THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

PRINTS ISSUED

11/12/24 - CITY SUBMITTAL

REVISIONS:

1	12/04/24	Add #1 - City Comments
2	12/20/24	Add #2

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:

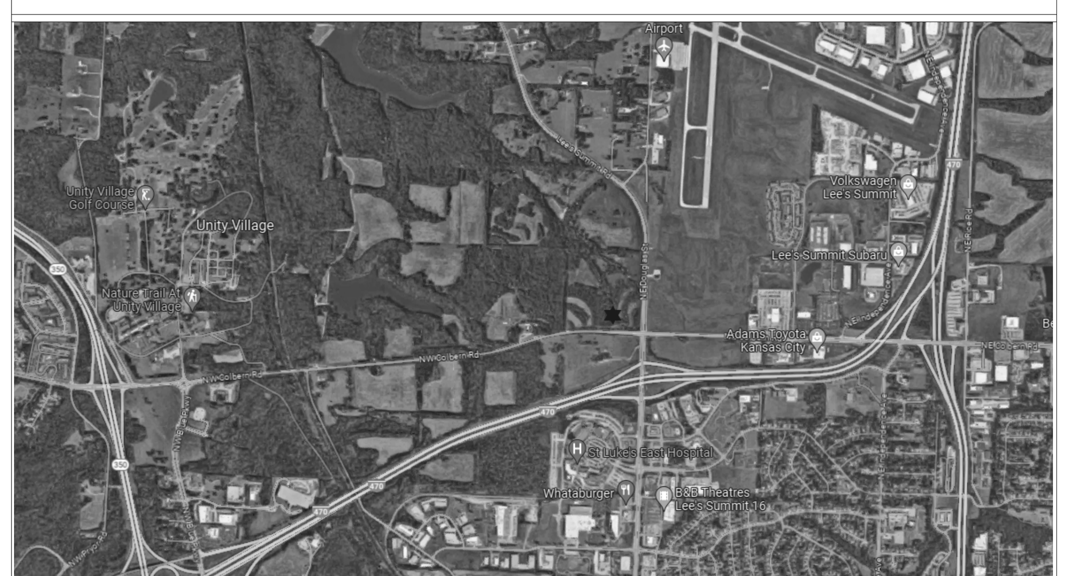
AS-100	G-102	G-210	A-105	A-201	A-404	A-503
G-001	G-200	G-211	A-106	A-300	A-405	A-504
G-001.1	G-201	G-212	A-110	A-301	A-406	A-505
G-002	G-202	G-213	A-111	A-302	A-407	A-506
G-003	G-203	G-300	A-112	A-303	A-408	A-600
G-004	G-204	G-301	A-113	A-304	A-409	A-601
G-005	G-205	G-302	A-114	A-305	A-410	A-602
G-006	G-206	G-303	A-115	A-400	A-415	A-603
G-007	G-207	A-101	A-120	A-401	A-500	A-700
G-100	G-208	A-102	A-125	A-402	A-501	A-711
G-101	G-209	A-103	A-200	A-403	A-502	

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

David E. Hendrikse, AIA

REGIONAL MAP



VICINITY MAP

THE VILLAGE AT DISCOVERY - LOT 7

N

LEE'S SUMMIT, MO

SHEET INDEX

GENERAL

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■	11/12/24	G-004	GENERAL INFORMATION		
■	11/12/24	G-005	GENERAL INFORMATION		
■	11/12/24	G-006	GENERAL INFORMATION		
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■	11/12/24	G-300	ACCESSIBILITY STANDARDS		
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CIVIL UNDER SEPARATE REVIEW, REFERENCE FDP

STRUCTURAL

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■	11/12/24	S530	TYPICAL WOOD FRAMING DETAILS	2	12/20/24
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■	11/12/24	S562	ADDITIONAL BALCONY PLANS - LEVELS 2 AND 3	2	12/20/24
■	11/12/24	S563	ADDITIONAL BALCONY DETAILS	2	12/20/24
■	11/12/24	S564	MAIN ENTRY BALCONY LEVEL 2/ LEVEL 3	2	12/20/24

ARCHITECTURAL

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■	11/12/24	A-105	ROOF PLAN		
■	11/12/24	A-106	ROOFING & FLASHING DETAILS		
■	11/12/24	A-110	ENLARGED PLAN - 1ST FLOOR ZONE A		
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■	11/12/24	A-113	ENLARGED PLAN - 2ND FLOOR ZONE B		
■	11/12/24	A-114	ENLARGED PLAN - 3RD FLOOR ZONE A		
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■	11/12/24	A-120	REFLECTED CEILING PLANS		
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■	11/12/24	A-200	EXTERIOR ELEVATIONS	2	12/20/24
■	11/12/24	A-201	EXTERIOR ELEVATIONS		
■	11/12/24	A-300	BUILDING SECTIONS		
■	11/12/24	A-301	WALL SECTIONS		
■	11/12/24	A-302	ELEVATOR PLANS, SECTIONS & DETAILS		
■	11/12/24	A-303	STAIR 1 - PLANS AND SECTION	2	12/20/24
■	11/12/24	A-304	STAIR 2 - PLANS AND SECTION	2	12/20/24
■	11/12/24	A-305	STAIR DETAILS		
■	11/12/24	A-400	ABERDEEN (2 BR) UNIT PLAN - TYPE A	2	12/20/24
■	11/12/24	A-401	ABERDEEN (2 BR) ALT UNIT PLAN	2	12/20/24
■	11/12/24	A-402	ABERDEEN (2 BR) UNIT PLAN - TYPE B	2	12/20/24
■	11/12/24	A-403	ADRIAN (1 BR) UNIT PLAN	2	12/20/24
■	11/12/24	A-404	ADRIAN CORNER (1 BR) UNIT PLAN	2	12/20/24
■	11/12/24	A-405	ARA ALT (1 BR) UNIT PLAN	2	12/20/24
■	11/12/24	A-406	ARA (1 BR) UNIT PLAN	2	12/20/24
■	11/12/24	A-407	ARA CORNER (1 BR) UNIT PLAN	2	12/20/24
■	11/12/24	A-408	DELTA (1 BR) UNIT PLAN	2	12/20/24
■	11/12/24	A-409	HURLEY (2 BR) UNIT PLAN	2	12/20/24
■	11/12/24	A-410	LANA (2 BR) UNIT PLAN	2	12/20/24
■	11/12/24	A-415	UNIT DETAILS		
■	11/12/24	A-500	WATERPROOFING DETAILS		
■	11/12/24	A-501	WALL DETAILS		
■	11/12/24	A-502	WALL DETAILS	2	12/20/24
■	11/12/24	A-503	BRICK DETAILS	2	12/20/24
■	11/12/24	A-504	ELEVATOR DETAILS		
■	11/12/24	A-505	BALCONY & PARAPET DETAILS		
■	11/12/24	A-506	BALCONY DETAILS		
■	11/12/24	A-600	WINDOW AND DOOR SCHEDULES		
■	11/12/24	A-601	TYPICAL STOREFRONT ELEVATIONS	2	12/20/24
■	11/12/24	A-602	DOOR DETAILS		
■	11/12/24	A-603	WINDOW DETAILS		
■	11/12/24	A-700	FINISH TRANSITION DETAILS		
■	11/12/24	A-711	FIRST & SECOND FLOOR FINISH PLAN		

SHEET INDEX CONTINUED ON G-001.1

SOLID FILL INDICATES INCLUSION IN ISSUE

SHEET ISSUE DATE

■	10/10/2024	A-000 SHEET NAME	-	10/10/2024

SHEET NUMBER AND NAME

CURRENT REVISION NUMBER & REVISION DATE ON SHEET

SHEET INDEX LEGEND

PROJECT DATA

PROJECT DESIGN INFORMATION

NEW CONSTRUCTION:

ZONING: PMIX - PLANNED MIX 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:
R-2, APARTMENTS
A-2, UNCONCENTRATED
S-2, OPEN PARKING GARAGE

TYPE OF CONSTRUCTION:
R-2 & A-2, TYPE VA
S-2, TYPE IIA

ENERGY CONSERVATION:
WALLS AS PART OF BLDG ENVELOPE R-13
FLOORS AS PART OF BLDG ENVELOPE R-19
ROOFS AS PART OF BLDG ENVELOPE R-19
CEILINGS AS PART OF BLDG ENVELOPE R-30

BUILDING SUMMARY:

NUMBER: 1 TOTAL BUILDING
HEIGHT: 3 STORIES, 43'-0"

SQUARE FOOTAGES:	GROSS	NET
FIRST FLOOR	24,603 S.F.	24,089 S.F.
SECOND FLOOR	24,774 S.F.	24,305 S.F.
THIRD FLOOR	24,774 S.F.	24,305 S.F.

UNIT SUMMARY: **46 TOTAL UNITS**

TYPE 'A' UNITS (2%) (1) UNITS - ABERDEEN "A"

HI/VI UNITS (2%) (1) UNITS - ADRIAN "HI/VI" (LG)

TYPE 'B' UNITS
(3) UNITS - ABERDEEN "B"
(2) UNITS - ABERDEEN - ALT
(2) UNITS - ADRIAN
(13) UNITS - ADRIAN (LG)
(4) UNITS - ADRIAN - ALT
(2) UNITS - ADRIAN CORNER
(4) UNITS - ARA
(2) UNITS - ARA - ALT
(2) UNITS - ARA CORNER
(4) UNITS - DELTA
(2) UNITS - HURLEY
(2) UNITS - LANA
(2) UNITS - LANA (LG)

TOTAL UNITS **(46) UNITS**

SQUARE FOOTAGE:	GROSS	NET
ABERDEEN "A" (LG)	1,377 S.F.	1,307 S.F.
ABERDEEN "B" (LG)	1,377 S.F.	1,307 S.F.
ABERDEEN - ALT	1,178 S.F.	1,098 S.F.
ADRIAN	823 S.F.	771 S.F.
ADRIAN (LG)	858 S.F.	803 S.F.
ADRIAN "HI/VI" (LG)	858 S.F.	802 S.F.
ADRIAN - ALT	858 S.F.	803 S.F.
ADRIAN CORNER	731 S.F.	684 S.F.
ARA	588 S.F.	543 S.F.
ARA - ALT	693 S.F.	642 S.F.
ARA CORNER	1,094 S.F.	1,039 S.F.
DELTA	879 S.F.	829 S.F.
HURLEY	936 S.F.	874 S.F.
LANA	1,062 S.F.	985 S.F.
LANA (LG)	1,097 S.F.	1,027 S.F.

SEE CIVIL FOR SITE SUMMARY

NOTE: SQUARE FOOTAGE

-GROSS - COMMON SPACE CALCULATION: OUTSIDE PERIMETER OF STUD (ENTIRE BUILDING) LESS THE TOTAL OF THE GROSS UNIT SQUARE FOOTAGE PER FLOOR.
-GROSS - UNIT CALCULATION: CENTERLINE OF PARTY WALL TO OUTSIDE OF EXTERIOR STUD WALL AND/OR OUTSIDE OF CORRIDOR STUD WALL.
-NET - PAINT-TO-PAINT AT PERIMETER,TAKEN FROM INSIDE OF DEMISING, EXTERIOR, AND CORRIDOR WALLS.

PROJECT TEAM

OWNER

INTRINSIC DEVELOPMENT
ADDRESS: 3622 ENDEAVOR AVE., STE. 101, COLUMBIA, MO 65201
CONTACT: **BRIAN MAENNER**
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PHONE: 573.881.0280

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PHONE: 816.472.1448

CONTRACTOR

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MCCLURE
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J-SQUARED ENGINEERING
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EMAIL: andrew@j-squaredeng.com
PHONE: 573.234.4492

CIVIL ENGINEER

CROCKETT ENGINEERING CONSULTANTS
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CONTACT: **TIM CROCKETT**
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LAND WORKS STUDIO
ADDRESS: 102 SOUTH CHERRY ST, 2ND FL, OLATHE, KS 66061
CONTACT: **MIKE MCGREW**
EMAIL: Mike@landworksstudio.com
PHONE: 913.780.6707

SIGNATURE BLOCK

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1526 GRAND BOULEVARD
KANSAS CITY, MO 64108-1404

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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

FOR BID PURPOSES ONLY

THE VILLAGE AT DISCOVERY - LOT 7

1920 NE DISCOVERY AVE
LEE'S SUMMIT, MO
64064

SHEET TITLE
TITLE SHEET

PROJECT NUMBER: 23103

SHEET NUMBER:

G-001

MEP

	Sheet Issue Date	Sheet Number	Sheet Name	Rev.	Current Revision Date
■	11/12/24	MEP1	MECHANICAL ELECTRICAL PLUMBING COVER SHEET		
■	11/12/24	MEP2	SITE UTILITIES PLAN		
■	11/12/24	MEP3	SITE LIGHTING PLAN		
■	11/12/24	MEP4	MEP PLAN - ROOF		

MECHANICAL

	Sheet Issue Date	Sheet Number	Sheet Name	Rev.	Current Revision Date
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■	11/12/24	M102	HVAC PLAN - SECOND FLOOR - AREA A		
■	11/12/24	M103	HVAC PLAN - THIRD FLOOR - AREA A		
■	11/12/24	M111	HVAC PLAN - FIRST FLOOR - AREA B		
■	11/12/24	M112	HVAC PLAN - SECOND FLOOR - AREA B		
■	11/12/24	M113	HVAC PLAN - THIRD FLOOR - AREA B		
■	11/12/24	M501	HVAC DETAILS & SCHEDULES		

ELECTRICAL

	Sheet Issue Date	Sheet Number	Sheet Name	Rev.	Current Revision Date
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■	11/12/24	EP102	POWER PLAN - SECOND FLOOR - AREA A		
■	11/12/24	EP103	POWER PLAN - THIRD FLOOR - AREA A		
■	11/12/24	EP111	POWER PLAN - FIRST FLOOR - AREA B		
■	11/12/24	EP112	POWER PLAN - SECOND FLOOR - AREA B		
■	11/12/24	EP113	POWER PLAN - THIRD FLOOR - AREA B		
■	11/12/24	EL101	LIGHTING PLAN - FIRST FLOOR - AREA A		
■	11/12/24	EL102	LIGHTING PLAN - SECOND FLOOR - AREA A		
■	11/12/24	EL103	LIGHTING PLAN - THIRD FLOOR - AREA A		
■	11/12/24	EL111	LIGHTING PLAN - FIRST FLOOR - AREA B		
■	11/12/24	EL112	LIGHTING PLAN - SECOND FLOOR - AREA B		
■	11/12/24	EL113	LIGHTING PLAN - THIRD FLOOR - AREA B		
■	11/12/24	E501	ELECTRICAL DETAILS		
■	11/12/24	E601	ELECTRICAL SCHEDULES		

FIRE PROTECTION

	Sheet Issue Date	Sheet Number	Sheet Name	Rev.	Current Revision Date
■	11/12/24	FP-101	FIRE PROTECTION PLAN - FIRST FLOOR - AREA A		
■	11/12/24	FP-102	FIRE PROTECTION PLAN - SECOND FLOOR - AREA A		
■	11/12/24	FP-103	FIRE PROTECTION PLAN - THIRD FLOOR - AREA A		
■	11/12/24	FP-111	FIRE PROTECTION PLAN - FIRST FLOOR - AREA B		
■	11/12/24	FP-112	FIRE PROTECTION PLAN - SECOND FLOOR - AREA B		
■	11/12/24	FP-113	FIRE PROTECTION PLAN - THIRD FLOOR - AREA B		

PLUMBING

	Sheet Issue Date	Sheet Number	Sheet Name	Rev.	Current Revision Date
■	11/12/24	PS101	SANITARY SEWER PLAN - FIRST FLOOR - AREA A		
■	11/12/24	PS102	SANITARY SEWER PLAN - SECOND FLOOR - AREA A		
■	11/12/24	PS103	SANITARY SEWER PLAN - THIRD FLOOR - AREA A		
■	11/12/24	PS111	SANITARY SEWER PLAN - FIRST FLOOR - AREA B		
■	11/12/24	PS112	SANITARY SEWER PLAN - SECOND FLOOR - AREA B		
■	11/12/24	PS113	SANITARY SEWER PLAN - THIRD FLOOR - AREA B		
■	11/12/24	PW101	WATER PLAN - FIRST FLOOR - AREA A		
■	11/12/24	PW102	WATER PLAN - SECOND FLOOR - AREA A		
■	11/12/24	PW103	WATER PLAN - THIRD FLOOR - AREA A		
■	11/12/24	PW111	WATER PLAN - FIRST FLOOR - AREA B		
■	11/12/24	PW112	WATER PLAN - SECOND FLOOR - AREA B		
■	11/12/24	PW113	WATER PLAN - THIRD FLOOR - AREA B		
■	11/12/24	P501	PLUMBING DETAILS & SCHEDULES		

UNIT MEP

	Sheet Issue Date	Sheet Number	Sheet Name	Rev.	Current Revision Date
■	11/12/24	UMEP1.1	UNIT TYPE ARA MEP PLAN		
■	11/12/24	UMEP1.2	UNIT TYPE ARA-ALT MEP PLAN		
■	11/12/24	UMEP1.3	UNIT TYPE ARA-CORNER MEP PLAN		
■	11/12/24	UMEP1.4	UNIT TYPE ADRIAN MEP PLAN		
■	11/12/24	UMEP1.5	UNIT TYPE ADRIAN-ALT MEP PLAN		
■	11/12/24	UMEP1.6	UNIT TYPE ADRIAN-CORNER MEP PLAN		
■	11/12/24	UMEP1.7	UNIT TYPE DELTA MEP PLAN		
■	11/12/24	UMEP2.1.1	UNIT TYPE ABERDEEN-A HVAC & WATER PLAN		
■	11/12/24	UMEP2.1.2	UNIT TYPE ABERDEEN-A POWER & LIGHTING PLAN		
■	11/12/24	UMEP2.2.1	UNIT TYPE ABERDEEN-B HVAC & WATER PLAN		
■	11/12/24	UMEP2.2.2	UNIT TYPE ABERDEEN-B POWER & LIGHTING PLAN		
■	11/12/24	UMEP2.3.1	UNIT TYPE ABERDEEN-ALT HVAC & WATER PLAN		
■	11/12/24	UMEP2.3.2	UNIT TYPE ABERDEEN-ALT POWER & LIGHTING PLAN		
■	11/12/24	UMEP2.4.1	UNIT TYPE HURLEY HVAC & WATER PLAN		
■	11/12/24	UMEP2.4.2	UNIT TYPE HURLEY POWER & LIGHTING PLAN		
■	11/12/24	UMEP2.5.1	UNIT TYPE LANA HVAC & WATER PLAN		
■	11/12/24	UMEP2.5.2	UNIT TYPE LANA POWER & LIGHTING PLAN		

SHEET INDEX LEGEND

■	10/10/2023	A-000	SHEET NAME	-	10/10/2023

SOLID FILL INDICATES INCLUSION IN ISSUE
SHEET ISSUE DATE
SHEET NUMBER AND NAME
CURRENT REVISION NUMBER & REVISION DATE ON SHEET

PRINTS ISSUED
11/12/24 - CITY SUBMITTAL

REVISIONS:

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STATE OF MISSOURI
DAVID EUGENE HENDRICKSE
NUMBER
7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
SHEET INDEX (CONT.)

PROJECT NUMBER: 23103

SHEET NUMBER:

G-001.1

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	ETHLYENE 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 CONFORMANCE 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 DISPOSAL 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. INSTALLATION 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

11/12/24 - CITY SUBMITTAL

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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
GENERAL INFORMATION

PROJECT NUMBER: 23103

SHEET NUMBER:

G-002

11/12/2024 9:32:33 AM
C:\Revit Local Caches\2023\23103_Lot 7 Apartments_Central_R23_bmichaels@WIT.A2.rvt

ENVIRONMENTAL GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR INSPECTING THE EXISTING SITE FOR ANY ENVIRONMENTAL HAZARDS, WHICH INCLUDE ASBESTOS-CONTAINING MATERIALS (ACM), LEAD-BASED PAINT (LBP) AND ABOVE GROUND STORAGE TANK(S) AS IDENTIFIED AND INDICATED IN THE PHASE I ENVIRONMENTAL REPORT PREPARED FOR THE OWNER AND FOUND IN THE PROJECT SPECIFICATIONS.
2. CONTRACTOR IS RESPONSIBLE FOR PROPER NOTIFICATION AS MAY BE REQUIRED FOR LOCAL, STATE, OR FEDERAL ABATEMENT PROCEDURES AND PAYMENT OF ALL FEES TO THE REQUIRED JURISDICTION.
3. CONTRACTOR SHALL PROPERLY NOTIFY AND INFORM ALL SUB-CONTRACTORS AND ALL WORKERS/EMPLOYEES EITHER ENTERING OR WORKING ON SITE OF THE PRESENCE OF ANY AND ALL HAZARDOUS MATERIALS IDENTIFIED.
4. CONTRACTOR SHALL COORDINATE ALL ABATEMENT PROCEDURES, NOTIFICATION AND WORK WITH OWNER RETAINED THIRD PARTY ENVIRONMENTAL ENGINEER/CONSULTANTS IN IDENTIFICATION, ABATEMENT AND REMEDIATION OF ANY HAZARDOUS MATERIAL.
5. NOTE REMOVED
6. NOTE REMOVED
7. NOTE REMOVED
8. ALL HAZARDOUS MATERIALS SHALL BE SAMPLED BY A LICENSED ABATEMENT ENVIRONMENTAL ENGINEER/CONSULTANT AND REMOVED BY A LICENSED CONTRACTOR IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS. CONTRACTOR SHALL NOTIFY OWNER AND ENVIRONMENTAL ENGINEER/CONSULTANT IMMEDIATELY UPON DISCOVERY OF ANY HAZARDOUS MATERIAL WHICH MAY BE CONCEALED AT TIME OF THE ORIGINAL PHASE I ENVIRONMENTAL REPORT AND MAY NOT HAVE BEEN PREVIOUSLY IDENTIFIED OR LOCATED.
9. CONTRACTOR SHALL PROVIDE CLEARANCE LETTER(S) FOR ALL WORK PERFORMED AND ALL REQUIRED LOCAL, STATE OR FEDERAL CLOSURE LETTER(S), REPORTS, AND DOCUMENTATION TO BOTH OWNER AND LENDER.
10. PLEASE REFERENCE THE PROJECT SPECIFICATIONS FOR THE PHASE I ENVIRONMENTAL SUMMARY REPORT. A COMPLETE COPY OF THE PHASE I REPORT AND FINDINGS IS AVAILABLE UPON REQUEST FROM THE OWNER, CONTRACTOR AND/OR ARCHITECT

ELEVATION GENERAL NOTES

1. ALL EXTERIOR SURFACES TO BE PAINTED U.N.O. INCLUDING BUT NOT LIMITED TO TRIM, SIDING, GRILLS, VENTS, ETC.
2. ALL FACADE MATERIAL WRAP BACK TO BUILDING, TYP.
3. SOFFITS AND EXTERIOR CEILINGS ARE TO BE CEMENTITIOUS BOARD WITH BATTENS AT JOINTS.
4. ALL SURFACE RUNS GREATER THAN 25'-0" & INTERIOR CORNERS TO RECEIVE CONTROL JOINT, TYP.

ROOF PLAN GENERAL NOTES

1. ALL NEW WORK TO MEET ALL APPLICABLE BUILDING, PLUMBING, MECHANICAL, HANDICAP, AND LIFE SAFETY CODES AND REQUIREMENTS.
2. THE MINIMUM NET FREE VENTILATING AREA SHALL BE 1/150 OF THE AREA OF THE SPACE VENTILATED. THE OPENINGS SHALL BE COVERED WITH CORROSION-RESISTANT MESH OR OTHER APPROVED MATERIALS WITH OPENINGS NOT MORE THAN 1/2" IN ANY DIRECTION.
3. WHERE RIDGE OR GABLE VENTS ARE UTILIZED, ADDITIONAL PROTECTION AGAINST SNOW INFILTRATION SHALL BE PROVIDED BY BALANCING THE AREA OF THE VENTS IN THE RIDGES AND THE EAVES SUCH THAT AT LEAST 1/2 OF THE VENTILATION AREA SHALL BE PROVIDED BY SOFFIT OR EAVE VENTS, WITH THE BALANCE OF THE VENTILATION OPENINGS PROVIDED BY THE GABLE OR RIDGE VENTS. REFERENCE IBC 2018 SECTION 1203.
4. ALL FLOOR JOIST BEARING HEIGHTS ARE 9'-1 1/8". ALL ROOF TRUSS BEARING HEIGHTS ARE 9' - 1 1/8". REFERENCE WALL SECTIONS ON A300 SHEETS.
5. NOTE REMOVED
6. 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.
7. MEMBRANE ROOFING SYSTEM ON RIGID INSULATION, ALL ROOF LOCATIONS TYP. U.O.N.
8. 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. REFERENCE ALL INTERIORS DRAWINGS FOR COORDINATION
4. ALL CEILINGS TO CONFORM TO 2018 IBC TABLE 803.9
5. ALL ACT TILES TO BE WHOLE DIMENSIONS AND ARE NOT TO BE FIELD CUT, ALL ACT TO BE FIELD CENTERED IN SPACE, U.N.O. OR DIMENSIONED
6. SEE ENLARGED UNIT PLANS (A-400 SERIES) FOR ALL UNIT RCP PLANS EXCEPT WHERE HEIGHTS ARE LISTED ON RCP PLANS IN A-100 SERIES.
7. DROPPED CEILINGS AT BATHROOMS ARE TO BE LOCATED AT 8'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED ON THE PLAN.
8. NOTE REMOVED
9. DROP SOFFITS ABOVE KITCHEN CABINETS ARE INTENDED TO BE LOCATED AT 8'-0" ABOVE FINISHED FLOOR IN AREAS SHOWN TO ACCOMMODATE DUCT WORK, RECESSED LIGHTING, AND VENTING. INSTALL AS FRAMED GYPSUM BOARD SYSTEM.
10. 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 .
11. NOTE REMOVED
12. WHERE CEILING HEIGHT IS B.O. FLOOR ASSEMBLY, FINISH TO BE LEVEL FOUR FINISH. ALL UNITS TO HAVE A LEVEL FOUR FINISH AT CEILINGS.
13. NOTE REMOVED
14. 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.
15. ALL DIMENSIONS FOR CEILING TYPE C5 AND C1 ARE TO FINISHED FACE. ALL DIMENSIONS TO WALLS ARE TO F.O. STUD.
16. 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
17. ALL GYPSUM BOARD CEILINGS TO BE PAINTED PA-1 (U.O.N.).
18. 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. ACCESSIBLE UNITS SHALL MEET THE REQUIREMENTS OF 2009 ICC/ANSI A117.1 - TYPE 'A' DWELLING UNITS AND 2010 ADAAG (DOJ). ALL OTHER DWELLING UNITS TO BE TYPE 'B'.
- J. MAIN LEVEL ELEVATION IS T.O. GYPCRETE, OR T.O. CONCRETE SLAB, RESPECTIVELY.
- K. LEVELS ABOVE MAIN LEVEL ARE MEASURED TO T.O. SUBFLOOR.
- L. WHOLE BUILDING TO MEET FAIR HOUSING ACT.
- M. 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.
- N. 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.
- O. CONTROL JOINTS IN GWB AT ALL UNIT CORRIDORS SHALL BE LOCATED AT INSIDE CORNER OF PILASTERS AND ACROSS TOP OF DROP SOFFIT AT PILASTERS. AT LOCATIONS WHICH THERE IS A 30' SPAN BETWEEN PILASTERS, A CONTROL JOINT SHALL OCCUR AT THE CENTRAL LOCATION BETWEEN THE TWO PILASTERS ADJACENT TO THE NEAREST DOOR, RUNNING FROM HEAD TO T.O. PARTITION AT CORNER. AT LOCATIONS WHICH THERE IS A 30' SPAN BETWEEN SOFFIT WHERE PILASTER OCCURS, A CONTROL JOINT SHALL OCCUR AT THE INSIDE CORNER OF PILASTER AND SOFFITS. 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.
- P. PROVIDE FIREBLOCKING AND DRAFTSTOPPING AS REQUIRED AND IN ACCORDANCE WITH 2018 IBC, SECTION 717.0.
- Q. 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.
- R. ALL INTERIOR WALLS ARE TYPE P1, UNLESS NOTED OTHERWISE. ALL EXTERIOR WALLS ARE TYPE P30, UNLESS NOTED OTHERWISE. SEE SHEET G-101 FOR PARTITION SCHEDULE.
- S. 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 UNITS, 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, UNIT TOILET ROOMS, AND BATHROOMS. BLOCKING TO BE PROVIDED FOR ALL SHOWER GRAB BARS AND SEATING AS REQUIRED BY MANUFACTURER.
- B. CONTRACTOR TO COORDINATE BLOCKING AT ALL ADJACENT POCKET DOORS, MEDICINE CABINETS, AND OTHER ELEMENTS.
- C. AT ALL IDF, MDF & 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.
- E. ALL EXPOSED CABINET ENDS TO HAVE FINISHED PANELS, INCLUDING BUT NOT LIMITED TO END OF CABINET RUN, ADJACENT TO REFRIGERATOR, LOCATIONS OF VERTICAL OFFSETS AND INTERIOR BLIND CORNERS.

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 MANUF. 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.
- C. INTERIOR DOORS ARE EITHER 4" FROM STUD FACE TO HINGE SIDE OF DOOR OR CENTERED IN OPENING, U.N.O.

09 - FINISHES
- A. NOTE REMOVED
- B. NOTE REMOVED
- C. NOTE REMOVED
- D. PRIME, PAINT AND SEAL ALL WALLS, COLUMNS AND CEILINGS AS REQUIRED PRIOR TO INSTALLATION OF M/E/P/F/TELEPHONE/SECURITY INSTALLATION.
- E. CONTRACTOR TO COORDINATE ALL WET WALLS WITH ADJACENT RATINGS AND TO ACCOMMODATE PLUMBING FIXTURES. WALLS TO BE ALIGNED.
- F. 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
- G. FLOOR TRANSITION SHALL OCCUR AT MIDDLE OF WALL WHERE OCCURS IN DOORWAY. PROVIDE VINYL REDUCER STRIP.

PLAN GENERAL NOTES - (CONT.)

10 - SPECIALTIES
- A. NOTE REMOVED
- B. NOTE REMOVED
- C. NOTE REMOVED
- D. NOTE REMOVED
- E. PROVIDE CORNER GUARDS AT COMMON SPACES, TYP.
- F. PROVIDE VENTILATED WIRE SHELVING AT ALL CLOSETS AND PANTRY UNO. REFERENCE KEYED ENLARGED FLOOR PLAN NOTES ON A400 SHEETS FOR LOCATIONS. DEPTH TO BE COORDINATED WITH ANY LIGHT FIXTURES TO NOT ENCROACH ON IFC CLEARANCES.
- G. TOILET PAPER DISPENSER TO BE INSTALLED PER A4/G-301 AND 2009 ICC ANSI 117.1
- H. SEE G300 FOR SIGNAGE REQUIREMENTS. NUMBERING OF UNITS AND ROOMS SHALL BE UPDATED TO MEET AHJ AND OWNER REQUIREMENTS PRIOR TO SIGNAGE PRODUCTION.
- I. ALL STL COLUMNS AND SSTL BEAMS REQUIRE 1-HOUR PROTECTION TYP., U.N.O.

21 - FIRE SUPPRESSION
- A. ALL UNITS TO HAVE APPROPRIATE NUMBER OF SMOKE DETECTORS INSTALLED INTERCONNECTED AND HARD-WIRED WITH BATTERY BACKUP PER CODE, INCLUDING ONE (1) IN EACH BEDROOM. ALL UNITS TO BE ABLE TO COMMUNICATE WITH NURSE CALL SYSTEM, GENERAL CONTRACTOR TO COORDINATE.
- B. 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.
- C. CONCEALED SPRINKLER HEADS TO BE USED U.N.O.
- D. IN RESIDENT UNITS, SEMI-RECESSED SPRINKLER HEADS TO BE USED. ALL COMMON AREA SPRINKLERS TO BE FULLY CONCEALED. SEE SPECIFICATION 21 00 00
- E. DRY SPRINKLERS TO BE COORDINATED WITH DESIGN-BUILD CONTRACTOR. 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 LINE 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.
- F. SHOWERS ARE REPRESENTED ON PLAN; COORDINATE IN-FIELD R.O. DIMENSIONS OF SHOWER PER MANUF. INFO. BEFORE INSTALLATION OF WALLS.

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. NOTE REMOVED
- 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 2018 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
11/12/24 - CITY SUBMITTAL

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
PLAN GENERAL NOTES

PROJECT NUMBER: 23103

SHEET NUMBER:

G-003

11/12/2024 9:32:35 AM

WEATHER-RESISTIVE BARRIER INSTALLATION GUIDELINES

WEATHER-RESISTIVE BARRIER INSTALLATION ON VERTICAL WALLS

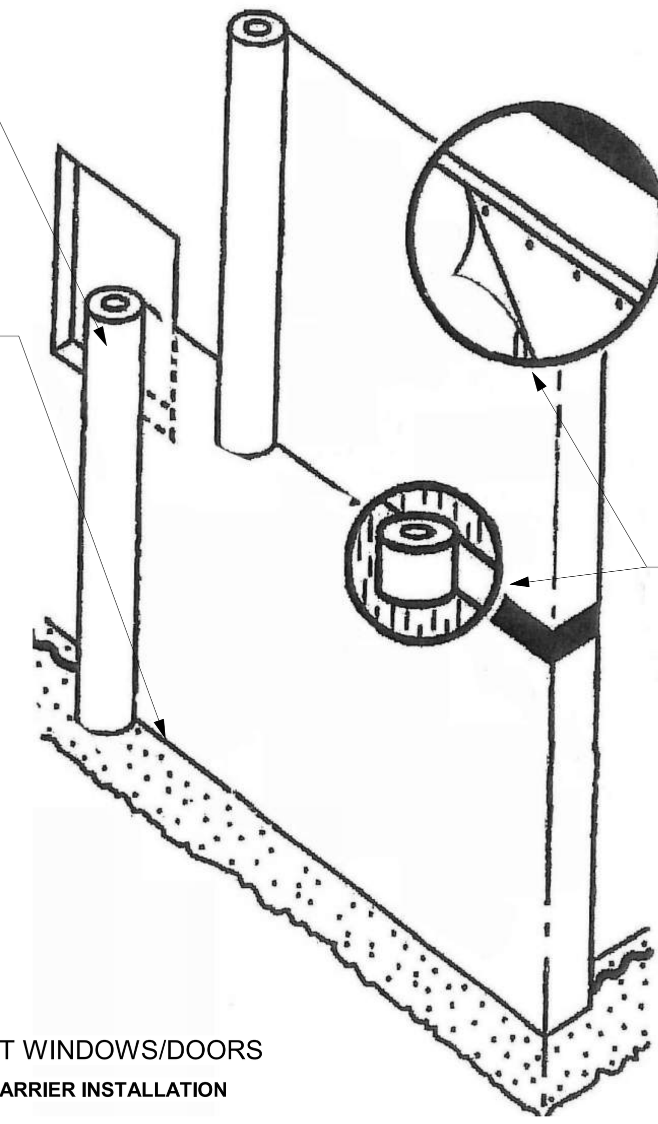
PRIOR TO INSTALLATION OF WINDOWS OR DOORS

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

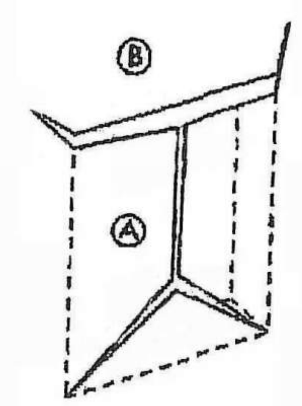
UPON COMPLETION OF WEATHER-RESISTIVE BARRIER INSTALLATION

GENERAL INSTRUCTIONS

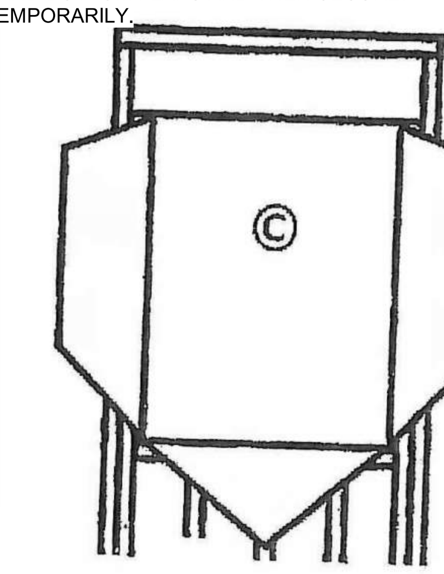
- USE AND INSTALL APPROVED FLASHING PER WEATHER-RESISTIVE BARRIER MANUFACTURER'S RECOMMENDATIONS.
- INSTALL FLASHING ON CLEAN, DRY SURFACES. SURFACES TO BE WIPED TO REMOVE MOISTURE, DIRT, GREASE AND OTHER DEBRIS WHICH MAY INTERFERE WITH ADHESION.
- PRESSURE TO BE APPLIED ALONG ENTIRE SURFACE TO ACHIEVE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

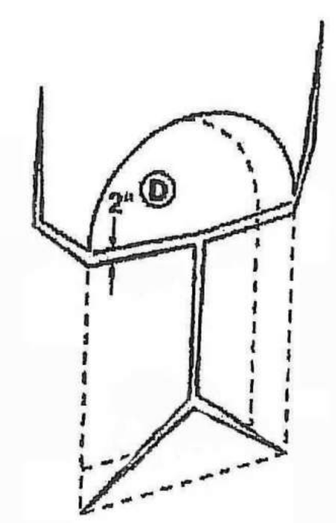
STEP 6
PREPARE WEATHER-RESISTIVE BARRIER FOR WINDOW OR DOOR INSTALLATION:

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

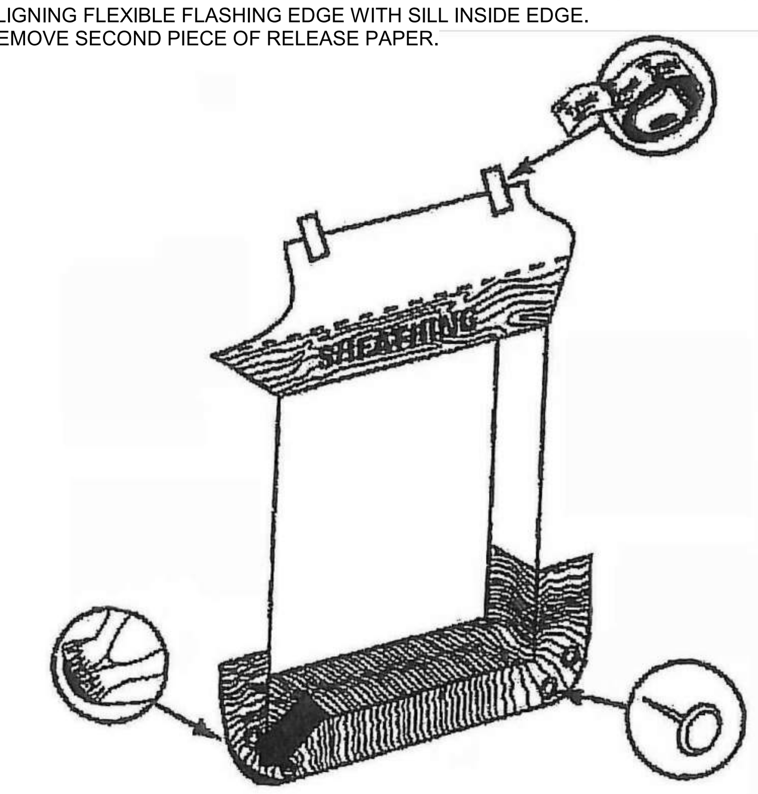


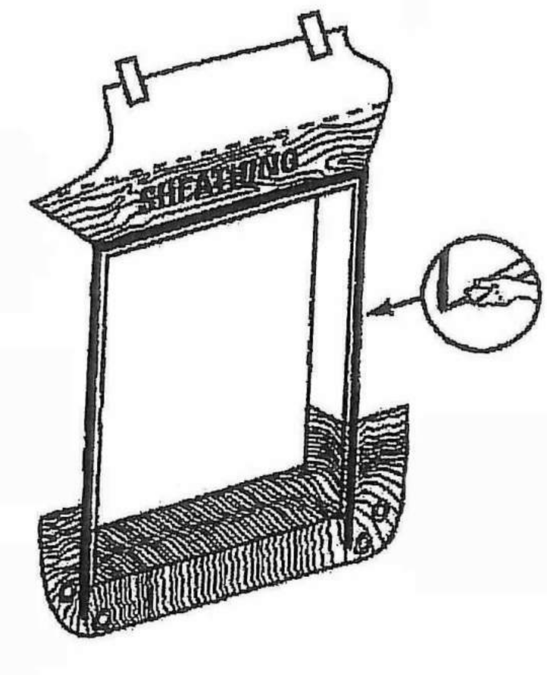


FOR ROUNDTOP WINDOWS

STEP 7

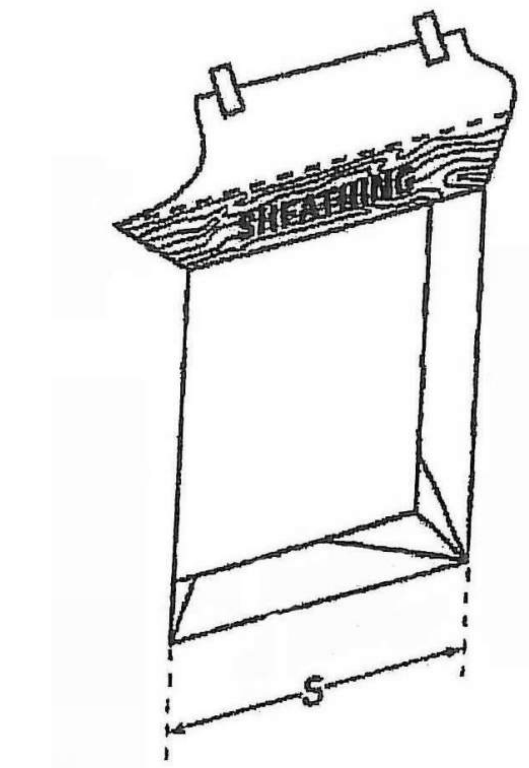
A. CUT FLEXIBLE FLASHING AT LEAST 12" LONGER THAN SILL ROUGH OPENING WIDTH.
B. REMOVE FIRST PIECE OF RELEASE PAPER, COVER HORIZONTAL SILL BY ALIGNING INSIDE EDGE OF SILL, AND SECURE IN ROUGH OPENING ACROSS SILL AND TURN UP JAMBS - MINIMUM 6". COVER HORIZONTAL SILL BY ALIGNING FLEXIBLE FLASHING EDGE WITH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





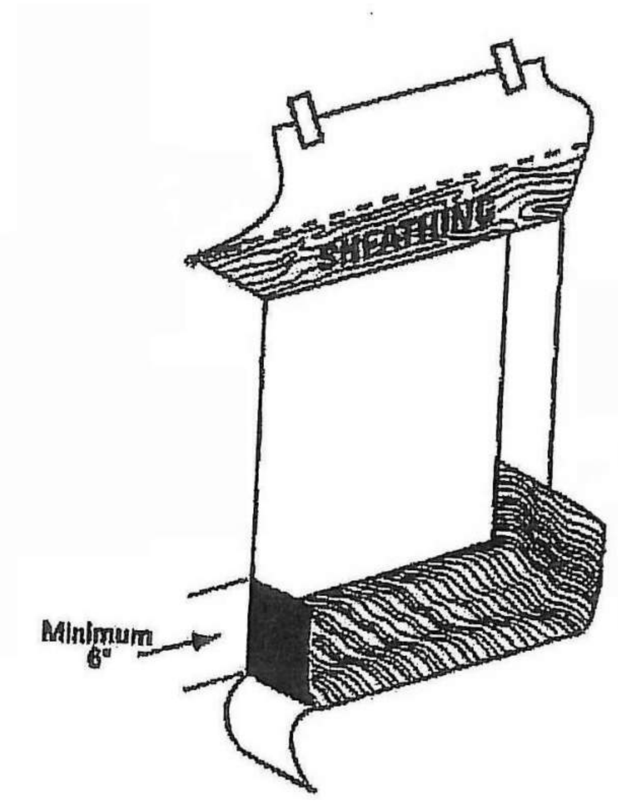
STEP 8

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.**



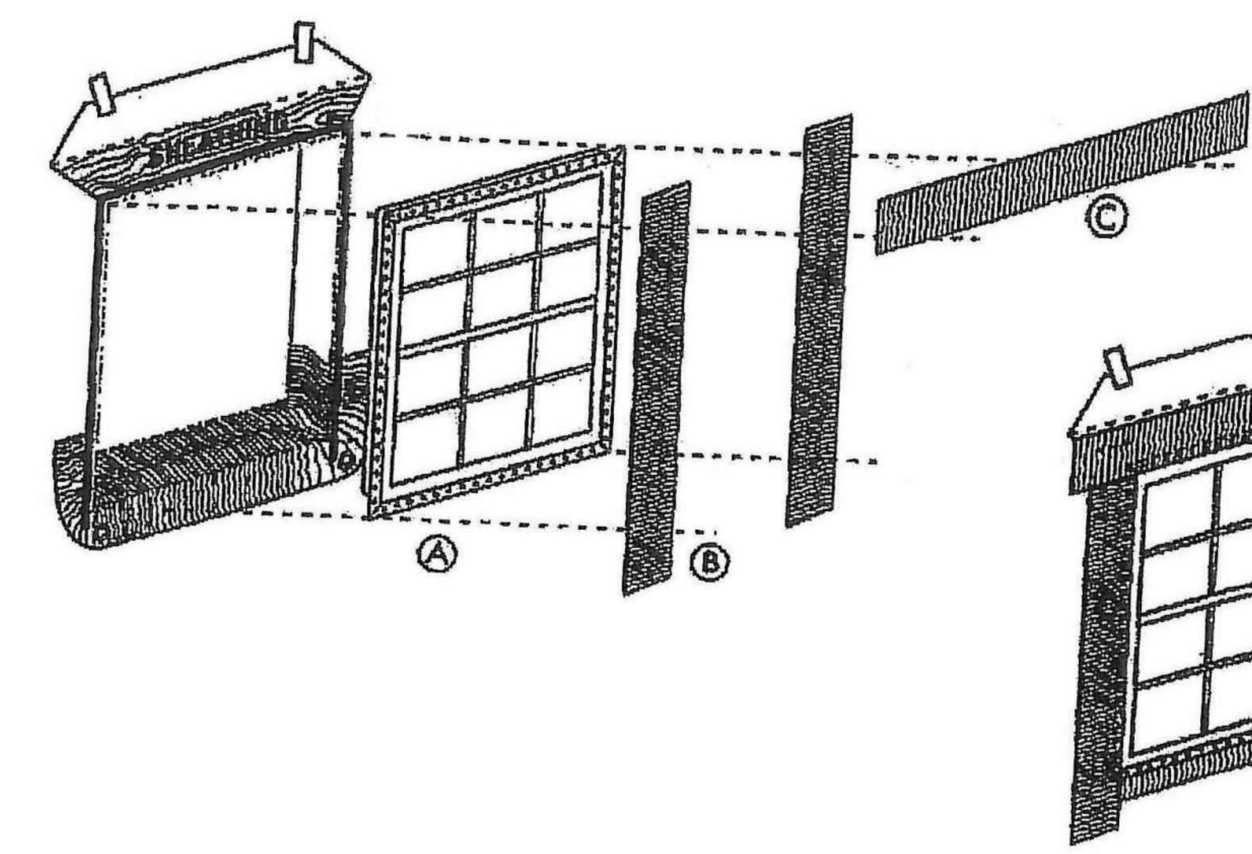
STEP 9

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.**



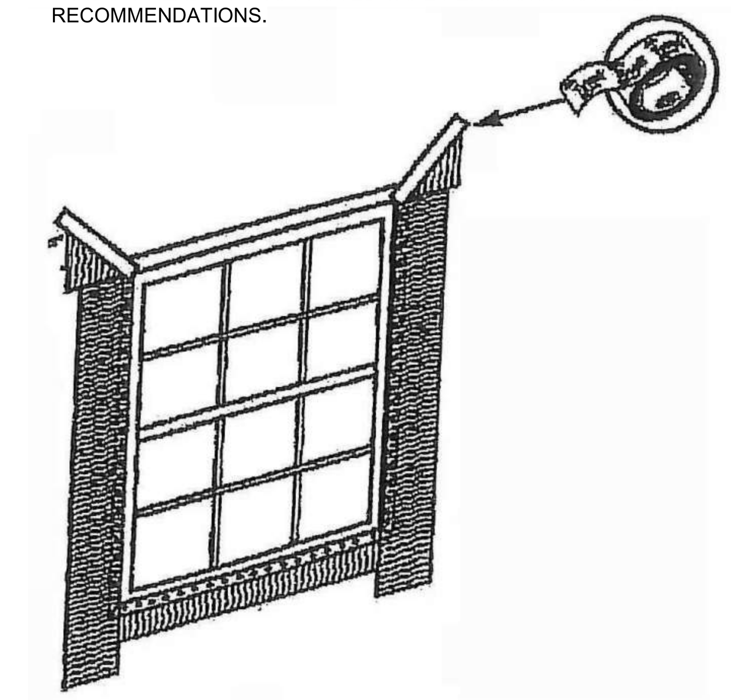
STEP 10

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)



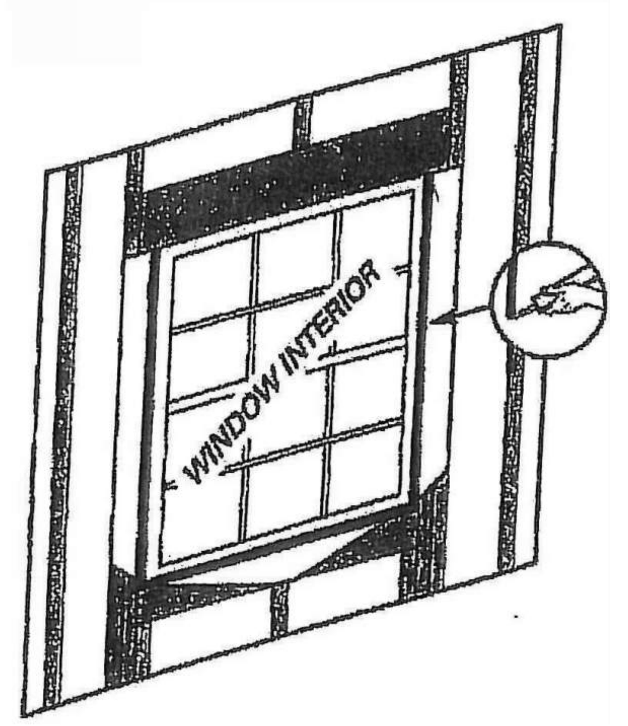
STEP 11

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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STATE OF MISSOURI
DAVID EUGENE HENDRICKS
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

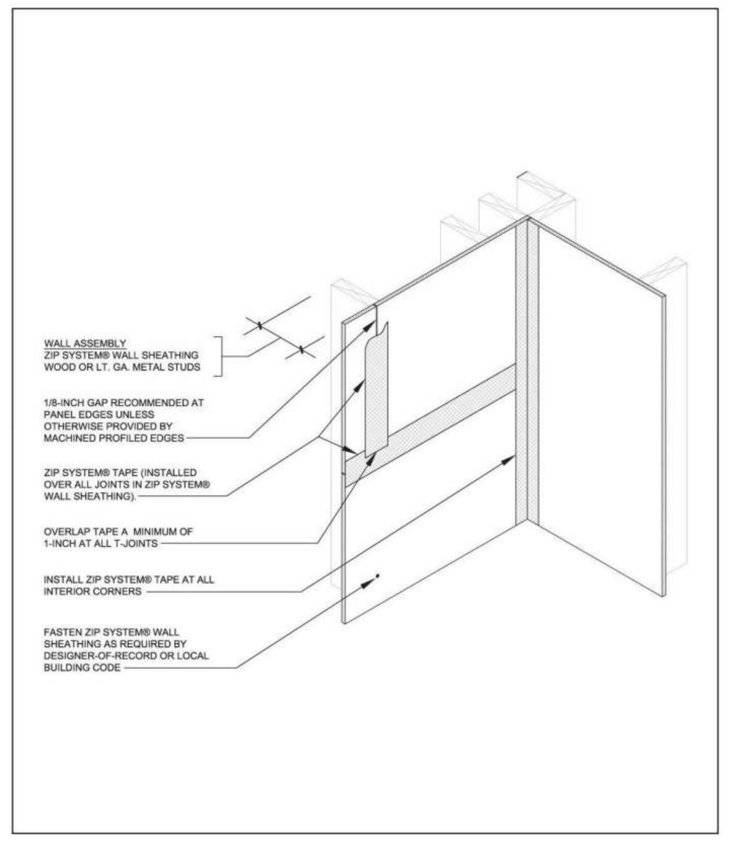
LEE'S SUMMIT, MO

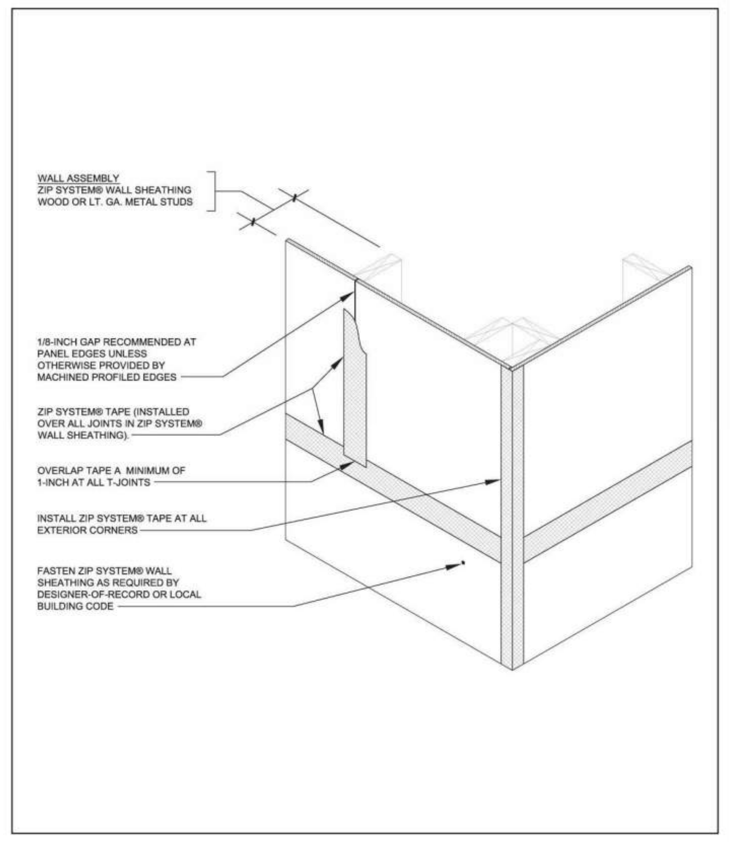
SHEET TITLE
GENERAL INFORMATION

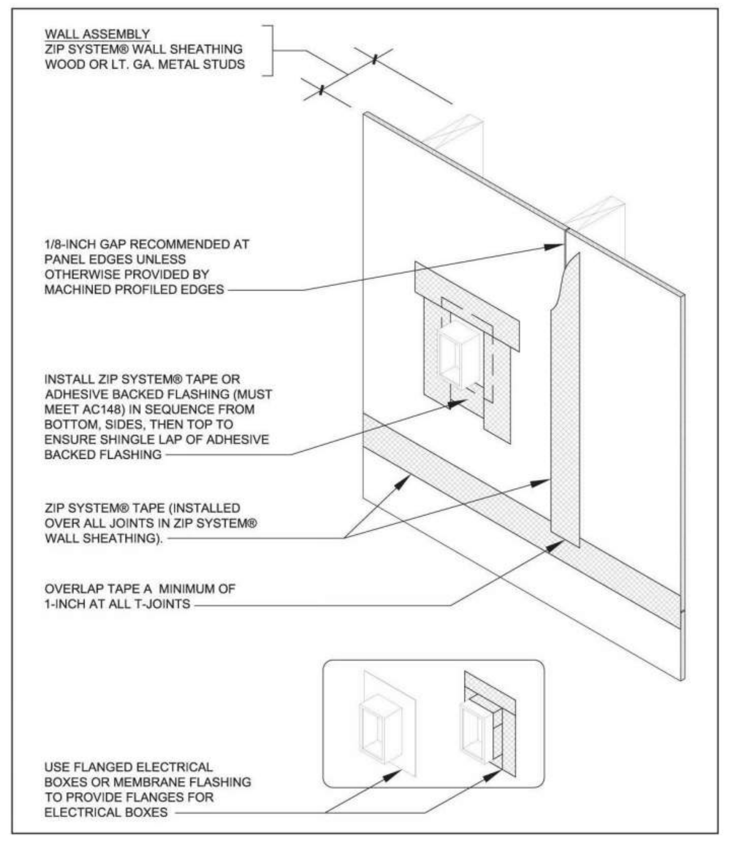
PROJECT NUMBER: 23103

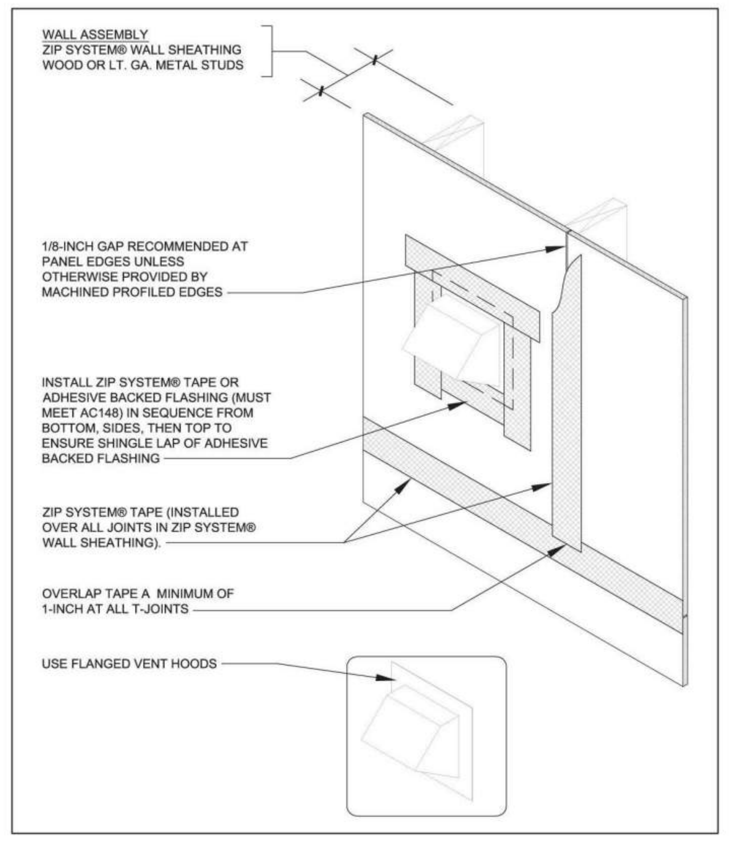
SHEET NUMBER:

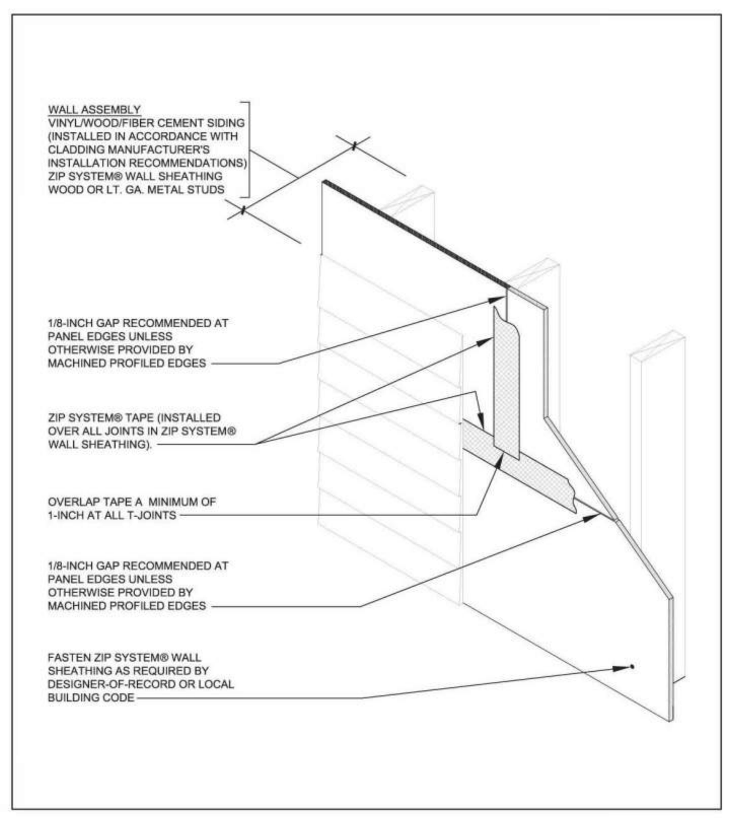
G-004

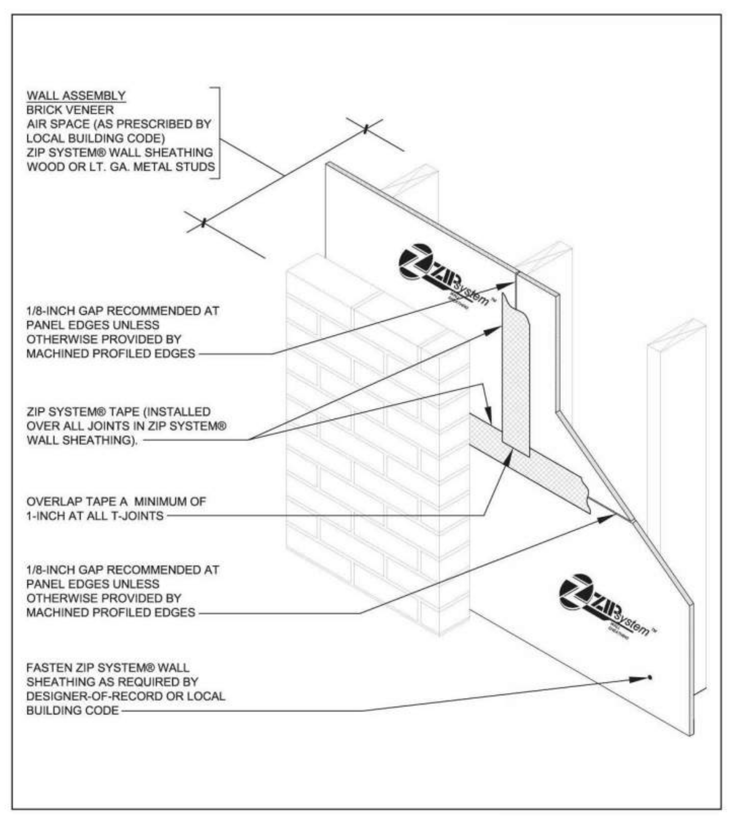






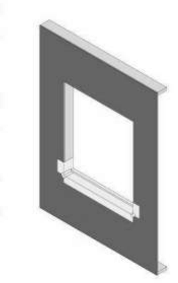






Brick Mould Windows (continued)

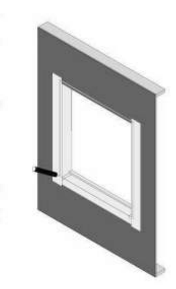
3. ZIP System tape may be used as pan flashing if installed in accordance with brick mould window installation details posted on zipsystem.com. Other adhesive-based flashing tapes (must meet ICC-ES Acceptance Criteria for Flashing Materials (AC148)) may be used as pan flashing if installed per ASTM 2112-07. 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.



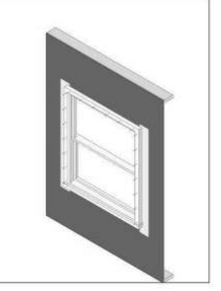
4. For vertical jambs, cut ZIP System tape or another adhesive-backed flashing tape (must meet ICC-ES Acceptance Criteria for Flashing Materials (AC148)) and apply to each of the window jambs. Ensure that they cover the entire inside of the rough opening as well as overlap onto the sheathing by at least 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.

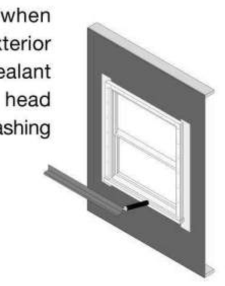
5. Apply sealant to jambs and header allowing for drainage at the sill in accordance with window manufacturer's installation instructions. When using ZIP System tape, use a butyl, polyurethane or silicone sealant. Do not use latex sealants with ZIP System tape. When using another flashing tape, follow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



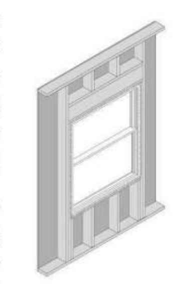
8. Secure the rigid head flashing to ZIP System wall sheathing.

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.)

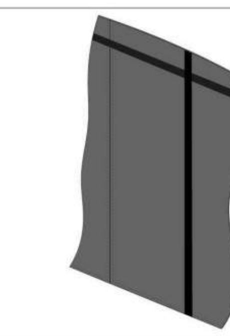
    When using ZIP System tape, butyl, silicone or polyurethane sealants are acceptable. Do not use latex sealants with ZIP System tape. If using another flashing tape, follow the flashing manufacturer's recommendation in selecting a sealant compatible with that flashing.



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.

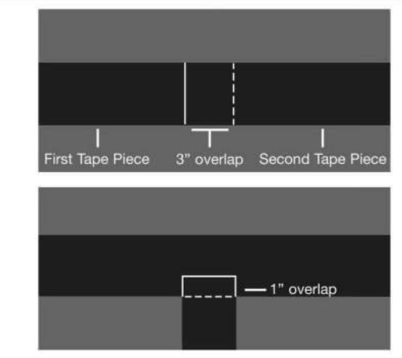


Step 2. Wherever tape splices occur at a horizontal or vertical seam, create an overlapping splice of at least 3".

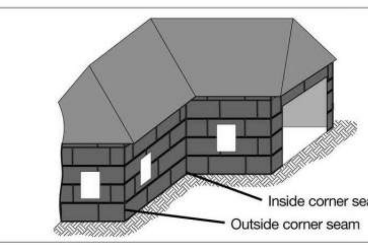
At T-joints, the tape pieces should overlap by at least 1". Apply moderate pressure onto the surface of the tape to ensure a secure bond between the panel and the tape.

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.

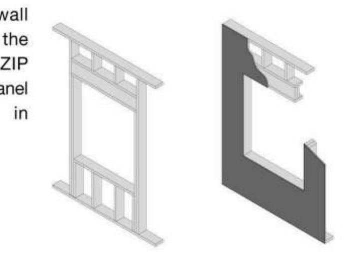


Step 3. Tape inside and outside corner seams.

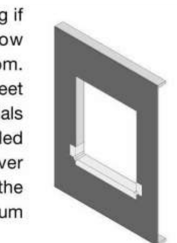


Flanged Windows

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.

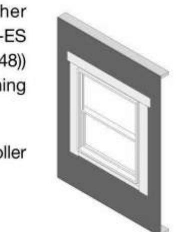
4. Cut two pieces of ZIP System tape or another adhesive-backed flashing tape (must meet ICC-ES Acceptance Criteria for Flashing Materials (AC148)) and apply to each of the window jamb flanges, ensuring the jamb flashings overlap the sill flashing.

   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.*

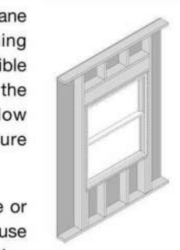
   Once the tape is in place, use the tape gun or roller to seal the flashing to the sheathing.

   *DO NOT tape bottom flange.



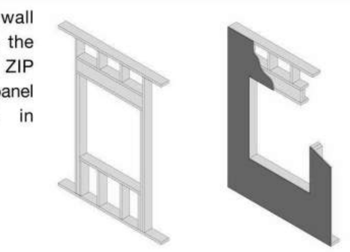
6. From the interior, apply low-pressure polyurethane foam (for windows) between the rough opening and the window frame. (Caulk sealant compatible with the sill flashing may be used at the sill if the opening between the sill flashing and window is too narrow to allow the use of low-pressure polyurethane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

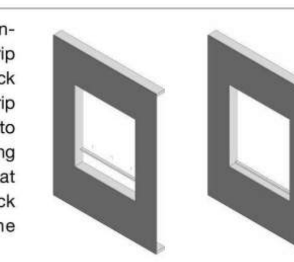


Brick Mould Windows

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

PRINTS ISSUED
11/12/24 - CITY SUBMITTAL

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
GENERAL INFORMATION

PROJECT NUMBER: 23103

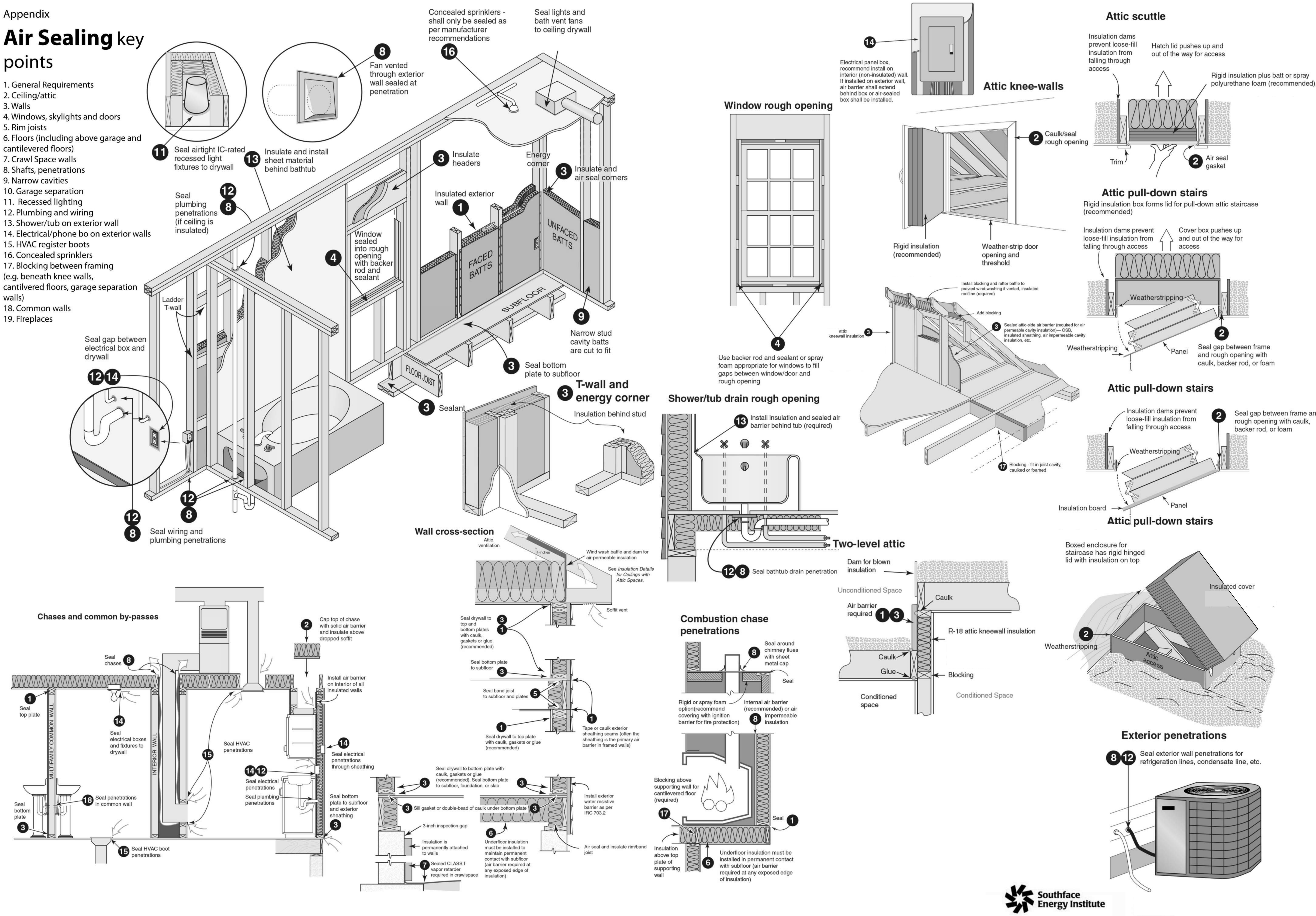
SHEET NUMBER:

G-005

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, cantilvered floors, garage separation walls)
18. Common walls
19. Fireplaces



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THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
GENERAL INFORMATION

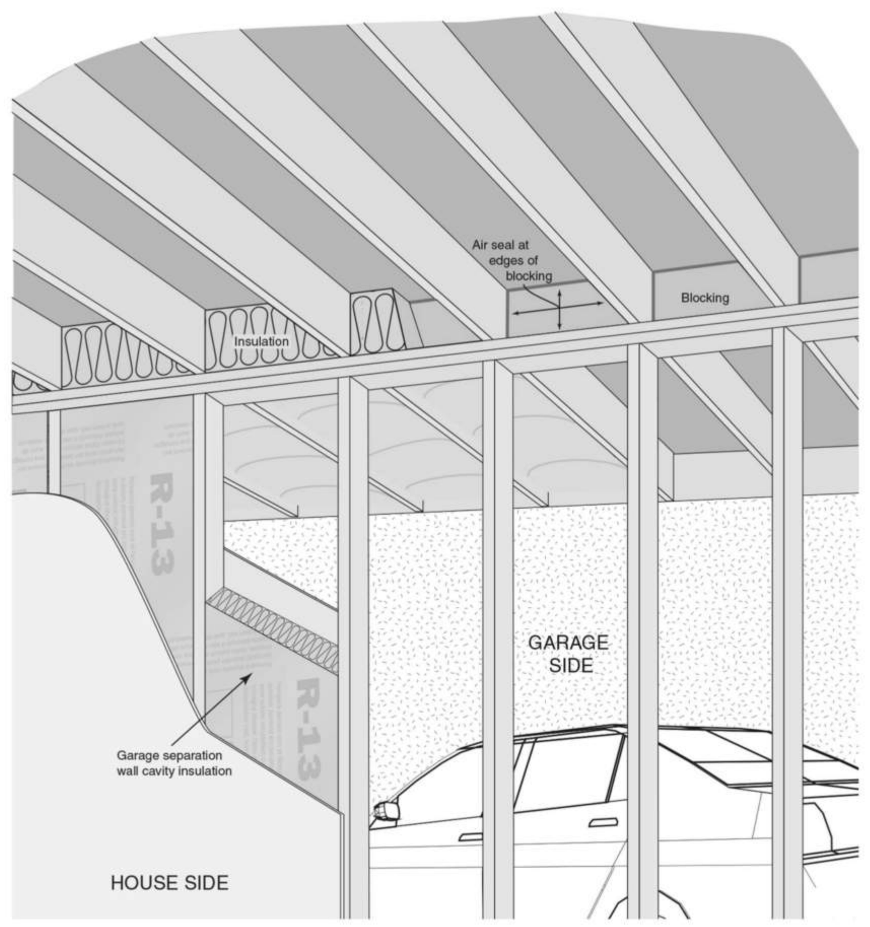
PROJECT NUMBER: 23103

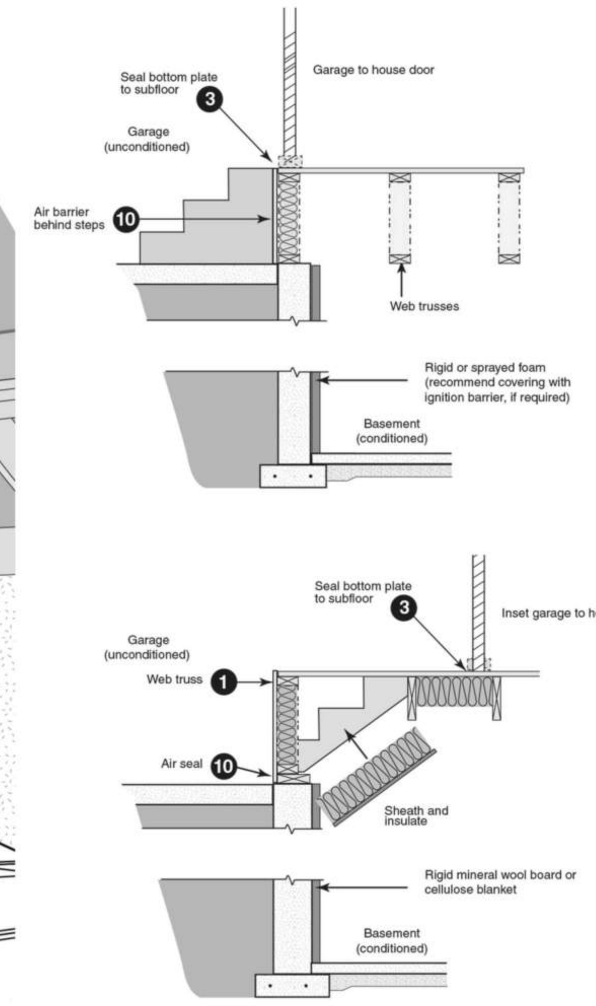
SHEET NUMBER:

G-006

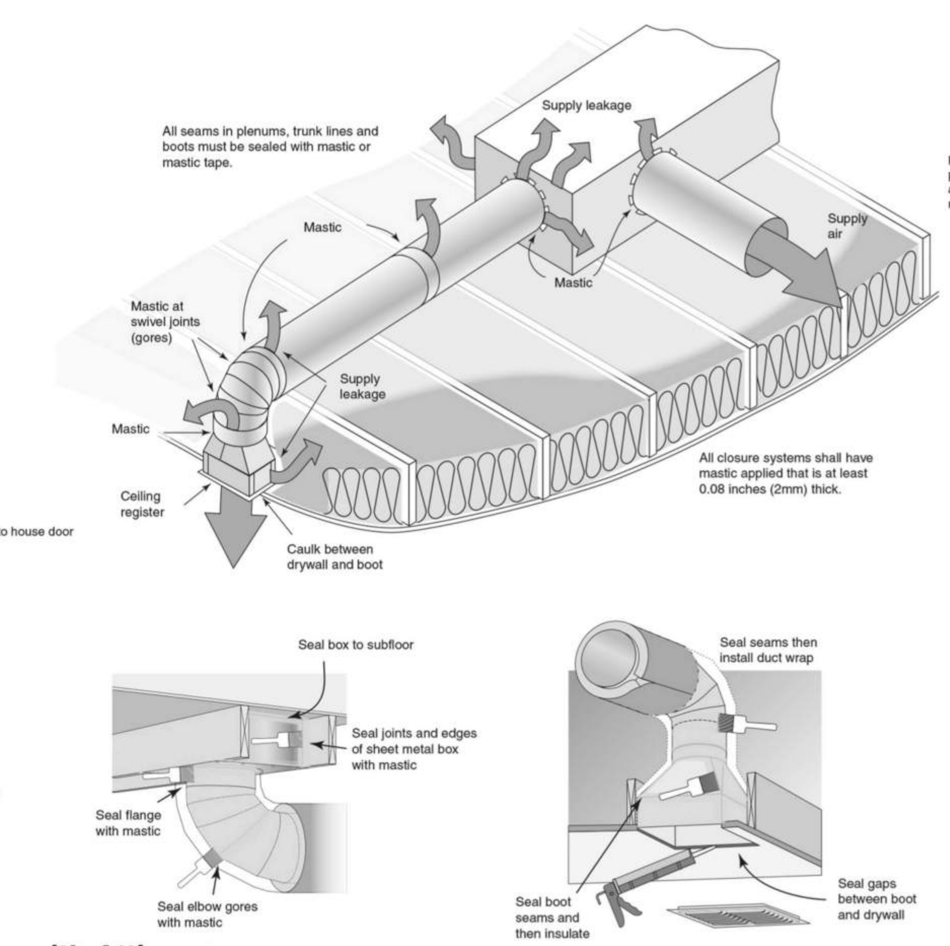
Garage blocking and sealing key points

Blocking, air sealing and insulation required above garage separation wall

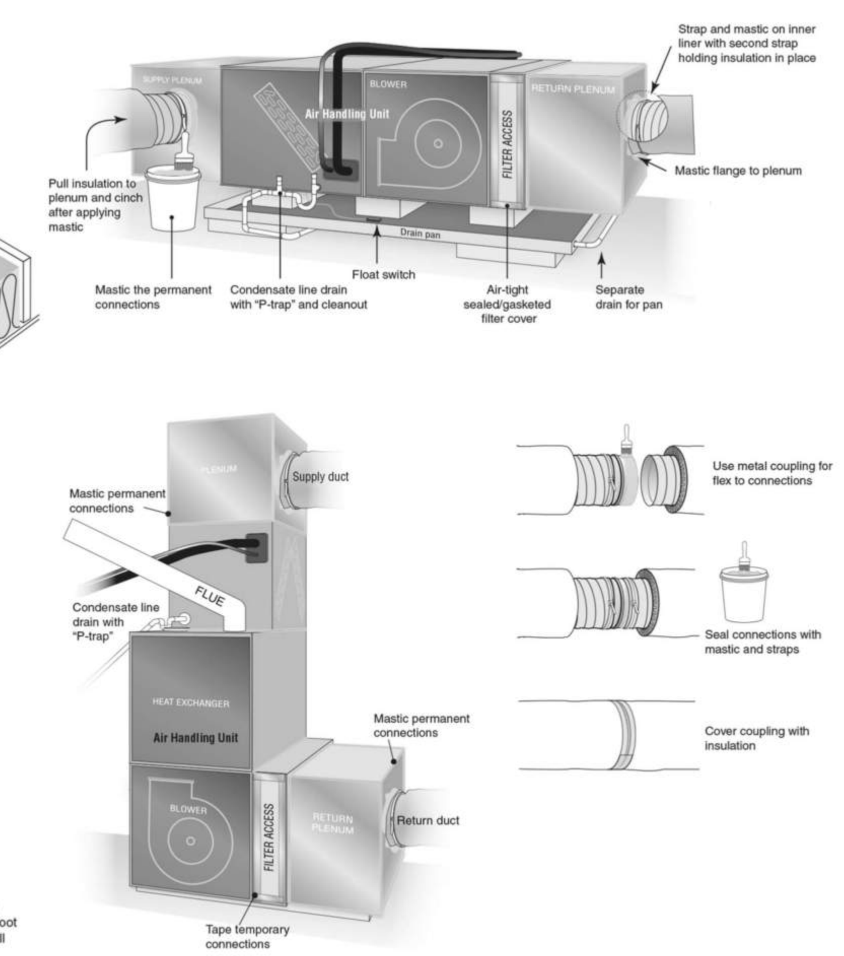




Duct Sealing key points

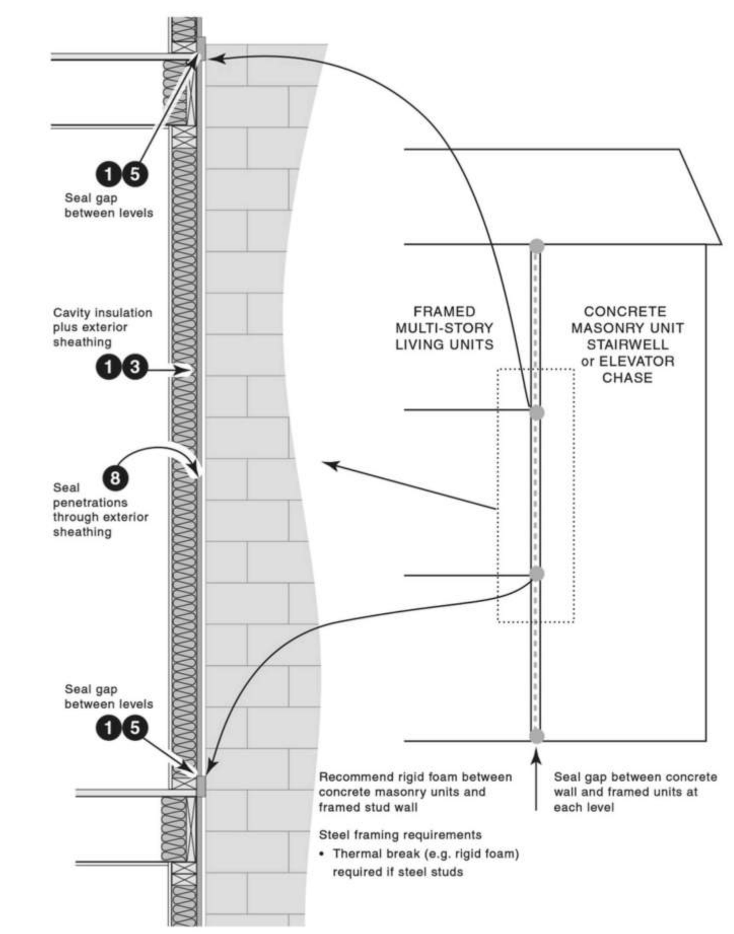


Air Handler Sealing key points

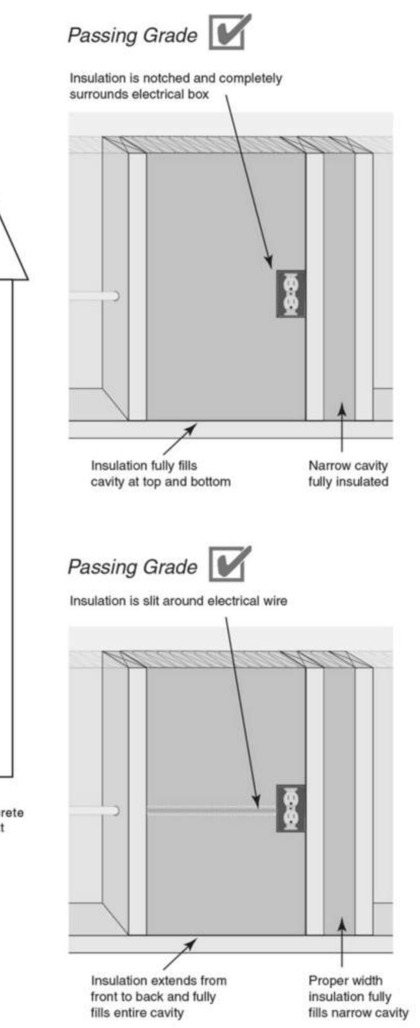


Air sealing key points *continued*

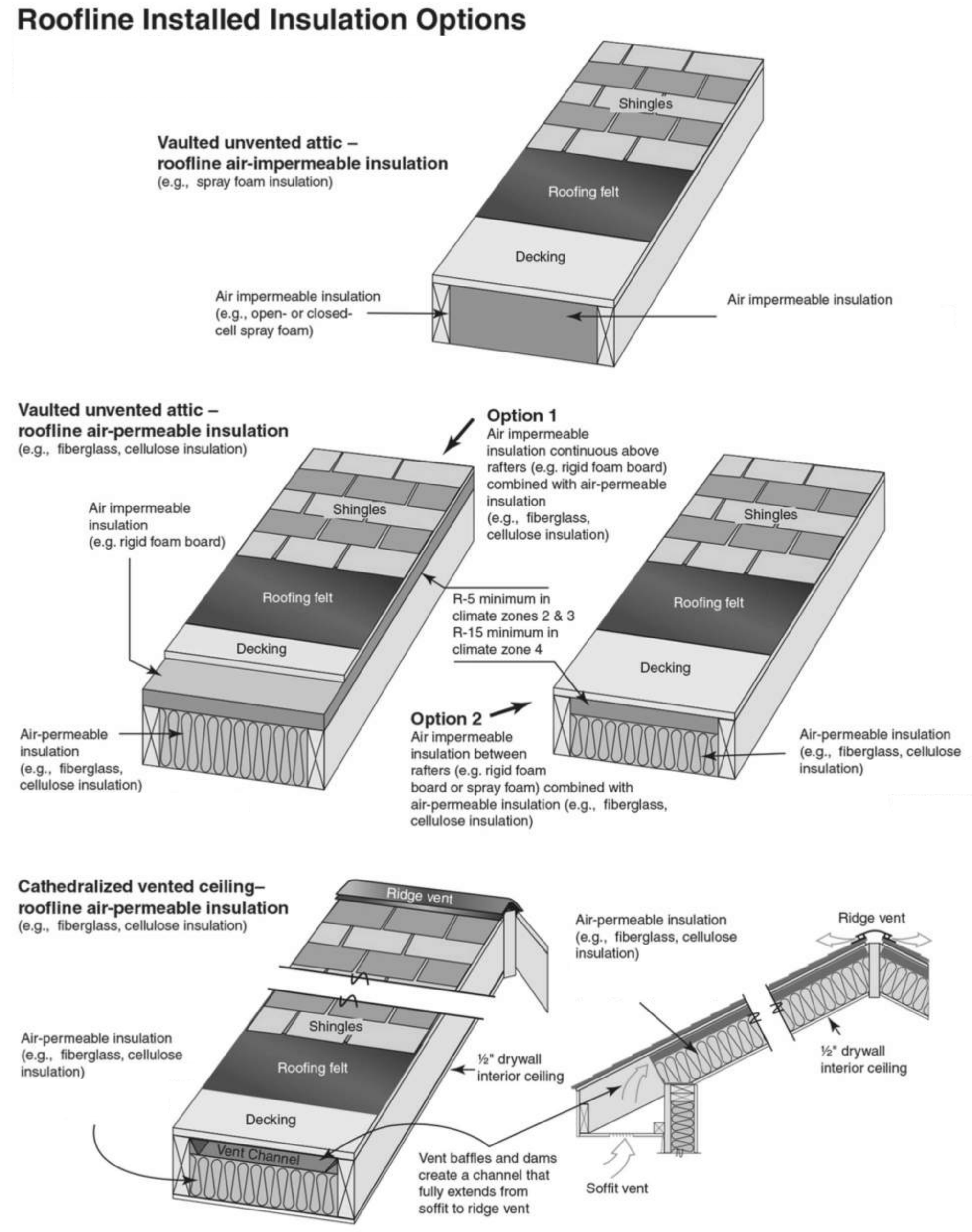
Multifamily



Wall Insulation key points

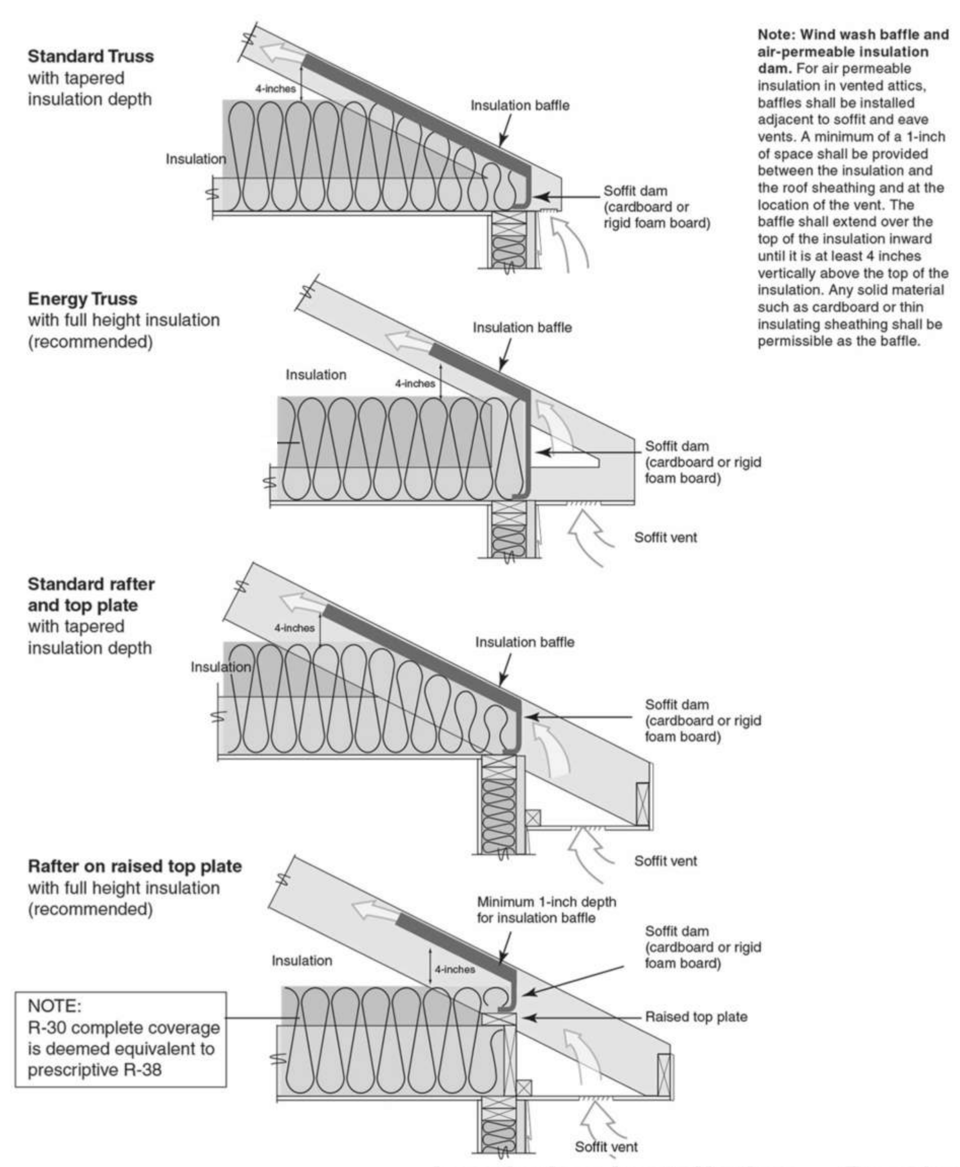


Roofline Installed Insulation Options



Insulation Details for Ceilings with Attic spaces

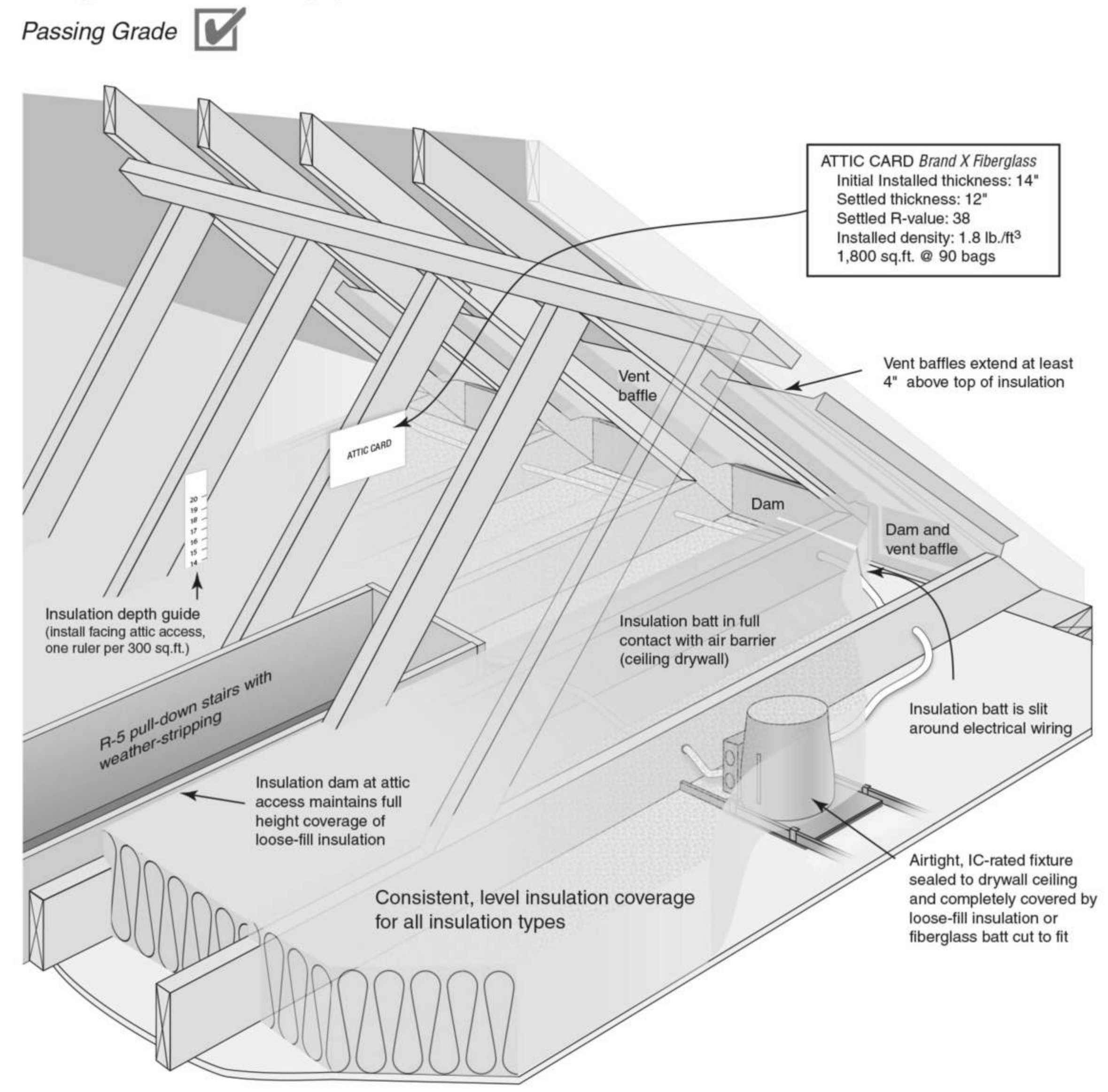
Rafter and Truss



Note: Wind wash baffle and air-permeable insulation dam. For air permeable insulation in vented attics, baffles shall be installed adjacent to soffit and eave vents. A minimum of a 1-inch of space shall be provided between the insulation and the roof sheathing and at the location of the vent. The baffle shall extend over the top of the insulation inward until it is at least 4 inches vertically above the top of the insulation. Any solid material such as cardboard or thin insulating sheathing shall be permissible as the baffle.

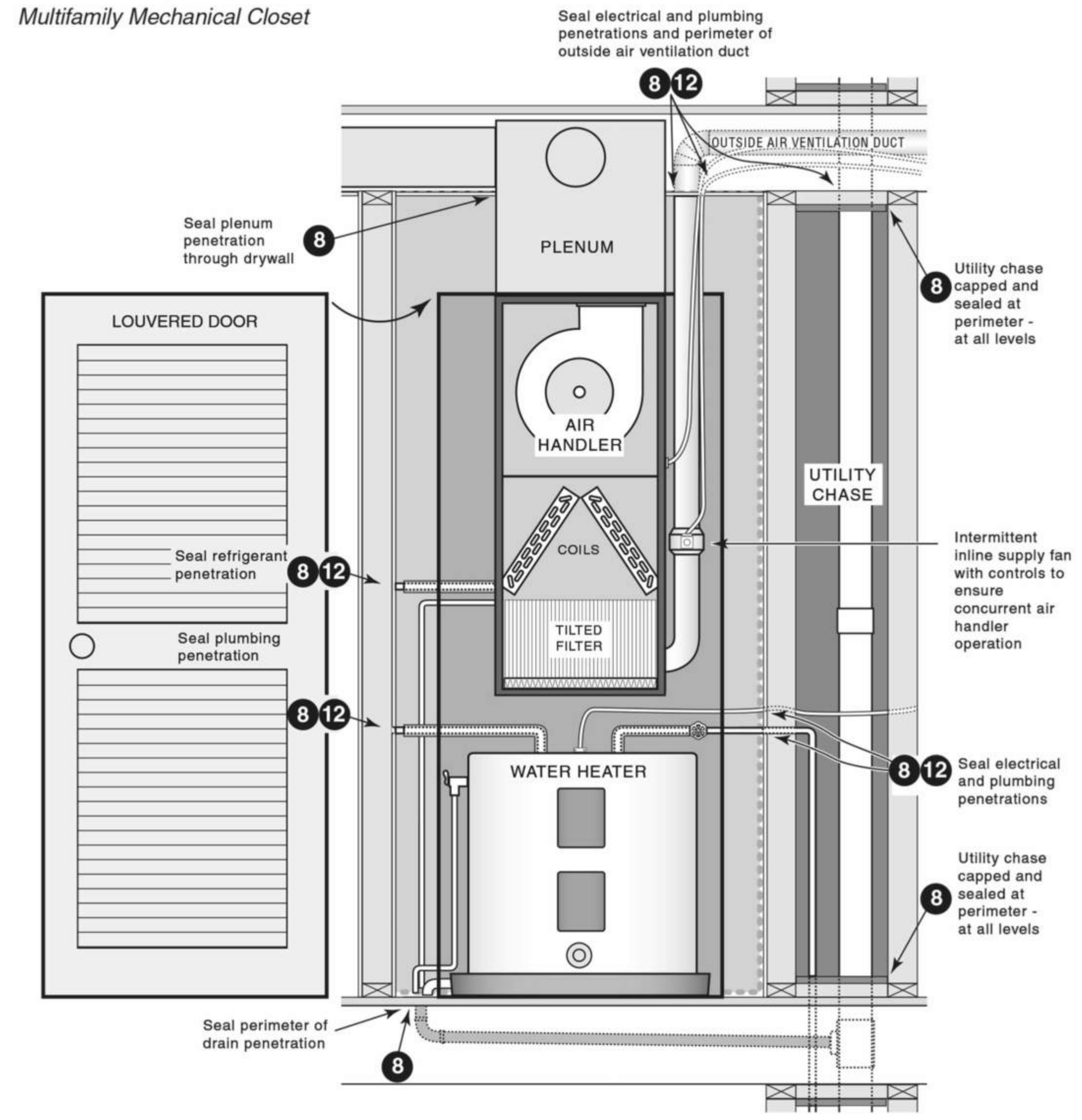
Ceiling Insulation key points

Passing Grade



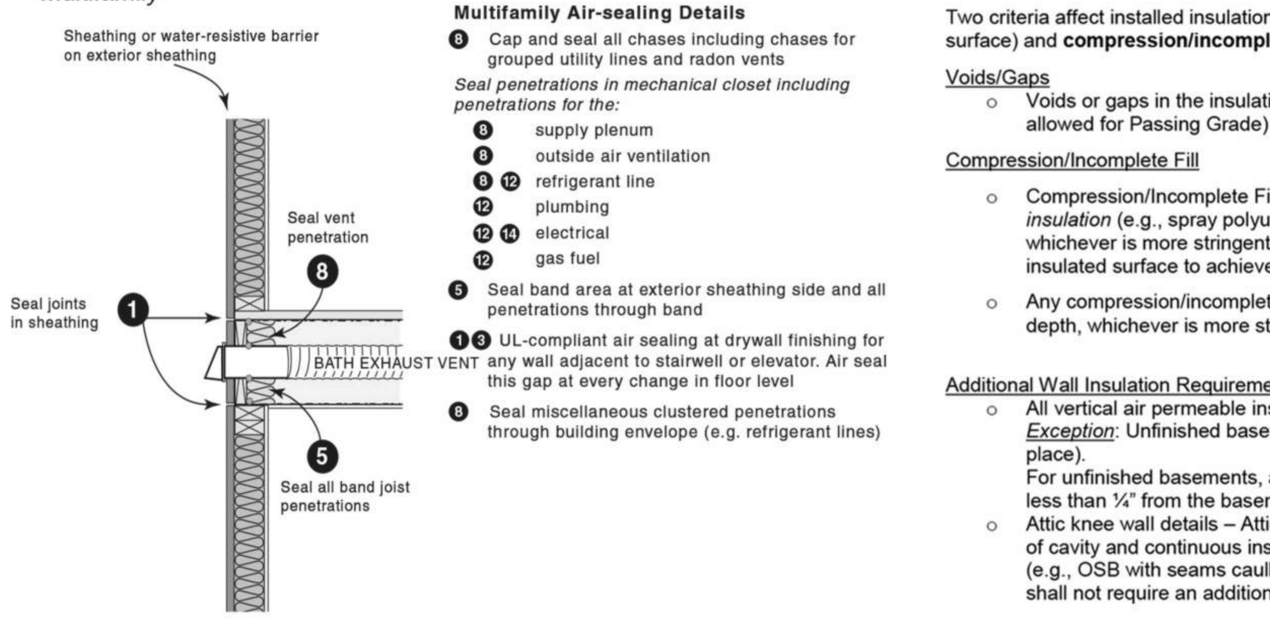
Air sealing key points *continued*

Multifamily Mechanical Closet



Air sealing key points *continued*

Multifamily



Multifamily Air-sealing Details

- 8 Cap and seal all chases including chases for grouped utility lines and radon vents

Seal penetrations in mechanical closet including penetrations for the:

- 8 supply plenum
- 8 outside air ventilation
- 8 12 refrigerant line
- 12 plumbing
- 12 14 electrical
- 12 gas fuel

- 5 Seal band area at exterior sheathing side and all penetrations through band
- 1 3 UL-compliant air sealing at drywall finishing for any wall adjacent to stairwell or elevator. Air seal this gap at every change in floor level
- 8 Seal miscellaneous clustered penetrations through building envelope (e.g. refrigerant lines)

Insulation Installation – *Passing Grade Details*

Wall and ceiling insulation that makes up portions of the building thermal envelope shall be installed to Passing Grade quality.

Two criteria affect installed insulation grading: **voids/gaps** (in which no insulation is present in a portion of the overall insulated surface) and **compression/incomplete fill** (in which the insulation does not fully fill out or extend to the desired depth).

Voids/Gaps

- Voids or gaps in the insulation are < 1% of overall component surface area (only occasional and very small gaps allowed for Passing Grade)

Compression/Incomplete Fill

- Compression/Incomplete Fill for both *air permeable insulation* (e.g., fiberglass, cellulose) and *air impermeable insulation* (e.g., spray polyurethane foam) must be less than 1 inch in depth or less than 30% of the intended depth, whichever is more stringent. The allowable area of compression/incomplete fill must be less than 2% of the overall insulated surface to achieve a Passing Grade.
- Any compression/incomplete fill with a **depth** greater than the above specifications (up to 1" or 30% of the intended depth, whichever is more stringent) shall not achieve a Passing Grade.

Additional Wall Insulation Requirements

- All vertical air permeable insulation shall be installed in substantial contact with an air barrier on all six (6) sides.
  Exception: Unfinished basements, rim/band joist cavity insulation and fireplaces (insulation shall be restrained to stay in place).
  For unfinished basements, air permeable insulation and associated framing in a framed cavity wall shall be installed less than ¼" from the basement wall surface.
- Attic knee wall details – Attic knee walls shall be insulated to a total R-value of at least R-18 through any combination of cavity and continuous insulation. Air permeable insulation shall be installed with a fully sealed attic-side air barrier (e.g., OSB with seams caulked, rigid insulation with joints taped, etc.). Attic knee walls with air impermeable insulation shall not require an additional attic-side air barrier.

Underfloor insulation that makes up portions of the building thermal envelope shall be installed to Passing Grade quality.

Two criteria affect installed insulation grading: **voids/ gaps** (in which no insulation is present in a portion of the overall insulated surface) and **compression/incomplete fill** (in which the insulation does not fully fill out or extend to the desired depth).

Voids/Gaps

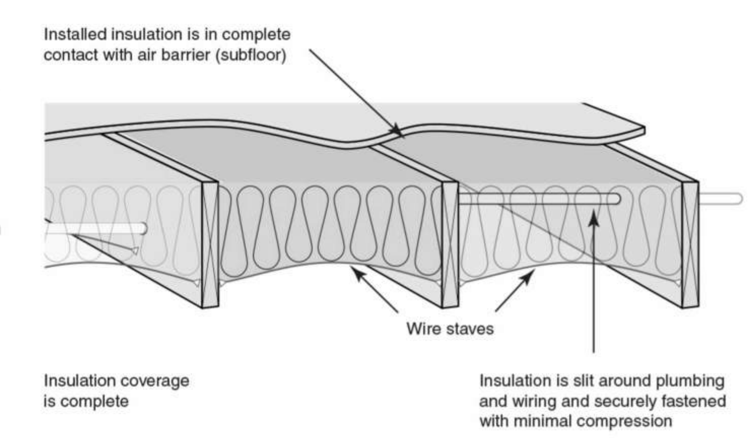
- Voids or gaps in the insulation are minimal for Passing Grade (< 2% of overall component surface area)

Compression/Incomplete Fill

- Compression/Incomplete Fill for both *air permeable insulation* (e.g., fiberglass, cellulose) and *air impermeable insulation* (e.g., spray polyurethane foam) must be less than 1 inch in depth or less than 30% of the intended depth, whichever is more stringent. The allowable area of compression/incomplete fill must be less than 10% of the overall insulated surface to achieve a Passing Grade.
- Any compression/incomplete fill with a **depth** greater than the above specifications (up to 1" or 30% of the intended depth, whichever is more stringent) shall not achieve a Passing Grade.
- Air-permeable underfloor insulation shall be permanently installed against the subfloor decking. Adequate insulation supports (e.g., wire staves) for air permeable insulation shall be installed at least every 18-24".
  Exception: The floor framing-cavity insulation shall be permitted to be in contact with the topside of sheathing or continuous insulation installed on the bottom side of floor framing where combined with insulation that meets or exceeds the minimum wood frame wall R-value and that extends from the bottom to the top of all perimeter floor framing members.

Floor Insulation key points

Passing Grade



Southface Energy Institute

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11/12/24 - CITY SUBMITTAL

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STATE OF MISSOURI
DAVID EUGENE HENDRICKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
GENERAL INFORMATION

PROJECT NUMBER: 23103

SHEET NUMBER:

G-007

11/12/2024 9:52:46 AM
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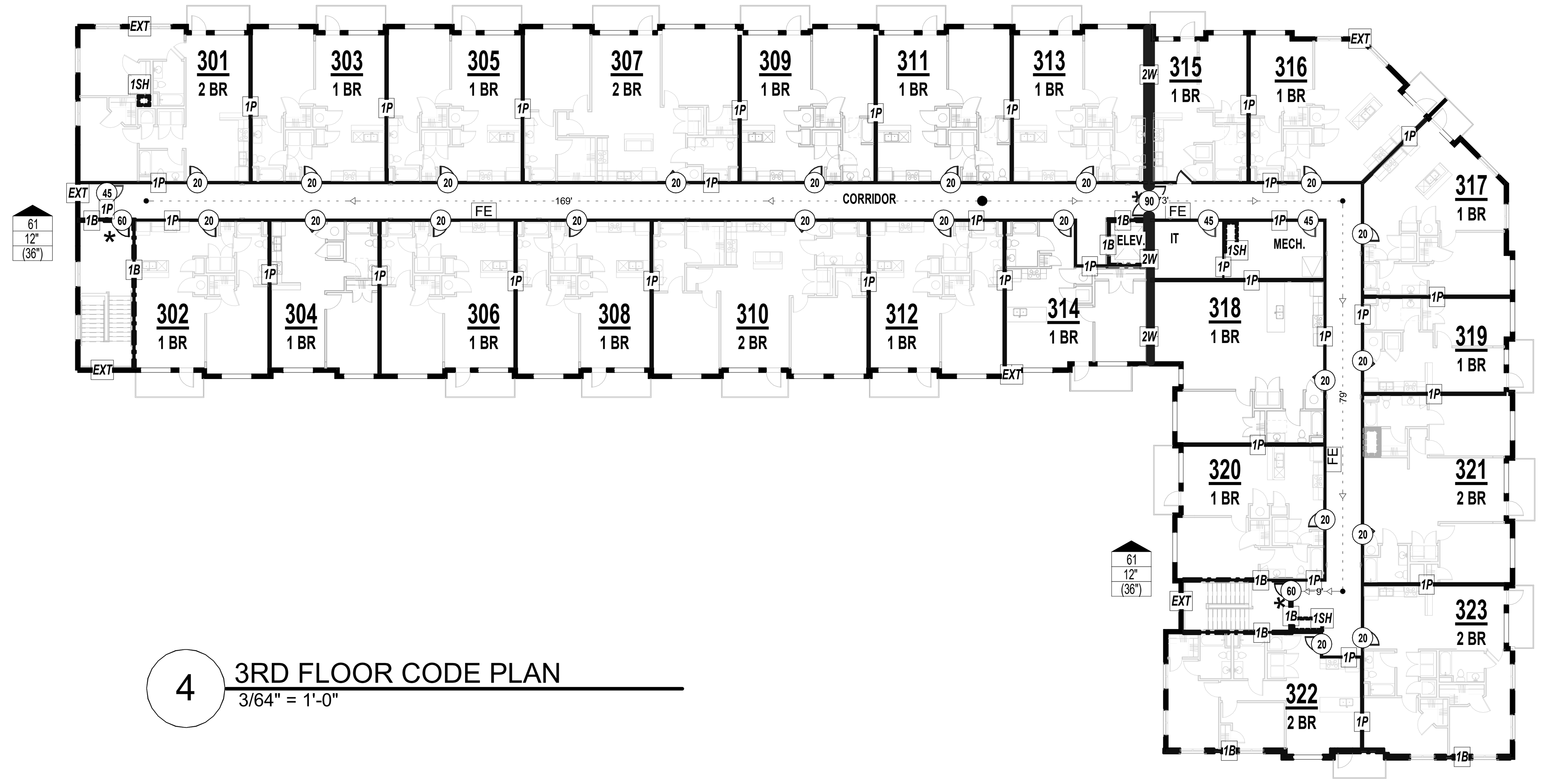
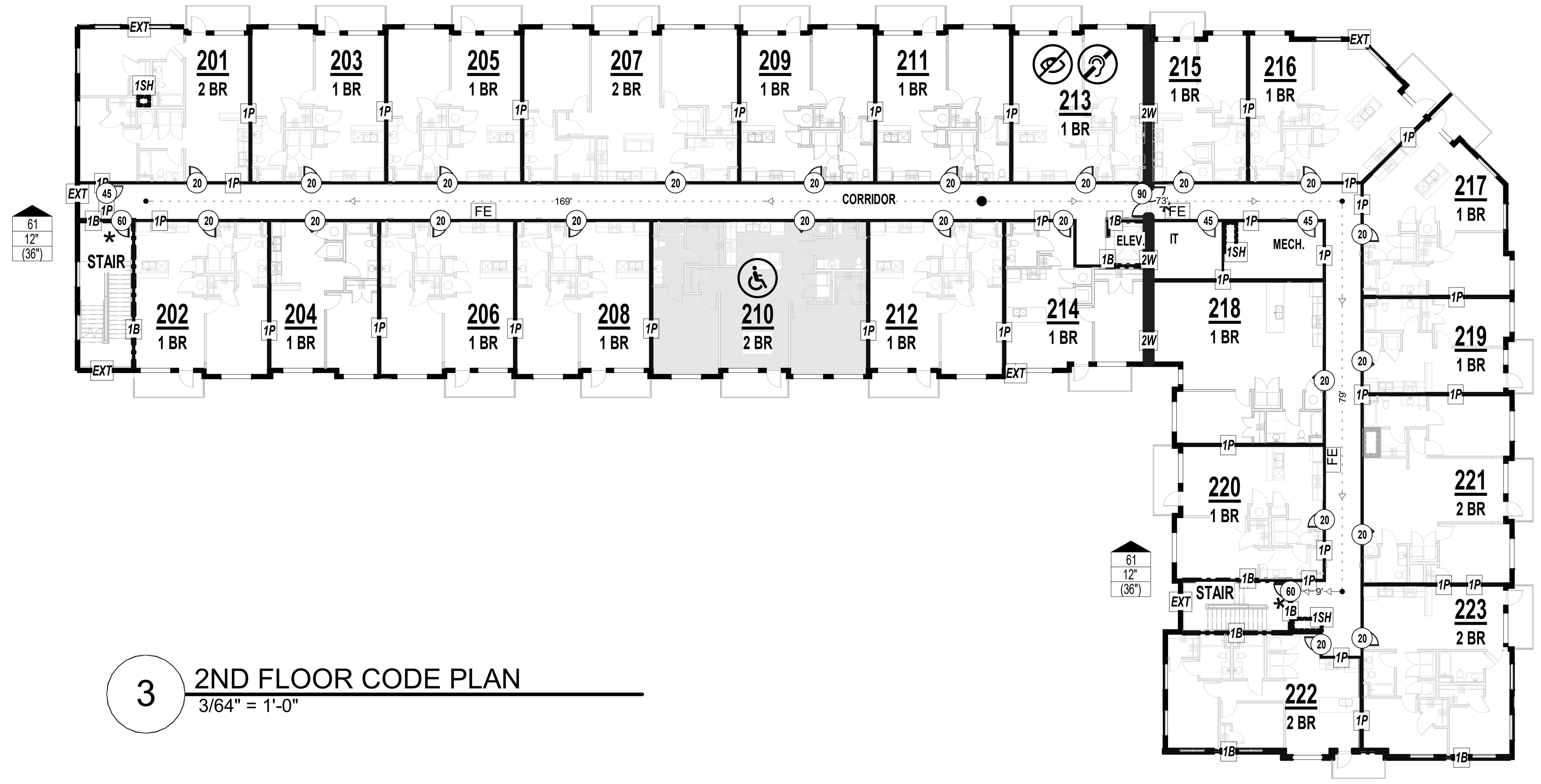
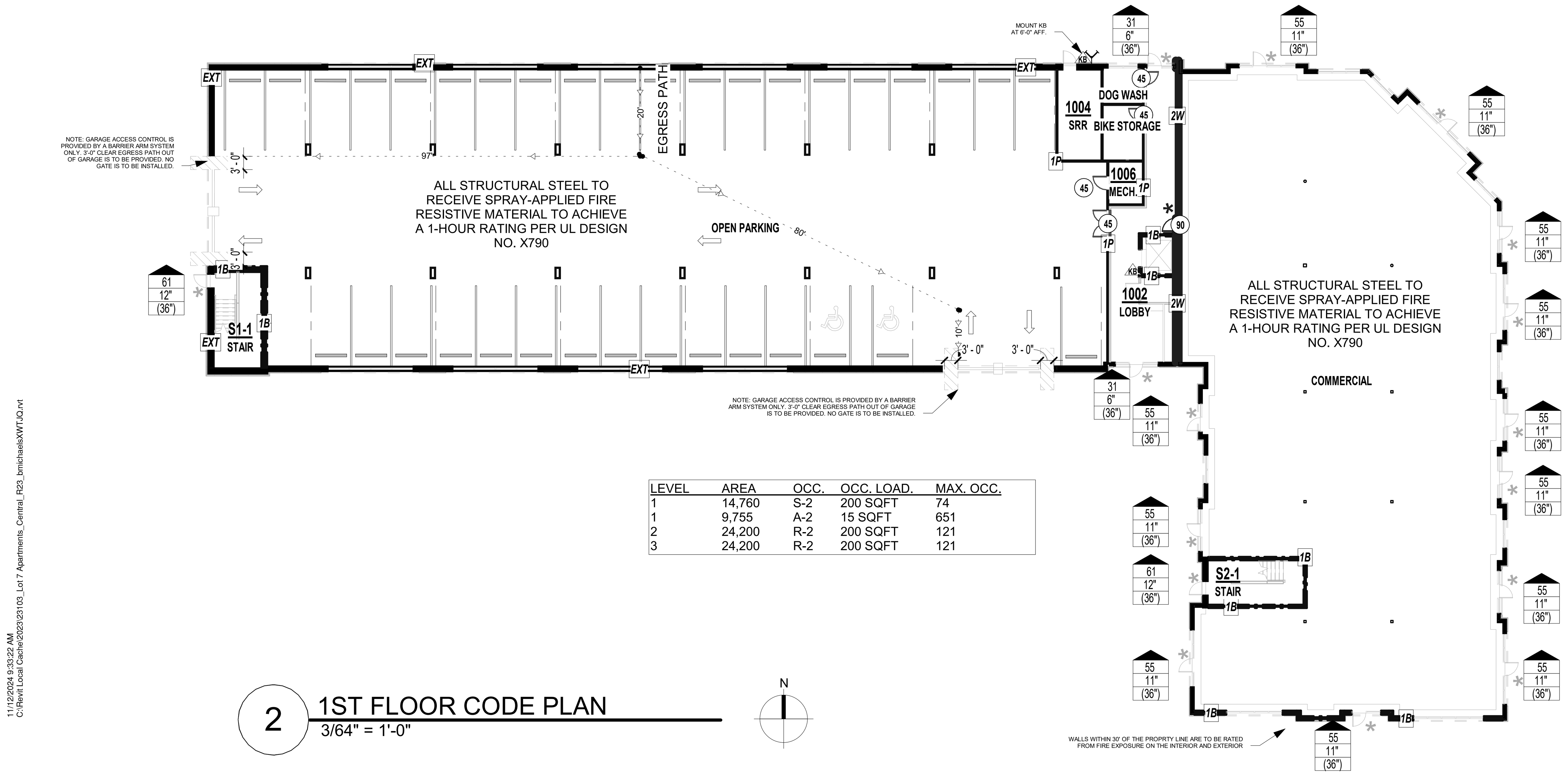
REFERENCE G-003 FOR GENERAL NOTES



4 3RD FLOOR CODE PLAN
3/64" = 1'-0"



3 2ND FLOOR CODE PLAN
3/64" = 1'-0"

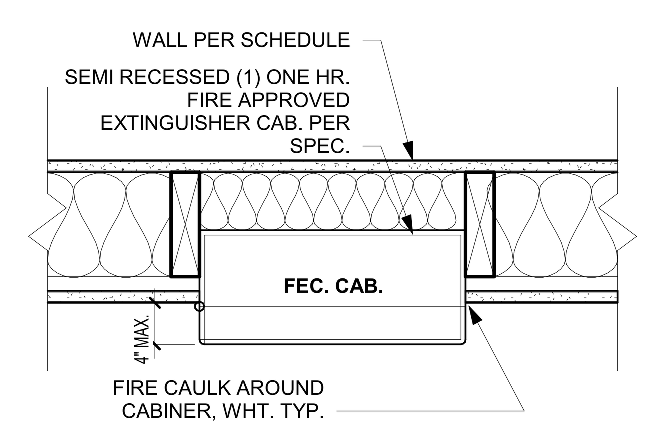


LEVEL	AREA	OCC.	OCC. LOAD.	MAX. OCC.
1	14,760	S-2	200 SQFT	74
1	9,755	A-2	15 SQFT	651
2	24,200	R-2	200 SQFT	121
3	24,200	R-2	200 SQFT	121

2 1ST FLOOR CODE PLAN
3/64" = 1'-0"

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.



1 FEC CAB
1 1/2" = 1'-0"

CODE REVIEW

PROJECT NAME:	THE VILLAGE AT DISCOVERY - LOT 4
PROJECT LOCATION:	LEE'S SUMMIT, MO
CODE:	2018 IBC
CODE REVIEW COMPLETED BY:	A.J. DOLPH

CHAPTER THREE

SECTION 302 OCCUPANCY:	R-2, APARTMENTS A-2, UNCONCENTRATED S-2, OPEN PARKING GARAGE

CHAPTER FOUR

402 COVERED MALL BUILDINGS:	N/A	416 FLAMMABLE FINISHES:	N/A
403 HIGH RISE BUILDINGS:	N/A	417 DRYING ROOMS:	N/A
404 ATRIUMS:	N/A	418 ORGANIC COATINGS:	N/A
405 UNDERGROUND BUILDINGS:	N/A	419 LIV/WORK UNITS:	N/A
407 GROUP I-2:	N/A	421 HYDROGEN FUEL GAS ROOMS:	N/A
408 GROUP I-3:	N/A	422 AMBULATORY CARE FACILITY:	N/A
409 MOTION PICTURE PROJECTION:	N/A	423 STORM SHELTERS:	N/A
410 STAGES AND PLATFORMS:	N/A	424 CHILDREN'S PLAY STRUCTURE:	N/A
411 SPECIAL AMUSEMENT BUILDINGS:	N/A	425 HYPERBARIC FACILITY:	N/A
412 AIRCRAFT RELATED OCCUP:	N/A	426 COMBUSTIBLE DUSTS & GRAINS:	N/A
413 COMBUSTIBLE STORAGE:	N/A	427 MEDICAL GAS SYSTEMS:	N/A
414 HAZARDOUS MATERIALS:	N/A	428 HIGHER EDUCATION LAB:	N/A
415 GROUPS H-1, H-2, H-3, H-4, H-5:	N/A		

406.5 OPEN PARKING GARAGES:	MUST BE TYPE I, II, OR IV CONSTRUCTION 40% MIN. OPENING FOR NATURAL VENTILATION
420 GROUPS I-1, R-1, R-2, R-3, & R-4: 420.2 SEPARATION WALLS:	WALLS SEPARATING SLEEPING UNITS TO BE FIRE PARTITIONS PER SECTION 708
420.3 HORIZONTAL SEPARATION:	FLOORS SEPARATING SLEEPING UNITS TO BE HORIZONTAL ASSEMBLY PER SECTION 711
420.4 AUTOMATIC SPRINKLER:	13R PER 903.3.1.2 FOR R

CHAPTER FIVE

TABLE 504.3 ALLOWABLE HEIGHT IN FEET ABOVE GRADE PLANE:	CONSTRUCTION TYPE VA R: ACTUAL: 42'-0" ALLOWABLE: 60'-0" A: ACTUAL: 16'-0" ALLOWABLE: 50'-0"
TABLE 504.3 ALLOWABLE HEIGHT IN FEET ABOVE GRADE PLANE:	CONSTRUCTION TYPE IIA S: ACTUAL: 16'-0" ALLOWABLE: 85'-0"
TABLE 504.4 ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE:	CONSTRUCTION TYPE VA R-2: ACTUAL: 3 ALLOWABLE: 4 STORIES A-2: ACTUAL: 1 ALLOWABLE: 2 STORIES
TABLE 504.4 ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE:	CONSTRUCTION TYPE IIA S-2: ACTUAL: 1 ALLOWABLE: 6 STORIES
TABLE 506.2 ALLOWABLE AREA FACTOR:	CONSTRUCTION TYPE VA R-2: ACTUAL:24,200 ALLOWABLE: 12,000 SQFT A-2: ACTUAL:9,715 ALLOWABLE: 11,500 SQFT

AREA INCREASE TAKEN FOR R OCCUPANCY, SEE CALCULATION 506.2.4
FIRE SEPARATION WALL EMPLOYED IN R OCCUPANCY

TABLE 506.2 ALLOWABLE AREA FACTOR:	CONSTRUCTION TYPE IIA S-2: ACTUAL:14,485 ALLOWABLE: 117,000SQFT
506.2.4 MIXED-OCCUPANCY, MULTISTORY BUILDING:	Aa = [At + (NS x If)] Aa = [12,000 + (12,000 x 0.75)] Aa = 21,000
506.3 FRONTAGE INCREASE:	W = (Ln x Wn) / F W = (100 x 30) / 100 W = 30
506.33. AMOUNT OF INCREASE:	If = [F/P - 0.25]W/30 If = [100/100 - 0.25]30/30 If = 0.75
TABLE 508.4 REQUIRED SEPARATION OF OCCUPANCIES:	R - R: 1 HOUR R - A: 1 HOUR R - S: 1 HOUR A - A: 0 HOUR A - S: 0 HOUR S - S: 0 HOUR
TABLE 509 INCIDENTAL USES:	LAUNDRY > 100 SF, 1HR STORAGE > 100 SF, 1HR

CHAPTER SIX

TABLE 601 FIRE RESISTANCE REQS. FOR BUILDING ELEMENTS (HOURS):	CONSTRUCTION TYPE VA & IIA PRIMARY STRUCTURAL FRAME: 1 HOUR INTERIOR BEARING WALL: 1 HOUR EXTERIOR BEARING WALL: 1 HOUR NON-BEARING WALL: 0 HOUR FLOOR CONSTRUCTION: 1 HOUR ROOF CONSTRUCTION: 1 HOUR
TABLE 602 FIRE RESISTANCE REQS. FOR EXTERIOR WALLS BASED ON FIRE SEP. DISTANCE:	0 HOUR <30 FEET, 0 >30 FEET

CHAPTER SEVEN

704 FIRE-RESISTANCE RATING OF STRUCTURAL MEMBERS:	1 HOUR RATED SPRAY APPLIED FIRE RESISTANT MATERIAL
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
706 FIRE WALLS:	2 HOUR RATED
707 FIRE BARRIERS:	1 HOUR RATED
708 FIRE PARTITIONS:	1 HOUR RATED
709 SMOKE BARRIERS:	N/A
710 SMOKE PARTITIONS:	N/A
711 FLOOR & ROOF ASSEMBLIES:	1 HOUR RATED
712 VERTICAL OPENINGS:	N/A
713 SHAFT ENCLOSURES:	1 HOUR RATED
714 PENETRATIONS:	MATCH ASSEMBLY RATING
715 FIRE-RESISTANT JOINT SYSTEM:	MATCH ASSEMBLY RATING
TABLE 716.1(2) OPENING FIRE PROTECTION & RATING:	2 HOUR FIRE BARRIER: 90 MINUTE DOOR 1 HOUR FIRE BARRIER: 60 MINUTE DOOR 1 HOUR CORRIDOR: 20 MINUTE DOOR
717 DUCTS AND AIR TRANSFER OPENINGS:	REQUIRED AT RATED PENETRATIONS, 1.5 HOUR DAMPER RATING
SECTION 718 CONCEALED SPACES:	FIREBLOCK & DRAFTSTOP

CHAPTER NINE

903 AUTOMATIC SPRINKLER SYSTEM:	R-2, REQUIRED: NFPA 13R A-2, REQUIRED: NFPA 13 S-2, REQUIRED: NFPA 13, DRY SYSTEM
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:	R-2, 200 GROSS A-2, 15 NET S-2, 200 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:	R-2: 20 OCC., 125' MAX. PATH OF EGRESS A: 49 OCC., 75' MAX. PATH OF EGRESS S: 29 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
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:	R: 250' W/ 13R SPRINKLER A: 250' W/ 13 SPRINKLER S: 400' W/ 13 SPRINKLER
1019 EXIT ACCESS STAIRWAYS:	1 HOUR RATED PER 713
TABLE 1020.1 CORRIDOR RATING:	R: 1/2 HOUR RATED W/ 13R SPRINKLER A: NO RATING REQ.D W/ 13 R SPRINKLER
1020.1.1 HOISTWAY OPENING PROTECTION:	NOT REQUIRED PER 3006.2
TABLE 1020.2 MIN. CORRIDOR WIDTH:	44" MIN.
1020.4 DEAD ENDS:	20'-0" MAX.

CHAPTER ELEVEN

ACCESSIBILITY TO COMPLY WITH THIS CH. OF IBC, ICC A117.1, ADA, & FAIR HOUSING

TABLE 1106.1 ACC. PARKING:	SEE CIVIL
TABLE 1107.6.1.1 ACCESSIBLE DWELLING & SLEEPING UNITS:	2% OF TOTAL REQ'D. TO BE TYPE A

CHAPTER TWELVE

1206 SOUND TRANSMISSION:	50STC RATING BETWEEN SLEEPING UNITS

CODE PLAN LEGEND

100 / 20" / (72")
- NUMBER OF OCCUPANTS EXITING
- REQUIRED EXIT WIDTH
- EXIT WIDTH PROVIDED BY DESIGN
- EXT. - RATED PARTITION (IBC CH. 6)
- NON - RATED PARTITION
- 1P 1 HR RATED PARTITION (IBC 708)
- 1B 1 HR RATED BARRIER (IBC 707)
- 1SH 1 HR RATED SHAFT ENCLOSURE (IBC 713)
- 2W 2 HR RATED FIRE WALL (IBC 706)
- ROOM NUMBER
- FE FIRE EXTINGUISHER CABINET OR SURFACE MTD. AT CONC.
- KB FIRE DEPARTMENT KNOX BOX (DEFER SUBMITTAL FOR LOC.)
- FIRE DEPARTMENT CONENCTION
- 60/S DOOR RATING
- DOOR WITH PANIC HARDWARE (SEE DOOR SCHEDULE)
- EXIT SIGNAGE; SEE ELECTRICAL
- EGRESS STARTING POINT
- EGRESS DISTANCE OF TRAVEL (20')
- EGRESS DIRECTION OF TRAVEL

PRINTS ISSUED
11/12/24 - CITY SUBMITTAL

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
CODE ANALYSIS

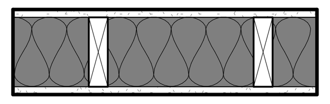
PROJECT NUMBER: 23103

SHEET NUMBER:

G-100

SEE G-102 FOR PARTITION NOTES AND ACCOUSTIC SEALING

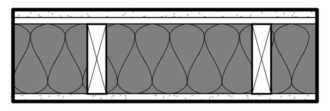
INTERIOR BARRIER ASSEMBLIES
WOOD - 1 HR RATED



P20

WOOD 2X6 STUD - 1HR BARRIER - INTERIOR
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD
- 2x6 WOOD STUDS SPACED 16" O.C. MAX, OR PER STRUCT. DWGS.
- 5-1/2" FRICTION FIT UNFACED BATT INSULATION IN STUD CAVITY
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD

NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN U305 (SEPT 19, 2023)
b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS
c. SHALL COMPLY WITH IBC SECTION 7 FOR FIRE BARRIERS



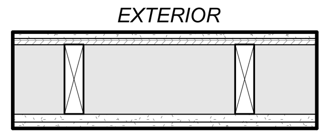
P21

WOOD 2X6 STUD - 1HR BARRIER - INTERIOR SOUND DAMPENING
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD
- 25 MSG GALVANIZED RESILIENT CHANNEL, SPACED 24" O.C.
- 2x6 WOOD STUDS SPACED 16" O.C. MAX OR PER STRUCT. DWGS.
- 5-1/2" FRICTION FIT UNFACED BATT INSULATION IN STUD CAVITY
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD

NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN U305 (SEPT 19, 2023)
b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS
c. SHALL COMPLY WITH IBC SECTION 7 FOR FIRE BARRIERS
d. STC SHALL BE 50 OR OVER AT UNIT ASSEMBLIES, MEETING ASTM E90 (STC 51 BASED UPON TESTING NGC 2011071)
e. WHERE BARRIER DIVIDES A CORRIDOR AND A UNIT, CORRIDOR SIDE SHALL RECEIVE THE RESILIENT CHANNEL

EXTERIOR PARTITION ASSEMBLIES
WOOD - NON RATED

EXTERIOR



EXTERIOR

P31

WOOD 2x6 STUD - NON-RATED EXTERIOR - AT BALCONY (DELTA UNIT)

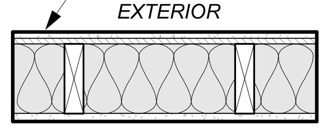
EXTERIOR
- STUCCO
- METAL LATH
- WEATHER RESISTANT BARRIER, PER SPECIFICATIONS
- (1) LAYER SHEATHING PER STRUCT. DWGS.
- 2x6 WOOD STUDS SPACED 16" O.C. MAX OR PER STRUCT. DWGS.
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD
- METAL LATH
- STUCCO

EXTERIOR

NOTES:
a. SCREW PATTERN PER STRUCT.

EXTERIOR FINISH, MATERIAL VARIES - SEE ELEVATIONS AND DETAILS

EXTERIOR



INTERIOR

P36

WOOD 2x6 STUD - NON-RATED EXTERIOR

EXTERIOR
- EXTERIOR FINISH SYSTEM PER ELEVATIONS
- WEATHER RESISTANT BARRIER, PER SPECIFICATIONS
- (1) LAYER SHEATHING PER STRUCT. DWGS.
- 2x6 WOOD STUDS SPACED 16" O.C. MAX OR PER STRUCT. DWGS.
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD

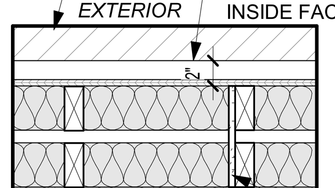
INTERIOR

NOTES:
a. INTERIOR TO BE PAINTED PER FINISH SCHEDULE
b. SCREW PATTERN PER STRUCT.
c. R-13 MIN. INSULATION R-VALUE

EXTERIOR FINISH, MATERIAL VARIES - SEE ELEVATIONS AND DETAILS

PROVIDE 2" GAP BETWEEN EXTERIOR FACE OF STUD AND INSIDE FACE OF MASONRY

EXTERIOR



INTERIOR

1/2" GYP DRAFT STOP @ MAX 10' O.C. (RE: IBC 718.3 FOR LOCATION REQ'S)

P36.1

WOOD DOUBLE 2x4 STUD - NON-RATED EXTERIOR

EXTERIOR
- EXTERIOR FINISH SYSTEM PER ELEVATIONS
- WEATHER RESISTANT BARRIER, PER SPECIFICATIONS
- (1) LAYER SHEATHING PER STRUCT. DWGS.
- 2x4 WOOD STUDS SPACED 16" O.C. MAX OR PER STRUCT. DWGS.
- 1" AIR GAP
- 2x4 WOOD STUDS SPACED 16" O.C. MAX OR PER STRUCT. DWGS.
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD

INTERIOR

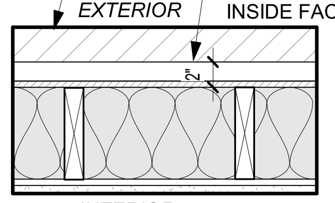
NOTES:
a. INTERIOR TO BE PAINTED PER FINISH SCHEDULE
b. SCREW PATTERN PER STRUCT.

2

EXTERIOR FINISH, MATERIAL VARIES - SEE ELEVATIONS AND DETAILS

PROVIDE 2" GAP BETWEEN EXTERIOR FACE OF STUD AND INSIDE FACE OF MASONRY

EXTERIOR



INTERIOR

P36.2

WOOD 2x8 STUD - NON-RATED EXTERIOR (UPPER FLOORS AT STAIRS)

EXTERIOR
- EXTERIOR FINISH SYSTEM PER ELEVATIONS
- WEATHER RESISTANT BARRIER, PER SPECIFICATIONS
- (1) LAYER SHEATHING PER STRUCT. DWGS.
- 2x8 WOOD STUDS SPACED 16" O.C. MAX OR PER STRUCT. DWGS.
- 1/2" RESILIENT CHANNEL
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD

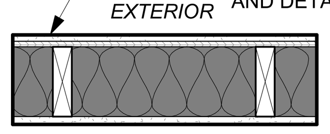
INTERIOR

NOTES:
a. INTERIOR TO BE PAINTED PER FINISH SCHEDULE
b. SCREW PATTERN PER STRUCT.

EXTERIOR PARTITION ASSEMBLIES
WOOD - 1 HOUR RATED

EXTERIOR FINISH, MATERIAL VARIES - SEE ELEVATIONS AND DETAILS

EXTERIOR



INTERIOR

P30

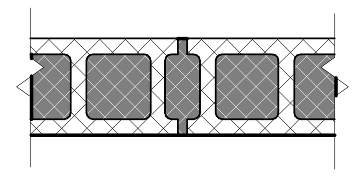
WOOD 2X6 STUD - 1HR PARTITION - EXTERIOR

EXTERIOR
- EXTERIOR FINISH SYSTEM PER ELEVATIONS
- WEATHER RESISTANT BARRIER, PER SPECIFICATIONS
- (1) LAYER SHEATHING PER STRUCT. DWGS.
- 2x6 WOOD STUDS SPACED 16" O.C. MAX OR PER STRUCT. DWGS.
- 5-1/2" KRAFT OR FOIL FACED BATT INSULATION IN STUD CAVITY, R-VALUE PER DRAWINGS/SPECIFICATIONS TO MEET IECC.
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD

INTERIOR

NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN U356 (NOV 26, 2019)
b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS
c. EXTERIOR SYSTEM TO BE PER DETAILS AND ELEVATIONS

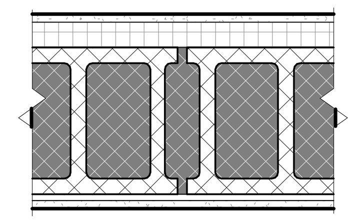
INTERIOR ASSEMBLIES
CMU / CONCRETE - 1 HR RATED



P40

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

NOTES:
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

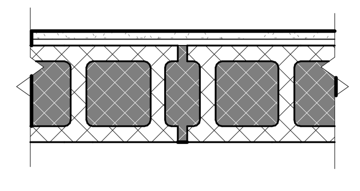


P43

CMU 12" BLOCK - 1HR PARTITION - INTERIOR
- EXTERIOR GYPSUM BOARD
- WEATHER RESISTANT BARRIER PER SPECIFICATIONS
- R VALUE PER IECC AS INDICATED ON DRAWINGS / SPECIFICATIONS
- 12" CMU (REINFORCING PER STRUCT)
- RESILIENT CHANNEL
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD

NOTES:
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

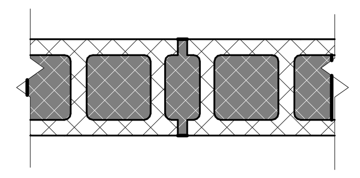
INTERIOR BARRIER ASSEMBLIES
CMU / CONCRETE - 1 HR RATED



P40.1

CMU 8" BLOCK - 1HR BARRIER - INTERIOR
- 8" CMU (REINFORCING PER STRUCT)
- RESILIENT CHANNEL
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD

NOTES:
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

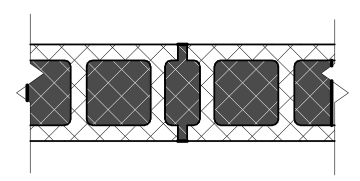


P40.2

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

NOTES:
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

INTERIOR ASSEMBLIES
CMU / CONCRETE - 2 HR RATED



P42

CMU 8" BLOCK - 2HR FIRE WALL - INTERIOR
- 8" CMU (REINFORCING PER STRUCT)

NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN U905 (APRIL 14, 2023)
b. APPLY WATERPROOFING AT ALL SUBGRADE PORTION OF WALLS

INTERIOR PARTITION ASSEMBLIES
WOOD - NON RATED

P1

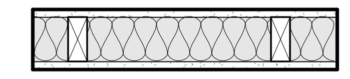
WOOD 2X4 STUD - NON-RATED PARTITION - INTERIOR
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD
- 2x4 WOOD STUDS SPACED 16" O.C.
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD

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

P2

WOOD 2X6 STUD - NON-RATED PARTITION - INTERIOR
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD
- 2x6 WOOD STUDS SPACED 16" O.C.
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD

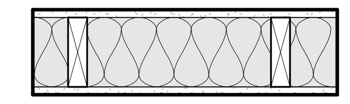
NOTES:
a. ATTACH GYPSUM WITH 1-1/4" TYPE 'W' STEEL SCREWS @ 12" O.C.



P4

WOOD 2X4 STUD - NON-RATED PARTITION - INTERIOR SOUND DAMPENING
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD
- 2x4 WOOD STUDS SPACED 16" O.C.
- 3 1/2" BATT INSULATION IN STUD CAVITY
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD

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

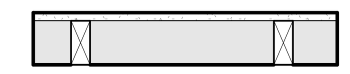


P5

WOOD 2X6 STUD - NON-RATED PARTITION - INTERIOR SOUND DAMPENING
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD
- 2x6 WOOD STUDS SPACED 16" O.C.
- 5 1/2" BATT INSULATION IN STUD CAVITY
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD

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

FINISHED SIDE

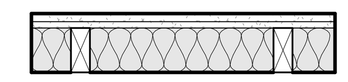


P7

WOOD 2X4 STUD - NON-RATED FURRING - INTERIOR
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD ON OCCUPIED SIDE
- 2x4 WOOD STUDS SPACED 16" O.C.

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

FINISHED SIDE

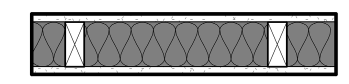


P8

WOOD 2X4 STUD - NON-RATED FURRING - INTERIOR SOUND DAMPENING
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD ON OCCUPIED SIDE
- (1) LAYER OF 1/2" CELLULOSE FIBER WALL BD.
- 3 1/2" BATT INSULATION IN STUD CAVITY
- 2x4 WOOD STUDS SPACED 16" O.C.

NOTES:
a. ATTACH INNER LAYER PER MFR RECOMMENDATION.
b. ATTACH GYPSUM WITH 2-3/8" TYPE 'W' STEEL SCREWS @ 8" O.C.

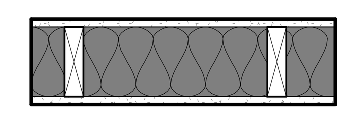
INTERIOR PARTITION ASSEMBLIES
WOOD - 1 HR RATED



P10

WOOD 2X4 STUD - 1HR PARTITION - INTERIOR
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD
- 2x4 WOOD STUDS SPACED 16" O.C. MAX, OR PER STRUCT. DWGS.
- 3-1/2" FRICTION FIT UNFACED BATT INSULATION IN STUD CAVITY
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD

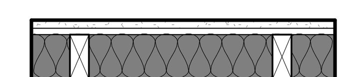
NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN U305 (SEPT 19, 2023)
b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS



P11

WOOD 2X6 STUD - 1HR PARTITION - INTERIOR
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD
- 2x6 WOOD STUDS SPACED 16" O.C. MAX, OR PER STRUCT. DWGS.
- 5-1/2" FRICTION FIT UNFACED BATT INSULATION IN STUD CAVITY
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD

NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN U305 (SEPT 19, 2023)
b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS



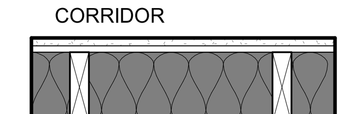
VERIFY IF WALL SHEATHING FOR SHEAR W/ STRUCT DWGS. IS REQUIRED. SHEATHING SHALL ATTACH DIRECTLY TO STUDS PER STRUCT.

P12

WOOD 2X4 STUD - 1HR PARTITION - INTERIOR SOUND DAMPENING
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD
- 25 MSG GALVANIZED STEEL RESILIENT CHANNEL, 24" O.C.
- 2x4 WOOD STUDS SPACED 16" O.C. MAX. OR PER STRUCT. DWGS.
- 3-1/2" FRICTION FIT UNFACED BATT INSULATION IN STUD CAVITY
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD

NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN U305 (JAN 14, 2020)
b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS
c. STC SHALL BE 50 OR OVER AT UNIT ASSEMBLIES, MEETING ASTM E90 (STC 51 BASED UPON TESTING NGC 2011071)
d. WHERE PARTITION DIVIDES A CORRIDOR AND UNIT, RESILIENT CHANNEL SHALL BE ON CORRIDOR SIDE OF WALL, GC TO COORDINATE
e. WHERE PARTITION IS USED AS A DEMISING WALL AND/OR 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. WHERE ONLY ONE LAYER IS ADDED FOR STRUCTURAL SHEAR, THIS SHALL BE PLACED ON SIDE OF WALL WHERE ONLY GYPSUM BOARD RESIDES, NOT ON RESILIENT CHANNEL SIDE.

CORRIDOR



UNIT

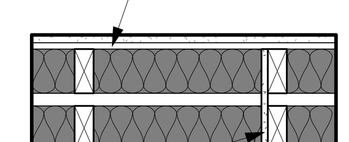
VERIFY IF WALL SHEATHING FOR SHEAR W/ STRUCT DWGS. IS REQUIRED. SHEATHING SHALL ATTACH DIRECTLY TO STUDS PER STRUCT.

P13

WOOD 2X6 STUD - 1HR PARTITION - INTERIOR SOUND DAMPENING
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD
- 25 MSG GALVANIZED STEEL RESILIENT CHANNEL, 24" O.C.
- 2x6 WOOD STUDS SPACED 16" O.C. MAX. OR PER STRUCT. DWGS.
- 5-1/2" FRICTION FIT UNFACED BATT INSULATION IN STUD CAVITY
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD

NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN U305 (SEPT 19, 2023)
b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS
c. STC SHALL BE 50 OR OVER AT UNIT ASSEMBLIES, MEETING ASTM E90 (STC 51 BASED UPON TESTING NGC 2011071)
d. WHERE PARTITION DIVIDES A CORRIDOR AND UNIT, RESILIENT CHANNEL SHALL BE ON CORRIDOR SIDE OF WALL, GC TO COORDINATE
e. WHERE PARTITION IS USED AS A DEMISING WALL AND/OR 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. WHERE ONLY ONE LAYER IS ADDED FOR STRUCTURAL SHEAR, THIS SHALL BE PLACED ON SIDE OF WALL WHERE ONLY GYPSUM BOARD RESIDES, NOT ON RESILIENT CHANNEL SIDE.

SEE OVERALL BLDG PLANS AND UNIT PLANS FOR RC LOCATION



1/2" GYP DRAFT STOP @ MAX 10' O.C. (RE: IBC 718.3 FOR LOCATION REQ'S)

P14

WOOD DOUBLE 2X4 STUD - 1HR PARTITION - INTERIOR
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD
- 25 MSG GALVANIZED STEEL 1/2" RESILIENT CHANNEL, 24" O.C.
- 2x4 WOOD STUDS SPACED 16" O.C. MAX, OR PER STRUCT. DWGS.
- 3 1/2" FRICTION FIT BATT INSULATION IN STUD CAVITY
- 1" AIR GAP
- 2x4 WOOD STUDS SPACED 16" O.C. MAX, OR PER STRUCT. DWGS.
- 3 1/2" FRICTION FIT BATT INSULATION IN STUD CAVITY
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD

NOTES:
a. ASSEMBLY TO COMPLY WITH UL U341 (AUG 4, 2023)
b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS
c. PROVIDE 1/2" GYP BOARD DRAFT STOP AT MAX 10'-0" O.C.
d. STC SHALL BE 50 OR OVER AT UNIT ASSEMBLIES, MEETING ASTM E90 (STC 61 BASED UPON TESTING TL11-120)

PRINTS ISSUED

11/12/24 - CITY SUBMITTAL

REVISIONS:

2 12/20/24 Add #2

r o s e m a n n & ASSOCIATES p.c.

ARCHITECTURE
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FOR BID PURPOSES ONLY

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

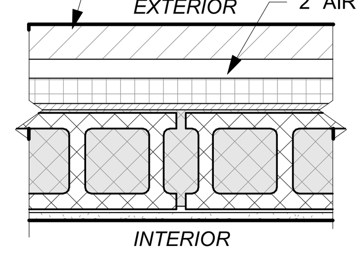
SHEET TITLE
PARTITION ASSEMBLIES - WALLS

PROJECT NUMBER: 23103

SHEET NUMBER:

G-101

EXTERIOR ASSEMBLIES
CMU / CONCRETE - NON-RATED



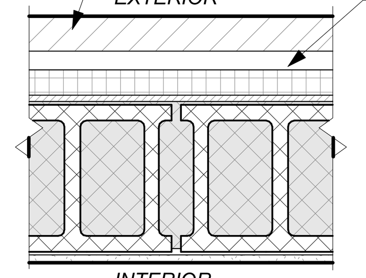
P45

CMU 8" BLOCK - NON-RATED - EXTERIOR (AT STAIRS)

EXTERIOR
- EXTERIOR FINISH SYSTEM PER ELEVATIONS - BRICK SHOWN
- WEATHER RESISTANT BARRIER PER SPECIFICATIONS
- R VALUE PER IECC AS INDICATED ON DRAWINGS / SPECIFICATIONS
- (1) LAYER SHEATHING PER STRUCT. DRAWINGS
- 8" CMU (REINFORCING PER STRUCT)
- RESILIENT CHANNEL
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD

INTERIOR

NOTES:
a. INTERIOR EXPOSED AREAS TO BE PAINTED PER FINISH SCHEDULE
b. APPLY WATERPROOFING AT ALL SUBGRADE PORTION OF WALLS



P46

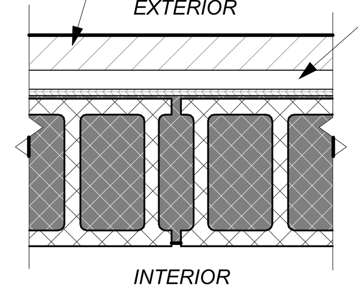
CMU 12" BLOCK - NON-RATED - EXTERIOR (AT STAIRS)

EXTERIOR
- EXTERIOR FINISH SYSTEM PER ELEVATIONS - BRICK SHOWN
- WEATHER RESISTANT BARRIER PER SPECIFICATIONS
- R VALUE PER IECC AS INDICATED ON DRAWINGS / SPECIFICATIONS
- (1) LAYER SHEATHING PER STRUCT. DRAWINGS
- 12" CMU (REINFORCING PER STRUCT)
- RESILIENT CHANNEL
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD

INTERIOR

NOTES:
a. INTERIOR EXPOSED AREAS TO BE PAINTED PER FINISH SCHEDULE
b. APPLY WATERPROOFING AT ALL SUBGRADE PORTION OF WALLS

EXTERIOR ASSEMBLIES
CMU / CONCRETE - 1 HR RATED



P46.1

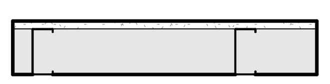
CMU 12" BLOCK - NON-RATED - EXTERIOR (AT PARKING)

EXTERIOR
- EXTERIOR FINISH SYSTEM PER ELEVATIONS - BRICK SHOWN
- WEATHER RESISTANT BARRIER PER SPECIFICATIONS
- (1) LAYER SHEATHING PER STRUCT. DRAWINGS
- 12" CMU (REINFORCING PER STRUCT)

INTERIOR

NOTES:
a. INTERIOR EXPOSED AREAS TO BE PAINTED PER FINISH SCHEDULE
b. APPLY WATERPROOFING AT ALL SUBGRADE PORTION OF WALLS
c. 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.

INTERIOR PARTITION ASSEMBLIES
(METAL - NON-RATED)

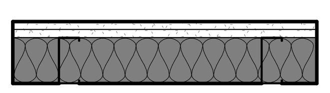


P57

METAL 3 5/8" STUD - NON-RATED FURRING - INTERIOR
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD
- 3-5/8" METAL STUDS, SPACED 16" O.C. (GAUGE DETERMINED BY WALL HEIGHT)

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

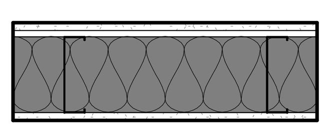
INTERIOR ASSEMBLIES
(METAL - 1 HR RATED)



P64

METAL 3-5/8" STUD - 1HR PARTITION - INTERIOR
- (2) LAYERS 5/8" TYPE "X" GYPSUM BOARD
- 3-5/8" STUDS SPACED 16" O.C. MAX, OR PER STRUCT. DWGS.
- BATT INSULATION PER IECC

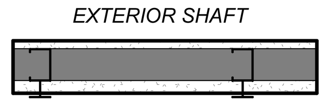
NOTES:
a. ASSEMBLY TO COMPLY WITH 2018 IBC 722.2.1.4.2, INCLUDING TABLE 722.2.1.4 (2)
b. REFER TO IBC REFERENCE LISTED ABOVE FOR SCREW PATTERN AND OTHER REQUIREMENTS



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 (AUG 16, 2023)
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.

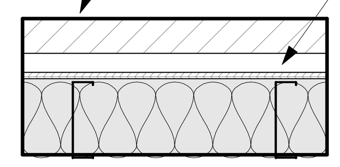


P74

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

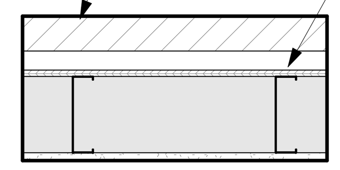
EXTERIOR PARTITION ASSEMBLIES
METAL - NON-RATED



P80

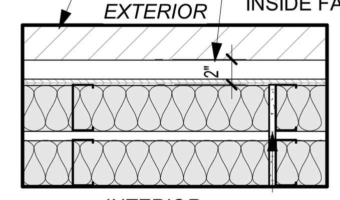
METAL 6" STUD - NON-RATED PARTITION - EXTERIOR - COMMERCIAL SPACE
- EXTERIOR FINISH SYSTEM PER ELEVATIONS - BRICK SHOWN
- WEATHER RESISTANT BARRIER PER SPECIFICATIONS
- (1) LAYER SHEATHING PER STRUCT. DRAWINGS
- 6" METAL STUDS SPACED PER STRUCTURAL ENGINEER (MIN 20 MSG)
- BATT INSULATION PER IECC

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



P80.1

METAL 6" STUD - NON-RATED PARTITION - EXTERIOR - PARKING
- 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)
- (1) LAYER 5/8" GYPSUM BOARD

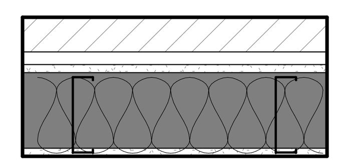


P80.3

METAL DOUBLE 4" STUD - NON-RATED PARTITION - EXTERIOR
- EXTERIOR FINISH SYSTEM PER ELEVATIONS - BRICK SHOWN
- WEATHER RESISTANT BARRIER PER SPECIFICATIONS
- (1) LAYER OF SHEETING PER STRUCT. DRAWINGS
- 4" METAL STUDS SPACED PER STRUCTURAL ENGINEER (MIN 20 MSG)
- BATT INSULATION PER UL AND IECC
- 3/4" AIR GAP
- 4" METAL STUDS SPACED PER UL AND STRUCTURAL ENGINEER (MIN 20 MSG)
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD PER UL

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

EXTERIOR PARTITION ASSEMBLIES
METAL - 1 HOUR RATED

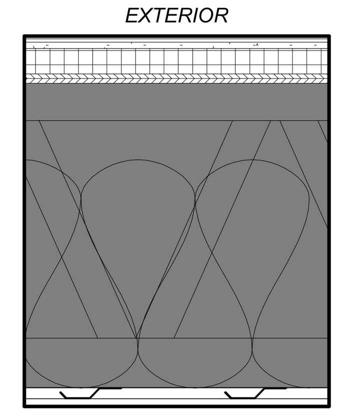


P82

METAL 6" STUD - 1HR PARTITION - EXTERIOR
- EXTERIOR FINISH SYSTEM PER ELEVATIONS - BRICK SHOWN
- WEATHER RESISTANT BARRIER PER SPECIFICATIONS
- (1) LAYERS OF 5/8" DENSGLASS FIREGUARD SHEATHING PER UL
- 6" METAL STUDS SPACED PER UL AND STRUCTURAL ENGINEER (MIN 20 MSG)
- BATT INSULATION PER UL AND IECC
- (1) LAYERS 5/8" TYPE 'X' GYPSUM BOARD PER UL

NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN W456 (JUNE 10, 2020)
b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS
c. ALT. MNFR FOR 5/8" DENSGLASS FIREGUARD SHEATHING, MEETING UL, SHALL BE AS APPROVED BY ARCH ONLY.

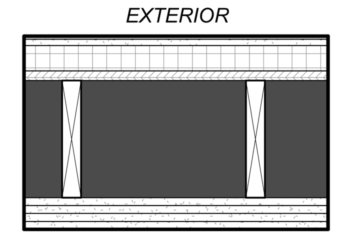
ROOF/CEILING ASSEMBLY-WOOD



R8

WOOD PARALLEL CHORD TRUSS - 1HR - TPO
- TPO ROOFING, PER SPECIFICATION TO MEET IECC
- 1/2" COVERBOARD, NON-COMBUSTIBLE, WATER-RESISTANT
- TAPERED INSULATION, SLOPE PER PLAN
- 15/32" MIN. ROOF SHEATHING, SEE NOTE b.
- WOOD TRUSS FRAMING PER STRUCT. DWGS, MAX SPACING 24" OC - REFERENCE UL FOR CONSTRUCTION
- R-30 INSULATION INSTALLED PER UL
- 25 MSG GALVANIZED STEEL RESILIENT CHANNELS, SPACED PER UL
- (1) LAYER OF 5/8" TYPE 'AG-C' GWB, BY AMERICAN GYPSUM CO, PER UL

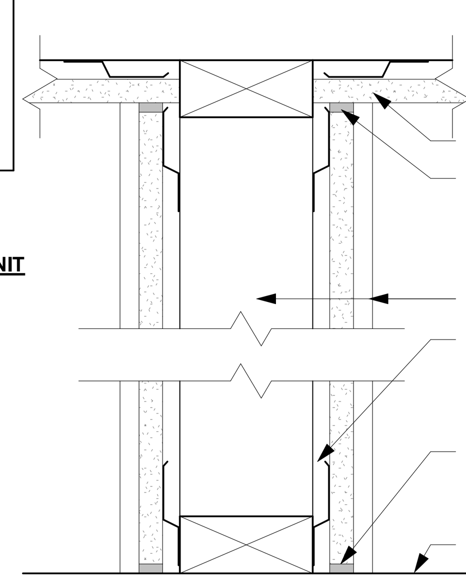
NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN P545 (SEPT 8, 2023)
b. STRUCTURAL SHALL SUPERCEDE IF STRUCT SHEATHING IS THICKER OR DIFFERENT TYPE THAN LISTED ABOVE. PROVIDE REQ MIN ABOVE.
c. REFER TO UL FOR SCREW PATTERN
d. CRICKETS AS INDICATED ON ROOF PLAN TO BE FORMED OUT OF PRE-SLOPED POLYISO RIGID INSULATION. SLOPE TO DRAIN
e. ROOF VENTS PER ROOF PLAN TO MEET REQUIRED VENTING



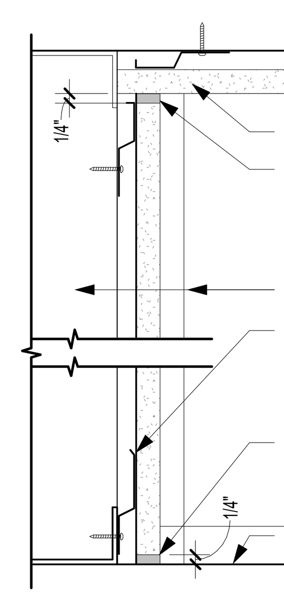
R22

WOOD FLAT 2X10 LUMBER - 2HR - TOP OF ELEVATOR
- TPO ROOFING MEMBRANE PER SPECIFICATIONS
- 1/2" MIN. SHEATHING, SEE NOTE b.
- WOOD 2X10 JOISTS, SPACED PER STRUCTURAL
- (4) LAYERS 5/8" TYPE 'X' GWB. PER GA ASSEMBLY

NOTES:
a. ASSEMBLY TO COMPLY WITH GA FILE NO. 2750
b. STRUCTURAL SHALL SUPERCEDE IF STRUCT SHEATHING IS THICKER OR DIFFERENT TYPE THAN LISTED ABOVE. PROVIDE REQ MIN ABOVE.
c. REFER TO GA FOR SCREW PATTERN
d. FIRE CAULK ENTIRE EDGE CONTINUOUSLY TO WALL ON INTERIOR STAIR SIDE.



2 UNIT/UNIT ACOUSTICAL SEALANT @ FLOOR/CEILING
3" = 1'-0"



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

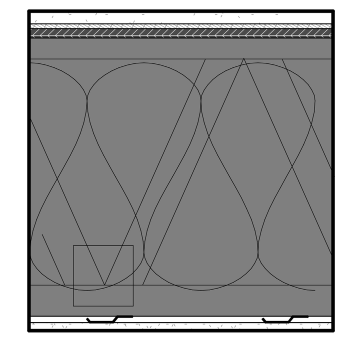
FLOOR/CEILING ASSEMBLY- CONCRETE

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

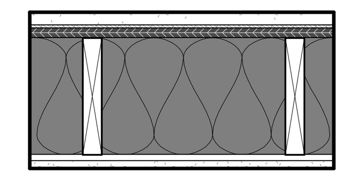
FLOOR/CEILING ASSEMBLY-WOOD



F3

WOOD OPEN WEB TRUSS - 1HR
- 1" GYPCRETE TOPPING
- 3/8" ACOUSTICAL MAT
- 3/4" TYP. PLYWOOD SHEATHING, TYPE 'C/D' , SEE ALSO NOTE b.
- WOOD TRUSSES PER STRUCTURAL, REFER TO UL FOR MIN. REQS
- UNFACED FIBERGLASS INSULATION COMPLETELY FILLED IN CONCEALED CAVITY TO COMPLY WITH NFPA 13 CONCEALED SPACES.
- 25 MSG GALVANIZED RESILIENT CHANNELS, SPACED PER U.L.
- (1) LAYER OF 5/8" TYPE 'C' GWB PER UL

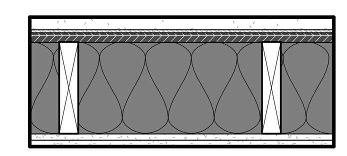
NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN L546 (OCT 3, 2023)
b. STRUCTURAL SHALL SUPERCEDE IF STRUCT SHEATHING IS THICKER OR DIFFERENT TYPE THAN LISTED ABOVE. PROVIDE REQ MIN ABOVE.
c. REFER TO UL FOR SCREW PATTERN
d. STC TO BE MIN. 50 PER IBC CHAPTER 12, IIC TO BE EQUAL OR GREATER THAN 50 WHEN TESTED UNDER ASTM E 492. (STC 60 BASED UPON TESTING 30160-08-90744-11. IIC 52 BASED UPON TESTING 30160-08-90744-7 ASSUMING VCT FLOOR FINISH.)
e. VERIFY GWB AND RESILIENT CHANNEL WITH UL SPECIFIED, TAKE NOTE OF REQUIRED RESILIENT CHANNEL SPACING WITH INSULATION-FILLED CAVITY
f. MIN. DEPTH OF TRUSS SHALL BE 18" WHEN DUCT PRESENT.



F6

WOOD 2X10 LUMBER - 1HR - STAIR & CORRIDOR
- 1" GYPCRETE TOPPING
- 3/8" ACOUSTICAL MAT
- MIN 15/32" TYPE 'C/D' SHEATHING OR PER UL SYSTEM, SEE NOTE b.
- 2X10 WOOD JOISTS SPACED MAX 16" O.C.; REFER TO STRUCTURAL FOR REQUIRED SPACING IF MORE RESTRICTIVE
- CROSS BRIDGING PER UL
- UNFACED FIBERGLASS INSULATION COMPLETELY FILLED IN CONCEALED CAVITY TO COMPLY WITH NFPA 13 CONCEALED SPACES AND UL
- 25 MSG GALVANIZED RESILIENT CHANNEL SPACED PER UL.
- (1) LAYER OF 5/8" TYPE 'C' GWB PER UL

NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN L516, (APRIL 29, 2020)
b. STRUCTURAL SHALL SUPERCEDE IF STRUCT SHEATHING IS THICKER OR DIFFERENT TYPE THAN LISTED ABOVE. PROVIDE REQ MIN ABOVE.
c. STC SHALL BE MIN. 50 PER IBC CHAPTER 12, IIC TO BE EQUAL OR GREATER THAN 50 WHEN TESTED UNDER ASTM E 492. (STC 59 BASED UPON TESTING TL88-110. IIC 52 BASED UPON TESTING 100336557CRT-001m ASSUMING VINYL FLOOR FINISH.)
d. REFER TO UL FOR SCREW PATTERN
e. VERIFY SHEATHING TYPE, GWB, AND RESILIENT CHANNEL WITH UL SYSTEM SPECIFIED, TAKE NOTE OF REQUIRED RESILIENT CHANNEL SPACING WITH INSULATION-FILLED CAVITY

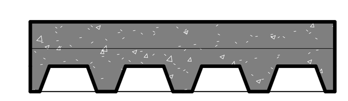


F7

WOOD 2X6 LUMBER - 1HR - CORRIDOR
- 1" GYPCRETE TOPPING
- 3/8" ACOUSTICAL MAT
- 3/4" SHEATHING TYP., SEE NOTE b.
- 2X6 WOOD JOISTS SPACED PER STRUCTURAL
- UNFACED FIBERGLASS INSULATION COMPLETELY FILLED IN CONCEALED CAVITY TO COMPLY WITH NFPA 13 CONCEALED SPACES.
- (2) LAYERS OF 5/8" TYPE 'X' GWB PER IBC

NOTES:
a. RATING FOR 2X6 DIMENSIONAL LUMBER ASSEMBLY: 2015 IBC TABLE 721.1(3) #21-1.1 & AMERICAN WOOD COUNCIL'S DCA 4 (COMPONENT ADDITIVE METHOD FOR CALCULCULATING AND DEMONSTRATING ASSEMBLY FIRE RESISTANCE)
b. STRUCTURAL SHALL SUPERCEDE IF STRUCT SHEATHING IS THICKER OR DIFFERENT TYPE THAN LISTED ABOVE. PROVIDE REQ MIN ABOVE.
c. REFER TO IBC TABLE FOR SCREW PATTERN

FLOOR/CEILING ASSEMBLY-METAL



F32

METAL DECK AND CONCRETE - 1HR (ABOVE LEVEL 1 ONLY)
- 2 1/2" LIGHTWEIGHT CONCRETE TOPPING SLAB PER STRUCT.
- WELDED WIRE FABRIC PER STRUCT. DWGS.
- 3" METAL DECKING PER STRUCT. DWGS.

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

PARTITION NOTES

1. USE MOISTURE AND MOLD RESISTANT DRYWALL AT ALL WET WALLS. USE CEMENTITIOUS BACKER BOARD IF TILE IS TO BE INSTALLED.
2. REFER TO G-200 SHEETS FOR SPECIFIC UL DESIGN REQUIREMENTS.
3. ALL FIRE RATED PARTITIONS MUST USE TYPE-'X' / FIRE RATED GYPSUM BOARD IN THICKNESS INDICATED OR NECESSARY TO ACHIEVE REQUIRED RATING.
4. PUTTY PADS SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS: UNIT/CORRIDOR SEPARATION PARTITIONS; ALL UNIT DEMISING PARTITIONS WHERE MULTIPLE BOXES ARE INSTALLED IN THE SAME STUD CAVITY, INCLUDING BACK-TO-BACK BOXES.
5. REFER TO STRUCTURAL FOR ALL SHEAR AND BEARING WALL LOCATIONS & REQUIREMENTS.
6. ALL WALLS ARE FULL HEIGHT TO THE UNDERSIDE OF FLOOR/ROOF CEILING ASSEMBLY UNLESS NOTED OTHERWISE.
7. ALL STEEL COLUMNS AND STEEL BEAMS REQUIRE 1 HOUR PROTECTION, REFER TO CODE PLANS FOR LOCATION.
8. FIREBLOCKING SHALL BE INSTALLED IN CONCEALED SPACES OF STUD WALL AND PARTITIONS INCLUDING FURRED SPACES VERTICALLY AT THE CEILING AND FLOOR LEVELS AND HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET. USE UL RATED FIRESTOP FOAM, CAULK OR PADS (OR EQUIVALENT UL RATED MATERIAL THAT MAINTAINS THE ASSEMBLY'S RATING PER THE SCHEDULE.

PRINTS ISSUED
11/12/24 - CITY SUBMITTAL
REVISIONS:

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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
PARTITION ASSEMBLIES
-WALL/ROOF/FLOOR/CEILING

PROJECT NUMBER: 23103

SHEET NUMBER:

G-102

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

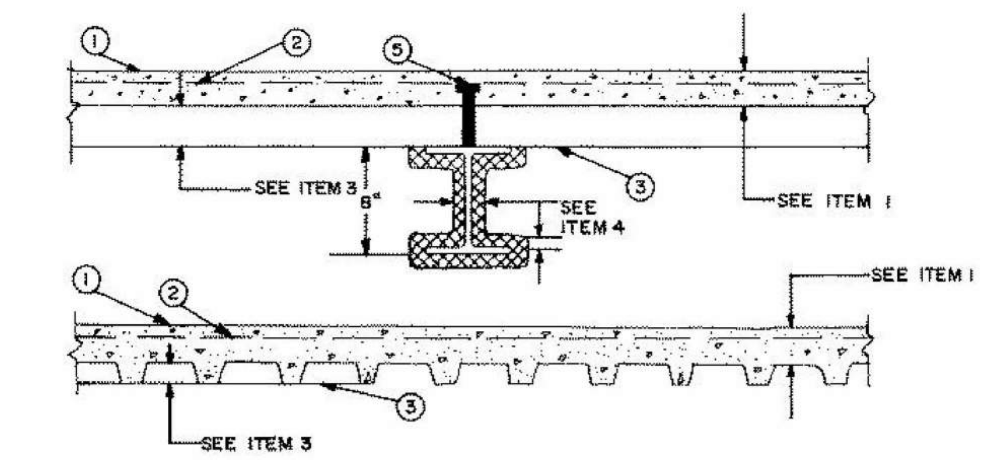
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

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 SB, 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, 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

UL NOTES

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STATE OF MISSOURI
DAVID EUGENE HENDRICKSE
NUMBER
A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - D916

PROJECT NUMBER: 23103

SHEET NUMBER:

G-200

11/12/2024 9:53:30 AM

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).

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.

Last Updated on 2023-05-16

GA FILE NO. RC 2750 | **GENERIC** | **2 HOUR FIRE**

GYPSUM WALLBOARD, RIGID FURRING CHANNELS
WOOD JOISTS or WOOD I-JOISTS, ROOF COVERING

Base layer 5/8" type X gypsum wallboard applied at right angles to either 2 x 8 wood joists or 9½" deep wood I-joists 24" o.c. with 1¼" Type W drywall screws 12" o.c. **Second** layer 5/8" type X gypsum wallboard applied at right angles to joists or I-joists with 2" Type W drywall screws 12" o.c. Second layer joints offset 24" from base layer joints. **Third** layer 5/8" type X gypsum wallboard applied at right angles to joists or I-joists with 2½" Type W drywall screws 12" o.c. Third layer joints offset 12" from second layer joints. Hat-shaped rigid furring channels 24" o.c. applied at right angles to joists or I-joists over third layer with two 2½" long Type W drywall screws at each joist or I-joist. **Face** layer 5/8" type X gypsum wallboard applied at right angles to furring channels with 1⅛" Type S drywall screws 12" o.c. Wood joists or I-joists supporting ¾" T & G edge plywood applied at right angles to joists or I-joists with 8d nails 6" o.c. at joints and 12" at intermediate joists or I-joists. Appropriate roof covering. **Ceiling provides two-hour fire-resistance protection for wood framing.**

Approx. Ceiling Weight: 12 psf
Fire Test: UL R4024, 00NK26545, 4-27-01; UL R4042, 03NK11206, 3-19-03; UL Design L556; ULC Design M514

UL Product **iQ**®

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

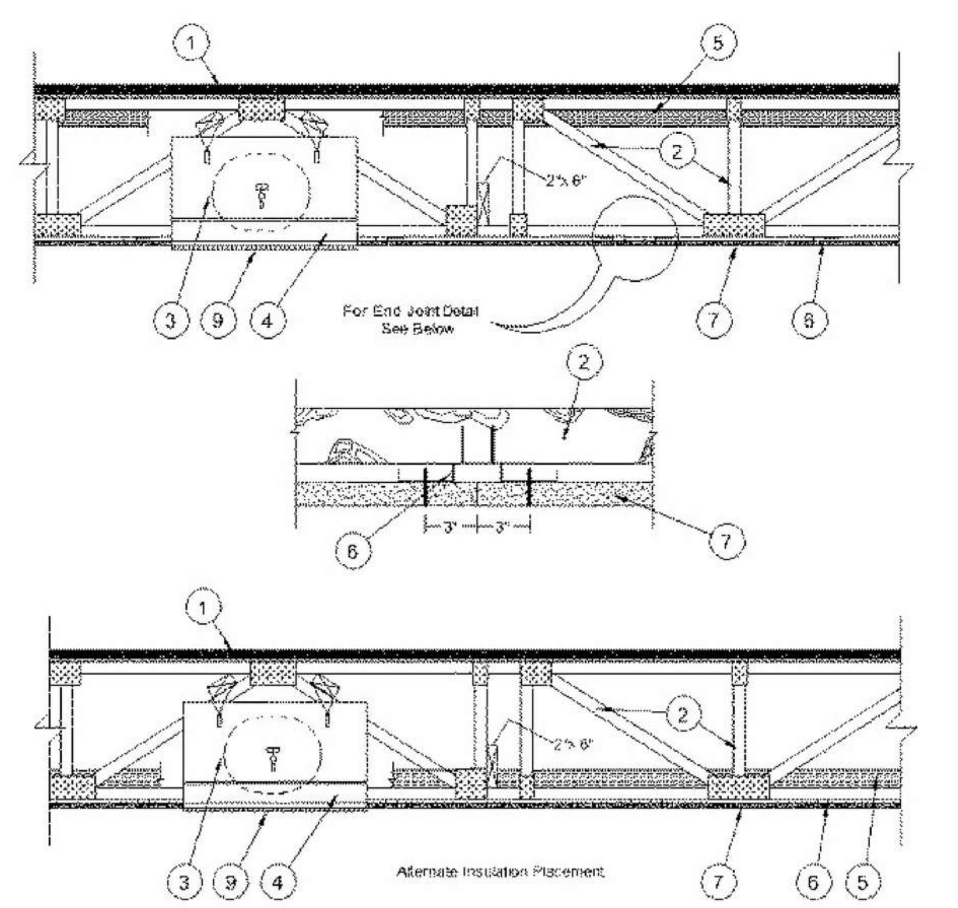
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada Design Criteria and Allowable Variances

Design No. **L546**

October 03, 2023

Unrestrained Assembly Rating — 1 Hr
Finish Rating — 24 or 25 Min (See Item 5)
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. **Flooring System —** The flooring system shall consist of one of the following:

System No. 1

Subflooring — Min 15/32 or 19/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to trusses with joints staggered.

Finish Flooring - Floor Topping Mixture* — Min 3/4 thickness of floor topping mixture having a minimum compressive strength of 1500 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

MAXXON CORP — Types Maxxon Standard and Maxxon High Strength

Floor Mat Materials* — (Optional) — Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

MAXXON CORP — Type Encapsulated Sound Mat

Floor Mat Reinforcement — (Optional) Refer to manufacturer's instructions regarding minimum thickness of floor topping for use with floor mat reinforcement.

Metal Lath — (Optional) — 3/8 in. expanded galvanized steel diamond mesh, 3.4 lbs/sq yd loose laid over the floor mat material.

Fiber Glass Reinforcement - (Optional, Not Shown) - 0.015 in. thick PVC coated non-woven fiberglass mesh, 0.368 lbs/sq yd loose laid over the floor mat material.

System No. 2

Subflooring — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to trusses with joints staggered.

Finish Floor — Mineral and Fiber Board* — Min 1/2 in. thick, supplied in sizes ranging from 3 ft by 4 ft to 8 ft by 12 ft. All joints to be staggered a min of 12 in. with adjacent sub-floor joints.

HOMASOTE CO — Type 440-32 Mineral and Fiber Board

System No. 3

Subflooring — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with joints staggered.

Vapor Barrier — (Optional) — Nom 0.030 in thick commercial asphalt saturated felt.

Finish Flooring — Floor Topping Mixture* — Min 1-1/2 in. thickness of floor topping mixture having a min compressive strength of 1000 psi and a cast density of 100 plus or minus 5 pcf. Foam concentrate mixed 40:1 by volume with water and expanded at 100 psi through nozzle. Mixture shall consist of 1.4 cu feet of preformed foam concentrate to 94 lbs Type I Portland cement, 300 lbs of sand with 5-1/2 gal of water.

ELASTIZELL CORP OF AMERICA — Type FF

System No. 4

Subflooring — Min 15/32 or 19/32 in. thick wood structural panels, min grade C-D or Sheathing. Face grain of plywood or strength axis of panel to be perpendicular to trusses with joints staggered.

Vapor Barrier — (Optional) Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring — Floor Topping Mixture* —Min 3/4 in. thickness of floor topping mixture having a minimum compressive strength of 1500 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

FORMULATED MATERIALS LLC — Types FR-25, FR-30, and SiteMix

Alternate Floor Mat Material* — (Optional) Floor mat material nominal 2 - 9.5 mm thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

FORMULATED MATERIALS LLC — Types M1, M2, M3, Elite, Duo, R1, and R2

System No. 5

Subflooring — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to trusses with joints staggered.

Floor Mat Materials* — (Optional) — Floor mat material nom 5/64 in. (2 mm) thick adhered to subfloor with Hacker Floor Primer. Primer to be applied to the surface of the mat prior to the placement of a min 1 in. of floor-topping mixture.

HACKER INDUSTRIES INC — Type Hacker Sound-Mat.

Alternate Floor Mat Materials — (Optional) — Floor mat material nom 1/4 in. (6 mm) thick adhered to subfloor with Hacker Floor Primer. Primer to be applied to the surface of the mat prior to the placement of a min 1-1/4 in. (32 mm) of floor-topping mixture.

HACKER INDUSTRIES INC — Type Hacker Sound-Mat II.

Alternate Floor Mat Materials — (Optional) — Floor mat material nom 1/8 in. (3mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 3/4 in. (19 mm)

HACKER INDUSTRIES INC — FIRM-FILL SCM 125

Alternate Floor Mat Materials — (Optional) — Floor mat material nom 1/4 in. (6 mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 1 in. (25 mm)

HACKER INDUSTRIES INC — Type FIRM-FILL SCM 250, Quiet Qurl 55/025

Alternate Floor Mat Materials — (Optional) — Floor mat material nom 3/8 in. (10 mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 1-1/4 in. (32mm)

HACKER INDUSTRIES INC — FIRM-FILL SCM 400, Quiet Qurl 60/040

Alternate Floor Mat Materials — (Optional) — Floor mat material nom 3/4 in. (19 mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 1-1/2 in. (38mm)

HACKER INDUSTRIES INC — Type FIRM-FILL SCM 750, Quiet Qurl 65/075

Metal Lath — (Optional) — For use with 3/8 in. (10 mm) floor mat materials, 3/8 in. expanded steel diamond mesh, 3.4 lbs/sq yd placed over the floor mat material. Hacker Floor Primer to be applied prior to the placement of the metal lath. When metal lath is used, floor topping thickness a nom 1-1/4 in. over the floor mat.

Finish Flooring — Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a min compressive strength of 1100 psi. Mixture shall consist of 6.8 gal of water to 80 lbs of floor topping mixture to 1.9 cu ft of sand.

HACKER INDUSTRIES INC — Firm-Fill Gypsum Concrete, Firm-Fill 2010, Firm-Fill 3310, Firm-Fill 4010, Firm-Fill High Strength, Gyp-Span Radiant

System No. 6

Subflooring — Min 15/32 or 19/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to trusses with joints staggered.

Vapor Barrier — (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring — Floor Topping Mixture* — Min 3/4 or 1 in. thickness of floor topping mixture for 19/32 or 15/32 in. thick wood structural panels respectively, having a min compressive strength of 1000 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

ARCOSA SPECIALTY MATERIALS — AccuCrete® Types NexGen, Green, Prime and PrePour, AccuRadiant®, AccuLevel® Types G40, G50 and SD30

Alternate Floor Mat Material* — (Optional) — Floor mat material nominal 2 - 9.5 mm thick loose laid over the subfloor. Floor topping shall be a min of 3/4 in. or 1 in. thickness of floor topping for 19/32 or 15/32 in. thick wood structural panels respectively.

ARCOSA SPECIALTY MATERIALS — AccuQuiet® Types D13, D-18, D25, DX38, EM.125, EM.125S, EM.250, EM.250S, EM.375, EM.375S, EM.750, and EM.750S.

System No. 7

Subflooring — 15/32 or 19/32 in. thick wood structural panels, min. grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to joists with joints staggered.

Vapor Barrier — (Optional) — Commercial asphalt saturated felt 0.030 in. thick.

Finish Flooring — Floor Topping Mixture* — Compressive strength to be 2100 psi min. Thickness to be 3/4 in. min for 19/32 in thick wood structural panels or 1 in. min. for 15/32 in thick wood structural panels. Refer to manufacturer's instructions accompanying the material for specific mix design. Refer to the manufacturer's instructions accompanying the material and/or contact the manufacturer's technical support for specific mix design and minimum thickness recommended for use with eligible floor mat(s).

System No. 8

Subflooring — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with joints staggered.

Vapor Barrier — (Optional) — Nom 0.010 in. thick commercial asphalt saturated felt.

Finish Flooring — Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a minimum compressive strength of 1800 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

UNITED STATES GYPSUM CO — Types LRK, HSLRK, CSD

USG MEXICO S A DE C V — Types LRK, HSLRK, CSD

Floor Mat Materials* — (Optional) — Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

UNITED STATES GYPSUM CO — Types SAM, LEVELROCK® Brand Sound Reduction Board, LEVELROCK® Brand Floor Underlayment SRM-25

PRINTS ISSUED
11/12/24 - CITY SUBMITTAL

REVISIONS:

rosemann & ASSOCIATES P.C.
ARCHITECTURE
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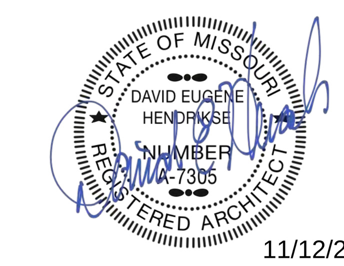

11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - D916 / L546 / GA2750

PROJECT NUMBER: 23103

SHEET NUMBER:

G-201

11/12/2024 9:53:34 AM
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Alternate Floor Mat Materials* — (Optional) - Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding minimum thickness of floor topping over floor mat.

GRASSWORX L L C — SC Types

System No. 9

Subflooring — Min 23/32 in. thick T&G wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with end joints staggered 4 ft. Panels secured to trusses with construction adhesive and No. 6d ringed shank nails spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Gypsum Board* — One layer of nom 5/8 in. thick, 4 ft wide gypsum board, installed with long dimension perpendicular to joists. Gypsum board secured with 1 in. long No. 6 Type W bugle head steel screws spaced 12 in. OC and located a min of 1-1/2 in. from side and end joints. The joints of the gypsum board are to be staggered a minimum of 12 inches from the joints of the subfloor.

GEORGIA-PACIFIC GYPSUM L L C — Type DS

Floor Mat Materials* — (As an alternate to the single layer gypsum board) — Floor mat material loose laid over the subfloor.

MAXXON CORP — Type Encapsulated Sound Mat

Gypsum Board* — (For use when floor mat is used) Two layers of nom 5/8 in. thick, 4 ft wide gypsum board, installed with long dimension perpendicular to joists on top of the floor mat material. Gypsum board secured to each other with 1 in. long No. 6 Type G bugle head steel screws spaced 12 in. OC and located a min of 1-1/2 in. from side and end joints. The joints of the gypsum board are to be staggered a minimum of 12 inches in between layers and from the joints of the subfloor.

GEORGIA-PACIFIC GYPSUM L L C — Type DS

System No. 10

Subflooring — Min 15/32 or 19/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to trusses with joints staggered.

Vapor Barrier — (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring — Floor Topping Mixture* — Min 3/4 or 1 in. thickness of floor topping mixture for 19/32 or 15/32 in. thick wood structural panels respectively, having a min compressive strength of 1000 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

DEPENDABLE LLC — GSL M3.4, GSL K2.6, GSL-CSD, GSL RH, and SKIMFLOW.

Floor Mat Materials* — (Optional) — Nom. 1/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 55/025 and Quiet Qurl 55/025 N

Alternate Floor Mat Materials* — (Optional) — Floor mat material Nom. 3/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 60/040 and Quiet Qurl 60/040 N

Alternate Floor Mat Materials* — (Optional) — Floor mat material Nom. 3/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1-1/2 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 65/075, Quiet Qurl 65/075 N

Alternate Floor Mat Materials* — (Optional) — Floor mat material Nom. 1/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 52/013 and Quiet Qurl 52/013 N

Alternate Floor Mat Materials* — (Optional) — Floor mat material Nom. 1/4 in. entangled net core with a compressible fabric attached to the bottom loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Quiet Qurl 55/025 MT and Quiet Qurl 55/025 N MT

System No. 11

Subflooring — Min 15/32 or 19/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to trusses with joints staggered.

Finish Flooring - Floor Topping Mixture* — Min 1 in. thickness of floor topping mixture having a min compressive strength of 4500 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.
SIKA DEUTSCHLAND GMBH — Type SCHONOX AP Rapid Plus

System No. 12

Subflooring — Min 15/32 or 19/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to trusses with joints staggered.

Vapor Barrier — (Optional) - Commercial asphalt saturated felt, 0.030 in. thick.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of any Floor Topping Mixture bearing the UL Classification Marking as to Fire Resistance. See Floor- and Roof-Topping Mixtures (CCOX) category for names of Classified Companies. Refer to the manufacturer's instructions accompanying the material and/or contact the manufacturer's technical support for specific mix design and minimum thickness recommended for use with eligible floor mat(s).

Floor Mat Materials* — (Optional, Not Shown) - Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.
LOW & BONAR INC — EnkaSonic® by Colbond a member of the Low & Bonar group Types 125, 250, 250 Plus, 400, 400 Plus, 750, and 750 Plus.

Floor Mat Reinforcement — (Optional) - Refer to manufacturer's instructions regarding minimum thickness of floor topping for use with floor mat reinforcement.

Metal Lath — (Optional) — Expanded steel diamond mesh, 2.5 lb / sq yd loose laid over floor mat material.

Fiberglass Mesh Reinforcement — (Optional) — Coated non-woven glass fiber mesh grid loose laid over floor mat material.

System No. 13

Subflooring — Min 15/32 or 19/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to trusses with joints staggered.

Vapor Barrier — (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

Floor Mat Materials* — (Optional) — Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

GRASSWORX L L C — SC Types

Finish Flooring* — Min 3/4 in. thickness of any Floor Topping Mixture bearing the UL Classification Marking as to Fire Resistance. See Floor- and Roof-Topping Mixtures (CCOX) category for names of Classified Companies. Refer to the manufacturer's instructions accompanying the material and/or contact the manufacturer's technical support for specific mix design and minimum thickness recommended for use with eligible floor mat(s).

Floor Mat Reinforcement — (Optional) - Refer to manufacturer's instructions regarding minimum thickness of floor topping for use with floor mat reinforcement.

Metal Lath — (Optional) — Expanded steel diamond mesh, 2.5 lb / sq yd loose laid over floor mat material.

Fiberglass Mesh Reinforcement — (Optional) — Coated non-woven glass fiber mesh grid loose laid over floor mat material.

System No. 14

Subflooring — Subflooring — Min 23/32 in. thick T&G wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with end joints staggered.

Finish Floor - Building Units* — Min 1/2 in. thick magnesium oxide panels installed parallel, perpendicular, or diagonally to trusses with panel edges offset a min of 4 in. between subfloor and magnesium oxide panels. Panels secured to subfloor with construction adhesive and corrosion-resistant fasteners spaced 6 in. OC around panel edges and 12 in. OC in the field of the panel. Fasteners must be placed no closer than 1/2 in. from all panel edges and no closer than 2 in. from panel corners.

HUBER ENGINEERED WOODS LLC — Type 1/2 in. and 5/8 in. Square Edge Exacor® Board, Type ¾ in. T&G Exacor® Board.

2. **Trusses —** Parallel chord trusses spaced a max of 24 in. OC fabricated from nom 2 by 4 lumber, with lumber oriented vertically or horizontally. Min truss depth is 12 in. when dampers are not used and 18 in. when dampers are used. Truss members secured together with min 0.036 in. thick galv steel plates. Plates have 5/16 in. long teeth projecting perpendicular to the plate. The teeth are in pairs facing each other (made by the same punch), forming a split tooth type plate. Each tooth has a chisel point on its outside edge with these points being diagonally opposite each other for each pair. The top half of each tooth has a twist for stiffness. The pairs are repeated on approximately 7/8 in. centers with four rows of teeth per inch of plate width.

3. **Air Duct* —** (Optional) — Any UL Class 0 or Class 1 flexible air duct installed in accordance with the instructions provided by the damper manufacturer

4. **Ceiling Damper* —** (Optional. To be used with Air Duct Item 3) — For use with min 18 in. deep trusses. Max nom area shall be 324 sq in. Max square size shall be 18 in. by 18 in. Rectangular sizes not to exceed 324 sq in. with a max width of 18 in. Max height of damper shall be 14 in. Aggregate damper openings shall not exceed 162 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille (Item 9) shall be installed in accordance with installation instructions.
C&S AIR PRODUCTS — Model RD-521

POTTORFF — Model CFD-521

4A. **Alternate Ceiling Damper* —** For use with min 18 in. deep trusses. Max nom area shall be 196 sq in. Max square size shall be 14 in. by 14 in. Rectangular sizes not to exceed 196 sq in. with a max width of 26 in. Max height of damper shall be 7 in. Aggregate damper openings shall not exceed 98 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille (Item 9) not to exceed 144 in.² shall be installed in accordance with installation instructions.
C&S AIR PRODUCTS — Model RD-521-BT

POTTORFF — Model CFD-521-BT.

4B. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 3) — For use with min 18 in. deep trusses. Max nom area shall be 256 sq in. with the length not to exceed 24 in. and the width not to exceed 20 in. Max height of damper shall be 17 in. Aggregate damper openings shall not exceed 128 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille (Item 9) shall be installed in accordance with installation instructions.
C&S AIR PRODUCTS — Model RD-521-IP, RD-521-NP

POTTORFF — Models CFD-521-IP, CFD-521-NP

4C. **Alternate Ceiling Damper* —** For use with min 18 in. deep trusses. Max nom area shall be 144 sq in. with the length not to exceed 14 in. and the width not to exceed 12 in. Max height of damper shall be 17-7/8 in. Aggregate damper openings shall not exceed 74 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille (Item 9) shall be installed in accordance with installation instructions.
C&S AIR PRODUCTS — Model RD-521-90, RD-521-NP90

POTTORFF — Models CFD-521-90, CFD-521-90NP

4D. **Alternate Ceiling Damper* —** For use with min. 18 in. deep trusses. Max. nom area shall be 349 sq in. Max. overall length and width shall not exceed 18-11/16 in. by 18-11/16 in. with max. 16 in. by 16 in. register opening. Aggregate damper openings shall not exceed 175 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. An aluminum or steel grille (Item 9) shall be installed in accordance with installation instructions.

MIAMI TECH INC — Model Series RxCRD, RxCRDS or RxCRPD

4E. **Alternate Ceiling Damper* —** Ceiling damper & fan assembly for use with min 18 in. deep trusses. Max nom area shall be 75 sq in. with the length not to exceed 8-9/16 in. and the width not to exceed 8-3/4 in. Max height of damper shall be 9-7/8 in. Aggregate damper openings shall not exceed 38 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturers installation instructions provided with the damper. A plastic grille (Item 9) shall be installed in accordance with installation instructions.
DELTA ELECTRONICS INC — Models CRD2, GBR-CRD, ITG-CRD

4F. **Alternate Ceiling Damper* —** For use with min 18 in. deep trusses. Max nom area shall be 324 sq in. Max square size shall be 18 in. by 18 in. Rectangular sizes not to exceed 324 sq in. with a max length of 20 in. and a max width of 22 in. Max height of damper shall be 14 in. Aggregate damper openings shall not exceed 154 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturer's installation instructions provided with the damper. An aluminum or steel grille (Item 9) shall be installed in accordance with installation instructions.
UNITED ENERTECH CORP — Type C-S/R-WT or C-S/R-WTP (Max nom area 324 sq. in.) or C-S/R-WTS or C-S/R-WTPS (Max nom area 162 sq. in.)

4G. **Alternate Ceiling Damper* —** Ceiling damper & fan assembly for use with min 18 in. deep trusses. Max nom area shall be 75 sq in. with the length not to exceed 9-1/4 in. and the width not to exceed 9-3/4 in. Max height of damper shall be 9-7/8 in. Aggregate damper openings shall not exceed 45 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille (Item 9) shall be installed in accordance with installation instructions.
DELTA ELECTRONICS INC — Model SIG-CRD

4H. **Alternate Ceiling Damper* —** Ceiling damper & fan assembly for use with min 18 in. deep trusses. Max nom area shall be 131 sq in. with the length not to exceed 11-1/16 in. and the width not to exceed 11-7/8 in. Aggregate damper openings shall not exceed 66 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille (Item 9) shall be installed in accordance with installation instructions.
DELTA ELECTRONICS INC — Model SMT-CRD

4I. **Alternate Ceiling Damper* —** Ceiling damper & fan assembly for use with min 18 in. deep trusses. Max nom area shall be 103 sq in. with the length not to exceed 10-1/8 in. and the width not to exceed 10-1/8 in. Aggregate damper openings shall not exceed 52 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille (Item 9) shall be installed in accordance with installation instructions.
PANASONIC CORPORATION, PANASONIC CORPORATION OF NORTH AMERICA — Model PC-RD05C5

4J. **Alternate Ceiling Damper* —** Ceiling damper & fan assembly for use with min 18 in. deep trusses. Max nom area shall be 113 sq in. with the length not to exceed 10-1/8 in. and the width not to exceed 11-1/8 in. Aggregate damper openings shall not exceed 57 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille (Item 9) shall be installed in accordance with installation instructions.
BROAN-NUTONE L L C — Model RDFUWT

4K. **Alternate Ceiling Damper* —** Ceiling damper & fan assembly for use with min 18 in. deep trusses. Max nom area shall be 79 sq in. with the length not to exceed 10 in. and the width not to exceed 7-15/16 in. Aggregate damper openings shall not exceed 40 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A metallic grille (Item 9) shall be installed in accordance with installation instructions.
BROAN-NUTONE L L C — Models RDJ1 and RDH

4L. **Alternate Ceiling Damper* —** Ceiling damper & fan assembly for use with min 18 in. deep trusses. Max nom area shall be 87 sq in. with the length not to exceed 9 in. and the width not to exceed 9-11/16 in. Aggregate damper openings shall not exceed 44 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille (Item 9) shall be installed in accordance with installation instructions.
BROAN-NUTONE L L C — Model RDMWT

4M. **Alternate Ceiling Damper* —** Ceiling damper & fan assembly for use with min 18 in. deep trusses. Max nom area shall be 87 sq in. with the length not to exceed 9 in. and the width not to exceed 9-11/16 in. Aggregate damper openings shall not exceed 44 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturers installation instructions provided with the damper. A plastic grille (Item 9) shall be installed in accordance with installation instructions.
BROAN-NUTONE L L C — Model RDMWT2

4N. **Alternate Ceiling Damper* —** (Optional, To be used with Air Duct Item 3) — For use with min 18 in. deep trusses. Max nom 21 in. long by 18 in. wide, fabricated from galvanized steel. Plenum box max size nom 21 in. long by 18 in. wide by 14 in. high (inner dimension) fabricated from either galvanized steel or min 1 in. thick Listed Duct Board bearing the UL Listing Marking having a min R-Value of 4.3. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 180 sq in. per 100 sq ft of ceiling area.
GREENHECK FAN CORP — Model CRD-1WT

4O. **Alternate Ceiling Damper* —** (Optional, To be used with Air Duct Item 3) — For use with min 18 in. deep trusses. Max nom 12 in. long by 12 in. wide with an 8 in. diameter damper, fabricated from galvanized steel. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 72 sq in. per 100 sq ft of ceiling area. .
GREENHECK FAN CORP — Model CRD-2WT

4P. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct, Item 3) — For use with min 18 in. deep trusses. Max nom 18 in. long by 18 in. wide, fabricated from galvanized steel. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 162 sq in. per 100 sq ft of ceiling area.
RUSKIN COMPANY — Model CFD7T, CFD7T-END-BT, CFD7T-90-BT, CFD7T-ST-BT, CFD7T-SB, CFD7T-R6-DB, or CFD7T-IB6

4Q. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct, Item 3) — For use with min 18 in. deep trusses. Max 8 in. diameter damper, fabricated from galvanized steel. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 25 sq in. per 100 sq ft of ceiling area.
RUSKIN COMPANY — Model CFDR7T

4R. **Alternate Ceiling Damper* —** (Optional, to be used with Air Duct Item 3) For use with min 18 in. deep trusses. Max nom 11-1/8 in. long by 13-5/8 in. wide, fabricated from galvanized steel. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 76 sq in. per 100 sq ft of ceiling area.
GREENHECK FAN CORP — Model CRD-310WT

4S. **Damper* —** (Optional, to be used with Air Duct Item 3) For use with min 18 in. deep trusses. Max nom 12-3/8 in. long by 14-1/2 in. wide, fabricated from galvanized steel. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 90 sq in. per 100 sq ft of ceiling area.
GREENHECK FAN CORP — Model CRD-320WT

4T. **Alternate Ceiling Damper* —** (Optional, to be used with Air Duct Item 3) For use with min 18 in. deep trusses. Max 12 in. diameter damper within max 15 in. by 15 in. register box with max 12 in. by 12 in. register opening fabricated from galvanized steel. Aggregate area of the register opening(s) through the ceiling membrane shall not exceed 72 sq. in. per 100 sq. ft. of ceiling area. Damper assembly installed in accordance with the manufacturer's installation instructions.
RUSKIN COMPANY — Model CFD7T-SR

4U. **Alternate Ceiling Damper* -** (Optional, to be used with Air Duct Item 3) For use with min 18 in. deep trusses. Maximum 20 in. long by 18 in. wide by 2-1/8 in. high, fabricated from galvanized steel. Plenum box maximum size nom. 21 in. long by 18 in. wide by 16 in. high fabricated from either galvanized steel or Classified Air Duct Materials bearing the UL Class 0 or Class 1 rigid air duct material. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 180 sq in. per 100 sq ft of ceiling area.

NAILOR INDUSTRIES INC — Types 0755, 0755A, 0756, 0756D, 0757, 0757D, 0757FP, 0757DFP, 0763

SAFE AIR DOWCO — 0455, 0455A, 0456, 0456D, 0457, 0457D, 0457-DB, 0457-CB, 0463-FB, 0457-EB, 0463-GB, 0463

4V. **Alternate Ceiling Damper* —** (Optional, to be used with Air Duct Item 3) For use with min 18 in. deep trusses. Max nom 10-3/8 in. long by 10-3/8 in. wide, fabricated from galvanized steel. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 54 sq in. per 100 sq ft of ceiling area.

GREENHECK FAN CORP — Model CRD-300WT

5. **Batts and Blankets* —** (Optional with Items 7 and 7B; Required with Item 7A) — Glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. When the resilient channels (Item 6) or furring channels (Item 6A, 6O) are spaced 16 in. OC, the insulation shall be a max of 3-1/2 in. thick, and shall be secured against the subflooring with staples at 12 in. OC or held suspended in the concealed space with 0.090 in. diam galv steel wires attached to the wood trusses at 12 in. OC. When the resilient channels (Item 6) or furring channels (Item 6A, 6O) are spaced a max of 12 in. OC or when the Steel Framing Members (Item 6B) are used, there is no limit in the overall thickness of insulation, and the insulation can be secured against the subflooring, held suspended in the concealed space or draped over the resilient or furring channels (or Steel Framing Members) and gypsum panel membrane. When **Steel Framing Members** (Item 6C) are used, max 3-1/2 in. thick insulation shall be draped over the furring channels (Item 6Ca) and gypsum board ceiling membrane, and friction-fitted between trusses and Steel Framing Members (Item 6Cd). The finished rating has only been determined when the insulation is secured to the subflooring.

5A. **Fiber, Sprayed* —** (Dry Dense Packed 100% Borate Formulation) — As an alternate to Item 5 — When used, the resilient channel and gypsum board attachment is modified as specified in Items 6 and 7 and wire mesh (Item 10) shall be attached to the furring channels to facilitate installation of the material. The finished rating when Fiber, Sprayed is used has not been determined. The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft^3, in accordance with the application instructions supplied with the product. When Item 5A (Fiber, Sprayed) is used, two layers of gypsum board required as described in Item 7. Not evaluated for use with Items 6B, 6C or 6D.
APPLEGATE GREENFIBER ACQUISITION LLC — Insulmax & SANCTUARY to be used with dry application only.

5B. **Fiber, Sprayed* —** (Loose Fill 100% Borate Formulation) — As an alternate to Items 5 and 5A — The finished rating when Fiber, Sprayed is used has not been determined. The fiber is applied without water or adhesive at a minimum dry density of 0.5 lb/ft^3 and at a max thickness of 3-1/2 in., in accordance with the application instructions supplied with the product. Wire mesh (Item 10) shall be attached to the furring channels to facilitate installation of the material. When Item 5B (Fiber, Sprayed) is used, two layers of gypsum board required as described in Item 7. Not evaluated for use with Items 6B, 6C or 6D.
APPLEGATE GREENFIBER ACQUISITION LLC — Insulmax & SANCTUARY to be used with dry application only.

5C. **Cavity Insulation - Batts and Blankets* or Fiber, Sprayed* —** (Required for Item 7C, As described above in Items 5 through 5B) — Min. 3-1/2 in thick with no limit on maximum thickness fitted in the concealed space, draped over the resilient channel (Item 6I)/gypsum board (Item 7C) ceiling membrane.

6. **Resilient Channels —** Resilient channels, formed of 25 MSG thick galv steel, spaced 16 in. OC perpendicular to trusses. When insulation (Items 5, 5A, 5B) is draped over the resilient channel/gypsum board ceiling membrane, the spacing shall be reduced to 12 in. OC. Channels secured to each truss with 1-1/4 in. long Type S bugle head steel screws. Channels overlapped 4 in. at splices. Two channels, spaced 6 in OC, oriented opposite each gypsum board end joint as shown in the above illustration. Additional channels shall extend 6 in beyond each side edge of board.

6A. **Steel Framing Members* —** (Not Shown) — As an alternate to Item 6, 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 16 in. OC perpendicular to trusses. When batt insulation (Items 5) is draped over the resilient channel/gypsum board ceiling membrane, the resilient channel spacing shall be reduced to 12 in. OC. Channels secured to trusses as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to trusses (Item 2). Clips spaced 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to alternating trusses with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. RSIC-Si-X secured with No. 10 x 3-1/2 in. screws. RSIC-V and RSIC-V (2.75) clips secured to alternating trusses with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips. RSIC-1, RSIC-Si-X, and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips for use with 2-23/32 in. wide furring channels. Adjoining channels are overlapped as described in Item a. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 7.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-V, RSIC-Si-X, RSIC-1 (2.75), RSIC-V (2.75)

6B. **Alternate Steel Framing Members —** (Not Shown) — As an alternate to Items 6 and 6A, main runners, cross tees, cross channels and wall angle as listed below.
a. **Main Runners —** Nom 10 or 12 ft long, 15/16 in. or 1-1/2 in. wide face, spaced 4 ft. OC. Main runners suspended by min 12 SWG galv steel hanger wires spaced 48 in. OC. Hanger wires to be located adjacent to main runner/cross tee intersections. Hanger wires wrapped and twist-tied on 16d nails driven in to side of trusses at least 5 in. above the bottom face.

b. **Cross Tees or Channels —** Nom 4 ft long cross tees, with 15/16 in. or 1-1/2 in. wide face, or nom 4 ft long cross channels, with 1-1/2 in. wide face, either spaced 16 in. OC, installed perpendicular to the main runners. Additional cross tees or channels used 8 in. from each side of butted gypsum board end joints. The cross tees or channels may be riveted or screw-attached to the wall angle or channel to facilitate the ceiling installation.

c. **Wall Angle or Channel —** Painted or galv steel angle with 1 in. legs or channel with 1 in. legs, 1-9/16 in. deep attached to walls at perimeter of ceiling with fasteners 16 in. OC. To support steel framing member ends and for screw-attachment of the gypsum panel.
CGC INC — Type DGL or RX.

USG INTERIORS LLC — Type DGL or RX.

6C. **Steel Framing Members* —** (Not Shown) — As an alternate to Items 6, 6A and 6B.
a. **Furring Channels —** Hat-shaped furring channels, 7/8 in. deep by 2-5/8 in. wide at the base and 1-1/4 in. wide at the face, formed from No. 25 ga. galv steel, spaced max. 16 in. OC perpendicular to trusses and Cold Rolled Channels (Item 6Cb). Furring channels secured to Cold Rolled Channels at every intersection with a 1/2 in. pan head self-drilling screw through each furring channel leg. Ends of adjoining channels overlapped 4 in. and tied together with two double strand No. 18 SWG galv steel wire ties, one at each end of overlap. Supplemental furring channels at base layer and outer layer gypsum board butt joints are not required. Batts and Blankets draped over furring channels as described in Item 5. Two layers of gypsum board attached to furring channels as described in Item 7.

b. **Cold Rolled Channels —** 1-1/2 in. by 1/2 in., formed from No. 16 ga. galv steel, positioned vertically and parallel to trusses, friction-fitted into the channel caddy on the Steel Framing Members (Item 6Cd). Adjoining lengths of cold rolled channels lapped min. 6 in. and wire-tied together with two double strand 18 SWG galv steel wire ties, one at each end of overlap.

c. **Blocking —** Where truss design does not permit direct, full contact of the hanger bracket, a piece of nominal 2 by 4 in. lumber (blocking), min. 6 in. long to permit full contact of the hanger bracket, to be secured vertically to the side of the truss (Item 2) at the top and bottom of the blocking at each Steel Framing Member (Item 6Cd) location.

d. **Steel Framing Members* —** Hangers spaced 48 in. OC. max along truss, and secured to the Blocking (Item 6Cc) on alternating trusses with a single 5/16 in. by 2 in. hex head lag bolt or four #6 1-1/4 in. drywall screws through mounting hole(s) on the hanger bracket. The two 1/4 in. long steel teeth on the hanger are embedded in the side of the blocking. Hanger positioned on blocking and leveling bolt height adjusted such that furring channels are flush with bottom of trusses before gypsum board installation. Spring gauge of hanger chosen per manufacturer\'s instructions.
KINETICS NOISE CONTROL INC — Type ICW.

6D. **Steel Framing Members* —** (Not Shown) — As an alternate to Items 6, 6A, 6B and 6C.
a. **Furring Channels —** Formed of No. 25 MSG galv steel, 2-3/8 in. wide by 7/8 in. deep, spaced 16 in. OC perpendicular to wood structural members. When insulation, Items 5 or 5A is applied over the furring channel/gypsum panel ceiling membrane, the furring channel spacing shall be reduced to 12 in. OC. Channels secured to trusses as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galv steel wire near each end of overlap.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to trusses (Item 2). Clips spaced 48 in. OC, and secured to the bottom chord of alternating trusses with two No. 8 x 2-1/2 in. course drywall screws, one through the hole at each end of the clip. When insulation, Items 5 or 5A is applied over the furring channel/gypsum panel ceiling membrane, the clip spacing shall be reduced to 24 in. OC and secured to consecutive trusses. Furring channels are friction fitted into clips. Adjoining channels are overlapped as described in Item a. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 7. Two layers of gypsum board required as described in Item 7. Not evaluated for use with Item 5B.
KINETICS NOISE CONTROL INC — Type Isomax.

6E. **Steel Framing Members* —** (Optional, Not Shown) — Used as an alternate method to attach min. 1/2 in. deep resilient channels (Item 6) to wood trusses (Item 2). Resilient channels are friction fitted into clips, and then clips are secured to the bottom chord of each wood truss with a min. 1-3/4 in. long Type S bugle head steel screw through the center hole of the clip and the resilient channel flange. Adjoining resilient channels are overlapped 4 in. under trusses. The clip flange is opened slightly to accommodate the two overlapped channels. Additional clips required to hold resilient channel that supports the gypsum board butt joints, as described in Item 7.

KEENE BUILDING PRODUCTS CO INC — Type RC Assurance.

6F. **Steel Framing Members —** (Not Shown) — As an alternate to Item 6, 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 16 in. OC perpendicular to trusses. When batt insulation (Items 5) is draped over the resilient channel/gypsum board ceiling membrane, the resilient channel spacing shall be reduced to 12 in. OC. Channels secured to trusses as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to trusses (Item 2). Clips spaced 48 in. OC. GenieClips secured to alternating joists with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. When insulation, Items 5 is applied over the furring channel/gypsum panel ceiling membrane, the clip spacing shall be reduced to 24 in. OC and secured to consecutive trusses. Furring channels are friction fitted into clips. Adjoining channels are overlapped as described in Item a. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 7. Not evaluated for use with Item 5A or 5B.
PLITEQ INC — Type GENIECLIP

6G. **Alternate Steel Framing Members* —** (Not Shown) — As an alternate to items 6-6F, furring channels and Steel Framing Members as described below.
a. **Furring Channels —** Formed of No. 25 MSG galv steel, 2-5/8 in. wide by 7/8 in deep, spaced 16 in OC, perpendicular to trusses. When batt insulation (Items 5) is draped over the resilient channel/gypsum board ceiling membrane, the resilient channel spacing shall be reduced to 12 in. OC. Channels secured to trusses as described in Item b.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to trusses (Item 2). Clips spaced at 48" OC and secured to the bottom of the joists with one 2 in. Coarse Drywall Screw with 1 in. diam washer through the center hole. Furring channels are then friction fitted into clips. Ends of channels are overlapped 6" and tied together with double strand of No. 18 AWG galvanized steel wire Additional clips are required to hold the Gypsum Butt joints as described in item 7B.
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237 or A237R

6H. **Alternate Steel Framing Members* —** (Not Shown) — As an alternate to items 6-6G, furring channels and Steel Framing Members as described below.
a. **Furring Channels —** Formed of No. 25 MSG galv steel, 2-1/2 in. wide by 7/8 in deep, spaced 16 in OC, perpendicular to trusses. When batt insulation (Items 5) is draped over the resilient channel/gypsum board ceiling membrane, the resilient channel spacing shall be reduced to 12 in. OC. Channels secured to trusses as described in Item b.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to trusses (Item 2). Clips spaced at 48" OC and secured to the bottom of the trusses with one 2-1/2 in. Coarse Drywall Screw with 1 in. diam washer through the center hole. Furring channels are then friction fitted into clips. Ends of channels are overlapped 6" and tied together with double strand of No. 18 AWG galvanized steel wire Additional clips are required to hold the Gypsum Butt joints as described in item 7B.
REGUPOL AMERICA — Type SonusClip

6I. **Resilient Channels —** For Use With Item 7C - Formed from min 25 MSG galv. steel installed perpendicular to trusses and spaced 16 in. OC. Channels secured to each truss with 1-5/8 in. long Type S bugle head steel screws. Channels overlapped 4 in. at splices. Two channels, spaced 6 in. OC, oriented opposite each gypsum panel end joint. Additional channels shall extend min 6 in. beyond each side edge of panel. Insulation, Item 5C is applied over the resilient channel/gypsum panel ceiling membrane.

6J. **Steel Framing Members* —** (Optional, Not Shown) — As an alternate to Item 6.
a. **Furring Channels —** Formed of No. 25 MSG galv steel, nominal 2-1/2 in. wide by 7/8 in. deep, spaced as indicated in Item 6, perpendicular to the trusses. Channels secured to Cold Rolled Channels at every intersection with a 3/4 in. TEK screw through each furring channel leg. Ends of adjoining channels overlapped 12 in. and fastened together with two double strand No. 18 SWG galv steel wire ties, one at each end of overlap, or with two 3/4 in. TEK screws in each leg of the overlap section. Two furring channels used at end joints of gypsum board (Item 7), each extending a min of 6 in. beyond both side edges of the board.

b. **Cold Rolled Channels —** 1-1/2 in. by 1/2 in., formed from No. 16 ga. galv steel, positioned vertically and parallel to trusses, friction-fitted into the channel caddy on the Steel Framing Members (Item 6Jd) and secured with two 3/4 in. TEK screws. Adjoining lengths of cold rolled channels lapped min. 12 in. and secured along bottom legs with four 3/4 in. TEK screws and wire-tied together

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - L546

PROJECT NUMBER: 23103

SHEET NUMBER:

G-202

11/12/2024 9:35:38 AM

with two double strand 18 SWG galv steel wire ties, one at each end of overlap.

c. **Blocking —** Where truss design does not permit direct, full contact of the hanger bracket, a piece of nominal 2 by 4 in. lumber (blocking), min. 12 in. long to permit full contact of the hanger bracket, to be secured vertically to the side of the trusses at the top and bottom of the blocking at each Steel Framing Member (Item 6Jd) location with 16d nails or minimum 2-1/2 in. screws.

d. Steel Framing Members* — Spaced 48 in. OC. max along truss, and secured to the truss on alternating trusses with two, #10 x 2 in. screws through mounting holes on the hanger bracket.
PAC INTERNATIONAL L L C — Type RSIC-SI-CRC EZ Clip

6K. **Steel Framing Members* —** (Not Shown) — As an alternate to Item 6.
a. **Furring Channels —** Formed of No. 25 MSG galv steel, nominal 2-1/2 in. wide by 7/8 in. deep, spaced as indicated in Item 6, perpendicular to trusses and friction fit into Steel Framing Members (Item 6Kc). Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap or with two TEK screws along each leg of the 6 in. overlap. Two furring channels used at end joints of gypsum board (Item 7). Butt joint channels held in place by strong back channels placed upside down, on top of, and running perpendicular to primary furring channels, extending 6 in. longer than length of gypsum side joint. Strong back channels spaced maximum 48 in. OC. Strong back channels secured to every intersection of primary furring channels with four 7/16 in. pan head screws, two along each of the legs at intersections. Butt joint channels run perpendicular to strong back channels and shall be minimum 6 in. longer than length of joint, secured to strong back channels with 7/16 in. pan head screws, two along each of the legs at intersection with strong back channels.

b. **Blocking —** Where truss design does not permit direct, full contact of the hanger bracket, a piece of nominal 2 by 4 in. lumber (blocking), min. 12 in. long to permit full contact of the hanger bracket, to be secured vertically to the side of the trusses at the top and bottom of the blocking at each Steel Framing Member (Item 6Kc) location with 16d nails or minimum 2-1/2 in. screws.

c. **Steel Framing Members* —** Used to attach furring channels (Item 6Ka) to trusses. Clips spaced 48 in. OC and secured along truss webs at each furring channel intersection with min. 3/4 in. long self-drilling #10 x 1-1/2 in. screws through each of the provided hole locations. Furring channels are friction fitted into clips.
PAC INTERNATIONAL L L C — Type RSIC-S1-1 Ultra

6L. **Steel Framing Members* —** (Optional - Not Shown) — Used to attach resilient channels (Item 6) to trusses (Item 2). Clips spaced 48 in. OC and secured to trusses with one No. 8 x 2-1/2 in. coarse drywall screw through center grommet hole. Channels secured to clips with one #10 x 1/2 in. pan-head self-drilling screw. Ends of adjoining channels overlapped 6 in. and secured together with two #8 15 x 1/2 in. Philips Modified screws spaced 2-1/2 in. from the center of the overlap. Gypsum board butt joints require additional resilient channels spaced 1-1/2 in. from the butt joint on either side. One edge of the extra channels will extend to an adjacent truss where it is secured with a clip.
KEENE BUILDING PRODUCTS CO INC — Type RC+ Assurance Clip

6M. **Steel Framing Members* —** (Optional, Not Shown) — Used as an alternate method to attach resilient channels to structural members. A resilient sound isolation accessory shall be used at each attachment point of the resilient channels and spaced max 24 in. O.C. Channel ends butted and centered under the structural members and attached with one accessory at each end. Additional accessories used to hold resilient channels that support the gypsum board end joints. The accessory envelops the mounting edge of the resilient channel. The accessory and resilient channel are fastened to the structural members with the screws supplied with the accessory and per the accessory manufacturer's installation instructions. Gypsum Board butt joints staggered minimum 24 in. OC and Gypsum Board screws spaced 8 in. OC when used.
PAC INTERNATIONAL L L C — Type RC-1 Boost

6N. **Resilient Channels —** For use with **American Gypsum Co. Type AG-C gypsum board only**. Resilient channels, formed of 25 MSG thick galv steel, spaced 16 in. OC perpendicular to trusses. When insulation (Items 5, 5A, 5B) is applied over the resilient channel/gypsum board ceiling membrane, the resilient channels shall be spaced at 12 in. OC. Channels secured to each truss with 1-1/4 in. long Type S bugle head screws. Channels overlapped 4 in. at splices. Two channels, spaced 6 in. OC, oriented opposite each gypsum board end joint as shown in the above illustration. Additional channels shall extend 6 in beyond each side edge of board.

6O. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 6) — 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. When there is no insulation installed in the concealed space the furring channels are spaced 24 in. OC max perpendicular to trusses. When insulation (Item 5) is secured to the underside of the subfloor the furring channels are spaced 16 in. OC max. When insulation (Item 5) is applied over the furring channel/gypsum panel ceiling membrane, the furring channels are spaced 12 in. OC max. Channels secured to trusses as described in Item 6Ob. 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. Additional clips required to hold furring channel that supports the wallboard butt joints, as described in Item 7.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Oa) to trusses (Item 2). Clips spaced 48 in. OC max with No. 8 x 2-1/2 in. course drywall screw through the center grommet. Furring channels are friction fitted into clips.

CLARKDIETRICH BUILDING SYSTEMS — Type ClarkDietrich Sound Clips

6P. **Steel Framing Members* —** (Optional, Not Shown) — Used as an alternate method to attach resilient channels (items 6 and 6I)_to structural members. A resilient sound isolation accessory shall be used at each attachment point of the resilient channels and spaced 16 in. O.C. Channel ends butted and centered under the structural members and attached with one accessory at each end. Additional accessories used to hold resilient channels that support the gypsum board end joints. The accessory envelops the mounting edge of the resilient channel. The accessory and resilient channel are fastened to the structural members with the 2in. screws supplied with the accessory and per the accessory manufacturer's installation instructions. Gypsum Board butt joints staggered minimum 24 in. OC and Gypsum Board screws spaced 8 in. OC when used.

PAC INTERNATIONAL L L C — Type RC-1 Boost

6Q. **Steel Framing Members*** — (Not Shown) — As an alternate to item 6I, 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 16 in. OC perpendicular to trusses. When batt insulation (Items 5) is draped over the resilient channel/gypsum board ceiling membrane, the resilient channel spacing shall be reduced to 12 in. OC. Channels secured to trusses as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap.

b. **Steel Framing Members*** — Used to attach furring channels (Item a) to trusses (Item 2). Clips spaced 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to alternating trusses with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. RSIC-Si-X secured with No. 10 x 3-1/2 in. screws. RSIC-1, and RSIC-Si-X, clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clips for use with 2-23/32 in. wide furring channels. Adjoining channels are overlapped as described in Item a. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min 7/16 in. long at the midpoint of the overlap, with one 2in. screw on each flange of the channel. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 7.

PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-Si-X, RSIC-1 (2.75), RSIC-SI-X.

6R. **Steel Framing Members*** — (Optional, Not Shown) — As an alternate to Item 6I.

a. **Furring Channels** — Formed of No. 25 MSG galv steel, nominal 2-1/2 in. wide by 7/8 in. deep, spaced as indicated in Item 6, perpendicular to the trusses. Channels secured to Cold Rolled Channels at every intersection with a 3/4 in. TEK screw through each furring channel leg. Ends of adjoining channels overlapped 12 in. and fastened together with two double strand No. 18 SWG galv steel wire ties, one at each end of overlap, or with two 3/4 in. TEK screws in each leg of the overlap section. Two furring channels used at end joints of gypsum board (Item 7), each extending a min of 6 in. beyond both side edges of the board.

b. **Cold Rolled Channels** — 1-1/2 in. by 1/2 in., formed from No. 16 ga. galv steel, positioned vertically and parallel to trusses, friction-fitted into the channel caddy on the Steel Framing Members (Item 6Jd) and secured with two 3/4 in. TEK screws. Adjoining lengths of cold rolled channels lapped min. 12 in. and secured along bottom legs with four 3/4 in. TEK screws and wire-tied together with two double strand 18 SWG galv steel wire ties, one at each end of overlap.

c. **Blocking** — Where truss design does not permit direct, full contact of the hanger bracket, a piece of nominal 2 by 4 in. lumber (blocking), min. 12 in. long to permit full contact of the hanger bracket, to be secured vertically to the side of the trusses at the top and bottom of the blocking at each Steel Framing Member (Item 6Jd) location with 16d nails or minimum 2-1/2 in. screws.

d. **Steel Framing Members*** — Spaced 48 in. OC. max along truss, and secured to the truss on alternating trusses with two, #10 x 2in. screws through mounting holes on the hanger bracket.

PAC INTERNATIONAL L L C — Type RSIC-SI-CRC EZ Clip

6S. **Steel Framing Members*** — (Not Shown) — As an alternate to Item 6I.

a. **Furring Channels** — Formed of No. 25 MSG galv steel, nominal 2-1/2 in. wide by 7/8 in. deep, spaced as indicated in Item 6, perpendicular to trusses and friction fit into Steel Framing Members (Item 6Sc). Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap or with two TEK screws along each leg of the 6 in. overlap. Two furring channels used at end joints of gypsum board (Item 7). Butt joint channels held in place by strong back channels placed upside down, on top of, and running perpendicular to primary furring channels, extending 6 in. longer than length of gypsum side joint. Strong back channels spaced maximum 48 in. OC. Strong back channels secured to every intersection of primary furring channels with four 7/16 in. pan head screws, two along each of the legs at intersections. Butt joint channels run perpendicular to strong back channels and shall be minimum 6 in. longer than length of joint, secured to strong back channels with 7/16 in. pan head screws, two along each of the legs at intersection with strong back channels.

b. **Blocking** — Where truss design does not permit direct, full contact of the hanger bracket, a piece of nominal 2 by 4 in. lumber (blocking), min. 12 in. long to permit full contact of the hanger bracket, to be secured vertically to the side of the trusses at the top and bottom of the blocking at each Steel Framing Member (Item 6Sc) location with 16d nails or minimum 2-1/2 in. screws.

c. **Steel Framing Members*** — Used to attach furring channels (Item 6Sa) to trusses. Clips spaced 48 in. OC and secured along truss webs at each furring channel intersection with min. 3/4 in. long self-drilling #10 x 2 in. screws through each of the provided hole locations. Furring channels are friction fitted into clips.

PAC INTERNATIONAL L L C — Type RSIC-S1-1 Ultra

7. **Gypsum Board* —** Nom 5/8 in. thick, 48 in. wide gypsum board. When resilient channels (Item 6) are used, gypsum board installed with long dimension perpendicular to resilient channels. Gypsum board secured with 1 in. long Type S bugle head screws spaced 12 in. OC and located a min of 1/2 in. from side joints and 3 in. from end joints. End joints secured to both resilient channels as shown in end joint detail. When batt insulation (Item 5) is draped over the resilient channel/gypsum board ceiling membrane, screws spacing shall be 8 in. OC. When **Steel Framing Members*** (Item 6A, 6F, 6O) are used, gypsum board installed with long dimension perpendicular to furring channels and side joints of sheet located beneath joists. Gypsum board secured to furring channels with 1 in. long Type S bugle head screws spaced 12 in. OC in the field. Butted end joints shall be staggered min 2 ft within the assembly, and occur between the continuous furring channels. At butted end joints, each end of each gypsum board shall be supported by a single length of furring channel equal to the width of the gypsum board plus 6 in. The two furring channels shall be spaced approximately 3-1/2 in. OC and be attached to underside of the joist with one clip at each end of the channel. Screw spacing along the gypsum board butt joint shall be 8 in. OC.
When **Steel Framing Members** (Item 6J) are used, nom 5/8 in. thick, 4 ft wide gypsum board, installed as described in Item 7. Adjacent butt joints staggered minimum 48 in. OC.

When **Steel Framing Members** (Item 6K) are used, nom 5/8 in. thick, 4 ft wide gypsum board, installed as described in Item 7. Butt joints staggered minimum 24 in. OC.

AMERICAN GYPSUM CO — Type AG-C

CGC INC — Types C, IP-X2, IPC-AR

CERTAINTEED GYPSUM INC — Type LGFC-C/A

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

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

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

USG BORAL DRYWALL SFZ LLC — Type C

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

7A. **Gypsum Board* —** Nom 5/8 in. thick, 48 in. wide gypsum board, installed with long dimension perpendicular to resilient channels. Gypsum board secured with 1-1/8 in. long Type S bugle head screws spaced 8 in. OC and located a min of 1/2 in. from side joints and 3 in. from the end joints. End joints secured to both resilient channels as shown in end joint detail. When Item 7A is used, the insulation must be used and must be draped over the resilient channel/gypsum board.
NATIONAL GYPSUM CO — Types eXP-C, FSW-G, FSW-C, FSK-G, FSK-C

7B. **Gypsum Board* —** Nom 5/8 in. thick, 48 in. wide gypsum panels. When resilient channels (Item 6) are used, gypsum panels installed with long dimension perpendicular to resilient channels. Gypsum panels secured with 1 in. long Type S bugle head steel screws spaced 12 in. OC and located a min of 1/2 in. from side joints and 3 in. from the end joints. When insulation (Items 5 or 5A) is applied over the resilient channel/gypsum panel ceiling membrane screw spacing shall be reduced to 8 in. OC. End joints secured to both resilient channels as shown in end joint detail. When **Steel Framing Members** (Item 6A, 6O) are used, gypsum panels installed with long dimensions perpendicular to furring channels. Panels attached to the furring channels using 1 in. long Type S bugle-head steel screws spaced 8 in. OC along butted end joints and in the field of the panel. Butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. Each end of each gypsum panel shall be supported by a single length of furring channel equal to the width of the gypsum panel plus 6 in. on each end. The two support furring channels shall be spaced approximately 3-1/2 in. OC, and be attached to underside of the truss with one clip at each end of the channel. When **Steel Framing Members*** (Item 6B) are used, gypsum panels installed with long dimension perpendicular to cross tees with side joints centered along main runners and end joints centered along cross tees. Panels fastened to cross tees with 1 in. long . Type S bugle-head screws spaced in the field and 8 in. OC along end joints. Panels fastened to main runners with 1 in. long . Type S bugle-head screws spaced midway between cross tees. Screws along sides and ends of panels spaced 3/8 to 1/2 in. from panel edge. End joints of panels shall be staggered with spacing between joints on adjacent panels not less than 4 2 ft OC. When **Fiber, Sprayed** (Items 5A or 5B) is used, two layers of nom 5/8 in. thick, 4 ft wide gypsum board are installed with long dimensions perpendicular to furring channels. Base layer gypsum board secured with 1 in. long Type S bugle head steel screws spaced 12 in. OC and located a min of 1/2 in. from side joints and 3 in. from the end joints. End joints secured to both resilient channels as shown in end joint detail. Outer layer gypsum board secured with 1-5/8 in. long Type S bugle head steel screws spaced 12 in. OC and located a min of 1/2 in. from side joints and 3 in. from the end joints. Outer layer shall be finished as described in Item 8. When both **Steel Framing Members** (Item 6A) and **Fiber, Sprayed** (Items 5A or 5B) are used, furring channels spaced 12 in. OC and two layers of nom 5/8 in. thick, 4 ft wide gypsum board are installed with long dimension perpendicular to furring channels. Base layer secured to furring channels with nom 1 in. long Type S bugle head screws spaced 8 in. OC along butted end joints and in the field of the board. Butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. Each end of each gypsum board shall be supported by a single length of furring channel equal to the width of the gypsum board plus 6 in. on each end. The two support furring channels shall be spaced approximately 3-1/2 in. OC, and be attached to the underside of the truss with one clip at each end of the channel. Outer layer secured to furring channels using 1-5/8 in. long Type S screws spaced 8 in. OC and 1-1/2 in. from the end joint. Butted end joints to be offset a min. of 8 in. from base layer end joints. Butted side joints of outer layer to be offset min. 18 in. from butted side joints of base layer. When **Steel Framing Members** (Item 6C) are used, two layers of nom 5/8 in. thick, 4 ft wide gypsum board are installed with long dimensions perpendicular to furring channels (Item 6Ca). Base layer attached to the furring channels using 1 in. long Type S bugle head steel screws spaced 8 in. OC along butted end joints and 12 in. OC in the field of the board. Butted end joints centered on the continuous furring channels. Butted base layer end joints to be offset a min of 16 in. in adjacent courses. Outer layer attached to the furring channels using 1-5/8 in. long Type S bugle head steel screws spaced 8 in. OC at butted end joints and 12 in. OC in the field. Butted end joints centered on the continuous furring channels and offset a min of 16 in. from butted end joints of base layer. Butted side joints of outer layer to be offset min 16 in. from butted side joints of base layer. When **Steel Framing Members** (Item 6D) are used, two layers of nom 5/8 in. thick, 4 ft wide gypsum board are installed with long dimensions perpendicular to furring channels. Base layer attached to the furring channels using 1 in. long Type S bugle-head steel screws spaced 12 in. OC in the field of the board. Butted end joints shall be staggered min 2 ft. within the assembly, and occur midway between the continuous furring channels. Each end of each gypsum board shall be supported by a single length of furring channel equal to the width of the gypsum board plus 6 in. on each end. The two furring channels shall be spaced approximately 4 in. OC, and be attached to underside of the truss with one Isomax clip at each end of the channel. Screw spacing along the gypsum board butt joint shall be 8 in. OC. Outer layer attached to the furring channels using 1-5/8 in. long Type S bugle-head steel screws spaced 12 in. OC in the field. The end of the outer layer boards at the butt joint shall be attached to the base layer boards with 1-5/8 in. long Type G screws spaced 8 in. OC and 1-1/2 in. from the end joint. Butted end joints to be offset a min of 8 in. from base layer end joints. Butted side joints of outer layer to be offset min 18 in. from butted side joints of base layer. Outer layer shall be finished as described in Item 8. When **Steel Framing Members** (Item 6F) are used, two layers of nom 5/8 in. thick, 4 ft wide are installed with long dimensions perpendicular to furring channels. Gypsum board secured to furring channels using 1 in. long No. 6 Type S bugle-head steel screws spaced 12 in. OC in the field of the board. Butted end joints shall be staggered minimum 2 ft. within the assembly. Additional furring channels constructed as per Item 6F shall be used to support each end of each gypsum board. These additional furring channels shall be attached to underside of the truss with Genie clips as described in Item 6F. Screw spacing along the gypsum board butt joint shall be 8 in. OC. Outer layer attached to the furring channels using 1-5/8 in. long No. 6 Type S bugle-head steel screws spaced 12 in. OC in the field. The outer layer boards at the butt joint shall be attached to the base layer boards with No. 10, 1-1/2 in. long drywall screws spaced 8 in. OC and 1-1/2 in. from the end joint. Butted end joints to be offset a min of 24 in. from base layer end joints. Butted side joints of outer layer to be offset min 16 in. from butted side joints of base layer. When **Steel Framing Members** (Item 6G) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to furring channels. Gypsum board secured to furring channels with nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the board. Gypsum board butted end joints shall be staggered minimum 48 in. and centered over main furring channels. At the gypsum board butt joints, each end of each gypsum board shall be supported by a single length of furring channel equal to the width of the gypsum board plus 3 in. on each end. The two support furring channels shall be spaced approximately 3 in. in from joint. Screw spacing along the gypsum board butt joint along both additional channels shall be 8 in. OC. Additional screws shall be placed in the adjacent section of gypsum board into the aforementioned 3 in. extension of the extra butt joint channels as well as into the main channel that runs between. Butt joint furring channels shall be attached with one RESILMOUNT Sound Isolation Clip at each end of the channel.
When **Steel Framing Members** (Item 6H) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to furring channels. Gypsum board secured to furring channels with nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the board. Gypsum board butted end joints shall be staggered minimum 48 in. and centered over main furring channels. At the gypsum board butt joints, an additional single length of furring channel shall be installed and be spaced approximately 3 in. from the butt joint (6 in. from the continuous furring channel) to support the floating end of the gypsum board. Each of these shorter sections of furring channel shall extend one truss beyond the width of the gypsum panel and be attached to the adjacent trusses with one SonusClip at every truss involved with the butt joint.

CERTAINTEED GYPSUM INC — Type C

CGC INC — Types C, IP-X2, IPC-AR

CERTAINTEED GYPSUM INC — Type LGFC-C/A

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

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

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

USG BORAL DRYWALL SFZ LLC — Type C

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

7C. **Gypsum Board* —** (As an alternative to Items 7 and 7B, For use with Items 5C and 6I) — Nom 5/8 in. thick, 48 in. wide gypsum board, installed and secured as described in Items 7 and 7B but with max screw spacing 8 in. OC. When used with insulation (Batts and Blankets* or Fiber Sprayed*) that is installed over the resilient channel/Gypsum Board* ceiling membrane, the resilient channels may remain at 16 in. OC and not need to be reduced to 12 in. OC.
CGC INC — Type ULIX

UNITED STATES GYPSUM CO — ULIX

7D. **Gypsum Board*** — (As an alternative to Items 7, 7A, 7B and 7C) — For use when no insulation is used. Nom 5/8 in. thick, 48 in. wide gypsum board, installed as described in item 7 with resilient channels (Item 6) spaced 24 in. OC.

AMERICAN GYPSUM CO — Type AG-C

8. **Finishing System** — (Not Shown) — Vinyl, dry or premixed joint compound, applied in two coats to joints and screw-heads. Nom 2 in. wide paper tape embedded in first layer of compound over all joints. As an alternate, nom 3/32 in. thick veneer plaster may be applied to the entire surface of gypsum board.

9. **Grille** — Grille, installed in accordance with the installation instructions provided with the ceiling damper.

10. **Wire Mesh** — (Not Shown) — For use with Item 5A and 5B — 1 in. 20 gauge galvanized poultry netting installed between the furring channels and gypsum board. The poultry netting is attached with washers and 1/2 in. wafer head screws, spaced 24 in. OC., to the furring channels. The **Fiber, Sprayed** (Item 5A or 5B) is installed through cut-openings in the poultry netting, in-between trusses. The cut-openings in the poultry netting shall be staggered at a maximum of 6 ft.

*** 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 2023-10-03

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

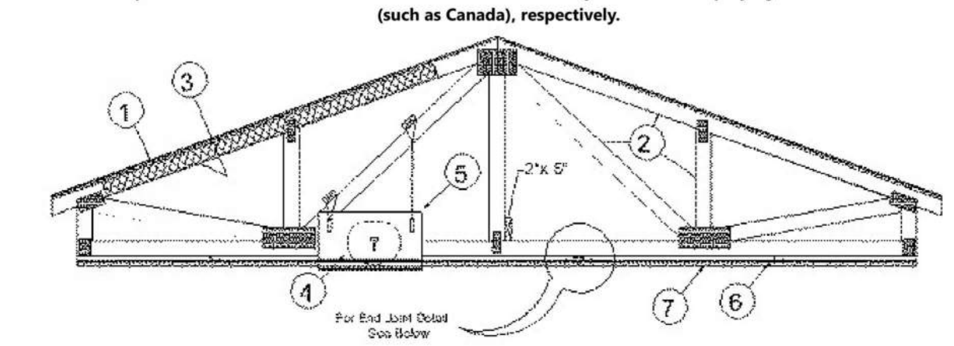
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

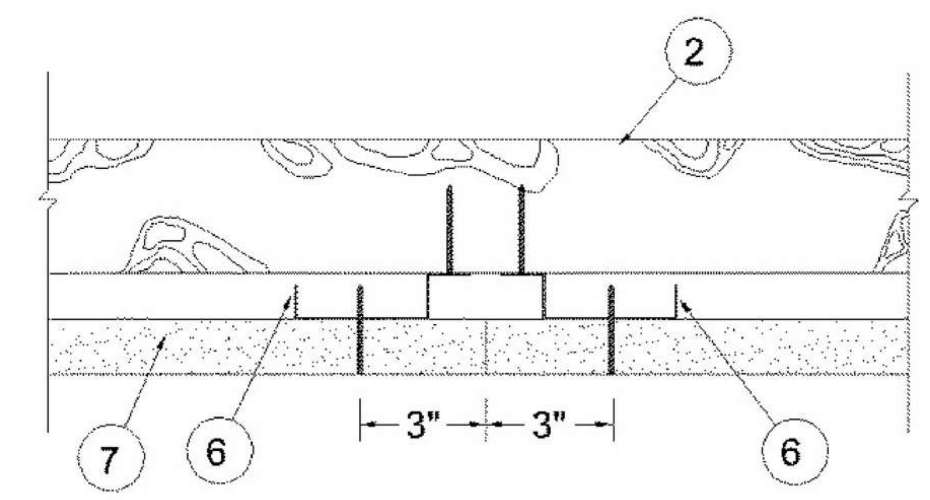
Design No. **P545**

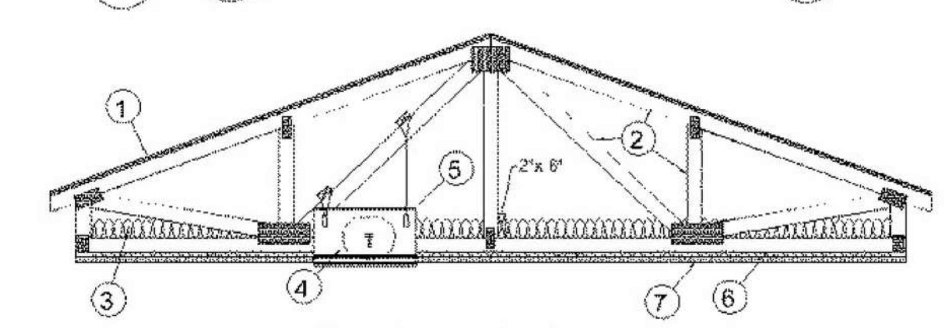
September 8, 2023

Unrestrained Assembly Rating — 1 Hr.
Finish Rating — 24 or 25 Min (See Items 3 and 3A)
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.**







Alternate Insulation Placement

1. **Roofing System* —** Any UL Class A, B or C Roofing System **(TGFU)** or Prepared Roof Covering **(TFWZ)** acceptable for use over nom 15/32 in. thick wood structural panels, min. grade "C-D" or "Sheathing". Nom 15/32 in. thick wood structural panels secured to trusses with No. 6d ringed shank nails. Nails spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Construction adhesive is optional.

2. **Trusses —** Pitch chord trusses, spaced a max of 24 in. OC, fabricated from nom 2 by 4 lumber, with lumber oriented vertically or horizontally. Truss members secured together min.0.0356 in. thick galv steel plates. Plates have 5/16 in. long teeth projecting perpendicular to the plane of the plate. The teeth are in pairs facing each other (made by the same punch), forming a split tooth type plate. Each tooth has a chisel point on its outside edge. These points are diagonally opposite each other for each pair. The top half of each tooth has a twist for stiffness. The pairs are repeated on approximately 7/8 in. centers with four rows of teeth per inch of plate width. Where the truss intersects with the interior face of the exterior walls, the min truss depth shall be 5-1/4 in. and a min. average depth of 18 in.. Where the truss intersects with the interior face of the exterior walls, the min truss depth may be reduced to 3 in. if the batts and blankets (Item 3) are used as shown in the above illustration (Alternate Insulation Placement) and are firmly packed against the intersection of the bottom chords and the plywood sheathing. Min roof slope of 3/12 unless American Gypsum boards are used, in which case there is no minimum slope.

3. **Batts and Blankets* —** (Optional) — Glass fiber insulation, secured to the wood structural panels with staples spaced 12 in. OC or to the trusses with 0.090 in. diam galv steel wires spaced 12 in. OC. Any glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance, having a min density of 0.5 pcf. As an option, the insulation may be fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane when resilient channels and gypsum wallboard attachment is modified as specified in Items 6 and 7. The Finish Rating is 24 min. when the insulation is draped over the resilient channels and gypsum board ceiling membrane and 25 min. when it is installed on underside of the plywood deck or when it is omitted.
When Type AG-C panels are installed there is no limit on maximum thickness.

PRINTS ISSUED
11/12/24 - CITY SUBMITTAL

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STATE OF MISSOURI
DAVID EUGENE HENDRICKS
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - L546 / P545

PROJECT NUMBER: 23103

SHEET NUMBER:

G-203

When Type TG-C panels are installed the maximum thickness is 3-1/2 in.

3A. **Loose Fill Material*** — As an alternate to Item 3 — Loose fill material bearing the UL Classification Marking for Surface Burning Characteristics, having a min density of 0.5 pcf, fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane when resilient channels and gypsum wallboard attachment is modified as specified in Items 6 and 7. The finished rating when this insulation is used has not been determined.
When Type AG-C panels are installed there is no limit on maximum thickness.

When Type TG-C panels are installed the maximum thickness is 3-1/2 in.

3B. **Fiber, Sprayed*** — For Use With American Gypsum Type AG-C only. As an alternate to Item 3 (not evaluated for use with Item 6B and 6C) — spray-applied cellulose insulation material, having a min density of 0.5 lb/ft^3, applied with water, over the resilient channel/gypsum board ceiling membrane when resilient channels and gypsum board attachment is modified as specified in Items 6 and 7. Fiber, Sprayed is applied with moisture in accordance with the application instructions supplied with the product. The finish rating when Fiber Sprayed is used has not been determined. Alternate application method: The fiber is applied without water or adhesive in accordance with the application instructions supplied with a minimum density of 0.5 lb/ft^3 over the resilient channel/gypsum board ceiling membrane when resilient channels and gypsum board attachment is modified as specified in Items 6 and 7. Alternate application method: The fiber is applied without water or adhesive to a nominal density of 3.5 lb/ft^3 behind netting (Item 11) stapled to the rafters. The netting is stapled at both lower edges of the rafters creating a cavity to accept the cellulose fiber The finished rating when this insulation is used has not been determined.
When Type AG-C panels are installed there is no limit on maximum thickness.

When Type TG-C panels are installed the maximum thickness is 3-1/2 in.

APPLEGATE GREENFIBER ACQUISITION LLC — Insulmax and SANCTUARY for use with wet or dry application. INS510LD, INS515LD, and INS541LD are to be used for dry application only.

3C. **Foamed Plastic*** — For Use With American Gypsum Type AG-C only. (As an alternate to Item 3, Not Shown) — Spray foam insulation applied directly to the underside of the roofing system (Item 1). Spray foam insulation installed to a maximum thickness of 10 in. at a nominal 0.5 lb/ft^3 density, while maintaining a minimum 8-1/2 in. clearance between the spray foam insulation and the gypsum board. When spray foam insulation is used, resilient channels (Item 6) shall be installed maximum 12 in. OC, with channels adjacent to butt joints of gypsum board (Item 7) installed at 6 in. OC to allow for maximum 3 in. spacing off ends of the gypsum board joints. Gypsum board to be installed using 1-1/4 in. long Type S screws, spaced maximum 8 in. OC, and butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. If used with a ceiling damper (Items 5 through 5AC) in the concealed space, minimum 1 in. clearance to be maintained between damper housing and spray foam insulation. Limited to resilient channels, Item 6 only, no Item 6 alternates. The finished rating when this insulation is used has not been determined.
SES FOAM INC — Sucraseal

3D. **Foamed Plastic*** — For Use With American Gypsum Type AG-C only. (As alternate to Item 3 Not Shown) — Spray foam insulation applied directly to the underside of the roofing system. Spray foam insulation installed to a maximum thickness of 10 in. at a nominal 0.5 lb/ft^3 or 2.0 lb/ft^3 density, depending on the product installed. When spray foam insulation is installed, resilient channels (Item 6) shall be installed maximum 12 in. OC, with channels adjacent to butt joints of gypsum board spaced maximum 3 in. away from gypsum butt joints. Gypsum board to be installed using minimum 1-1/4 in. long Type S screws, spaced maximum 8 in. OC, and butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. If used with a ceiling damper (Items 5 through 5AC) in the concealed space, minimum 1 in. clearance to be maintained between damper housing and spray foam insulation. Limited to resilient channels, Item 6 only, no Item 6 alternates. The finished rating when this insulation is used has not been determined.
BASF CORP — Enertite® NM, Enertite® G, FE178®, Spraytite® 178, Spraytite® 81206, Walltite® 200, Walltite® US, Walltite® US-N, and Walltite® HP+

3E. **Foamed Plastic*** — For Use With American Gypsum Type AG-C only. (As an alternate to Item 3, Not Shown) — Spray foam insulation applied directly to the underside of the roofing system. Spray foam insulation installed to a maximum thickness of 17 in. at a nominal 0.5 lb/ft^3 density, while maintaining a minimum 1-1/2 in. clearance between the spray foam insulation and the gypsum board. When spray foam insulation is used, resilient channels (Item 6) shall be installed maximum 12 in. OC, with channels adjacent to butt joints of gypsum board installed at 6 in. OC to allow for maximum 3 in. spacing off ends of the gypsum board joints. Gypsum board to be installed using 1-1/4 in. long Type S screws, spaced maximum 8 in. OC, and butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. If used with a ceiling damper (Items 5 through 5AC) in the concealed space, no clearance is necessary between damper housing and spray foam insulation. Limited to resilient channels, Item 6 only, no Item 6 alternates. The finished rating when this insulation is used has not been determined.
SES FOAM INC — EasySeal.5, EasySeal ULD

3F. **Foamed Plastic*** — (As alternate to Item 3) — Spray foam insulation applied directly to the underside of the underside of the roofing system. Spray foam insulation installed to a maximum thickness of 11 in. at a nominal 1.0 lb/ft^3 - 2.5 lb/ft^3 density, while maintaining a minimum 7 in. clearance between the spray foam insulation and the gypsum board (Item 7). Spray foam insulation is limited for use with minimum 18 in. deep trusses (Item 2). When spray foam insulation is installed, resilient channels (Item 6) shall be installed maximum 12 in. OC, with channels adjacent to butt joints of gypsum board spaced maximum 3 in. away from gypsum butt joints. Gypsum board to be installed using minimum 1-1/4 in. long Type S screws, spaced maximum 8 in. OC, and butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels, as illustrated above. If used with a ceiling damper (Items 5 through 5AC) in the concealed space, no clearance is necessary between damper housing and spray foam insulation. Only for use with item 5 not evaluated for use with alternates to item 5. Only for use with item 6 not evaluated for use with alternates to item 6.
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, SealTite PRO HFO, Foamsulate Closed Cell, Foamsulate OCX, Foamsulate 70, Foamsulate HFO, and Foamsulate HFO 2.0.

4. **Air Duct*** — For use with **Ceiling Damper*** - Any UL Class 0 or Class 1 flexible air duct installed in accordance with the instructions provided by the damper manufacturer.

5. **Ceiling Damper*** — Nom 20 in. long by 18 in. wide by 2-1/8 in. high, fabricated from galvanized steel. Plenum box maximum size nom. 21 in. long by 18 in. wide by 16 in. high fabricated from either galavanized steel or Classified Air Duct Materials bearing the UL Class 0 or Class 1 rigid air duct material. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 180 sq in. per 100 sq ft of ceiling area.
NAILOR INDUSTRIES INC — Types 0755, 0755A, 0756, 0756D, 0757, 0757D, 0757FP, 0757DFP, 0758, 0759, 0760, 0761, 0762, 0763, CRD5, CRD5D, CRD6, CRD6D, CRD6FP, CRD6DFP.

SAFE AIR DOWCO — 0455, 0455A, 0456, 0456D, 0457, 0457D, 0457-DB, 0457-CB, 0463-FB, 0457-EB, 0463-GB, 0463

5A. **Alternate Ceiling Damper*** — Max plenum box size nom 19 in. long by 19 in. wide and 11-7/8 in. high fabricated from galv steel. Aggregate damper openings shall not exceed 128 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper.
AIRE TECHNOLOGIES INC — Models: CRD model 50 w/Boot, CRD model 50EA w/Boot, CRD model 55 w/Boot, CRD model 55 EA w/Boot

LLOYD INDUSTRIES INC — Model CRD 50-BT, CRD 50-EA-BT, CRD 55-BT, CRD 55 EA-BT

5B. **Alternate Ceiling Damper*** — Max plenum box size nom 13 in. long by 13 in. wide and 11-7/8 in. high fabricated from galv steel. Aggregate damper openings shall not exceed 50 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper.
LLOYD INDUSTRIES INC — Model CRD 50-BT-6, CRD 50-EA-BT-6, CRD 55-BT-6, CRD 55 EA-BT-6, CRD50-^{W} X-BT-6

5C. **Alternate Ceiling Damper*** — Max size ceiling outlet in plenum box nom 12 in. long by 12 in. wide. Plenum box fabricated from galv steel. Aggregate damper openings shall not exceed 72 sq in. per 100 sq ft of ceiling area. Installed in accordance with the manufacturers installation instructions provided with the damper.
AIRE TECHNOLOGIES INC — Models: CRD model 50 w/Boot, CRD model 50EA w/Boot, CRD model 55 w/Boot, CRD model 55 EA w/Boot

LLOYD INDUSTRIES INC — Model CRD 50-95BT, CRD 50-EA-95BT, CRD 55-95BT, CRD 55 EA-95BT

5D. **Alternate Ceiling Damper*** — Max size ceiling outlet in plenum box nom 16 in. long by 16 in. wide. Aggregate damper openings shall not exceed 128 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper.
LLOYD INDUSTRIES INC — Models CRD 50- FGPB-4.2, - 4.2 NI, -6.0, -6.0 NI; CRD50-EA-FGPB-4.2, -4.2 NI, -6.0, -6.0 NI

5E. **Alternate Ceiling Damper*** — Max plenum box size nom 15 in. long by 15 in. wide and 11-7/8 in. high fabricated from galv steel. Aggregate damper openings shall not exceed 72 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper.
LLOYD INDUSTRIES INC — Models 45-CRD-LT-BT and 45-CRD-LTD-BT

5F. **Alternate Ceiling Damper*** — Max size ceiling outlet in plenum box nom 10 in. long by 10 in. wide. Plenum box fabricated from galv steel. Aggregate damper openings shall not exceed 50 sq in. per 100 sq ft of ceiling area. Installed in accordance with the manufacturers installation instructions provided with the damper.
LLOYD INDUSTRIES INC — Model 45-LTD-95-BT-4

5G. **Alternate Ceiling Damper*** — Max plenum box size nom 19 in. long by 15 in. wide and 11-7/8 in. high fabricated from galv steel. Aggregate damper openings shall not exceed 96 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper.
LLOYD INDUSTRIES INC — Model CRD50-^{W} X-BT

5H. **Alternate Ceiling Damper*** — Max nom area shall be 324 sq in. Max square size shall be 18 in. by 18 in. Rectangular sizes not to exceed 324 sq in. with a max width of 18 in. Max height of damper shall be 14 in. Aggregate damper openings shall not exceed 162 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille (Item 9) shall be installed in accordance with installation instructions.
C&S AIR PRODUCTS — Model RD-521

POTTORFF — Model CFD-521

5I. **Alternate Ceiling Damper*** — Max nom area shall be 196 sq in. Max square size shall be 14 in. by 14 in. Rectangular sizes not to exceed 196 sq in. with a max width of 26 in. Max height of damper shall be 7 in. Aggregate damper openings shall not exceed 98 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille (Item 9) not to exceed 144 in.2 shall be installed in accordance with installation instructions.
C&S AIR PRODUCTS — Model RD-521-BT

POTTORFF — Model CFD-521-BT

5J. **Alternate Ceiling Damper*** — Max nom area shall be 256 sq in. with the length not to exceed 24 in. and the width not to exceed 20 in. Max height of damper shall be 17 in. Aggregate damper openings shall not exceed 128 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille (Item 9) shall be installed in accordance with installation instructions.
C&S AIR PRODUCTS — Model RD-521-IP, RD-521-NP

POTTORFF — Models CFD-521-IP, CFD-521-NP

5K. **Alternate Ceiling Damper*** — Max nom area shall be 144 sq in. with the length not to exceed 14 in. and the width not to exceed 12 in. Max height of damper shall be 17-7/8 in. Aggregate damper openings shall not exceed 74 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille (Item 9) shall be installed in accordance with installation instructions.
C&S AIR PRODUCTS — Model RD-521-90, RD-521-NP90

POTTORFF — Models CFD-521-90, CFD-521-90NP

5L. **Alternate Ceiling Damper*** — (Optional) Max nom area shall be 324 sq in. Max square size shall be 18 in. by 18 in. Rectangular sizes not to exceed 324 sq in. with a max width and max length of 18 in. Max round size shall be 18 in. dia. Aggregate damper openings shall not exceed 162 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper.
RUSKIN COMPANY — Models CFD7T, CFD7T-END-BT, CFD7T-90-BT, CFD7T-ST-BT, CFD7T-SB, CFD7T-R6-DB, CFD7T-IB6, or CFDR7T

5M. **Alternate Ceiling Damper*** — Ceiling damper & fan assembly. Max nom area shall be 75 sq in. with the length not to exceed 8-9/16 in. and the width not to exceed 8-3/4 in. Max height of damper shall be 9-7/8 in. Aggregate damper openings shall not exceed 38 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturers installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions.
DELTA ELECTRONICS INC — Models CRD2, GBR-CRD, ITG-CRD

5N. **Alternate Ceiling Damper*** — Max nom area shall be 324 sq in. Max square size shall be 18 in. by 18 in. Rectangular sizes not to exceed 324 sq in. with a max length of 20 in. and a max width of 22 in. Max height of damper shall be 14 in. Aggregate damper openings shall not exceed 154 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturer's installation instructions provided with the damper. An aluminum or steel grille shall be installed in accordance with installation instructions.
UNITED ENERTECH CORP — Type C-S/R-WT or C-S/R-WTP (Max nom area 324 sq. in.) or C-S/R-WTS or C-S/R-WTPS (Max nom area 162 sq. in.)

5O. **Alternate Ceiling Damper*** — Ceiling damper & fan assembly. Max nom area shall be 75 sq in. with the length not to exceed 9-1/4 in. and the width not to exceed 9-3/4 in. Max height of damper shall be 9-7/8 in. Aggregate damper openings shall not exceed 45 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions.
DELTA ELECTRONICS INC — Model SIG-CRD

5P. **Alternate Ceiling Damper*** — Ceiling damper & fan assembly. Max nom area shall be 131 sq in. with the length not to exceed 11-1/16 in. and the width not to exceed 11-7/8 in. Aggregate damper openings shall not exceed 66 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille (Item 9) shall be installed in accordance with installation instructions.
DELTA ELECTRONICS INC — Model SMT-CRD

5Q. **Alternate Ceiling Damper*** — Ceiling damper & fan assembly. Max nom area shall be 103 sq in. with the length not to exceed 10-1/8 in. and the width not to exceed 10-1/8 in. Aggregate damper openings shall not exceed 52 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions.
PANASONIC CORPORATION, PANASONIC CORPORATION OF NORTH AMERICA — Model PC-RD05C5

5R. **Alternate Ceiling Damper*** — Ceiling damper & fan assembly. Max nom area shall be 113 sq in. with the length not to exceed 10-1/8 in. and the width not to exceed 11-1/8 in. Aggregate damper openings shall not exceed 57 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions.
BROAN-NUTONE L L C — Model RDFUWT

5S. **Alternate Ceiling Damper*** — Ceiling damper & fan assembly. Max nom area shall be 79 sq in. with the length not to exceed 10 in. and the width not to exceed 7-15/16 in. Aggregate damper openings shall not exceed 40 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A metallic grille shall be installed in accordance with installation instructions.
BROAN-NUTONE L L C — Models RDJ1 and RDH

5T. **Alternate Ceiling Damper*** — Max plenum box size nom 19 in. long by 19 in. wide and 11-7/8 in. high fabricated from galv steel. Aggregate damper openings shall not exceed 128 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper.
METAL-FAB INC — Models MSCD-HC and MRCD-HC

5U. **Alternate Ceiling Damper*** — Ceiling damper & fan assembly. Max nom area shall be 87 sq in. with the length not to exceed 9 in. and the width not to exceed 9-11/16 in. Aggregate damper openings shall not exceed 44 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions.
BROAN-NUTONE L L C — Model RDMWT

5V. **Alternate Ceiling Damper*** — Ceiling damper & fan assembly. Max nom area shall be 87 sq in. with the length not to exceed 9 in. and the width not to exceed 9-11/16 in. Aggregate damper openings shall not exceed 44 sq in. per 100 sq ft of ceiling area. Damper shall be installed in combination with one of the fan models described in, and in accordance with, the manufacturer's installation instructions provided with the damper. A plastic grille shall be installed in accordance with installation instructions.
BROAN-NUTONE L L C — Model RDMWT2

5W. **Alternate Ceiling Damper*** — Max nom 21 in. long by 18 in. wide, fabricated from galvanized steel. Plenum box max size nom 21 in. long by 18 in. wide by 14 in. high (inner dimension) fabricated from either galvanized steel or min 1 in. thick Listed Duct Board bearing the UL Listing Marking having a min R-Value of 4.3. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 180 sq in. per 100 sq ft of ceiling area.
GREENHECK FAN CORP — Model CRD-1WT

5X. **Alternate Ceiling Damper*** — Max nom 12 in. long by 12 in. wide with an 8 in. diameter damper, fabricated from galvanized steel. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 72 sq in. per 100 sq ft of ceiling area.
GREENHECK FAN CORP — Model CRD-2WT

5Y. **Alternate Ceiling Damper*** — Max 12 in. diameter damper and insulated register box assembly. The maximum size of the register box assembly is nom. 20 in. long by 20 in. wide and 4 in. high fabricated from galv steel. The aggregate area of the register opening(s) through the ceiling membrane shall not exceed 128 sq in. per 100 sq ft of ceiling area. Damper assembly installed in accordance with the manufacturers installation instructions.
AIRE TECHNOLOGIES INC — Model 57IB.

5Z. **Alternate Ceiling Damper*** — Max 20 in. long by 16 in. wide by 4 in. high rectangular damper with plenum box assembly. The maximum outer dimensions of the plenum box assembly is 23-1/2 in. long by 19-1/2 in. wide and 17 in. high fabricated from 6pcf, 1-1/2 to 2 in. thick Knauf Air Duct Board M*. The aggregate area of the register opening(s) through the ceiling membrane shall not exceed 160 sq in. per 100 sq ft ceiling area. Damper assembly installed in accordance with the manufacturers installation instructions.
AIRE TECHNOLOGIES INC — Series 58.

5AA. **Alternate Ceiling Damper*** — Max 14 in. long by 14 in. wide and 18 in. high ceiling damper with boot or box assembly, fabricated from galv steel. The aggregate area of the register opening(s) through the ceiling membrane shall not exceed 98 sq in. per 100 sq ft of ceiling area. Damper assembly installed in accordance with the manufacturers installation instructions.
AIRE TECHNOLOGIES INC — Model 51 w/Boot.

5AB. **Alternate Ceiling Damper*** — Max nom 11-1/8 in. long by 13-5/8 in. wide, fabricated from galvanized steel. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 76 sq in. per 100 sq ft of ceiling area.
GREENHECK FAN CORP — Model CRD-310WT

5AC. **Alternate Ceiling Damper*** — Max nom 12-3/8 in. long by 14-1/2 in. wide, fabricated from galvanized steel. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 90 sq in. per 100 sq ft of ceiling area.
GREENHECK FAN CORP — Model CRD-320WT

5AD. **Alternate Ceiling Damper*** — Max 12 in. diameter damper within max 15 in. by 15 in. register box with max 12 in. by 12 in. register opening fabricated from galvanized steel. Aggregate area of the register opening(s) through the ceiling membrane shall not exceed 72 sq. in. per 100 sq. ft. of ceiling area. Damper assembly installed in accordance with the manufacturer's installation instructions.
RUSKIN COMPANY — Model CFD7T-SR

5AE. **Alternate Ceiling Damper*** — Max 12 in. diameter damper and insulated register box assembly. The maximum size of the register box assembly is nom. 20 in. long by 20 in. wide and 4 in. high fabricated from galv steel. The aggregate area of the register opening(s) through the ceiling membrane shall not exceed 128 sq in. per 100 sq ft of ceiling area. Damper assembly installed in accordance with the manufacturers installation instructions.
SOUTHWARK METAL MFG CO — Model 800 w/Box

5AF. **Alternate Ceiling Damper*** — Max 20 in. long by 16 in. wide by 4 in. high rectangular damper with plenum box assembly. The maximum outer dimensions of the plenum box assembly are 23-1/2 in. long by 19-1/2 in. wide and 17 in. high fabricated from 6pcf, 1-1/2 to 2 in. thick Knauf Air Duct Board M*. The aggregate area of the register opening(s) through the ceiling membrane shall not exceed 160 sq in. per 100 sq ft ceiling area. Damper assembly installed in accordance with the manufacturers installation instructions.
SOUTHWARK METAL MFG CO — CRD w/DB Box

5AG. **Alternate Ceiling Damper*** — Max 14 in. long by 14 in. wide and 18 in. high ceiling damper with boot or box assembly, fabricated from galv steel. The aggregate area of the register opening(s) through the ceiling membrane shall not exceed 98 sq in. per 100 sq ft of ceiling area. Damper assembly installed in accordance with the manufacturers installation instructions.
SOUTHWARK METAL MFG CO — Model 500 w/Boot, 510 w/Boot, 500 w/Box or 510 w/Box

5AH. **Alternate Ceiling Damper*** — Max nom 10-3/8 in. long by 10-3/8 in. wide, fabricated from galvanized steel. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 54 sq in. per 100 sq ft of ceiling area.

GREENHECK FAN CORP — Model CRD-300WT

6. **Furring Channels** — Resilient channels formed of 25 MSG galv steel, spaced 16 in. OC, installed perpendicular to trusses. When insulations are installed or draped over the resilient channel/gypsum wallboard ceiling membrane, the spacing shall be as described below. Channels secured to each truss with 1-1/4 in. long Type S steel screws. Channels overlapped 4 in. at splices. Channels oriented opposite at wallboard butt joints (spaced 6 in. OC) as shown in the above illustration.
When Type AG-C panels are attached to the resilient channels, the channels may remain at 16 in. OC.

When Type TG-C panels are attached to the resilient channels, the channels are installed at 12 in. OC.

6A. **Steel Framing Members*** — (Not Shown) — As an alternate to Item 6, 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 16 in. OC perpendicular to trusses. When batt insulation (Item 3) is draped over the resilient channel/gypsum board ceiling membrane, the resilient channel spacing shall be reduced to 12 in. OC. Channels secured to trusses as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap.

b. **Steel Framing Members*** — Used to attach furring channels (Item a) to trusses (Item 2). Clips spaced 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to alternating trusses with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. RSIC-V and RSIC-V (2.75) clips secured to alternating trusses with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips. RSIC-1 and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips for use with 2-23/32 in. wide furring channels. Adjoining channels are overlapped as described in Item a. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 7.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-V, RSIC-1 (2.75), RSIC-V (2.75)

6B. **Alternate Steel Framing Members*** — (Not Shown) — Not evaluated with Item 3 (Batts and Blankets). As an alternate to Items 6 or 6A, furring channels and Steel Framing Members as described below.
a. **Furring Channels** — Formed of No. 25 MSG galv steel, 2-5/8 in. wide by 7/8 in deep, spaced 16 in OC, perpendicular to trusses. Channels secured to trusses as described in Item b.

b. **Steel Framing Members*** — Used to attach furring channels (Item a) to the wood trusses (Item 2). Clips spaced at 48" OC and secured to the bottom of the trusses with one 2 in. Coarse Drywall Screw with 1 in. diam washer through the center hole. Furring channels are then friction fitted into clips. Ends of channels are overlapped 6" and tied together with double strand of No. 18 AWG galvanized steel wire. Additional clips are required to hold the Gypsum Butt joints as described in Item 7.
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237 or A237R

6C. **Alternate Steel Framing Members*** — (Not Shown) — Not evaluated with Item 3 (Batts and Blankets). As an alternate to Items 6 through 6B, furring channels and Steel Framing Members as described below.
a. **Furring Channels** — Formed of No. 25 MSG galv steel, 2-1/2 in. wide by 7/8 in deep, spaced 16 in OC, perpendicular to trusses. Channels secured to trusses as described in Item b.

b. **Steel Framing Members*** — Used to attach furring channels (Item a) to the wood trusses (Item 2). Clips spaced at 48" OC and secured to the bottom of the trusses with one 2-1/2 in. Coarse Drywall Screw with 1 in. diam washer through the center hole. Furring channels are then friction fitted into clips. Ends of channels are overlapped 6" and tied together with double strand of No. 18 AWG galvanized steel wire. Additional clips are required to hold the Gypsum Butt joints as described in Item 7.
REGUPOL AMERICA — Type SonusClip

7. **Gypsum Board*** — Nom 5/8 in. thick, 48 in. wide, installed with long dimension perpendicular to resilient channels with 1 in. long Type S screws spaced 12 in. OC and located a min of 1/2 in. from side joints and 3 in. from the end joints. At end joints, two resilient channels are used, extending a min of 6 in. beyond both ends of the joint. When batt and blanket insulation, Item 3, is draped over the resilient channel/gypsum wallboard ceiling membrane, screws shall be installed at 8 in. OC. When **Steel Framing Members** (Item 6B) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to furring channels. Gypsum board secured to furring channels with nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the board. Gypsum board butted end joints shall be staggered minimum 48 in. and centered over main furring channels. At the gypsum board butt joints, each end of each gypsum board shall be supported by a single length of furring channel equal to the width of the gypsum board plus 3 in. on each end. The two support furring channels shall be spaced approximately 3 in. in from end joint. Screw spacing along the gypsum board butt joint and along both additional channels shall be 8 in. OC. Additional screws shall be placed in the adjacent section of gypsum board into the aforementioned 3 in. extension of the extra butt joint channels as well as into the main channel that runs between. Butt joint furring channels shall be attached with one RESILMOUNT Sound Isolation Clip at each end of the channel.
When **Steel Framing Members** (Item 6C) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to furring channels. Gypsum board secured to furring channels with nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the board. Gypsum board butted end joints shall be staggered minimum 48 in. and centered over main furring channels. At the gypsum board butt joints, an additional single length of furring channel shall be installed and be spaced approximately 3 in. from the butt joint (6 in. from the continuous furring channels) to support the floating end of the gypsum board. Each of these shorter sections of furring channel shall extend one truss beyond the width of the gypsum panel and be attached to the adjacent trusses with one SonusClip at every truss involved with the butt joint.
AMERICAN GYPSUM CO — Types AG-C

GEORGIA-PACIFIC GYPSUM L L C — Type TG-C

7A. **Gypsum Board*** — (As an alternative to Item 7) — For use when no insulation is used. Nom 5/8 in. thick, 48 in. wide gypsum board, installed as described in item 7 with resilient channels (Item 6) spaced 24 in OC.

AMERICAN GYPSUM CO — Type AG-C

8. **Finishing System** — (Not Shown) — Vinyl, dry or premixed joint compound, applied in two coats to joints and screw-heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nom 3/32 in. thick veneer plaster may be applied to the entire surface of gypsum wallboard.

9. **Grille** — Installed in accordance with the installation instructions provided with the ceiling damper

10. **Discrete Products Installed in Air-handling Spaces*** — Automatic Balancing Valve/Damper — (Not Shown - Optional) — For use with item 5L, Ruskin Company's Model CFD7T damper (CABS). Ceiling damper to be provided with plenum box per damper manufacturer's instructions with side outlet only. Entire assembly to be installed into any UL Class 0 or Class 1 flexible air duct in accordance with the instructions provided by the automatic balancing valve/damper manufacturer.
METAL INDUSTRIES INC — Model ABV-4, ABV-5, ABV-6

11. **Netting** — (Not shown) Fibrous, woven netting material fastened to underside of each joist with staples, with side joints overlapped.

12. **Netting** — (Not shown) - Non-woven polypropylene fabric fastened to underside of each joist with staples, with side joints overlapped. For use with Type AG-C gypsum boards only.

*** 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 2023-09-08

PRINTS ISSUED
11/12/24 - CITY SUBMITTAL

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER
7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - P545

PROJECT NUMBER: 23103

SHEET NUMBER:

G-204

UL Product **iQ**®

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- 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.
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- 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.
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BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States
BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

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

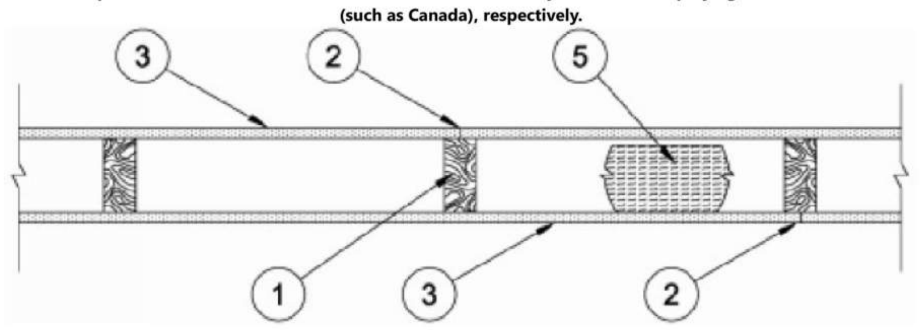
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

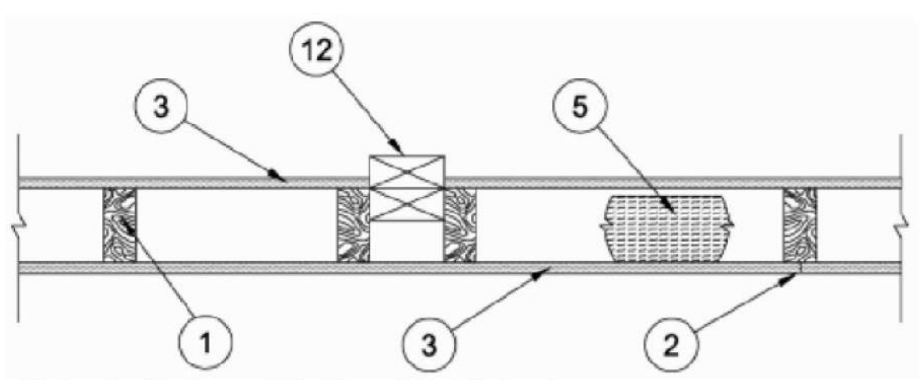
Design No. **U305**

September 19, 2023

Bearing Wall Rating — 1 Hr
Finish Rating — See Items 3, 3A, 3D, 3E, 3F, 3G, 3H, 3J and 3L.
STC Rating - 56 (See Item 9)
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

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





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

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

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

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

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

AMERICAN GYPSUM CO — Types AGX-1(finish rating 23 min.), M-Glass (finish rating 23 min.), Type AGX-11 (finish rating 26 min), Type AGX-12 (finish rating 22 min), Type LightRoc (finish rating 23 min.) or Type AG-C

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

UNITED STATES GYPSUM CO — Types AR, IP-AR

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

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

UNITED STATES GYPSUM CO — Type SHX

USG MEXICO S A DE C V — Type SHX

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

3E. **Gypsum Board* —** (As an alternate to Items 3, 3A, 3B, 3C, and 3D) — 5/8 in. thick gypsum panels, with square edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last 2 screws 1 and 4 in. from edge of board or nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads. When used in widths of other than 48 in., gypsum boards are to be installed horizontally.
GEORGIA-PACIFIC GYPSUM L L C — Type DGG (finish rating 20 min), GreenGlass Type X (finish rating 23 min)

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

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

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

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

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

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

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

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

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

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

3M. **Gypsum Board* —** (As an alternate to Items 3) — For Direct Application to Studs Only — For use as the base layer or as the face layer. Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-5/8 in. long Type W coarse thread gypsum panel steel screws spaced 8 in. OC at perimeter and in the field when applied as the base layer. When applied as the face layer screw length to be increased to 2-1/2 in. Lead batten strips required behind vertical joints of lead backed gypsum 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". Fasteners for face layer gypsum panels (Items 4, 4A or 4B) when installed over lead backed board to be min 2-1/2 in. Type S-12 bugle head steel screws spaced as described in Item 4.
RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

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

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

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

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

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

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

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

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

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

CABOT MANUFACTURING ULC — Type X

CERTAINTEED GYPSUM INC — Type X

CGC INC — Type SCX

PANEL REY S A — Type ARX, PRX

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

THAI GYPSUM PRODUCTS PCL — Type X

UNITED STATES GYPSUM CO — Types SCX and SGX

USG BORAL DRYWALL SFZ LLC — Types SCX and SGX

USG MEXICO S A DE C V — Type SCX

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

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

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

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

JOHNS MANVILLE

KNAUF INSULATION LLC

MANSON INSULATION INC

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

ROCKWOOL MALAYSIA SDN BHD — Type Acoustical Fire Batts

ROCK WOOL MANUFACTURING CO — Delta Board

THERMAFIBER INC — Type SAFB, SAFB FF

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

Applegate Greenfiber Acquisition LLC — Insulmax and SANCTUARY for use with wet or dry application. INS515LD and INS541LD are to be used for dry application only

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

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

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

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

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

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

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

5I. Deleted.

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

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

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

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

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

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

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

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

rosemann & ASSOCIATES P.C.
ARCHITECTURE
INTERIOR DESIGN
ENGINEERING
PLANNING
1526 Grand Boulevard
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
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - U305

PROJECT NUMBER: 23103

SHEET NUMBER:

G-205

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

CGC INC — Types C, IP-X2, IPC-AR

CERTAINTEED GYPSUM INC — Type LGFC-C/A

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

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

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

PANEL REY S A — Type PRC

THAI GYPSUM PRODUCTS PCL — Type C

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

USG BORAL DRYWALL SFZ LLC — Type C

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

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

14G. **Building Units –** (Optional Item Not Shown – For use over Gypsum Board, Item 3) 1 in., 2 in. or 3 in. thick, 4 ft. wide – Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with wafer head screws of adequate length to penetrate framing by a minimum of ¾ in., spaced a max 8 in. o.c.
NATIONAL GYPSUM CO – Type PBCI

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

Last Updated on 2023-09-19

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

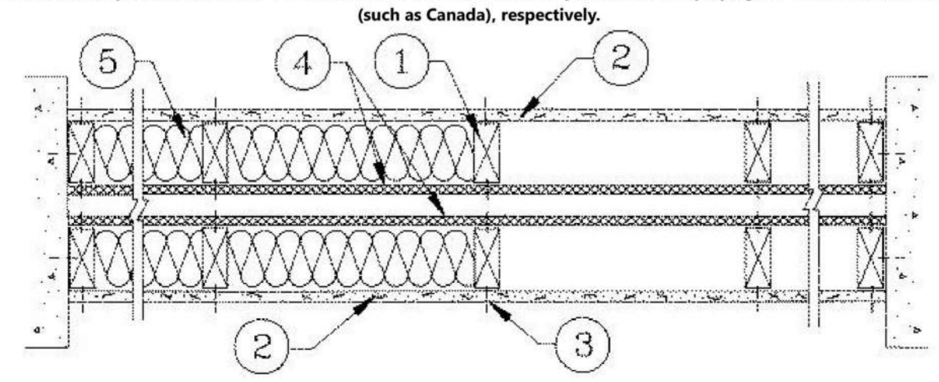
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

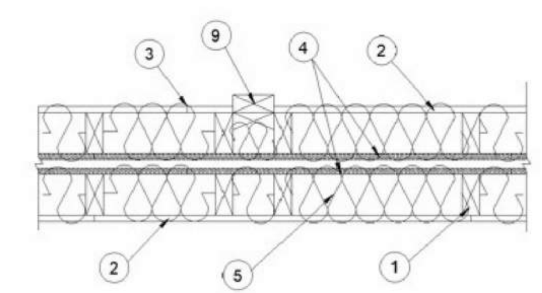
Design No. U341

August 4, 2023

Bearing Wall Rating — 1 Hr.
Finish Rating — Min 20 min.
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.**





HORIZONTAL SECTION

1. **Wood Studs —** Nom 2 by 4 in., spaced 24 in. OC max. Cross braced at mid-height and effectively firestopped at top and bottom of wall. No min. air space between stud rows except to accommodate attachment of sheathing, where required. See items 4 and 5.

2. **Gypsum Board* — Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305.** Nom 5/8 in. thick 4 ft wide. Gypsum board applied horizontally or vertically, unless specified below, and nailed to studs and bearing plates 7 in. OC with 6d cement coated nails, 1-7/8 in. long, 0.0915 in. shank diam and 1/4 in. diam head. As an alternate, No. 6 bugle head drywall screws, 1-7/8 in. long, may be substituted for the 6d cement coated nails.
When **Steel Framing Members*** (Item 6 or any alternate clips) are used, wallboard attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC.

When used in widths other than 48 in., gypsum board to be installed horizontally.

AMERICAN GYPSUM CO (View Classification) — CKNX.R14196

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO (View Classification) — CKNX.R19374

CABOT MANUFACTURING ULC (View Classification) — CKNX.R25370

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R3660

CGC INC (View Classification) — CKNX.R19751

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R18482

GEORGIA-PACIFIC GYPSUM L L C (View Classification) — CKNX.R2717

NATIONAL GYPSUM CO (View Classification) — CKNX.R3501

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM (View Classification) — CKNX.R7094

PANEL REY S A (View Classification) — CKNX.R21796

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD (View Classification) — CKNX.R19262

THAI GYPSUM PRODUCTS PCL (View Classification) — CKNX.R27517

UNITED STATES GYPSUM CO (View Classification) — CKNX.R1319

USG BORAL DRYWALL SFZ LLC (View Classification) — CKNX.R38438

USG MEXICO S A DE C V (View Classification) — CKNX.R16089

2A. **Gypsum Board*** **—** (As an alternate to Item 2, not shown) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically to studs and bearing plates on one side of the assembly with 1-5/8 in. long Type S screws spaced 12 in. OC at perimeter of panels and 8 in. OC in the field. Horizontal joints of vertically applied panels need not be backed by studs. Panel joints covered with paper tape and two layers of joint compound. Screwheads covered with two layers of joint compound. Batts and Blankets placed in stud cavity as described in Item 5C. Not evaluated for use with Steel Framing Members, Furring Channels or Fiber, Sprayed.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock QR-530 (finish rating 23 min).

2B. **Gypsum Board*** **—** (As an alternate to Item 2, not shown) — Any 5/8 in. thick gypsum panels that are eligible for use in Design Nos. L501, G512 or U305, supplied by the Classified companies listed below shown in the **Gypsum Board*** (CKNX) category. Applied horizontally or vertically and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. When used in widths other than 48 in., gypsum board to be installed horizontally.
UNITED STATES GYPSUM CO

USG BORAL DRYWALL SFZ LLC

USG MEXICO S A DE C V

2C. **Gypsum Board*** **—** (As an alternate to Item 2, Not Shown) — 5/8 in. thick gypsum panels applied horizontally or vertically and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. When used in widths other than 48 in., gypsum board to be installed horizontally.
AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C, LightRoc

CERTAINTEED GYPSUM INC — Type C or Type X-1

NATIONAL GYPSUM CO — Type FSK, Type FSK-G, Type FSW, Type FSW-3, Type FSW-5, Type FSW-G, Type FSK-C, Type FSW-C, Type FSMR-C, Type FSW-6, Type FSL

THAI GYPSUM PRODUCTS PCL — Type C or Type X

2D. **Gypsum Board*** **—** (As an alternate to Items 2, 2A, 2B and 2C) — 5/8 in. thick gypsum panels, with square edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last 2 screws 1 and 4 in. from edge of board or nailed as described in Item 2. When used in widths of other than 48 in., gypsum boards are to be installed horizontally.
GEORGIA-PACIFIC GYPSUM L L C — GreenGlass Type X, Type DGG.

2E. **Gypsum Board*** **—** (As an alternate to Items 2 through 2D) — 5/8 in. thick, 4 ft. wide, paper surfaced applied vertically only and secured as described in Item 2.
GEORGIA-PACIFIC GYPSUM L L C — Type X ComfortGuard Sound Deadening Gypsum Board.

2F. **Gypsum Board*** **—** (As an alternate to Items 2 through 2E) - Installed as described in Item 2. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically only and fastened to the studs and plates with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 1/4 in. diam heads, 7 in. OC. Not for use with item #6.
NATIONAL GYPSUM CO — Type SBWB

2G. **Gypsum Board*** **—** (As an alternate to Items 2 through 2F) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 2.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types QuietRock ES.

2H. **Gypsum Board*** **—** (As an alternate to Items 2 through 2G) — Installed as described in Item 2. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically or horizontally fastened to the studs and plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 12 in. OC.

CERTAINTEED GYPSUM INC — Type SilentFX

2I. **Wall and Partition Facings and Accessories*** **—** (As an alternate to Items 2 through 2H) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 2.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527.

2J. **Gypsum Board*** **—** (As an alternate to 5/8 in. Type FSW in Item 2) — 2 layers nom. 5/16 in. thick gypsum panels applied vertically or horizontally. Horizontal joints on the same side need not be staggered. Inner layer attached with fasteners, as described in item 2, spaced 24 in. OC. Outer layer attached per Item 2.
NATIONAL GYPSUM CO — Type FSW.

2K. **Gypsum Board*** **—** (As an alternate to Item 2) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a maximum 10 in. OC with the last two screws 4 and 1 in. from the edges of the board. When used in widths other than 48 in., gypsum panels are to be installed horizontally.
CERTAINTEED GYPSUM INC — Type LGFC6A (finish rating 21 min), Type LGFC2A, Type LGFC-C/A, Type LGFC-WD, Type LGLLX

3. **Joints and Nailheads —** Gypsum board joints of outer layer covered with tape and joint compound. Nail heads of outer layer covered with joint compound. As an alternate, nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard with joints reinforced with paper tape.

4. **Sheathing —** (Optional) — Septum may be sheathed with min 7/16 in. thick wood structural panels min grade "C-D" or "Sheathing" or min 1/2 in. thick **Mineral and Fiber Boards***.
See **Mineral and Fiber Boards** (CERZ) category for names of Classified companies.

5. **Batts and Blankets*** **—** 3-1/2 in. max thickness glass or mineral fiber batt insulation. **Optional** when sheathing (Item 4) is used on both halves of wall.
See **Batts and Blankets** (BZJZ) category for list of Classified companies.

5A. **Fiber, Sprayed*** **—** As an alternate to Batts and Blankets (Item 5) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft^3. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft^3, in accordance with the application instructions supplied with the product.

Applegate Greenfiber Acquisition LLC — Insulmax and SANCTUARY for use with wet or dry application. INS515LD and INS541LD are to be used for dry application only.

5B. **Fiber, Sprayed*** **—** As an alternate to Batts and Blankets (Item 5) when Sheathing (Item 4) is used on both halves of wall - Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.
NU-WOOL CO INC — Cellulose Insulation

5C. **Batts and Blankets*** **—** (Required for use with Wall and Partition Facings and Accessories, Item 2A. Use of Sheathing, Item 4, does not nullify requirement of Item 5C for use with Item 2A) — Glass fiber insulation, nom 3-1/2 in. thick, min. density of 0.80 pcf, with a flame spread of 25 or less and a smoke developed of 50 or less, friction-fitted to completely fill the stud cavities. See Batts and Blankets Category (BKNV) for names of manufacturers.

5D. **Fiber, Sprayed*** **—** As an alternate to Batts and Blankets (Item 5) and Item 5A when Sheathing (Item 4) is used on both halves of wall - Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft^3.
INTERNATIONAL CELLULOSE CORP — Celbar-RL

5E. Deleted.

6. **Steel Framing Members*** **—** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
A. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER
A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - U305 / U341

PROJECT NUMBER: 23103

SHEET NUMBER:

G-206

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. Wallboard attached to furring channels as described in Item 2.

B. **Steel Framing Members* —** Used to attach furring channels (Item a) to studs (Item 1) . Clips spaced 48 in. OC., and 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. 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).

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

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

6B. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 6) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Ba) to studs. Clips spaced 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

6C. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 6) — Furring channels and Steel Framing Members as described below:
A. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 6Cb. 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 2.

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

6D. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 6) — 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 2.

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

6E. **Steel Framing Members* —** (Optional, Not Shown) — Resilient channels and Steel Framing Members as described below:
a. **Resilient Channels —**Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to resilient channels as described in Item 2.

b. **Steel Framing Members*** - Used to attach resilient channels to wall studs. A resilient sound isolation accessory shall be used at each attachment point of the resilient channels to the studs. Channel ends butted and centered under the structural members and attached with one accessory at each end. Additional accessories used to hold resilient channels that support the gypsum board end joints. The accessory envelops the mounting edge of the resilient channel. The accessory and resilient channel are fastened to the studs with the screws supplied with the accessory and per the accessory manufacturer's installation instructions.

PAC INTERNATIONAL L L C — Type RC-1 Boost

6F **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 6) — 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 2.

b **Steel Framing Members* —** Used to attach furring channels (Item 6Fa) 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

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

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

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

(Optional, Not Shown) Alternate Construction For Use On One Side Of The Wall.

10. **Mineral and Fiber Board* —** For use with Items 10A-10D) —Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to framing with minimum 1-3/8 in. long ring shanked nails or 1-1/4 in. long Type W steel screws, spaced 12 in. OC along board edges and 24 in. OC in field of board along intermediate framing. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
HOMASOTE CO — Homasote Type 440-32

10A. **Glass Fiber Insulation —** (For use with Item 10) — 3-1/2 in. thick glass fiber batts bearing the UL Classification Marking as to Surface Burning and/or Fire Resistance, placed to fill the interior of the wall. See Batts and Blankets (BKNV or BZJZ) categories for names of Classified companies.

10B. **Batts and Blankets* —** (As an alternate to Item 10B, For use with Item 10), 3 in. thick mineral wool batts, placed to fill interior of wall, attached to the 3-1/2 in. face of the studs with staples placed 24 in. OC.
THERMAFIBER INC — Type SAFB, SAFB FF

10C. **Adhesive —** (For use with Item 10) — Construction grade adhesive applied in vertical, serpentine, nominal 3/8 in. wide beads down the length of both vertical edges of Mineral and Fiber Board (Item 14A).

10D. **Gypsum Board* —** (For use with Item 10) — 5/8 in. thick, 4 ft wide, applied vertically over Mineral and Fiber Board (Item 14A) with vertical joints located anywhere over stud cavities. Secured to mineral and fiber boards with 1-1/2 in. Type G Screws spaced 8 in. OC along edges of each vertical joint and 12 in. OC in intermediate field of the Mineral and Fiber Board (Item 10). Secured to outermost studs and bearing plates with 2 in. long Type S screws spaced 8 in. OC. Gypsum Board joints covered with paper tape and joint compound. Screw heads covered with joint compound. Finish Rating 30 Min.
AMERICAN GYPSUM CO — Type AG-C

CERTAINTEED GYPSUM INC — Type C

CERTAINTEED GYPSUM INC — Type LGFC-C/A

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

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

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

PANEL REY S A — Type PRC

THAI GYPSUM PRODUCTS PCL — Type C

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

USG BORAL DRYWALL SFZ LLC — Type C

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

*** 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 2023-08-04

UL Product iQ®

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

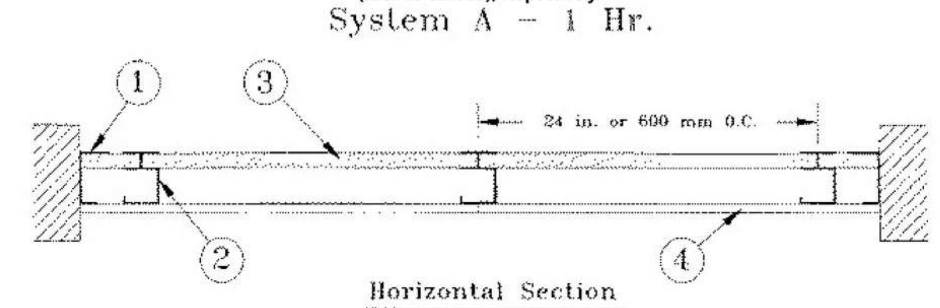
Design No. **U415**

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.



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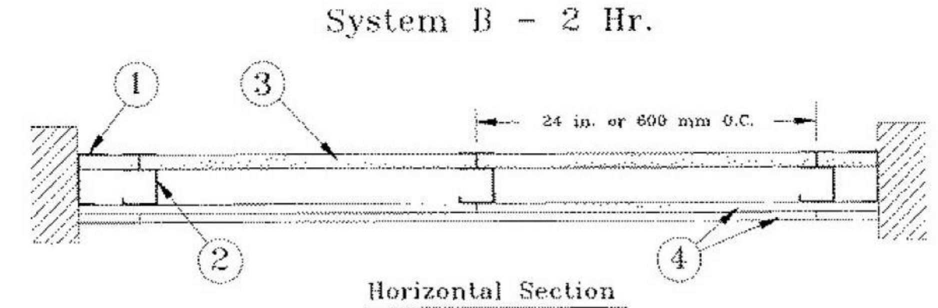

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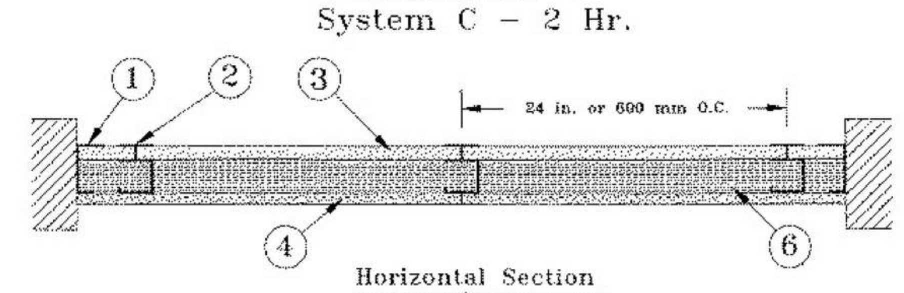

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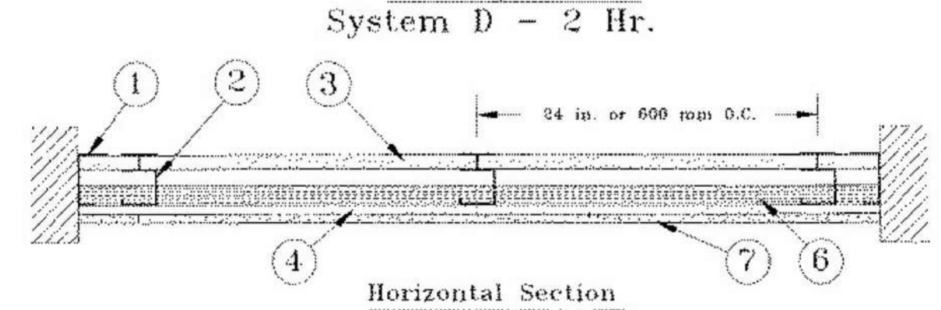

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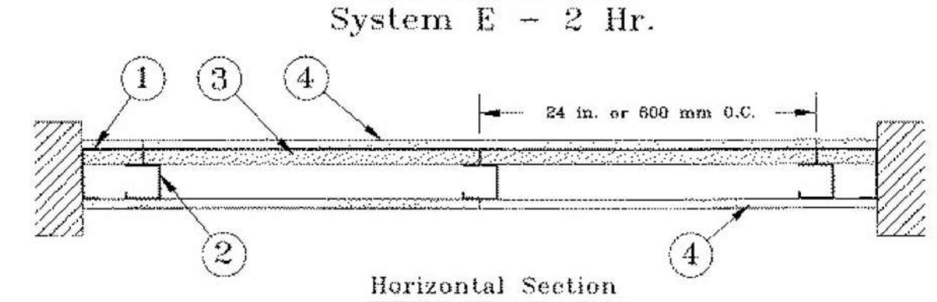

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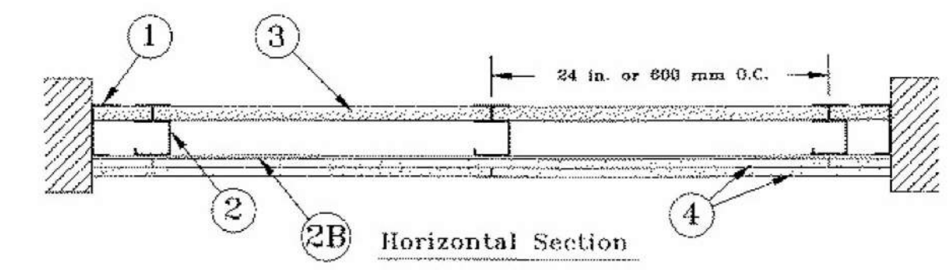
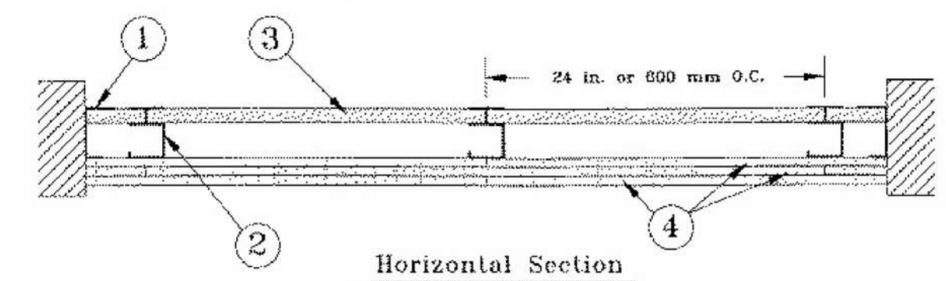
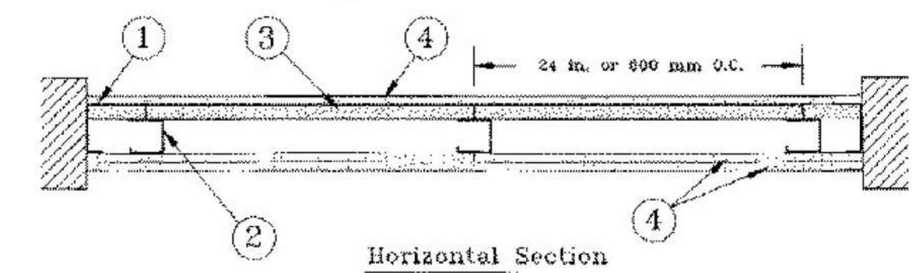


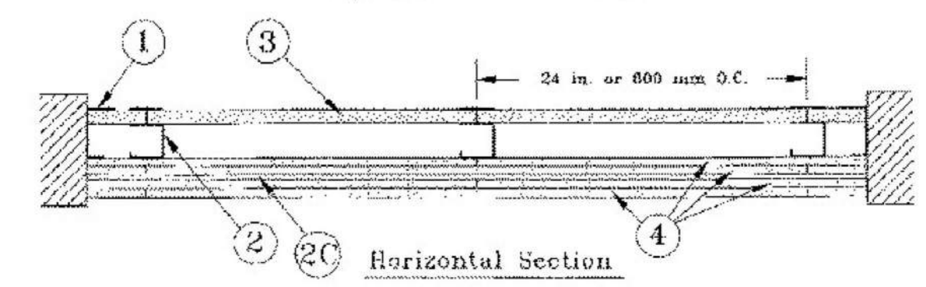
System G – 3 Hr.



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

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - U341 / U415

PROJECT NUMBER: 23103

SHEET NUMBER:

G-207

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. OC 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, ULIX, 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. 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

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 16 in. OC 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

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 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/m³

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

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

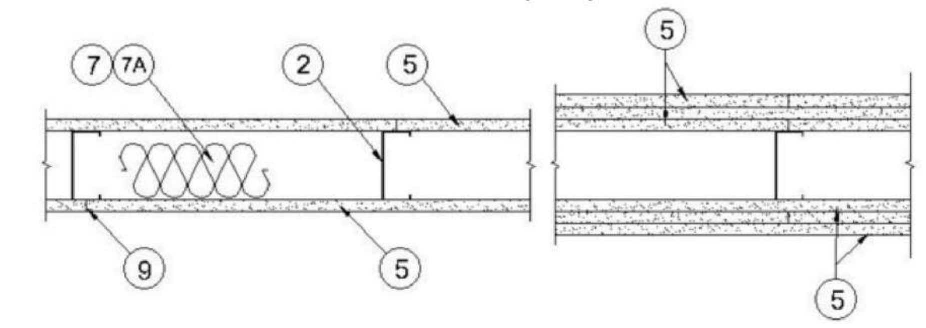
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. U423

August 16, 2023

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

PRINTS ISSUED
11/12/24 - CITY SUBMITTAL

REVISIONS:

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ARCHITECTURE
INTERIOR DESIGN
ENGINEERING
PLANNING
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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - U415 / U423

PROJECT NUMBER: 23103

SHEET NUMBER:

G-208

11/12/2024 9:34:04 AM
C:\Revit Local Cache\2023\23103_Lot 7 Apartments_Central_R23_bmchaddsWT4Z.rvt

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.

5G. **Gypsum Board* —** (As an alternate to Item 5 when Foam Plastic insulation (Item 18) 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 1-1/4 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 1-7/8 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 ONE, 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

18. **Foamed Plastic***– (Optional, Not Shown for use with item 5G) Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity.

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

*** 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 2023-08-16

UL Product iQ®

UL Solutions

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- 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. **U905**

April 14, 2023

Bearing Wall Rating — 2 HR.
Nonbearing Wall Rating — 2 HR
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

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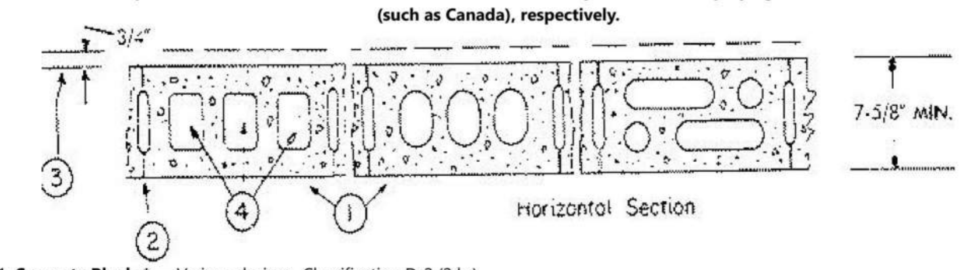

1. **Concrete Blocks* —** Various designs. Classification D-2 (2 hr).
See **Concrete Blocks** category for list of eligible manufacturers.

2. **Mortar —** Blocks laid in full bed of mortar, nom. 3/8 in. thick, of not less than 2-1/4 and not more than 3-1/2 parts of clean sharp sand to 1 part Portland cement (proportioned by volume) and not more than 50 percent hydrated lime (by cement volume). Vertical joints staggered.

3. **Portland Cement Stucco or Gypsum Plaster —** Add 1/2 hr to classification if used. Where combustible members are framed in wall, plaster or stucco must be applied on the face opposite framing to achieve a max. Classification of 1-1/2 hr. Attached to concrete blocks (Item 1).

4. **Loose Masonry Fill —** If all core spaces are filled with loose dry expanded slag, expanded clay or shale (Rotary Kiln Process), water repellant vermiculite masonry fill insulation, or silicone treated perlite loose fill insulation add 2 hr to classification.

5. **Foamed Plastic* —** (Optional-Not Shown) — 1-1/2 in. thick max, 4 ft wide sheathing attached to concrete blocks (Item 1).
ATLAS ROOFING CORP — EnergyShield Pro Wall Insulation, EnergyShield Pro 2 Wall Insulation, EnergyShield CGF Pro, EnergyShield Ply Pro, EnergyShield® CGF, EnergyShield® PanelCast, EnergyShield® and "EnergyShield® XR

DUPONT DE NEMOURS, INC. — Types Thermax Sheathing, Thermax Light Duty Insulation, Thermax Heavy Duty Insulation, Thermax Metal Building Board, Thermax White Finish Insulation, Thermax ci Exterior Insulation, Thermax XARMOR ci Exterior Insulation, Thermax IH Insulation, Thermax Plus Liner Panel, Thermax Heavy Duty Plus (HDP), TUFF-R™ ci Insulation, Thermax Butler Stylwall Insulation Board and Thermax Morton Heavy Duty Insulation Board

FIRESTONE BUILDING PRODUCTS CO L L C — "Enverge™ CI Foil Exterior Wall Insulation" and "Enverge™ CI Glass Exterior Wall Insulation"

HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — Types "Xci-Class A", "Xci Foil (Class A)", "Xci 286"

RMAX, A BUSINESS UNIT OF SIKA CORPORATION — Types "TSX-8500", "ECOMAXci FR", "TSX-8510", "ECOMAX xi FR White", "ECOMAXci", "ECOMAXci FR Air Barrier", "Thermasheath-XP", "Thermasheath", "Durasheath"

JOHNS MANVILLE — Type "AP Foil-Faced Foam Sheathing"

5A. **Building Units* —** As an alternate to Items 5, min. 1-in thick polyisocyanurate composite foamed plastic insulation boards, nom. 48 by 48 or 96 in.

ATLAS ROOFING CORP — EnergyShield® Ply

HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — "Xci NB", "Xci Ply"

RMAX, A BUSINESS UNIT OF SIKA CORPORATION — "Thermasheath-SI", "ECOBASEci", "ThermaBase-CI", "ECOMAXci FR Ply", "ECOMAXci Ply".

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Last Updated on 2023-04-14

PRINTS ISSUED
11/12/24 - CITY SUBMITTAL

REVISIONS:

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Kansas City, MO 64108-1404
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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - U423 / U905

PROJECT NUMBER: 23103

SHEET NUMBER:

G-209

UL Product iQ™

BXUV.W426 - FIRE-RESISTANCE RATINGS - ANSI/UL 263

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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. W426

March 13, 2018

(Exposed to Fire on Interior Face Only)

Nonbearing Wall Rating — 1 Hr.

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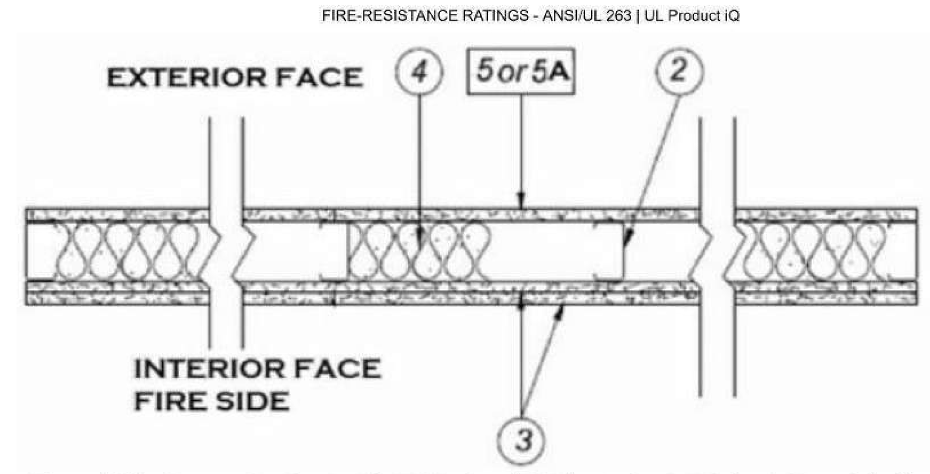

1. **Floor and Ceiling Runner** — (Not Shown) — Min. 25 MSG galv steel, 1-1/8 in. return legs, 3-5/8 in. deep (min), attached to floor and ceiling with fasteners 24 in. OC max.

2. **Steel Studs** — Min 3-5/8 in. deep, formed of min 25 MSG galv steel max stud spacing 24 in. OC. Studs to be cut 1 in. less than assembly height.

3. **Gypsum Board*** — Nom 5/8 in. thick, two layers applied vertically or horizontally to the steel studs with the vertically and horizontally joints offset by 24 inches between layers. Base layer attached with 1-1/8 in. long Type S steel screws spaced 8 in. OC at the perimeter and 12 in. OC in the field. The face layer attached with 2 in. long Type S steel screws spaced 8 in. OC at the perimeter and 12 in. OC in the field. Screws between based and face layers offset by max. 6 in.
AMERICAN GYPSUM CO — Types AGX-1, AGX-12, LightRoc, M-Glass or AG-C

CERTAINTEED GYPSUM INC — Type X, Type X-1, Easi-Lite Type X-2

GEORGIA-PACIFIC GYPSUM L L C — Type GPFS1

SAINT-GOBAIN GYPROC MIDDLE EAST FZE — Type Gyproc FireStop, Gyproc FireStop MR, Gyproc FireStop M2TECH, Gyproc FireStop ACTIV'Air, Gyproc FireStop MR ACTIV'Air, Gyproc FireStop M2TECH ACTIV'Air, Gyproc DuraLine, Gyproc DuraLine MR, Gyproc DuraLine M2TECH, Gyproc DuraLine ACTIV'Air, Gyproc DuraLine MR ACTIV'Air, Gyproc DuraLine M2TECH ACTIV'Air

UNITED STATES GYPSUM CO — Type SCX, ULIX

USG BORAL DRYWALL SFZ LLC — Type SCX

4. **Foamed Plastic*** — Spray applied, foamed plastic insulation, to completely filling stud cavity.
GACO WESTERN L L C — Gaco WallFoam 183M

5. **Wood Structural Panel Sheathing** — 4 ft wide, 1/2 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. 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. Aluminum, vinyl or steel siding, brick veneer or stucco, meeting the requirements of local code agencies may be applied over the Wood Structural Panel Sheathing.

5A. **Gypsum Sheathing** — As an option to Item 5, exterior regular gypsum sheathing, 1/2 or 5/8 in. thick applied vertically or horizontally, attached to studs and runners with 1 in. long Type S12 steel screws spaced 12 in. OC along studs and runners. Aluminum, vinyl or steel siding, brick veneer or stucco, meeting the requirements of local code agencies may be applied over the gypsum sheathing.

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Last Updated on 2018-03-13

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Design Criteria and Allowable Variances

Design No. X790

November 25, 2019

Ratings — 1, 1-1/2, 2, 3 and 4 Hr.

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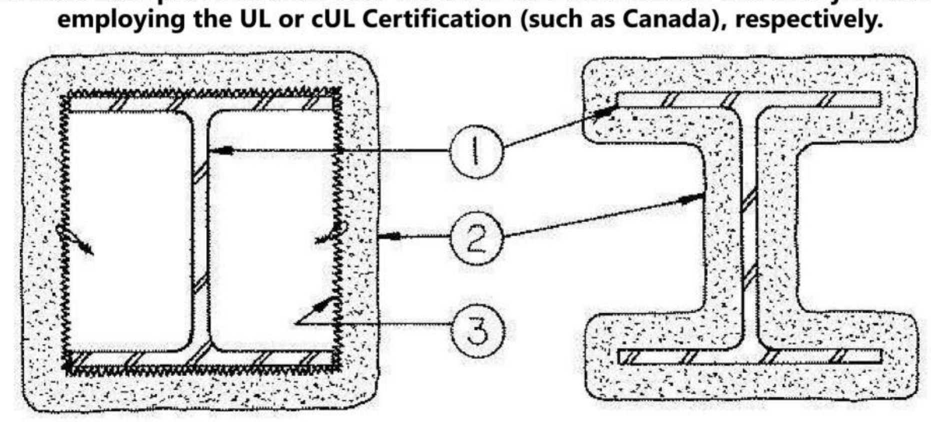

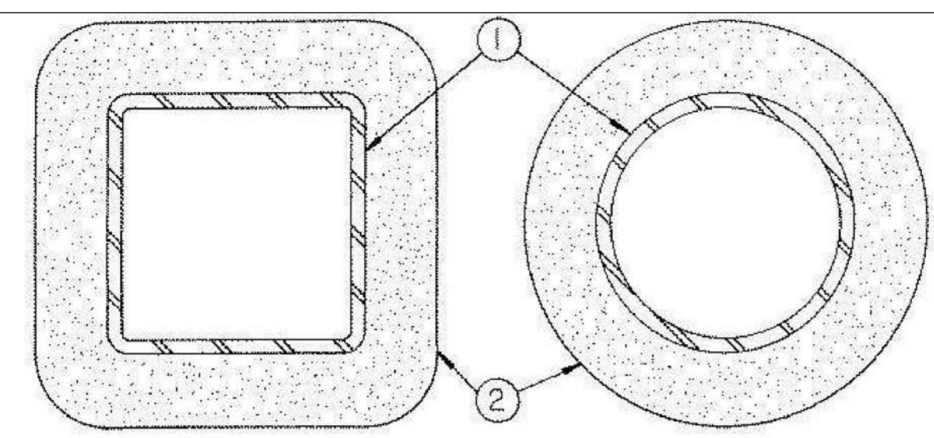

1. **Steel Column, Steel Pipe or Steel Tube** — Wide flange steel column (W) or steel circular pipe (SP) or steel square or rectangular tube (ST), min sizes as shown in the tables below.

2. **Spray-Applied Fire Resistive Materials*** — Applied by mixing with water and spraying in one or more coats to the thicknesses shown below, to steel surfaces which are clean and free of dirt, loose scale, and oil. Min average and min individual density of 15 and 14 pcf, for Types 300, 300AC, 300ES, 300HS, 300N, 3000, 3000ES and SB. For Types 400AC and 400ES min average and min individual density of 22 and 19 pcf, respectively. Min avg density of 44 pcf with min ind value of 40 pcf for Types M-II and TG. Min avg density of 47 pcf, with min individual value of 43 pcf for Type M-II/P. For method of density determination, see Design Information Section, Sprayed Material.
The min thickness of Spray-Applied Fire Resistive Materials required for various fire resistance ratings of contour sprayed or boxed wide flange columns are shown in the table below:

Column Size	W/D	Min Thkns In. 1 Hr	1-1/2 Hr	2 Hr	3 Hr	4 Hr
W6x9	0.33	15/16	1-1/4	1-9/16	2-1/8	2-11/16
W6x12	0.43	13/16	1-1/8	1-7/16	2	2-9/16
W6x16	0.57	11/16	1	1-5/16	1-7/8	2-3/8
W8x28	0.68	5/8	15/16	1-1/4	1-13/16	2-5/16
W10x49	0.83	9/16	13/16	1-1/8	1-5/8	2-1/8
W12x106	1.46	3/8	9/16	13/16	1-1/4	1-11/16
W14x233	2.52	1/4	3/8	1/2	7/8	1-3/16
W14x730	6.68	1/4	1/4	1/4	3/8	1/2

As an alternate to the above table, the required thickness of Spray-Applied Fire Resistive Materials to be applied to all surfaces of the steel columns for all rating periods may be determined from the following equations:

$$h = \frac{R}{75\,(W/D) + 32}$$

(for column W/D range of 0.33 to 2.51)

$$h = \frac{R}{75\,(W/D) + 15}$$

(for column W/D range of 2.51 to 6.68)

Where:

h = Spray-Applied Fire Resistive Materials thickness in the range of 1/4 to 4-1/2 in. (rounded up to the nearest 1/16 in.)

R = Fire resistance rating period in minutes (60-240 mins.)

D = Heated perimeter of the steel column in inches.

W = Weight of the steel column in lbs per foot.

The thicknesses contained in the table below are applicable when the Spray-Applied Fire Resistive Materials applied to the column's flange tips are reduced to one-half that shown in the table below (for contour application):

Column Size In.	Min Thkns In. 1 Hr	1-1/2 Hr	2 Hr	3 Hr	4 Hr
W6x9	1	1-3/8	1-3/4	2-7/16	3-1/8
W6x12	7/8	1-1/4	1-5/8	2-5/16	3-1/16
W6x16	3/4	1-1/8	1-7/16	2-1/16	2-11/16
W8x28	11/16	1	1-5/16	1-15/16	2-1/2
W10x49	5/8	15/16	1-3/16	1-3/4	2-3/8
W12x106	3/8	5/8	7/8	1-3/8	1-13/16
W14x233	5/16	3/8	9/16	15/16	1-5/16
W14x730	5/16	5/16	5/16	7/16	5/8

The min thickness of Spray-Applied Fire Resistive Materials required for various fire resistance ratings of contour sprayed steel pipes or tubes are shown on the table below:

Min Column Size In.	A/P	Min Thkns In. 1 Hr	1-1/2 Hr	2 Hr	3 Hr	4 Hr
SP 4x0.237	0.22	11/16	1	1-3/8	2-1/16	2-3/4
ST 4x4x0.1875	0.18	3/4	1-1/16	1-7/16	2-1/16	2-11/16
ST 4x4x0.3125	0.29	1/2	13/16	1-1/8	1-3/4	2-5/16
ST 4x4x0.375	0.34	7/16	3/4	1	1-9/16	2-1/8
ST 4x4x0.5	0.44	3/8	9/16	7/8	1-3/8	1-7/8
ST20x20x0.75 in	0.72	5/16	1/2	11/16	1-1/16	1-7/16
ST20x20x1 in.	0.95	1/4	3/8	1/2	13/16	1-1/8
ST20x20x1.5 in.	1.39	1/4	1/4	3/8	5/8	13/16
ST20x20x1.75 in.	1.60	1/4	1/4	3/8	1/2	3/4
ST32x32x1.25 in.	1.20	1/4	5/16	7/16	11/16	15/16
ST 36x24x0.5	0.49	5/16	7/16	11/16	1-1/8	1-9/16

As an alternate to the table above, the required thickness of Spray-Applied Fire Resistive Materials to be applied to all surfaces of the steel pipes or tubes for all rating periods may be determined from the following equation:

$$h = \frac{R}{188\,(A/P) + 45}$$

Where:

h = Spray-Applied Fire Resistive Materials thickness in the range of 5/16 to 4-1/4 in. (rounded up to the nearest 1/16 in.)

R = Fire resistance rating in minutes (60-240 mins.)

A = Cross-sectional area of pipe or tube.

P = Heated perimeter of steel pipe or tube.

A/P = 0.18 to 0.49.

The A/P ratio of a circular pipe is determined by:

$$A/P = \frac{t\,(d — t)}{d}$$

Where:

d = the outer diameter of the pipe (in.)

t = the wall thickness of the pipe (in.)

The A/P ratio of a rectangular tube is determined by:

$$A/P = \frac{t\,(a + b—2t)}{a + b}$$

Where:

a = the outer width of the tube (in.)

b = the outer length of the tube (in.)

t = the wall thickness of the tube (in.)

BERLIN CO LTD — Types 300, 300ES, 300N, SB, M-II, TG and M-II/P.

GREENTECH ASIA PACIFIC SDN BDH — Types 300, 300ES, 300HS, M-II, or M-II/P

GREENTECH THERMAL INSULATION PRODUCTS MFG CO L L C — Types 300, 300AC, 300HS, 400AC, 3000, M-II, TG, and M-II/P.

ISOLATEK INTERNATIONAL — Type 300, 300AC, 300ES, 300HS, 300N, 400AC, 400ES, SB, 3000, 3000ES, M-II, TG and M-II/P.

NEWKEM PRODUCTS CORP — Types 300, 300ES, 300N, SB, M-II, TG and M-II/P

2A. **(As an alternate to Item 2) Spray-Applied Fire Resistive Materials* —** Applied by mixing with water and spraying in one or more coats to the thicknesses shown below, to steel surfaces which are clean and free of dirt, loose scale, and oil. Min average and min individual density of 17.5 and 16 pcf, respectively, for Type 300TW. Min average and min individual density of 22 and 19 pcf, respectively, for Type 400. For method of density determination, see Design Information Section, Sprayed Material.
The min thickness of Spray-Applied Fire Resistive Materials required for various fire resistance ratings is shown in Item 2.

BERLIN CO LTD — Type 400.

GREENTECH ASIA PACIFIC SDN BDH — Type 400

GREENTECH THERMAL INSULATION PRODUCTS MFG CO L L C — Type 400.

ISOLATEK INTERNATIONAL — Type 300TW or Type 400.

NEWKEM PRODUCTS CORP — Type 400.

2B. **(As an alternate to Item 2 and 2A) — Spray-Applied Fire Resistive Materials* —** Prepared by mixing with water according to instructions on each bag of mixture and spray- or trowel-applied to steel surfaces which are free of dirt, oil or scale. Min average density of 17.5 pcf with min individual value of 17.0 pcf. For method of density determination, see Design Information Section, Sprayed Material.
The min thickness of Spray-Applied Fire Resistive Materials required for various fire resistance ratings is shown in Item 2.

ISOLATEK INTERNATIONAL — Type 280.

3. **Metal Lath —** (Optional for contour application) — 3.4 lb/sq yd galv or painted expanded steel lath. Lath shall be lapped 1 in. and tied together with No. 18 SWG galv steel wire spaced vertically 6 in. OC.

*** 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 2019-11-25

TABLE 721.1(2)

RATED FIRE-RESISTANCE PERIODS FOR VARIOUS WALLS AND PARTITIONS [a, o, p]

MATERIAL	ITEM NUMBER	CONSTRUCTION	MINIMUM FINISHED THICKNESS FACE-TO-FACE[b] (inches) 4 hours	3 hours	2 hours	1 hour
3. Concrete masonry units	3-1.1[f, g]	Expanded slag or pumice.	4.7	4.0	3.2	2.1
	3-1.2[f, g]	Expanded clay, shale or slate.	5.1	4.4	3.6	2.6
	3-1.3[f]	Limestone, cinders or air-cooled slag.	5.9	5.0	4.0	2.7
	3-1.4[f, g]	Calcareous or siliceous gravel.	6.2	5.3	4.2	2.8

TABLE 722.2.1.4(2) TIME ASSIGNED TO FINISH MATERIALS ON FIRE-EXPOSED SIDE OF WALL

FINISH DESCRIPTION	TIME (minutes)
Gypsum wallboard	
⅜ inch	10
½ inch	15
⅝ inch	20
2 layers of ⅜ inch	25
1 layer of ⅜ inch, 1 layer of ½ inch	35
2 layers of ½ inch	40
Type X gypsum wallboard	
½ inch	25
⅝ inch	40

PRINTS ISSUED
11/12/24 - CITY SUBMITTAL

REVISIONS:

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - 263 / X790 / CH.7

PROJECT NUMBER: 23103

SHEET NUMBER:

G-210

UL Product iQ®

BXUV.L516 - 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

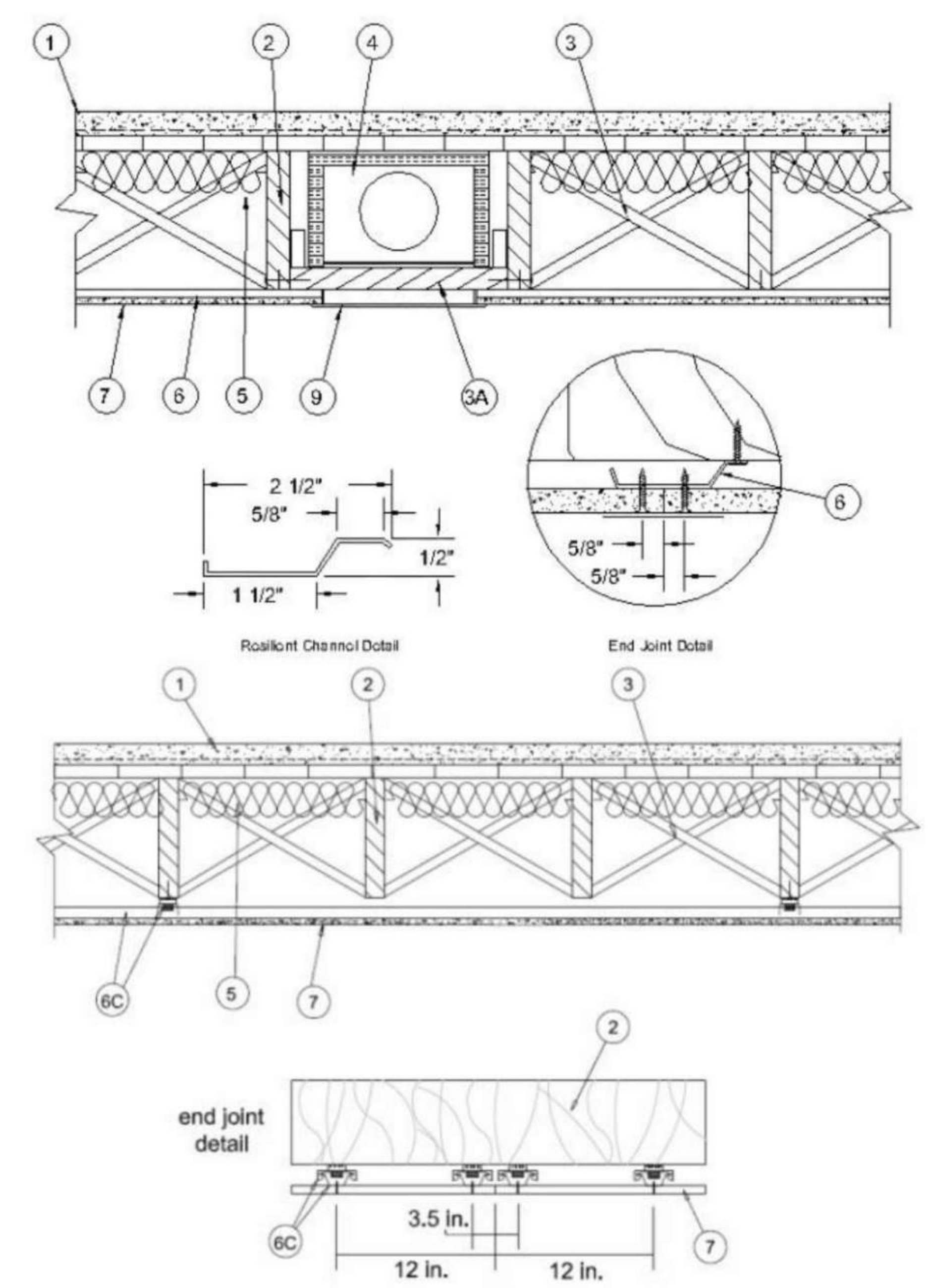
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **L516**

February 4, 2022

Unrestrained Assembly Rating — 1 Hr.
Finish Rating — 28 Min. or (16 Min. See Item 7B)
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. **Flooring System —** The flooring system shall consist of one of the following:

System No. 1

Subflooring — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Wire Reinforcement — Hexagonal mesh constructed of No. 19 SWG galv steel wire with No. 16 SWG galv steel wire woven longitudinally into the mesh spaced 3 in. OC. Mesh installed with No. 16 SWG wires perpendicular to joists and lapped 5 in. at the sides.

Sheathing Material* — Polyethylene film vapor barrier.

See **Sheathing Materials** (BVDV) Category in the Building Materials Directory for names of manufacturers.

Finish Flooring Perlite Concrete — Min 1-5/8 in. thickness of perlite-sand concrete, having a min compressive strength of 2000 psi. Mixture shall consist of 1 part Portland cement, 2 parts sand and 3 parts **Perlite Aggregate***.

See **Perlite Aggregate** (CFFX) category for names of manufacturers.

System No. 2

Subflooring — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Mineral and Fiber Board* — Min 1/2 in. thick, supplied in sizes ranging from 3 ft by 4 ft to 8 ft by 12 ft. All joints to be staggered a min of 12 in. with adjacent sub-floor joints.

HOMASOTE CO — Type 440-32 Mineral and Fiber Board

System No. 3

Subflooring — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Floor Mat Materials* — (Optional) — Floor mat material nom 5/64 in. (2mm) thick adhered to subfloor with Hacker Floor Primer. Primer to be applied to the surface of the mat prior to the placement of a min 1 in. of floor-topping mixture.

HACKER INDUSTRIES INC — Type Hacker Sound-Mat.

Alternate Floor Mat Materials - (Optional) — Floor mat material nom 1/4 in. (6mm) thick adhered to subfloor with Hacker Floor Primer. Primer to be applied to the surface of the mat prior to the placement of a min 1-1/4 in. (32mm) of floor-topping mixture.

HACKER INDUSTRIES INC — Type Hacker Sound-Mat II.

Alternate Floor Mat Materials - (Optional) — Floor mat material nom 1/8 in. (3mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 3/4 in. (19mm)

HACKER INDUSTRIES INC — FIRM-FILL SCM 125

Alternate Floor Mat Materials - (Optional) — Floor mat material nom 1/4 in. (6mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 1 in. (25mm)

HACKER INDUSTRIES INC — Type FIRM-FILL SCM 250, Quiet Qurl 55/025

Alternate Floor Mat Materials - (Optional) — Floor mat material nom 3/8 in. (10mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 1-1/4 in. (32mm)

HACKER INDUSTRIES INC — FIRM-FILL SCM 400, Quiet Qurl 60/040

Alternate Floor Mat Materials - (Optional) — Floor mat material nom 3/4 in. (19mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 1-1/2 in. (38mm)

HACKER INDUSTRIES INC — Type FIRM-FILL SCM 750, Quiet Qurl 65/075

Metal Lath (Optional) — For use with 3/8 in. (10 mm) floor mat materials, 3/8 in. expanded steel diamond mesh, 3.4 lbs/sq yd placed over the floor mat material. Hacker Floor Primer to be applied prior to the placement of the metal lath. When metal lath is used, floor topping thickness a nom 1-1/4 in. over the floor mat.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a min compressive strength of 1100 psi. Mixture shall consist of 6.8 gal of water to 80 lbs of floor topping mixture to 1.9 cu ft of sand.

HACKER INDUSTRIES INC — Type Firm-Fill Gypsum Concrete, Firm-Fill 2010, Firm-Fill 4010, Firm-Fill High Strength, Gyp-Span Radiant, Firm-Fill 3310

System No. 4

Subflooring — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Finish Flooring - Floor Topping Mixture* — Min 3/4 thickness of floor topping mixture having a minimum compressive strength of 1500 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

MAXXON CORP — Type Maxxon Standard and Maxxon High Strength

Floor Mat Materials* - (Optional) — Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

MAXXON CORP — Type Encapsulated Sound Mat.

Floor Mat Reinforcement - (Optional) - Refer to manufacturer's instructions regarding minimum thickness of floor topping for use with floor mat reinforcement.

Metal Lath (Optional) — 3/8 in. expanded galvanized steel diamond mesh, 3.4 lbs/sq yd loose laid over the floor mat material.

Fiber Glass Reinforcement - (Optional, Not Shown) - 0.015 in. thick PVC coated non-woven fiberglass mesh, 0.368 lbs/sq yd loose laid over the floor mat material.

System No. 5

Subflooring — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Vapor Barrier — (Optional) Nom 0.010 in. thick commercial rosin-sized building paper.

Finish Flooring — Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a min compressive strength of 1000 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

FORMULATED MATERIALS LLC — Types FR-25, FR-30, and SiteMix

Floor Mat Material* — (Optional) Floor mat material nominal 2 - 9.5 mm thick loose laid over the subfloor. Floor topping shall be a min of 3/4 in.

FORMULATED MATERIALS LLC — Types M1, M2, M3, Elite, Duo, R1, and R2

System No. 6

Subflooring — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Vapor Barrier — (Optional) - Nom 0.010 in. thick commercial asphalt saturated felt.

Finish Flooring - Floor Topping Mixture* - — Min 3/4 in. thickness of floor topping mixture having a minimum compressive strength of 1800 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

UNITED STATES GYPSUM CO — Types LRK, HSLRK, CSD

USG MEXICO S A DE C V — Types LRK, HSLRK, CSD

Floor Mat Materials* — (Optional) — Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

UNITED STATES GYPSUM CO — Types SAM, LEVELROCK® Brand Sound Reduction Board, LEVELROCK® Brand Floor Underlayment SRM-25

Alternate Floor Mat Materials* — (Optional) - Nom 3/8 in. thick floor mat material loose laid over the subfloor.

GRASSWORX L L C — Type SC50

System No. 7

Subflooring — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the joists with joints staggered.

Vapor Barrier — (Optional) - Commercial asphalt saturated felt, 0.030 in. thick.

Vapor Barrier — (Optional) - Nom 0.010 in. thick commercial rosin-sized building paper.

Finish Flooring* — Min 3/4 in. thickness of any Floor Topping Mixture bearing the UL Classification Marking as to Fire Resistance. See Floor- and Roof-Topping Mixtures (CCOX) category for names of Classified Companies. Refer to the manufacturer's instructions accompanying the material and/or contact the manufacturer's technical support for specific mix design and minimum thickness recommended for use with eligible floor mat(s).

Floor Mat Materials* — (Optional) - Nom. 1/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 55/025 and Quiet Qurl 55/025 N

Alternate Floor Mat Materials* — (Optional) - Floor mat material Nom. 3/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 60/040 and Quiet Qurl 60/040 N

Alternate Floor Mat Materials* — (Optional) - Floor mat material Nom. 3/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1-1/2 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 65/075, Quiet Qurl 65/075 N

Alternate Floor Mat Materials* — (Optional) - Floor mat material Nom. 1/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 52/013 and Quiet Qurl 52/013 N

Alternate Floor Mat Materials* — (Optional) - Floor mat material Nom. 1/4 in. entangled net core with a compressible fabric attached to the bottom loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Quiet Qurl 55/025 MT and Quiet Qurl 55/025 N MT

System No. 8

Subflooring — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to the joists with joints staggered.

Vapor Barrier - (Optional) — Nom 0.010 in. thick commercial rosin-sized building paper.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a min compressive strength of 1000 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

ARCOSA SPECIALTY MATERIALS — AccuCrete® Types NexGen, Green, Prime and PrePour, AccuRadiant®, AccuLevel® Types G40, G50 and SD30

Floor Mat Material* — (Optional) - Floor mat material nominal 2 - 9.5 mm thick loose laid over the subfloor. Floor topping shall be a min of 3/4 in.

ARCOSA SPECIALTY MATERIALS — AccuQuiet Types D13, D-18, D25, DX38, EM.125, EM.125S, EM.250, EM.250S, EM.375, EM.375S, EM.750, and EM.750S.

System No. 9

Subflooring — Min 23/32 in. thick T&G wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with end joints staggered 4 ft. Panels secured to trusses with construction adhesive and No. 6d ringed shank nails spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Gypsum Board* — One layer of nom 5/8 in. thick, 4 ft wide gypsum board, installed with long dimension perpendicular to joists. Gypsum board secured with 1 in. long No. 6 Type W bugle head steel screws spaced 12 in. OC and located a min of 1-1/2 in. from side and end joints. The joints of the gypsum board are to be staggered a minimum of 12 inches from the joints of the subfloor.

GEORGIA-PACIFIC GYPSUM L L C — Type DS

Floor Mat Materials* — (As an alternate to the single layer gypsum board) - Floor mat material loose laid over the subfloor.

MAXXON CORP — Type Encapsulated Sound Mat.

Gypsum Board* — (For use when floor mat is used) Two layers of nom 5/8 in. thick, 4 ft wide gypsum board, installed with long dimension perpendicular to joists on top of the floor mat material. Gypsum board secured to each other with 1 in. long No. 6 Type G bugle head steel screws spaced 12 in. OC and located a min of 1-1/2 in. from side and end joints. The joints of the gypsum board are to be staggered a minimum of 12 inches in between layers and from the joints of the subfloor.

GEORGIA-PACIFIC GYPSUM L L C — Type DS

System No. 10

Subflooring — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the joists with joints staggered.

Vapor Barrier — (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring — Floor Topping Mixture* — Min 3/4 or 1 in. thickness of floor topping mixture for 19/32 or 15/32 in. thick wood structural panels respectively, having a min compressive strength of 1000 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.
DEPENDABLE LLC — Types GSL M3.4, GSL K2.6, GSL-CSD and GSL RH

Floor Mat Materials* — (Optional) — Nom. 1/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.
KEENE BUILDING PRODUCTS CO INC — Types Quiet Qurl 55/025 and Quiet Qurl 55/025 N

Alternate Floor Mat Materials* — (Optional) — Floor mat material Nom. 3/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.
KEENE BUILDING PRODUCTS CO INC — Types Quiet Qurl 60/040 and Quiet Qurl 60/040 N

Alternate Floor Mat Materials* — (Optional) — Floor mat material Nom. 3/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1-1/2 in.
KEENE BUILDING PRODUCTS CO INC — Types Quiet Qurl 65/075, Quiet Qurl 65/075 N

Alternate Floor Mat Materials* — (Optional) — Floor mat material Nom. 1/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.
KEENE BUILDING PRODUCTS CO INC — Types Quiet Qurl 52/013 and Quiet Qurl 52/013 N

Alternate Floor Mat Materials* — (Optional) — Floor mat material Nom. 1/4 in. entangled net core with a compressible fabric attached to the bottom loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.
KEENE BUILDING PRODUCTS CO INC — Types Quiet Qurl 55/025 MT and Quiet Qurl 55/025 N MT

System No. 11

Subflooring — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Finish Flooring* — Floor Topping Materials — Min 3/4 in. to 1-1/2 in. thickness of any Floor Topping Mixture bearing the UL Classification Marking as to Fire Resistance with a minimum compressive strength of 1500 psi.
See **Floor- and Roof-Topping Mixtures** (CCOX) category for names of Classified Companies.

Floor Mat Materials* — (Optional) — Floor mat material nom 1/8 in. to 3/4 in. thick. Loose laid over the subfloor. When used, Acousti-flor CSM (crack suppression mat) is loose laid over the floor mat material. Floor topping material thickness is dependent on thickness of floor mat used.
WALFLOR INDUSTRIES INC — Type Acousti-flor, Acousti-flor CSM. Floor topping thickness depends on products used as follows:

Acousti-flor (1/8 in. thick) - Floor topping thickness shall be a minimum of 3/4 in.

Acousti-flor (1/4 in. thick) - Floor topping thickness shall be a minimum of 1 in.

Acousti-flor (3/8 in. thick) - Floor topping thickness shall be a minimum of 1 in.

Acousti-flor (3/4 in. thick) - Floor topping thickness shall be a minimum of 1-1/2 in.

Metal Lath — (Optional) — Expanded steel diamond mesh, 2.5 lb / sq yd loose laid over floor mat material.

Fiberglass Mesh Reinforcement — (Optional) — Coated non-woven glass fiber mesh grid loose laid over floor mat material.

System No. 12

Subflooring — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Finish Flooring - Floor Topping Mixture* — Min 1 in. thickness of floor topping mixture having a min compressive strength of 4500 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.
SIKA DEUTSCHLAND GMBH — Type SCHONOX AP Rapid Plus

System No. 13

Subflooring — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Vapor Barrier — (Optional) - Commercial asphalt saturated felt, 0.030 in. thick.

Vapor Barrier — (Optional) - Nom 0.010 in. thick commercial rosin-sized building paper.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of any Floor Topping Mixture bearing the UL Classification Marking as to Fire Resistance. See Floor- and Roof-Topping Mixtures (CCOX) category for names of Classified Companies.

Floor Mat Materials* — (Optional, Not Shown) - Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.
LOW & BONAR INC — EnkaSonic® by Colbond a member of the Low & Bonar group Types 125, 250, 250 Plus, 400, 400 Plus, 750, and 750 Plus.

Floor Mat Reinforcement — (Optional) - Refer to manufacturer's instructions regarding minimum thickness of floor topping for use with floor mat reinforcement.

Metal Lath — (Optional) — Expanded steel diamond mesh, 2.5 lb / sq yd loose laid over floor mat material.

Fiberglass Mesh Reinforcement — (Optional) — Coated non-woven glass fiber mesh grid loose laid over floor mat material.

2. **Wood Joists —** Min 2 by 10, spaced 16 in. OC and effectively fireblocked in accordance with local codes.

3. **Cross Bridging —** Min 1 by 3 in. or min 2 by 10 in. solid blocking.

3A. **Horizontal Bridging —** Used in lieu of Item 3 in same joist bay as ceiling damper (Item 4), when ceiling damper is employed. Wood 2 by 4 in. secured between joists with nails.

4. **Ceiling Damper* - (Optional) —** Max nom area shall be 198 sq in. Max rectangular size shall be 12 in. wide by 16-1/2 in. long. Max height of damper shall be 8-3/4 in. Aggregate damper openings shall not exceed 99 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille (Item 9) shall be installed in accordance with installation instructions.
AIR BALANCE INC — Type 299 (See Item 7B)

AIR KING VENTILATION PRODUCTS — Series FRAS, Series FRAK, Series FRAKV

CENTRAL VENTILATION SYSTEMS CO L L C — Models C-S/R-HC(-A), C-RD-HC(-A)

GREENHECK FAN CORP — Model CRD-1WJ

METAL-FAB INC — Models MSCDHC, MRCDHC

METAL INDUSTRIES INC — Models CD-S/R-HC, CD-S/R-HC-A, CD-RD-HC, CD-RD-HC-A

NCA MFG INC — Models CD-S/R-HC, CD-S/R-HC-A, CD-RD-HC, CD-RD-HC-A

BRISK MFG INC — Model BMI-50-CRD-S/R-WT

PRICE INDUSTRIES LTD — Models CD-S/R-HC, CD-RD-HC

RUSKIN COMPANY — Model CFD7

UNITED ENERTECH CORP — Models C-S/R-HC(-A), C-RD-HC(-A)

5. **Batts and Blankets* - (Optional) —** Nom 48 by 16 by 3 in. thickness of glass fiber batts secured to joists on both sides with staples spaced 12 in. OC.
CERTAINTEED CORP

KNAUF INSULATION LLC

JOHNS MANVILLE

KNAUF INSULATION LLC

MANSON INSULATION INC

OWENS CORNING

6. **Resilient Channels —** Resilient channels, formed from No. 25 MSG galv steel and shaped as shown, spaced 24 in. OC perpendicular to joists. Channels overlapped 1/2 in. at ends and secured to each joist with one 1-1/4 in. long No. 7 Type S bugle head screw. Additional resilient channels positioned so as to coincide with end joints of gypsum board (Item 7). Additional channels shall extend min 3 in. beyond each side edge of board.

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STATE OF MISSOURI
DAVID EUGENE HENDRICKSE
NUMBER
A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - L516

PROJECT NUMBER: 23103

SHEET NUMBER:

G-211

6A. **Steel Framing Members*** — (Not Shown) - As an alternate to Item 6. Used with Item 7A only.
a. **Furring Channels** — Hat-shaped furring channels, 7/8 in. deep by 2-5/8 in. wide at the base and 1-1/4 in. wide at the face, formed from No. 25 ga. galv steel, spaced max. 16 in. OC perpendicular to joists and Cold Rolled Channels (Item 6Ab). Furring channels secured to Cold Rolled Channels at every intersection with a 1/2 in. pan head self-drilling screw through each furring channel leg. Ends of adjoining channels overlapped 4 in. and tied together with two double strand No. 18 SWG galv steel wire ties, one at each end of overlap. Supplemental furring channels at base layer and outer layer gypsum board butt joints are not required. Optional Batts and Blankets may be draped over furring channels as described in Item 5. Two layers of gypsum board attached to furring channels as described in Item 7A.

b. **Cold Rolled Channels** — 1-1/2 in. by 1/2 in., formed from No. 16 ga. galv steel, positioned vertically and parallel to joists, friction-fitted into the channel caddy on the Steel Framing Members (Item 6Ad). Adjoining lengths of cold rolled channels lapped min. 6 in. and wire-tied together with two double strand 18 SWG galv steel wire ties, one at each end of overlap.

c. **Blocking** — Where joist design does not permit direct, full contact of the hanger bracket, a piece of nominal 2 by 4 in. lumber (blocking), min. 6 in. long to permit full contact of the hanger bracket, to be secured vertically to the side of the joists (Item 2) at the top and bottom of the blocking at each Steel Framing Member (Item 6Ad) location.

d. **Steel Framing Members*** — Hangers spaced 48 in. OC. max along joist, and secured to the Blocking (Item 6Ac) on alternating joists with a single 5/16 in. by 2 in. hex head lag bolt or four #6 1-1/4 in. drywall screws through mounting hole(s) on the hanger bracket. The two 1/4 in. long steel teeth on the hanger are embedded in the side of the blocking. Hanger positioned on blocking and leveling bolt height adjusted such that furring channels are flush with bottom of joists before gypsum board installation. Spring gauge of hanger chosen per manufacturer's instructions.
KINETICS NOISE CONTROL INC — Type ICW.

6B. **Steel Framing Members*** — (Not Shown) As an alternate to Item 6, furring channels and Steel Framing Members as described below:
a. **Furring Channels** — Formed of No. 25 MSG galv steel, 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to joists. Channels secured to joists as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap.

b. **Steel Framing Members*** — Used to attach furring channels (Item a) to joists (Item 2). Clips spaced 48 in. OC. RSIC-1 and RSIC-1 (2.75) secured to alternating joists with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. RSIC-V and RSIC-V (2.75) clips secured to alternating trusses with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. RSIC-Si-X secured to alternating joists with No. 10 x 3-1/2 in. coarse screw. Furring channels are friction fitted into clips. RSIC-1, RSIC-Si-X, and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips for use with 2-23/32 in. wide furring channels. Adjoining channels are overlapped as described in Item a. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 7.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-V, RSIC-1 (2.75), RSIC-V (2.75), RSIC-Si-X.

6C. **Steel Framing Members*** — (Not Shown) — As an alternate to Item 6, furring channels and Steel Framing Members as described below:
a. **Furring Channels** — Formed of No. 25 MSG galv steel, 2-3/8 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to joists. Channels secured to joists as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap.

b. **Steel Framing Members*** — Used to attach furring channels (Item a) to joists (Item 2). Clips spaced 48 in. OC., and secured to alternating joists with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips. Adjoining channels are overlapped as described in Item a. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 7.
PLITEQ INC — Type GENIECLIP

6D. **Alternate Steel Framing Members*** — (Not Shown) As an alternate to Item 6, furring channels and Steel Framing Members as described below.
a. **Furring Channels** — Formed of No. 25 MSG galv steel, 2-5/8 in. wide by 7/8 in deep, spaced 24 in OC, perpendicular to joists. Channels secured to joists as described in Item b.

b. **Steel Framing Members*** — Used to attach furring channels (Item a) to the wood joists (Item 2). Clips spaced at 48 in. OC and secured to the bottom of the joists with one 2 in. Coarse Drywall Screw with 1 in. diam washer through the center hole. Furring channels are then friction fitted into clips. Ends of channels are overlapped 6" and tied together with double strand of No. 18 AWG galvanized steel wire. Additional clips are required to hold the Gypsum Butt joints as described in Item 7.
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237 or A237R

6E. **Alternate Steel Framing Members*** — (Not Shown) As an alternate to Item 6, furring channels and Steel Framing Members as described below.
a. **Furring Channels** — Formed of No. 25 MSG galv steel, 2-1/2 in. wide by 7/8 in deep, spaced 24 in OC, perpendicular to joists. Channels secured to joists as described in Item b.

b. **Steel Framing Members*** — Used to attach furring channels (Item a) to the wood joists (Item 2). Clips spaced at 48 in. OC and secured to the bottom of the joists with one 2-1/2 in. Coarse Drywall Screw with 1 in. diam washer through the center hole. Furring channels are then friction fitted into clips. Ends of channels are overlapped 6" and tied together with double strand of No. 18 AWG galvanized steel wire. Additional clips are required to hold the Gypsum Butt joints as described in Item 7.
REGUPOL AMERICA — Type SonusClip

6F. **Steel Framing Members*** — (Optional, Not Shown) — As an alternate to Item 6.
a. **Furring Channels** — Formed of No. 25 MSG galv steel, nominal 2-1/2 in. wide by 7/8 in. deep, spaced 24 in. OC, perpendicular to the joists. Channels secured to Cold Rolled Channels at every intersection with a 3/4 in. TEK screw through each furring channel leg. Ends of adjoining channels overlapped 12 in. and fastened together with two double strand No. 18 SWG galv steel wire ties, one at each end of overlap, or with two 3/4 in. TEK screws in each leg of the overlap section. Two furring channels positioned 3 in. OC, 1-1/2 in. on each side of gypsum board (Item 7) end joints, each extending a min of 6 in. beyond both side edges of the board.

b. **Cold Rolled Channels** — — 1-1/2 in. by 1/2 in., formed from No. 16 ga. galv steel, positioned vertically and parallel to joists, friction-fitted into the channel caddy on the Steel Framing Members (Item 6Fc) and secured with two 3/4 in. TEK screws. Adjoining lengths of cold rolled channels lapped min. 12 in. and secured along bottom legs with four 3/4 in. TEK screws and wire-tied together with two double strand 18 SWG galv steel wire ties, one at each end of overlap.

c. **Steel Framing Members*** — Spaced 48 in. OC. max along joist, and secured to the joist on alternating joists with two, #10 x 1-1/2 in. screws through mounting holes on the hanger bracket.
PAC INTERNATIONAL L L C — Type RSIC-SI-CRC EZ Clip

6G. **Steel Framing Members*** — (Optional, Not Shown) — As an alternate to Item 6.
a. **Furring Channels** — Formed of No. 25 MSG galv steel, nominal 2-1/2 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to joists and friction fit into Steel Framing Members (Item 6Gb). Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap or with two TEK screws along each leg of the 6 in. overlap. Two furring channels positioned 6 in. OC, 3 in. on each side of gypsum board (Item 7) end joints. Butt joint channels held in place by strong back channels placed upside down, on top of, and running perpendicular to primary furring channels, extending 6 in. longer than length of gypsum side joint. Strong back channels spaced maximum 48 in. OC. Strong back channels secured to every intersection of primary furring channels with four 7/16 in. pan head screws, two along each of the legs at intersections. Butt joint channels run perpendicular to strong back channels and shall be minimum 6 in. longer than length of joint, secured to strong back channels with 7/16 in. pan head screws, two along each of the legs at intersection with strong back channels.

b. **Steel Framing Members*** — Used to attach furring channels (Item 6Ga) to joists. Clips spaced 48 in. OC and secured along joist webs at each furring channel intersection with min. 3/4 in. long self-drilling #10 x 1-1/2 in. screws through each of the provided hole locations. Furring channels are friction fitted into clips.
PAC INTERNATIONAL L L C — Type RSIC-S1-1 Ultra

7. **Gypsum Board*** — Nom 5/8 in. thick, 48 in. wide gypsum board, installed with long dimension perpendicular to resilient channels and side edges located between joists. Gypsum board secured with 1 in. long No. 7 Type S bugle head screws spaced 12 in. OC. End joints of gypsum board similarly fastened to additional resilient channels positioned at end joint locations. Screws located 3/4 and 5/8 in. from side and end joints, respectively.
When **Steel Framing Members*** (Item 6B, 6C) are used, sheets installed with long dimension perpendicular to furring channels and side joints of sheet located beneath joists. Nom 1 in. long No. 6 Type S bugle head screws are driven through channel spaced 12 in. OC in the field. Gypsum board butt joints shall be staggered min. 2 ft. within the assembly, and occur between the main furring channels. At the gypsum board butt joints, each end of each gypsum board shall be supported by a single length of furring channel equal to the width of the gypsum board plus 6 in. on each end. The two furring channels shall be spaced approximately 3-1/2 in. OC, and be attached to the joist with one clip at each end of the channel. Screw spacing along the butt joint to attach the gypsum board to the furring channels shall be 8 in. OC.

When **Steel Framing Members** (Item 6D) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to furring channels. Gypsum board secured to furring channels with nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the board. Gypsum board butted end joints shall be staggered minimum 48 in. and centered over main furring channels. At the gypsum board butt joints, each end of each gypsum board shall be supported by a single length of furring channel equal to the width of the gypsum board plus 3 in. on each end. The two support furring channels shall be spaced approximately 3 in. in from joint. Screw spacing along the gypsum board butt joint and along both additional channels shall be 8 in. OC. Additional screws shall be placed in the adjacent section of gypsum board into the aforementioned 3 in. extension of the extra butt joint channels as well as into the main channel that runs between. Butt joint furring channels shall be attached with one RESILMOUNT Sound Isolation Clip at each end of the channel.

When **Steel Framing Members** (Item 6E) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to furring channels. Gypsum board secured to furring channels with nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the board. Gypsum board butted end joints shall be staggered minimum 48 in. and centered over main furring channels. At the gypsum board butt joints, an additional single length of furring channel shall be installed and be spaced approximately 3 in. from the butt joint (6 in. from the continuous furring channels) to support the floating end of the gypsum board. Each of these shorter sections of furring channel shall extend one joist beyond the width of the gypsum panel and be attached to the adjacent joists with one SonusClip at every joist involved with the butt joint.

When **Steel Framing Members** (Item 6F) are used, nom 5/8 in. thick, 4 ft wide gypsum board, installed as described in Item 7. Adjacent butt joints staggered minimum 48 in. OC.

When **Steel Framing Members** (Item 6G) are used, nom 5/8 in. thick, 4 ft wide gypsum board, installed as described in Item 7. Butt joints staggered minimum 24 in. OC.

AMERICAN GYPSUM CO — Type AG-C

CERTAINTEED GYPSUM INC — Type C

CGC INC — Type C, IP-X2, IPC-AR

CERTAINTEED GYPSUM INC — Type LGFC-C/A

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

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

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

PANEL REY S A — Type PRC

THAI GYPSUM PRODUCTS PCL — Type C

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

USG BORAL DRYWALL SFZ LLC — Type C

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

7A. **Gypsum Board** — When **Steel Framing Members** (Item 6A) are used, two layers of nom 5/8 in. thick, 4 ft wide gypsum board are installed with long dimensions perpendicular to furring channels (Item 6Aa). Base layer attached to the furring channels using 1 in. long Type S bugle head steel screws spaced 8 in. OC along butted end joints and 12 in. OC in the field of the board. Butted end joints centered on the continuous furring channels. Butted base layer end joints to be offset a min of 16 in. in adjacent courses. Outer layer attached to the furring channels using 1-5/8 in. long Type S bugle head steel screws spaced 8 in. OC at butted end joints and 12 in. OC in the field. Butted end joints centered on the continuous furring channels and offset a min of 16 in. from butted end joints of base layer. Butted side joints of outer layer to be offset min 16 in. from butted side joints of base layer.
CGC INC — Type C, IP-X2, IPC-AR

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

USG BORAL DRYWALL SFZ LLC — Type C

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

7B. **Gypsum Board*** — (Finish Rating - 16 min.) Required when Air Balance Inc. Type 299 ceiling damper (Item 4) is installed. Nom 5/8 in. thick, 48 in. wide gypsum board, installed and secured as described in items 7 and 7A.
UNITED STATES GYPSUM CO — Type C

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Type C

7C. **Gypsum Board* (As an alternative to Items 7, 7A and 7B)** — Nom 5/8 in. thick, 48 in. wide gypsum board, installed and secured as described in Items 7, 7A and 7B with max screw spacing 8 in. OC.
CGC INC — Type ULIX

UNITED STATES GYPSUM CO — ULIX

8. **Finishing System - (Not Shown)** — Vinyl, dry or premixed joint compound, applied in two coats to joints and screw-heads. Nom 2 in. wide paper tape embedded in first layer of compound over all joints. As an alternate, nom 3/32 in. thick veneer plaster may be applied to the entire surface of gypsum board.

9. **Grille** — Steel grille, installed in accordance with the installation instructions provided with the ceiling damper.

10. **Discrete Products Installed in Air-handling Spaces*** — Automatic Balancing Valve/Damper — (Not Shown - Optional) — For use with item 4, Ruskin Company's Model CFD7 damper (CABS). Ceiling damper to be provided with plenum box per damper manufacturer's instructions with side outlet only. Entire assembly to be installed into any UL Class 0 or Class 1 flexible air duct in accordance with the instructions provided by the automatic balancing valve/damper manufacturer.
METAL INDUSTRIES INC — Model ABV-4, ABV-5, ABV-6

*** 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 2022-02-04

UL Product iQ™

BXUV.W456

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

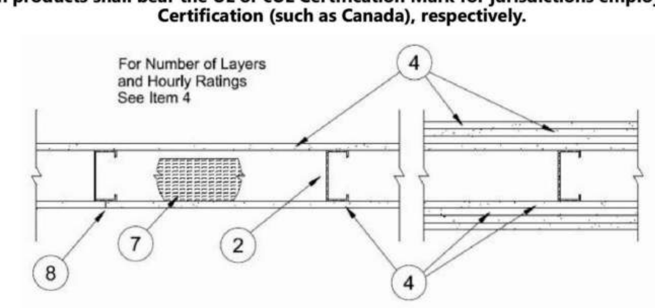
Design No. W456

June 10, 2020

Bearing Wall Rating 3/4 Hr., 1, 1-1/2 or 2 Hr. (See Item 4)

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. **Steel Floor and Ceiling Tracks** — (Not Shown) Top and bottom tracks of wall assemblies shall consist of steel members, min No. 20 MSG (0.0329 in., min bare metal thickness) steel or min No. 20 MSG (0.036 in. thick) galv steel or No. 20 MSG (0.033 in. thick) primed steel, that provide a sound structural connection between steel studs, and to adjacent assemblies such as a floor, ceiling, and/or other walls. Attached to floor and ceiling assemblies with steel fasteners spaced not greater than 24 in. O.C.

2. **Steel Studs** — Min 3-1/2 in. wide, No. 20 MSG (0.0329 in., min bare metal thickness) corrosion protected cold formed steel studs 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. 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 of wall assemblies shall not exceed 24 in. OC (or 16 in. OC when Item 5b is used). Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.

2A. **Framing Members* - Steel Studs** — In lieu of Item 2 Min 3-1/2 in. wide, No. 20 MSG (0.0329 in., min bare metal thickness) corrosion protected cold formed steel studs 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. 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 of wall assemblies shall not exceed 24 in. OC (or 16 in. OC when Item 5b is used). Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.
EB METAL INC — NITROSTUD

2B. **Framing Members* - Steel Studs** — In lieu of Item 2. Min 3-5/8 in. wide, No. 20 MSG (0.036 in. min. thickness) corrosion protected cold formed steel studs 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. 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 of wall assemblies shall not exceed 24 in. OC (or 16 in. OC when Item 5b is used). Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.
BAILEY METAL PRODUCTS LTD

3. **Lateral Support Members** — (Not Shown) Where required for lateral support of studs, support may 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. **Gypsum Board* — Any 1/2 in. thick UL Classified Gypsum Board that is eligible for use in Design No. X515. Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305.** Gypsum board bearing the UL Classification Marking as to Fire Resistance. Applied vertically with joints between layers staggered. Outer layer of 3 layer construction may be applied horizontally unless specified below. 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:

Rating	Wallboard Protection Both Sides of Wall - No. of Layers & Thkns of Board In. Each Layers	% 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
1-1/2 hr	2 layers, 5/8 in. thick	100
2 hr	2 layers, 5/8 in. thick or	80
2 hr	3 layers, 1/2 in. thick	100

GEORGIA-PACIFIC GYPSUM L L C (View Classification)

4A. **Gypsum Board*** — (As an alternate to Item 4) Nom. 5/8 in. thick gypsum panels, with square edges, applied horizontally. Gypsum panels fastened to framing with 1 in. long bugle head steel screws spaced a max 8 in. OC, with last 2 screws 3/4 in. and 4 in. from each edge of board. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs on interior walls need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers on interior walls (multilayer systems) staggered a min of 12 in.
GEORGIA-PACIFIC GYPSUM L L C — Type DGG

5. **Exterior Facings - Optional - Not shown** — One of the following facings may be applied over the gypsum board (Items 4 or 4A).
a. **Siding, Brick, or Stucco** — Aluminum siding, steel siding, brick veneer, or stucco attached to studs over gypsum sheathing and meeting the requirements of local code agencies. When a min 3-3/4 in. thick brick veneer facing is used, the Exterior Wall Rating is applicable with exposure on either face. Brick veneer wall attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick. When a min 3-3/4 in. thick brick veneer facing is used, Foamed Plastic (Item 10) may be used.

b. **Cementitious Backer Units** — 1/2 or 5/8 in. thick, square edge boards, attached to steel studs over gypsum sheathing with 1-5/8 in. long, Type S-12, corrosion resistant, wafer head steel screws, spaced 8 in. OC. Studs spaced a max of 16 in. OC. Joints covered with glass fiber mesh tape.

c. **Fiber-Cement Siding** — Fiber-cement exterior sidings including smooth and patterned panel or lap siding.

d. **Molded Plastic*** — Solid vinyl siding mechanically secured to framing members in accordance with manufacturer's recommended installation details.
ALSIDE, DIV OF ASSOCIATED MATERIALS INC

e. **Wood Structural Panel or Lap Siding** — APA Rated Siding, Exterior, plywood, OSB or composite panels with veneer faces and structural wood core, per PS 1 or APA Standard PRP-108, including textured, rough sawn, medium density overlay, brushed, grooved and lap siding.

f. **Building Units*** — (Not Shown) 3 in. thick 18 x 24 in. cellular glass blocks, applied to the gypsum sheathing (Item 5) with PC 88 adhesive or fastened with F anchors spaced a maximum 24 in. OC. F anchors fastened to framing members with 1-1/4 in. long #6 drywall screws.
PITTSBURGH CORNING LLC — Type FoamGlas

6. **Fasteners** — (Not Shown) Screws used to attach wallboard to studs: self-tapping bugle head sheet steel type, spaced 12 in. O.C. First layer Type S-12 by 1 in. long for 1/2 and 5/8 in. thick wallboards . Second layer Type S-12 by 1-5/8 in. long for 1/2 and 5/8 in. thick wallboards Third layer Type S-12 by 1-7/8 in. long.

7. **Batts and Blankets*** — Placed in stud cavities of all exterior walls. May or may not be used in interior walls. Any glass fiber or mineral wool batt material bearing the UL Classification Marking as to Fire Resistance, of a thickness to completely fill stud cavity.
See **Batts and Blankets*** Nom 2 in. thick mineral wool batts, friction fitted between studs and runners. (BKNV or BZJZ) Category for names of Classified companies.

7A. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 7) (100% Borate Formulation). Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft^3. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft^3, in accordance with the application instructions supplied with the product.
U S GREENFIBER L L C — INS735, INS745 and INS750LD for use with wet or dry application. INS765LD and INS773LD are to be used for dry application only.

7B. **Fiber, Sprayed*** — As an alternate to Item 7 and 7A Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. Nominal dry density of 4.58 lb/ft^3.
NU-WOOL CO INC — Cellulose Insulation

7C. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 7) Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft^3.
INTERNATIONAL CELLULOSE CORP — Celbar-RL

7D. **Fiber, Sprayed*** — (Optional) As an alternate to Batts and Blankets (Item 7) 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. **Joint Tape and Compound** — (Not Shown) Vinyl or casein, dry or premixed joint compound applied in two coats to joints and screw heads of outer layer. Perforated paper tape, 2 in. wide, embedded in first layer of compound over all joints of outer layer.

9. **Furring Channels** — (Optional, 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 steel screws.

10. **Foamed Plastic*** — Not Shown -For use with brick veneer as outlined in Item 5A - Maximum 2 in. thick rigid polystyrene insulation attached to studs with fasteners of sufficient length to penetrate the foam and 3/16 in. into the stud. A minimum 1 in. air space is to be maintained between the outer surface of the foamed plastic and the inner surface of the brick veneer.
ATLAS MOLDED PRODUCTS, A DIVISION OF ATLAS ROOFING CORPORATION — Type ThermalStar

OWENS CORNING SCIENCE AND TECHNOLOGY, LLC

10A. **Foamed Plastic*** — Optional, Not Shown) - Mortar drop protection - Foamed plastic with mortar control device attached, continuous, by drainage holes at bottom of air space behind brick veneer.
OWENS CORNING SCIENCE AND TECHNOLOGY, LLC — WeepGuard

10B. **Foamed Plastic*** — Polyisocyanurate foamed plastic insulation boards, any thickness, Classified in accordance with BRYX and / or CCVW. May be used with any exterior facing shown under items 5a, 5c, 5d and 5e.
ATLAS ROOFING CORP — "EnergyShield Pro Wall Insulation", "EnergyShield Pro 2 Wall Insulation", EnergyShield CGF Pro and EnergyShield Ply Pro

CARLISLE COATINGS & WATERPROOFING INC — Type R2+ SHEATHE

FIRESTONE BUILDING PRODUCTS CO L L C — "Enverge CI Foil Exterior Wall Insulation" and "Enverge CI Glass Exterior Wall Insulation"

HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — Type Xci-Class A, Xci 286, "Xci CG", "Xci Foil", "Xci CG NH", "Xci Foil NH"

RMAX, A BUSINESS UNIT OF SIKA CORPORATION — Types "TSX-8500", "ECOMAXci FR", "TSX-8510", "ECOMAX xi FR White", "ECOMAXci", "ECOMAXci FR Air Barrier", "Thermasheath-XP", "Thermasheath", "Durasheath", "Thermasheath-3", "Durasheath-3".

THE DOW CHEMICAL CO — Type Thermax Sheathing, Thermax Light Duty Insulation, Thermax Heavy Duty Insulation, Thermax Metal Building Board, Thermax White Finish Insulation, Thermax ci Exterior Insulation, Thermax XARMOR ci Exterior Insulation, Thermax IH Insulation, Thermax Plus Liner Panel, Thermax Heavy Duty Plus (HDP), and TUFF-R ci Insulation

10C. **Building Unit*** — Polyisocyanurate foamed plastic composite insulation boards, any thickness, Classified in accordance with BZXX. May be used with any exterior facing shown under items 5a, 5c, 5d and 5e.
HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — Type "Xci NB" and "Xci Ply"

LAMINATORS INC — Type "Omega ci"

RMAX, A BUSINESS UNIT OF SIKA CORPORATION — Types Thermasheath-SI, ECOBASEci, ECOMAXci FR Ply and ThermaBase-CI attached to studs with Type S screws long enough to penetrate studs a minimum of three threads.

10D. **Foamed Plastic*** — (As an alternate to Item 10) — Expanded polystyrene insulation installed to a maximum nominal density of 2.0 lb/ft^2.

BASF CORP STYRENIC FOAMS DIV — — Type Neopor "F" Series

11. **Wall and Partition Facings and Accessories*** — (Optional, Not Shown) For use with Item 1, Items 2 and 2A, Item 3, Item 4, 4A, Item 6, Item 7, Item 8 and Item 9. For maximum fire rating of 1 hour. On one side of the wall, over the first layer of Gypsum Board (Item 4 to 4B), 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 that is identical to the one used in the first layer and as specified in Item 4 to 4B shall be installed over the membrane. The additional layer of Gypsum Board to be installed through the membrane to the stud as specified in Item 4 to 4B 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 7. On the other side of the wall prior to the installation of the Gypsum Board install Resilient Channels, 25 MSG galv steel, spaced vertically 24 in. OC, flange portion screw attached to one side of studs with 1-1/4 in. long diamond shaped point, double lead Phillips head steel screws. Over the Resilient Channels install 3/4 inch thick SONOpan panel secured to the Resilient Channels with 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 4 to 4B 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.
MSL — RefleXor membrane, SONOpan panel

12. **Wall and Partition Facings and Accessories*** — (Optional, Not Shown) - **When the Wall Assembly is used as an External Wall, on the External side of the wall one of the following Wall and Partition and Facing Accessories may be used, refer to items (A) to (C) below.**
A. **Non Insulated System with Metal Channels** — Install moisture barrier over the Gypsum Board Item 4 and Install Acry Metal Channels vertically at a horizontal spacing not greater than 24 inches OC over the moisture barrier. Acry Metal Channels attached through the moisture barrier and the Gypsum Board to the Steel Studs Item 2 using fasteners specified by the manufacturer and fasteners spaced max., 24 in. OC. Install Acrytec Panels on Acry Metal Channels using 1-1/4" long corrosion coated stainless

steel screws spaced at a max spacing of 24 inches OC, along with manufacturer's approved adhesive (3M 540 or Tremco Vulcum 116). Adhesive to be applied in a zigzag pattern along every channel. Joint treatment in between panels shall be Tremco illmod 600 pre compressed polyurethane foam sealant.

B. **Insulated System with Metal Channels** — Install moisture barrier over the Gypsum Board Item 4. Install galvanized Z girt channels specified by the manufacturer over the moisture barrier and the Gypsum Board Item 4. Z girt channels to be installed horizontally at a max. spacing of 24" OC. Z girt channels attached through the Gypsum Board and the moisture barrier to the Steel Studs Item 2, with screws provided by the manufacturer at a max spacing of 24 inches OC. Install mineral wool insulation between the Z girts. Maximum thickness of mineral wool insulation not to exceed 6 in. As per manufacturer's instructions install Acry Metal Channels vertically over the Z girts at a max horizontal spacing of 24 in. OC. Acrytec Panels installed on Acry channel with 1-1/4" long corrosion coated stainless steel screws at a max spacing of 24 in. OC, along with manufacturers approved adhesive (3M 540 or Tremco Vulcum 116). Adhesive to be applied in a zigzag pattern along every channel. Joint treatment in between panels to be Tremco illmod 600 pre compressed polyurethane foam sealant.

C. **Non Insulated Wood Strapping System** — Install moisture barrier over the Gypsum Board Item 4 and Install 1" x 3" wood strapping vertically at a horizontal spacing not greater than 24 inches OC., over the moisture barrier. 1" x 3" wood strapping attached through the moisture barrier and the Gypsum Board to the Steel Studs Item 2, using fasteners specified by the manufacturer and fasteners spaced max., 24 in. OC. Acrytec Panels to be installed on the 1" x 3" wood strapping using manufacturers approved stainless steel fasteners spaced at maximum 24 inches OC along with Tremco Vulcum 116 adhesive applied in a zigzag pattern along every wood strap. Joint treatment in between panels to be Tremco illmod 600 pre compressed polyurethane foam sealant.

D. **Insulated Wood Strapping System** — Install moisture barrier over the Gypsum Board Item 4. Install Extruded Polystyrene Insulation over moisture barrier, max thickness of insulation not to exceed 4 inches. Install 1" x 3" wood strapping vertically at a horizontal spacing not greater than 24 inches OC. Wood strapping attached through the Insulation, the Gypsum Board and moisture barrier to the Steel Studs Item 2 using fasteners specified by the manufacturer and fasteners spaced max. 24 in. OC. Acrytec Panels to be installed over the wood strapping using manufacturers approved stainless steel fasteners at a max spacing of 24 in. OC and Tremco Vulcum 116 adhesive applied in a zigzag pattern along every wood strap. Joint treatment in between panels to be Tremco illmod 600 pre compressed polyurethane foam sealant.
ACRYTEC PANEL INDUSTRIES — Nominal 5/8 inch thick Acrytec Panel.

*** 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 2020-06-10

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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - L516

PROJECT NUMBER: 23103

SHEET NUMBER:

G-212

UL Product iQ®

BXUV.U356 - 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

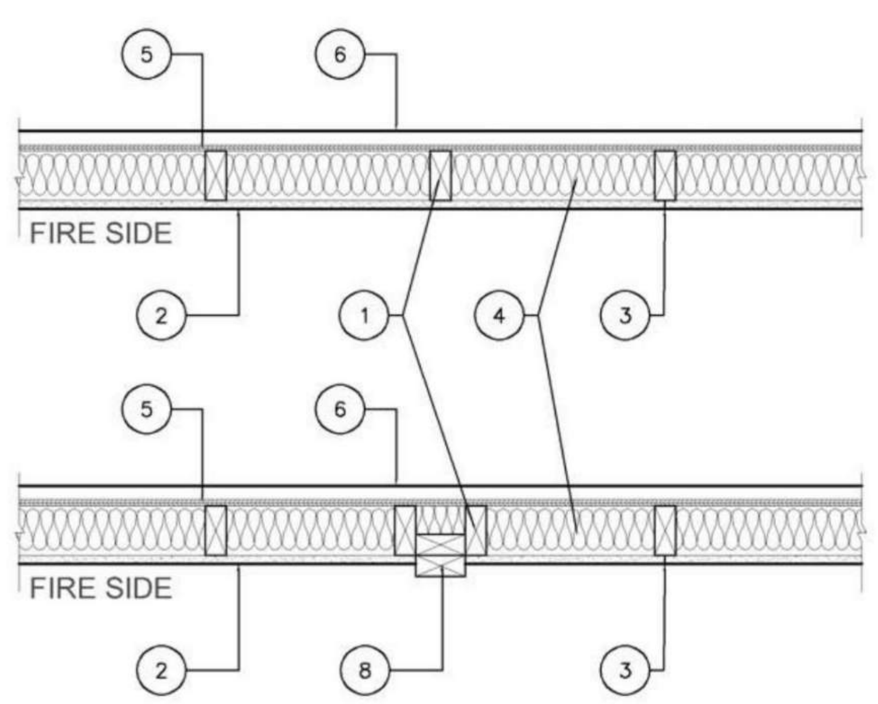
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **U356**

May 25, 2022

Bearing Wall Rating - 1 Hr Rating Exposed to Fire on Interior Face Only
Bearing Wall Rating — 1 Hr Rating Exposed to Fire on Exterior Face (See Item 6E)
Finish Rating — 23 Min or 25 Min (See Item 2C)
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

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



1. **Wood Studs —** Nom 2 by 4 in. spaced 16 in. OC with two 2 by 4 in. top and one 2 by 4 in. bottom plates. Studs laterally-braced by wood structural panel sheathing (Item 5). When **Mineral and Fiber Boards*** (Item 5A) are considered as bracing for the studs, the load is restricted to 76% of allowable axial load. Walls effectively fire stopped at top and bottom of wall.

2. **Gypsum Board* — Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305.** Nom 5/8 in. thick, 4 ft wide, applied vertically and nailed to studs and bearing plates 7 in. OC with 6d cement-coated nails, 1-7/8 in. long with 1/4 in. diam head.

When Item **Steel Framing Members*** (Item 7 or any alternate clips), is used, gypsum panels attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC.

When Item 7A **Steel Framing Members***, is used, two layers of gypsum panels attached to furring channels. Base layer attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC. Face layer attached to furring channels with 1-5/8 in. long Type S bugle-head steel screws spaced 12 in. OC. All joints in face layers staggered with joints in base layers.

AMERICAN GYPSUM CO (View Classification) — CKNX.R14196

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO (View Classification) — CKNX.R19374

CABOT MANUFACTURING ULC (View Classification) — CKNX.R25370

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R3660

CGC INC (View Classification) — CKNX.R19751

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R18482

GEORGIA-PACIFIC GYPSUM L L C (View Classification) — CKNX.R2717

LOADMASTER SYSTEMS INC (View Classification) — CKNX.R11809

NATIONAL GYPSUM CO (View Classification) — CKNX.R3501

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM (View Classification) — CKNX.R7094

PANEL REY S A (View Classification) — CKNX.R21796

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD (View Classification) — CKNX.R19262

THAI GYPSUM PRODUCTS PCL (View Classification) — CKNX.R27517

UNITED STATES GYPSUM CO (View Classification) — CKNX.R1319

USG BORAL DRYWALL SFZ LLC (View Classification) — CKNX.R38438

USG MEXICO S A DE C V (View Classification) — CKNX.R16089

2A. **Gypsum Board* —** (As an alternate to Item 2, Not Shown) — Any 5/8 in. thick 4 ft wide gypsum panels that are eligible for use in Design Nos. L501, G512 or U305, supplied by the Classified Companies listed below shown in the **Gypsum Board*** (CKNX) category. Applied vertically and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board.
CGC INC

UNITED STATES GYPSUM CO

USG BORAL DRYWALL SFZ LLC

USG MEXICO S A DE C V

2B. **Gypsum Board* —** (As an alternate to Item 2, Not Shown) — 5/8 in. thick 4 ft wide gypsum panels applied vertically and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board.
AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C, LightRoc

CABOT MANUFACTURING ULC — Type X, 5/8 Type X, Type Blueglass Exterior Sheathing

CERTAINTEED GYPSUM INC — Type C, Type X-1, Easi-Lite Type X-2

GEORGIA-PACIFIC GYPSUM L L C — Types X, Veneer Plaster Base-Type X, Water Rated-Type X, Sheathing Type-X, Soffit-Type X, Type X ComfortGuard Sound Deadening Gypsum Board.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types PG-11, PGS-WRS, PGI.

THAI GYPSUM PRODUCTS PCL — Type C or Type X

2C. **Gypsum Board* —** (As an alternate to Item 2, Not Shown) — For Use with Item 5A only - 5/8 in. thick 4 ft wide gypsum panels applied horizontally and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screws 1 in.and 4 in. from edges of board. Finish Rating is 25 min.
CABOT MANUFACTURING ULC — 5/8 Type X, Type Blueglass Exterior Sheathing

GEORGIA-PACIFIC GYPSUM L L C — Type X, Veneer Plaster Base-Type X, Water Rated-Type X, Sheathing Type-X, Soffit-Type X

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types PG-11, PGS-WRS, PGI

2D. **Gypsum Board* —** (As an alternate to Item 2) — Not to be used with item 7. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically only and fastened to the studs and plates with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 1/4 in. diam heads, 7 in. OC.
NATIONAL GYPSUM CO — Type SBWB

2E **Gypsum Board* —** (As an alternate to Items 2 through 2D) — Nominal 5/8 in. thick, 4 ft wide panels, secured as described in Item 2.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock ES.

2F. **Gypsum Board* —** (As an alternate to Item 2) — Not to be used with item 7. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically or horizontally and fastened to the studs and plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board.
CERTAINTEED GYPSUM INC — Type SilentFX

2G. **Wall and Partition Facings and Accessories* —** (As an alternate to Items 2 through 2F) — Nominal 5/8 in. thick, 4 ft wide panels, secured as described in Item 2.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527.

2H. **Gypsum Board* —** (As an alternate to Item 2) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a maximum 10 in. OC with the last two screws 4 and 1 in. from the edges of the board. When used in widths other than 48 in., gypsum panels are to be installed horizontally.
CERTAINTEED GYPSUM INC — Type LGFC6A (finish rating 21 min), Type LGFC2A, Type LGFC-C/A, Type LGFC-WD, Type LGLLX

2I. **Gypsum Board* —** (As an alternate to Item 2) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. When used in widths of other than 48 in., gypsum boards are to be installed horizontally.

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

NATIONAL GYPSUM CO — Type FSK, Type FSK-G, Type FSW, Type FSW-3, Type FSW-5, Type FSW-G, Type FSK-C, Type FSW-C, Type FSMR-C, Type FSW-6, Type FSL

2J. **Gypsum Board* —** (As an alternate to Item 2) - 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread steel screws spaced a max 8 in. OC with the last screw 1 in. from edge of board. When used in widths other than 48 in., gypsum boards are to be installed horizontally.
CERTAINTEED GYPSUM INC — Type C, Type X-1(finish rating 26 min), Easi-Lite Type X (finish rating 24 min), Easi-Lite Type X-2, Type EGRG or GlasRoc or GlasRoc Sheathing (finish rating 23 min)

3. **Joints and Fastener Heads —** (Not Shown) — Gypsum board joints covered with tape and joint compound. Fastener heads covered with joint compound.

4. **Batts and Blankets* —** Mineral fiber or glass fiber insulation, 3-1/2 in. thick, pressure fit to fill wall cavities between studs and plates. Mineral fiber insulation to be unfaced and to have a min density of 3 pcf. Glass fiber insulation to be faced with aluminum foil or kraft paper and to have a min density of 0.9 pcf (min R-13 thermal insulation rating).
See **Batts and Blankets*** (BKNV) Category in the Building Materials Directory and **Batts and Blankets*** (BZJZ) Category in the Fire Resistance Directory for names of Classified Companies.

4A. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 4) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft^3. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft^3, in accordance with the application instructions supplied with the product.
U S GREENFIBER L L C — INS735 and INS745 for use with wet or dry application. INS515LD, INS541LD, INS735, INS745, INS765LD, and INS773LD are to be used for dry application only.

4B. **Fiber, Sprayed* —** As an alternate to Item 4 and 4A — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. Nominal dry density of 4.58 lb/ft^3.
NU-WOOL CO INC — Cellulose Insulation

4C. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 4) — Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft^3.
INTERNATIONAL CELLULOSE CORP — Celbar-RL

4D. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 4) — Spray applied, granulated mineral fiber material. The fiber is applied with adhesive, at a minimum density of 4.0 pcf, to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. See Fiber, Sprayed (CCAZ).
AMERICAN ROCKWOOL MANUFACTURING, LLC — Type Rockwool Premium Plus

5. **Wood Structural Panel Sheathing —** Min 7/16 in. thick, 4 ft wide wood structural panels, min grade "C-D" or "Sheathing". Installed with long dimension of sheet (strength axis) or face grain of plywood parallel with or perpendicular to studs. Vertical joints centered on studs. Horizontal joints backed with nom 2 by 4 in. wood blocking. Attached to studs on exterior side of wall with 6d cement coated box nails spaced 6 in. OC at perimeter of panels and 12 in. OC along interior studs.

5A. **Mineral and Fiber Boards* —** As an alternate to Item 5 - Min 1/2 in. thick, 4 ft wide sheathing, installed vertically to studs. Vertical joints centered on studs. Horizontal joints backed with nom 2 by 4 in. wood blocking. Attached to studs on exterior side of wall with 1-1/2 in. long galvanized roofing nails spaced 6 in. OC at perimeter of panels and 12 in. OC along interior studs. As an option a weather resistive barrier may be applied over the Mineral and Fiber Boards.

6. **Exterior Facings —** Installed in accordance with the manufacturer's installation instructions. One of the following exterior facings is to be applied over the sheathing:

A. **Vinyl Siding — Molded Plastic* —** Contoured rigid vinyl siding having a flame spread value of 20 or less.
See **Molded Plastic** (BTAT) category in the Building Materials Directory for names of manufacturers.

B. **Particle Board Siding —** Hardboard exterior sidings including patterned panel or lap siding.

C. **Wood Structural Panel or Lap Siding —** APA Rated Siding, Exterior, plywood, OSB or composite panels with veneer faces and structural wood core, per PS 1 or APA Standard PRP-108, including textured, rough sawn, medium density overlay, brushed, grooved and lap siding.

D. **Cementitious Stucco —** Portland cement or synthetic stucco systems with self-furring metal lath or adhesive base coat. Thickness from 3/8 to 3/4 in., depending on system.

E. **Brick Veneer —** Any type on nom 4 in. wide brick veneer. When brick veneer is used, the rating is applicable with exposure on either face. Brick veneer fastened with corrugated metal wall ties attached over sheathing to wood studs with 8d nail per tie: ties spaced not more than each sixth course of brick and max 32 in. OC horizontally. One in. air space provided between brick veneer and sheathing.

F. **Exterior Insulation and Finish System (EIFS) —** Nom 1 in. **Foamed Plastic*** insulation bearing the UL Classification Marking, attached over sheathing and finished with coating system, or Portland cement or synthetic stucco systems, in accordance with manufacturer's instructions. See **Foamed Plastic** (BRYX and CCVW) categories for names of Classified companies.

G. **Siding —** Aluminum or steel siding attached over sheathing to studs.

H. **Fiber-Cement Siding —** Fiber-cement exterior sidings including smooth and patterned panel or lap siding.

I. **Wall and Partition Facings and Accessories* —** Stone veneer is mortar bonded to a lath, scratch coat and water resistant barrier applied to sheathing, installed in accordance with the manufacturers installation instructions, and meeting the requirements of local code agencies.
ELDORADO STONE OPERATIONS L L C — Type Eldorado Stone

J. **Cementitious Backer Units —** 1/2 in. or 5/8 in., min. 32 in. wide.- Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with cement board screws of adequate length to penetrate stud by a minimum 3/4 in., spaced a max of 8 in. OC. Horizontal joints need not be backed by framing. When Cementitious Backer Units are used, the rating is applicable with exposure on either face. Cementitious Backer Units for use as substrate for exterior finishes such as ceramic tile, slate, marble, natural stone, manufactured stone, thin brick, or Portland cement or synthetic stucco.
NATIONAL GYPSUM CO — Type PermaBase

6A. **Building Units* — As an alternate to Exterior Facing Item 6 —** Insulated steel panels, 12 through 42 in. wide. Attached over sheathing through retainer clips to studs or support steel with No. 14 hex head self-tapping screws located at each joint in the concealed lip of the units and spaced in accordance with the structural design requirements. KINGSPAN INSULATED PANELS INC — Types 200, 300, 400, 900, or KS series, 2 through 6 in. thickness; CWP-V, H, 2 through 3 in. nominal thickness or Designwall 2000 or Designwall 4000, 2 and 3 in. nominal thickness.

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

b. **Steel Framing Members* —** Used to attach furring channels (Item 7A) 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 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).

7A. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. Two layers of gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Aa) to interior side of studs. Clips spaced 48 in. OC., and secured to studs with two No. 8 x 2-1/2 in. coarse drywall screws, one through the hole at each end of the clip. Furring channels are friction fitted into clips.
KINETICS NOISE CONTROL INC — Type Isomax.

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

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

7C. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire.Gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Ca) to studs. Clips spaced 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

7D. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 7Db. 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 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Da) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
REGUPOL AMERICA — Type SonusClip

7E. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — 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 2.

b. **Steel Framing Members* —** Used to attach resilient channels (Item 7Ea) 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

7F **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — 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 2.

b **Steel Framing Members* —** Used to attach furring channels (Item 7Fa) 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

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

*** 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 2022-05-25

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - U356

PROJECT NUMBER: 23103

SHEET NUMBER:

REFERENCE G-003 FOR GENERAL NOTES

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

GENERAL NOTES

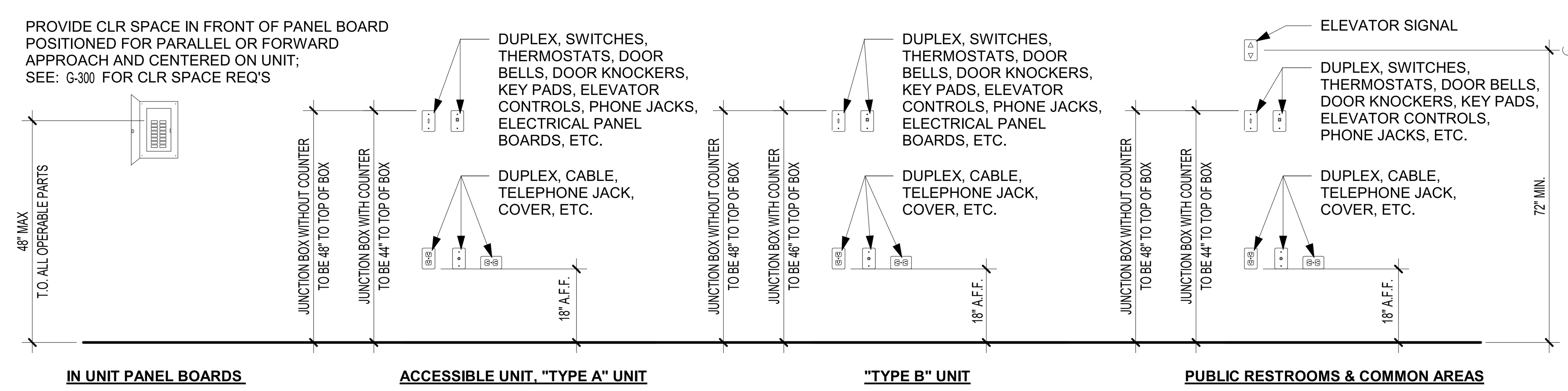
1. THE PROJECT SHALL MEET ALL APPLICABLE CODES SPECIFIED BY LOCAL AND FEDERAL REQUIREMENTS, INCLUDING BUT NOT LIMITED TO THE INFORMATION PRESENTED ON THE FOLLOWING G-300 SHEETS.
   A. LOCAL AND FEDERAL REQUIREMENTS SHALL SUPERCEDE ANY CONFLICTING INFORMATION
2. ALL DIMENSIONS PROVIDED ON THE FOLLOWING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

UNIVERSAL DESIGN REQ'S

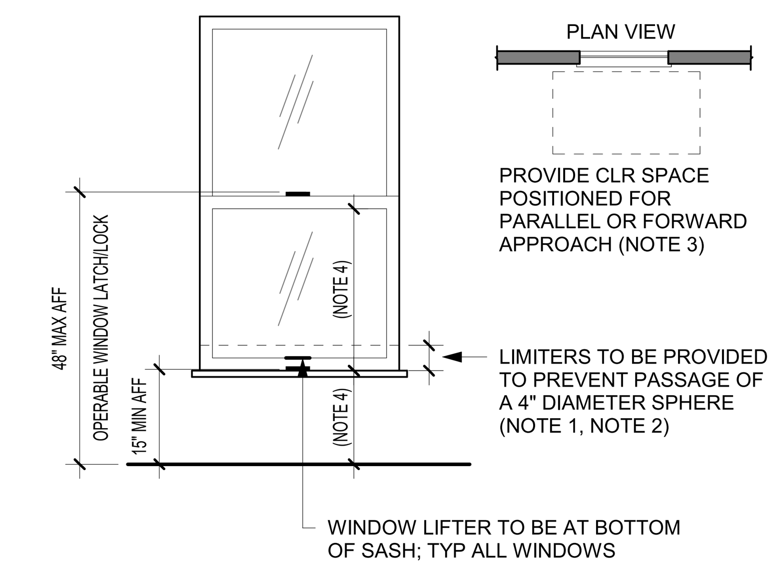
REQUIREMENTS FOR UNIVERSAL DESIGN HOUSING FOR THE ELDERLY AND SINGLE FAMILY DWELLINGS.

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



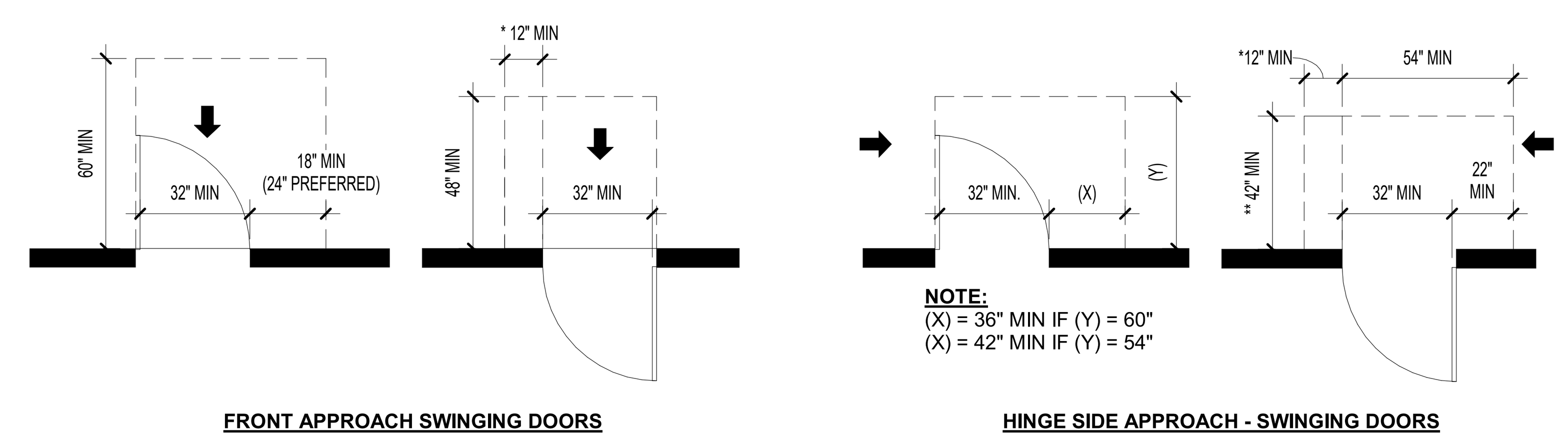
D4 MOUNTING HEIGHTS
NOT TO SCALE



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. *CLEAR SPACE REQUIRED WHERE OPERATION OF WINDOW IS REQUIRED FOR EGRESS AND/OR NATURAL VENTILATION*
3. 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

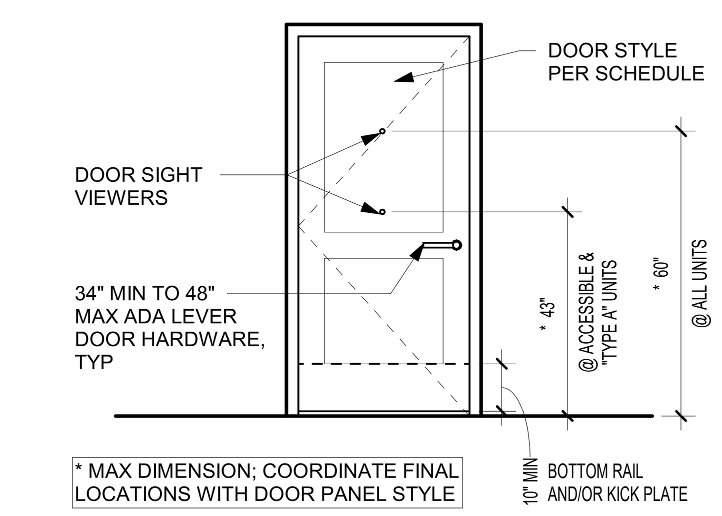


NOTE:
DOOR CLEARANCES ARE REQUIRED FOR ALL DOORS AT THE FOLLOWING LOCATIONS:
PUBLIC AREAS, ACCESSIBLE UNITS, "TYPE A" UNITS

"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

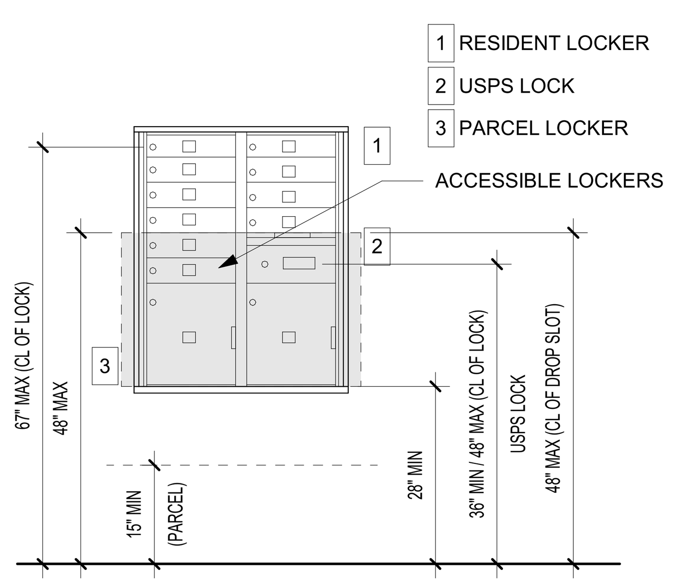
A3 DOOR HARDWARE HEIGHTS
NOT TO SCALE

MAIL BOXES

ALL MAILBOXES ASSOCIATED WITH DWELLING UNITS LOCATED ON AN ACCESSIBLE ROUTE AND REQUIRED TO MEET ANSI AND FHA SHALL BE WITHIN ACCESSIBLE REACH RANGE (SHADED).

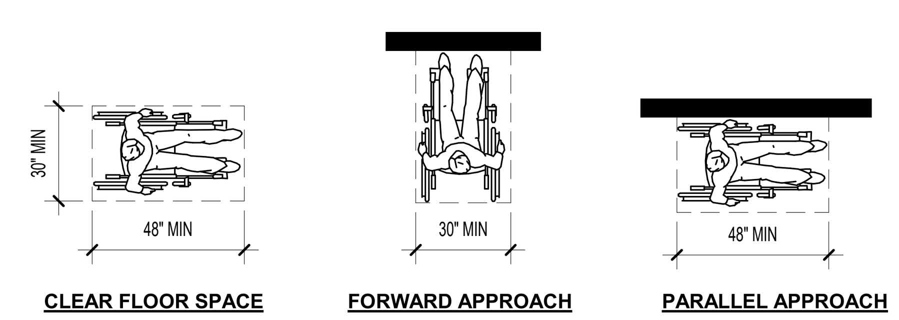
ACCESSIBLE MAILBOXES
48" MAX AFF (CL OF LOCK)
28" MIN AFF (T.O. BOTTOM SHELF)
PROVIDE **30"x48"** CLEAR FLOOR SPACE AT ALL ACCESSIBLE LOCKERS, CENTERED ON MAILBOX

ALL OTHER MAILBOXES
67" MAX AFF (CL OF LOCK)
28" MIN AFF (T.O. BOTTOM SHELF)
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 MAIL BOXES
NOT TO SCALE

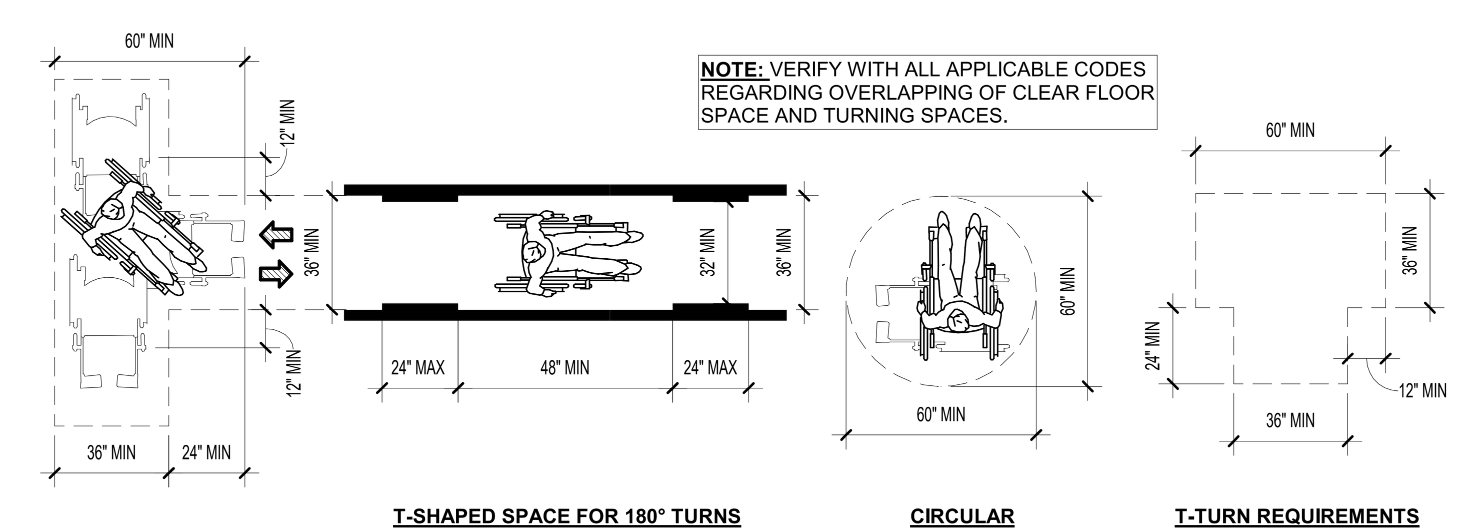
CLEAR FLOOR SPACES



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

C2 CLEAR FLOOR SPACE
NOT TO SCALE

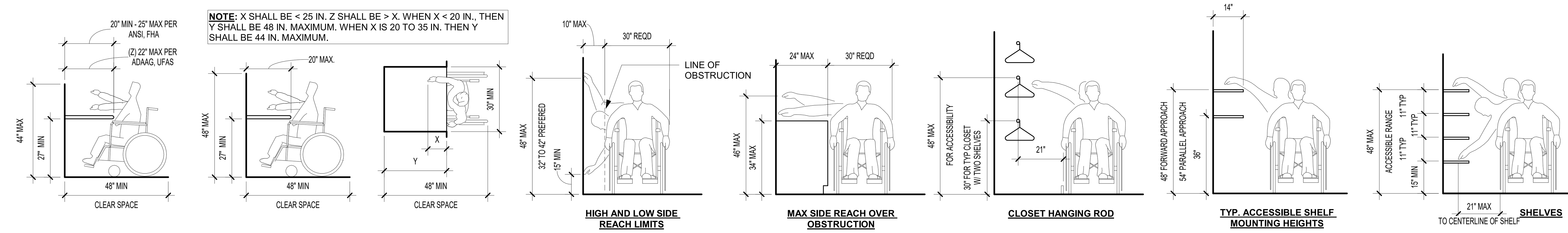
NOTE: VERIFY WITH ALL APPLICABLE CODES REGARDING OVERLAPPING OF CLEAR FLOOR SPACE AND TURNING SPACES.



A2 WHEELCHAIR TURNING SPACE
NOT TO SCALE

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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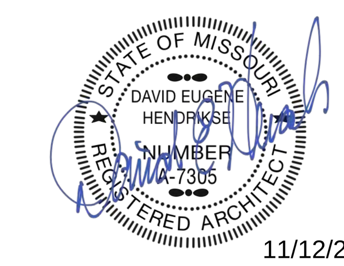


11/12/24

THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO

SHEET TITLE
ACCESSIBILITY STANDARDS

PROJECT NUMBER: 23103

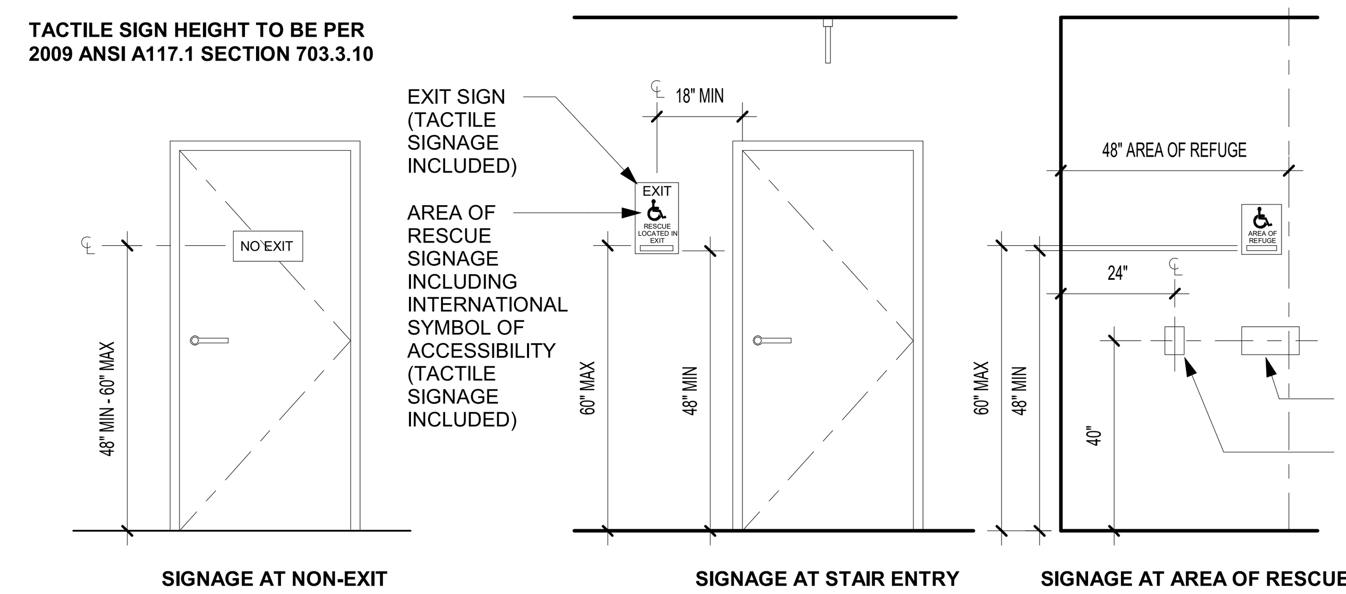
SHEET NUMBER:

G-300

REFERENCE G-003 FOR GENERAL NOTES

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

SIGNAGE



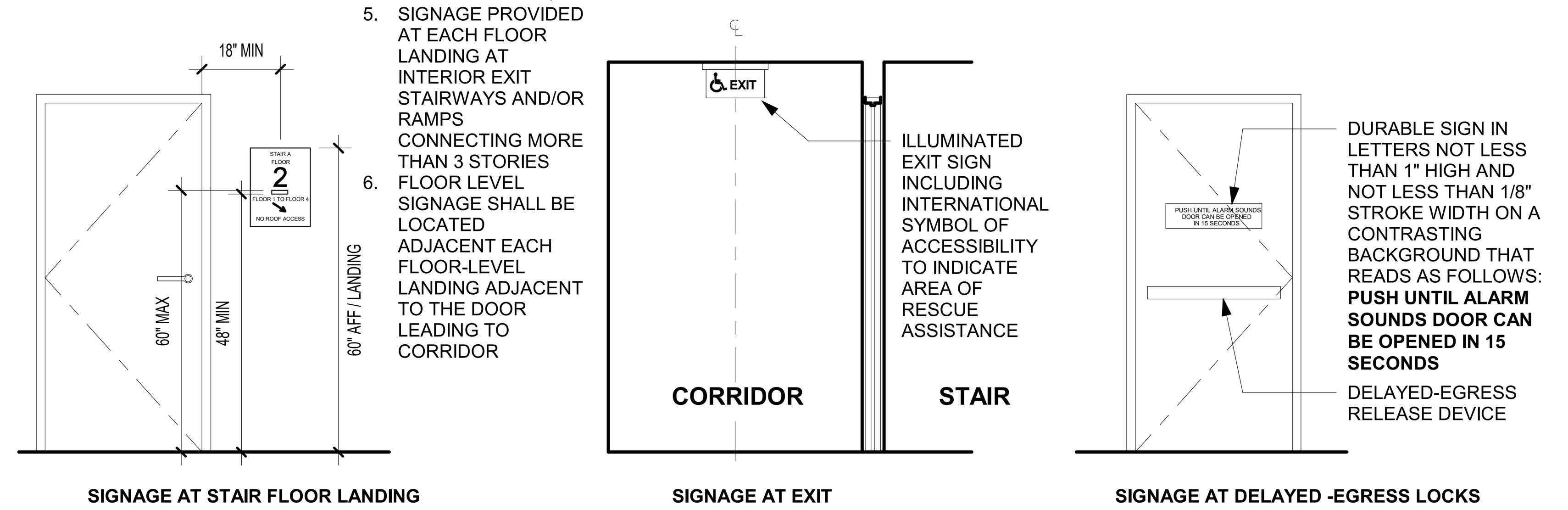
AREA OF RESCUE INSTRUCTIONS INDICATING ALL OF THE FOLLOWING:

1. DIRECTIONS TO FIND OTHER MEANS OF EGRESS
2. UNLESS THEY ARE ASSISTING OTHERS, PERSONS ABLE TO USE THE EXIT STAIRWAY SHOULD DO SO AS SOON AS POSSIBLE.
3. INFORMATION ON PLANNED AVAILABILITY OF ASSISTANCE IN THE USE OF STAIRS OR SUPERVISED OPERATION OF ELEVATORS AND HOW TO SUMMON SUCH ASSISTANCE.
4. DIRECTIONS FOR USE OF THE EMERGENCY COMMUNICATIONS SYSTEM.

TWO-WAY COMMUNICATION DEVICE BETWEEN AREA OF RESCUE AND CENTRAL CONTROL POINT.

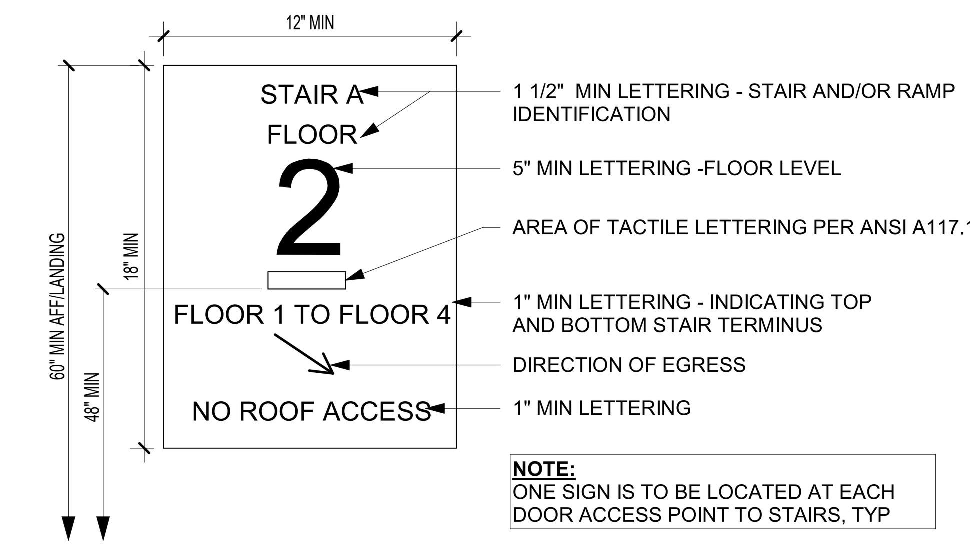
STAIR SIGNAGE REQ'S:

5. SIGNAGE PROVIDED AT EACH FLOOR LANDING AT INTERIOR EXIT STAIRWAYS AND/OR RAMPS CONNECTING MORE THAN 3 STORIES
6. FLOOR LEVEL SIGNAGE SHALL BE LOCATED ADJACENT EACH FLOOR-LEVEL LANDING ADJACENT TO THE DOOR LEADING TO CORRIDOR



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

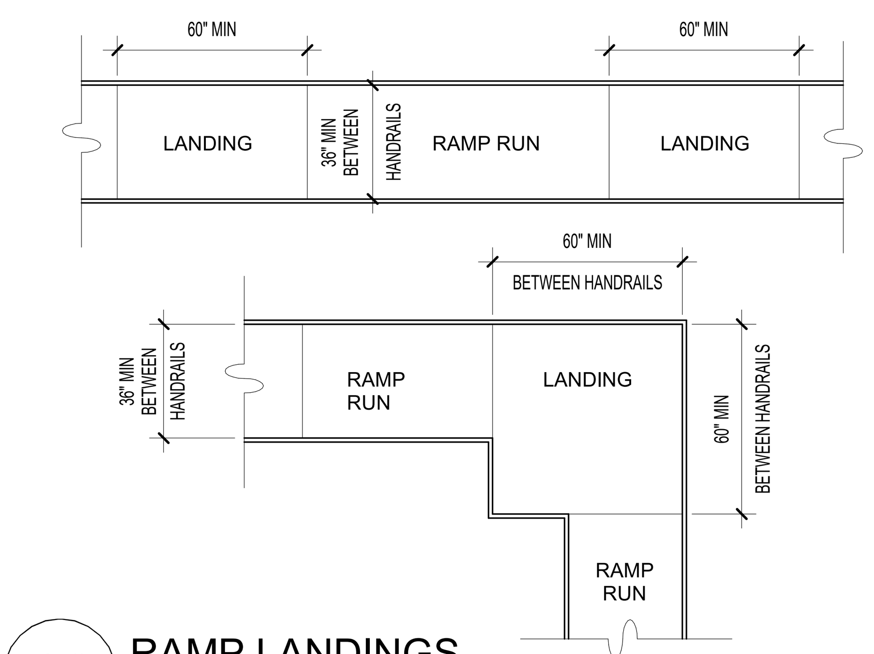
D4 CODE COMPLIANT SIGNAGE
NOT TO SCALE



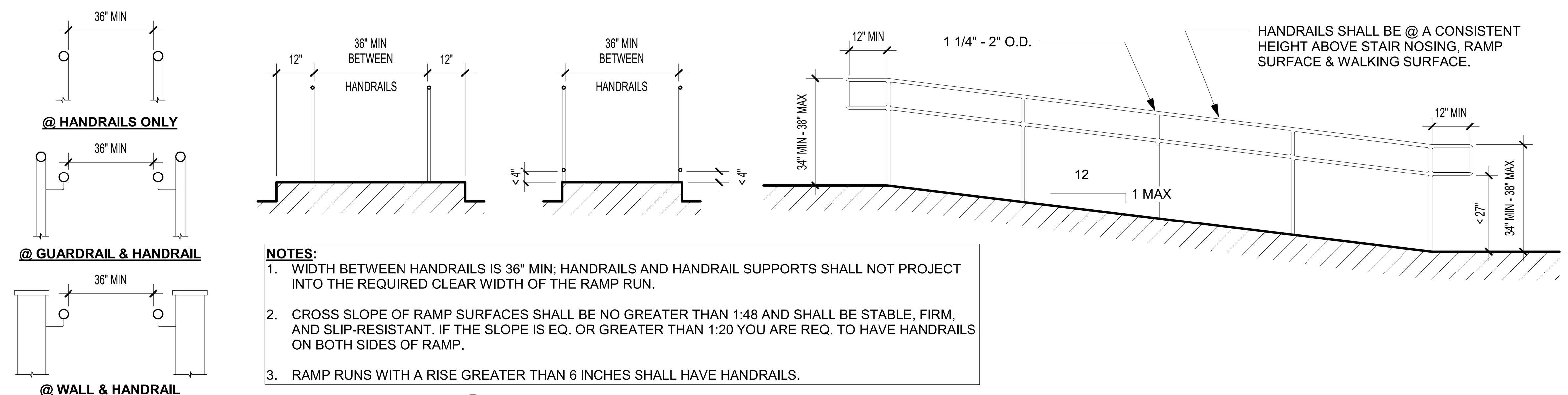
NOTE:
ONE SIGN IS TO BE LOCATED AT EACH DOOR ACCESS POINT TO STAIRS, TYP

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		

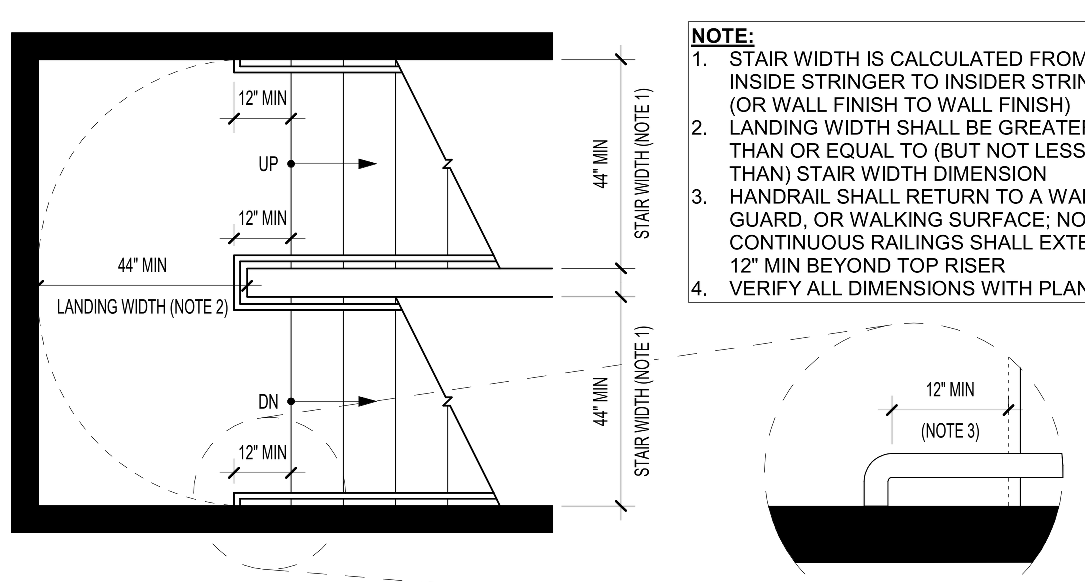
INTERIOR SIGNAGE

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.

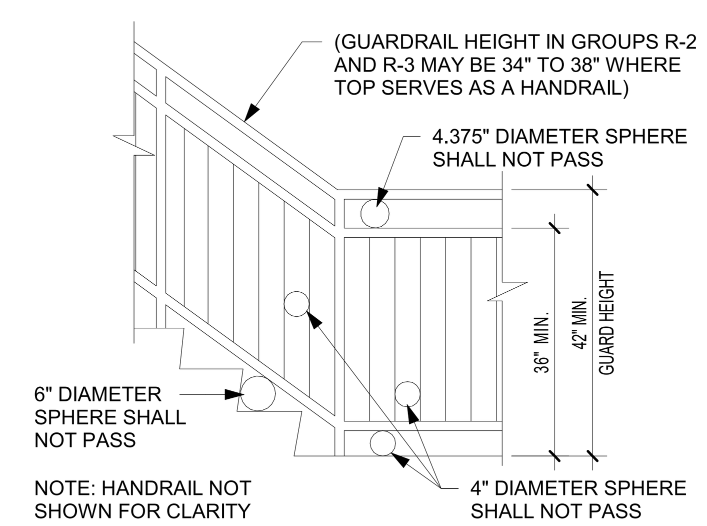
STAIRS AND RAILINGS



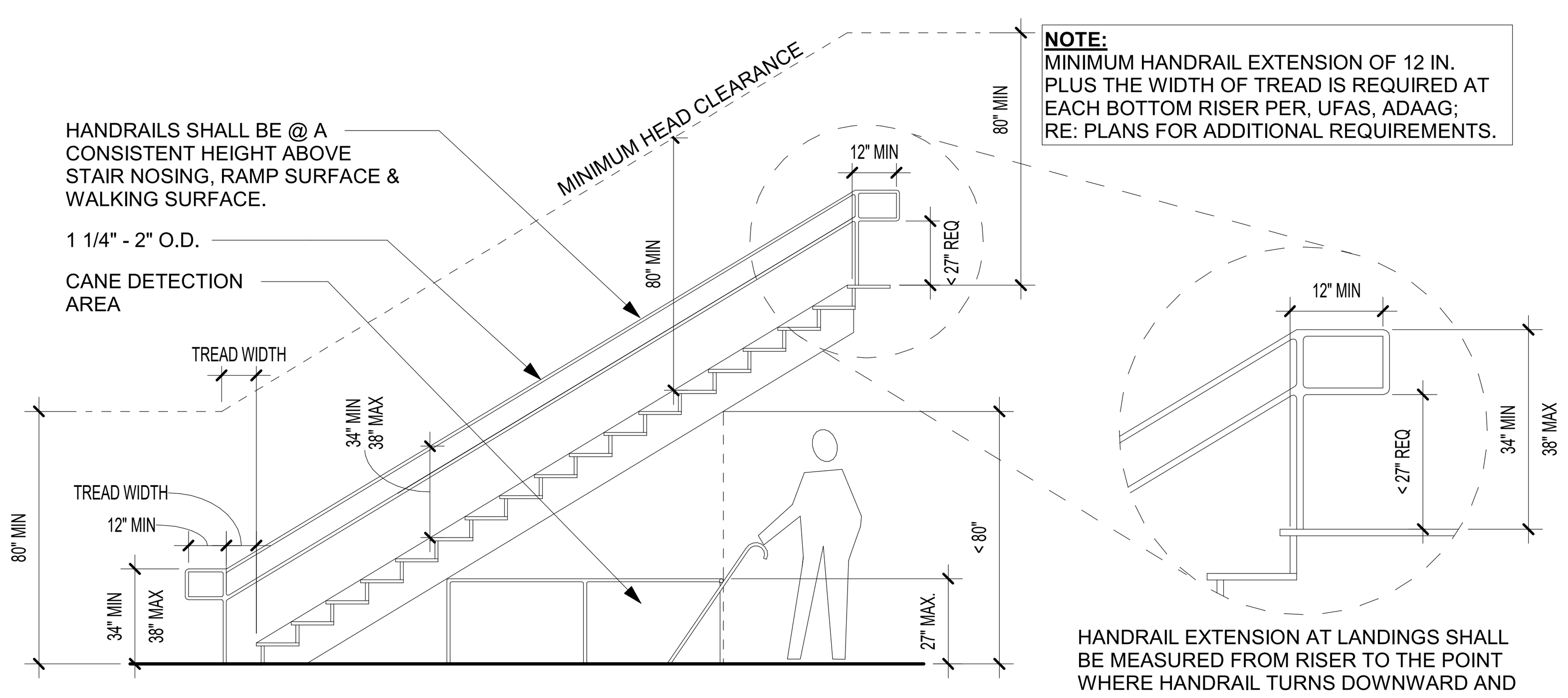
NOTE:

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

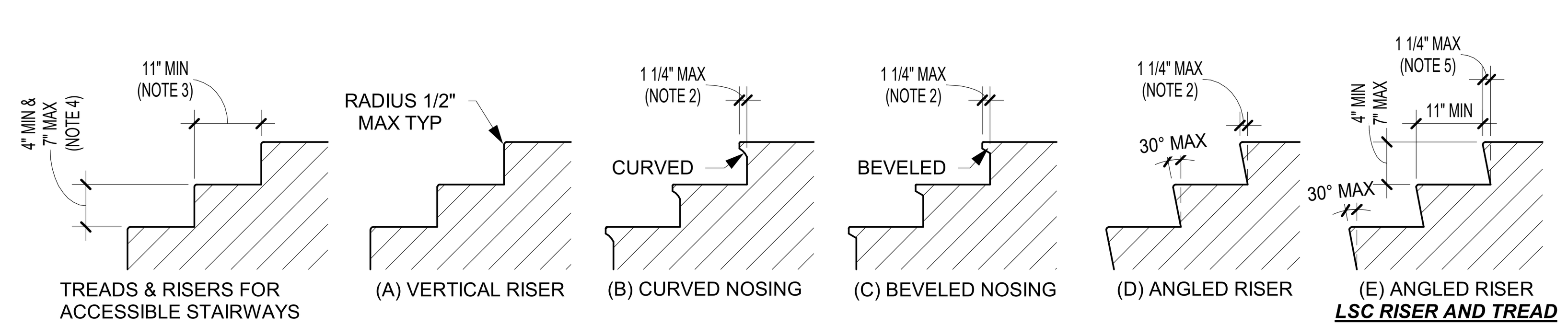


C2 STAIR OPENING GUARD LIMITATIONS
NOT TO SCALE



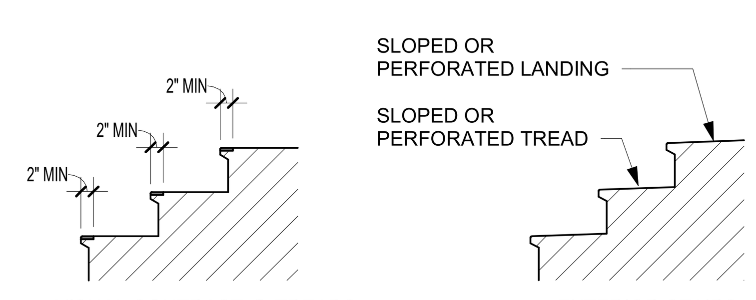
NOTE:
MINIMUM HANDRAIL EXTENSION OF 12 IN. PLUS THE WIDTH OF TREAD IS REQUIRED AT EACH BOTTOM RISER PER, UFAS, ADAAG; RE: PLANS FOR ADDITIONAL REQUIREMENTS.

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

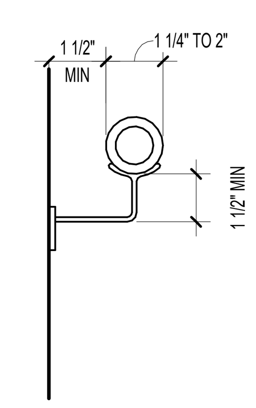


THE LEADING 2" OF TREADS SHALL HAVE VISUAL CONTRAST OF DARK-ON-LIGHT OR LIGHT-ON-DARK FROM THE REMAINDER OF THE TREAD

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

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STATE OF MISSOURI
DAVID EUGENE HENDRICKS
NUMBER
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REGISTERED ARCHITECT
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THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
ACCESSIBILITY STANDARDS

PROJECT NUMBER: 23103

SHEET NUMBER:

G-301

11/12/2024 9:34:23 AM

REFERENCE G-003 FOR GENERAL NOTES

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

TOILET, BATH, LAUNDRY ACCESSORY SCHEDULE

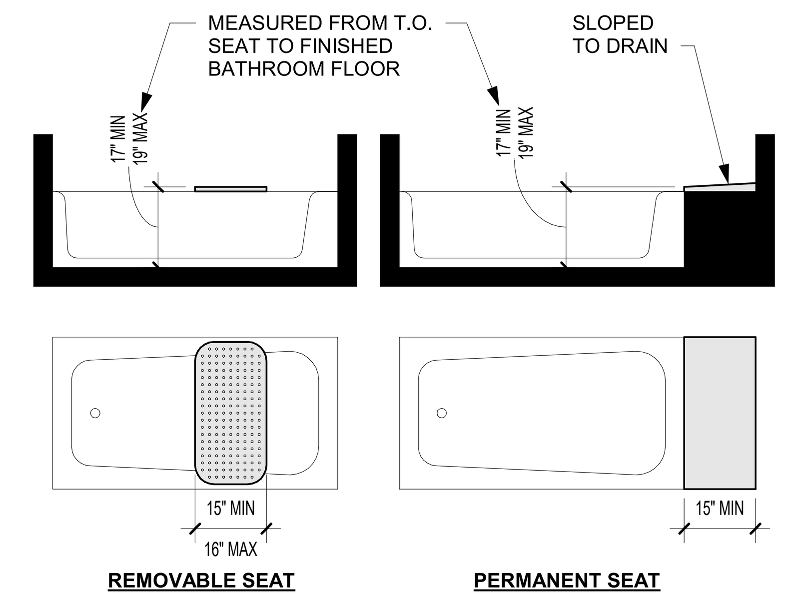
ACCESSORY	MOUNTING HEIGHT	LOCATION
MIRROR	SEE A1/G-303	PUBLIC & UNIT
PAPER TOWEL DISP/RECP	40" AFF MIN TO CONTROLS	PUBLIC
TOILET PAPER DISPENSER (TPD)	SEE D1/G-302	PUBLIC
TOILET PAPER HOLDER (TP)	SEE D1/G-302	UNIT
DIAPER CHANGING STATIONS	34" MAX TO CHANGING SURFACE	PUBLIC
GRAB BARS	SEE G-302	PUBLIC & 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

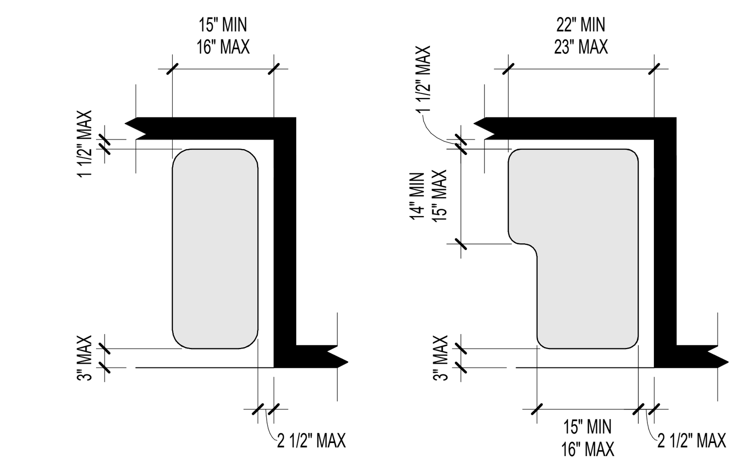
1. GRAB BAR BLOCKING IS REQUIRED AT ALL TOILET, SHOWER AND BATHTUB GRAB BAR LOCATIONS; APPLICABLE AT ALL PUBLIC SPACES, ACCESSIBLE UNITS, "TYPE A" UNITS, AND "TYPE B" UNITS.
2. CONTRACTOR SHALL BE FAMILIAR AND INCORPORATE ALL PROVISIONS AND REQUIREMENTS ESTABLISHED BY CODES APPLICABLE TO THE PROJECT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

TUB SEAT



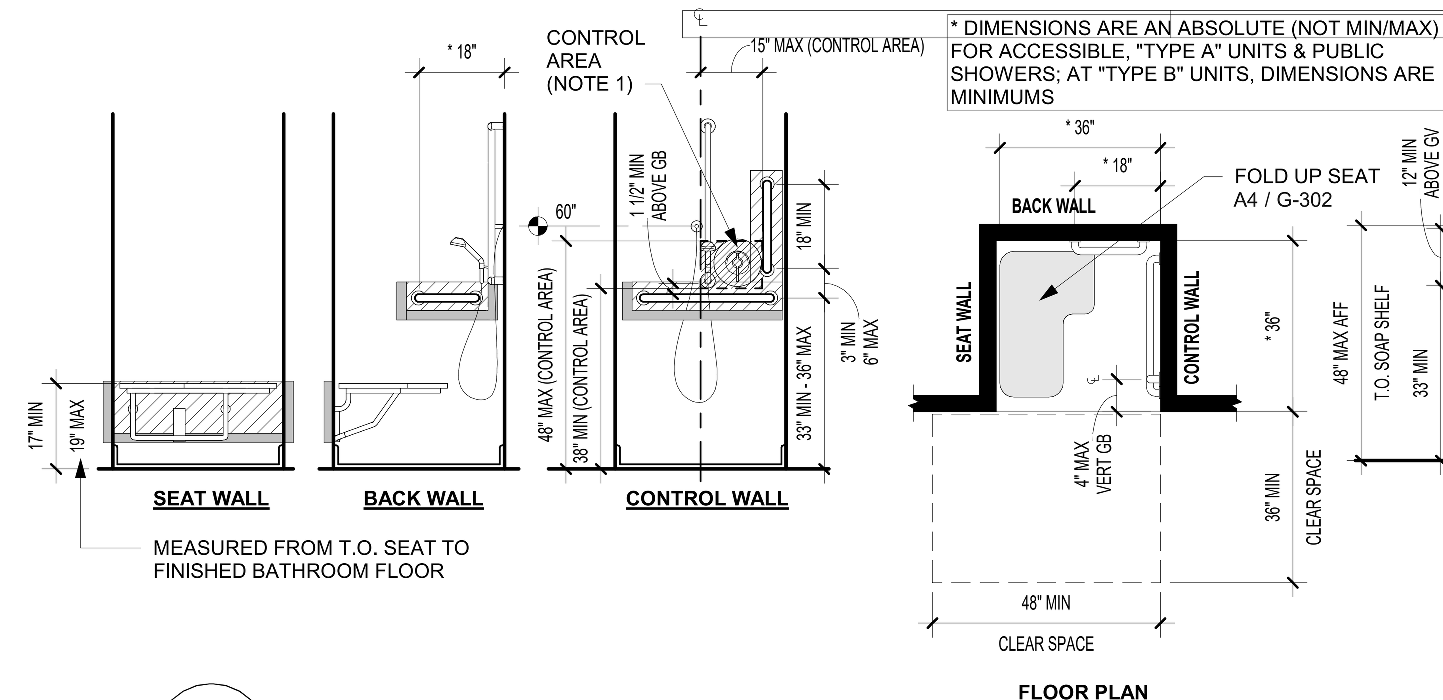
B4 BATHTUB SEAT
NOT TO SCALE

SHOWER SEAT

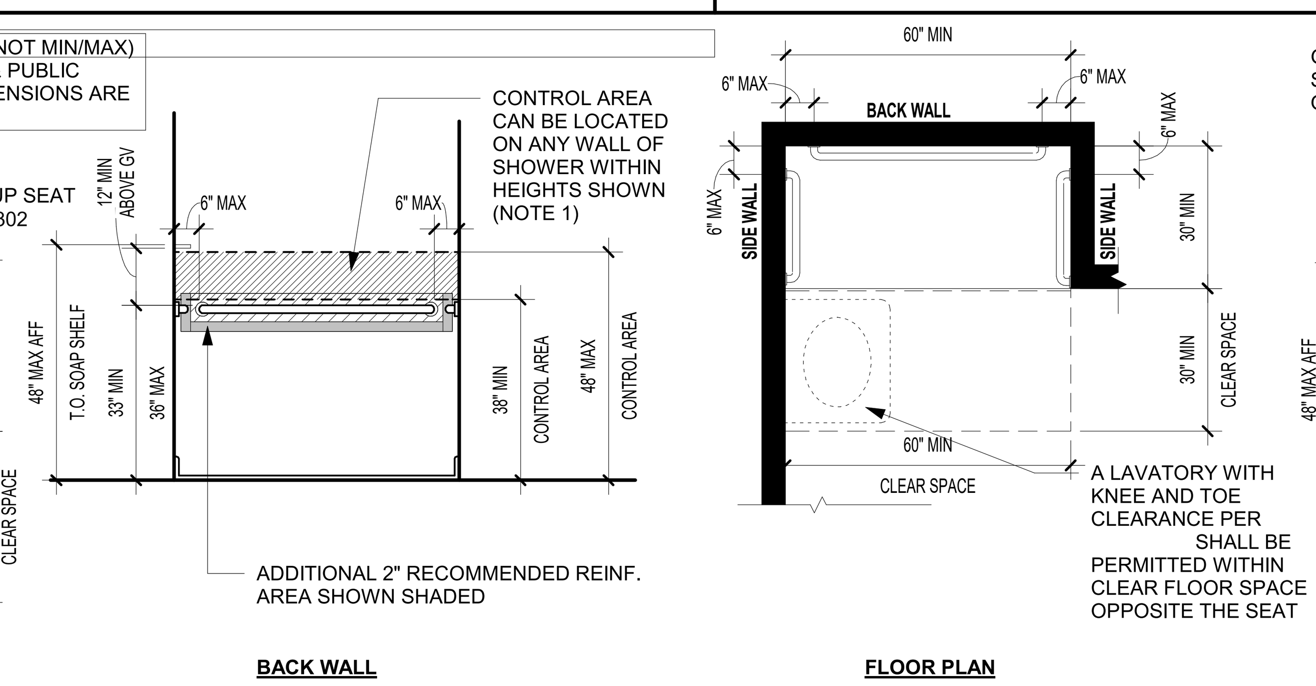


A4 SHOWER SEAT
NOT TO SCALE

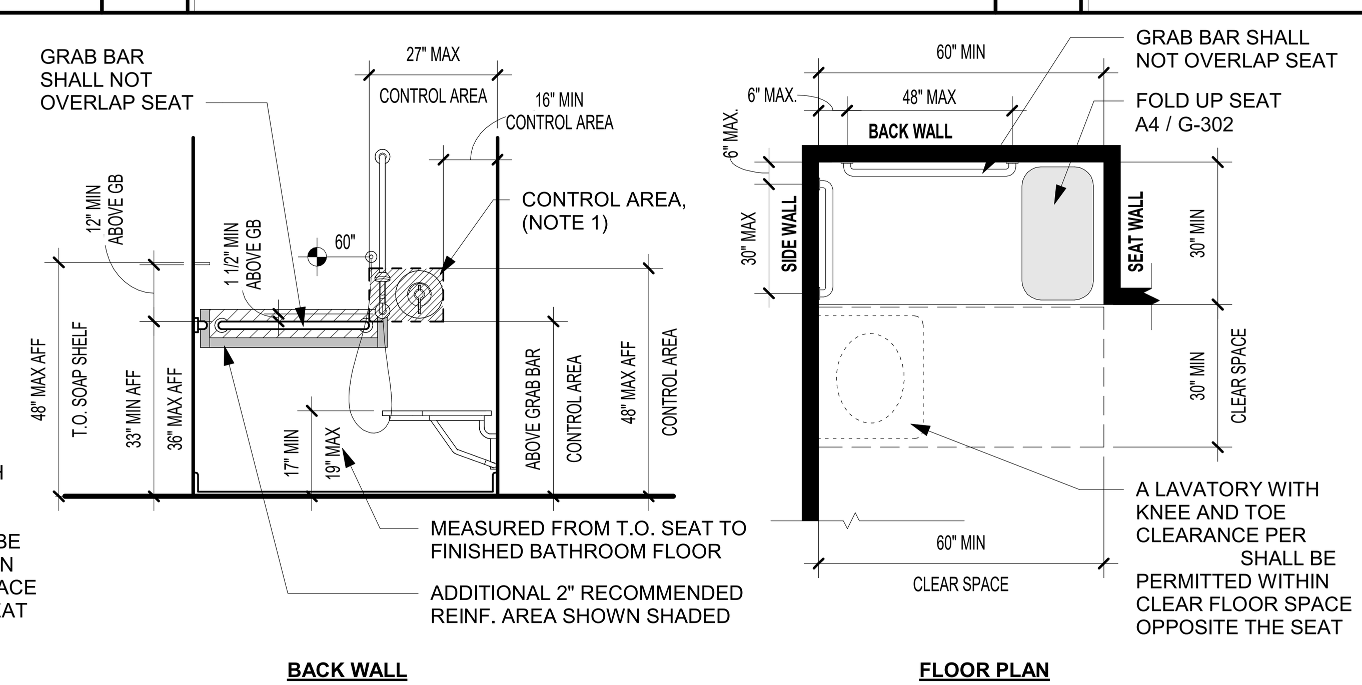
SHOWERS



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

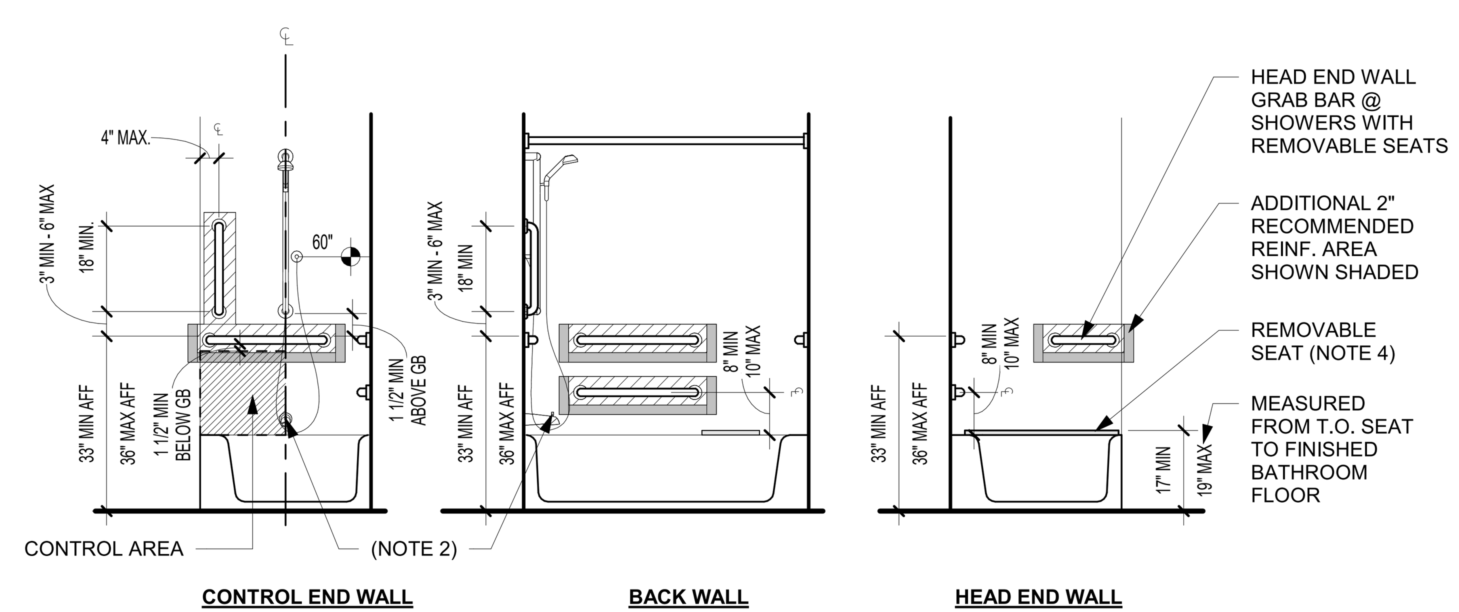
SHOWER NOTES

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 60" 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

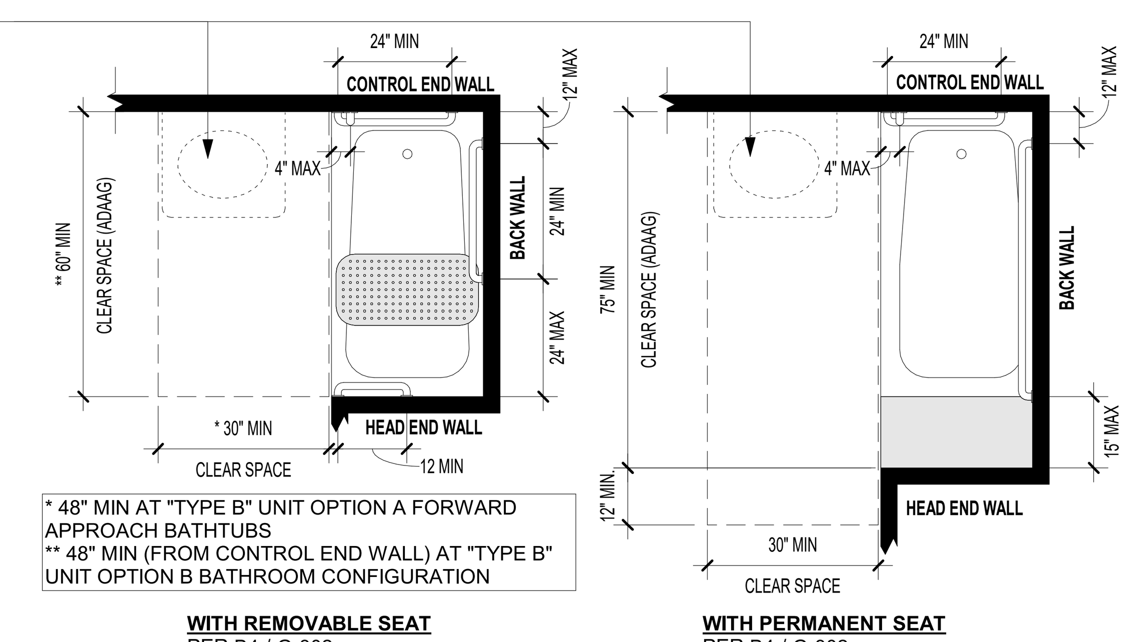


D2 BATHTUB HEIGHT REQ'S
NOT TO SCALE

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

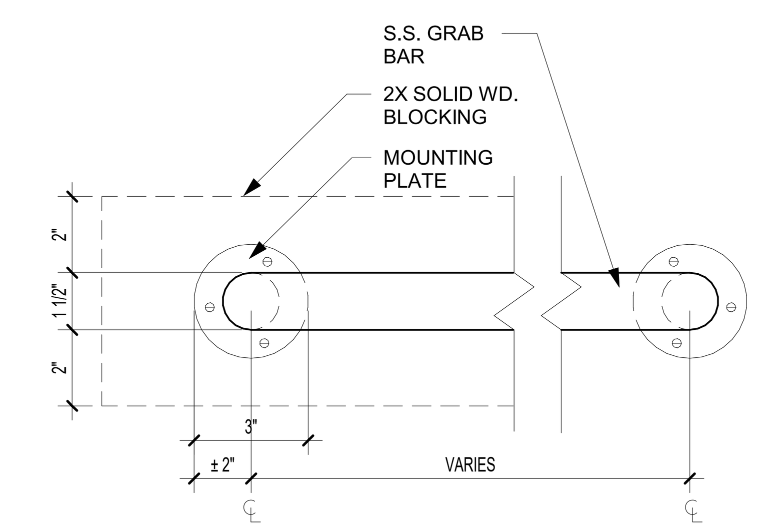
TUB NOTES

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.

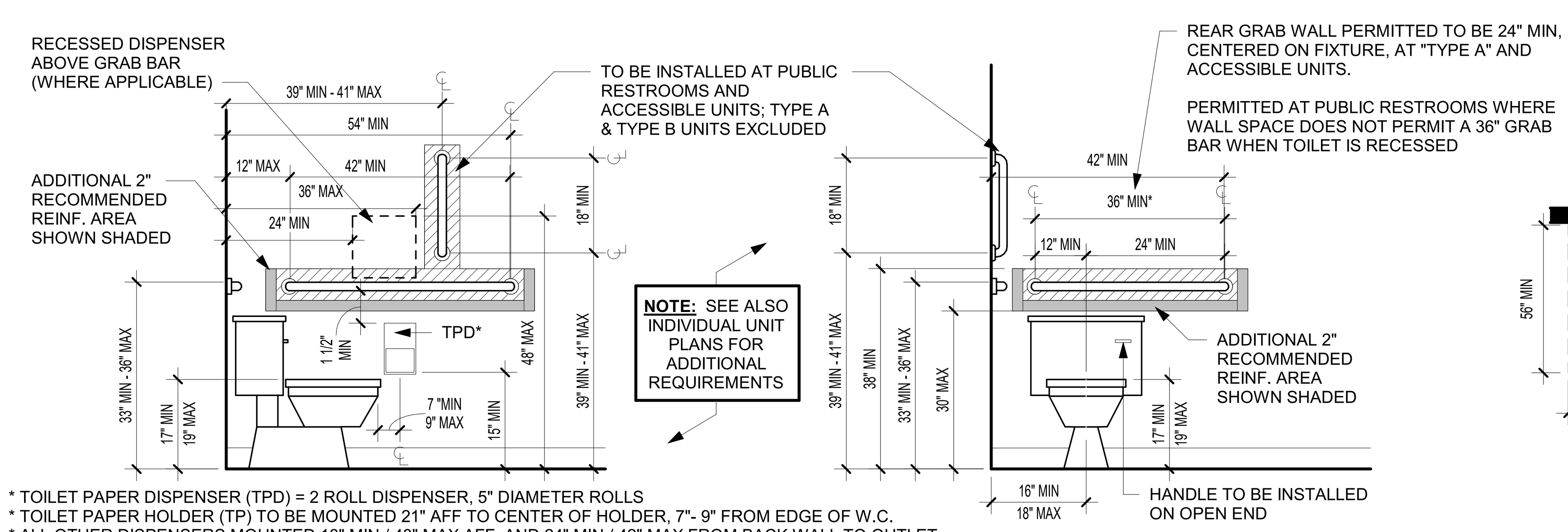
1. A HAND SHOWER WITH A HOSE OF 60" MINIMUM IN LENGTH TO BE PROVIDED.
   A. HAND SHOWER SHALL HAVE A CONTROL WITH A NONPOSITIVE SHUT OFF FEATURE.
2. NO PIN KNOB DIVERTERS IN ACCESSIBLE OR "TYPE A" UNITS AT TUB FAUCETS.
3. ADDITIONAL 2" RECOMMENDED REINFORCED AREA AROUND GRAB BARS (SHOWN SHADED).
4. REMOVABLE SEAT NOT REQUIRED AT "TYPE A" UNITS.
5. SEE UNIT PLANS AND/OR INTERIOR ELEVATIONS FOR ADDITIONAL INFORMATION.

GRAB BAR



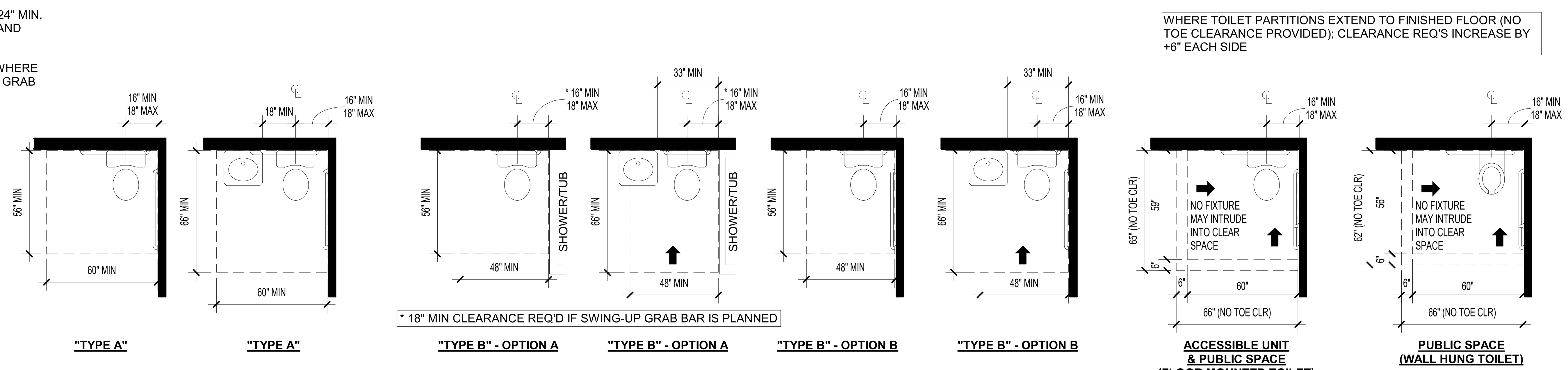
A2 GRAB BAR DETAIL
NOT TO SCALE

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

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STATE OF MISSOURI
DAVID EUGENE HENDRICKS
NUMBER 7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
ACCESSIBILITY STANDARDS

PROJECT NUMBER: 23103

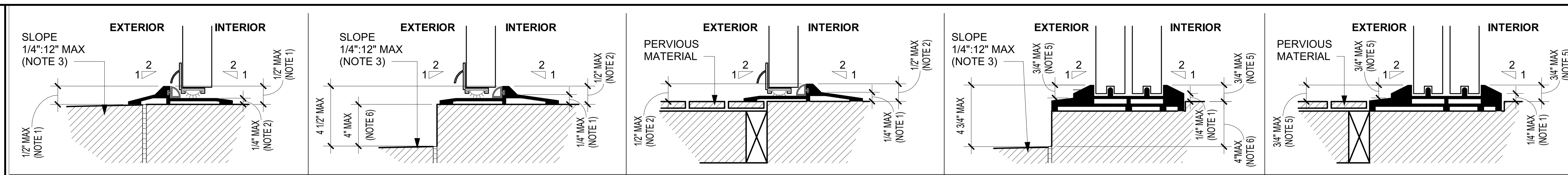
SHEET NUMBER:

G-302

REFERENCE G-003 FOR GENERAL NOTES

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

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

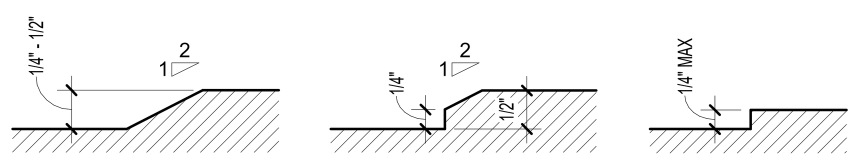
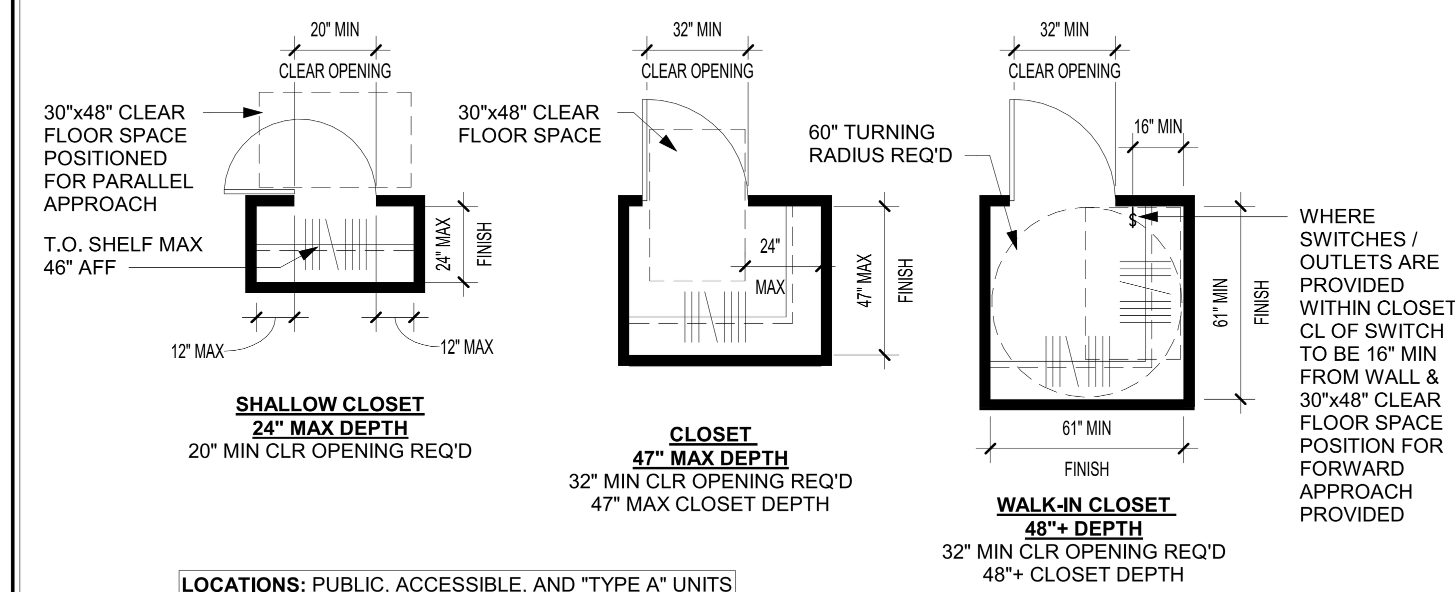


IMAGE 3 IMAGE 2 IMAGE 1

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

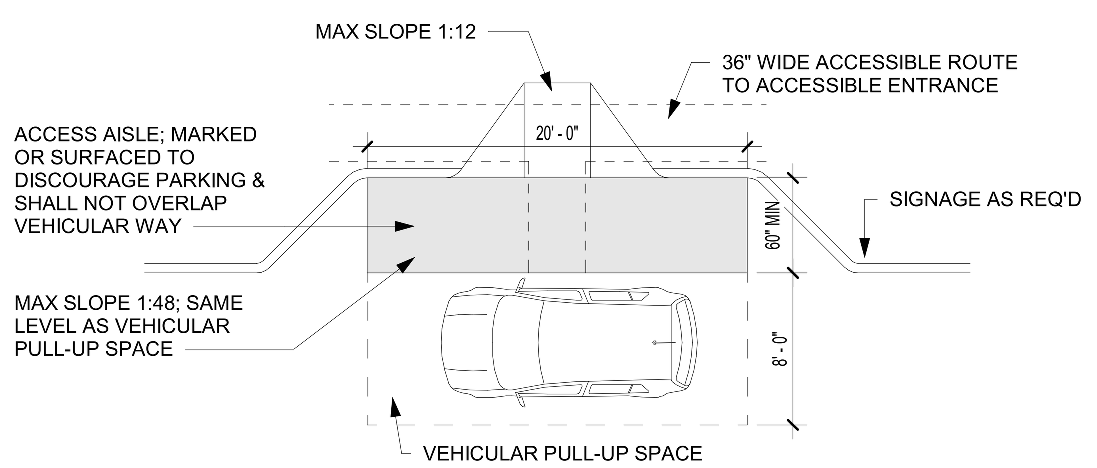
CLOSETS



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

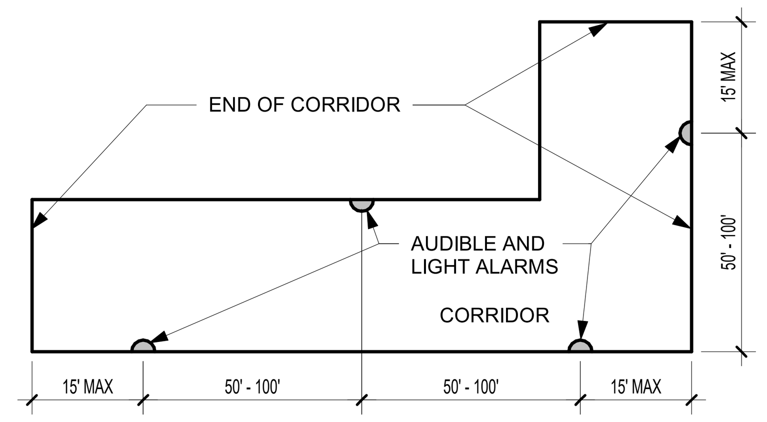
A4 CLOSET DIMENSIONS
NOT TO SCALE

PASSENGER LOADING ZONE

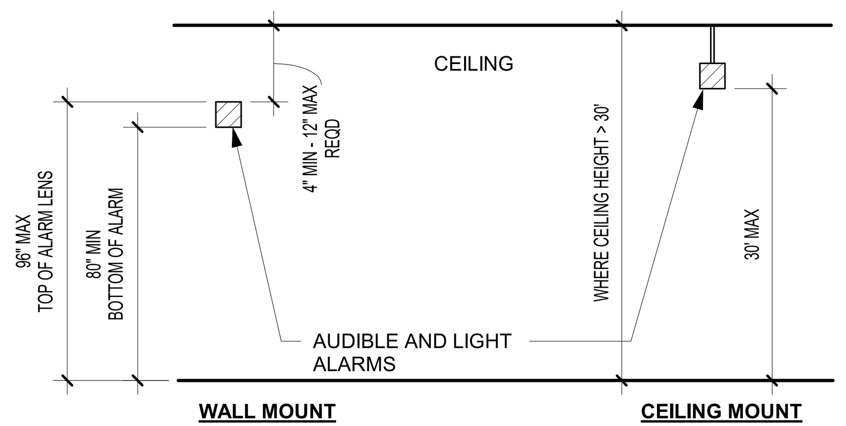


D3 PASSENGER LOADING ZONE
NOT TO SCALE

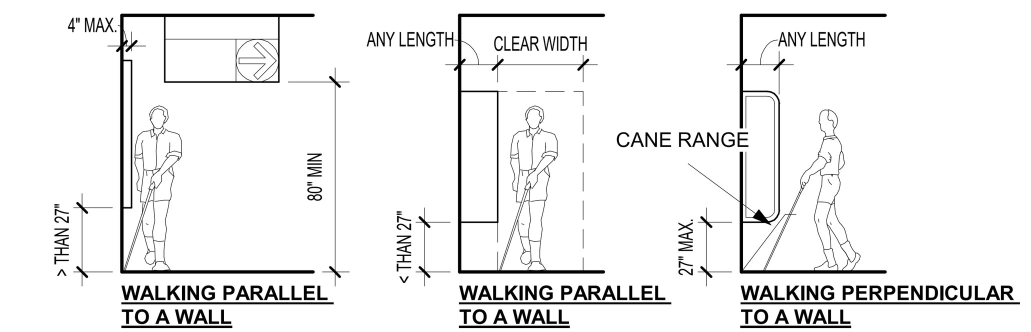
HEARING & VISION IMPAIRED



C3 ALARM SPACING IN CORRIDOR
NOT TO SCALE

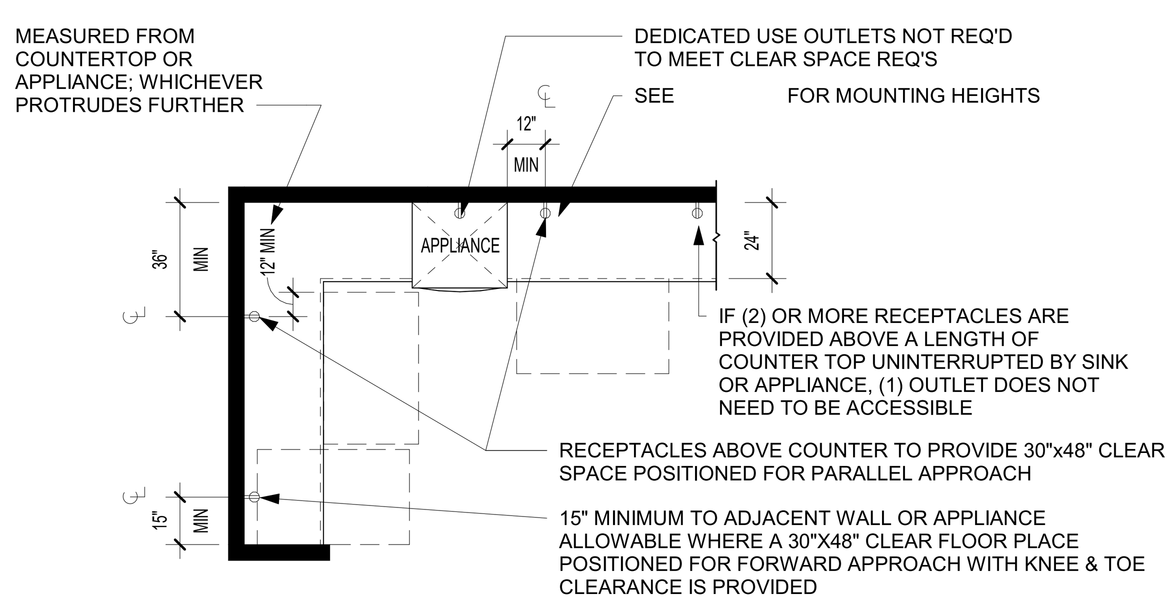


B3 CEILING/ WALL MOUNTED ALARM LOCATIONS
NOT TO SCALE



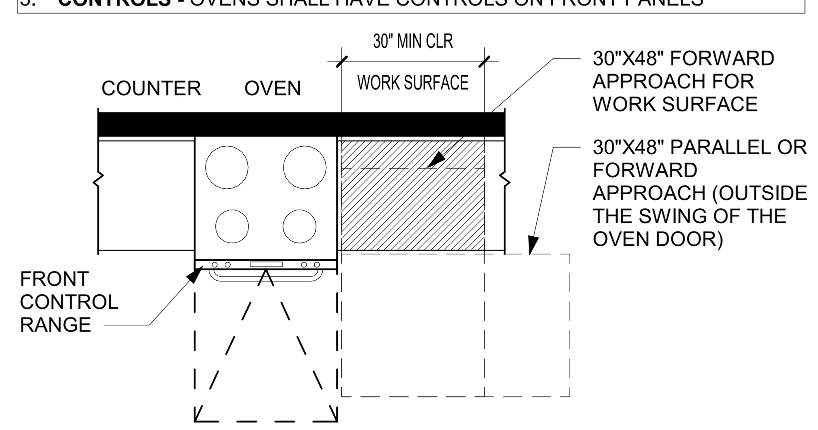
A3 PROTRUDING OBJECTS
NOT TO SCALE

KITCHENS



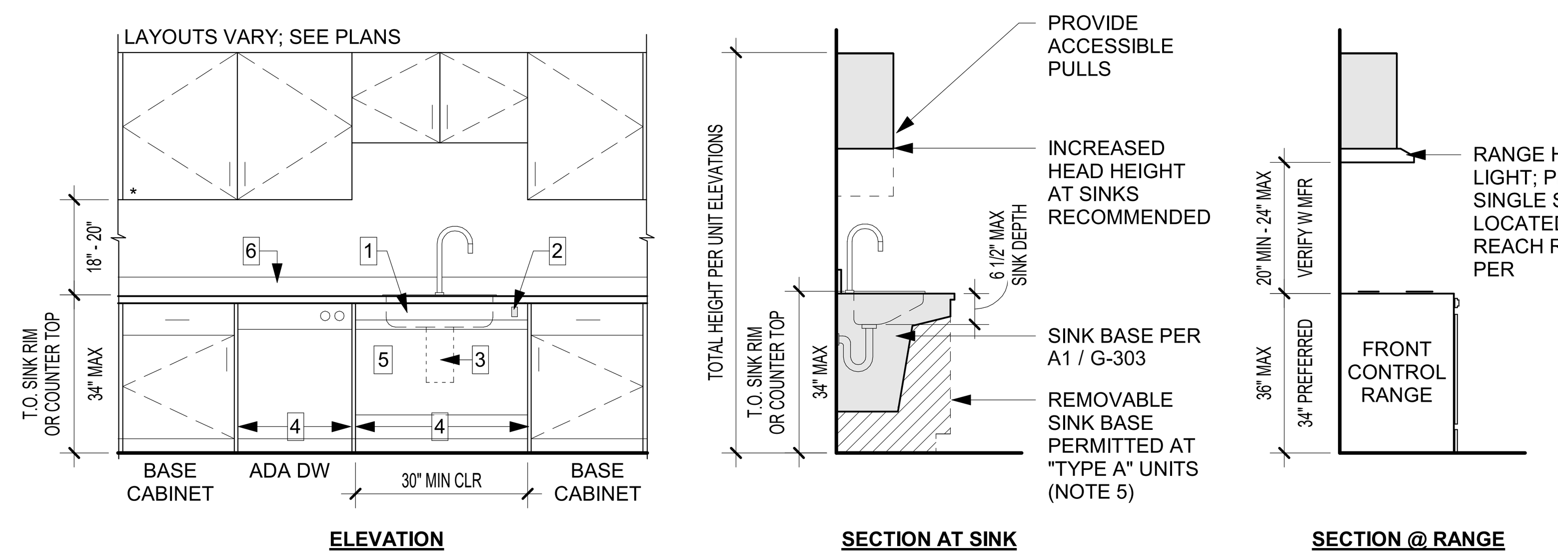
D2 ABOVE COUNTER RECEPTACLES
NOT TO SCALE

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

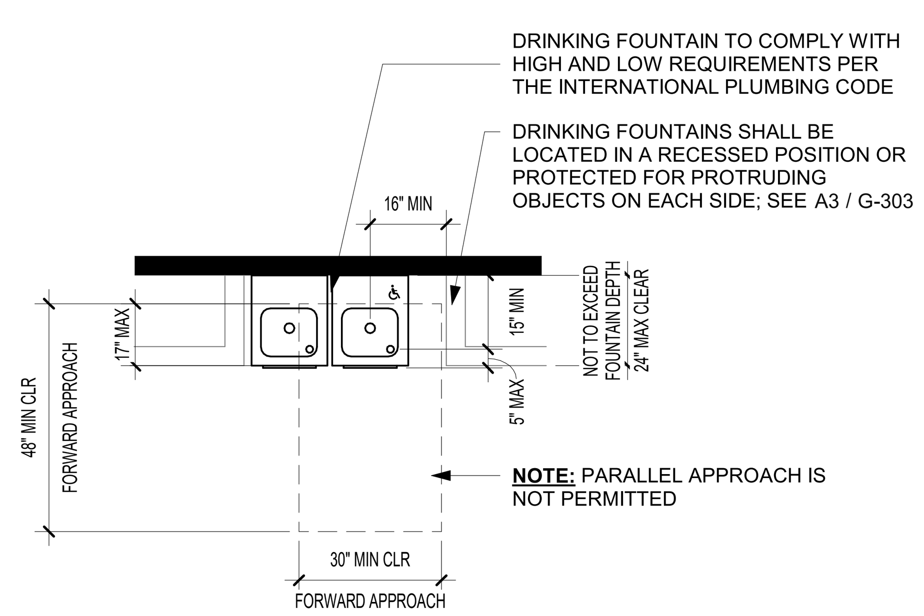
KITCHEN NOTES

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

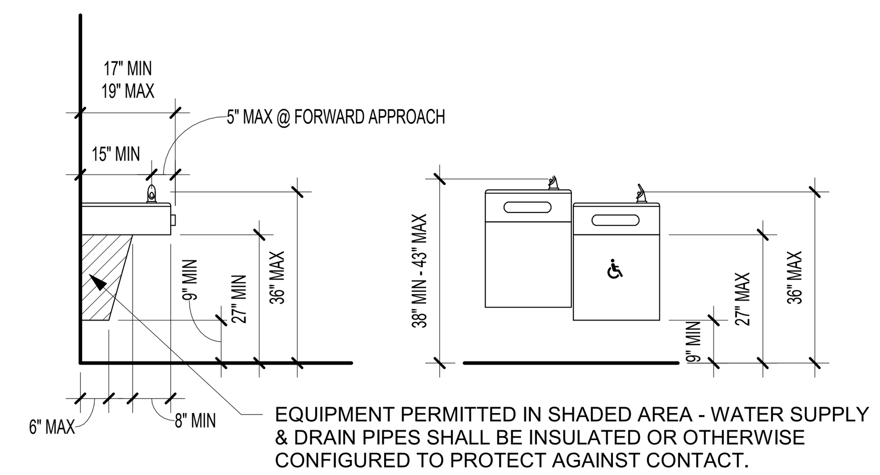
SEE UNIT PLANS AND/OR INTERIOR ELEVATIONS FOR "TYPE B" OR EXEMPT KITCHENS

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

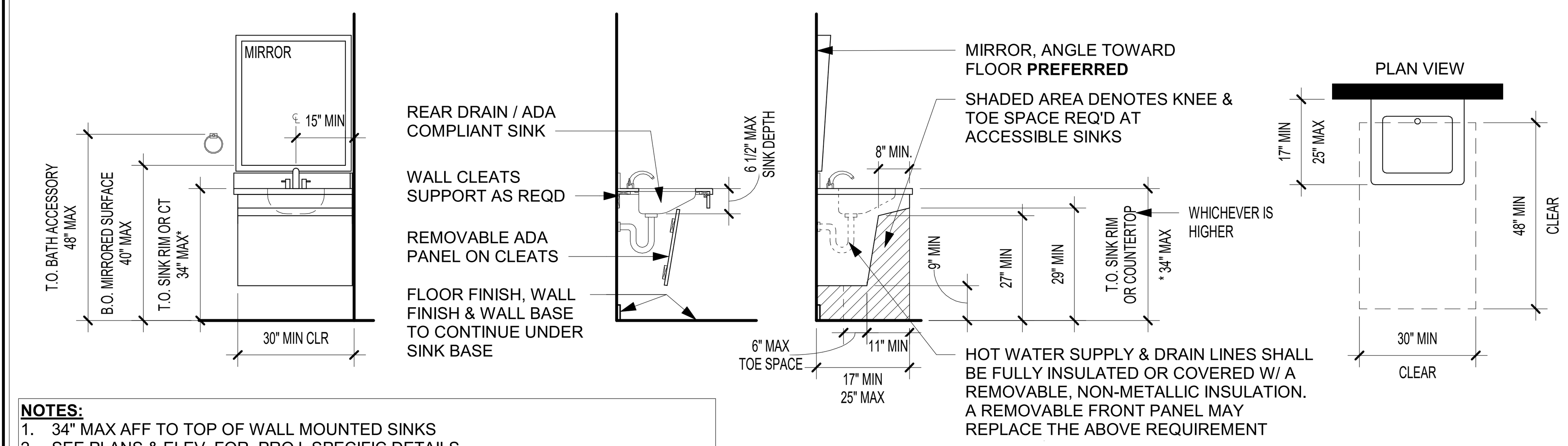


D1 DRINKING FOUNTAINS CLEAR SPACE REQUIREMENTS
NOT TO SCALE



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 HENDRIKSE NUMBER 7305 REGISTERED ARCHITECT
11/12/24

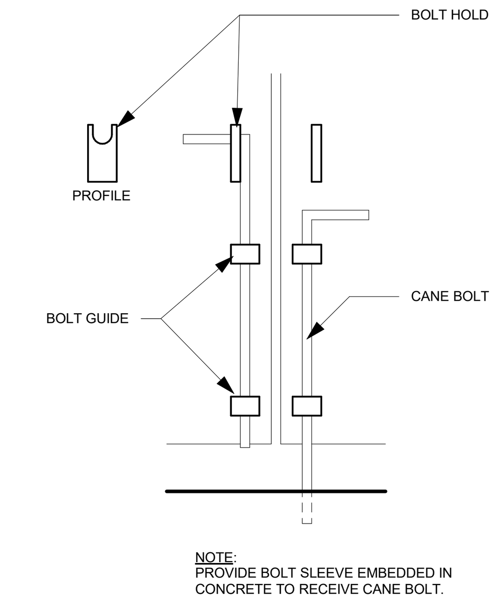
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO

SHEET TITLE
ACCESSIBILITY STANDARDS

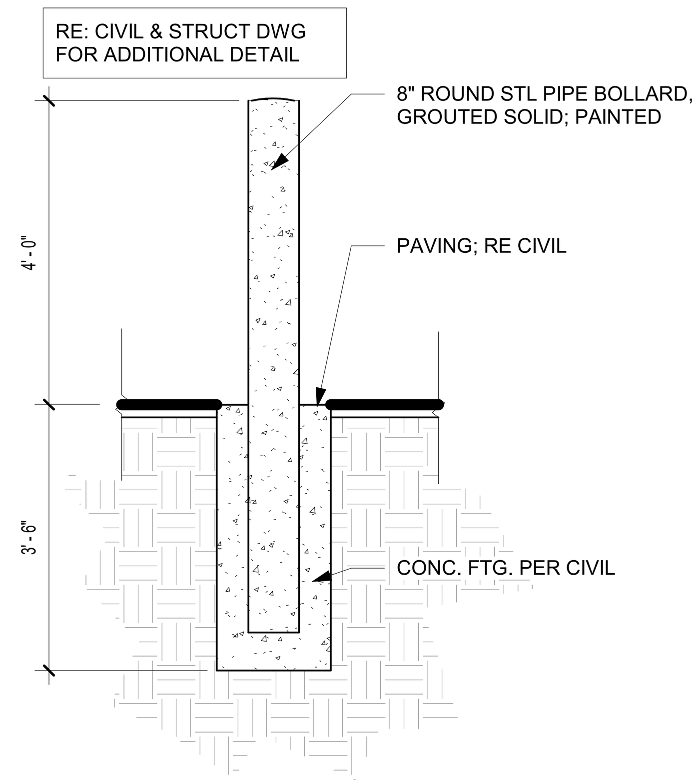
PROJECT NUMBER: 23103

SHEET NUMBER:

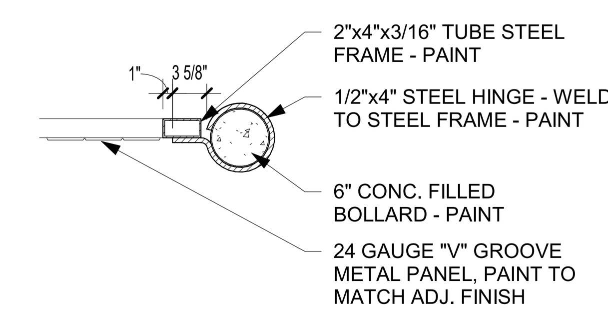
G-303



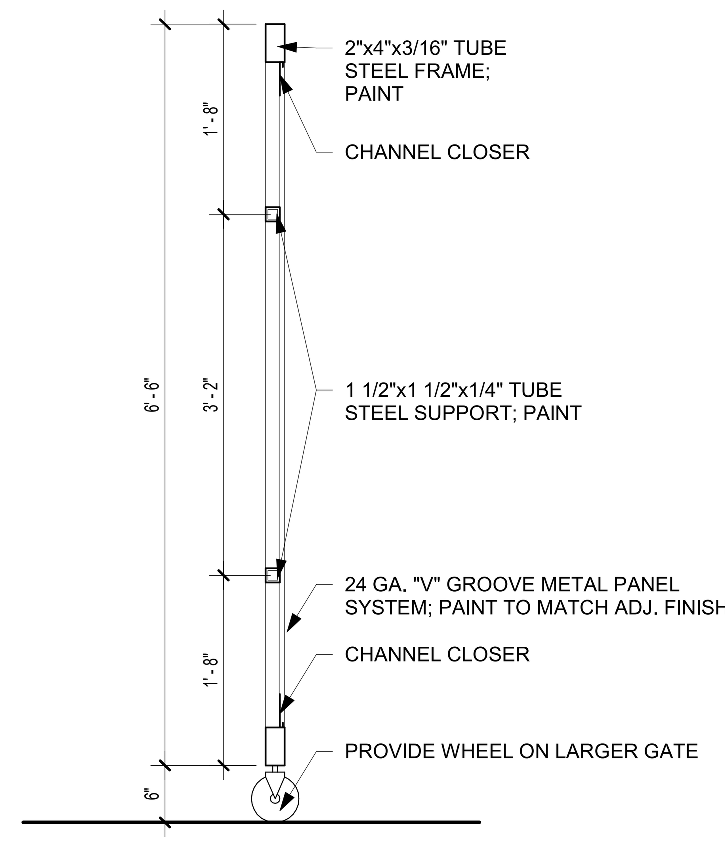
A4 SITE - CANE BOLT DETAIL
3" = 1'-0"



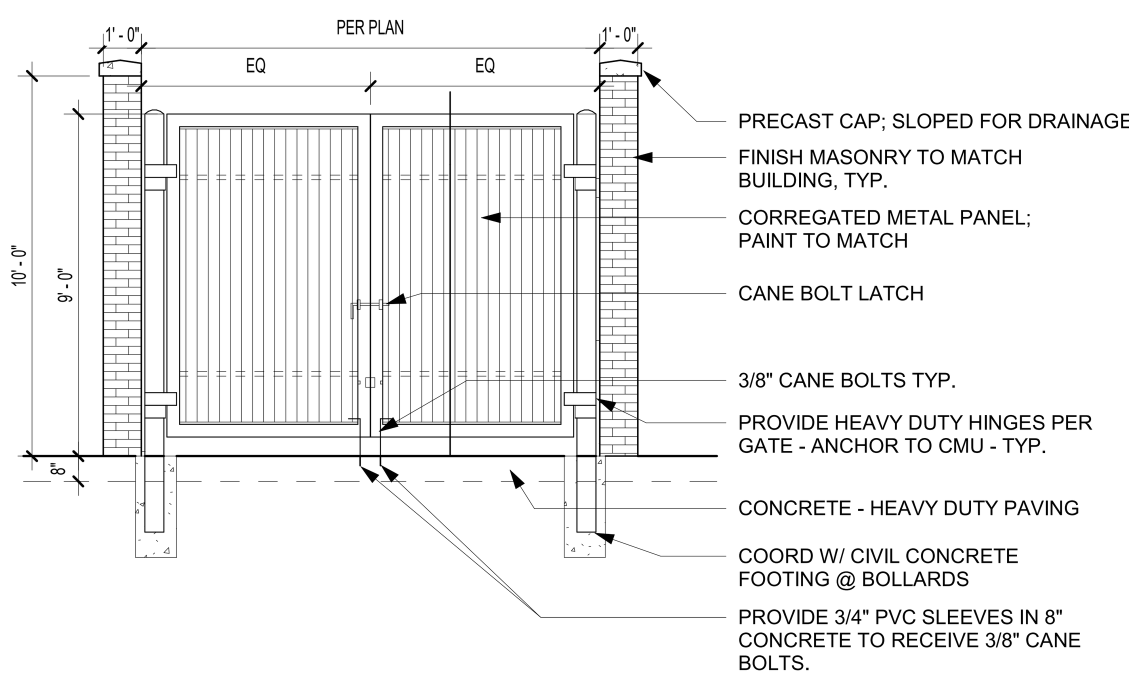
B3 SITE - BOLLARD - STEEL
1/2" = 1'-0"



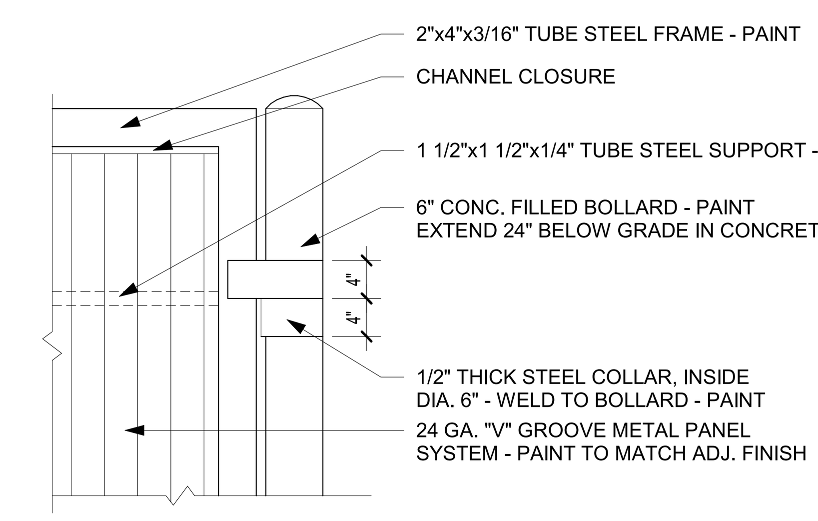
A3 TRASH GATE CROSS SECTION
3/4" = 1'-0"



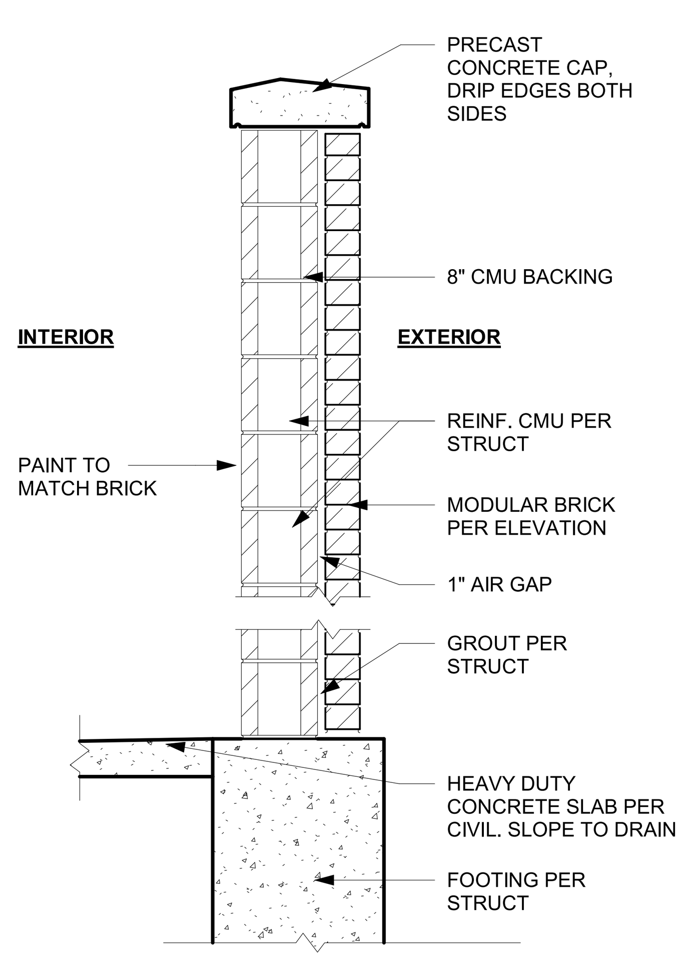
C2 TRASH GATE SECTION
3/4" = 1'-0"



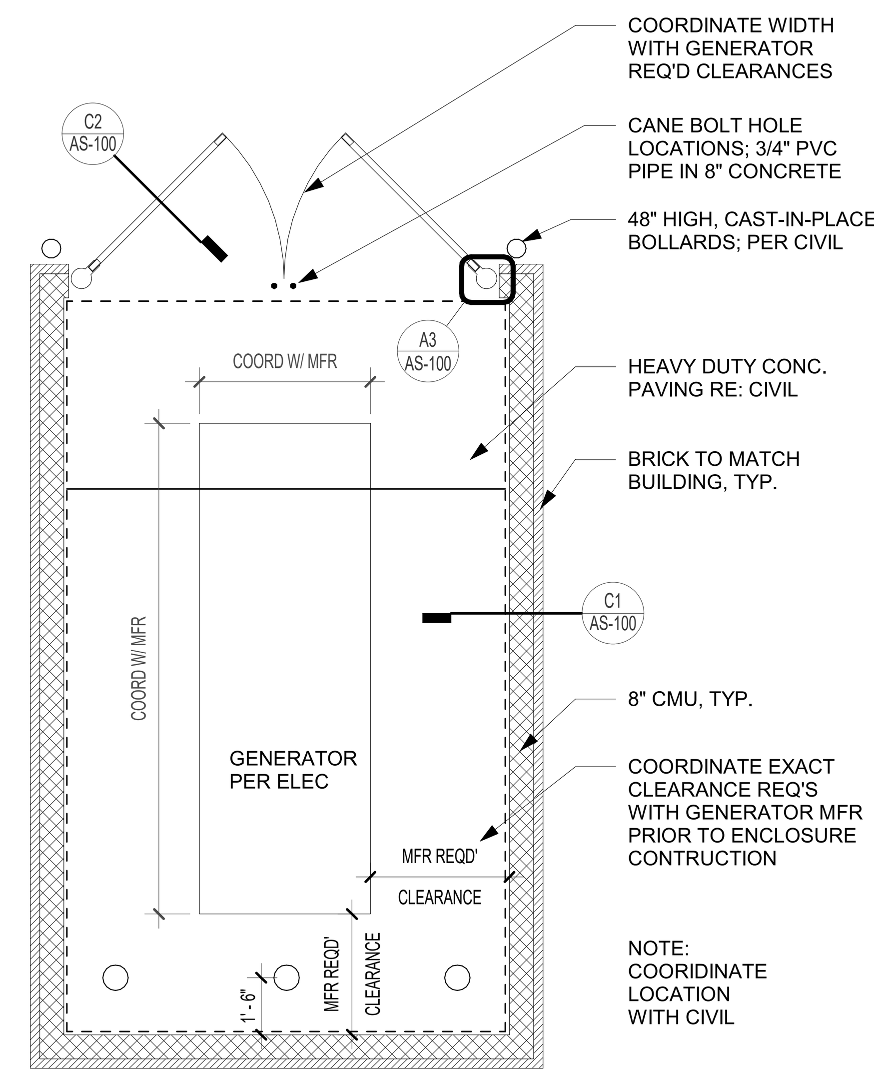
B2 ENCLOSURE FRONT ELEVATION
1/4" = 1'-0"



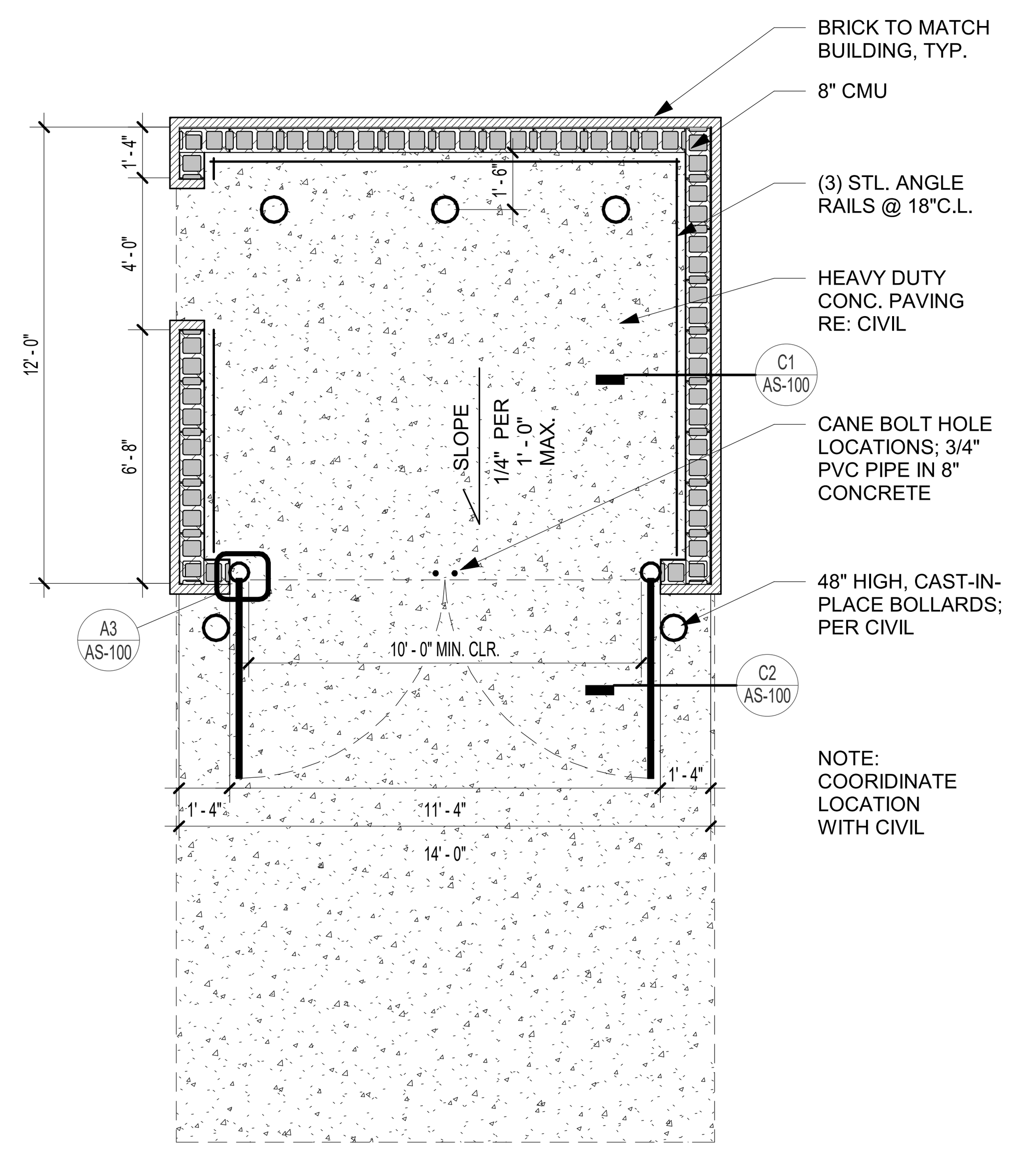
A2 TRASH GATE DETAIL
3/4" = 1'-0"



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



B1 GENERATOR ENCLOSURE PLAN
1/4" = 1'-0"



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

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THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
ARCHITECTURAL SITE AMENITIES

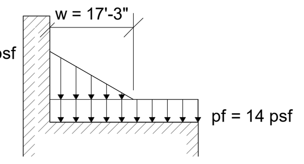
PROJECT NUMBER: 23103

SHEET NUMBER:

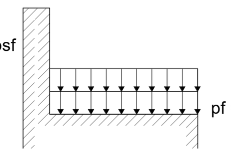
AS-100

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
      Wood Floors = 27 psf
      Composite Deck w/ LW Concrete = 51 psf
      Walls within Residential Units = 15 psf (additive to floor load)
      Roof = 20 psf plus mechanical equipment shown on roof plan
      King Size Brick Veneer = 36 psf max allowed
      Large Format Masonry = 70 psf max allowed
      EIFS Finish System = 10 psf max allowed
   b. Live Loads (reducible per code UNO)
      Slab on Grade = 100 psf
      Private Rooms and Corridors Serving them = 40 psf
      Mechanical/Storage = 125 psf (non-reducible)
      Balconies = 60 psf (1.5 x Occupancy Served)
      Typical Roof = 20 psf
      Handrails = 200 lb point load at any point on handrail or on top rail
      = 50 plf linear load on top rail
      Public Rooms = 100 psf (non-reducible)
      Public Corridors = 100 psf
   c. Roof Snow Load
      Ground Snow Load (p_g) = 20 psf
      Flat Roof Snow Load (p_f) = 14 psf
      Snow Exposure Factor (Ce) = 1.0
      Snow Load Importance (I_s) = 1.0
      Thermal Factor (C_t) = 1.0
      Slope Factor (C_s) = 1.0
      Main Roof Parapet Snow Drift Load (p_d) = 36 psf
      Main Roof Parapet Snow Drift width (w) = 17'-3"
      Balcony Snow
      Balcony Snow Drift Load = 40 psf
      Balcony Snow Drift width (w) = Full Balcony Depth
      Rain on Snow Surcharge = 5 psf



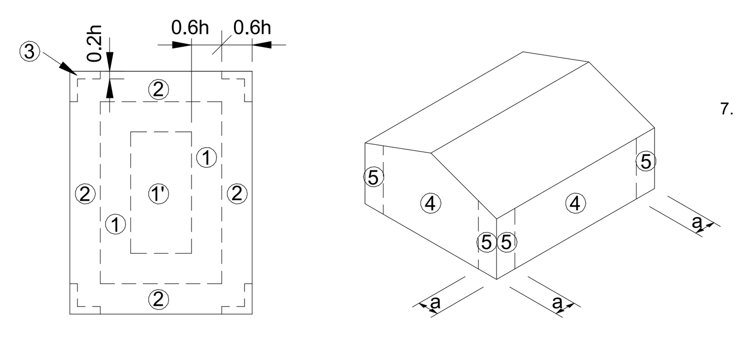
MAIN ROOF SNOW DRIFT AT PARAPET



BALCONY SNOW DRIFT LOAD DIAGRAM

   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
      Components and Cladding (psf):

Zone	A=10ft²	A=50 ft²	A=100 ft²
Negative Zone1	-49.6	-42	+16/-34
Negative Zone 1'	-28.5	-28.5	+16/-46
Negative Zone 2	-65.4	-55.7	+16/-48
Negative Zone 3	-65.4	-55.7	+26/-28
Positive Zone 1 & 1'	16	16	16
Positive Zones 2 & 3	28.5	25.6	24.3
Negative Zone 4	-30.9	-26.7	-27.9
Negative Zone 5	-38.0	-29.6	-32.1
Positive Zone 4 & 5	28.5	24.3	25.6



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

WALLS h ≤ 60' & ALT DESIGN h < 90'

      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
   e. Earthquake Load
      Risk Category = II
      Seismic Importance Factor (I_e) = 1.0
      Mapped Spectral Response Acceleration Parameters
      S_S = 0.099g S_1 = 0.068g
      Design Spectral Response Acceleration Parameters
      S_{DS} = 0.086 S_{D1} = 0.068
      Soil Site Class: C
      Seismic Design Category B
      Basic Seismic Force Resisting System(s)
      Wood Walls with Wood Structural Panels (ASCE 7 Table 12.2-1 Line A.15)
      R = 6.5 $Ω_0$ = 3.0 C_s = 0.013 C_D = 4.0
      ($Ω_0$ reduced to 2.5 per ASCE7-16 Table 12.2-1 footnote b)
      Wood Walls with Panels of other Materials (Gypsum) (ASCE 7 Table 12.2-1 Line A.17)
      R = 2.0 $Ω_0$ = 2.5 C_s = 0.043 C_D = 2.0
      ($Ω_0$ reduced to 2.0 per ASCE7-16 Table 12.2-1 footnote b)
      Ordinary Reinforced Masonry Shear Walls (ASCE 7 Table 12.2-1 Line A.9)
      R = 2.0 $Ω_0$ = 2.5 C_s = 0.043 C_D = 1.75
      Design Base Shear, V= C_s x W = 235 kips Derived using Max C_s Value
      Analysis Procedure = Equivalent Lateral Force Procedure (ASCE 7-16 Chapter 12.8)
   f. Rain Load
      100 Year 15 min. Rain Intensity (i) = 7.5 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"
Wall Framing (flexible finish)		L/360	0.75"
Wall Framing (brittle/brick finish)		L/600	0.5"

   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. Foundation design is based on the following to be considered part of the construction documents:
      i) Geotechnical Report prepared by Own Inc. dated April 3, 2024. 1
      ii) Signed Letter from Ground Improvement Engineering by Vaughn Rupnow, PE, dated May 31, 2024 confirming Rammed Aggregate Piers as a viable foundation option with **allowable subgrade bearing pressure of 6,000 psf**.
   b. It is the Owner's decision to proceed with Rammed Aggregate Piers.

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 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 frost walls, pedestals, and footing supported by rammed aggregate piers.
   b. Slabs on grade.
   c. Residential Building Framing:
      i. Load-bearing wood wall and opening framing.
      ii. Wood floor and roof trusses and dimensional lumber joists.
      iii. Concrete on composite deck floor framing.
      iv. Steel framed balconies with non-composite deck.
   d. Parking Garage Framing:
      i. Concrete Masonry Unit walls at stair and elevator towers.
      ii. Structural steel beams and columns.
      iii. Steel decking composite with concrete.
      iv. Exterior CFS wall framing.
   e. Retail Building Framing:
      i. Structural steel framing.
      ii. Steel decking composite with concrete.
      iii. CMU wall stair framing.
      iv. Exterior CFS wall framing.
   f. Level 2 force resisting system:
      i. Composite deck diaphragm and CMU shearwalls
   g. Level 3 and above:
      i. Lateral force resisting system:
      Plywood diaphragms and wood shear walls with gypsum or plywood sheathing as indicated in shearwall schedule.
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. Exterior and miscellaneous CFS wall framing below level 2
   c. Wood roof/floor trusses – see general notes section "Wood Framing and Fastening" / see S001 and S002 for applicable design criteria
   d. All premanufactured canopy and awning framing including connections to the structure.
   e. Handrails at balconies – see S001 "Design Criteria" for applicable loading

   * 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 non-load-bearing wood framed walls or furring
   e. Shoring design, formwork design, temporary bracing walls, 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 walls, openings, posts, columns supporting 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 column lines or are equally spaced between located members.
   c. Details and keynotes shown shall be incorporated into the project at all appropriate locations, whether specifically called out or not.
   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 are based upon available information from the manufacturer (if any) at the time these drawings were submitted. 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". The Contractor shall supervise and direct the work and shall be solely responsible for all construction means, methods, procedures, techniques, and sequence.
   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 methods 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 floor/roof diaphragm and the lateral force resisting elements.
      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.
   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 McClure 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	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. Structural Steel Framing	X	X			
9. Structural Steel Framing Connections	X	X			X
10. Steel Floor Deck	X	X			
11. Metal Railings & Connections	X	X			X
12. Metal Ladders & Connections	X	X			X
13. Fall Arrest Systems	X	X			X
14. Wood Framing Materials	X				
15. Wood Floor & Roof Trusses incl. Reactions				X	X
16. Wood Truss Connections to Supporting Structure				X	X
17. Specialty Wood Fasteners	X				
18. Manufactured Wood Shear Panels	X				
19. Exterior CFS Wall Framing below Podium Level	X	X		X	X
20. Premanufactured Canopies and Awnings	X	X		X	X
21. Masonry Wall Materials	X		X		
22. Masonry Reinforcing		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
      iii. Brick & Stone Veneers Including Weights

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 Grade Beams — 5000 psi normal weight
   c. Drilled piers and pile caps — 5000 psi normal weight
   d. Slabs on non-composite metal deck — 4000 psi normal weight
   e. Slabs on composite metal deck — 4000 psi lightweight
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 minimum concrete cover for reinforcing bars as follows (unless specified otherwise on sections and details):
   a. Cast-in-place concrete
      i. Concrete cast against and permanently exposed to earth: 3”
      ii. Concrete exposed to earth and weather (formed)
         1. #5 and smaller — 1-1/2”
         2. #6 and larger — 2”
      iii. Concrete not exposed to weather and not in contact with ground:
         1. Slabs and walls — 3/4”
         2. 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 moistened 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. **Elevator pit walls shall not have control joints as they are part of the lateral system.**
10. Provide PVC waterstops in all below grade construction joints and at other locations as shown.
11. Provide compressible filler and sealant in all slab-on-grade and wall and column interfaces that are not doweled together.
12. All column pockets shall be filled with concrete after column is erected.
13. 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.
14. 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.
15. Conduits and pipes shall not be permitted in concrete pilasters or columns.
16. See “G. Foundations” section 5 for requirements at slab on grade.
17. Bond break material for slip joints shall be one of the following: 1/8” thick tempered wood particleboard, 1/8” thick high-density plastic elastomeric strips, two layers of 10mil polyethylene sheeting or equivalent.
18. 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. Provide reinforcing per details.
19. At floor drains, locally slope floor towards drain. See architectural and plumbing drawings for drain locations.
20. Foundation walls shall be temporarily braced until positive attachment is made to floor framing per details. This is a means and methods item.

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 A185. 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 = 5,000psi							
	Development		*Class "B" Splice*		*Standard 90 deg. Hook*		
Bar Size	Top Bar	Other Bar	Top Bar	Other Bar	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
Tension Development and Splice Lengths for f'_c = 4,000psi							
	Development		*Class "B" Splice*		*Standard 90 deg. Hook*		
Bar Size	Top Bar	Other Bar	Top Bar	Other Bar	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

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.
3. For special seismic considerations, refer to ACI 318 Code Chapter 21.
4. 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 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. 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 Own Inc. dated April 3, 2024. 1
      ii) Signed Letter from Ground Improvement Engineering by Vaughn Rupnow, PE, dated May 31, 2024 confirming Rammed Aggregate Piers as a viable foundation option with **allowable subgrade bearing pressure of 6,000 psf**.
   b. It is the Owner’s decision to proceed with Rammed Aggregate Piers.
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.
   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. 1
   d. Slab on grade shall be founded on 6” deep ¾” clean aggregate base compacted to at least 98% of maximum dry density and within 2% of optimum moisture content. 1
   e. The upper 24” of subgrade extending 10’ beyond the footprint of the building shall consist of low volume change material per the Geotechnical Report. Granular fill shall be compacted to a minimum of 98% 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. 1
   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.
7. See notes on sheets and details for additional information.

H. POST-INSTALLED ANCHORS TO CONCRETE AND MASONRY

1. Post installed anchors shall be expansion, adhesive, or screw anchors as indicated in the details, unless noted otherwise. Only use the anchor type indicated. All anchors on the project of each type must be by the same manufacturer, see below for substitution requirements.
   a. Expansion anchors:
      i. Concrete:
         Hilti Kwik Bolt TZ (ICC-ES ESR1917).
         Simpson Strong-Bolt 2 (ICC-ES ESR3037).
         DeWalt Power-Stud+ SD2 (ICC-ES ESR2502).
      ii. Grout-filled Concrete Masonry:
         Hilti Kwik Bolt 3 (ICC-ES ESR1385).
         Simpson Strong-Bolt 2 (UES ER0240)
         DeWalt Power-Stud+ SD1 (ICC-ES ESR2966).
   b. Adhesive anchors (threaded rods shall be ASTM A193 B7 for all anchors):
      i. Concrete:
         Hilti HIT RE 500-SD (ICC-ES ESR2322) or Hilti HIT-HY 200 (ICC-ES ESR3187).
         Simpson AT-XP (UES ER263), SET-XP (ICC-ES ESR2508) or ET-HP (ICC-ES ESR3372)
         DeWalt Pure 110+ (ICC-ES ESR3298), PE1000+ (ICC-ES ESR2583), Pure 50+ (ICC-ES ESR3576), AC 200+ (ICC-ES ESR4027), or AC100+ Gold (ICC-ES ESR2582)
      ii. Solid grouted concrete masonry:
         Hilti HIT-HY 70 anchor adhesive (ICC-ES ESR3342).
         Simpson AT-XP (UES ER0281), SET-XP (UES ER0265) or ET-HP (UES ER0241)
         DeWalt AC100+ Gold (ICC-ES ESR3200)
      iii. Hollow concrete or multi-wythe clay masonry:
         Hilti HIT-HY 70 with screen tubes (ICC-ES ESR3342).
         Simpson SET-XP (UES ER0265)
         DeWalt AC100+ Gold with screen tubes (ICC-ES ESR3200)
   c. Screw anchors:
      i. Concrete:
         Hilti Kwik HUS EZ (ICC-ES ESR3027)
         Simpson Titen HD (ICC-ES ESR2713)
         DeWalt Screw-Bolt+ (ICC-ES ESR2526)
      ii. Grout-filled concrete masonry:
         Hilti Kwik HUS EZ (ICC-ES ESR3056)
         Simpson Titen HD (ICC-ES ESR1056)
         DeWalt Screw-Bolt+ (ICC-ES ESR1678)
2. Post-installed anchors shall only be used where specified in the drawings. The Contractor shall obtain approval from the engineer prior to using post-installed anchors for missing or misplaced cast-in-place anchors.
3. All personnel installing anchors shall be trained and certified by the anchoring system manufacturer or by ACI. Contractor shall submit current certifications for all personnel. ACI certification required for all personnel installing adhesive anchors in a horizontal or overhead conditions. If a failure occurs at any time during testing or construction, personnel shall be retrained and recertified.
4. Installation:
   a. Do not cut existing reinforcing.
   b. The hole through the supported steel member shall be 1/16" larger in diameter (1/8” for screw anchors) than the anchor unless noted otherwise. Use plate washers with a standard size hole welded to steel members where oversized holes must be used.
   c. Holes shall be drilled per the manufacturer's written instructions as outlined in the ESR.
   d. Where applicable, installation shall follow cleaning procedure indicated in the ESR. Holes shall be made with a hammer drill. Use of a core drill is not allowed.
5. Special inspection shall be provided for all post installed anchors as required by the building code and/or ICC-ES report. Written special inspection reports shall be submitted to the registered design professional in responsible charge by the special inspector. The reports shall record and report the following as a minimum:
   a. One of every ten anchors installed by each technician in locations listed below shall be randomly tested in direct tension. At least one anchor shall be tested on each day that anchors are installed.
      i. Test anchors in the following locations:
         Shear wall hold down anchors.
         Shear wall sill plate anchors.
         Anchors supporting dead or live loads in tension.
      ii. Test anchor to twice the allowable tension load as provided in the ESR. Test load shall not exceed 80 percent of the yield strength of the anchor (0.8 x A_{se} x f_{ya}).
      iii. Post-installed anchors shall not be tested using a torque wrench.
      iv. If any anchor fails quality control testing, all anchors of the same type shall be randomly tested until (10) consecutive anchors pass. Resume normal frequency after this with approval of the engineer. The failed anchor(s) shall be removed and the affected area patched per engineer’s direction. Consult the engineer for anchor replacement instructions. The cost for additional work and testing required due to anchor failure is the responsibility of the installing contractor.
   b. Prior to and during installation of anchors, inspection and report shall include:
      i. Installer shall have reviewed manufacturer's ESR report and written installation procedures and has been certified by the manufacturer or ACI.
      ii. General concrete or CMU block conditions (cracked or un-cracked, wet or dry, grouted or hollow, etc).
      iii. Whether manufacture's written procedures for preparation of hole were followed. Indicate if hole is wet or dry.
      iv. Whether hole was made with a hammer drill
      v. Whether manufacture's written procedures for anchor installation were followed.
      vi. Embedment depth and concrete or block thickness.
      vii. Anchor diameter, length and type.
   c. After installing anchors, inspection and report shall include:
      i. All test locations.
      ii. Anchor size and/or type.
      iii. Applied load, loading procedure, load increments and rate of loading.
      iv. Mode of failure.
      v. Photographs of test equipment and typical failures.
6. Substitution requests for products other than those listed above shall be submitted to the engineer with calculations that are prepared and sealed by a registered structural engineer at least two weeks prior to scheduled installations. Calculations shall demonstrate that the substituted product will achieve an equivalent capacity using the appropriate design procedure required by the building code. Product ICC-ES code reports shall be included with the submittal package.

PRINTS ISSUED
11/12/2024 - PERMIT SUBMITTAL

REVISIONS:
1 12/04/2024 City Comments Response
2 12/24/2024 Addendum 2

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

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

FOR BID PURPOSES ONLY

THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

SHEET TITLE
GENERAL NOTES

PROJECT NUMBER: 2023000333

SHEET NUMBER:
S001

J. STRUCTURAL STEEL

1. Materials:
   a. Materials shall conform to the following, unless noted otherwise.
      i. Rolled WF shapes — ASTM A992, Fy = 50ksi
      ii. Plates and angles — ASTM A572-50
      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 designated 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.
      ii. All exterior steel components exposed to view or weather shall be galvanized in accordance with ASTM A123.
      iii. 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 Code of Standard Practice.
   c. Structural steel fabrication and erection drawings must be submitted to the engineer for review and approval prior to fabrication.
   d. Fabricator shall engage a professional engineer registered in the state of the project 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. Connection forces shown on drawings are 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 Structural Engineer.
      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 King Brick Masonry at all openings shall be the following:
      i. L 3-1/2 x 2-1/2 x 1/2 for spans less than 6'-4"
      ii. L 5 x 3 x 3/8 for spans between 6'-5" and 8'-3"
      iii. L 6 x 3-1/2 x 3/8 for spans between 8'-4" and 10'-0"
      iv. L 7 x 4 x 7/16 for spans between 10'-1" and 12'-1"
         1. Lintel sizes are based on 27 psf brick weight with 6'-0" max height of brick above the lintel.
   b. Loose lintels for Large Format Masonry at all openings shall be the following:
      v. L 6 x 6 x 3/8 for spans less than 6'-6"
      vi. L 8 x 6 x 1/2 for spans between 6'-6" and 9'-3"
         1. Lintel sizes are based on 70 psf masonry weight with 6'-0" max height of brick above the lintel.
   c. Lintels shall bear 8" minimum each end.
   d. Lintels carrying masonry 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.

Schedule of minimum nailing for standard connections[1]

Connection[2, 3]	Number, or spacing, of fasteners required per connection. Nail lengths are minimum, nominal lengths, in inches. Nail shank diameters are minimum, nominal diameters, in inches.										
	3 ½ x 0.162	3 x 0.148	3 ¼ x 0.131	3 x 0.131	2 ½ x 0.131	3 ¼ x 0.120	3 x 0.120	2 ⅜ x 0.113	2 x 0.113	2 ¼ x 0.105	2 ¼ x 0.099
Equiv. Common Nail	16d	10d			8d				6d		
Floor Framing											
Joist to band joist	3	5	5	5	N/A	6	6	N/A	N/A	N/A	N/A
Ledger strip	3	4	4	4	6	4	4	N/A	N/A	N/A	N/A
Joist to sill or girder	3	3	3	3	3	4	4	N/A	N/A	N/A	N/A
Blocking between joist or rafter to top plate	3	3	3	4	3	4	4	N/A	N/A	N/A	N/A
Bridging to joist	N/A	N/A	N/A	N/A	2	3	3	3	4	3	4
Rim joist to top plate	8" o.c.	6" o.c.	6" o.c.	6" o.c.	6" o.c.	6" o.c.	4" o.c.	6" o.c.	3" o.c.	3" o.c.	3" o.c.
Built-up Girders & Beams - Spacing along edges,	24" o.c.	24" o.c.	24" o.c.	24" o.c.	16" o.c.	16" o.c.	16" o.c.	N/A	N/A	N/A	N/A
- # at ends & splices	3	3	3	3	4	3	3				
Ceiling and Roof Framing											
Ceiling joists to plate	3	4	5	5	5	5	5	6	N/A	N/A	N/A
Ceiling joists, laps over partitions	3	4	4	4	6	4	4	N/A	N/A	N/A	N/A
Ceiling joist to parallel rafter	3	4	4	4	6	4	4	N/A	N/A	N/A	N/A
Collar tie to rafter	3	4	4	4	5	4	4	N/A	N/A	N/A	N/A
Jack rafter to hip, toe-nailed	3	3	4	4	5	4	4	N/A	N/A	N/A	N/A
Jack rafter to hip, face nailed	2	3	3	3	3	4	4	N/A	N/A	N/A	N/A
Roof rafter to plate	3	3	3	3	3	4	4	5	5	5	6
Roof rafter to 2-by ridge beam (driven through beam into end of ridge)	2	3	3	3		4	4	N/A	N/A	N/A	N/A
Roof rafter to 2-by ridge beam (toe-nail rafter to beam)	2	3	3	3	3	4	4	N/A	N/A	N/A	N/A
Wall Framing											
Top or sole plate to stud (End nailed)	2	3	3	3	5	4	4	N/A	N/A	N/A	N/A
Stud to top or sole plate (toe-nailed)	3	4	4	4	5	4	4	5	5	5	5
Cap/top plate laps and intersections (each side of lap)	2	3	3	3	4	3	3	N/A	N/A	N/A	N/A
Diagonal bracing	2	2	2	2	2	3	3	3	4	4	4
Sole plate to joist or blocking @ braced panels (number per 16" joist space)	2	3	3	3		4	4	N/A	N/A	N/A	N/A
Sole plate to joist or blocking	16" o.c.	8" o.c.	8" o.c.	8" o.c.	6" o.c.	8" o.c.	8" o.c.	N/A	N/A	N/A	N/A
Double top plate	16" o.c.	16" o.c.	12" o.c.	12" o.c.	8" o.c.	12" o.c.	12" o.c.	N/A	N/A	N/A	N/A
Double studs	12" o.c.	12" o.c.	8" o.c.	8" o.c.	6" o.c.	8" o.c.	8" o.c.	N/A	N/A	N/A	N/A
Corner studs	24" o.c.	16" o.c.	16" o.c.	16" o.c.	8" o.c.	12" o.c.	12" o.c.	N/A	N/A	N/A	N/A

N/A – Fastener not applicable to connection
[1]This fastening schedule applies to framing members having an actual thickness of 1 ½"(Nominal "2-by" lumber)
[2]Fastenings listed above may also be used for other connections that are not listed but that have the same configuration and the same code requirement for fastener quantity/spacing and fastener size (pennyweight and style, e.g., 8d common, "8-penny common nail").
[3]Fastening schedule only applies to buildings of conventional wood frame construction. Connections of shear walls and floor and roof diaphragms shall be as shown on the drawings.

K. WOOD FRAMING AND CONNECTIONS

1. Install rough carpentry according to the American Institute of Timber Construction Manual. It is the responsibility of the contractor to verify all dimensions prior to erection.
2. Material:
   a. Sawn lumber
      i. Sawn lumber shall be grade stamped and visually graded with maximum 19% moisture content.
      ii. All members shall meet strength requirements in NDS "National Design Specification for Wood Construction".
      iii. Joists, rafters, and nailers with nominal depth 8" or less shall be Southern Pine (SP) or Douglas Fir-Larch (DFL), No. 2 or better, UNO.
      iv. Joists, rafters, and nailers with nominal depth greater than 8" shall be Southern Pine (SP) or Douglas Fir-Larch (DFL), No. 1 or better, UNO.
      v. All members used as columns or beams (including headers) shall be Void of any significant defects (ie. Checking, warping, etc.) at the time of erection.
      vi. All exterior posts shall be Western Red Cedar No. 2 or better.
      vii. Bearing and shear wall studs, and wall plates, shall be Douglas Fir-Larch (DFL), No. 2 or better.
   b. Structural Composite Lumber
      i. SCL shall meet material specifications in ASTM D5456
      ii. SCL shall include laminated veneer lumber (LVL), laminated strand lumber (LSL), oriented strand lumber (OSL) and parallel strand lumber (PSL)
      iii. All SCL materials shall be graded as indicated on the plans.
   c. Glued-laminated timber (GluLam) shall be manufactured and identified as required in ANSI/AITC A-190.1 and ASTM D3737.
      i. GluLam shall be graded as indicated on the plans.
   d. Structural Panels
      i. All plywood or oriented strand board (OSB) panels shall meet the strength requirements in Department of Commerce (DOC) PS 1 and PS 2 or ANSI/APA PRP 210.
      ii. All structural panels (walls, floor and roof) shall meet the Structural 1 grading standard.
   e. Connectors and Fasteners
      i. Metal connectors and associated fasteners used for the applications indicated shall meet the following minimum standards:
         1. Untreated Lumber
            a. Connectors ....ASTM A653 G90
            b. Bolts and Anchor Rods ....ASTM F1554 Gr36
            c. Nails and Staples ....ASTM F1667
         2. Sodium Borate (SBX) Pressure Treated Lumber
            a. Connectors ....ASTM A653 G90
            b. Bolts ....ASTM A307
            c. Anchor Rods ....ASTM F1554 Gr 55
            d. Nails and Staples ....ASTM F1667 with A153 Hot Dipped Galvanized
         3. All Other Pressure Treated Lumber (e.g. ACQ-C, ACQ-D, CA-B, CBA-A, ACZA)
            a. Connectors ....AISI SS Type 304 or 316
            b. Bolts ....ASTM A193, GrB7
            c. Anchor Rods ....ASTM A193, GrB7
            d. Nails and Staples ....ASTM F1667 using AISI Type 304 or 316 Stainless Steel
      ii. Fasteners utilizing dissimilar materials are prohibited.
      iii. Power driven fasteners shall comply with NES NER-272.
      iv. Fastener installation whether power driven or otherwise shall be in accordance with the Building Code and the manufacturer's recommendations. In general fastener heads shall be installed nominally flush with the outer ply of the connection. Sheathing and support framing damaged by overdriven fasteners shall be removed and replaced.
      v. Aluminum fasteners and flashing shall not be in contact with pressure treated lumber.
3. General:
   a. All light framed wood construction shall be fastened as indicated on the plans. Connections not detailed shall be fastened in accordance with the table below.
   b. Sill plates shall be anchored to the foundation as shown on the drawings.
   c. Plywood/OSBS wall, floor or roof sheathing shall be fastened per the requirements shown on the drawings.
   d. Splicing of structural members is not permitted under any circumstances.
   e. All framing in direct contact with water, soil, concrete, masonry, or permanently exposed to weather shall be preservative treated lumber in accordance with the AWPA Standard U1 and M4
   f. All framing indicated to be fire-retardant treated or fire resistive on the drawings (Architectural or Structural) shall comply with AWPA U1 UCFA, Type A or ICC-ES ESR 2645 and shall have UL FR-S surface burning characteristics.
   g. All wood shall be stored on site and protected from the elements to prevent warping, cupping, bowing, crooking and twisting. Use only material that is straight. All stored wood shall be held off the ground with sacrificial dunnage blocks.
   h. Wood connectors shall be installed to prevent wood from splitting or otherwise damaging either member.
   i. All wood denoted as requiring fire-resistive treatment shall be pressure treated according to AWPA Standard requirements.
   j. Use 4x4, 4x6 and 6x6 columns as shown on plans. Built-up sections of 2x studs shall not be substituted for timber posts.
   k. All multi-ply beams, joists and headers shall be fastened together.
      i. Fasten sawn lumber members per schedule below.
      ii. Fasten structural composite lumber per manufacturer's literature.
   l. Standard cut washers shall be used under bolt heads and nuts bearing against wood, unless noted otherwise per shear wall anchorage details.
   m. Wall studs are designed based on being fully braced by sheathing. Design of temporary or permanent blocking or bridging for support of construction loads by unsheathed walls is the responsibility of the contractor.
   n. Wood joists shall bear on the full width of supporting members (stud walls, beams, nailers, etc.) unless noted otherwise.
   o. Subject to compliance with the project requirements, wood connectors, joist hangers, post caps and bases, holdowns, and related hardware shall be manufactured by Simpson Strong-Tie Company, Inc. or approved equal.
      i. Contractor shall follow the manufacturer's latest recommendations for installation of connectors.
      ii. Other manufacturers may be acceptable. Submit substitution request demonstrating that the proposed hardware has the same or greater capacity for each connection. Allow two weeks for review.
   p. All beams and joists not bearing on supporting members shall be framed with Simpson joist hangers. Use joist hangers per schedule and details. The joist hangers shall be installed using nails or screws supplied by the hanger manufacturer as required for the hanger type.
   q. Sill plates of all bearing walls on concrete shall be anchored with anchors as shown on the drawings. Sill plate anchors shall be located a maximum of 1'-0" from corners, ends of walls and sill plate splices. Provide (2) anchors minimum in each sill plate segment Refer to plans and details for shear wall anchorage requirements.
   r. Nailers shall be anchored to steel beams and columns with 1/2" diameter A307 bolts with required washers at a maximum spacing of 24" on center (alternate sides), unless noted otherwise.
   s. Wall studs, jamb studs, and beam support studs shall have adequate vertical blocking installed to transfer all vertical loads to the foundation.
4. Wood Floor and Roof Trusses:
   a. Provide wood trusses capable of withstanding the design loads within the limits and under the conditions indicated. Truss design shall be in accordance with the Building Code and TPI-1 Nation Design Standard for Metal Plate Connected Wood Truss Construction.
   b. Metal gusset plates shall be designed, manufactured, and approved according to IBCO requirements.
   c. Wood trusses shall be of sawn lumber with 2x nominal thickness.
   d. In addition to the loads indicated below and in section "A. Design Criteria", wood trusses shall be designed for all applicable wind, seismic, and snow (including drift) loads required by Building Code and noted on plans.
   e. Truss design and shop drawing preparation shall be supervised by a registered professional engineer licensed in the state where the project is located. Submittals shall be signed and sealed and include comprehensive truss layout plans and design calculations that indicate species and grades of lumber, design stresses, size and type of connector plates used.
   f. Fabricator shall determine truss diagonal locations. Truss configurations shown on drawings are diagrammatic only. Bearing points shall coincide with intersections of diagonals and chords. All dimensions shall be determined by the truss manufacturer. The manufacturer and contractor shall coordinate all architectural and MEP components with the truss layout and profile.
   g. The manufacturer shall provide all open web trusses and accessories as shown on the structural and architectural drawings and as required for a complete project. This includes all blocking, bridging, bracing, and drag components required for construction.
   h. All truss-to-truss connections and truss to supporting member connections shall be designed and detailed by the truss supplier and the size and type of connectors included in the sealed shop drawing submittal. Coordinate size, species, and grade of supporting chord and web members with the truss hanger selected.
   i. All temporary and permanent bracing shall be in accordance with the TPI standards for bracing. The bracing shall be furnished and installed by the Contractor. Do not use ceilings as uplift bracing at truss bottom chord.
   j. Girder trusses shown on drawings shall be designed to carry concentrated reactions from supported members. Girder trusses shall not be located directly above openings unless coordinated with the Structural Engineer.
   k. Wood trusses shall be handled and erected in accordance with TPI HIB-91. Trusses shall be unloaded and stored in bundles in an upright position out of contact with the ground until ready for installation.
   l. Any damage to the trusses shall be brought to the immediate attention of the Structural Engineer and truss supplier. Field repair and modification of trusses shall not be made with prior written approval from the supplier, except for nominal trimming to correct length where such trimming will not impair the load carrying capacity of the truss
5. Roof trusses shall be designed for the following:
   TC DL = 10 psf   TC LL = 20 psf   TC SL = 20 psf   C&C TC WL = +24/-48 psf   MWFRS TC WL = ±17 psf
   BC DL = 10 psf   BC LL = N/A   C&C BC WL = ±5 psf   MWCRS BC WL = ±5 psf
   End/Parapet C&C WL = +89/-60 psf
   Unbalanced Snow Load:
   Balanced TC SL = 14psf   Drift Surcharge TC SL = 36 psf   Drift Width = 17'-3"
6. Floor trusses shall be designed for the following loads:
   TC DL = 17 psf + 15psf partition dead load   TC LL = 40/100/125 psf
   BC DL = 10 psf   BC LL = ±5 psf
   (Coordinate LL with Architectural plans and general note section "A. Design Criteria")
7. The allowable deflection is:
   a. Roof Trusses
      i. Total Load: L/240
      ii. Roof Live or Snow Load: L/360
      iii. Absolute Maximum: 1.5"
   b. Floor Trusses
      i. Total Load: L/360
      ii. Live Load: L/480
      iii. Absolute Maximum: 1"

L. WOOD SHRINKAGE

1. IBC 2304.3.3 requires that architectural, mechanical, electrical, and plumbing systems be designed to accommodate movement due to shrinkage. McClure Engineering Co. takes no responsibility for the naturally occurring shrinking that will occur.
2. Estimated values are based upon the following moisture content:
   a. At installation (MC) = 19%
   b. At equilibrium (EMC) = 8%
3. The following recommendations are intended to minimize the potential issues associated to wood shrinkage. Implementation and liability are ultimately up to the contractor or design professional responsible for the impacted trade.
   a. Mechanical, Electrical, Plumbing
      i. Allow construction gaps in the wood framing to close by delaying installation of MEP as long as possible to allow for additional dead load to be installed.
      ii. Provide oversized or long slotted holes at pipe penetrations. Holes must be within conformance of typical penetration details.
      iii. Rigid connections shall be adjusted before completion of construction of closing of wall and ceiling assemblies.
      iv. All vertical sheet metal down spouts shall have intermediate slip joints.
      v. Roof Drains shall utilize adjustable fittings. Fittings must be adjusted at the completion of construction and then as required to maintain proper drainage.
   b. Architectural Considerations
      i. Stucco, EIFS and brittle finishes shall have horizontal expansion joints, slip joints with appropriate waterproofing.
      ii. Brick and stone finishes shall have ties that accommodate differential movement.
      iii. Provide adjustable thresholds or transitions at rigid transitions such as CMU or concrete stair and elevator shafts.
   c. Construction tolerance
      i. Limit shortening due to nesting by cutting all studs level square and tight against plates.
      ii. Structural wood panels shall have ½" relief gaps at each floor to limit bulging.
      iii. Floor sheathing shall have 1/8" gaps on all sides during installation to accommodate movement.
      iv. Shear wall hold downs shall be check and retightened immediately prior to sheathing walls.
      v. Delay gyp topping around concrete and CMU stair or elevator shafts until competition of construction.
   d. Material storage
      i. Stored materials shall be covered and elevation from the elements.
      ii. Do not allow water to pond on floor sheathing. Provide drain holes if required to allow water to quickly drain if water does temporar-ily pond.
   e. Post occupancy
      i. McClure recommends a review of roof drains every 3 months for the first 24 months of occupancy and then annually. Adjust drains as required to maintain watertight integrity.
      ii. McClure recommends review of joints at exterior doors, windows and finish transitions. Waterproof as needed where original joints fail per the architect's recommendations.
      iii. Remedial self-leveling work may be required around concrete or CMU stair and elevator towers to accommodate shrinkage.

M. STEEL FLOOR AND 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. Parallel edges of deck to be fastened with the same fastener type and spacing as at supporting members. 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 manufacturer 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. 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. Main Floor Slab: 5 1/2" Total Depth Lightweight Concrete with 3" Composite Deck
         a. Reinforcing: 6x6-W1.4xW1.4 Welded Wire Mesh
         b. Deck: 3" Composite 20 Ga:
            t_{min} = 0.0358", I_p = 0.919 in^4/ft I_n = 0.6921 in^4/ft, S_p = 0.512 in^3/ft, S_n = 0.539 in^3/ft, F_y = 50ksi,
         c. Maximum Unshored Spans: Single Span = 12'-2", Double Span = 13'-1", Triple Span = 13'-7"
      ii. Balcony Structural Slab: 2 1/2" Total Depth Lightweight Concrete With 9/16" form deck
         a. Reinforcing: 6x6-W1.4xW.14 Welded Wire Mesh
         b. Deck: 9/16" non-composite 28 Ga.:
            t_{min} = .0149", I_p=0.012 in^4/ft I_n=0.012 in^4/ft, S_p=0.035 in^3/ft, S_n=0.036 in^3/ft, F_y=60 ksi,
   b. Composite deck to be fastened to supports with Hilti X-ENP-19-L15 PAFs.
      i. Typical Fastening:
         (1) PAF per rib
         PAFs 36" at o.c. along panel edges
         #10 screw sidelap fasteners at 36" o.c.
      ii. Fastening within 30 ft of cmu walls:
         (2) PAFs per rib + (1) PAF every other rib
         PAFs at 4" o.c. along panel edges
         Sidelap fasteners at 4" o.c.
   c. Non-composite floor deck shall be fastened to supports with X-ENP-19-L15 PAFs with 30/4 pattern, with 0 sidelap fasteners.
   d. Metal floor deck shall be galvanized in accordance with the requirements of ASTM A653-94 G90.

N. 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
2,000	2000	2650

5. Mortar for unit masonry shall be proportioned per ASTM C270. The minimum mortar compressive strength is as follows:
   a. Type S: 1,800 psi
   b. 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
#3	12"
#4	17"
#5	27"
#6	51"
#7	69"
#8	105"
#9	132"

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

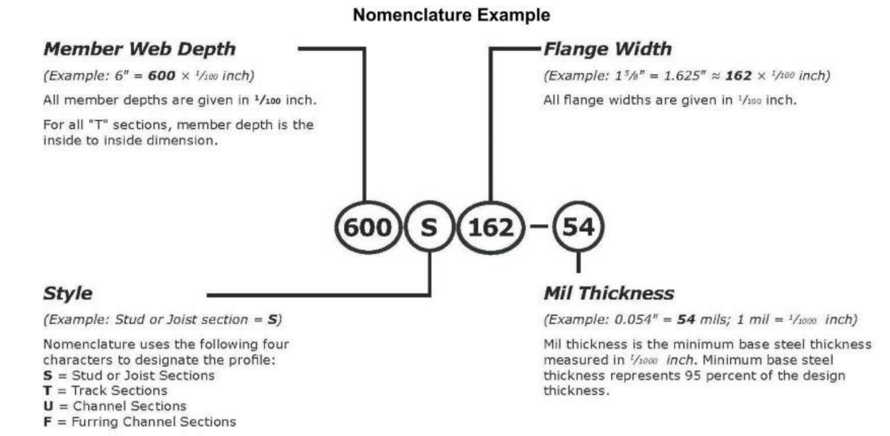
16. Brace all masonry walls until floor and roof framing and metal deck are installed.
    a. Design and installation of bracing is the responsibility of the masonry contractor.
    b. Submit bracing plan for review.
17. When grouting is stopped for more than one hour, horizontal construction joints 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.

O. COLD FORMED STRUCTURAL STUD FRAMING

1. Any dimensional information shown is included for engineering purposes only. It is the responsibility of the contractor to verify building dimensions with the A/E and MEP drawings and to comply with all other requirements of the Contract Documents.
2. All materials shall have 33 ksi minimum yield strength, except studs and track of 16 gauge or heavier shall have a minimum yield strength of 50 ksi.
3. All material properties, fabrication, and erection shall be in accordance the latest edition of the AISI "Specifications for the Design of Cold-Formed Structural Members."
4. Any proprietary connectors shown have been selected based on specifications and capacities published by the manufacturer. Weld design values have been based on the latest edition of the AISI "Specifications for the Design of Cold-Formed Structural Members." Any deviance from the brand, type, size or quantity of connectors indicated on these drawings must be approved by the engineer prior to construction.
5. All framing components shall be cut squarely or at an angle to fit squarely against abutting members. Splicing of axially loaded members shall not be permitted. Members shall be held firmly in place until properly fastened. Attachments of similar components shall be by welding, screw attachment, or bolting. Wire tying of components is not permitted.
6. All field cutting of members shall be done by sawing, drilling, or shearing. Torching is not permitted.
7. Special anchorage requirements required for wind and seismic bracing shall be as shown on the plans.
8. Members shall not be spliced other than at the locations indicated on the drawings. All splices shall conform to the details in the drawings.
9. The Contractor shall verify sizes and locations of structural components where members attach.
10. All load bearing joists shall have blocking with a maximum spacing of 8'-0" on center, attached per details.
11. CFS wall studs have been designed to support floor/roof load tributary to them. Masonry veneer is assumed to be self-supported and transferred to the foundation/podium. CFS framing has been designed to laterally support veneer where applicable.
12. No notching or coping of any framing member is allowed, unless stated within this drawing package.
13. Per AISI standard for cold-formed framing- wall design, the maximum allowable gap (measured between the web of the stud and of the track) for a stud seated in a track is 1/4" for non-axial load bearing conditions and 1/8" for axial load bearing conditions (U.N.O.) Pressure should be applied to nest the studs into the tracks until the tolerances listed above are achieved. Failure to do so could result in serviceability problems in the future.
14. CFS wall studs have been designed to support floor/roof load tributary to them. Masonry veneer is assumed to be self-supported and transferred to the foundation/podium. CFS framing has been designed to laterally support veneer where applicable.
15. Product Identification:
    a. The designations of the Steel Stud Manufacturer Association are used in this package. Any Manufacturer whose product geometry meets or exceeds SSMA standards is acceptable. See below for SSMA nomenclature.
    b. The Last Two Numbers Indicate the Steel Thickness:

Gage	Design	Minimum	SSMA
20	0.0346"	0.0329"	33 mils
18	0.0451"	0.0428"	43 mils
16	0.0566"	0.0538"	54 mils
14	0.0713"	0.0677"	68 mils
13	0.0840"	0.0798"	84 mils
12	0.1017"	0.0966"	97 mils

Nomenclature Example



O.1. COLD FORMED CONNECTIONS

1. All fasteners are to be installed per the manufacturer's recommendations. Do not substitute fasteners without written permission from Engineer.
2. PAF point must penetrate through full base steel thickness. Notify PAF manufacturer for instructions where full penetration is not achieved.
3. If required, all welded connections are to be performed in accordance with the latest version of AWS D1.3 Structural Welding Code – Sheet Steel. Consult AWS D19.0 Welding Zinc Coated Steel & ANSI Standard Z49.1 for information regarding safe welding procedures.
4. Minimum weld throat thickness (t) must match or exceed the base steel thickness of the thinnest connected part unless noted otherwise.
5. In welding, the zinc coating on steel framing will be burned away; therefore, a zinc rich paint must be applied to the weld area to provide corrosion resistance.
6. All screw connections are based on AISI S100 Section J4, which outlines the AISI Specification provisions for screw connections. Screw penetration through joined materials shall not be less than three exposed threads.
7. For screws, a minimum of 1.5 x screw diameter clearance must be maintained from all edges of the steel members. A minimum of 3.0 x screw diameter on-center spacing must be maintained between adjacent screws.
8. Power driven fastener systems, expansion anchor systems, masonry screw systems, & adhesive anchor systems connections are based on literature for fastener requirements (e.g. spacing, edge distance, base material thickness, etc.) Alternate manufacturer's fasteners of equivalent specifications & load capacities are acceptable.
9. All Tracks shall be fastened to each stud with #8 screws at each flange (min.).

P. POWER-ACTUATED FASTENERS (PAFS)

1. This section applies to all driven pin installation methods (e.g. powder, pneumatic, electric), regardless of terminology employed.
2. All PAFs shall be of the brand, size, and quantity indicated in the sections or details.
3. All PAFs shall be Hilti 0.157"Ø X-U, U.N.O
4. PAF length is dependent on installation penetration requirement in base material:
   a. For concrete: PAFs shall have an embedment of 1-1/2".
   b. For steel, the required penetration is dependent on the thickness of the steel substrate. The contractor shall select a PAF that satisfies the following requirements:
      i. For steel 1/2"thickness or less, PAFs must penetrate through the full base steel thickness.
      ii. For steel thickness greater than 1/2", PAFs must penetrate the steel to a depth of at least 1/2" and the head of the PAF shall be flush with the surface.
   c. For concrete masonry units (CMU): The PAF must penetrate 1" into the substrate.
   d. The contractor must consider the thickness of the component attached to the substrate material to ensure adequate penetration or embedment. A PAF that is equal in length to the specified penetration or embedment is inadequate to comply with this requirement.
5. Refer to PAF spacing and edge distance general details for minimum spacing and edge distance requirements in all base materials.
6. Notify the manufacturer for instructions if PAFs are not driven flush to surface.
7. Do not re-drive PAFs if they do not drive completely on the first charge. Remove and replace the PAF in question or contact the manufacturer for specific alternative instructions.
8. PAFs shall not be installed into concrete until the concrete has achieved the minimum compressive strength listed in the concrete requirements of the structural general notes.
9. PAFs shall not be driven into steel that is 3/16" thick or less. Notify McClure for alternate connection options.
10. PAFs driven into existing concrete may cause damage. The contractor is responsible for ensuring anchors do not damage existing structure. Notify McClure if alternate anchorage requirements are needed to protect existing concrete.
11. PAFs have limited use in seismic applications. Additional anchorage may be required as indicated in the details. Deferred submittals shall fully consider the most restrictive implications of ASCE 7 Section 13.1.4. and the manufacturer's product ESR for use of PAFs to resist seismic loads.
12. PAF installers must be certified by the manufacturer of the PAFs being installed.
13. PAFs shall not be substituted without the written approval of McClure prior to fabrication. Requests after installation may incur additional charges for evaluation.

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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

11/12/2024

THE VILLAGE AT DISCOVERY - LOT 7
LEE'S 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 Soils
x Cast-In-Place Foundations Elements	x Rammed Aggregate Piers
o Helical Pile Foundations	o Cast-In-Place Deep Foundation Elements
x Concrete Construction	x Masonry Construction - Level 1
x Masonry Construction - Level 2-3	x Structural Steel Construction
o Steel Construction Other than Structural Steel	x Wood Construction
x Seismic Resistance	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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THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

SHEET TITLE
STRUCTURAL SPECIAL INSPECTIONS SCHEDULES

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S003

WOOD SHEAR WALL SCHEDULE						
Mark	Level	Sheathing/ Fastener Layout	Post	Hold-Down	Min. Sill/Top Plate	Base Connection
SWA	Level 3	(1) Sided, Wood Structural Panels - Sheathing - 15/32" Thick, 10d Nail, 6" Edge fastening Unblocked	(2) 2x6	MST48 w/ (26) 0.162x2-1/2" nails	(1) 2x6	(2) 10d Nails @ 8" o.c.
	Level 2	(1) Sided, Wood Structural Panels - Sheathing - 15/32" Thick, 10d Nail, 6" Edge fastening	(2) 2x6	HTT4 w/ (18) 0.148Øx1-1/2" & 5/8"Ø Anchor Rod	(1) 2x6	3/8''Ø Kwik HUS EZ w/ 1-7/8'' embed @ 16'' o.c.
SWB	Level 3	(1) Sided, Wood Structural Panels - Sheathing - 15/32" Thick, 10d Nail, 6" Edge fastening	(3) 2x4 or (3) 2x6	MST48 w/ (34) 0.162x2-1/2" nails	(1) 2x6	(2) 10d Nails @ 8" o.c.
	Level 2	(1) Sided, Wood Structural Panels - Sheathing - 15/32" Thick, 10d Nail, 6" Edge fastening	(3) 2x4 or (3) 2x6	HDQ8-SDS3 w/ (20) 1/4"Øx3" SDS screws & 7/8"Ø Anchor Rod	(1) 2x6	3/8''Ø Kwik HUS EZ w/ 1-7/8'' embed @ 12'' o.c.
SWC	Level 3	(1) Sided, Gypsum Wallboard - 5/8" Thick, 6d Nail, 7" Edge Fastening, 16"O.C. Blocked	(3) 2x4	LSTA15 w/ (12) 0.148"x2-1/2" nails	(1) 2x4	(1) 10d Nail @ 12" o.c.
	Level 2	(1) Sided, Gypsum Wallboard - 5/8" Thick, 6d Nail, 4" Edge Fastening, 16"O.C. Blocked	(3) 2x4	DTT2Z w/ (8) 1/4"Øx1-1/2" SDS screws & 1/2"Ø Anchor Rod	(1) 2x4	3/8''Ø Kwik HUS EZ w/ 1-7/8'' embed @ 48'' o.c.
SWD	Level 3	(2) Sided, Gypsum Wallboard - 5/8" Thick, 6d Nail, 7" Edge Fastening, 16"O.C. Blocked	(2) 2x4 or (2) 2x6	MSTA 49 w/ (26) 0.148X2-1/2" nails	(1) 2x4	(2) 10d Nails @ 16" o.c.
	Level 2	(2) Sided, Gypsum Wallboard - 5/8" Thick, 6d Nail, 7" Edge Fastening, 16"O.C. Blocked	(3) 2x4 or (3) 2x6	DTT2Z w/ (8) 1/4"Øx1-1/2" SDS screws & 1/2"Ø Anchor Rod	(1) 2x4	3/8''Ø Kwik HUS EZ w/ 1-7/8'' embed @ 24'' o.c.

Notes:
1. See S530 for typical shear wall framing
2. All hold down anchors to be welded to embeds or beams as detailed.
3. All threaded rods shall be F1554 GR105
4. Floor to floor strap ties at top of wall shall match that of the floor above.
5. All hold downs and strap ties are Simpson Strong-Tie brand, U.N.O.
6. Bottom sill plate connections shall have a 3"x3"x1/4" steel plate washer at each anchor bolt on shear walls only.
7. All drag trusses shall be connected to shear walls per detail 4/S530.
8. Provide floor to floor strapping on the same side as the OSB sheathing.
9. Field fastening for all sheathing to be 12" O.C. U.N.O
10. All shear walls to be blocked at all pael joints unless noted "Unblocked."
11. Criteria for double wall shear wall to apply to both walls. For example shear wall "D" requires both walls to be sheathed on both sides with gypsum wall board.

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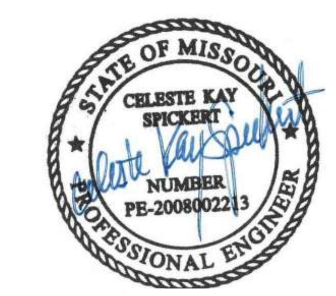


11/12/2024

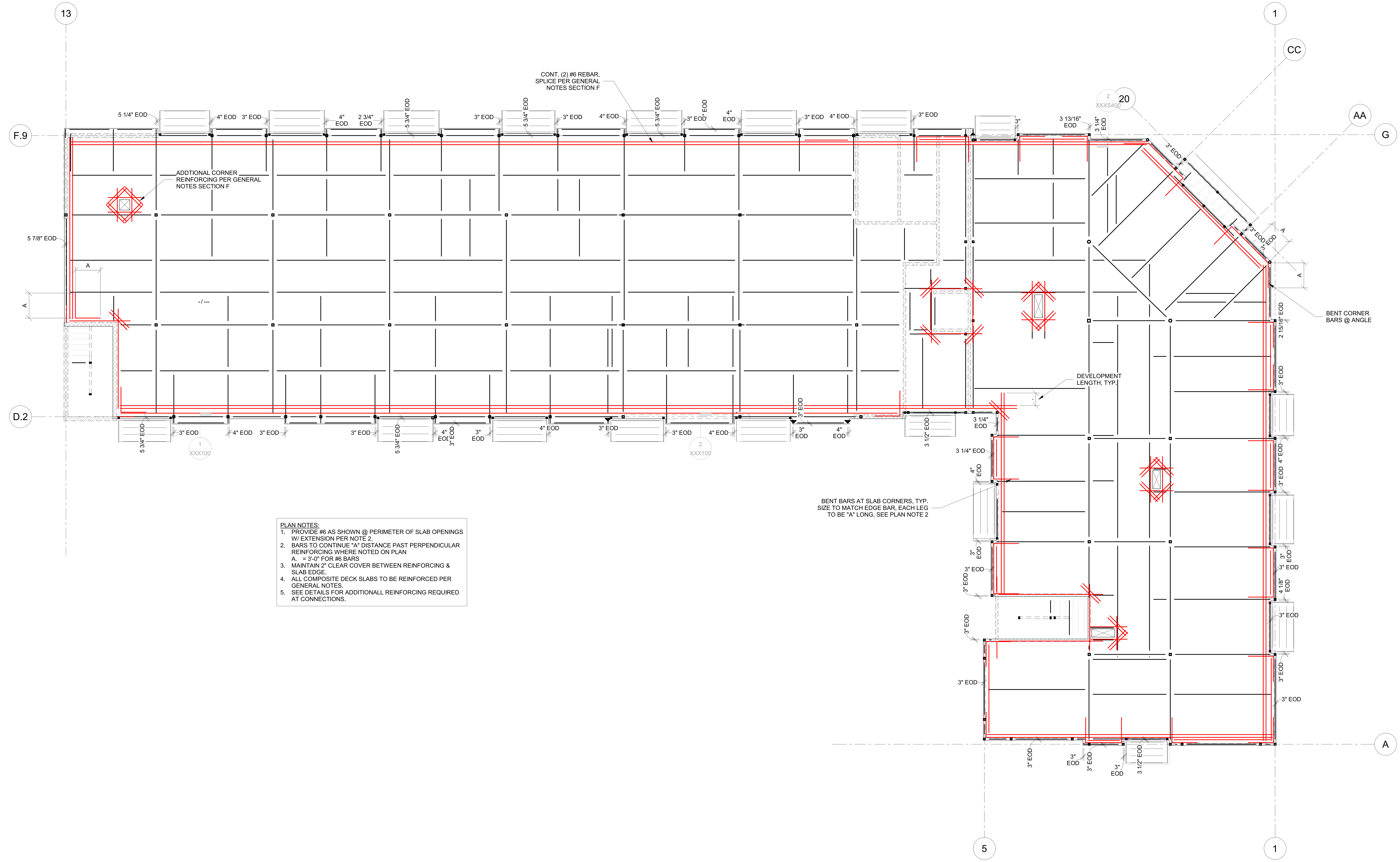
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

SHEET TITLE
SCHEDULES

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S004



PLAN NOTES:
1. PROVIDE #6 AS SHOWN @ PERIMETER OF SLAB OPENINGS W/ EXTENSION PER NOTE 2.
2. BARS TO CONTINUE "A" DISTANCE PAST PERPENDICULAR REINFORCING WHERE NOTED ON PLAN
   A. = 3'-0" FOR #6 BARS
3. MAINTAIN 2" CLEAR COVER BETWEEN REINFORCING & SLAB EDGE.
4. ALL COMPOSITE DECK SLABS TO BE REINFORCED PER GENERAL NOTES.
5. SEE DETAILS FOR ADDITIONALL REINFORCING REQUIRED AT CONNECTIONS.

1 LEVEL 2 - REINFORCING PLAN
S005 3/32" = 1'-0"

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

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THE VILLAGE AT DISCOVERY - LOT 7
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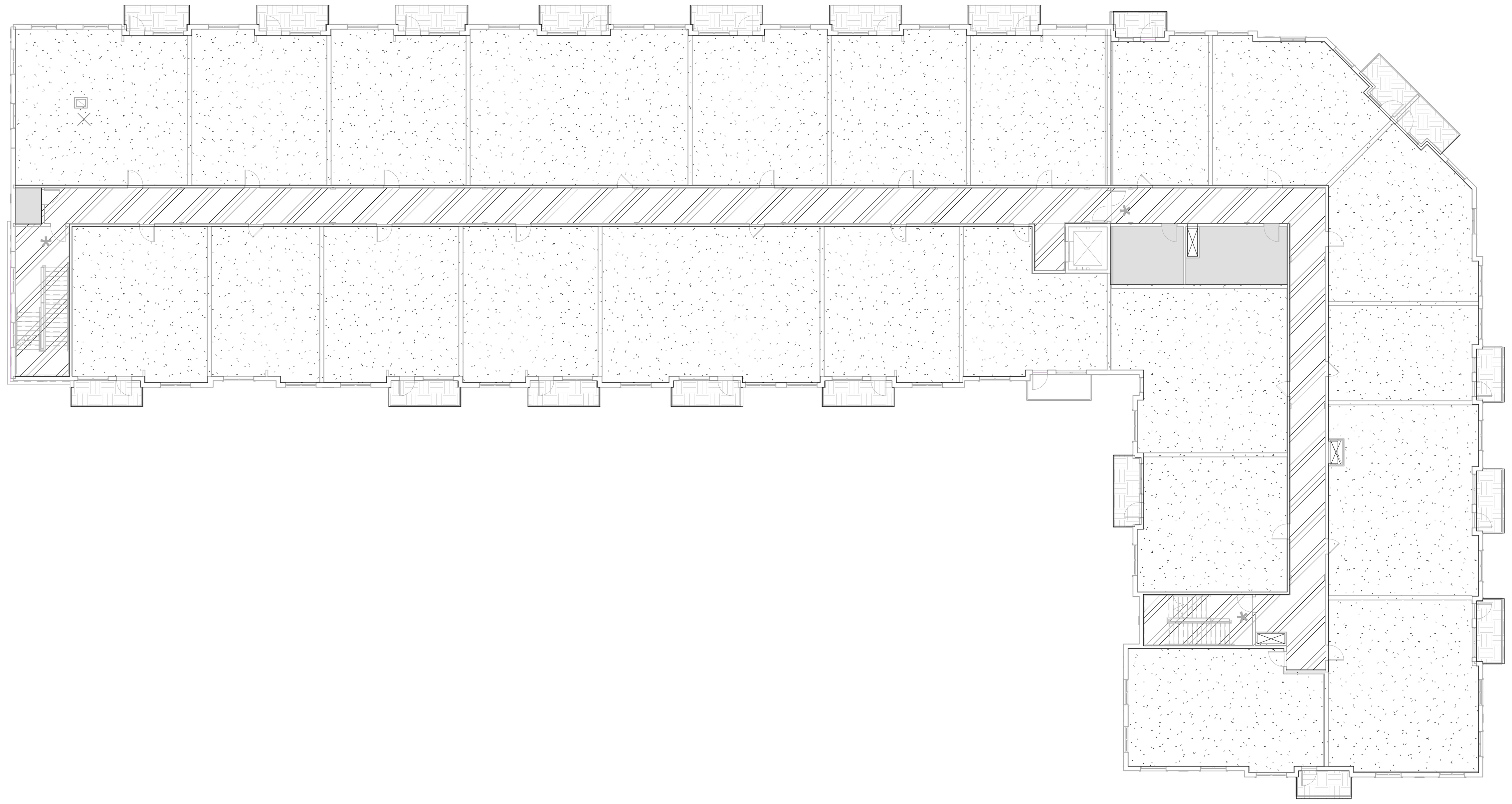
SHEET TITLE
LEVEL 2 REINFORCING PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:
S005



1 LEVEL 2 & 3 LOAD PLAN
S006 1" = 20'-0"

2 ROOF - LOAD PLAN
S006 1" = 20'-0"

LOADING PLAN NOTES:

1. RESIDENTIAL
   - A. SUPERIMPOSED DEAD LOAD — 15 PSF
   - B. LIVE LOAD — 40 PSF
2. PUBLIC
   - A. SUPERIMPOSED DEAD LOAD — 5 PSF
   - B. LIVE LOAD — 100 PSF
3. MECHANICAL/STORAGE
   - A. SUPERIMPOSED DEAD LOAD — 5 PSF
   - B. LIVE LOAD — 125 PSF
     - a. LIVE LOAD INCLUDED IN SEISMIC WEIGHT OF BUILDING
4. BALCONY
   - A. DEAD LOAD — 80 PSF
   - B. LIVE LOAD — 60 PSF
5. TYP. ROOF LOAD
   - A. SUPERIMPOSED DEAD LOAD — 7 PSF
   - B. MECHANICAL UNITS AS INDICATED ON PLAN (DEAD)
   - C. ROOF LIVE LOAD — 20 PSF
   - D. SNOW LOAD (UNIFORM/BALANCED) — 14 PSF
     - a. APPLIED SIMULTANEOUSLY WITH DRIFT PER PLAN
   - E. RAIN SURCHARGE ON SNOW — 5 PSF

NOTE: SUPERIMPOSED DEAD LOADS ARE IN ADDITION TO TYPICAL FLOOR DEAD LOAD OF 27 PSF AND TYPICAL ROOF DEAD LOAD OF 20 PSF

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THE VILLAGE AT DISCOVERY - LOT 7

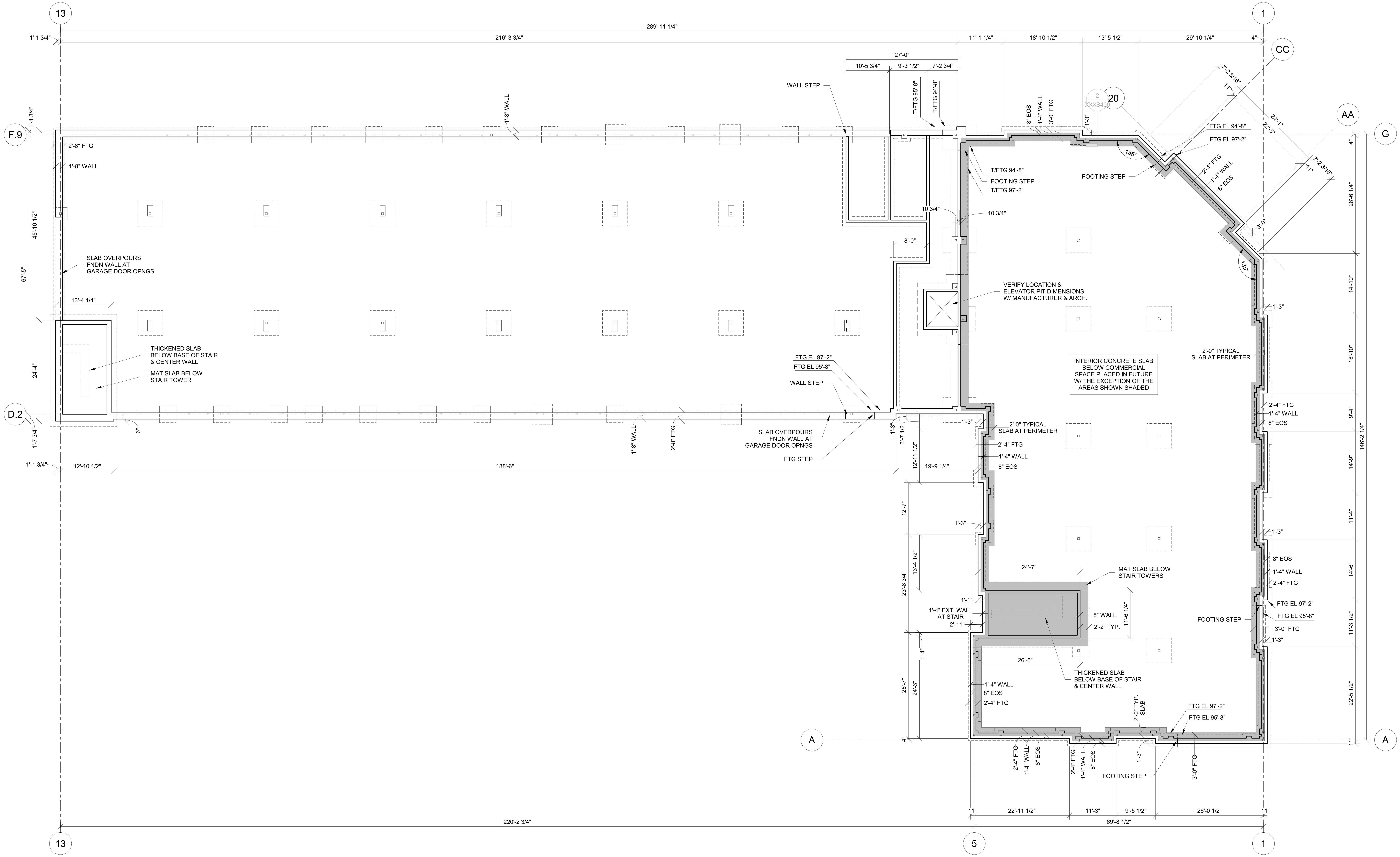
LEE'S SUMMIT, MO 64064

SHEET TITLE
LOAD PLANS

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S006



1 T.O. FIRST FLOOR SLAB
S099 3/32" = 1'-0"

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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

11/12/2024

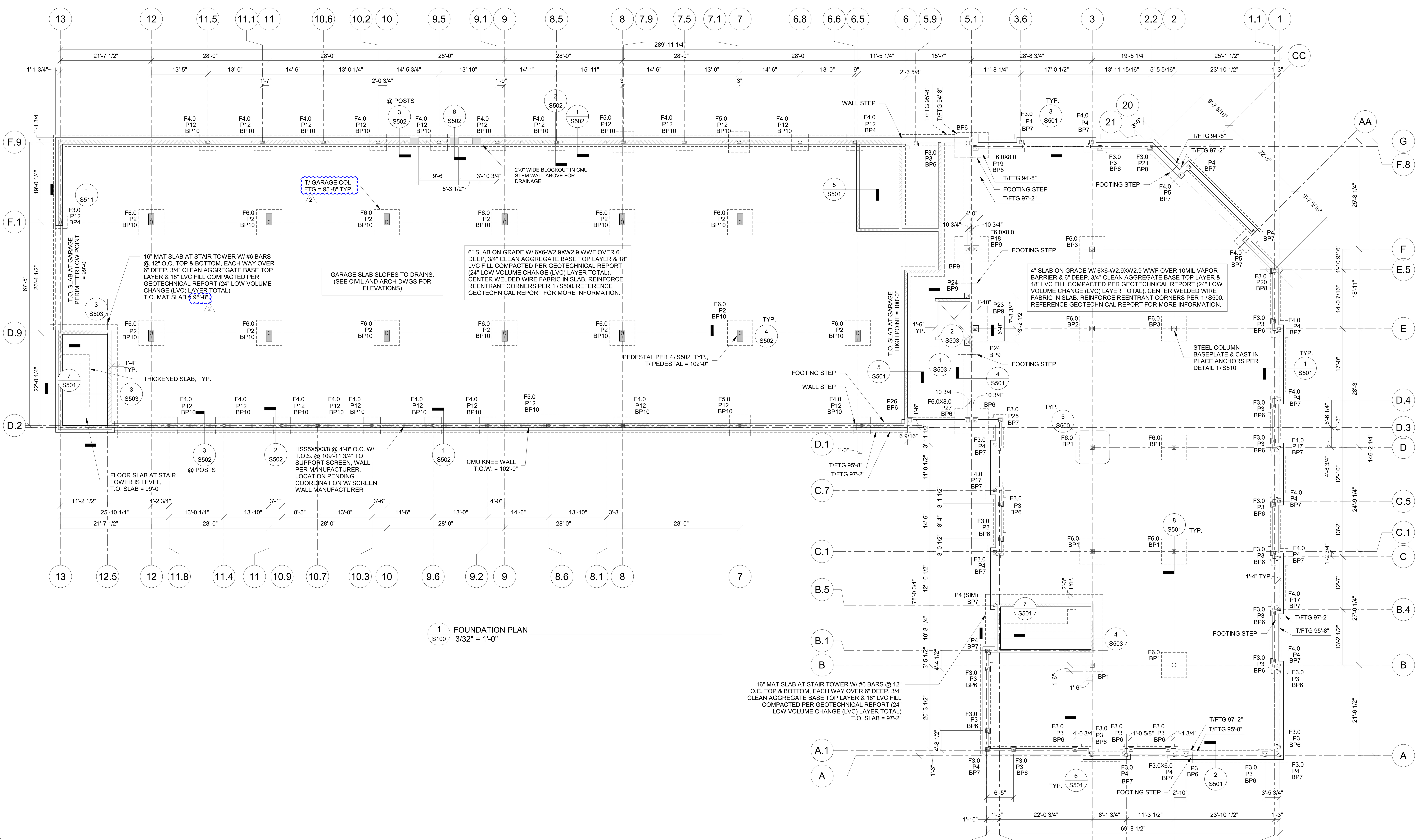
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

SHEET TITLE
FOUNDATION WALL & SLAB ON GRADE DIMENSION PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S099



1 FOUNDATION PLAN
S100 3/32" = 1'-0"

FOOTING SCHEDULE		
Mark	Size	Reinforcing
F3.0	3'-0"X3'-0"X1'-0"	(3) #5 BARS, BOTTOM EACH WAY
F4.0	4'-0"X4'-0"X1'-0"	(4) #5 BARS, BOTTOM EACH WAY
F5.0	5'-0"X5'-0"X1'-0"	(5) #5 BARS, BOTTOM EACH WAY
F6.0	6'-0"X6'-0"X1'-4"	(6) #5 BARS, BOTTOM EACH WAY
F3.0X6.0	3'-0"X6'-0"X1'-0"	(6) #5 BARS, BOTTOM SHORT (3) #5 BARS, BOTTOM LONG
F4.0X6.0	4'-0"X6'-0"X1'-0"	(6) #5 BARS, BOTTOM SHORT (4) #5 BARS, BOTTOM LONG
F6.0X8.0	4'-0"X6'-0"X1'-0"	(8) #5 BARS, BOTTOM SHORT (6) #5 BARS, BOTTOM LONG

Notes:
1. All footings must be centered on walls and columns U.N.O.

FOUNDATION PLAN LEGEND

- F#.# FOOTING TYPE
- P# PEDESTAL TYPE
- BP# BASE PLATE TYPE (SEE SHEET S503 FOR BASE PLATE AND ANCHOR DETAILS)
- CMU WALL ABOVE

FOUNDATION PLAN NOTES:

1. SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEAVTION. FOR REFERENCE ELEVATIONS, SEE BELOW (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS).
   - LEVEL 01 T.O. SLAB 100'-0"
   - PARKING T.O. SLAB VARIES, SEE PLAN
2. SEE SHEET S099 FOR FOUNDATION WALL DIMENSIONS.
3. PROVIDE CONTROL JOINTS IN SLAB ON GRADE PER DETAIL 4 / S500 AND PER GENERAL NOTES.
4. PLUMBING FIXTURES AND FLOOR DRAINS ARE TO BE COORDINATED PER ARCH. & MEP DRAWINGS.
5. REFER TO MANUFACTURER'S GUIDELINES FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS.
6. SEE SHEETS S500 AND S501 FOR FOUNDATION DETAILS.

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THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

SHEET TITLE
FOUNDATION PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:
S100

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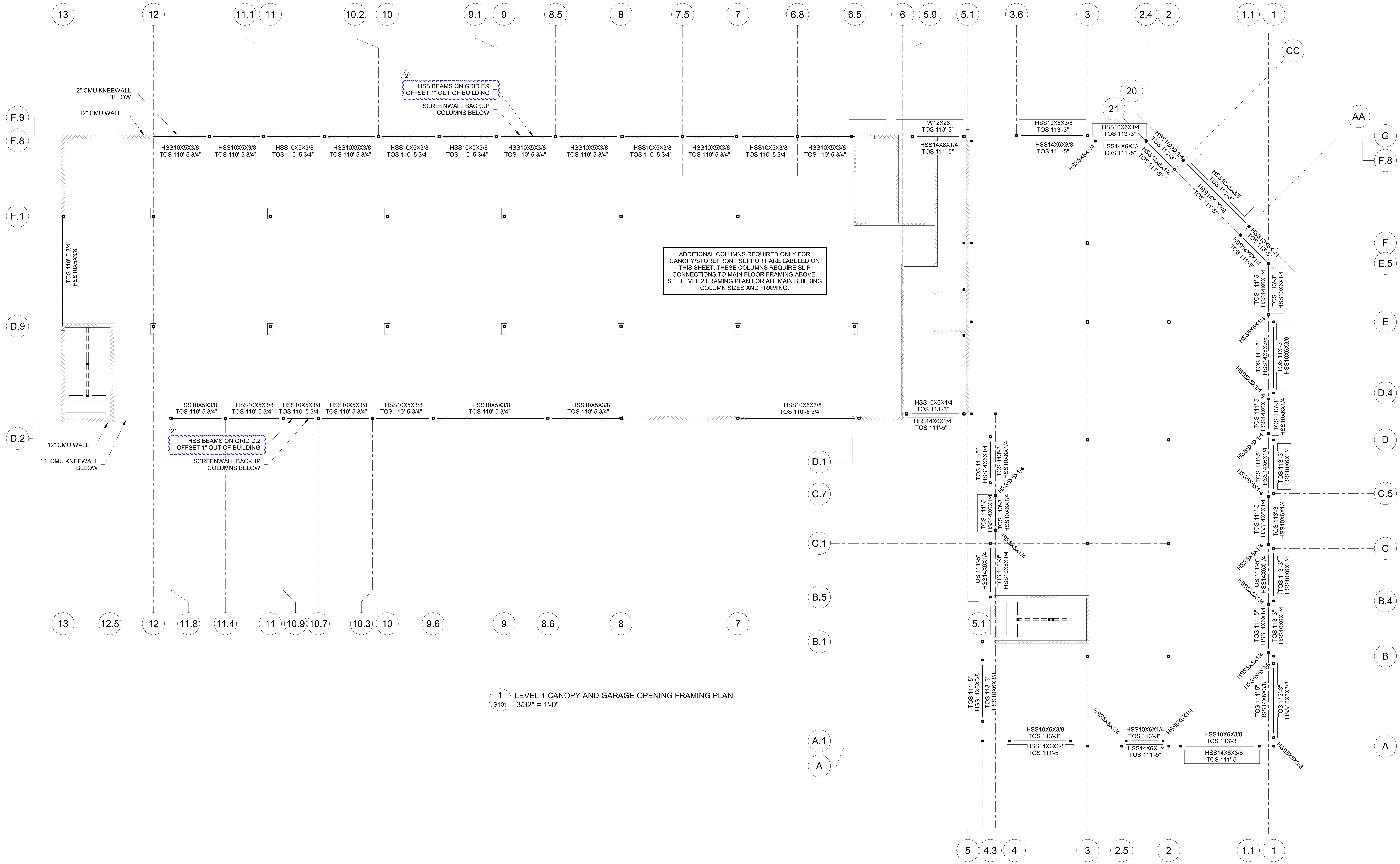

1 LEVEL 1 CANOPY AND GARAGE OPENING FRAMING PLAN
S101 3/32" = 1'-0"

NOTE:
HSS BEAM ELEVATIONS ADJUSTED

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THE VILLAGE AT DISCOVERY - LOT 7
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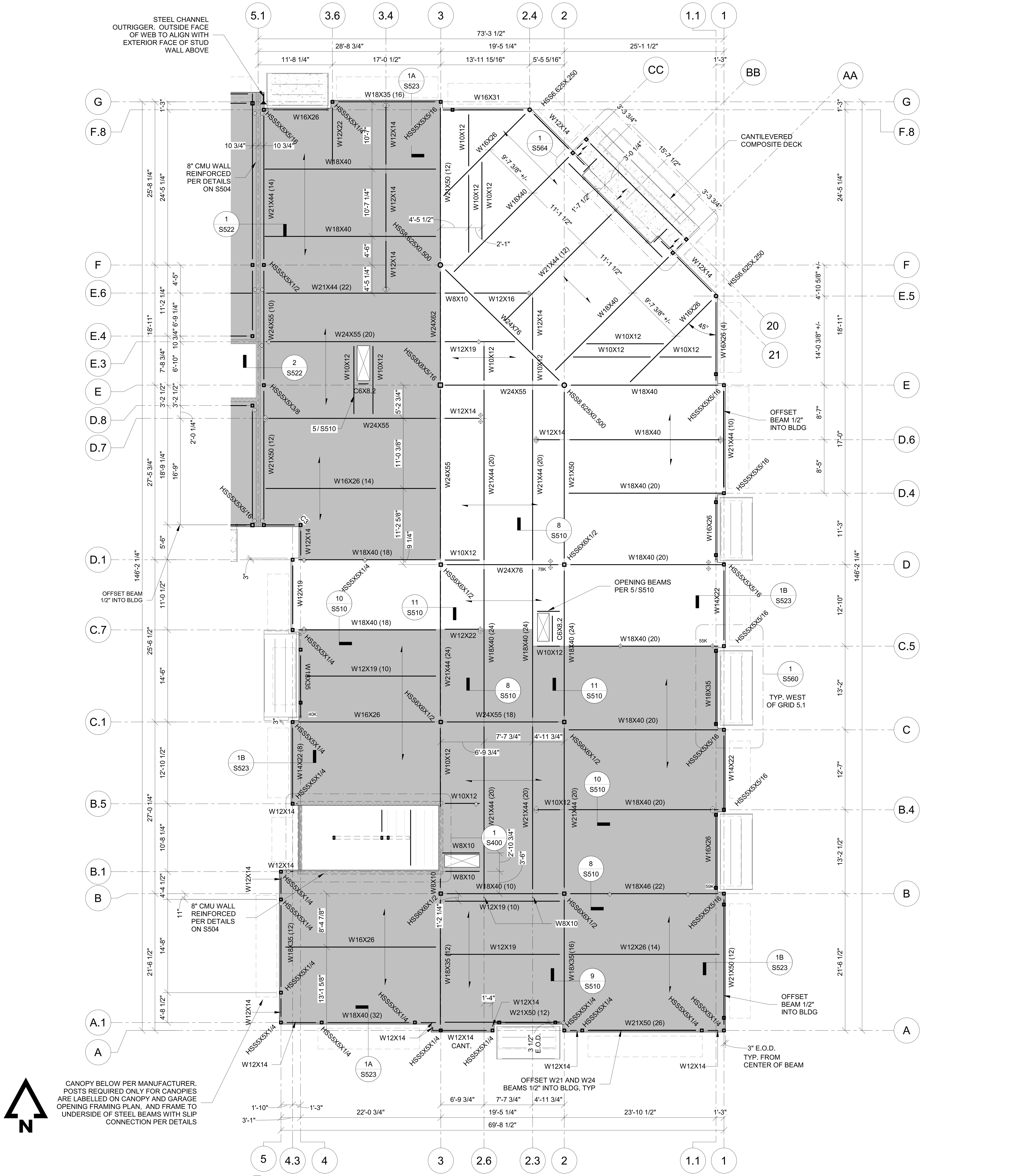
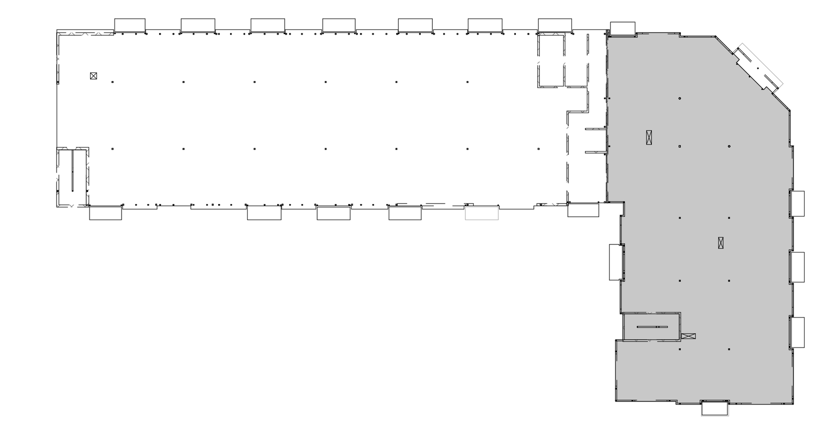
SHEET TITLE
LEVEL 1 CANOPY AND GARAGE OPENING FRAMING PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:
S101



1 LEVEL 2 FRAMING PLAN - ZONE A
S102A 1/8" = 1'-0"



LEVEL 2 - KEY MAP - ZONE A

NOTE:
HSS BEAM ELEVATIONS ADJUSTED

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...

BEAM SHAPE — W##X## (#) — NUMBER OF STUDS

BEAM ANNOTATION LEGEND

Notes:
1. See sheet S505 for typical steel details.
2. See sheet S505 for base plate and cap plate size.

PLAN LEGEND

	SHEAR WALL HOLD DOWN PER SHEAR WALL SCHEDULE, SEE S004, SEE ALSO 7 / S550 ON SHEET S550
	CMU WALL
	SHADING DENOTES SP 2 / S524 COMPOSITE DECK FASTENING PATTERN PER GENERAL NOTES SECTION M
	DENOTES COMPOSITE DECK SPAN DIRECTION
P#	PEDESTAL TYPE
BP#	BASEPLATE TYPE

LEVEL 2 FRAMING PLAN NOTES:

1. SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATIONS, SEE BELOW (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS.)
   - LEVEL 02 F.F. (T.O. CONC.) 116'-0"
2. T.O.S. FOR STEEL FRAMING IS -0'-5 1/2" (115'-6 1/2") UNLESS NOTED OTHERWISE ON PLAN. HEADED ANCHOR STUDS TO BE 3/4" DIA. x 4 1/2" LONG
3. THE LEVEL 2 STRUCTURE IS TO BE COMPOSITE DECK OVER STEEL BEAMS WITH 3/4" DIA 4-1/2" LONG HEADED ANCHOR STUDS. COMPOSITE DECK SHALL BE 3" DEEP 20GA COMPOSITE DECK W/ 2-1/2" LIGHTWEIGHT CONCRETE (5-1/2" TOTAL). SEE GENERAL NOTES SECTION "M" FOR FASTENING.
4. PLUMBING FIXTURES, SHAFTS, AND FLOOR DRAINS ARE TO BE COORDINATED PER ARCH. & MEP DRAWINGS.
5. SEE ARCHITECTURAL FLOOR PLAN FOR NON-BEARING WALL, DOOR, AND WINDOW LOCATIONS.
6. SEE ARCHITECTURAL DRAWINGS FOR ALL RAILING DETAILS. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.
7. REFER TO MANUFACTURER'S GUIDELINES FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS.
8. REFER TO ARCHITECTURAL PLANS FOR STAIR DIMENSIONS AND REQUIREMENTS. REFER TO STRUCTURAL GENERAL NOTES FOR STAIR DESIGN CRITERIA.

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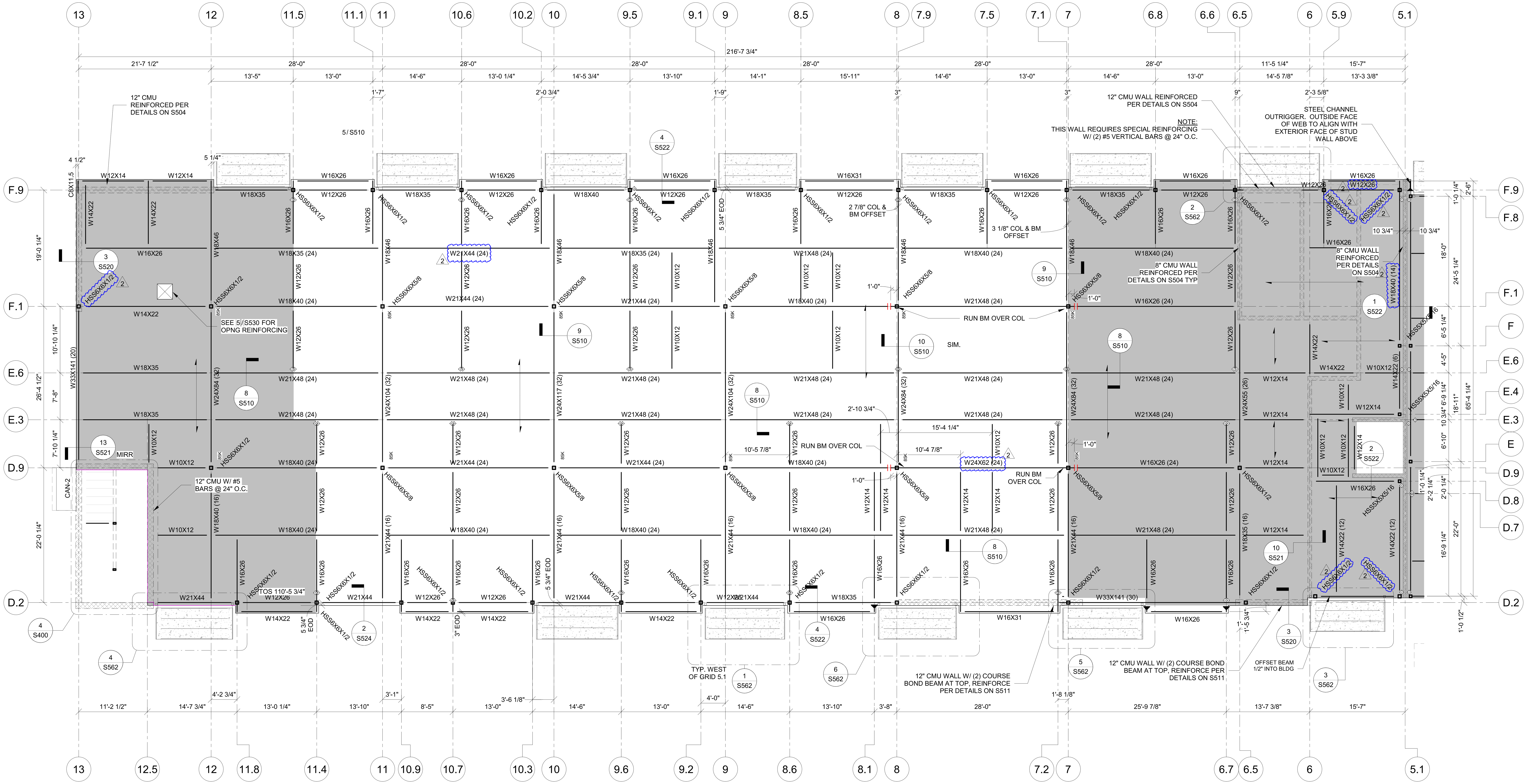
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

SHEET TITLE
LEVEL 2 FRAMING PLAN ZONE A

PROJECT NUMBER: 2023000333

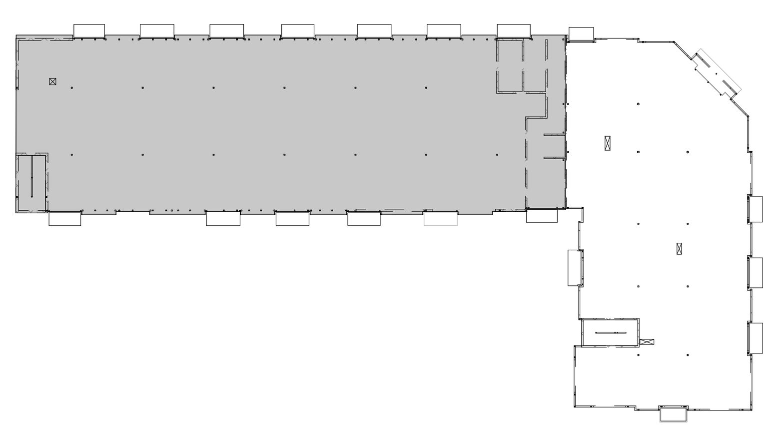
SHEET NUMBER:

S102A



1 S102B LEVEL 2 FRAMING PLAN - ZONE B
1/8" = 1'-0"

NOTE:
HSS BEAM ELEVATIONS ADJUSTED



LEVEL 2 - KEY MAP - ZONE B

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...

BEAM SHAPE — W##X## (#) — NUMBER OF STUDS

BEAM ANNOTATION LEGEND

Notes:
1. See sheet S505 for typical steel details.
2. See sheet S505 for base plate and cap plate size.

PLAN LEGEND

- SHEAR WALL HOLD DOWN PER SHEAR WALL SCHEDULE, SEE S004, SEE ALSO 7 / S550 ; ON SHEET S550
- CMU WALL
- SHADING DENOTES SP 2 / S524 COMPOSITE DECK FASTENING PATTERN PER GENERAL NOTES SECTION M
- DENOTES COMPOSITE DECK SPAN DIRECTION
- P# PEDESTAL TYPE
- BP# BASEPLATE TYPE

LEVEL 2 FRAMING PLAN NOTES:

1. SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATIONS, SEE BELOW (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS.)
   - LEVEL 02 F.F. (T.O. CONC.) 116'-0"
2. T.O.S. FOR STEEL FRAMING IS -0'-5 1/2" (115'-6 1/2") UNLESS NOTED OTHERWISE ON PLAN. HEADED ANCHOR STUDS TO BE 3/4" DIA. x 4 1/2" LONG
3. THE LEVEL 2 STRUCTURE IS TO BE COMPOSITE DECK OVER STEEL BEAMS WITH 3/4" DIA 4-1/2" LONG HEADED ANCHOR STUDS. COMPOSITE DECK SHALL BE 3" DEEP 20GA COMPOSITE DECK W/ 2-1/2" LIGHTWEIGHT CONCRETE (5-1/2" TOTAL). SEE GENERAL NOTES SECTION "M" FOR FASTENING.
4. PLUMBING FIXTURES, SHAFTS, AND FLOOR DRAINS ARE TO BE COORDINATED PER ARCH. & MEP DRAWINGS.
5. SEE ARCHITECTURAL FLOOR PLAN FOR NON-BEARING WALL, DOOR, AND WINDOW LOCATIONS.
6. SEE ARCHITECTURAL DRAWINGS FOR ALL RAILING DETAILS. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.
7. REFER TO MANUFACTURER'S GUIDELINES FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS.
8. REFER TO ARCHITECTURAL PLANS FOR STAIR DIMENSIONS AND REQUIREMENTS. REFER TO STRUCTURAL GENERAL NOTES FOR STAIR DESIGN CRITERIA.

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EXPIRES: DECEMBER 31, 2024

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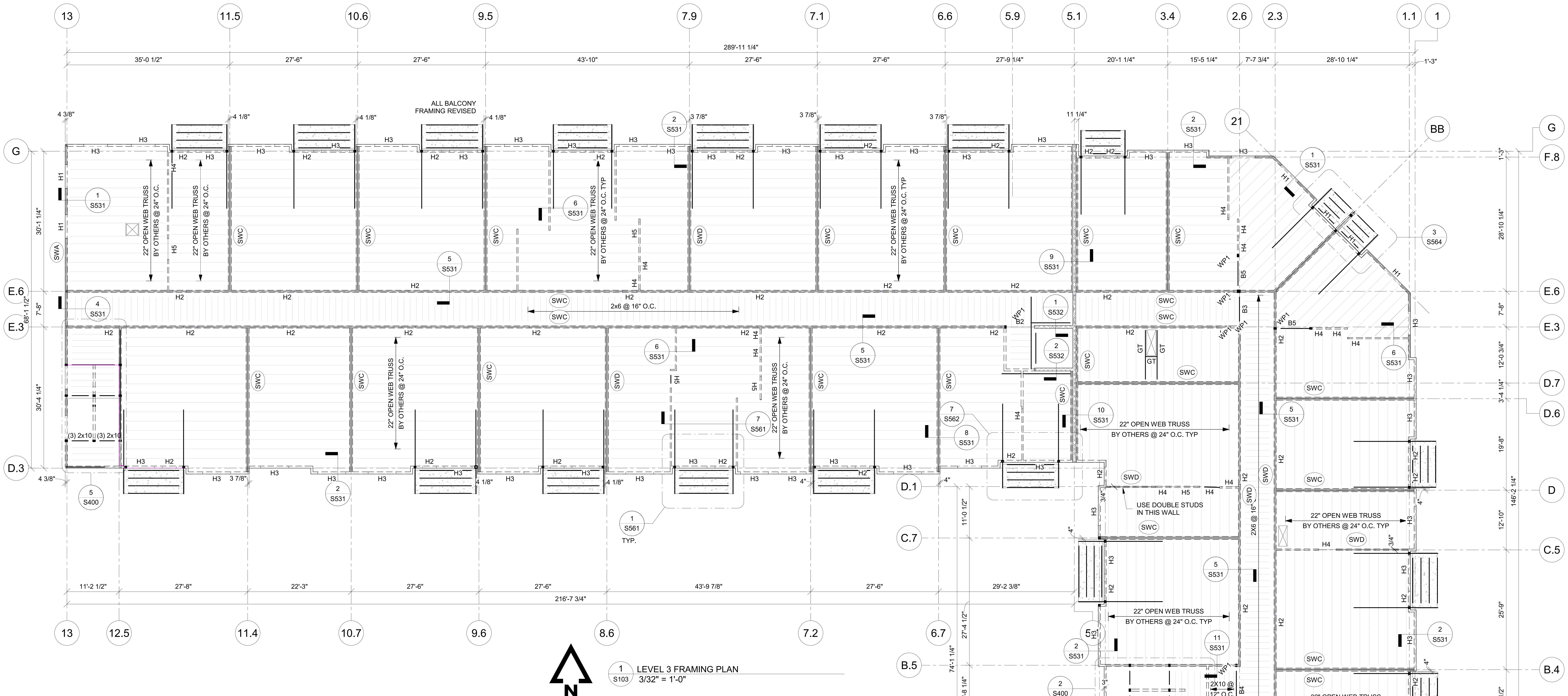
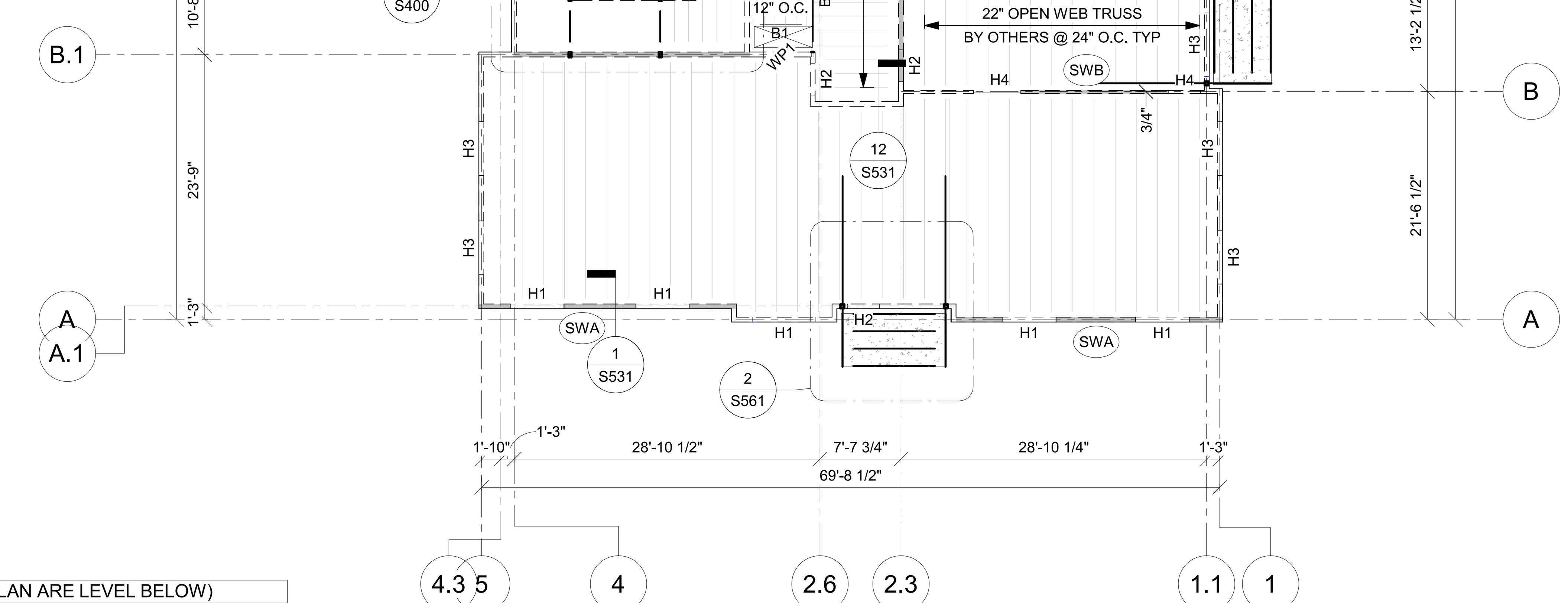
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

SHEET TITLE
LEVEL 2 FRAMING PLAN ZONE B

PROJECT NUMBER: 2023000333

SHEET NUMBER:
S102B





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

LEVEL 3 FRAMING PLAN NOTES:

1. SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATIONS, SEE BELOW (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS.)
   - LEVEL 03 T.O. SHEATHING 126'-11 7/8"
2. FLOOR SHEATHING IS TO BE 3/4" PLYWOOD FASTENED TO FRAMING W/ 10d NAILS SPACED 6" O.C. AT SHEET EDGES & 12" O.C. WITHIN FIELD OF SHEET. SHEATHING IS TO BE TOPPED W/ SOUND MAT & GYPCRETE TOPPING PER ARCH.
3. PLUMBING FIXTURES, SHAFTS, AND FLOOR DRAINS ARE TO BE COORDINATED PER ARCH. & MEP DRAWINGS.
4. ALL EXTERIOR AND INTERIOR LOAD BEARING WALLS ARE PER WALL SCHEDULE THIS SHEET. SEE ARCHITECTURAL FLOOR PLAN FOR NON-BEARING WALL, DOOR, AND WINDOW LOCATIONS.
5. FLOOR PLAN SHOWS FRAMING FOR THE FLOOR INDICATED & VERTICAL FRAMING (WALLS, OPENINGS, POSTS, & COLUMNS) SUPPORTING THAT FLOOR.
6. SEE ARCHITECTURAL DRAWINGS FOR ALL RAILING DETAILS. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.
7. REFER TO MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS.
8. ALL EXTERIOR LUMBER (POSTS, BEAMS, DECKING, ETC.) TO BE TREATED.
9. WOOD FLOOR TRUSSES TO BE DESIGNED BY THE TRUSS MANUFACTURER AND ARE SHOWN FOR THE INTENT OF SPAN DIRECTION AND LOAD PATH ONLY. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.
10. PROVIDE FLOOR TRUSS HEADER AT CHASE OPENINGS SUPPORTING TOP CHORD HUNG FLOOR TRUSSES AND SUPPORTED W/ TOP CHORD HANGER EACH END AT ADJACENT TRUSSES DESIGNED PER MANUFACTURER.
11. REFER TO ARCHITECTURAL PLANS FOR STAIR DIMENSIONS AND REQUIREMENTS. REFER TO STRUCTURAL GENERAL NOTES FOR STAIR DESIGN CRITERIA.
12. GRID TO FACE OF EXTERIOR WALLSTUD IS 3 INCHES UNLESS NOTED OTHERWISE.

WOOD POST SCHEDULE

Mark	Level 2	Level 3
WP1	(2) 2x6	(2) 2x6

Notes:
1. All exterior columns are to be pressure treated

WOOD BEAM SCHEDULE

Mark	Beam Size	Hanger
B1	(2) 2x8	HHUS28-2
B2	(3) 2X8	HGUS26-3
B3	(3) 2X10	HHUS210-3
B4	(2) 1-3/4"x9-1/2" LVL	HHUS210-2
B5	(3) 2X12	HHUS210-3
B6	(2) 2X10	DGHT3.62/9.25

Notes:
1. All exterior beams are to be pressure treated.
2. All LVL shall be stress class 2.0E-2500F
3. Hangers to be installed with typical fasteners per manufacturer product data

TYPICAL WALL HEADER SCHEDULE (STACKED OPENINGS) (WALLS SHOWN ON FRAMING PLAN ARE LEVEL BELOW)

Opening Mark	Header		Kings & Jacks			
	Level 2	Level 3	Level 2		Level 3	
			Kings	Jacks	Kings	Jacks
H1	(3) 2x10	(3) 2x8	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6
H2	(3) 2x8	(3) 2x8	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6
H3	(3) 2x8	(3) 2x10	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6
H4	(2) 2x12	(2) 2x8	(2) 2x4	(1) 2x4	(1) 2x4	(1) 2x4
H5	(2) LVL 1-3/4 x 11-7/8	(2) 2x8	(1) 2x4	(2) 2x4	(1) 2x4	(1) 2x4
H6	(2) LVL 1-3/4 x 20	(2) 2x8	(2) 2x4	(2) 2x4	(2) 2x4	(1) 2x4

H# = An opening which requires a header

Notes:
1. See S500 for typical opening framing.
2. All openings should stack according to the plans.
3. Coordinate all dimensions and elevations with architectural drawings.
4. Cripple studs should match the adjacent wall framing.
5. All LVL shall be stress class 2.0E-2500F
6. All Glulam shall be stress class 24F-1.8E

STRUCTURAL WALL SCHEDULE (WALLS SHOWN ON FRAMING PLAN ARE LEVEL BELOW)

Location	Wall stud size and number of plies @ 16" o.c. U.N.O. on plan		SHEATHING & FASTENING U.N.O. (See Note 4)
	Level 2	Level 3	
EXTERIOR	(1) 2x6	(1) 2x6	15/32" Structural wood sheathing fastened w/ 10d nails. 6" o.c. edges , 12" o.c. field
DOUBLE WALLS BETWEEN UNITS	(1) 2x4	(1) 2x4	5/8" Gypsum wallboard fastened w/ 1 5/8" Type W screws 7" o.c. edges, 7" o.c. field
WITHIN UNITS	(2) 2x4	(1) 2x4	5/8" Gypsum wallboard fastened w/ 1 5/8" Type W screws 7" o.c. edge, 7" o.c. field
CORRIDOR	(1) 2x6	(1) 2x6	5/8" Gypsum wallboard fastened w/ 1 5/8" Type W screws 7" o.c. edge, 7" o.c. field

Notes:
1. Sill plates at podium level to be fastened w/ 3/8"Ø x 3-1/2" Hilti Kwik HUS EZ bolts @ 48" o.c. U.N.O.
2. Top and bottom plates at all other levels to be fastened w/ (2) 16d nails @ 16" o.c. U.N.O.
3. Shear walls shall be sheathed per Shear Wall Schedule
4. Non-structural walls not shown, refer to architectural drawings.
5. All top plates are to be continuous. Splice per 4/510.

PLAN LEGEND

- SW# SHEAR WALL, PER SCHEDULE
- H# HEADER TYPE, PER SCHEDULE
- WP# WOOD POST, PER SCHEDULE
- C# STEEL COLUMN, PER SCHEDULE
- BEARING WALL BELOW
- SHEAR WALL BELOW
- CMU WALL

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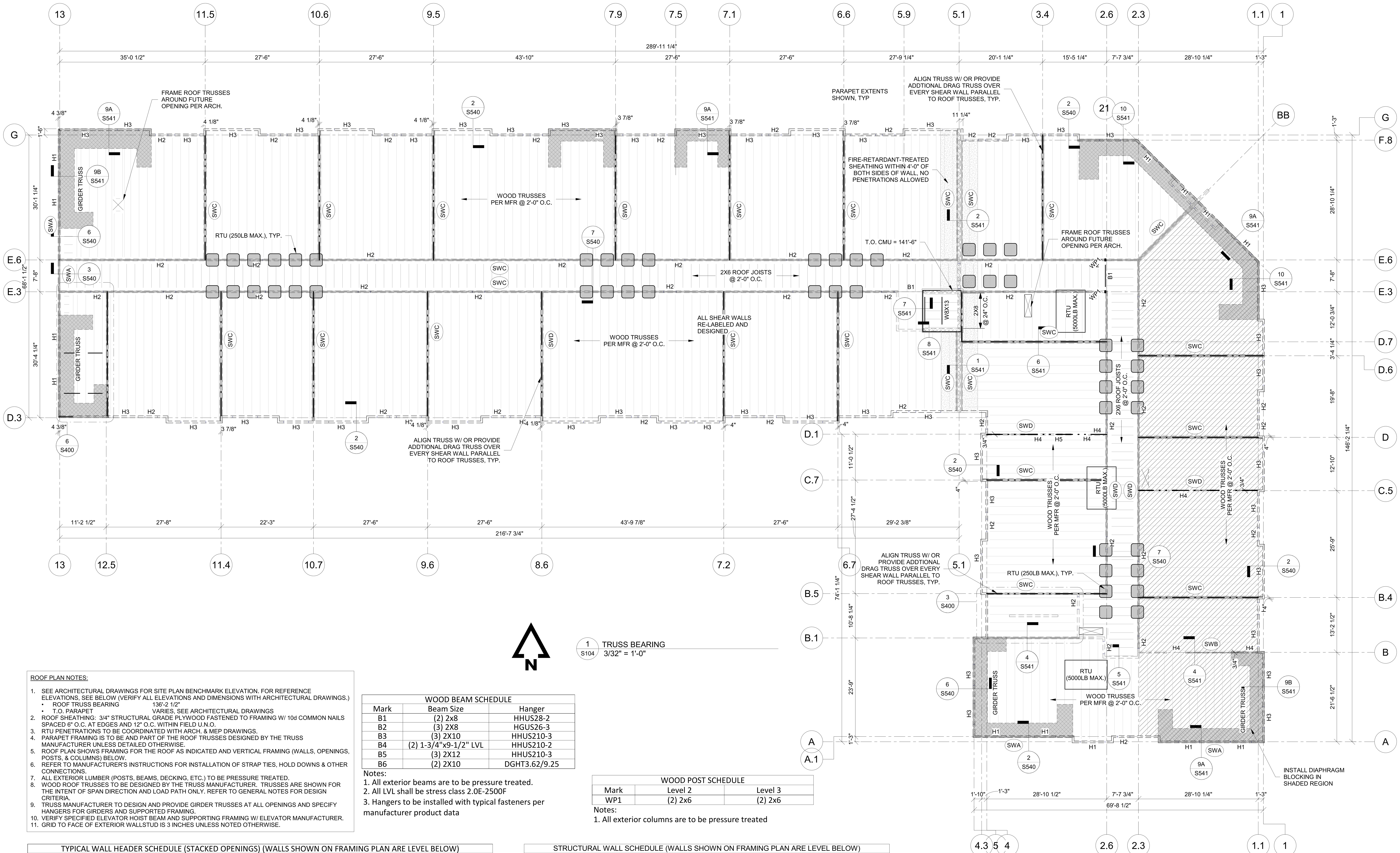
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

SHEET TITLE
LEVEL 3 FRAMING PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S103



1 S104 TRUSS BEARING
3/32" = 1'-0"

ROOF PLAN NOTES:

1. SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATIONS, SEE BELOW (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS.)
   - ROOF TRUSS BEARING 136'-2 1/2"
   - T.O. PARAPET VARIES, SEE ARCHITECTURAL DRAWINGS
2. ROOF SHEATHING: 3/4" STRUCTURAL GRADE PLYWOOD FASTENED TO FRAMING W/ 10d COMMON NAILS SPACED 6" O.C. AT EDGES AND 12" O.C. WITHIN FIELD U.N.O.
3. RTU PENETRATIONS TO BE COORDINATED WITH ARCH. & MEP DRAWINGS.
4. PARAPET FRAMING IS TO BE AND PART OF THE ROOF TRUSSES DESIGNED BY THE TRUSS MANUFACTURER UNLESS DETAILED OTHERWISE.
5. ROOF PLAN SHOWS FRAMING FOR THE ROOF AS INDICATED AND VERTICAL FRAMING (WALLS, OPENINGS, POSTS, & COLUMNS) BELOW.
6. REFER TO MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS.
7. ALL EXTERIOR LUMBER (POSTS, BEAMS, DECKING, ETC.) TO BE PRESSURE TREATED.
8. WOOD ROOF TRUSSES TO BE DESIGNED BY THE TRUSS MANUFACTURER. TRUSSES ARE SHOWN FOR THE INTENT OF SPAN DIRECTION AND LOAD PATH ONLY. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.
9. TRUSS MANUFACTURER TO DESIGN AND PROVIDE GIRDER TRUSSES AT ALL OPENINGS AND SPECIFY HANGERS FOR GIRDERS AND SUPPORTED FRAMING.
10. VERIFY SPECIFIED ELEVATOR HOIST BEAM AND SUPPORTING FRAMING W/ ELEVATOR MANUFACTURER.
11. GRID TO FACE OF EXTERIOR WALLSTUD IS 3 INCHES UNLESS NOTED OTHERWISE.

WOOD BEAM SCHEDULE

Mark	Beam Size	Hanger
B1	(2) 2x8	HHUS28-2
B2	(3) 2X8	HGUS26-3
B3	(3) 2X10	HHUS210-3
B4	(2) 1-3/4"x9-1/2" LVL	HHUS210-2
B5	(3) 2X12	HHUS210-3
B6	(2) 2X10	DGHT3.62/9.25

Notes:
1. All exterior beams are to be pressure treated.
2. All LVL shall be stress class 2.0E-2500F
3. Hangers to be installed with typical fasteners per manufacturer product data

WOOD POST SCHEDULE

Mark	Level 2	Level 3
WP1	(2) 2x6	(2) 2x6

Notes:
1. All exterior columns are to be pressure treated

TYPICAL WALL HEADER SCHEDULE (STACKED OPENINGS) (WALLS SHOWN ON FRAMING PLAN ARE LEVEL BELOW)

Opening Mark	Header		Kings & Jacks			
	Level 2	Level 3	Level 2		Level 3	
			Kings	Jacks	Kings	Jacks
H1	(3) 2x10	(3) 2x8	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6
H2	(3) 2x8	(3) 2x8	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6
H3	(3) 2x8	(3) 2x10	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6
H4	(2) 2x12	(2) 2x8	(2) 2x4	(1) 2x4	(1) 2x4	(1) 2x4
H5	(2) LVL 1-3/4 x 11-7/8	(2) 2x8	(1) 2x4	(2) 2x4	(1) 2x4	(1) 2x4
H6	(2) LVL 1-3/4 x 20	(2) 2x8	(2) 2x4	(2) 2x4	(2) 2x4	(1) 2x4

H# = An opening which requires a header

Notes:
1. See S500 for typical opening framing.
2. All openings should stack according to the plans.
3. Coordinate all dimensions and elevations with architectural drawings.
4. Cripple studs should match the adjacent wall framing.
5. All LVL shall be stress class 2.0E-2500F
6. All Glulam shall be stress class 24F-1.8E

STRUCTURAL WALL SCHEDULE (WALLS SHOWN ON FRAMING PLAN ARE LEVEL BELOW)

Location	Wall stud size and number of plies @ 16" o.c. U.N.O. on plan		SHEATHING & FASTENING U.N.O. (See Note 4)
	Level 2	Level 3	
EXTERIOR	(1) 2x6	(1) 2x6	15/32" Structural wood sheathing fastened w/ 10d nails. 6" o.c. edges , 12" o.c. field
DOUBLE WALLS BETWEEN UNITS	(1) 2x4	(1) 2x4	5/8" Gypsum wallboard fastened w/ 1 5/8" Type W screws 7" o.c. edges, 7" o.c. field
WITHIN UNITS	(2) 2x4	(1) 2x4	5/8" Gypsum wallboard fastened w/ 1 5/8" Type W screws 7" o.c. edge, 7" o.c. field
CORRIDOR	(1) 2x6	(1) 2x6	5/8" Gypsum wallboard fastened w/ 1 5/8" Type W screws 7" o.c. edge, 7" o.c. field

Notes:
1. Sill plates at podium level to be fastened w/ 3/8"Ø x 3-1/2" Hilti Kwik HUS EZ bolts @ 48" o.c. U.N.O.
2. Top and bottom plates at all other levels to be fastened w/ (2) 16d nails @ 16" o.c. U.N.O.
3. Shear walls shall be sheathed per Shear Wall Schedule
4. Non-structural walls not shown, refer to architectural drawings.
5. All top plates are to be continuous. Splice per 4/510.

PLAN LEGEND

- SW# SHEAR WALL, PER SCHEDULE
- H# HEADER TYPE, PER SCHEDULE
- WP# WOOD POST, PER SCHEDULE
- C# STEEL COLUMN, PER SCHEDULE
- BEARING WALL BELOW
- SHEAR WALL BELOW
- CMU WALL

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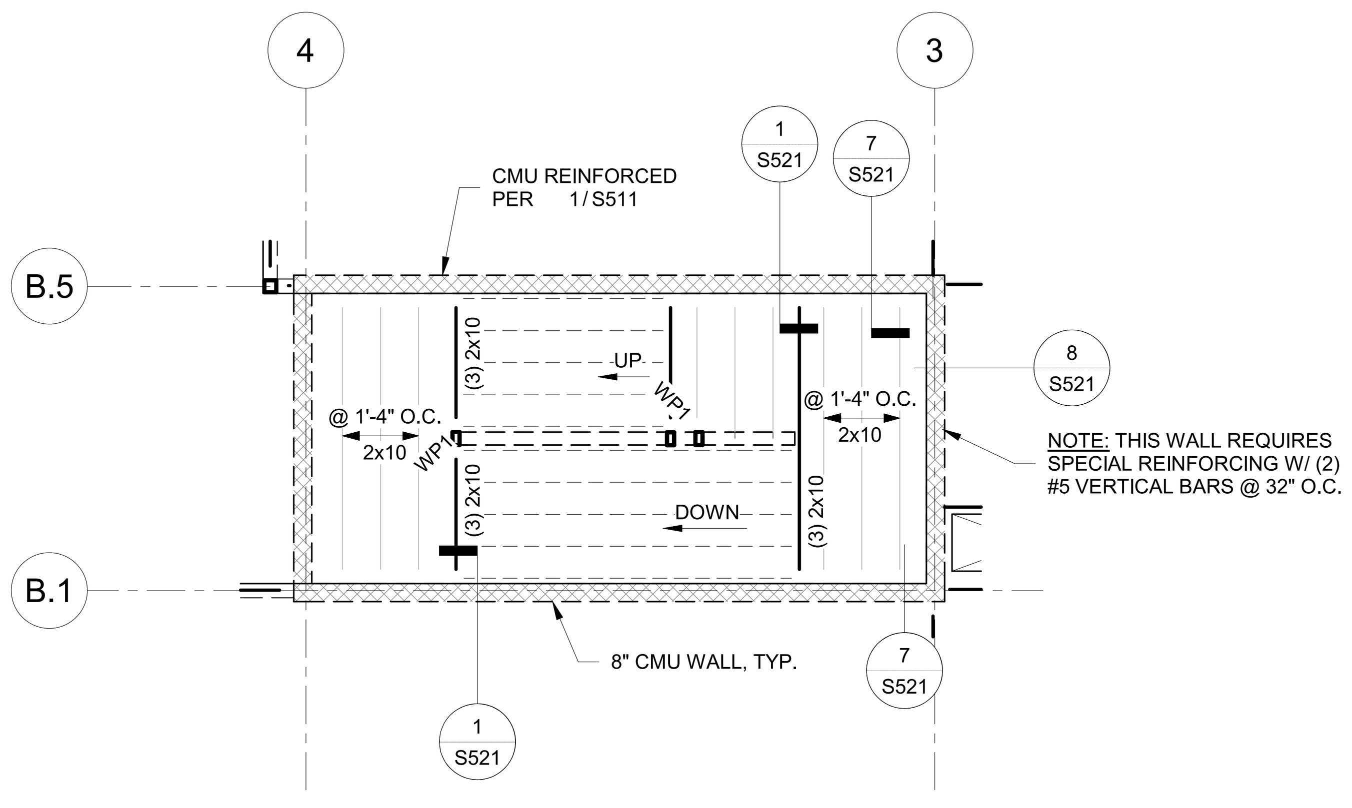
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

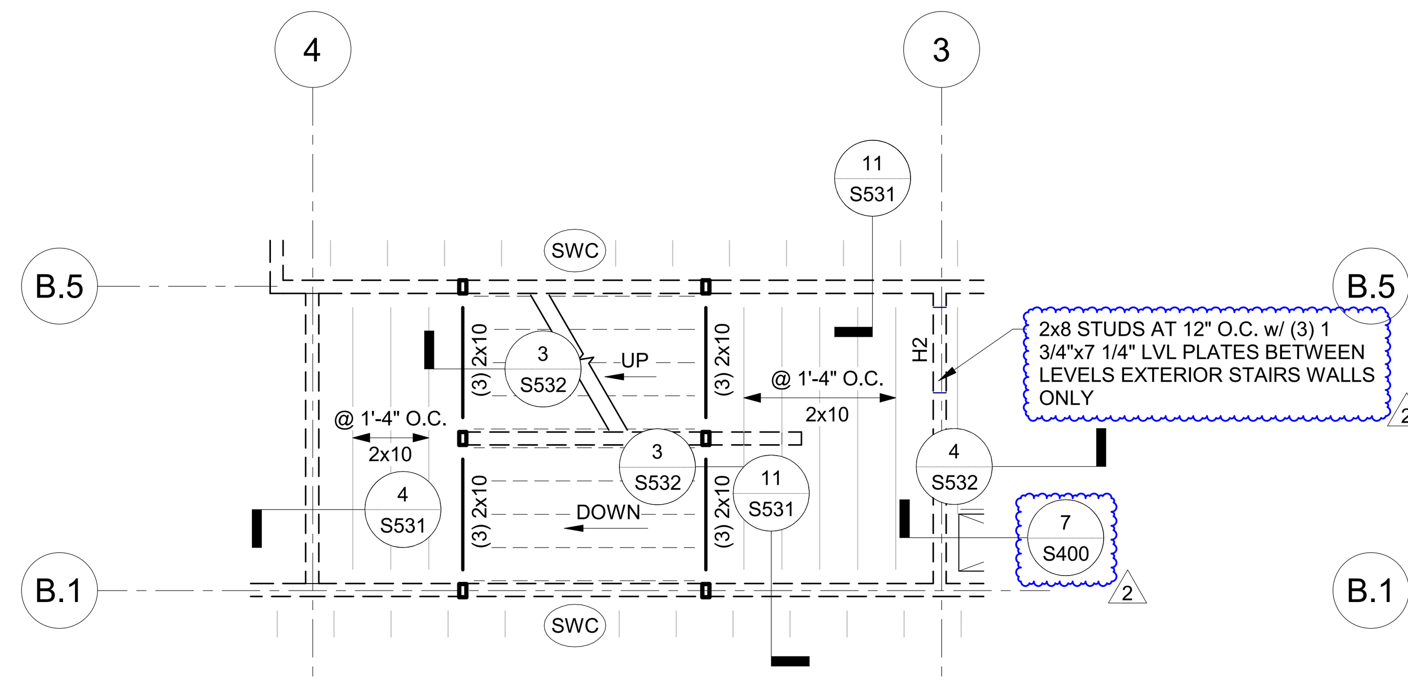
SHEET TITLE
ROOF FRAMING PLAN

PROJECT NUMBER: 2023000333

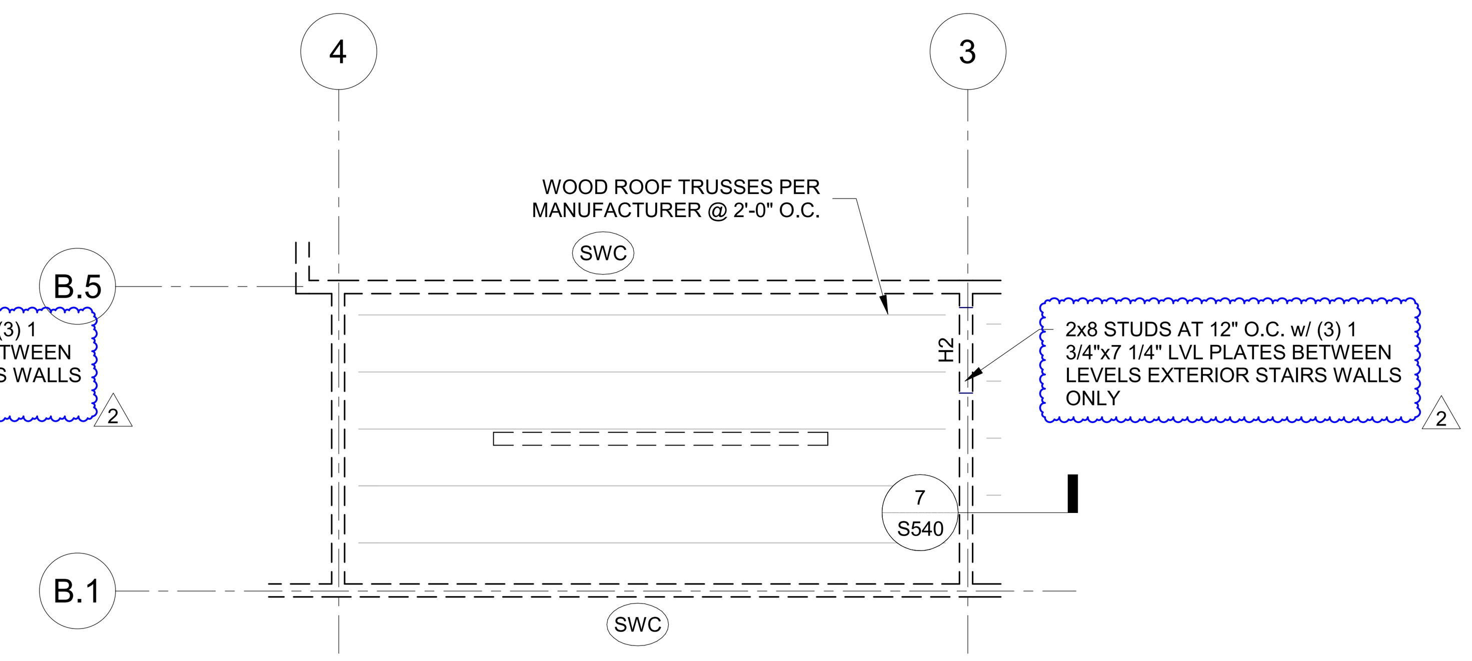
SHEET NUMBER:
S104



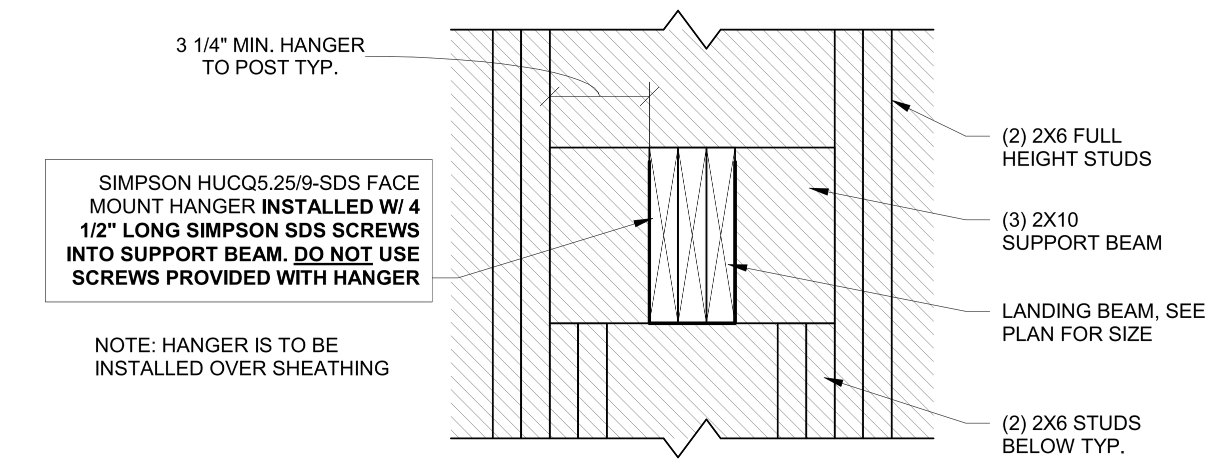
1 S400 SOUTH STAIR TOWER AT LEVEL 2
3/16" = 1'-0"



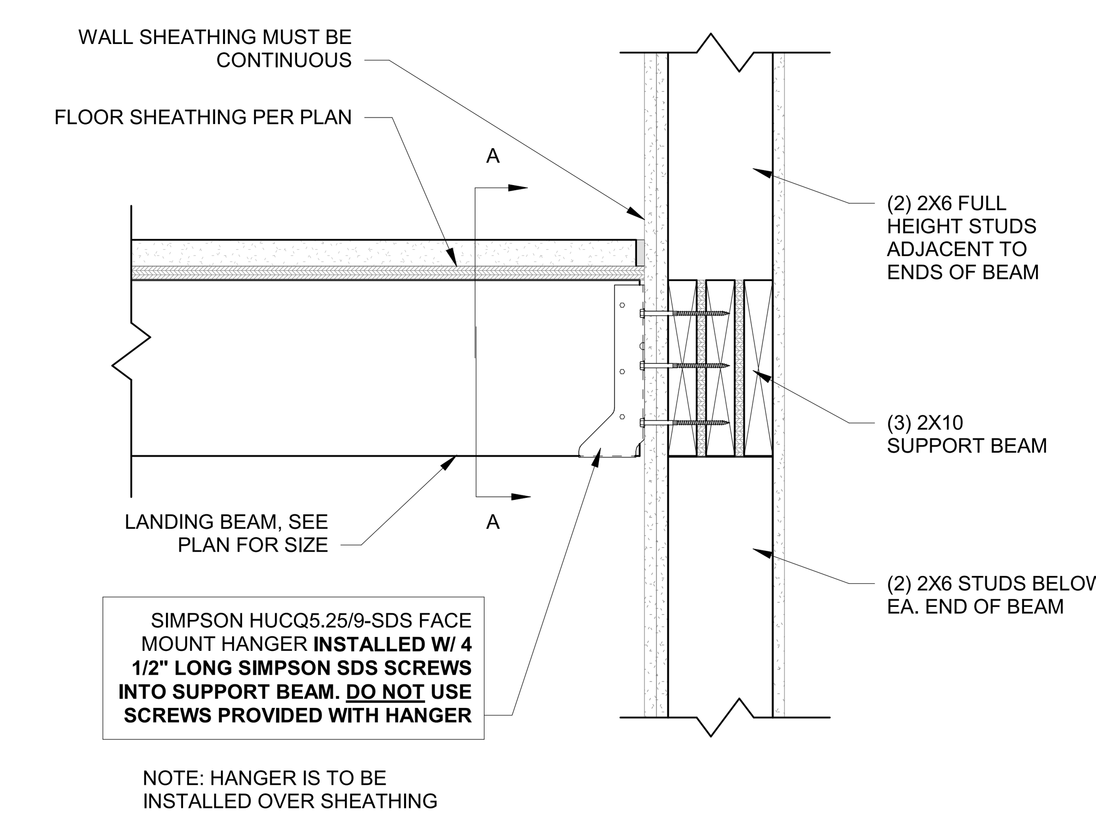
2 S400 SOUTH STAIR TOWER AT LEVEL 3
3/16" = 1'-0"



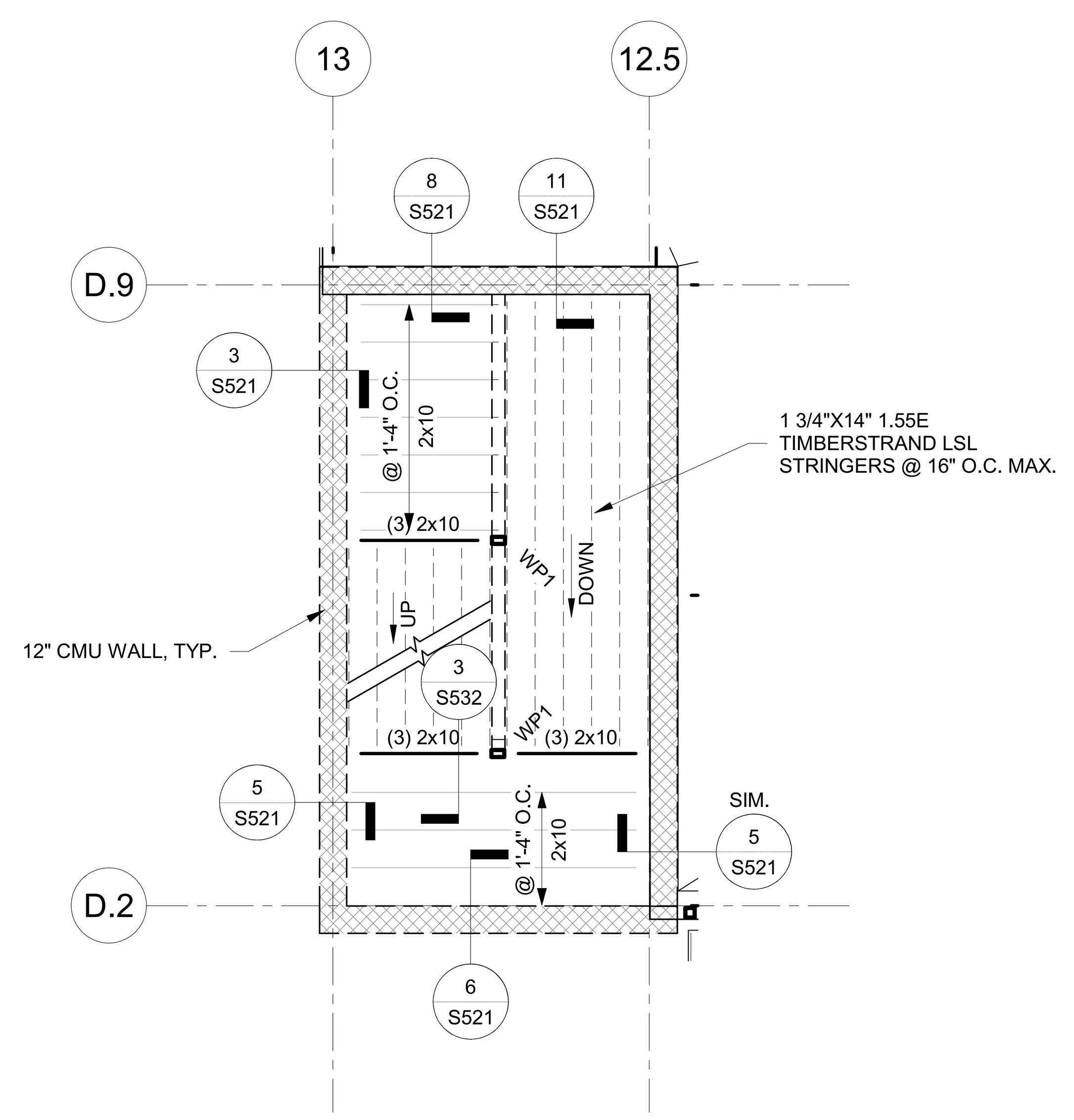
3 S400 SOUTH STAIR TOWER AT ROOF
3/16" = 1'-0"



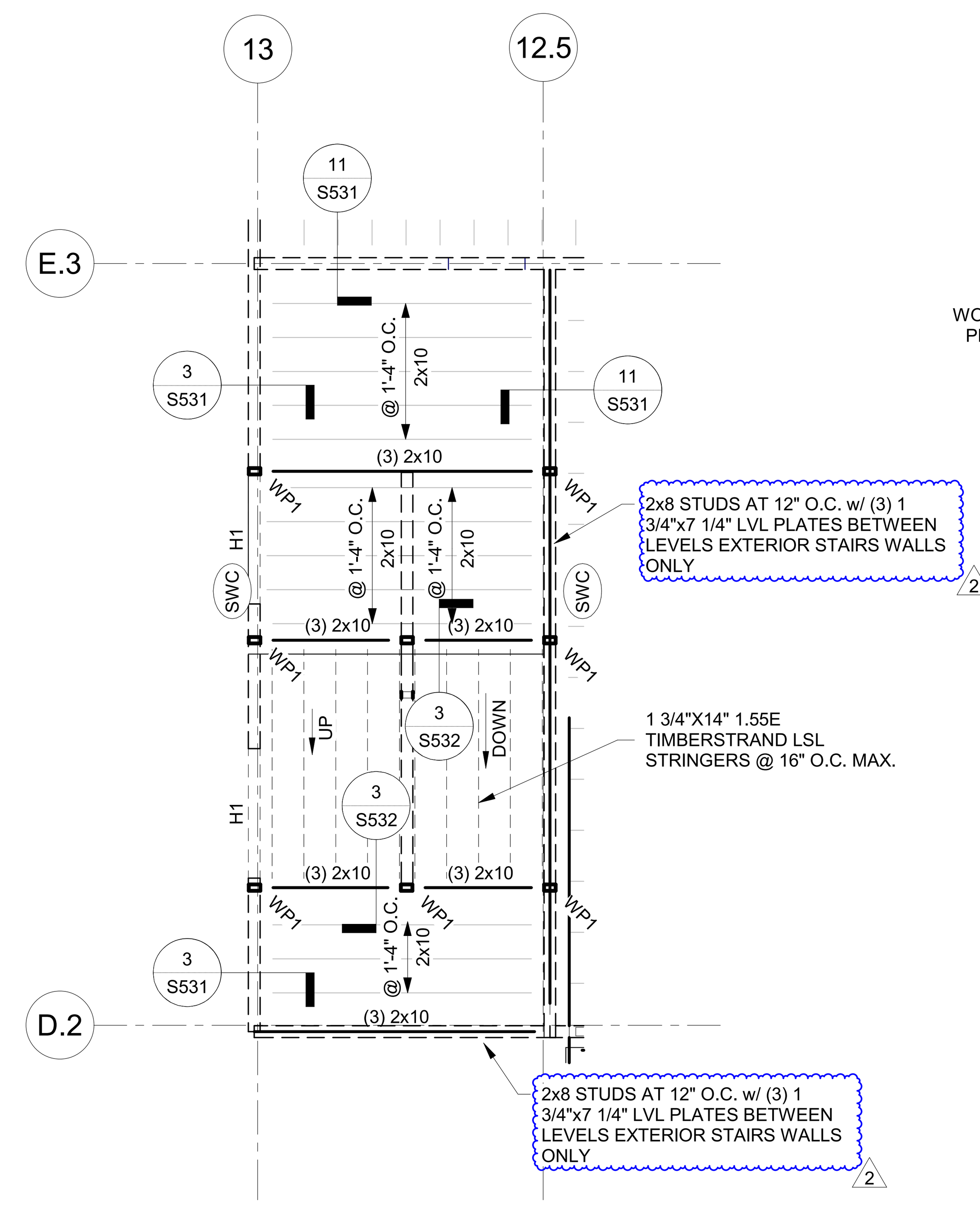
VIEW A-A



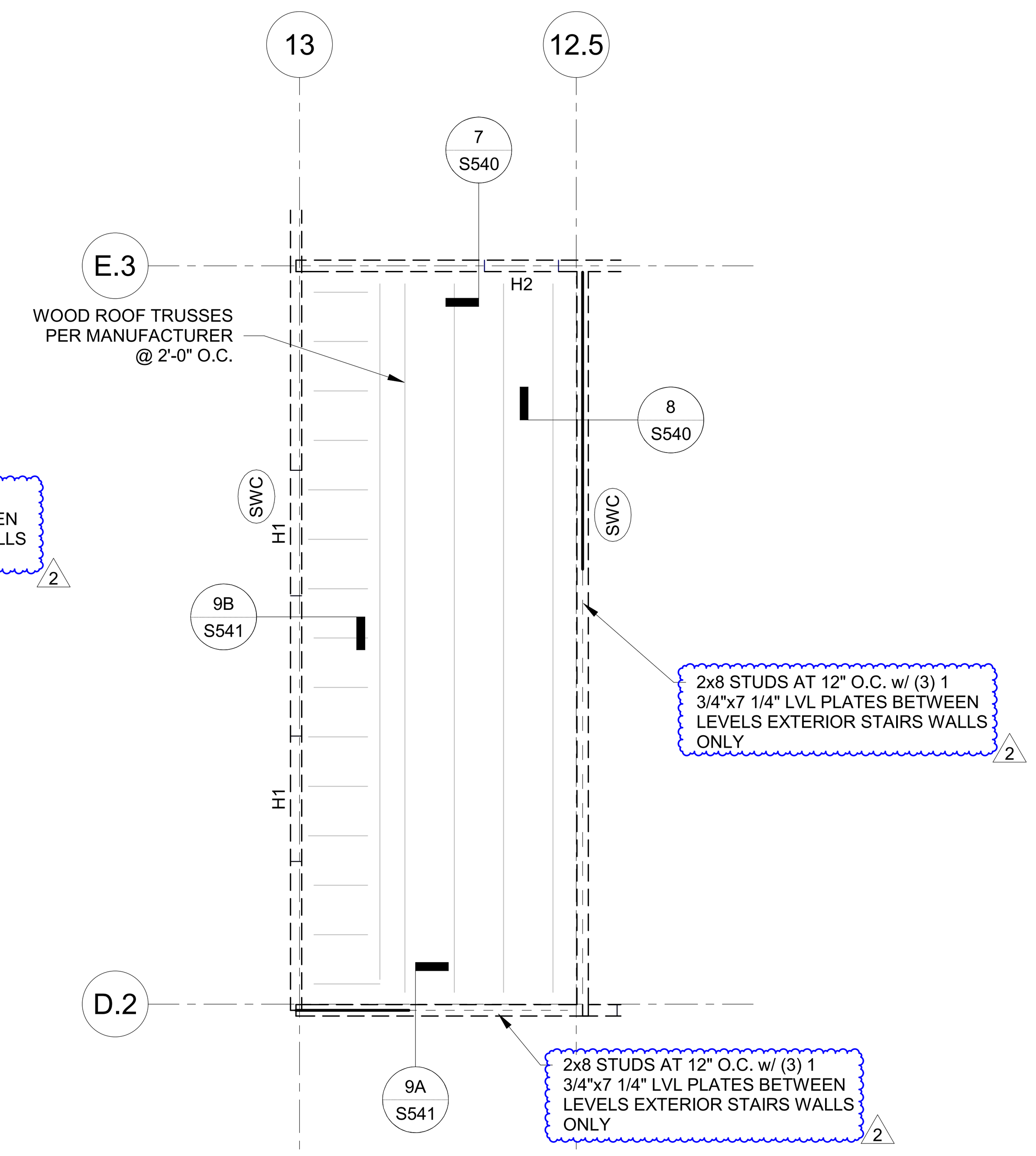
7 S400 STAIR INTERMEDIATE LANDING BEAM TO SUPPORT BEAM
1 1/2" = 1'-0"



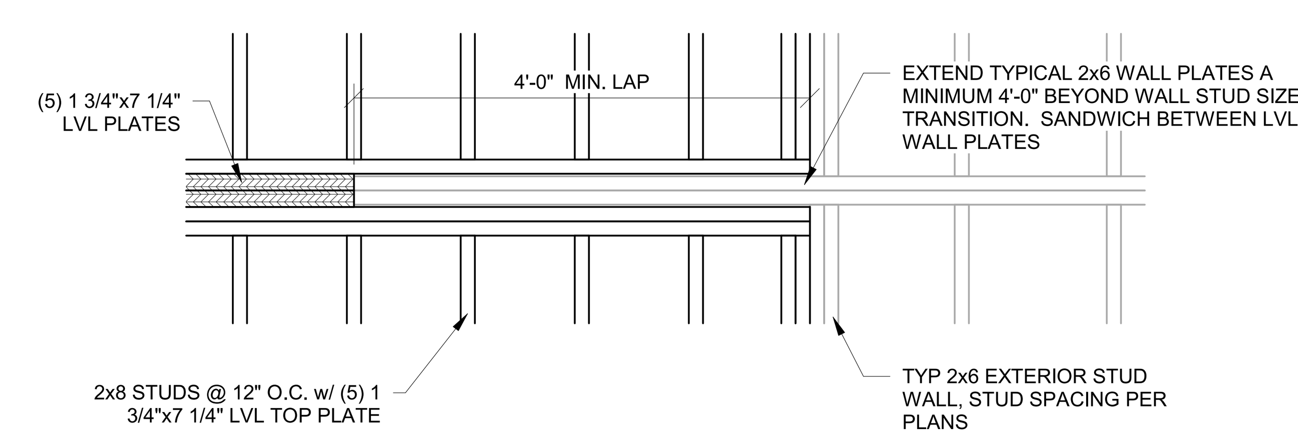
4 S400 EAST STAIR TOWER AT LEVEL 2
3/16" = 1'-0"



5 S400 EAST STAIR TOWER AT LEVEL 3
3/16" = 1'-0"



6 S400 EAST STAIR TOWER AT ROOF
3/16" = 1'-0"



8 S400 STAIR FRAMING SECTION
3/4" = 1'-0"

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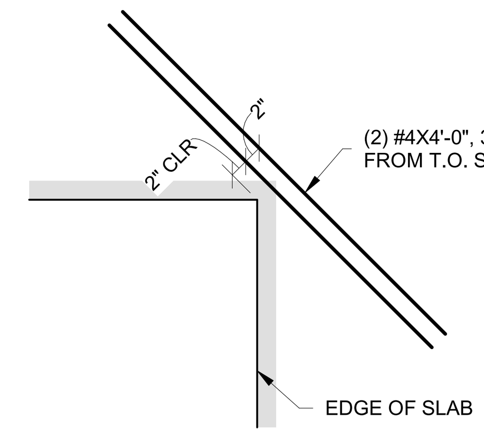
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

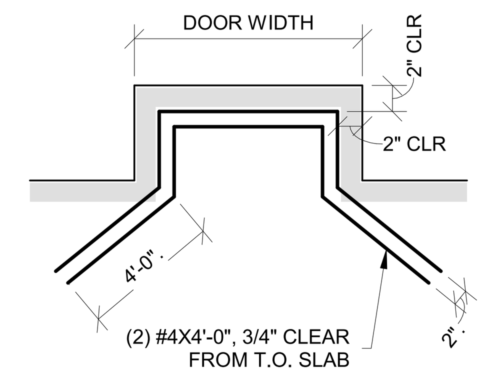
SHEET TITLE
ENLARGED VIEWS

PROJECT NUMBER: 2023000333

SHEET NUMBER:
S400

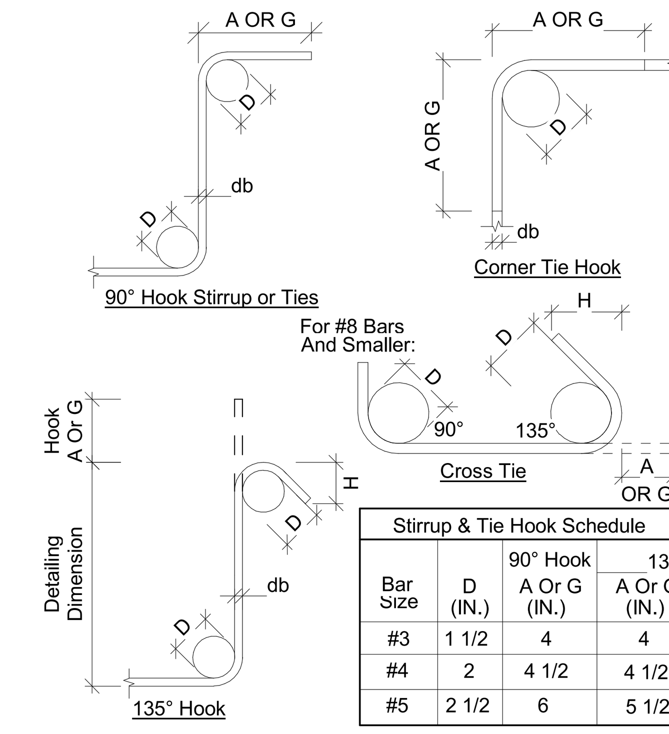


RE-ENTRANT CORNERS



THRESHOLDS

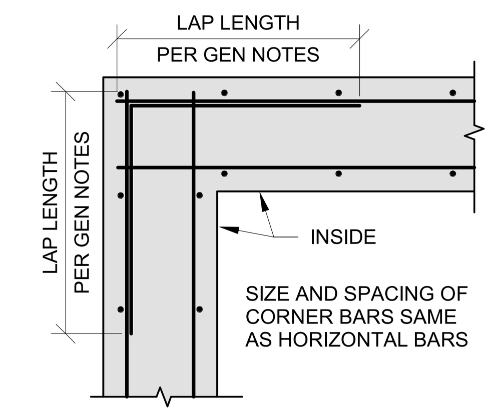
1 S500 ADDITIONAL REINFORCING IN SLABS
3/4" = 1'-0"



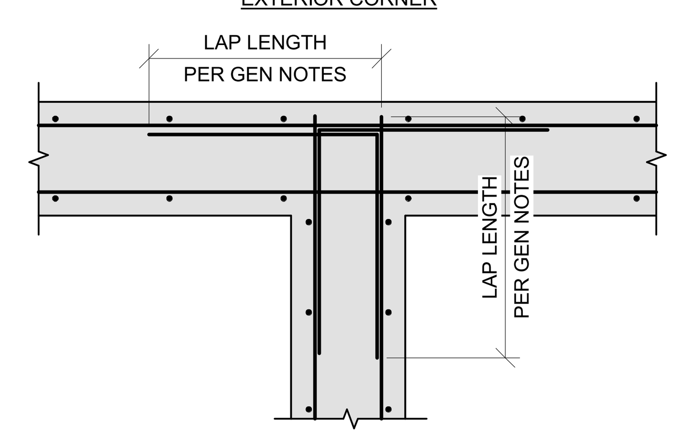
Stirrup & Tie Hook Schedule				
		90° Hook	135° Hook	
Bar Size	D (IN.)	A Or G (IN.)	A Or G (IN.)	H (IN.)
#3	1 1/2	4	4	2 1/2
#4	2	4 1/2	4 1/2	3
#5	2 1/2	6	5 1/2	3 3/4

D=Inside Diameter Of Bend
#3 THRU #8 D = 4db

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

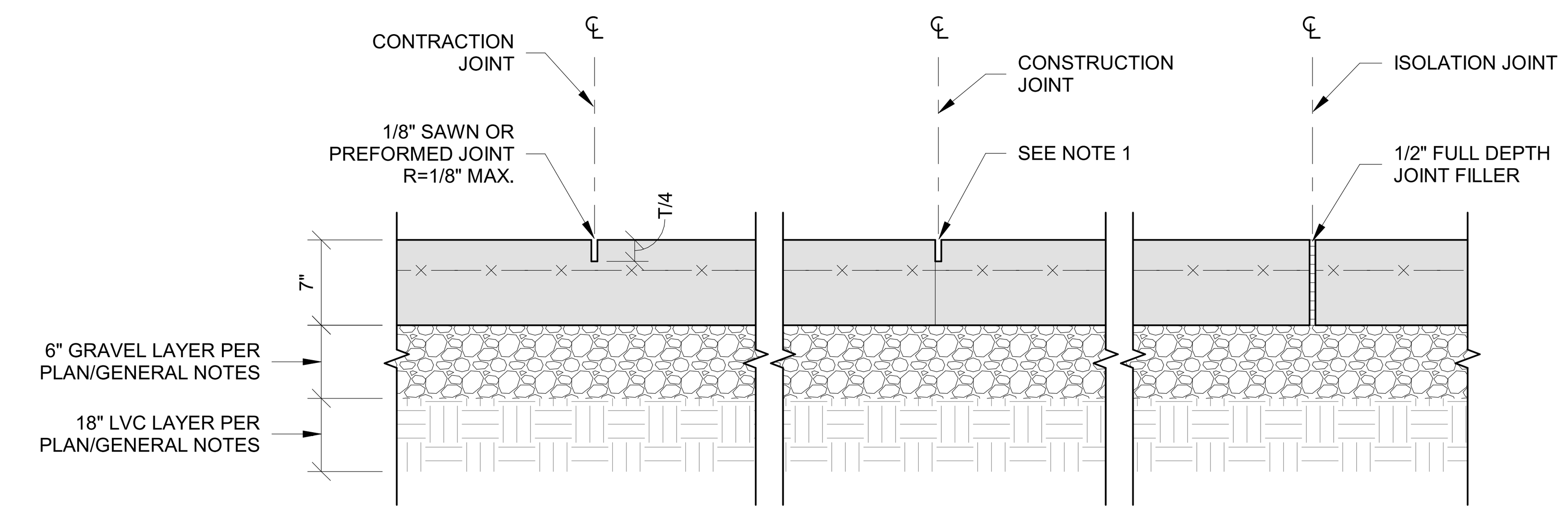


EXTERIOR CORNER



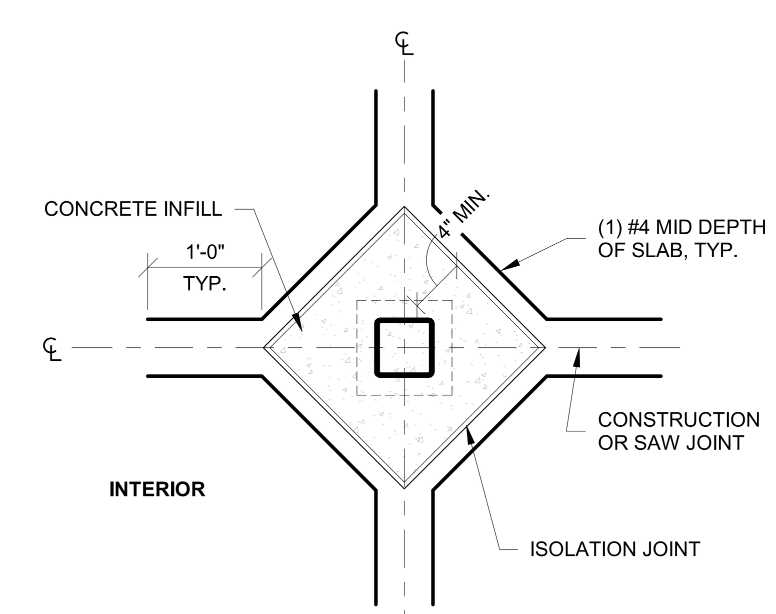
INTERSECTION

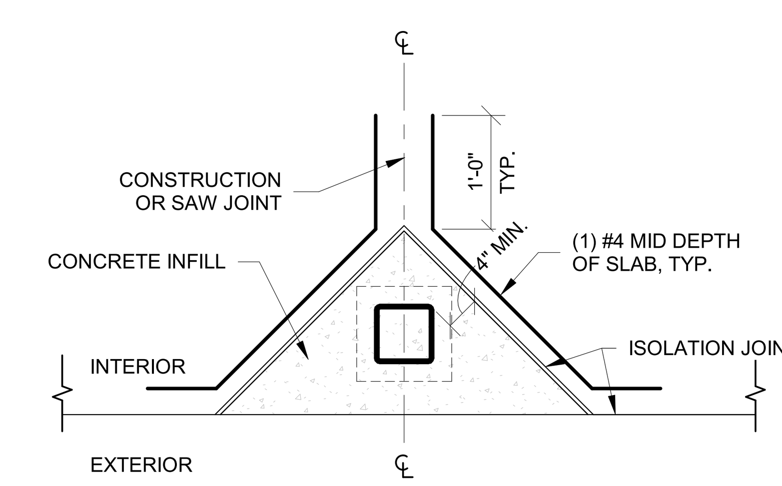
3 S500 CORNER BAR DETAIL
3/4" = 1'-0"



NOTES:
1. LOCATE CONSTRUCTION JOINTS AT SAW JOINT LOCATIONS. MATCH SAW JOINT PROFILE. ALL CONSTRUCTION JOINT LOCATIONS TO BE REVIEWED AND APPROVED BY EOR 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.

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





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

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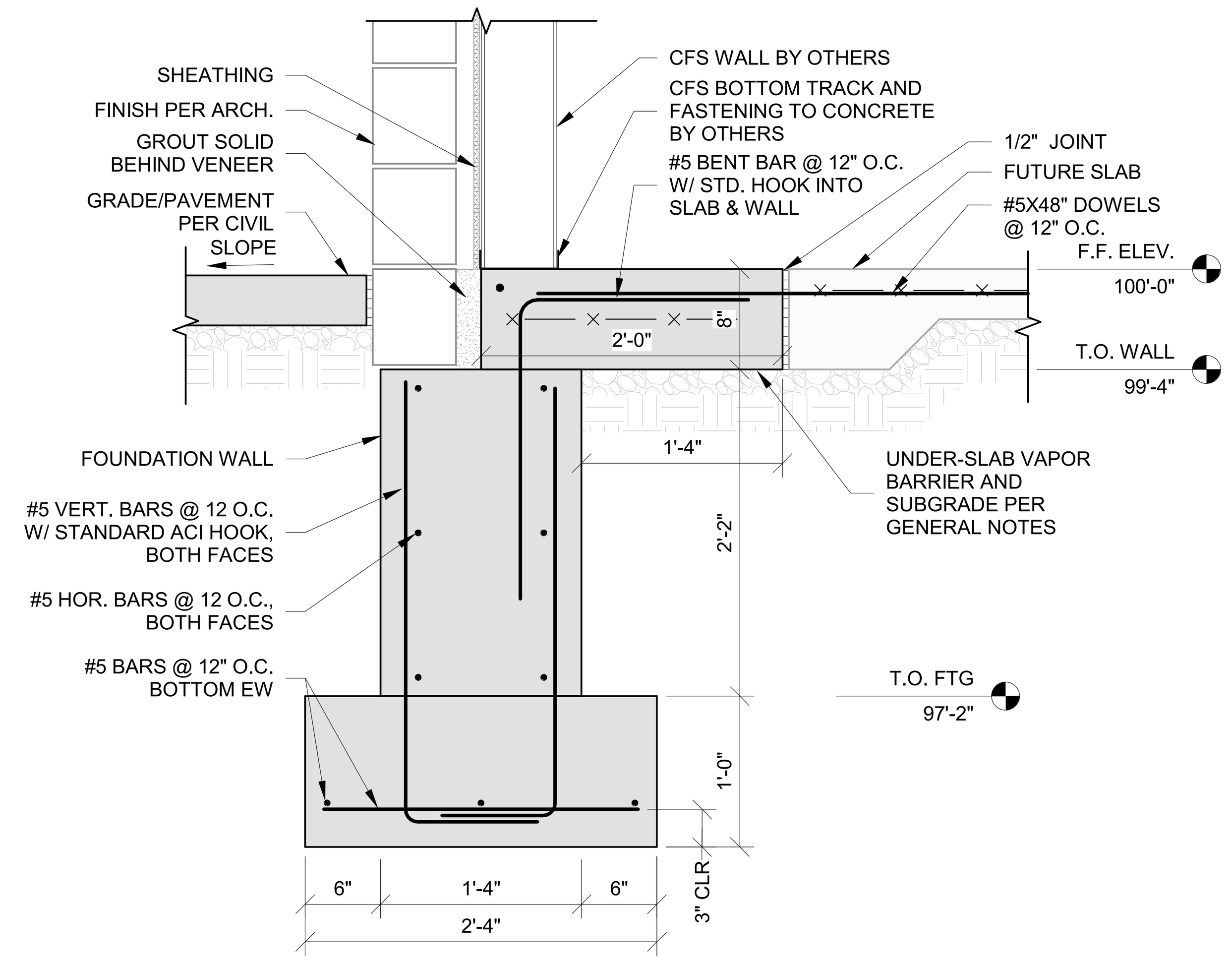
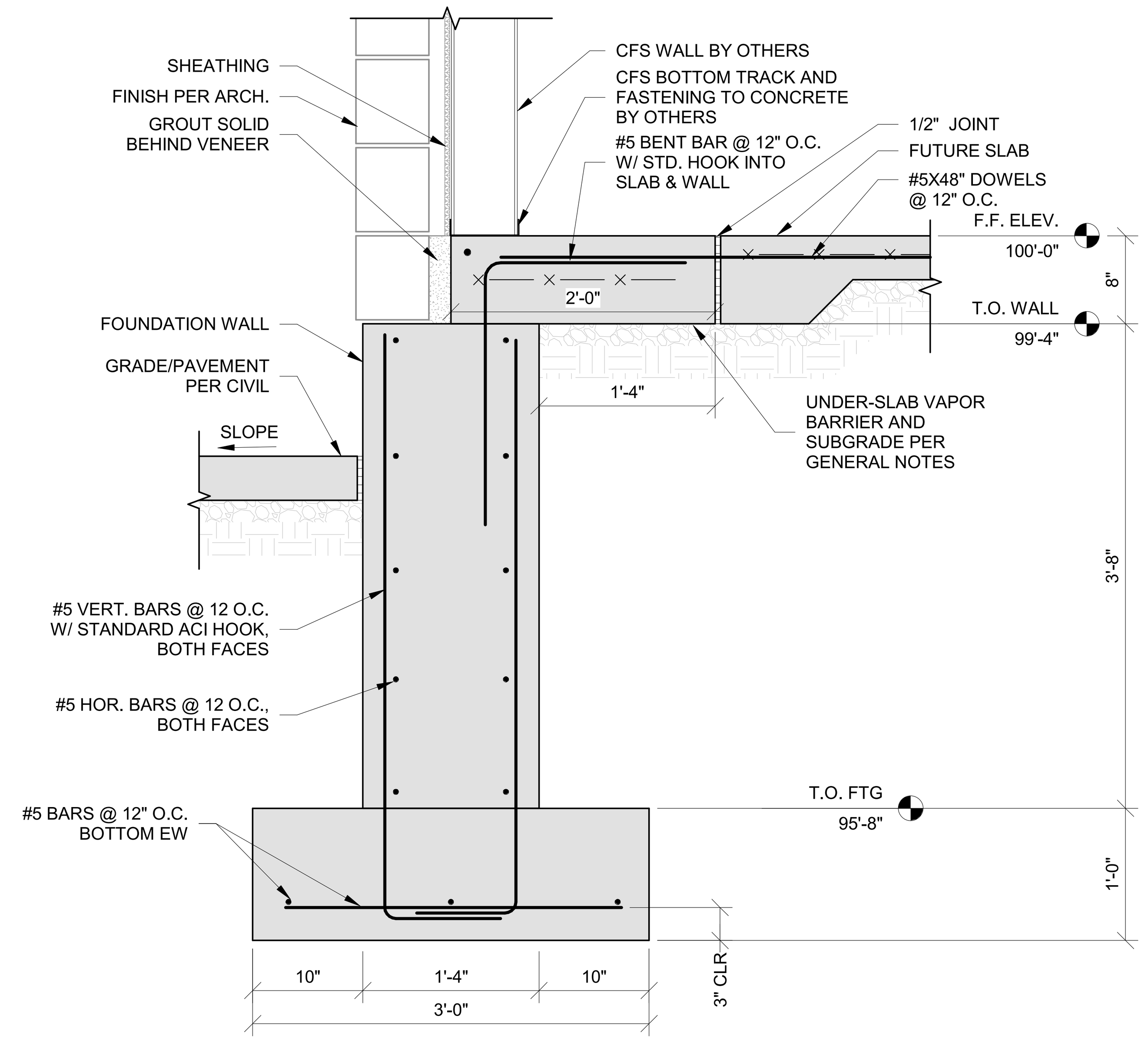
SHEET TITLE
TYPICAL CONCRETE DETAILS

PROJECT NUMBER: 2023000333

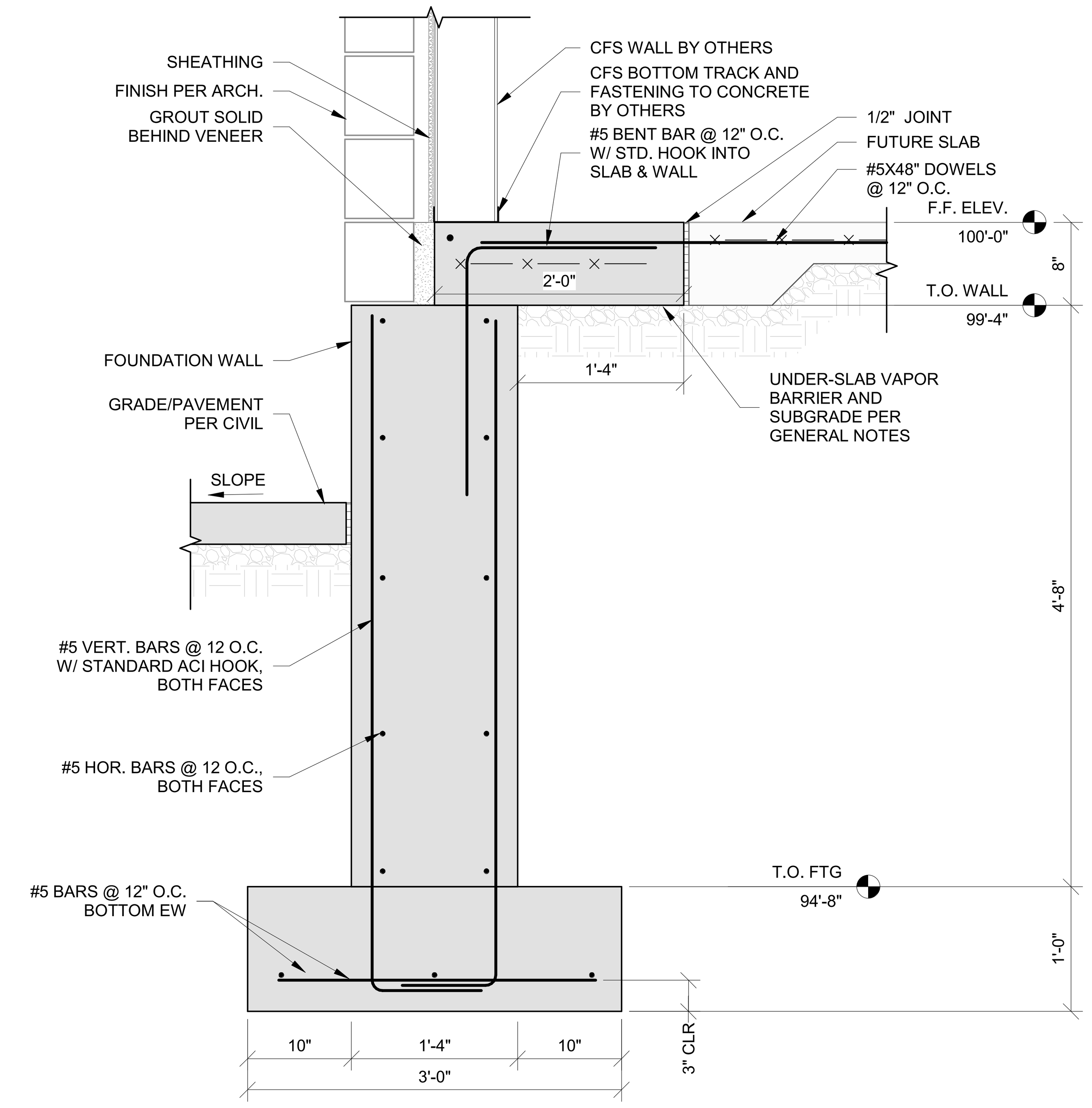
SHEET NUMBER:
S500



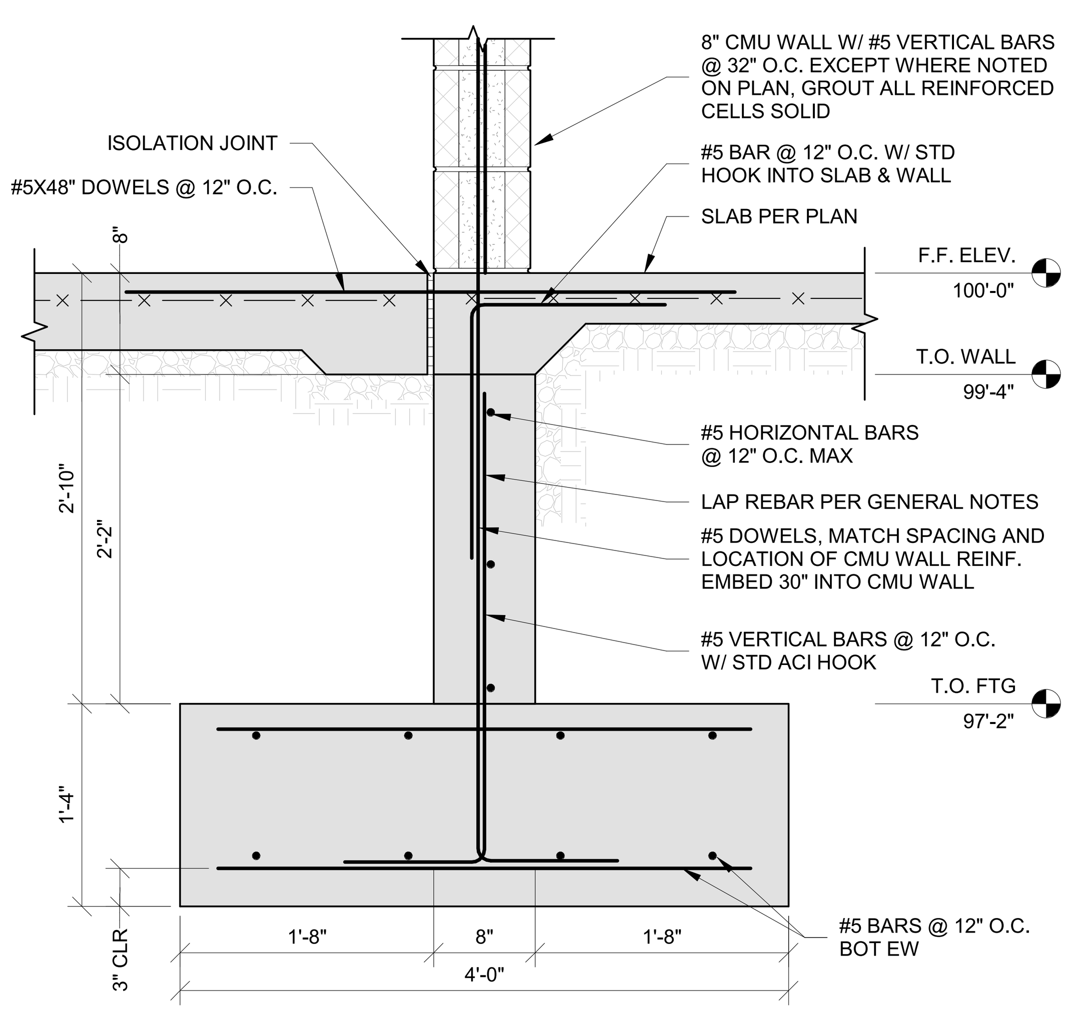
1 S501 EXTERIOR WALL (NOT AT PARKING GARAGE)
1" = 1'-0"



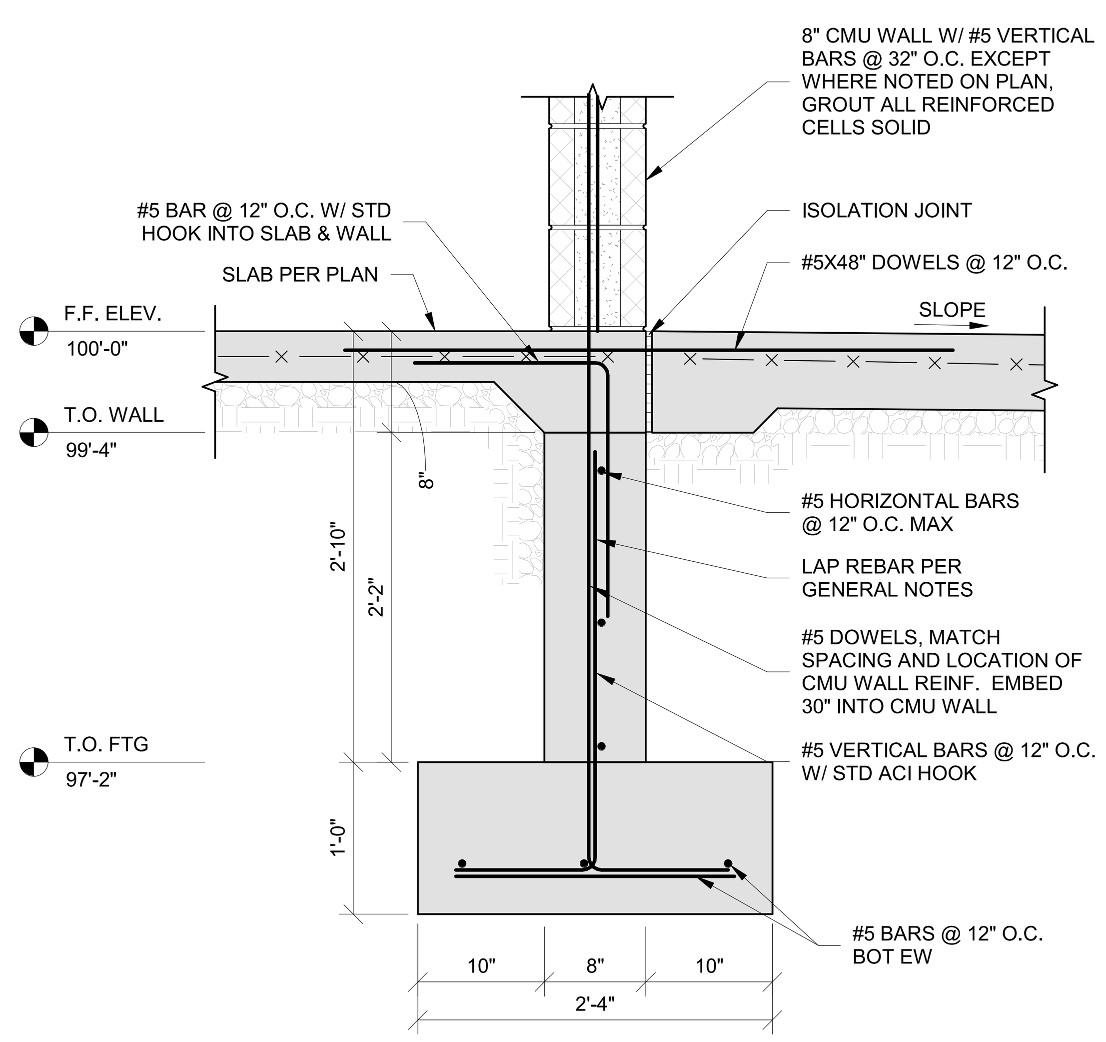
2 S501 EXTERIOR WALL SOUTH FTG STEP (NOT AT PARKING GARAGE)
1" = 1'-0"



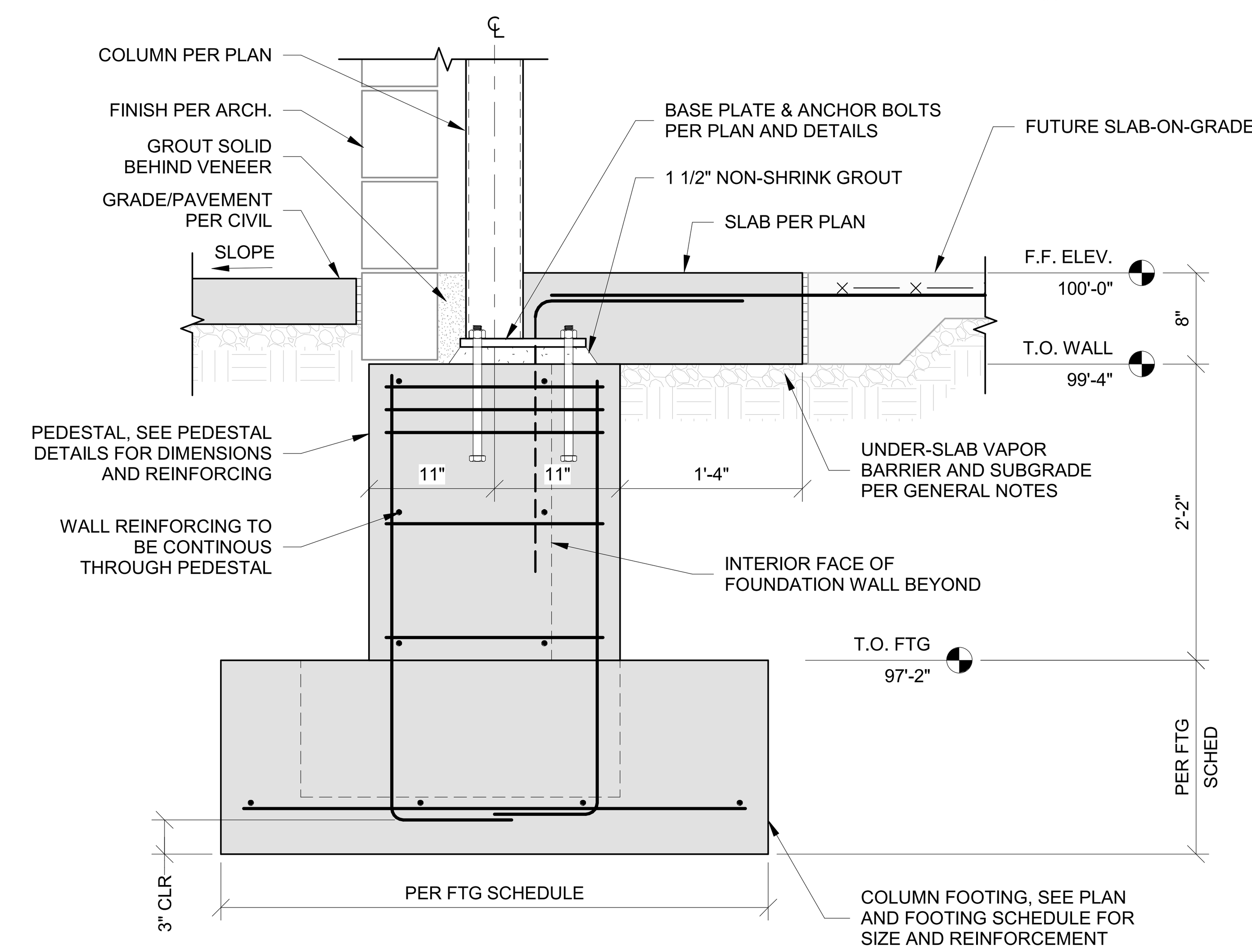
3 S501 EXTERIOR WALL NORTH FTG STEP (NOT AT PARKING GARAGE)
1" = 1'-0"



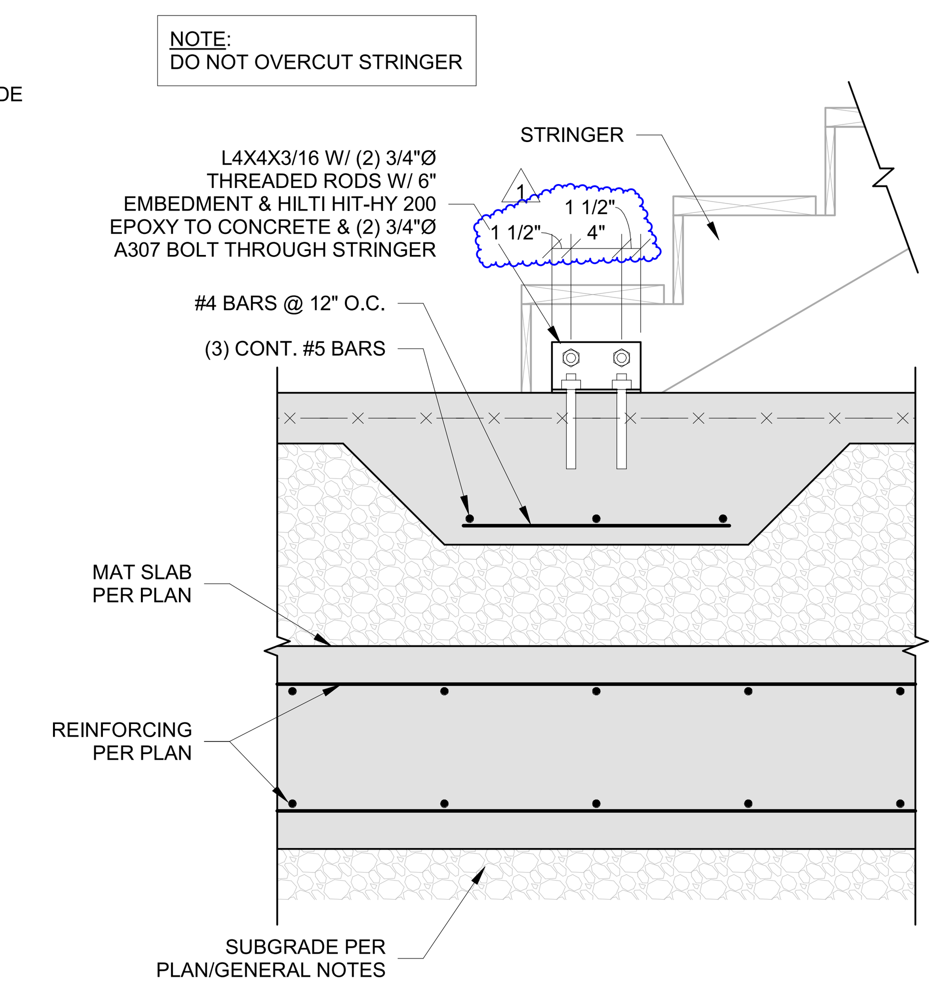
4 S501 FOUNDATION SECTION AT FIREWALL
1" = 1'-0"



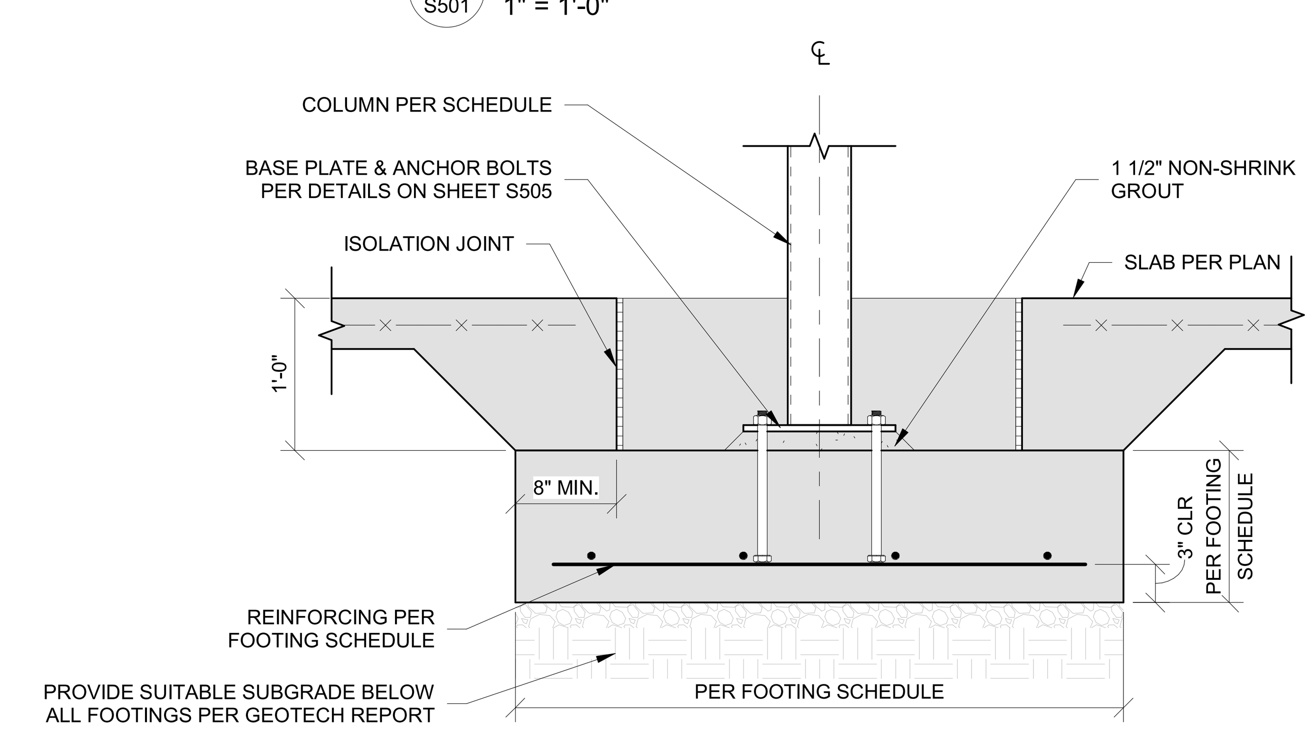
5 S501 SECTION BETWEEN GARAGE & AMENITY AREAS
1" = 1'-0"



6 S501 EXTERIOR WALL AT COLUMN PEDESTAL (NOT AT PARKING GARAGE)
1" = 1'-0"



7 S501 STAIR TO THICKENED SLAB
1" = 1'-0"



8 S501 SECTION AT COLUMN FOOTING
1" = 1'-0"

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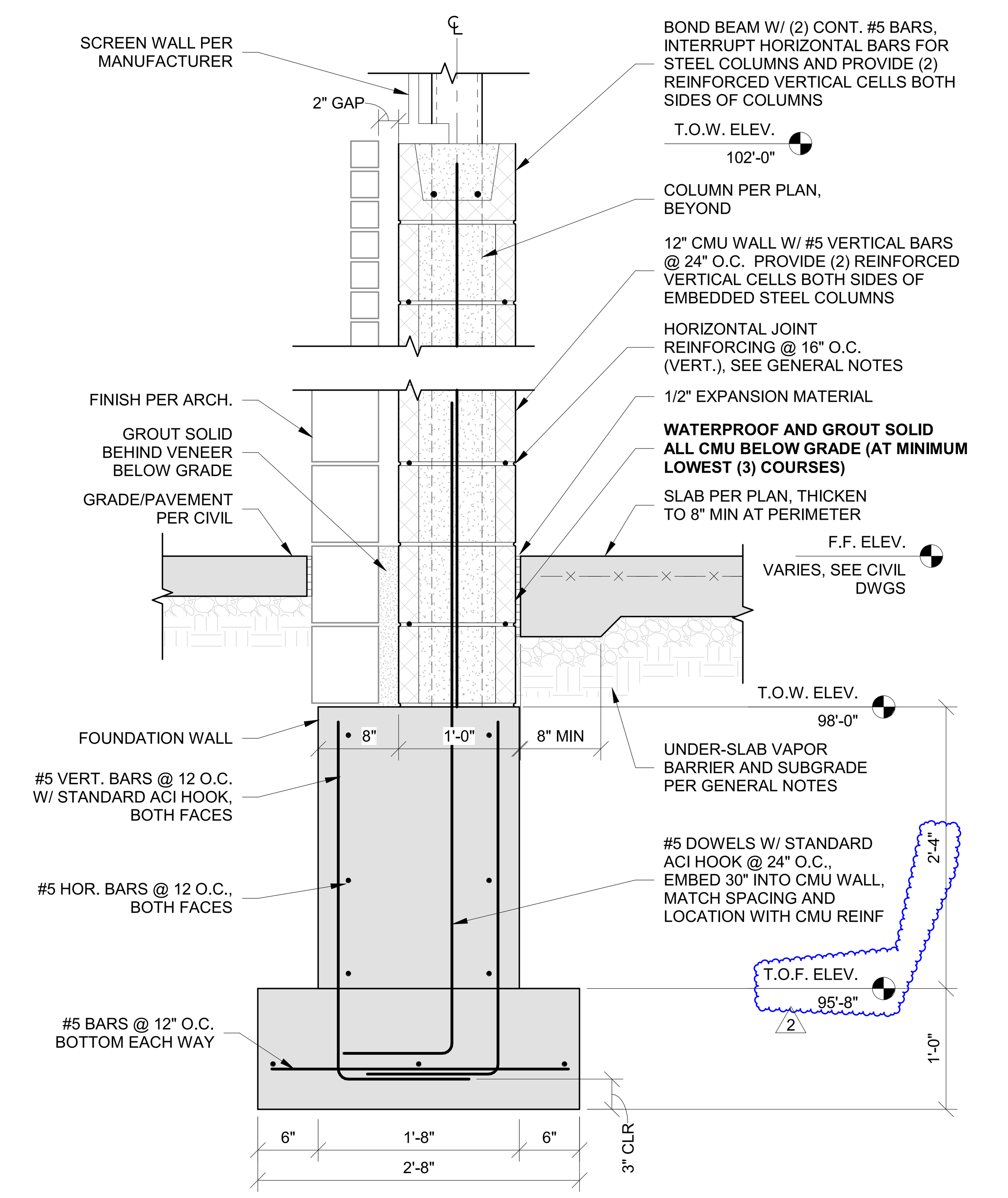
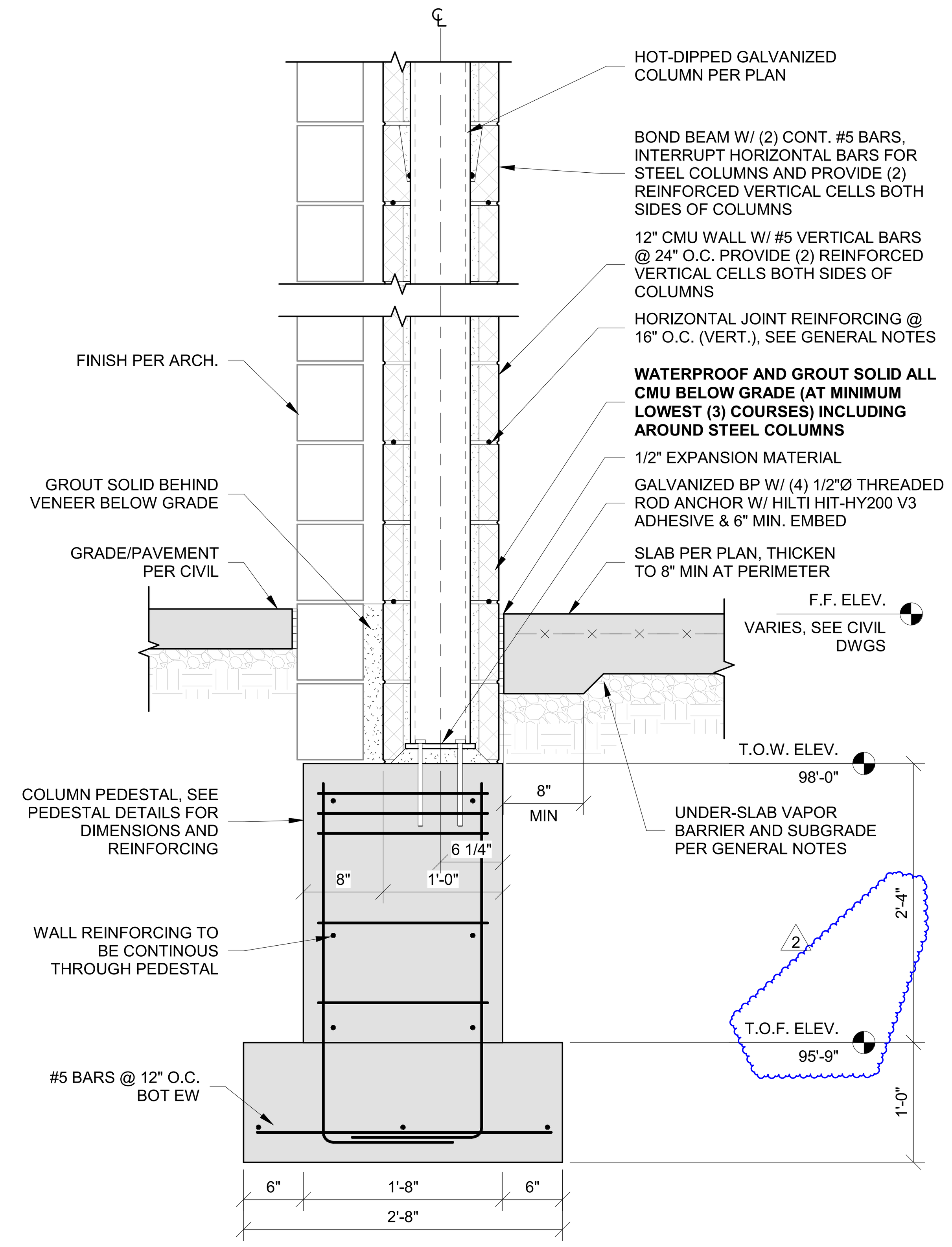
SHEET TITLE
FOUNDATION DETAILS

PROJECT NUMBER: 2023000333

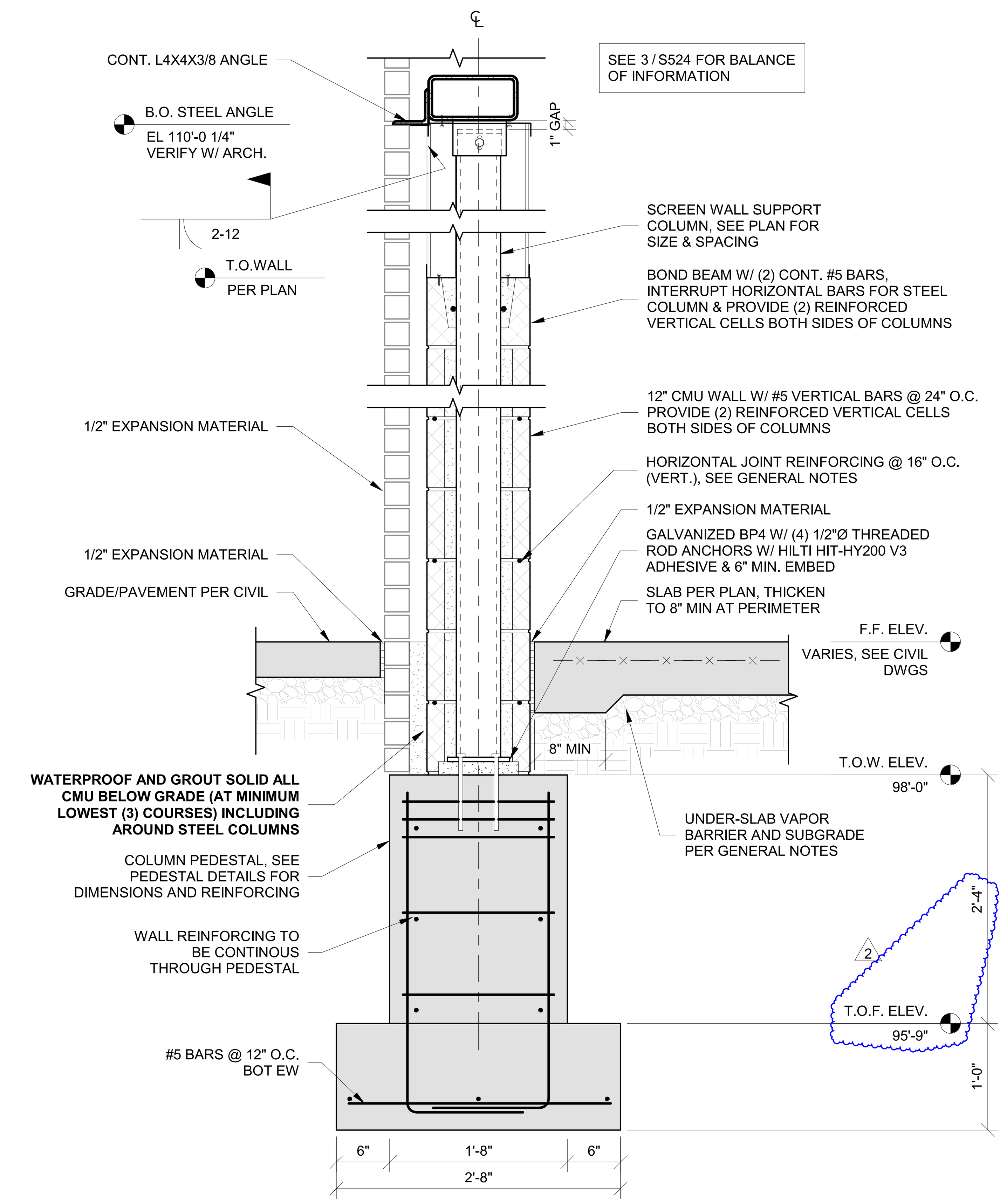
SHEET NUMBER:
S501



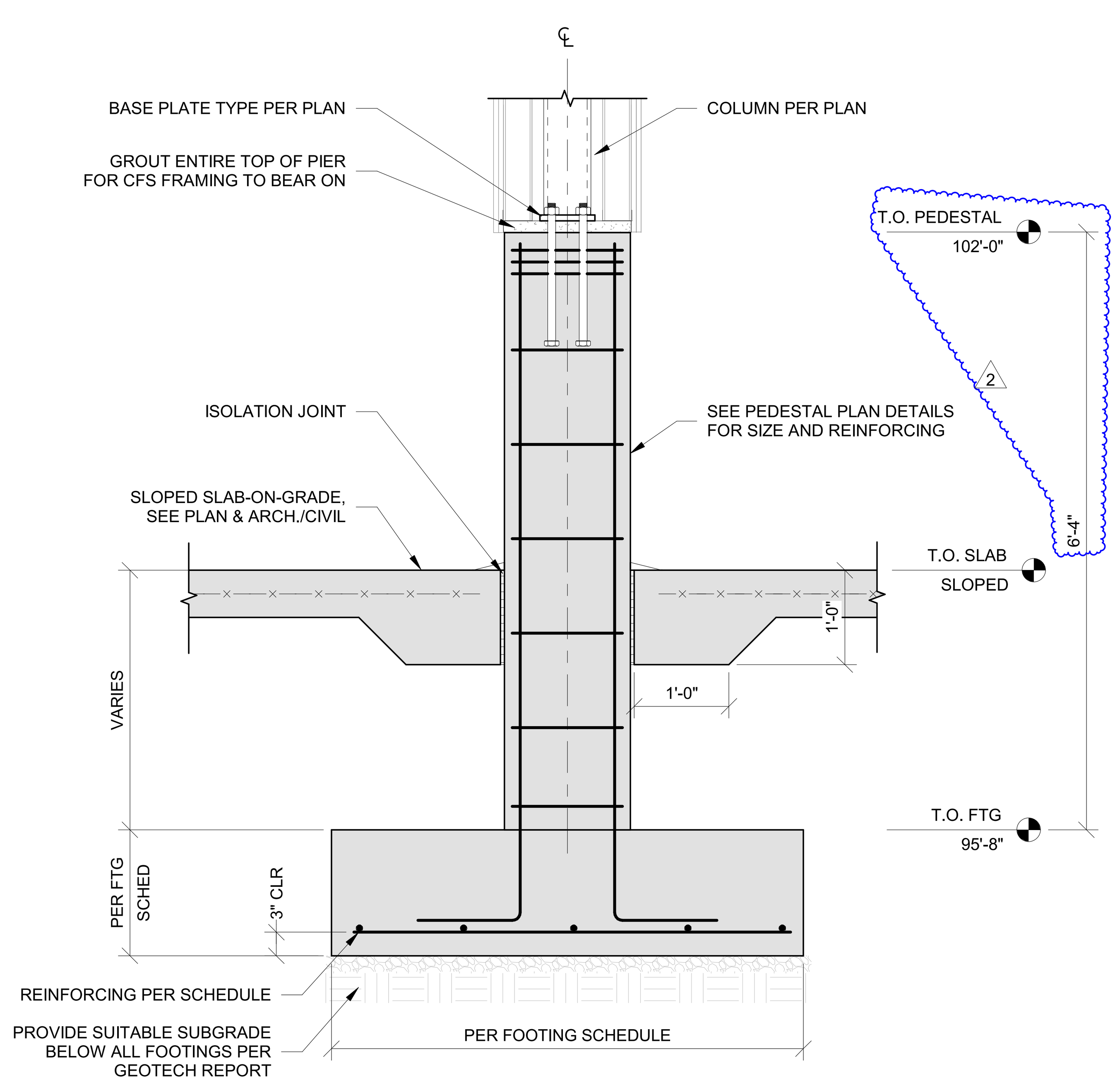
1 FOUNDATION SECTION - GARAGE EXTERIOR WALL
S502 1" = 1'-0"



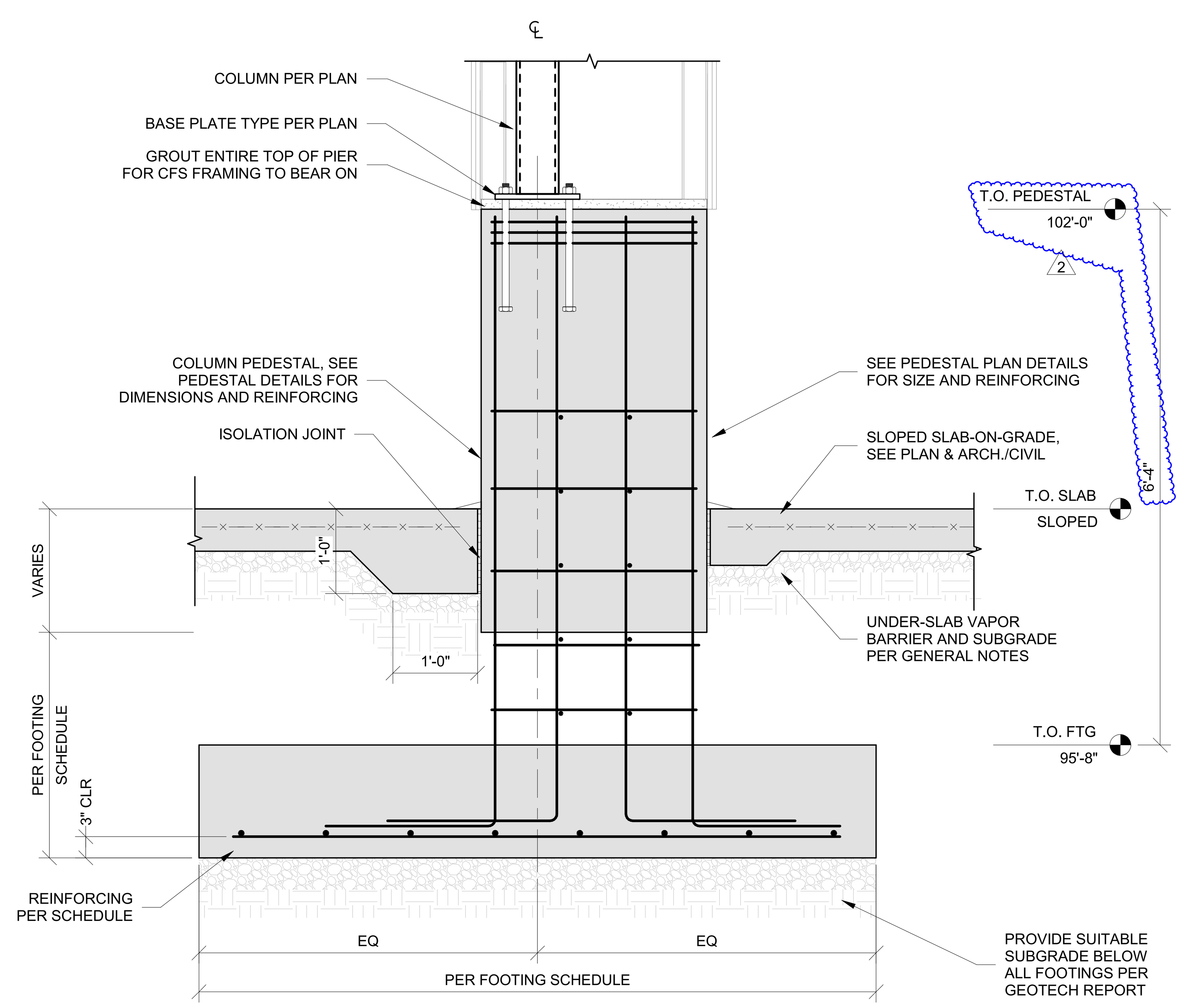
2 FOUNDATION SECTION - COLUMN FOOTING AT GARAGE EXTERIOR WALL
S502 1" = 1'-0"



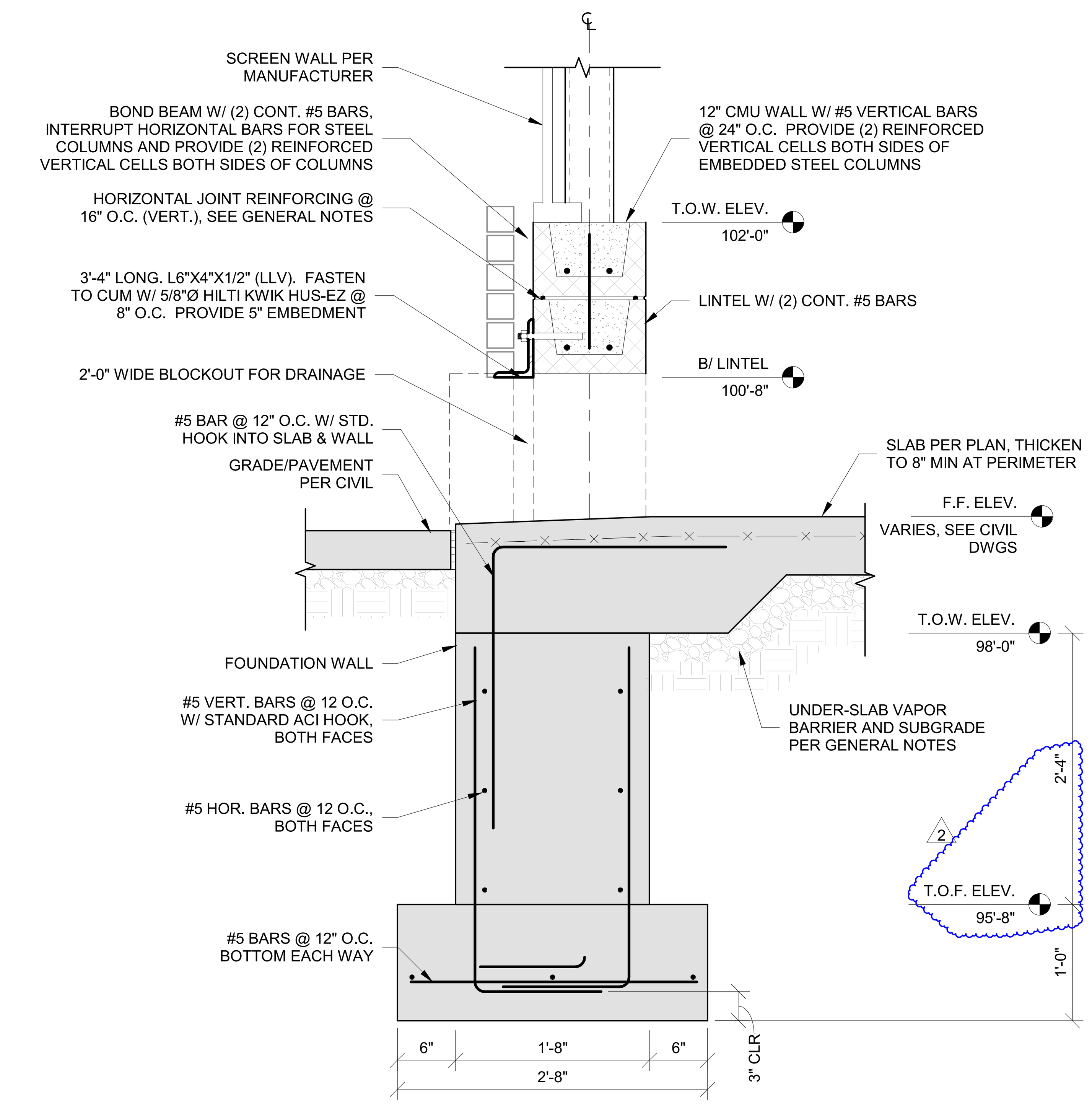
3 FOUNDATION SECTION AT SCREEN WALL POST
S502 1" = 1'-0"



4 GARAGE COLUMN AND PEDESTAL
S502 3/4" = 1'-0"



5 GARAGE COLUMN AND PEDESTAL SECTION
S502 3/4" = 1'-0"



6 FOUNDATION SECTION - GARAGE AT BLOCKOUT
S502 1" = 1'-0"

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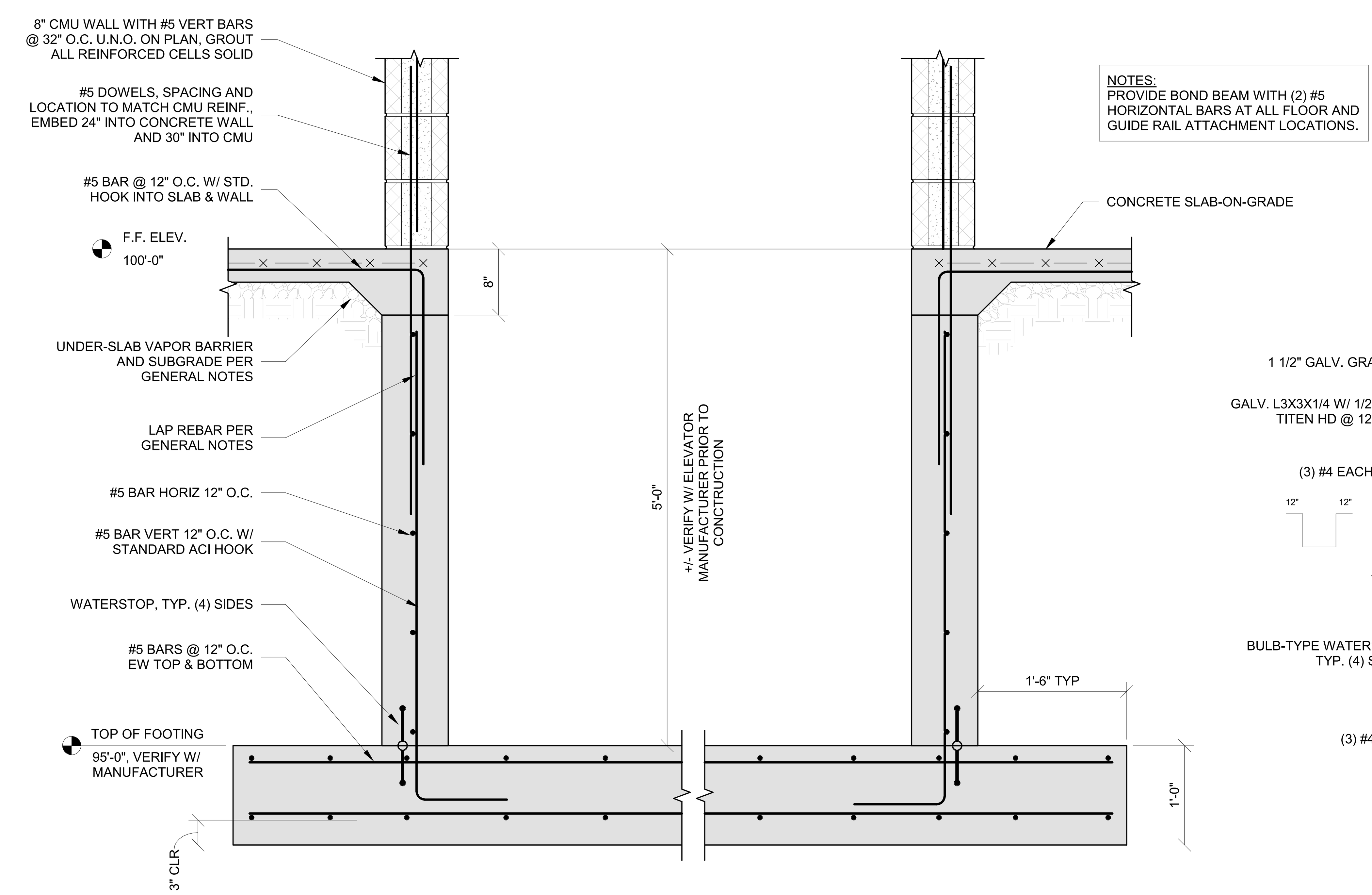
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

SHEET TITLE
FOUNDATION DETAILS

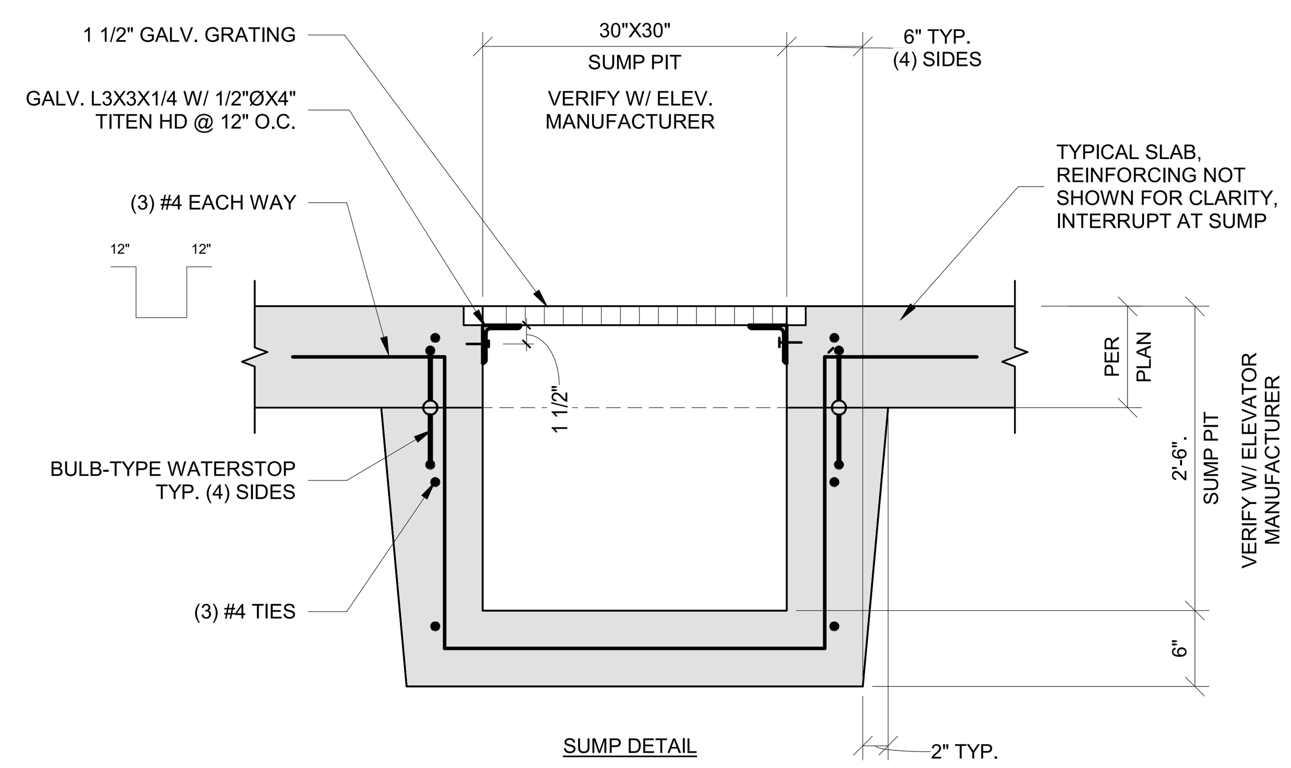
PROJECT NUMBER: 2023000333

SHEET NUMBER:

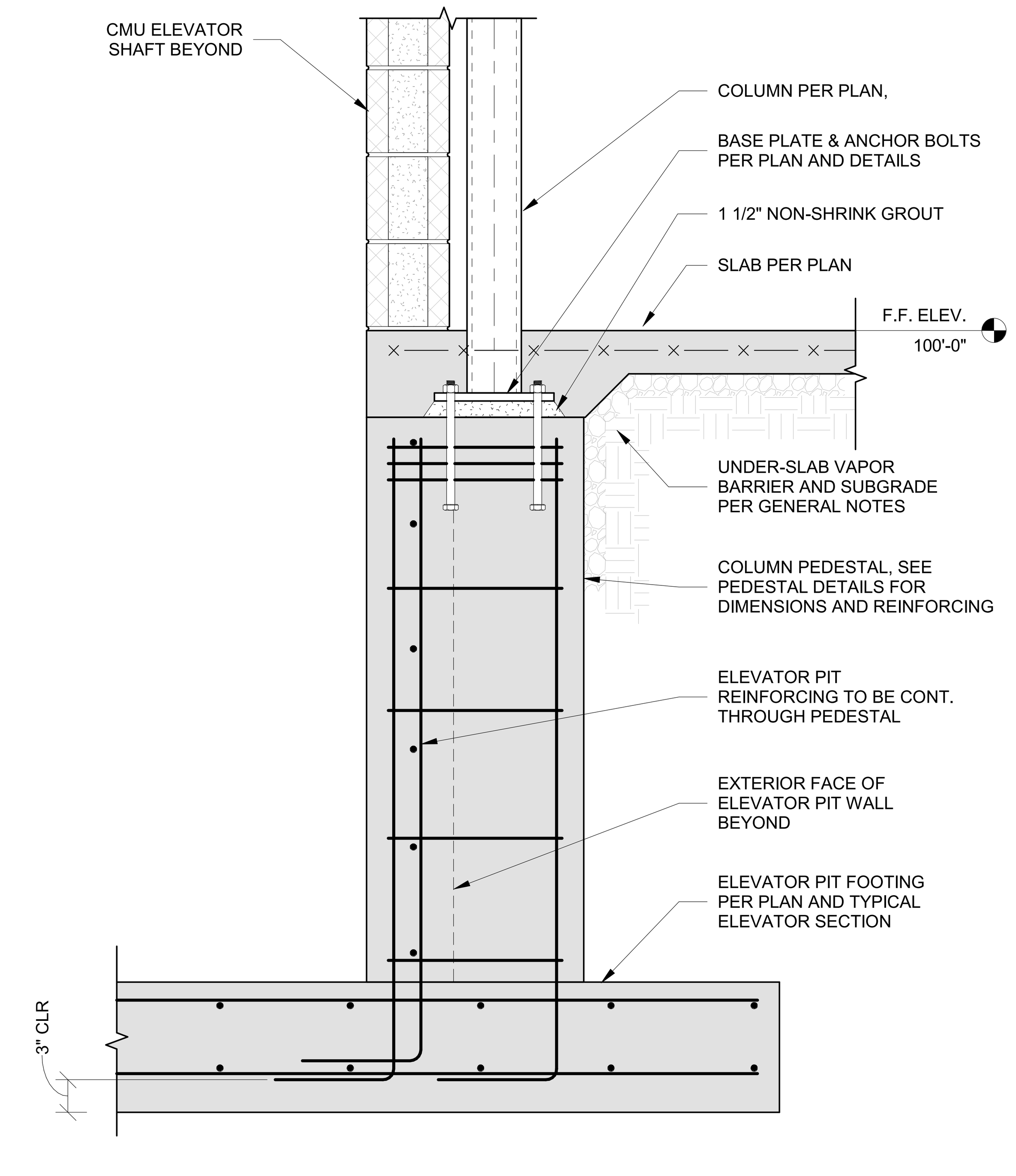
S502



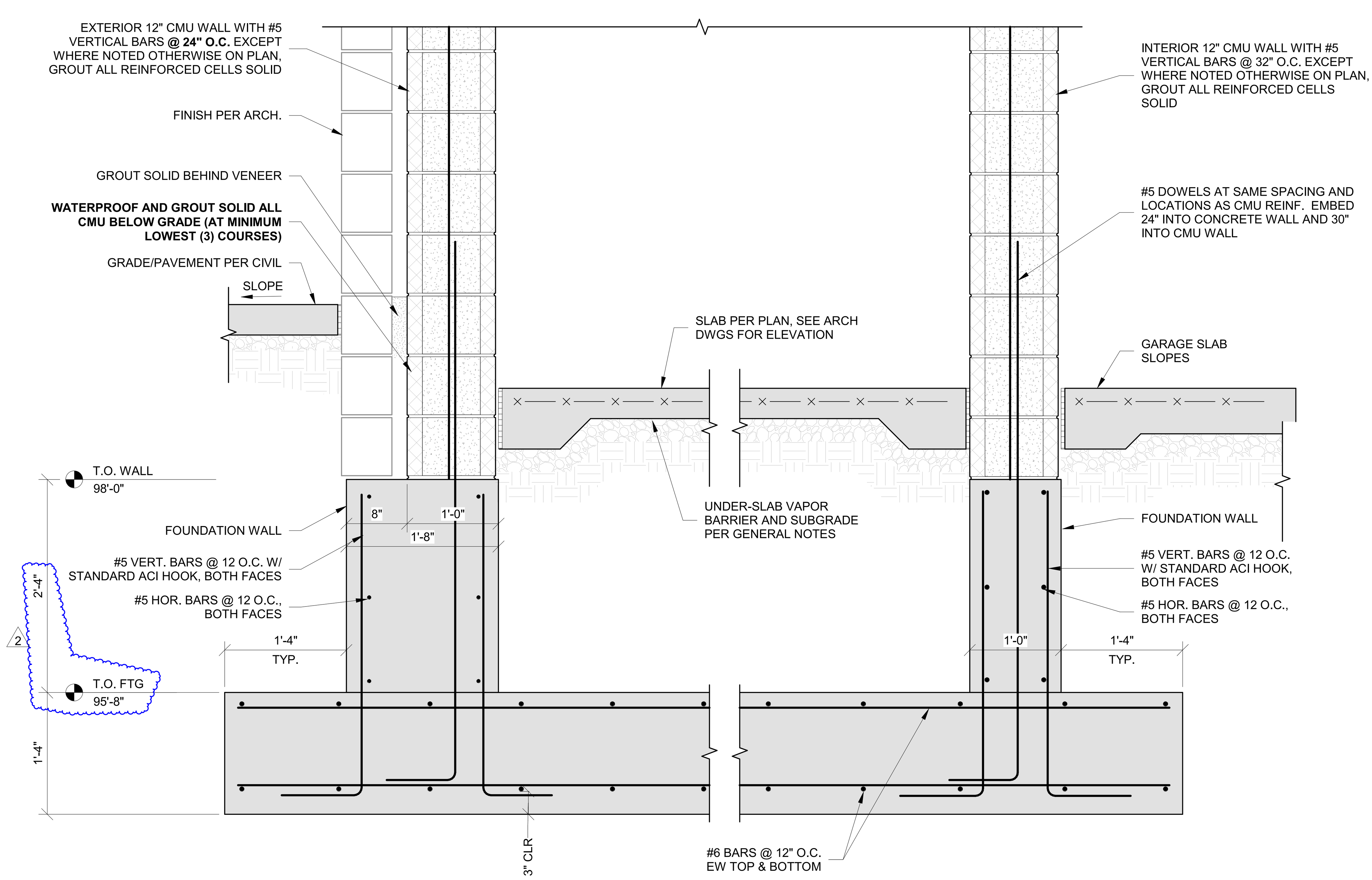
1 ELEVATOR PIT DETAIL
S503 1" = 1'-0"



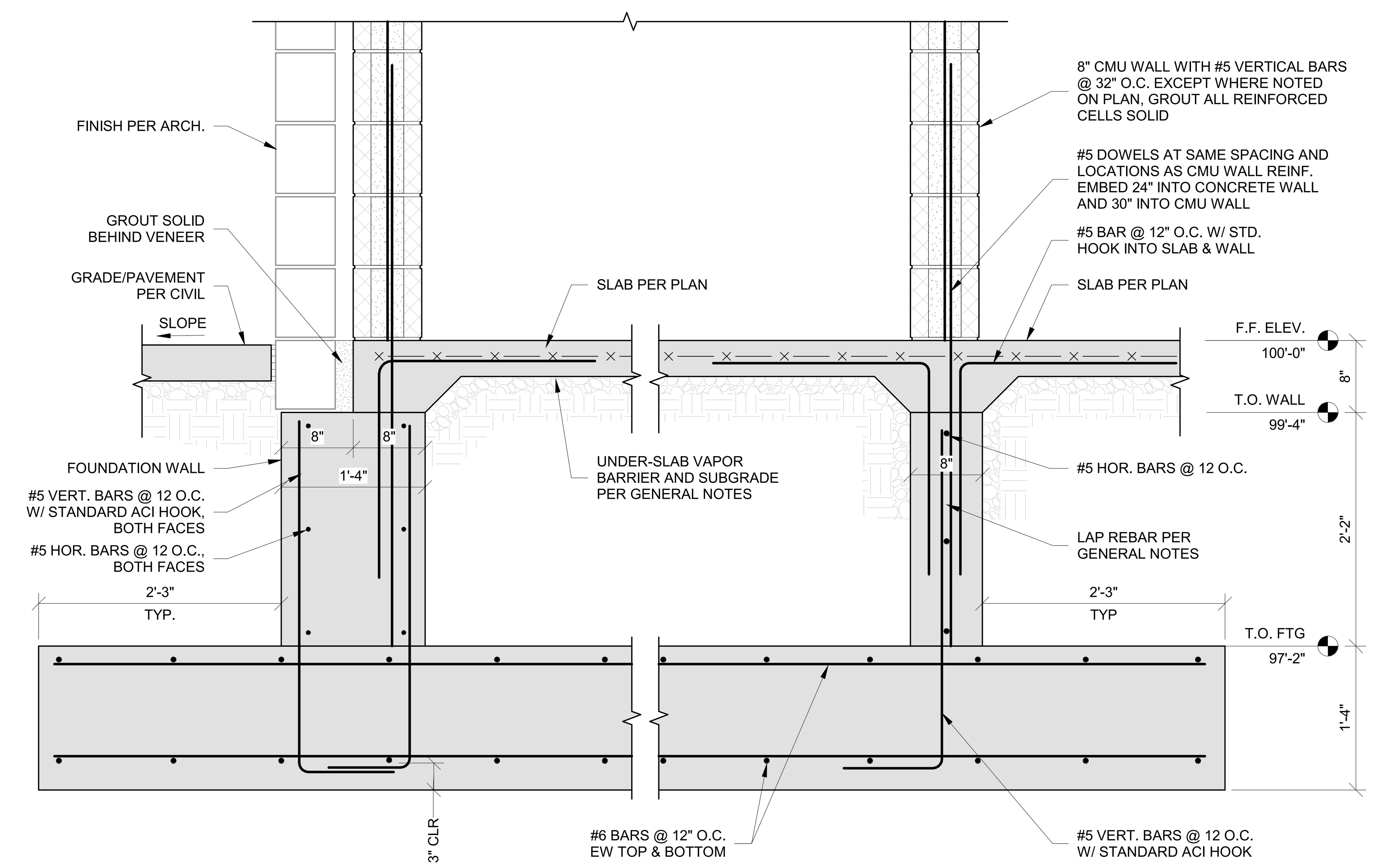
SUMP DETAIL



2 COLUMN PEDESTAL AT ELEVATOR
S503 1" = 1'-0"



3 SECTION AT EAST STAIR FOUNDATION
S503 1" = 1'-0"



4 SECTION AT WEST STAIR FOUNDATION
S503 1" = 1'-0"

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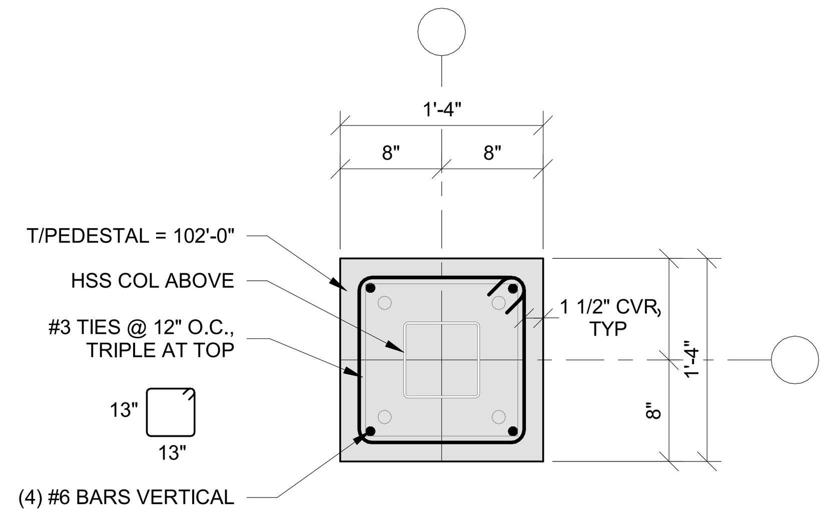
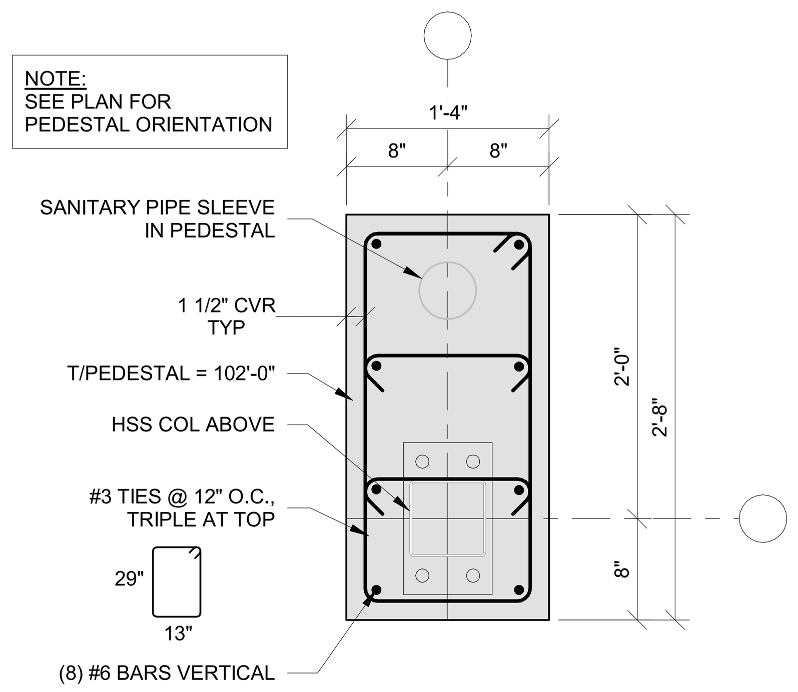
SHEET TITLE
FOUNDATION DETAILS

PROJECT NUMBER: 2023000333

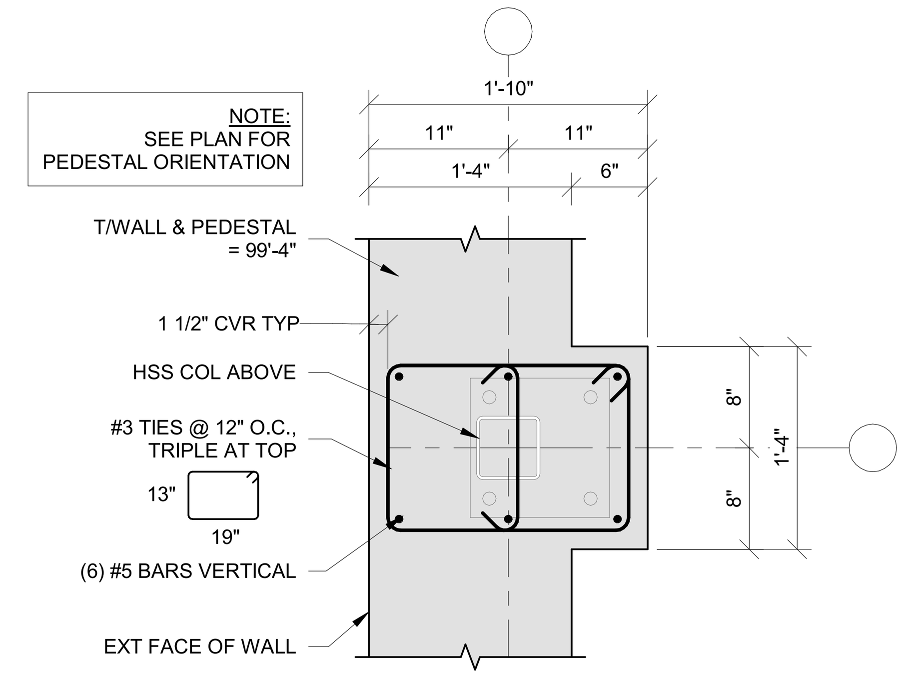
SHEET NUMBER:
S503



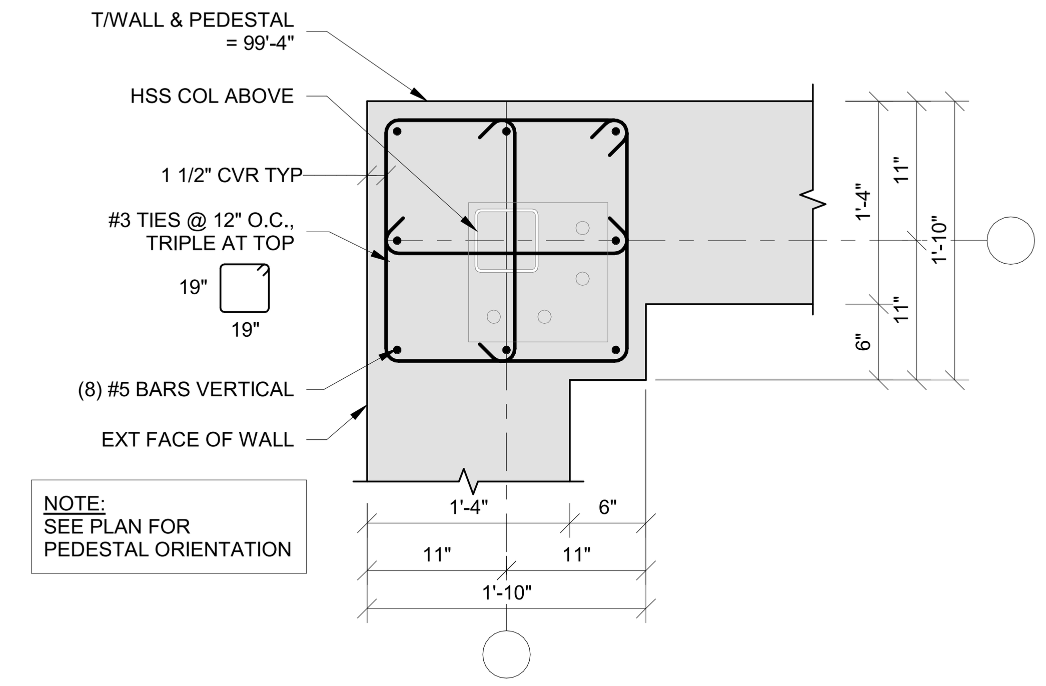
1 PEDESTAL P1
S504 1" = 1'-0"



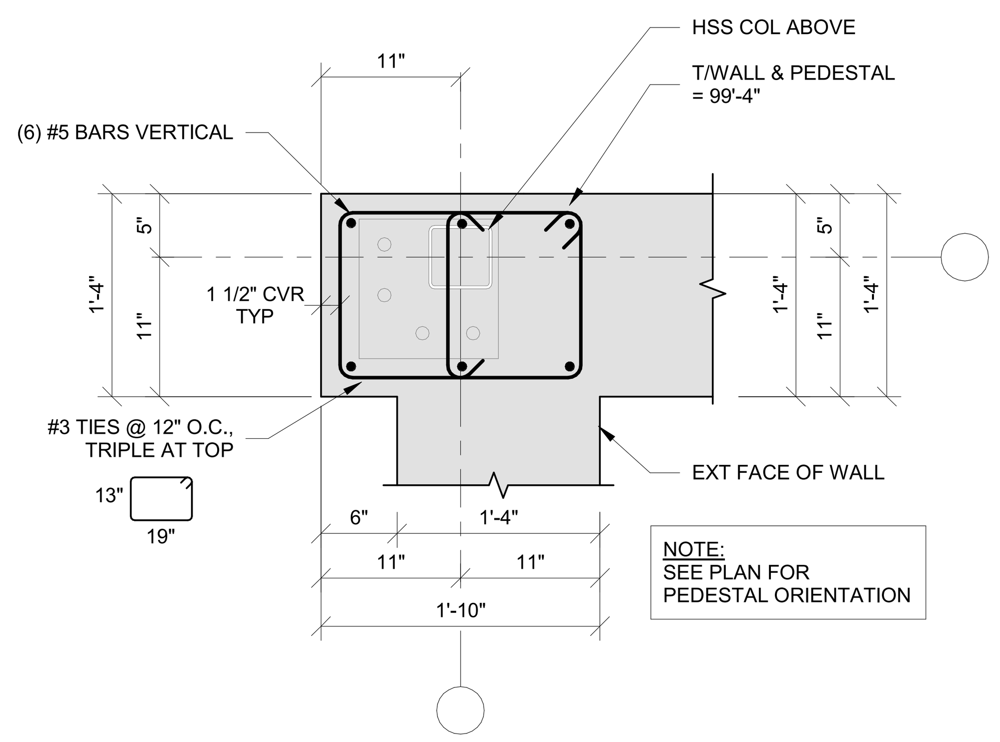
2 PEDESTAL P2
S504 1" = 1'-0"



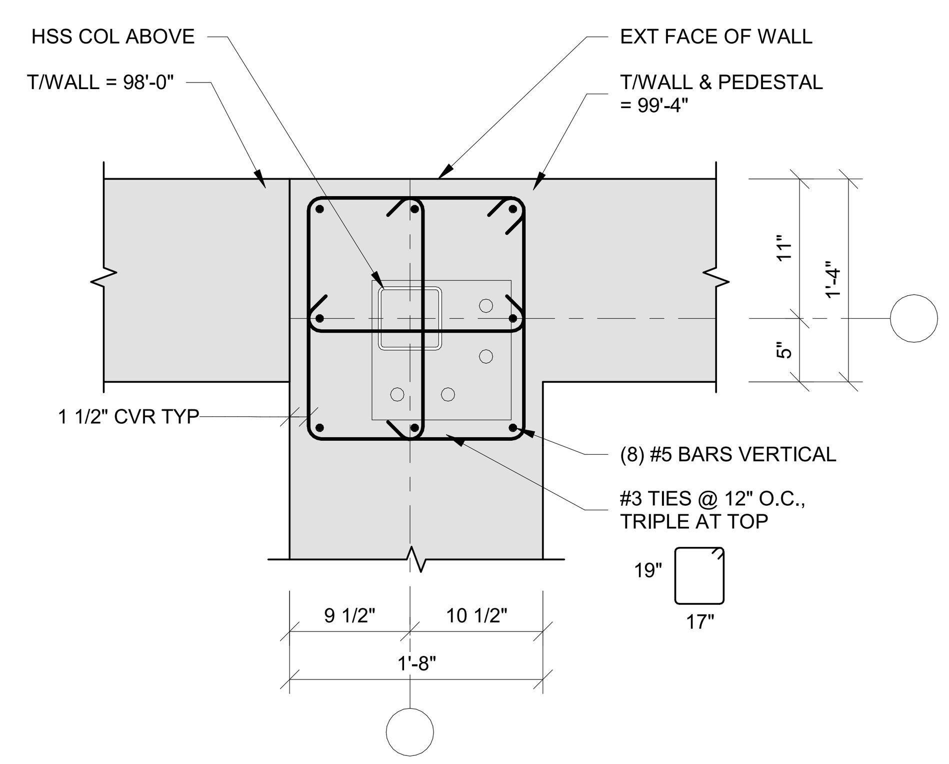
3 PEDESTAL P3
S504 1" = 1'-0"



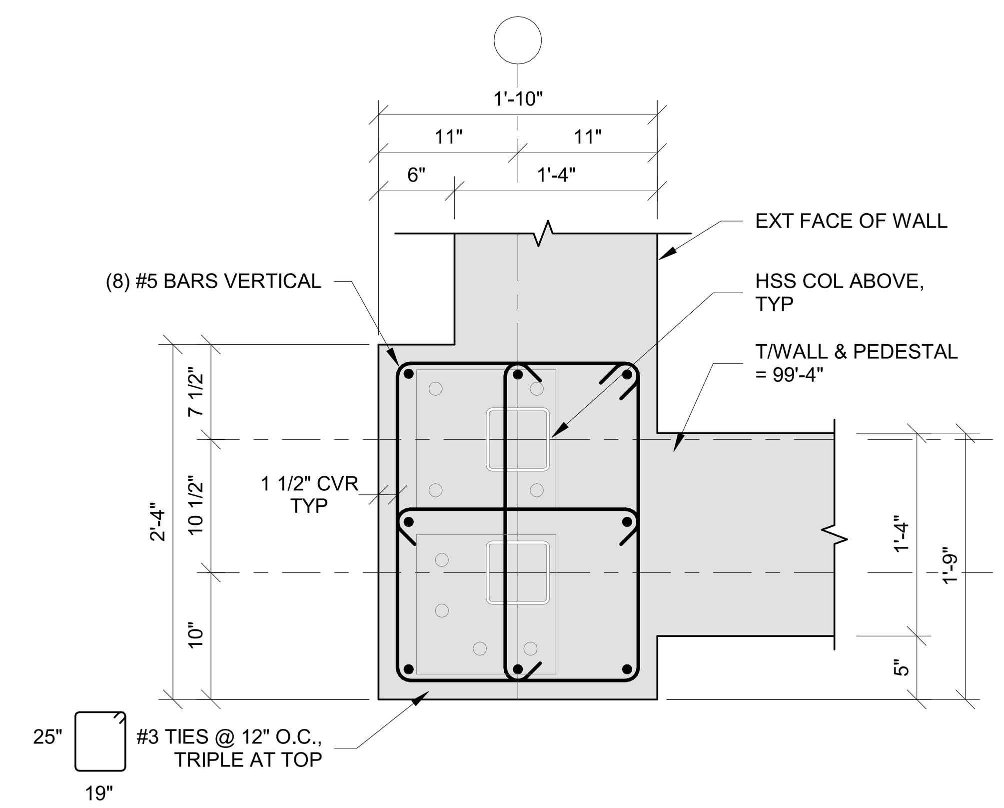
4 PEDESTAL P4
S504 1" = 1'-0"



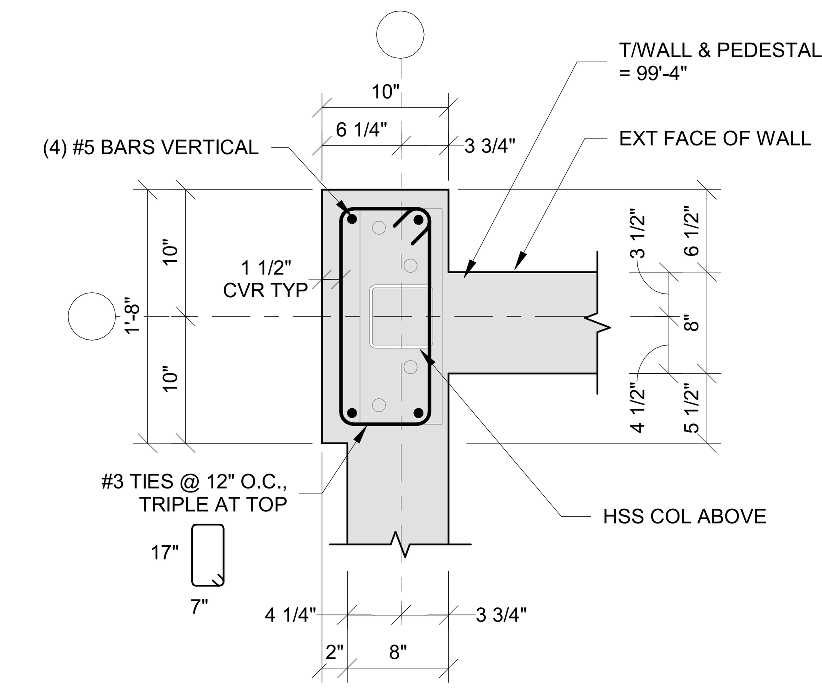
5 PEDESTAL P5
S504 1" = 1'-0"



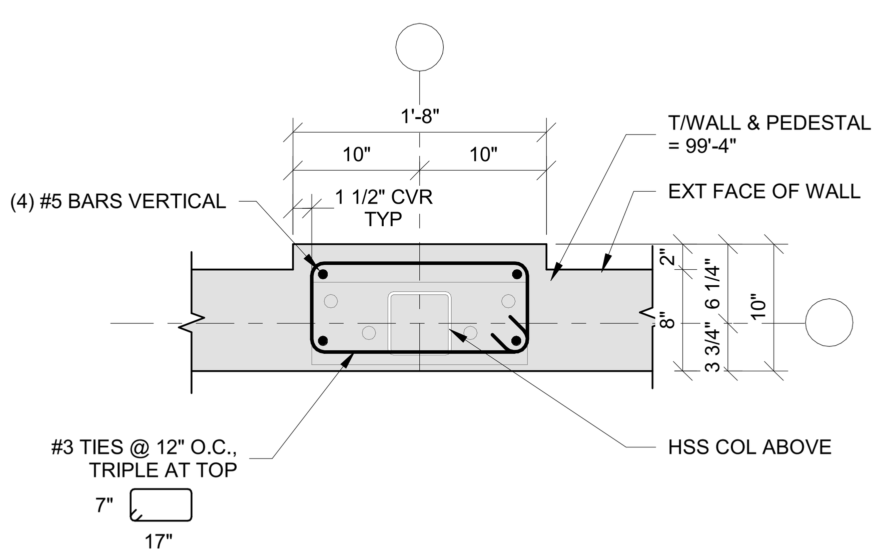
6 PEDESTAL P6
S504 1" = 1'-0"



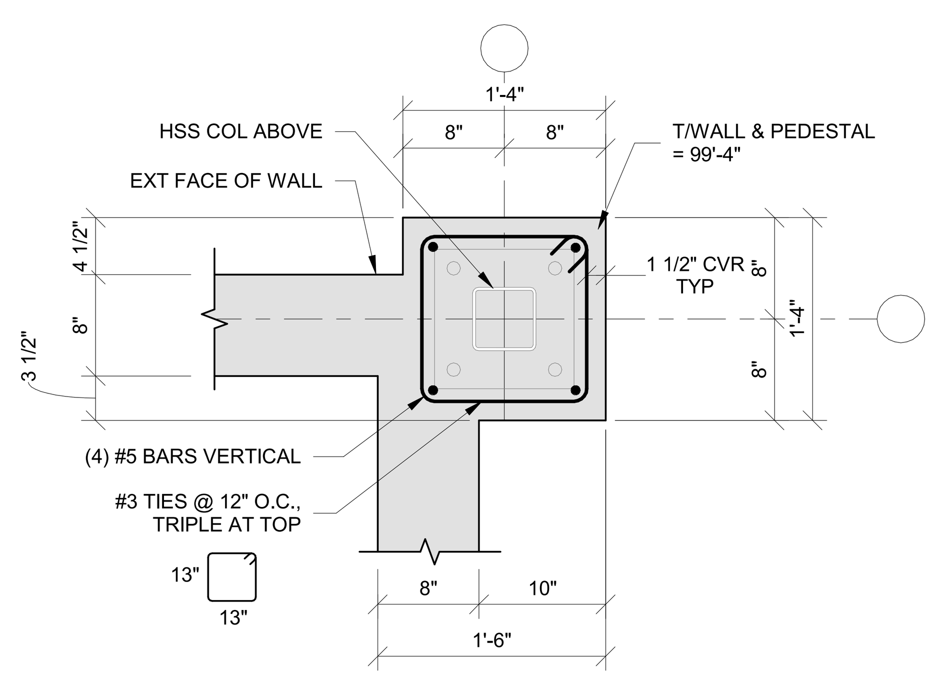
7 PEDESTAL P7
S504 1" = 1'-0"



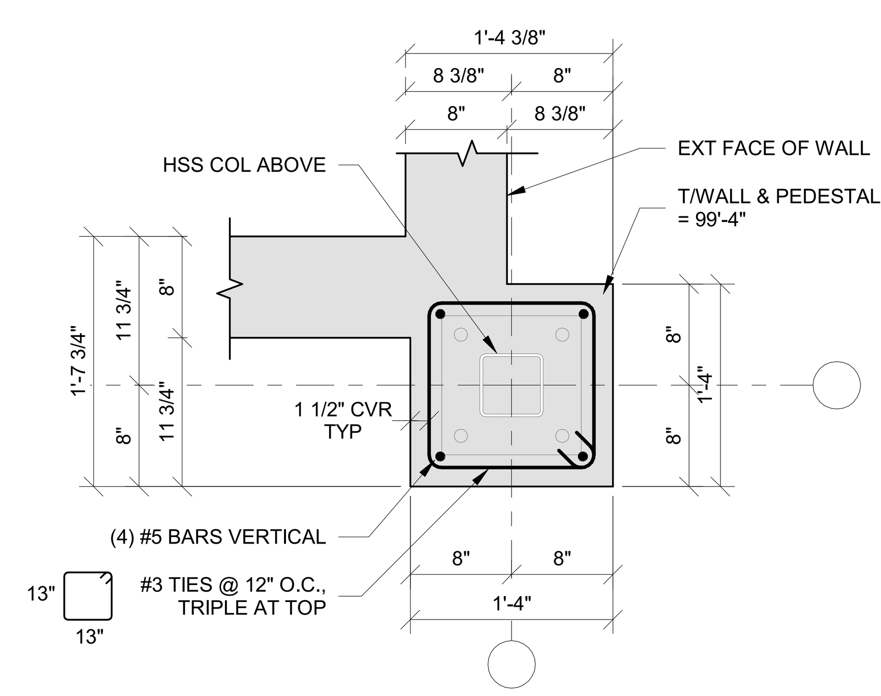
8 PEDESTAL P8
S504 1" = 1'-0"



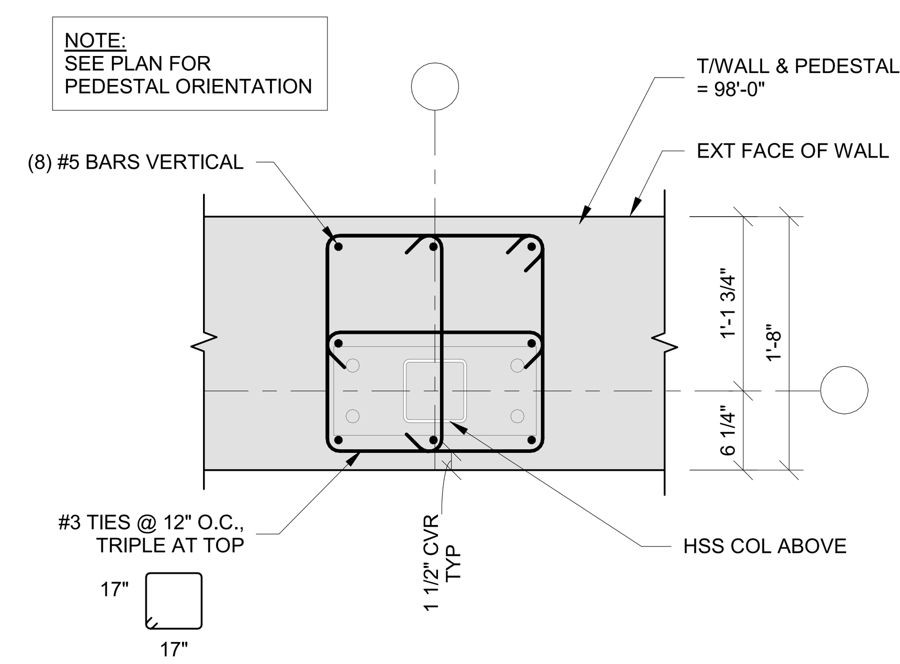
9 PEDESTAL P9
S504 1" = 1'-0"



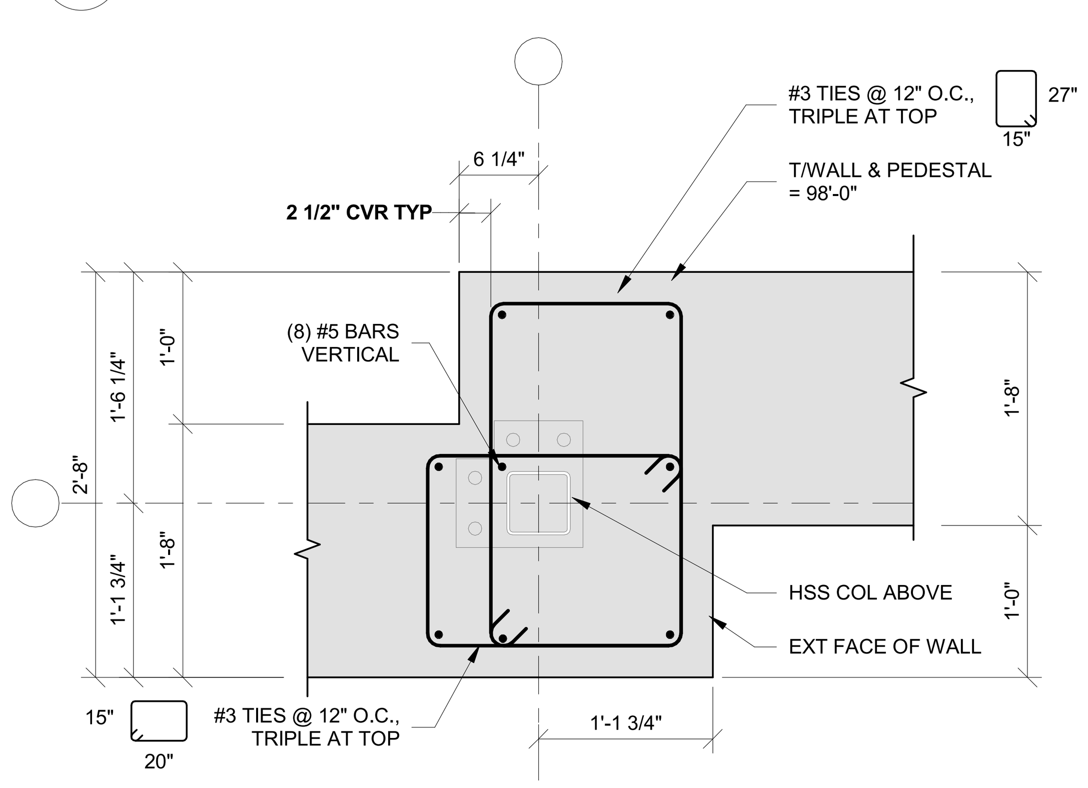
10 PEDESTAL P10
S504 1" = 1'-0"



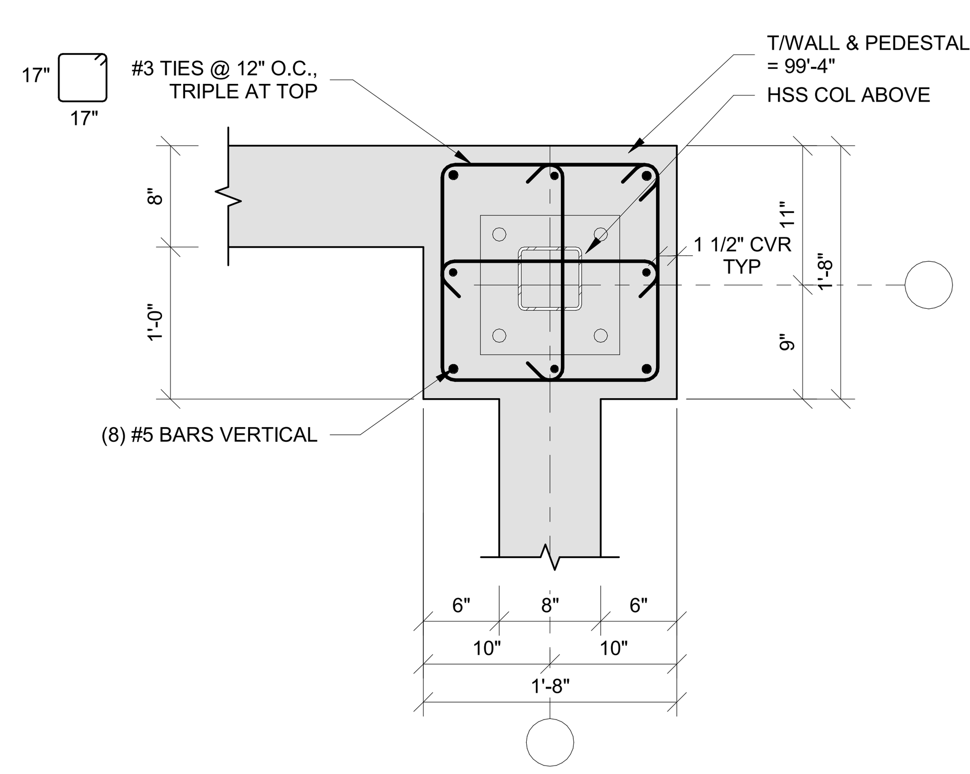
11 PEDESTAL P11
S504 1" = 1'-0"



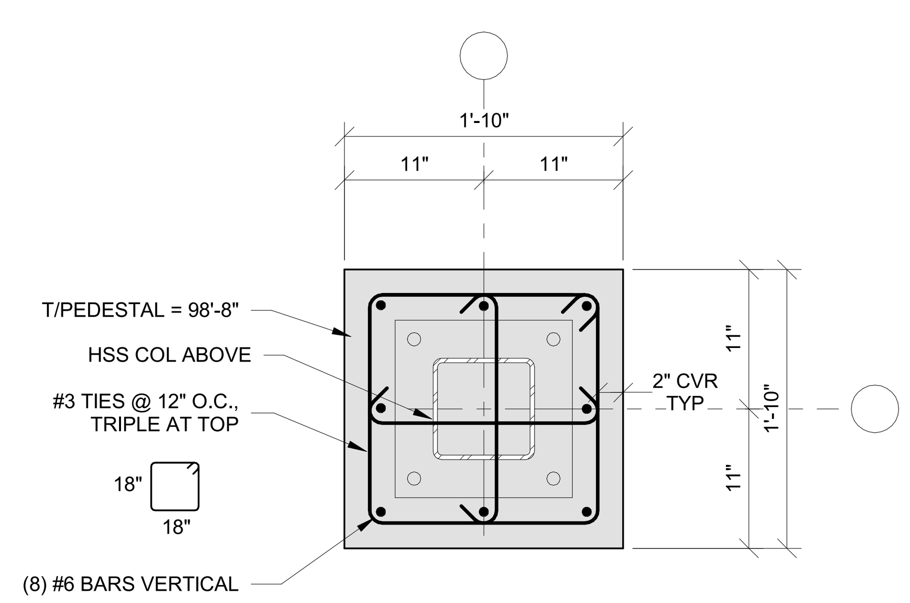
12 PEDESTAL P12
S504 1" = 1'-0"



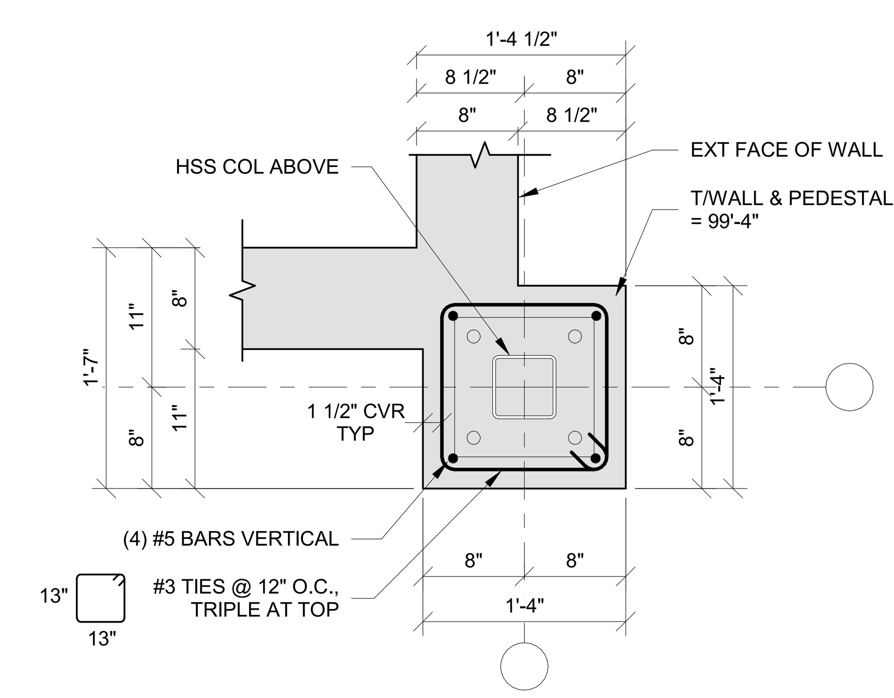
13 PEDESTAL P13
S504 1" = 1'-0"



14 PEDESTAL P14
S504 1" = 1'-0"



15 PEDESTAL P15
S504 1" = 1'-0"



16 PEDESTAL P16
S504 1" = 1'-0"

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

FOR BID PURPOSES ONLY

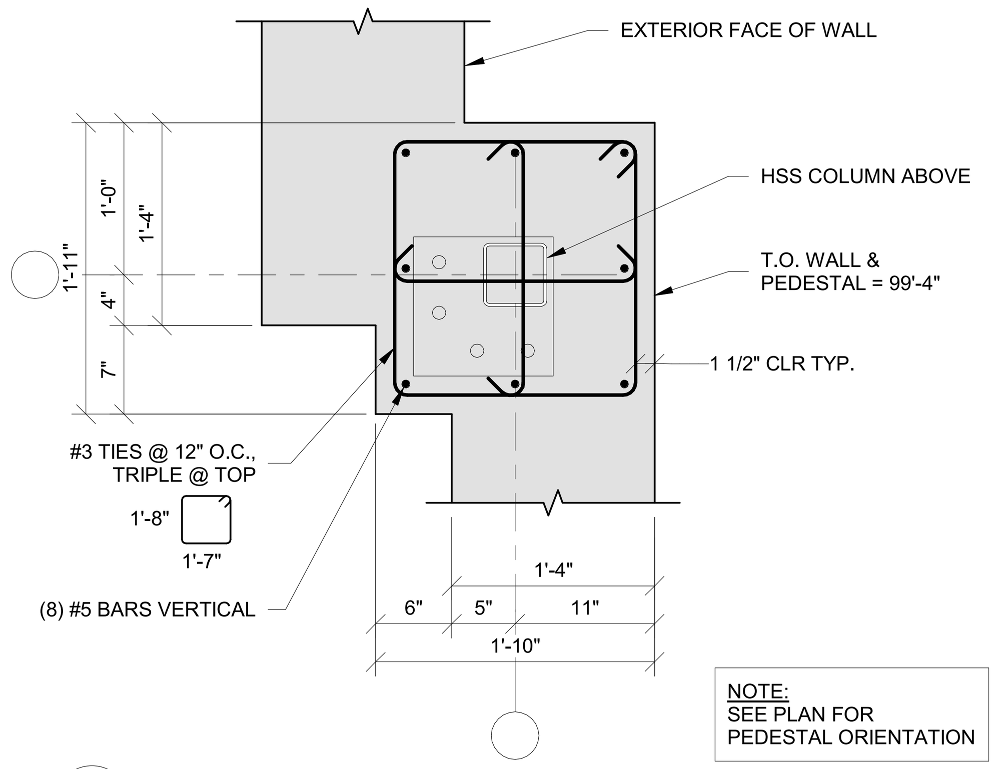
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

SHEET TITLE
PEDESTAL DETAILS

PROJECT NUMBER: 2023000333

SHEET NUMBER:
S504

12/24/2024 2:03:37 PM



1 S505 PEDESTAL P17
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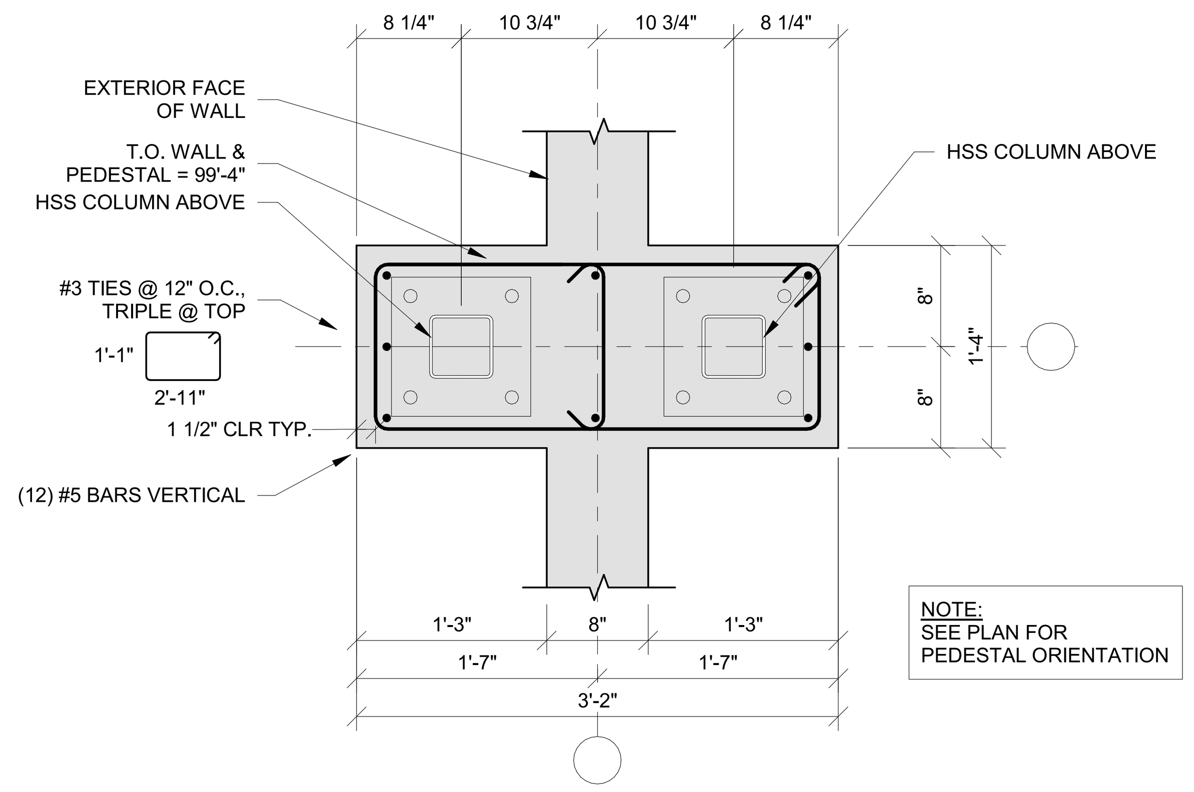

2 S505 PEDESTAL P18
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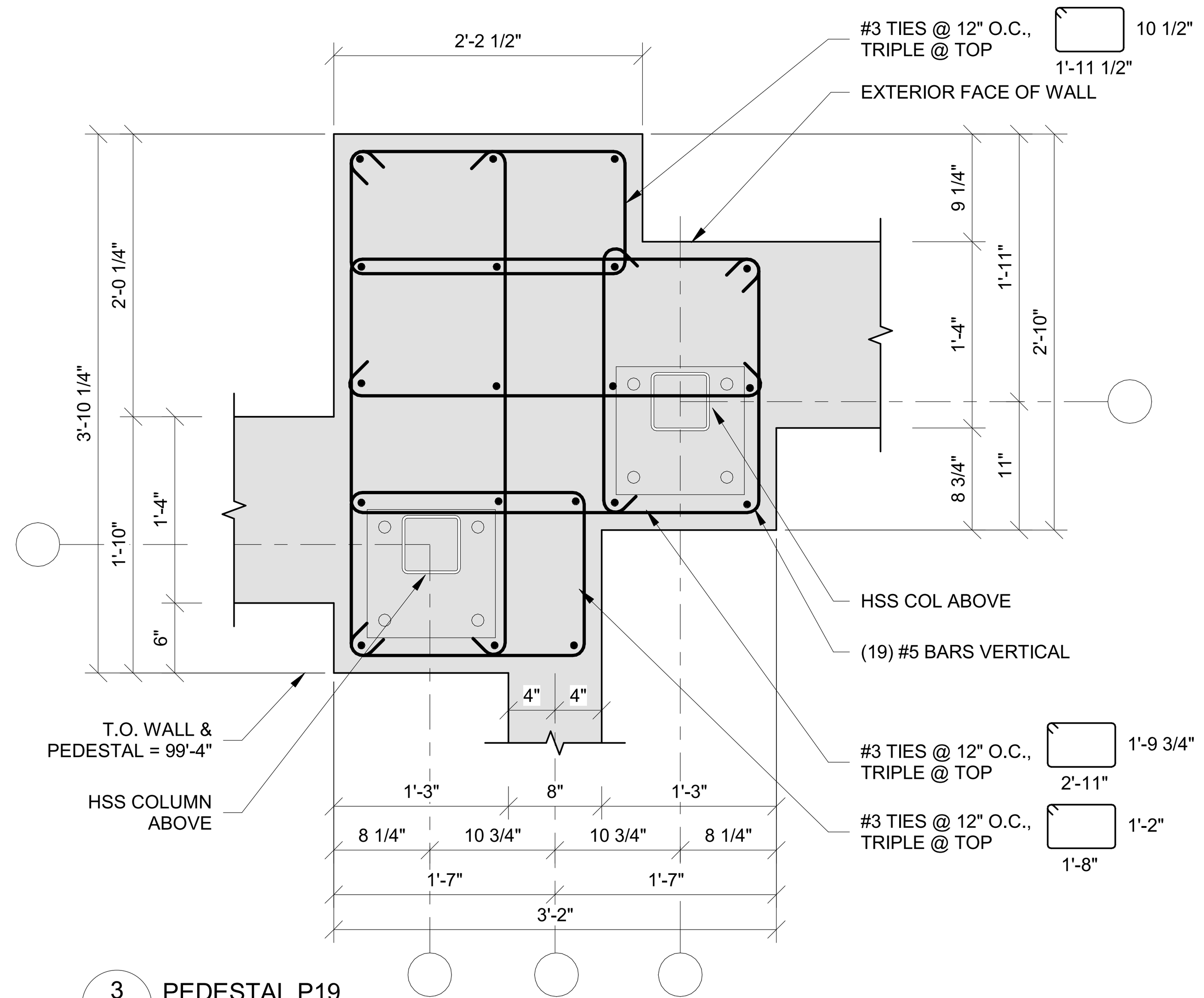

3 S505 PEDESTAL P19
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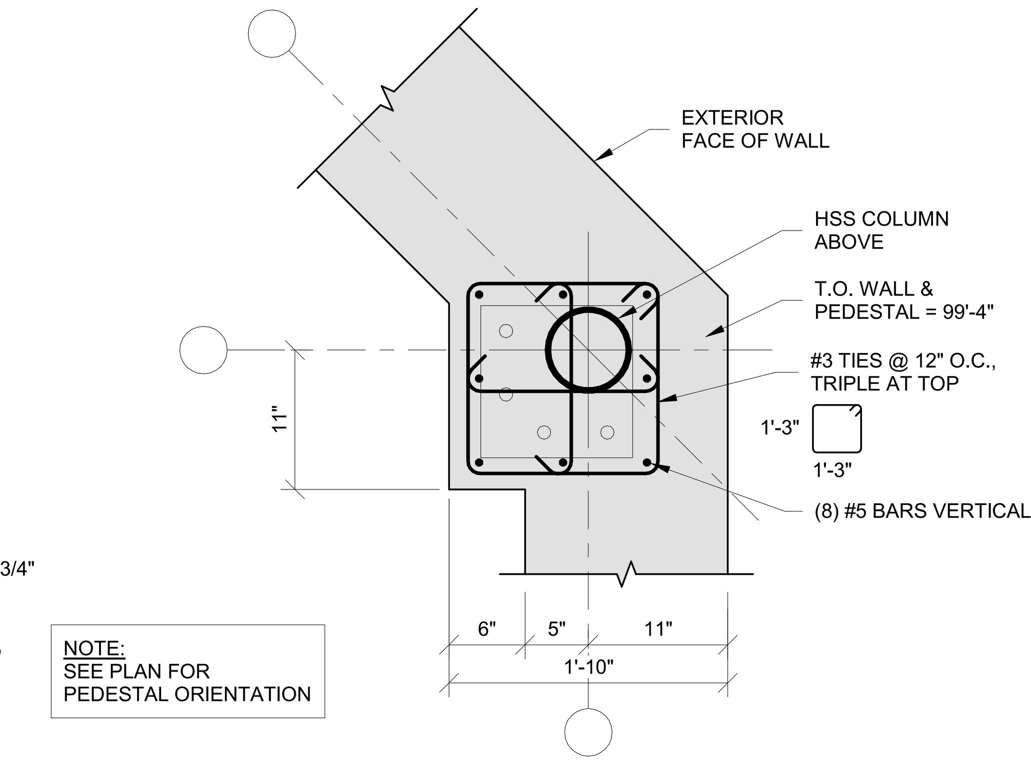

4 S505 PEDESTAL P20
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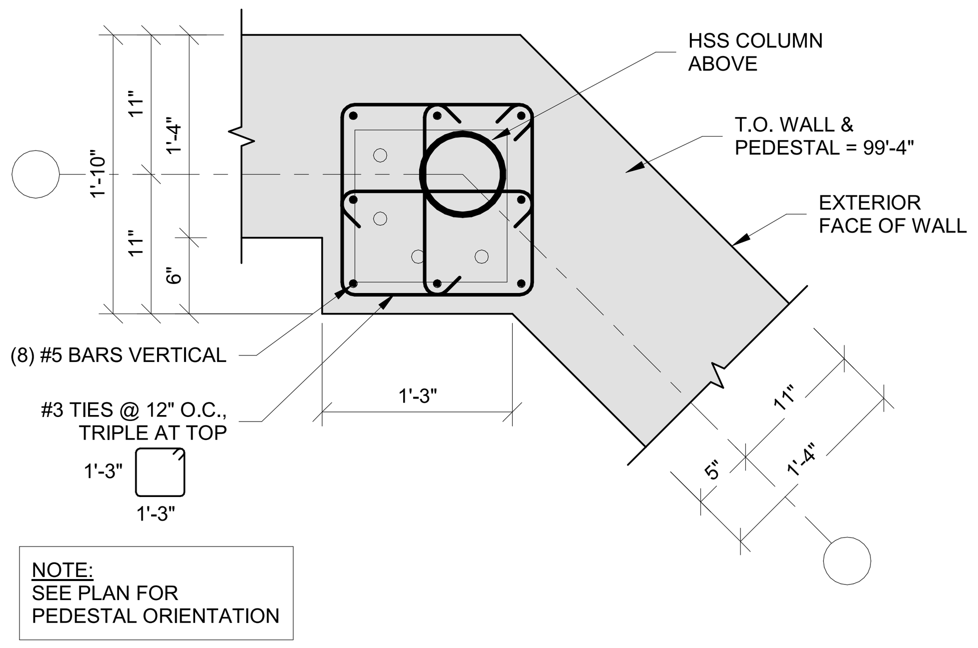
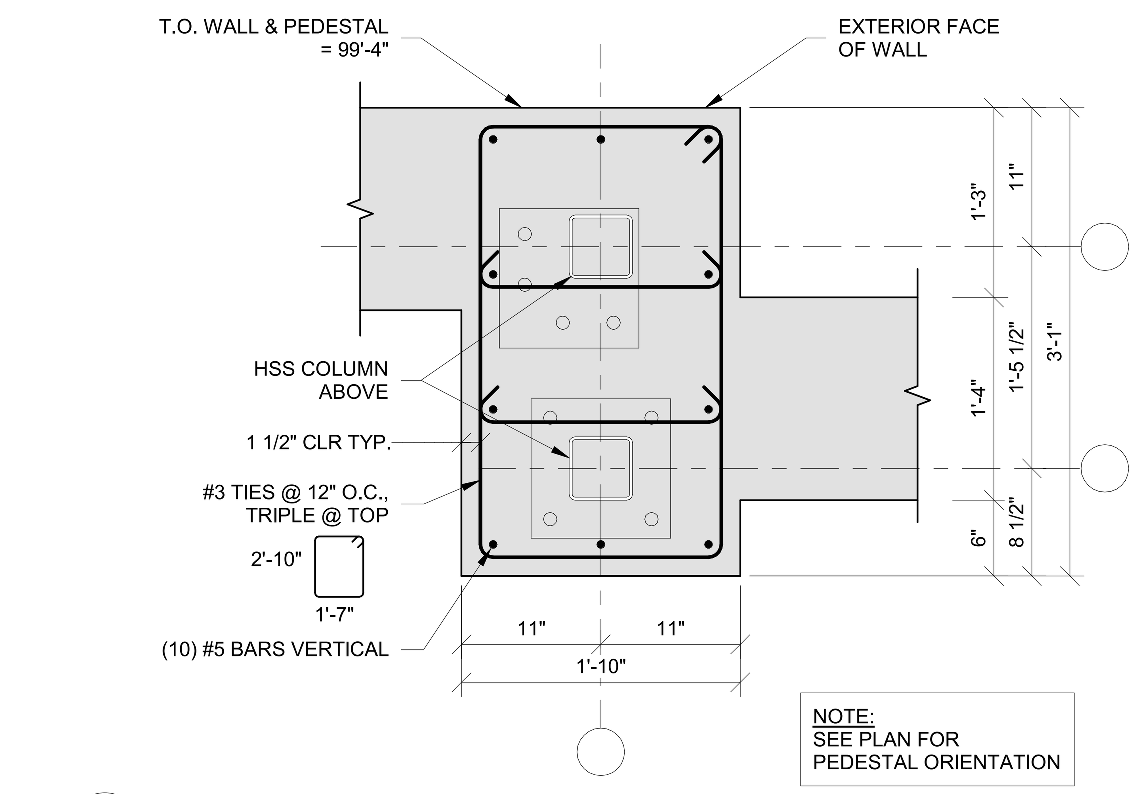
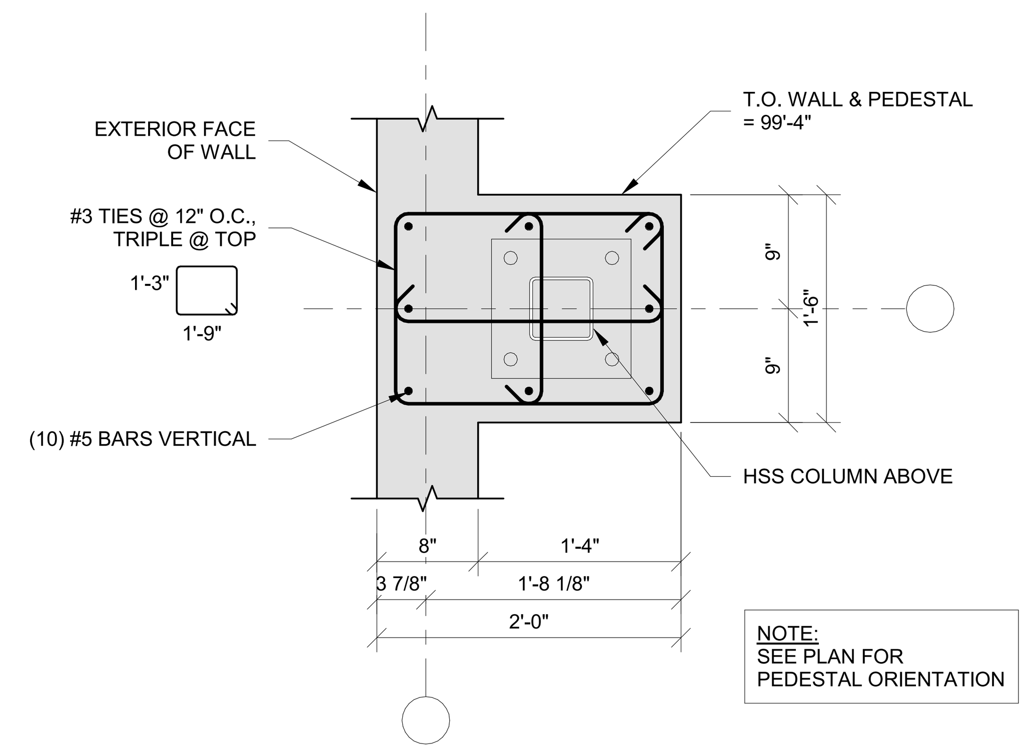


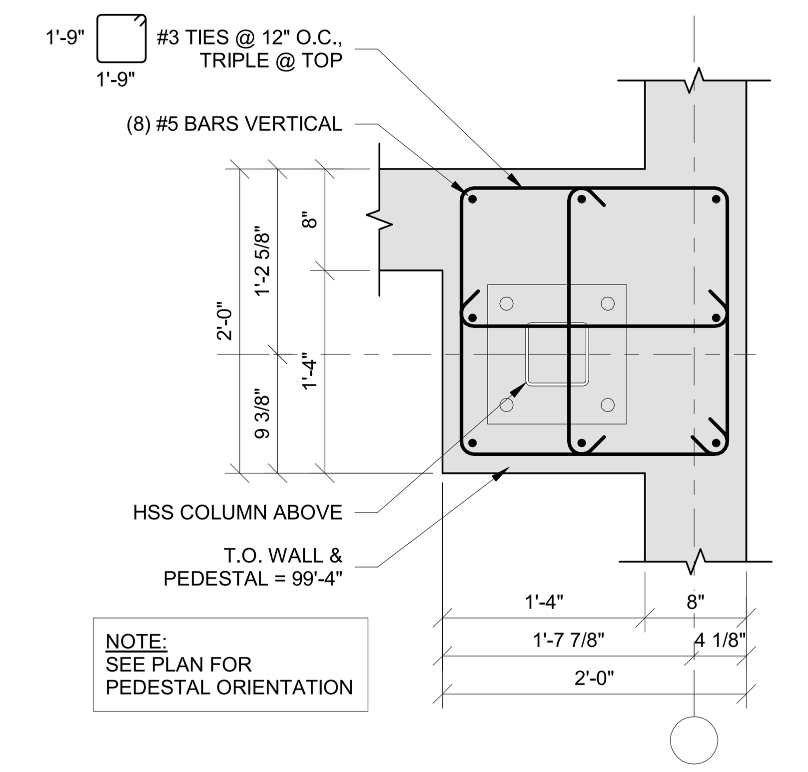
5 S505 PEDESTAL P21
1" = 1'-0"



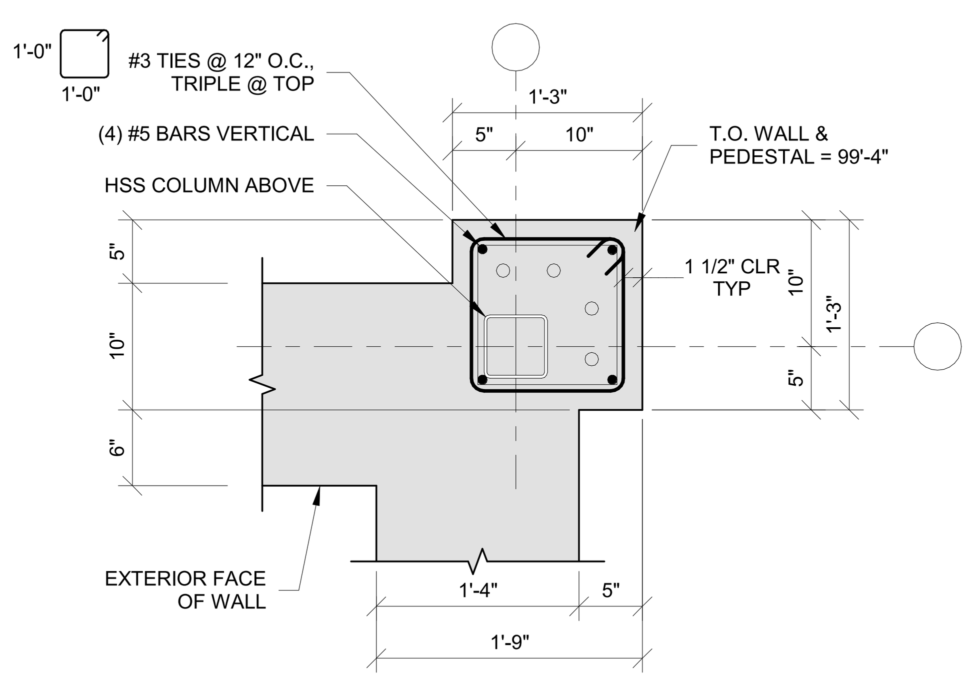
6 S505 PEDESTAL P22
1" = 1'-0"



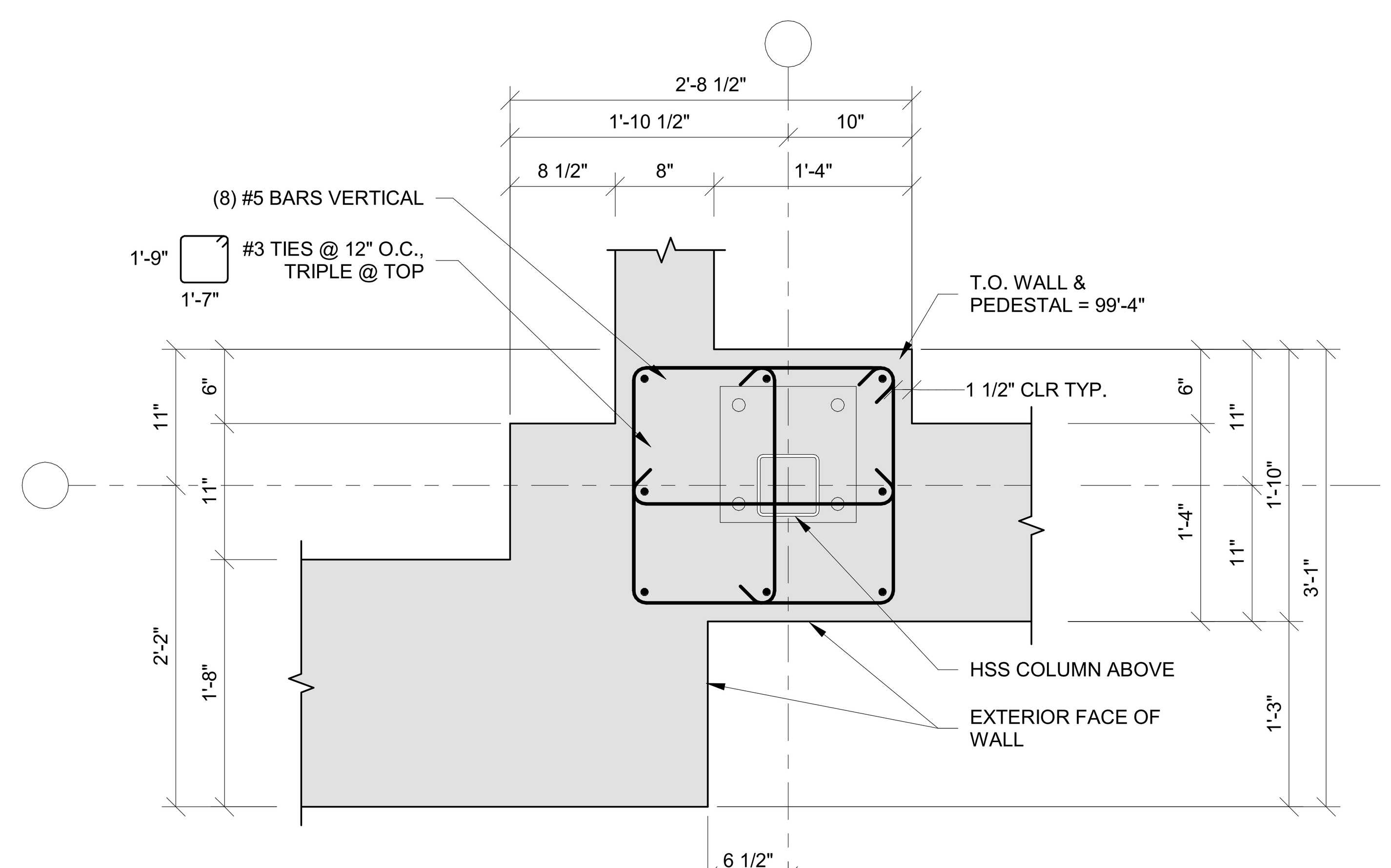
7 S505 PEDESTAL P23
1" = 1'-0"



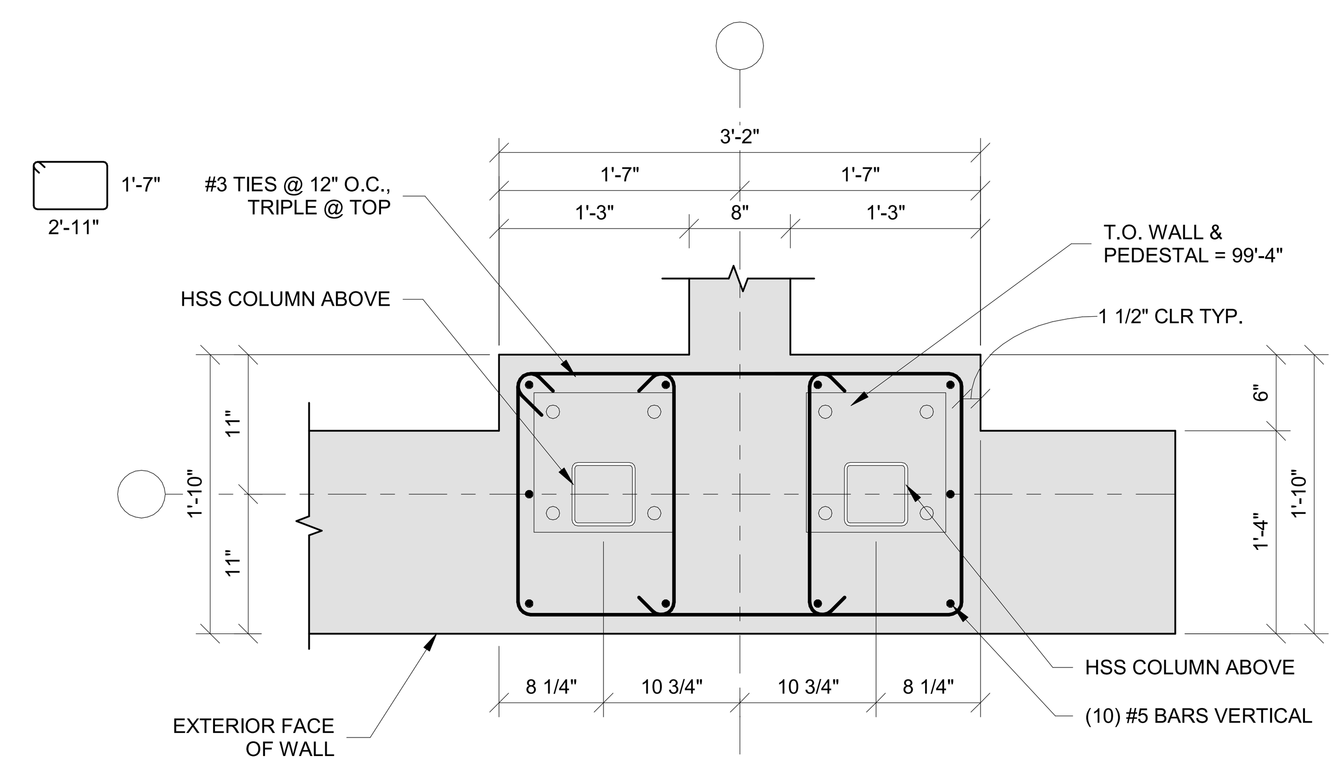
8 S505 PEDESTAL P24
1" = 1'-0"



9 S505 PEDESTAL P25
1" = 1'-0"



10 S505 PEDESTAL P26
1" = 1'-0"



11 S505 PEDESTAL P27
1" = 1'-0"

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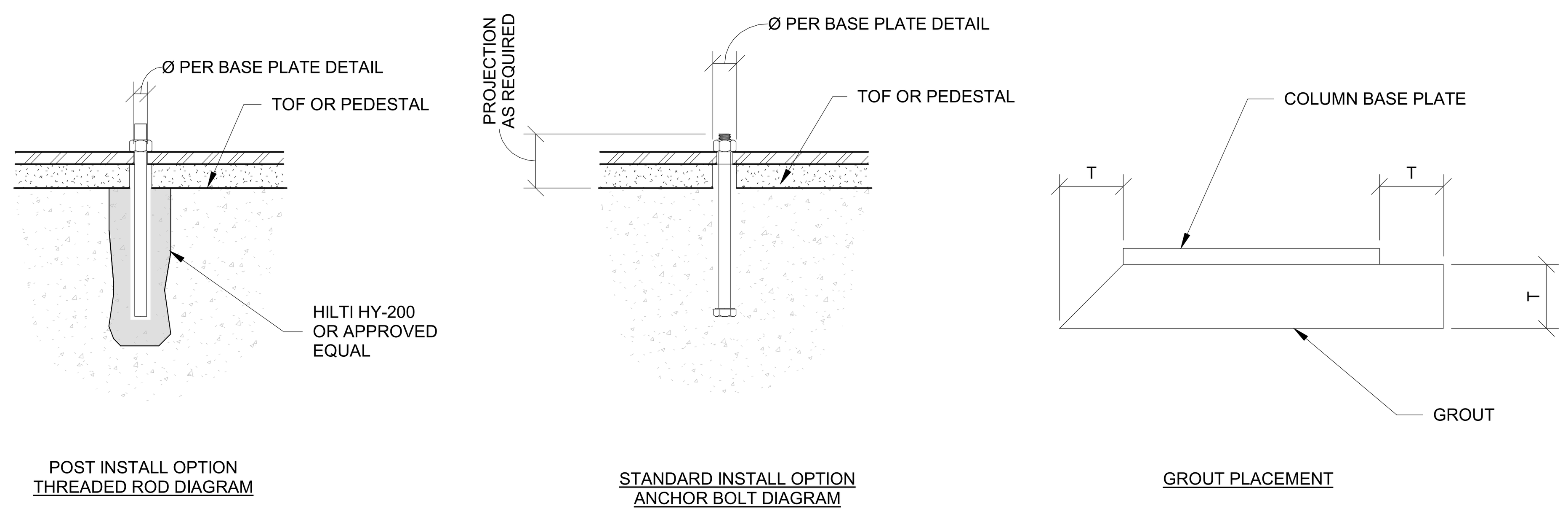
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

SHEET TITLE
PEDESTAL DETAILS

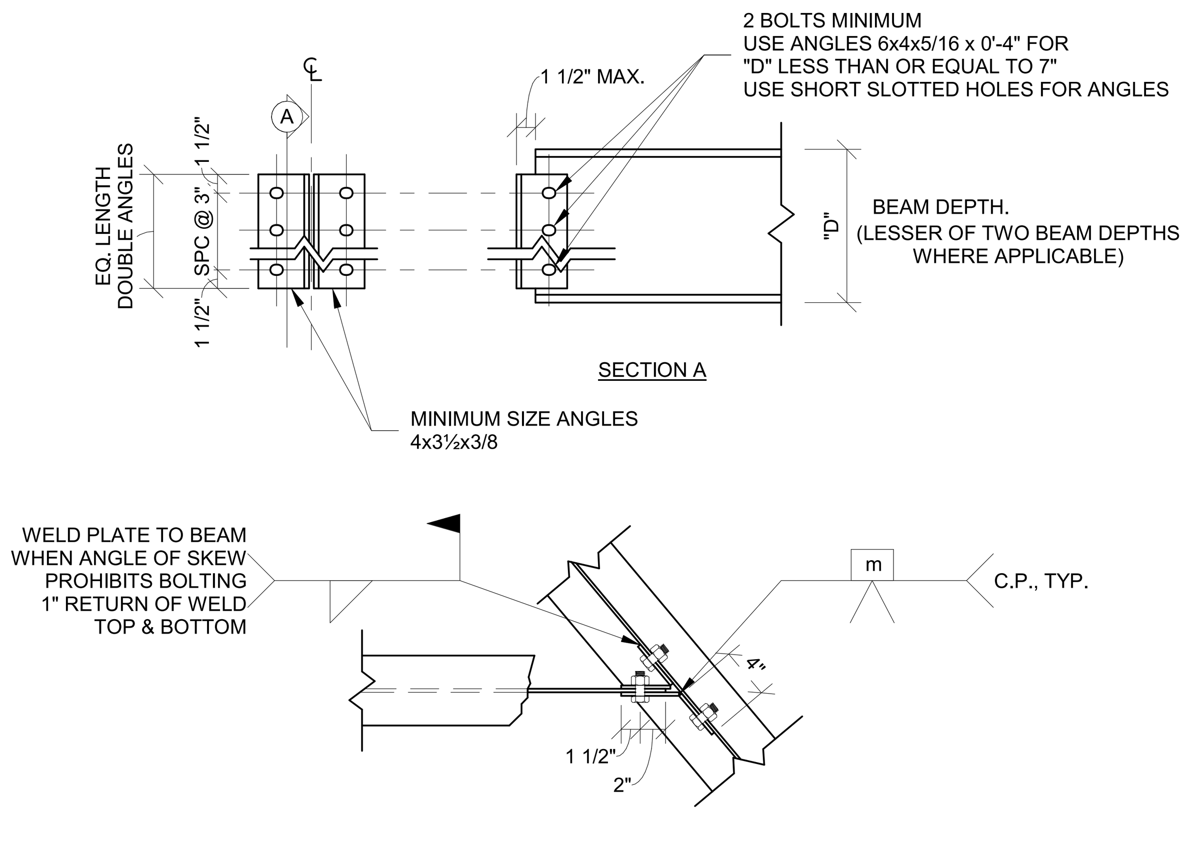
PROJECT NUMBER: 2023000333

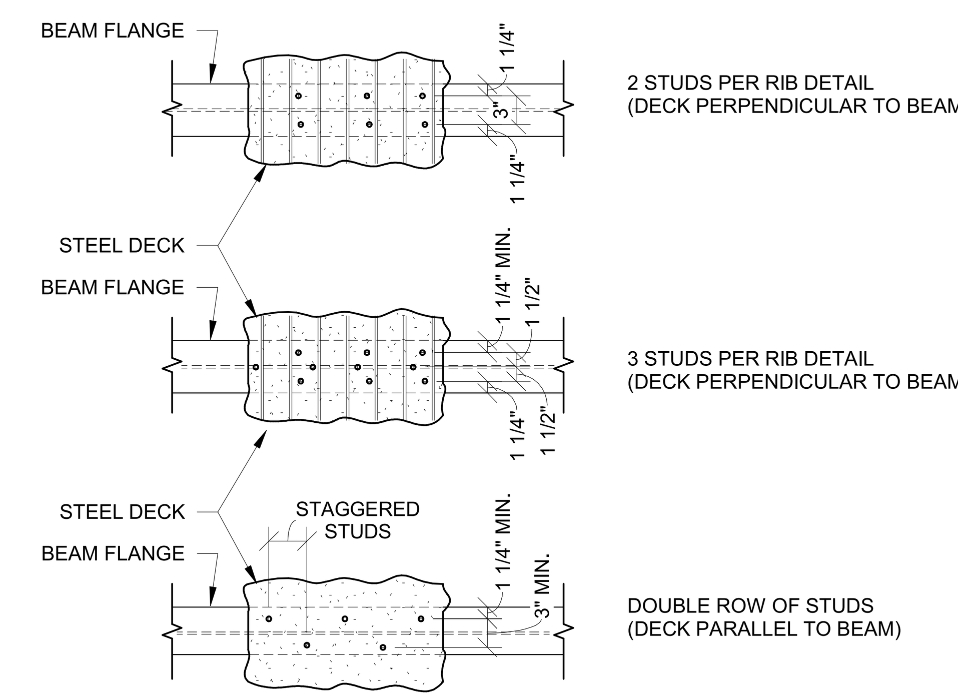
SHEET NUMBER:
S505



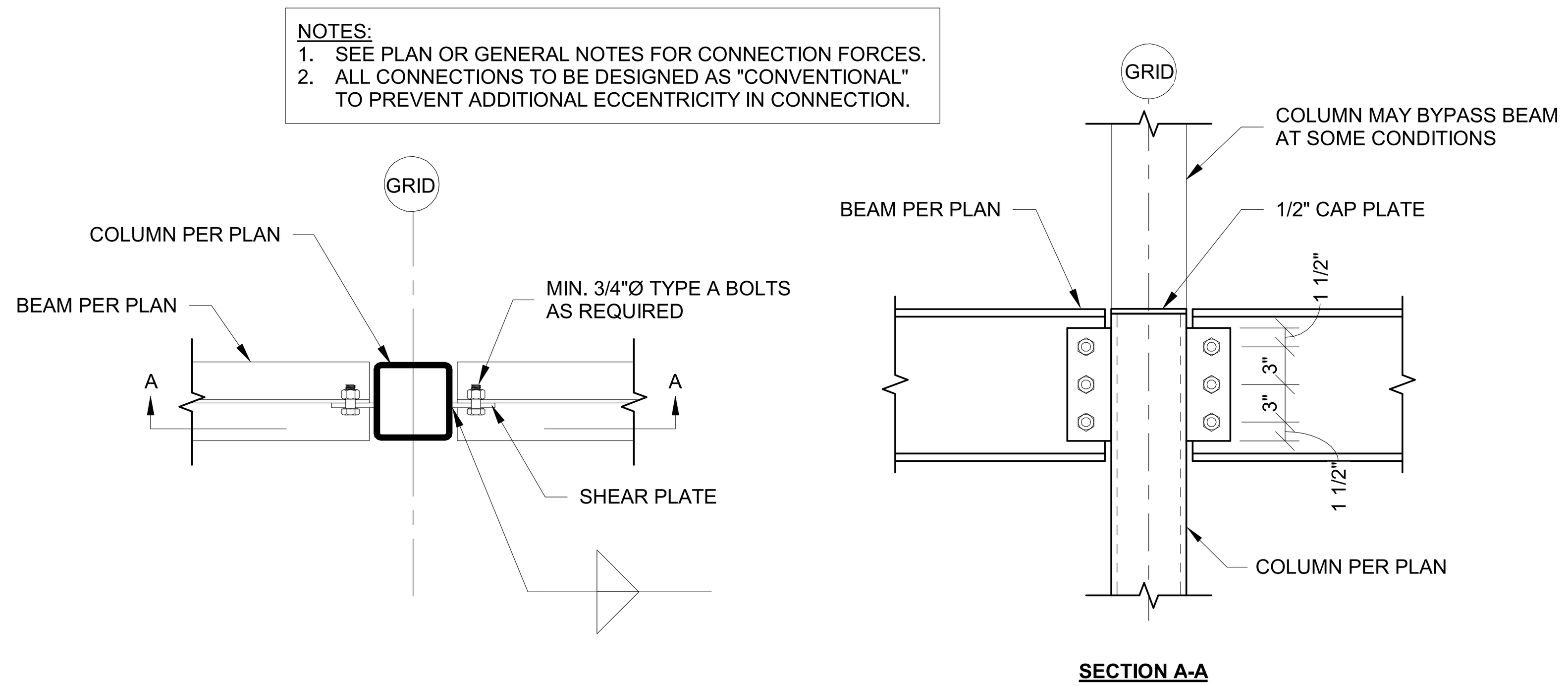
GROUT MAY BE BEVELED OR FORMED BUT SHALL EXTEND A MIN "T" BEYOND FACE OF BASE PLATE. "T"=1 1/2" FOR ANCHOR BOLT Ø UP TO 1"

1 COLUMN ANCHOR BOLT DETAILS
S510 1 1/2" = 1'-0"

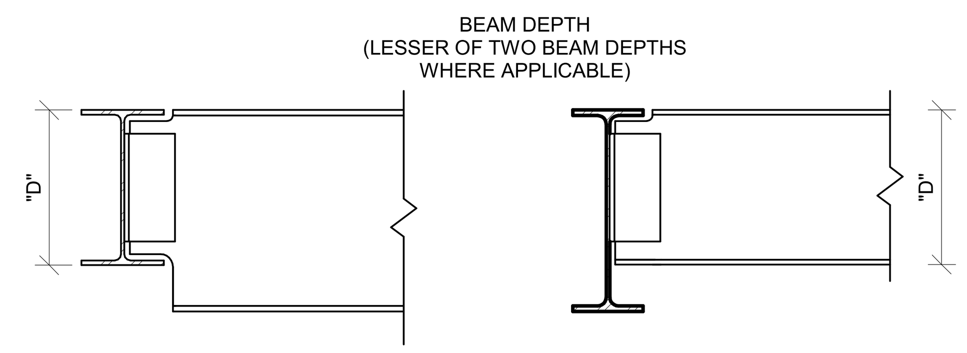




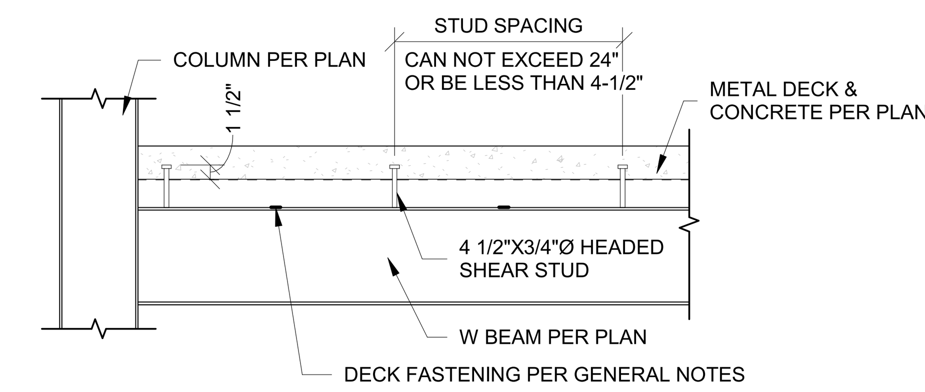
NOTES:
1. SEE PLAN OR GENERAL NOTES FOR CONNECTION FORCES.
2. ALL CONNECTIONS TO BE DESIGNED AS "CONVENTIONAL" TO PREVENT ADDITIONAL ECCENTRICITY IN CONNECTION.



3 TYPICAL BEAM TO COLUMN SHEAR CONNECTION
S510 1" = 1'-0"

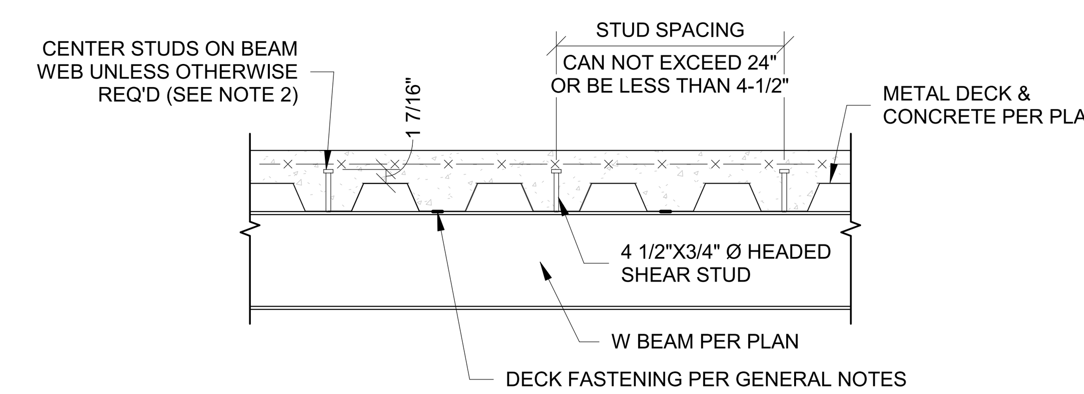


2 BEAM TO BEAM CONNECTION
S510 1" = 1'-0"



DECK IS PARALLEL TO BEAM

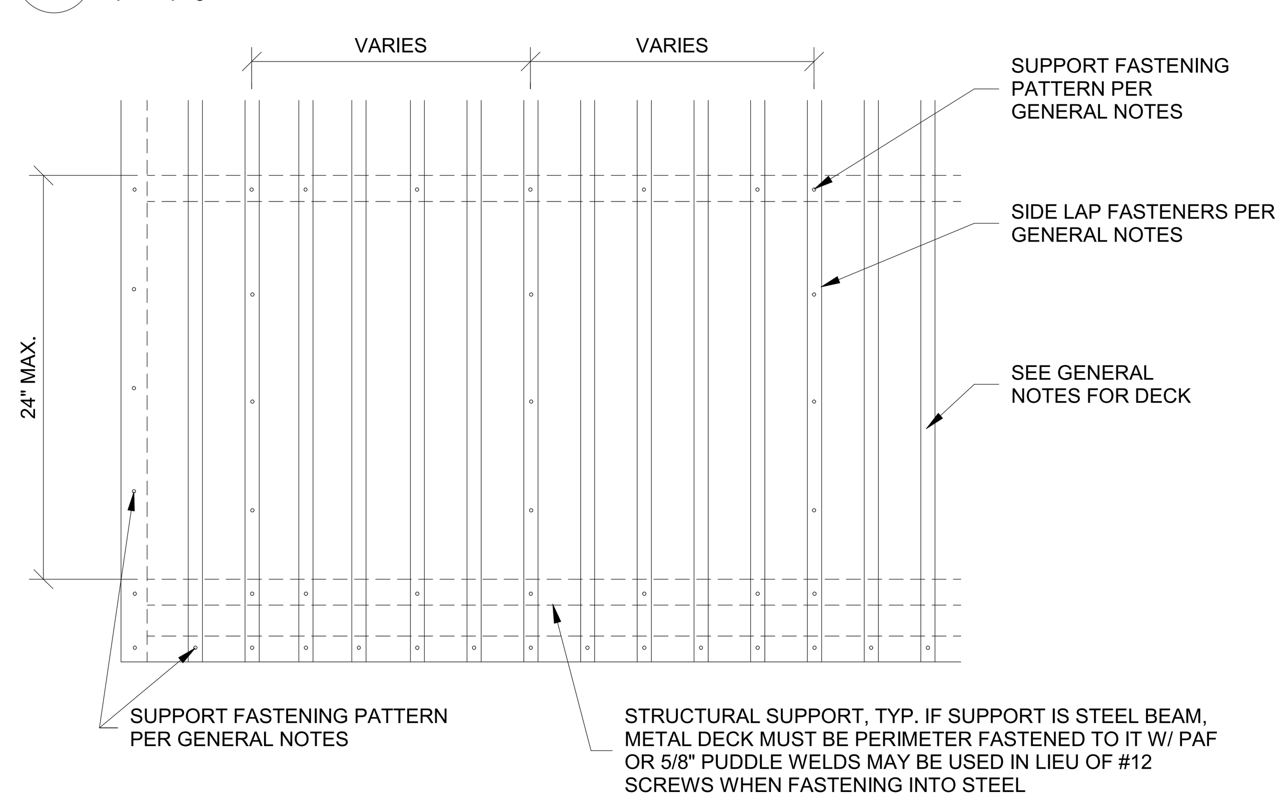
NOTES:
1. SPACE STUDS EQUALLY WITHIN BEAM SEGMENT. WHERE STUD SPACING EXCEEDS 24", PROVIDE ADDITIONAL STUDS AS NECESSARY TO MAINTAIN A 24" MAX STUD SPACING.
2. PLACE STUDS IN SINGLE ROW UNLESS NUMBER OF STUDS RESULTS IN SPACING LESS THAN 4-1/2". WHERE SPACING WOULD BE LESS THAN 4-1/2", PROVIDE A DOUBLE ROW OF STUDS IN A STAGGERED PATTERN RATHER THAN SIDE BY SIDE.
3. MAINTAIN TRANSVERSE SPACING BETWEEN STUDS & EDGE DIMENSIONS AS SHOWN ON PLAN DETAIL ABOVE.



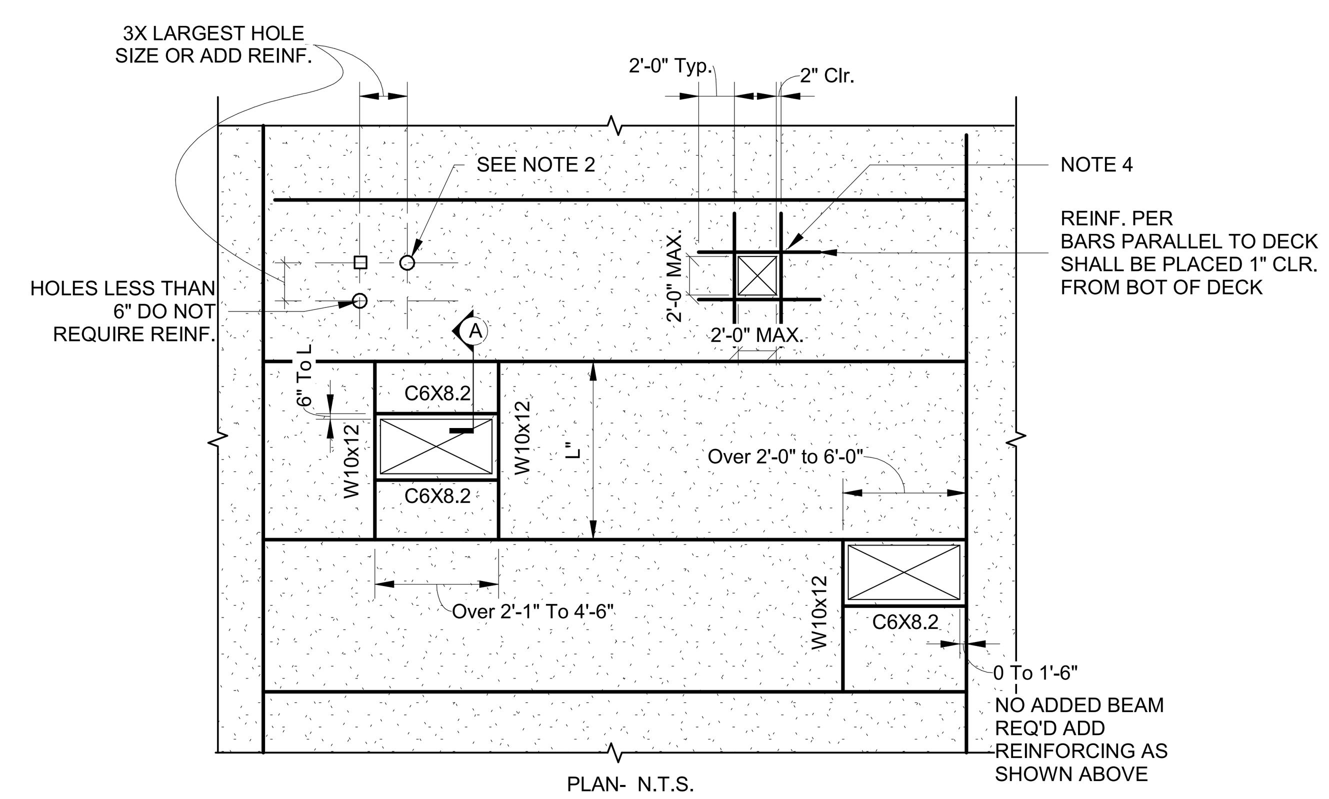
DECK IS PERPENDICULAR TO BEAM

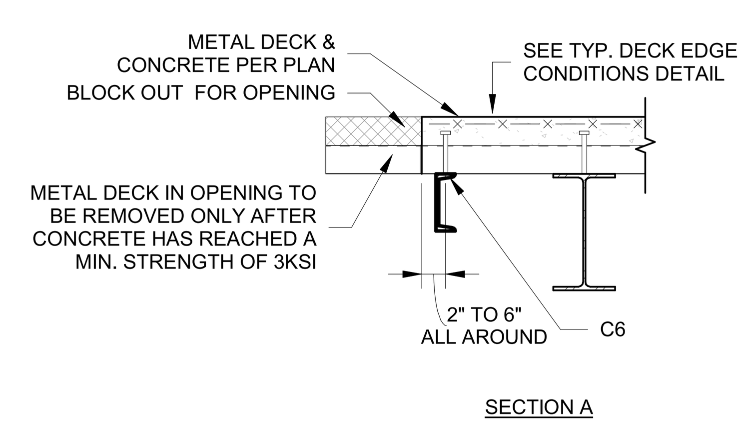
NOTES:
1. SEE PLAN FOR REQUIRED NUMBER OF STUDS. STUDS SHALL BE PLACED AT A MAXIMUM SPACING OF 2'-0" ALONG THE BEAM AXIS UNLESS NOTED OTHERWISE ON PLAN OR NUMBER OF STUDS INDICATED REQUIRES CLOSER SPACING. SEE "GENERAL NOTES" FOR MINIMUM NUMBER OF STUDS AND MINIMUM STEEL COMPOSITE DECK TO STEEL BEAM FASTENING REQUIREMENTS.
2. SPACE STUDS AS EVENLY AS POSSIBLE IN AVAILABLE DECK FLUTES. WHERE STUD SPACING EXCEEDS 24", PROVIDE ADDITIONAL STUDS AS NECESSARY TO MAINTAIN A 24" MAX STUD SPACING.
3. WHERE THE NUMBER OF STUDS EXCEEDS THE NUMBER OF FLUTES, INSTALL REMAINING STUDS IN DOUBLE OR TRIPLE ROW, STARTING FROM THE BEAM ENDS & WORKING TOWARDS THE CENTER. UNLESS NOTED OTHERWISE, STUDS ARE TO BE EQUALLY SPACED ALONG THE BEAM LENGTH AND PLACED SYMMETRICALLY ABOUT THE BEAM CENTERLINE AXIS, IF EQUAL SPACING IS NOT POSSIBLE DUE TO DECK CONFIGURATION, THE STRUCTURAL ENGINEER SHALL BE NOTIFIED.
4. THE REQUIRED NUMBER OF STUD ROWS SHALL BE DETERMINED AS FOLLOWS (BEAM LENGTH IN FEET):
   A. FOR DECK FLUTES PERPENDICULAR TO THE BEAM:
      a. # ROWS = # STUDS / BEAM LENGTH
   B. FOR DECK FLUTES PARALLEL TO THE BEAM:
      a. # ROWS = (0.375 x # STUDS) / BEAM LENGTH
5. FOR DECK FLUTES PARALLEL TO THE BEAM, THE FIRST STUD (OR STUDS) SHALL BE PLACED 6" FROM THE BEAM ENDS. FOR DECK FLUTES PERPENDICULAR TO THE BEAM, THE FIRST STUD (OR STUDS) SHALL BE PLACED IN THE FLUTE CLOSEST TO THE BEAM ENDS.
6. FOR CANTILEVER SPANS, STUDS SHALL BE PLACED IN ONE ROW ALONG THE BEAM CENTERLINE AXIS AT A MAXIMUM SPACING OF 2'-0". STUDS PLACED ON THE CANTILEVER SPAN ARE NOT INCLUDED IN THE NUMBER OF STUDS SHOWN ON THE DRAWINGS.
7. WHERE BEAM FLANGE THICKNESS IS LESS THAN 0.30", STUDS MUST BE PLACED AT CENTERLINE OF THE BEAM
8. MAINTAIN TRANSVERSE SPACING BETWEEN STUDS & EDGES DIMENSIONS AS SHOWN ON PLAN DETAILS ABOVE.

6 SHEAR STUD PLACEMENT DIAGRAM
S510 3/4" = 1'-0"



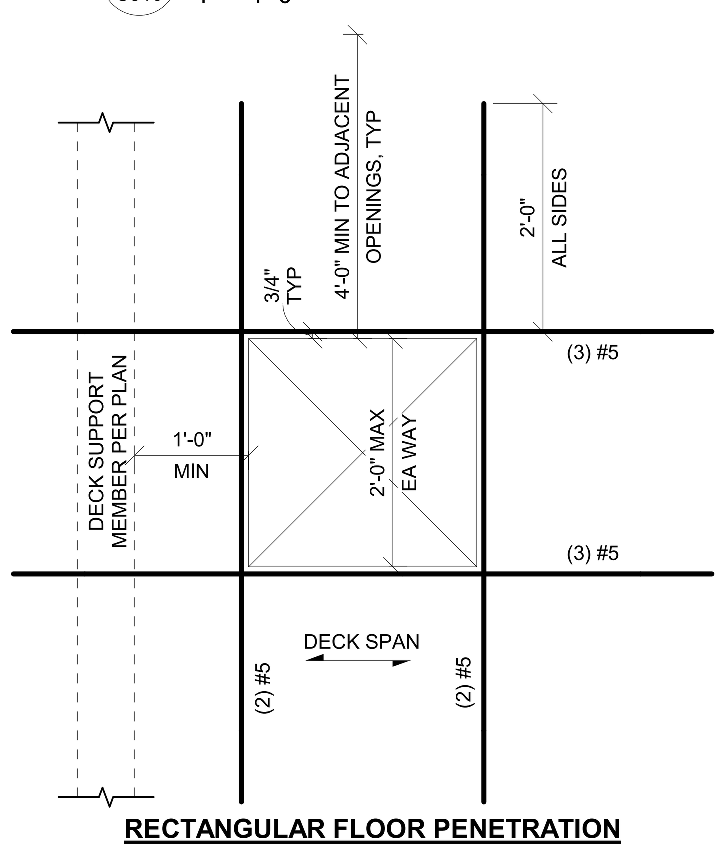
4 DECK FASTENING DETAIL
S510 1" = 1'-0"



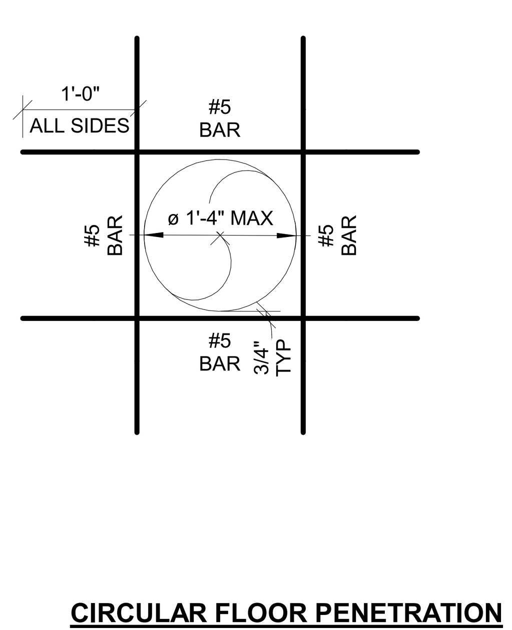


NOTES:
1. BLOCK OUT OPENING BEFORE PLACING CONCRETE.
2. REMOVE BLOCKOUT & CUT DECK AFTER CONCRETE HAS CURED
3. CONTRACTOR SHALL COORDINATE OPENING SIZE & LOCATION W/ MECH. & ELEC. CONTRACTORS & ARCH DRAWINGS
4. THE OPENING NOTED REQUIRES A CLEAR SPACING FROM ADJACENT OPENING OF THREE TIMES THE MAX OPENING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

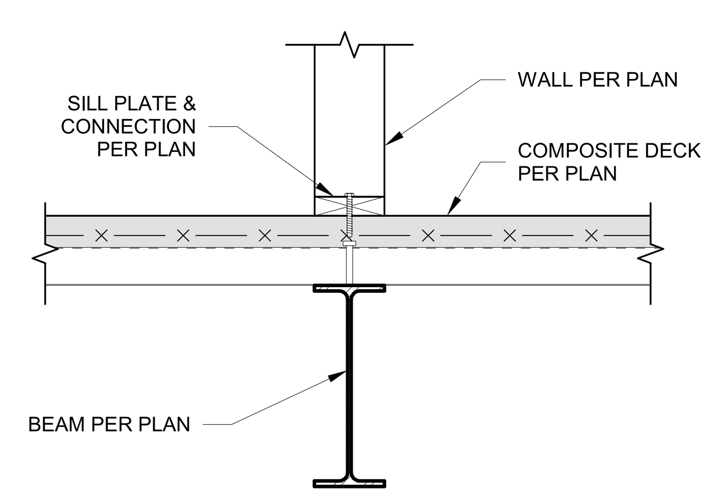
5 TYPICAL FLOOR DECK OPENING
S510 3/4" = 1'-0"



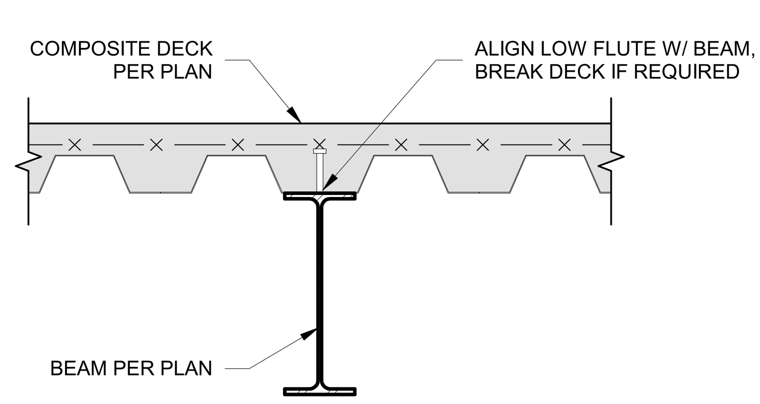
NOTES:
1. METAL DECK TO REMAIN UNCUT AND IN PLACE UNTIL CONCRETE HAS OBTAINED F'C OF 3 KSI.
2. OPENING PLACEMENT MUST BE COORDINATED TO AVOID INTERUPTING DIAPHRAGM REINFORCING.



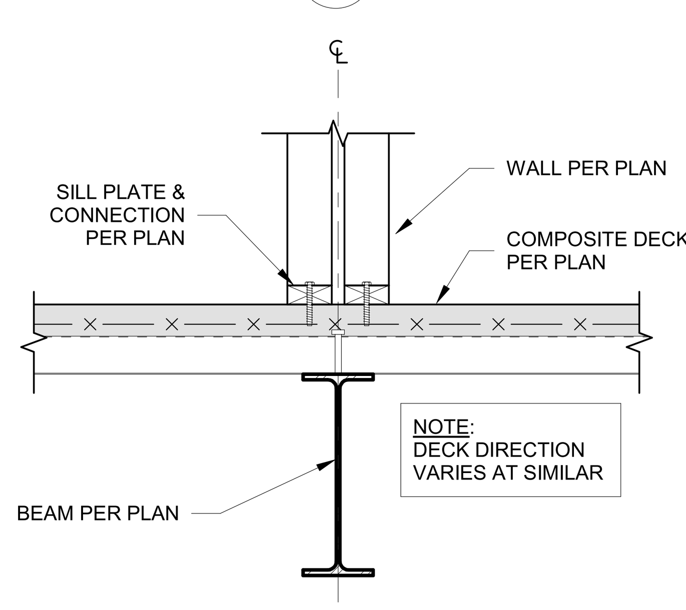
7 REINFORCED OPENING IN SLAB ON METAL DECK
S510 3/4" = 1'-0"



8 COMPOSITE DECK BEARING AT BEAM
S510 1" = 1'-0"

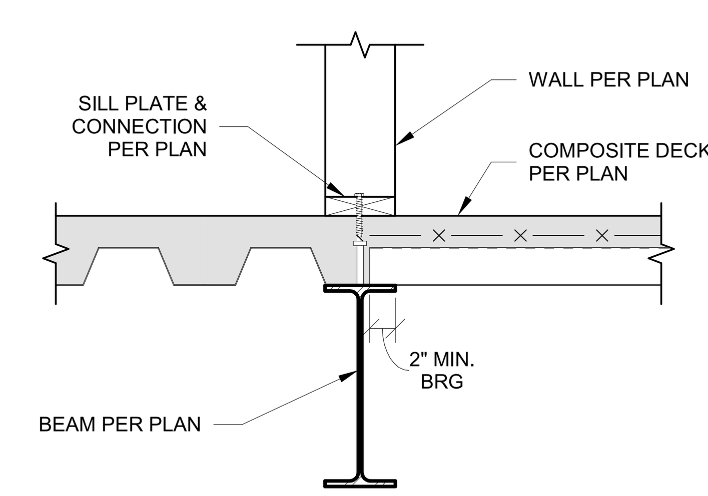


9 COMPOSITE DECK PARALLEL TO BEAM
S510 1" = 1'-0"



NOTE:
DECK DIRECTION VARIES AT SIMILAR

10 COMPOSITE DECK BEARING AT BEAM BELOW DEMISING WALL
S510 1" = 1'-0"



11 COMPOSITE DECK TRANSITION AT BEAM
S510 1" = 1'-0"

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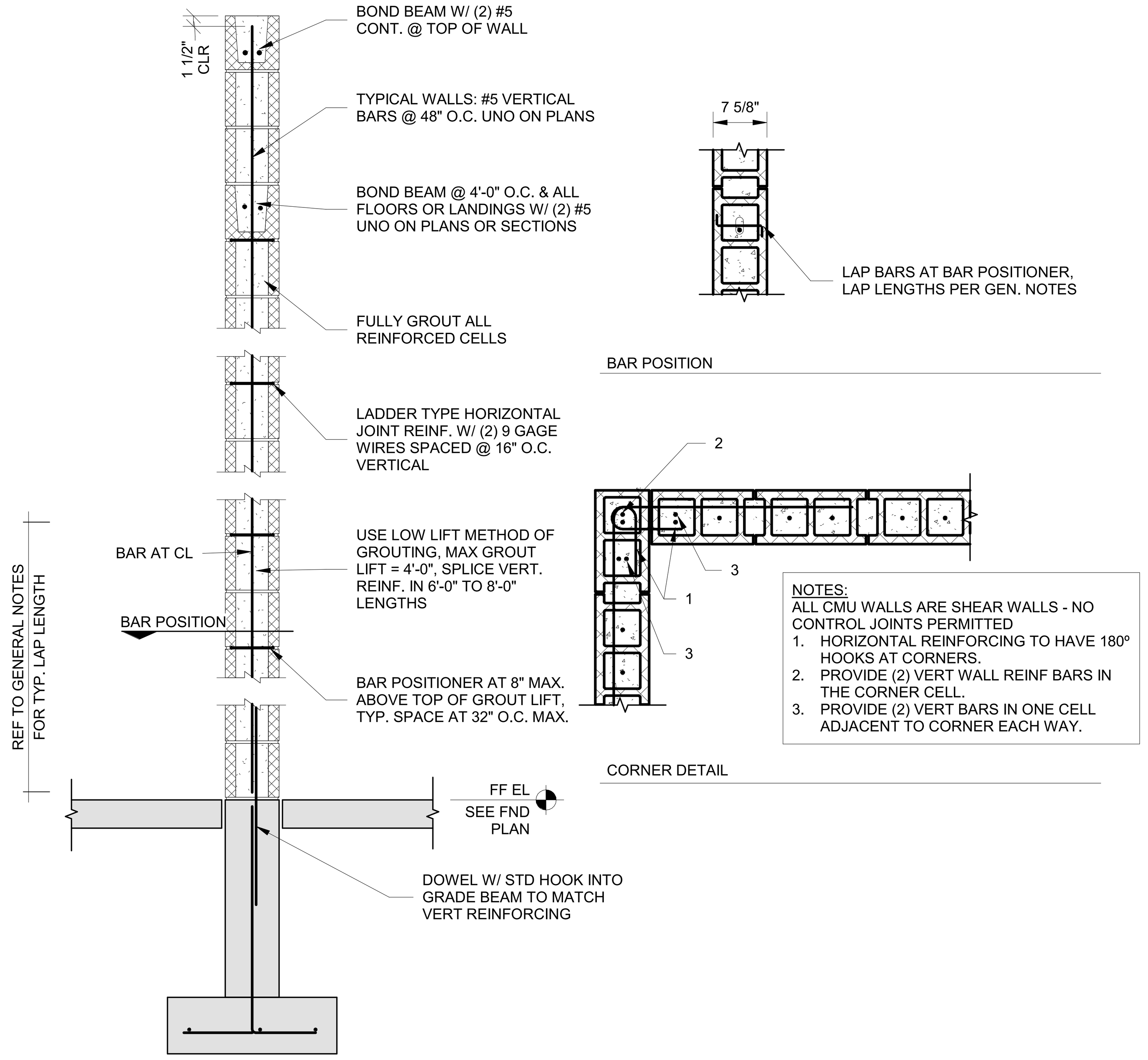
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

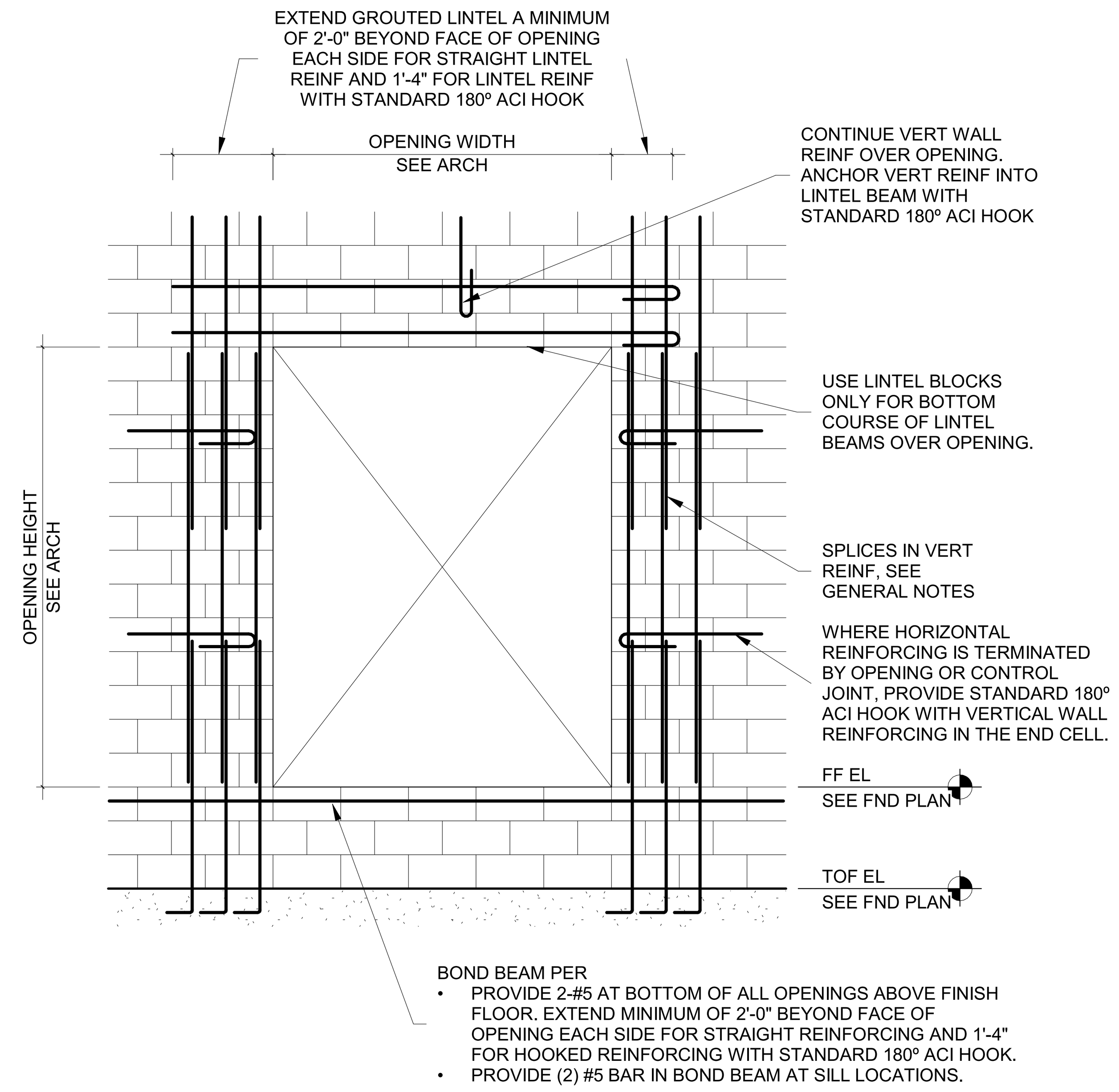
SHEET TITLE
TYPICAL STEEL DETAILS

PROJECT NUMBER: 2023000333

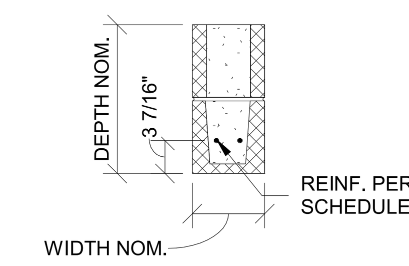
SHEET NUMBER:
S510



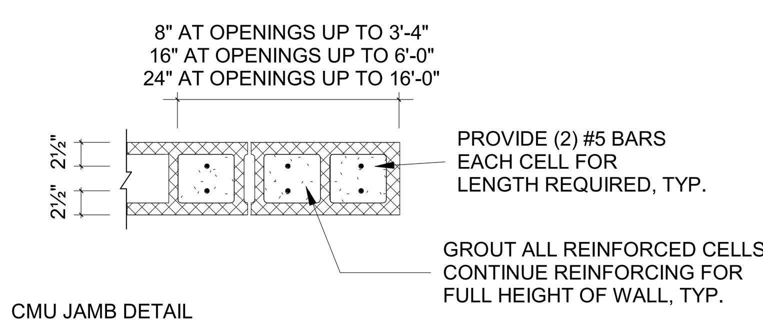
1 S511 CMU WALL REINFORCING DIAGRAM
3/4" = 1'-0"



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

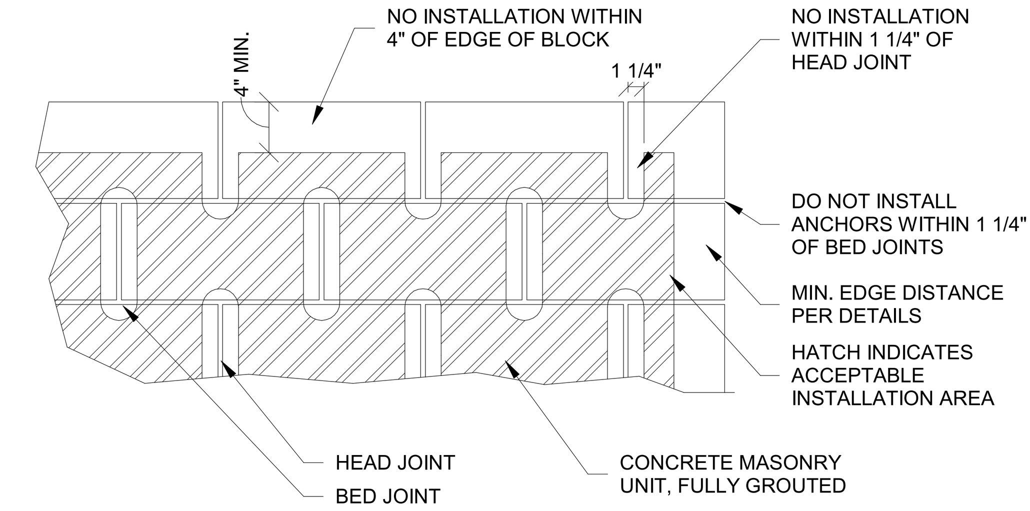


8" CMU LINTEL DETAIL

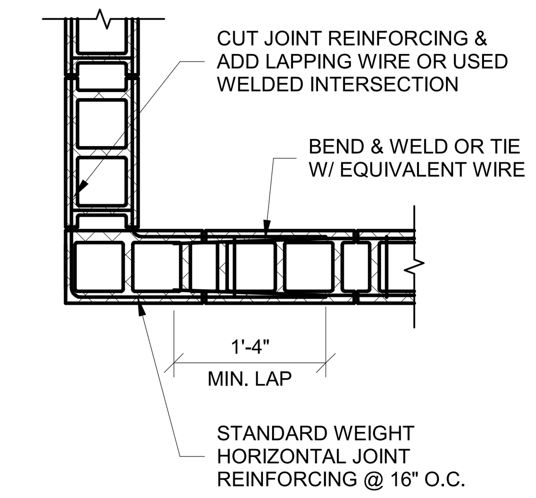


CMU JAMB DETAIL

2 S511 TYPICAL MASONRY OPENING DIAGRAM & SCHEDULE
3/4" = 1'-0"



3 S511 ACCEPTABLE LOCATIONS FOR ANCHORS IN MASONRY
1" = 1'-0"



4 S511 JOINT REINFORCING AT INTERSECTING CMU WALLS
3/4" = 1'-0"

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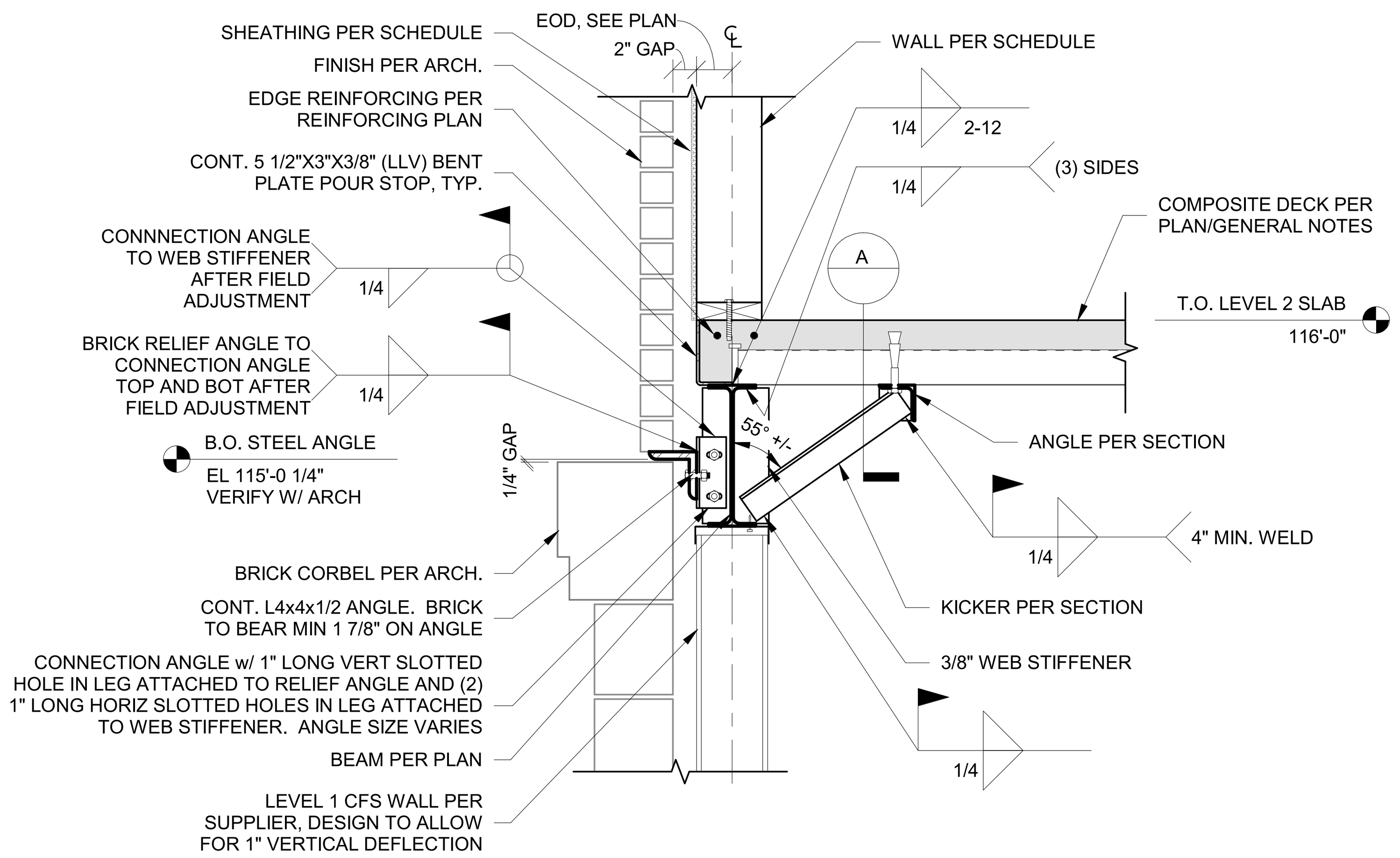
LEE'S SUMMIT, MO 64064

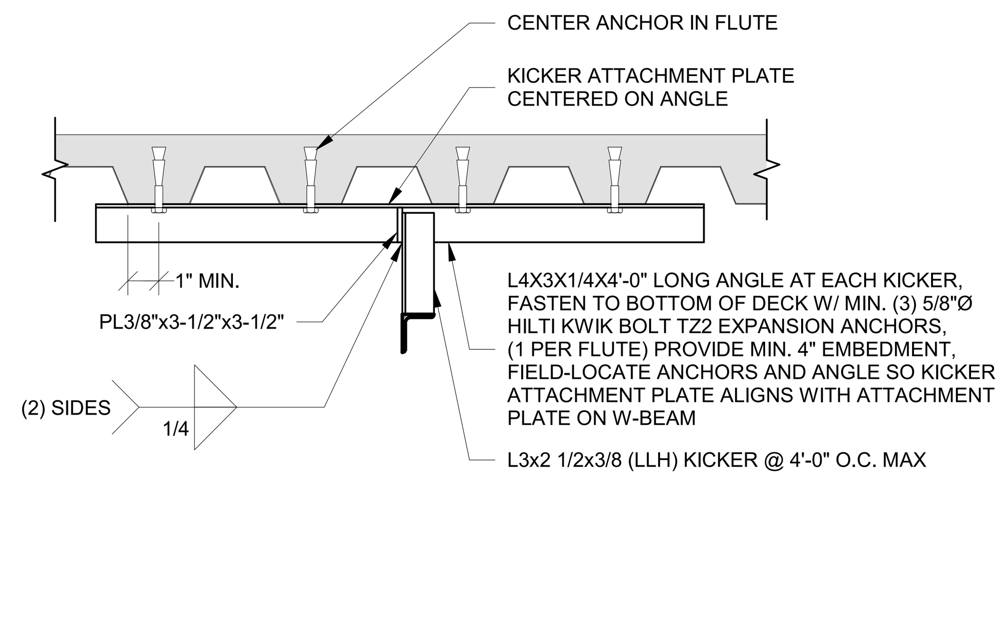
SHEET TITLE
TYPICAL MASONRY DETAILS

PROJECT NUMBER: 2023000333

SHEET NUMBER:

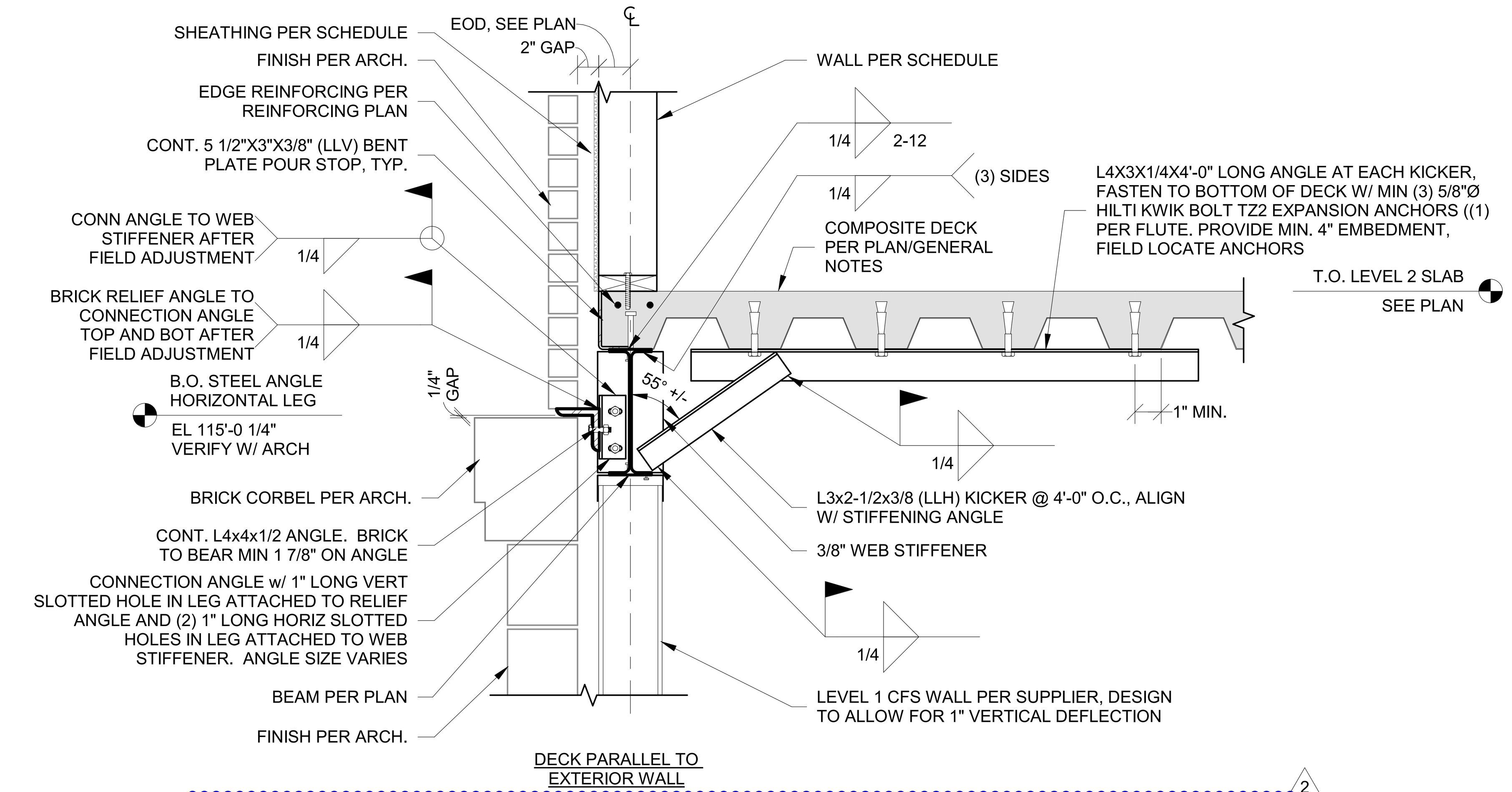
S511



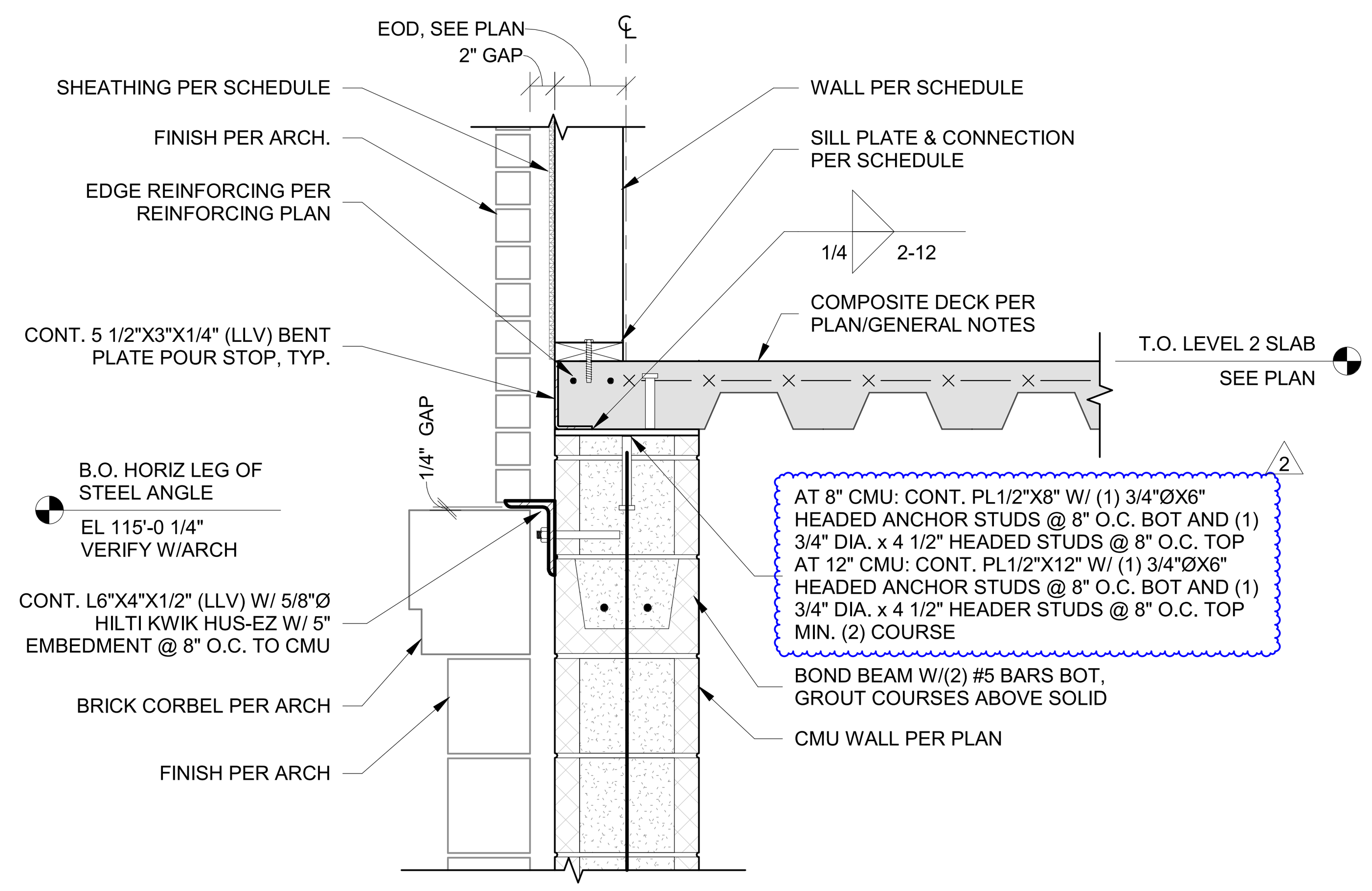


SECTION A

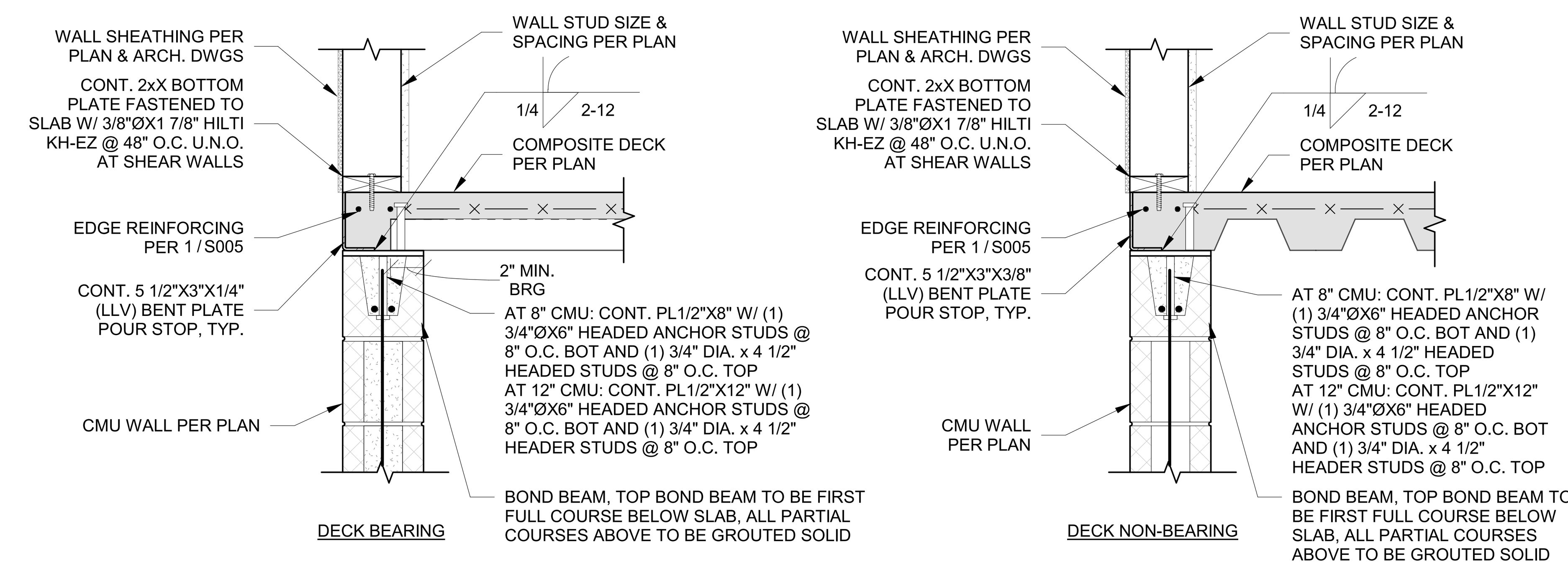
1 S520 BEAM KICKER PODIUM SECTION DECK PERPENDICULAR TO EXTERIOR WALL
1" = 1'-0"



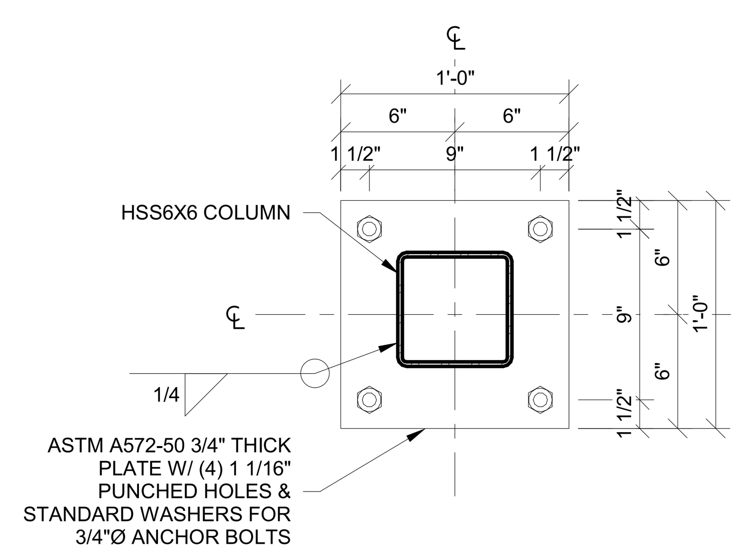
2 S520 BEAM KICKER PODIUM SECTION DECK PARALLEL TO EXTERIOR WALL
1" = 1'-0"



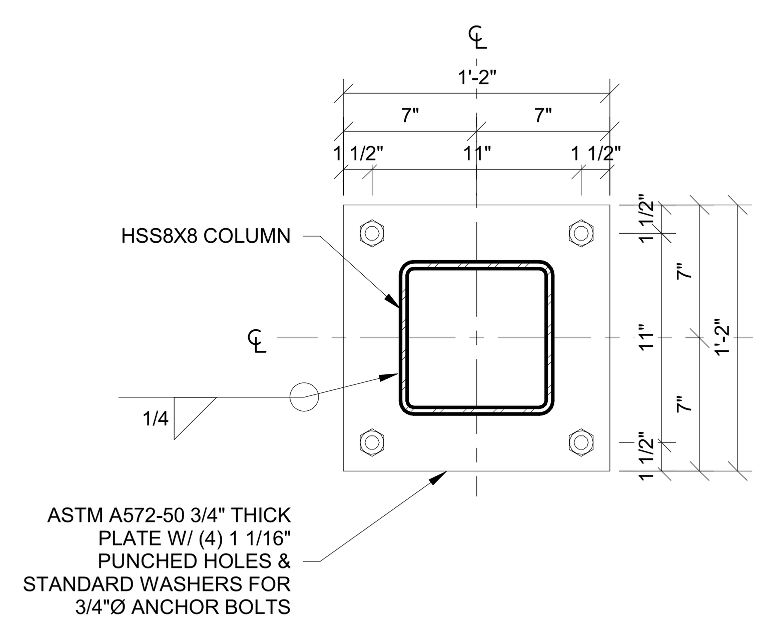
3 S520 SECTION AT GARAGE AT FULL HEIGHT CMU
1" = 1'-0"



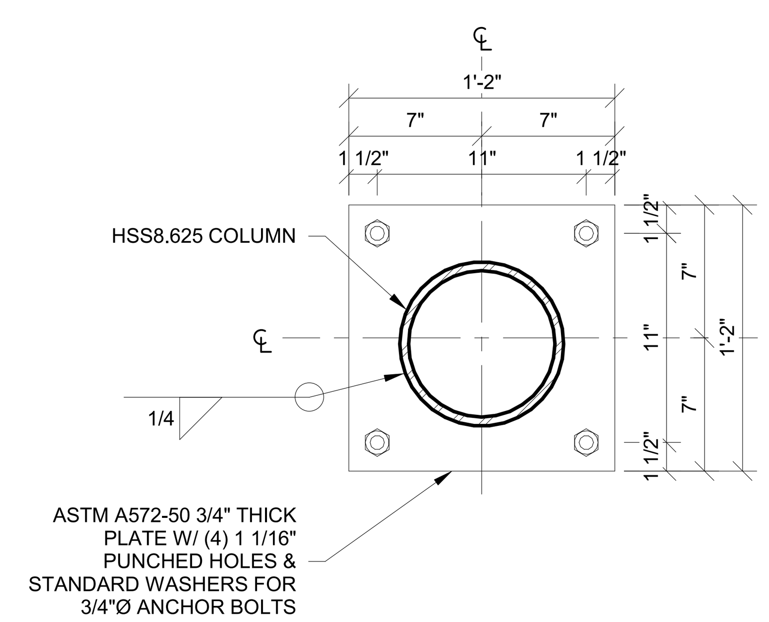
4 S520 COMPOSITE DECK AT MASONRY
1" = 1'-0"



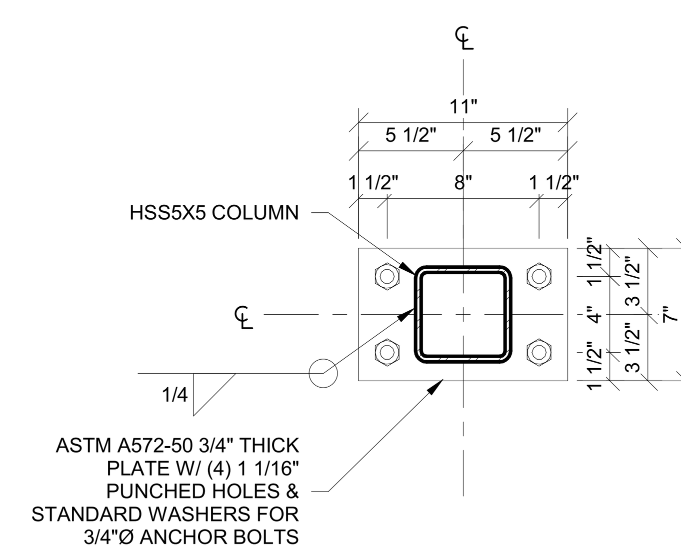
5 S520 BASE PLATE BP1
1 1/2" = 1'-0"



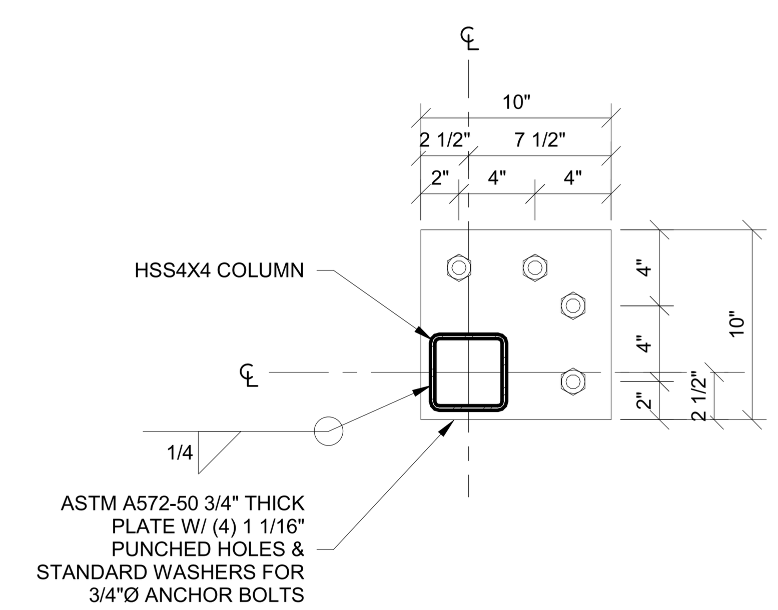
6 S520 BASE PLATE BP2
1 1/2" = 1'-0"



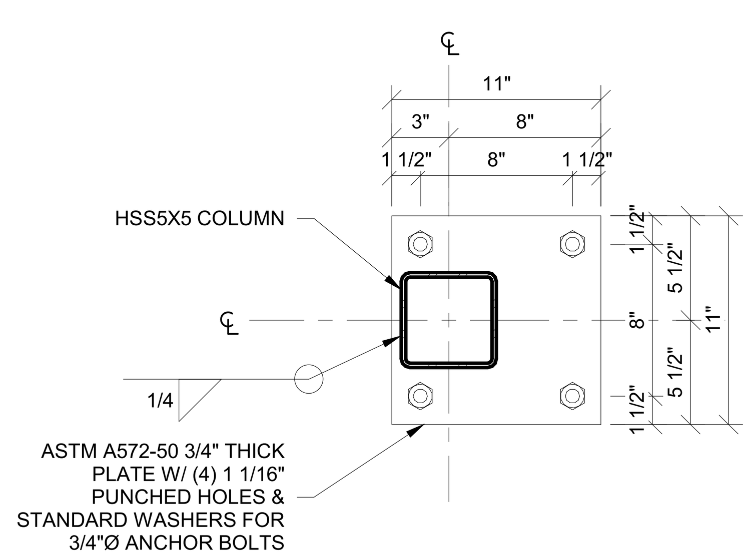
7 S520 BASE PLATE BP3
1 1/2" = 1'-0"



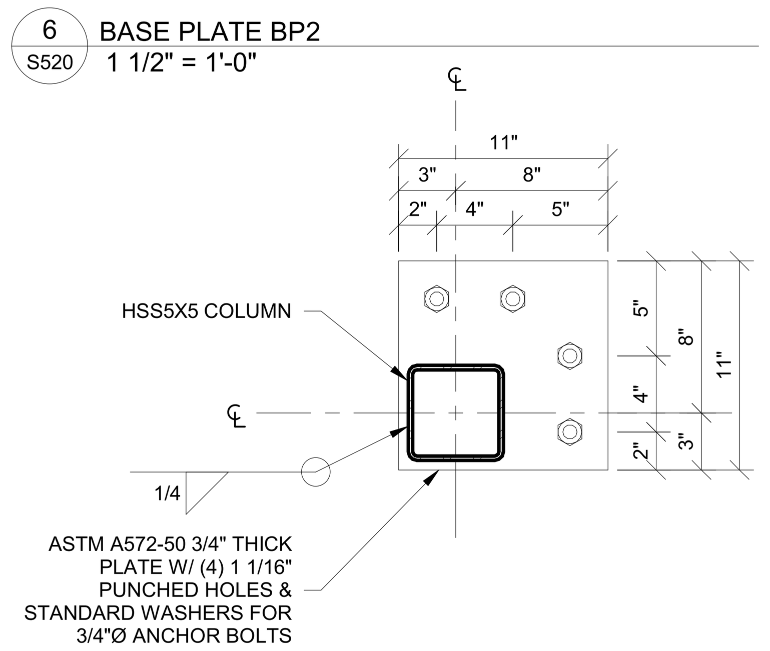
8 S520 BASE PLATE BP4
1 1/2" = 1'-0"



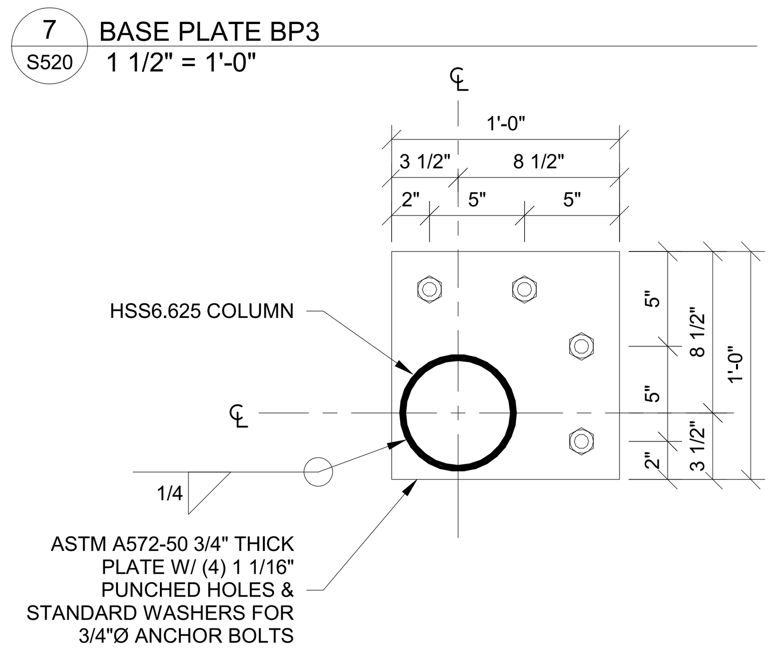
9 S520 BASE PLATE BP5
1 1/2" = 1'-0"



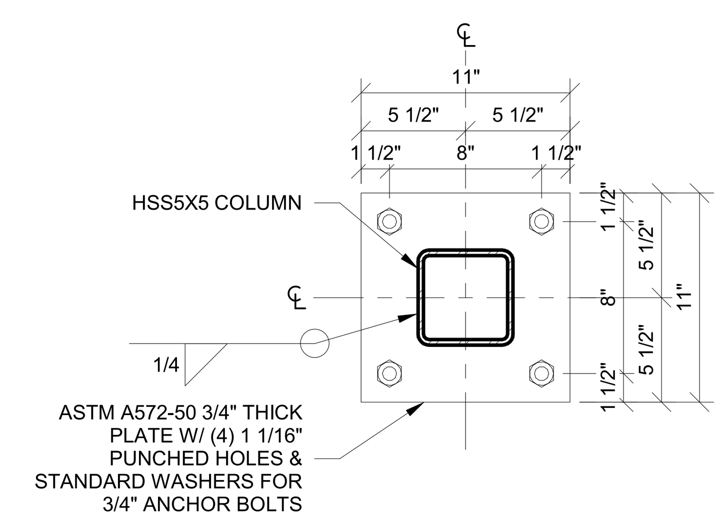
10 S520 BASE PLATE BP6
1 1/2" = 1'-0"



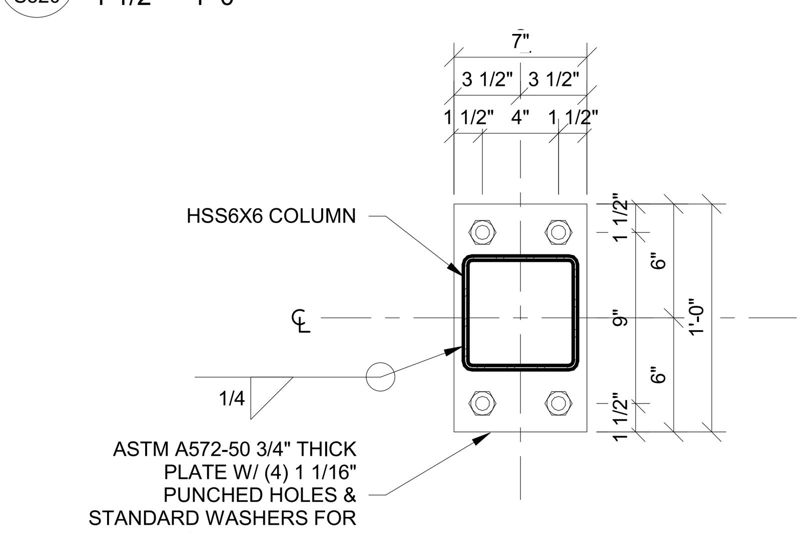
11 S520 BASE PLATE BP7
1 1/2" = 1'-0"



12 S520 BASE PLATE BP8
1 1/2" = 1'-0"



13 S520 BASE PLATE BP9
1 1/2" = 1'-0"



14 S520 BASE PLATE BP10
1 1/2" = 1'-0"

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

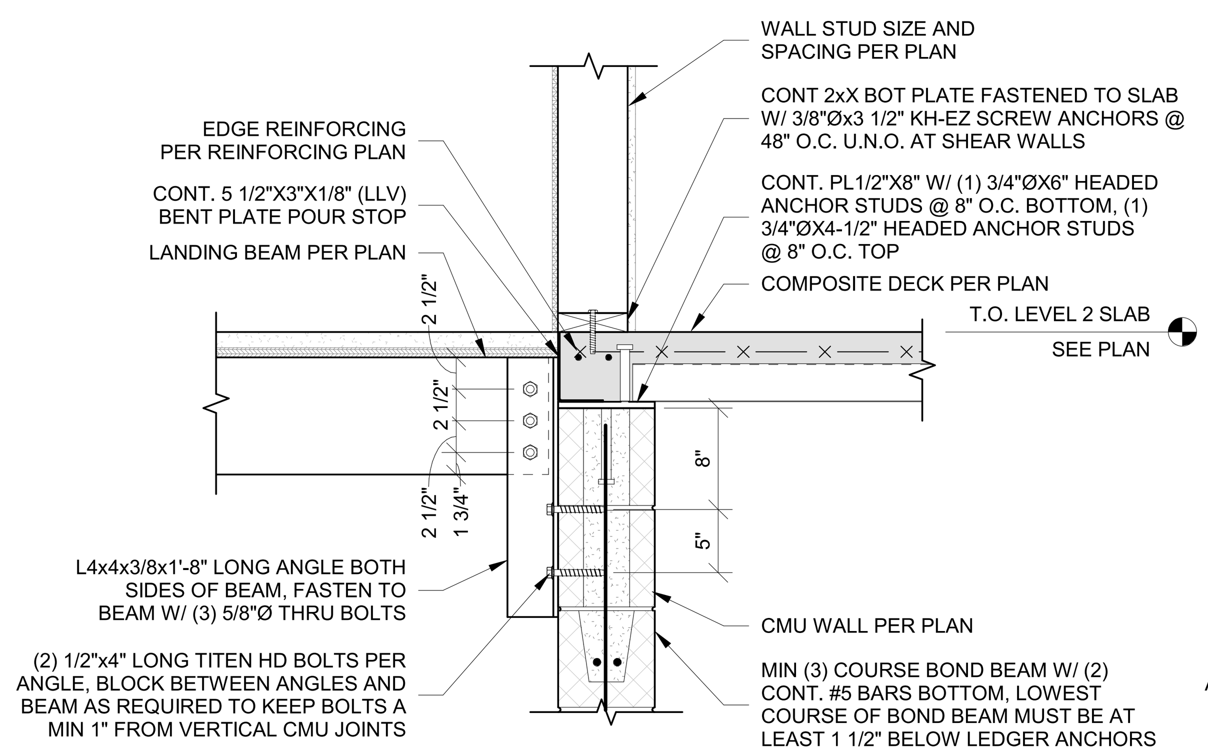
FOR BID PURPOSES ONLY

THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

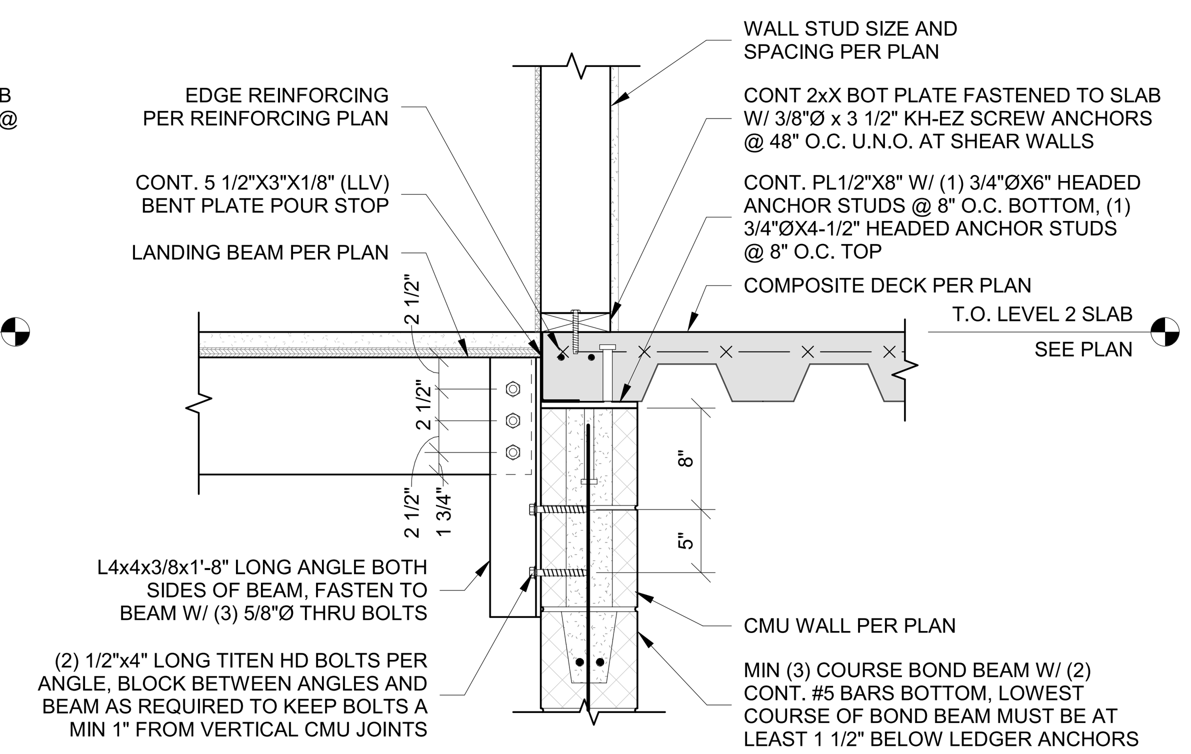
SHEET TITLE
PODIUM FRAMING DETAILS

PROJECT NUMBER: 2023000333

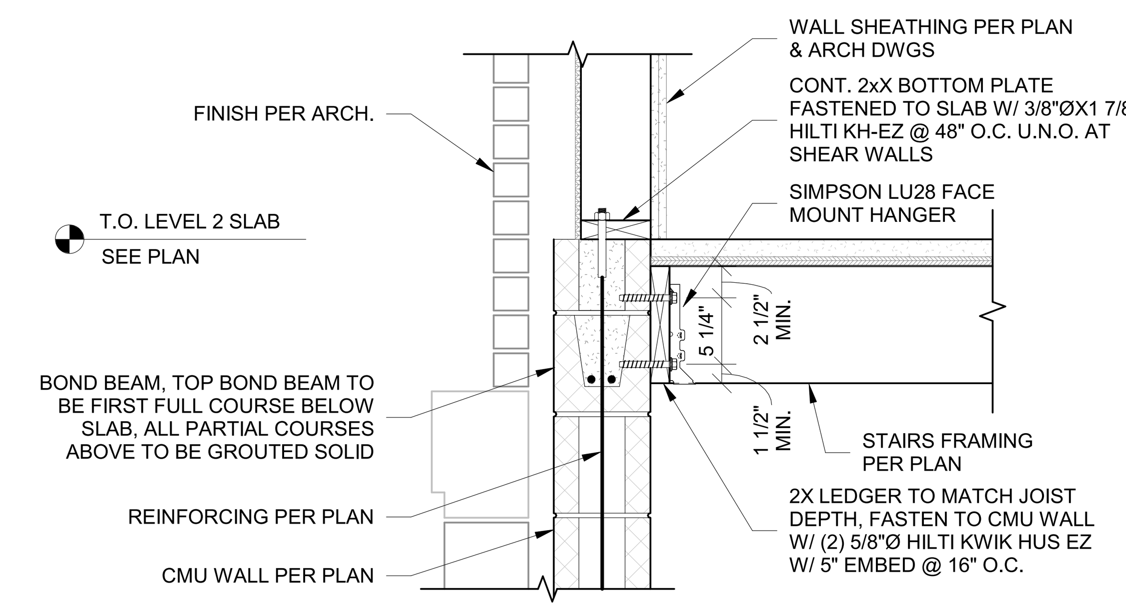
SHEET NUMBER:
S520



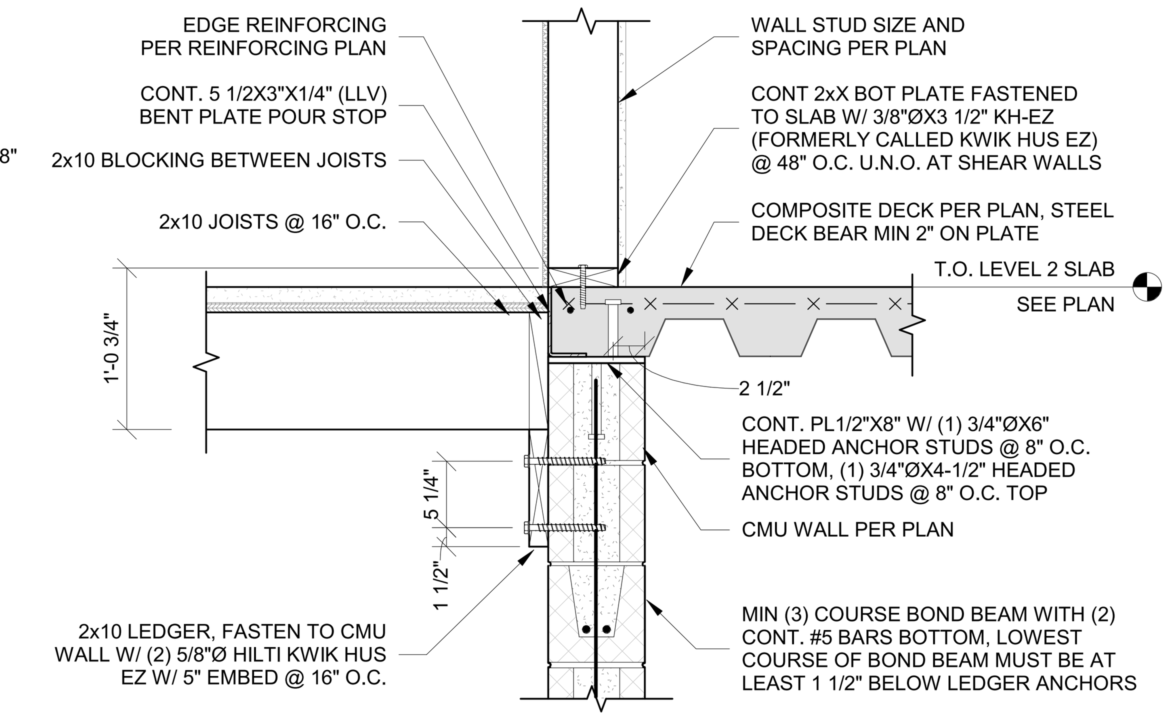
1 STAIR LANDING BEAM ATTACHMENT TO CMU
S521 1" = 1'-0"



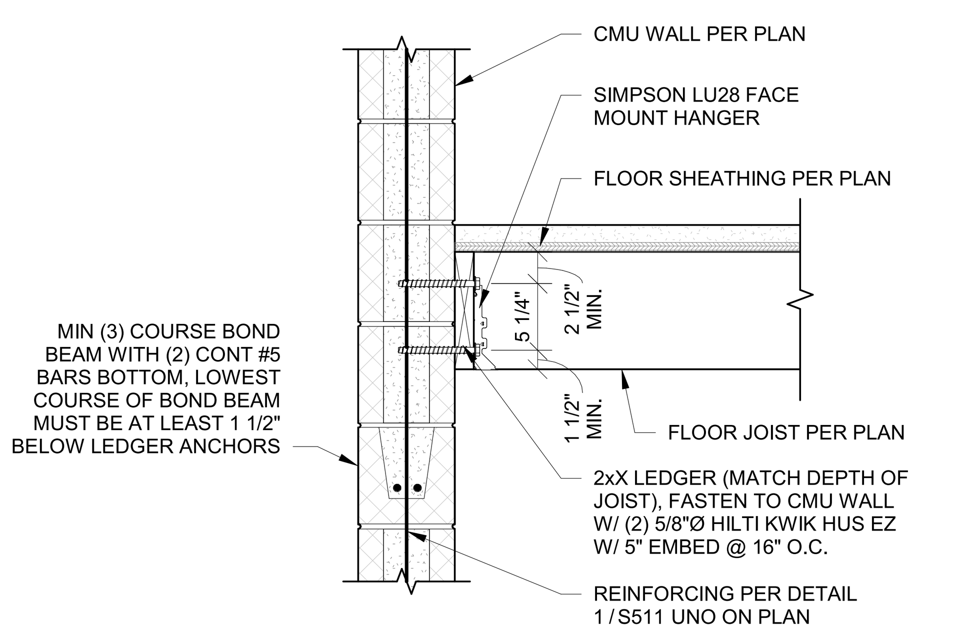
2 STAIR LANDING BEAM ATTACHMENT TO CMU
S521 1" = 1'-0"



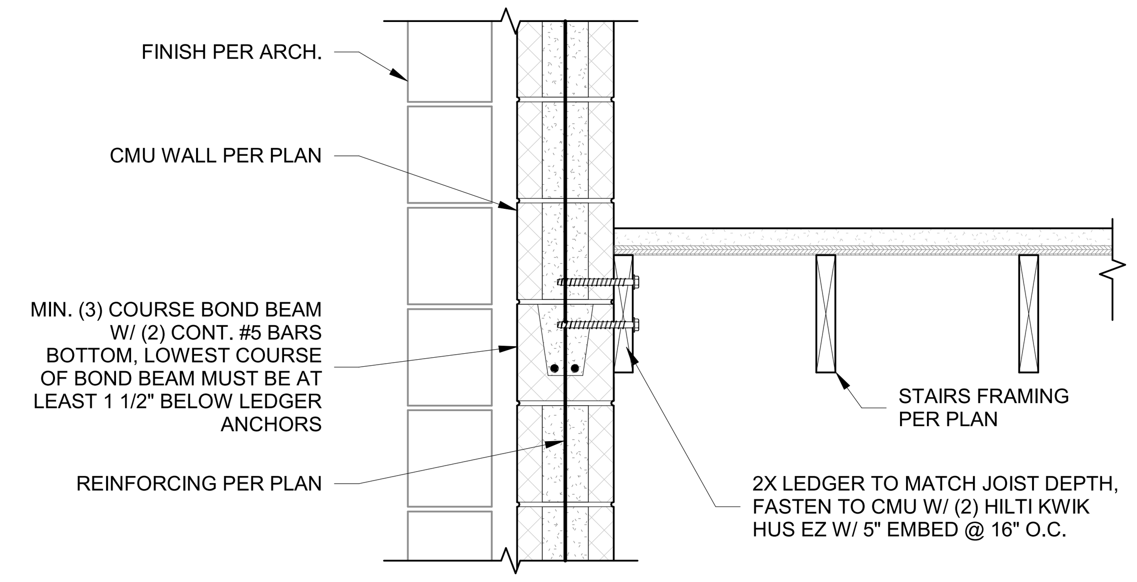
3 SECTION AT LEVEL 2 STAIRS AT EXTERIOR WALL
S521 1" = 1'-0"



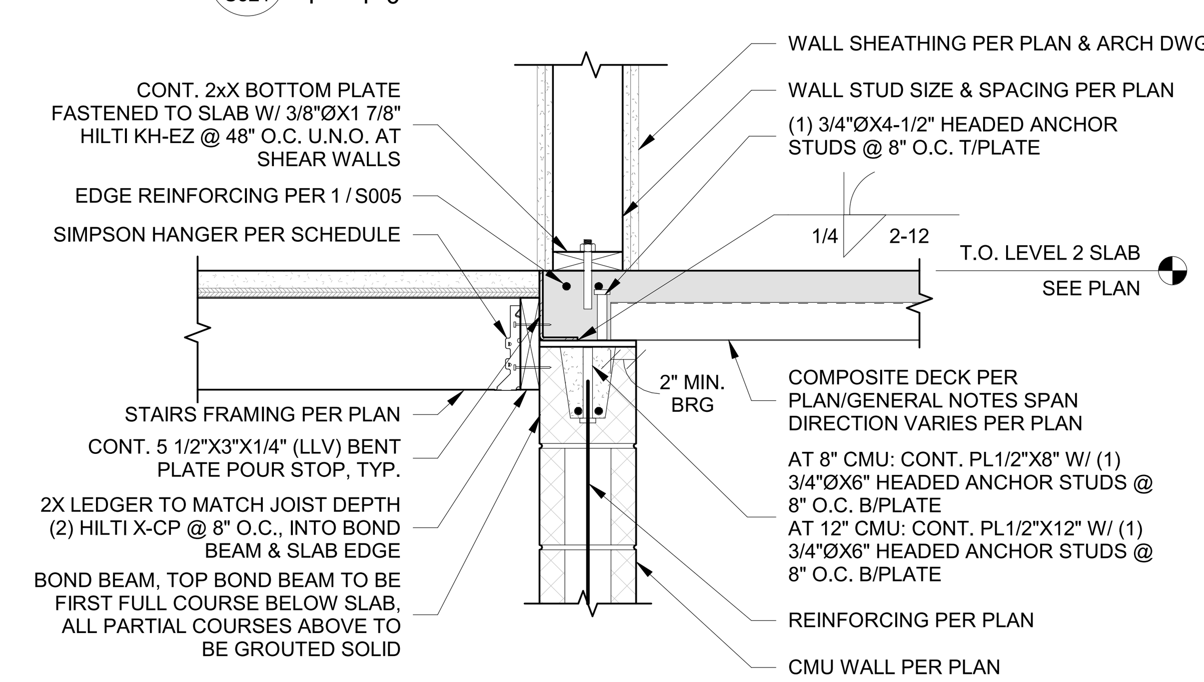
4 SECTION AT LEVEL 2 STAIRS
S521 1" = 1'-0"



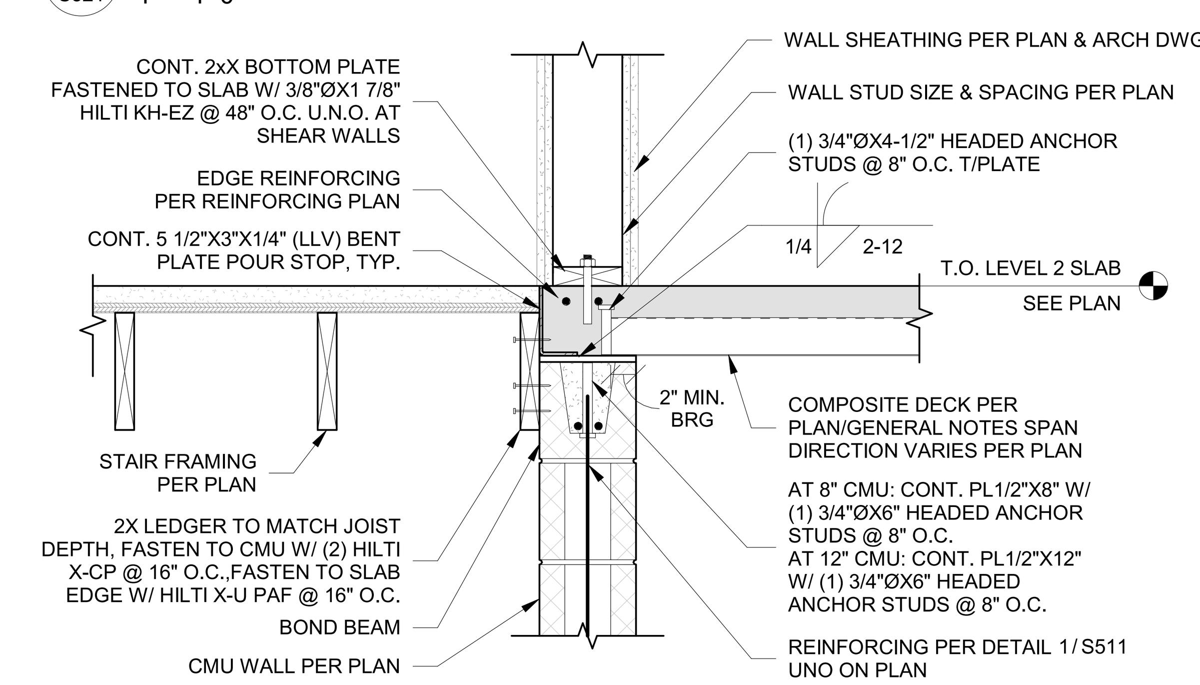
5 SECTION AT STAIR LANDING AT EXTERIOR WALL
S521 1" = 1'-0"



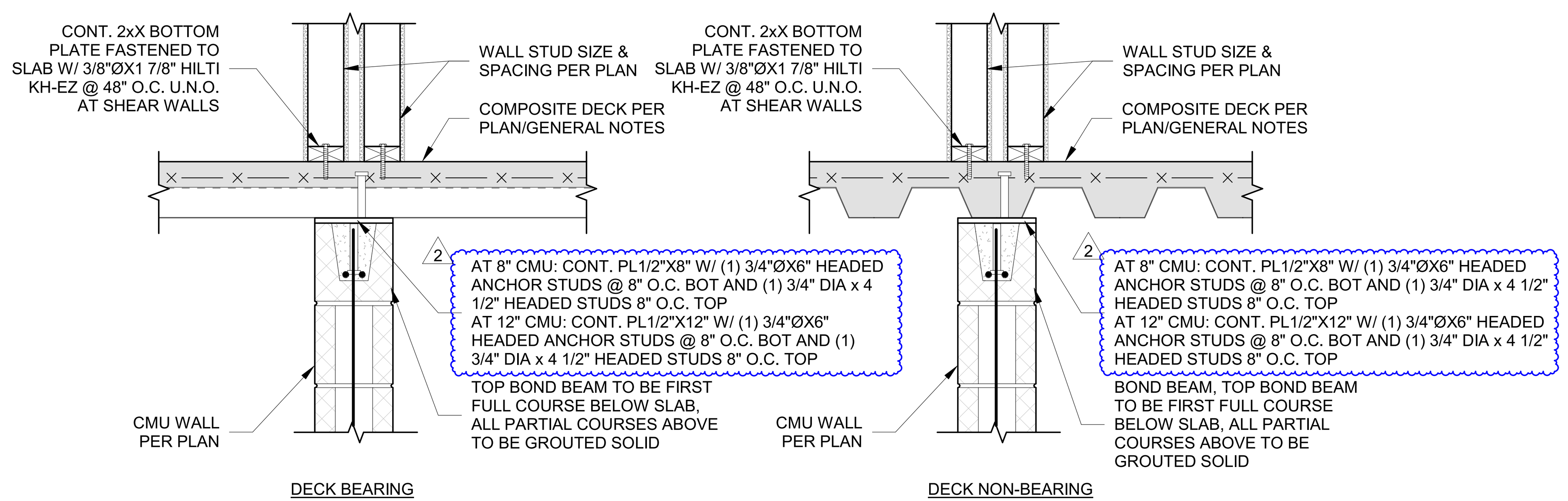
6 SECTION AT STAIR LANDING AT EXTERIOR WALL
S521 1" = 1'-0"



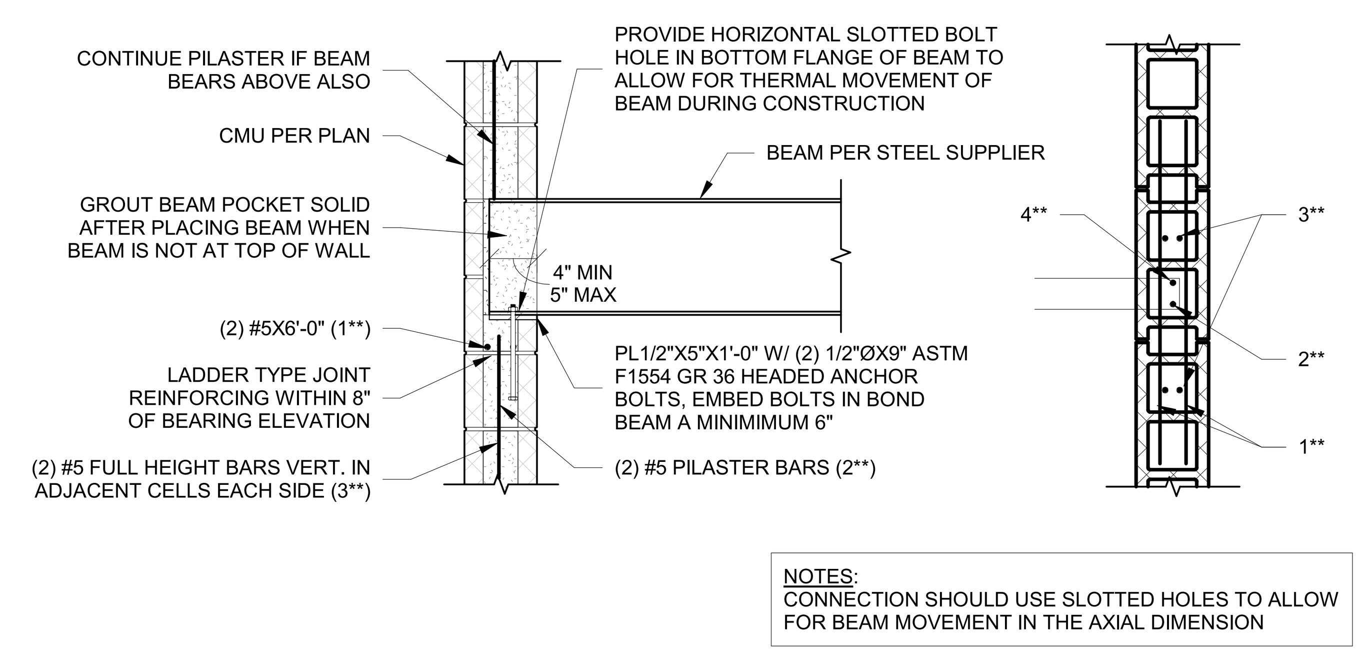
7 SECTION AT LEVEL 2 STAIRS
S521 1" = 1'-0"



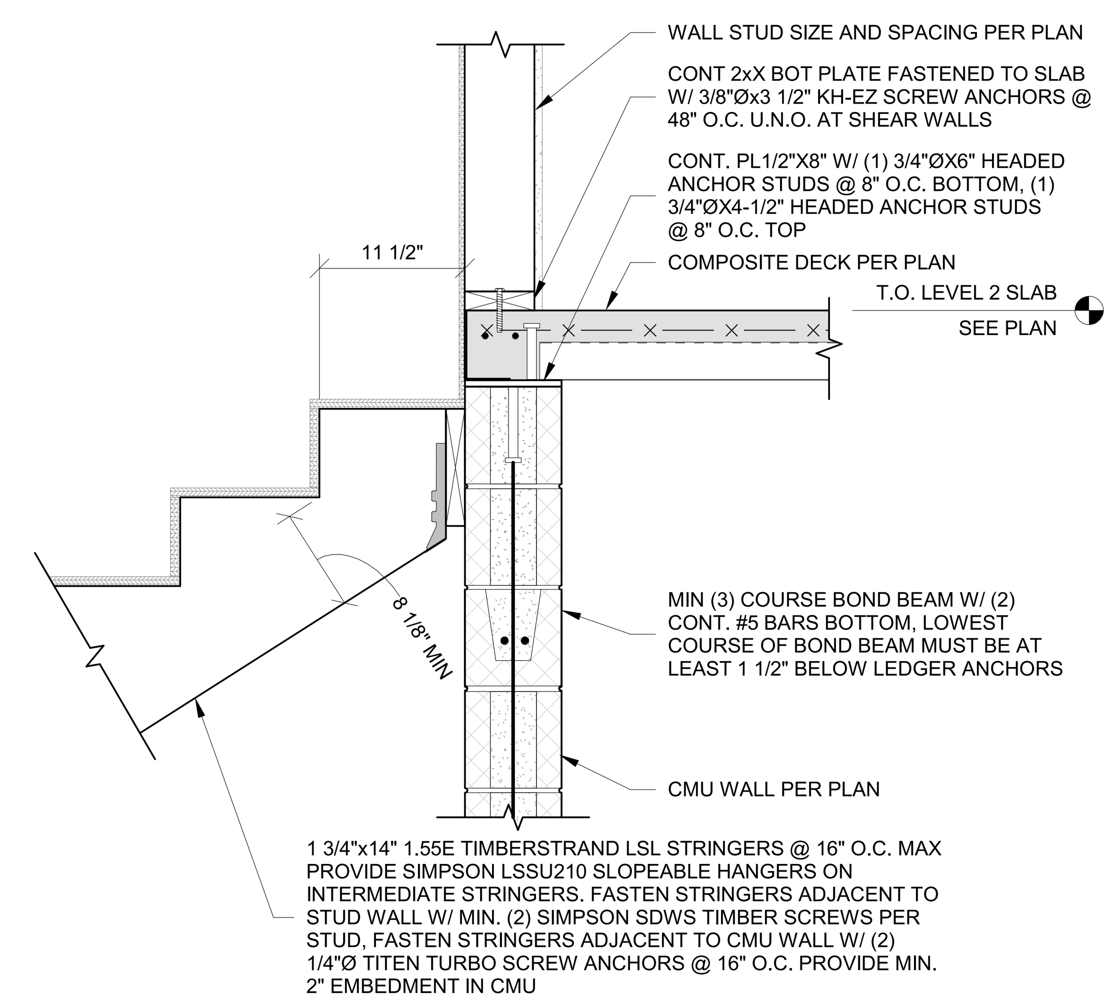
8 SECTION AT LEVEL 2 STAIRS JOISTS PARALLEL
S521 1" = 1'-0"



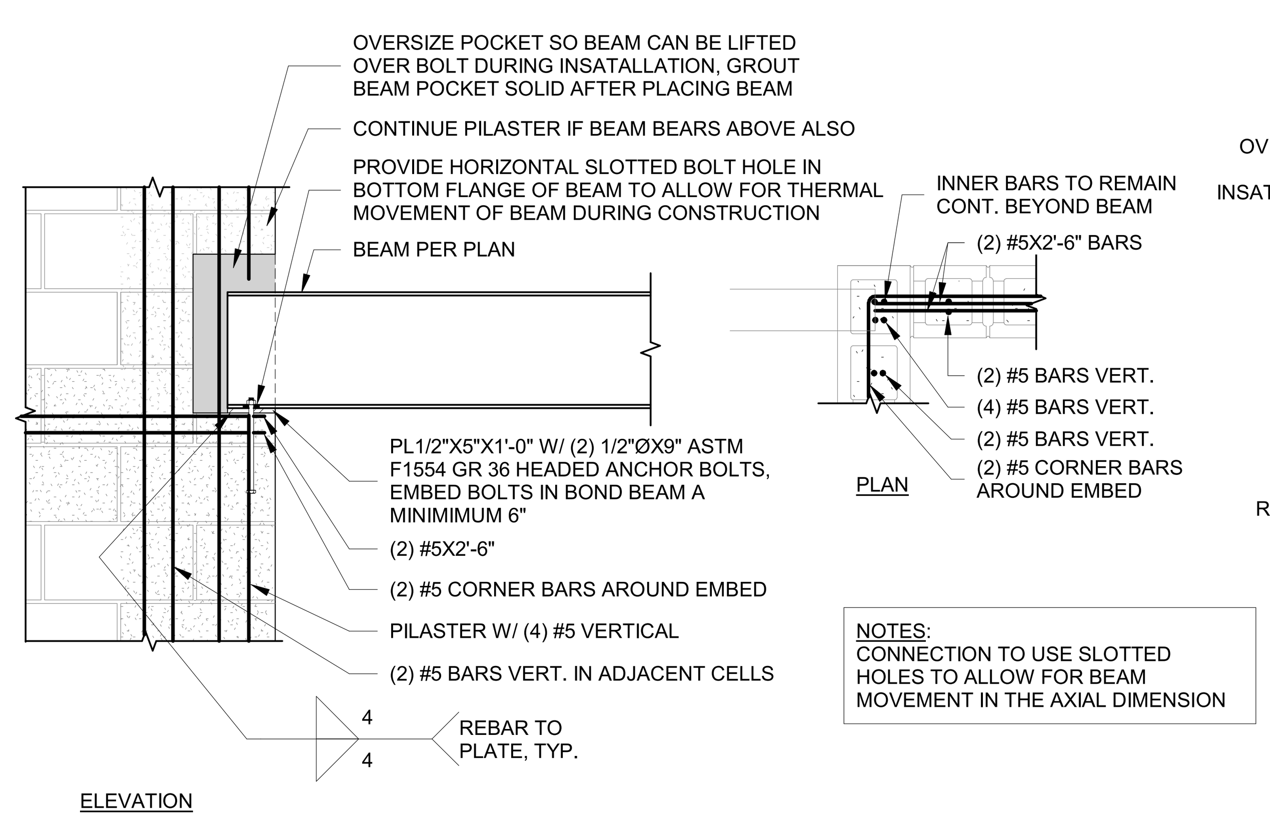
9 COMPOSITE DECK AT MASONRY
S521 1" = 1'-0"



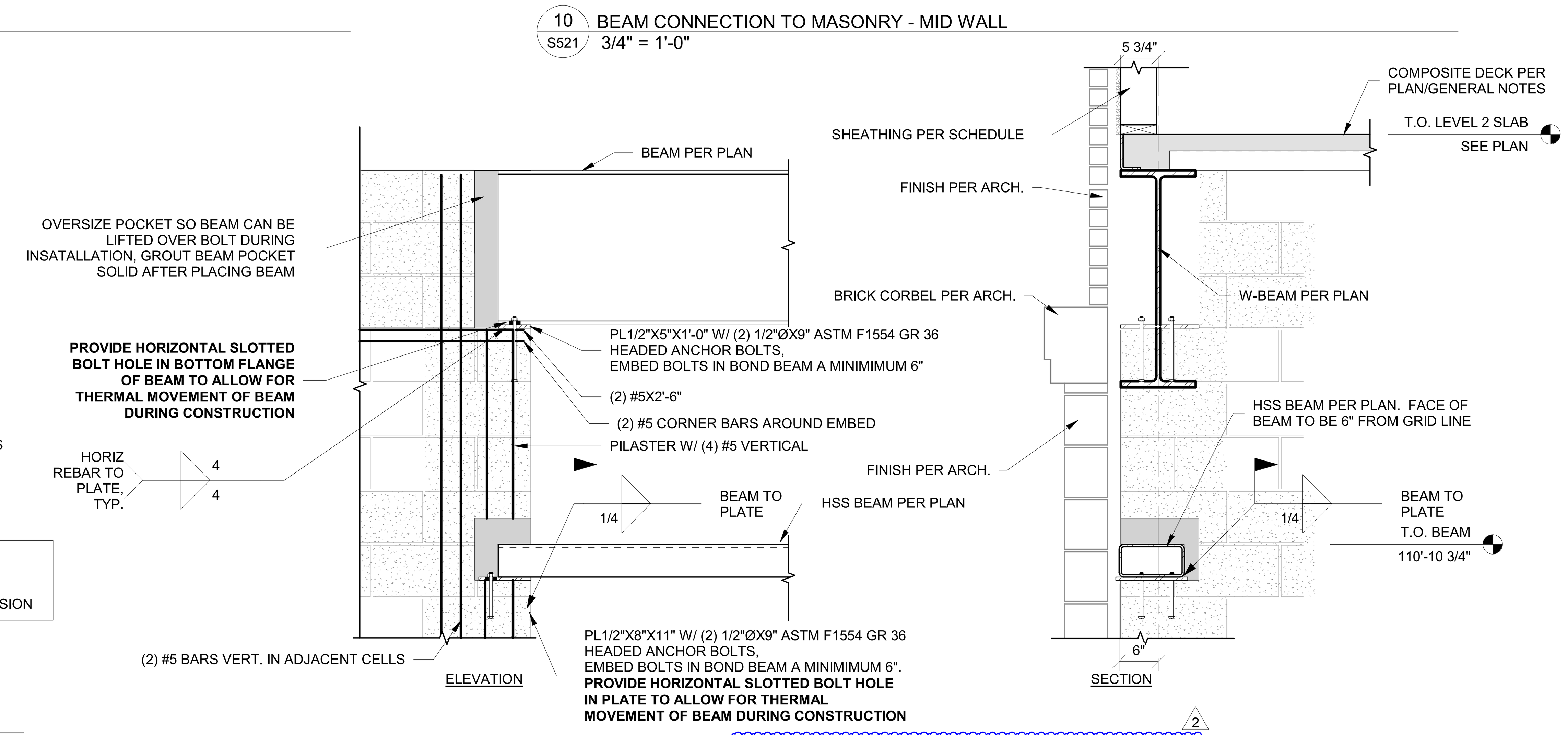
10 BEAM CONNECTION TO MASONRY - MID WALL
S521 3/4" = 1'-0"



11 STAIR STRINGER CONNECTION TO CMU WALL
S521 1" = 1'-0"



12 BEAM CONNECTION TO MASONRY AT CORNER
S521 3/4" = 1'-0"



13 CMU WALL BEAM SUPPORT
S521 3/4" = 1'-0"

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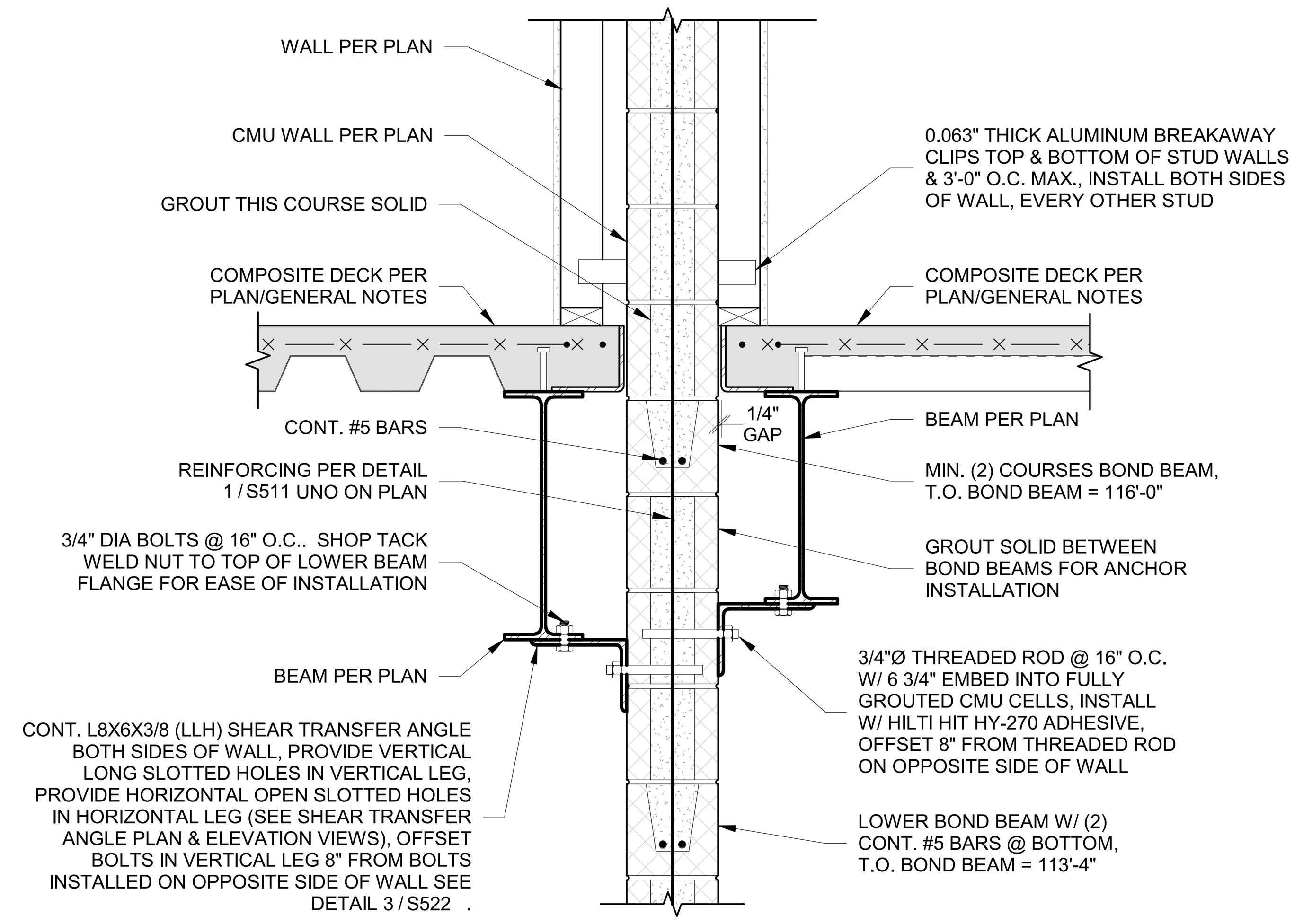
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

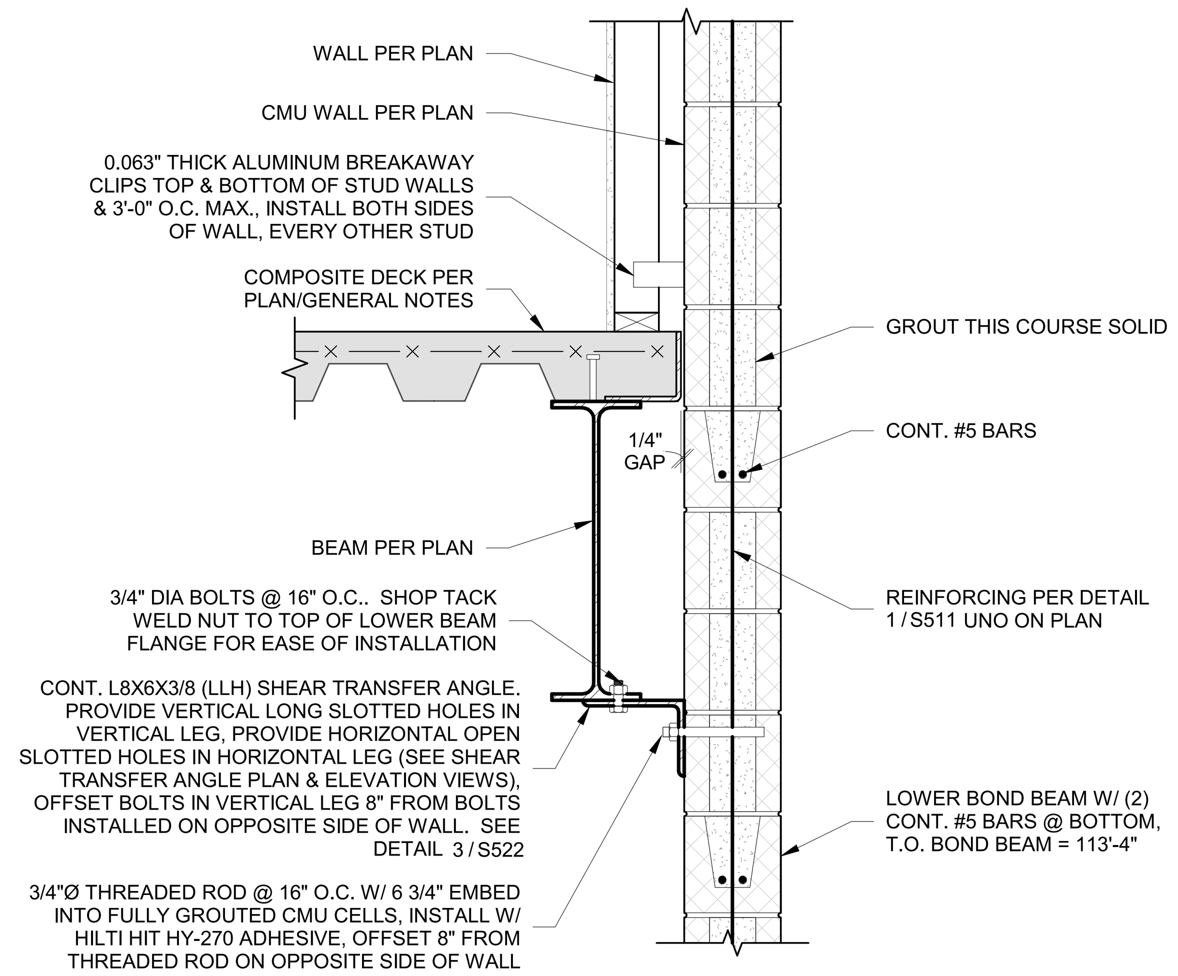
SHEET TITLE
PODIUM FRAMING DETAILS

PROJECT NUMBER: 2023000333

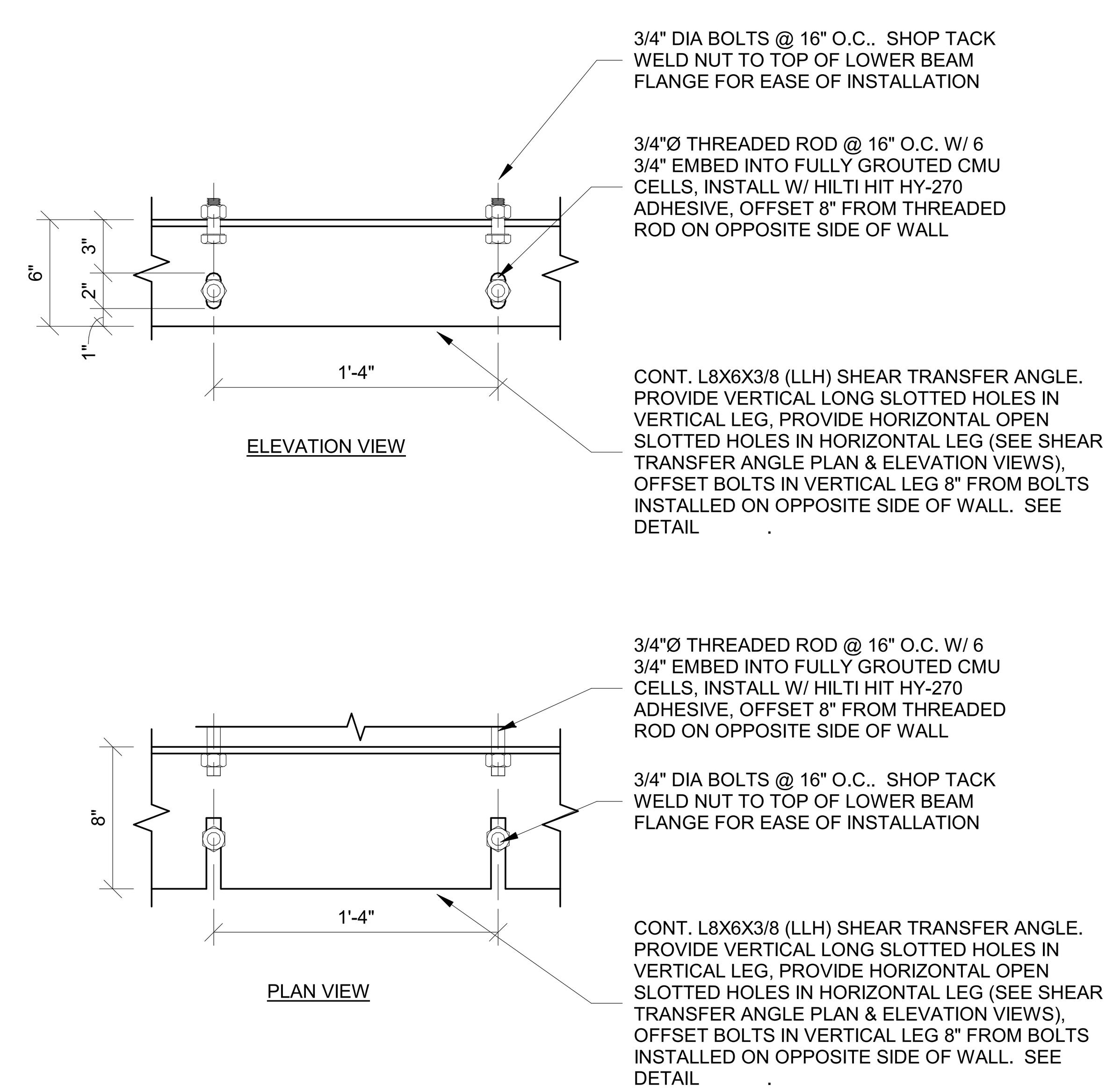
SHEET NUMBER:
S521



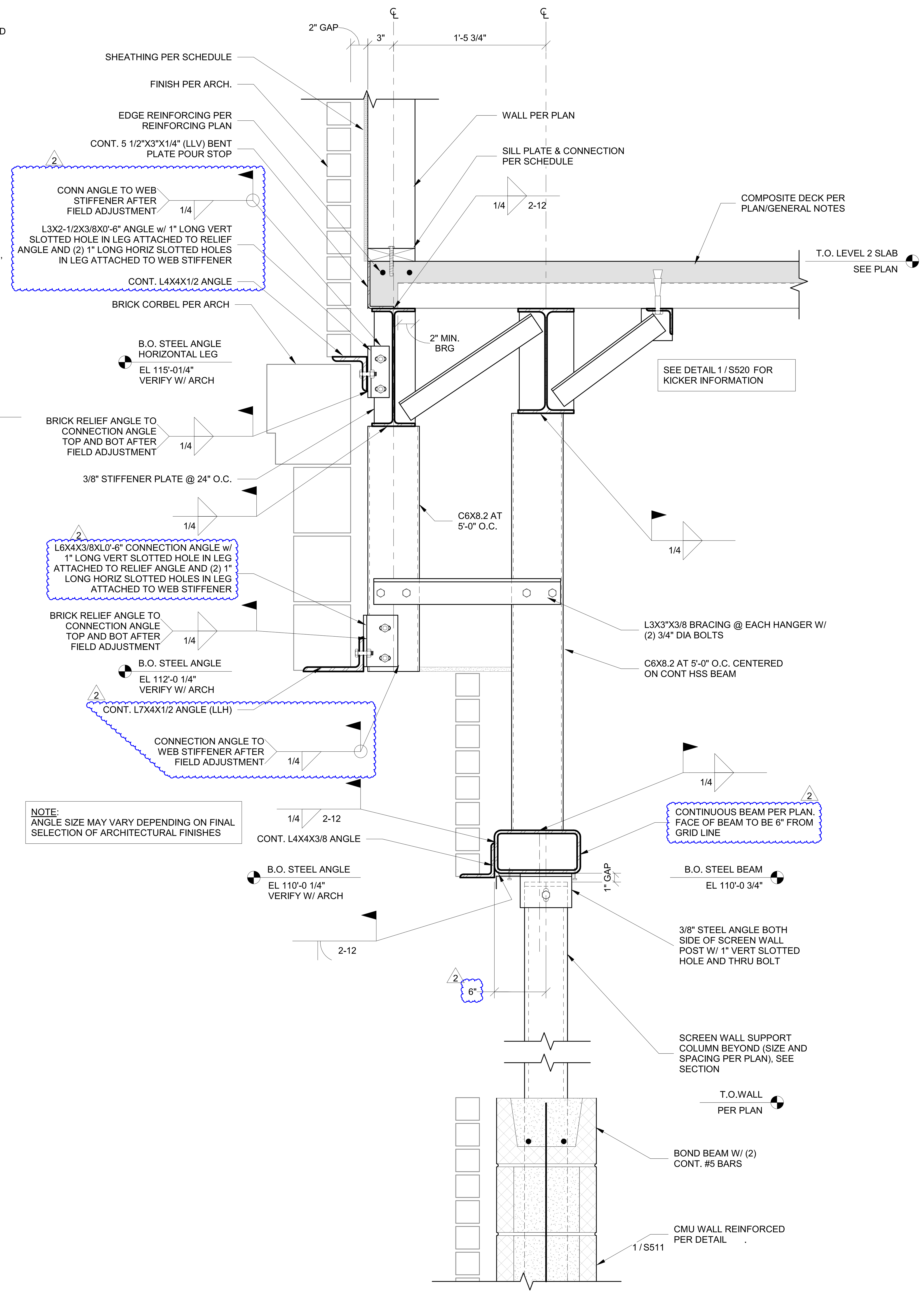
1 COMPOSITE DECK TRANSITION AT CMU FIRE WALL
S522 1" = 1'-0"



2 COMPOSITE DECK AT CMU FIRE WALL
S522 1" = 1'-0"



3 SHEAR TRANSFER ANGLE PLAN & ELEVATION VIEWS
S522 1 1/2" = 1'-0"



4 SECTION AT GARAGE - LEVEL 2 CANTILEVER
S522 1 1/2" = 1'-0"

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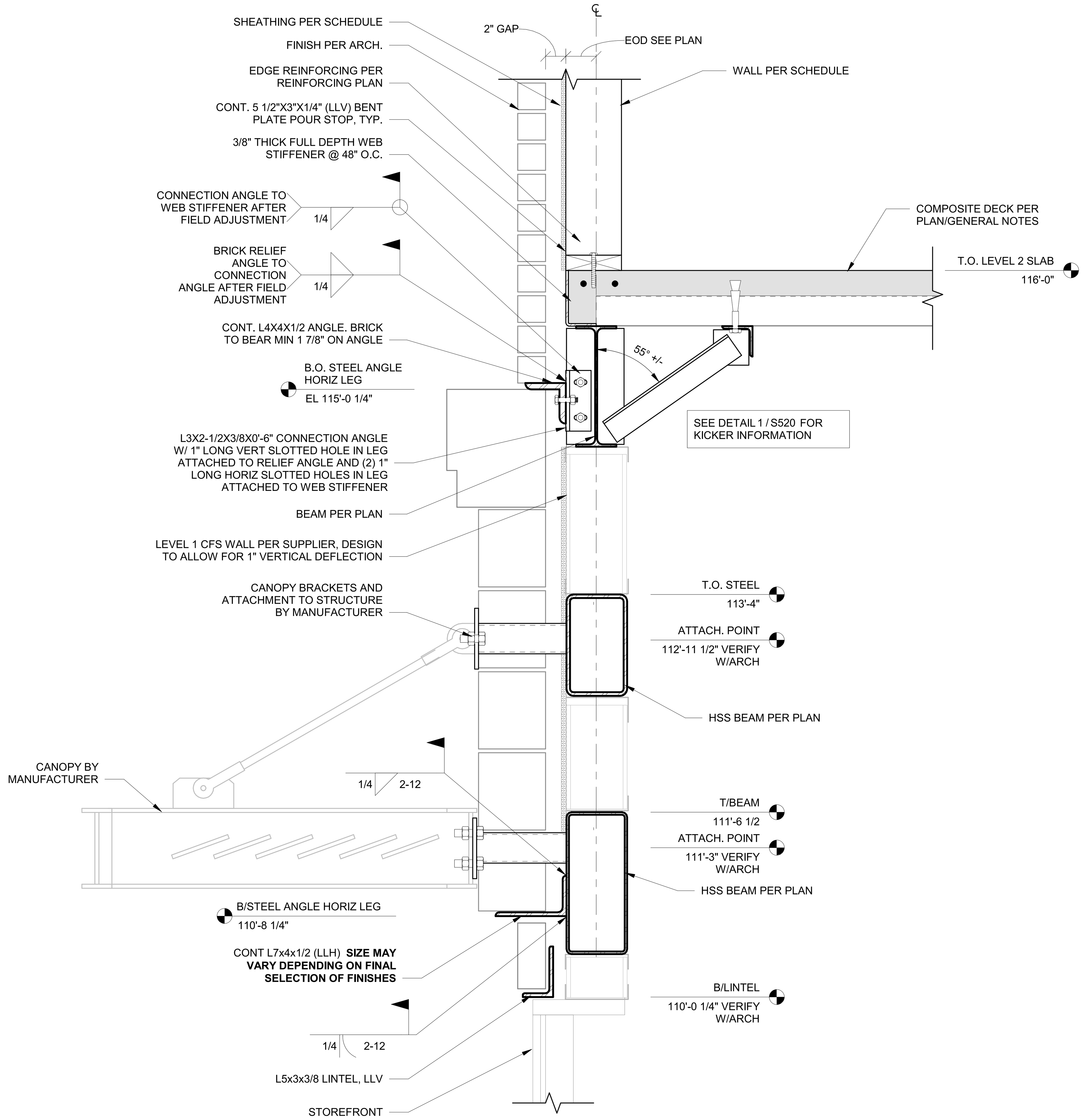
SHEET TITLE
PODIUM FRAMING DETAILS

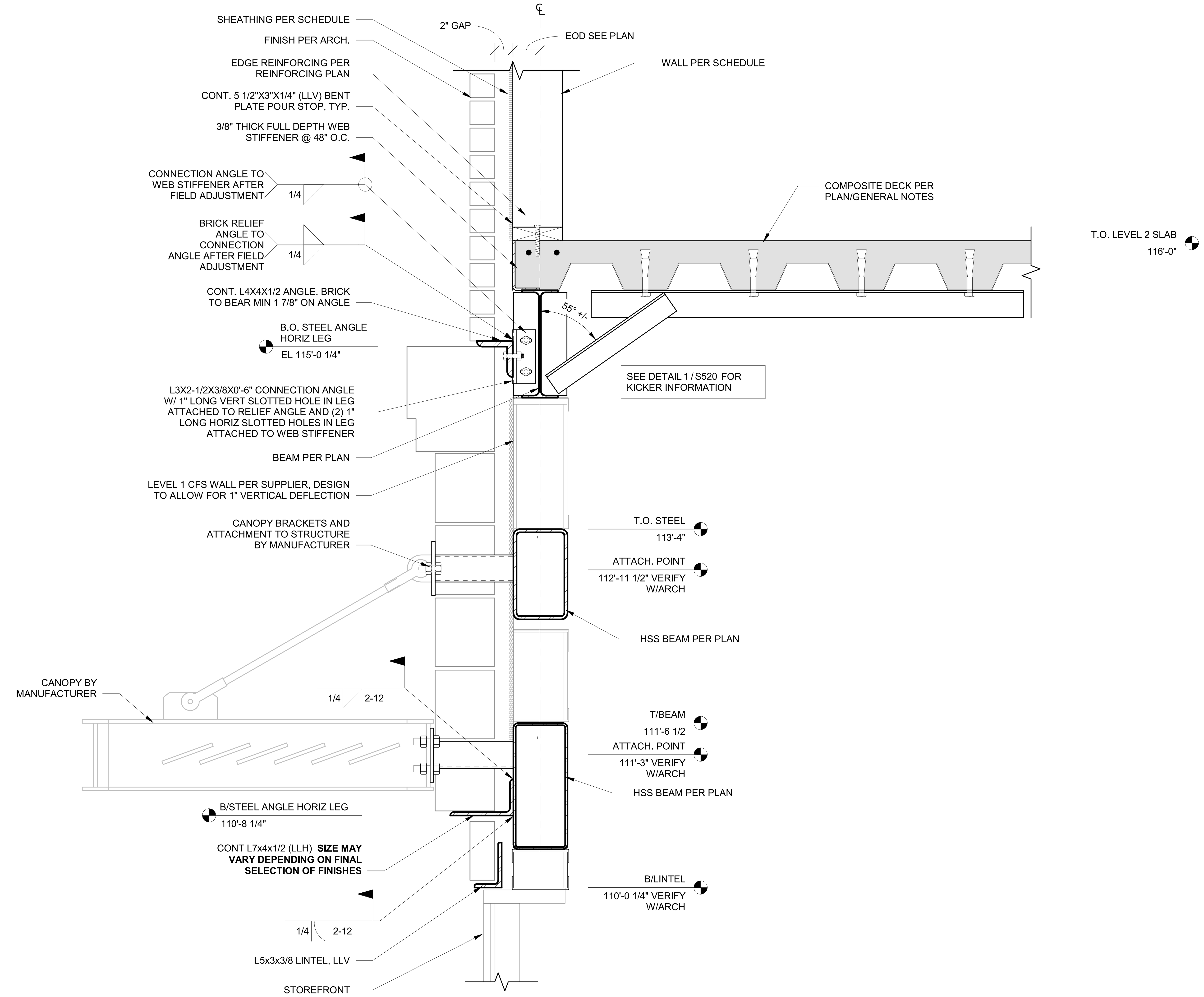
PROJECT NUMBER: 2023000333

SHEET NUMBER:

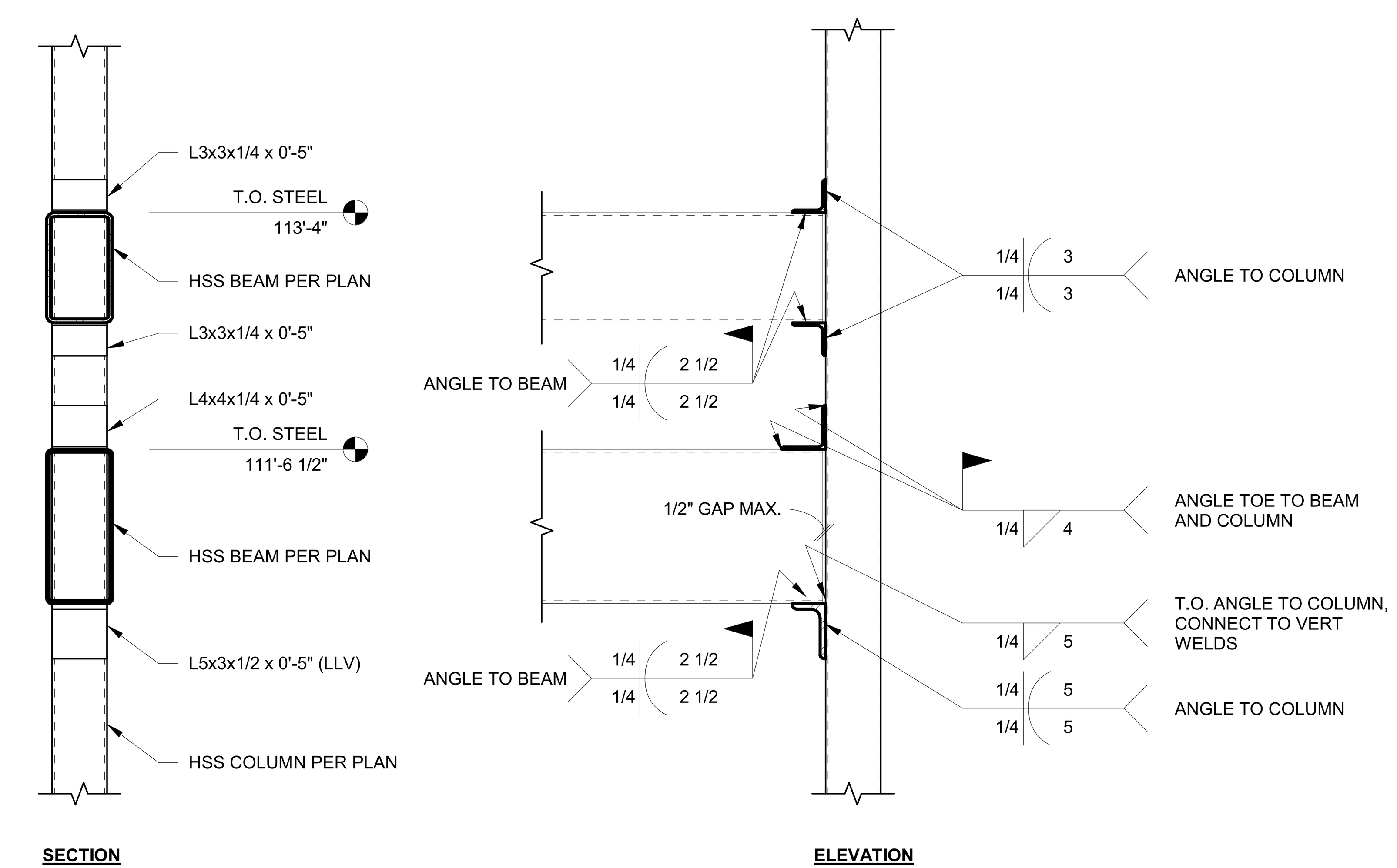
S522



1A PODIUM SECTION AT CANOPY - DECK PERPENDICULAR TO EXTERIOR WALL
S523 1 1/2" = 1'-0"



1B PODIUM SECTION AT CANOPY - DECK PARALLEL TO EXTERIOR WALL
S523 1 1/2" = 1'-0"



2 CANOPY FRAMING TO COLUMN CONNECTIONS
S523 1" = 1'-0"

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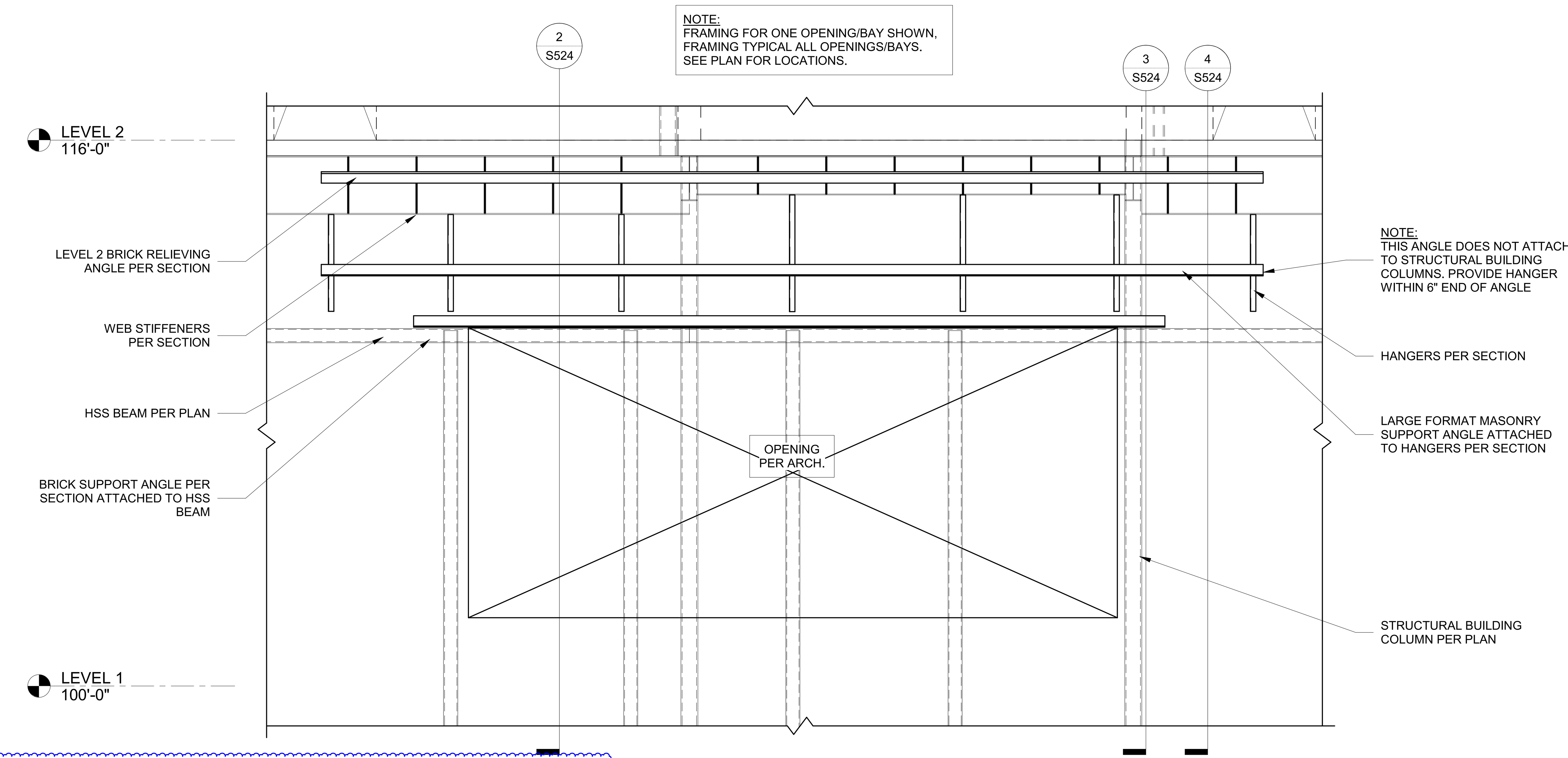
LEE'S SUMMIT, MO 64064

SHEET TITLE
PODIUM FRAMING DETAILS

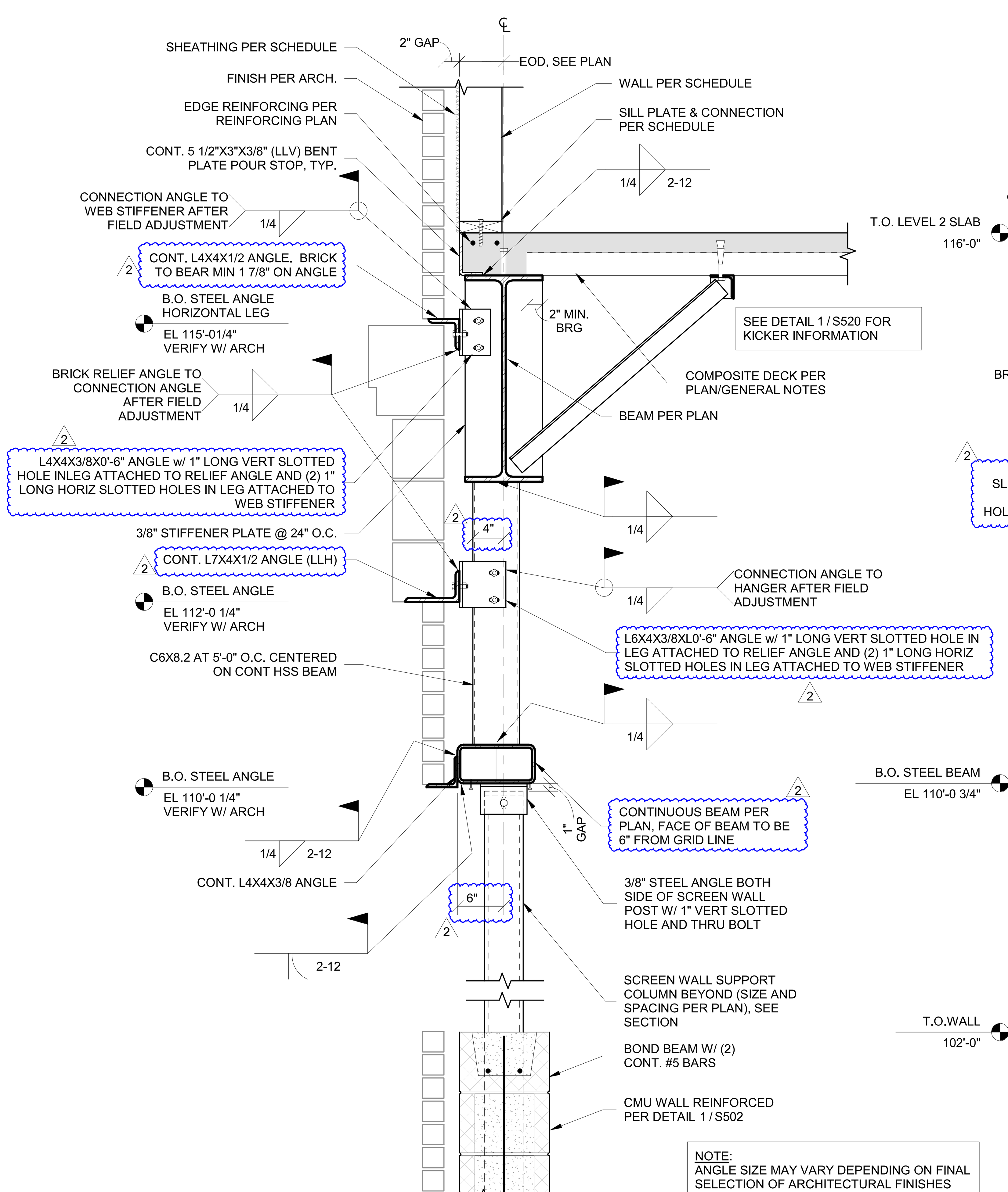
PROJECT NUMBER: 2023000333

SHEET NUMBER:
S523

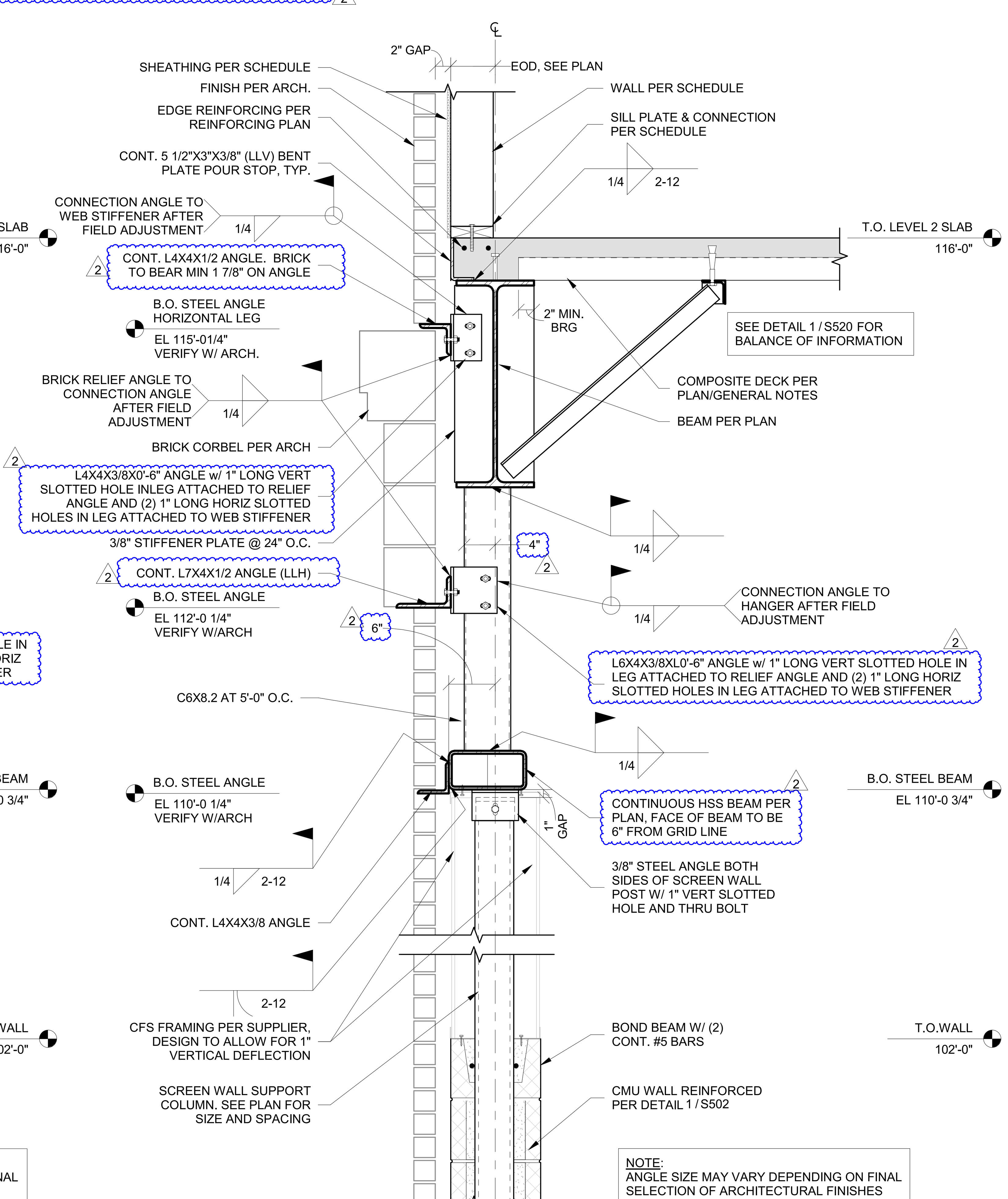
2 NEW SHEET



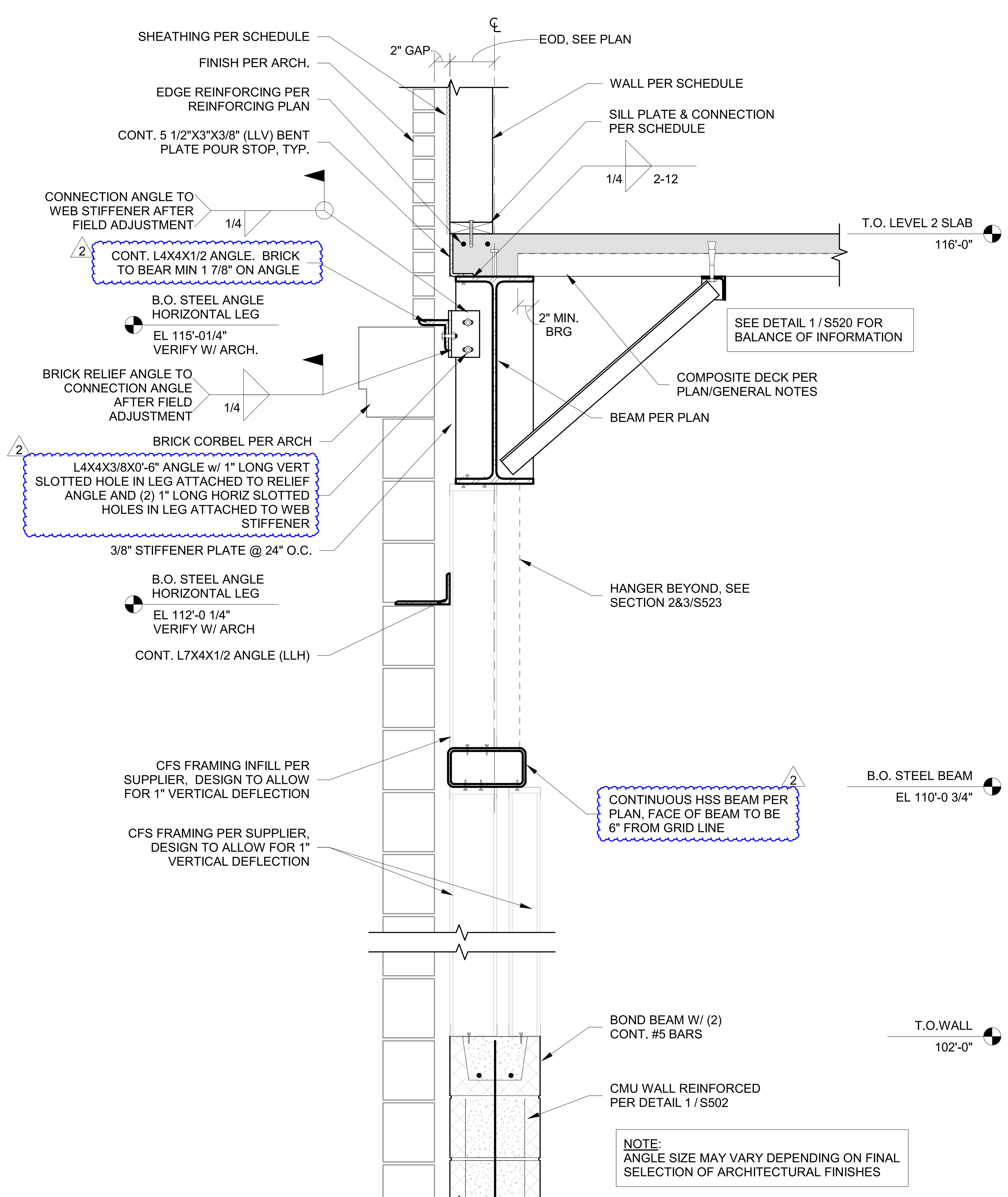
1 S524 TYPICAL FRAMING ELEVATION AT GARAGE SCREEN WALL OPENING
3/8" = 1'-0"



2 S524 SECTION AT TYPICAL GARAGE OPENING FOR SCREEN WALL
1" = 1'-0"



3 S524 SECTION AT GARAGE SCREEN WALL END POST WITHIN FULL HEIGHT WALL
1" = 1'-0"



4 S524 SECTION AT GARAGE BEYOND SCREEN WALL
1" = 1'-0"

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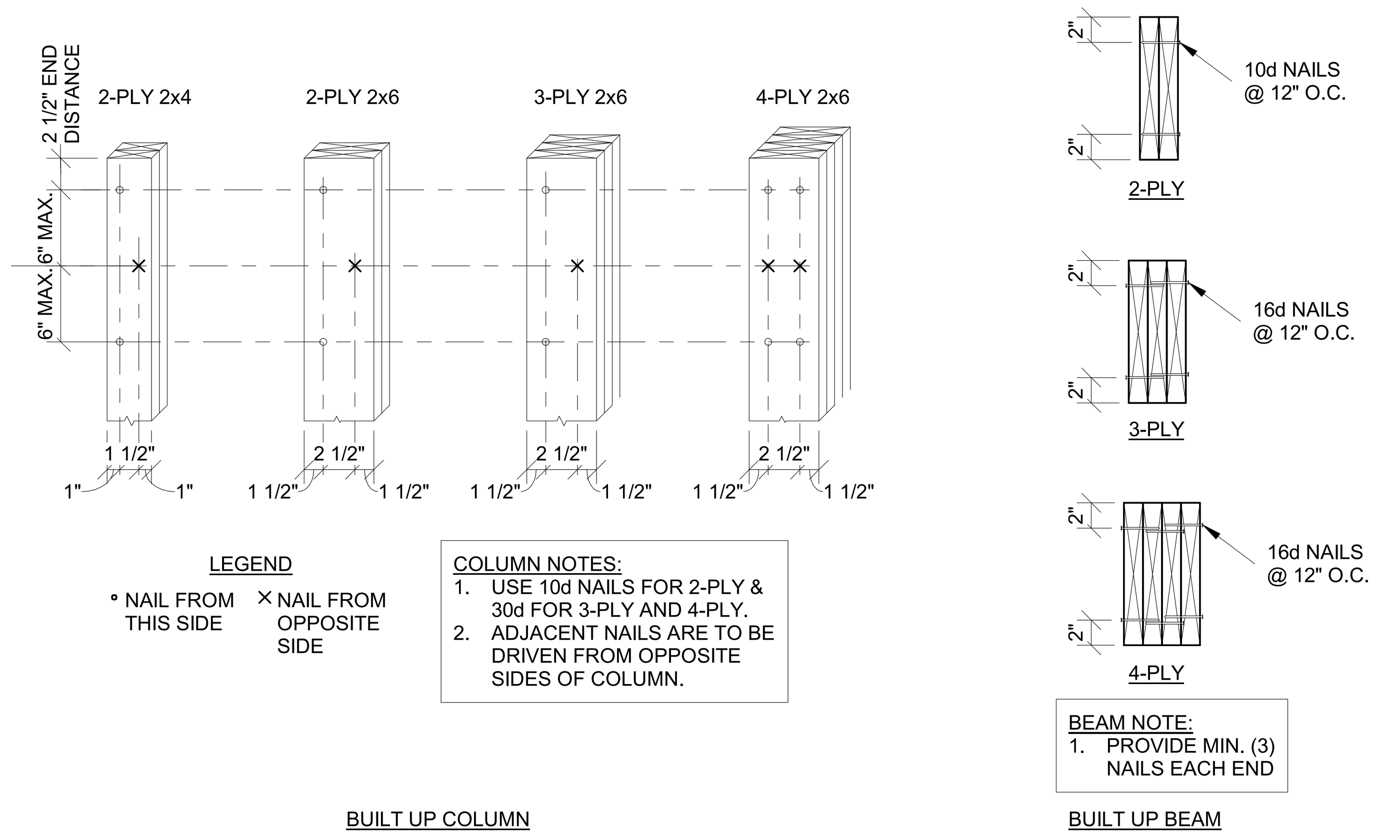
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

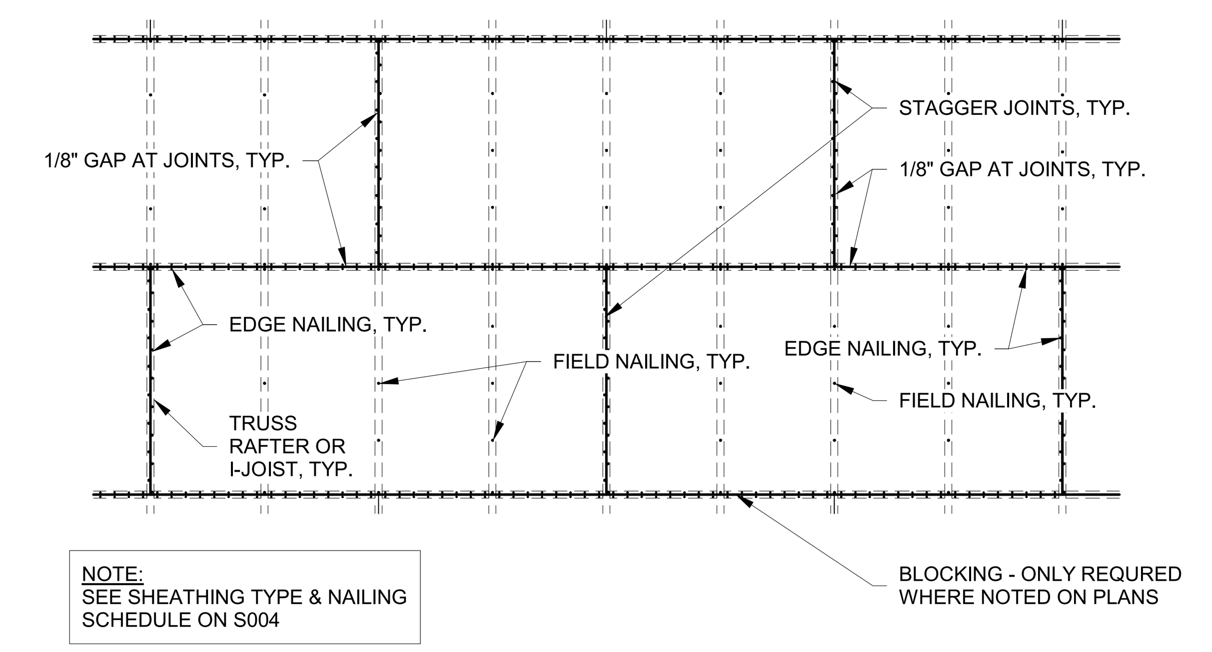
SHEET TITLE
FRAMING AT TYPICAL GARAGE WALL OPENING

PROJECT NUMBER: 2023000333

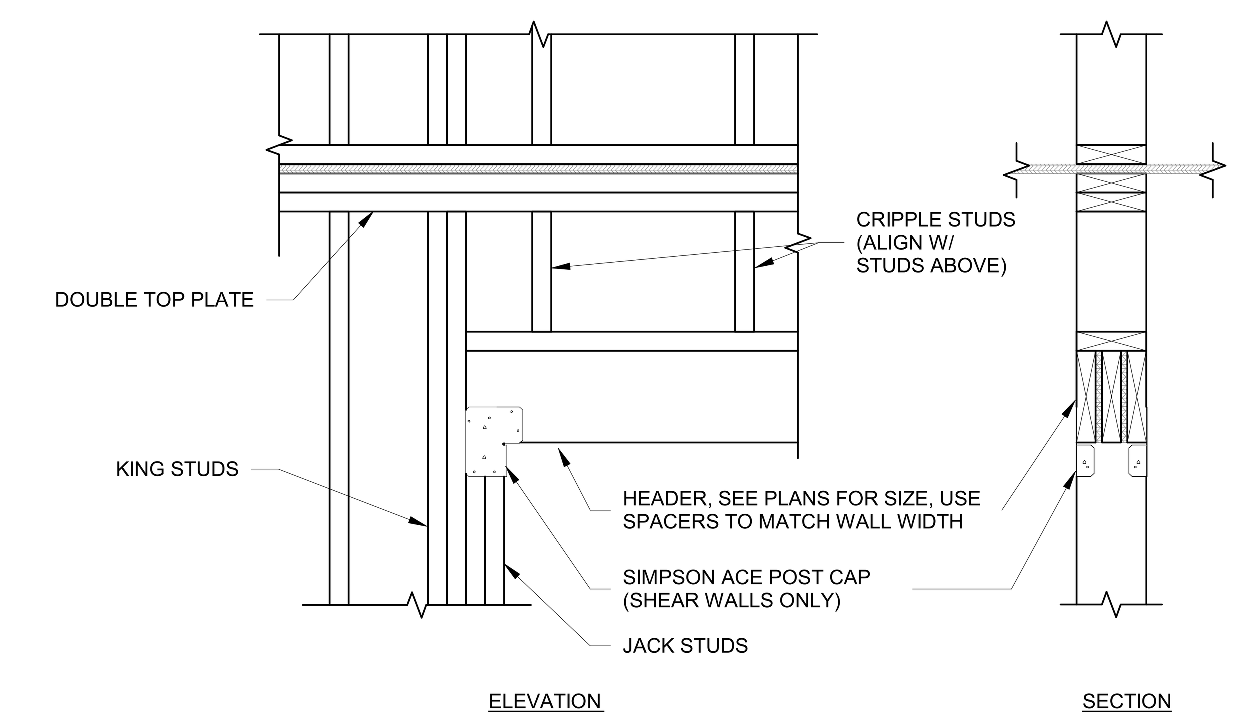
SHEET NUMBER:
S524



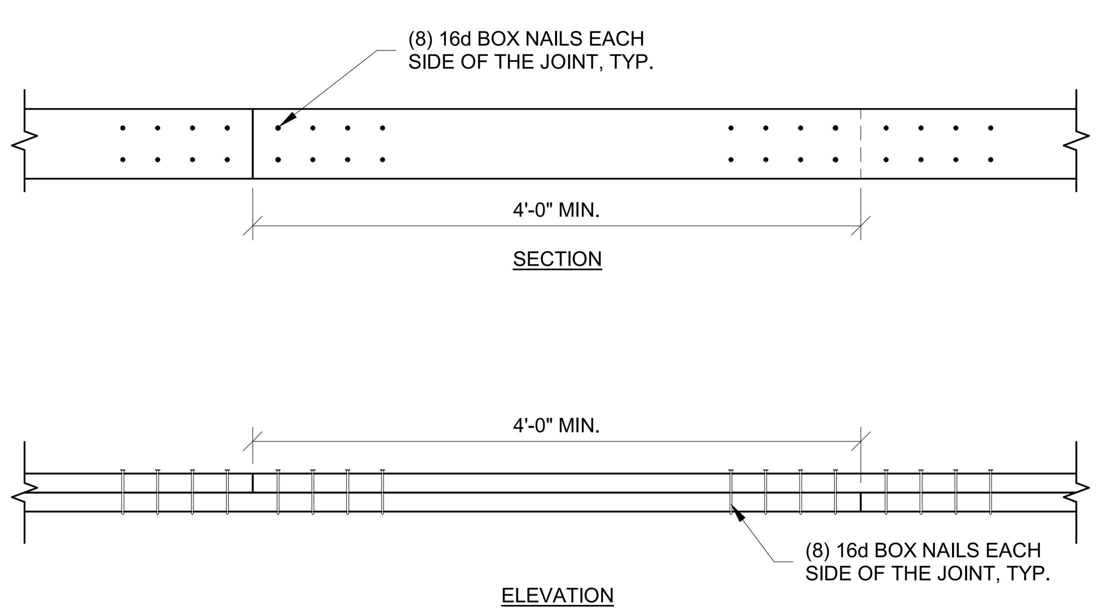
1 S530 TYPICAL BUILT-UP MEMBERS
1" = 1'-0"



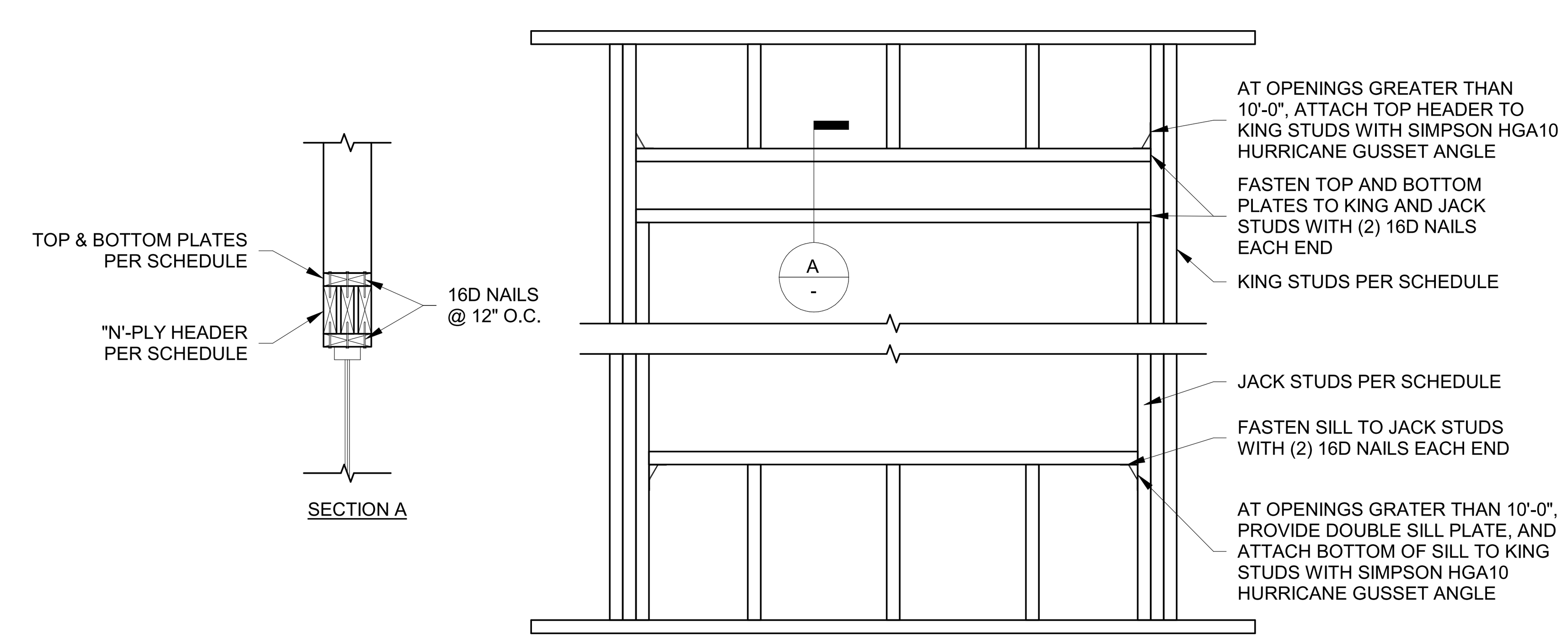
2 S530 DIAPHRAGM NAILING
3/8" = 1'-0"



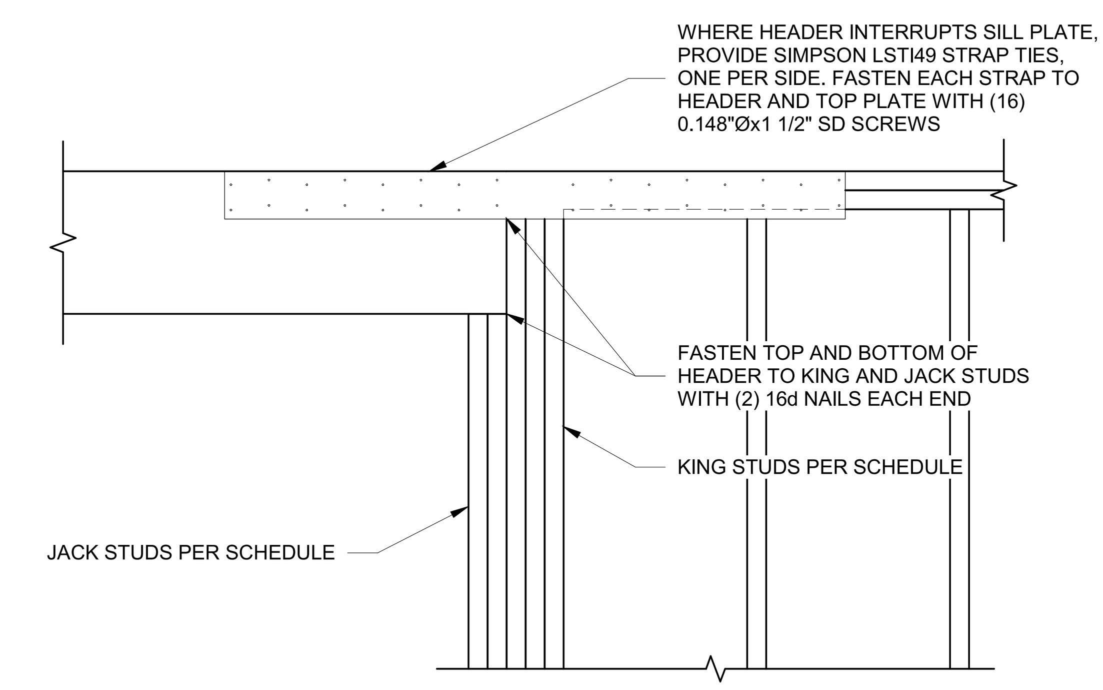
3 S530 TYPICAL HEADER CONNECTION
1" = 1'-0"



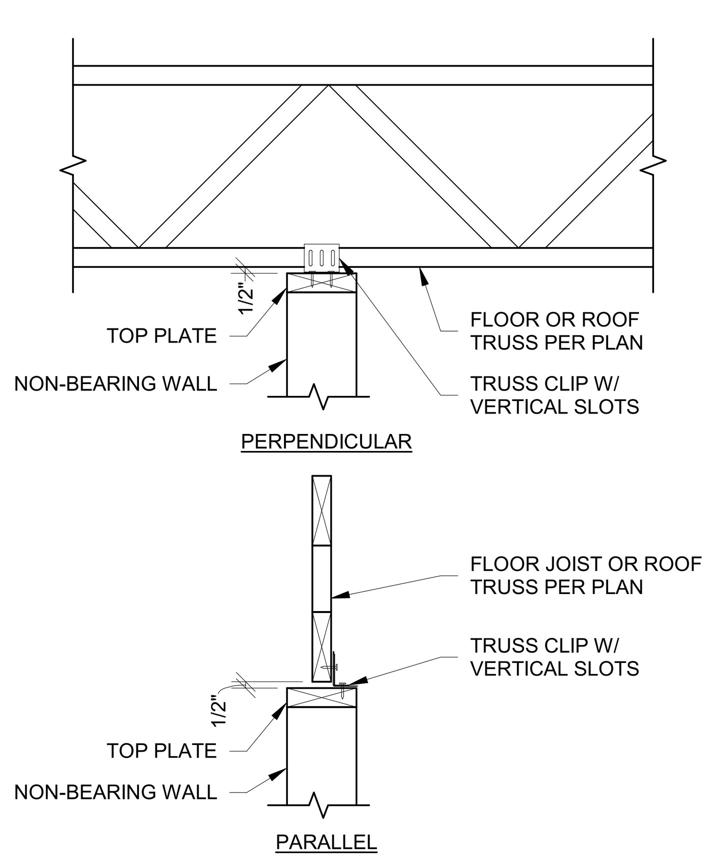
4 S530 TOP PLATE SPLICE
1" = 1'-0"



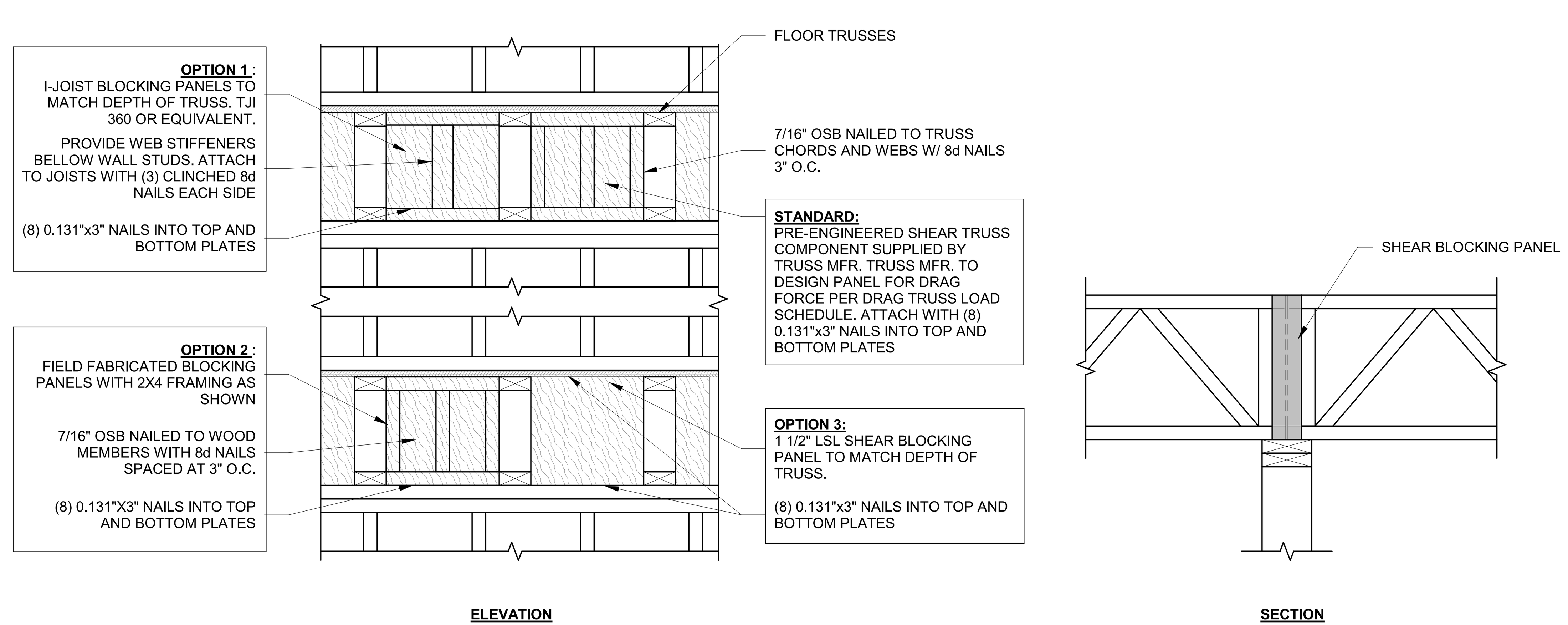
5 S530 FRAMING AT OPENING
3/4" = 1'-0"



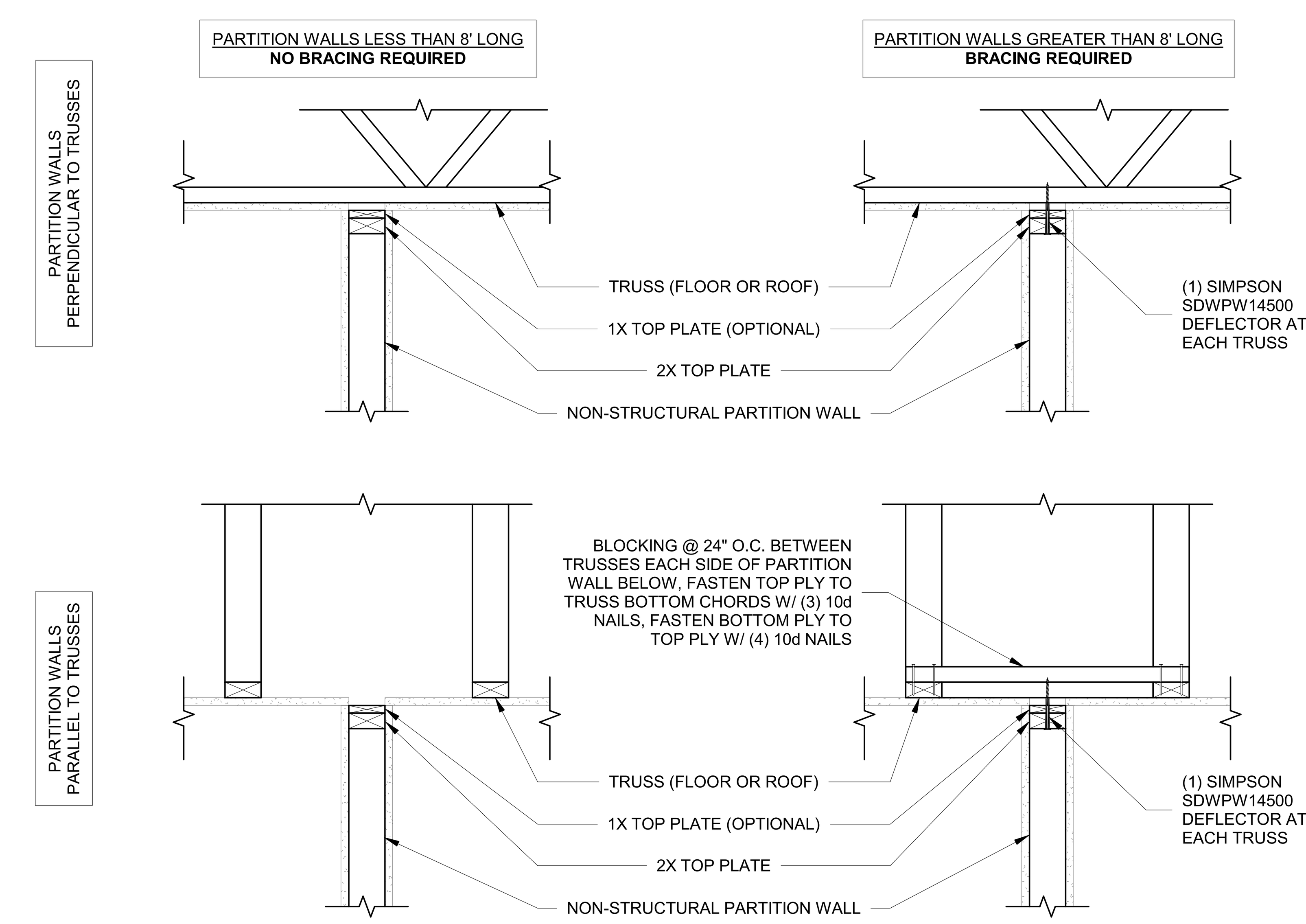
6 S530 FRAMING AT OPENING - RAISED HEADER
1" = 1'-0"



7 S530 NON-BEARING WALL TO JOIST
1" = 1'-0"



8 S530 SHEAR BLOCKING PANEL OPTIONS
1" = 1'-0"



9 S530 NON-STRUCTURAL PARTITION WALL DEFLECTION GAP & BRACING
1" = 1'-0"

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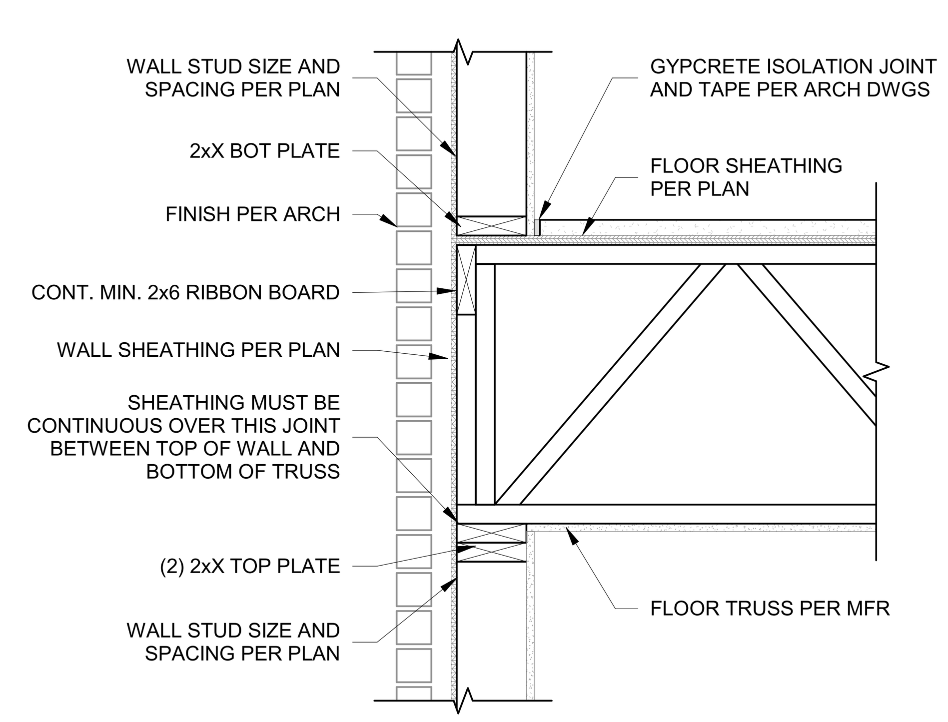
LEE'S SUMMIT, MO 64064

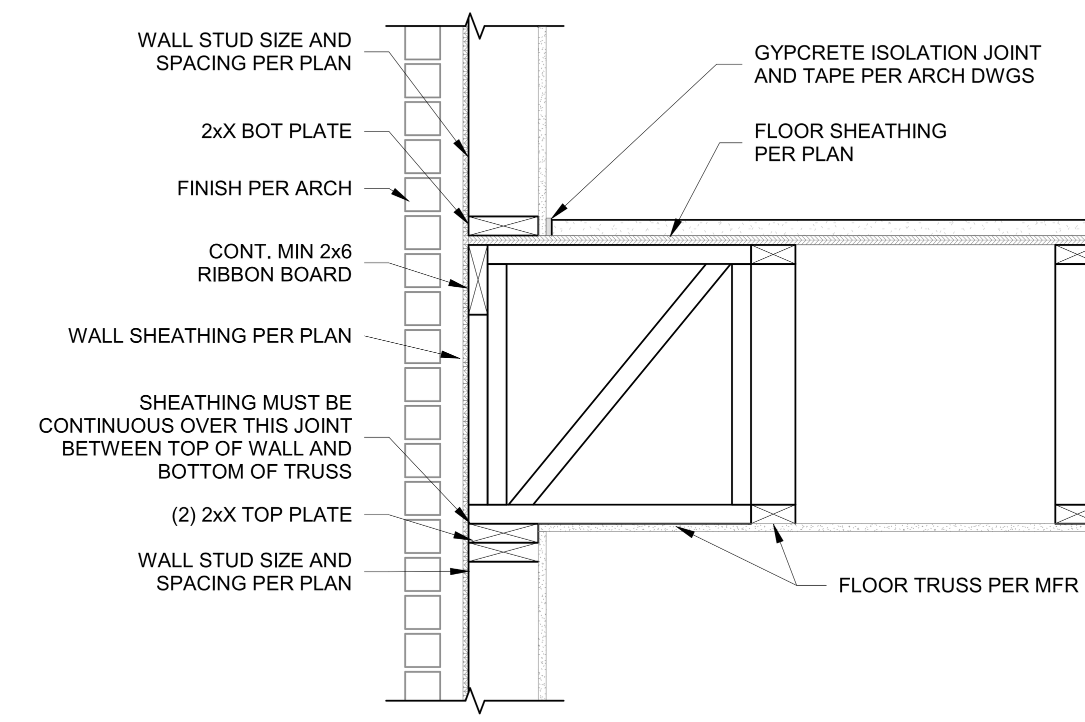
SHEET TITLE
TYPICAL WOOD FRAMING DETAILS

PROJECT NUMBER: 2023000333

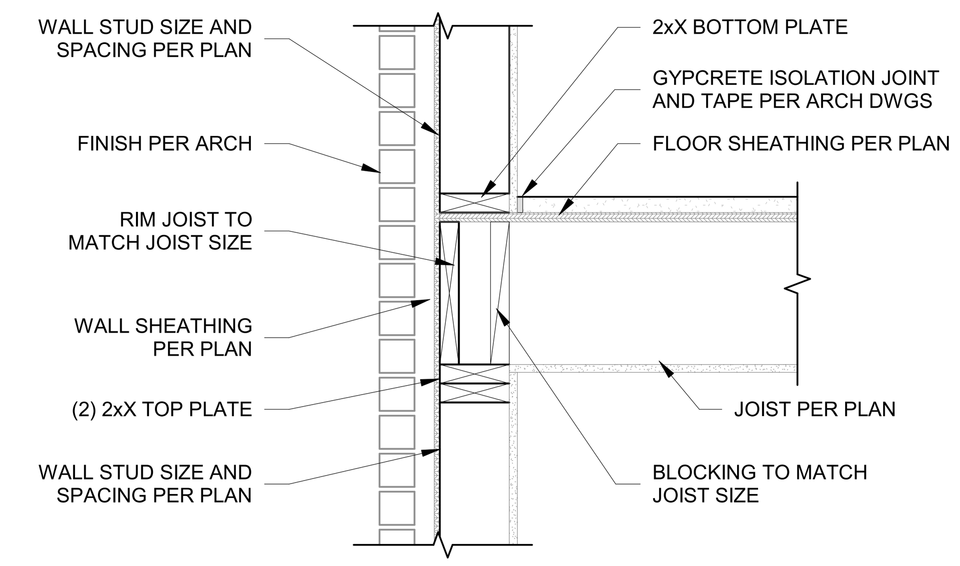
SHEET NUMBER:
S530



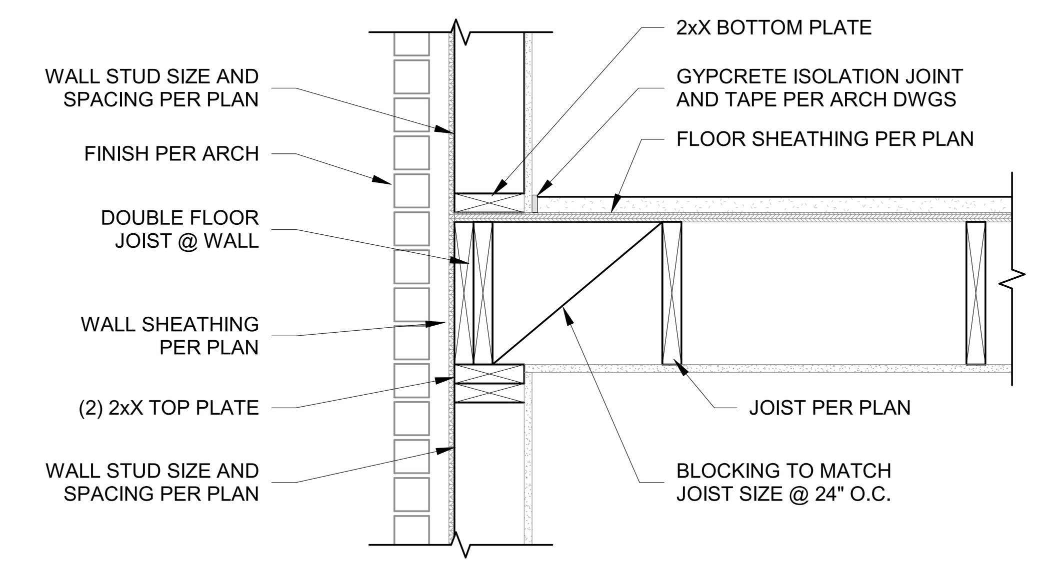
1 S531 FRAMING AT EXTERIOR WALL - OPEN WEB TRUSS BEARING
1" = 1'-0"



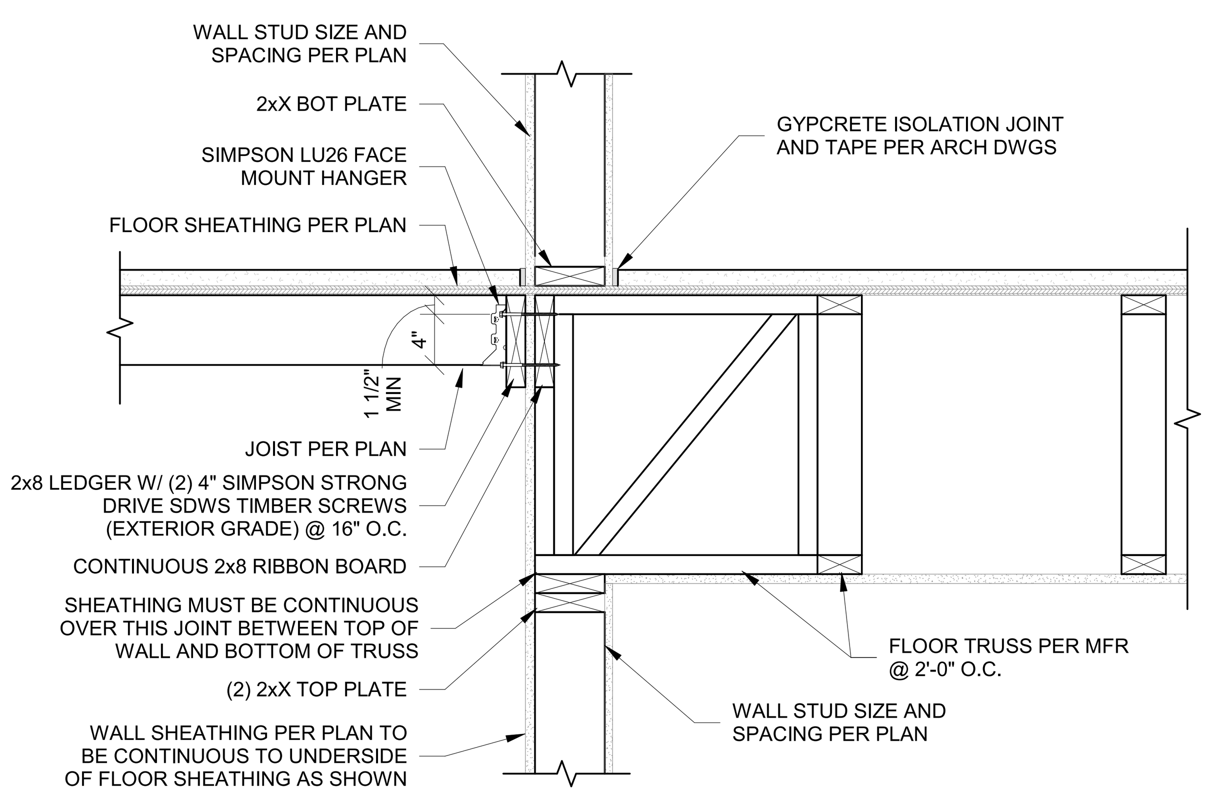
2 S531 FRAMING AT EXTERIOR WALL - OPEN WEB TRUSS PARALLEL
1" = 1'-0"



3 S531 FRAMING AT EXTERIOR WALL - JOIST BEARING
1" = 1'-0"

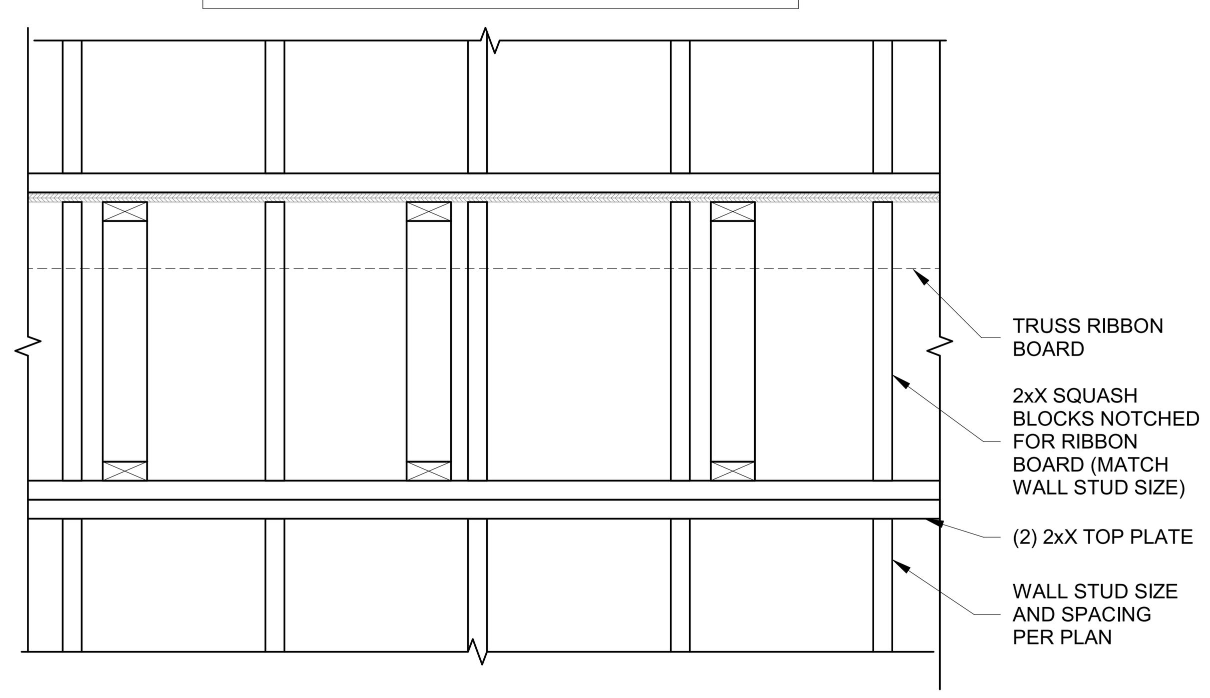


4 S531 FRAMING AT EXTERIOR WALL - JOIST PARALLEL
1" = 1'-0"

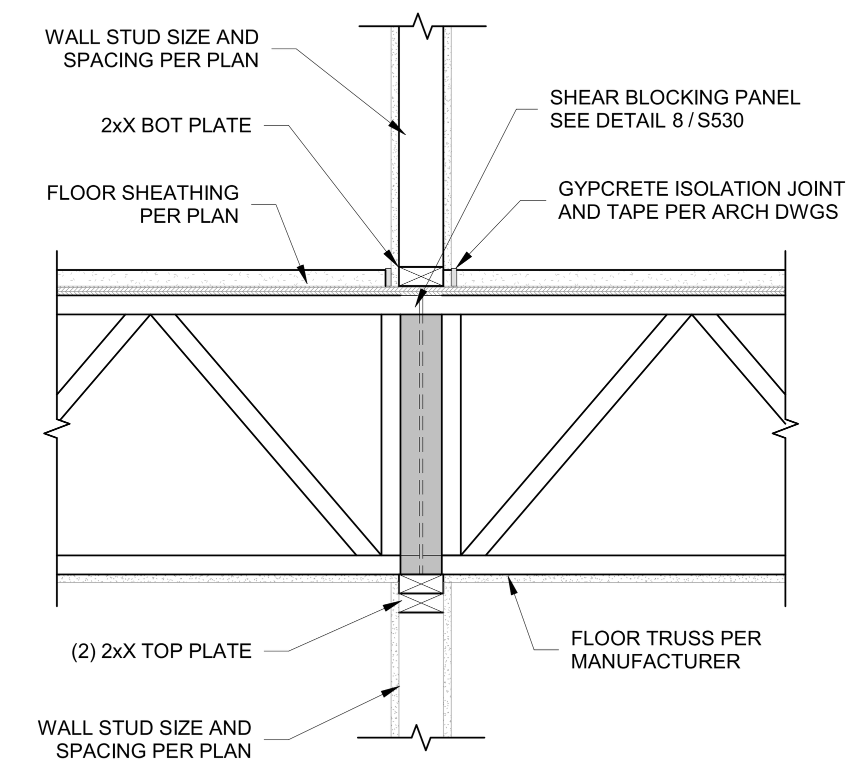


5 S531 FRAMING AT CORRIDOR
1" = 1'-0"

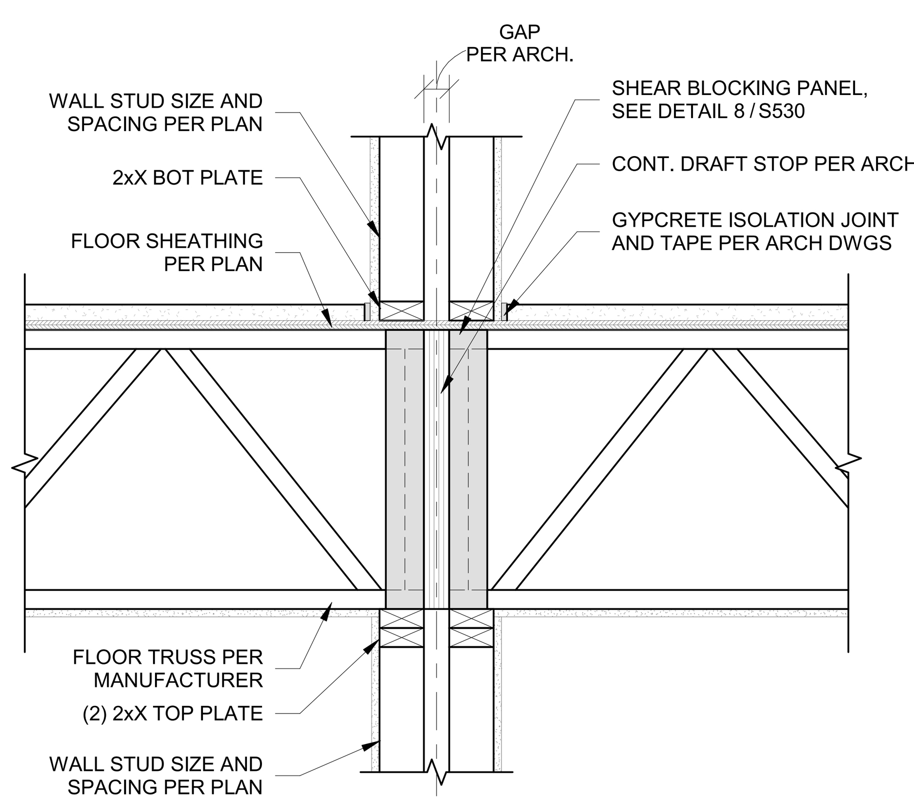
NOTE:
ALL WALL STUDS MUST ALIGN FLOOR-TO-FLOOR. TO MAINTAIN CONTINUOUS LOAD PATH PROVIDE 2x SQUASH BLOCKS WHERE TRUSSES DO NOT ALIGN WITH STUDS.



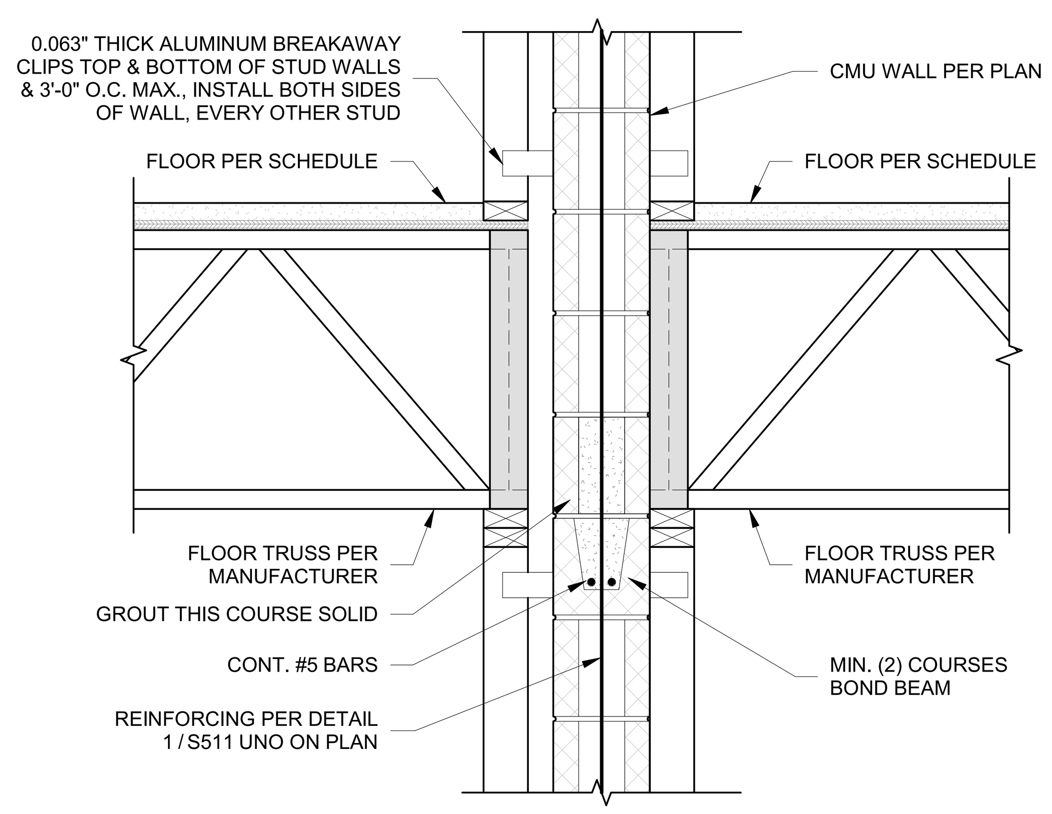
6 S531 TYPICAL WALL FRAMING ELEVATION
1" = 1'-0"



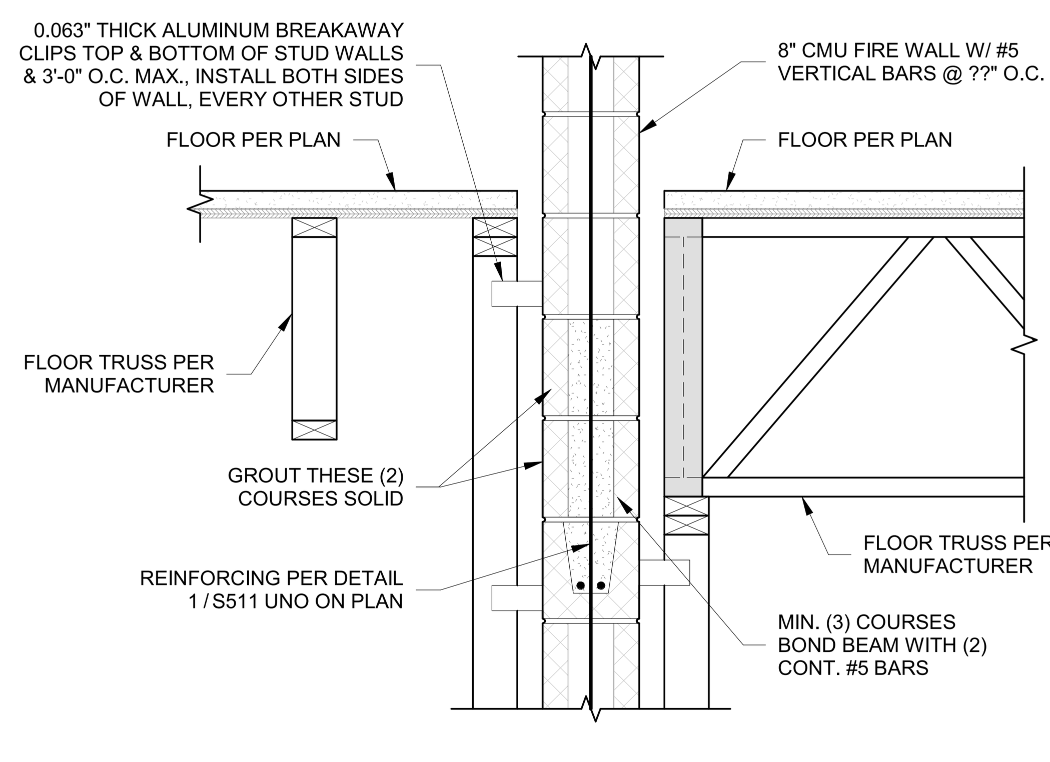
7 S531 FRAMING AT INTERIOR WALL
1" = 1'-0"



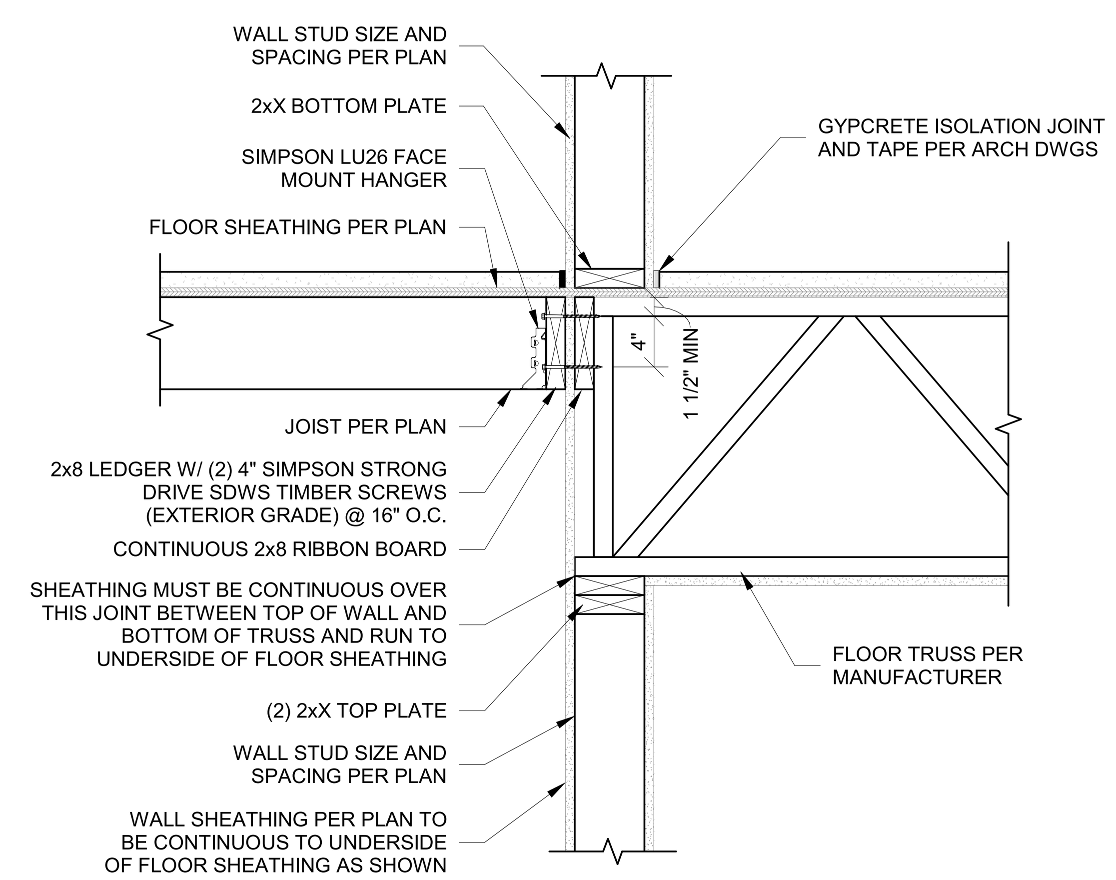
8 S531 FLOOR FRAMING AT INTERIOR WALL
1" = 1'-0"



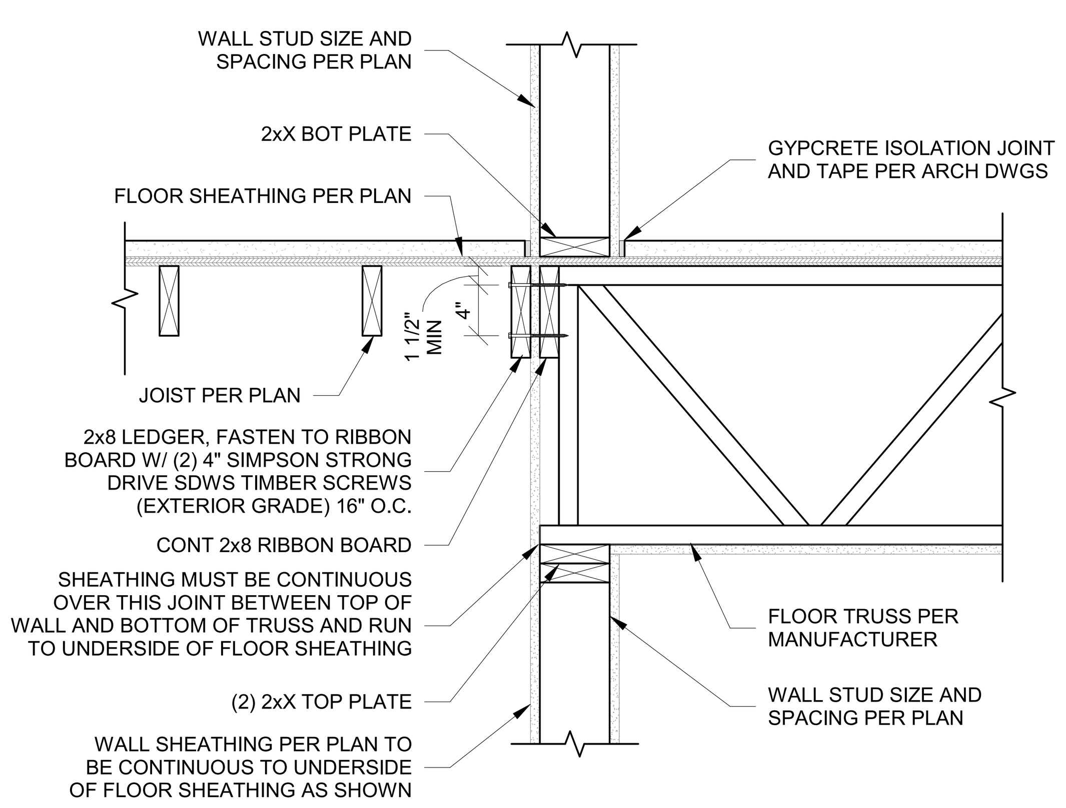
9 S531 FLOOR FRAMING AT CMU FIRE WALL
1" = 1'-0"



10 S531 FLOOR FRAMING TRANSITION AT CMU FIRE WALL
1" = 1'-0"



11 S531 FLOOR TRUSS BEARING AT CORRIDOR
1" = 1'-0"



12 S531 FRAMING AT CORRIDOR
1" = 1'-0"

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NOTICE:
McClure Engineering Co. is not responsible or liable for any issues, claims, damages, or losses (collectively, "Losses") which arise from failure to follow these Plans, Specifications, and the engineering intent they convey, or for Losses which arise from failure to obtain and/or follow the engineers' or surveyors' guidance with respect to any alleged errors, omissions, inconsistencies, ambiguities, or conflicts contained within the Plans or Specifications.

MISSOURI CERTIFICATE OF AUTHORITY NO. E-2006023253
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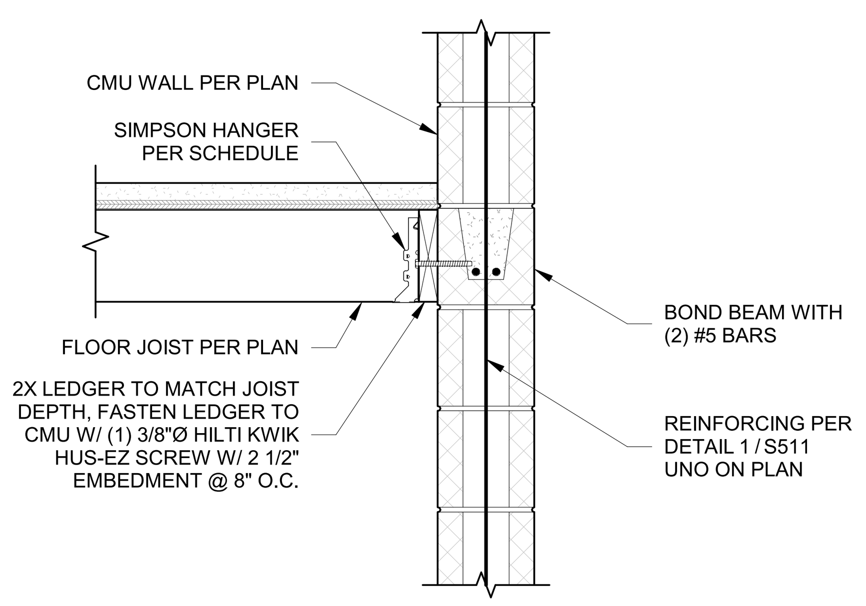
FOR BID PURPOSES ONLY

THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

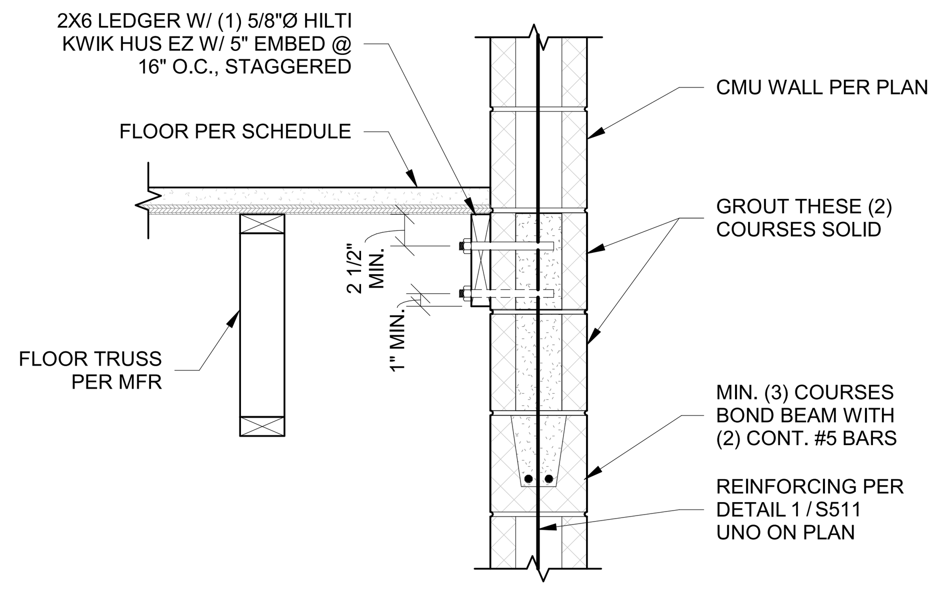
SHEET TITLE
WOOD FLOOR FRAMING DETAILS

PROJECT NUMBER: 2023000333

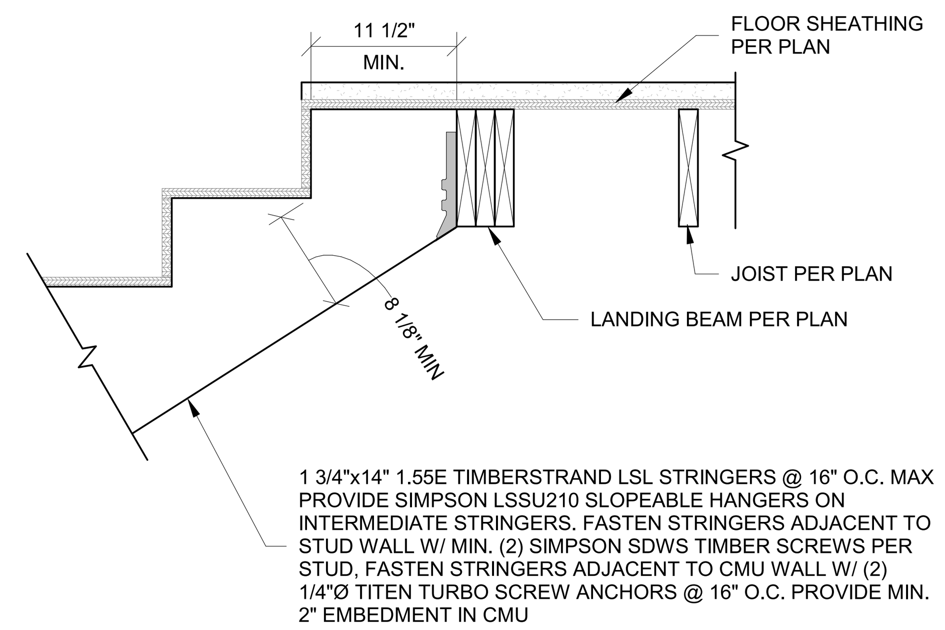
SHEET NUMBER:
S531



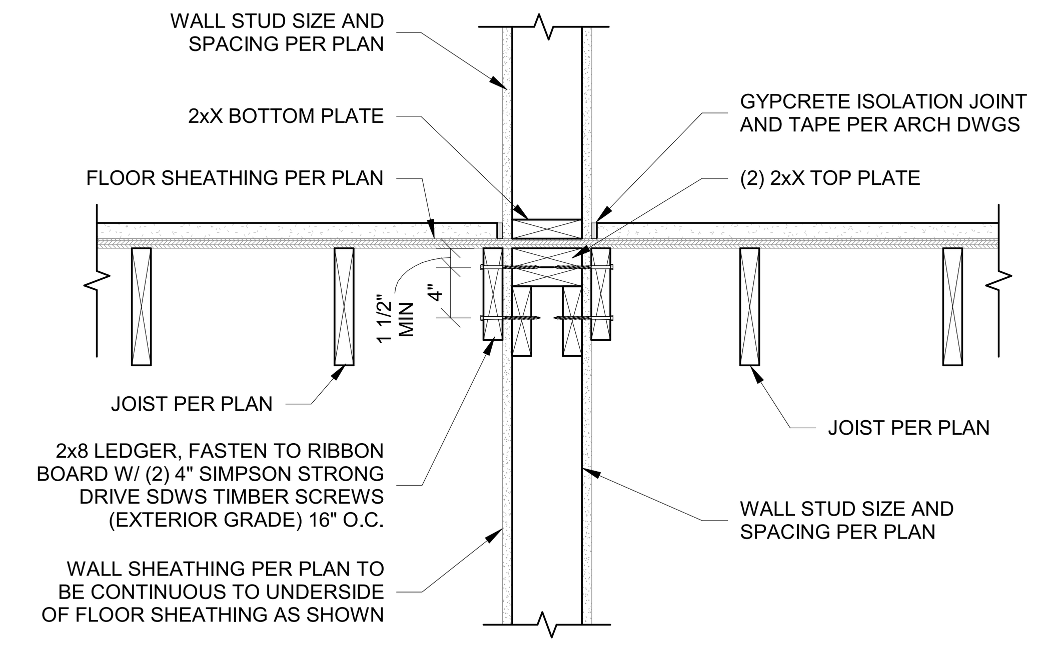
1 S532 FLOOR JOIST BEARING AT CMU
1" = 1'-0"



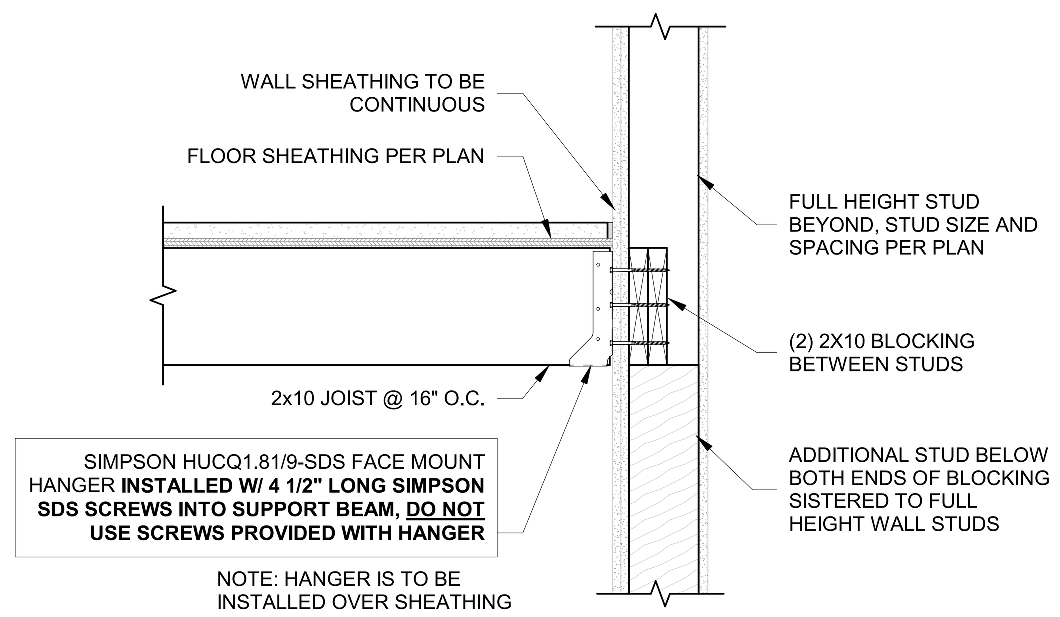
2 S532 FLOOR TRUSS PARALLEL TO CMU
1" = 1'-0"



3 S532 LANDING AT FLOOR JOIST
1" = 1'-0"



4 S532 FRAMING AT CORRIDOR
1" = 1'-0"



5 S532 SECTION AT STAIR WALL
1" = 1'-0"

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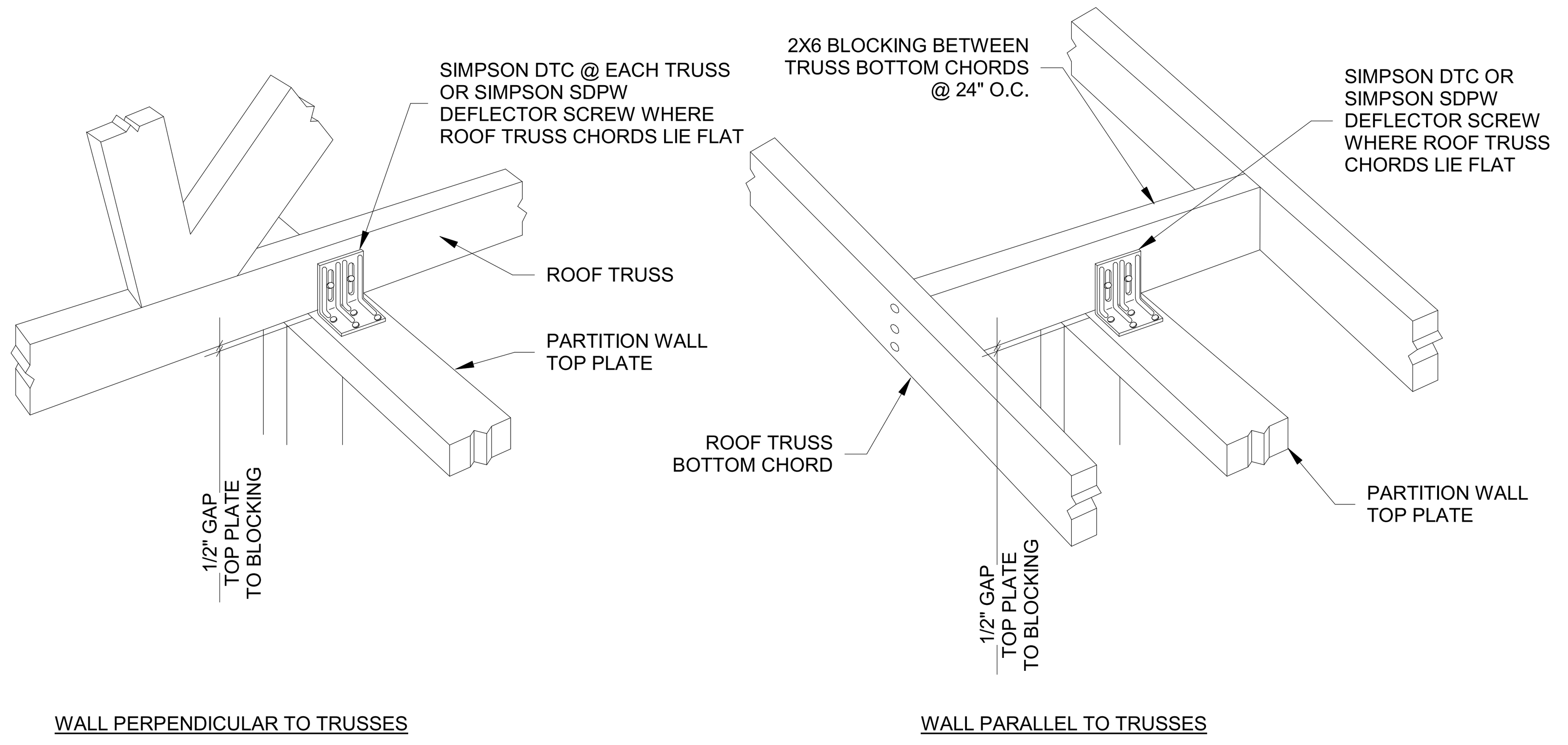
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

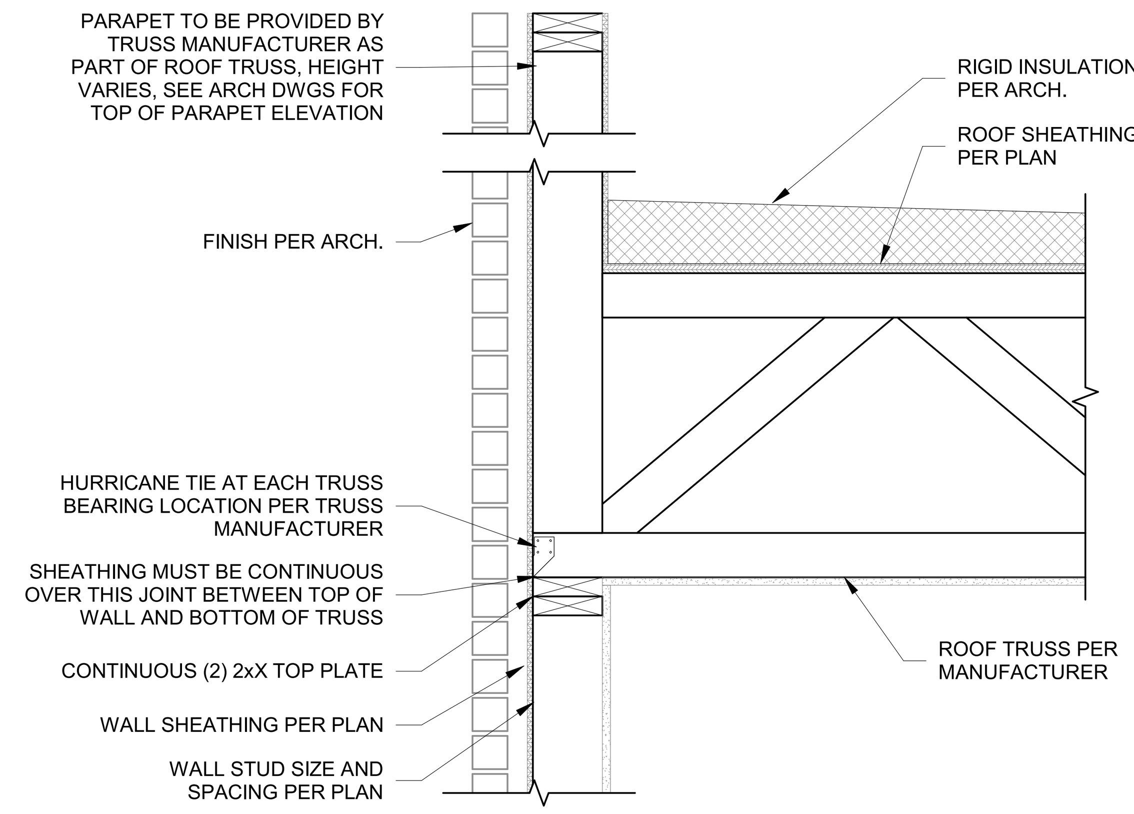
SHEET TITLE
WOOD FLOOR FRAMING DETAILS

PROJECT NUMBER: 2023000333

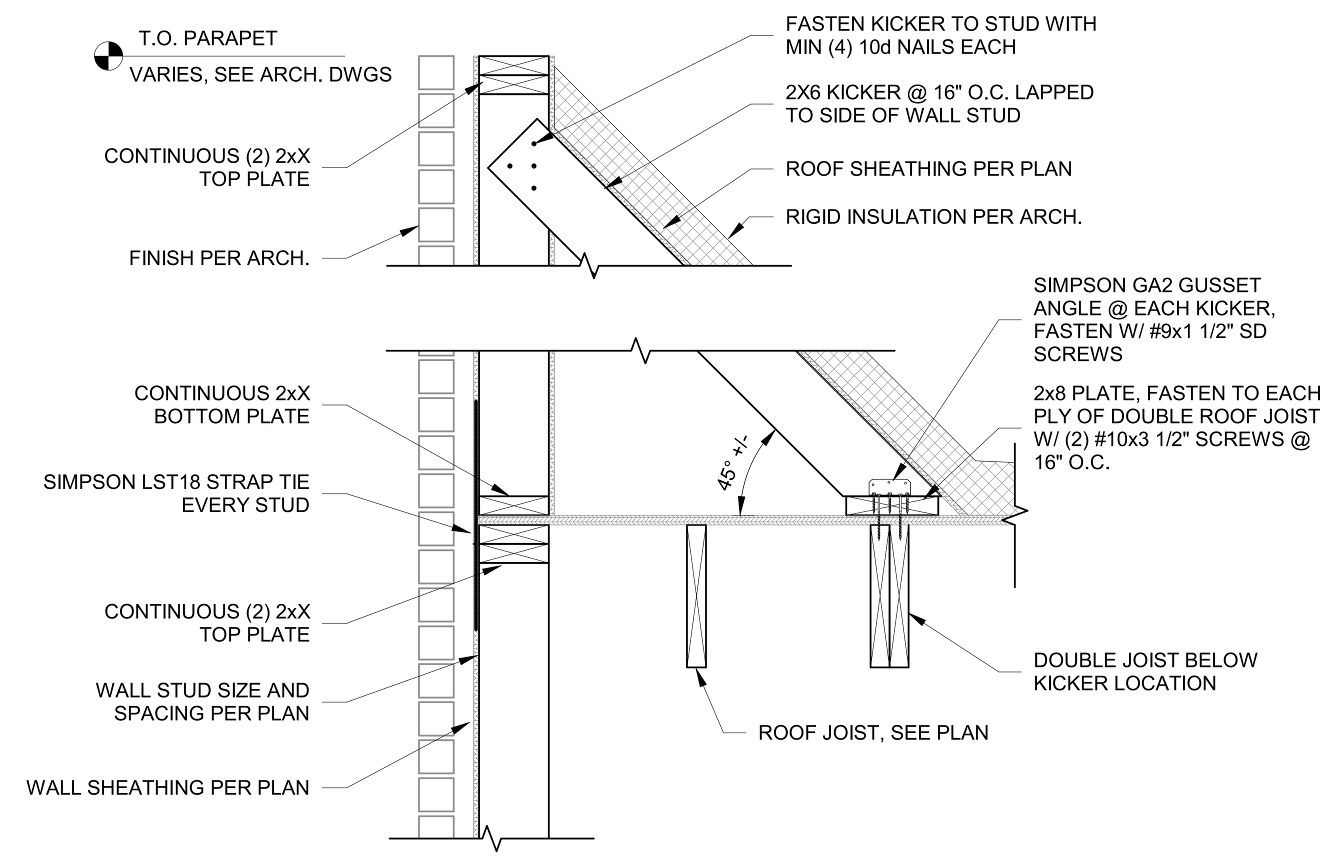
SHEET NUMBER:
S532



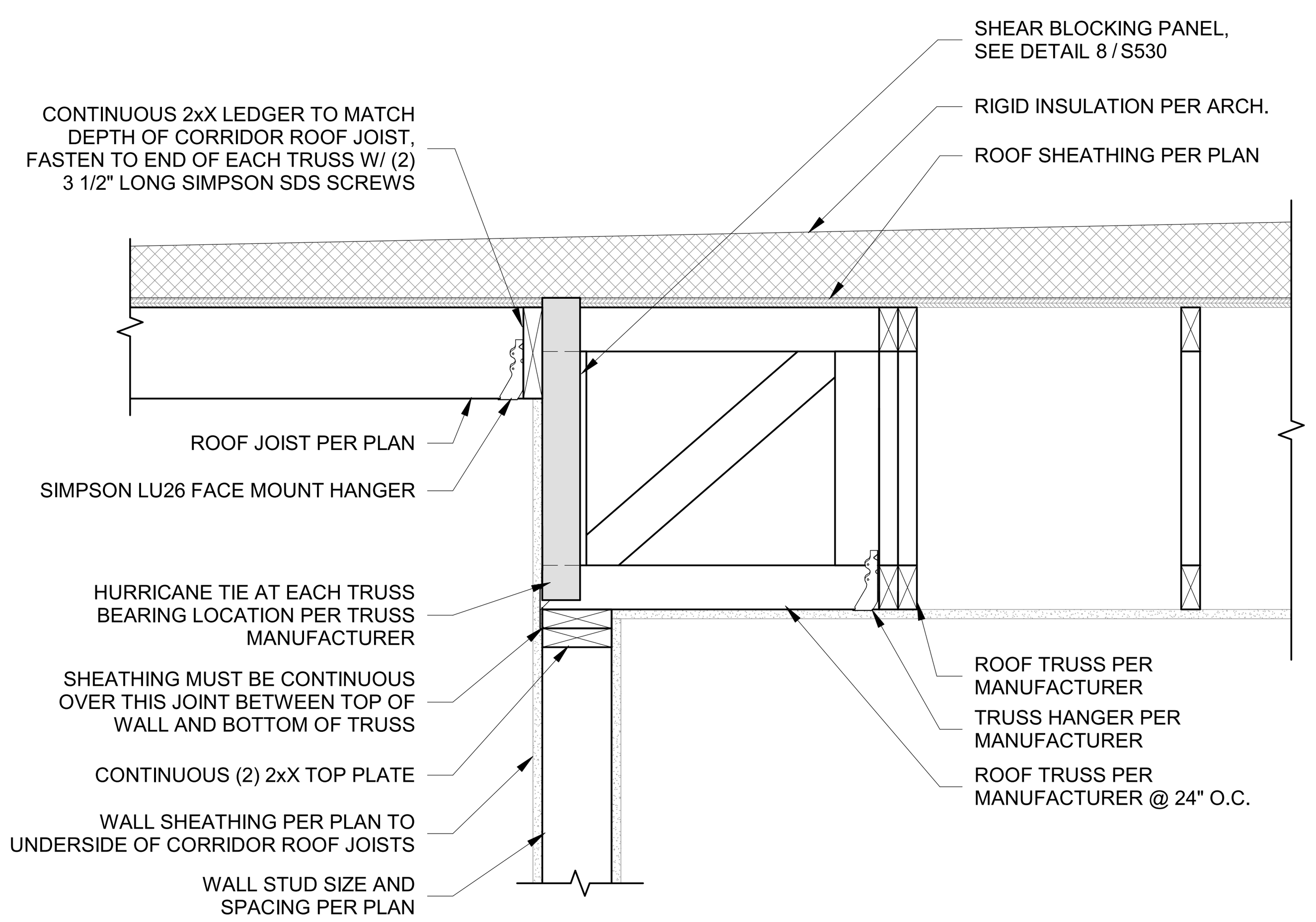
1 S540 PARTITION WALL AT ROOF TRUSS
1" = 1'-0"



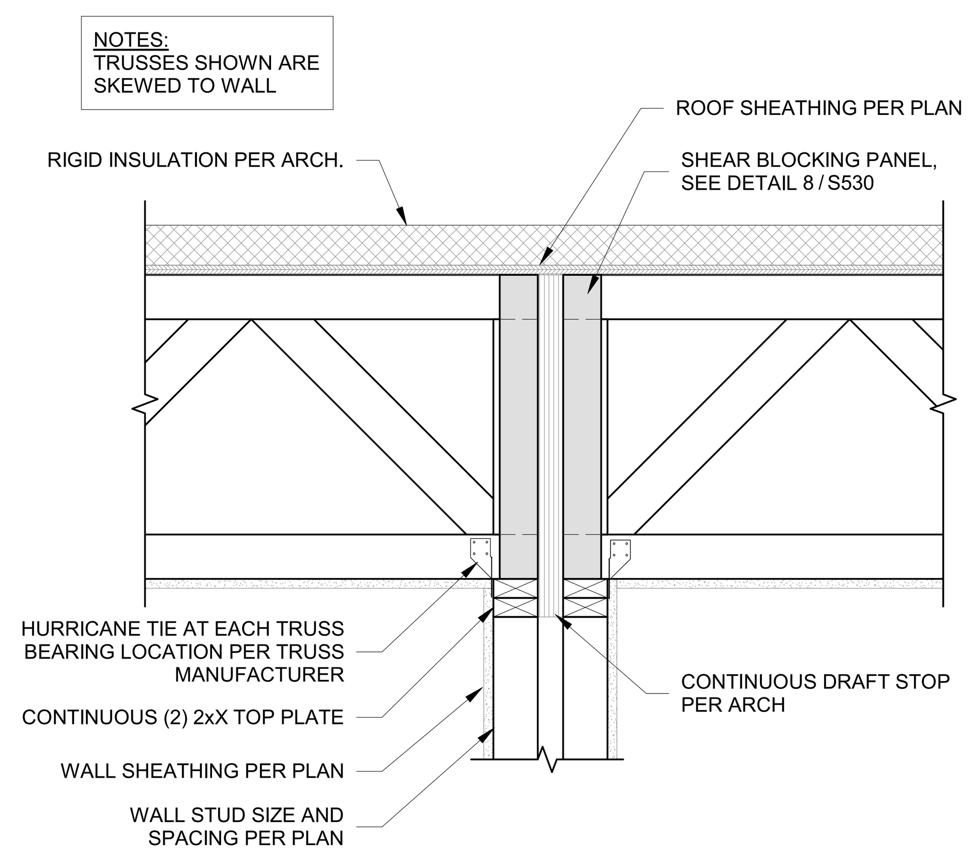
2 S540 ROOF TRUSS AT EXTERIOR WALL
1" = 1'-0"



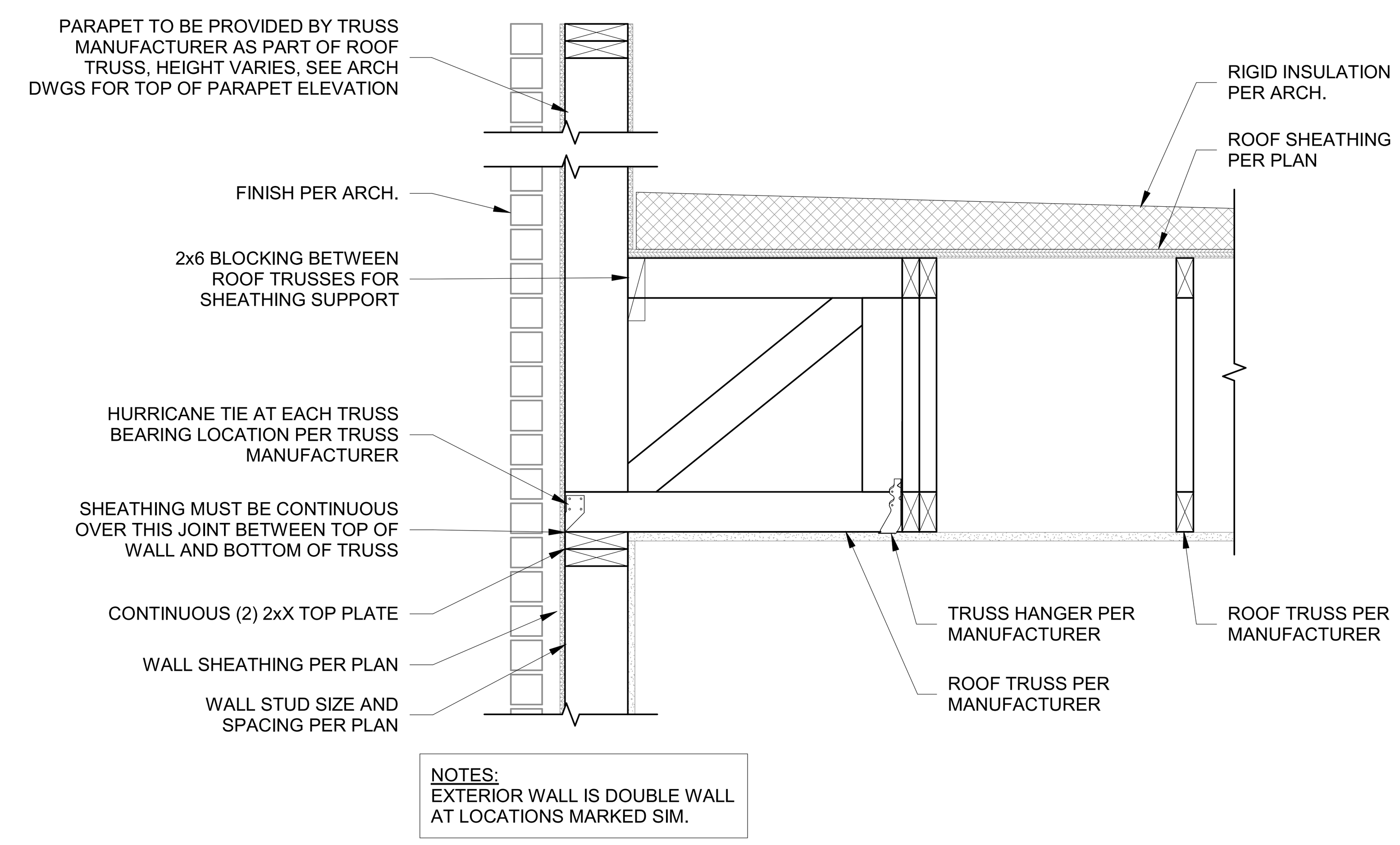
3 S540 FRAMING AT EXTERIOR WALL AT ROOF
1" = 1'-0"



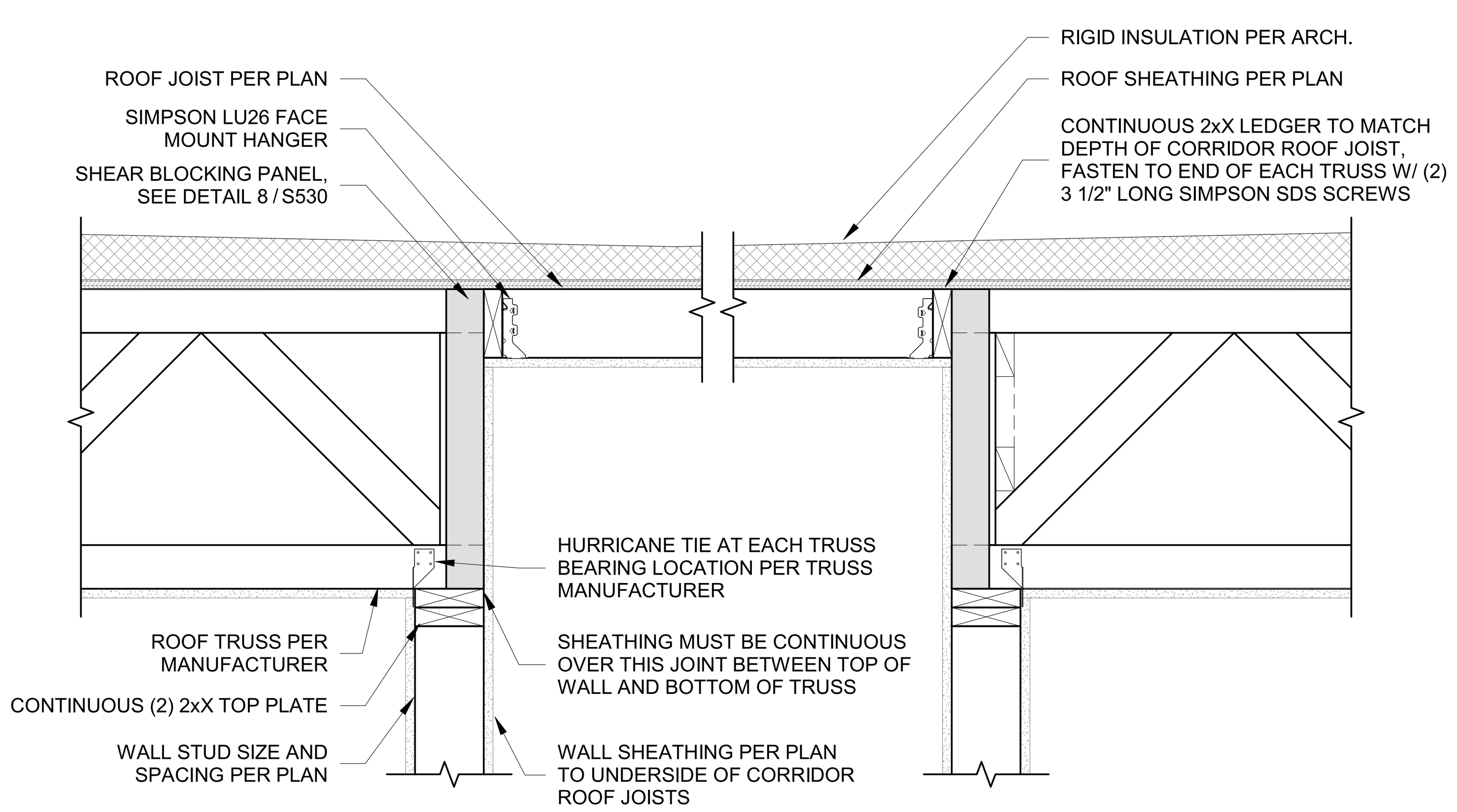
4 S540 FRAMING AT CORRIDOR AT ROOF
1" = 1'-0"



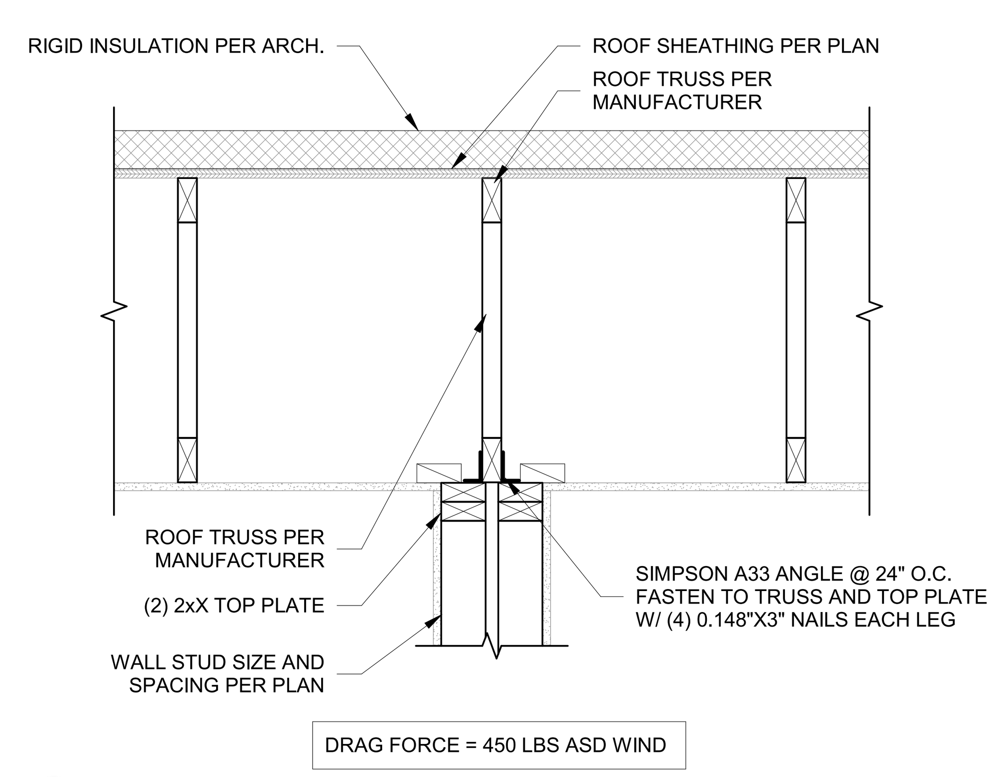
5 S540 ROOF TRUSS BEARING ON INTERIOR WALL
1" = 1'-0"



6 S540 ROOF TRUSS PARALLEL AT EXTERIOR WALL
1" = 1'-0"



7 S540 ROOF TRUSS AT CORRIDOR WITH BUMP UP
1" = 1'-0"



8 S540 ROOF DRAG TRUSS SECTION AT SHEAR WALL
1" = 1'-0"

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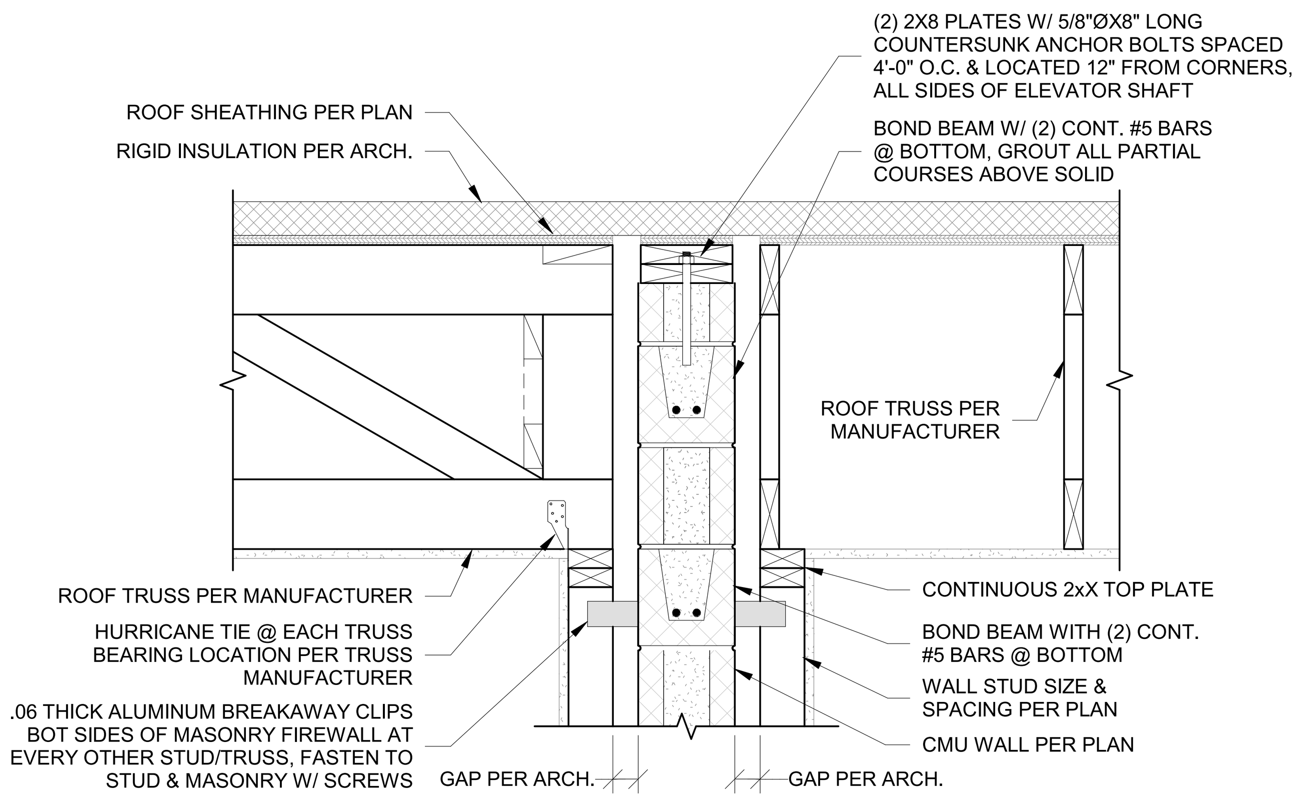
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

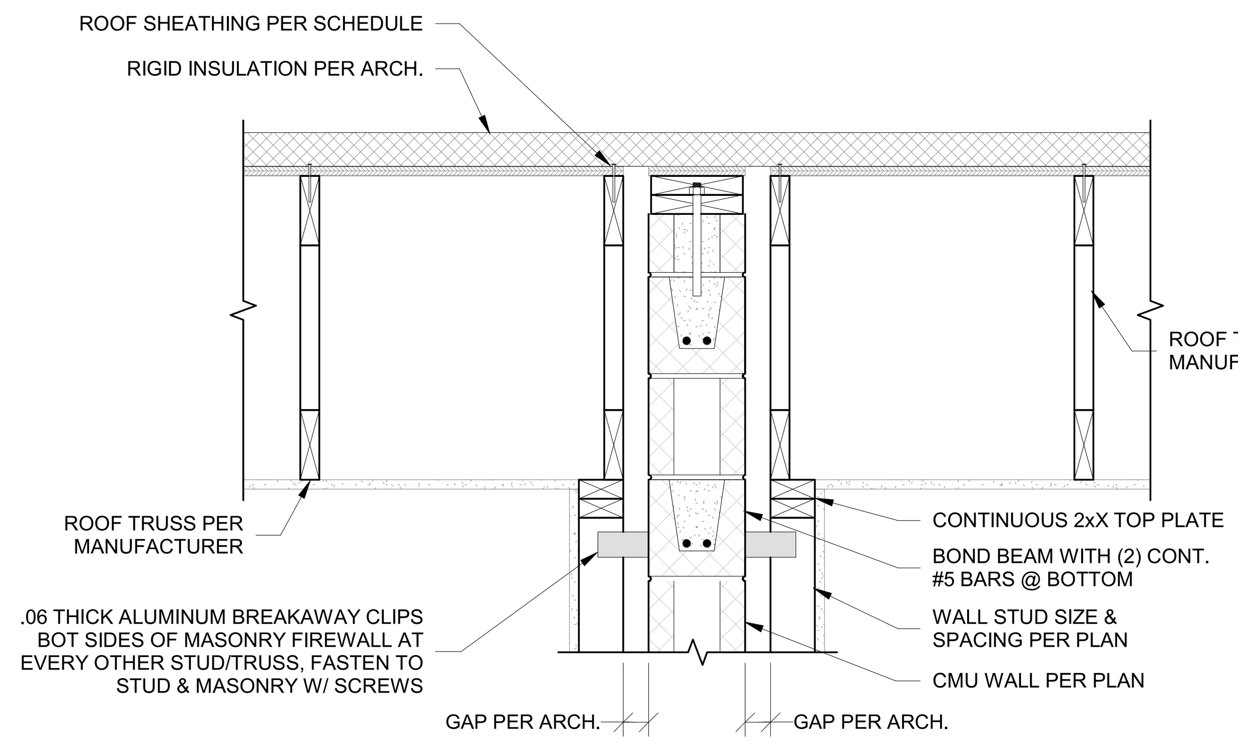
SHEET TITLE
WOOD ROOF FRAMING DETAILS

PROJECT NUMBER: 2023000333

SHEET NUMBER:
S540

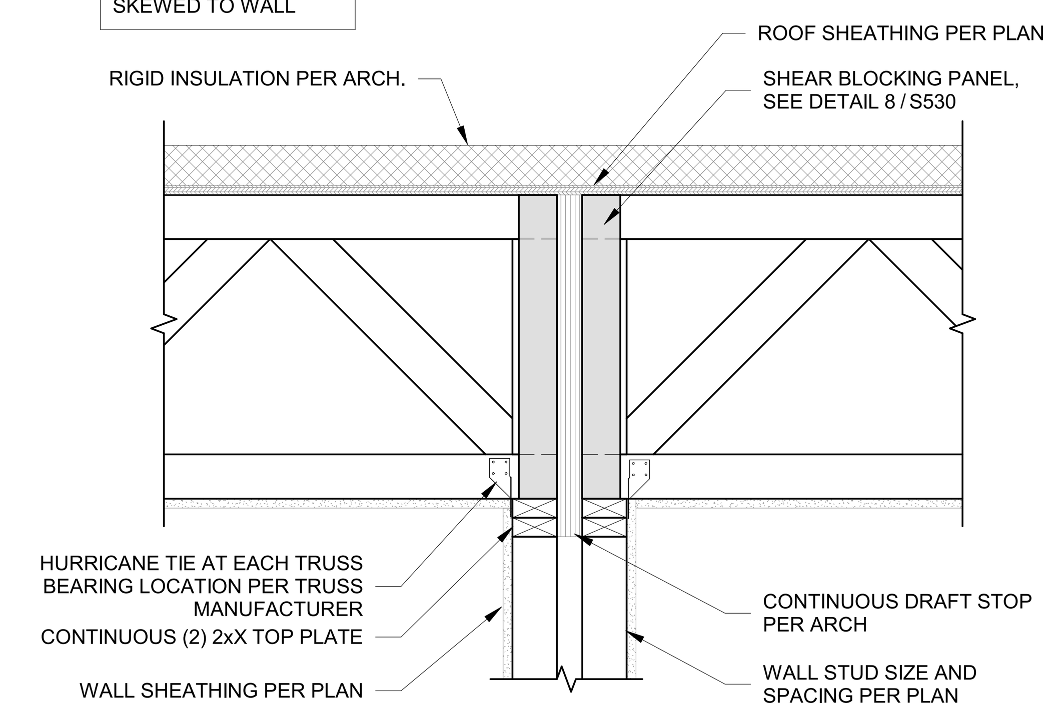


1 ROOF SECTION AT FIRE WALL - TRUSS TRANSITION
S541 1" = 1'-0"

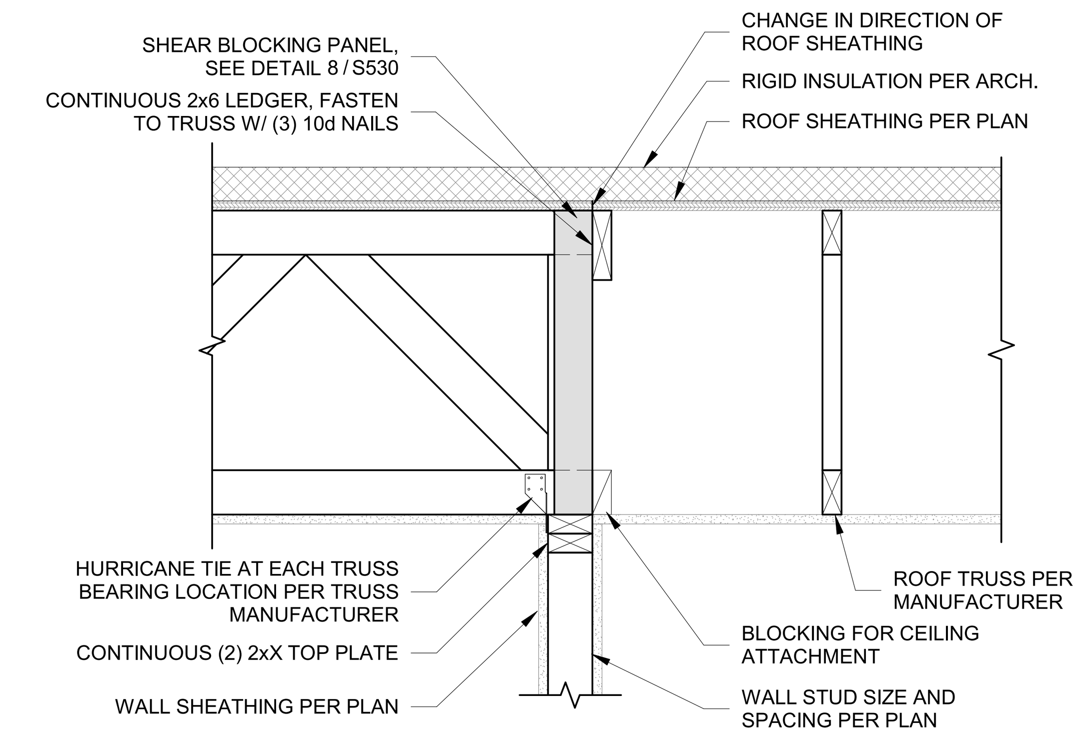


2 ROOF SECTION AT FIRE WALL - TRUSSES PARALLEL
S541 1" = 1'-0"

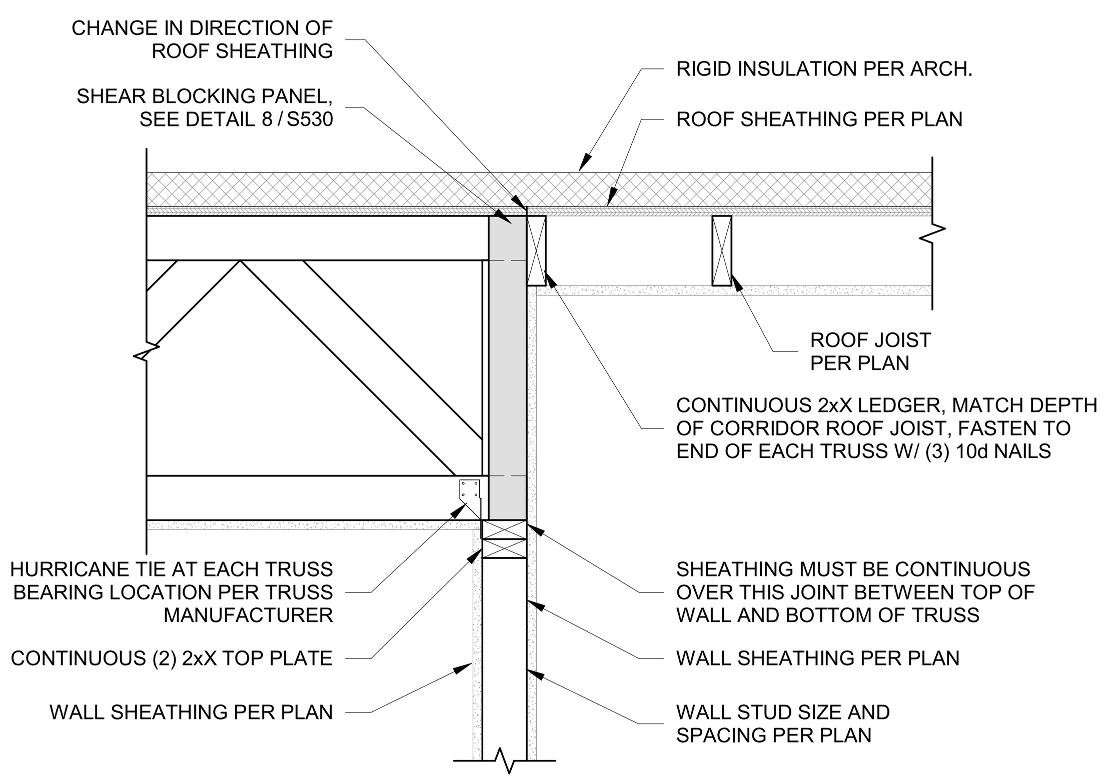
NOTES:
TRUSSES SHOWN ARE SKEWED TO WALL



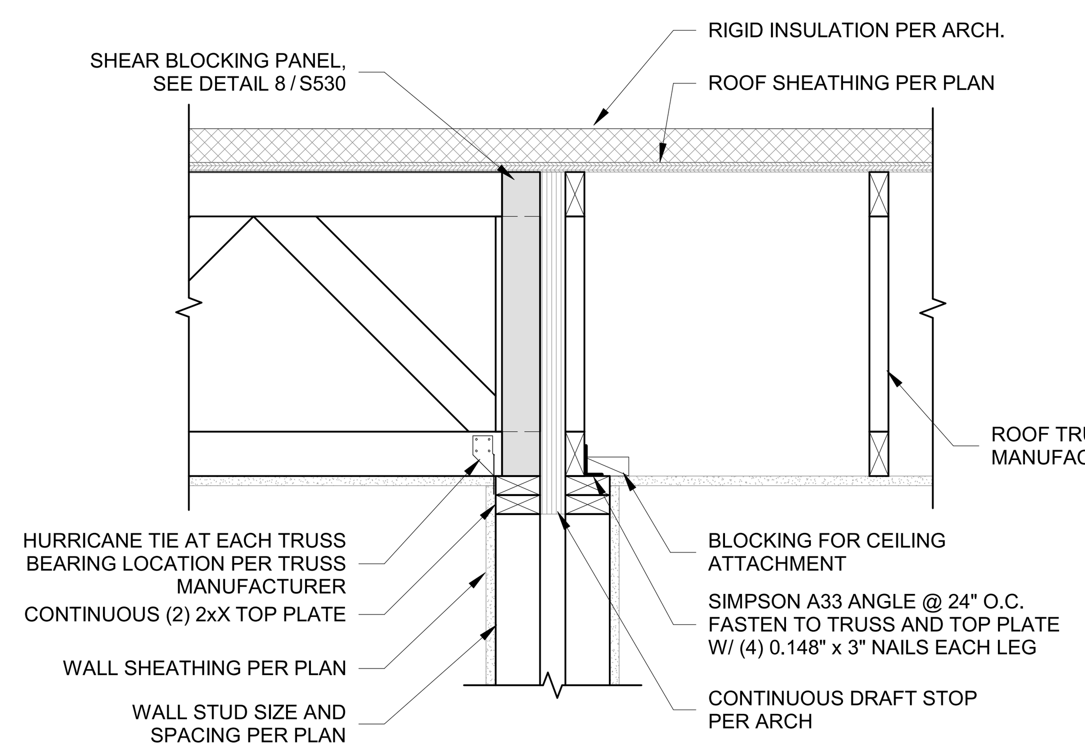
3 ROOF TRUSS BEARING AT INTERIOR DEMISING WALL
S541 1" = 1'-0"



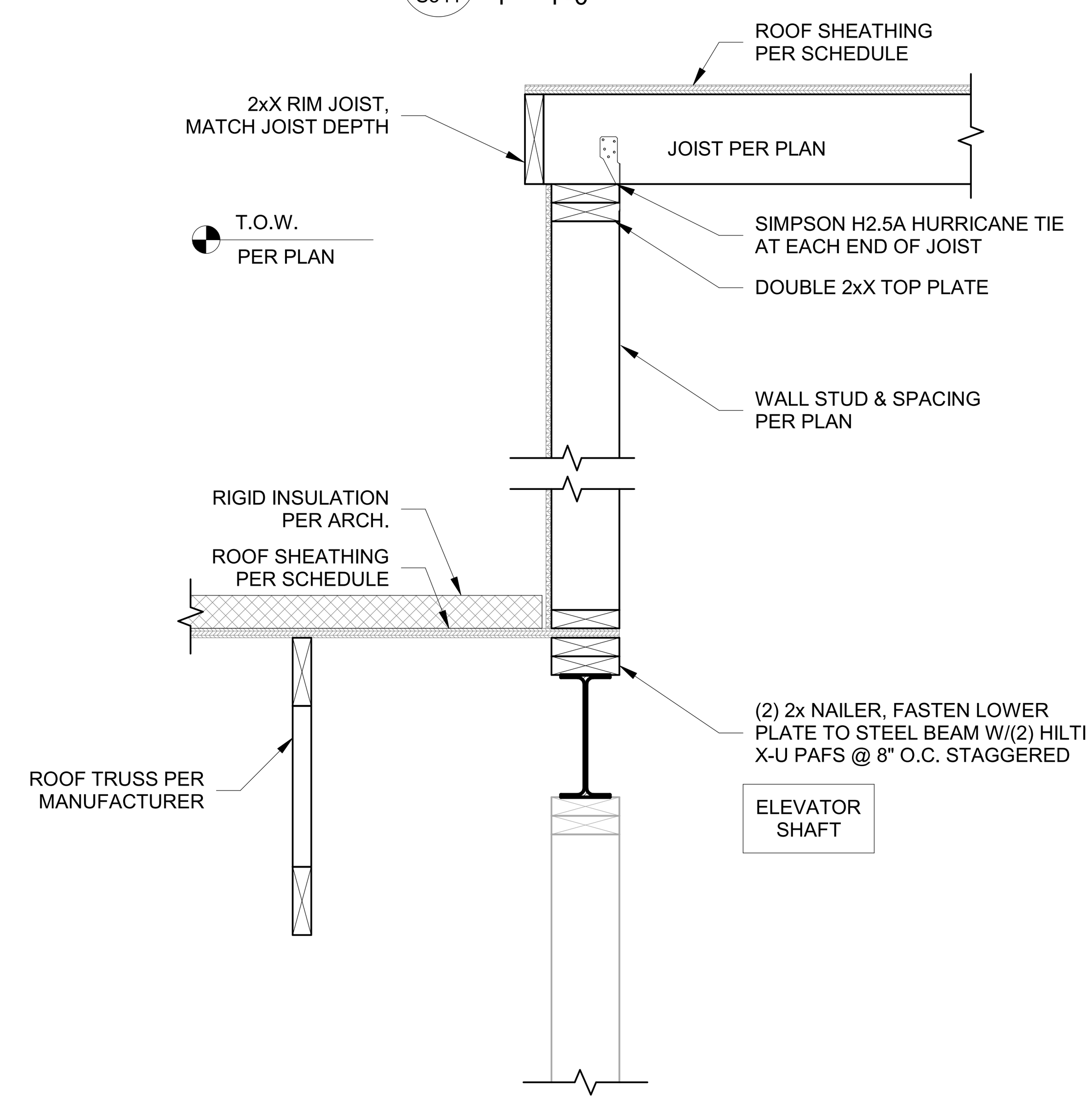
4 ROOF TRUSS BEARING TRANSITION
S541 1" = 1'-0"



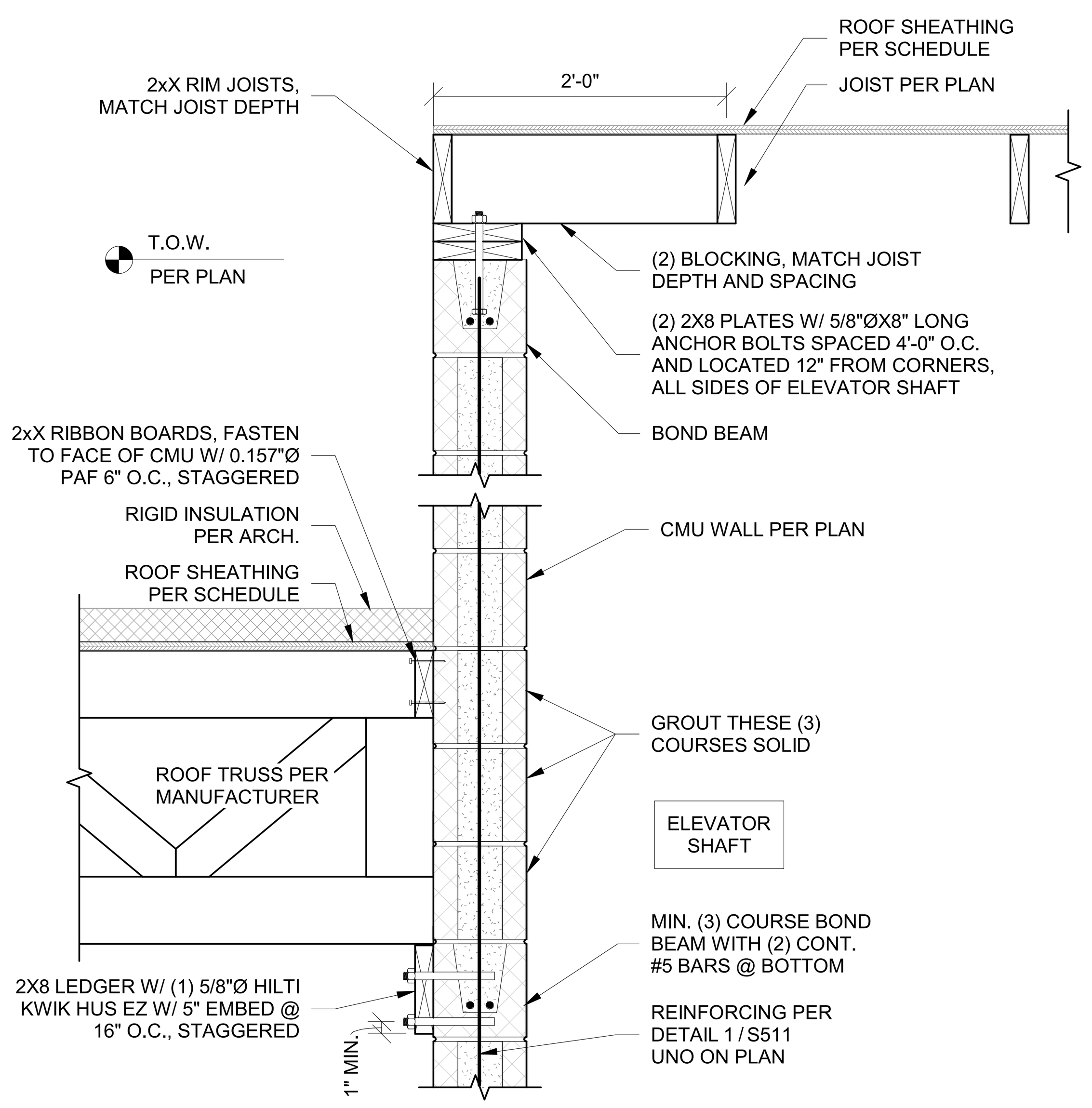
5 ROOF TRUSS BEARING TRANSITION
S541 1" = 1'-0"



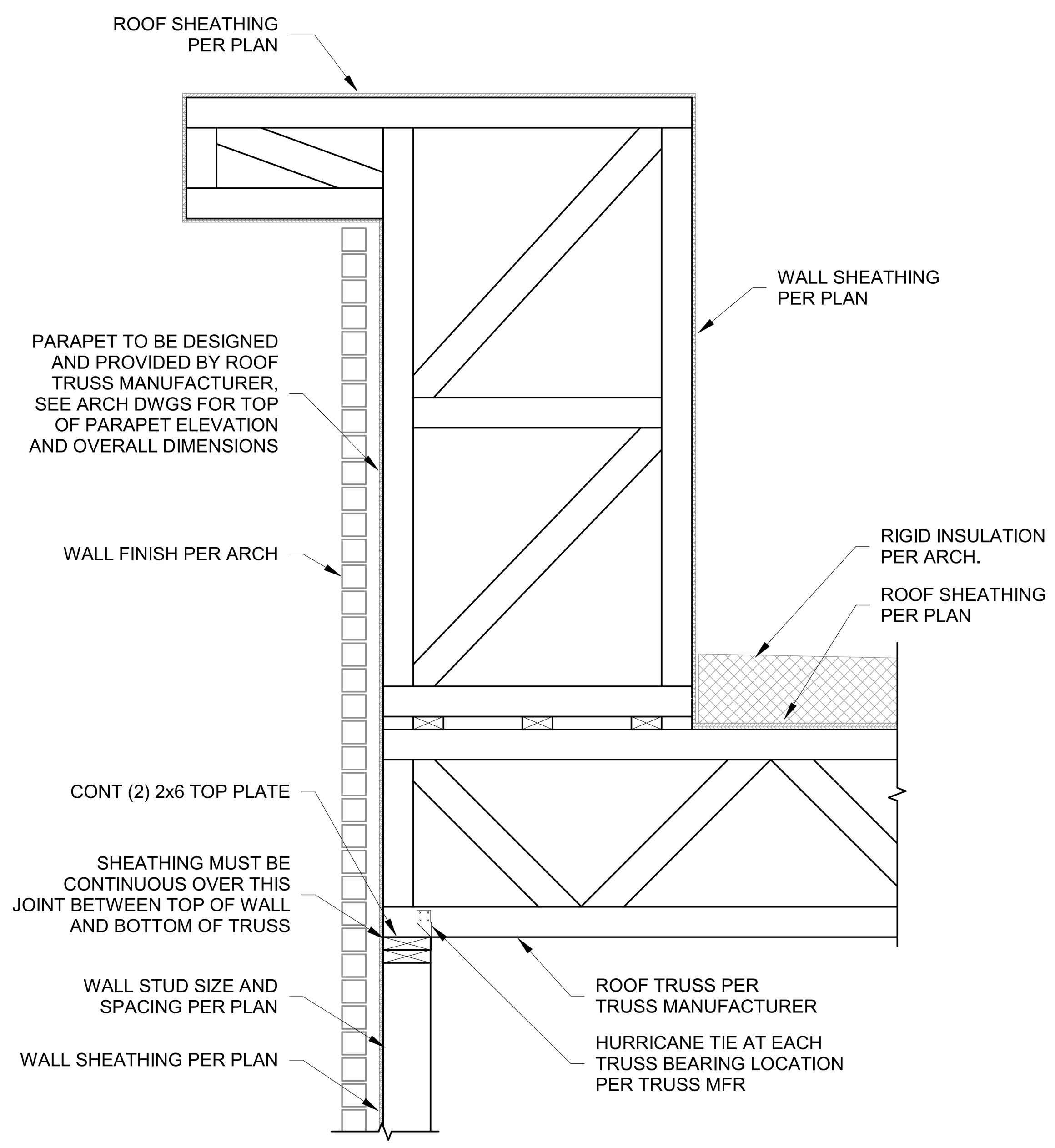
6 ROOF TRUSS BEARING TRANSITION AT DEMISING WALL
S541 1" = 1'-0"



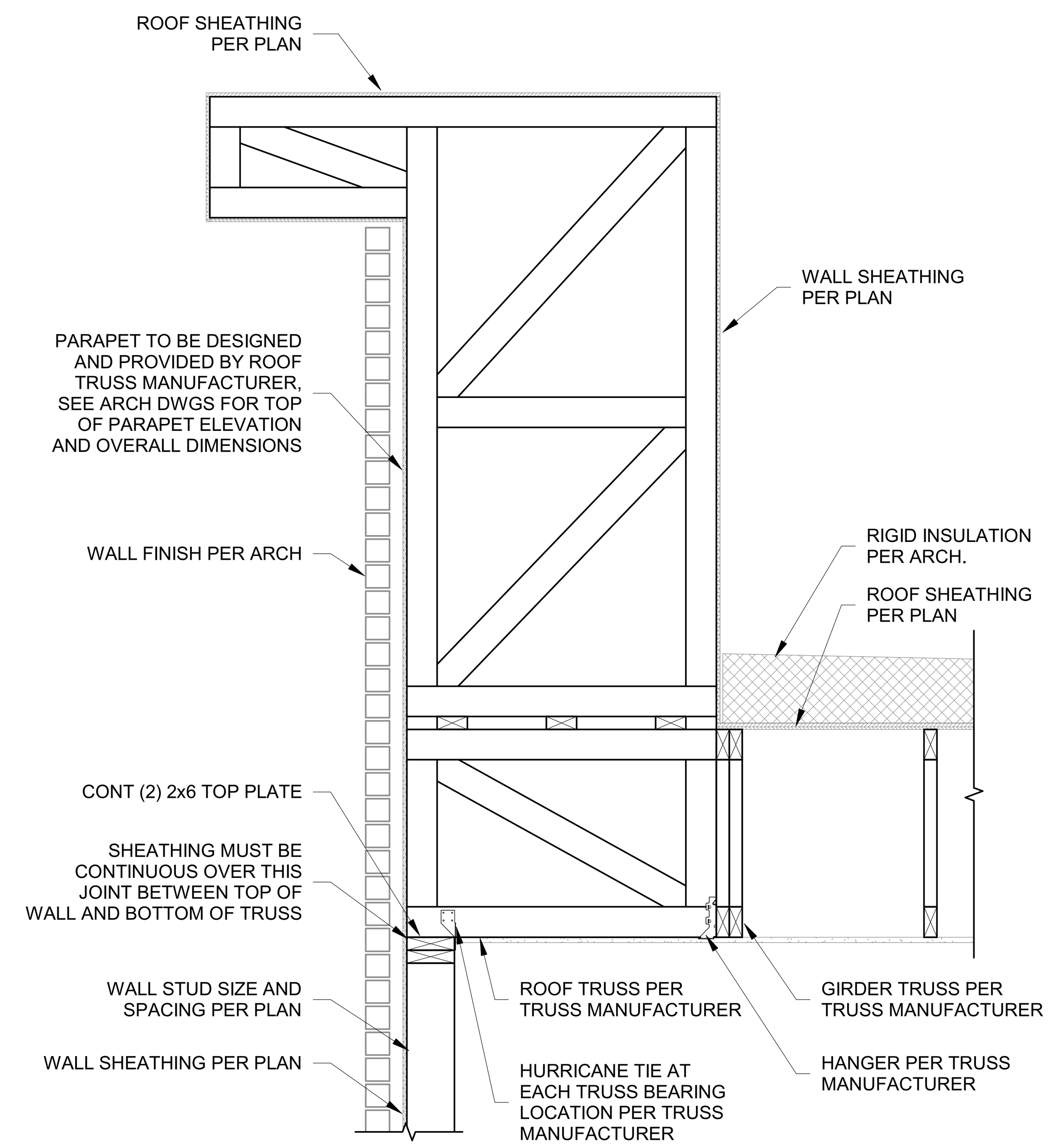
7 SECTION AT ELEVATOR AT ROOF
S541 1" = 1'-0"



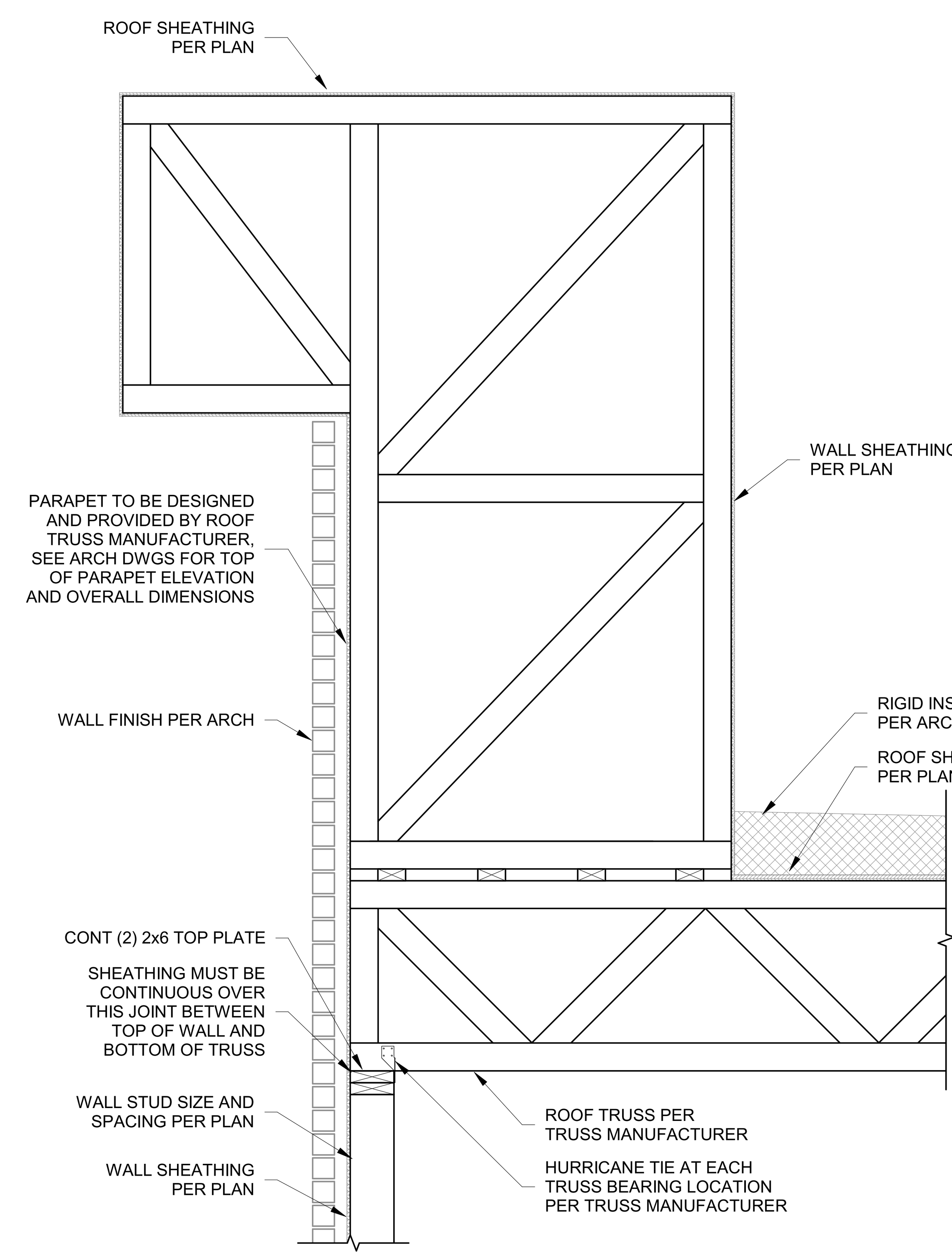
8 SECTION AT ELEVATOR AT ROOF
S541 1" = 1'-0"



9A SECTION AT BUILT-UP PARAPET
S541 3/4" = 1'-0"



9B SECTION AT BUILT-UP PARAPET PERP TO TRUSSES
S541 3/4" = 1'-0"



10 SECTION AT BUILT-UP PARAPET GRID 21
S541 3/4" = 1'-0"

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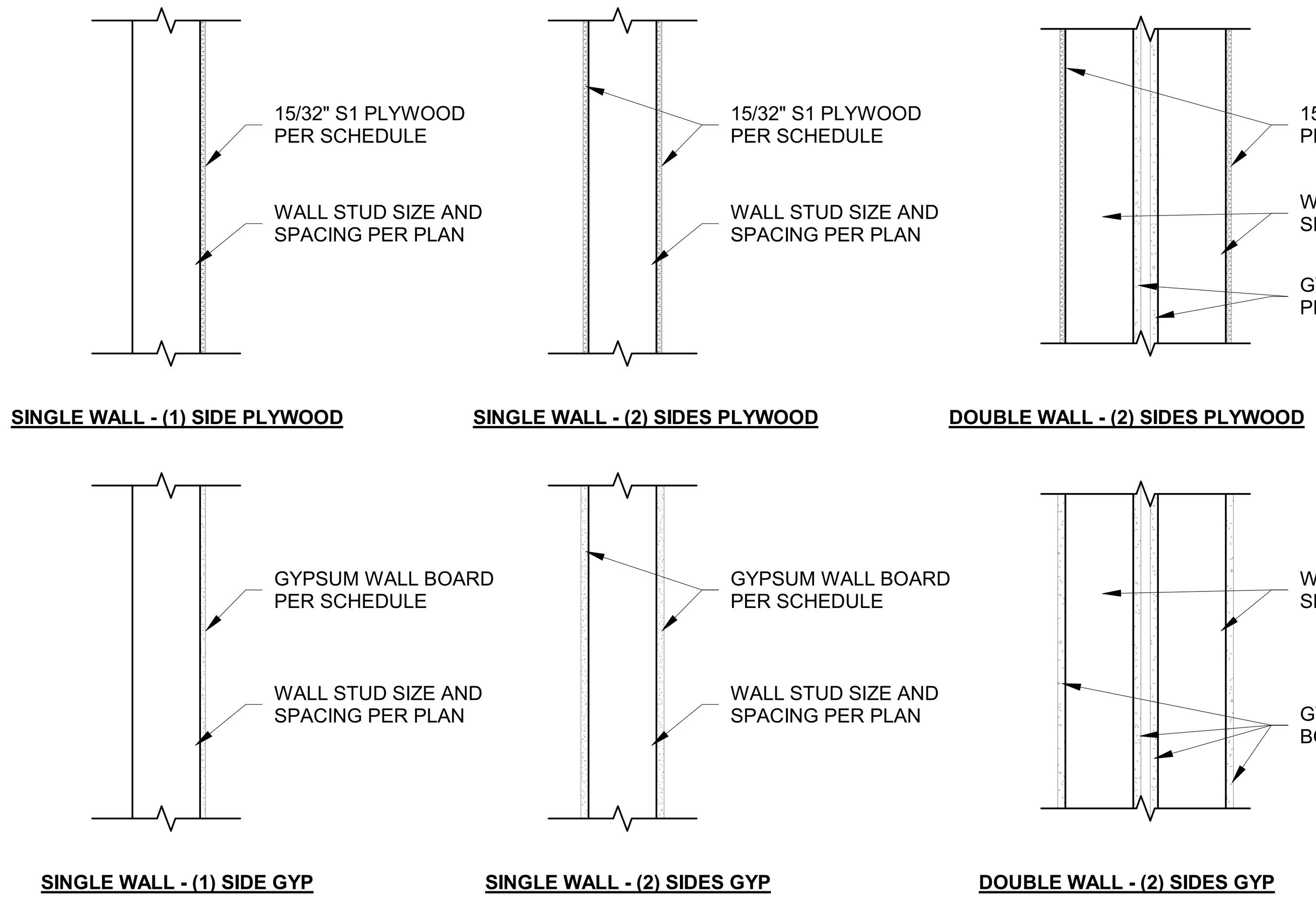
LEE'S SUMMIT, MO 64064

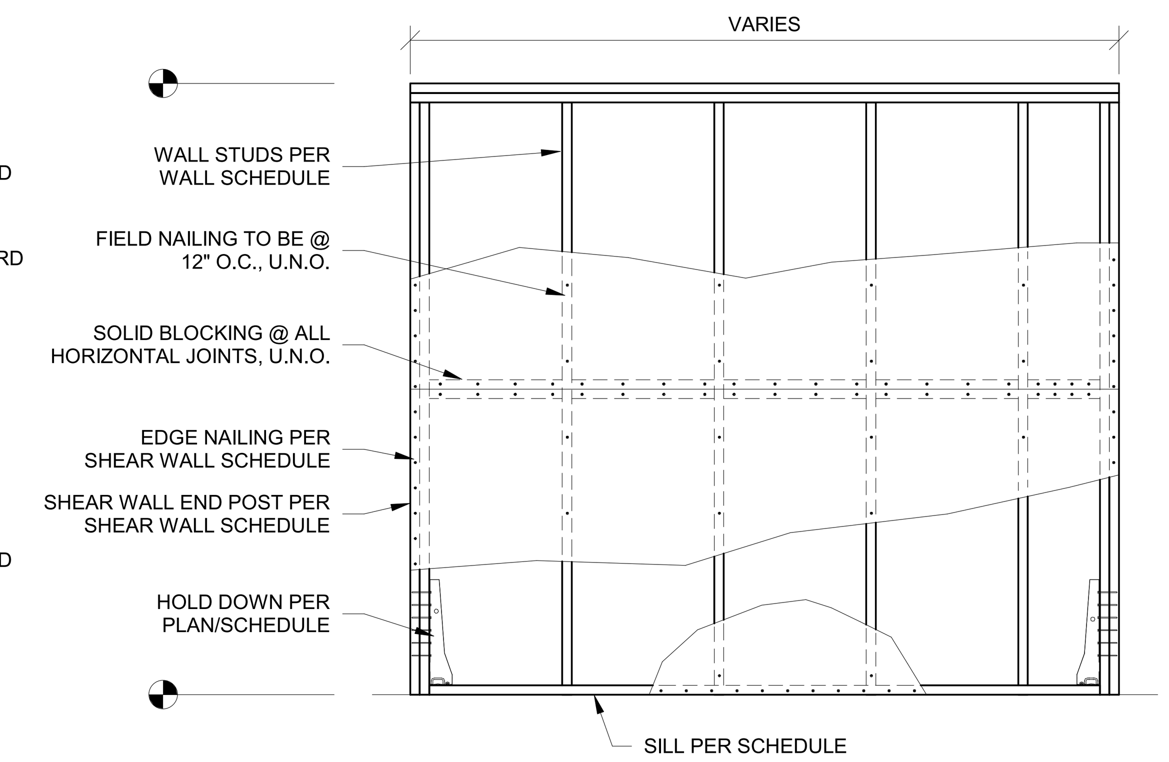
SHEET TITLE
WOOD ROOF FRAMING DETAILS

PROJECT NUMBER: 2023000333

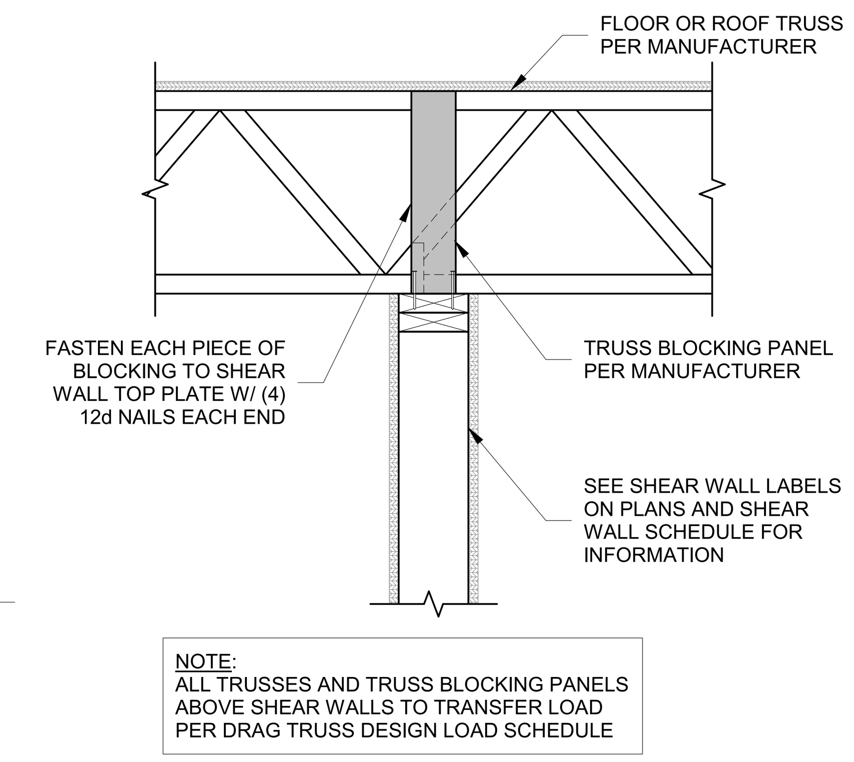
SHEET NUMBER:
S541



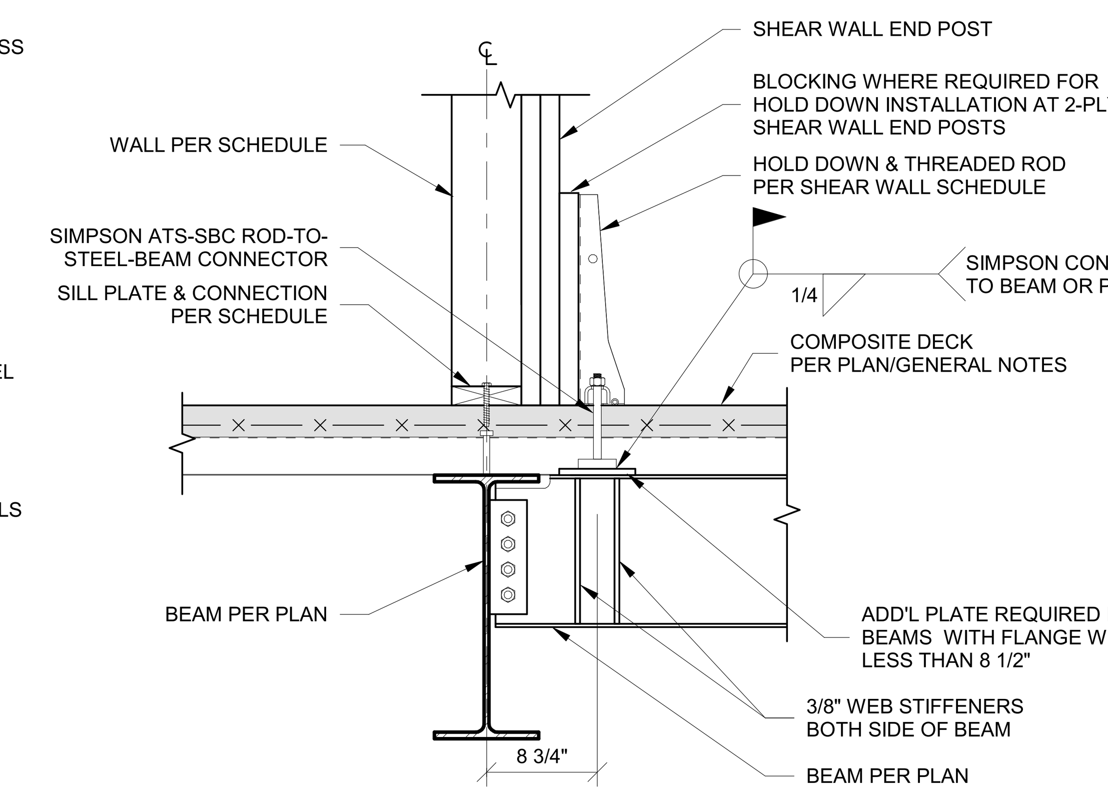
1 TYPICAL SHEARWALL SECTIONS
S550 1" = 1'-0"



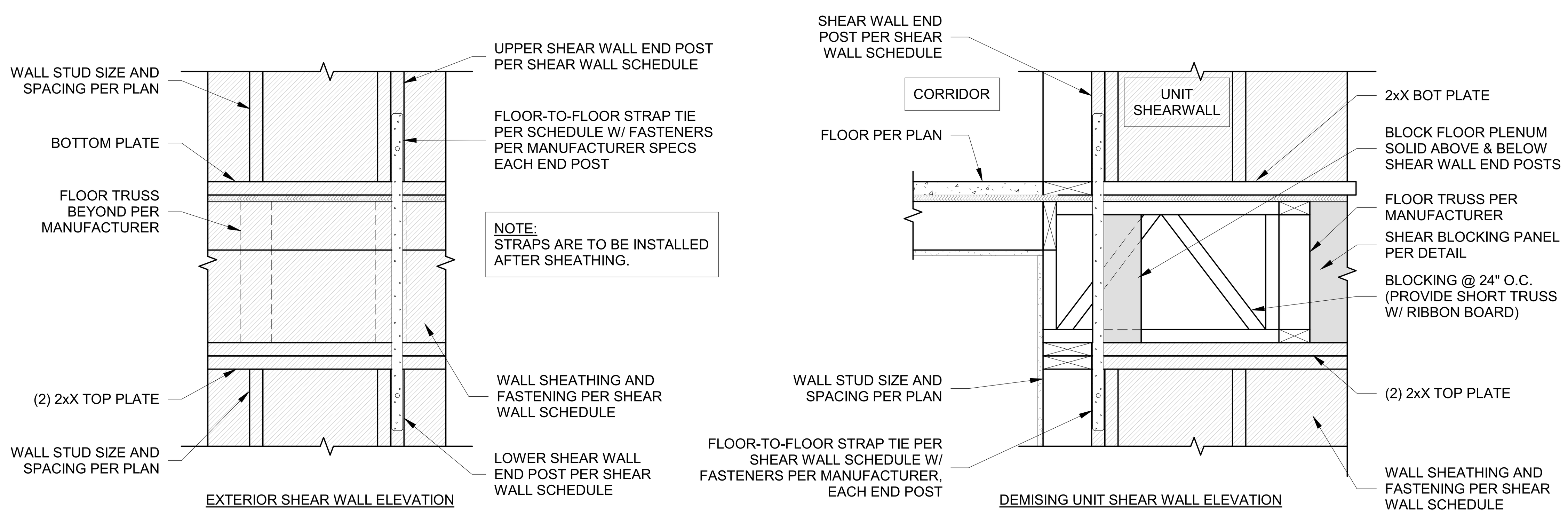
2 SHEAR WALL NAILING
S550 1/2" = 1'-0"



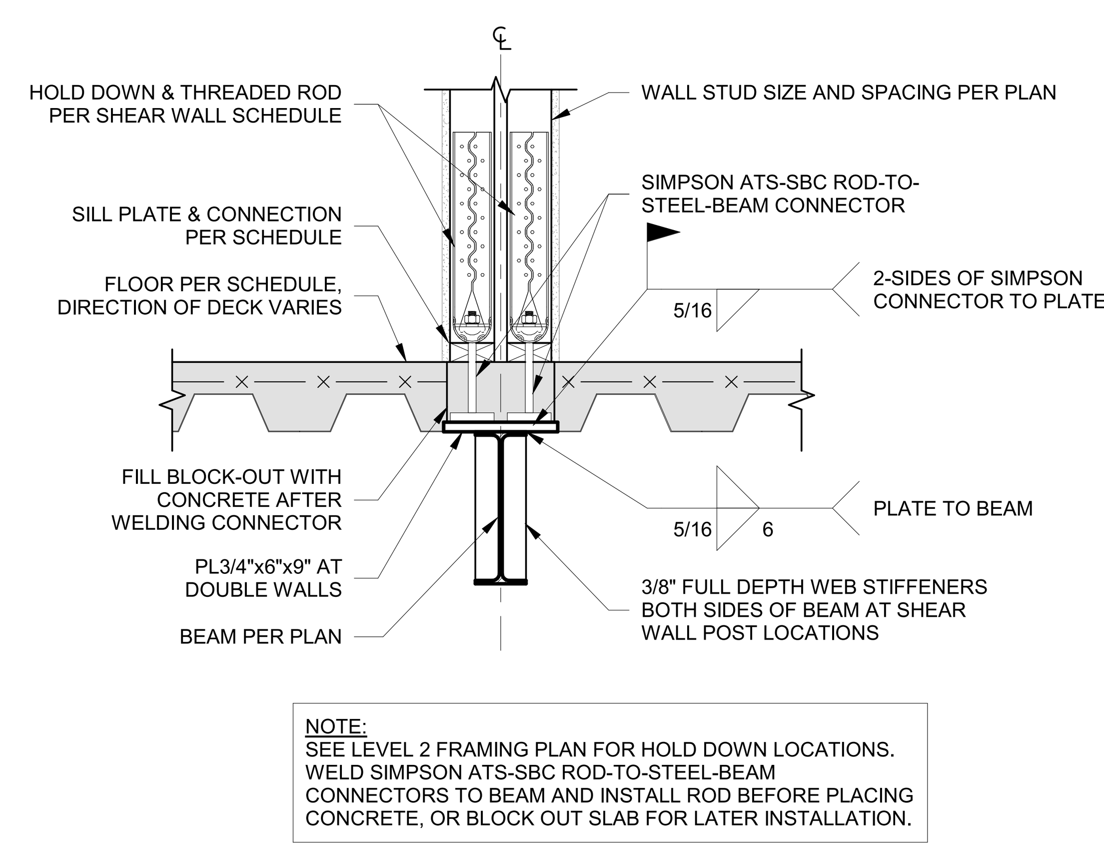
3 SHEAR WALL FASTENING TO TRUSS
S550 1" = 1'-0"



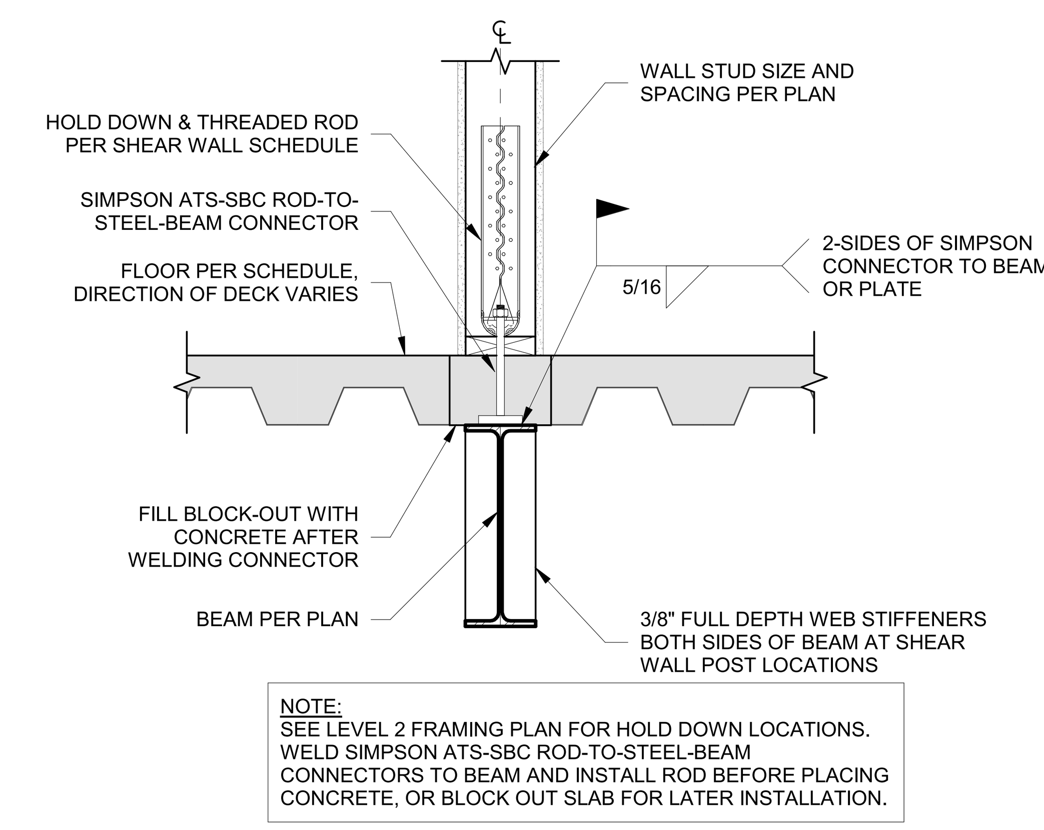
4 SHEAR WALL HOLD DOWN AT STEEL BEAM
S550 1" = 1'-0"



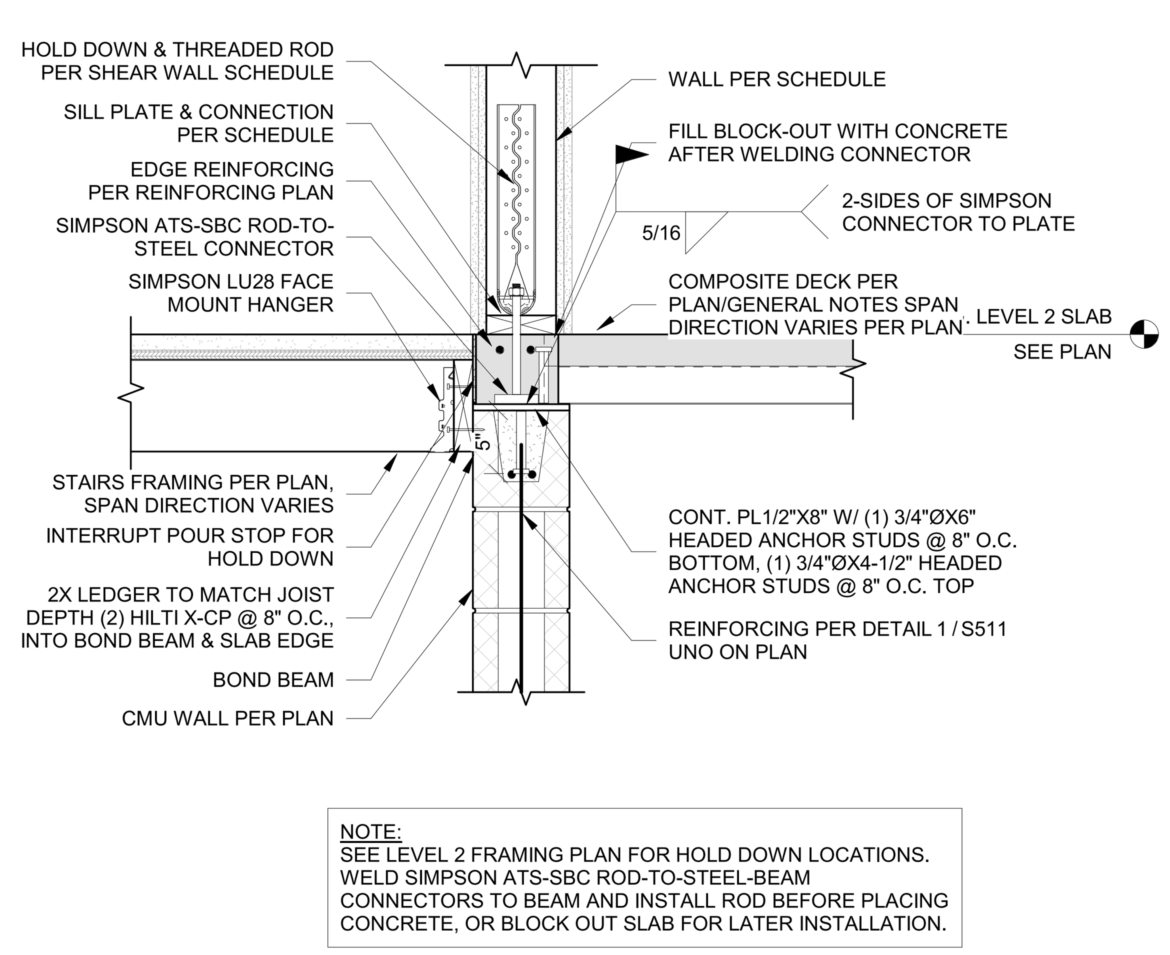
5 FLOOR-TO-FLOOR STRAP TIE
S550 1" = 1'-0"



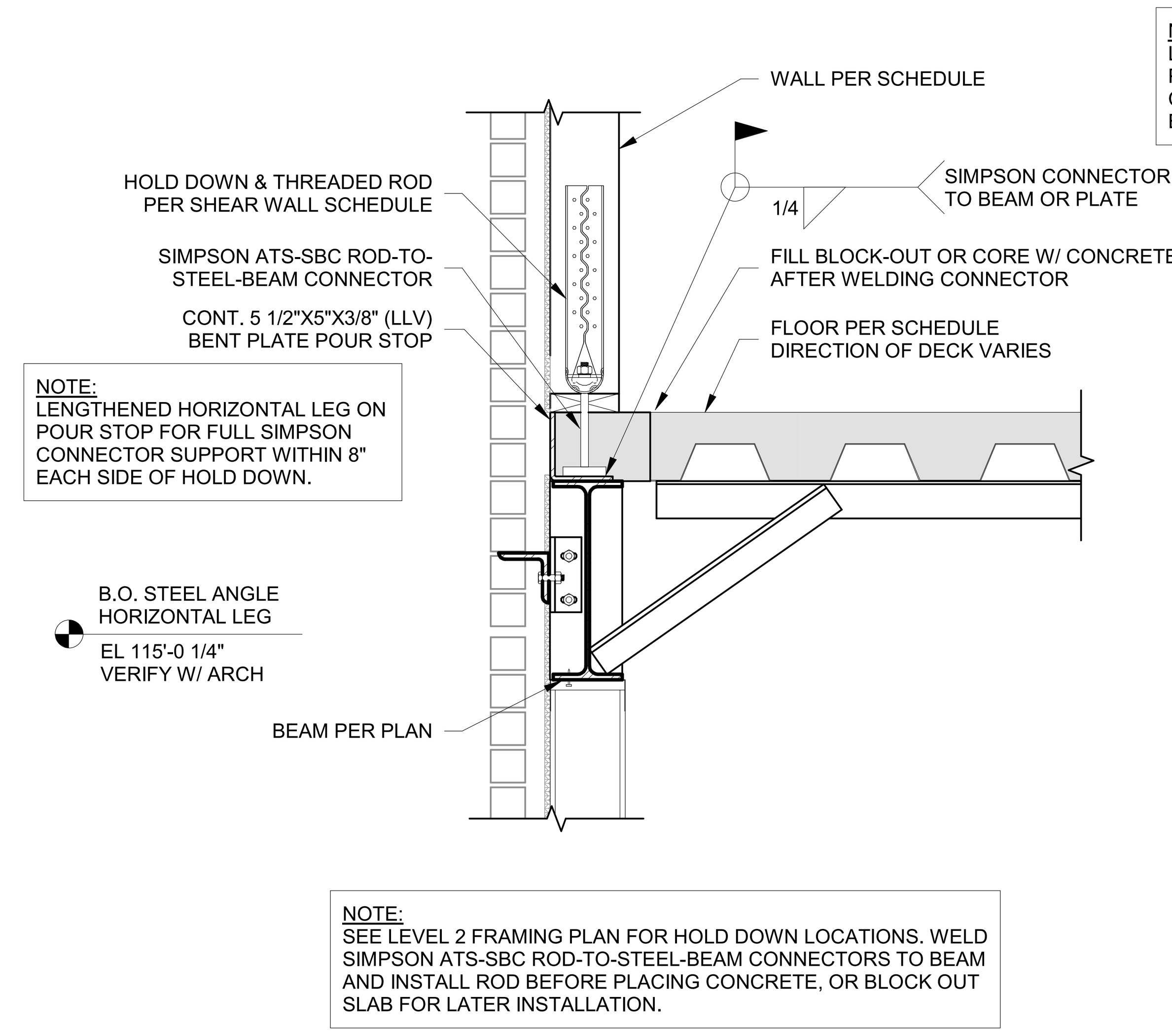
6 DEMISING WALL SHEAR WALL HOLD DOWN AT STEEL BEAMS
S550 1" = 1'-0"



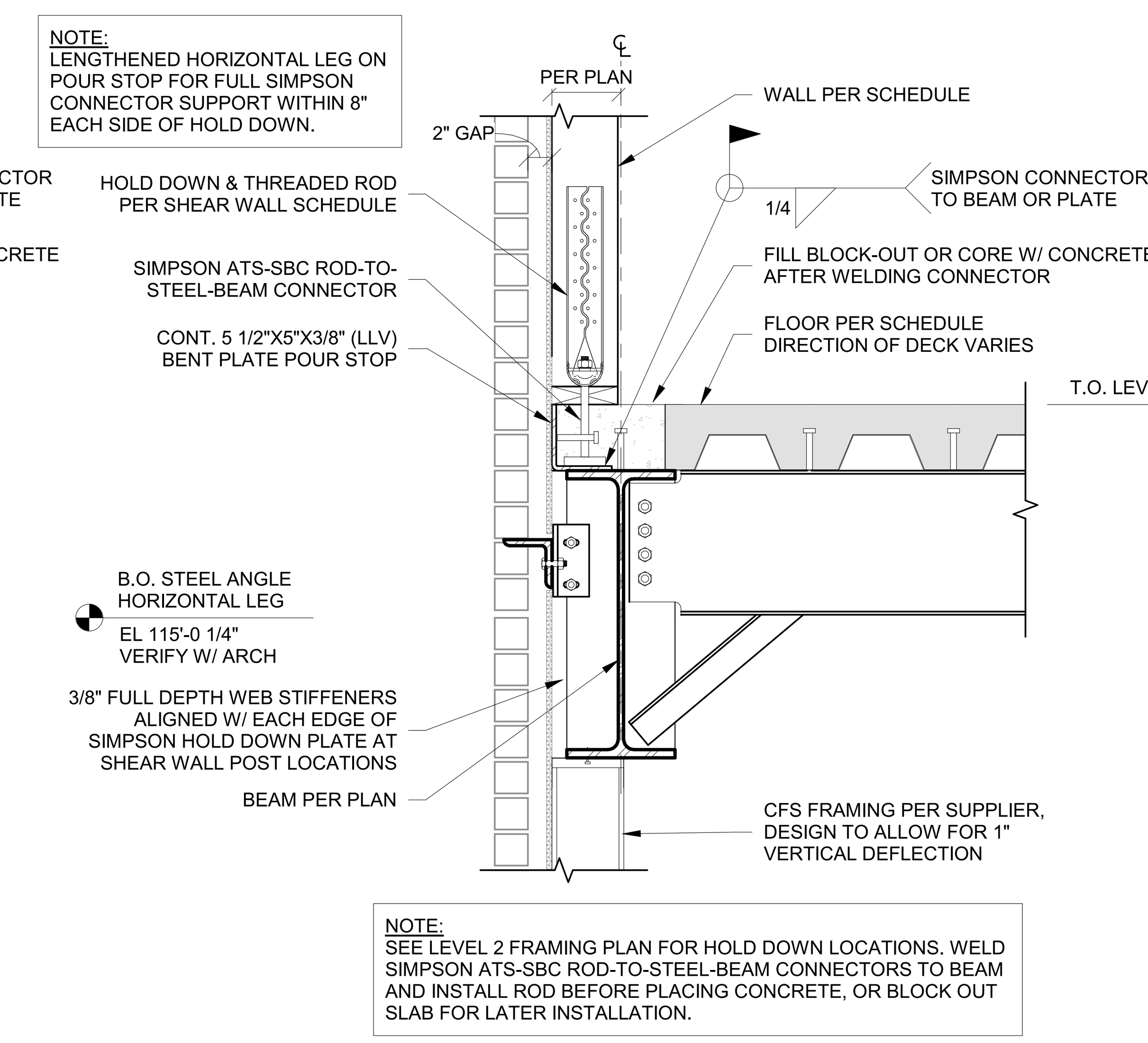
7 SHEAR WALL HOLD DOWN AT STEEL BEAM
S550 1" = 1'-0"



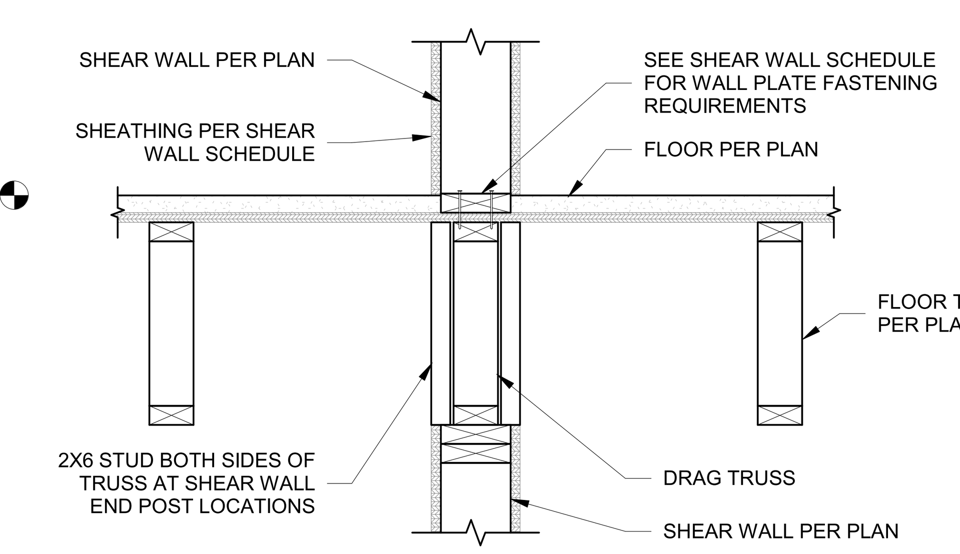
8 SHEAR WALL HOLD DOWN AT CMU
S550 1" = 1'-0"



9 SHEAR WALL HOLD DOWN AT EXTERIOR BEAM
S550 1" = 1'-0"



10 SHEAR WALL HOLD DOWN AT OFFSET BEAM
S550 1" = 1'-0"



11 SHEAR WALL PARALLEL TO FLOOR TRUSSES AT SINGLE WALL
S550 1" = 1'-0"

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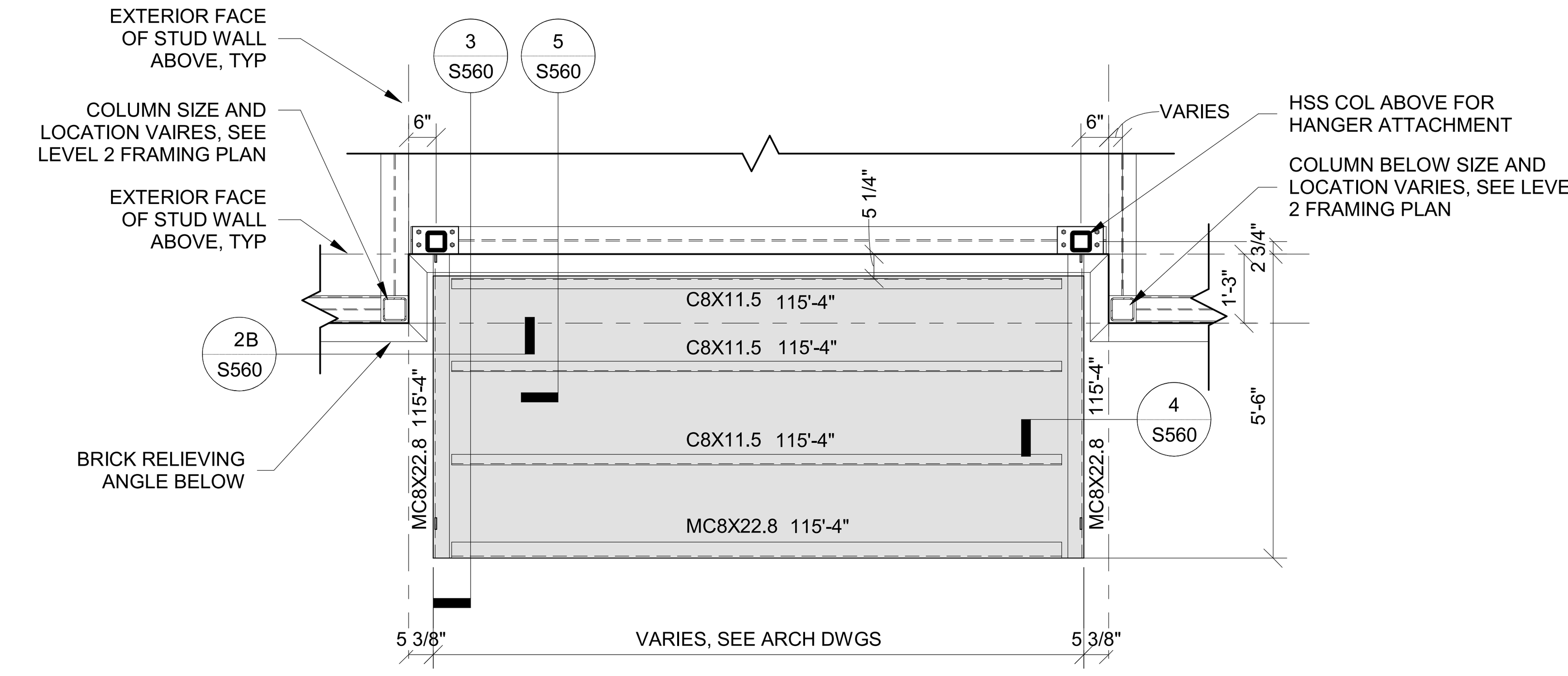
LEE'S SUMMIT, MO 64064

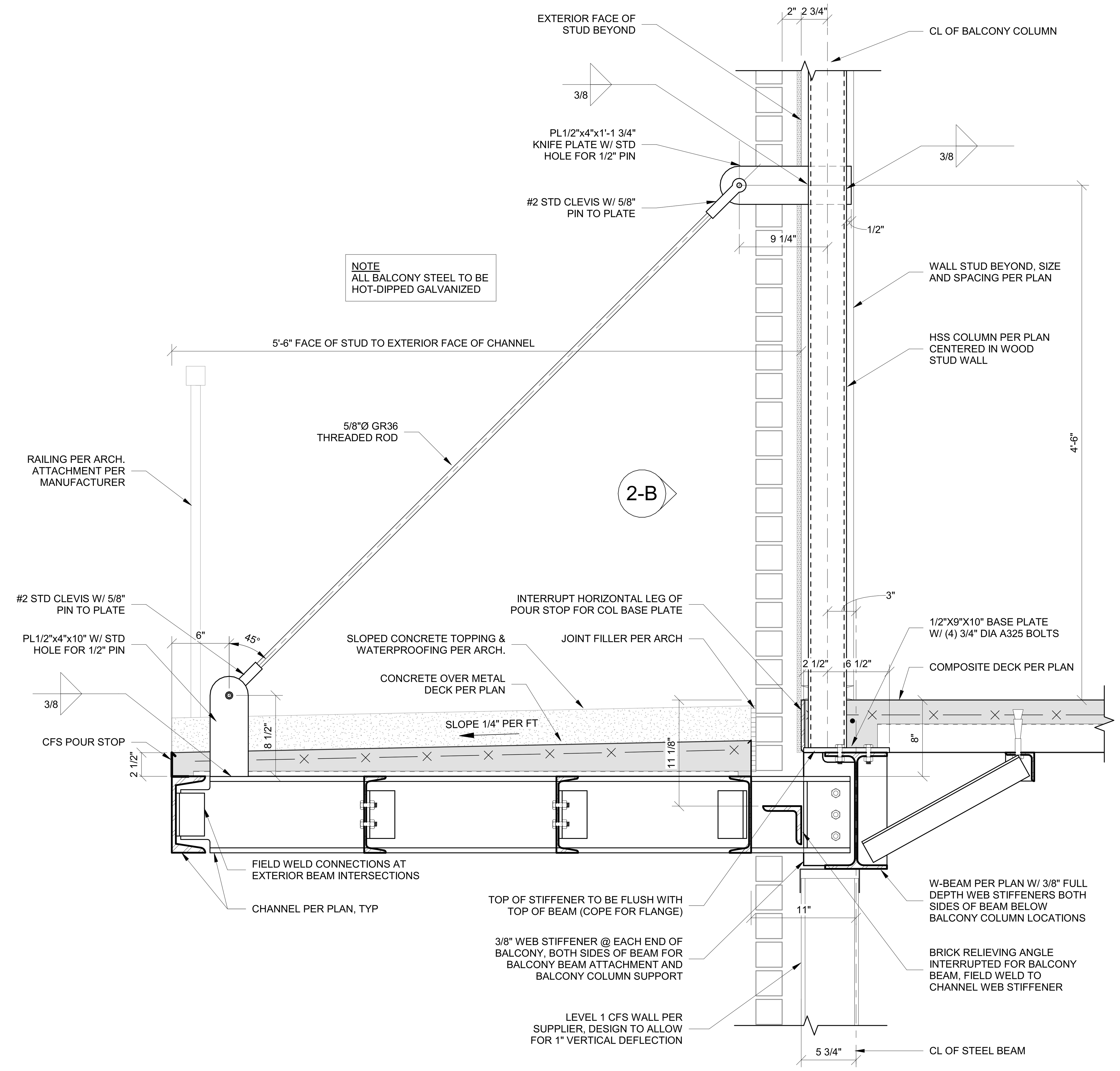
SHEET TITLE
SHEAR WALL DETAILS

PROJECT NUMBER: 2023000333

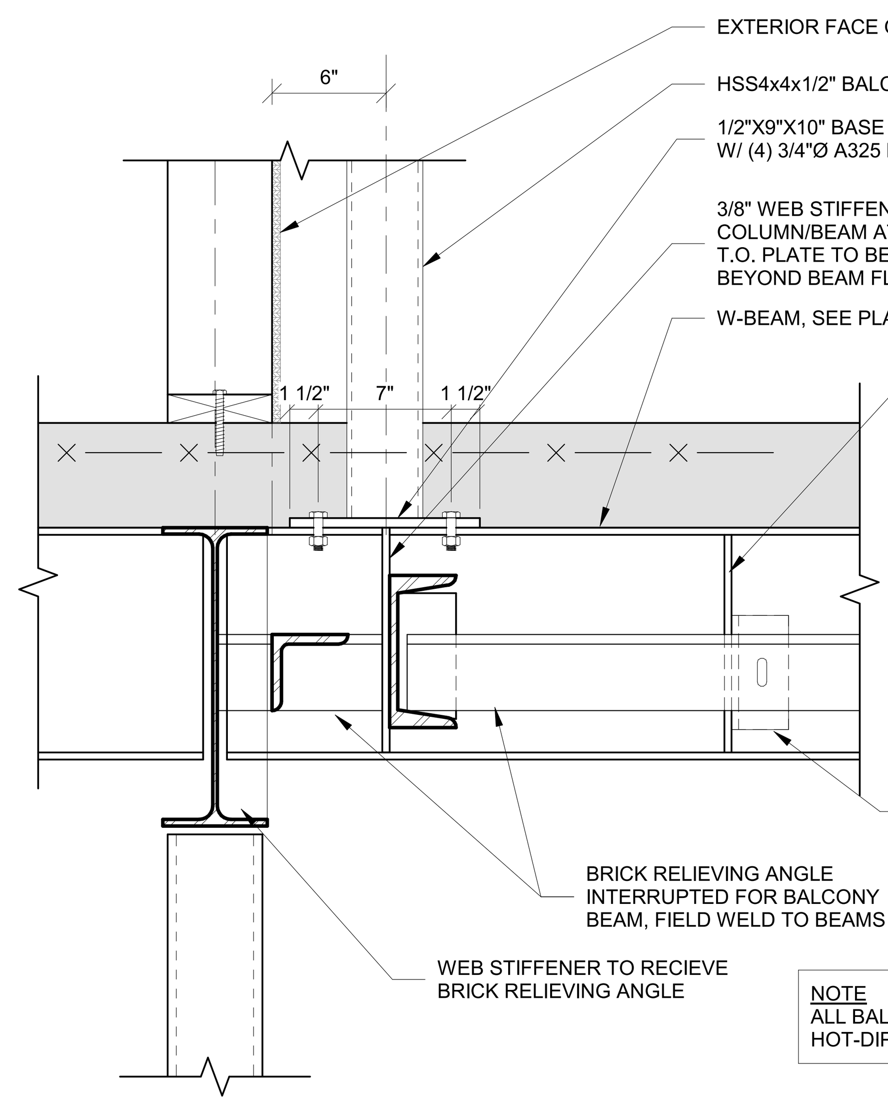
SHEET NUMBER:
S550



1 TYPICAL BALCONY LEVEL 2 - COMMERCIAL SIDE
S560 3/8" = 1'-0"

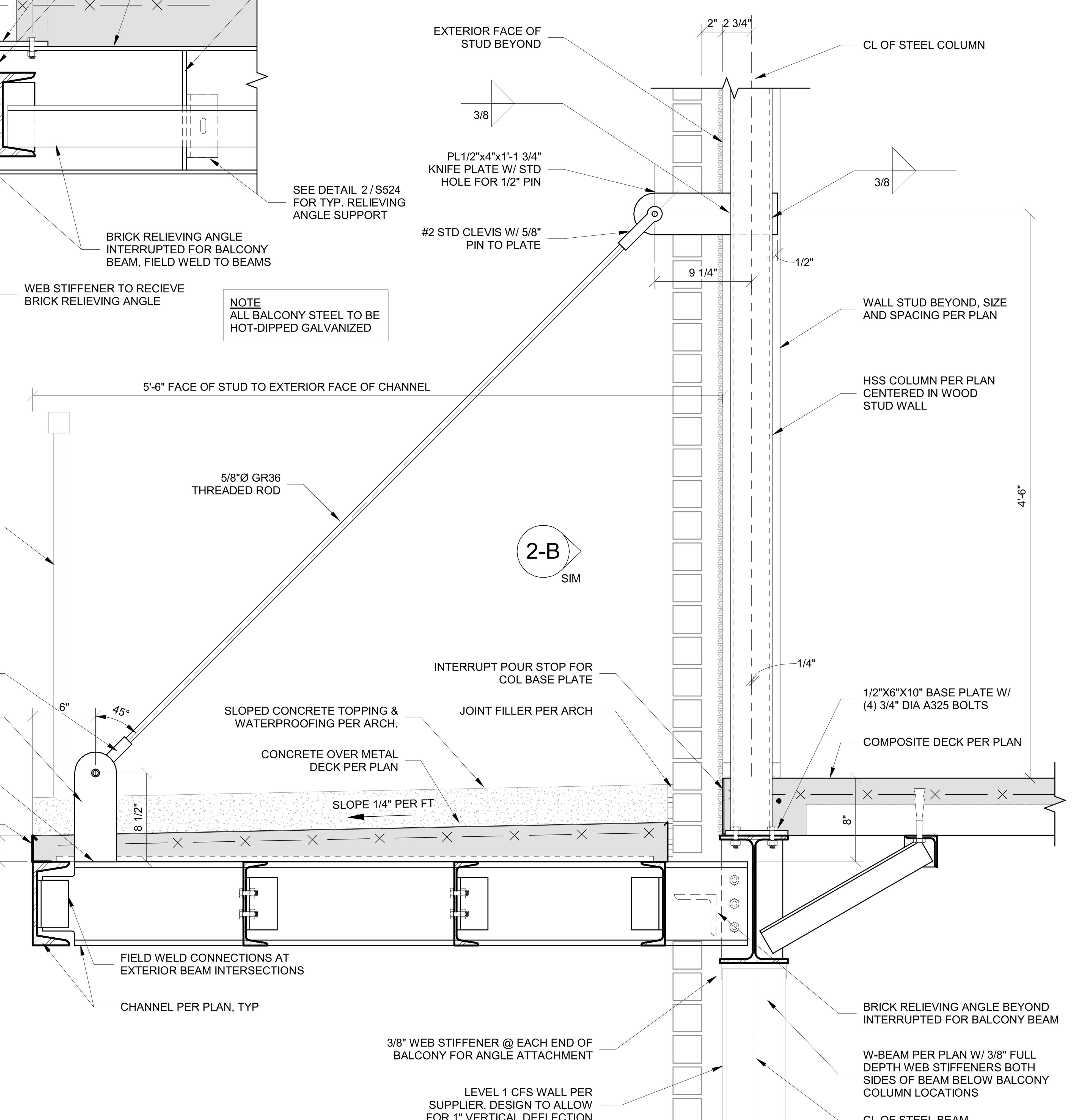


2-A SECTION

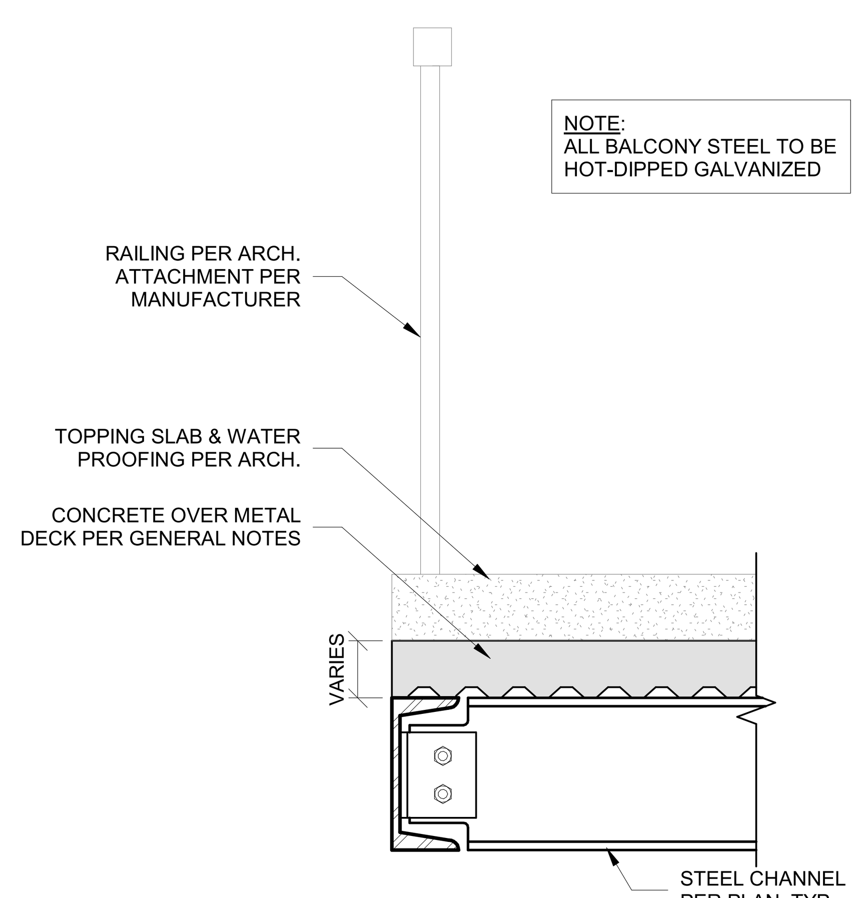


2-B ELEVATION

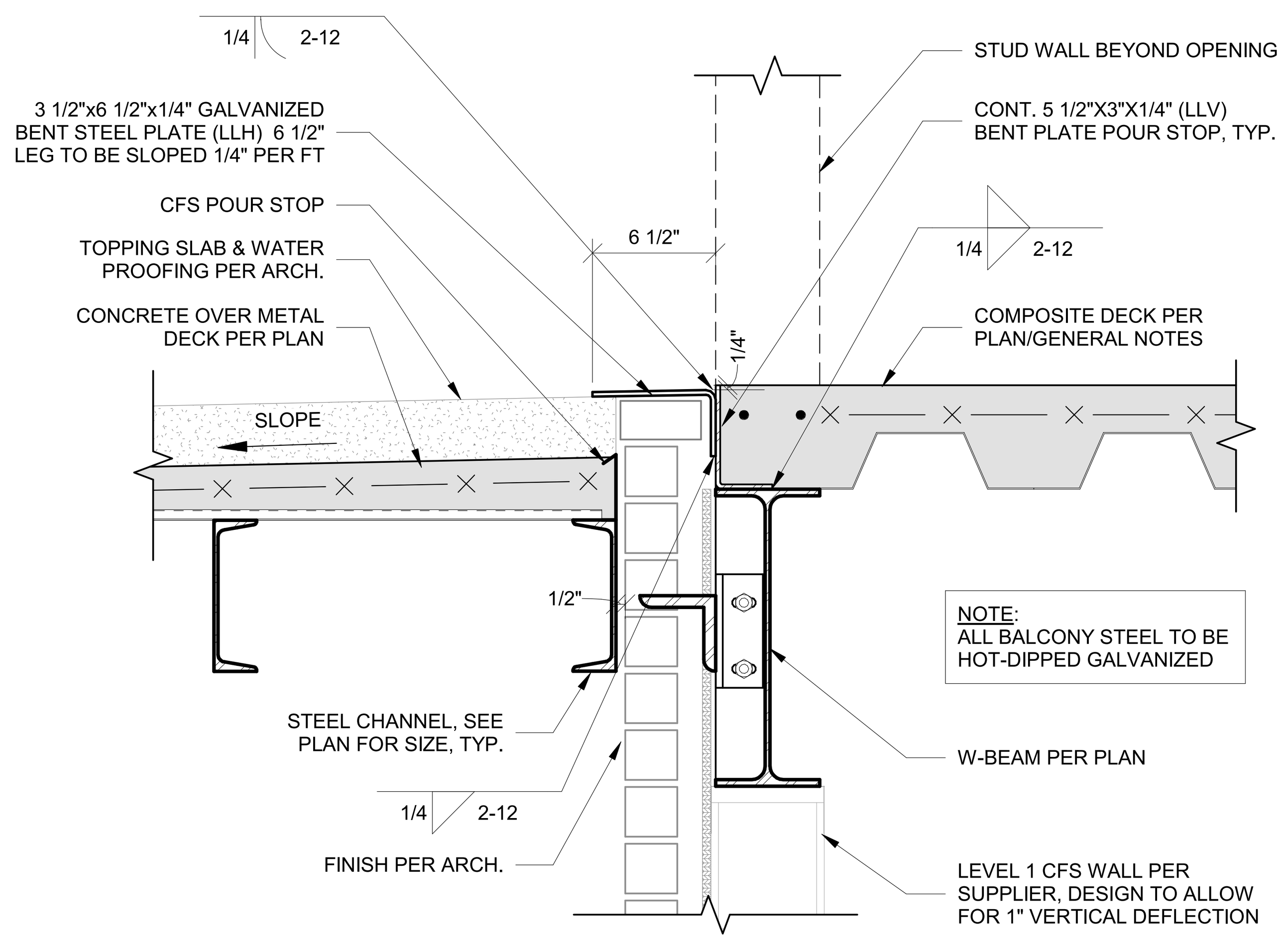
2 BALCONY HANGER DETAILS - LEVEL 2 PARKING GARAGE SIDE
S560 1 1/2" = 1'-0"



3 BALCONY SECTION AT HANGER - LEVEL 2 COMMERCIAL SIDE
S560 1 1/2" = 1'-0"



4 BALCONY EDGE SECTION
S560 1 1/2" = 1'-0"



5 BALCONY SECTION AT DOOR THRESHOLD - LEVEL 2
S560 1 1/2" = 1'-0"

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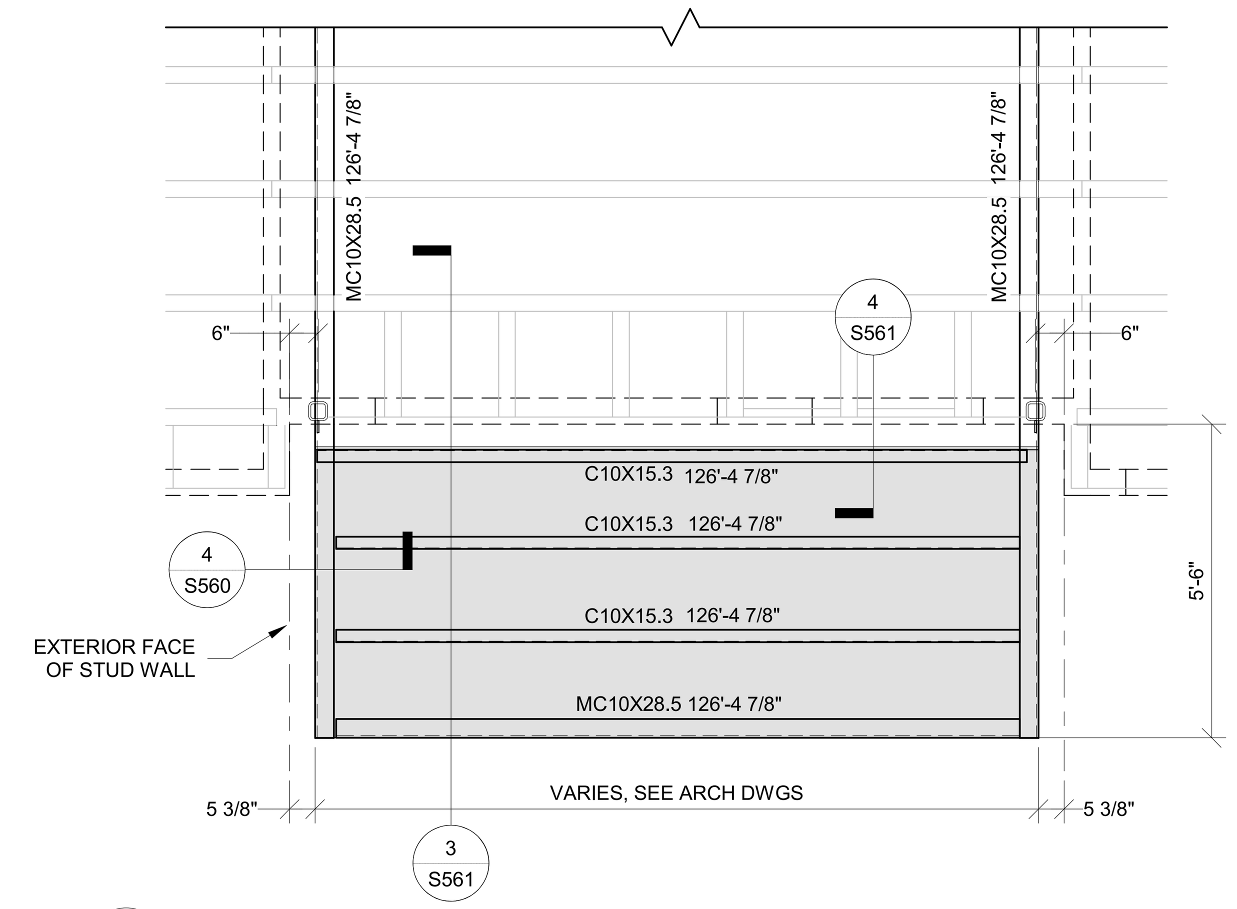
LEE'S SUMMIT, MO 64064

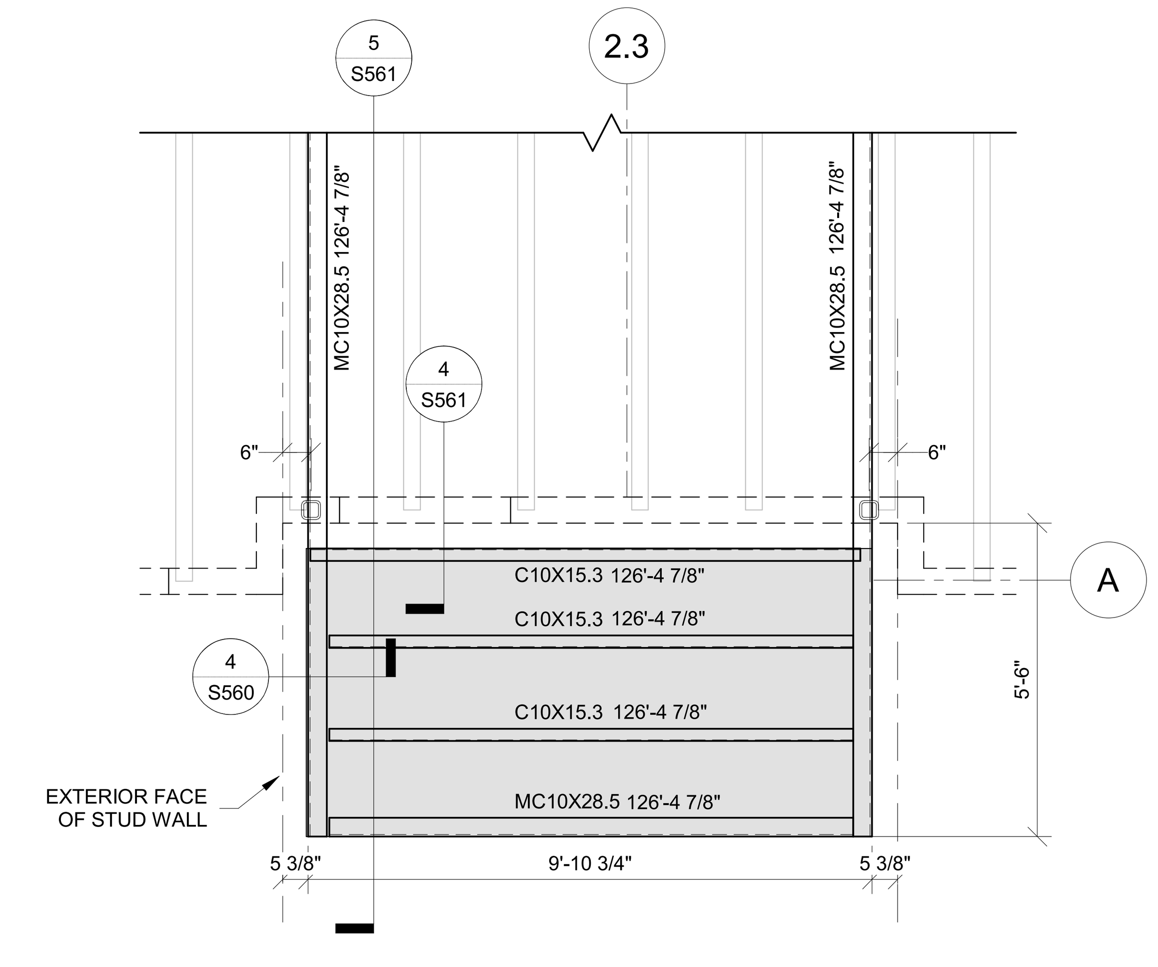
SHEET TITLE
TYPICAL BALCONY PLANS AND DETAILS - LEVEL 2

PROJECT NUMBER: 2023000333

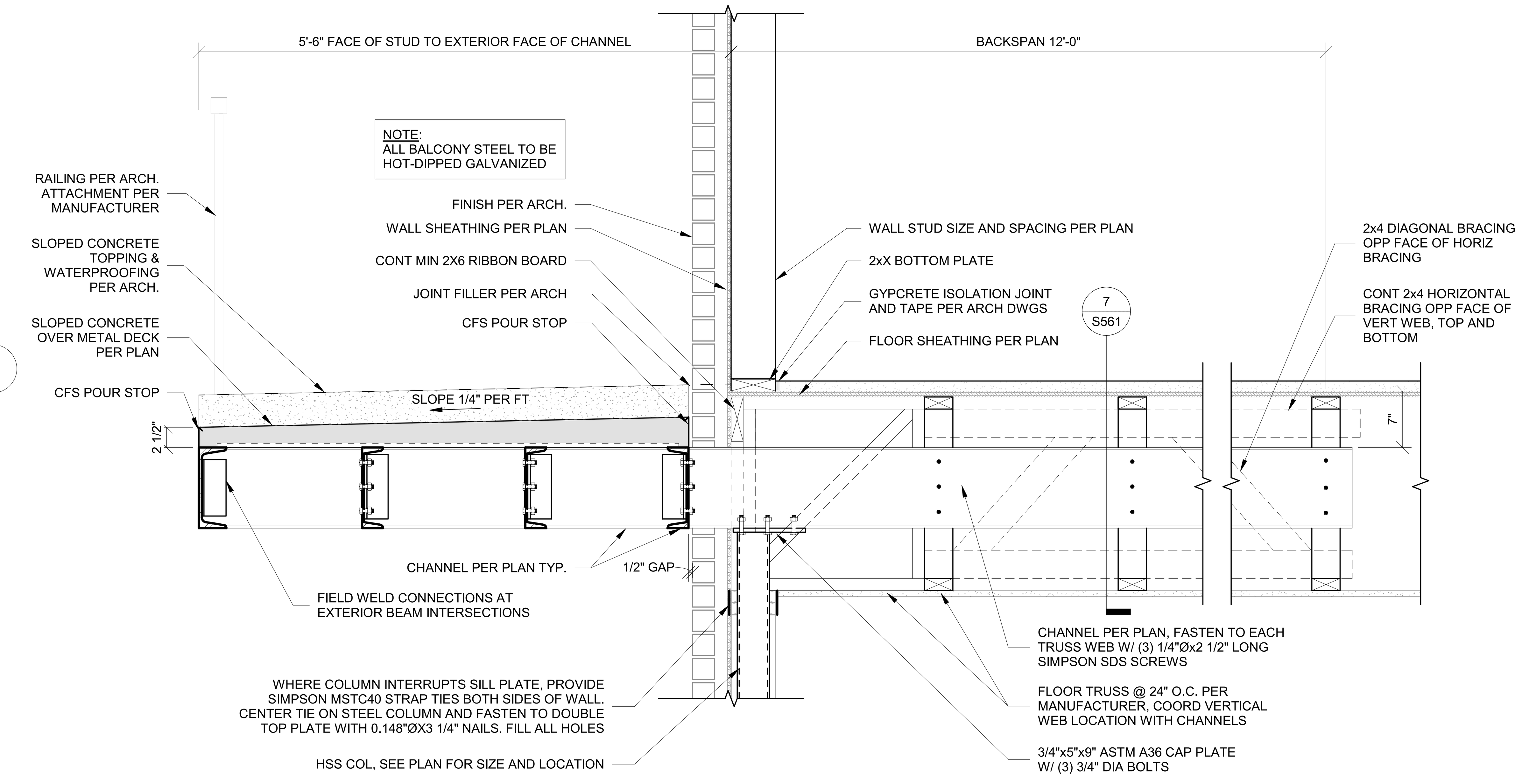
SHEET NUMBER:
S560



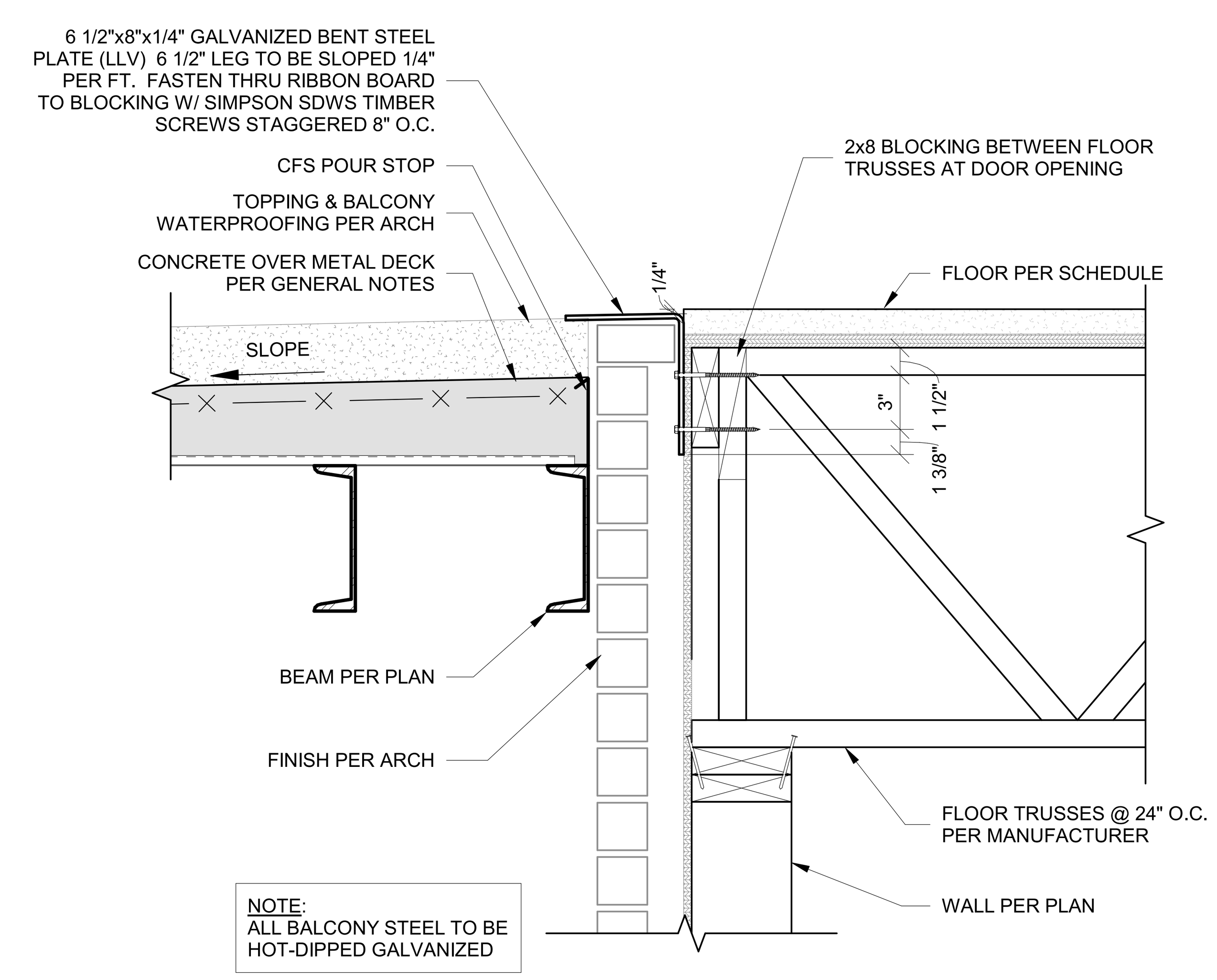
1 S561 TYPICAL BALCONY TRUSSES PARALLEL TO WALL - LEVEL 3
3/8" = 1'-0"



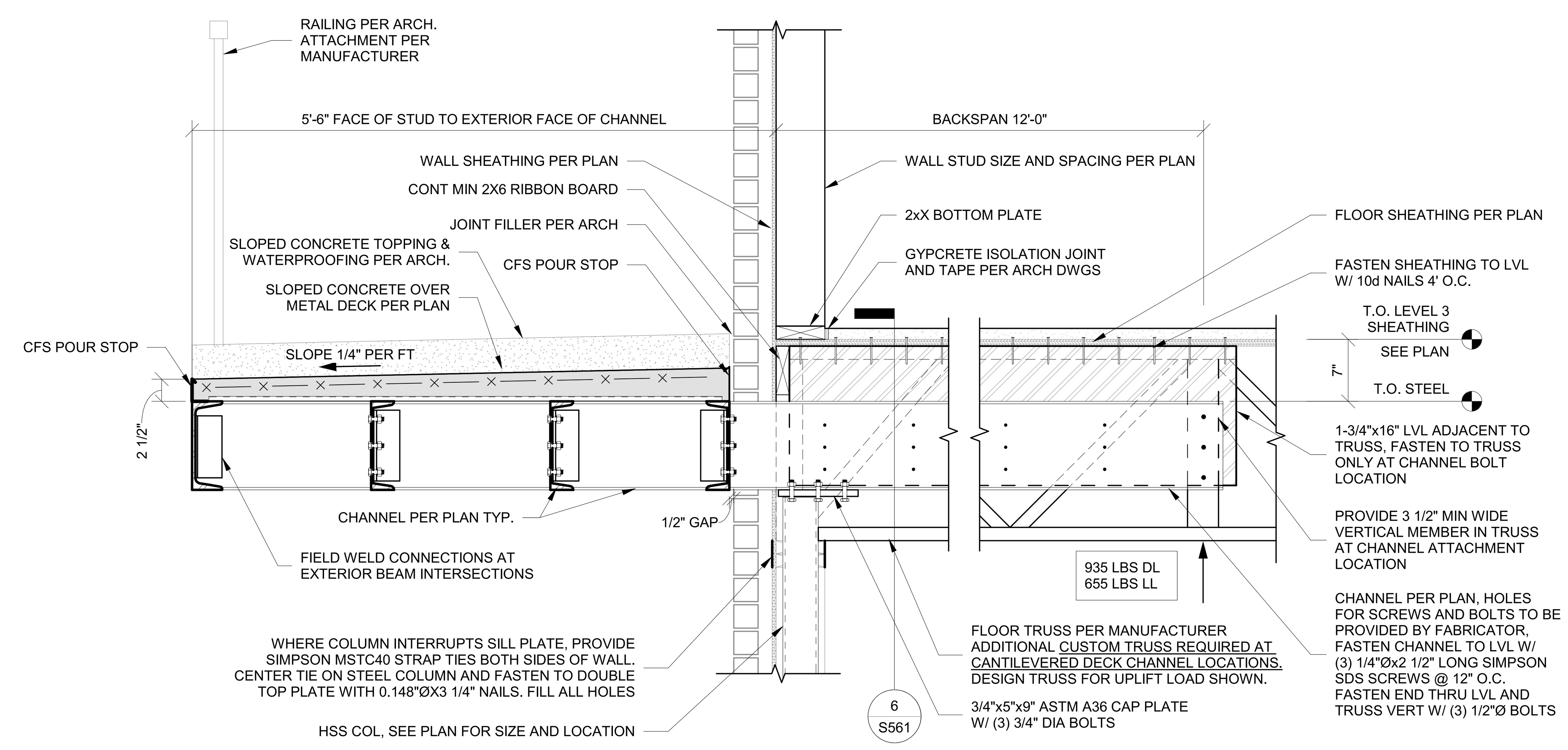
2 S561 BALCONY NEAR GRID INTERSECTION A-2.3 TRUSSES PERPENDICULAR TO WALL - LEVEL 3
3/8" = 1'-0"



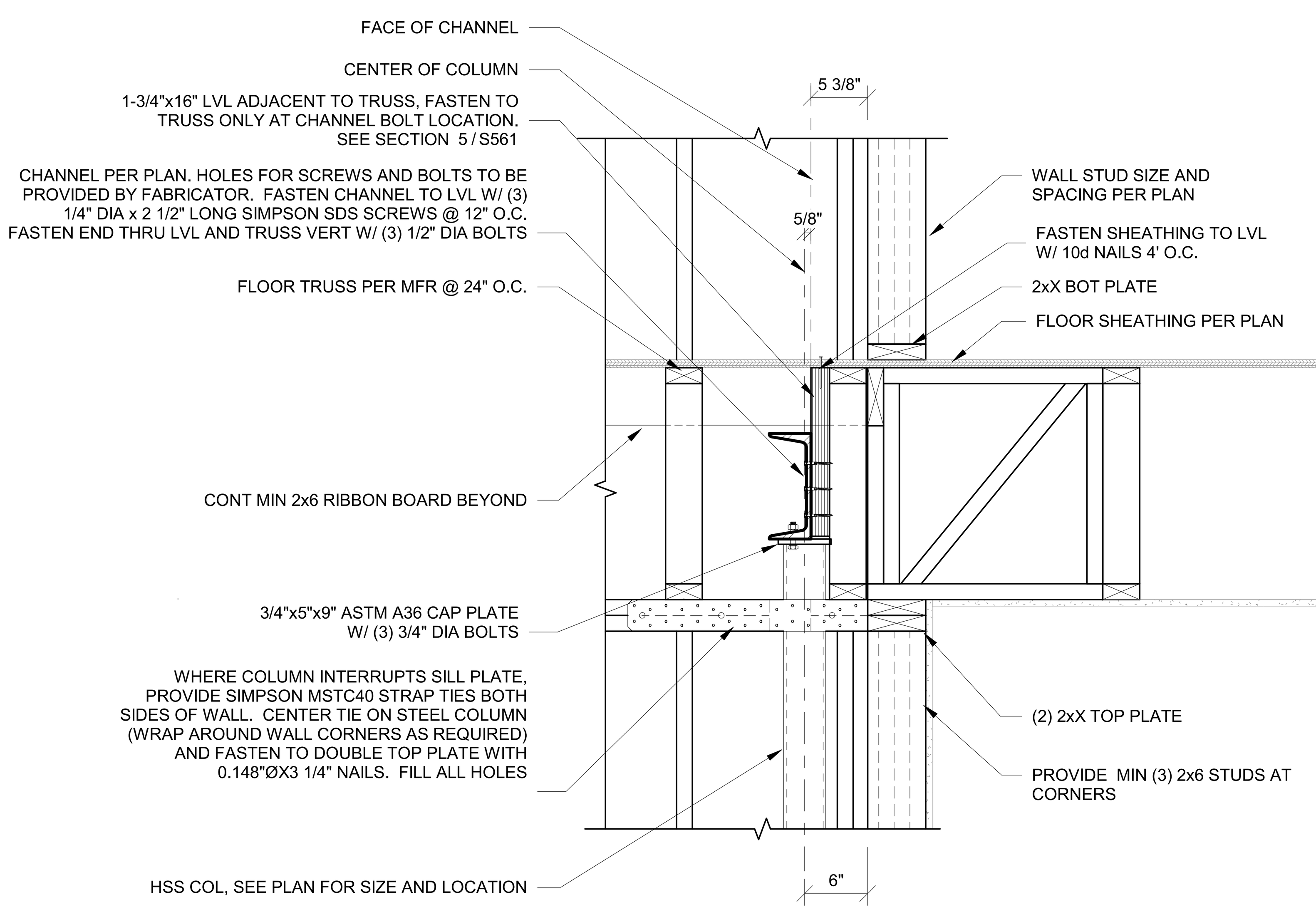
3 S561 BALCONY FRAMING SECTION AT CHANNEL - LEVEL 3
1" = 1'-0"



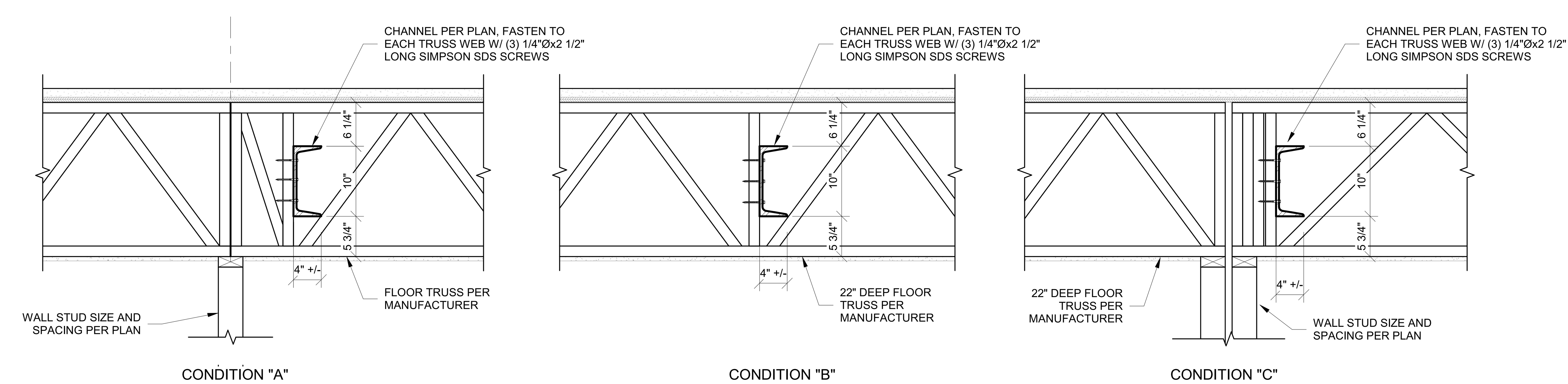
4 S561 BALCONY SECTION AT DOOR THRESHOLD - LEVEL 3
1 1/2" = 1'-0"



5 S561 BALCONY FRAMING SECTION - AT CHANNEL
1" = 1'-0"



6 S561 BALCONY FRAMING SECTION - CHANNEL BEARING ON COL
1" = 1'-0"



7 S561 BALCONY BEAM PERPENDICULAR TO TRUSS CONNECTION
1" = 1'-0"

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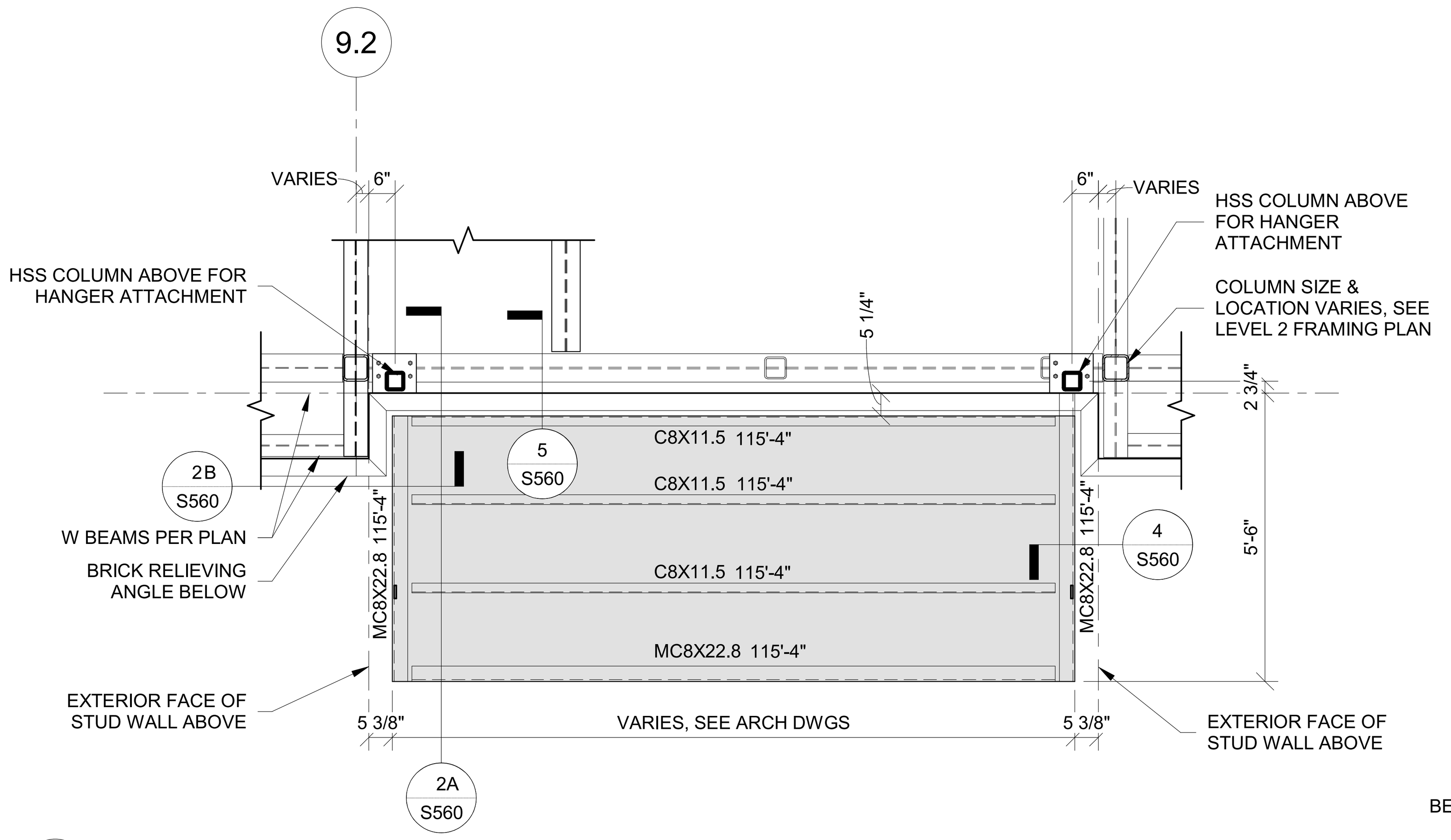
LEE'S SUMMIT, MO 64064

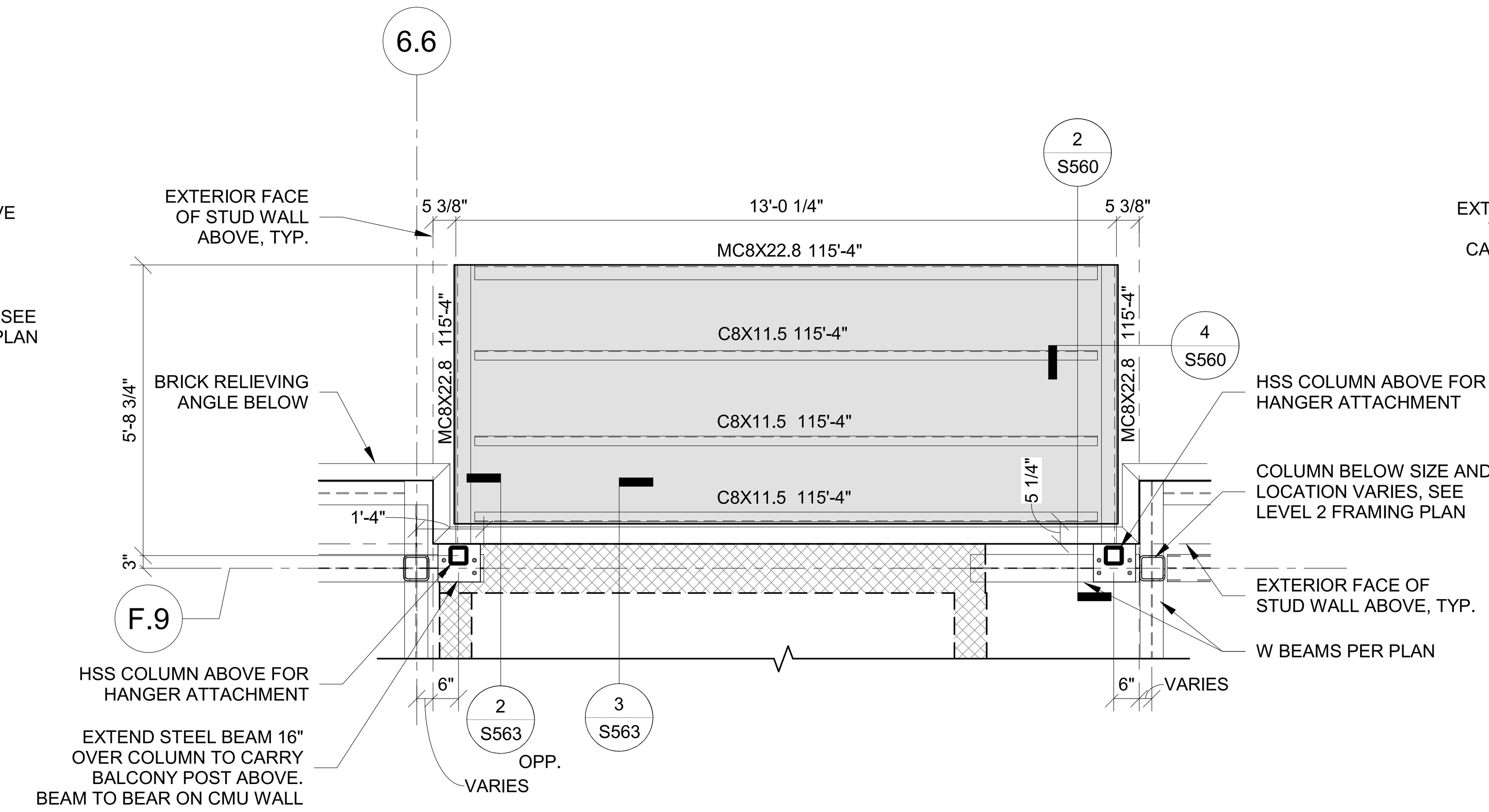
SHEET TITLE
TYPICAL BALCONY PLANS AND DETAILS - LEVEL 3

PROJECT NUMBER: 2023000333

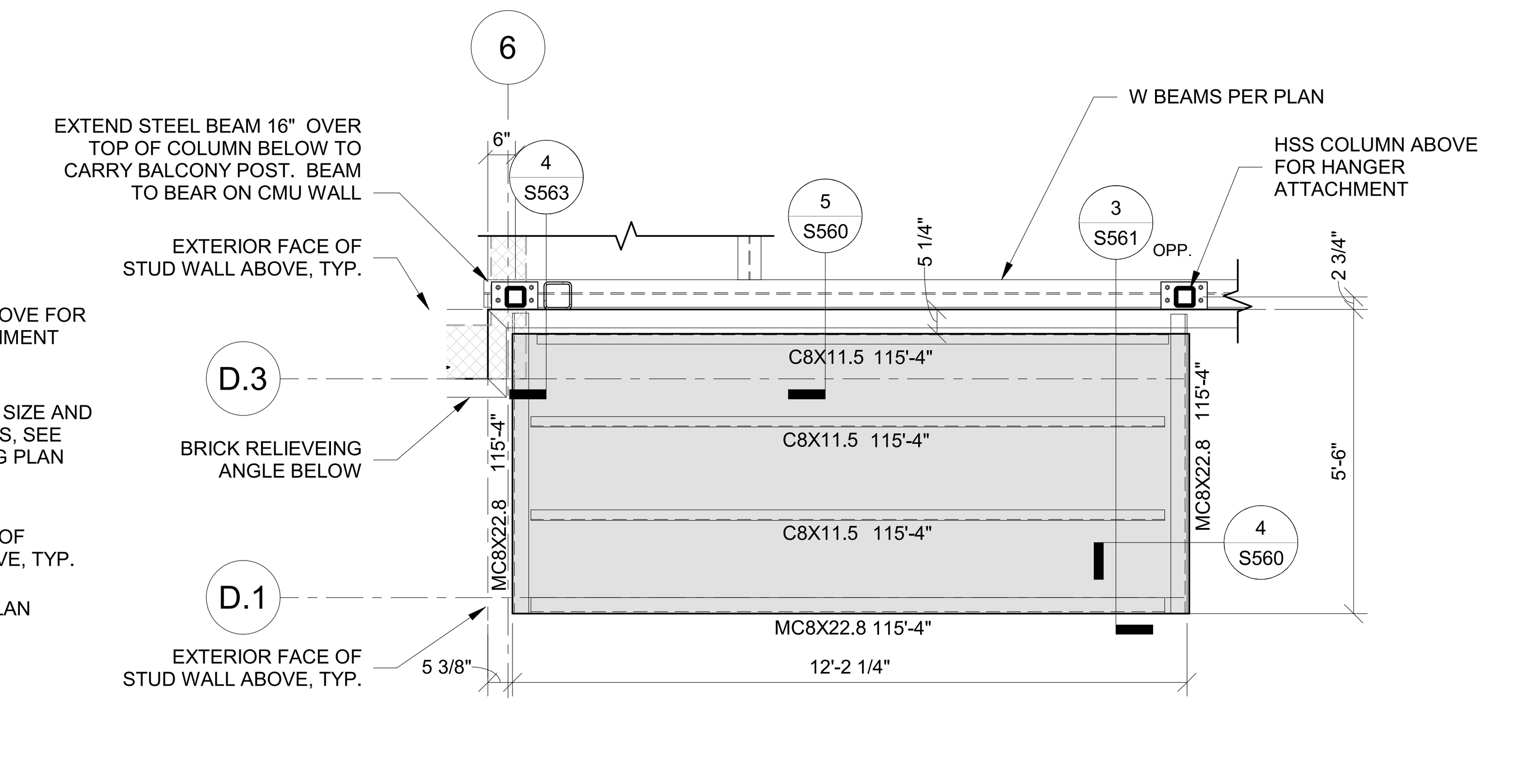
SHEET NUMBER:
S561



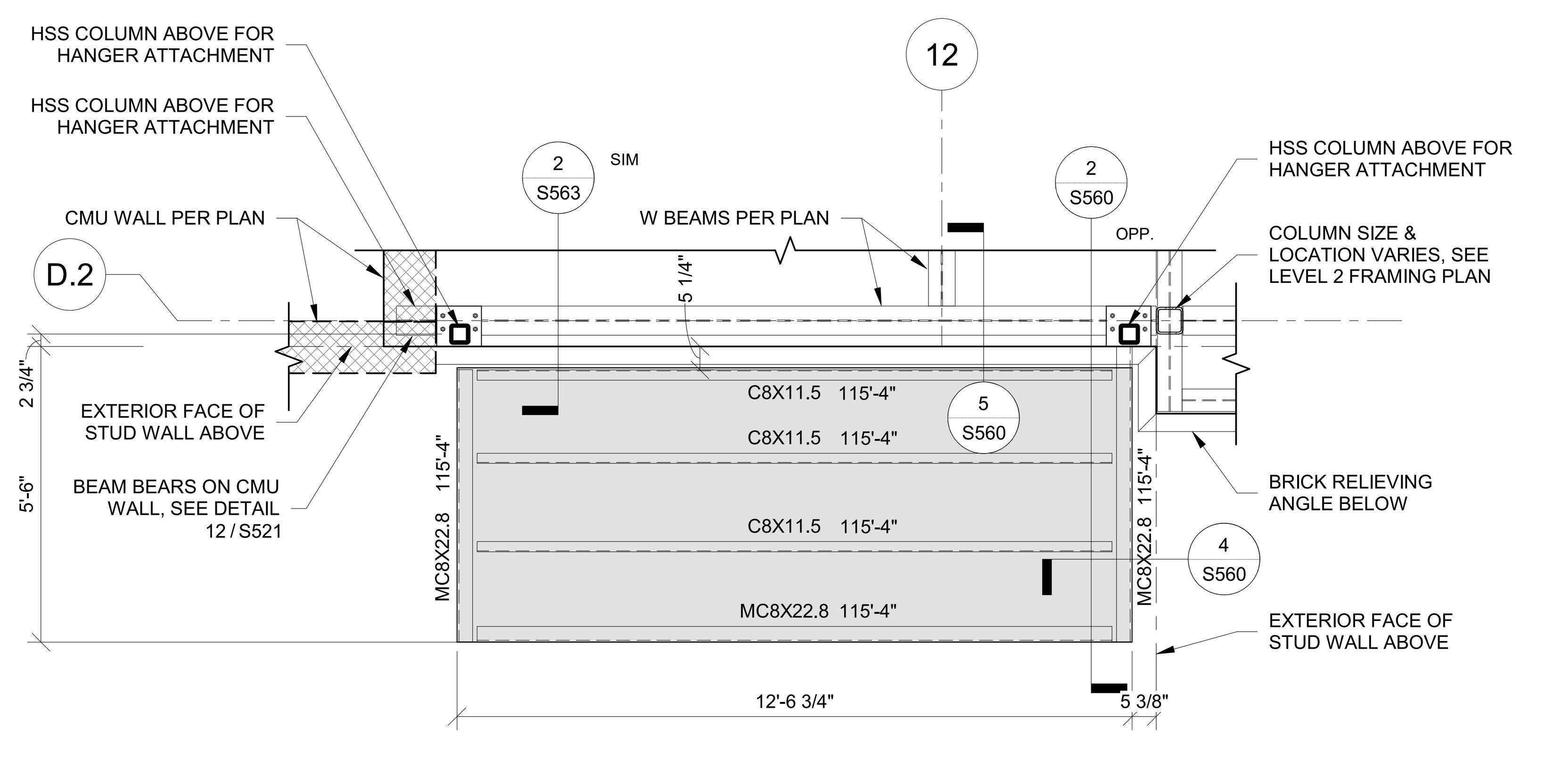
1 S562 TYPICAL BALCONY AT GARAGE
3/8" = 1'-0"



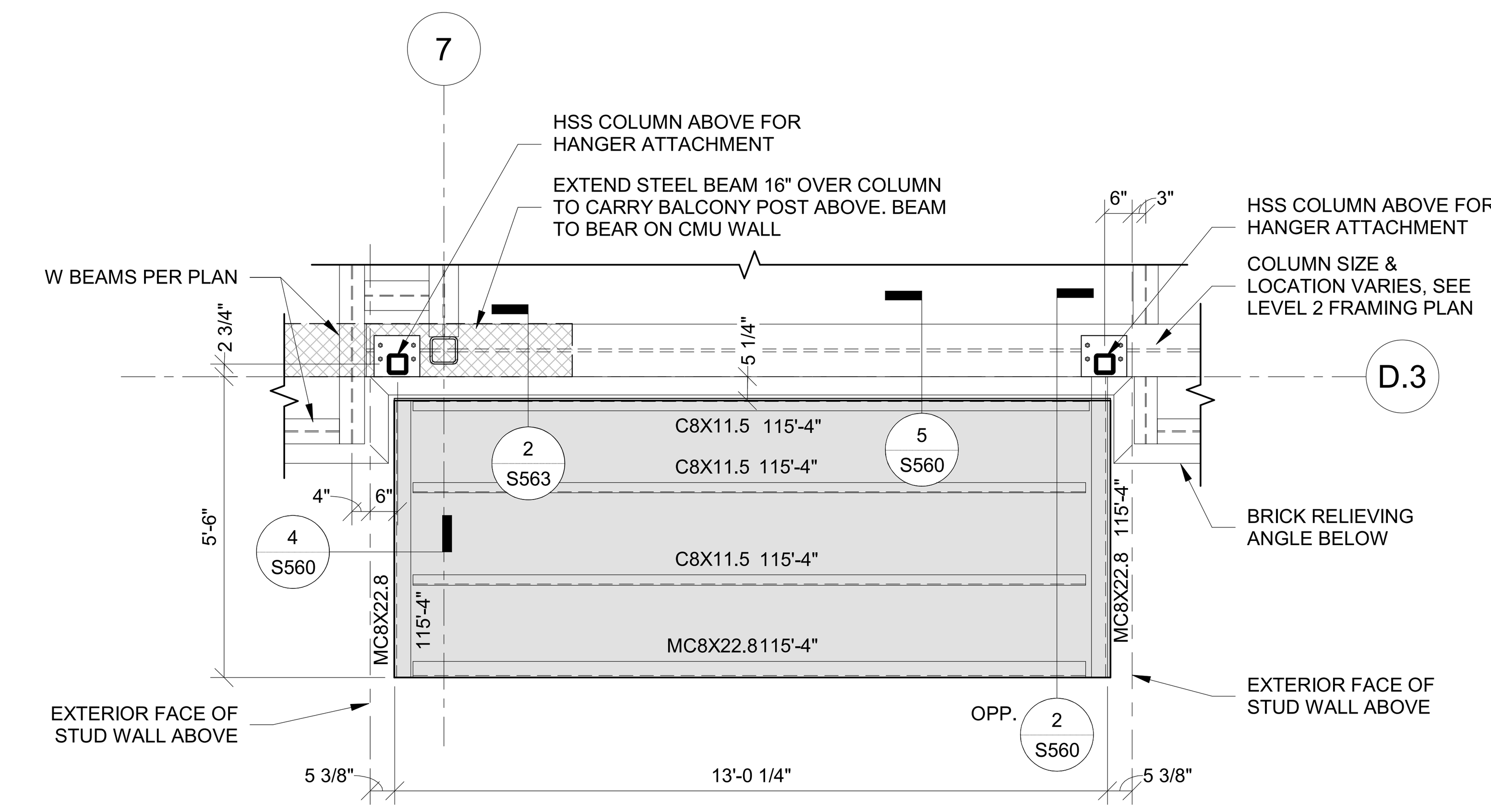
2 S562 NON-TYPICAL BALCONY NEAR GRID INTERSECTION 6.6-F.9 AT LEVEL 2
3/8" = 1'-0"



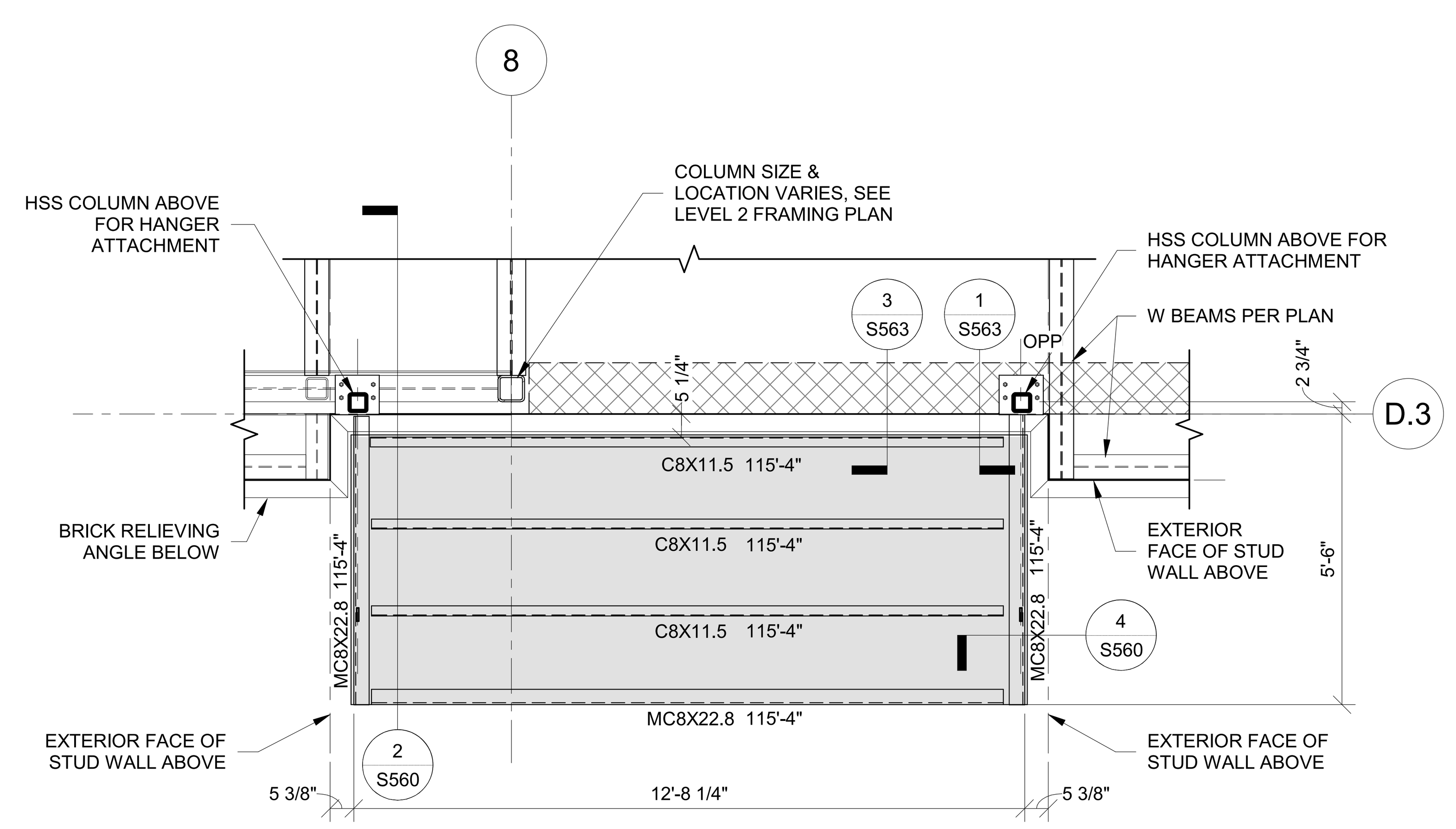
3 S562 NON-TYPICAL BALCONY NEAR GRID INTERSECTION 6-D.1 AT LEVEL 2
3/8" = 1'-0"



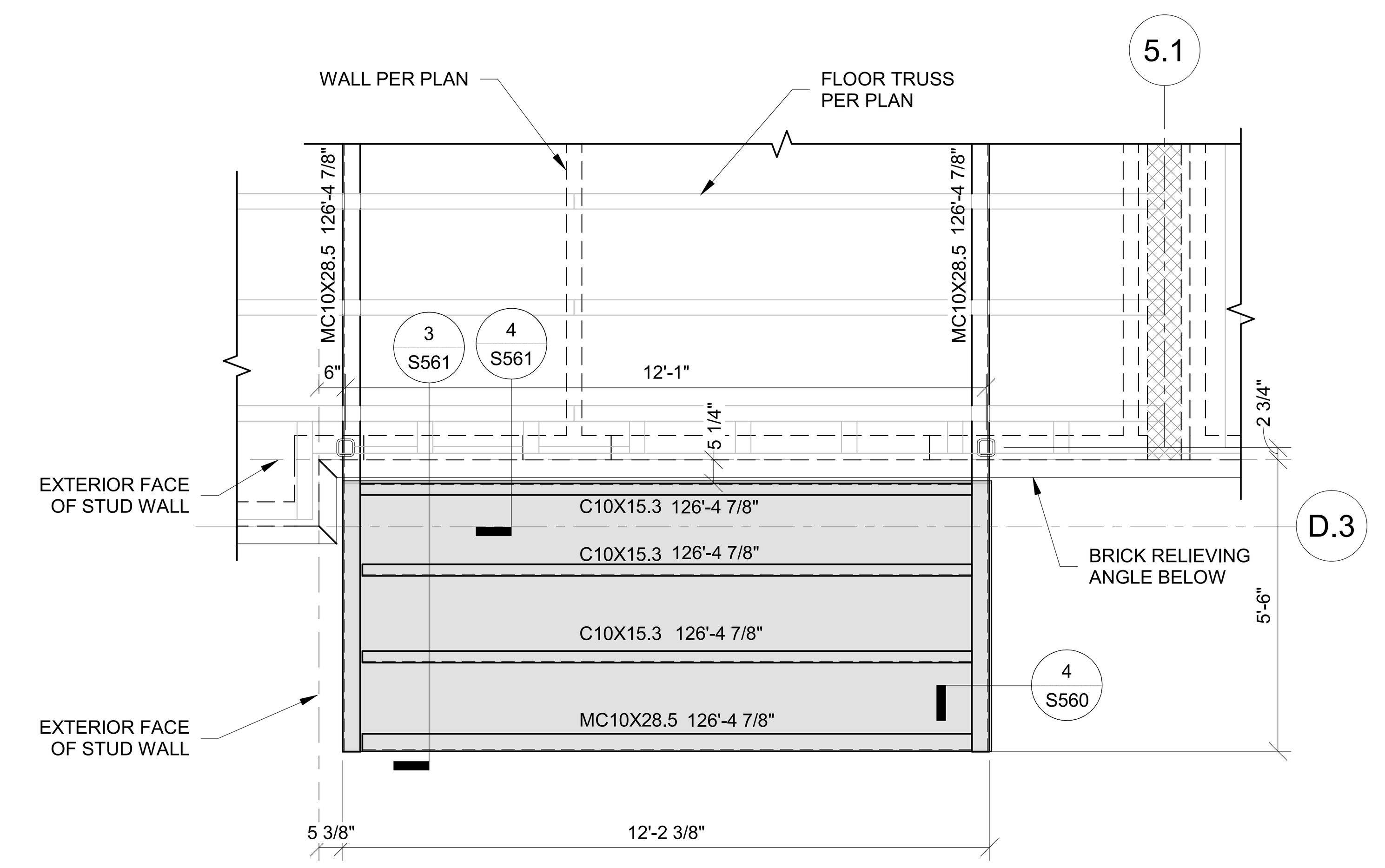
4 S562 NON-TYPICAL BALCONY NEAR GRID INTERSECTION 12-D.2 AT LEVEL 2
3/8" = 1'-0"



5 S562 NON-TYPICAL BALCONY NEAR GRID INTERSECTION 7-C.3 AT LEVEL 2
3/8" = 1'-0"



6 S562 NON-TYPICAL BALCONY NEAR GRID INTERSECTION 8-D.3 AT LEVEL 2
3/8" = 1'-0"



7 S562 NON-TYPICAL BALCONY NEAR GRID INTERSECTION 5.1-D.3 AT LEVEL 3
3/8" = 1'-0"

PRINTS ISSUED
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REVISIONS:

1	12/04/2024	City Comments Response
2	12/24/2024	Addendum 2

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

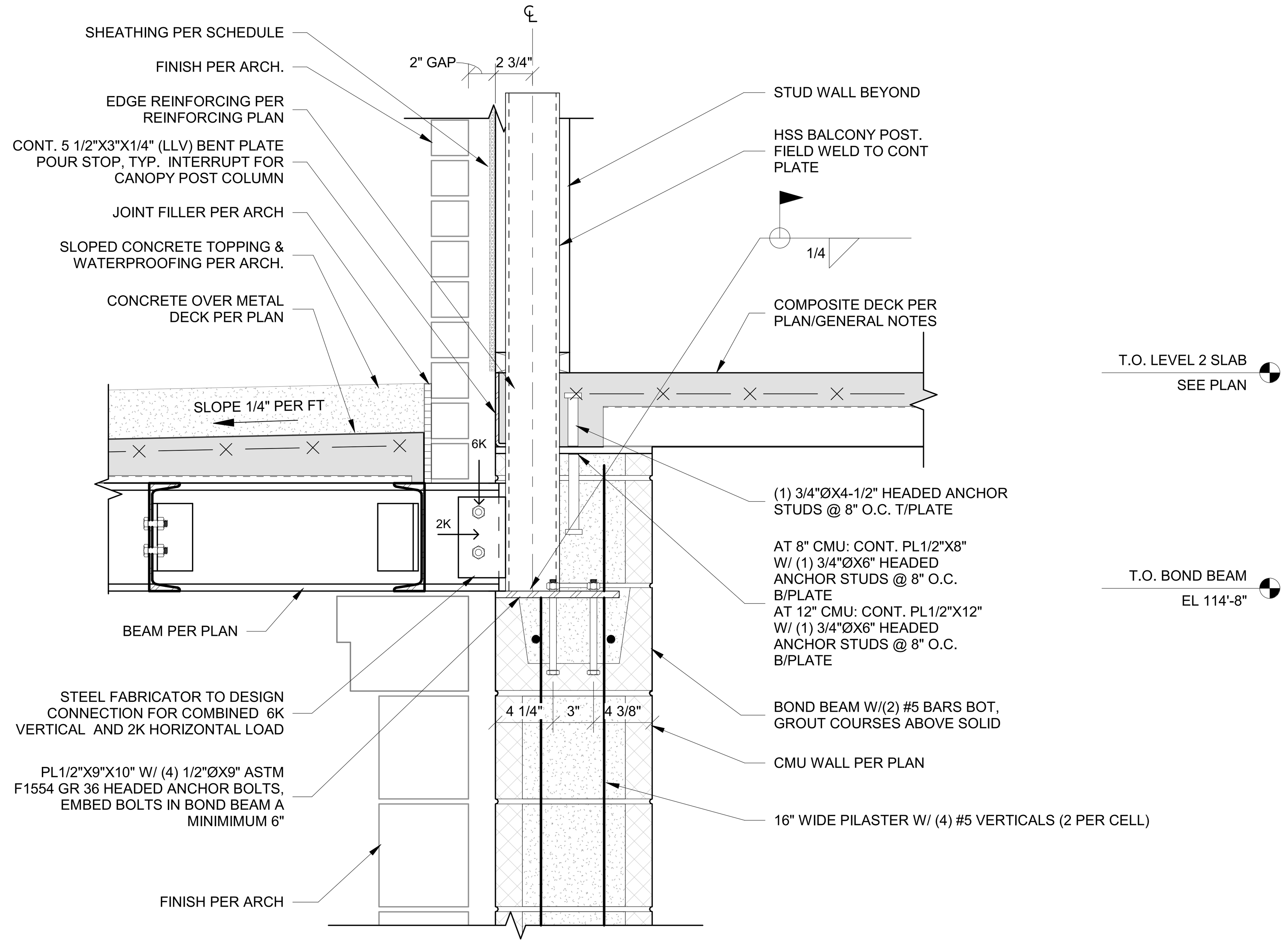
FOR BID PURPOSES ONLY

THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

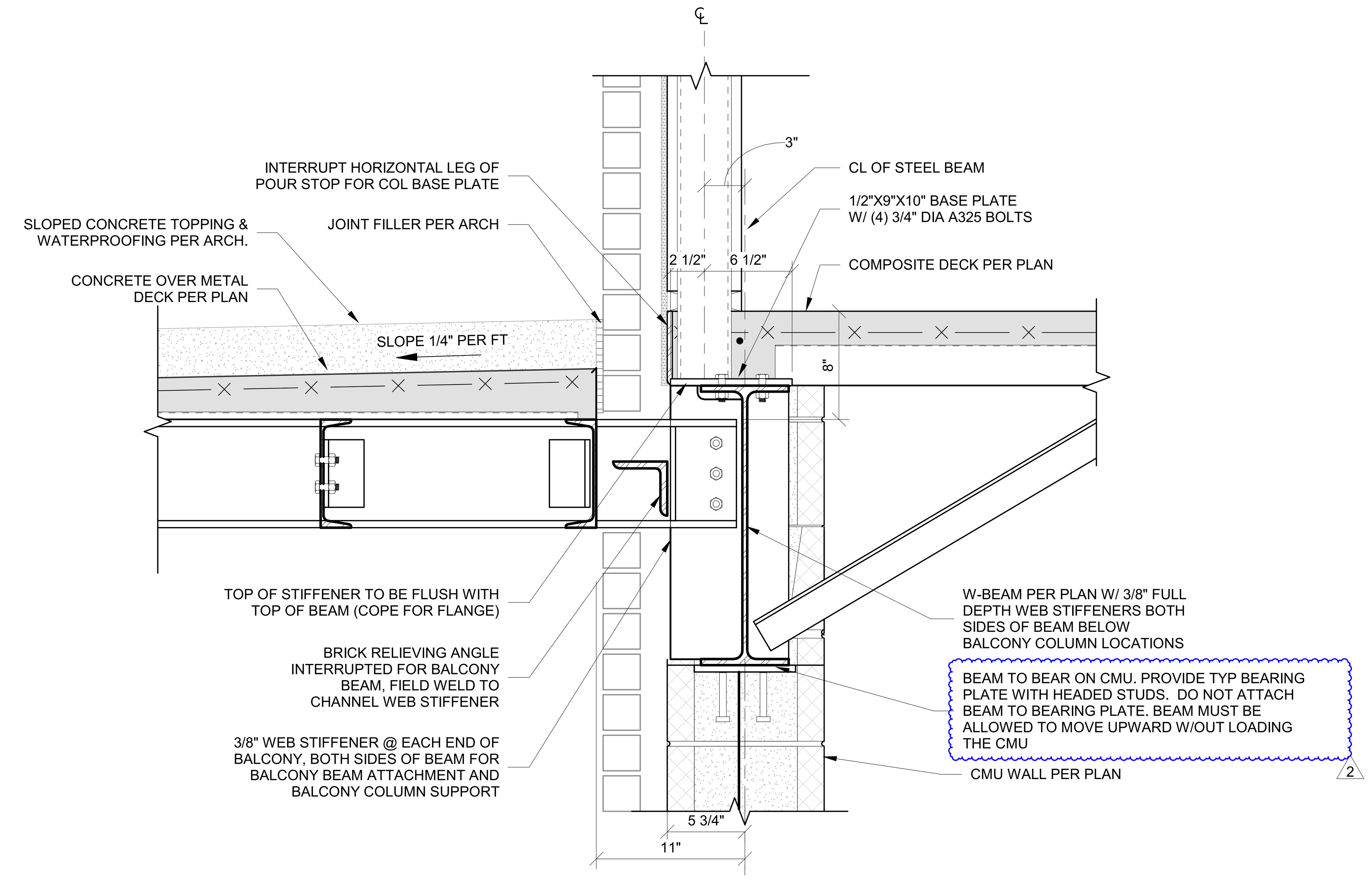
SHEET TITLE
ADDITIONAL BALCONY PLANS LEVELS 2 AND 3

PROJECT NUMBER: 2023000333

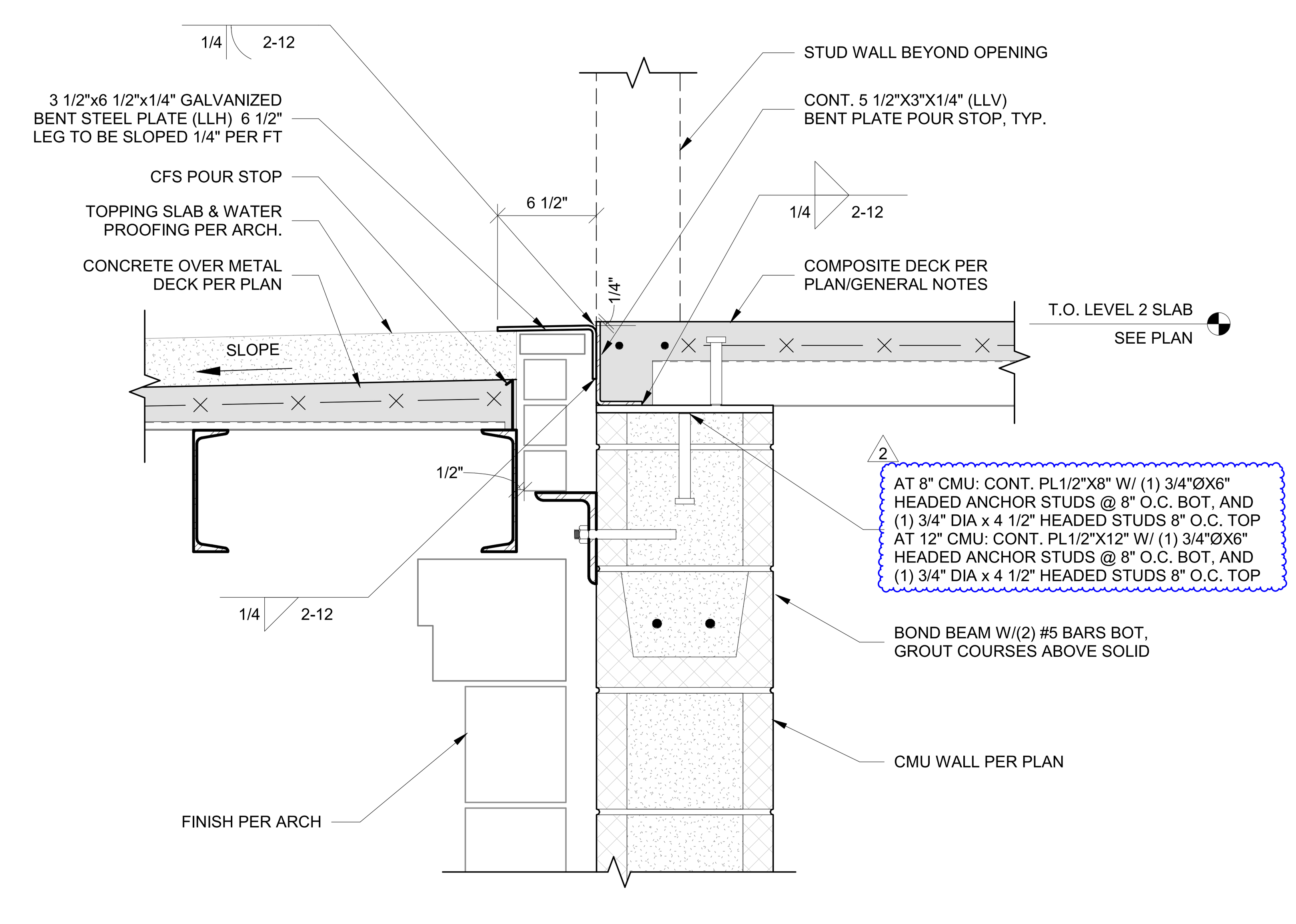
SHEET NUMBER:
S562



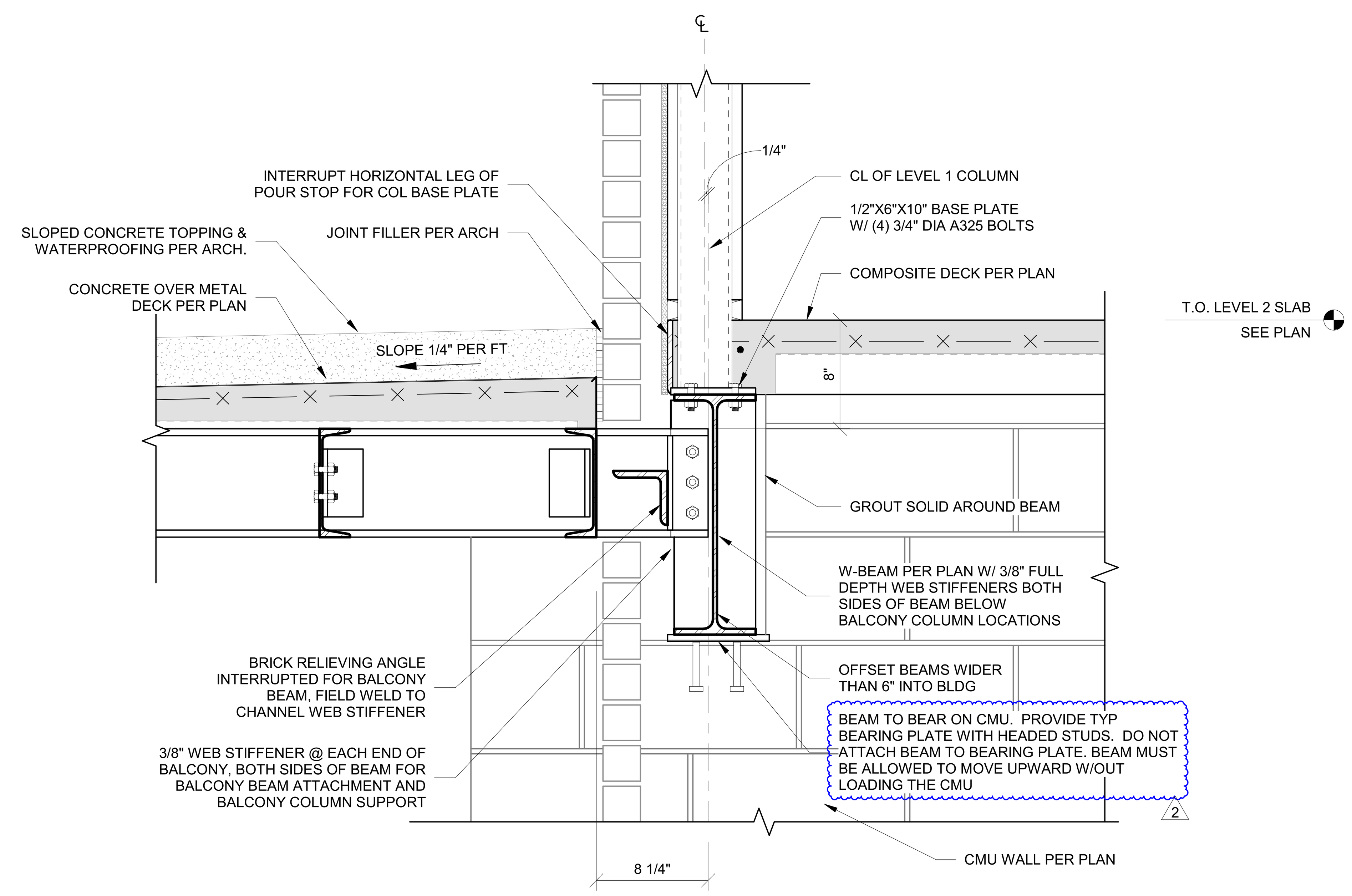
1 S563 BALCONY ATTACHMENT TO CMU
1 1/2" = 1'-0"



2 S563 BALCONY ATTACHMENT TO BEAM OVER CMU
1 1/2" = 1'-0"



3 S563 BALCONY SECTION AT DOOR THRESHOLD - LEVEL 2
1 1/2" = 1'-0"



4 S563 BALCONY ATTACHMENT TO BEAM OVER CMU
1 1/2" = 1'-0"

PRINTS ISSUED
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REVISIONS:
1 12/04/2024 City Comments Response
2 12/24/2024 Addendum 2

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NO. E-2006023253
EXPIRES: DECEMBER 31, 2024

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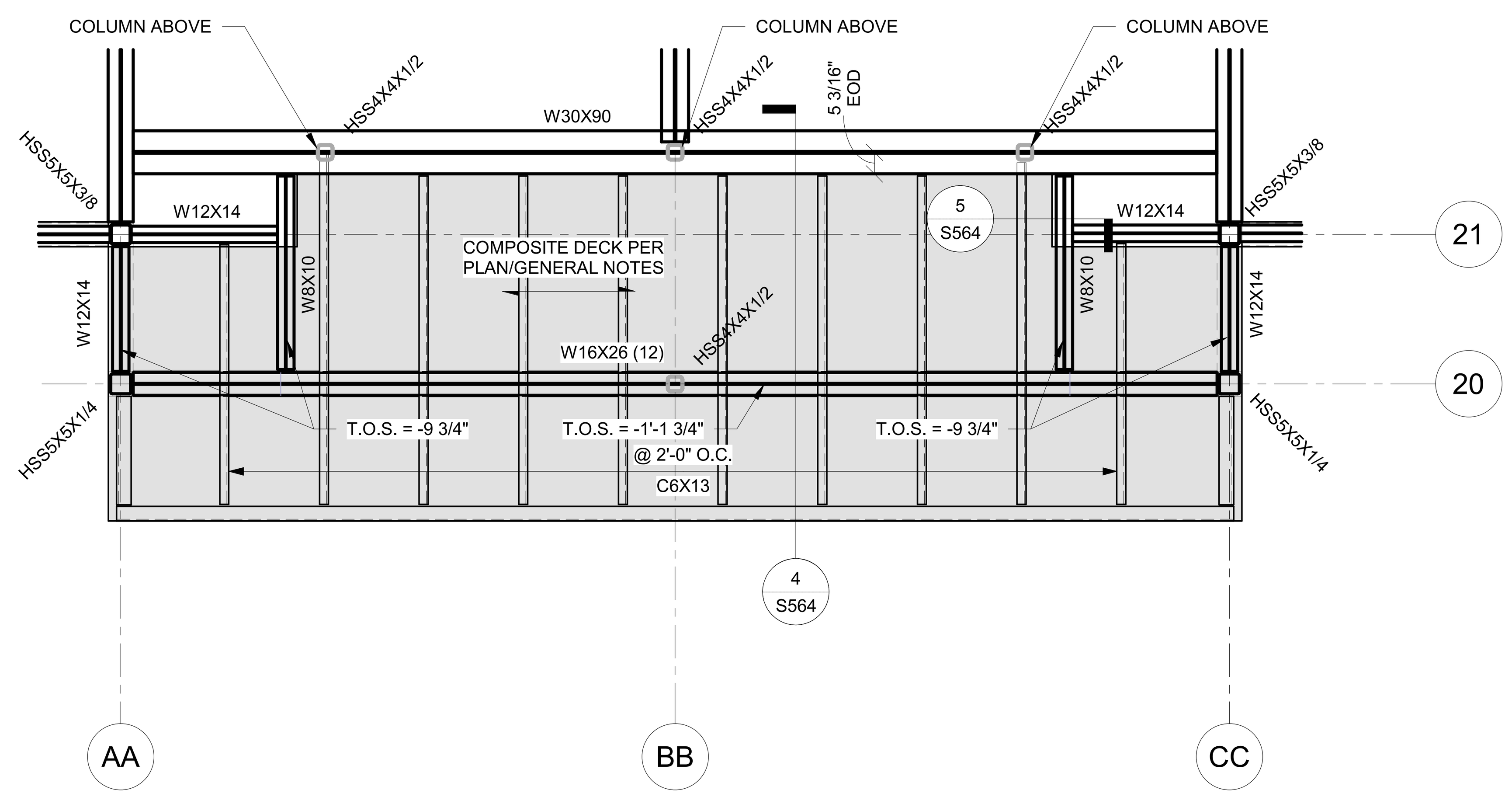
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

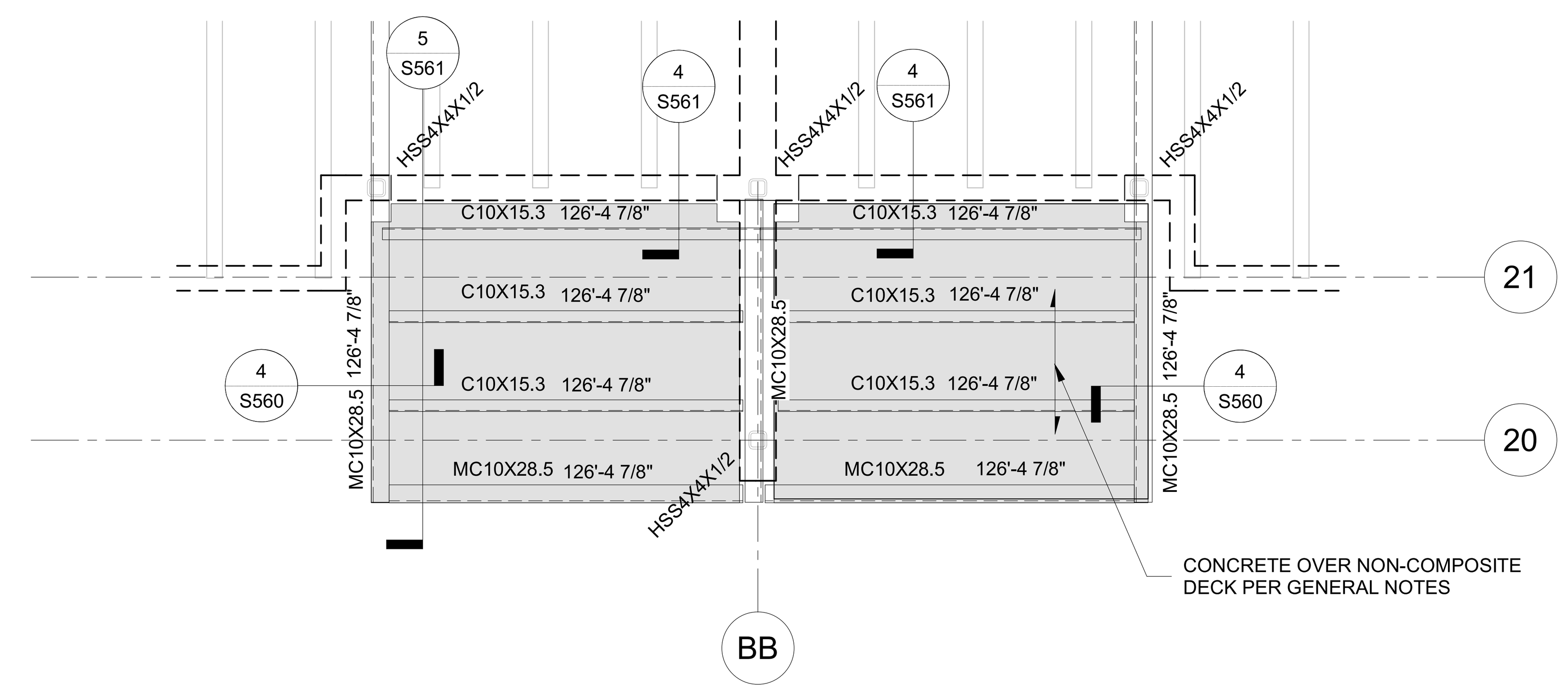
SHEET TITLE
ADDITIONAL BALCONY DETAILS

PROJECT NUMBER: 2023000333

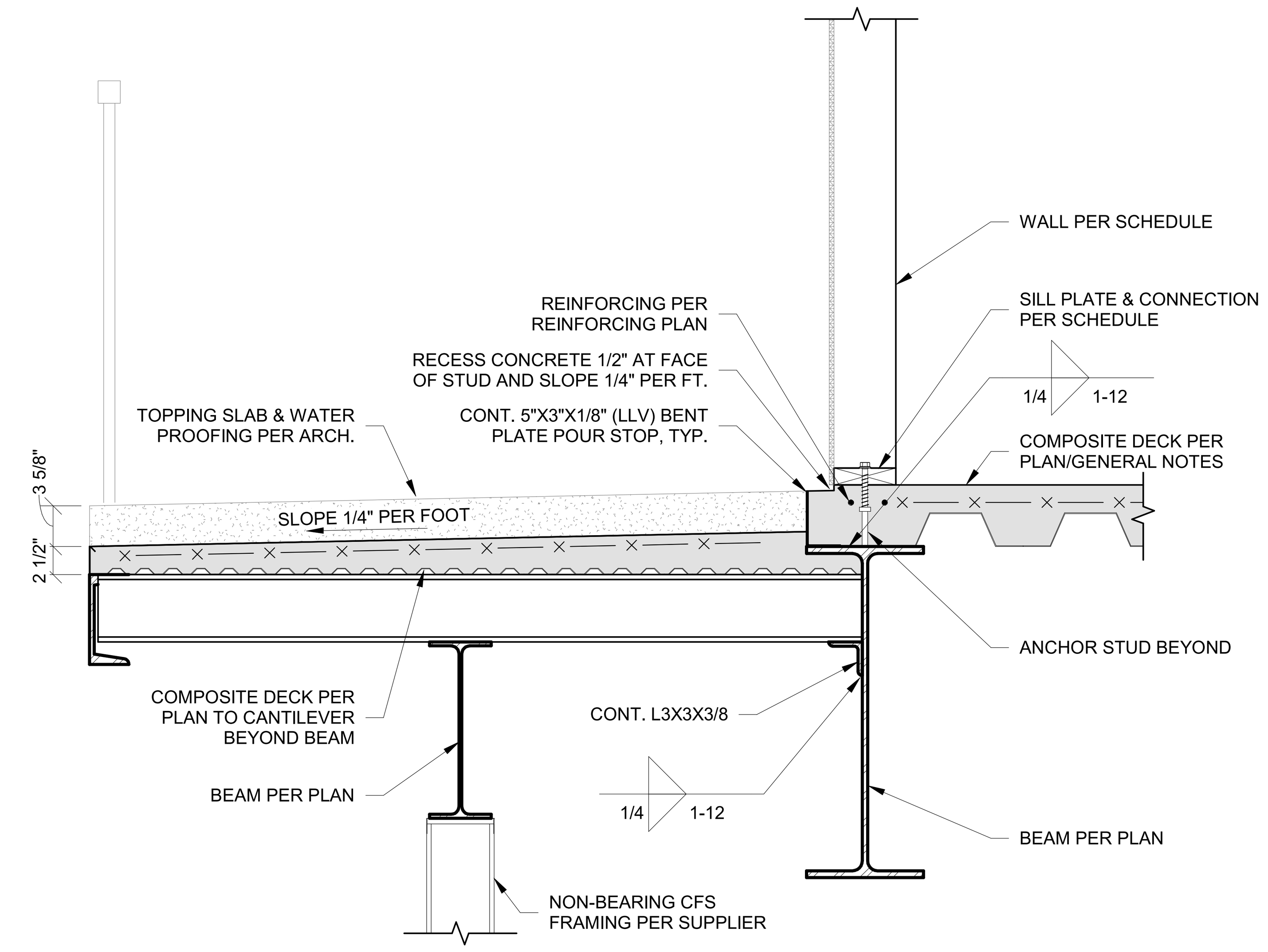
SHEET NUMBER:
S563



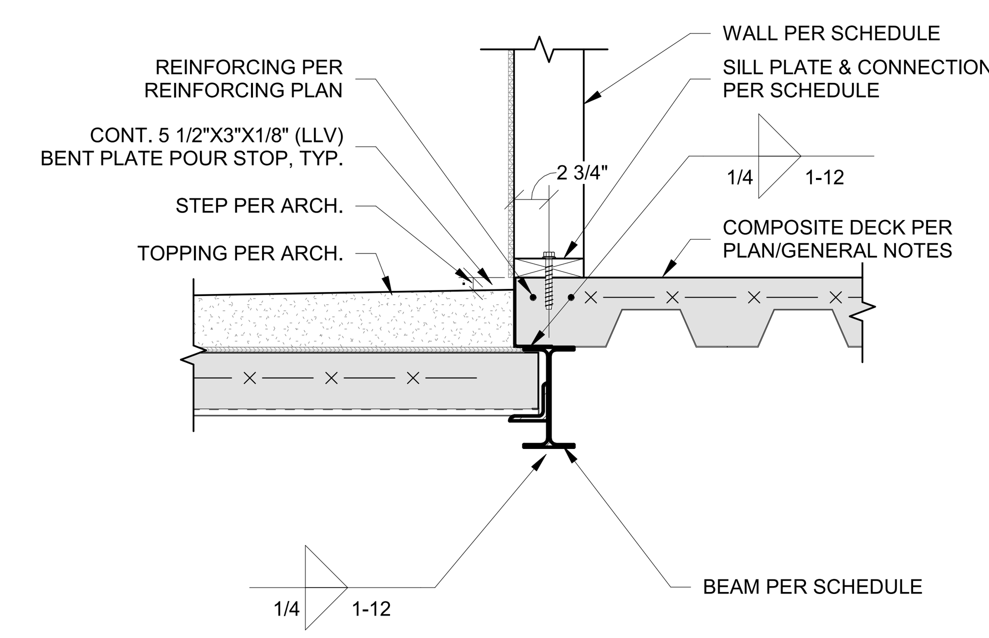
1 S564 NON-TYPICAL BALCONY NEAR AT GRID 20 AT LEVEL 2
3/8" = 1'-0"



3 S564 NON-TYPICAL BALCONY AT GRID 20 AT LEVEL 3
3/8" = 1'-0"



4 S564 ENTRY BALCONY DETAIL
1" = 1'-0"



5 S564 BALCONY SECTION
1" = 1'-0"

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2 12/24/2024 Addendum 2

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

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THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO 64064

SHEET TITLE
MAIN ENTRY BALCONY
LEVEL 2/ LEVEL 3

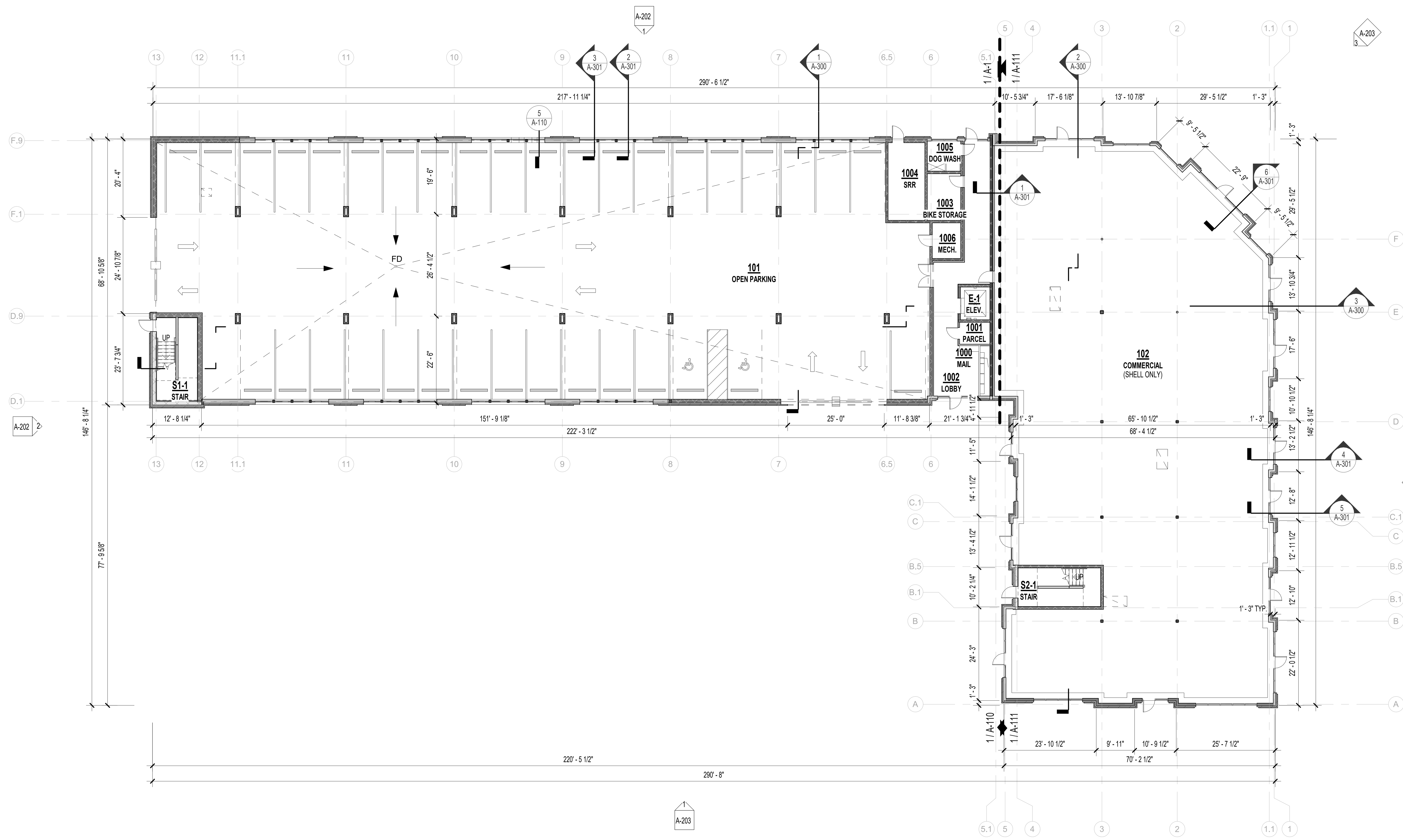
PROJECT NUMBER: 2023000333

SHEET NUMBER:
S564

REFERENCE G-003 FOR GENERAL NOTES

PLAN LEGEND

- PARTIAL HEIGHT PARTITION
- NON-RATED PARTITION; SEE ASSEMBLIES
- 1 HR RATED PARTITION; SEE ASSEMBLIES
- 2 HR RATED PARTITION; SEE ASSEMBLIES
- A1 — WINDOW TYPE; SEE WINDOW SCHEDULE
- 101 — DOOR TYPE; SEE DOOR SCHEDULE
- P7 — PARTITION TYPE; SEE ASSEMBLIES
- 6' - 0" — FRAMING DIMENSIONS
- 6' - 0" LAYOUT LAYOUT — LAYOUT LINE DIMENSIONS



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

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w: www.rosemann.com

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STATE OF MISSOURI
DAVID EUGENE HENDRICKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
FIRST FLOOR PLAN

PROJECT NUMBER: 23103

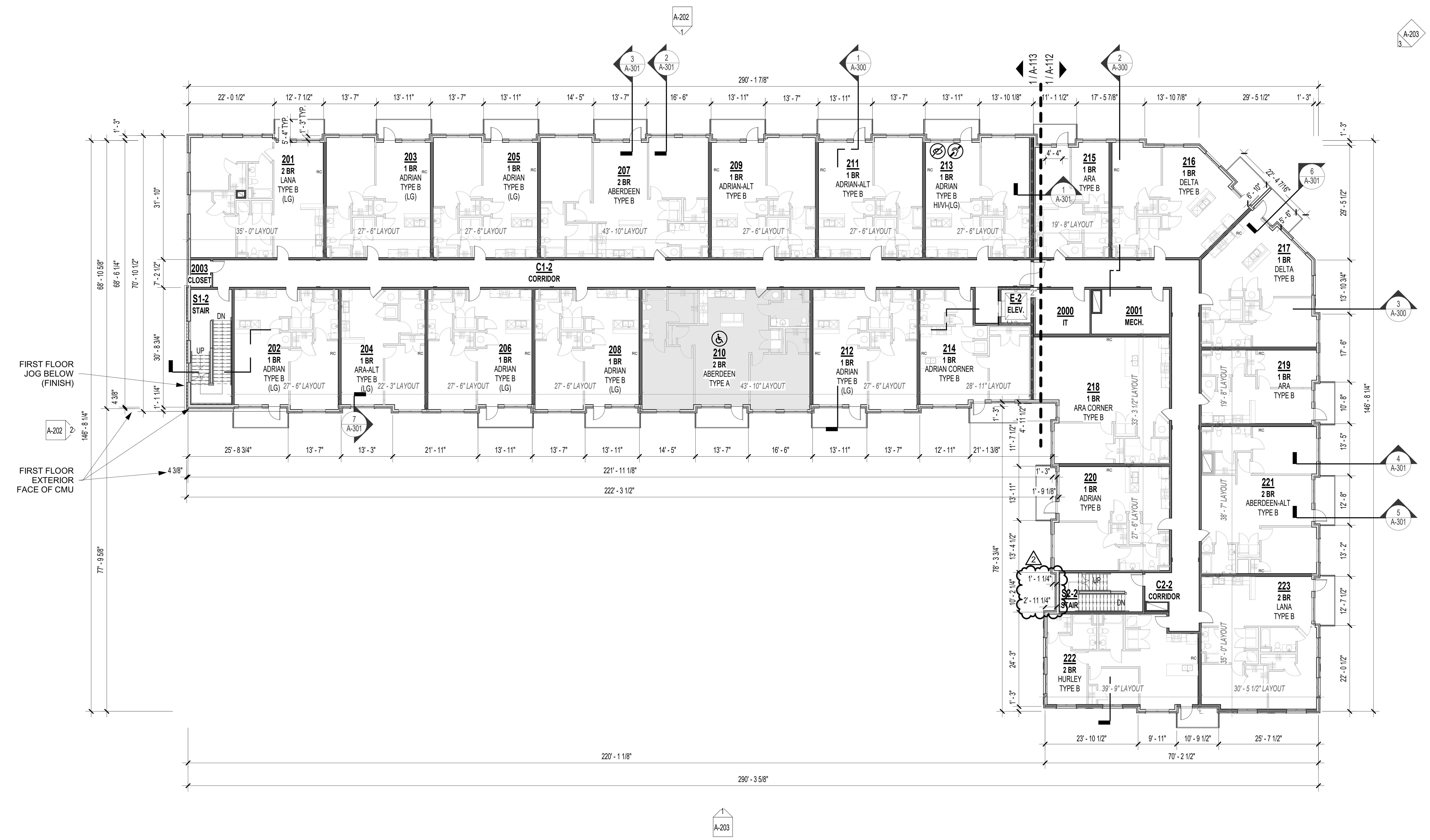
SHEET NUMBER:

A-101

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

UNITS - SHEET REFERENCE

NAME	SHEET NO.
ABERDEEN "A"	A-400
ABERDEEN "B"	A-402
ABERDEEN - ALT	A-401
ADRIAN	A-403
ADRIAN CORNER	A-404
ARA	A-406
ARA - ALT	A-405
ARA CORNER	A-407
DELTA	A-408
HURLEY	A-409
LANA	A-410



1 SECOND FLOOR PLAN
1/16" = 1'-0"

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REVISIONS:
2 12/20/24 Add #2

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THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
SECOND FLOOR PLAN

PROJECT NUMBER: 23103

SHEET NUMBER:

A-102

REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-101 FOR PLAN LEGEND
REFERENCE A-102 FOR UNIT SHEET REFERENCE

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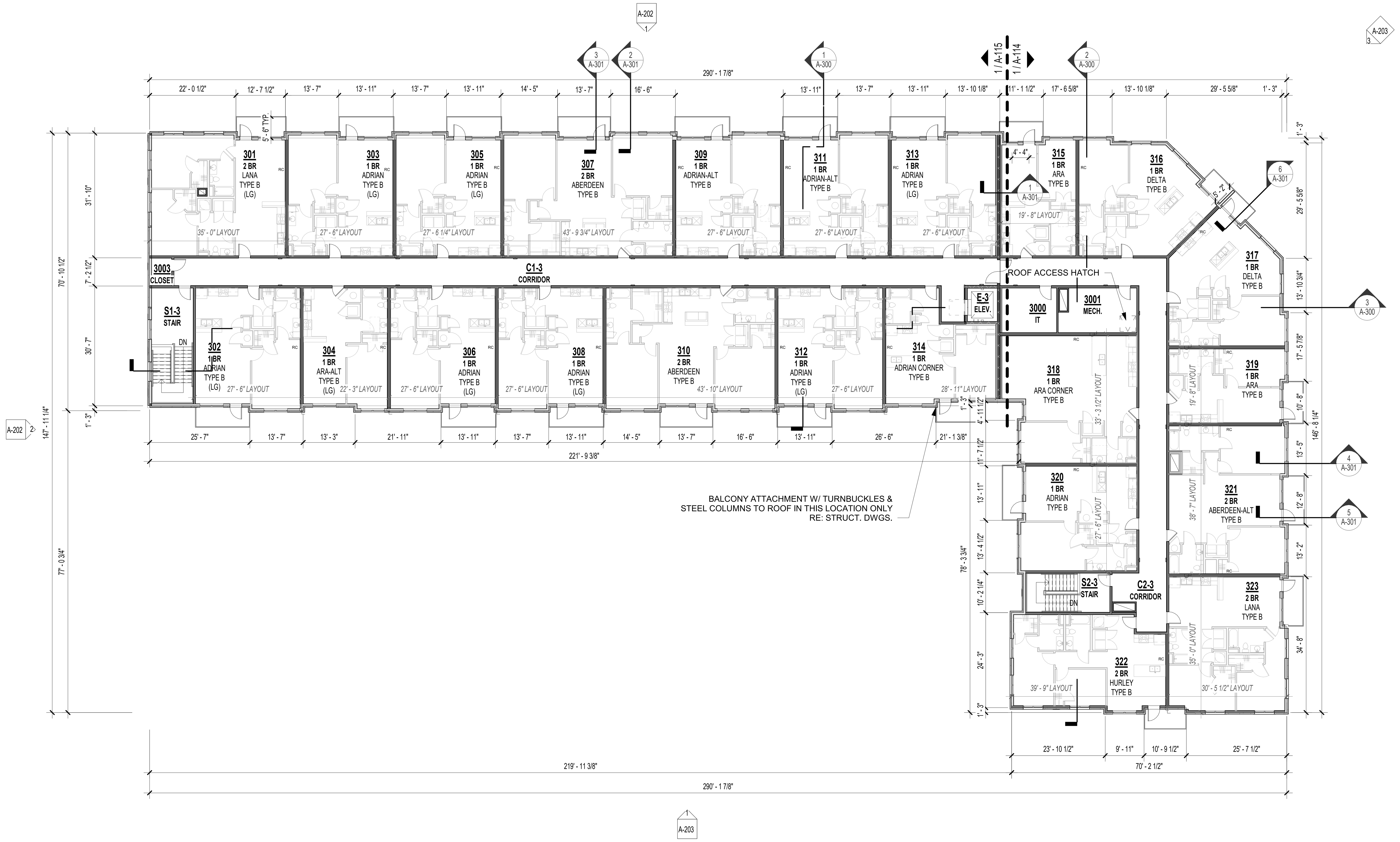


1 THIRD FLOOR PLAN
1/16" = 1'-0"

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
THIRD FLOOR PLAN

PROJECT NUMBER: 23103

SHEET NUMBER:

A-103

ZONE 1

Item	Calculation	Value	Status
AREA TO BE VENTED		1055 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC		300	
TOTAL REQUIRED VENTING	= (1055 S.F. x 144) / 300 =	506 SQ.IN.	
HIGH ROOF VENTING	= 506 SQ.IN. x 1 =	506 SQ.IN.	
LOW ROOF VENTING	= 506 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING		506 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING		535 SQ.IN.	PROVIDED ☒
(1) High Vent Type 1	@ 535 NFA =	535 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED		535 SQ.IN.	PROVIDED ☒

ZONE 2

Item	Calculation	Value	Status
AREA TO BE VENTED		2260 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC		300	
TOTAL REQUIRED VENTING	= (2260 S.F. x 144) / 300 =	1085 SQ.IN.	
HIGH ROOF VENTING	= 1085 SQ.IN. x 1 =	1085 SQ.IN.	
LOW ROOF VENTING	= 1085 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING		1085 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING		1605 SQ.IN.	PROVIDED ☒
(3) High Vent Type 1	@ 535 NFA =	1605 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED		1605 SQ.IN.	PROVIDED ☒

ZONE 3

Item	Calculation	Value	Status
AREA TO BE VENTED		1645 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC		300	
TOTAL REQUIRED VENTING	= (1645 S.F. x 144) / 300 =	790 SQ.IN.	
HIGH ROOF VENTING	= 790 SQ.IN. x 1 =	790 SQ.IN.	
LOW ROOF VENTING	= 790 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING		790 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING		1070 SQ.IN.	PROVIDED ☒
(2) High Vent Type 1	@ 535 NFA =	1070 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED		1070 SQ.IN.	PROVIDED ☒

ZONE 4

Item	Calculation	Value	Status
AREA TO BE VENTED		2040 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC		300	
TOTAL REQUIRED VENTING	= (2040 S.F. x 144) / 300 =	979 SQ.IN.	
HIGH ROOF VENTING	= 979 SQ.IN. x 1 =	979 SQ.IN.	
LOW ROOF VENTING	= 979 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING		979 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING		1070 SQ.IN.	PROVIDED ☒
(2) High Vent Type 1	@ 535 NFA =	1070 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED		1070 SQ.IN.	PROVIDED ☒

ZONE 5

Item	Calculation	Value	Status
AREA TO BE VENTED		2145 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC		300	
TOTAL REQUIRED VENTING	= (2145 S.F. x 144) / 300 =	1030 SQ.IN.	
HIGH ROOF VENTING	= 1030 SQ.IN. x 1 =	1030 SQ.IN.	
LOW ROOF VENTING	= 1030 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING		1030 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING		1070 SQ.IN.	PROVIDED ☒
(2) High Vent Type 1	@ 535 NFA =	1070 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED		1070 SQ.IN.	PROVIDED ☒

ZONE 6

Item	Calculation	Value	Status
AREA TO BE VENTED		1635 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC		300	
TOTAL REQUIRED VENTING	= (1635 S.F. x 144) / 300 =	785 SQ.IN.	
HIGH ROOF VENTING	= 785 SQ.IN. x 1 =	785 SQ.IN.	
LOW ROOF VENTING	= 785 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING		785 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING		1070 SQ.IN.	PROVIDED ☒
(2) High Vent Type 1	@ 535 NFA =	1070 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED		1070 SQ.IN.	PROVIDED ☒

ZONE 7

Item	Calculation	Value	Status
AREA TO BE VENTED		1655 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC		300	
TOTAL REQUIRED VENTING	= (1655 S.F. x 144) / 300 =	794 SQ.IN.	
HIGH ROOF VENTING	= 794 SQ.IN. x 1 =	794 SQ.IN.	
LOW ROOF VENTING	= 794 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING		794 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING		1070 SQ.IN.	PROVIDED ☒
(2) High Vent Type 1	@ 535 NFA =	1070 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED		1070 SQ.IN.	PROVIDED ☒

ZONE 8

Item	Calculation	Value	Status
AREA TO BE VENTED		2100 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC		300	
TOTAL REQUIRED VENTING	= (2100 S.F. x 144) / 300 =	1008 SQ.IN.	
HIGH ROOF VENTING	= 1008 SQ.IN. x 1 =	1008 SQ.IN.	
LOW ROOF VENTING	= 1008 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING		1008 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING		1070 SQ.IN.	PROVIDED ☒
(2) High Vent Type 1	@ 535 NFA =	1070 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED		1070 SQ.IN.	PROVIDED ☒

ZONE 9

Item	Calculation	Value	Status
AREA TO BE VENTED		600 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC		300	
TOTAL REQUIRED VENTING	= (600 S.F. x 144) / 300 =	288 SQ.IN.	
HIGH ROOF VENTING	= 288 SQ.IN. x 1 =	288 SQ.IN.	
LOW ROOF VENTING	= 288 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING		288 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING		535 SQ.IN.	PROVIDED ☒
(1) High Vent Type 1	@ 535 NFA =	535 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED		535 SQ.IN.	PROVIDED ☒

ZONE 10

Item	Calculation	Value	Status
AREA TO BE VENTED		2175 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC		300	
TOTAL REQUIRED VENTING	= (2175 S.F. x 144) / 300 =	1044 SQ.IN.	
HIGH ROOF VENTING	= 1044 SQ.IN. x 1 =	1044 SQ.IN.	
LOW ROOF VENTING	= 1044 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING		1044 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING		1070 SQ.IN.	PROVIDED ☒
(2) High Vent Type 1	@ 535 NFA =	1070 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED		1070 SQ.IN.	PROVIDED ☒

ZONE 11

Item	Calculation	Value	Status
AREA TO BE VENTED		1765 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC		300	
TOTAL REQUIRED VENTING	= (1765 S.F. x 144) / 300 =	847 SQ.IN.	
HIGH ROOF VENTING	= 847 SQ.IN. x 1 =	847 SQ.IN.	
LOW ROOF VENTING	= 847 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING		847 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING		1070 SQ.IN.	PROVIDED ☒
(2) High Vent Type 1	@ 535 NFA =	1070 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED		1070 SQ.IN.	PROVIDED ☒

ZONE 12

Item	Calculation	Value	Status
AREA TO BE VENTED		2375 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC		300	
TOTAL REQUIRED VENTING	= (2375 S.F. x 144) / 300 =	1140 SQ.IN.	
HIGH ROOF VENTING	= 1140 SQ.IN. x 1 =	1140 SQ.IN.	
LOW ROOF VENTING	= 1140 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING		1140 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING		1605 SQ.IN.	PROVIDED ☒
(3) High Vent Type 1	@ 535 NFA =	1605 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED		1605 SQ.IN.	PROVIDED ☒

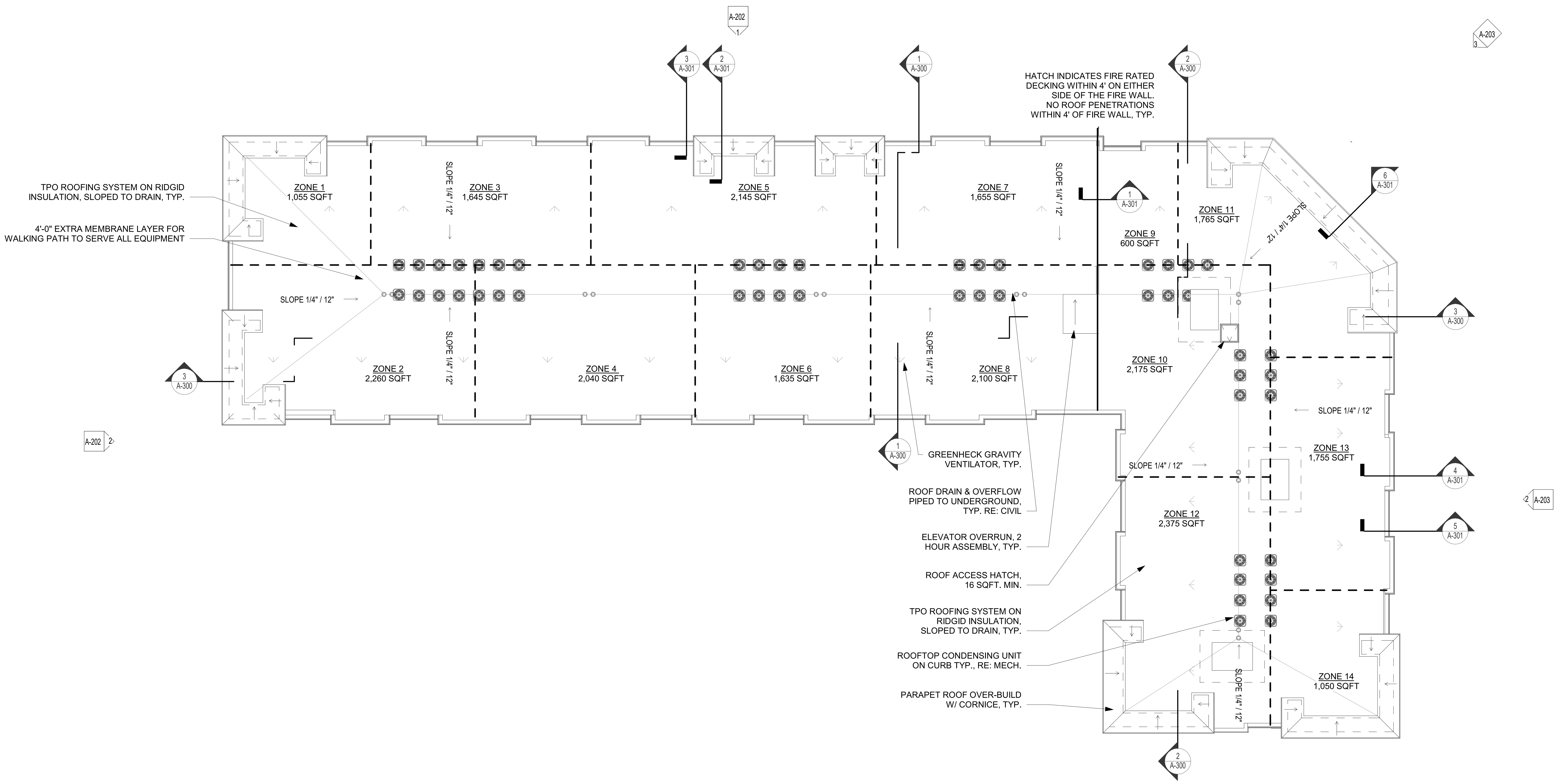
ZONE 13

Item	Calculation	Value	Status
AREA TO BE VENTED		1755 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC		300	
TOTAL REQUIRED VENTING	= (1755 S.F. x 144) / 300 =	842 SQ.IN.	
HIGH ROOF VENTING	= 842 SQ.IN. x 1 =	842 SQ.IN.	
LOW ROOF VENTING	= 842 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING		842 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING		1070 SQ.IN.	PROVIDED ☒
(2) High Vent Type 1	@ 535 NFA =	1070 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED		1070 SQ.IN.	PROVIDED ☒

ZONE 14

Item	Calculation	Value	Status
AREA TO BE VENTED		1050 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC		300	
TOTAL REQUIRED VENTING	= (1050 S.F. x 144) / 300 =	504 SQ.IN.	
HIGH ROOF VENTING	= 504 SQ.IN. x 1 =	504 SQ.IN.	
LOW ROOF VENTING	= 504 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING		504 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING		535 SQ.IN.	PROVIDED ☒
(1) High Vent Type 1	@ 535 NFA =	535 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED		535 SQ.IN.	PROVIDED ☒

REFERENCE G-003 FOR GENERAL NOTES



1 ROOF PLAN
1/16" = 1'-0"

0 4' 8' 16' 32'

N

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STATE OF MISSOURI
DAVID EUGENE HENDRICKSE
NUMBER A-7305
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11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

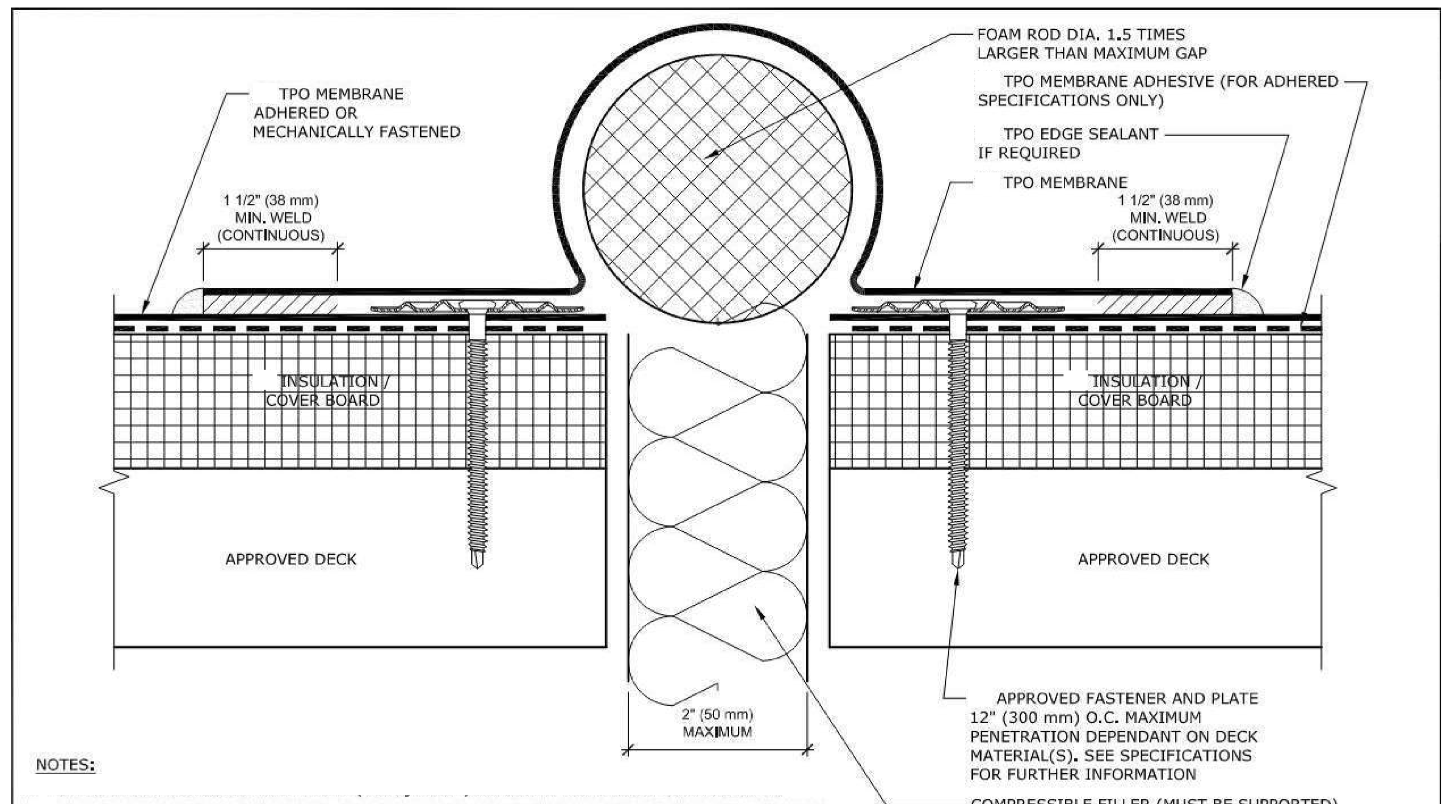
SHEET TITLE
ROOF PLAN

PROJECT NUMBER: 23103

SHEET NUMBER:

A-105

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

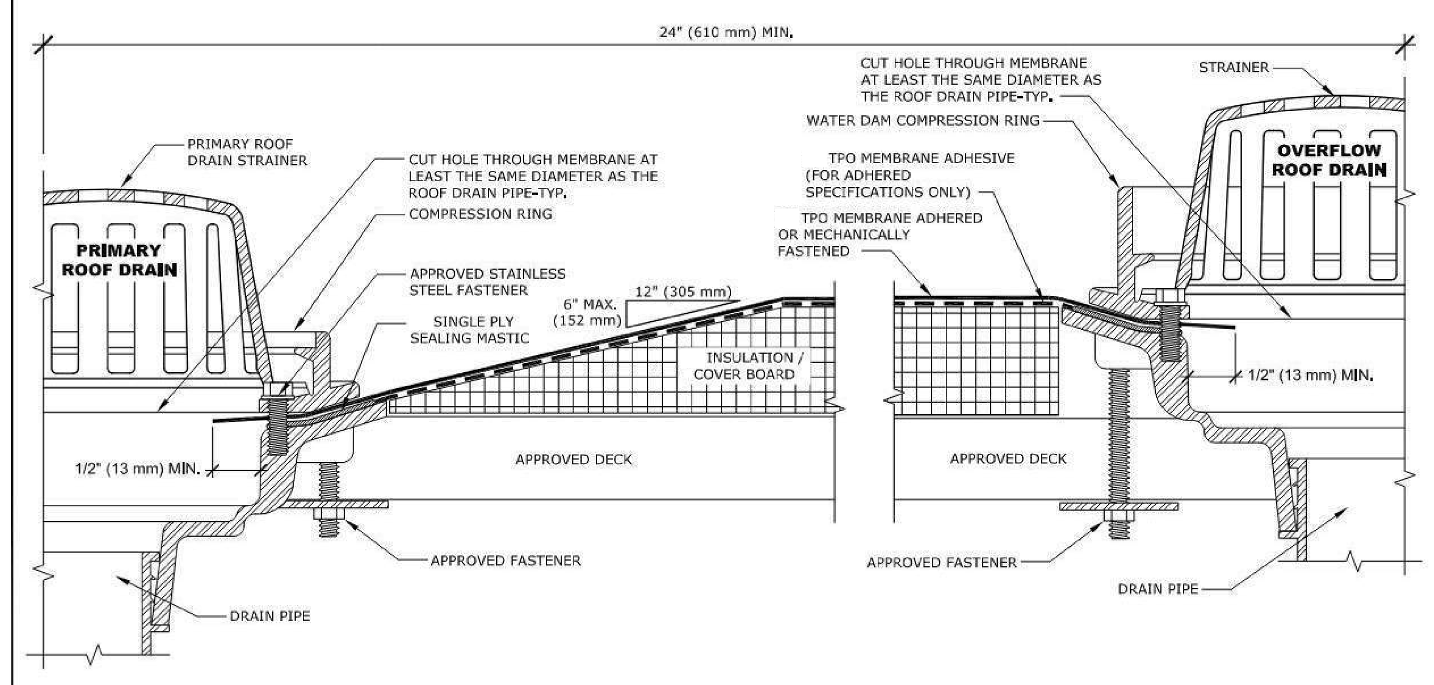


NOTES:

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: TPO — SCALE N.T.S



NOTES:

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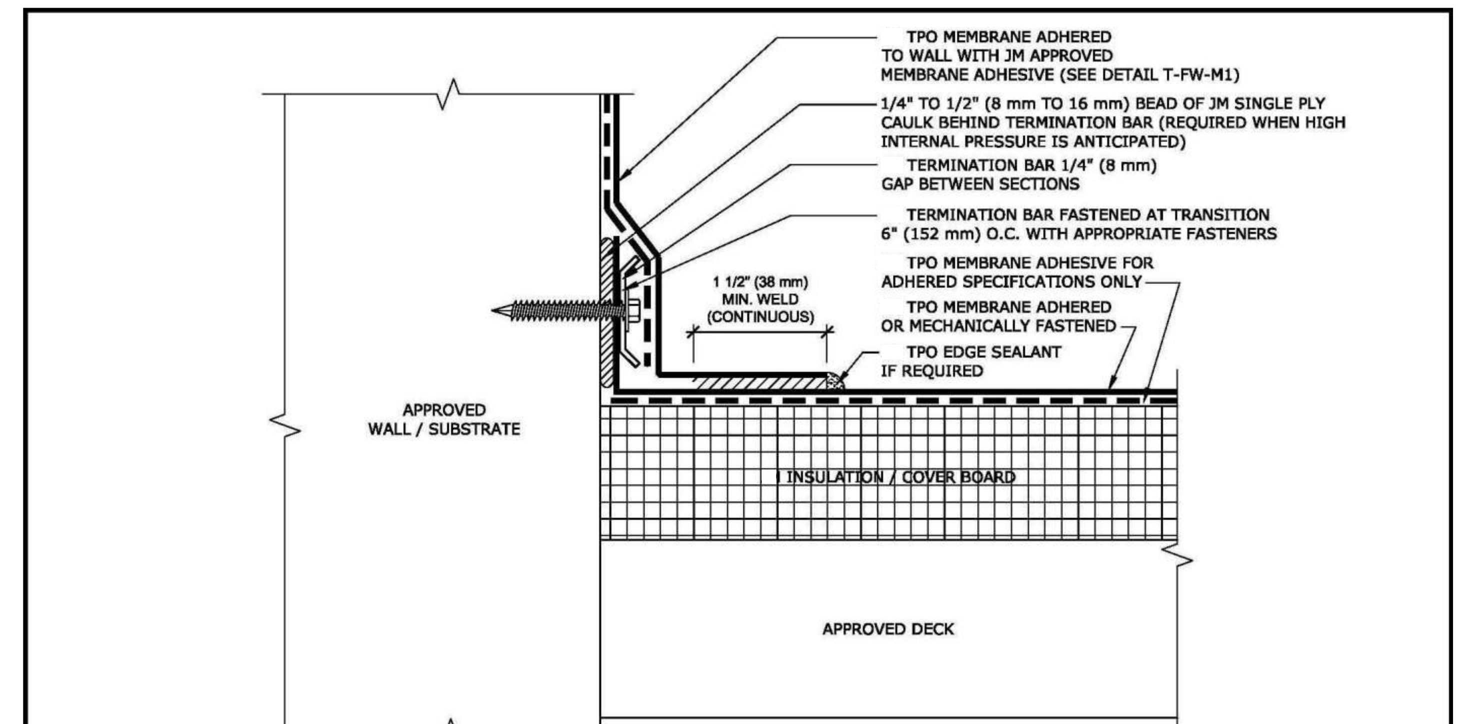
3. ANY CARPENTRY OR METAL WORK SHOULD BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS AND/OR PROJECT SPECIFICATIONS. THESE COMPONENTS SHOULD BE REVIEWED AND APPROVED BY A LICENSED DESIGN PROFESSIONAL.
4. DRAIN AREA MUST BE PROPERLY TAPERED SO THAT THE DRAIN FLASHING IS NOT INSTALLED 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: TPO — SCALE N.T.S



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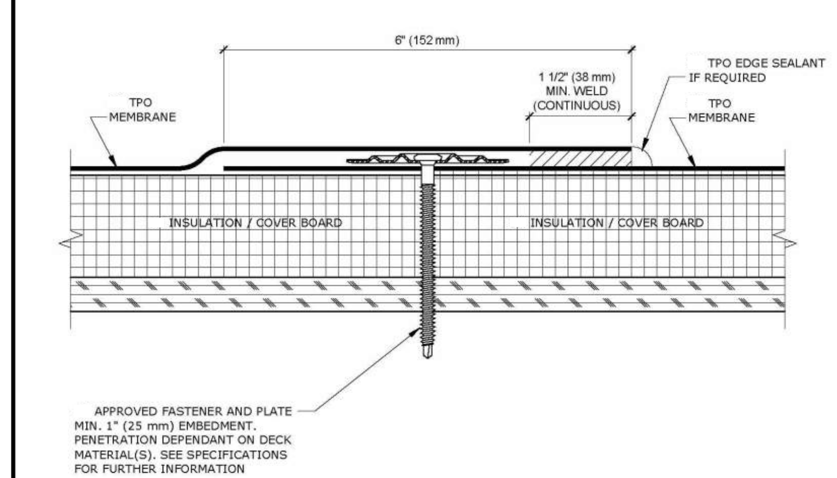
4. TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON-ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCLUDES FACTORY CUT MEMBRANE (SEE DETAIL T-MS-01).
5. THIS DETAIL IS ALSO SUITABLE FOR TERMINATION OF FLEECE BACKED MEMBRANES. NON FLEECE BACK MEMBRANE IS REQUIRED FOR WALL FLASHINGS.

MEMBRANE FLASHING BASE TIE-IN (HIGH INTERNAL PRESSURE)

DRAWING NO. T-FW-B5 — REPLACES TB-26A — MEMBRANE TYPE: TPO — SCALE N.T.S



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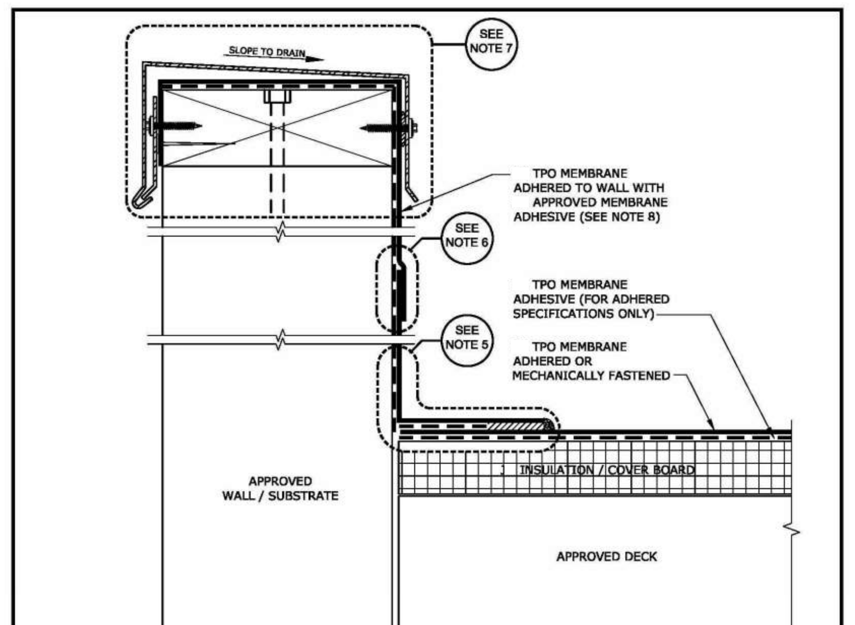
4. TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON-ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCLUDES FACTORY CUT MEMBRANE (SEE DETAIL T-MS-01).

IN LAP FASTENING METHOD-PLYWOOD DECK

DRAWING NO. T-MS-03 — REPLACES TA-1A — MEMBRANE TYPE: TPO — SCALE N.T.S



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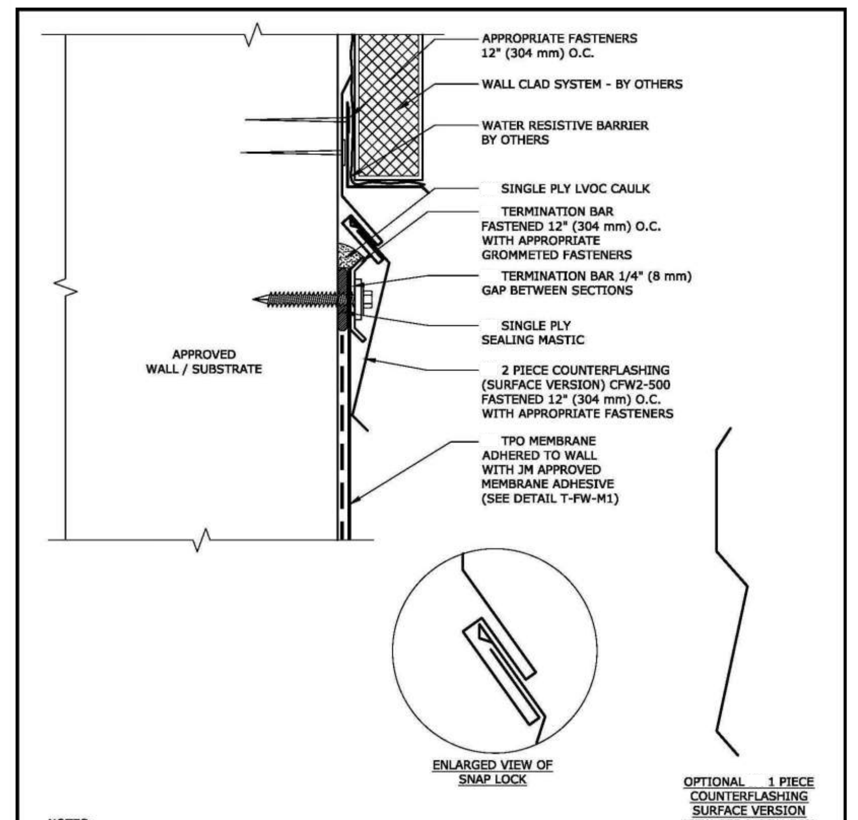
4. TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON-ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCLUDES FACTORY CUT MEMBRANE (SEE DETAIL T-MS-01).
5. FOR APPROVED BASE FLASHING FASTENING METHODS SEE T-FW-B DETAILS. A SUFFICIENT BACKER FASTENING STRIP MUST BE INSTALLED BEHIND SUBSTRATES DIRECTLY TO 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 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 APPROVED SUBSTRATE, IE. PLYWOOD, SECUROCK®GYPSUM-FIBER AND DENSDECK®. SEE DETAIL T-FW-M2I FOR APPROVED FASTENING METHODS.
7. FOR APPROVED TOP OF WALL FLASHING METHODS SEE T-FW-T DETAILS.
8. APPROVED ADHESIVES FOR USE ON VERTICAL FLASHING APPLICATIONS INCLUDES JM LVOC MEMBRANE ADHESIVE (TPO & EPDM), 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 — MEMBRANE TYPE: TPO — SCALE N.T.S



NOTES:

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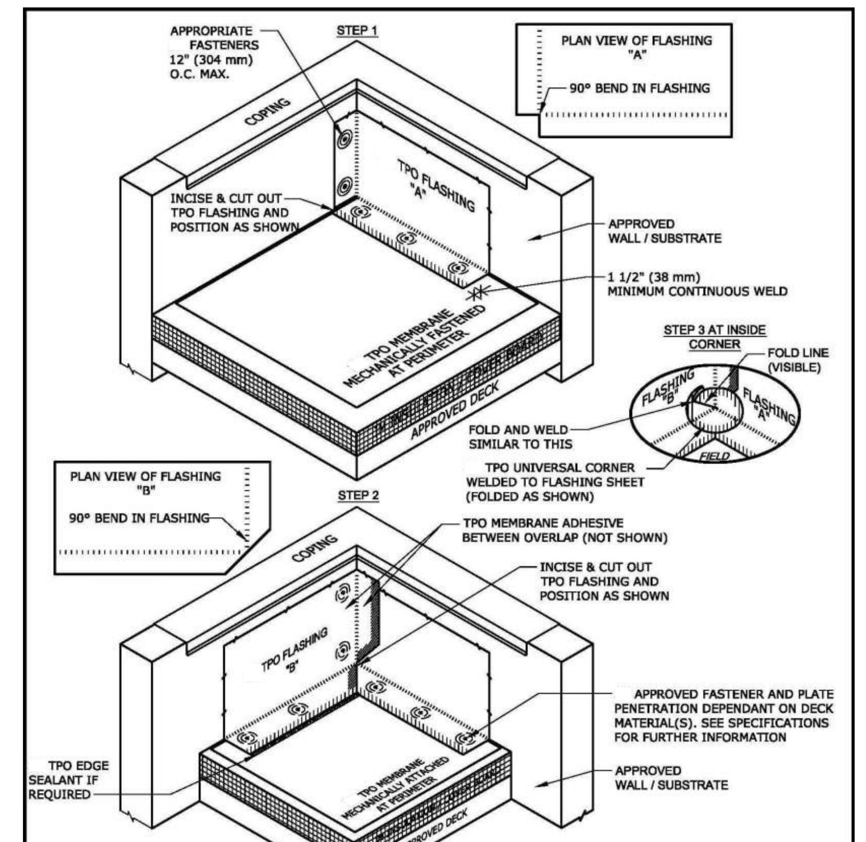
4. ALL SEALANTS / CAULKING SHALL BE PERIODICALLY INSPECTED AND MAINTAINED BY THE BUILDING OWNER THROUGHOUT THE LIFE OF THE ROOF.
5. MINIMUM FLASHING HEIGHT IS 8" (203 mm) ABOVE ROOF SURFACE.

TPO INTERMEDIATE TERMINATION BELOW WALL CLADDING

DRAWING NO. T-FW-I11 — NEW DETAIL — MEMBRANE TYPE: TPO — SCALE N.T.S



NOTES:

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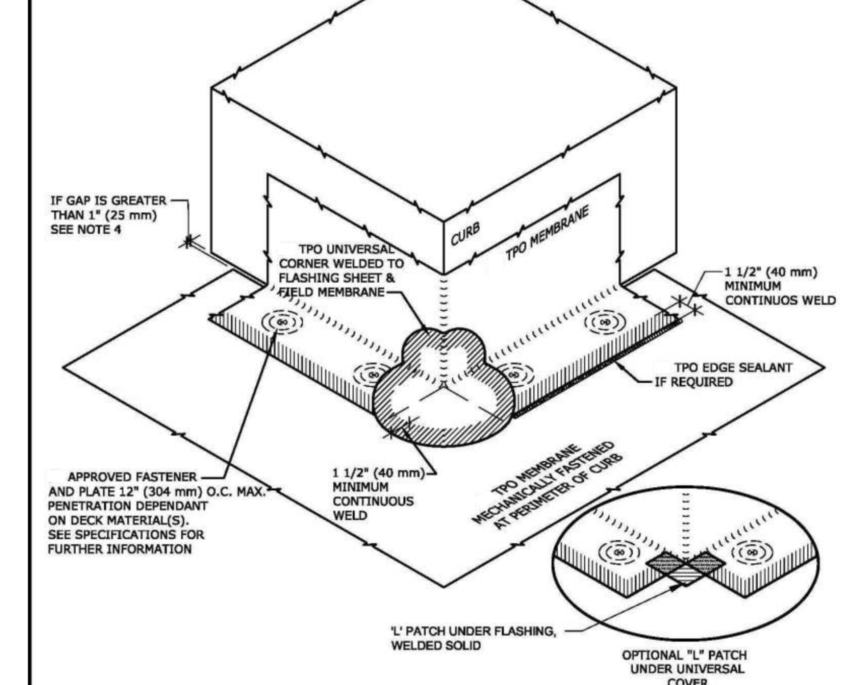
4. TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCLUDES FACTORY CUT EDGES (SEE DETAIL T-MS-01).

INSIDE CORNER

DRAWING NO. T-FC-04 — REPLACES TF-63 — MEMBRANE TYPE: TPO — SCALE N.T.S



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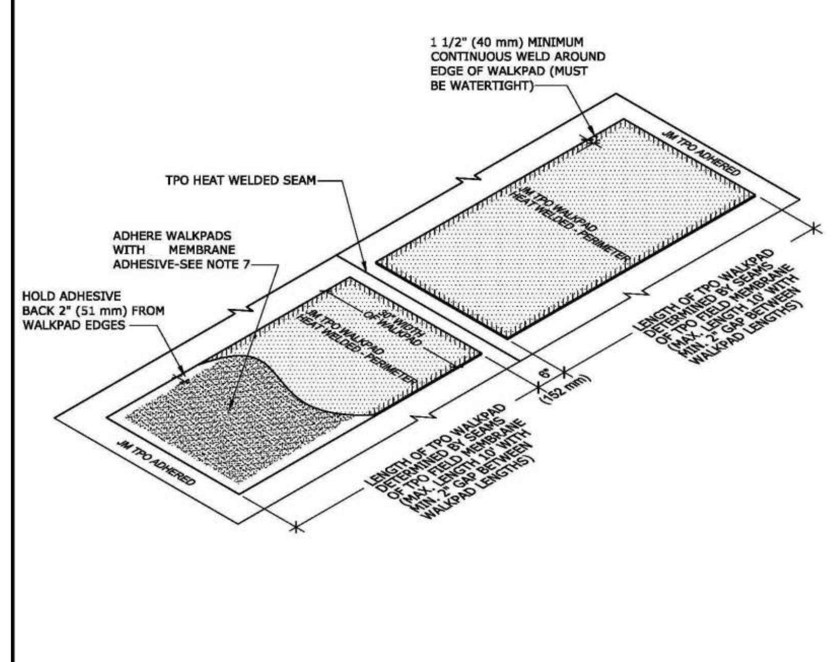
4. IF GAP OR CUT IN MEMBRANE IS GREATER THAN 1" UNDER TPO UNIVERSAL CORNER, AN "L" PATCH THAT EXTENDS OUT ONTO THE MEMBRANE A MINIMUM OF 2" MUST BE INSTALLED AT OUTSIDE CORNER. ("L" PATCH SHOWN AT RIGHT WITHOUT TPO UNIVERSAL CORNER)
5. TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON ENCAPSULATED EDGES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

OUTSIDE CORNER

DRAWING NO. T-FC-03 — REPLACES TF-62A — MEMBRANE TYPE: TPO — SCALE N.T.S



NOTES:

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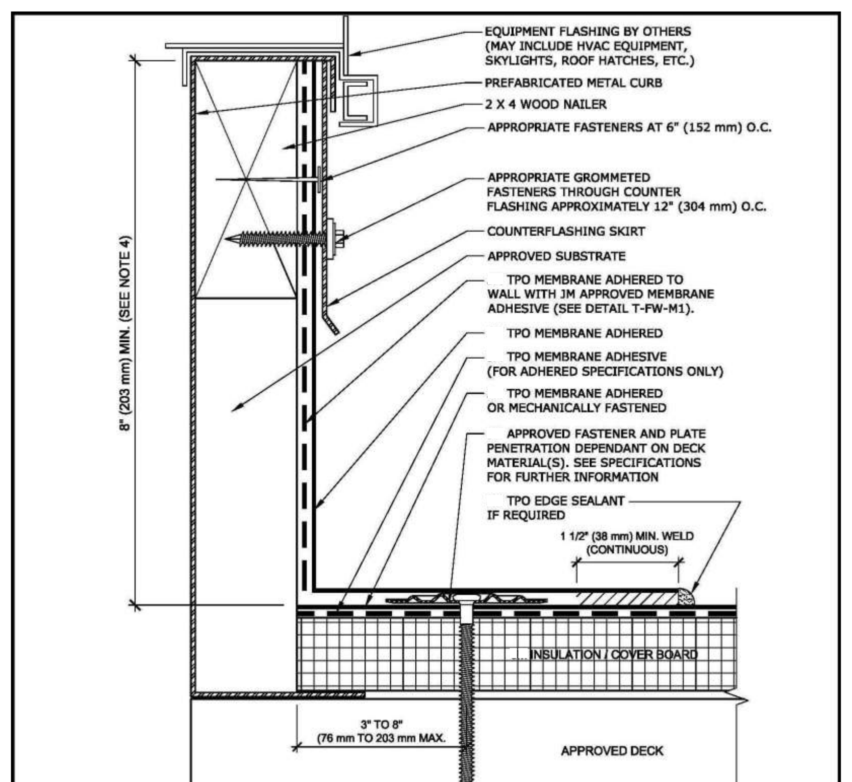
4. TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON-ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCLUDES FACTORY CUT MEMBRANE (SEE DETAIL T-MS-01).
5. CLEAN MEMBRANE SURFACE PRIOR TO WALKPAD INSTALLATION WITH TPO MEMBRANE CLEANER.
6. DO NOT INSTALL WALKPADS OVER MEMBRANE SEAMS.
7. APPROVED ADHESIVES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



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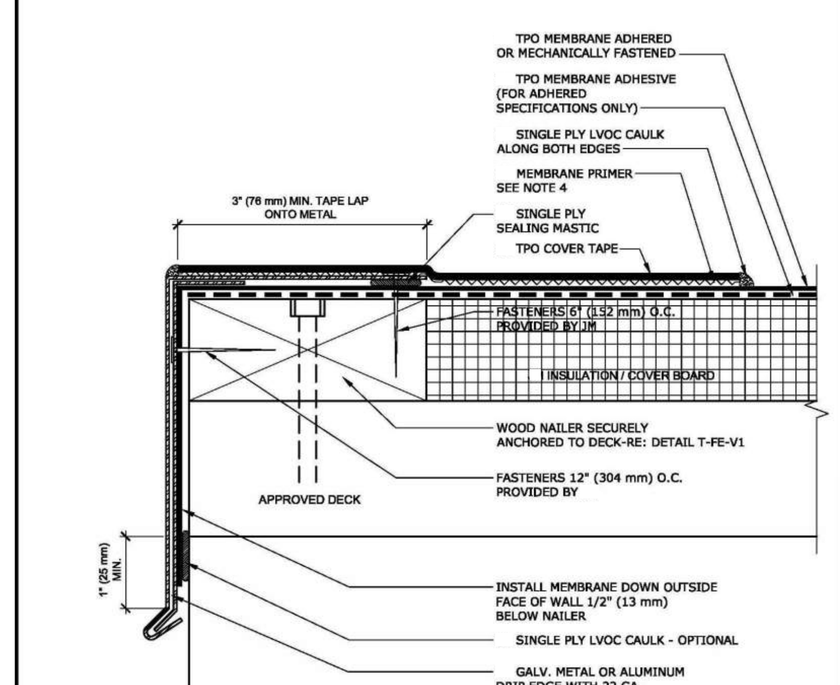
4. HEIGHT OF CURB TO BE ADJUSTED WITH NAILERS. IT IS PREFERRED TO RAISE CURB ONTO NAILERS TO EXTEND FLASHING HEIGHT.
5. TPO EDGE SEALANT IS REQUIRED ON ALL CUT AND NON ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCLUDES FACTORY CUT MEMBRANE (SEE DETAIL T-MS-01).
6. SEE T-FW-B DETAILS FOR APPROVED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

PREFABRICATED METAL CURB BASE FLASHING

DRAWING NO. T-FC-01 — REPLACES TF-64-ADH — MEMBRANE TYPE: TPO — SCALE N.T.S



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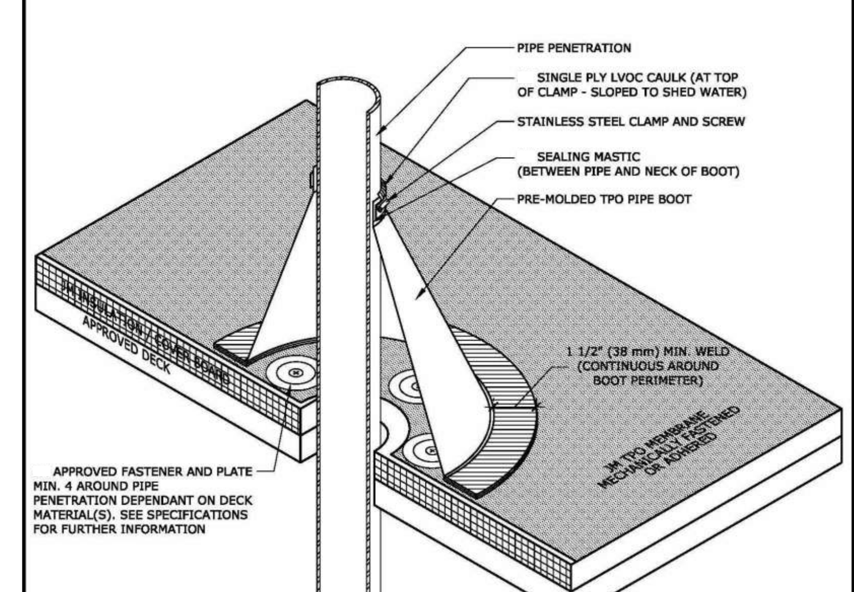
4. TPO MEMBRANE PRIMER OR JM SINGLE PLY MEMBRANE PRIMER (LOW VOC) MUST BE APPLIED ON ALL SURFACES COMING INTO CONTACT WITH TPO PEEL & STICK PRODUCTS. ROLL MEMBRANE WITH HAND ROLLER UNDER PRESSURE AT SEAM.

JM METAL DRIP EDGE WITH JM TPO COVER TAPE

DRAWING NO. T-FE-P5 — NEW DETAIL — MEMBRANE TYPE: TPO — SCALE N.T.S



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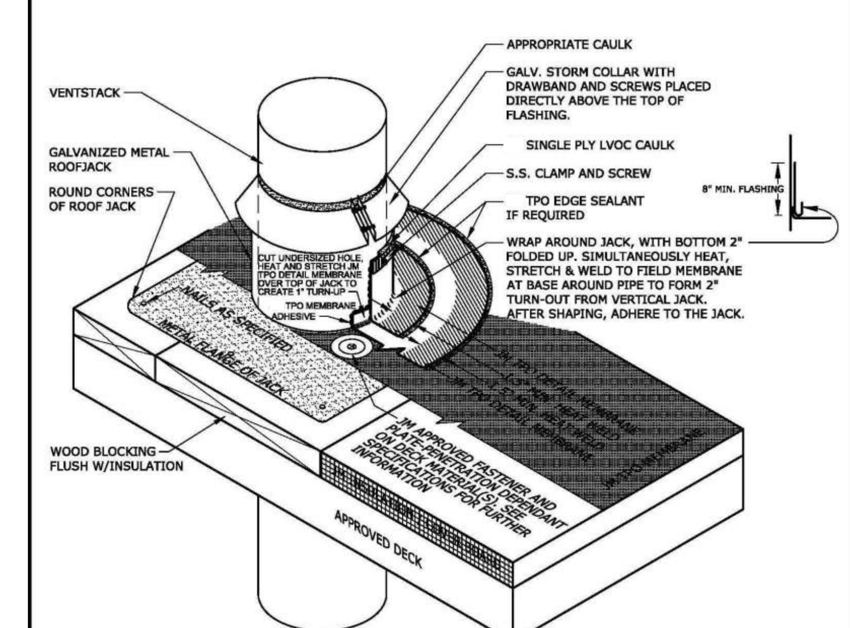
TPO PIPE BOOT

DRAWING NO. T-FP-01 — REPLACES TF-50S — MEMBRANE TYPE: TPO — SCALE N.T.S



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VENT PIPE

DRAWING NO. T-DV-01 — REPLACES TF-52 — MEMBRANE TYPE: TPO — SCALE N.T.S

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STATE OF MISSOURI — DAVID EUGENE HENDRIKSE — NUMBER A-7305 — REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
ROOFING & FLASHING DETAILS

PROJECT NUMBER: 23103

SHEET NUMBER:

A-106

11/12/2024 9:35:30 AM
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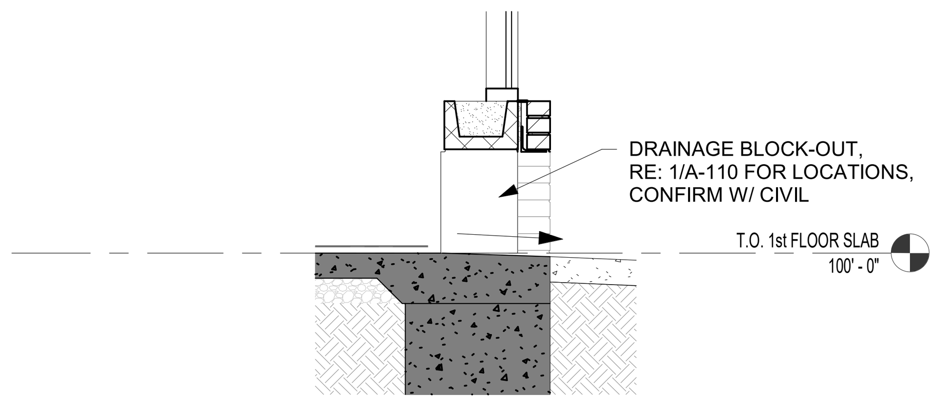
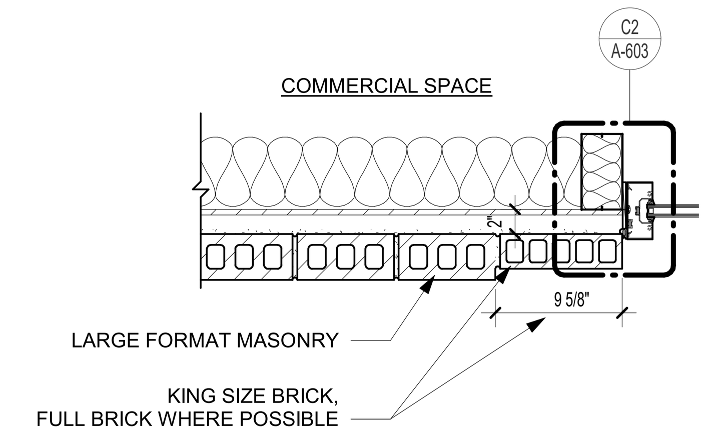
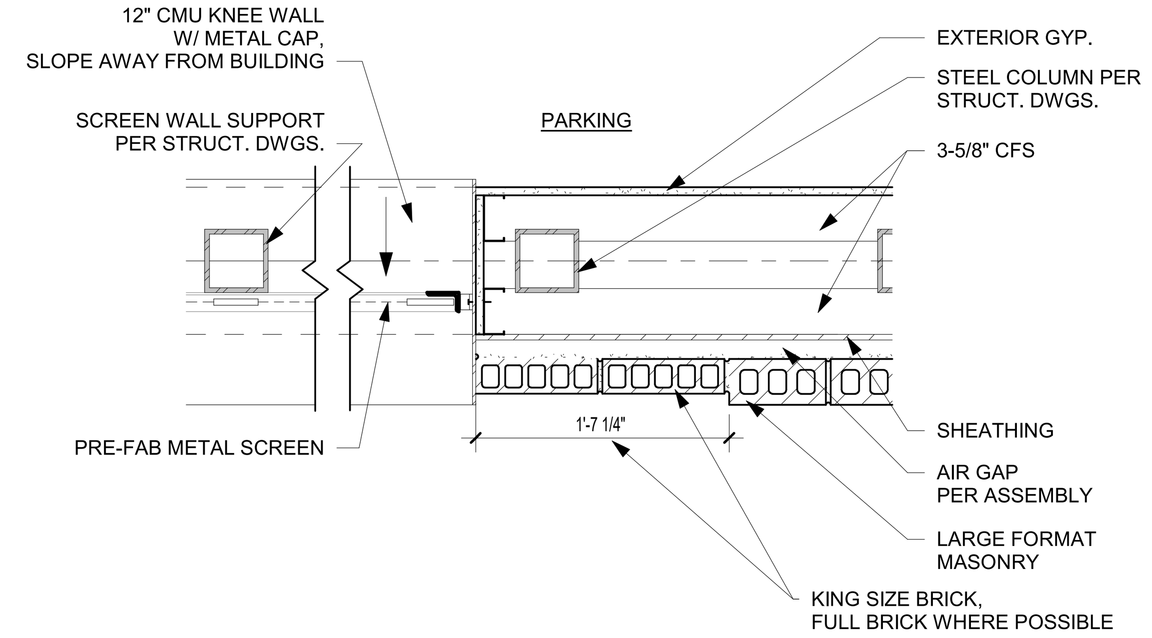


5 DRAINAGE BLOCKOUT AT PARKING
1/2" = 1'-0"

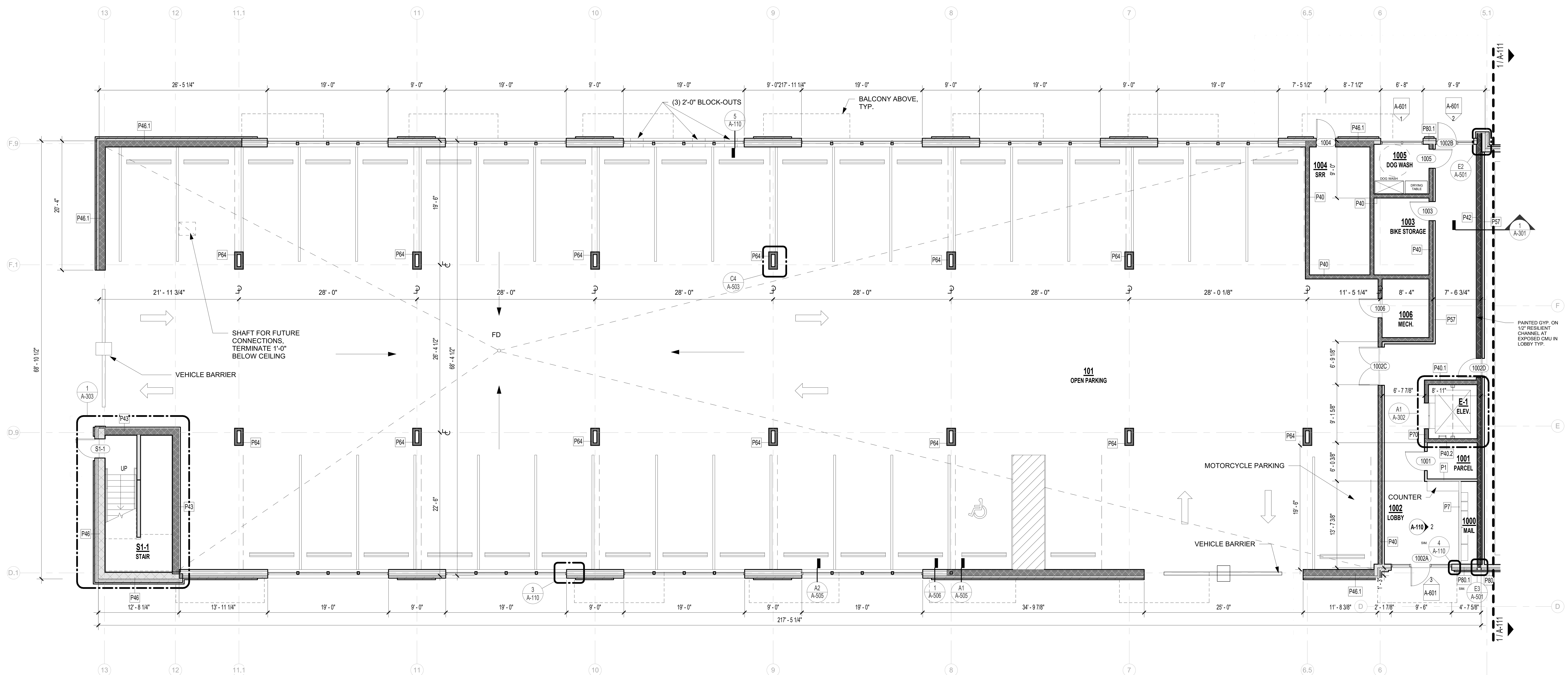


4 BRICK TRANSITION @ STOREFRONT (PLAN)
1" = 1'-0"

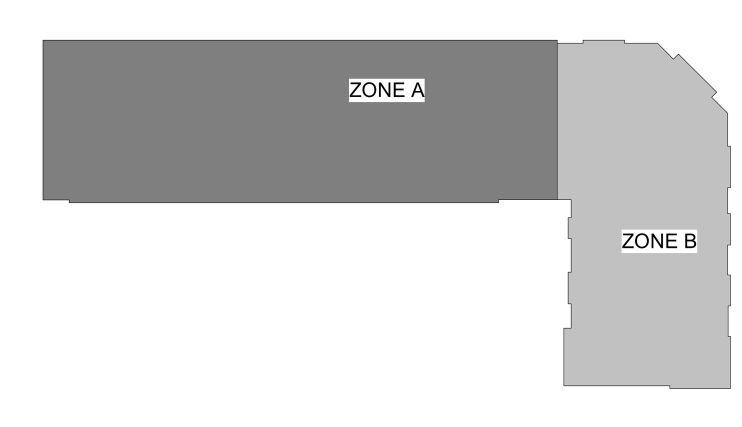


3 BRICK TRANSITION @ SCREEN (PLAN)
1" = 1'-0"

2 MAILBOXES
3/8" = 1'-0"



1 1ST FLOOR ENLARGED PLAN - ZONE A
1/8" = 1'-0"



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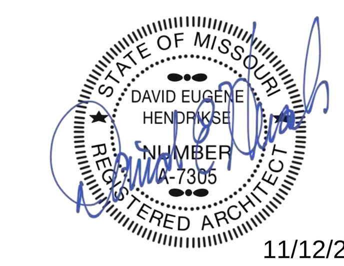


11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

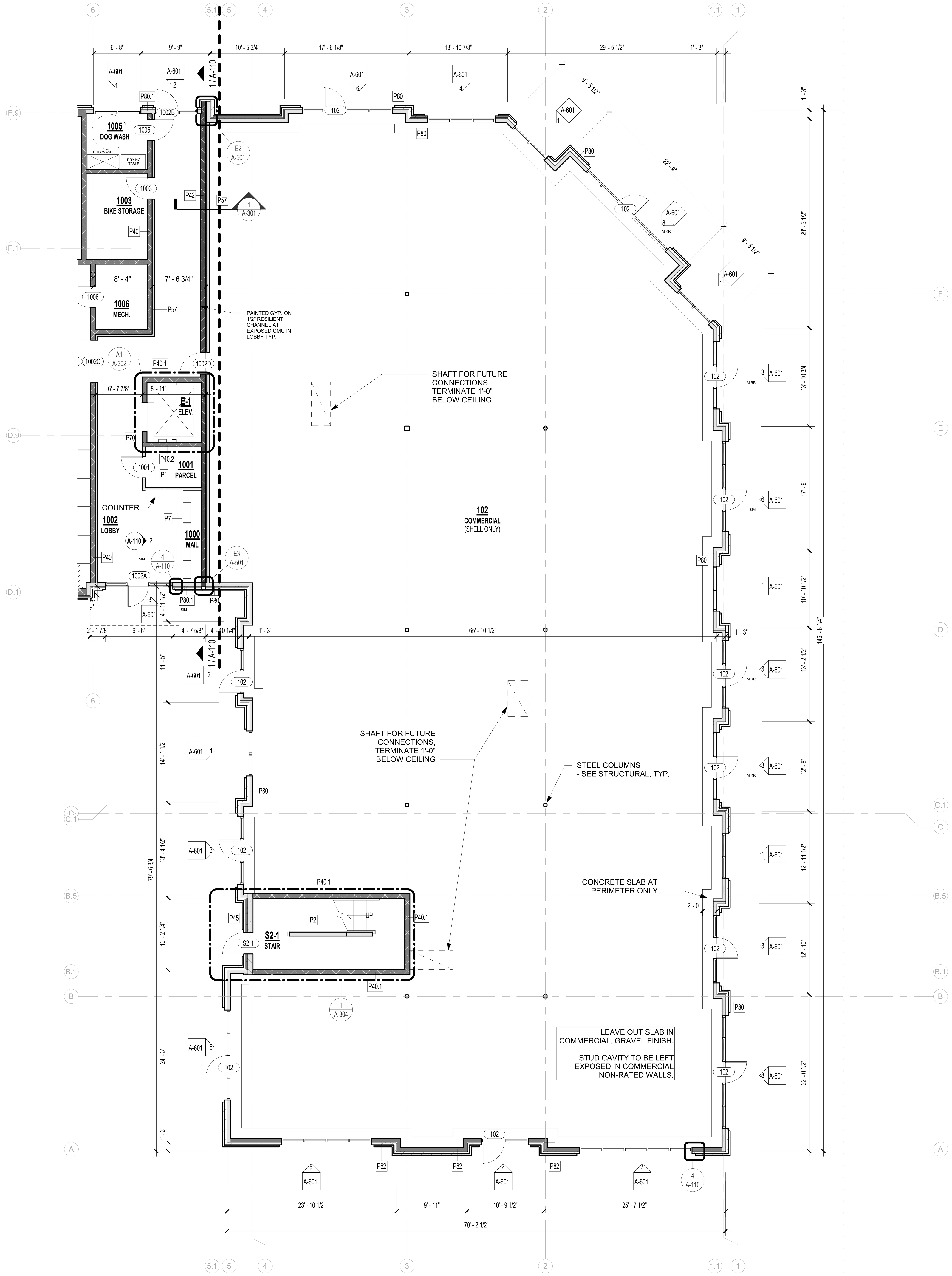
LEE'S SUMMIT, MO

SHEET TITLE
ENLARGED PLAN - 1ST FLOOR
ZONE A

PROJECT NUMBER: 23103

SHEET NUMBER:

A-110



1 1ST FLOOR ENLARGED PLAN - ZONE B
1/8" = 1'-0"

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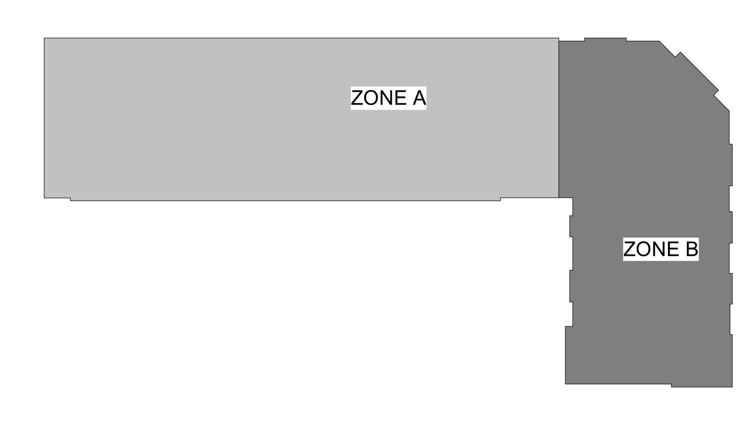
STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO



SHEET TITLE
ENLARGED PLAN - 1ST FLOOR ZONE B

PROJECT NUMBER: 23103

SHEET NUMBER:

A-111

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2	12/20/24	Add #2

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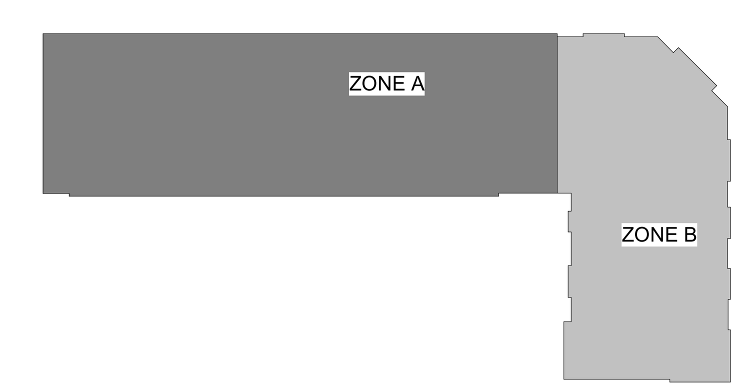
FOR BID PURPOSES ONLY

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

1 SECOND FLOOR ENLARGED PLAN - ZONE A
1/8" = 1'-0"

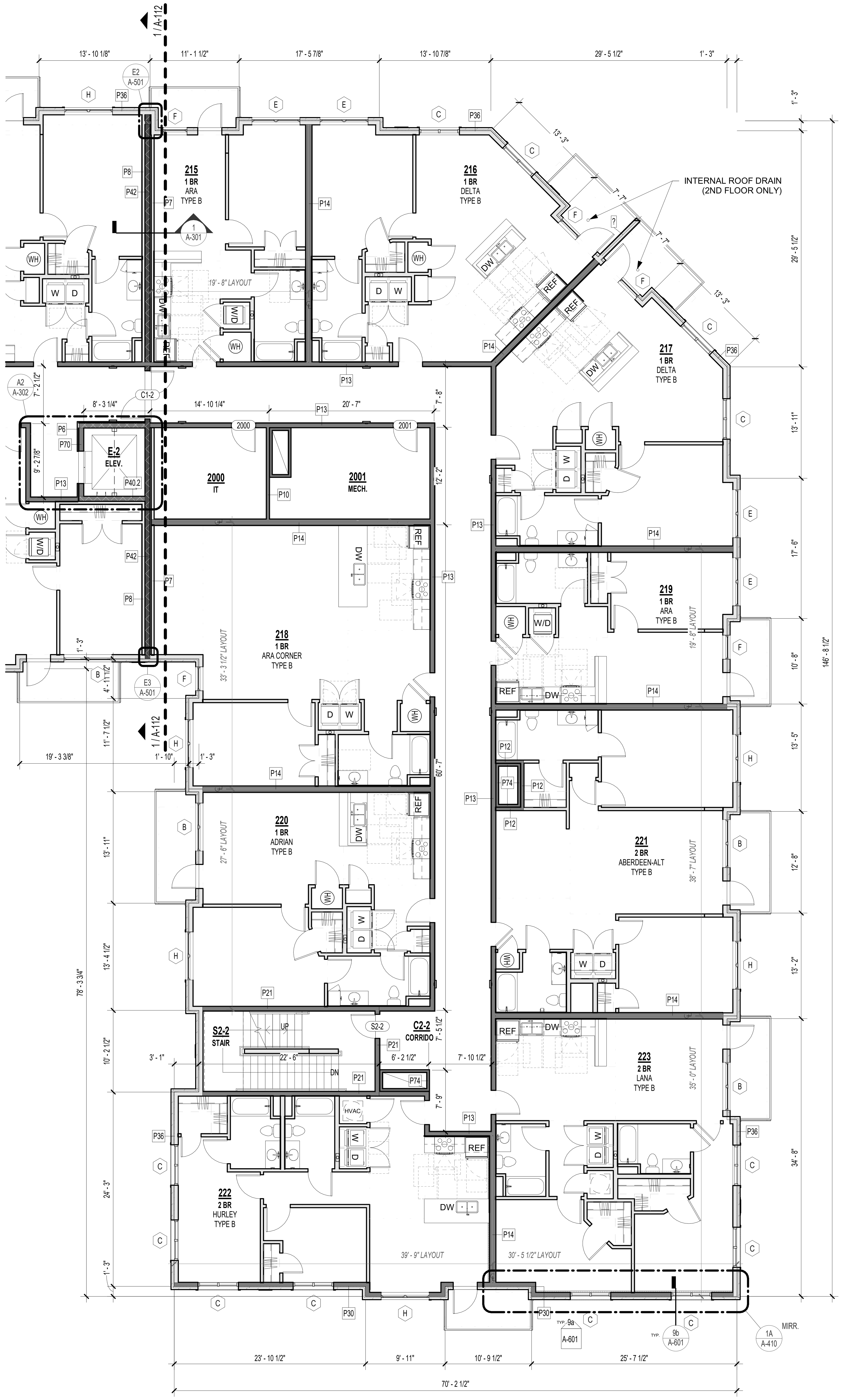


SHEET TITLE
ENLARGED PLAN - 2ND FLOOR
ZONE A

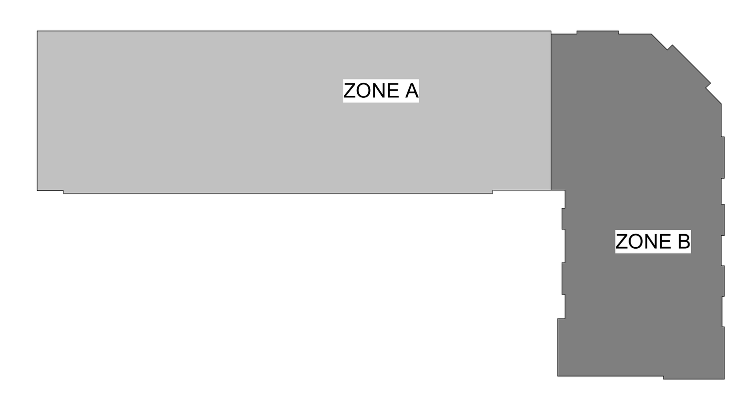
PROJECT NUMBER: 23103

SHEET NUMBER:

A-112



1 SECOND FLOOR ENLARGED PLAN - ZONE B
1/8" = 1'-0"



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THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
ENLARGED PLAN - 2ND FLOOR ZONE B

PROJECT NUMBER: 23103

SHEET NUMBER:

A-113

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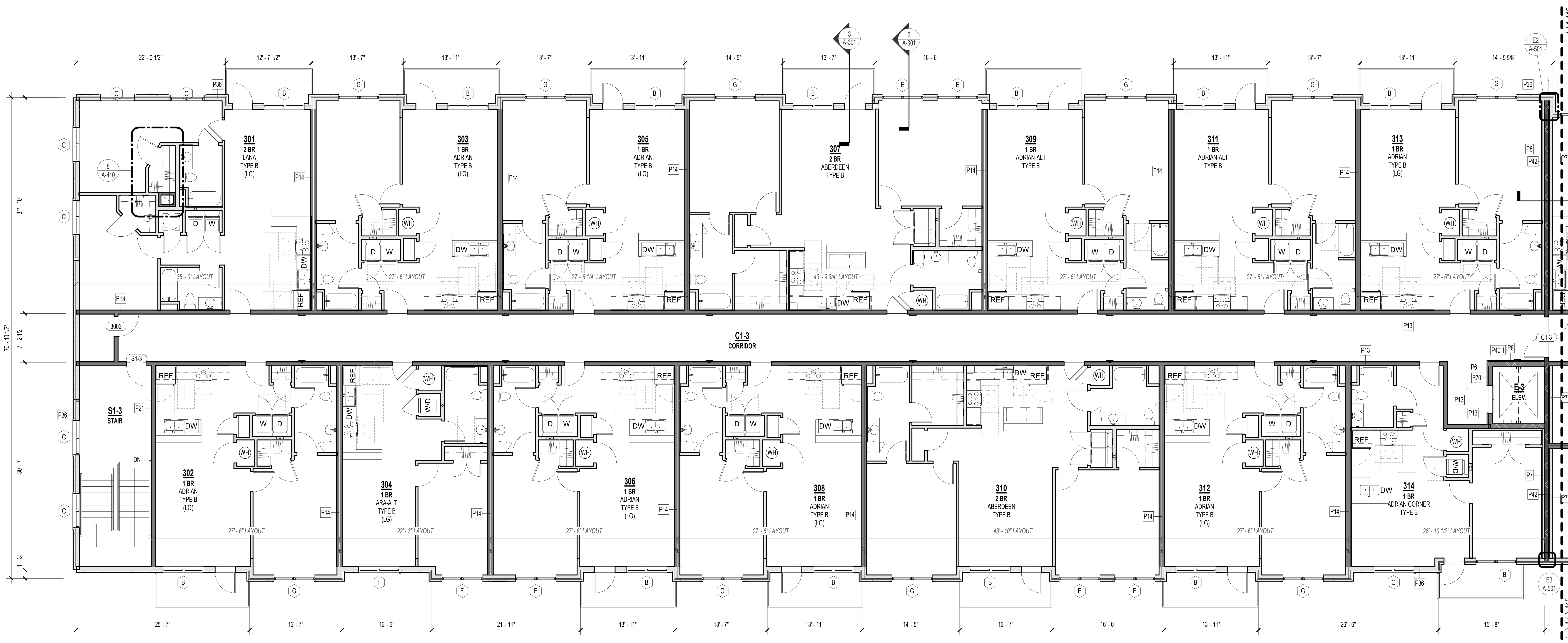
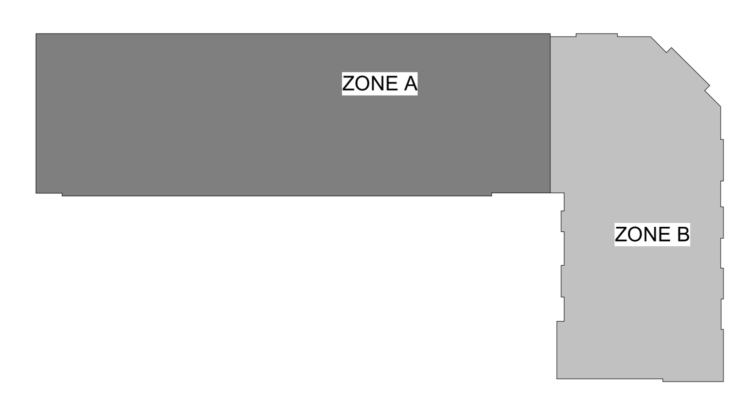


1 THIRD FLOOR ENLARGED PLAN - ZONE A
1/8" = 1'-0"



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11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
ENLARGED PLAN - 3RD FLOOR
ZONE A

PROJECT NUMBER: 23103

SHEET NUMBER:

A-114

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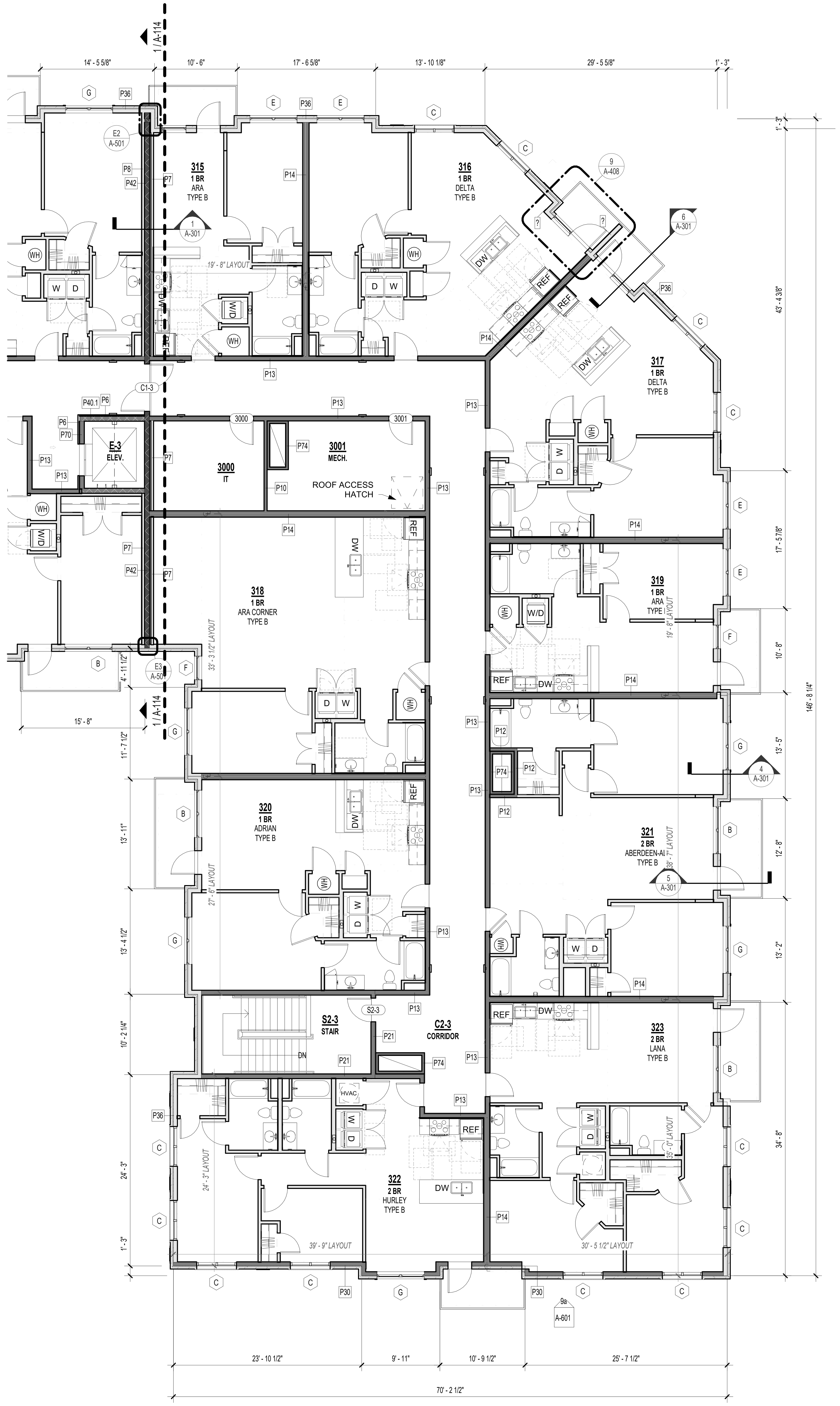
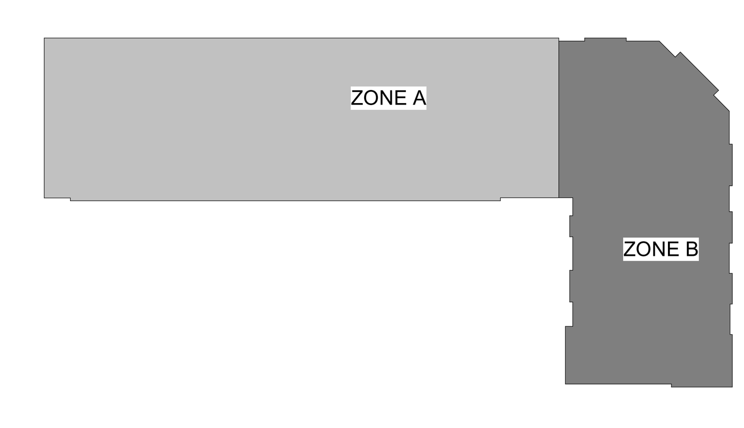


1 THIRD FLOOR ENLARGED PLAN - ZONE B
1/8" = 1'-0"



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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
ENLARGED PLAN - 3RD FLOOR
ZONE B

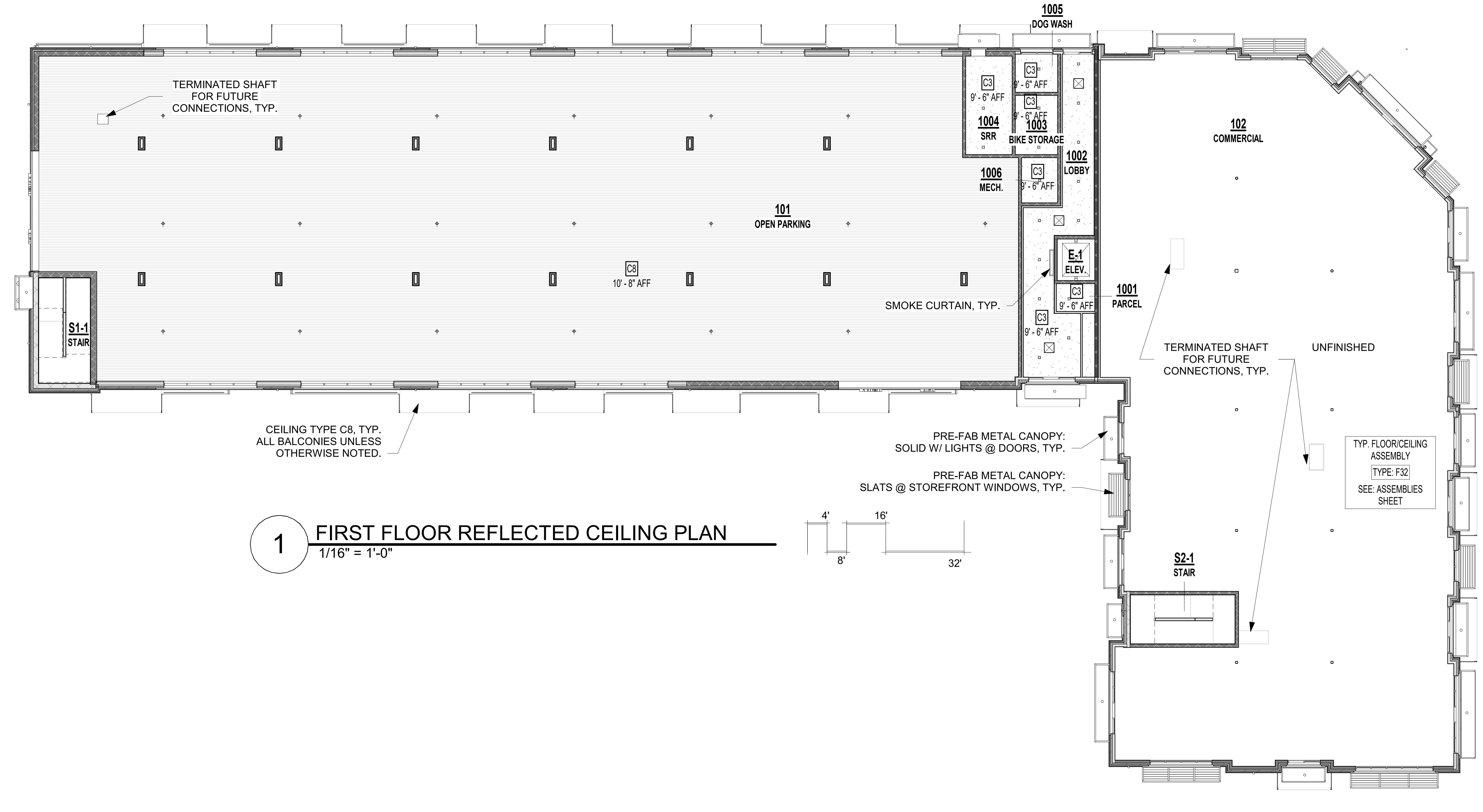
PROJECT NUMBER: 23103

SHEET NUMBER:

A-115

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

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



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

REFERENCE G-003 FOR GENERAL NOTES

RCP LEGEND

- C1 - 2' X 2' ACT SYSTEM 15/16" THICKNESS- ANGULAR TEGULAR EDGE, PER 095113
- C3 - GWB ON METAL STUD
- C4 - FIBERCEMENT BOARD
- C8 - GWB ON METAL STUD (EXTERIOR)
- 9' - 0" INDICATES CEILING HEIGHT

PRINTS ISSUED
11/12/24 - CITY SUBMITTAL

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11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

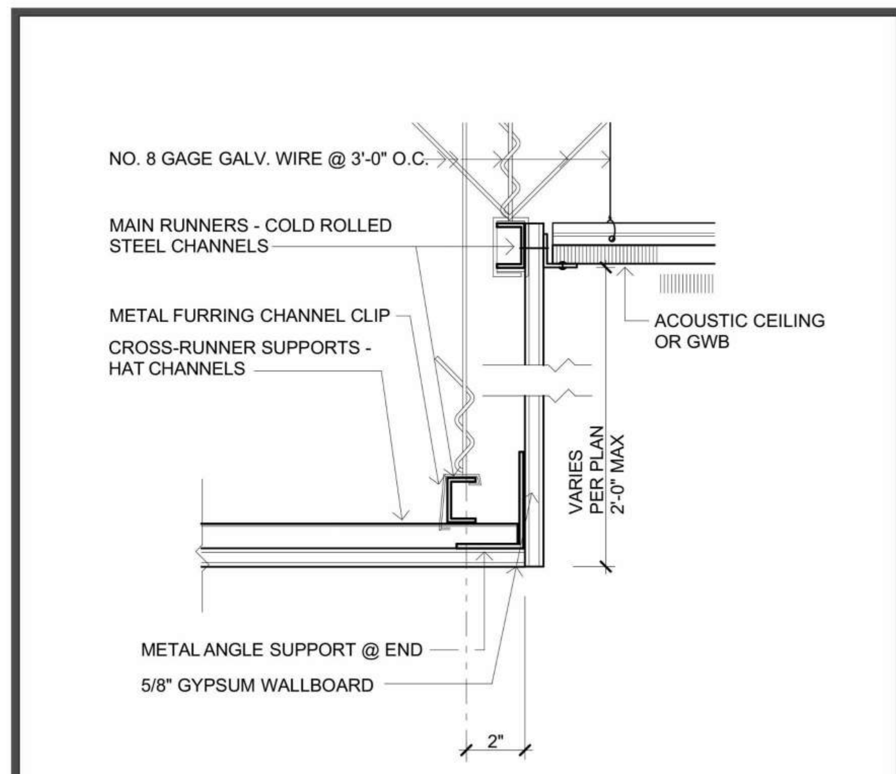
LEE'S SUMMIT, MO

SHEET TITLE
REFLECTED CEILING PLANS

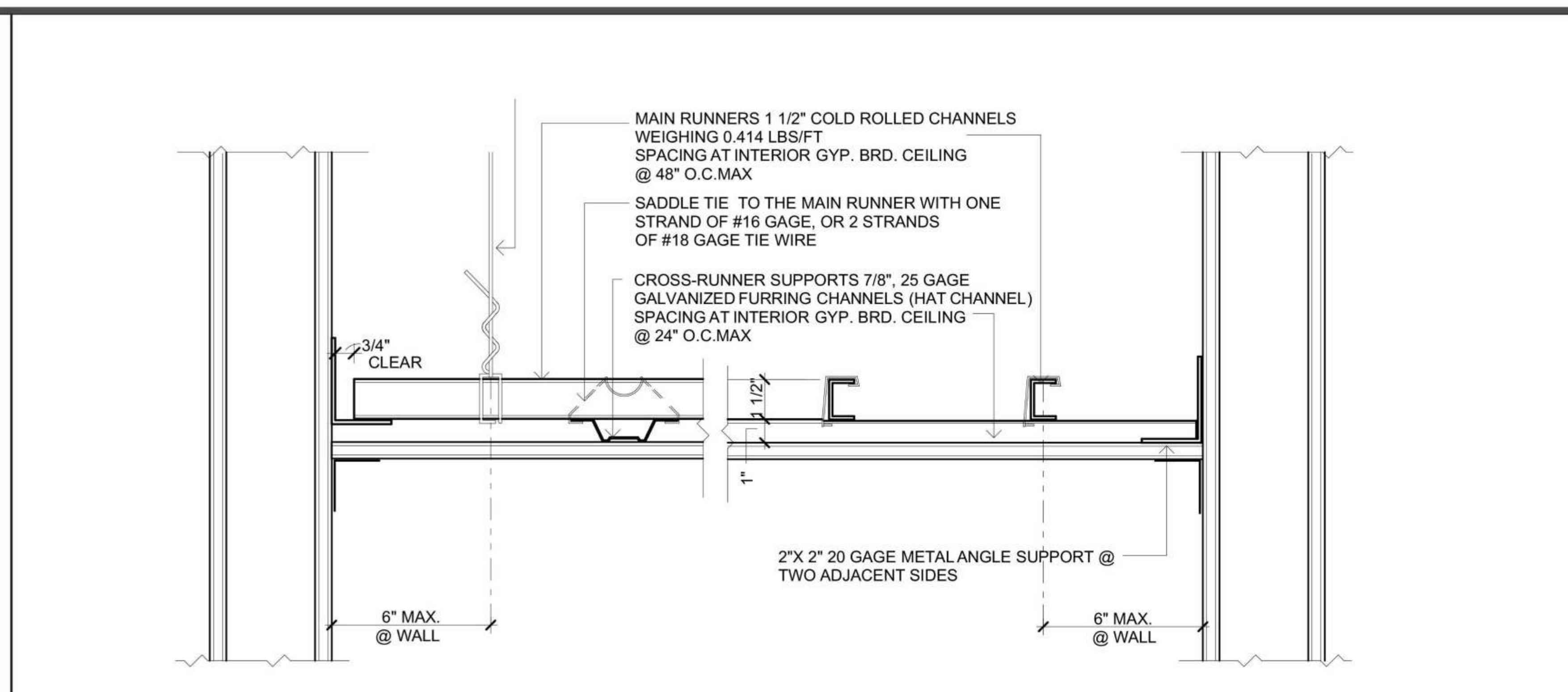
PROJECT NUMBER: 23103

SHEET NUMBER:

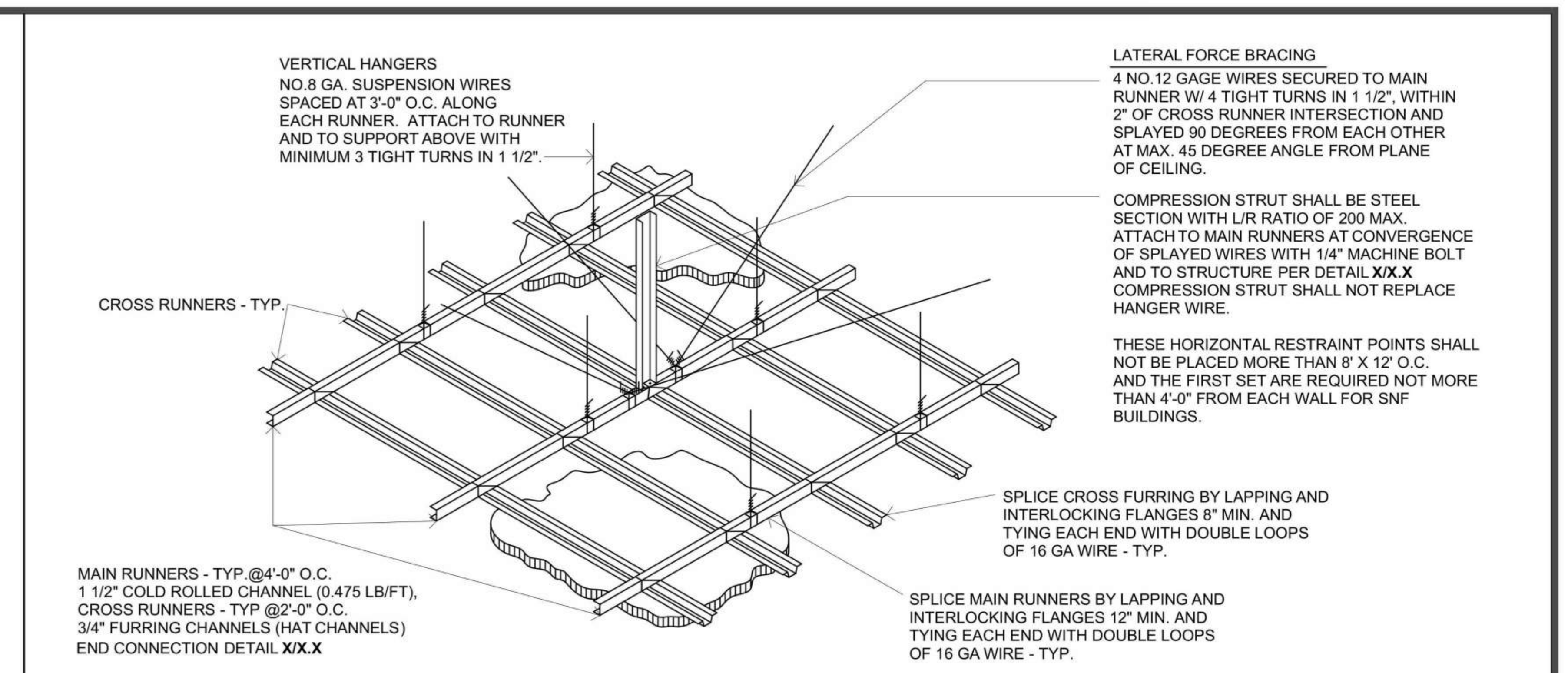
A-120



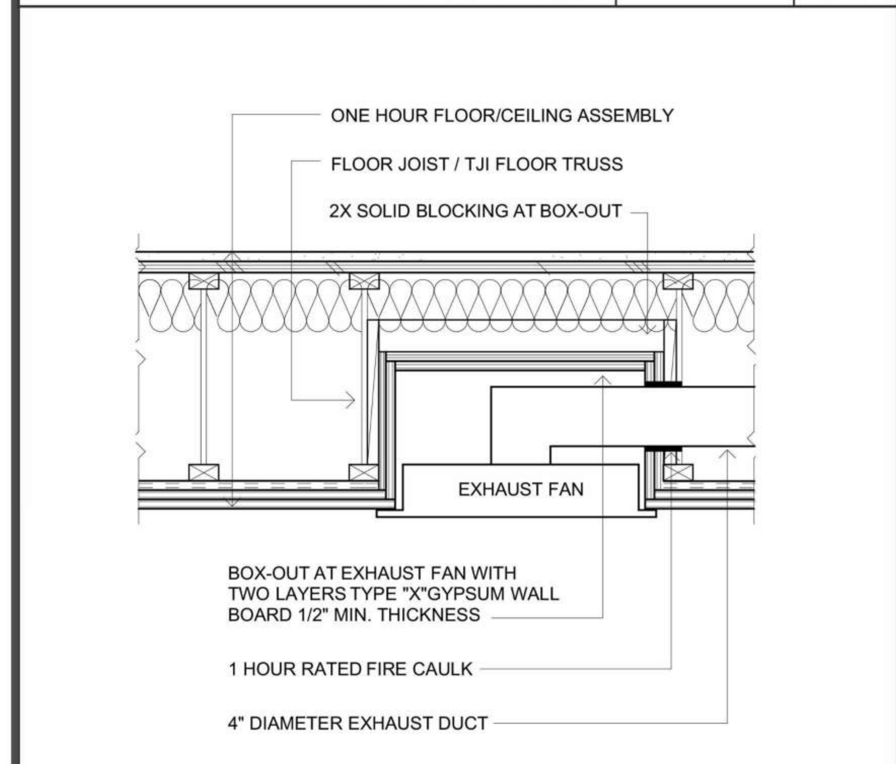
SUSPENDED CEILING/SOFFIT TRANSITION | 3" = 1'-0" | 20 A13.1



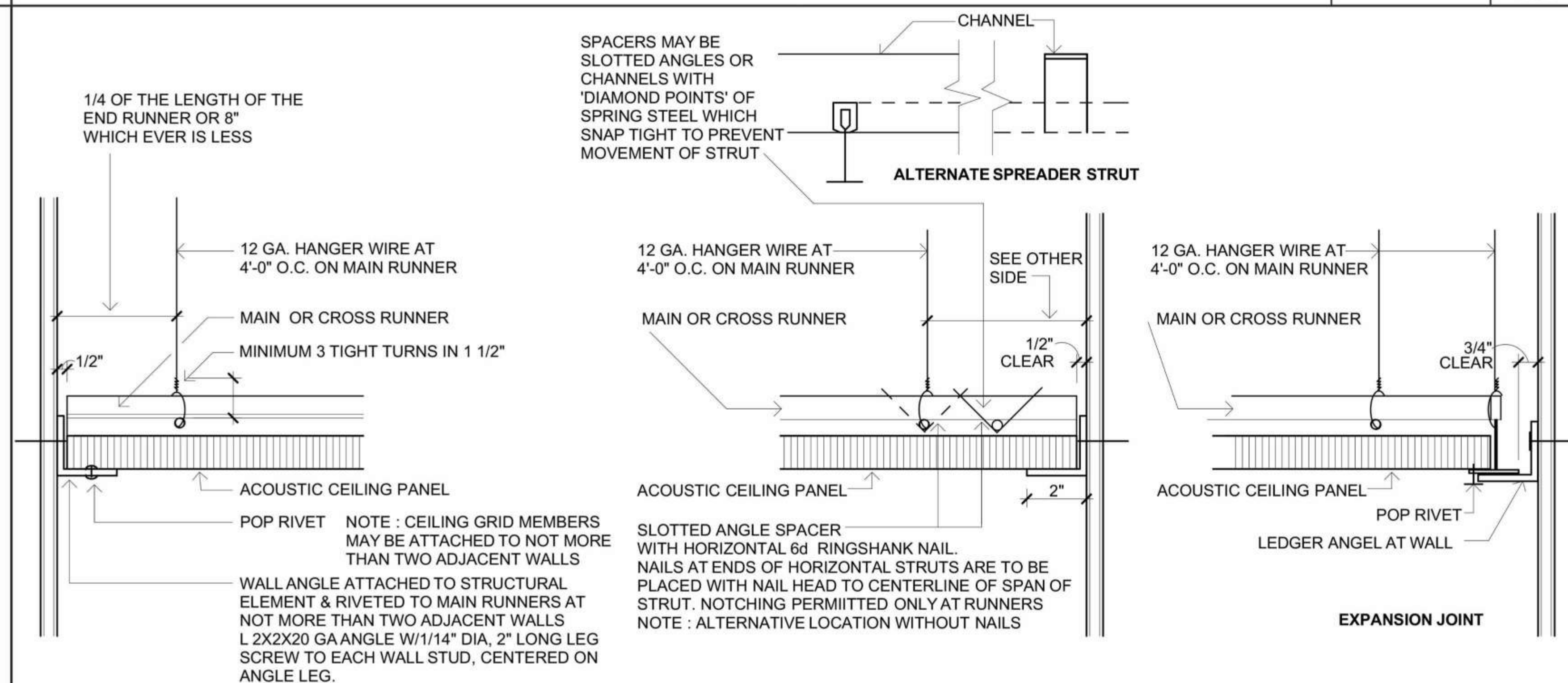
SUSPENDED GYPSUM WALL BOARD CEILING - CONNECTION DETAIL | 3" = 1'-0" | 12 A13.1



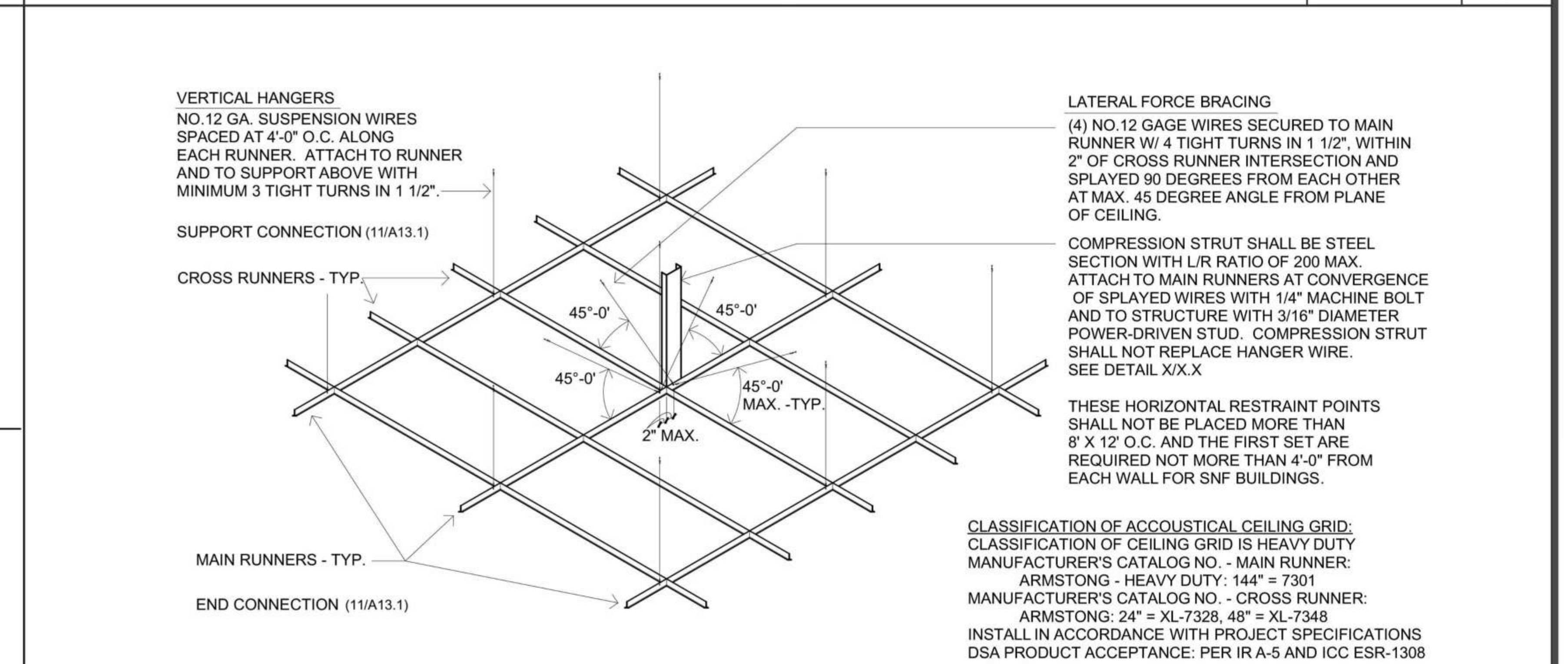
SUSPENDED GYPSUM BOARD CEILING GRID | 1 1/2"= 1'-0" | 4 A13.1



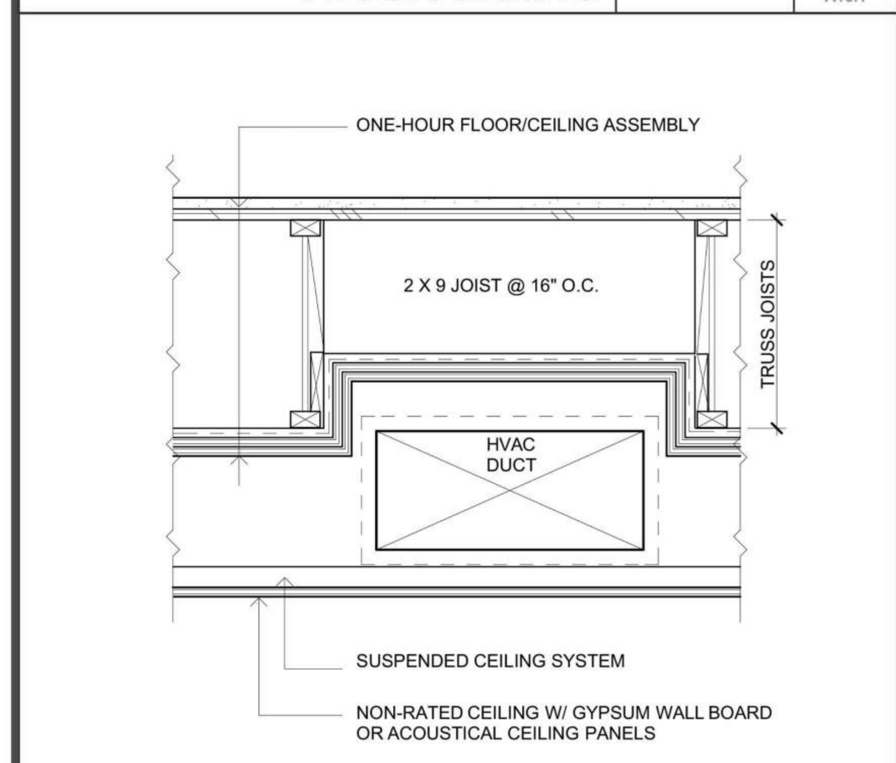
FAN EXHAUST AT FLOOR/CEILING | 1 1/2"= 1'-0" | 19 A13.1



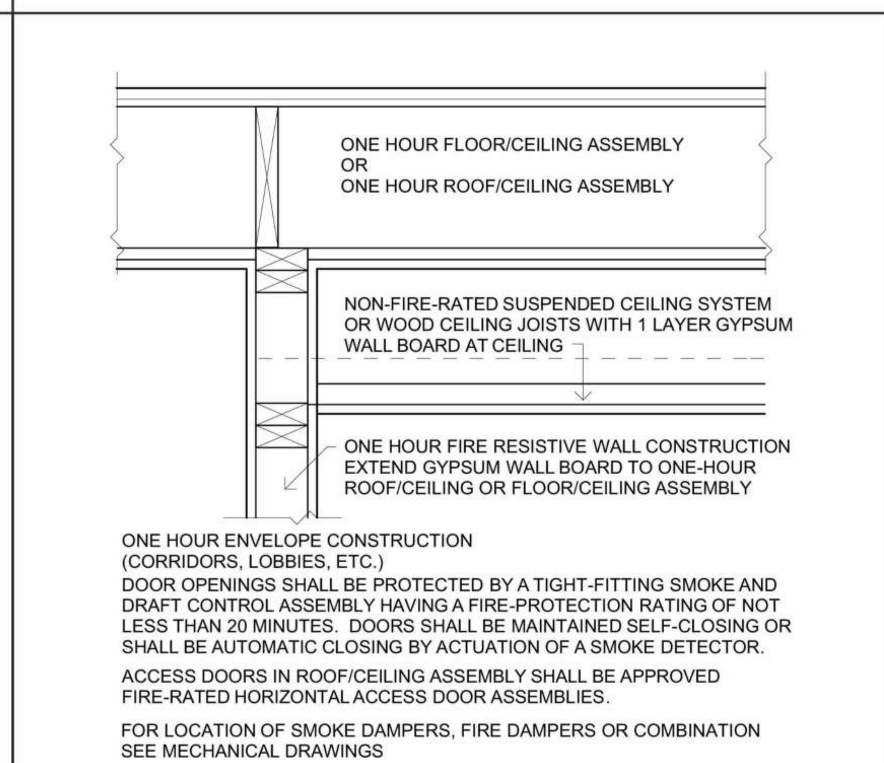
SUSPENDED LAY-IN CEILING - CONNECTION DETAIL | 3" = 1'-0" | 11 A13.1



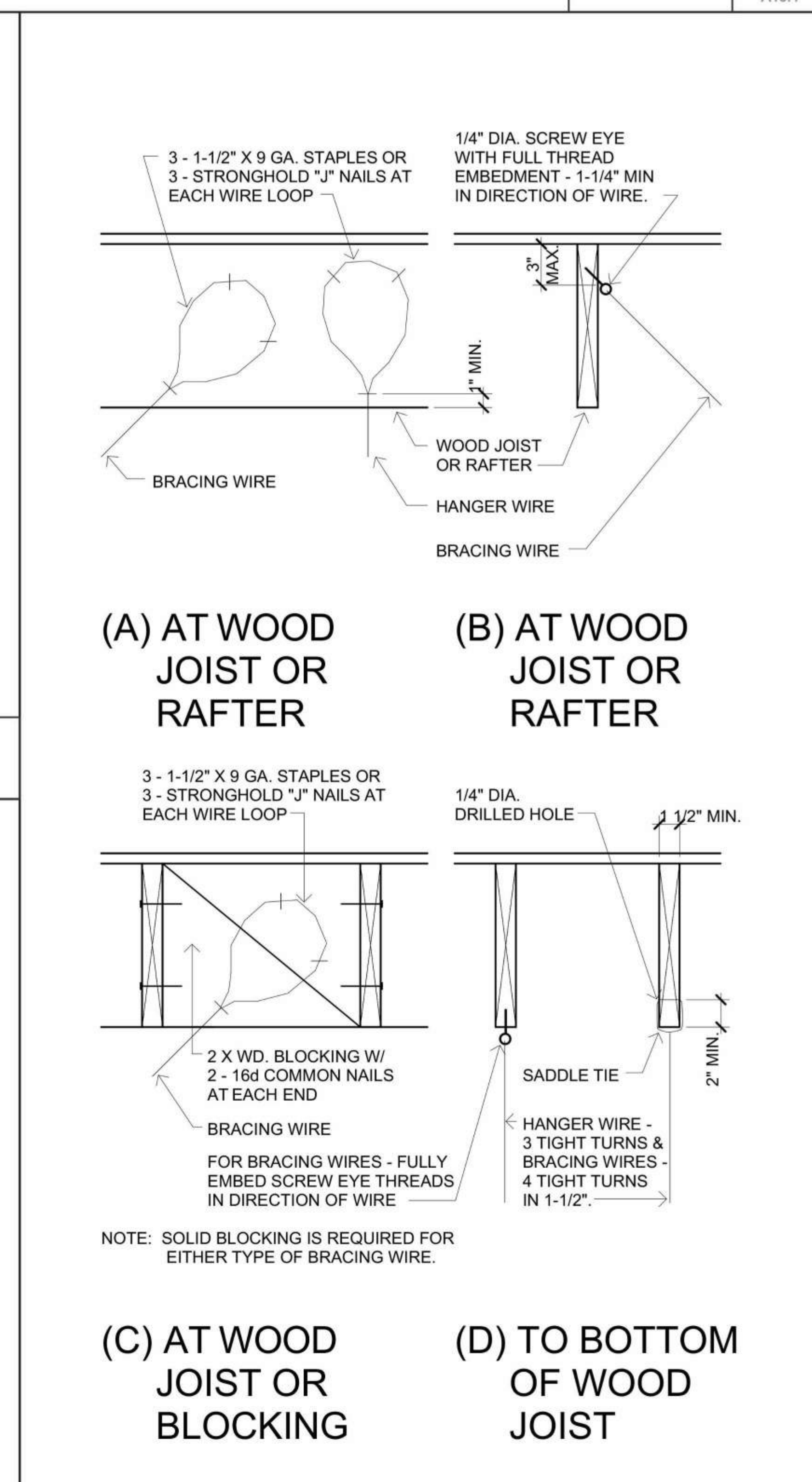
SUSPENDED LAY-IN CEILING GRID | 1 1/2"= 1'-0" | 3 A13.1

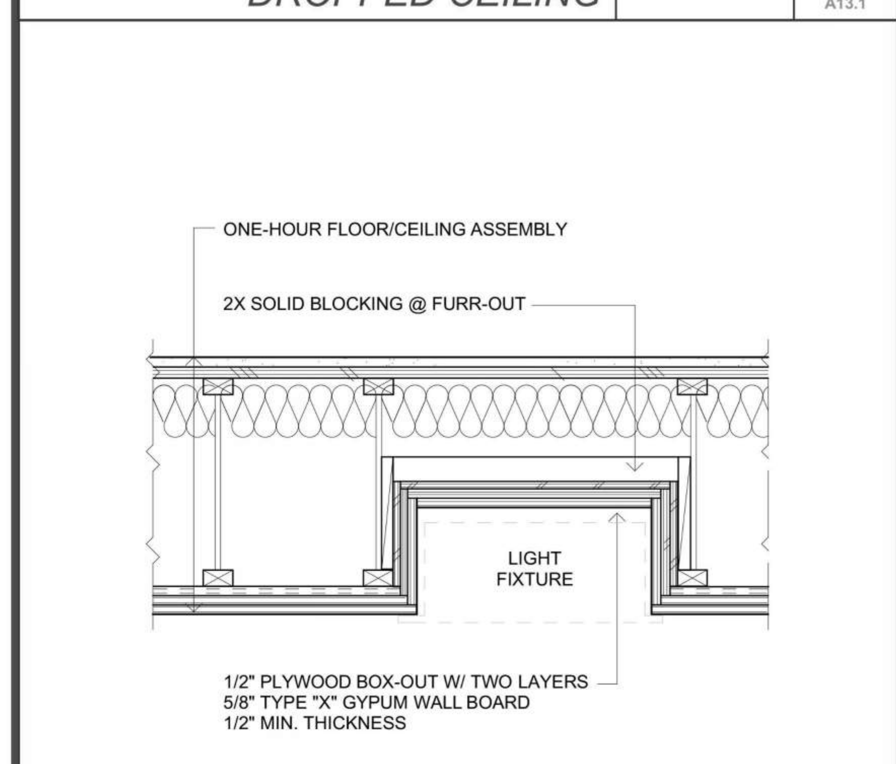


DUCT AT FLOOR/CEILING AND DROPPED CEILING | 1 1/2"= 1'-0" | 18 A13.1

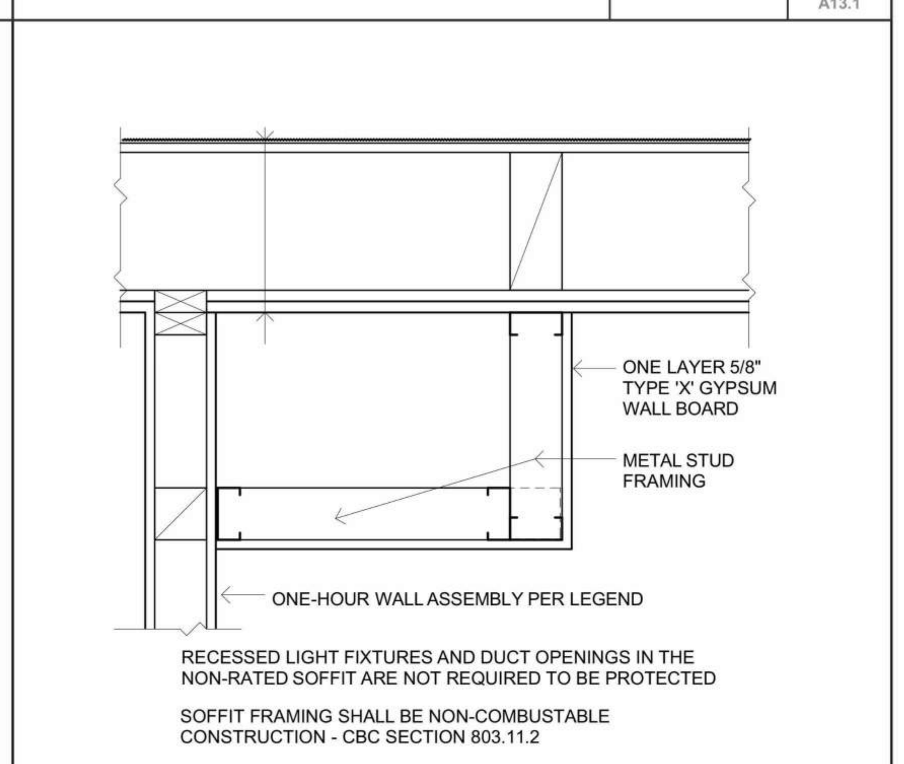


CORRIDOR CONSTRUCTION | 1 1/2"= 1'-0" | 14 A13.1





LIGHT FIXTURE AT FLOOR/CEILING | 1 1/2"= 1'-0" | 17 A13.1



METAL STUD SOFFIT FRAMING | 1 1/2"= 1'-0" | 13 A13.1

SUSPENDED CEILING AT WOOD FRAMING | 1 1/2"= 1'-0" | 9 A13.1

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DAVID EUGENE HENDRICKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
CEILING DETAILS

PROJECT NUMBER: 23103

SHEET NUMBER:

A-125

11/12/2024 9:38:00 AM
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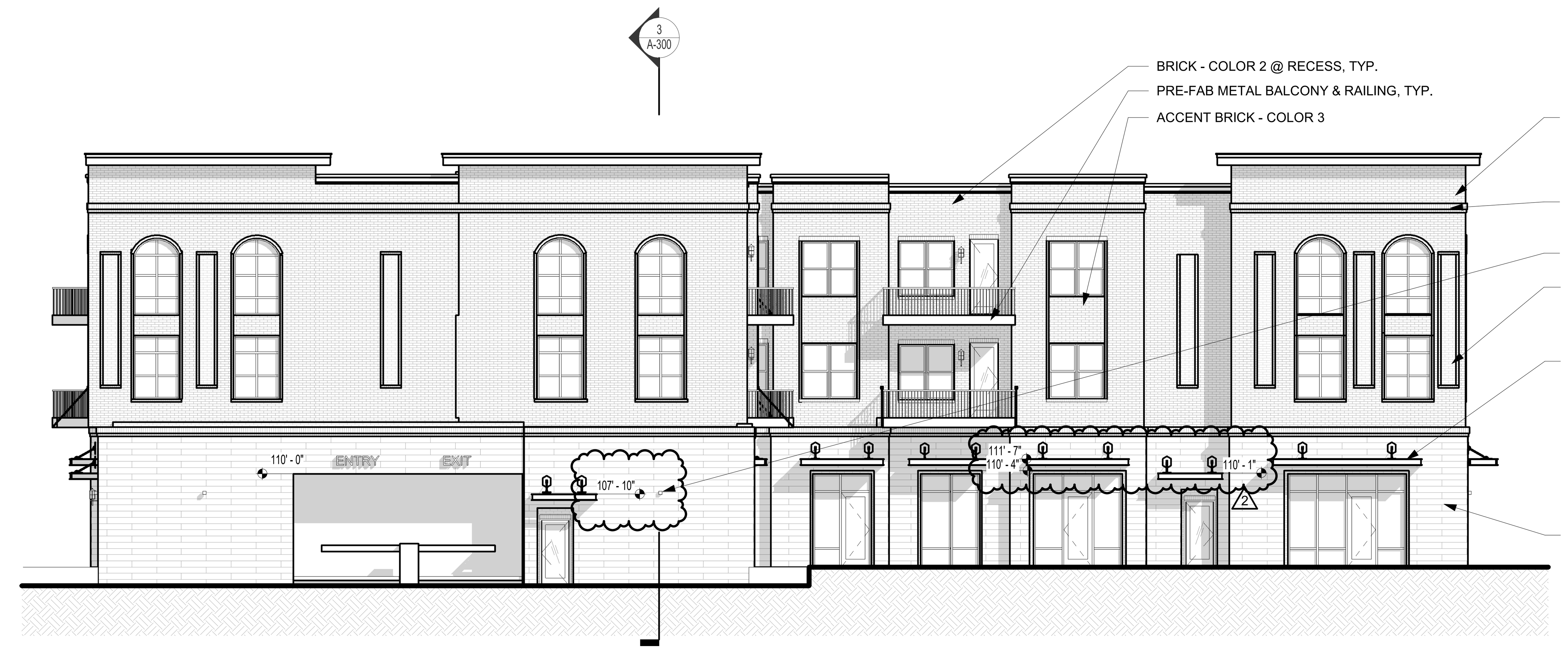
REFERENCE G-003 FOR GENERAL NOTES



2 WEST ELEVATION
3/32" = 1'-0"

1 NORTH ELEVATION
3/32" = 1'-0"

PRINTS ISSUED
11/12/24 - CITY SUBMITTAL

REVISIONS:

1	12/04/24	Add #1 - City Comments
2	12/20/24	Add #2

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THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
EXTERIOR ELEVATIONS

PROJECT NUMBER: 23103

SHEET NUMBER:

A-200

REFERENCE G-003 FOR GENERAL NOTES

3 CORNER ELEVATION
3/32" = 1'-0"

2 EAST ELEVATION
3/32" = 1'-0"

1 SOUTH ELEVATION
3/32" = 1'-0"

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11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

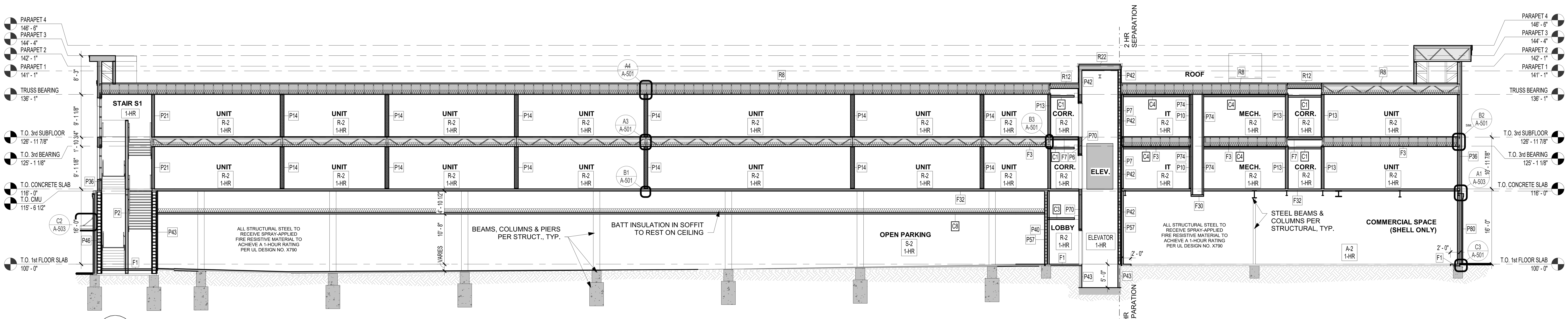
SHEET TITLE
EXTERIOR ELEVATIONS

PROJECT NUMBER: 23103

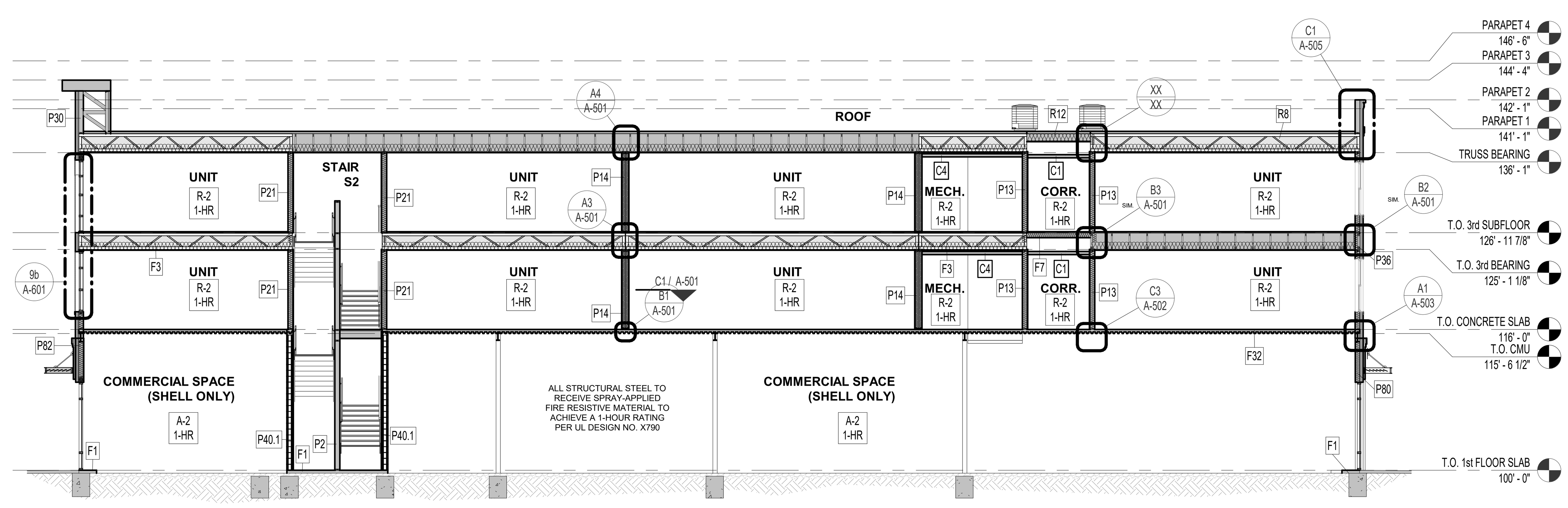
SHEET NUMBER:

A-201

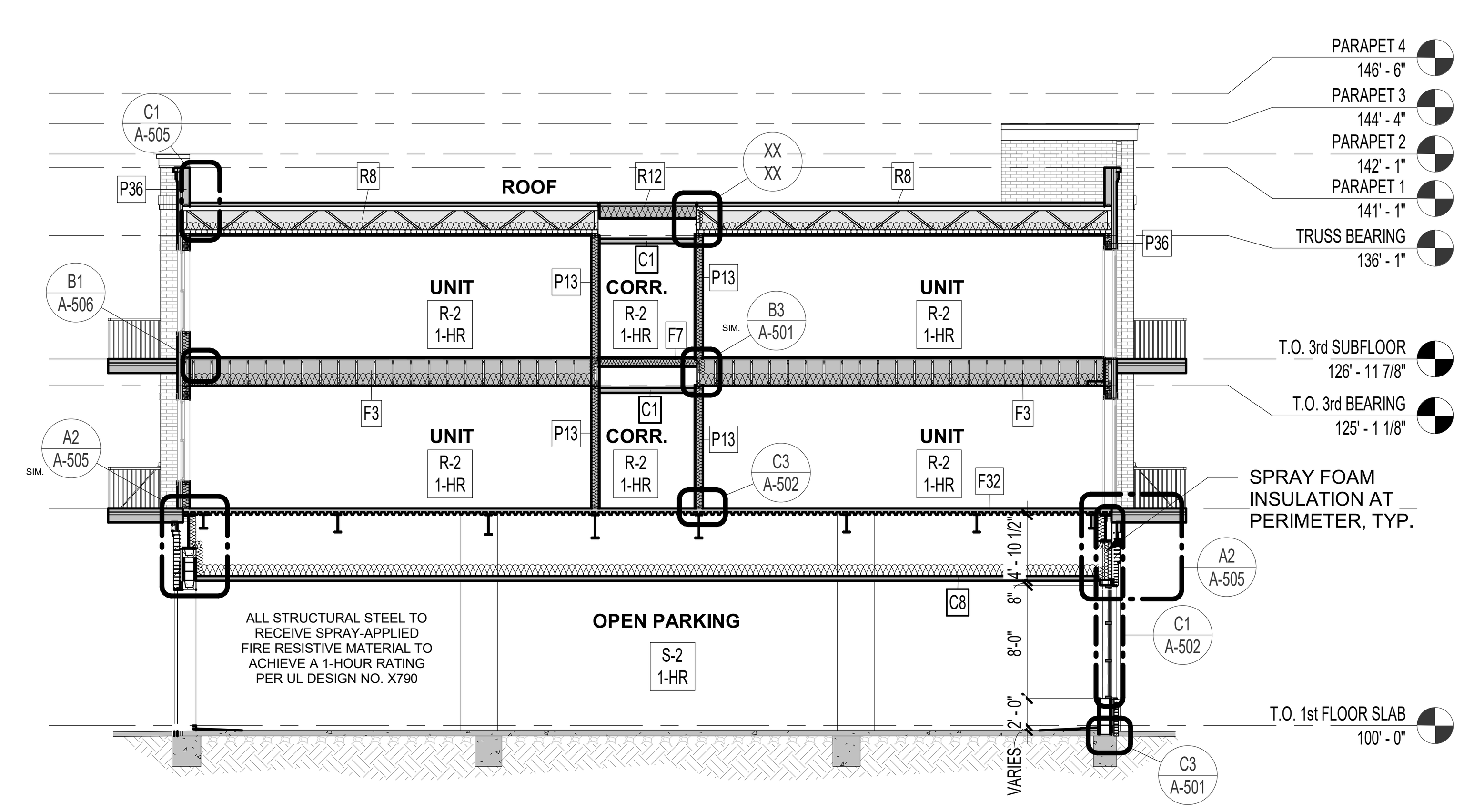
REFERENCE G-003 FOR GENERAL NOTES



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



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



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

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11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

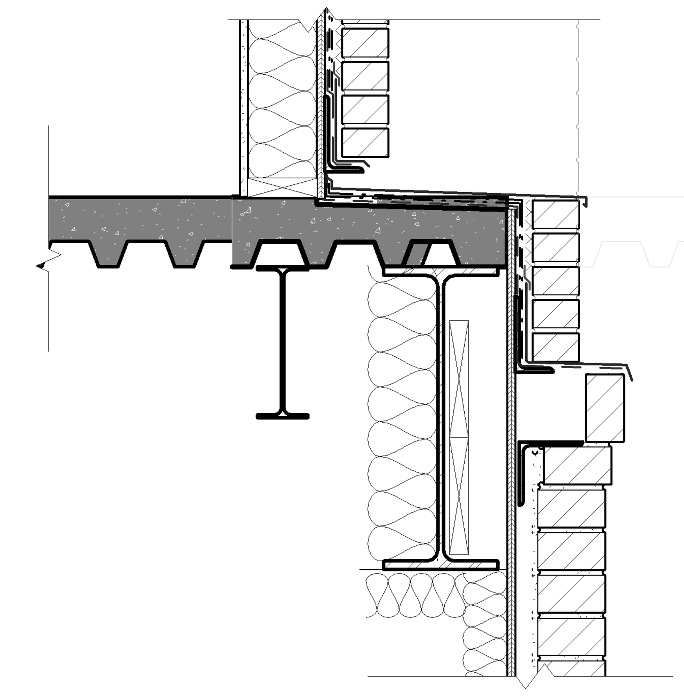
SHEET TITLE
BUILDING SECTIONS

PROJECT NUMBER: 23103

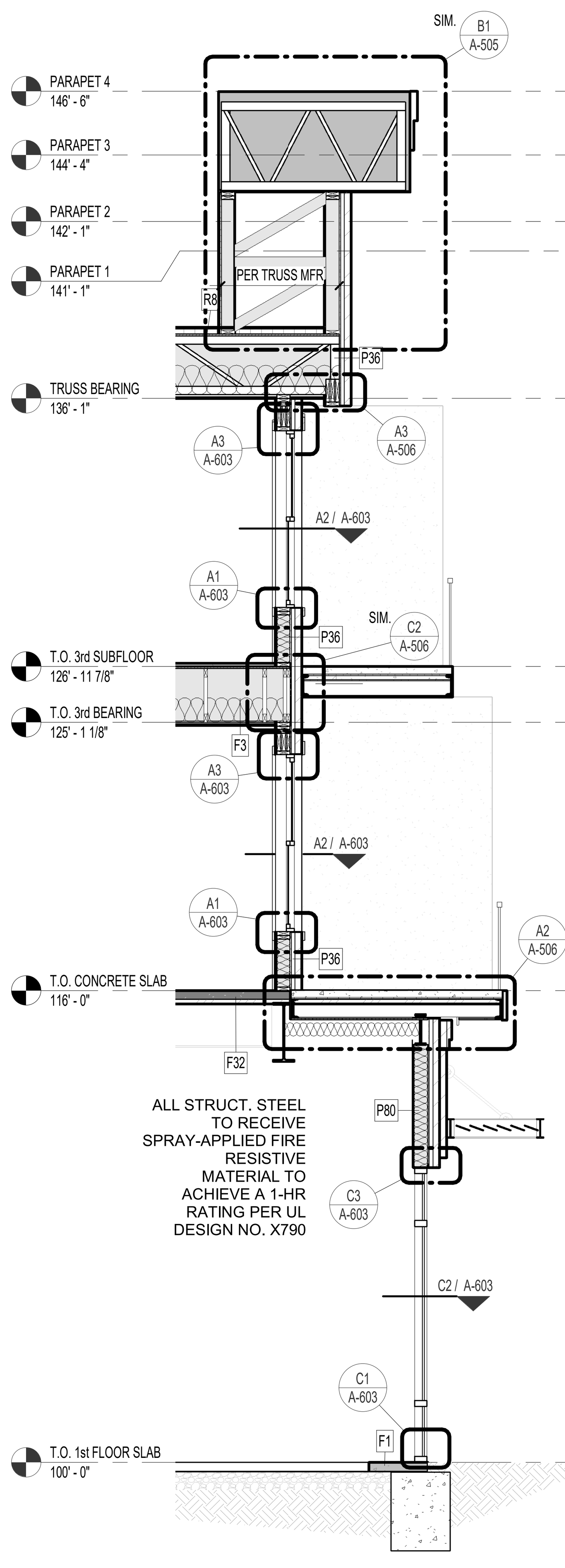
SHEET NUMBER:

A-300

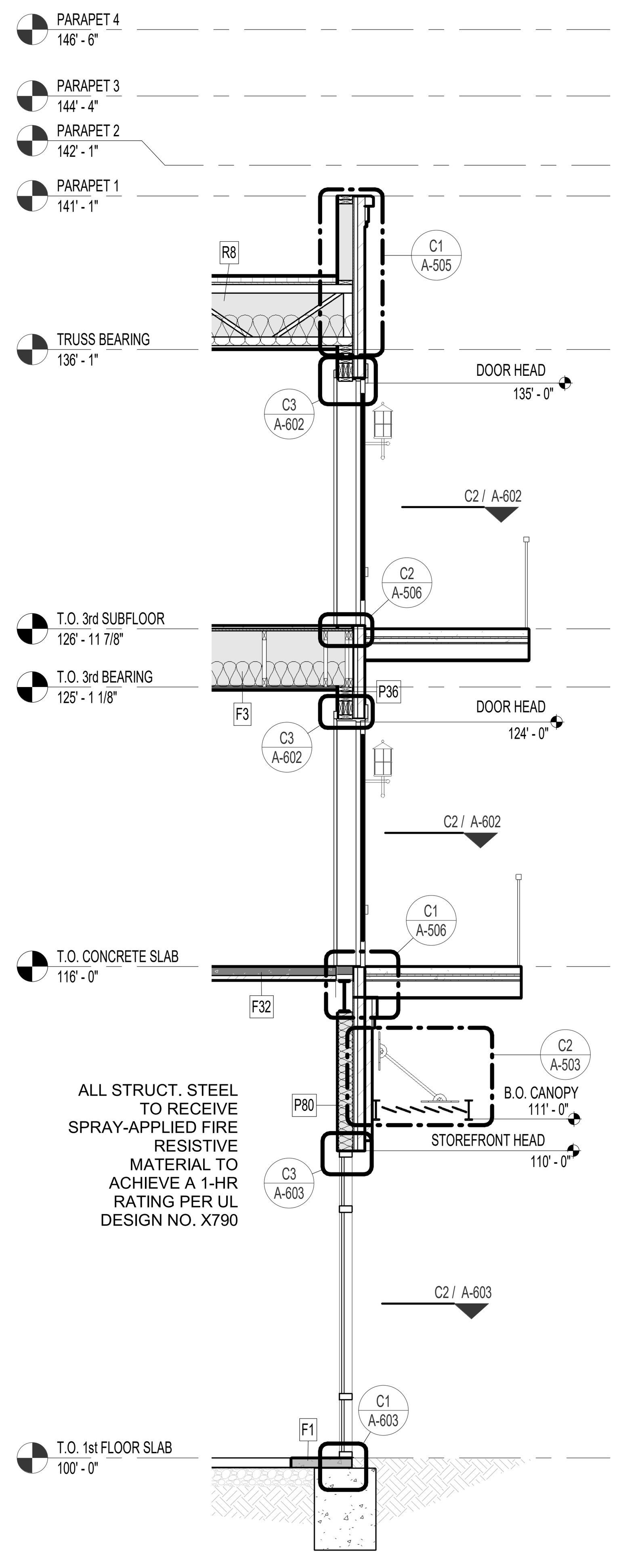
REFERENCE G-003 FOR GENERAL NOTES



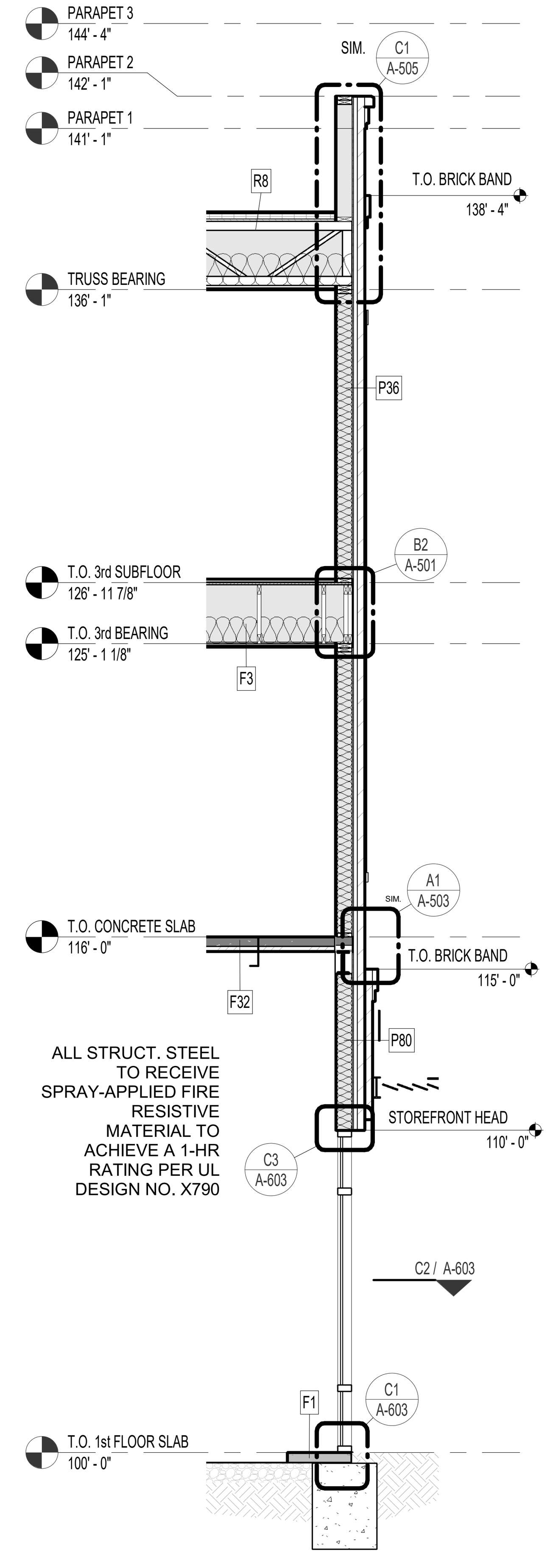
7 SECTION @ ARA-ALT
1" = 1'-0"



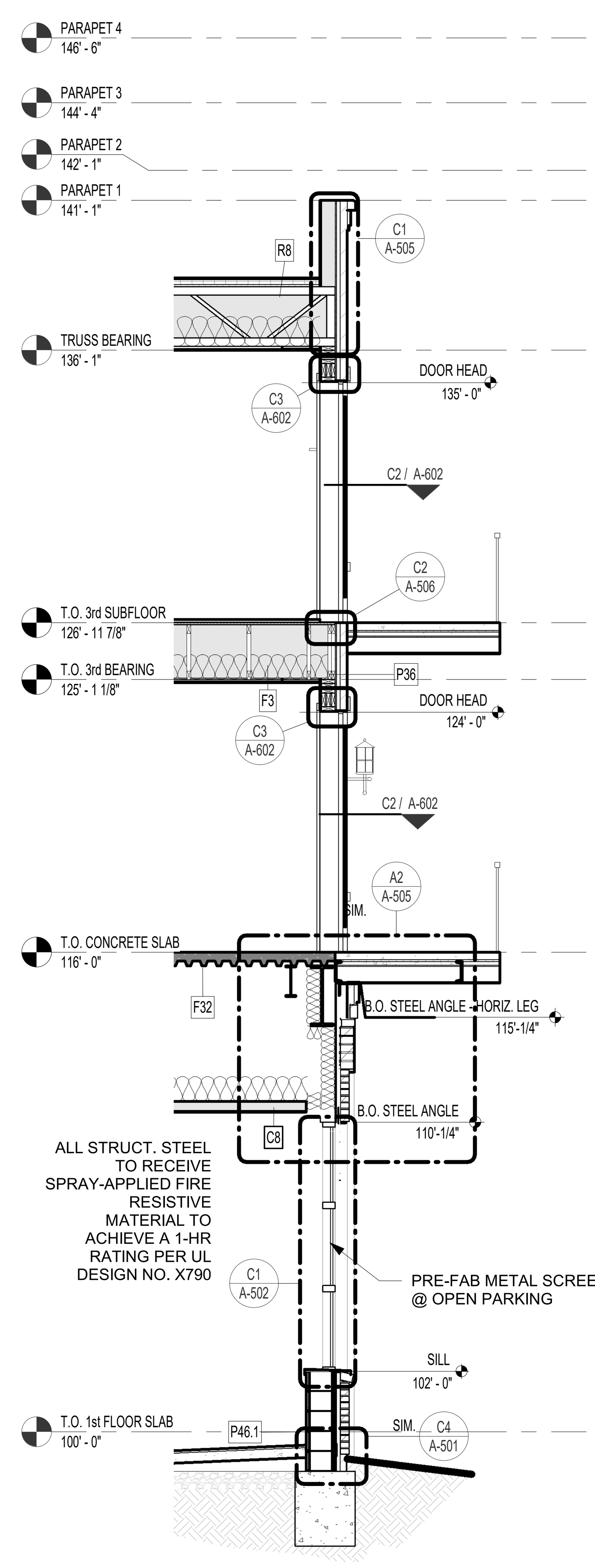
6 WALL SECTION @ CORNER
1/4" = 1'-0"



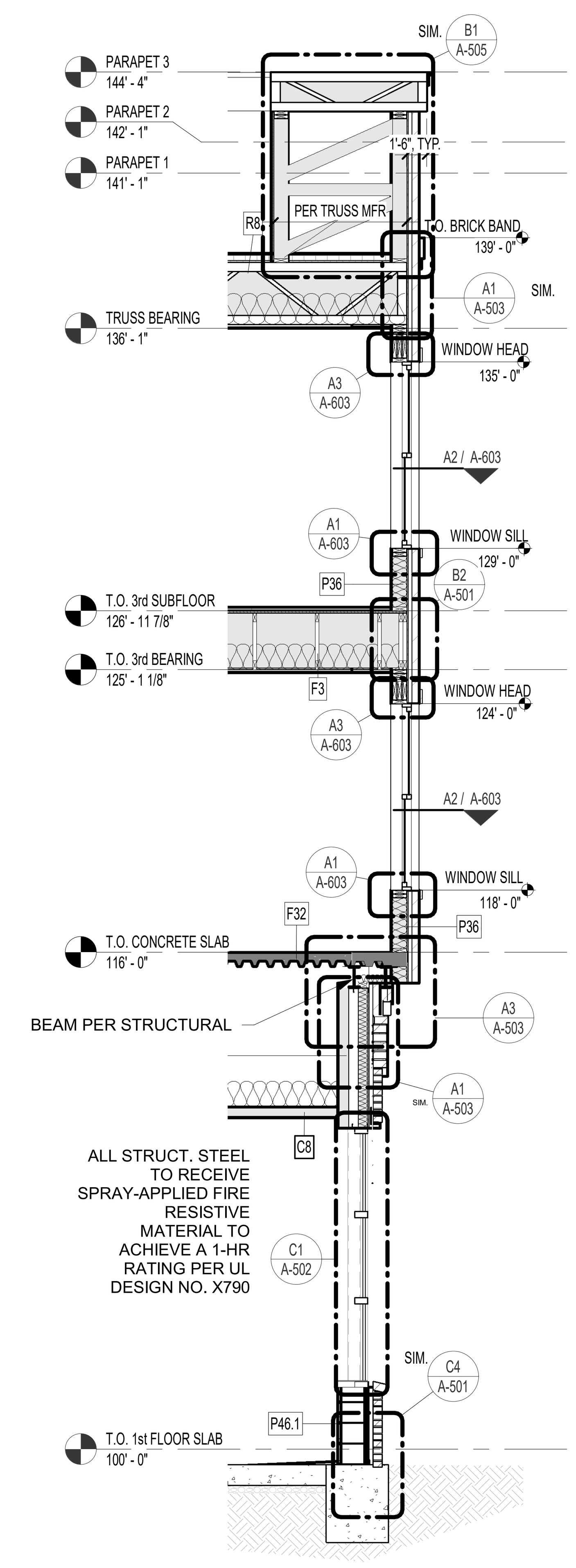
5 WALL SECTION @ COMMERCIAL @ BALCONY
1/4" = 1'-0"



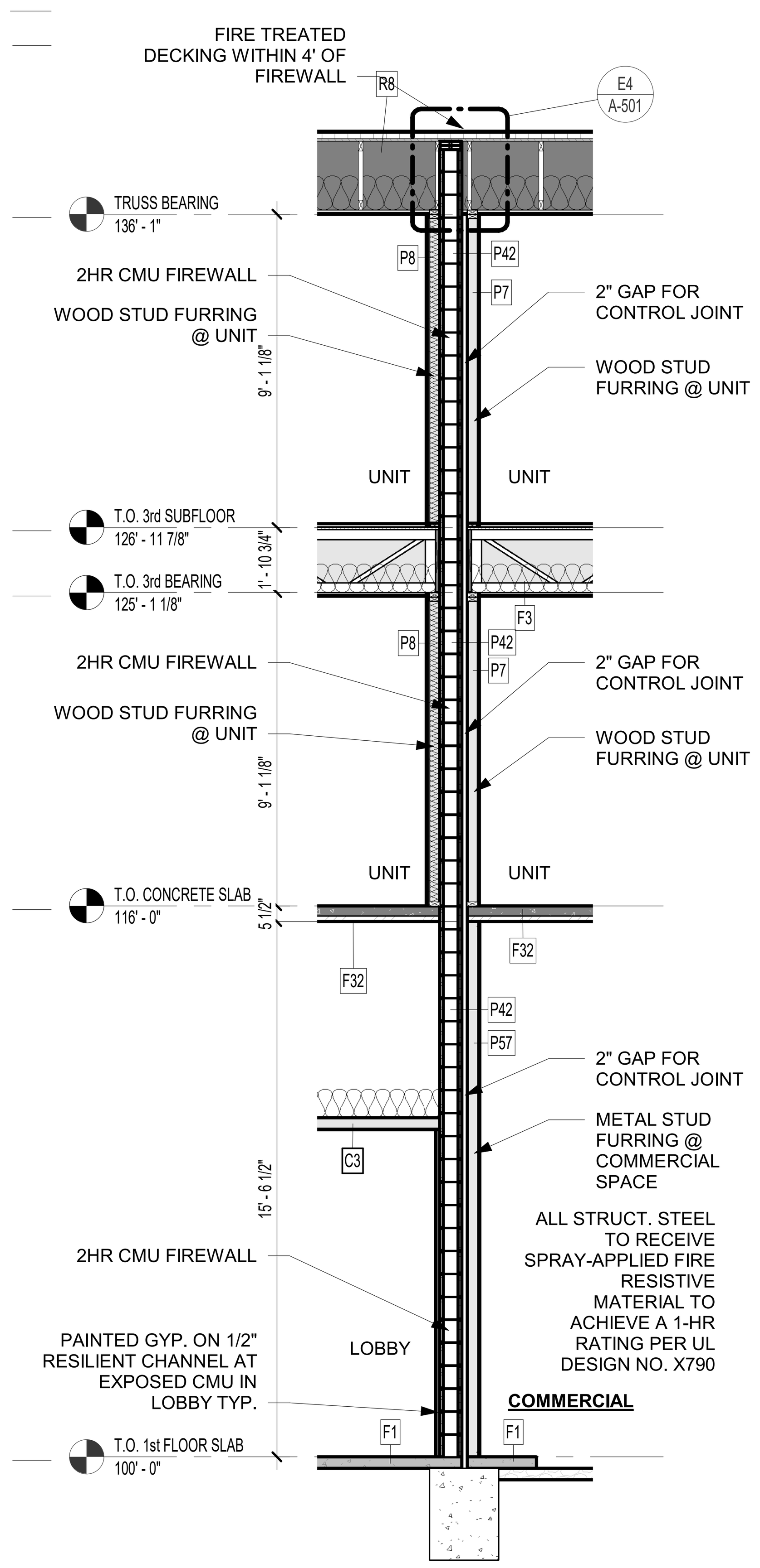
4 TYPICAL WALL SECTION @ COMMERCIAL
1/4" = 1'-0"



3 WALL SECTION @ PARKING @ BALCONY
1/4" = 1'-0"



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



1 WALL SECTION @ FIREWALL
1/4" = 1'-0"

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11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

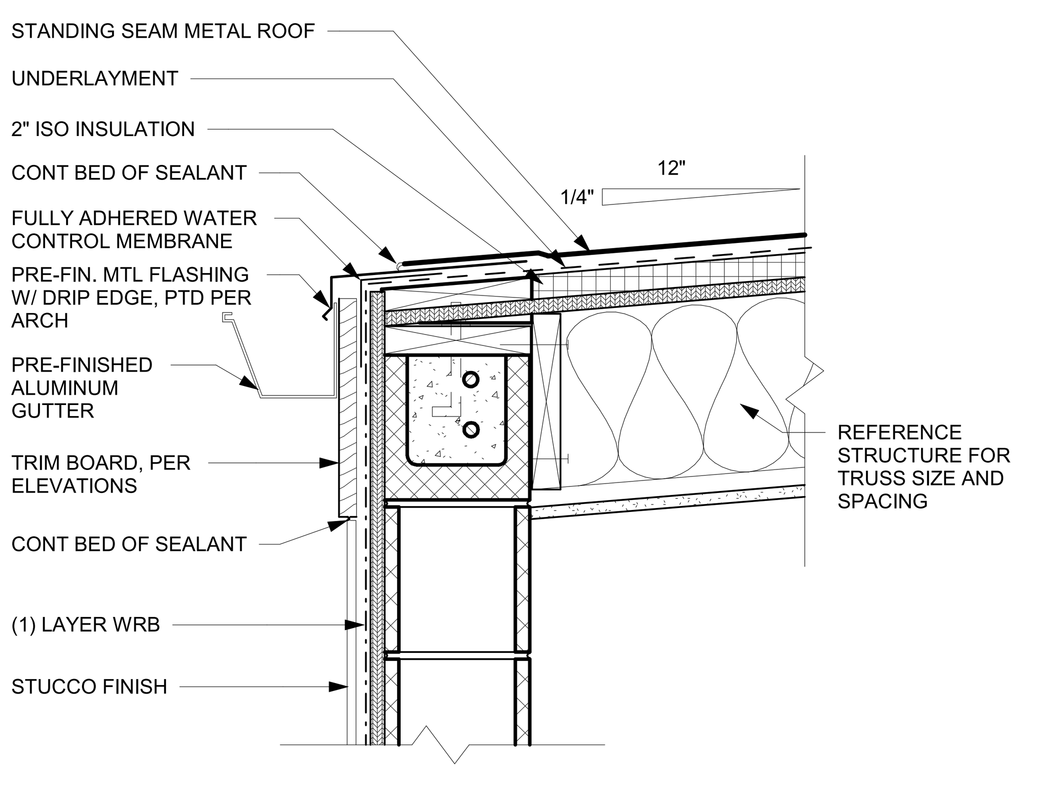
SHEET TITLE
WALL SECTIONS

PROJECT NUMBER: 23103

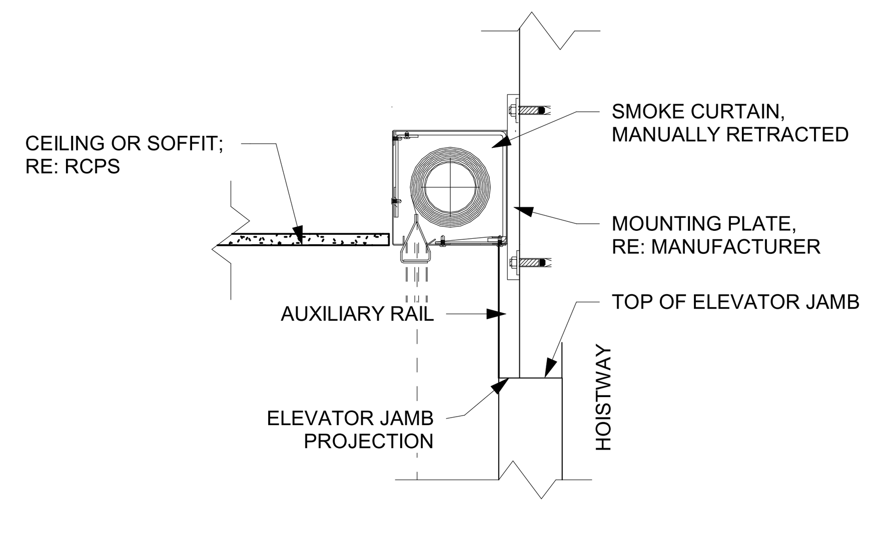
SHEET NUMBER:

A-301

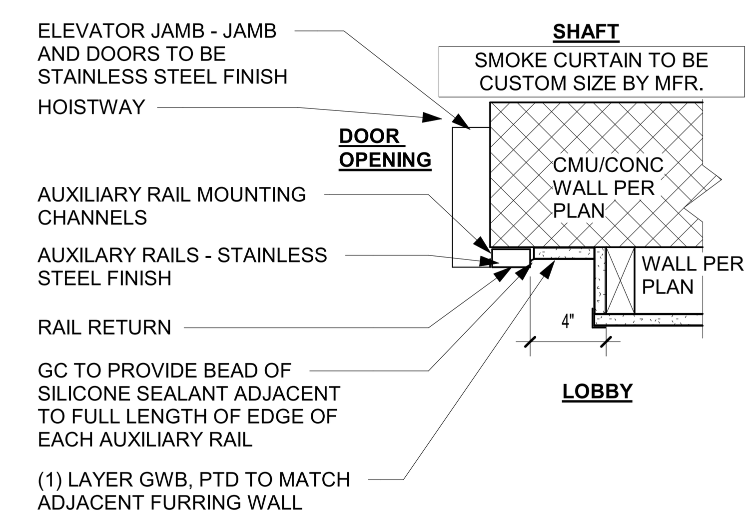
REFERENCE G-003 FOR GENERAL NOTES



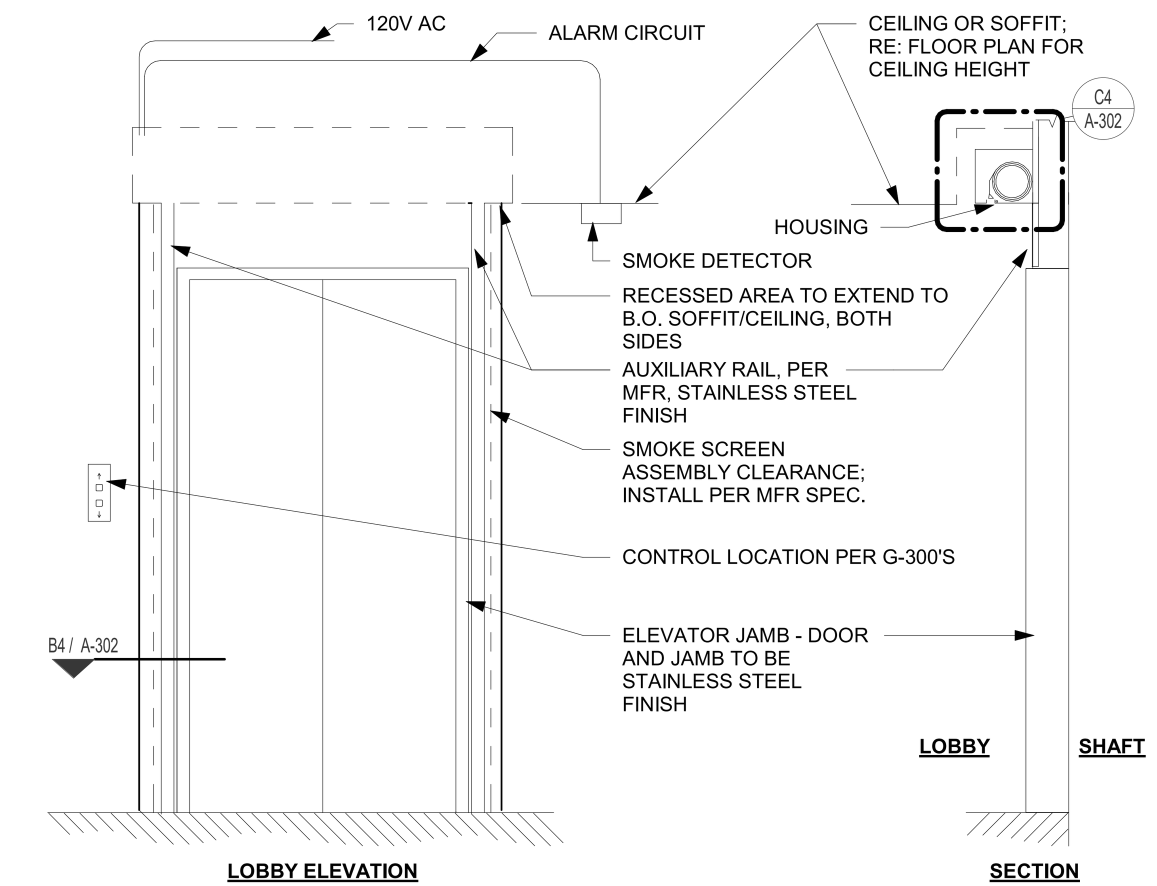
E4 ELEVATOR - CMU AT LOW SLOPE ROOF @ GUTTER
1 1/2" = 1'-0"



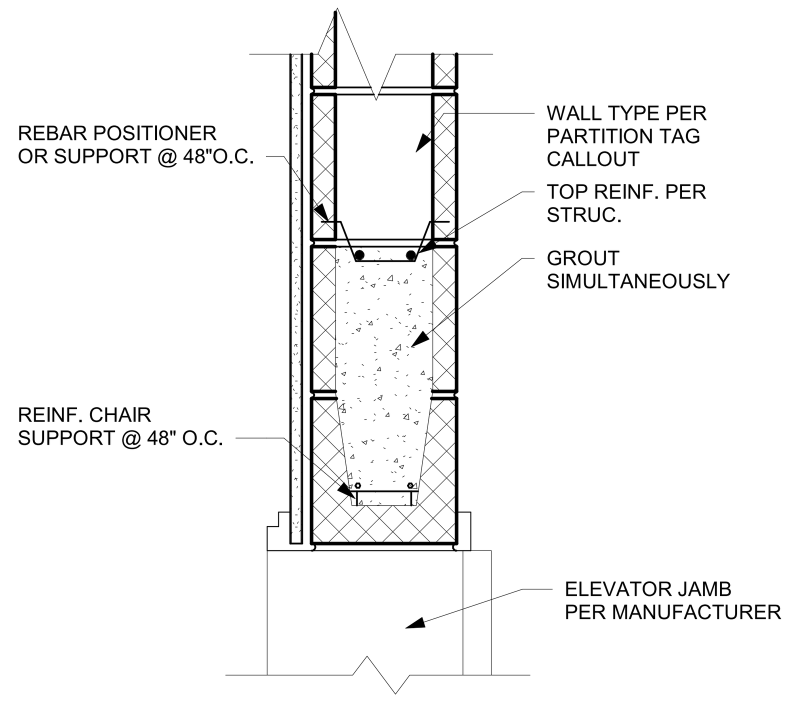
C4 SMOKE CURTAIN HEAD DTL.
1 1/2" = 1'-0"



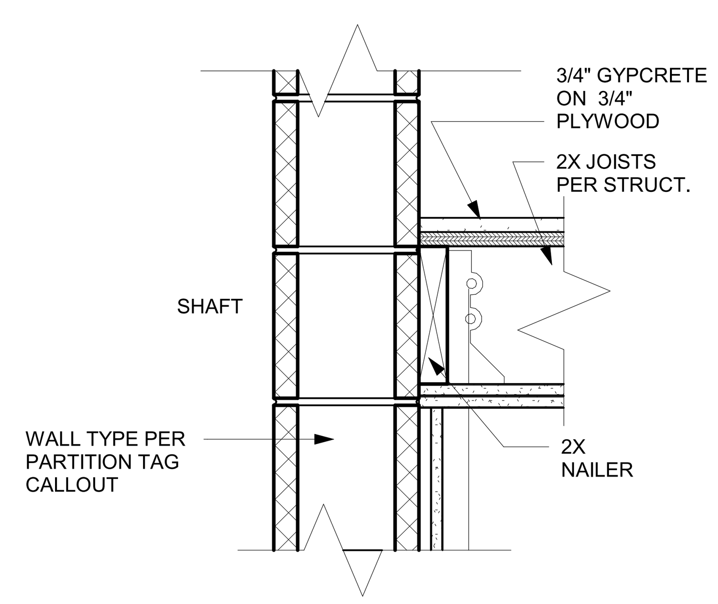
B4 SMOKE CURTAIN JAMB DTL
1 1/2" = 1'-0"



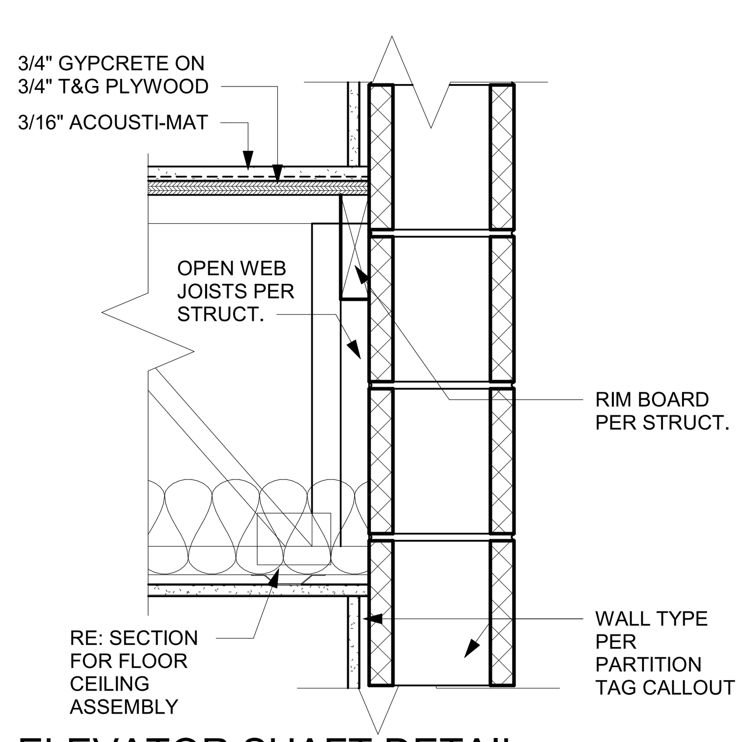
A4 SMOKE CURTAIN SECTION AND ELEVATION
1/2" = 1'-0"



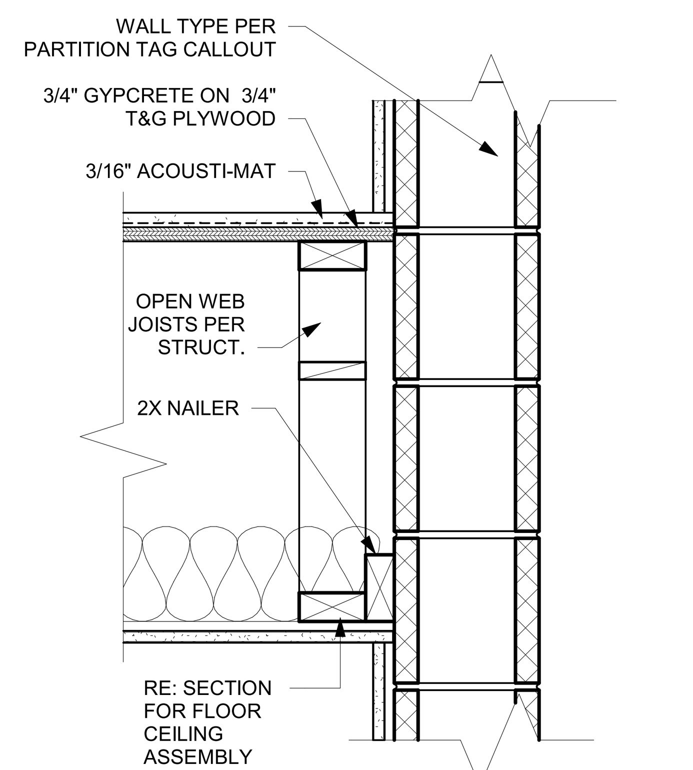
E3 ELEVATOR DOOR HEAD DETAIL
1 1/2" = 1'-0"



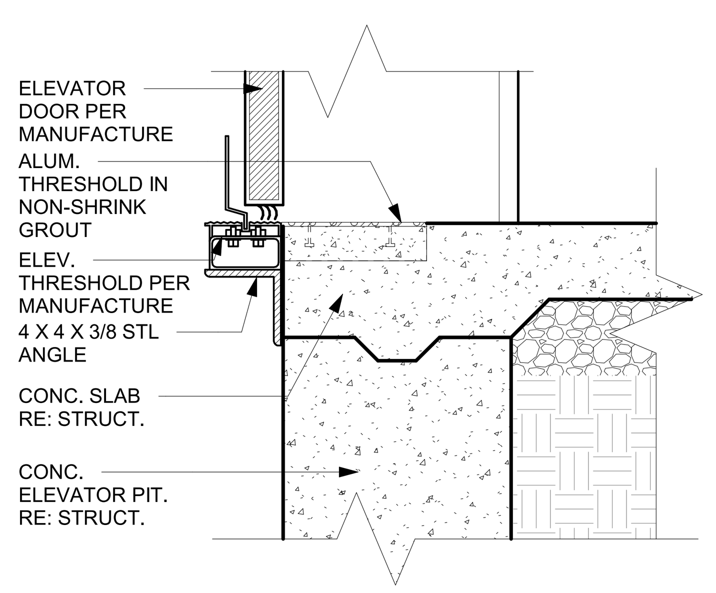
D3 ELEVATOR SHAFT DETAIL
1 1/2" = 1'-0"



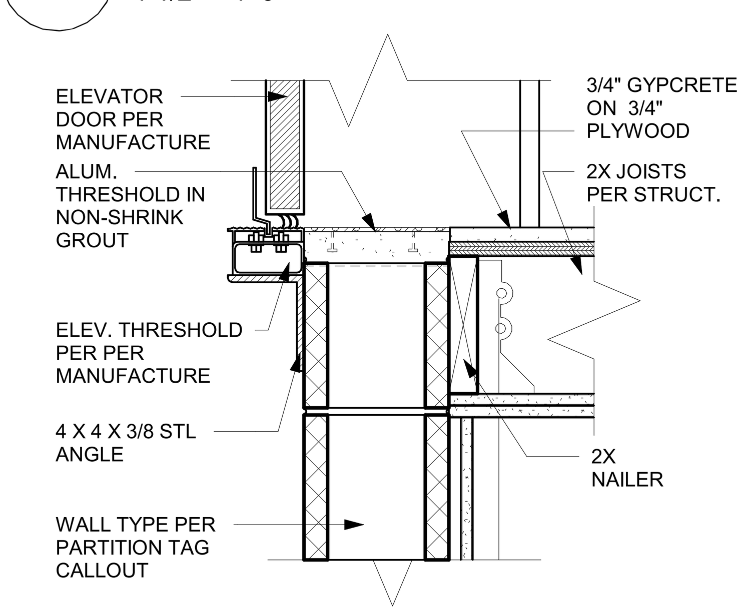
E2 ELEVATOR SHAFT DETAIL
1 1/2" = 1'-0"



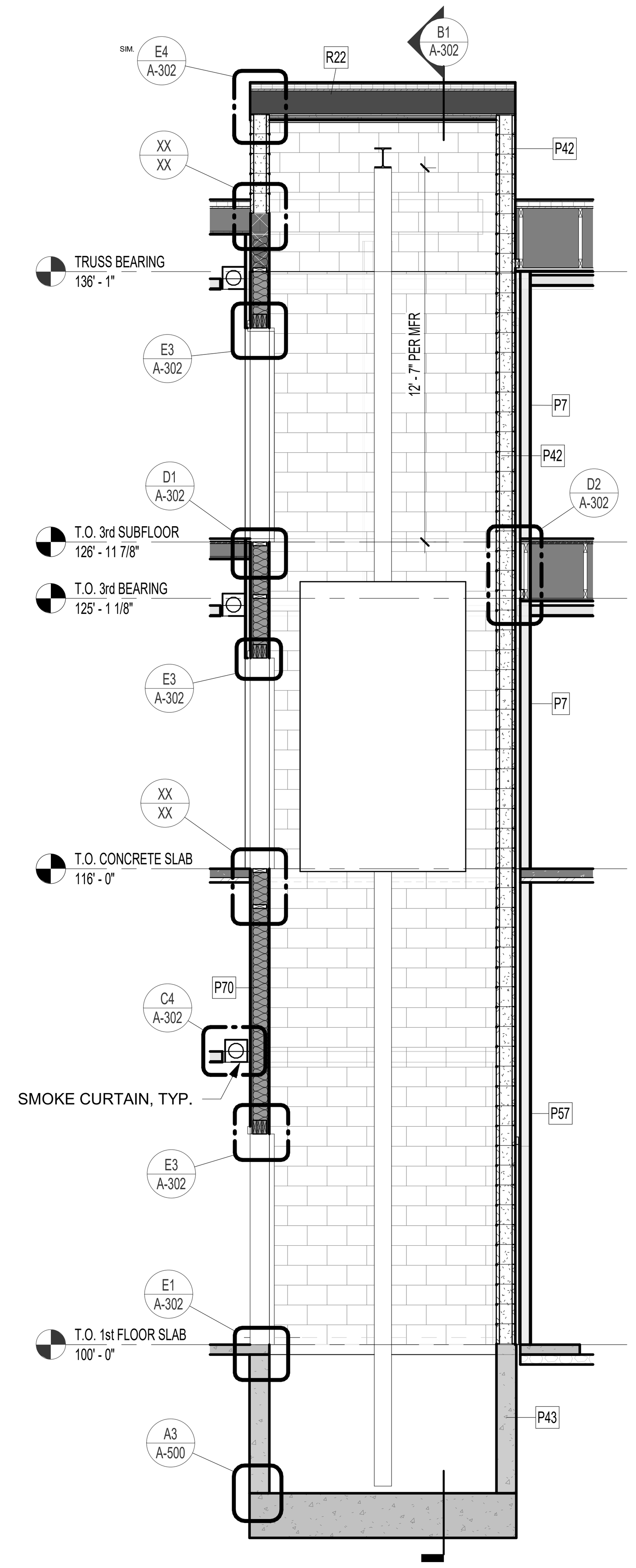
D2 ELEVATOR SHAFT DETAIL
1 1/2" = 1'-0"



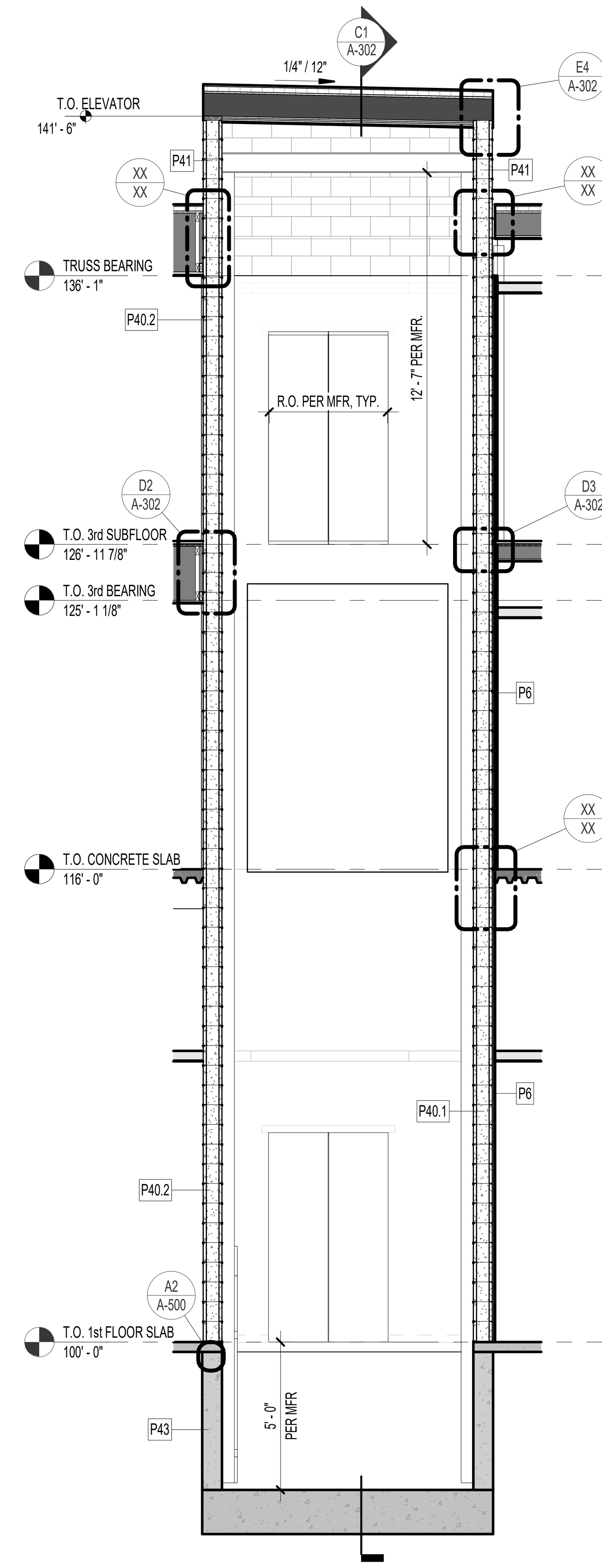
E1 ELEVATOR SHAFT THRESHOLD AT PIT
1 1/2" = 1'-0"



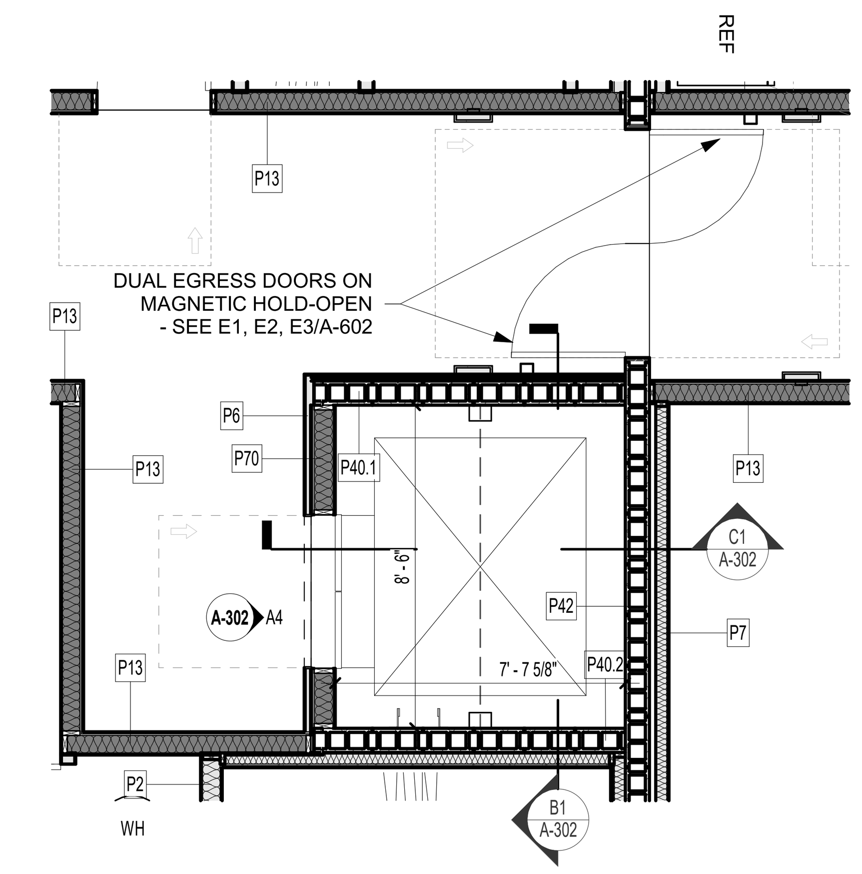
D1 ELEVATOR SHAFT AT THRESHOLD DETAIL
1 1/2" = 1'-0"



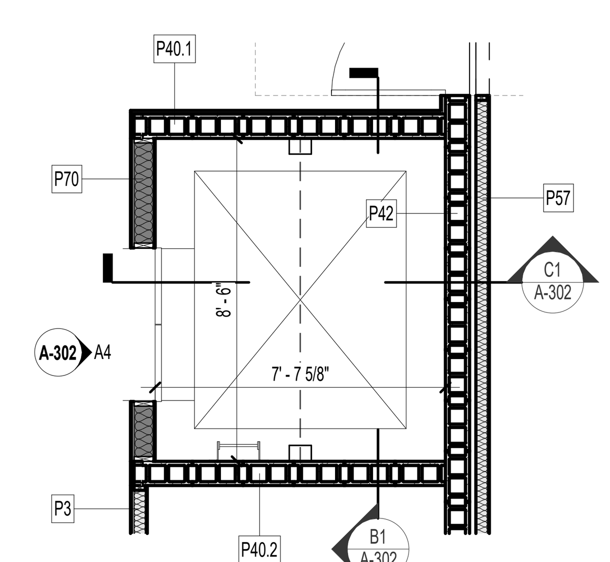
C1 ELEVATOR - SECTION 2
1/4" = 1'-0"



B1 ELEVATOR - SECTION 1
1/4" = 1'-0"



A2 ELEVATOR - UPPER FLOORS
1/4" = 1'-0"



A1 ELEVATOR - 1ST FLOOR
1/4" = 1'-0"

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THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO

SHEET TITLE
ELEVATOR PLANS, SECTIONS & DETAILS

PROJECT NUMBER: 23103

SHEET NUMBER:

A-302

REFERENCE G-003 FOR GENERAL NOTES

PRINTS ISSUED
11/12/24 - CITY SUBMITTAL

REVISIONS:
2 12/20/24 Add #2

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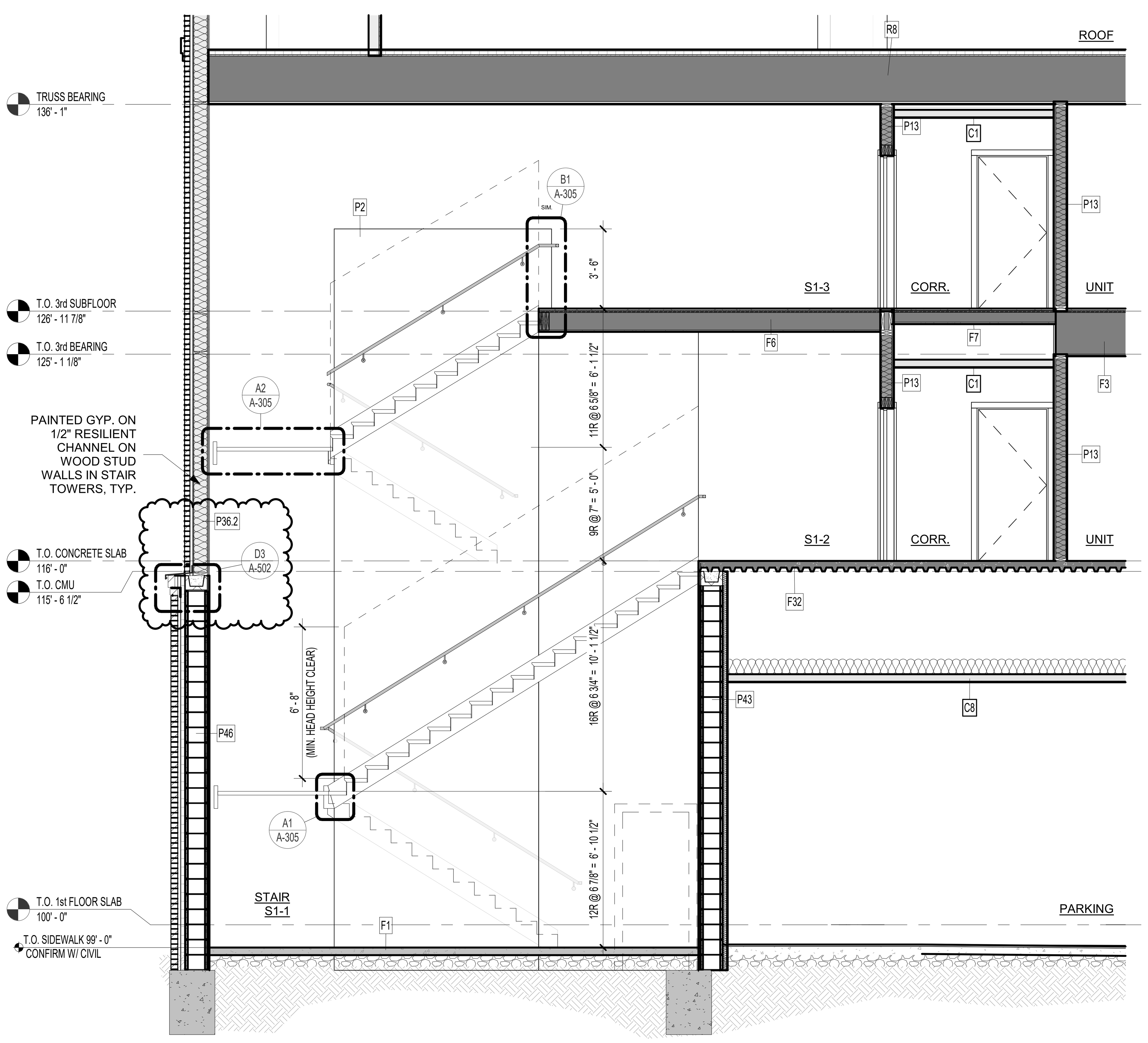
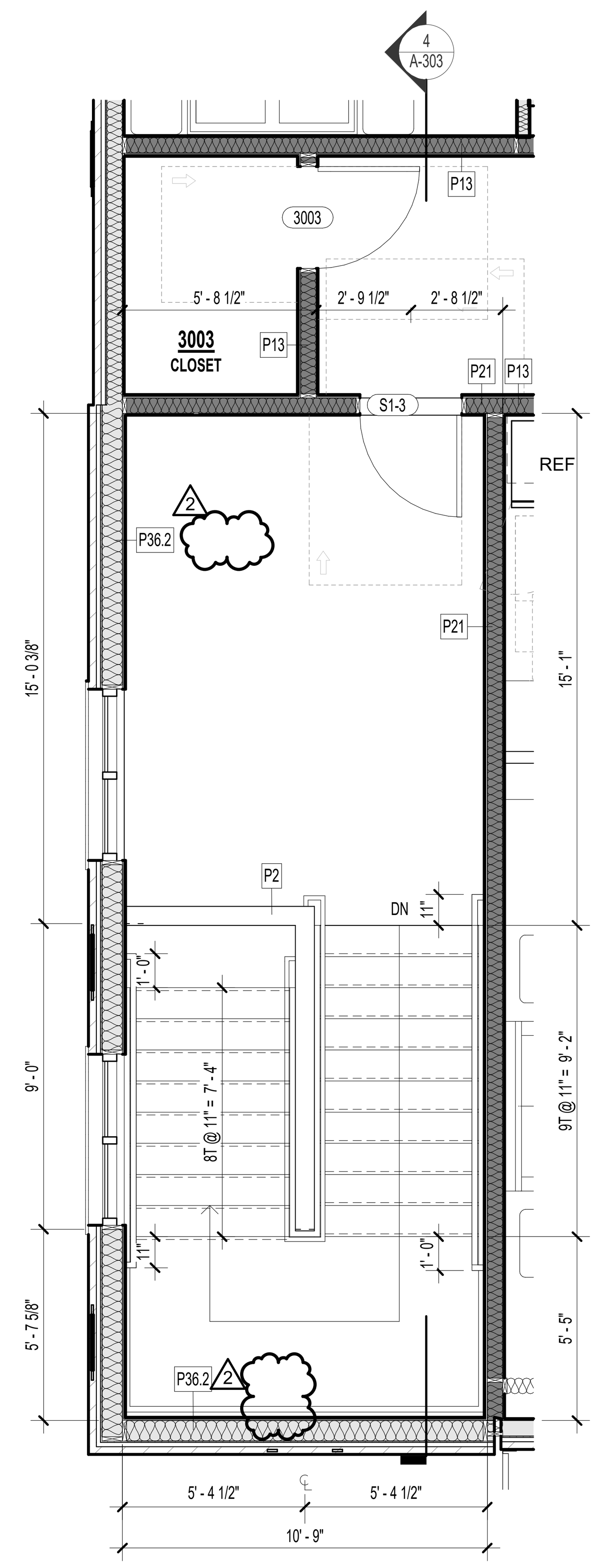
THE VILLAGE AT DISCOVERY - LOT 7

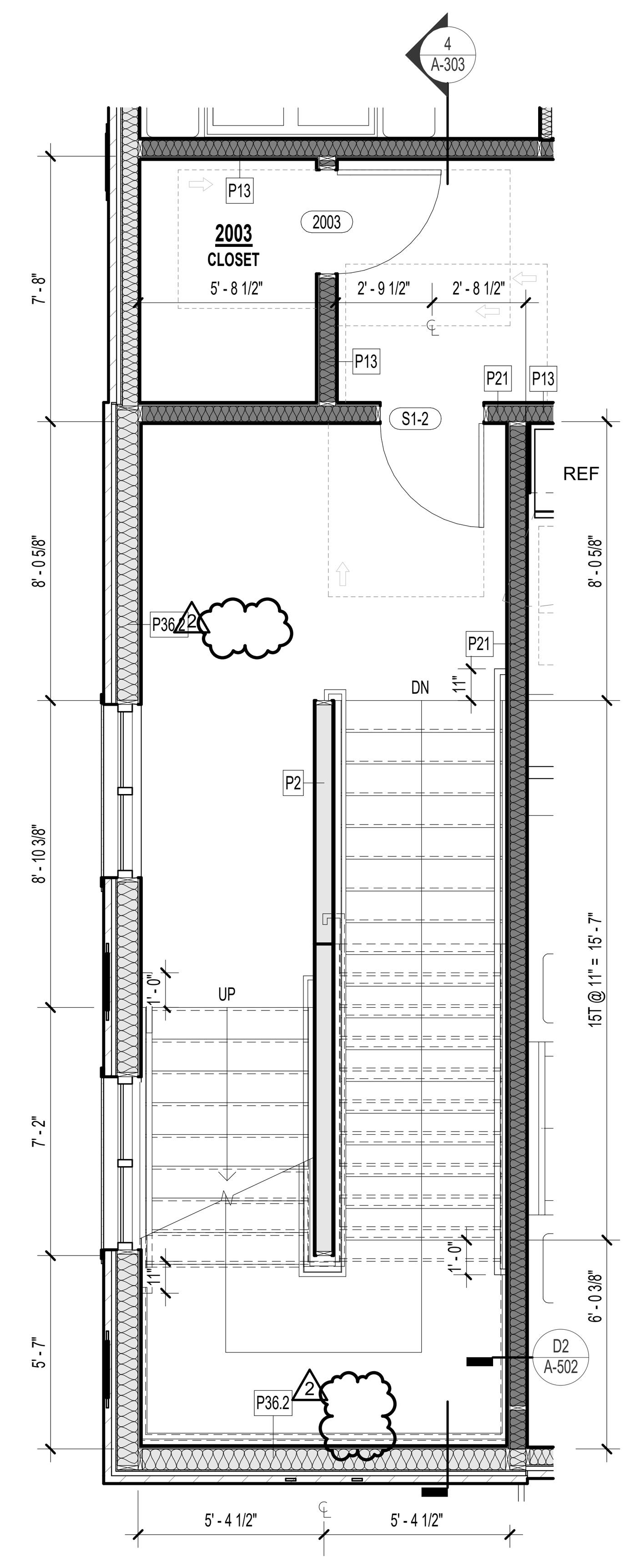
LEE'S SUMMIT, MO



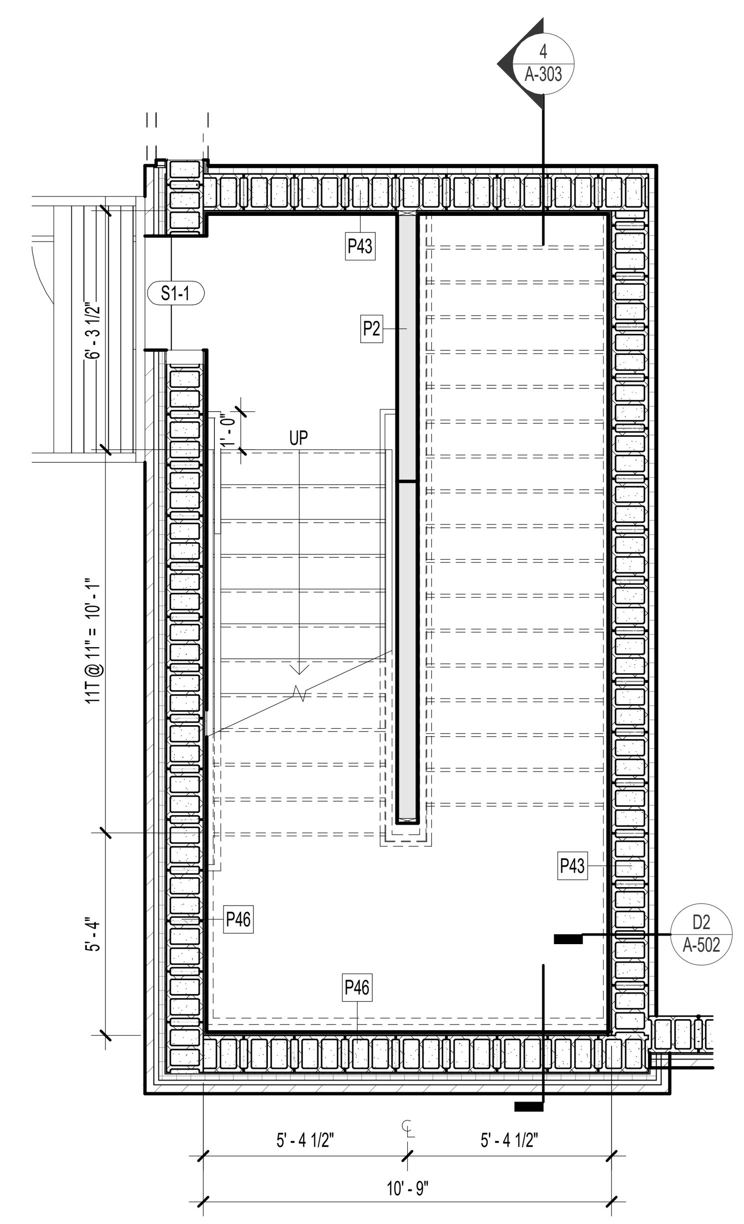
4 STAIR S1 - SECTION
1/4" = 1'-0"



3 STAIR S1 - 3RD FLOOR PLAN
1/4" = 1'-0"



2 STAIR S1 - 2ND FLOOR PLAN
1/4" = 1'-0"



1 STAIR S1 - 1ST FLOOR PLAN
1/4" = 1'-0"

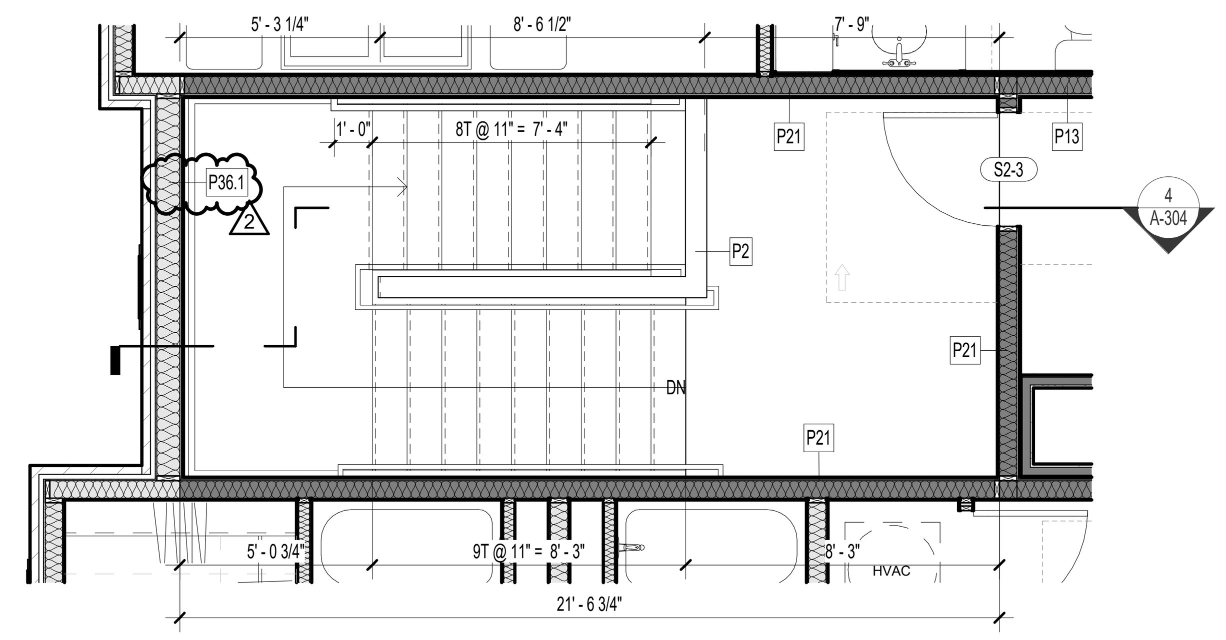
SHEET TITLE
STAIR 1 - PLANS AND SECTION

PROJECT NUMBER: 23103

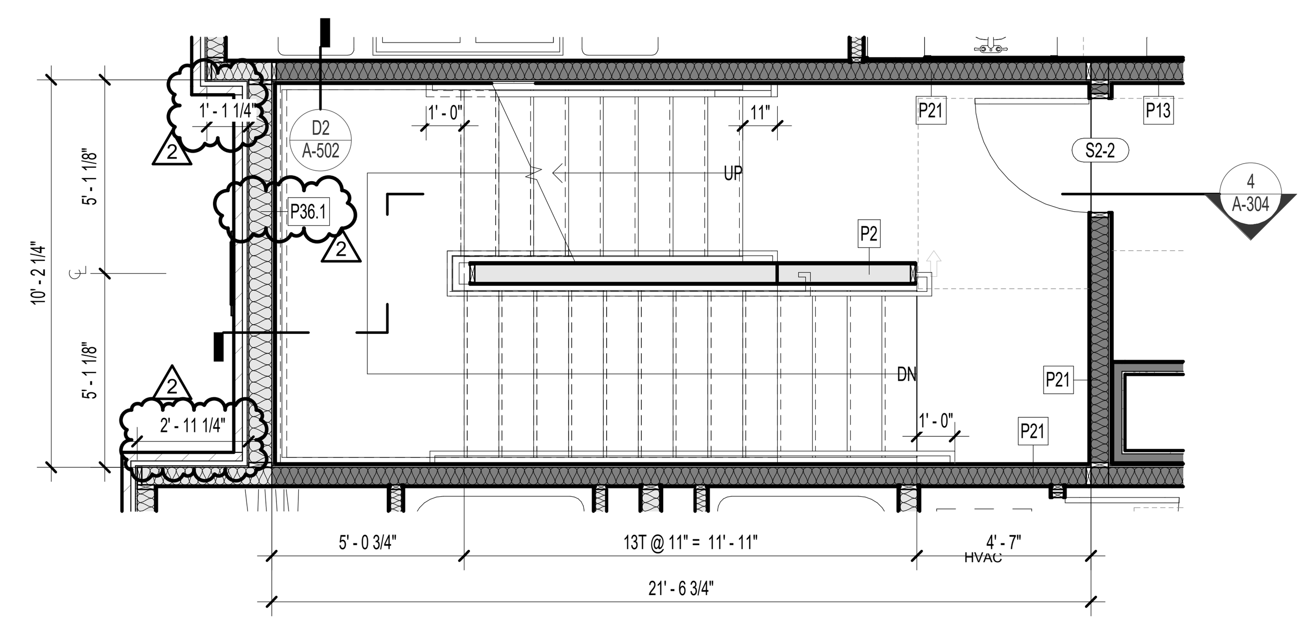
SHEET NUMBER:

A-303

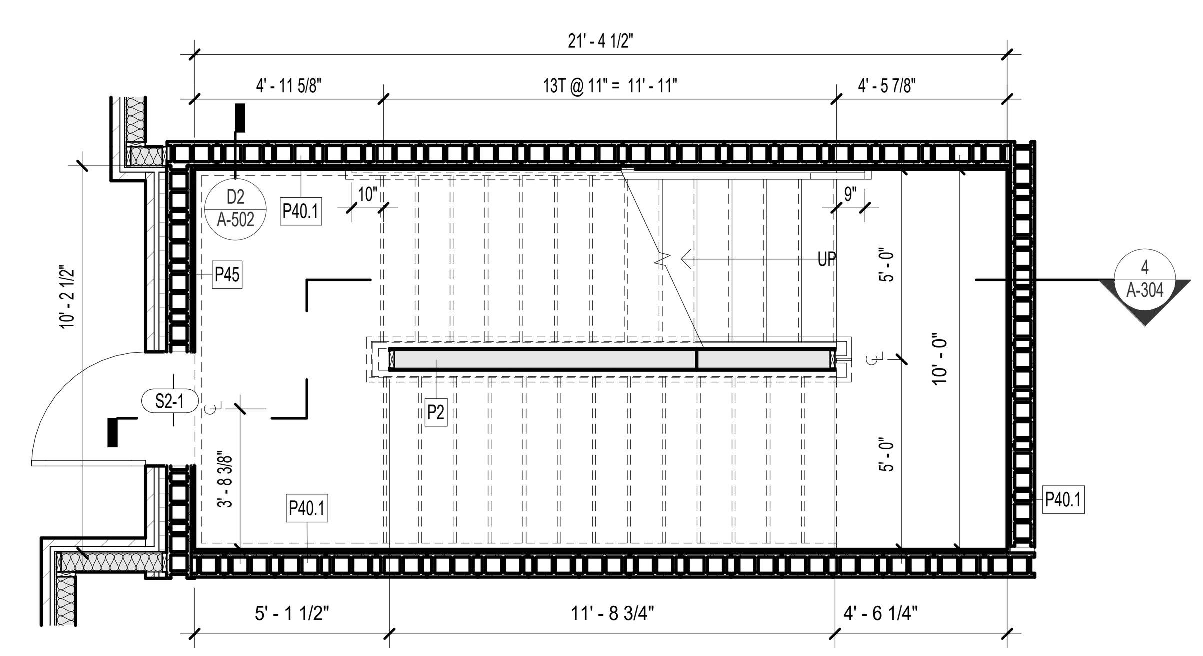
REFERENCE G-003 FOR GENERAL NOTES



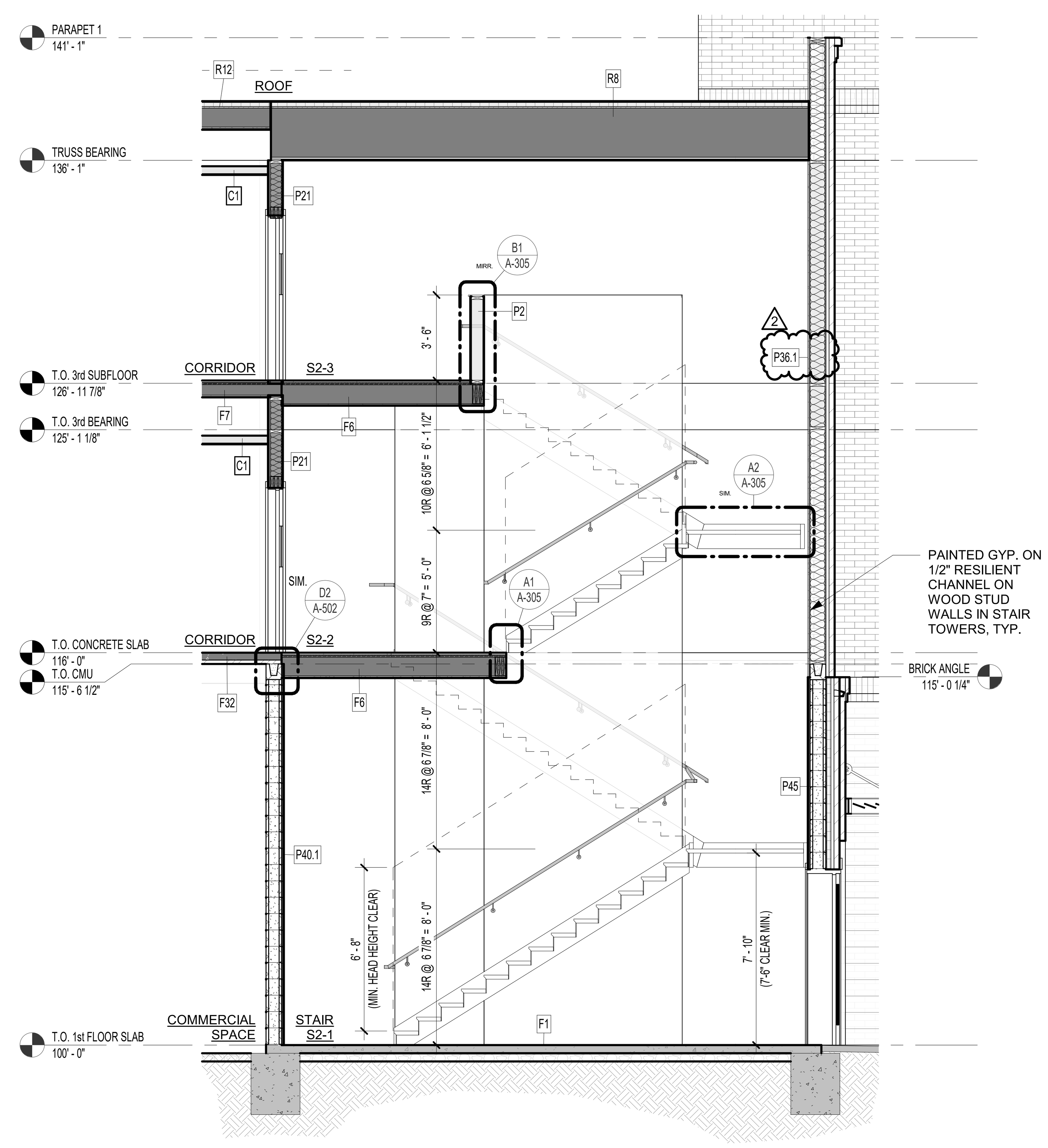
3 STAIR S2 - 3RD FLOOR PLAN
1/4" = 1'-0"



2 STAIR S2 - 2ND FLOOR PLAN
1/4" = 1'-0"



1 STAIR S2 - 1ST FLOOR PLAN
1/4" = 1'-0"



4 STAIR S2 - SECTION
1/4" = 1'-0"

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REVISIONS:
2 12/20/24 Add #2

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THE VILLAGE AT DISCOVERY - LOT 7

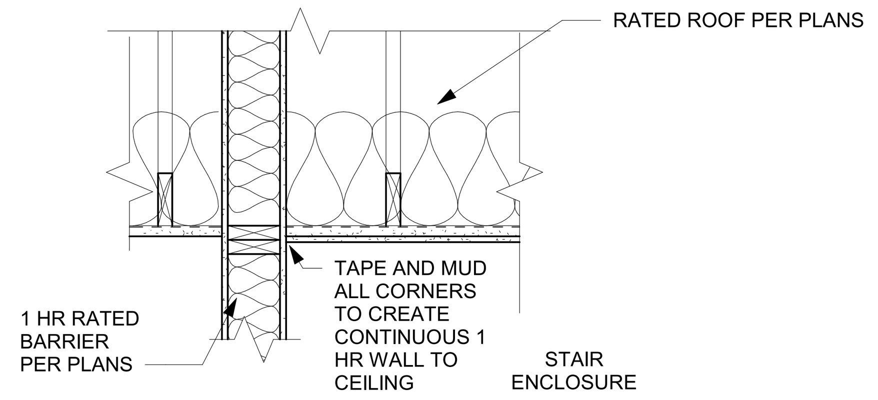
LEE'S SUMMIT, MO

SHEET TITLE
STAIR 2 - PLANS AND SECTION

PROJECT NUMBER: 23103

SHEET NUMBER:

A-304



STAIR ENCAPSULATION - 1 HR:

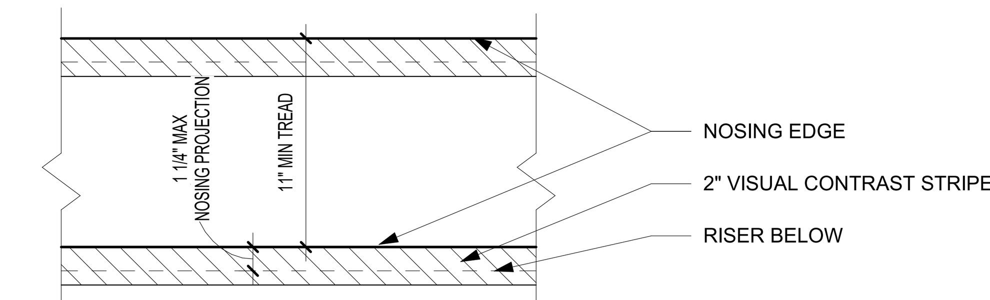
(2) LAYERS 5/8" TYPE "X" GWB. TO MEET IBC CHAPTER 722.6.2. VERTICAL DRYWALL AT BARRIER TO EXTEND UP TO B.O. R/C ASSEMBLY DECK. STAIR ENCLOSURE TO BE 1 HR RATED, CONTINUOUSLY.

D3 STAIR - WOOD FRAMED 1 RATED CEILING (SECTION)
3/4" = 1'-0"

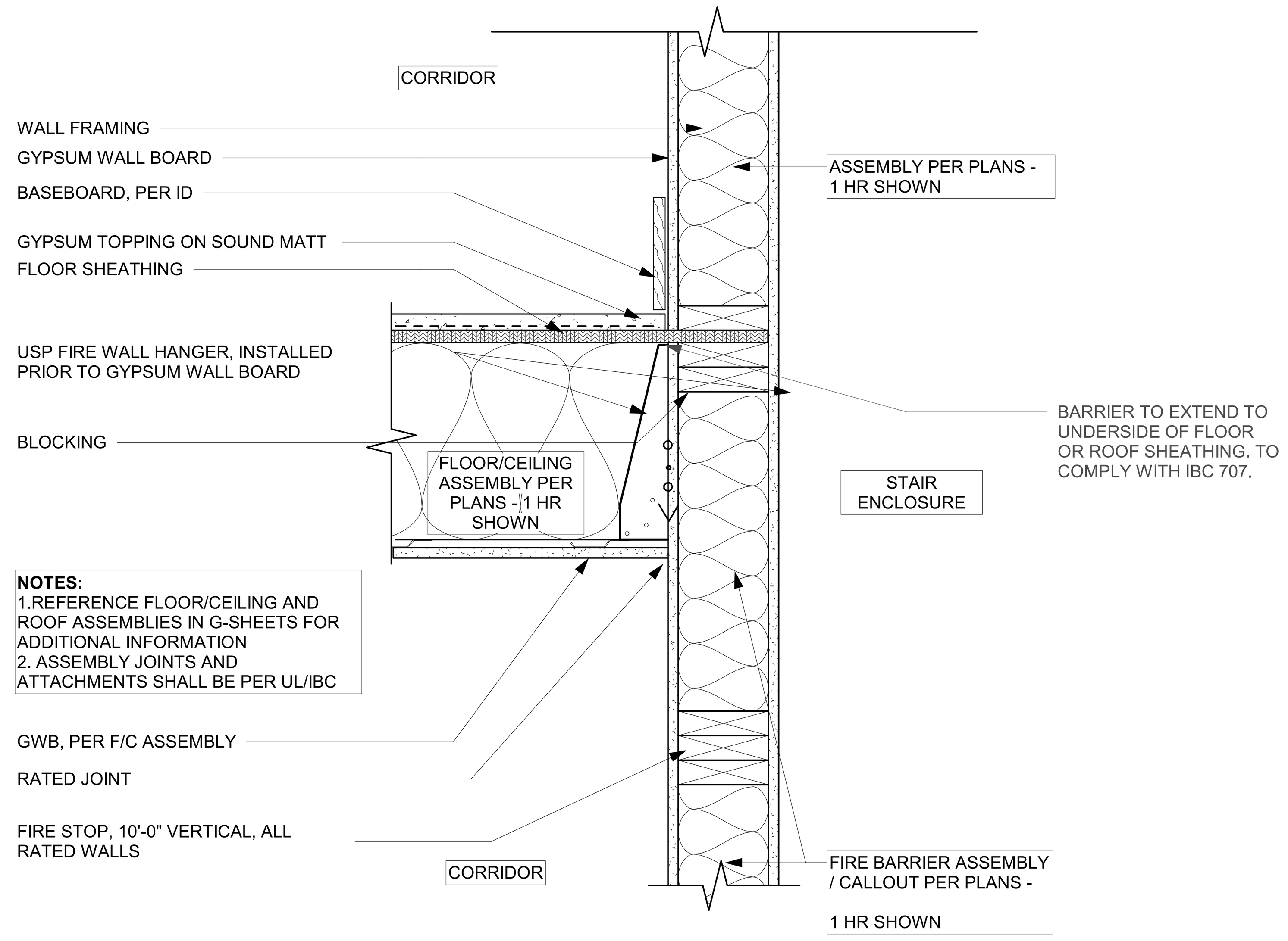
NOTE: Floor identification signs.
-A sign shall be provided at each floor landing in exit enclosures designating the floor level, the terminus of the top and bottom of the exit enclosure and the identification of the stair.
- story number
- the direction to the exit discharge
- and the availability of roof access from the enclosure for the fire department.

- Located 5 feet above the floor landing in a position that is readily visible when the doors are in the open and closed positions.
- Floor level identification signs in tactile characters complying with ICC A117.1 shall be located at each floor level landing adjacent to the door leading from the enclosure into the corridor to identify the floor level.

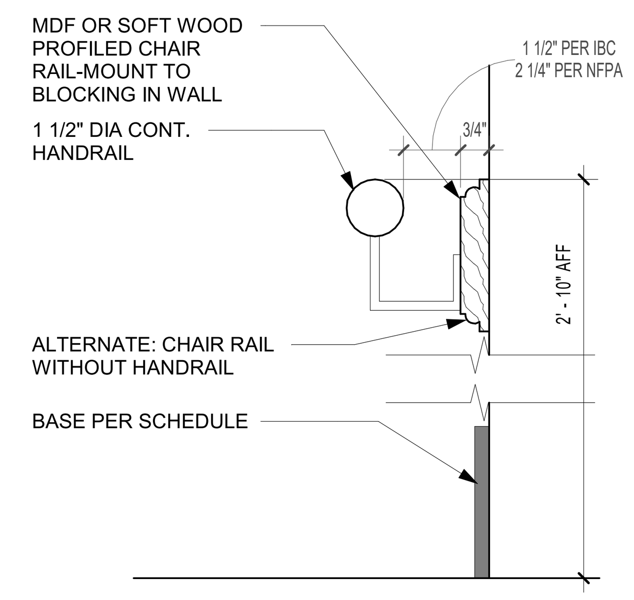
NOTE:
Stairway identification signs shall comply with all of the following requirements:
1. The signs shall be a minimum size of 18 inches by 12 inches.
2. The letters designating the identification of the stair enclosure shall be a minimum of 11/2 inches (38 mm) in height.
3. The number designating the floor level shall be a minimum of 5 inches (127 mm) in height and located in the center of the sign.
4. All other lettering and numbers shall be a minimum of 1 inch (25 mm) in height.
5. Characters and their background shall have a nonglare finish. Characters shall contrast with their background, with either light characters on a dark background or dark characters on a light background.



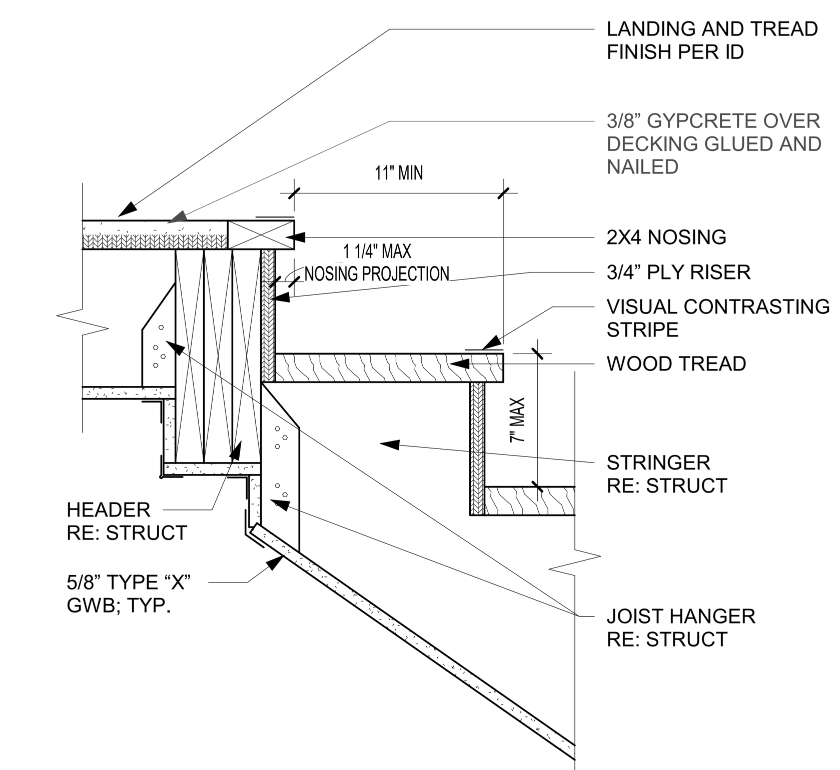
A4 STAIR - (WOOD) - PLAN W. VISUAL CONTRAST
1 1/2" = 1'-0"



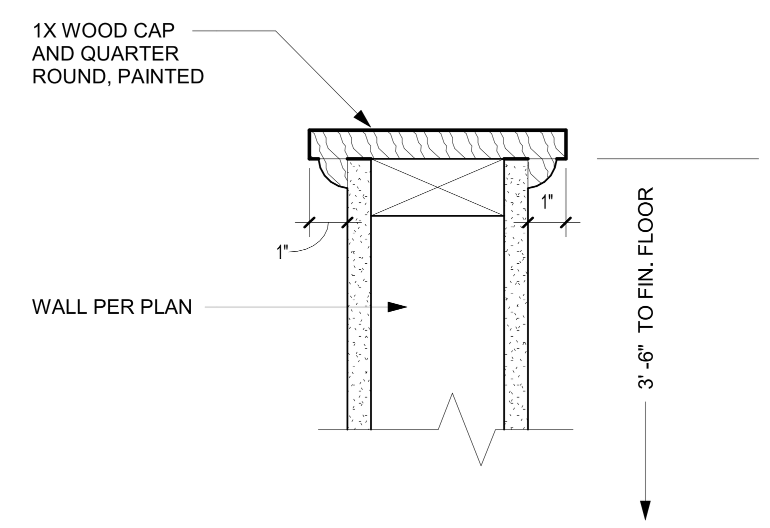
D2 STAIR - WOOD FRAMED RATED WALL (SECTION) 1
1 1/2" = 1'-0"



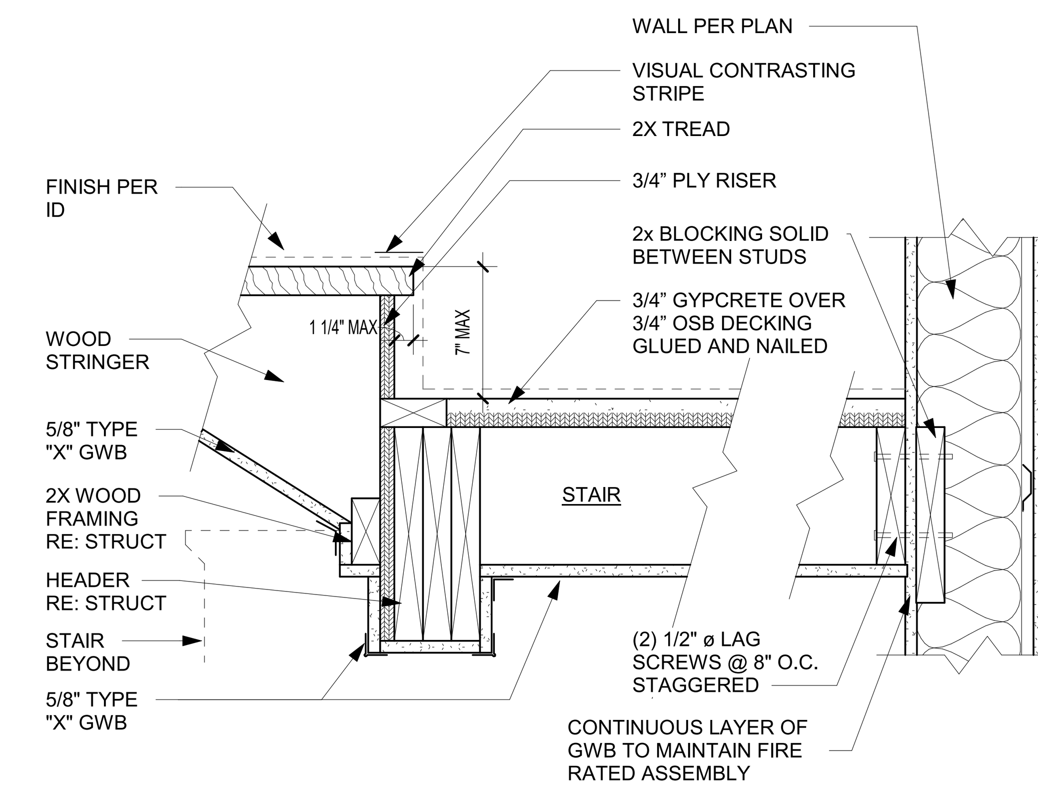
B3 FINISHES - MDF @ HANDRAIL
3" = 1'-0"



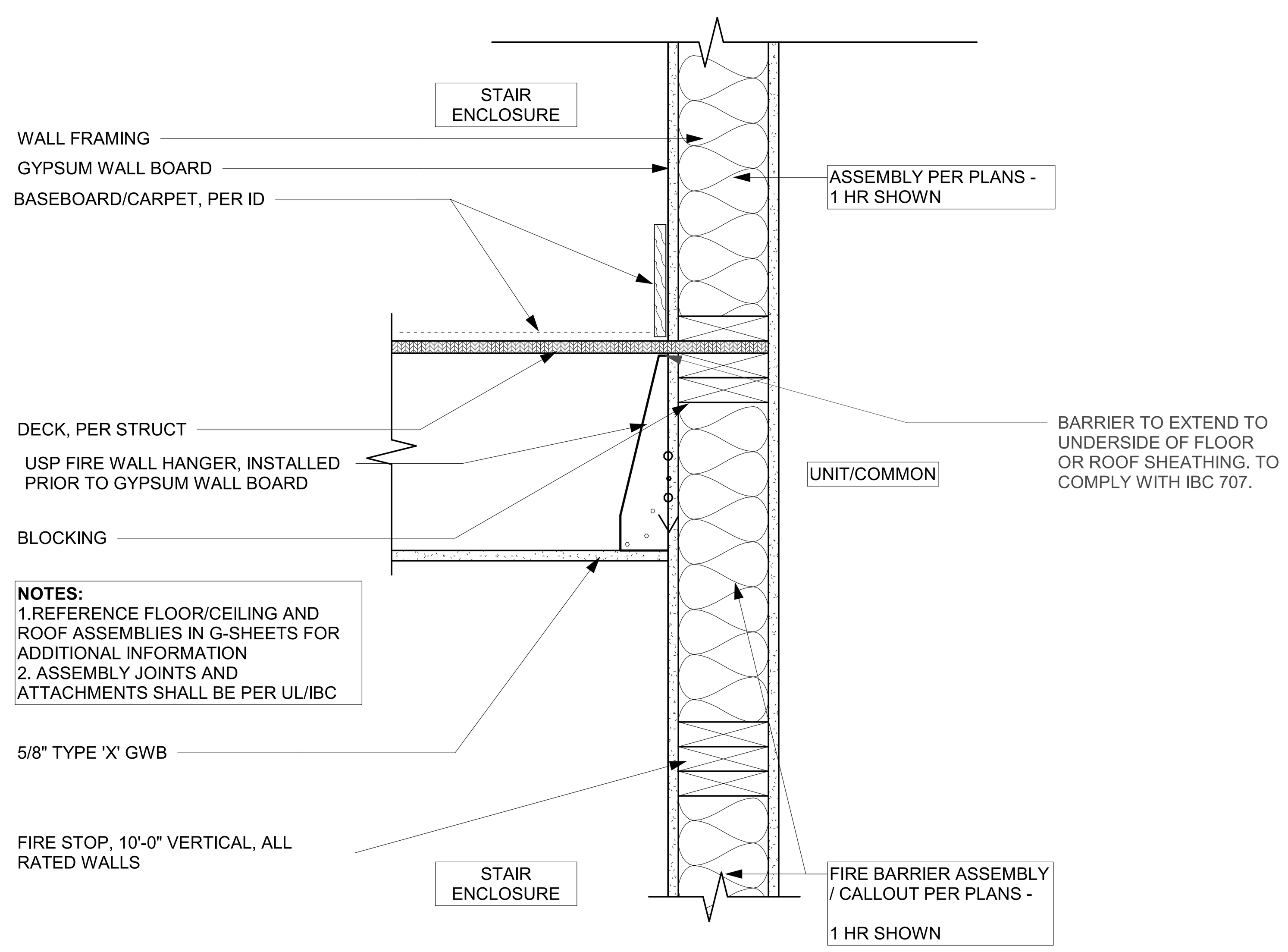
A3 STAIR - (WOOD) TOP @ FLOOR
1 1/2" = 1'-0"



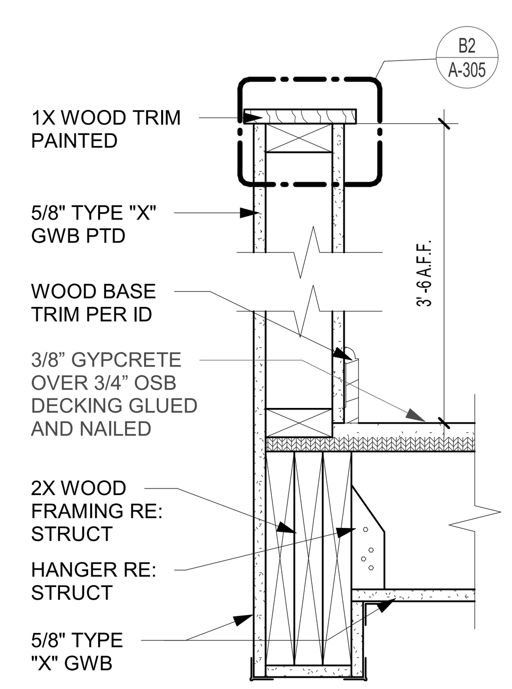
B2 STAIR - WOOD FRAMED KNEE WALL TOP
3" = 1'-0"



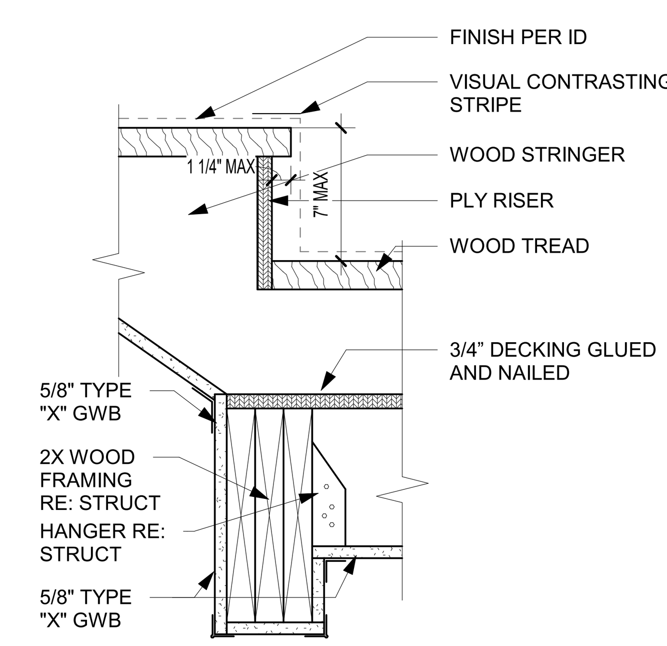
A2 STAIR - (WOOD) BASE @ PLATFORM
1 1/2" = 1'-0"



D1 STAIR - WOOD FRAMED AT LANDING (SECTION)
1 1/2" = 1'-0"



B1 STAIR - WOOD FRAMED KNEE WALL
1 1/2" = 1'-0"



A1 STAIR - (WOOD) BASE @ LANDING
1 1/2" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRICKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO

SHEET TITLE
STAIR DETAILS

PROJECT NUMBER: 23103

SHEET NUMBER:

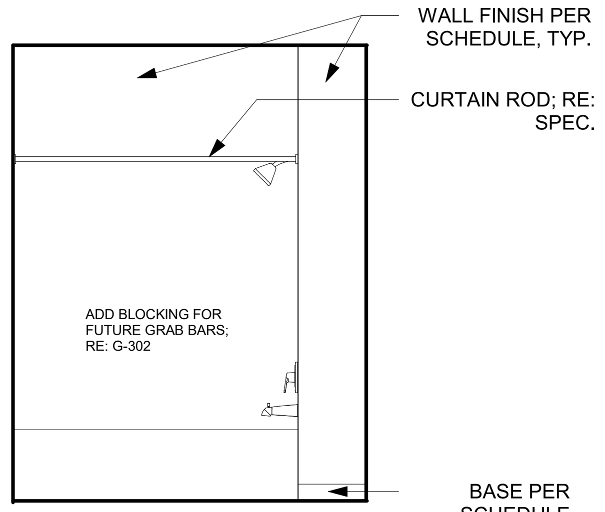
A-305

11/12/2024 9:39:04 AM
C:\Revit Local Cache\2023\23103_Lot 7 Apartments_Central_R23_bmichaels\WIT.A2.rvt

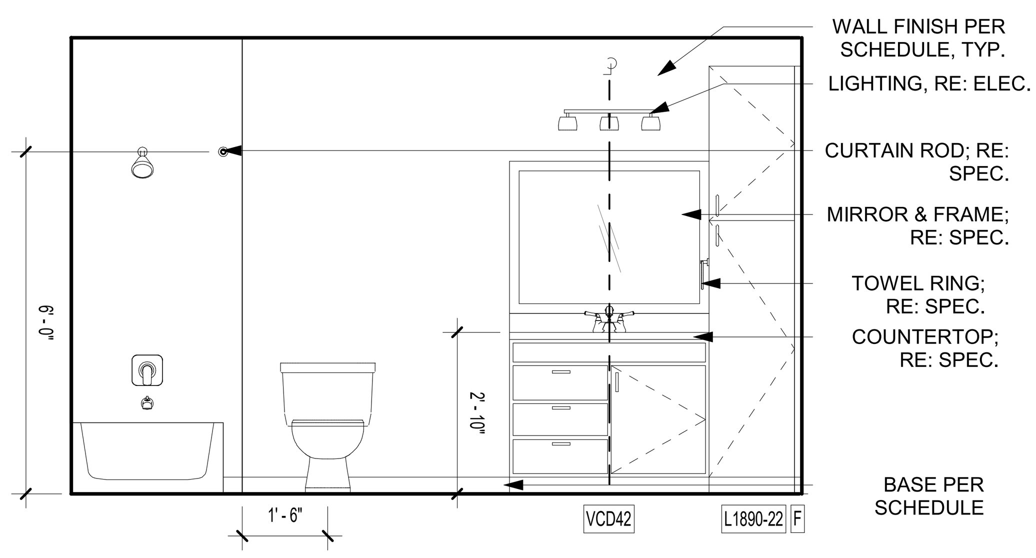
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-120 FOR RCP LEGEND
REFERENCE A-102 & A-103 FOR RC LOCATIONS

UNIT PLAN LEGEND

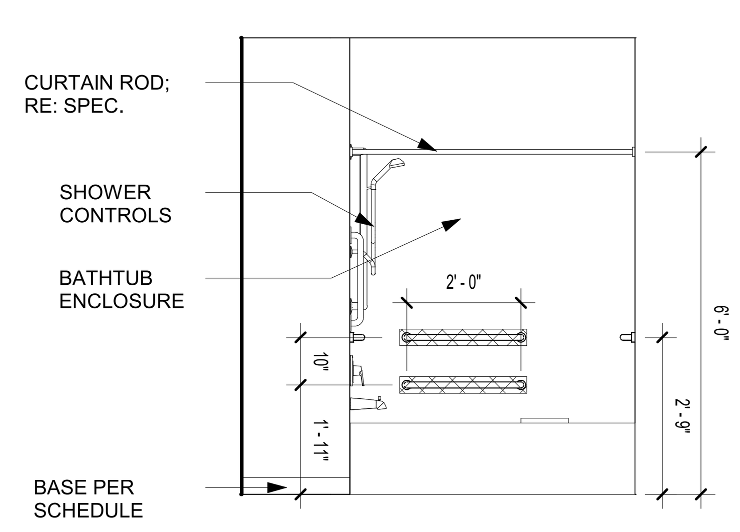
- PARTIAL HEIGHT PARTITION
- P1 WALL (UNLESS NOTED OTHERWISE); SEE PARTITION SCHEDULE FOR ASSEMBLY INFORMATION
- W3030 — CASEWORK TAG
- 101 — DOOR TAG
- ACCESSIBLE ROUTE (36" CLEAR; 32" MIN REQ'D @ DOOR OPENING PER ANSI A117.1)
- DRYER BOX LOCATION; COORD WITH MECH



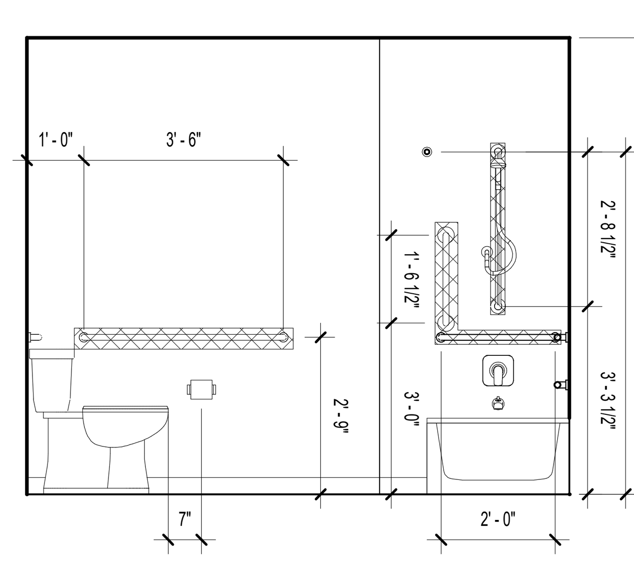
12 ABERDEEN BATH 2 ELEV. 2
3/8" = 1'-0"



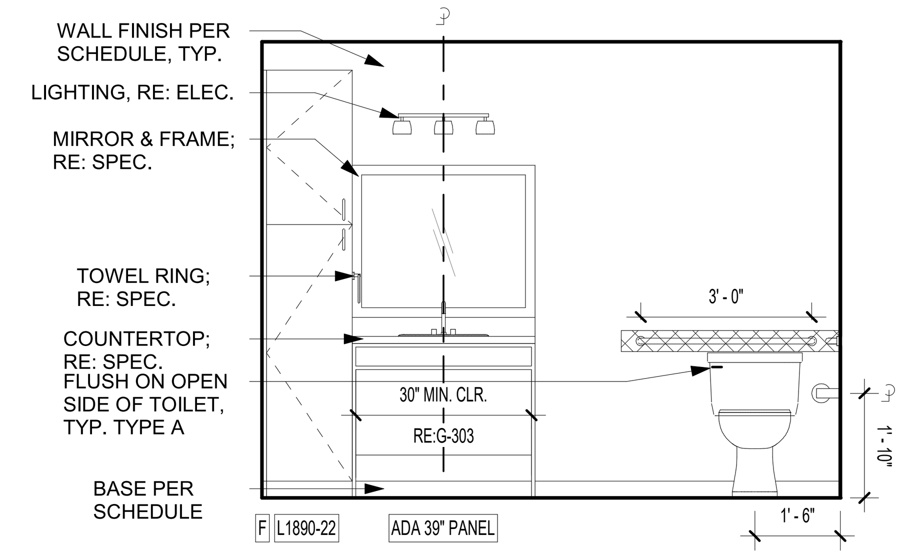
11 ABERDEEN BATH 2 ELEV. 1
3/8" = 1'-0"



10 ABERDEEN BATH 1 ELEV. 3
3/8" = 1'-0"

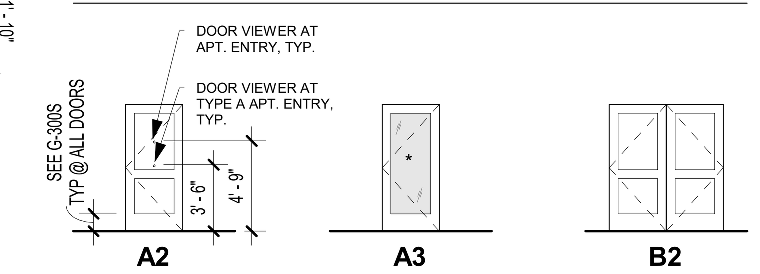


9 ABERDEEN BATH 1 ELEV. 2
3/8" = 1'-0"



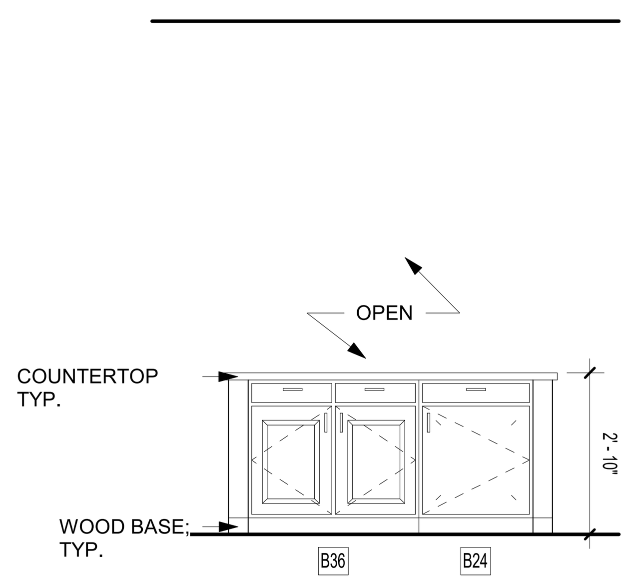
8 ABERDEEN BATH 1 ELEV. 1
3/8" = 1'-0"

DOOR TYPES - UNITS

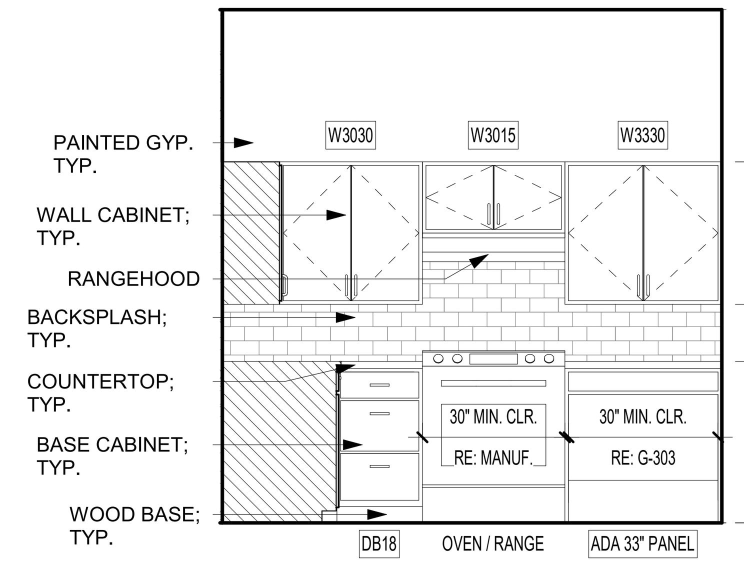


Room Finish Schedule - Units

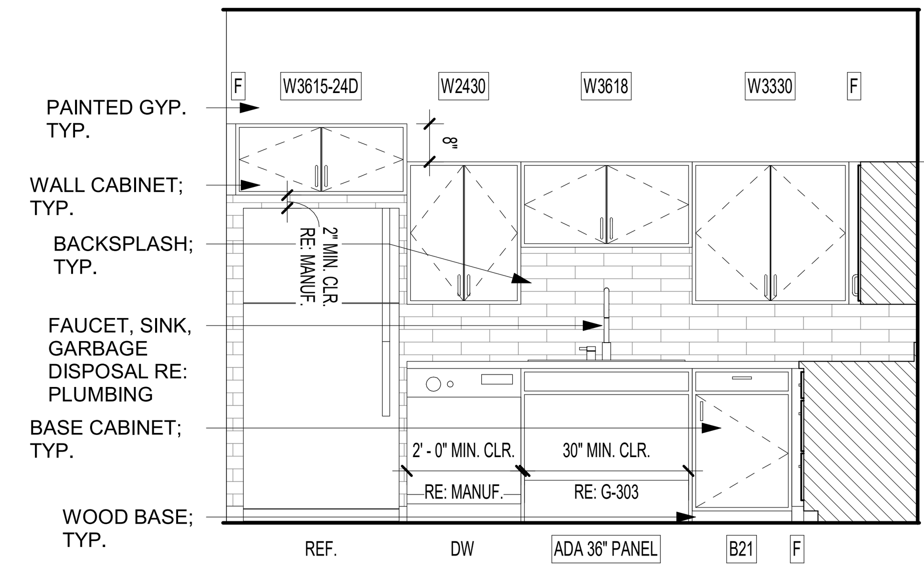
#	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVT1	WB, PT3	PT1	PT4	
002	COAT	LVT1		PT2	PT4	
003	LIVING	LVT1	WB, PT3	PT1	PT4	
004	KITCHEN	LVT1	WB, PT3	PT1	PT4	
005	MECH.	LVT1		PT2	PT4	
006	LAUNDRY	LVT1		PT2	PT4	
007	HALLWAY	LVT1	WB, PT3	PT1	PT4	
008	BATH 1	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
009	BATH 2	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
010	BEDROOM 1	LVT1	WB, PT3	PT1	PT4	
011	CLOSET 1	LVT1		PT2	PT4	
012	BEDROOM 2	LVT1	WB, PT3	PT1	PT4	
013	CLOSET 2	LVT1		PT2	PT4	
014	BALCONY	CONCRETE				



7 ABERDEEN KITCHEN ELEV. 3
3/8" = 1'-0"



6 ABERDEEN KITCHEN ELEV. 2
3/8" = 1'-0"

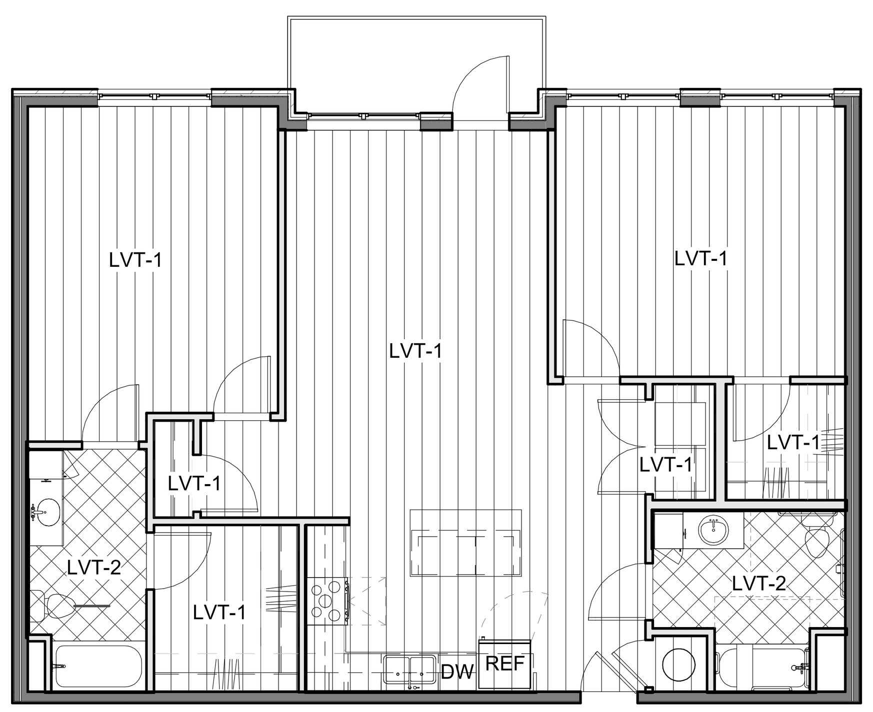


5 ABERDEEN KITCHEN ELEV. 1
3/8" = 1'-0"

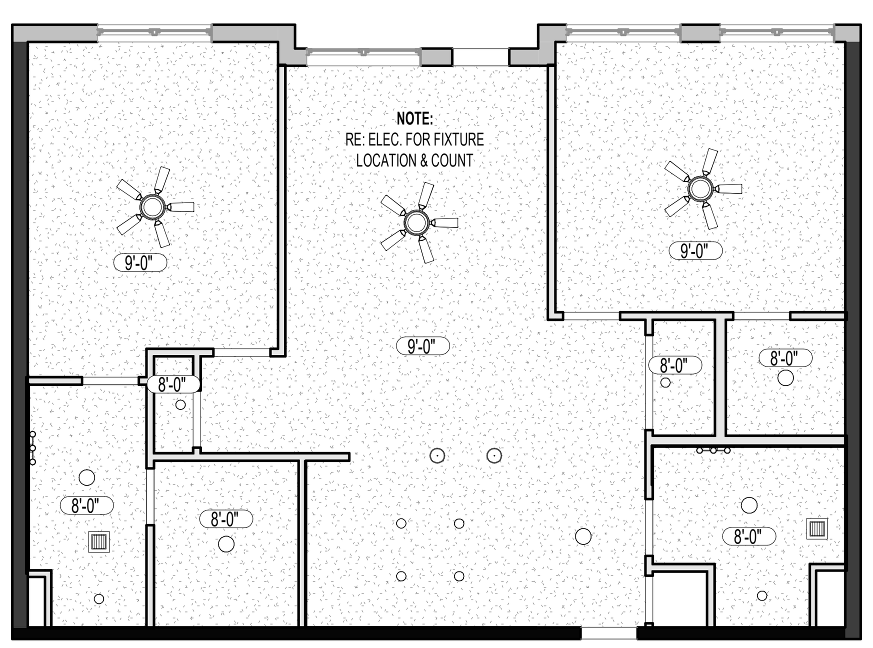
DOOR SCHEDULE - UNIT DOORS

Mark	Location	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Comments
001	ENTRY	3' - 0"	6' - 8"	1 3/4"	20	A2	TIMELY	SPRING HINGES (CLOSER) SMOKE SEAL
002	COAT	3' - 0"	6' - 8"	1 3/8"		A2	PH	
005	MECH.	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006	LAUNDRY	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006.1	LAUNDRY	6' - 0"	6' - 8"	1 3/8"		B2	PH	UNDERCUT IF REQ'D
008	BATH 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
009	BATH 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
010	BEDROOM 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011.1	CLOSET	6' - 0"	6' - 8"	1 3/8"		B2	PH	
012	BEDROOM 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
013	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
014	BALCONY	3' - 0"	8' - 0"	1 3/4"		A3	TIMELY	

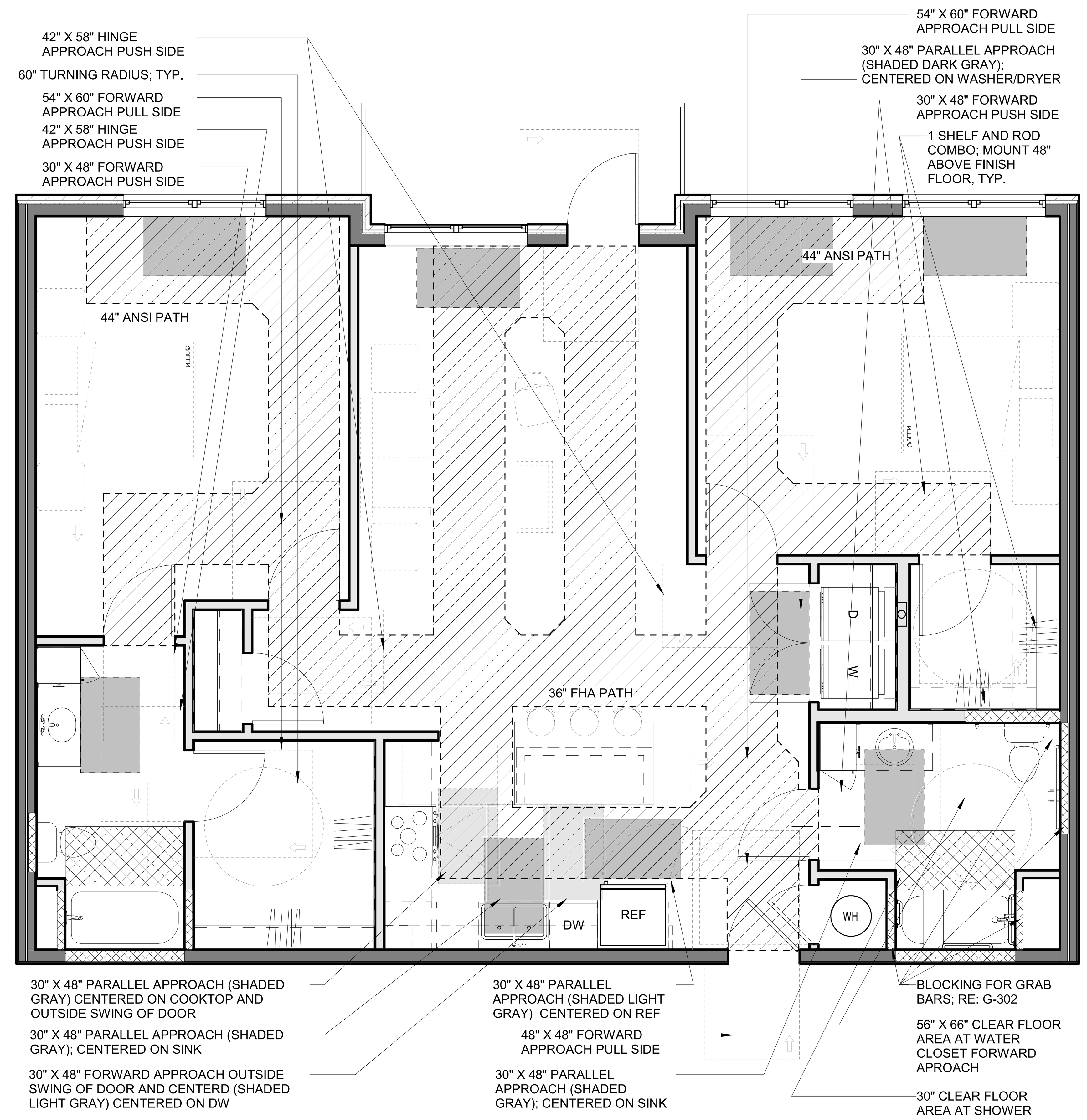
2



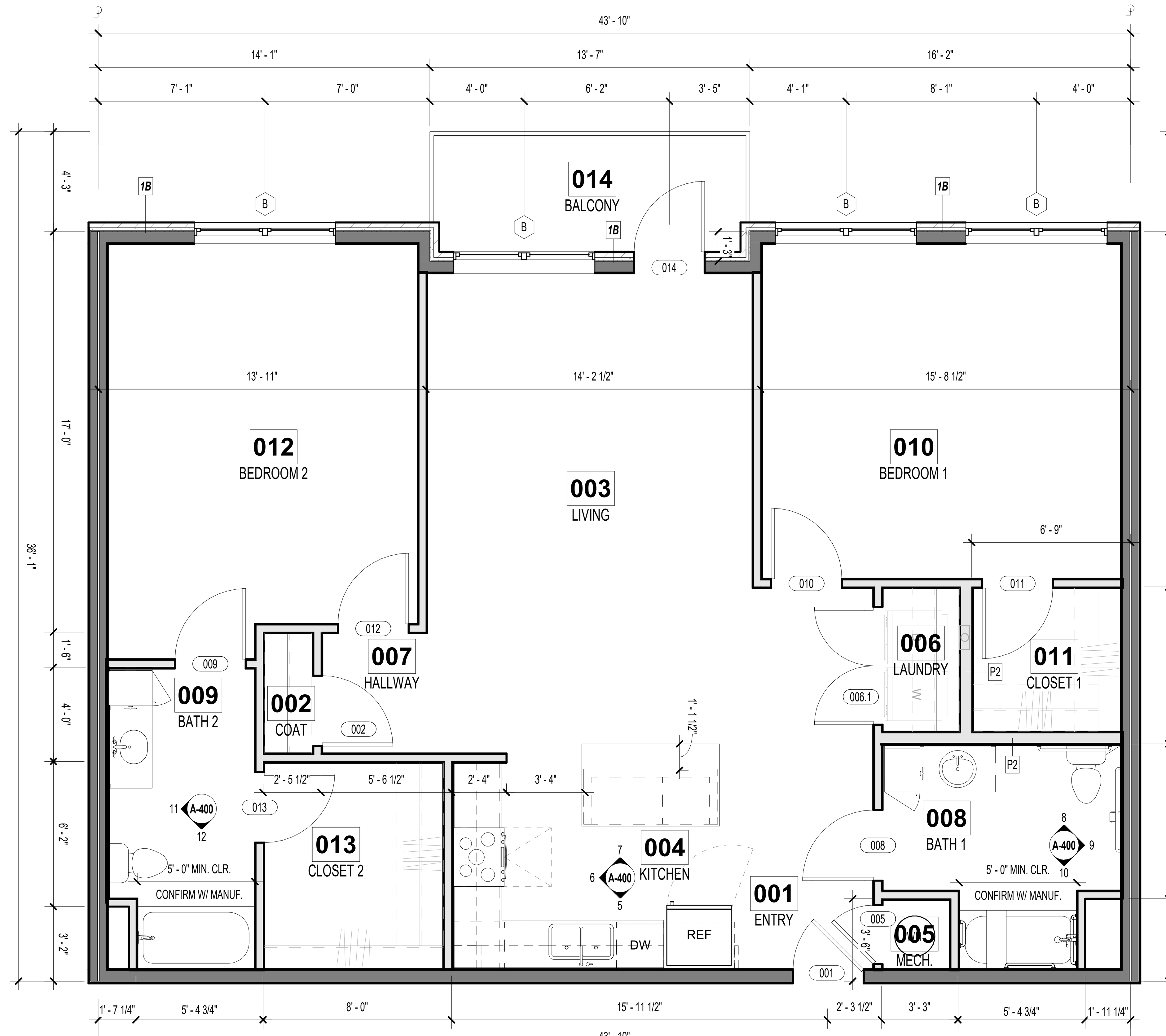
4 UNIT FINISH PLAN - ABERDEEN (2 BR) - TYPE A
1/8" = 1'-0"



3 UNIT RCP - ABERDEEN (2 BR) - TYPE A
1/8" = 1'-0"



2 UNIT CLEAR SPACE PLAN - ABERDEEN (2 BR) - TYPE A
1/4" = 1'-0"



1 UNIT FLOOR PLAN - ABERDEEN (2 BR) - TYPE A
1/4" = 1'-0"

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THE VILLAGE AT DISCOVERY - LOT 7

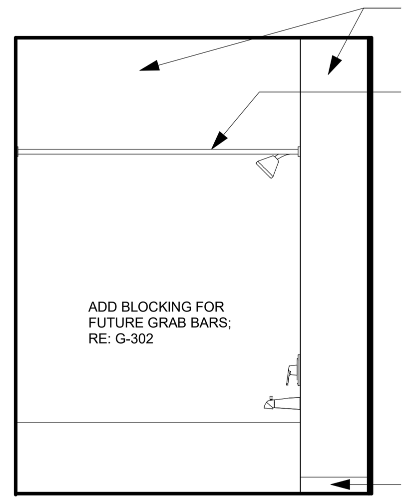
LEE'S SUMMIT, MO

SHEET TITLE
ABERDEEN (2 BR) UNIT PLAN - TYPE A

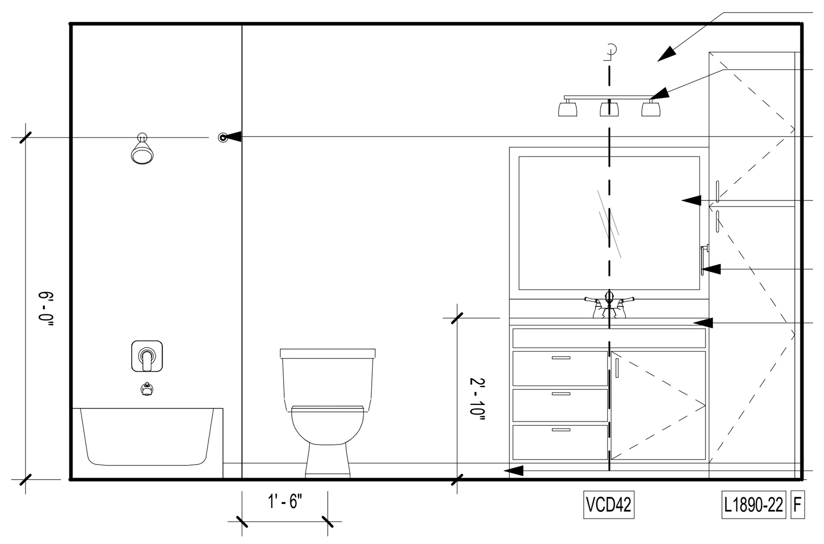
PROJECT NUMBER: 23103

SHEET NUMBER:

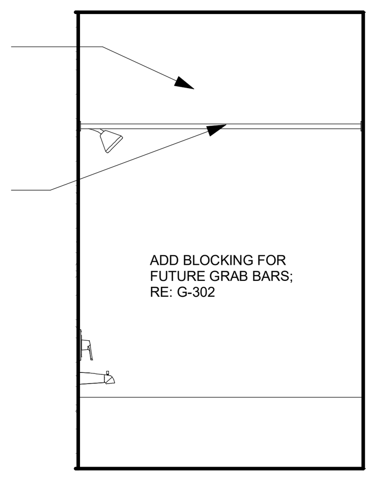
A-400



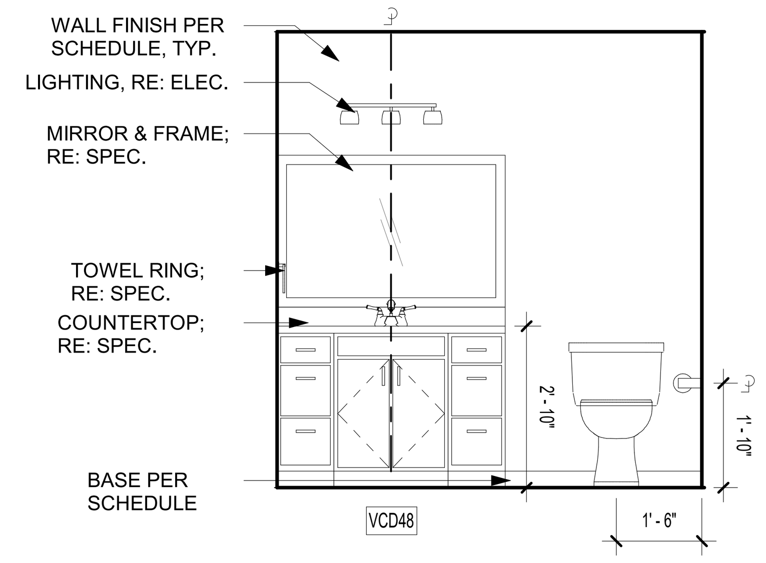
11 ABERDEEN ALT BATH 2 ELEV. 2
3/8" = 1'-0"



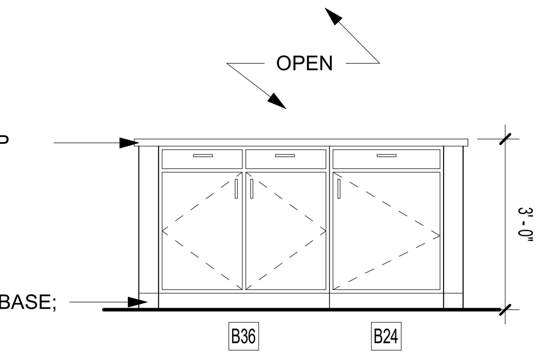
10 ABERDEEN ALT BATH 2 ELEV. 1
3/8" = 1'-0"



9 ABERDEEN ALT BATH 1 ELEV. 2
3/8" = 1'-0"



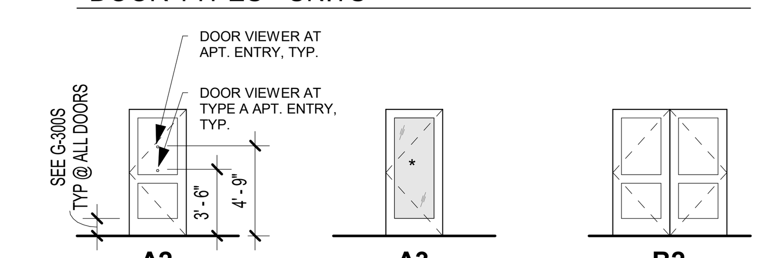
8 ABERDEEN ALT BATH 1 ELEV. 1
3/8" = 1'-0"



7 ABERDEEN ALT KITCHEN ELEV. 3
3/8" = 1'-0"

REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-120 FOR RCP LEGEND
REFERENCE A-400 FOR UNIT PLAN LEGEND
REFERENCE A-102 & A-103 FOR RC LOCATIONS

DOOR TYPES - UNITS

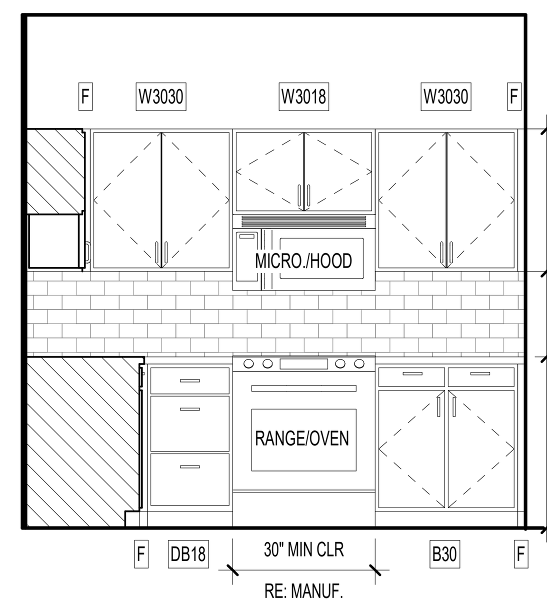


A2
SINGLE SWING PANEL

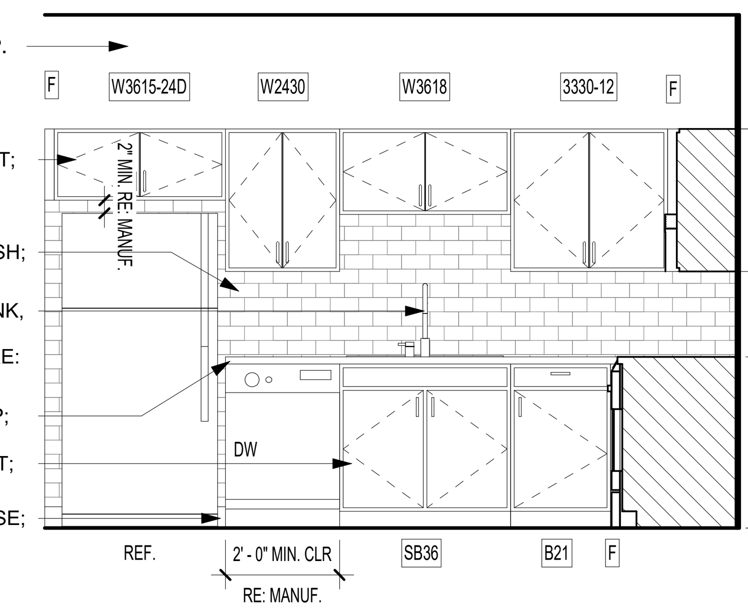
A3
SINGLE SWING FULL LITE

B2
DOUBLE SWING PANEL

Room Finish Schedule - Units						
#	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVT1	WB, PT3	PT1	PT4	
002	COAT	LVT1		PT2	PT4	
003	LIVING	LVT1	WB, PT3	PT1	PT4	
004	KITCHEN	LVT1	WB, PT3	PT1	PT4	
005	MECH.	LVT1		PT2	PT4	
006	LAUNDRY	LVT1		PT2	PT4	
007	HALLWAY	LVT1	WB, PT3	PT1	PT4	
008	BATH 1	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
009	BATH 2	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
010	BEDROOM 1	LVT1	WB, PT3	PT1	PT4	
011	CLOSET 1	LVT1		PT2	PT4	
012	BEDROOM 2	LVT1	WB, PT3	PT1	PT4	
013	CLOSET 2	LVT1		PT2	PT4	
014	BALCONY	CONCRETE				



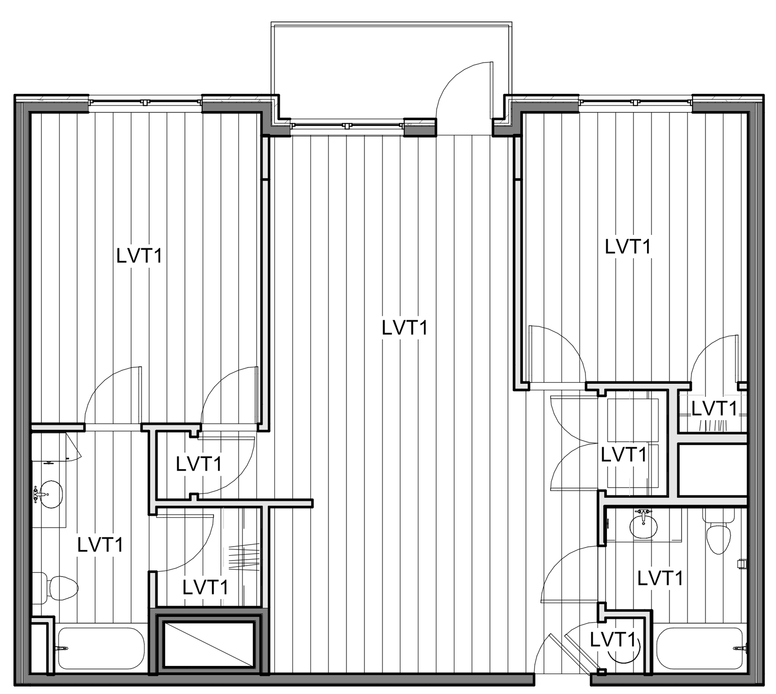
6 ABERDEEN ALT KITCHEN ELEV. 2
3/8" = 1'-0"



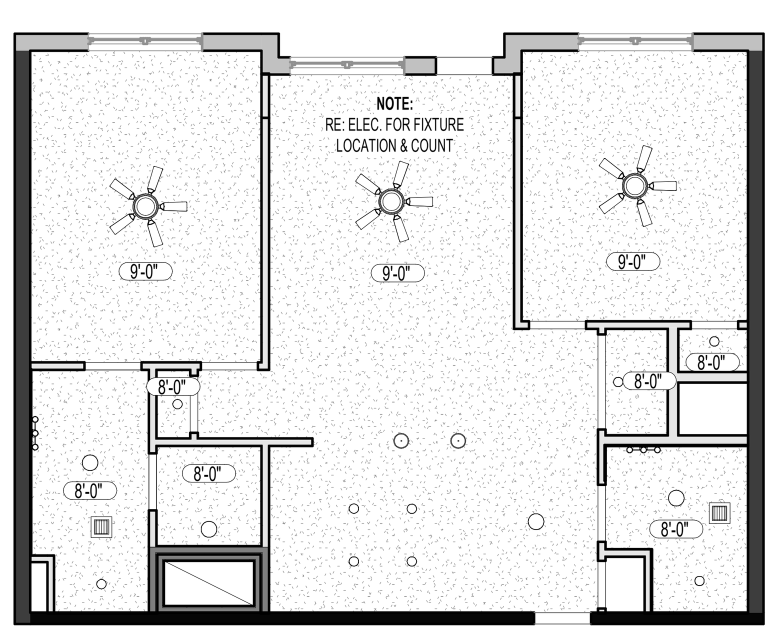
5 ABERDEEN ALT KITCHEN ELEV. 1
3/8" = 1'-0"

DOOR SCHEDULE - UNIT DOORS								
Mark	Location	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Comments
001	ENTRY	3' - 0"	6' - 8"	1 3/4"	20	A2	TIMELY	SPRING HINGES (CLOSER) SMOKE SEAL
002	COAT	3' - 0"	6' - 8"	1 3/8"		A2	PH	
005	MECH.	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006	LAUNDRY	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006.1	LAUNDRY	6' - 0"	6' - 8"	1 3/8"		B2	PH	UNDERCUT IF REQ'D
008	BATH 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
009	BATH 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
010	BEDROOM 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011.1	CLOSET	6' - 0"	6' - 8"	1 3/8"		B2	PH	
012	BEDROOM 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
013	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
014	BALCONY	3' - 0"	8' - 0"	1 3/4"		A3	TIMELY	

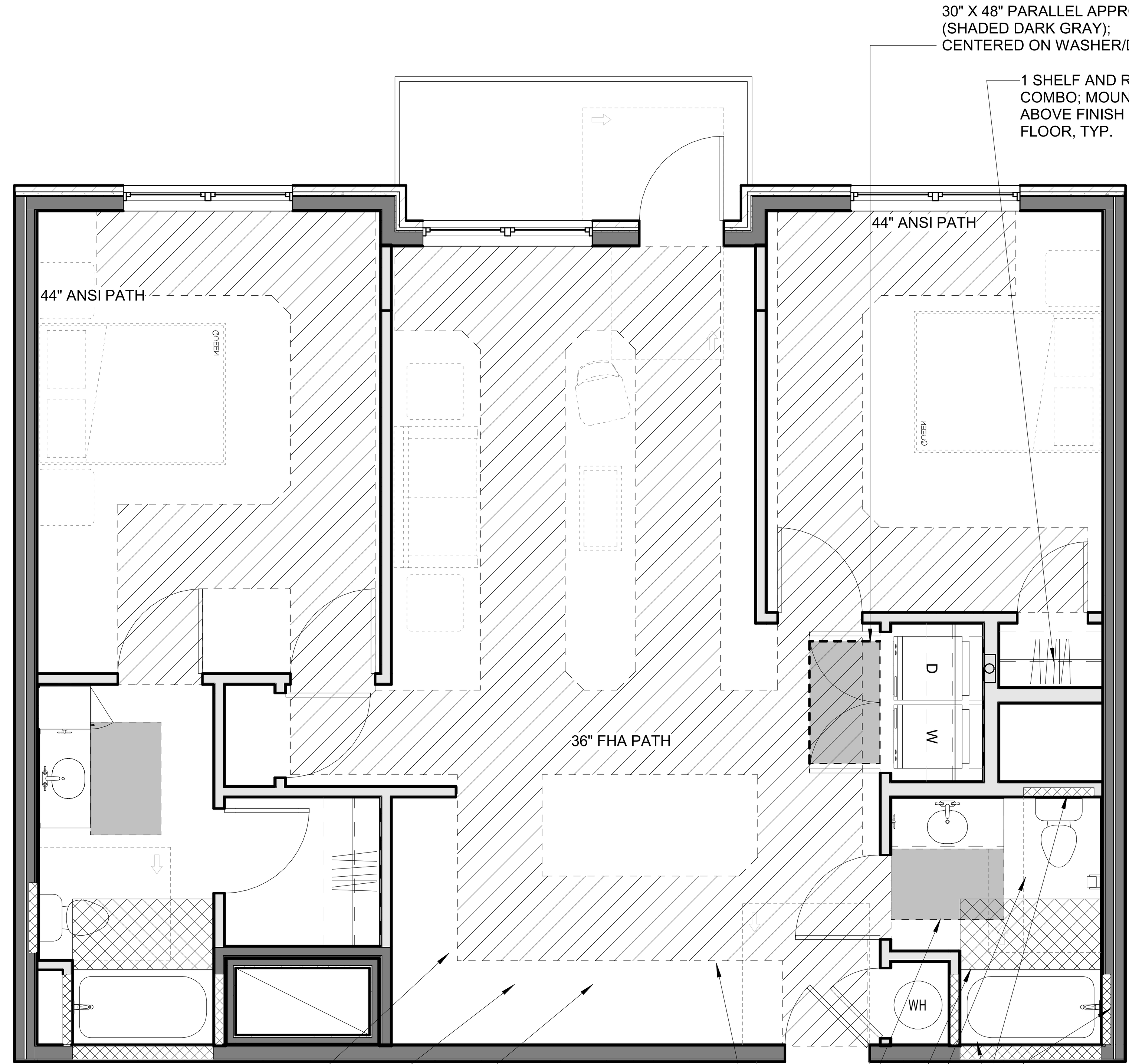
2



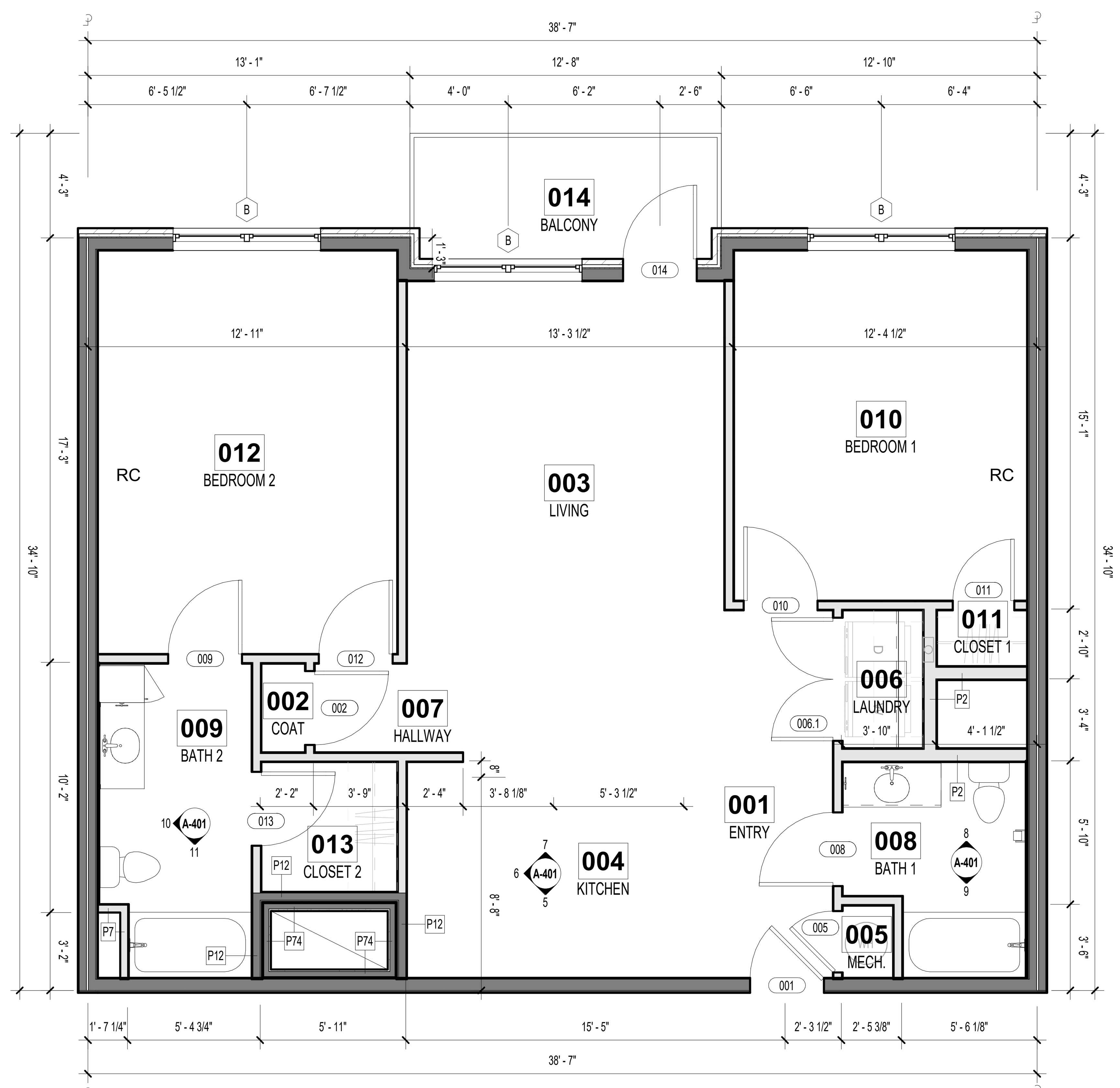
4 UNIT FINISH PLAN - ABERDEEN - ALT - TYPE B
1/8" = 1'-0"



3 UNIT RCP - ABERDEEN - ALT - TYPE B
1/8" = 1'-0"



2 UNIT CLEAR SPACE PLAN - ABERDEEN - ALT - TYPE B
1/4" = 1'-0"



1 UNIT FLOOR PLAN - ABERDEEN - ALT - TYPE B
1/4" = 1'-0"

PRINTS ISSUED
11/12/24 - CITY SUBMITTAL

REVISIONS:
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FOR BID PURPOSES ONLY

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
ABERDEEN (2 BR) ALT UNIT PLAN

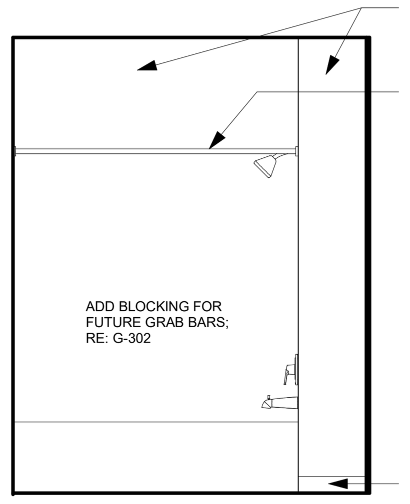
PROJECT NUMBER: 23103

SHEET NUMBER:

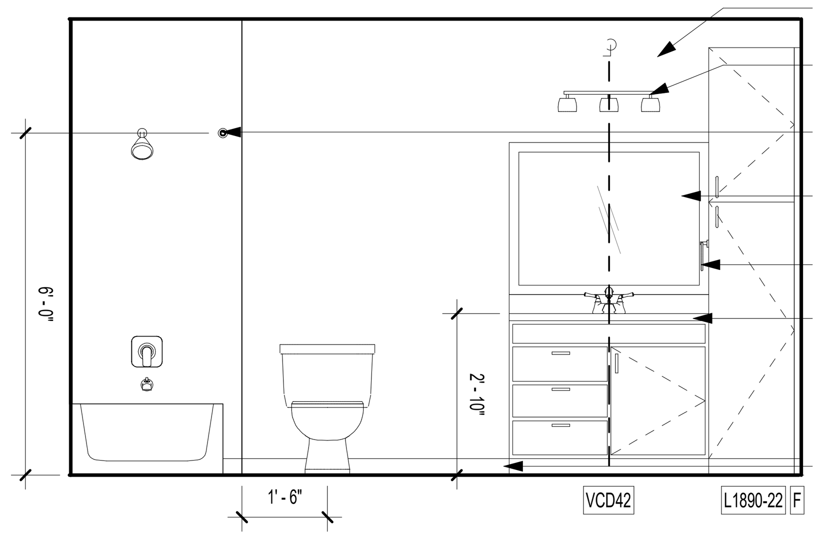
A-401

12/20/2024 10:19:09 PM
C:\Revit Local Cache\2023\23103_Lot 7 Apartments_Central_R23_bmichaels\WT_A2.rvt

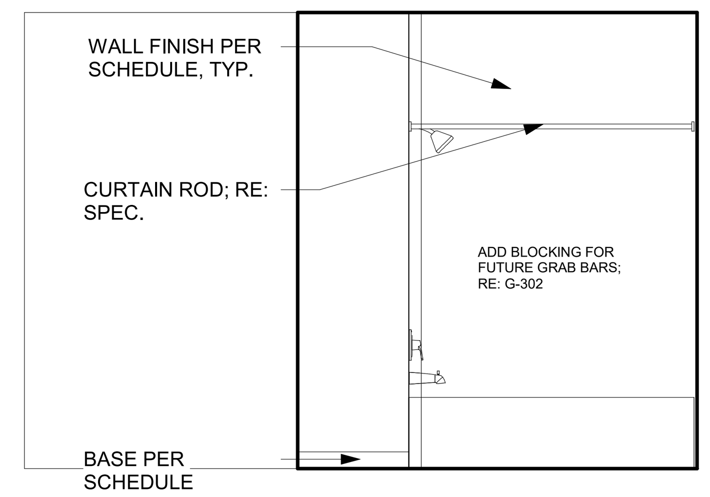
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-120 FOR RCP LEGEND
REFERENCE A-400 FOR UNIT PLAN LEGEND
REFERENCE A-102 & A-103 FOR RC LOCATIONS



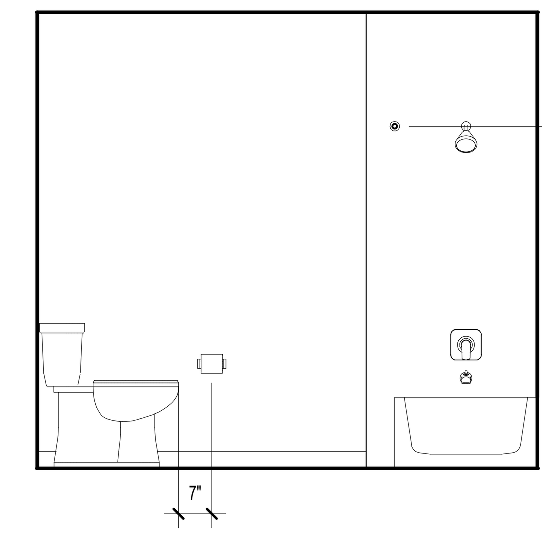
12 ABERDEEN BATH 2 ELEV. 2
3/8" = 1'-0"



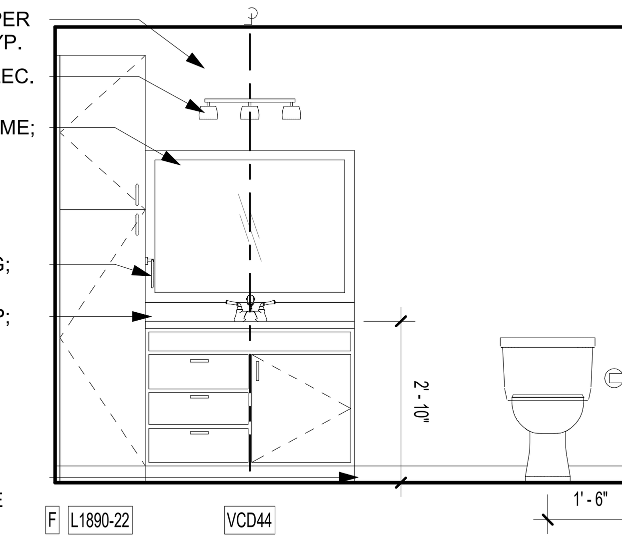
11 ABERDEEN BATH 2 ELEV. 1
3/8" = 1'-0"



10 ABERDEEN BATH 1 ELEV. 3
3/8" = 1'-0"

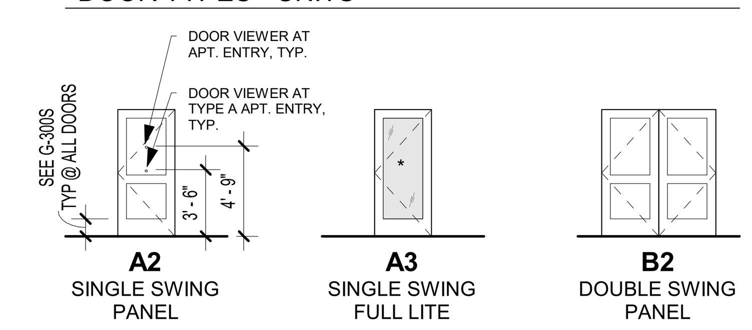


9 ABERDEEN BATH 1 ELEV. 2
3/8" = 1'-0"



8 ABERDEEN BATH 1 ELEV. 1
3/8" = 1'-0"

DOOR TYPES - UNITS



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2 12/20/24 Add #2

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p: 816.472.1448
w: www.rosemann.com

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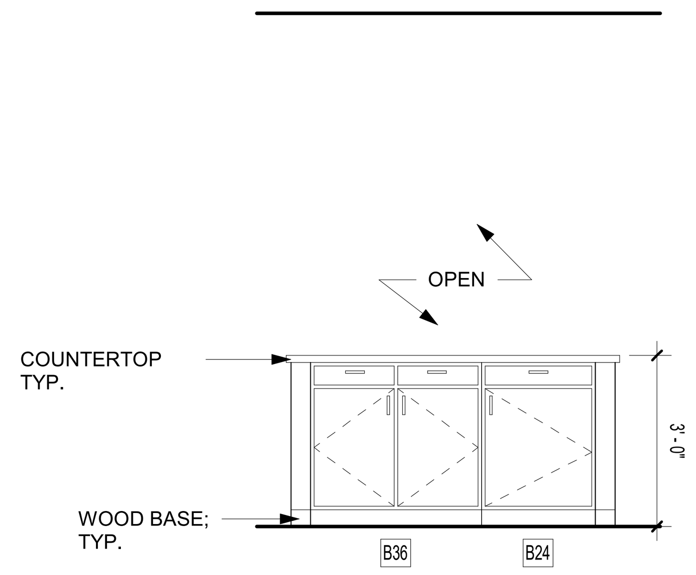
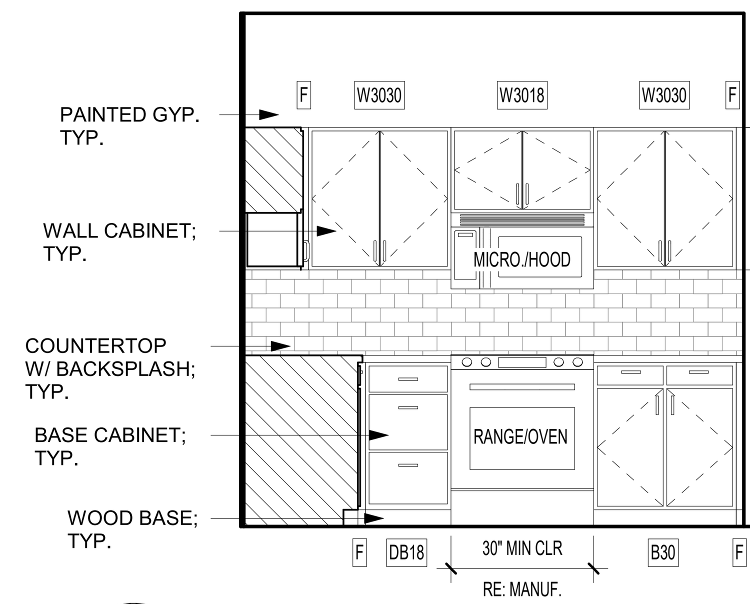
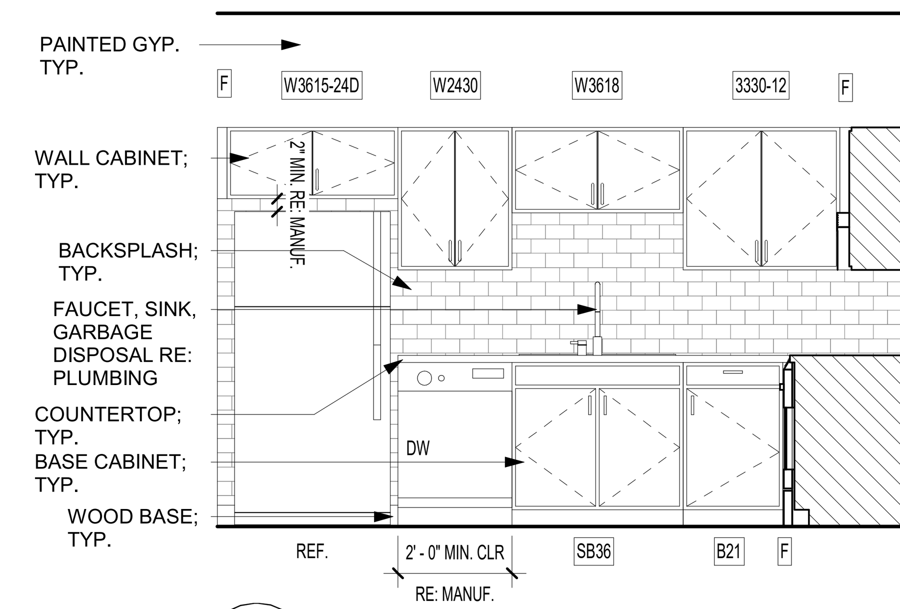
Room Finish Schedule - Units						
#	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVT1	WB, PT3	PT1	PT4	
002	COAT	LVT1		PT2	PT4	
003	LIVING	LVT1	WB, PT3	PT1	PT4	
004	KITCHEN	LVT1	WB, PT3	PT1	PT4	
005	MECH.	LVT1		PT2	PT4	
006	LAUNDRY	LVT1		PT2	PT4	
007	HALLWAY	LVT1	WB, PT3	PT1	PT4	
008	BATH 1	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
009	BATH 2	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
010	BEDROOM 1	LVT1	WB, PT3	PT1	PT4	
011	CLOSET 1	LVT1		PT2	PT4	
012	BEDROOM 2	LVT1	WB, PT3	PT1	PT4	
013	CLOSET 2	LVT1		PT2	PT4	
014	BALCONY	CONCRETE				



7 ABERDEEN KITCHEN ELEV. 3
3/8" = 1'-0"



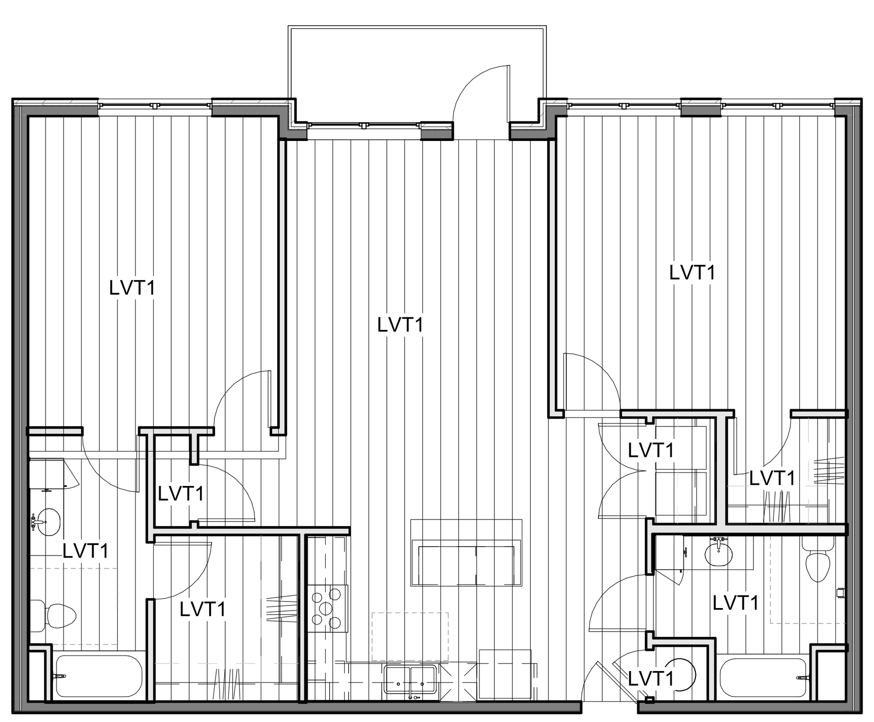
6 ABERDEEN KITCHEN ELEV. 2
3/8" = 1'-0"



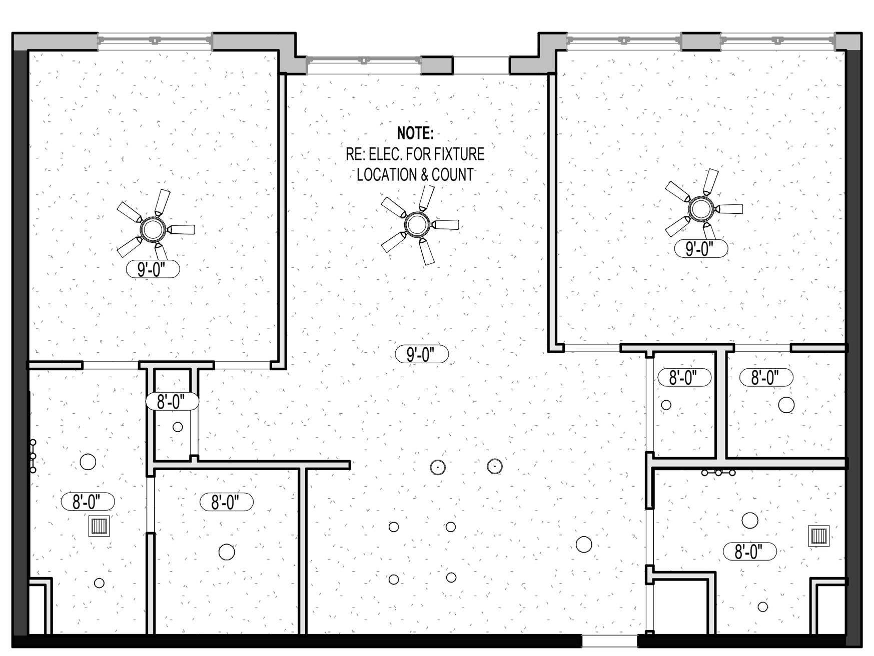
5 ABERDEEN KITCHEN ELEV. 1
3/8" = 1'-0"

DOOR SCHEDULE - UNIT DOORS								
Mark	Location	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Comments
001	ENTRY	3' - 0"	6' - 8"	1 3/4"	20	A2	TIMELY	SPRING HINGES (CLOSER) SMOKE SEAL
002	COAT	3' - 0"	6' - 8"	1 3/8"		A2	PH	
005	MECH.	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006	LAUNDRY	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006.1	LAUNDRY	6' - 0"	6' - 8"	1 3/8"		B2	PH	UNDERCUT IF REQ'D
008	BATH 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
009	BATH 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
010	BEDROOM 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011.1	CLOSET	6' - 0"	6' - 8"	1 3/8"		B2	PH	
012	BEDROOM 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
013	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
014	BALCONY	3' - 0"	8' - 0"	1 3/4"		A3	TIMELY	

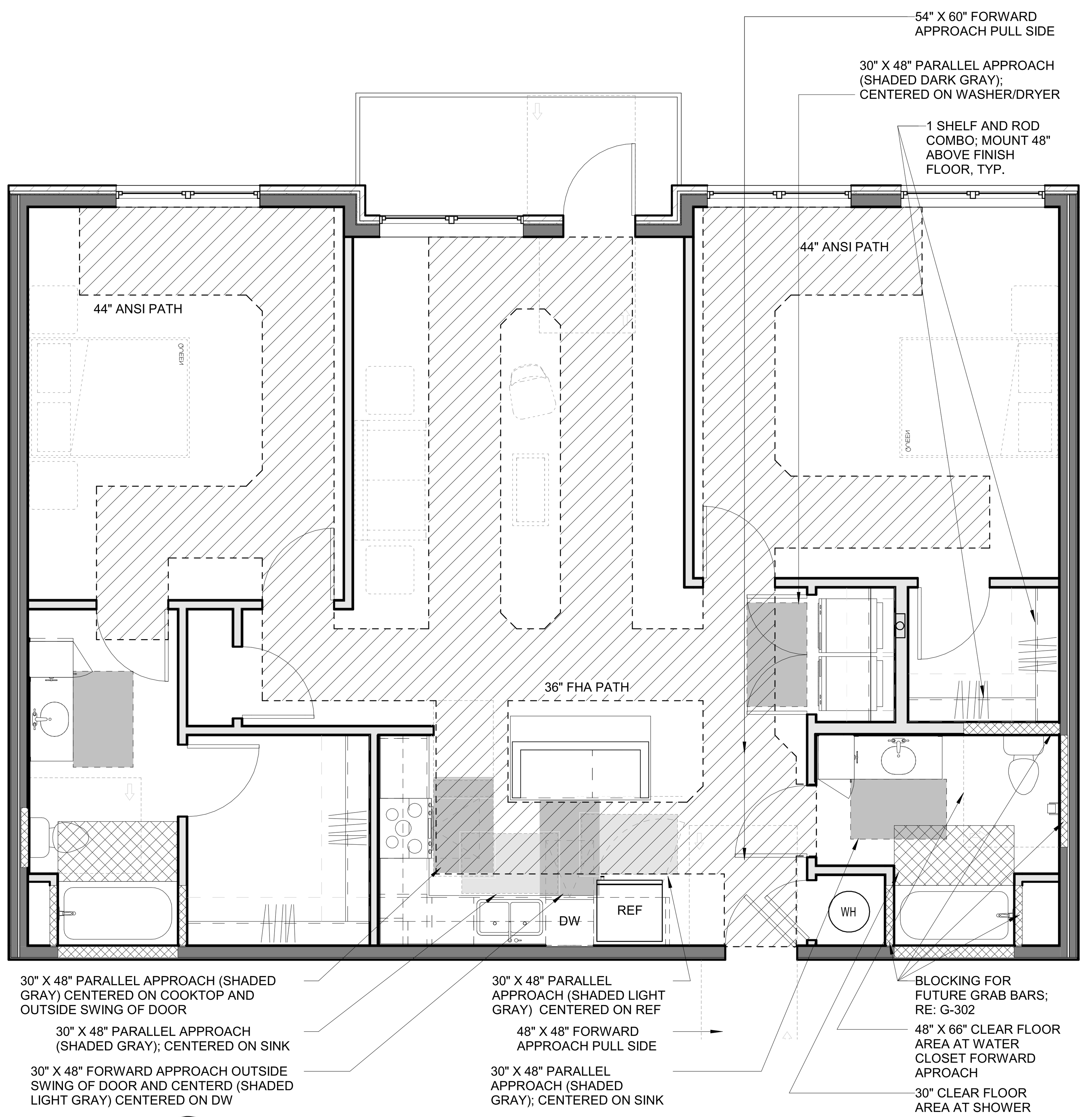
FOR BID PURPOSES ONLY



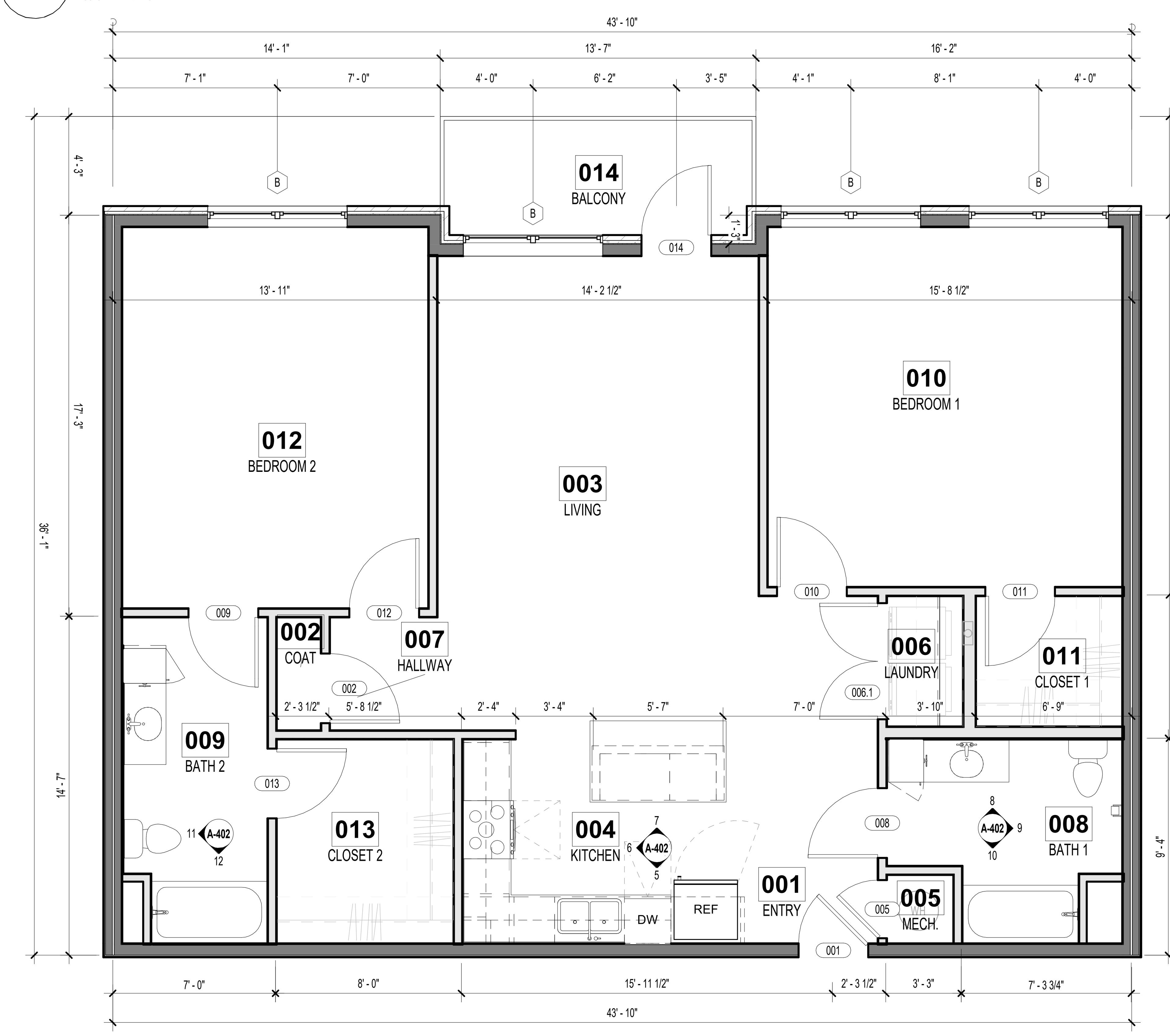
4 UNIT FINISH PLAN - ABERDEEN (2 BR) - TYPE B
1/8" = 1'-0"



3 UNIT RCP - ABERDEEN (2 BR) - TYPE B
1/8" = 1'-0"



2 UNIT CLEAR SPACE PLAN - ABERDEEN (2 BR) - TYPE B
1/4" = 1'-0"



1 UNIT FLOOR PLAN - ABERDEEN (2 BR) - TYPE B
1/4" = 1'-0"

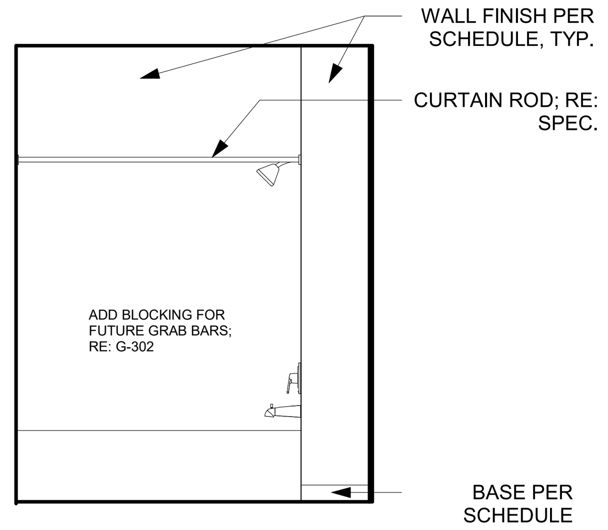
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO

SHEET TITLE
ABERDEEN (2 BR) UNIT PLAN - TYPE B

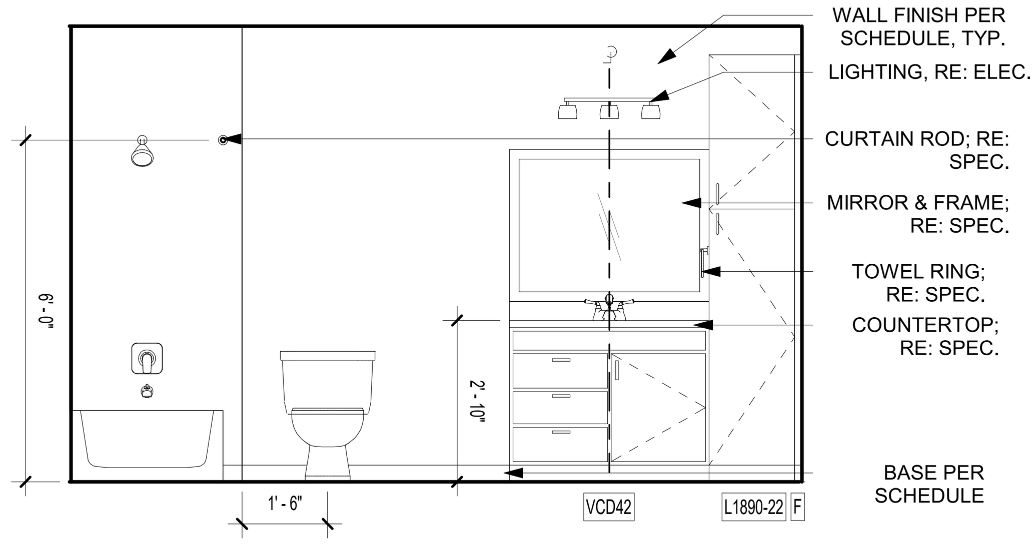
PROJECT NUMBER: 23103

SHEET NUMBER:

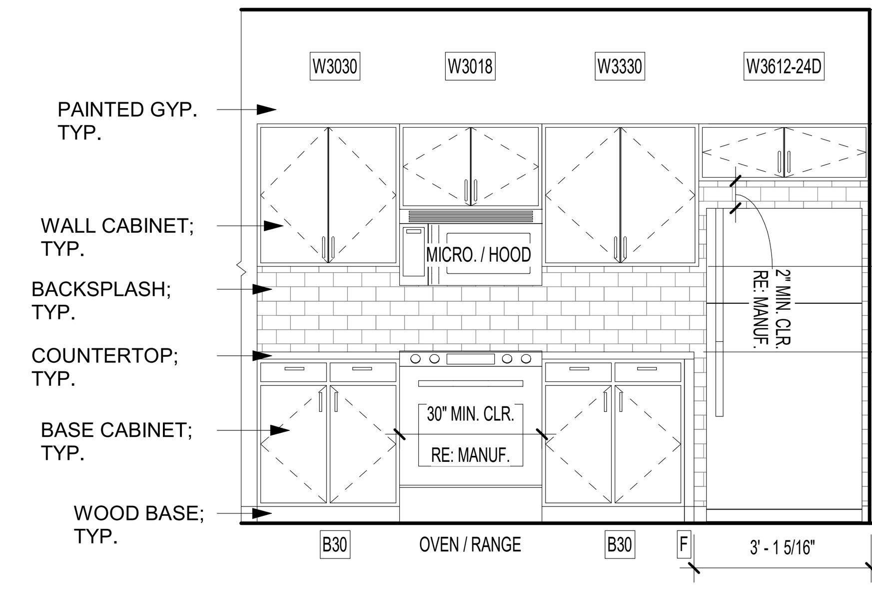
A-402



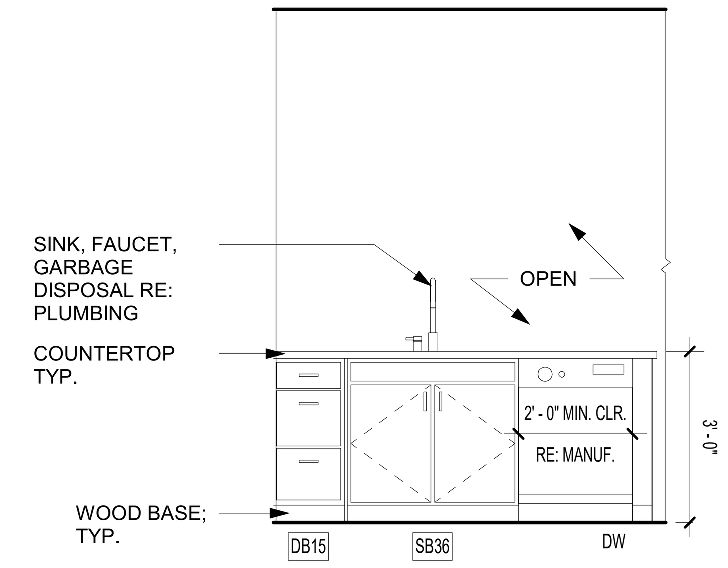
8 ADRIAN BATH ELEV. 2
3/8" = 1'-0" (MIRRORED)



7 ADRIAN BATH ELEV. 1
3/8" = 1'-0" (MIRRORED)



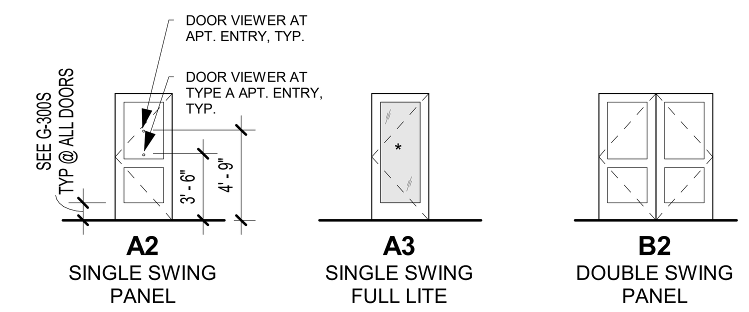
6 ADRIAN KITCHEN ELEV. 2
3/8" = 1'-0"



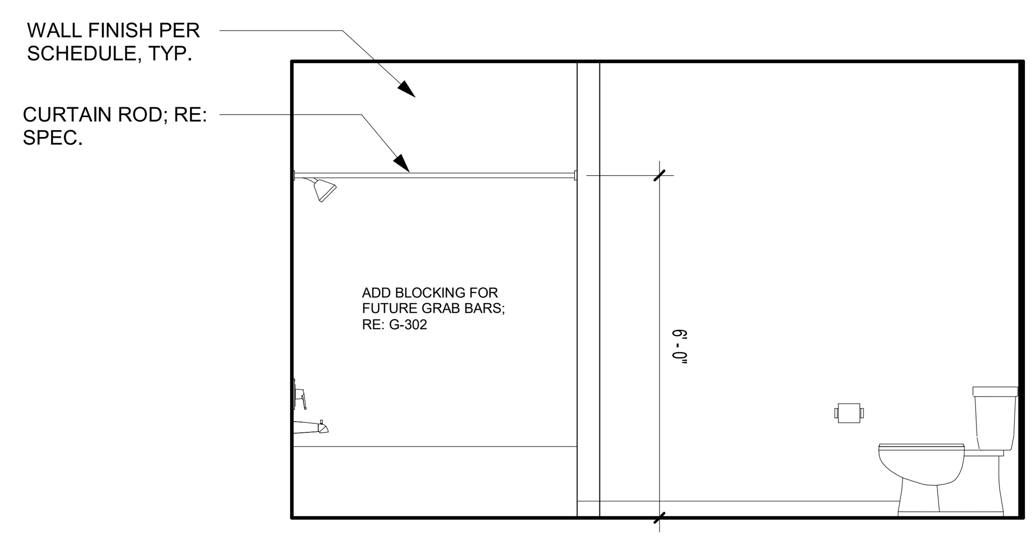
5 ADRIAN KITCHEN ELEV. 1
3/8" = 1'-0"

REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-120 FOR RCP LEGEND
REFERENCE A-400 FOR UNIT PLAN LEGEND
REFERENCE A-102 & A-103 FOR RC LOCATIONS

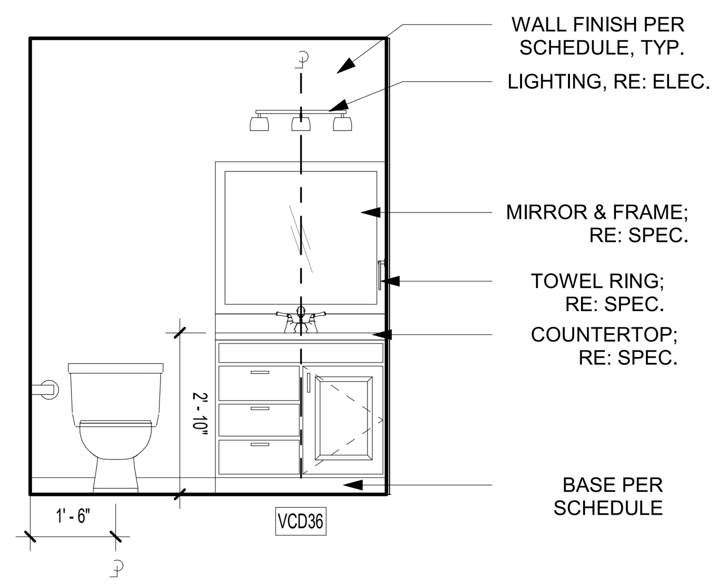
DOOR TYPES - UNITS



Room Finish Schedule - Units						
#	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVT1	WB, PT3	PT1	PT4	
002	COAT	LVT1		PT2	PT4	
003	LIVING	LVT1	WB, PT3	PT1	PT4	
004	KITCHEN	LVT1	WB, PT3	PT1	PT4	
005	MECH.	LVT1		PT2	PT4	
006	LAUNDRY	LVT1		PT2	PT4	
007	HALLWAY	LVT1	WB, PT3	PT1	PT4	
008	BATH 1	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
009	BATH 2	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
010	BEDROOM 1	LVT1	WB, PT3	PT1	PT4	
011	CLOSET 1	LVT1		PT2	PT4	
012	BEDROOM 2	LVT1	WB, PT3	PT1	PT4	
013	CLOSET 2	LVT1		PT2	PT4	
014	BALCONY	CONCRETE				



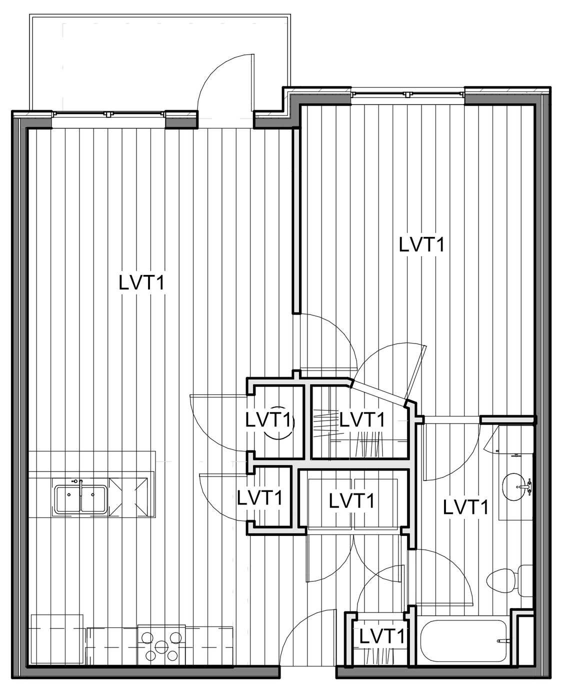
11 ADRIAN ALT BATH ELEV. 2
3/8" = 1'-0"



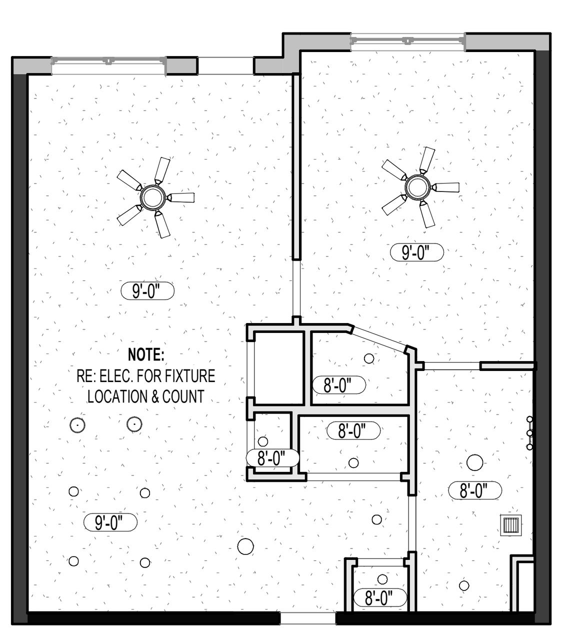
10 ADRIAN ALT BATH ELEV. 1
3/8" = 1'-0"

DOOR SCHEDULE - UNIT DOORS								
Mark	Location	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Comments
001	ENTRY	3' - 0"	6' - 8"	1 3/4"	20	A2	TIMELY	SPRING HINGES (CLOSER) SMOKE SEAL
002	COAT	3' - 0"	6' - 8"	1 3/8"		A2	PH	
005	MECH.	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006	LAUNDRY	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006.1	LAUNDRY	6' - 0"	6' - 8"	1 3/8"		B2	PH	UNDERCUT IF REQ'D
008	BATH 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
009	BATH 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
010	BEDROOM 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011.1	CLOSET	6' - 0"	6' - 8"	1 3/8"		B2	PH	
012	BEDROOM 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
013	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
014	BALCONY	3' - 0"	8' - 0"	1 3/4"		A3	TIMELY	

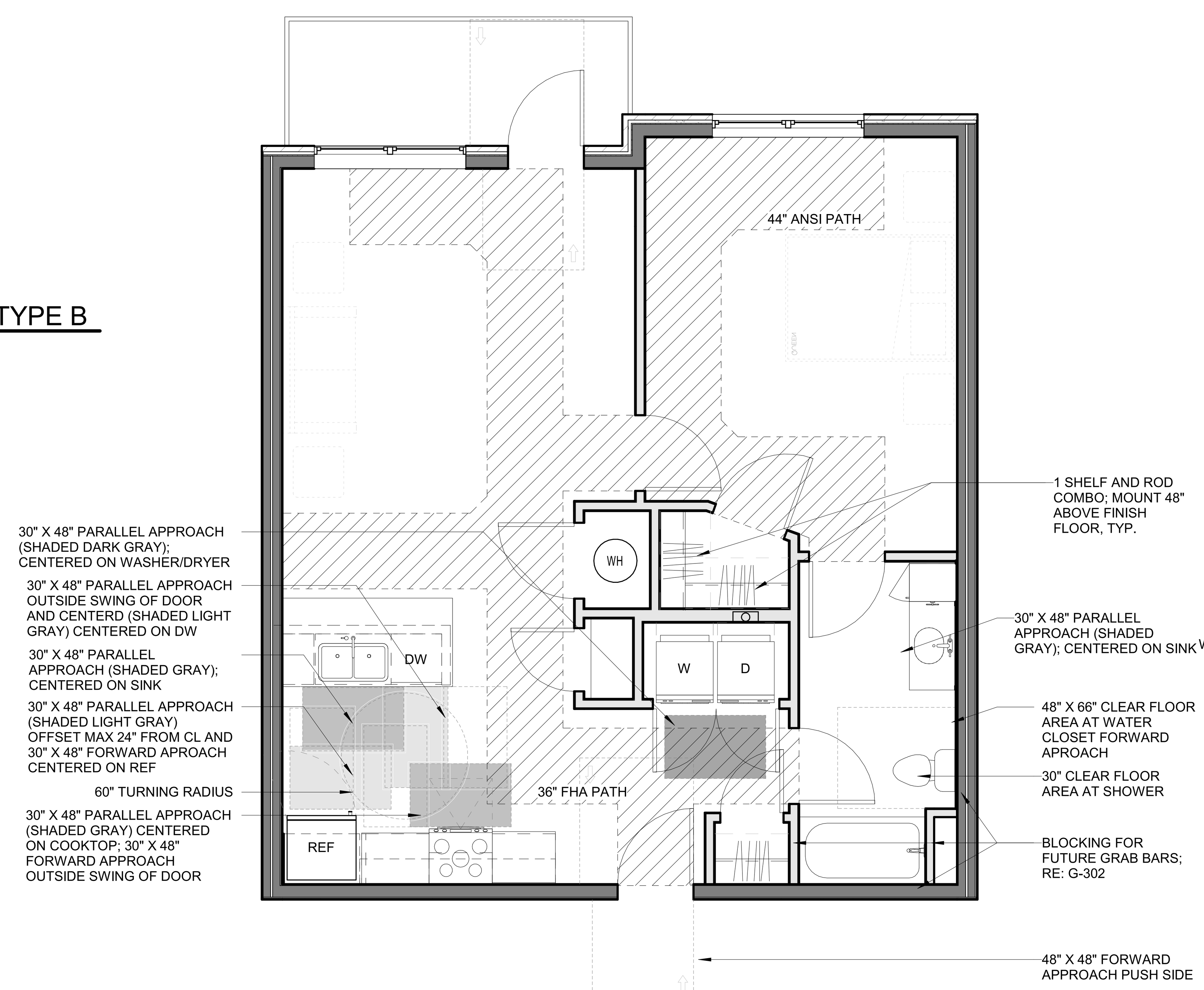
2



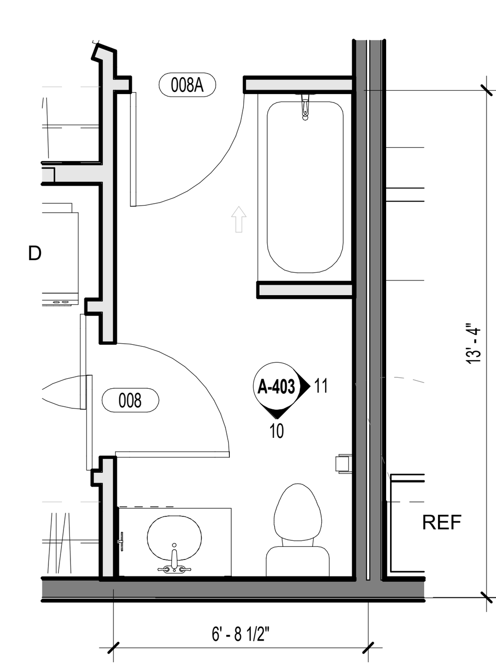
4 UNIT FINISH PLAN - ADRIAN (1 BR) - TYPE B
1/8" = 1'-0"



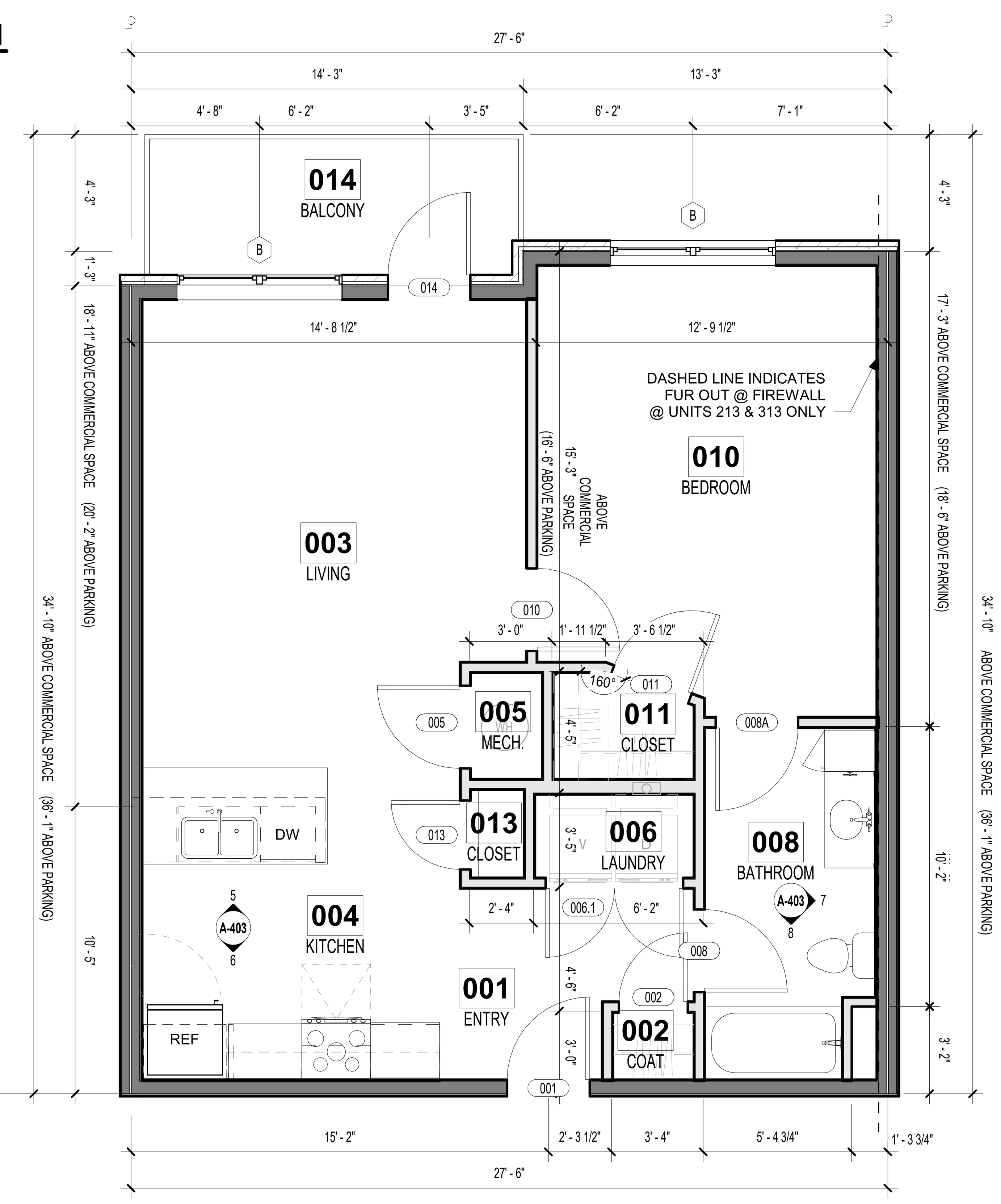
3 UNIT RCP - ADRIAN (1 BR) - TYPE B
1/8" = 1'-0"



2 UNIT CLEAR SPACE PLAN - ADRIAN (1 BR) - TYPE B
1/4" = 1'-0"



9 ADRIAN ALT BATH
1/4" = 1'-0" (UNITS 209 & 211 ONLY)



1 UNIT FLOOR PLAN - ADRIAN (1 BR) - TYPE B
1/4" = 1'-0"

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THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

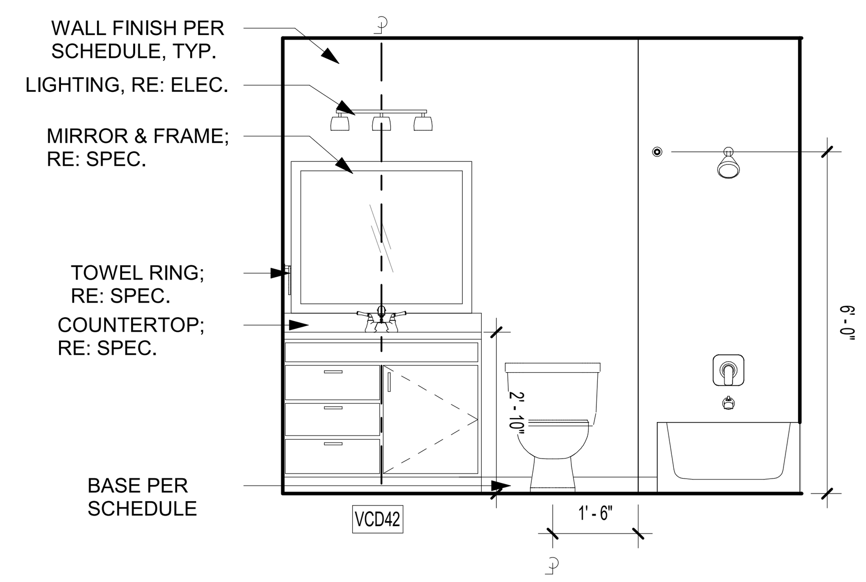
SHEET TITLE
ADRIAN (1 BR) UNIT PLAN

PROJECT NUMBER: 23103

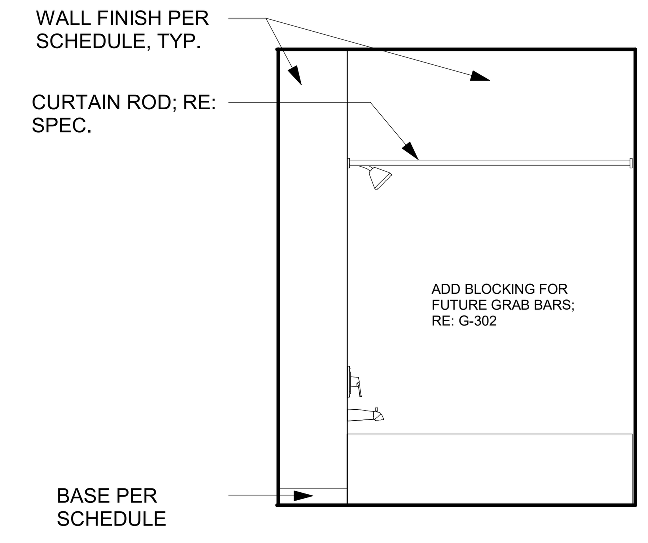
SHEET NUMBER:

A-403

REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-120 FOR RCP LEGEND
REFERENCE A-400 FOR UNIT PLAN LEGEND
REFERENCE A-102 & A-103 FOR RC LOCATIONS

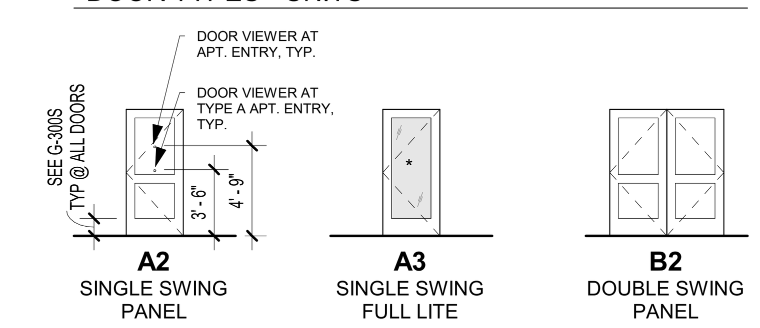


8 ADRIAN CORNER BATH ELEV. 2
3/8" = 1'-0"



7 ADRIAN CORNER BATH ELEV. 1
3/8" = 1'-0"

DOOR TYPES - UNITS



Room Finish Schedule - Units						
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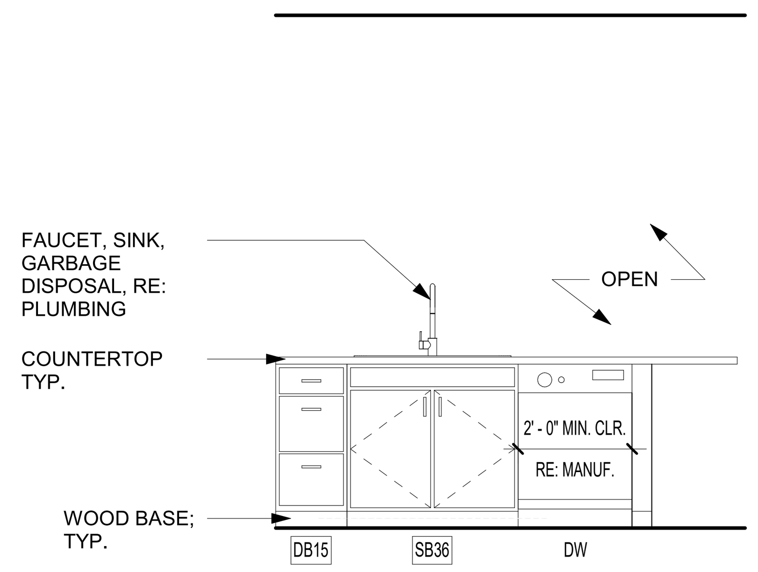
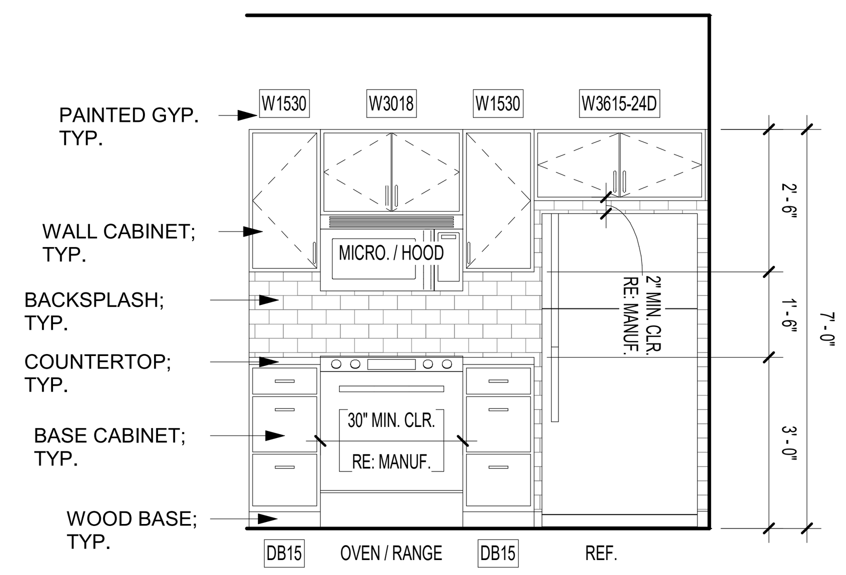
002	COAT	LVT1		PT2	PT4	
003	LIVING	LVT1	WB, PT3	PT1	PT4	
004	KITCHEN	LVT1	WB, PT3	PT1	PT4	
005	MECH.	LVT1		PT2	PT4	
006	LAUNDRY	LVT1		PT2	PT4	
007	HALLWAY	LVT1	WB, PT3	PT1	PT4	
008	BATH 1	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
009	BATH 2	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
010	BEDROOM 1	LVT1	WB, PT3	PT1	PT4	
011	CLOSET 1	LVT1		PT2	PT4	
012	BEDROOM 2	LVT1	WB, PT3	PT1	PT4	
013	CLOSET 2	LVT1		PT2	PT4	
014	BALCONY	CONCRETE				



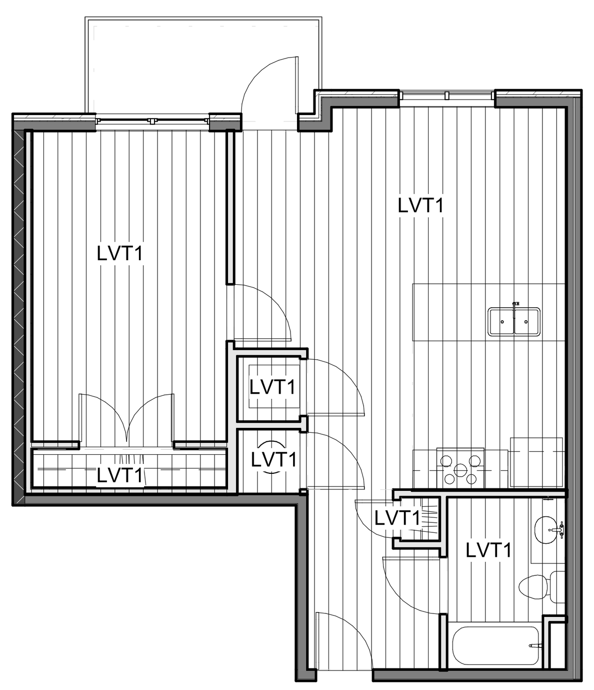
6 ADRIAN CORNER KIT. ELEV. 2
3/8" = 1'(MIRRORED)



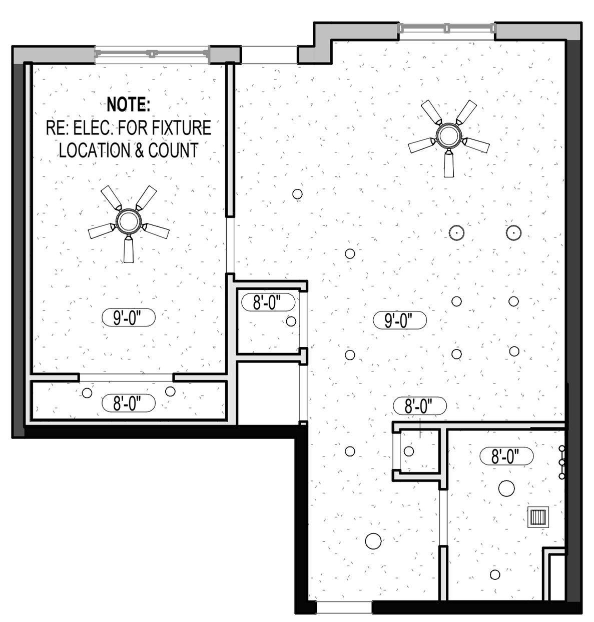
5 ADRIAN CORNER KIT. ELEV. 1
(MIRRORED)-0"

DOOR SCHEDULE - UNIT DOORS								
Mark	Location	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Comments
001	ENTRY	3' - 0"	6' - 8"	1 3/4"	20	A2	TIMELY	SPRING HINGES (CLOSER) SMOKE SEAL
002	COAT	3' - 0"	6' - 8"	1 3/8"		A2	PH	
005	MECH.	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006	LAUNDRY	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006.1	LAUNDRY	6' - 0"	6' - 8"	1 3/8"		B2	PH	UNDERCUT IF REQ'D
008	BATH 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
009	BATH 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
010	BEDROOM 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011.1	CLOSET	6' - 0"	6' - 8"	1 3/8"		B2	PH	
012	BEDROOM 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
013	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
014	BALCONY	3' - 0"	8' - 0"	1 3/4"		A3	TIMELY	

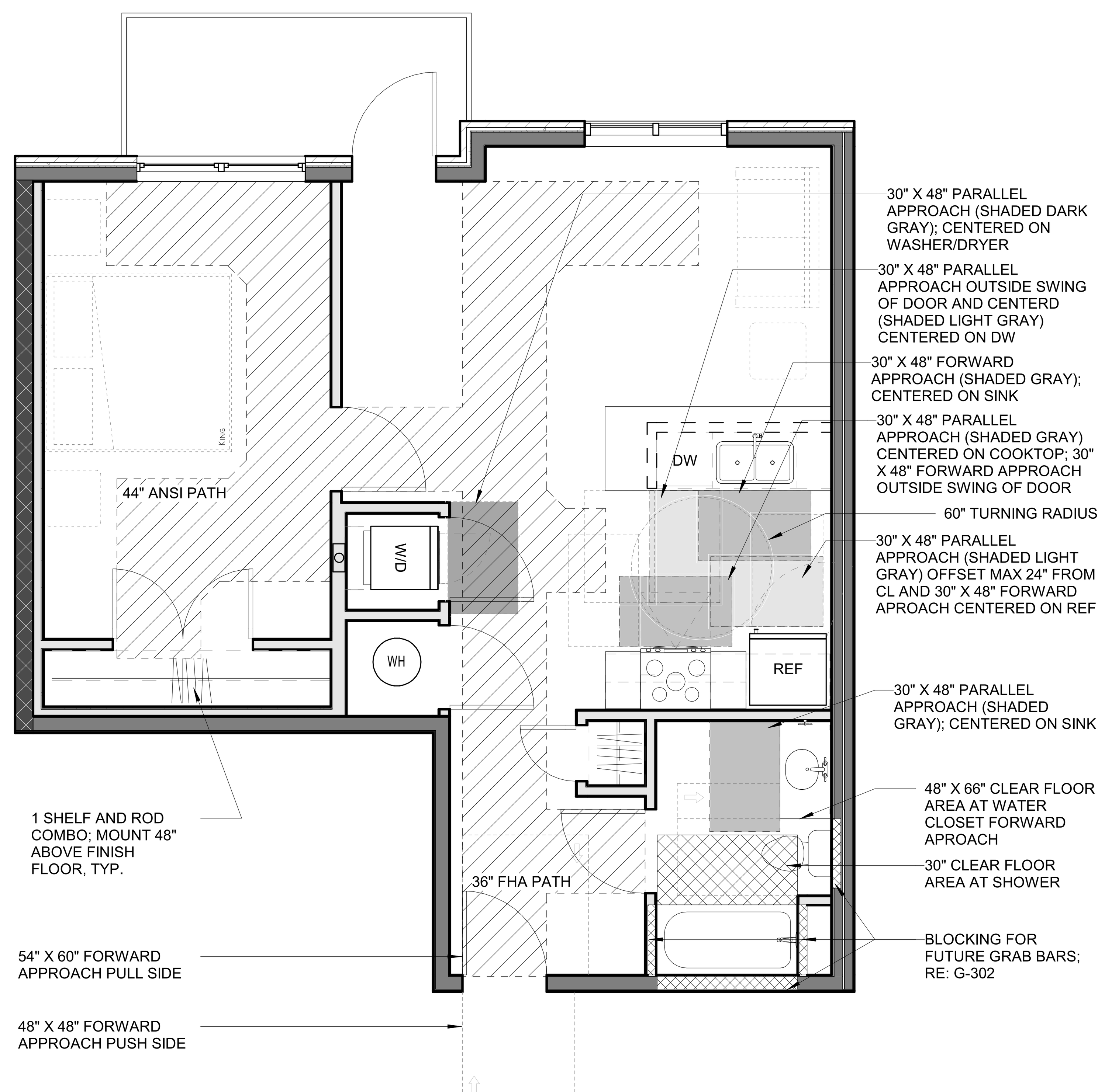
2



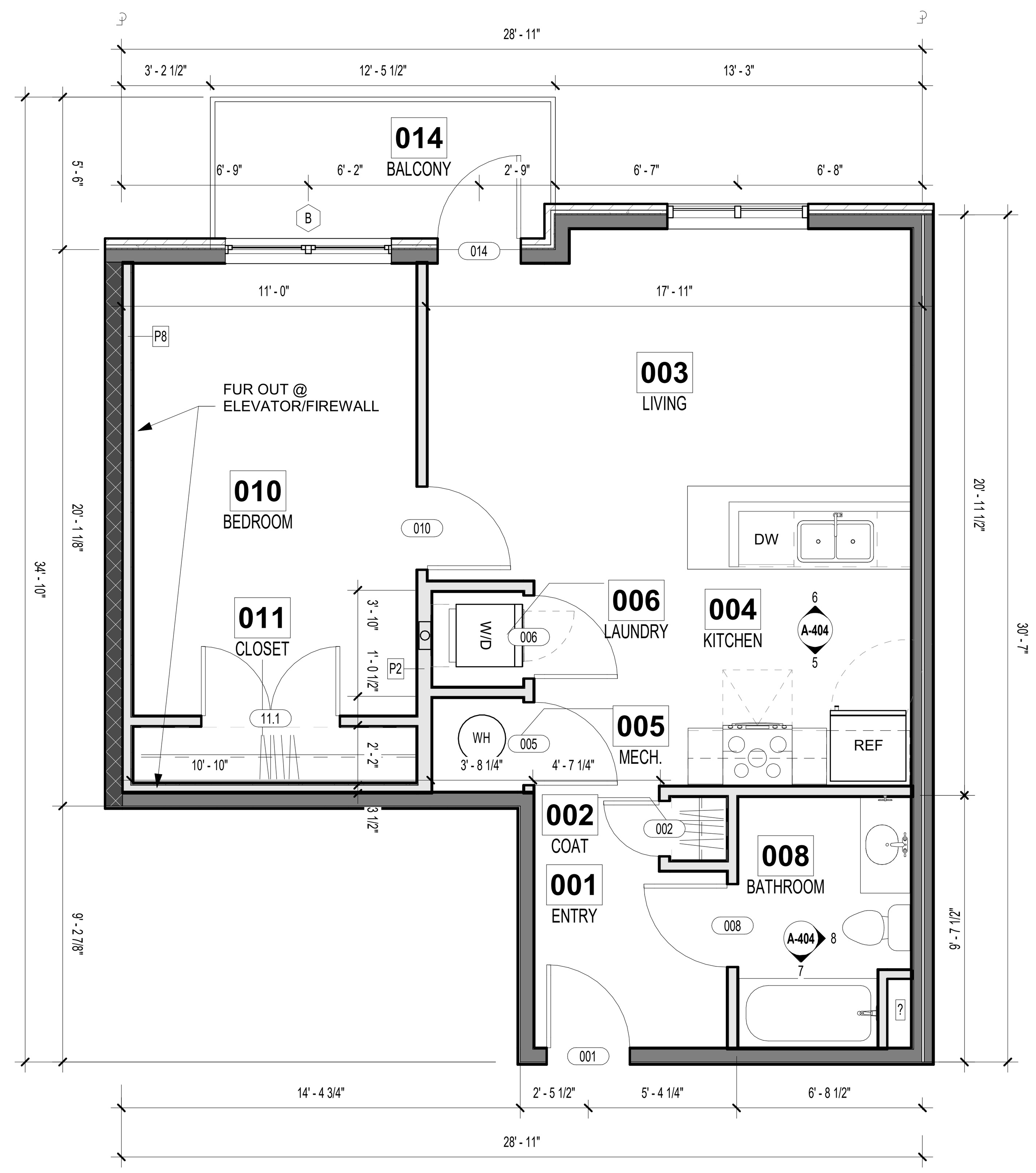
4 UNIT FINISH PLAN - ADRIAN CORNER (1 BR) - TYPE B
1/8" = 1'-0"



3 UNIT RCP - ADRIAN CORNER (1 BR) - TYPE B
1/8" = 1'-0"



2 UNIT CLEAR SPACE PLAN - ADRIAN CORNER (1 BR) - TYPE B
1/4" = 1'-0"



1 UNIT FLOOR PLAN - ADRIAN CORNER (1 BR) - TYPE B
1/4" = 1'-0"

PRINTS ISSUED
11/12/24 - CITY SUBMITTAL

REVISIONS:
2 12/20/24 Add #2

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FOR BID PURPOSES ONLY

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
ADRIAN CORNER (1 BR) UNIT PLAN

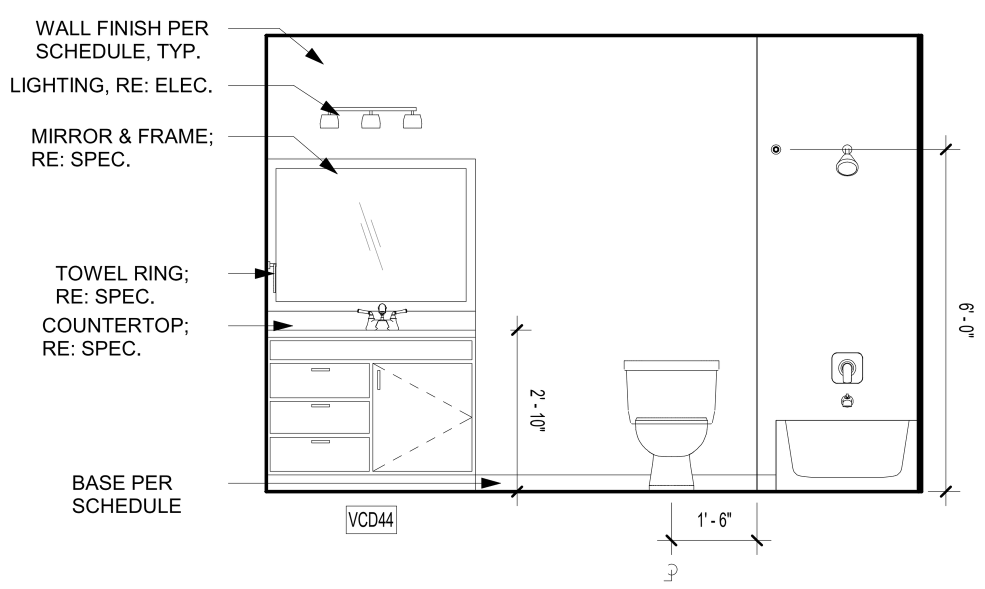
PROJECT NUMBER: 23103

SHEET NUMBER:

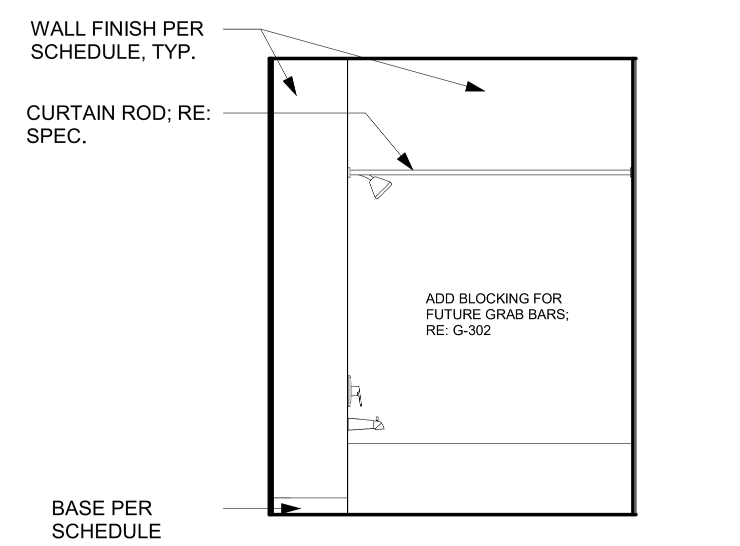
A-404

12/20/2024 10:24:35 PM
C:\Revit Local Cache\2023\23103_Lot 7 Apartments_Central_R23_bmichaels\WT.rvt

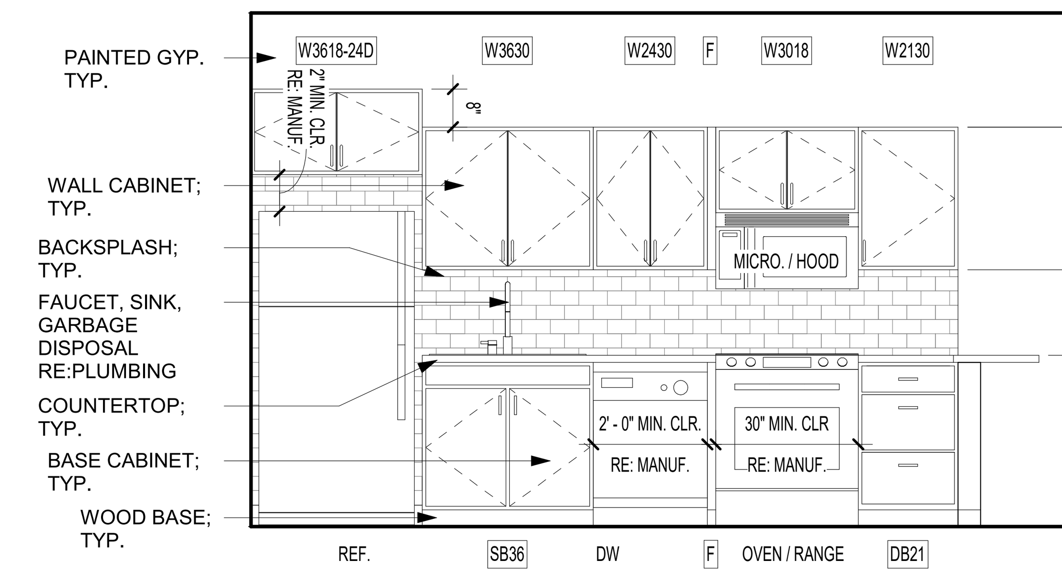
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-120 FOR RCP LEGEND
REFERENCE A-400 FOR UNIT PLAN LEGEND
REFERENCE A-102 & A-103 FOR RC LOCATIONS



7 ARA ALT BATH ELEV. 2
3/8" = 1'-0"

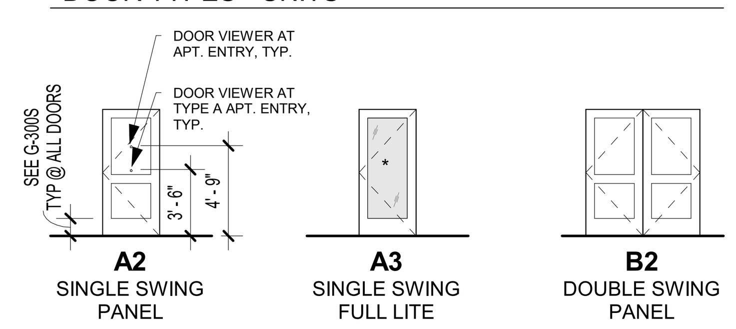


6 ARA ALT BATH ELEV. 1
3/8" = 1'-0"



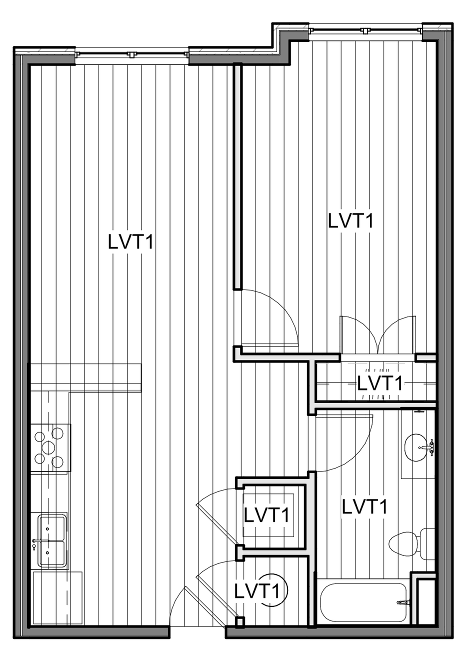
5 ARA ALT KITCHEN ELEV. 1
3/8" = 1'-0"

DOOR TYPES - UNITS

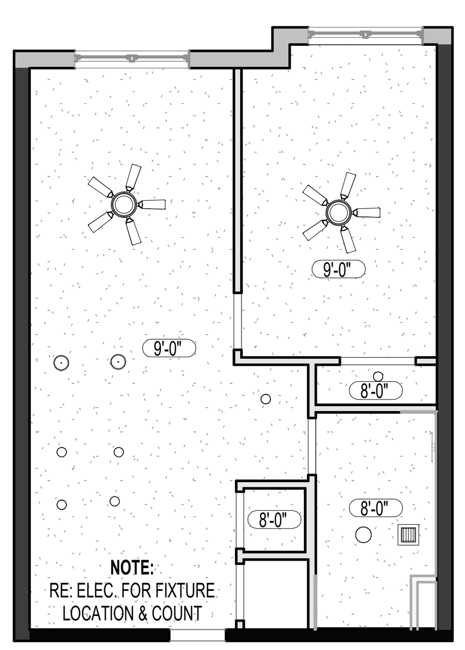


Room Finish Schedule - Units						
#	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVT1	WB, PT3	PT1	PT4	
002	COAT	LVT1		PT2	PT4	
003	LIVING	LVT1	WB, PT3	PT1	PT4	
004	KITCHEN	LVT1	WB, PT3	PT1	PT4	
005	MECH.	LVT1		PT2	PT4	
006	LAUNDRY	LVT1		PT2	PT4	
007	HALLWAY	LVT1	WB, PT3	PT1	PT4	
008	BATH 1	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
009	BATH 2	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
010	BEDROOM 1	LVT1	WB, PT3	PT1	PT4	
011	CLOSET 1	LVT1		PT2	PT4	
012	BEDROOM 2	LVT1	WB, PT3	PT1	PT4	
013	CLOSET 2	LVT1		PT2	PT4	
014	BALCONY	CONCRETE				

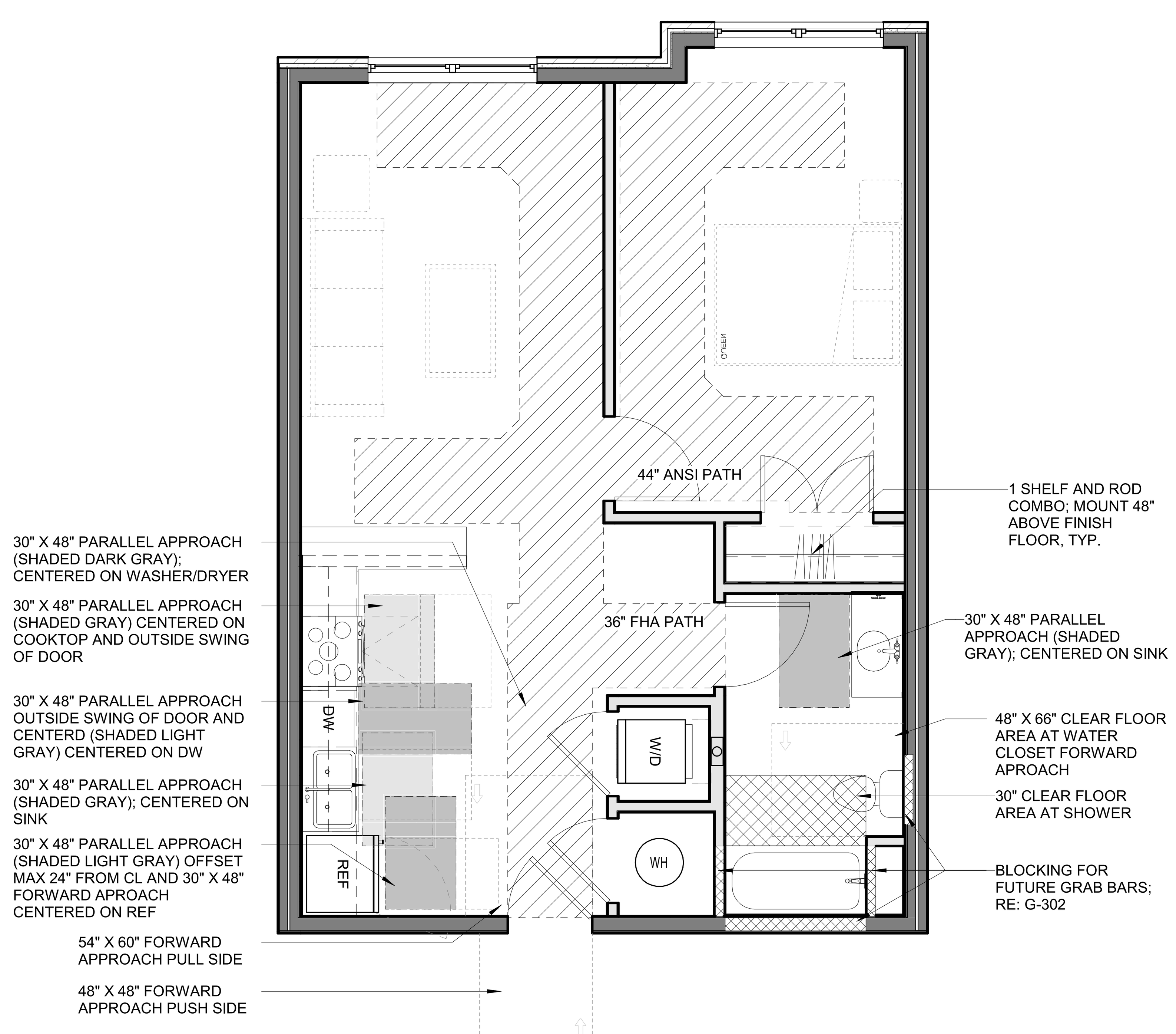
DOOR SCHEDULE - UNIT DOORS								
Mark	Location	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Comments
001	ENTRY	3' - 0"	6' - 8"	1 3/4"	20	A2	TIMELY	SPRING HINGES (CLOSER) SMOKE SEAL
002	COAT	3' - 0"	6' - 8"	1 3/8"		A2	PH	
005	MECH.	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006	LAUNDRY	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006.1	LAUNDRY	6' - 0"	6' - 8"	1 3/8"		B2	PH	UNDERCUT IF REQ'D 2
008	BATH 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
009	BATH 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
010	BEDROOM 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011.1	CLOSET	6' - 0"	6' - 8"	1 3/8"		B2	PH	
012	BEDROOM 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
013	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
014	BALCONY	3' - 0"	8' - 0"	1 3/4"		A3	TIMELY	



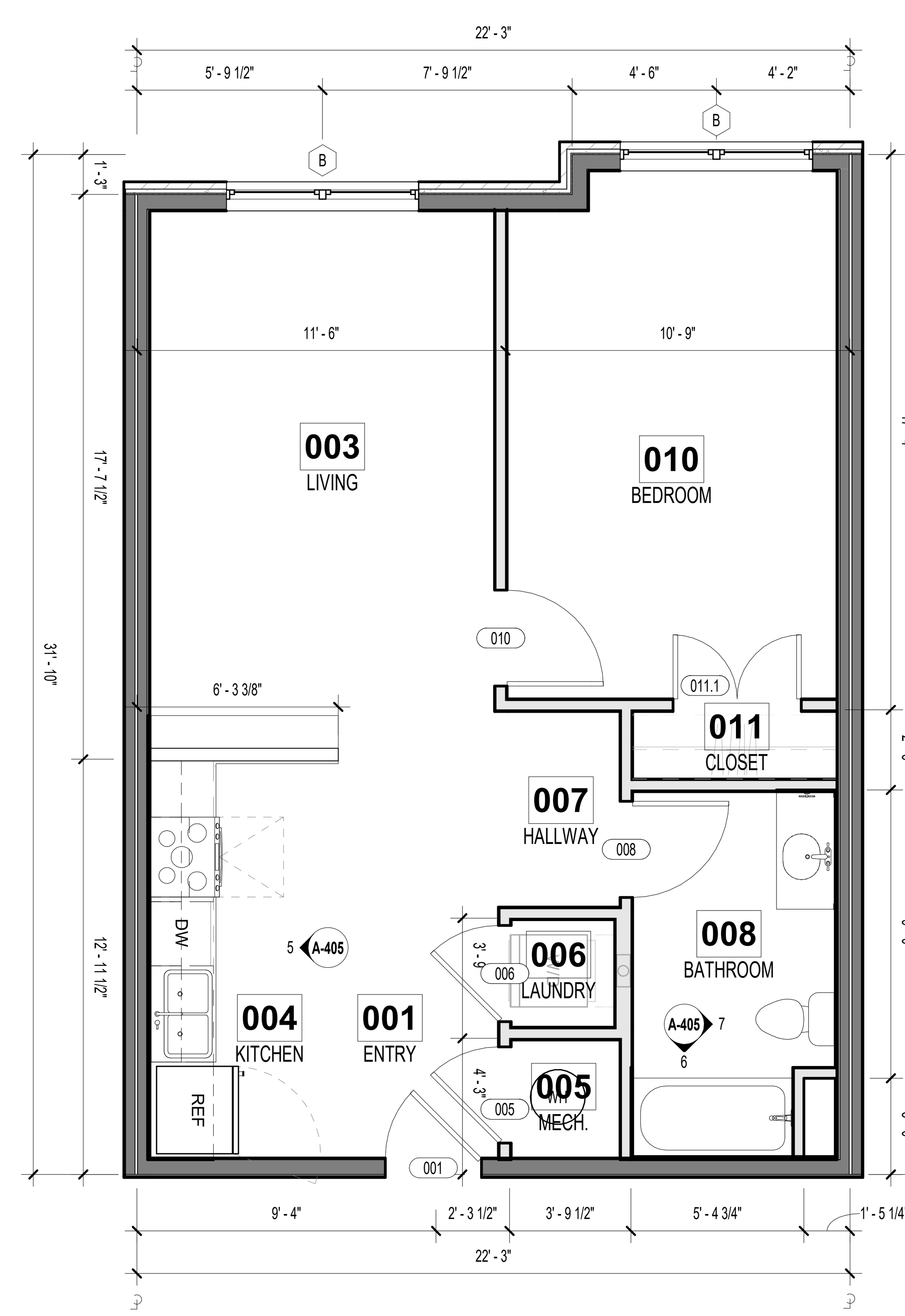
4 UNIT FINISH PLAN - ARA - ALT (1 BR) - TYPE B
1/8" = 1'-0"



3 UNIT RCP - ARA - ALT (1 BR) - TYPE B
1/8" = 1'-0"



2 UNIT CLEAR SPACE PLAN - ARA - ALT (1 BR) - TYPE B
1/4" = 1'-0"



1 UNIT FLOOR PLAN - ARA - ALT (1 BR) - TYPE B
1/4" = 1'-0"

PRINTS ISSUED
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FOR BID PURPOSES ONLY

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

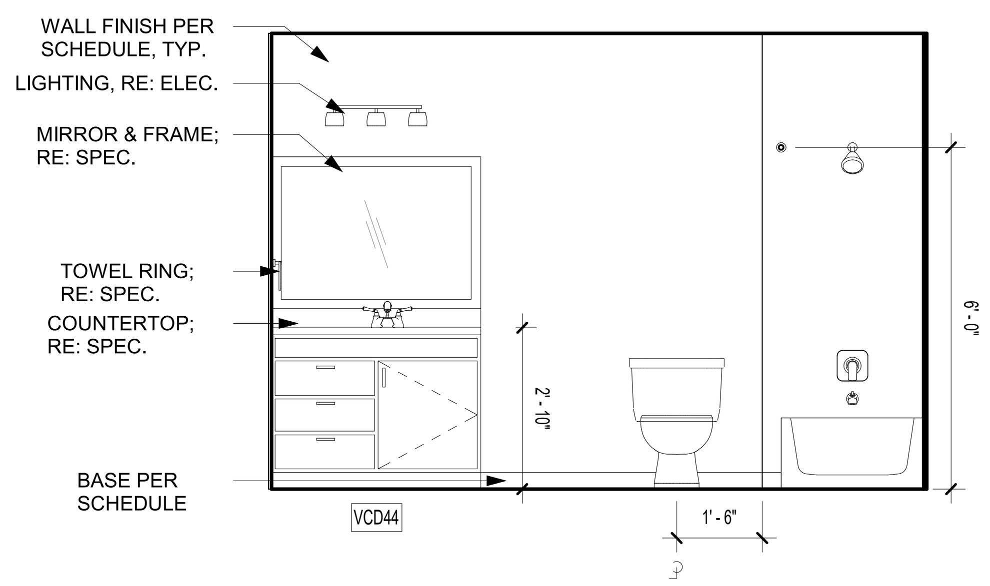
SHEET TITLE
ARA ALT (1 BR) UNIT PLAN

PROJECT NUMBER: 23103

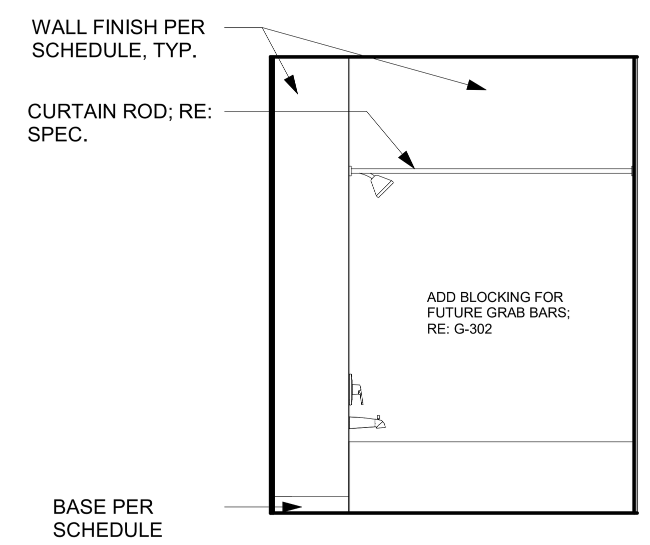
SHEET NUMBER:

A-405

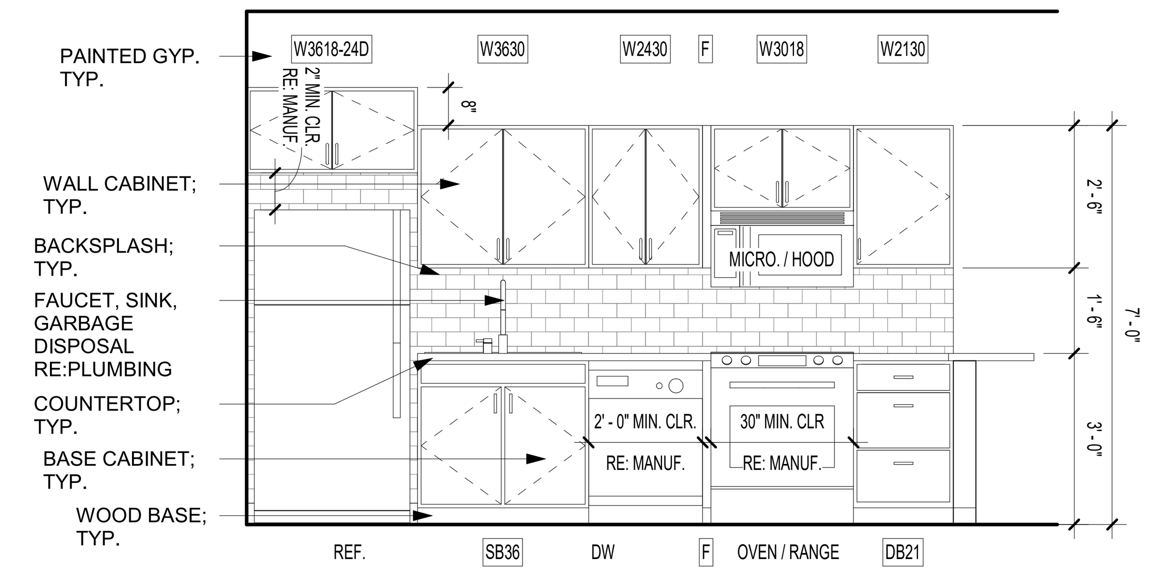
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-120 FOR RCP LEGEND
REFERENCE A-400 FOR UNIT PLAN LEGEND
REFERENCE A-102 & A-103 FOR RC LOCATIONS



7 ARA BATH ELEV. 2
3/8" = 1'-0"

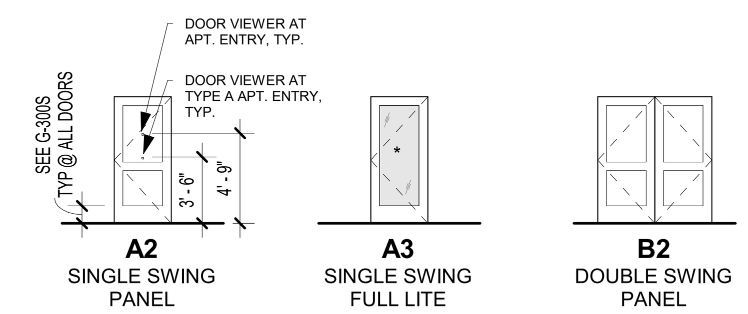


6 ARA BATH ELEV. 1
3/8" = 1'-0"



5 KITCHEN - TYPE 1 - STOVE_SINK
3/8" = 1'-0"

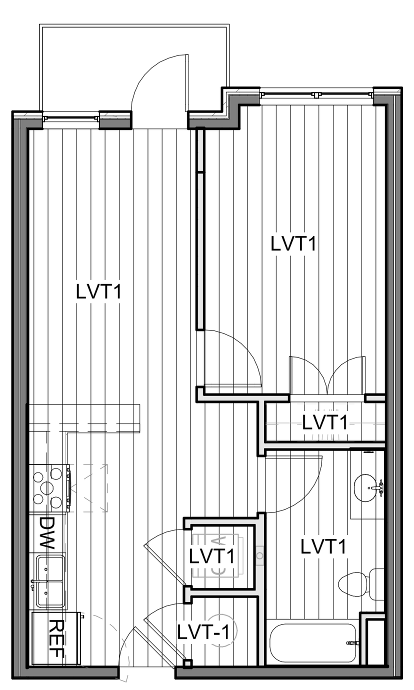
DOOR TYPES - UNITS



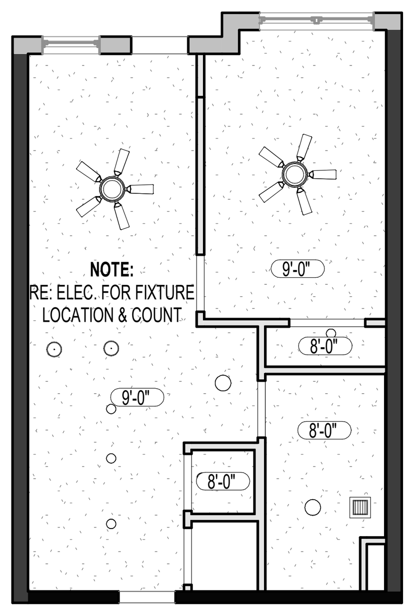
Room Finish Schedule - Units						
#	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVT1	WB, PT3	PT1	PT4	
002	COAT	LVT1		PT2	PT4	
003	LIVING	LVT1	WB, PT3	PT1	PT4	
004	KITCHEN	LVT1	WB, PT3	PT1	PT4	
005	MECH.	LVT1		PT2	PT4	
006	LAUNDRY	LVT1		PT2	PT4	
007	HALLWAY	LVT1	WB, PT3	PT1	PT4	
008	BATH 1	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
009	BATH 2	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
010	BEDROOM 1	LVT1	WB, PT3	PT1	PT4	
011	CLOSET 1	LVT1		PT2	PT4	
012	BEDROOM 2	LVT1	WB, PT3	PT1	PT4	
013	CLOSET 2	LVT1		PT2	PT4	
014	BALCONY	CONCRETE				

DOOR SCHEDULE - UNIT DOORS								
Mark	Location	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Comments
001	ENTRY	3' - 0"	6' - 8"	1 3/4"	20	A2	TIMELY	SPRING HINGES (CLOSER) SMOKE SEAL
002	COAT	3' - 0"	6' - 8"	1 3/8"		A2	PH	
005	MECH.	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006	LAUNDRY	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006.1	LAUNDRY	6' - 0"	6' - 8"	1 3/8"		B2	PH	UNDERCUT IF REQ'D
008	BATH 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
009	BATH 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
010	BEDROOM 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011.1	CLOSET	6' - 0"	6' - 8"	1 3/8"		B2	PH	
012	BEDROOM 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
013	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
014	BALCONY	3' - 0"	8' - 0"	1 3/4"		A3	TIMELY	

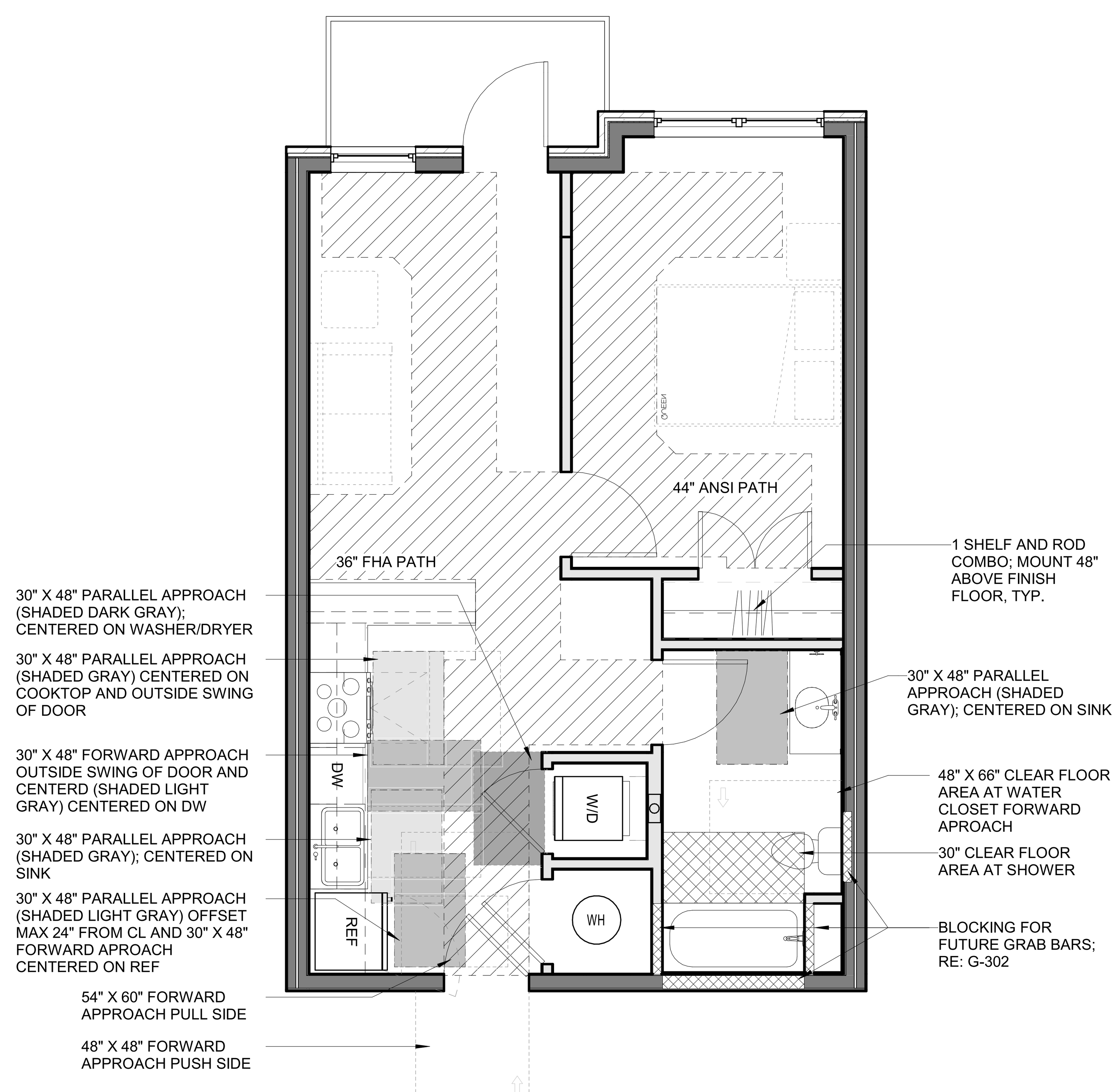
2



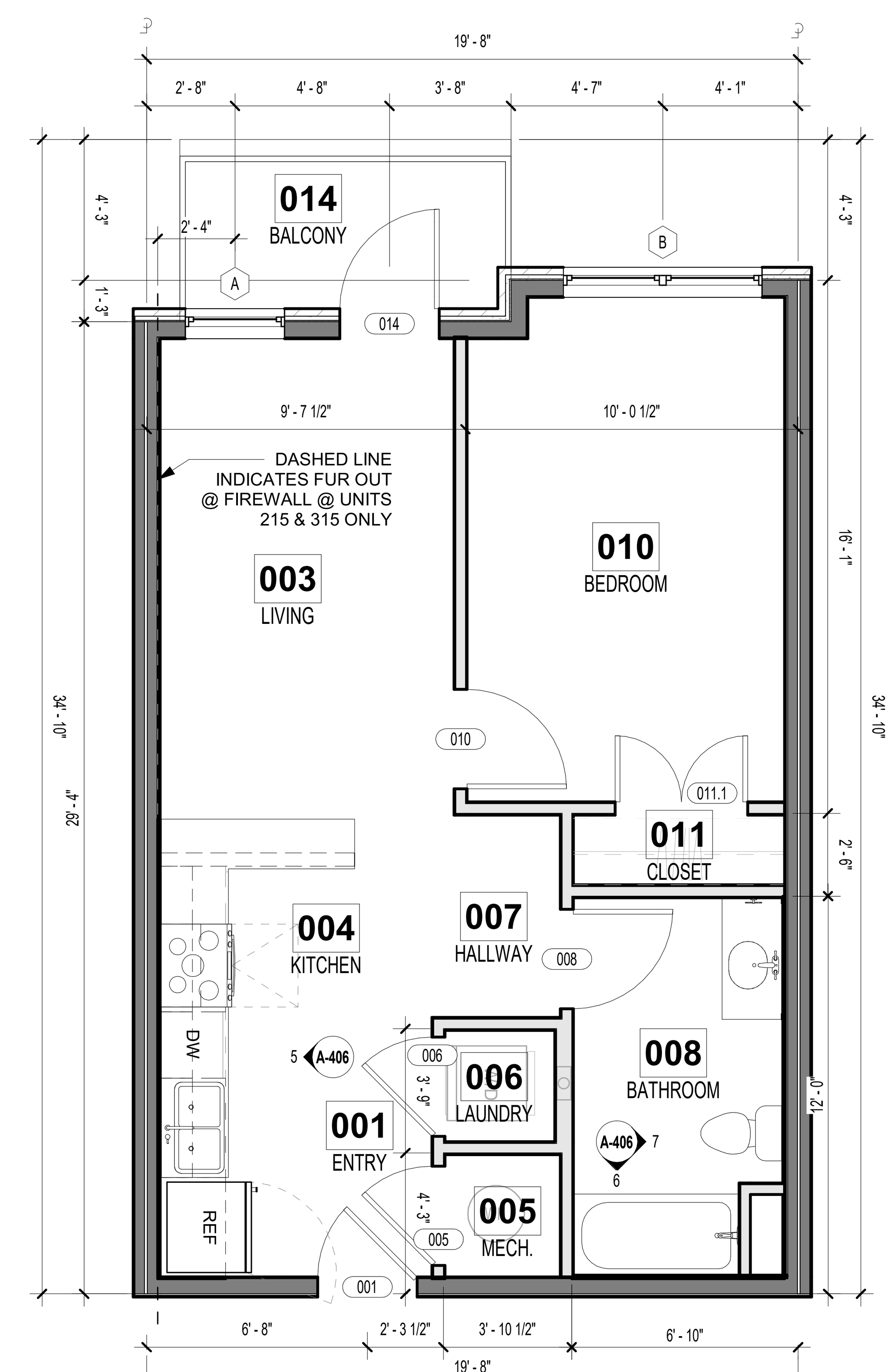
4 UNIT FINISH PLAN - ARA (1 BR) - TYPE B
1/8" = 1'-0"



3 UNIT RCP - ARA (1 BR) - TYPE B
1/8" = 1'-0"



2 UNIT CLEAR SPACE PLAN - ARA (1 BR) - TYPE B
1/4" = 1'-0"



1 UNIT FLOOR PLAN - ARA (1 BR) - TYPE B
1/4" = 1'-0"

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THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
ARA (1 BR) UNIT PLAN

PROJECT NUMBER: 23103

SHEET NUMBER:

A-406

REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-120 FOR RCP LEGEND
REFERENCE A-400 FOR UNIT PLAN LEGEND
REFERENCE A-102 & A-103 FOR RC LOCATIONS

PRINTS ISSUED
11/12/24 - CITY SUBMITTAL

REVISIONS:
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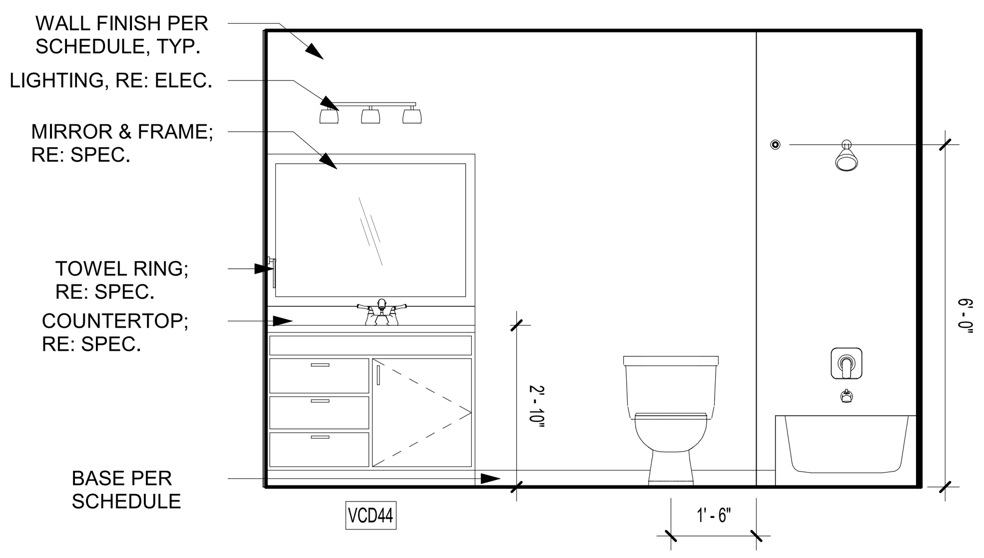
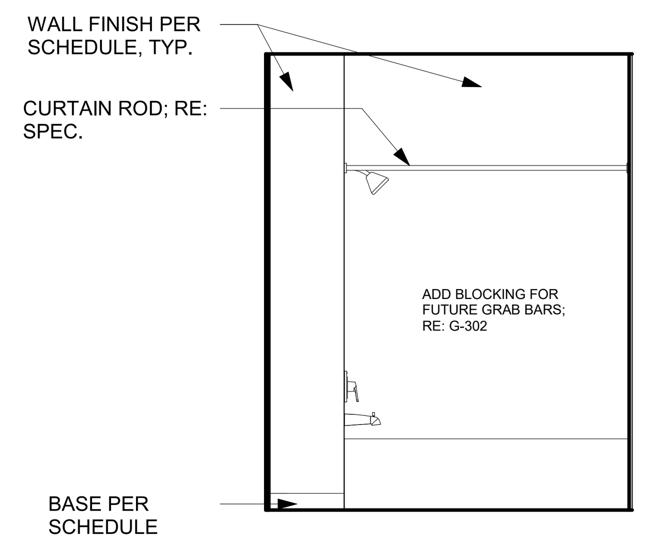
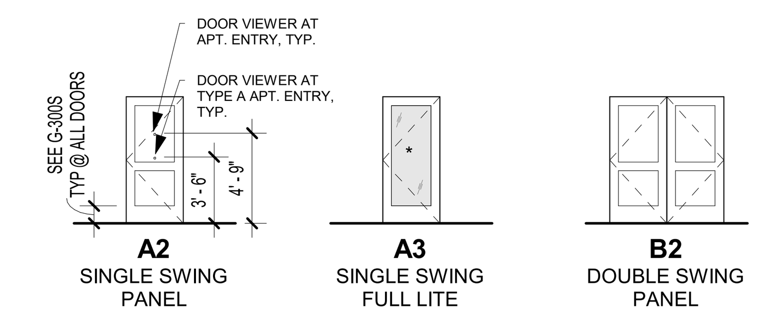


7 ARA CORNER BATH ELEV. 2
3/8" = 1'-0"

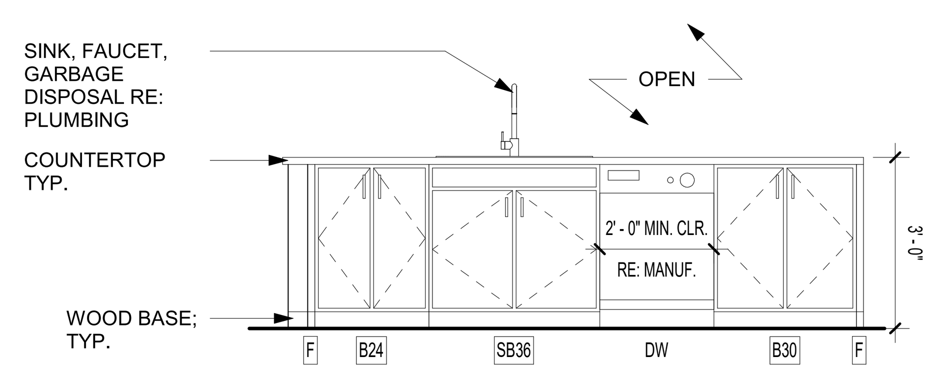


6 ARA CORNER BATH ELEV. 1
3/8" = 1'-0"

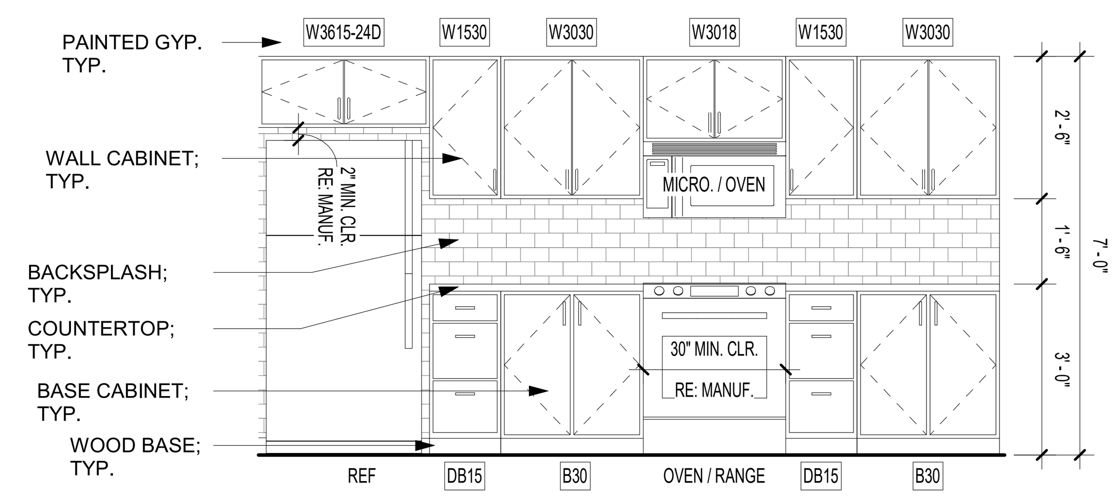
DOOR TYPES - UNITS



Room Finish Schedule - Units						
#	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVT1	WB, PT3	PT1	PT4	
002	COAT	LVT1		PT2	PT4	
003	LIVING	LVT1	WB, PT3	PT1	PT4	
004	KITCHEN	LVT1	WB, PT3	PT1	PT4	
005	MECH.	LVT1		PT2	PT4	
006	LAUNDRY	LVT1		PT2	PT4	
007	HALLWAY	LVT1	WB, PT3	PT1	PT4	
008	BATH 1	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
009	BATH 2	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
010	BEDROOM 1	LVT1	WB, PT3	PT1	PT4	
011	CLOSET 1	LVT1		PT2	PT4	
012	BEDROOM 2	LVT1	WB, PT3	PT1	PT4	
013	CLOSET 2	LVT1		PT2	PT4	
014	BALCONY	CONCRETE				



5 ARA CORNER KITCHEN ELEV. 2
3/8" = 1'-0" (MIRRORED)



4 ARA CORNER KITCHEN ELEV. 1
3/8" = 1'-0" (MIRRORED)

DOOR SCHEDULE - UNIT DOORS								
Mark	Location	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Comments
001	ENTRY	3' - 0"	6' - 8"	1 3/4"	20	A2	TIMELY	SPRING HINGES (CLOSER) SMOKE SEAL
002	COAT	3' - 0"	6' - 8"	1 3/8"		A2	PH	
005	MECH.	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006	LAUNDRY	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006.1	LAUNDRY	6' - 0"	6' - 8"	1 3/8"		B2	PH	UNDERCUT IF REQ'D
008	BATH 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
009	BATH 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
010	BEDROOM 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011.1	CLOSET	6' - 0"	6' - 8"	1 3/8"		B2	PH	
012	BEDROOM 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
013	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
014	BALCONY	3' - 0"	8' - 0"	1 3/4"		A3	TIMELY	

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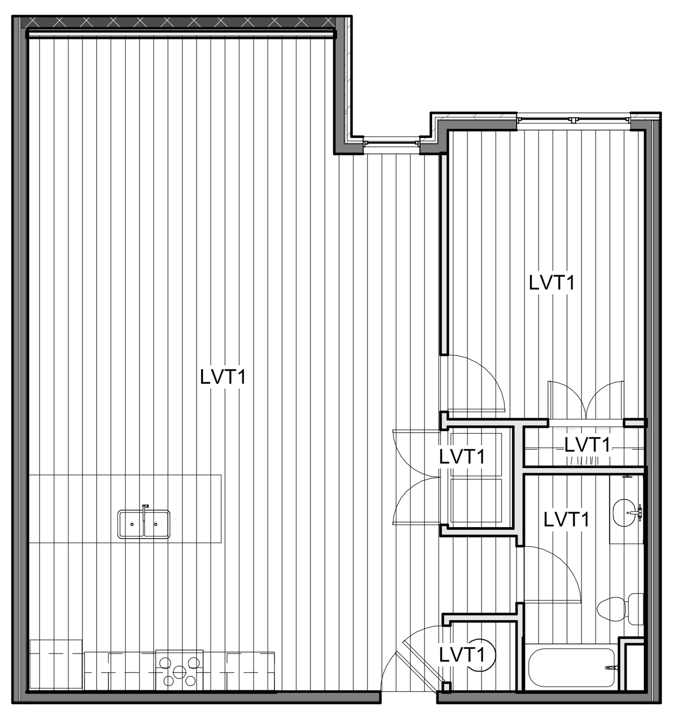
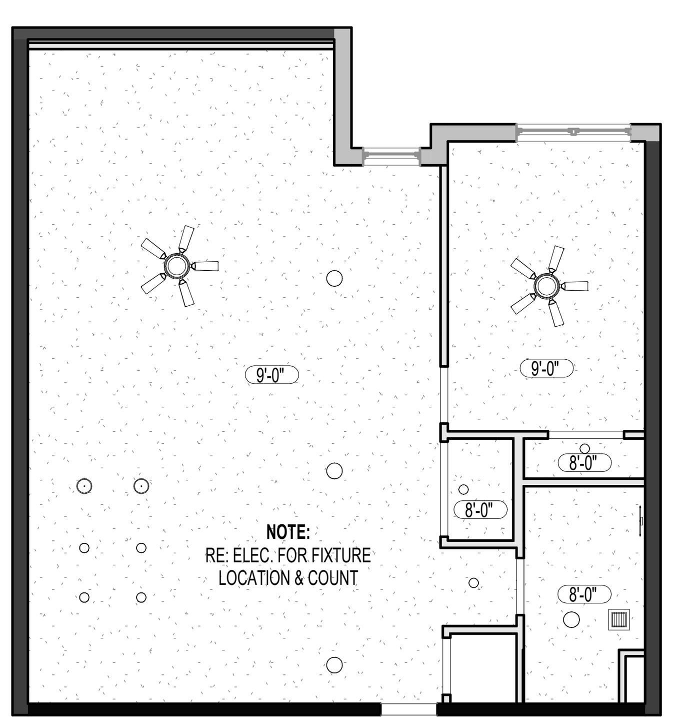
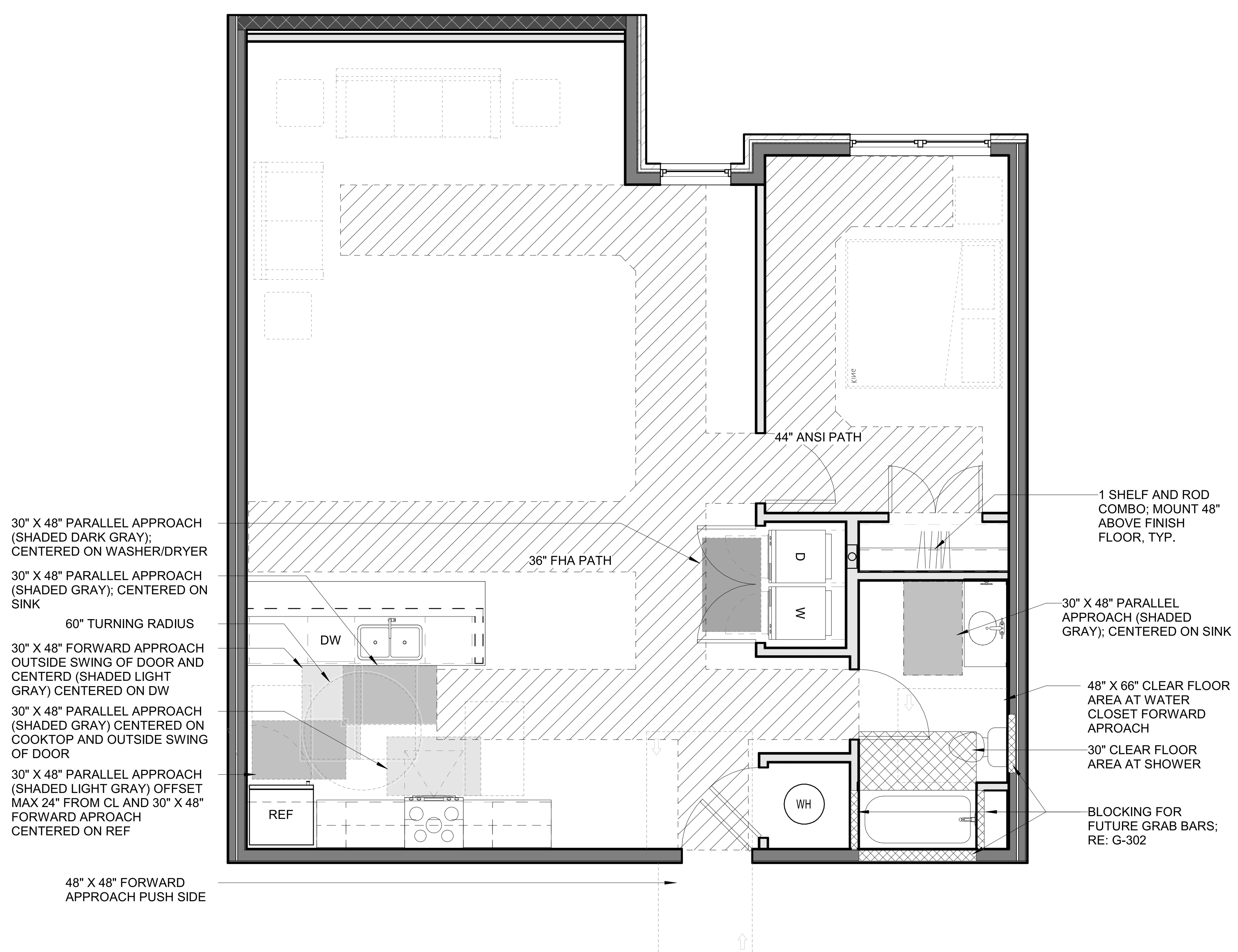


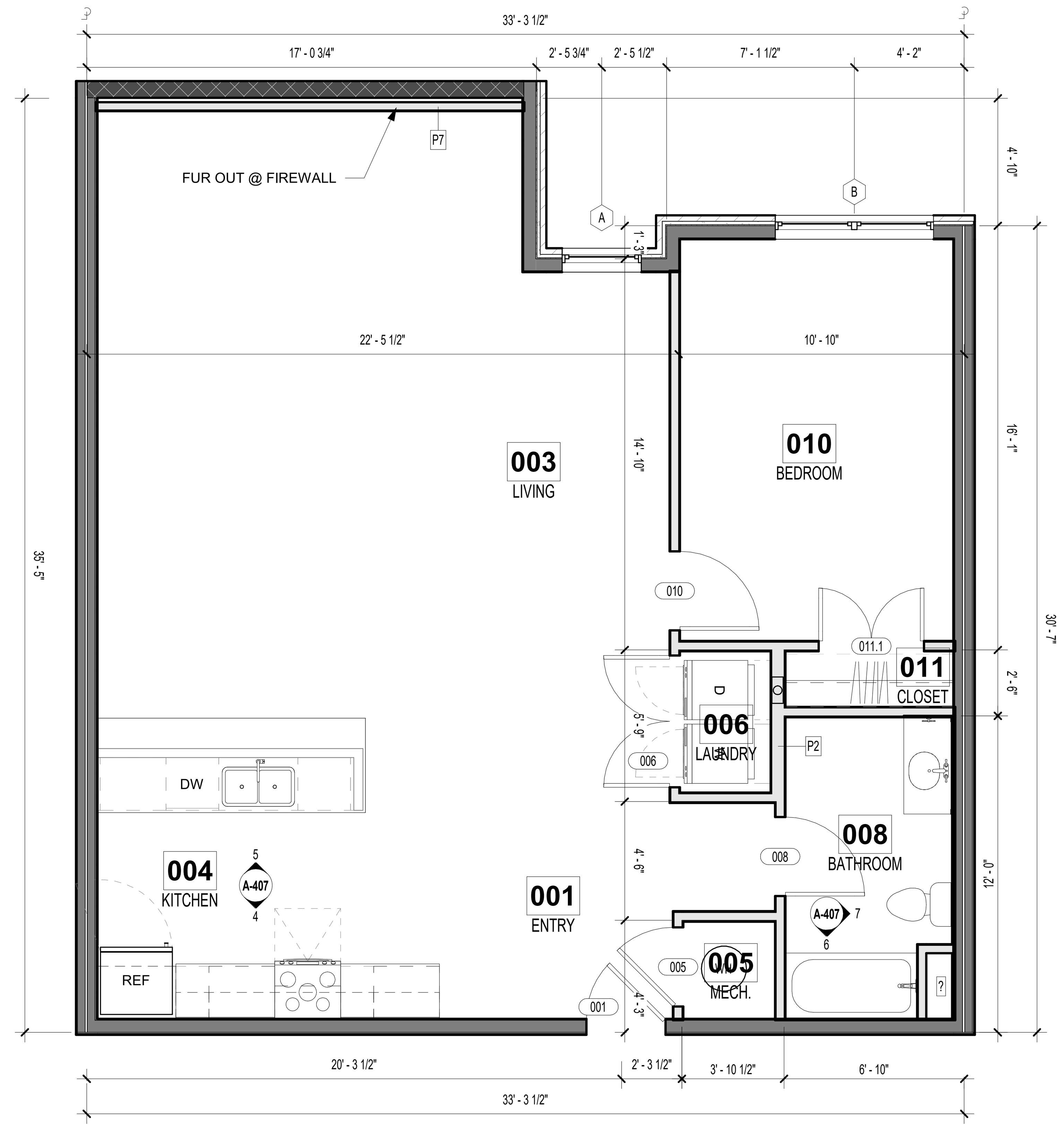
9 UNIT FINISH PLAN - ARA CORNER (1 BR) - TYPE B
1/8" = 1'-0"



3 UNIT RCP - ARA CORNER (1 BR) - TYPE B
1/8" = 1'-0"



2 UNIT CLEAR SPACE PLAN - ARA CORNER (1 BR) - TYPE B
1/4" = 1'-0"



1 UNIT FLOOR PLAN - ARA CORNER (1 BR) - TYPE B
1/4" = 1'-0"

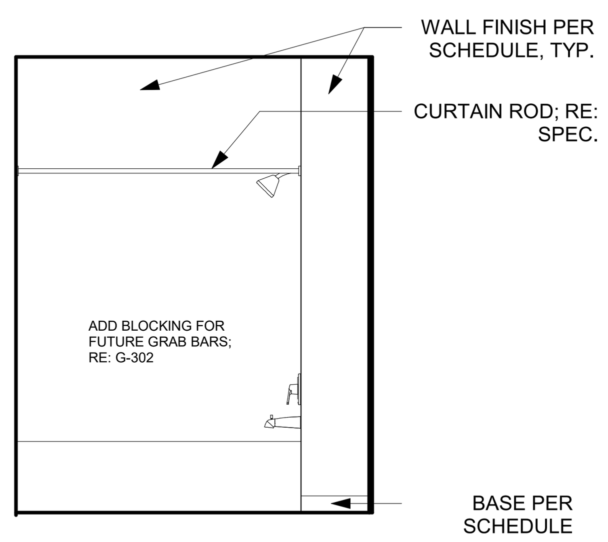
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO

SHEET TITLE
ARA CORNER (1 BR) UNIT PLAN

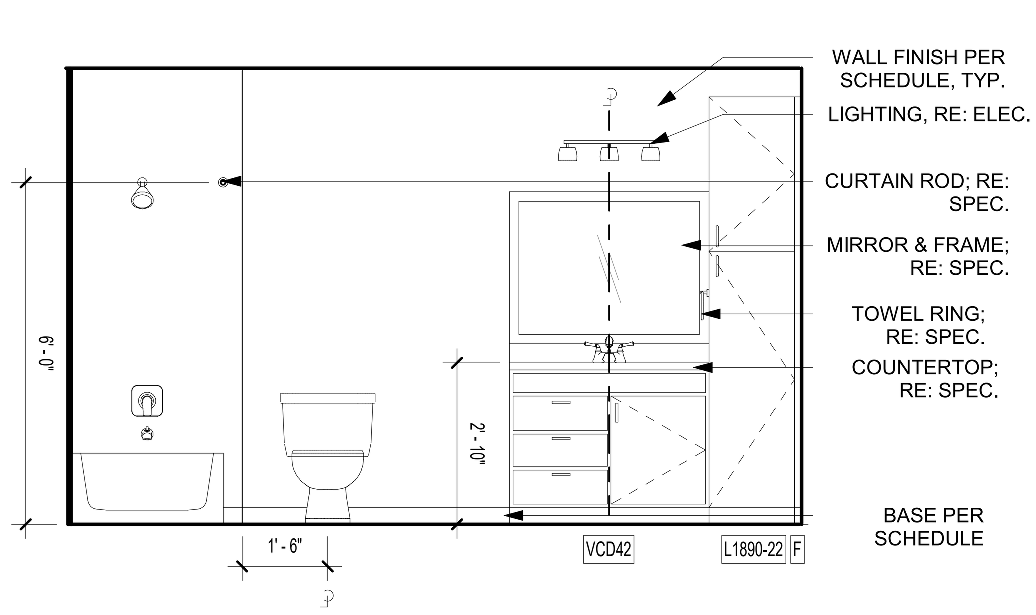
PROJECT NUMBER: 23103

SHEET NUMBER:
A-407

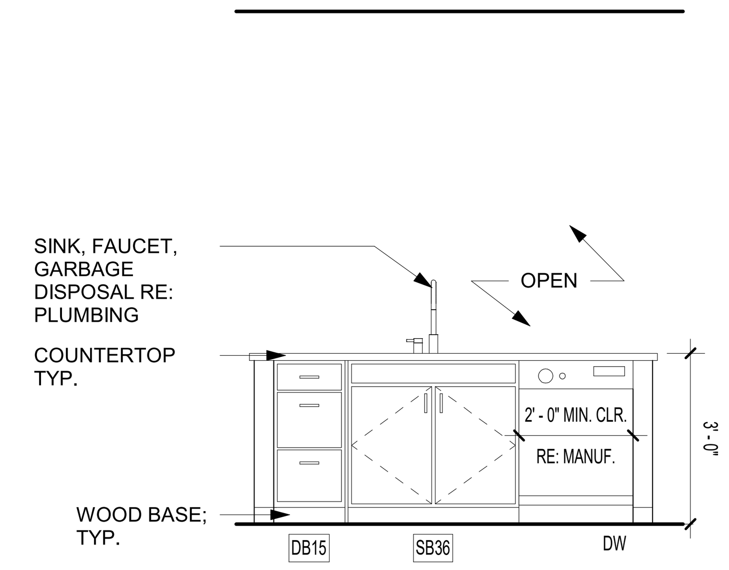
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-120 FOR RCP LEGEND
REFERENCE A-400 FOR UNIT PLAN LEGEND
REFERENCE A-102 & A-103 FOR RC LOCATIONS



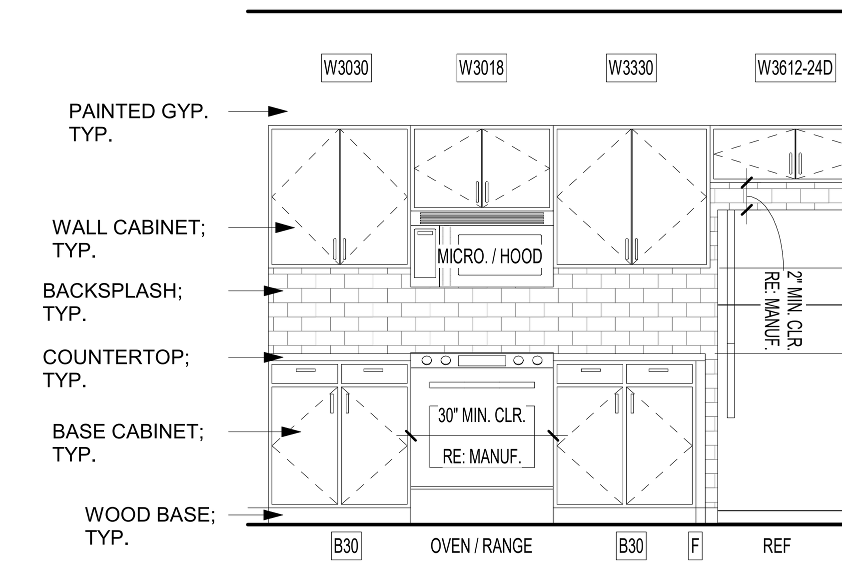
8 DELTA BATH ELEV. 2
3/8" = 1'-0"



7 DELTA BATH ELEV. 1
3/8" = 1'-0"

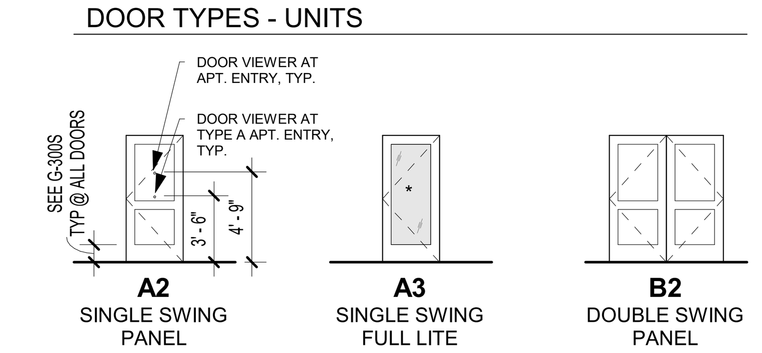


6 DELTA KITCHEN ELEV. 2
3/8" = 1'(MIRRORED)



5 DELTA KITCHEN ELEV. 1
3/8" (MIRRORED)

DOOR TYPES - UNITS



Room Finish Schedule - Units						
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005	MECH.	LVT1		PT2	PT4	
006	LAUNDRY	LVT1		PT2	PT4	
007	HALLWAY	LVT1	WB, PT3	PT1	PT4	
008	BATH 1	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
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DOOR SCHEDULE - UNIT DOORS								
Mark	Location	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Comments
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005	MECH.	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006	LAUNDRY	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006.1	LAUNDRY	6' - 0"	6' - 8"	1 3/8"		B2	PH	UNDERCUT IF REQ'D
008	BATH 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
009	BATH 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
010	BEDROOM 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
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011.1	CLOSET	6' - 0"	6' - 8"	1 3/8"		B2	PH	
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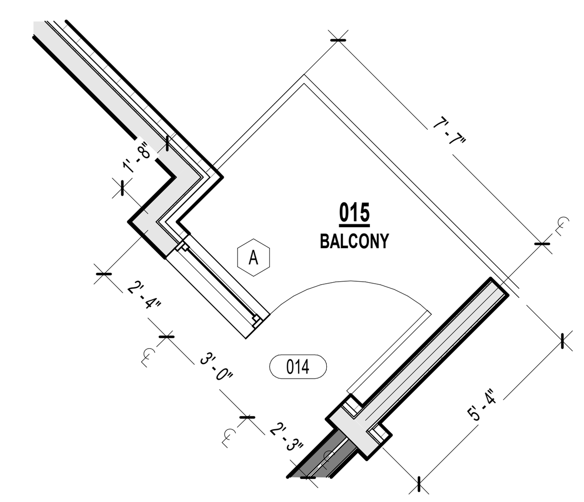
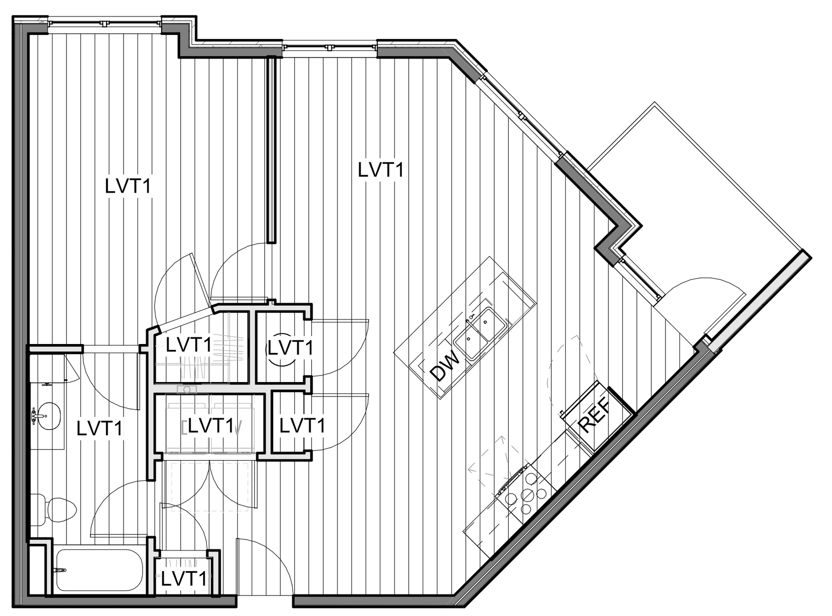
013	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
014	BALCONY	3' - 0"	8' - 0"	1 3/4"		A3	TIMELY	

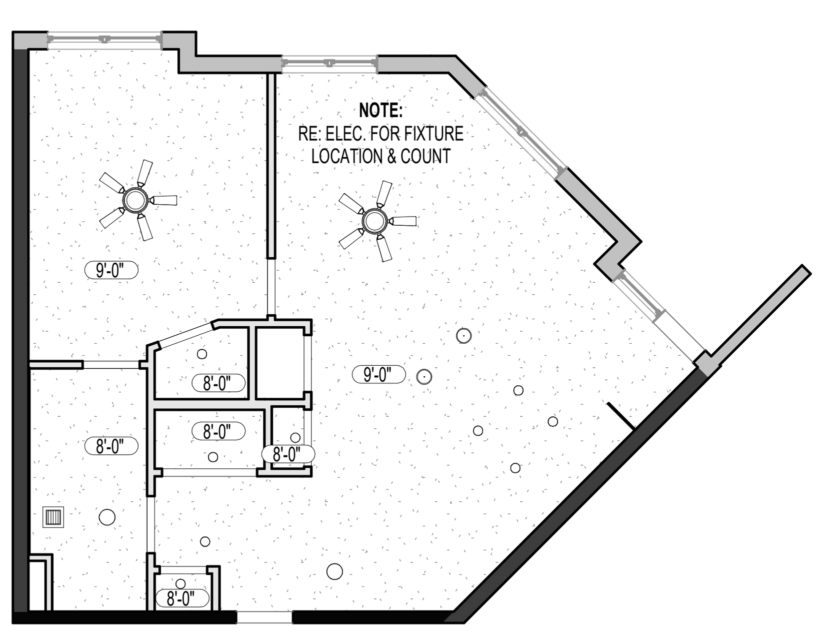
2



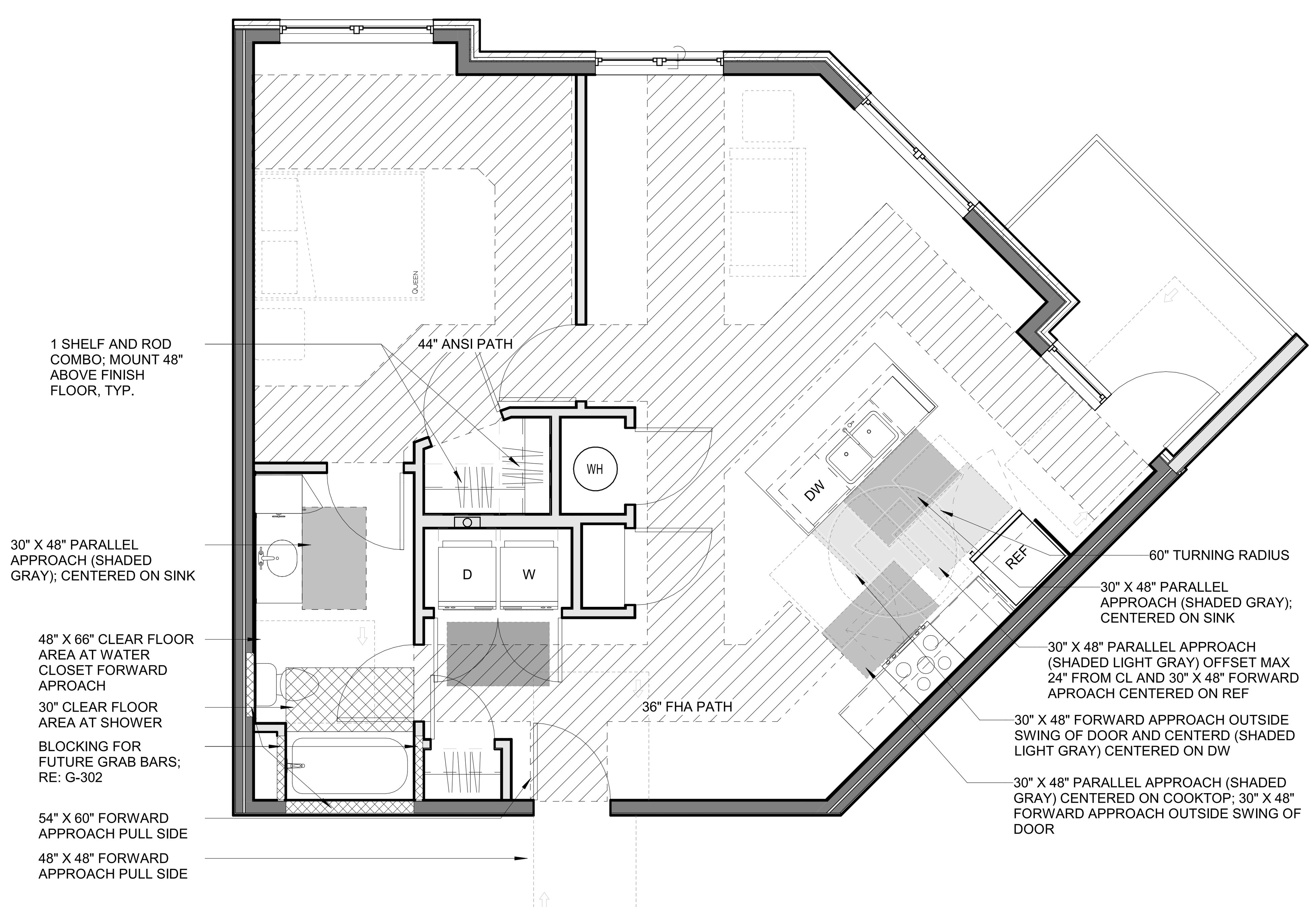
9 DELTA ALT BALCONY PLAN
1/4" = 1'-0" (3RD FLOOR ONLY)



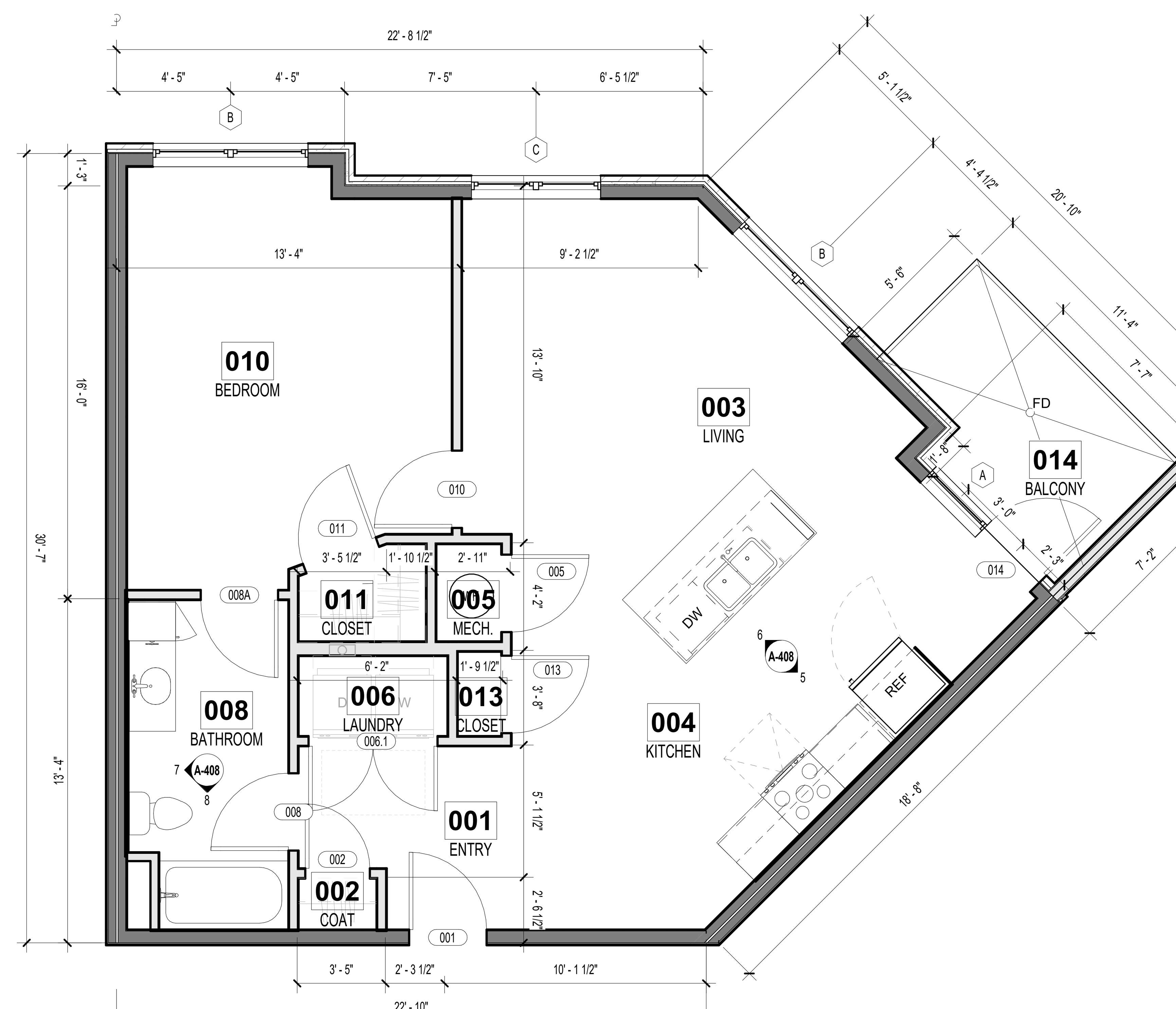
4 UNIT FINISH PLAN - DELTA (1 BR) - TYPE B
1/8" = 1'-0"



3 UNIT RCP - DELTA (1 BR) - TYPE B
1/8" = 1'-0"



2 UNIT CLEAR SPACE PLAN - DELTA (1 BR) - TYPE B
1/4" = 1'-0"



1 UNIT FLOOR PLAN - DELTA (1 BR) - TYPE B
1/4" = 1'-0"

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THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

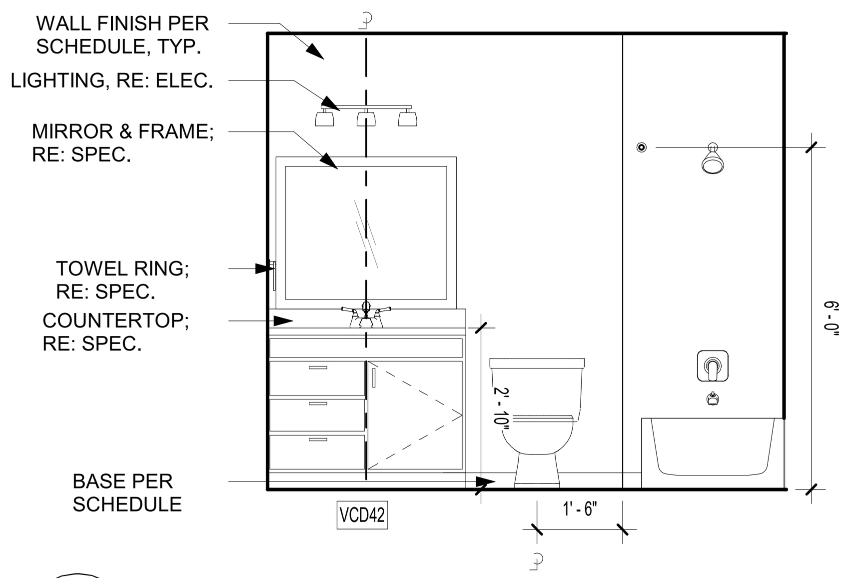
SHEET TITLE
DELTA (1 BR) UNIT PLAN

PROJECT NUMBER: 23103

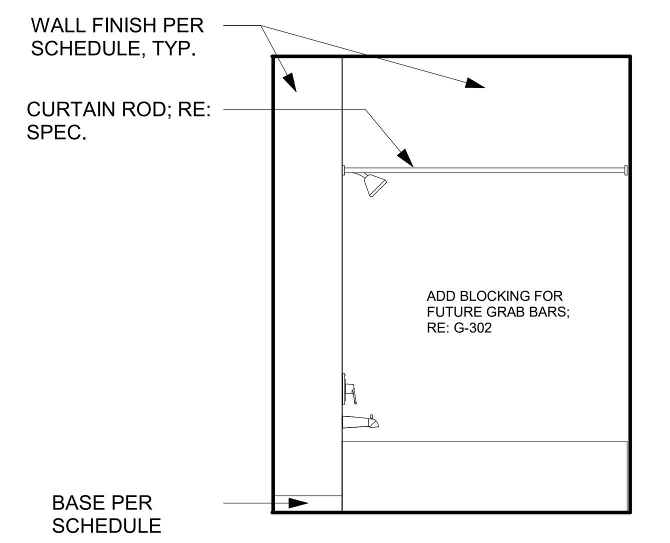
SHEET NUMBER:

A-408

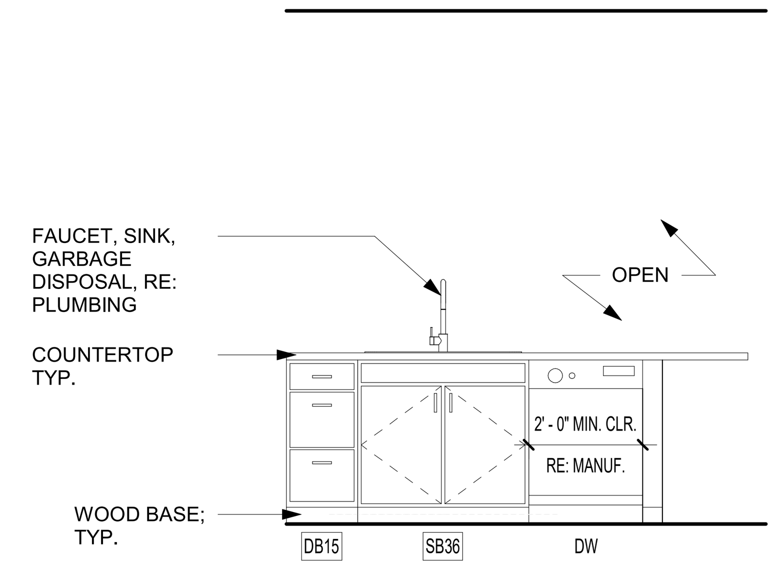
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-120 FOR RCP LEGEND
REFERENCE A-400 FOR UNIT PLAN LEGEND
REFERENCE A-102 & A-103 FOR RC LOCATIONS



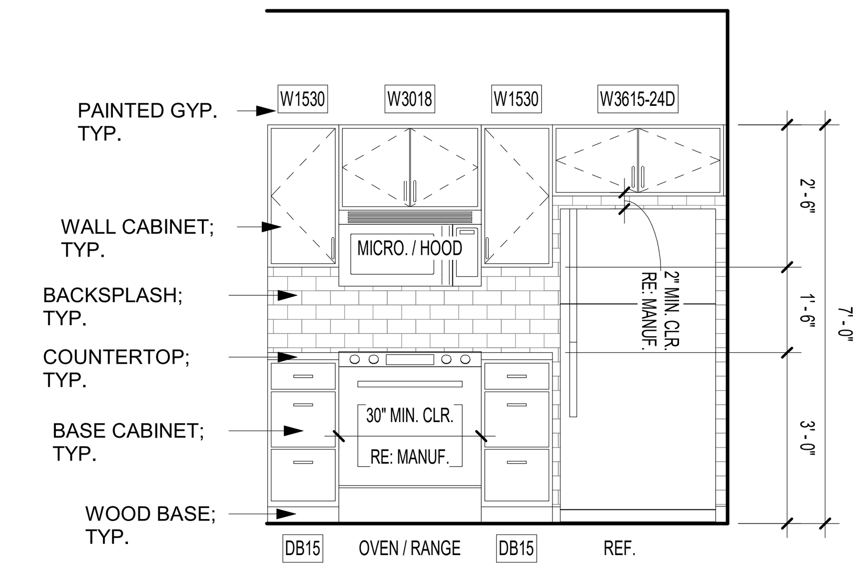
8 HURLEY BATH ELEV. 2
3/8" = 1'-0" (MIRRORED IN BATHROOM 2)



7 HURLEY BATH ELEV. 1
3/8" = 1'-0" (MIRRORED IN BATHROOM 2)

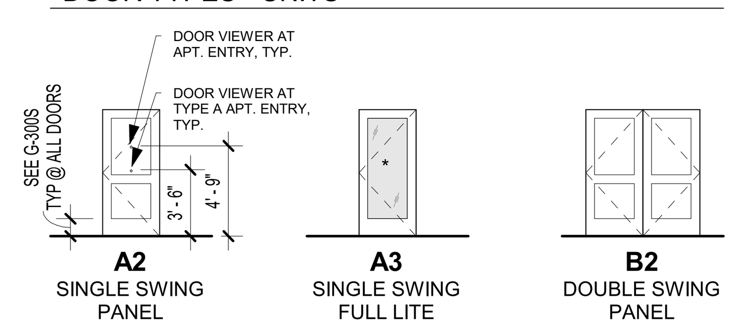


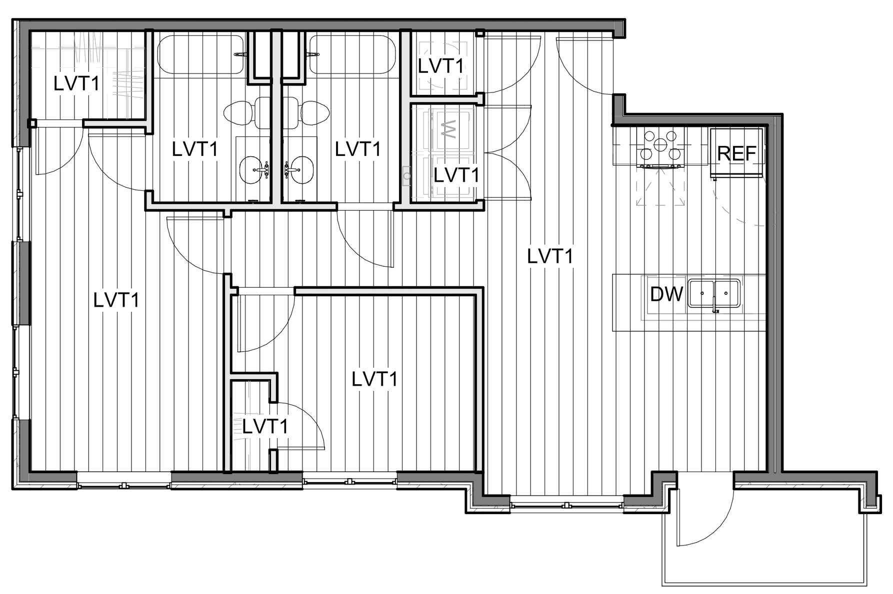
6 HURLEY KITCHEN ELEV. 2
3/8" = 1'-0"



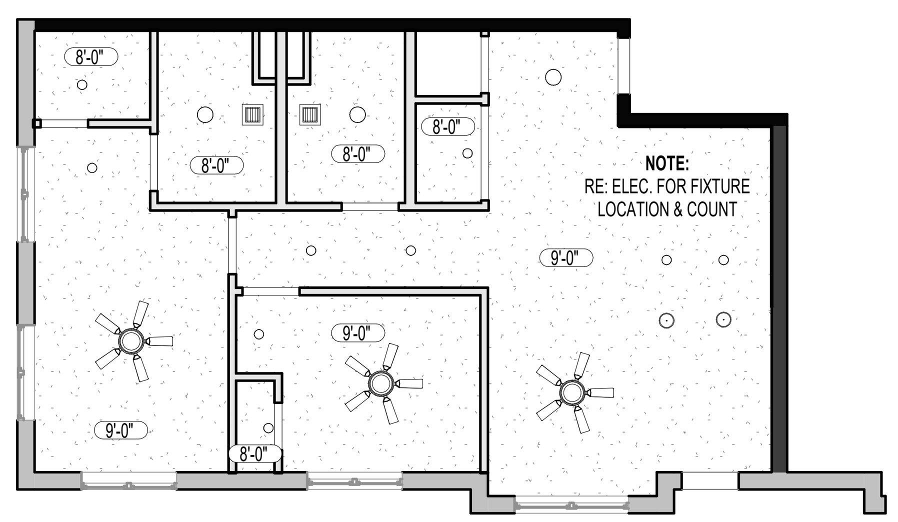
5 HURLEY KITCHEN ELEV. 1
3/8" = 1'-0"

DOOR TYPES - UNITS





4 UNIT FINISH PLAN - HURLEY (2 BR) - TYPE B
1/8" = 1'-0"

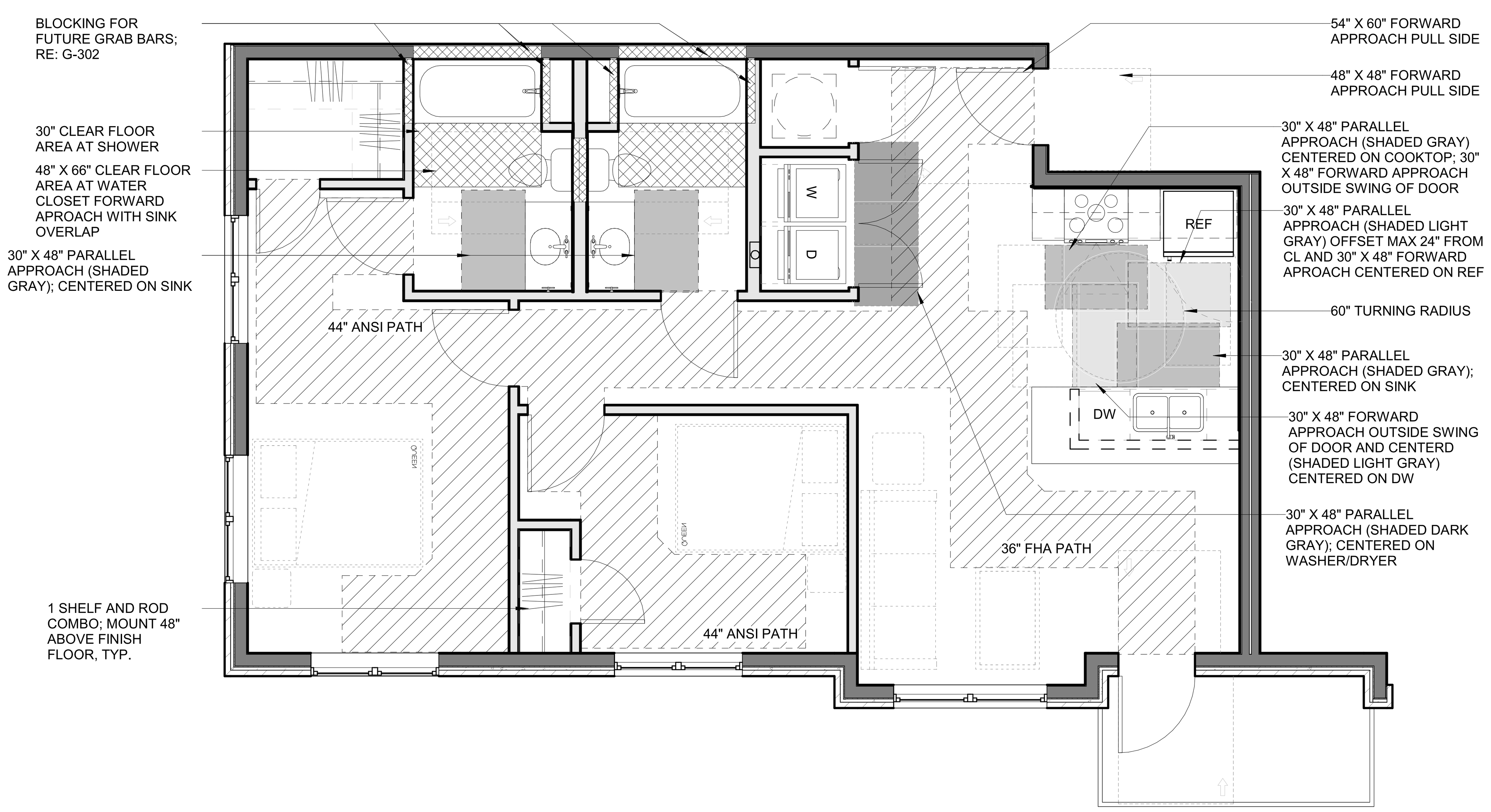


3 UNIT RCP - HURLEY (2 BR) - TYPE B
1/8" = 1'-0"

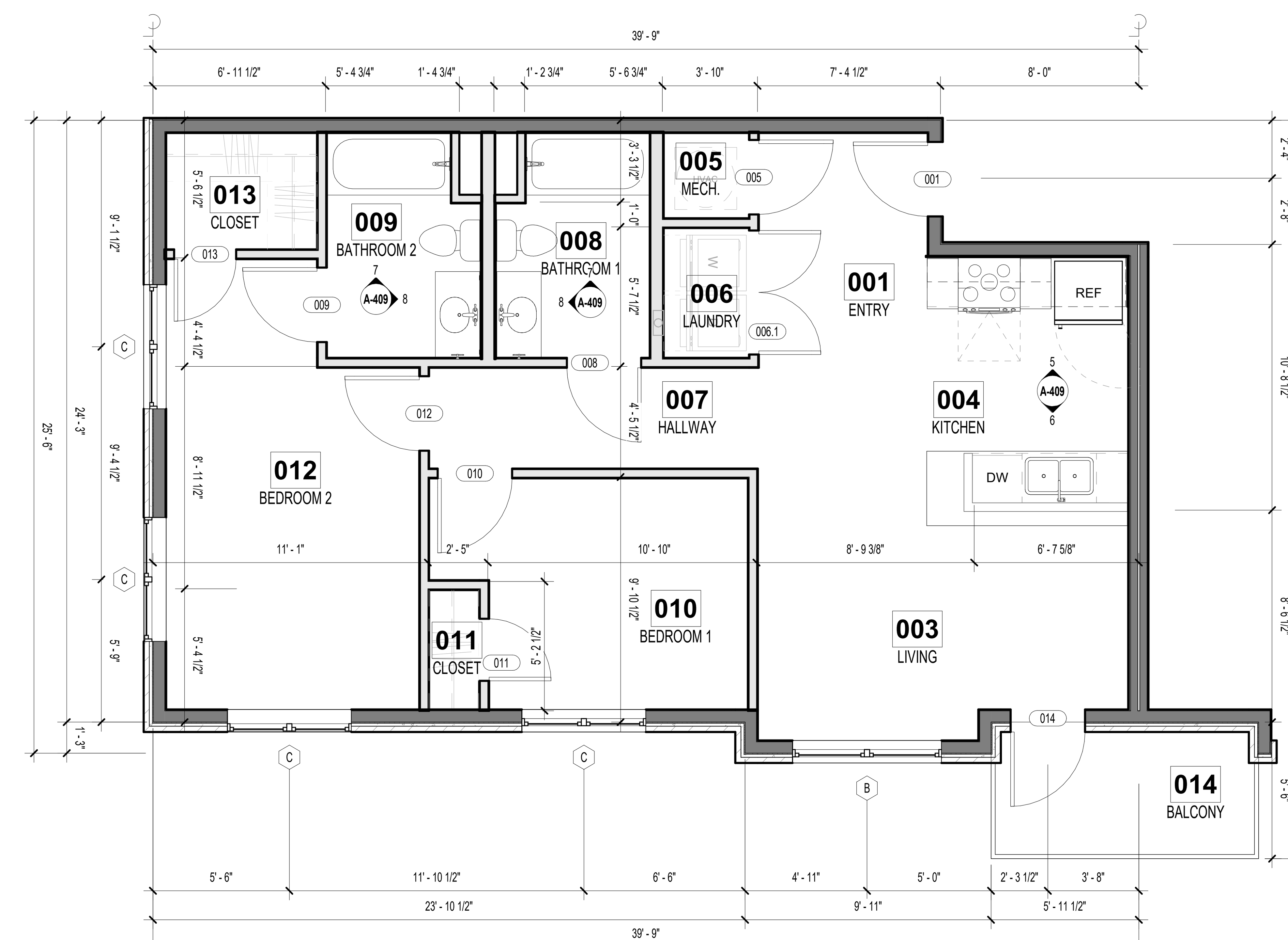
Room Finish Schedule - Units						
#	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVT1	WB, PT3	PT1	PT4	
002	COAT	LVT1		PT2	PT4	
003	LIVING	LVT1	WB, PT3	PT1	PT4	
004	KITCHEN	LVT1	WB, PT3	PT1	PT4	
005	MECH.	LVT1		PT2	PT4	
006	LAUNDRY	LVT1		PT2	PT4	
007	HALLWAY	LVT1	WB, PT3	PT1	PT4	
008	BATH 1	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
009	BATH 2	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
010	BEDROOM 1	LVT1	WB, PT3	PT1	PT4	
011	CLOSET 1	LVT1		PT2	PT4	
012	BEDROOM 2	LVT1	WB, PT3	PT1	PT4	
013	CLOSET 2	LVT1		PT2	PT4	
014	BALCONY	CONCRETE				

DOOR SCHEDULE - UNIT DOORS								
Mark	Location	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Comments
001	ENTRY	3' - 0"	6' - 8"	1 3/4"	20	A2	TIMELY	SPRING HINGES (CLOSER) SMOKE SEAL
002	COAT	3' - 0"	6' - 8"	1 3/8"		A2	PH	
005	MECH.	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006	LAUNDRY	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006.1	LAUNDRY	6' - 0"	6' - 8"	1 3/8"		B2	PH	UNDERCUT IF REQ'D
008	BATH 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
009	BATH 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
010	BEDROOM 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011.1	CLOSET	6' - 0"	6' - 8"	1 3/8"		B2	PH	
012	BEDROOM 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
013	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
014	BALCONY	3' - 0"	8' - 0"	1 3/4"		A3	TIMELY	

2



2 UNIT CLEAR SPACE PLAN - HURLEY (2 BR) - TYPE B
1/4" = 1'-0"



1 UNIT FLOOR PLAN - HURLEY (2 BR) - TYPE B
1/4" = 1'-0"

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THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

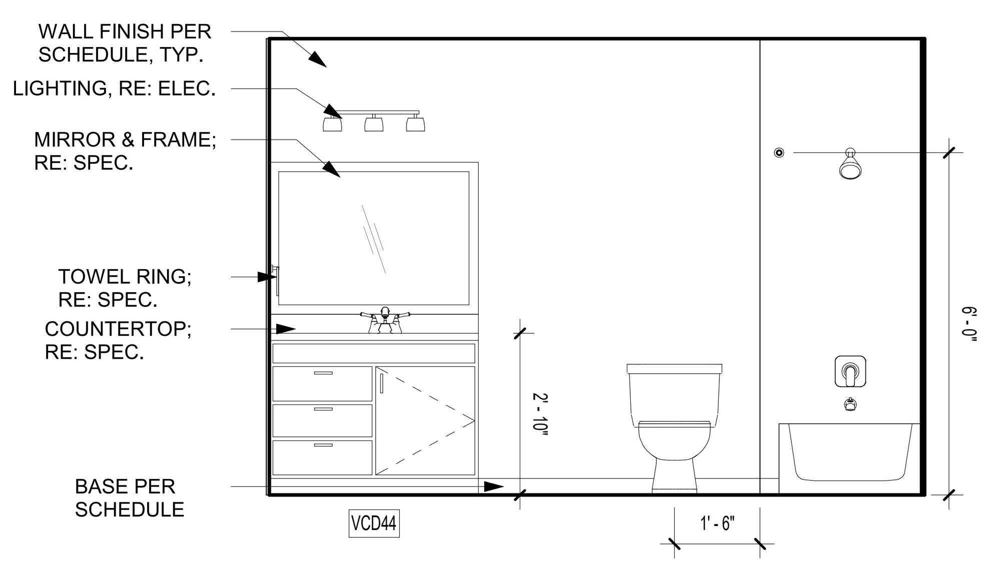
SHEET TITLE
HURLEY (2 BR) UNIT PLAN

PROJECT NUMBER: 23103

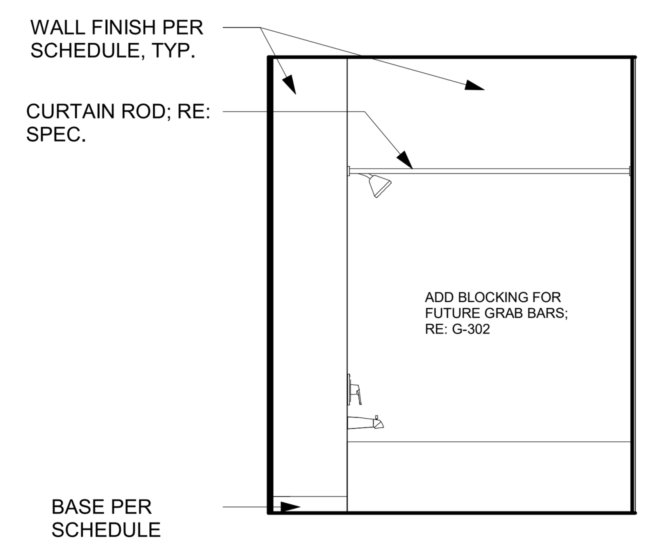
SHEET NUMBER:

A-409

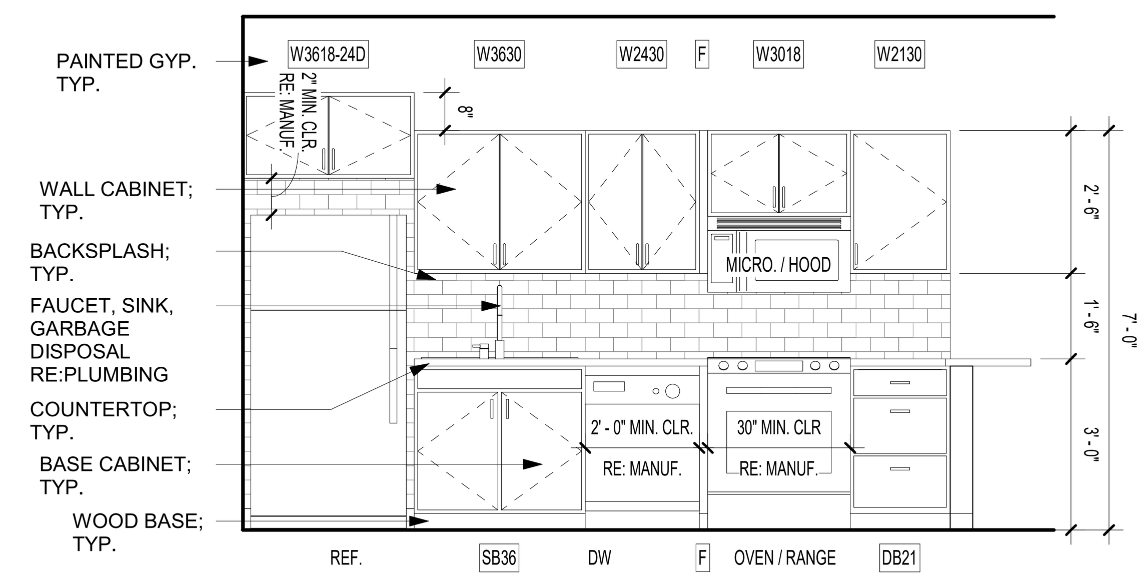
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-120 FOR RCP LEGEND
REFERENCE A-400 FOR UNIT PLAN LEGEND
REFERENCE A-102 & A-103 FOR RC LOCATIONS



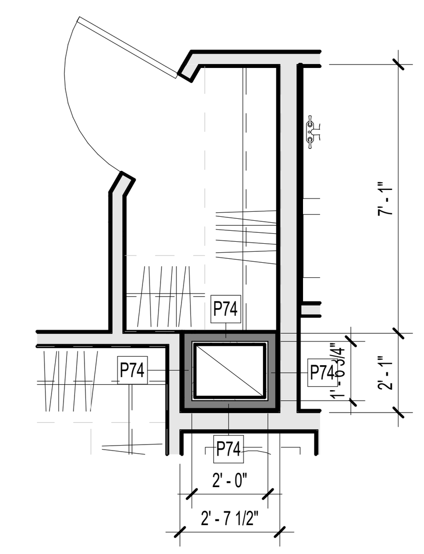
7 LANA BATH ELEV. 2
3/8" = 1'-0" (MIRRORED IN BATHROOM 2)



6 LANA BATH ELEV. 1
3/8" = 1'-0" (MIRRORED IN BATHROOM 2)

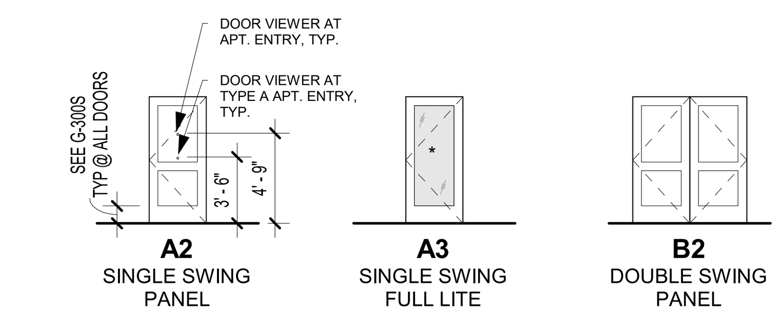


5 LANA KITCHEN ELEV. 1
3/8" = 1'-0" (MIRRORED)

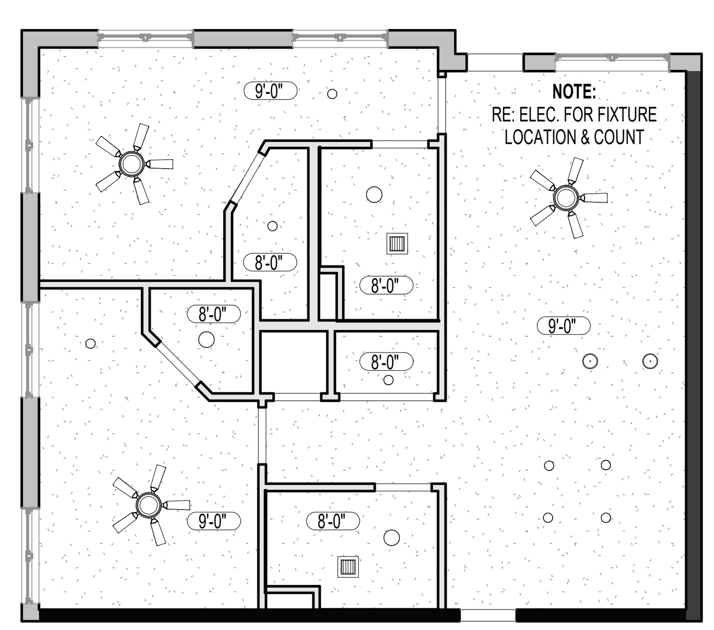


8 LANA ALT CLOSET PLAN AT SHAFT
1/4" = 1'-0"
NOTE: SHAFT OCCURS IN UNITS 201 & 301 - SEE BUILDING PLANS.

DOOR TYPES - UNITS



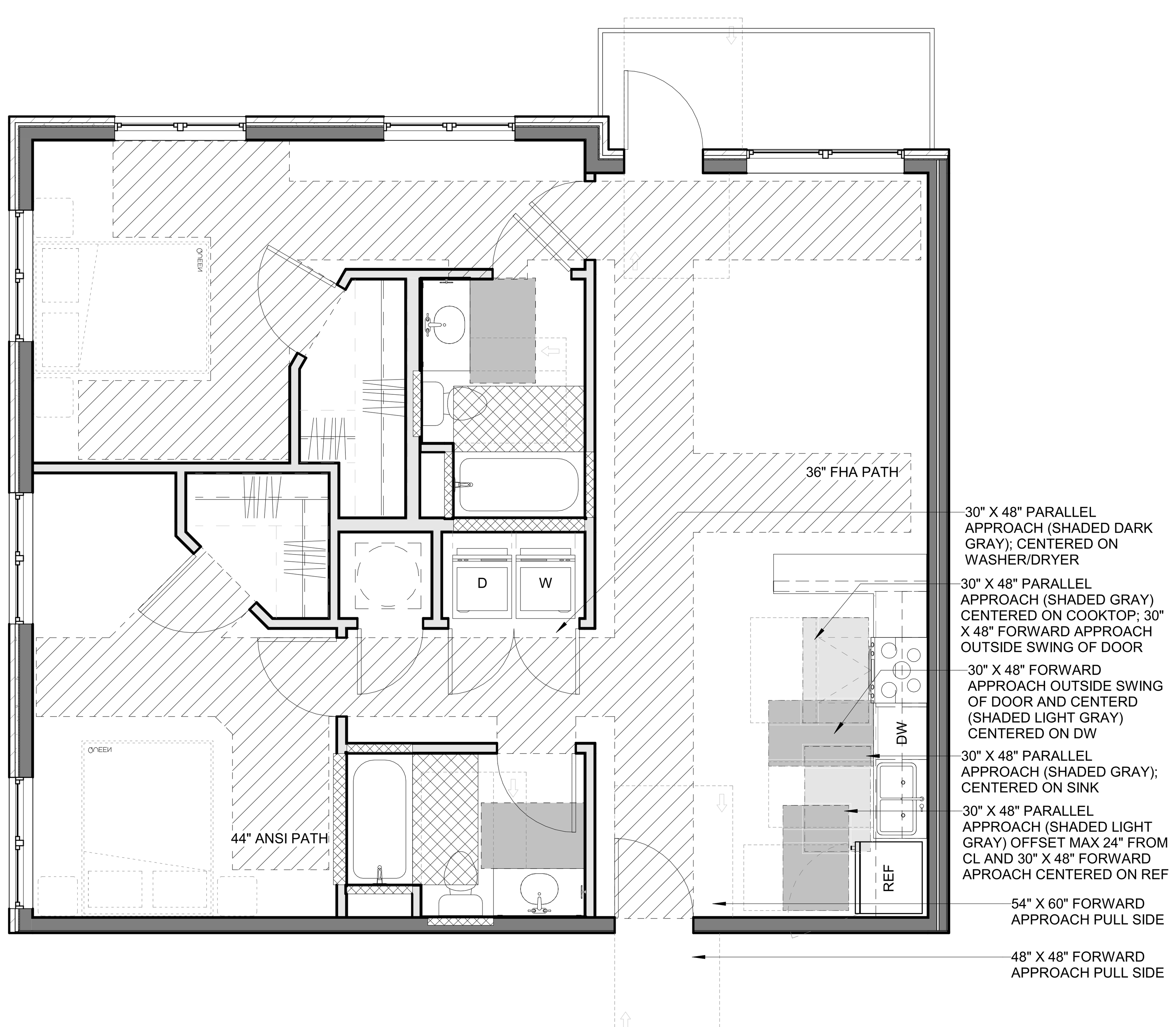
4 UNIT FINISH PLAN - LANA (2 BR) - TYPE B
1/8" = 1'-0"



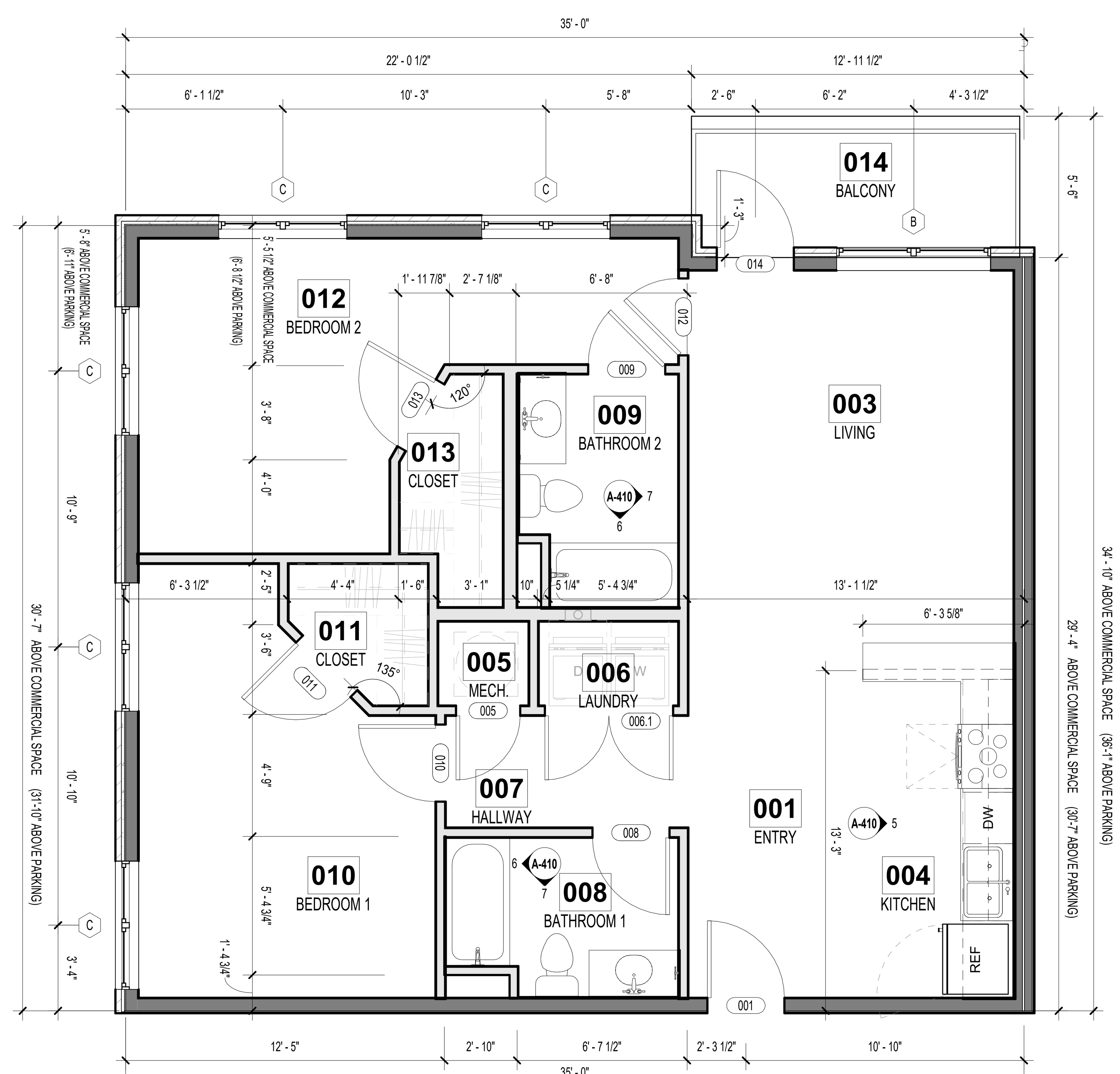
3 UNIT RCP - LANA (2 BR) - TYPE B
1/8" = 1'-0"

Room Finish Schedule - Units						
#	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVT1	WB, PT3	PT1	PT4	
002	COAT	LVT1		PT2	PT4	
003	LIVING	LVT1	WB, PT3	PT1	PT4	
004	KITCHEN	LVT1	WB, PT3	PT1	PT4	
005	MECH.	LVT1		PT2	PT4	
006	LAUNDRY	LVT1		PT2	PT4	
007	HALLWAY	LVT1	WB, PT3	PT1	PT4	
008	BATH 1	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
009	BATH 2	LVT1 OR LVT2		PT1	PT4	LVT2 IN TYPE A UNITS ONLY
010	BEDROOM 1	LVT1	WB, PT3	PT1	PT4	
011	CLOSET 1	LVT1		PT2	PT4	
012	BEDROOM 2	LVT1	WB, PT3	PT1	PT4	
013	CLOSET 2	LVT1		PT2	PT4	
014	BALCONY	CONCRETE				

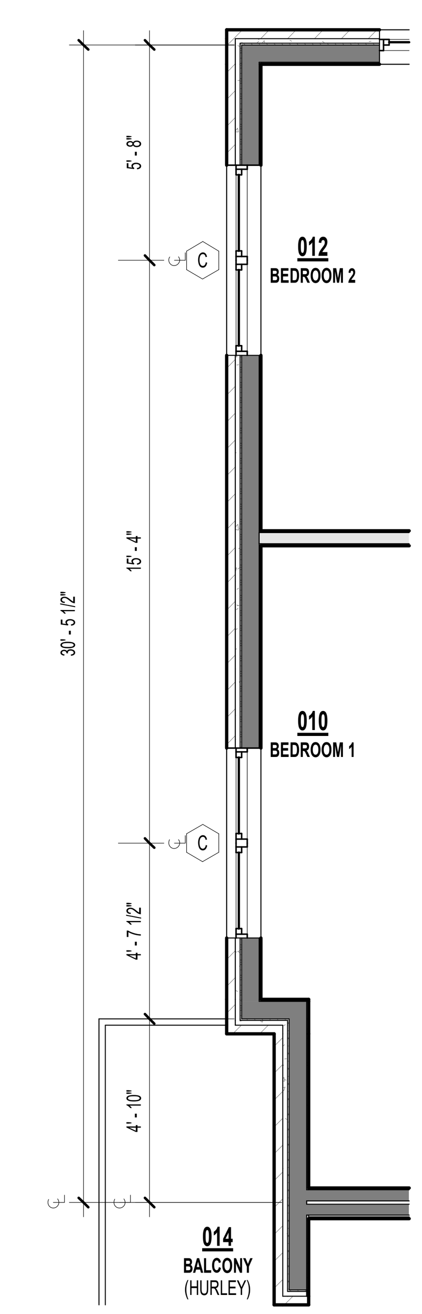
DOOR SCHEDULE - UNIT DOORS								
Mark	Location	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Comments
001	ENTRY	3' - 0"	6' - 8"	1 3/4"	20	A2	TIMELY	SPRING HINGES (CLOSER) SMOKE SEAL
002	COAT	3' - 0"	6' - 8"	1 3/8"		A2	PH	
005	MECH.	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006	LAUNDRY	3' - 0"	6' - 8"	1 3/8"		A2	PH	UNDERCUT IF REQ'D
006.1	LAUNDRY	6' - 0"	6' - 8"	1 3/8"		B2	PH	UNDERCUT IF REQ'D
008	BATH 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
009	BATH 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
010	BEDROOM 1	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
011.1	CLOSET	6' - 0"	6' - 8"	1 3/8"		B2	PH	
012	BEDROOM 2	3' - 0"	6' - 8"	1 3/8"		A2	PH	
013	CLOSET	3' - 0"	6' - 8"	1 3/8"		A2	PH	
014	BALCONY	3' - 0"	8' - 0"	1 3/4"		A3	TIMELY	



2 UNIT CLEAR SPACE PLAN - LANA (2 BR) - TYPE B
1/4" = 1'-0"



1 UNIT FLOOR PLAN - LANA (2 BR) - TYPE B
1/4" = 1'-0"



1A LANA ALT EXT. WALL SW CORNER
1/4" = 1'-0" (UNIT MIRRORED)

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THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO

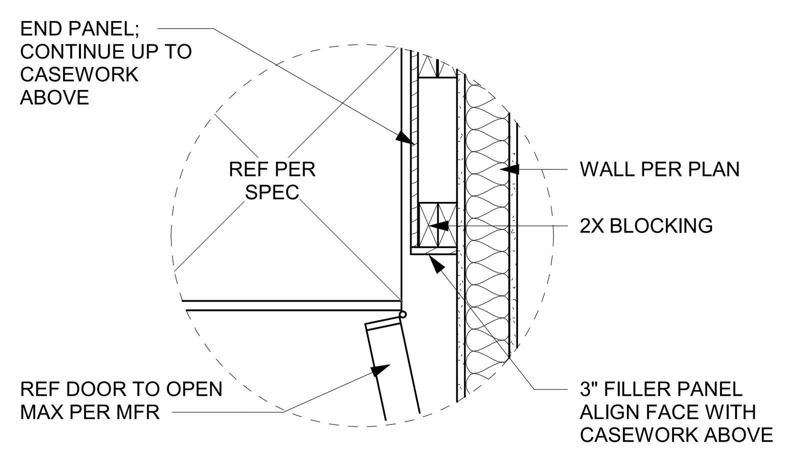
SHEET TITLE
LANA (2 BR) UNIT PLAN

PROJECT NUMBER: 23103

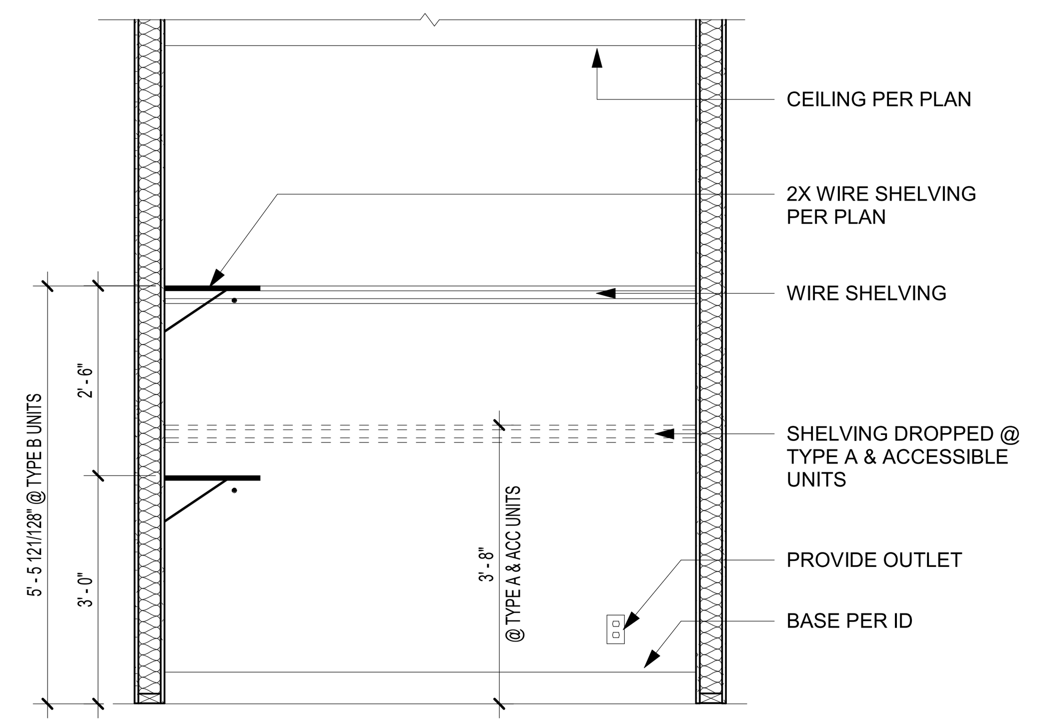
SHEET NUMBER:

A-410

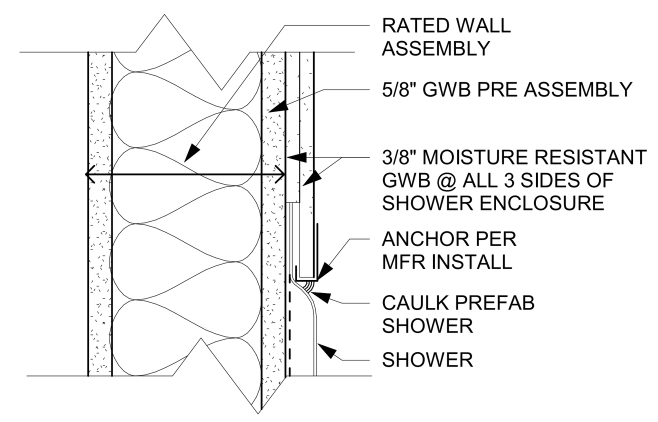
12/20/2024 10:28:49 PM



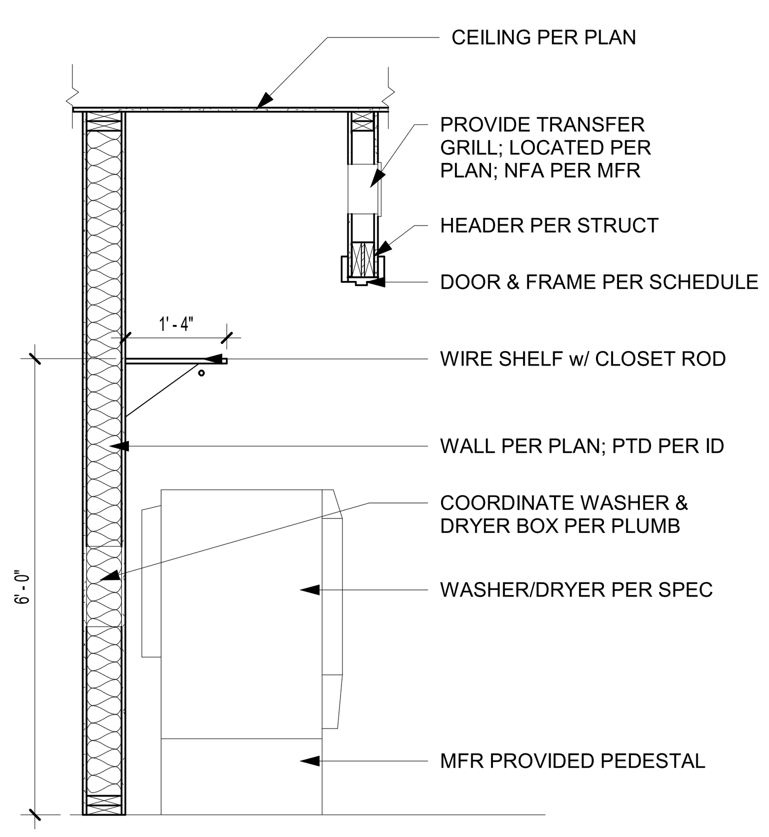
D4 UNIT DETAIL - REF FILLER
1" = 1'-0"



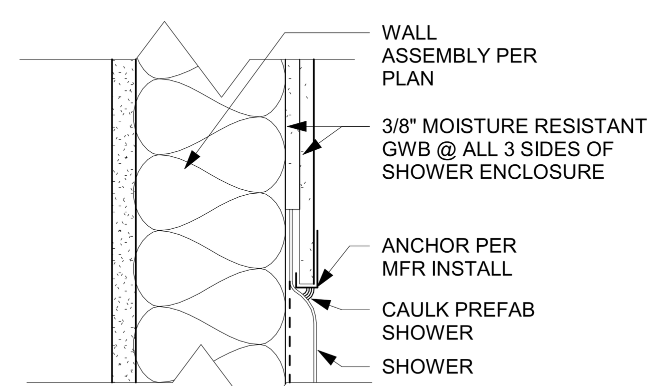
D3 UNIT DETAIL -TYPICAL WALK-IN CLOSET
1/2" = 1'-0"



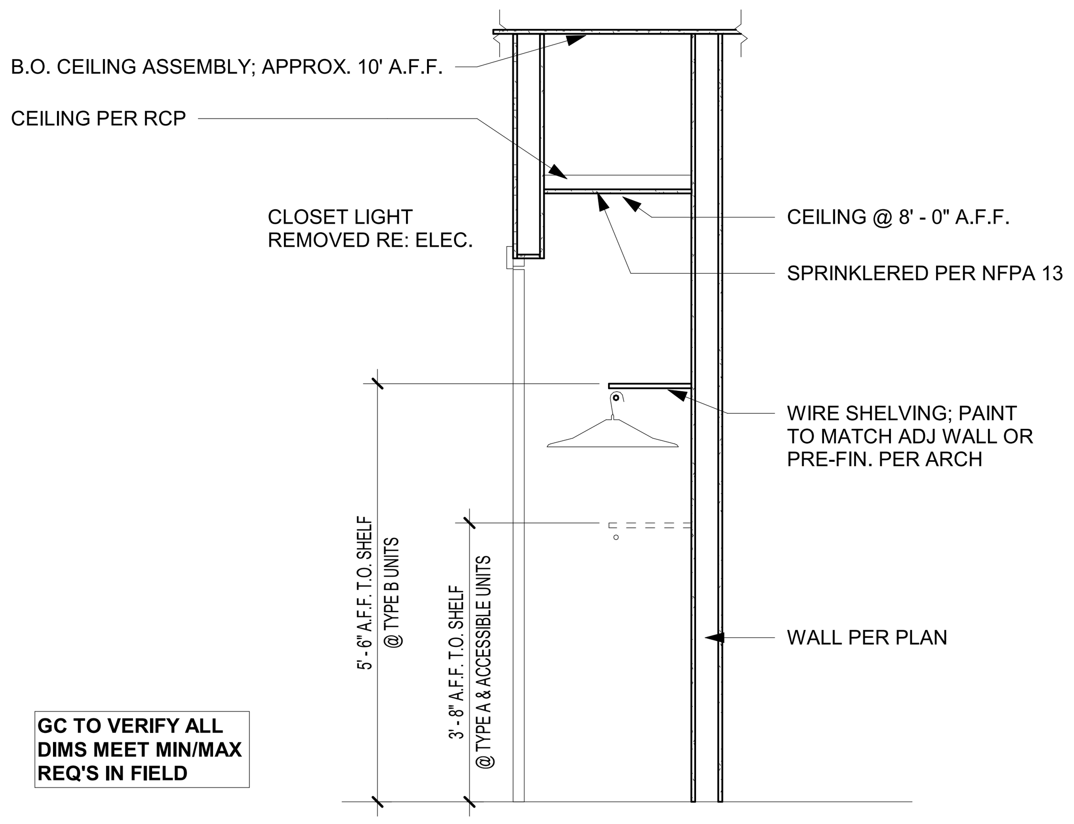
C3 UNIT DETAIL - SHOWER @ RATED WALL @ HEAD/JAMB
3" = 1'-0"



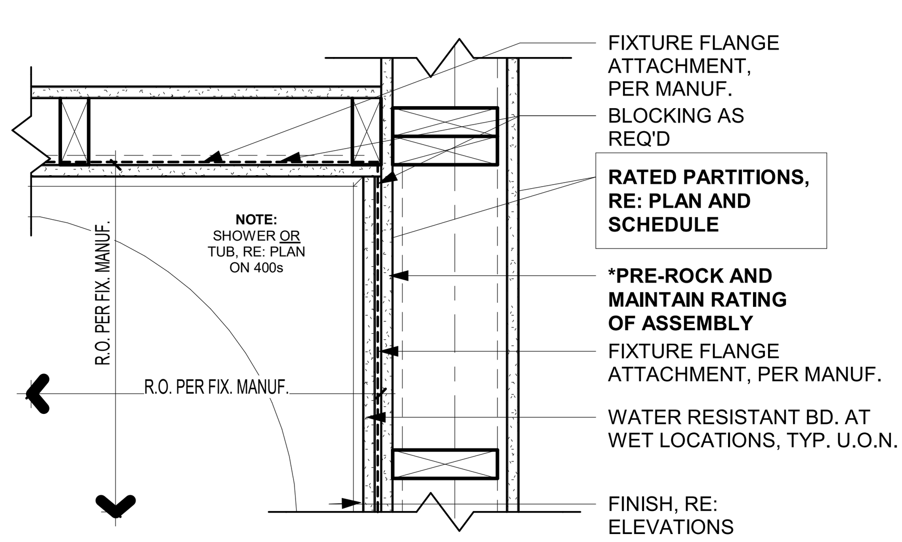
D2 UNIT DETAIL - TYP W/D CLOSET SECTION
1/2" = 1'-0"



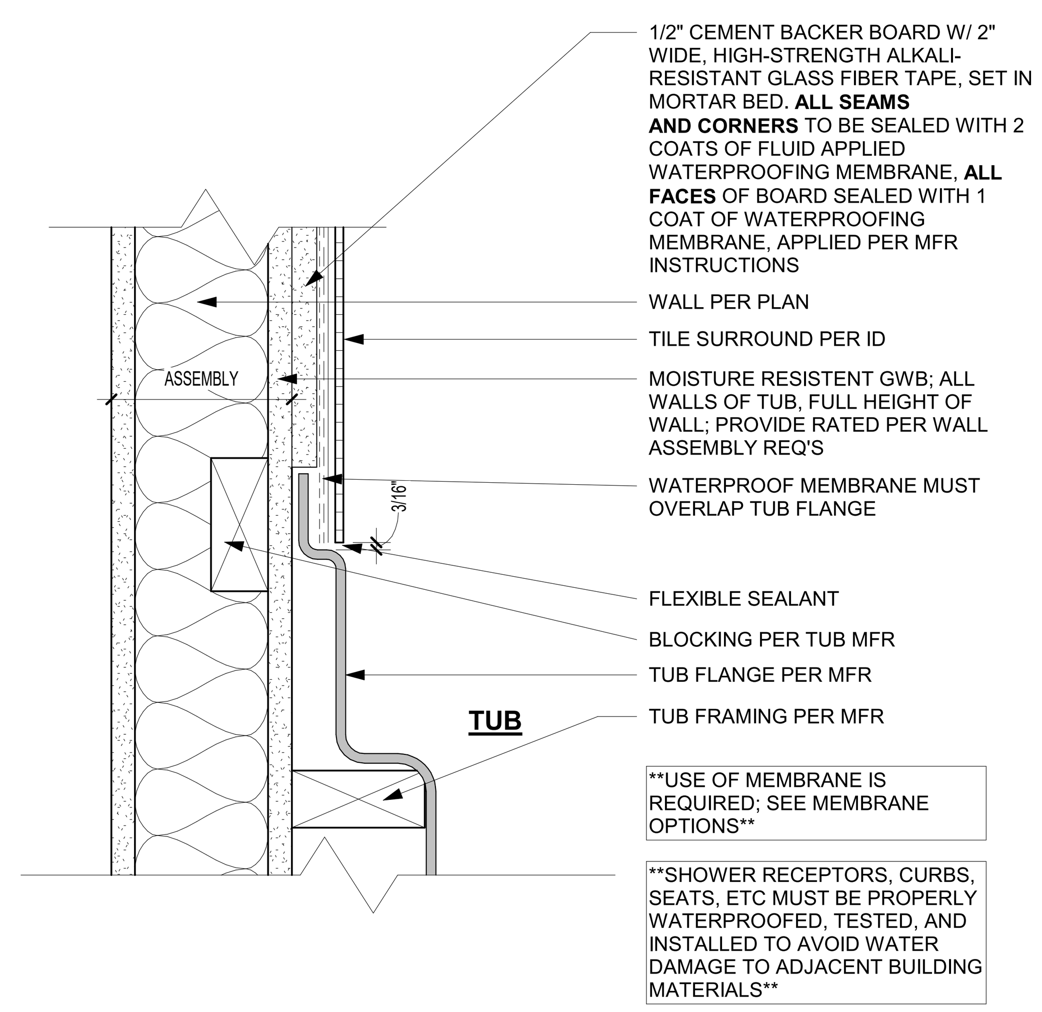
C2 UNIT DETAIL - SHOWER @ NON RATED WALL @ HEAD/JAMB
3" = 1'-0"



D1 UNIT DETAIL - TYPICAL CLOSET SECTION
1/2" = 1'-0"



C1 FRAMING - RATED WALL TUB/ SHOWER
1 1/2" = 1'-0"



B1 UNIT DETAIL - TUB SURROUND DETAIL
3" = 1'-0"

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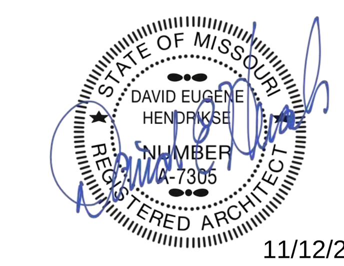

11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
UNIT DETAILS

PROJECT NUMBER: 23103

SHEET NUMBER:

A-415

11/12/2024 3:24:24 PM
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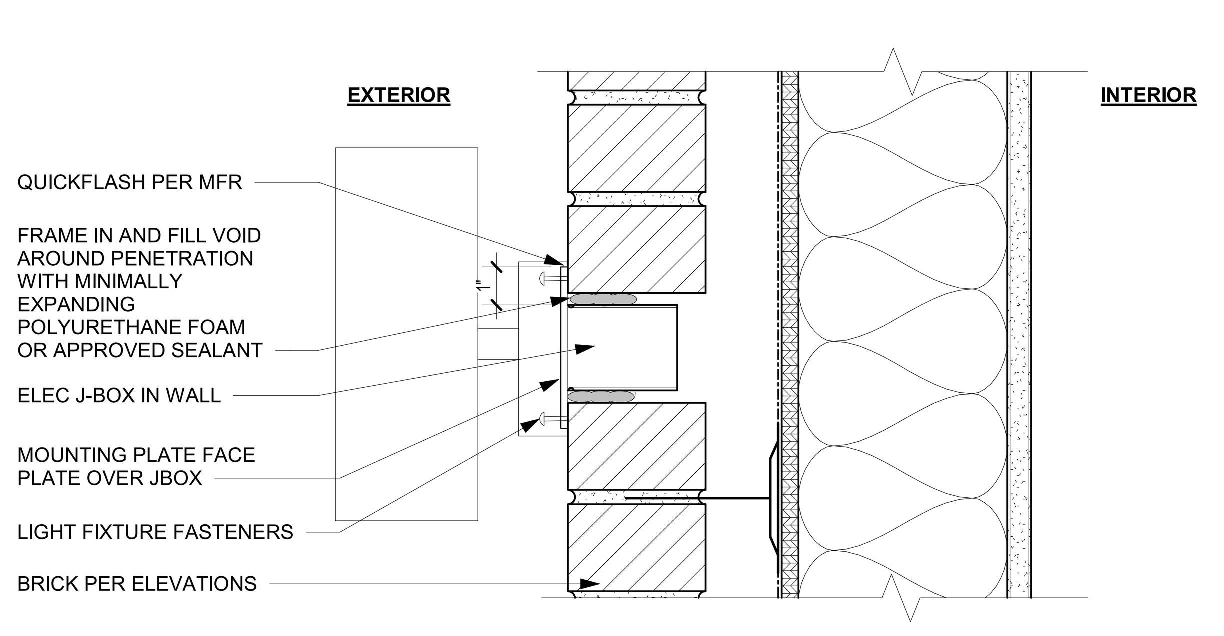
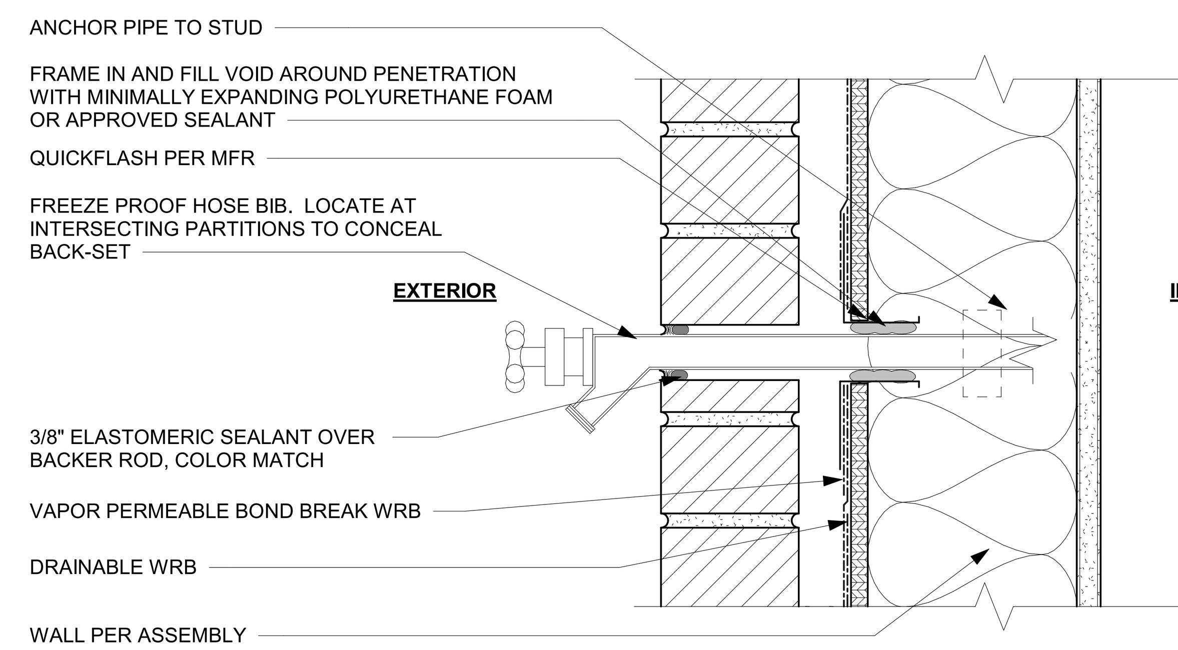
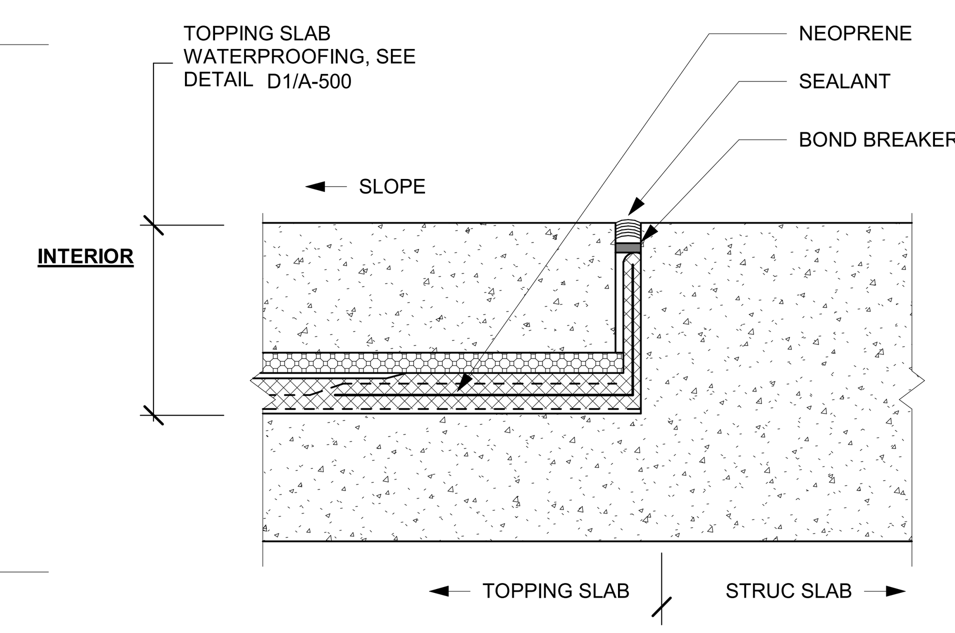


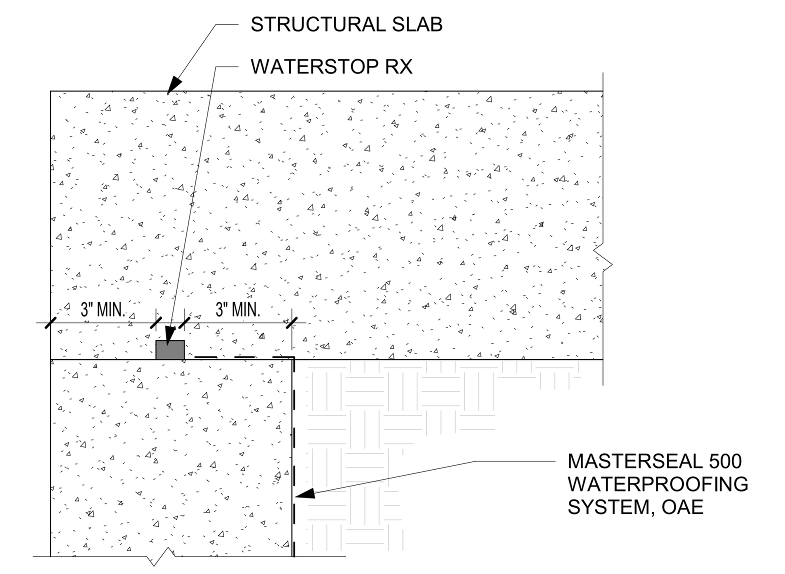
D4 FIXTURE PENETRATION
3" = 1'-0"



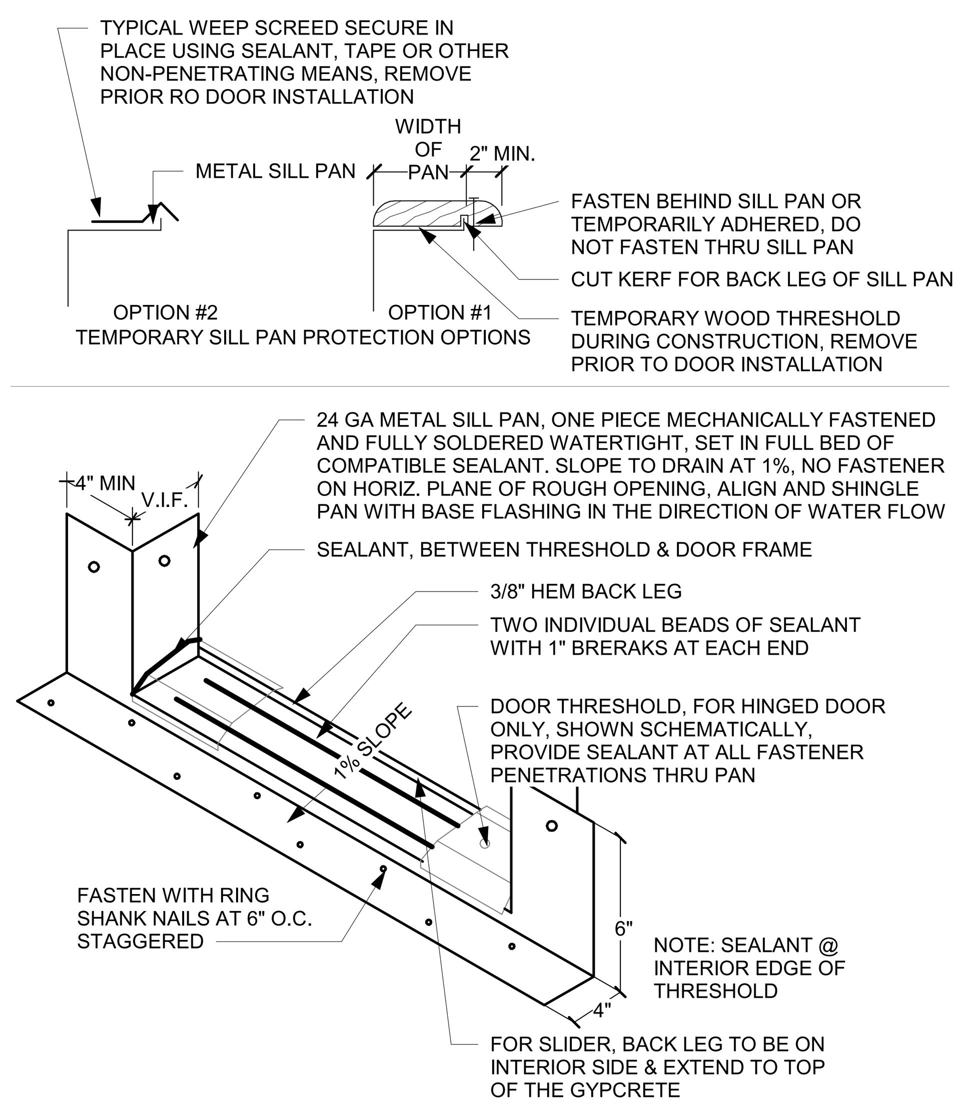
C4 HOSEBIB PENETRATION
3" = 1'-0"



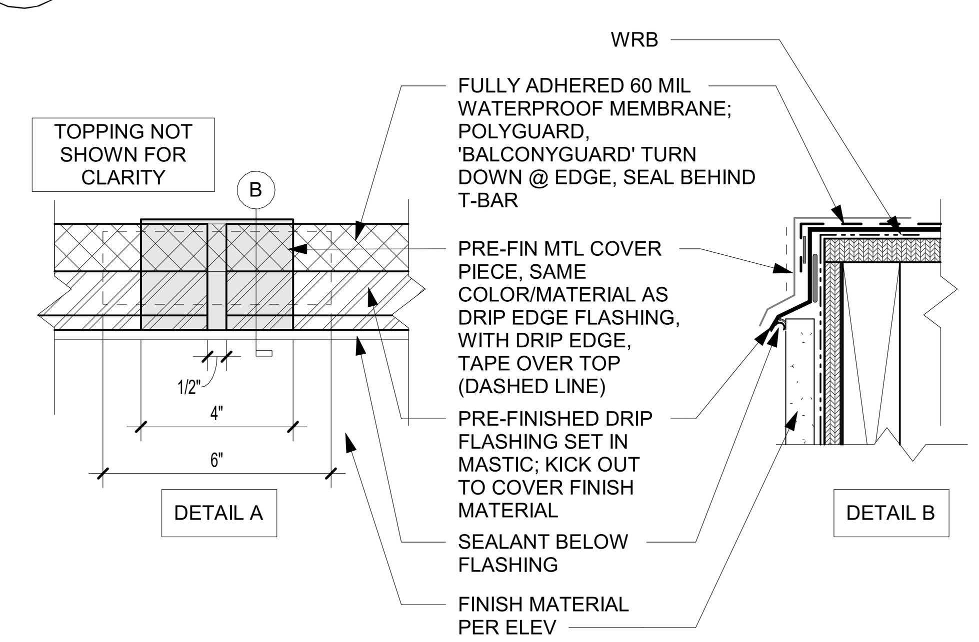
B4 TOPPING SLAB TRANSITION
N.T.S.



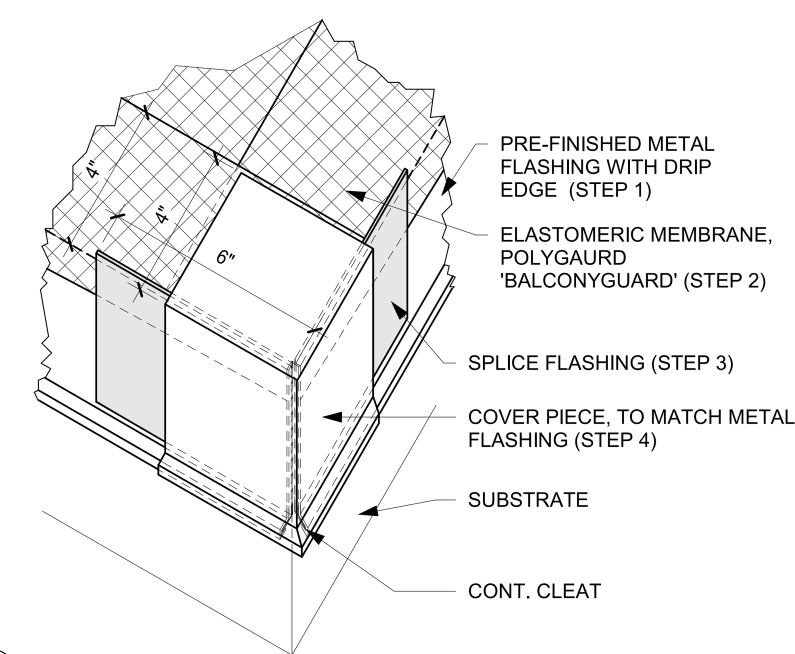
A4 WATERPROOFING TERMINATION
N.T.S.



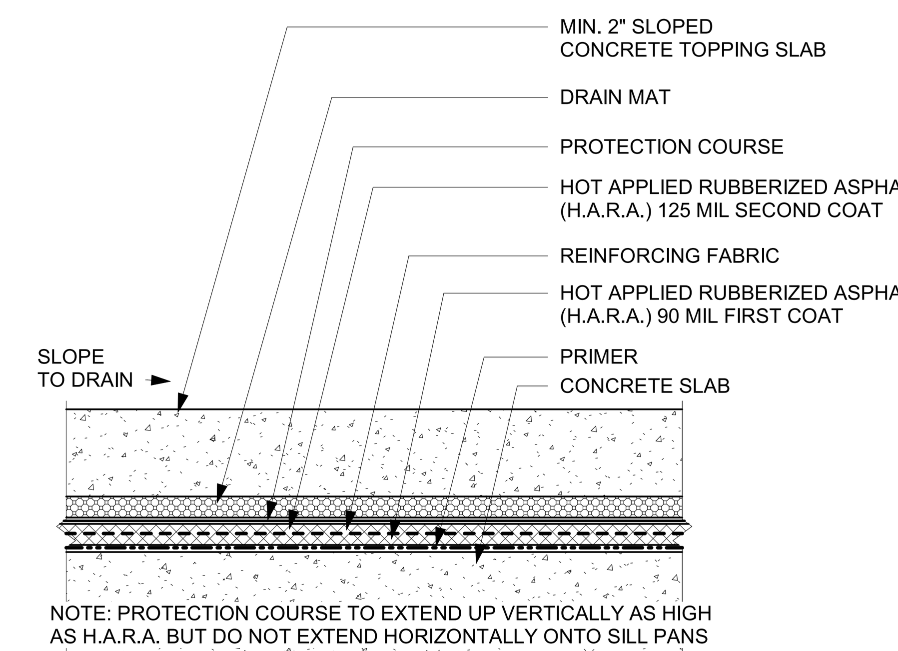
D2 PODIUM SILL PAN
3/4" = 1'-0"



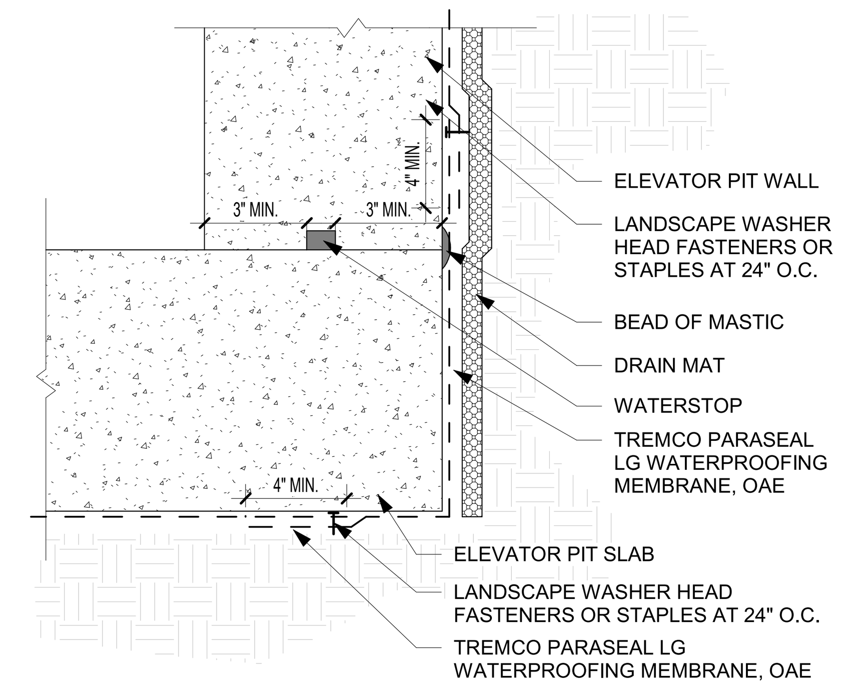
C3 OUTSIDE EDGE DETAIL @ FRAMED BALCONY
3" = 1'-0"



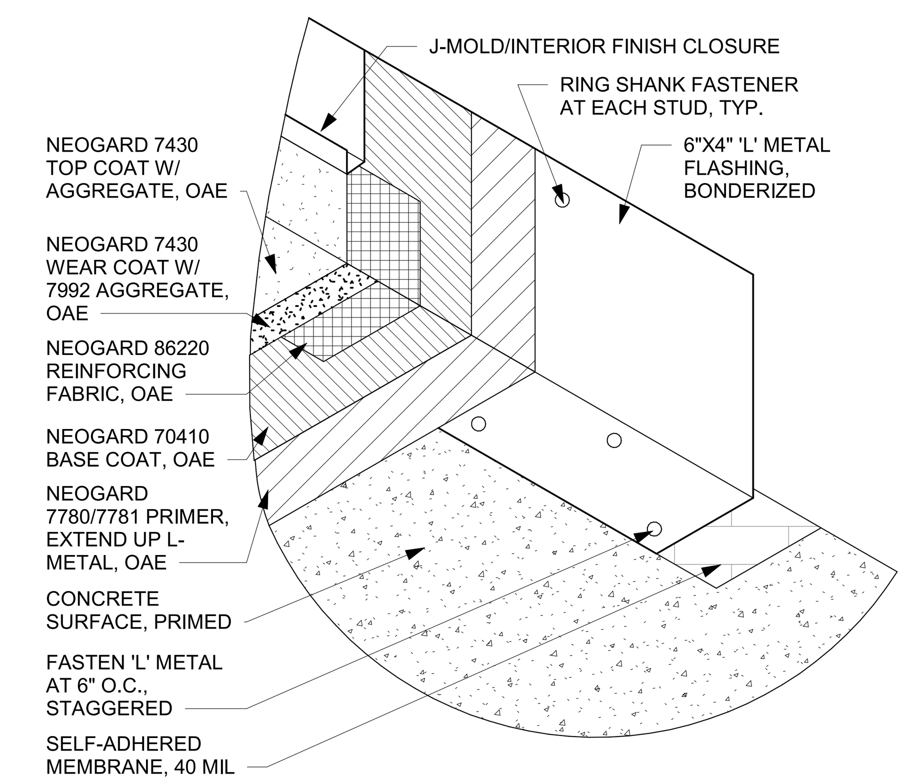
C2 OUTSIDE CORNER DETAIL @ FRAMED BALCONY
3" = 1'-0"



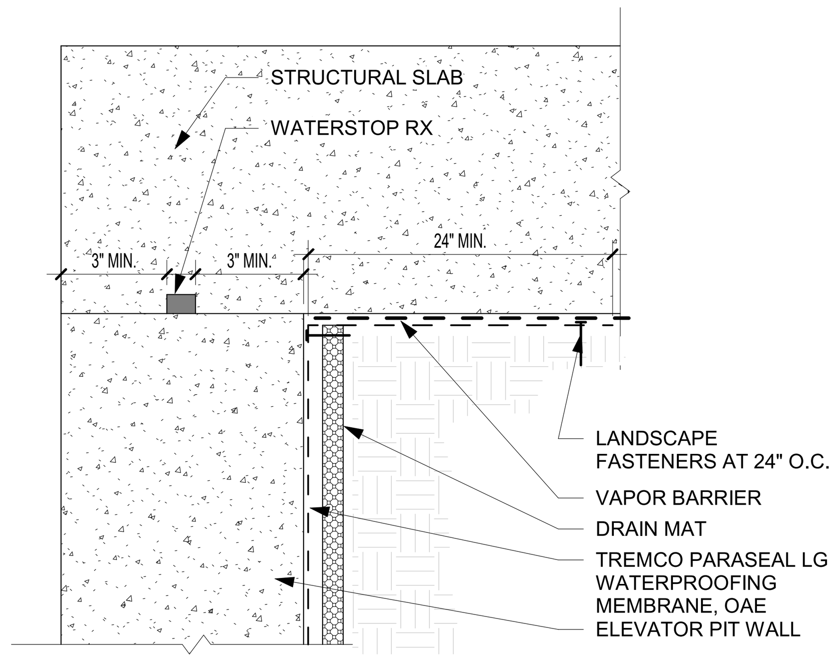
B3 TOPPING SLAB DECK WATERPROOFING
N.T.S.



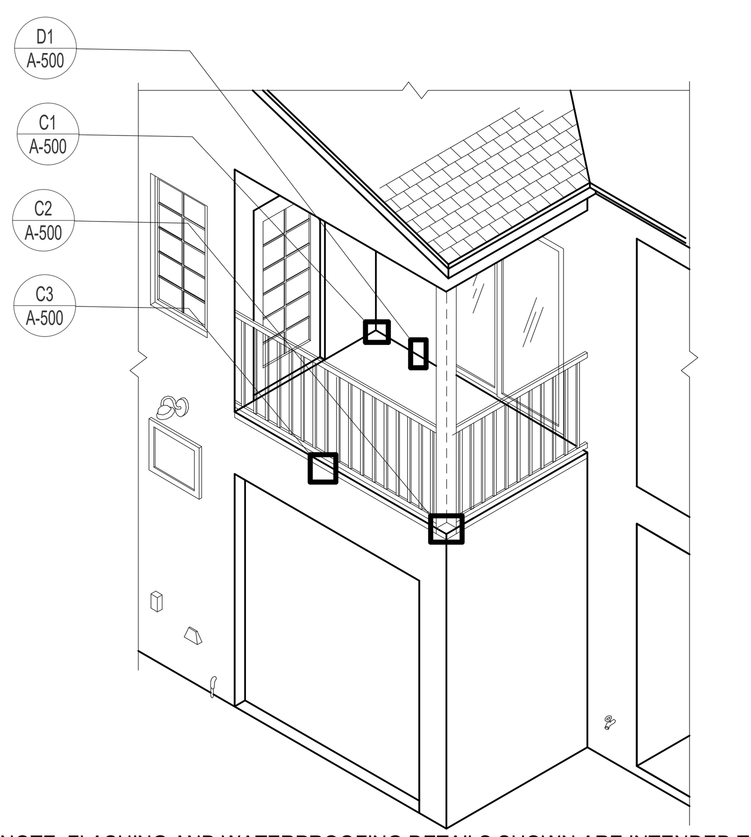
A3 ELEVATOR PIT SLAB TO WALL TRANSITION
N.T.S.



B2 TRAFFIC COATING WALL BASE
N.T.S.

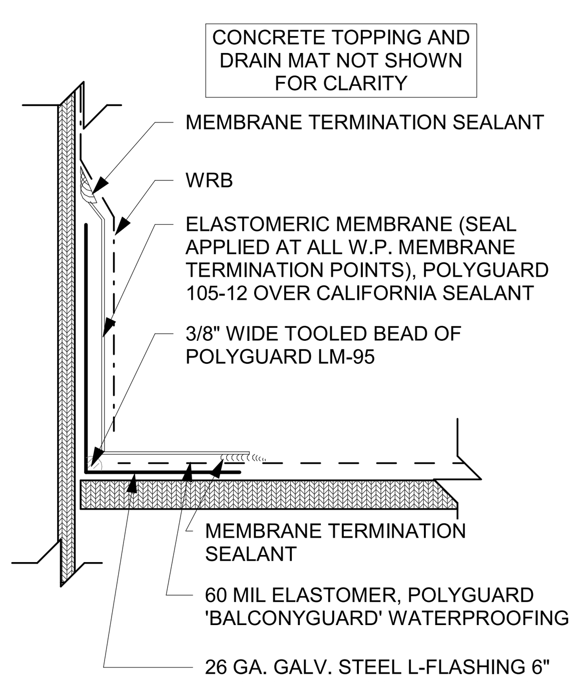


A2 ELEVATOR PIT WALL TO SLAB
N.T.S.

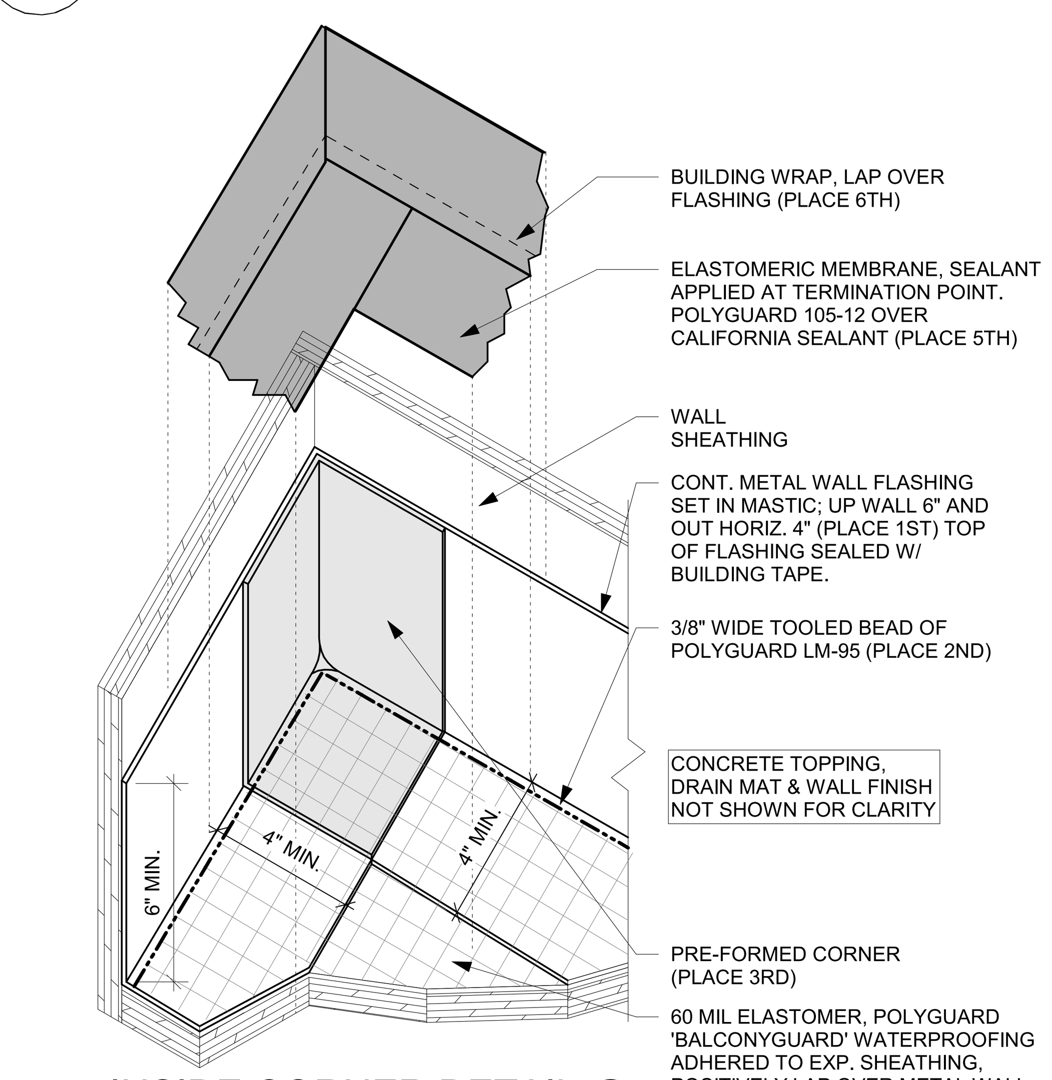


NOTE: FLASHING AND WATERPROOFING DETAILS SHOWN ARE INTENDED TO BE TYPICAL FOR ALL AREAS REQUIRING ATTENTION TO WATERPROOFING OF THE BUILDING ENVELOPE. NOT ALL THE CONDITIONS ARE COVERED BY DETAILS, REFER TO SMACNA PUBLICATIONS AND FOLLOW ALL PRODUCT MFR'S RECOMMENDATIONS AND REQUIREMENTS FOR CONDITIONS NOT SHOWN IN ARCHITECT'S DRAWINGS AND SPECIFICATIONS. THE ABOVE DWG IS FOR DETAIL REFERENCE UNDERSTANDING ONLY, NOT FOR DESIGN INTENT OF THE PROJECT.

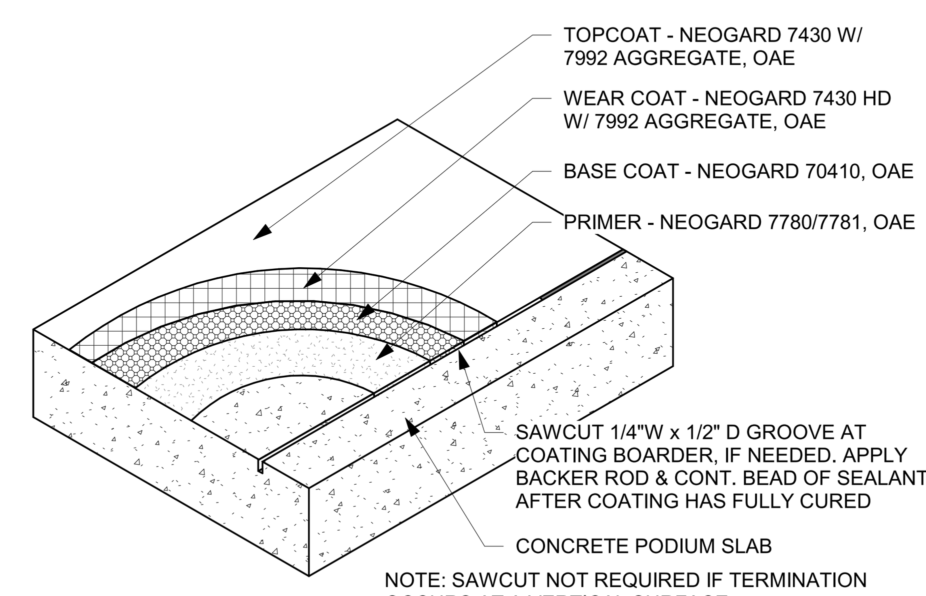
E1 ISO REFERENCE
N.T.S.



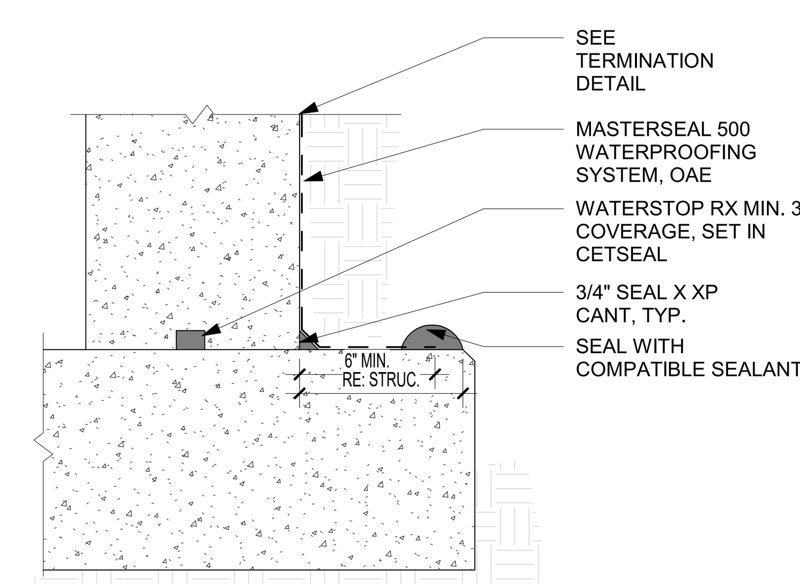
D1 FLASHING DETAIL AT BALCONY WALL
3" = 1'-0"



C1 INSIDE CORNER DETAIL @ FRAMED BALCONY
3" = 1'-0"



B1 VEHICULAR TRAFFIC COATING
N.T.S.



A1 SUBGRADE CONCRETE WALL
N.T.S.

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

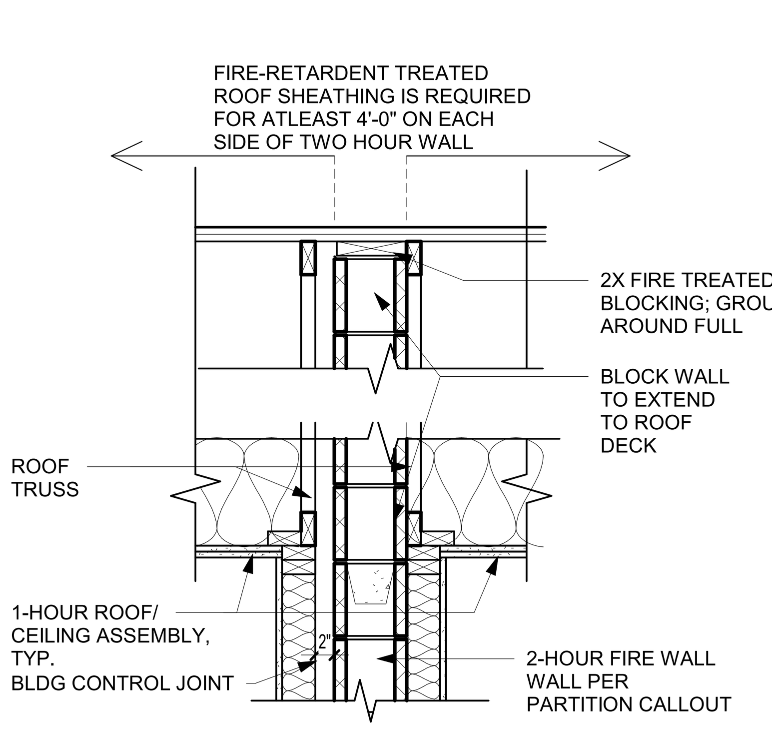
LEE'S SUMMIT, MO

SHEET TITLE
WATERPROOFING DETAILS

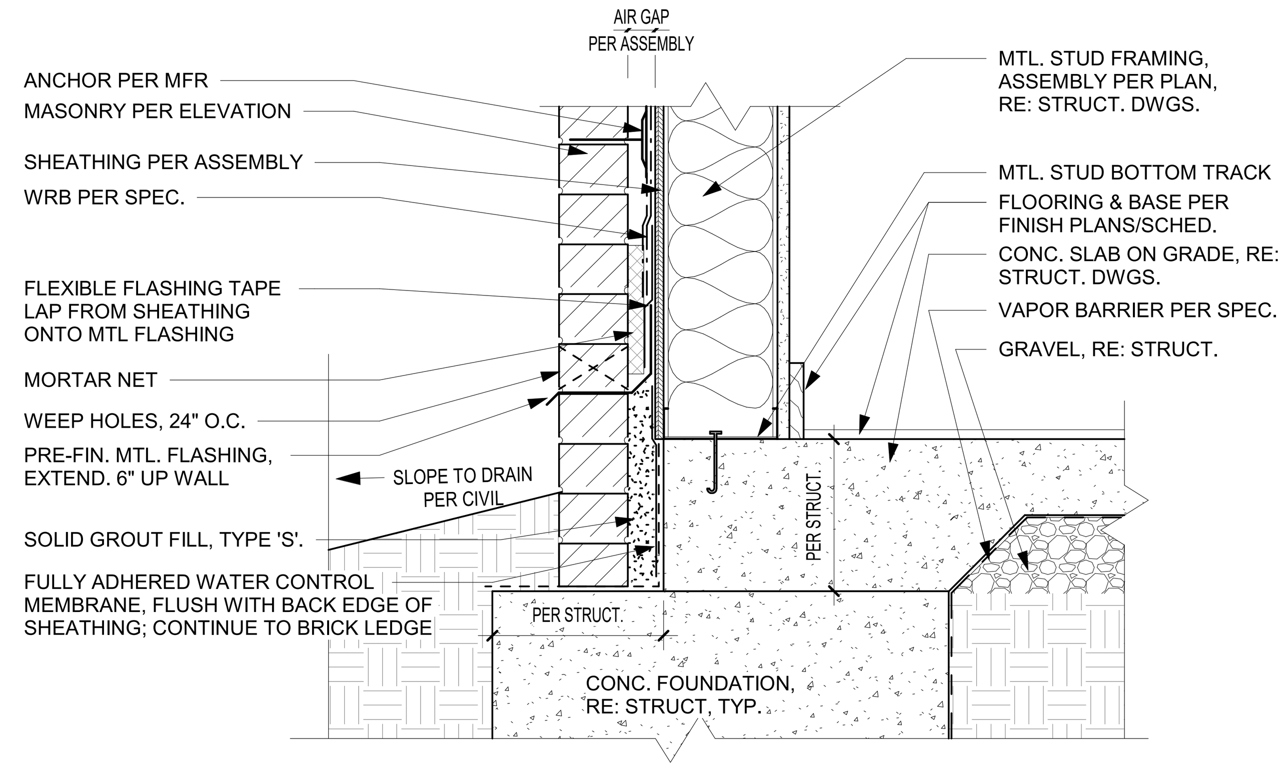
PROJECT NUMBER: 23103

SHEET NUMBER:

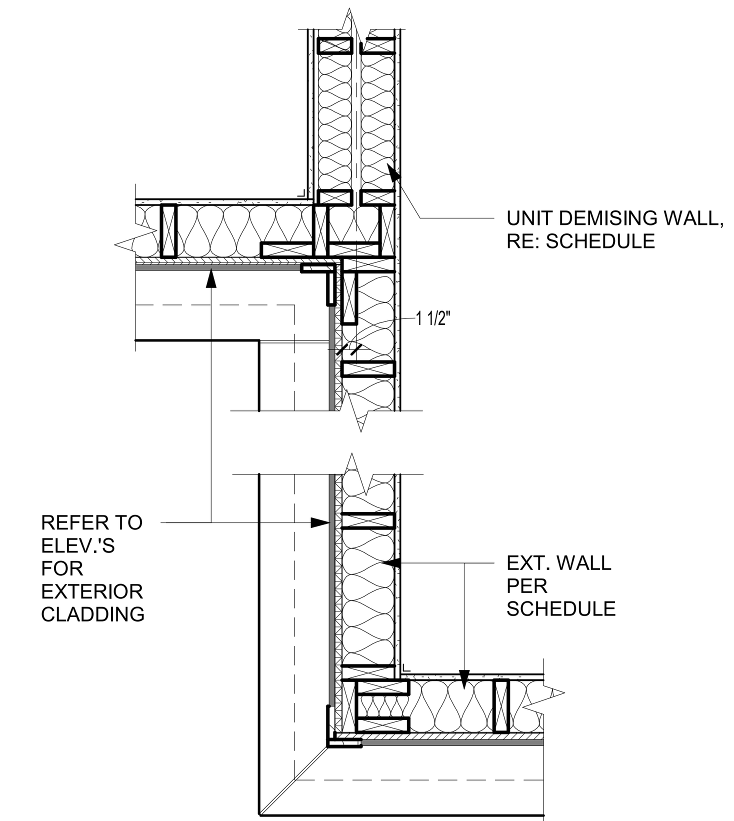
A-500



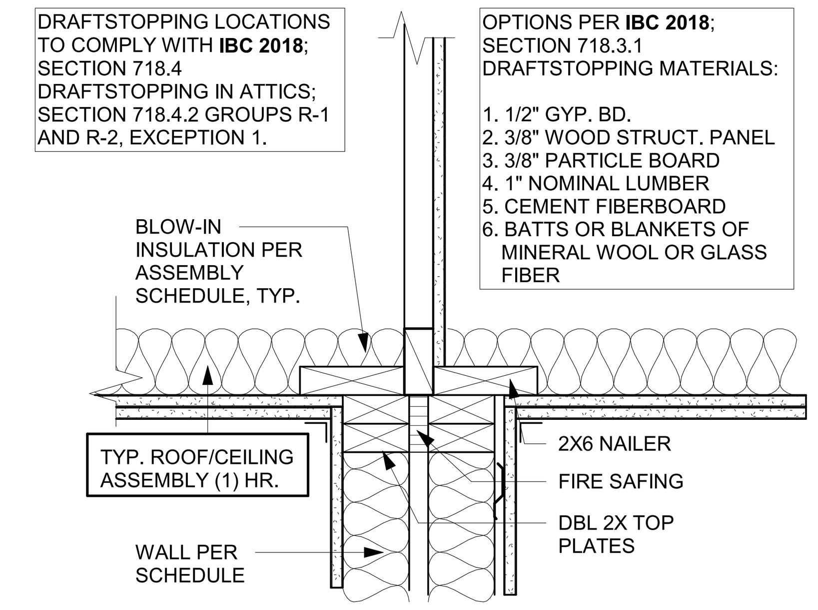
E4 SECT. @ 2 HR WALL @ ROOF
3/4" = 1'-0"



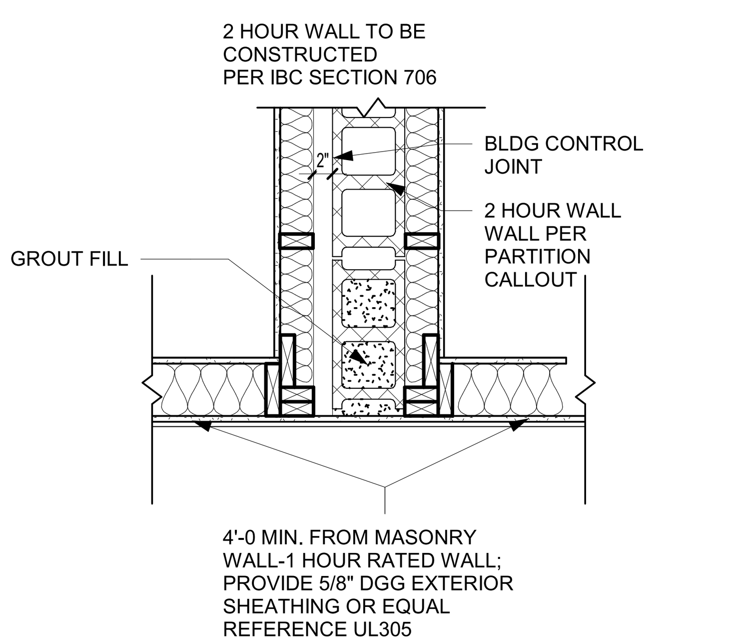
C4 FOUNDATION AT GRADE
1 1/2" = 1'-0"



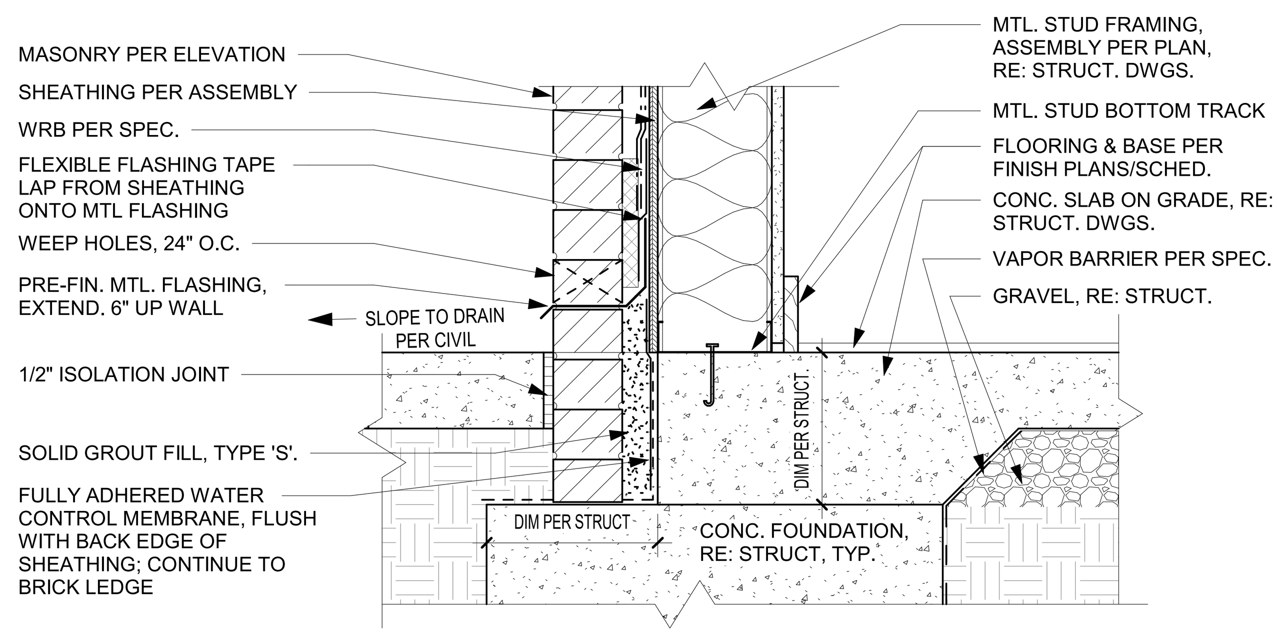
B4 CORNER FRAMING DETAIL - PLAN
3/4" = 1'-0"



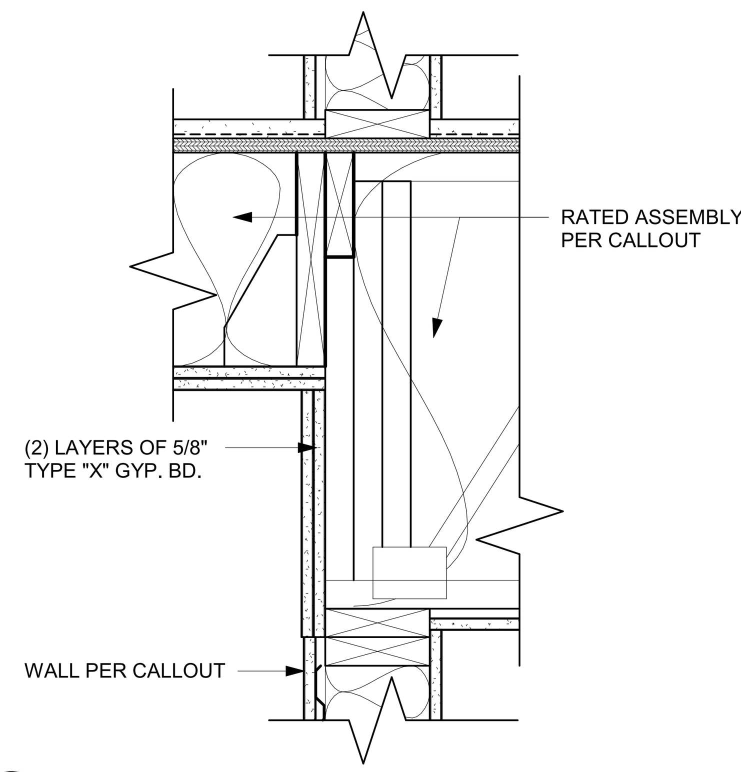
A4 PARTY WALL - DRAFTSTOP
1 1/2" = 1'-0"



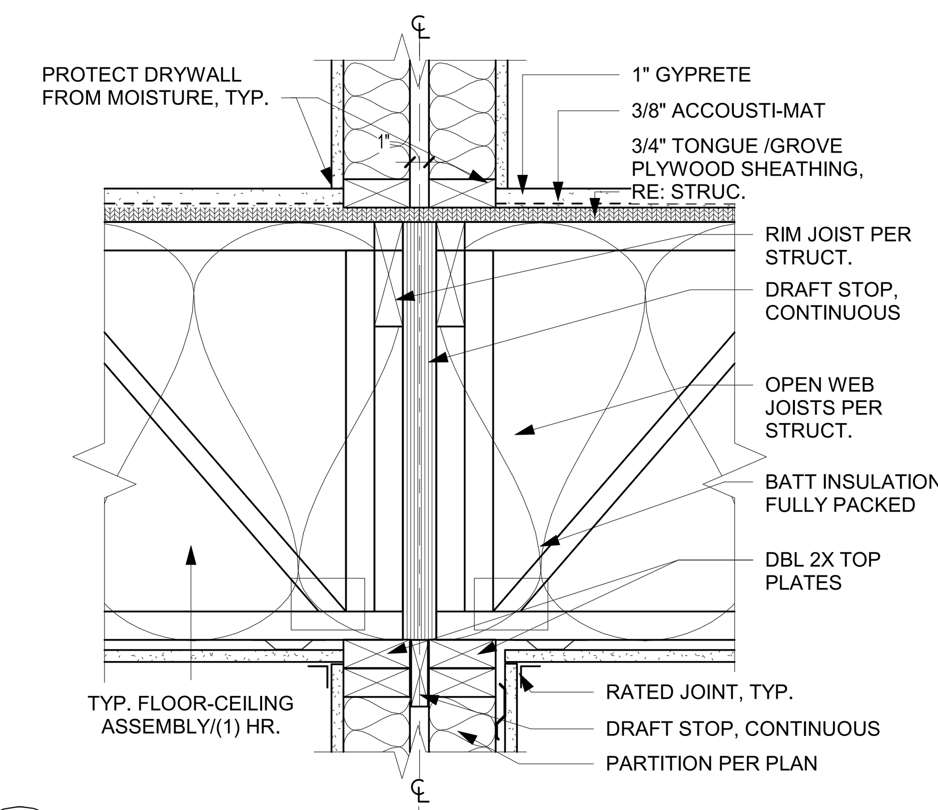
E3 2 HOUR WALL DETAIL 2 (PLAN)
3/4" = 1'-0"



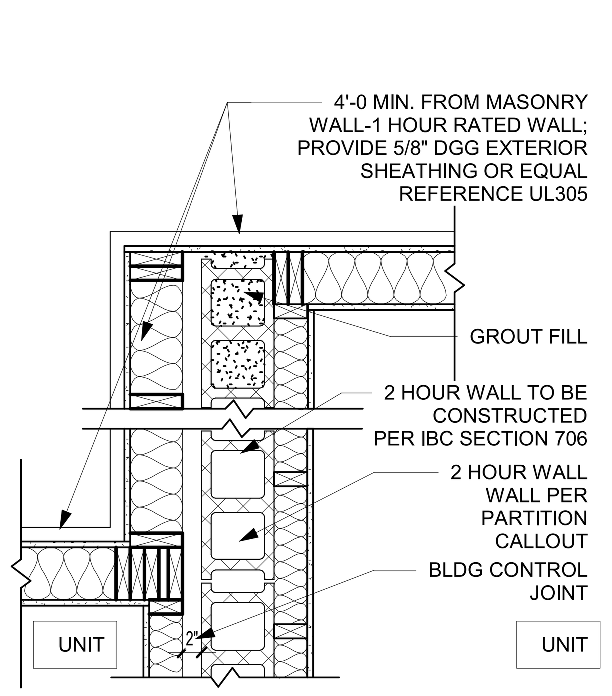
C3 FOUNDATION AT HARDSCAPE
1 1/2" = 1'-0"



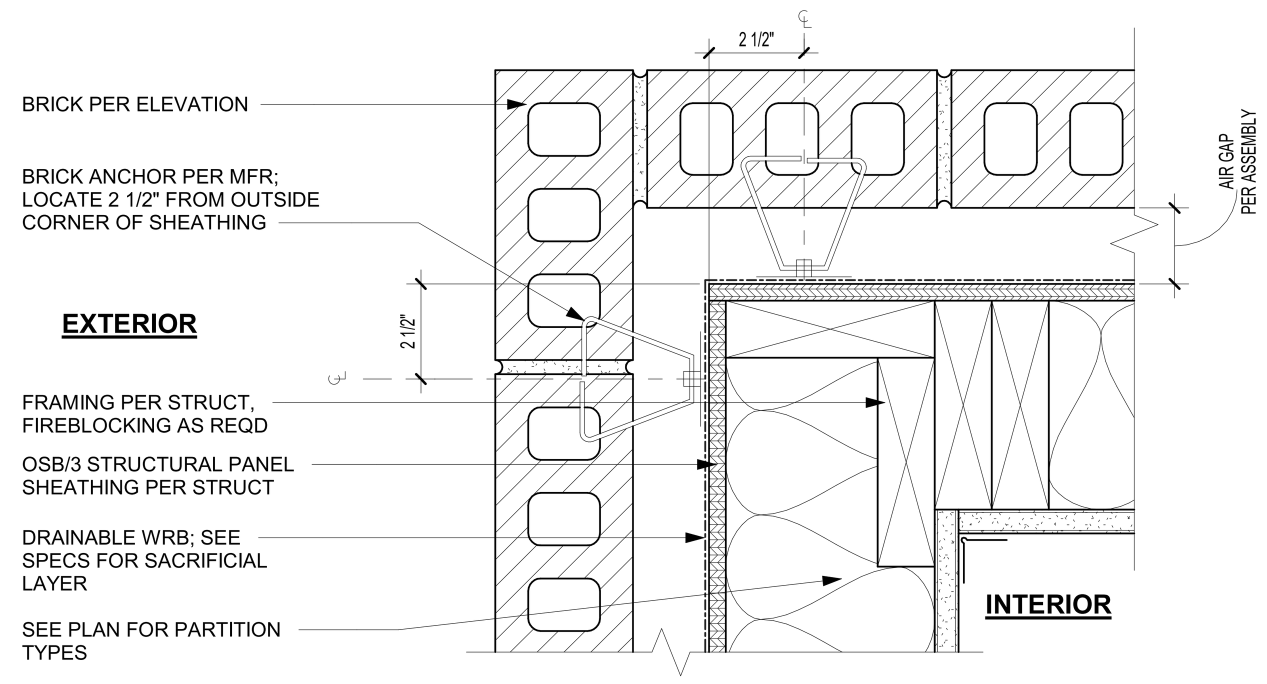
B3 FRAMING UPSET @ CORRIDORS
1 1/2" = 1'-0"



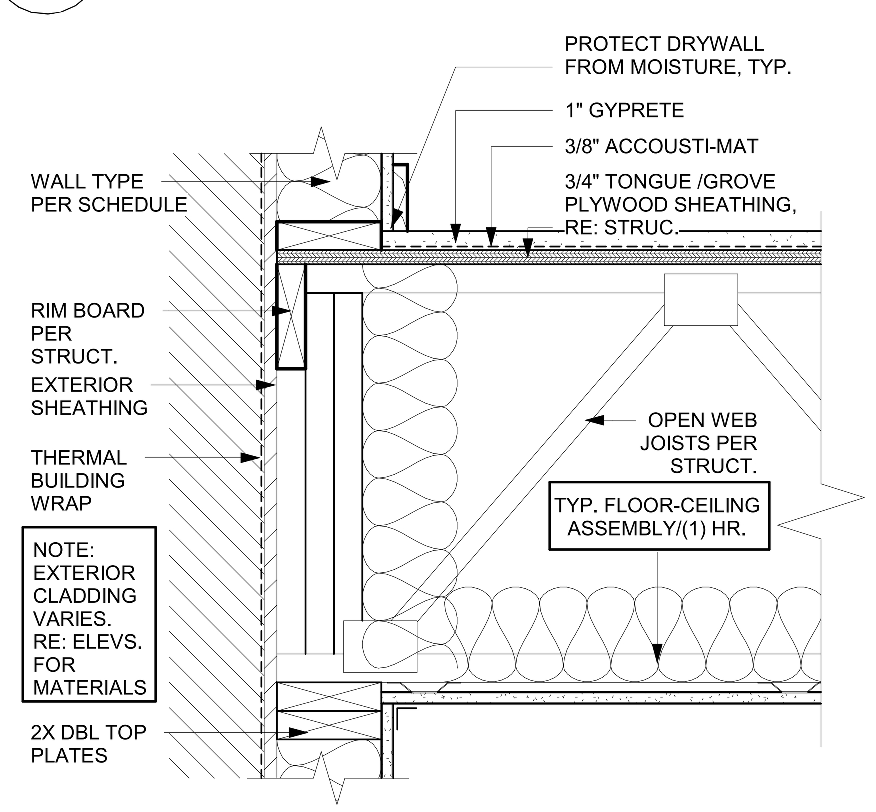
A3 PARTY WALL - SECTION 2
1 1/2" = 1'-0"



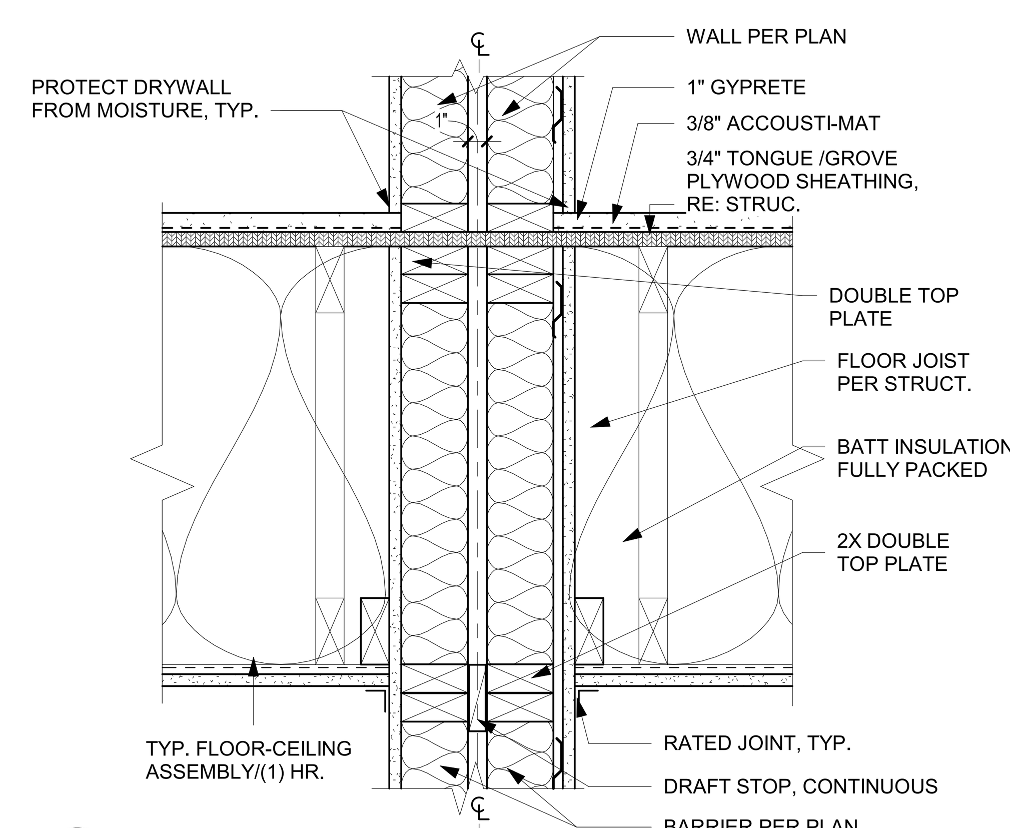
E2 2 HOUR WALL DETAIL 1 (PLAN)
3/4" = 1'-0"



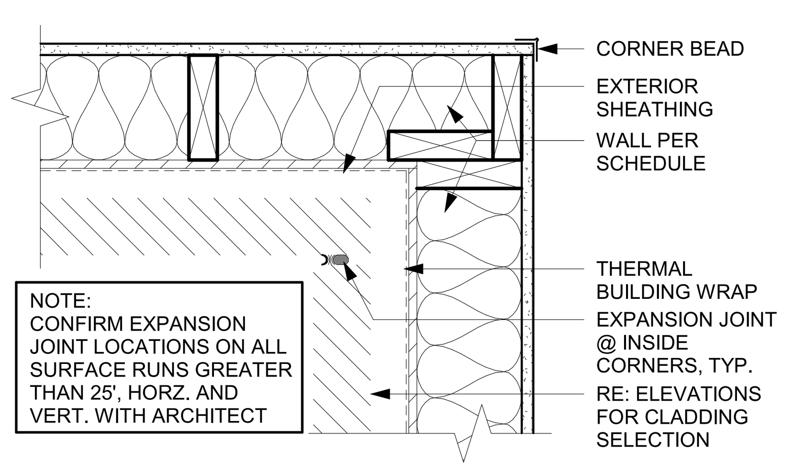
C2 BRICK - OUTSIDE CORNER (PLAN)
3" = 1'-0"



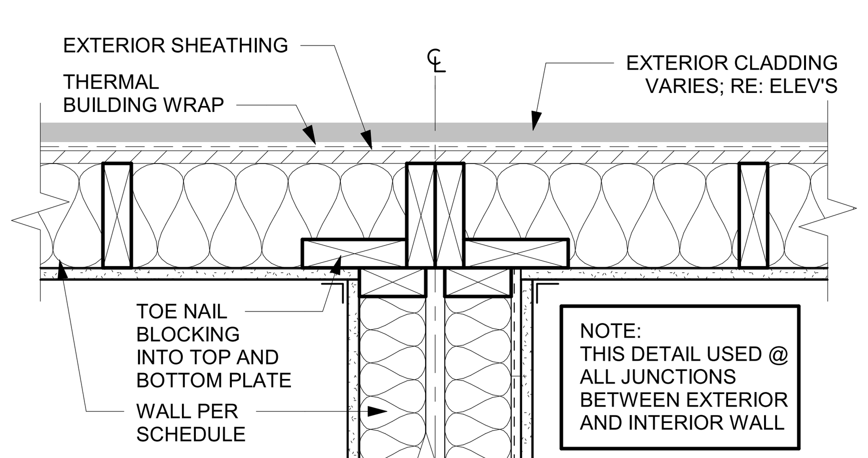
B2 FRAMING FLOOR/CLG DTL.
1 1/2" = 1'-0"



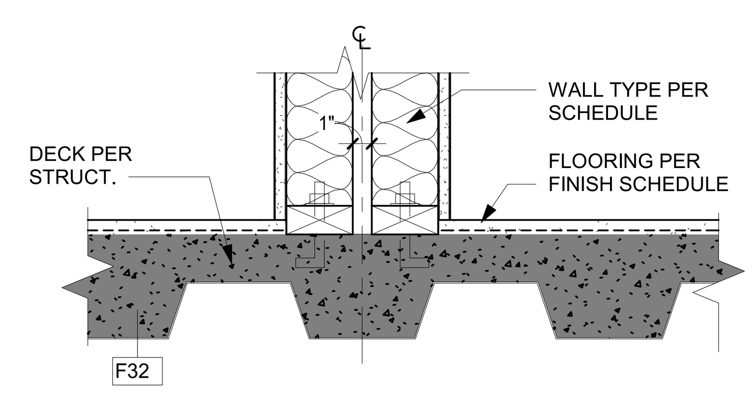
A2 PARTY WALL - SECTION
1 1/2" = 1'-0"



E1 FRAMING INSIDE CORNER (PLAN)
1 1/2" = 1'-0"



C1 PARTY WALL (PLAN)
1 1/2" = 1'-0"



B1 PARTY WALL @ DECK
1 1/2" = 1'-0"

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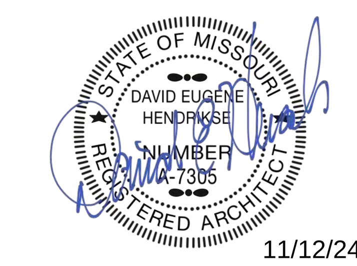


11/12/24

THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO

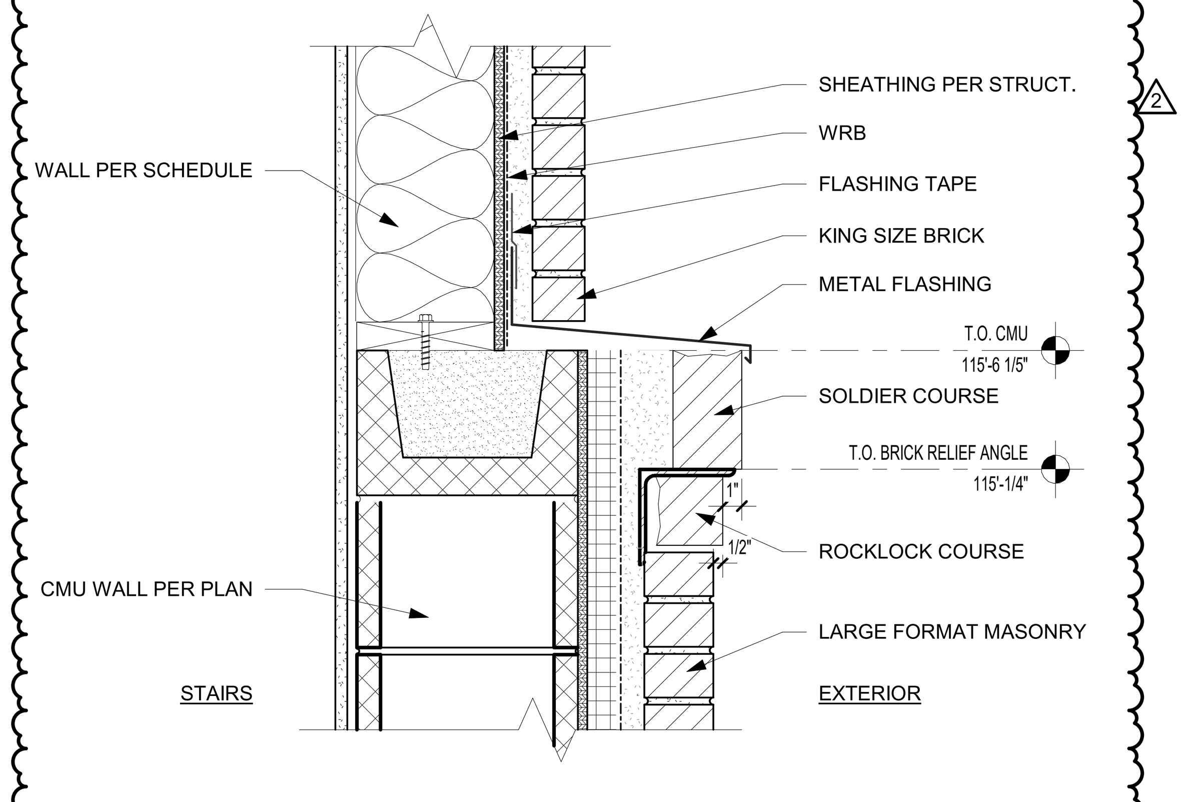
SHEET TITLE
WALL DETAILS

PROJECT NUMBER: 23103

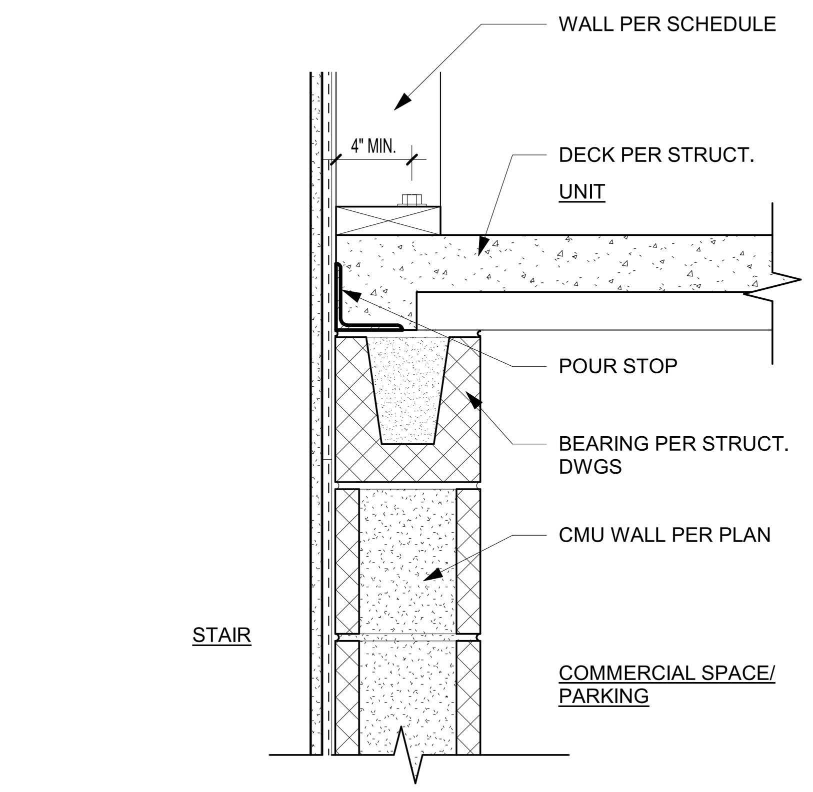
SHEET NUMBER:

A-501

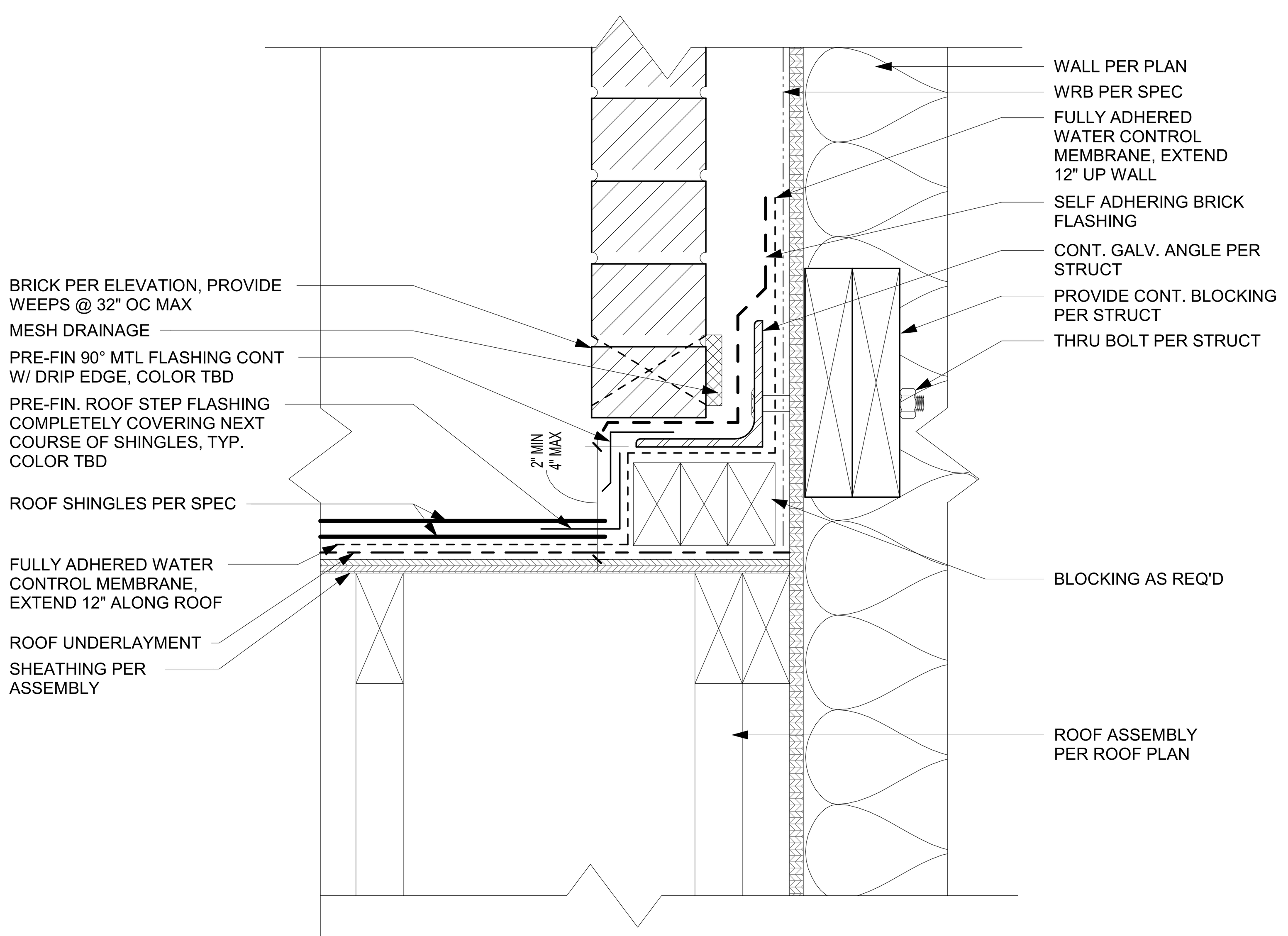
11/12/2024 2:41:49 PM



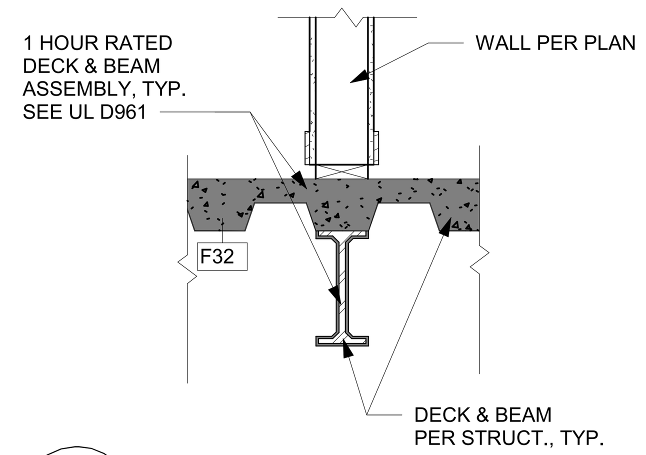
D3 CMU WOOD WALL TRANSITION @ STAIRS
1 1/2" = 1'-0"



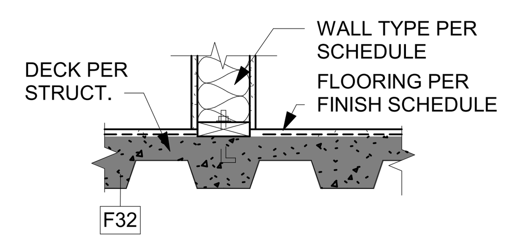
D2 DECK BEARING @ STAIRS
1 1/2" = 1'-0"



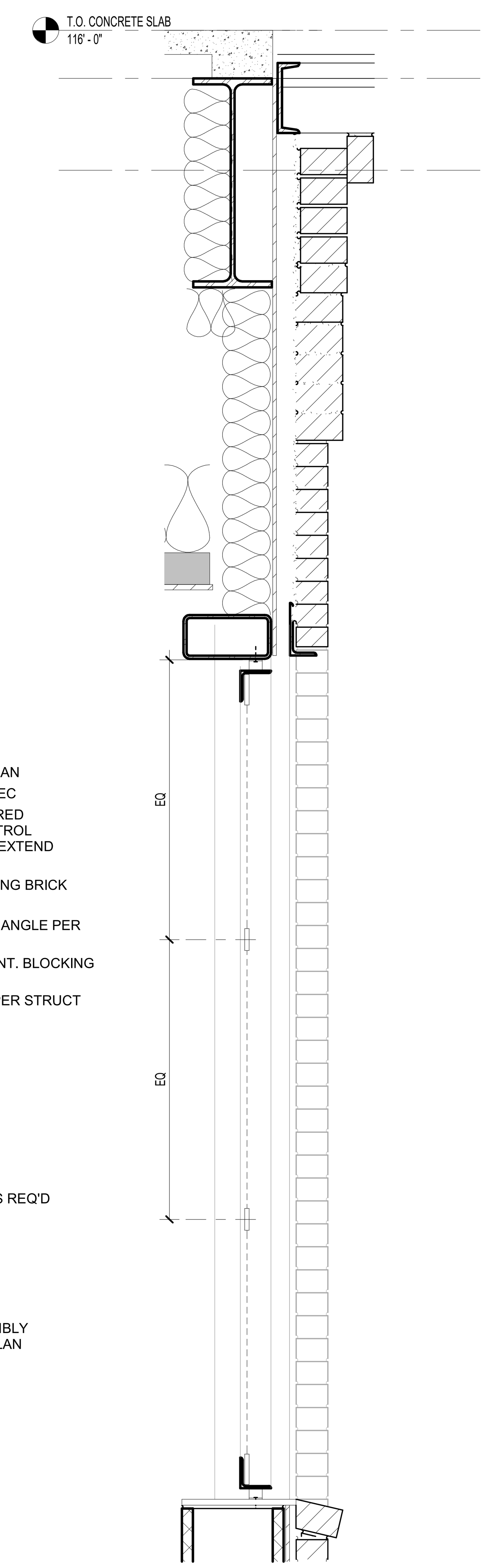
D1 THROUGH WALL FLASHING @ ROOF
3" = 1'-0"



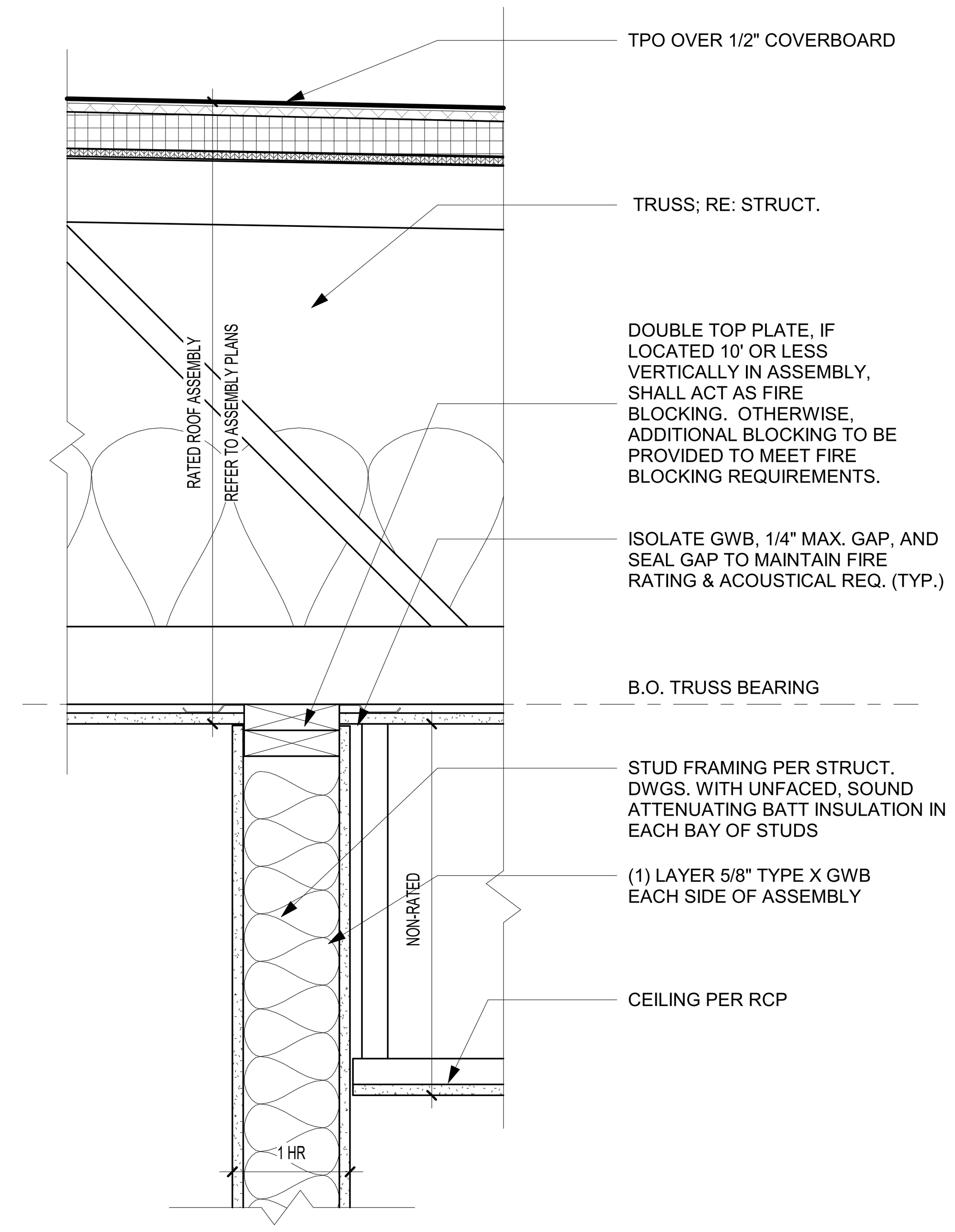
C4 BEAM @ DECK
3/4" = 1'-0"



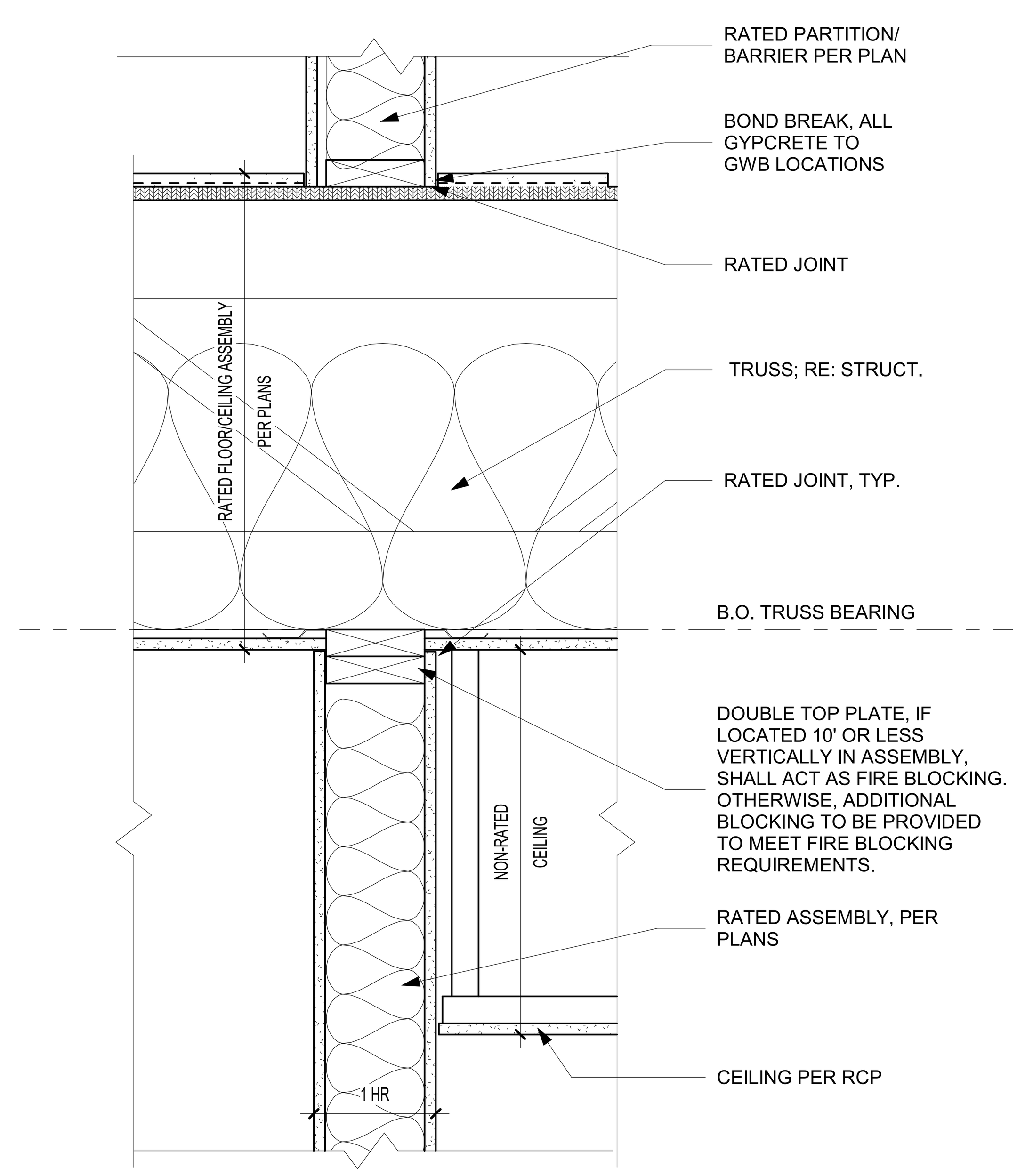
C3 WALL @ DECK
3/4" = 1'-0"



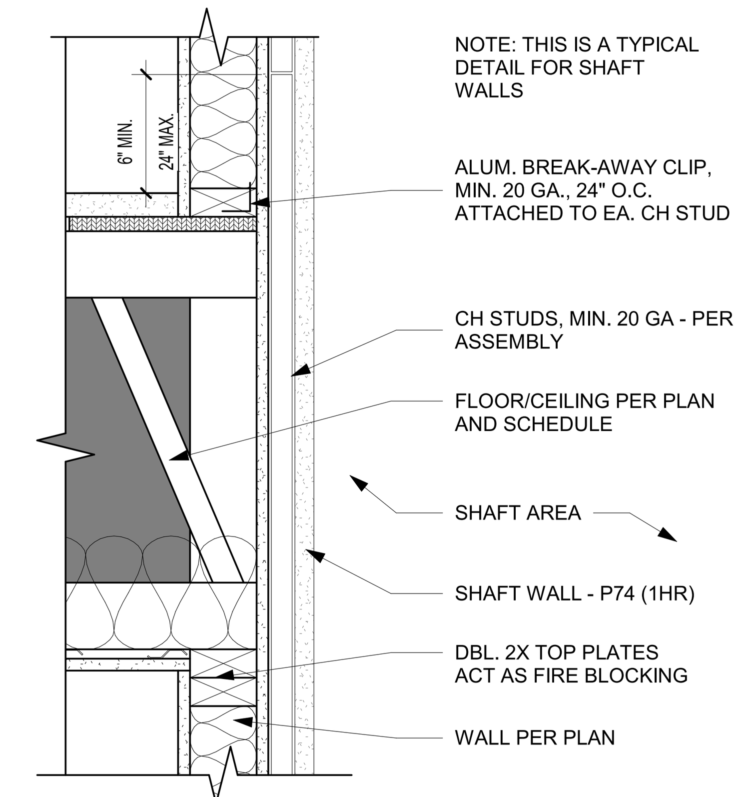
C1 PRE-FAB METAL SCREEN @ OPEN PARKING
1" = 1'-0"



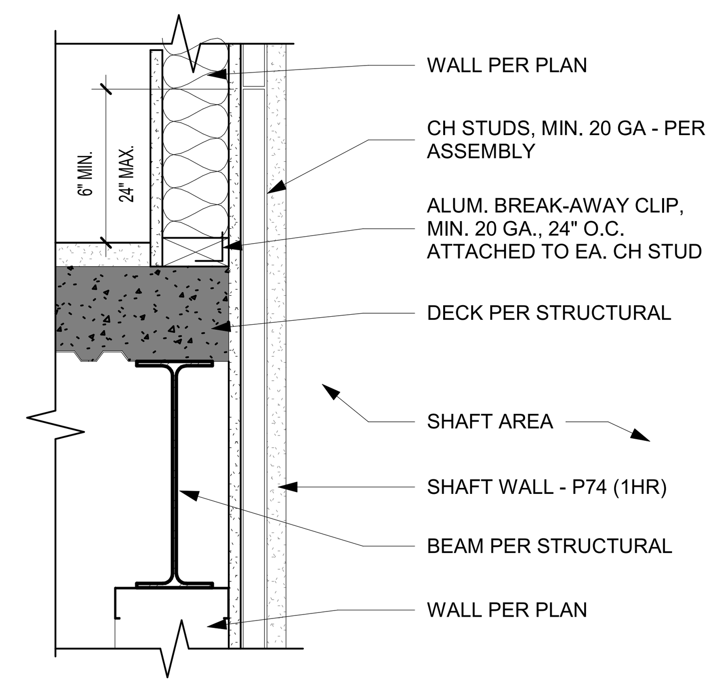
B3 WALL/RATED - WOOD STUD - 1 HOUR - ROOF/CEILING ASSEMBLY @ PARTITION PERP TO TRUSS (SECTION)
1 1/2" = 1'-0"



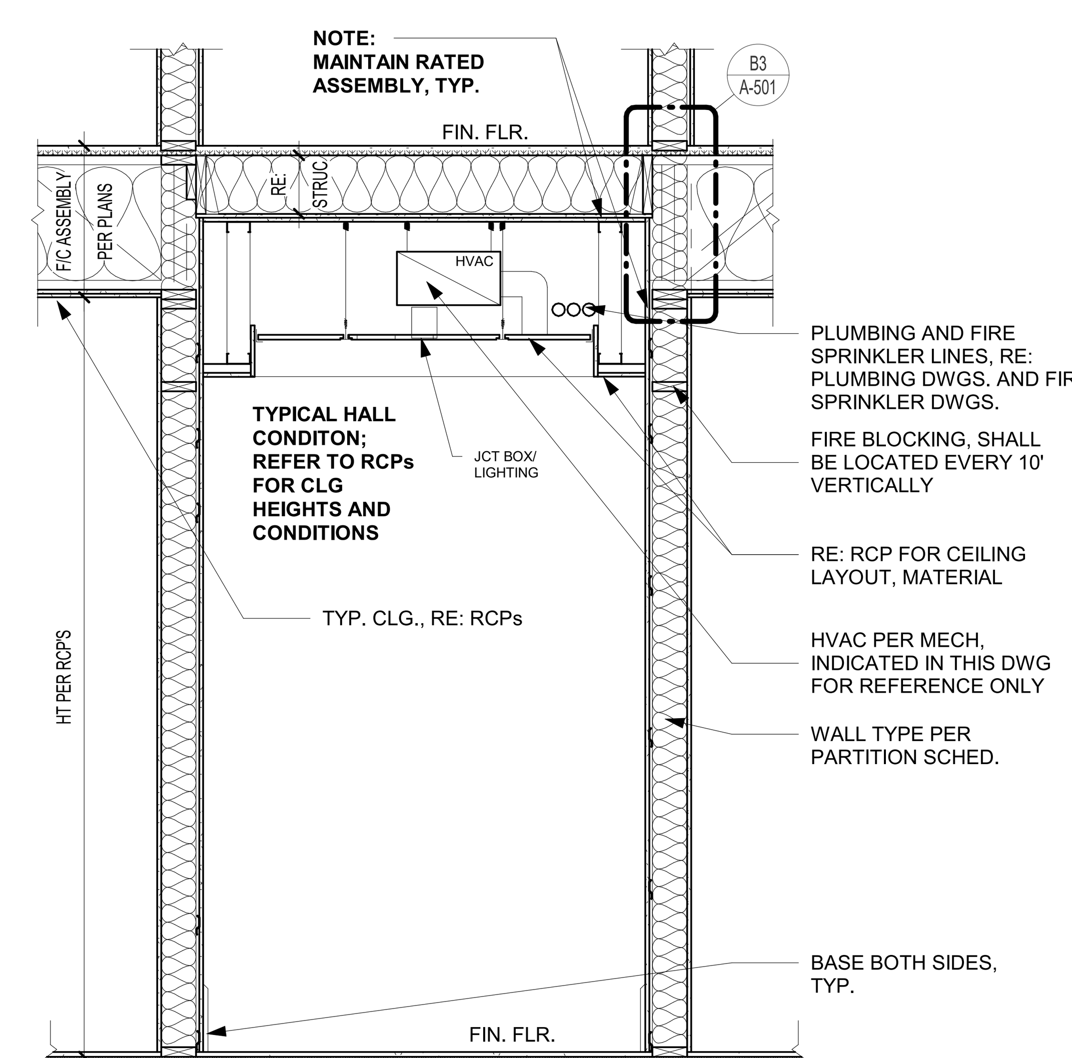
B1 WALL/RATED - WOOD STUD - 1 HOUR - PARTITION WALL @ F/C (SECTION)
1 1/2" = 1'-0"



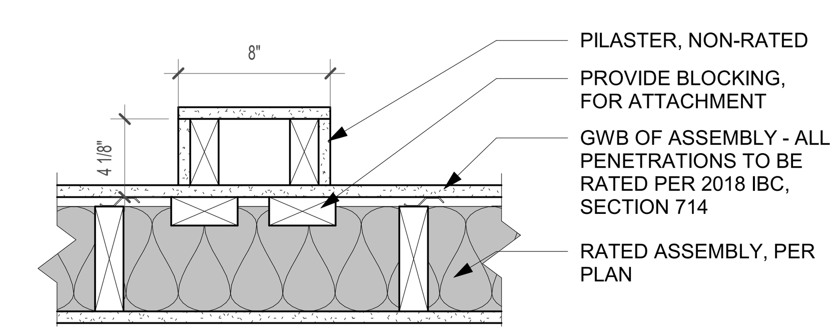
A4 SHAFT @ 2ND & 3RD FLOORS
1 1/2" = 1'-0"



A3 SHAFT @ 1ST FLOOR COMMERCIAL SPACE
1 1/2" = 1'-0"



A2 FLOOR/CEILING @ CORRIDOR (SECTION)
1/2" = 1'-0"



A1 CORRIDOR WALL WITH PILASTER (PLAN)
1 1/2" = 1'-0"

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THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
WALL DETAILS

PROJECT NUMBER: 23103

SHEET NUMBER:

A-502

12/20/2024 10:26:52 PM
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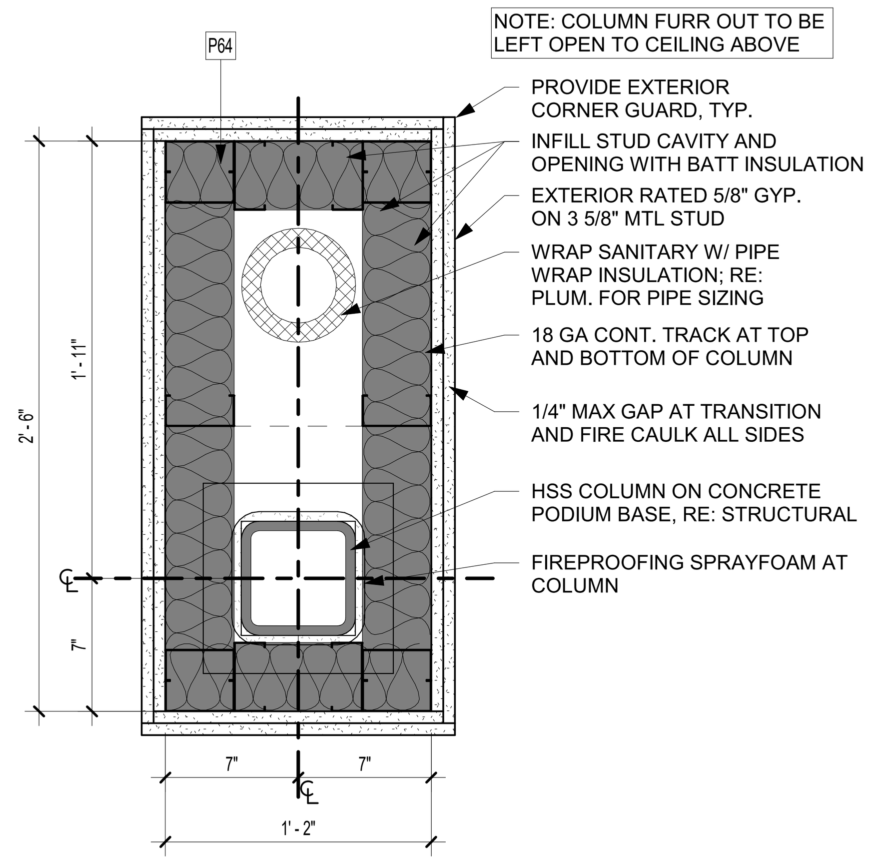
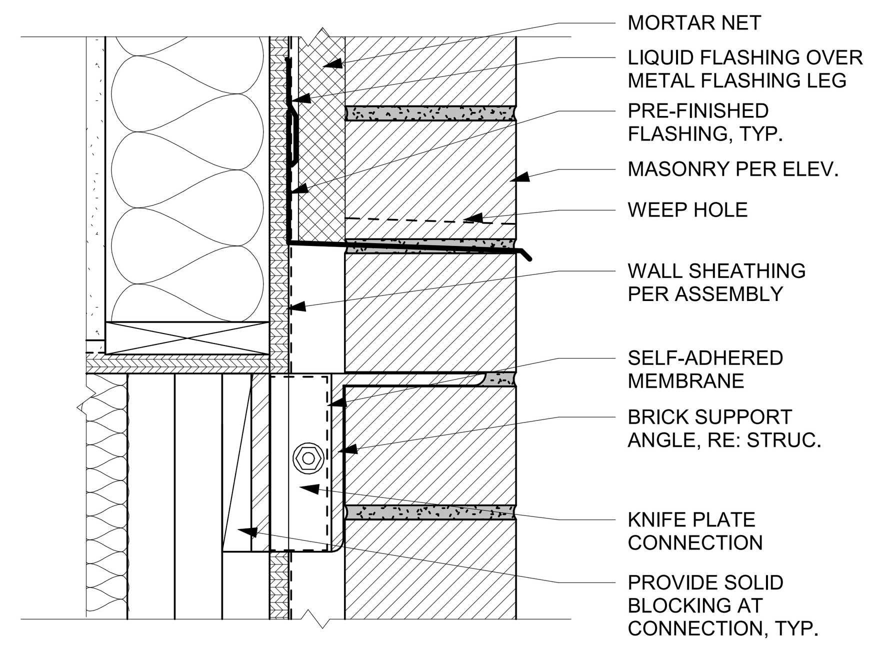
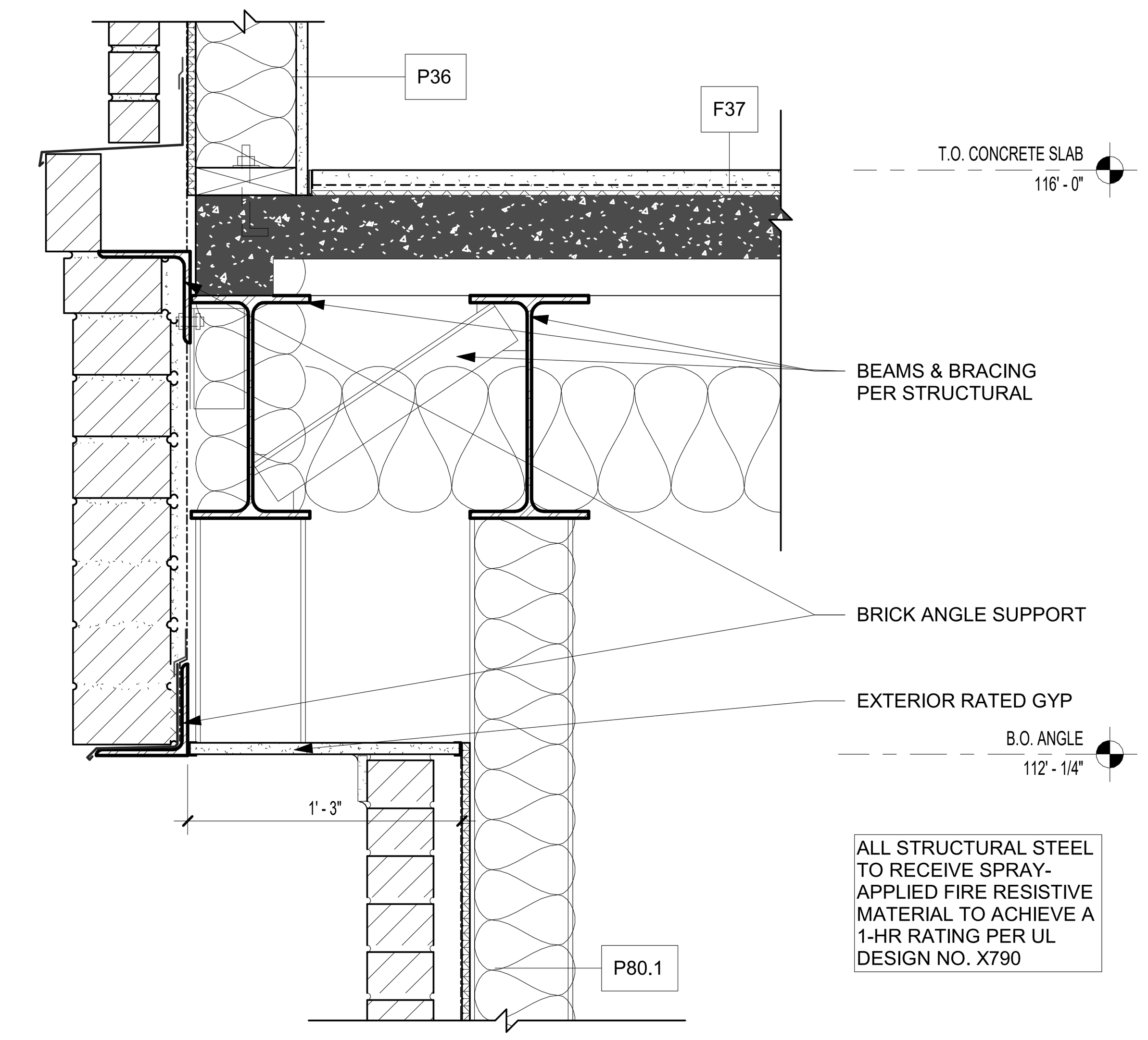


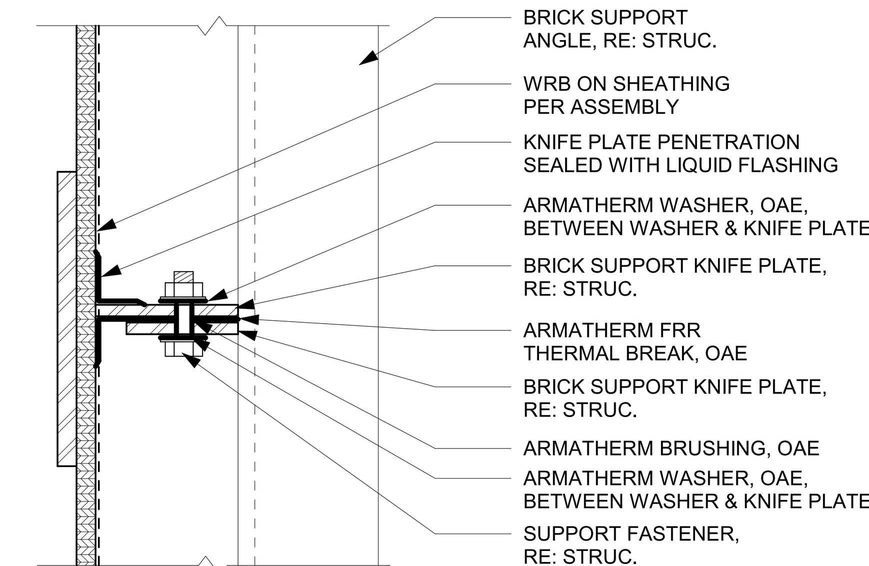
C4 FUR OUT AT COLUMN (PLAN)
1 1/2" = 1'-0"



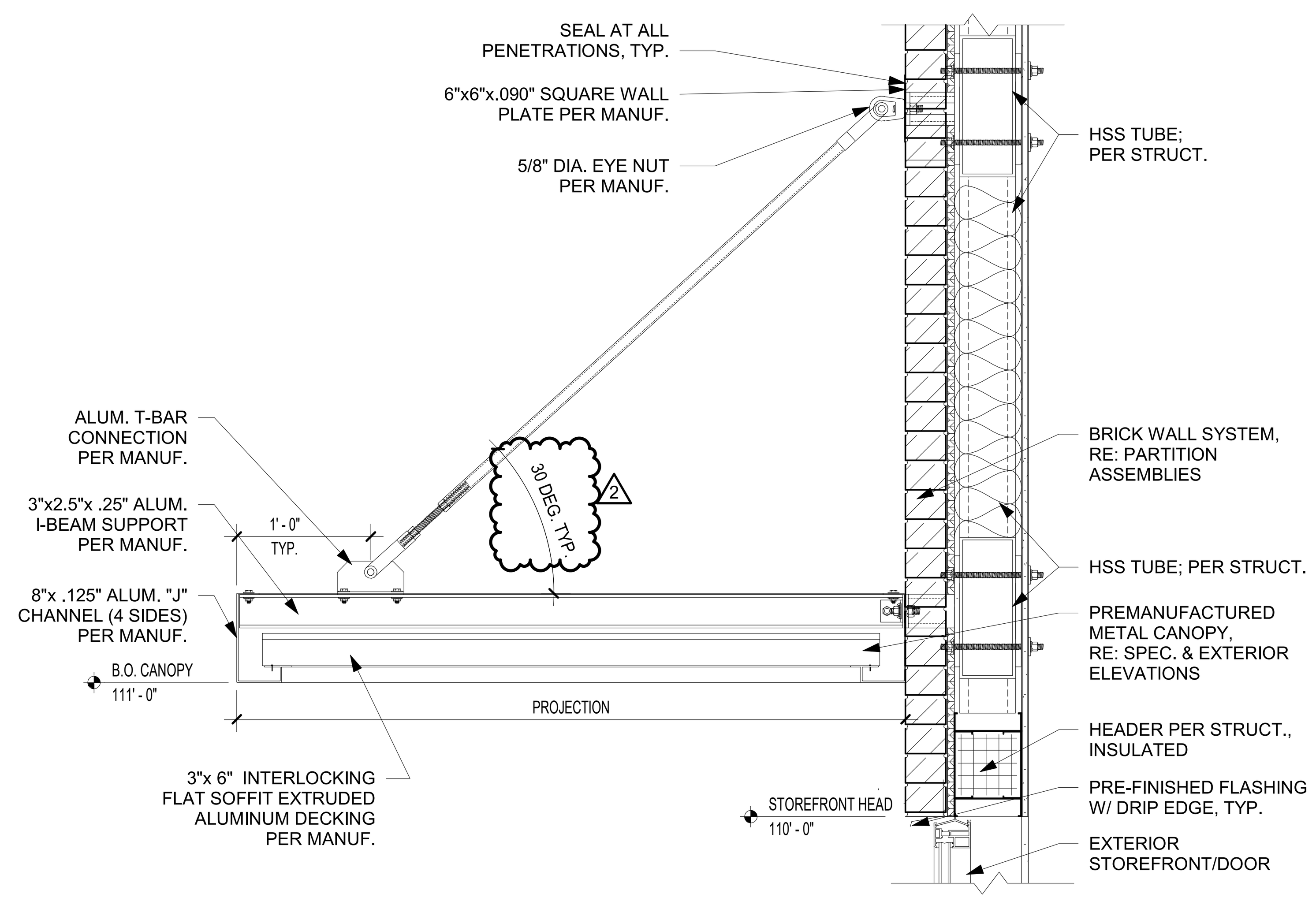
B4 BRICK SUPPORT ANGLE
N.T.S.



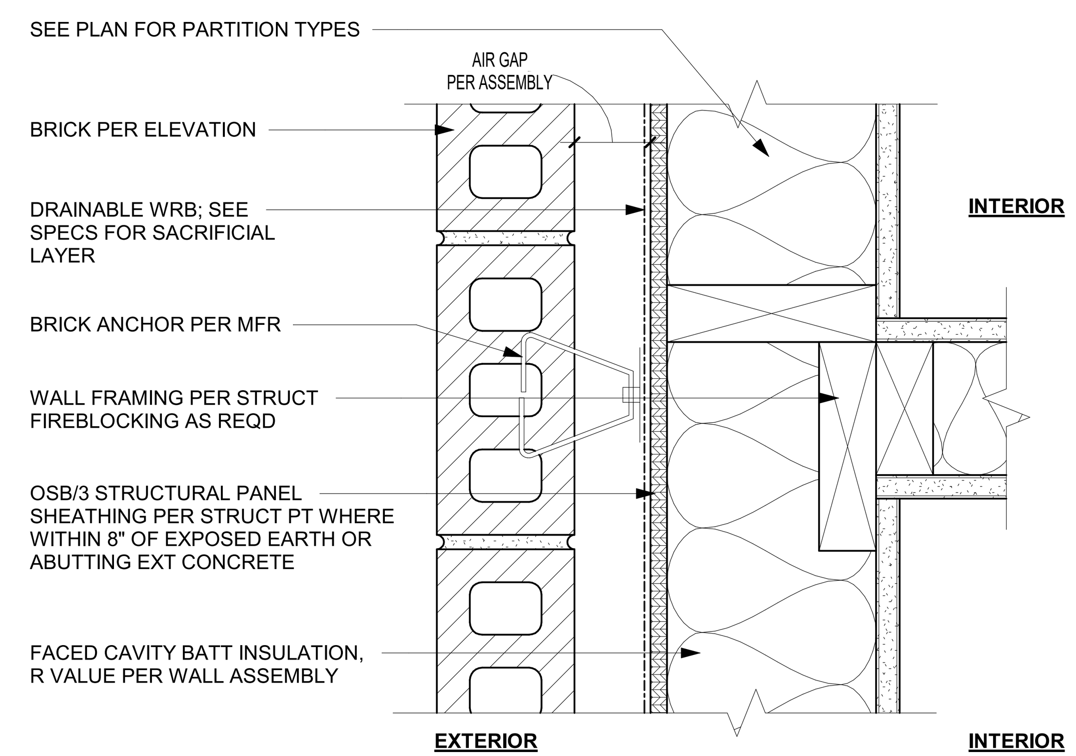
A3 BRICK OVERHANG AT BUMPOUT AT PARKING
1 1/2" = 1'-0"



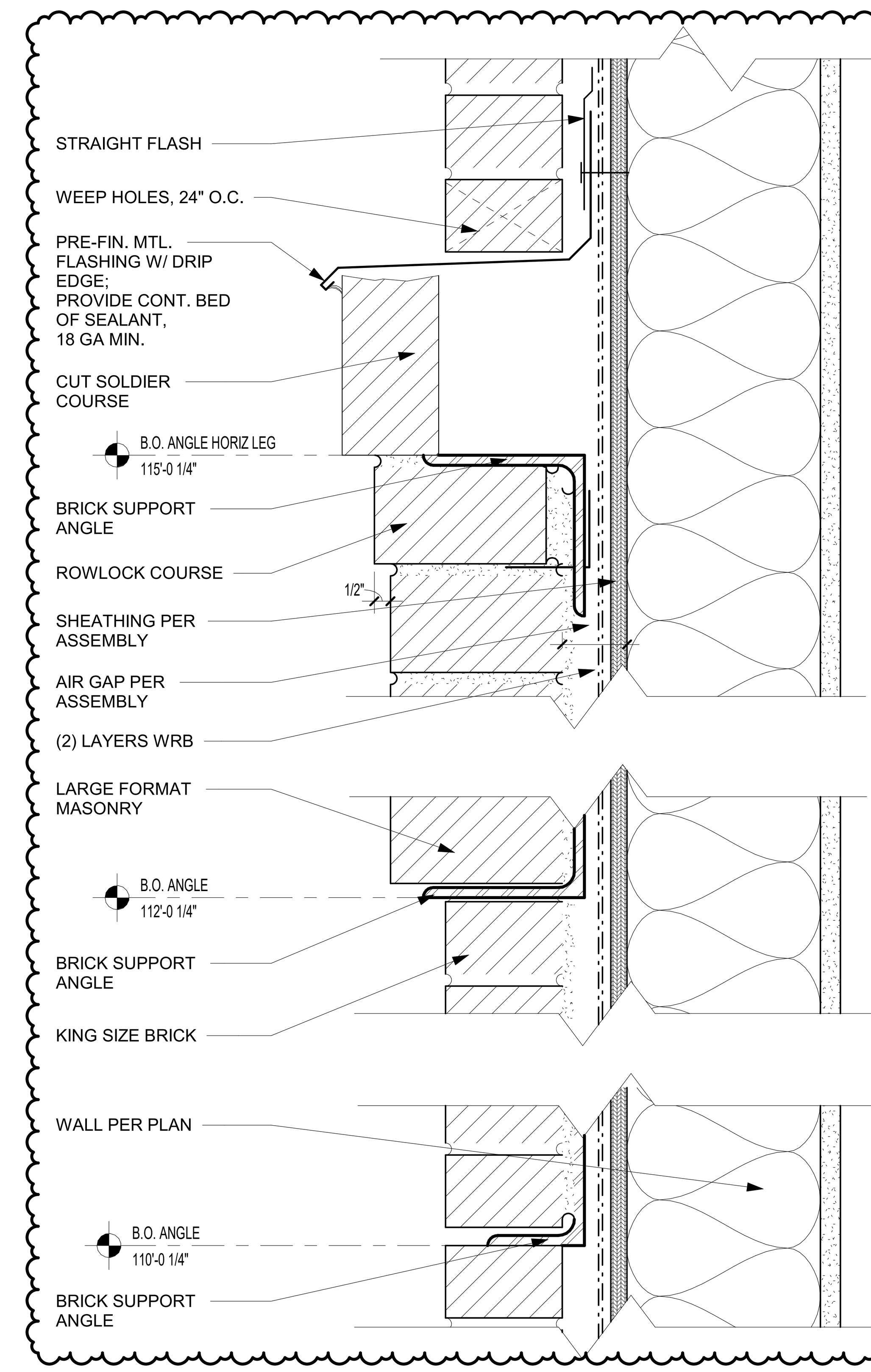
B3 KNIFE PLATE CONNECTION
N.T.S.



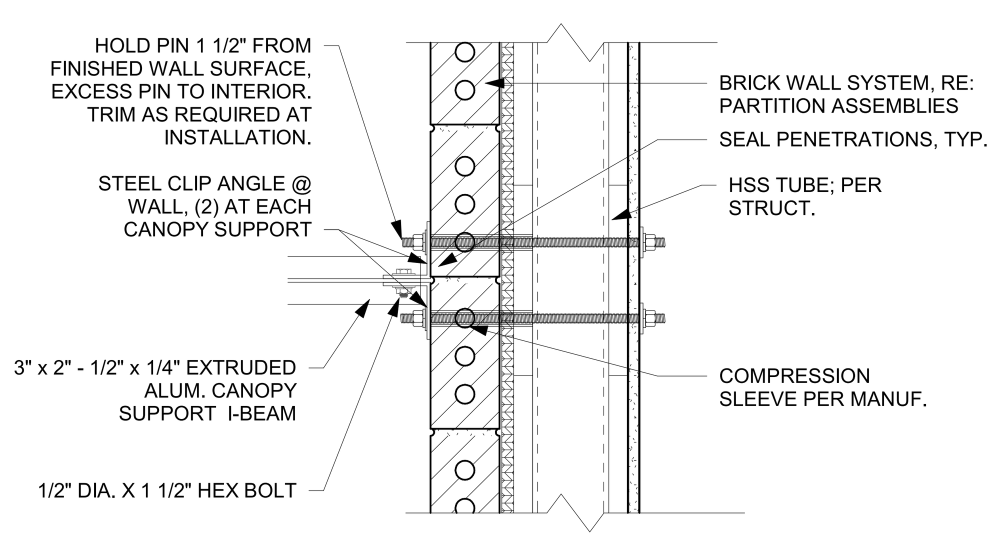
C2 CANOPY @ STEEL (SECTION)
1" = 1'-0"



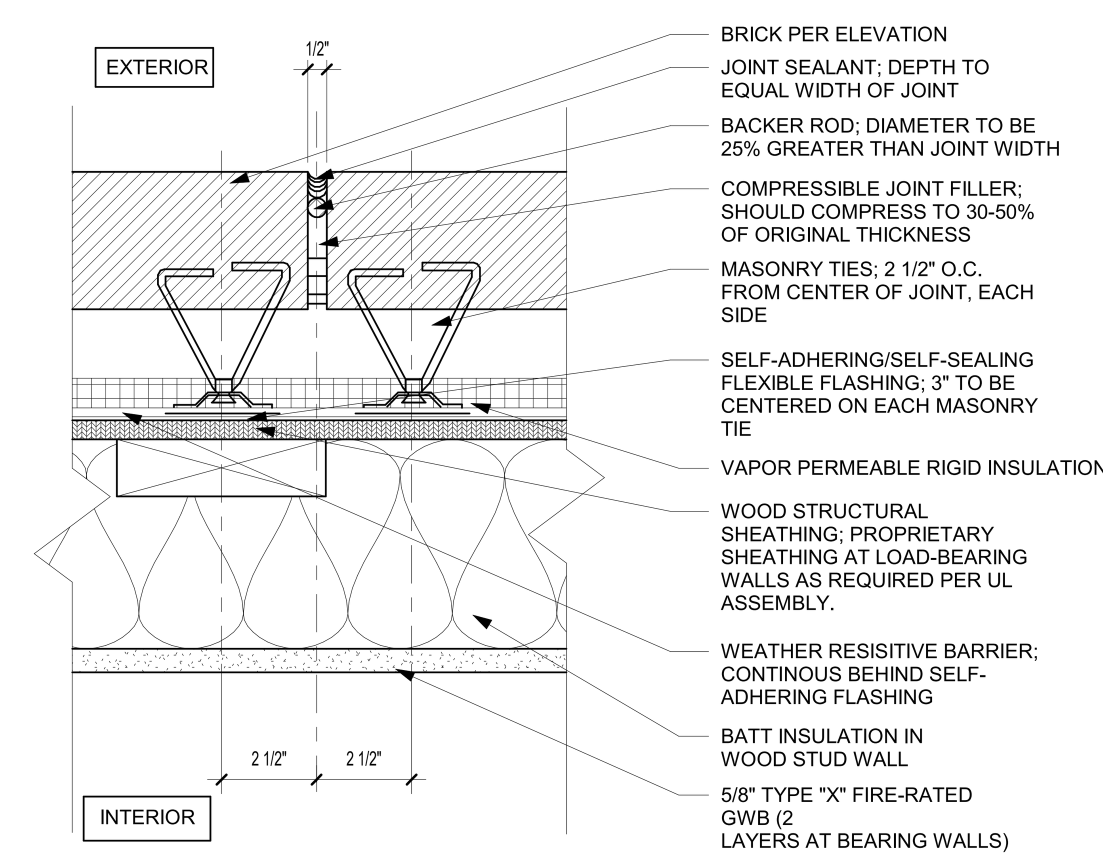
B2 BRICK - INTERIOR PARTITION TO EXTERIOR WALL (PLAN)
3" = 1'-0"



A1 WALL/EXTERIOR - BRICK BAND DETAIL
3" = 1'-0"



C1 CANOPY DETAIL @ STEEL (PLAN)
1 1/2" = 1'-0"



B1 WALL/EXTERIOR - WOOD STUD/BRICK @ VERTICAL CONTROL JOINT (PLAN)
3" = 1'-0"

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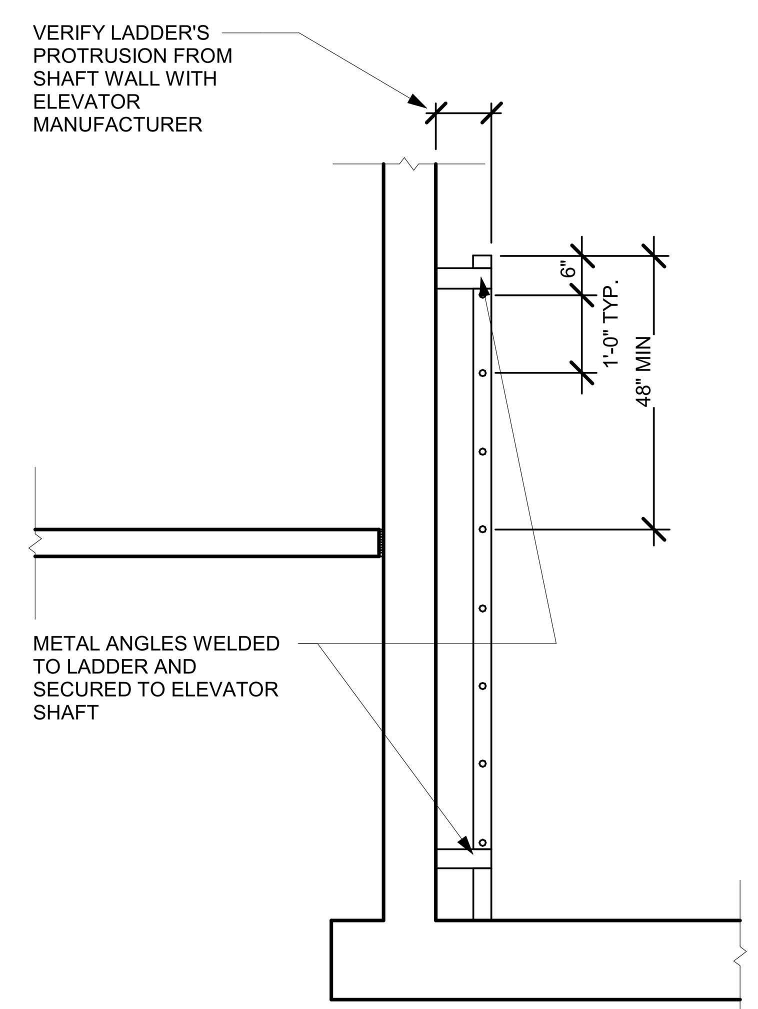
THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO

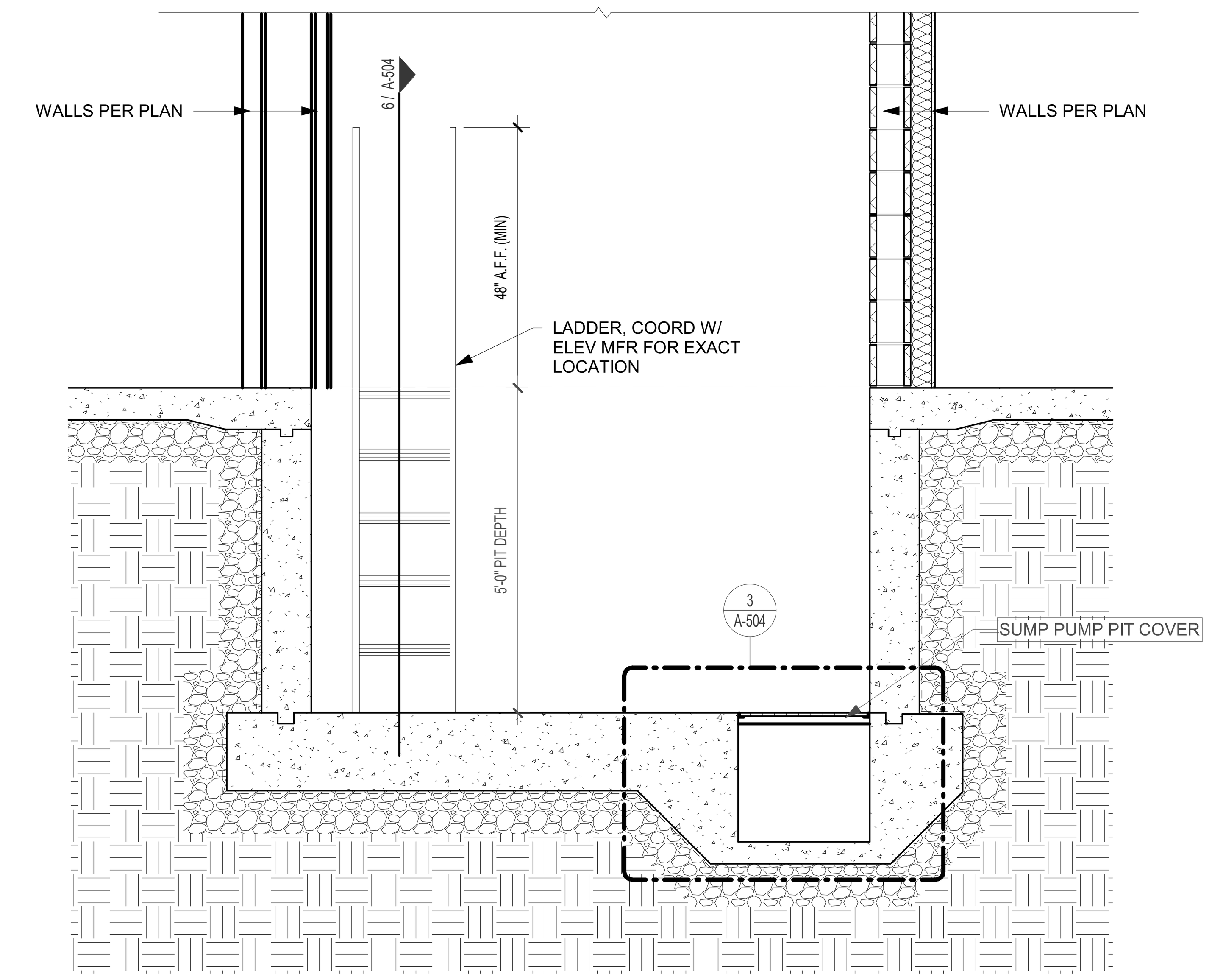
SHEET TITLE
BRICK DETAILS

PROJECT NUMBER: 23103

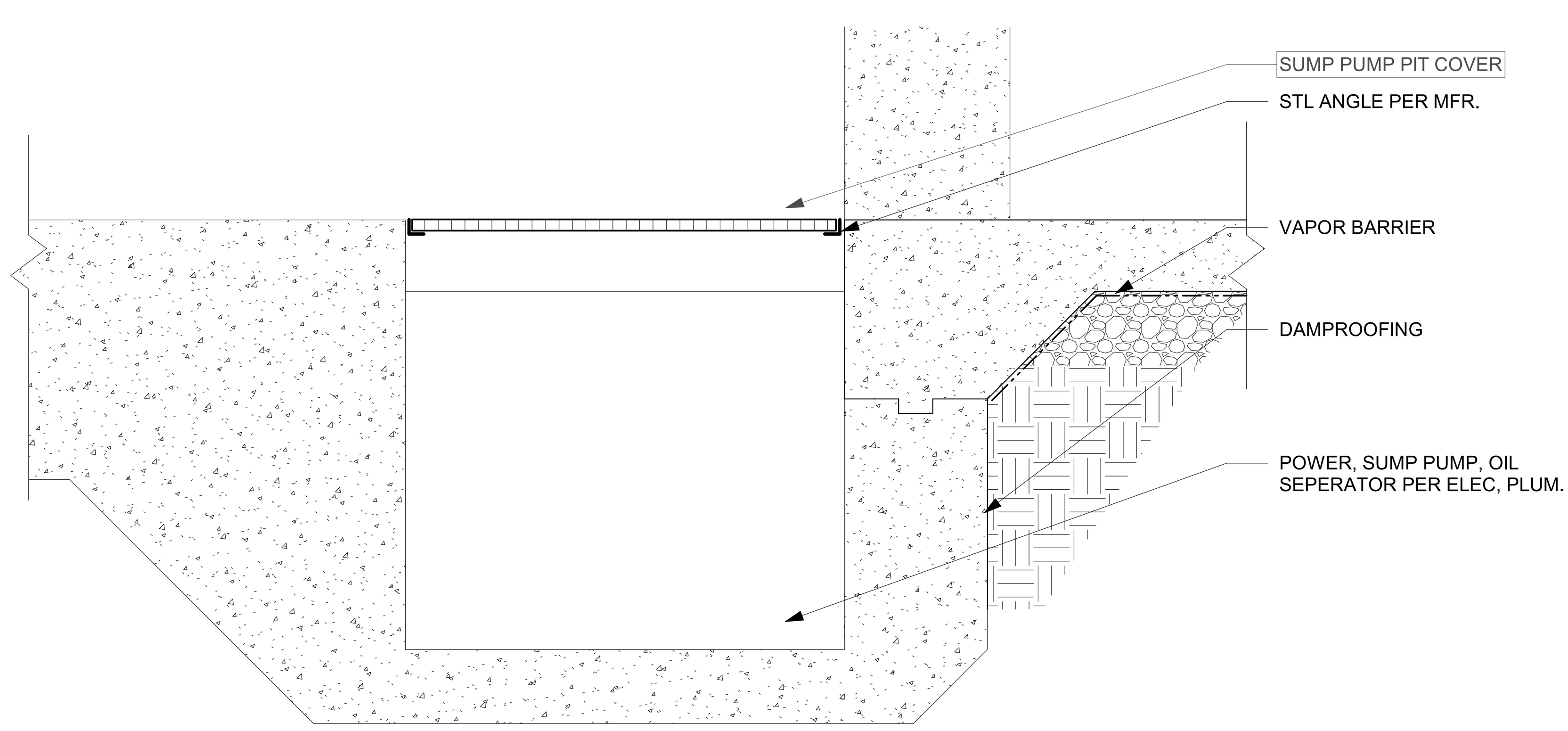
SHEET NUMBER:
A-503



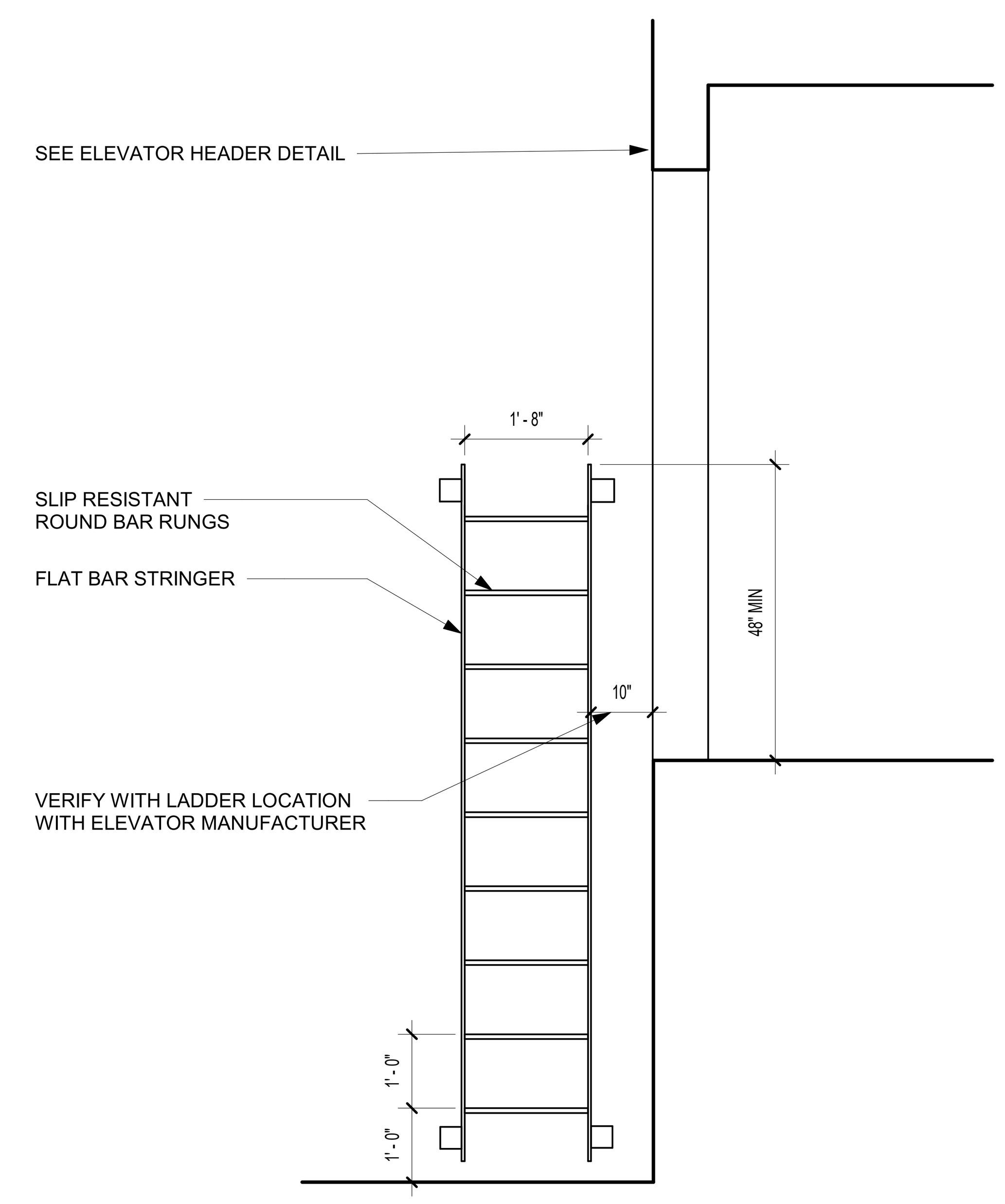
6 ELEVATOR - CONC/PIT @ LADDER (SECTION)
1/2" = 1'-0"



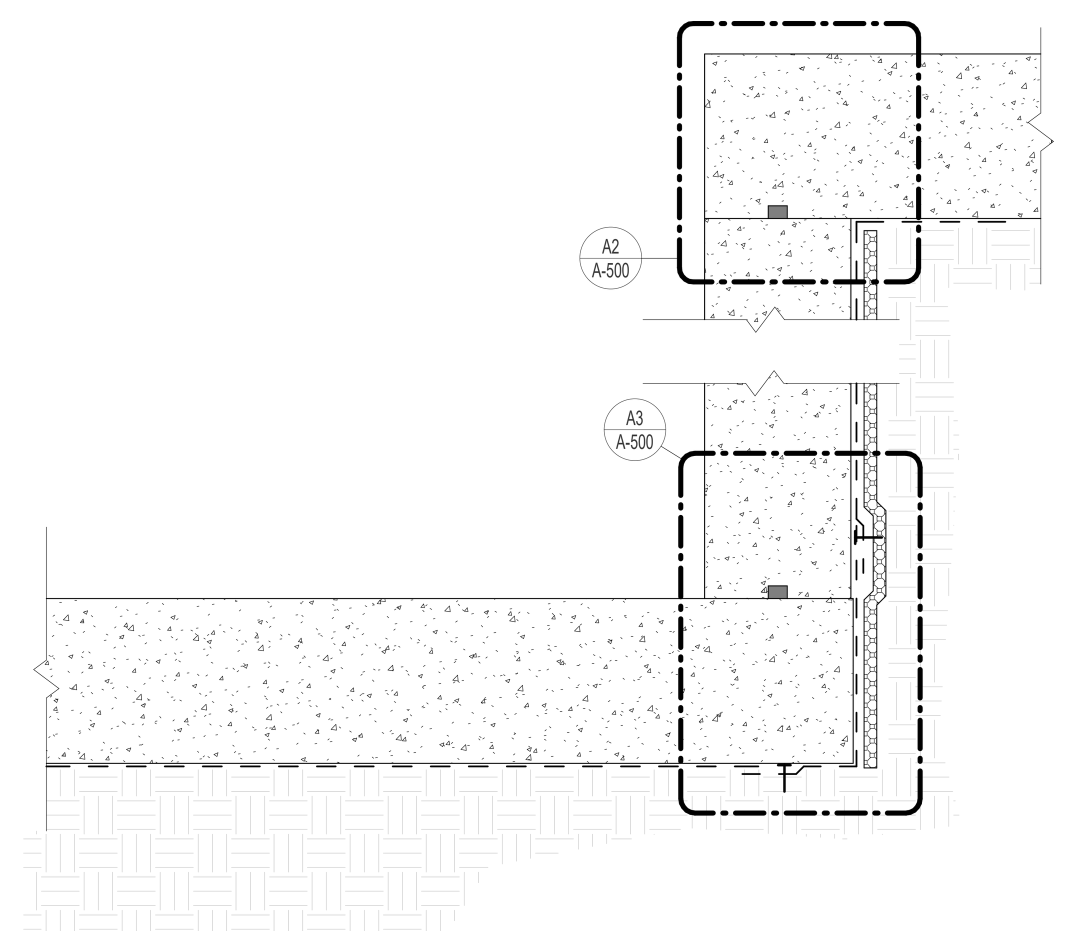
4 ELEVATOR - CONC/PIT (SECTION)
1/2" = 1'-0"



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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STATE OF MISSOURI
DAVID EUGENE HENDRICKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

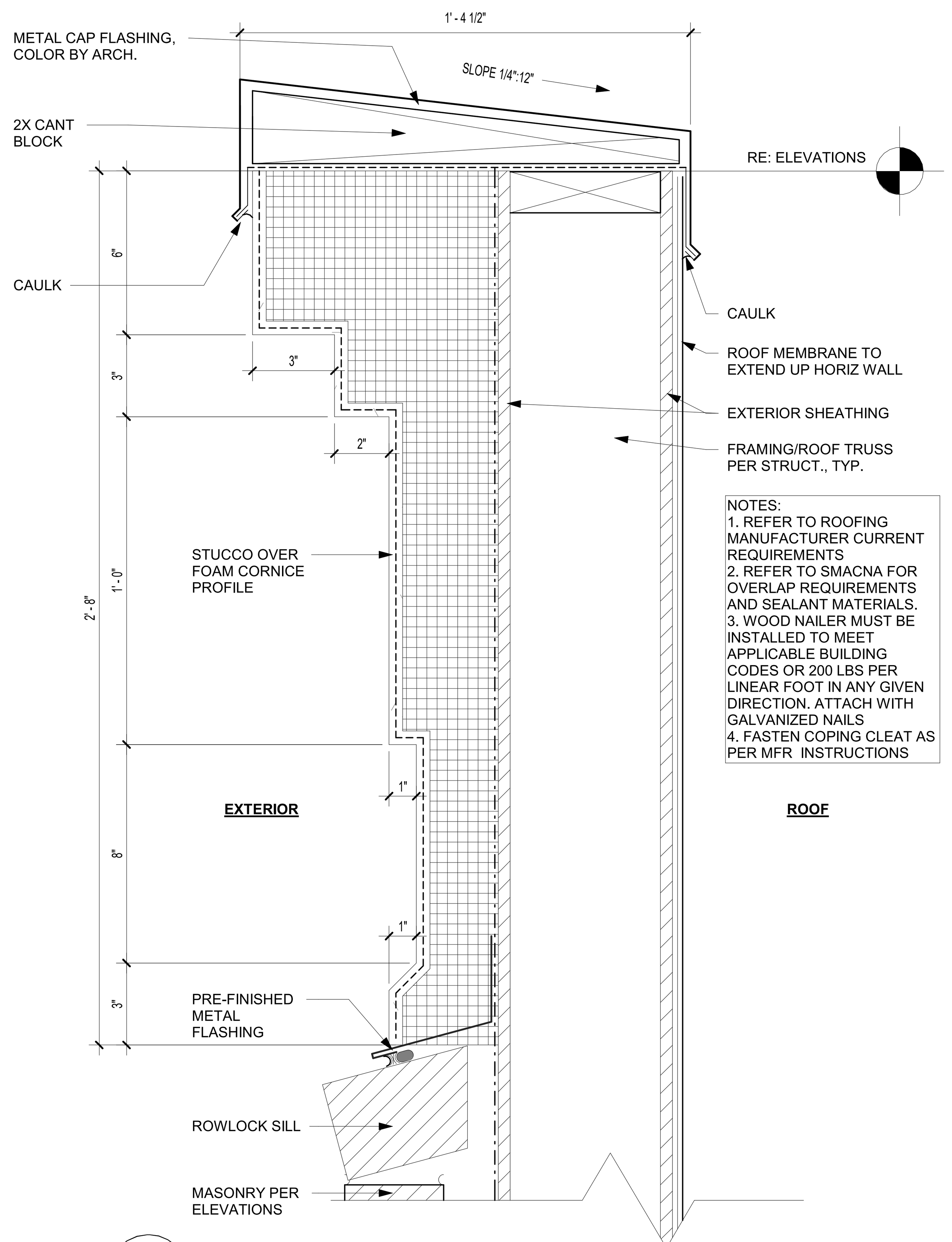
LEE'S SUMMIT, MO

SHEET TITLE
ELEVATOR DETAILS

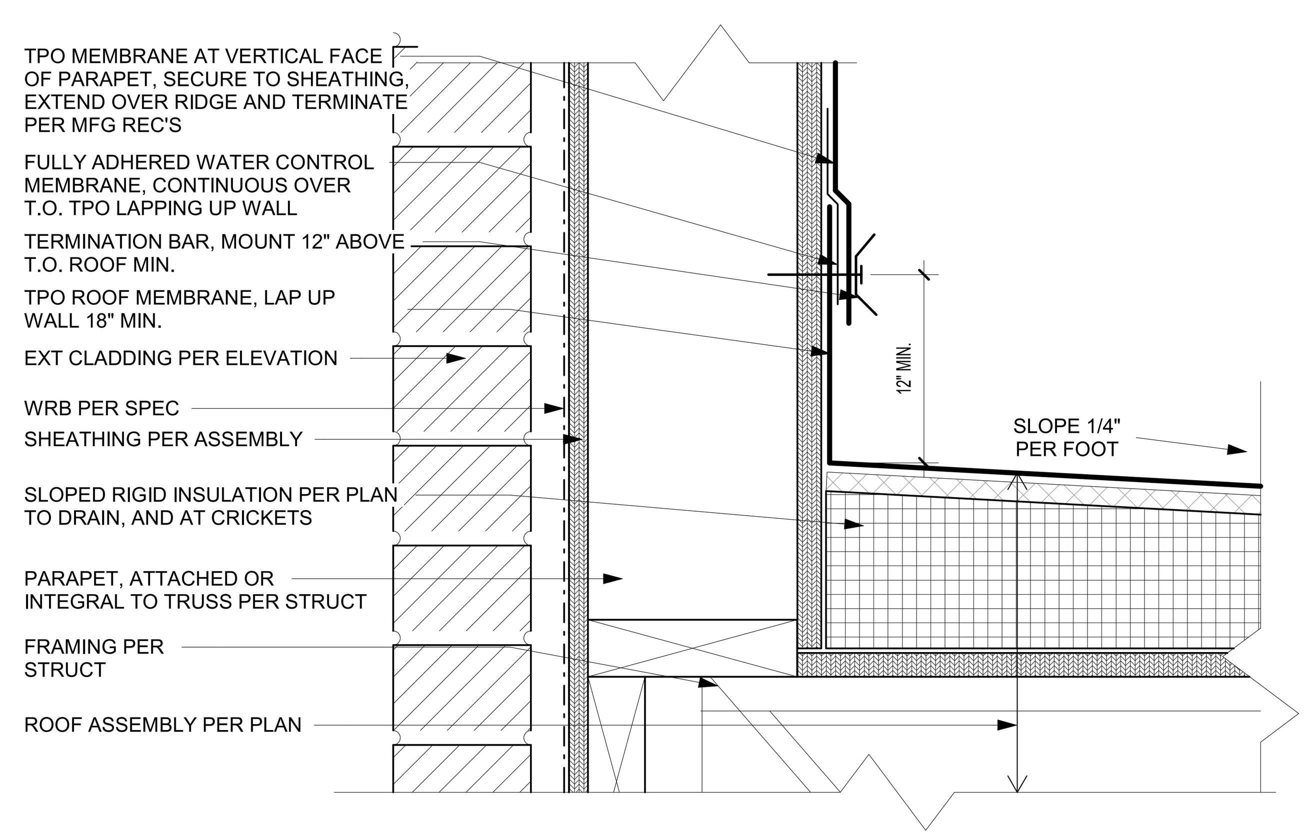
PROJECT NUMBER: 23103

SHEET NUMBER:

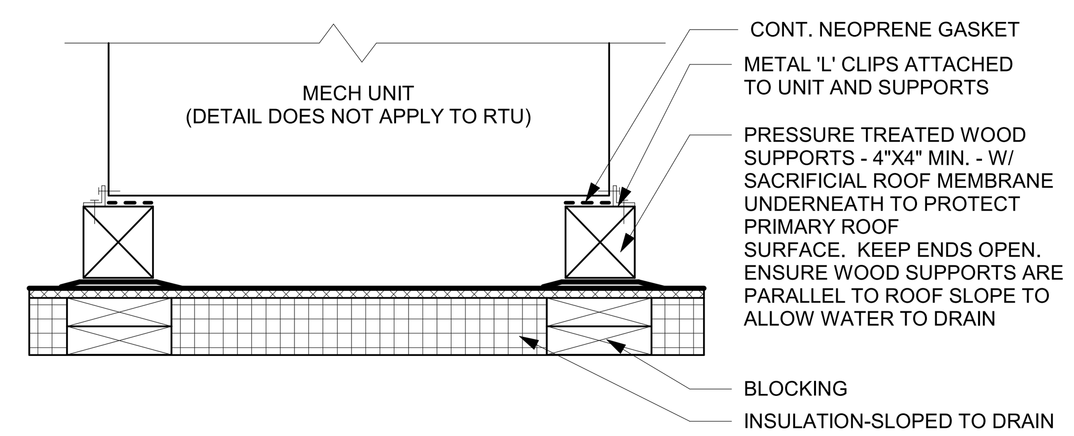
A-504



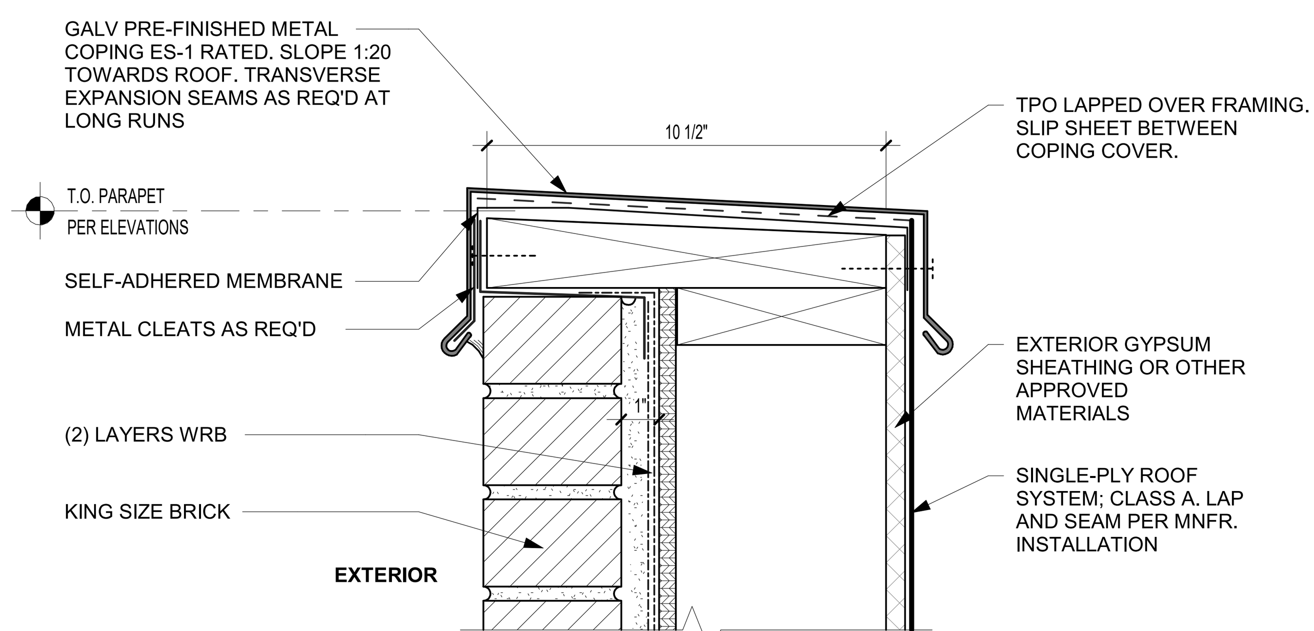
C2 PARAPET CORNICE
3" = 1'-0"



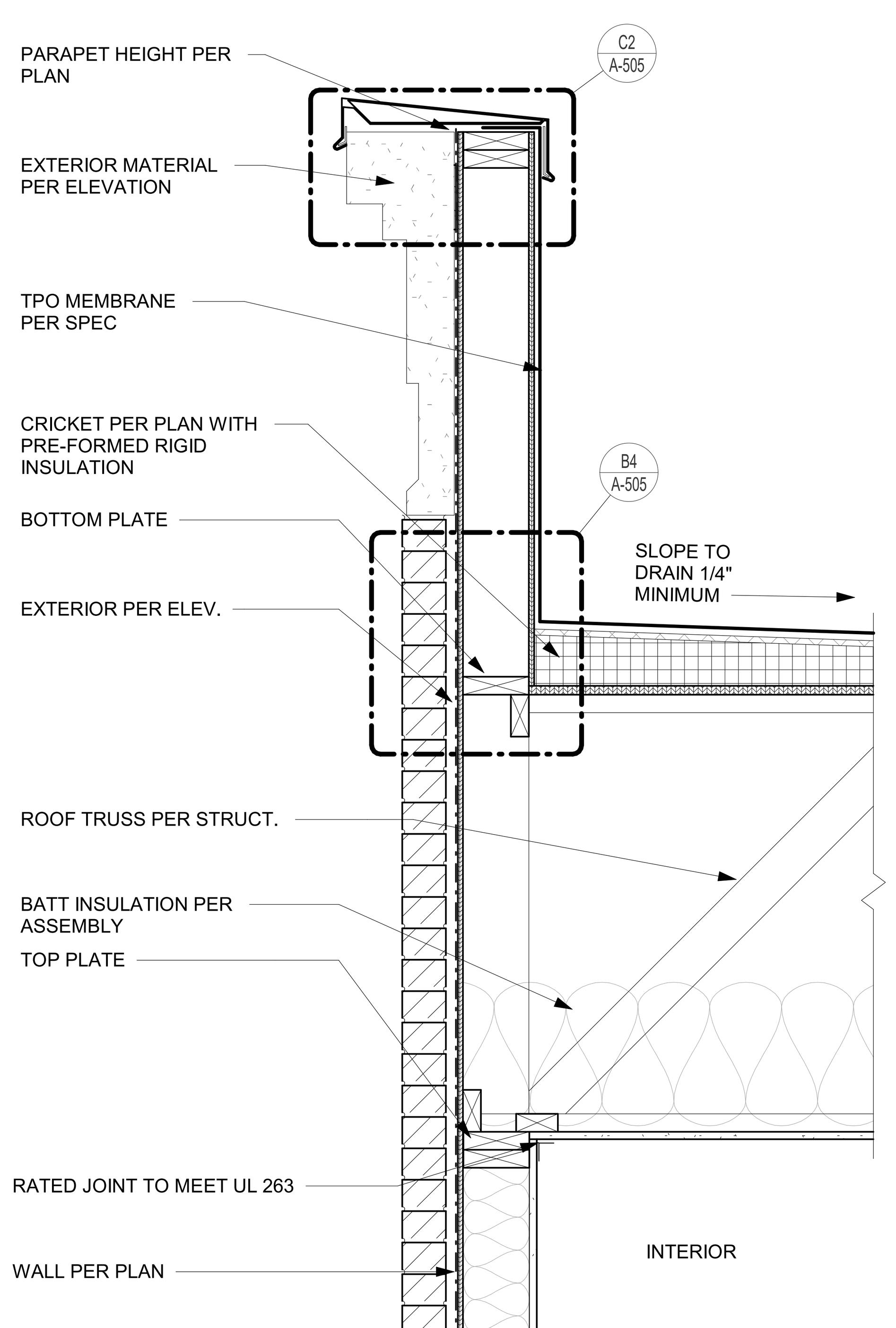
B4 ROOF - WOOD STUD - TPO PARAPET BASE AT WALL
3" = 1'-0"



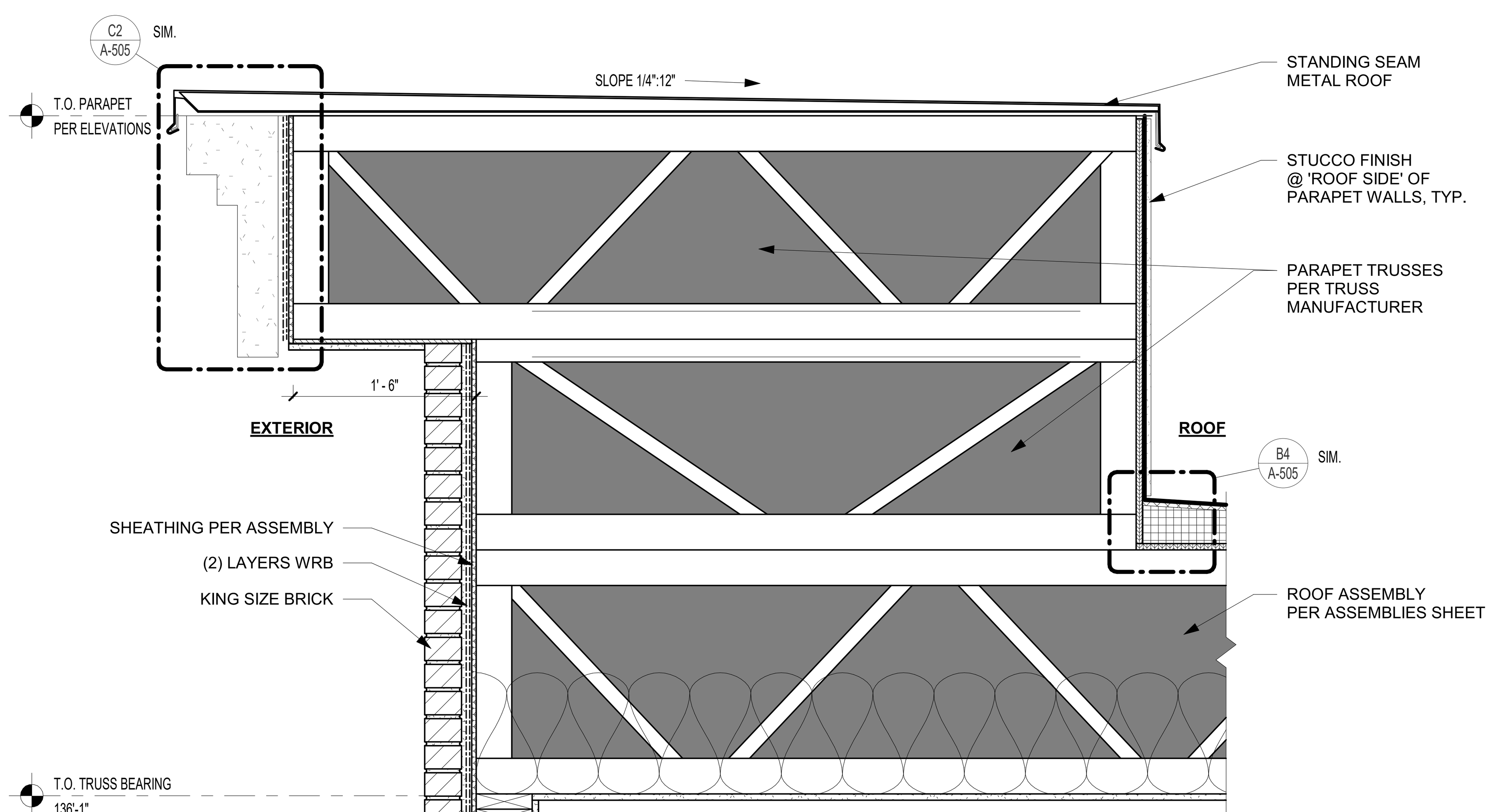
B3 ROOF - MECH UNIT ROOF SUPPORT BLOCKS
1 1/2" = 1'-0"



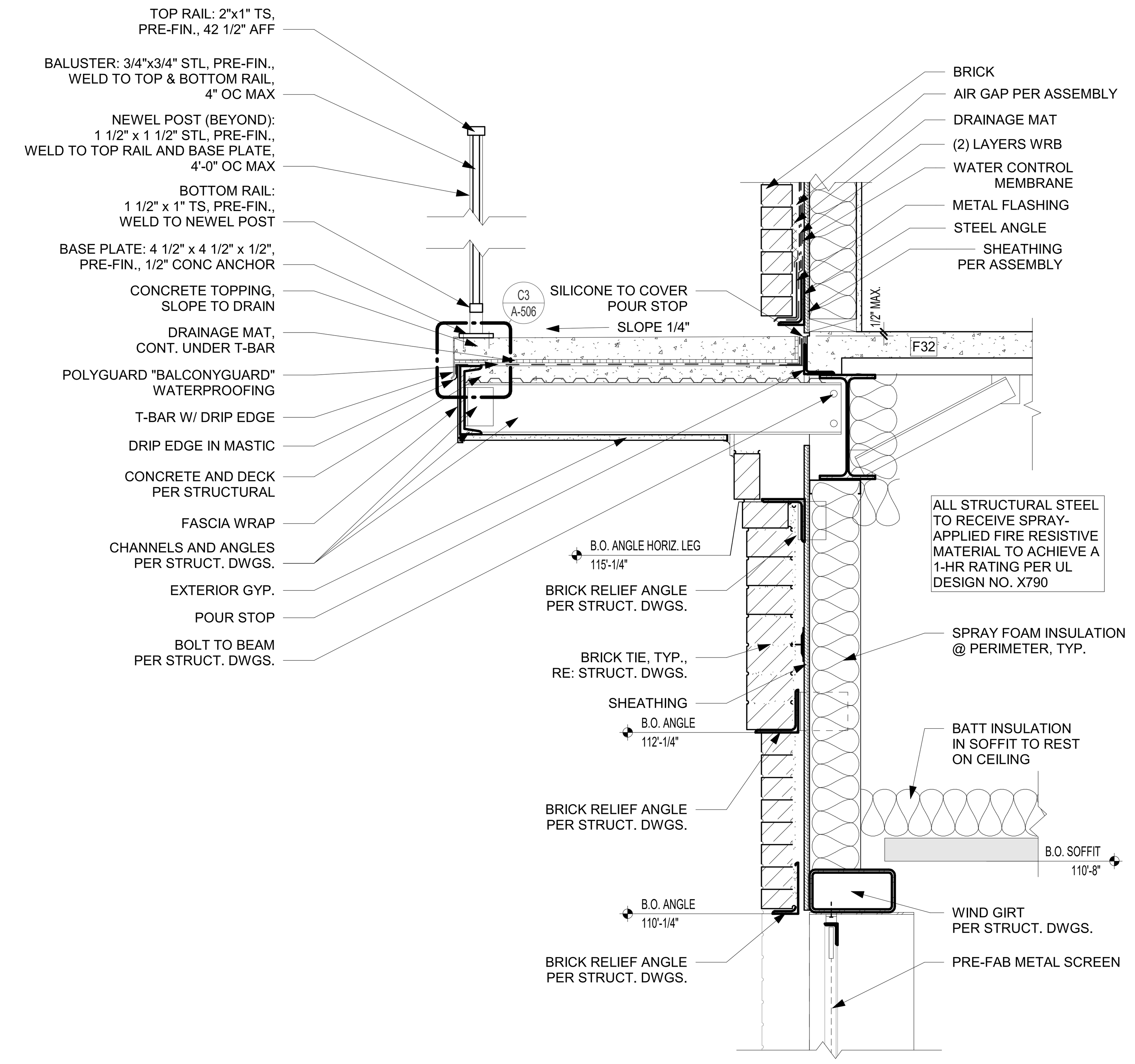
B2 PARAPET CAP @ BRICK
3" = 1'-0"



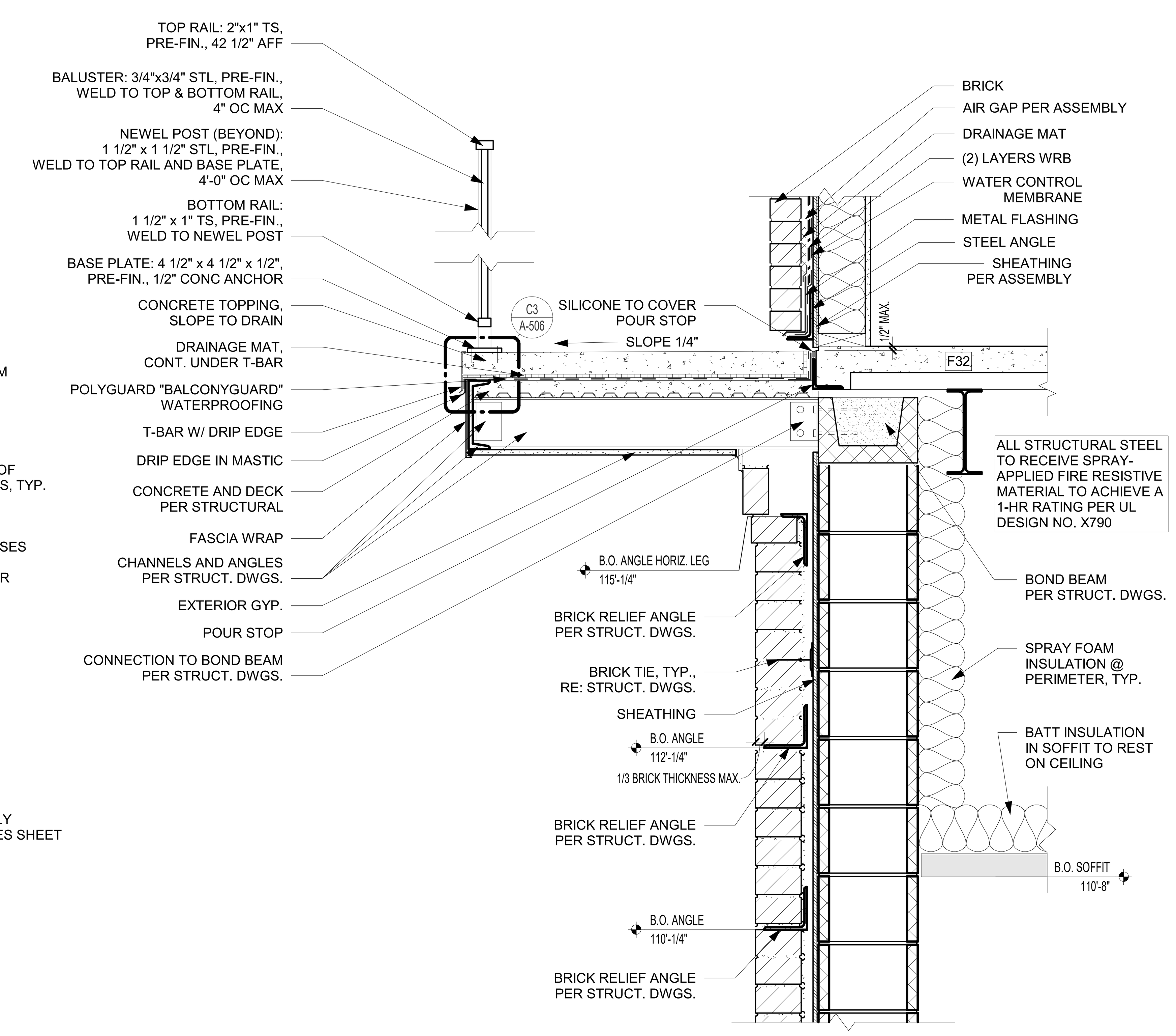
C1 PARAPET (SECTION)
1" = 1'-0"



B1 PARAPET TRUSS
1" = 1'-0"



A2 BALCONY @ GARAGE SETBACK @ SCREEN
1" = 1'-0"



A1 BALCONY @ GARAGE SETBACK @ CMU SHEAR WALL
1" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRICKS
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

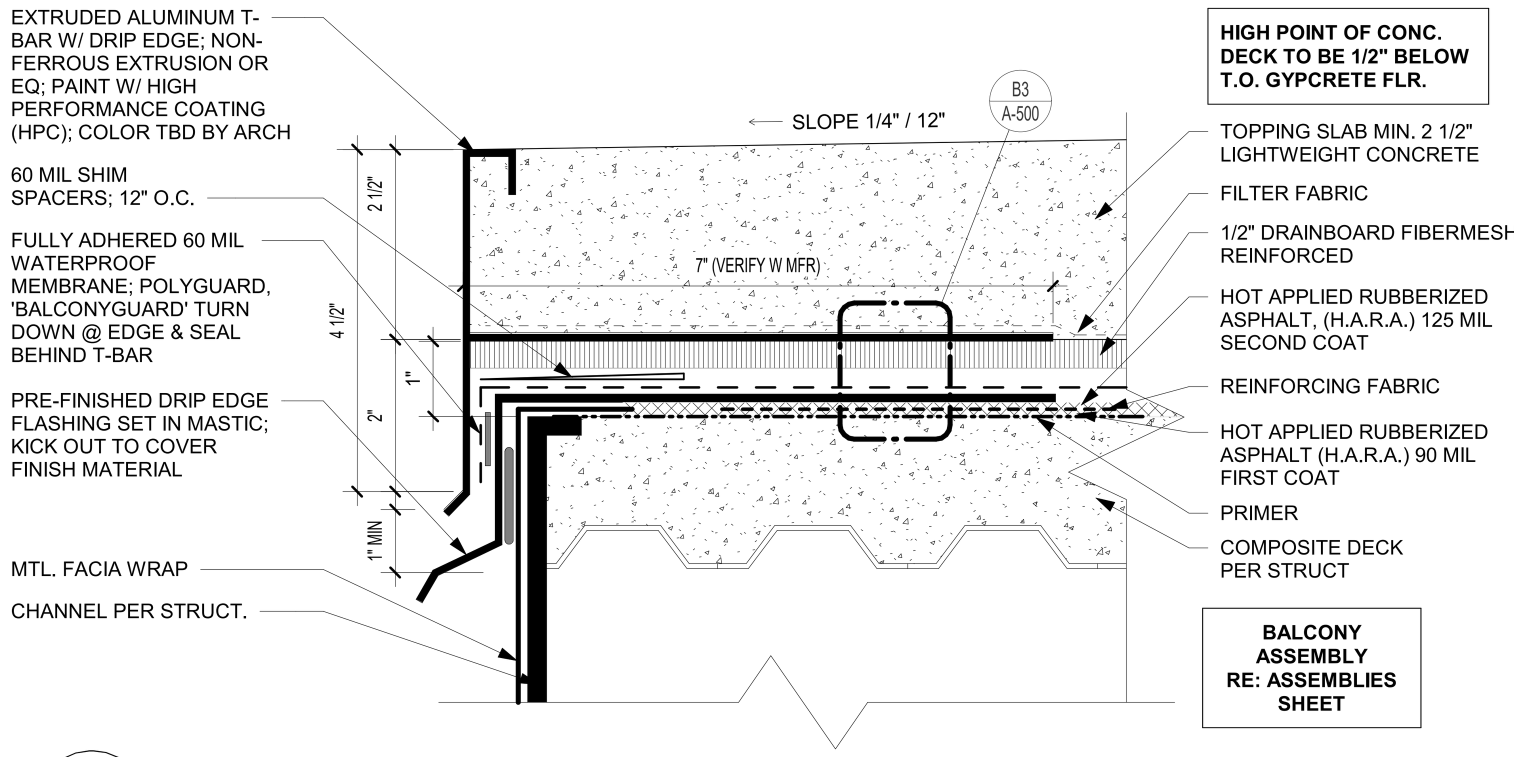
LEE'S SUMMIT, MO

SHEET TITLE
BALCONY & PARAPET DETAILS

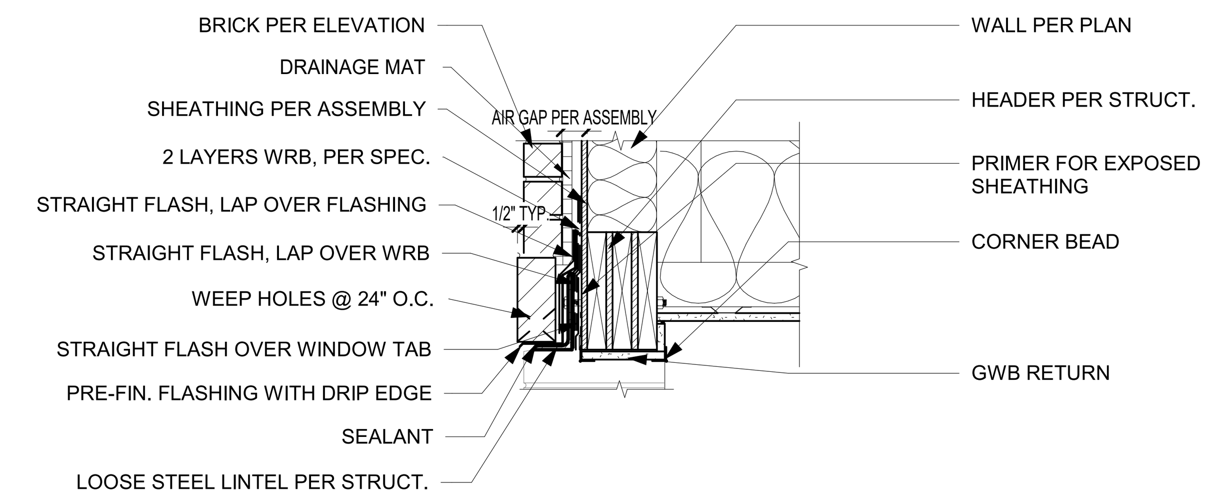
PROJECT NUMBER: 23103

SHEET NUMBER:

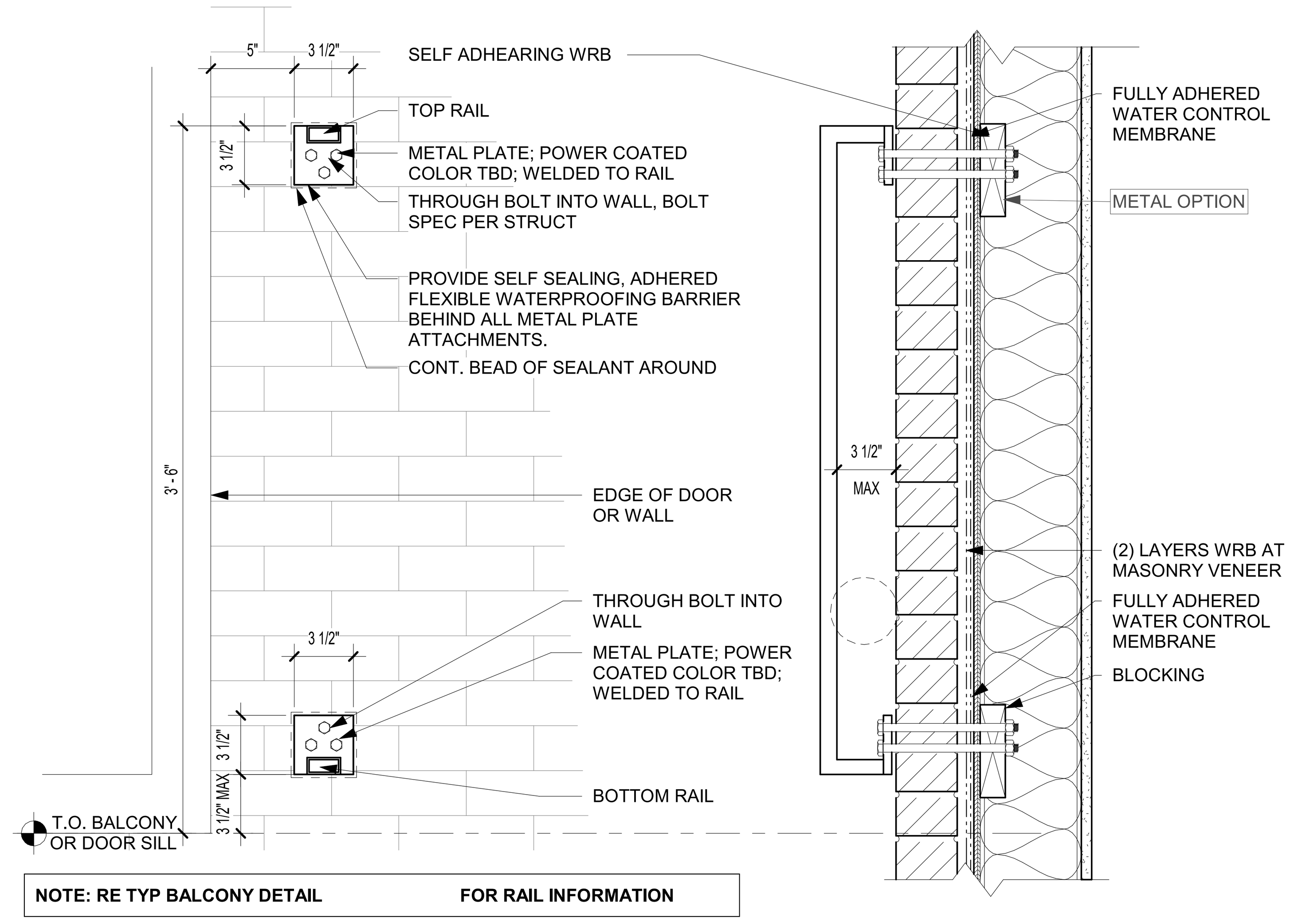
A-505



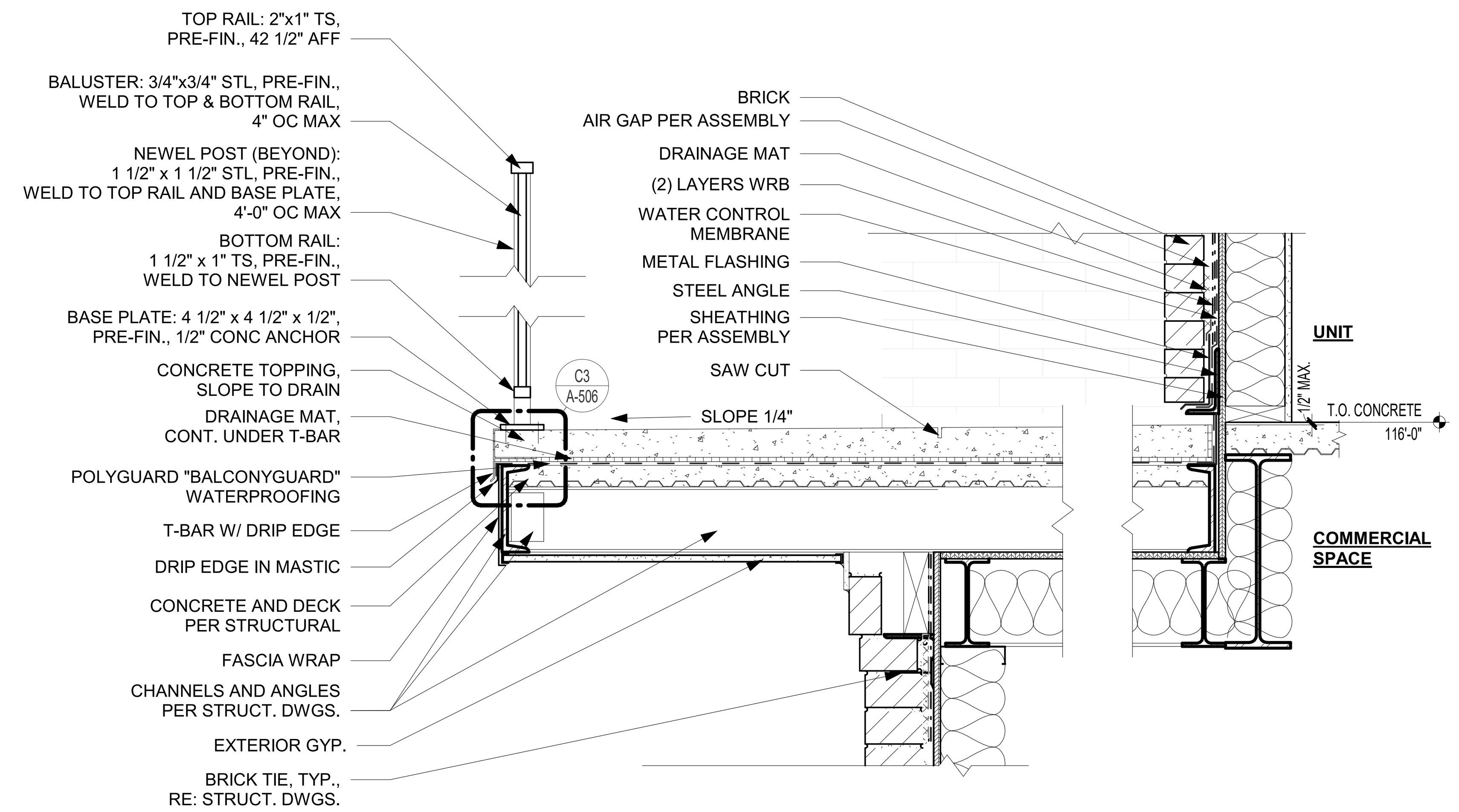
C3 BALCONY DETAIL - T-BAR AND FLASHING
6" = 1'-0"



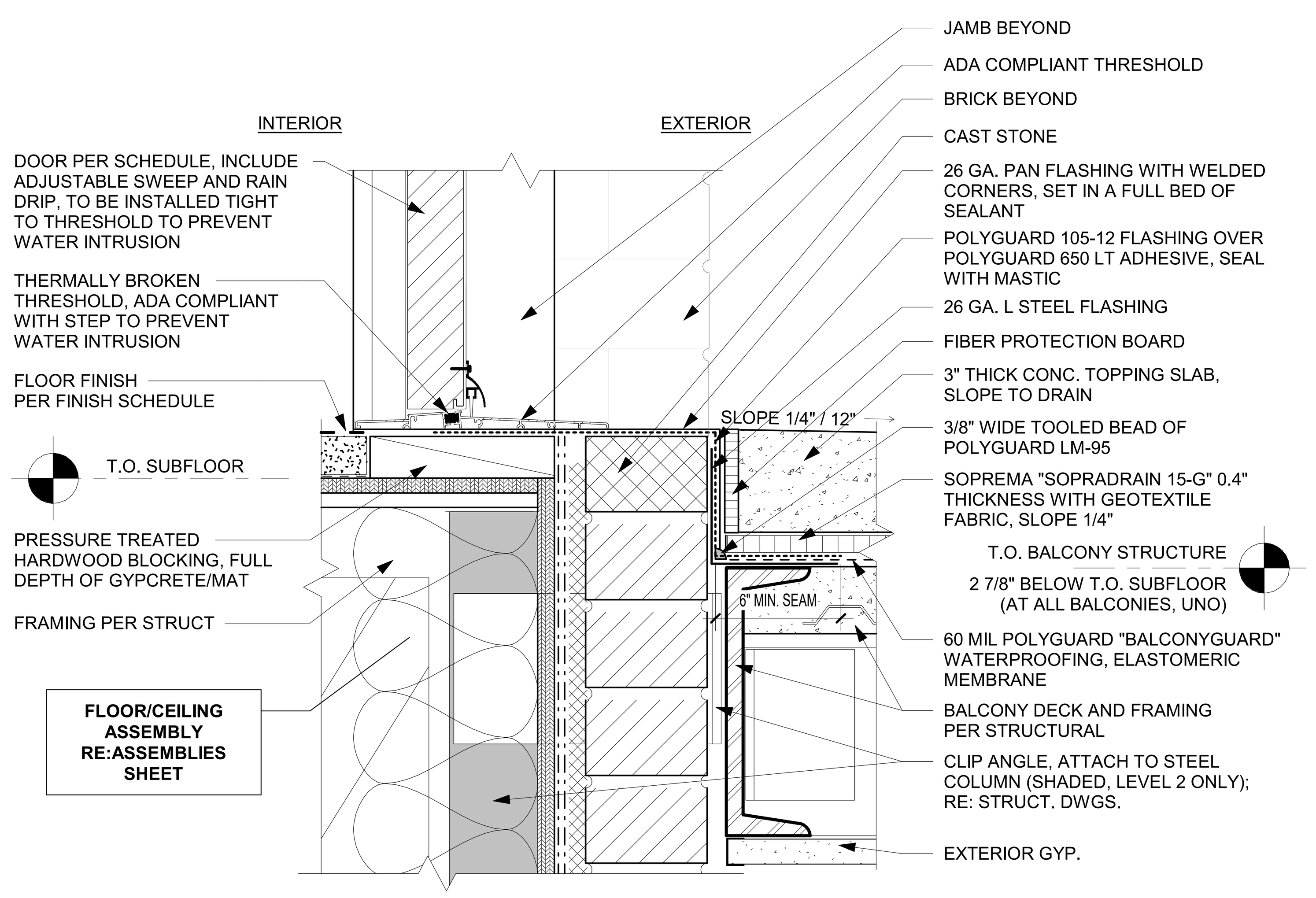
A3 CEILING @ CORNER BALCONY
1" = 1'-0"



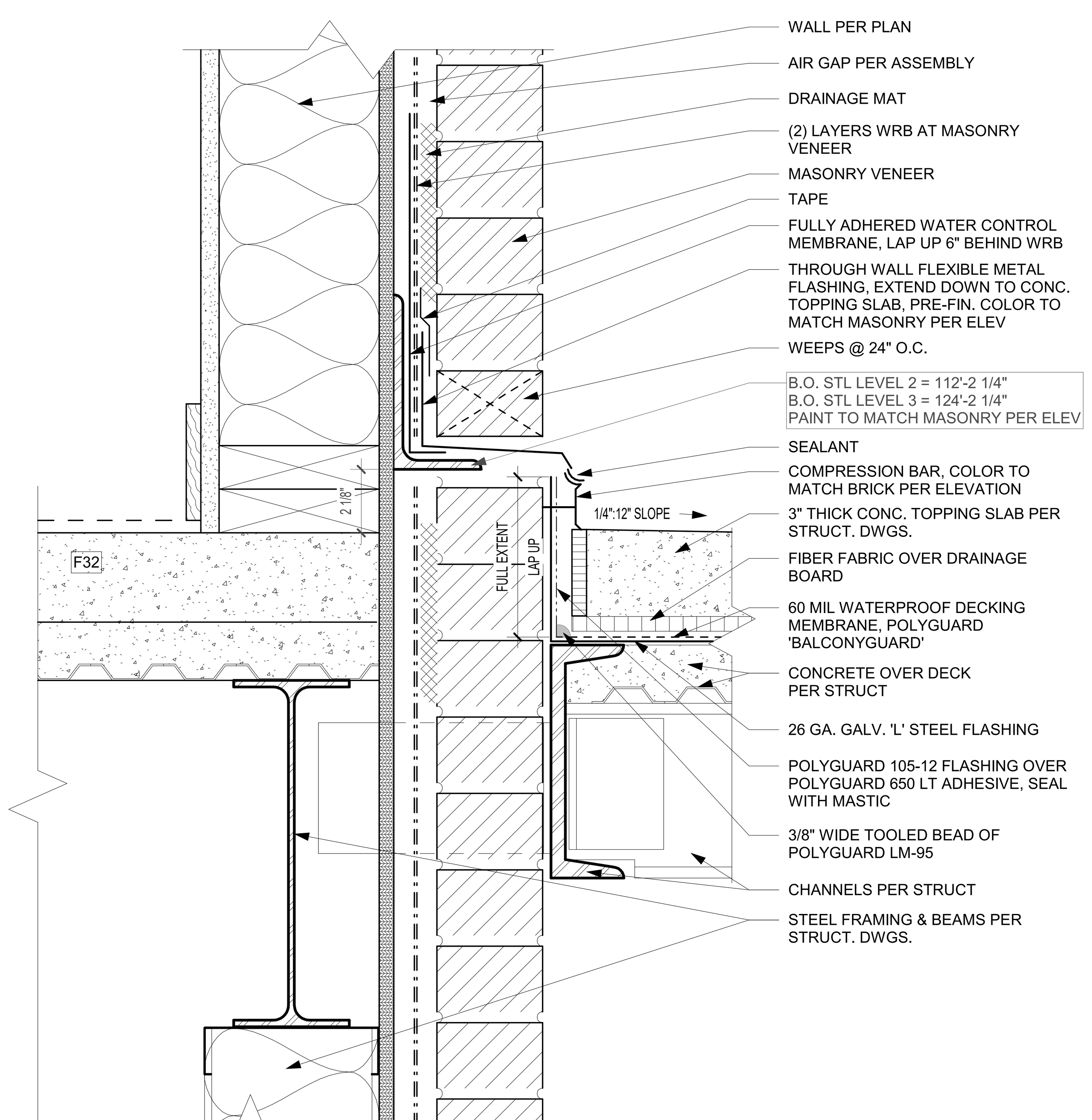
B2 RAILING - CONNECTIONS @ MASONRY VENEER
1 1/2" = 1'-0"



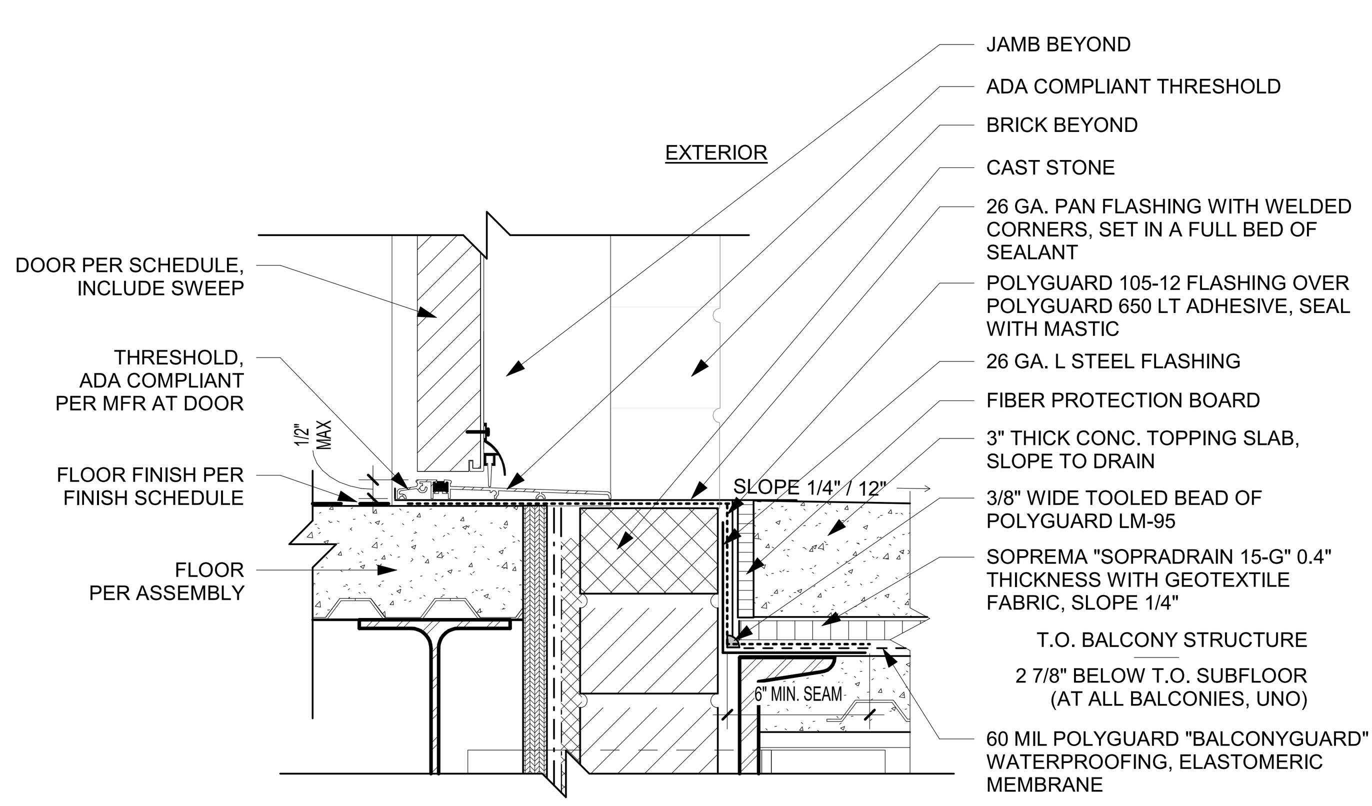
A2 BALCONY @ CORNER OVER RETAIL
1" = 1'-0"



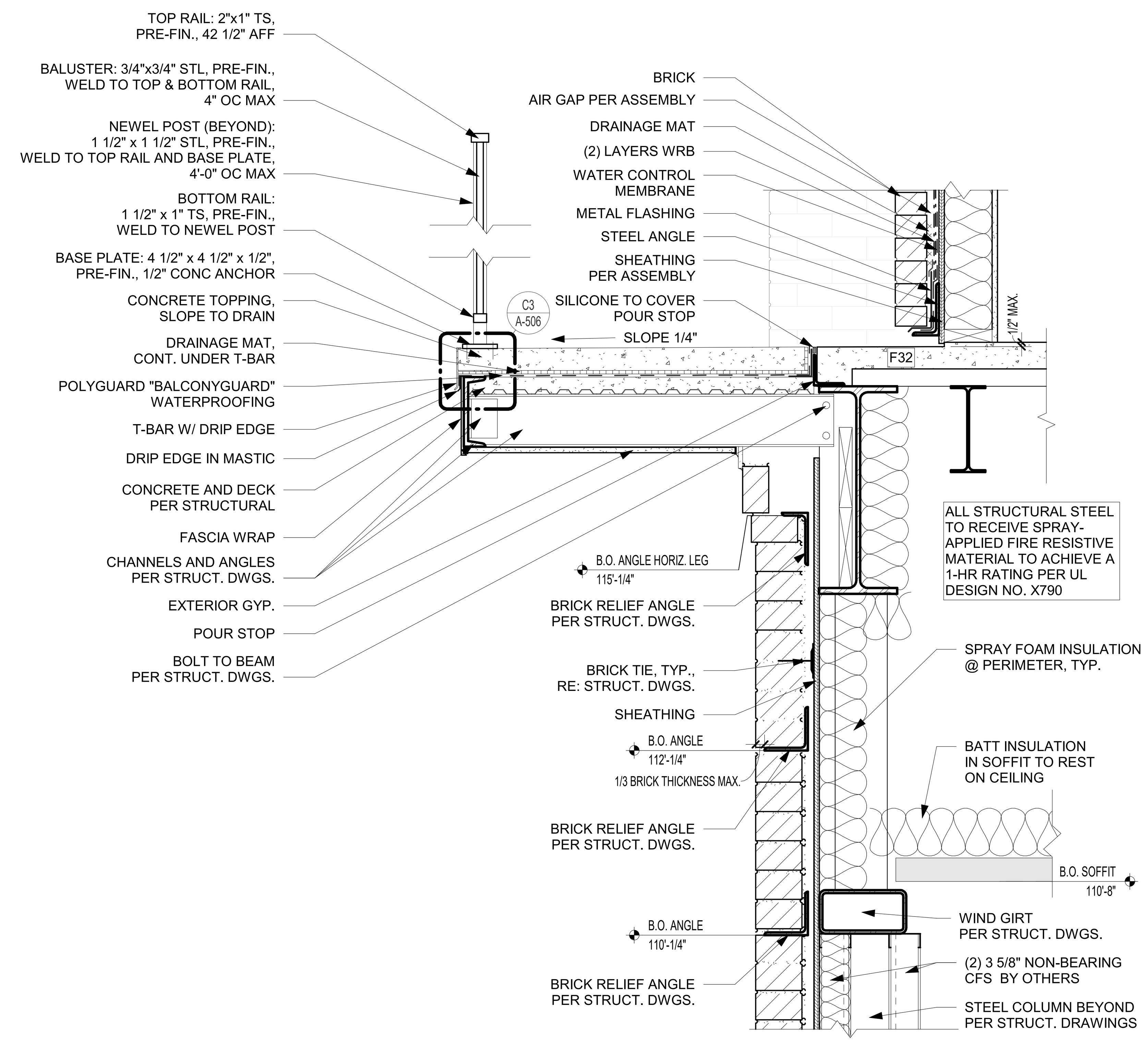
C2 BALCONY THRESHOLD DETAIL @ 3RD FLOOR
3" = 1'-0"



B1 BALCONY @ COMMERCIAL SPACE
3" = 1'-0"



C1 BALCONY THRESHOLD DETAIL @ COMMERCIAL SPACE
3" = 1'-0"



1 BALCONY @ GARAGE SETBACK @ MTL STUD WALLS
1" = 1'-0"

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DAVID EUGENE HENDRICKS
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THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO

SHEET TITLE
BALCONY DETAILS

PROJECT NUMBER: 23103

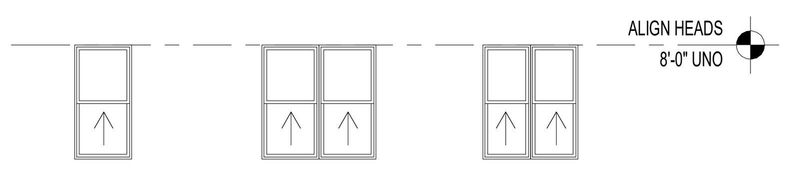
SHEET NUMBER:

A-506

11/12/2024 2:42:02 PM
C:\Revit Local Cache\2023\23103_Lot 7 Apartments_Central_R23_bmichaels\WTJO.rvt

REFERENCE A-602 & A-603 FOR DOOR AND WINDOW DETAILS

WINDOW TYPES



A
SINGLE HUNG
SINGLE

B
SINGLE HUNG
DOUBLE

C
SINGLE HUNG
DOUBLE

WINDOW SCHEDULE			
Type Mark	Width	Height	Comments
A	3' - 0"	6' - 0"	
B	6' - 0"	6' - 0"	
C	5' - 0"	6' - 0"	
E	6' - 0"	6' - 0"	
F	3' - 0"	6' - 0"	
G	6' - 0"	6' - 0"	
H	6' - 0"	6' - 0"	
I	6' - 0"	6' - 0"	
J	6' - 0"	6' - 0"	

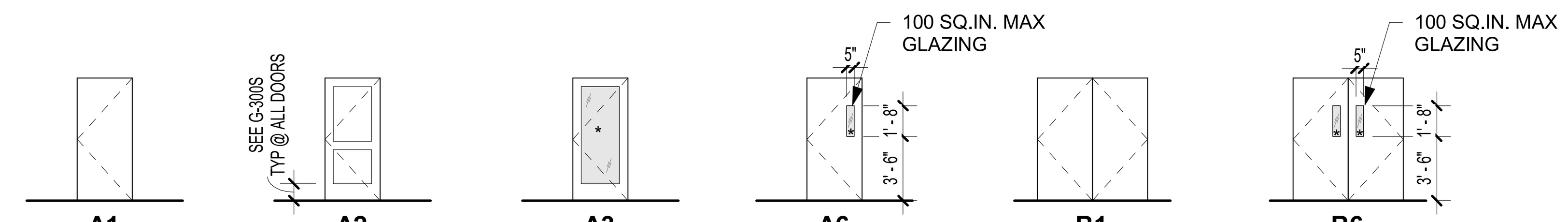
WINDOW COMMENTS:

1. GLAZING DEEMED TO BE IN A HAZARDOUS LOCATION SHALL BE TEMPERED / SAFETY GLAZING.
2. EACH PANE OF SAFETY GLAZING INSTALLED IN HAZARDOUS LOCATIONS SHALL BE IDENTIFIED BY MFR'S DESIGNATION.
3. CONFIRM OPERATION OF SASH LOCKS AT "TYPE A" UNITS WILL BE WITHIN 48" REQUIRED REACH RANGE PER A4 / G-300
4. ALL WINDOWS IN PUBLIC SPACES SHALL RECEIVE TRIM PER XX / XX
5. SEE XX / XX FOR EXTERIOR WINDOW & DOOR TRIM
6. REFER TO CODE SHEET FOR ALL FIRE RATINGS
7. WINDOWS ON AND ABOVE SECOND FLOOR MUST HAVE WINDOW LIMITERS PER
8. WINDOW LOCATIONS PER PLANS
9. OPERABLE PARTS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE OPERABLE PARTS SHALL BE 5.0 POUNDS (22.2 N) MAXIMUM
10. PROVIDE WINDOW OPENING CONTROL DEVICES (WOCDs) THAT COMPLY WITH ASTM F2090
11. WINDOW HEADERS TO ALIGN WITH ADJACENT DOOR HEADERS; UNO

DOOR COMMENTS:

1. BOTTOM RAIL TO BE MINIMUM 10" TO ALLOW FOR A 10" KICK PLATE; TYPICALLY ALL DOORS.
2. ALL DOORS TO BE 1-3/4" THICK, UNO.
3. 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.
4. DOOR HARDWARE SHALL NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING, OR TWISTING OF THE WRIST TO OPERATE.
5. ALL DOOR HARDWARE TO BE LEVER TYPE HARDWARE, UNO.
6. DOOR HARDWARE TO BE CENTERED ON RAIL OF PANEL DOORS.
7. DOOR FRAMES TO BE FINISHED PER SCHEDULE.
8. TOPS AND BOTTOMS OF ALL HOLLOW METAL DOORS EXPOSED TO WEATHER TO BE PATINED.
9. VERIFY KEYING SCHEDULE WITH OWNER. ALL KEYS TO BE GIVEN TO OWNER AT SUBSTANTIAL COMPLETION.
10. ALL COMMON AREA RATED DOORS TO HAVE SMOKE SEALS (GASKETS), CLOSURES, AND LATCH HARDWARE.
11. UNIT ENTRY DOORS TO HAVE SPRING HINGES & LATCH HARDWARE, TYP UNO.
12. ALL DOORS INTENDED FOR PASSAGE TO HAVE 32" MIN. CLEAR WIDTH PER ICC ANSI A117.1

DOOR TYPES - COMMON AREA DOORS



A1
SINGLE SWING
FLUSH

A2
SINGLE SWING
PANEL

A3
SINGLE SWING
FULL LITE

A6
SINGLE SWING
FLUSH
w/ VISION PANEL

B1
DOUBLE SWING
FLUSH

B6
DOUBLE SWING
FLUSH
w/ VISION PANEL

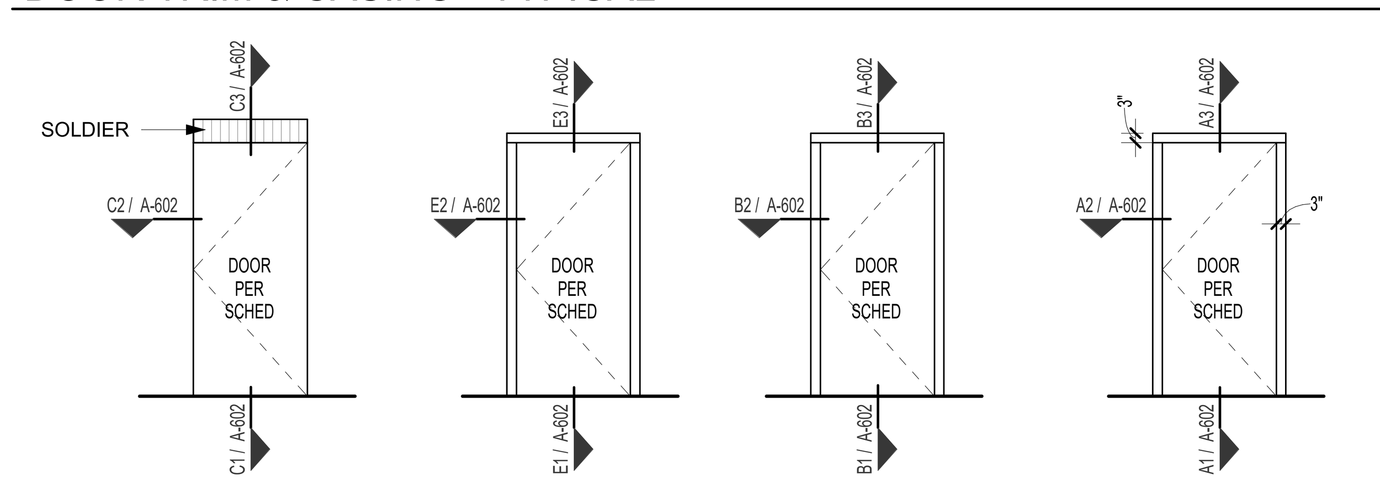
DOOR SCHEDULE ABBREVIATIONS:

ALUM	ALUMINUM	**FGL / FBG**	FIBERGLASS	**N/A**	NOT APPLICABLE	**STL**	NOT APPLICABLE
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 - COMMON AREA DOORS.

Mark	Width	Height	Thickness	Fire Rating (Minutes)	Access Control (AC)	Door Type	Door Material	Door Finish	Frame Type	Frame Finish	Comments
T.O. 1st FLOOR SLAB											
102	3' - 0"	8' - 0"	1 3/4"		01	A3	ALUM	PRE-FIN	ALUM	PRE-FIN	
1002A	3' - 0"	8' - 0"	1 3/4"		02	A3	ALUM	PRE-FIN	ALUM	PRE-FIN	
1002B	3' - 0"	8' - 0"	1 3/4"		02	A3	ALUM	PRE-FIN	ALUM	PRE-FIN	
1002C	6' - 0"	6' - 8"	1 3/4"	45	03	B2	HM	PTD	HM	PTD	
1002D	3' - 0"	6' - 8"	1 3/4"	90	03	A1	HM	PTD	STEEL	PTD	
1003	3' - 0"	6' - 8"	1 3/4"	45	03	A1	HM	PTD	HM	PTD	
1004	3' - 0"	8' - 0"	1 3/4"		04	A1	HM	PTD	HM	PTD	
1005	3' - 0"	6' - 8"	1 3/4"	45	03	A1	HM	PTD	HM	PTD	ADDED IN ADDENDUM #1
1006	3' - 0"	6' - 8"	1 3/4"	45	03	A1	HM	PTD	HM	PTD	ADDED IN ADDENDUM #1
S1-1	3' - 0"	7' - 0"	1 3/4"		02	B7	ALUM	PRE-FIN	ALUM	PRE-FIN	
S2-1	3' - 0"	7' - 0"	1 3/4"		02	B7	ALUM	PRE-FIN	ALUM	PRE-FIN	
T.O. CONCRETE SLAB											
2000	3' - 0"	6' - 8"	1 3/4"	45	03	A2	HM	PTD	HM	PTD	
2001	3' - 0"	6' - 8"	1 3/4"	45	03	A2	HM	PTD	HM	PTD	
2003	3' - 0"	6' - 8"	1 3/4"	45	03	A1	HM	PTD	HM	PTD	
C1-2	6' - 0"	7' - 0"	1 3/4"	90	06	B6	HM	PTD	HM	PTD	DUAL EGRESS DOORS ON MAGNETIC HOLD-OPENS
S1-2	3' - 0"	6' - 8"	1 3/4"	60	05	A6	HM	PTD	HM	PTD	
S2-2	3' - 0"	6' - 8"	1 3/4"	60	05	A6	HM	PTD	HM	PTD	
T.O. 3rd GYPCRETE											
3000	3' - 0"	6' - 8"	1 3/4"	45	03	A2	HM	PTD	HM	PTD	
3001	3' - 0"	6' - 8"	1 3/4"	45	03	A2	HM	PTD	HM	PTD	
3003	3' - 0"	6' - 8"	1 3/4"	45	03	A1	HM	PTD	HM	PTD	
C1-3	6' - 0"	7' - 0"	1 3/4"	90	06	B6	HM	PTD	HM	PTD	DUAL EGRESS DOORS ON MAGNETIC HOLD-OPENS
S1-3	3' - 0"	6' - 8"	1 3/4"	60	05	A6	HM	PTD	HM	PTD	
S2-3	3' - 0"	6' - 8"	1 3/4"	60	05	A6	HM	PTD	HM	PTD	

DOOR TRIM & CASING - TYPICAL



TYPICAL EXTERIOR DOOR TRIM
(@ BRICK)

TYPICAL INTERIOR DOOR
(@ CMU)

TYPICAL INTERIOR DOOR
(METAL)

TYPICAL INTERIOR DOOR
(WOOD)

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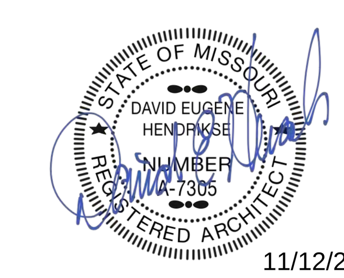


11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

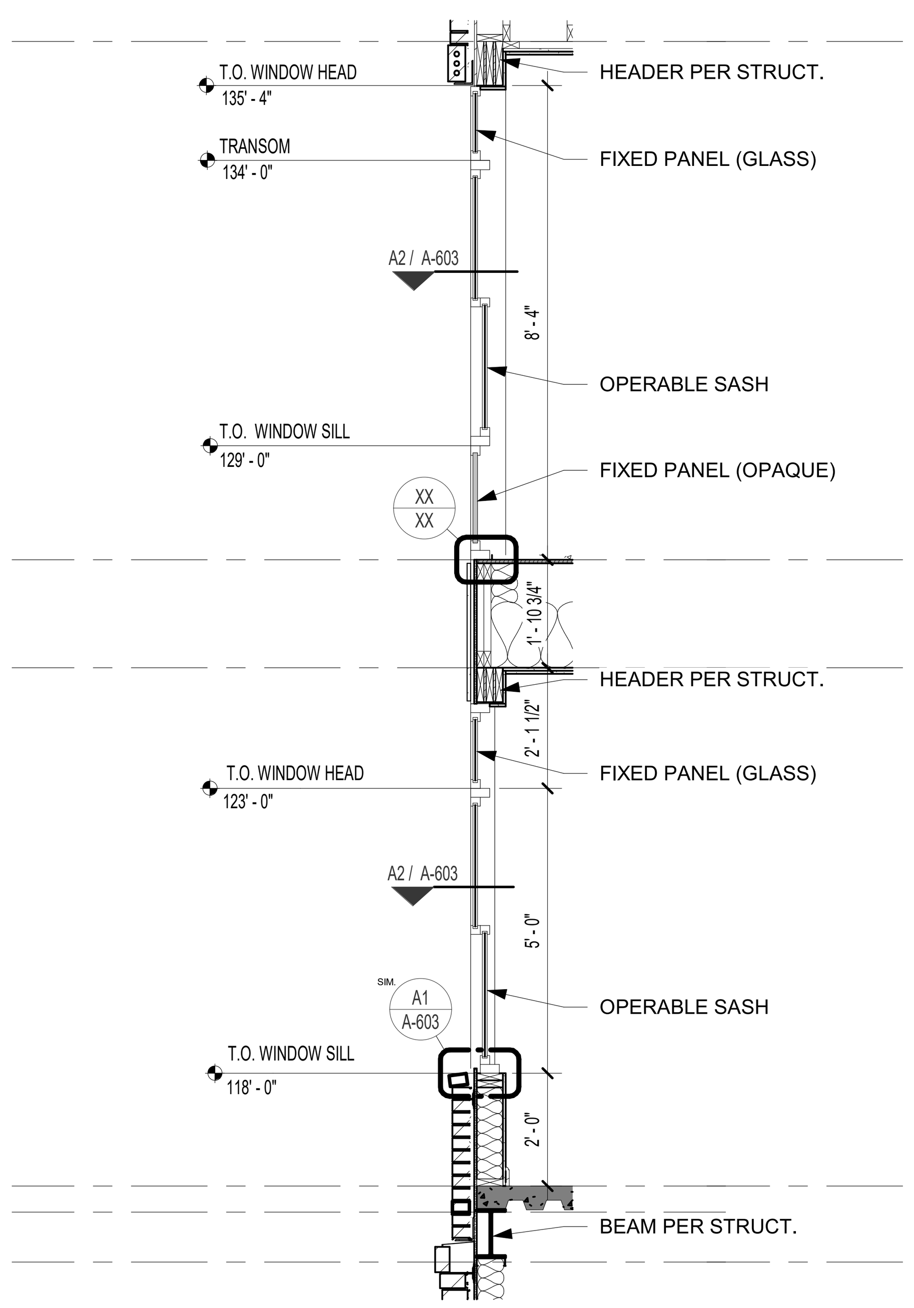
LEE'S SUMMIT, MO

SHEET TITLE
WINDOW AND DOOR SCHEDULES

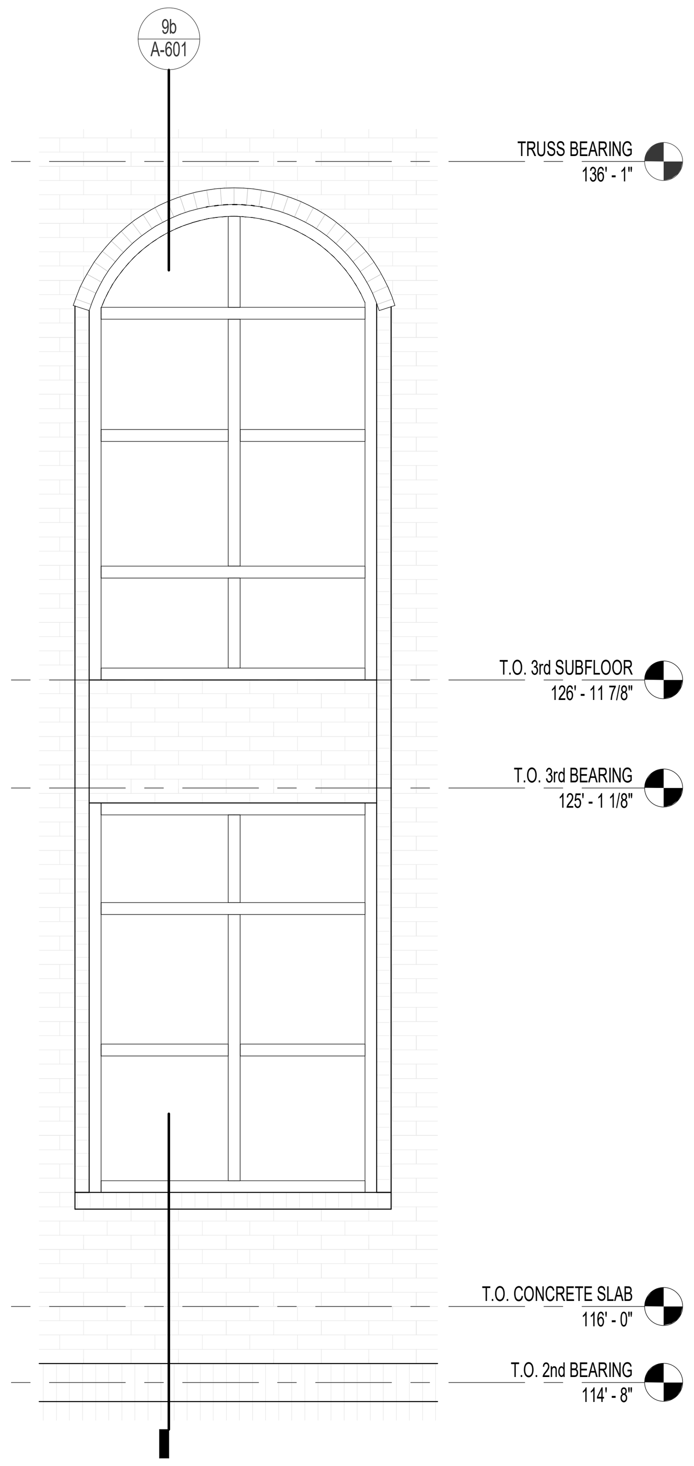
PROJECT NUMBER: 23103

SHEET NUMBER:

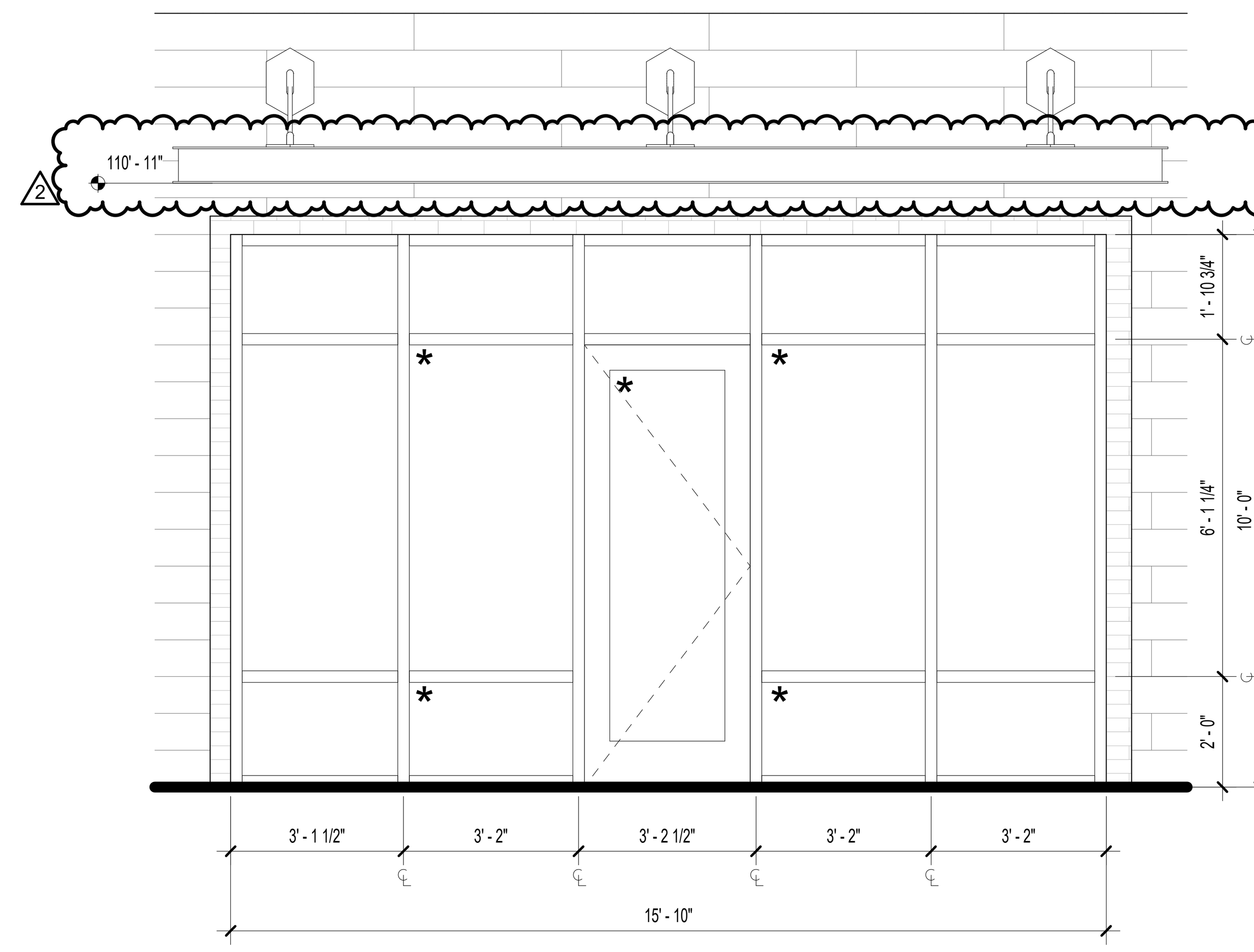
A-600



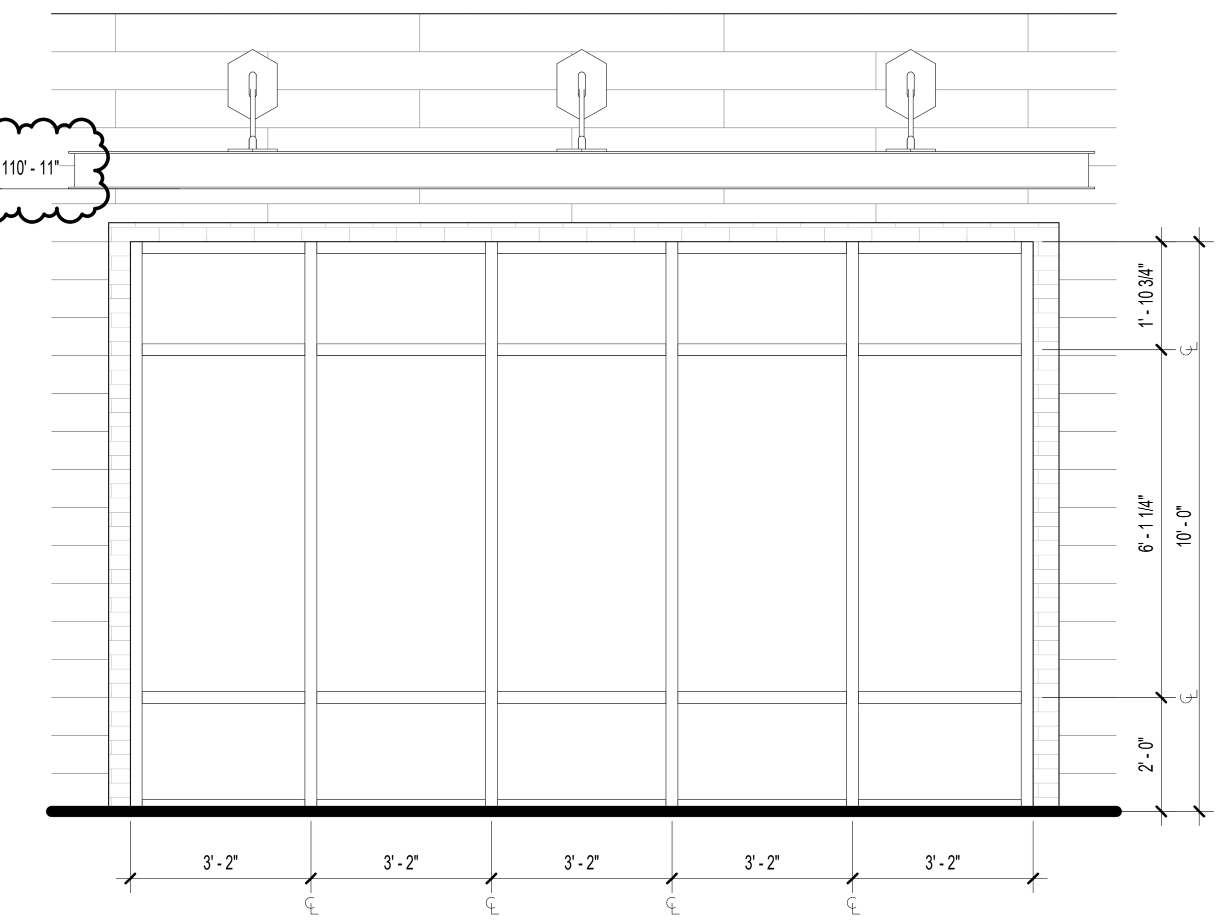
9b SECTION
3/8" = 1'-0"



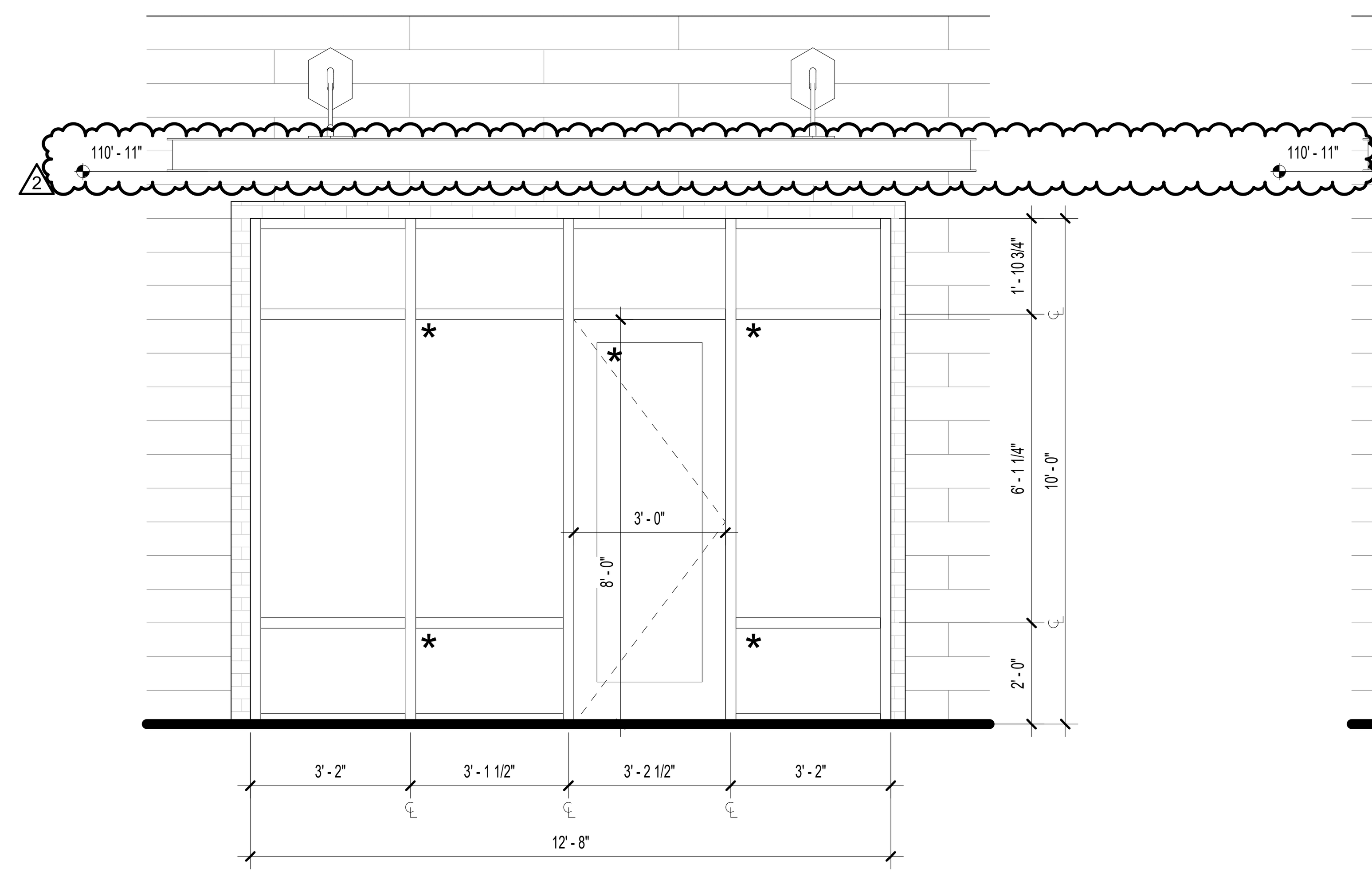
9a SF - UPPER FLOORS (WINDOW C) - ELEVATION
3/8" = 1'-0"



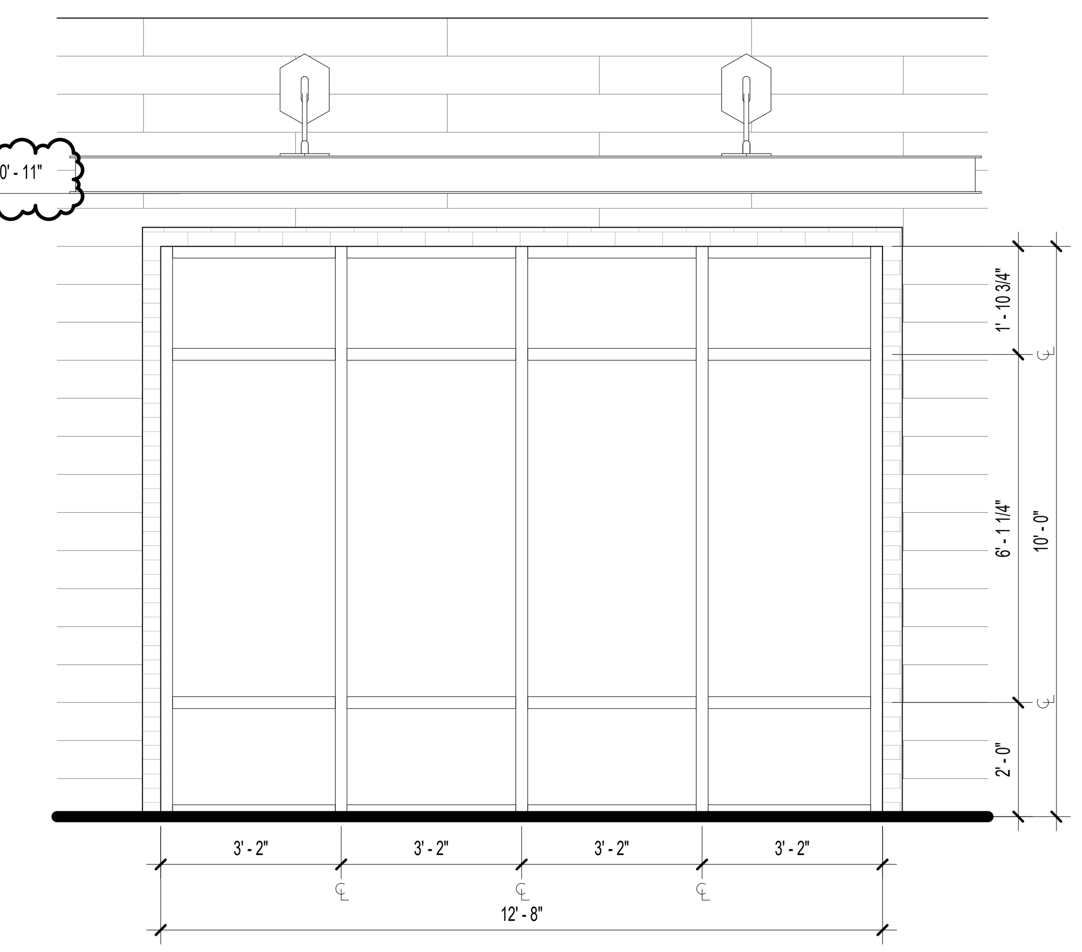
8 SF - 5 PANEL W/ DOOR
3/8" = 1'-0"



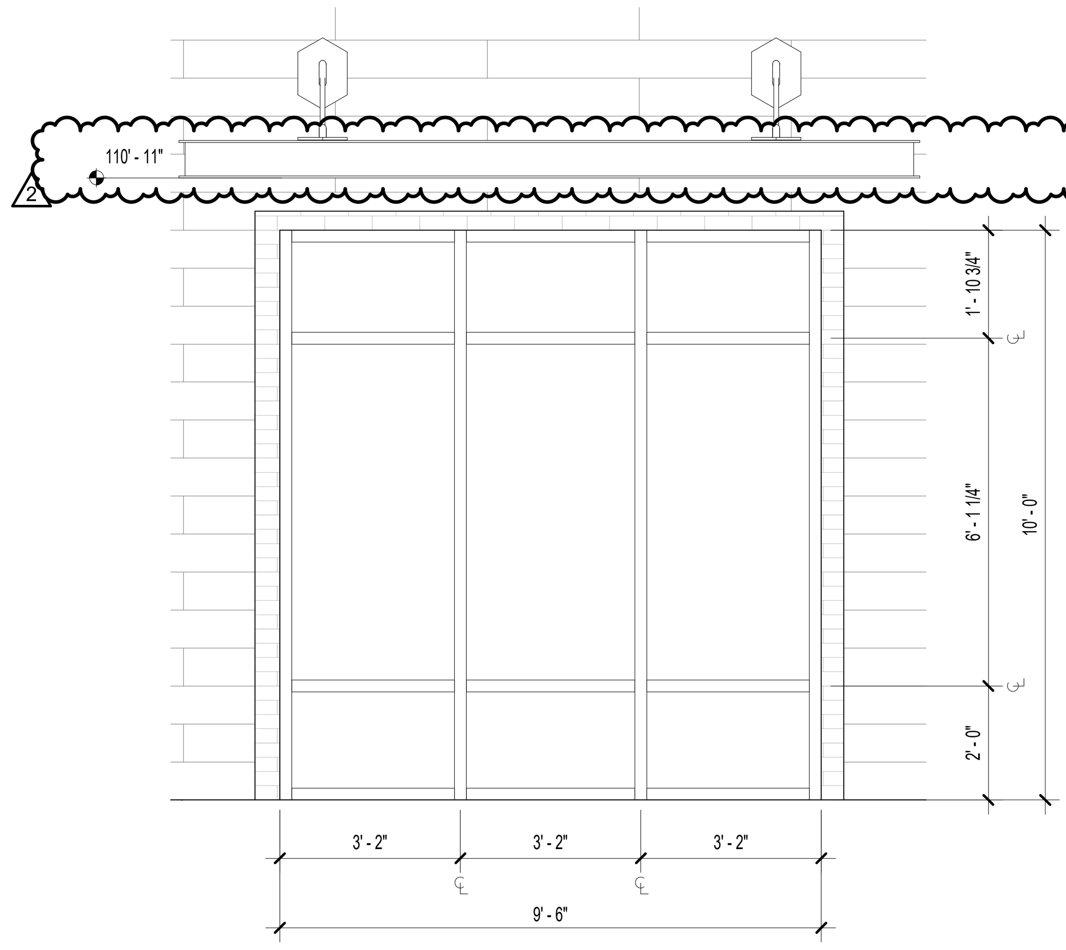
7 SF - 5 PANEL
3/8" = 1'-0"



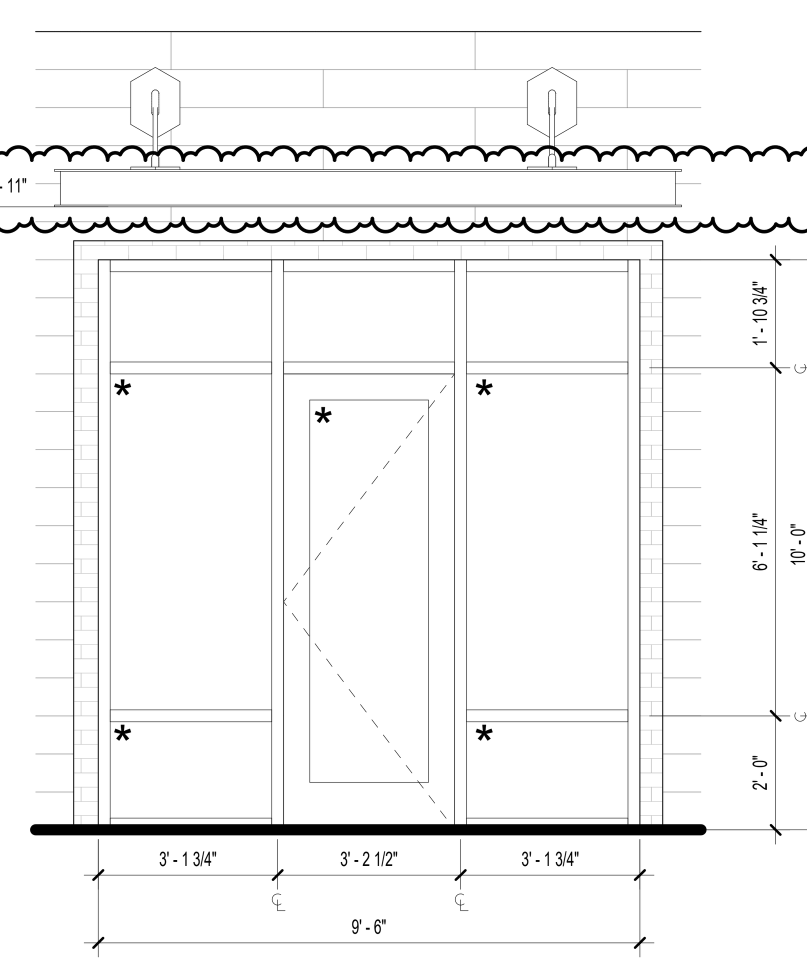
6 SF - 4 PANEL W/ DOOR
3/8" = 1'-0"



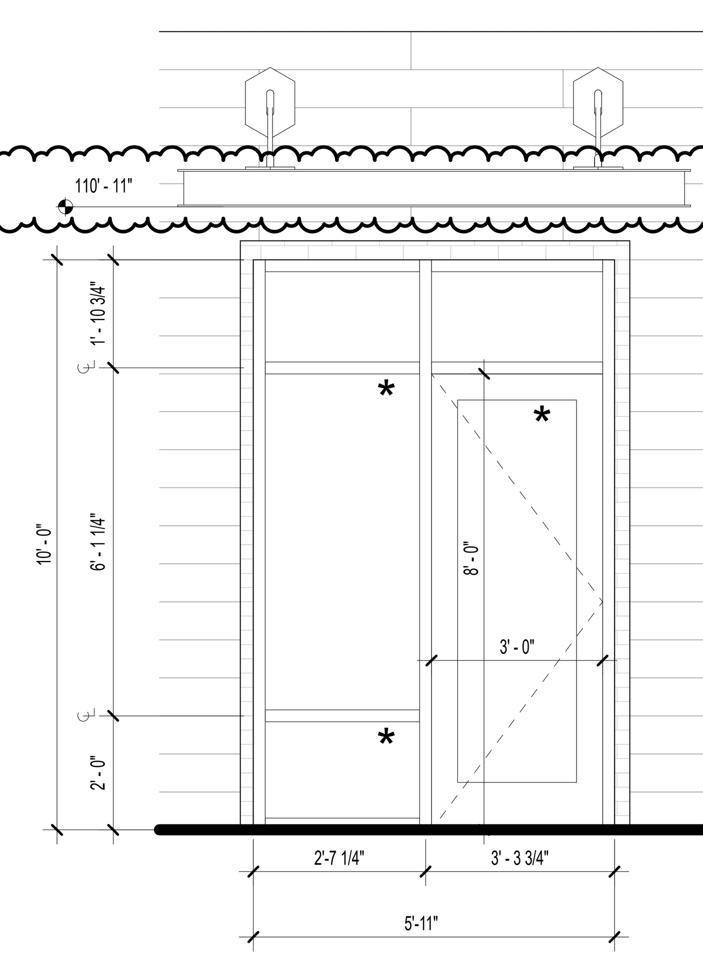
5 SF - 4 PANEL
3/8" = 1'-0"



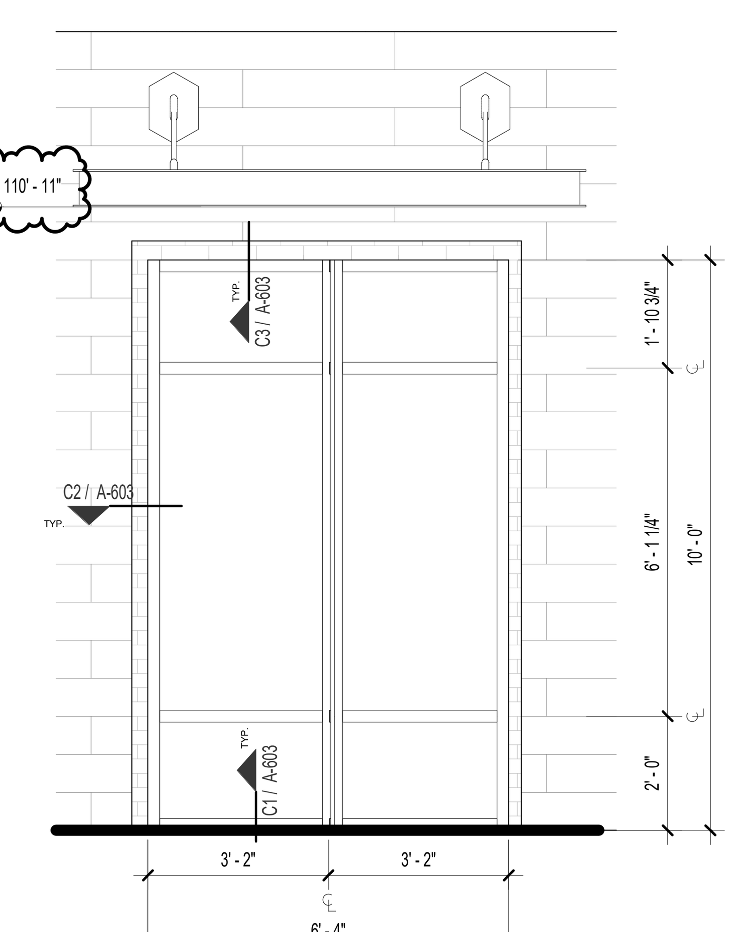
4 SF - 3 PANEL
3/8" = 1'-0"



3 SF - 3 PANEL W/ DOOR
3/8" = 1'-0"



2 SF - 2 PANEL W/ DOOR
3/8" = 1'-0"



1 SF - 2 PANEL
3/8" = 1'-0"

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FOR BID PURPOSES ONLY

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

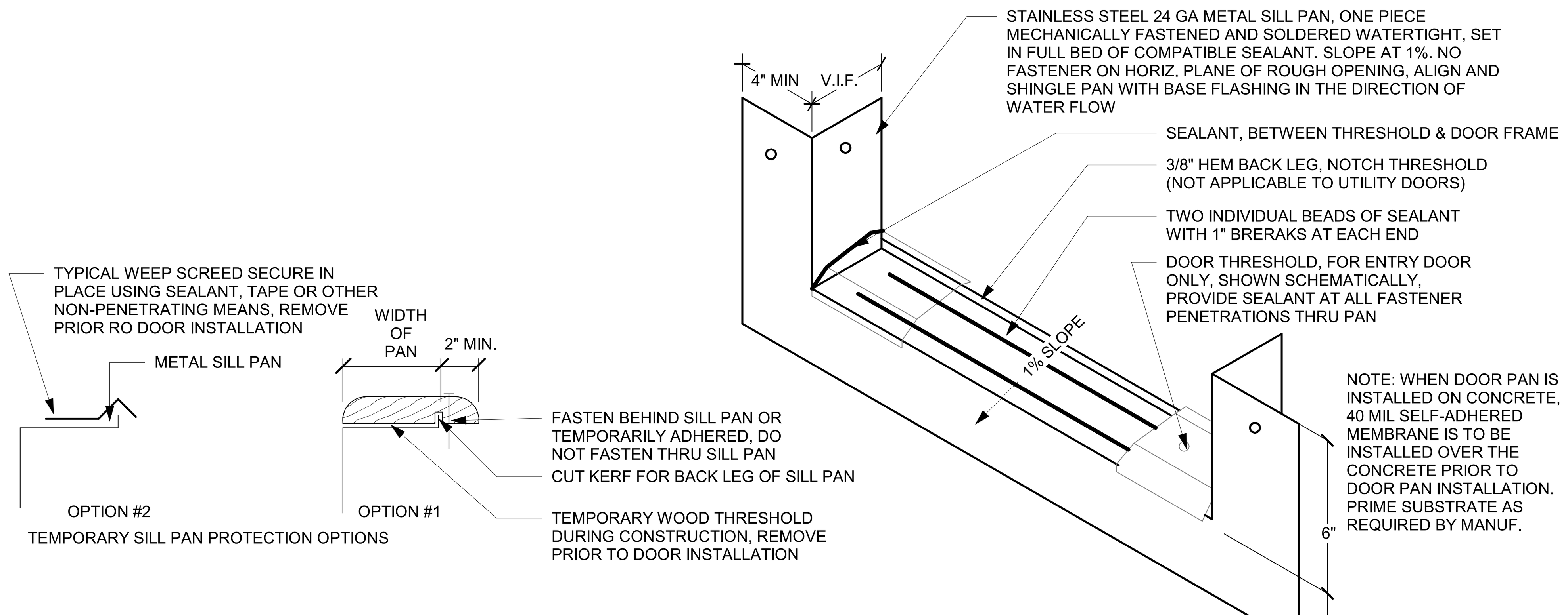
SHEET TITLE
TYPICAL STOREFRONT ELEVATIONS

PROJECT NUMBER: 23103

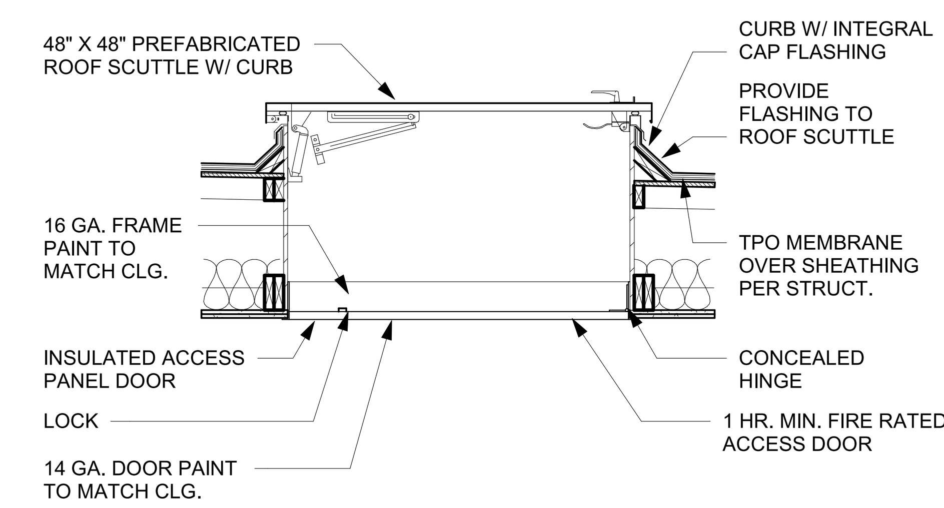
SHEET NUMBER:

A-601

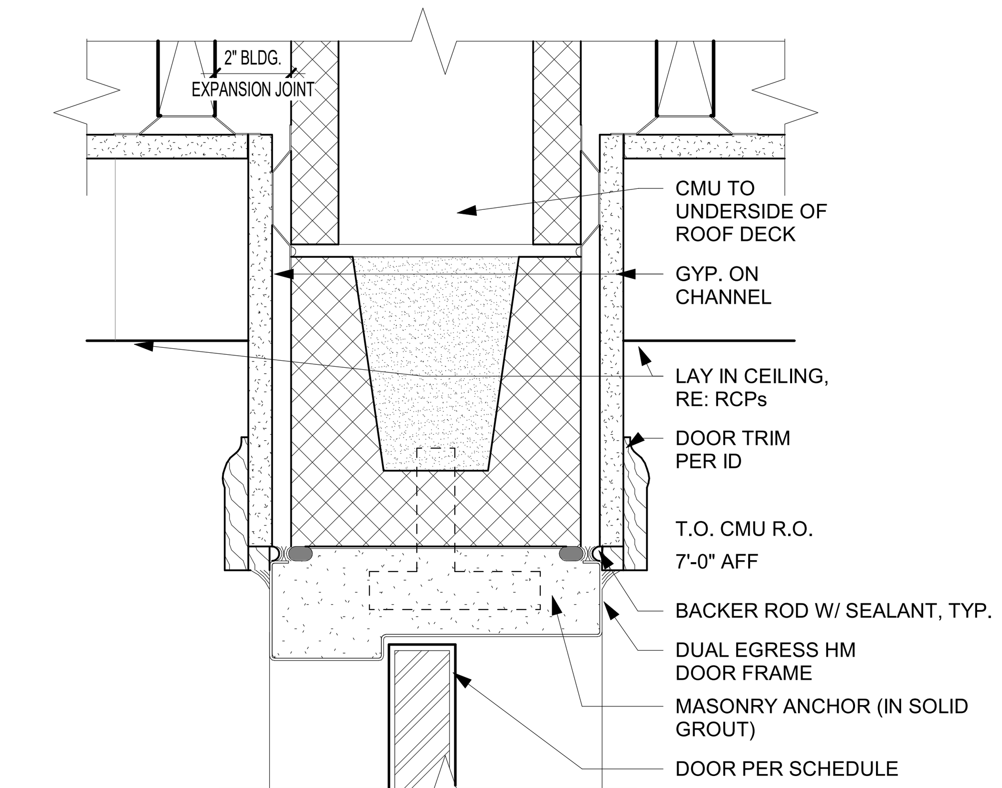
REFERENCE A-602 & A-603 FOR DOOR AND WINDOW DETAILS



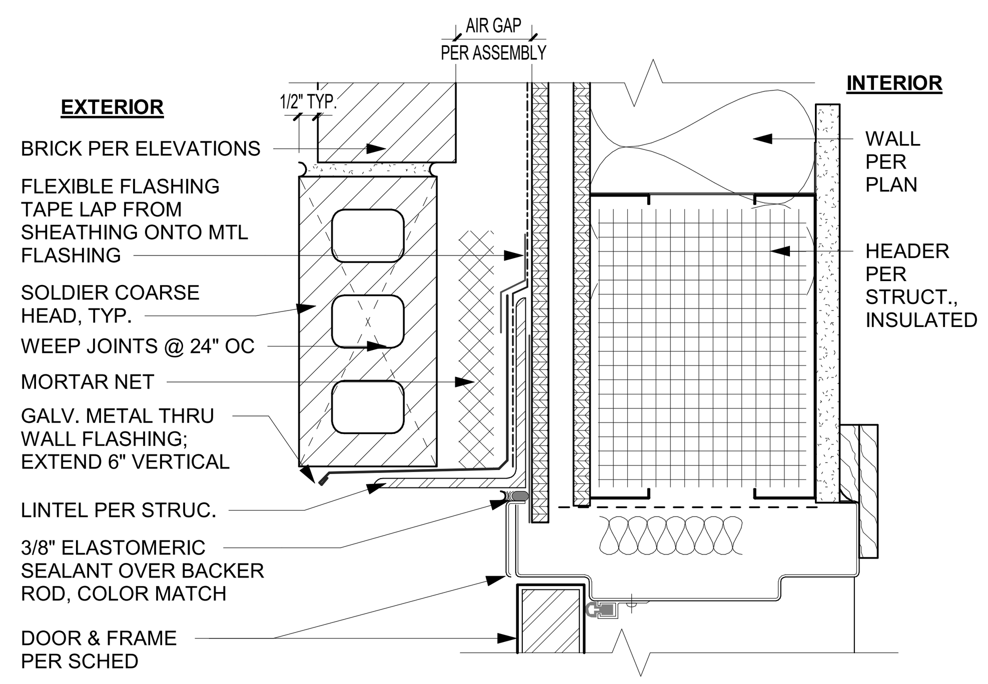
E4 TYPICAL GRADE SILL PAN
1" = 1'-0"



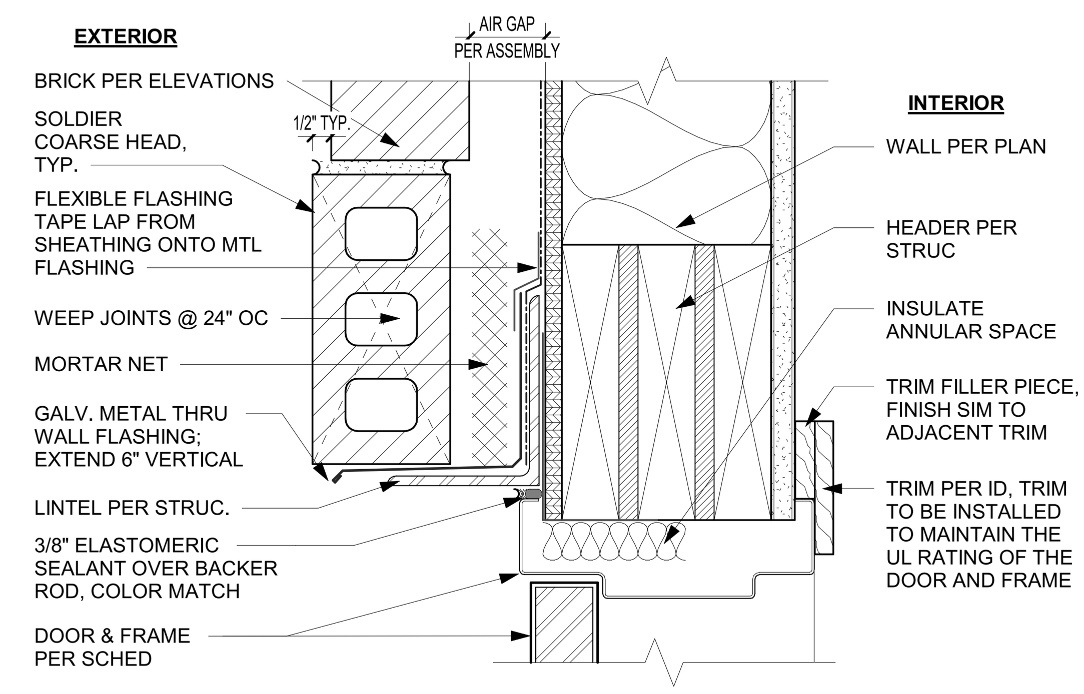
A4 ROOF SCUTTLE
1/2" = 1'-0"



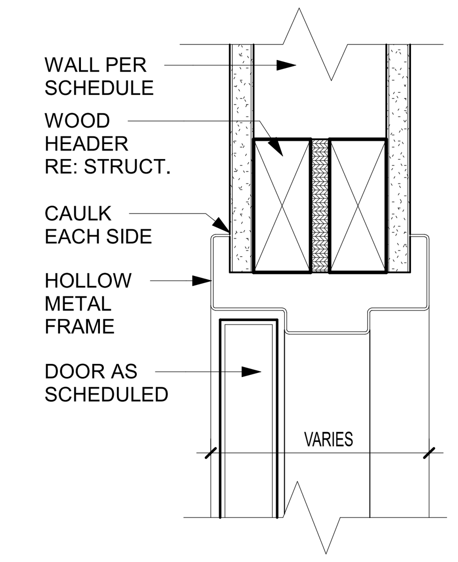
E3 INTERIOR DOOR HEAD - CMU FIREWALL
3" = 1'-0"



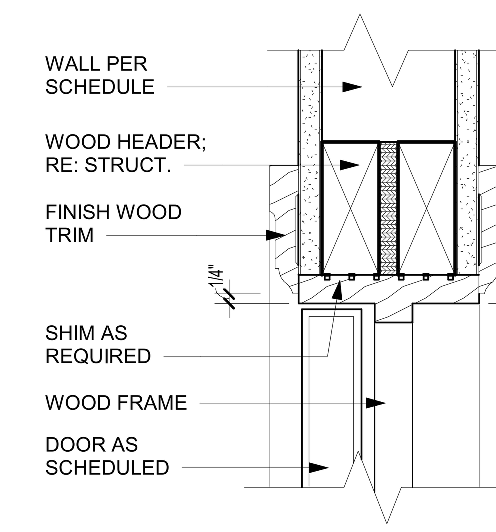
D3 EXTERIOR MTL DOOR HEAD- BRICK
3" = 1'-0"



C3 EXTERIOR DOOR HEAD - BRICK
3" = 1'-0"



B3 INTERIOR DOOR HEAD - METAL
3" = 1'-0"



A3 INTERIOR DOOR HEAD - WOOD
3" = 1'-0"

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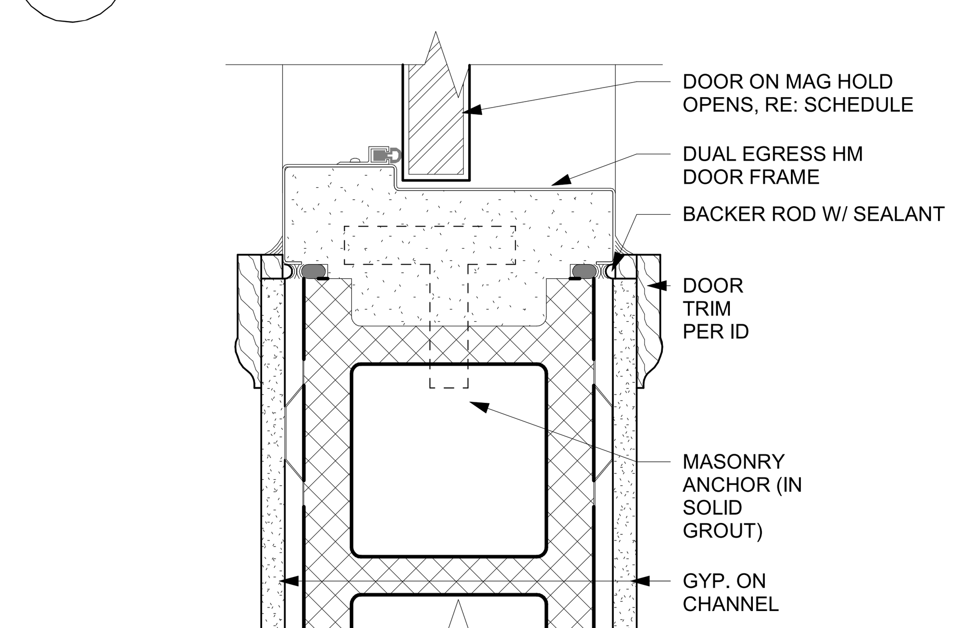
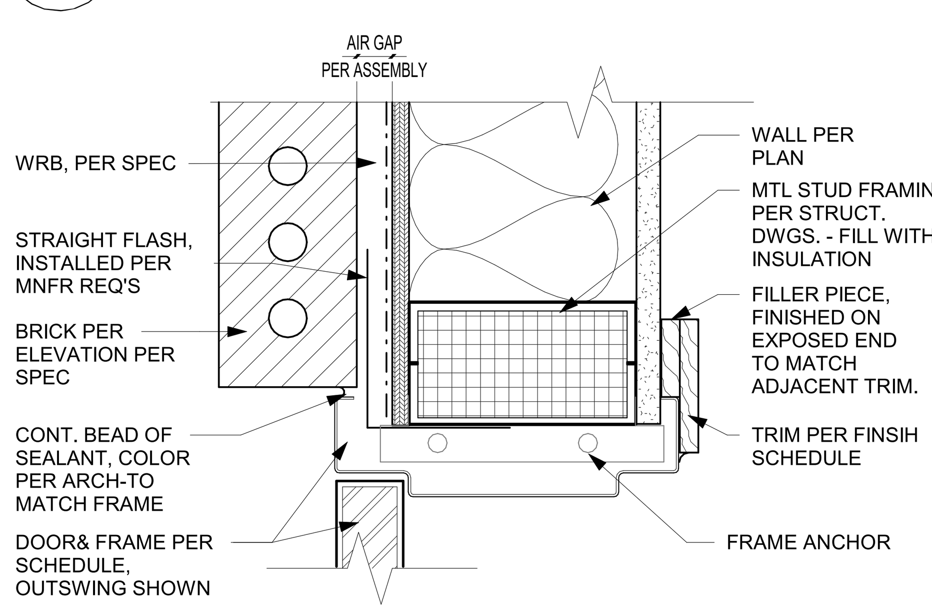
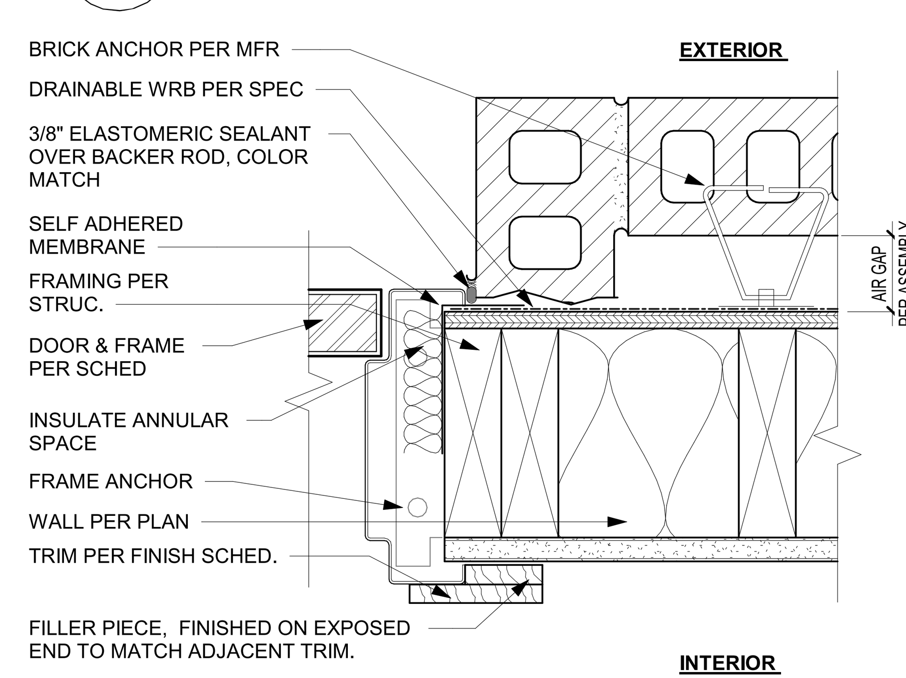


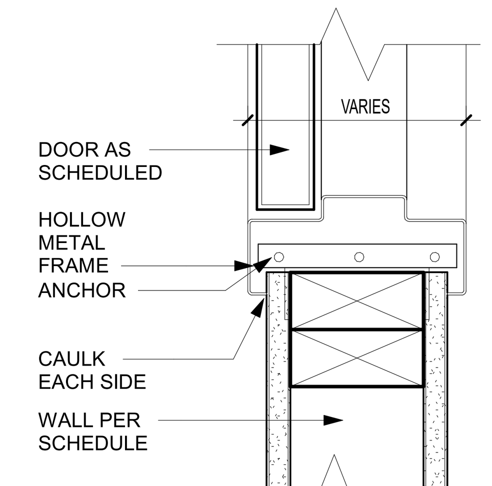
E2 INTERIOR DOOR JAMB - CMU FIREWALL
3" = 1'-0"



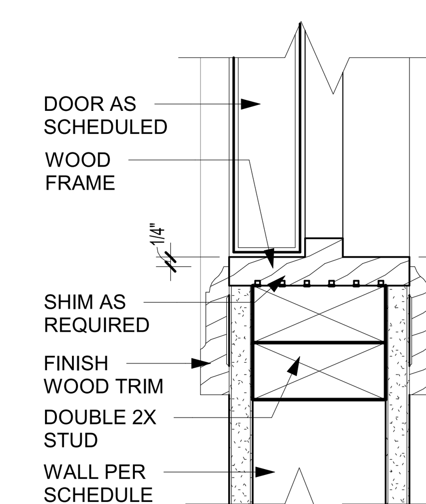
D2 EXTERIOR MTL DOOR JAMB - BRICK
3" = 1'-0"



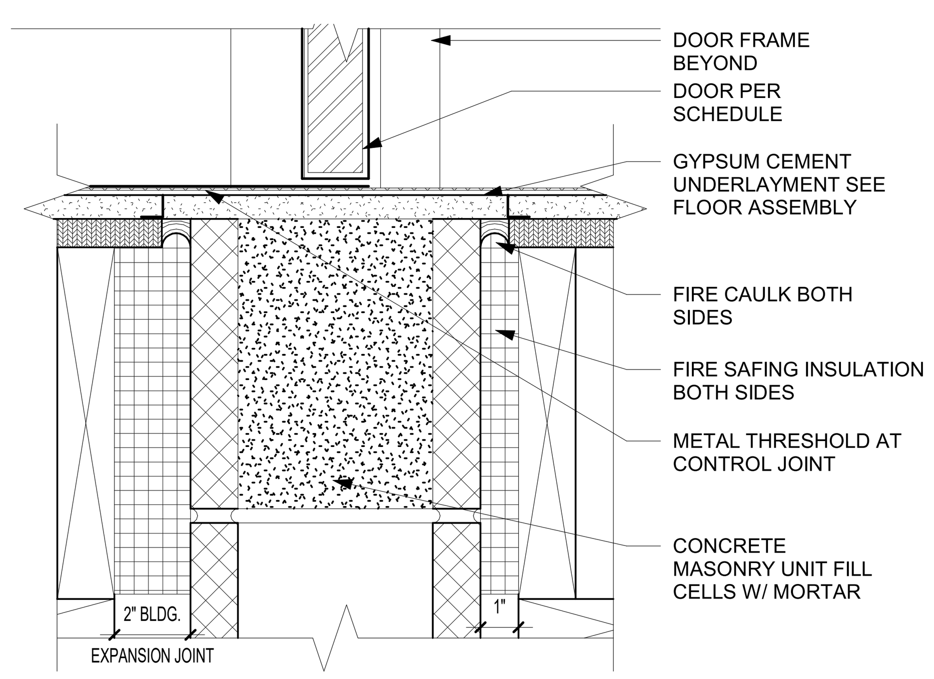
C2 EXTERIOR DOOR JAMB - BRICK
3" = 1'-0"



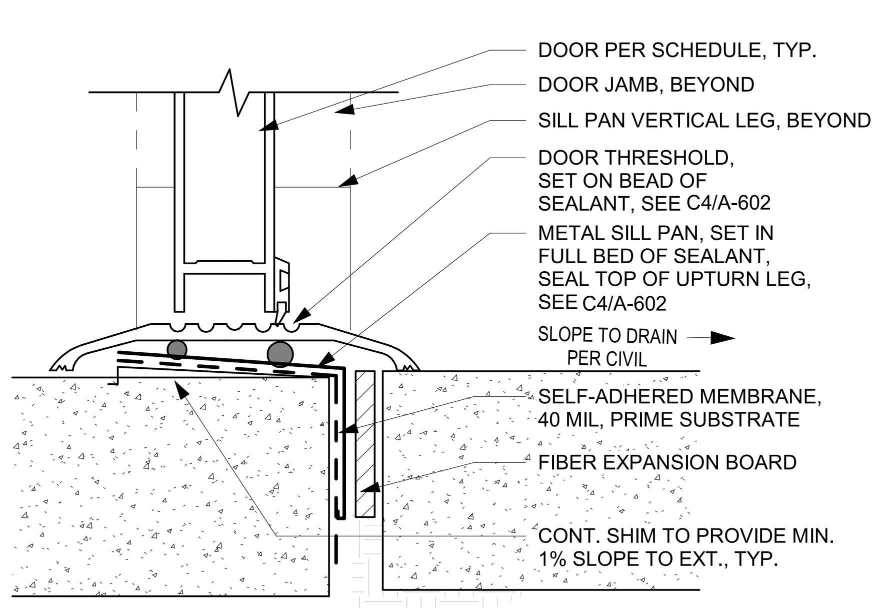
B2 INTERIOR DOOR JAMB - METAL
3" = 1'-0"



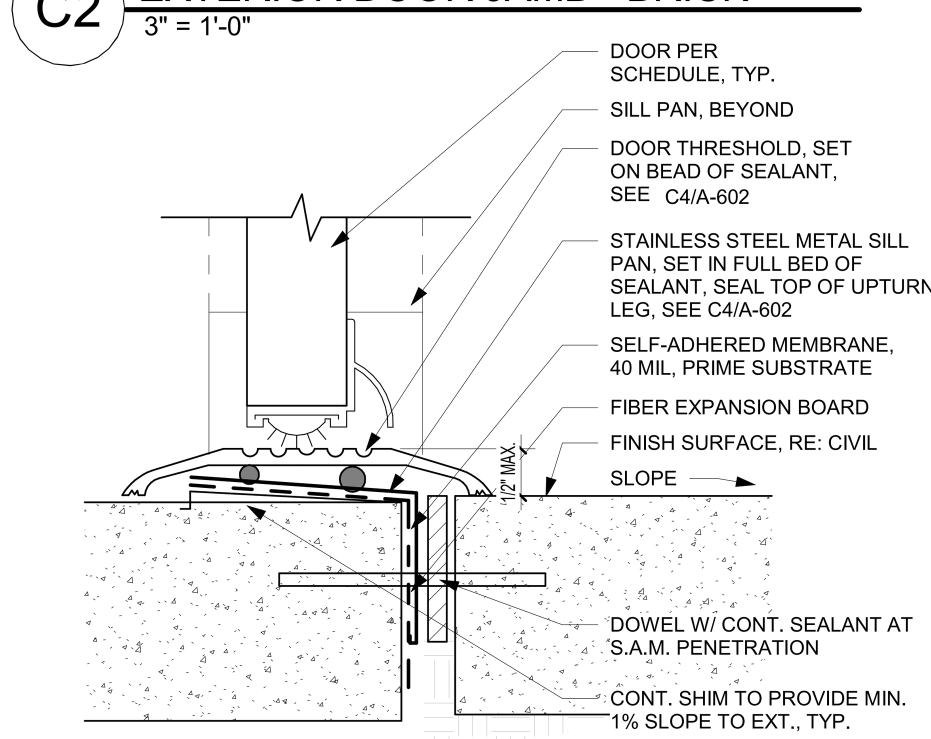
A2 INTERIOR DOOR JAMB - WOOD
3" = 1'-0"



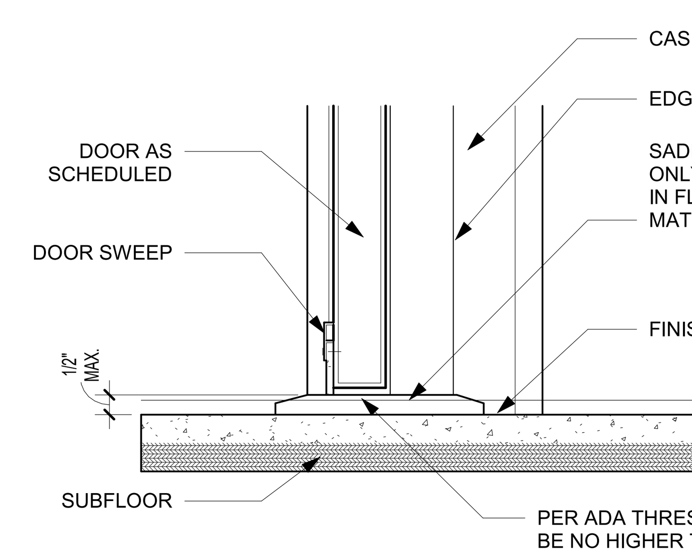
E1 INTERIOR DOOR SILL - CMU THRESHOLD
3" = 1'-0"



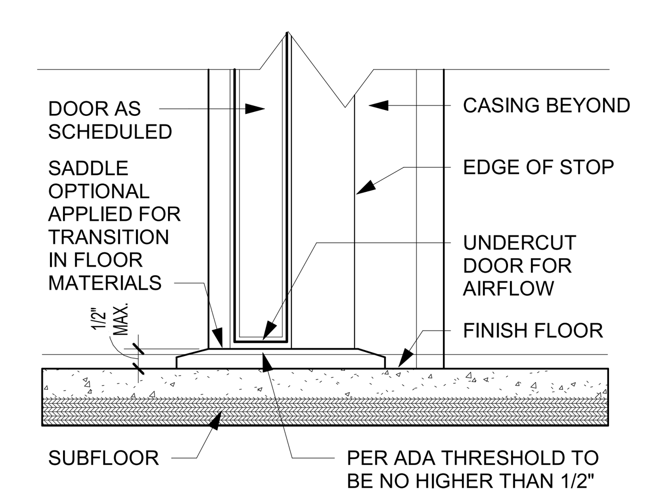
D1 EXTERIOR STOREFRONT DOOR THRESHOLD
1" = 1'-0"



C1 EXTERIOR DOOR THRESHOLD
1" = 1'-0"



B1 INTERIOR RATED DOOR SILL
3" = 1'-0"



A1 INTERIOR DOOR SILL
3" = 1'-0"

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REVISIONS:

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THE VILLAGE AT DISCOVERY - LOT 7
LEE'S SUMMIT, MO

SHEET TITLE
DOOR DETAILS

PROJECT NUMBER: 23103

SHEET NUMBER:

A-602

11/12/2024 2:43:04 PM
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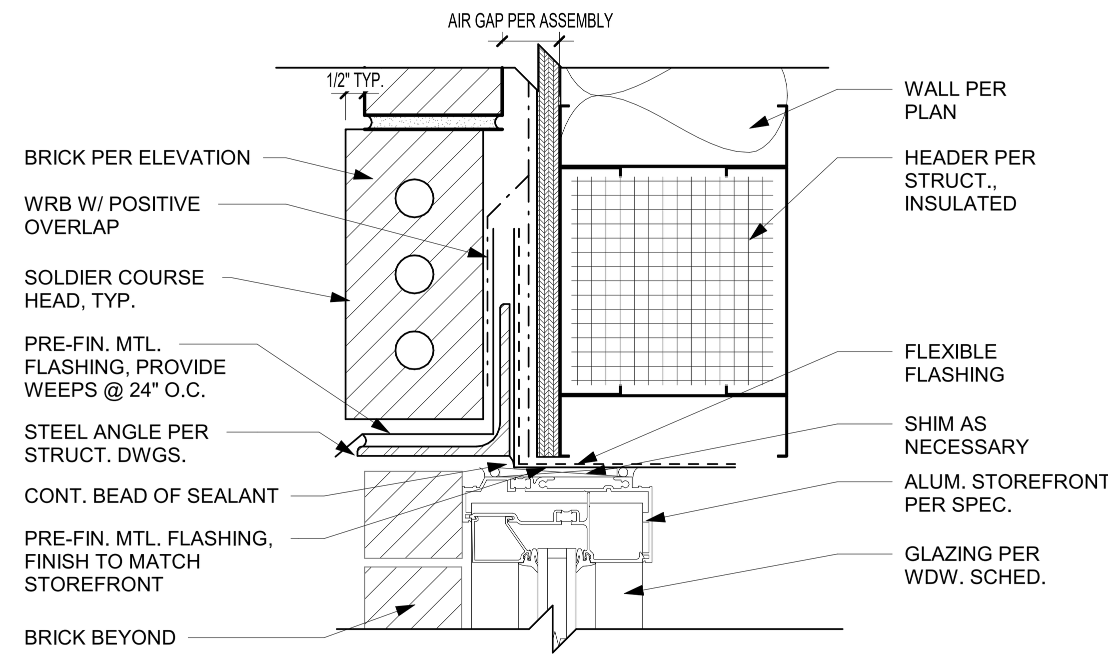
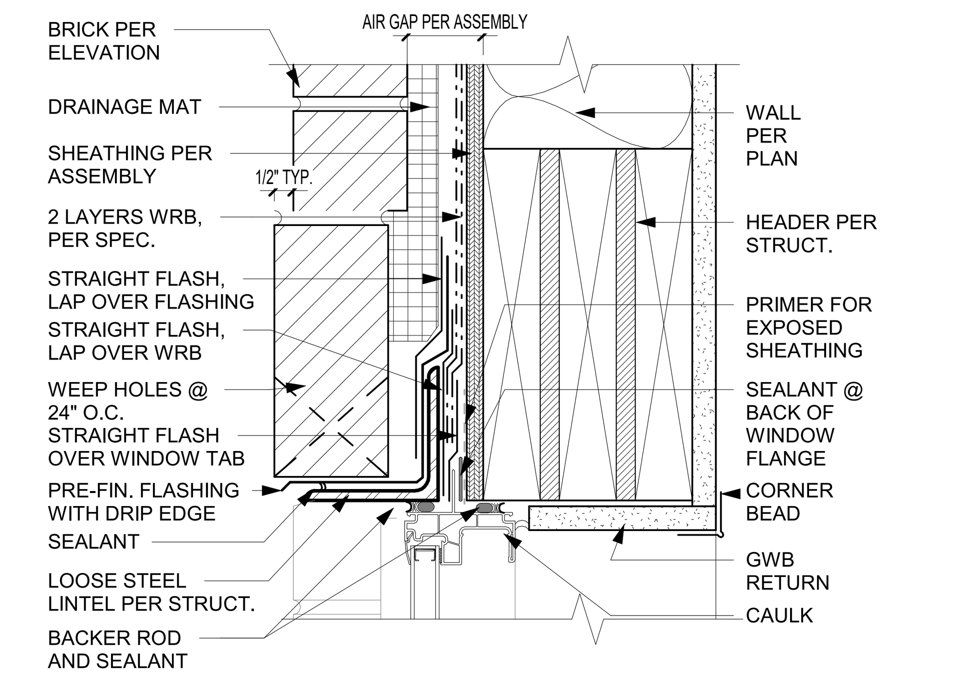
11/12/24 - CITY SUBMITTAL

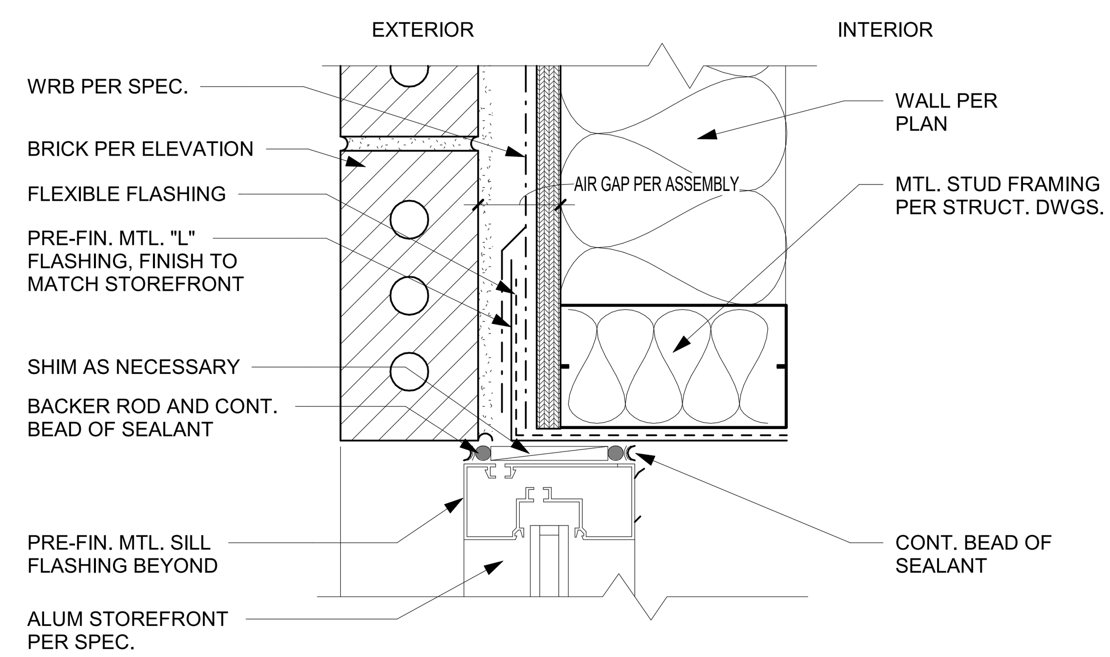
REVISIONS:



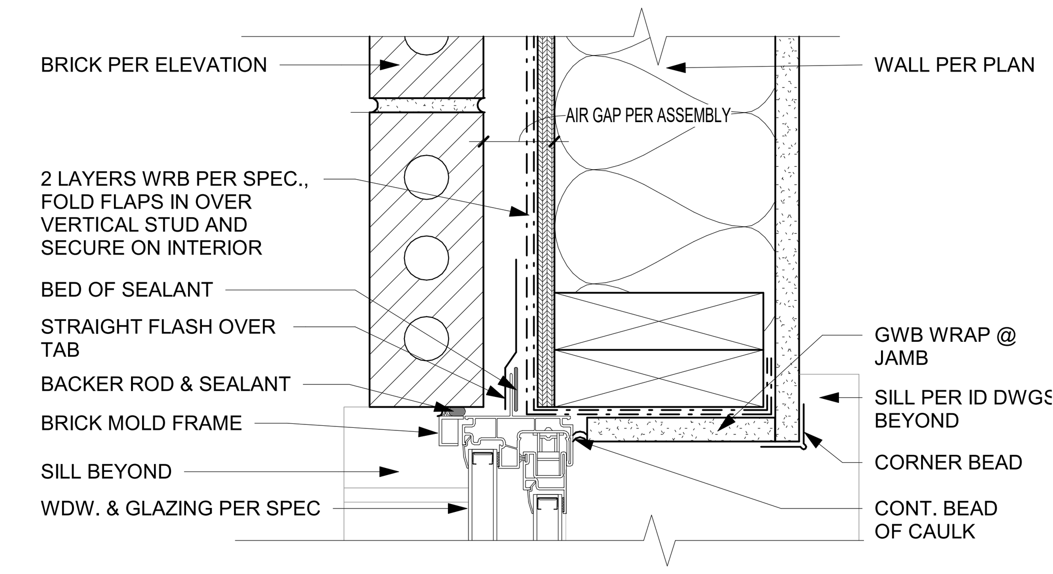
C3 STOREFRONT MTL HEAD - BRICK
3" = 1'-0"



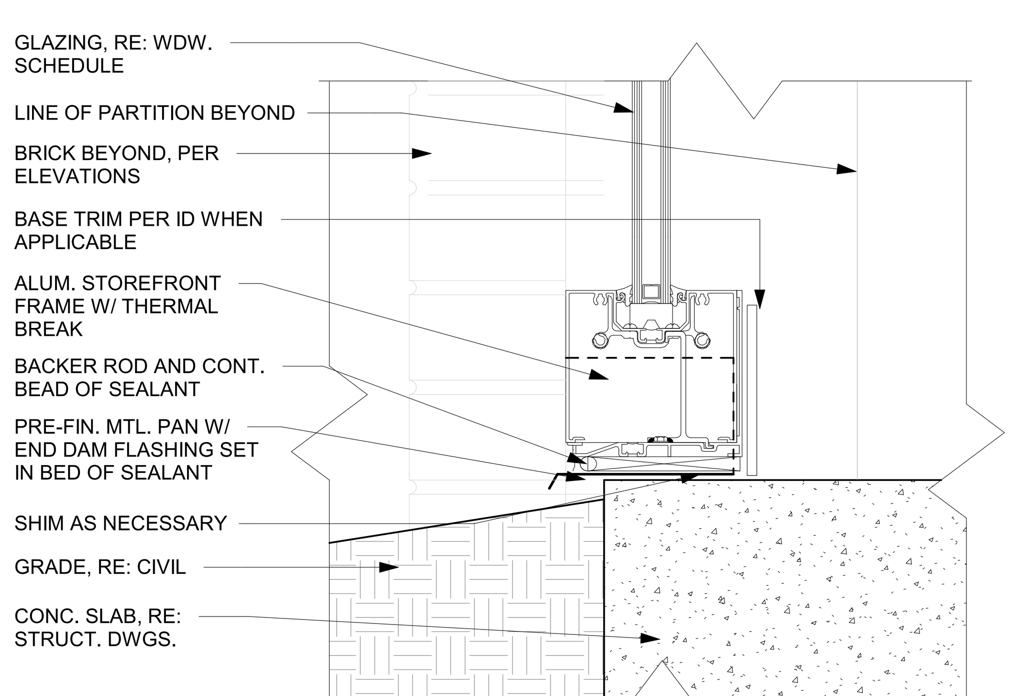
A3 WINDOW HEAD - BRICK
3" = 1'-0"



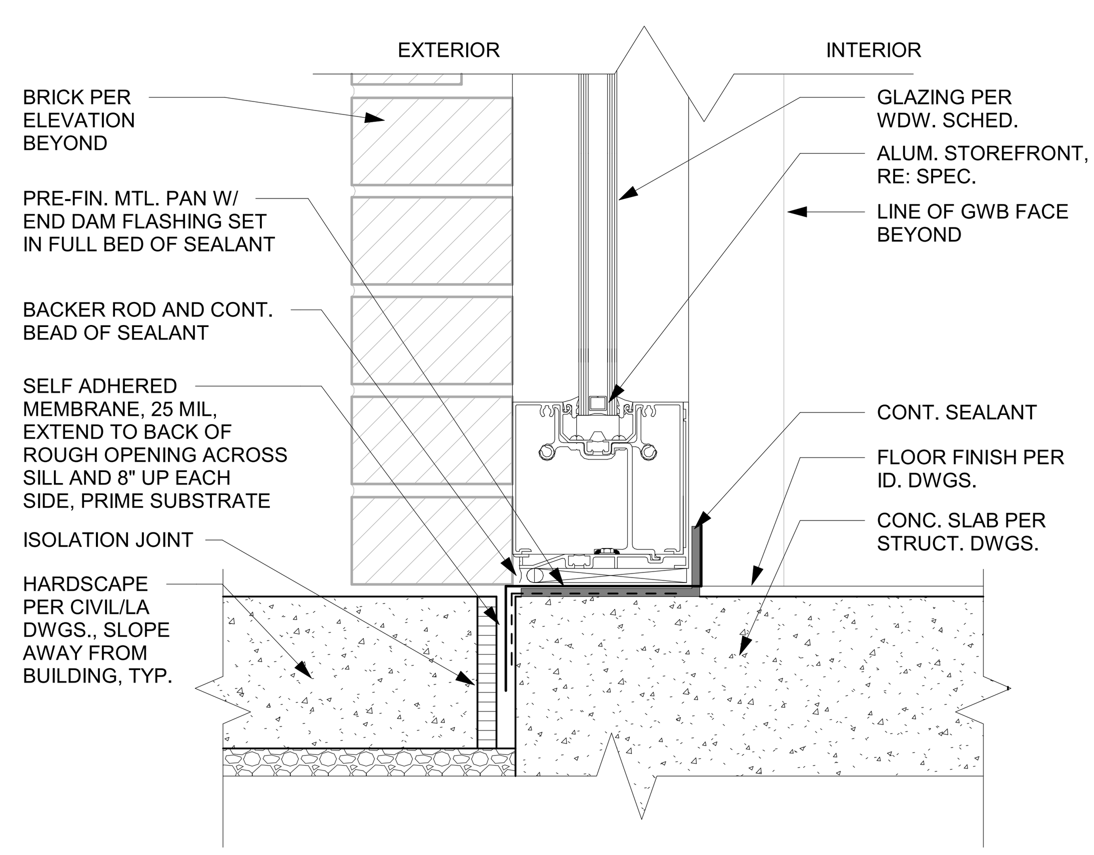
C2 STOREFRONT MTL JAMB - BRICK
3" = 1'-0"



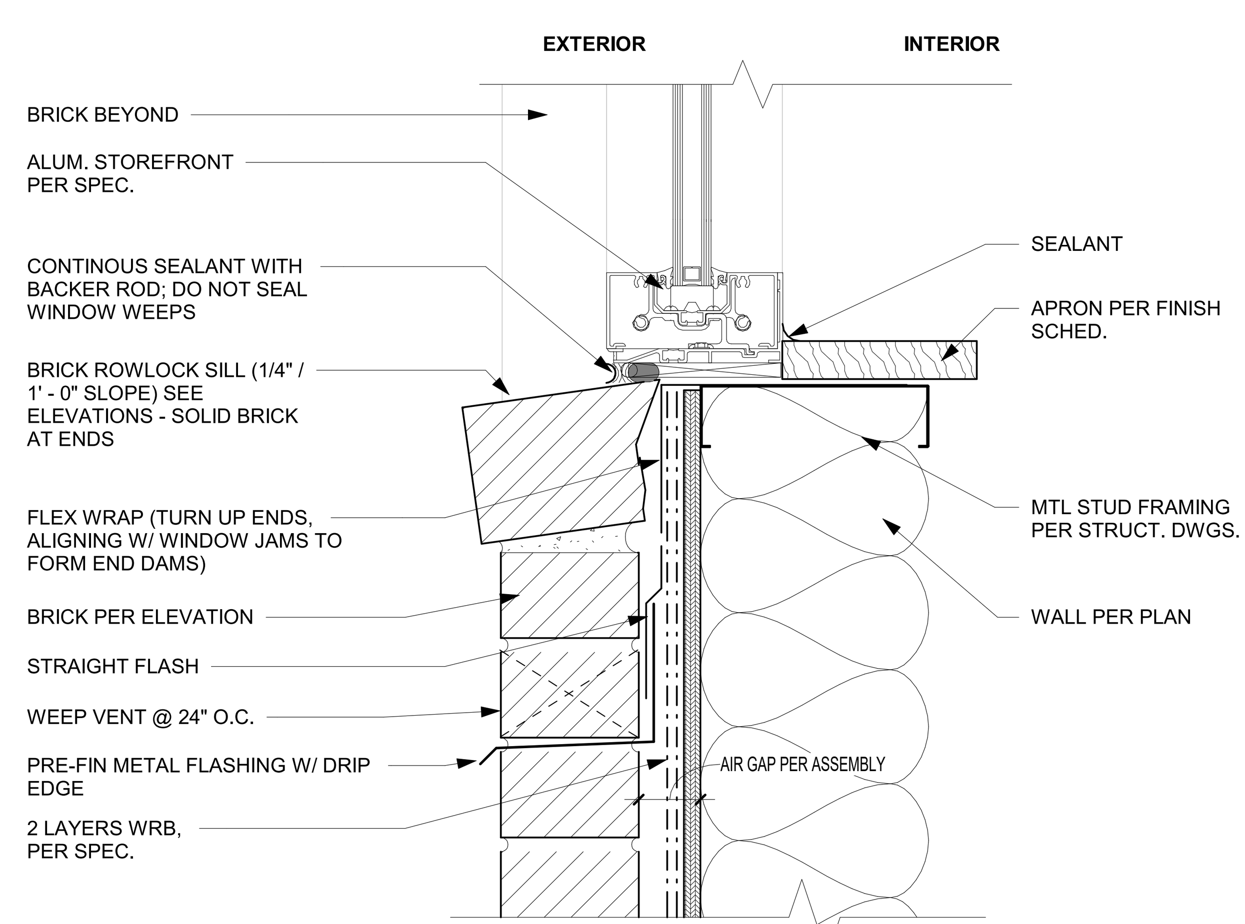
A2 WINDOW JAMB - BRICK
3" = 1'-0"



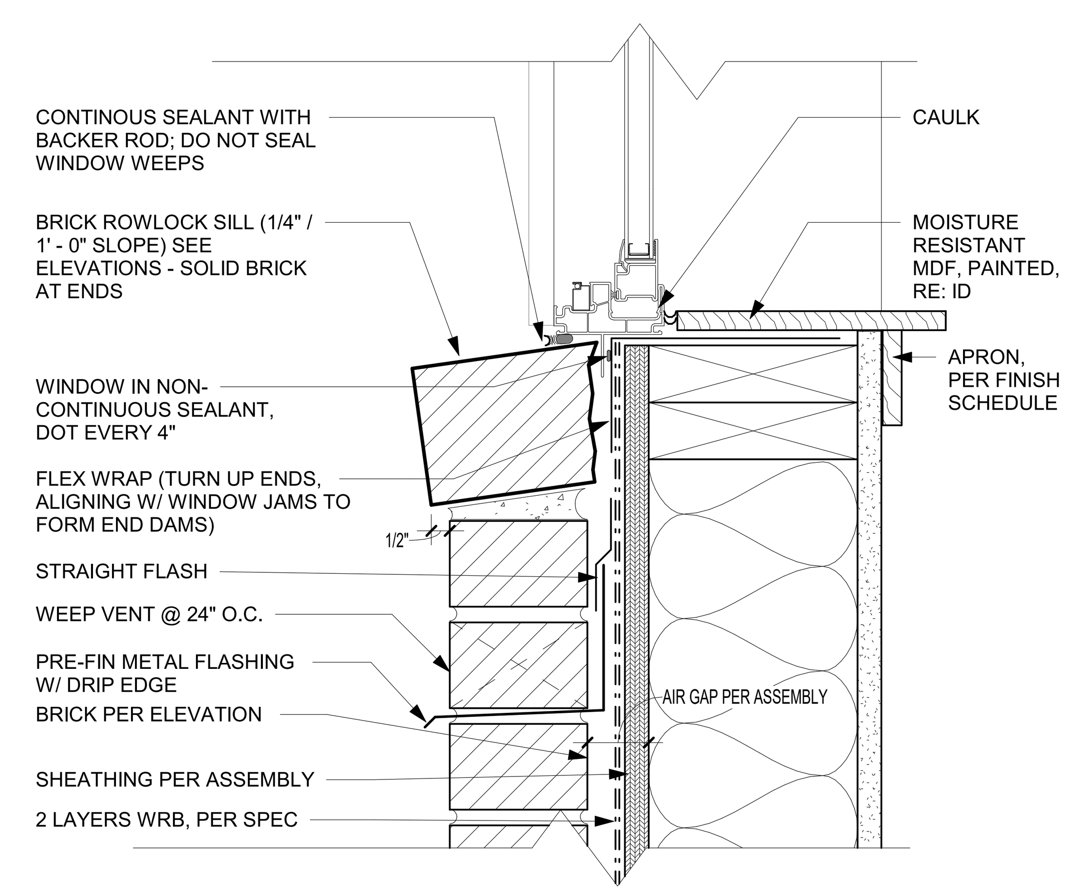
D1 STOREFRONT THRESHOLD - GRADE
3" = 1'-0"



C1 STOREFRONT THRESHOLD - HARDSCAPE
3" = 1'-0"



B1 STOREFRONT MTL SILL - BRICK
3" = 1'-0"



A1 WINDOW SILL - BRICK
3" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

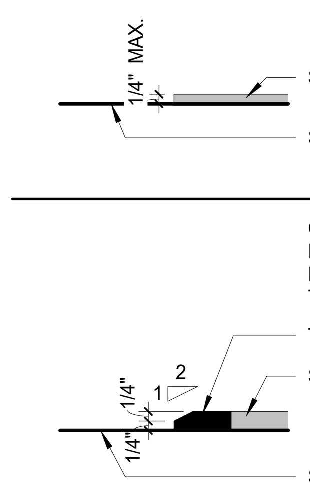
LEE'S SUMMIT, MO

SHEET TITLE
WINDOW DETAILS

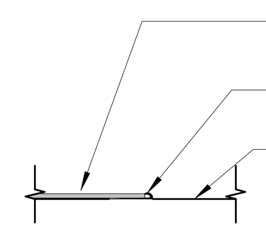
PROJECT NUMBER: 23103

SHEET NUMBER:

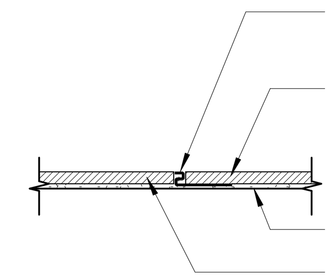
A-603



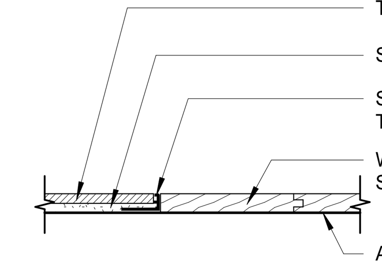
D4 FLOOR FINISH TRANSITION-CHANGE IN LEVEL
SCALE: 3" = 1'-0"



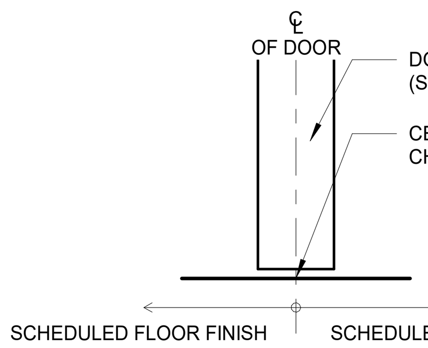
C4 VINYL / CONCRETE TRANSITION
SCALE: 3" = 1'-0"



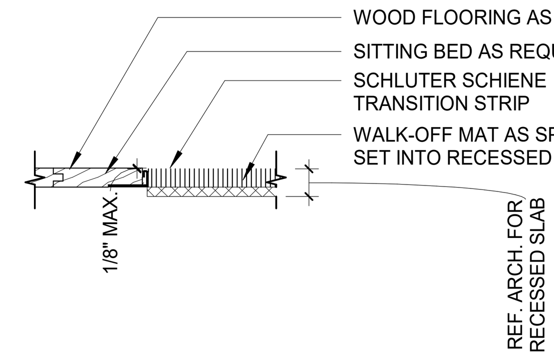
B4 TILE/ TILE TRANSITION
SCALE: 3" = 1'-0"



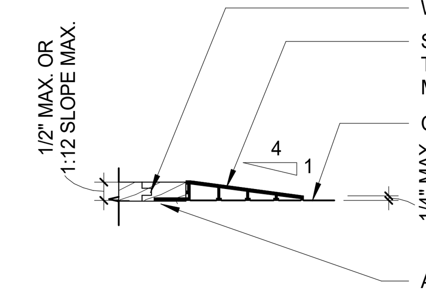
A4 TILE / WOOD TRANSITION
SCALE: 3" = 1'-0"



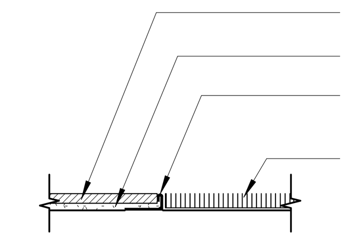
D3 FLOOR FINISH TRANSITION LOCATION
SCALE: 3" = 1'-0"



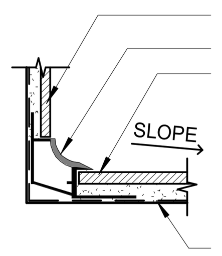
C3 WOOD / WALK-OFF MAT TRANSITION
SCALE: 3" = 1'-0"



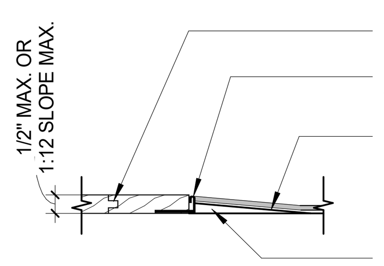
B3 WOOD / CONC. TRANSITION
SCALE: 3" = 1'-0"



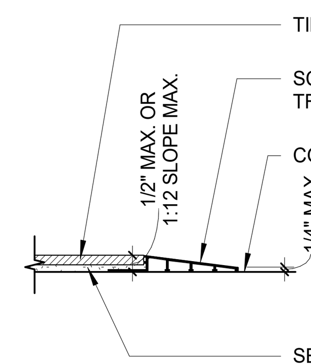
A3 TILE / CARPET TRANSITION
SCALE: 3" = 1'-0"



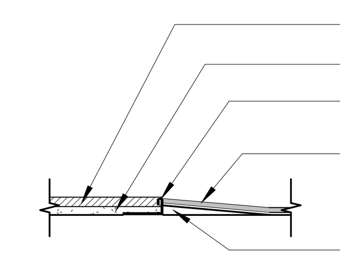
D2 FLOOR TILE TO WALL TILE TRANSITION
SCALE: 3" = 1'-0"



C2 WOOD / VINYL TRANSITION
SCALE: 3" = 1'-0"



B2 TILE / CONC. TRANSITION
SCALE: 3" = 1'-0"



A2 TILE / VINYL TRANSITION
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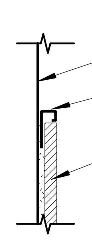
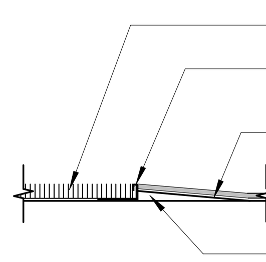
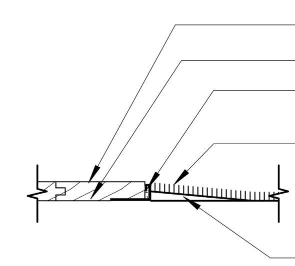


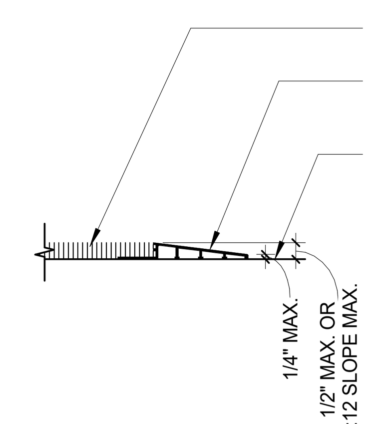
D1 WALL TILE EDGE AT BASE (VERT. & HORIZ.)
SCALE: 3" = 1'-0"



C1 CARPET / VINYL TRANSITION
SCALE: 3" = 1'-0"



B1 WOOD / CARPET TRANSITION
SCALE: 3" = 1'-0"



A1 CARPET / CONC. TRANSITION
SCALE: 3" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

SHEET TITLE
FINISH TRANSITION DETAILS

PROJECT NUMBER: 23103

SHEET NUMBER:

A-700

PRINTS ISSUED
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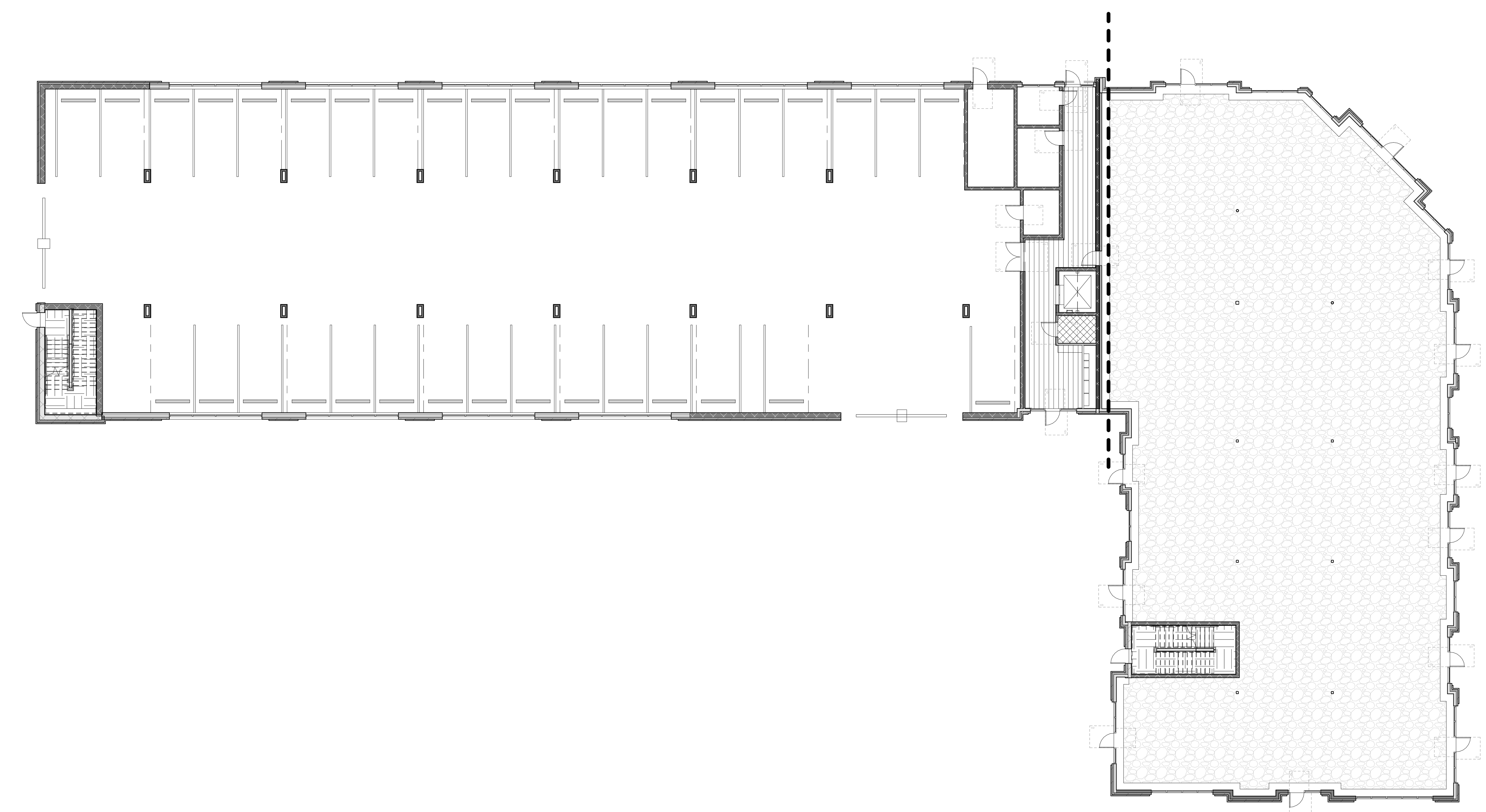
STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER
REGISTERED ARCHITECT
11/12/24

THE VILLAGE AT DISCOVERY - LOT 7

LEE'S SUMMIT, MO

3 THIRD FLOOR PLAN
1/16" = 1'-0"

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



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

REFERENCE G-003 FOR GENERAL NOTES

FINISH LEGEND

LVP-1	VINYL PLANK FLOORING
CT-1	CARPET TILE 1
CT-2	CARPET TILE 2
WOM	WALK OFF MAT

SHEET TITLE
FIRST & SECOND FLOOR FINISH PLAN

PROJECT NUMBER: 23103

SHEET NUMBER:

A-711

J-SQUARED ENGINEERING

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

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.

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

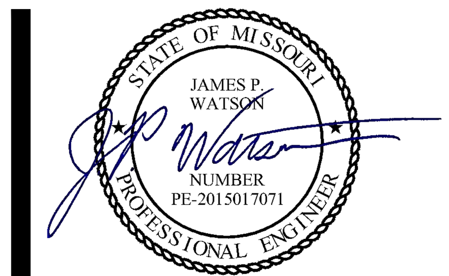
DEFERRED SUBMITTAL NOTES

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.

SHEET LIST TABLE

SHEET LIST TABLE (CONTINUED)



James Watson, P.E. November 11, 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:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:
The Village at Discovery - Lot 7
1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

MECHANICAL ELECTRICAL PLUMBING COVER SHEET

SHEET NUMBER

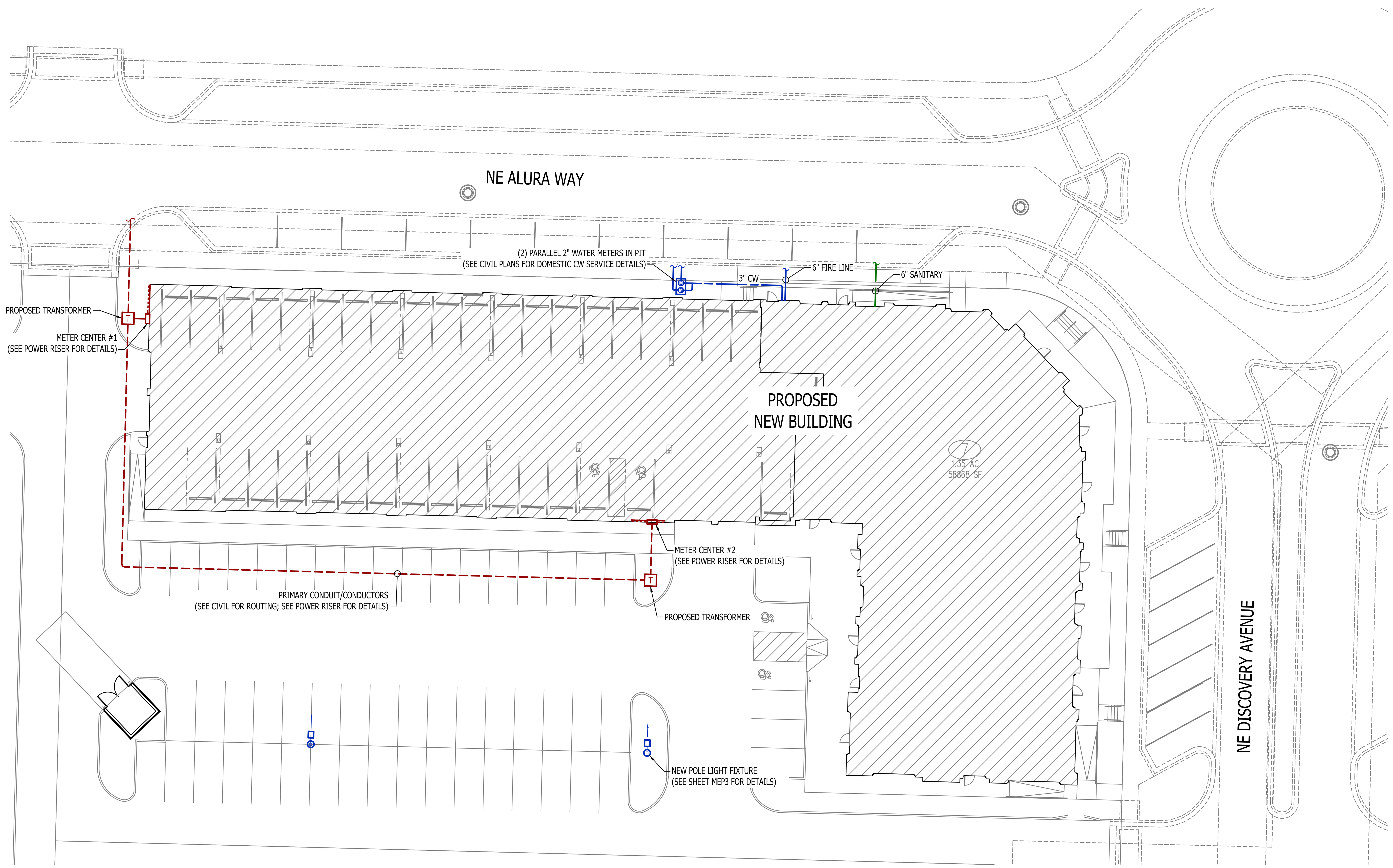
MEP1

SITE UTILITIES PLAN SYMBOL LEGEND

Symbol	Description
— — —	SANITARY SEWER PIPING
— — —	COLD WATER LINE
M	WATER METER
	VALVE
	GAS LINE
G	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

STATE OF MISSOURI JAMES P. WATSON NUMBER PE-2015017071 PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 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:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

SITE UTILITIES PLAN

SHEET NUMBER

MEP2

SITE LIGHTING PLAN SYMBOL LEGEND

- CIRCUIT WIRING
- PX-XX — CIRCUIT TAG
- X1 — "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
- POLE LIGHT
- ARROW INDICATES FORWARD AIMING DIRECTION
- 1.1 — PHOTOMETRIC CALCULATIONS (IN FOOT-CANDLES)

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.

SITE LIGHTING PLAN KEY NOTES:

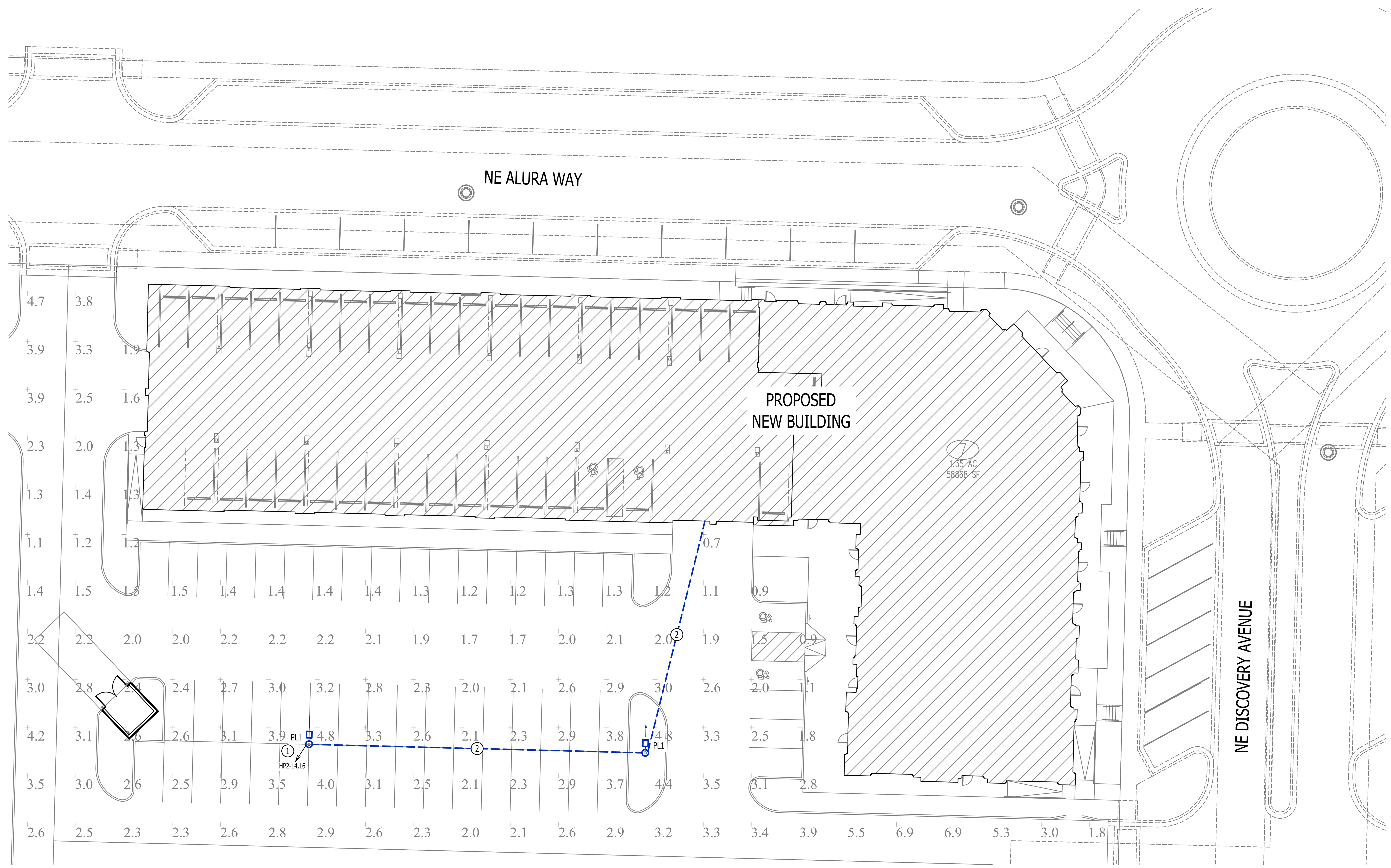
1. WIRE THRU 'LCP1' RELAYS #1 & #2
2. 1" CONDUIT WITH (2) #12 CU. & (1) #10 CU. EQ. GRD.

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-PA4A-740-U-5WQ	LED SITE LUMINAIRE	20' POLE ON 30" BASE	33,525	4000	70	UNV	245	WITH #MS/DIM-L40 MOTION SENSING DIMMING

NOTES:

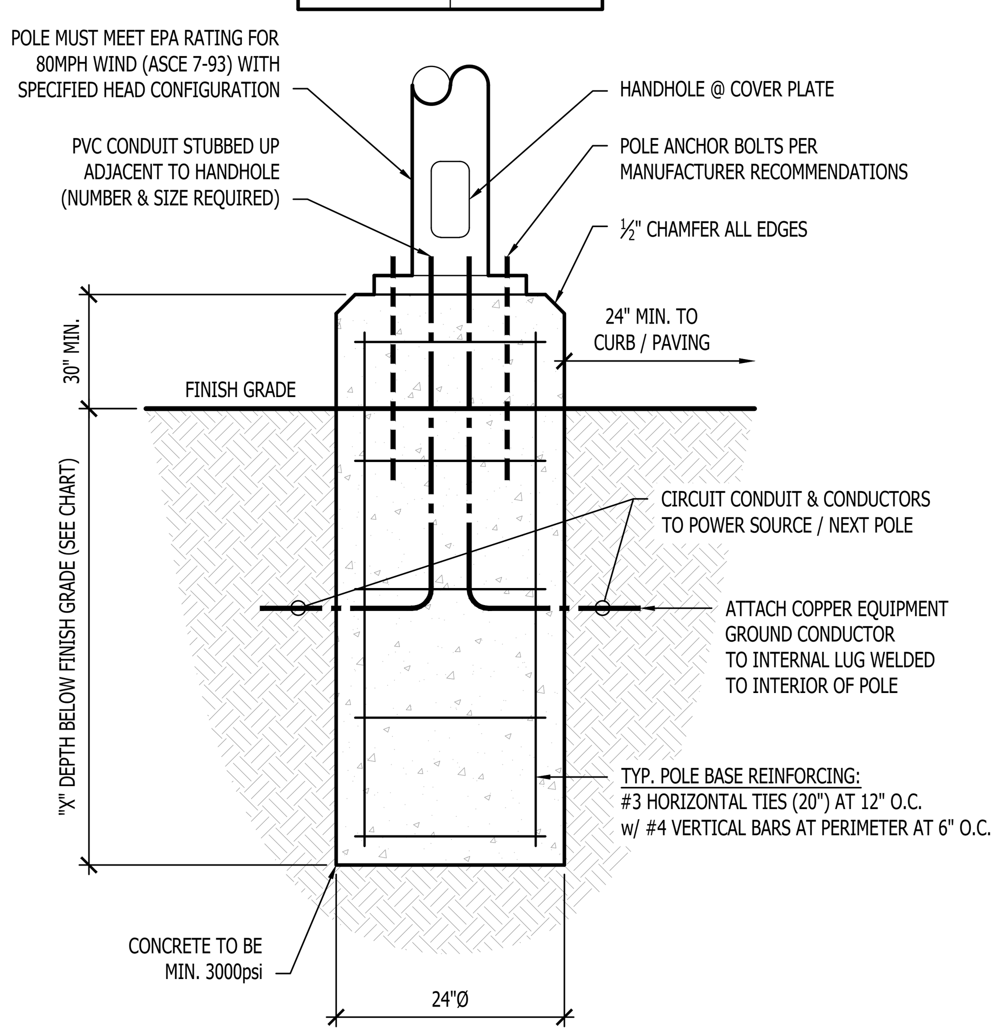
1. LIGHT FIXTURES PROVIDED BY OWNER THRU NATIONAL ACCOUNT AND INSTALLED BY ELECTRICAL CONTRACTOR.
2. ALL FIXTURE QUANTITIES TO BE VERIFIED BY ELECTRICAL CONTRACTOR PRIOR TO ORDERING.
3. CONTACT JUSTIN HATFIELD (573) 289-0880 (JHATFIELD@LAIWEB.NET) OR PAUL WARNER (314) 531-3500 (PWARNER@LAIWEB.NET) AT LIGHTING ASSOCIATES FOR NATIONAL ACCOUNT DETAILS.
4. CONTACT TRAVIS VOGT (417) 621-5210 (TVOGT@CED1135.COM) AT CED-PHILLIPS & COMPANY FOR NATIONAL ACCOUNT DETAILS.



SITE LIGHTING PLAN

SCALE: 1" = 20 ft

POLE HEIGHT	"X" DEPTH
10ft - 14ft	4'-6"
15ft - 20ft	6'-0"
21ft - 25ft	7'-0"
26ft - 30ft	8'-0"



TYPICAL LIGHT POLE DETAIL

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
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MO Certificate of Authority # 2018029680

J-SQUARED ENGINEERING
2400 Bluff Creek Drive, Suite 101
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573.234.4492
www.j-squaredeng.com

J2 PROJECT No:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

SITE LIGHTING PLAN

SHEET NUMBER

MEP3

ROOF MEP PLAN SYMBOL LEGEND

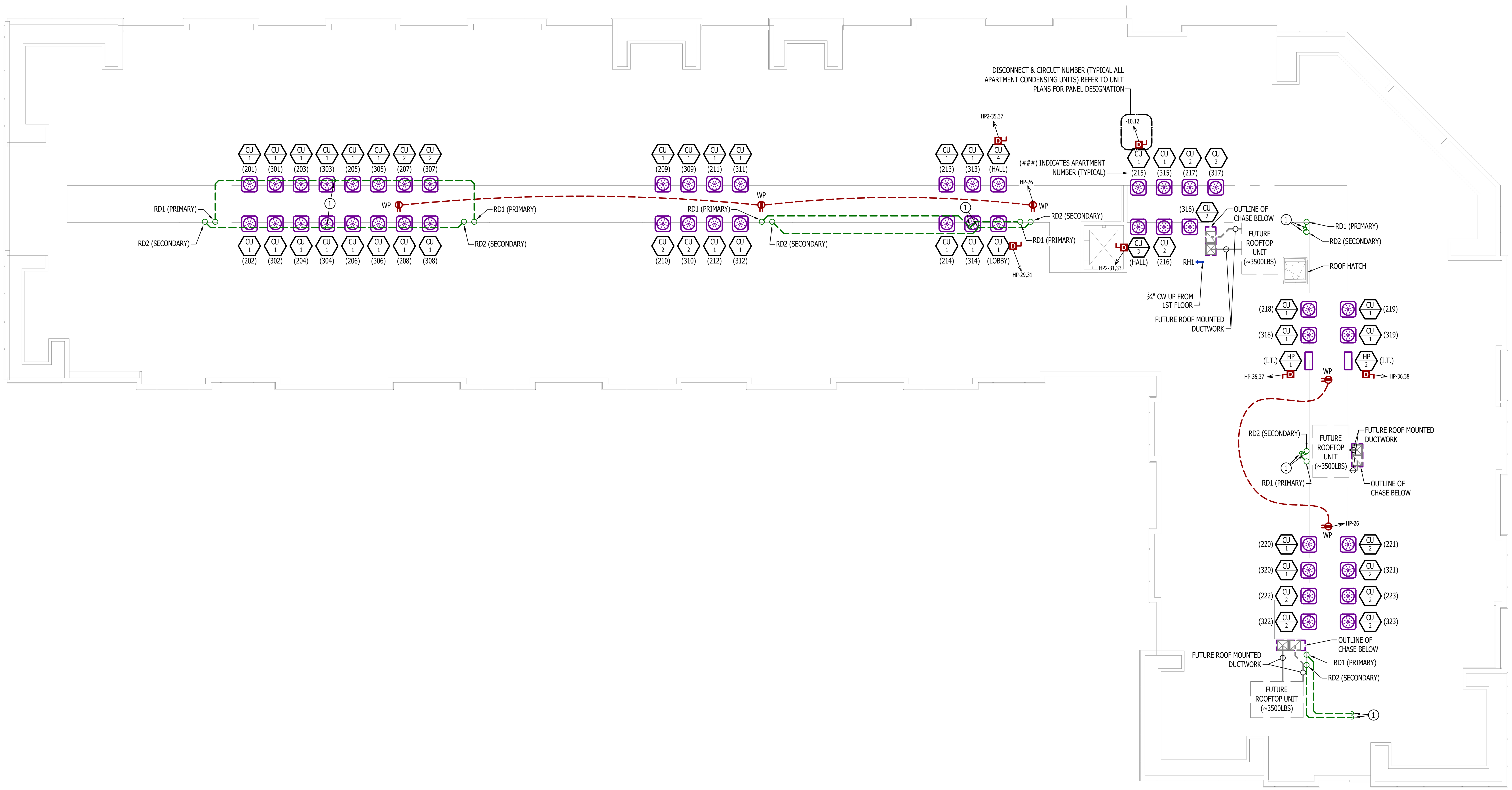
Symbol	Description
(red dashed line)	CIRCUIT WIRING
PX-XX	CIRCUIT TAG
J	JUNCTION BOX
XX +42	RECEPTACLE INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE) "WP" = WEATHERPROOF OUTDOOR RECEPTACLE "AW" = ABOVE WINDOW RECEPTACLE "AC" = ABOVE CEILING RECEPTACLE "EX" = EXISTING RECEPTACLE TO REMAIN
	GFCI DUPLEX CONVENIENCE RECEPTACLE
D	DISCONNECT
	CONDENSING UNIT
(green dashed line)	STORM DRAIN PIPING

ROOF MEP PLAN GENERAL NOTES:

1. REFER TO TRADE SPECIFIC SHEETS FOR ADDITIONAL INFORMATION.

ROOF MEP PLAN KEY NOTES:

1 6" PRIMARY & 6" SECONDARY STORM DRAIN DOWN TO LEVEL BELOW.



MEP PLAN - ROOF

SCALE: 3/32" = 1'-0"

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Lee's Summit, Jackson County, MO

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
- VENT / COMBUSTION AIR
- CONDENSATION LINE
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
- CEILING RADIATION DAMPER
- FIRE RATED DAMPER
- SMOKE DAMPER
- THERMOSTAT
- REMOTE SOUNDER WIRED TO RETURN DUCT SMOKE DETECTOR (EQUAL TO SYSTEM SENSOR #MHW)

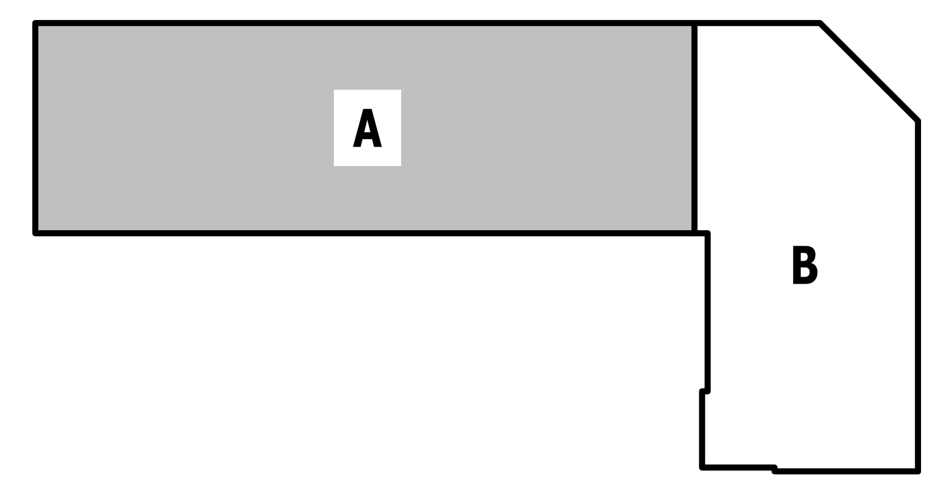
HVAC PLAN GENERAL NOTES:

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:

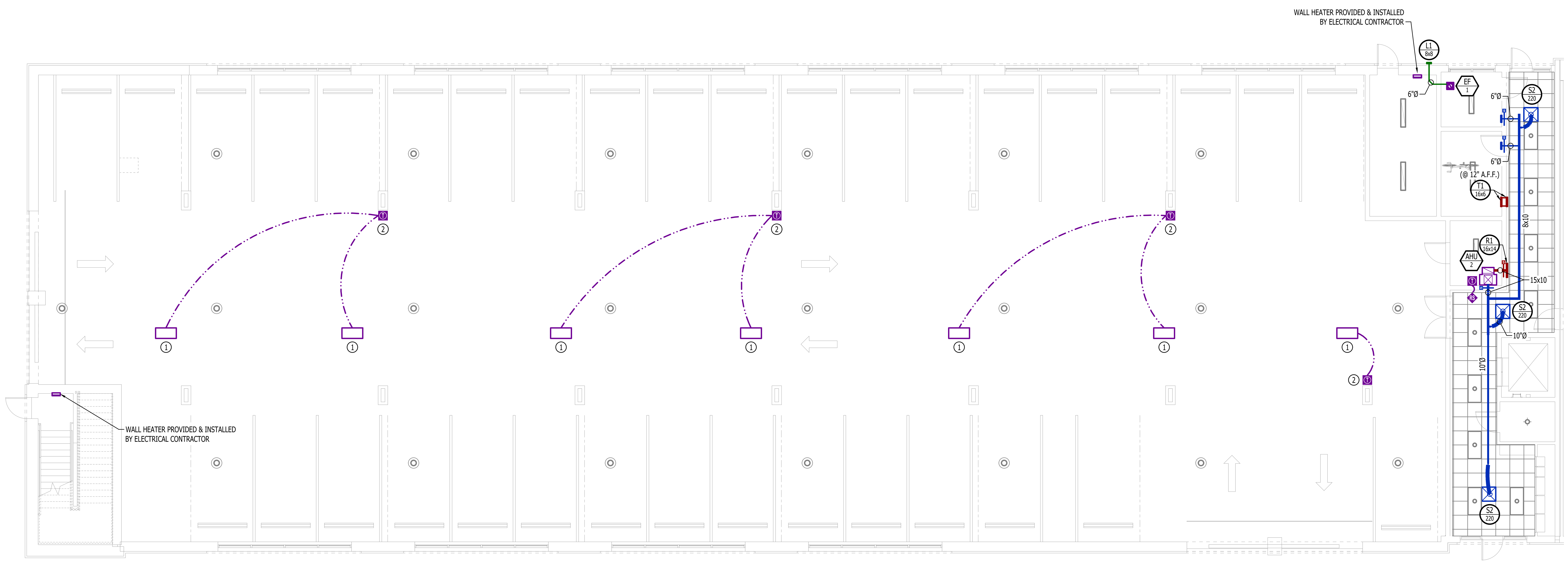
1 208V 3-PH 5kW ZERO CLEARANCE PLENUM UNIT HEATER ABOVE CEILING (EQUAL TO MARLEY #BPH158324) PROVIDE & INSTALL ACCESS PANEL.

2 THERMOSTAT IN PLENUM SPACE FOR PLENUM HEATERS. SET TO 55°F. PROVIDE & INSTALL ACCESS PANEL.



KEY PLAN

SCALE: NTS



HVAC PLAN - FIRST FLOOR - AREA A

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

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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

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Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

HVAC PLAN - FIRST FLOOR - AREA A

SHEET NUMBER

M101

HVAC PLAN SYMBOL LEGEND

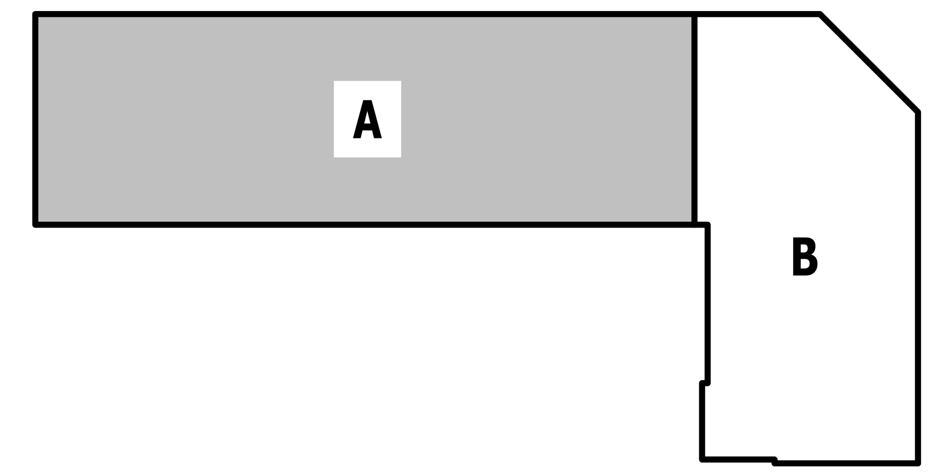
- EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)
- EQUIPMENT REFERENCE NUMBER
- DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)
- CUBIC FEET PER MINUTE (CFM) / FACE SIZE
- SUPPLY DUCTWORK
- RETURN DUCTWORK
- EXHAUST DUCTWORK
- OUTSIDE AIR DUCTWORK
- FLEX DUCT
- VENT / COMBUSTION AIR
- CONDENSATION LINE
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
- CEILING RADIATION DAMPER
- FIRE RATED DAMPER
- SMOKE DAMPER
- THERMOSTAT
- REMOTE SOUNDER WIRED TO RETURN DUCT SMOKE DETECTOR (EQUAL TO SYSTEM SENSOR #MHW)

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.

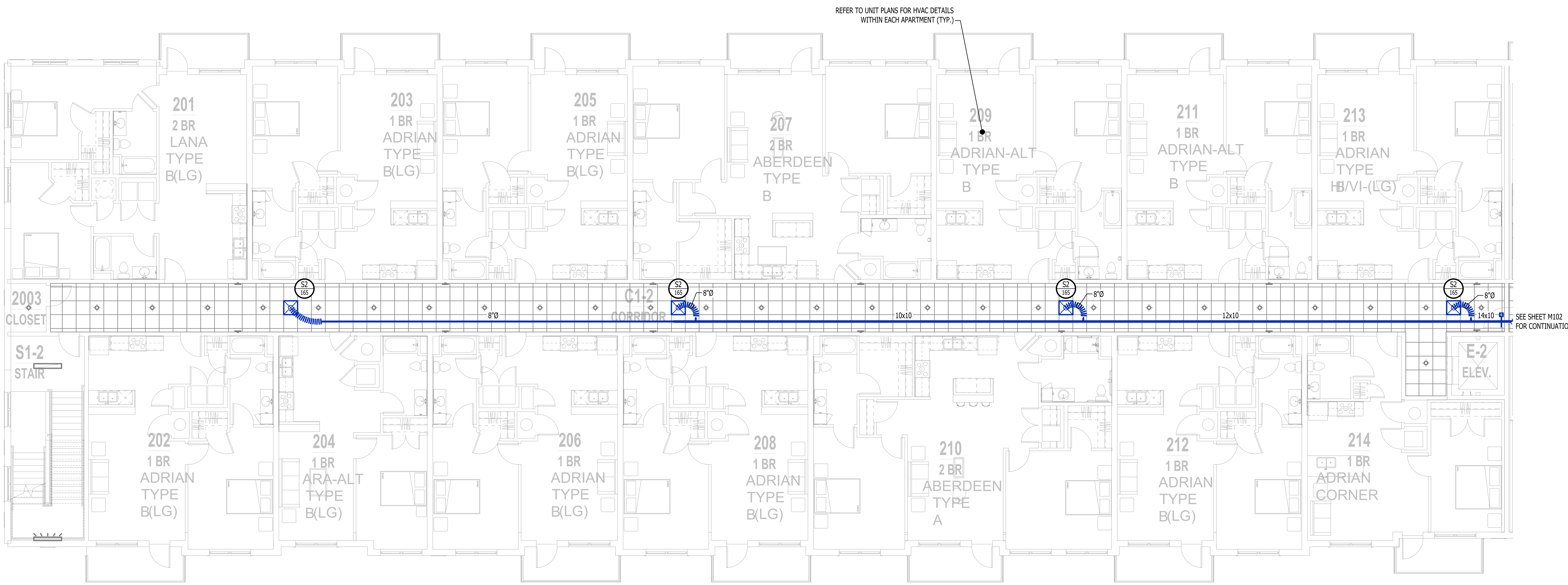
HVAC PLAN KEY NOTES:

1. 208V 3-PH 5KW ZERO CLEARANCE PLENUM UNIT HEATER ABOVE CEILING (EQUAL TO MARLEY #BPH158324) PROVIDE & INSTALL ACCESS PANEL.
2. THERMOSTAT IN PLENUM SPACE FOR PLENUM HEATERS. SET TO 55°F. PROVIDE & INSTALL ACCESS PANEL.



KEY PLAN

SCALE: NTS



HVAC PLAN - SECOND FLOOR - AREA A

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

STATE OF MISSOURI JAMES P. WATSON NUMBER PE-2015017071 PROFESSIONAL ENGINEER

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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

HVAC PLAN - SECOND FLOOR - AREA A

SHEET NUMBER

M102

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
- VENT / COMBUSTION AIR
- CONDENSATION LINE
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
- CEILING RADIATION DAMPER
- FIRE RATED DAMPER
- SMOKE DAMPER
- THERMOSTAT
- REMOTE SOUNDER WIRED TO RETURN DUCT SMOKE DETECTOR (EQUAL TO SYSTEM SENSOR #MHW)

HVAC PLAN GENERAL NOTES:

1. REFER TO M500 AND/OR M600 SERIES SHEETS FOR ADDITIONAL HVAC NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
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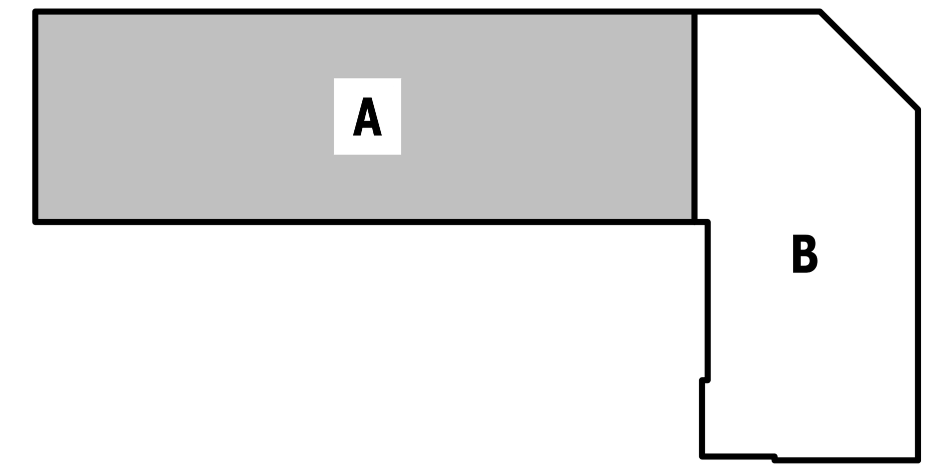
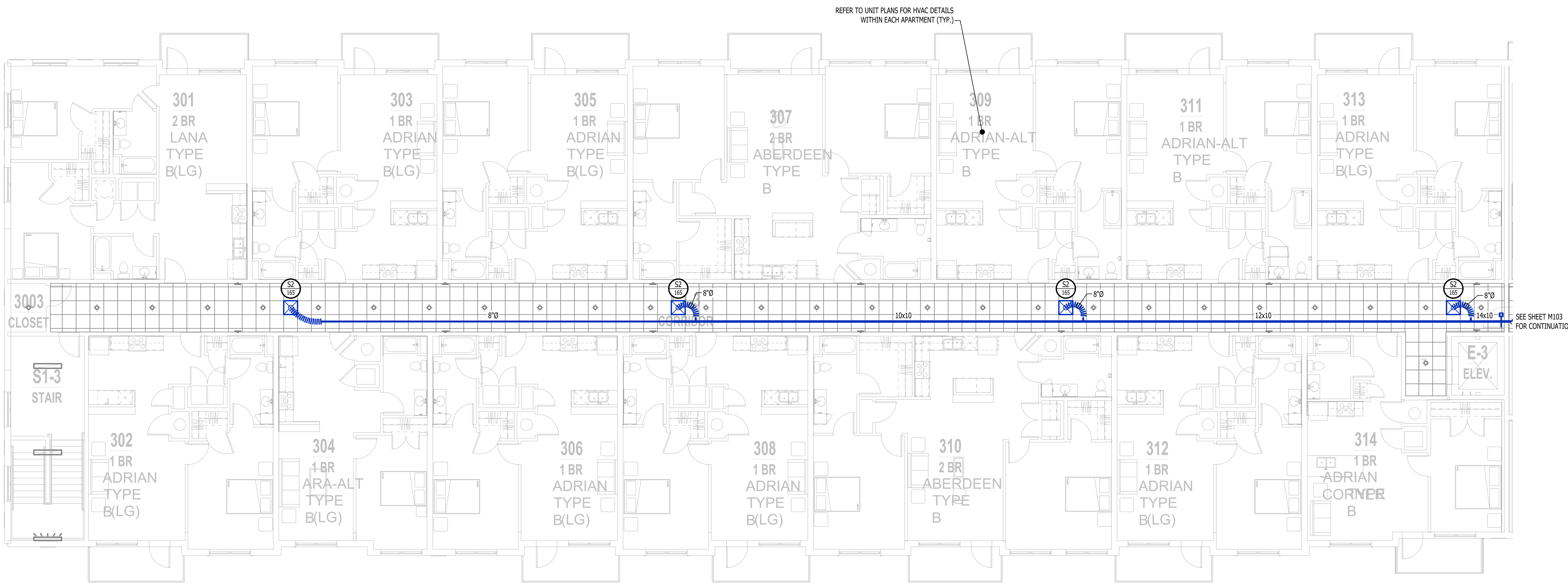
HVAC PLAN KEY NOTES:

1. 208V 3-PH 5KW ZERO CLEARANCE PLENUM UNIT HEATER ABOVE CEILING (EQUAL TO MARLEY #BPH158324) PROVIDE & INSTALL ACCESS PANEL.
2. THERMOSTAT IN PLENUM SPACE FOR PLENUM HEATERS. SET TO 55°F. PROVIDE & INSTALL ACCESS PANEL.



KEY PLAN
SCALE: NTS



HVAC PLAN - THIRD FLOOR - AREA A
SCALE: 1/8" = 1'-0"

STATE OF MISSOURI
JAMES P. WATSON
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PROFESSIONAL ENGINEER

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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

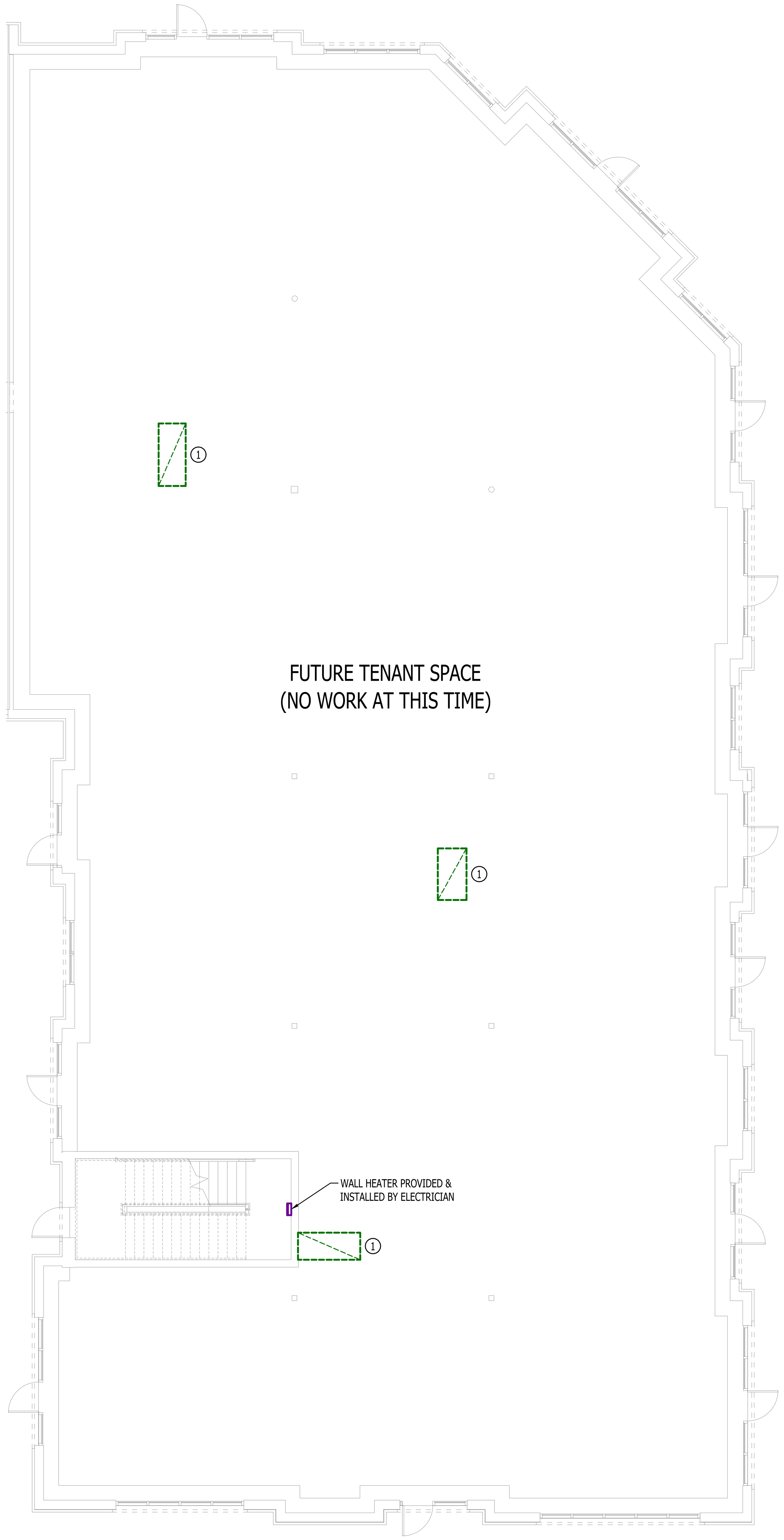
AHJ APPROVAL STAMP

SHEET TITLE

HVAC PLAN - THIRD FLOOR - AREA A

SHEET NUMBER

M103



HVAC PLAN - FIRST FLOOR - AREA B

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

HVAC PLAN SYMBOL LEGEND

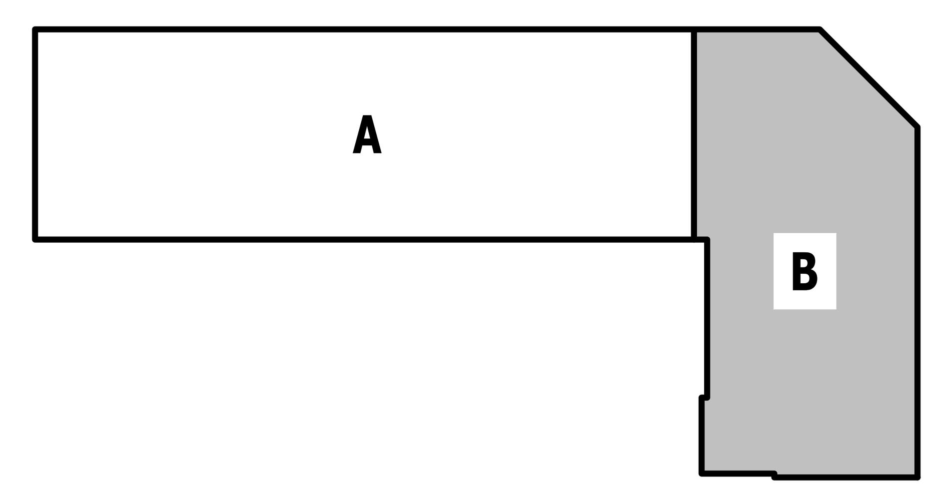
Symbol	Description
X / # (hexagon)	EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)
	EQUIPMENT REFERENCE NUMBER
X / # (circle)	DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)
	CUBIC FEET PER MINUTE (CFM) / FACE SIZE
	SUPPLY DUCTWORK
	RETURN DUCTWORK
	EXHAUST DUCTWORK
	OUTSIDE AIR DUCTWORK
	FLEX DUCT
	VENT / COMBUSTION AIR
	CONDENSATION LINE
	SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
	RETURN DIFFUSER
	BALANCE DAMPER
	MOTORIZED DAMPER
	CEILING RADIATION DAMPER
	FIRE RATED DAMPER
	SMOKE DAMPER
	THERMOSTAT
	REMOTE SOUNDER WIRED TO RETURN DUCT SMOKE DETECTOR (EQUAL TO SYSTEM SENSOR #MHW)

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. SHAFT TO ROOF FOR FUTURE USE.



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

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Lee's Summit, Jackson County, MO

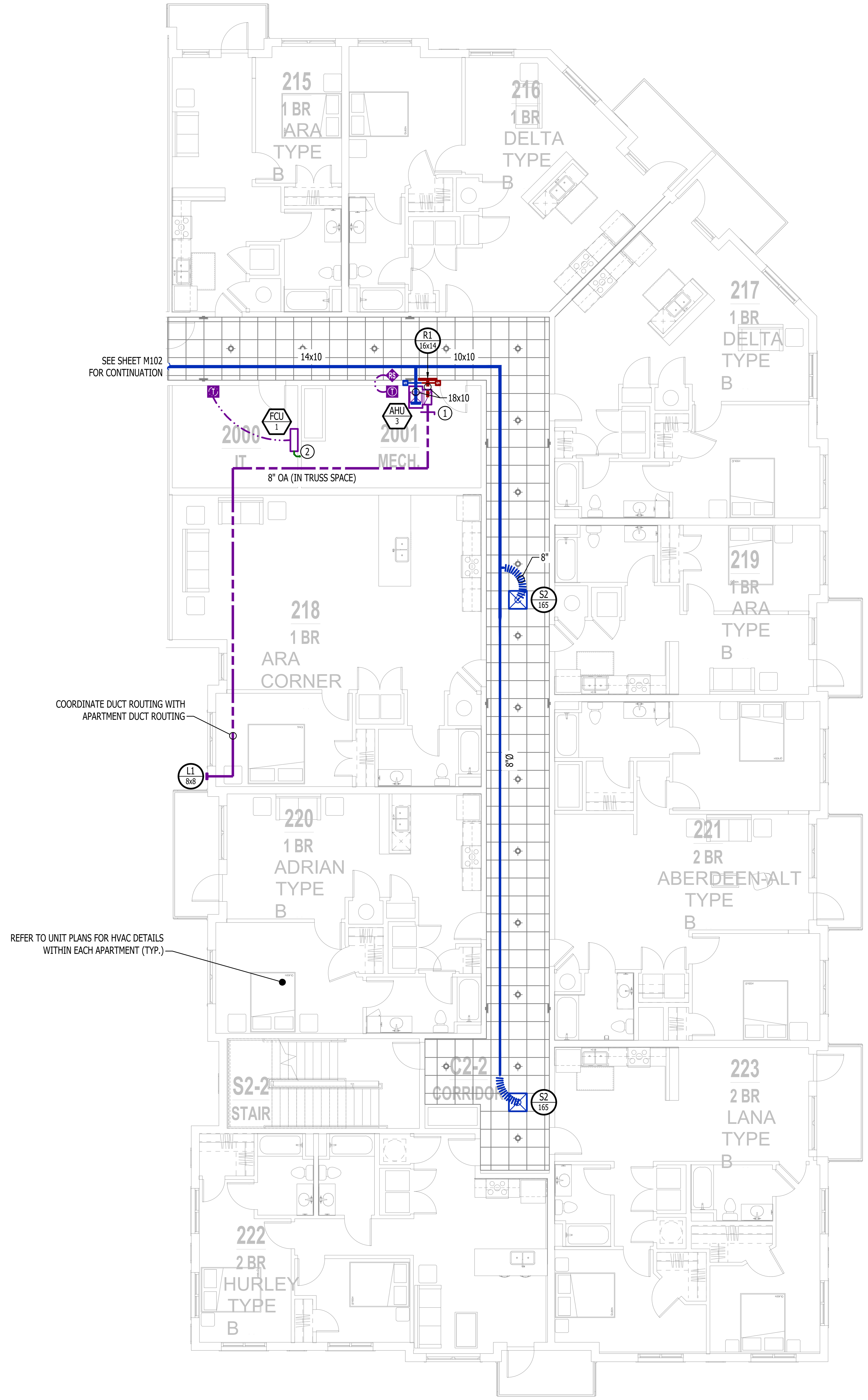
AHJ APPROVAL STAMP

SHEET TITLE

HVAC PLAN - FIRST FLOOR - AREA B

SHEET NUMBER

M111



HVAC PLAN - SECOND FLOOR - AREA B

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

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
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- BALANCE DAMPER
- MOTORIZED DAMPER
- CEILING RADIATION DAMPER
- FIRE RATED DAMPER
- SMOKE DAMPER
- THERMOSTAT
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HVAC PLAN GENERAL NOTES:

1. REFER TO M500 AND/OR M600 SERIES SHEETS FOR ADDITIONAL HVAC NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
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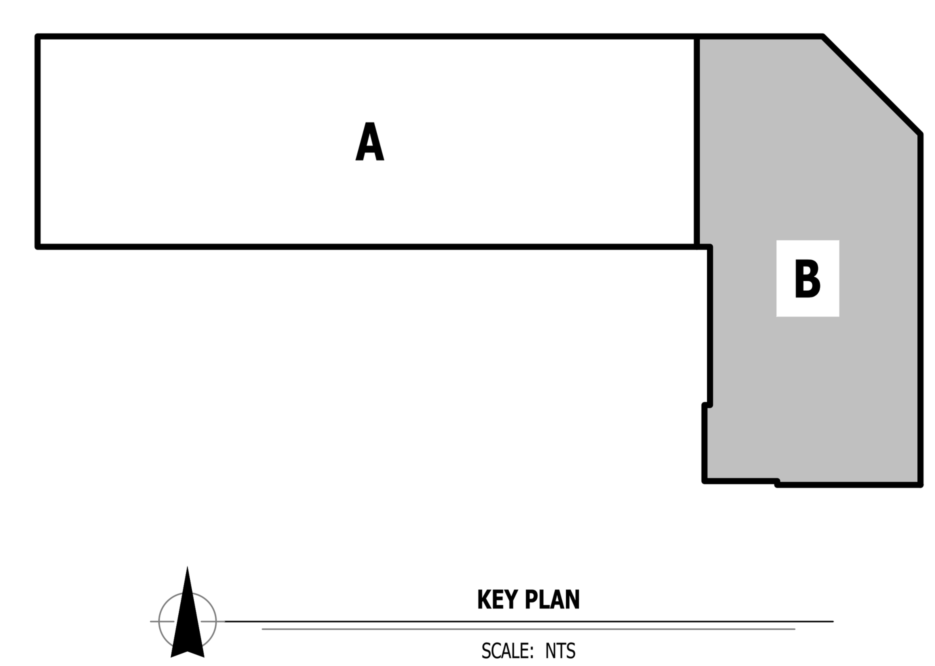
HVAC PLAN KEY NOTES:

1 BALANCE OUTSIDE AIR (OA) TO 130 CFM.

2 ¾" CONDENSATE TO DISCHARGE INTO HUB DRAIN IN ACCESSIBLE LOCATION.



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
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Lee's Summit, Jackson County, MO

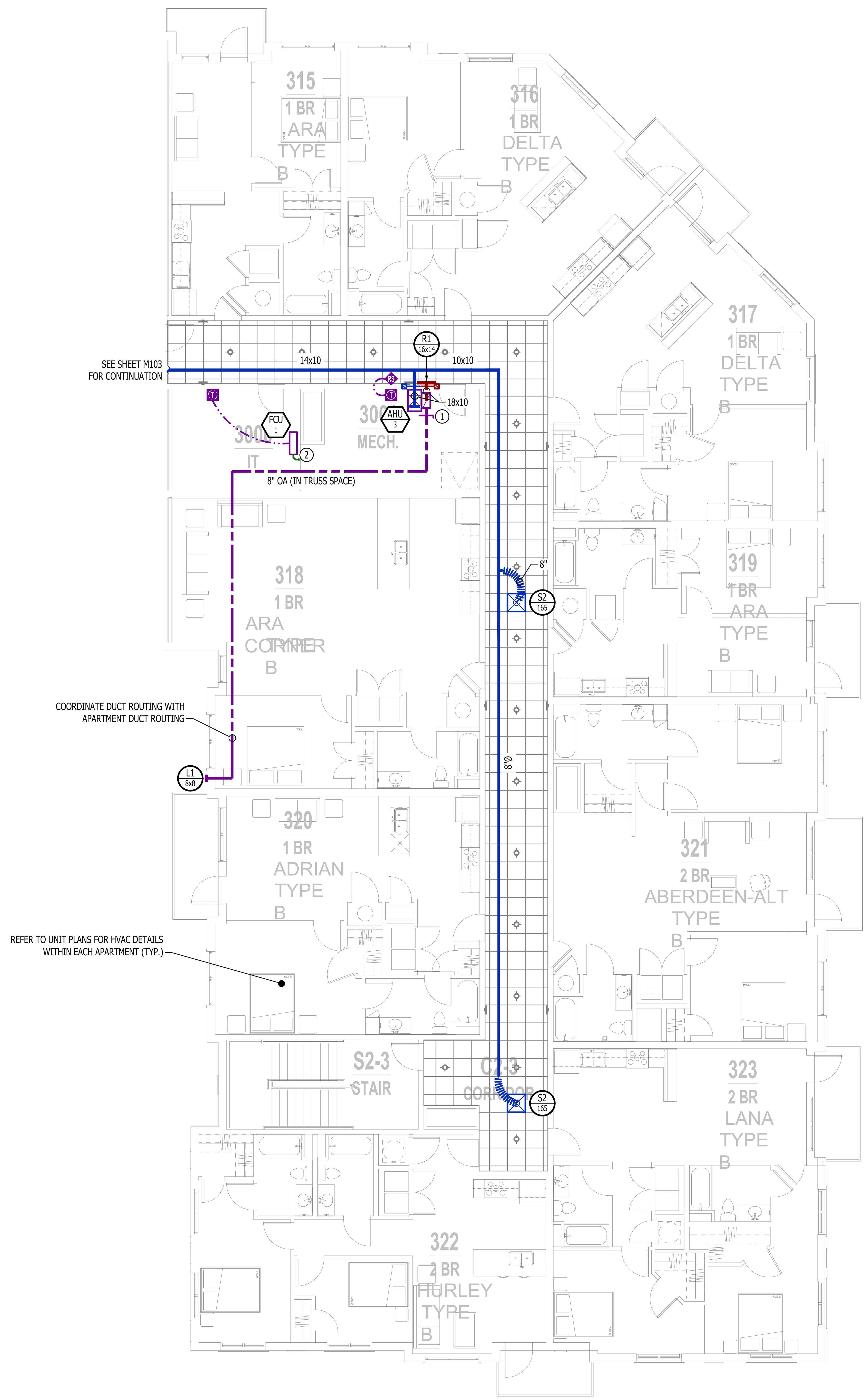
AHJ APPROVAL STAMP

SHEET TITLE

HVAC PLAN - SECOND FLOOR - AREA B

SHEET NUMBER

M112



HVAC PLAN - THIRD FLOOR - AREA B

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

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
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- EXHAUST DUCTWORK
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- SMOKE DAMPER
- THERMOSTAT
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HVAC PLAN GENERAL NOTES:

1. REFER TO M500 AND/OR M600 SERIES SHEETS FOR ADDITIONAL HVAC NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
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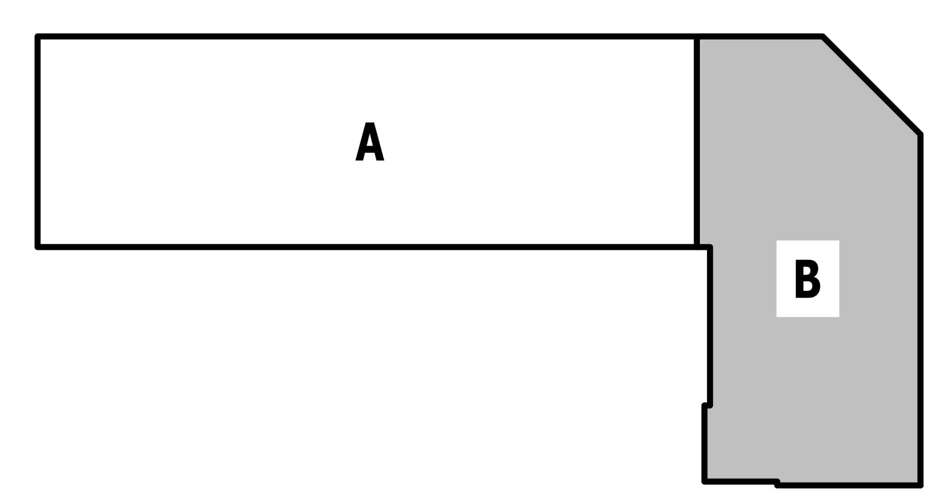
HVAC PLAN KEY NOTES:

1. BALANCE OUTSIDE AIR (OA) TO 130 CFM.
2. ¾" CONDENSATE TO DISCHARGE INTO HUB DRAIN IN ACCESSIBLE LOCATION.



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
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AHJ APPROVAL STAMP

SHEET TITLE

HVAC PLAN - THIRD FLOOR - AREA B

SHEET NUMBER

M113

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.

MINI-SPLIT SYSTEM SCHEDULE

TAG	EQUIPMENT DESCRIPTION	MANUFACTURER (OR EQUAL)	MODEL (OR EQUAL)	SIZE (TONS)	ORIENTATION	TOTAL AIRFLOW (CFM)	HEATING (IA:70 DB, OA:17 DB)	COOLING (IA: 80 DB/67 WB, OA: 95 DB)			ELECTRICAL			NOTES
							TOTAL (KBTU)	SENSIBLE (KBTU)	TOTAL (KBTU)	MIN EFF. (SEER)	VOLTS/PH	MCA	OCP	
FCU-1	WALL-MOUNT FAN COIL UNIT	MITSUBISHI	PKA-A18HA7	1.5	STANDARD	425 - 290	-	-	-	-	POWERED THRU HP-1			1, 3
HP-1	HEAT PUMP	MITSUBISHI	PUY-A18HA17	1.5	STANDARD	-	COOLING ONLY	12.2	18.0	18	208/1	11	20-2	2, 4
FCU-2	WALL-MOUNT FAN COIL UNIT	MITSUBISHI	PKA-A18HA7	1.5	STANDARD	425 - 290	-	-	-	-	POWERED THRU HP-2			1, 3
HP-2	HEAT PUMP	MITSUBISHI	PUY-A18HA17	1.5	STANDARD	-	COOLING ONLY	12.2	18.0	18	208/1	11	20-2	2, 4

NOTES:
1. PROVIDE AND INSTALL 7 DAY PROGRAMABLE WIRED REMOTE CONTROLLER WITH PASSCODE PROTECTION OR PHYSICAL LOCKING COVER. COORDINATE EXACT MOUNTING LOCATION WITH OWNER.
2. WITH WIND BAFFLE.
3. WITH FIELD INSTALLED CONDENSATE PUMP.
4. WITH DIVERSITECH QUIK-SLING MOUNTING SYSTEM

SPLIT SYSTEM SCHEDULE

TAG	EQUIPMENT DESCRIPTION	SIZE (TONS)	ORIENTATION	TOTAL AIRFLOW (CFM)	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. (SEER)	VOLTS/PH	MCA	OCP	
AHU-1	AIR HANDLER	1.5	UPFLOW	600	-	8	-	-	-	208/1	44	45	1, 2
AHU-2	AIR HANDLER	2.0	UPFLOW	800	-	8	-	-	-	208/1	44	45	1, 2
AHU-3	AIR HANDLER	2.5	UPFLOW	1000	130 / 130	10	-	-	-	208/1	51	60	1, 2
AHU-4	AIR HANDLER	3.0	UPFLOW	1200	100 / 100	15	-	-	-	208/1	51,22	60,25	1, 2
CU-1	CONDENSING UNIT	1.5	-	-	-	-	13.2	17.8	13	208/1	12	20	3, 4
CU-2	CONDENSING UNIT	2.0	-	-	-	-	17.2	23.0	13	208/1	18	30	3, 4
CU-3	CONDENSING UNIT	2.5	-	-	-	-	21.5	28.4	13	208/1	17	25	3, 4
CU-4	CONDENSING UNIT	3.0	-	-	-	-	24.5	33.6	13	208/1	19	30	3, 4

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 FACTORY HAIL GUARD.
4. LOW AMBIENT PACKAGE FOR OPERATION TO 0° F.

EXHAUST FAN SCHEDULE

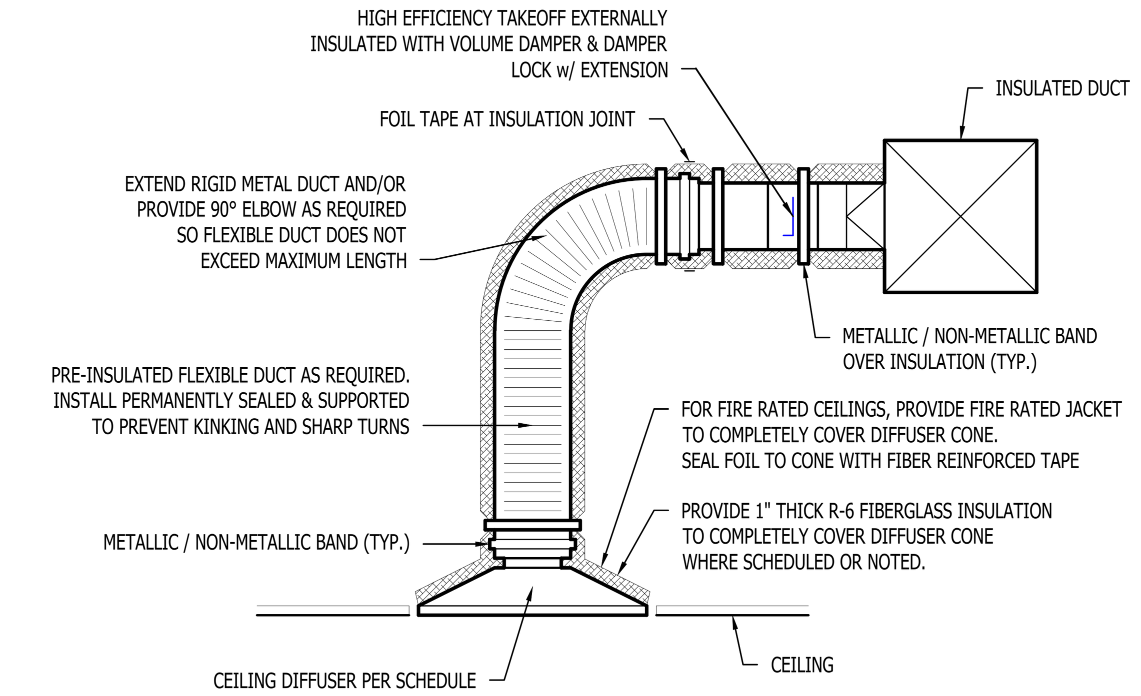
TAG	EQUIPMENT TYPE	MANUFACTURER (OR EQUAL)	MODEL (OR EQUAL)	FLOW		ELECTRICAL			NOTES
				CFM	S.P.	VOLT/PH	MCA	OCP	
EF-1	EXHAUST FAN	BROAN / NUTONE	AE50	50	1/8"	120	1	20	1, 2

NOTES:
1. WITH BACKDRAFT DAMPER
2. WITH CEILING RADIATION DAMPER

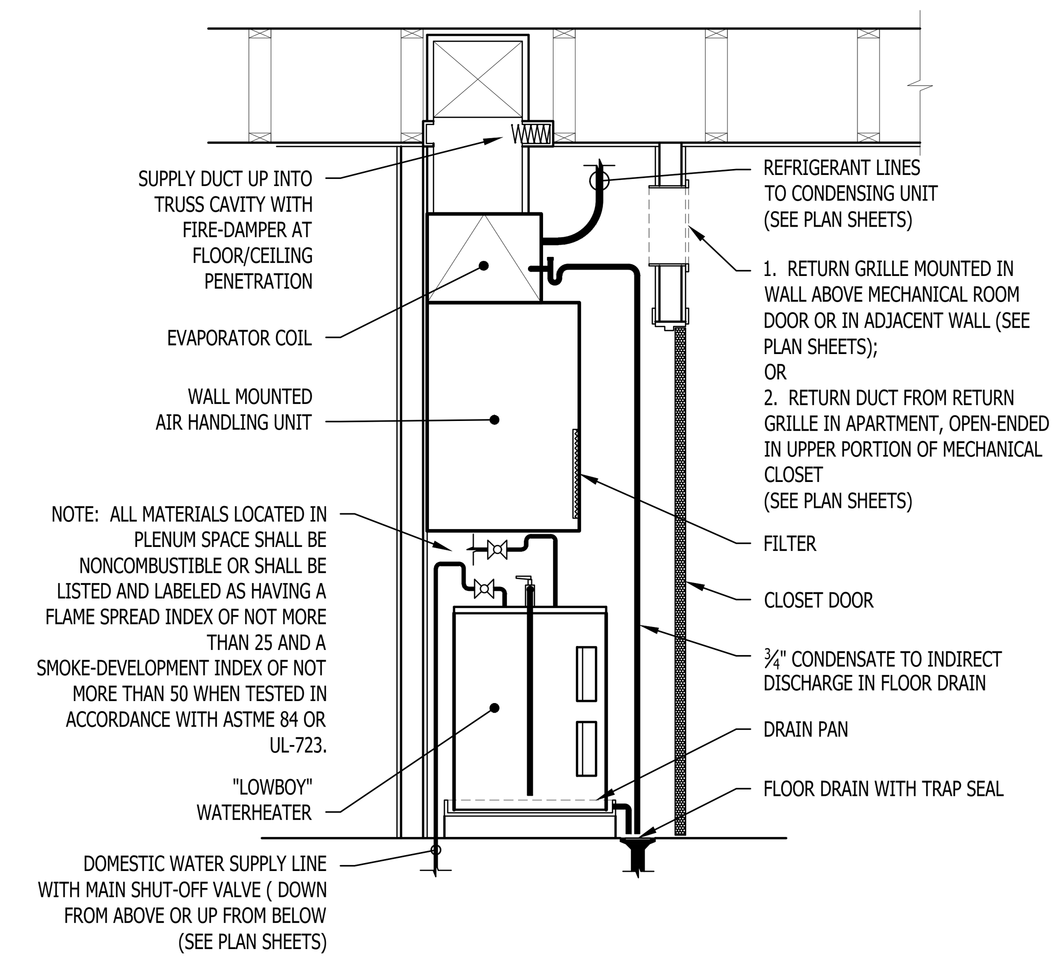
AIR DEVICE SCHEDULE

TAG	SERVICE	MANUFACTURER (OR EQUAL)	MODEL (OR EQUAL)	SIZE	COLOR / FINISH	NOTES
L1	OA / EXH	POTTORFF	EFD	AS INDICATED	PRIMED	PAINT TO MATCH EXTERIOR
R1	RETURN	PRICE	530	AS INDICATED	WHITE	
R2	RETURN	PRICE	80	24x24	WHITE	
S1	SUPPLY	PRICE	520	12x6	WHITE	WITH CEILING RADIATION DAMPER
S2	SUPPLY	PRICE	SPD	24x24	WHITE	
S3	SUPPLY	PRICE	SPD	12x12	WHITE	WITH DRYWALL MOUNTING KIT

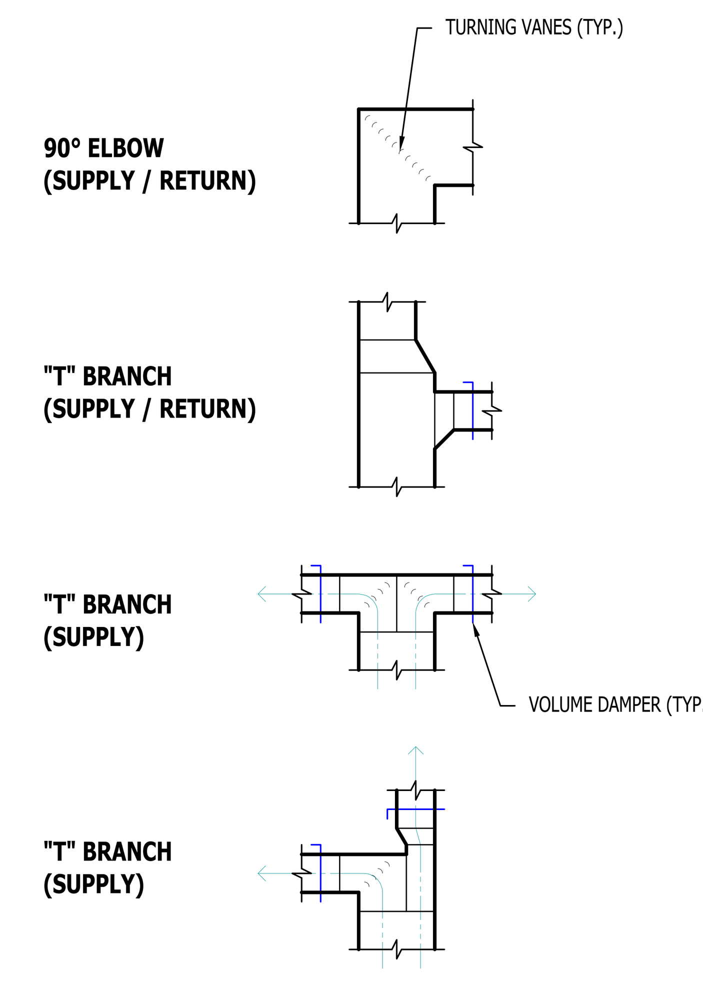
NOTES:
1. VERIFY AIR DEVICE FINISHES WITH OWNER/ARCHITECT PRIOR TO INSTALLATION



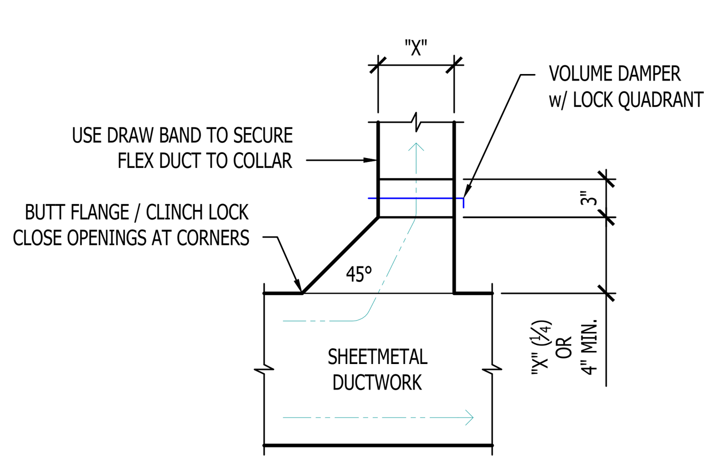
TYPICAL LAY-IN DIFFUSER DETAIL



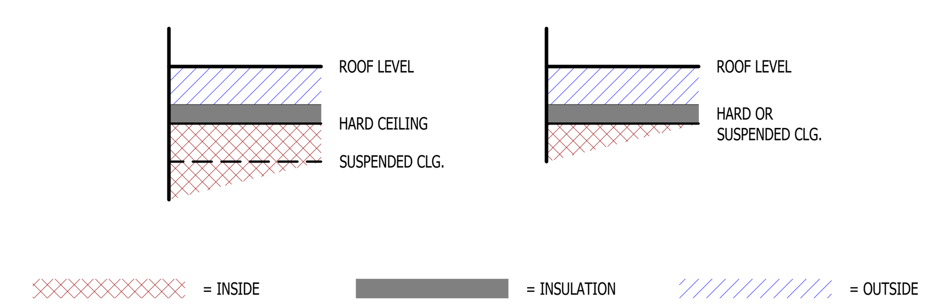
STACKED WATER HEATER / AHU DETAIL



TYPICAL DUCTWORK FITTINGS DETAIL



TYPICAL 45° TAKEOFF 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

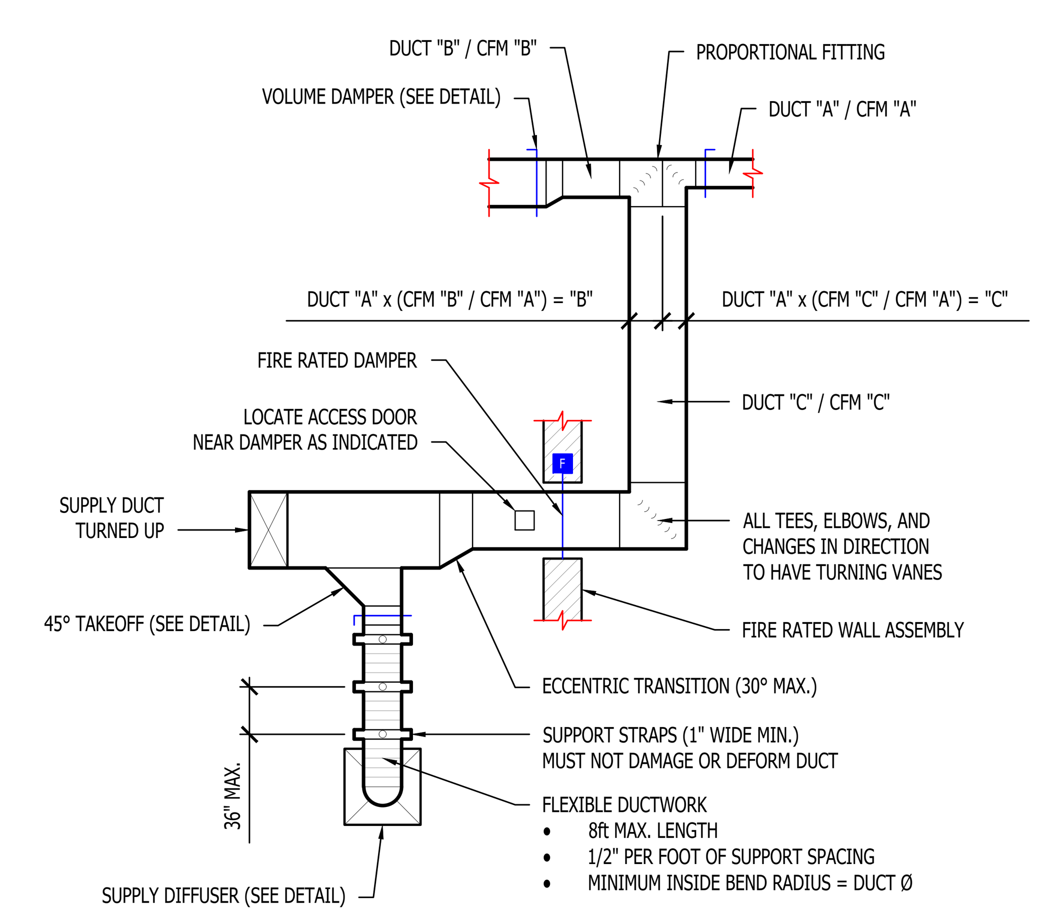
DUCT OUTSIDE THERMAL ENVELOPE INSULATION REQUIREMENTS

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



TYPICAL DUCTWORK DETAIL

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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573.234.4492
www.j-squaredeng.com

J2 PROJECT No:	J21010
J2 DESIGN:	ACW
ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

HVAC DETAILS & SCHEDULES

SHEET NUMBER

M501

POWER PLAN SYMBOL LEGEND

- CIRCUIT WIRING
- PX-XX — CIRCUIT TAG
- JUNCTION BOX
- XX +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
- 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)
- D — DISCONNECT

SECURITY PLAN SYMBOL LEGEND

- R — READER
- M — MOTION DETECTOR
- KP — ALARM KEYPAD
- DC — DOOR CONTACT
- P — PANIC
- GB — GLASS BREAK SENSOR
- ES — ELECTRIC STRIKE
- BURG — BURGLAR PANEL
- C W — WALL MOUNT CAMERA (ARROW INDICATES VIEW DIRECTION)
- C C — CEILING MOUNT CAMERA (ARROW INDICATES VIEW DIRECTION)

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.
2. CONTRACTOR TO PROVIDE SELECTIVE COORDINATION STUDY PRIOR TO ORDERING ELECTRICAL EQUIPMENT. CONTRACTOR TO ENSURE 10KA SCCR OR LESS AT ELEVATOR DISCONNECT.
3. ELEVATOR CONTRACTOR TO PROVIDE CONTROLLER CAPABLE OF 10KA SCCR.

POWER PLAN KEY NOTES:

(1) RECESSED WALL HEATER (EQUAL TO MARLEY #VFK408FC) WITH BACK BOX FOR RECESSED INSTALL.

(2) 40A LEVEL 2 DUAL CONNECTOR EV CHARGING STATION (EQUAL TO JUICEBAR #JB3.0-402).

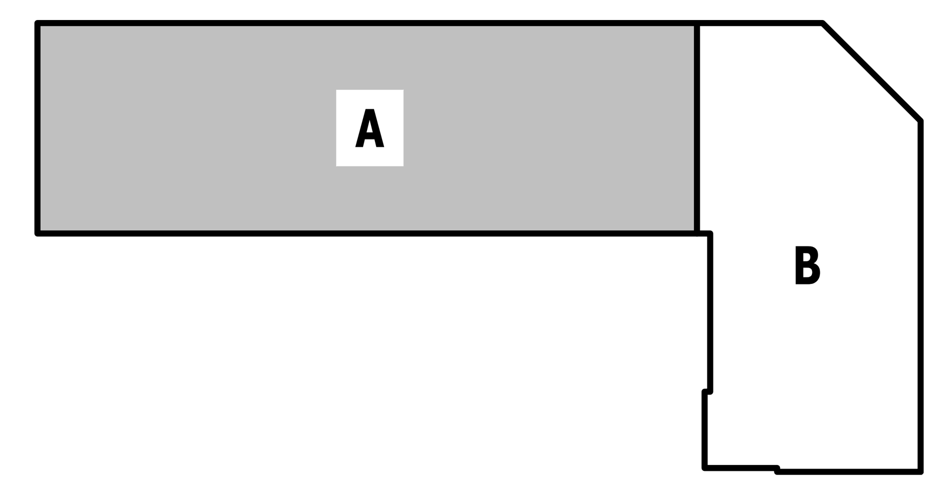
(3) POWER FOR PLENUM HEATER. COORDINATE WITH HVAC CONTRACTOR.

(4) (2) ¾" UNDERGROUND PVC CONDUITS FOR POWER & COMMUNICATION FOR FUTURE ACCESS CONTROL/GATE OPERATOR. COORDINATE WITH G.C.

(5) 4" EMT CONDUIT WITH PULL STRING STUBBED UP TO I.T. ROOM.

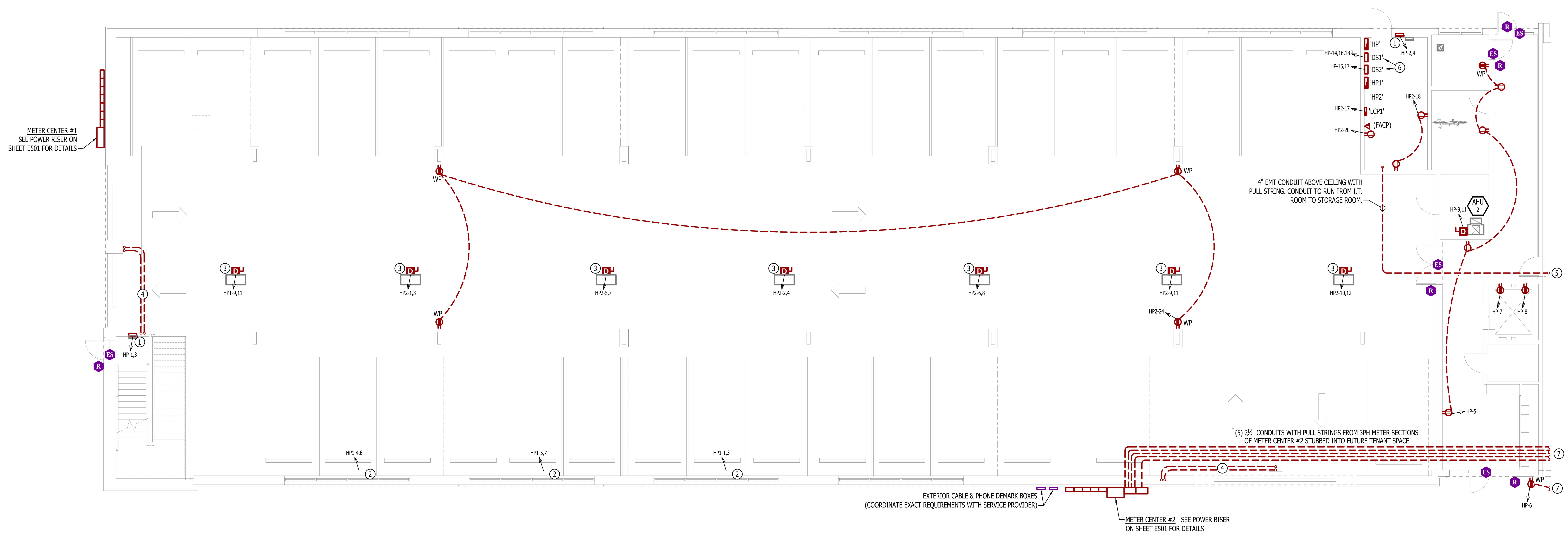
(6) 'DS1' 208V 3-PH FUSED DISCONNECT FOR ELEVATOR. FUSE AT 60 AMPS. PROVIDE (2) NORMALLY OPEN CONTACTS & (2) NORMALLY CLOSED CONTACTS. 'DS2' FUSED DISCONNECT FOR ELEVATOR CAB LIGHTS. FUSE AT 15 AMPS.

(7) SEE SHEET EP111 FOR CONTINUATION.



KEY PLAN

SCALE: NTS



POWER PLAN - FIRST FLOOR - AREA A

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

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
PE-2015017071
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J2 DESIGN:	ACW
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PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

POWER PLAN - FIRST FLOOR - AREA A

SHEET NUMBER

EP101

POWER PLAN SYMBOL LEGEND

- CIRCUIT WIRING
- PX-XX — CIRCUIT TAG
- JUNCTION BOX
- XX +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
- 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)
- DISCONNECT

SECURITY PLAN SYMBOL LEGEND

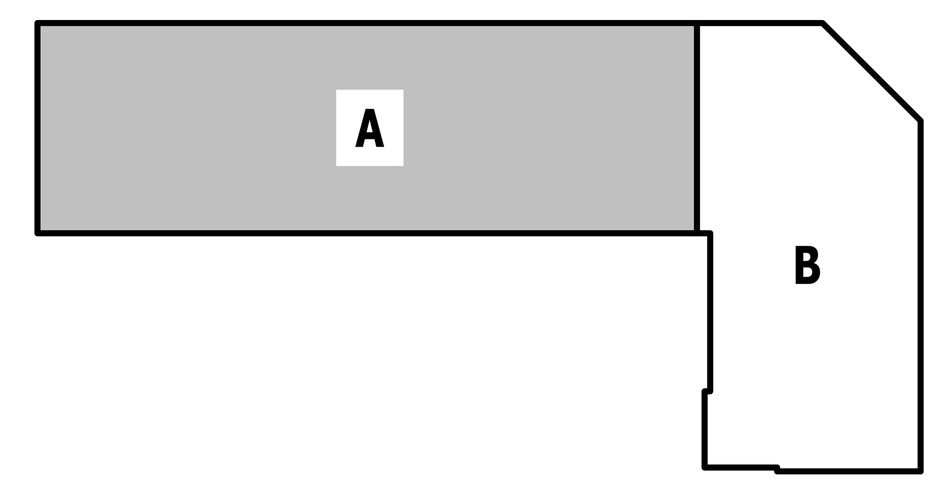
- R — READER
- M — MOTION DETECTOR
- KP — ALARM KEYPAD
- DC — DOOR CONTACT
- P — PANIC
- GB — GLASS BREAK SENSOR
- ES — ELECTRIC STRIKE
- BURG — BURGLAR PANEL
- C W — WALL MOUNT CAMERA (ARROW INDICATES VIEW DIRECTION)
- C C — CEILING MOUNT CAMERA (ARROW INDICATES VIEW DIRECTION)

POWER PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & 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.

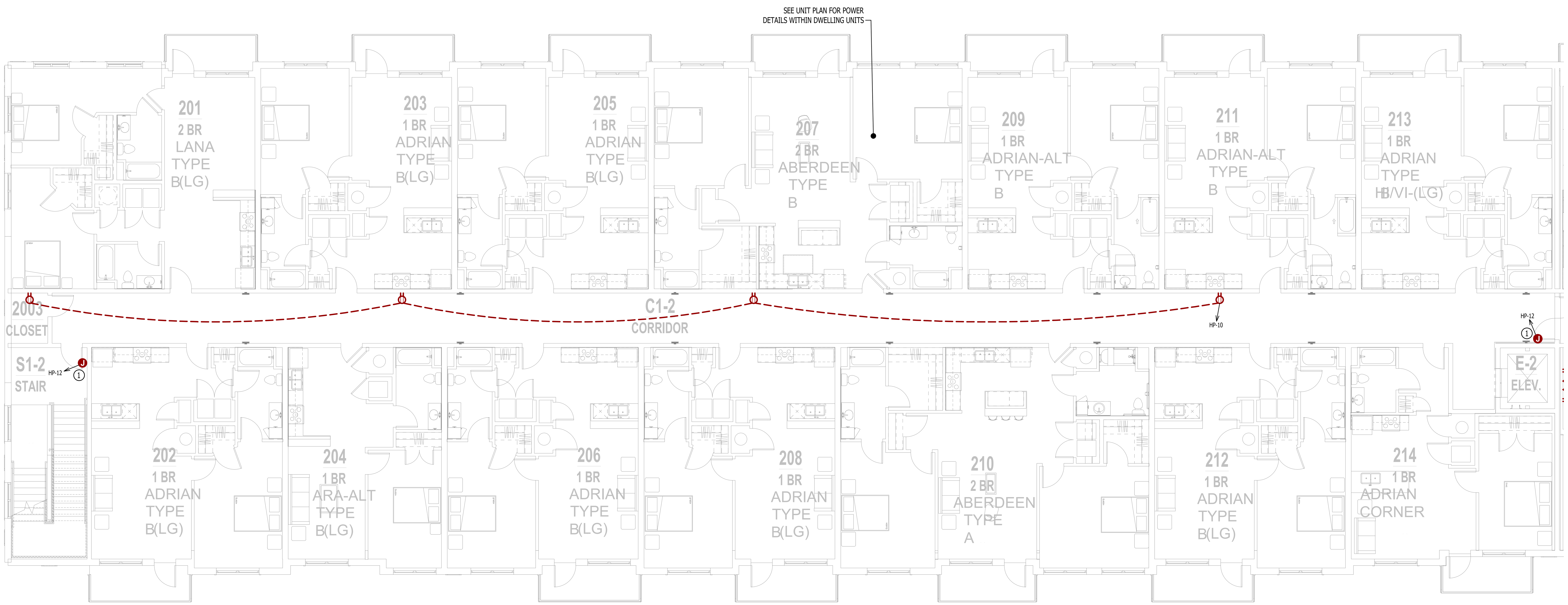
POWER PLAN KEY NOTES:

1. POWER FOR MAG HOLD. WIRE THRU FIRE ALARM.



KEY PLAN

SCALE: NTS



POWER PLAN - SECOND FLOOR - AREA A

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

STATE OF MISSOURI JAMES P. WATSON NUMBER PE-2015017071 PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
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Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

POWER PLAN - SECOND FLOOR - AREA A

SHEET NUMBER

EP102

POWER PLAN SYMBOL LEGEND

- CIRCUIT WIRING
- PX-XX — CIRCUIT TAG
- J — JUNCTION BOX
- XX +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
- GFCI DUPLEX CONVENIENCE RECEPTACLE
- 208V RECEPTACLE
- QUADPLEX CONVENIENCE RECEPTACLE
- U — 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)
- D — DISCONNECT

SECURITY PLAN SYMBOL LEGEND

- R — READER
- M — MOTION DETECTOR
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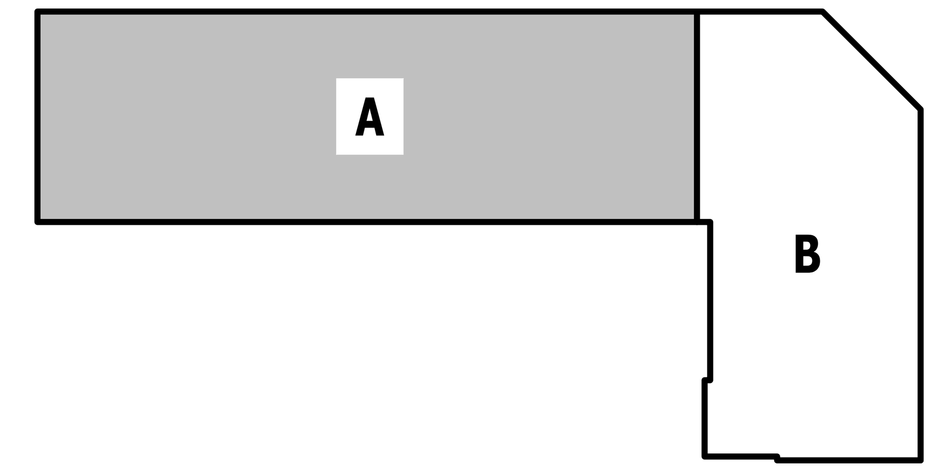
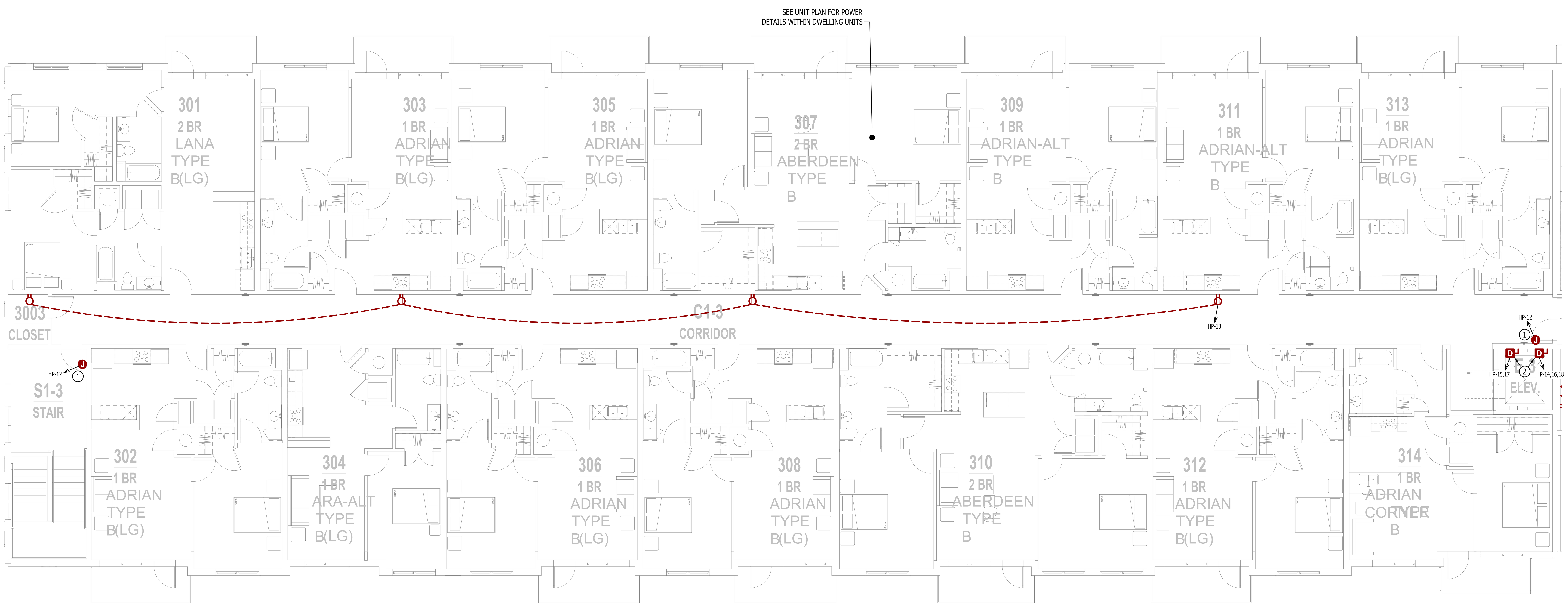
POWER PLAN KEY NOTES:

1. POWER FOR MAG HOLD. WIRE THRU FIRE ALARM.
2. ELEVATOR SERVICE DISCONNECT(S), WIRE THRU 'DS1' / 'DS2' IN MECHANICAL ROOM (SEE SHEET EP111); COORDINATE EXACT LOCATION & REQUIREMENTS WITH ELEVATOR EQUIPMENT SUPPLIER.



KEY PLAN

SCALE: NTS



POWER PLAN - THIRD FLOOR - AREA A

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

STATE OF MISSOURI JAMES P. WATSON NUMBER PE-2015017071 PROFESSIONAL ENGINEER

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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
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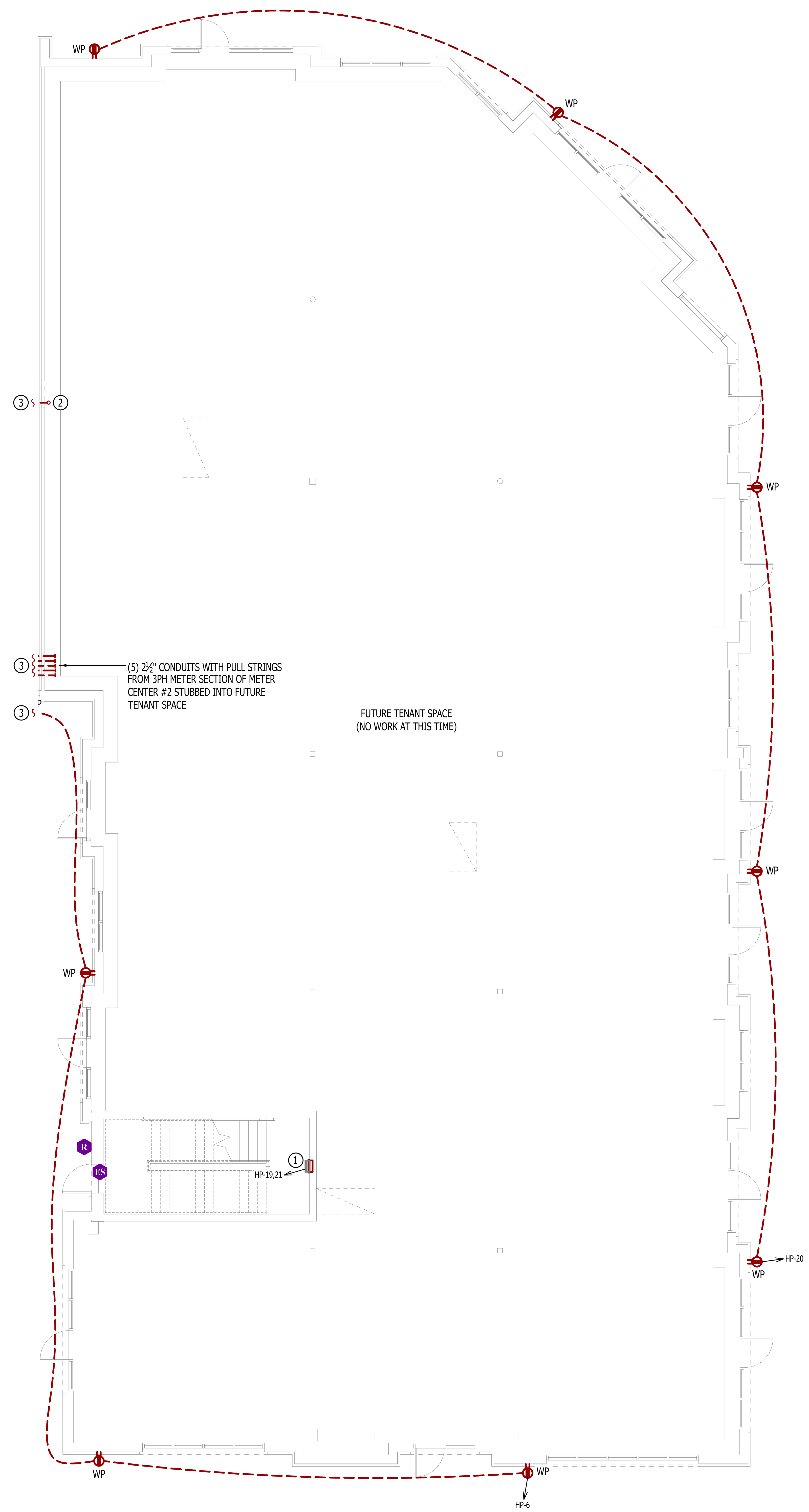
AHJ APPROVAL STAMP

SHEET TITLE

POWER PLAN - THIRD FLOOR - AREA A

SHEET NUMBER

EP103



POWER PLAN - FIRST FLOOR - AREA B

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

POWER PLAN SYMBOL LEGEND

- CIRCUIT WIRING
- 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
- 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)
- DISCONNECT

SECURITY PLAN SYMBOL LEGEND

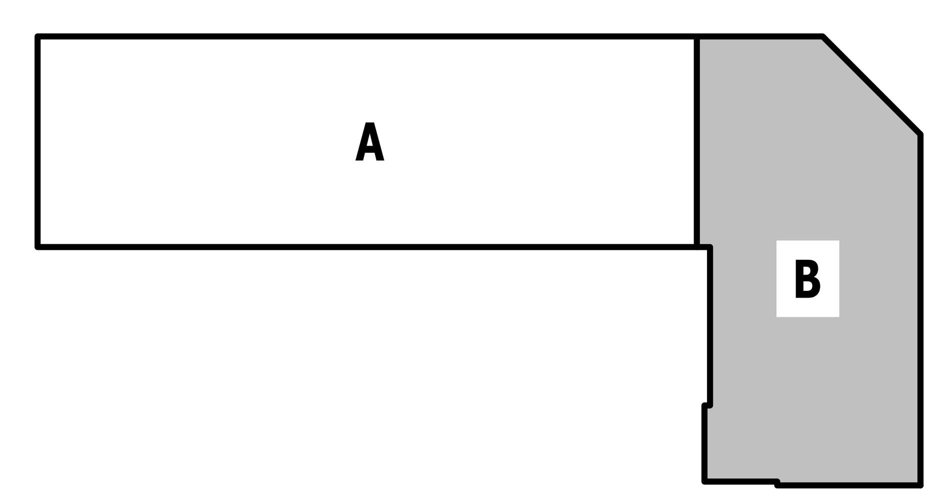
- READER
- MOTION DETECTOR
- ALARM KEYPAD
- DOOR CONTACT
- PANIC
- GLASS BREAK SENSOR
- ELECTRIC STRIKE
- BURGLAR PANEL
- WALL MOUNT CAMERA (ARROW INDICATES VIEW DIRECTION)
- CEILING MOUNT CAMERA (ARROW INDICATES VIEW DIRECTION)

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. RECESSED WALL HEATER (EQUAL TO MARLEY #VFK408FC) WITH BACK BOX FOR RECESSED INSTALL.
2. 4" EMT CONDUIT WITH PULL STRING STUBBED UP TO I.T. ROOM.
3. SEE SHEET EP101 FOR CONTINUATION.



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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Columbia, Missouri 65201
573.234.4492
www.j-squaredeng.com

J2 PROJECT No:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

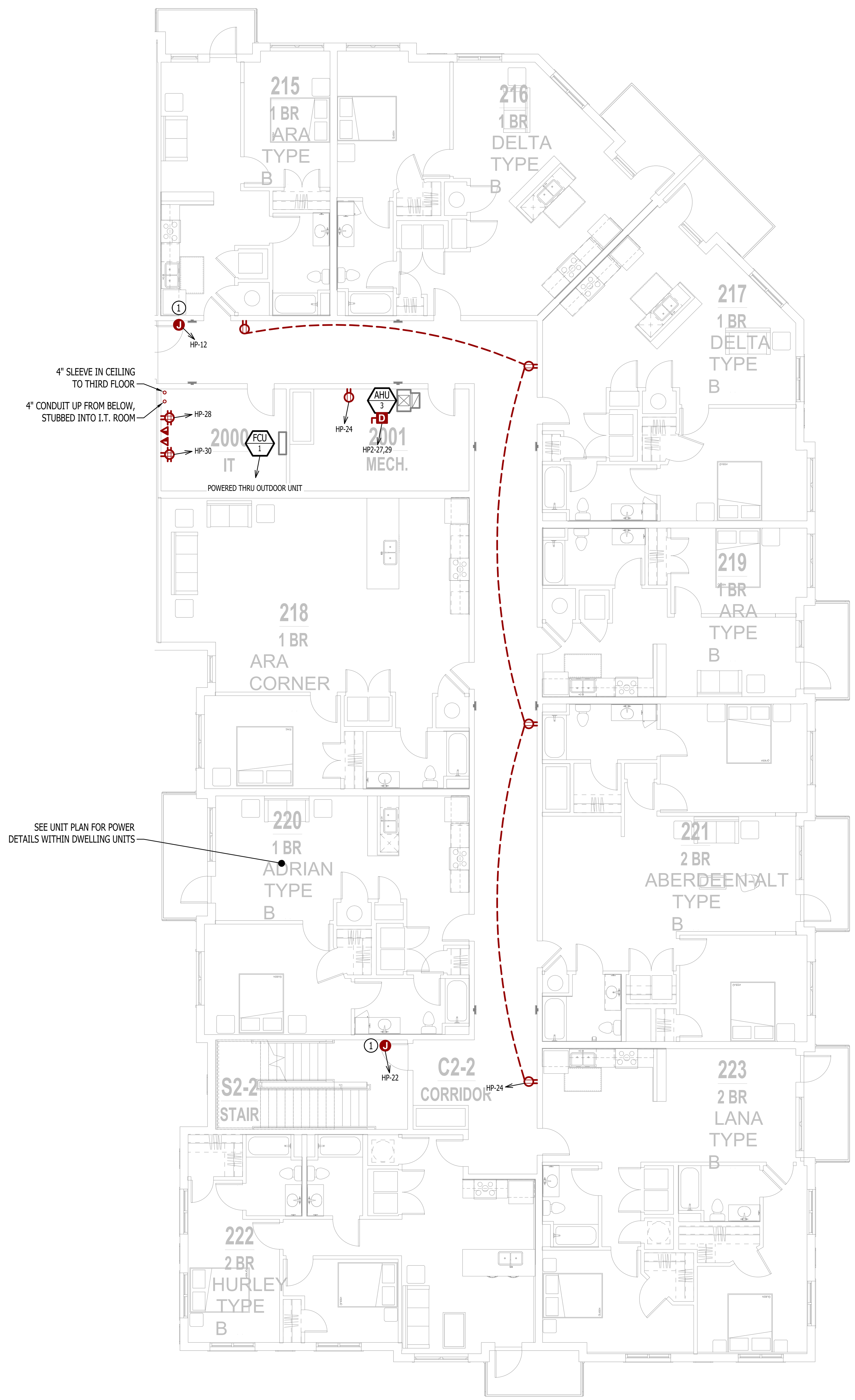
AHJ APPROVAL STAMP

SHEET TITLE

POWER PLAN - FIRST FLOOR - AREA B

SHEET NUMBER

EP111



POWER PLAN - SECOND FLOOR - AREA B

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

POWER PLAN SYMBOL LEGEND

- CIRCUIT WIRING
- 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
- 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)
- DISCONNECT

SECURITY PLAN SYMBOL LEGEND

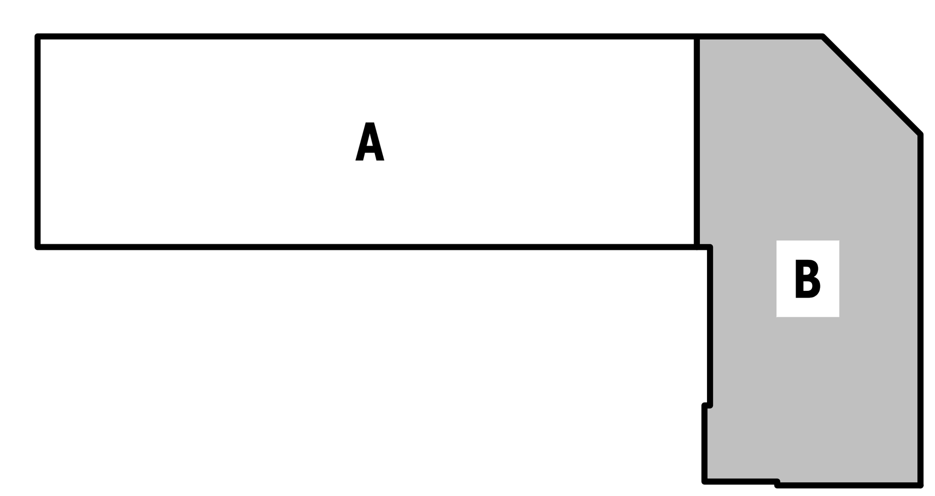
- READER
- MOTION DETECTOR
- ALARM KEYPAD
- DOOR CONTACT
- PANIC
- GLASS BREAK SENSOR
- ELECTRIC STRIKE
- BURGLAR PANEL
- WALL MOUNT CAMERA (ARROW INDICATES VIEW DIRECTION)
- CEILING MOUNT CAMERA (ARROW INDICATES VIEW DIRECTION)

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. POWER FOR MAG HOLD. WIRE THRU FIRE ALARM.



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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J2 PROJECT No:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

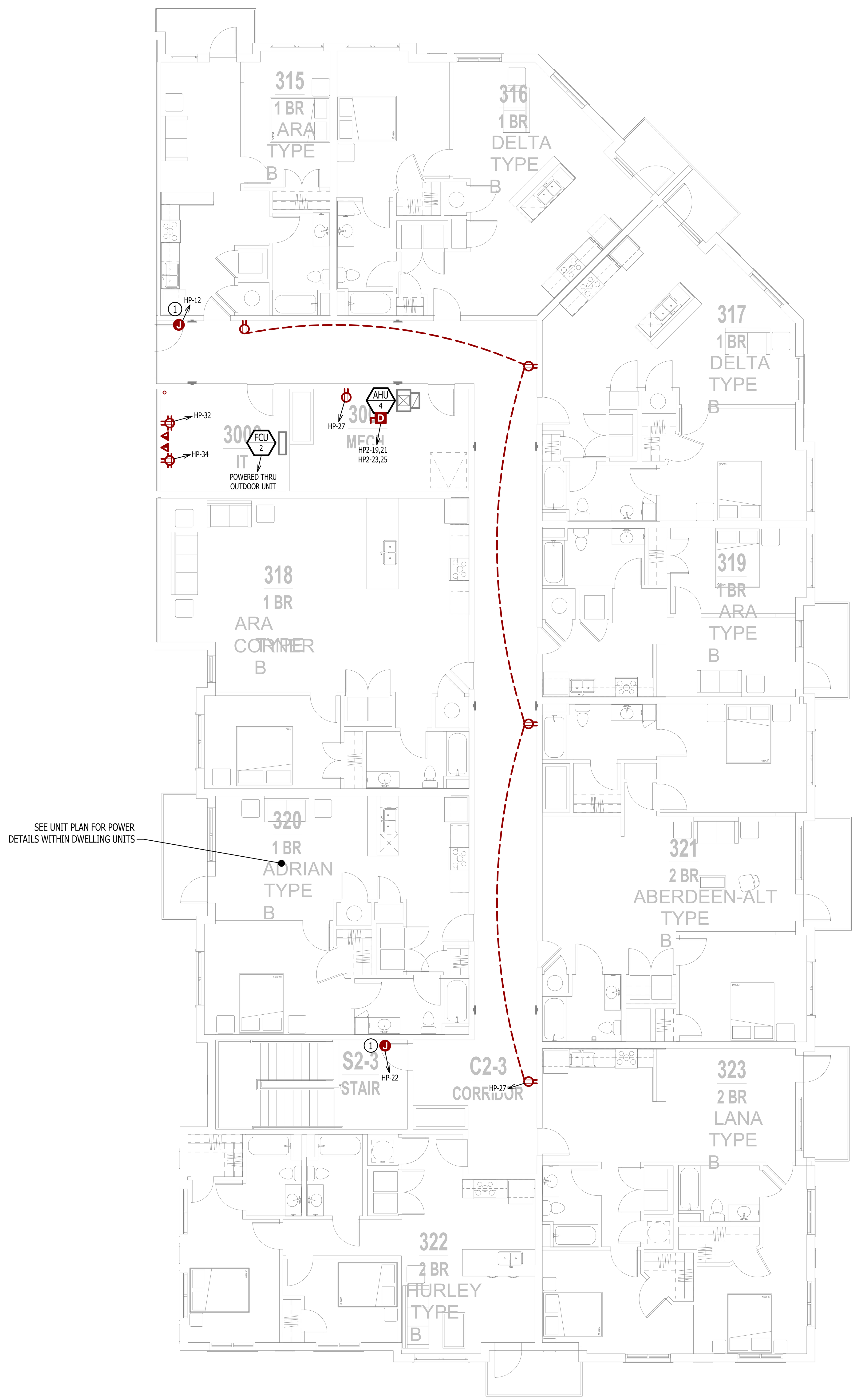
AHJ APPROVAL STAMP

SHEET TITLE

POWER PLAN - SECOND FLOOR - AREA B

SHEET NUMBER

EP112



POWER PLAN - THIRD FLOOR - AREA B

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

POWER PLAN SYMBOL LEGEND

- CIRCUIT WIRING
- PX-XX CIRCUIT TAG
- JUNCTION BOX
- RECEPTACLE
  - XX = 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)
- DISCONNECT

SECURITY PLAN SYMBOL LEGEND

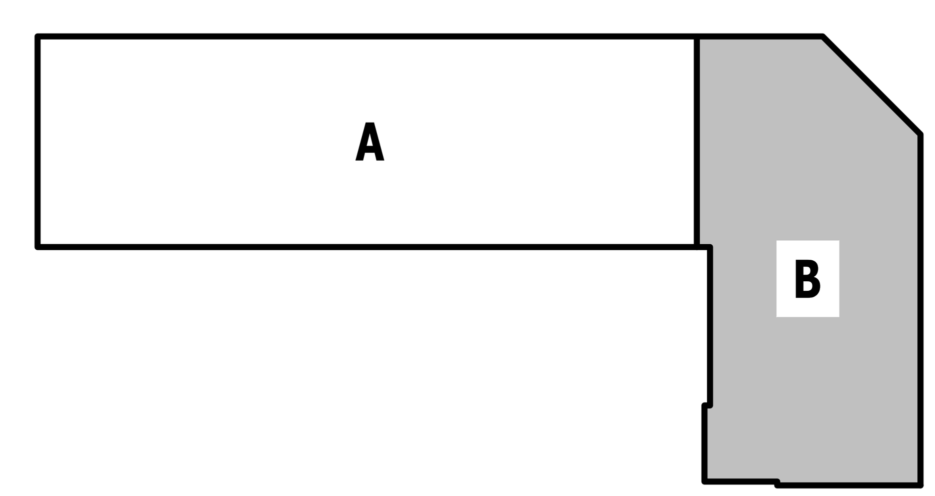
- R — READER
- M — MOTION DETECTOR
- KP — ALARM KEYPAD
- DC — DOOR CONTACT
- P — PANIC
- GB — GLASS BREAK SENSOR
- ES — ELECTRIC STRIKE
- BURG — BURGLAR PANEL
- C W — WALL MOUNT CAMERA (ARROW INDICATES VIEW DIRECTION)
- C C — CEILING MOUNT CAMERA (ARROW INDICATES VIEW DIRECTION)

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. POWER FOR MAG HOLD. WIRE THRU FIRE ALARM.



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
PE-2015017071
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J2 PROJECT No:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

POWER PLAN - THIRD FLOOR - AREA B

SHEET NUMBER

EP113

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

S_X — SWITCH (CEILING MOUNTED)

SWITCH TYPE:
- SEE "SWITCH (WALL MOUNTED)" FOR TYPE DESIGNATIONS

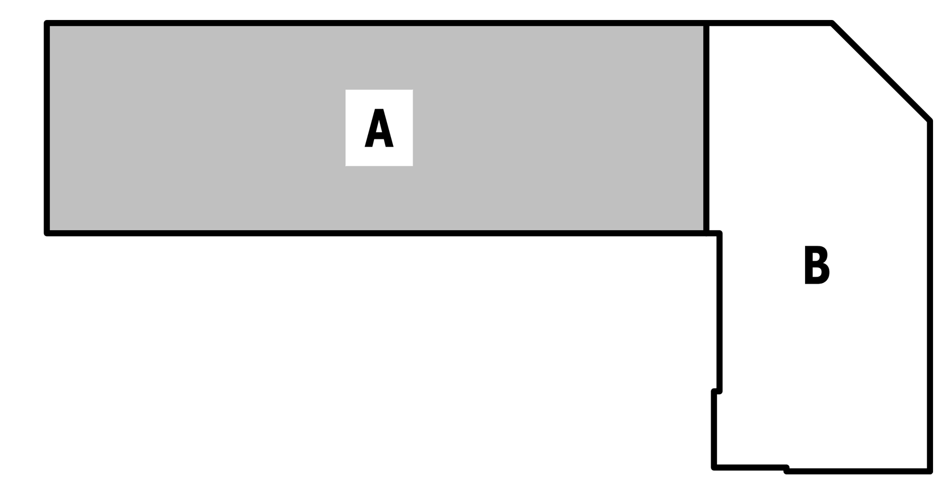
PP — POWER PACK

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)

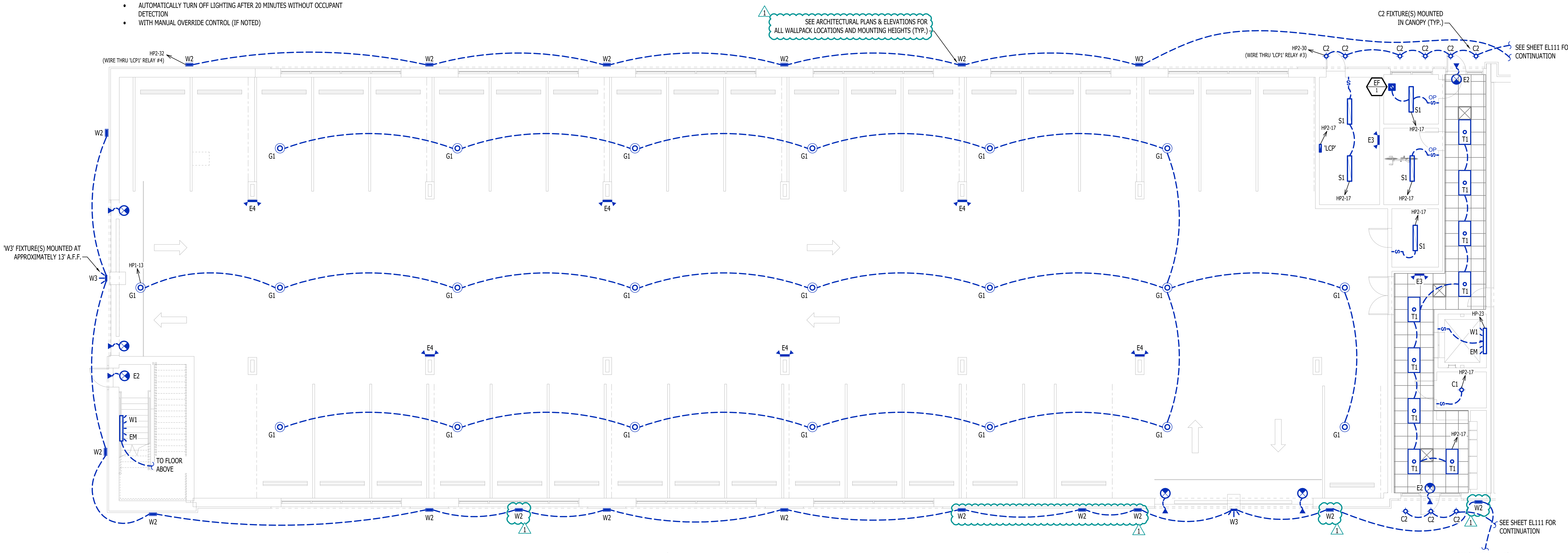
VACANCY SENSOR
- MANUAL FULL-ON
- AUTOMATICALLY TURN OFF LIGHTING AFTER 20 MINUTES WITHOUT OCCUPANT DETECTION
- WITH MANUAL OVERRIDE CONTROL (IF NOTED)

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.
4. 'W2' UP/DOWN WALL-SCONCE FIXTURES SHALL BE DIRECTED ONTO BUILDING FACADE TO MINIMIZE ANY UPWARD GLARE IN COMPLIANCE WITH CITY OF LEE'S SUMMIT UDC 8-270(B) ACCENT LIGHTING.



KEY PLAN
SCALE: NTS



LIGHTING PLAN - FIRST FLOOR - AREA A
SCALE: 1/8" = 1'-0"

JAMES P. WATSON
NUMBER PE-2015017071
STATE OF MISSOURI PROFESSIONAL ENGINEER

James Watson, P.E. December 04, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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J2 PROJECT No:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024
REVISION 1	12 - 04 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE
LIGHTING PLAN - FIRST FLOOR - AREA A

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
- S_X — SWITCH (CEILING MOUNTED)
  SWITCH TYPE:
  - SEE "SWITCH (WALL MOUNTED)" FOR TYPE DESIGNATIONS
- PP — POWER PACK

OCCUPANCY SENSOR

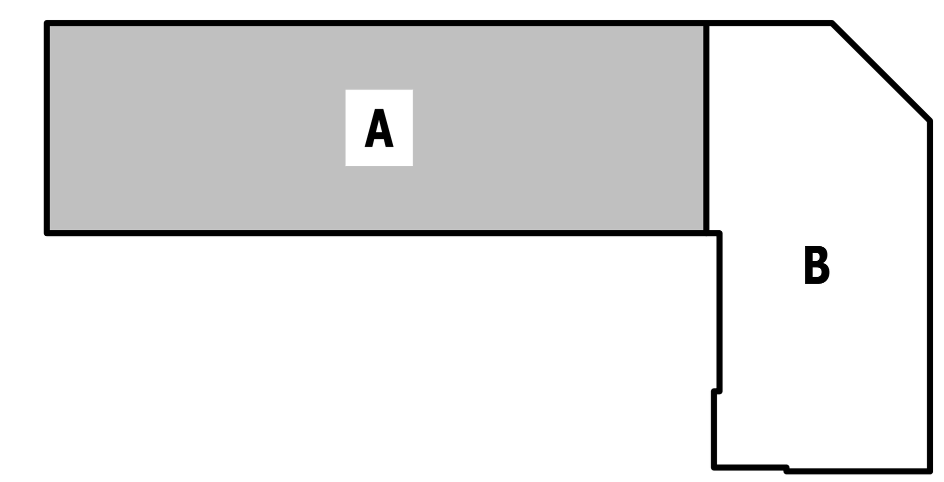
- AUTO FULL-ON (OR 50% IF NOTED)
- AUTOMATICALLY TURN OFF LIGHTING AFTER 20 MINUTES WITHOUT OCCUPANT DETECTION
- WITH MANUAL OVERRIDE CONTROL (IF NOTED)

VACANCY SENSOR

- MANUAL FULL-ON
- AUTOMATICALLY TURN OFF LIGHTING AFTER 20 MINUTES WITHOUT OCCUPANT DETECTION
- WITH MANUAL OVERRIDE CONTROL (IF NOTED)

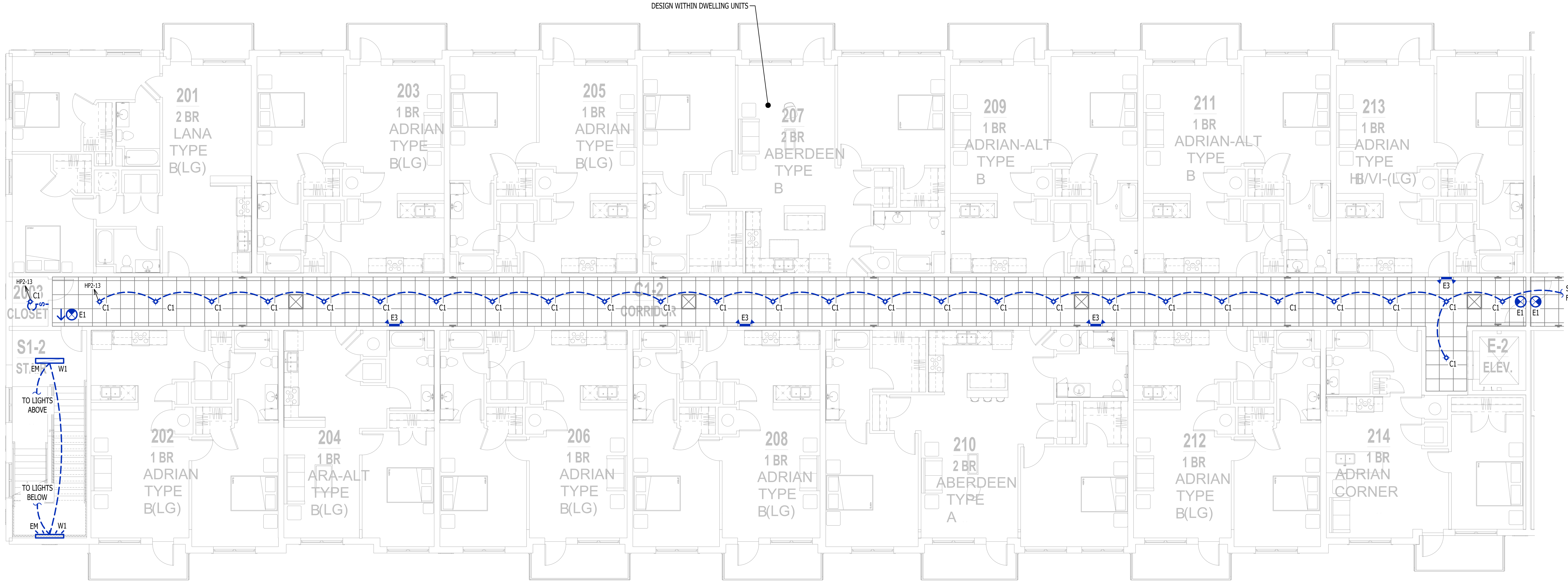
LIGHTING PLAN GENERAL NOTES:

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.



KEY PLAN

SCALE: NTS



LIGHTING PLAN - SECOND FLOOR - AREA A

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

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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www.j-squaredeng.com

J2 PROJECT No:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

LIGHTING PLAN - SECOND FLOOR - AREA A

SHEET NUMBER

EL102

LIGHTING PLAN SYMBOL LEGEND

- "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
- LIGHTING FIXTURE
- "EM" INDICATES EMERGENCY BATTERY BACKUP
- "NL" INDICATES UN-SWITCHED NIGHT LIGHT

X1 EM NL

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

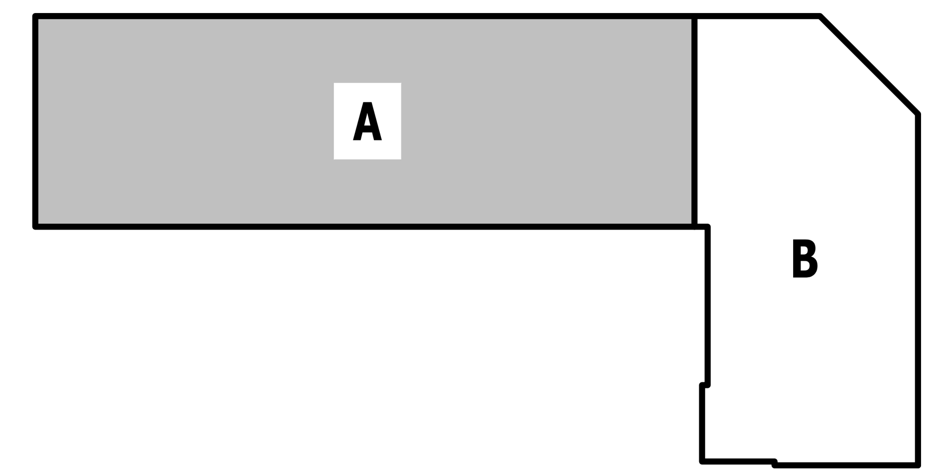
PP POWER PACK

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:

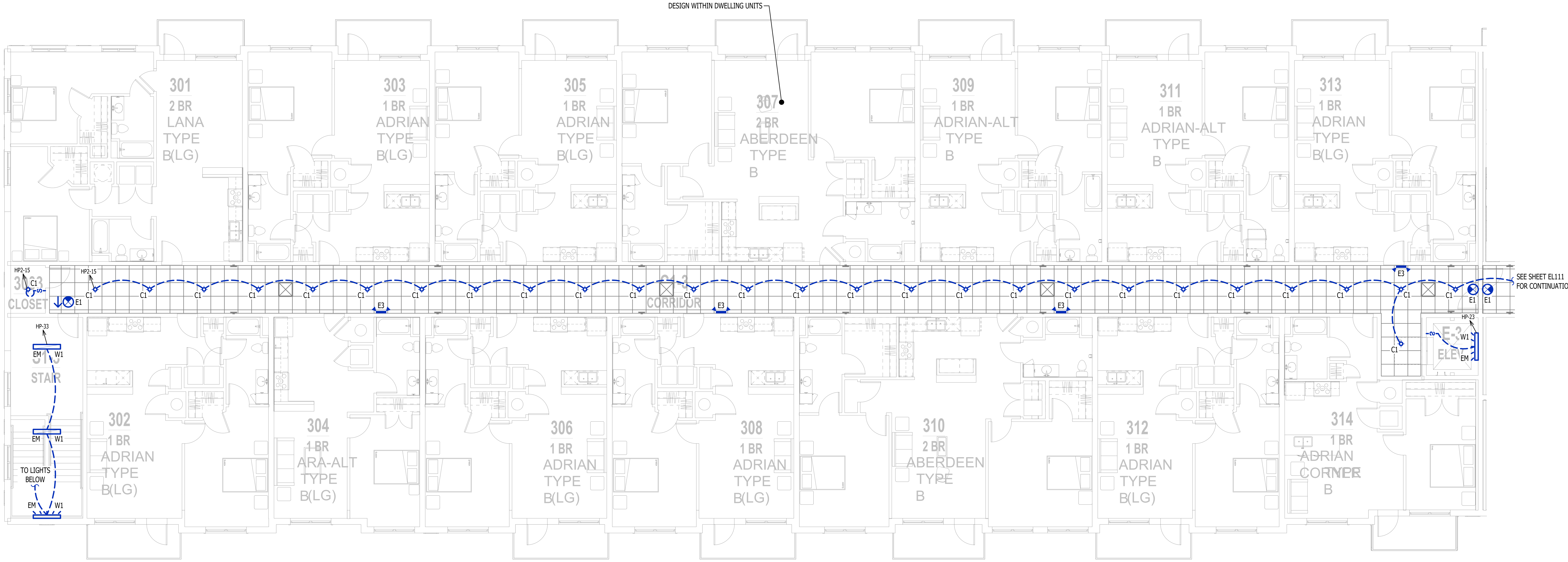
1. REFER TO E500 AND/OR E600 SERIES SHEETS FOR ADDITIONAL LIGHTING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
2. OCCUPANCY/VACANCY SENSOR QUANTITIES AND GENERAL LOCATIONS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO PROVIDE & INSTALL SENSOR WITH SPACING PER MANUFACTURER'S SPECIFICATIONS AND INCLUDE ADDITIONAL 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.



KEY PLAN

SCALE: NTS

REFER TO UNIT PLANS FOR LIGHTING DESIGN WITHIN DWELLING UNITS



LIGHTING PLAN - THIRD FLOOR - AREA A

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

STATE OF MISSOURI JAMES P. WATSON NUMBER PE-2015017071 PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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573.234.4492
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J2 PROJECT No:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

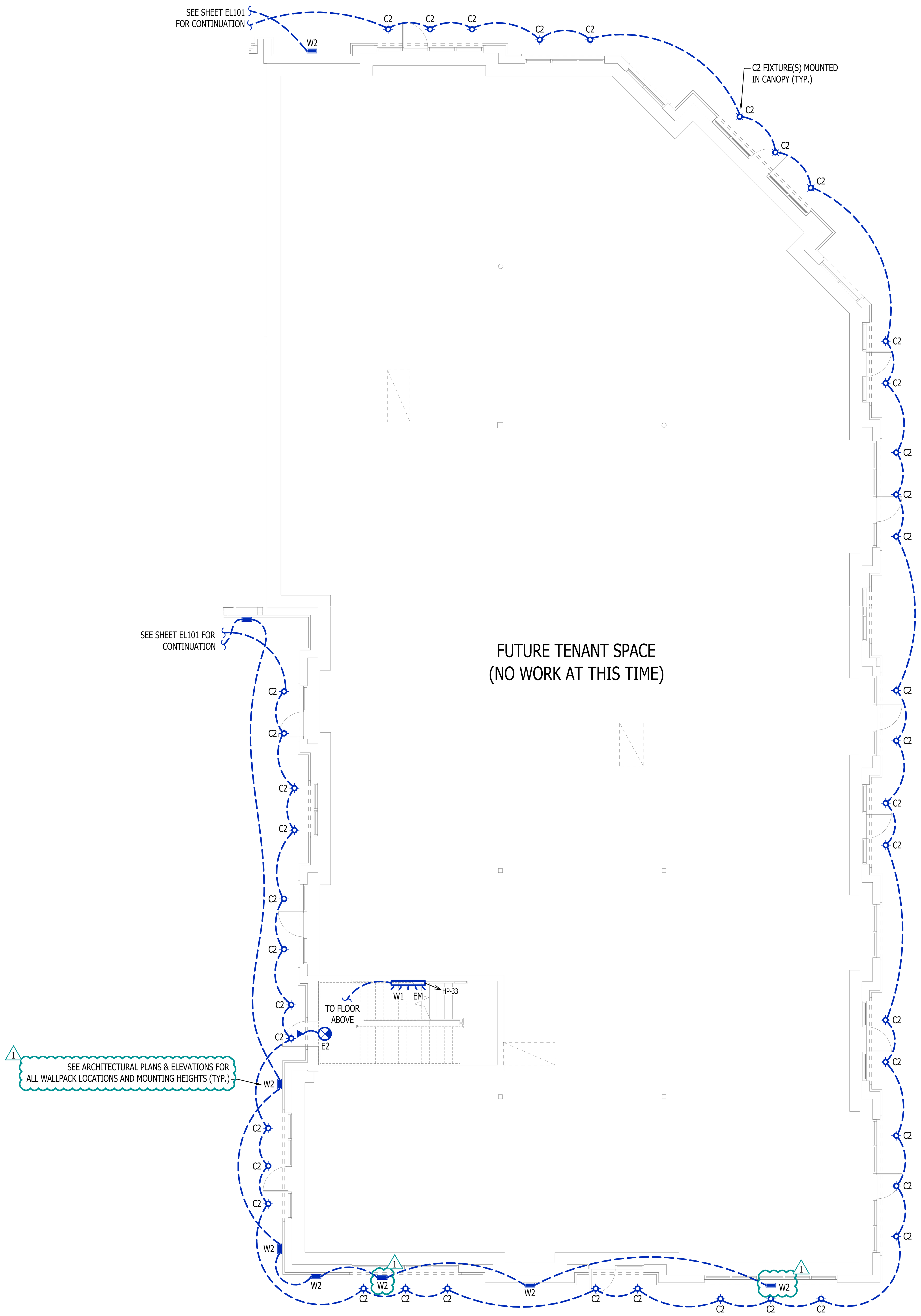
AHJ APPROVAL STAMP

SHEET TITLE

LIGHTING PLAN - THIRD FLOOR - AREA A

SHEET NUMBER

EL103



LIGHTING PLAN - FIRST FLOOR - AREA B

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

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
- S_X — SWITCH (CEILING MOUNTED)
  SWITCH TYPE:
  - SEE "SWITCH (WALL MOUNTED)" FOR TYPE DESIGNATIONS
- PP — POWER PACK

OCCUPANCY SENSOR

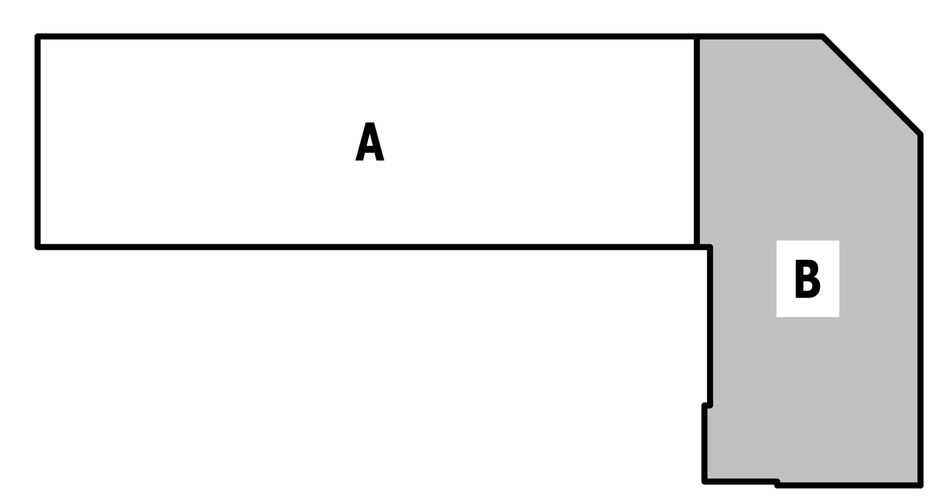
- AUTO FULL-ON (OR 50% IF NOTED)
- AUTOMATICALLY TURN OFF LIGHTING AFTER 20 MINUTES WITHOUT OCCUPANT DETECTION
- WITH MANUAL OVERRIDE CONTROL (IF NOTED)

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.



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. December 04, 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:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024
REVISION 1	12 - 04 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

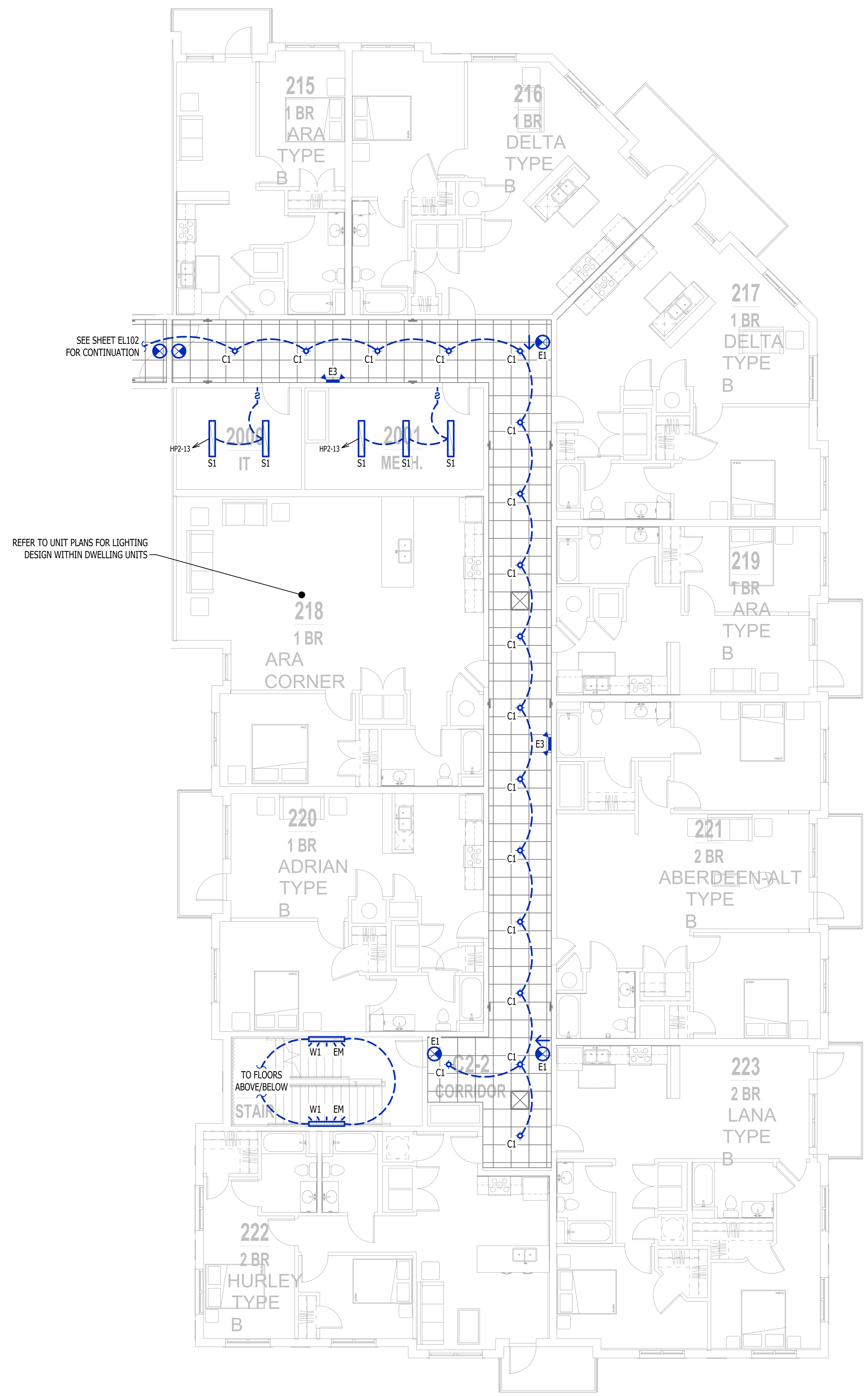
AHJ APPROVAL STAMP

SHEET TITLE

LIGHTING PLAN - FIRST FLOOR - AREA B

SHEET NUMBER

EL111



LIGHTING PLAN - SECOND FLOOR - AREA B

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

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

S_X — SWITCH (CEILING MOUNTED)

SWITCH TYPE:
- SEE "SWITCH (WALL MOUNTED)" FOR TYPE DESIGNATIONS

PP — POWER PACK

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:

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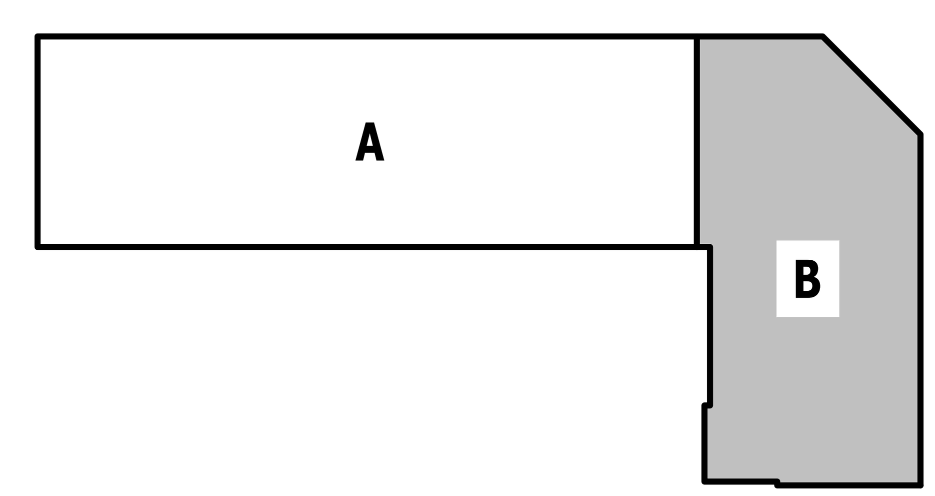

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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

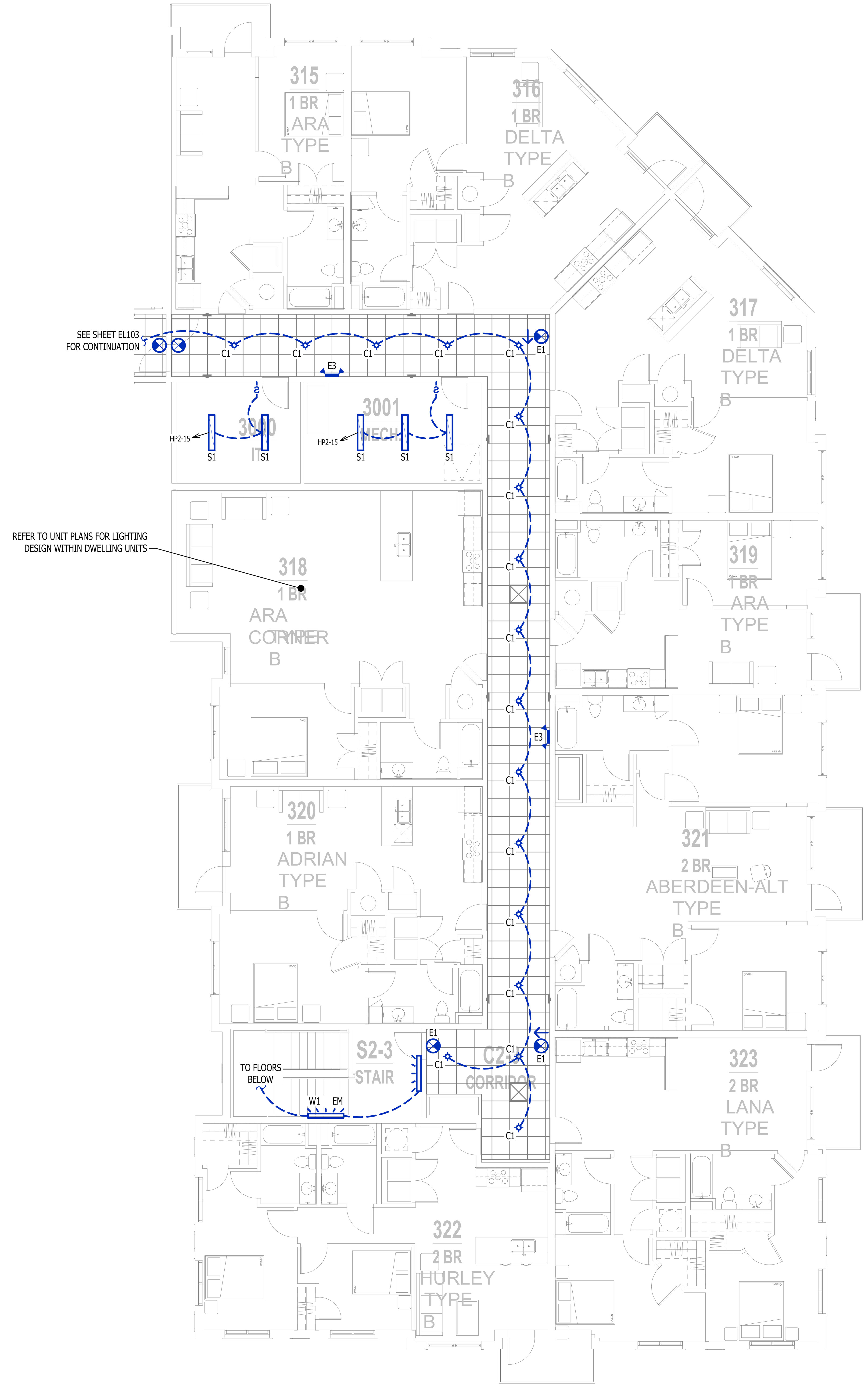
AHJ APPROVAL STAMP

SHEET TITLE

LIGHTING PLAN - SECOND FLOOR - AREA B

SHEET NUMBER

EL112



LIGHTING PLAN - THIRD FLOOR - AREA B

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

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
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  - 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
- S_X — SWITCH (CEILING MOUNTED)
  SWITCH TYPE:
  - SEE "SWITCH (WALL MOUNTED)" FOR TYPE DESIGNATIONS
- PP — POWER PACK

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)

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- MANUAL FULL-ON
- AUTOMATICALLY TURN OFF LIGHTING AFTER 20 MINUTES WITHOUT OCCUPANT DETECTION
- WITH MANUAL OVERRIDE CONTROL (IF NOTED)

LIGHTING PLAN GENERAL NOTES:

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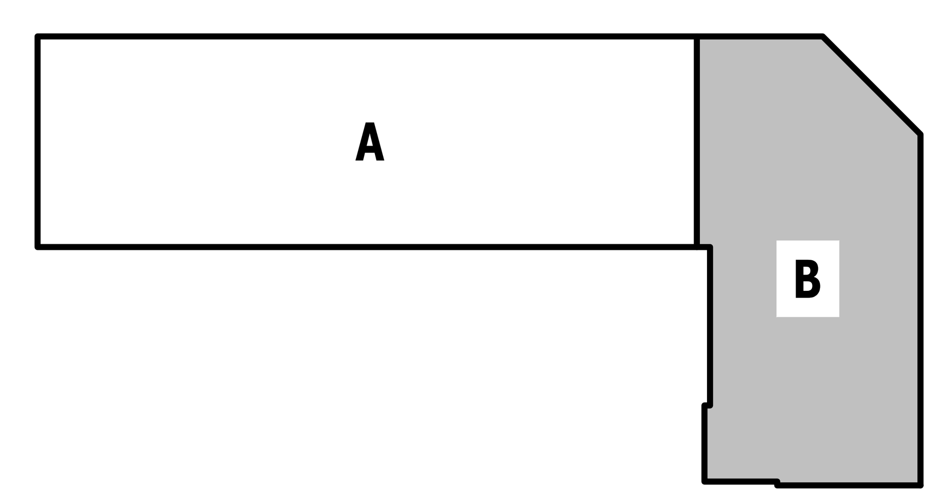

KEY PLAN

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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

LIGHTING PLAN - THIRD FLOOR - AREA B

SHEET NUMBER

EL113

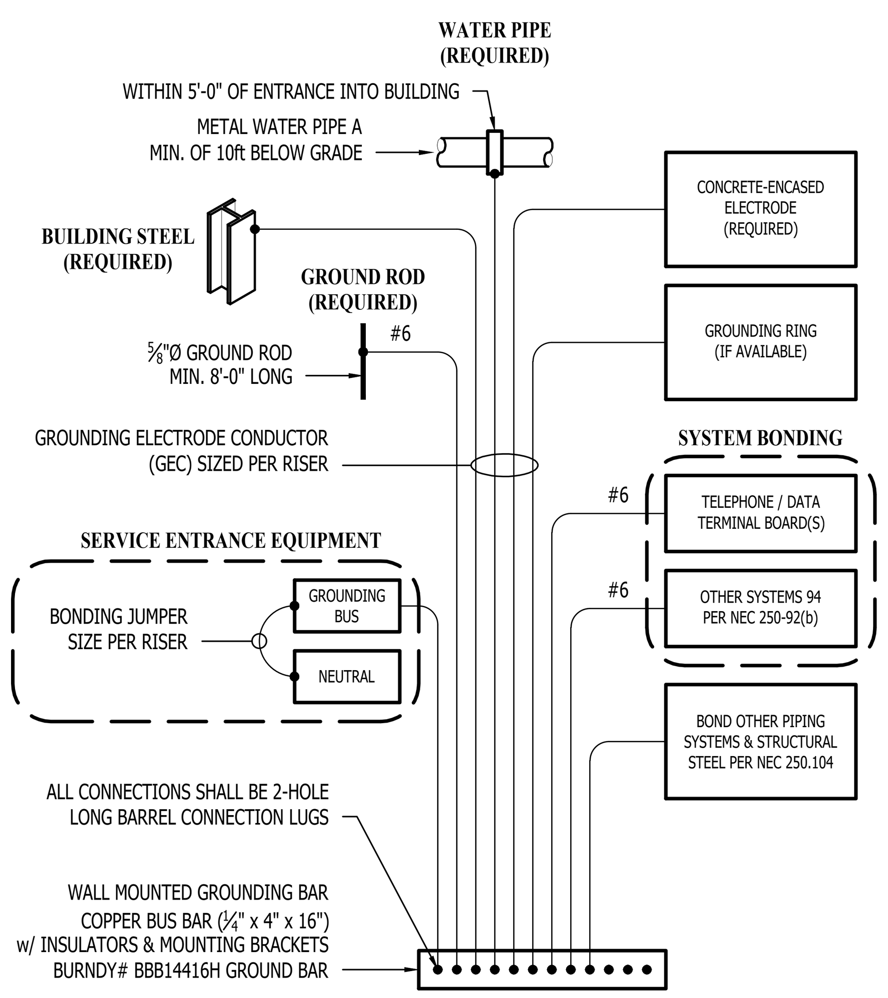
ELECTRICAL SPECIFICATIONS

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.

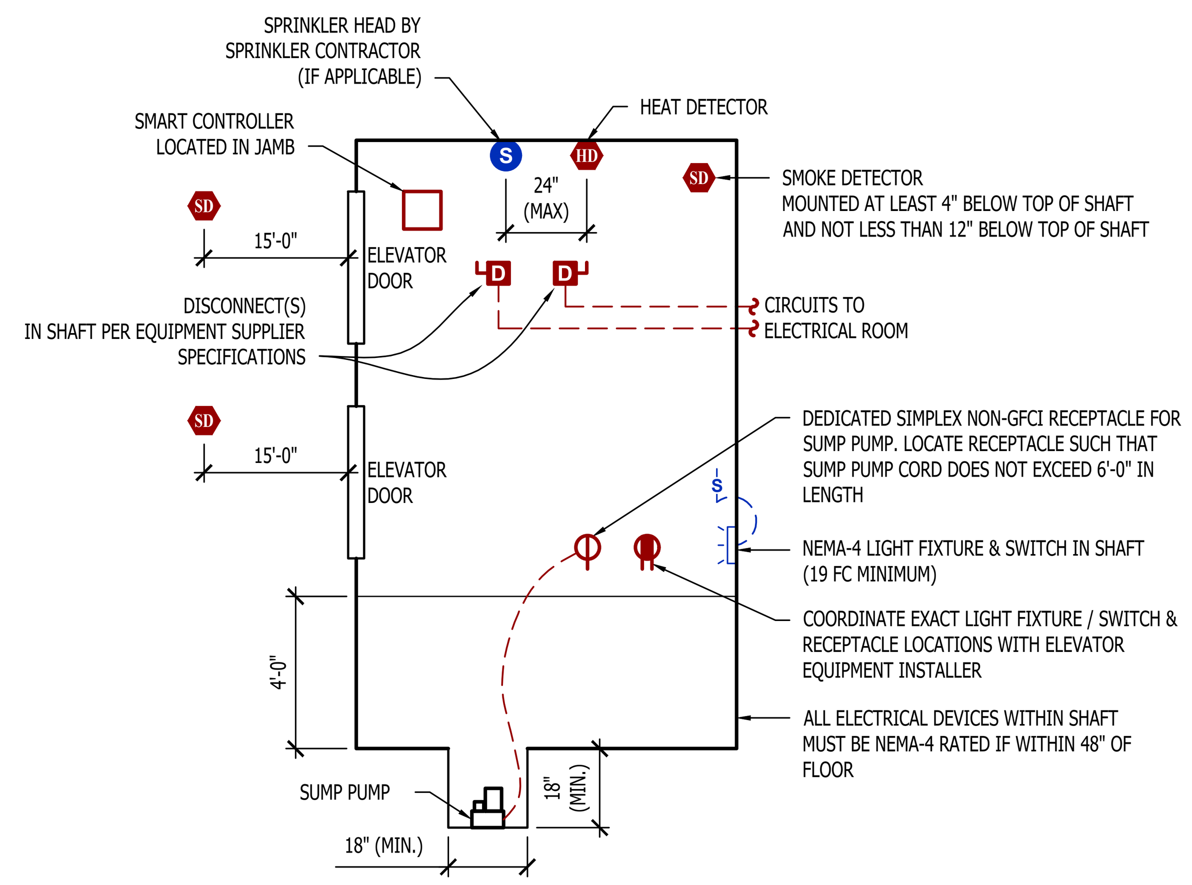
4. **EMERGENCY LIGHTING**
   - 4.1. BRANCH CIRCUIT FEEDING EMERGENCY FIXTURE(S) SHALL BE SAME BRANCH CIRCUIT AS THAT SERVING NORMAL LIGHTING IN SAME AREA AND CONNECTED AHEAD OF ANY LOCAL SWITCHES.
   - 4.2. EMERGENCY LIGHTING SYSTEM SHALL PROVIDE 1FC AVERAGE AND 0.1FC MINIMUM ALONG EGRESS PATHS. ADJUST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



TYPICAL GROUNDING & BONDING DETAIL

NOTES:

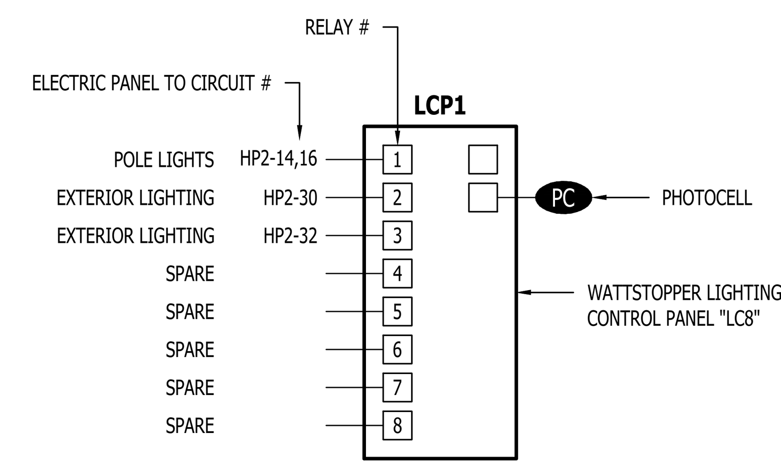
1. ALL ELECTRICAL CONDUCTORS WITHIN ELEVATOR PIT MUST COMPLY WITH NEC 620.21.
2. SUMP PUMP RECEPTACLE, SHAFT / PIT RECEPTACLES, & SHAFT LIGHTING TO ALL BE ON EMERGENCY POWER IF ELEVATOR IS ON EMERGENCY POWER.
3. ADDITIONAL SMOKE DETECTOR REQUIRED IN ELEVATOR MACHINE ROOM (IF APPLICABLE).
4. IN CASES WHERE ELEVATOR IS NOT SHUNT-TRIP PROTECTED, A LABELED SPRINKLER SHUT-OFF MUST BE LOCATED OUTSIDE THE ELEVATOR HOISTWAY AND/OR EQUIPMENT ROOM.
5. PERMANENTLY LABEL ALL CIRCUITS AND FEEDERS.
6. SUMP PUMP DISCHARGE LINE SHALL BE HARD PIPED (NO PVC).



MACHINE - ROOM - LESS ELEVATOR DETAIL

POWER RISER NOTES:

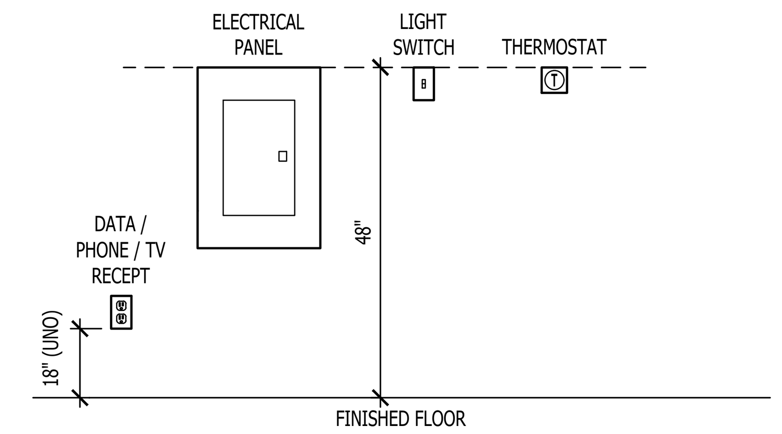
1. COORDINATE DETAILS & REQUIREMENTS OF NEW ELECTRIC SERVICE WITH EVERGY.
2. ALL NEW METERING EQUIPMENT MUST BE APPROVED BY EVERGY.
3. EACH METER PERMANENTLY LABELED.
4. METER CENTER #1 AIC-RATINGS BASED ON:
   - 4.1. TRANSFORMER: 300 kVA, 100% POWER FACTOR, 4.00% Z, LOCATED APPROXIMATELY WHERE SHOWN 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.
   - 4.5. APARTMENT ELECTRICAL PANELS SHALL HAVE AIC RATINGS AS FOLLOWS:
     - 4.5.1. 10,000 IF LOCATED GREATER THAN 50' FROM METER CENTER.
     - 4.5.2. 22,000 A IF LOCATED LESS THAN 50' FROM METER CENTER.
5. METER CENTER #2 AIC-RATINGS BASED ON:
   - 4.1. TRANSFORMER: 500 kVA, 100% POWER FACTOR, 4.00% 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.
   - 4.5. APARTMENT ELECTRICAL PANELS SHALL HAVE AIC RATINGS AS FOLLOWS:
     - 4.5.1. 10,000 IF LOCATED GREATER THAN 45' FROM METER CENTER.
     - 4.5.2. 22,000 A IF LOCATED LESS THAN 50' FROM METER CENTER.



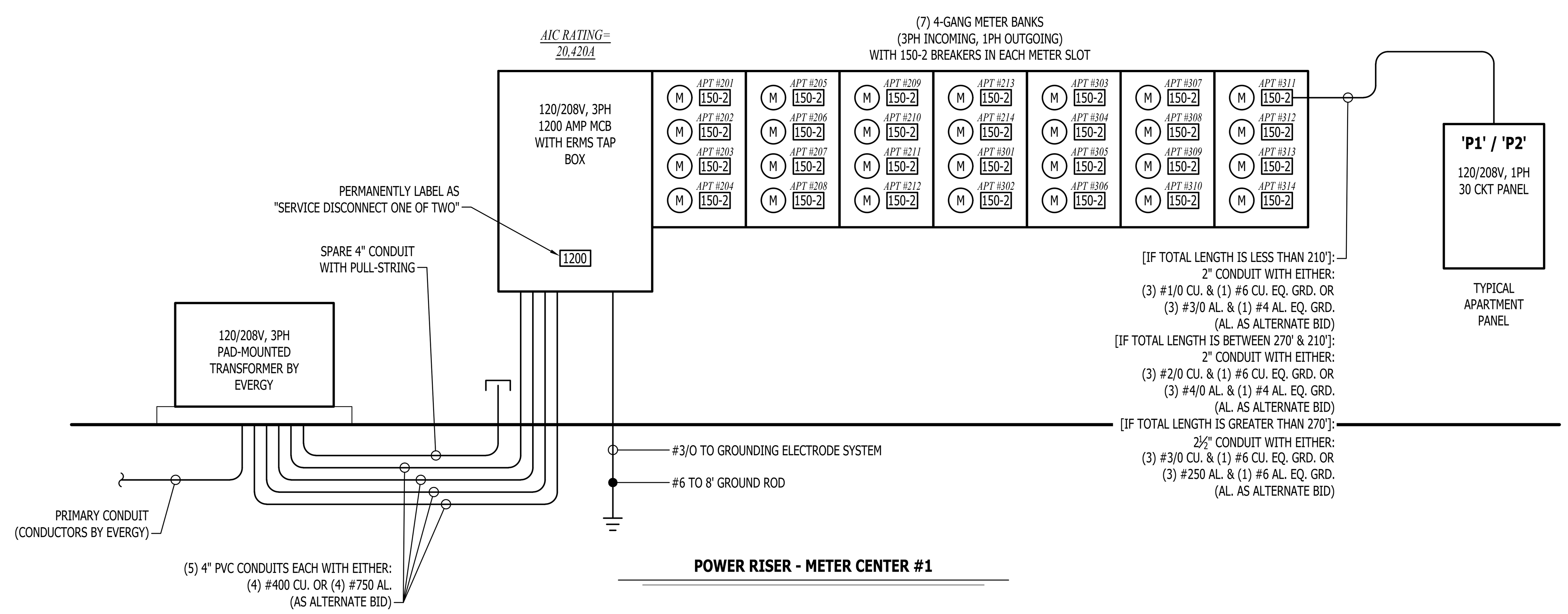
LIGHTING CONTROL PANEL SCHEDULE

RELAY #	OVERRIDE SWITCH	OPERATIONAL SCHEDULE
1	NO	ON DURING NIGHT HOURS (PHOTOCELL INPUT)
2	NO	ON DURING NIGHT HOURS (PHOTOCELL INPUT)
3	NO	ON DURING NIGHT HOURS (PHOTOCELL INPUT)
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-

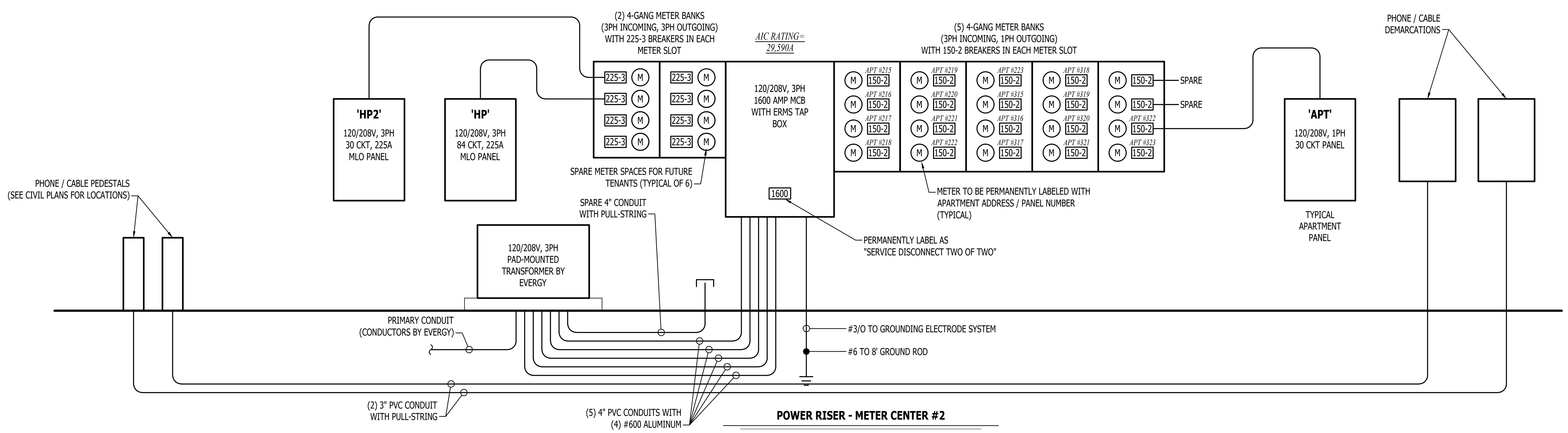
LIGHTING CONTROL PANEL



TYPICAL ADA MOUNTING HEIGHTS DETAIL



POWER RISER - METER CENTER #1



POWER RISER - METER CENTER #2

STATE OF MISSOURI
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

E501

PANEL 'HP' SCHEDULE

VOLTAGE		PANEL SIZE		MOUNTING		AIC RATING		
208Y/120V 3-PH		225A MLO		SURFACE		22,000	PHASE "A" LOAD	179.5
							PHASE "B" LOAD	176
NEMA RATING: 1							PHASE "C" LOAD	163.5

CIRCUIT NUMBER	DESCRIPTION	BREAKER SIZE	AMPS	PHASE	AMPS	BREAKER SIZE	DESCRIPTION	CIRCUIT NUMBER
1	WALL HEATER	25-2	19	A	19	25-2	WALL HEATER	2
3	-	-	19	B	19	-	-	4
5	OUTLETS	20-1	4.5	C	6	20-1	EXTERIOR OUTLETS	6
7	ELEVATOR PIT CONV OUTLET	20-1	1.5	A	1.5	20-1	ELEVATOR SUMP PUMP OUTLET	8
9	AHU-2	45-2	44	B	6	20-1	2ND FLOOR CORRIDOR OUTLETS	10
11	-	-	44	C	1	20-1	EAST STAIR TOWER MAG HOLDS	12
13	3RD FLOOR CORRIDOR OUTLETS	20-1	6	A	42	60-3	ELEVATOR	14
15	ELEVATOR CAB LIGHTS	30-2	3	B	42	-	-	16
17	-	-	3	C	42	-	-	18
19	WALL HEATER	25-2	19	A	7.5	20-1	EXTERIOR OUTLETS	20
21	-	-	19	B	1	20-1	WEST STAIR TOWER MAG HOLDS	22
23	ELEVATOR PIT LIGHT	20-1	0.5	C	6	20-1	2ND FLOOR CORRIDOR OUTLETS	24
25	SPARE	20-1		A	7.5	20-1	ROOF OUTLETS	26
27	3RD FLOOR CORRIDOR OUTLETS	20-1	6	B	1.5	20-1	IT ROOM OUTLET	28
29	CU-2	30-2	18	C	1.5	20-1	IT ROOM OUTLET	30
31	-	-	18	A	1.5	20-1	IT ROOM OUTLET	32
33	SOUTH STAIR TOWER LIGHTS	20-1	4	B	1.5	20-1	IT ROOM OUTLET	34
35	HP-1	20-2	11	C	11	20-2	HP-2	36
37	-	-	11	A	11	-	-	38
39	OPEN			B			OPEN	40
41	PLENUM HEATER	20-2	15	C			OPEN	42
43	-		15	A			OPEN	44
45	GARAGE LIGHTING	20-1	10	B			OPEN	46
47	SPARE			C			OPEN	48
49	SPARE			A			OPEN	50
51	SPARE			B			OPEN	52
53	SPARE			C			OPEN	54
55	SPARE			A			OPEN	56
57	SPARE			B			OPEN	58
59	SPARE			C			OPEN	60
61	SPARE			A			OPEN	62
63	SPARE			B			OPEN	64
65	SPARE			C			OPEN	66
67	SPARE			A			OPEN	68
69	SPARE			B			OPEN	70
71	SPARE			C			OPEN	72
73	SPARE			A			OPEN	74
75	SPARE			B			OPEN	76
77	SPARE			C			OPEN	78
79	SPARE			A			OPEN	80
81	SPARE			B			OPEN	82
83	SPARE			C			OPEN	84

NOTES:

A: PANEL SHALL BE EQUAL TO SQUARE D MODEL "QO"

B: ELECTRICIAN SHALL VERIFY BREAKER WITH EQUIPMENT PRIOR TO PURCHASE & INSTALL.

C: AFTER COMPLETION OF WORK, ELECTRICAN SHALL PROVIDE A TYPE WRITTEN PANEL DIRECTORY IN NEW PANEL.

PANEL 'HP2' SCHEDULE

VOLTAGE		PANEL SIZE		MOUNTING		AIC RATING		
208Y/120V 3-PH		225A MLO		SURFACE		22,000	PHASE "A" LOAD	182
							PHASE "B" LOAD	189
NEMA RATING: 1							PHASE "C" LOAD	172

CIRCUIT NUMBER	DESCRIPTION	BREAKER SIZE	AMPS	PHASE	AMPS	BREAKER SIZE	DESCRIPTION	CIRCUIT NUMBER
1	PLENUM HEATER	25-2	19	A	19	25-2	PLENUM HEATER	2
3	-	-	19	B	19	-	-	4
5	PLENUM HEATER	25-2	19	C	19	25-2	PLENUM HEATER	6
7	-	-	19	A	19	-	-	8
9	PLENUM HEATER	25-2	19	B	19	25-2	PLENUM HEATER	10
11	-	-	19	C	19	-	-	12
13	2ND FLOOR CORRIDOR LIGHTING	20-1	7	A	4	20-2	POLE LIGHTS	14
15	3RD FLOOR CORRIDOR LIGHTING	20-1	7	B	4	-	-	16
17	LIGHTING CONTROL PANEL & 1ST FLR LTG	20-1	6	C	3	20-1	RISER ROOM RECEPTS.	18
19	AHU-4	60-2	51	A	1	20-1	FIRE ALARM CONTROL PANEL	20
21	-	-	51	B		20-1	SPARE	22
23	AHU-4	25-2	22	C	6	20-1	GARAGE RECEPTS.	24
25	-	-	22	A		20-1	SPARE	26
27	AHU-3	60-2	51	B		20-1	SPARE	28
29	-	-	51	C	8	20-1	EXTERIOR LIGHTING	30
31	CU-3	25-2	17	A	4	20-1	EXTERIOR LIGHTING	32
33	-	-	17	B		20-1	SPARE	34
35	CU-4	25-2	19	C		20-1	SPARE	36
37	-	-	19	A		20-1	SPARE	38
39	SPARE	20-1		B		20-1	SPARE	40
41	SPARE	20-1		C		20-1	SPARE	42

NOTES:

A: PANEL SHALL BE EQUAL TO SQUARE D MODEL "QO"

B: ELECTRICIAN SHALL VERIFY BREAKER WITH EQUIPMENT PRIOR TO PURCHASE & INSTALL.

C: AFTER COMPLETION OF WORK, ELECTRICAN SHALL PROVIDE A TYPE WRITTEN PANEL DIRECTORY IN NEW PANEL.

TYPICAL APARTMENT PANEL 'P1' SCHEDULE

VOLTAGE		PANEL SIZE		MOUNTING		AIC RATING		
120/208V 1-PH		150A MLO		RECESSED		SEE RISER	PHASE "A" LOAD	167.5
							PHASE "B" LOAD	164.5
NEMA RATING: 1								

CIRCUIT NUMBER	DESCRIPTION	BREAKER SIZE	AMPS	PHASE	AMPS	BREAKER SIZE	DESCRIPTION	CIRCUIT NUMBER
1	**REFRIGERATOR**	**20-1**	**8**	A	44	45-2	AHU-4	2
3	STOVE	50-2	30	B	44	-	-	4
5	-	-	30	A	22	30-2	WATER HEATER	6
7	**RANGE HOOD / MICROWAVE**	**20-1**	**8**	B	22	-	-	8
9	**KITCHEN RECEPTS.**	**20-1**	**4.5**	A	12	20-2	CU-4	10
11	**DISHWASHER**	**20-1**	**8**	B	12	-	-	12
13	**KITCHEN RECEPTS.**	**20-1**	**4.5**	A		20-1	SPARE	14
15	**LIVING ROOM RECEPTS.**	**15-1**	**12**	B	**6**	**15-1**	**LIGHTING**	16
17	**BEDROOM RECEPTS.**	**15-1**	**9**	A	**4**	**20-1**	**DISPOSAL**	**18**
19	BATHROOM RECEPT.	20-1	1.5	B			OPEN	20
21	**SPARE**	**15-1**		A			OPEN	22
23	SPARE	20-1		B			OPEN	24
25	**WASHING MACHINE**	**20-1**	**8**	A	1.5	20-1	MEDIA PANEL	26
27	DRYER	30-2	20	B	**1**	**15-1**	**SMOKE DETECTORS**	28
29	-	-	20	A			OPEN	30

NOTES:

A: PANEL SHALL BE EQUAL TO SQUARE D MODEL "HOMELINE"

B: ELECTRICIAN SHALL VERIFY BREAKER WITH EQUIPMENT PRIOR TO PURCHASE & INSTALL.

C: AFTER COMPLETION OF WORK, ELECTRICAN SHALL PROVIDE A TYPE WRITTEN PANEL DIRECTORY IN NEW PANEL.

D: CIRCUIT BREAKERS SHOWN ABOVE IN **BOLD UNDERLINED** TEXT SHALL BE ARC-FAULT CIRCUIT INTERRUPTER (AFCI) PER NEC 210.12.

E: TOTAL SIMULTANEOUS PHASE LOADS SHOWN MAY EXCEED PANEL AMPACITY AS SERVICE LOADS HAVE BEEN CALCULATED IN ACCORDANCE WITH NEC 220.82

TYPICAL APARTMENT PANEL 'P2' SCHEDULE

VOLTAGE		PANEL SIZE		MOUNTING		AIC RATING		
120/208V 1-PH		150A MLO		RECESSED		SEE RISER	PHASE "A" LOAD	188.5
							PHASE "B" LOAD	178
NEMA RATING: 1								

CIRCUIT NUMBER	DESCRIPTION	BREAKER SIZE	AMPS	PHASE	AMPS	BREAKER SIZE	DESCRIPTION	CIRCUIT NUMBER
1	**REFRIGERATOR**	**20-1**	**8**	A	51	60-2	AHU-5	2
3	STOVE	50-2	30	B	51	-	-	4
5	-	-	30	A	22	30-2	WATER HEATER	6
7	**RANGE HOOD / MICROWAVE**	**20-1**	**8**	B	22	-	-	8
9	**KITCHEN RECEPTS.**	**20-1**	**4.5**	A	17	25-2	CU-5	10
11	**DISHWASHER**	**20-1**	**8**	B	17	-	-	12
13	**KITCHEN RECEPTS.**	**20-1**	**4.5**	A		20-1	SPARE	14
15	**LIVING ROOM RECEPTS.**	**15-1**	**12**	B	**6**	**15-1**	**LIGHTING**	16
17	**BEDROOM RECEPTS.**	**15-1**	**9**	A	**4**	**20-1**	**DISPOSAL**	**18**
19	BATHROOM RECEPT.	20-1	1.5	B			OPEN	20
21	**BEDROOM RECEPTS.**	**15-1**	**9**	A			OPEN	22
23	BATHROOM RECEPT.	20-1	1.5	B			OPEN	24
25	**WASHING MACHINE**	**20-1**	**8**	A	1.5	20-1	MEDIA PANEL	26
27	DRYER	30-2	20	B	**1**	**15-1**	**SMOKE DETECTORS**	28
29	-	-	20	A			OPEN	30

NOTES:

A: PANEL SHALL BE EQUAL TO SQUARE D MODEL "HOMELINE"

B: ELECTRICIAN SHALL VERIFY BREAKER WITH EQUIPMENT PRIOR TO PURCHASE & INSTALL.

C: AFTER COMPLETION OF WORK, ELECTRICAN SHALL PROVIDE A TYPE WRITTEN PANEL DIRECTORY IN NEW PANEL.

D: CIRCUIT BREAKERS SHOWN ABOVE IN **BOLD UNDERLINED** TEXT SHALL BE ARC-FAULT CIRCUIT INTERRUPTER (AFCI) PER NEC 210.12.

E: TOTAL SIMULTANEOUS PHASE LOADS SHOWN MAY EXCEED PANEL AMPACITY AS SERVICE LOADS HAVE BEEN CALCULATED IN ACCORDANCE WITH NEC 220.82

BRANCH CIRCUIT CONDUCTOR SCHEDULE

AMPACITY	COPPER AWG SIZE	MAXIMUM DISTANCE (FEET)				MINIMUM CONDUIT SIZE
		1Ø		3Ø		
		120V	277V	208V	480V	
20	12	55'	130'	115'	260'	1/2"
	10	90'	205'	180'	415'	3/4"
30	10	60'	135'	120'	275'	3/4"
	8	95'	220'	190'	445'	1"
35	8	80'	190'	165'	380'	1"
	6	130'	300'	260'	605'	1"
40	8	70'	165'	145'	330'	1"
	6	110'	260'	225'	525'	1"
45	6	100'	235'	200'	470'	1'
	4	160'	370'	325'	750'	1-1/4"
50	6	90'	210'	180'	420'	1-1/4"
	4	145'	335'	290'	675'	1-1/4"
60	6	75'	175'	150'	350'	1-1/4"
	4	120'	280'	240'	560'	1-1/4"
70	4	105'	240'	205'	480'	1-1/4"
	3	130'	300'	260'	605'	1-1/4"
80	4	55'	210'	180'	420'	1-1/4"
	3	90'	260'	230'	530'	1-1/4"
90	3	100'	235'	200'	470'	1-1/4"
	2	125'	295'	255'	595'	1-1/4"
100	3	90'	210'	180'	420'	1-1/4"
	2	115'	265'	230'	535'	1-1/4"

NOTES:

1. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE COPPER. ALL WIRE SIZES SHOWN ARE BASED ON CONDUCTOR TEMPERATURE RATING OF 75°C & AMBIENT TEMPERATURE OF 30°C PER NEC.
2. DISTANCE SHOWN ABOVE IS LENGTH FROM OVERCURRENT PROTECTION TO DEVICE/EQUIPMENT.
3. REFER TO PLAN SHEETS FOR BRANCH CONDUCTOR SIZING LENGTHS GREATER THAN SHOWN ABOVE.
4. VOLTAGE DROP CALCULATIONS BASED ON 3% DROP, 80% CIRCUIT LOAD, THHN/THWN INSULATION, 100% POWER FACTOR, BALANCED LOAD, NEGLIGIBLE REACTANCE, & SIX OR LESS CURRENT-CARRYING CONDUCTORS IN RACEWAY.

FEEDER CONDUCTOR SCHEDULE

AMPACITY	CONDUCTORS					EQUIPMENT GROUND		MINIMUM CONDUIT SIZE (PER SET)
	# OF SETS	QUANTITY PER SET		AWG SIZE		AWG SIZE		
		3Ø 'WYE'	1Ø OR 3Ø▲	COPPER	ALUMINUM	COPPER	ALUMINUM	
30	1	4	3	10	8	10	8	3/4"
40	1	4	3	8	8	8	8	1"
45	1	4	3	8	6	8	8	1"
50	1	4	3	8	6	10	8	1"
60	1	4	3	6	4	10	6	1"
70	1	4	3	4	2	8	6	1-1/4"
80	1	4	3	4	2	8	6	1-1/4"
90	1	4	3	3	2	8	6	1-1/4"
100	1	4	3	3	1	8	6	1-1/4"
110	1	4	3	2	1/O	6	4	1-1/4"
125	1	4	3	1	2/O	6	4	2"
150	1	4	3	1/O	3/O	6	4	2"
175	1	4	3	2/O	4/O	6	4	2"
200	1	4	3	3/O	250	6	4	2-1/2"
225	1	4	3	4/O	300	4	2	2-1/2"
250	1	4	3	250	350	4	2	3"
300	1	4	3	350	500	4	2	4"
350	1	4	3	400	600	3	1	4"
400	1	4	3	500	750	3	1	4"
500	2	4	3	250	350	2	1/O	4"
600	2	4	3	350	500	1	2/O	4"
800	2	4	3	500	750	1/O	3/O	4"
1000	3	4	3	400	350	2/O	4/O	4"
1200	4	4	3	350	500	3/O	250	4"
1600	5	4	3	400	750	4/O	350	4"
2000	6	4	3	400	750	250	400	4"

NOTES:

1. ALLWIRE SIZES SHOWN ARE BASED ON CONDUCTOR TEMPERATURE RATING OF 75°C & AMBIENT TEMPERATURE RATING OF 30°C PER NEC.
2. MAXIMUM ALLOWABLE VOLTAGE DROP FOR FEEDER CONDUCTORS SHALL BE 2%.
3. ELECTRICAL CONTRACTOR TO ADJUST CONDUCTOR SIZES FOR LONG CIRCUIT LENGTHS & AMBIENT TEMPERATURES HIGHER THAN 30°C.

LIGHT FIXTURE SCHEDULE

TAG	MANUFACTURER (OR EQUAL)	MODEL NUMBER (OR EQUAL)	DESCRIPTION	MOUNTING	LUMEN OUTPUT	CCT (°K)	CRI	VOLTS	WATTS	NOTES
C1	HALO	HLS9129301EWH	9" LED SURFACE CAN	SURFACE / CEILING	1,200	3000	90	120	18	
C2	HALO	SLD6129S1EMW	6" LED SURFACE CAN	SURFACE / CANOPY	1,200	4000	90	120	16	WITH PAINTABLE TRIM - PAINT TO MATCH UNDERSIDE OF CANOPY
E1	SURE LITES	APC7R	INTERIOR EXIT LIGHT WITH HEADS	WALL / CEILING	-	-	-	120	1	WITH RED LETTERS
E2	SURE LITES	APCH7R WITH APWR1	INTERIOR EXIT LIGHT WITH EXTERIOR REMOTE HEAD	CEILING	-	-	-	120	1	WITH RED LETTERS
E3	SURE LITES	SEL50	EMERGENCY EGRESS LIGHT	INTERIOR WALL	-	-	-	120	1	
E4	SURE LITES	SEL D W 60 SD	EXTERIOR EMERGENCY EGRESS LIGHT	WALL	-	-	-	120	5	
E5	RP LIGHTING	RXEL25	EXTERIOR EXIT LIGHT WITH RMT HD	SURFACE / CEILING	-	-	-	120	1	WITH #RH19 REMOTE HEAD
F1	MONTE CARLO	5HV52BS	CEILING FAN W/ LED LIGHT KIT	SURFACE/ CEILING	1,275	3000	80	120	21	WITH #MC261BS LIGHT KIT
G1	MCGRAW-EDISON	TT-D4-740-U-MQ	LED PARKING GARAGE LIGHT	SURFACE / CEILING	8,002	4000	70	120	58	
P1	RP LIGHTING	4430-BN	LED PENDANT	SURACE / CEILING	600	3000	80	120	8	
S1	METALUX	4SNX-SL3-LW-UNV-CC83-CD-1-FKO-U	4' LED STRIP	SURFACE / CEILING	4,511	4000	70	120	38	WITH 'EL14W' EMERGENCY BATTERY BACKUP WHERE INDICATED
T1	METALUX	24FPSL2SCT3	2x4 LED FLAT PANEL	ACT GRID / SURFACE	4,500	3000	80	120	40	
V1	RP LIGHTING	4904-BN-4	LED VANITY	SURFACE / WALL	2,110	3000	80	120	30	
T2	METALUX	22FP4235C	2x2 LED FLAT PANEL	ACT GRID / SURFACE	4,641	3500	80	120	39	
W1	METALUX	4SNX-SL3-LW-UNV-CC83-CD-1-FKO-U	4' LED WALL BRACKET	INTERIOR WALL	4,000	4000	85	120	42	WITH 'EL14W' EMERGENCY BATTERY BACKUP WHERE INDICATED & WITH DECORATIVE END COVERS
W2	TECH LIGHTING	700OWVEX9404ZUNV	UP / DOWN WALL SCONCE	EXTERIOR WALL	554	4000	90	120	19	
W3	LUMARK	XTOR4B-W	LED WALLPACK	EXTERIOR WALL	3,995	4000	70	120	38	
W4	TERON LIGHTING	MTG-L13.0-120V-TRIAC-XX-40K	PATIO SCONCE	EXTERIOR WALL	1,140	4000	80	120	13	

NOTES:

1. LIGHT FIXTURES PROVIDED BY OWNER THRU NATIONAL ACCOUNT AND INSTALLED BY ELECTRICAL CONTRACTOR.
2. ALL FIXTURE QUANTITIES TO BE VERIFIED BY ELECTRICAL CONTRACTOR PRIOR TO ORDERING.
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 (417) 621-5210 (TVOGT@CED1135.COM) AT CED-PHILLIPS & COMPANY FOR NATIONAL ACCOUNT DETAILS.

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 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:	J21010
J2 DESIGN:	ACW
ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

ELECTRICAL SCHEDULES

SHEET NUMBER

E601

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

DEFERRED SUBMITTAL NOTES

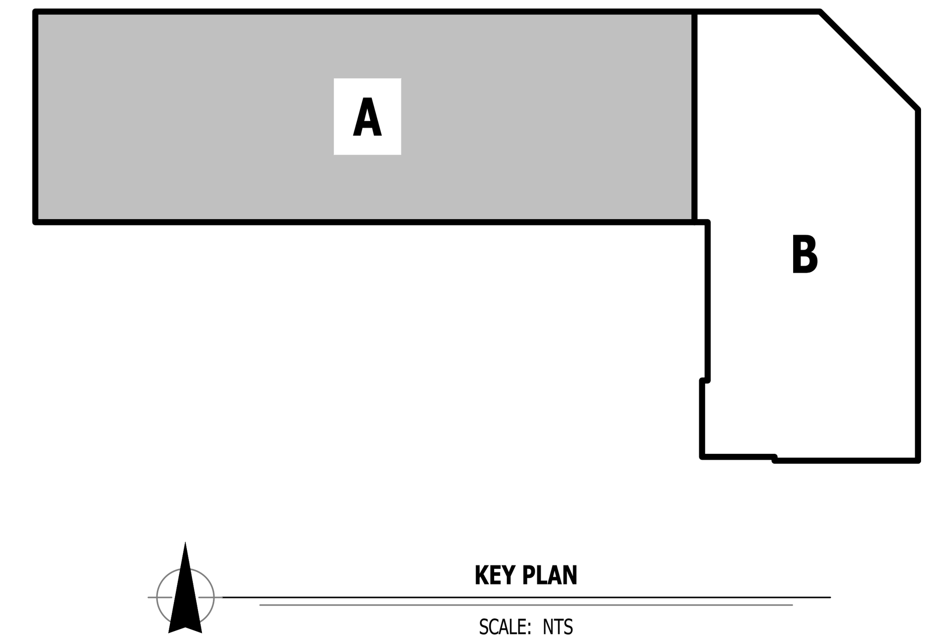
1. **FIRE ALARM CONTRACTOR SHALL PROVIDE DEFERRED SUBMITTAL PACKAGE FOR FIRE ALARM SYSTEM. SUBMITTAL SHALL INCLUDE BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS, EQUIPMENT SPECIFICATIONS FOR DEVICES AND PANELS, ETC. DESIGN SHALL BE SEALED BY A QUALIFIED DESIGN PROFESSIONAL LICENSED BY THE STATE.**
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.

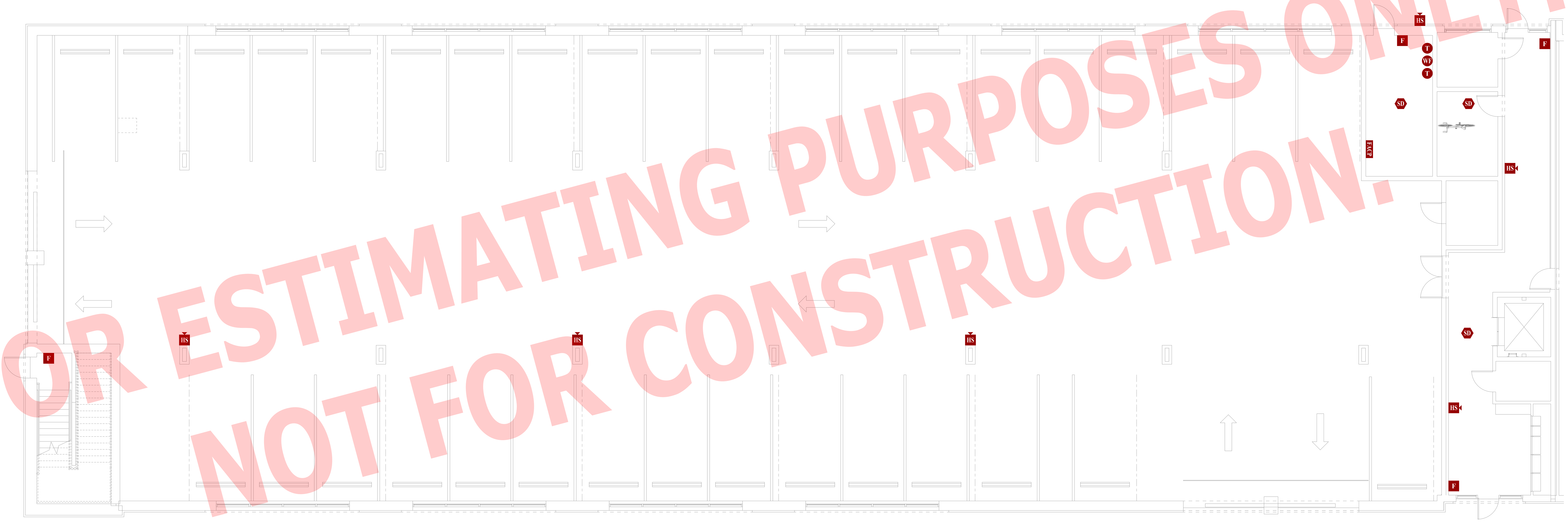
FIRE ALARM DEVICE TYPICAL LOCATIONS:

1. VERIFY EXACT LOCATIONS WITH LATEST NFPA REQUIREMENTS;
2. CEILING MOUNTED SMOKE / HEAT DETECTORS:
   - 2.1. MUST BE MOUNTED AT LEAST 36" FROM HVAC GRILLES / DIFFUSERS
   - 2.2. MUST BE LOCATED AT LEAST 4" FROM WALL/CEILING INTERSECTIONS (MEASURED FROM EDGE OF DEVICE)
3. WALL MOUNTED SMOKE / HEAT DETECTORS:
   - 3.1. MUST BE LOCATED AT LEAST 4" FROM WALL/CEILING INTERSECTIONS (MEASURED FROM EDGE OF DEVICE)
   - 3.2. MUST BE LOCATED WITHIN AT LEAST 12" FROM WALL/CEILING INTERSECTION (MEASURED FROM EDGE OF DEVICE)
4. MANUAL PULL STATIONS:
   - 4.1. MUST BE LOCATED WITHIN 5' OF EXTERIOR DOORWAY (MEASURED FROM CENTER OF PULL STATION TO NEAREST EDGE OF DOOR)
   - 4.2. MUST BE LOCATED BETWEEN 42" AND 54" A.F.F. (MEASURED FROM FINISH FLOOR TO CENTER OFF PULL STATION)
5. MAGNETIC DOOR HOLDER:
   - 5.1. MUST BE LOCATED 6" BELOW TOP OF DOOR (MEASURED FROM TOP OF DOOR TO TOP OF DOOR HOLDER)
   - 5.2. MUST BE LOCATED DOOR WIDTH MINUS THREE INCHES FROM DOOR (MEASURED FROM NEAREST EDGE OF HOLDER TO NEAREST EDGE OF DOOR).
6. FIRE ALARM CONTROL PANEL:
   - 6.1. MUST BE LOCATED AT MAXIMUM OF 72" A.F.F. (MEASURED FROM FINISH FLOOR TO TOP OF FIRE ALARM CONTROL PANEL)
7. FIRE ALARM ANNUNCIATOR:
   - 7.1. MUST BE LOCATED AT MAXIMUM OF 60" A.F.F. (MEASURED FROM FINISH FLOOR TO TOP OF FIRE ALARM ANNUNCIATOR PANEL)
8. WALL MOUNTED STROBE DEVICES (VISUAL ONLY):
   - 8.1. MUST BE LOCATED AT 84" A.F.F. (MEASURED FROM FINISH FLOOR TO BOTTOM OF BACK BOX)
   - 8.2. MUST BE LOCATED AT MOST 24" FROM WALL/CEILING INTERSECTION WITHIN HANDICAP BEDROOMS (MEASURED FROM WALL/CEILING INTERSECTION TO BOTTOM OF BACK BOX)
9. WALL-MOUNTED HORN / STROBE DEVICES (AUDIBLE & VISUAL):
   - 9.1. MUST BE LOCATED AT 84" A.F.F. (MEASURED FROM FINISH FLOOR TO BOTTOM OF BACK BOX)



KEY PLAN

SCALE: NTS



FIRE PROTECTION PLAN - FIRST FLOOR - AREA A

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

James Watson, P.E. November 11, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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J2 PROJECT No:	J21010
J2 DESIGN:	ACW

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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

FIRE PROTECTION PLAN - FIRST FLOOR - AREA A

SHEET NUMBER

FP101

FIRE ALARM PLAN SYMBOL LEGEND

Symbol	Description
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

DEFERRED SUBMITTAL NOTES

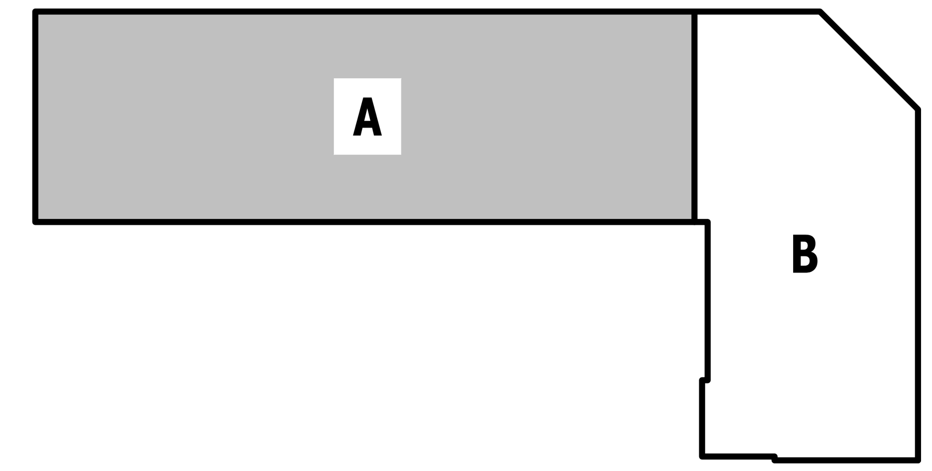
1. **FIRE ALARM CONTRACTOR SHALL PROVIDE DEFERRED SUBMITTAL PACKAGE FOR FIRE ALARM SYSTEM. SUBMITTAL SHALL INCLUDE BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS, EQUIPMENT SPECIFICATIONS FOR DEVICES AND PANELS, ETC. DESIGN SHALL BE SEALED BY A QUALIFIED DESIGN PROFESSIONAL LICENSED BY THE STATE.**
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.

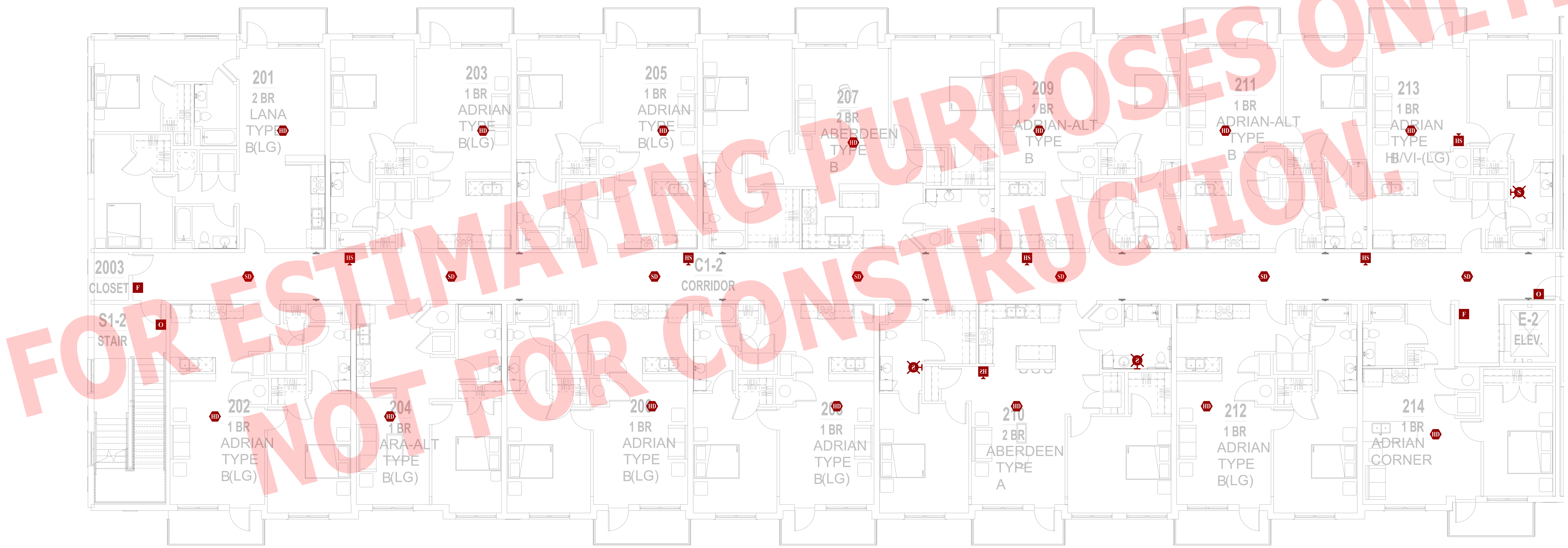
FIRE ALARM DEVICE TYPICAL LOCATIONS:

1. VERIFY EXACT LOCATIONS WITH LATEST NFPA REQUIREMENTS;
2. CEILING MOUNTED SMOKE / HEAT DETECTORS:
   - 2.1. MUST BE MOUNTED AT LEAST 36" FROM HVAC GRILLES / DIFFUSERS
   - 2.2. MUST BE LOCATED AT LEAST 4" FROM WALL/CEILING INTERSECTIONS (MEASURED FROM EDGE OF DEVICE)
3. WALL MOUNTED SMOKE / HEAT DETECTORS:
   - 3.1. MUST BE LOCATED AT LEAST 4" FROM WALL/CEILING INTERSECTIONS (MEASURED FROM EDGE OF DEVICE)
   - 3.2. MUST BE LOCATED WITHIN AT LEAST 12" FROM WALL/CEILING INTERSECTION (MEASURED FROM EDGE OF DEVICE)
4. MANUAL PULL STATIONS:
   - 4.1. MUST BE LOCATED WITHIN 5' OF EXTERIOR DOORWAY (MEASURED FROM CENTER OF PULL STATION TO NEAREST EDGE OF DOOR)
   - 4.2. MUST BE LOCATED BETWEEN 42" AND 54" A.F.F. (MEASURED FROM FINISH FLOOR TO CENTER OFF PULL STATION)
5. MAGNETIC DOOR HOLDER:
   - 5.1. MUST BE LOCATED 6" BELOW TOP OF DOOR (MEASURED FROM TOP OF DOOR TO TOP OF DOOR HOLDER)
   - 5.2. MUST BE LOCATED DOOR WIDTH MINUS THREE INCHES FROM DOOR (MEASURED FROM NEAREST EDGE OF HOLDER TO NEAREST EDGE OF DOOR).
6. FIRE ALARM CONTROL PANEL:
   - 6.1. MUST BE LOCATED AT MAXIMUM OF 72" A.F.F. (MEASURED FROM FINISH FLOOR TO TOP OF FIRE ALARM CONTROL PANEL)
7. FIRE ALARM ANNUNCIATOR:
   - 7.1. MUST BE LOCATED AT MAXIMUM OF 60" A.F.F. (MEASURED FROM FINISH FLOOR TO TOP OF FIRE ALARM ANNUNCIATOR PANEL)
8. WALL MOUNTED STROBE DEVICES (VISUAL ONLY):
   - 8.1. MUST BE LOCATED AT 84" A.F.F. (MEASURED FROM FINISH FLOOR TO BOTTOM OF BACK BOX)
   - 8.2. MUST BE LOCATED AT MOST 24" FROM WALL/CEILING INTERSECTION WITHIN HANDICAP BEDROOMS (MEASURED FROM WALL/CEILING INTERSECTION TO BOTTOM OF BACK BOX)
9. WALL-MOUNTED HORN / STROBE DEVICES (AUDIBLE & VISUAL):
   - 9.1. MUST BE LOCATED AT 84" A.F.F. (MEASURED FROM FINISH FLOOR TO BOTTOM OF BACK BOX)



KEY PLAN

SCALE: NTS



FIRE PROTECTION PLAN - SECOND FLOOR - AREA A

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

James Watson, P.E. November 11, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

J-SQUARED
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Columbia, Missouri 65201
573.234.4492
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J2 PROJECT No:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

FIRE PROTECTION PLAN - SECOND FLOOR - AREA A

SHEET NUMBER

FP102

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

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 DEVICE TYPICAL LOCATIONS:

1. VERIFY EXACT LOCATIONS WITH LATEST NFPA REQUIREMENTS;
2. CEILING MOUNTED SMOKE / HEAT DETECTORS:
   - 2.1. MUST BE MOUNTED AT LEAST 36" FROM HVAC GRILLES / DIFFUSERS
   - 2.2. MUST BE LOCATED AT LEAST 4" FROM WALL/CEILING INTERSECTIONS (MEASURED FROM EDGE OF DEVICE)
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   - 3.1. MUST BE LOCATED AT LEAST 4" FROM WALL/CEILING INTERSECTIONS (MEASURED FROM EDGE OF DEVICE)
   - 3.2. MUST BE LOCATED WITHIN AT LEAST 12" FROM WALL/CEILING INTERSECTION (MEASURED FROM EDGE OF DEVICE)
4. MANUAL PULL STATIONS:
   - 4.1. MUST BE LOCATED WITHIN 5' OF EXTERIOR DOORWAY (MEASURED FROM CENTER OF PULL STATION TO NEAREST EDGE OF DOOR)
   - 4.2. MUST BE LOCATED BETWEEN 42" AND 54" A.F.F. (MEASURED FROM FINISH FLOOR TO CENTER OFF PULL STATION)
5. MAGNETIC DOOR HOLDER:
   - 5.1. MUST BE LOCATED 6" BELOW TOP OF DOOR (MEASURED FROM TOP OF DOOR TO TOP OF DOOR HOLDER)
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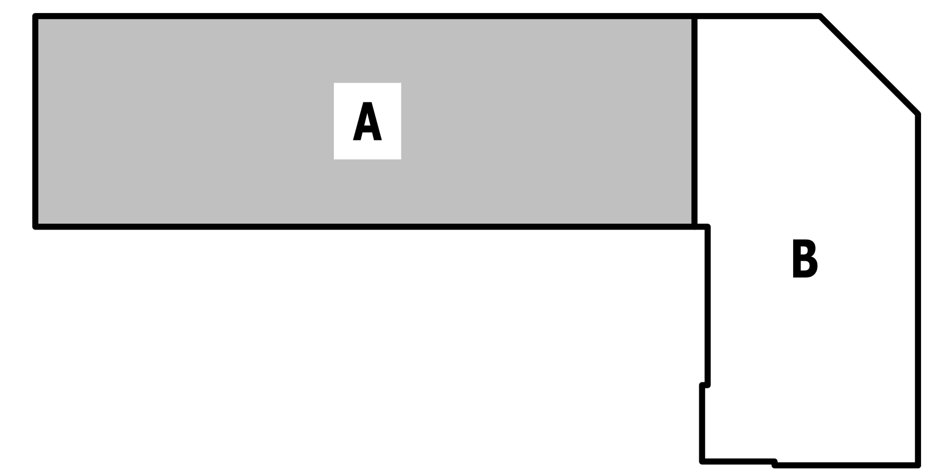
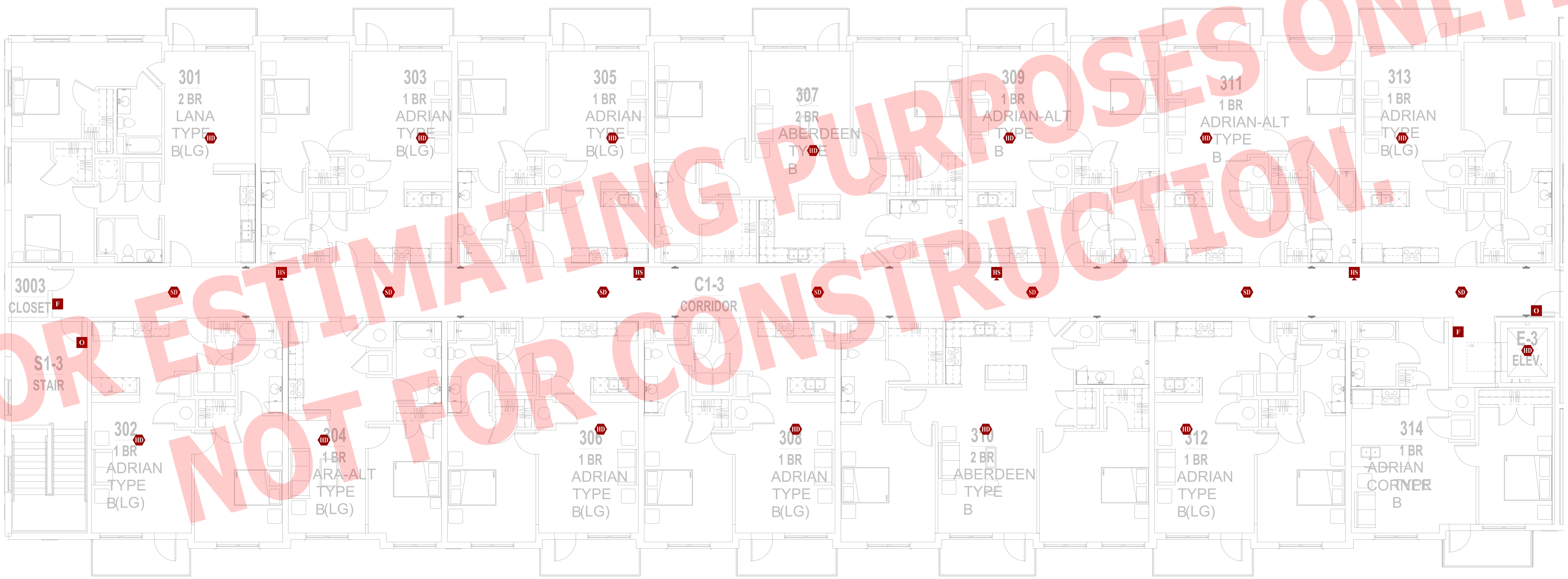


KEY PLAN

SCALE: NTS



FIRE PROTECTION PLAN - THIRD FLOOR - AREA A

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

FOR ESTIMATING PURPOSES ONLY.
NOT FOR CONSTRUCTION.

James Watson, P.E. November 11, 2024
PE-2015017071
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AHJ APPROVAL STAMP

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

SHEET TITLE

FIRE PROTECTION PLAN - THIRD FLOOR - AREA A

SHEET NUMBER

FP103

FIRE PROTECTION PLAN - FIRST FLOOR - AREA B

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

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
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WF	WATER FLOW SWITCH
FACP	FIRE ALARM CONTROL PANEL
ANN	FIRE ALARM ANNUNCIATOR

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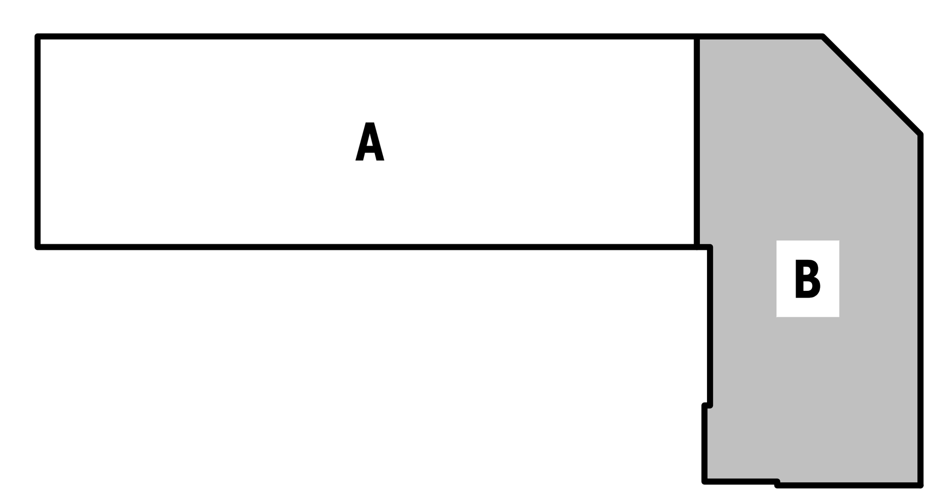

KEY PLAN

SCALE: NTS

James Watson, P.E. November 11, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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J2 PROJECT No:	J21010
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

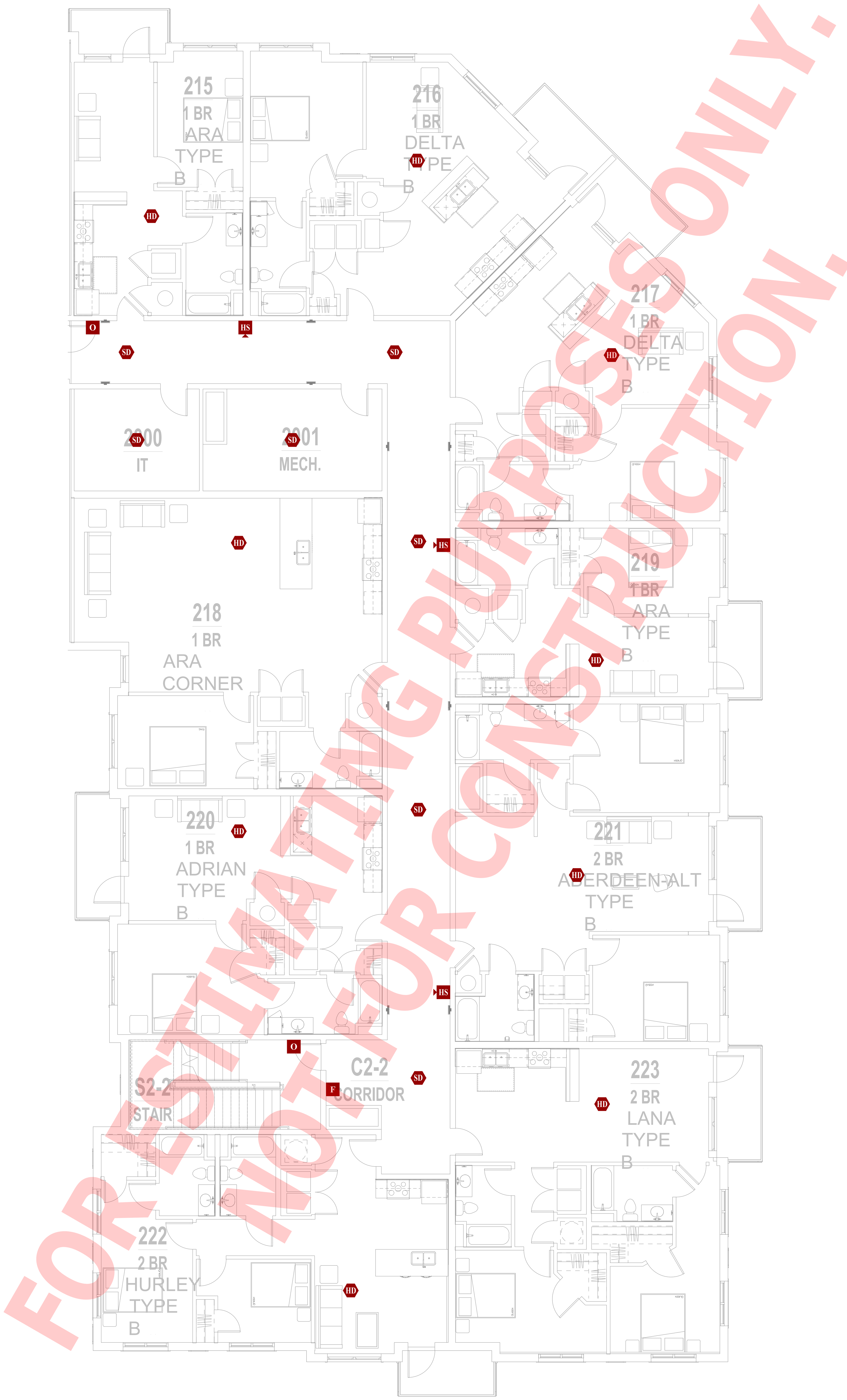
AHJ APPROVAL STAMP

SHEET TITLE

FIRE PROTECTION PLAN - FIRST FLOOR - AREA B

SHEET NUMBER

FP111



FIRE PROTECTION PLAN - SECOND FLOOR - AREA B

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

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
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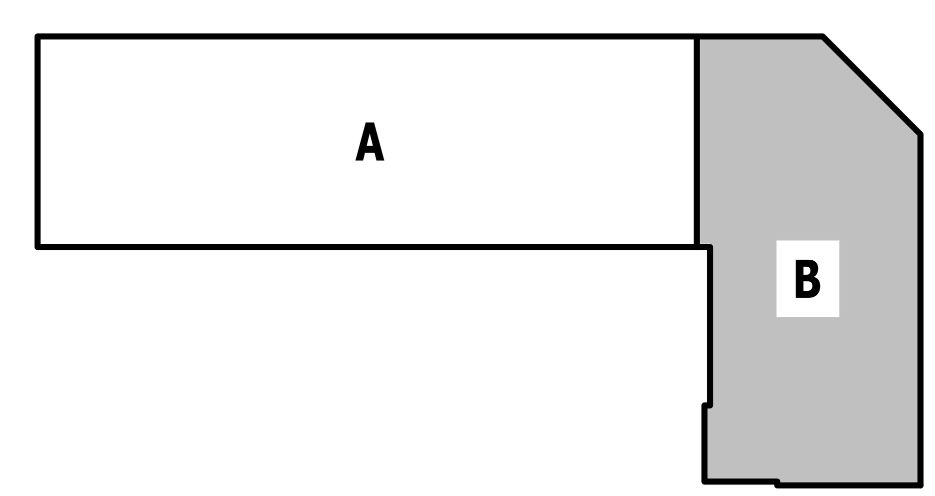

KEY PLAN

SCALE: NTS

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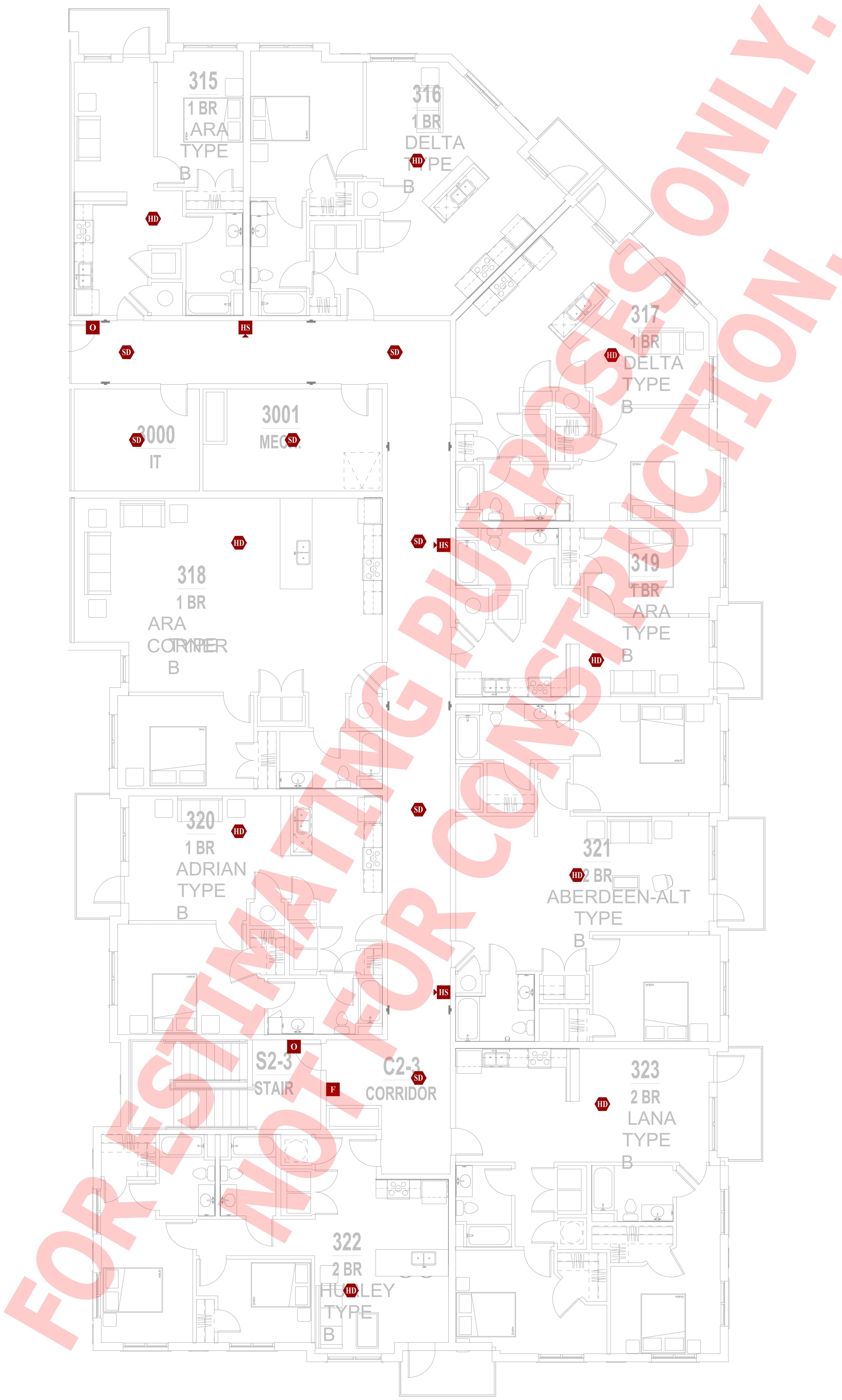
AHJ APPROVAL STAMP

SHEET TITLE

FIRE PROTECTION PLAN - SECOND FLOOR - AREA B

SHEET NUMBER

FP112



FIRE PROTECTION PLAN - THIRD FLOOR - AREA B

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

FIRE ALARM PLAN SYMBOL LEGEND

F	MANUAL PULL STATION
M	MODULE
O	OUTPUT MODULE
SD	SMOKE DETECTOR
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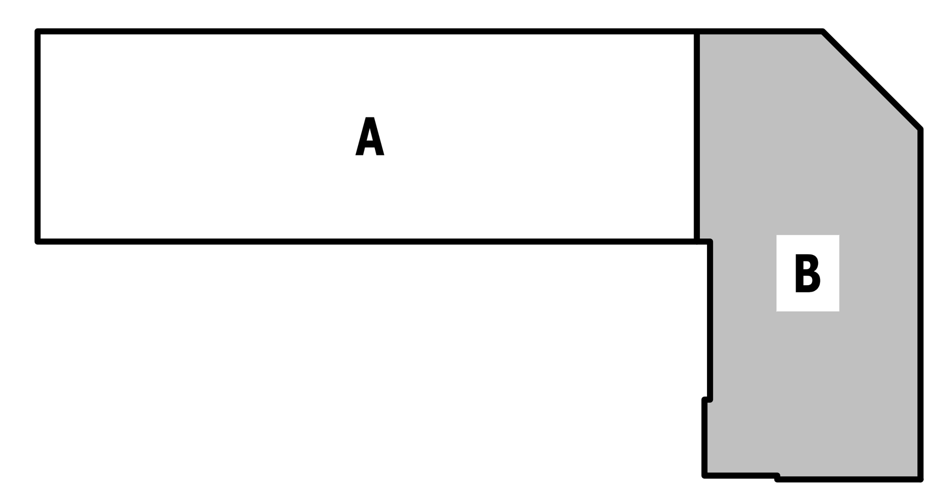
4. ALL INITIATING DEVICES INSTALLED IN UNCONDITIONED SPACES SHALL BE CONVENTIONAL DEVICES SUITABLE FOR USE IN EXTREME HIGH AND LOW TEMPERATURES AND HIGH HUMIDITY. SUCH DEVICES SHALL BE SUPERVISED BY ADDRESSABLE MONITOR MODULES LOCATED IN CONDITIONED SPACES.
5. QUANTITIES, TYPES, AND LOCATIONS OF INITIATING DEVICES AND OUTPUT MODULES FOR INTERCONNECTION WITH FIRE SUPPRESSION MUST BE COORDINATED WITH CONTRACTORS THAT ARE RESPONSIBLE FOR THOSE SYSTEMS.



KEY PLAN

SCALE: NTS

James Watson, P.E. November 11, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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J2 PROJECT No:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

FIRE PROTECTION PLAN - THIRD FLOOR - AREA B

SHEET NUMBER

FP113

SANITARY SEWER PLAN SYMBOL LEGEND

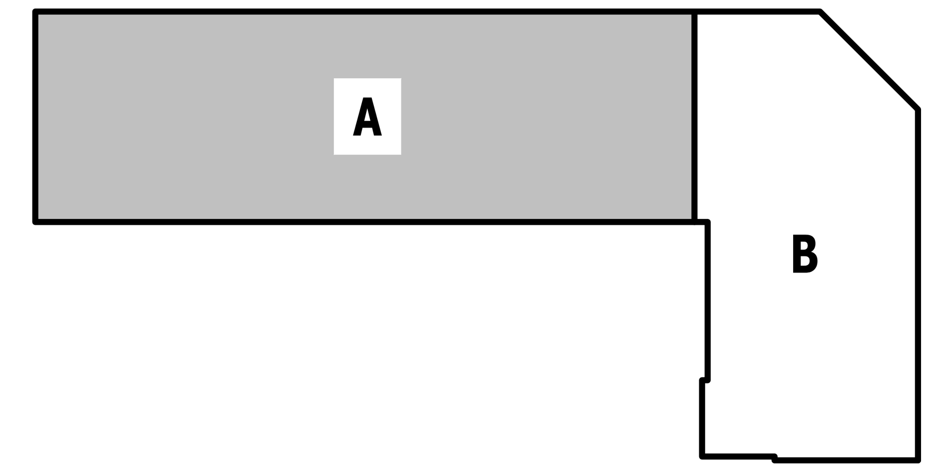
- SANITARY SEWER PIPING
- VENT PIPING
- STORM DRAIN PIPING
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

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.

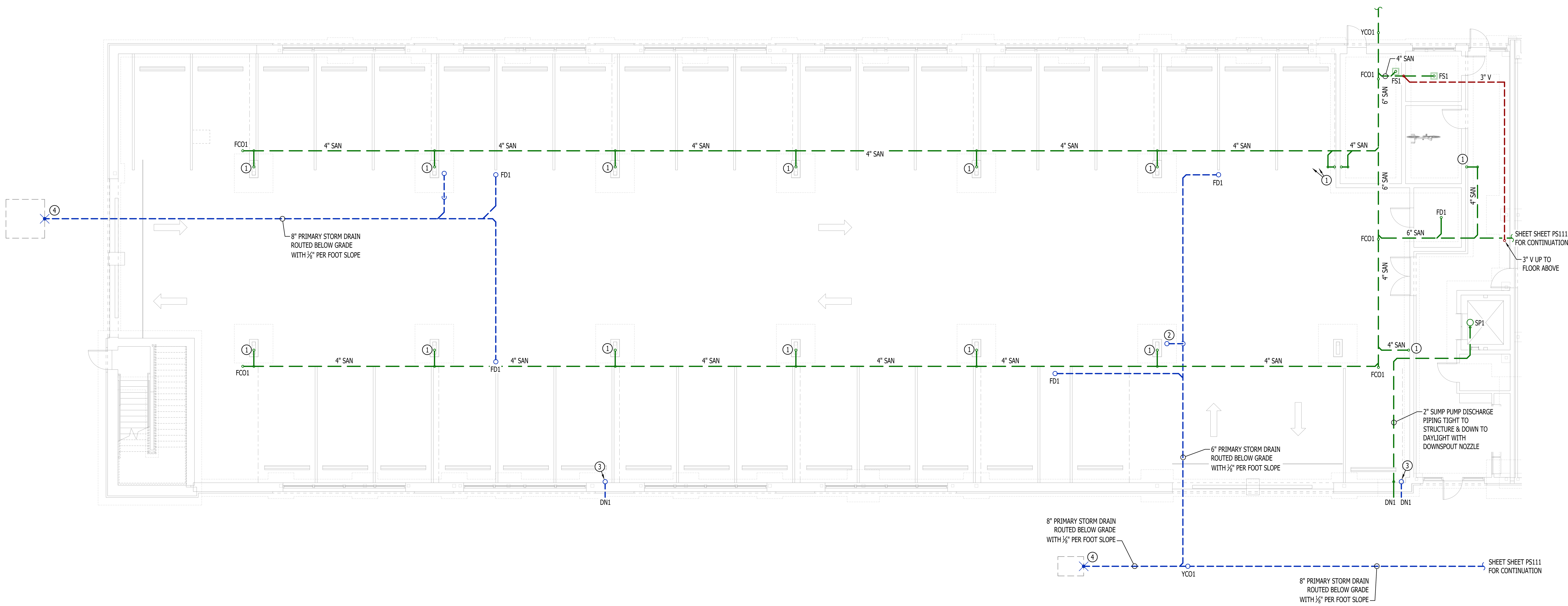
SANITARY SEWER PLAN KEY NOTES:

1. 4" SAN DOWN FROM SECOND FLOOR
2. 6" PRIMARY STORM DRAIN PIPING DOWN FROM LEVEL ABOVE.
3. 6" SECONDARY STORM DRAIN PIPING DOWN FROM LEVEL ABOVE TO DOWNSPOUT NOZZLE 'DN1' AT 18" A.F.F.
4. TIE INTO EXISTING SITE STORM DRAINAGE, SEE CIVIL PLANS.



KEY PLAN

SCALE: NTS



SANITARY SEWER PLAN - FIRST FLOOR - AREA A

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

STATE OF MISSOURI JAMES P. WATSON NUMBER PE-2015017071 PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
PE-2015017071
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

SANITARY SEWER PLAN - FIRST FLOOR - AREA A

SHEET NUMBER

PS101

SANITARY SEWER PLAN SYMBOL LEGEND

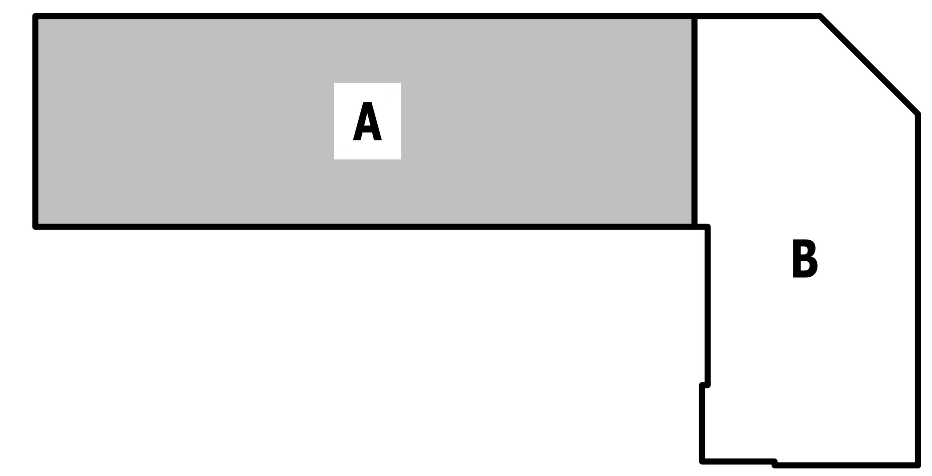
- SANITARY SEWER PIPING
- VENT PIPING
- STORM DRAIN PIPING
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

SANITARY SEWER PLAN GENERAL NOTES:

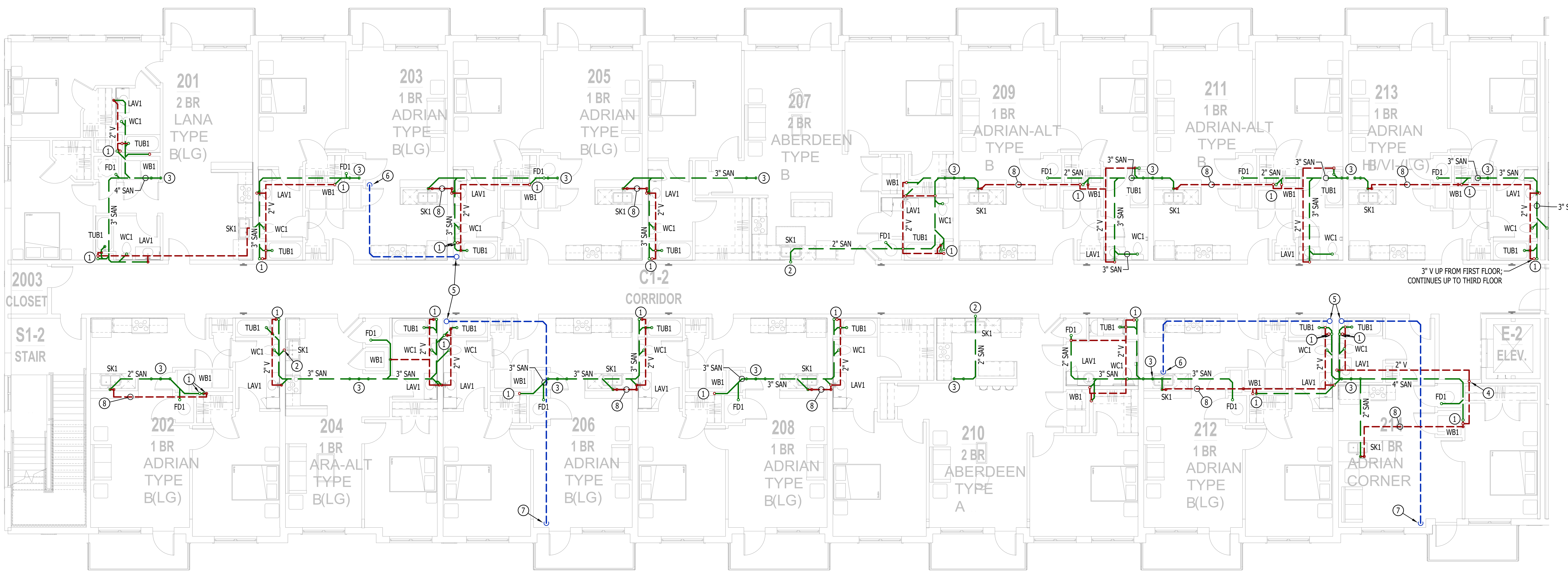
1. REFER TO P500 AND/OR P600 SERIES SHEETS FOR ADDITIONAL PLUMBING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
2. PLUMBING CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL EQUIPMENT, PIPING, HANGERS / SUPPORTS, ETC. WITH HVAC AND ELECTRICAL TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

SANITARY SEWER PLAN KEY NOTES:

1. 3" SANITARY STACK DOWN FROM THIRD FLOOR / 3" VENT UP TO THIRD FLOOR.
2. 2" SANITARY STACK DOWN FROM THIRD FLOOR.
3. 4" SANITARY STACK DOWN TO FIRST FLOOR.
4. 2" VENT UP FROM LEVEL BELOW; SEE SHEET PS101.
5. 6" PRIMARY & 6" SECONDARY STORM DRAIN DOWN FROM LEVEL ABOVE.
6. 6" PRIMARY DOWN TO 1ST FLOOR. SEE SHEET PS101 FOR CONTINUATION.
7. 6" SECONDARY DOWN TO 1ST FLOOR. SEE SHEET PS101 FOR CONTINUATION.
8. ISLAND SINK VENT BELOW FLOOR PER 2018 IPC SECTION 916.



KEY PLAN
SCALE: NTS



SANITARY SEWER PLAN - SECOND FLOOR - AREA A
SCALE: 1/8" = 1'-0"

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

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J2 PROJECT No:	J21010
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:
The Village at Discovery - Lot 7
1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE
SANITARY SEWER PLAN - SECOND FLOOR - AREA A

SHEET NUMBER
PS102

SANITARY SEWER PLAN SYMBOL LEGEND

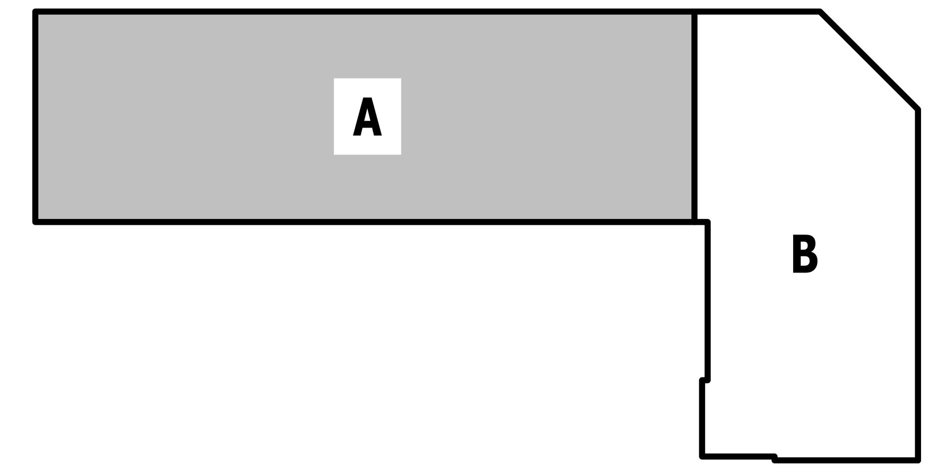
(green dashed line)	SANITARY SEWER PIPING
(red dashed line)	VENT PIPING
(blue dashed line)	STORM DRAIN PIPING
	PIPING TURNED DOWN / TURNED UP
	TIE INTO EXISTING

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.

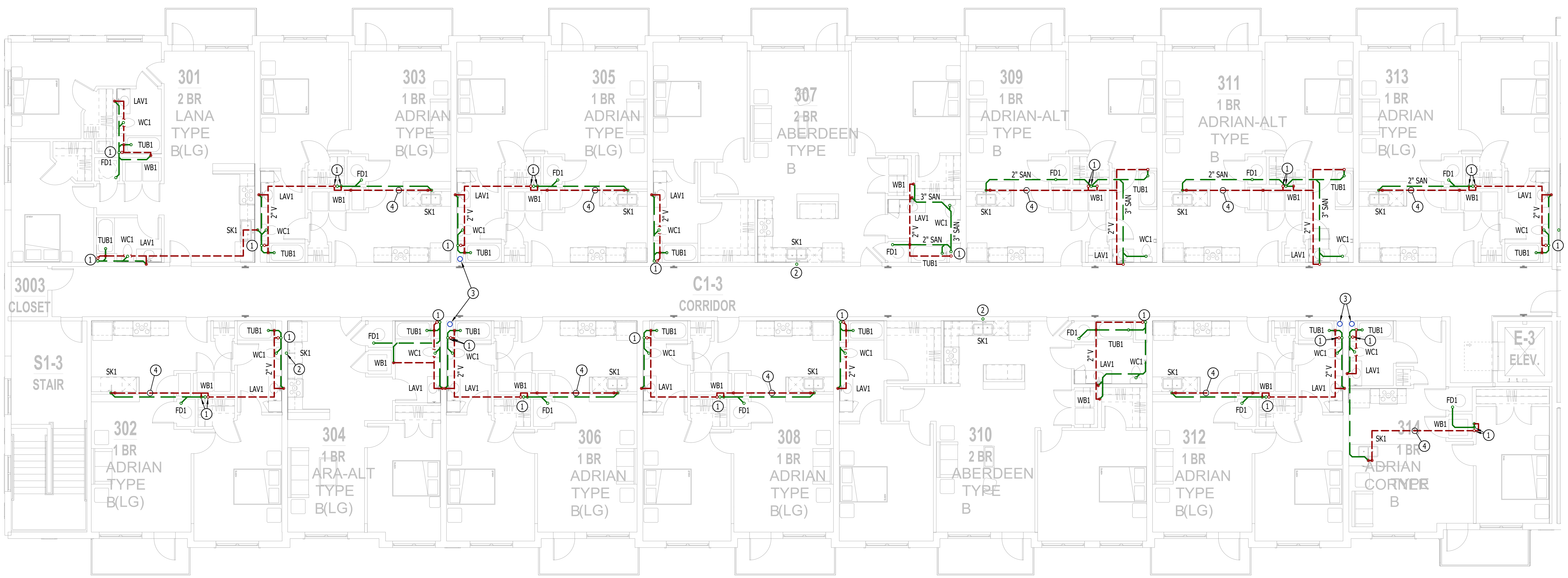
SANITARY SEWER PLAN KEY NOTES:

1. 3" SANITARY STACK DOWN / 3" VENT UP FROM BELOW TO VENT THRU ROOF.
2. 2" SANITARY STACK DOWN / 2" VENT UP TO VENT THRU ROOF.
3. 6" PRIMARY & 6" SECONDARY STORM DRAIN PIPING DOWN FROM ROOF & CONTINUES DOWN TO SECOND FLOOR.
4. ISLAND SINK VENT BELOW FLOOR PER 2018 IPC SECTION 916.



KEY PLAN

SCALE: NTS



SANITARY SEWER PLAN - THIRD FLOOR - AREA A

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

STATE OF MISSOURI
JAMES P. WATSON
NUMBER
PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
PE-2015017071
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J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

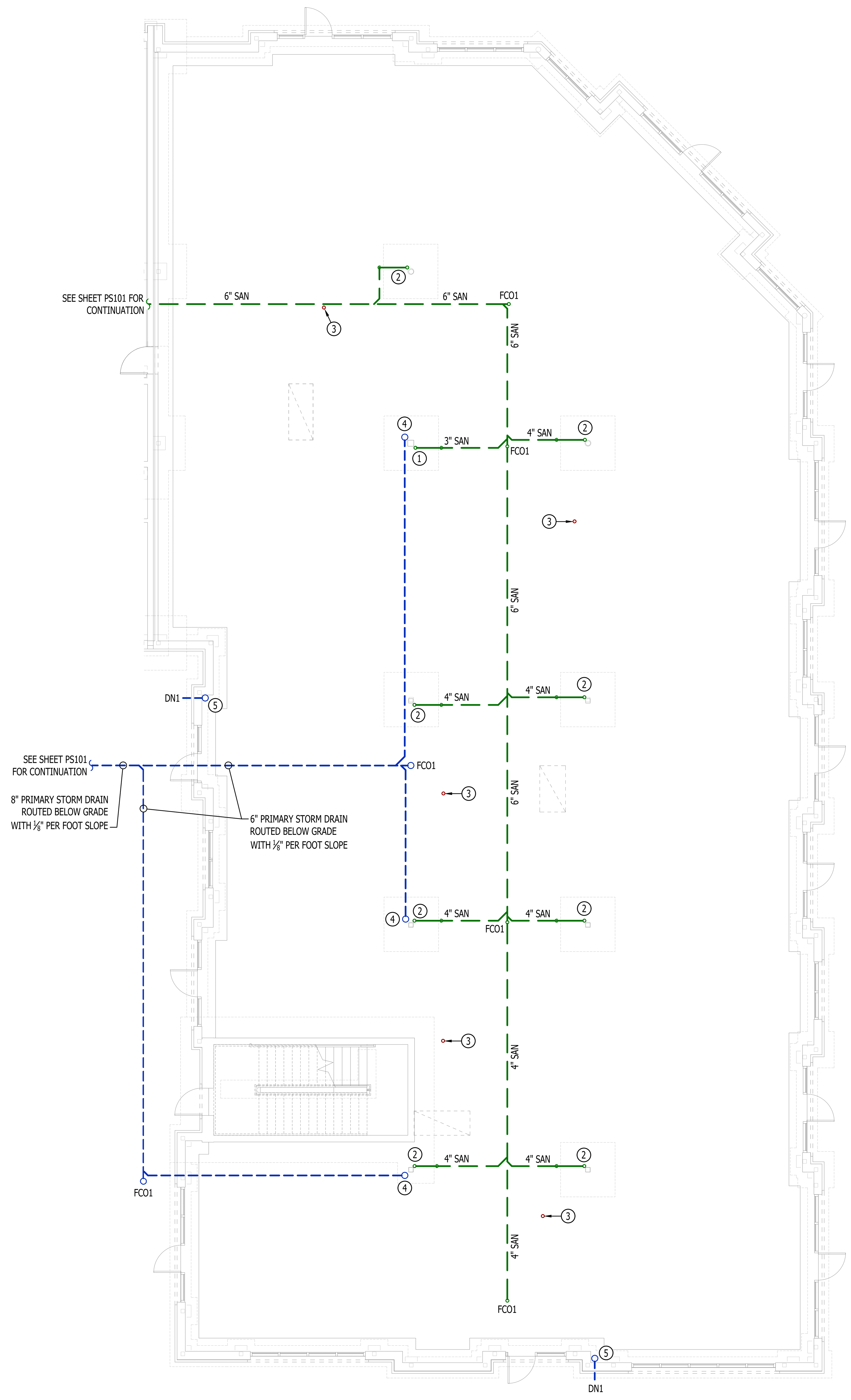
AHJ APPROVAL STAMP

SHEET TITLE

SANITARY SEWER PLAN - THIRD FLOOR - AREA A

SHEET NUMBER

PS103



SANITARY SEWER PLAN - FIRST FLOOR - AREA B

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

SANITARY SEWER PLAN SYMBOL LEGEND

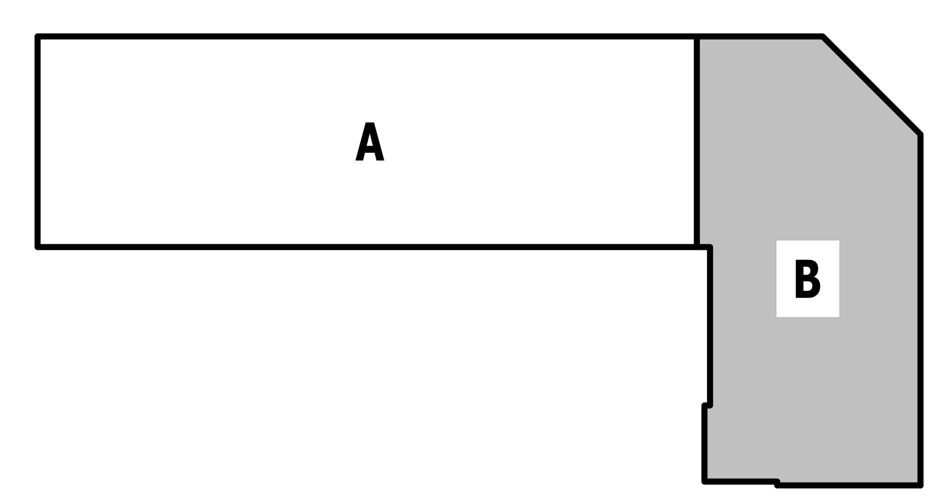
- SANITARY SEWER PIPING
- VENT PIPING
- STORM DRAIN PIPING
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

SANITARY SEWER PLAN GENERAL NOTES:

1. REFER TO PS00 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" SANITARY STACK DOWN FROM SECOND FLOOR, TIGHT TO COLUMN, THEN DOWN BELOW SLAB.
2. 4" SANITARY STACK DOWN FROM SECOND FLOOR, TIGHT TO COLUMN, THEN DOWN BELOW SLAB.
3. 3" VENT (CAPPED FOR FUTURE CONNECTION); SEE SHEET PS102 FOR CONTINUATION.
4. 6" PRIMARY STORM DRAIN PIPING DOWN FROM LEVEL ABOVE.
5. 6" SECONDARY STORM DRAIN PIPING DOWN FROM LEVEL ABOVE TO DOWNSPOUT NOZZLE 'DN1' AT 18" A.F.F.



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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J2 PROJECT No:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

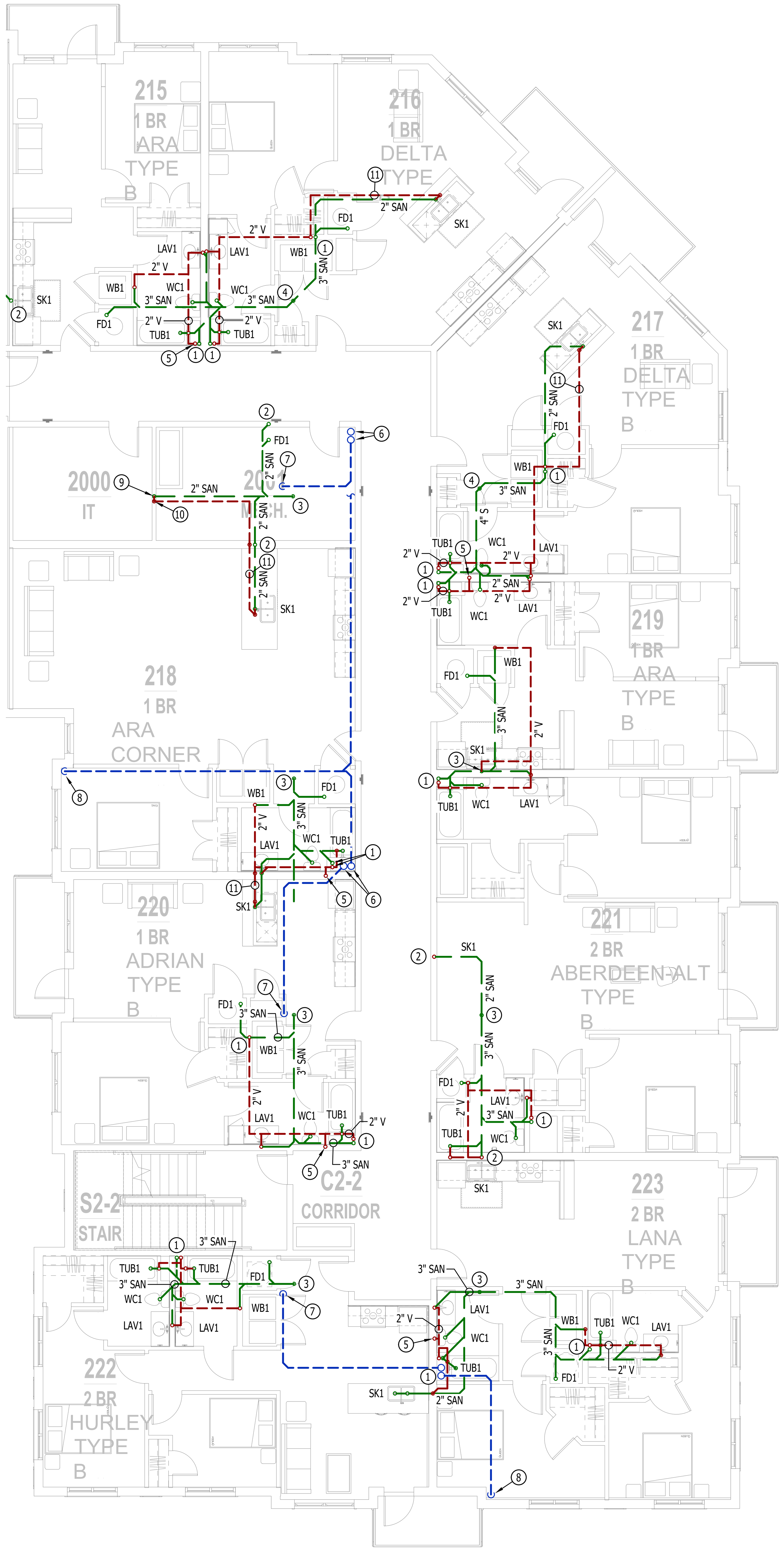
AHJ APPROVAL STAMP

SHEET TITLE

SANITARY SEWER PLAN - FIRST FLOOR - AREA B

SHEET NUMBER

PS111



SANITARY SEWER PLAN - SECOND FLOOR - AREA B

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

SANITARY SEWER PLAN SYMBOL LEGEND

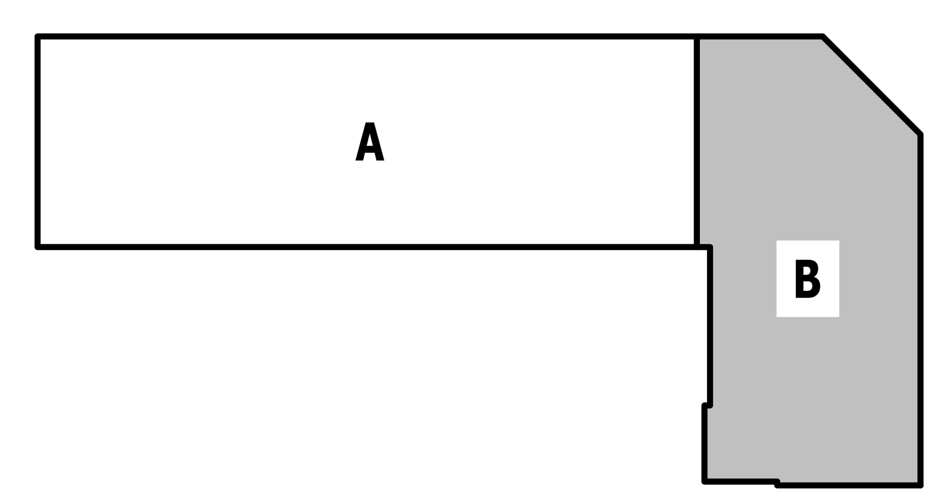
- SANITARY SEWER PIPING
- VENT PIPING
- STORM DRAIN PIPING
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

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" SANITARY STACK DOWN FROM THIRD FLOOR / 3" VENT UP TO THIRD FLOOR.
2. 2" SANITARY STACK DOWN FROM THIRD FLOOR.
3. 3" SANITARY STACK DOWN TO FIRST FLOOR.
4. 4" SANITARY STACK DOWN TO FIRST FLOOR.
5. 3" VENT (CAPPED FOR FUTURE CONNECTION) UP FROM LEVEL BELOW; SEE SHEET PS101.
6. 6" PRIMARY & 6" SECONDARY STORM DRAIN DOWN FROM LEVEL ABOVE.
7. 6" PRIMARY DOWN TO 1ST FLOOR. SEE SHEET PS101 FOR CONTINUATION.
8. 6" SECONDARY DOWN TO 1ST FLOOR. SEE SHEET PS101 FOR CONTINUATION.
9. HUB DRAIN IN WALL WITH ACCESS PANEL & AAV FOR CONDENSATE DISCHARGE. COORDINATE WITH HVAC CONTRACTOR.
10. 2" VENT UP IN WALL TO LEVEL ABOVE.
11. ISLAND SINK VENT BELOW FLOOR PER 2018 IPC SECTION 916.



KEY PLAN

SCALE: NTS

James Watson, P.E. November 11, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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J2 PROJECT No:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

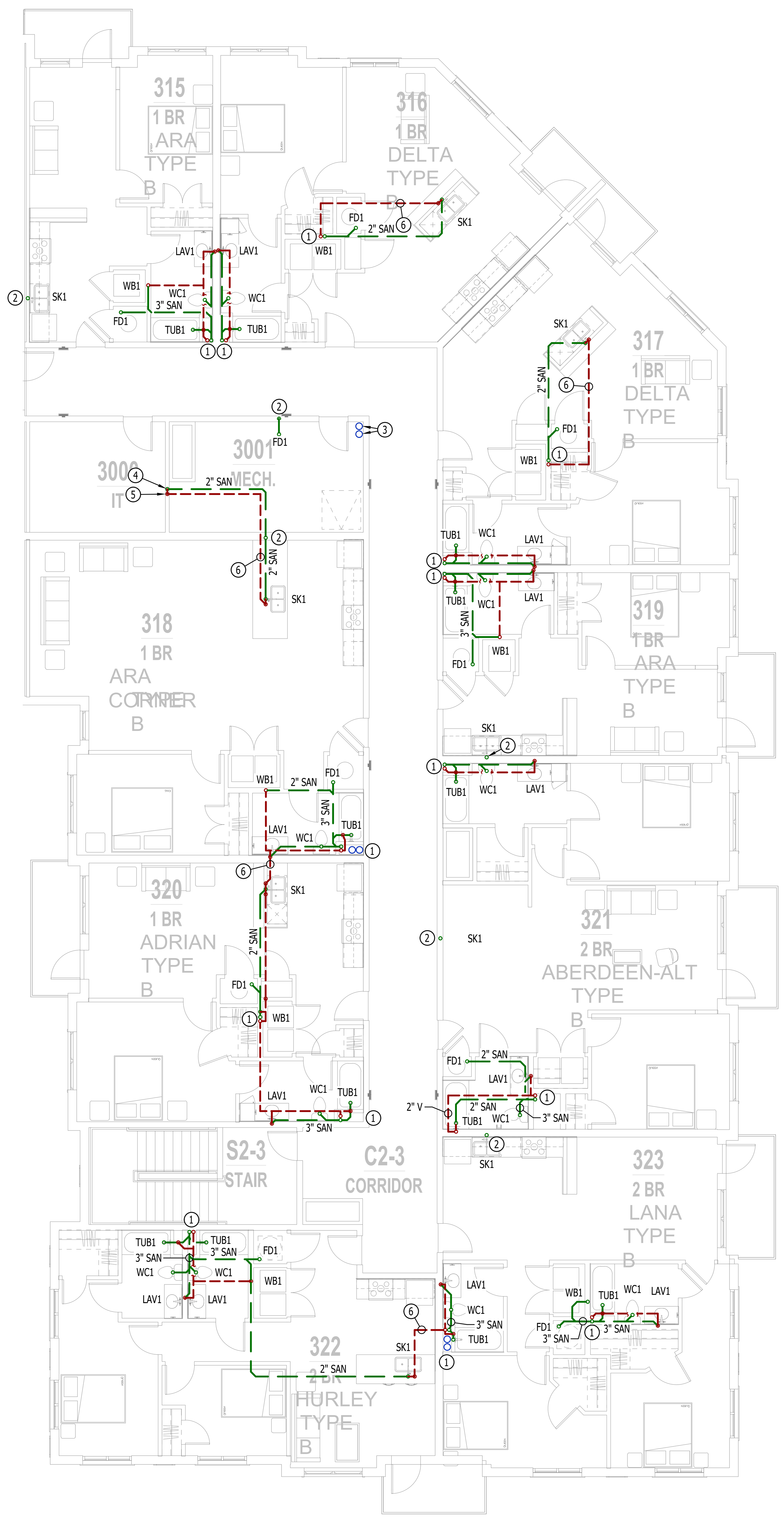
AHJ APPROVAL STAMP

SHEET TITLE

SANITARY SEWER PLAN - SECOND FLOOR - AREA B

SHEET NUMBER

PS112



SANITARY SEWER PLAN - THIRD FLOOR - AREA B

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

SANITARY SEWER PLAN SYMBOL LEGEND

- SANITARY SEWER PIPING
- VENT PIPING
- STORM DRAIN 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" SANITARY STACK DOWN / 3" VENT UP FROM BELOW TO VENT THRU ROOF.

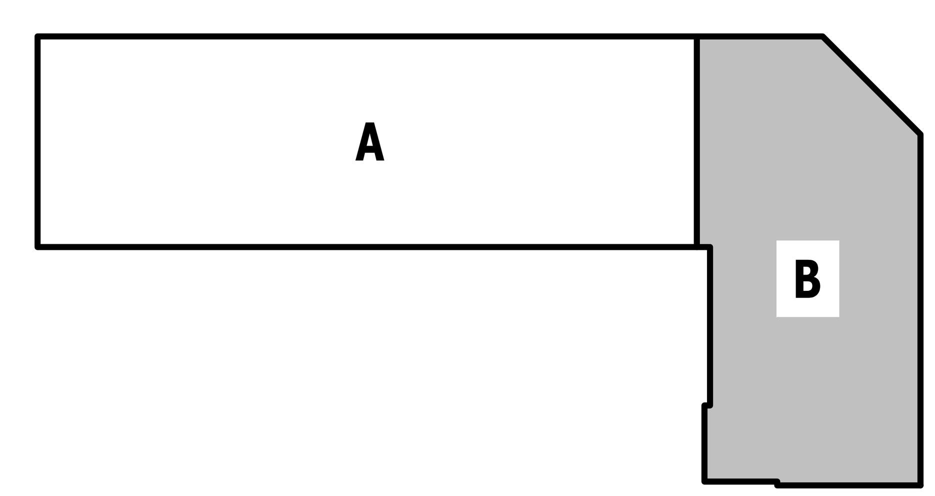
2 2" SANITARY STACK DOWN / 2" VENT UP TO VENT THRU ROOF.

3 6" PRIMARY & 6" SECONDARY STORM DRAIN PIPING DOWN FROM ROOF & CONTINUES DOWN TO SECOND FLOOR.

4 HUB DRAIN IN WALL WITH ACCESS PANEL & AAV FOR CONDENSATE DISCHARGE. COORDINATE WITH HVAC CONTRACTOR.

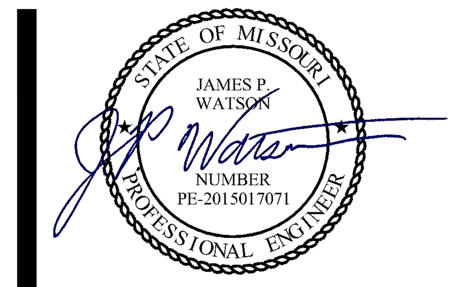
5 2" VENT UP FROM LEVEL BELOW; CONTINUES UP TO 2" VTR.

6 ISLAND SINK VENT BELOW FLOOR PER 2018 IPC SECTION 916.



KEY PLAN

SCALE: NTS



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J2 PROJECT No:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

SANITARY SEWER PLAN - THIRD FLOOR - AREA B

SHEET NUMBER

PS113

WATER & GAS PLAN SYMBOL LEGEND

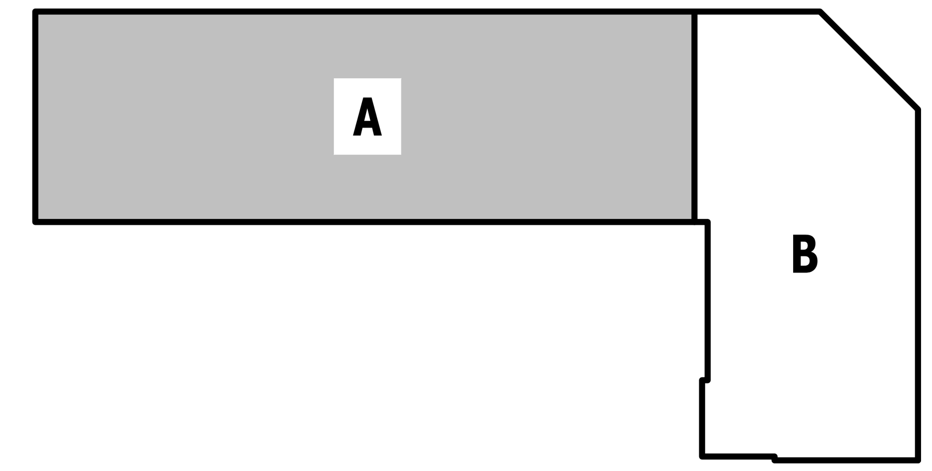
- COLD WATER LINE
- HOT WATER LINE
- HOT WATER RECIRCULATION LINE
- FILTERED WATER LINE
- WATER METER
- VALVE
- PUMP
- GAS LINE
- GAS METER
- AIR LINE
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

WATER & GAS 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.

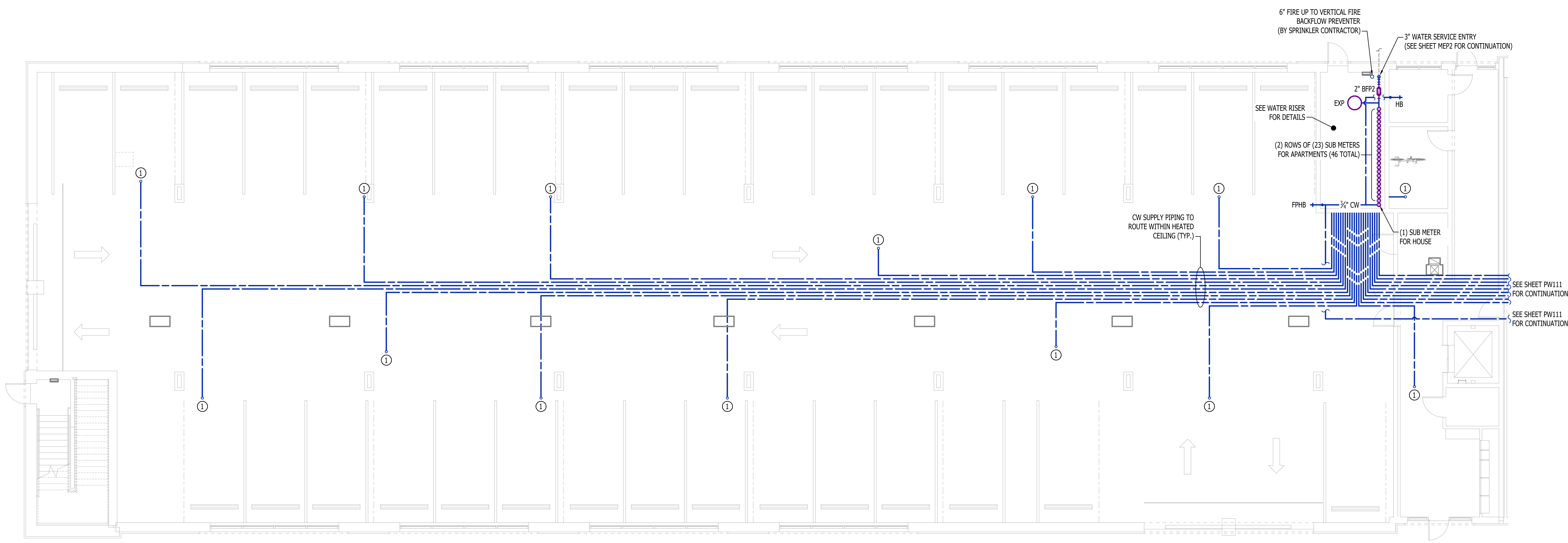
WATER PLAN KEY NOTES:

1 (2) 1" CW UP INTO WALL ON SECOND LEVEL FOR APARTMENTS (SEE SHEET PW112 FOR CONTINUATION)



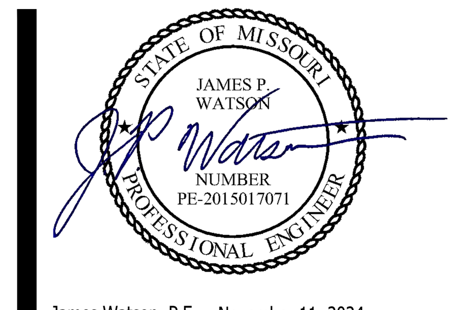
KEY PLAN

SCALE: NTS



WATER PLAN - FIRST FLOOR - AREA A

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



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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

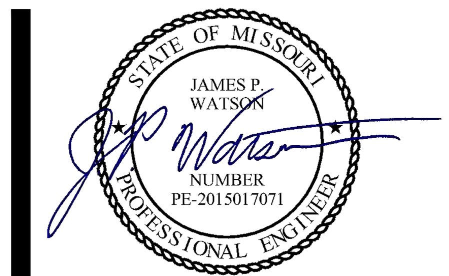
AHJ APPROVAL STAMP

SHEET TITLE

WATER PLAN - FIRST FLOOR - AREA A

SHEET NUMBER

PW101



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J2 PROJECT No:	J21010
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ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

WATER & GAS PLAN SYMBOL LEGEND

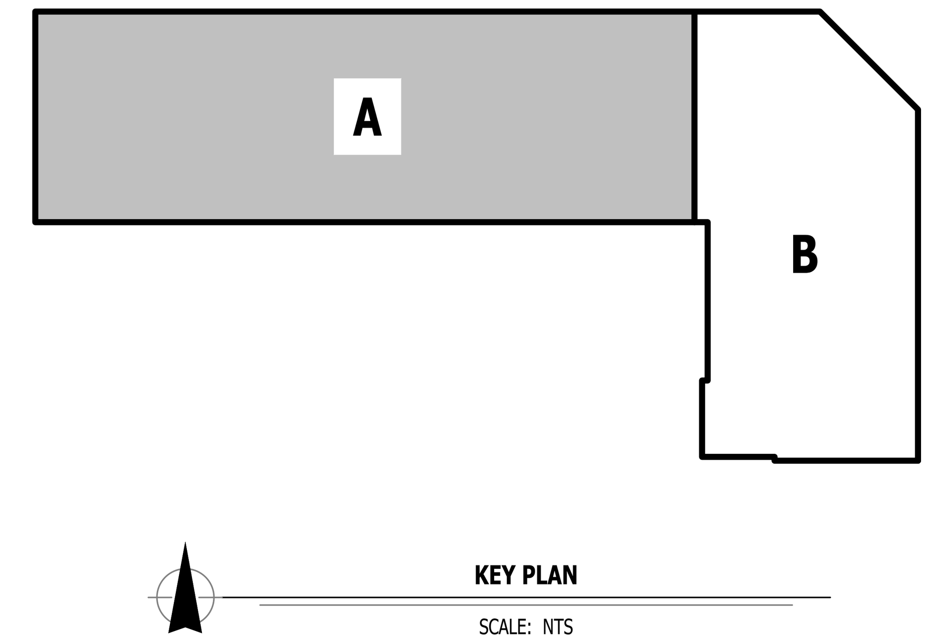
- COLD WATER LINE
- HOT WATER LINE
- HOT WATER RECIRCULATION LINE
- FILTERED WATER LINE
- M WATER METER
- VALVE
- PUMP
- GAS LINE
- G GAS METER
- AIR LINE
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

WATER & GAS PLAN GENERAL NOTES:

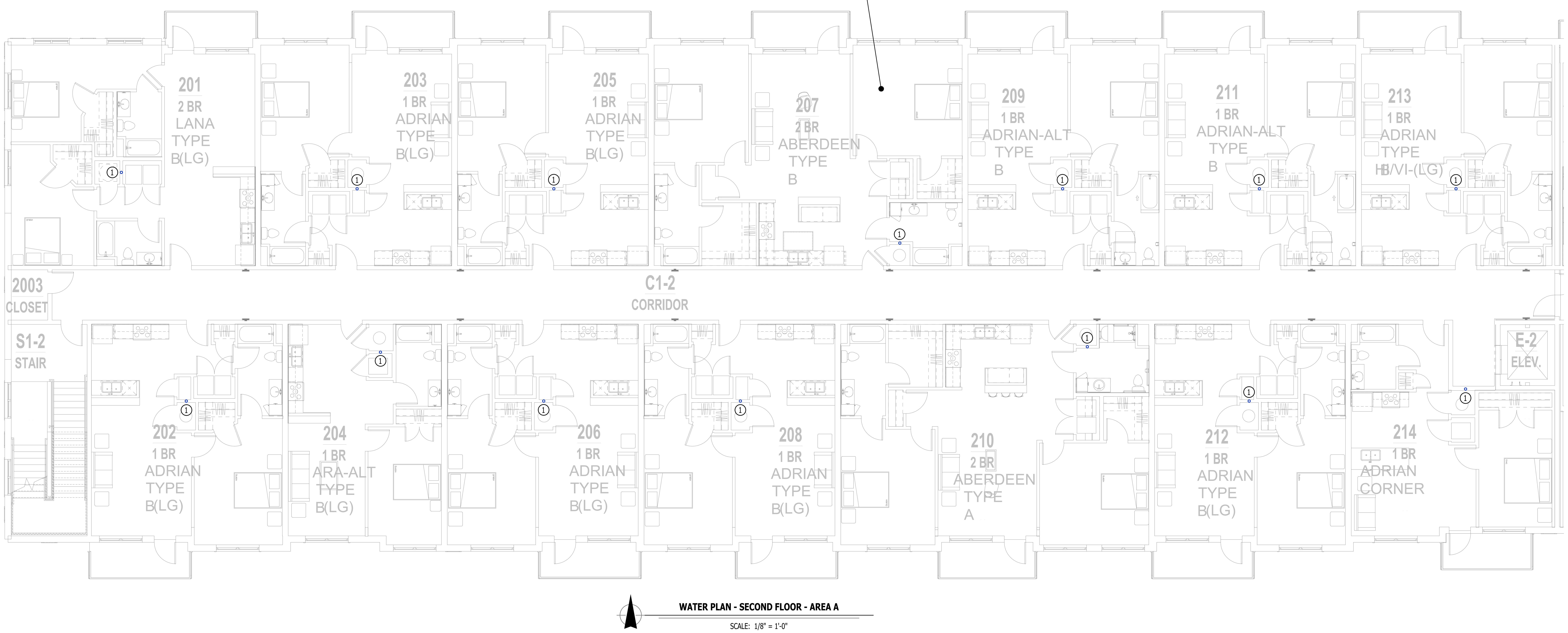
1. REFER TO P500 AND/OR P600 SERIES SHEETS FOR ADDITIONAL PLUMBING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
2. PLUMBING CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL EQUIPMENT, PIPING, HANGERS / SUPPORTS, ETC. WITH HVAC AND ELECTRICAL TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

WATER PLAN KEY NOTES:

1 (2) 1" CW UP INTO WALL FROM FIRST FLOOR
- (1) 1" CW TO SERVE APARTMENT ON SECOND FLOOR
- (1) 1" CW CONTINUES UP TO THIRD FLOOR (SEE SHEET PW103 FOR CONTINUATION).



KEY PLAN
SCALE: NTS



WATER PLAN - SECOND FLOOR - AREA A
SCALE: 1/8" = 1'-0"

AHJ APPROVAL STAMP

SHEET TITLE
WATER PLAN - SECOND FLOOR - AREA A

SHEET NUMBER
PW102

WATER & GAS PLAN SYMBOL LEGEND

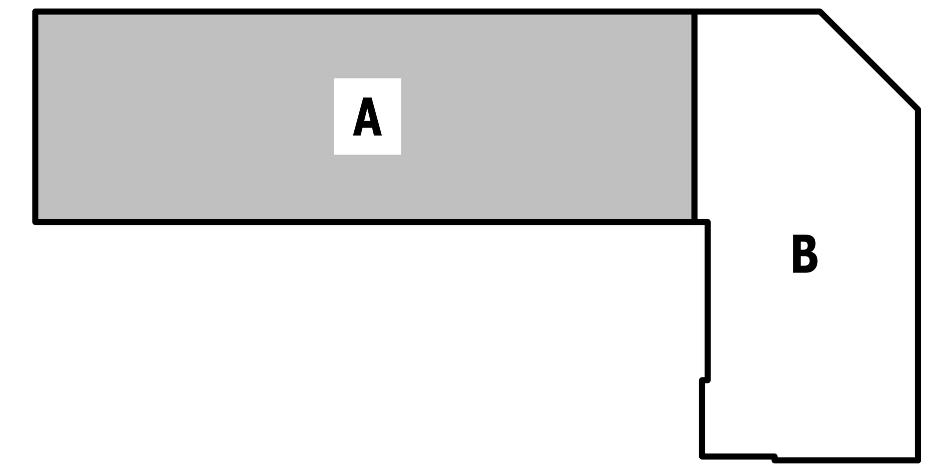
- COLD WATER LINE
- HOT WATER LINE
- HOT WATER RECIRCULATION LINE
- FILTERED WATER LINE
- WATER METER
- VALVE
- PUMP
- GAS LINE
- GAS METER
- AIR LINE
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

WATER & GAS 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.

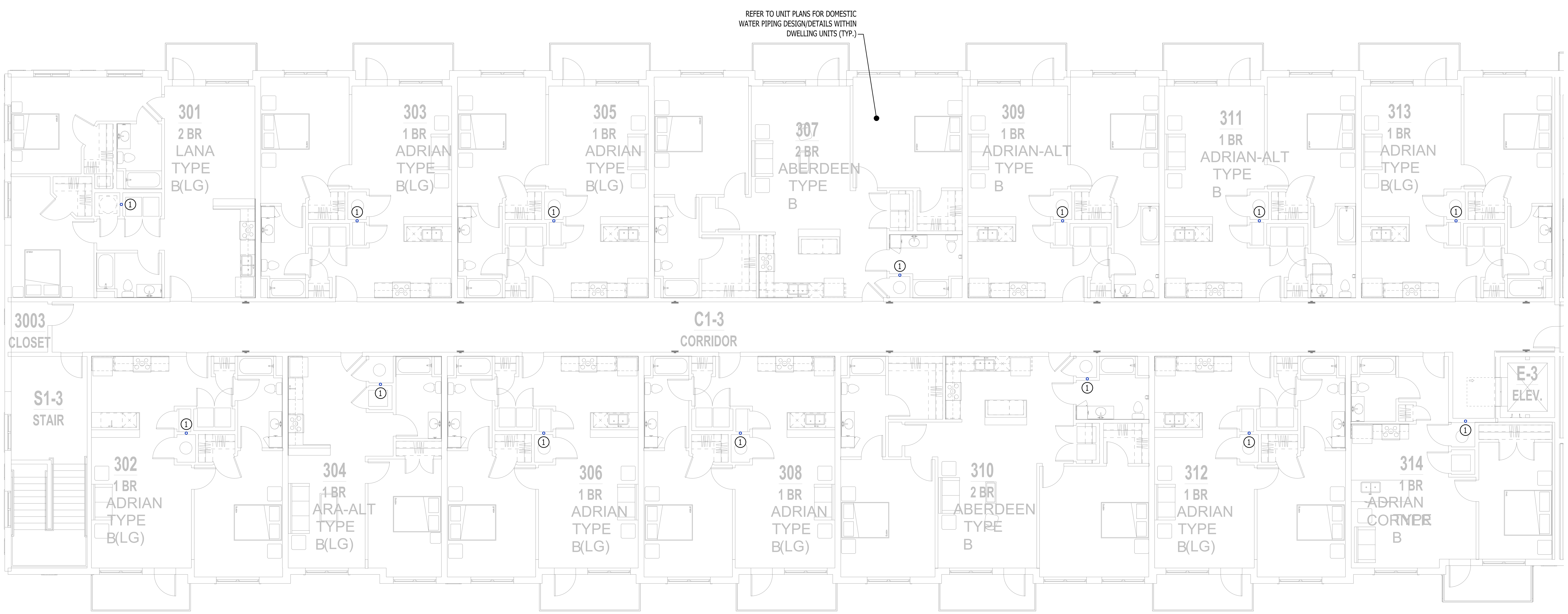
WATER PLAN KEY NOTES:

1 (1) 1" CW UP FROM SECOND FLOOR TO SERVE APARTMENT ON THIRD FLOOR.



KEY PLAN

SCALE: NTS



WATER PLAN - THIRD FLOOR - AREA A

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

STATE OF MISSOURI JAMES P. WATSON NUMBER PE-2015017071 PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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J2 PROJECT No:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

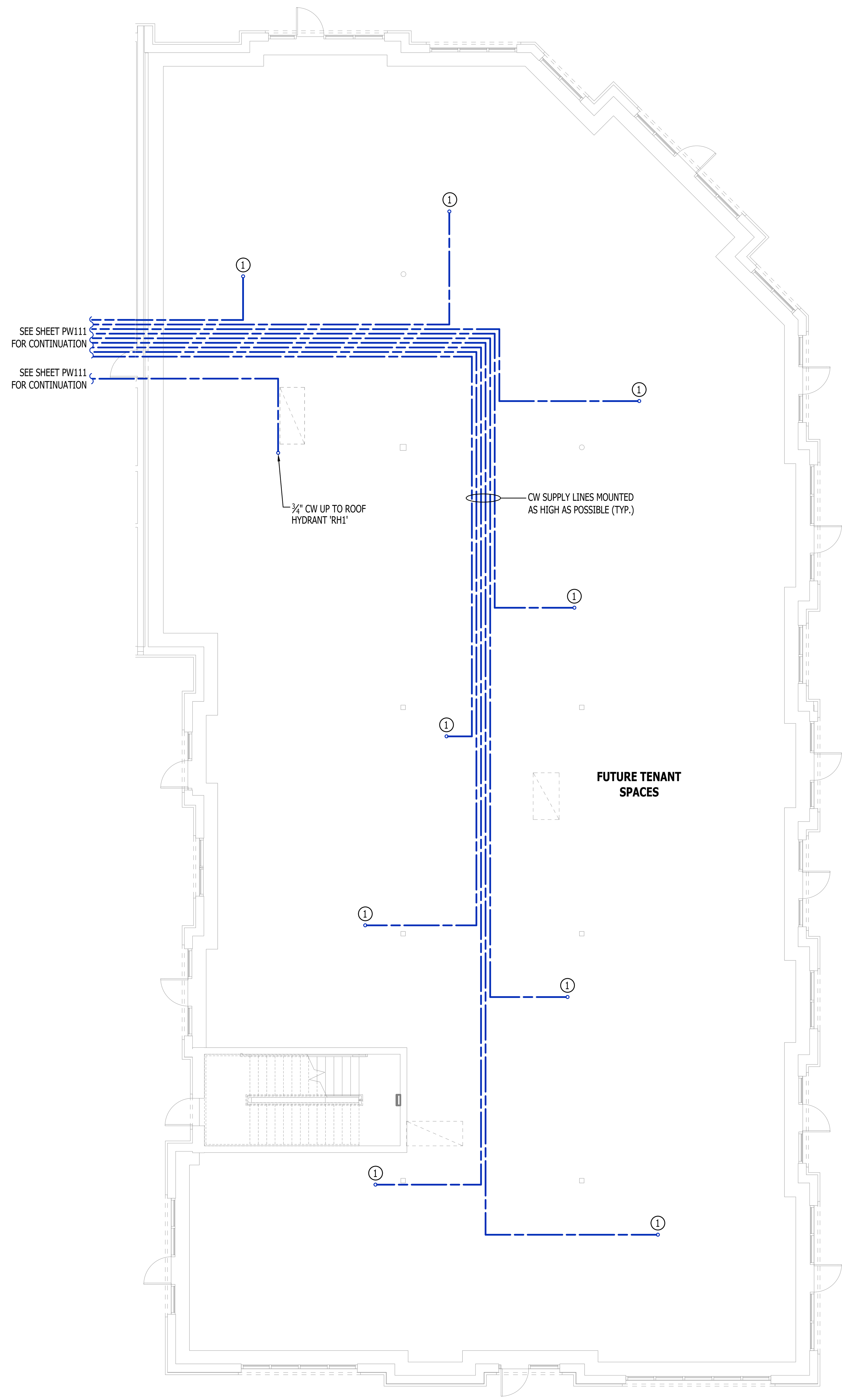
AHJ APPROVAL STAMP

SHEET TITLE

WATER PLAN - THIRD FLOOR - AREA A

SHEET NUMBER

PW103



WATER PLAN - FIRST FLOOR - AREA B

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

WATER & GAS PLAN SYMBOL LEGEND

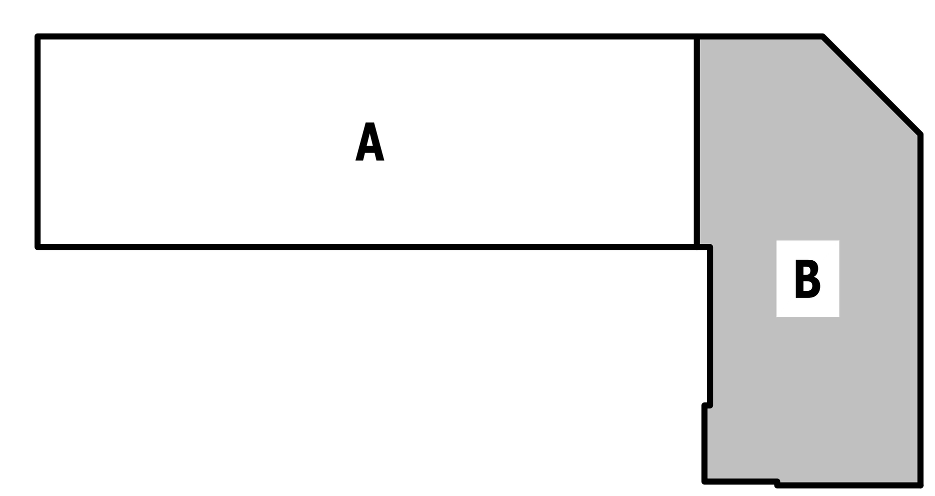
- COLD WATER LINE
- HOT WATER LINE
- HOT WATER RECIRCULATION LINE
- FILTERED WATER LINE
- WATER METER
- VALVE
- PUMP
- GAS LINE
- GAS METER
- AIR LINE
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

WATER & GAS 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.

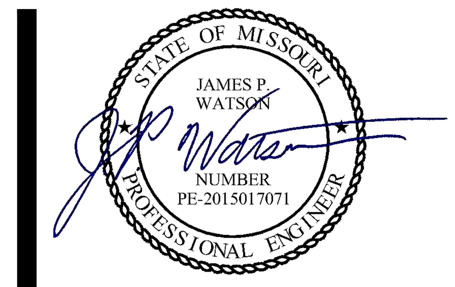
WATER PLAN KEY NOTES:

1 (2) 1" CW UP INTO WALL ON SECOND LEVEL FOR APARTMENTS (SEE SHEET PW102 FOR CONTINUATION)



KEY PLAN

SCALE: NTS



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The Village at Discovery - Lot 7

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AHJ APPROVAL STAMP

SHEET TITLE

WATER PLAN - FIRST FLOOR - AREA B

SHEET NUMBER

PW111

REFER TO UNIT PLANS FOR DOMESTIC WATER PIPING DESIGN/DETAILS WITHIN DWELLING UNITS (TYP.)

WATER PLAN - SECOND FLOOR - AREA B

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

WATER & GAS PLAN SYMBOL LEGEND

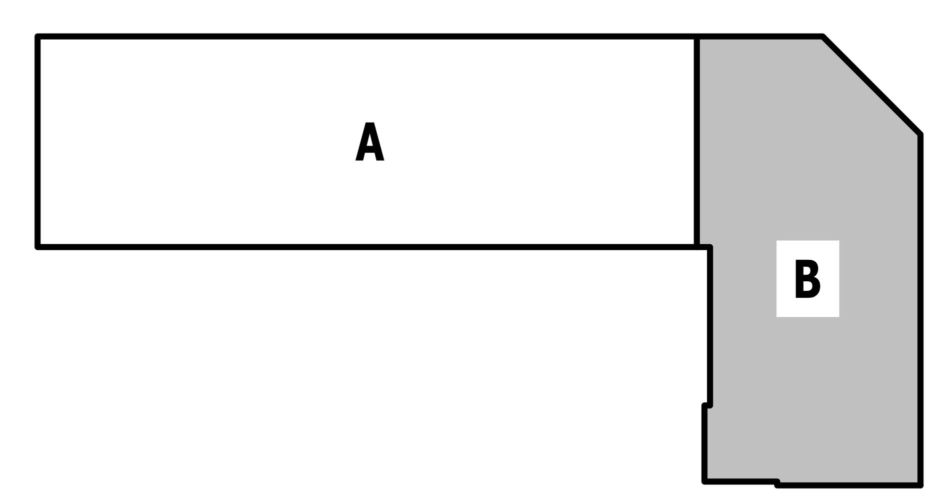
- COLD WATER LINE
- HOT WATER LINE
- HOT WATER RECIRCULATION LINE
- FILTERED WATER LINE
- M — WATER METER
- VALVE
- PUMP
- GAS LINE
- G — GAS METER
- AIR LINE
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

WATER & GAS 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.

WATER PLAN KEY NOTES:

1 (2) 1" CW UP INTO WALL FROM FIRST FLOOR
- (1) 1" CW TO SERVE APARTMENT ON SECOND FLOOR
- (1) 1" CW CONTINUES UP TO THIRD FLOOR (SEE SHEET PW103 FOR CONTINUATION).



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

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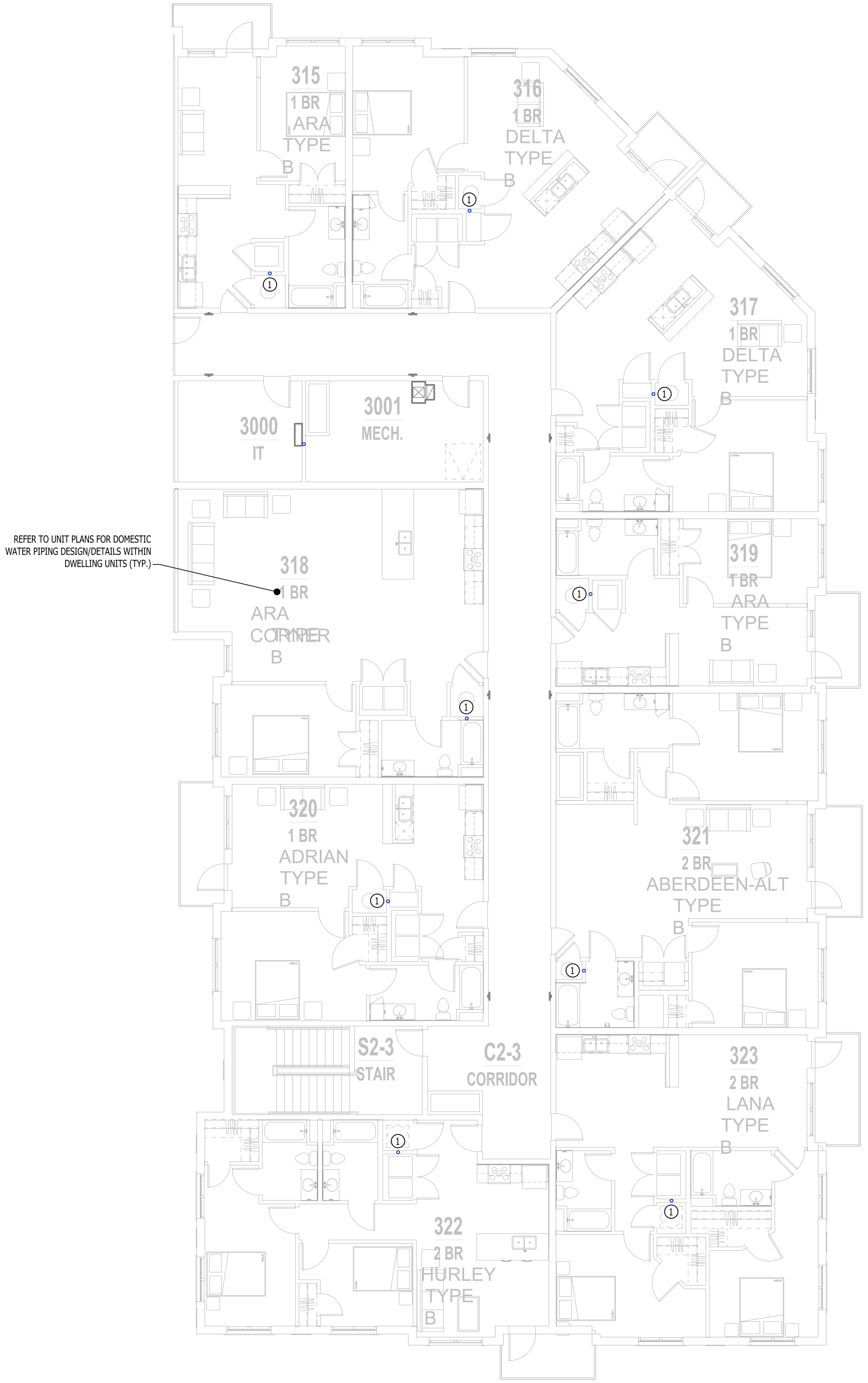
AHJ APPROVAL STAMP

SHEET TITLE

WATER PLAN - SECOND FLOOR - AREA B

SHEET NUMBER

PW112



WATER PLAN - THIRD FLOOR - AREA B

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

WATER & GAS PLAN SYMBOL LEGEND

- COLD WATER LINE
- HOT WATER LINE
- HOT WATER RECIRCULATION LINE
- FILTERED WATER LINE
- WATER METER
- VALVE
- PUMP
- GAS LINE
- GAS METER
- AIR LINE
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

WATER & GAS PLAN GENERAL NOTES:

1. REFER TO P500 AND/OR P600 SERIES SHEETS FOR ADDITIONAL PLUMBING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
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WATER PLAN KEY NOTES:

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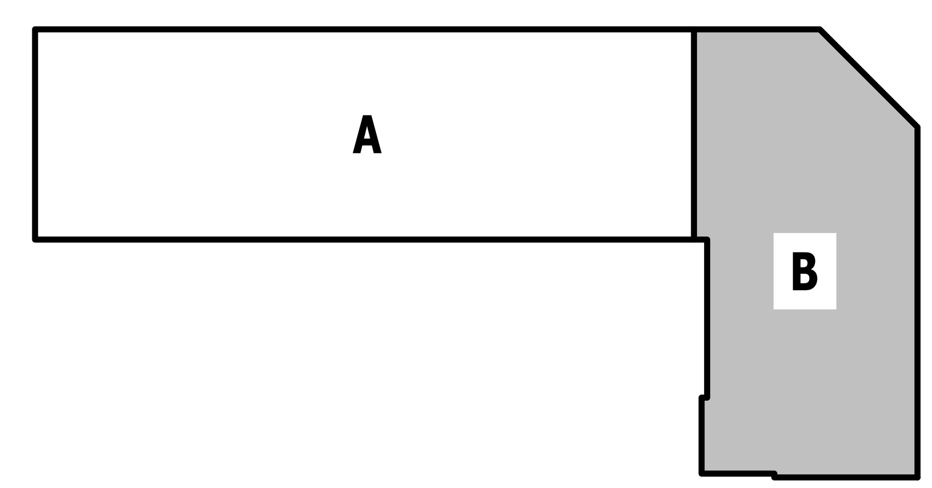

KEY PLAN

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AHJ APPROVAL STAMP

SHEET TITLE

WATER PLAN - THIRD FLOOR - AREA B

SHEET NUMBER

PW113

PLUMBING SPECIFICATIONS

1. **GENERAL**
   - 1.1. PLUMBING CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL ESCUTCHEONS, ¼ 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 ½" OR LESS DIAMETER: ¼" PER FOOT
     - 3.3.2. 3" TO 6" DIAMETER: ⅛" 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 1½", INSULATION THICKNESS TO BE 1".
       - 4.4.1.2. FOR PIPING 1½" OR GREATER, INSULATION THICKNESS SHALL BE 1½".
     - 4.4.2. CW COPPER PIPING TO INSULATED WITH ½" 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 ½" 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 CONNECTION SIZING SCHEDULE

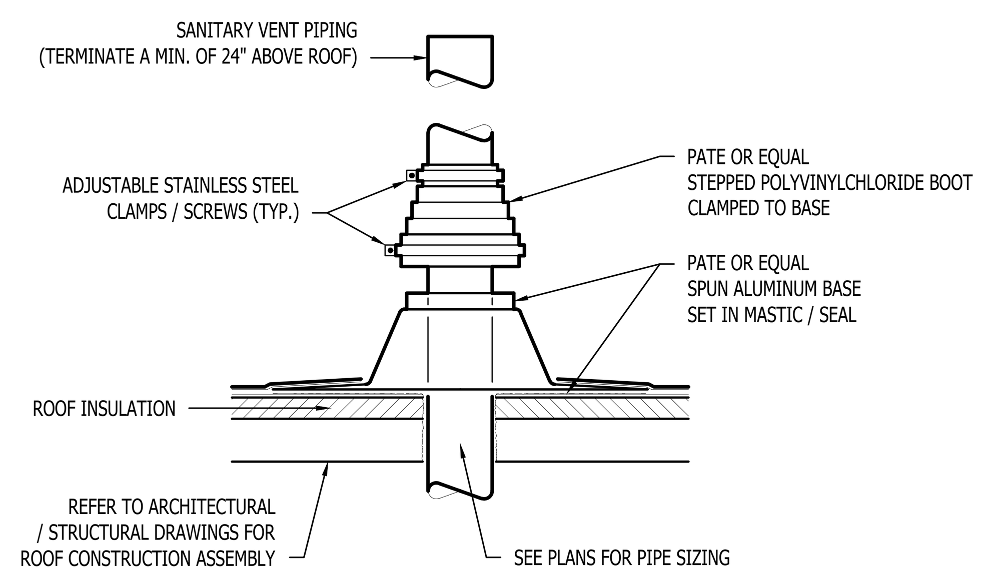
FIXTURE		SANITARY PIPING		SUPPLY PIPING	
TYPE	TYPICAL ABBREVIATION	WASTE CONNECTION	VENT CONNECTION	COLD WATER CONNECTION	HOT WATER CONNECTION
DRINKING FOUNTAIN	DF	1-1/2"	1-1/4"	1/2"	-
FLOOR DRAIN	FD	3"	2"	-	-
HAND / HAIR SINK	HS / SK	2"	1-1/4"	1/2"	1/2"
HOSE BIBB	HB	-	-	3/4"	-
LAVATORY	LAV	1-1/2"	1-1/4"	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

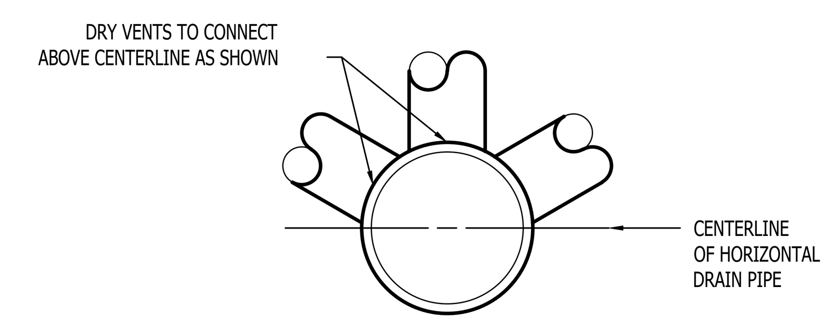
PLUMBING FIXTURE SCHEDULE

TAG	DESCRIPTION	MANUFACTURER (OR EQUAL)	MODEL (OR EQUAL)	NOTES
AAV1	AIR ADMITTANCE VALVE	OATEY	39020	1.5" - 6 DFU MAX
BFP1	BACKFLOW PREVENTER	WILKINS	975XL2	RPZ - SIZE AS INDICATED ON PLANS
DN1	DOWNSPOUT NOZZLE	ZURN	Z199	
EXP1	EXPANSION TANK	WATTS	DETA-100	
FCO1	FLOOR CLEAN OUT	ZURN	Z1400	
FD1	FLOOR DRAIN	ZURN	Z415-BZ	WITH Z1072 TRAP SEAL
FPHB1	FROST PROOF HOSE BIB	WOODFORD	MODEL 67	
RH1	FROST PROOF ROOF HYDRANT	WOODFORD	SRH-MS	
FS1	FLOOR SINK	ZURN	FD2370	
HB1	HOSE BIB	JR SMITH	5670-H	INTEROR HOSE BIB WITH VACUUM BREAKER
LAV1	LAVATORY - INTEGRAL BOWL	-	-	WITH PFISTER #G142-8000 CHROME FAUCET
LAV2	LAVATORY (WALL HUNG W/MANUAL FAUCET)	AMERICAN STANDARD	0355.012	WITH ZURN Z81104-XL FAUCET, 1/4 TURN STOPS, BRAIDED STAINLESS STEEL SUPPLIES, TRUBRO LAV GUARD 2, & 'TMV1'
PRV1	PRESSURE REDUCING VALVE	ZURN	600XL	3" INLET / 3" OUTLET
RD1	ROOF DRAIN	ZURN	Z100	
REF1	REFRIGERATOR BOX	SIOUX CHIEF	696-G1000	
REF1	REFRIGERATOR BOX	SIOUX CHIEF	696-G1000	
RH1	ROOF HYDRANT	WOODFORD	SRH-MS	
SK1	KITCHEN SINK	DAYTON	DSESR12722	WITH PFISTER #F-529-CRS FAUCET,ISE DISPOSAL #BADGER-1 & STS-00 AIR SWITCH
SP1	SUMP PUMP	ZOELLER	153-0002	120V, 1/2 HP WITH "OIL MINDER" CONTROLS
TMV1	THERMOSTATIC MIXING VALVE - POINT OF USE	WATTS	LFUSG	
TUB1	TUB / SHOWER	AQUARIS	G6030TS	WITH PFISTER R89-0300 SHOWER TRIM KIT
TUB2	ADA TUB / SHOWER	AQUATIC	2603SMTE	WITH GRAB BARS & ADA HANDHELD SHOWER ASSEMBLY
WB1	WASHER BOX	SIOUX CHIEF	696-G2303	
WC1	WATER CLOSET - STANDARD HEIGHT - TANK	AMERICAN STANDARD	215CA.004	WITH CHURCH 7200SLEC SEAT AND COVER, STAINLESS BRAIDED SUPPLY, AND 1/4 TURN SHUT-OFF.
WC2	WATER CLOSET - ADA HEIGHT - TANK	AMERICAN STANDARD	215AA.004	WITH CHURCH 7200SLEC SEAT AND COVER, STAINLESS BRAIDED SUPPLY, AND 1/4 TURN SHUT-OFF.
WH1	WATER HEATER - ELECTRIC - LOWBOY	AO SMITH	ECLB-40	38 GALLON, 208V 1PH, 4500W; WITH 'EXP1'
WH2	WATER HEATER - ELECTRIC - POINT OF USE	AO SMITH	EGSP6	6 GALLON, 120V, 1500W WITH HOLDRITE #40-SWHP-W WALL HUNG PLATFORM; WITH 'EXP1'
YCO1	YARD CLEAN OUT	ZURN	Z1400	

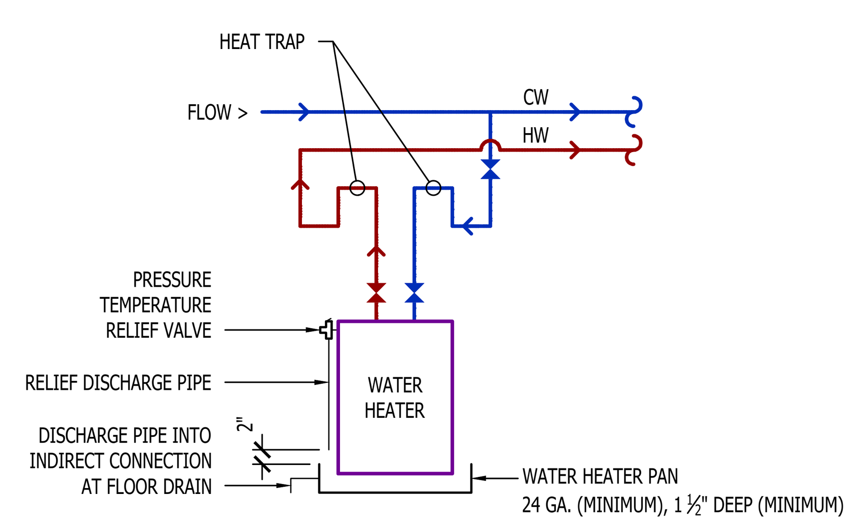
NOTES:
1. VERIFY NECESSARY FIXTURES MEET ADA REQUIREMENTS WITH ARCHITECT PRIOR TO INSTALLATION



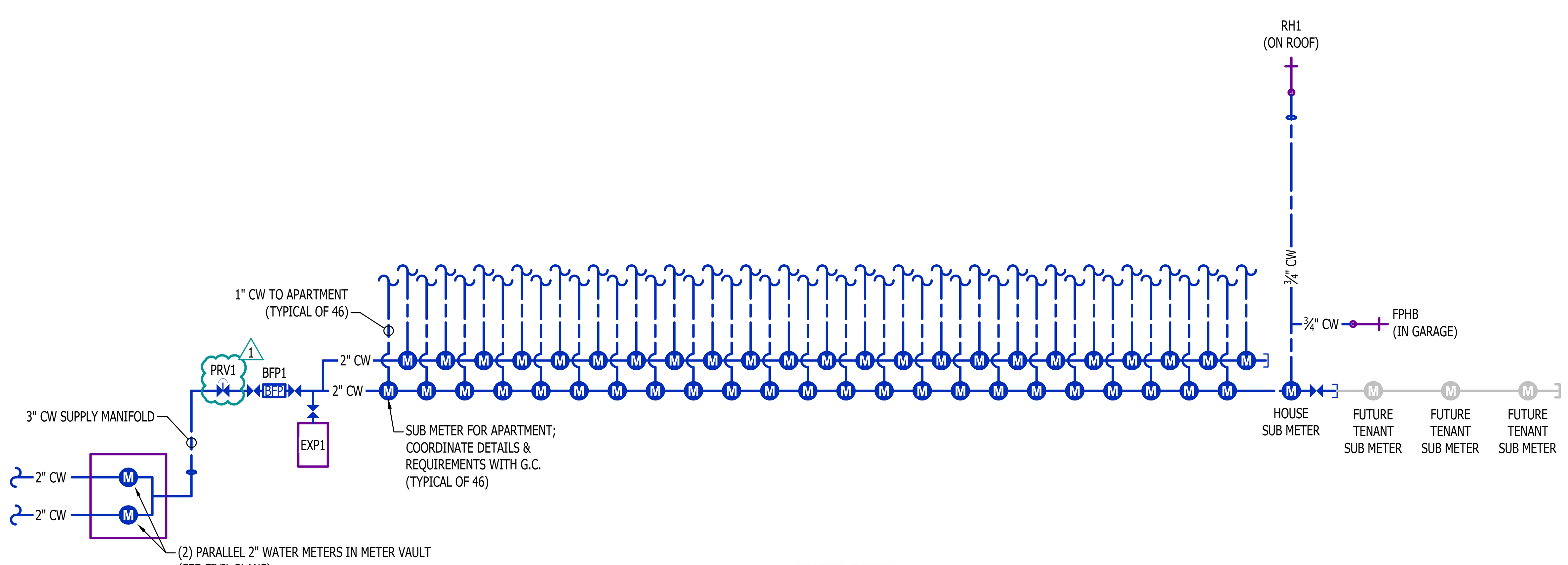
SANITARY VENT THRU ROOF DETAIL



DRY VENT DETAIL



WATER HEATER DETAIL



WATER RISER

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. December 04, 2024
PE-2015017071
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The Village at Discovery - Lot 7

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AHJ APPROVAL STAMP

SHEET TITLE

PLUMBING DETAILS & SCHEDULES

SHEET NUMBER

P501

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
- FLEX DUCT
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
- CEILING RADIATION DAMPER
- BACK DRAFT DAMPER
- THERMOSTAT

HVAC PLAN GENERAL NOTES:

1. SEE SHEET M501 FOR HVAC SCHEDULES, DETAILS, REQUIREMENTS, ETC.
2. SEE SHEET MEP4 FOR CONDENSING UNIT LOCATIONS. REFRIGERANT PIPING SHALL ROUTE IN SPACES ABOVE FINISHED CEILINGS AND WITHIN WALL CAVITIES TO REMAIN CONCEALED.
3. SUPPLY DUCTWORK FROM AHU AT FLOOR/CEILING PENETRATION SHALL BE PROTECTED BY A FIRE DAMPER. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
4. WRAP ALL DRYER DUCTS WITH FIREMASTER (OR EQUAL) DUCT WRAP.
5. TOTAL DEVELOPED LENGTH OF EXHAUST DUCT SHALL BE INDICATED ON A PERMANENT LABEL WITHIN 6' OF DRYER VENT CONNECTION. DRYER DUCT ROUTING SHOWN IS FOR REFERENCE ONLY. OVERALL DUCT LENGTH SHALL BE CALCULATED BY HVAC CONTRACTOR PER 2018 IMC 504.8.4.
6. LOCATE ALL EXHAUST / DRYER VENT TERMINATIONS AT LEAST 36" FROM OPERABLE OPENINGS INTO APARTMENTS (WINDOWS, DOORS, ETC.).
7. ALL DUCTWORK SHOWN SHALL ROUTE IN SPACE BETWEEN / THRU TRUSSES UNLESS NOTED OTHERWISE. SEE STRUCTURAL DRAWINGS FOR DETAILS.

HVAC PLAN KEY NOTES:

1 TERMINATE 4" DRYER EXHAUST WITH VENT EQUAL TO DRYER WALL VENT #DWV4.

2 AHU WALL MOUNTED ABOVE WATER HEATER, COORDINATE WITH PLUMBING CONTRACTOR. CONDENSATE TO DISCHARGE IN FLOOR DRAIN WITHIN CLOSET.

3 HI/LOW TRANSFER GRILLE (12" A.F.F. ON BEDROOM SIDE OF WALL; 84" A.F.F ON OPPOSITE SIDE OF WALL).

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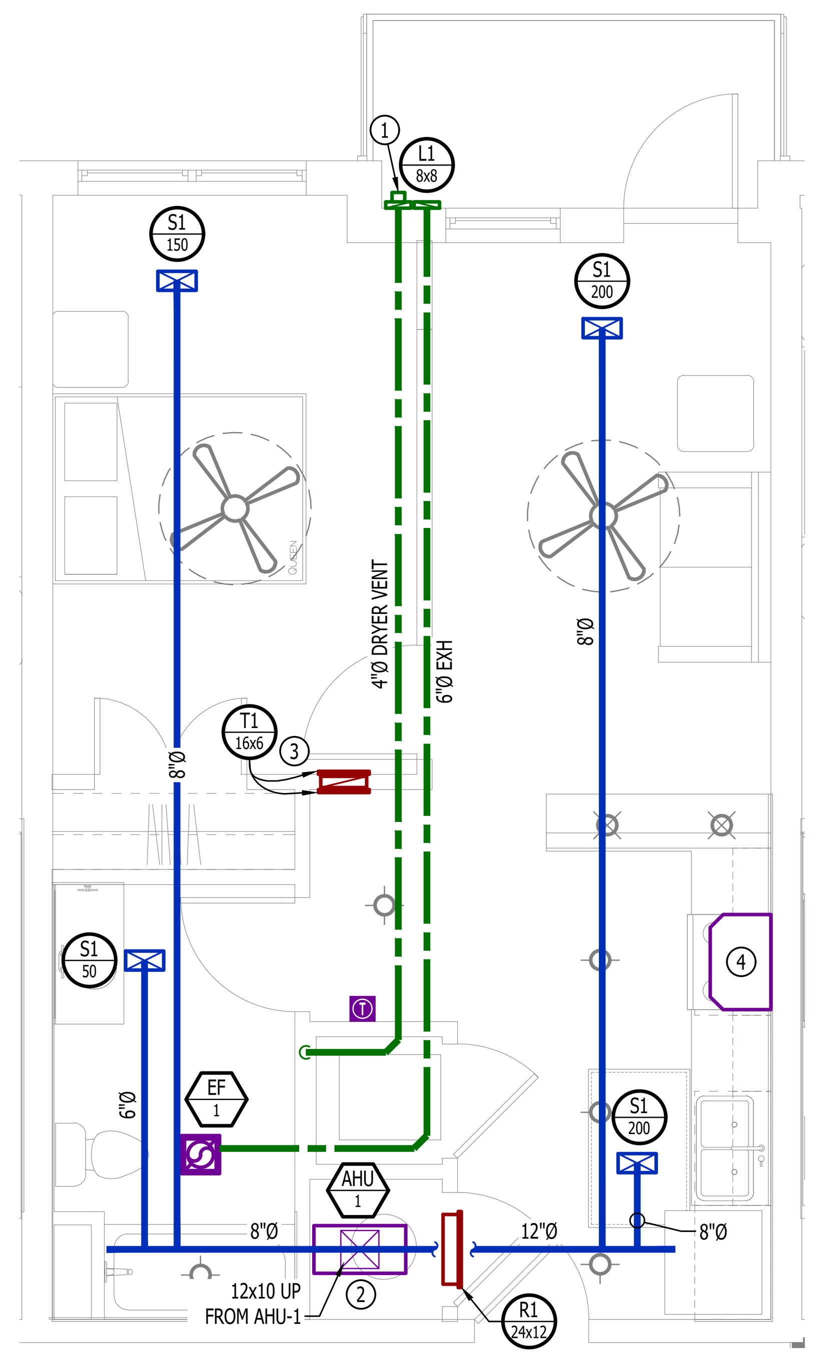


HVAC PLAN - ARA

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

PLUMBING PLAN SYMBOL LEGEND

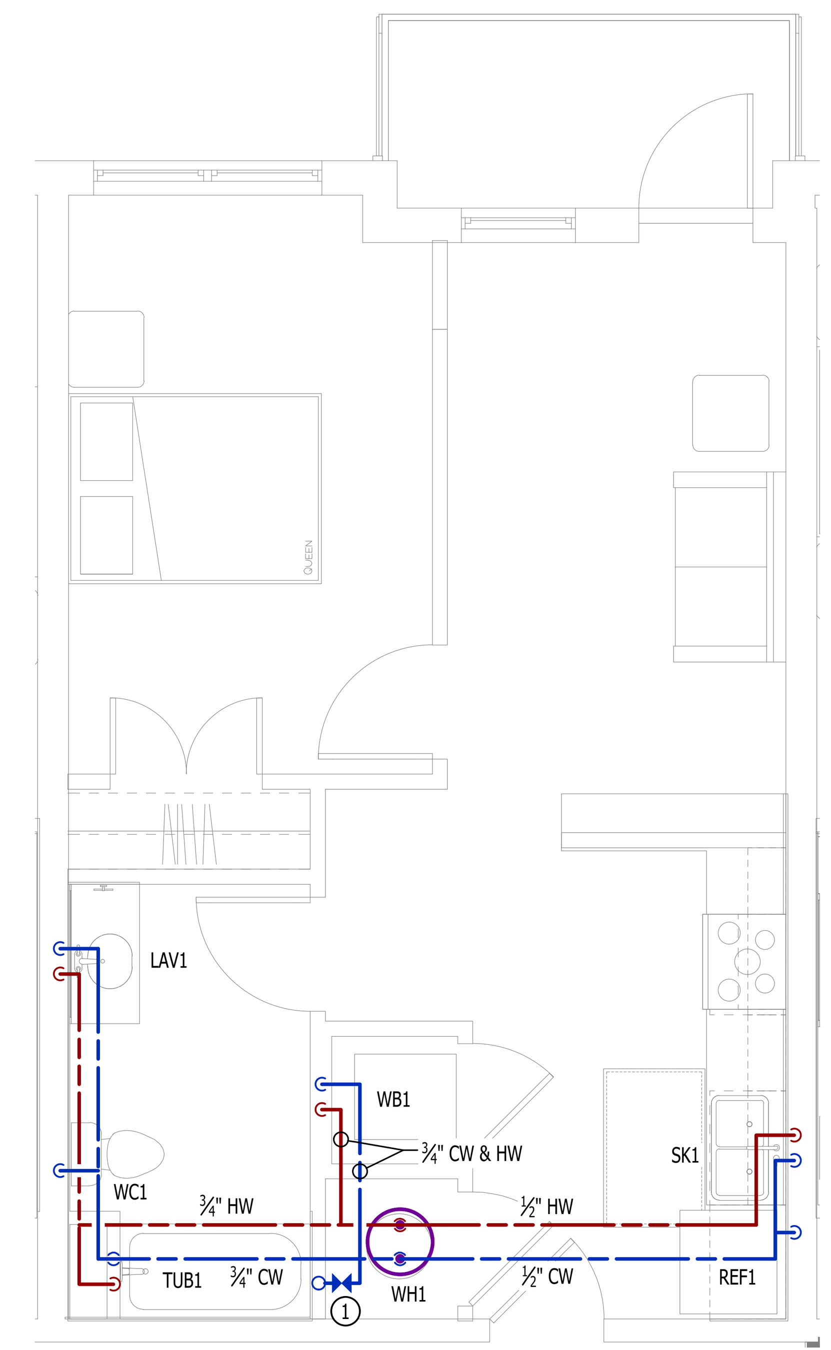
- COLD WATER LINE
- HOT WATER LINE
- VALVE
- PIPING TURNED DOWN / TURNED UP

WATER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.
2. ALL PLUMBING LOCATED ON EXTERIOR WALLS SHALL ROUTE WITHIN INSULATION BARRIER.
3. ALL DOMESTIC SUPPLY LINES SERVING MORE THAN (1) FIXTURE SHALL BE ¾" UNLESS NOTED OTHERWISE.

WATER PLAN KEY NOTES:

1 1" CW PIPE UP FROM BELOW WITH SHUT-OFF VALVE IN ACCESSIBLE LOCATION. SEE OVERALL PLUMBING PLANS FOR DETAILS.



WATER PLAN - ARA

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

POWER PLAN SYMBOL LEGEND

- CIRCUIT WIRING
- CIRCUIT TAG
- JUNCTION BOX
- RECEPTACLE
  - INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
  - "WP" = WEATHERPROOF OUTDOOR RECEPTACLE
- GFCI DUPLEX CONVENIENCE RECEPTACLE
- 208V RECEPTACLE
- QUADPLEX CONVENIENCE RECEPTACLE
- DATA / PHONE JACK; BOX WITH 1" CONDUIT & CAT6 CABLE BACK TO MEDIA PANEL LOCATION (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
- DISCONNECT
- 120V IONIZATION SMOKE 520Hz LOW FREQUENCY ALARM WITH SILENCING CAPABILITIES & LOW-VOLTAGE CONTACTS WIRED TO SHUT DOWN AHU UPON FIRE DETECTION. COORDINATE WITH HVAC CONTRACTOR. SMOKE DETECTOR MUST BE LOCATED AT LEAST 3' FROM CEILING FAN BLADES AND AT LEAST 10' FROM ANY COOKING APPLIANCE (FIELD-COORDINATE)

POWER PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR POWER SCHEDULES, DETAILS, REQUIREMENTS, ETC.
2. SEE SHEET MEP4 FOR CONDENSING UNIT LOCATIONS.
3. VERIFY EACH DATA/RECEPTACLE LOCATION WITH OWNER PRIOR TO INSTALLATION.
4. REFER TO "TYPICAL ADA MOUNTING HEIGHTS DETAIL", SHEET E501, FOR MOUNTING HEIGHTS OF DEVICES IN "ANSI A" UNITS.

POWER PLAN KEY NOTES:

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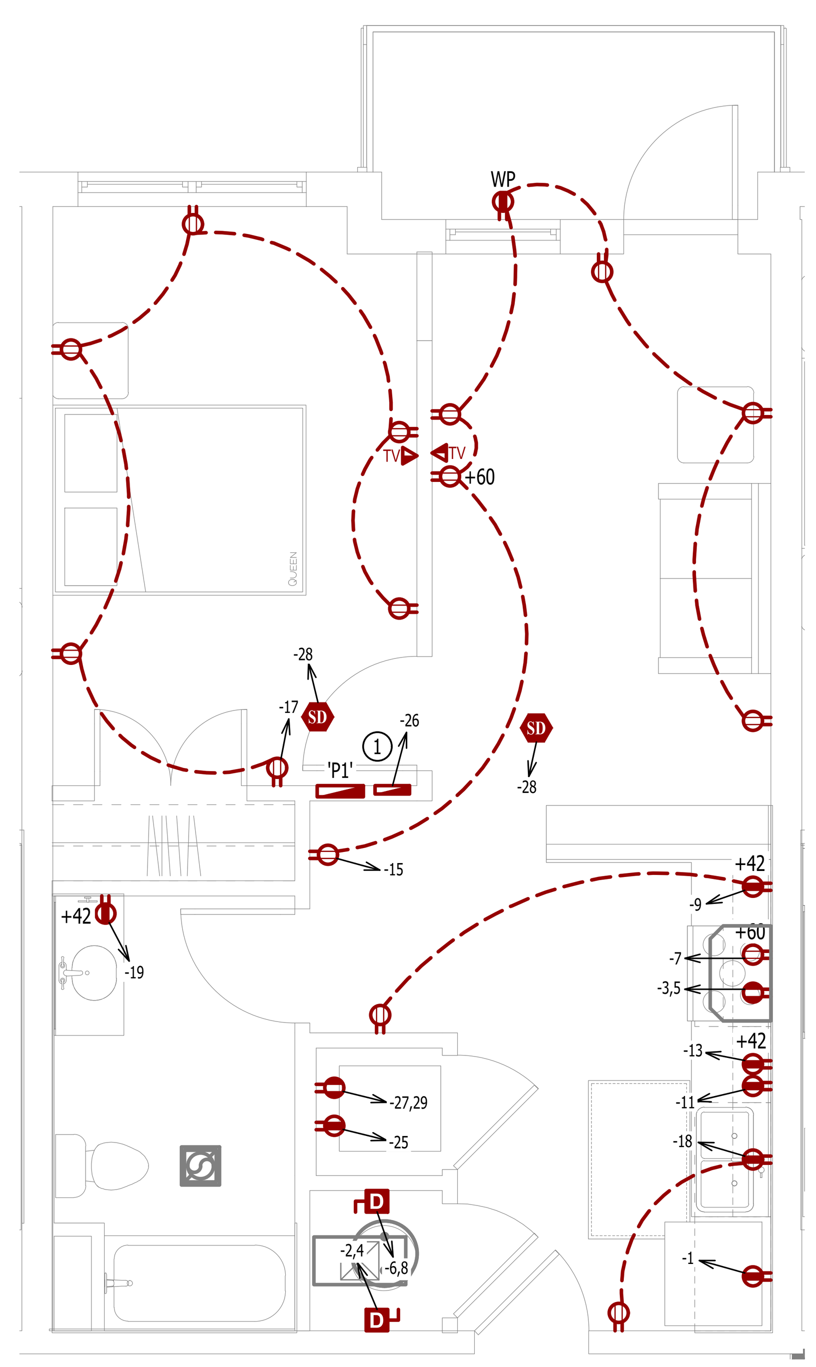


POWER PLAN - ARA

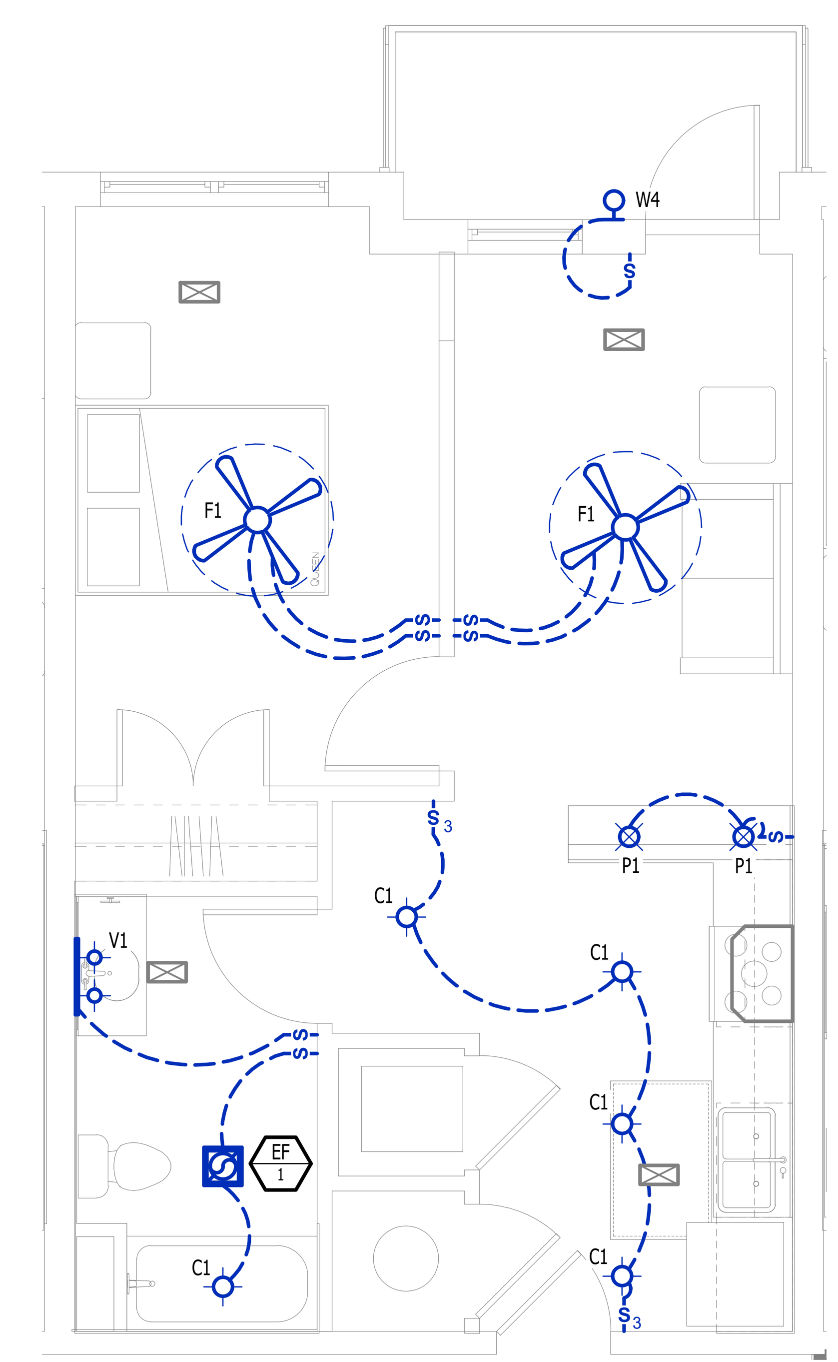
SCALE: 1/4" = 1'-0"

LIGHTING PLAN SYMBOL LEGEND

- LIGHTING FIXTURE
  - "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
- TOGGLE SWITCH
  - SWITCH TYPE
- DIMMER SWITCH

LIGHTING PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.
2. ALL LIGHTING SHOWN SHALL BE ON CIRCUIT -16 UNLESS NOTED OTHERWISE.



LIGHTING PLAN - ARA

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

James Watson, P.E. November 11, 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:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

UNIT TYPE ARA
MEP PLAN

SHEET NUMBER

UMEP1.1

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
- FLEX DUCT
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
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- BALANCE DAMPER
- MOTORIZED DAMPER
- CEILING RADIATION DAMPER
- BACK DRAFT DAMPER
- THERMOSTAT

HVAC PLAN GENERAL NOTES:

1. SEE SHEET M501 FOR HVAC SCHEDULES, DETAILS, REQUIREMENTS, ETC.
2. SEE SHEET MEP4 FOR CONDENSING UNIT LOCATIONS. REFRIGERANT PIPING SHALL ROUTE IN SPACES ABOVE FINISHED CEILINGS AND WITHIN WALL CAVITIES TO REMAIN CONCEALED.
3. SUPPLY DUCTWORK FROM AHU AT FLOOR/CEILING PENETRATION SHALL BE PROTECTED BY A FIRE DAMPER. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
4. WRAP ALL DRYER DUCTS WITH FIREMASTER (OR EQUAL) DUCT WRAP.
5. TOTAL DEVELOPED LENGTH OF EXHAUST DUCT SHALL BE INDICATED ON A PERMANENT LABEL WITHIN 6' OF DRYER VENT CONNECTION. DRYER DUCT ROUTING SHOWN IS FOR REFERENCE ONLY. OVERALL DUCT LENGTH SHALL BE CALCULATED BY HVAC CONTRACTOR PER 2018 IMC 504.8.4.
6. LOCATE ALL EXHAUST / DRYER VENT TERMINATIONS AT LEAST 36" FROM OPERABLE OPENINGS INTO APARTMENTS (WINDOWS, DOORS, ETC.).
7. ALL DUCTWORK SHOWN SHALL ROUTE IN SPACE BETWEEN / THRU TRUSSES UNLESS NOTED OTHERWISE. SEE STRUCTURAL DRAWINGS FOR DETAILS.

HVAC PLAN KEY NOTES:

1. TERMINATE 4" DRYER EXHAUST WITH VENT EQUAL TO DRYER WALL VENT #DWV4.
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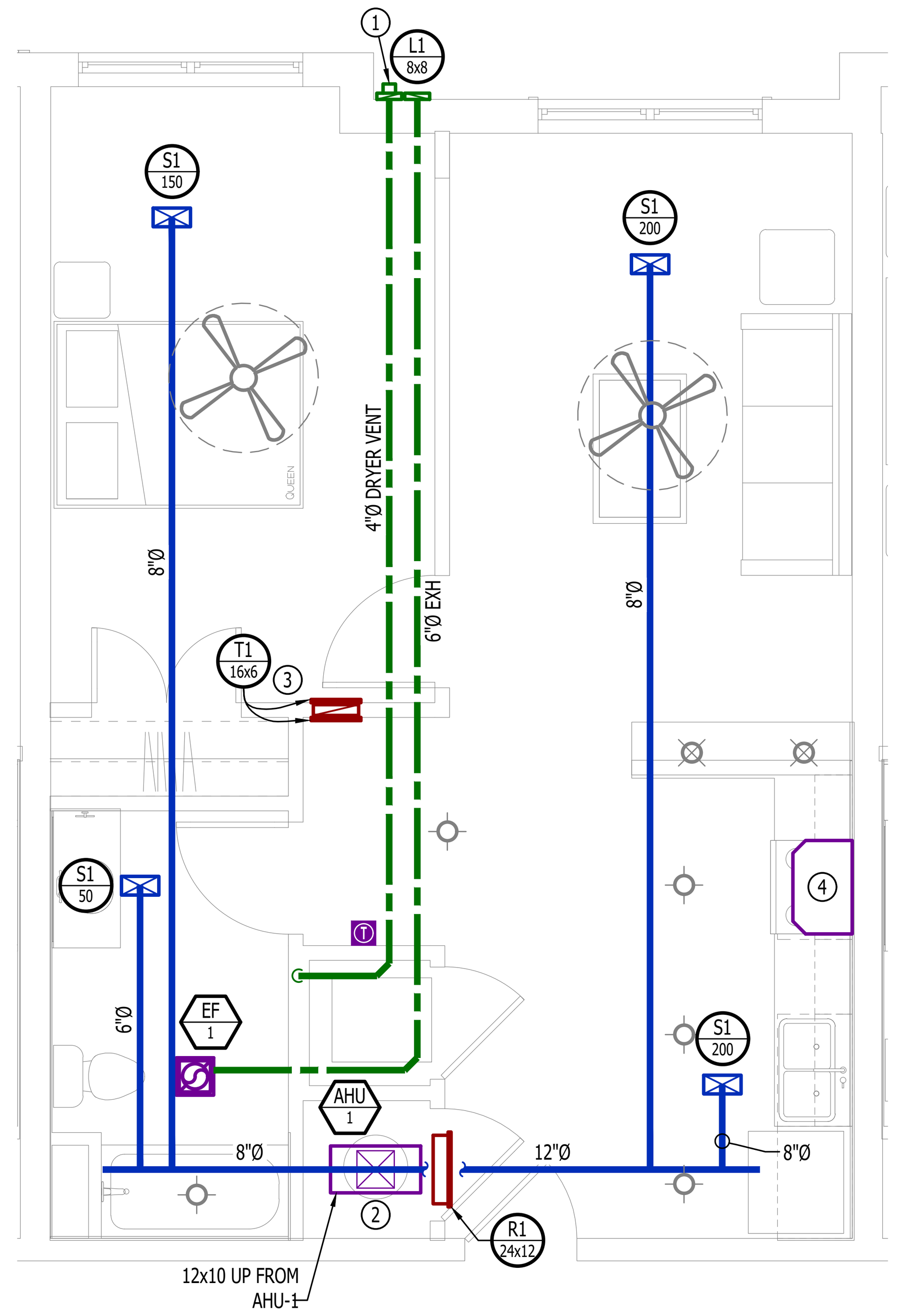

HVAC PLAN - ARA - ALT

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

PLUMBING PLAN SYMBOL LEGEND

- COLD WATER LINE
- HOT WATER LINE
- VALVE
- PIPING TURNED DOWN / TURNED UP

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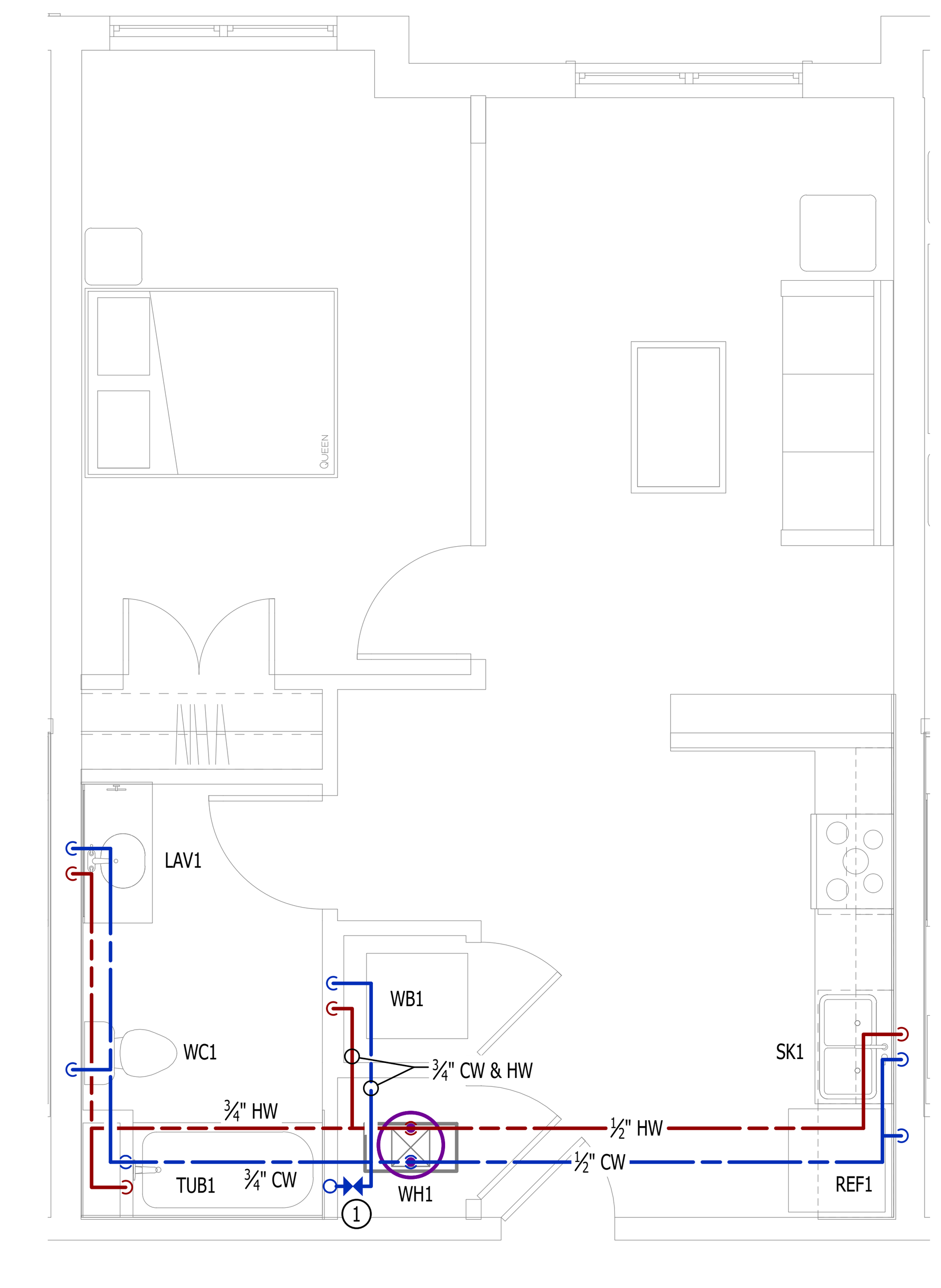

WATER PLAN - ARA - ALT

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

POWER PLAN SYMBOL LEGEND

- CIRCUIT WIRING
- PX-XX CIRCUIT TAG
- JUNCTION BOX
- XX +42 RECEPTACLE
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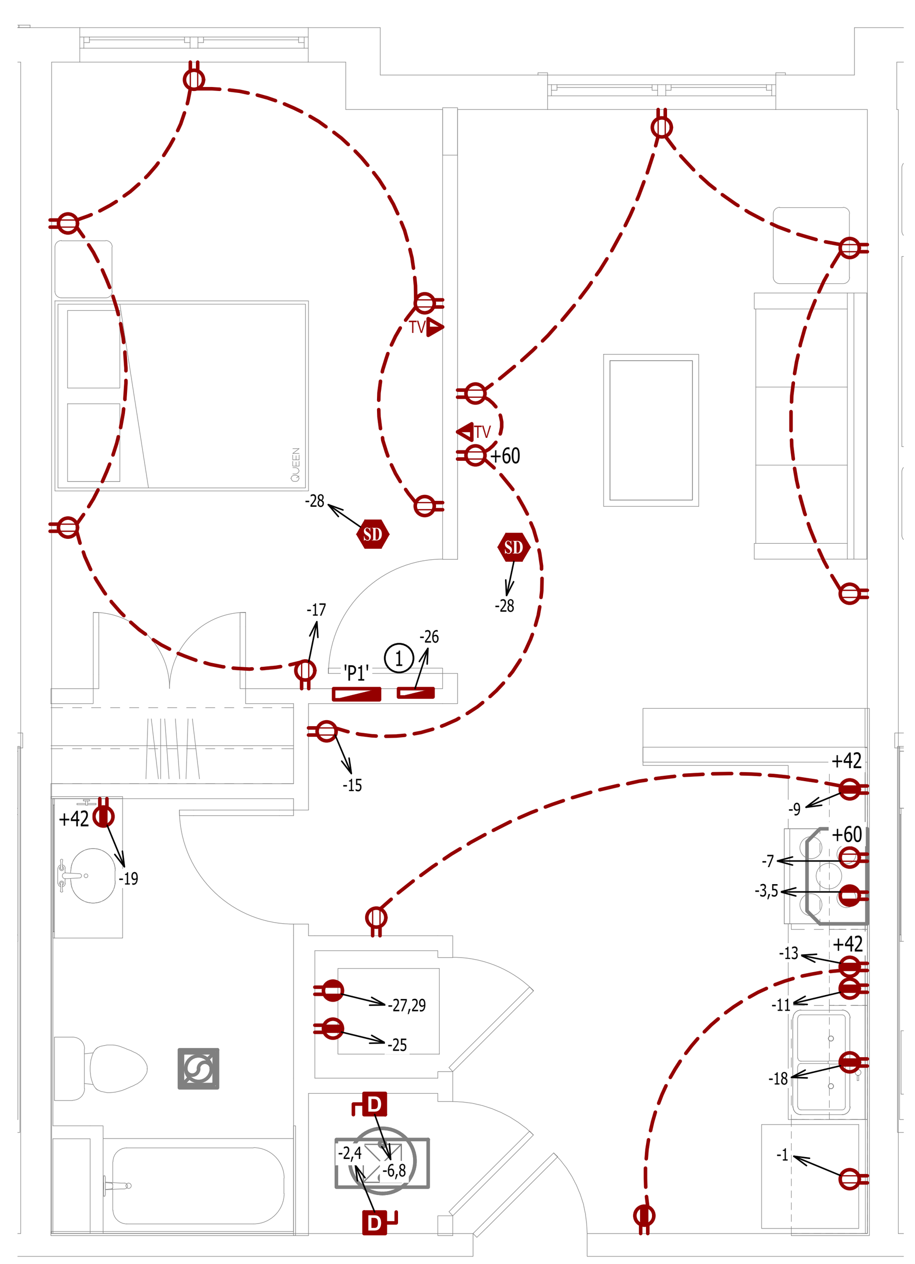

POWER PLAN - ARA - ALT

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

LIGHTING PLAN SYMBOL LEGEND

- X1 LIGHTING FIXTURE
  - "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
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  - SWITCH TYPE
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LIGHTING PLAN GENERAL NOTES:

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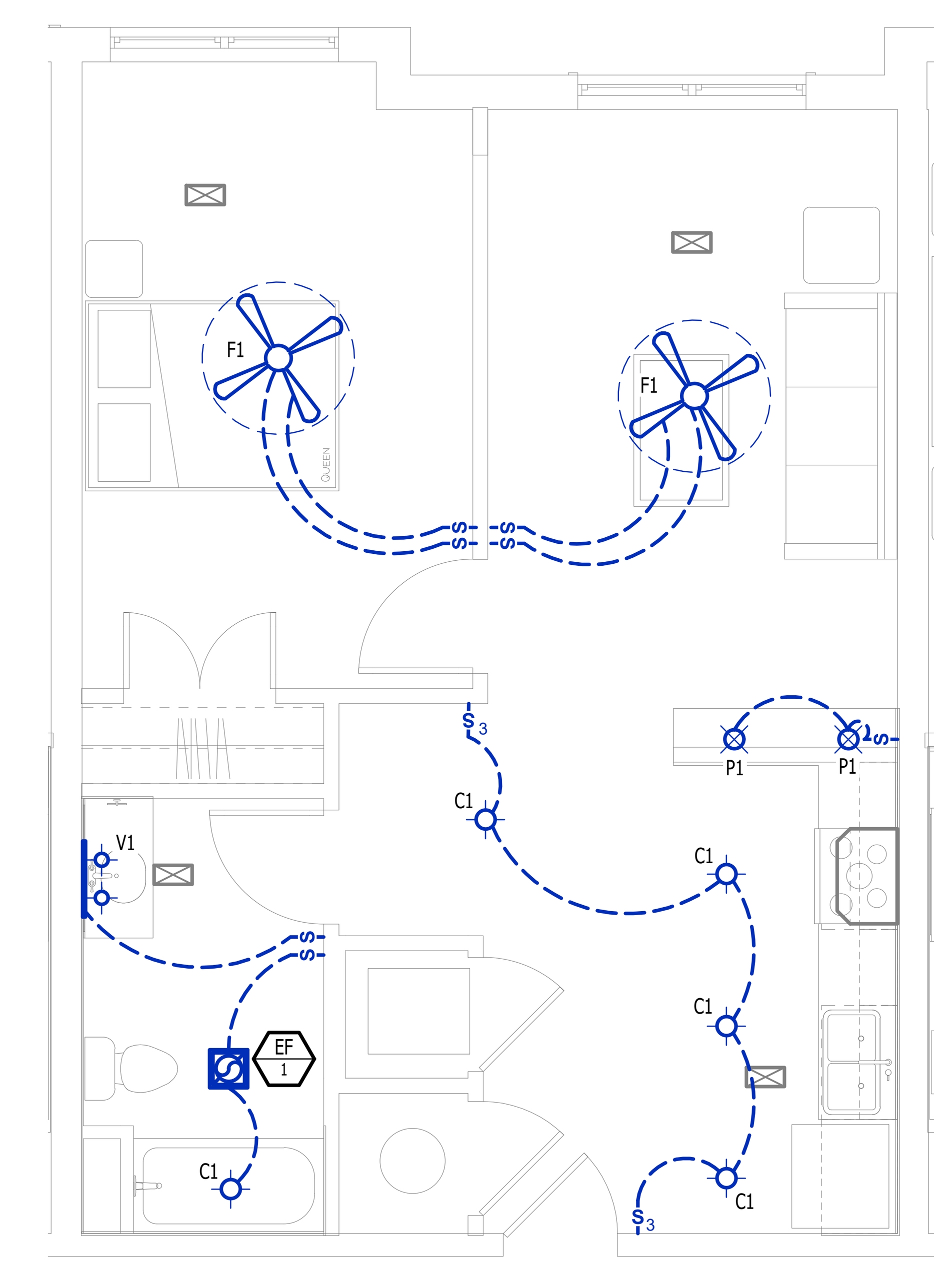

LIGHTING PLAN - ARA - ALT

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

STATE OF MISSOURI
JAMES P. WATSON
NUMBER
PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

J-SQUARED
ENGINEERING

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Columbia, Missouri 65201
573.234.4492
www.j-squaredeng.com

J2 PROJECT No:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

UNIT TYPE
ARA-ALT MEP
PLAN

SHEET NUMBER

UMEP1.2

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
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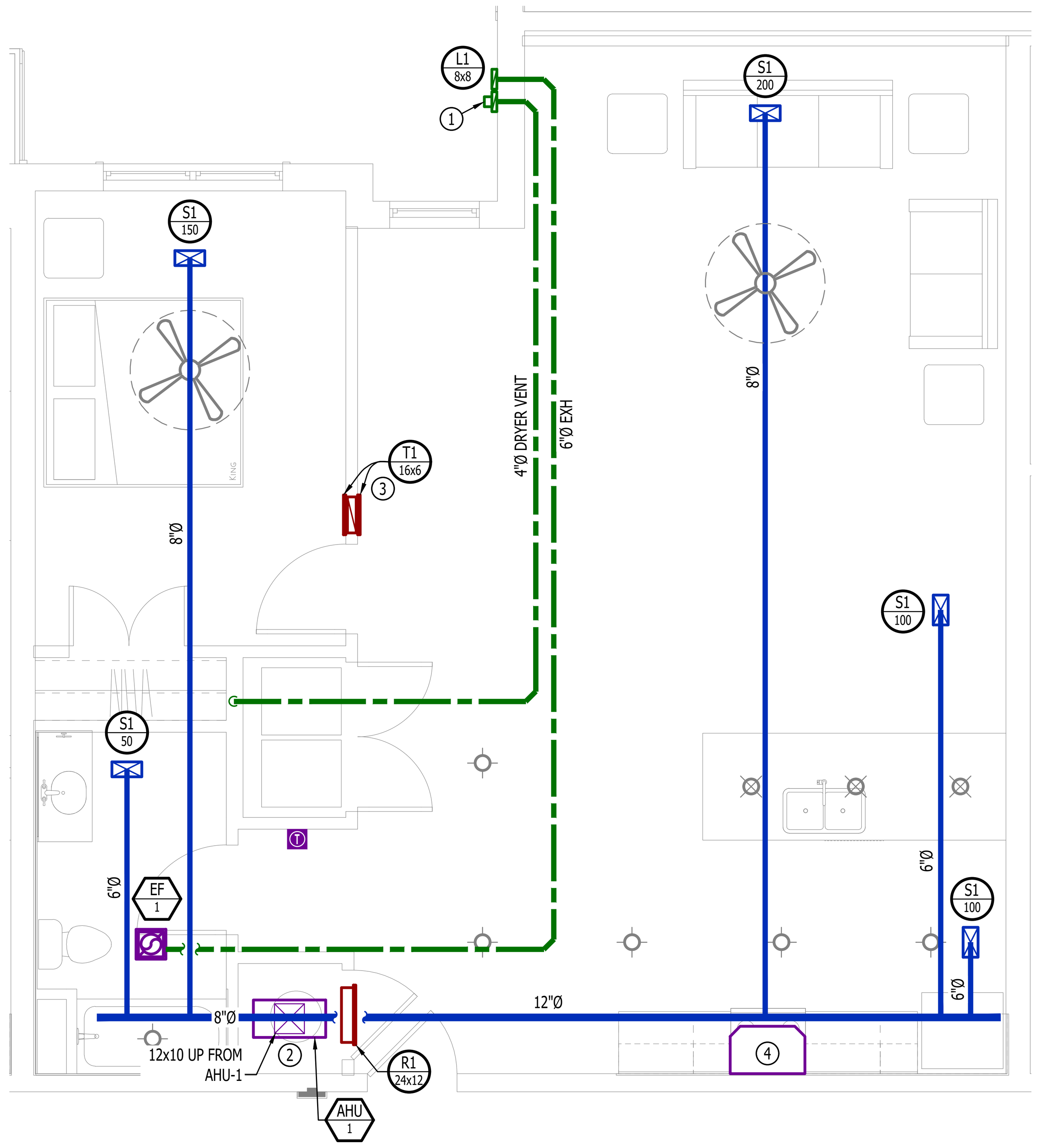

HVAC PLAN - ARA - CORNER

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

PLUMBING PLAN SYMBOL LEGEND

- COLD WATER LINE
- HOT WATER LINE
- VALVE
- PIPING TURNED DOWN / TURNED UP

WATER PLAN GENERAL NOTES:

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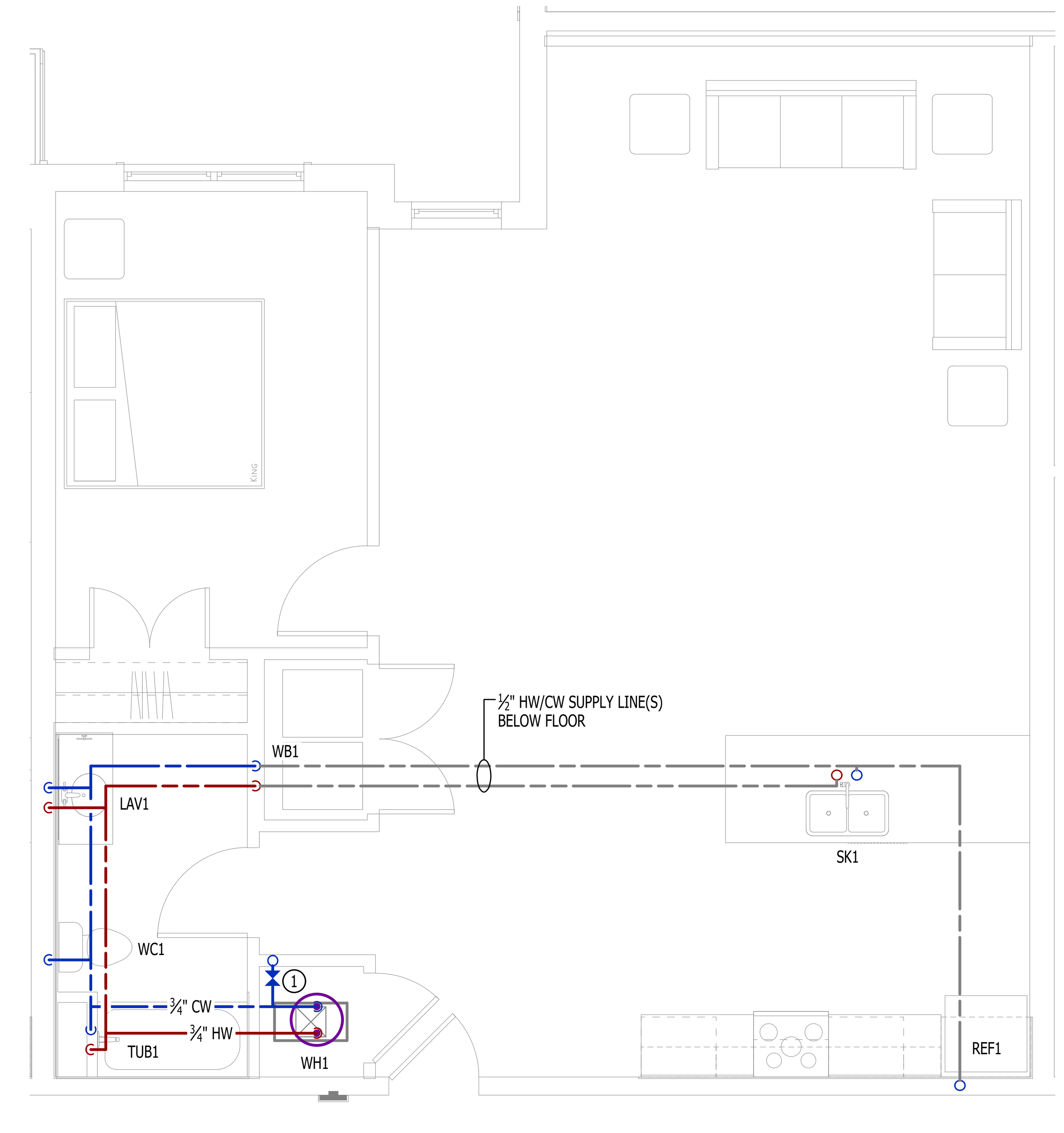

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POWER PLAN SYMBOL LEGEND

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POWER PLAN - ARA - CORNER

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

LIGHTING PLAN SYMBOL LEGEND

- X1 LIGHTING FIXTURE
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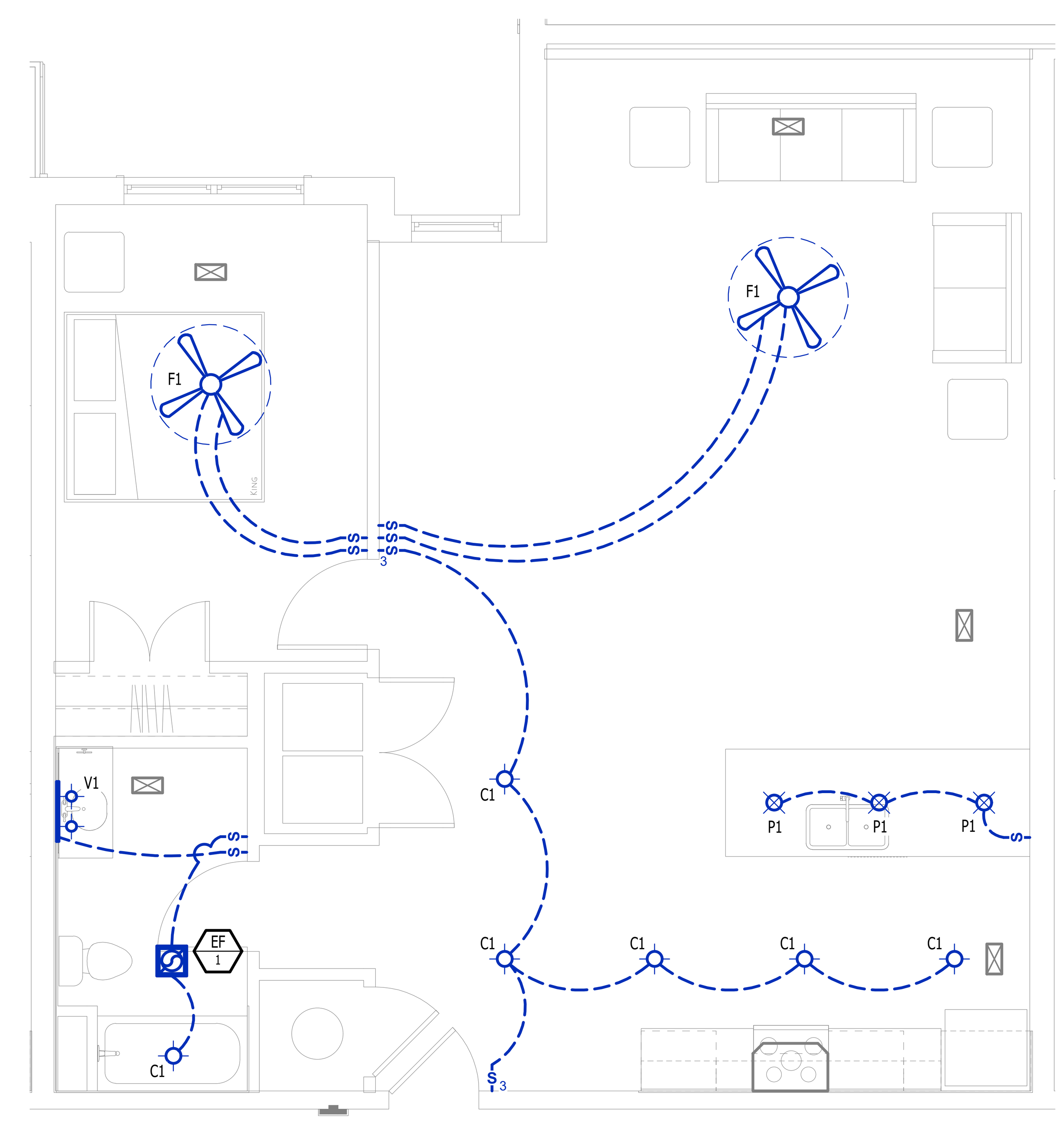

LIGHTING PLAN - ARA - CORNER

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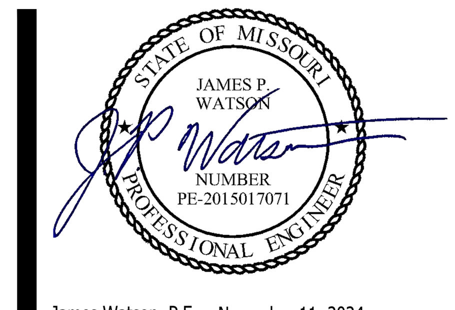

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ENGINEERING

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J2 PROJECT No:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

UNIT TYPE ARA-CORNER MEP PLAN

SHEET NUMBER

UMEP1.3

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
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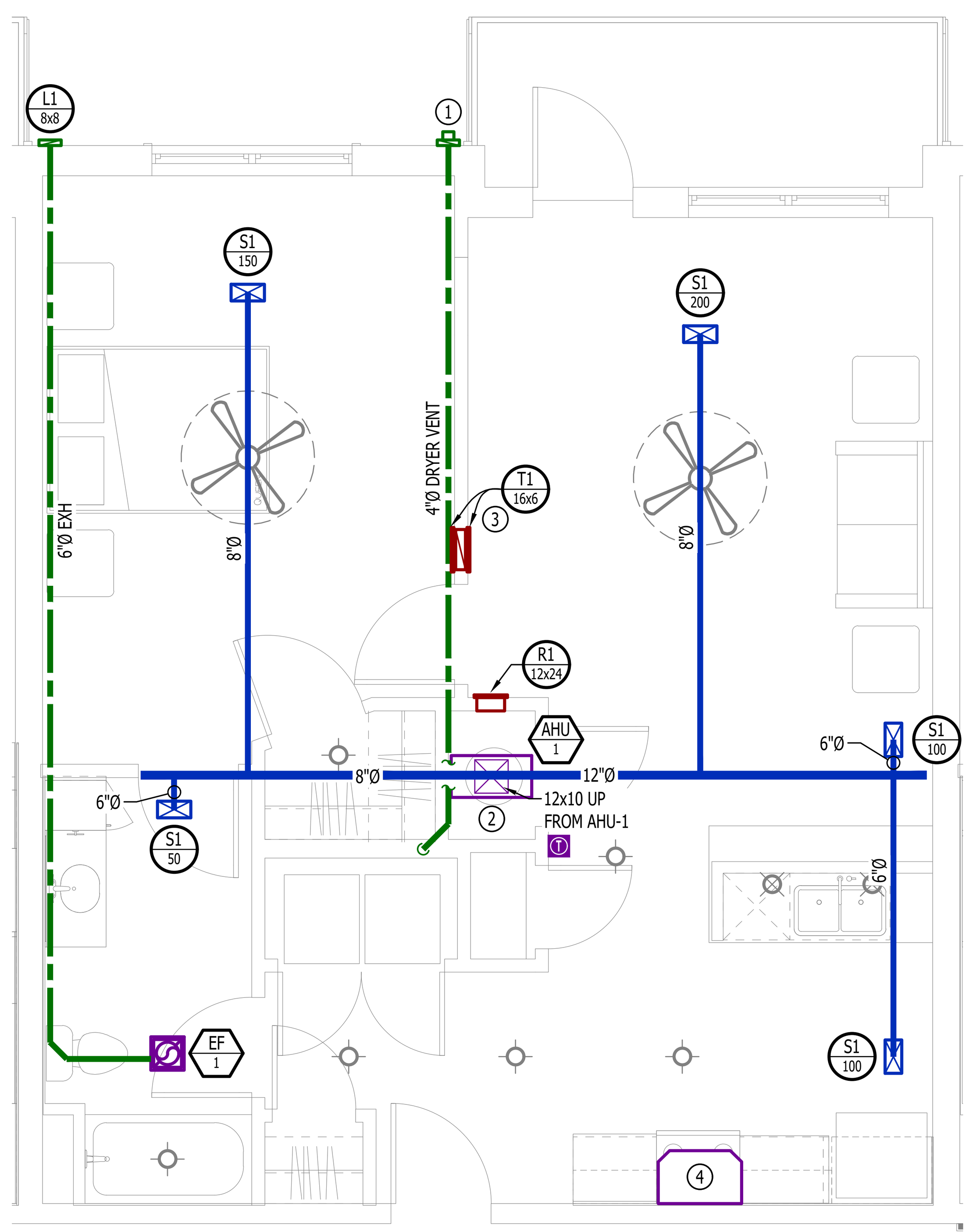

HVAC PLAN - ADRIAN

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PLUMBING PLAN SYMBOL LEGEND

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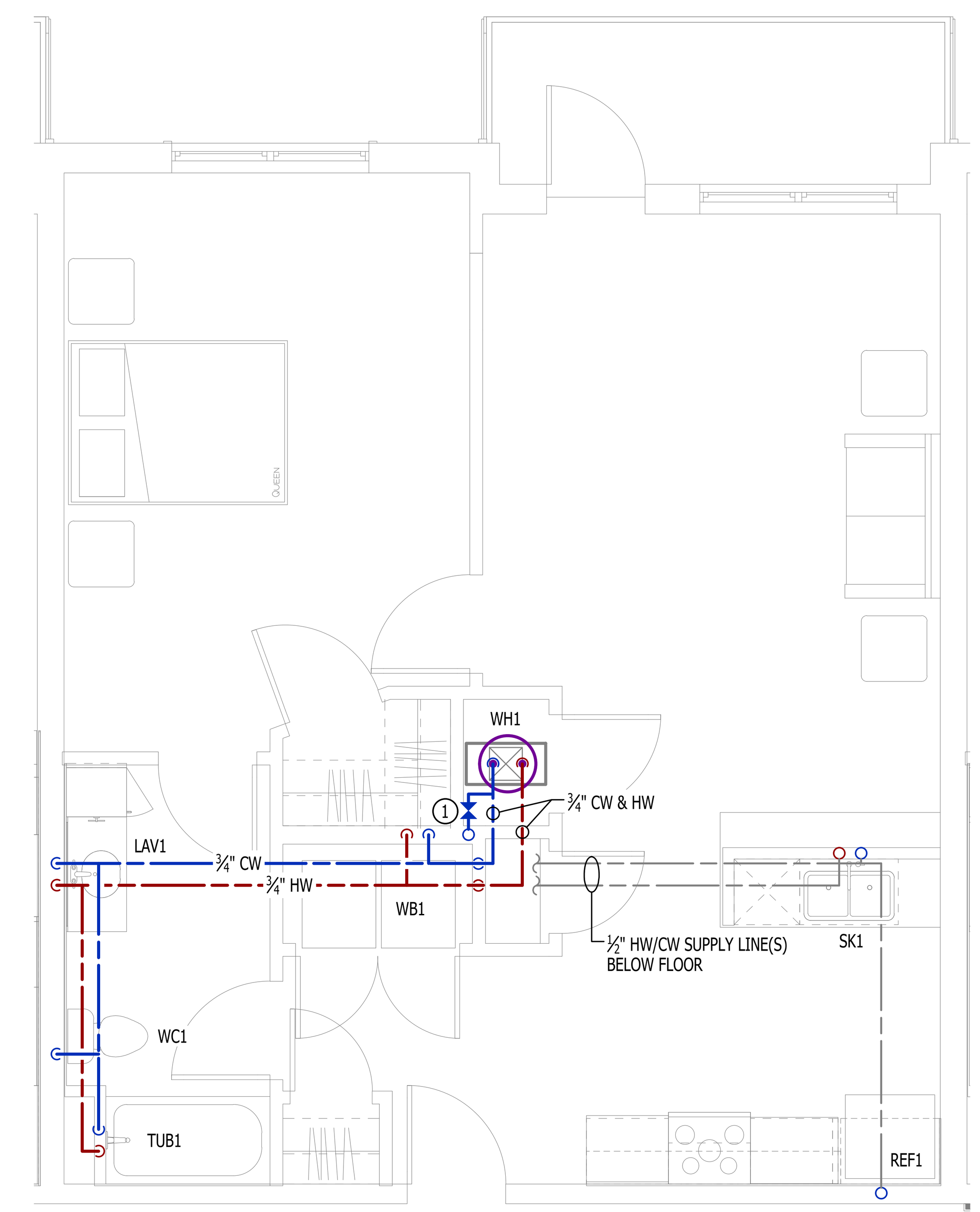

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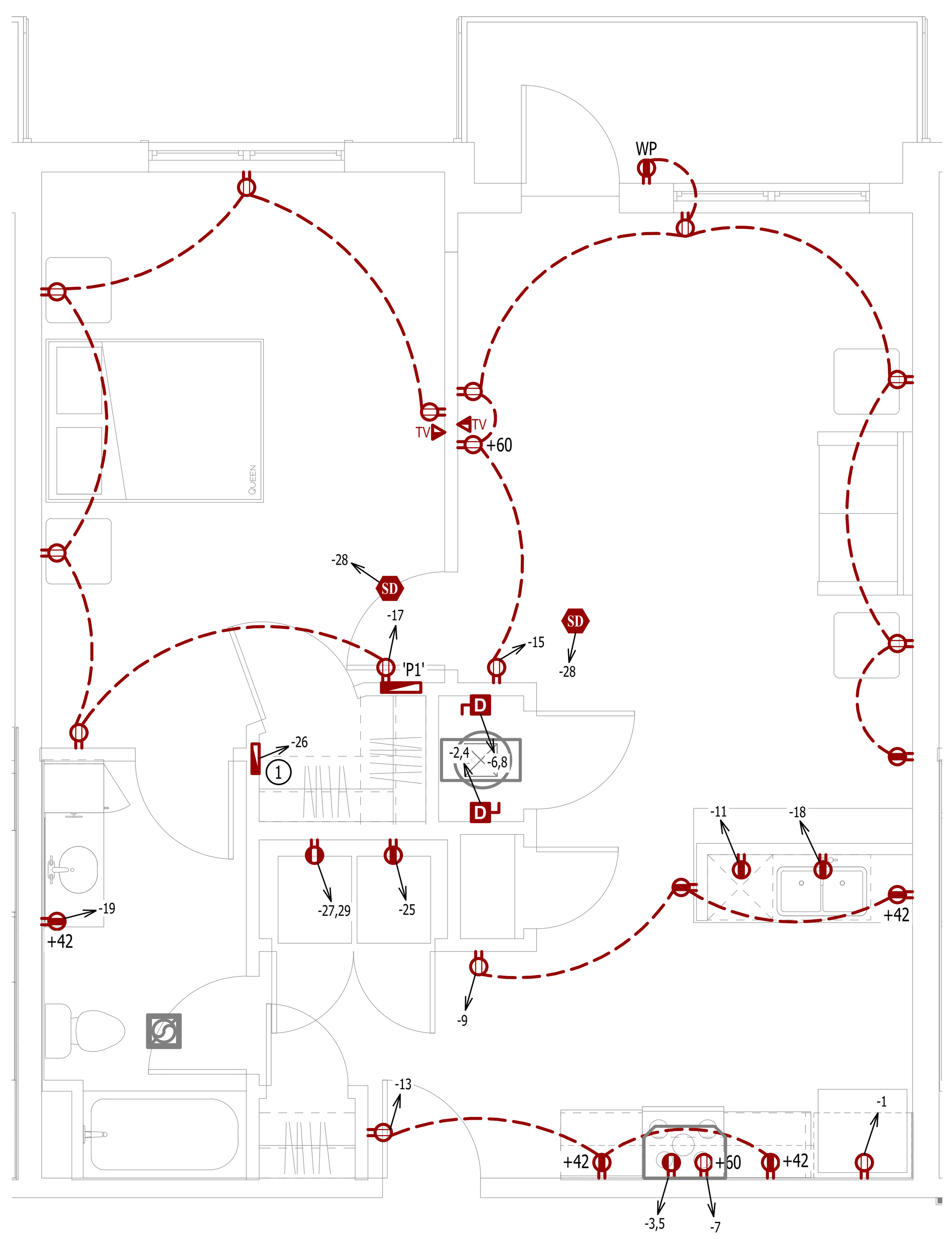


POWER PLAN - ADRIAN

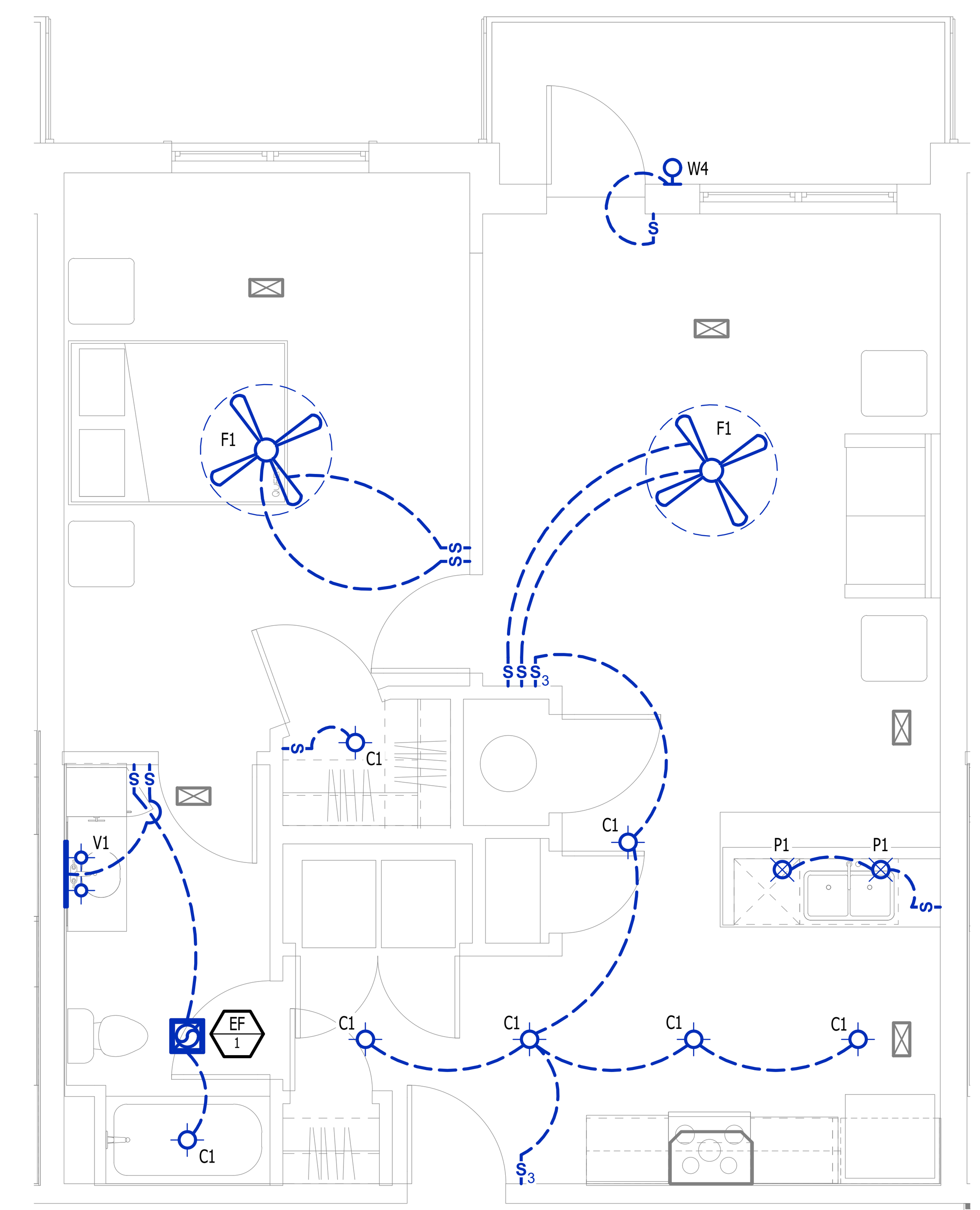
SCALE: 1/4" = 1'-0"

LIGHTING PLAN SYMBOL LEGEND

- LIGHTING FIXTURE
- "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
- TOGGLE SWITCH
- SWITCH TYPE
- DIMMER SWITCH

LIGHTING PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.
2. ALL LIGHTING SHOWN SHALL BE ON CIRCUIT -16 UNLESS NOTED OTHERWISE.



LIGHTING PLAN - ADRIAN

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

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 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:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

UNIT TYPE ADRIAN MEP PLAN

SHEET NUMBER

UMEP1.4

HVAC PLAN SYMBOL LEGEND

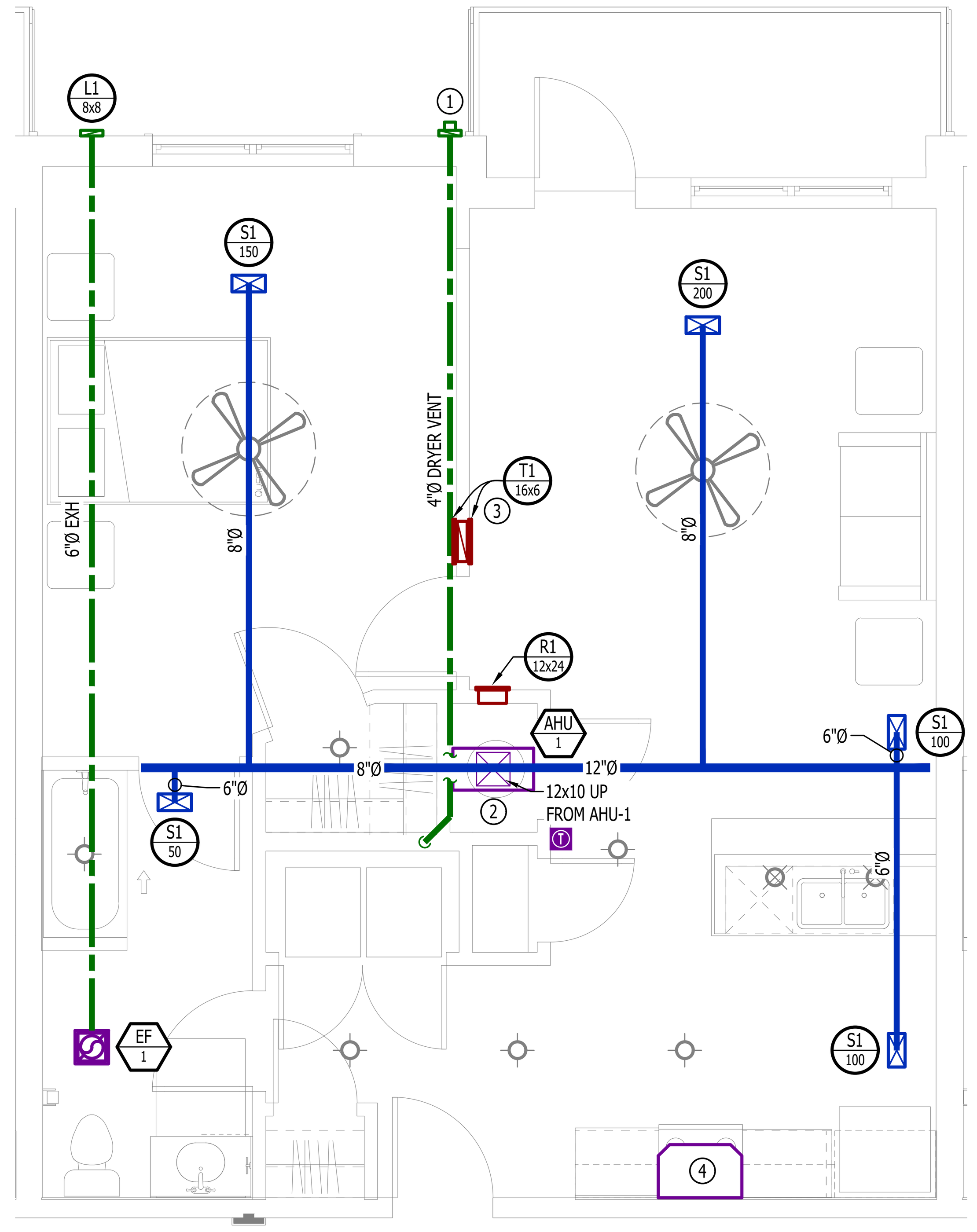
- EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)
- EQUIPMENT REFERENCE NUMBER
- DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)
- CUBIC FEET PER MINUTE (CFM) / FACE SIZE
- SUPPLY DUCTWORK
- RETURN DUCTWORK
- EXHAUST DUCTWORK
- FLEX DUCT
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
- CEILING RADIATION DAMPER
- BACK DRAFT DAMPER
- THERMOSTAT

HVAC PLAN GENERAL NOTES:

1. SEE SHEET M501 FOR HVAC SCHEDULES, DETAILS, REQUIREMENTS, ETC.
2. SEE SHEET MEP4 FOR CONDENSING UNIT LOCATIONS. REFRIGERANT PIPING SHALL ROUTE IN SPACES ABOVE FINISHED CEILINGS AND WITHIN WALL CAVITIES TO REMAIN CONCEALED.
3. SUPPLY DUCTWORK FROM AHU AT FLOOR/CEILING PENETRATION SHALL BE PROTECTED BY A FIRE DAMPER. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
4. WRAP ALL DRYER DUCTS WITH FIREMASTER (OR EQUAL) DUCT WRAP.
5. TOTAL DEVELOPED LENGTH OF EXHAUST DUCT SHALL BE INDICATED ON A PERMANENT LABEL WITHIN 6' OF DRYER VENT CONNECTION. DRYER DUCT ROUTING SHOWN IS FOR REFERENCE ONLY. OVERALL DUCT LENGTH SHALL BE CALCULATED BY HVAC CONTRACTOR PER 2018 IMC 504.8.4.
6. LOCATE ALL EXHAUST / DRYER VENT TERMINATIONS AT LEAST 36" FROM OPERABLE OPENINGS INTO APARTMENTS (WINDOWS, DOORS, ETC.).
7. ALL DUCTWORK SHOWN SHALL ROUTE IN SPACE BETWEEN / THRU TRUSSES UNLESS NOTED OTHERWISE. SEE STRUCTURAL DRAWINGS FOR DETAILS.

HVAC PLAN KEY NOTES:

1. TERMINATE 4" DRYER EXHAUST WITH VENT EQUAL TO DRYER WALL VENT #DWV4.
2. AHU WALL MOUNTED ABOVE WATER HEATER, COORDINATE WITH PLUMBING CONTRACTOR. CONDENSATE TO DISCHARGE IN FLOOR DRAIN WITHIN CLOSET.
3. HI/LOW TRANSFER GRILLE (12" A.F.F. ON BEDROOM SIDE OF WALL; 84" A.F.F ON OPPOSITE SIDE OF WALL).
4. RESIDENTIAL RECIRCULATION HOOD TO BE SUPPLIED & INSTALLED BY GC.



HVAC PLAN - ADRIAN-ALT

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

PLUMBING PLAN SYMBOL LEGEND

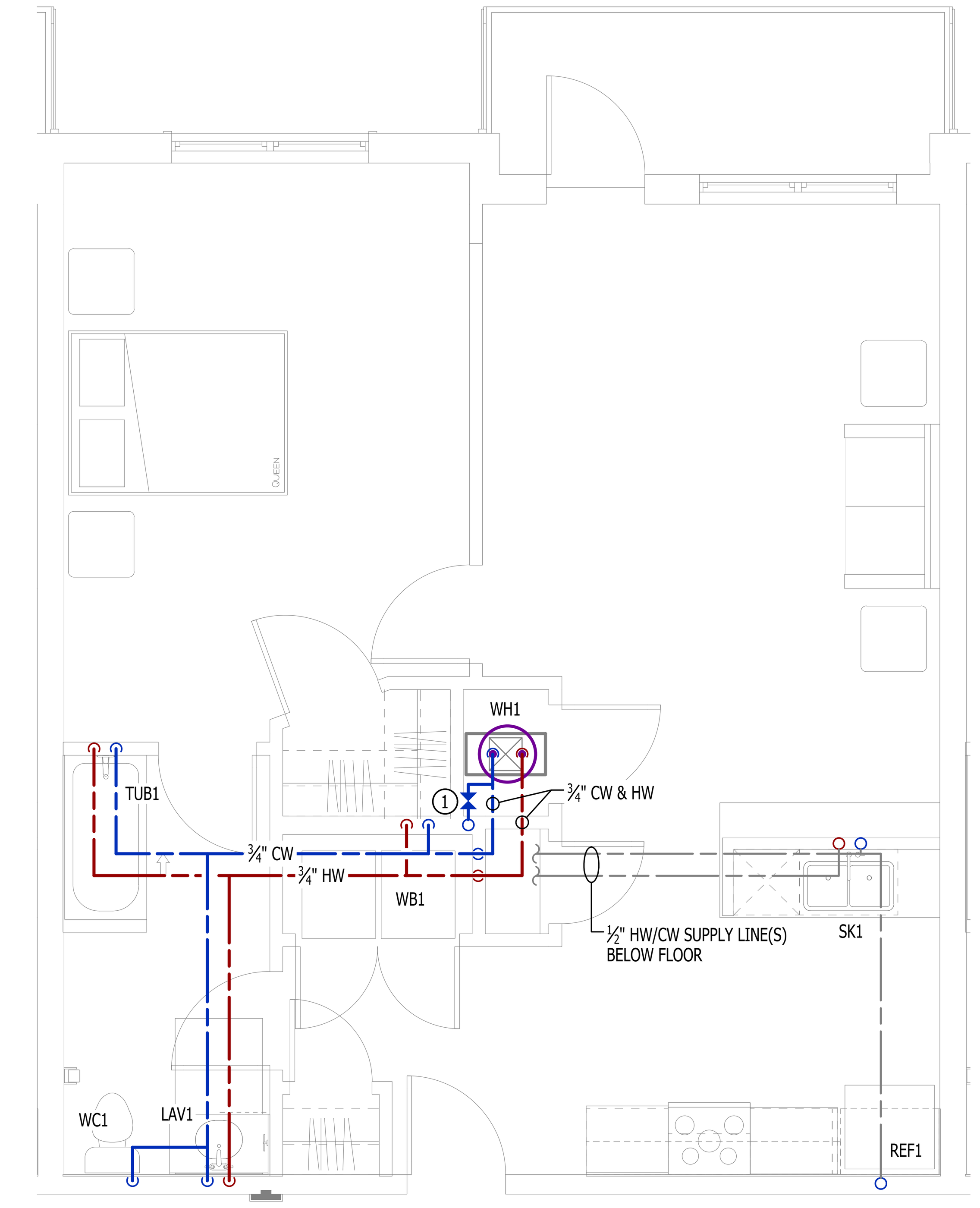
- COLD WATER LINE
- HOT WATER LINE
- VALVE
- PIPING TURNED DOWN / TURNED UP

WATER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.
2. ALL PLUMBING LOCATED ON EXTERIOR WALLS SHALL ROUTE WITHIN INSULATION BARRIER.
3. ALL DOMESTIC SUPPLY LINES SERVING MORE THAN (1) FIXTURE SHALL BE ¾" UNLESS NOTED OTHERWISE.

WATER PLAN KEY NOTES:

1. 1" CW PIPE UP FROM BELOW WITH SHUT-OFF VALVE IN ACCESSIBLE LOCATION. SEE OVERALL PLUMBING PLANS FOR DETAILS.



WATER PLAN - ADRIAN-ALT

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

POWER PLAN SYMBOL LEGEND

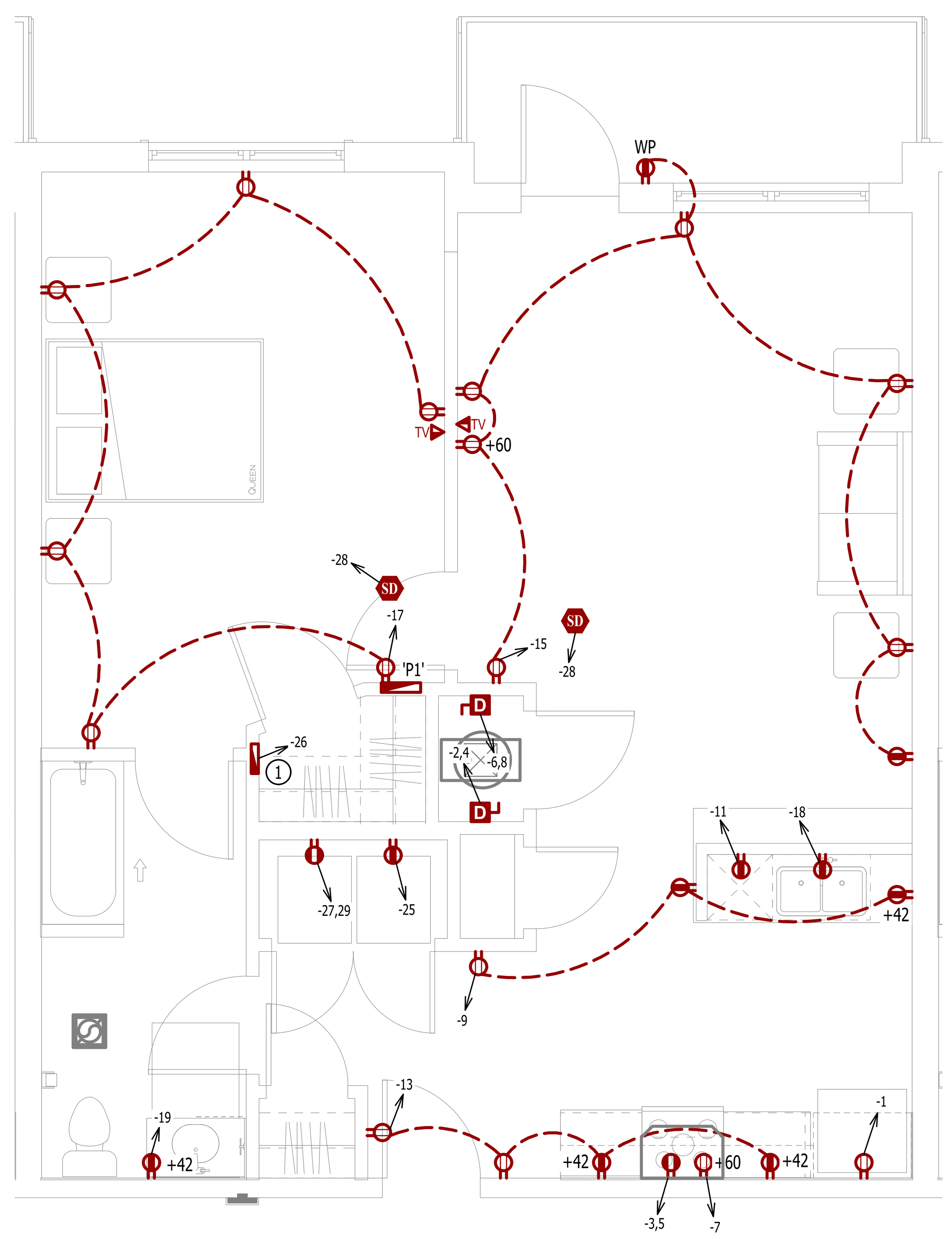
- CIRCUIT WIRING
- CIRCUIT TAG
- JUNCTION BOX
- RECEPTACLE
  - INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
  - "WP" = WEATHERPROOF OUTDOOR RECEPTACLE
- GFCI DUPLEX CONVENIENCE RECEPTACLE
- 208V RECEPTACLE
- QUADPLEX CONVENIENCE RECEPTACLE
- DATA / PHONE JACK; BOX WITH 1" CONDUIT & CAT6 CABLE BACK TO MEDIA PANEL LOCATION (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
- DISCONNECT
- 120V IONIZATION SMOKE 520Hz LOW FREQUENCY ALARM WITH SILENCING CAPABILITIES & LOW-VOLTAGE CONTACTS WIRED TO SHUT DOWN AHU UPON FIRE DETECTION. COORDINATE WITH HVAC CONTRACTOR. SMOKE DETECTOR MUST BE LOCATED AT LEAST 3' FROM CEILING FAN BLADES AND AT LEAST 10' FROM ANY COOKING APPLIANCE (FIELD-COORDINATE)

POWER PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR POWER SCHEDULES, DETAILS, REQUIREMENTS, ETC.
2. SEE SHEET MEP4 FOR CONDENSING UNIT LOCATIONS.
3. VERIFY EACH DATA/RECEPTACLE LOCATION WITH OWNER PRIOR TO INSTALLATION.
4. REFER TO "TYPICAL ADA MOUNTING HEIGHTS DETAIL", SHEET E501, FOR MOUNTING HEIGHTS OF DEVICES IN "ANSI A" UNITS.

POWER PLAN KEY NOTES:

1. MEDIA PANEL LOCATION; DATA/TV WIRING TO TERMINATE AT THIS LOCATION. DETERMINE EXACT LOCATION & DETAILS WITH OWNER PRIOR TO INSTALLATION.



POWER PLAN - ADRIAN-ALT

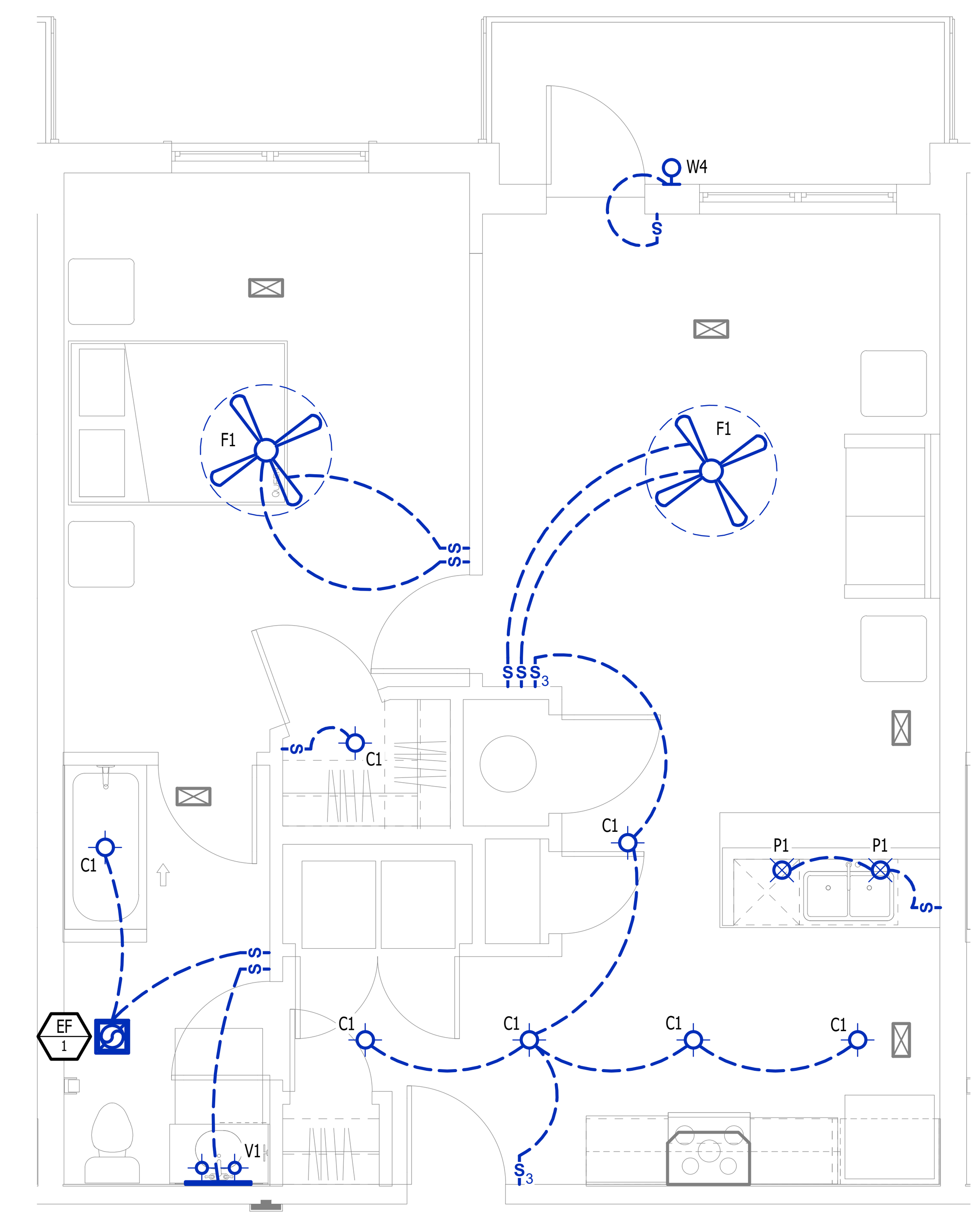
SCALE: 1/4" = 1'-0"

LIGHTING PLAN SYMBOL LEGEND

- LIGHTING FIXTURE
- "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
- TOGGLE SWITCH
- SWITCH TYPE
- DIMMER SWITCH

LIGHTING PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.
2. ALL LIGHTING SHOWN SHALL BE ON CIRCUIT -16 UNLESS NOTED OTHERWISE.



LIGHTING PLAN - ADRIAN-ALT

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

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J2 PROJECT No: J21010
J2 DESIGN: ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

UNIT TYPE
ADRIAN-ALT
MEP PLAN

SHEET NUMBER

UMEP1.5

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
- FLEX DUCT
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
- CEILING RADIATION DAMPER
- BACK DRAFT DAMPER
- THERMOSTAT

HVAC PLAN GENERAL NOTES:

1. SEE SHEET M501 FOR HVAC SCHEDULES, DETAILS, REQUIREMENTS, ETC.
2. SEE SHEET MEP4 FOR CONDENSING UNIT LOCATIONS. REFRIGERANT PIPING SHALL ROUTE IN SPACES ABOVE FINISHED CEILINGS AND WITHIN WALL CAVITIES TO REMAIN CONCEALED.
3. SUPPLY DUCTWORK FROM AHU AT FLOOR/CEILING PENETRATION SHALL BE PROTECTED BY A FIRE DAMPER. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
4. WRAP ALL DRYER DUCTS WITH FIREMASTER (OR EQUAL) DUCT WRAP.
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HVAC PLAN KEY NOTES:

(1) TERMINATE 4" DRYER EXHAUST WITH VENT EQUAL TO DRYER WALL VENT #DWV4.
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(3) HI/LOW TRANSFER GRILLE (12" A.F.F. ON BEDROOM SIDE OF WALL; 84" A.F.F ON OPPOSITE SIDE OF WALL).
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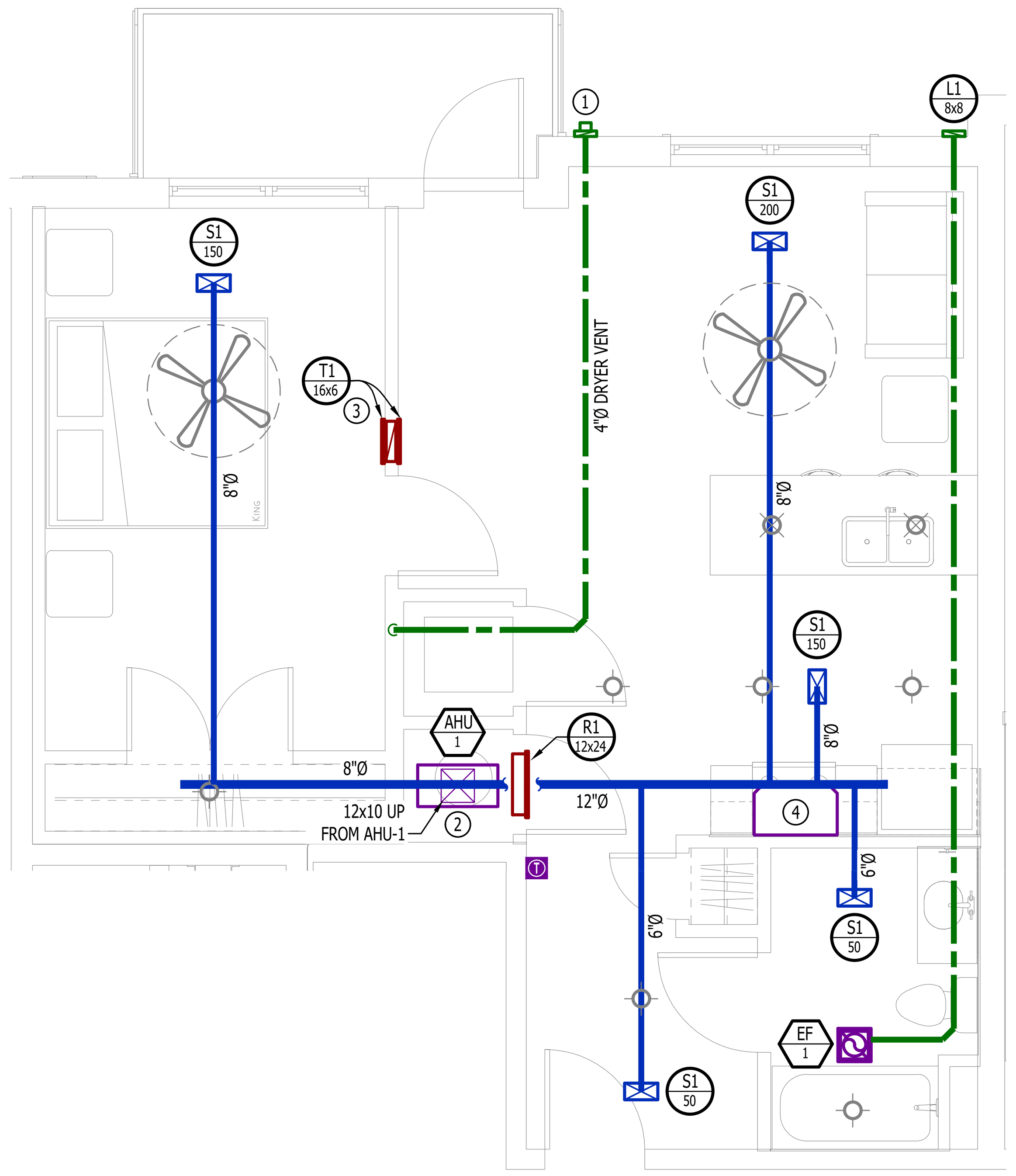


HVAC PLAN - ADRIAN - CORNER

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

PLUMBING PLAN SYMBOL LEGEND

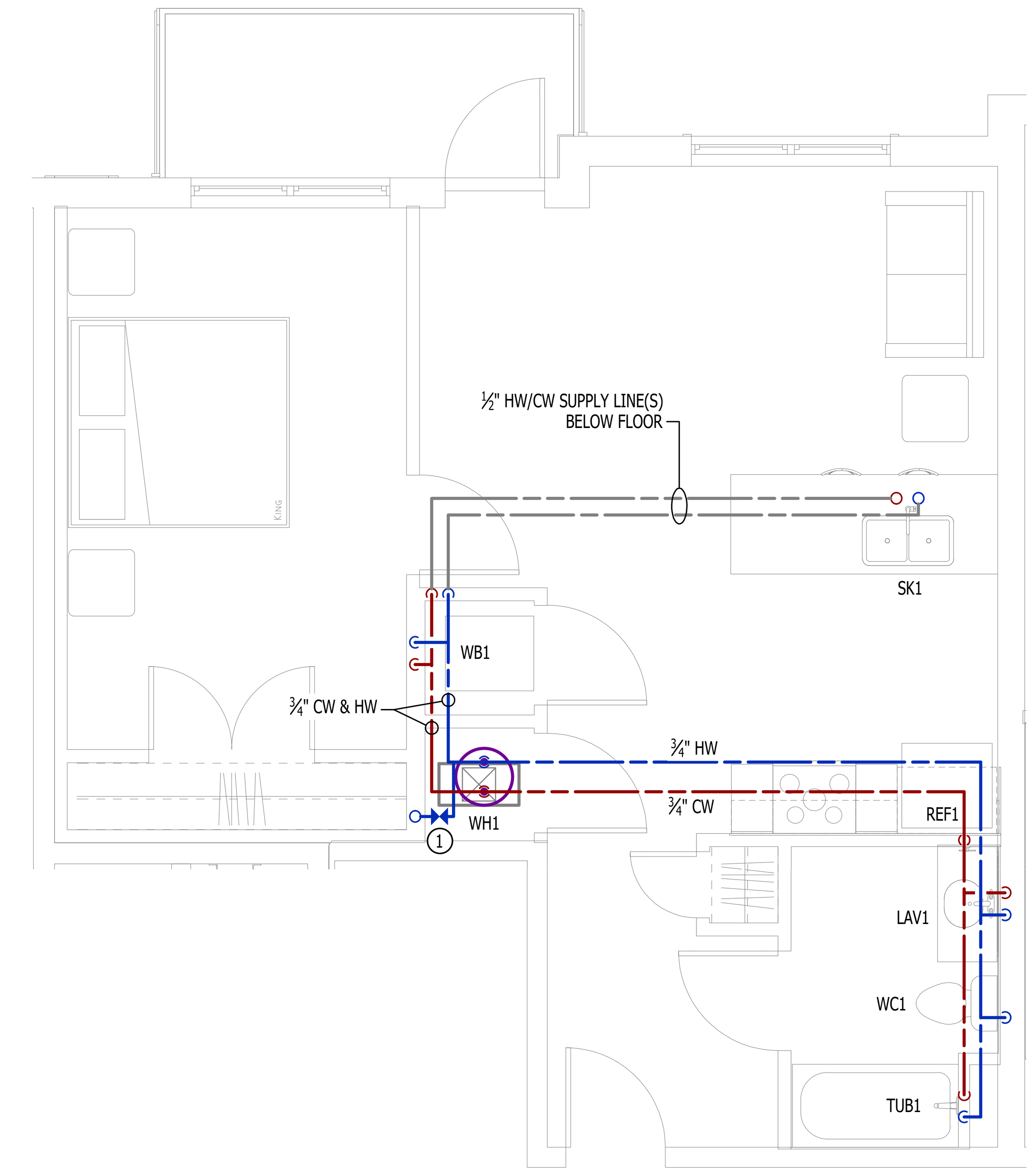
- COLD WATER LINE
- HOT WATER LINE
- VALVE
- PIPING TURNED DOWN / TURNED UP

WATER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.
2. ALL PLUMBING LOCATED ON EXTERIOR WALLS SHALL ROUTE WITHIN INSULATION BARRIER.
3. ALL DOMESTIC SUPPLY LINES SERVING MORE THAN (1) FIXTURE SHALL BE ¾" UNLESS NOTED OTHERWISE.

WATER PLAN KEY NOTES:

(1) 1" CW PIPE UP FROM BELOW WITH SHUT-OFF VALVE IN ACCESSIBLE LOCATION. SEE OVERALL PLUMBING PLANS FOR DETAILS.



WATER PLAN - ADRIAN - CORNER

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

POWER PLAN SYMBOL LEGEND

- CIRCUIT WIRING
- PX-XX CIRCUIT TAG
- JUNCTION BOX
- XX +42 RECEPTACLE
  - INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
  - "WP" = WEATHERPROOF OUTDOOR RECEPTACLE
- GFCI DUPLEX CONVENIENCE RECEPTACLE
- 208V RECEPTACLE
- QUADPLEX CONVENIENCE RECEPTACLE
- DATA / PHONE JACK; BOX WITH 1" CONDUIT & CAT6 CABLE BACK TO MEDIA PANEL LOCATION (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
- DISCONNECT
- SD 120V IONIZATION SMOKE 520Hz LOW FREQUENCY ALARM WITH SILENCING CAPABILITIES & LOW-VOLTAGE CONTACTS WIRED TO SHUT DOWN AHU UPON FIRE DETECTION. COORDINATE WITH HVAC CONTRACTOR. SMOKE DETECTOR MUST BE LOCATED AT LEAST 3' FROM CEILING FAN BLADES AND AT LEAST 10' FROM ANY COOKING APPLIANCE (FIELD-COORDINATE)

POWER PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR POWER SCHEDULES, DETAILS, REQUIREMENTS, ETC.
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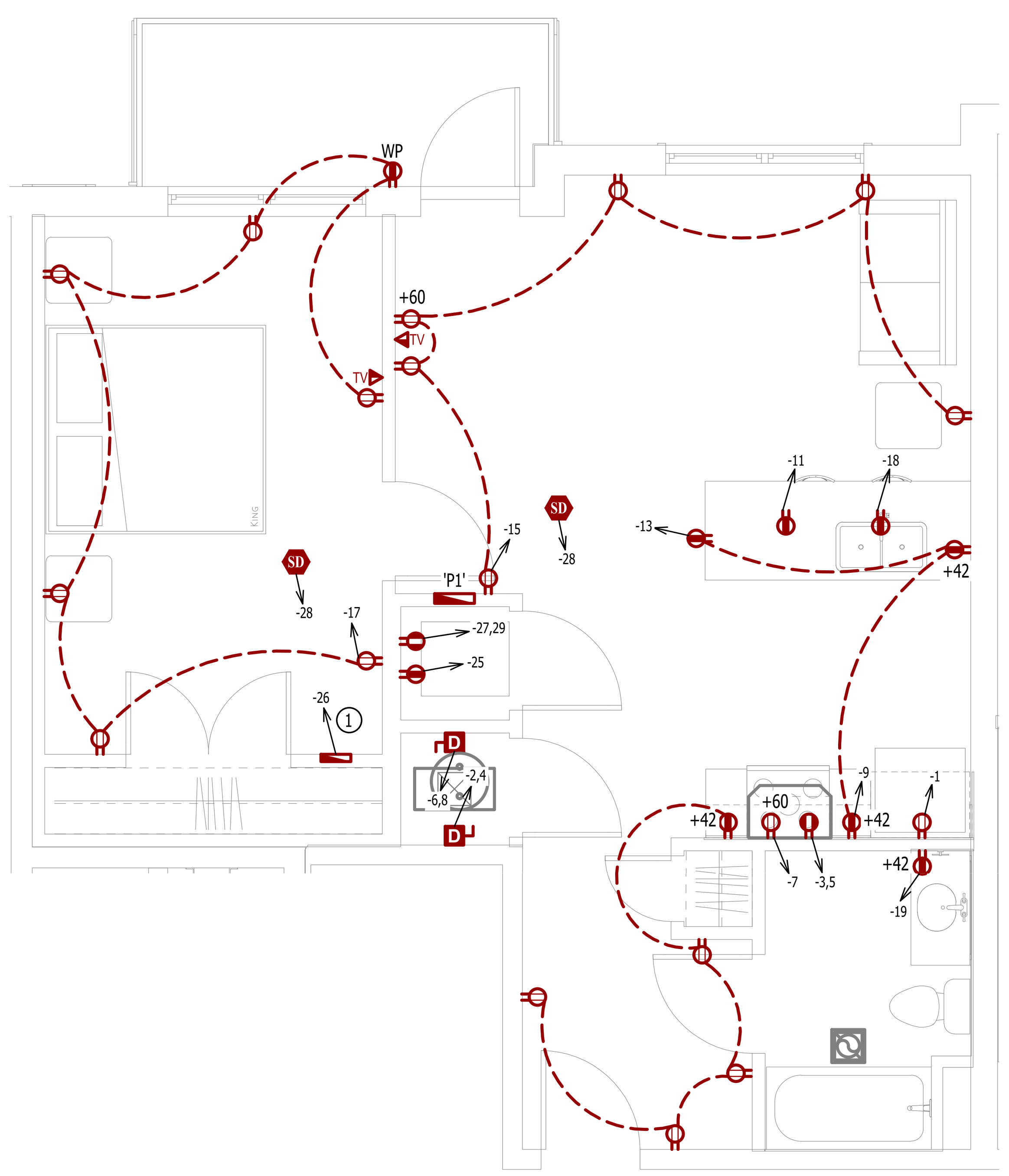

POWER PLAN - ADRIAN - CORNER

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

LIGHTING PLAN SYMBOL LEGEND

- LIGHTING FIXTURE
- "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
- TOGGLE SWITCH
- SWITCH TYPE
- DIMMER SWITCH

LIGHTING PLAN GENERAL NOTES:

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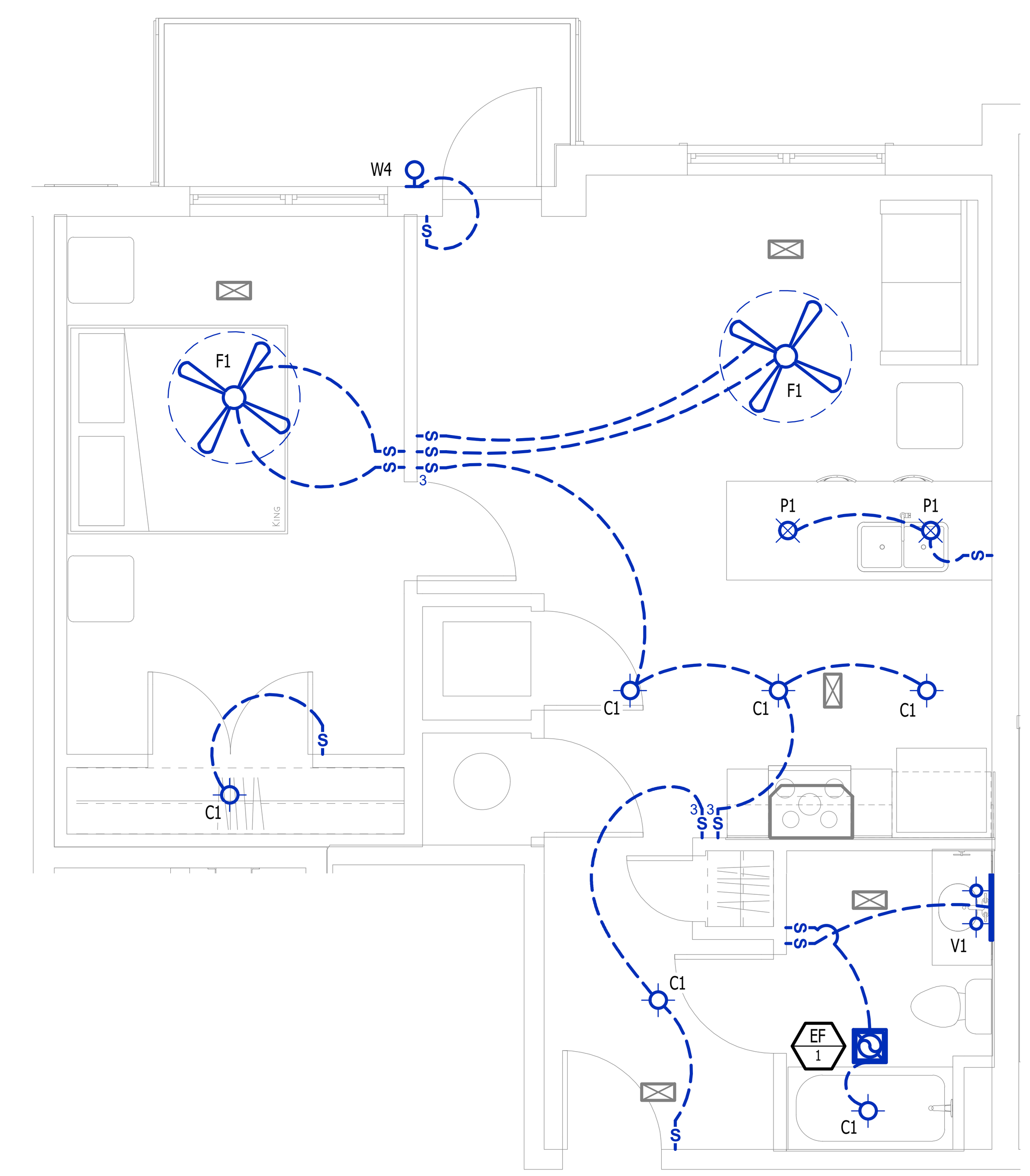

LIGHTING PLAN - ADRIAN - CORNER

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

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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J2 PROJECT No:	J21010
J2 DESIGN:	ACW
ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

UNIT TYPE ADRIAN-CORNER MEP PLAN

SHEET NUMBER

UMEP1.6

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
- FLEX DUCT
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
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HVAC PLAN GENERAL NOTES:

1. SEE SHEET M501 FOR HVAC SCHEDULES, DETAILS, REQUIREMENTS, ETC.
2. SEE SHEET MEP4 FOR CONDENSING UNIT LOCATIONS. REFRIGERANT PIPING SHALL ROUTE IN SPACES ABOVE FINISHED CEILINGS AND WITHIN WALL CAVITIES TO REMAIN CONCEALED.
3. SUPPLY DUCTWORK FROM AHU AT FLOOR/CEILING PENETRATION SHALL BE PROTECTED BY A FIRE DAMPER. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
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6. LOCATE ALL EXHAUST / DRYER VENT TERMINATIONS AT LEAST 36" FROM OPERABLE OPENINGS INTO APARTMENTS (WINDOWS, DOORS, ETC.).
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HVAC PLAN KEY NOTES:

1. TERMINATE 4" DRYER EXHAUST WITH VENT EQUAL TO DRYER WALL VENT #DWV4.
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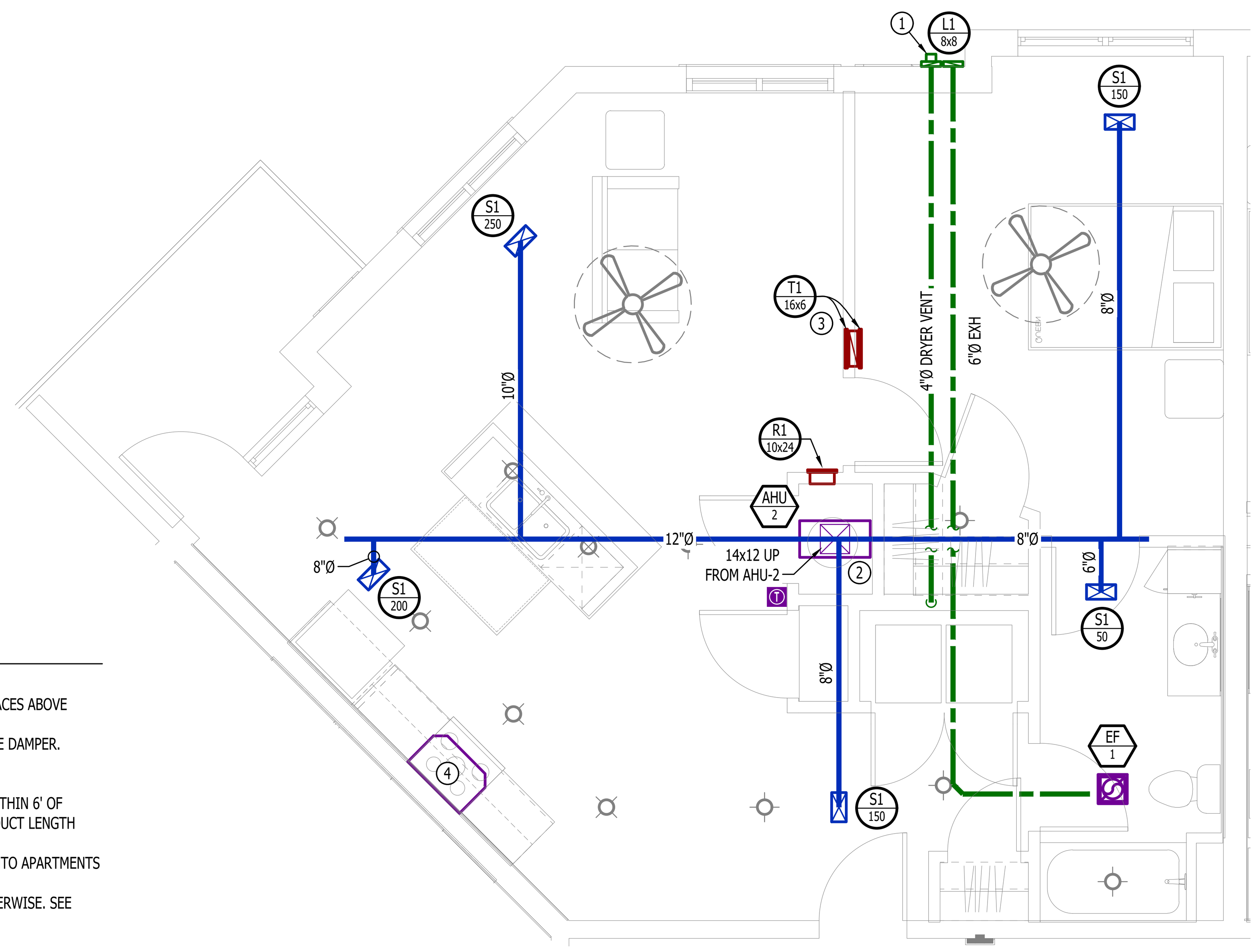

HVAC PLAN - DELTA

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

PLUMBING PLAN SYMBOL LEGEND

- COLD WATER LINE
- HOT WATER LINE
- VALVE
- PIPING TURNED DOWN / TURNED UP

WATER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.
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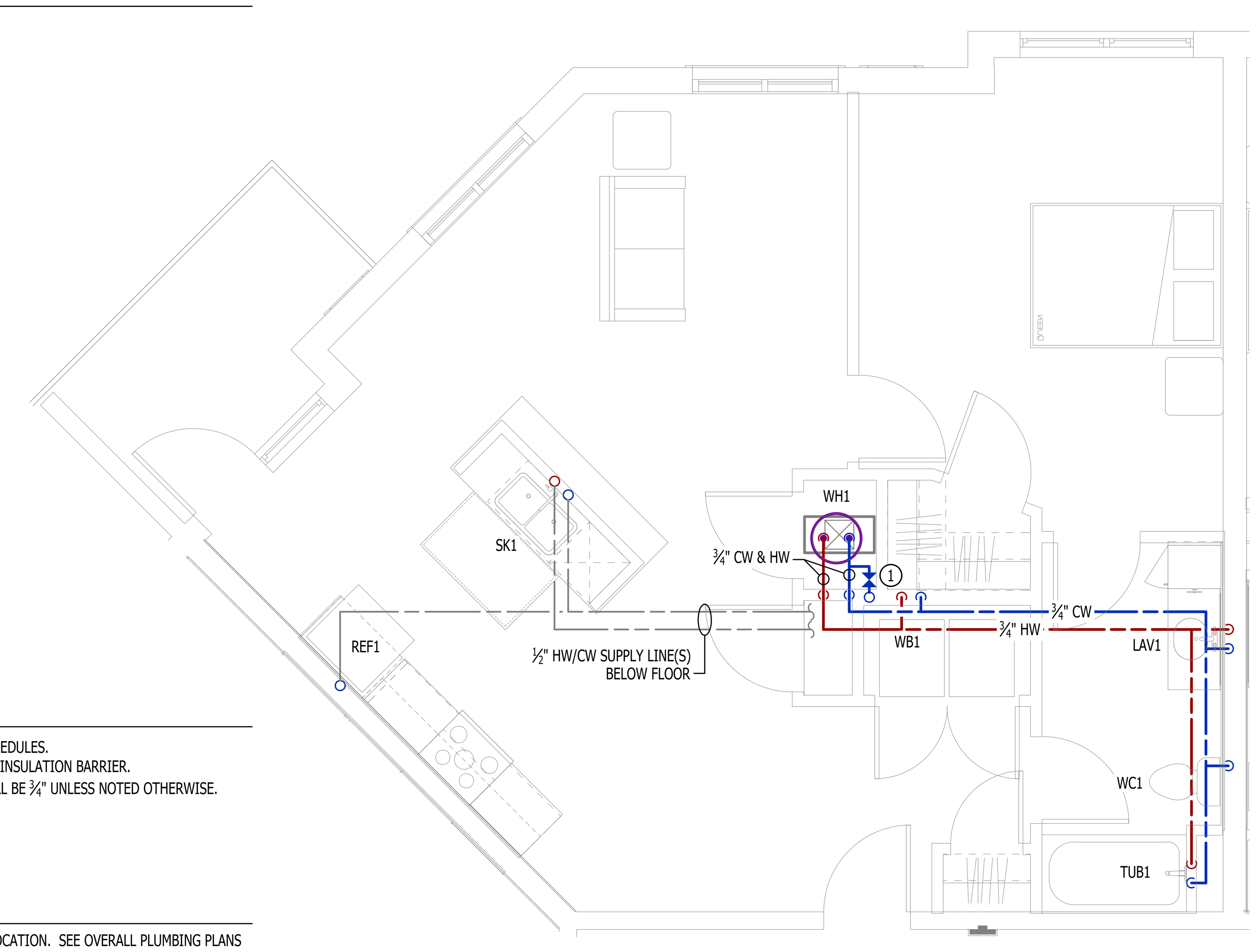

WATER PLAN - DELTA

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

POWER PLAN SYMBOL LEGEND

- CIRCUIT WIRING
- CIRCUIT TAG
- JUNCTION BOX
- RECEPTACLE
  - INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
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POWER PLAN - DELTA

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LIGHTING PLAN SYMBOL LEGEND

- LIGHTING FIXTURE
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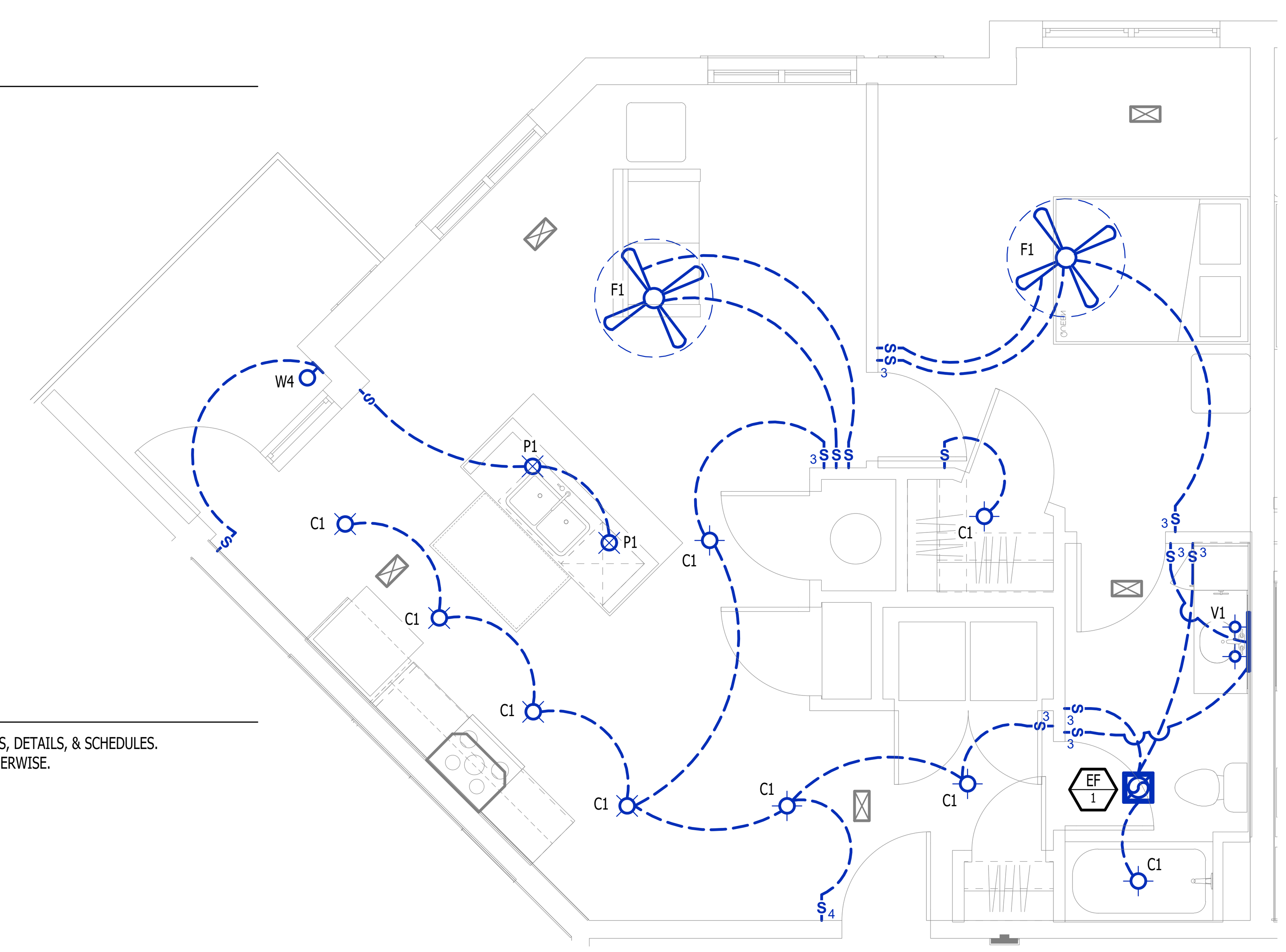

LIGHTING PLAN - DELTA

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JAMES P. WATSON
NUMBER PE-2015017071
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AHJ APPROVAL STAMP

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

SHEET TITLE

UNIT TYPE DELTA MEP PLAN

SHEET NUMBER

UMEP1.7

HVAC PLAN SYMBOL LEGEND

Symbol	Description
X / # (hexagon)	EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)
	EQUIPMENT REFERENCE NUMBER
X / # (circle)	DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)
	CUBIC FEET PER MINUTE (CFM) / FACE SIZE
	SUPPLY DUCTWORK
	RETURN DUCTWORK
	EXHAUST DUCTWORK
	FLEX DUCT
	SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
	RETURN DIFFUSER
	BALANCE DAMPER
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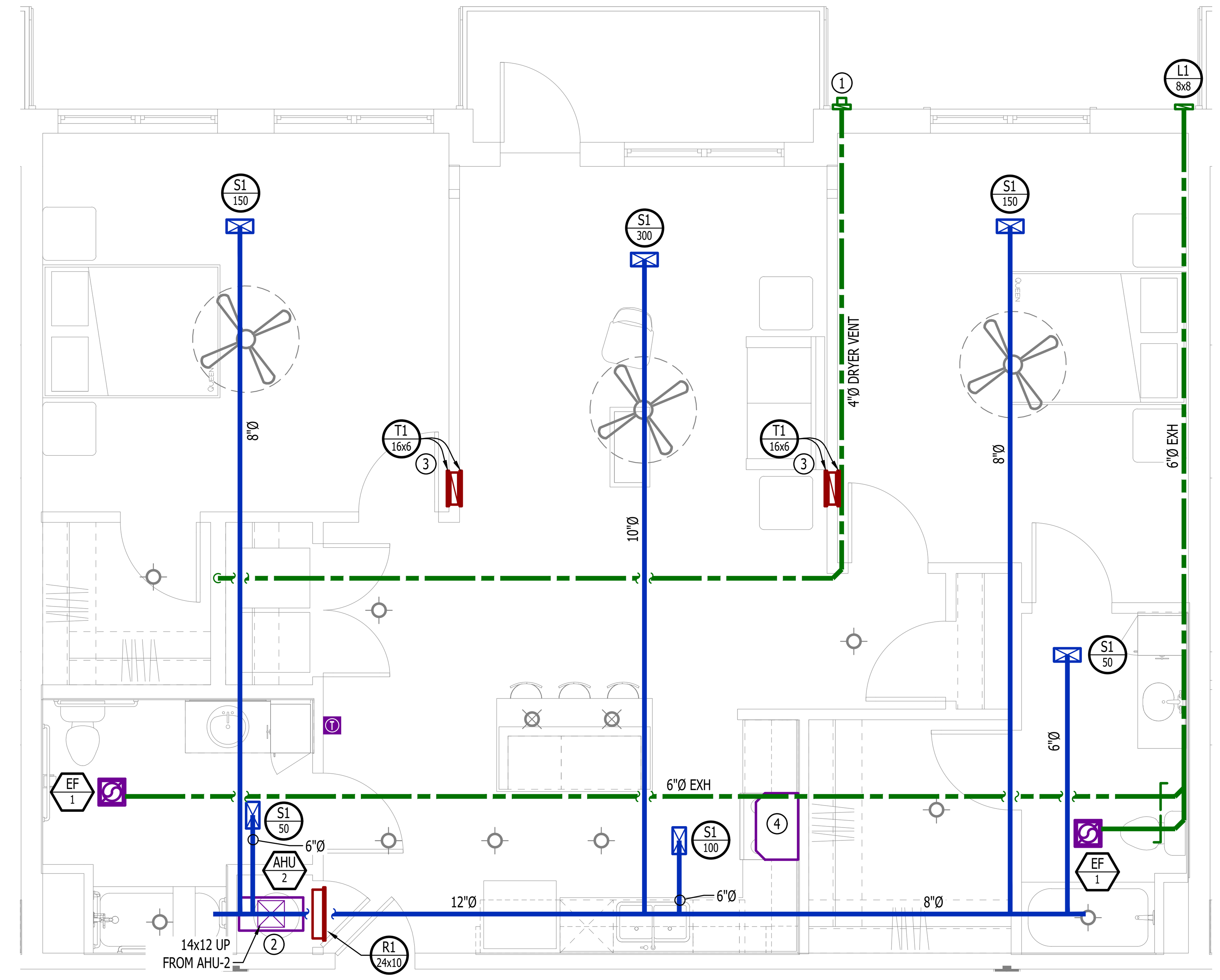
(3) HI/LOW TRANSFER GRILLE (12" A.F.F. ON BEDROOM SIDE OF WALL; 84" A.F.F ON OPPOSITE SIDE OF WALL).

(4) RESIDENTIAL RECIRCULATION HOOD TO BE SUPPLIED & INSTALLED BY GC.



HVAC PLAN - ABERDEEN - TYPE A

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

PLUMBING PLAN SYMBOL LEGEND

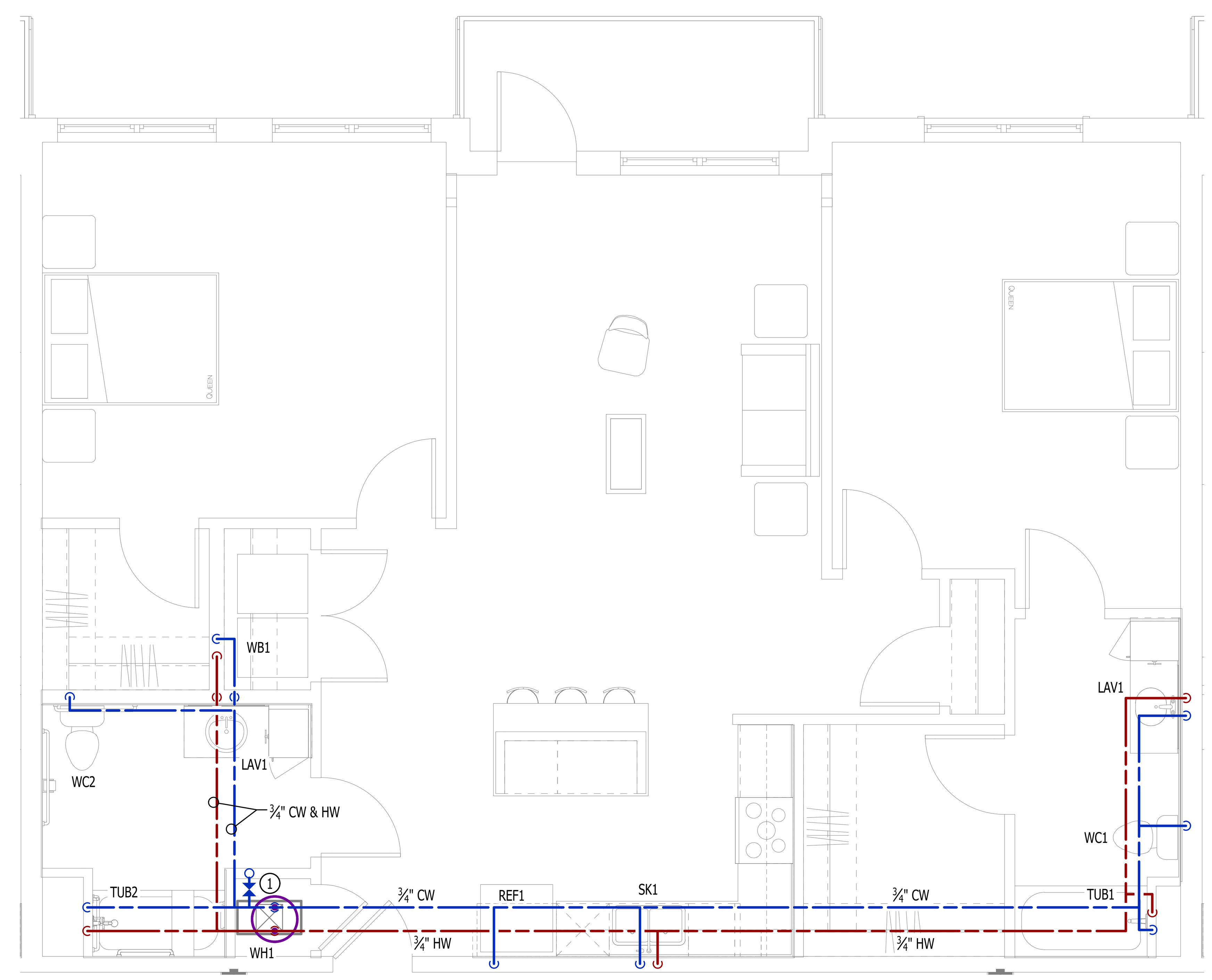
Symbol	Description
	COLD WATER LINE
	HOT WATER LINE
	VALVE
	PIPING TURNED DOWN / TURNED UP

WATER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.
2. ALL PLUMBING LOCATED ON EXTERIOR WALLS SHALL ROUTE WITHIN INSULATION BARRIER.
3. ALL DOMESTIC SUPPLY LINES SERVING MORE THAN (1) FIXTURE SHALL BE ¾" UNLESS NOTED OTHERWISE.

WATER PLAN KEY NOTES:

(1) 1" CW PIPE UP FROM BELOW WITH SHUT-OFF VALVE IN ACCESSIBLE LOCATION. SEE OVERALL PLUMBING PLANS FOR DETAILS.



WATER PLAN - ABERDEEN - TYPE A

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

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

J-SQUARED ENGINEERING

2400 Bluff Creek Drive, Suite 101
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573.234.4492
www.j-squaredeng.com

J2 PROJECT No:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

UNIT TYPE ABERDEEN-A HVAC & WATER PLAN

SHEET NUMBER

UMEP2.1.1

POWER PLAN SYMBOL LEGEND

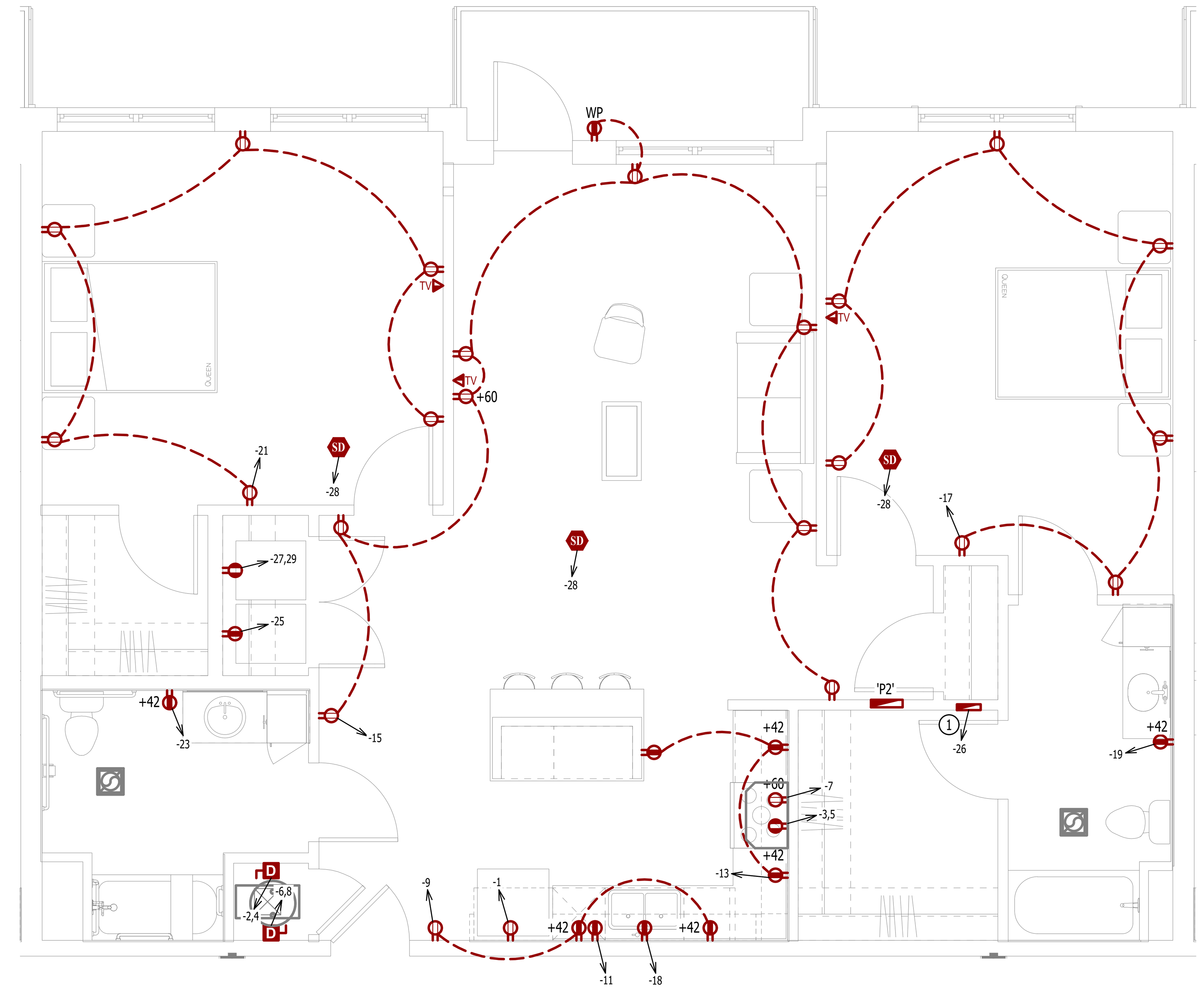
	CIRCUIT WIRING
PX-XX	CIRCUIT TAG
J	JUNCTION BOX
XX +42	RECEPTACLE INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE) "WP" = WEATHERPROOF OUTDOOR RECEPTACLE
	GFCI DUPLEX CONVENIENCE RECEPTACLE
	208V RECEPTACLE
	QUADPLEX CONVENIENCE RECEPTACLE
	DATA / PHONE JACK; BOX WITH 1" CONDUIT & CAT6 CABLE BACK TO MEDIA PANEL LOCATION (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
D	DISCONNECT
SD	120V IONIZATION SMOKE 520Hz LOW FREQUENCY ALARM WITH SILENCING CAPABILITIES & LOW-VOLTAGE CONTACTS WIRED TO SHUT DOWN AHU UPON FIRE DETECTION. COORDINATE WITH HVAC CONTRACTOR. SMOKE DETECTOR MUST BE LOCATED AT LEAST 3' FROM CEILING FAN BLADES AND AT LEAST 10' FROM ANY COOKING APPLIANCE (FIELD-COORDINATE)

POWER PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR POWER SCHEDULES, DETAILS, REQUIREMENTS, ETC.
2. SEE SHEET MEP4 FOR CONDENSING UNIT LOCATIONS.
3. VERIFY EACH DATA/RECEPTACLE LOCATION WITH OWNER PRIOR TO INSTALLATION.
4. REFER TO "TYPICAL ADA MOUNTING HEIGHTS DETAIL", SHEET E501, FOR MOUNTING HEIGHTS OF DEVICES IN "ANSI A" UNITS.

POWER PLAN KEY NOTES:

1 MEDIA PANEL LOCATION; DATA/TV WIRING TO TERMINATE AT THIS LOCATION. DETERMINE EXACT LOCATION & DETAILS WITH OWNER PRIOR TO INSTALLATION.



POWER PLAN - ABERDEEN - TYPE A

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

LIGHTING PLAN SYMBOL LEGEND

X1	LIGHTING FIXTURE "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
S_3	TOGGLE SWITCH SWITCH TYPE
D	DIMMER SWITCH

LIGHTING PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.
2. ALL LIGHTING SHOWN SHALL BE ON CIRCUIT -16 UNLESS NOTED OTHERWISE.

LIGHTING PLAN - ABERDEEN - TYPE A

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

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

UNIT TYPE ABERDEEN-A POWER & LIGHTING PLAN

SHEET NUMBER

UMEP2.1.2

HVAC PLAN SYMBOL LEGEND

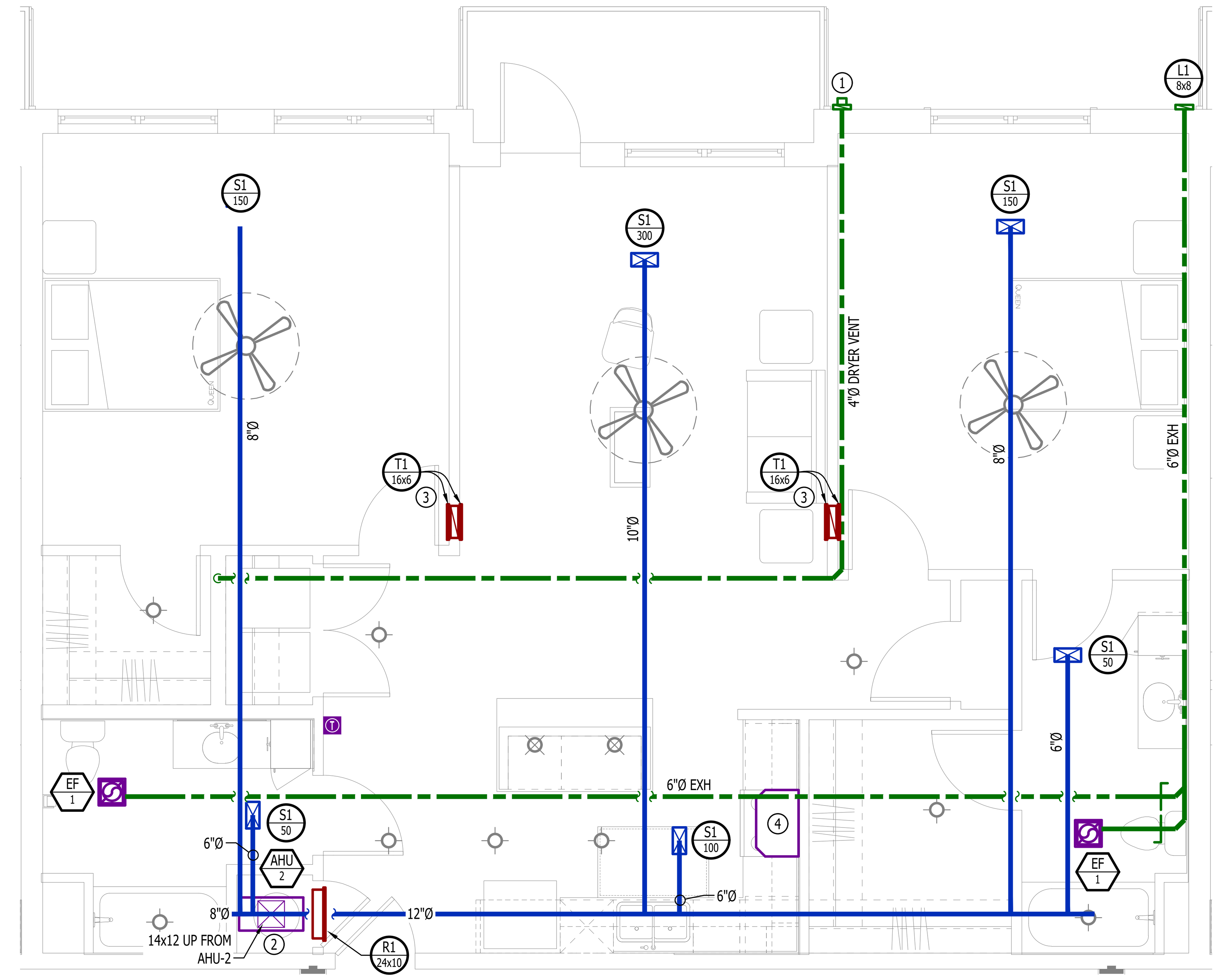
- EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)
- EQUIPMENT REFERENCE NUMBER
- DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)
- CUBIC FEET PER MINUTE (CFM) / FACE SIZE
- SUPPLY DUCTWORK
- RETURN DUCTWORK
- EXHAUST DUCTWORK
- FLEX DUCT
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
- CEILING RADIATION DAMPER
- BACK DRAFT DAMPER
- THERMOSTAT

HVAC PLAN GENERAL NOTES:

1. SEE SHEET M501 FOR HVAC SCHEDULES, DETAILS, REQUIREMENTS, ETC.
2. SEE SHEET MEP4 FOR CONDENSING UNIT LOCATIONS. REFRIGERANT PIPING SHALL ROUTE IN SPACES ABOVE FINISHED CEILINGS AND WITHIN WALL CAVITIES TO REMAIN CONCEALED.
3. SUPPLY DUCTWORK FROM AHU AT FLOOR/CEILING PENETRATION SHALL BE PROTECTED BY A FIRE DAMPER. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
4. WRAP ALL DRYER DUCTS WITH FIREMASTER (OR EQUAL) DUCT WRAP.
5. TOTAL DEVELOPED LENGTH OF EXHAUST DUCT SHALL BE INDICATED ON A PERMANENT LABEL WITHIN 6' OF DRYER VENT CONNECTION. DRYER DUCT ROUTING SHOWN IS FOR REFERENCE ONLY. OVERALL DUCT LENGTH SHALL BE CALCULATED BY HVAC CONTRACTOR PER 2018 IMC 504.8.4.
6. LOCATE ALL EXHAUST / DRYER VENT TERMINATIONS AT LEAST 36" FROM OPERABLE OPENINGS INTO APARTMENTS (WINDOWS, DOORS, ETC.).
7. ALL DUCTWORK SHOWN SHALL ROUTE IN SPACE BETWEEN / THRU TRUSSES UNLESS NOTED OTHERWISE. SEE STRUCTURAL DRAWINGS FOR DETAILS.

HVAC PLAN KEY NOTES:

1. TERMINATE 4" DRYER EXHAUST WITH VENT EQUAL TO DRYER WALL VENT #DWV4.
2. AHU WALL MOUNTED ABOVE WATER HEATER, COORDINATE WITH PLUMBING CONTRACTOR. CONDENSATE TO DISCHARGE IN FLOOR DRAIN WITHIN CLOSET.
3. HI/LOW TRANSFER GRILLE (12" A.F.F. ON BEDROOM SIDE OF WALL; 84" A.F.F ON OPPOSITE SIDE OF WALL).
4. RESIDENTIAL RECIRCULATION HOOD TO BE SUPPLIED & INSTALLED BY GC.



HVAC PLAN - ABERDEEN - TYPE B

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

PLUMBING PLAN SYMBOL LEGEND

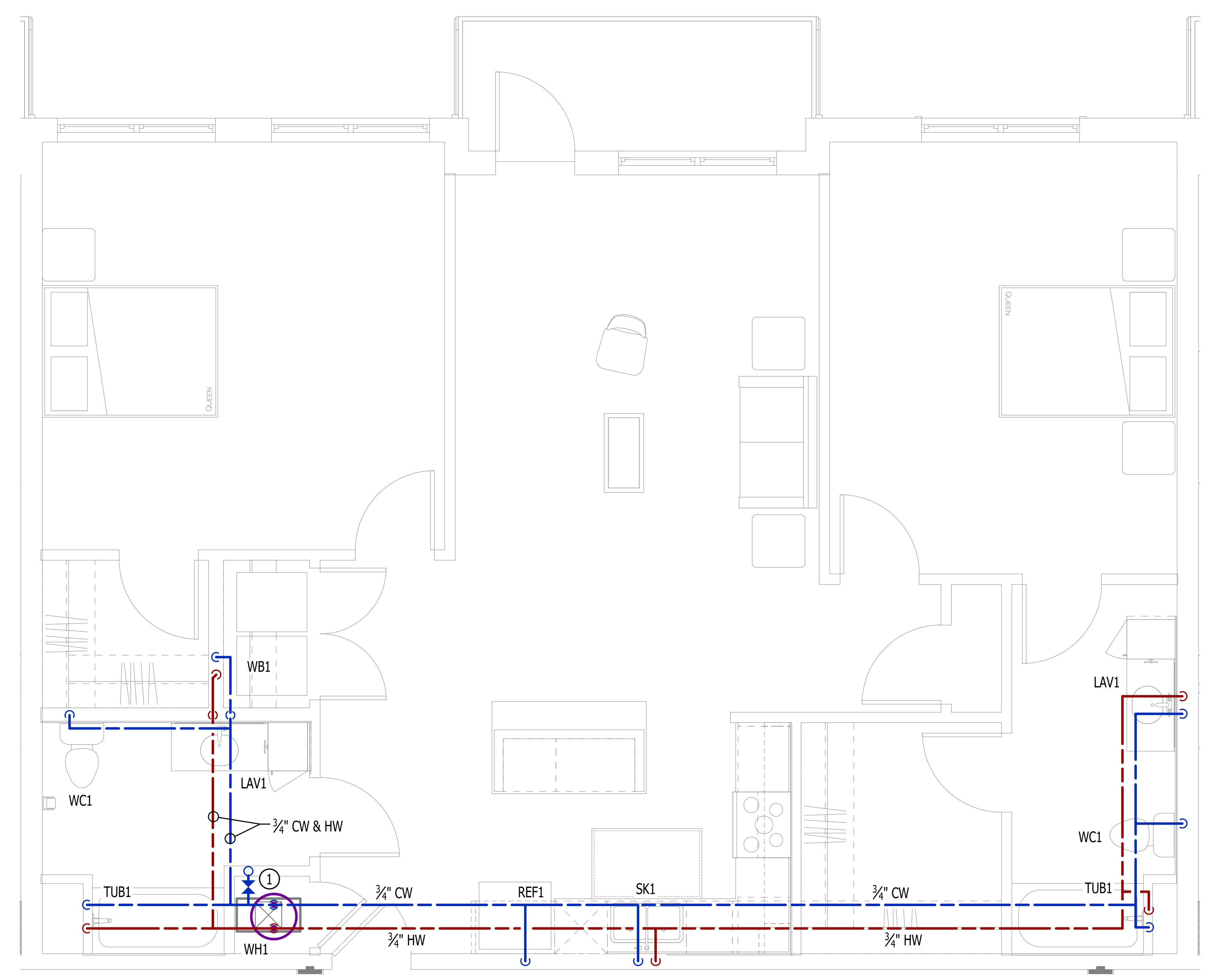
- COLD WATER LINE
- HOT WATER LINE
- VALVE
- PIPING TURNED DOWN / TURNED UP

WATER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.
2. ALL PLUMBING LOCATED ON EXTERIOR WALLS SHALL ROUTE WITHIN INSULATION BARRIER.
3. ALL DOMESTIC SUPPLY LINES SERVING MORE THAN (1) FIXTURE SHALL BE ¾" UNLESS NOTED OTHERWISE.

WATER PLAN KEY NOTES:

1. 1" CW PIPE UP FROM BELOW WITH SHUT-OFF VALVE IN ACCESSIBLE LOCATION. SEE OVERALL PLUMBING PLANS FOR DETAILS.



WATER PLAN - ABERDEEN - TYPE B

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

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J2 PROJECT No:	J21010
J2 DESIGN:	ACW
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

UNIT TYPE ABERDEEN-B HVAC & WATER PLAN

SHEET NUMBER

UMEP2.2.1

POWER PLAN SYMBOL LEGEND

- CIRCUIT WIRING
- PX-XX — CIRCUIT TAG
- JUNCTION BOX
- XX +42 — RECEPTACLE
  - INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
  - "WP" = WEATHERPROOF OUTDOOR RECEPTACLE
- GFCI DUPLEX CONVENIENCE RECEPTACLE
- 208V RECEPTACLE
- QUADPLEX CONVENIENCE RECEPTACLE
- DATA / PHONE JACK; BOX WITH 1" CONDUIT & CAT6 CABLE BACK TO MEDIA PANEL LOCATION (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
- DISCONNECT
- SD — 120V IONIZATION SMOKE 520Hz LOW FREQUENCY ALARM WITH SILENCING CAPABILITIES & LOW-VOLTAGE CONTACTS WIRED TO SHUT DOWN AHU UPON FIRE DETECTION. COORDINATE WITH HVAC CONTRACTOR. SMOKE DETECTOR MUST BE LOCATED AT LEAST 3' FROM CEILING FAN BLADES AND AT LEAST 10' FROM ANY COOKING APPLIANCE (FIELD-COORDINATE)

POWER PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR POWER SCHEDULES, DETAILS, REQUIREMENTS, ETC.
2. SEE SHEET MEP4 FOR CONDENSING UNIT LOCATIONS.
3. VERIFY EACH DATA/RECEPTACLE LOCATION WITH OWNER PRIOR TO INSTALLATION.
4. REFER TO "TYPICAL ADA MOUNTING HEIGHTS DETAIL", SHEET E501, FOR MOUNTING HEIGHTS OF DEVICES IN "ANSI A" UNITS.

POWER PLAN KEY NOTES:

(1) MEDIA PANEL LOCATION; DATA/TV WIRING TO TERMINATE AT THIS LOCATION. DETERMINE EXACT LOCATION & DETAILS WITH OWNER PRIOR TO INSTALLATION.

POWER PLAN - ABERDEEN - TYPE B

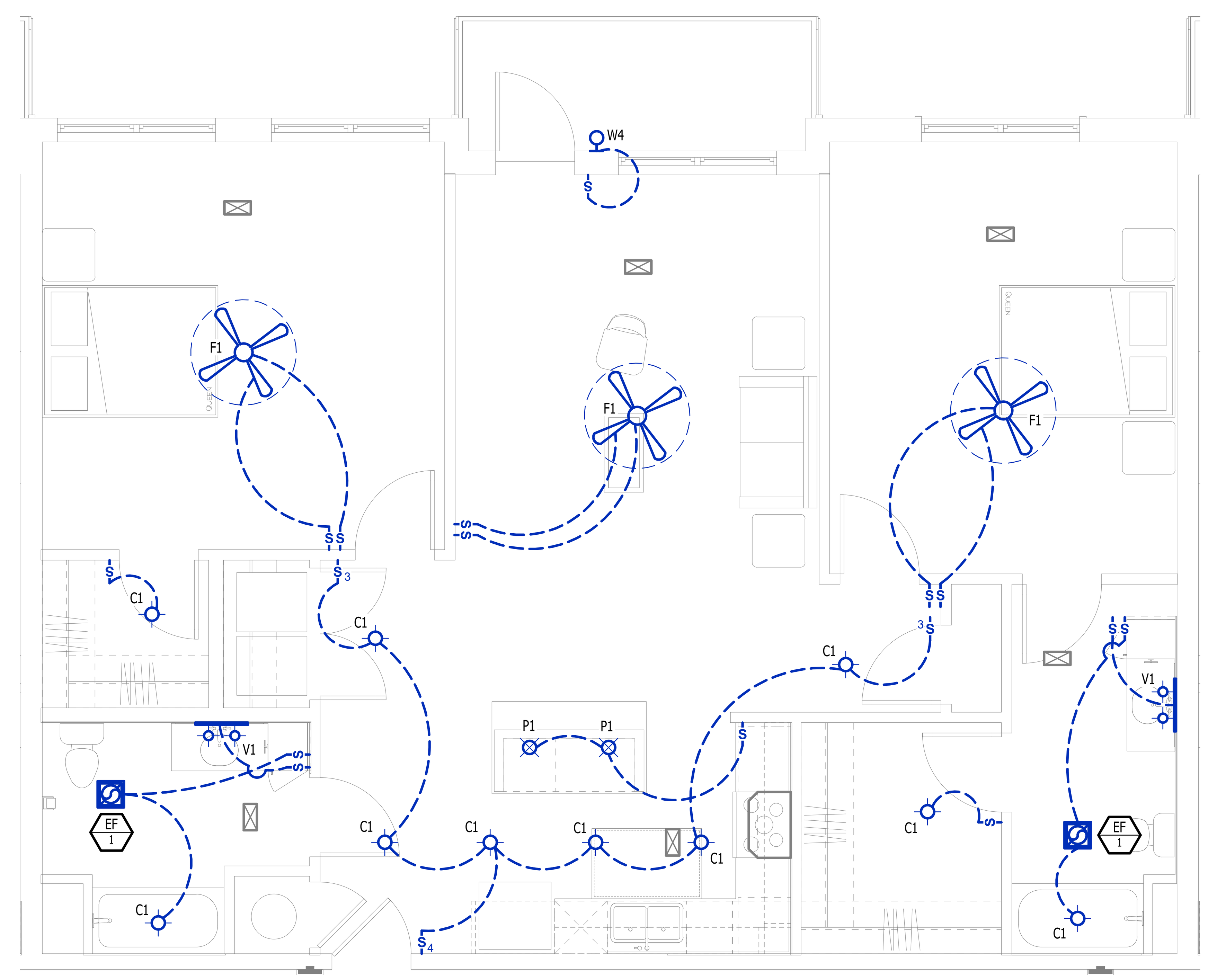
SCALE: 1/4" = 1'-0"

LIGHTING PLAN SYMBOL LEGEND

- X1 — LIGHTING FIXTURE
  - "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
- TOGGLE SWITCH
  - SWITCH TYPE
- DIMMER SWITCH

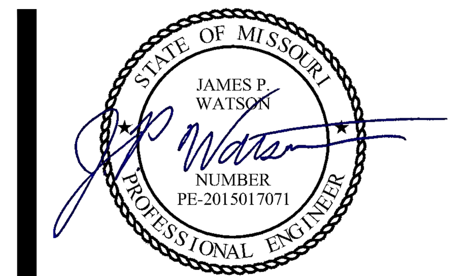
LIGHTING PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.
2. ALL LIGHTING SHOWN SHALL BE ON CIRCUIT -16 UNLESS NOTED OTHERWISE.



LIGHTING PLAN - ABERDEEN - TYPE B

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



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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

UNIT TYPE ABERDEEN-B POWER & LIGHTING PLAN

SHEET NUMBER

UMEP2.2.2

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
- FLEX DUCT
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
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HVAC PLAN GENERAL NOTES:

1. SEE SHEET M501 FOR HVAC SCHEDULES, DETAILS, REQUIREMENTS, ETC.
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HVAC PLAN KEY NOTES:

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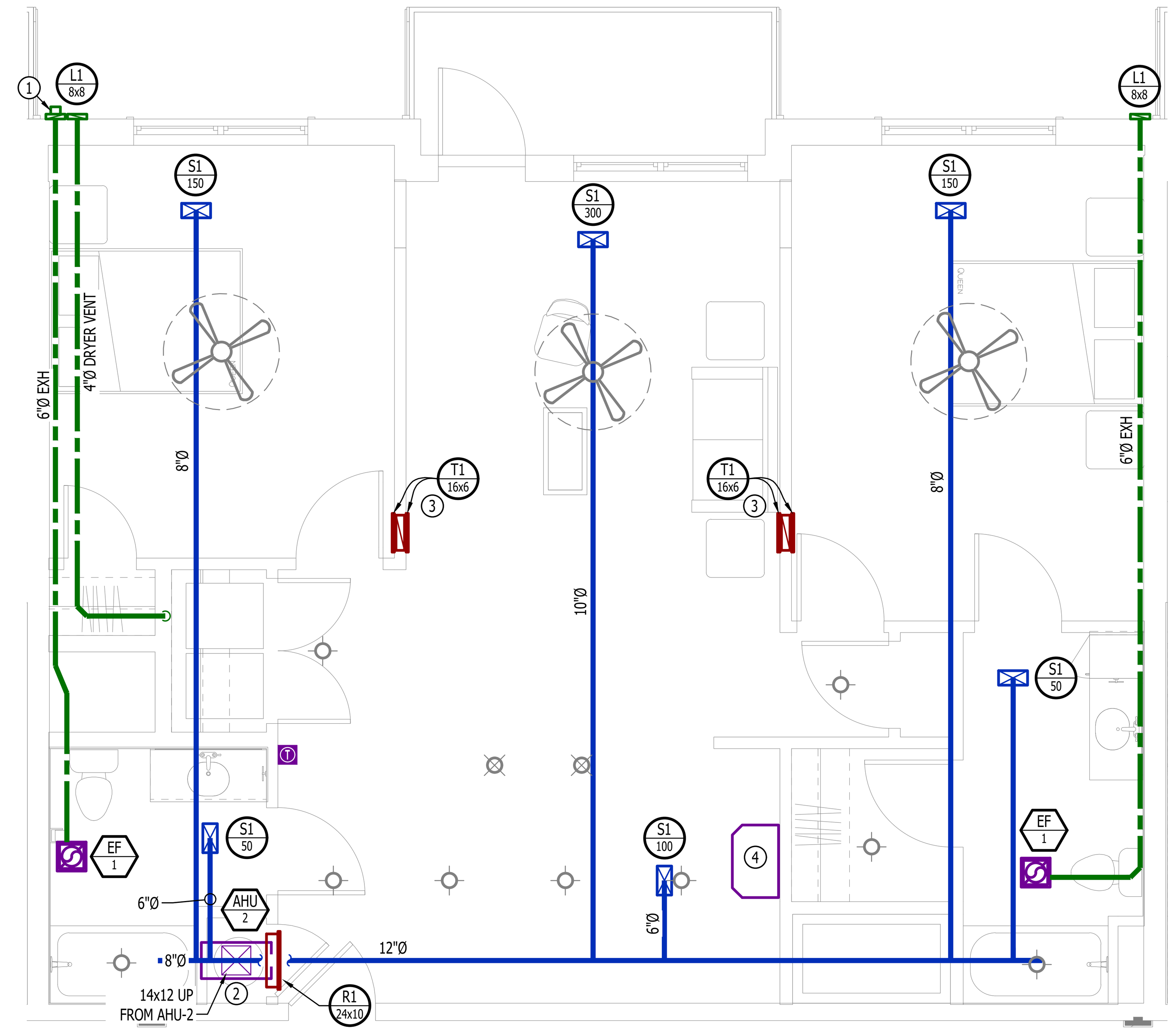

HVAC PLAN - ABERDEEN - ALT

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

PLUMBING PLAN SYMBOL LEGEND

- COLD WATER LINE
- HOT WATER LINE
- VALVE
- PIPING TURNED DOWN / TURNED UP

WATER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.
2. ALL PLUMBING LOCATED ON EXTERIOR WALLS SHALL ROUTE WITHIN INSULATION BARRIER.
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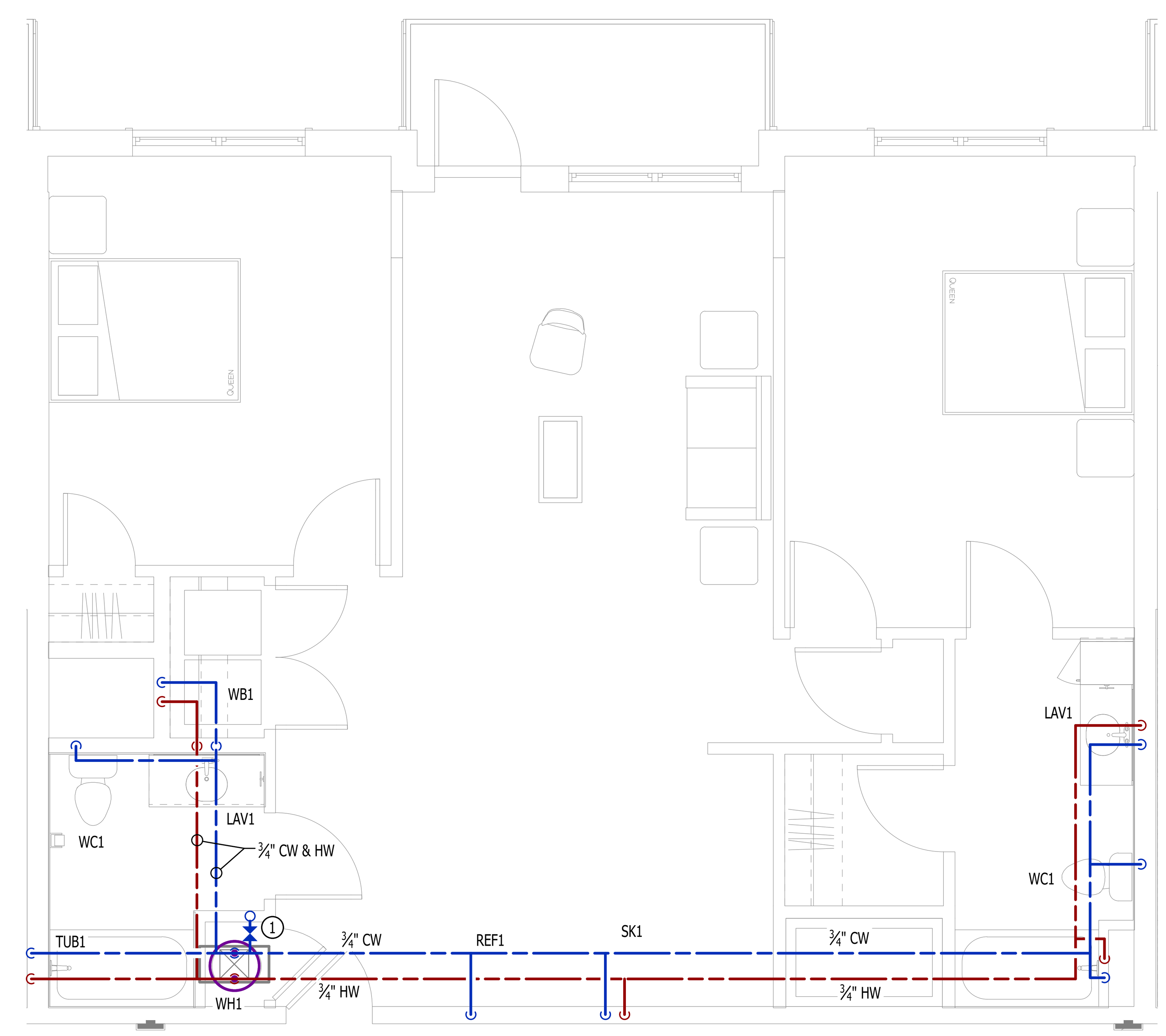
WATER PLAN KEY NOTES:

1. 1" CW PIPE UP FROM BELOW WITH SHUT-OFF VALVE IN ACCESSIBLE LOCATION. SEE OVERALL PLUMBING PLANS FOR DETAILS.



WATER PLAN - ABERDEEN - ALT

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

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

UNIT TYPE ABERDEEN-ALT HVAC & WATER PLAN

SHEET NUMBER

UMEP2.3.1

POWER PLAN SYMBOL LEGEND

CIRCUIT WIRING

PX-XX CIRCUIT TAG

JUNCTION BOX

XX +42 RECEPTACLE

INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)

"WP" = WEATHERPROOF OUTDOOR RECEPTACLE

GFCI DUPLEX CONVENIENCE RECEPTACLE

208V RECEPTACLE

QUADPLEX CONVENIENCE RECEPTACLE

DATA / PHONE JACK; BOX WITH 1" CONDUIT & CAT6 CABLE BACK TO MEDIA PANEL LOCATION (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)

DISCONNECT

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POWER PLAN - ABERDEEN - ALT

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

LIGHTING PLAN SYMBOL LEGEND

X1 LIGHTING FIXTURE

"X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)

TOGGLE SWITCH

SWITCH TYPE

DIMMER SWITCH

LIGHTING PLAN GENERAL NOTES:

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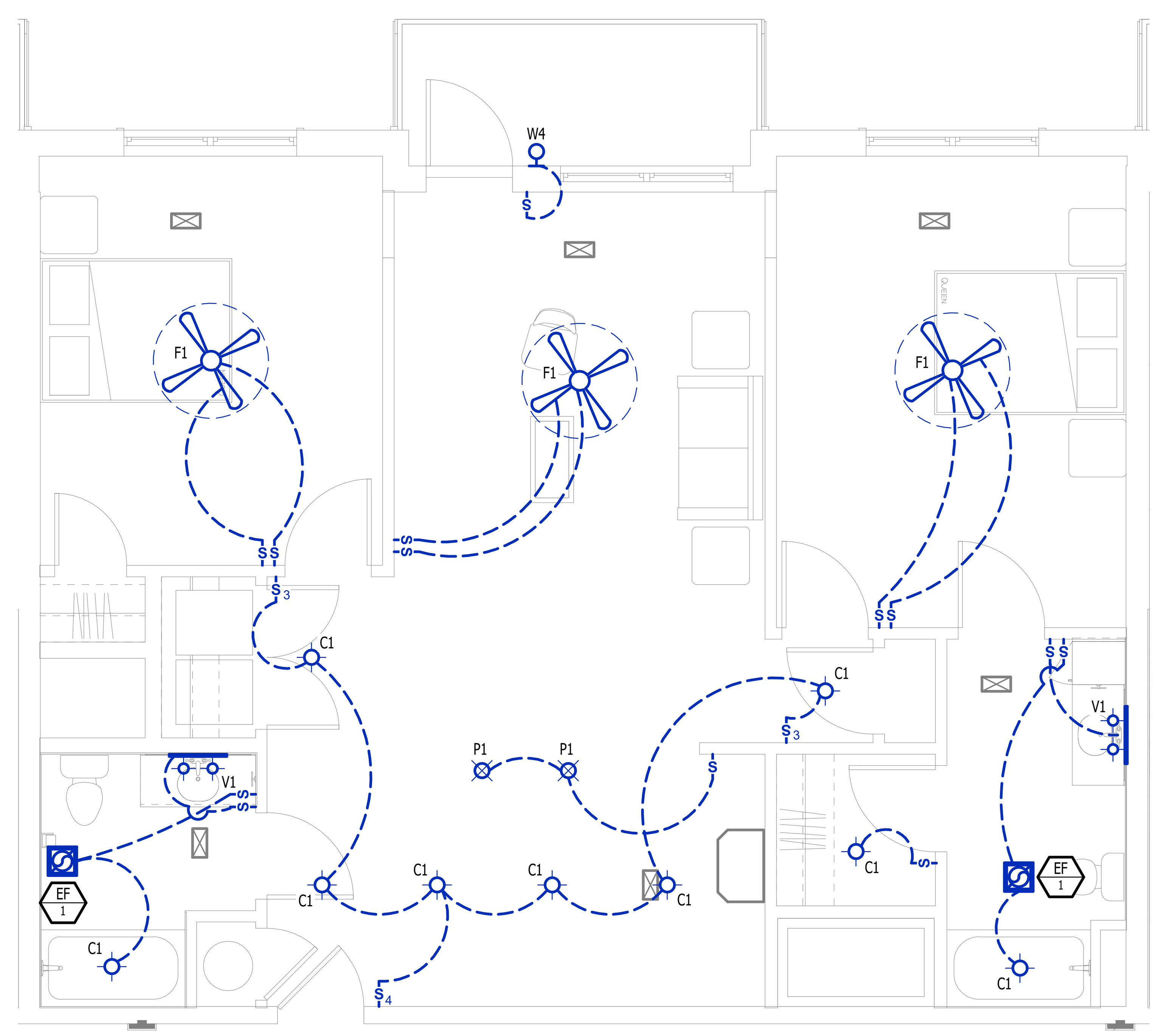

LIGHTING PLAN - ABERDEEN - ALT

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

STATE OF MISSOURI
JAMES P. WATSON
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

UNIT TYPE ABERDEEN-ALT POWER & LIGHTING PLAN

SHEET NUMBER

UMEP2.3.2

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
- FLEX DUCT
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
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- BACK DRAFT DAMPER
- THERMOSTAT

HVAC PLAN GENERAL NOTES:

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HVAC PLAN KEY NOTES:

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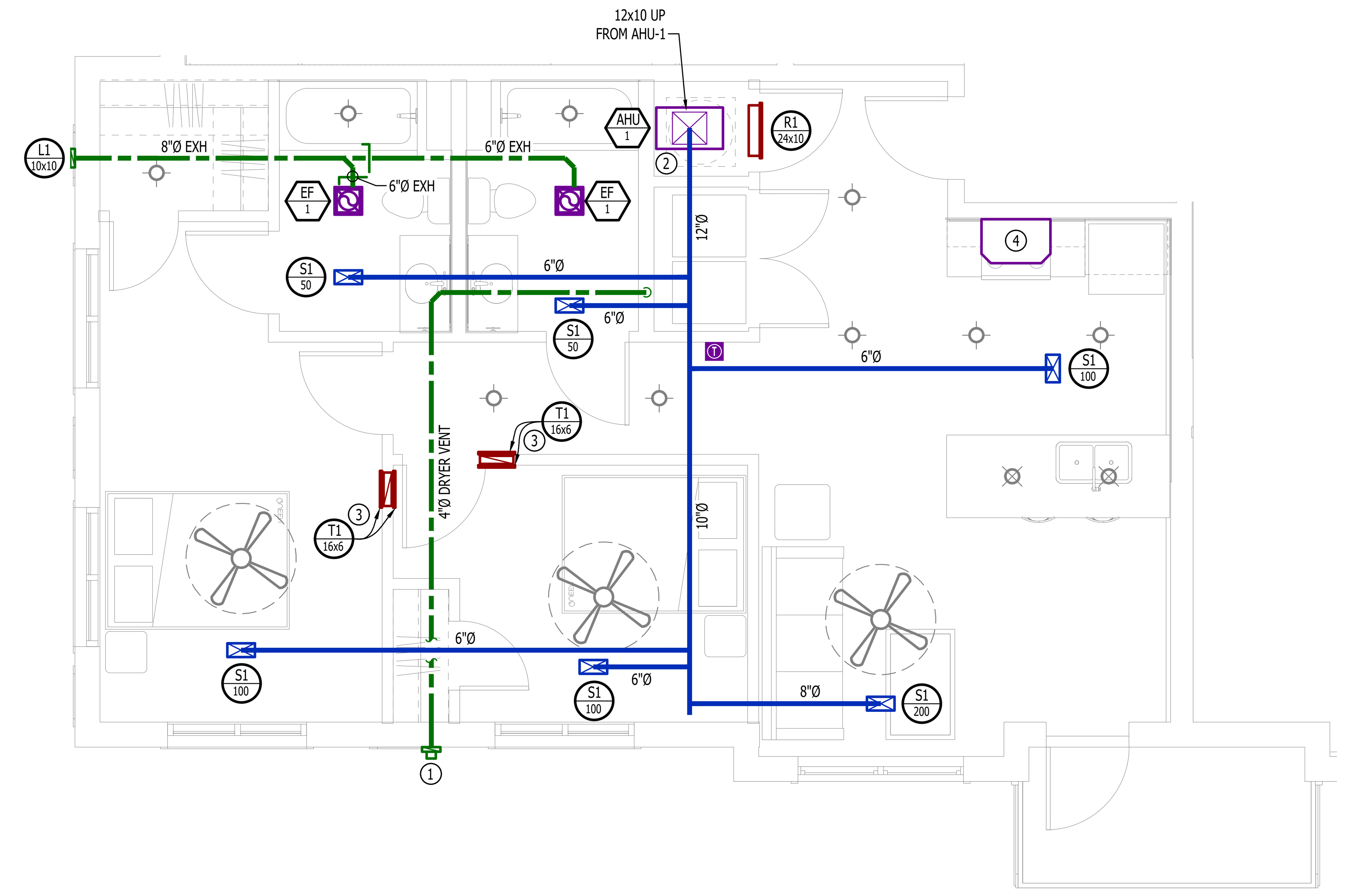


HVAC PLAN - HURLEY

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

PLUMBING PLAN SYMBOL LEGEND

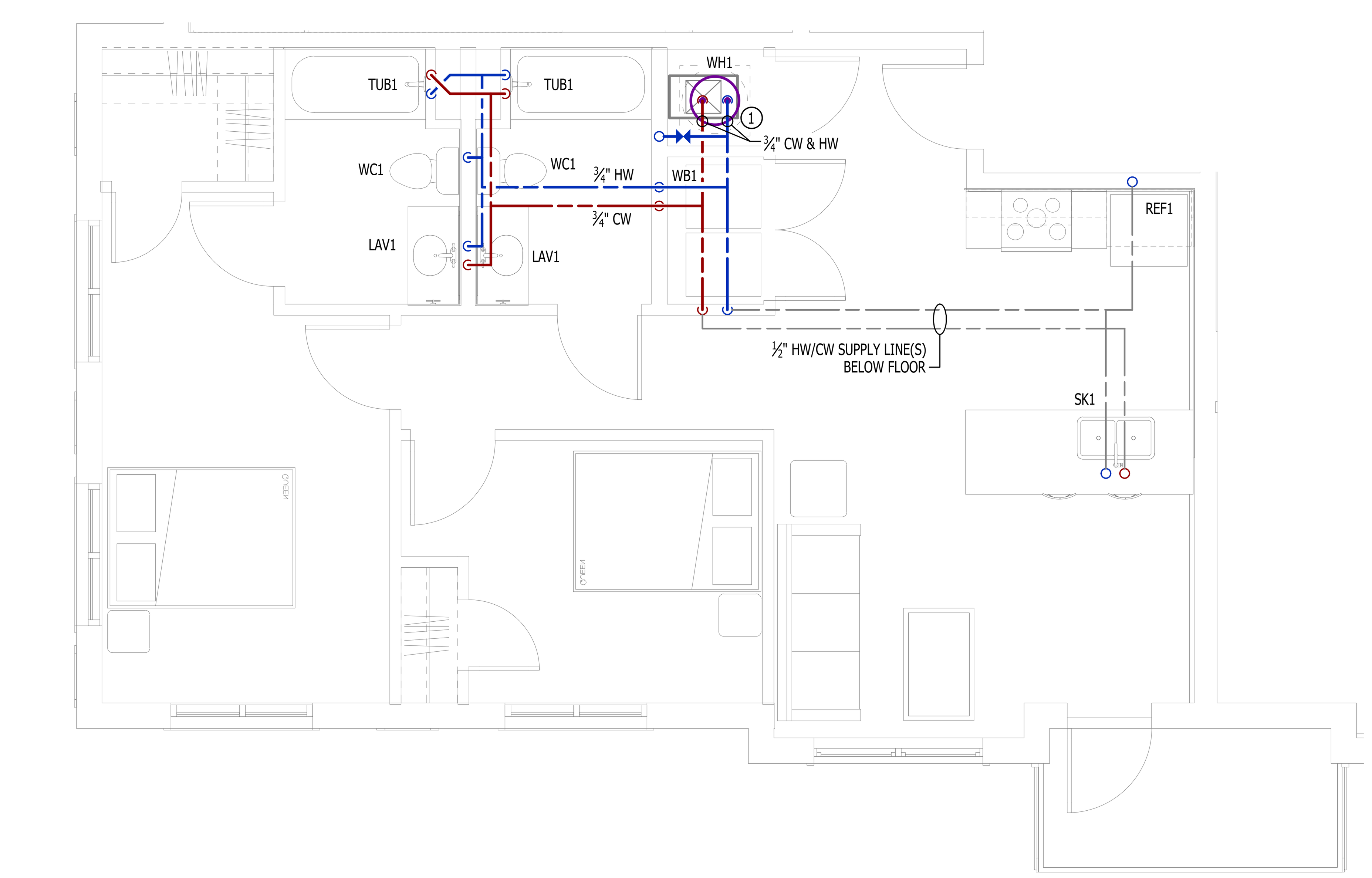
- COLD WATER LINE
- HOT WATER LINE
- VALVE
- PIPING TURNED DOWN / TURNED UP

WATER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.
2. ALL PLUMBING LOCATED ON EXTERIOR WALLS SHALL ROUTE WITHIN INSULATION BARRIER.
3. ALL DOMESTIC SUPPLY LINES SERVING MORE THAN (1) FIXTURE SHALL BE ¾" UNLESS NOTED OTHERWISE.

WATER PLAN KEY NOTES:

1. 1" CW PIPE UP FROM BELOW WITH SHUT-OFF VALVE IN ACCESSIBLE LOCATION. SEE OVERALL PLUMBING PLANS FOR DETAILS.



WATER PLAN - HURLEY

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

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J-SQUARED ENGINEERING

2400 Bluff Creek Drive, Suite 101
Columbia, Missouri 65201
573.234.4492
www.j-squaredeng.com

J2 PROJECT No:	J21010
J2 DESIGN:	ACW

ISSUE TITLE	DATE
PERMIT SET	11 - 11 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery - Lot 7

1920 NE Discovery Ave.
Lee's Summit, Jackson County, MO

AHJ APPROVAL STAMP

SHEET TITLE

UNIT TYPE HURLEY HVAC & WATER PLAN

SHEET NUMBER

UMEP2.4.1

POWER PLAN SYMBOL LEGEND

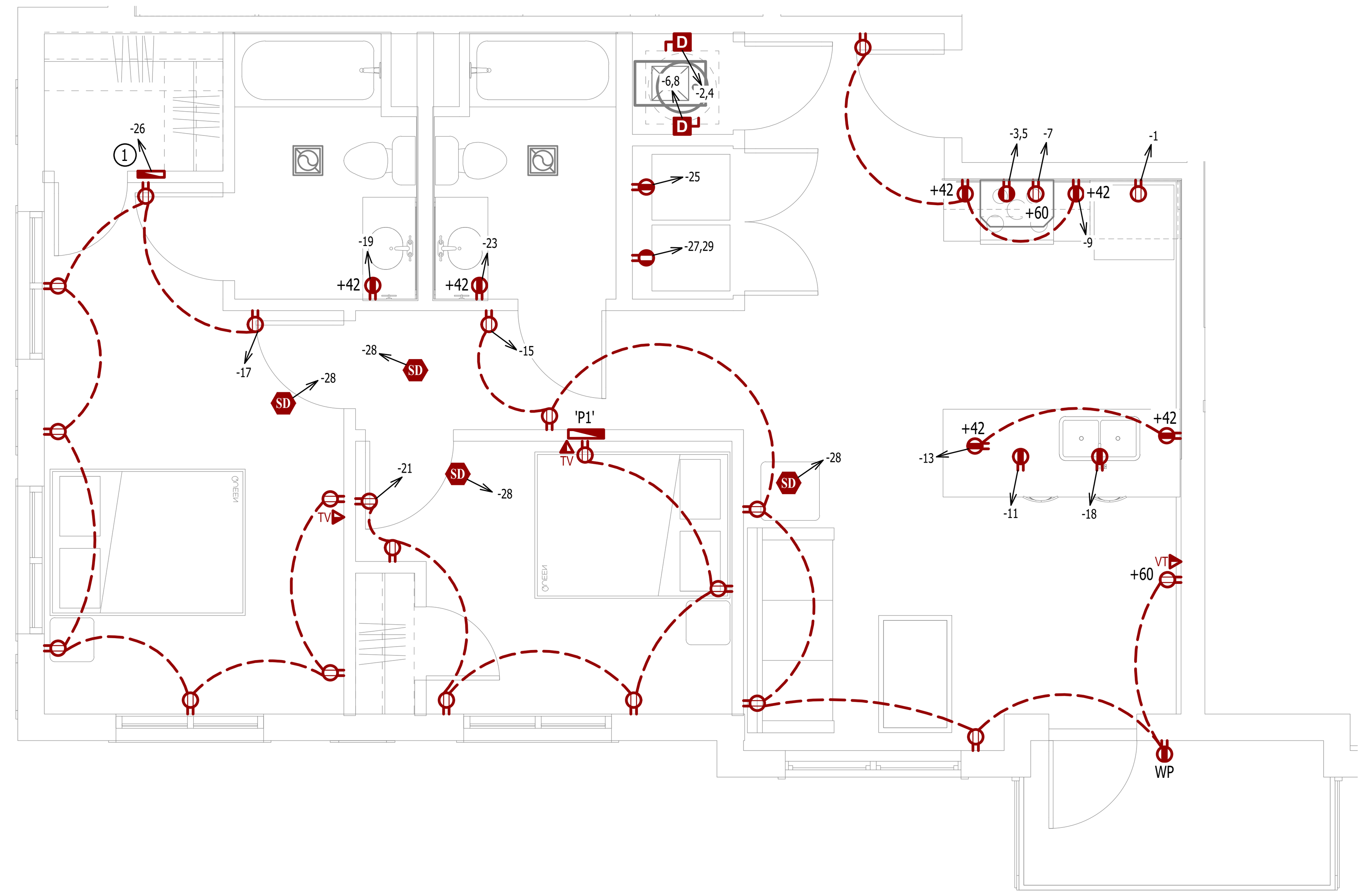
	CIRCUIT WIRING
PX-XX	CIRCUIT TAG
J	JUNCTION BOX
XX +42	RECEPTACLE INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE) "WP" = WEATHERPROOF OUTDOOR RECEPTACLE
	GFCI DUPLEX CONVENIENCE RECEPTACLE
	208V RECEPTACLE
	QUADPLEX CONVENIENCE RECEPTACLE
	DATA / PHONE JACK; BOX WITH 1" CONDUIT & CAT6 CABLE BACK TO MEDIA PANEL LOCATION (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
D	DISCONNECT
SD	120V IONIZATION SMOKE 520Hz LOW FREQUENCY ALARM WITH SILENCING CAPABILITIES & LOW-VOLTAGE CONTACTS WIRED TO SHUT DOWN AHU UPON FIRE DETECTION. COORDINATE WITH HVAC CONTRACTOR. SMOKE DETECTOR MUST BE LOCATED AT LEAST 3' FROM CEILING FAN BLADES AND AT LEAST 10' FROM ANY COOKING APPLIANCE (FIELD-COORDINATE)

POWER PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR POWER SCHEDULES, DETAILS, REQUIREMENTS, ETC.
2. SEE SHEET MEP4 FOR CONDENSING UNIT LOCATIONS.
3. VERIFY EACH DATA/RECEPTACLE LOCATION WITH OWNER PRIOR TO INSTALLATION.
4. REFER TO "TYPICAL ADA MOUNTING HEIGHTS DETAIL", SHEET E501, FOR MOUNTING HEIGHTS OF DEVICES IN "ANSI A" UNITS.

POWER PLAN KEY NOTES:

1 MEDIA PANEL LOCATION; DATA/TV WIRING TO TERMINATE AT THIS LOCATION. DETERMINE EXACT LOCATION & DETAILS WITH OWNER PRIOR TO INSTALLATION.



POWER PLAN - HURLEY

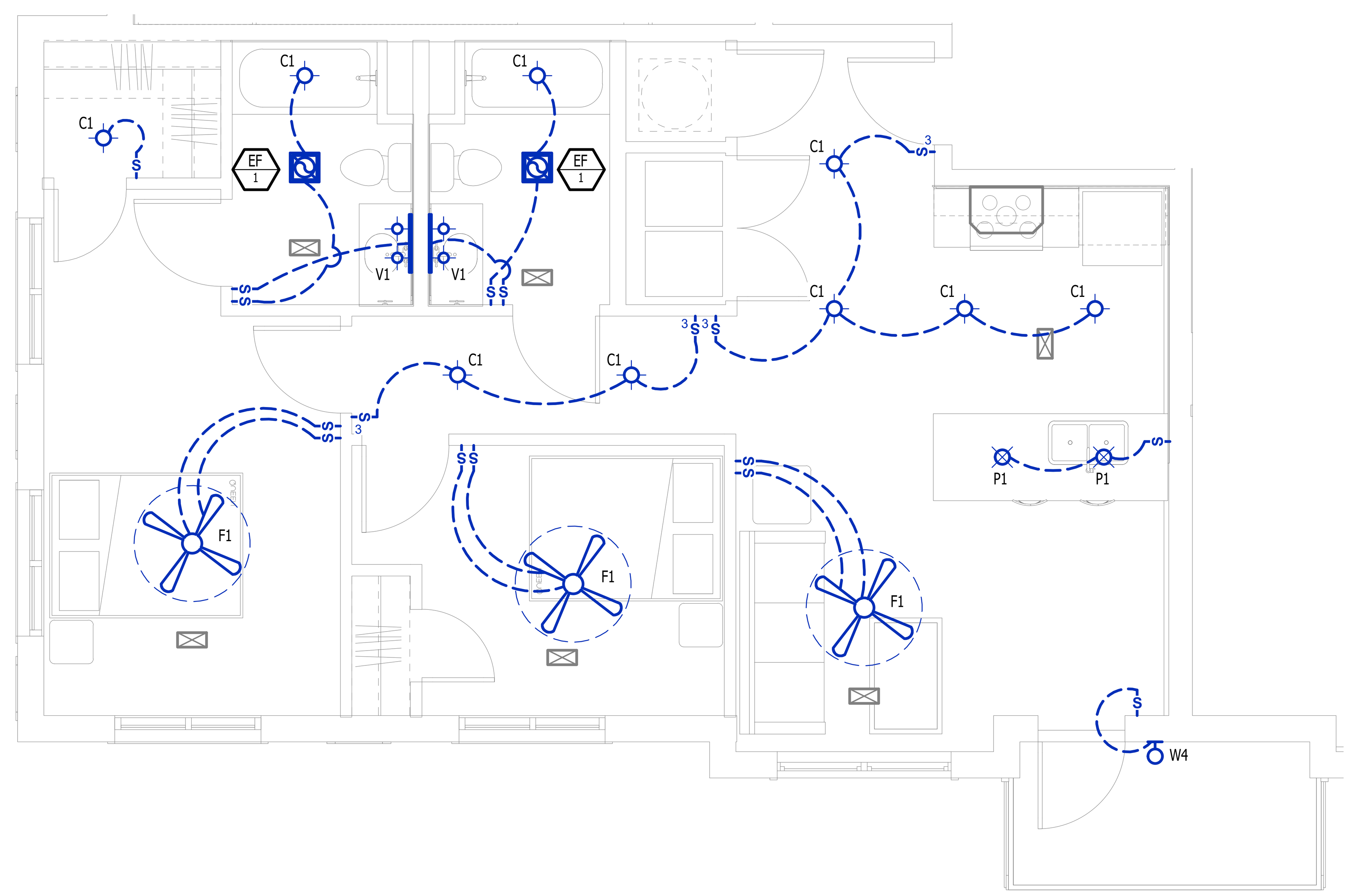
SCALE: 1/4" = 1'-0"

LIGHTING PLAN SYMBOL LEGEND

X1	LIGHTING FIXTURE "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
$	TOGGLE SWITCH SWITCH TYPE
	DIMMER SWITCH

LIGHTING PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.
2. ALL LIGHTING SHOWN SHALL BE ON CIRCUIT -16 UNLESS NOTED OTHERWISE.



LIGHTING PLAN - HURLEY

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

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 11, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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SHEET TITLE

UNIT TYPE HURLEY POWER & LIGHTING PLAN

SHEET NUMBER

UMEP2.4.2

HVAC PLAN SYMBOL LEGEND

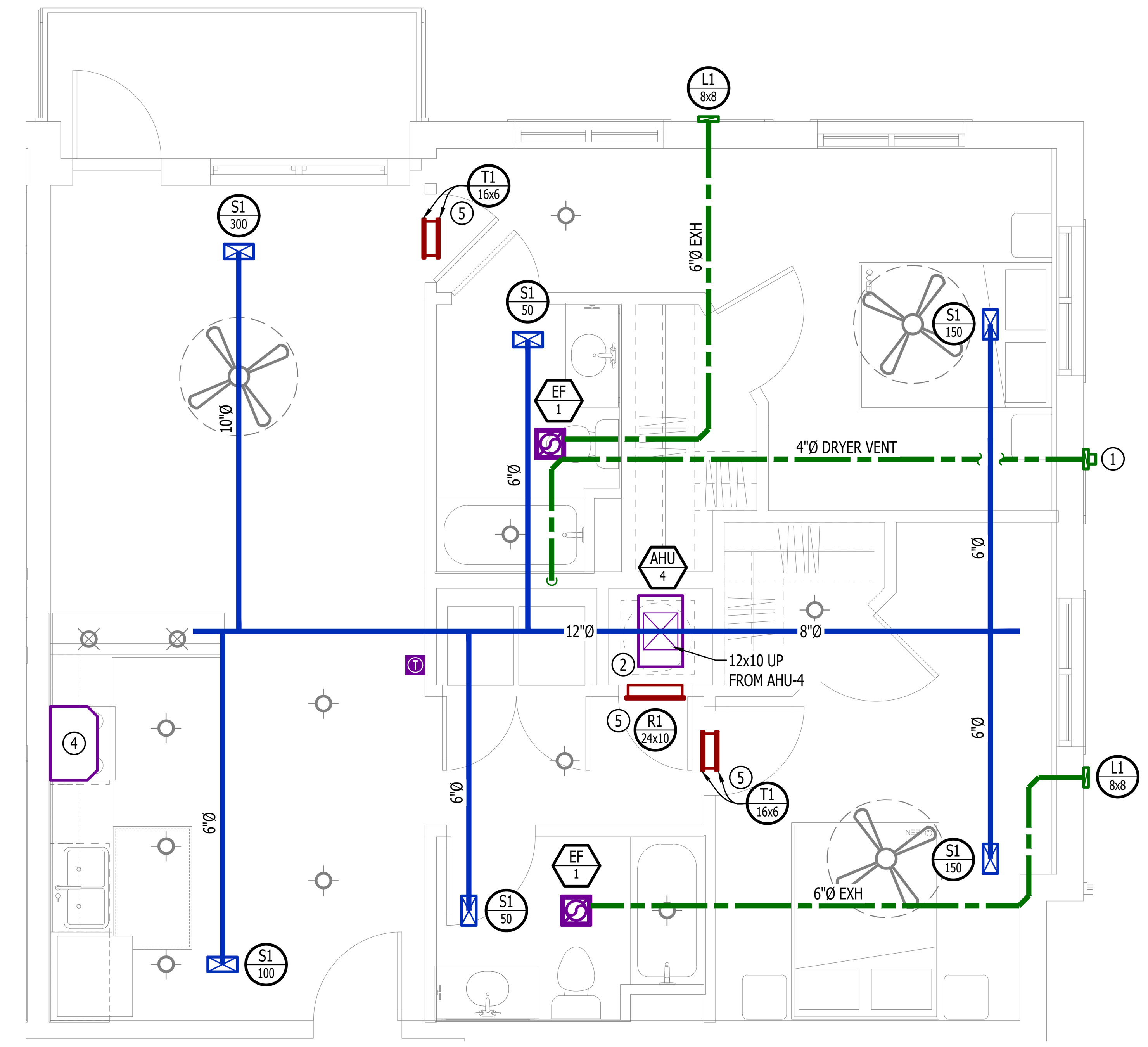
- EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)
- EQUIPMENT REFERENCE NUMBER
- DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)
- CUBIC FEET PER MINUTE (CFM) / FACE SIZE
- SUPPLY DUCTWORK
- RETURN DUCTWORK
- EXHAUST DUCTWORK
- FLEX DUCT
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
- CEILING RADIATION DAMPER
- BACK DRAFT DAMPER
- THERMOSTAT

HVAC PLAN GENERAL NOTES:

1. SEE SHEET M501 FOR HVAC SCHEDULES, DETAILS, REQUIREMENTS, ETC.
2. SEE SHEET MEP4 FOR CONDENSING UNIT LOCATIONS. REFRIGERANT PIPING SHALL ROUTE IN SPACES ABOVE FINISHED CEILINGS AND WITHIN WALL CAVITIES TO REMAIN CONCEALED.
3. SUPPLY DUCTWORK FROM AHU AT FLOOR/CEILING PENETRATION SHALL BE PROTECTED BY A FIRE DAMPER. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
4. WRAP ALL DRYER DUCTS WITH FIREMASTER (OR EQUAL) DUCT WRAP.
5. TOTAL DEVELOPED LENGTH OF EXHAUST DUCT SHALL BE INDICATED ON A PERMANENT LABEL WITHIN 6' OF DRYER VENT CONNECTION. DRYER DUCT ROUTING SHOWN IS FOR REFERENCE ONLY. OVERALL DUCT LENGTH SHALL BE CALCULATED BY HVAC CONTRACTOR PER 2018 IMC 504.8.4.
6. LOCATE ALL EXHAUST / DRYER VENT TERMINATIONS AT LEAST 36" FROM OPERABLE OPENINGS INTO APARTMENTS (WINDOWS, DOORS, ETC.).
7. ALL DUCTWORK SHOWN SHALL ROUTE IN SPACE BETWEEN / THRU TRUSSES UNLESS NOTED OTHERWISE. SEE STRUCTURAL DRAWINGS FOR DETAILS.

HVAC PLAN KEY NOTES:

1 TERMINATE 4" DRYER EXHAUST WITH VENT EQUAL TO DRYER WALL VENT #DWV4.
2 AHU WALL MOUNTED ABOVE WATER HEATER, COORDINATE WITH PLUMBING CONTRACTOR. CONDENSATE TO DISCHARGE IN FLOOR DRAIN WITHIN CLOSET.
3 HI/LOW TRANSFER GRILLE (12" A.F.F. ON BEDROOM SIDE OF WALL; 84" A.F.F ON OPPOSITE SIDE OF WALL).
4 RESIDENTIAL RECIRCULATION HOOD TO BE SUPPLIED & INSTALLED BY GC.
5 TRANSFER GRILLE CENTERED ABOVE DOOR.



HVAC PLAN - LANA

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

PLUMBING PLAN SYMBOL LEGEND

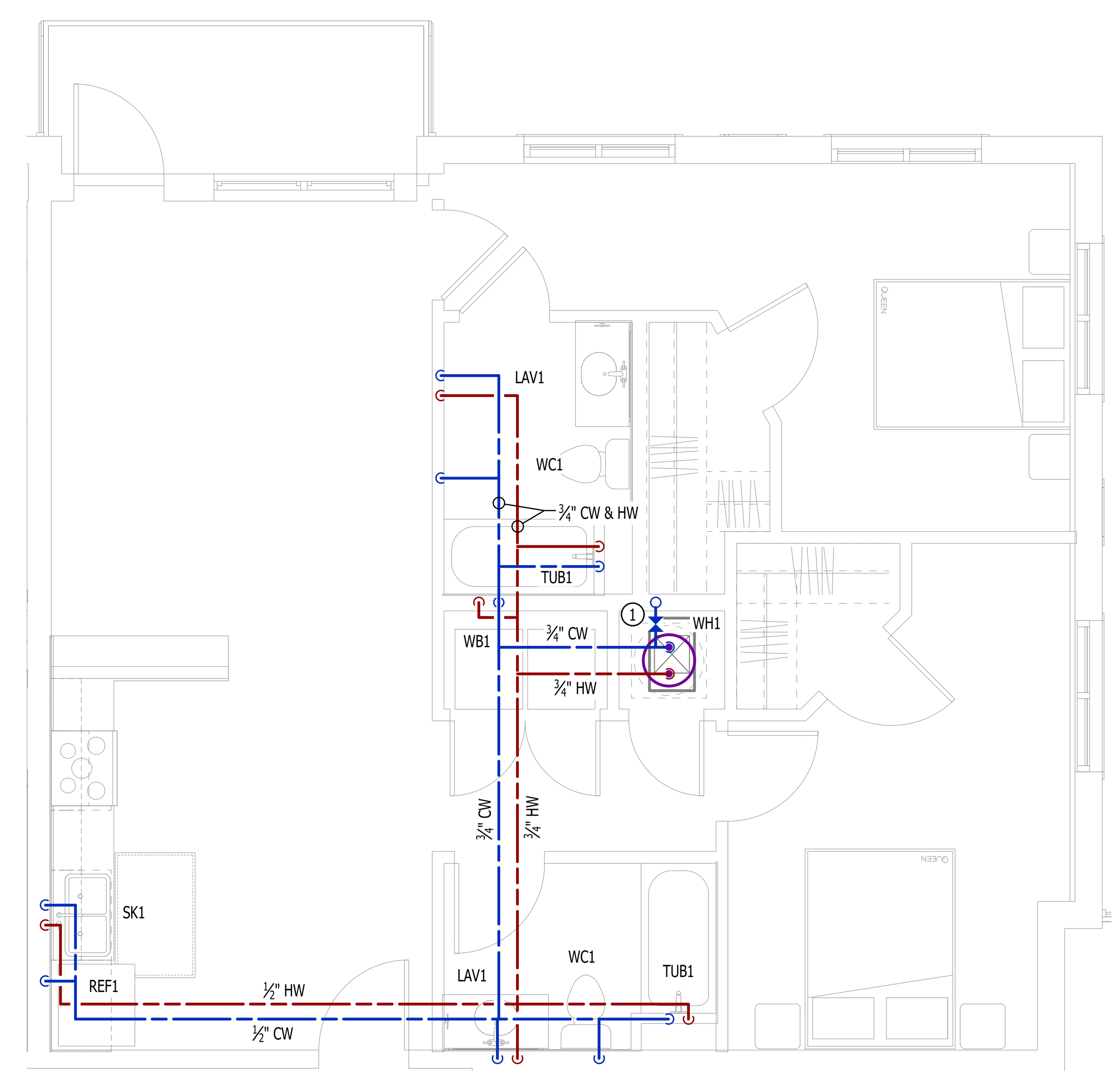
- COLD WATER LINE
- HOT WATER LINE
- VALVE
- PIPING TURNED DOWN / TURNED UP

WATER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.
2. ALL PLUMBING LOCATED ON EXTERIOR WALLS SHALL ROUTE WITHIN INSULATION BARRIER.
3. ALL DOMESTIC SUPPLY LINES SERVING MORE THAN (1) FIXTURE SHALL BE ¾" UNLESS NOTED OTHERWISE.

WATER PLAN KEY NOTES:

1 1" CW PIPE UP FROM BELOW WITH SHUT-OFF VALVE IN ACCESSIBLE LOCATION. SEE OVERALL PLUMBING PLANS FOR DETAILS.



WATER PLAN - LANA

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UNIT TYPE LANA HVAC & WATER PLAN

SHEET NUMBER

UMEP2.5.1

POWER PLAN SYMBOL LEGEND

- CIRCUIT WIRING
- PX-XX — CIRCUIT TAG
- JUNCTION BOX
- XX +42 — RECEPTACLE
  - INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
  - "WP" = WEATHERPROOF OUTDOOR RECEPTACLE
- GFCI DUPLEX CONVENIENCE RECEPTACLE
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- SD — 120V IONIZATION SMOKE 520Hz LOW FREQUENCY ALARM WITH SILENCING CAPABILITIES & LOW-VOLTAGE CONTACTS WIRED TO SHUT DOWN AHU UPON FIRE DETECTION. COORDINATE WITH HVAC CONTRACTOR. SMOKE DETECTOR MUST BE LOCATED AT LEAST 3' FROM CEILING FAN BLADES AND AT LEAST 10' FROM ANY COOKING APPLIANCE (FIELD-COORDINATE)

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POWER PLAN - LANA

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  - SWITCH TYPE
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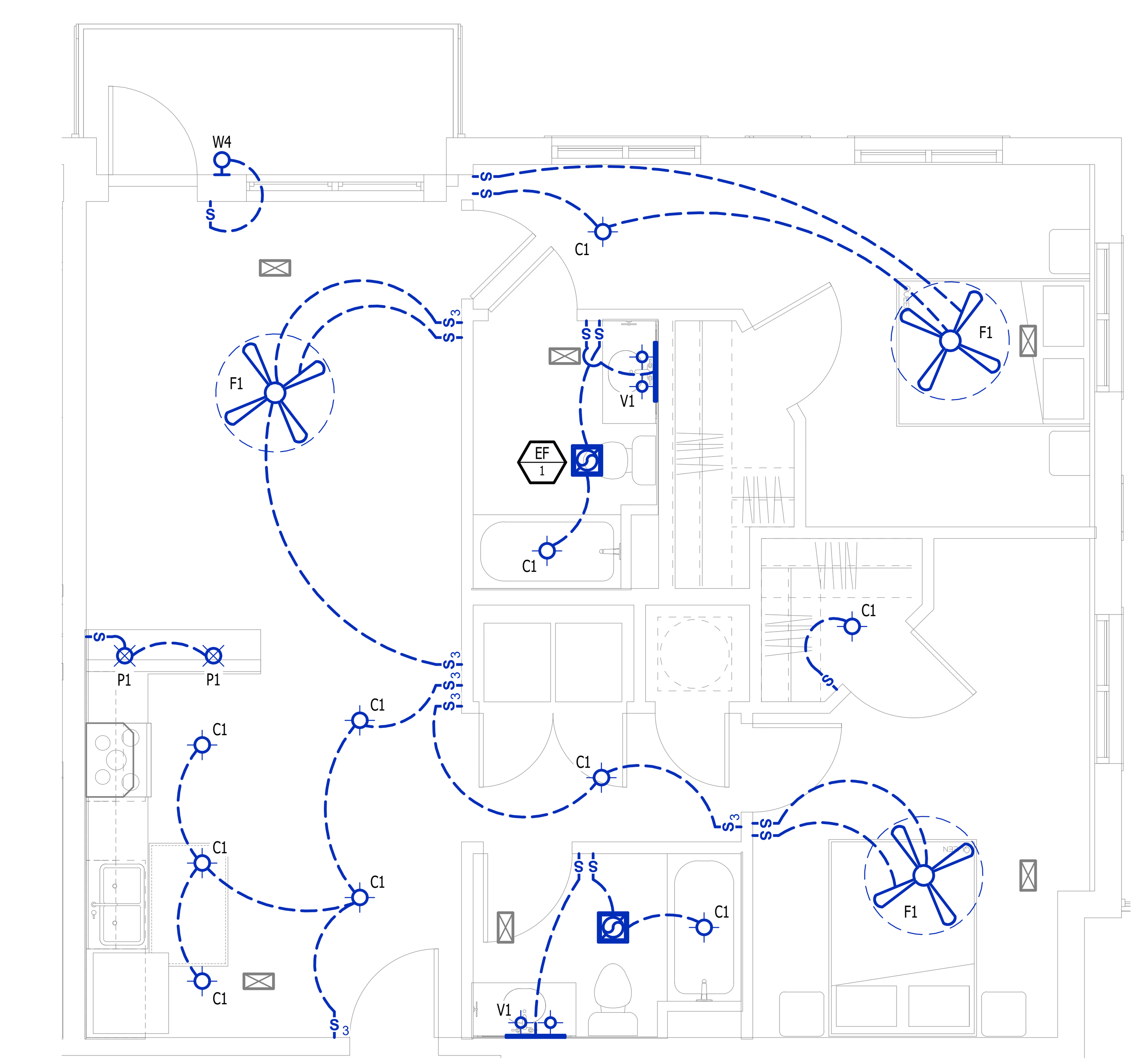

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