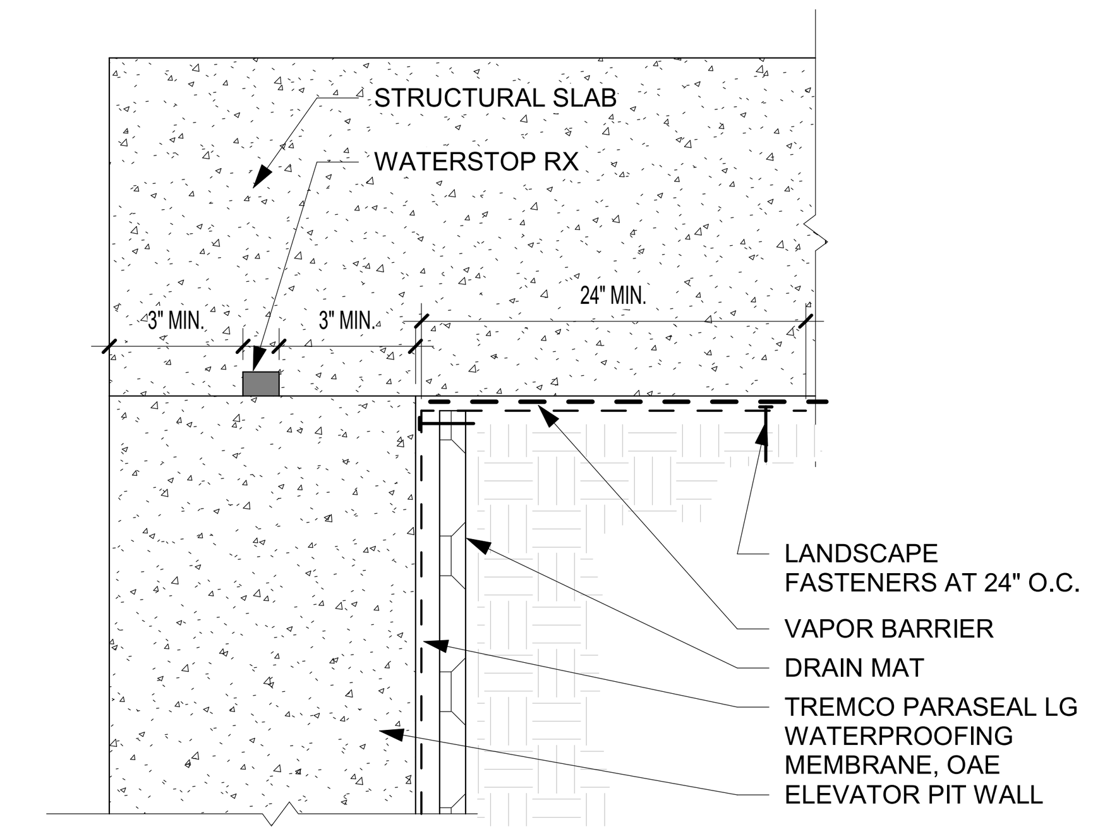
B3 TOPPING SLAB DECK WATERPROOFING
N.T.S.



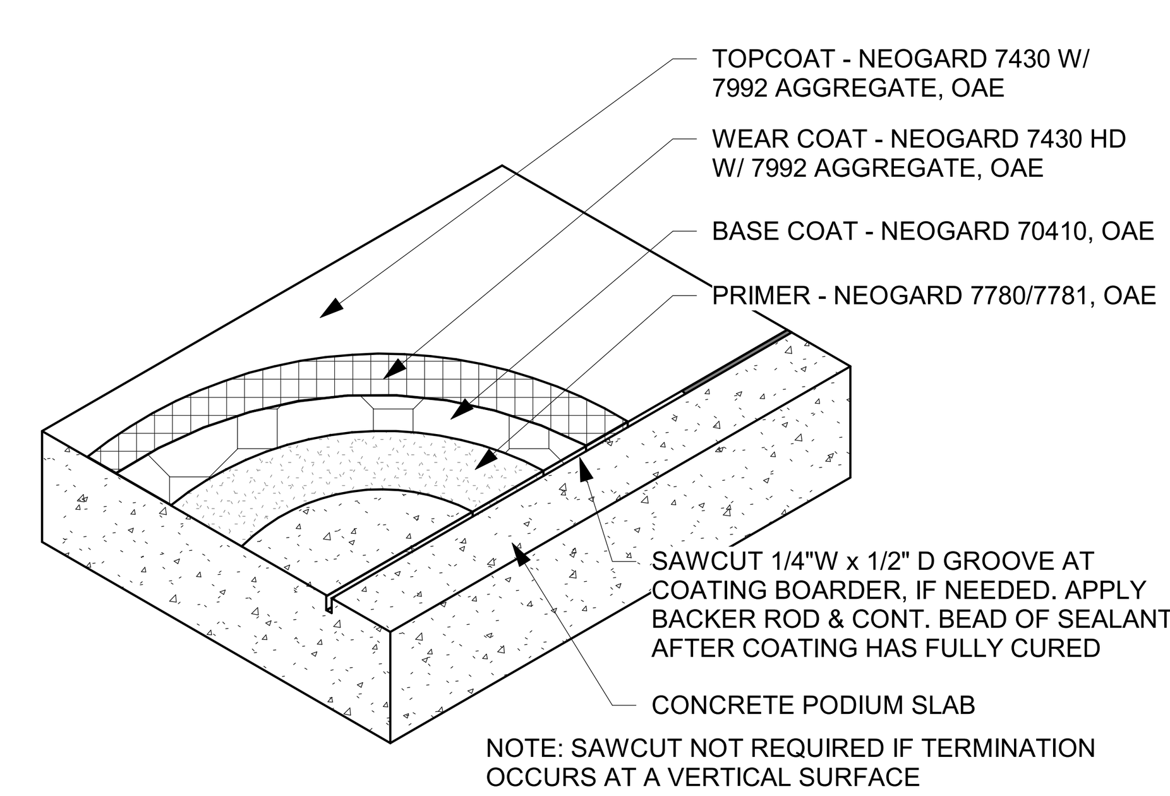
A3 ELEVATOR PIT SLAB TO WALL TRANSITION
N.T.S.



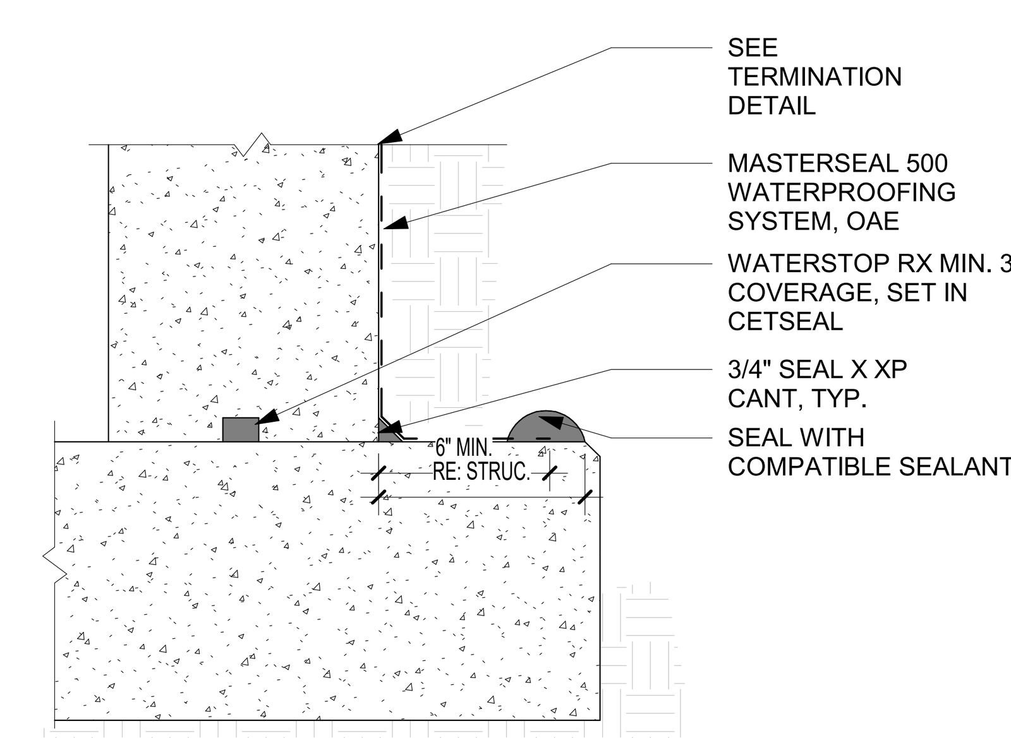
B2 TRAFFIC COATING WALL BASE
N.T.S.



A2 ELEVATOR PIT WALL TO SLAB
N.T.S.



B1 VEHICULAR TRAFFIC COATING
N.T.S.



A1 SUBGRADE CONCRETE WALL
N.T.S.

PRINTS ISSUED
11/20/24 - CITY SUBMITTAL

REVISIONS:

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
WATERPROOFING DETAILS

PROJECT NUMBER: 23096

SHEET NUMBER:

A-503

RELEASED FOR CONSTRUCTION
As Noted on Plans Review

Development Services Department
Lee's Summit, Missouri
12/18/2024

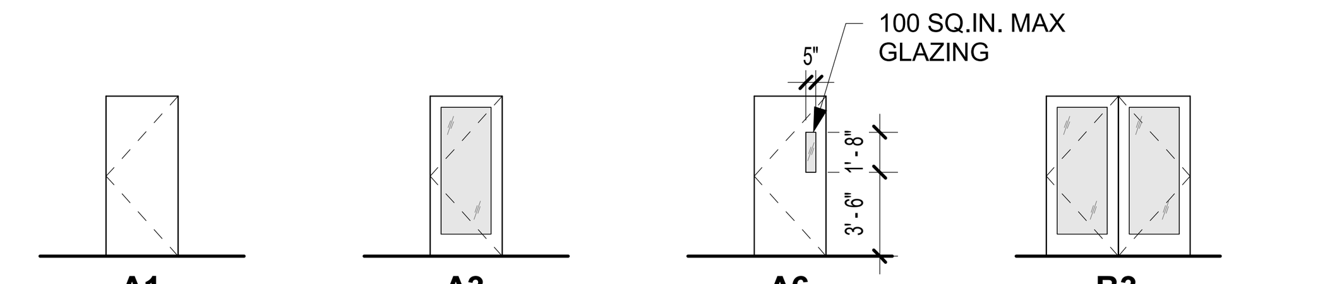
REFERENCE A-602 FOR DOOR DETAILS

PRINTS ISSUED
11/20/24 - CITY SUBMITTAL

REVISIONS:
1 12/12/24 City Comment Response

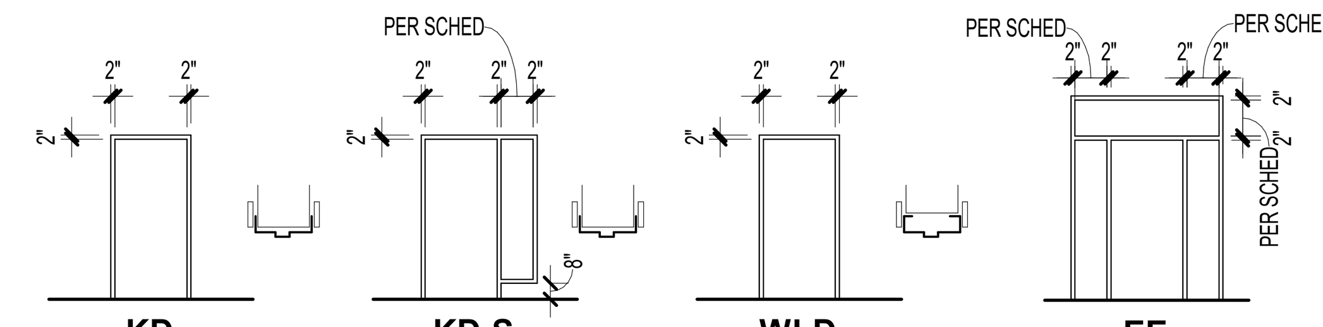
DOOR COMMENTS:
1. BOTTOM RAIL TO BE MINIMUM 10" TO ALLOW FOR A 10" KICK PLATE; TYPICALL ALL DOORS.
2. SEE SPECIFICATIONS FOR DOOR HARDWARE SCHEDULE; FINAL HARDWARE SCHEDULE AND FINAL GROUPS TO BE DETERMINED BY DOOR SUB-CONTRACTOR. VERIFY FINAL HARDWARE INSTALLATION WITH CLIENT AND ARCHITECT.
3. DOOR HARDWARE SHALL NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING, OR TWISTING OF THE WRIST TO OPERATE.
4. DOOR FRAMES TO BE FINISHED PER SCHEDULE.
5. VERIFY KEYING SCHEDULE WITH OWNER. ALL KEYS TO BE GIVEN TO OWNER AT SUBSTANTIAL COMPLETION.
6. ALL DOOR HARDWARE TO BE LEVER TYPE HARDWARE, UNO.
7. ALL COMMON AREA RATED DOORS TO HAVE SMOKE SEALS (GASKETS), CLOSURES, AND LATCH HARDWARE.

DOOR TYPES



A1 SINGLE SWING FLUSH
A3 SINGLE SWING FULL LITE
A6 SINGLE SWING FLUSH w/ VISION PANEL
B3 DOUBLE SWING FULL LITE

FRAME TYPES



KD KNOCK DOWN w/ TRIM
KD-S KNOCK DOWN w SIDE LITE w/ TRIM
WLD WELDED w/ APPLIED TRIM
EE [FRAME MATERIAL] w/ TRANSOM & SIDELITES SINGLE MULLED

DOOR SCHEDULE ABBREVIATIONS:

ALUM	ALUMINUM	**FGL / FBG**	FIBERGLASS	**N/A**	NOT APPLICABLE	**STL**	STEEL
ANO	ANODIZED	**HC WOOD / HCWD**	HOLLOW CORE WOOD	**PER MFR**	PER MANUFACTURER	**WD CLAD**	WOOD CLAD
BLK	BLACK	**HM**	HOLLOW METAL	**PRE-FIN**	PRE-FINISHED		
BRZ	BRONZE	**INSUL MTL**	INSULATED METAL	**PT / PTD**	PAINTED		
CLR	CLEAR	**MTL**	METAL	**SC WOOD / SCWD**	SOLID CORE WOOD		

DOOR SCHEDULE

Door #	Location	Location	Width	Height	Thickness	Fire Rating (Minutes)	Panic Hardware	Door: Door Type	Door: Door Material	Door: Door Finish	Frame: Frame Type	Frame: Frame Finish	Comments
1000	LOBBY	EXTERIOR	6' - 0"	7' - 6"	1 3/4"		Yes	B3	ALUM	PRE-FIN	ALUM	PRE-FIN	
1001A	EXTERIOR	COMMERCIAL	6' - 0"	7' - 6"	1 3/4"		Yes	B3	ALUM	PRE-FIN	ALUM	PRE-FIN	
1001B	EXTERIOR	COMMERCIAL	6' - 0"	7' - 6"	1 3/4"		Yes	B3	ALUM	PRE-FIN	ALUM	PRE-FIN	
1001C	EXTERIOR	COMMERCIAL	6' - 0"	7' - 6"	1 3/4"		Yes	B3	ALUM	PRE-FIN	ALUM	PRE-FIN	
1001D	EXTERIOR	COMMERCIAL	3' - 0"	7' - 6"	1 3/4"		Yes	A3	ALUM	PRE-FIN	ALUM	PRE-FIN	
1001E	COMMERCIAL	EXTERIOR	3' - 0"	7' - 6"	1 3/4"		Yes	A3	ALUM	PRE-FIN	ALUM	PRE-FIN	
1001F	COMMERCIAL	EXTERIOR	6' - 0"	7' - 6"	1 3/4"		Yes	B3	ALUM	PRE-FIN	ALUM	PRE-FIN	
1002	EXTERIOR	RISER ROOM	3' - 0"	7' - 0"	1 3/4"		No	A1	HM	PTD	HM	PTD	
S1-1	STAIR	EXTERIOR	3' - 0"	7' - 6"	1 3/4"		Yes	A3	ALUM	PRE-FIN	ALUM	PRE-FIN	
S2-1	STAIR	EXTERIOR	3' - 0"	7' - 6"	1 3/4"		Yes	A3	ALUM	PRE-FIN	ALUM	PRE-FIN	
2000	LOBBY	COMMERCIAL	3' - 0"	7' - 6"	1 3/4"		Yes	A3	ALUM	PRE-FIN	ALUM	PRE-FIN	
2002	LOBBY	MECH./MAINT.	3' - 0"	6' - 8"	1 3/4"		No	A1 (1)	HM	PTD	HM	PTD	
S1-2	STAIR	LOBBY	3' - 0"	6' - 8"	1 3/4"	60	Yes	A6	HM	PTD	HM	PTD	
S2-2	STAIR	COMMERCIAL	3' - 0"	6' - 8"	1 3/4"	60 (1)	Yes	A6	HM	PTD	HM	PTD	

ROOM FINISH SCHEDULE

Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
LOBBY					
STAIR					
ELEV.					
STAIR					
COMMERCIAL					
LOBBY					
STAIR					
MECH./MAINT.					
ELEV.					
STAIR					
COMMERCIAL					
RISER ROOM					
EXTERIOR					
COMMERCIAL					

PUBLIC ROOM FINISH COMMENTS:
1. PAINT BULKHEADS

GENERAL NOTES:
1. BASE FINISH
   A. RB-1 = VINYL TOED/TOELESS - STANDARD COLOR

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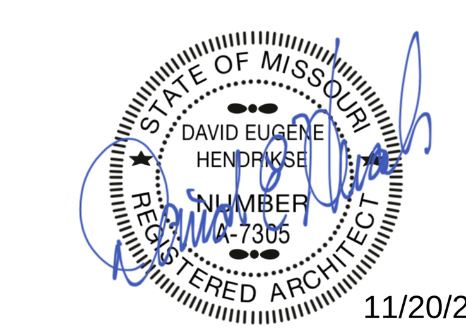


11/20/24

THE VILLAGE AT DISCOVERY - LOT 1

LEE'S SUMMIT, MO

SHEET TITLE
DOOR / FINISH SCHEDULES

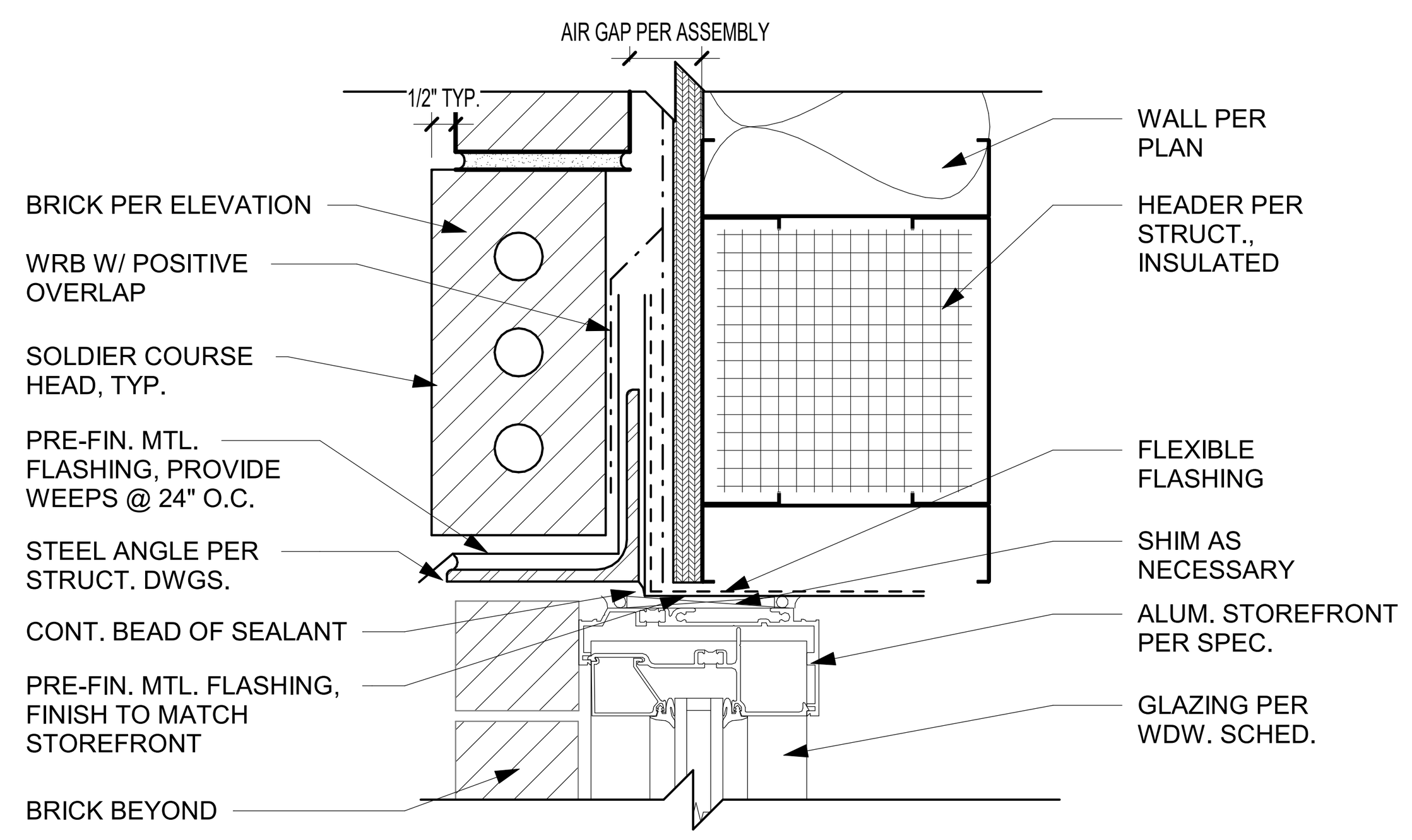
PROJECT NUMBER: 23096

SHEET NUMBER:

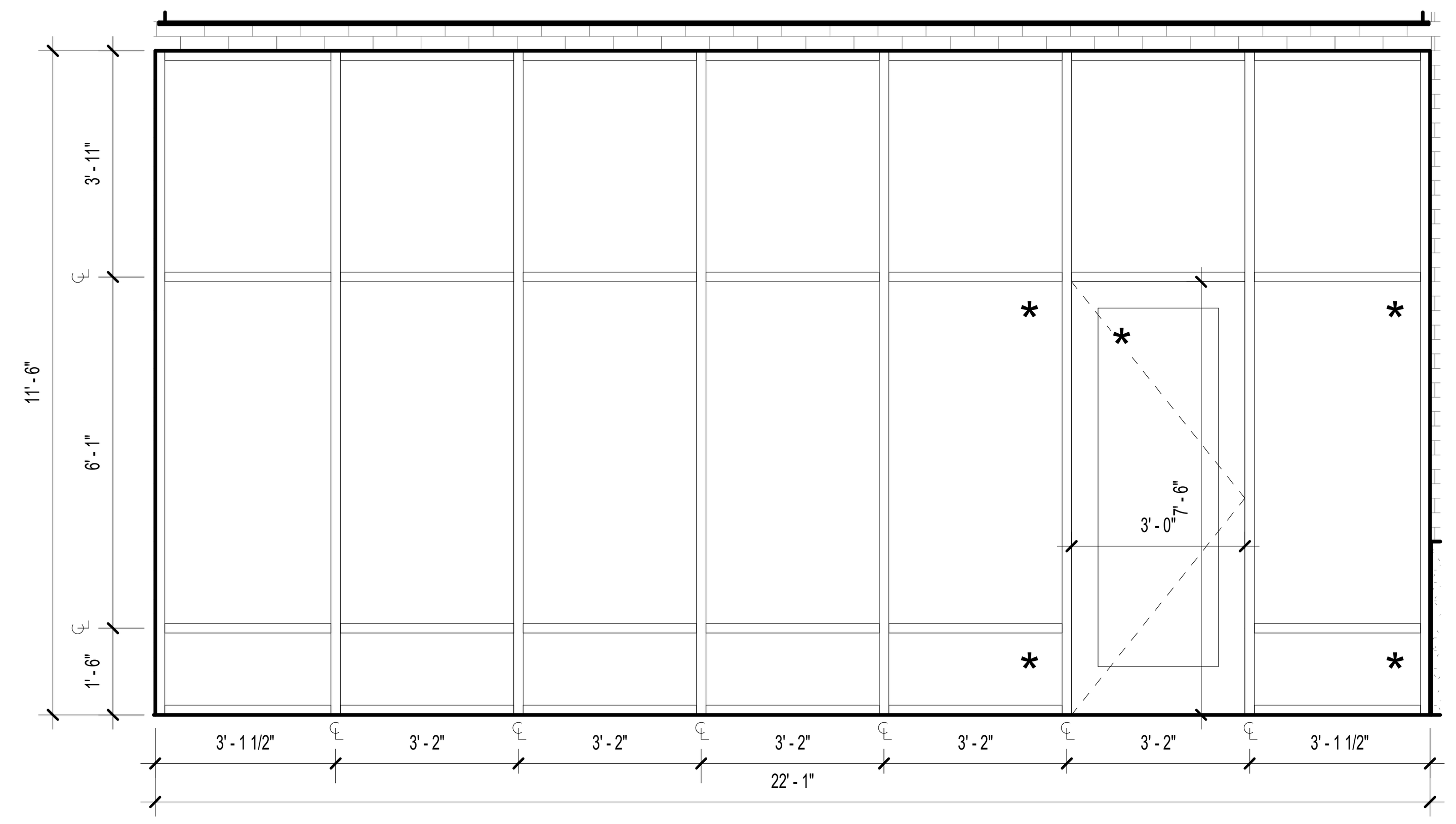
A-600

PRINTS ISSUED
11/20/24 - CITY SUBMITTAL

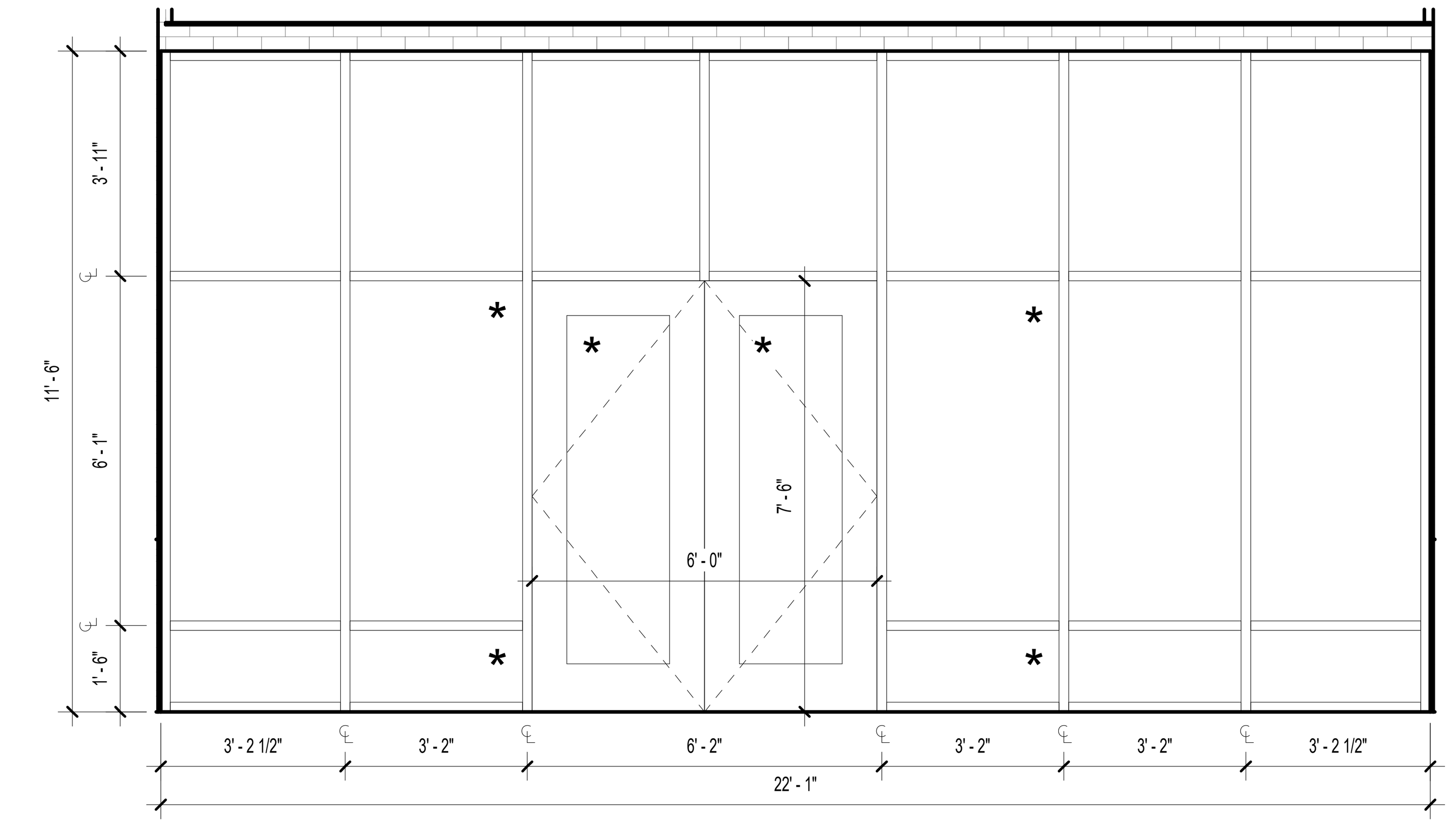
REVISIONS:



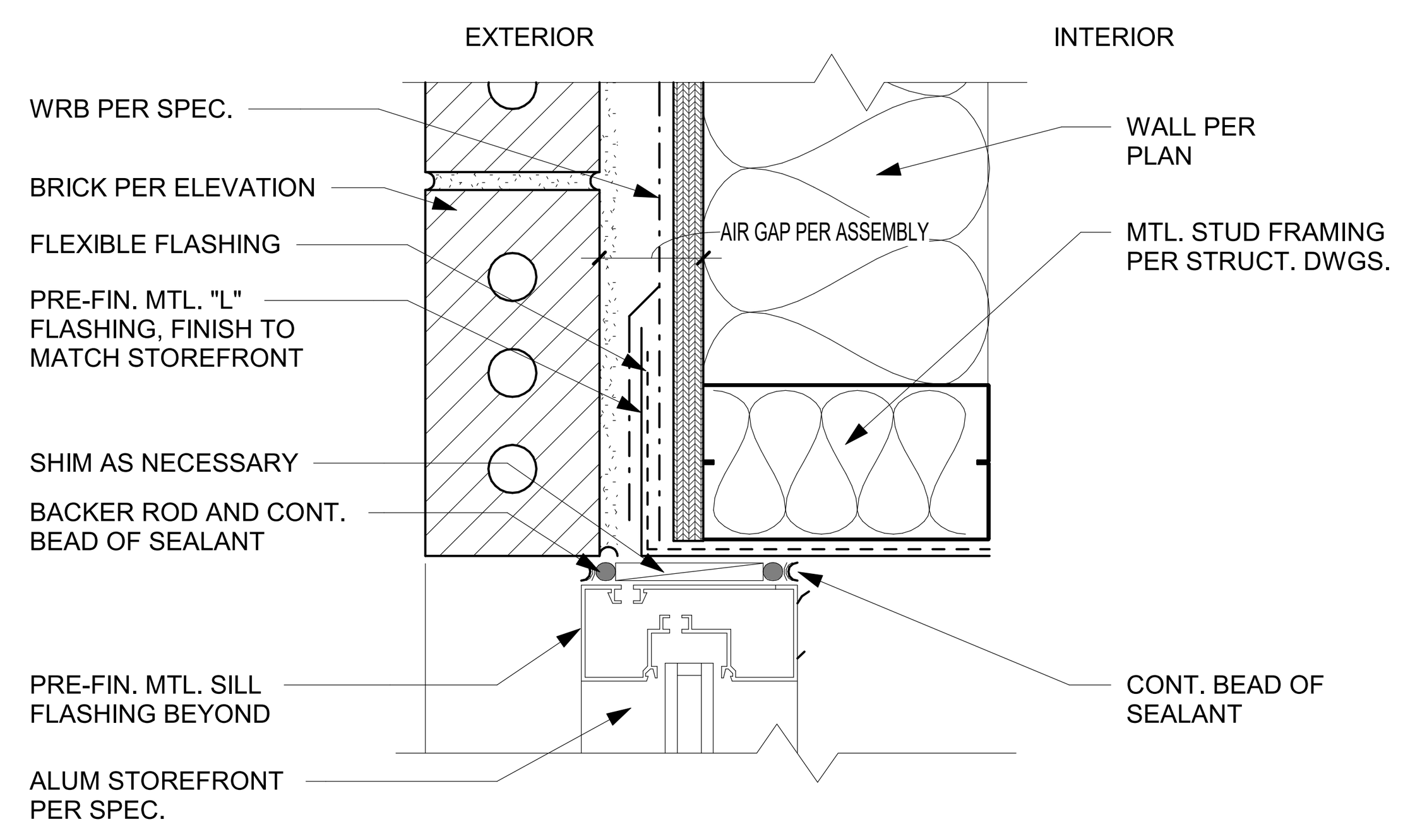
C3 STOREFRONT MTL HEAD - BRICK
3" = 1'-0"



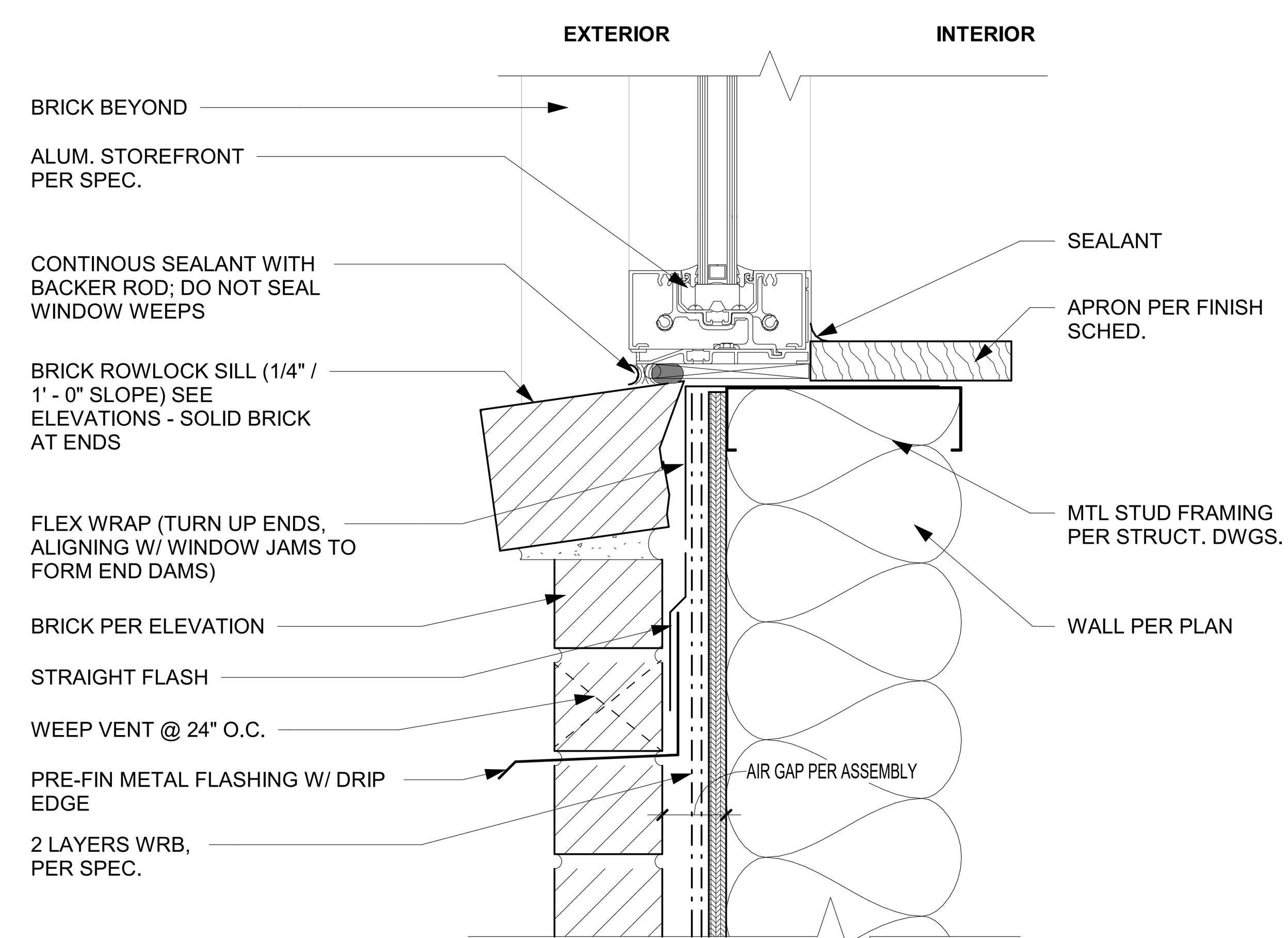
4 SF 4
3/8" = 1'-0"



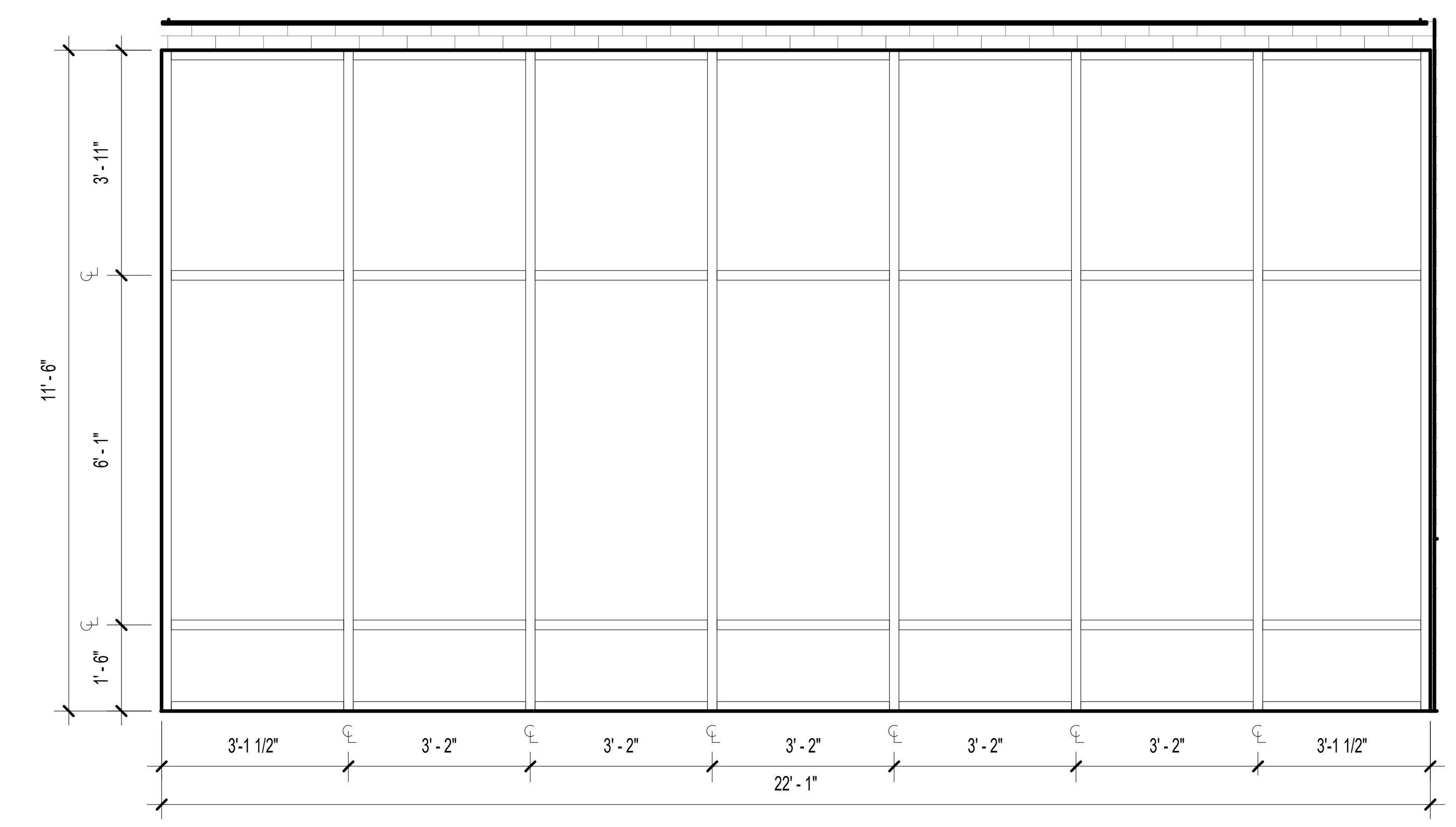
3 SF 3
3/8" = 1'-0"



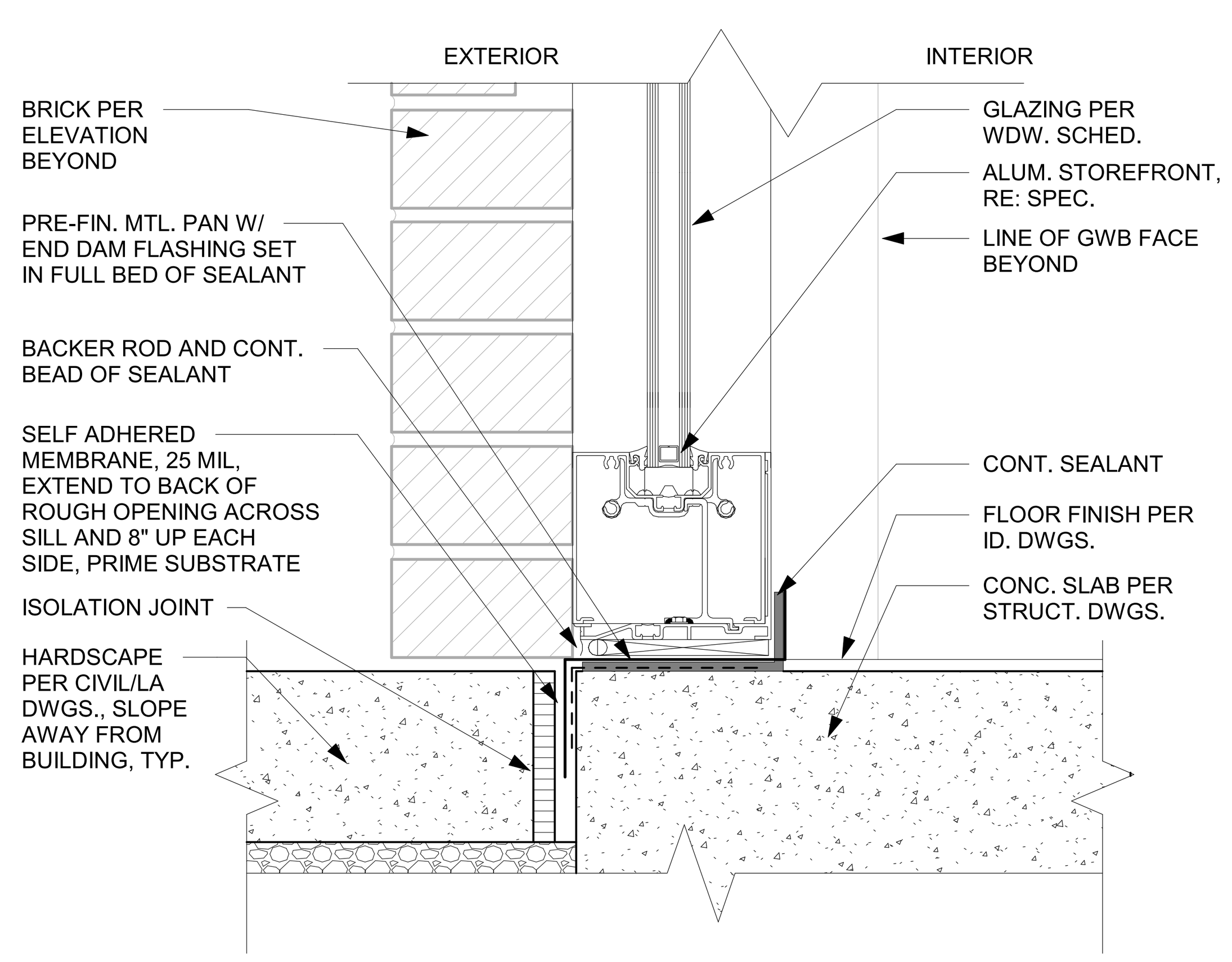
C2 STOREFRONT MTL JAMB - BRICK
3" = 1'-0"



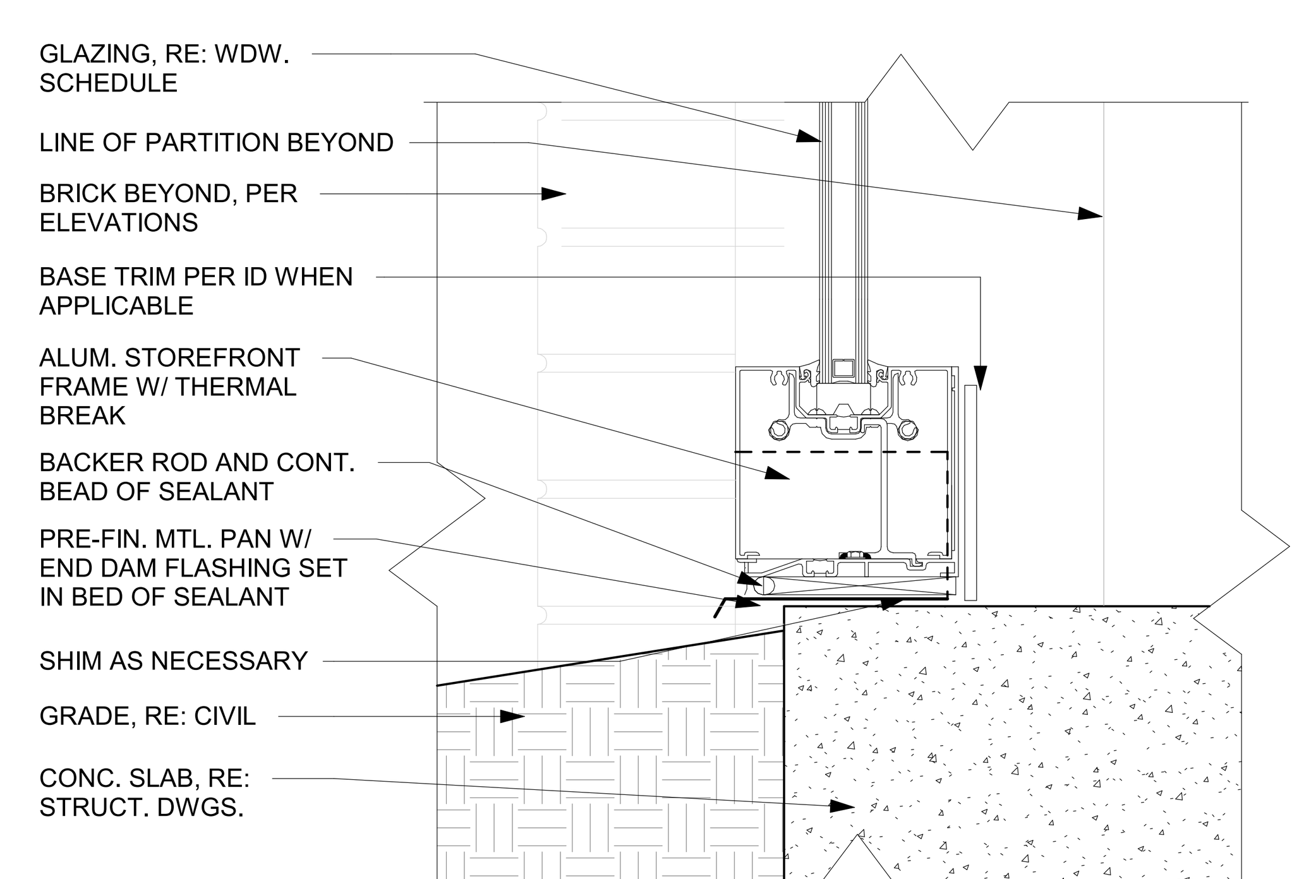
B1 STOREFRONT MTL SILL - BRICK
3" = 1'-0"



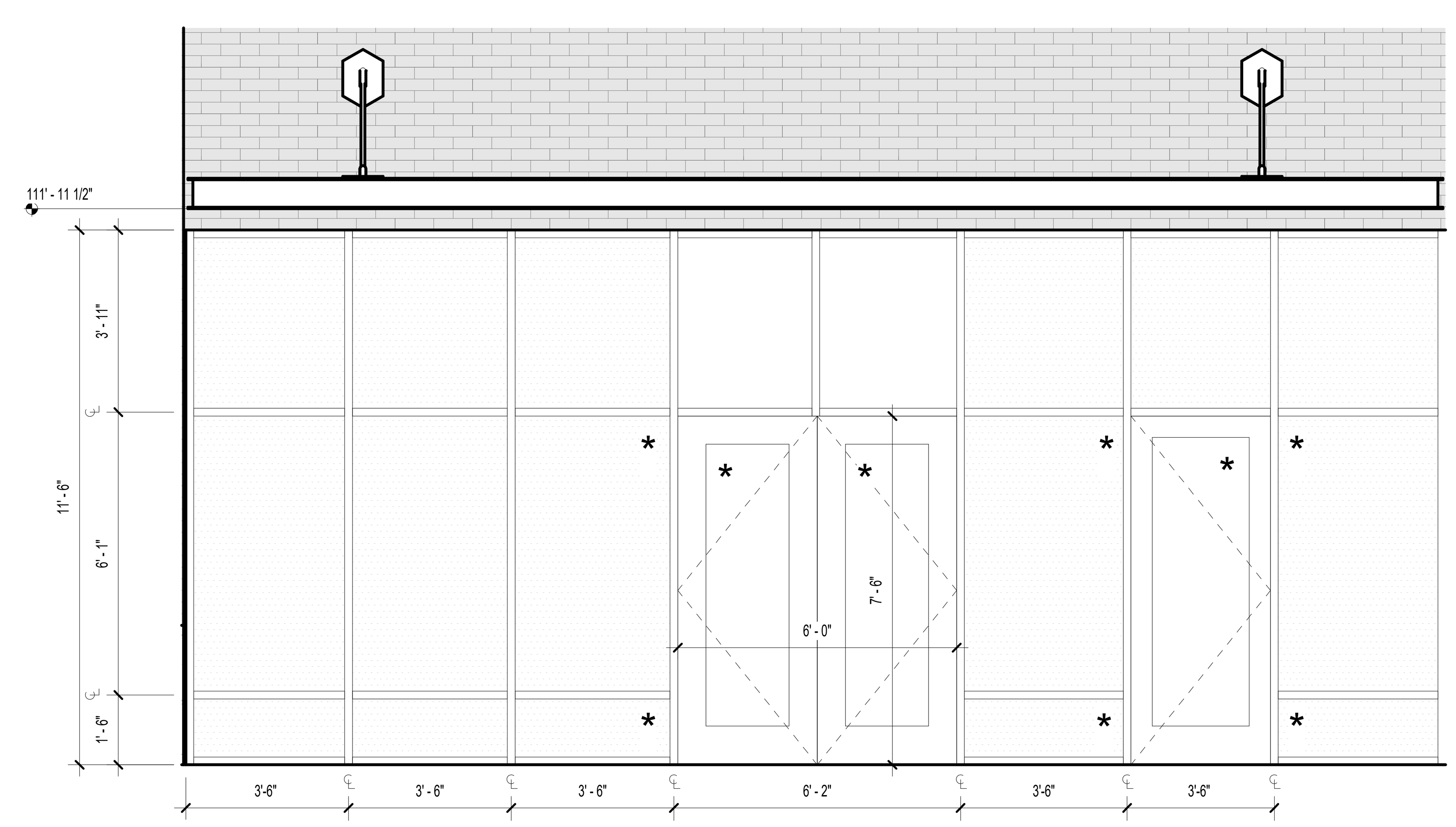
2 SF 2
3/8" = 1'-0"



C1 STOREFRONT THRESHOLD - HARDSCAPE
3" = 1'-0"



D1 STOREFRONT THRESHOLD - GRADE
3" = 1'-0"



1 SF 1
3/8" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/20/24

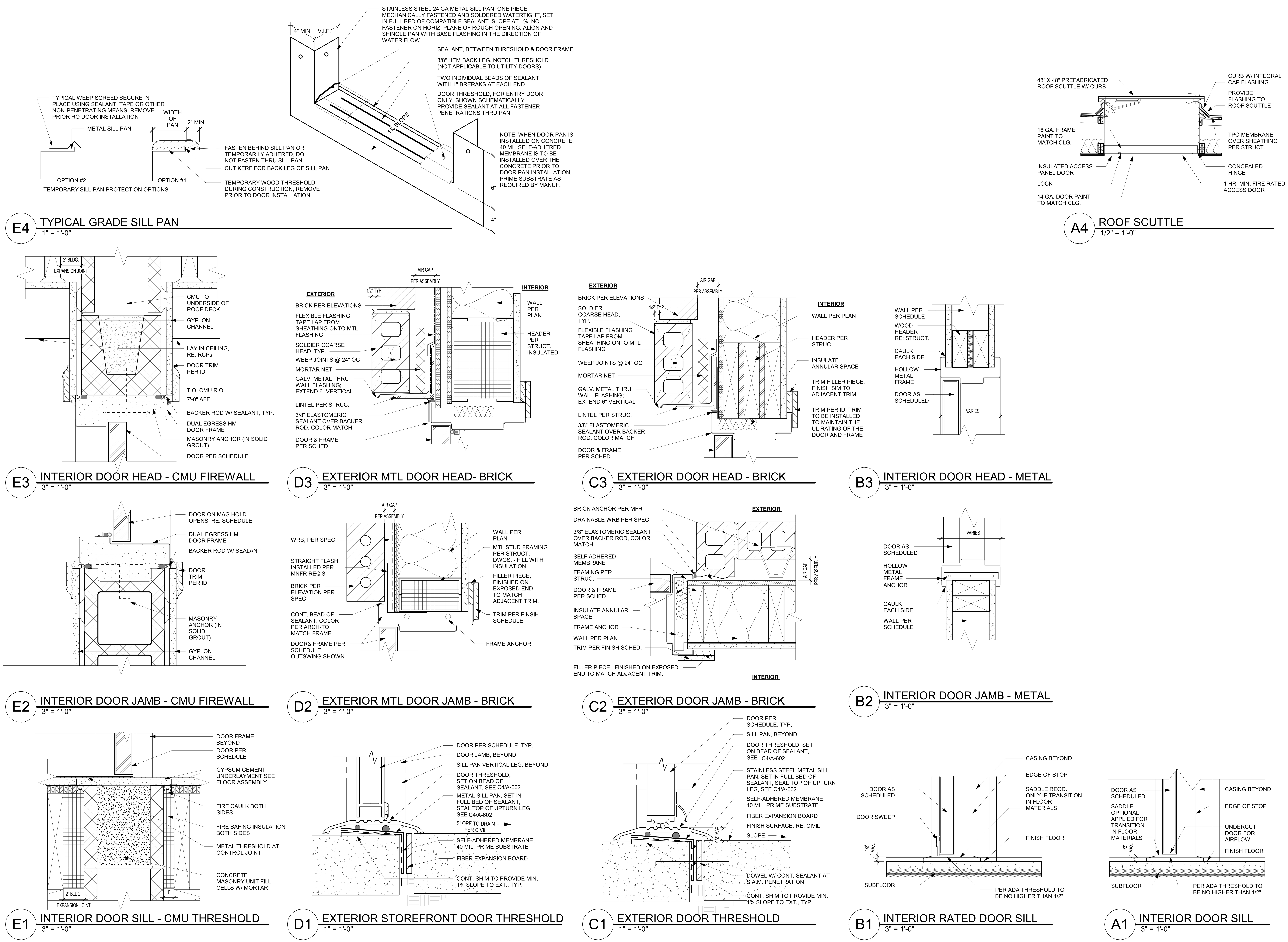
THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
STOREFRONT ELEVATIONS & DETAILS

PROJECT NUMBER: 23096

SHEET NUMBER:

A-601



RELEASED FOR CONSTRUCTION
As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri

PRINTS ISSUED
11/20/24 - CITY SUBMITTAL

REVISIONS:

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STATE OF MISSOURI
DAVID EUGENE HENDRICKS
NUMBER A-7305
REGISTERED ARCHITECT
11/20/24

THE VILLAGE AT DISCOVERY - LOT 1
LEE'S SUMMIT, MO

SHEET TITLE
DOOR DETAILS

PROJECT NUMBER: 23096

SHEET NUMBER:

A-602

11/20/2024 4:35:51 PM

J-SQUARED ENGINEERING

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Park Lot 1

221 NE Alura Way
Lee's Summit, Jackson County, MO 64064

GENERAL MEP SPECIFICATIONS

1. **GENERAL**
   - 1.1. ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH LOCALLY ADOPTED CODES AND ORDINANCES.
   - 1.2. IT IS THE RESPONSIBILITY OF CONTRACTOR TO REVIEW AND UNDERSTAND ALL DRAWINGS AND SPECIFICATIONS IN CONTRACT DOCUMENTS. EACH CONTRACTOR IS RESPONSIBLE FOR ALL WORK ASSOCIATED WITH THEIR TRADE, REGARDLESS OF WHERE WORK IS DEPICTED IN PROJECT DRAWINGS OR SPECIFICATIONS.
   - 1.3. LAYOUT OF SYSTEMS SHOWN ON PLANS ARE APPROXIMATE AND SCHEMATIC IN NATURE. ALL SYSTEMS WILL NEED TO BE FIELD-COORDINATED. CONTRACTOR SHALL INCLUDE THIS COORDINATION IN THEIR SCOPE AND INCLUDE ALL COSTS OF MODIFYING LAYOUT AS REQUIRED IN THEIR BID. PLANS ARE NOT INTENDED TO BE SHOP DRAWINGS FROM WHICH MATERIALS CAN BE ORDERED, FABRICATED, OR INSTALLED WITHOUT ADDITIONAL FIELD MEASUREMENTS AND COORDINATION.
   - 1.4. NOT ALL SPECIFIC PIECES AND COMPONENTS OF EACH SYSTEM ARE DETAILED OR OUTLINED ON PLANS. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY PARTS AND LABOR TO PRODUCE A COMPLETE AND FULLY OPERATIONAL SYSTEM UNLESS STATED OTHERWISE ON PLANS. CONTRACTOR IS TO PROVIDE AND INCLUDE ALL EQUIPMENT AND MATERIAL NEEDED TO COMPLETE WORK ASSOCIATED WITH THEIR BID UNLESS ANY ITEMS ARE SPECIFICALLY NOTED ON PLANS AS PROVIDED BY OTHERS. ALL MATERIALS TO BE NEW, FIRST CLASS, AND INSTALLED PER MANUFACTURER'S PUBLISHED INSTRUCTIONS.
   - 1.5. WHERE CONFLICTS EXIST BETWEEN MEP PLANS AND CIVIL, ARCHITECTURAL, OR STRUCTURAL PLANS, NOTIFY MEP ENGINEER OF DISCREPANCIES FOR CLARIFICATION PRIOR TO PERFORMING ANY WORK THAT MAY CONTRADICT INFORMATION ELSEWHERE IN THE PROJECT PLANS.
   - 1.6. THESE PLANS ARE NOT TO BE SCALED. SEE ARCHITECTURAL PLANS FOR DIMENSIONS. WHERE THERE IS A CONFLICT BETWEEN ARCHITECTURAL DIMENSIONS AND MEP DIMENSIONS, ARCHITECTURAL SHALL GOVERN.
   - 1.7. CONTRACTOR IS TO INCLUDE IN THEIR SCOPE THE COST OF ALL PERMITS, INSPECTIONS, METERING, TAPS, ETC. ASSOCIATED WITH THEIR WORK.
   - 1.8. CONTRACTOR IS RESPONSIBLE FOR ALL EXCAVATION, CUTTING, CORING, PATCHING, AND BACKFILL REQUIRED TO COMPLETE THEIR WORK, UNLESS NOTED OTHERWISE ON PLANS.
   - 1.9. SPECIFIC EQUIPMENT MANUFACTURERS AND/OR MODEL NUMBERS LISTED ON PLANS ARE TO ESTABLISH A BASIS-OF-DESIGN FOR QUALITY AND PERFORMANCE, VERIFY THAT SUBSTITUTIONS WILL BE ACCEPTABLE PRIOR TO PURCHASE & INSTALLATION.
   - 1.10. NOTIFY ENGINEER OF ANY MAJOR PLAN DISCREPANCIES OR CONFLICTS PRIOR TO PROVIDING BIDS OR COMPLETING ANY WORK.
   - 1.11. SEE DISCIPLINE SHEETS FOR ADDITIONAL TRADE SPECIFIC SPECIFICATIONS.
   - 1.12. WHERE SHUTDOWN OF ANY EXISTING UTILITY OR SERVICE TO BUILDING IS REQUIRED FOR COMPLETION OF WORK, COORDINATE OUTAGE WITH OWNER AS TO NOT DISRUPT TYPICAL OPERATIONS.
2. **WORKMANSHIP**
   - 2.1. SYSTEMS SHALL BE INSTALLED IN A FIRST-CLASS MANNER USING BEST ACCEPTABLE METHODS AND PRACTICES.
   - 2.2. ALL SYSTEMS SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BUILDING ORIENTATION. COMPONENTS SHALL BE INSTALLED LEVEL AND PLUMB WITH ATTENTION GIVEN TO OVERALL AESTHETICS.
   - 2.3. CONTRACTOR IS RESPONSIBLE FOR COORDINATING EQUIPMENT LOCATIONS AND SYSTEM ROUTING WITH OTHER TRADES PRIOR TO INSTALLATION.
   - 2.4. CONTRACTOR TO GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE THE COMPLETED PROJECT IS RELEASED TO THE OWNER, UNLESS NOTED OTHERWISE ON PLANS.
   - 2.5. DURING INSTALLATION OF MATERIALS OR ACTIVITIES IN NEW WORK SCOPE, AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO REMAIN. ANY DAMAGE TO EXISTING SURFACES OR EQUIPMENT SHALL BE CORRECTED AT NO COST TO OWNER.

DEFERRED SUBMITTAL NOTES

1. **FIRE ALARM SYSTEM**
   - 1.1. FIRE ALARM SYSTEM COMPONENTS SHOWN (IF APPLICABLE) ARE GENERAL AND SCHEMATIC IN NATURE, SHOWN FOR APPROXIMATE ROUGH-IN LOCATIONS AND QUANTITIES ONLY. CONTRACTOR TO VERIFY EXACT DEVICE LOCATIONS AND REQUIREMENTS WITH FIRE ALARM SYSTEM DESIGNER OF RECORD PRIOR TO ROUGH-IN.
   - 1.2. FIRE ALARM CONTRACTOR SHALL PROVIDE DEFERRED SUBMITTAL PACKAGE FOR FIRE ALARM SYSTEM. SUBMITTAL SHALL INCLUDE BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS, EQUIPMENT SPECIFICATIONS FOR DEVICES AND PANELS, ETC. DESIGN SHALL BE SEALED BY A QUALIFIED DESIGN PROFESSIONAL LICENSED BY THE STATE.
2. **FIRE SPRINKLER SYSTEM**
   - 2.1. WHERE COMBINED FIRE & DOMESTIC WATER SUPPLY LINES ARE SHOWN ON PLANS, INSTALLING CONTRACTOR SHALL VERIFY WITH FIRE SPRINKLER CONTRACTOR THAT INCOMING LINE SIZE IS ADEQUATE FOR FIRE SUPPRESSION SYSTEM.
   - 2.2. FIRE SPRINKLER CONTRACTOR TO PROVIDE DEFERRED SUBMITTAL PACKAGE FOR FIRE SPRINKLER SYSTEM. SUBMITTAL SHALL INCLUDE HYDRAULIC CALCULATIONS AND SPRINKLER SYSTEM DRAWINGS SEALED BY A QUALIFIED DESIGN PROFESSIONAL LICENSED BY THE STATE.

REFERENCED CODES IN EFFECT

PROJECT HAS BEEN DESIGNED IN COMPLIANCE WITH THE FOLLOWING CODES LISTED BELOW, BUT THIS IS NOT AN EXHAUSTIVE LIST. PROJECT SHALL COMPLY WITH ALL APPLICABLE CODES, STANDARDS, AND LOCAL REQUIREMENTS.

- 2018 INTERNATIONAL MECHANICAL CODE
- 2018 INTERNATIONAL PLUMBING CODE
- 2018 INTERNATIONAL FUEL GAS CODE
- 2018 INTERNATIONAL FIRE CODE
- 2017 NATIONAL ELECTRIC CODE

SHEET LIST TABLE

SHEET #	SHEET TITLE
MEP1	MECHANICAL ELECTRICAL PLUMBING COVER SHEET
MEP2	SITE UTILITIES PLAN
MEP3	SITE LIGHTING PLAN
MEP4	MEP PLAN - ROOF
M101	HVAC PLAN - FIRST FLOOR
M102	HVAC PLAN - SECOND FLOOR
M501	HVAC DETAILS & SCHEDULES
EP101	POWER PLAN - FIRST FLOOR
EP102	POWER PLAN - SECOND FLOOR
EL101	LIGHTING PLAN - FIRST FLOOR
EL102	LIGHTING PLAN - 2ND FLOOR
FA101	FIRE ALARM PLAN
E501	ELECTRICAL DETAILS & SCHEDULES
P101	PLUMBING PLAN - FIRST FLOOR
P102	PLUMBING PLAN - SECOND FLOOR
P501	PLUMBING DETAILS & SCHEDULES

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 20, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

J-SQUARED ENGINEERING
2400 Bluff Creek Drive, Suite 101
Columbia, Missouri 65201
573.234.4492
www.j-squaredeng.com

J2 PROJECT No:	J21003
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 20 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:
Village at Discovery Park Lot 1
221 NE Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE
MECHANICAL ELECTRICAL PLUMBING COVER SHEET

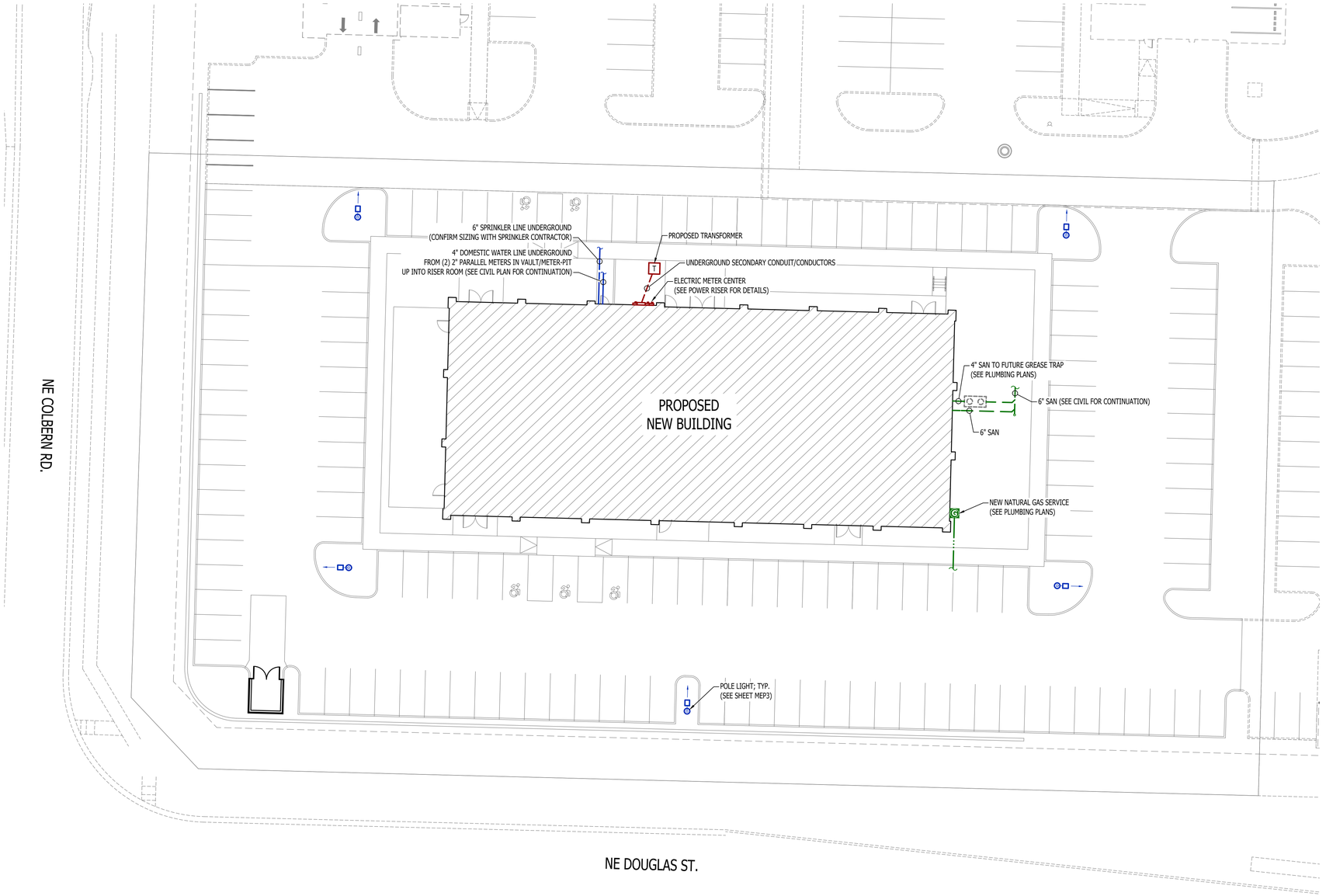
SHEET NUMBER
MEP1

SITE UTILITIES PLAN SYMBOL LEGEND

- SANITARY SEWER PIPING
- COLD WATER LINE
- WATER METER
- VALVE
- GAS LINE
- GAS METER
- TIE INTO EXISTING
- ELECTRIC

SITE UTILITIES PLAN GENERAL NOTES:

1. REFER TO CIVIL PLANS FOR EXACT UTILITY LOCATIONS, CONNECTIONS, DETAILS, ETC.
2. COORDINATE EXACT LOCATIONS OF ALL ELECTRICAL CONDUITS & EQUIPMENT WITH EVERGY.



SITE UTILITIES PLAN

SCALE: 1" = 20 ft

RELEASED FOR CONSTRUCTION
As Noted on Plans Review
City of Lee's Summit Development Services Department
Lee's Summit, Missouri
Ordinance

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 20, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

J-SQUARED ENGINEERING
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J2 PROJECT No:	J21003
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 20 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Park Lot 1

221 NE Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

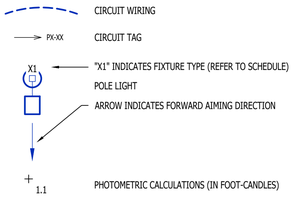
SHEET TITLE

SITE UTILITIES PLAN

SHEET NUMBER

MEP2

SITE LIGHTING PLAN SYMBOL LEGEND



SITE LIGHTING PLAN GENERAL NOTES:

1. SITE PHOTOMETRIC VALUES SHOWN HAVE BEEN CALCULATED PER SPECIFIED LIGHT FIXTURES AT INDICATED MOUNTING HEIGHTS. ANY CHANGES OR ALTERATIONS TO LIGHTING LAYOUT SHOWN WILL REQUIRE RECALCULATING SITE PHOTOMETRICS AND WILL THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR / EQUIPMENT SUPPLIER.
2. PHOTOMETRIC CALCULATIONS SHOWN DO NOT INCLUDE EXISTING LIGHT FIXTURE(S), ONLY NEW POLE LIGHT FIXTURE(S) SHOWN.
3. ALL BUILDING-MOUNTED LIGHTING WILL BE INTENDED AS ACCENT LIGHTING AND NOT INTENDED TO PROVIDE GENERAL AREA LIGHTING. ALL BUILDING-MOUNTED LIGHTING SHALL COMPLY WITH CITY OF LEE'S SUMMIT UDO SECTIONS 8.220, 8.260, & 8.270.

SITE LIGHTING PLAN KEY NOTES:

(1) 1" CONDUIT WITH (2) #8 CU. & (1) #8 CU. EQ. GRD.
(2) 1" CONDUIT WITH (2) #10 CU. & (1) #10 CU. EQ. GRD.

SITE LIGHTING FIXTURE SCHEDULE

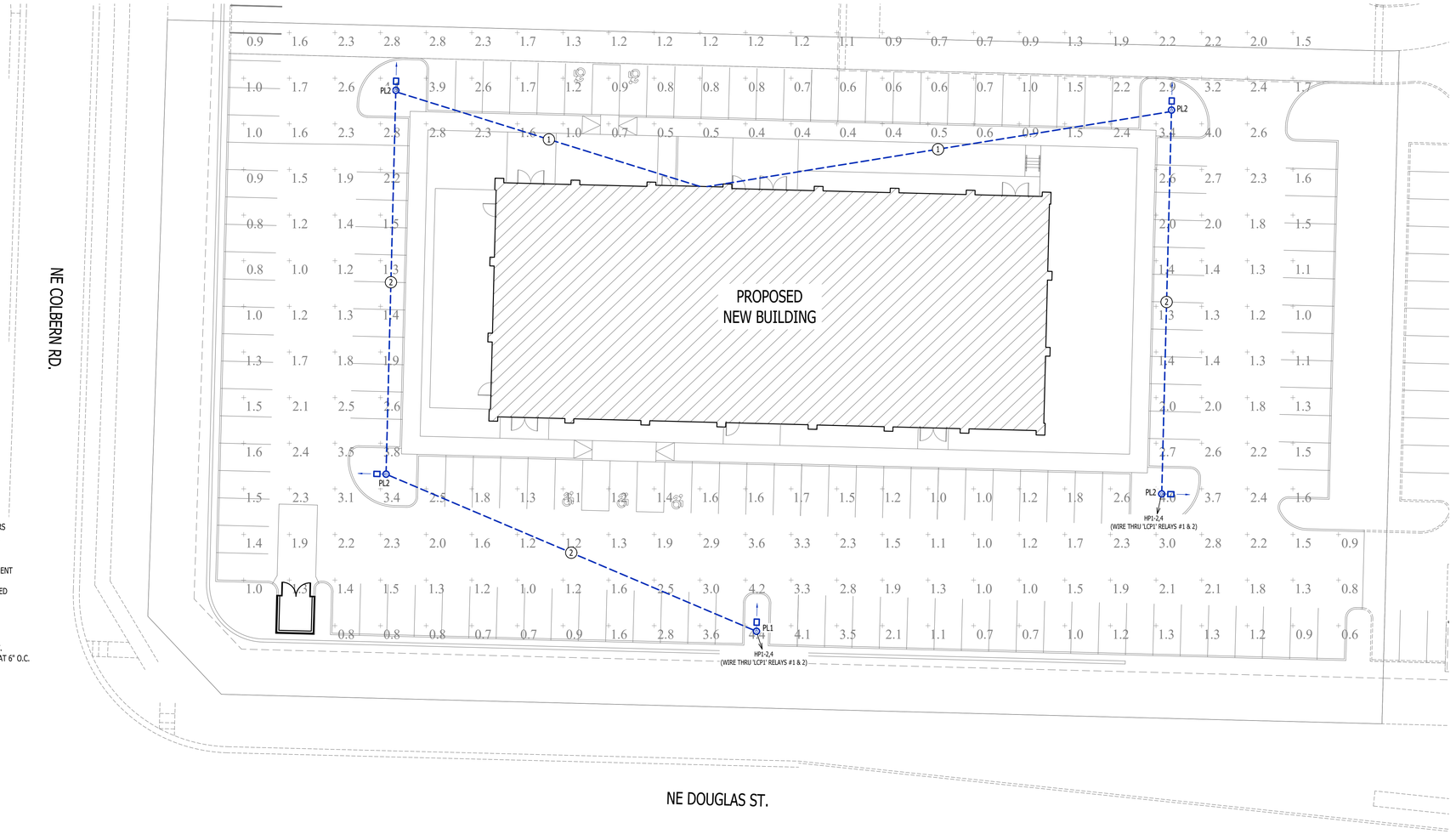
TAG	MANUFACTURER (OR EQUAL)	MODEL NUMBER (OR EQUAL)	DESCRIPTION	MOUNTING	LUMEN OUTPUT	CCT (°K)	CRI	VOLTS	WATTS	NOTES
PL1	MCGRAW-EDISON	PRV-XL-PA3B-740-U-T4W-HSS	LED POLE LIGHT	20' #SSS POLE ON 30" BASE	30,161	4000	70	208	234	WITH #MS/DIM-L40W MOTION SENSING DIMMING
PL2	MCGRAW-EDISON	PRV-XL-PA3B-740-U-5WQ	LED POLE LIGHT	20' #SSS POLE ON 30" BASE	31,559	4000	70	208	234	WITH #MS/DIM-L40W MOTION SENSING DIMMING

NOTES:
1. VERIFY LIGHT FIXTURE FINISHES WITH OWNER / ARCHITECT PRIOR TO ORDERING.

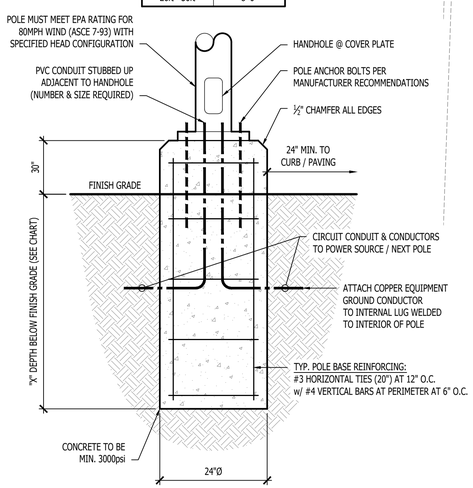
SITE LIGHTING CALCULATION SUMMARY

AREA / LABEL	CALC TYPE	UNITS	AVG	MAX	MIN	AVG/MIN	MAX/MIN
PARKING / DRIVE AISLES	ILLUMINANCE	FC	1.71	4.4	0.4	4.3	11.0

NOTES:
1. PHOTOMETRIC CALCULATIONS DO NOT INCLUDE EXISTING LIGHTING



POLE HEIGHT	"X" DEPTH
10ft - 14ft	4'-6"
15ft - 20ft	6'-0"
21ft - 25ft	7'-0"
26ft - 30ft	8'-0"



TYPICAL LIGHT POLE DETAIL

SITE LIGHTING PLAN
SCALE: 1" = 20 ft

RELEASED FOR CONSTRUCTION
As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri
11/26/2024

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 20, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

J-SQUARED ENGINEERING
2400 Bluff Creek Drive, Suite 101
Columbia, Missouri 65201
573.234.4492
www.j-squaredeng.com

J2 PROJECT No: J21003
J2 DESIGN: ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 20 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Park Lot 1

221 NE Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE
SITE LIGHTING PLAN

SHEET NUMBER
MEP3

MEP PLAN - ROOF

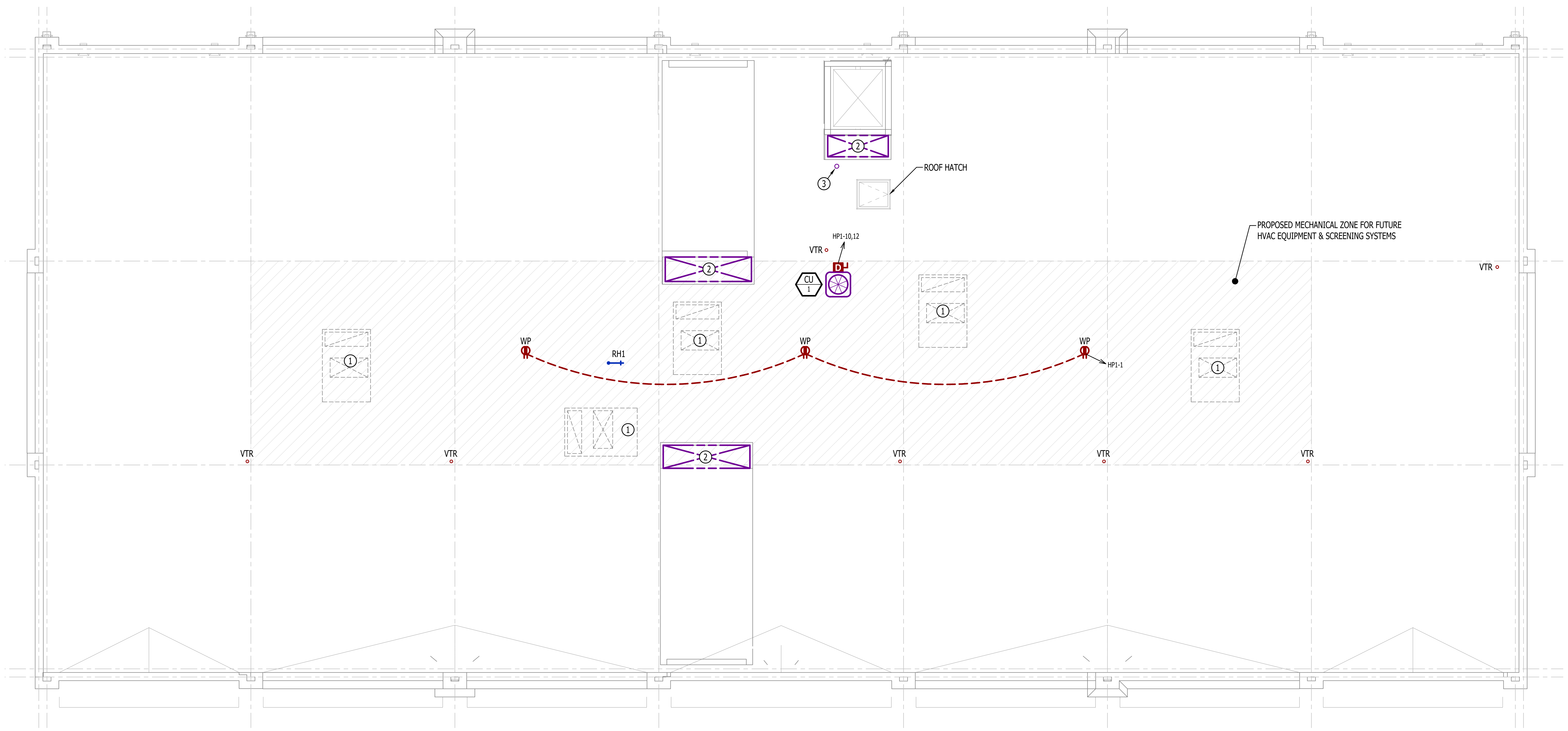
- EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)
- EQUIPMENT REFERENCE NUMBER
- CONDENSING UNIT
- CIRCUIT WIRING
- PX-XX CIRCUIT TAG
- JUNCTION BOX
- RECEPTACLE
- INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
- "WP" = WEATHERPROOF OUTDOOR RECEPTACLE
  "AW" = ABOVE WINDOW RECEPTACLE
  "AC" = ABOVE CEILING RECEPTACLE
  "EX" = EXISTING RECEPTACLE TO REMAIN

MEP PLAN - ROOF

1. REFER TO TRADE SPECIFIC SHEETS FOR ADDITIONAL INFORMATION.

MEP PLAN - ROOF

(1) FUTURE ROOFTOP UNIT
(2) OUTLINE OF CHASE BELOW.
(3) 6"Ø OA DUCT UP THRU ROOF TO GOOSENECK WITH ½" HARDWARE CLOTH OVER OPENING.



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

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Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE
MEP PLAN - ROOF

SHEET NUMBER
MEP4

HVAC PLAN SYMBOL LEGEND

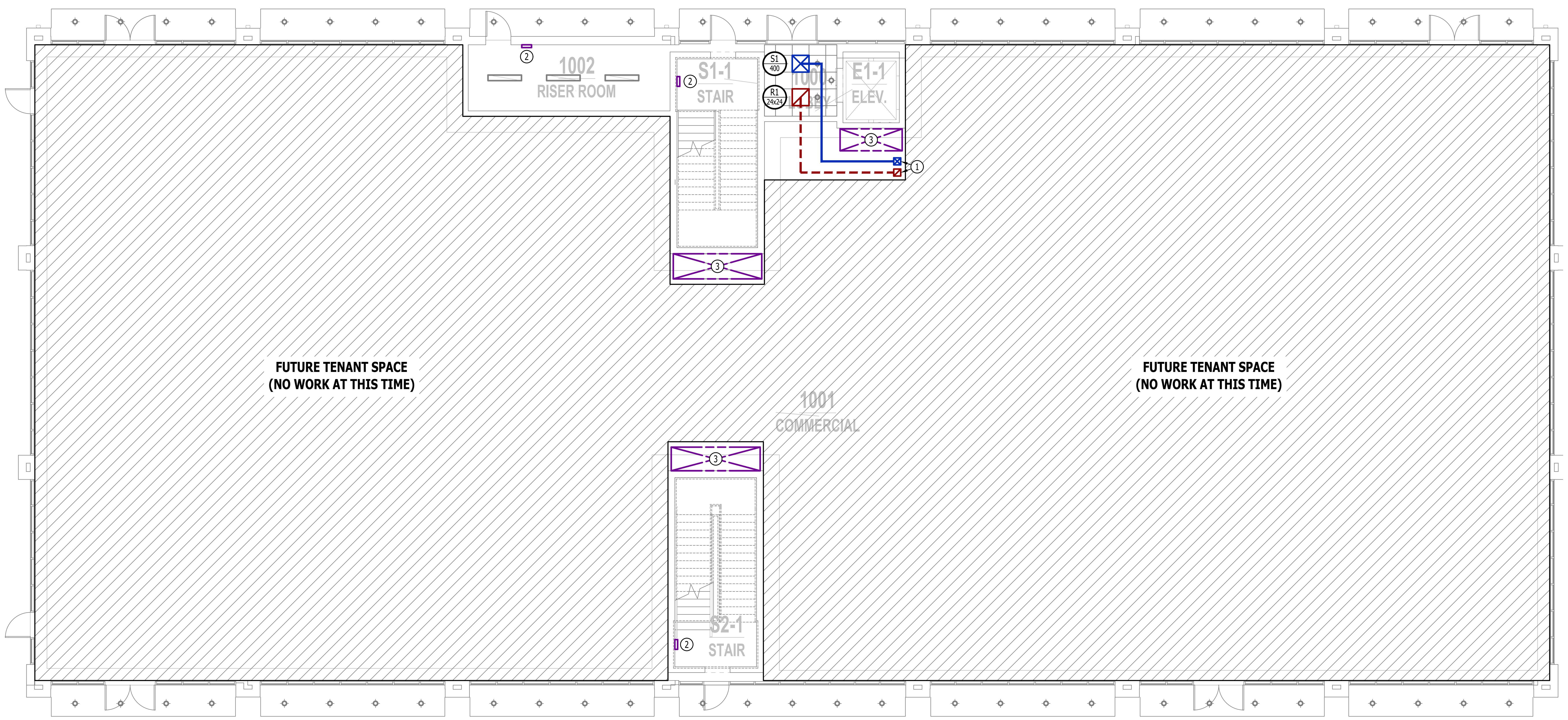
- EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)
- EQUIPMENT REFERENCE NUMBER
- DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)
- CUBIC FEET PER MINUTE (CFM) / FACE SIZE
- SUPPLY DUCTWORK
- RETURN DUCTWORK
- EXHAUST DUCTWORK
- OUTSIDE AIR DUCTWORK
- FLEX DUCT
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
- FIRE RATED DAMPER
- SMOKE DAMPER
- THERMOSTAT

HVAC PLAN GENERAL NOTES:

1. REFER TO M500 AND/OR M600 SERIES SHEETS FOR ADDITIONAL HVAC NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
2. HVAC CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL EQUIPMENT, DUCTWORK, REFRIGERANT PIPING, CONDENSATE PIPING, HANGERS / SUPPORTS, ETC. WITH PLUMBING AND ELECTRICAL TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

HVAC PLAN KEY NOTES:

(1) 10x10 (OR EQUAL) SUPPLY/ RETURN DUCT DOWN FROM SECOND FLOOR.
(2) WALL HEATER PROVIDED & INSTALLED BY ELECTRICAL CONTRACTOR.
(3) OUTLINE OF CHASE ABOVE FOR FUTURE USE.



HVAC PLAN - FIRST FLOOR

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

STATE OF MISSOURI JAMES P. WATSON NUMBER PE-2015017071 PROFESSIONAL ENGINEER

James Watson, P.E. November 20, 2024
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SHEET TITLE

HVAC PLAN - FIRST FLOOR

SHEET NUMBER

M101

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

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HVAC PLAN SYMBOL LEGEND

- EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)
- EQUIPMENT REFERENCE NUMBER
- DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)
- CUBIC FEET PER MINUTE (CFM) / FACE SIZE
- SUPPLY DUCTWORK
- RETURN DUCTWORK
- EXHAUST DUCTWORK
- OUTSIDE AIR DUCTWORK
- FLEX DUCT
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
- FIRE RATED DAMPER
- SMOKE DAMPER
- THERMOSTAT

HVAC PLAN GENERAL NOTES:

1. REFER TO M500 AND/OR M600 SERIES SHEETS FOR ADDITIONAL HVAC NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
2. HVAC CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL EQUIPMENT, DUCTWORK, REFRIGERANT PIPING, CONDENSATE PIPING, HANGERS / SUPPORTS, ETC. WITH PLUMBING AND ELECTRICAL TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

HVAC PLAN KEY NOTES:

(1) 10x10 (OR EQUAL) SUPPLY/RETURN DUCT DOWN TO FIRST FLOOR WITH FIRE DAMPER AT FLOOR/CEILING PENETRATIONS.

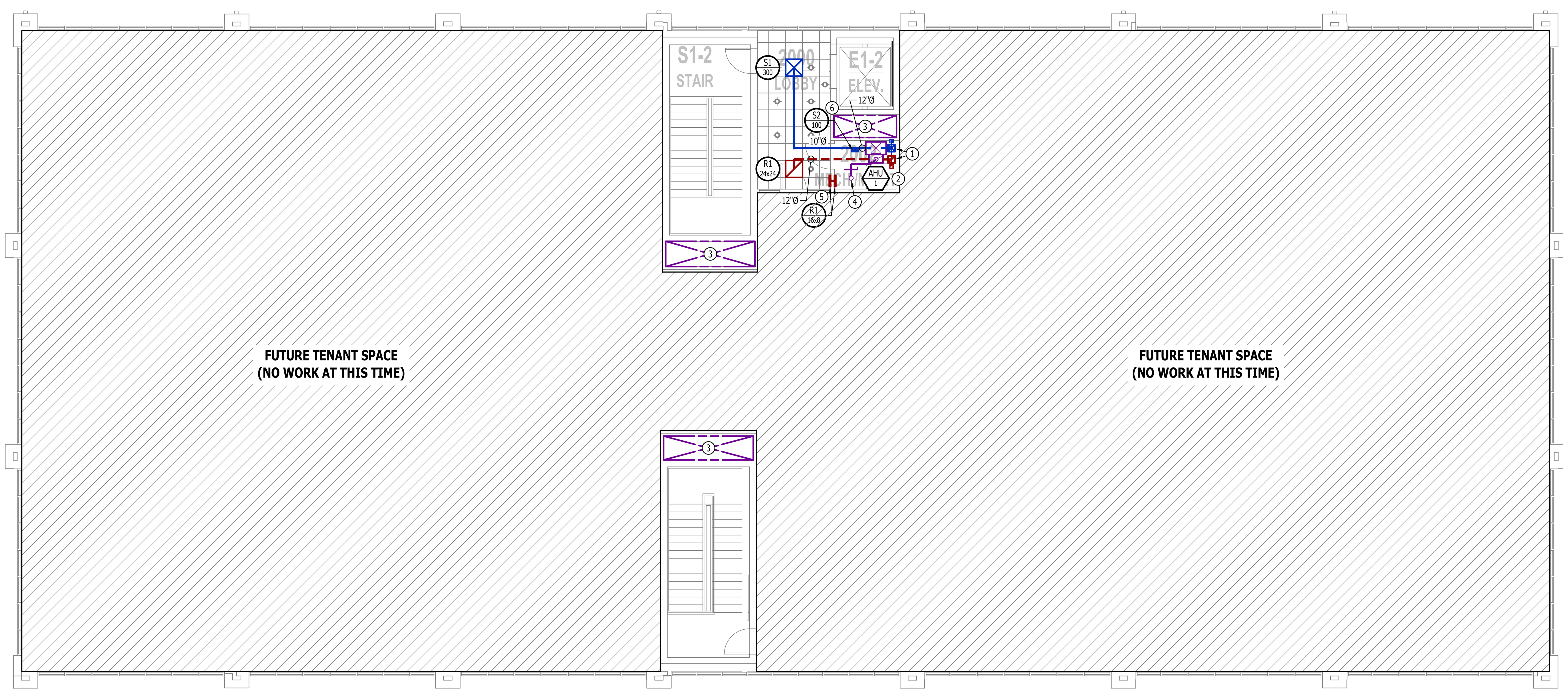
(2) AC CONDENSATE TO INDIRECT DISCHARGE INTO FLOOR DRAIN IN STORAGE ROOM.

(3) CHASE FOR FUTURE DUCTWORK SERVING FIRST FLOOR.

(4) 6"Ø OA DUCT UP THRU ROOF TO GOOSENECK WITH ⅜" HARDWARE CLOTH OVER OPENING; INCLUDE BALANCE & MOTORIZED DAMPER AT RETURN DUCT CONNECTION. (SEE HVAC EQUIPMENT SCHEDULE FOR DETAILS).

(5) TRANSFER GRILLE MOUNTED ON EACH SIDE OF WALL AT 12" A.F.F.

(6) DUCT MOUNTED SUPPLY DIFFUSER.



HVAC PLAN - SECOND FLOOR

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

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SHEET TITLE

HVAC PLAN - SECOND FLOOR

SHEET NUMBER

M102

HVAC SPECIFICATIONS

1. **GENERAL**
   1.1. REFER TO GENERAL MEP SPECIFICATIONS SECTION FOR ADDITIONAL REQUIREMENTS.

2. **WORKMANSHIP**
   2.1. COORDINATE WITH ALL OTHER TRADES SO THAT HVAC EQUIPMENT AND DUCT WORK DOES NOT BLOCK REQUIRED ACCESS OR CLEARANCE TO ANY EQUIPMENT, ACCESS PANELS, ELECTRICAL JUNCTION BOXES, ELECTRICAL PANELS, ETC.
   2.2. ALL HVAC EQUIPMENT IS TO BE INSTALLED PER MANUFACTURER'S PUBLISHED RECOMMENDATIONS AND/OR INSTALLATION INSTRUCTIONS.
   2.3. ALL EQUIPMENT TO BE INSTALLED LEVEL AND PLUMB, PARALLEL OR PERPENDICULAR TO BUILDING ORIENTATION WHERE POSSIBLE.
   2.4. ROOFTOP MOUNTED RTU's SHALL BE INSTALLED ON CURBS PER MANUFACTURER'S INSTRUCTIONS. CURB HEIGHT SHALL PROVIDE A MINIMUM OF 6" BETWEEN EQUIPMENT AND TOP OF ROOF IN ALL LOCATIONS.
   2.5. GRADE MOUNTED RTUS, CONDENSING UNITS, AND HEAT PUMPS TO BE INSTALLED ON 4" REINFORCED CONCRETE PAD EXTENDING 4" BEYOND EACH EDGE OF THE EQUIPMENT, OR A MANUFACTURER APPROVED PRE-MANUFACTURED BASE.
   2.6. APPROPRIATE ATTENTION SHALL BE GIVEN TO INDOOR AIR QUALITY THROUGHOUT CONSTRUCTION; PROTECT INSIDE OF NEW DUCTWORK & AIR-HANDLING EQUIPMENT FROM DUST, DIRT, DEBRIS, PAINT, MOISTURE, ETC. INSULATION SHALL BE REPLACED IF EXPOSED TO MOISTURE. AN INDEPENDENT, PROFESSIONAL DUCT CLEANING COMPANY SHALL CLEAN ALL NEW DUCTWORK IF EQUIPMENT WAS USED DURING CONSTRUCTION, AND EQUIPMENT/COILS SHALL ALSO BE THOROUGHLY CLEANED.
   2.7. FIELD COORDINATE LOCATIONS OF ALL DIFFUSERS, GRILLES, REGISTERS, ETC. WITH LIGHT FIXTURE LOCATIONS AND ADJUST AS NECESSARY.

3. **EQUIPMENT**
   3.1. ALL EQUIPMENT SHOWN ON MECHANICAL PLANS SHALL BE PROVIDED & INSTALLED BY MECHANICAL CONTRACTOR UNLESS NOTED OTHERWISE.
   3.2. ALL EQUIPMENT MUST PROVIDE PERFORMANCE AS SPECIFIED ON PLANS. WHERE SPECIFIC MANUFACTURERS AND/OR MODELS ARE INDICATED ON PLANS, CONTRACTOR TO PROVIDE MODEL INDICATED OR APPROVED EQUAL. VERIFY SUBSTITUTION APPROVAL PRIOR TO PURCHASE OR INSTALLATION OF EQUIPMENT.
   3.3. CONTRACTOR TO SUPPLY SUBMITTALS FOR ALL EQUIPMENT FOR REVIEW BY ARCHITECT AND ENGINEER. FORMAL APPROVAL SHALL BE RECEIVED BY CONTRACTOR PRIOR TO EQUIPMENT PURCHASE.
   3.4. CONTRACTOR TO SHARE APPROVED EQUIPMENT SUBMITTALS WITH ANY PERTINENT ELECTRICAL OR PLUMBING REQUIREMENTS WITH RESPECTIVE CONTRACTORS WITHIN TWO WEEKS OF RECEIVING APPROVED SUBMITTALS FROM ARCHITECT/ENGINEER.
   3.5. ALL EQUIPMENT SHOWN ON PLANS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS WITH ADEQUATE ACCESS AND CLEARANCE FOR SERVICING OR REPLACEMENT.
   3.6. ALL HORIZONTAL FURNACES WITH AC COILS SHALL BE EQUIPPED WITH CORROSION RESISTANT DRAIN PAIN. DRAIN PAN TO DISCHARGE TO SANITARY WASTE VIA INDIRECT CONNECTION WITH AIR GAP. DRAIN PAN TO PROVIDE SECONDARY OVERFLOW OR FLOAT SWITCH INTERLOCKED WITH UNIT TO SHUT DOWN UNIT ON HIGH WATER SIGNAL.
   3.7. ALL EXTERIOR REFRIGERANT COILS TO BE PROTECTED BY FACTORY EQUIPPED HAIL GUARDS.
   3.8. REFRIGERANT PIPING TO BE ACR COPPER OR TYPE L COPPER.
   3.9. ALL AIR HANDLING EQUIPMENT SHALL BE EQUIPPED WITH MERV-8 FILTRATION AT RETURN OPENING UNLESS OTHERWISE NOTED.
   3.10. ALL AIR FILTERS SHALL BE SIZED FOR A MAXIMUM FACE VELOCITY OF 500FPM.
   3.11. PROVIDE & INSTALL ALL EQUIPMENT FLUES/VENTS PER MANUFACTURER'S SPECIFICATIONS. TERMINATIONS SHALL BE AT LEAST 10' FROM ANY FRESH AIR INTAKE.
   3.12. PROVIDE NEW AIR FILTERS IN ALL EQUIPMENT PRIOR TO TESTING & BALANCING AND BEFORE TURNING OVER SYSTEM(S) TO OWNERSHIP.
   3.13. IF ANY EXISTING EQUIPMENT IS TO BE REUSED, CLEAN AND INSPECT EQUIPMENT PRIOR TO BEGINNING WORK. VERIFY THAT EQUIPMENT IS IN GOOD WORKING CONDITION, REPORT ANY DEFICIENCIES TO ENGINEER.

4. **DUCTWORK**
   4.1. DUCTWORK TO BE GALVANIZED STEEL, SEAL CLASS B, CONSTRUCTED PER SMACNA STANDARDS.
   4.2. DUCTWORK THICKNESS:
      4.2.1. 26 GA. MINIMUM UP TO 16" DUCT
      4.2.2. 24 GA. UP TO 20"
      4.2.3. 22 GA. UP TO 24"
      4.2.4. 20 GA. UP TO 28"
      4.2.5. 18 GA. UP TO 36"
   4.3. TURNING VANES SHALL BE PROVIDED AND INSTALLED AT ALL 90° BENDS AND TEES.
   4.4. ALL DUCT DIMENSIONS LISTED ARE TO INTERIOR OF DUCT LINER UNLESS NOTED OTHERWISE ON PLANS.
   4.5. BALANCE DAMPERS MUST BE PROVIDED TO ALLOW ADJUSTMENT AT EACH AIR TERMINAL.
      4.5.1. WHERE BRANCH TAKEOFF IS ACCESSIBLE (ABOVE LAY-IN CEILING OR EXPOSED DUCT), BALANCE DAMPER IS TO BE INSTALLED AT TAKEOFF.
      4.5.2. WHERE TAKEOFF IS INACCESSIBLE (IN ATTIC OR SOFFIT), BALANCE DAMPER IS TO BE LOCATED SUCH THAT IT IS ACCESSIBLE FROM FACE OF AIR DEVICE.
   4.6. HVAC CONTRACTOR RESPONSIBLE FOR ALL DUCTWORK TRANSITIONS AND FITTINGS AS REQUIRED FOR FINAL CONNECTIONS TO HVAC EQUIPMENT.
   4.7. UNLESS NOTED OTHERWISE ON PLANS, FLEXIBLE DUCT CONNECTIONS MAY USED FROM BRANCH DUCTS TO FINAL AIR DEVICES, BUT SHALL NOT EXCEED 8'-0" IN LENGTH. FLEXIBLE DUCT CONNECTORS MUST BE SUPPORTED PER PLAN DETAILS.

5. **INSULATION**
   5.1. DUCTWORK
      5.1.1. SEE "TYPICAL DUCT INSULATION DIAGRAM" FOR INSTALLATION SPECIFIC REQUIREMENTS.
      5.1.2. INTERNAL DUCT LINER TO BE EQUAL TO 'JOHNS MANVILLE LINACOUSTIC R-300'.
      5.1.3. EXTERNAL DUCT WRAP TO INCLUDE VAPOR BARRIER. EQUAL TO 'JOHNS MANVILLE MICROLITE' WITH FSK JACKET.
   5.2. REFRIGERANT PIPING
      5.2.1. SPLIT SYSTEM (SUCTION LINE ONLY) - 1" CLOSED CELL ELASTOMERIC FOAM (EQUAL TO 'ARMAFLEX AP').
   5.3. VRV/VRF SYSTEMS (BOTH SUCTION AND HOT GAS LINES) 1 ½" EPDM (EQUAL TO 'AEROFLEX AEROCEL AC') WITHIN CONDITIONED SPACES & 2" EDPM (EQUAL TO 'AEROFLEX AEROCEL AC') IN UNCONDITIONED SPACES, AND WITH BANDED ALUMINUM SHIELDING IN EXTERIOR SPACES.
   5.4. CONDENSATE PIPING
      5.4.1. SPLIT SYSTEMS - WHERE CONDENSATE PIPING IS LOCATED IN UNCONDITIONED SPACE, INSULATE WITH ½" ELASTOMERIC. NO INSULATION REQUIRED WITHIN CONDITIONED SPACES.
      5.4.2. VRV/VRF - INSULATE WITH ½" ELASTOMERIC.

6. **TESTING AND BALANCING**
   6.1. ALL SYSTEMS MUST BE BALANCED TO WITHIN 10% OF VALUES INDICATED ON PLAN.
   6.2. HVAC CONTRACTOR TO PROVIDE WRITTEN BALANCE REPORT INCLUDING FLOW VALUES INDICATED ON PLANS, INITIAL MEASURED FLOW VALUES, AND FINAL MEASURED VALUES.
   6.3. THIRD PARTY CERTIFIED TEST AND BALANCE NOT REQUIRED UNLESS OTHERWISE NOTED ON PLANS OR WITHIN PROJECT MANUAL.

AIR HANDLING UNIT & AC SCHEDULE

TAG	EQUIPMENT DESCRIPTION	SIZE (TONS)	ORIENTATION	TOTAL AIRFLOW (CFM)	E.S.P. (in. H20)	OA AIRFLOW MAX/MIN (CFM)	HEATING	COOLING (IA: 80 DB/67 WB, OA: 95 DB)			ELECTRICAL			NOTES
							ELECTRIC (KW)	SENSIBLE (KBTU)	TOTAL (KBTU)	MIN EFF. (SEER2)	VOLTS/PH	MCA	OCP	
AHU-1	AIR HANDLING UNIT	2.0	UPFLOW	800	0.5	50 / 0	10	-	-	-	208/1	51	60-2	1, 2, 3
CU-1	CONDENSING UNIT	2.0	-	-	-	-	-	18.2	24.5	13.4	208/1	14	25	4, 5

NOTES:
1. PROVIDE AND INSTALL 7 DAY PROGRAMABLE HONEYWELL THERMOSTAT. COORDINATE EXACT MOUNTING LOCATION WITH OWNER.
2. INCLUDE CORROSION RESISTANT DRAIN PAN WITH OVERFLOW SWITCH WIRED TO SHUT DOWN UNIT.
3. WITH LOW LEAKAGE MOTORIZED OUTSIDE AIR DAMPER, DAMPER TO OPEN DURING OCCUPIED HOURS AND CLOSE DURING UNOCCUPIED HOURS THRU THERMOSTAT SCHEDULE.
4. WITH FACTORY HAIL GUARD.
5. LOW AMBIENT PACKAGE FOR OPERATION TO 0° F.

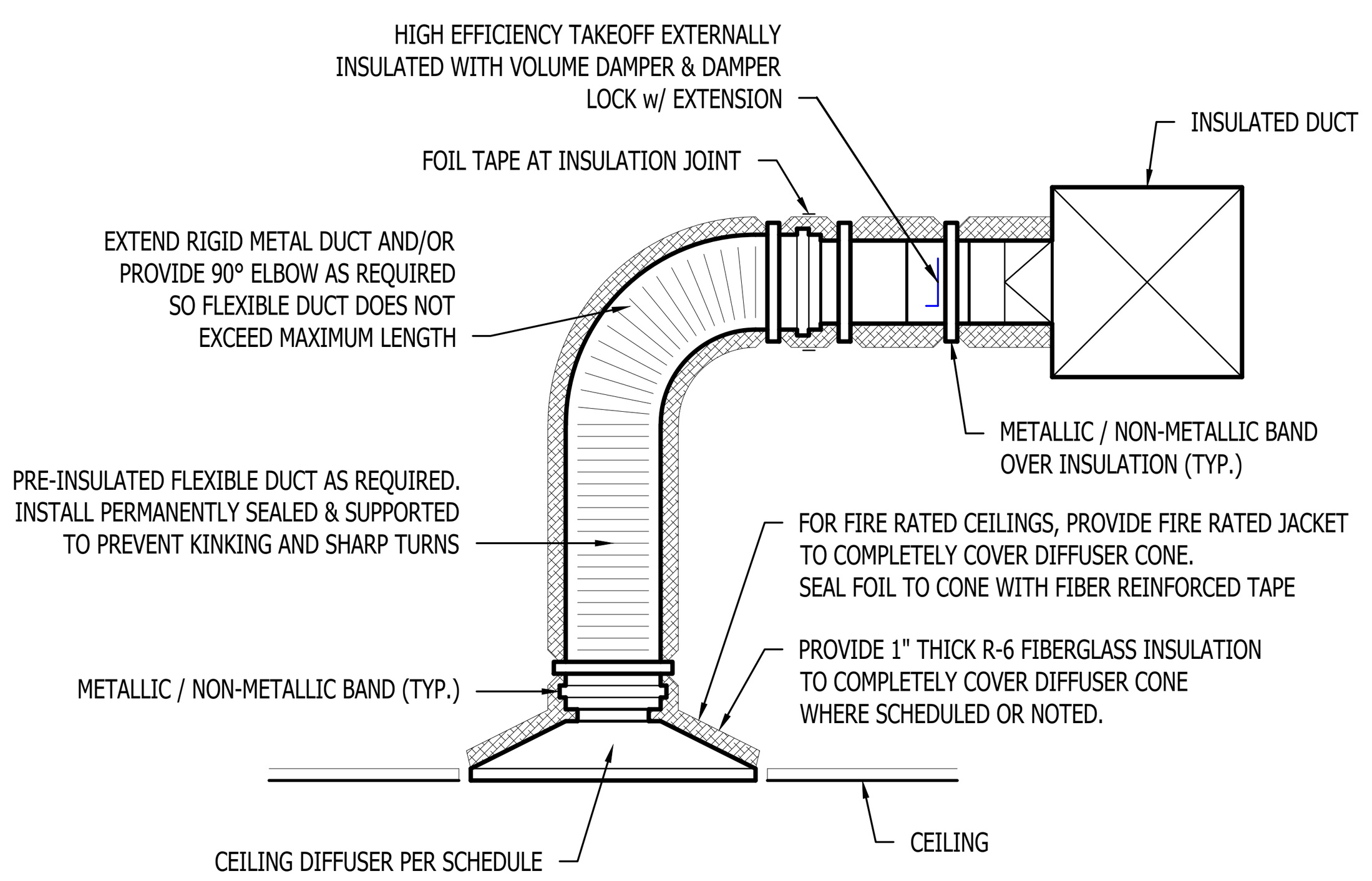
AIR DEVICE SCHEDULE

TAG	SERVICE	MANUFACTURER (OR EQUAL)	MODEL (OR EQUAL)	SIZE	COLOR / FINISH	NOTES
S1	SUPPLY	PRICE	SPD	24x24	WHITE	
R1	RETURN	PRICE	80	AS INDICATED	WHITE	
S2	SUPPLY	PRICE	520	6x6	WHITE	

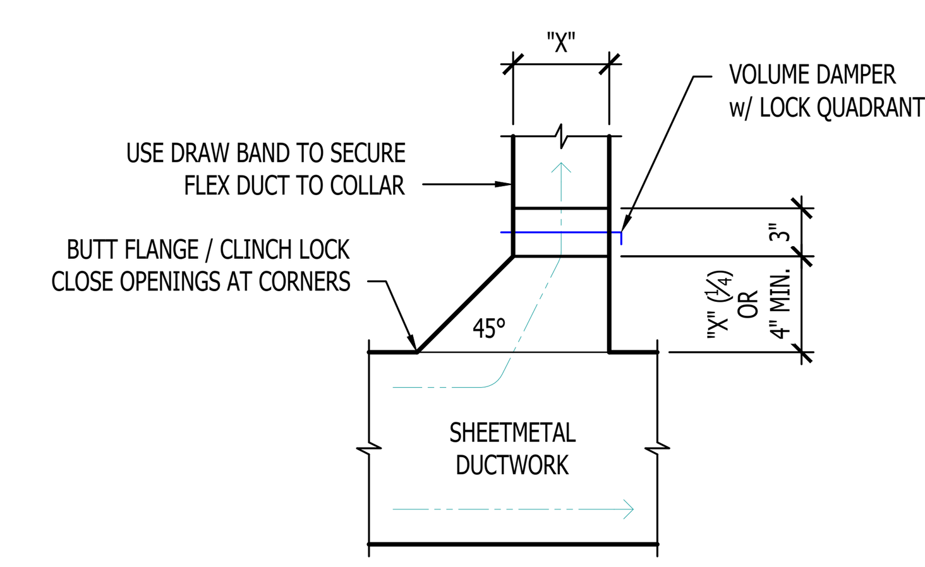
NOTES:
1. VERIFY AIR DEVICE FINISHES WITH OWNER/ARCHITECT PRIOR TO INSTALLATION

DIFFUSER NECK SIZING SCHEDULE

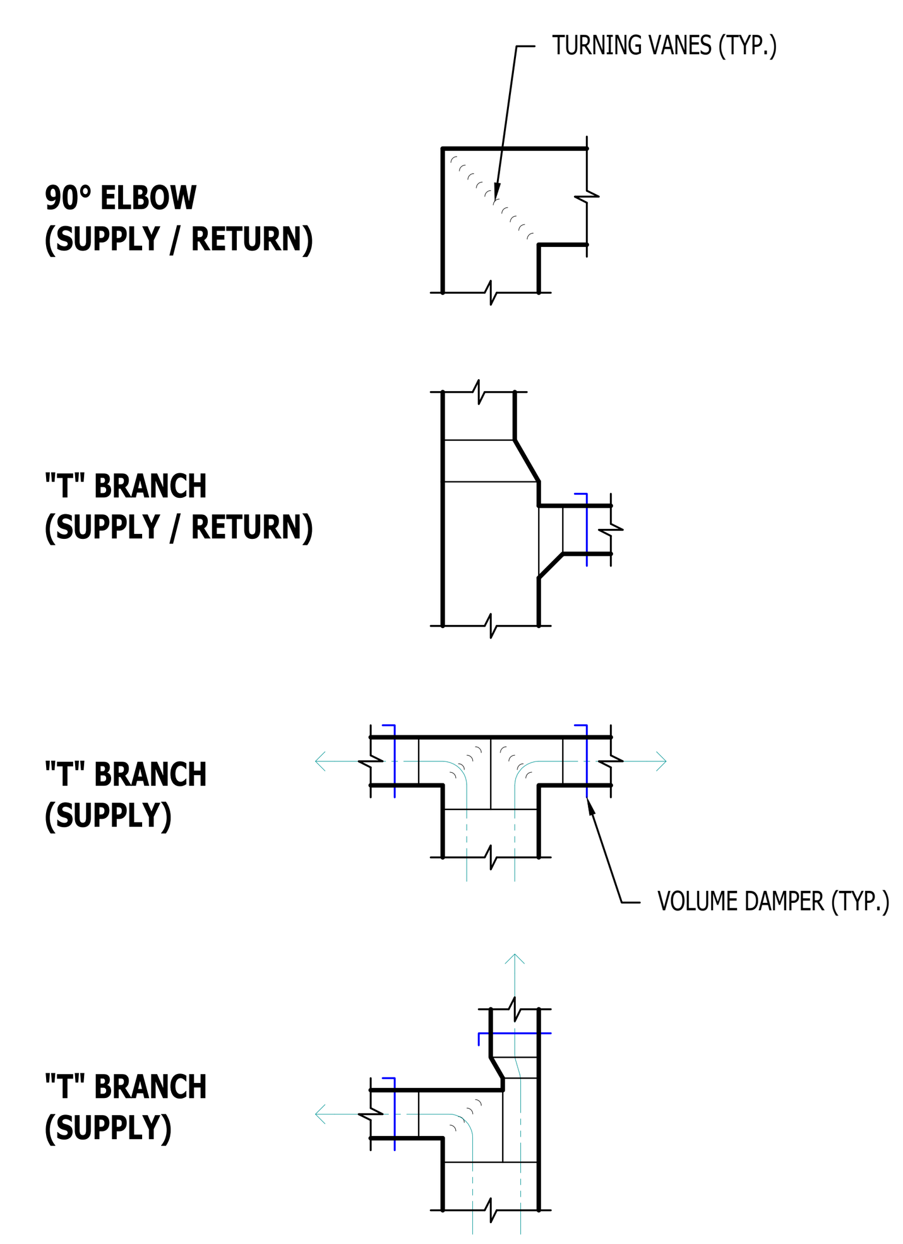
AIRFLOW (CFM)	NECK SIZE (in)
0 - 120	6"
120 - 210	8"
210 - 325	10"
325 - 470	12"
470 - 640	14"



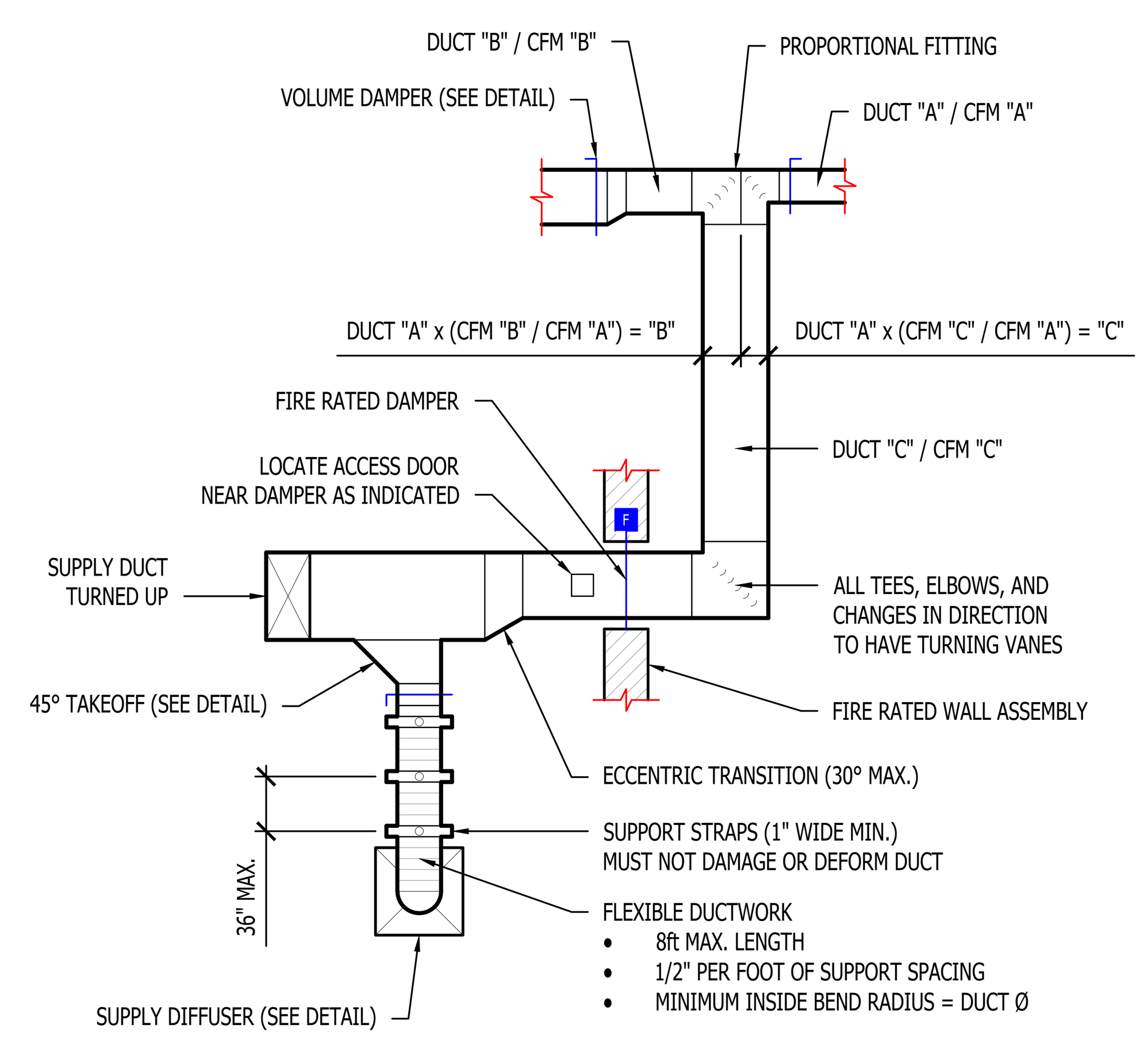
TYPICAL LAY-IN DIFFUSER DETAIL



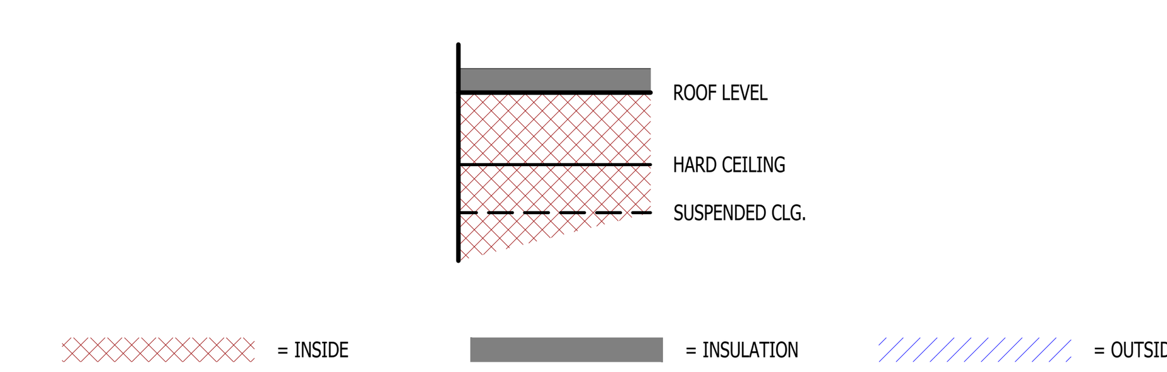
TYPICAL 45° TAKEOFF DETAIL



TYPICAL DUCTWORK FITTINGS DETAIL



TYPICAL DUCTWORK DETAIL



DUCT INSIDE THERMAL ENVELOPE INSULATION REQUIREMENTS

RECTANGULAR
- SUPPLY = 1" LINER
- RETURN = 1" LINER
- EXHAUST = NONE
- OUTSIDE AIR = 2" WRAP

ROUND
- SUPPLY = 1½" WRAP
- RETURN = NONE
- EXHAUST = NONE
- OUTSIDE AIR = 2" WRAP

SPIRAL
- SUPPLY = NONE
- RETURN = NONE
- EXHAUST = NONE
- OUTSIDE AIR = 2" WRAP

DUCT OUTSIDE THERMAL ENVELOPE INSULATION REQUIREMENTS

RECTANGULAR
- SUPPLY = 1" LINER & 1½" WRAP
- RETURN = 1" LINER & 1½" WRAP
- EXHAUST = 1½" WRAP
- OUTSIDE AIR = NONE

ROUND
- SUPPLY = 2" WRAP
- RETURN = 2" WRAP
- EXHAUST = 1½" WRAP
- OUTSIDE AIR = NONE

SPIRAL
- SUPPLY = 2" WRAP
- RETURN = 2" WRAP
- EXHAUST = 1½" WRAP
- OUTSIDE AIR = NONE

TYPICAL BUILDING INTERIOR DUCT INSULATION DIAGRAM

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER
James Watson, P.E. November 20, 2024
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AHJ APPROVAL STAMP

SHEET TITLE
HVAC DETAILS & SCHEDULES

SHEET NUMBER
M501

POWER PLAN SYMBOL LEGEND

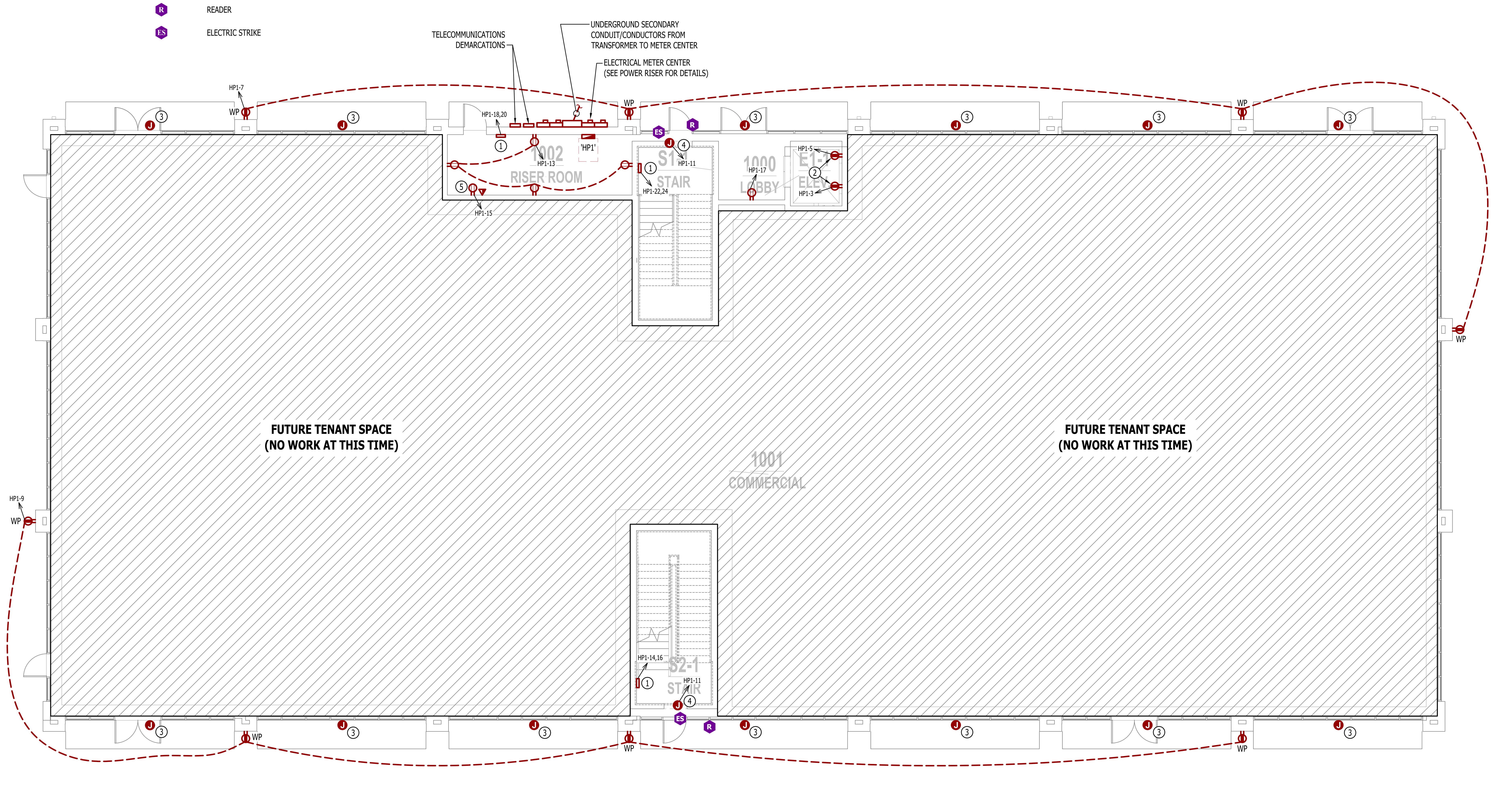
- CIRCUIT WIRING
- CIRCUIT TAG (PX-XX)
- JUNCTION BOX
- RECEPTACLE (XX +42)
  - INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
  - "WP" = WEATHERPROOF OUTDOOR RECEPTACLE
  - "AW" = ABOVE WINDOW RECEPTACLE
  - "AC" = ABOVE CEILING RECEPTACLE
  - "EX" = EXISTING RECEPTACLE TO REMAIN
- GFCI DUPLEX CONVENIENCE RECEPTACLE
- 208V RECEPTACLE
- QUADPLEX CONVENIENCE RECEPTACLE
- USB OUTLET WITH USB-A & USB-C CHARGING PORT
- DATA / PHONE JACK BOX WITH 1" CONDUIT & PULL STRING UP TO CEILING SPACE (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
- WIRELESS ACCESS POINT, CEILING MOUNTED (AP)
- FLOOR RECEPTACLE
- FLOOR DATA
- DISCONNECT
- READER
- ELECTRIC STRIKE

POWER PLAN GENERAL NOTES:

1. REFER TO E500 AND/OR E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
2. ELECTRICAL CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL ELECTRICAL EQUIPMENT, WIRING, HANGERS / SUPPORTS, ETC. WITH HVAC AND PLUMBING TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

POWER PLAN KEY NOTES:

1. PROVIDE & INSTALL RECESSED WALL HEATER (EQUAL TO BERKO #VFK404F).
2. RECEPTACLE(S) LOCATED IN ELEVATOR PIT; SEE ELEVATOR PIT DETAIL FOR ADDITIONAL INFORMATION.
3. J-BOX FOR FUTURE TENANT SIGNAGE. COORDINATE EXACT LOCATION WITH OWNER/ARCHITECT PRIOR TO ROUGH-IN.
4. POWER FOR ACCESS CONTROLS; COORDINATE EXACT LOCATION & REQUIREMENTS WITH DOOR HARDWARE SUPPLIER/INSTALLER.
5. POWER/DATA FOR FIRE ALARM CONTROL PANEL (FACP); COORDINATE EXACT LOCATION & REQUIREMENTS WITH FIRE ALARM/SUPPRESSION CONTRACTOR.



POWER PLAN - FIRST FLOOR

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

James Watson, P.E. November 20, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

J-SQUARED ENGINEERING
2400 Bluff Creek Drive, Suite 101
Columbia, Missouri 65201
573.234.4492
www.j-squaredeng.com

J2 PROJECT No:	J21003
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 20 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Park Lot 1

221 NE Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

POWER PLAN - FIRST FLOOR

SHEET NUMBER

EP101

POWER PLAN SYMBOL LEGEND

(symbol)	CIRCUIT WIRING
PX-XX (symbol)	CIRCUIT TAG
(symbol)	JUNCTION BOX
XX (symbol) +42	RECEPTACLE INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE) "WP" = WEATHERPROOF OUTDOOR RECEPTACLE "AW" = ABOVE WINDOW RECEPTACLE "AC" = ABOVE CEILING RECEPTACLE "EX" = EXISTING RECEPTACLE TO REMAIN
(symbol)	GFCI DUPLEX CONVENIENCE RECEPTACLE
(symbol)	208V RECEPTACLE
(symbol)	QUADPLEX CONVENIENCE RECEPTACLE
(symbol)	USB OUTLET WITH USB-A & USB-C CHARGING PORT
(symbol)	DATA / PHONE JACK BOX WITH 1" CONDUIT & PULL STRING UP TO CEILING SPACE (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
AP (symbol)	WIRELESS ACCESS POINT, CEILING MOUNTED
(symbol)	FLOOR RECEPTACLE
(symbol)	FLOOR DATA
(symbol)	DISCONNECT

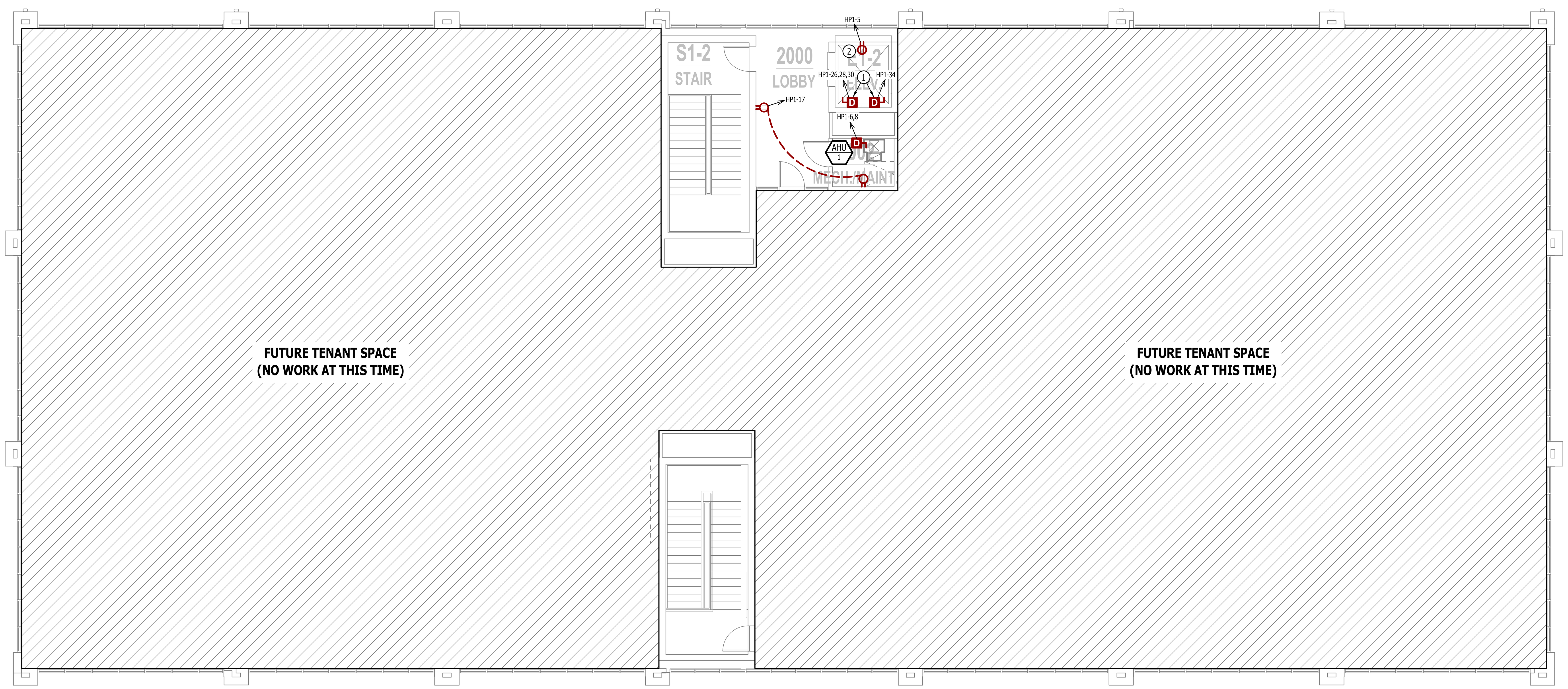
POWER PLAN GENERAL NOTES:

1. REFER TO E500 AND/OR E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
2. ELECTRICAL CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL ELECTRICAL EQUIPMENT, WIRING, HANGERS / SUPPORTS, ETC. WITH HVAC AND PLUMBING TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

POWER PLAN KEY NOTES:

(1) MRL ELEVATOR DISCONNECTS IN SHAFT; VERIFY EXACT LOCATION & REQUIREMENTS WITH EQUIPMENT PROVIDER/INSTALLER.

(2) ELEVATOR RECEPTACLE IN ELEVATOR SHAFT FOR SERVICING; COORDINATE EXACT LOCATION & REQUIREMENTS WITH ELEVATOR PROVIDER/INSTALLER.



POWER PLAN - SECOND FLOOR

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

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 20, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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CITY SUBMITTAL	11 - 20 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Park Lot 1

221 NE Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

POWER PLAN - SECOND FLOOR

SHEET NUMBER

EP102

LIGHTING PLAN SYMBOL LEGEND

X1
EM
NL

"X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)

LIGHTING FIXTURE

"EM" INDICATES EMERGENCY BATTERY BACKUP

"NL" INDICATES UN-SWITCHED NIGHT LIGHT

EXIT LIGHT

INDICATES REQUIRED REMOTE HEAD

EMERGENCY EGRESS LIGHT

SWITCH (WALL MOUNTED)

SWITCH TYPE:
- 3 = 3-WAY
- 4 = 4-WAY
- OP = PASSIVE INFRARED OCCUPANCY SENSOR
- OU = ULTRASONIC OCCUPANCY SENSOR
- OT = DUAL-TECHNOLOGY OCCUPANCY SENSOR
- VP = PASSIVE INFRARED VACANCY SENSOR
- VU = ULTRASONIC VACANCY SENSOR
- VT = DUAL-TECHNOLOGY VACANCY SENSOR
- M = MOMENTARY SWITCH
- SS = SCENE SWITCH

DIMMER SWITCH (WALL MOUNTED)

SWITCH TYPE:
- SEE "SWITCH (WALL MOUNTED)" FOR TYPE DESIGNATIONS

SWITCH (CEILING MOUNTED)

SWITCH TYPE:
- SEE "SWITCH (WALL MOUNTED)" FOR TYPE DESIGNATIONS

OCCUPANCY SENSOR
- AUTO FULL-ON (OR 50% IF NOTED)
- AUTOMATICALLY TURN OFF LIGHTING AFTER 20 MINUTES WITHOUT OCCUPANT DETECTION
- WITH MANUAL OVERRIDE CONTROL (IF NOTED)

VACANCY SENSOR
- MANUAL FULL-ON
- AUTOMATICALLY TURN OFF LIGHTING AFTER 20 MINUTES WITHOUT OCCUPANT DETECTION
- WITH MANUAL OVERRIDE CONTROL (IF NOTED)

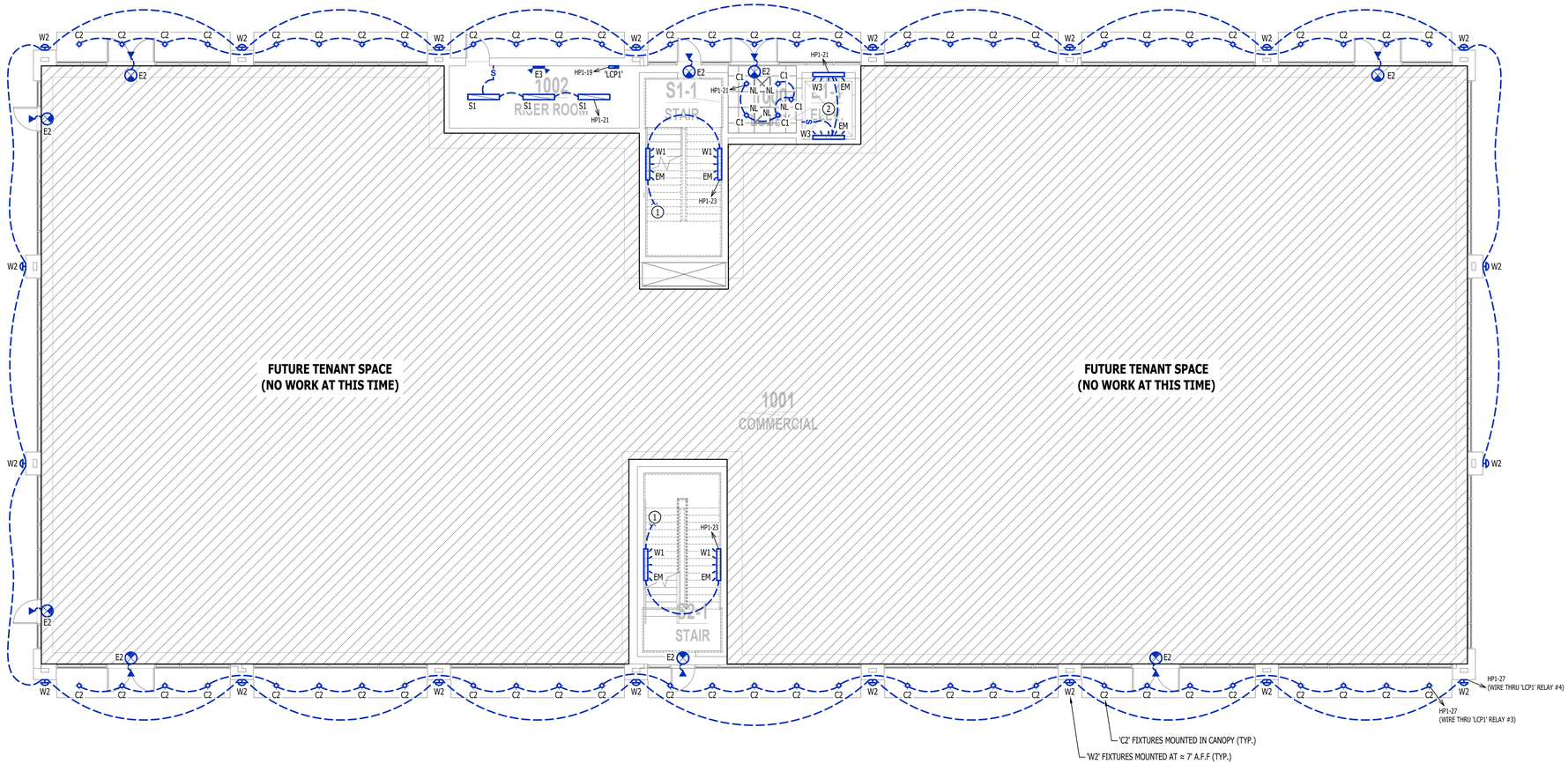
LIGHTING PLAN GENERAL NOTES:

1. REFER TO E500 AND/OR E600 SERIES SHEETS FOR ADDITIONAL LIGHTING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
2. OCCUPANCY/VACANCY SENSOR QUANTITIES AND GENERAL LOCATIONS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO PROVIDE & INSTALL SENSOR WITH SPACING PER MANUFACTURER'S SPECIFICATIONS AND INCLUDE ADDITIONAL SENSORS IF NECESSARY. CEILING-MOUNTED SENSORS SHALL BE INSTALLED WITHIN MANUFACTURER'S ACCEPTABLE MOUNTING HEIGHT RANGE.
3. ELECTRICAL CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL FIXTURES, WIRING, HANGERS / SUPPORTS, ETC. WITH HVAC AND PLUMBING TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

LIGHTING PLAN KEY NOTES:

(1) CIRCUIT CONTINUES TO 2ND FLOOR.

(2) ORIENT LIGHT FIXTURE(S) TO PROVIDE MINIMUM 10FC AT ALL POINTS ON FLOOR OF ELEVATOR PIT.



LIGHTING PLAN - FIRST FLOOR

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

RELEASED FOR CONSTRUCTION
As Noted on Plans Review
By Development Services Department
At Lee's Summit, Missouri
In Accord

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 20, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Park Lot 1

221 NE Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

LIGHTING PLAN - FIRST FLOOR

SHEET NUMBER

EL101

LIGHTING PLAN SYMBOL LEGEND

- X1 — "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
- LIGHTING FIXTURE
- EM — "EM" INDICATES EMERGENCY BATTERY BACKUP
- NL — "NL" INDICATES UN-SWITCHED NIGHT LIGHT
- EXIT LIGHT
- INDICATES REQUIRED REMOTE HEAD
- EMERGENCY EGRESS LIGHT
- S_X — SWITCH (WALL MOUNTED)
  - SWITCH TYPE:
    - 3 = 3-WAY
    - 4 = 4-WAY
    - OP = PASSIVE INFRARED OCCUPANCY SENSOR
    - OU = ULTRASONIC OCCUPANCY SENSOR
    - OT = DUAL-TECHNOLOGY OCCUPANCY SENSOR
    - VP = PASSIVE INFRARED VACANCY SENSOR
    - VU = ULTRASONIC VACANCY SENSOR
    - VT = DUAL-TECHNOLOGY VACANCY SENSOR
    - M = MOMENTARY SWITCH
    - SS = SCENE SWITCH
- D_X — DIMMER SWITCH (WALL MOUNTED)
  - SWITCH TYPE:
    - SEE "SWITCH (WALL MOUNTED)" FOR TYPE DESIGNATIONS
- Ⓢ$_X$ — SWITCH (CEILING MOUNTED)
  - SWITCH TYPE:
    - SEE "SWITCH (WALL MOUNTED)" FOR TYPE DESIGNATIONS

OCCUPANCY SENSOR
- AUTO FULL-ON (OR 50% IF NOTED)
- AUTOMATICALLY TURN OFF LIGHTING AFTER 20 MINUTES WITHOUT OCCUPANT DETECTION
- WITH MANUAL OVERRIDE CONTROL (IF NOTED)

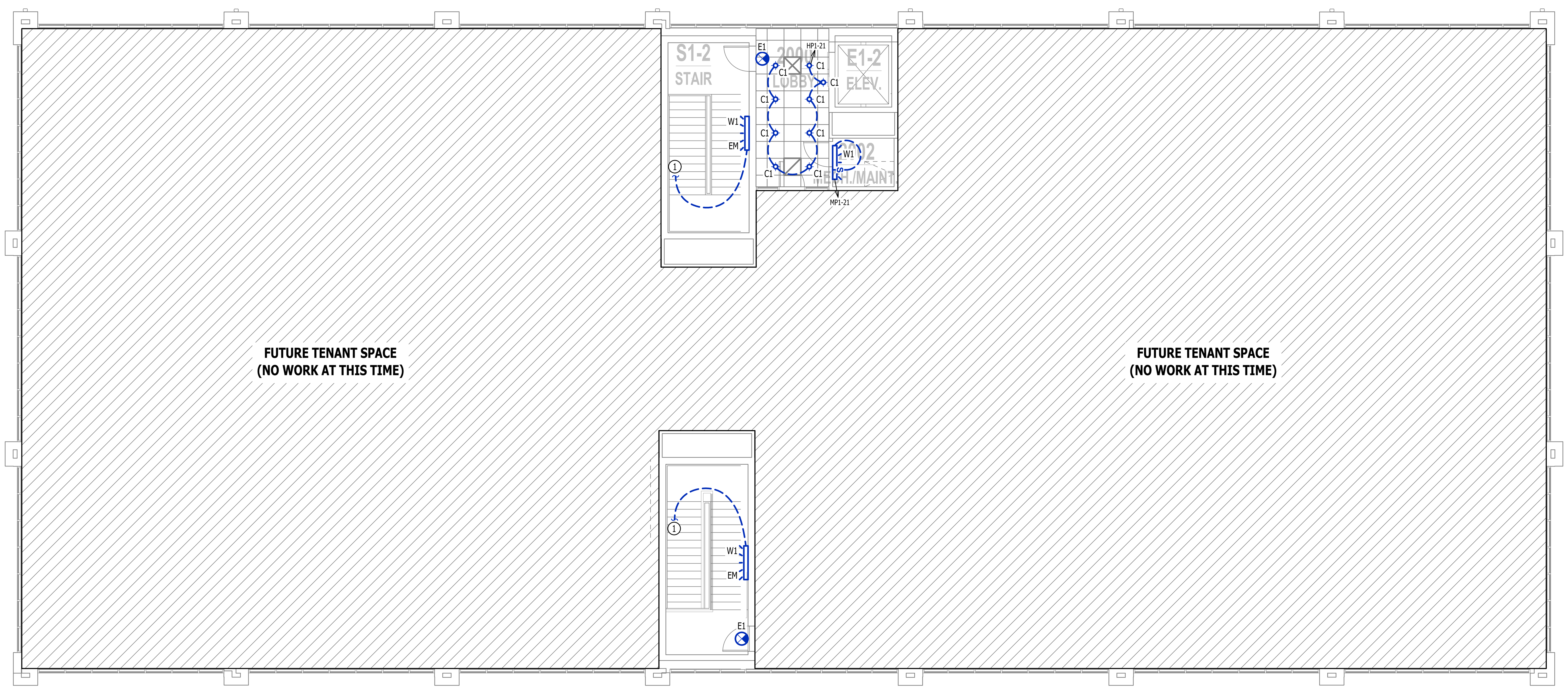
VACANCY SENSOR
- MANUAL FULL-ON
- AUTOMATICALLY TURN OFF LIGHTING AFTER 20 MINUTES WITHOUT OCCUPANT DETECTION
- WITH MANUAL OVERRIDE CONTROL (IF NOTED)

LIGHTING PLAN GENERAL NOTES:

1. REFER TO E500 AND/OR E600 SERIES SHEETS FOR ADDITIONAL LIGHTING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
2. OCCUPANCY/VACANCY SENSOR QUANTITIES AND GENERAL LOCATIONS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO PROVIDE & INSTALL SENSOR WITH SPACING PER MANUFACTURER'S SPECIFICATIONS AND INCLUDE ADDITIONAL SENSORS IF NECESSARY. CEILING-MOUNTED SENSORS SHALL BE INSTALLED WITHIN MANUFACTURER'S ACCEPTABLE MOUNTING HEIGHT RANGE.
3. ELECTRICAL CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL FIXTURES, WIRING, HANGERS / SUPPORTS, ETC. WITH HVAC AND PLUMBING TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

LIGHTING PLAN KEY NOTES:

(1) CIRCUIT CONTINUES DOWN TO FIRST FLOOR.



LIGHTING PLAN - 2ND FLOOR

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

STATE OF MISSOURI — JAMES P. WATSON — NUMBER PE-2015017071 — PROFESSIONAL ENGINEER

James Watson, P.E. November 20, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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CITY SUBMITTAL	11 - 20 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Park Lot 1

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Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

LIGHTING PLAN - 2ND FLOOR

SHEET NUMBER

EL102

DEFERRED SUBMITTAL NOTES

1. **FIRE ALARM CONTRACTOR SHALL PROVIDE DEFERRED SUBMITTAL PACKAGE FOR FIRE ALARM SYSTEM. SUBMITTAL SHALL INCLUDE BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS, EQUIPMENT SPECIFICATIONS FOR DEVICES AND PANELS, ETC. DESIGN SHALL BE SEALED BY A QUALIFIED DESIGN PROFESSIONAL LICENSED BY THE STATE.**
2. FIRE ALARM SYSTEM COMPONENTS SHOWN (IF APPLICABLE) ARE GENERAL AND SCHEMATIC IN NATURE, SHOWN FOR APPROXIMATE ROUGH-IN LOCATIONS AND QUANTITIES ONLY. CONTRACTOR TO VERIFY EXACT DEVICE LOCATIONS AND REQUIREMENTS WITH FIRE ALARM SYSTEM DESIGNER OF RECORD PRIOR TO ROUGH-IN.

FIRE ALARM SYSTEM SPECIFICATIONS

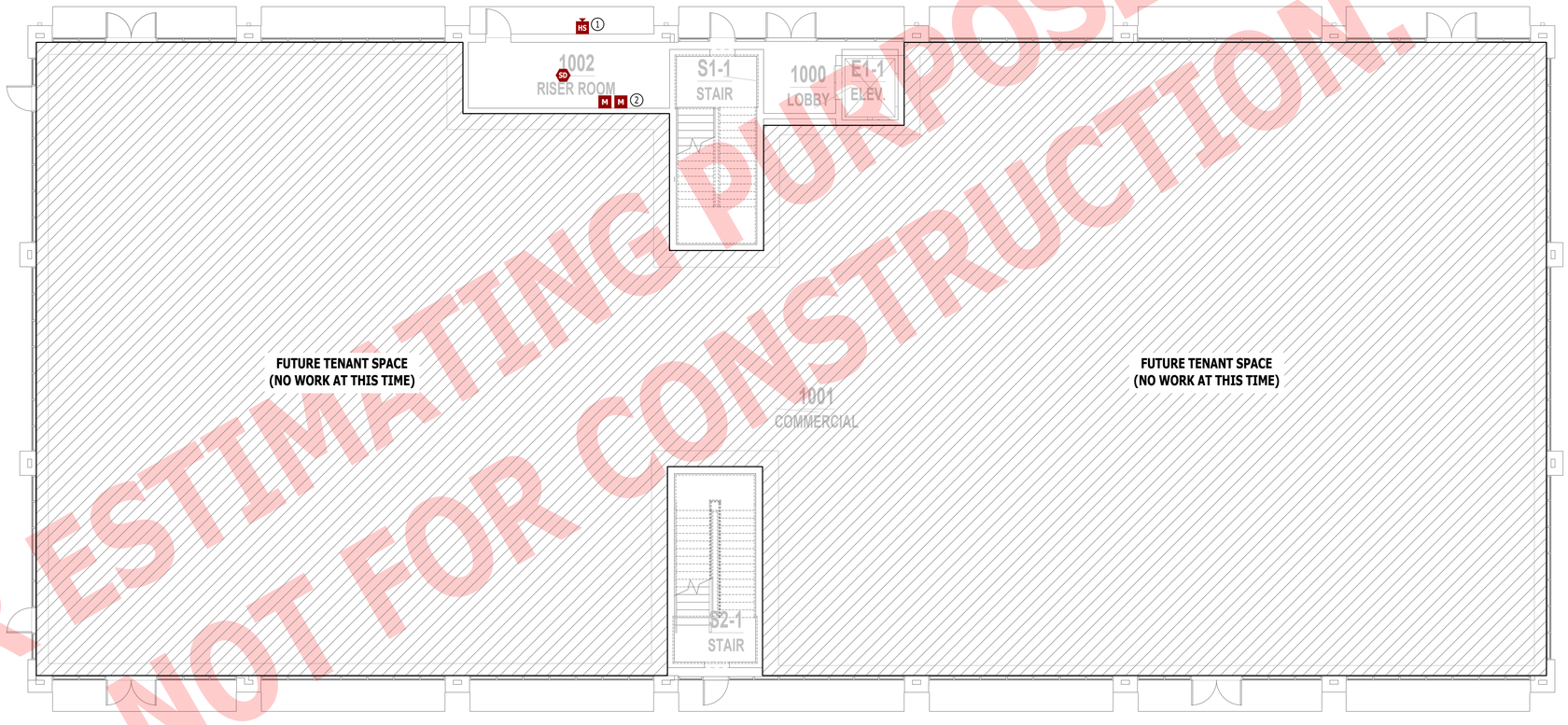
1. FIRE ALARM SYSTEM SHALL BE AN ADDRESSABLE SYSTEM THAT IS NONCODED, UL-LISTED, WITH MULTIPLEX SIGNAL TRANSMISSION AND HORN/STROBE EVACUATION.
2. EVERY FIRE ALARM SYSTEM COMPONENT SHALL BE UL-LISTED AND UL-CERTIFIED, TESTED BY MANUFACTURERS AS A COMPLETE SYSTEM, AND MEET ALL APPLICABLE REQUIREMENTS OF NFPA 72.
3. ALL FIRE ALARM WIRING TO BE PLENUM RATED.
4. ALL INITIATING DEVICES INSTALLED IN UNCONDITIONED SPACES SHALL BE CONVENTIONAL DEVICES SUITABLE FOR USE IN EXTREME HIGH AND LOW TEMPERATURES AND HIGH HUMIDITY. SUCH DEVICES SHALL BE SUPERVISED BY ADDRESSABLE MONITOR MODULES LOCATED IN CONDITIONED SPACES.
5. QUANTITIES, TYPES, AND LOCATIONS OF INITIATING DEVICES AND OUTPUT MODULES FOR INTERCONNECTION WITH FIRE SUPPRESSION MUST BE COORDINATED WITH CONTRACTORS THAT ARE RESPONSIBLE FOR THOSE SYSTEMS.

FIRE ALARM PLAN SYMBOL LEGEND

F	MANUAL PULL STATION
M	MODULE
O	OUTPUT MODULE
SD	SMOKE DETECTOR
HD	HEAT DETECTOR
CO	CARBON MONOXIDE DETECTOR
S	STROBE - CEILING MOUNT
S	STROBE - WALL MOUNT
HS	HORN STROBE - WALL MOUNT
HS	HORN STROBE - CEILING MOUNT
SS	SPEAKER STROBE - WALL MOUNT
SS	SPEAKER STROBE - CEILING MOUNT
T	TAMPER SWITCH
WF	WATER FLOW SWITCH
FACP	FIRE ALARM CONTROL PANEL
ANN	FIRE ALARM ANNUNCIATOR

FIRE ALARM PLAN KEY NOTES

1. WEATHERPROOF HORN/STROBE NOTIFICATION DEVICE NEAR FDC. COORDINATE WITH SPRINKLER CONTRACTOR.
2. MONITOR MODULES FOR TAMPER/FLOW SWITCHES & FIRE ALARM CONTROL PANEL IN RISER ROOM; COORDINATE EXACT LOCATIONS & REQUIREMENTS WITH SPRINKLER CONTRACTOR.



FIRE ALARM PLAN

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

RELEASED FOR CONSTRUCTION
As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri
12/18/2024

James Watson, P.E. November 20, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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J2 PROJECT No: J21003
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ISSUE TITLE	DATE
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:
Village at Discovery Park Lot 1
221 NE Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE
FIRE ALARM PLAN

SHEET NUMBER
FA101

ELECTRICAL SPECIFICATIONS

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

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

3. **MATERIALS**
   3.1. CONDUIT & CONDUCTORS
   3.1.1. ALL CONDUCTORS SIZES INDICATED ARE COPPER UNLESS NOTED OTHERWISE ON PLANS.
   3.1.2. ABOVE GRADE CONDUCTORS SHALL BE TYPE THHN.
   BELOW GRADE CONDUCTORS SHALL BE TYPE XHHW-2.
   3.1.3. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG UNLESS NOTED OTHERWISE. 120-VOLT, 20-AMP CIRCUITS WITH CONDUCTOR LENGTHS GREATER THAN 100' SHALL BE #10 AWG MINIMUM. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR MEASURING ACTUAL CONDUCTOR LENGTH AND INCREASING CONDUCTOR SIZE TO COMPENSATE FOR VOLTAGE DROP AS REQUIRED BY NEC.
   3.1.4. RIGID GALVANIZED OR SCHEDULE 40 PVC CONDUIT SHALL BE USED FOR SERVICE WIRING, BELOW GRADE INSTALLATIONS, OR WHERE EXPOSED TO WEATHER.
   3.1.5. IN APPLICATIONS OTHER THAN THOSE LISTED IN 3.1.4, EMT OR MC CABLE IS ACCEPTABLE. WHERE CONDUCTORS ARE PROTECTED FROM DAMAGE, ENCLOSED IN BUILDING MATERIALS, AND CONSTRUCTION IS OF A PERMITTED TYPE, NM CABLE MAY BE USED.
   3.1.6. FOR CAST-IN-PLACE CONCRETE, TILT-UP WALL CONSTRUCTION, OR PRE-MANUFACTURED WALL SYSTEMS, COORDINATE EXACT LOCATIONS OF ALL DEVICES WITHIN WALLS WITH WALL SUPPLIER. CONDUIT EMBEDDED IN WALLS SHALL BE SCHEDULE 80 PVC OR LFMC, OR OTHER SYSTEM APPROVED BY WALL MANUFACTURER.
   3.1.7. EXPOSED CONDUIT SHALL BE PAINTED TO MATCH ADJACENT SURFACES, VERIFY COLOR WITH ARCHITECT/OWNER.
   3.2. DEVICES
   3.2.1. CONTRACTOR TO PROVIDE J-BOXES, COVER PLATES, AND ANY ACCESSORIES REQUIRED TO PROVIDE A COMPLETE SYSTEM. SEE ARCHITECTURAL PLANS FOR DEVICE COLORS.
   3.2.1. DUPLEX RECEPTACLES SHALL BE TAMPER RESISTANT, 20-AMP, EQUAL TO LEVITON #TBR-20.
   3.2.2. SINGLE POLE TOGGLE WALL SWITCHES SHALL BE EQUAL TO LEVITON CS120-2.
   THREE-WAY TOGGLE WALL SWITCHES SHALL BE EQUAL TO LEVITON CS320-2.
   3.2.3. DIMMER SWITCHES SHALL BE TESTED WITH FIXTURES AND LAMPS FOR COMPATIBILITY. SEE LIGHTING PLANS FOR DETAILS.
   3.2.4. WHERE GFCI PROTECTION IS SHOWN ON PLANS AND UNLESS OTHERWISE NOTED, PROVIDE A LISTED GFCI-PROTECTED RECEPTACLE WHERE THE RECEPTACLE IS ACCESSIBLE ON PLANS. IF THE RECEPTACLE LOCATION IS NOT ACCESSIBLE AS DEFINED BY NEC, PROVIDE GFCI PROTECTION AT CIRCUIT BREAKER.
   3.2.5. DO NOT INSTALL OCCUPANCY/VACANCY SENSORS WITHIN 48" OF HVAC DIFFUSERS/GRILLES OR SIMILAR OBSTRUCTION THAT MAY AFFECT SENSOR FUNCTIONALITY. ALL SENSORS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
   3.2.6. ALL APPLICABLE SWITCHES, RECEPTACLES, CONTROLS, ETC. SHALL BE MOUNTED AT ADA-ACCESSIBLE HEIGHTS.
   3.2.7. WIRING DEVICES SHOWN ON PLANS NEXT TO ONE ANOTHER SHALL UTILIZE A SINGLE COVER PLATE UNLESS NOTED OTHERWISE.
   3.2.8. WIRING DEVICES SHOWN BACK-TO-BACK ON EACH SIDE OF A WALL SHALL BE OFFSET TO REDUCE SOUND TRANSMISSION.
   3.2.9. EACH RECEPTACLE COVER SHALL BE NEATLY AND LEGIBLY LABELED WITH CORRESPONDING PANEL AND CIRCUIT NUMBER FOR CIRCUIT IDENTIFICATION.

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

LIGHT FIXTURE SCHEDULE

TAG	MANUFACTURER (OR EQUAL)	MODEL NUMBER (OR EQUAL)	DESCRIPTION	MOUNTING	LUMEN OUTPUT	CCT (°K)	CRI	VOLTAGE	WATTS	NOTES
C1	HALO	SLD6129SE010MW	6" LED SURFACE CAN	CEILING / SURFACE	1200	3500	90	120	15	
C2	HALO	SLD6129SE010MW	6" LED SURFACE CAN	CANOPY / SURFACE	1215	4000	90	120	15	WITH PAINTABLE TRIM; PAINT TO MATCH UNDERSIDE OF CANOPY
E1	SURE LITES	APCH7R	INTERIOR EXIT LIGHT WITH HEADS	WALL / CEILING	-	-	-	UNV	1	WITH RED LETTERS
E2	SURE LITES	APCH7R WITH APWR2	INTR EXIT LIGHT WITH EXTR RMT HD	SURFACE / CEILING	-	-	-	UNV	1	WITH RED LETTERS
E3	SURE LITES	APEL	EMERGENCY EGRESS LIGHT	SURFACE / WALL	-	-	-	UNV	1	MOUNT AT 8' A.F.F.
W1	METALUX	4SNX-SL3-LW-UNV-CC83-CD-1-FKO-U	4' LED WALL BRACKET	SURFACE / WALL	4000	3500	85	120	42	WITH 'EL14W' BATTERY BACKUP WHERE INDICATED
W2	TECH LIGHTING	700OWVEX9404ZUNV	UP/DOWN WALL SCONCE	EXTERIOR WALL	554	4000	90	120	19	
W3	METALUX	4VT3-LD5-8-G-UNV-EL10W-L840-CD1-U	4' VAPORTITE LED	ELEVATOR PIT	8694	4000	80	120	67	

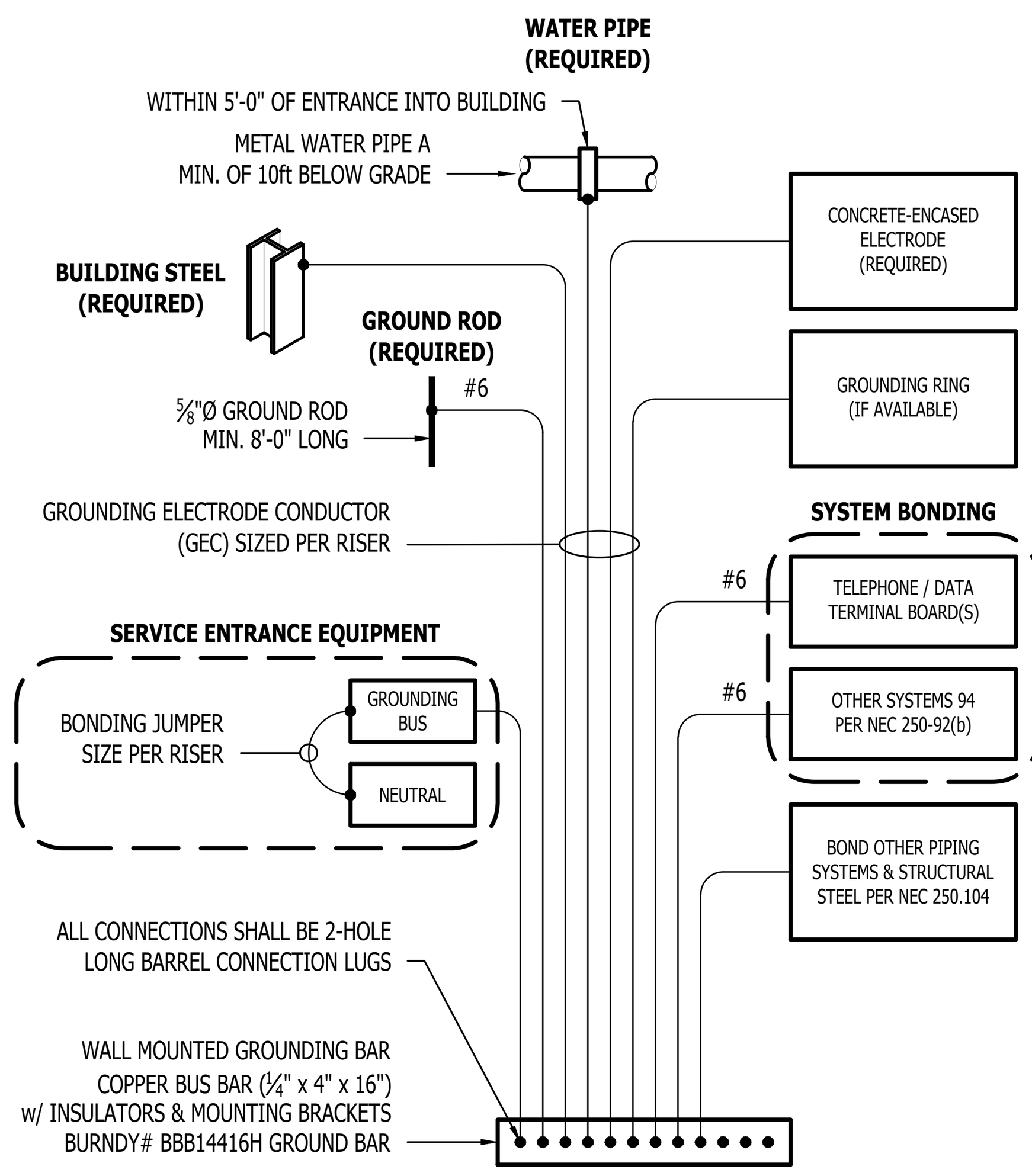
NOTES:
1. VERIFY LIGHT FIXTURE FINISHES WITH OWNER / ARCHITECT PRIOR TO INSTALLATION.
2. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR CEILING TYPES THROUGHOUT. COORDINATE EXACT MOUNTING DETAILS WITH GENERAL CONTRACTOR.
3. CONTACT JUSTIN HATFIELD (573) 289-0880 (JHATFIELD@LAIWEB.NET) OR PAUL WARNER (314) 531-3500 (PWARNER@LAIWEB.NET) AT LIGHTING ASSOCIATES FOR NATIONAL ACCOUNT DETAILS.
4. CONTACT TRAVIS VOGT (471) 621-5210 (TVOGT@CED1135.COM) AT CED-PHILLIPS & COMPANY FOR NATIONAL ACCOUNT DETAILS.

HOUSE ELECTRICAL PANEL 'HP1' SCHEDULE

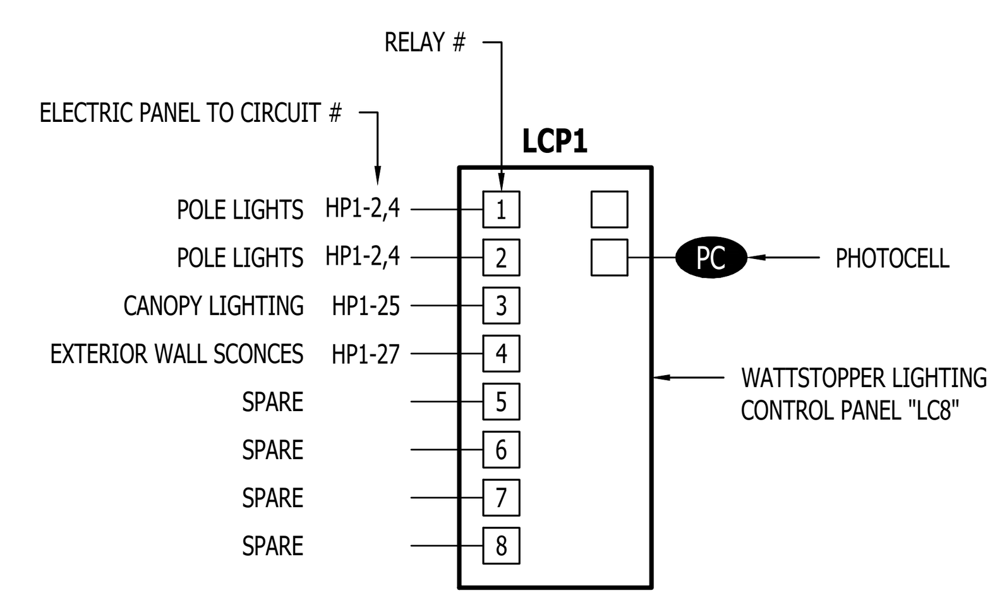
PANEL SPECIFICATIONS			TOTAL CONNECTED LOAD	
VOLTAGE: 120/208V 3-PH	NEMA RATING: 1		PHASE "A" LOAD:	137.5 AMPS
AMPACITY: 225A MLO	PANEL MOUNTING: SURFACE		PHASE "B" LOAD:	114 AMPS
AIC-RATING: 10kA			PHASE "C" LOAD:	136 AMPS

CIRCUIT NUMBER	DESCRIPTION	BREAKER SIZE	AMPS	PHASE	AMPS	BREAKER SIZE	DESCRIPTION	CIRCUIT NUMBER
1	ROOFTOP RECEPTS.	20-1	4.5	A	6	20-2	POLE LIGHTS	2
3	ELEVATOR SUMP PUMP RECEPT.	20-1	8	B	6	-	-	4
5	ELEVATOR PIT RECEPTS.	20-1	3	C	41	60-2	AHU-1	6
7	EXTERIOR RECEPTS.	20-1	6	A	41	-	-	8
9	EXTERIOR RECEPTS.	20-1	6	B	14	25-2	CU-1	10
11	ACCESS CONTROLS	20-1	3	C	14	-	-	12
13	RISER ROOM RECEPTS.	20-1	6	A	14	20-2	WALL HEATER	14
15	FACP	20-1	1	B	14	-	-	16
17	LOBBY RECEPTS.	20-1	3	C	14	20-2	WALL HEATER	18
19	LIGHTING CONTROL PANEL 'LCP1'	20-1	1	A	14	-	-	20
21	INTERIOR LIGHTING	20-1	3	B	14	20-2	WALL HEATER	22
23	STAIRTOWER LIGHTING	20-1	4	C	14	-	-	24
25	EXTERIOR LIGHTING	20-1	5	A	40	60-3	ELEVATOR	26
27	EXTERIOR LIGHTING	20-1	5	B	40	-	-	28
29	SPARE	20-1		C	40	-	-	30
31	SPARE	20-1		A		ST	SHUNT TRIP SPACE	32
33	SPARE	20-1		B	3	20-1 ST	ELEVATOR CAB LIGHTS	34
35	SPARE	20-1		C		ST	SHUNT TRIP SPACE	36
37	SPARE	20-1		A			OPEN	38
39	SPARE	20-1		B			OPEN	40
41	SPARE	20-1		C			OPEN	42

NOTES:
A: PANEL SHALL BE EQUAL TO SQUARE D MODEL "QO"
B: ELECTRICIAN SHALL VERIFY EXACT EQUIPMENT OVERCURRENT PROTECTION REQUIREMENTS PRIOR TO PURCHASE & INSTALLATION OF EQUIPMENT.
C: AFTER COMPLETION OF WORK, ELECTRICAN SHALL PROVIDE A TYPE WRITTEN PANEL DIRECTORY IN NEW PANEL.



TYPICAL GROUNDING & BONDING DETAIL

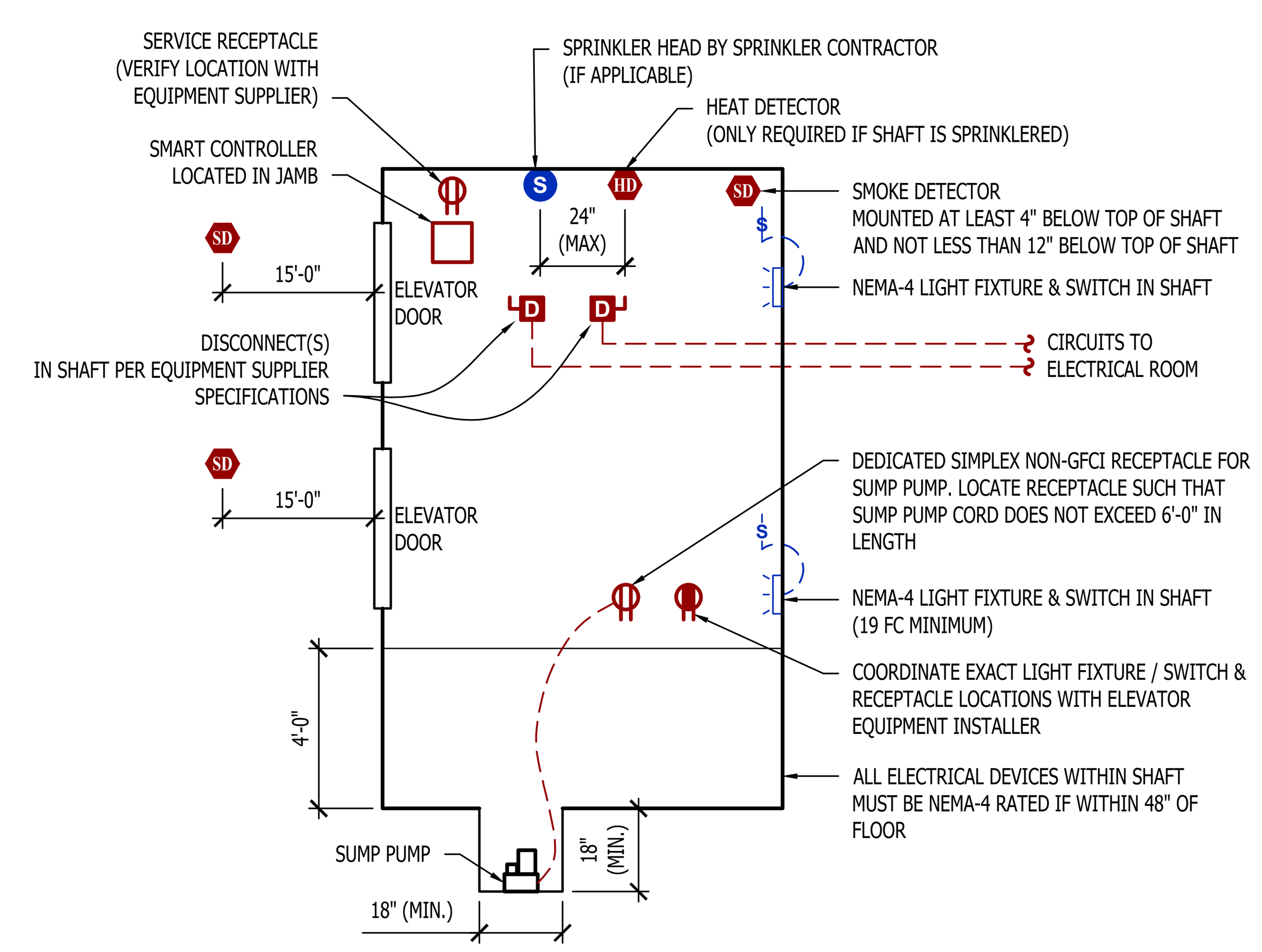


LIGHTING CONTROL PANEL SCHEDULE

RELAY #	OVERRIDE SWITCH	OPERATIONAL SCHEDULE
1	NO	ON DURING NIGHT HOURS (PHOTOCELL)
2	NO	ON DURING NIGHT HOURS (PHOTOCELL)
3	NO	ON DURING NIGHT HOURS (PHOTOCELL)
4	NO	ON DURING NIGHT HOURS (PHOTOCELL)
5	-	-
6	-	-
7	-	-
8	-	-

LIGHTING CONTROL PANEL

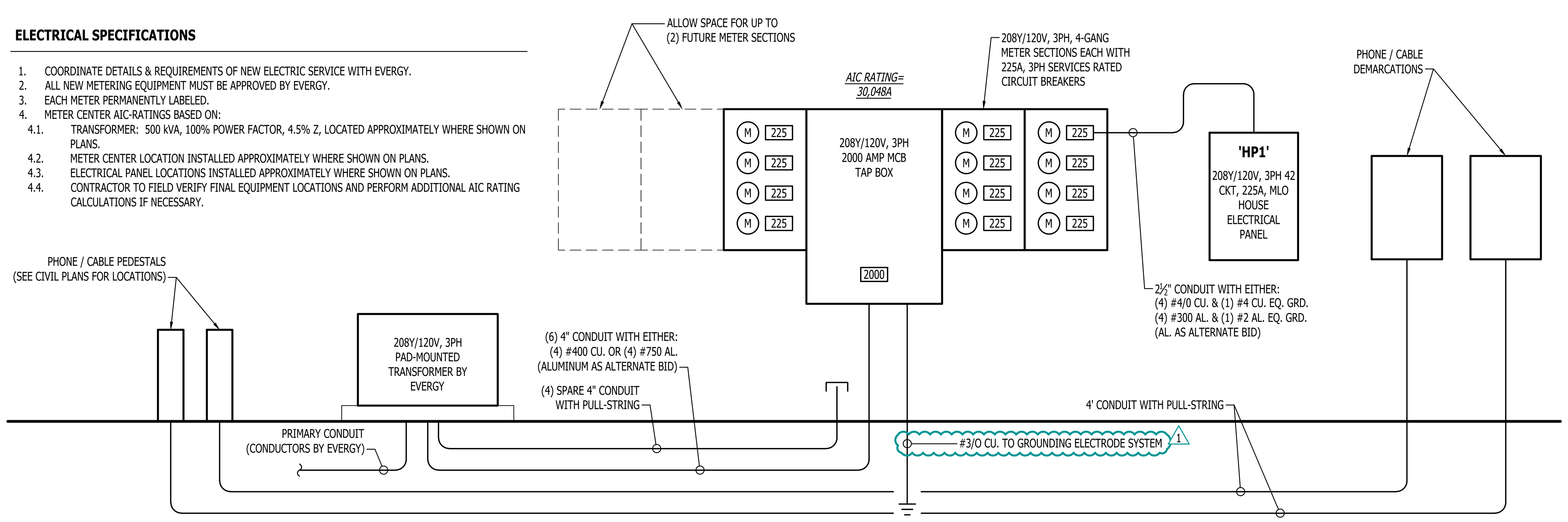
NOTES:
1. ALL MATERIALS LOCATED WITHIN ELEVATOR SHAFT MUST BE OF NON-COMBUSTIBLE MATERIAL.
2. ALL ELECTRICAL CONDUCTORS WITHIN ELEVATOR PIT MUST COMPLY WITH NEC 620.21.
3. SUMP PUMP RECEPTACLE, SHAFT / PIT RECEPTACLES, & SHAFT LIGHTING TO ALL BE ON EMERGENCY POWER IF ELEVATOR IS ON EMERGENCY POWER.
4. ADDITIONAL SMOKE DETECTOR REQUIRED IN ELEVATOR MACHINE ROOM (IF APPLICABLE).
5. IN CASES WHERE ELEVATOR IS NOT SHUNT-TRIP PROTECTED, A LABELED SPRINKLER SHUT-OFF MUST BE LOCATED OUTSIDE THE ELEVATOR HOISTWAY AND/OR EQUIPMENT ROOM.
6. PERMANENTLY LABEL ALL CIRCUITS AND FEEDERS.
7. SUMP PUMP DISCHARGE LINE SHALL BE HARD PIPED (NO PVC).



MACHINE - ROOM - LESS ELEVATOR DETAIL

ELECTRICAL SPECIFICATIONS

1. COORDINATE DETAILS & REQUIREMENTS OF NEW ELECTRIC SERVICE WITH EVERGY.
2. ALL NEW METERING EQUIPMENT MUST BE APPROVED BY EVERGY.
3. EACH METER PERMANENTLY LABELED.
4. METER CENTER AIC-RATINGS BASED ON:
   4.1. TRANSFORMER: 500 kVA, 100% POWER FACTOR, 4.5% Z, LOCATED APPROXIMATELY WHERE SHOWN ON PLANS.
   4.2. METER CENTER LOCATION INSTALLED APPROXIMATELY WHERE SHOWN ON PLANS.
   4.3. ELECTRICAL PANEL LOCATIONS INSTALLED APPROXIMATELY WHERE SHOWN ON PLANS.
   4.4. CONTRACTOR TO FIELD VERIFY FINAL EQUIPMENT LOCATIONS AND PERFORM ADDITIONAL AIC RATING CALCULATIONS IF NECESSARY.



POWER RISER - METER CENTER #2

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER
James Watson, P.E. December 12, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

J-SQUARED ENGINEERING
2400 Bluff Creek Drive, Suite 101
Columbia, Missouri 65201
573.234.4492
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J2 PROJECT No:	J21003
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 20 - 2024
1 CITY COMMENTS	12 - 12 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Park Lot 1

221 NE Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

ELECTRICAL DETAILS & SCHEDULES

SHEET NUMBER

E501

SANITARY SEWER PLAN SYMBOL LEGEND

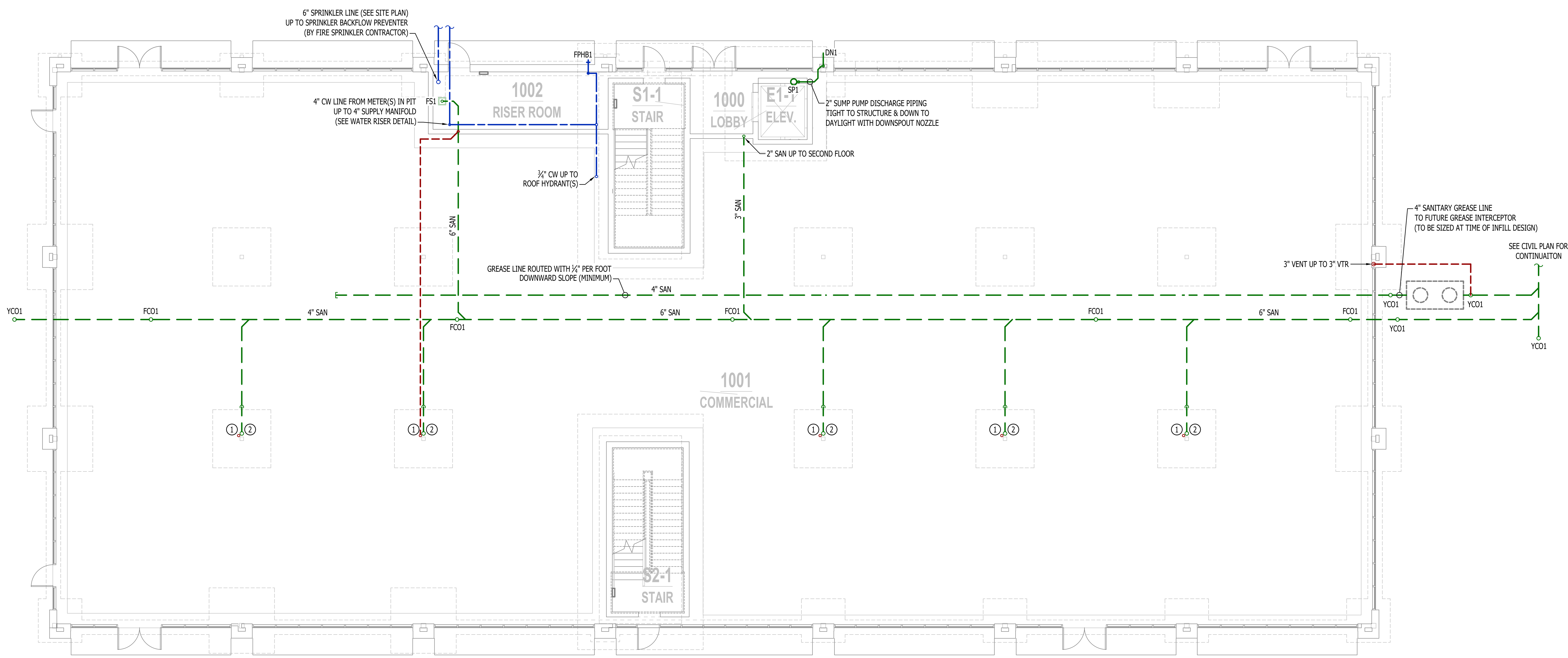
- SANITARY SEWER PIPING
- VENT PIPING
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

SANITARY SEWER PLAN GENERAL NOTES:

1. REFER TO P500 AND/OR P600 SERIES SHEETS FOR ADDITIONAL PLUMBING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
2. PLUMBING CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL EQUIPMENT, PIPING, HANGERS / SUPPORTS, ETC. WITH HVAC AND ELECTRICAL TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

SANITARY SEWER PLAN KEY NOTES:

(1) 3" VENT UP TO VTR.
(2) 4" SAN UP NEXT TO COLUMN CAPPED FOR FUTURE CONNECTION.



PLUMBING PLAN - FIRST FLOOR

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

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 20, 2024
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Park Lot 1

221 NE Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

PLUMBING PLAN - FIRST FLOOR

SHEET NUMBER

P101

SANITARY SEWER PLAN SYMBOL LEGEND

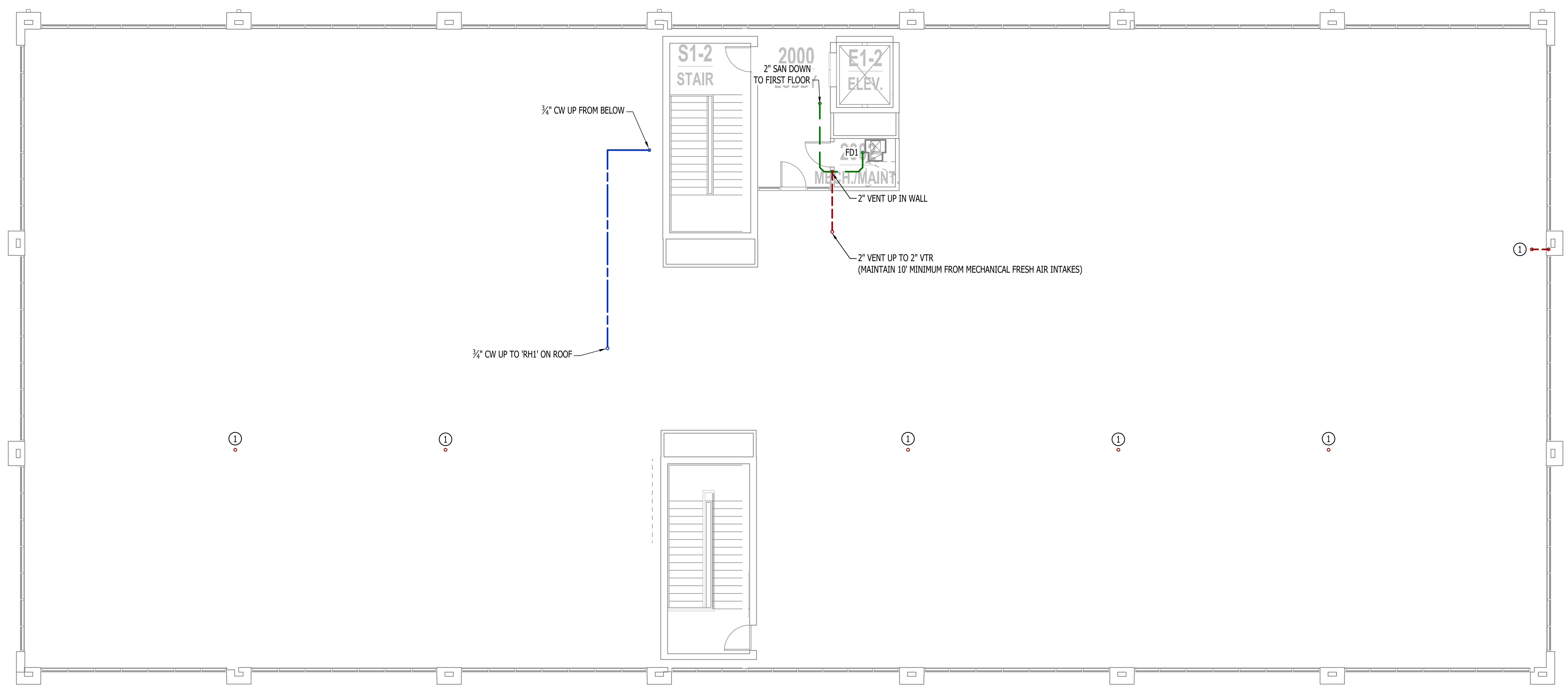
- SANITARY SEWER PIPING
- VENT PIPING
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

SANITARY SEWER PLAN GENERAL NOTES:

1. REFER TO P500 AND/OR P600 SERIES SHEETS FOR ADDITIONAL PLUMBING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
2. PLUMBING CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL EQUIPMENT, PIPING, HANGERS / SUPPORTS, ETC. WITH HVAC AND ELECTRICAL TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

SANITARY SEWER PLAN KEY NOTES:

(1) 3" VENT UP FROM FIRST FLOOR; CONTINUES UP TO VTR.



PLUMBING PLAN - SECOND FLOOR

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

STATE OF MISSOURI
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Park Lot 1

221 NE Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

PLUMBING PLAN - SECOND FLOOR

SHEET NUMBER

P102

PLUMBING SPECIFICATIONS

1. GENERAL

1.1. PLUMBING CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL ESCUTCHEONS, $\frac{1}{4}$ TURN STOPS, P-TRAPS, AND SUPPLY LINES TO PROVIDE A COMPLETE SYSTEM AT EACH FIXTURE INDICATED ON PLANS UNLESS NOTED OTHERWISE.
1.2. ALL PLUMBING SYSTEMS SHALL BE INSTALLED LEVEL, PLUMB, AND PARALLEL/PERPENDICULAR TO BUILDING ORIENTATION WHERE POSSIBLE.
1.3. COORDINATE ALL PIPING INSTALLATIONS WITH STRUCTURAL GRADE BEAMS, FOOTINGS, COLUMN PIERS, ETC. SLEEVE PIPING THRU STRUCTURAL ELEMENTS AS NECESSARY, VERIFY WITH STRUCTURAL ENGINEER.
1.4. VERIFY ALL UTILITY CONNECTION POINTS WITH PROPOSED PLUMBING LAYOUTS PRIOR TO BEGINNING WORK.
1.5. CLEAN ALL PLUMBING FIXTURES AND CHANGE FAUCET AERATORS AND SINK STRAINERS AT PROJECT COMPLETION PRIOR TO TURNING OVER TO OWNERSHIP.

2. EQUIPMENT / FIXTURES

2.1. ALL EQUIPMENT AND/OR FIXTURES MUST MEET OR EXCEED THE PERFORMANCE, FUNCTIONAL INTENT, AND AESTHETICS AS MODELS SPECIFIED ON PLANS. WHERE SPECIFIC MANUFACTURERS AND/OR MODELS ARE INDICATED ON PLANS OR WITHIN SCHEDULES, CONTRACTOR TO PROVIDE MODEL INDICATED OR APPROVED EQUAL. VERIFY SUBSTITUTION APPROVAL PRIOR TO PURCHASE OR INSTALLATION OF EQUIPMENT.
2.2. CONTRACTOR TO SUPPLY SUBMITTALS FOR ALL EQUIPMENT FOR REVIEW BY ARCHITECT AND ENGINEER. FORMAL APPROVAL SHALL BE RECEIVED BY CONTRACTOR PRIOR TO EQUIPMENT PURCHASE.
2.3. CONTRACTOR TO SHARE APPROVED EQUIPMENT SUBMITTALS WITH ANY PERTINENT ELECTRICAL REQUIREMENTS WITH ELECTRICAL CONTRACTORS WITHIN TWO WEEKS OF RECEIVING APPROVED SUBMITTALS FROM ARCHITECT/ENGINEER.

3. SANITARY

3.1. BELOW AND ABOVE GRADE WASTE AND VENT PIPING IN BUILDING TO BE SOLID CORE SCHEDULE 40 PVC LISTED FOR DWV APPLICATIONS.
3.2. NO WASTE OR VENT PIPING INSTALLED BELOW GRADE SHALL BE SMALLER THAN 2".
3.3. MINIMUM SLOPES FOR WASTE PIPING (UNLESS NOTED OTHERWISE ON PLANS):
3.3.1. 2 $\frac{1}{2}$" OR LESS DIAMETER: $\frac{1}{4}$" PER FOOT
3.3.2. 3" TO 6" DIAMETER: $\frac{1}{8}$" PER FOOT
3.3.3. 8" OR LARGER DIAMETER: $\frac{1}{16}$" PER FOOT
3.4. ACCESSIBLE FULL PIPE SIZE CLEANOUTS SHALL BE PROVIDED & INSTALLED ON BUILDING SANITARY LINES AT LOCATIONS SHOWN ON PLANS, AT INTERVALS OF NO MORE THAN 100', AT EVERY CHANGE IN DIRECTION GREATER THAN 45°, AND AT THE BASE OF EACH WASTE STACK.
3.5. WASTE AND VENT PIPING IN PLENUMS SHALL BE CAST IRON, PLENUM-RATED CPVC, OR PVC WITH AN INSULATION WRAP LISTED FOR USE AS SUCH AN ASSEMBLY.
3.6. ALL VENT PIPE TERMINATIONS SHALL BE LOCATED EITHER 10' HORIZONTALLY OR 3' ABOVE MECHANICAL AIR INTAKE LOCATIONS. TERMINATIONS SHALL NOT BE INSTALLED UNDER ANY OPERABLE BUILDING OPENING OR OPERABLE ADJACENT BUILDING OPENING. CONTRACTOR TO OFFSET VENT PIPING AS NECESSARY TO MEET THESE REQUIREMENTS.

4. DOMESTIC WATER

4.1. ALL DOMESTIC WATER PIPING TO BE EITHER COPPER OR PEX, SHALL CONFORM TO NSF 61 AND BE LISTED FOR USE IN POTABLE WATER SYSTEMS.
4.1.1. WHERE PEX PIPING IS USED, IT SHALL BE INCREASED ONE PIPE SIZE FROM WHAT IS INDICATED ON PLANS FOR ALL PORTIONS OF DISTRIBUTION SYSTEM.
4.1.2. PEX-A MAY BE INSTALLED AT SIZES INDICATED ON PLANS ONLY IF AN ENGINEERED PLAN IS SUBMITTED SHOWING ACCEPTABLE PRESSURE DROPS AND FLUID VELOCITIES, APPROVAL MUST BE GRANTED PRIOR TO PURCHASE AND INSTALLATION.
4.1.3. COPPER WATER PIPING BELOW GRADE SHALL BE TYPE "K". BELOW GRADE JOINTS SHALL BE SILVER SOLDERED. THERE SHALL BE NO JOINTS IN WATER PIPING LOCATED BENEATH BUILDING SLAB.
4.1.4. COPPER WATER PIPING ABOVE GRADE SHALL BE TYPE "L".
4.2. PROVIDE WATER HAMMER ARRESTORS AT ALL QUICK-CLOSE VALVES. FIXTURES REQUIRING WATER HAMMER ARRESTORS INCLUDE BUT ARE NOT LIMITED TO FLUSH VALVES, SENSOR FAUCETS, AND WASHING MACHINE BOXES. AIR CHAMBERS SHALL NOT BE PERMITTED.
4.3. ALL DOMESTIC WATER PIPING SHALL BE ROUTED WITHIN BUILDING THERMAL ENVELOPE AND WITHIN WALL CAVITIES, ABOVE FINISHED CEILINGS, OR BELOW SLAB TO REMAIN CONCEALED UNLESS OTHERWISE NOTED. NOTIFY ENGINEER OF ANY NECESSARY ADJUSTMENTS THAT REQUIRE PIPING TO BE EXPOSED.
4.4. DOMESTIC WATER PIPING INSULATION
4.4.1. ALL HW PIPING, WHETHER COPPER OR PEX, SHALL BE INSULATED WITH PLENUM RATED CLOSED CELL ELASTOMERIC INSULATION.
4.4.1.1. FOR PIPING LESS THAN 1$\frac{1}{2}$", INSULATION THICKNESS TO BE 1".
4.4.1.2. FOR PIPING 1$\frac{1}{2}$" OR GREATER, INSULATION THICKNESS SHALL BE 1$\frac{1}{2}$".
4.4.2. CW COPPER PIPING TO INSULATED WITH $\frac{1}{2}$" PLENUM RATED CLOSED CELL ELASTOMERIC INSULATION. CW PEX NEED NOT BE INSULATED UNLESS NOTED OTHERWISE ON PLANS.

5. GAS PIPING

5.1. GAS PIPING SHALL BE INSTALLED LEVEL, PLUMB, AND PARALLEL OR PERPENDICULAR TO BUILDING ORIENTATION WHERE POSSIBLE.
5.2. QUARTER-TURN FULL-PORT SHUTOFF VALVES SHALL BE INCLUDED AT EACH APPLIANCE CONNECTION, AS WELL AS AN IN-LINE REGULATOR FROM DELIVERY PRESSURE TO APPLIANCE OPERATING PRESSURE IF REQUIRED. INCLUDE SEDIMENT TRAPS PER IFGC REQUIREMENTS.
5.1. NATURAL GAS AND LIQUID PROPANE (LP) PIPING TO SHALL BE SCHEDULE 40 BLACK STEEL.
5.2. PIPE JOINTS SHALL BE THREADED WITH CLASS 150 FITTINGS, OR WELDED. NOTIFY OWNER/GC OF ANY NECESSARY HOT-WORK ASSOCIATED WITH WELDED CONNECTIONS.
5.3. WHERE PIPING IS EXPOSED ON EXTERIOR FACE OF BUILDING, PAINT TO MATCH BUILDING. PAINT YELLOW IN ALL OTHER LOCATIONS.
5.4. ON ROOFTOPS, INSTALL GAS PIPE WITH "ROOFTOP BLOX" PER MANUFACTURER'S INSTRUCTION.

6. STORM DRAIN PIPING

6.1. ABOVE AND BELOW GRADE STORM PIPING SHALL BE SOLID CORE SCHEDULE 40 PVC.
6.2. ALL PRIMARY & SECONDARY STORM DRAIN PIPING & FITTINGS SHALL BE INSULATED WITH $\frac{1}{2}$" FIBERGLASS INSULATION WITH ASJ JACKET.
6.3. STORM DRAIN PIPING IN PLENUMS SHALL BE CAST IRON, PLENUM-RATED CPVC, OR PVC WITH AN INSULATION WRAP LISTED FOR USE AS SUCH AN ASSEMBLY.

PLUMBING FIXTURE SCHEDULE

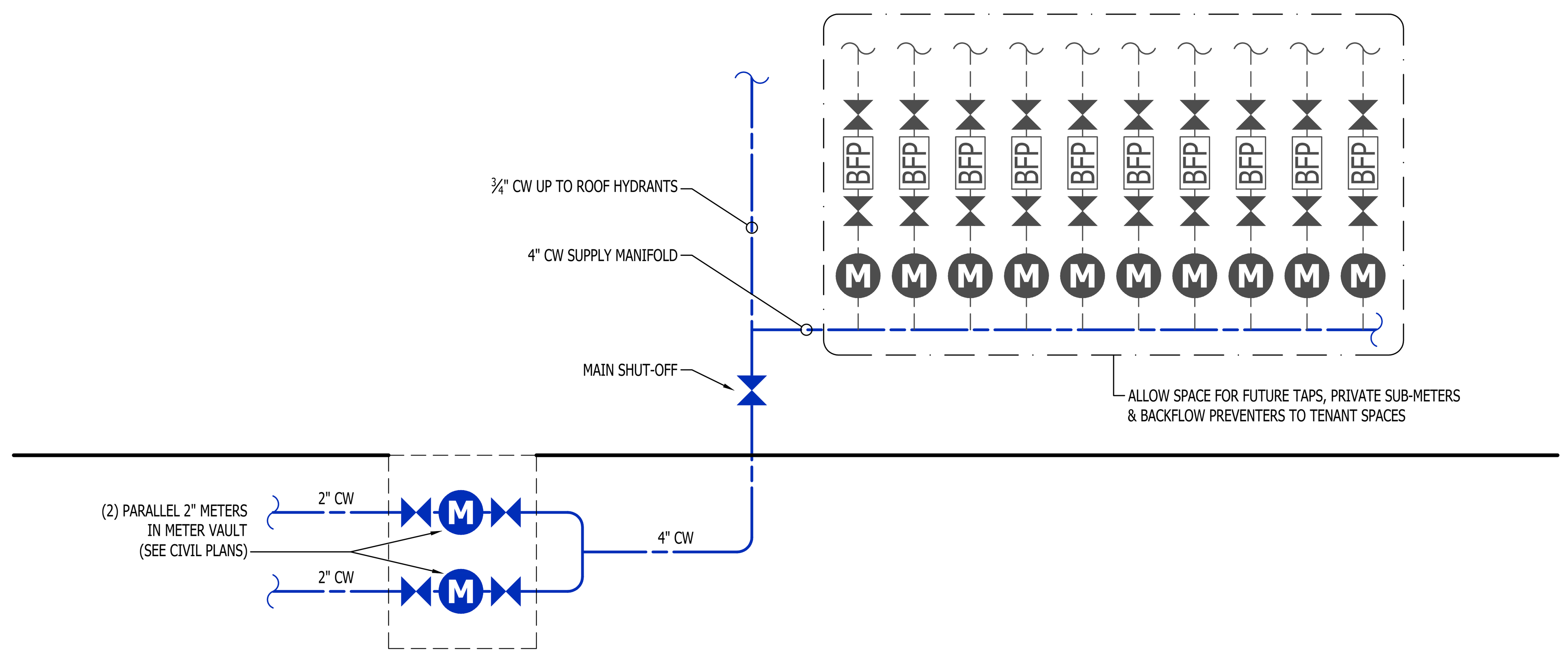
TAG	DESCRIPTION	MANUFACTURER (OR EQUAL)	MODEL (OR EQUAL)	NOTES
DN1	DOWNSPOUT NOZZLE	ZURN	Z199	
FCO1	FLOOR CLEANOUT	ZURN	1400	
FD1	FLOOR DRAIN	ZURN	Z415-BZ	WITH Z1072 TRAP SEAL
FPHB1	FROST PROOF HOSE BIB	WOODFORD	MODEL 67	
FS1	FLOOR SINK	ZURN	FD2375	
RH1	ROOF HYDRANT	WOODFORD	SRH-MS	
SP1	SUMP PUMP	ZOELLER	153-0002	120V, 1/2 HP, 50GPM AT 35'+ TDH
YCO1	YARD CLEAN OUT	ZURN	Z1400	

NOTES:
1. VERIFY NECESSARY FIXTURES MEET ADA REQUIREMENTS WITH ARCHITECT PRIOR TO INSTALLATION.
2. VERIFY FIXTURE FINISHES WITH OWNER / ARCHITECT.

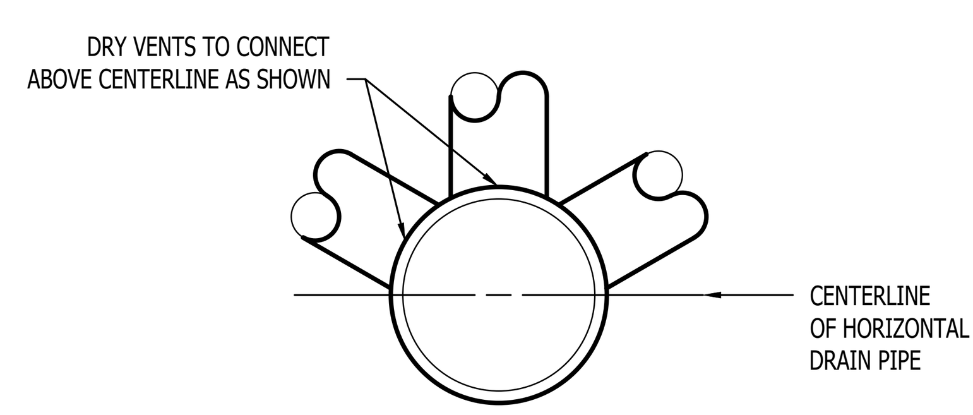
PLUMBING CONNECTION SIZING SCHEDULE

FIXTURE		SANITARY PIPING		SUPPLY PIPING	
TYPE	TYPICAL ABBREVIATION	WASTE CONNECTION	VENT CONNECTION	COLD WATER CONNECTION	HOT WATER CONNECTION
DRINKING FOUNTAIN	DF	1-1/2"	1-1/4"	1/2"	-
FLOOR DRAIN	FD	3"	2"	-	-
HAND / HAIR SINK	HS / SK	2"	1-1/4"	1/2"	1/2"
HOSE BIBB	HB	-	-	3/4"	-
LAVATORY	LAV	1-1/2"	1-1/4"	1/2"	1/2"
MOP SINK	MS	3"	1-1/2"	1/2"	1/2"
ICE MAKER OUTLET BOX	REF	-	-	1/2"	-
SHOWER	SH	3"	1-1/2"	1/2"	1/2"
URINAL	UR	2"	1-1/4"	3/4"	-
WATER CLOSET (FLUSH TANK)	WC	3"	2"	1/2"	-
WATER CLOSET (FLUSH VALVE)	WC	3"	2"	1"	-

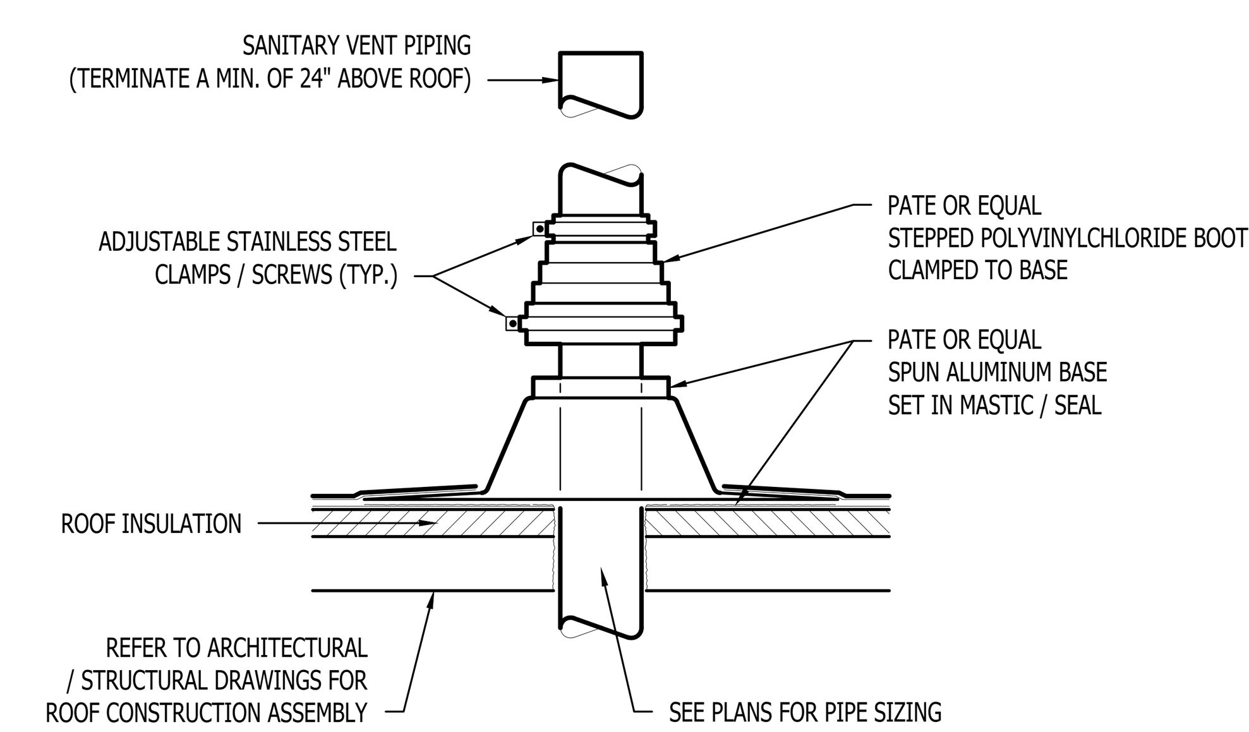
NOTES:
1. SIZES SHOWN ABOVE ARE TYPICAL UNLESS NOTED OTHERWISE ON PLANS



WATER RISER DETAISL



DRY VENT DETAIL



SANITARY VENT THRU ROOF DETAIL

RELEASED FOR CONSTRUCTION
As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri
12/18/2024

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:
Village at Discovery Park Lot 1
221 NE Alura Way
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AHJ APPROVAL STAMP

SHEET TITLE
PLUMBING DETAILS & SCHEDULES

SHEET NUMBER
P501