DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

PROJECT CERTIFICATION

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

G-001	G-201	G-213	A-105	A-303	A-406	A-506
G-001.1	G-202	G-214	A-106	A-304	A-407	A-507
G-002	G-203	G-215	A-110	A-305	A-408	A-508
G-003	G-204	G-300	A-120	A-306	A-409	A-600
G-004	G-205	G-301	A-125	A-307	A-410	A-601
G-005	G-206	G-302	A-200	A-308	A-415	A-602
G-006	G-207	G-303	A-201	A-400	A-500	A-603
G-007	G-208	AS-100	A-202	A-401	A-501	A-700
G-100	G-209	A-101	A-203	A-402	A-502	A-710
G-101	G-210	A-102	A-300	A-403	A-503	
G-102	G-211	A-103	A-301	A-404	A-504	
G-200	G-212	A-104	A-302	A-405	A-505	

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

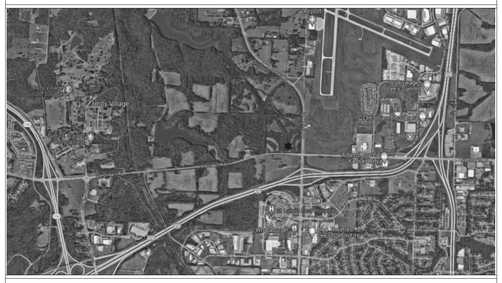
SEAL

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT

11/27/2024

David E. Hendrikse, AIA

REGIONAL MAP



VICINITY MAP

DISCOVERY PARK - LOT #9 - A

200 NE ALURA WAY

LEE'S SUMMIT, MISSOURI 64064

N

SHEET INDEX

GENERAL

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■	11/27/24	G-003	PLAN GENERAL NOTES		
■	11/27/24	G-004	GENERAL INFORMATION		
■	11/27/24	G-005	GENERAL INFORMATION		
■	11/27/24	G-006	GENERAL INFORMATION		
■	11/27/24	G-007	GENERAL INFORMATION		
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■	11/27/24	G-101	PARTITION ASSEMBLIES - WALLS		
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CIVIL UNDER SEPARATE REVIEW, REFERENCE FDP

STRUCTURAL

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■	11/27/24	S561	TYPICAL BALCONY PLANS & DETAILS - LEVEL 3		
■	11/27/24	S562	ADDITIONAL BALCONY PLANS		

ARCHITECTURAL

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■	11/27/24	A-102	SECOND FLOOR BROWNSTONES PLAN		
■	11/27/24	A-103	SECOND FLOOR PLAN		
■	11/27/24	A-104	THIRD FLOOR PLAN		
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■	11/27/24	A-106	ROOFING & FLASHING DETAILS		
■	11/27/24	A-110	ENLARGED PLAN - 1ST FLOOR GARAGE		
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■	11/27/24	A-125	CEILING DETAILS		
■	11/27/24	A-200	EXTERIOR ELEVATIONS		
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■	11/27/24	A-203	COLORED EXTERIOR ELEVATIONS		
■	11/27/24	A-300	BUILDING SECTION		
■	11/27/24	A-301	BUILDING SECTION		
■	11/27/24	A-302	BUILDING SECTIONS		
■	11/27/24	A-303	WALL SECTIONS		
■	11/27/24	A-304	WALL SECTIONS		
■	11/27/24	A-305	ELEVATOR SECTION & DETAILS		
■	11/27/24	A-306	STAIR 1 SECTION & DETAILS		
■	11/27/24	A-307	STAIR 2 SECTION & DETAILS		
■	11/27/24	A-308	FRONT CANOPY PLAN / ELEV. / SECTION / & DETAILS		
■	11/27/24	A-400	ABERDEEN (2 BR) - TYPE A		
■	11/27/24	A-401	ABERDEEN (2 BR) - TYPE B		
■	11/27/24	A-402	ADRIAN (1 BR) - TYPE B		
■	11/27/24	A-403	ADRIAN LRG (1 BR) - TYPE B		
■	11/27/24	A-404	CONWAY (1 BR) - TYPE B		
■	11/27/24	A-405	CONWAY II (1 BR) - TYPE B		
■	11/27/24	A-406	DRAKE (1 BR) - TYPE B		
■	11/27/24	A-407	LANA (2 BR) - TYPE B		
■	11/27/24	A-408	TOWNHOME (2 BR)		
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■	11/27/24	A-410	ENLARGED COMMON AREAS		
■	11/27/24	A-415	UNIT DETAILS		
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■	11/27/24	A-508	BALCONY DETAILS AT BROWNSTONES		
■	11/27/24	A-600	WINDOW / DOOR / FINISH SCHEDULES		
■	11/27/24	A-601	STOREFRONT / FACADE ELEVATIONS		
■	11/27/24	A-602	DOOR DETAILS		
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■	11/27/24	A-700	FINISH TRANSITION DETAILS		
■	11/27/24	A-710	FINISH PLANS		

SOLID FILL INDICATES INCLUSION IN ISSUE
SHEET ISSUE DATE

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

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

SHEET INDEX LEGEND

PROJECT DATA

PROJECT DESIGN INFORMATION

NEW CONSTRUCTION:

ZONING: PMIX - PLANNED MIXED USE DISTRICT

CODE:
2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL PLUMBING CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 INTERNATIONAL FUEL GAS CODE
2018 INTERNATIONAL FIRE CODE
2017 NATIONAL ELECTRIC CODE
2009 ACCESSIBILITY CODE ICC/ANSI 117-1
LEE'S SUMMIT AMENDMENTS TO THE 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 BUILDINGS
HEIGHT: 3 STORIES, 46'-0"

SQUARE FOOTAGES:

	GROSS	NET
FIRST FLOOR	22,989 S.F.	22,490 S.F.
SECOND FLOOR	18,347 S.F.	17,973 S.F.
THIRD FLOOR	18,347 S.F.	17,973 S.F.

UNIT SUMMARY: OVERALL UNIT TOTAL = **(40) UNITS**

TYPE "A" UNITS (2% OF TOTAL)	(1) UNITS - ABERDEEN "A"
HI/VI UNITS (2% OF TOTAL)	(1) UNITS - ADRIAN "HI/VI"
STANDARD UNITS	(3) UNITS - ABERDEEN (17) UNITS - ADRIAN (2) UNITS - ADRIAN - LRG (2) UNITS - CONWAY I (2) UNITS - CONWAY II (2) UNITS - DRAKE (2) UNITS - LANA (8) UNITS - BROWNSTONES
TOTAL UNITS	**(40) UNITS**

SQUARE FOOTAGE:	GROSS	NET
ABERDEEN "A"	1,338 S.F.	1,269 S.F.
ABERDEEN "B"	1,338 S.F.	1,269 S.F.
ADRIAN	832 S.F.	781 S.F.
ADRIAN - LRG	1,078 S.F.	1,021 S.F.
CONWAY	843 S.F.	786 S.F.
CONWAY II	1,024 S.F.	962 S.F.
DRAKE	903 S.F.	821 S.F.
LANA	1,082 S.F.	1,020 S.F.
BROWNSTONE 1ST	605 S.F.	549 S.F.
BROWNSTONE 2ND	619 S.F.	563 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

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PRINTS ISSUED
11/27/2024 - CITY SUBMISSION

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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

DISCOVERY PARK - LOT #9 - A

200 NE ALURA WAY
LEE'S SUMMIT, MISSOURI 64064

SHEET TITLE
TITLE SHEET

PROJECT NUMBER: 24017

SHEET NUMBER:

G-001

MECHANICAL

	Sheet Issue Date	Sheet Number	Sheet Name	Rev.	Current Revision Date
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■	11/27/24	MEP3	MEP PLAN - ROOF		
■	11/27/24	M101	HVAC PLAN - 1ST FLOOR - AREA A		
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■	11/27/24	M103	HVAC PLAN - 3RD FLOOR - AREA A		
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■	11/27/24	M112	HVAC PLAN - 2ND FLOOR - AREA B		
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■	11/27/24	M601	HVAC SCHEDULES		

ELECTRICAL

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■	11/27/24	EP102	POWER PLAN - 2ND FLOOR - AREA A		
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■	11/27/24	EL101	LIGHTING PLAN - 1ST FLOOR - AREA A		
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■	11/27/24	EL112	LIGHTING PLAN - 2ND FLOOR - AREA B		
■	11/27/24	EL113	LIGHTING PLAN - 3RD FLOOR - AREA B		
■	11/27/24	EL201	EXTERIOR BUILDING MOUNTED LIGHTING PLAN		
■	11/27/24	E501	ELECTRICAL DETAILS & SCHEDULES		
■	11/27/24	E601	ELECTRICAL SCHEDULES		
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■	11/27/24	FS102	FIRE ALARM & SECURITY PLAN - 2ND FLOOR - AREA A		
■	11/27/24	FS103	FIRE ALARM & SECURITY PLAN - 3RD FLOOR - AREA A		
■	11/27/24	FS111	FIRE ALARM & SECURITY PLAN - 1ST FLOOR - AREA B		
■	11/27/24	FS112	FIRE ALARM & SECURITY PLAN - 2ND FLOOR - AREA B		
■	11/27/24	FS113	FIRE ALARM & SECURITY PLAN - 3RD FLOOR - AREA B		

PLUMBING

	Sheet Issue Date	Sheet Number	Sheet Name	Rev.	Current Revision Date
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■	11/27/24	PS102	SANITARY SEWER PLAN - 2ND FLOOR - AREA A		
■	11/27/24	PS103	SANITARY SEWER PLAN - 3RD FLOOR - AREA A		
■	11/27/24	PS111	SANITARY SEWER PLAN - 1ST FLOOR - AREA B		
■	11/27/24	PS112	SANITARY SEWER PLAN - 2ND FLOOR - AREA B		
■	11/27/24	PS113	SANITARY SEWER PLAN - 3RD FLOOR - AREA B		
■	11/27/24	PW101	WATER& GAS PLAN - 1ST FLOOR - AREA A		
■	11/27/24	PW102	WATER& GAS PLAN - 2ND FLOOR - AREA A		
■	11/27/24	PW103	WATER& GAS PLAN - 3RD FLOOR - AREA A		
■	11/27/24	PW111	WATER& GAS PLAN - 1ST FLOOR - AREA B		
■	11/27/24	PW112	WATER& GAS PLAN - 2ND FLOOR - AREA B		
■	11/27/24	PW113	WATER& GAS PLAN - 3RD FLOOR - AREA B		
■	11/27/24	P501	PLUMBING DETAILS & SCHEDULES		

UMEP

	Sheet Issue Date	Sheet Number	Sheet Name	Rev.	Current Revision Date
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■	11/27/24	UMEP1.2	MEP PLAN - UNIT TYPE ADRIAN-B		
■	11/27/24	UMEP1.3	MEP PLAN - UNIT TYPE CONWAY-A		
■	11/27/24	UMEP1.4.1	HVAC & PLUMBING PLAN - UNIT TYPE CONWAY-B		
■	11/27/24	UMEP1.4.2	POWER & LIGHTING PLAN - UNIT TYPE CONWAY-B		
■	11/27/24	UMEP1.5.1	HVAC & PLUMBING PLAN - UNIT TYPE DRAKE		
■	11/27/24	UMEP1.5.2	POWER & LIGHTING PLAN - UNIT TYPE DRAKE		
■	11/27/24	UMEP2.1.1	HVAC & PLUMBING PLAN - UNIT TYPE LANA		
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■	11/27/24	UMEP2.2.2	POWER & LIGHTING PLAN - UNIT TYPE ABERDEEN-A		
■	11/27/24	UMEP2.3.1	HVAC & PLUMBING PLAN - UNIT TYPE ABERDEEN-B		
■	11/27/24	UMEP2.3.2	POWER & LIGHTING PLAN - UNIT TYPE ABERDEEN-B		
■	11/27/24	UMEP2.4.1	HVAC & PLUMBING PLAN - UNIT TYPE BROWNSTONE		
■	11/27/24	UMEP2.4.2	POWER & LIGHTING PLAN - UNIT TYPE BROWNSTONE		

SOLID FILL INDICATES INCLUSION IN ISSUE
SHEET ISSUE DATE

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

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

SHEET INDEX LEGEND

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
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DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
SHEET INDEX (CONT.)

PROJECT NUMBER: 24017

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 (1 / A-101 / 3) — EXTERIOR ELEVATION
ELEVATION NUMBER / SHEET NUMBER (1 / 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
ARCHITECT TO VERIFY

GENERAL NOTES

STANDARDS AND REGULATIONS

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

ADMINISTRATION OF THE WORK

1. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS AND SEQUENCES OF CONSTRUCTION.
2. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE SAFETY OF ALL CONSTRUCTION PERSONNEL AND AUTHORIZED VISITORS.
3. CONTRACTOR SHALL BECOME FULLY ACQUAINTED WITH THE CONDITIONS RELATED TO THE WORK. ANY KNOWN DISCREPANCIES BETWEEN THE DOCUMENTS AND ACTUAL CONDITIONS SHALL BE REPORTED TO THE OWNER FOR RESOLUTION PRIOR TO PROCEEDING WITH WORK RELATED TO THE DISCREPANCY.
4. CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL CONSTRUCTION AND DEMOLITION DEBRIS. CONTRACTOR SHALL OBTAIN APPROVAL OF OWNER (AND GOVERNING AUTHORITIES, IF APPLICABLE) FOR DETAILS RELATED TO REMOVAL OF TRASH, INCLUDING SUCH ISSUES AS PATH OF TRAVEL.
5. CONTRACTOR SHALL BECOME FAMILIAR WITH AND COMPLY WITH GOVERNMENT'S PROCEDURES FOR MAINTAINING A SECURE SITE AND BUILDING.
6. EACH INSTALLER SHALL EXAMINE SUBSTRATE CONDITION AND/OR SITE CONDITIONS WHICH AFFECT THE QUALITY OF EACH PRODUCT TO BE INSTALLED. IF ANY CONDITIONS EXIST WHICH WILL HAVE A DETRIMENTAL EFFECT ON THE QUALITY OF THE INSTALLATION, THE INSTALLER SHALL IMMEDIATELY NOTIFY THE CONTRACTOR. 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
11/27/2024 - CITY SUBMISSION

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STATE OF MISSOURI DAVID EUGENE HENDRIKSE NUMBER A-7365 REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
GENERAL INFORMATION

PROJECT NUMBER: 24017

SHEET NUMBER:
G-002

ROOF PLAN GENERAL NOTES

1. ALL NEW WORK TO MEET ALL APPLICABLE BUILDING, PLUMBING, MECHANICAL, HANDICAP, AND LIFE SAFETY CODES AND REQUIREMENTS.
2. 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. REFERENCE WALL SECTIONS ON A300 SHEETS FOR ALL BEARING HEIGHTS.
4. 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.
5. MEMBRANE ROOFING SYSTEM ON RIGID INSULATION, ALL ROOF LOCATIONS TYP. U.N.O.
6. 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 803.13.
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. WHERE CEILING HEIGHT IS B.O. FLOOR ASSEMBLY, FINISH TO BE LEVEL FOUR FINISH. ALL UNITS TO HAVE A LEVEL FOUR FINISH AT CEILINGS.
8. 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.
9. 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
10. ALL GYPSUM BOARD CEILINGS TO BE PAINTED (U.N.O.).
11. MISCELLANEOUS SYMBOLS INDICATED ON REFLECTED CEILING PLAN ARE MECHANICAL IN NATURE. REFER TO MEP DRAWING SHEETS FOR FURTHER CLARIFICATION FOR ITEM IDENTIFICATION AND LOCATIONS.

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. COORDINATE LOCATION WITH ARCH.

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. 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.
H. FULLY 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'.
I. MAIN LEVEL ELEVATION IS T.O. GYPCRETE, OR T.O. CONCRETE SLAB, RESPECTIVELY.
J. LEVELS ABOVE MAIN LEVEL ARE MEASURED TO T.O. SUBFLOOR.
K. WHOLE BUILDING TO MEET FAIR HOUSING ACT.
L. ALL PENETRATIONS INTO FIRE-RATED ASSEMBLIES ARE TO BE FIRESTOPPED WITH UL APPROVED FIRESTOPPING ASSEMBLIES. UL INFORMATION SHALL BE PROVIDED BY TRADE RESPONSIBLE FOR PENETRATION. REFERENCE THE G200 SERIES.
M. THROUGH PENETRATIONS NOT LOCATED WITHIN WALL CAVITY OR FLOOR/CEILING/ROOF ASSEMBLY SHALL BE REQUIRED TO HAVE FIRE RESISTIVE PENETRATION WITH A T-RATING EQUAL TO OR EXCEEDING THE ASSEMBLY THAT IS PENETRATED.
N. CONTROL JOINTS IN GWB 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.
O. PROVIDE FIREBLOCKING AND DRAFTSTOPPING AS REQUIRED AND IN ACCORDANCE WITH 2018 IBC, SECTION 718.0.
P. CONTRACTOR TO PROVIDE FIRE BLOCKING AT FIRE SEPARATION PARTITION AT 10' ON CENTER VERTICALLY, TYPICAL. CONTRACTOR TO PROVIDE FIRE BLOCKING AT FIRE SEPARATION PARTITION AT ALL BACK-TO-BACK ELECTRICAL OUTLETS.
Q. 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.
R. ALL EXTERIOR MATERIALS TO BE APPLIED PER MANUFACTURER RECOMMENDATIONS AND WITH ASSOCIATED PRODUCTS (SUCH AS STAPLES, NAILS, TAPER, SEALANT).

03 - CONCRETE

A. CONCRETE SEALANT TO BE USED ON FIRST FLOOR WHERE RECEIVING RESILIENT VINYL FLOORING.
B. AT SLAB ON GRADE 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 G300 SERIES 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.

07 - THERMAL AND MOISTURE PROTECTION

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

08 - OPENINGS

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

09 - FINISHES

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

PLAN GENERAL NOTES - (CONT.)

10 - SPECIALTIES

A. CORNER GUARDS AT COMMON SPACES, PER INTERIORS.
B. 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.
C. TOILET PAPER DISPENSER TO BE INSTALLED PER G-300 SERIES AND 2009 ICC ANSI 117.1.
D. SEE G-300 SERIES FOR SIGNAGE REQUIREMENTS. NUMBERING OF UNITS AND ROOMS SHALL BE UPDATED TO MEET AHJ AND OWNER REQUIREMENTS PRIOR TO SIGNAGE PRODUCTION.

21 - FIRE SUPPRESSION

A. 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. ALL SPRINKLERS IN BUILDING CAN BE WET. SPRINKLER LOCATIONS AND SPRINKLER EQUIP TO BE COORDINATED W/ ARCH PRIOR TO INSTALL - GC TO PROVIDE LOCATIONS OF HEADS ON RCPS FOR ARCH REVIEW PRIOR TO INSTALL. GC TO COORD FIRE SPRINKLER LINER W/ ALL MEP IN CORRIDOR SPACE TO MAINTAIN CEILING TYPE & HT. PER ARCH DWGS

22 - PLUMBING

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

23 - HVAC

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

26 - ELECTRICAL

A. SEE ELECTRICAL PLANS FOR ELECTRIC DEVICE LAYOUTS.
B. SEE G-300 SERIES FOR ELECTRICAL MOUNTING HEIGHT REQUIREMENTS.
C. PROVIDE EXIT SIGNS AT LOCATIONS AND PER **1013, IBC. -** A TACTILE SIGN STATING 'EXIT' AND COMPLYING WITH ICC A117.1 SHALL BE PROVIDED ADJACENT TO EACH DOOR TO AN AREA OF REFUGE, AN EXTERIOR AREA FOR ASSISTED RESCUE, AN EXIT STAIRWAY, AN EXIT RAMP, AN EXIT PASSAGEWAY AND THE EXIT DISCHARGE
D. PROVIDE DIMMER CAPABILITY FOR ALL COMMON AREA DECORATIVE AND DOWNLIGHTS/SPOTS (CAN LIGHTS).
E. TIMECLOCK AND PHOTOCELL FOR EXTERIOR LIGHTS. MULTIPLE ZONES MAY BE NECESSARY. INSTALL PER MANUFACTURERS RECOMMENDATIONS.
F. ALL ELECTRICAL AND IDF/MDF ROOMS TO HAVE SOLID BLOCKING TO ACCOMMODATE PANEL ATTACHMENT. BLOCKING TO BE PAINTED TO MATCH WALLS. WALLS TO REMAIN RATED AS INDICATED PER PLAN.
G. FIRE PULL STATIONS TO BE PROVIDED PER 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.

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11/27/2024 - CITY SUBMISSION

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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7395
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
PLAN GENERAL NOTES

PROJECT NUMBER: 24017

SHEET NUMBER:

G-003

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WEATHER-RESISTIVE BARRIER INSTALLATION GUIDELINES

WEATHER-RESISTIVE BARRIER INSTALLATION ON VERTICAL WALLS

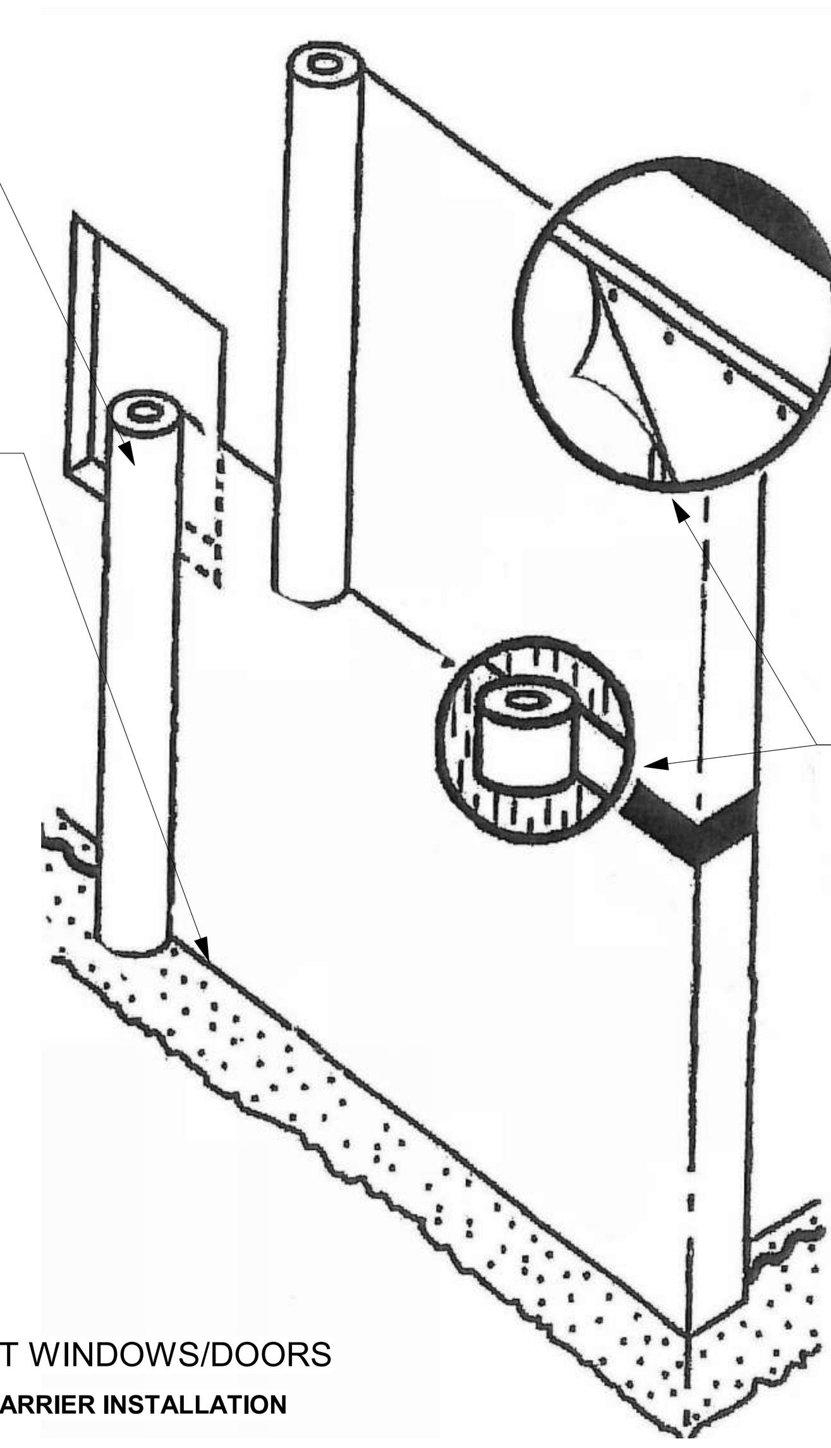
PRIOR TO INSTALLATION OF WINDOWS OR DOORS

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

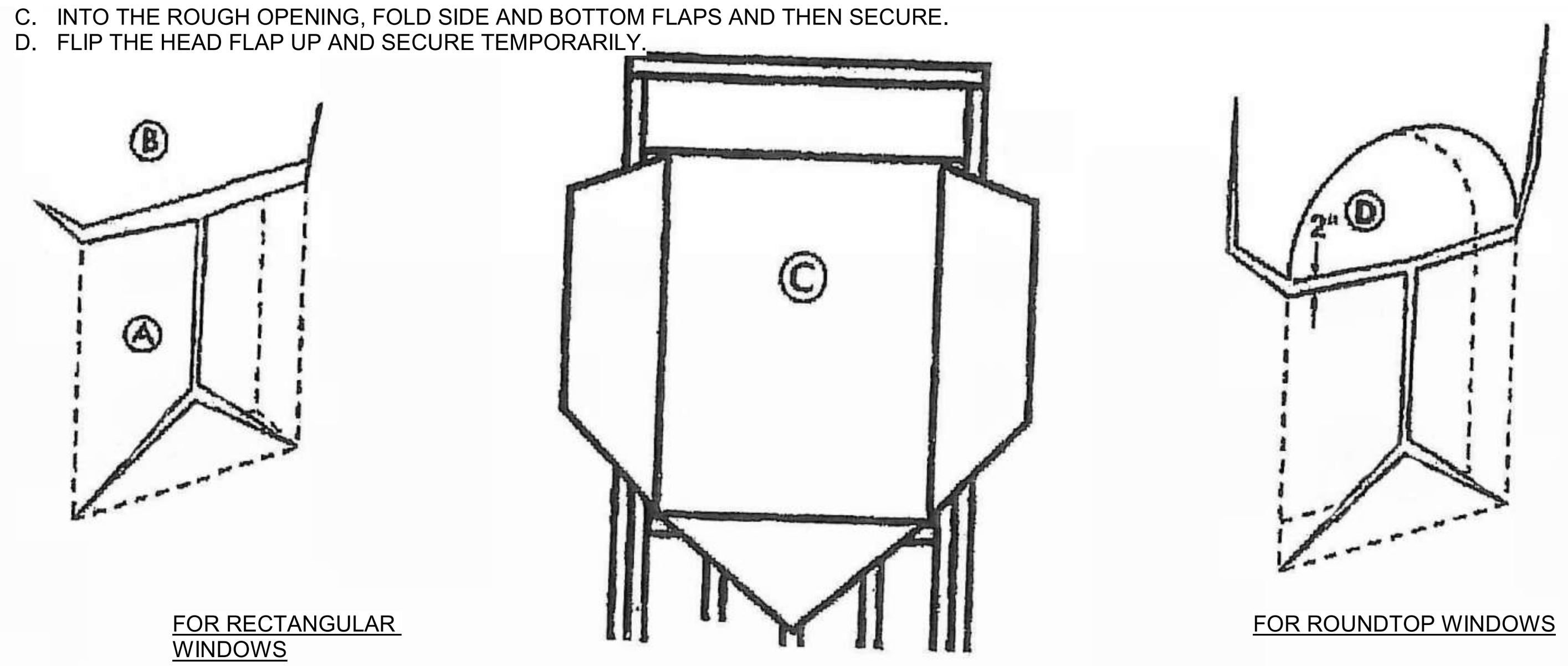
UPON COMPLETION OF WEATHER-RESISTIVE BARRIER INSTALLATION

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.

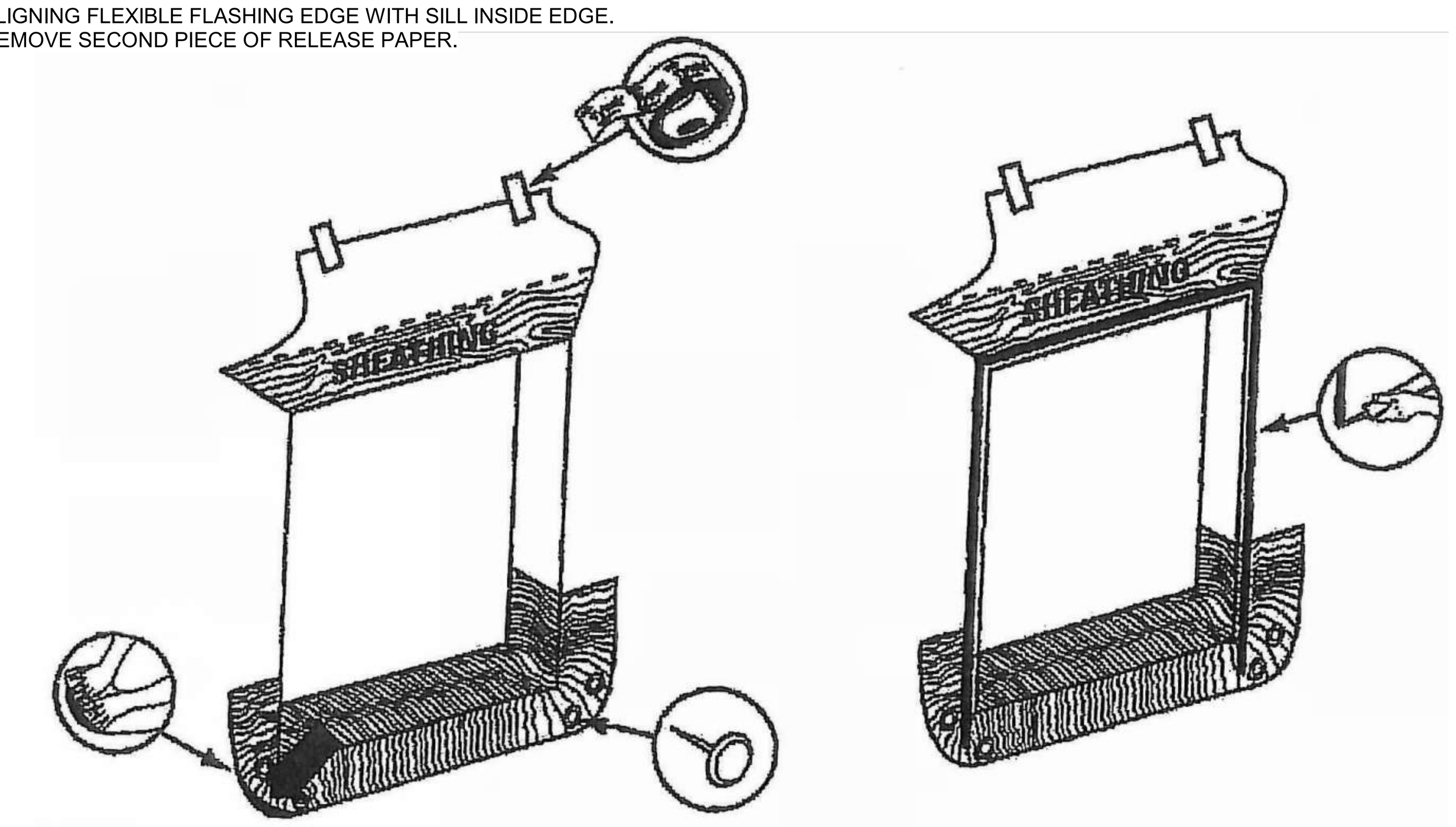


FOR RECTANGULAR WINDOWS

FOR ROUNDTOP WINDOWS

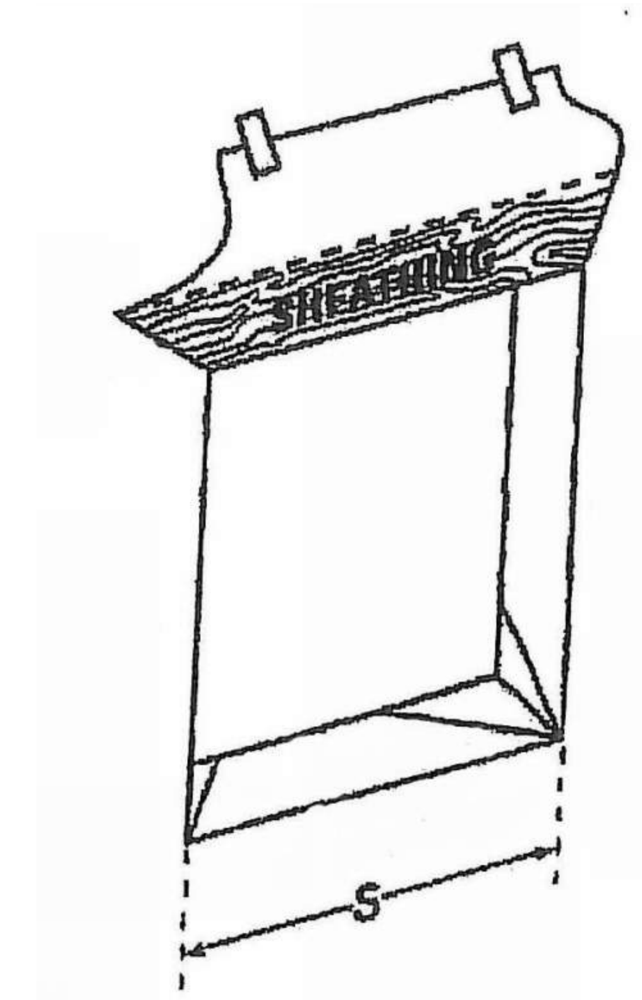
STEP 7

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.



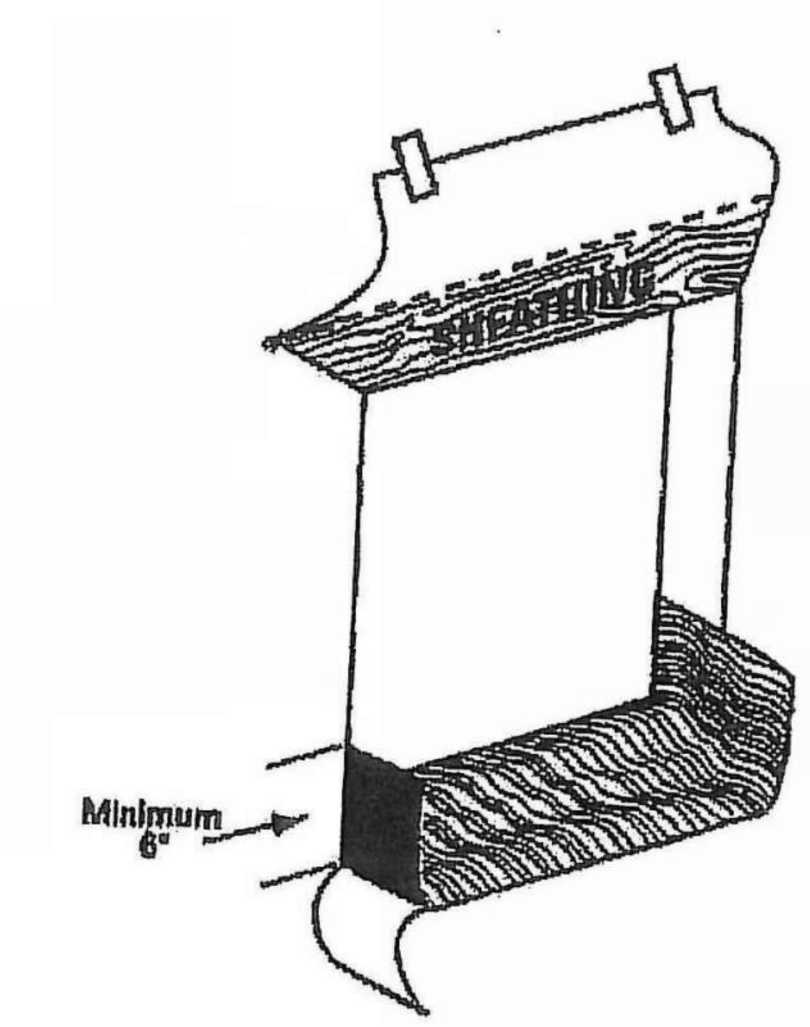
STEP 8

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.**



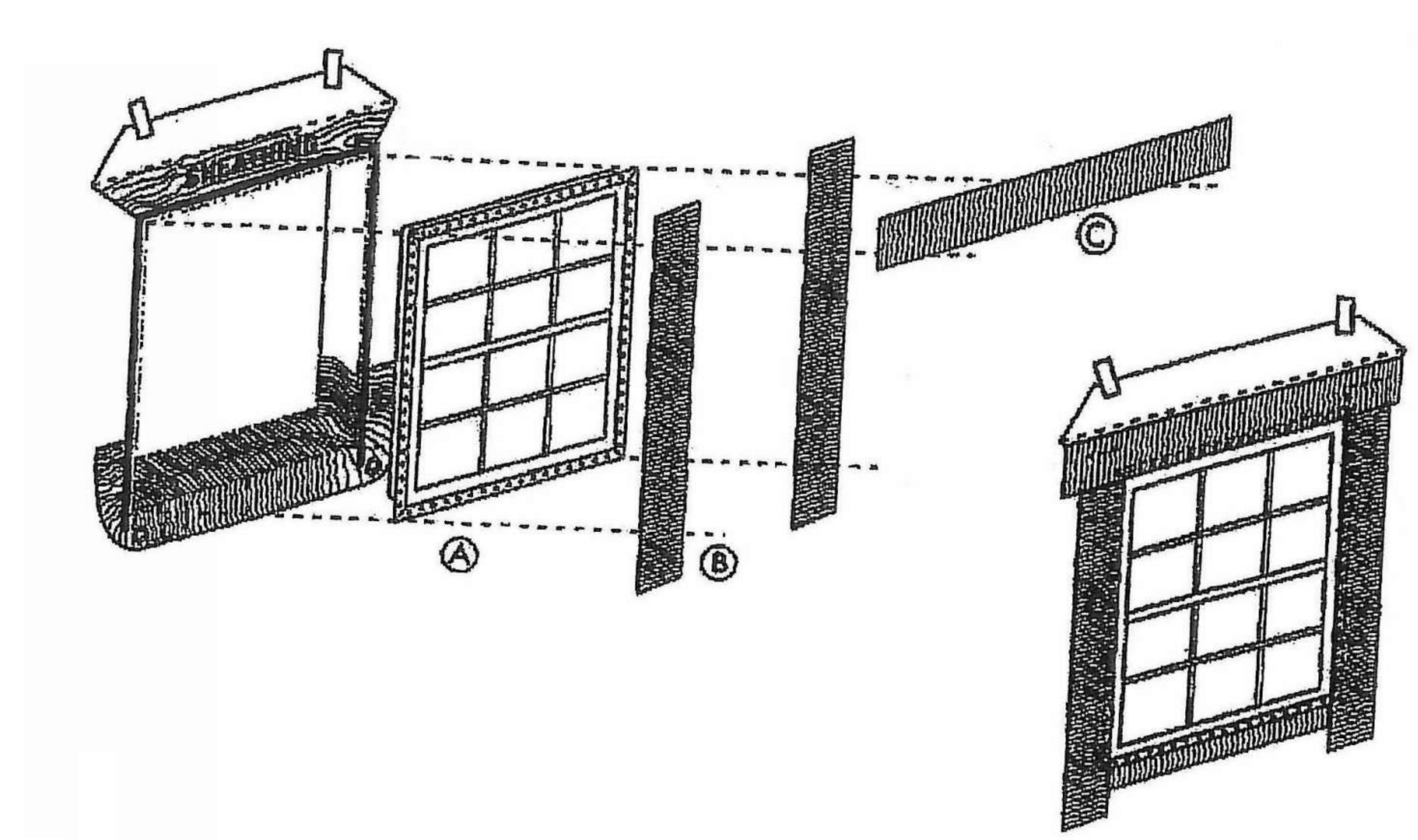
STEP 9

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.**



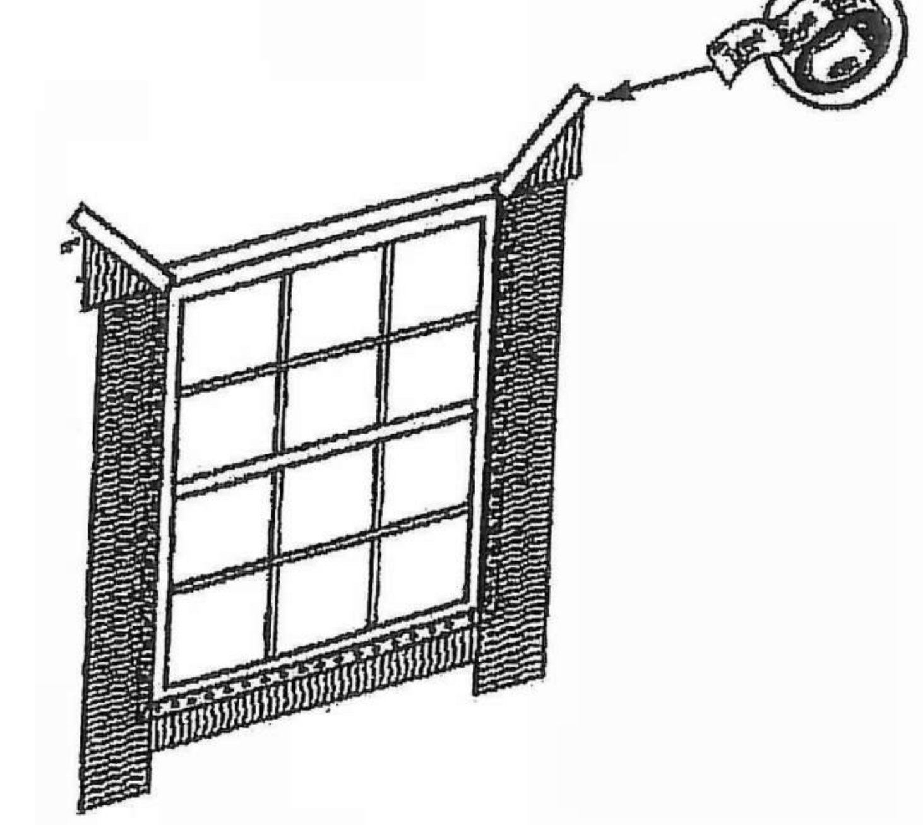
STEP 10

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)



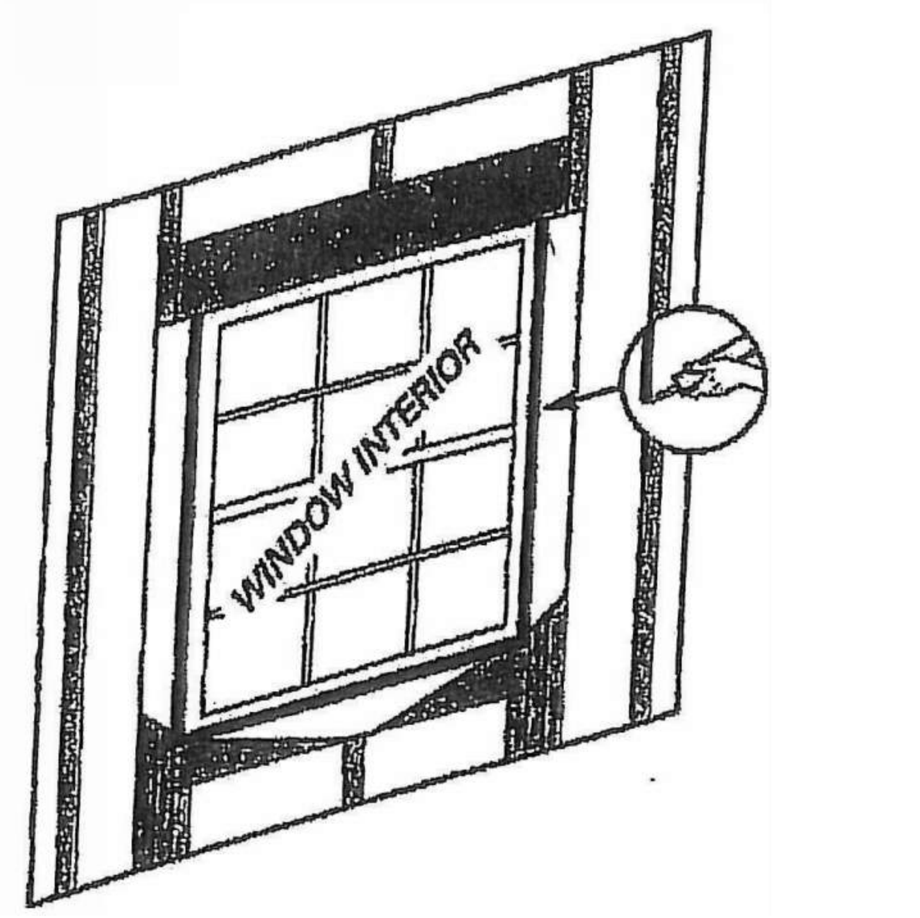
STEP 11

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 HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A

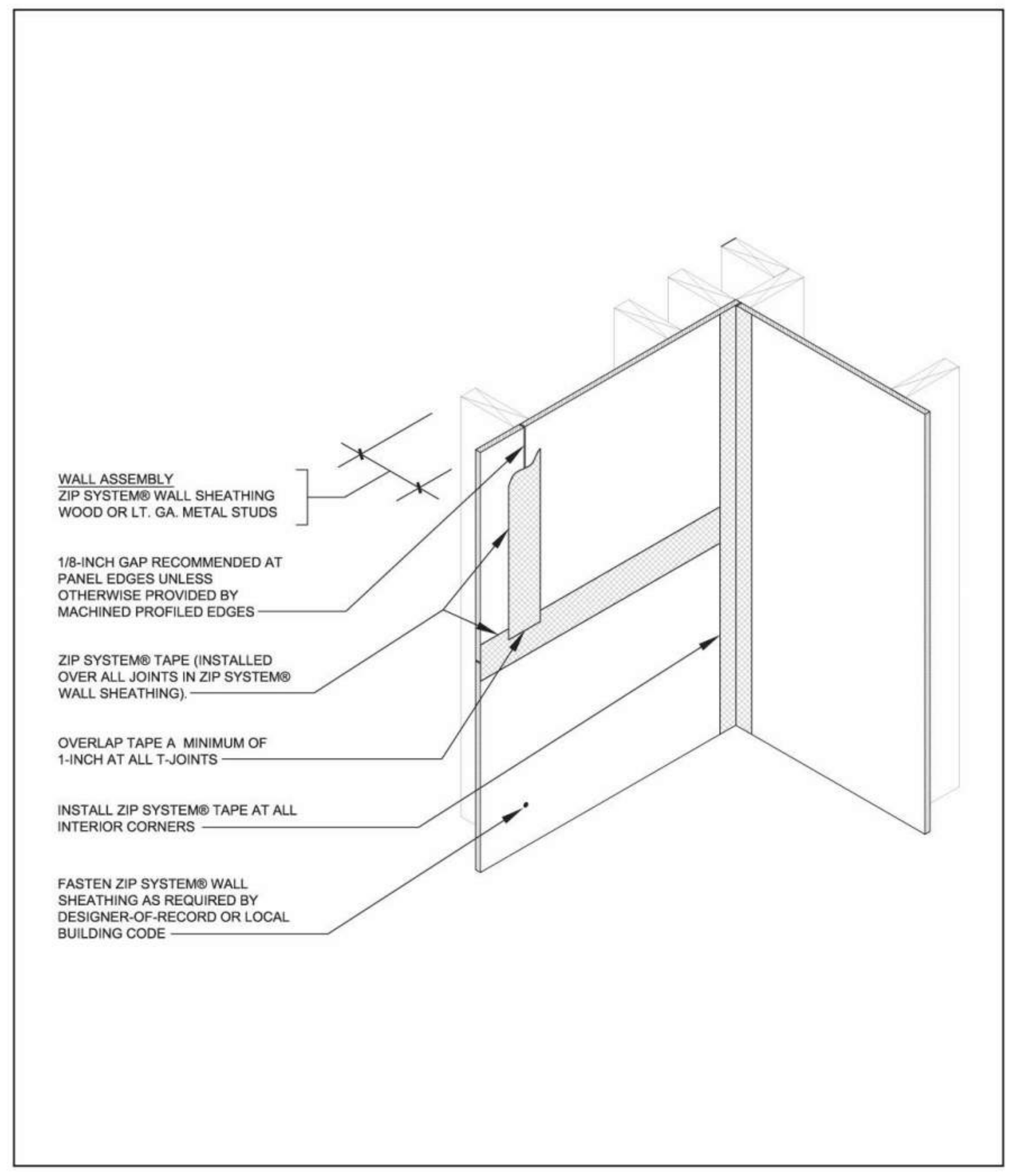
LEE'S SUMMIT, MO

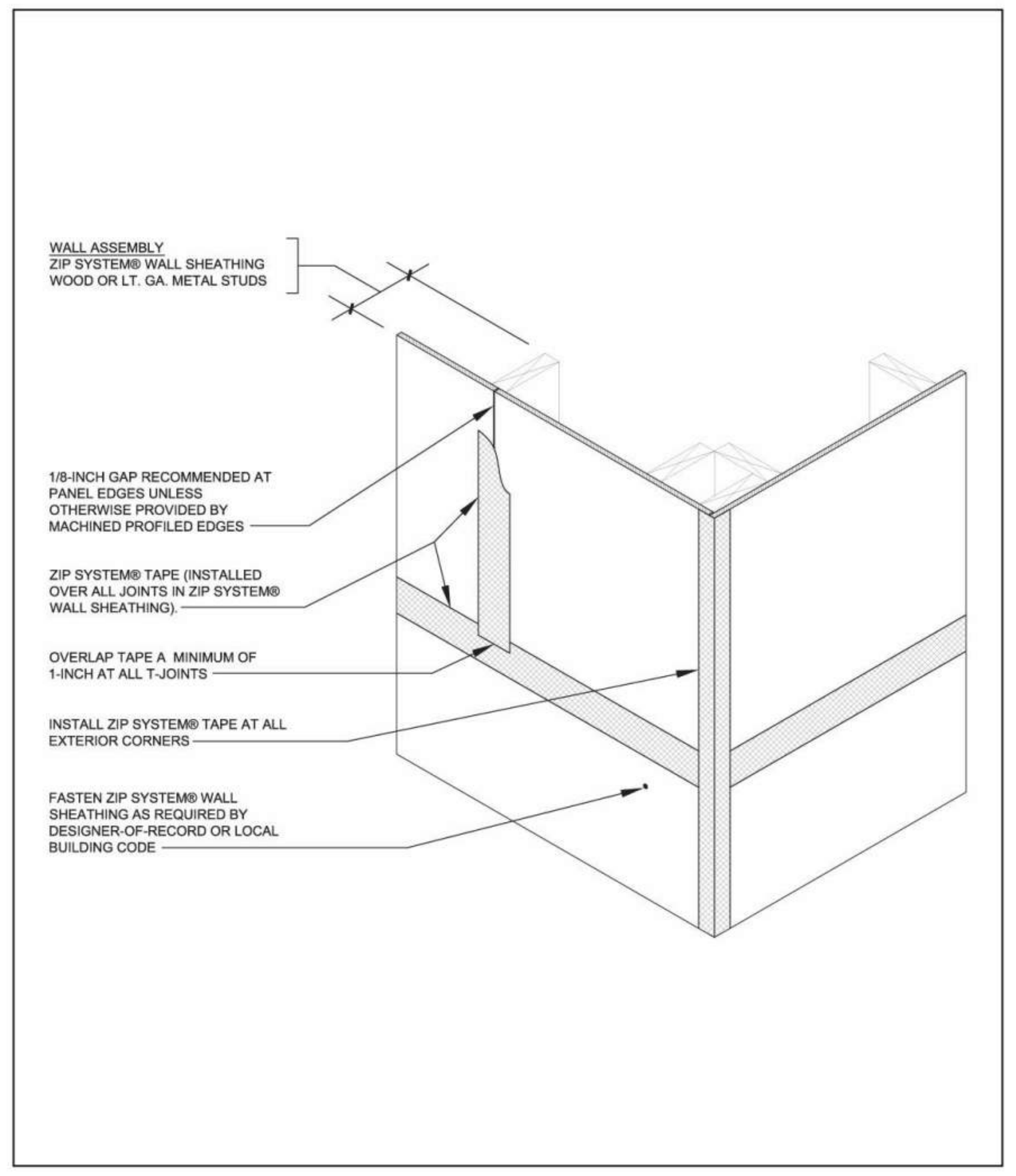
SHEET TITLE
GENERAL INFORMATION

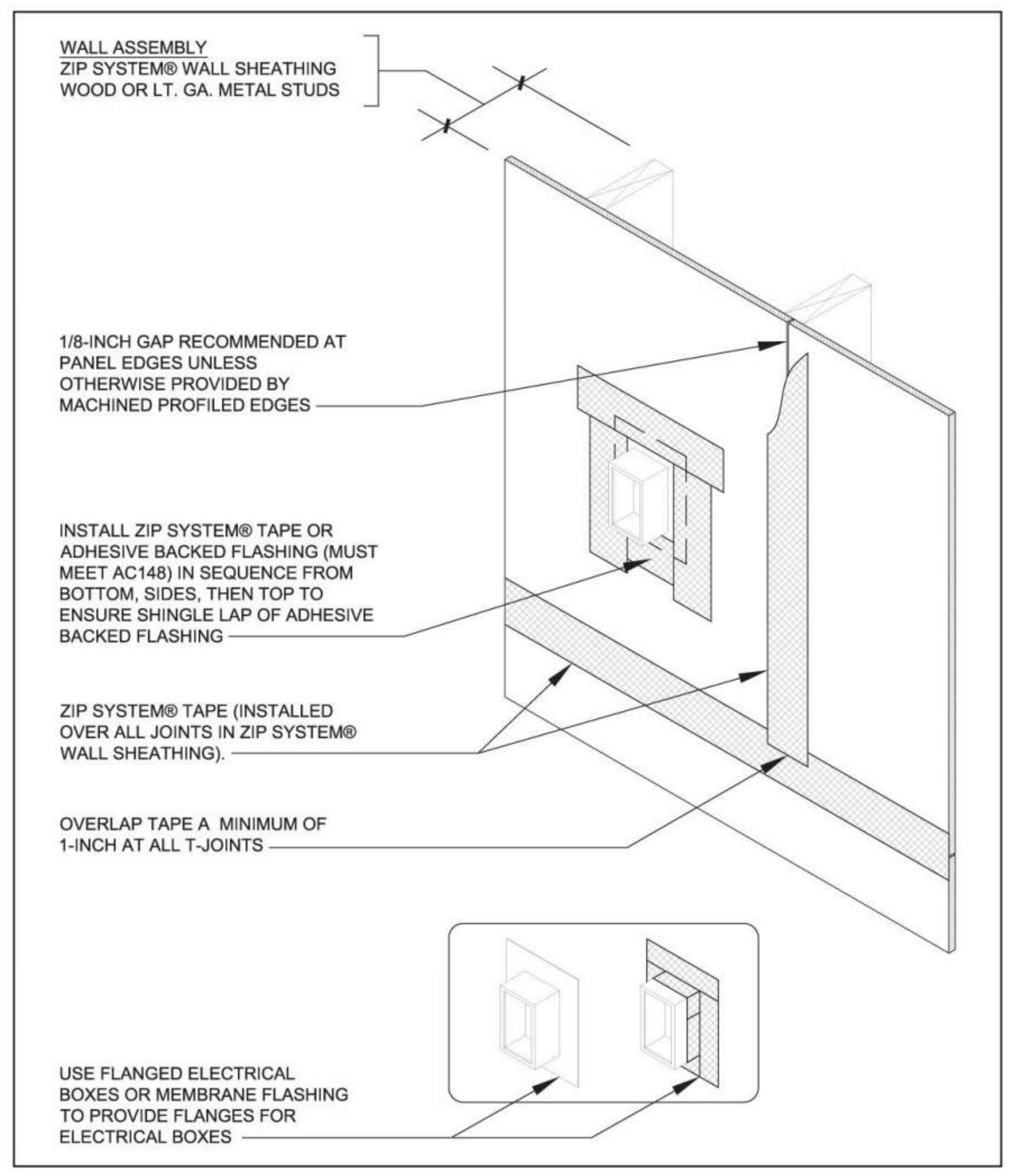
PROJECT NUMBER: 24017

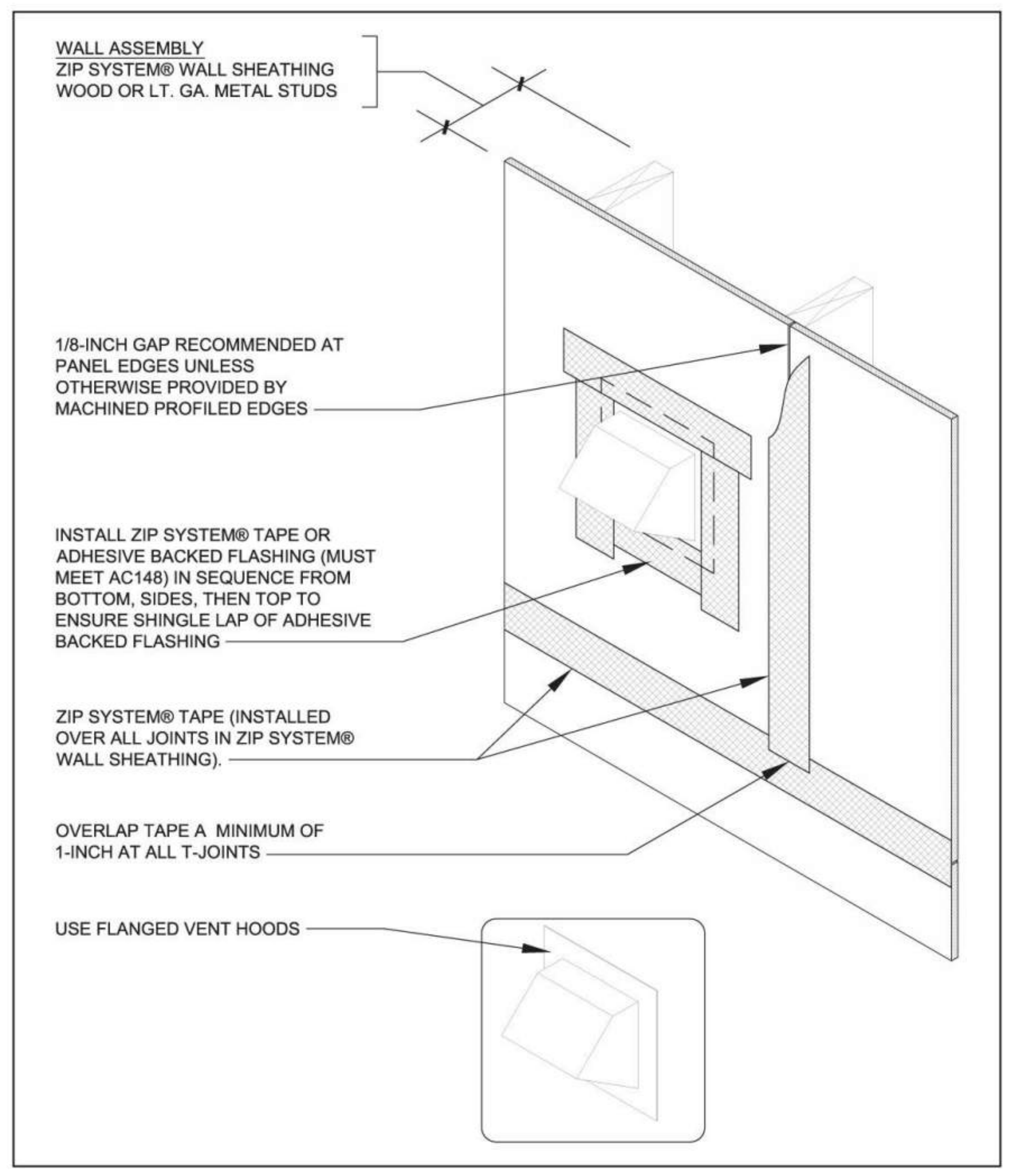
SHEET NUMBER:

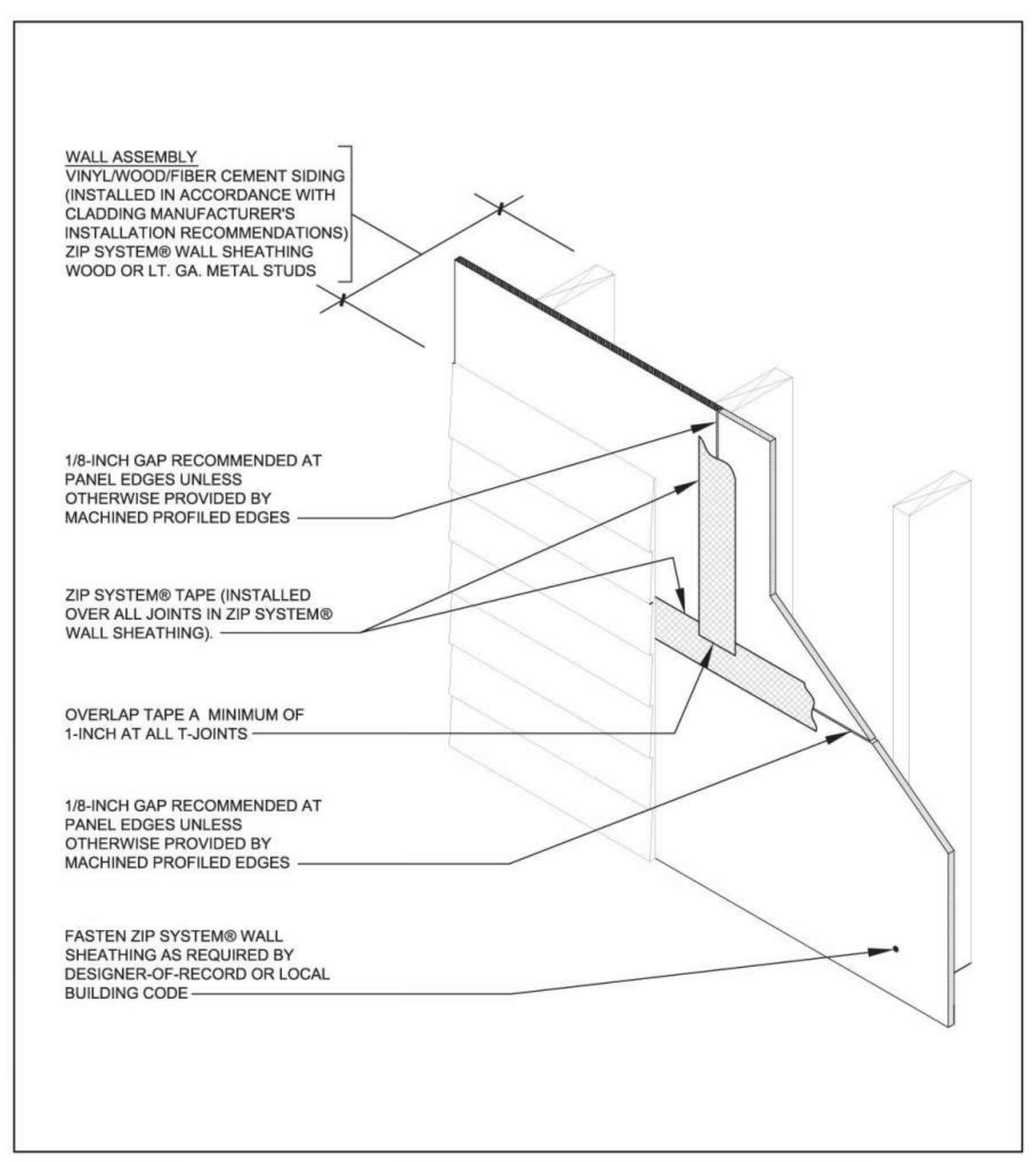
G-004

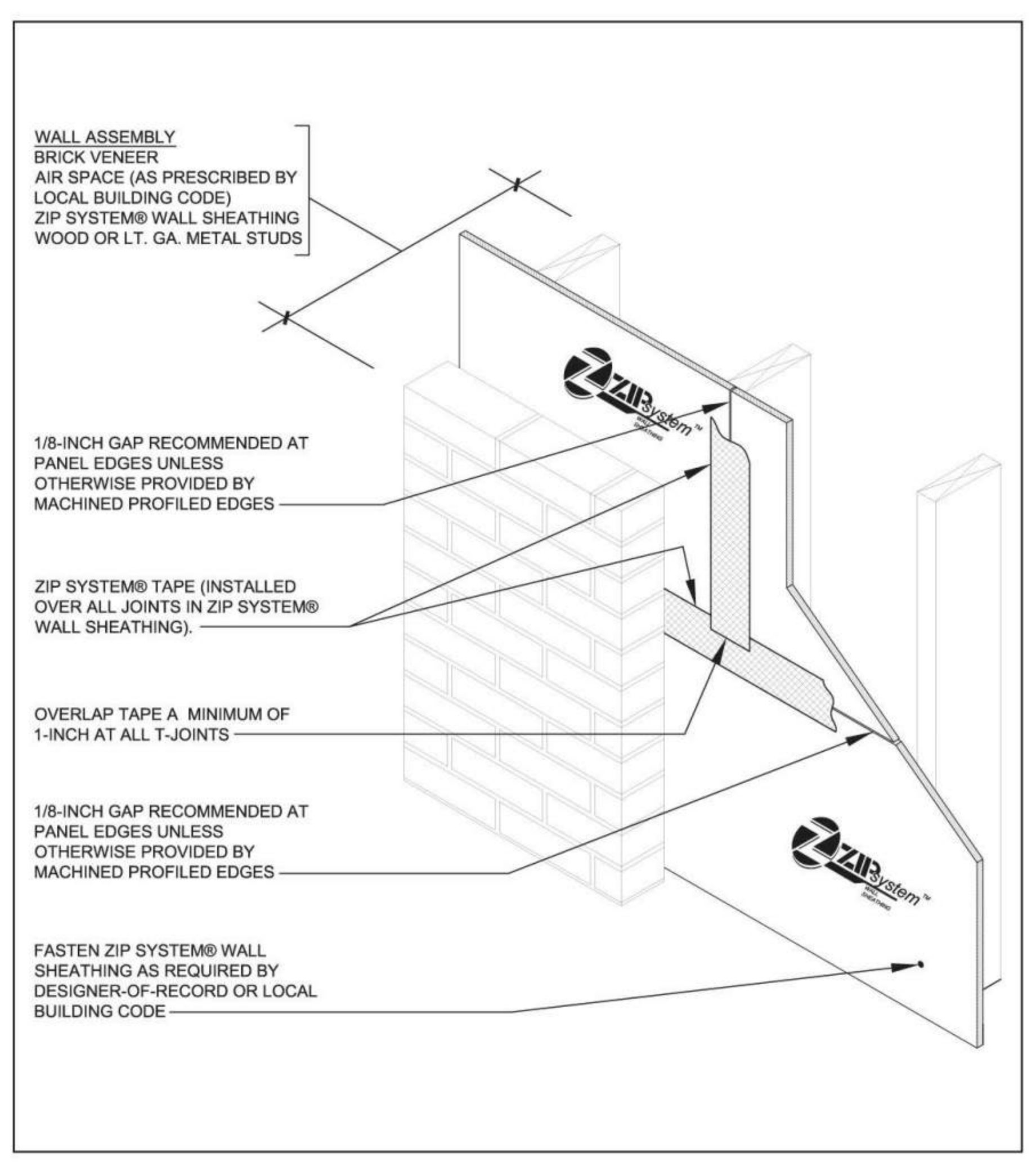












Brick Mould Windows (continued)

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.

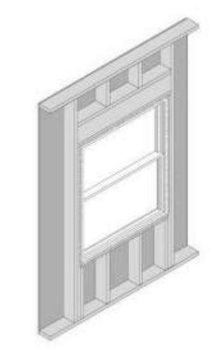
8. Secure the rigid head flashing to ZIP System wall sheathing.

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.)

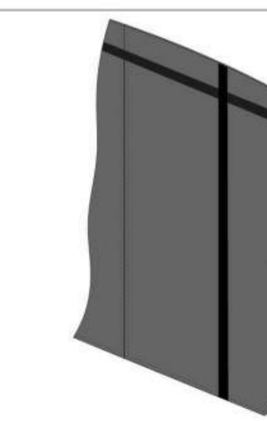
    When using ZIP System tape, butyl, silicone or polyurethane sealants are acceptable. Do not use latex sealants with ZIP System tape. If using another flashing tape, follow the flashing manufacturer's recommendation in selecting a sealant compatible with that flashing.



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.

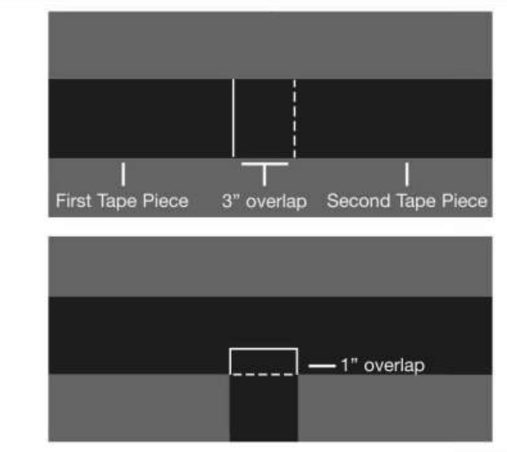


Step 2. Wherever tape splices occur at a horizontal or vertical seam, create an overlapping splice of at least 3".

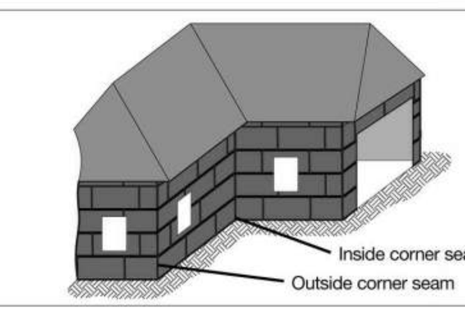
At T-joints, the tape pieces should overlap by at least 1". Apply moderate pressure onto the surface of the tape to ensure a secure bond between the panel and the tape.

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.

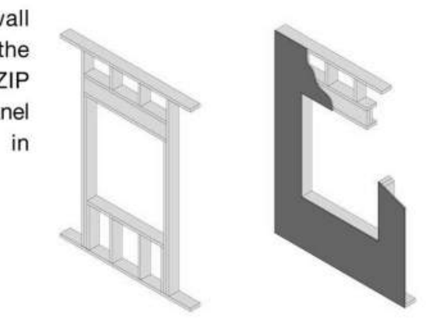


Step 3. Tape inside and outside corner seams.

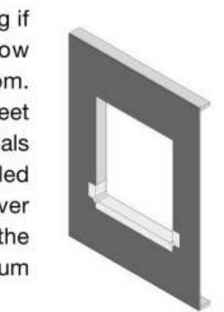


Flanged Windows

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.

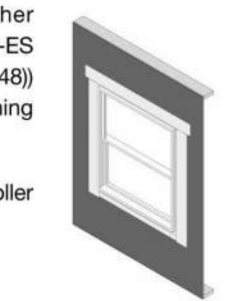
4. Cut two pieces of ZIP System tape or another adhesive-backed flashing tape (must meet ICC-ES Acceptance Criteria for Flashing Materials (AC148)) and apply to each of the window jamb flanges, ensuring the jamb flashings overlap the sill flashing.

   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.*

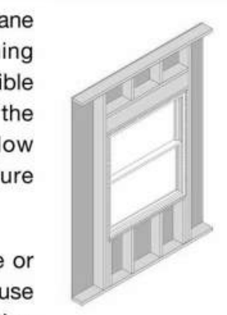
   Once the tape is in place, use the tape gun or roller to seal the flashing to the sheathing.

   *DO NOT tape bottom flange.



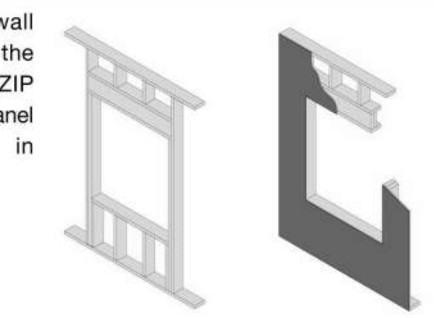
6. From the interior, apply low-pressure polyurethane foam (for windows) between the rough opening and the window frame. (Caulk sealant compatible with the sill flashing may be used at the sill if the opening between the sill flashing and window is too narrow to allow the use of low-pressure polyurethane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

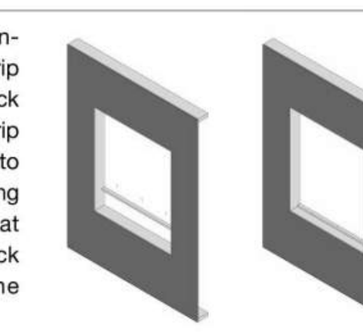


Brick Mould Windows

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



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

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7385
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
GENERAL INFORMATION

PROJECT NUMBER: 24017

SHEET NUMBER:

G-005

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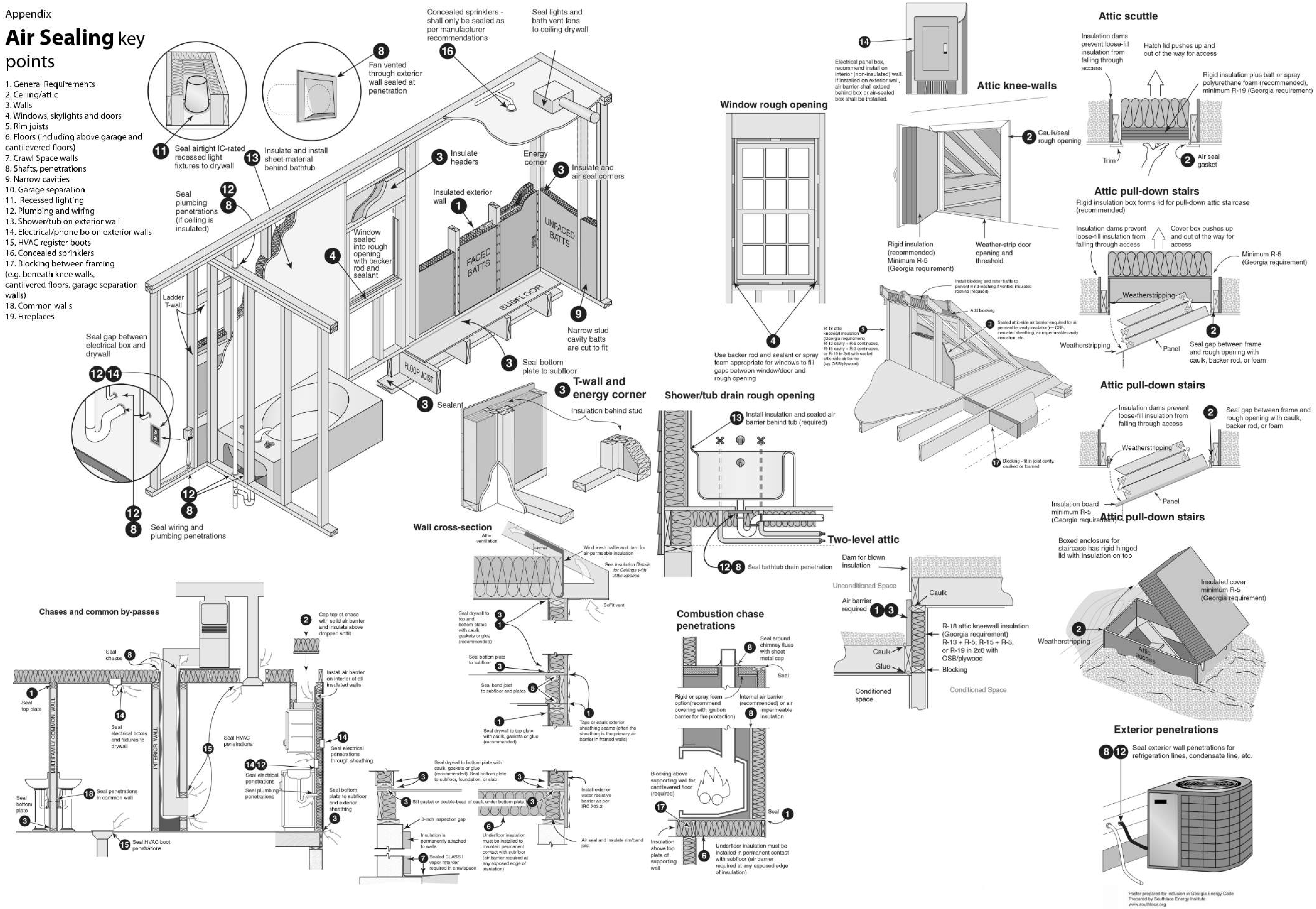

Appendix
Air Sealing key points
1. General Requirements
2. Ceiling/attic
3. Walls
4. Windows, skylights and doors
5. Rim joists
6. Floors (including above garage and cantilevered floors)
7. Crawl Space walls
8. Shafts, penetrations
9. Narrow cavities
10. Garage separation
11. Recessed lighting
12. Plumbing and wiring
13. Shower/tub on exterior wall
14. Electrical/phone bo on exterior walls
15. HVAC register boots
16. Concealed sprinklers
17. Blocking between framing (e.g. beneath knee walls, cantilevered floors, garage separation walls)
18. Common walls
19. Fireplaces
Concealed sprinklers - shall only be sealed as per manufacturer recommendations
Seal lights and bath vent fans to ceiling drywall
Fan vented through exterior wall sealed at penetration
Seal airtight IC-rated recessed light fixtures to drywall
Insulate and install sheet material behind bathtub
Insulate headers
Energy corner
Insulate and air seal corners
Insulated exterior wall
Seal plumbing penetrations (if ceiling is insulated)
Window sealed into rough opening with backer rod and sealant
FACED BATTS
UNFACED BATTS
SUBFLOOR
Ladder T-wall
Narrow stud cavity batts are cut to fit
Seal gap between electrical box and drywall
Seal bottom plate to subfloor
FLOOR JOIST
Sealant
Seal wiring and plumbing penetrations
T-wall and energy corner
Insulation behind stud
Wall cross-section
Window rough opening
Use backer rod and sealant or spray foam appropriate for windows to fill gaps between window/door and rough opening
Shower/tub drain rough opening
Install insulation and sealed air barrier behind tub (required)
Seal bathtub drain penetration
Electrical panel box, recommend install on interior (non-insulated) wall. If installed on exterior wall, air barrier shall extend behind box or air-sealed box shall be installed.
Attic knee-walls
Caulk/seal rough opening
Rigid insulation (recommended) Minimum R-5 (Georgia requirement)
Weather-strip door opening and threshold
Two-level attic
Dam for blown insulation
Unconditioned Space
Air barrier required
Caulk
Glue
R-18 attic kneewall insulation (Georgia requirement) R-13 + R-5, R-15 + R-3, or R-19 in 2x6 with OSB/plywood
Blocking
Conditioned space
Conditioned Space
Attic scuttle
Insulation dams prevent loose-fill insulation from falling through access
Hatch lid pushes up and out of the way for access
Rigid insulation plus batt or spray polyurethane foam (recommended), minimum R-19 (Georgia requirement)
Trim
Air seal gasket
Attic pull-down stairs
Rigid insulation box forms lid for pull-down attic staircase (recommended)
Insulation dams prevent loose-fill insulation from falling through access
Cover box pushes up and out of the way for access
Minimum R-5 (Georgia requirement)
Weatherstripping
Panel
Seal gap between frame and rough opening with caulk, backer rod, or foam
Attic pull-down stairs
Insulation board minimum R-5 (Georgia requirement)
Attic pull-down stairs
Boxed enclosure for staircase has rigid hinged lid with insulation on top
Insulated cover minimum R-5 (Georgia requirement)
Attic access
Chases and common by-passes
Seal chases
Seal top plate
Seal electrical boxes and fixtures to drywall
MULTIFAMILY COMMON WALL
INTERIOR WALL
Seal HVAC penetrations
Cap top of chase with solid air barrier and insulate above dropped soffit
Install air barrier on interior of all insulated walls
Seal electrical penetrations through sheathing
Seal electrical penetrations
Seal plumbing penetrations
Seal bottom plate to subfloor and exterior sheathing
Seal penetrations in common wall
Seal bottom plate
Seal HVAC boot penetrations
Combustion chase penetrations
Seal around chimney flues with sheet metal cap
Seal
Rigid or spray foam option(recommend covering with ignition barrier for fire protection)
Internal air barrier (recommended) or air impermeable insulation
Blocking above supporting wall for cantilevered floor (required)
Insulation above top plate of supporting wall
Underfloor insulation must be installed in permanent contact with subfloor (air barrier required at any exposed edge of insulation)
Exterior penetrations
Seal exterior wall penetrations for refrigeration lines, condensate line, etc.

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DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
GENERAL INFORMATION

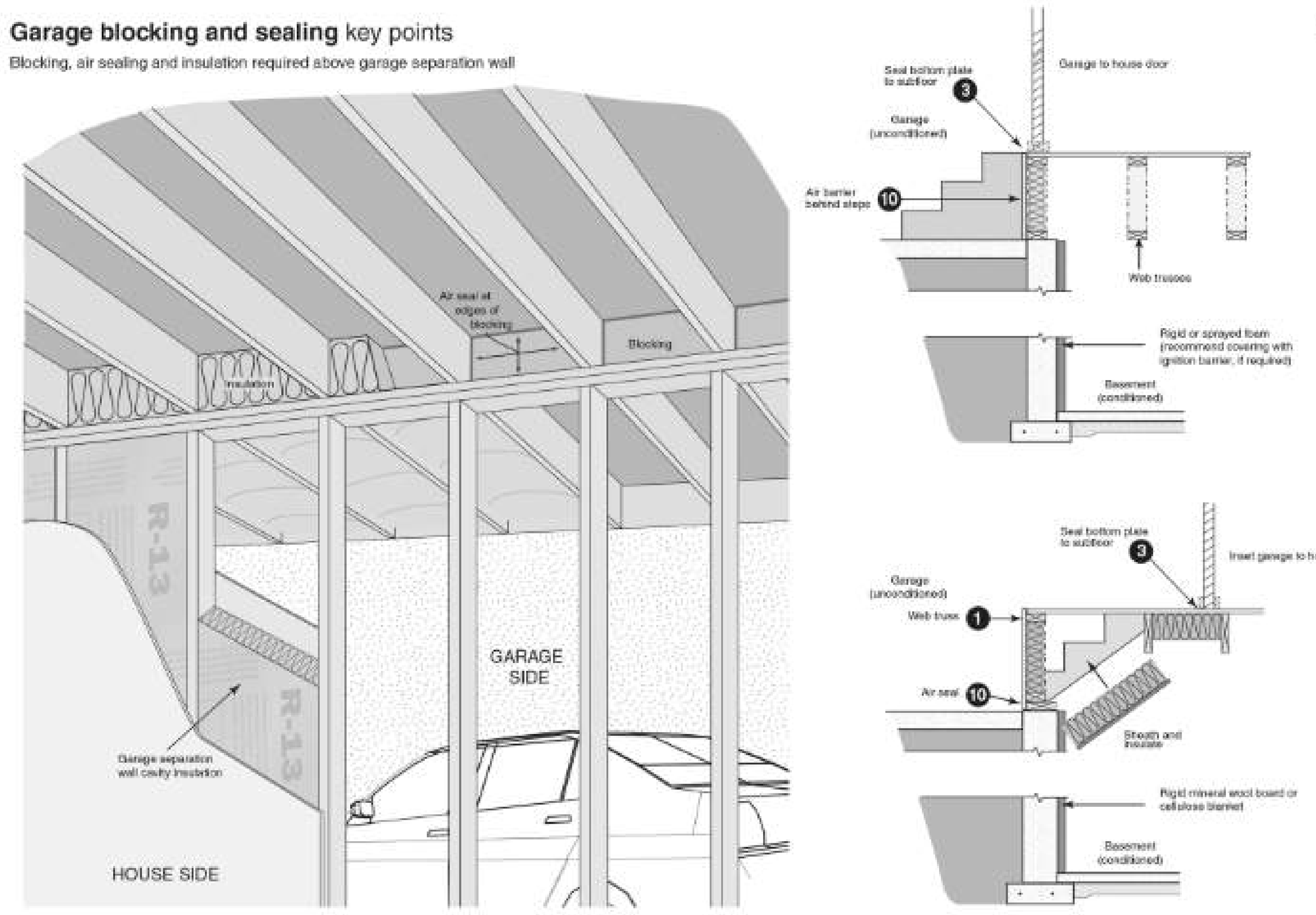
PROJECT NUMBER: 24017

SHEET NUMBER:

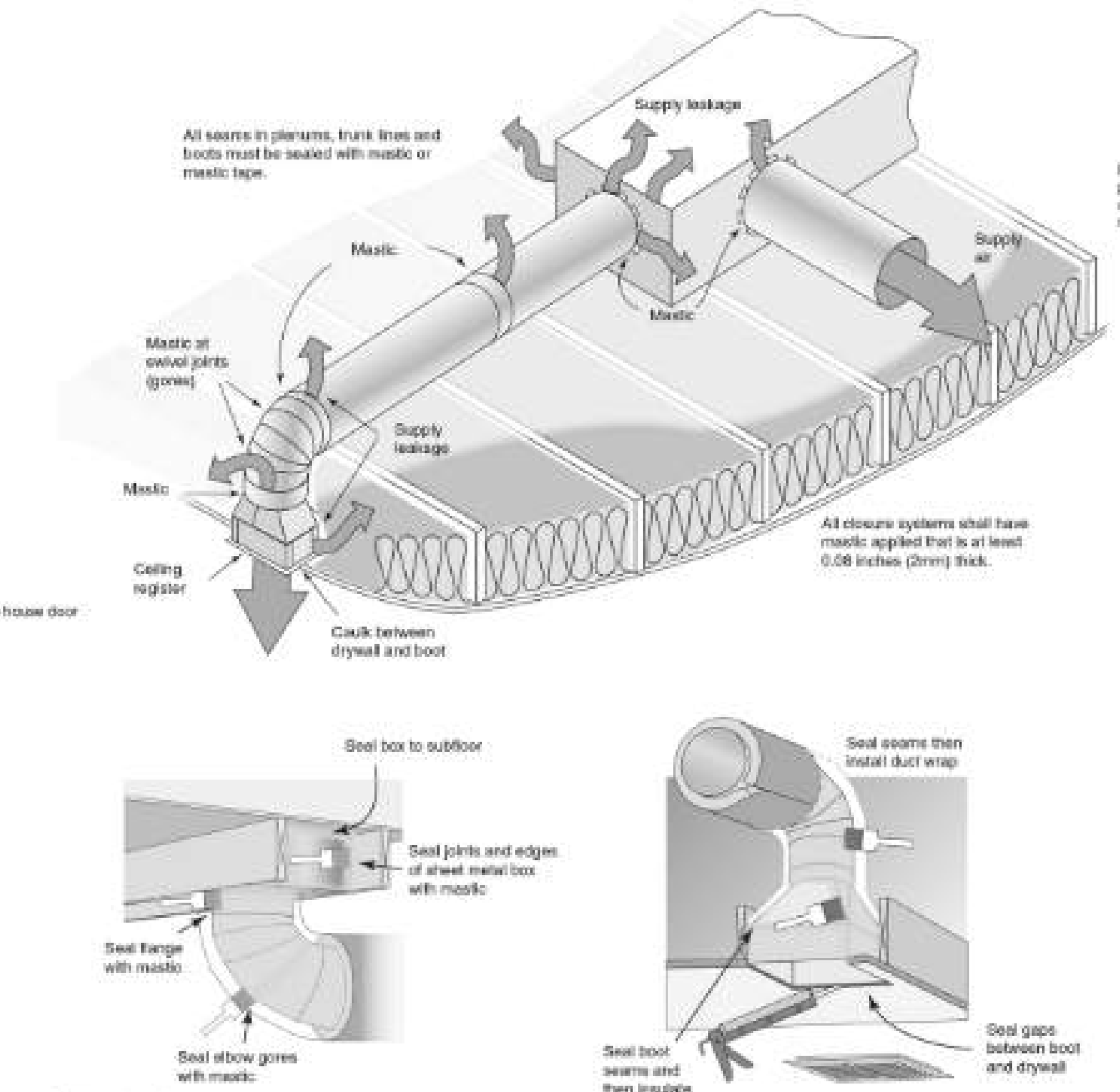
G-006

Garage blocking and sealing key points

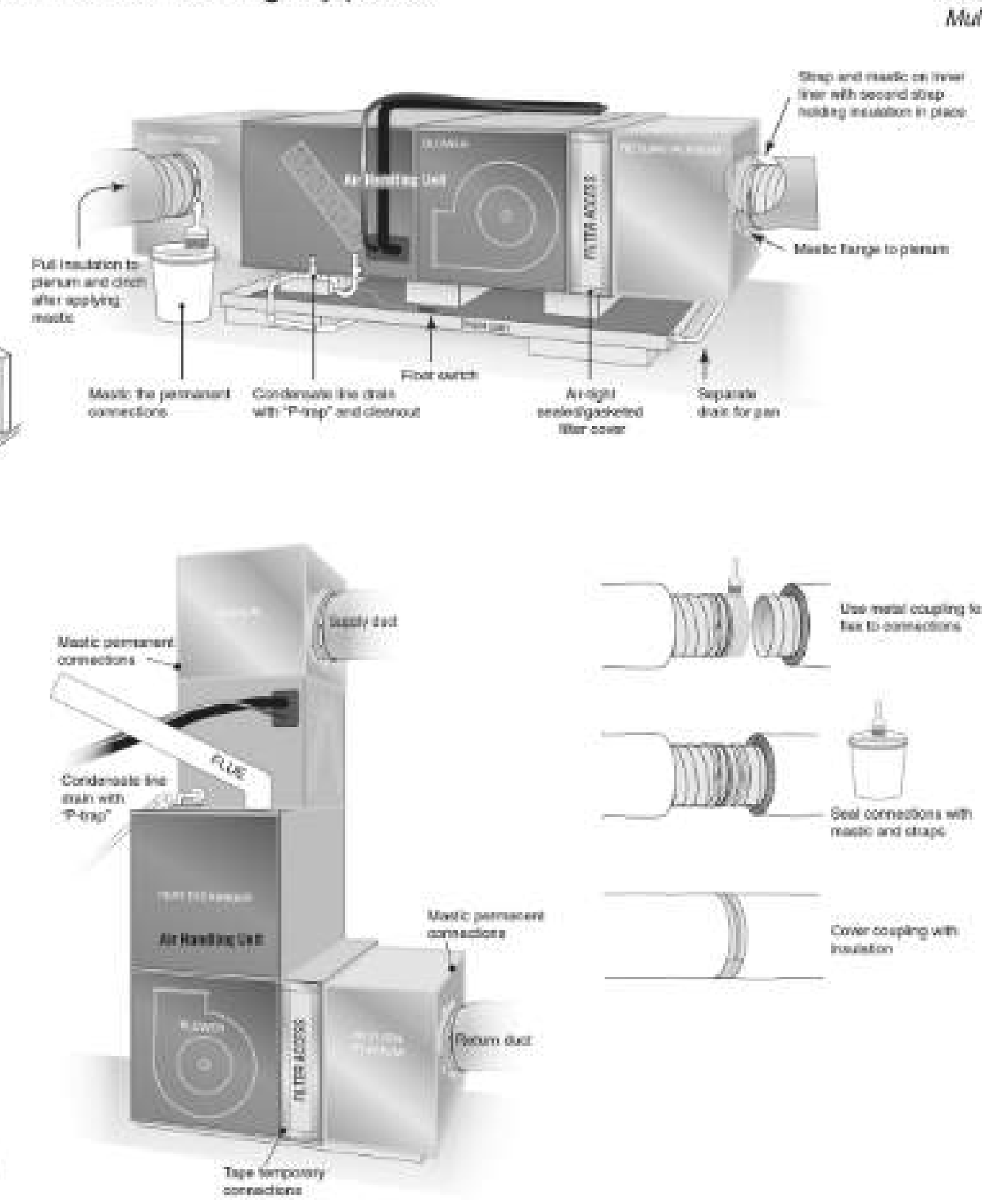
Blocking, air sealing and insulation required above garage separation wall



Duct Sealing key points

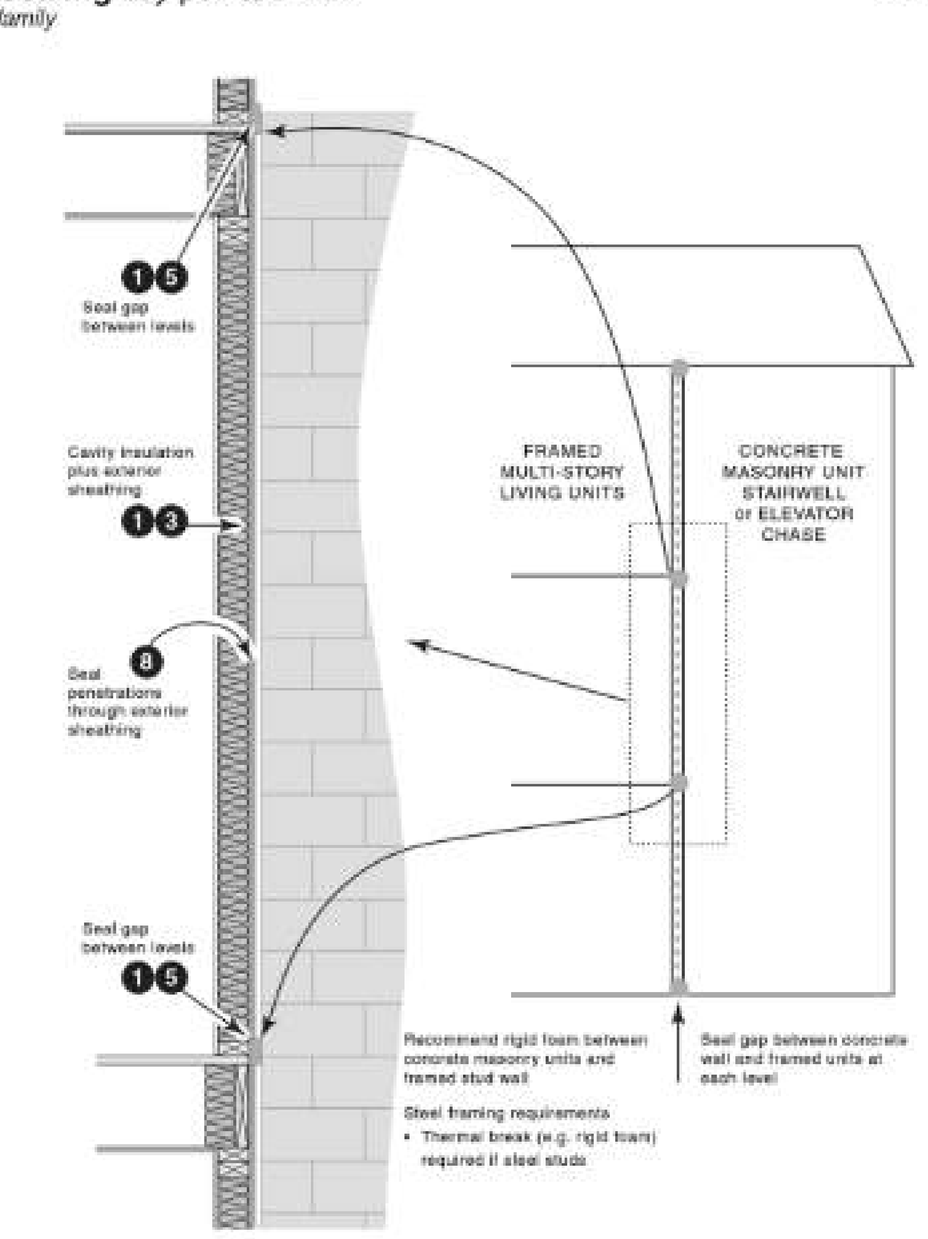


Air Handler Sealing key points

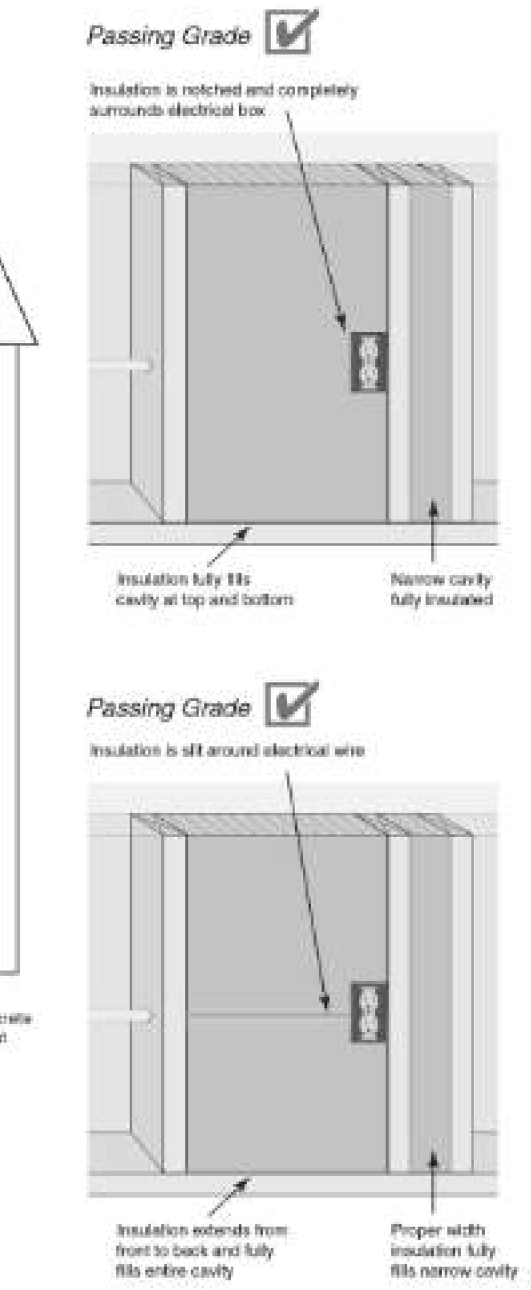


Air sealing key points *continued*

Multifamily

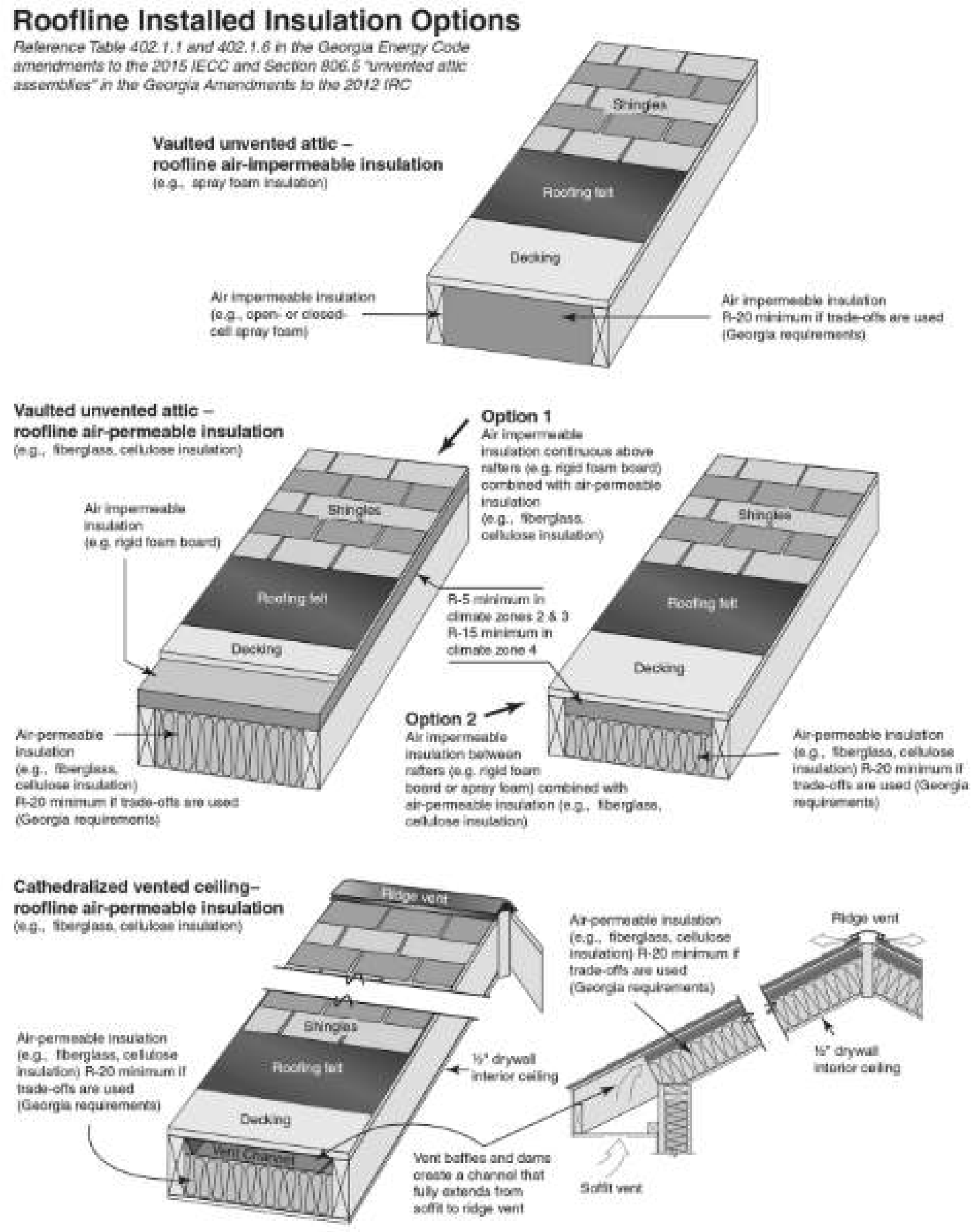


Wall Insulation key points



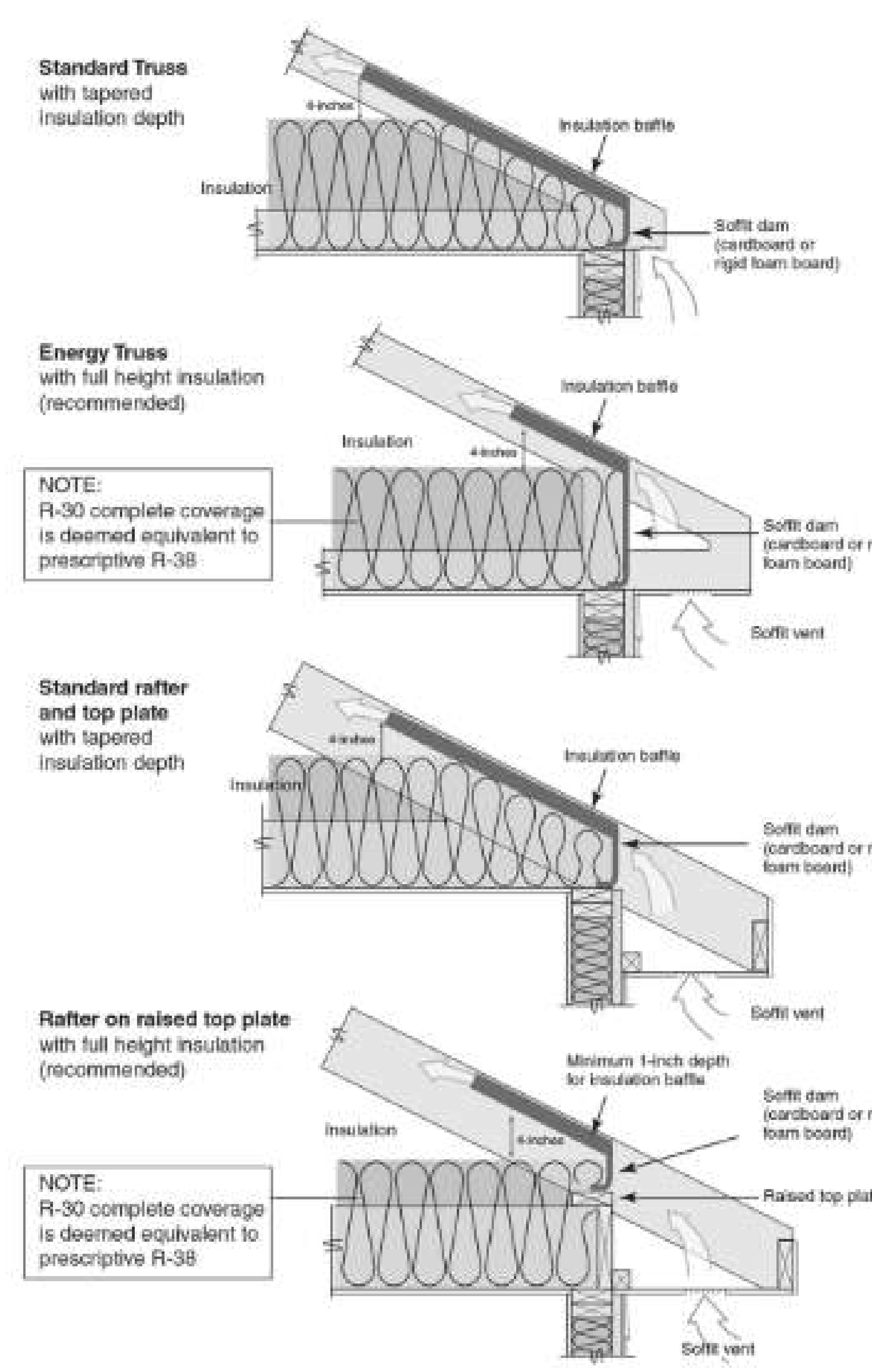
Roofline Installed Insulation Options

Reference Table 402.1.1 and 402.1.6 in the Georgia Energy Code amendments to the 2015 IECC and Section 806.5 "unvented attic assemblies" in the Georgia Amendments to the 2012 IRC



Insulation Details for Ceilings with Attic spaces

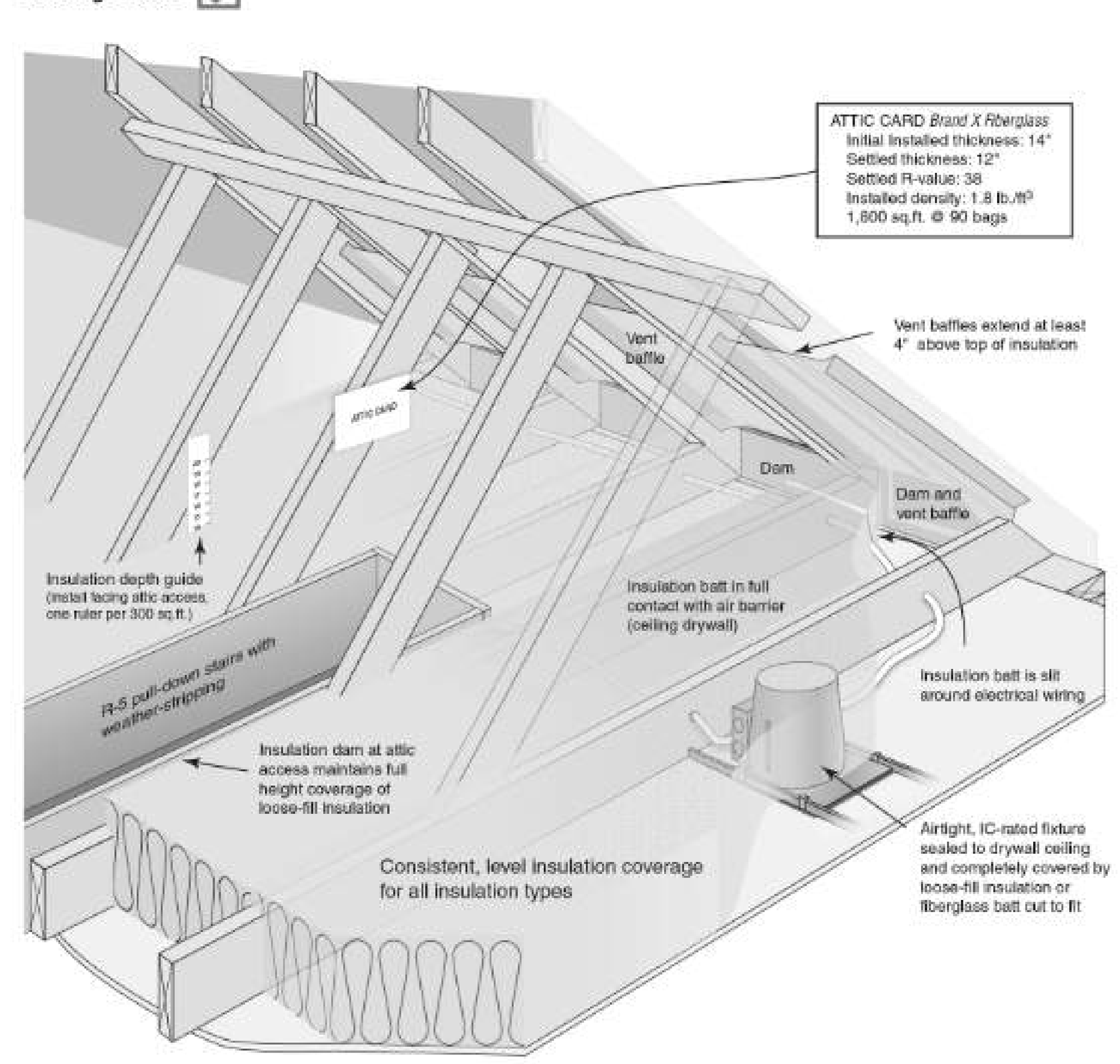
Rafter and Truss



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.

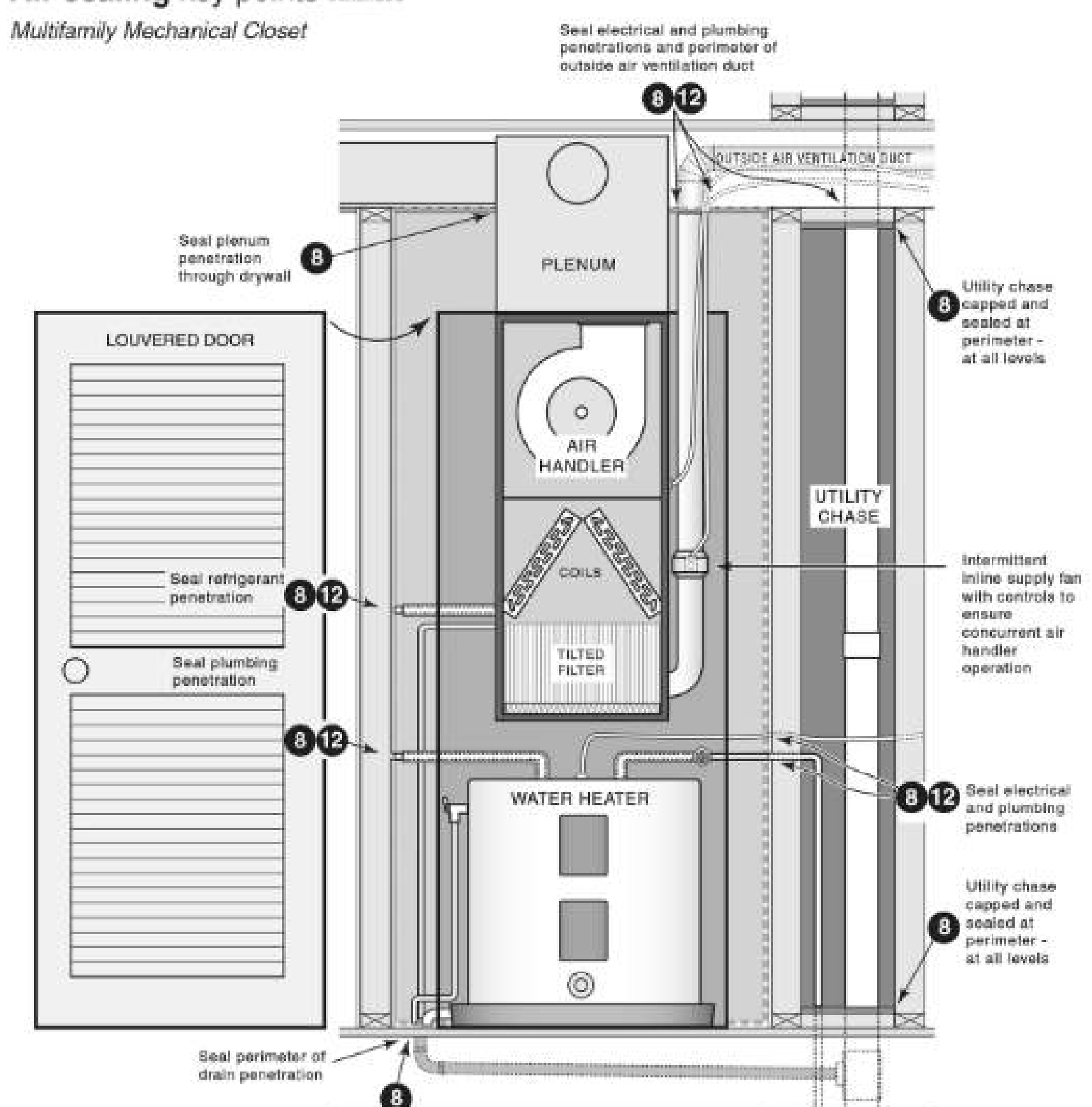
Ceiling Insulation key points

Passing Grade



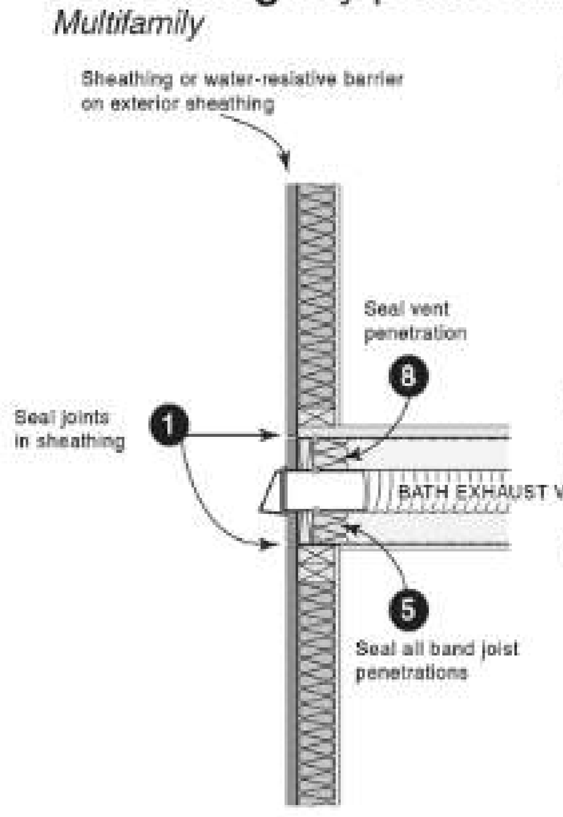
Air sealing key points *continued*

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)

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

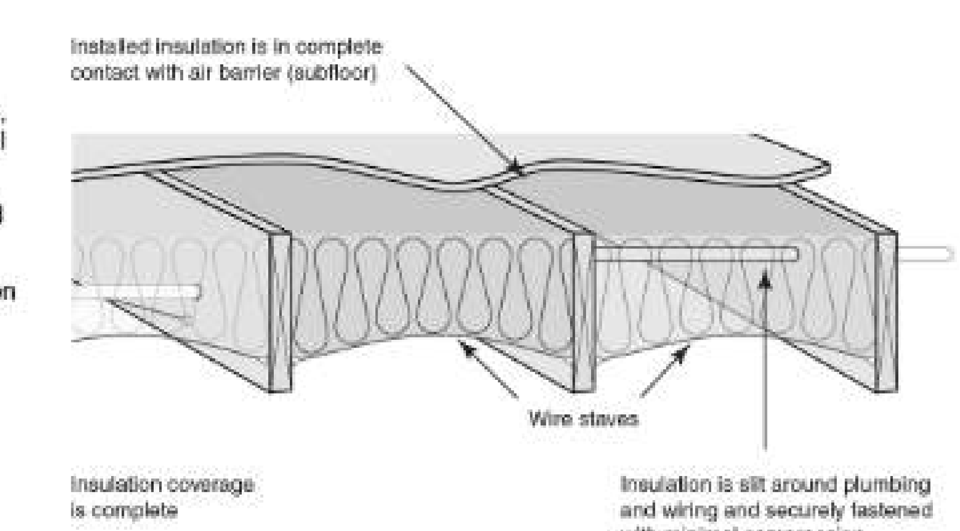
- Voids or gaps in the insulation are minimal for Passing Grade (< 2% of overall component surface area)

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



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DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
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SHEET NUMBER:

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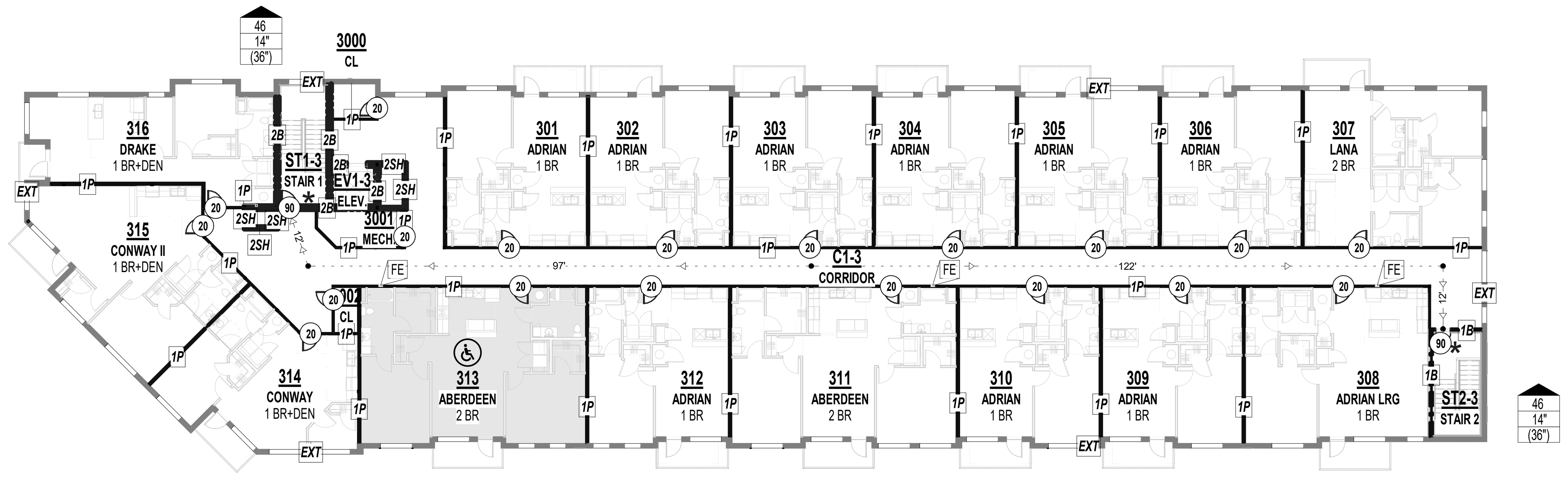
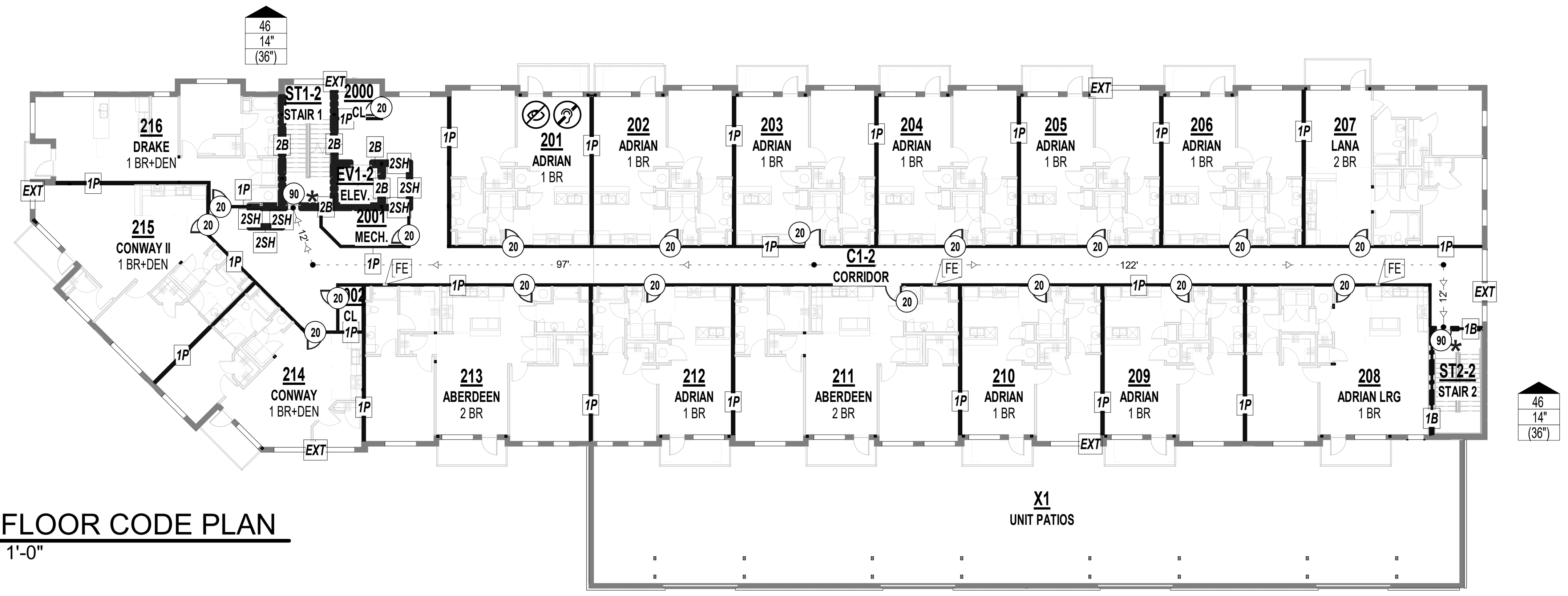
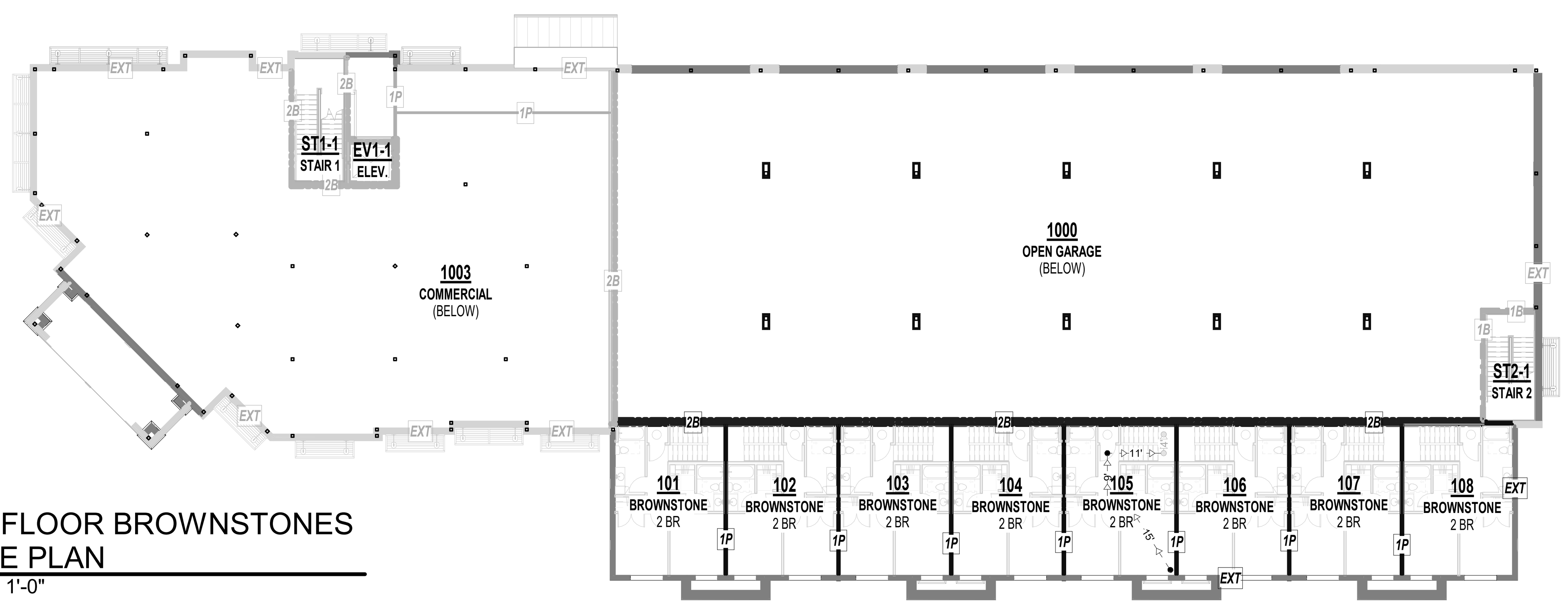


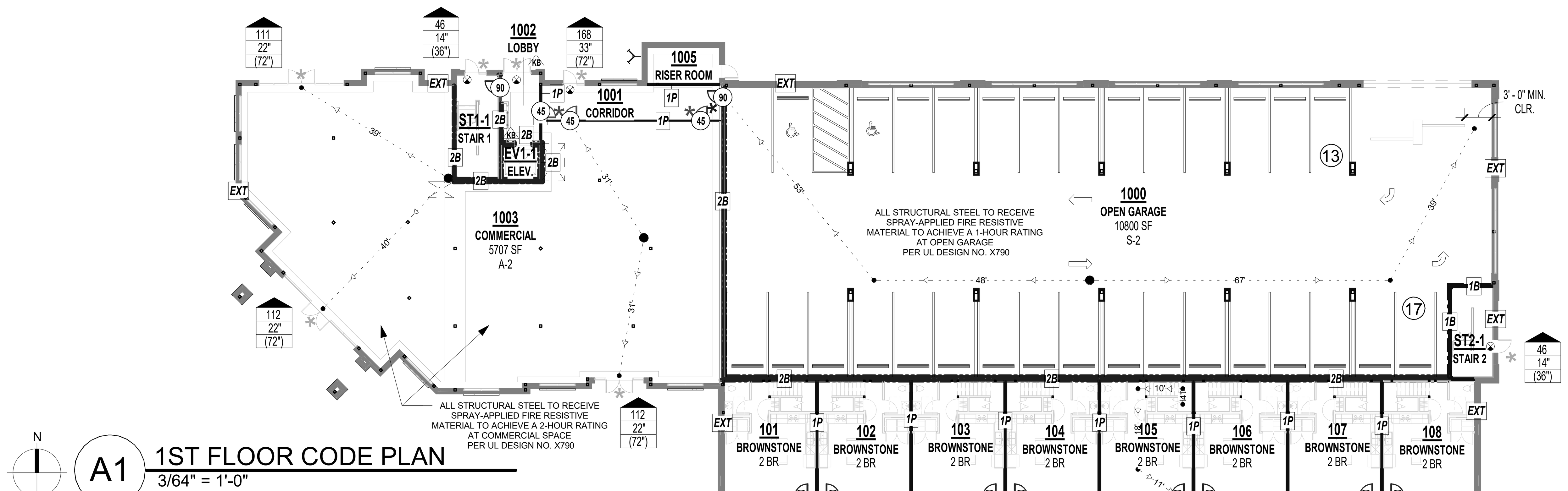
A4 3RD FLOOR CODE PLAN
3/64" = 1'-0"



A3 2ND FLOOR CODE PLAN
3/64" = 1'-0"



A2 2ND FLOOR BROWNSTONES CODE PLAN
3/64" = 1'-0"



A1 1ST FLOOR CODE PLAN
3/64" = 1'-0"

LEVEL	AREA	OCC.	OCC. LOAD.	MAX. OCC.
1	11,400	S-2	200 SQFT	57
1	6,690	A-2	15 SQFT	446
1	4,800	R-2	200 SQFT	24
1.5	4,800	R-2	200 SQFT	24
2	18,400	R-2	200 SQFT	92
3	18,400	R-2	200 SQFT	92

REFERENCE G-003 FOR GENERAL NOTES

CODE REVIEW

PROJECT NAME:	THE VILLAGE AT DISCOVERY - LOT 9A
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: 52'-0" ALLOWABLE: 60'-0" A: ACTUAL: 20'-0" ALLOWABLE: 50'-0"
TABLE 504.3 ALLOWABLE HEIGHT IN FEET ABOVE GRADE PLANE:	CONSTRUCTION TYPE IIA S: ACTUAL: 20'-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: 46,230 ALLOWABLE: 12,000 SQFT A-2: ACTUAL: 5,857 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 IIB S-2: ACTUAL: 11,443 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 STRUCUTRAL 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; WHERE IN A-2, 2 HOUR
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

CHAPTER THIRTY

3006.2 HOISTWAY OPENING PROTECTION REQUIRED EXCEPTION #2:	NOT REQUIRED AT EXIT DISCHARGE LEVELS

CODE PLAN LEGEND

Symbol	Description	Symbol	Description
100 / 20" / (72")	NUMBER OF OCCUPANTS EXITING REQUIRED EXIT WIDTH EXIT WIDTH PROVIDED BY DESIGN	100	ROOM NUMBER
	EXT. - RATED PARTITION (IBC CH. 6)	FE	FIRE EXTINGUISHER CABINET OR SURFACE MTD. AT CONC.
	NON - RATED PARTITION	KB	FIRE DEPARTMENT KNOX BOX (DEFER SUBMITTAL FOR LOC.)
1P	1 HR RATED PARTITION (IBC 708)		FIRE DEPARTMENT CONENCTION
1B	1 HR RATED BARRIER (IBC 707)	60/S	DOOR RATING
1SH	1 HR RATED SHAFT ENCLOSURE (IBC 713)		DOOR WITH PANIC HARDWARE (SEE DOOR SCHEDULE)
2B	2 HR RATED FIRE OR SMOKE BARRIER (IBC 709)		EXIT SIGNAGE; SEE ELECTRICAL
2SH	2 HR RATED SHAFT ENCLOSURE (IBC 713)		EGRESS STARTING POINT
		20'	EGRESS DISTANCE OF TRAVEL
			EGRESS DIRECTION OF TRAVEL

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.

PRINTS ISSUED
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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7395
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

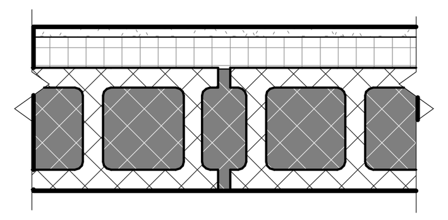
SHEET TITLE
CODE ANALYSIS

PROJECT NUMBER: 24017

SHEET NUMBER:

G-100

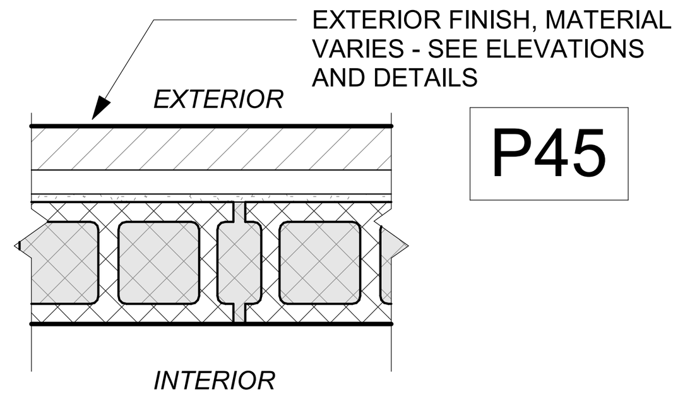
EXTERIOR ASSEMBLIES - CMU / CONCRETE



P40.1

CMU 8" BLOCK - 1HR FIRE BARRIER - EXTERIOR
- (1) LAYER 5/8" TYPE "X" EXTERIOR RATED GYPSUM BOARD
- 2" RIGID INSULATION
- 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

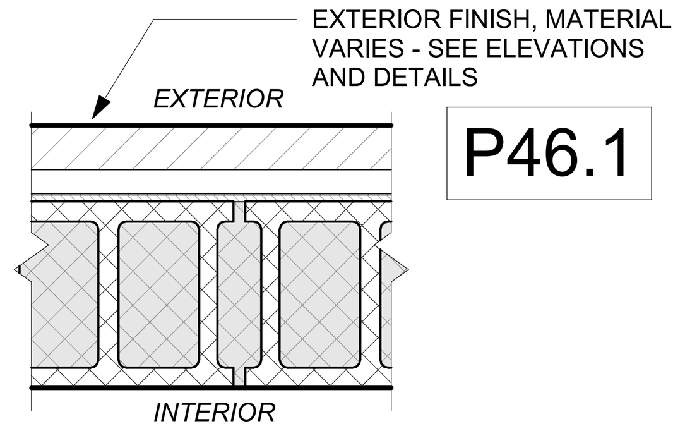


P45

CMU 8" BLOCK - NON-RATED - EXTERIOR
EXTERIOR
- EXTERIOR FINISH SYSTEM PER ELEVATIONS, BRICK SHOWN
- WEATHER RESISTANT BARRIER PER SPECIFICATIONS
- CONTINUOUS RIGID INSULATION; R VALUE PER IECC AS INDICATED ON DRAWINGS / SPECIFICATIONS.
- 8" CMU (REINFORCING PER STRUCT.)

INTERIOR

NOTES:
a. USE 2018 IBC TABLE 721.1 (2) 4 MINIMUM DEPTH FOR 1 HOUR CONCRETE
b. APPLY WATERPROOFING AT ALL SUBGRADE PORTION OF WALLS



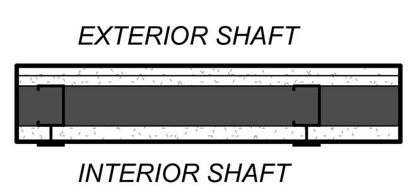
P46.1

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

INTERIOR SHAFT ASSEMBLIES (METAL-RATED)

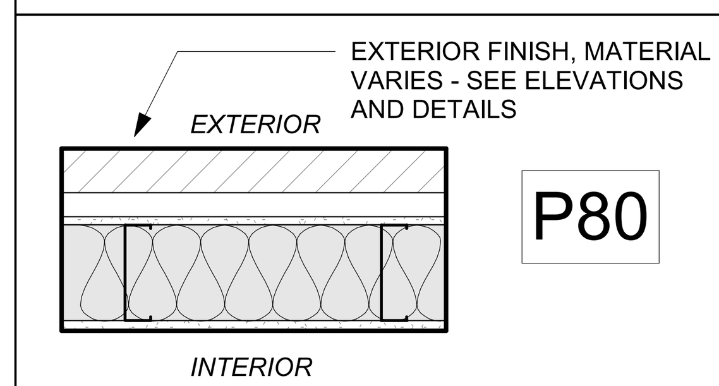


P75

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

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

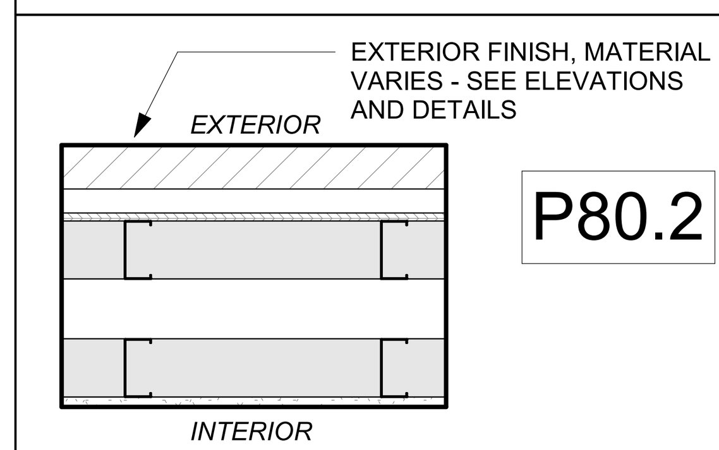
EXTERIOR PARTITION ASSEMBLIES (METAL)



P80

METAL 6" STUD - NON-RATED PARTITION - EXTERIOR
- EXTERIOR FINISH SYSTEM PER ELEVATIONS - BRICK SHOWN
- WEATHER RESISTANT BARRIER PER SPECIFICATIONS
- (1) LAYER SHEATHING PER STRUCT. DRAWINGS
- 6" METAL STUDS SPACED PER STRUCTURAL ENGINEER (MIN 20 MSG)
- BATT INSULATION PER UL AND IECC
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD (COMMERCIAL SPACES NOT TO RECEIVE GYP., SEE NOTE b BELOW)

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

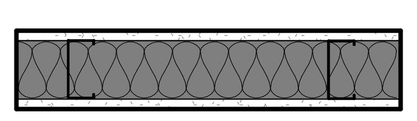


P80.2

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

NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN W456 (OCT. 16, 2023)
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

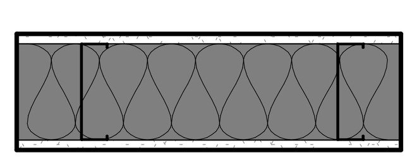
INTERIOR PARTITION ASSEMBLIES (METAL-RATED)



P60

METAL 3 5/8" STUD - 1HR PARTITION - INTERIOR
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD PER UL
- 3-5/8" METAL STUDS SPACED PER UL AND STRUCTURAL ENGINEER (MIN 20 MSG)
- 3-1/2" BATT INSULATION PER UL
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD PER UL

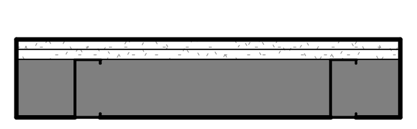
NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN U423 (JUN. 14, 2024)
b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS
c. WHERE PARTITION IS USED FOR STRUCTURAL SHEAR, GC TO COORDINATE ADDITIONAL LAYERS OF STRUCTURAL MATERIAL PER STRUCTURAL DRAWINGS. THESE LAYERS TO BE ADDITIVE TO THE ASSEMBLY LISTED ABOVE AND SHALL BE INCORPORATED PER UL 263.



P61

METAL 6" STUD - 1HR PARTITION - INTERIOR
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD PER UL
- 6" METAL STUDS, SPACING 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 (JUN. 14, 2024)
b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS
c. WHERE PARTITION 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.

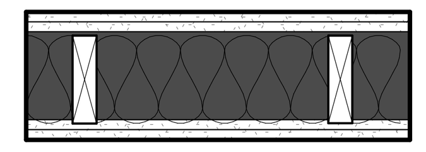


P64

METAL 3-5/8" FURRING 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.

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

INTERIOR PARTITION ASSEMBLIES - WOOD - 2 HR RATED

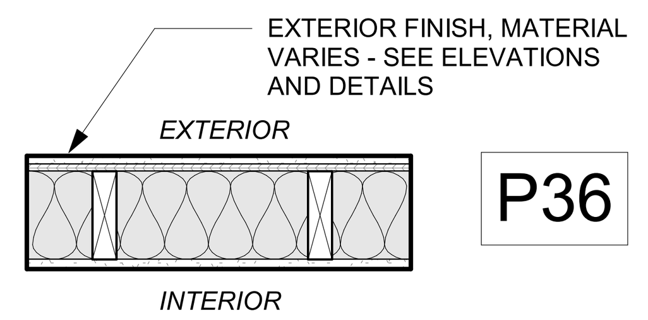


P23

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

NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN U301 (SEPT. 10, 2024)
b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS
c. SHALL COMPLY WITH IBC SECTION 7 FOR FIRE BARRIER
d. STC SHALL BE 50 OR OVER AT UNIT ASSEMBLIES, MEETING ASTM E90 (STC 58 BASED UPON TESTING NGC 2011069)

EXTERIOR PARTITION ASSEMBLIES - WOOD - NON RATED

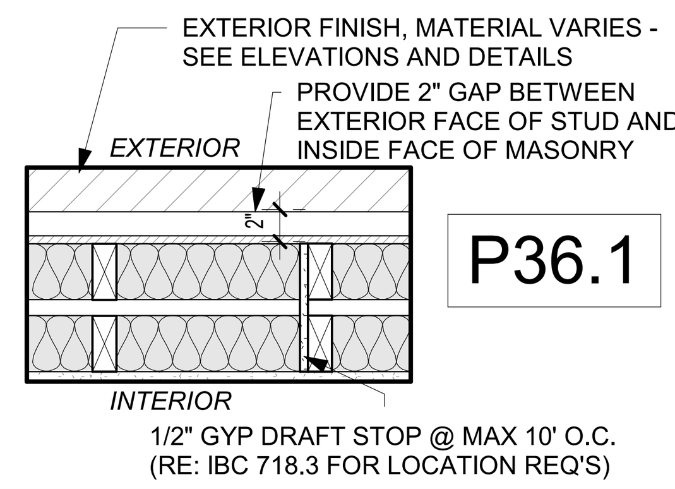


P36

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.

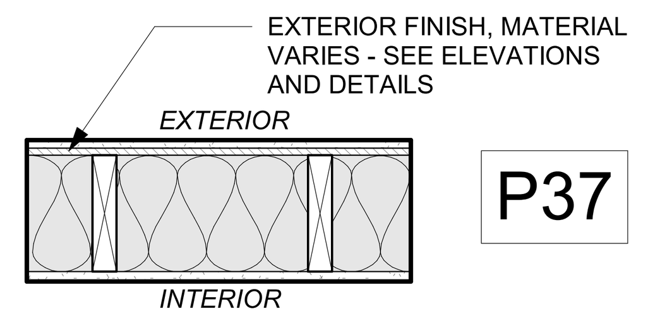


P36.1

DOUBLE WOOD 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.



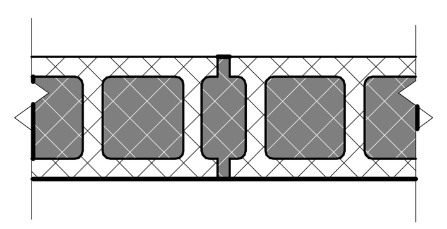
P37

WOOD 2x8 STUD - NON-RATED EXTERIOR
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) LAYER 5/8" TYPE "X" GYPSUM BOARD

INTERIOR

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

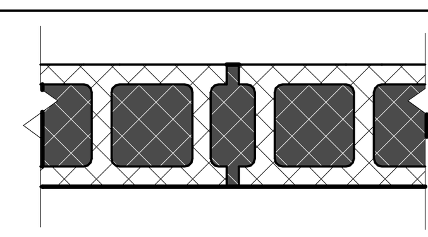
INTERIOR ASSEMBLIES - CMU / CONCRETE



P40

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

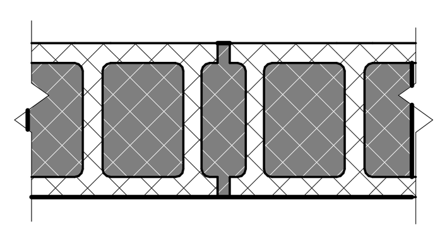
NOTES:
a. RATING SHALL MEET IBC 2018 SECTION 721 - PRESCRIPTIVE FIRE RESISTANCE FOR 1HR RATING. SHALL MEET TABLE 721.1(2).3. - CONCRETE MASONRY UNITS. ALL TIES. MORTAR TO MEET IBC SECTION 721.
b. APPLY WATERPROOFING AT ALL SUBGRADE PORTION OF WALLS



P41

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

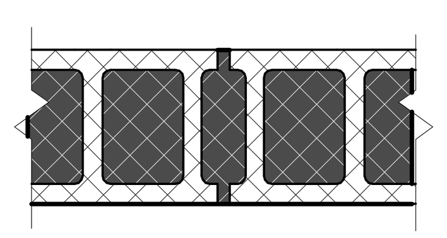
NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN U905 (APRIL 14, 2023)
b. APPLY WATERPROOFING AT ALL SUBGRADE PORTION OF WALLS



P42

CMU 10" BLOCK - 1HR FIRE BARRIER - INTERIOR
- 10" 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 10" BLOCK - 2HR FIRE BARRIER - INTERIOR
- 10" 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 (METAL-NON-RATED)

P54

METAL 1/2" FURRING / HAT CHANNEL - NON-RATED FURRING - INTERIOR
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD
- 1/2" FURRING / HAT CHANNEL, SPACED 16" O.C. (GAUGE DETERMINED BY WALL HEIGHT)

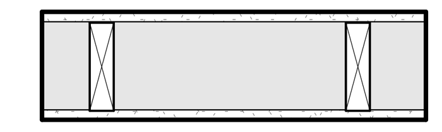
NOTES:
a. ATTACH GYPSUM WITH 1-1/4" TYPE 'W' STEEL SCREWS SPACED 12" O.C.

INTERIOR 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

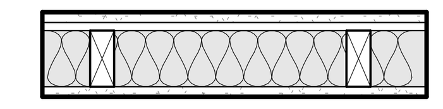
NOTES:
a. ATTACH GYPSUM WITH 1-1/4" TYPE 'W' STEEL SCREWS @ 12" O.C.



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

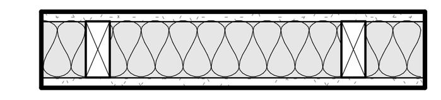
NOTES:
a. ATTACH GYPSUM WITH 1-1/4" TYPE 'W' STEEL SCREWS @ 12" O.C.



P3

WOOD 2X4 STUD - NON-RATED PARTITION - INTERIOR SOUND
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD
- 1/2" RESILIENT CHANNEL, SPACED 24" O.C.
- 2x4 WOOD STUDS SPACED 16" O.C.
- 3 1/2" BATT INSULATION IN STUD CAVITY
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD

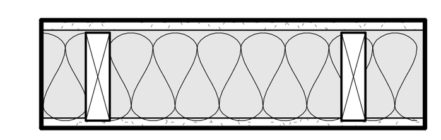
NOTES:
a. ATTACH GYPSUM WITH 1-1/4" TYPE 'W' STEEL SCREWS AT 12" O.C.



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

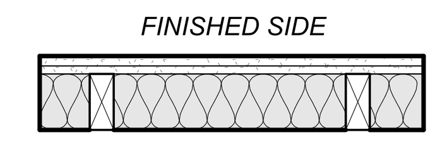
WOOD 2X6 STUD - NON-RATED PARTITION - INTERIOR SOUND DAMPENING
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD
- 2x6 WOOD STUDS SPACED 16" O.C.
- 5 1/2" BATT INSULATION IN STUD CAVITY
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD

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

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.

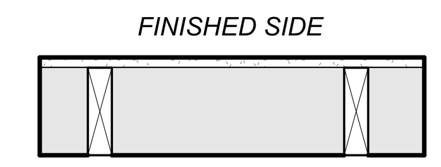
NOTES:
a. ATTACH GYPSUM WITH 1-1/4" TYPE 'W' STEEL SCREWS @ 12" O.C.



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.

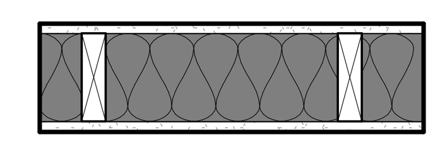


P9

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

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

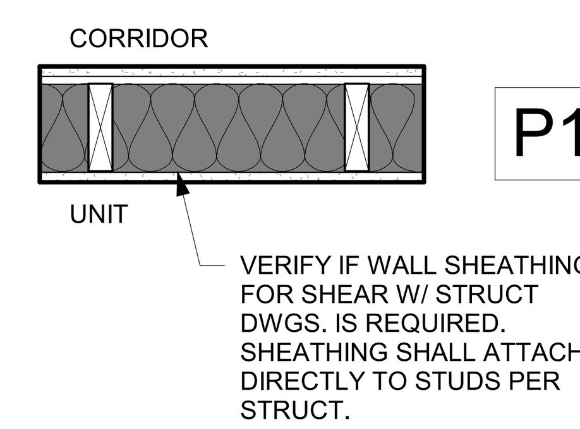
INTERIOR PARTITION ASSEMBLIES - WOOD - 1 HR RATED



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

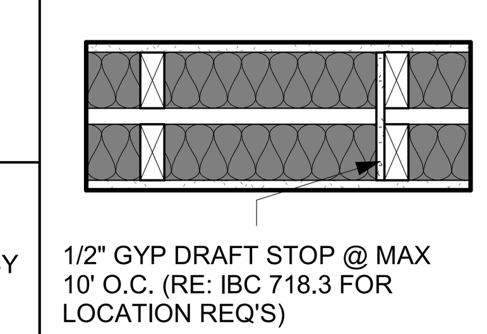
NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN U305 (JUN. 14, 2024)
b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS



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

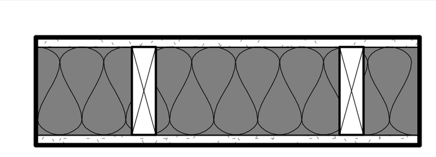
NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN U305 (JUN. 14, 2024)
b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS
c. STC SHALL BE 50 OR OVER AT UNIT ASSEMBLIES, MEETING ASTM E90 (STC 51 BASED UPON TESTING NGC 2011071)
d. WHERE PARTITION DIVIDES A CORRIDOR AND UNIT, RESILIENT CHANNEL SHALL BE ON 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.



P14

WOOD DOUBLE 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 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 (JAN. 31, 2024)
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)



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 (JUN. 14, 2024)
b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS
c. SHALL COMPLY WITH IBC SECTION 7 FOR FIRE BARRIERS

PRINTS ISSUED
11/27/2024 - CITY SUBMISSION

REVISIONS:

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7395
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

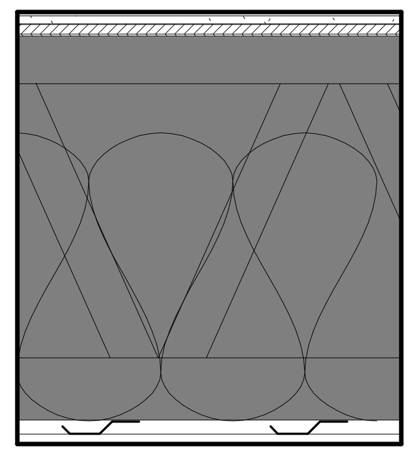
SHEET TITLE
PARTITION ASSEMBLIES - WALLS

PROJECT NUMBER: 24017

SHEET NUMBER:

G-101

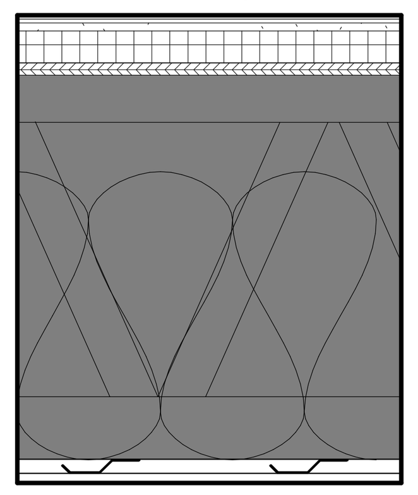
ROOF/CEILING ASSEMBLY-WOOD



R6

WOOD LOW SLOPE TRUSS - 1HR - TPO
- TPO ROOFING MEMBRANE, PER SPECIFICATION TO MEET IECC
- 1/2" COVERBOARD, NON-COMBUSTIBLE, WATER-RESISTANT.
- PRE-SLOPED POLYISO RIGID INSULATION FOR ALL CRICKETS
- 15/32" MIN. ROOF SHEATHING, SEE NOTE b.
- WOOD TRUSS FRAMING PER STRUCT. DWGS, MAX SPACING 24" OC - REFERENCE UL FOR CONSTRUCTION, TRUSS PRE-SLOPED TO DRAIN
- R-38 INSULATION PER IECC, 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

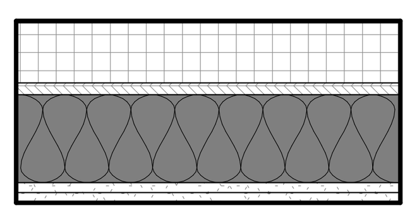
NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN P545 (JUN. 14, 2024)
b. STRUCTURAL SHALL SUPERCEDE IF STRUCT SHEATHING IS THICKER OR DIFFERENT TYPE THAN LISTED ABOVE. PROVIDE REQ MIN ABOVE.
c. REFER TO UL FOR SCREW PATTERN
d. TRUSSES SLOPED TO SCUPPER DRAIN AND DOWNSPOUT.
e. CRICKETS AS INDICATED ON ROOF PLAN TO BE FORMED OUT OF PRE-SLOPED POLYISO RIGID INSULATION. SLOPE TO DRAIN
f. ROOF VENTS PER ROOF PLAN TO MEET REQUIRED VENTING



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-38 INSULATION PER 2018 IECC, 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

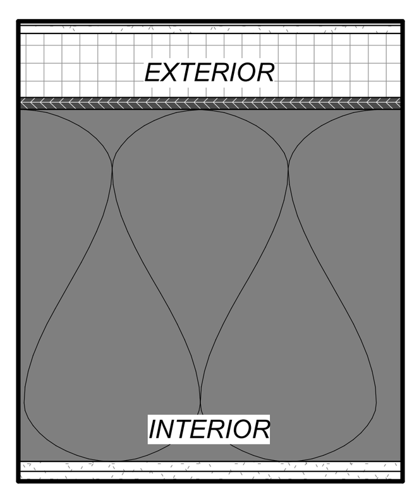
NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN P545 (JUN. 14, 2024)
b. STRUCTURAL SHALL SUPERCEDE IF STRUCT SHEATHING IS THICKER OR DIFFERENT TYPE THAN LISTED ABOVE. PROVIDE REQ MIN ABOVE.
c. REFER TO UL FOR SCREW PATTERN
d. CRICKETS AS INDICATED ON ROOF PLAN TO BE FORMED OUT OF PRE-SLOPED POLYISO RIGID INSULATION. SLOPE TO DRAIN
e. ROOF VENTS PER ROOF PLAN TO MEET REQUIRED VENTING



R12

WOOD FLAT 2X6 LUMBER - 1HR - TOP OF ELEVATOR
- TPO ROOFING MEMBRANE PER SPECIFICATIONS TO MEET IECC
- 1/2" COVERBOARD, NON-COMBUSTIBLE, WATER-RESISTANT
- PRE-SLOPED POLYISO RIGID INSULATION FOR SLOPE PER ROOF PLAN
- R-20 RIGID INSULATION MIN. (OR NECESSARY TO MEET MIN. IECC REQUIREMENT)
- SHEATHING PER STRUCTURAL DWGS.
- WOOD 2X6 FRAMING SPACED PER STRUCTURAL
- R-19 BATT INSULATION
- (2) LAYERS OF 5/8" TYPE 'X' GWB. PER GA ASSEMBLY

NOTES:
a. ASSEMBLY TO COMPLY WITH GA FILE NO. RC 2601
b. REFER TO GA FOR SCREW PATTERN

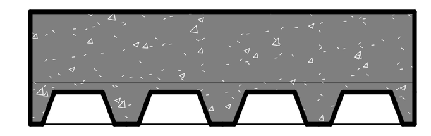


R17

WOOD FLAT 11-7/8" I-JOIST - 1HR - TPO - UNVENTED CAVITY
- TPO ROOFING MEMBRANE TO MEET IECC REQ'S AND SPECIFICATIONS
- 1/2" COVERBOARD, NON-COMBUSTIBLE, WATER-RESISTANT
- PRE-SLOPED POLYISO RIGID INSULATION FOR CRICKETS
- RIGID INSULATION TO MEET IECC REQUIREMENTS
- SHEATHING PER STRUCTURAL
- 11-7/8" I-JOIST, 24" MAX. O.C., SPACED PER STRUCTURAL
- BATT INSULATION, FULLY PACKED TO FILL JOIST CAVITY
- (2) LAYERS OF 5/8" TYPE 'X' GWB, PER IBC

NOTES:
a. FIRE RESISTANCE RATING PER 2018 IBC TABLE 721.1(3), ITEM 26-1.1
b. REFER TO IBC FOR SCREW PATTERN
c. CRICKETS AS INDICATED ON ROOF PLAN TO BE FORMED OUT OF PRE-SLOPED POLYISO RIGID INSULATION. SLOPE TO DRAIN

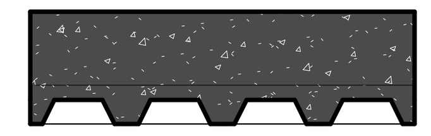
FLOOR/CEILING ASSEMBLY-METAL



F32

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

NOTES:
a. SHALL COMPLY WITH UL DESIGN D916 (AUG. 02, 2024)



F37

METAL DECK AND CONCRETE - 2HR
- CONCRETE TOPPING SLAB PER STRUCT.
- WELDED WIRE FABRIC PER STRUCT. DWGS.
- METAL DECKING PER STRUCT. DWGS.
- SPRAY APPLIED FIRE RESISTANT MATERIAL TO BE APPLIED TO UNDERSIDE OF METAL DECK TO ACHIEVE 2-HOUR FIRE RATING.

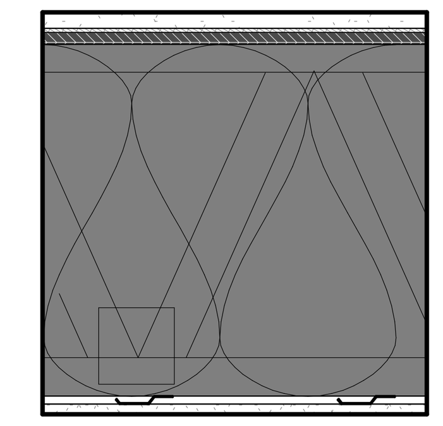
NOTES:
a. SHALL COMPLY WITH UL DESIGN D916 (AUG. 02, 2024)

FLOOR/CEILING ASSEMBLY-WOOD

F1

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

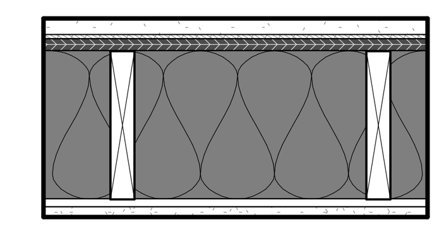
NOTES
a. SEE STRUCTURAL FOR REINFORCING AND THICKNESS
b. VERIFY SLAB ELEVATIONS WITH CIVIL AND LANDSCAPE



F3

WOOD OPEN WEB TRUSS - 1HR
- 1" GYPCRETE TOPPING
- 3/8" ACOUSTICAL MAT
- 19/32" MIN. 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

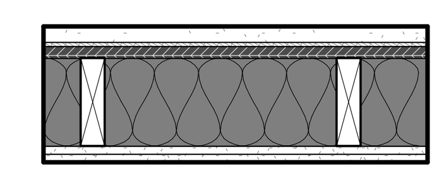
NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN L546 (SEPT. 02, 2024)
b. STRUCTURAL SHALL SUPERCEDE IF STRUCT SHEATHING IS THICKER OR DIFFERENT TYPE THAN LISTED ABOVE. PROVIDE REQ MIN ABOVE.
c. REFER TO UL FOR SCREW PATTERN
d. STC TO BE MIN. 50 PER IBC CHAPTER 12, IIC TO BE EQUAL OR GREATER THAN 50 WHEN 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
- 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

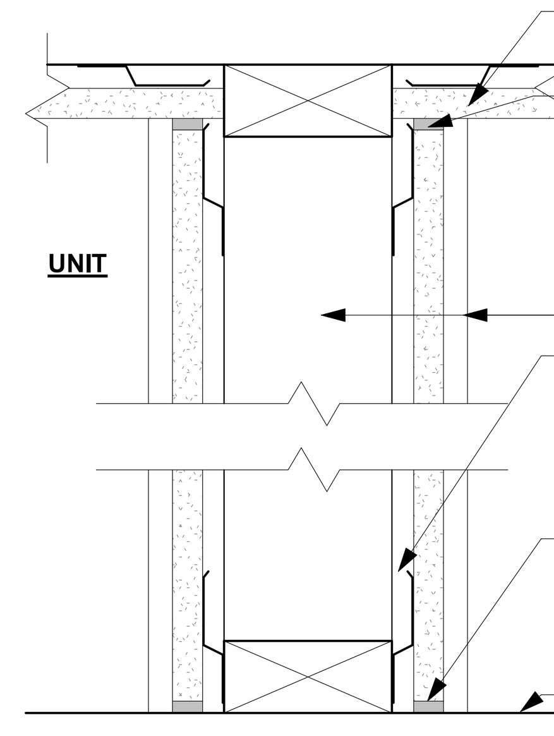
NOTES:
a. ASSEMBLY TO COMPLY WITH UL DESIGN L516, (SEPT. 02, 2024)
b. STRUCTURAL SHALL SUPERCEDE IF STRUCT SHEATHING IS THICKER OR DIFFERENT TYPE THAN LISTED ABOVE. PROVIDE REQ MIN ABOVE.
c. STC SHALL BE MIN. 50 PER IBC CHAPTER 12, IIC TO BE EQUAL OR GREATER THAN 50 WHEN TESTED UNDER ASTM E 492. (STC 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



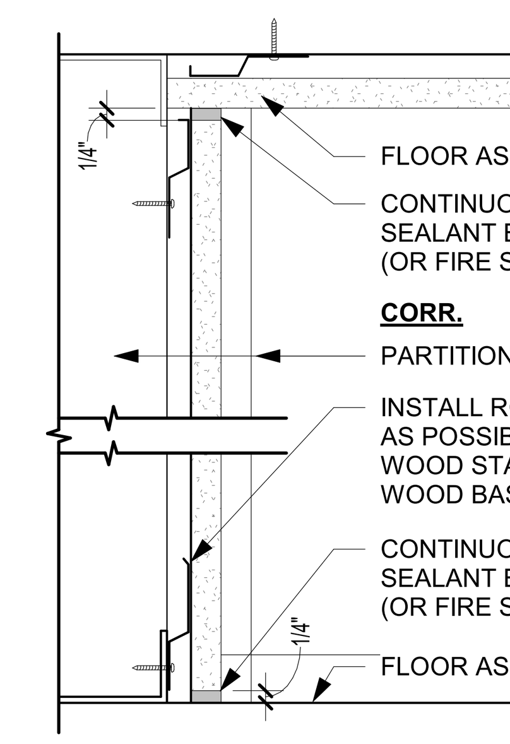
F7

WOOD 2X6 LUMBER - 1HR - CORRIDOR
- 1" GYPCRETE TOPPING
- 3/8" ACOUSTICAL MAT
- 15/32" SHEATHING MIN, 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: 2018 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



B1 UNIT/UNIT ACOUSTICAL SEALANT @ FLOOR/CEILING
3" = 1'-0"



A1 ACOUSTIC SEALANT @ FLOOR/CEILING
3" = 1'-0"

PRINTS ISSUED
11/27/2024 - CITY SUBMISSION

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
PARTITION ASSEMBLIES - FLOOR/CEILING

PROJECT NUMBER: 24017

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

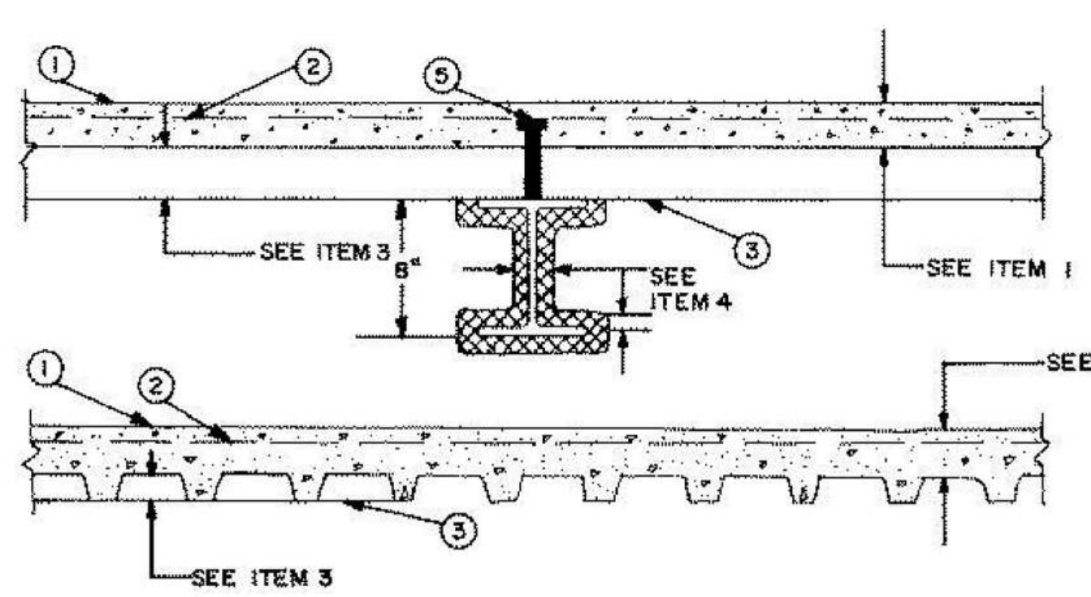
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. D916

August 02, 2024

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; 24 in. or 36 in. wide, Type LF2, vented Types LF2 and LF3.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PYROK INC — Type LD.

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

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

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

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

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

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

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

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

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

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

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

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

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

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7395
REGISTERED ARCHITECT

11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - D916

PROJECT NUMBER: 24017

SHEET NUMBER:

G-200

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.
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- 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.
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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

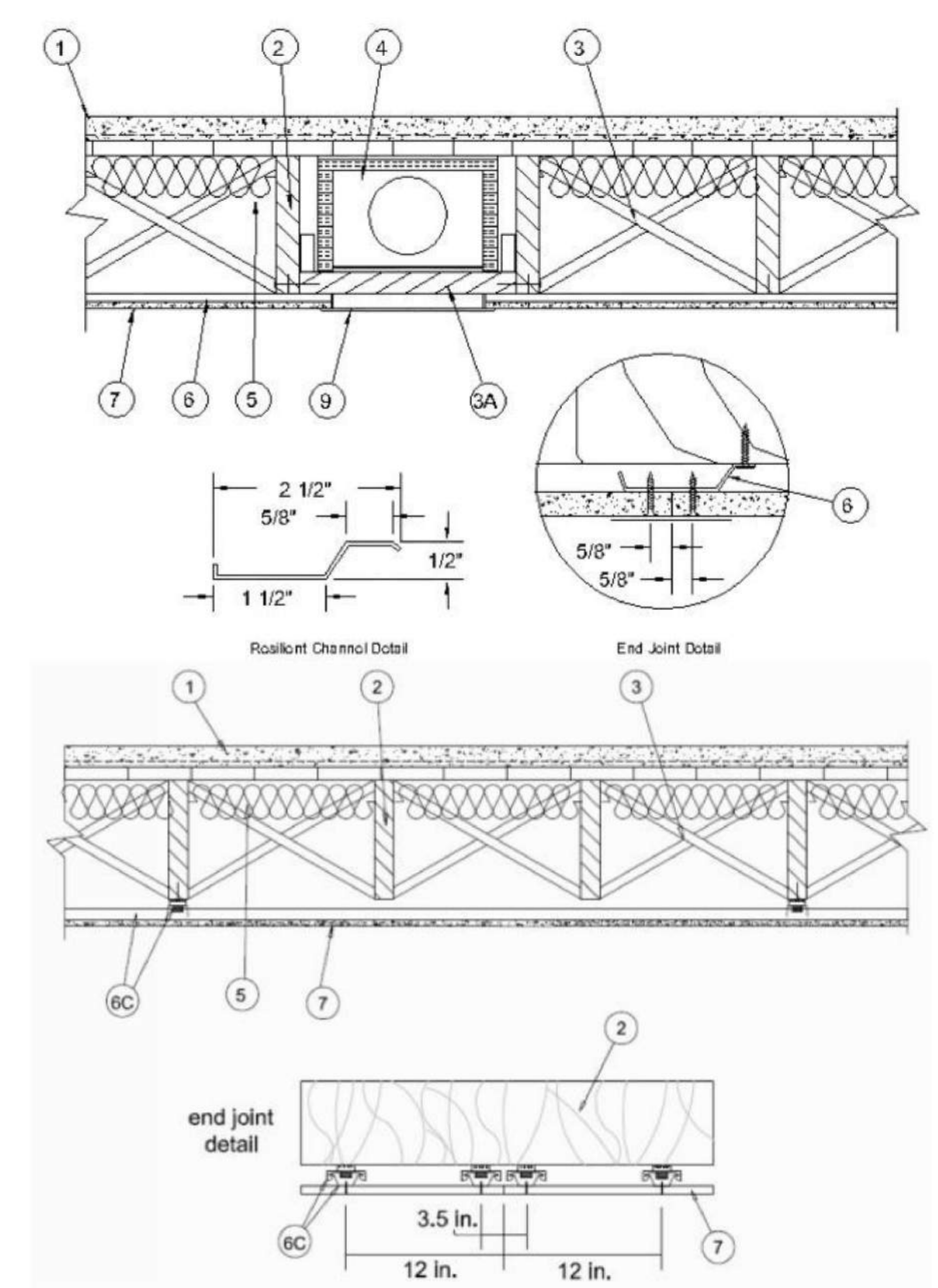
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **L516**

September 2, 2024

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 — FR-25, FR-30, SiteMix, and Treadstone Advantage

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.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SIPLAST INC

VERMICULITE PRODUCTS INC

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

VERMICULITE PRODUCTS INC

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

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

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

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

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

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

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

SIPLAST INC — Mix No. 3.

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

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

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

VERMICULITE PRODUCTS INC

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

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

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

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

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7385
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - D916 / L516

PROJECT NUMBER: 24017

SHEET NUMBER:
G-201

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 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.

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.
Freudenberg Performance Materials LP — 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.

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.

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

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.

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)

JAMIL ALI NASSER AL-ZADJALI FOR INDUSTRY— Models C-S/R-HC(-A), C-RD-HC(-A)

BADR & ASFOUR COMPANY FOR ENGINEERING AND METAL INDUSTRIES — Models C-S/R-HC(-A), C-RD-HC(-A)

GREENHECK FAN CORP — Model CRD-1WJ

METAL-FAB INC — Models MSCDHC, MRCDHC

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.

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.

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

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 2024-09-02

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11/27/2024 - CITY SUBMISSION

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT

11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - L516

PROJECT NUMBER: 24017

SHEET NUMBER:

G-202

UL Product iQ®

UL Solutions

Design/System/Construction/Assembly Usage Disclaimer

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

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

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

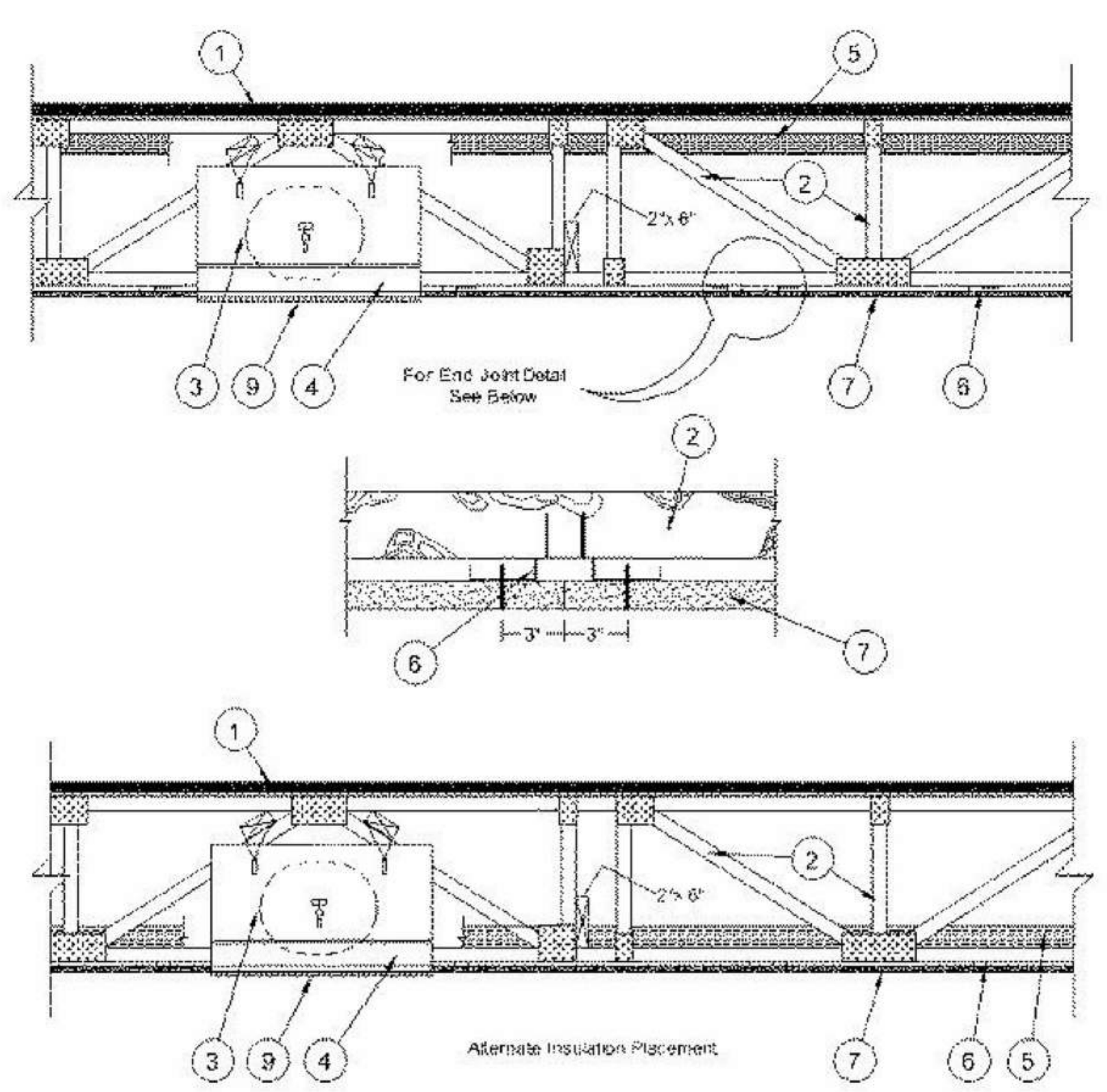
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada Design Criteria and Allowable Variances

Design No. **L546**

September 2, 2024

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, SiteMix, and Treadstone Advantage

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

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.
Freudenberg Performance Materials LP — 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.

System No. 15

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* — For use with Item 7E - Min 3/4 thickness of floor topping mixture having a minimum compressive strength of 900 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

TECNODRY SA DE CV — Types SURFACE-GYP

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 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 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

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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER
A-7365
REGISTERED ARCHITECT

11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - L546

PROJECT NUMBER: 24017

SHEET NUMBER:

G-203

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 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 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 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 spacing may remain at 16 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.

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 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 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. on each end. 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 end joint shall be 8 in. OC.
When S**teel 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)

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DAVID EUGENE HENDRIKSE
NUMBER A-7305

11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - L546

PROJECT NUMBER: 24017

SHEET NUMBER:

G-204

11/27/2024 9:35:22 AM
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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 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 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 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.

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.

7E. **Gypsum Board*** — For use with System No. 15 – Two layers of Nom 5/8 in. thick, 48 in. wide gypsum board, base layer installed as detailed in Item 7. Face layer installed over base layer with 2 in. long Type S bugle head screws. All joints and fastener spacing to be consistent with base layer requirements, except staggered with those in base layers. Any Gypsum Board listed in Item 7.

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 2024-09-02

UL Product iQ®

UL Solutions

Design/System/Construction/Assembly Usage Disclaimer

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- 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

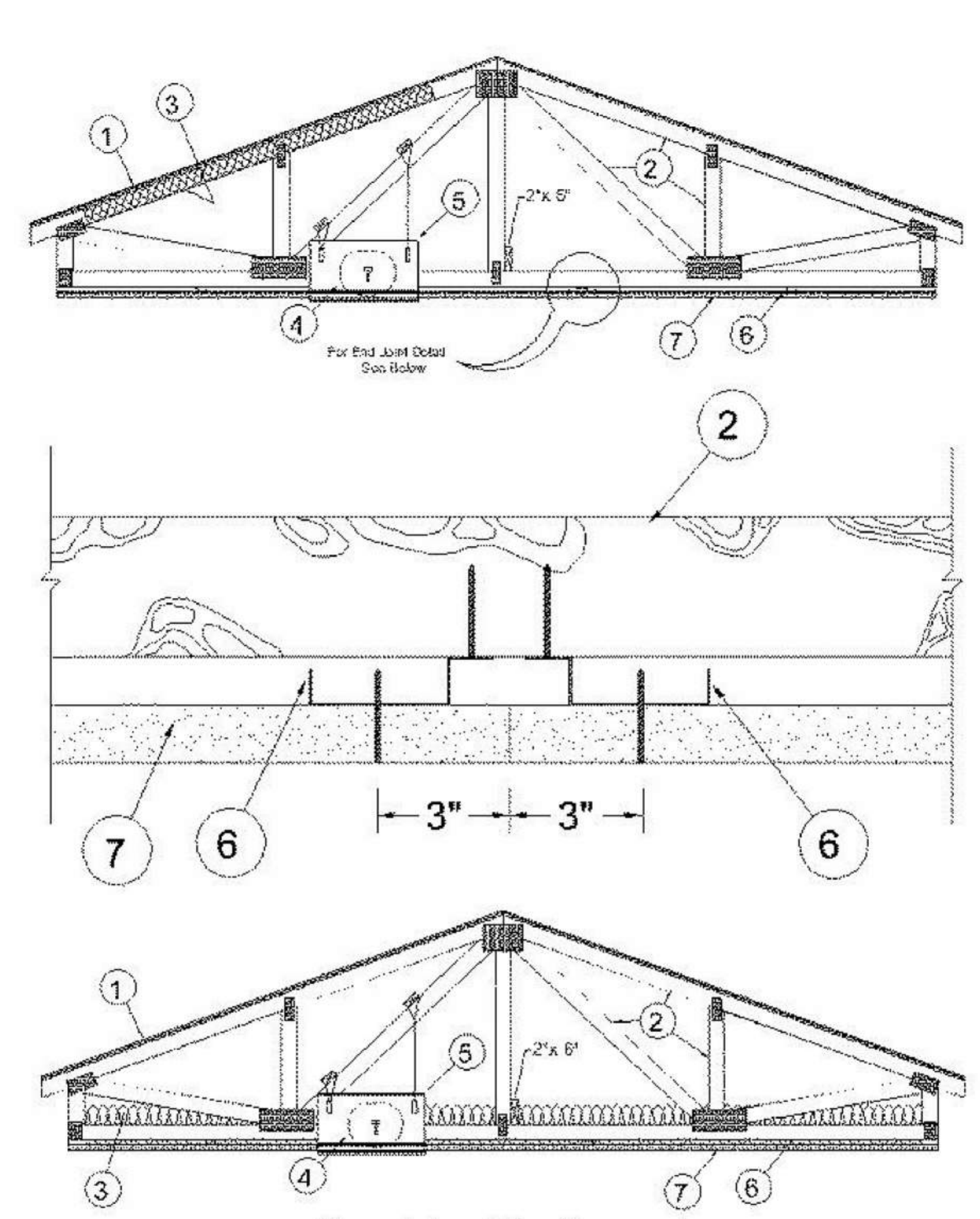
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **P545**

June 14, 2024

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.

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 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.
Holcim Solutions and Products US, LLC — 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, Walltite® HP+, Walltite® MAX, Walltite® v.5, Walltite® LWP, Walltite® Plus and Enertite® Max

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 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.
Holcim Solutions and Products US, LLC — 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.

3G. **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 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.

EVEREST SYSTEMS LLC — Opticell 0.5

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

PRINTS ISSUED
11/27/2024 - CITY SUBMISSION

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER
A-7385
REGISTERED ARCHITECT

11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - L546 / P545

PROJECT NUMBER: 24017

SHEET NUMBER:

G-205

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

5AI. **Alternate Ceiling Damper*** — (Optional. To be used with Air Duct Item 4.) — For use with min. 18 in. deep trusses. Max 7-11/32 in. long by 7-11/16 in. wide fabricated from galvanized steel. Aggregate area of the register opening(s) through the ceiling membrane shall not exceed 28.5 sq in. per 100 sq ft of ceiling area. Damper assembly installed in accordance with the manufacturer's installation instructions.

AIRE TECHNOLOGIES INC — Models ITG-CRD2.

5AJ. **Alternate Ceiling Damper*** — (Optional. To be used with Air Duct Item 4.) — For use with min. 18 in. deep trusses. Max 9-11/16 in long by 9-1/16 in. wide fabricated from galvanized steel. Aggregate area of the register opening(s) through the ceiling membrane shall not exceed 44.5 sq in. per 100 sq ft of ceiling area. Damper assembly installed in accordance with the manufacturer's installation instructions.

AIRE TECHNOLOGIES INC — Models SIG-CRD2

5AK. **Alternate Ceiling Damper*** — (Optional. To be used with Air Duct Item 4.) — For use with min. 18 in. deep trusses. Max 10-13/32 in. long by 10-22/32 in. wide fabricated from galvanized steel. Aggregate area of the register opening(s) through the ceiling membrane shall not exceed 56 sq in. per 100 sq ft of ceiling area. Damper assembly installed in accordance with the manufacturer's installation instructions.

AIRE TECHNOLOGIES INC — Models SMT-CRD2

5AL. **Alternate Ceiling Damper*** — (Optional. To be used with Air Duct Item 4.) — For use with min. 18 in. deep trusses. Max 8-13/16 in. wide and 8-1/2 in. long fabricated from galvanized steel. Aggregate area of the register opening(s) through the ceiling membrane shall not exceed 37.5 sq in. per 100 sq ft of ceiling area. Damper assembly installed in accordance with the manufacturer's installation instructions.

AIRE TECHNOLOGIES INC — Models GBR-CRD2

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 2024-06-14

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

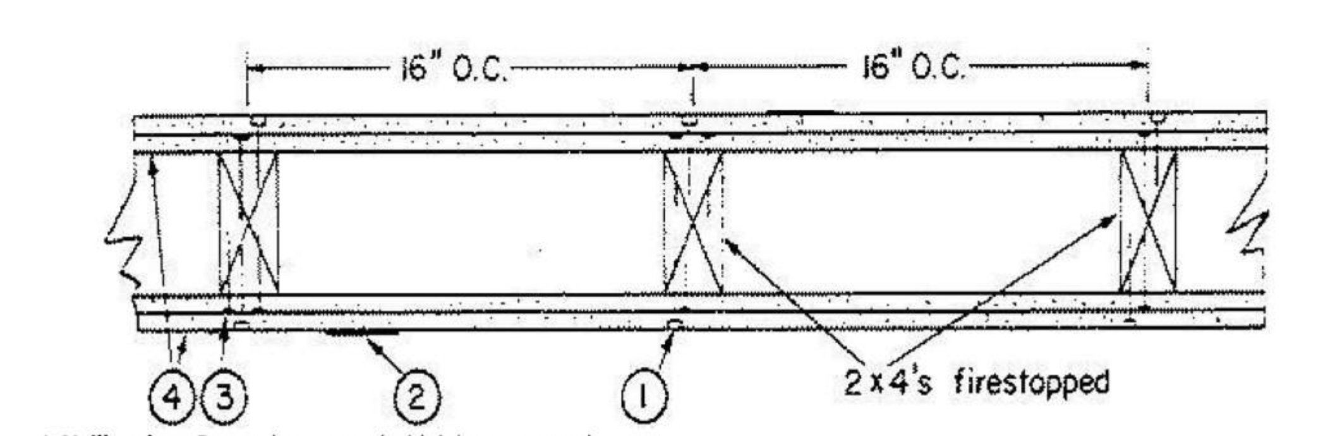
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **U301**

September 10, 2024

Bearing Wall Rating — 2 Hr.
Finish Rating — 66 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.**



1. **Nailheads** — Exposed or covered with joint compound.

2. **Joints** — Exposed 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.

3. **Nails** — 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam, 1/4 in. diam heads, and 8d cement coated nails 2-3/8 in. long, 0.113 in. shank diam, 9/32 in. diam heads.

4. **Gypsum Board*** — 5/8 in. thick, two layers applied either horizontally or vertically. Inner layer attached to studs with the 1-7/8 in. nails spaced 6 in. OC. Outer layer attached to studs over inner layer with the 2-3/8 in. long nails spaced 8 in. OC. Vertical joints located over studs. All joints in face layers staggered with joints in base layers. Joints of each base layer offset with joints of base layer on opposite side.
When used in widths other than 48 in., gypsum board to be installed horizontally.

When **Steel Framing Members*** (Item 6 or any alternate clips) are used, base layer attached to furring channels with 1 in. long Type S bugle-head steel screws spaced max 24 in. OC; face layer attached with 1-5/8 in. long Type S bugle-head steel screws spaced max 12 in. OC.

AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C, AGX-11, LightRoc

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

CABOT MANUFACTURING ULC — Type X, 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 — Types EGRG, GlasRoc, GlasRoc-2, Type C, Type X-1, Type LWTX

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

CERTAINTEED GYPSUM INC — Types LGFC2A, LGFC6A, LGFC-C/A, LGFC-WD, LGLLX, CLLX

GEORGIA-PACIFIC GYPSUM L L C — Types 5, 6, 9, C, DAP, DD, DA, DAPC, DGG, DS, GPFS6. LS, TG-C, Type X, Veneer Plaster Base-Type X, Water Rated-Type X, Sheathing Type-X, Soffit-Type X, GreenGlass Type X, Type LWX, Veneer Plaster Base-Type LWX, Water Rated-Type LWX, Sheathing Type-LWX, Soffit-Type LWX, Type DGLW, Water Rated-Type DGLW, Sheathing Type- DGLW, Soffit-Type DGLW, Type LW2X, Veneer Plaster Base - Type LW2X, Water Rated - Type LW2X, Sheathing - Type LW2X, Soffit - Type LW2X, Type DGL2W, Water Rated - Type DGL2W, Sheathing - Type DGL2W

NATIONAL GYPSUM CO — Types eXP-C, FSK, FSK-C, FSK-G, FSW, FSW-3, FSW-5, FSW-6, FSW-8, FSW-C, FSW-G, FSMR-C, FSL, RSX

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

PRINTS ISSUED
11/27/2024 - CITY SUBMISSION

REVISIONS:

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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7385
REGISTERED ARCHITECT

11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - P545 / U301

PROJECT NUMBER: 24017

SHEET NUMBER:

G-206

PRINTS ISSUED
11/27/2024 - CITY SUBMISSION

REVISIONS:

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types C, PG-2, PG-3, PG-3W, PG-4, PG-5, PG-5W, PG-5WS, PG-9, PG-11, PG-C, PGS-WRS, PGI

PANEL REY S A — Types PRC, PRC2, PRX, RHX, MDX, ETX, GREX, GRIX

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

THAI GYPSUM PRODUCTS PCL — Type C or Type X

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

USG BORAL DRYWALL SFZ LLC — Types C, SCX, 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

4A. **Gypsum Board* —** (As an alternate to Item 4) — Nom 3/4 in. thick, installed as described in Item 4.
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

4B. **Gypsum Board* —** (As an alternate to Items 4 and 4A) — 5/8 in. thick, 2 ft wide, tongue and groove edge, applied horizontally as the outer layer to one side of the assembly. Secured as described in Item 4. 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

4C. **Gypsum Board* —** (As an alternate to Items 4, 4A or 4B — Not Shown) — For Direct Application to Studs Only- For use on one or both sides of the wall as the base layer or one or both sides of the wall 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 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, F4j.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". 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.
RAY-BAR ENGINEERING CORP — Type RB-LBG.

4D. **Gypsum Board* —** As an Alternate to Item 4 — 5/8 in. thick applied either horizontally or vertically. Inner layers 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. Outer layers fastened to framing with 1-7/8 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. All joints in face layers staggered with joints in base layers. Joints of each base layer offset with joints of base layer on opposite side.
AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C, LightRoc

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

4F. **Gypsum Board* —** (As an alternate to Item 4) — Not to be used with item 6, 6A, 6B or 6C. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically and secured as described in Item 4.
NATIONAL GYPSUM CO — Type SBWB

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

4H. **Gypsum Board* —** (As an alternate to Item 4) — Not to be used with item 6, 6A, 6B, or 6C. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically or horizontally and secured as described in Item 4.
CERTAINTEED GYPSUM INC — Type SilentFX

4I. **Gypsum Board* —** (As an alternate to item 4) — 5/8 in. thick, two layers applied either horizontally or vertically. Inner layer attached to studs with 1-1/4 in. long Type W steel screws spaced 8 in. OC. Outer layer attached to studs over inner layer with 2 in. long Type W steel screws spaced 8 in. OC offset 6 in. from base layer. Vertical joints located over studs. Vertical and horizontal joints between inner and outer layers staggered. Outer layer joints covered with joint tape and compound, screwheads covered with joint compound. As an alternate to the joint compound nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Wallboard other than 48 in. wide must be applied horizontally. The SoundBreak XP Type X Gypsum Board is not to be used with Item 6, 6A, 6B, or 6C.
NATIONAL GYPSUM CO — Types eXP-C, FSK, FSK-C, FSK-G, FSW, FSW-3, FSW-5, FSW-6, FSW-C, FSW-G, FSMR-C, SBWB

4J. **Gypsum Board* —** (As an alternate to Items 4) — 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 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 and discs to have a purity of 99.5% meeting the Federal specification QQ-L-201f, Grades "B, C or D". 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.
MAYCO INDUSTRIES INC — "X-Ray Shielded Gypsum"

4K. **Gypsum Board* —** For use with Item 7 — 5/8 in. thick, two layers applied vertically. Inner layer attached to resilient channels with 1 in. long steel screws spaced 8 in. OC. Outer layer attached to resilient channels over inner layer with 1-5/8 in. long steel screws spaced 8 in. OC. All joints in face layers staggered with joints in base layers. Joints of each base layer offset with joints of base layer on opposite side. Insulation, Items 8 or 9 is required.
AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C, AGX-11

NATIONAL GYPSUM CO — Types eXP-C, FSK, FSK-C, FSK-G, FSW, FSW-3, FSW-5, FSW-6, FSW-C, FSW-G, FSMR-C, SBWB.

CERTAINTEED GYPSUM INC — Types EGRG, GlasRoc, GlasRoc-2, Type C, Type X-1, Easi-Lite Type X, SilentFX

4L. **Gypsum Board* —** (As an alternate to Items 4) — 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

4M. **Gypsum Board* —** (As an alternate to Item 4) — 5/8 in. thick, 4 ft. wide, two layers applied vertically with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Secured as described in Item 4.
CERTAINTEED GYPSUM INC — 5/8" Easi-Lite Type X

4N. **Gypsum Board* —** (As an alternate to 5/8 in. Type FSW in Items 4 or 4I) — Nom. 5/16 in. thick gypsum panels applied vertically or horizontally. Two layers of 5/16 in. for every single layer of 5/8 in. gypsum board described in Item 4 or 4I. Horizontal joints on the same side need not be staggered. Inner layer of each double 5/16 in. layer attached with fasteners, as described in item 4 or 4I, spaced 24 in. OC. Outer layer of each double 5/16 in. layer attached per Item 4 or 4I.
NATIONAL GYPSUM CO — Type FSW

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

4P. **Gypsum Board* —** (As an alternate to Item 4) — 5/8 in. thick, two layers applied either horizontally or vertically. Inner layer attached to studs with 1-1/4 in. long Type W steel screws spaced 10 in. OC with the last two screws 4 and 1 in. from the edges of the board. Outer layer attached to studs over inner layer with 1-7/8 in. long Type W steel screws spaced 10 in. OC offset 5 in. from base layer with the last two screws 4 and 1 in. from the edges of the board. Vertical joints located over studs. Vertical and horizontal joints between inner and outer layers staggered. Outer layer joints covered with joint tape and compound, screwheads covered with joint compound. When used in widths other than 48 in., gypsum panels are to be installed horizontally.
CERTAINTEED GYPSUM INC — Type LGFC6A, Type LGFC2A, Type LGFC-C/A, Type LGFC-WD, Type LGLLX

4Q. **Gypsum Board* —** (As an alternate to Item 4. For use with Item 13) — Any 5/8 in. thick, 4 ft. wide, Gypsum Board UL Classified for Fire Resistance (CKNX) eligible for use in Design Nos. U305 and L501 or G512. Two layers, applied either horizontally or vertically, and screwed to studs 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. For the face layer, screw length to be increased to 2-1/2 in. All joints in face layers staggered with joints in base layers. When used in widths other than 48 in., gypsum panels are to be installed horizontally.

4R. **Gypsum Board* —** As an Alternate to Item 4 — 5/8 in. thick applied either horizontally or vertically. Inner layers 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. Outer layers fastened to framing with 1-7/8 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. All joints in face layers staggered with joints in base layers. Joints of each base layer offset with joints of base layer on opposite side.
CERTAINTEED GYPSUM INC — Types EGRG, GlasRoc, GlasRoc-2, Type C, Type X-1, Easi-Lite Type X, SilentFX

4S. **Gypsum Board* —** (As an alternate to Item 4. For use with Item 13A) — 5/8 in. thick, two layers applied vertically. Inner layer attached to studs with the 1-7/8 in. nails spaced 6 in. OC. Outer layer attached to studs over inner layer with the 2-3/8 in. long nails spaced 8 in. OC. Vertical joints located over studs. All joints in face layers staggered with joints in base layers. Joints of each base layer offset with joints of base layer on opposite side.
AMERICAN GYPSUM CO — Types AGX-1

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

CABOT MANUFACTURING ULC — "5/8 Type X"

CGC INC — Type SCX

PANEL REY S A — Type PRX

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

THAI GYPSUM PRODUCTS PCL — Type X

UNITED STATES GYPSUM CO — Type SCX

USG BORAL DRYWALL SFZ LLC — Types SCX

USG MEXICO S A DE C V — Type SCX

4T. **Gypsum Board* —** (As an alternate to Item 4. For use with Item 13B) — Any 5/8 in. thick, 4 ft. wide, Gypsum Board listed in Item 4 above. Two layers applied vertically with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. All joints in outer layers staggered with joints in inner layers. Inner layer attached 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. Outer layer attached to studs over inner layer with the 2-1/2 in. long Type W coarse thread gypsum panel steel screws spaced 8 in. OC.

4U. **Gypsum Board* —** (As an alternate to Item 4. For use with Item 13C) — Any 5/8 in. thick, 4 ft. wide, Gypsum Board listed in Item 4 above. Two layers applied vertically with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. All joints in outer layers staggered with joints in inner layers. Inner layer attached to studs with 1-1/4 in. long Type W screws spaced 8 in. OC at perimeter and in the field. Outer layer attached to studs over inner layer with 1-7/8 in. long Type W screws spaced 8 in. OC.

5. **Molded Plastic* —** Not Shown, Optional — Solid vinyl siding mechanically secured over the outer layer to framing members in accordance with manufacturer's recommended installation details.
ALSIDE, DIV OF ASSOCIATED MATERIALS INC

GENTEK BUILDING PRODUCTS LTD

VYTEC CORP

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. Wallboard attached to furring channels as described in Item 4.

B. **Steel Framing Members* —** Used to attach furring channels (Item 6a) 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)

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. 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 6Aa) 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

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 6Bb. 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 6Ba) to studs. Clips spaced 48 in. OC., and secured to studs with 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
REGUPOL AMERICA — Type SonusClip

6C. **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 4.

b. **Steel Framing Members* —** Used to attach resilient 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. 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

6D. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 6) — 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 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.
PAC INTERNATIONAL L L C — Type RC-1 Boost

6E **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 4.

b **Steel Framing Members* —** Used to attach furring channels (Item 6Ea) 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. **Furring Channel —** Optional — Not Shown — For use on one side of the wall with Item 4K — 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, Item 8 or 9 is required.

8. **Batts and Blankets* —** Required for use with resilient channels, Item 7, min. 3 in. thick mineral wool batts, placed to fill interior of wall, attached to the nom 4 in. face of the studs with staples placed 24 in. OC.
ROCKWOOL — Type SAFEnSOUND, min. 1.8 pcf.

THERMAFIBER/OWENS CORNING — Type SAFB, SAFB FF

9. **Batts and Blankets* —** (As an alternate to Item 8) — Min. 3 in. thick glass fiber batts bearing the UL Classification Marking as to Surface Burning and/or Fire Resistance, friction-fitted to fill the stud cavities. See Batts and Blankets (BKNV or BZJZ) Categories for names of Classified companies.

9A. **Fiber, Sprayed* —** (Optional) — As an alternate to Batts and Blankets (Item 8), Required for use with resilient channels, Item 7, Not for use with Item 6, 6A, 6B, or 6C. — 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

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 or QR-510

11. **Cementitious Backer Units* —** (Optional Item Not Shown — For Use On Face Of 2 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 horizontally or vertically with vertical joints centered over studs. Face layer fastened over gypsum board 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.
NATIONAL GYPSUM CO — Type DuraBacker, PermaBase, DuraBacker Plus, or PermaBase Plus

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 Wood Studs 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 wood studs 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 Wood studs 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 and the Gypsum Board Item 4, 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 Wood Studs 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.

13. **Foamed Plastic* —** (Optional, Not Shown - For use with Item 4Q) — Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity.
Holcim Solutions and Products US, LLC — Nexseal™ 2.0 or Nexseal™ 2.0 LE Spray Foam and Sucraseal Spray Foam. For use in Bearing and Non-Load Bearing Walls.

13A. **Foamed Plastic* —** (Optional, Not Shown - For use with Item 4S) — 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.

13B. **Foamed Plastic* —** (Optional, Not Shown - For use with Item 4T) — 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.

13C**. Foamed Plastic*** - (Optional, Not Shown – For use with Item 4U) - 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, Walltite® XL, , Walltite® MAX, Walltite® LWP, Walltite® Plus and Enertite® Max

14. **Foamed Plastic* —** (Optional, Not Shown - For use over Gypsum Board, Item 4) - Polyisocyanurate foamed plastic boards, any thickness applied vertically with vertical joints located over studs. May be used with Molded Plastic, Item 5 or any exterior facing, as authorized by the Authority Having Jurisdiction and installed in accordance with the manufacturer's installation instructions.
HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — "Xci Class A", "Xci 286", "Xci Foil (Class A)", "Xci CG", "Xci Foil", "Xci CG NH", "Xci Foil NH"

ATLAS ROOFING CORP — "EnergyShield®", "EnergyShield® CGF", "EnergyShield® XR", "EnergyShield® Pro Wall Insulation", "EnergyShield® CGF Pro", "EnergyShield® Ply Pro"

15. **Building Units* —** (Optional, Not Shown - For use over Gypsum Board, Item 4) Polyisocyanurate composite foamed plastic boards, any thickness, applied vertically with vertical joints located over studs. May be used with Molded Plastic, Item 5 or any exterior facing, as authorized by the Authority Having Jurisdiction and installed in accordance with the manufacturer's installation instructions.
HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — "Xci NB", "Xci Ply"

ATLAS ROOFING CORP — "EnergyShield® Ply"

16. **Building Units –** (Optional Item Not Shown – For use over Gypsum Board, Item 4) 1 in., 2 in. or 3 in. thick, 4 ft. wide – Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with wafer head screws of adequate length to penetrate framing by a minimum of of 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 2024-09-10

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER
A-7365
REGISTERED ARCHITECT

11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - U301

PROJECT NUMBER: 24017

SHEET NUMBER:

G-207

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

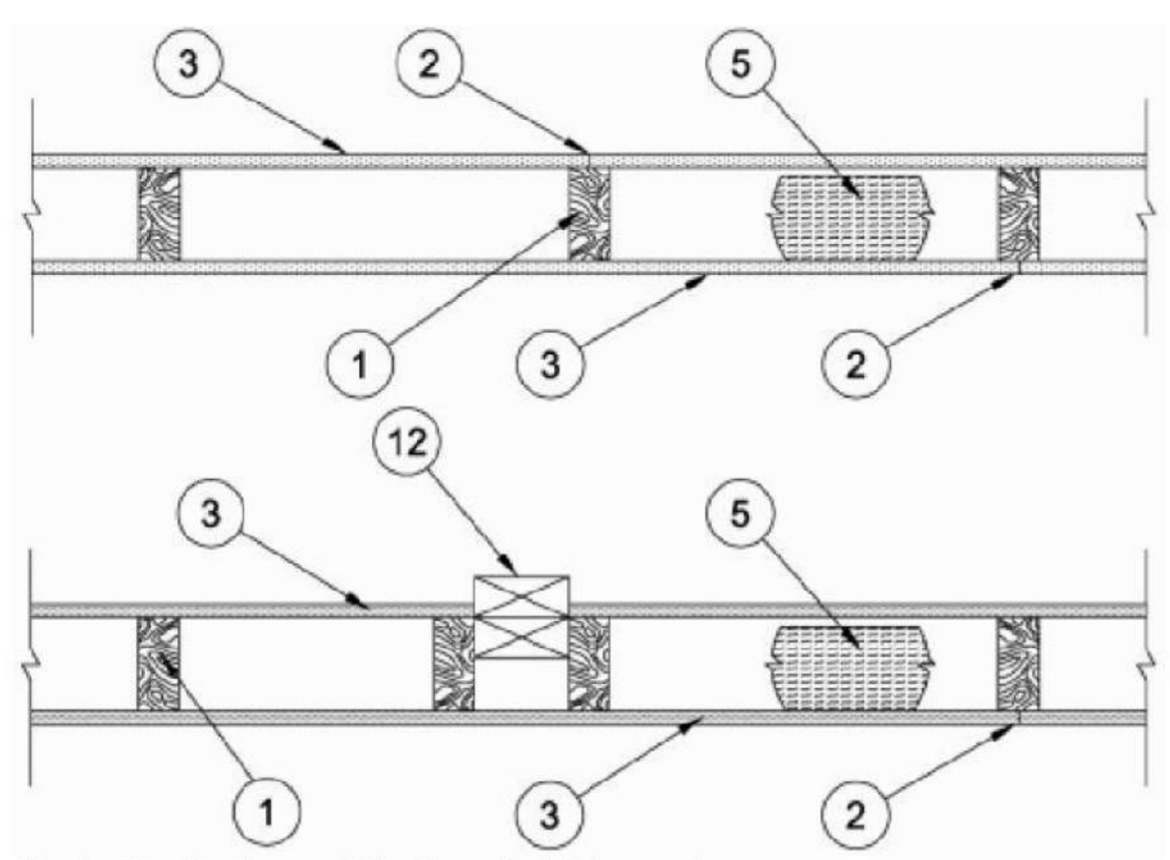
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **U305**

June 14, 2024

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 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), Type SCX (finish rating 24 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 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 SCX (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/OWENS CORNING — 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 SANCTUARY.

Applegate Greenfiber Acquisition LLC — Insulmax and SANCTUARY for use with wet or dry application.

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/OWENS CORNING — 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.

PRINTS ISSUED
11/27/2024 - CITY SUBMISSION

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT

11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - U305

PROJECT NUMBER: 24017

SHEET NUMBER:

G-208

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.
Holcim Solutions and Products US, LLC — Nexseal™ 2.0 or Nexseal™ 2.0 LE Spray Foam and Sucraseal Spray Foam.

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

Applegate Greenfiber Acquisition LLC— Applegate Advanced Stabilized Cellulose Insulation

5J. **Foamed Plastic* —** (Optional, Not Shown - For use with Item 3U) — Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity.
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, Walltite® XL, , Walltite® MAX, Walltite® LWP, Walltite® Plus and Enertite® Max

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

CGC INC — Types C, IP-X2, IPC-AR

CERTAINTEED GYPSUM INC — Type LGFC-C/A

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

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

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

PANEL REY S A — Type PRC

THAI GYPSUM PRODUCTS PCL — Type C

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

USG BORAL DRYWALL SFZ LLC — Type C

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

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

14G. **Building Units –** (Optional Item Not Shown – For use over Gypsum Board, Item 3) 1 in., 2 in. or 3 in. thick, 4 ft. wide – Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with wafer head screws of adequate length to penetrate framing by a minimum of of 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 2024-06-14

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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

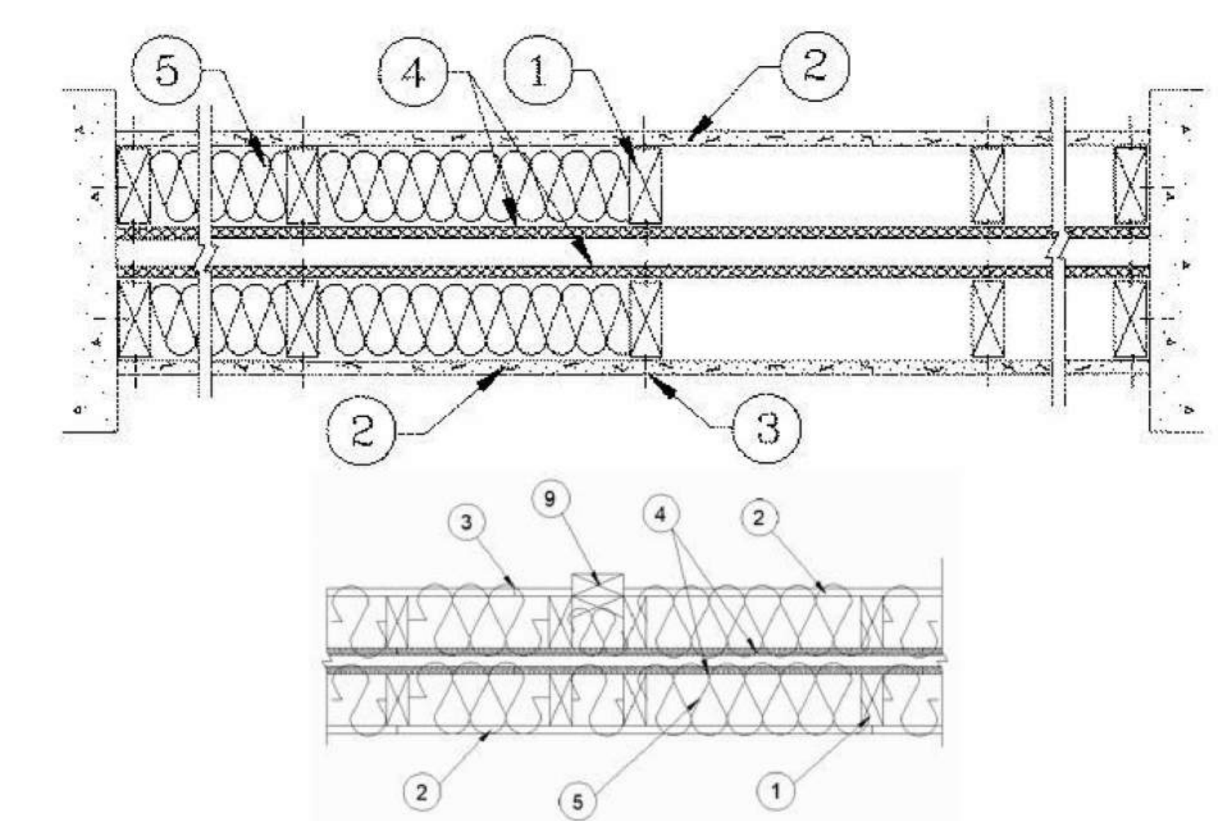
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **U341**

January 31, 2024

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

PRINTS ISSUED
11/27/2024 - CITY SUBMISSION

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT

11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - U305

PROJECT NUMBER: 24017

SHEET NUMBER:

G-209

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

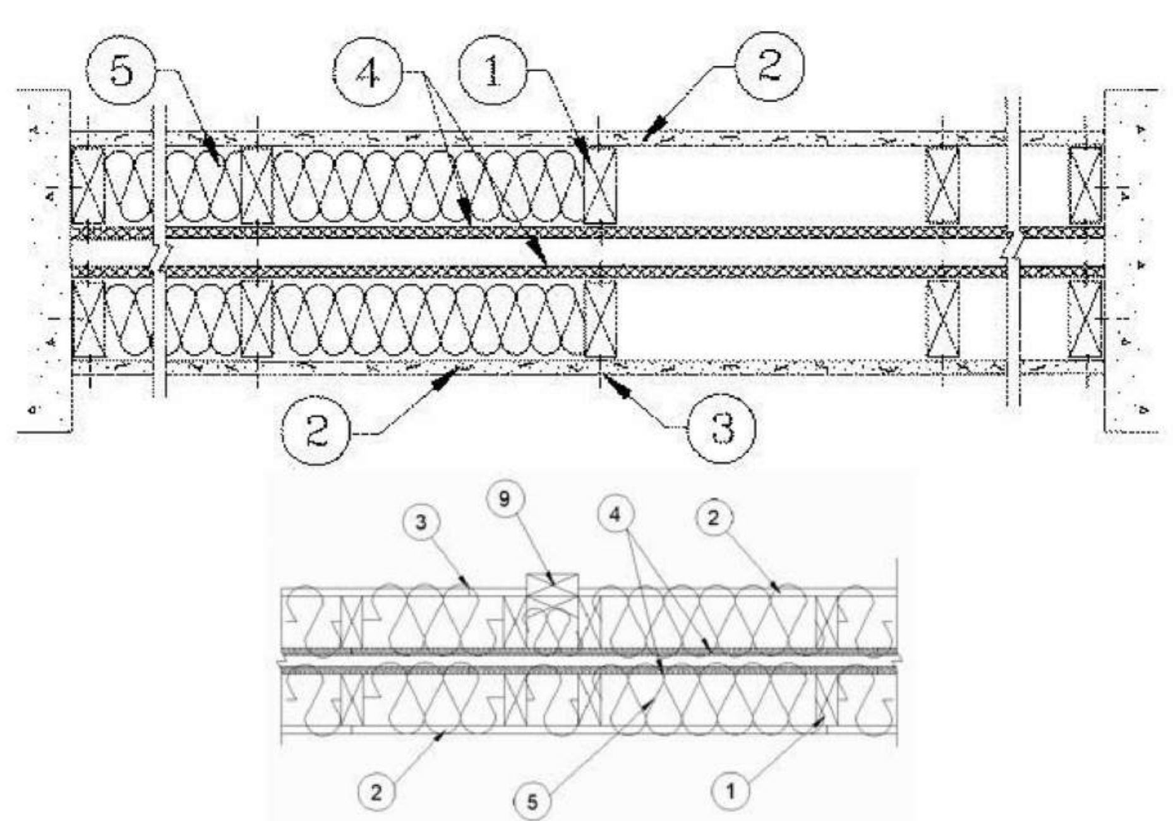
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **U341**

January 31, 2024

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 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.

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. **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. To facilitate the installation of the material, any thin, woven or non-woven netting may be attached by any means possible to the outer face the studs. The material shall reach equilibrium moisture content before the installation of materials on either face of the studs. The minimum dry density shall be 5.79 lbs/ft^3.

Applegate Greenfiber Acquisition LLC— Applegate Advanced Stabilized Cellulose Insulation

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. 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/OWENS CORNING — 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 —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

*** 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 2024-01-31

PRINTS ISSUED
11/27/2024 - CITY SUBMISSION

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT

11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - U341

PROJECT NUMBER: 24017

SHEET NUMBER:

G-210

PRINTS ISSUED
11/27/2024 - CITY SUBMISSION
REVISIONS:

UL Product **iQ**®

UL Solutions

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

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

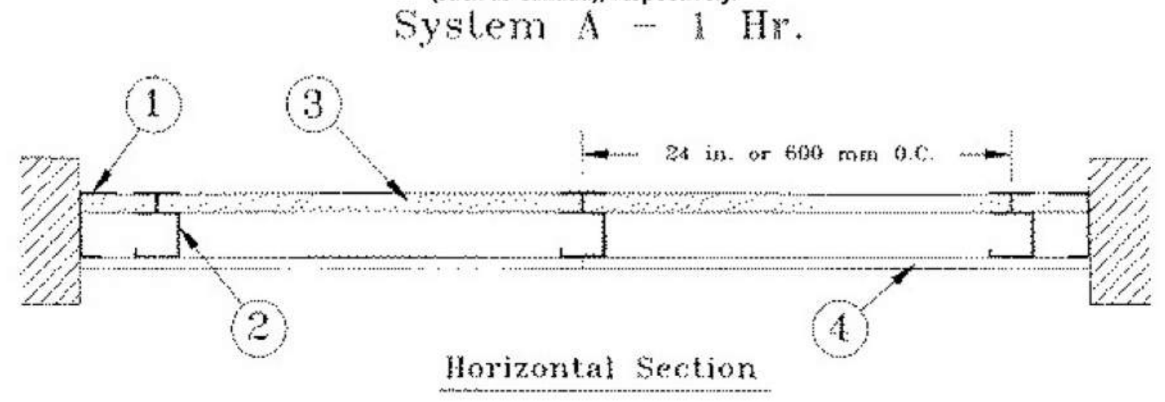
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **U415**

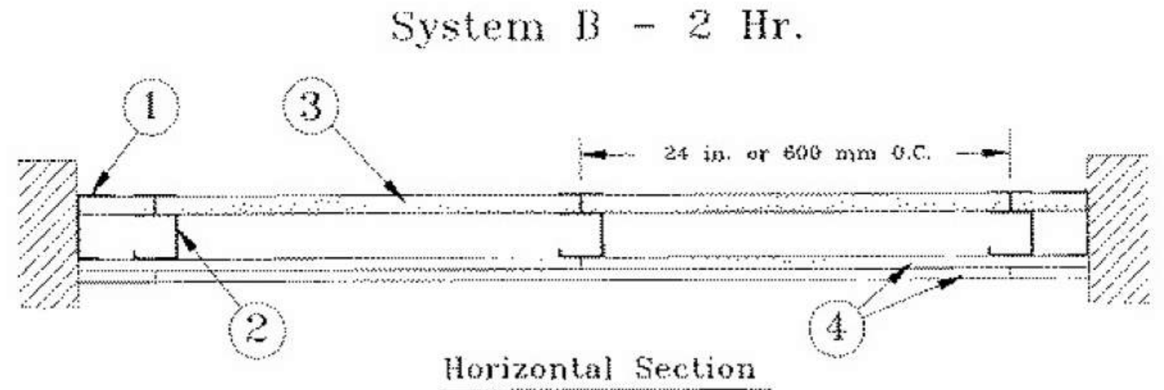
February 14, 2022

Nonbearing Wall Ratings — 1, 2, 3 or 4 Hr
*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

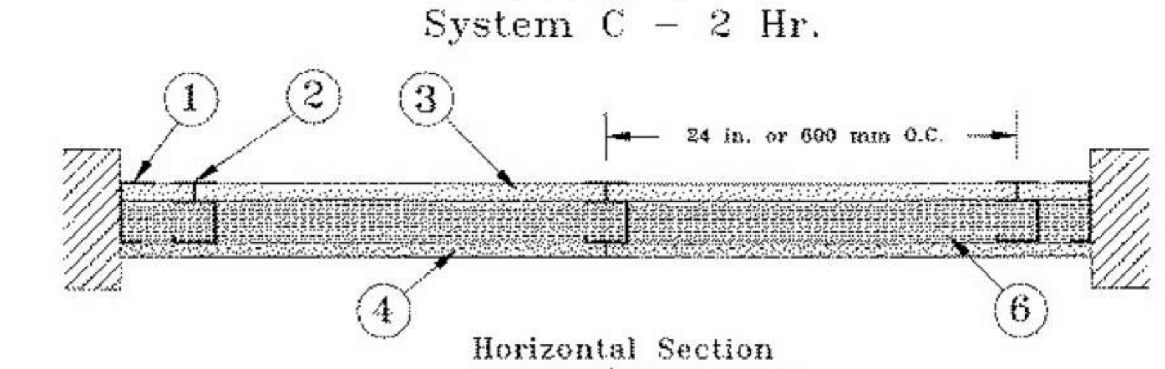
System A — 1 Hr.



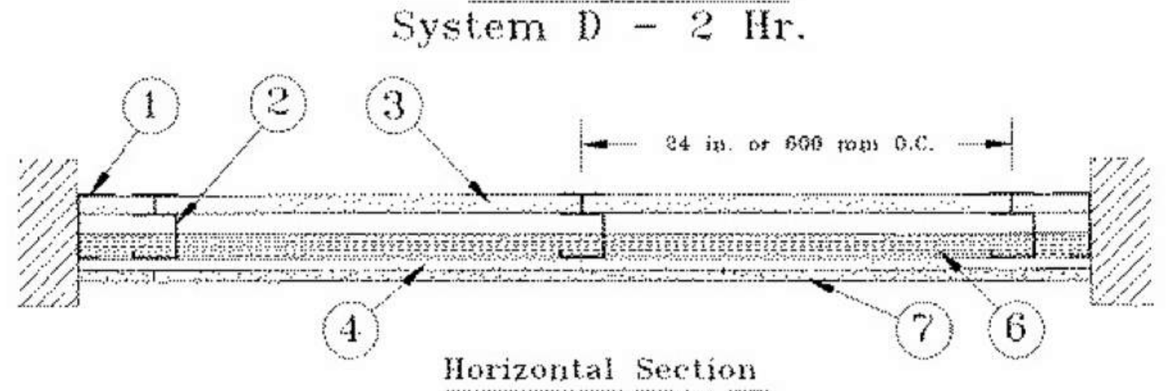
System B — 2 Hr.



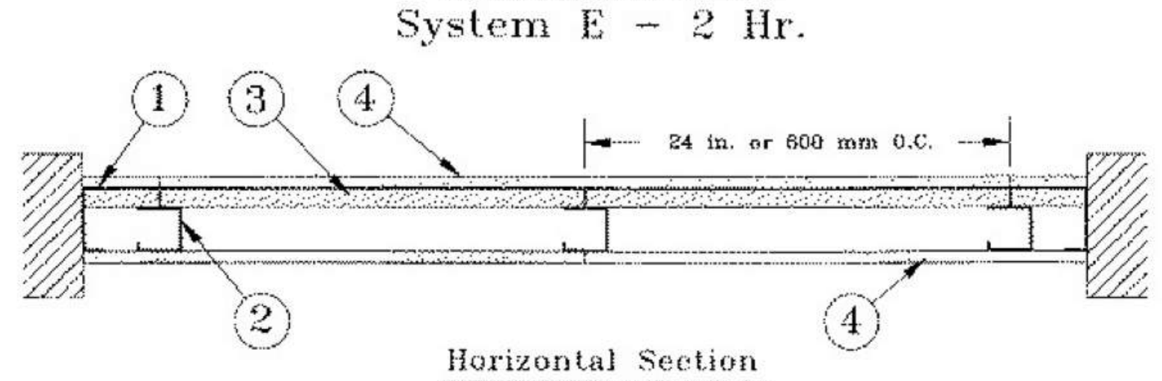
System C — 2 Hr.



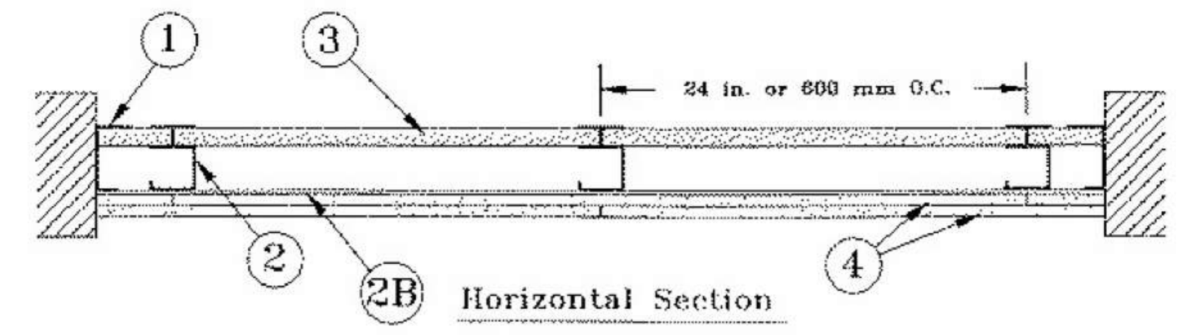
System D — 2 Hr.



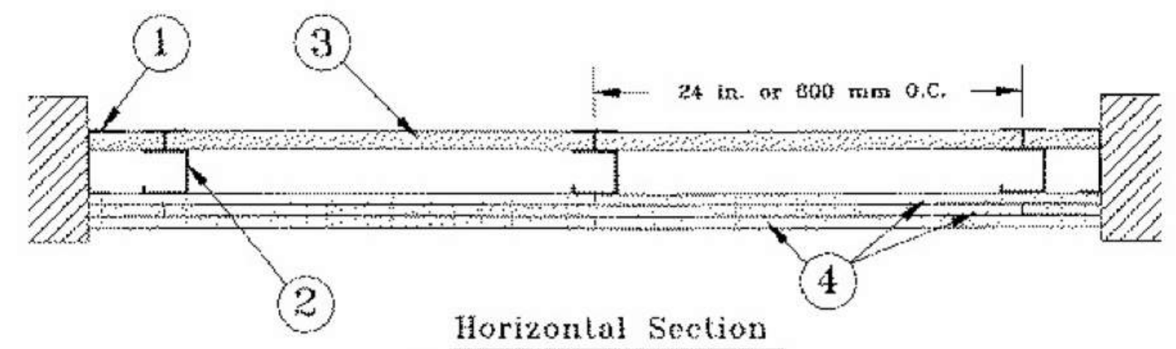
System E — 2 Hr.



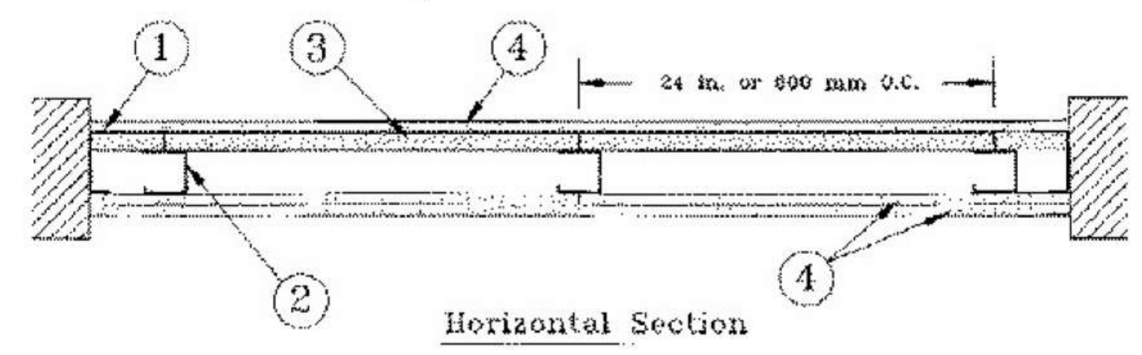
System F — 2 Hr.



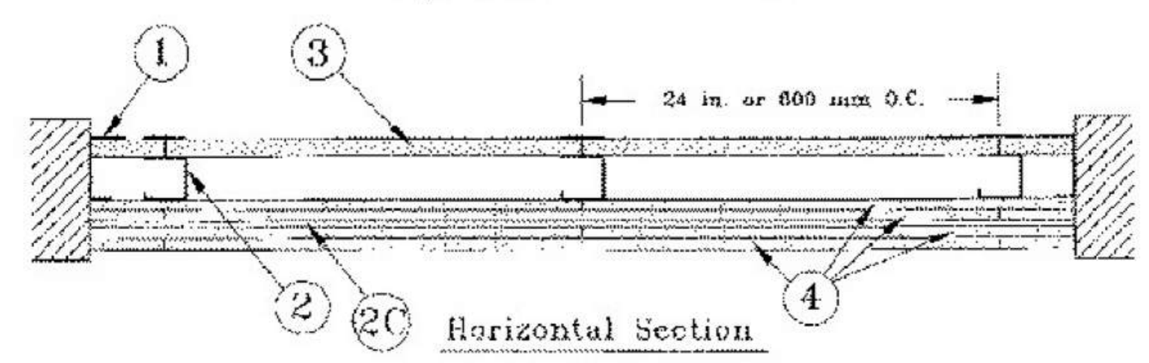
System G — 3 Hr.



System H — 3 Hr.



System I — 4 Hr.



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

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

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

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

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

2D. **Steel Framing Members* —** (Optional, Not Shown) — For use with single or double layer systems. Furring channels and Steel Framing Members as described below. Not to be used with Type FRX-G gypsum board, lead backed gypsum boards (Items 4A-4D), or cementitious backer units (Item 7).
a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board installed vertically only and attached to furring channels as described in Item 4.

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

2E. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below. . Not to be used with Type FRX-G gypsum board, lead backed gypsum boards (Items 4A-4D), or cementitious backer units (Item 7).
a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire.Gypsum board attached to furring channels as described in Item 4.

b. **Steel Framing Members* —** Used to attach furring channels (Item 2Ea) to studs. Clips spaced 24 in. OC., and secured to studs with 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips.
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

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

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

2G. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below. Not to be used with Type FRX-G gypsum board, lead backed gypsum boards (Items 4A-4D), or cementitious backer units (Item 7).
a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 2Gb. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 4.

b. **Steel Framing Members* —** Used to attach furring channels (Item 2Ga) to studs. Clips spaced 24 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
REGUPOL AMERICA — Type SonusClip

2H. **Steel Framing Members* —** (Optional, Not Shown) — Resilient channels and Steel Framing Members as described below. Not to be used with Type FRX-G gypsum board, lead backed gypsum boards (Items 4A-4D), or cementitious backer units (Item 7).
a. **Resilient Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No. 8 15 x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 4.

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

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

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

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

UNITED STATES GYPSUM CO — Type SLX

USG BORAL DRYWALL SFZ LLC — Type SLX

USG MEXICO S A DE C V — Type SLX

4. **Gypsum Board* —**

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

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

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

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

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

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

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

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

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

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

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

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

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

CGC INC — Types IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO — Types IP-X3 or ULTRACODE

USG BORAL DRYWALL SFZ LLC — Type ULTRACODE

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

System G — 3 Hr
Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally in three layers. Inner or base layer attached to studs with 1 in. long Type S steel screws spaced 24 in. OC when installed vertically or 16 in OC when installed horizontally. Middle layer attached to studs with 1-5/8 in. long Type S steel screws spaced 24 in. when installed vertically or 16 in. OC when installed horizontally. Outer or face layer attached to studs with 2-1/4 in. long Type S steel screws spaced 16 in. when installed vertically or 12 in. OC when installed horizontally. Screws offset 6 in. from layer below. Horizontal joints on adjacent layers staggered a min of 12 in. . Horizontal joints need not be backed by steel framing. Vertical joints centered over studs and staggered 24 in. on adjacent layers.

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

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Type C

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

USG BORAL DRYWALL SFZ LLC — Type C

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

System H — 3 Hr
Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally, two layers over the flange of the "C" section of the studs, one layer over the flange of the "H" section of the studs. Inner or base layer attached to studs with 1 in. long Type S steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Face layer attached to studs with 1-5/8 in. long Type S steel screws spaced 16 in. when installed vertically or 12 in. OC when installed horizontally. Screws offset 6 in. from layer below. Horizontal joints on adjacent layers staggered a min of 12 in. Horizontal joints need not be backed by steel framing. Vertical joints centered over studs and staggered 24 in. on adjacent layers.

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

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Type C

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

USG BORAL DRYWALL SFZ LLC — Type C

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

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

CGC INC — Types IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO — Types IP-X3 or ULTRACODE

USG BORAL DRYWALL SFZ LLC — Type ULTRACODE

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

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

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

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Kansas City, MO 64108-1404
p: 816.472.1448
w: www.rosemann.com

DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7385
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - U415

PROJECT NUMBER: 24017

SHEET NUMBER:

G-211

Joint Compound see Item 5. To be used with Lead Batten Strips (see Item 9A) or Lead Discs (see Item 10A). Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 10 ft long with a max thickness of 0.140 in. placed on the face of studs and attached to the stud with two 1 in. long Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip.
MAYCO INDUSTRIES INC — Type X-Ray Shielded Gypsum

4D. **Gypsum Board* —** (As an alternate to Item 4 Systems A, B, C, D, E, G, H, and I when used as the base layer, For direct attachment only) — Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".
RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

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

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

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

6. **Batts and Blankets* —**

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

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

Systems C & D

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

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

THERMAFIBER INC — Type SAFB, SAFB FF

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

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

9. **Lead Batten Strips —** (Not Shown, For Use With Item 4A) — Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 4A) and optional at remaining stud locations. Required behind vertical joints.

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

10. **Lead Discs or Tabs —** (Not Shown, For Use With Item 4A) — Used in lieu of or in addition to the lead batten strips (Item 9) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 4A) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

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

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

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

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

Last Updated on 2022-02-14

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

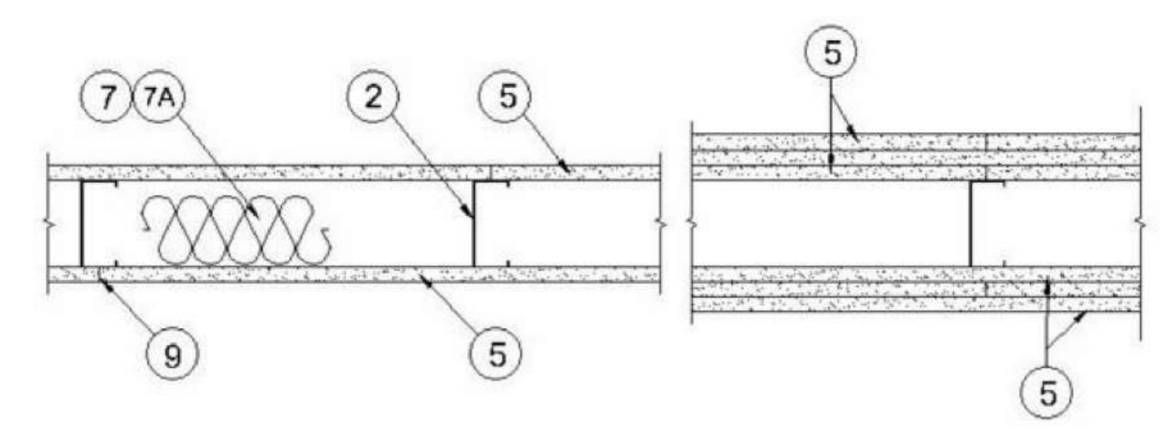
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **U423**

June 14, 2024

Bearing Wall Ratings — 3/4 Hr, 1, 1-1/2 or 2 Hr (See Items 5 & 7)
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

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



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

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

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

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

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

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

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

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

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

Wallboard Protection on Each Side of Wall

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

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

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

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

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

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

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

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

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

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

USG MEXICO S A DE C V — Type USGX

5C. **Gypsum Board* —** (As an alternate to Item 5 when used as the base layer on one or both sides of wall, For direct attachment only, not to be used with Item 4) — Nominal 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 (or #6 by 1-1/4 in. long bugle head fine driller) steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.
NEW ENGLAND LEAD BURNING CO INC, DBA NELCO — Nelco

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

5E. **Gypsum Board* —** (As an alternate to Item 5 when used as the base layer on one or both sides of wall, For direct attachment only, not to be used with Item 4) — Nom 5/8 in. may be used as alternate to all 5/8. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. See Items 1A, 2A 8, 8A(a). Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".
RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

PRINTS ISSUED
11/27/2024 - CITY SUBMISSION

REVISIONS:

rosemann & ASSOCIATES P.C.
ARCHITECTURE
INTERIOR DESIGN
ENGINEERING
PLANNING
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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
REGISTERED ARCHITECT

11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - U415 / U423

PROJECT NUMBER: 24017

SHEET NUMBER:

G-212

5F. **Gypsum Board* —** (As an alternate to Item 5 when Foam Plastic insulation (Item 17 or 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 – only for use with item 5F, Not Shown, As an alternate to Item 7) Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity. When foamed plastic is used, minimum stud depth shall be 3-1/2 in. with minimum 20 MSG steel thickness.

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, Only for use with item 5F, As an alternate to Item 7) Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity. When foamed plastic is used, minimum stud depth shall be 3-1/2 in. with minimum 20 MSG steel thickness.

BASF CORP - Enertite® NM, Enertite® G, FE178®, Spraytite® 178, Spraytite® 81206, Walltite® 200, Walltite® US, Walltite® US-N, Walltite® HP+, Spraytite Comfort® XL, Walltite® XL, , Walltite® MAX, Walltite® LWP, Walltite® Plus and Enertite® Max

*** 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 2024-06-14

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

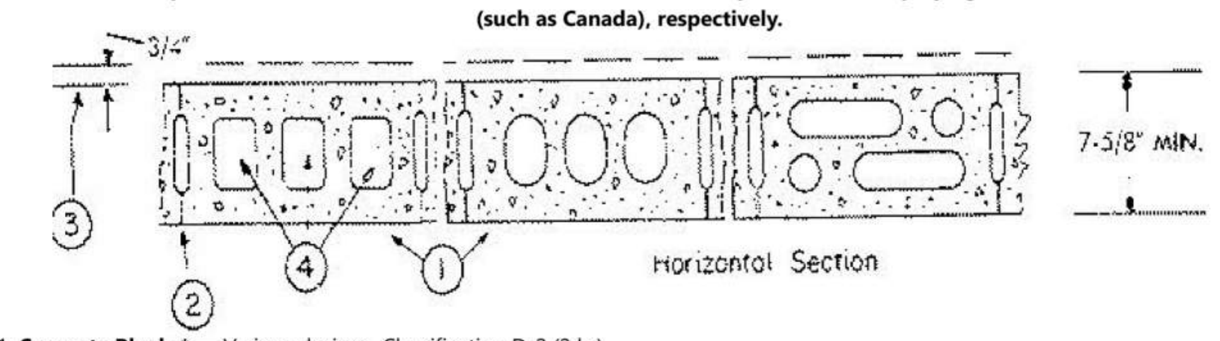
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **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

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



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".

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

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PRINTS ISSUED
11/27/2024 - CITY SUBMISSION
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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - U423 / U905

PROJECT NUMBER: 24017

SHEET NUMBER:
G-213

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

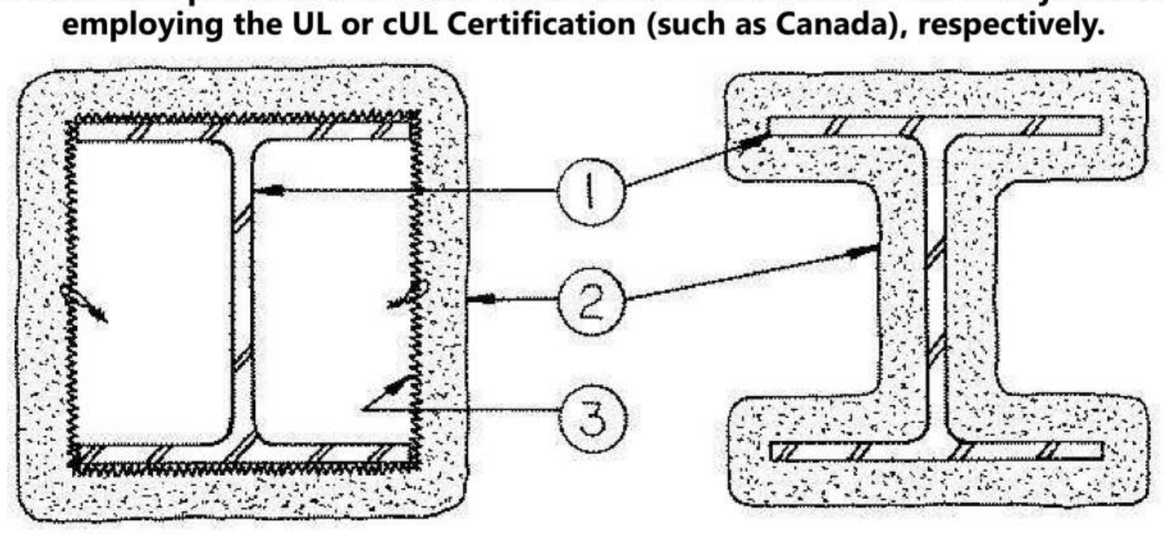
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

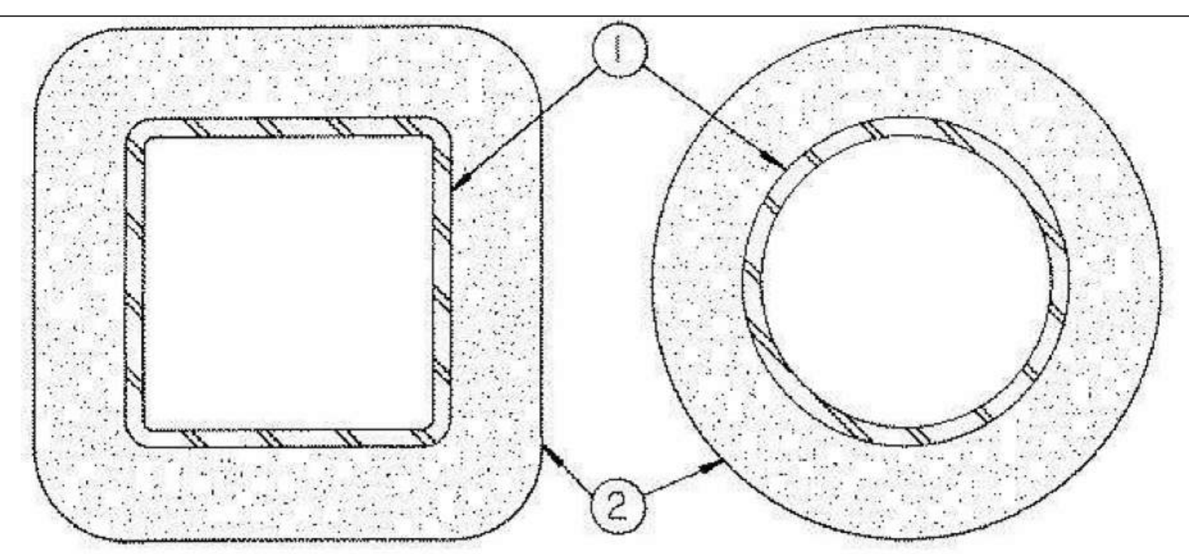
Design No. X790

November 25, 2019

Ratings — 1, 1-1/2, 2, 3 and 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.**





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	1 Hr	1-1/2 Hr	Min Thkns In. 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

PRINTS ISSUED
11/27/2024 - CITY SUBMISSION

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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7395
REGISTERED ARCHITECT

11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - X790

PROJECT NUMBER: 24017

SHEET NUMBER:

G-214

UL Product **iQ**®

UL Solutions

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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

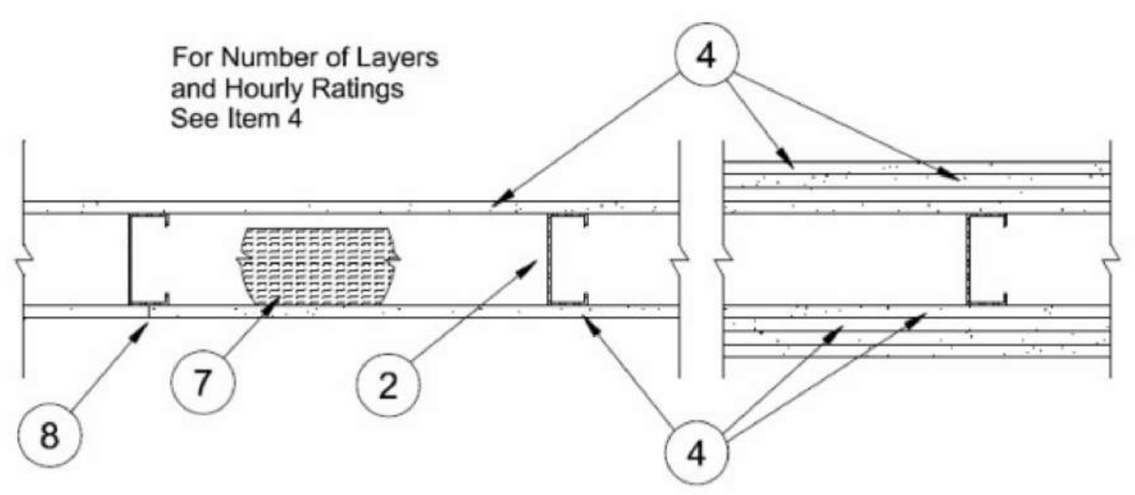
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. W456

October 16, 2023

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 — FOAMGLAS® T3+ Block, FOAMGLAS® T4+ Block, FOAMGLAS® S3 Block, FOAMGLAS® F Block

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.
Applegate Greenfiber Acquisition LLC — Insulmax and SANCTUARY for use with wet or dry application.

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, EnergyShield Ply Pro, EnergyShield® CGF, EnergyShield® PanelCast, EnergyShield® and "EnergyShield® XR

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"

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

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

10C. **Building Units* —** 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.

ATLAS ROOFING CORP — EnergyShield® Ply

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^3.

BASF CORP STYRENIC FOAMS DIV — Types Neopor® GPS (Roofing Board), Neopor® GPS (EIFS), Neopor® GPS (Stucco), Neopor® GPS (CI), Neopor® GPS (IE), Neopor® GPS (Perma R-Chrome), Neopor® GPS (Termite Treated), Neopor® GPS (HALO Subterra), Neopor® GPS (Foundation PRO), Neopor® GPS (HALO Exterra), Neopor® GPS (HALO Interra), Neopor® GPS (PFT Pro Board), Neopor® GPS (PFT Red Label), and Neopor® GPS (PFT Chrome).

11. **Wall and Partition Facings and Accessories* —** (CLBV) (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 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 4 to 4A 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, 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 4 to 4A with drywall screws specified 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

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 2023-10-16

PRINTS ISSUED
11/27/2024 - CITY SUBMISSION

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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7395
REGISTERED ARCHITECT

11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
UL ASSEMBLIES - W456

PROJECT NUMBER: 24017

SHEET NUMBER:

11/27/2024 9:35:38 AM
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REFERENCE G-003 FOR GENERAL NOTES

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

GENERAL NOTES

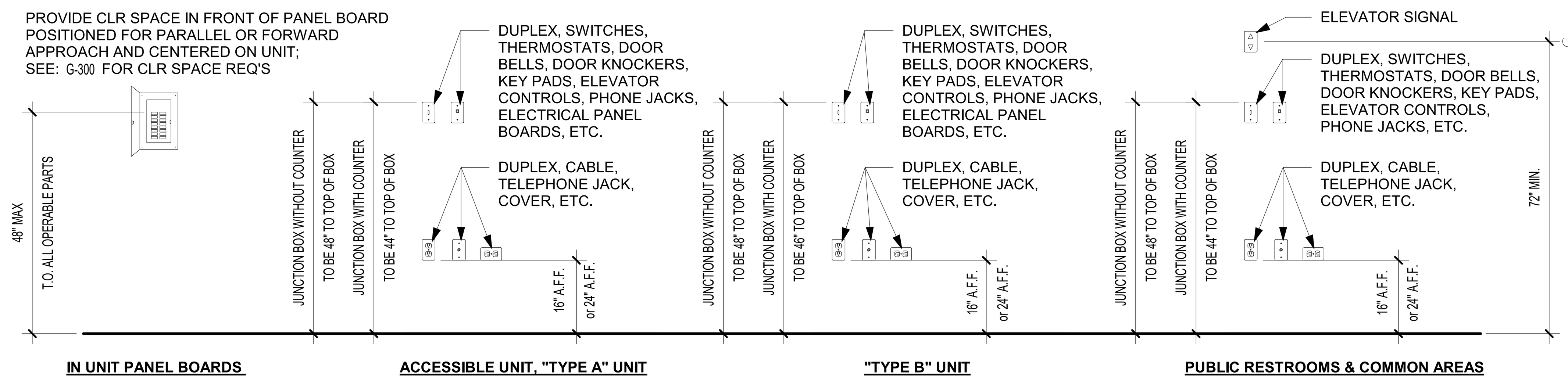
1. THE PROJECT SHALL MEET ALL APPLICABLE CODES SPECIFIED BY LOCAL AND FEDERAL REQUIREMENTS, INCLUDING BUT NOT LIMITED TO THE INFORMATION PRESENTED ON THE FOLLOWING G-300 SHEETS.
   A. LOCAL AND FEDERAL REQUIREMENTS SHALL SUPERCEDE ANY CONFLICTING INFORMATION
2. ALL DIMENSIONS PROVIDED ON THE FOLLOWING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

UNIVERSAL DESIGN REQ'S

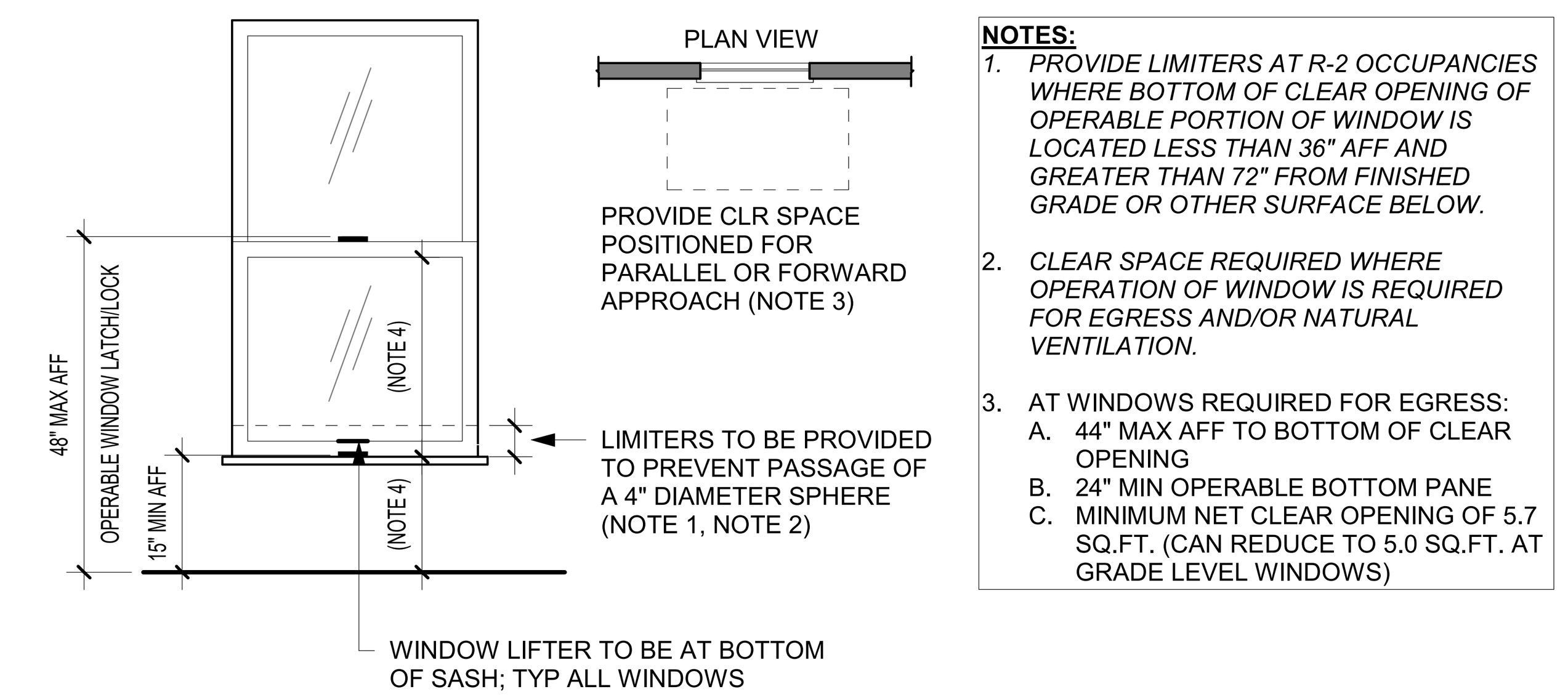
REQUIREMENTS FOR UNIVERSAL DESIGN HOUSING FOR THE ELDERLY AND SINGLE FAMILY DWELLINGS.

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

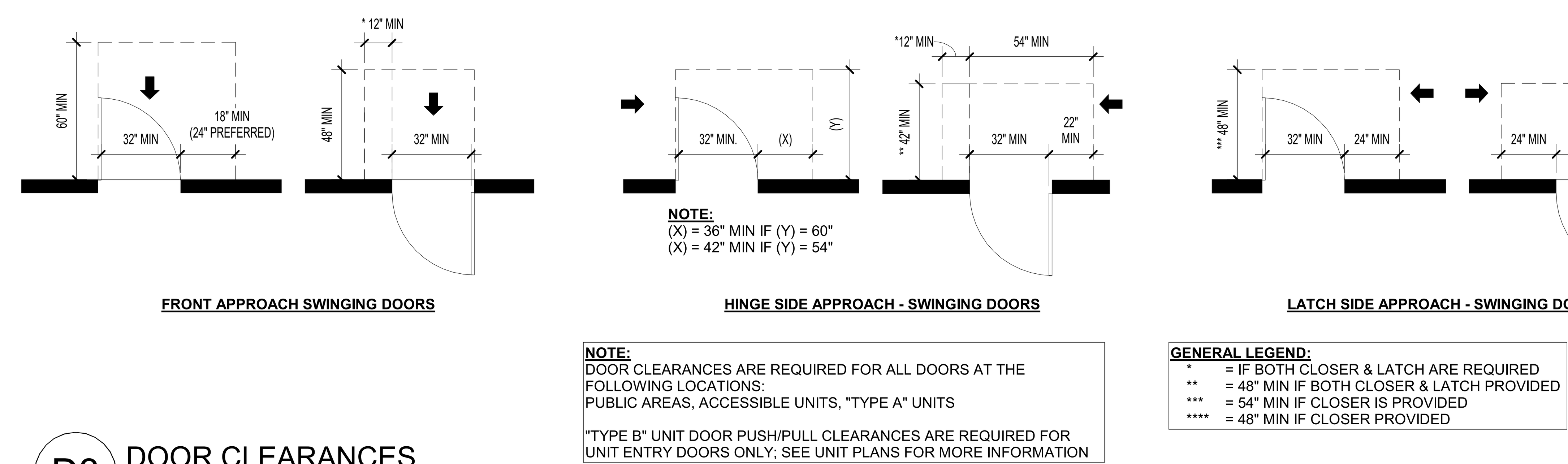


D4 MOUNTING HEIGHTS
NOT TO SCALE

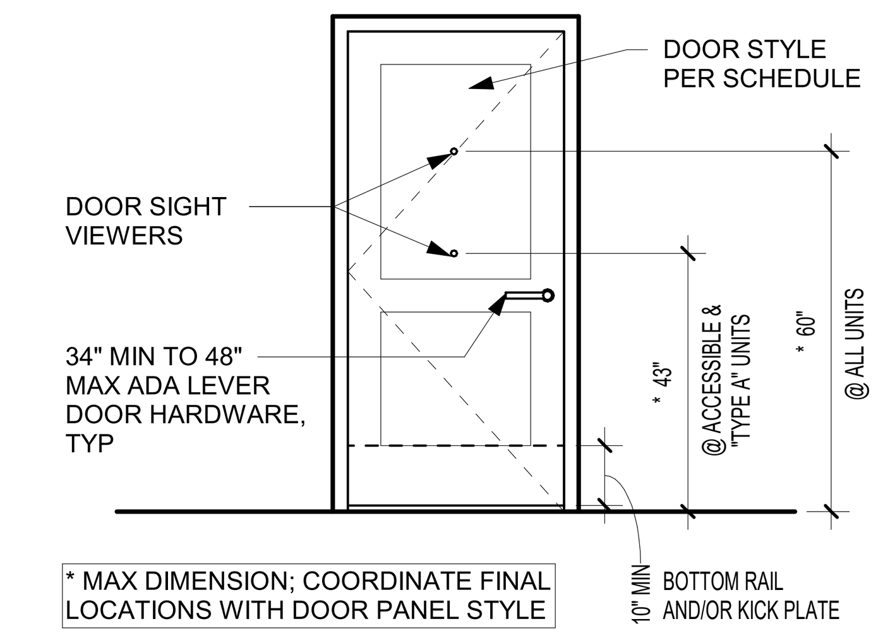


A4 WINDOW LATCH/LOCK REQ'S
NOT TO SCALE

DOORS



D3 DOOR CLEARANCES
NOT TO SCALE



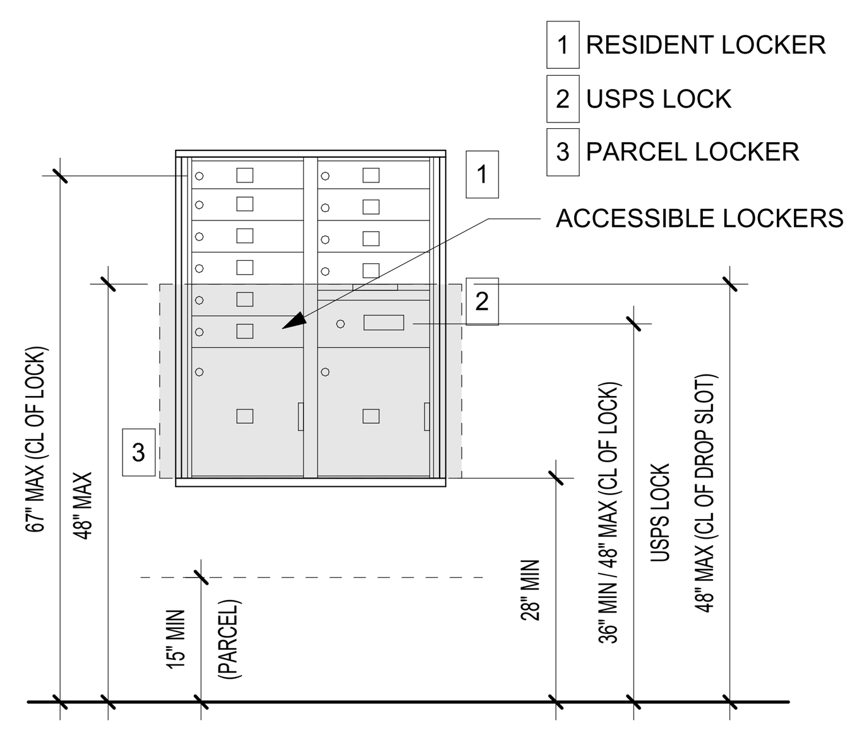
A3 DOOR HARDWARE HEIGHTS
NOT TO SCALE

MAILBOXES

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).

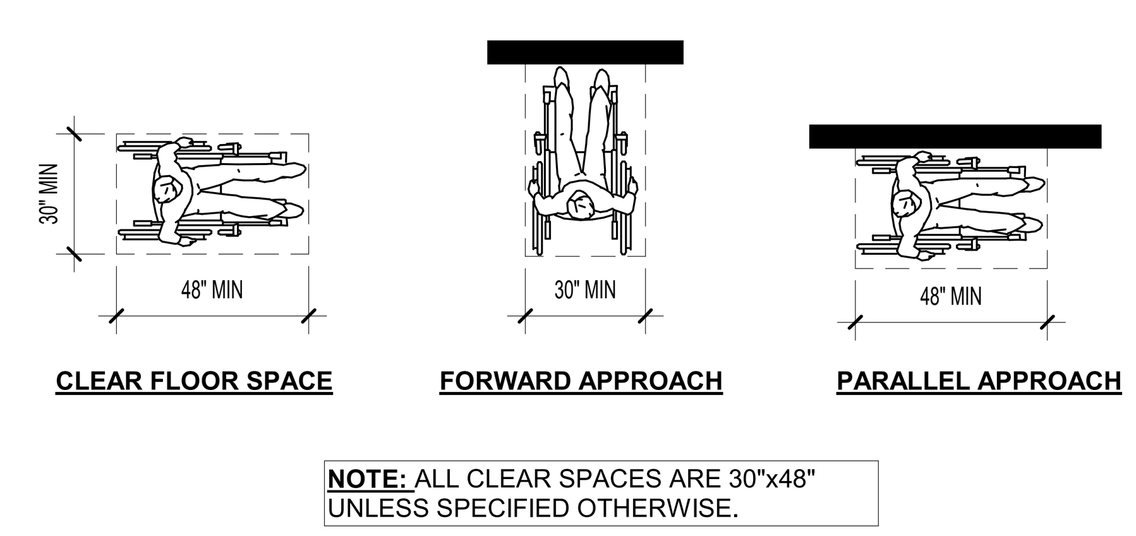
ACCESSIBLE MAILBOXES
48" MAX AFF (CL OF LOCK)
28" MIN AFF (T.O. BOTTOM SHELF)
PROVIDE **30"x48"** CLEAR FLOOR SPACE AT ALL ACCESSIBLE LOCKERS, CENTERED ON MAILBOX

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

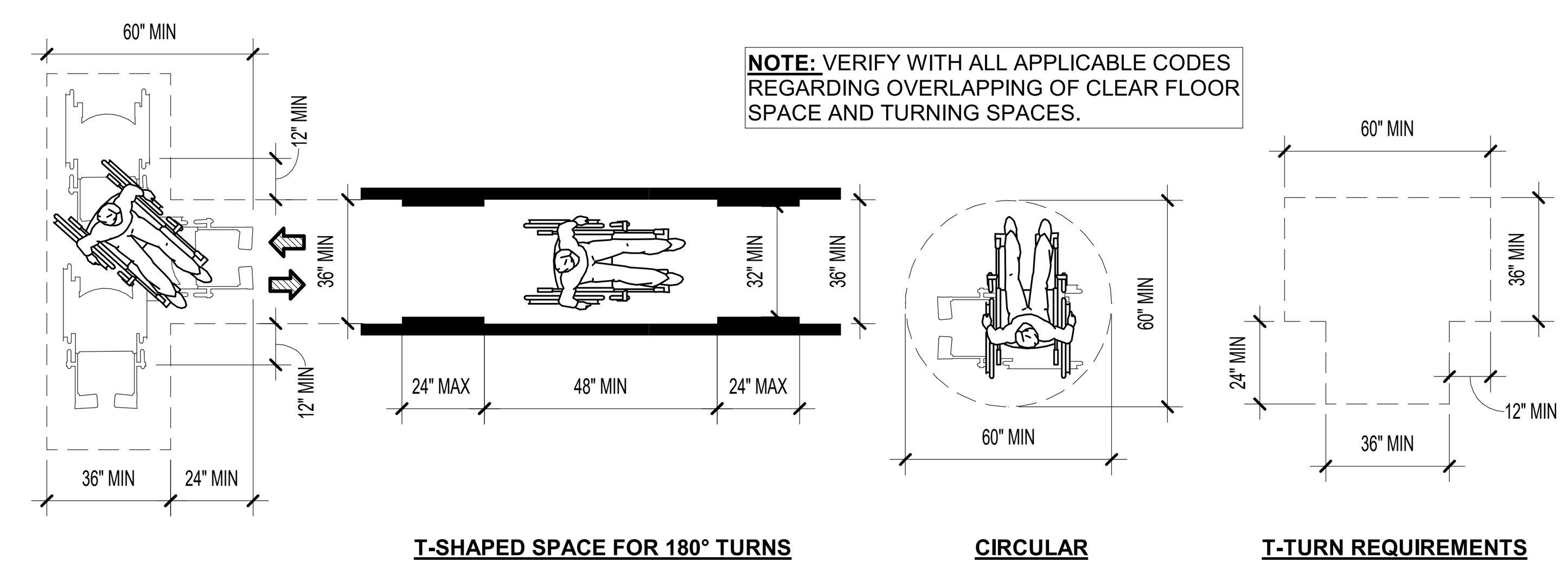


D2 MAIL BOXES
1/2" = 1'-0"

CLEAR FLOOR SPACES

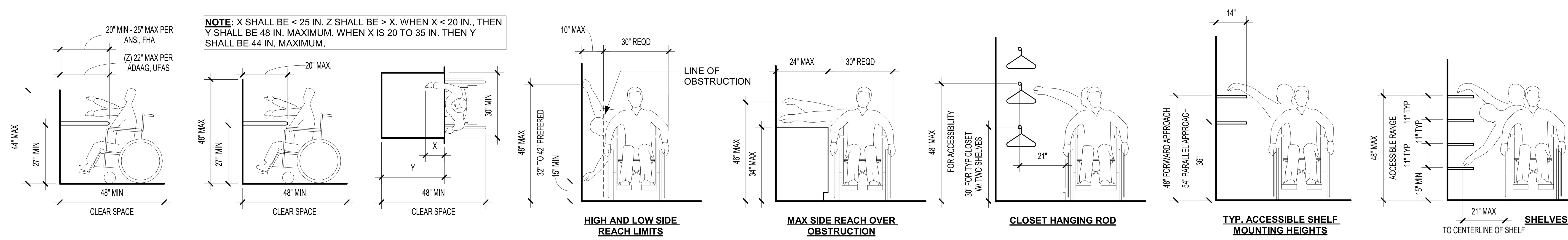


C2 CLEAR FLOOR SPACE
NOT TO SCALE



A2 WHEELCHAIR TURNING SPACE
NOT TO SCALE

REACH RANGES



D1 REACH REQUIREMENTS
NOT TO SCALE

PRINTS ISSUED
11/27/2024 - CITY SUBMISSION

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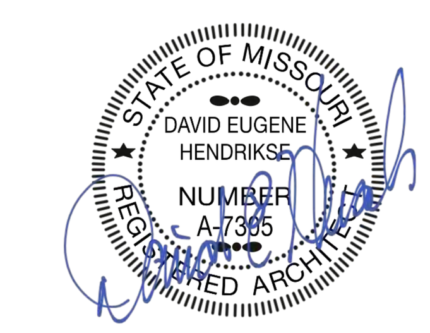


11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
ACCESSIBILITY STANDARDS

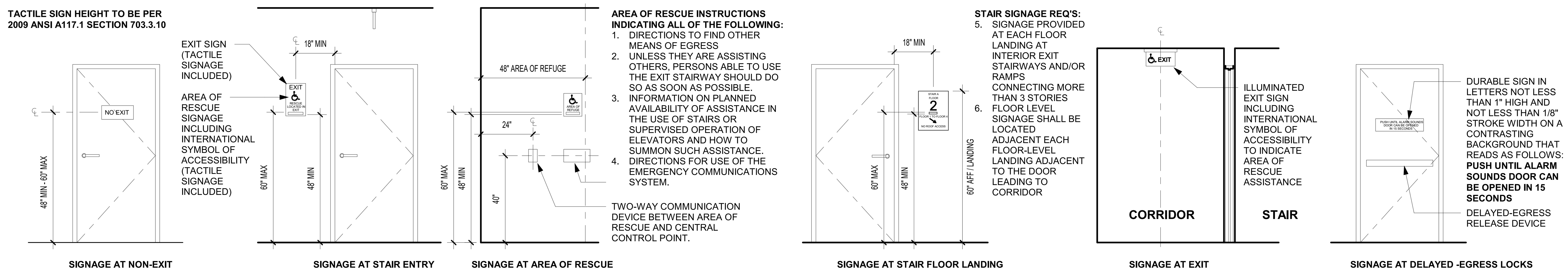
PROJECT NUMBER: 24017

SHEET NUMBER:

G-300

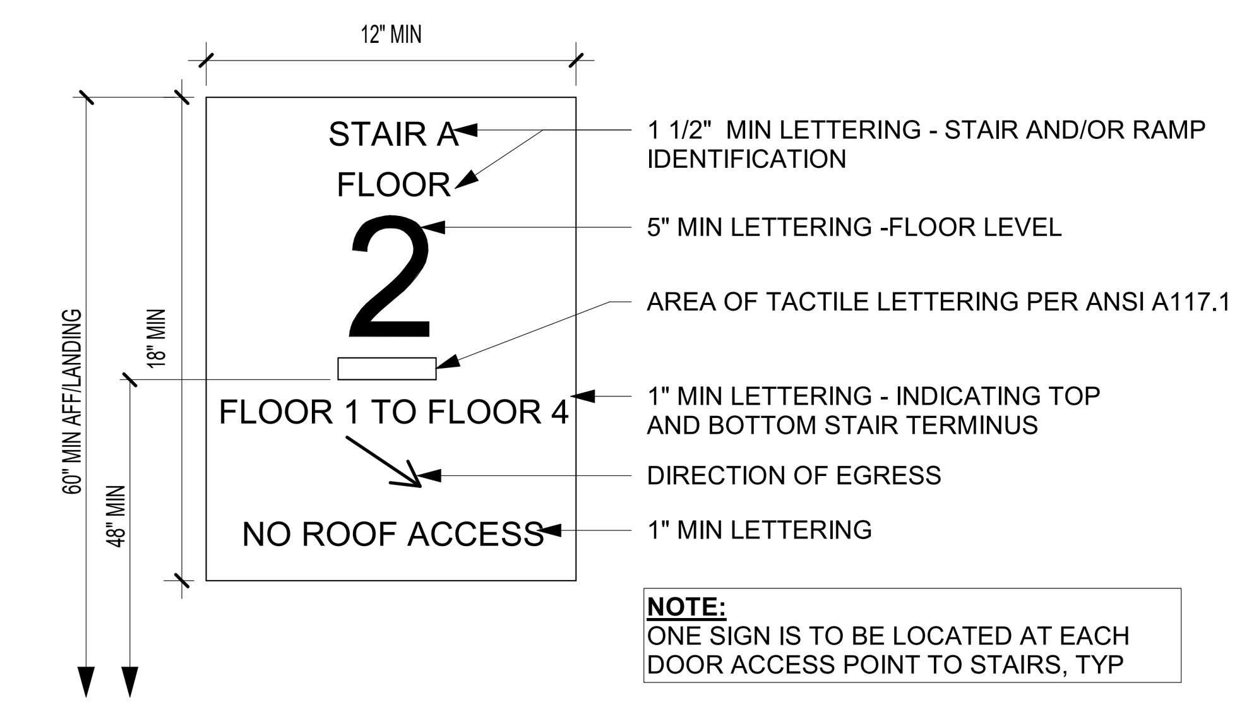
REFERENCE G-003 FOR GENERAL NOTES
DIAGRAMS BELOW ARE APPLICABLE TO PUBLIC SPACES AND ALL UNIT TYPES UNLESS NOTED OTHERWISE

SIGNAGE



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

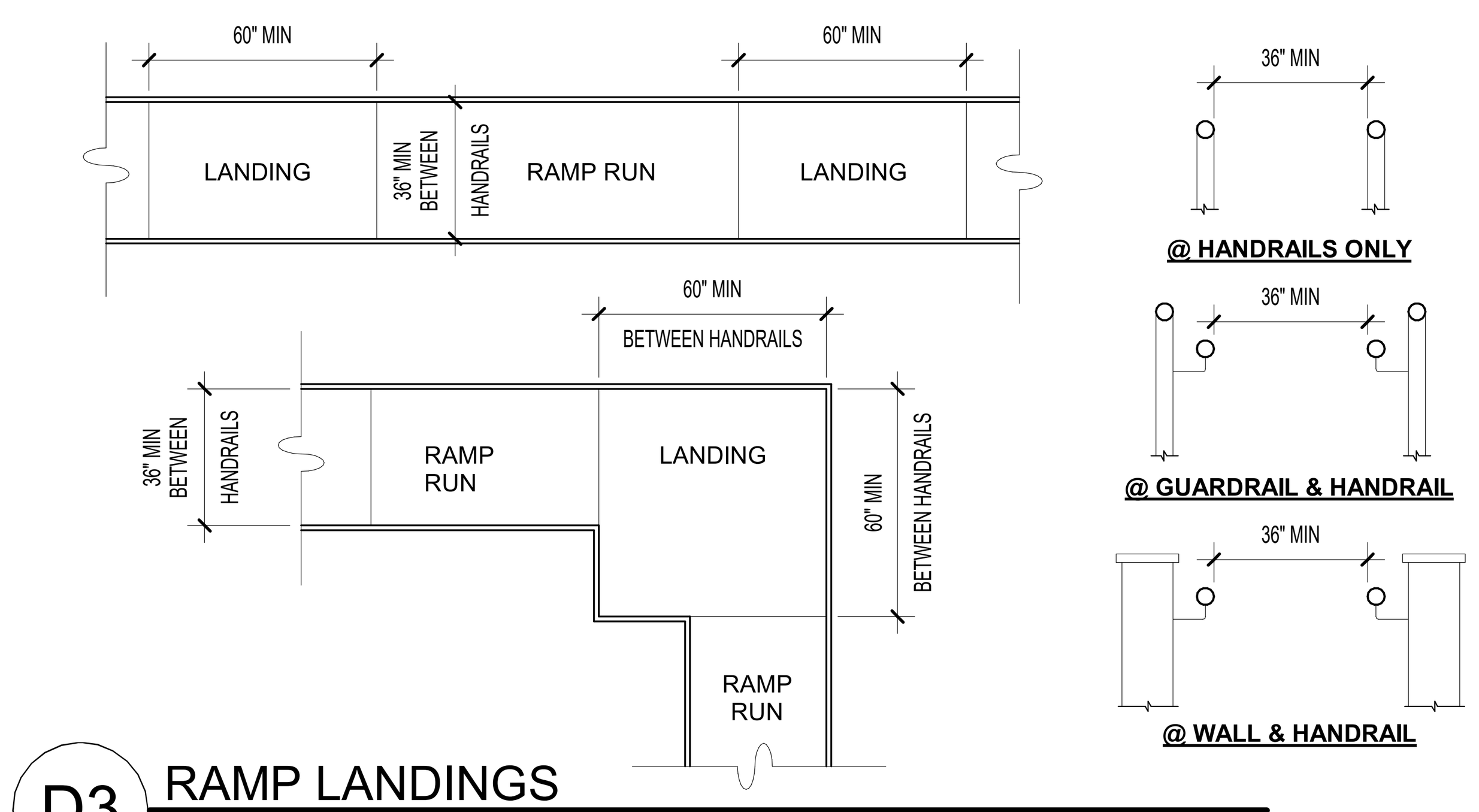
D4 CODE COMPLIANT SIGNAGE
NOT TO SCALE



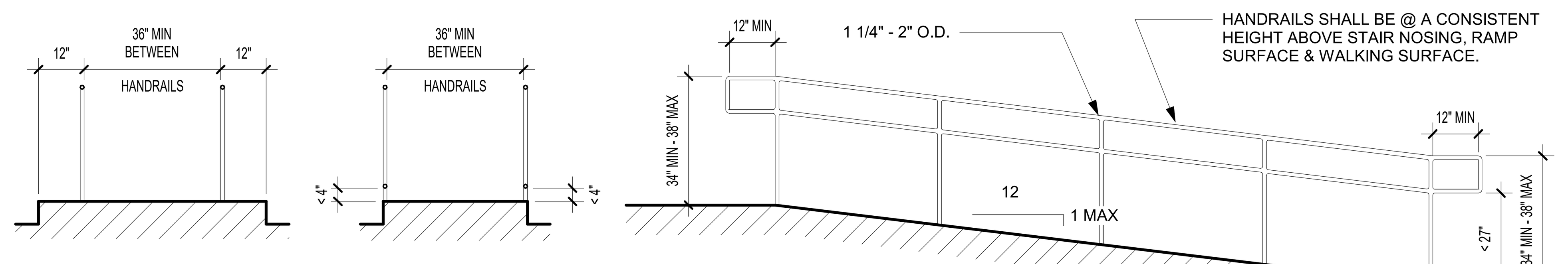
NOTE:
ONE SIGN IS TO BE LOCATED AT EACH DOOR ACCESS POINT TO STAIRS, TYP

A4 EGRESS STAIR SIGNAGE
NOT TO SCALE

RAMPS



D3 RAMP LANDINGS
NOT TO SCALE



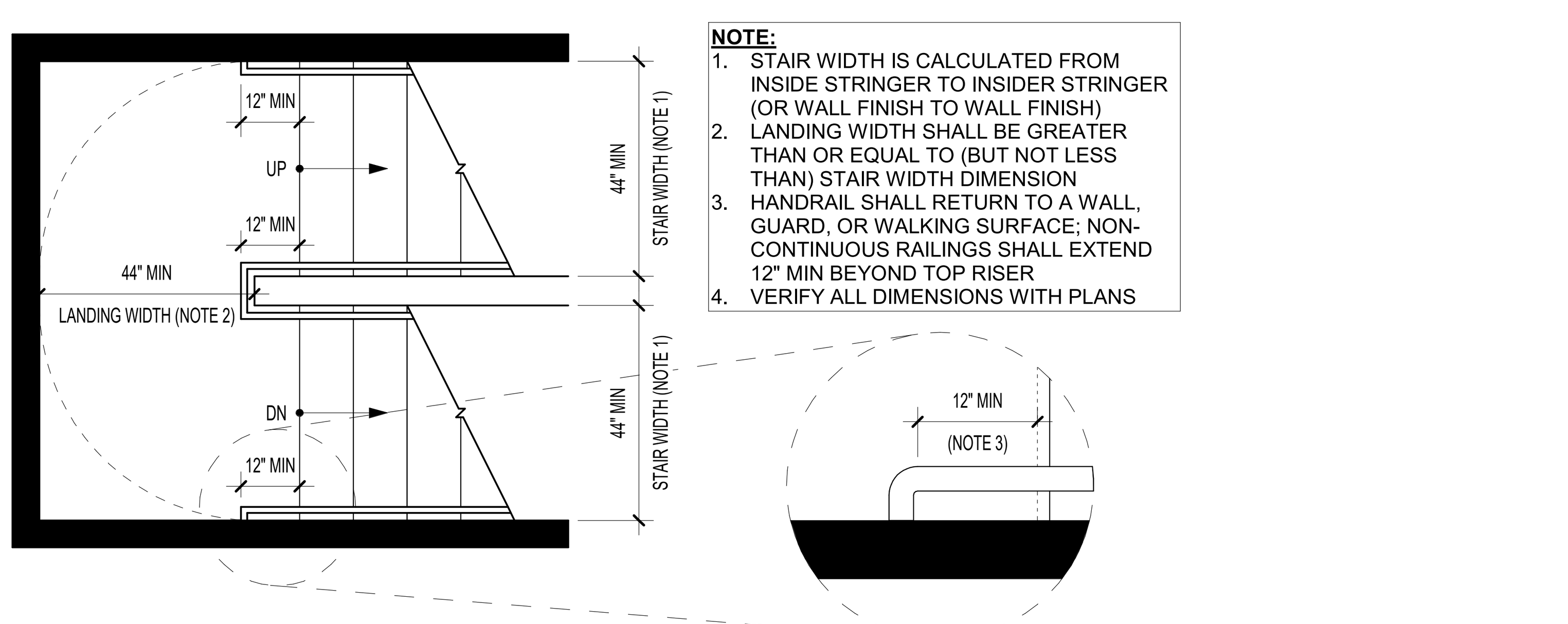
NOTES:
1. WIDTH BETWEEN HANDRAILS IS 36" MIN; HANDRAILS AND HANDRAIL SUPPORTS SHALL NOT PROJECT INTO THE REQUIRED CLEAR WIDTH OF THE RAMP RUN.
2. CROSS SLOPE OF RAMP SURFACES SHALL BE NO GREATER THAN 1:48 AND SHALL BE STABLE, FIRM, AND SLIP-RESISTANT. IF THE SLOPE IS EQ. OR GREATER THAN 1:20 YOU ARE 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

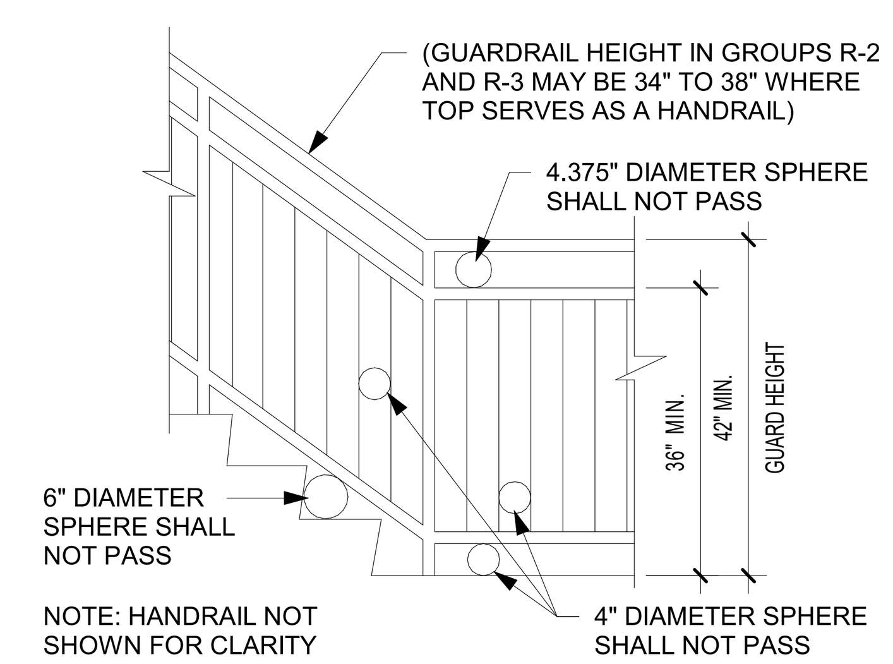
CARPET	MAX PILE HEIGHT SHALL BE 1/2 IN. EXPOSED EDGES OF CARPET SHALL BE FASTENED TO FLOOR SURFACES AND HAVE TRIM ALONG THE ENTIRE LENGTH OF THE EXPOSED EDGE. IF CARPET TILE IS USED ON AN ACCESSIBLE GROUND OF FLOOR SURFACE, IT SHALL HAVE A MAXIMUM COMBINED THICKNESS OF PILE, CUSHION, AND BACKING HEIGHT 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

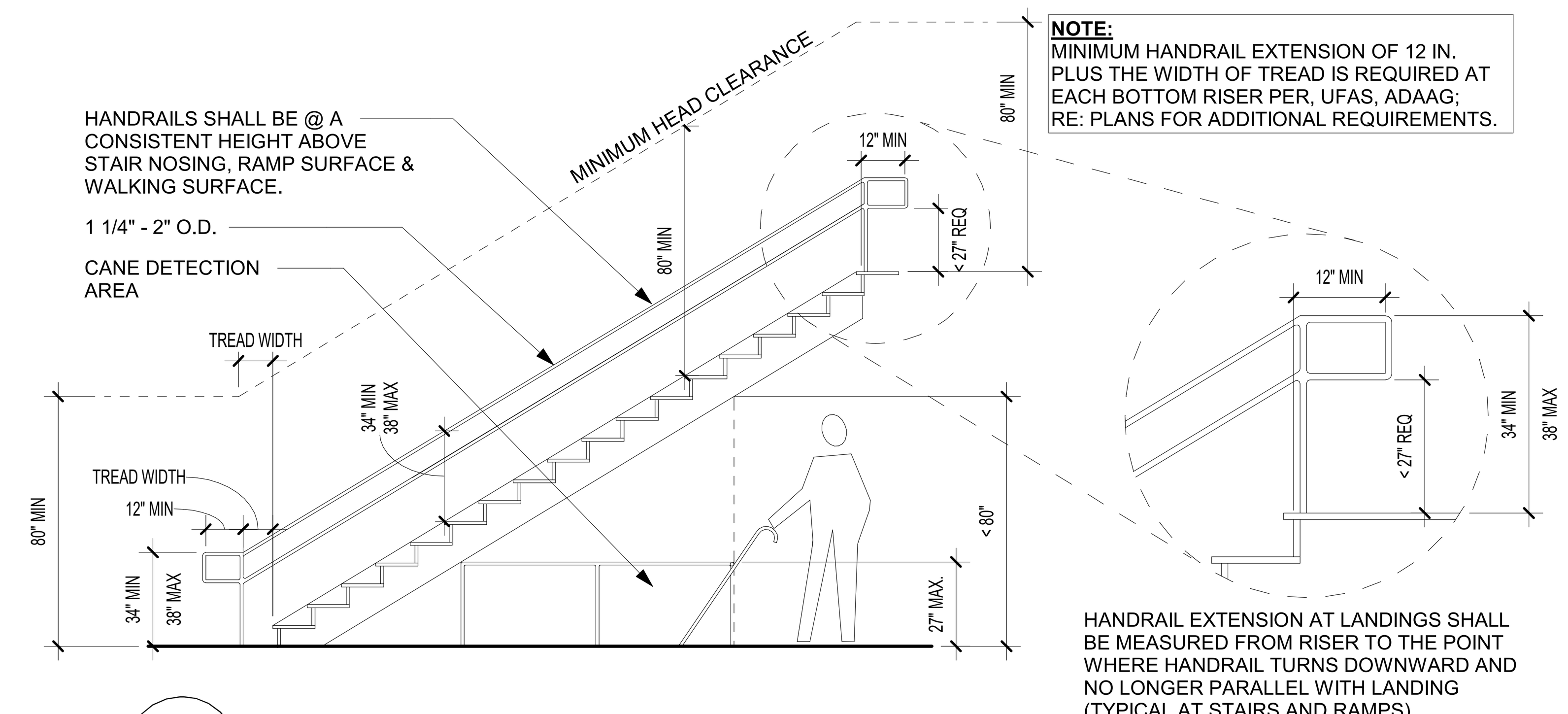


NOTE:
1. STAIR WIDTH IS CALCULATED FROM INSIDE STRINGER TO INSIDER STRINGER (OR WALL FINISH TO WALL FINISH)
2. LANDING WIDTH SHALL BE GREATER THAN OR EQUAL TO (BUT NOT LESS THAN) STAIR WIDTH DIMENSION
3. HANDRAIL SHALL RETURN TO A WALL, GUARD, OR WALKING SURFACE; NON-CONTINUOUS RAILINGS SHALL EXTEND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

D2 EGRESS STAIR REQ'S
NOT TO SCALE

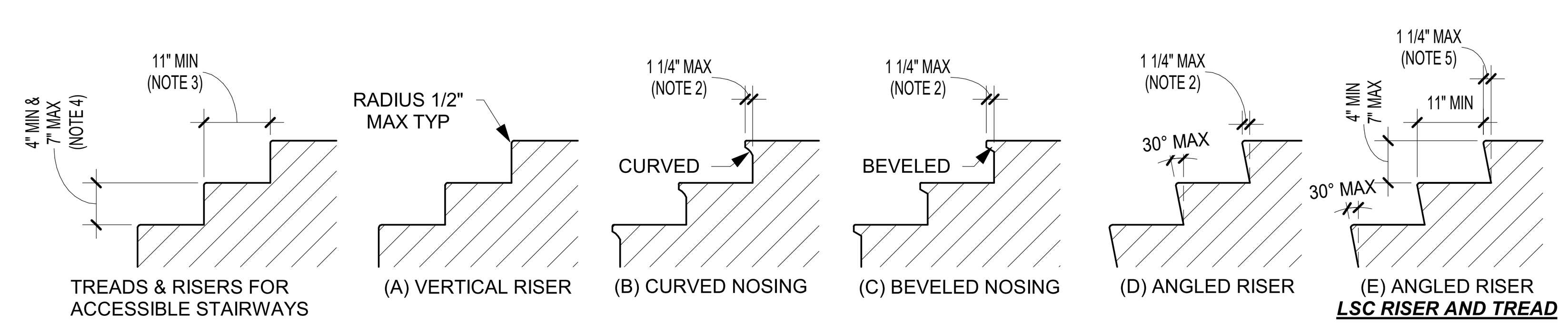


C2 STAIR OPENING GUARD LIMITATIONS
NOT TO SCALE

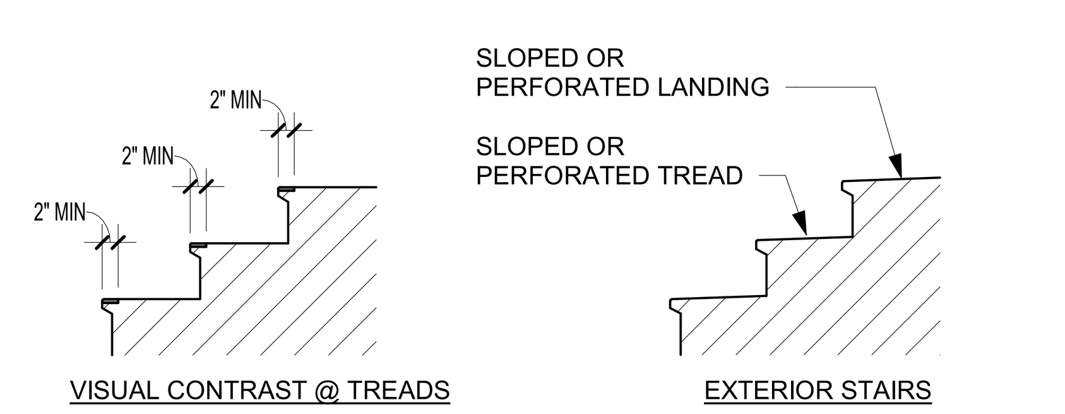


NOTE:
MINIMUM HANDRAIL EXTENSION OF 12 IN. PLUS THE WIDTH OF TREAD IS REQUIRED AT EACH BOTTOM RISER PER, UFAS, ADAAG; RE: PLANS FOR ADDITIONAL REQUIREMENTS.

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

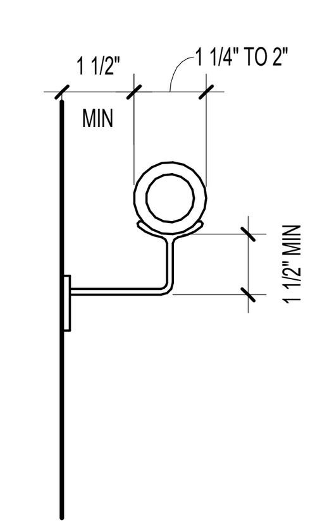


THE LEADING 2" OF TREADS SHALL HAVE VISUAL CONTRAST OF DARK-ON-LIGHT OR LIGHT-ON-DARK FROM THE REMAINDER OF THE TREAD

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

PRINTS ISSUED
11/27/2024 - CITY SUBMISSION

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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
ACCESSIBILITY STANDARDS

PROJECT NUMBER: 24017

SHEET NUMBER:

G-301

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

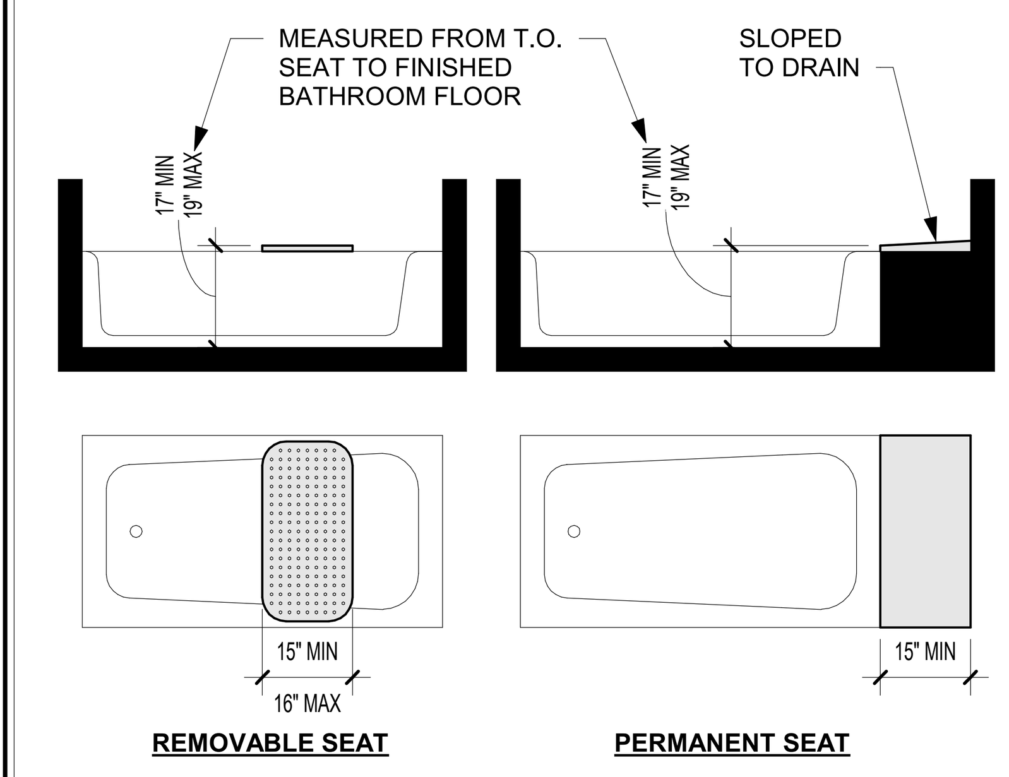
ACCESSORY	MOUNTING HEIGHT	LOCATION
MIRROR	SEE A1/G-303	PUBLIC & UNIT
PAPER TOWEL DISP/RECP	40" AFF MIN TO CONTROLS	PUBLIC
TOILET PAPER DISPENSER (TPD)	SEE D1/G-302	PUBLIC
TOILET PAPER HOLDER (TP)	SEE D1/G-302	UNIT
DIAPER CHANGING STATIONS	34" MAX TO CHANGING SURFACE	PUBLIC
GRAB BARS	SEE G-302	PUBLIC & 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

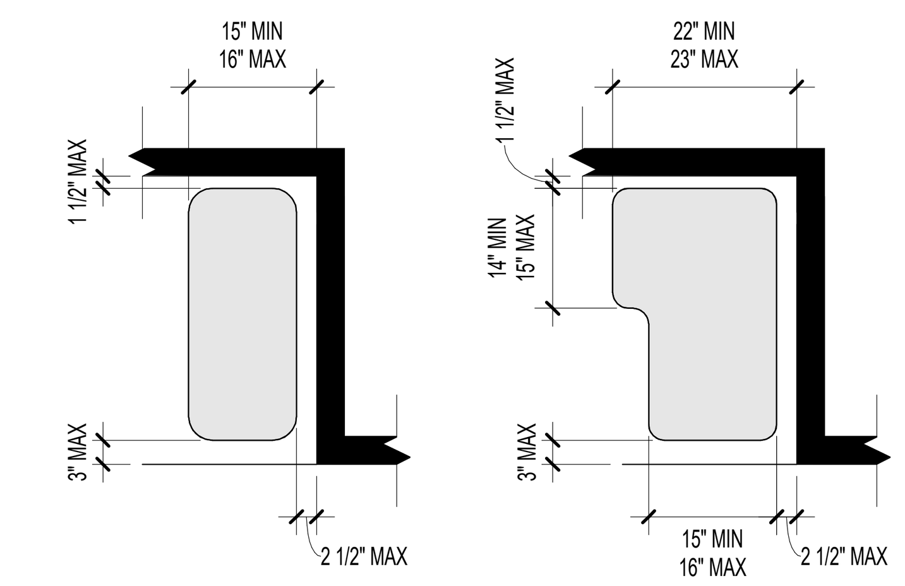
1. GRAB BAR BLOCKING IS REQUIRED AT ALL TOILET, SHOWER AND BATHTUB GRAB BAR LOCATIONS; APPLICABLE AT ALL PUBLIC SPACES, ACCESSIBLE UNITS, "TYPE A" UNITS, AND "TYPE B" UNITS.
2. CONTRACTOR SHALL BE FAMILIAR AND INCORPORATE ALL PROVISIONS AND REQUIREMENTS ESTABLISHED BY CODES APPLICABLE TO THE PROJECT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

TUB SEAT



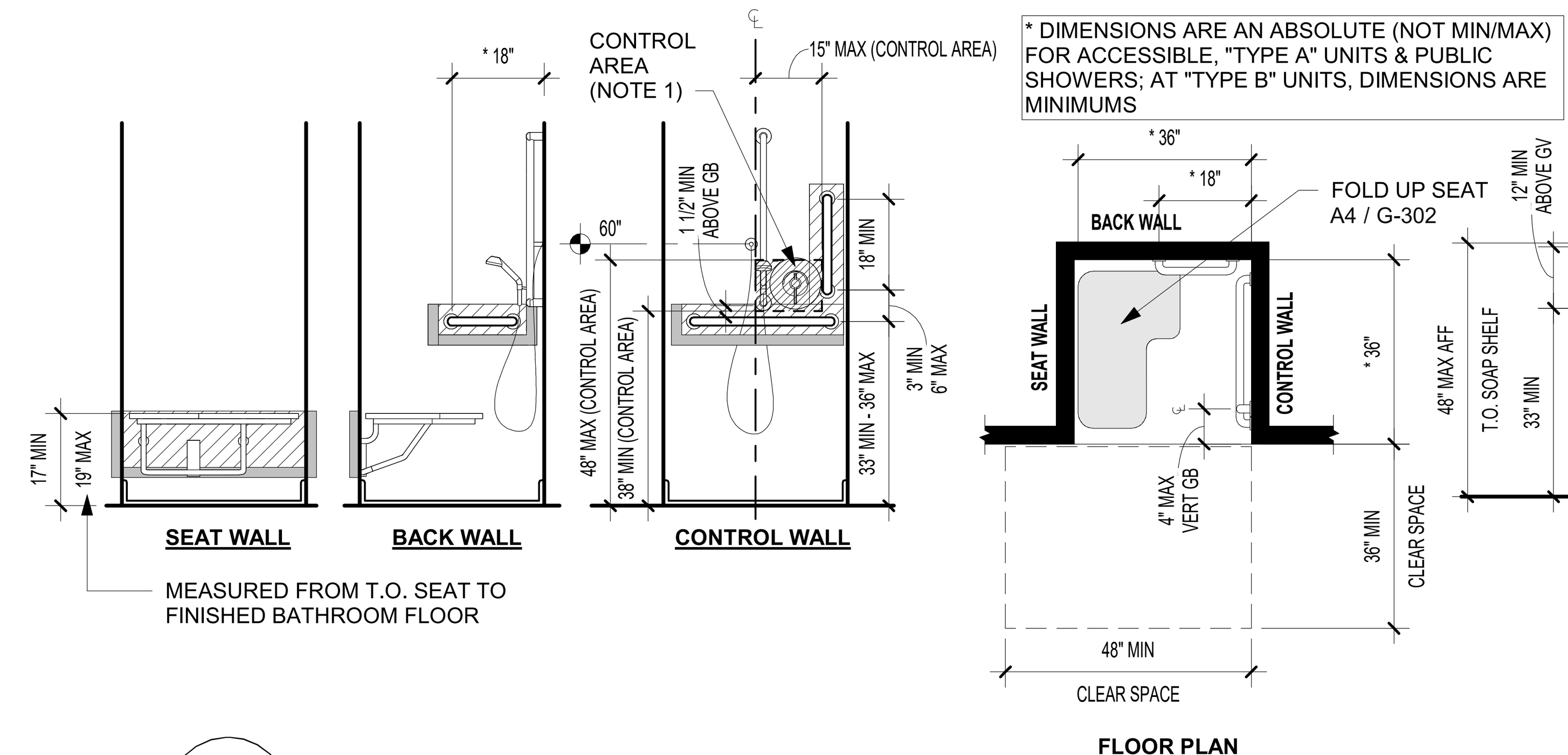
B4 BATHTUB SEAT
NOT TO SCALE

SHOWER SEAT

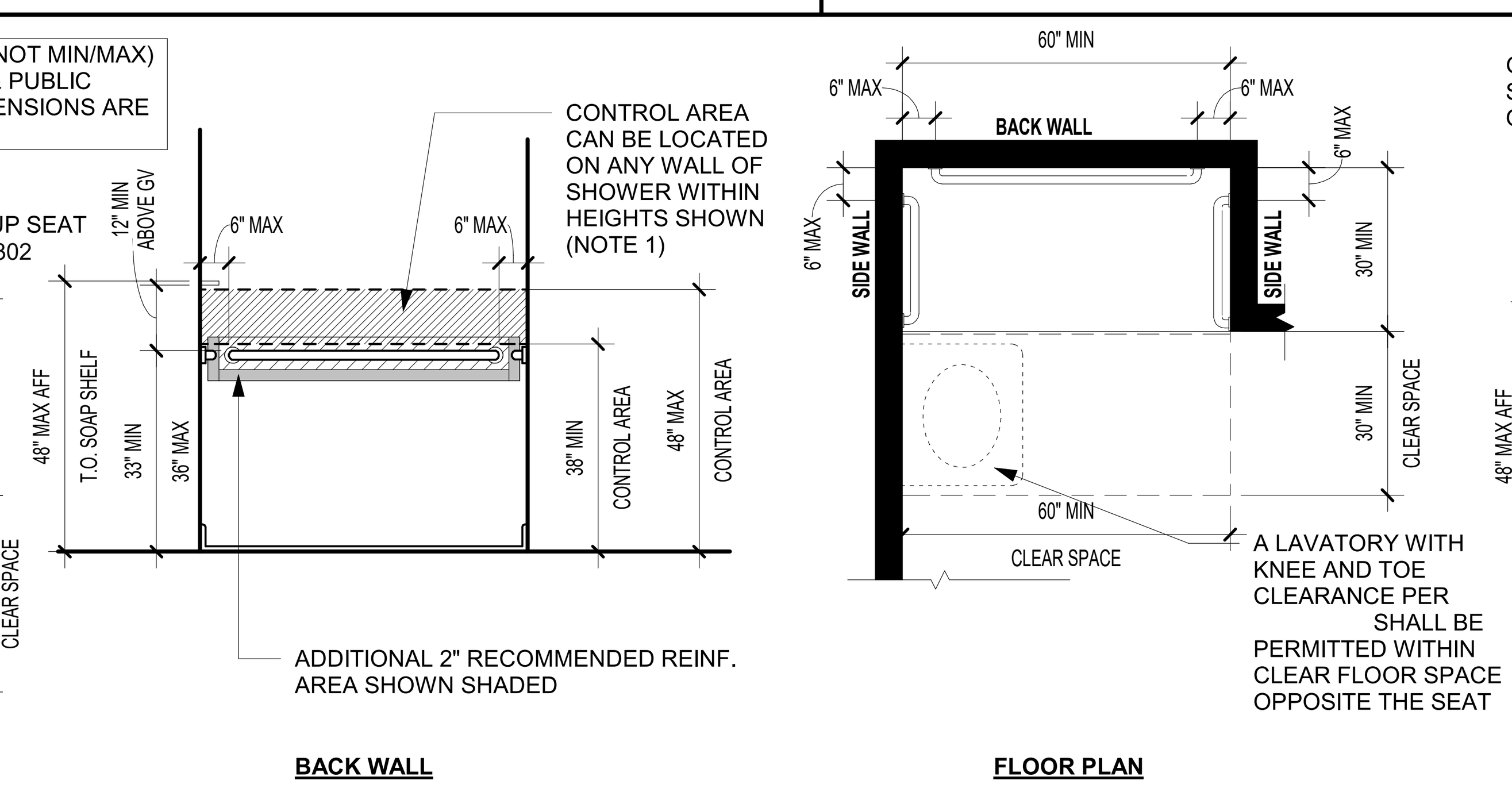


A4 SHOWER SEAT
NOT TO SCALE

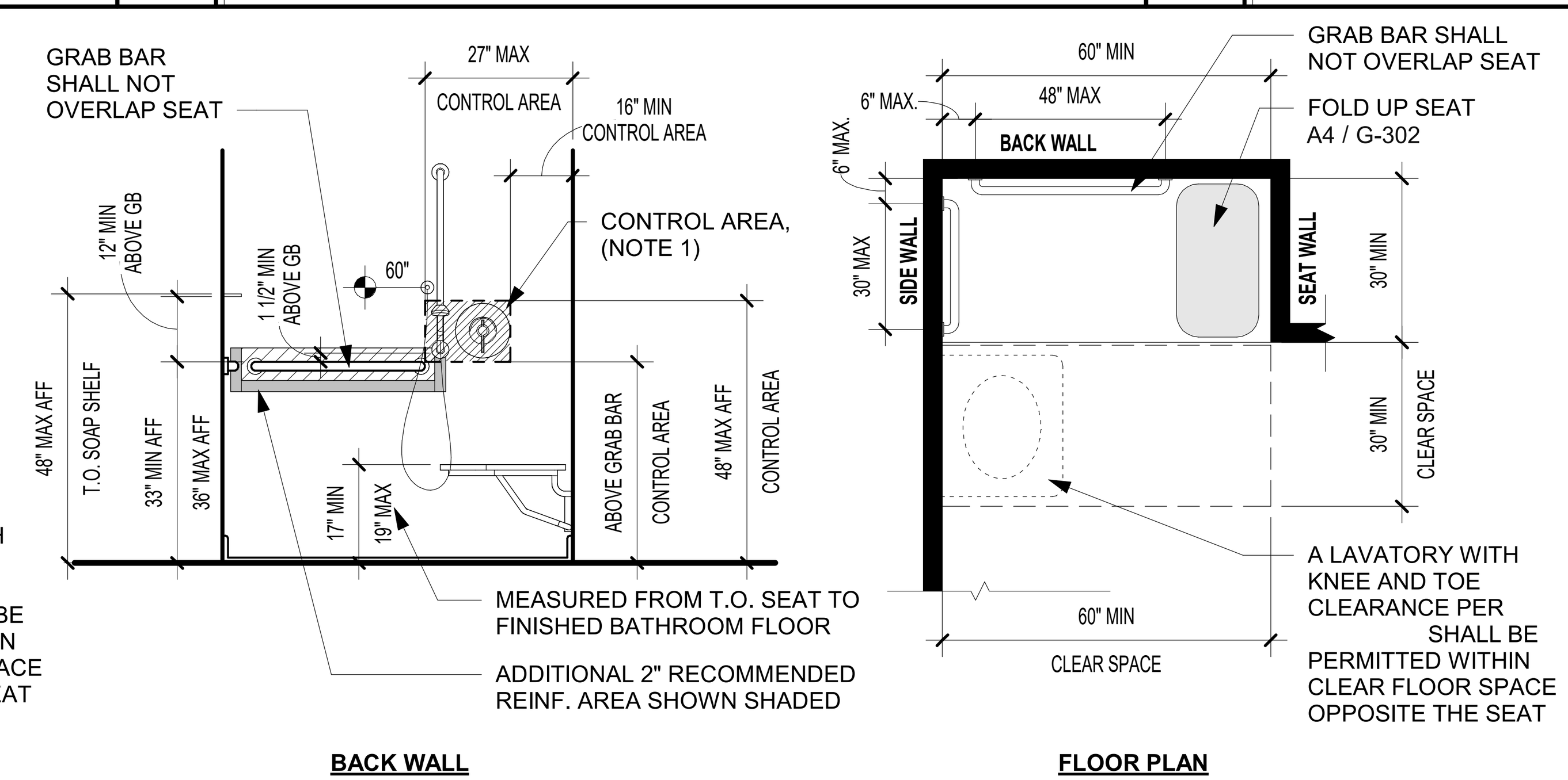
SHOWERS



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

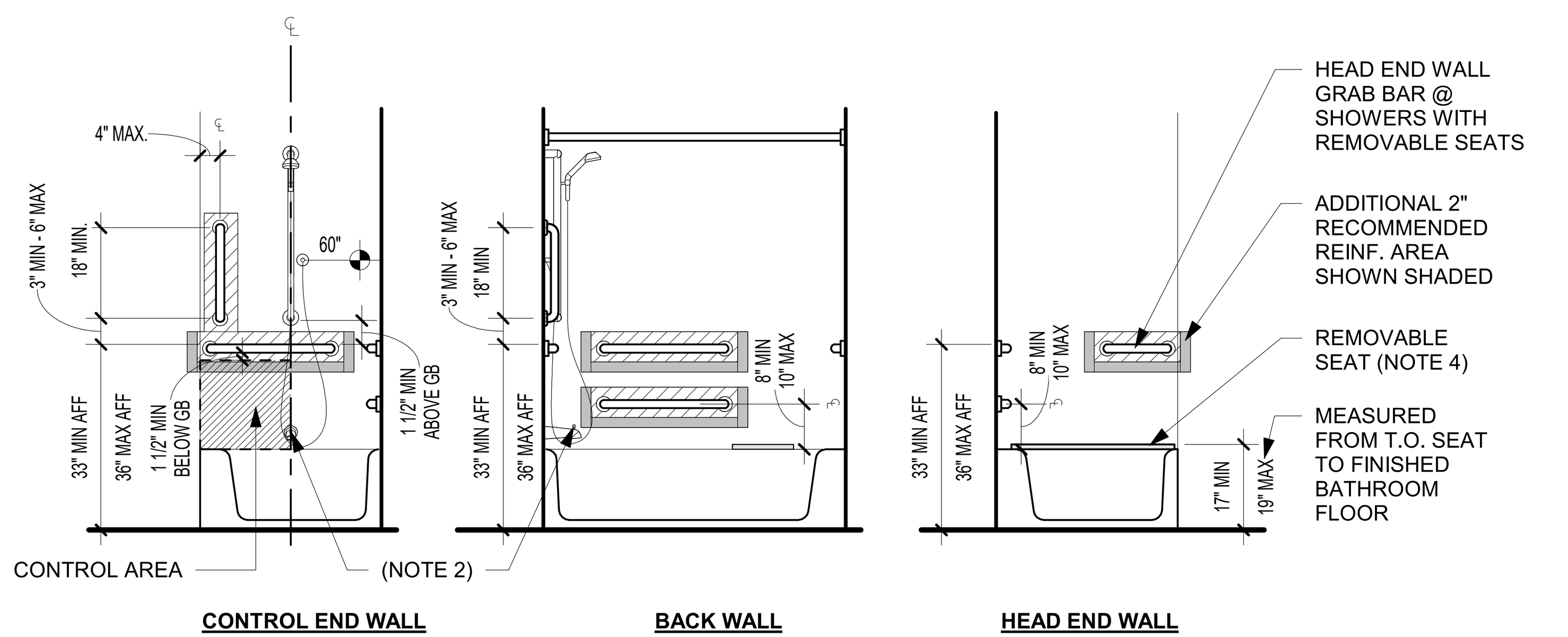
SHOWER NOTES

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

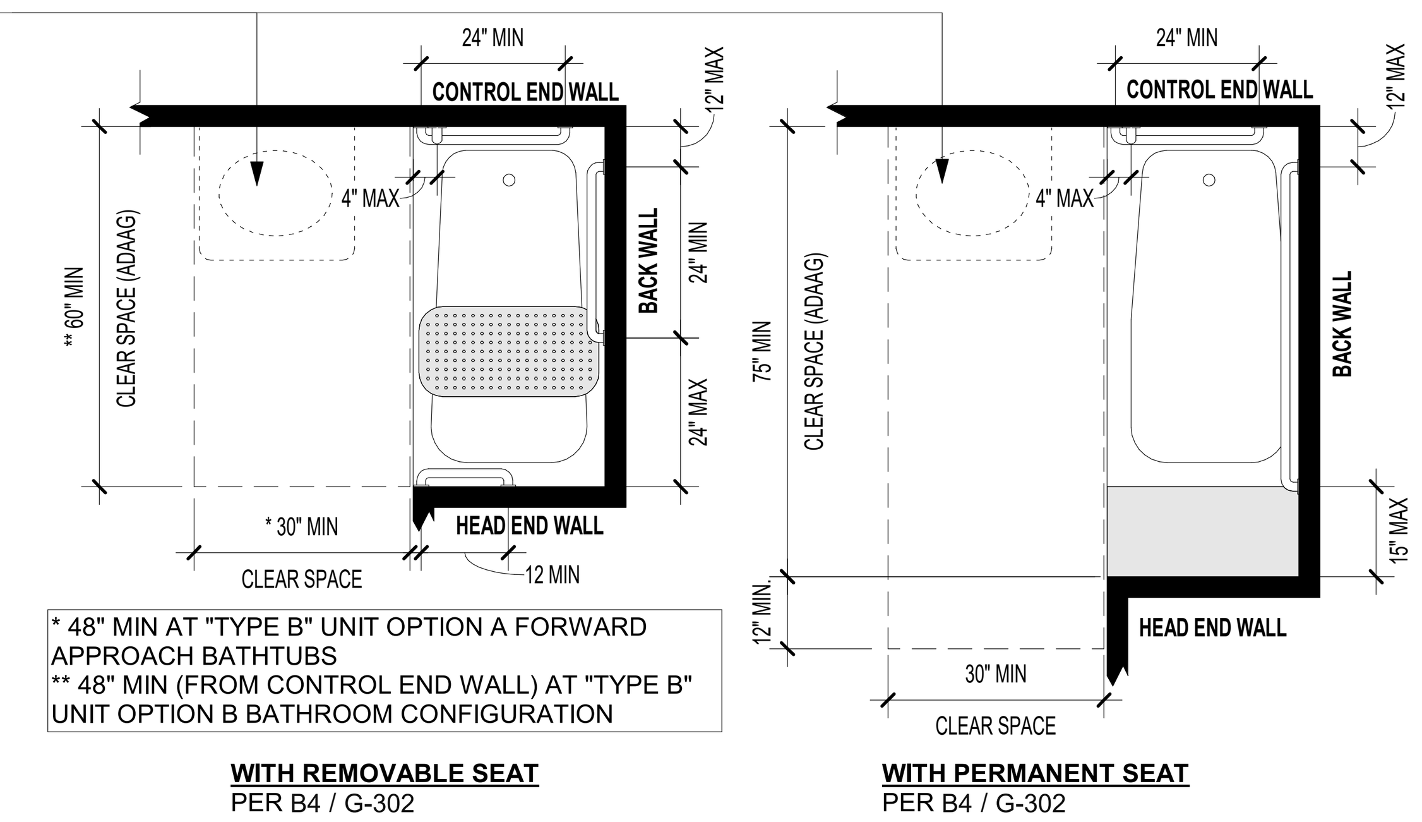


D2 BATHTUB HEIGHT REQ'S
NOT TO SCALE

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

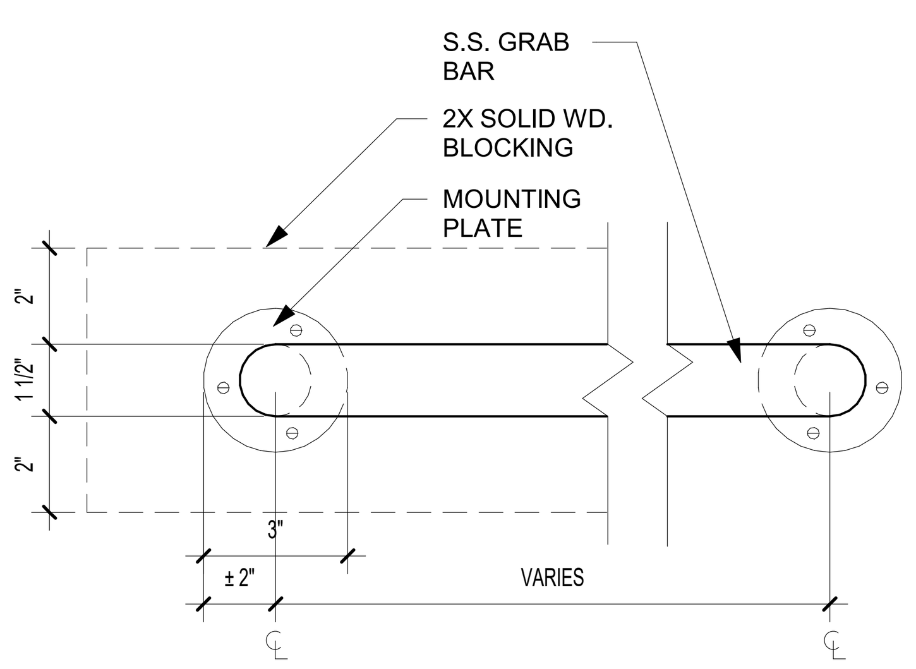
TUB NOTES

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.

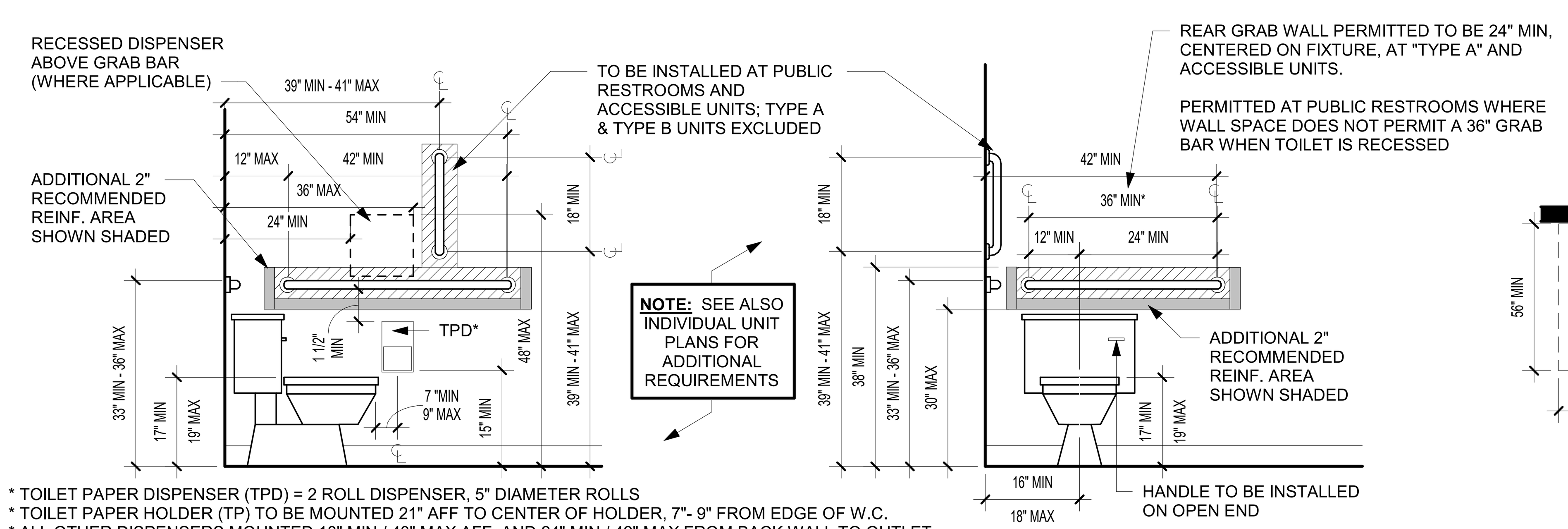
1. A HAND SHOWER WITH A HOSE OF 60" MINIMUM IN LENGTH TO BE PROVIDED.
   A. HAND SHOWER SHALL HAVE A CONTROL WITH A NONPOSITIVE SHUT OFF FEATURE.
2. NO PIN KNOB DIVERTERS IN ACCESSIBLE OR "TYPE A" UNITS AT TUB FAUCETS.
3. ADDITIONAL 2" RECOMMENDED REINFORCED AREA AROUND GRAB BARS (SHOWN SHADED).
4. REMOVABLE SEAT NOT REQUIRED AT "TYPE A" UNITS.
5. SEE UNIT PLANS AND/OR INTERIOR ELEVATIONS FOR ADDITIONAL INFORMATION.

GRAB BAR



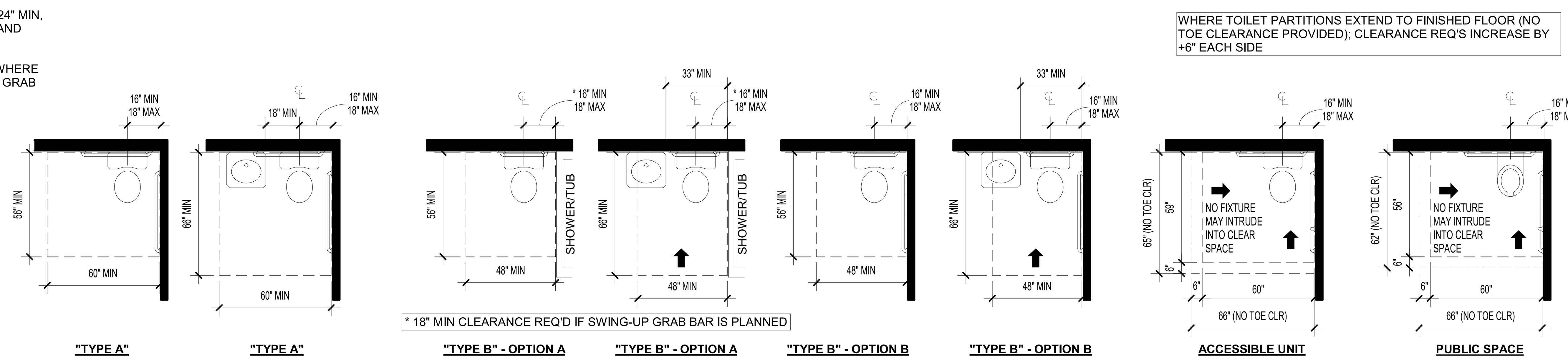
A2 GRAB BAR DETAIL
NOT TO SCALE

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 HENDRIKSE — NUMBER A-7305 — REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
ACCESSIBILITY STANDARDS

PROJECT NUMBER: 24017

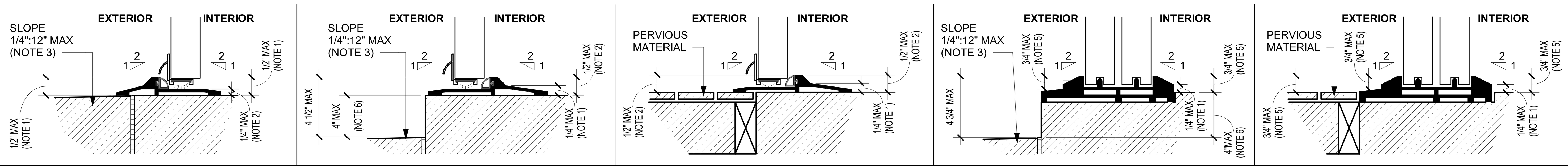
SHEET NUMBER:

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

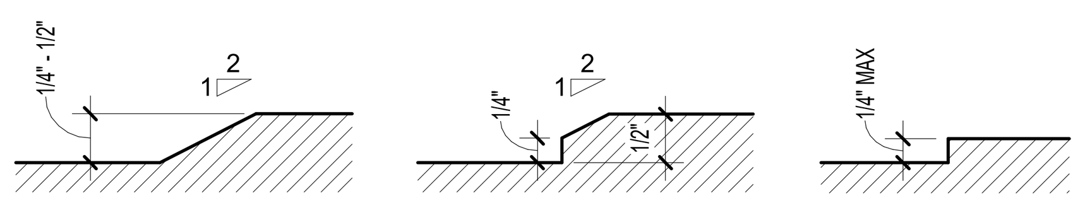
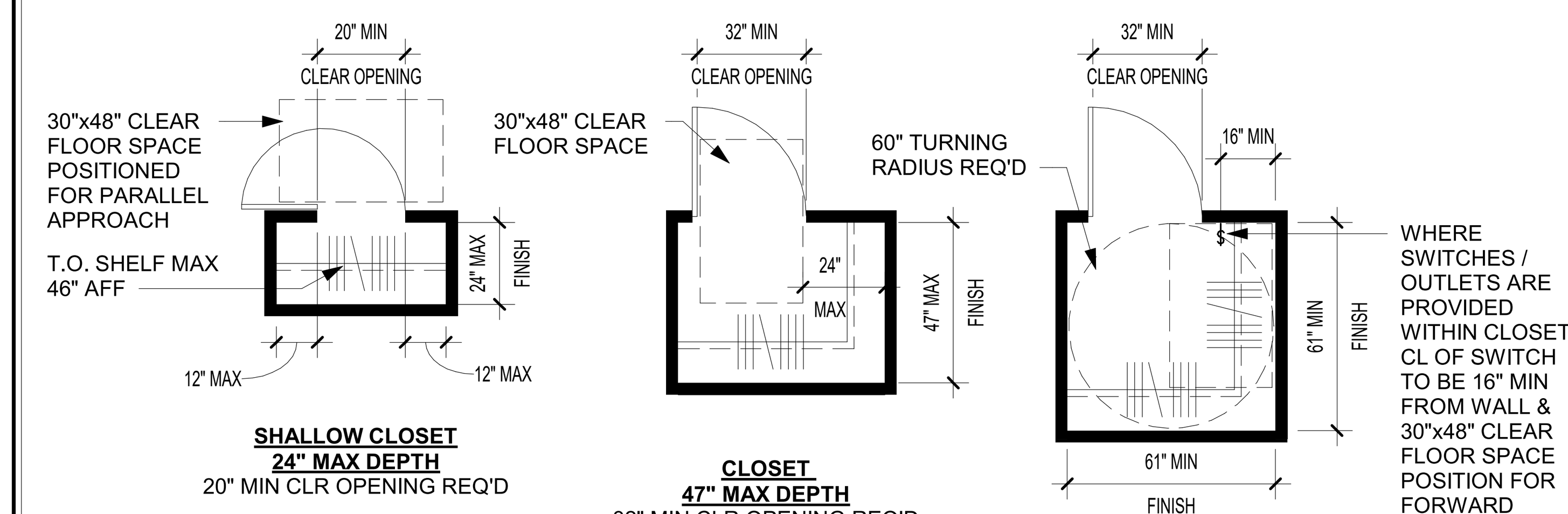


IMAGE 3 IMAGE 2 IMAGE 1

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



SHALLOW CLOSET
24" MAX DEPTH
20" MIN CLR OPENING REQ'D

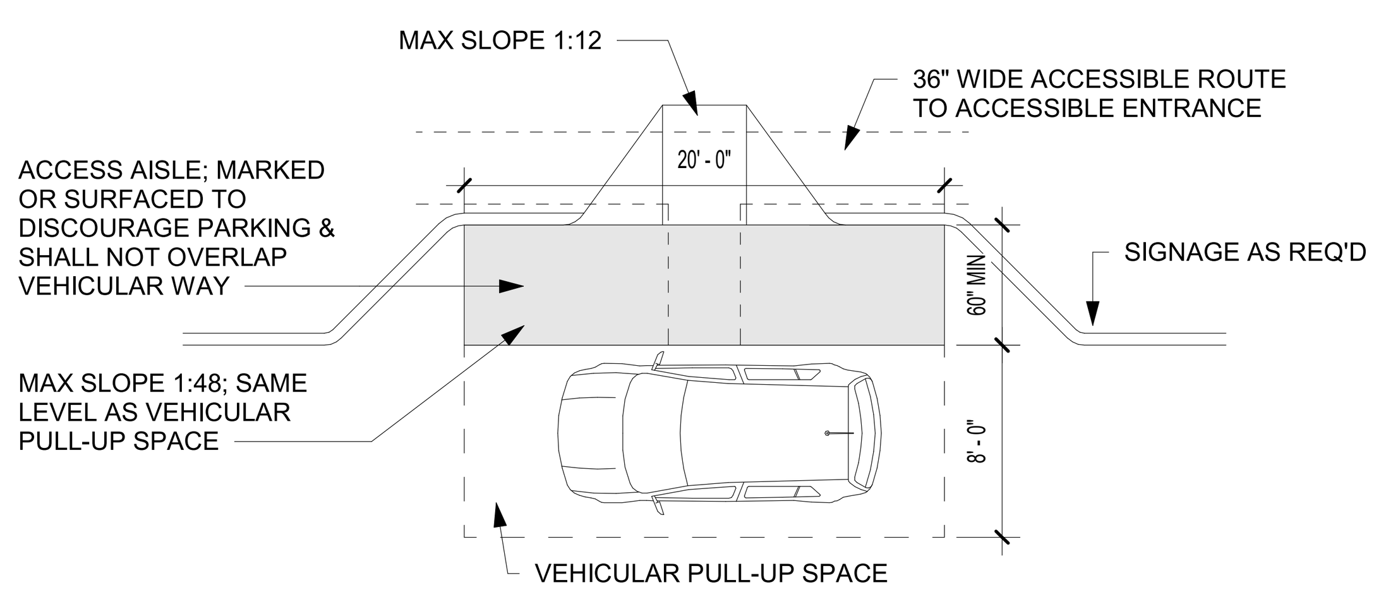
CLOSET
47" MAX DEPTH
32" MIN CLR OPENING REQ'D
47" MAX CLOSET DEPTH

WALK-IN CLOSET
48"+ DEPTH
32" MIN CLR OPENING REQ'D
48"+ CLOSET DEPTH

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

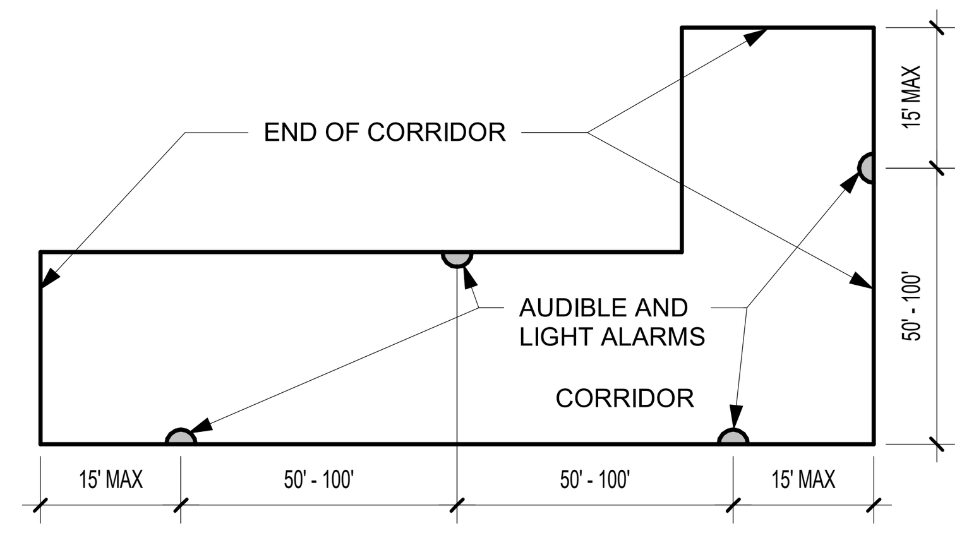
A4 CLOSET DIMENSIONS
NOT TO SCALE

PASSENGER LOADING ZONE

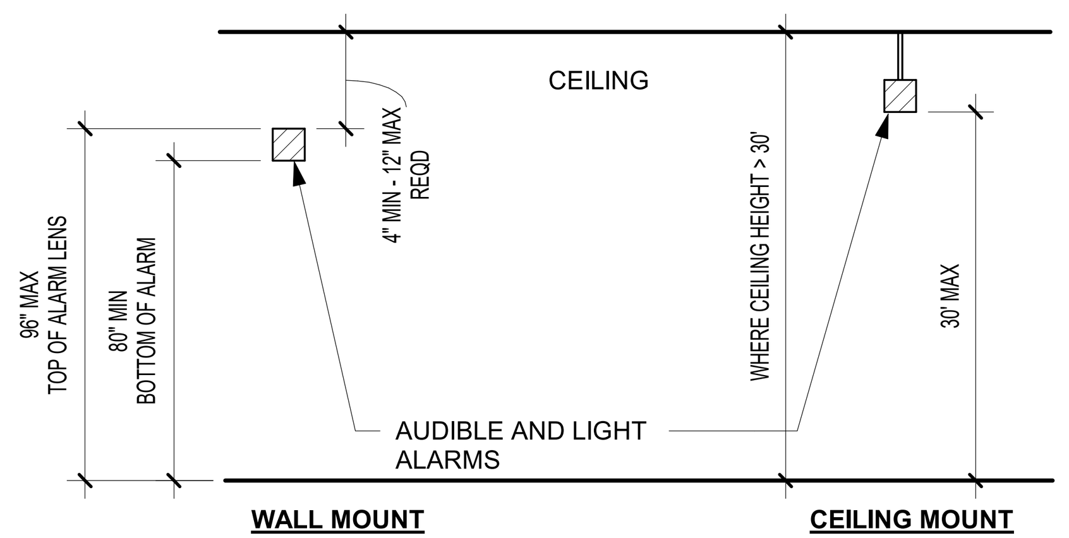


D3 PASSENGER LOADING ZONE
NOT TO SCALE

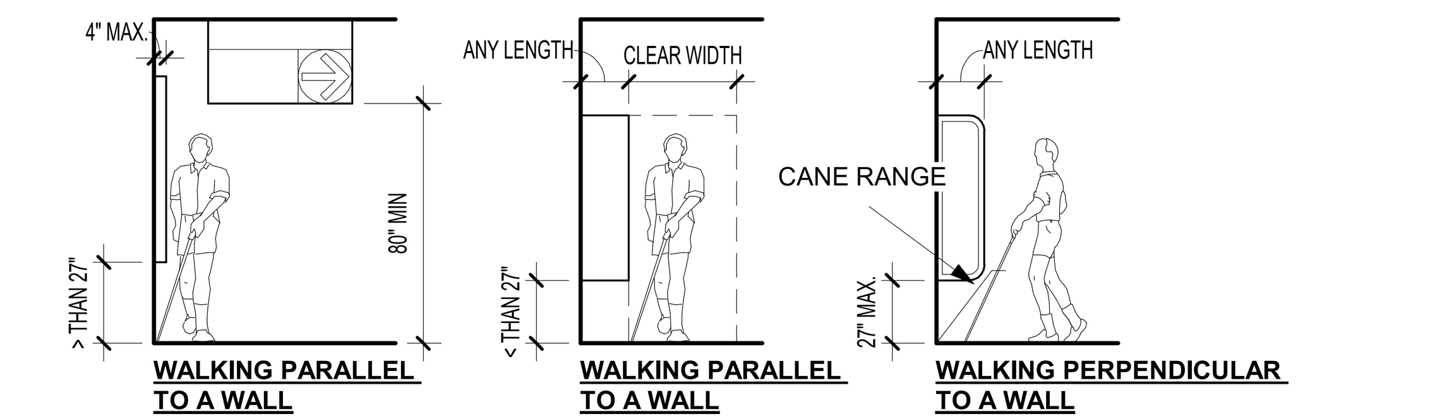
HEARING & VISION IMPAIRED



C3 ALARM SPACING IN CORRIDOR
NOT TO SCALE

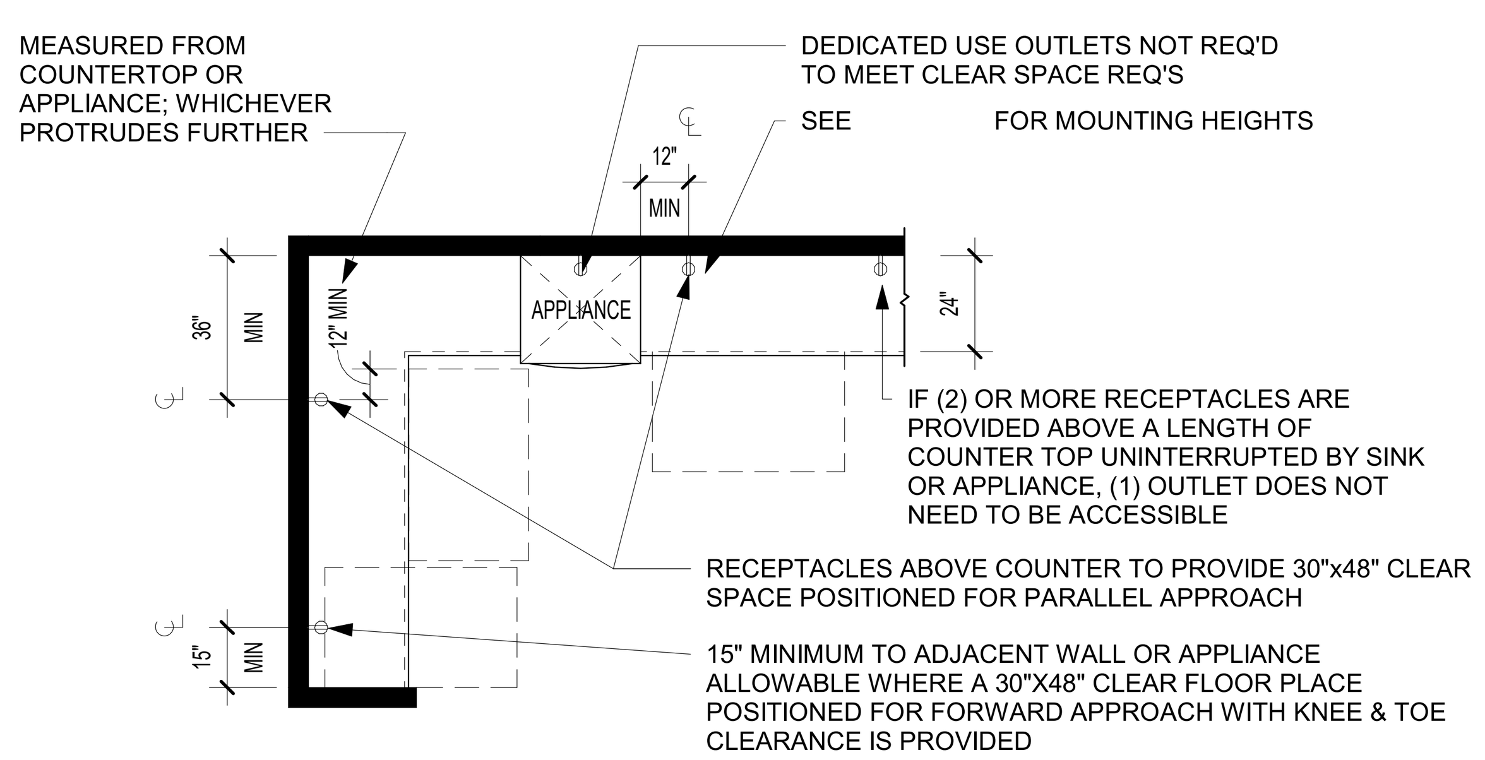


B3 CEILING/ WALL MOUNTED ALARM LOCATIONS
NOT TO SCALE



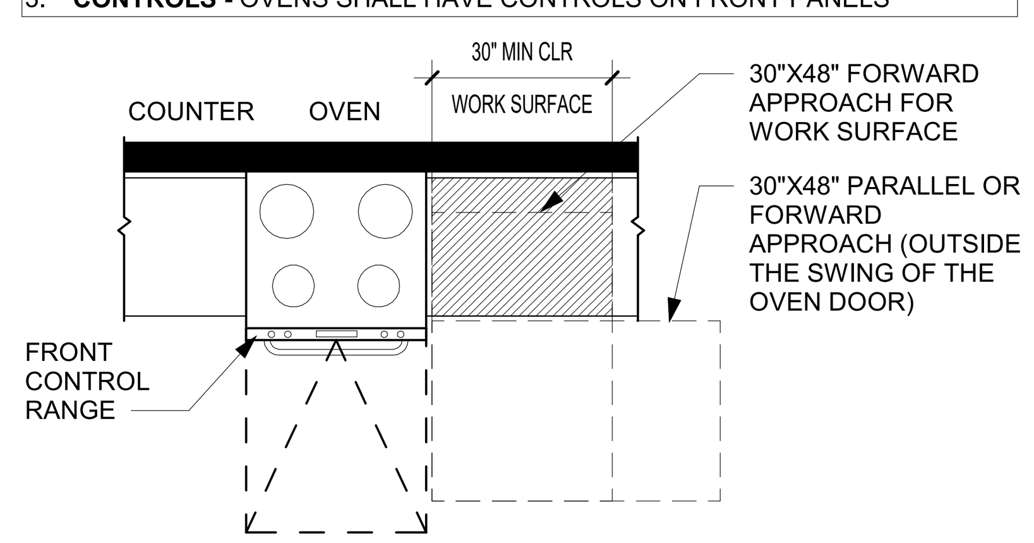
A3 PROTRUDING OBJECTS
NOT TO SCALE

KITCHENS



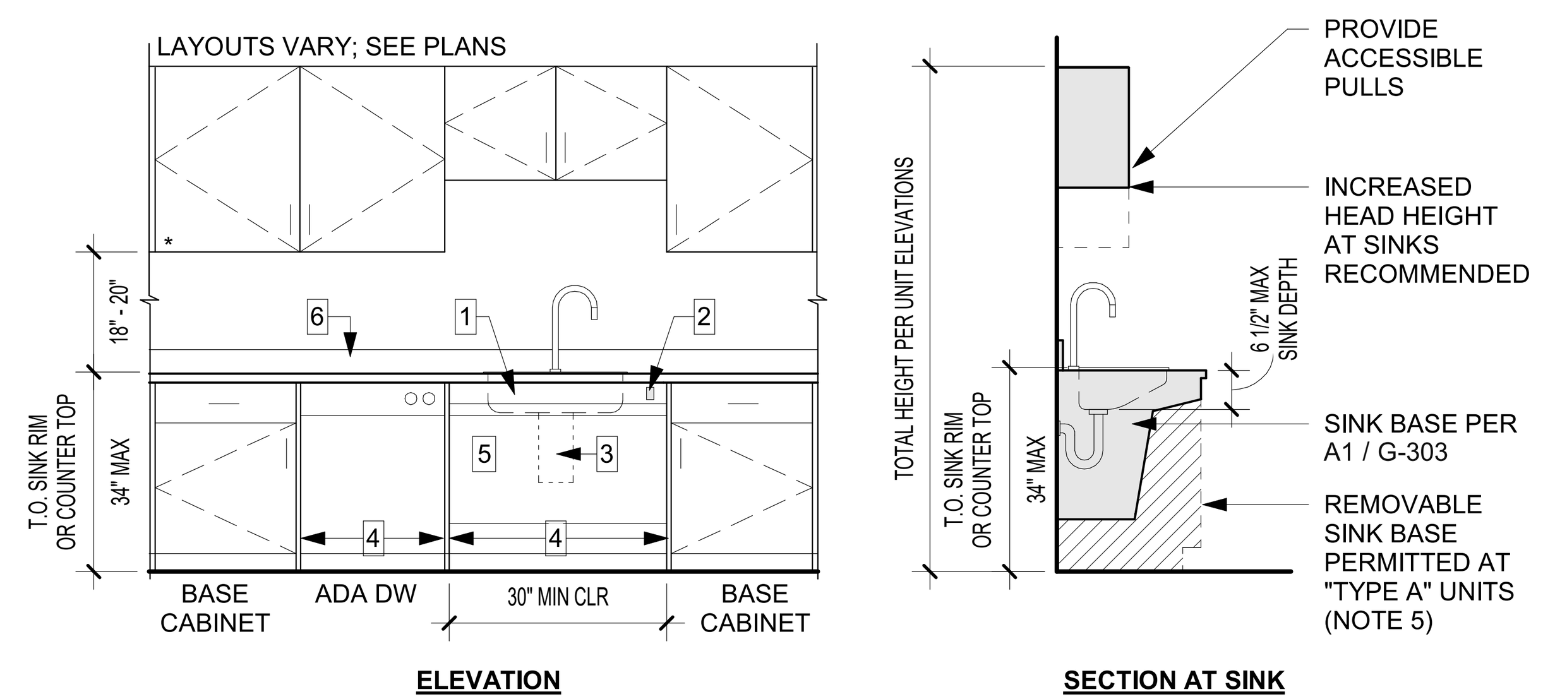
D2 ABOVE COUNTER RECEPTACLES
NOT TO SCALE

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

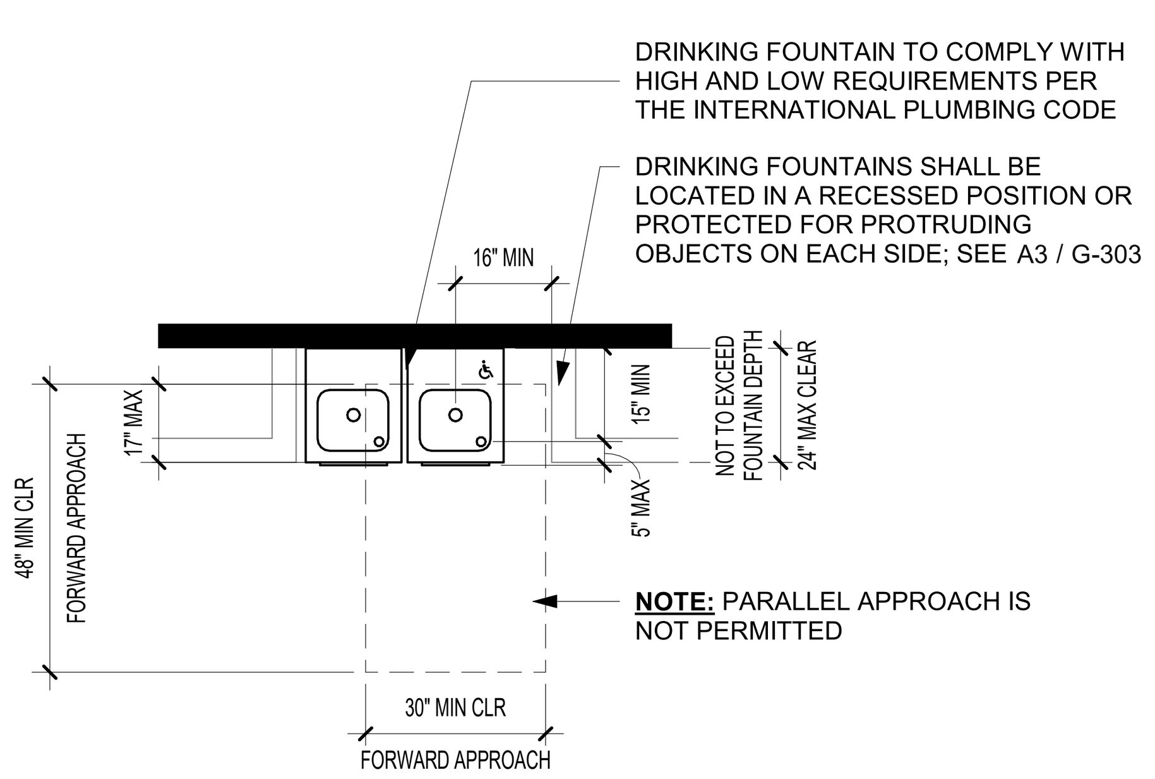
KITCHEN NOTES

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

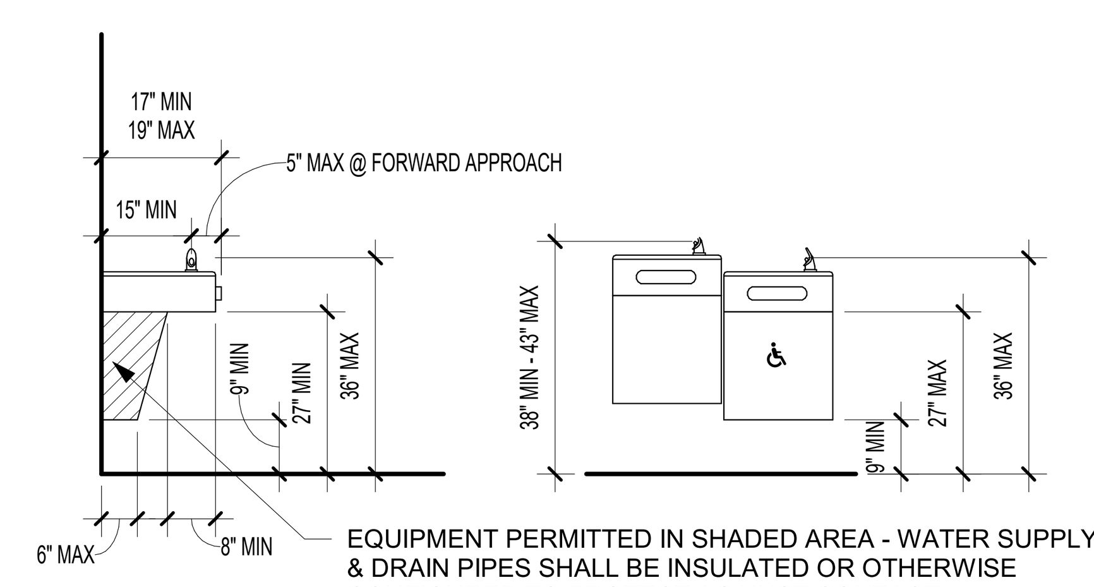
SEE UNIT PLANS AND/OR INTERIOR ELEVATIONS FOR "TYPE B" OR EXEMPT KITCHENS

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

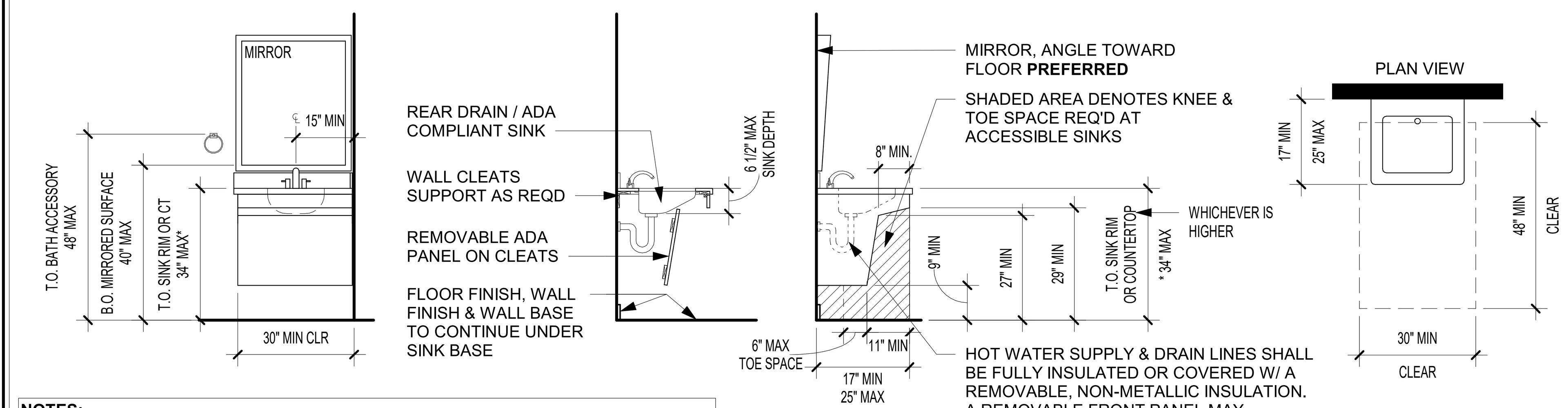


D1 DRINKING FOUNTAINS CLEAR SPACE REQUIREMENTS
NOT TO SCALE



C1 DRINKING FOUNTAIN HEIGHT REQUIREMENTS
NOT TO SCALE

SINKS



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

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

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

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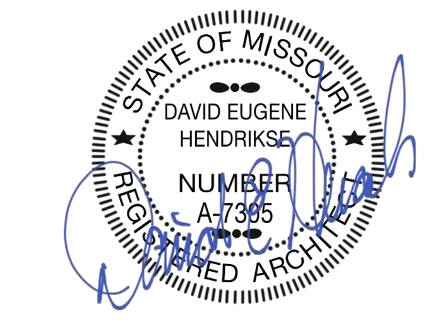


11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
ACCESSIBILITY STANDARDS

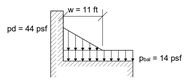
PROJECT NUMBER: 24017

SHEET NUMBER:

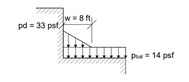
G-303

A. DESIGN CRITERIA

1. Design Codes:
   a. International Building Code: IBC 2018
   b. Minimum Design Loads for Buildings and Other Structures: ASCE 7-16
2. Design Loads:
   a. Dead Loads
      Wood Floors = 27 psf
      Add'l Load in Residential Units to Account for Interior Walls = 15 psf (additive to floor load)
      Composite Deck w/ LW Concrete = 51 psf
      Main Roof = 20 psf plus mechanical equipment shown on roof plan
      Brownstone Roof with Pavers = 42 psf
      Balconies = 56-75 psf
      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)
      Stairs and Exitways = 100 psf
      Residential Units = 40 psf
      Public Rooms = 100 psf (non-reducible)
      Corridors (Public) = 100 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 top rail
      = 50 plf linear load on top rail
      Parking = 40 psf (non-reducible)

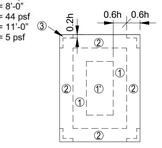


BROWNSTONE ROOF SNOW DRIFT LOAD DIAGRAM

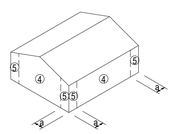


MAIN ROOF SNOW DRIFT LOAD DIAGRAM

   c. Roof Snow Load
      Ground Snow Load (p_g) = 20 psf
      Flat Roof Snow Load (p_f) = 14 psf
      Balanced Roof Snow Load (p_{bal}) = 14 psf
      Minimum Snow Load (pmin) = 20 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 Snow Drift Load (p_d) = 33 psf
      Main Roof Snow Drift width (w) = 8'-0"
      Brownstone Roof Snow Drift Load (Low Roof) (p_d) = 44 psf
      Brownstone Roof Snow Drift width (Low Roof) (w) = 11'-0"
      Rain on Snow Surcharge = 5 psf



GABLE, SAWTOOTH AND MULTISPAN GABLE 0 ≤ 7 DEGREES & MONOSLOPE ≤ 3 DEGREES h ≤ 60' & ALT DESIGN h < 90'


WALLS h ≤ 60' & ALT DESIGN h < 90'

   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
1	+16/-52	+16/-44	+16/-41
1'	+16/-30	+16/-30	+16/-30
2	+16/-69	+16/-59	+16/-54
3	+16/-69	+16/-59	+16/-54
4	+30/-33	+27/-30	+26/-28
5	+30/-40	+27/-34	+26/-31

      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.
   e. Earthquake Load
      Risk Category = II
      Soil Site Class: D
      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} = 0.109 S_{D1} = 0.109
      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 = 0.017 C_D = 4.0
      (Ω_0 reduced to 2.5 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 = 2.0 C_s = 0.054 C_D = 2
      Design Base Shear, V= C_s x W = 196 kips based on R = 6.5
      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
Typical Floor Joists/Trusses	L/360	L/480	1"
Brownstone Floor and All 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) Project Geotechnical Report titled "Geotechnical Report – Discovery Park Lot 9A/B" prepared by OWN Inc dated March 05, 2024. (Herein known as "Geotechnical Report".)
      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 footings supported by rammed aggregate piers.
   b. Slabs on grade.
   c. Residential Building Framing:
      i. Load-bearing wood walls and opening framing - Level 2 and above
      ii. CMU stair and elevator walls – Level 1.
      iii. Plywood sheathing on dimensional lumber wood floor and roof joists - Level 3 and Roof.
      iv. Steel framed balconies with non-composite deck.
      v. Elevated concrete floor slab with composite steel deck on composite steel framing - Level 2
   d. Structural steel framing identified on the drawings.
   e. The lateral force resisting system of the structure consisting of sheathed wood structural walls, wood sheathing diaphragms, composite deck diaphragms, and masonry shear walls.
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. Wood roof/floor trusses – see general notes section "Wood Framing and Fastening" / see S001 and S002 for applicable design criteria.
   c. All premanufactured canopy and awning framing including connections to the structure.
   d. Handrails at balconies – see S001 "Design Criteria" for applicable loading.
   e. Cold-formed steel wall framing and miscellaneous Cold-formed steel framing.

   * 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. Non-load-bearing wood or CFS walls or furring
   e. Shoring design, formwork design, temporary bracing, and other means and methods items
   f. Mechanical screen walls (screen walls shall be supported off of mechanical unit curbs)

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 level indicated and vertical framing (walls, openings, posts, columns) below.
4. Contract Document Coordination:
   a. The drawings contained herein are intended to be utilized in conjunction with other design consultant's drawings (architectural, civil, mechanical, etc.). It is the responsibility of the Contractor to coordinate the requirements of the drawings into their shop drawings and construction.
      i. Refer to the Project Specifications issued as part of the contract documents for information supplemental to these drawings. Should conflicts between these drawings and the Specifications exist, the Contractor shall bring them to the attention of the structural engineer for clarification.
   b. Refer to the architectural, mechanical, electrical, and civil drawings for location and size of block outs, inserts, openings, curbs, bases & pads, and dimensions not shown on these drawings.
   c. Refer to the architectural drawings for size and location of doors and window openings, exterior wall assemblies, and floor, wall, and roof finishes. Refer to the mechanical and electrical drawings for additional information including locations of mechanical units, generators, etc.
   d. Omissions or conflicts between various elements of the drawings, notes and details shall be brought to the attention of the structural engineer and resolved before proceeding with the work.
5. Use of Drawings in Construction:
   a. The Contractor shall verify all dimensions and conditions at the job site before commencing work and shall report any discrepancies to the engineer responsible for the design of that work.
   b. Do not use scaled dimensions; use written dimensions or, where no dimension is provided, consult the structural engineer for clarification before proceeding with the work.
      i. Where member locations are not specifically dimensioned, members are either located on columns lines or are equally spaced between located members.
   c. Details and keynotes shown shall be incorporated into the project at all appropriate locations, whether 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 as well as elevators is based upon available information from the manufacturer (if any). The Contractor shall coordinate requirements of actual equipment supplied with details and shall provide any additional framing required.
   c. The Contractor has the responsibility to notify the structural engineer of any architectural, mechanical, electrical, or plumbing load imposed on the structure that is not documented on the Contract Documents or differs from what is originally shown. Provide documentation of location, load, size, and anchorage of all undocumented loads in excess of 250 lbs.
7. Construction Sequence and Methods:
   a. These drawings and the related Specifications represent the finished structure and, except where specifically shown, do not indicate the method or means of construction. Loads on the structure during construction shall not exceed the design loads indicated in Section "A. Design Criteria" as a maximum. The Contractor shall supervise and direct the work and shall be solely responsible for all construction means, methods, procedures, techniques, and sequence.
   b. The Contractor is responsible for compliance with all applicable job-related safety standards proceeding from governing organizations (e.g. OSHA).
   c. It is the responsibility of the Contractor to ensure the stability of the structural elements during construction as a result of means and sequence by providing shoring, bracing, etc. as required.
      i. Stability considerations should include all applicable temporary construction and environmental loads per ASCE 37 which may include wind and seismic forces.
      ii. Temporary bracing shall remain in place until positive connection is made between the floor/roof diaphragm and the lateral force resisting elements. This is a means and methods item.
      iii. The Contractor may at their discretion employ a Specialty Structural Engineer, licensed in the state where the project is located, for the design of any temporary bracing, lifting, rigging, and shoring.
   d. 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.
   e. 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.
   f. The Contractor is responsible for the protection and repair of any adjacent existing structures, surfaces, and areas which may be damaged as a result of the work.

D. SUBMITTAL REQUIREMENTS

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

Submittal Name	Items Required:				
	Product Data	Shop Drawings	Test Records	Engineering Drawings	Engineering Calculations
1. Concrete Mix Designs	X		X		
2. Concrete Break Reports			X		
3. Concrete Reinforcing Layout		X			
4. Concrete Anchor Bolts & Embedded Plates	X	X			
5. Concrete & CMU Anchors (Post-Installed)	X				
6. Post-Installed Anchor Substitutions	X				X
7. Post-Installed Connection Geometry Alteration	X			X	X
8. Structural Steel Framing	X	X			
9. Structural Steel Framing Connections		X			X
10. Steel Floor Deck	X	X			
11. Metal Railings & Connections	X	X			X
12. Wood Framing Materials	X				
13. Wood Floor & Roof Trusses incl. Reactions				X	X
14. Wood Truss Connections to Supporting Structure				X	X
15. Specialty Wood Fasteners	X				
16. Manufactured Wood Shear Panels	X				
17. Masonry Wall Materials	X		X		
18. Masonry Reinforcing		X			
19. Exterior Nonload-Bearing Cold-Formed Steel Framing	X			X	X
20. Metal Canopies & Awnings	X	X			X
21. Rammed Aggregate Piers				X	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

PRINTS ISSUED
PERMIT SUBMITTAL 11/27/2024

REVISIONS:

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

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

11/27/2024

DISCOVERY PARK - LOT #9 - A

200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
GENERAL NOTES

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S001

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 — 5000 psi normal weight
   c. Slabs on metal deck — 4000 psi light weight
2. All concrete exposed to weather shall have 6% (+- 1%) air entrainment.
3. Submit mix designs for all concrete mixes prior to placement. All submittals shall include the following:
   a. Batch quantities including admixture dosage rates.
   b. Strength test results for trial mixes.
   c. Aggregate source(s) and gradation(s).
   d. Product data for cement, fly ash and other cementitious materials.
   e. Product data for all admixtures.
   f. Cured unit weight results (for lightweight concrete mixes only)
4. Provide protection for reinforcing bars as follows:
   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 wetted and standing water removed.
7. Construction joints in walls shall be keyed and placed at locations approved by the Architect and Structural Engineer.
8. Provide control joints in all retaining walls at 15 ft to 20 ft intervals.
9. **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 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

Bar Size	Development Top Bar	Development Other Bar	Class "B" Splice Top Bar	Class "B" Splice Other Bar	Standard 90 deg. Hook Embed.	Hook Leg Length	Hook 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

Bar Size	Development Top Bar	Development Other Bar	Class "B" Splice Top Bar	Class "B" Splice Other Bar	Standard 90 deg. Hook Embed	Hook Leg Length	Hook 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 installed and shall be the same grade, size, and spacing as the vertical wall reinforcing, unless noted otherwise.
   j. Provide corner bars to match longitudinal reinforcing in all footings. Provide (2) corner bars at the intersections.
   k. To account for any changes made during construction by the engineer or architect, contractor shall include in his/her bid an additional 10 percent of the total cost of the reinforcing bars and labor to install.
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.
3. Walls
   a. Provide corner bars in the outside face and at wall intersections to match horizontal wall bars. Use (3) #5 vertical construction rods at corners.
   b. Provide #5 at 12" O.C. each way in each face of walls, unless noted otherwise.

G. FOUNDATIONS

1. Foundation design is based on the following to be considered part of the construction documents:
   i) Project Geotechnical Report titled "Discovery Park Lot 9A/B" prepared by OWN Inc dated March 05, 2024. (Herein known as "Geotechnical Report".)
   ii) Signed letter from Ground Improvement Engineering by Vaughn Rupnow, PE, dated May 31, 2024 confirming Rammed Aggregate Piers as a viable 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 OWN Inc. or 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. Slab on Grade
   a. Slabs shall be constructed as shown on the plans.
   b. Parking slab-on-grade shall be placed on subgrade prepared in accordance with the requirements of the geotechnical report and the details in these construction documents.
   c. A 10mil minimum vapor retarder shall be installed under all slabs on grade in occupied or conditioned spaces per the drawings. See the geotechnical report for additional information regarding the installation of the vapor retarder.
   d. Low Volume Change (LVC) material shall be used for upper 24" below basestone. See Geotechnical Report for requirements.
   e. 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.
   f. 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.
   g. 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.
   h. 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.
   i. Locally slope floor towards any floor drains. See architectural and plumbing drawings for drain locations.
5. 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, adjustments of bearing strata, sub-grade preparation, dewatering activities, and other construction considerations.

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 ($0.8 \times A_{se} \times f_{ya}$).
      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.

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 designed as "A490" shall be Grade A490 or F2280
      vii. Nuts — ASTM A563 DH or A194
      viii. Washers — ASTM F436
      ix. Anchor Bolts — ASTM F1554 Grade 36, UNO
      x. Threaded Rod — ASTM A36
      xi. Studs — ASTM A108, Type B Nelson headed shear stud connectors or equal.
      xii. Electrodes — Matching weld metal, 70 ksi minimum strength.
   b. Finishes
      i. Prepare all surfaces that will be exposed in accordance with SSPC SP3.
      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 envelope reactions based on ASD load combinations.
      ii. Connections indicated on the drawings as moment-resisting shall be designed for the moment shown. If moment is not indicated on the drawings, connection shall be designed to develop the full capacity of the member.
      iii. Columns have not been checked for local effects at connections. Fabricator shall verify if stiffener or web doubler plates are required and provide as necessary. Column size may also be increased with approval of the 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 at all openings shall be the following, one angle per 4" wythe of masonry:
      i. L 3-1/2 x 3-1/2 x 5/16 for spans less than 5'-9"
      ii. L 5 x 3-1/2 x 5/16 for spans between 5'-9" and 7'-11"
      iii. L 6 x 3-1/2 x 5/16 for spans between 8'-0" and 9'-7"
      iv. L 7 x 4 x 3/8 for spans between 9'-8" and 11'-10"
   b. King brick lintel sizes are based on 36 psf brick weight with 8'-0" max height of brick above the lintel.
   c. Loose lintels for large format masonry at all openings shall be the following:
      i. L 6 x 6 x 3/8 for spans less than 6'-6"
      ii. L 8 x 6 x 1/2 for spans between 6'-6" and 9'-3"
   d. Large format masonry sizes are based on 70 psf masonry weight with 10'-0" max height of masonry above lintel.
   e. Lintels shall bear 8" minimum each end.
   f. Lintels shall be galvanized.
   g. 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.
   h. See architectural and mechanical drawings for opening sizes and locations.

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
- Distance from top of coped web to center of first bolt hole = 1 1/4" min.

PRINTS ISSUED
PERMIT SUBMITTAL 11/27/2024

REVISIONS:

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

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

STATE OF MISSOURI
CELESTE KAY BUCKEY
NUMBER PE-2006022113
PROFESSIONAL ENGINEER
11/27/2024

DISCOVERY PARK - LOT #9 - A
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
GENERAL NOTES

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S002

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 coid 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 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 in addition to any mechanical unit loads shown on plan and mechanical drawings:
   TC DL = 10 psf TC LL = 20 psf TC SL = 20 psf
   BC DL = 10 psf BC LL = N/A
   Wind Loads Per "A. Design Criteria"
   Design Snow Load SL = 20 psf.
   Drift Loads per section "A. Design Criteria"
6. Floor trusses shall be designed for the following loads:
   TC DL = 17 psf typical + 15 psf residential units to account for interior non-structural walls
   TC LL = 40 psf Residential Areas/100 psf Common Areas/125 psf Storage Areas
   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. Typical Floor Trusses
      i. Total Load: L/360
      ii. Live Load: L/480
      iii. Absolute Maximum: 1"
   c. Brownstone Apt. Floor Trusses
      i. Total Load L/240
      ii. Live Load L/360
      iii. Absolute Maximum: 1"

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. Provide welds or screws at parallel edges equal to specified fastening as supports. Fasten to all parallel supports – both at edges and in the field of the deck. Raise steel supports or provide shims at weld points if the deck valley does not engage the support.
   e. Provide welding washers as required by manufacturer's recommendations.
   f. All miscellaneous accessories -- pour stops, column closures, etc. -- will be installed in accordance with mfg recommendations and the Steel Deck Institute.
   g. Pour stops shall be A36 steel angles (1/4") to finish floor height unless otherwise noted.
   h. The use of any equipment weighing over 150 pounds for installation or finishing of concrete or roofing is prohibited without prior approval from the Engineer. Request MUST be made prior to submittal of shop drawings for deck and supporting structure to be considered.
   i. 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. Composite 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
         (1) Reinforcing: 6x6-W1.4xW1.4 Welded Wire Mesh
         (2) Deck: 3" Composite 20 Ga:
         t_{min} = 0.0358", I_p = 0.919 in⁴/ft I_n = 0.6921 in⁴/ft, S_p = 0.512 in³/ft, S_n = 0.539 in³/ft, F_y = 50ksi,
         (3) Maximum Unshored Spans: Single Span = 12'-2", Double Span = 13'-1", Triple Span = 13'-7"
      ii. Balcony Structural Slab: 2 1/2" Total Depth Light Weight Concrete With 9/16" form deck
         (1) Reinforcing: 6x6-W1.4xW1.4 Welded Wire Mesh
         (2) 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.
   b. Non-composite floor deck shall be fastened to supports with X-ENP-19-L15 PAFs with 30/4 pattern, with 0 sidelap fasteners.
   c. Metal floor deck shall be galvanized in accordance with the requirements of ASTM A653-94 G90.

N. COLD FORMED FRAMING – DELEGATED DESIGN

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. 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.
5. All field cutting of members shall be done by sawing, drilling, or shearing. Torching is not permitted.
6. Members shall not be spliced other than at the locations indicated on the drawings. All splices shall conform to the details in the drawings.
7. No notching or coping of any framing member is allowed, unless stated within this drawing package.
8. 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.
9. Design CFS framing to laterally support veneer.

N.1. COLD FORMED CONNECTIONS – DELEGATED DESIGN

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 bottom tracks shall be fastened to each stud with #8 screws at each flange (min.).

O. 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.

P. 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.

PRINTS ISSUED
PERMIT SUBMITTAL 11/27/2024

REVISIONS:

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

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

STATE OF MISSOURI
CELESTE KAY BUCKLEY
NUMBER PE-2006022113
PROFESSIONAL ENGINEER

11/27/2024

DISCOVERY PARK - LOT #9 - A
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
GENERAL NOTES

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S003

STRUCTURAL STATEMENT OF SPECIAL INSPECTIONS

Project Name: Discovery Park Lee's Summit Lot 9A Address: 200 NE Alura Way, 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...

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

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

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

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

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

6. The following components are wind-resisting components or part of the main wind-force resisting system and are subject...

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

8. Special Inspection Agency:

Special Inspection Schedule: Fabricators

Verification And Inspection Task	Applicable To This Project?	Frequency: Continuous	Frequency: 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	Frequency: Periodic
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	X	-	X
2. Verify excavations are extended to proper depth and have reached proper material.	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 and compaction of compacted fill.	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 Deep Foundation Elements

Verification And Inspection Task	Applicable To This Project?	Frequency: Continuous	Frequency: Periodic
1. Observe drilling operations and maintain complete and accurate records for each element.	X	X	-
2. Verify placement locations and plumbness, confirm pier diameters, bell diameters (if applicable), lengths, embedment into bedrock (if applicable), and adequate end bearing strata capacity. Record concrete or grout volumes.	X	X	-
3. For concrete elements, perform additional inspections in accordance with the concrete Special Inspections.	X		
4. Determine capacities of test elements and conduct additional load tests as required.	X	X	-

Special Inspection Schedule: Concrete Construction

Verification And Inspection Task	Applicable To This Project?	Frequency: Continuous	Frequency: Periodic
1. Inspect reinforcing steel, including prestressing tendons and placement.	X	-	X
2. Inspect reinforcing steel welding in accordance with the Special Inspection Schedule: Steel Construction (other than Item 3).	X	-	-
3. Inspect anchors cast in concrete where allowable loads have been increased or where strength design is used.	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 tests, perform slump and air content tests and record the temperature of the concrete.	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 resisting system.	-	X	-
10. Inspect erection of precast concrete members.	-	-	X
11. Verify in-situ concrete strength prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs.	-	-	X
12. Inspect formwork for shape, location, and dimensions of the concrete member being formed.	X	-	X

Special Inspection Schedule: Structural Steel Construction

Verification And Inspection Task	Applicable To This Project?	Frequency: Continuous	Frequency: Periodic
1. Material verification of high-strength bolts, nuts and washers:			
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	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, twist-off bolt, or direct tension indicator methods of installation.	-	-	X
c. Pretensioned and slip-critical joints using turn-of-nut without match marking or calibrated wrench methods of installation.	-	X	-
3. Material verification of structural steel:			
a. Identification markings to conform to ASTM standards specified in the approved Construction Documents and AISC 360.	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 Construction Documents.	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 Construction Documents:			
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	Frequency: Periodic
1. Inspection of high-load diaphragms:			
a. Verify wood structural panel sheathing is of the grade and thickness shown on the Construction Documents.	X	-	X
b. Verify nominal size of framing members at adjoining panel edges agrees with the Construction Documents.	X	-	X
c. Verify fastener diameter and length, number of fastener lines, the spacing of the fasteners, and the edge margins agree with the Construction Documents.	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 with approved truss submittal package.	-	-	X
b. Verify permanent individual truss member restraint/bracing are installed in accordance with approved truss submittal package.	-	-	X

Special Inspection Schedule: Masonry Construction - Level 1

Verification And Inspection Task	Applicable To This Project?	Frequency: Continuous	Frequency: Periodic
1. Compliance with required inspection provisions of the Construction Documents and the approved submittals shall be verified.	-	-	X
2. Verify f'm and f'aac prior to construction except where specifically exempted by the building code.	-	-	X
3. Verify slump flow and VSI as delivered to the site for self-consolidating grout.	-	X	-
4. As masonry construction begins, the following shall be verified to ensure compliance:			
a. Proportions of site-prepared mortar.	-	-	X
b. Construction of mortar joints.	-	-	X
c. Location of reinforcement, connectors, prestressing tendons, and anchorages.	-	-	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
b. Type, size, and location of anchors, including other details of anchorage of masonry to structural members, frames, or other construction.	-	-	X
c. Specified size, grade, and type of reinforcement, anchor bolts, prestressing tendons, and anchorages.	-	-	X
d. Welding of reinforcing bars.	-	X	-
e. Preparation, construction, and protection of masonry during cold weather (temperature < 40°f) or hot weather (temperature > 90°f).	-	-	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
b. Placement of reinforcement, connectors, prestressing tendons, and anchorages.	-	-	X
c. Proportions of site-prepared grout and prestressing grout for bonded tendons.	-	-	X
d. Construction of mortar joints.	-	-	X
7. Grout placement shall be verified to ensure compliance with Building Code and Construction Document provisions.			
a. Grouting of prestressing bonded tendons.	-	X	-
8. Preparation of any required grout specimens, mortar specimens, and/or prisms shall be observed.	-	-	X

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P 573-814-1568

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EXPIRES: DECEMBER 31, 2024

STATE OF MISSOURI
CELESTE KAY SWEENEY
NUMBER PE-2008022213
PROFESSIONAL ENGINEER

11/27/2024

DISCOVERY PARK - LOT #9 - A

200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
STRUCTURAL SPECIAL INSPECTION

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S004

SCHEDULE OF MINIMUM NAILING FOR STANDARD CONNECTIONS (1)											
CONNECTION (2) (3) IN INCHES	NUMBER - OR SPACING - OF FASTENERS REQUIRED PER CONNECTION										
	NAIL LENGTHS ARE MINIMUM, NOMINAL LENGTHS, IN INCHES. NAIL SHANK DIAMETERS ARE MINIMUM NOMINAL DIAMETERS										
	3-1/2X0.162	3X0.148	3-1/4X0.131	3X0.131	2-1/2X0.131	3-1/4X0.120	3X0.120	2-3/8X0.113	2X0.113	2-1/4X0.105	2-1/4X0.099
EQUIVALENT COMMON NAIL	16d	10d			8d				6d		
FLOOR FRAMING											
JOIST TO BAND JOISTS	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	N/A	N/A	N/A	N/A
CEILING & 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 JOISTS TO PARALLEL RAFTER	3	4	4	4	6	4	4	N/A	N/A	N/A	N/A
COLLAR TIE TO RAFTER	3	3	4	4	5	4	4	N/A	N/A	N/A	N/A
JACK FRAFTER 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	5
ROOF RAFTER TO 2X RIDGE BEAM (DRIVEN THRU BEAM INTO END OF RIDGE)	2	3	3	3	---	4	4	N/A	N/A	N/A	N/A
ROOF RAFTER TO 2X 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)	2	3	3	3	5	4	4	5	5	5	5
CAP/TOP PLATE LAPS & INTERSECTIONS (EACH SIDE OF LAP)	2	3	3	3	4	4	4	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 (#/16" JOIST SPACE)	2	3	3	4	---	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 1/2" (NUMBER "2X" LUMBER)

2. FASTENINGS LISTED ABOVE MAY ALSO BE USED FOR OTHER CONNECTIONS THAT ARE NOTE LISTED BUT THAT HAVE THE SAME CONFIGURATION & THE FASTENER QUANTITY/SPACING & FASTENER SIZE (PENNYWIGHT & STYLE, E.G., 8d COMMON, "8-PENNY COMMON NAIL")

3. FASTENING SCHEDULE ONLY APPLIES TO BUILDINGS OF CONVENTIONAL WOOD FRAM CONSTRUCTION. CONNECTIONS OF SHEAR WALLS & FLOOR & SHOWN ON THE DRAWINGS.

DRAG TRUSS DESIGN LOAD	
Location Description	Design Wind Load Required For Transfer To Structure Below
Roof - Shear Blocking Panels At Exterior Walls	300 PLF
Roof - Trusses Parallel To Shear Walls	200 PLF

WOOD SHEAR WALL SCHEDULE						
Mark	Level	Sheathing/ Fastener Layout	Post	Hold-Down	Min. Sill/Top Plate	Base Connection
SWA	Level 2	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 6" Edge fastening Unblocked	(2) 2x4	HTT4 w/ (18) 0.162Øx2-1/2" & 5/8"Ø Anchor Rod	(1) 2x4	(2) 10d Nails @ 8" o.c.
	Level 1	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 6" Edge fastening Unblocked	(3) 2x4	HTT4 w/ (18) 0.162Øx2-1/2" & 5/8"Ø Anchor Rod (6" Embedment)	(1) 2x4	1/2"Ø Hilti Kwik HUS-EZ w/ 1-3/4" Embedment @ 48" o.c.
SWB	Level 2	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 4" Edge fastening Unblocked	(2) 2x6	HDU8-SDS2.5 w/ (20) 1/4"Øx2-1/2"SDS Screws & 7/8"Ø Anchor Rod	(1) 2x6	(2) 10d Nails @ 8" o.c.
	Level 1	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 3" Edge fastening Unblocked	(3) 2x6	HD12 w/ (4) 1"Ø Bolts & 1-1/8"Ø Anchor Rod (16" Embedment)	(1) 2x6	1/2"Ø Hilti Kwik HUS-EZ w/ 1-3/4" Embedment @ 16" o.c.
SWC	Level 4	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 3" Edge fastening Unblocked	(2) 2x6	HDU8-SDS2.5 w/ (20) 1/4"Øx2-1/2"SDS Screws & 7/8"Ø Anchor Rod	(1) 2x6	(2) 10d Nails @ 4" o.c.
	Level 3	(2) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 3" Edge fastening Unblocked	(4) 2x6	HD19 w/ (5) 1"Ø Bolts & 1-1/4"Ø Anchor Rod	(1) 2x6	1/2"Ø Hilti Kwik HUS-EZ w/ 1-3/4" Embedment @ 6" o.c.
SWD	Level 4	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 4" Edge fastening Unblocked	(2) 2x6	HTT4 w/ (18) 0.162Øx2-1/2" & 5/8"Ø Anchor Rod	(1) 2x6	(2) 10d Nails @ 6" o.c.
	Level 3	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 4" Edge fastening Unblocked	(3) 2x6	HD12 w/ (4) 1"Ø Bolts & 1-1/8"Ø Anchor Rod	(1) 2x6	1/2"Ø Hilti Kwik HUS-EZ w/ 1-3/4" Embedment @ 16" o.c.
SWE	Level 4	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 4" Edge fastening Unblocked	(4) 2x4	HTT4 w/ (18) 0.162Øx2-1/2" & 5/8"Ø Anchor Rod	(1) 2x4	(2) 10d Nails @ 6" o.c.
	Level 3	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 4" Edge fastening Unblocked	(7) 2x4	HD12 w/ (4) 1"Ø Bolts & 1-1/8"Ø Anchor Rod	(1) 2x4	1/2"Ø Hilti Kwik HUS-EZ w/ 1-3/4" Embedment @ 16" o.c.
SWF	Level 4	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 6" Edge fastening Unblocked	(2) 2x4	HTT4 w/ (18) 0.162Øx2-1/2" & 5/8"Ø Anchor Rod	(1) 2x4	(2) 10d Nails @ 8" o.c.
	Level 3	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 4" Edge fastening Unblocked	(4) 2x4	HDU8-SDS2.5 w/ (20) 1/4"Øx2-1/2"SDS Screws & 7/8"Ø Anchor Rod	(1) 2x4	1/2"Ø Hilti Kwik HUS-EZ w/ 1-3/4" Embedment @ 32" o.c.
SWG	Level 4	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 4" Edge fastening Unblocked	(2) 2x6	HTT4 w/ (18) 0.162Øx2-1/2" & 5/8"Ø Anchor Rod	(1) 2x6	(2) 10d Nails @ 8" o.c.
	Level 3	(1) Sided, Wood Structural Panels - S1 - 15/32" Thick, 10d Nail, 4" Edge fastening Unblocked	(2) 2x6	HD12 w/ (4) 1"Ø Bolts & 1-1/8"Ø Anchor Rod	(1) 2x6	1/2"Ø Hilti Kwik HUS-EZ w/ 1-3/4" Embedment @ 24" o.c.

Notes:
1. See S540 for typical shear wall framing
2. All hold down embedded anchors in concrete shall use Hilti HIT-HY 500 V3 Adhesive or Equivalent
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 2/S540.
8. Provide floor to floor strapping on the same side as the OSB sheathing.

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

STATE OF MISSOURI
CELESTE KAY SWEENEY
NUMBER PE-2008022213
PROFESSIONAL ENGINEER

11/27/2024

DISCOVERY PARK - LOT #9 - A

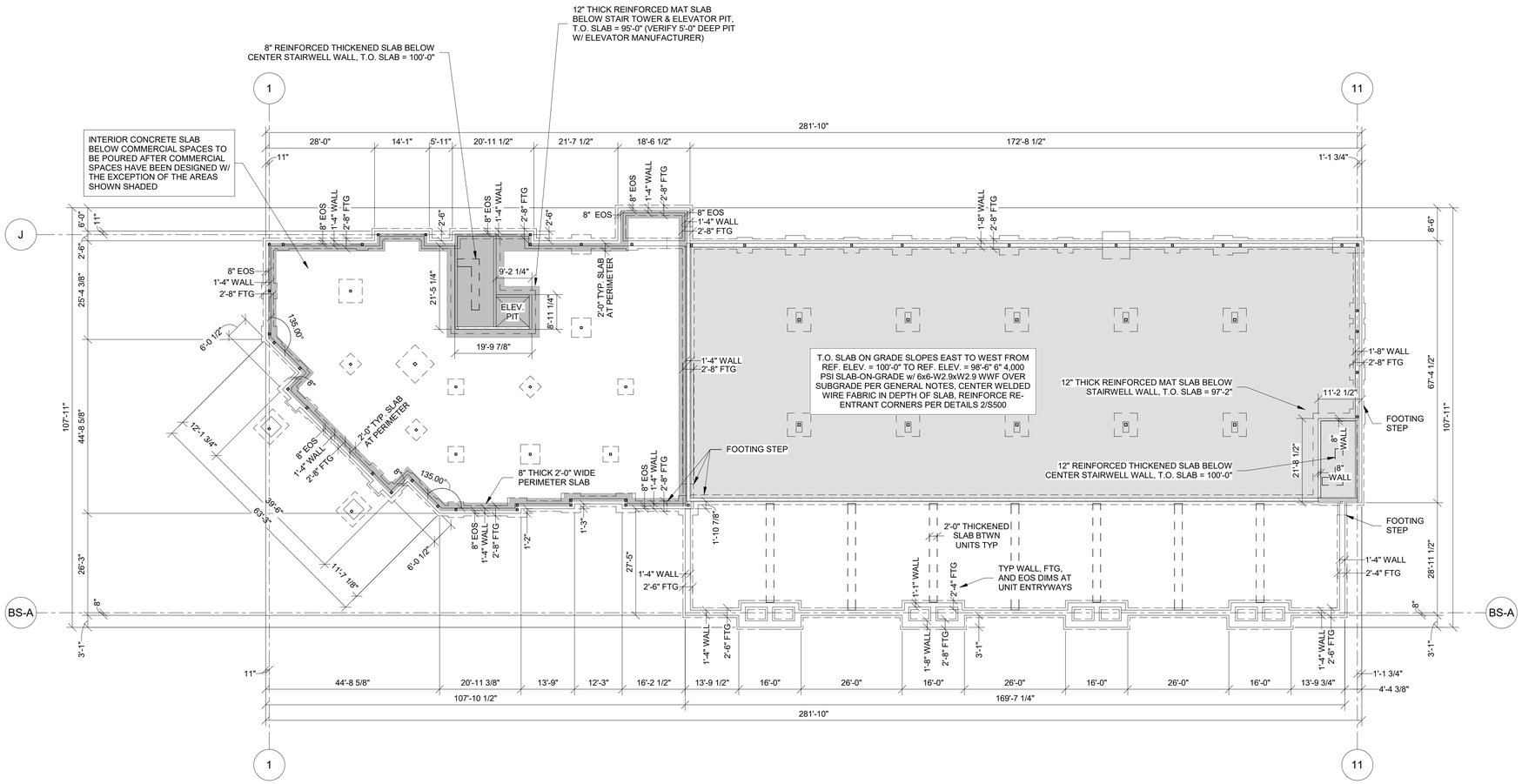
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
SCHEDULES

PROJECT NUMBER: 2023000333

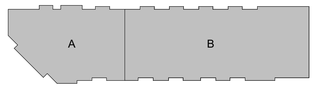
SHEET NUMBER:

S005



1 S100 OVERALL GRID PLAN AND LEVEL 1 EDGE OF SLAB PLAN
1/16" = 1'-0"

N



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STATE OF MISSOURI
CELESTE KAY BECKETT
NUMBER PE-2006022213
PROFESSIONAL ENGINEER

11/27/2024

DISCOVERY PARK - LOT #9 - A

200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
EXTERIOR FOUNDATION WALL & SLAB-ON-GRADE DIMENSION PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S100

FOUNDATION PLAN NOTES:

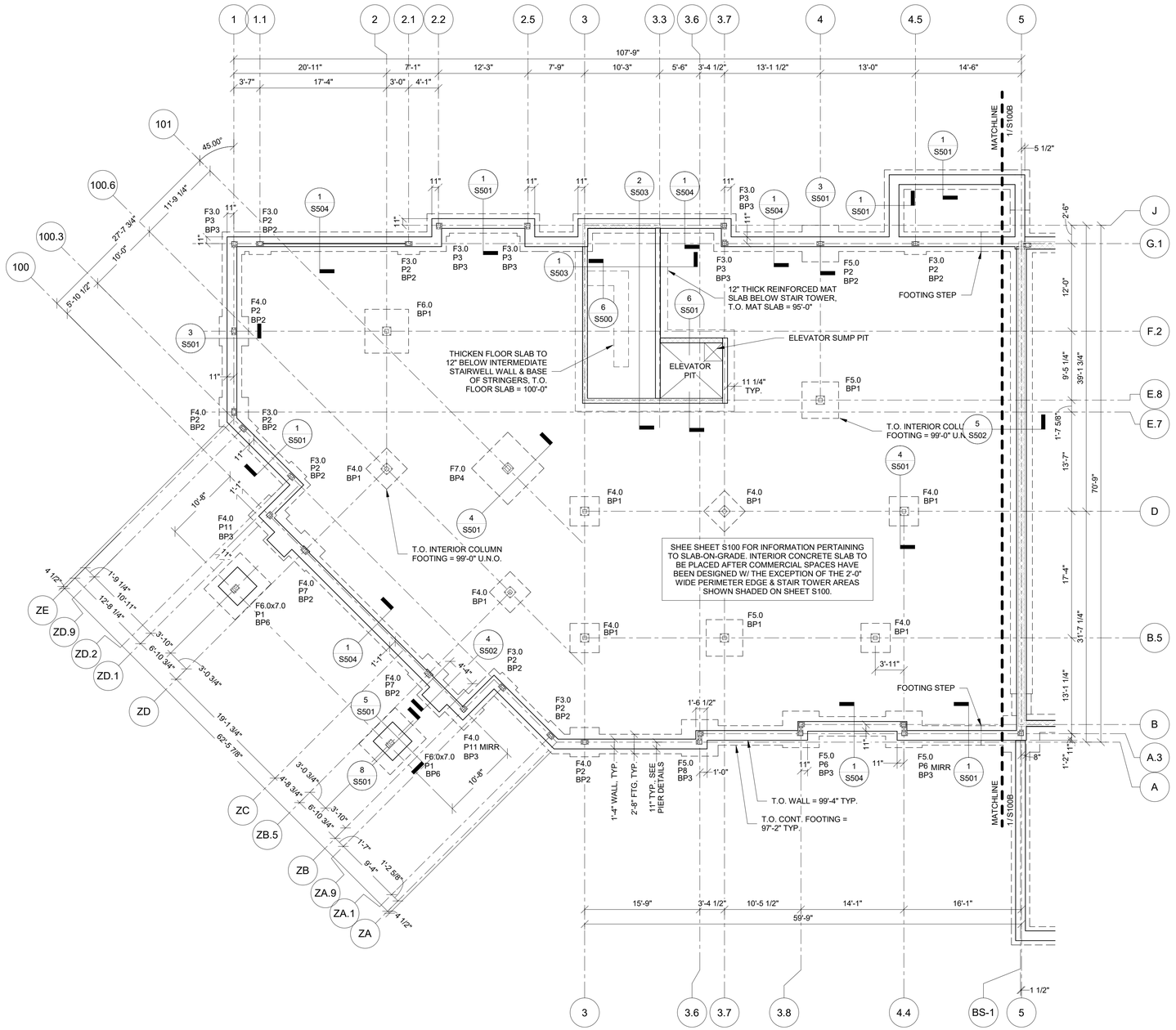
1. SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATIONS, SEE BELOW (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS.)
   - LEVEL 01 T.O. SLAB 100'-0"
   - PARKING T.O. SLAB VARIES, SEE PLAN
2. PROVIDE CONTROL JOINTS IN SLAB ON GRADE PER DETAIL 4 / S500 AND PER GENERAL NOTES.
3. PLUMBING FIXTURES AND FLOOR DRAINS ARE TO BE COORDINATED PER ARCH. & MEP DRAWINGS.
4. REFER TO MANUFACTURER'S GUIDELINES FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS.
5. SEE S500 SERIES SHEETS FOR SECTIONS & DETAILS.
6. SEE SHEET S100 FOR FOUNDATION WALL DIMENSIONS

FOOTING SCHEDULE		
Mark	Size	Reinforcing
F3.0	3'-0"X3'-0"X1'-0"	(3) #5 BARS BOT EA WAY
F4.0	4'-0"x4'-0"x1'-0"	(4) #5 BARS BOT EA WAY
F4.0xF4.3	4'-0"x4'-4"x1'-0"	(4) #5 BARS BOT EA WAY
F5.0	5'-0"x5'-0"x1'-0"	(5) #5 BARS BOT EA WAY
F6.0	6'-0"x6'-0"x1'-4"	(6) #5 BARS BOT EA WAY
F7.0	7'-0"x7'-0"x1'-4"	(7) #7 BARS BOT EA WAY
F6.0X7.0	8'-0"x8'-0"x2'-0"	(6) #7 BARS BOT, LONG (7) #7 BARS BOT, SHORT
F4.0X8.0	4'-0"x8'-0"x1'-4"	(4) #5 BARS BOT, LONG (8) #5 BARS BOT, SHORT

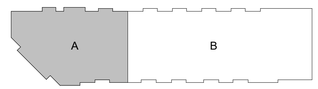
Notes:
1. All footings must be centered on walls and columns U.N.O.

FOUNDATION LEGEND

F#	FOOTING TYPE
P#	PIER TYPE
BP#	BASE PLATE TYPE



1 / S100A FOUNDATION PLAN ZONE A
1/8" = 1'-0"



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11/27/2024

DISCOVERY PARK - LOT #9 - A

200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
FOUNDATION PLAN ZONE A

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S100A

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FOUNDATION PLAN NOTES:

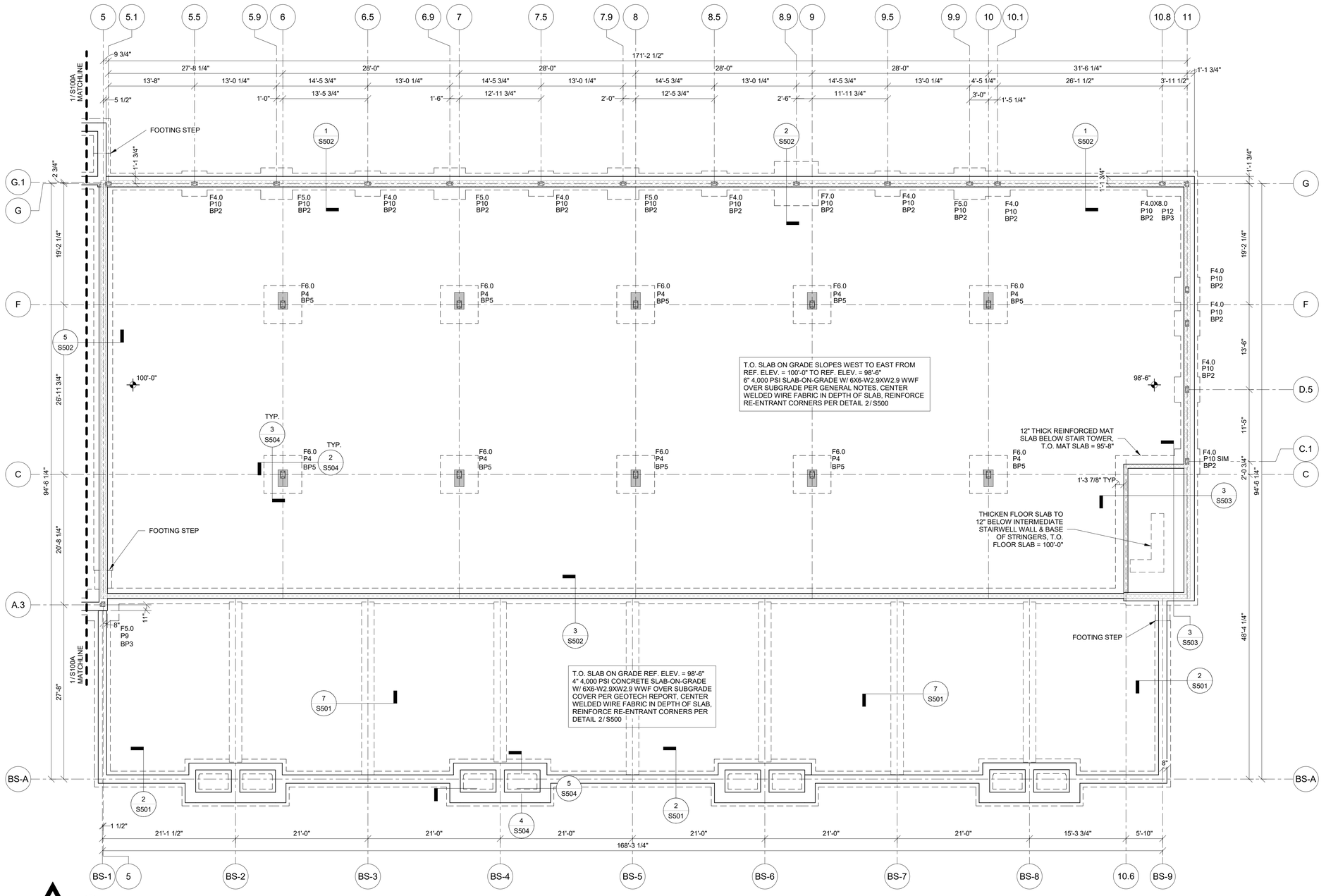
1. SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATIONS, SEE BELOW (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS.)
   - LEVEL 01 T.O. SLAB 100'-0"
   - PARKING T.O. SLAB VARIES, SEE PLAN
2. PROVIDE CONTROL JOINTS IN SLAB ON GRADE PER DETAIL 4 / S500 AND PER GENERAL NOTES.
3. PLUMBING FIXTURES AND FLOOR DRAINS ARE TO BE COORDINATED PER ARCH. & MEP DRAWINGS.
4. REFER TO MANUFACTURER'S GUIDELINES FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS.
5. SEE S500 SERIES SHEETS FOR SECTIONS & DETAILS.
6. SEE SHEET S100 FOR FOUNDATION WALL DIMENSIONS

FOOTING SCHEDULE		
Mark	Size	Reinforcing
F3.0	3'-0"X3'-0"X1'-0"	(3) #5 BARS BOT EA WAY
F4.0	4'-0"x4'-0"x1'-0"	(4) #5 BARS BOT EA WAY
F4.0xF4.3	4'-0"x4'-4"x1'-0"	(4) #5 BARS BOT EA WAY
F5.0	5'-0"x5'-0"x1'-0"	(5) #5 BARS BOT EA WAY
F6.0	6'-0"x6'-0"x1'-4"	(6) #5 BARS BOT EA WAY
F7.0	7'-0"x7'-0"x1'-4"	(7) #7 BARS BOT EA WAY
F6.0X7.0	8'-0"x8'-0"x2'-0"	(6) #7 BARS BOT, LONG (7) #7 BARS BOT, SHORT
F4.0X8.0	4'-0"x8'-0"x1'-4"	(4) #5 BARS BOT, LONG (8) #5 BARS BOT, SHORT

Notes:
1. All footings must be centered on walls and columns U.N.O.

FOUNDATION LEGEND

F#	FOOTING TYPE
P#	PIER TYPE
BP#	BASE PLATE TYPE



1 S100B FOUNDATION PLAN ZONE B
1/8" = 1'-0"

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REVISIONS:

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

STATE OF MISSOURI
CELESTE KAY SCHOOT
NUMBER PE-2008022213
PROFESSIONAL ENGINEER
11/27/2024

DISCOVERY PARK - LOT #9 - A

200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
FOUNDATION PLAN ZONE B

PROJECT NUMBER: 2023000333

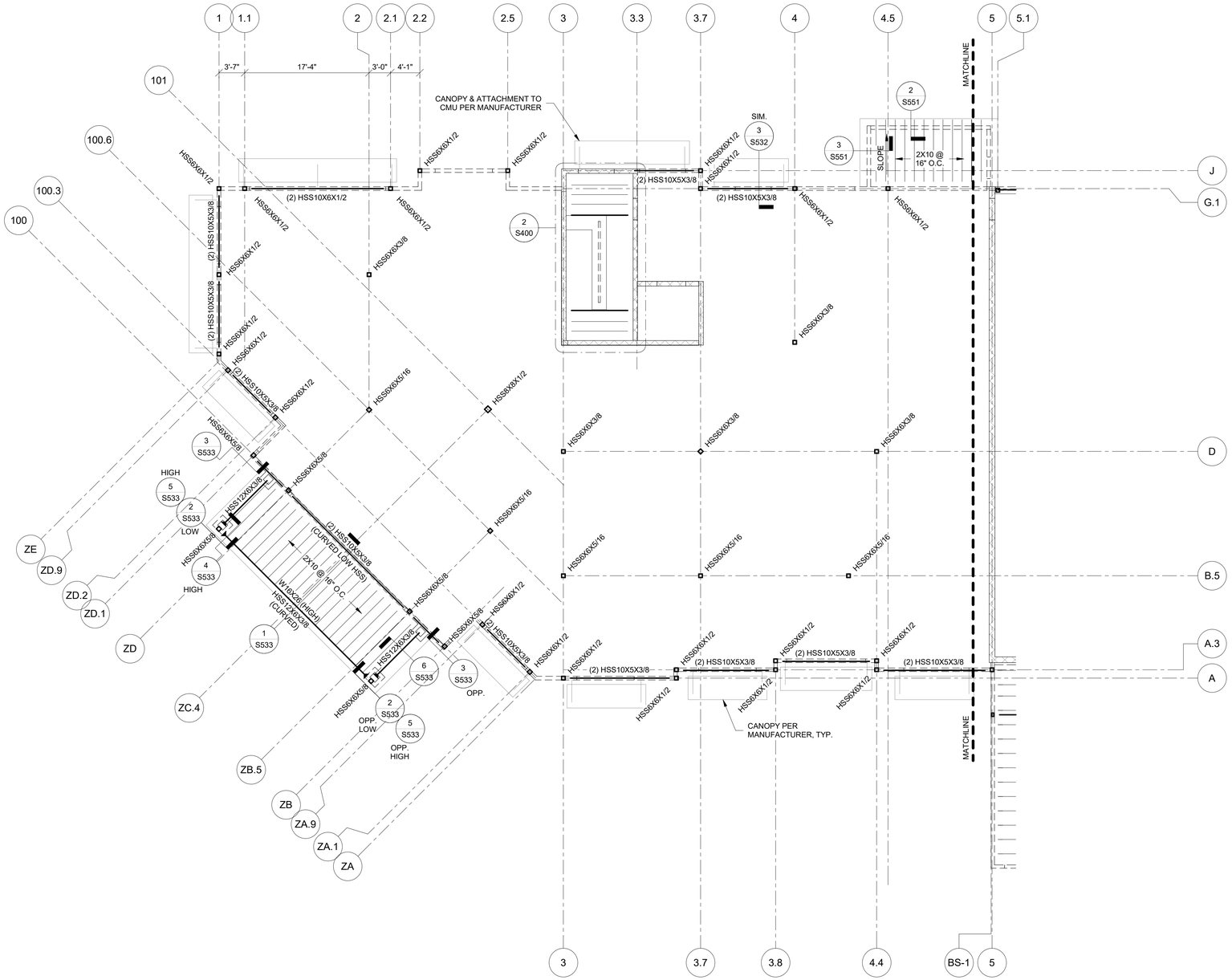
SHEET NUMBER:

S100B

11/26/2024 4:37:33 PM
Autodesk Docs://2023000333 - Discovery Park Lee's Summit/2023000333- Rosemann - Lot #A_R23.rvt

CMU WALL SCHEDULE		
Mark	Nominal Width (in)	Vertical Reinforcing
CMU1	8	#5 @ 16" o.c.
CMU2	8	#5 @ 8" o.c. Each Face
CMU3	10	#5 @ 48" o.c. Each Face

Notes:
1. See details on S520 for typical construction



1 S101A BROWNSTONE FLOOR FRAMING PLAN
1/8" = 1'-0"

PRINTS ISSUED
PERMIT SUBMITTAL 11/27/2024

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MISSOURI CERTIFICATE OF AUTHORITY
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EXPIRES: DECEMBER 31, 2024

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

11/27/2024

DISCOVERY PARK - LOT #9 - A

200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
LEVEL 2 BROWNSTONES ZONE A FRAMING PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S101A

STRUCTURAL WALL SCHEDULE (WALLS SHOWN ON FRAMING PLAN ARE LEVEL BELOW)					
Location	Wall stud size and number of plys @ 16" o.c. U.N.O. on plan				SHEATHING & FASTENING U.N.O. (See Note 3)
	Level 1 Brownstone	Level 2 Brownstone	Level 2 Main Bldg	Level 3 Main Bldg	
EXTERIOR	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	15/32" Structural wood sheathing fastened w/ 10d nails @ 6" o.c. edges , 12" o.c. field
BETWEEN UNITS	(2) 2x4	(2) 2x4	(2) 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	(1) 2x6	---	(2) 2x4	(1) 2x4	5/8" Gypsum wallboard fastened w/ 1 5/8" Type W screws @ 7" o.c. edges, 7" o.c. field
CORRIDOR	---	---	(1) 2x6	(1) 2x6	5/8" Gypsum wallboard fastened w/ 1 5/8" Type W screws @ 7" o.c. edges, 7" o.c. field

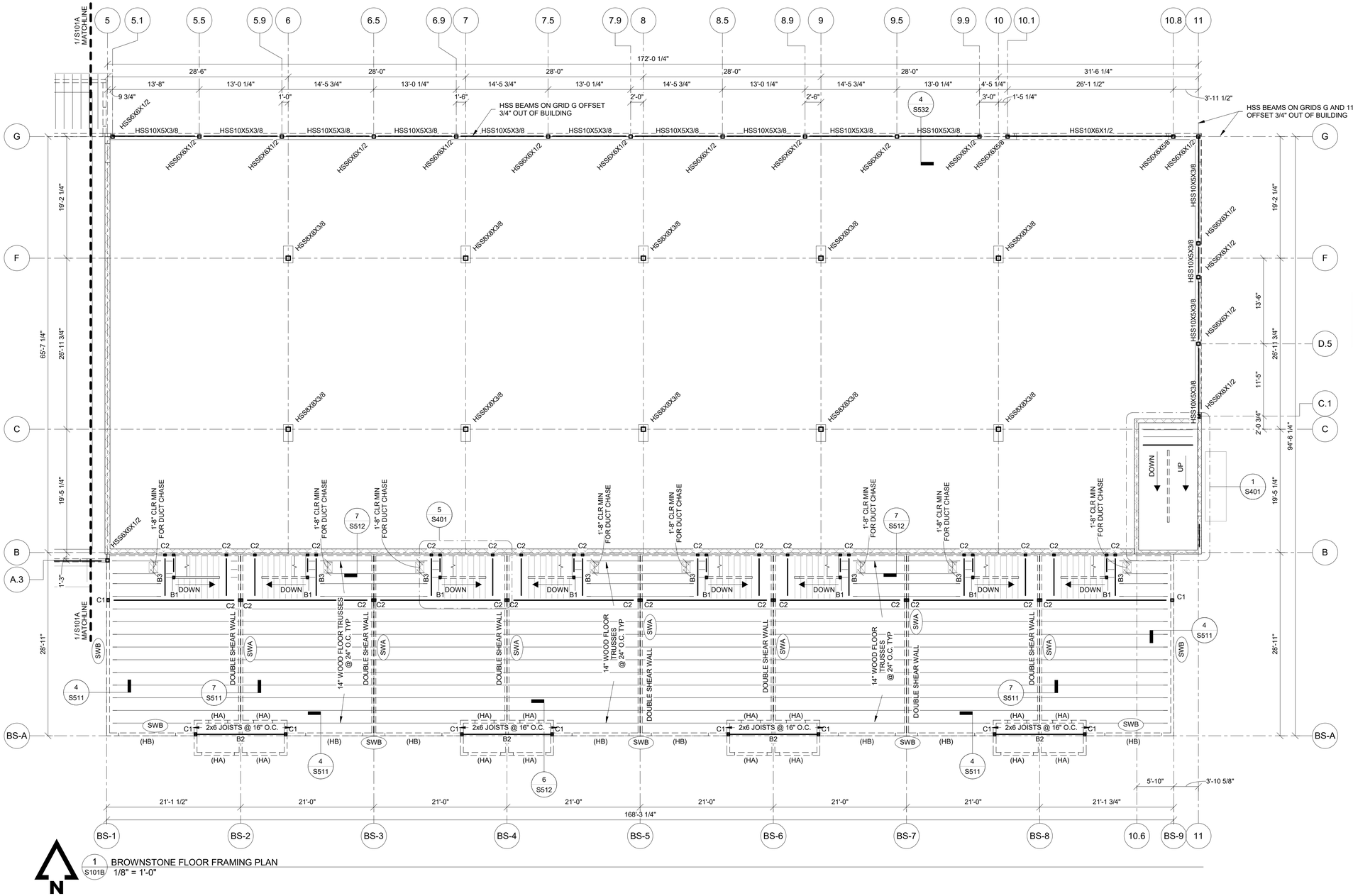
Notes:
1. Sill plates at foundation to be fastened w/ 1/2"Ø x 3-1/2" Hilti KH EZ @ 48" o.c. U.N.O.
2. Top and bottom plates at all other levels to be fastened w/ (2) 16d nails @ 16" o.c. U.N.O.
3. Shear walls shall be sheathed per Shear Wall Schedule
4. Non-structural walls not shown, refer to architectural drawings.
5. All top plates are to be continuous. Splice per 4/S510.

TYPICAL WALL HEADER SCHEDULE (WALLS SHOWN ON FRAMING PLAN ARE LEVEL BELOW)									
Header Type	Header	Kings/Jacks							
		Level 1 Brownstone		Level 2 Brownstone		Level 2 Main Bldg		Level 3 Main Bldg	
HA	(3) 2x8	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J	---	---	---	---
HB	(3) 2x10	(3) 2x6 K	(1) 2x6 J	(3) 2x6 K	(1) 2x6 J	---	---	---	---
HC	(3) 2x12	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J	---	---	---	---
HD	(3) 2x8	---	---	---	---	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J
HE	(3) 2x10	---	---	---	---	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J
HF	(2) LVL 1 3/4"x11 7/8"	---	---	---	---	(3) 2x6 K	(1) 2x6 J	(3) 2x6 K	(1) 2x6 J

Notes:
1. See 5/S510 for typical opening framing.
2. Coordinate all dimensions and elevations with architectural drawings.
3. Provide double sills below windows at openings greater than 6'-0" in length.
4. All LVL shall be stress class 2.0E-2500F.

LEVEL 2 BROWNSTONES PLAN NOTES:

1. SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATION, SEE BELOW. (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS.)
   - LEVEL 2 BROWNSTONES T.O. SHEATHING 108'-9 7/8" U.N.O.
2. FLOOR SHEATHING IS TO BE 3/4" STRUCTURAL GRADE PLYWOOD FASTENED TO FRAMING W/ 10d COMMON NAILS SPACED 6" O.C. AT EDGES, 12" O.C. WITHIN FIELD.
3. PLUMBING FIXTURES, SHAFTS, AND FLOOR DRAINS ARE TO BE COORDINATED PER ARCH. & MEP DRAWINGS.
4. SEE ARCHITECTURAL FLOOR PLAN FOR NON-BEARING WALL, DOOR, AND WINDOW LOCATIONS.
5. WALLS SHOWN ARE BELOW.
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. ALL EXTERIOR LUMBER (POSTS, BEAMS, DECKING, ETC.) TO BE TREATED.
9. WOOD FLOOR TRUSSES TO BE DESIGNED BY OTHERS AND ARE SHOWN FOR THE INTENT OF SPAN DIRECTION AND LOAD PATH ONLY. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.
10. TRUSS MANUFACTURER TO DESIGN & PROVIDE GIRDER TRUSSES AT ALL FLOOR OPENINGS & SPECIFY HANGERS FOR GIRDERS & SUPPORTING FRAMING.
11. REFER TO ARCHITECTURAL PLANS FOR STAIR DIMENSIONS AND REQUIREMENTS. REFER TO STRUCTURAL GENERAL NOTES FOR STAIR DESIGN CRITERIA.



1 S101B BROWNSTONE FLOOR FRAMING PLAN
1/8" = 1'-0"

WOOD POST SCHEDULE	
Mark	Size
C1	(3) 2x6
C2	(3) 2x4
C3	(4) 2x4
C4	(6) 2x4

Notes:
1. All exterior columns are to be pressure treated U.N.O.
2. Exterior columns supporting canopy to be Western Cedar or Redwood Grade 1 or better.

LVL BEAM SCHEDULE	
Mark	Size
B1	(4) 1 3/4" x 11 7/8" LVL
B2	(3) 1 3/4" x 11 7/8" LVL
B3	(2) 1 3/4" x 11 7/8" LVL

Notes:
1. All LVL beam shall be stress class 2.0E-2500F

WOOD HANGER SCHEDULE	
Joist Size	Hanger
2x4	LUS24
2x6	LUS26
2x8	LUS26
2x10	LUS28

Notes:
1. Hangers to be installed with typical fasteners per manufacturer product data.
2. All exterior members are to be pressure treated.

CMU WALL SCHEDULE		
Mark	Nominal Width (in)	Vertical Reinforcing
CMU1	8	#5 @ 16" o.c.
CMU2	8	#5 @ 8" o.c. Each Face
CMU3	10	#5 @ 48" o.c. Each Face

Notes:
1. See details on S520 for typical construction

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

STATE OF MISSOURI
CELESTE KAY SHOCKEY
NUMBER PE-2008022213
PROFESSIONAL ENGINEER
11/27/2024

DISCOVERY PARK - LOT #9 - A

200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
LEVEL 2 BROWNSTONES ZONE B FRAMING PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S101B

11/26/2024 4:37:39 PM
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LEVEL 2 PODIUM 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 PODIUM T.O. CONC. 122'-0" U.N.O.
   - LEVEL 02 PODIUM T.O. STEEL 121'-6 1/2" U.N.O.
2. THE STRUCTURE OVER THE RETAIL SPACE IS TO BE COMPOSITE DECK OVER STEEL BEAMS WITH HEADED ANCHOR STUDS. COMPOSITE DECK SHALL BE:
   - 3" DEEP 20GA COMPOSITE DECK W/ 2.5" LW CONCRETE TOPPING (5.5" TOTAL THICKNESS) (TYP. U.N.O.).
3. CONCRETE BALCONY DECKS TO BE 9/16" NON-COMPOSITE 28 GAGE DECK W/ 1 1/2" NORMAL WEIGHT CONCRETE (2 1/16" TOTAL THICKNESS).
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. ALL EXTERIOR LUMBER (POSTS, BEAMS, DECKING, ETC.) TO BE TREATED.
9. REFER TO ARCHITECTURAL PLANS FOR STAIR DIMENSIONS AND REQUIREMENTS. REFER TO STRUCTURAL GENERAL NOTES FOR STAIR DESIGN CRITERIA.
10. T.O.S. FOR STEEL FRAMING IS -0'-5 1/2" (120'-2") UNLESS SPECIFCALLY NOTED ON PLAN.
11. FOR WIDE FLANGE MEMBERS WITHOUT END REACTONS ON PLAN, USE SHEAR REACTIONS IN THE TABLE ON S002.

BEAM ANNOTATION LEGEND

FRAMING PLAN LEGEND

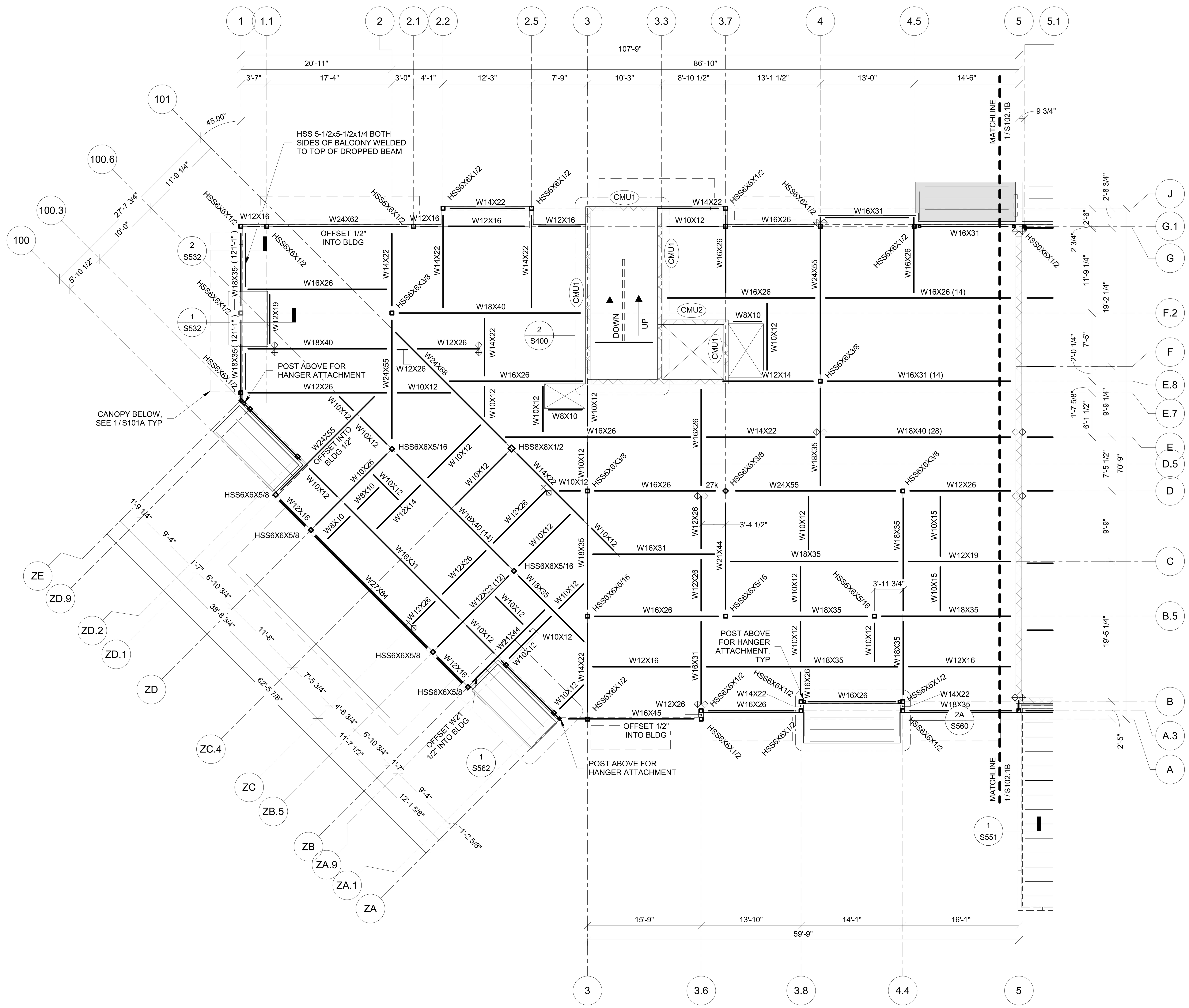
- SHEAR WALL HOLD DOWN PER SHEAR WALL SCHEDULE, SEE S005, SEE ALSO 3 / S540
- CMU WALL
- (X) HEADER TYPE

CMU WALL SCHEDULE

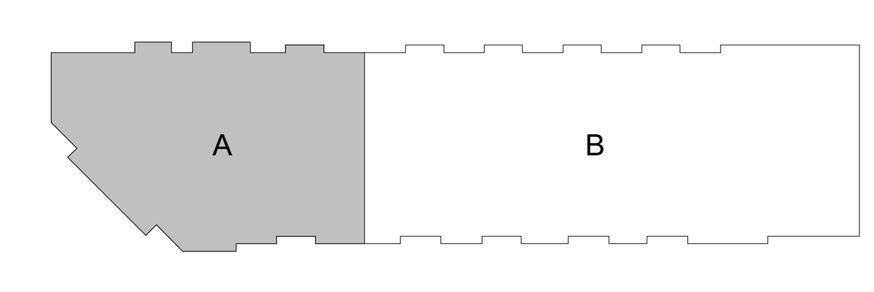
Mark	Nominal Width (in)	Vertical Reinforcing
CMU1	8	#5 @ 16" o.c.
CMU2	8	#5 @ 8" o.c. Each Face
CMU3	10	#5 @ 48" o.c. Each Face

Notes:
1. See details on S520 for typical construction

NOTE:
W12, W14, & W16 BEAMS REQUIRE SPECIAL FASTENING:
(1) FASTENER PER FOOT OF KICKER SPACING (IE: KICKERS AT 4'-0" O.C. REQUIRE (4) FASTENERS, KICKERS AT 3'-0" O.C. REQUIRE (3) FASTENERS)



1 LEVEL 2 ZONE A FRAMING PLAN
S102.1A 1/8" = 1'-0"



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MISSOURI CERTIFICATE OF AUTHORITY
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EXPIRES: DECEMBER 31, 2024

STATE OF MISSOURI
CELESTE KAY SPICKERT
NUMBER PE-2008002213
PROFESSIONAL ENGINEER
11/27/2024

DISCOVERY PARK - LOT #9 - A
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
LEVEL 2 ZONE A FRAMING PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:
S102.1A

STRUCTURAL WALL SCHEDULE (WALLS SHOWN ON FRAMING PLAN ARE LEVEL BELOW)					
Location	Wall stud size and number of plys @ 16" o.c. U.N.O. on plan				SHEATHING & FASTENING U.N.O. (See Note 3)
	Level 1 Brownstone	Level 2 Brownstone	Level 2 Main Bldg	Level 3 Main Bldg	
EXTERIOR	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	15/32" Structural wood sheathing fastened w/ 10d nails @ 6" o.c. edges , 12" o.c. field
BETWEEN UNITS	(2) 2x4	(2) 2x4	(2) 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	(1) 2x6	---	(2) 2x4	(1) 2x4	5/8" Gypsum wallboard fastened w/ 1 5/8" Type W screws @ 7" o.c. edges, 7" o.c. field
CORRIDOR	---	---	(1) 2x6	(1) 2x6	5/8" Gypsum wallboard fastened w/ 1 5/8" Type W screws @ 7" o.c. edges, 7" o.c. field

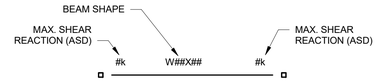
Notes:
1. Sill plates at foundation to be fastened w/ 1/2"Ø x 3-1/2" Hilti KH EZ @ 48" o.c. U.N.O.
2. Top and bottom plates at all other levels to be fastened w/ (2) 16d nails @ 16" o.c. U.N.O.
3. Shear walls shall be sheathed per Shear Wall Schedule
4. Non-structural walls not shown, refer to architectural drawings.
5. All top plates are to be continuous. Splice per 4/S510.

TYPICAL WALL HEADER SCHEDULE (WALLS SHOWN ON FRAMING PLAN ARE LEVEL BELOW)										
Header Type	Header	Kings/Jacks								
		Level 1 Brownstone		Level 2 Brownstone		Level 2 Main Bldg		Level 3 Main Bldg		
HA	(3) 2x8	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J	---	---	---	---	
HB	(3) 2x10	(3) 2x6 K	(1) 2x6 J	(3) 2x6 K	(1) 2x6 J	---	---	---	---	
HC	(3) 2x12	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J	---	---	---	---	
HD	(3) 2x8	---	---	---	---	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J	
HE	(3) 2x10	---	---	---	---	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J	
HF	(2) LVL 1 3/4"x11 7/8"	---	---	---	---	(3) 2x6 K	(1) 2x6 J	(3) 2x6 K	(1) 2x6 J	

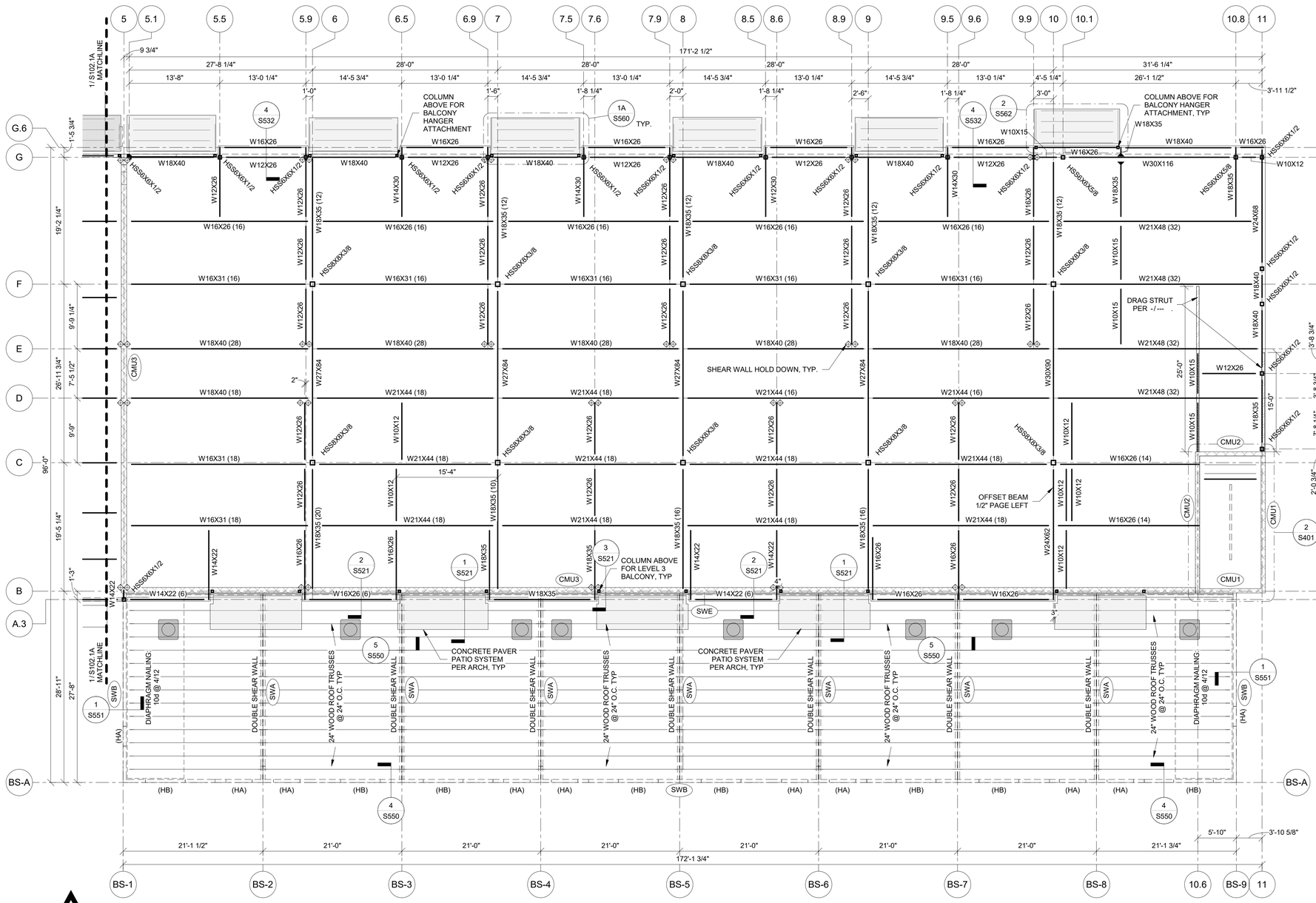
Notes:
1. See 5/S510 for typical opening framing.
2. Coordinate all dimensions and elevations with architectural drawings.
3. Provide double sills below windows at openings greater than 6'-0" in length.
4. All LVL shall be stress class 2.0E-2500F.

LEVEL 2 PODIUM 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 PODIUM T.O. CONC. 122'-0" U.N.O.
   - LEVEL 02 PODIUM T.O. STEEL 121'-6 1/2" U.N.O.
2. THE STRUCTURE OVER THE RETAIL SPACE IS TO BE COMPOSITE DECK OVER STEEL BEAMS WITH HEADED ANCHOR STUDS. COMPOSITE DECK SHALL BE:
   - 3" DEEP 20GA COMPOSITE DECK W/ 2.5" LW CONCRETE TOPPING (5.5" TOTAL THICKNESS) (TYP. U.N.O.).
3. CONCRETE BALCONY DECKS TO BE 9/16" NON-COMPOSITE 28 GAGE DECK W/ 1 1/2" NORMAL WEIGHT CONCRETE (2 1/16" TOTAL THICKNESS).
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. ALL EXTERIOR LUMBER (POSTS, BEAMS, DECKING, ETC.) TO BE TREATED.
9. REFER TO ARCHITECTURAL PLANS FOR STAIR DIMENSIONS AND REQUIREMENTS. REFER TO STRUCTURAL GENERAL NOTES FOR STAIR DESIGN CRITERIA.
10. T.O.S. FOR STEEL FRAMING IS -0'-5 1/2" (120'-2") UNLESS SPECIFCALLY NOTED ON PLAN.
11. FOR WIDE FLANGE MEMBERS WITHOUT END REACTONS ON PLAN, USE SHEAR REACTIONS IN THE TABLE ON S002.



BEAM ANNOTATION LEGEND



1 S102.1B LEVEL 2 ZONE B FRAMING PLAN
1/8" = 1'-0"

FRAMING PLAN LEGEND

- SHEAR WALL HOLD DOWN PER SHEAR WALL SCHEDULE, SEE S005, SEE ALSO 3/ S540
- CMU WALL
- (X) HEADER TYPE

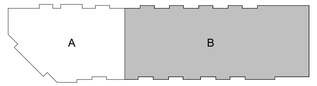
CMU WALL SCHEDULE		
Mark	Nominal Width (in)	Vertical Reinforcing
CMU1	8	#5 @ 16" o.c.
CMU2	8	#5 @ 8" o.c. Each Face
CMU3	10	#5 @ 48" o.c. Each Face

Notes:
1. See details on S520 for typical construction

NOTE:
W12, W14, & W16 BEAMS REQUIRE SPECIAL FASTENING: (1) FASTENER PER FOOT OF KICKER SPACING (IE: KICKERS AT 4'-0" O.C. REQUIRE (4) FASTENERS, KICKERS AT 3'-0" O.C. REQUIRE (3) FASTENERS)

LEVEL 2 BROWNSTONE ROOF PLAN NOTES:

1. SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATION. SEE BELOW. (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS.)
   - ROOF TRUSS BEARING 118'-0 1/4" U.N.O.
2. ROOF STRUCTURE TO BE 3/4" APA RATED STRUCTURAL 1 PLYWOOD SHEATHING OVER WOOD TRUSSES. FASTEN SHEATHING TO ROOF FRAMING WITH 10d COMMON NAILS SPACED AT 6" O.C. AT EDGES, 12" O.C. WITH FIELD, U.N.O.
3. RTU PENETRATIONS TO BE COORDINATED WITH ARCH. & MEP DRAWINGS.
4. PARAPET FRAMING IS TO BE PART OF THE ROOF TRUSSES DESIGNED BY OTHERS.
5. REFER TO MANUFACTURER'S GUIDELINES FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS.
6. ALL EXTERIOR LUMBER (POSTS, BEAMS, DECKING, ETC.) TO BE TREATED.
7. TRUSS MANUFACTURER TO DESIGN AND PROVIDE GIRDER TRUSSES AT ALL FLOOR OPENINGS AND SPECIFY HANGERS FOR GIRDERS AND SUPPORTING FRAMING.



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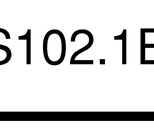
EXPIRES: DECEMBER 31, 2024



11/27/2024

DISCOVERY PARK - LOT #9 - A

200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
LEVEL 2 ZONE B FRAMING PLAN

PROJECT NUMBER: 2023000333

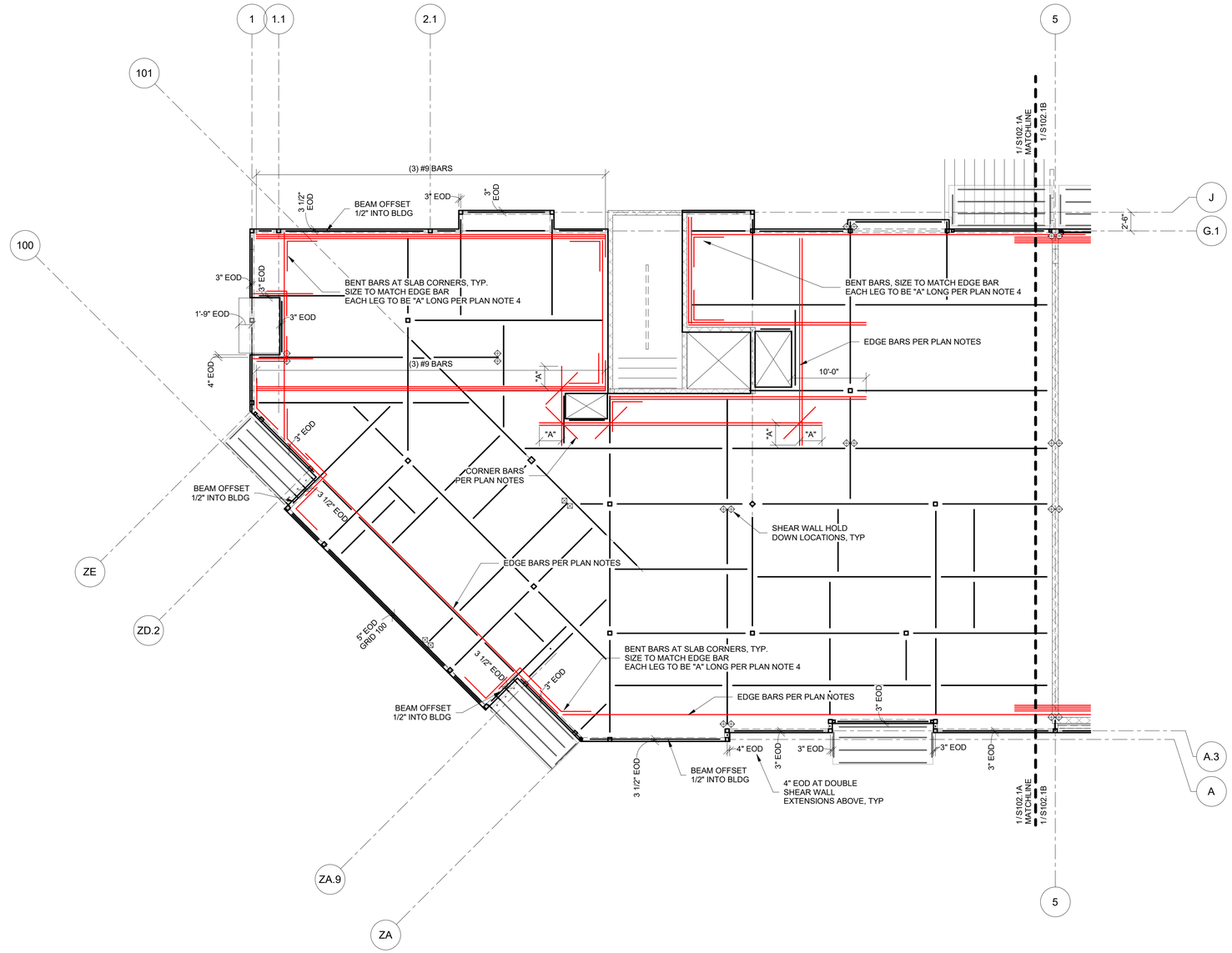
SHEET NUMBER:

S102.1B

11/26/2024 4:37:44 PM
Autodesk Docs://2023000333 - Discovery Park Lee's Summit/2023000333- Rosemann - Lot9A_R23.rvt

DIAPHRAGM PLAN NOTES:

1. REINFORCING SHOWN IS (2) #5 BARS U.N.O.
2. (2) #5 x 6'-0" CORNER BARS ARE REQUIRED AT ALL RE-ENTRANT SLAB CORNERS (INCLUDING SLAB OPENINGS) U.N.O.
3. PROVIDE (2) #5 BARS AS SHOWN AT PERIMETER OF SLAB OPENINGS W/ EXTENSIONS PER NOTE 4
4. BARS TO CONTINUE "A" DISTANCE PAST PERPENDICULAR REINFORCING WHERE NOTED ON PLAN
   A = 3'-0" FOR #4 BARS
   A = 3'-6" FOR #5 BARS
   A = 4'-0" FOR #6 BARS
   A = 6'-0" FOR #7 BARS
5. MAINTAIN 2" CLEAR COVER BETWEEN REINFORCING AND SLAB EDGE
6. ALL SLABS ON METAL DECK TO BE REINFORCED W/ WWF PER GENERAL NOTES IN ADDITION TO REINFORCING SHOWN ON THIS PLAN
7. SEE DETAILS FOR ADDITIONAL REINFORCING REQUIRED AT CONNECTIONS



1 LEVEL 2 ZONE A DIAPHRAGM REINFORCING
S102.2A 1/8" = 1'-0"

PRINTS ISSUED
PERMIT SUBMITTAL 11/27/2024

REVISIONS:

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

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

STATE OF MISSOURI
CELESTE KAY BISCHOFF
NUMBER PE-2008022213
PROFESSIONAL ENGINEER

11/27/2024

DISCOVERY PARK - LOT #9 - A

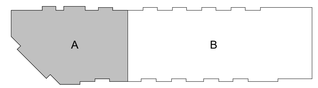
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
LEVEL 2 ZONE A DIAPHRAGM REINFORCING AND EDGE OF DECK PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S102.2A



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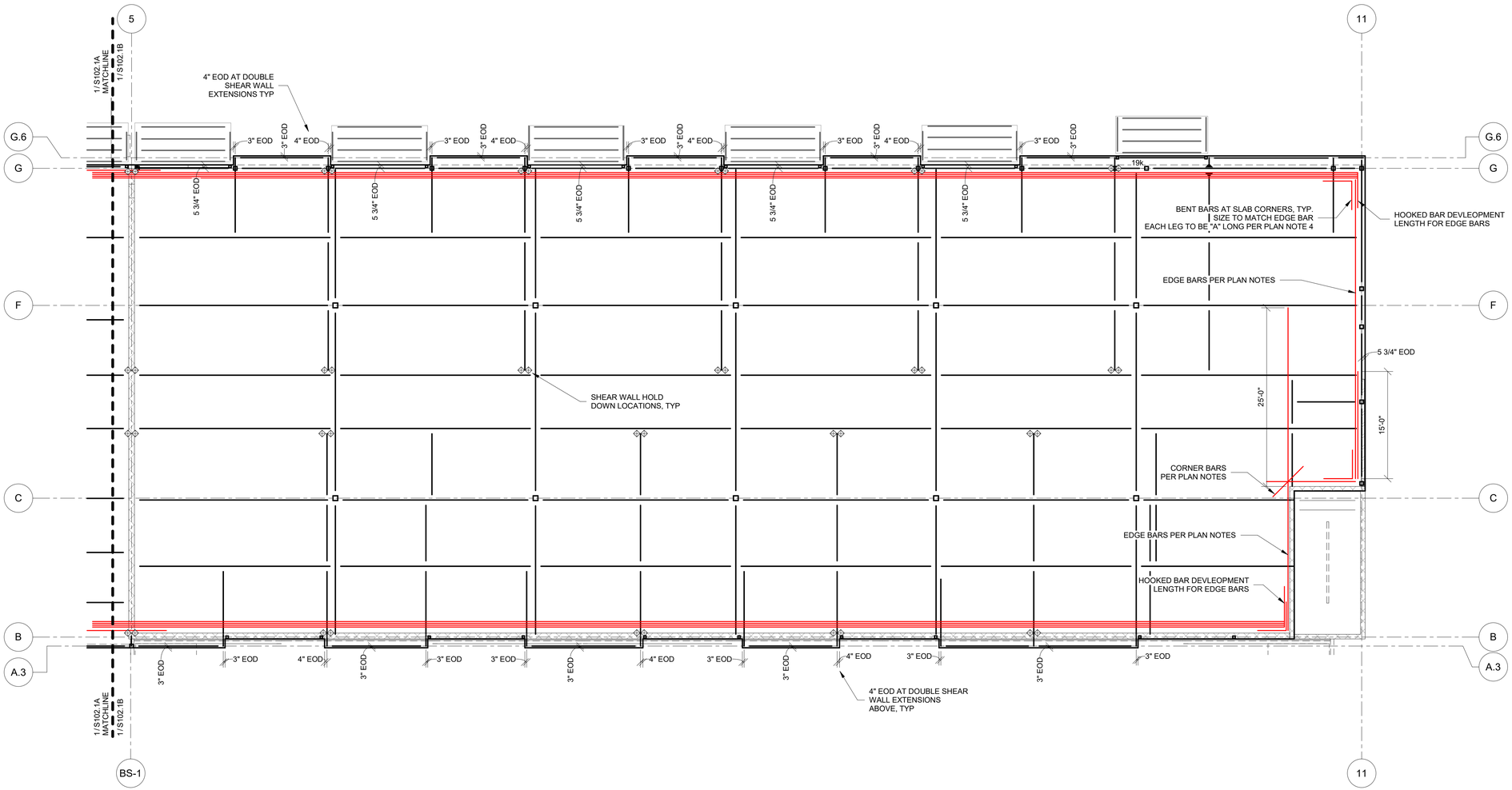
Autodesk Docs://2023000333 - Discovery Park Lee's Summit/2023000333 - Rivermarin - Lot #A_R23.rvt

DIAPHRAGM PLAN NOTES:

1. REINFORCING SHOWN IS (2) #5 BARS U.N.O.
2. (2) #5 x 6'-0" CORNER BARS ARE REQUIRED AT ALL RE-ENTRANT SLAB CORNERS (INCLUDING SLAB OPENINGS) U.N.O.
3. PROVIDE (2) #5 BARS AS SHOWN AT PERIMETER OF SLAB OPENINGS W/ EXTENSIONS PER NOTE 4
4. BARS TO CONTINUE "A" DISTANCE PAST PERPENDICULAR REINFORCING WHERE NOTED ON PLAN
   A = 3'-0" FOR #4 BARS
   A = 3'-6" FOR #5 BARS
   A = 4'-0" FOR #6 BARS
   A = 6'-0" FOR #7 BARS
5. MAINTAIN 2" CLEAR COVER BETWEEN REINFORCING AND SLAB EDGE
6. ALL SLABS ON METAL DECK TO BE REINFORCED W/ WWF PER GENERAL NOTES IN ADDITION TO REINFORCING SHOWN ON THIS PLAN
7. SEE DETAILS FOR ADDITIONAL REINFORCING REQUIRED AT CONNECTIONS



1 LEVEL 2 ZONE B DIAPHRAGM REINFORCING
S102.2B 1/8" = 1'-0"

PRINTS ISSUED
PERMIT SUBMITTAL 11/27/2024

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

STATE OF MISSOURI
CELESTE KAY SWEENEY
NUMBER PE-2008022213
PROFESSIONAL ENGINEER

11/27/2024

DISCOVERY PARK - LOT #9 - A

200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
LEVEL 2 ZONE B DIAPHRAGM REINFORCING AND EDGE OF DECK PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S102.2B

STRUCTURAL WALL SCHEDULE (WALLS SHOWN ON FRAMING PLAN ARE LEVEL BELOW)					
Location	Wall stud size and number of plys @ 16" o.c. U.N.O. on plan				SHEATHING & FASTENING U.N.O. (See Note 3)
	Level 1 Brownstone	Level 2 Brownstone	Level 2 Main Bldg	Level 3 Main Bldg	
EXTERIOR	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	15/32" Structural wood sheathing fastened w/ 10d nails @ 6" o.c. edges , 12" o.c. field
BETWEEN UNITS	(2) 2x4	(2) 2x4	(2) 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	(1) 2x6	---	(2) 2x4	(1) 2x4	5/8" Gypsum wallboard fastened w/ 1 5/8" Type W screws @ 7" o.c. edges, 7" o.c. field
CORRIDOR	---	---	(1) 2x6	(1) 2x6	5/8" Gypsum wallboard fastened w/ 1 5/8" Type W screws @ 7" o.c. edges, 7" o.c. field

Notes:
1. Sill plates at foundation to be fastened w/ 1/2"Ø x 3-1/2" Hilti KH EZ @ 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/S510.

TYPICAL WALL HEADER SCHEDULE (WALLS SHOWN ON FRAMING PLAN ARE LEVEL BELOW)									
Header Type	Header	Kings/Jacks							
		Level 1 Brownstone		Level 2 Brownstone		Level 2 Main Bldg		Level 3 Main Bldg	
HA	(3) 2x8	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J	---	---	---	---
HB	(3) 2x10	(3) 2x6 K	(1) 2x6 J	(3) 2x6 K	(1) 2x6 J	---	---	---	---
HC	(3) 2x12	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J	---	---	---	---
HD	(3) 2x8	---	---	---	---	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J
HE	(3) 2x10	---	---	---	---	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J
HF	(2) LVL 1 3/4"x11 7/8"	---	---	---	---	(3) 2x6 K	(1) 2x6 J	(3) 2x6 K	(1) 2x6 J

Notes:
1. See 5/S510 for typical opening framing.
2. Coordinate all dimensions and elevations with architectural drawings.
3. Provide double sills below windows at openings greater than 6'-0" in length.
4. All LVL shall be stress class 2.0E-2500F.

LEVEL 3 PLAN NOTES:

1. SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATION, SEE BELOW. (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS.)
   - LEVEL 03 T.O. SHEATHING 131'-10 5/8" U.N.O.
2. FLOOR SHEATHING IS TO BE 3/4" STRUCTURAL GRADE PLYWOOD FASTENED TO FRAMING WITH 10d COMMON NAILS SPACED AT 6" O.C. AT EDGES, 12" O.C. WITHIN FIELD, U.N.O.
3. CONCRETE BALCONY DECKS TO BE 9/16" NON-COMPOSITE 28 GAGE DECK W/ 1 1/2" NORMAL WEIGHT CONCRETE (2 1/16" TOTAL THICKNESS).
4. PLUMBING FIXTURES, SHAFTS, AND FLOOR DRAINS ARE TO BE COORDINATED PER ARCH. & MEP DRAWINGS.
5. ALL EXTERIOR AND INTERIOR LOAD BEARING WALLS ARE PER WALL SCHEDULE ON SHEET S003. SEE ARCHITECTURAL FLOOR PLAN FOR NON-BEARING WALL, DOOR, AND WINDOW LOCATIONS.
6. WALLS SHOWN ARE BELOW.
7. SEE ARCHITECTURAL DRAWINGS FOR ALL RAILING DETAILS. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.
8. REFER TO MANUFACTURER'S GUIDELINES FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS.
9. ALL EXTERIOR LUMBER (POSTS, BEAMS, DECKING, ETC.) TO BE TREATED.
10. WOOD FLOOR TRUSSES TO BE DESIGNED BY OTHERS AND ARE SHOWN FOR THE INTENT OF SPAN DIRECTION AND LOAD PATH ONLY. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.
11. TRUSS MANUFACTURER TO DESIGN AND PROVIDE GIRDER TRUSSES AT ALL OPENINGS AND SPECIFY HANGERS FOR GIRDERS AND SUPPORTED FRAMING.
12. REFER TO ARCHITECTURAL PLANS FOR STAIR DIMENSIONS AND REQUIREMENTS. REFER TO STRUCTURAL GENERAL NOTES FOR STAIR DESIGN CRITERIA.

WOOD POST SCHEDULE	
Mark	Size
C1	(3) 2x6
C2	(3) 2x4
C3	(4) 2x4
C4	(6) 2x4

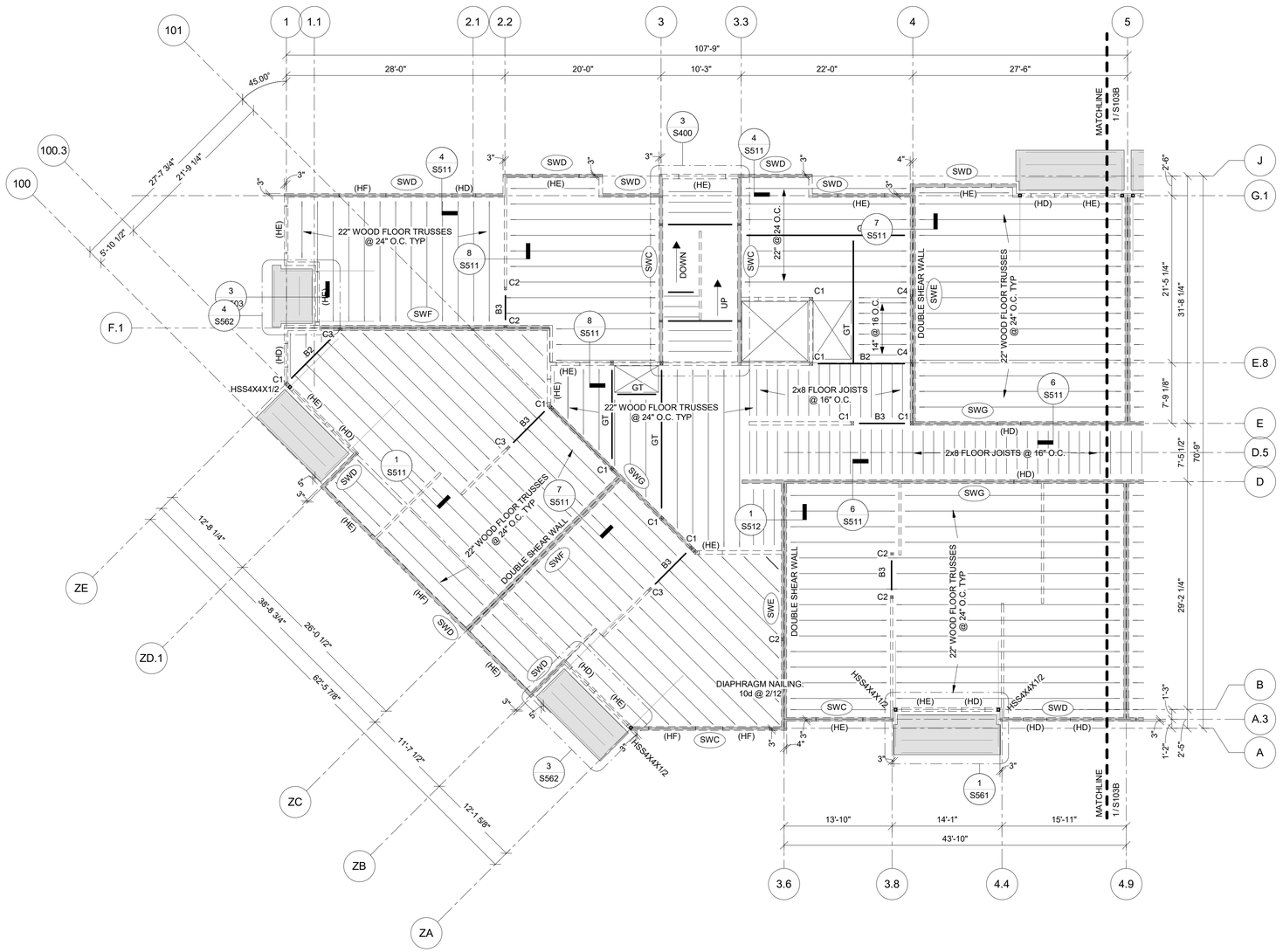
Notes:
1. All exterior columns are to be pressure treated U.N.O.
2. Exterior columns supporting canopy to be Western Cedar or Redwood Grade 1 or better.

LVL BEAM SCHEDULE	
Mark	Size
B1	(4) 1 3/4" x 11 7/8" LVL
B2	(3) 1 3/4" x 11 7/8" LVL
B3	(2) 1 3/4" x 11 7/8" LVL

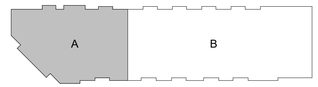
Notes:
1. All LVL beam shall be stress class 2.0E-2500F

WOOD HANGER SCHEDULE	
Joist Size	Hanger
2x4	LUS24
2x6	LUS26
2x8	LUS26
2x10	LUS28

Notes:
1. Hangers to be installed with typical fasteners per manufacturer product data.
2. All exterior members are to be pressure treated.



1 / S103A LEVEL 3 FRAMING PLAN
1/8" = 1'-0"



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

STATE OF MISSOURI
CELESTE KAY SWEENEY
NUMBER PE-2006022213
PROFESSIONAL ENGINEER
11/27/2024

DISCOVERY PARK - LOT #9 - A

200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
LEVEL 3 ZONE A FRAMING PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S103A

STRUCTURAL WALL SCHEDULE (WALLS SHOWN ON FRAMING PLAN ARE LEVEL BELOW)					
Location	Wall stud size and number of plys @ 16" o.c. U.N.O. on plan				SHEATHING & FASTENING U.N.O. (See Note 3)
	Level 1 Brownstone	Level 2 Brownstone	Level 2 Main Bldg	Level 3 Main Bldg	
EXTERIOR	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	15/32" Structural wood sheathing fastened w/ 10d nails @ 6" o.c. edges , 12" o.c. field
BETWEEN UNITS	(2) 2x4	(2) 2x4	(2) 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	(1) 2x6	---	(2) 2x4	(1) 2x4	5/8" Gypsum wallboard fastened w/ 1 5/8" Type W screws @ 7" o.c. edges, 7" o.c. field
CORRIDOR	---	---	(1) 2x6	(1) 2x6	5/8" Gypsum wallboard fastened w/ 1 5/8" Type W screws @ 7" o.c. edges, 7" o.c. field

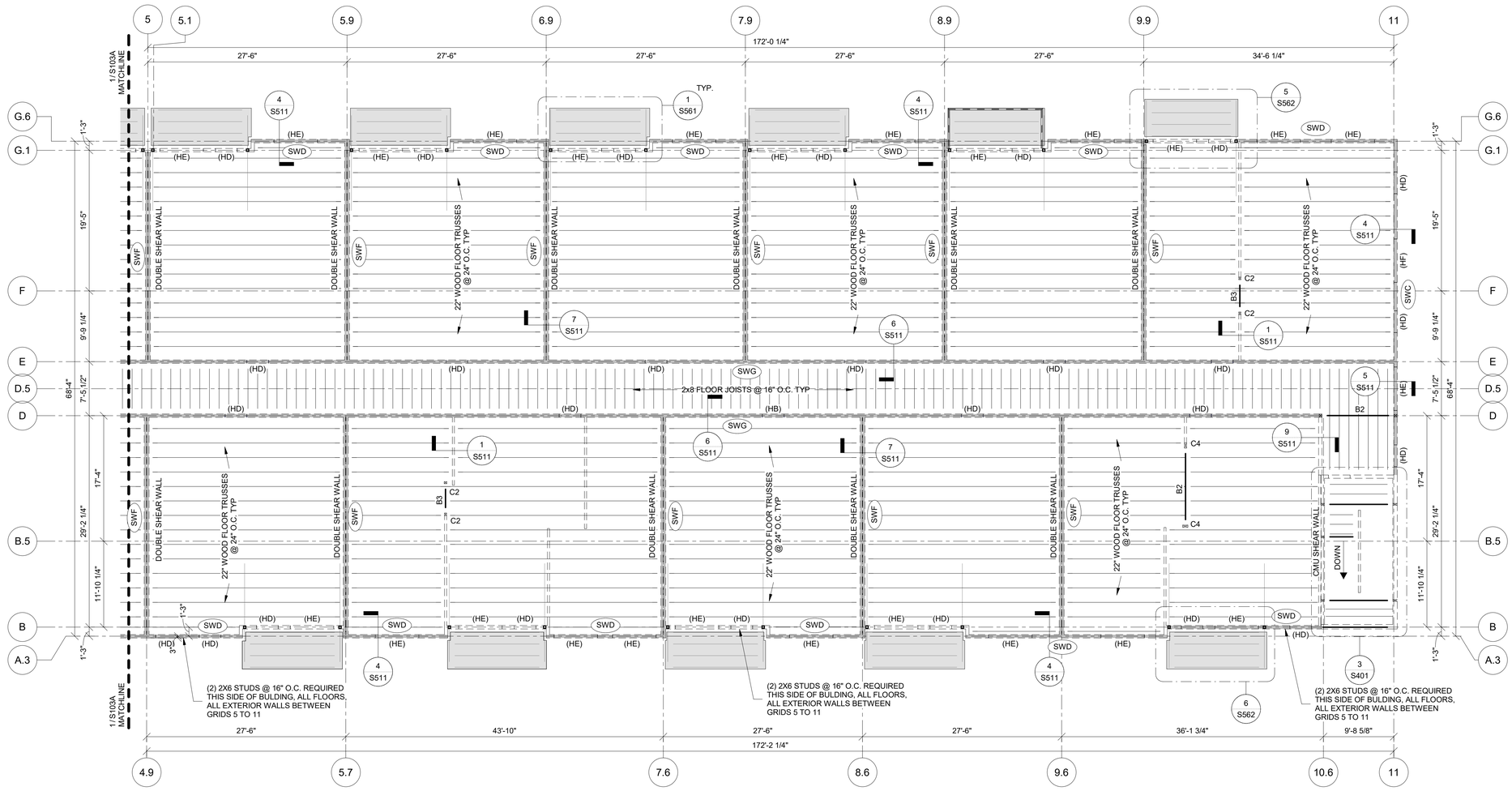
Notes:
1. Sill plates at foundation to be fastened w/ 1/2"Ø x 3-1/2" Hilti KH EZ @ 48" o.c. U.N.O.
2. Top and bottom plates at all other levels to be fastened w/ (2) 16d nails @ 16" o.c. U.N.O.
3. Shear walls shall be sheathed per Shear Wall Schedule
4. Non-structural walls not shown, refer to architectural drawings.
5. All top plates are to be continuous. Splice per 4/S510.

TYPICAL WALL HEADER SCHEDULE (WALLS SHOWN ON FRAMING PLAN ARE LEVEL BELOW)										
Header Type	Header	Kings/Jacks								
		Level 1 Brownstone		Level 2 Brownstone		Level 2 Main Bldg		Level 3 Main Bldg		
HA	(3) 2x8	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J	---	---	---	---	
HB	(3) 2x10	(3) 2x6 K	(1) 2x6 J	(3) 2x6 K	(1) 2x6 J	---	---	---	---	
HC	(3) 2x12	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J	---	---	---	---	
HD	(3) 2x8	---	---	---	---	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J	
HE	(3) 2x10	---	---	---	---	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J	
HF	(2) LVL 1 3/4"x11 7/8"	---	---	---	---	(3) 2x6 K	(1) 2x6 J	(3) 2x6 K	(1) 2x6 J	

Notes:
1. See 5/S510 for typical opening framing.
2. Coordinate all dimensions and elevations with architectural drawings.
3. Provide double sills below windows at openings greater than 6'-0" in length.
4. All LVL shall be stress class 2.0E-2500F.

LEVEL 3 PLAN NOTES:

1. SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATION, SEE BELOW. (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS.)
   - LEVEL 03 T.O. SHEATHING 131'-10 5/8" U.N.O.
2. FLOOR SHEATHING IS TO BE 3/4" STRUCTURAL GRADE PLYWOOD FASTENED TO FRAMING WITH 10d COMMON NAILS SPACED AT 6" O.C. AT EDGES, 12" O.C. WITHIN FIELD, U.N.O.
3. CONCRETE BALCONY DECKS TO BE 9/16" NON-COMPOSITE 28 GAGE DECK W/ 1 1/2" NORMAL WEIGHT CONCRETE (2 1/16" TOTAL THICKNESS).
4. PLUMBING FIXTURES, SHAFTS, AND FLOOR DRAINS ARE TO BE COORDINATED PER ARCH. & MEP DRAWINGS.
5. ALL EXTERIOR AND INTERIOR LOAD BEARING WALLS ARE PER WALL SCHEDULE ON SHEET S003. SEE ARCHITECTURAL FLOOR PLAN FOR NON-BEARING WALL, DOOR, AND WINDOW LOCATIONS.
6. WALLS SHOWN ARE BELOW.
7. SEE ARCHITECTURAL DRAWINGS FOR ALL RAILING DETAILS. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.
8. REFER TO MANUFACTURER'S GUIDELINES FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS.
9. ALL EXTERIOR LUMBER (POSTS, BEAMS, DECKING, ETC.) TO BE TREATED.
10. WOOD FLOOR TRUSSES TO BE DESIGNED BY OTHERS AND ARE SHOWN FOR THE INTENT OF SPAN DIRECTION AND LOAD PATH ONLY. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.
11. TRUSS MANUFACTURER TO DESIGN AND PROVIDE GIRDER TRUSSES AT ALL OPENINGS AND SPECIFY HANGERS FOR GIRDERS AND SUPPORTED FRAMING.
12. REFER TO ARCHITECTURAL PLANS FOR STAIR DIMENSIONS AND REQUIREMENTS. REFER TO STRUCTURAL GENERAL NOTES FOR STAIR DESIGN CRITERIA.



WOOD POST SCHEDULE	
Mark	Size
C1	(3) 2x6
C2	(3) 2x4
C3	(4) 2x4
C4	(6) 2x4

Notes:
1. All exterior columns are to be pressure treated U.N.O.
2. Exterior columns supporting canopy to be Western Cedar or Redwood Grade 1 or better.

LVL BEAM SCHEDULE	
Mark	Size
B1	(4) 1 3/4" x 11 7/8" LVL
B2	(3) 1 3/4" x 11 7/8" LVL
B3	(2) 1 3/4" x 11 7/8" LVL

Notes:
1. All LVL beam shall be stress class 2.0E-2500F

WOOD HANGER SCHEDULE	
Joist Size	Hanger
2x4	LUS24
2x6	LUS26
2x8	LUS26
2x10	LUS28

Notes:
1. Hangers to be installed with typical fasteners per manufacturer product data.
2. All exterior members are to be pressure treated.

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REVISIONS:

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2001 W Broadway
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MISSOURI CERTIFICATE OF AUTHORITY
NO. E-2006023253
EXPIRES: DECEMBER 31, 2024

STATE OF MISSOURI
CELESTE KAY SUCKOW
NUMBER PE-2006022213
PROFESSIONAL ENGINEER
11/27/2024

DISCOVERY PARK - LOT #9 - A

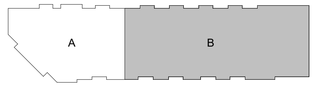
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
LEVEL 3 ZONE B FRAMING PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S103B



1 S103B LEVEL 3 FRAMING PLAN
1/8" = 1'-0"

TYPICAL WALL HEADER SCHEDULE (WALLS SHOWN ON FRAMING PLAN ARE LEVEL BELOW)									
Header Type	Header	Kings/Jacks							
		Level 1 Brownstone		Level 2 Brownstone		Level 2 Main Bldg		Level 3 Main Bldg	
HA	(3) 2x8	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J	---	---	---	---
HB	(3) 2x10	(3) 2x6 K	(1) 2x6 J	(3) 2x6 K	(1) 2x6 J	---	---	---	---
HC	(3) 2x12	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J	---	---	---	---
HD	(3) 2x8	---	---	---	---	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J
HE	(3) 2x10	---	---	---	---	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J
HF	(2) LVL 1 3/4"x11 7/8"	---	---	---	---	(3) 2x6 K	(1) 2x6 J	(3) 2x6 K	(1) 2x6 J

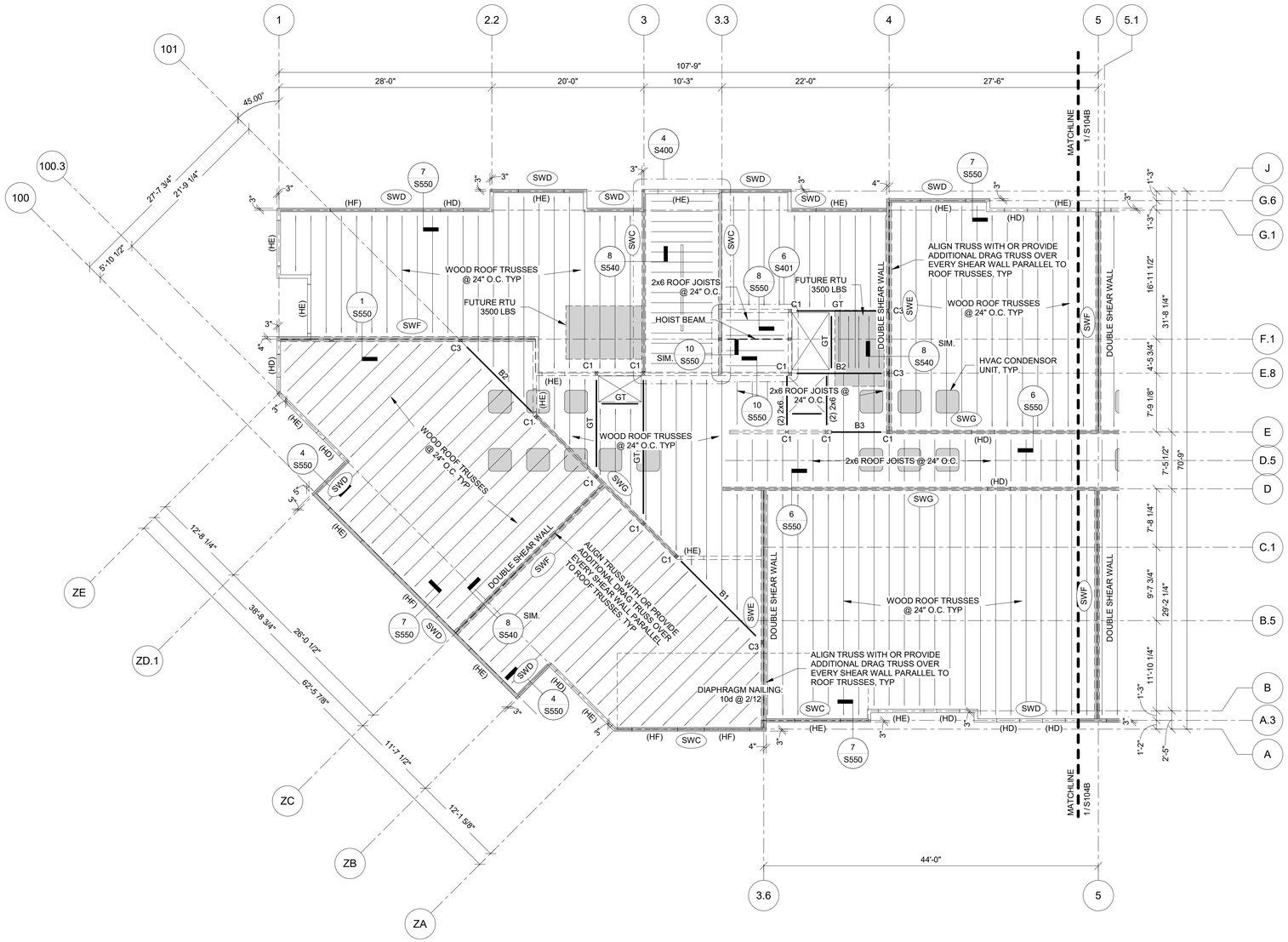
Notes:
1. See 5/S510 for typical opening framing.
2. Coordinate all dimensions and elevations with architectural drawings.
3. Provide double sills below windows at openings greater than 6'-0" in length.
4. All LVL shall be stress class 2.0E-2500F.

STRUCTURAL WALL SCHEDULE (WALLS SHOWN ON FRAMING PLAN ARE LEVEL BELOW)					
Location	Wall stud size and number of plys @ 16" o.c. U.N.O. on plan				SHEATHING & FASTENING U.N.O. (See Note 3)
	Level 1 Brownstone	Level 2 Brownstone	Level 2 Main Bldg	Level 3 Main Bldg	
EXTERIOR	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	15/32" Structural wood sheathing fastened w/ 10d nails @ 6" o.c. edges , 12" o.c. field
BETWEEN UNITS	(2) 2x4	(2) 2x4	(2) 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	(1) 2x6	---	(2) 2x4	(1) 2x4	5/8" Gypsum wallboard fastened w/ 1 5/8" Type W screws @ 7" o.c. edges, 7" o.c. field
CORRIDOR	---	---	(1) 2x6	(1) 2x6	5/8" Gypsum wallboard fastened w/ 1 5/8" Type W screws @ 7" o.c. edges, 7" o.c. field

Notes:
1. Sill plates at foundation to be fastened w/ 1/2"Ø x 3-1/2" Hilti KH EZ @ 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/S510.

ROOF PLAN NOTES:

1. SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATION, SEE BELOW. (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS.)
   - ROOF TRUSS BEARING 141'-11 3/4"
2. ROOF SHEATHING IS TO BE 3/4" STRUCTURAL GRADE PLYWOOD FASTENED WITH 10d NAILS SPACED 6" O.C. AT EDGES, 12" O.C. WITHIN FIELD U.N.O. SHEATHING IS TO BE TOPPED WITH SLOPED RIGID INSULATION PER ARCH.
3. RTU PENETRATIONS TO BE COORDINATED PER ARCH. & MEP DRAWINGS.
4. PARAPET FRAMING IS TO BE PART OF THE ROOF TRUSSES DESIGNED BY OTHERS.
5. REFER TO MANUFACTURER'S GUIDELINES FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS.
6. ALL EXTERIOR LUMBER (POSTS, BEAMS, DECKING, ETC.) TO BE TREATED.
7. WOOD ROOF TRUSSES TO BE DESIGNED BY OTHERS AND ARE SHOWN FOR THE INTENT OF SPAN DIRECTION AND LOAD PATH ONLY. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.
8. TRUSS MANUFACTURER TO DESIGN AND PROVIDE GIRDER TRUSSES AT ALL OPENINGS AND SPECIFY HANGERS FOR GIRDERS AND SUPPORTED FRAMING.
9. VERIFY SPECIFIED ELEVATOR HOIST BEAM AND SUPPORTING FRAMING W/ ELEVATOR MANUFACTURER.



WOOD POST SCHEDULE	
Mark	Size
C1	(3) 2x6
C2	(3) 2x4
C3	(4) 2x4
C4	(6) 2x4

Notes:
1. All exterior columns are to be pressure treated U.N.O.
2. Exterior columns supporting canopy to be Western Cedar or Redwood Grade 1 or better.

LVL BEAM SCHEDULE	
Mark	Size
B1	(4) 1 3/4" x 11 7/8" LVL
B2	(3) 1 3/4" x 11 7/8" LVL
B3	(2) 1 3/4" x 11 7/8" LVL

Notes:
1. All LVL beam shall be stress class 2.0E-2500F

WOOD HANGER SCHEDULE	
Joist Size	Hanger
2x4	LUS24
2x6	LUS26
2x8	LUS26
2x10	LUS28

Notes:
1. Hangers to be installed with typical fasteners per manufacturer product data.
2. All exterior members are to be pressure treated.

PRINTS ISSUED
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REVISIONS:

McCLURE™
2001 W Broadway
Columbia, MO 65203
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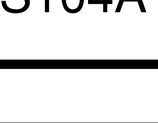


11/27/2024

DISCOVERY PARK - LOT #9 - A

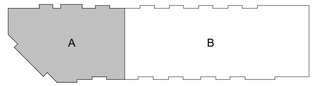
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
ROOF ZONE A FRAMING PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S104A



1 S104A ROOF FRAMING PLAN
1/8" = 1'-0"

TYPICAL WALL HEADER SCHEDULE (WALLS SHOWN ON FRAMING PLAN ARE LEVEL BELOW)									
Header Type	Header	Kings/Jacks							
		Level 1 Brownstone		Level 2 Brownstone		Level 2 Main Bldg		Level 3 Main Bldg	
HA	(3) 2x8	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J	---	---	---	---
HB	(3) 2x10	(3) 2x6 K	(1) 2x6 J	(3) 2x6 K	(1) 2x6 J	---	---	---	---
HC	(3) 2x12	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J	---	---	---	---
HD	(3) 2x8	---	---	---	---	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J
HE	(3) 2x10	---	---	---	---	(2) 2x6 K	(1) 2x6 J	(2) 2x6 K	(1) 2x6 J
HF	(2) LVL 1 3/4"x11 7/8"	---	---	---	---	(3) 2x6 K	(1) 2x6 J	(3) 2x6 K	(1) 2x6 J

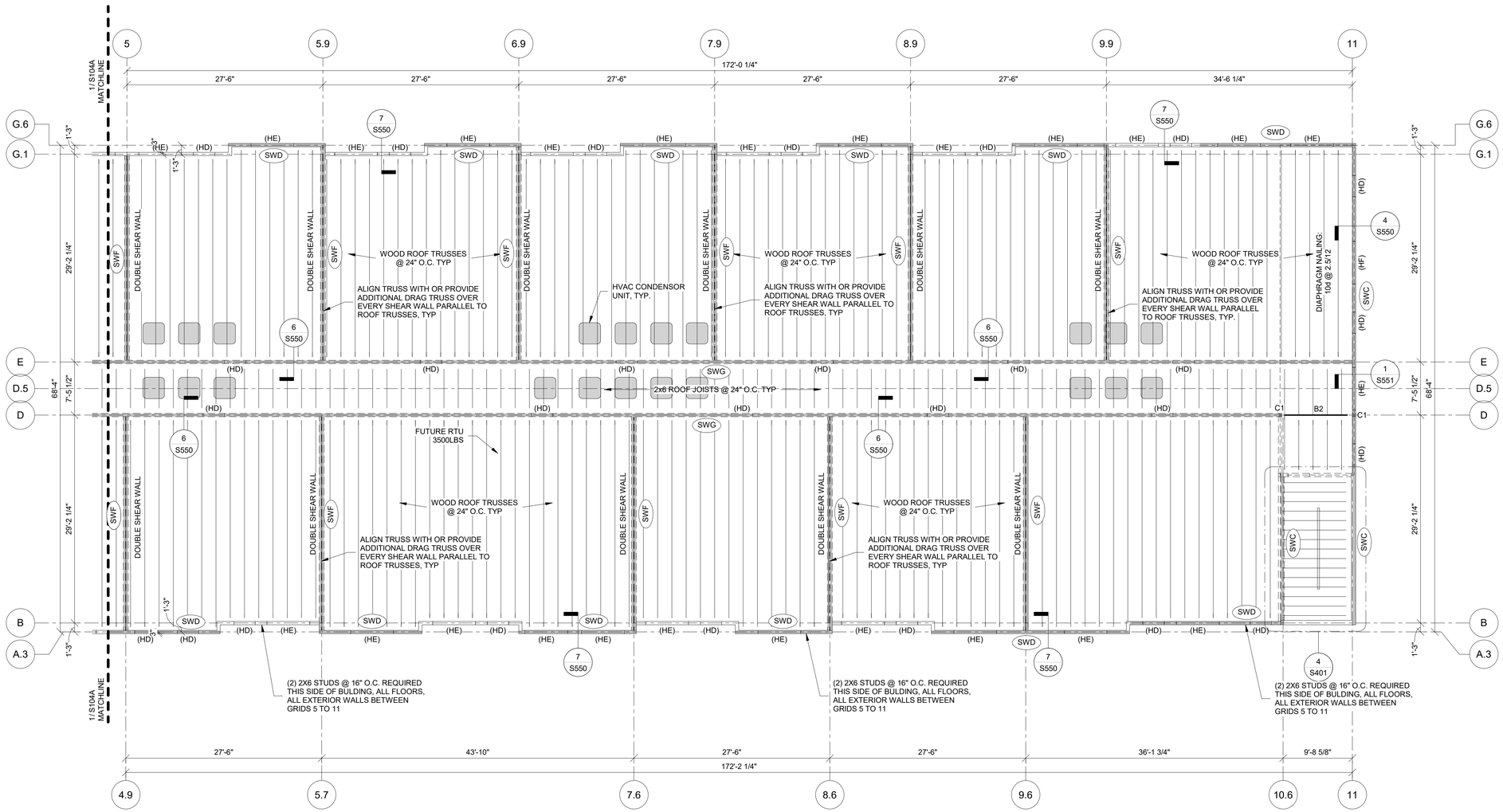
Notes:
1. See 5/S510 for typical opening framing.
2. Coordinate all dimensions and elevations with architectural drawings.
3. Provide double sills below windows at openings greater than 6'-0" in length.
4. All LVL shall be stress class 2.0E-2500F.

STRUCTURAL WALL SCHEDULE (WALLS SHOWN ON FRAMING PLAN ARE LEVEL BELOW)					
Location	Wall stud size and number of plys @ 16" o.c. U.N.O. on plan				SHEATHING & FASTENING U.N.O. (See Note 3)
	Level 1 Brownstone	Level 2 Brownstone	Level 2 Main Bldg	Level 3 Main Bldg	
EXTERIOR	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	15/32" Structural wood sheathing fastened w/ 10d nails @ 6" o.c. edges , 12" o.c. field
BETWEEN UNITS	(2) 2x4	(2) 2x4	(2) 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	(1) 2x6	---	(2) 2x4	(1) 2x4	5/8" Gypsum wallboard fastened w/ 1 5/8" Type W screws @ 7" o.c. edges, 7" o.c. field
CORRIDOR	---	---	(1) 2x6	(1) 2x6	5/8" Gypsum wallboard fastened w/ 1 5/8" Type W screws @ 7" o.c. edges, 7" o.c. field

Notes:
1. Sill plates at foundation to be fastened w/ 1/2"Ø x 3-1/2" Hilti KH EZ @ 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/S510.

ROOF PLAN NOTES:

1. SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATION, SEE BELOW. (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS.)
   - ROOF TRUSS BEARING 141'-11 3/4"
2. ROOF SHEATHING IS TO BE 3/4" STRUCTURAL GRADE PLYWOOD FASTENED WITH 10d NAILS SPACED 6" O.C. AT EDGES, 12" O.C. WITHIN FIELD U.N.O. SHEATHING IS TO BE TOPPED WITH SLOPED RIGID INSULATION PER ARCH.
3. RTU PENETRATIONS TO BE COORDINATED PER ARCH. & MEP DRAWINGS.
4. PARAPET FRAMING IS TO BE PART OF THE ROOF TRUSSES DESIGNED BY OTHERS.
5. REFER TO MANUFACTURER'S GUIDELINES FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS.
6. ALL EXTERIOR LUMBER (POSTS, BEAMS, DECKING, ETC.) TO BE TREATED.
7. WOOD ROOF TRUSSES TO BE DESIGNED BY OTHERS AND ARE SHOWN FOR THE INTENT OF SPAN DIRECTION AND LOAD PATH ONLY. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.
8. TRUSS MANUFACTURER TO DESIGN AND PROVIDE GIRDER TRUSSES AT ALL OPENINGS AND SPECIFY HANGERS FOR GIRDERS AND SUPPORTED FRAMING.
9. VERIFY SPECIFIED ELEVATOR HOIST BEAM AND SUPPORTING FRAMING W/ ELEVATOR MANUFACTURER.



WOOD POST SCHEDULE	
Mark	Size
C1	(3) 2x6
C2	(3) 2x4
C3	(4) 2x4
C4	(6) 2x4

Notes:
1. All exterior columns are to be pressure treated U.N.O.
2. Exterior columns supporting canopy to be Western Cedar or Redwood Grade 1 or better.

LVL BEAM SCHEDULE	
Mark	Size
B1	(4) 1 3/4" x 11 7/8" LVL
B2	(3) 1 3/4" x 11 7/8" LVL
B3	(2) 1 3/4" x 11 7/8" LVL

Notes:
1. All LVL beam shall be stress class 2.0E-2500F

WOOD HANGER SCHEDULE	
Joist Size	Hanger
2x4	LUS24
2x6	LUS26
2x8	LUS26
2x10	LUS28

Notes:
1. Hangers to be installed with typical fasteners per manufacturer product data.
2. All exterior members are to be pressure treated.

PRINTS ISSUED
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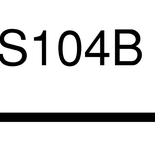


11/27/2024

DISCOVERY PARK - LOT #9 - A

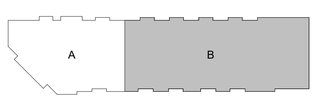
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
ROOF ZONE B FRAMING PLAN

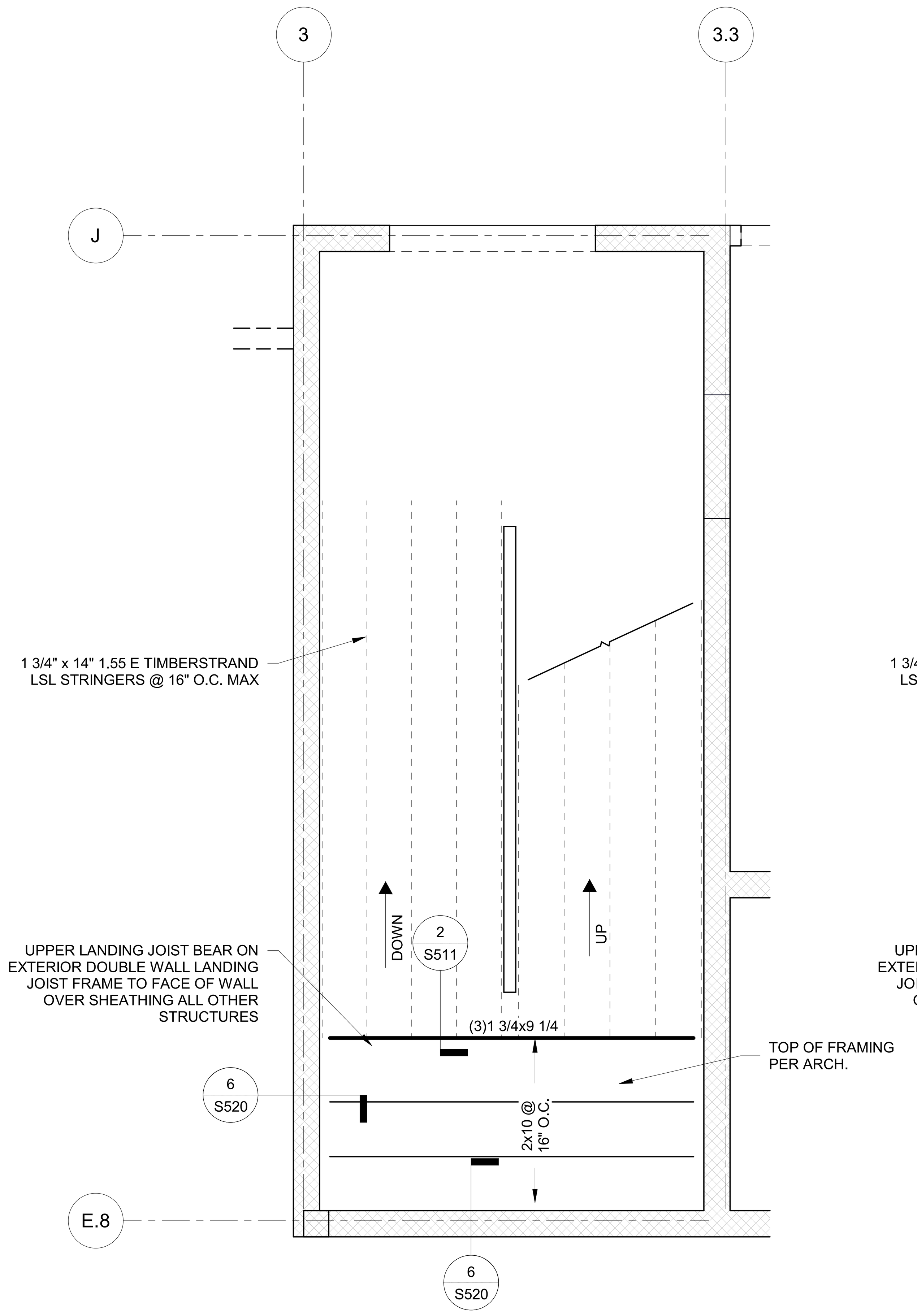
PROJECT NUMBER: 2023000333

SHEET NUMBER:

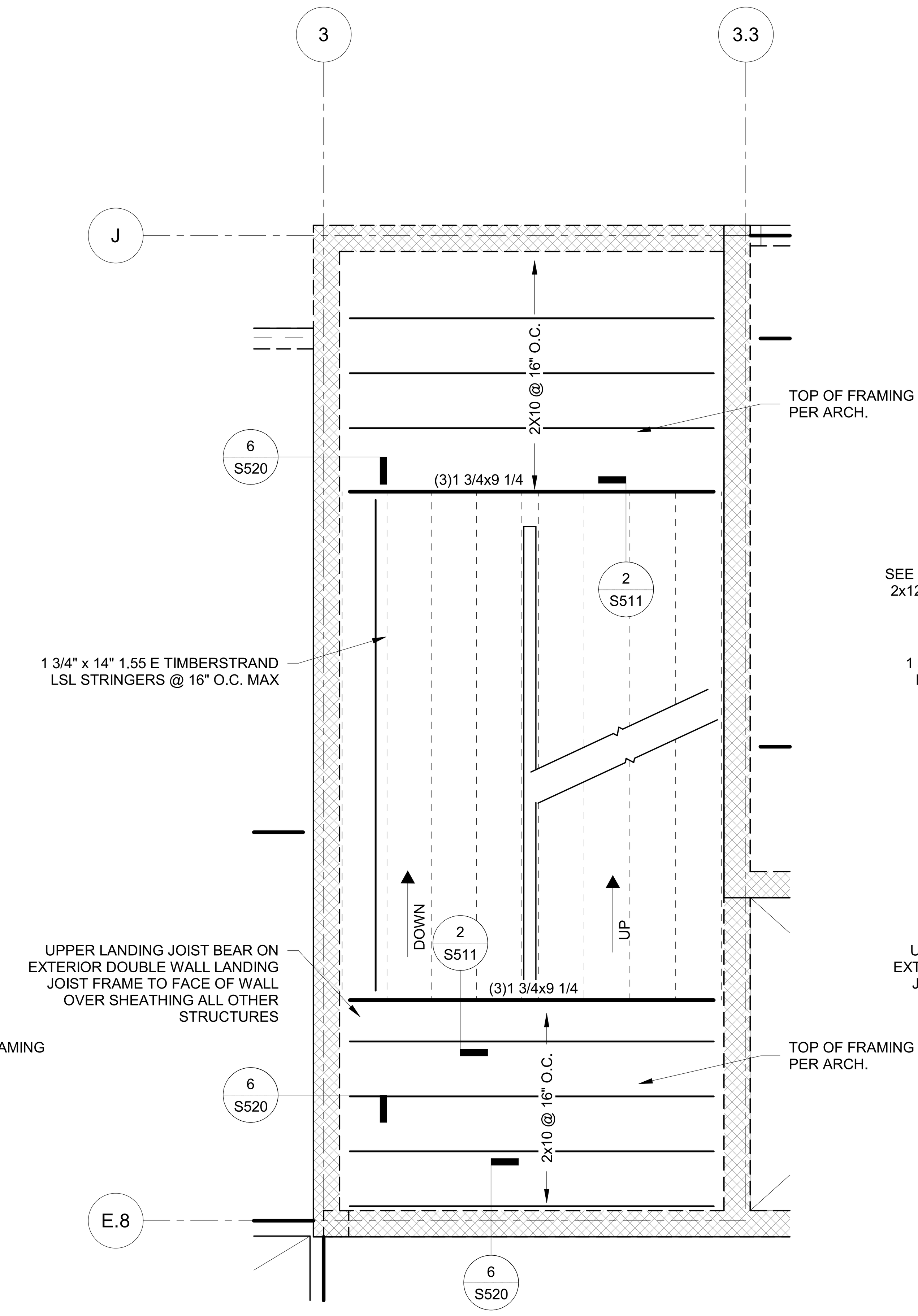
S104B



1 S104B ROOF FRAMING PLAN
1/8" = 1'-0"



1 LEVEL 2 BROWNSTONE ZONE A ENLARGED STAIR TOWER
S400 3/8" = 1'-0"



2 LEVEL 2 ZONE A ENLARGED STAIR TOWER
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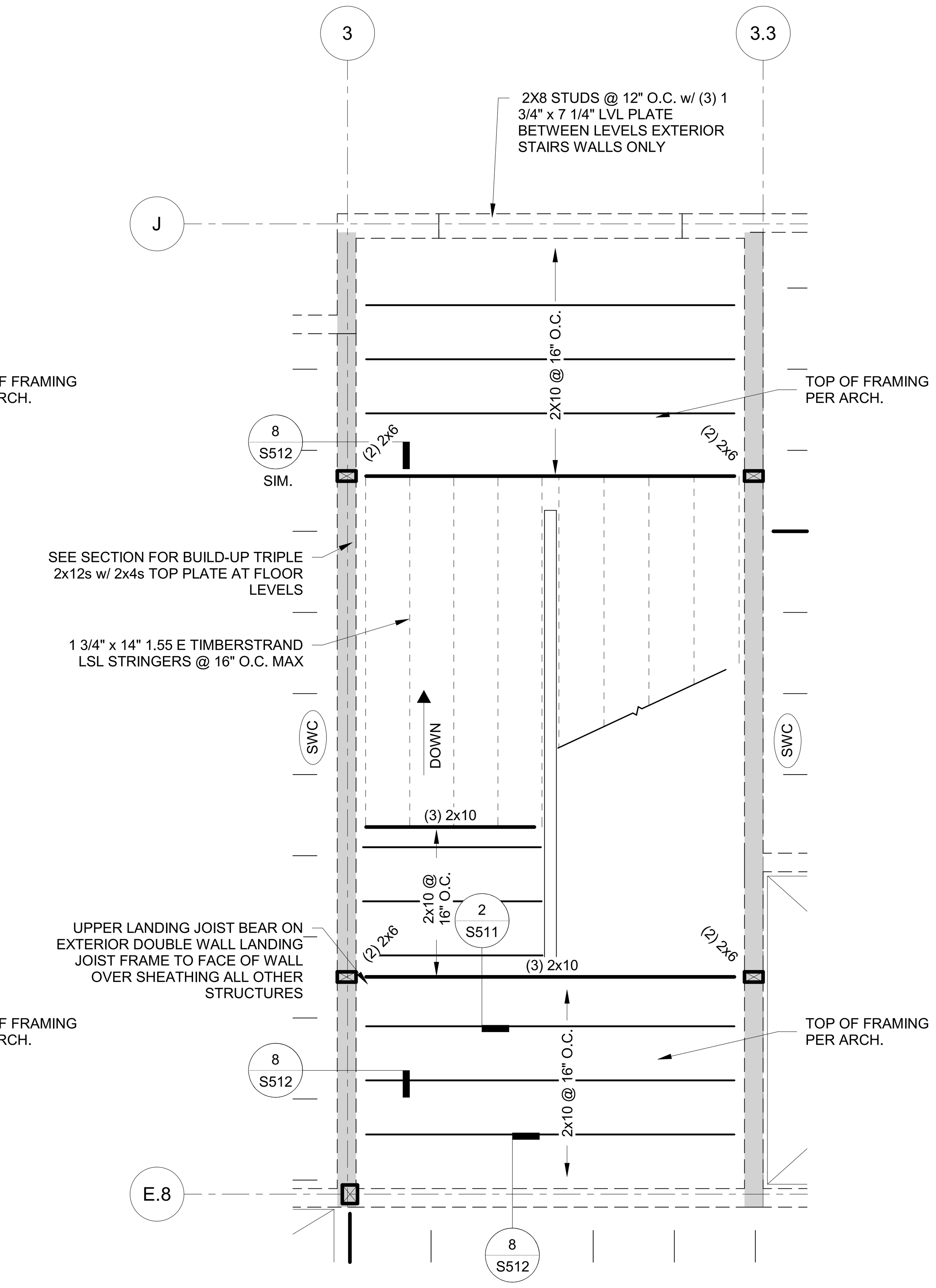

3 LEVEL 3 ZONE A ENLARGED STAIR TOWER
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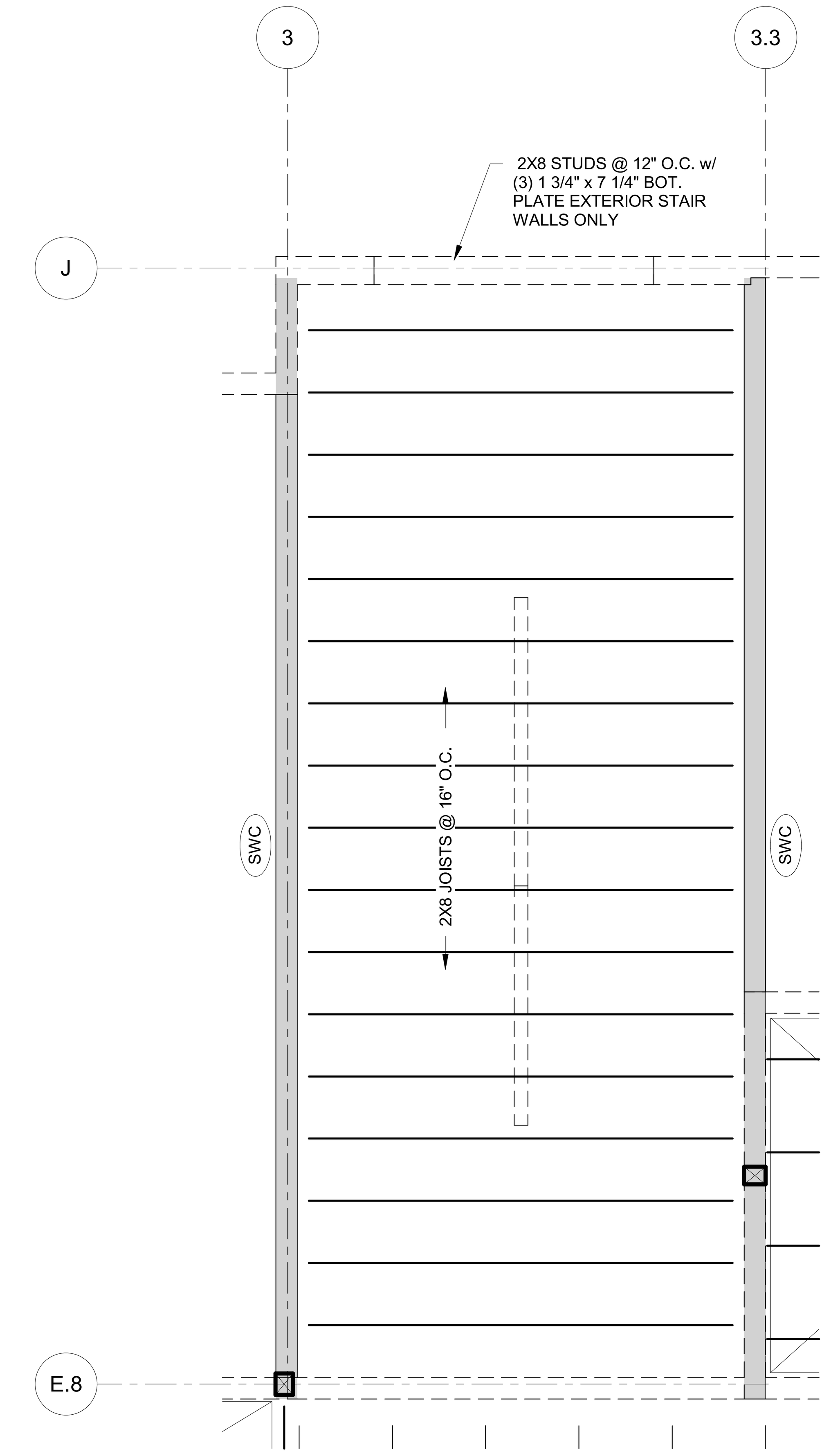

4 ROOF ZONE A ENLARGED STAIR TOWER
S400 3/8" = 1'-0"

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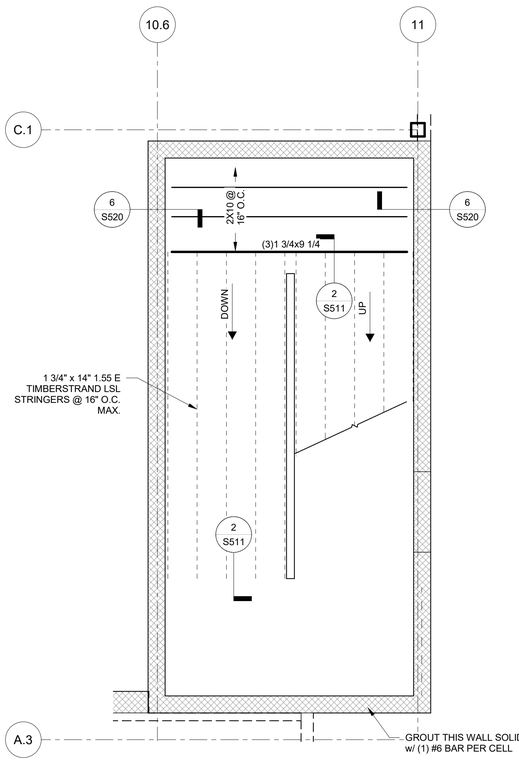
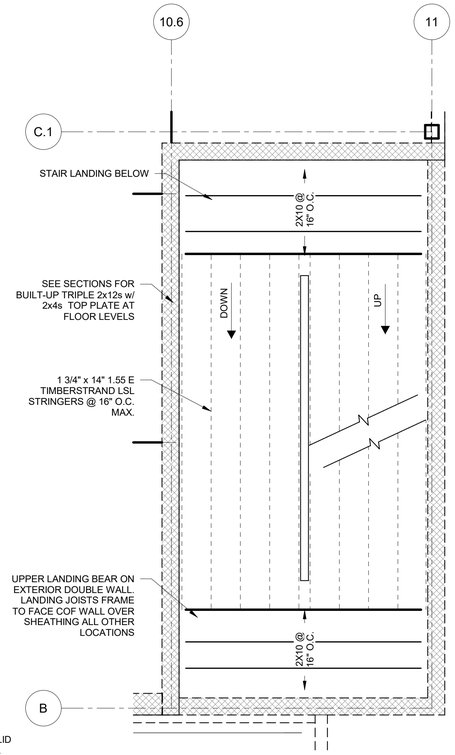


1 S401 LEVEL 2 BROWNSTONE ZONE B ENLARGED STAIR TOWER
3/8" = 1'-0"



2 S401 LEVEL 2 ZONE B ENLARGED STAIR TOWER
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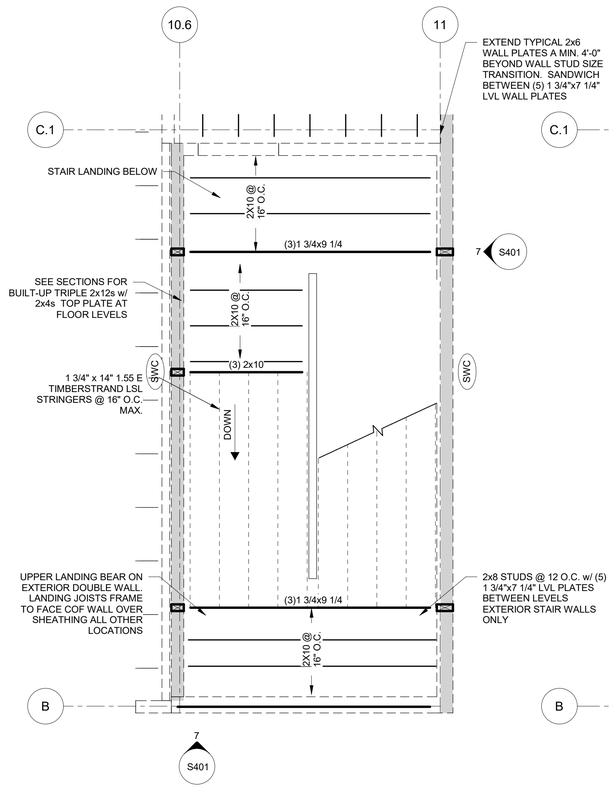
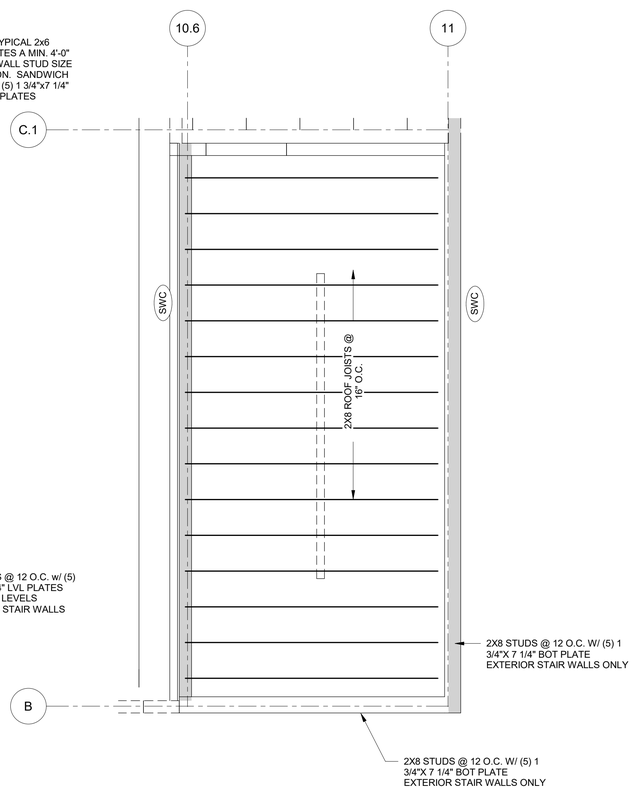
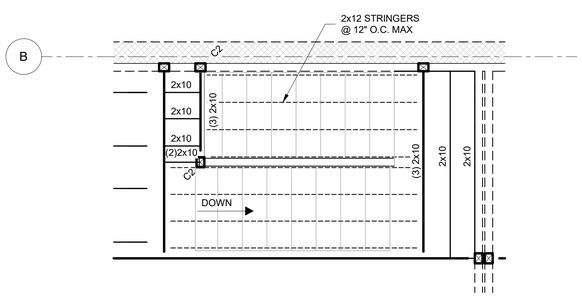


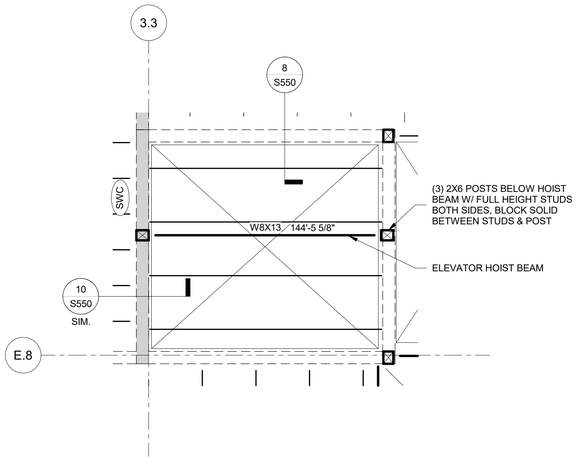
3 S401 LEVEL 3 ZONE B ENLARGED STAIR TOWER
3/8" = 1'-0"



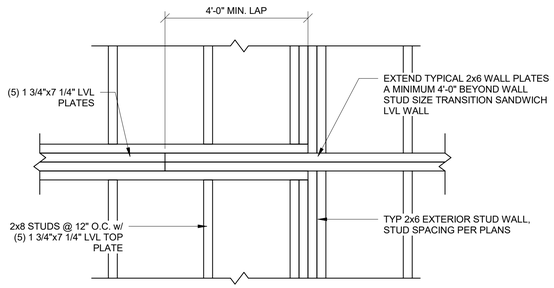
4 S401 ROOF ZONE B ENLARGED STAIR TOWER
3/8" = 1'-0"



5 S401 BROWNSTONE UNIT ENLARGED STAIR
3/8" = 1'-0"



6 S401 ENLARGED ROOF AT ELEVATOR
3/8" = 1'-0"



7 S401 STAIRS FRAMING DETAILS
1" = 1'-0"

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STATE OF MISSOURI
CELESTE KAY SCHOOLEY
NUMBER PE-2008022213
PROFESSIONAL ENGINEER
11/27/2024

DISCOVERY PARK - LOT #9 - A

200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

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ENLARGED STAIR TOWER

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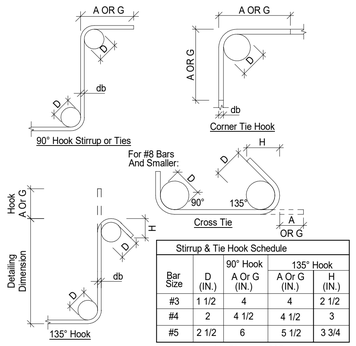
SHEET NUMBER:

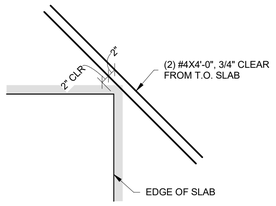
S401



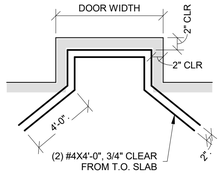
Stirrup & Tie Hook Schedule				
		90° Hook	135° Hook	
Bar Size	D (IN.)	A Or G (IN.)	A Or G (IN.)	H (IN.)
#3	1 1/2	4	4	2 1/2
#4	2	4 1/2	4 1/2	3
#5	2 1/2	6	5 1/2	3 3/4

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

1 S500 TYPICAL BAR BENDING DETAIL
NTS

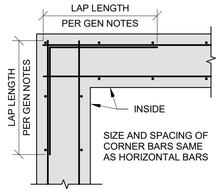


RE-ENTRANT CORNERS

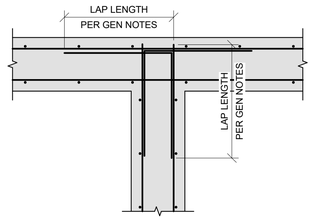


THRESHOLDS

2 S500 TYPICAL ADDTIONAL REINFORCING IN SLABS
NTS

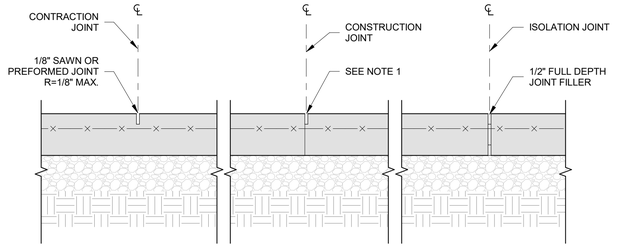


EXTERIOR CORNER



INTERSECTION

3 S500 TYPICAL FOUNDATION CORNER WALL DETAIL
NTS



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

4 S500 TYPICAL SLAB ON GRADE JOINTS
NTS

5 S500 SLAB ON GRADE ISOLATION JOINT AT COLUMNS
NTS

6 S500 STAIR TO THICKENED SLAB
1" = 1'-0"

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DISCOVERY PARK - LOT #9 - A

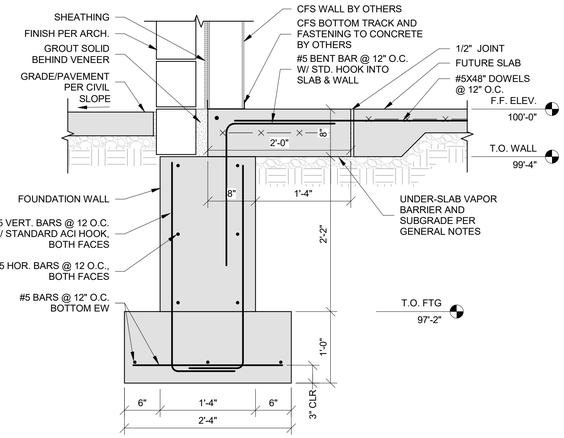
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
TYPICAL FOUNDATION DETAILS

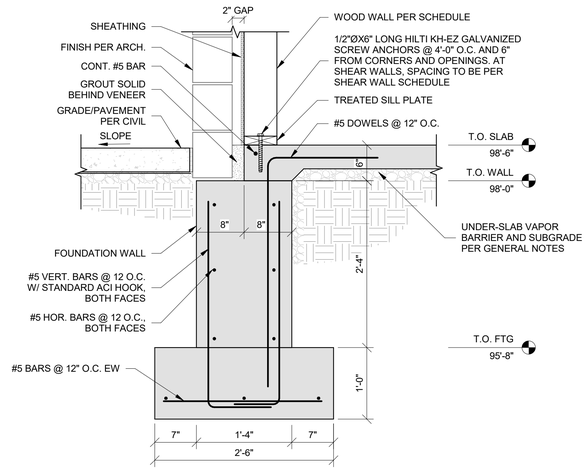
PROJECT NUMBER: 2023000333

SHEET NUMBER:

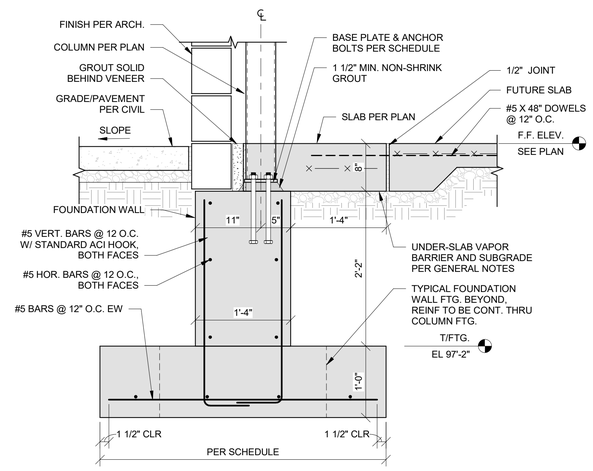
S500



1 S501 FOUNDATION - FROST WALL SECTION, COMMERCIAL
1" = 1'-0"

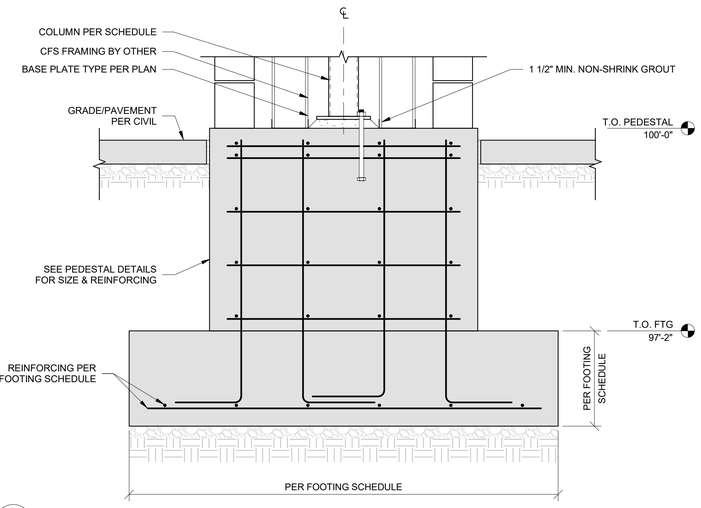


2 S501 FOUNDATION - FROST WALL SECTINO, BROWNSTONES
1" = 1'-0"

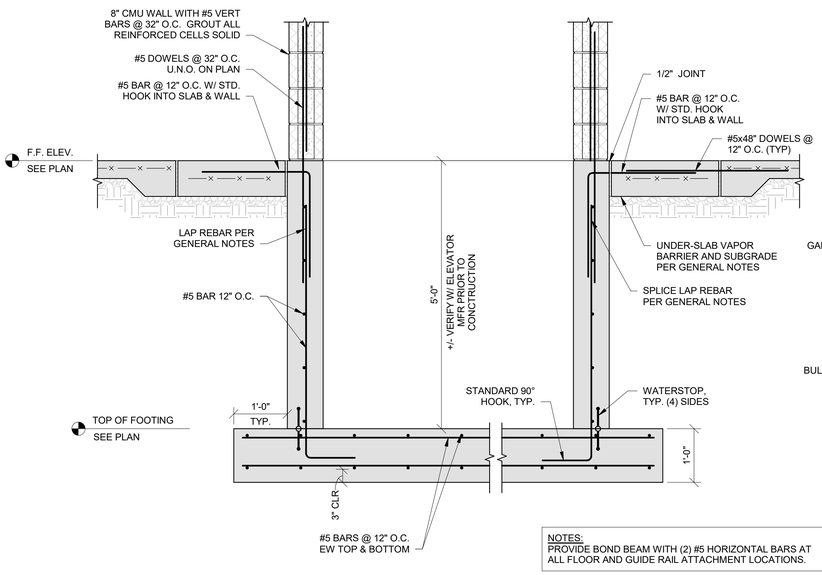


3 S501 FOUNDATION - FROST WALL SECTION AT COLUMN
1" = 1'-0"

4 S501 TYPICAL INTERIOR COLUMN FOOTING
1" = 1'-0"

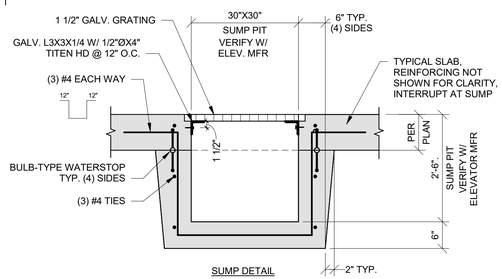


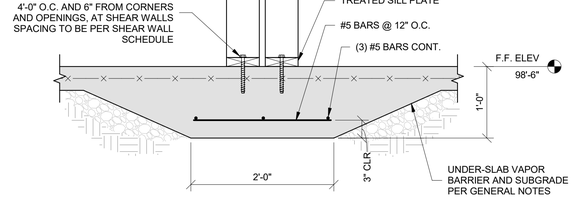
5 S501 STEEL COLUMN AT PEDESTAL
1" = 1'-0"



NOTES:
PROVIDE BOND BEAM WITH (2) #5 HORIZONTAL BARS AT ALL FLOOR AND GUIDE RAIL ATTACHMENT LOCATIONS.

6 S501 ELEVATOR PIT DETAIL
3/4" = 1'-0"





7 S501 INTERIOR BEARING WALL AT THICKENED SLAB
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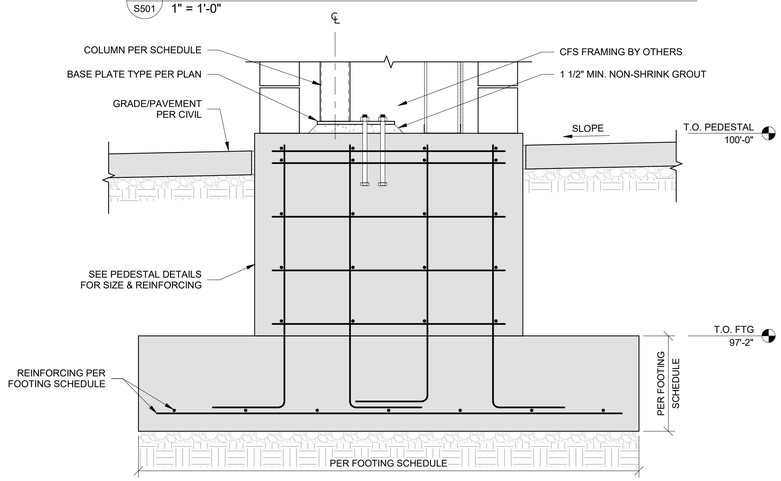

8 S501 STEEL COLUMN AT PEDESTAL
1" = 1'-0"

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DISCOVERY PARK - LOT #9 - A

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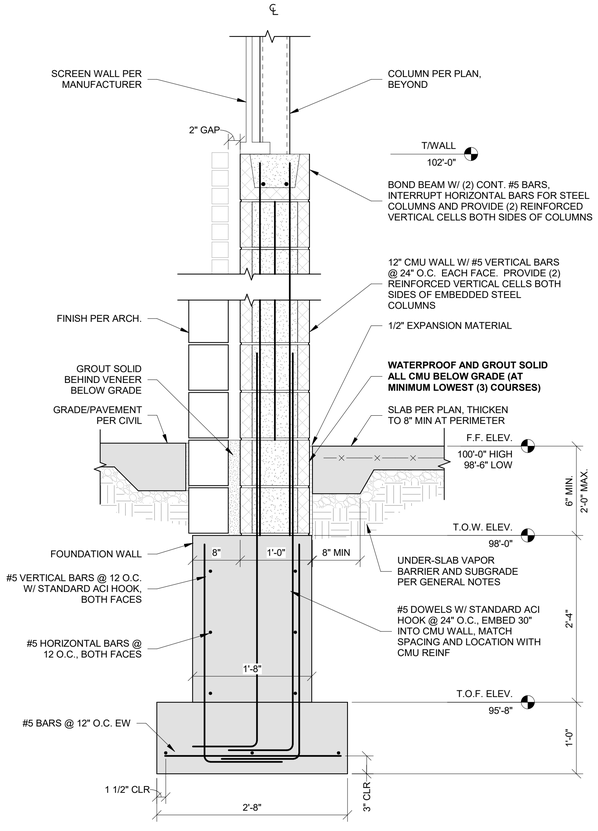
LEE'S SUMMIT, MO 64064

SHEET TITLE
FOUNDATION DETAILS

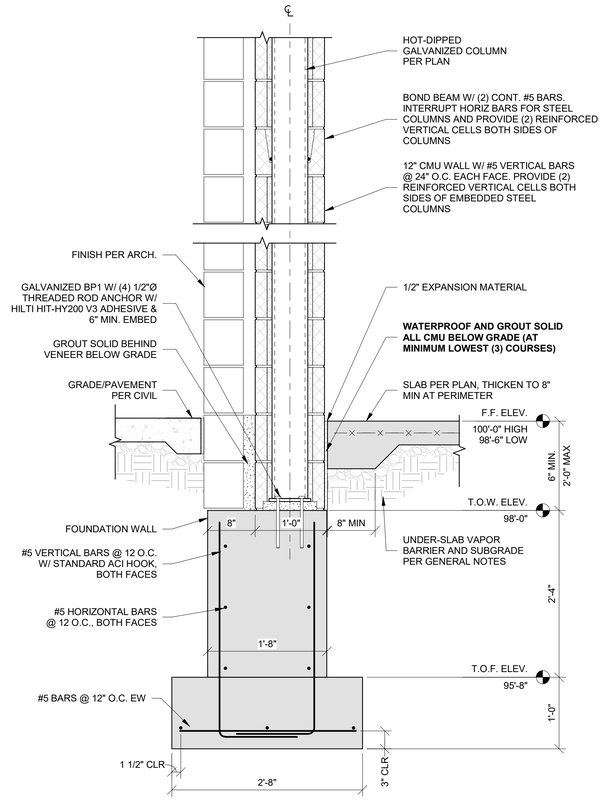
PROJECT NUMBER: 2023000333

SHEET NUMBER:

S501



1 SECTION AT GARAGE CMU WALL OPENING
S502 1" = 1'-0"



2 SECTION AT EXTERIOR GARAGE WALL COLUMN
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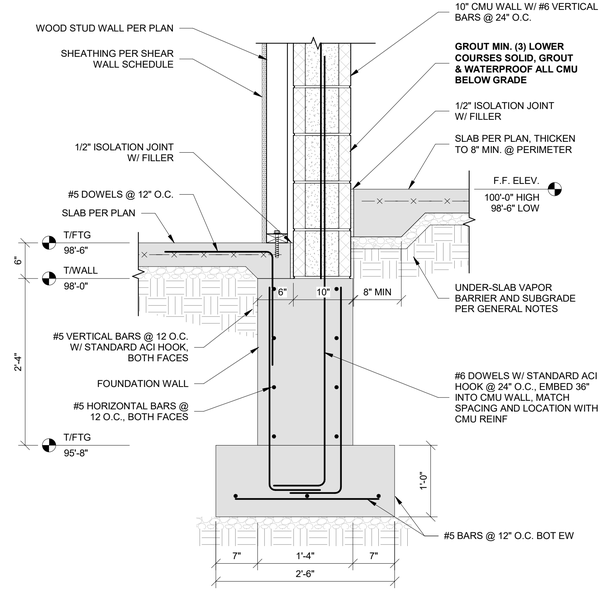

3 SECTION AT BROWNSTONE ELEVATION DROP
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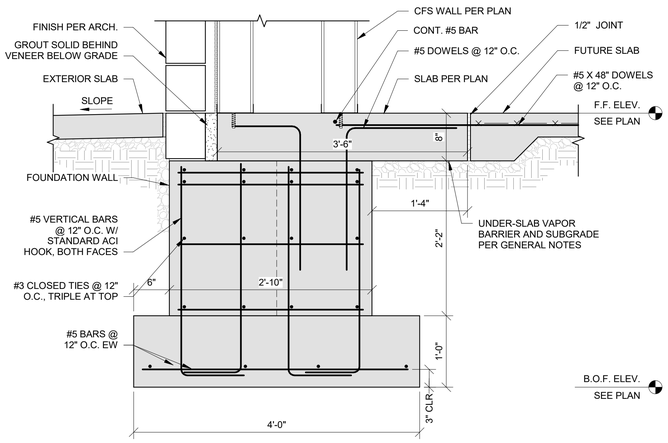

4 SECTION AT FOUNDATION BUMP-OUT
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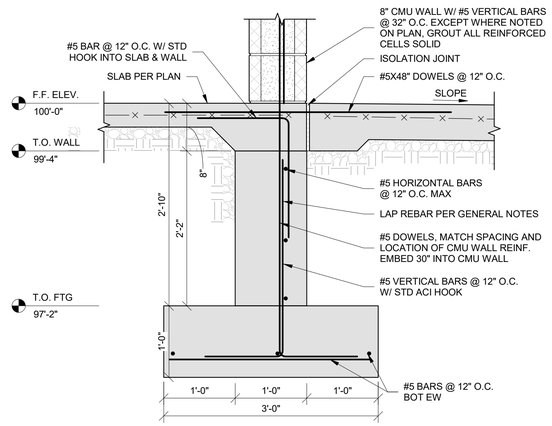

5 SECTION BETWEEN GARAGE @ AMENITY AREAS
S502 1" = 1'-0"

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Columbia, MO 65203
P 573-814-1568

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

STATE OF MISSOURI
CELESTE KAY BECKETT
NUMBER PE-2008022213
PROFESSIONAL ENGINEER

11/27/2024

DISCOVERY PARK - LOT #9 - A

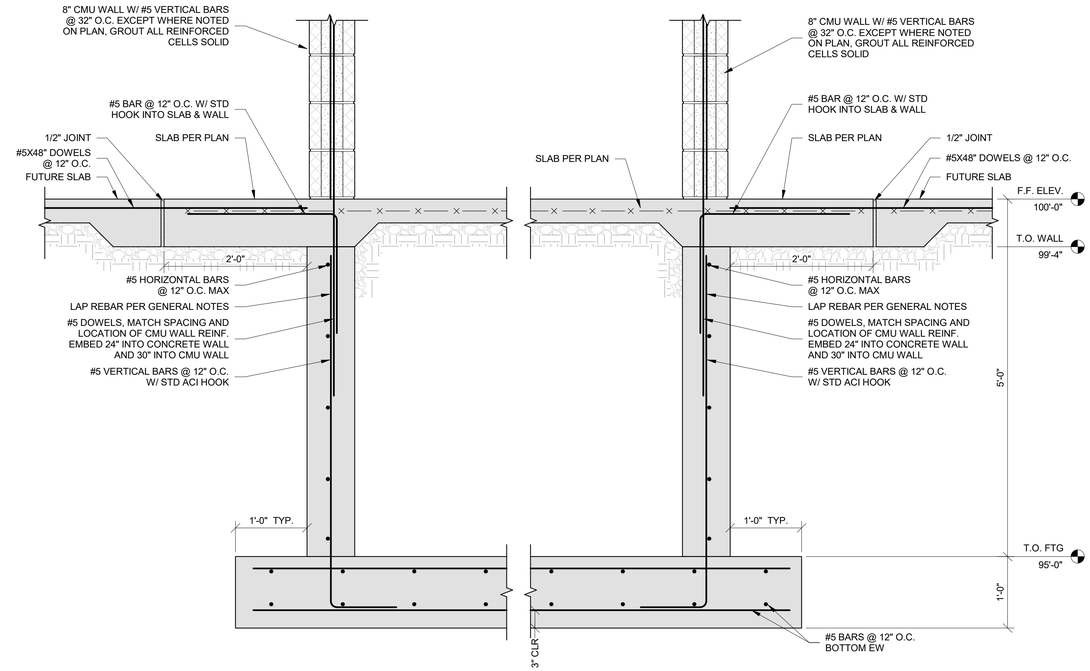
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
FOUNDATION DETAILS

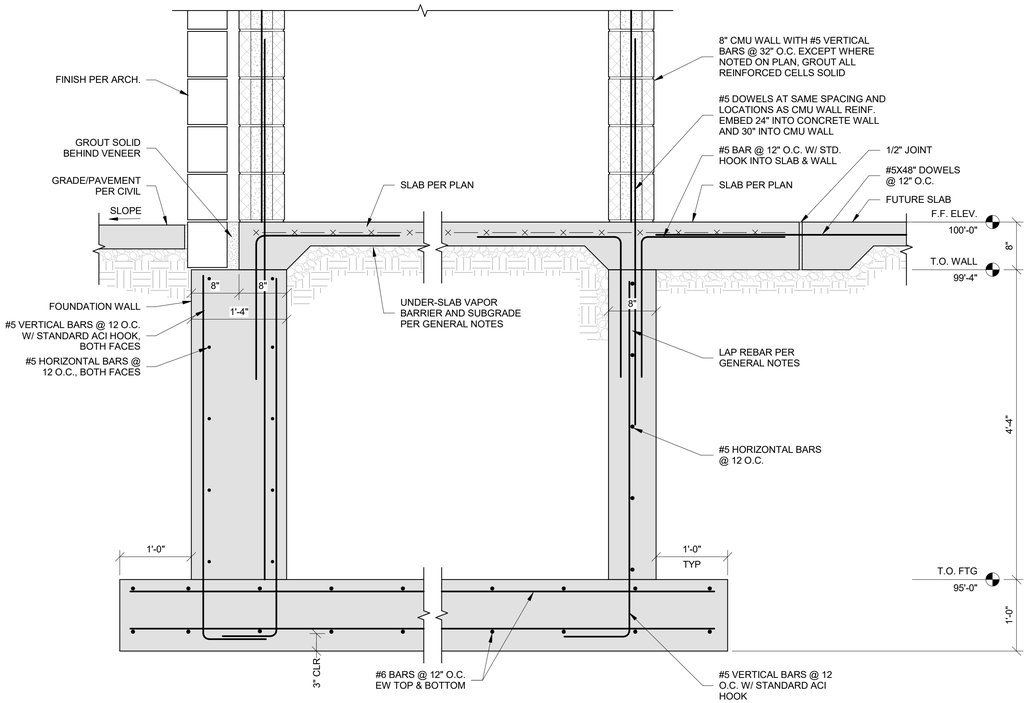
PROJECT NUMBER: 2023000333

SHEET NUMBER:

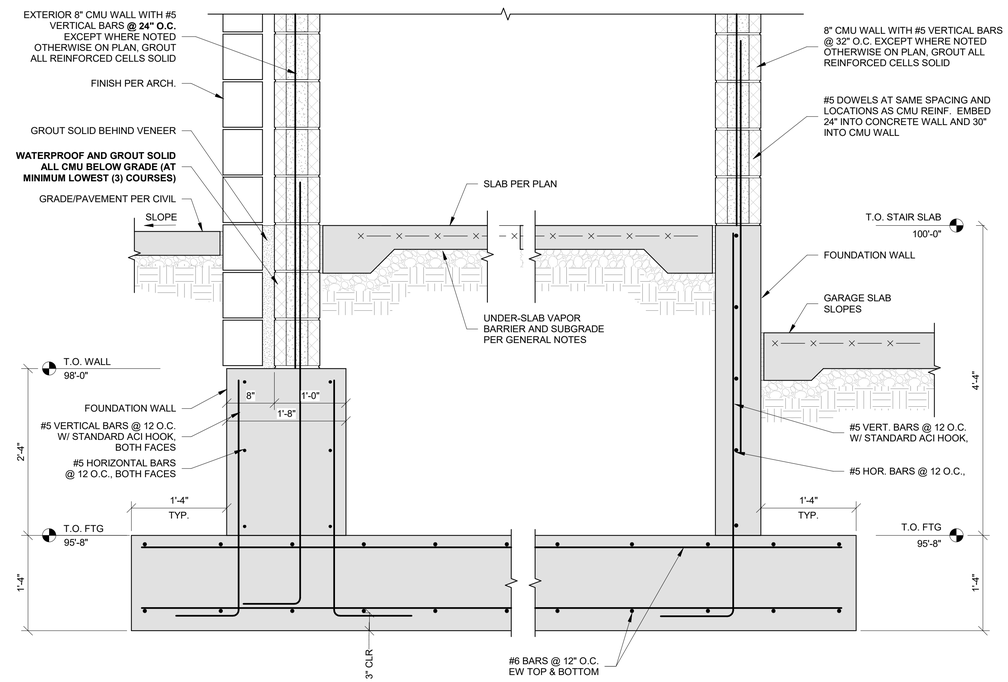
S502



1 S503 MAT SLAB UNDER STAIR TOWER/ELEVATOR PIT
1" = 1'-0"



2 S503 MAT SLAB UNDER STAIR TOWER/ELEVATOR PIT
1" = 1'-0"



3 S503 SECTION AT EAST STAIR FOUNDATION
1" = 1'-0"

PRINTS ISSUED
PERMIT SUBMITTAL 11/27/2024

REVISIONS:

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

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

STATE OF MISSOURI
CELESTE KAY BLUNT
NUMBER PE-2008022213
PROFESSIONAL ENGINEER

11/27/2024

DISCOVERY PARK - LOT #9 - A

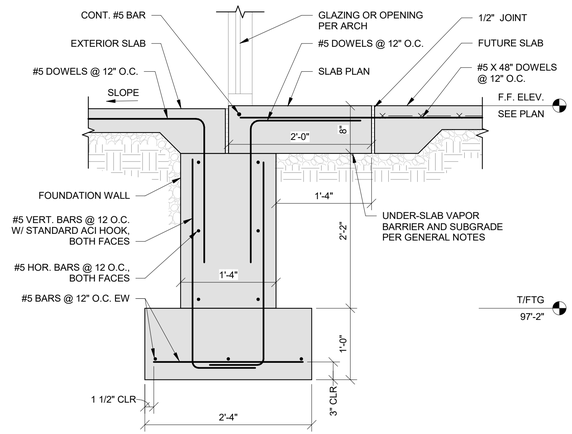
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
FOUNDATION DETAILS

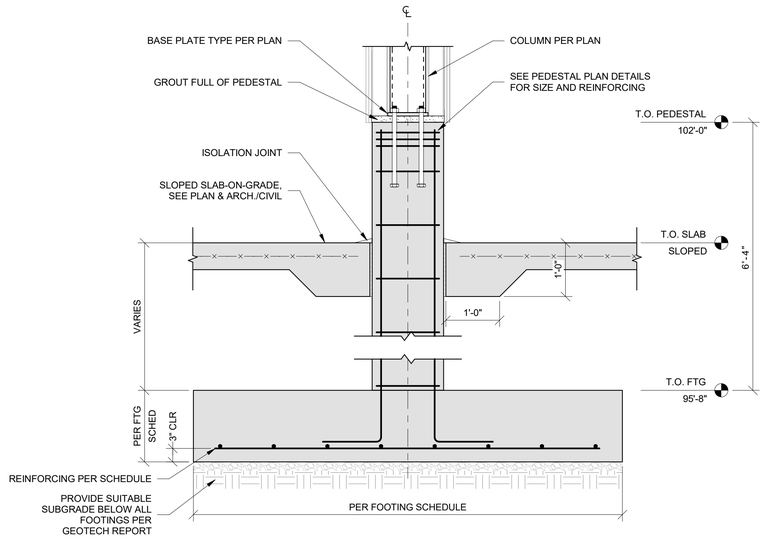
PROJECT NUMBER: 2023000333

SHEET NUMBER:

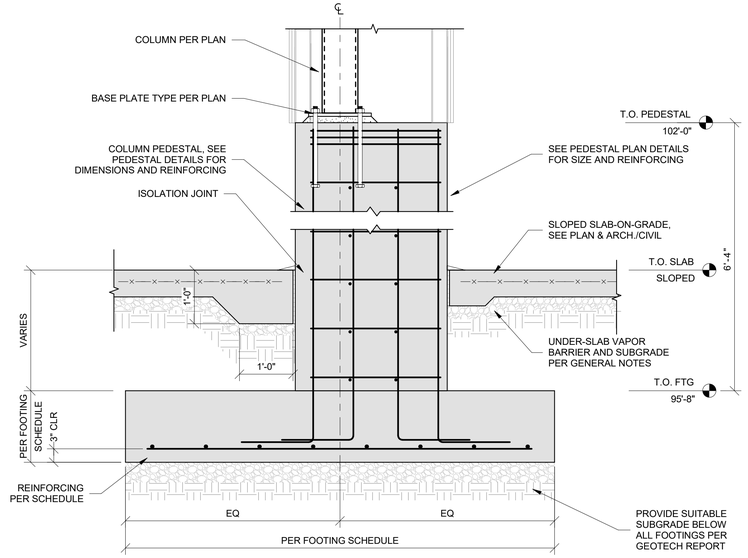
S503



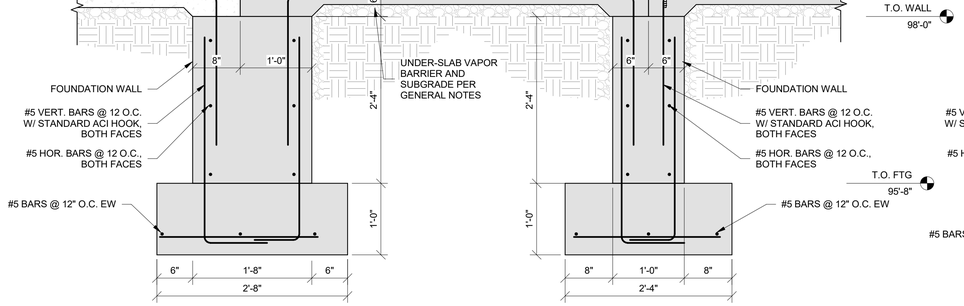
1 S504 FOUNDATION SECTION AT STOREFRONT
1" = 1'-0"



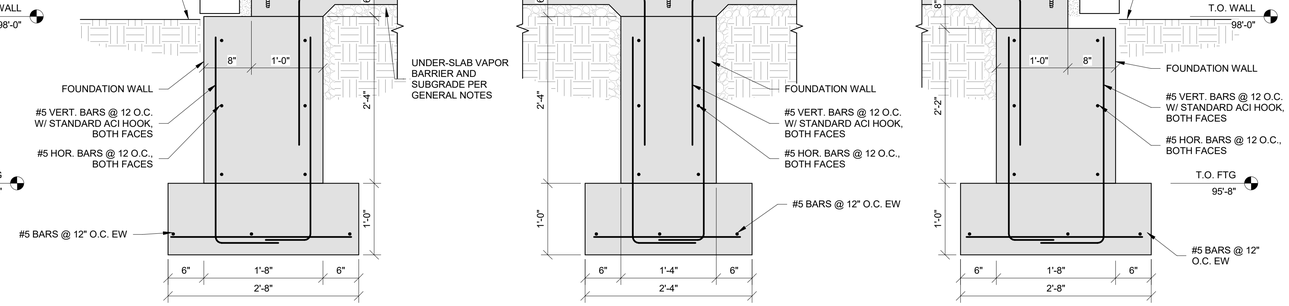
2 S504 COLUMN AND PEDESTAL CONNECTION TO PIER
3/4" = 1'-0"



3 S504 GARAGE COLUMN AND PEDESTAL SECTION
3/4" = 1'-0"



4 S504 ENTRY SECTION - 1
1" = 1'-0"



5 S504 ENTRY SECTION - 2
1" = 1'-0"

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MISSOURI CERTIFICATE OF AUTHORITY
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STATE OF MISSOURI
CELESTE KAY TAYLOR
NUMBER PE-2006022213
PROFESSIONAL ENGINEER
11/27/2024

DISCOVERY PARK - LOT #9 - A

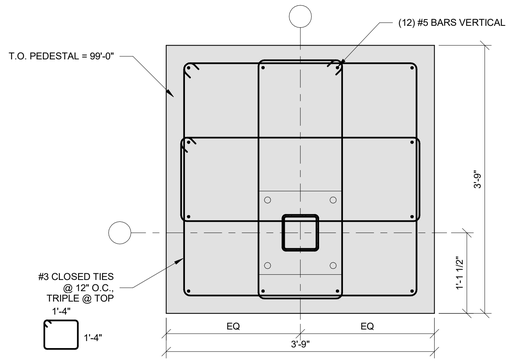
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
FOUNDATION DETAILS

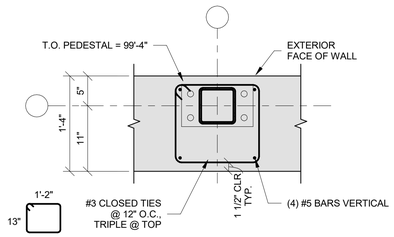
PROJECT NUMBER: 2023000333

SHEET NUMBER:

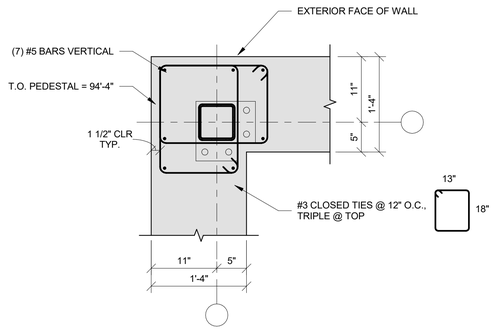
S504



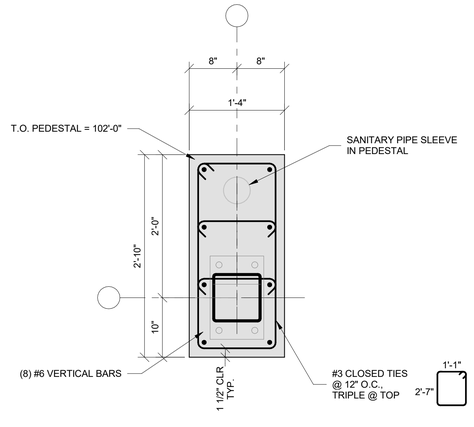
1 S505 PEDESTAL P1
1" = 1'-0"



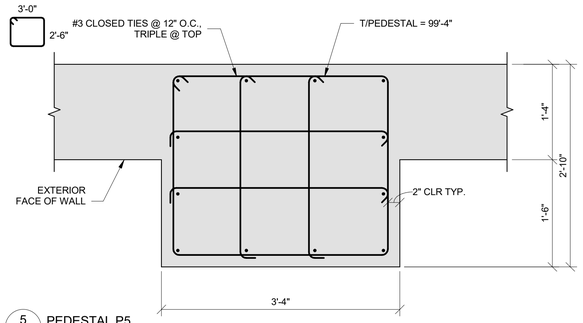
2 S505 PEDESTAL P2
1" = 1'-0"



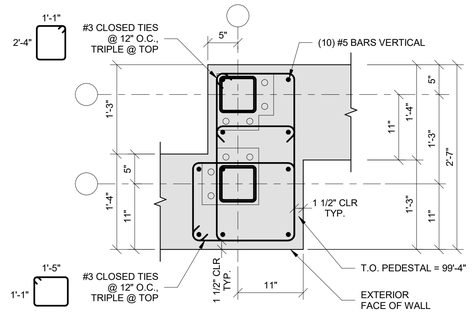
3 S505 PEDESTAL P3
1" = 1'-0"



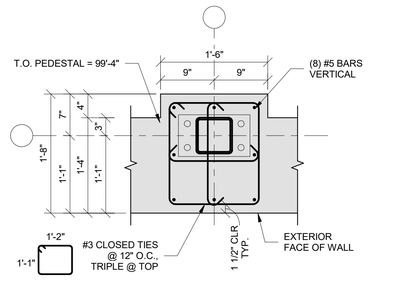
4 S505 PEDESTAL P4
1" = 1'-0"



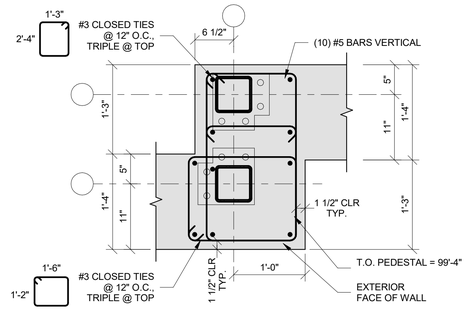
5 S505 PEDESTAL P5
1" = 1'-0"



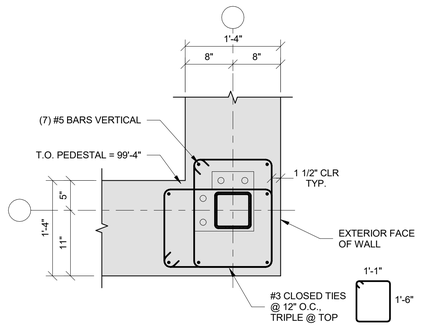
6 S505 PEDESTAL P6
1" = 1'-0"



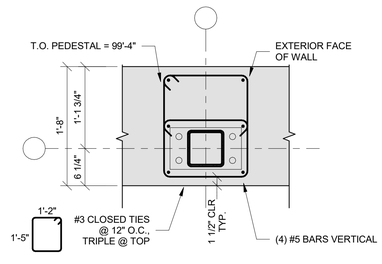
7 S505 PEDESTAL P7
1" = 1'-0"



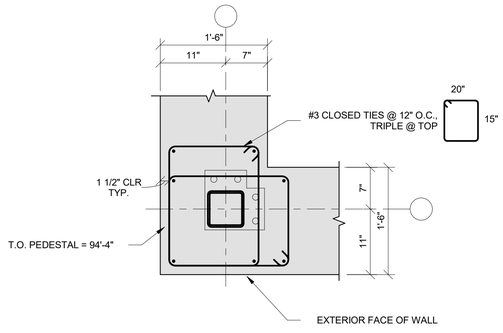
8 S505 PEDESTAL P8
1" = 1'-0"



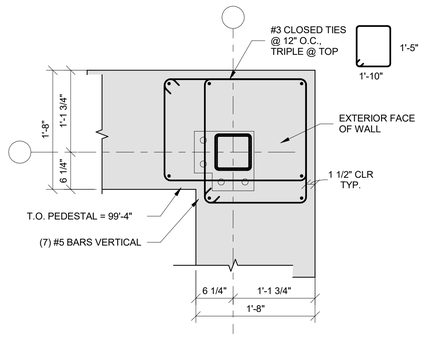
9 S505 PEDESTAL P9
1" = 1'-0"



10 S505 PEDESTAL P10
1" = 1'-0"



11 S505 PEDESTAL P11
1" = 1'-0"



12 S505 PEDESTAL P12
1" = 1'-0"

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

STATE OF MISSOURI
CELESTE KAY
BECKETT
NUMBER
PE-2008022213
PROFESSIONAL ENGINEER
11/27/2024

DISCOVERY PARK - LOT #9 - A

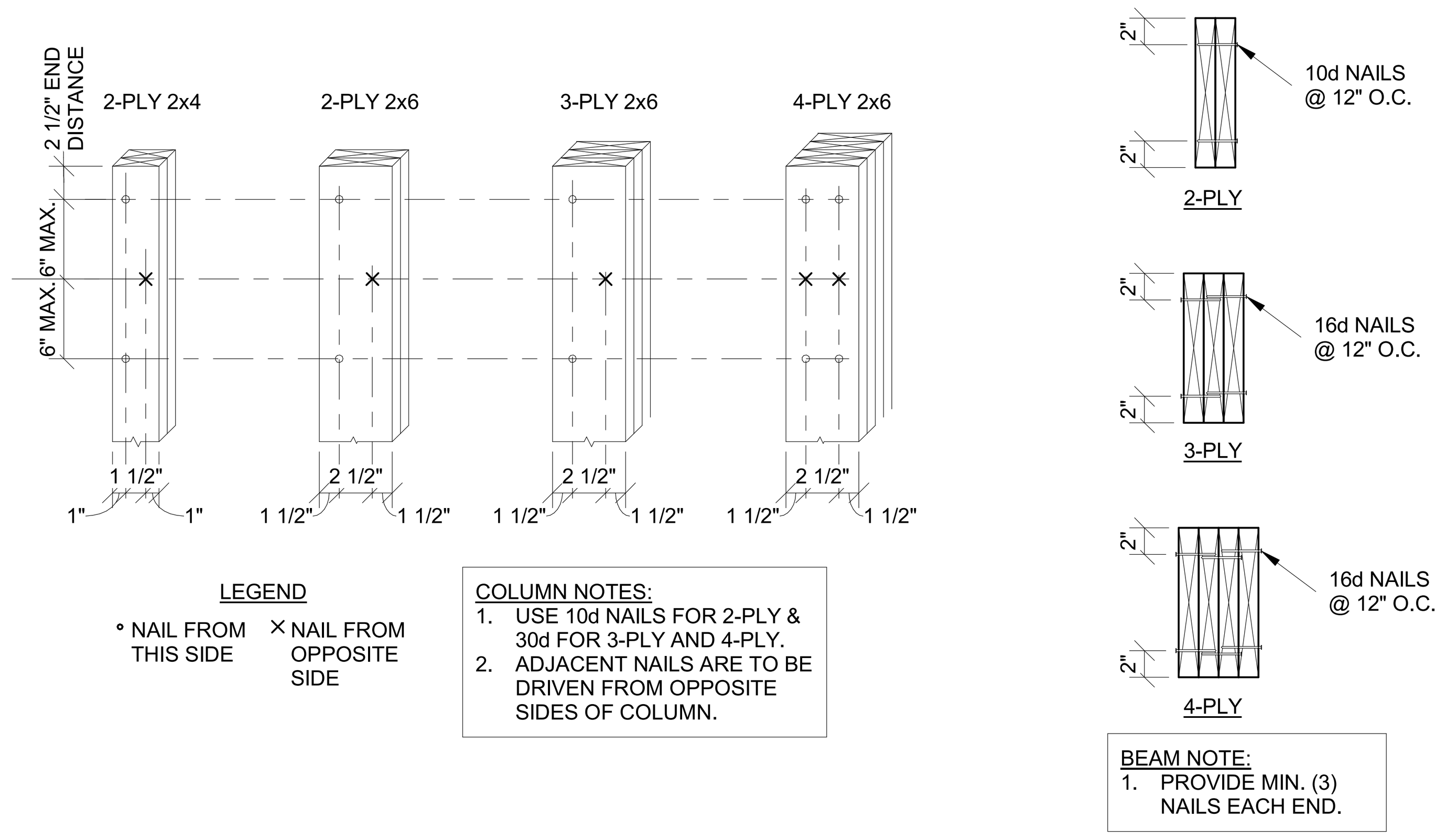
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
COLUMN PEDESTAL DETAILS

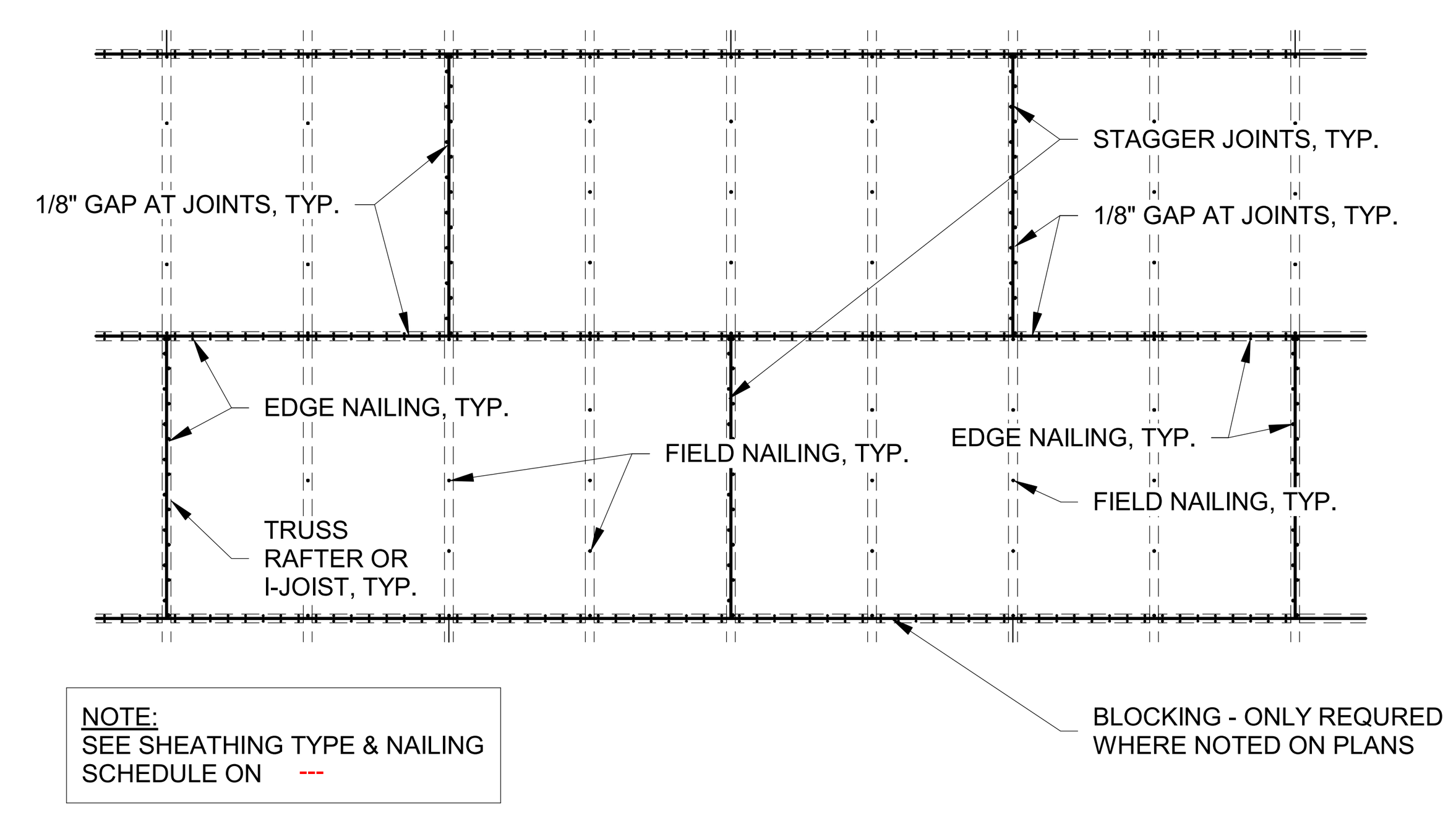
PROJECT NUMBER: 2023000333

SHEET NUMBER:

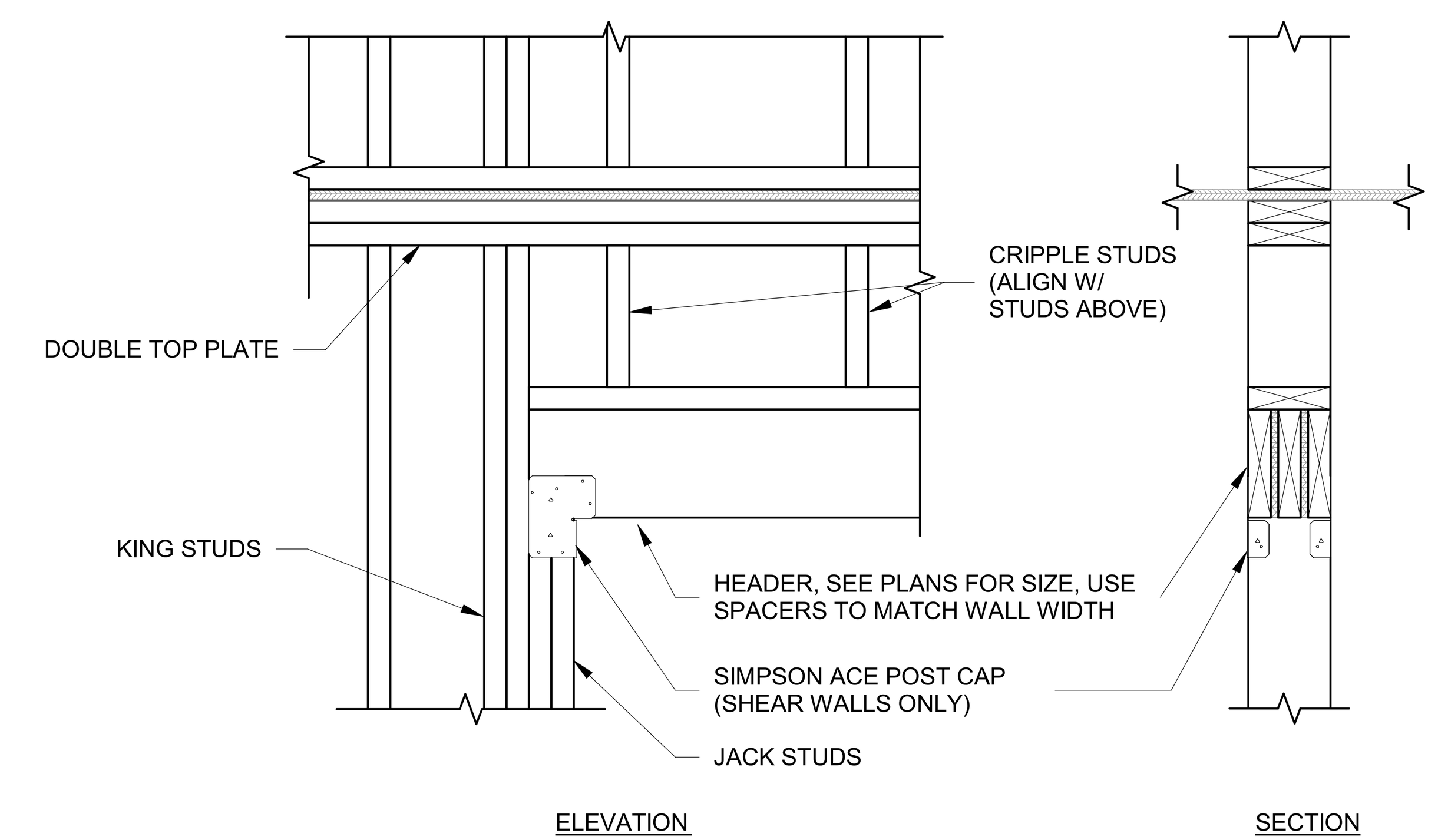
S505



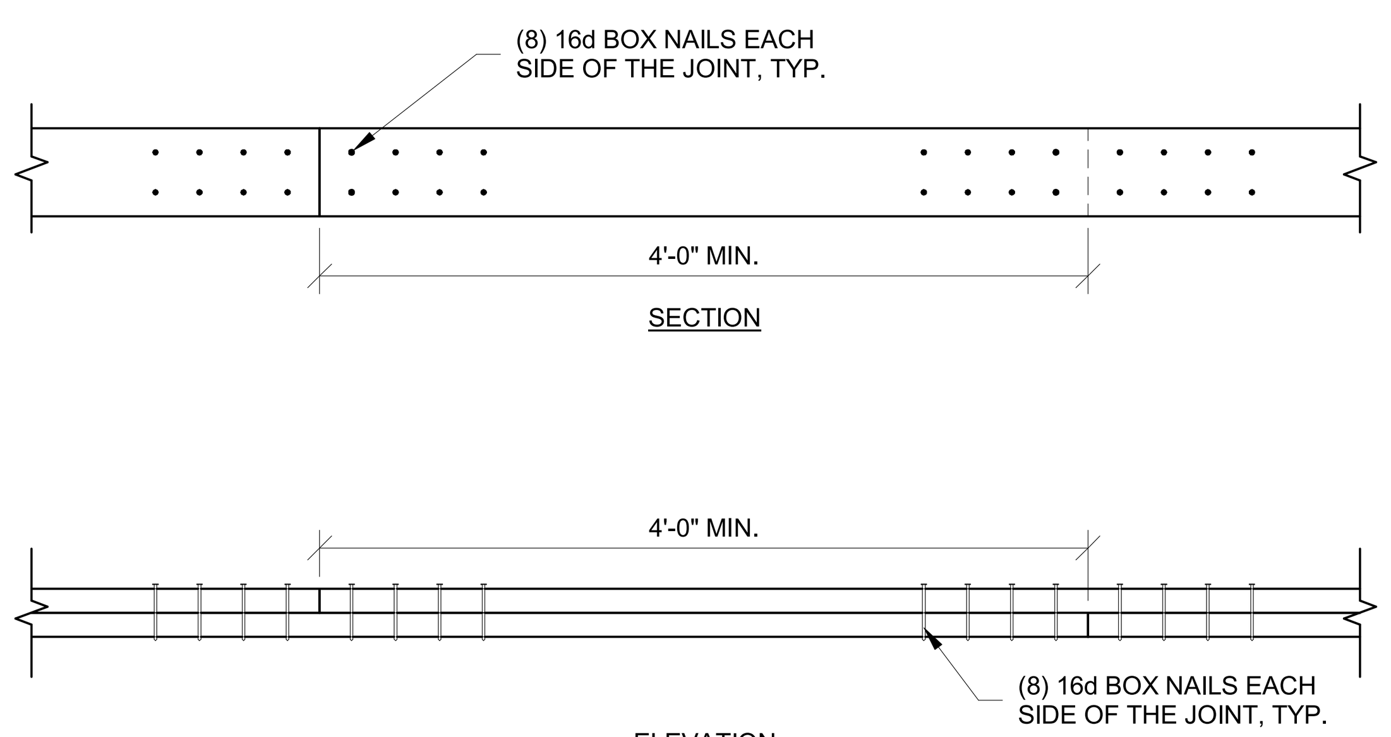
1 S510 TYPICAL BUILT-UP MEMBER DETAIL
NTS



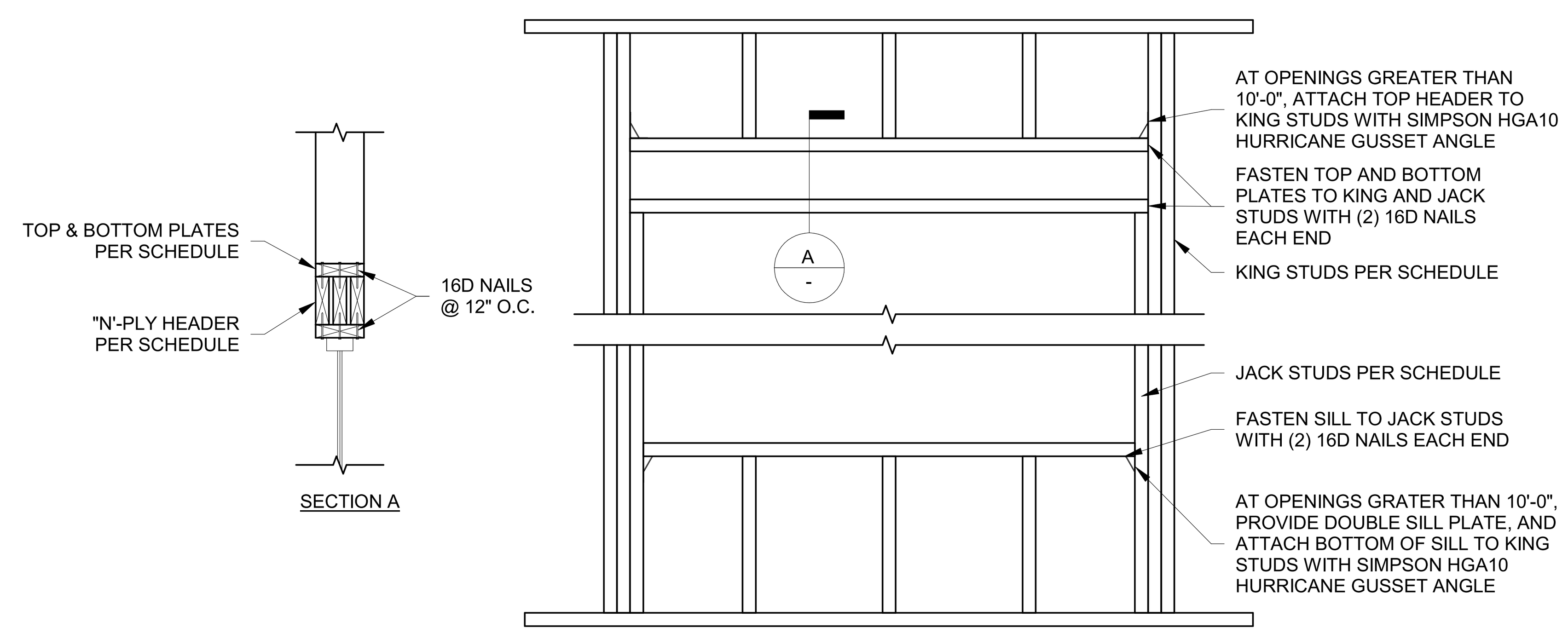
2 S510 TYPICAL DIAPHRAGM NAILING
NTS



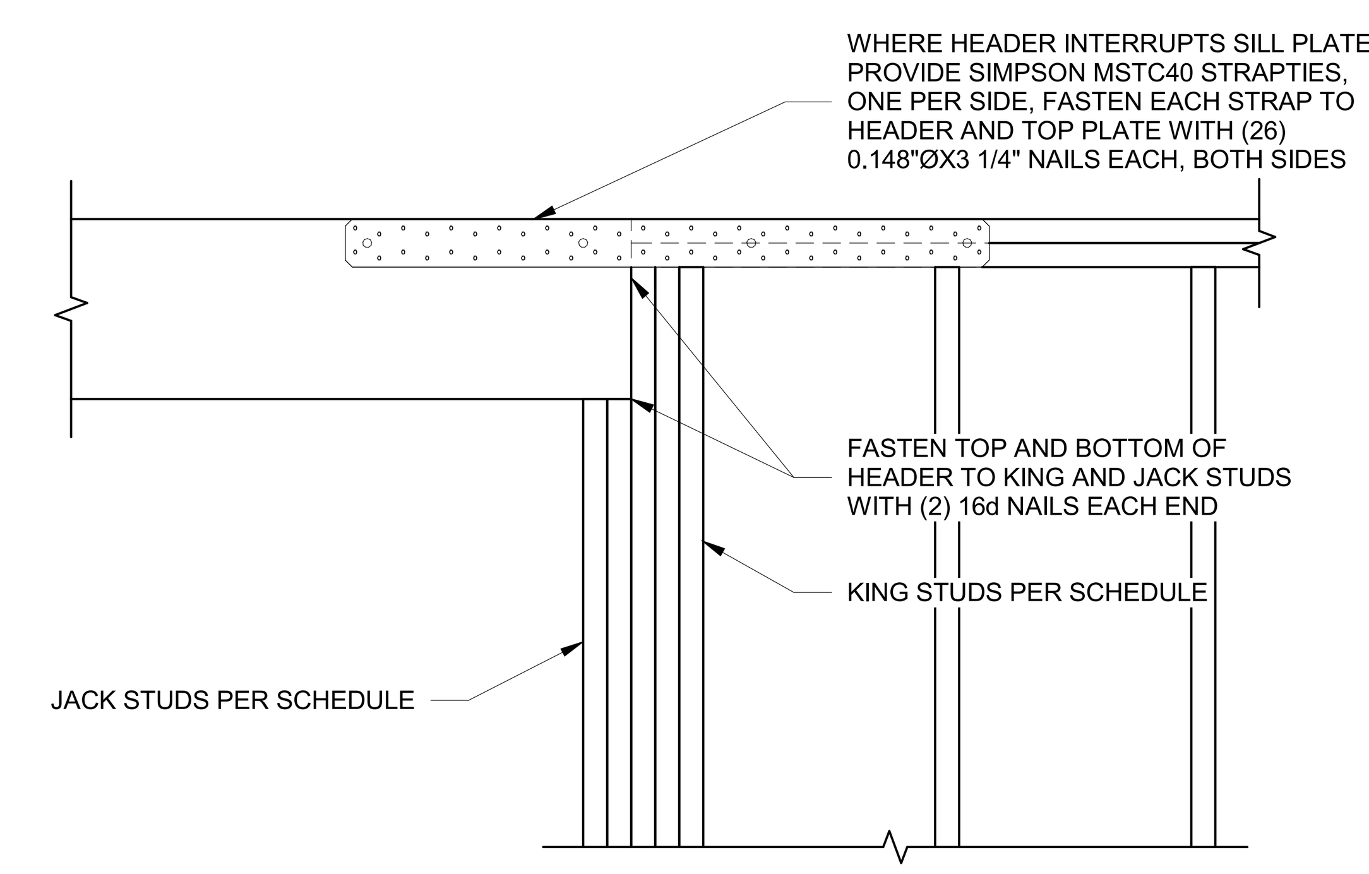
3 S510 TYPICAL HEADER CONNECTION AT SHEAR WALLS
NTS



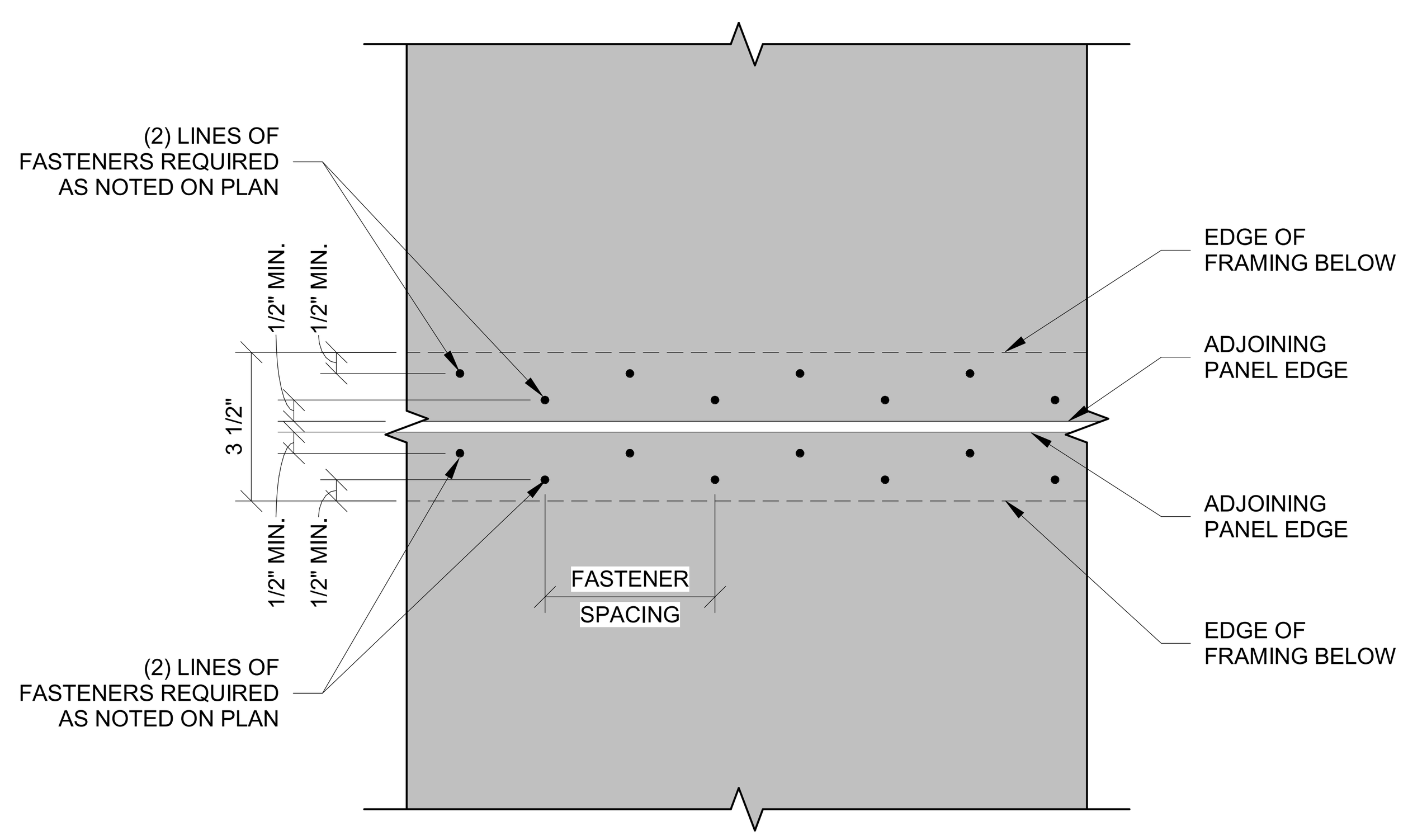
4 S510 TOP PLATE SPLICE
NTS



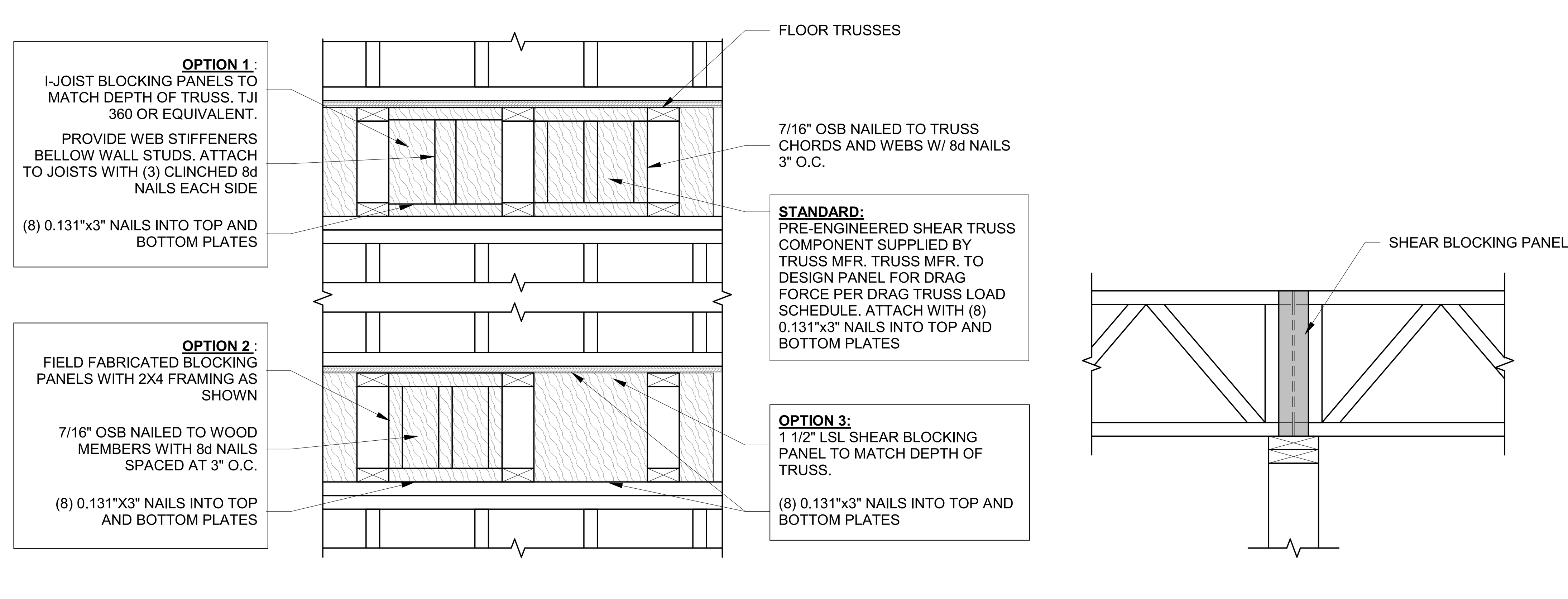
5 S510 FRAMING AT OPENING
NTS



6 S510 FRAMING AT OPENING - RAISED HEADER
NTS



7 S510 TYPICAL MULITPLE LINE DIAPHRAGM EDGE FASTENING
NTS



8 S510 SHEAR BLOCKING PANEL OPTIONS
1" = 1'-0"

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PERMIT SUBMITTAL 11/27/2024

REVISIONS:

McCLURE™
2001 W Broadway
Columbia, MO 65203
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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
11/27/2024

DISCOVERY PARK - LOT #9 - A
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

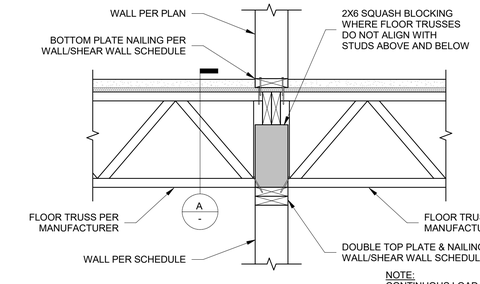
SHEET TITLE
TYPICAL WOOD FRAMING DETAILS

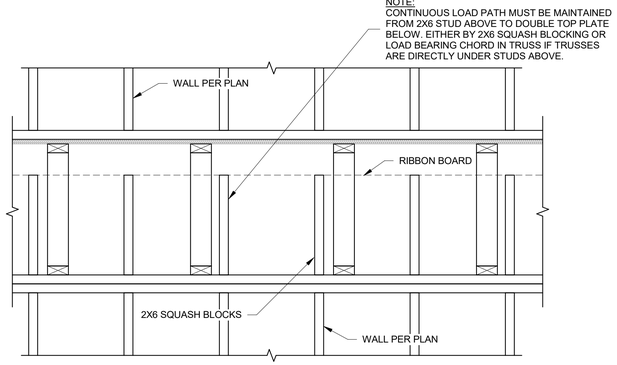
PROJECT NUMBER: 2023000333

SHEET NUMBER:

S510

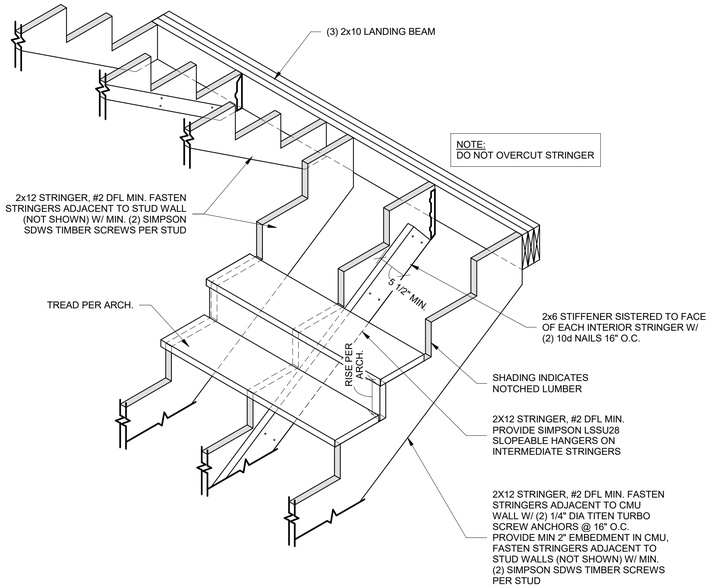
11/26/2024 4:38:19 PM



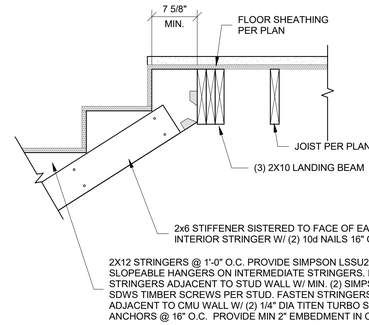


SECTION A

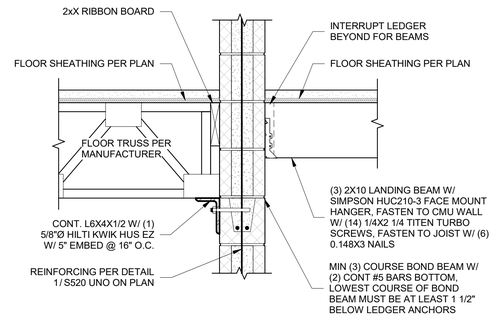
1 S511 FRAMING AT INTERIOR SINGLE WALL
1" = 1'-0"



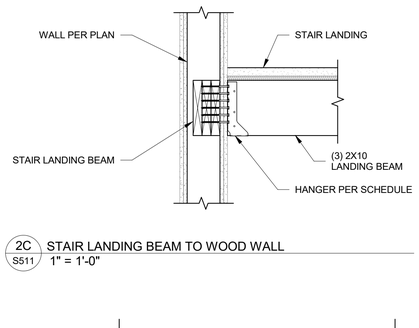
2 S511 WOOD STAIR ISOMETRIC
3/4" = 1'-0"



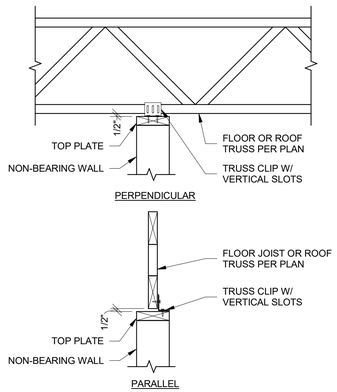
2A S511 STRINGER TO LANDING BEAM SECTION
1" = 1'-0"



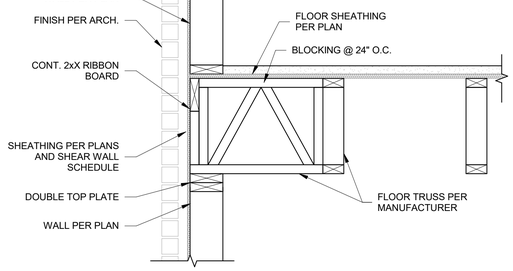
2B S511 STAIR LANDING BEAM ATTACHMENT TO CMU
1" = 1'-0"

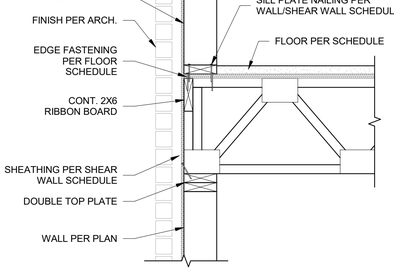


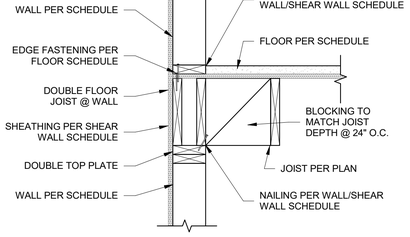
2C S511 STAIR LANDING BEAM TO WOOD WALL
1" = 1'-0"

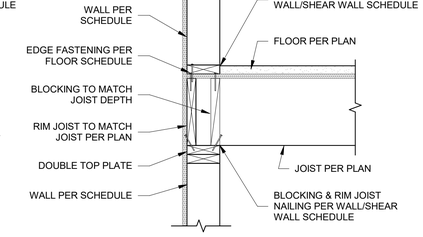


3 S511 NON-BEARING WALL TO FLOOR OR ROOF TRUSS
1" = 1'-0"



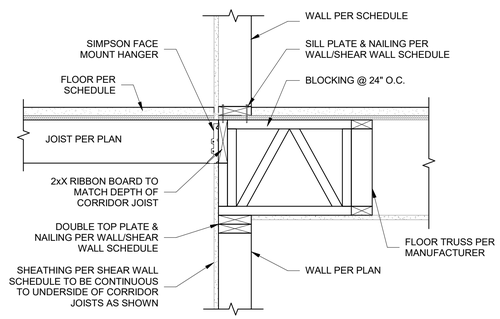


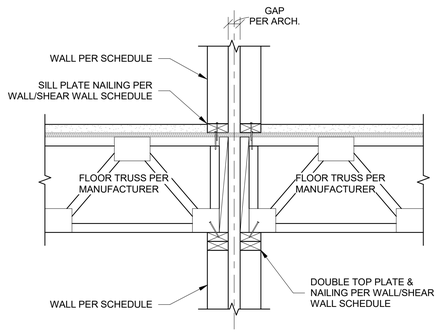




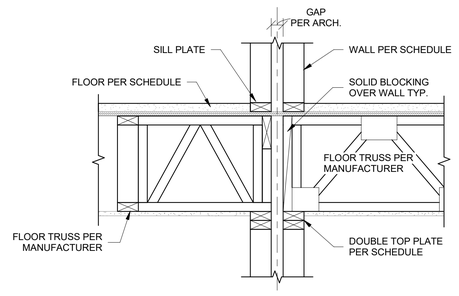
NOTES:
1. CONTRACTOR MAY ALTERNATIVELY FASTEN FLOOR JOIST TO DOUBLE RIM JOIST @ END OF WALL W/ HANGER PER SCHEDULE @ EACH JOIST
2. CONTRACTOR MUST USE SIMPSON HANGER @ STAIR LOCATIONS WHERE (2) LAYERS OF GYP ARE TO BYPASS LANDING FRAMING

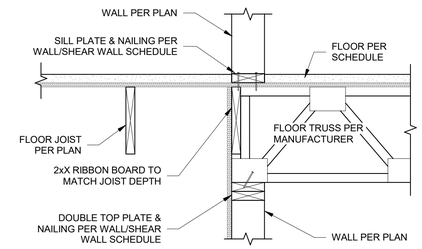
4 S511 FRAMING AT EXTERIOR WALL - OPEN WEB TRUSSES
1" = 1'-0"





5 S511 2X FRAMING AT EXTERIOR WALL
1" = 1'-0"





6 S511 FRAMING AT CORRIDOR
1" = 1'-0"

7 S511 FRAMING AT INTERIOR WALL
1" = 1'-0"

8 S511 FLOOR TRUSS BEARING TRANSITION AT DEMISING WALL
1" = 1'-0"

9 S511 FRAMING SECTION AT CORRIDOR
1" = 1'-0"

PRINTS ISSUED
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2001 W Broadway
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EXPIRES: DECEMBER 31, 2024

11/27/2024

DISCOVERY PARK - LOT #9 - A

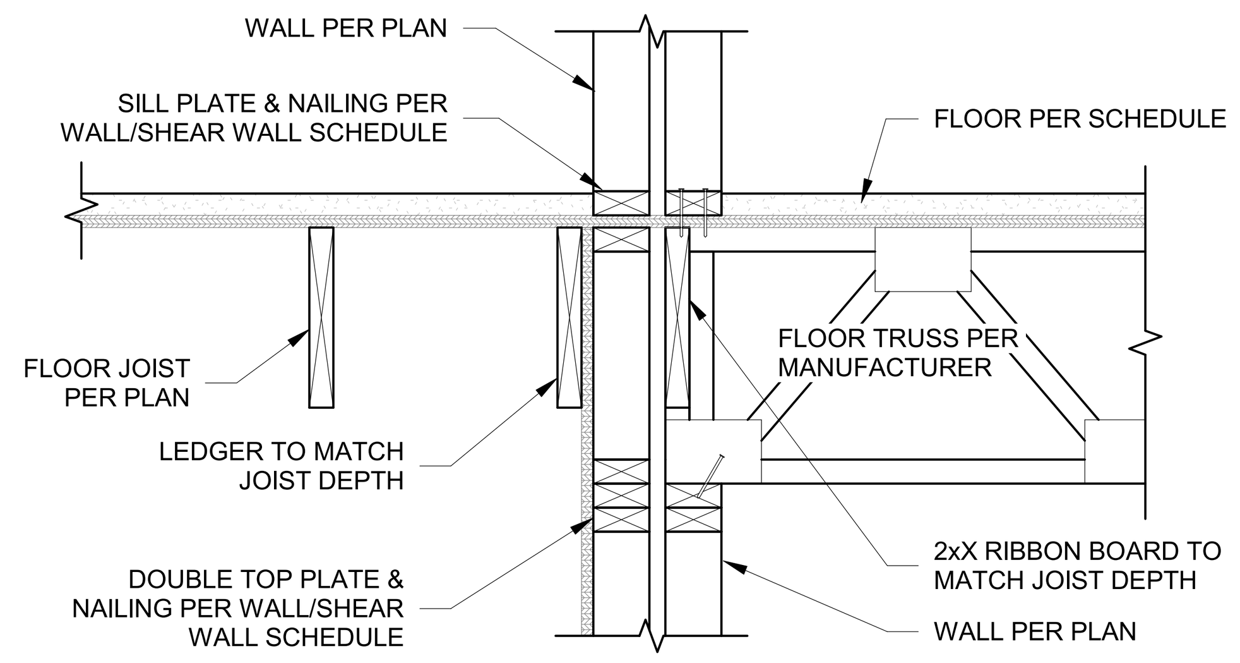
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
FLOOR FRAMING DETAILS

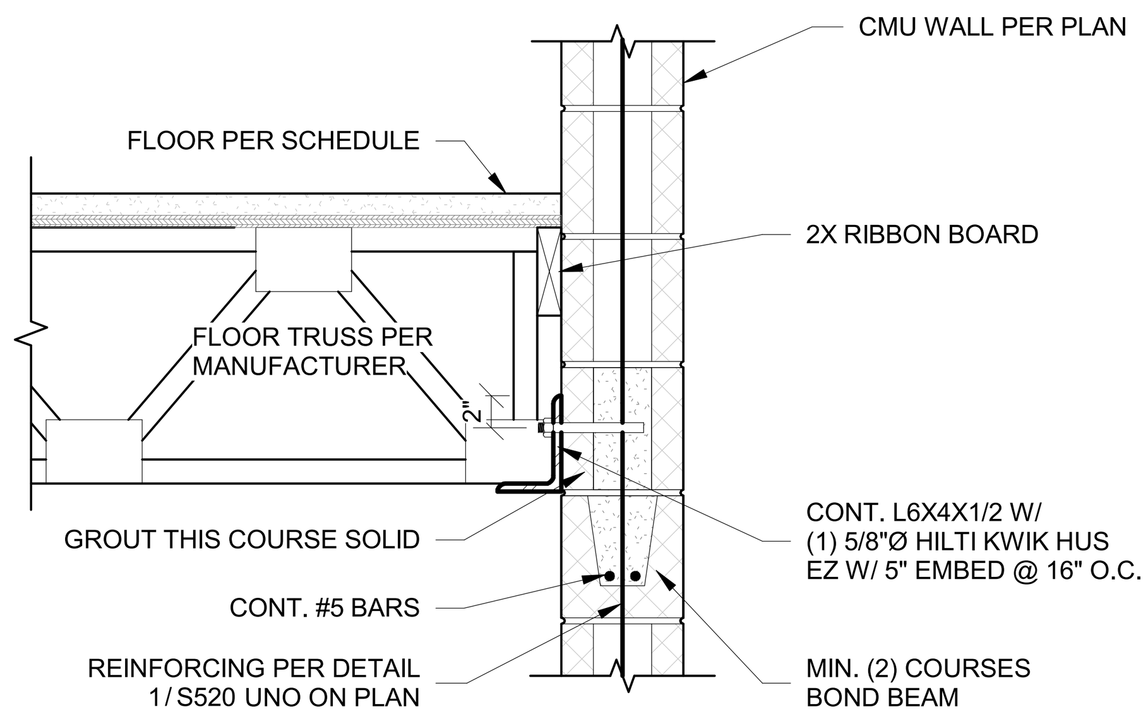
PROJECT NUMBER: 2023000333

SHEET NUMBER:

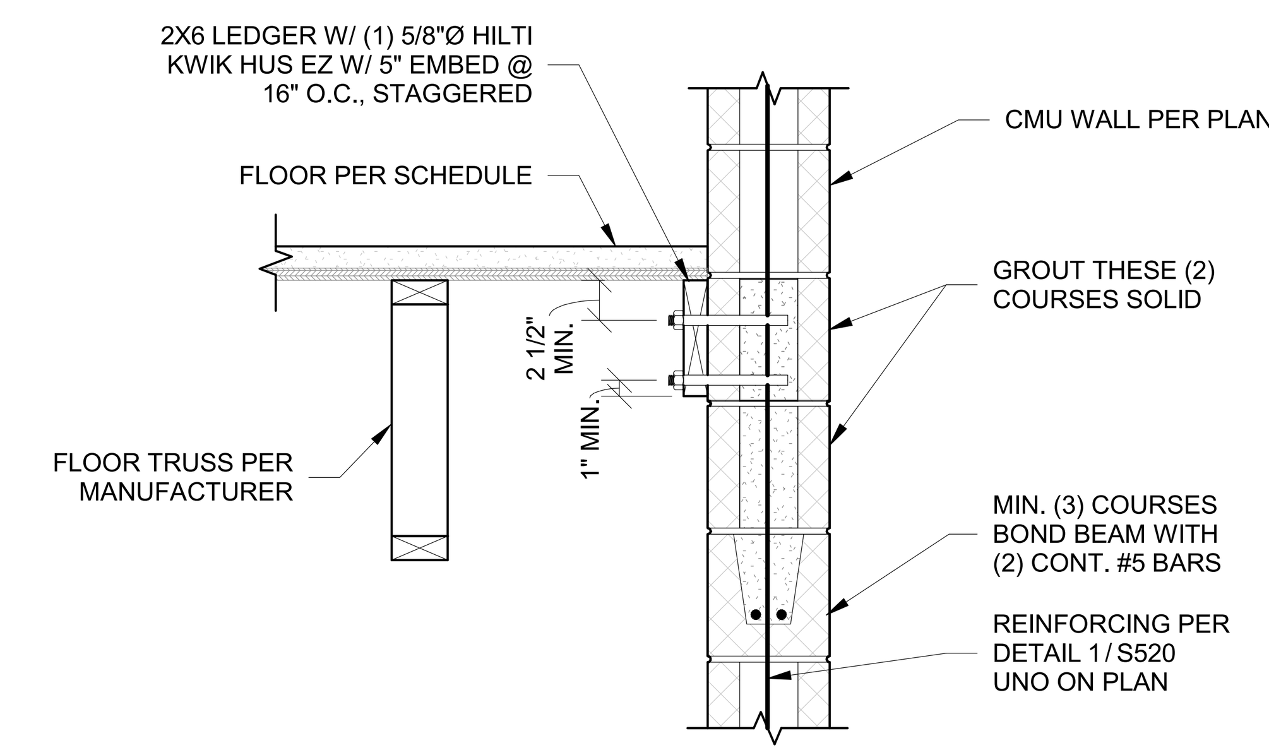
S511



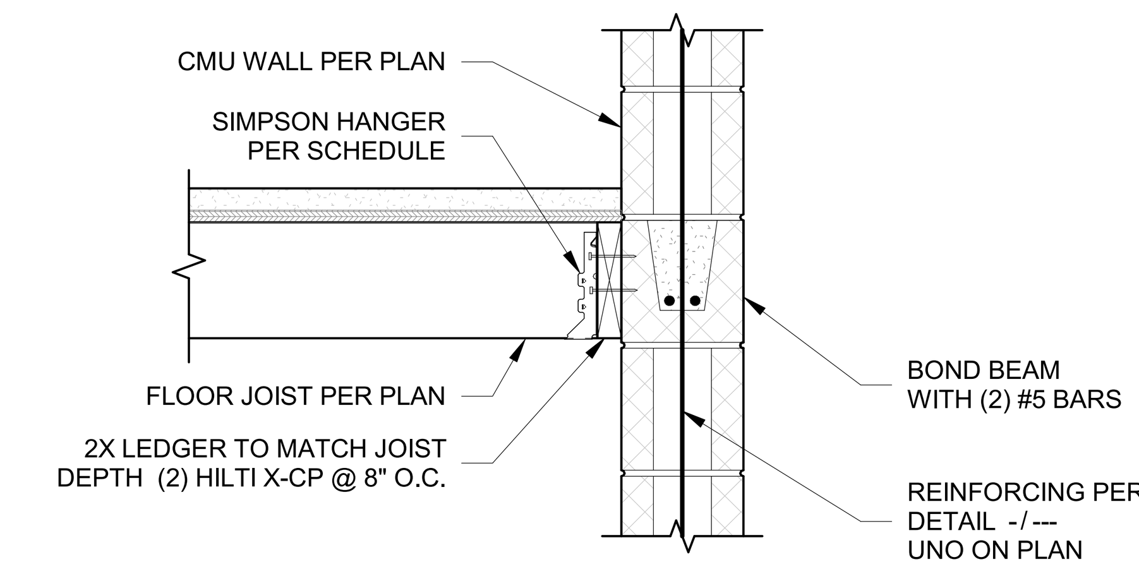
1 S512 FRAMING SECTION AT CORRIDOR BEARING TRANSITION
1" = 1'-0"



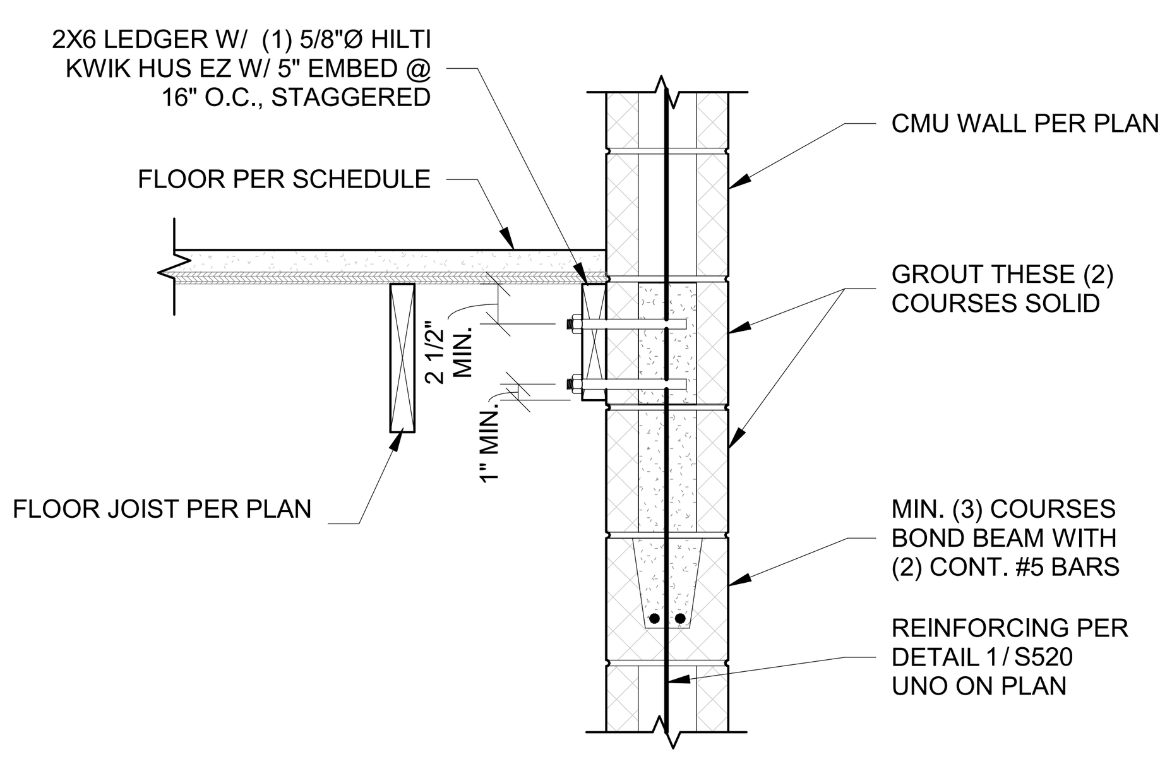
2 S512 FLOOR TRUSS BEARING AT CMU
1" = 1'-0"



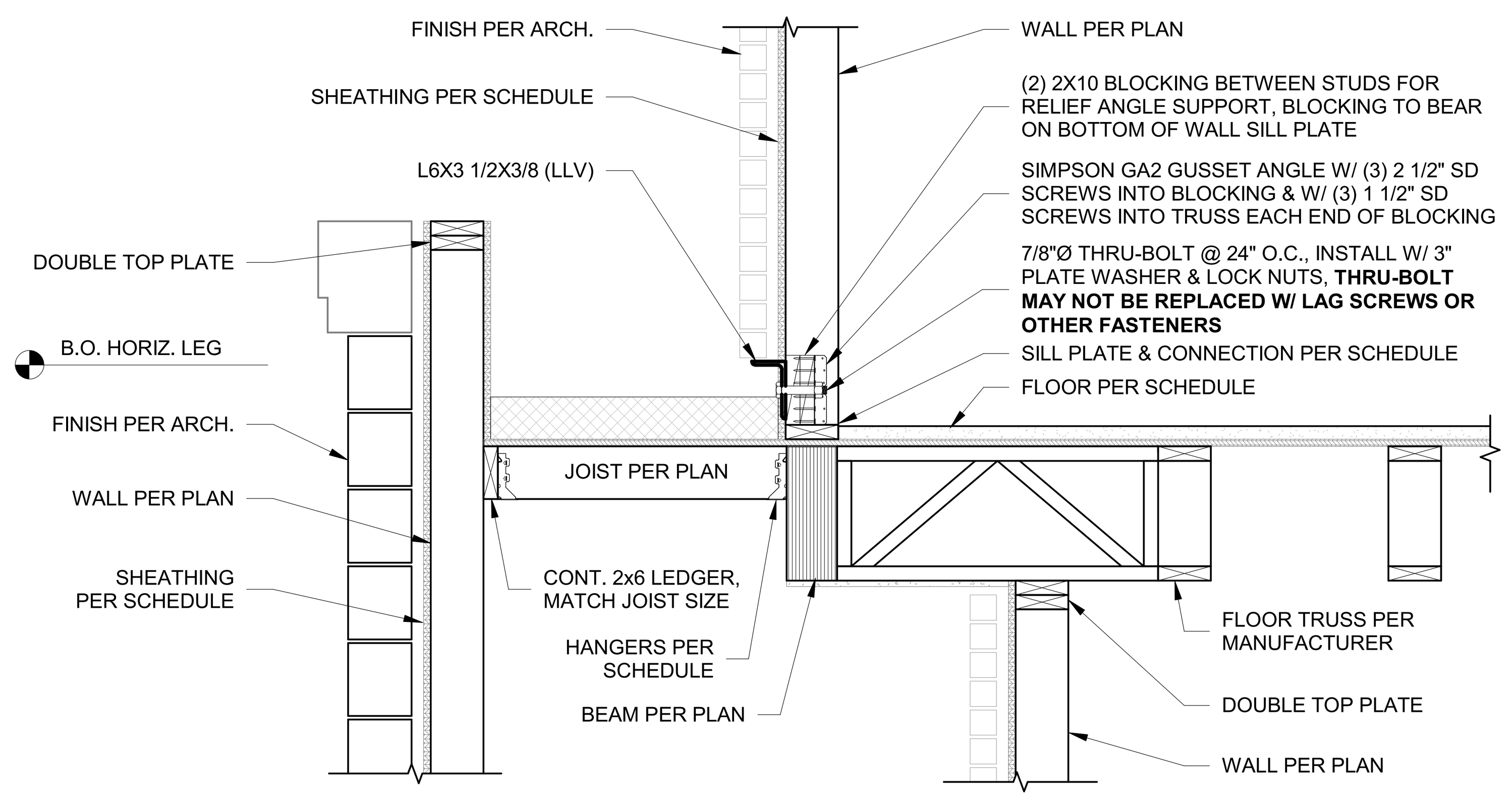
3 S512 FLOOR TRUSS PARALLEL TO CMU
1" = 1'-0"



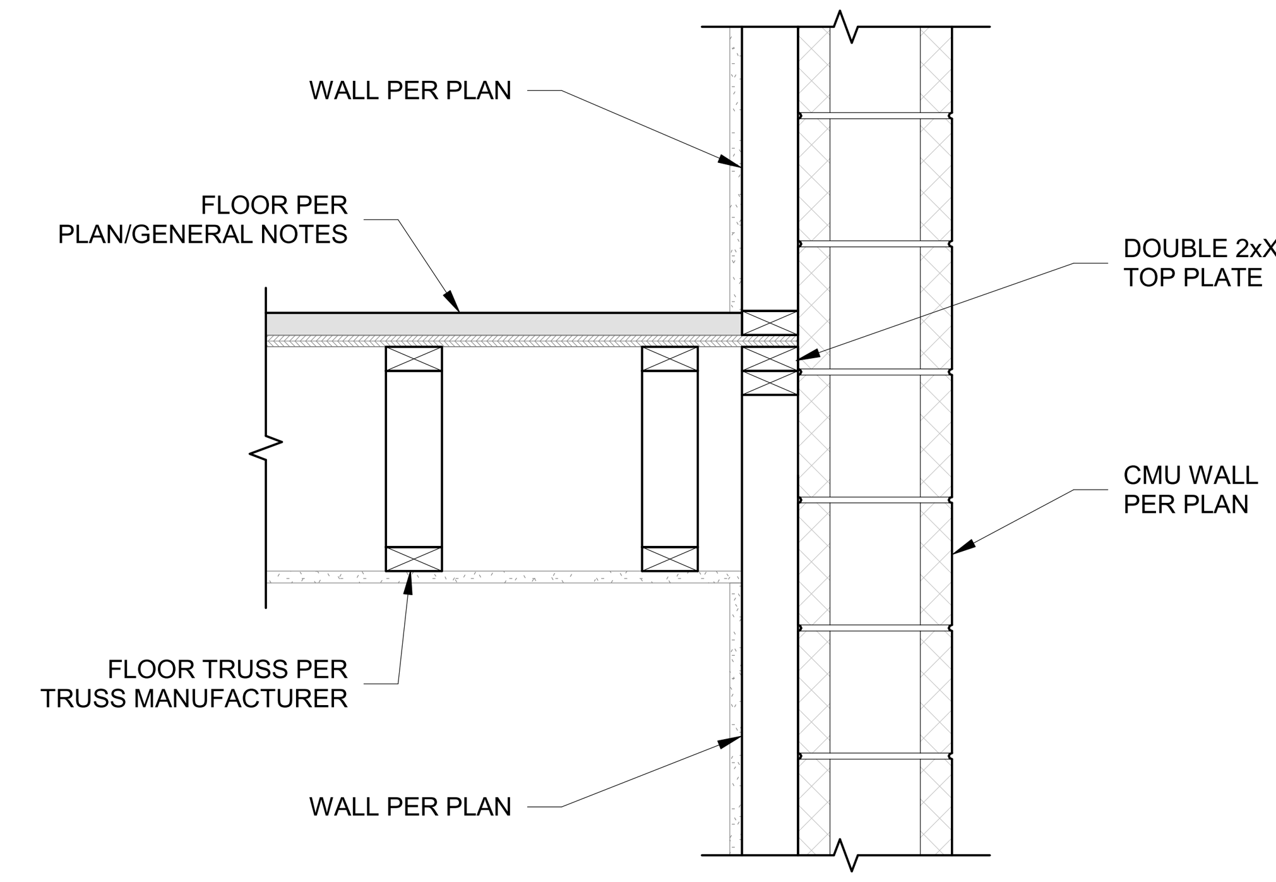
4 S512 FLOOR JOIST BEARING AT CMU
1" = 1'-0"



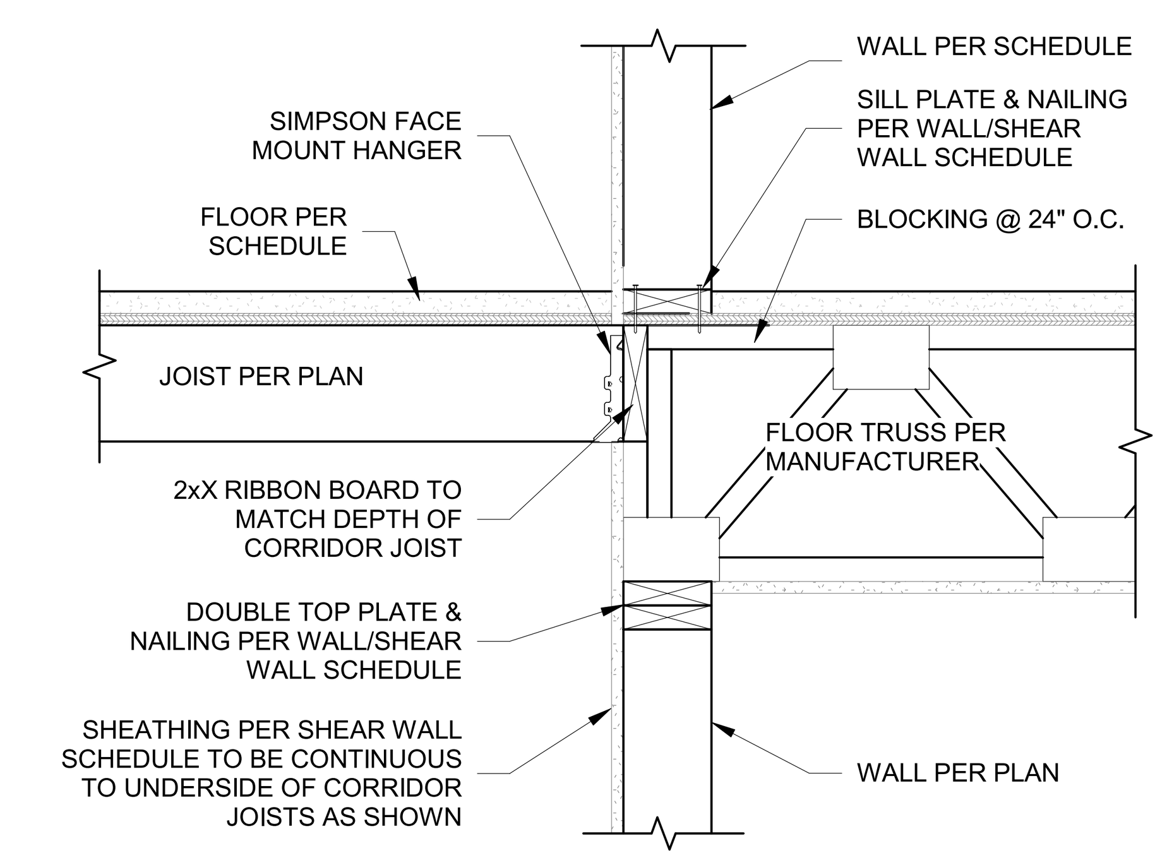
5 S512 JOISTS PARALLEL TO CMU
1" = 1'-0"



6 S512 SECTION AT LOW ROOF
3/4" = 1'-0"



7 S512 FLOOR FRAMING AT LEVEL 2 BROWNSTONE
1" = 1'-0"



8 S512 SECTION AT STAIR TOWER LANDING
1" = 1'-0"

PRINTS ISSUED
PERMIT SUBMITTAL 11/27/2024

REVISIONS:

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

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

STATE OF MISSOURI
CELESTE KAY SPICKERT
NUMBER PE-2008022213
PROFESSIONAL ENGINEER
11/27/2024

DISCOVERY PARK - LOT #9 - A

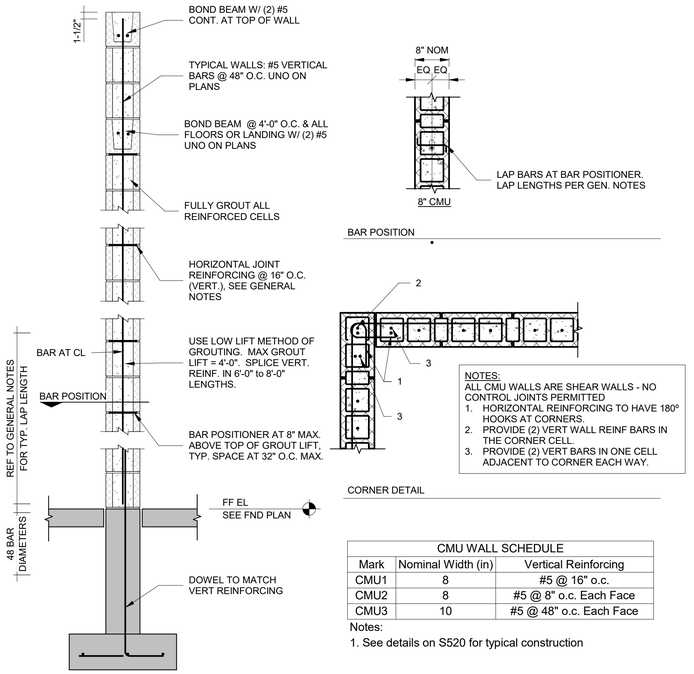
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
WOOD FLOOR FRAMING DETAILS

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S512



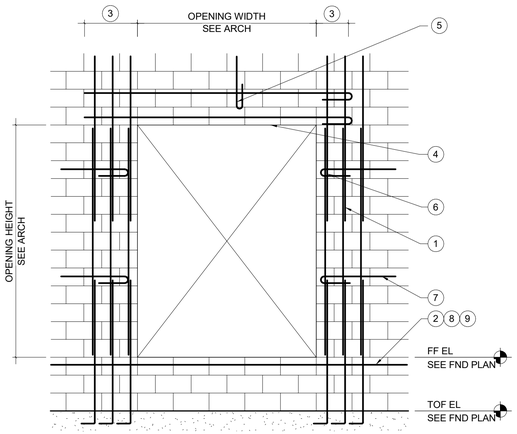
CORNER DETAIL

NOTES:
ALL CMU WALLS ARE SHEAR WALLS - NO CONTROL JOINTS PERMITTED
1. HORIZONTAL REINFORCING TO HAVE 180° HOOKS AT CORNERS.
2. PROVIDE (2) VERT WALL REINF BARS IN THE CORNER CELL.
3. PROVIDE (2) VERT BARS IN ONE CELL ADJACENT TO CORNER EACH WAY.

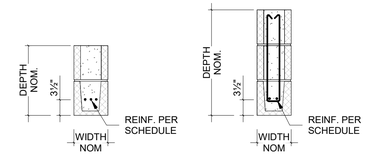
CMU WALL SCHEDULE		
Mark	Nominal Width (in)	Vertical Reinforcing
CMU1	8	#5 @ 16" o.c.
CMU2	8	#5 @ 8" o.c. Each Face
CMU3	10	#5 @ 48" o.c. Each Face

Notes:
1. See details on S520 for typical construction

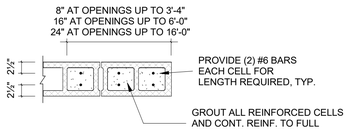
1 S520 CMU WALL REINFORCING DIAGRAM
3/4" = 1'-0"



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



8" CMU LINTEL DETAIL



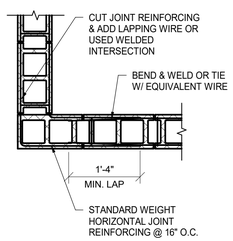
CMU JAMB DETAIL

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

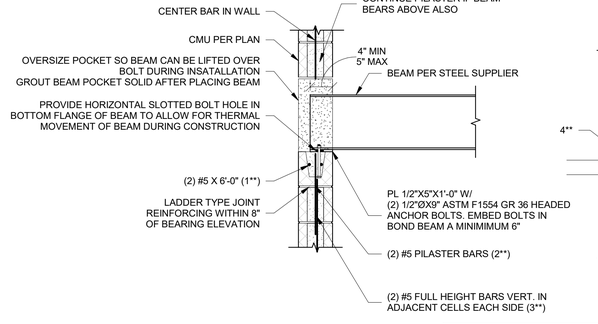
2 S520 TYPICAL MASONRY OPENING DIAGRAM & SCHEDULE
3/4" = 1'-0"

WOOD HANGER SCHEDULE	
Joist Size	Hanger
2x4	LUS24
2x6	LUS26
2x8	LUS26
2x10	LUS28

Notes:
1. Hangers to be installed with typical fasteners per manufacturer product data.
2. All exterior members are to be pressure treated.

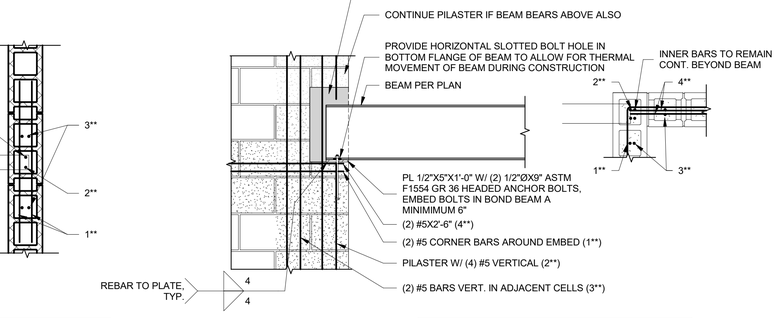


3 S520 JOINT REINFORCING AT INTERSECTION CMU WALLS
3/4" = 1'-0"



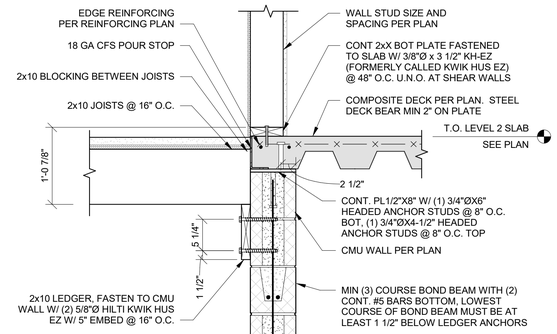
NOTES:
CONNECTION SHOULD USE SLOTTED HOLES TO ALLOW FOR BEAM MOVEMENT IN THE AXIAL DIMENSION

4 S520 BEAM CONNECTION TO MASONRY - MID WALL
3/4" = 1'-0"

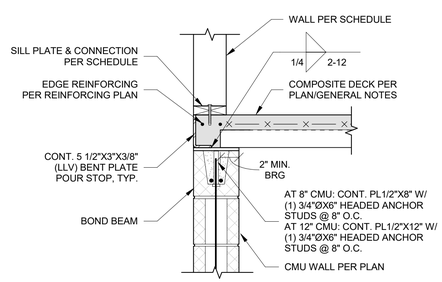


NOTES:
CONNECTION SHOULD USE SLOTTED HOLES TO ALLOW FOR BEAM MOVEMENT IN THE AXIAL DIMENSION

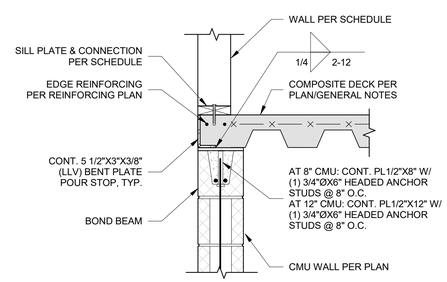
5 S520 BEAM CONNECTION TO MASONRY - CORNER
3/4" = 1'-0"



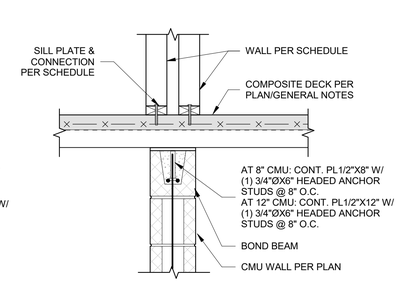
6 S520 SECTION AT LEVEL 2 STAIRS
1" = 1'-0"



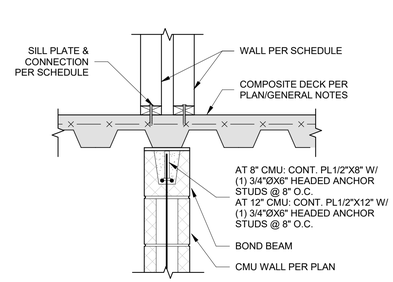
DECK BEARING



DECK NON-BEARING



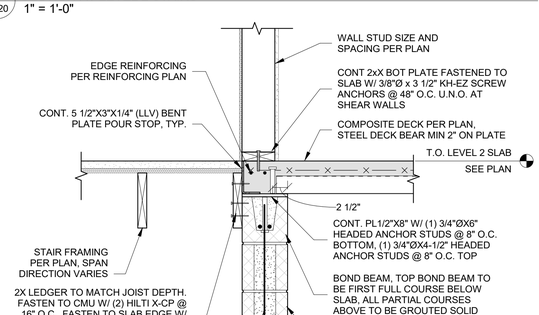
DECK BEARING



DECK NON-BEARING

7 S520 COMPOSITE DECK AT MASONRY
1" = 1'-0"

8 S520 COMPOSITE DECK BEARING ON BOTH SIDES OF MASONRY WALL
1" = 1'-0"



9 S520 SECTION AT STAIRS AT LEVEL 2 - JOISTS PARALLEL
1" = 1'-0"

PRINTS ISSUED
PERMIT SUBMITTAL 11/27/2024

REVISIONS:

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

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

11/27/2024

DISCOVERY PARK - LOT #9 - A

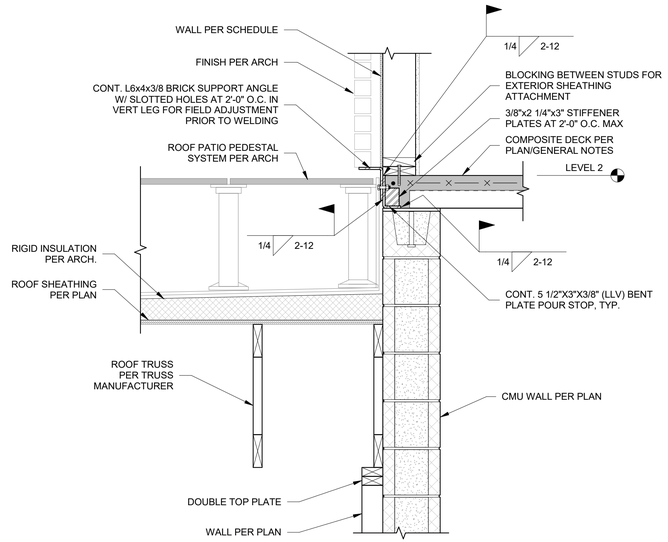
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
MASONRY DETAILS

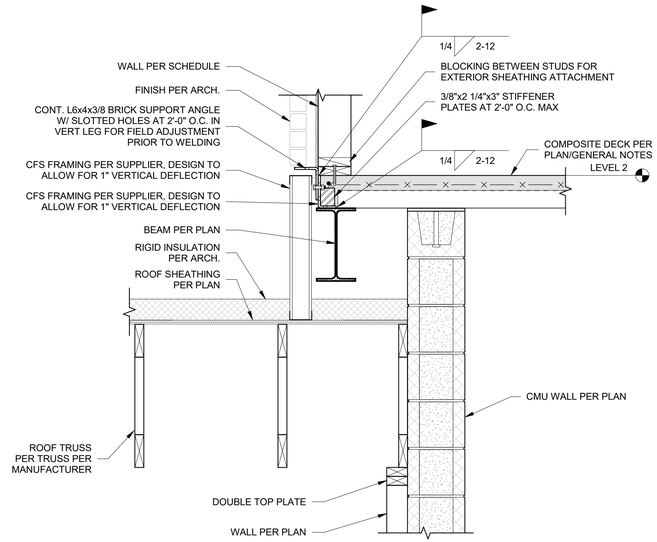
PROJECT NUMBER: 2023000333

SHEET NUMBER:

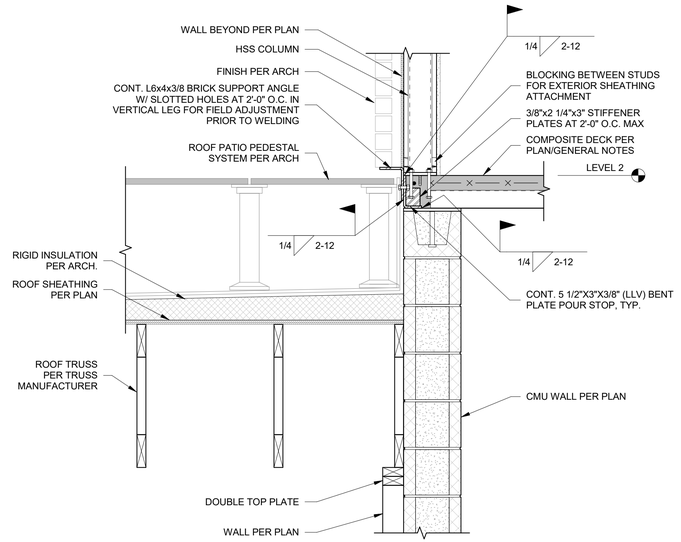
S520



1 S521 SECTION AT BROWNSTONE ROOF & BALCONY
1" = 1'-0"



2 S521 SECTION AT BROWNSTONE ROOF & LEVEL 2 AT BEAM
1" = 1'-0"



3 S521 LEVEL 2 ZONE B - Section 2
1" = 1'-0"

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PERMIT SUBMITTAL 11/27/2024

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DISCOVERY PARK - LOT #9 - A

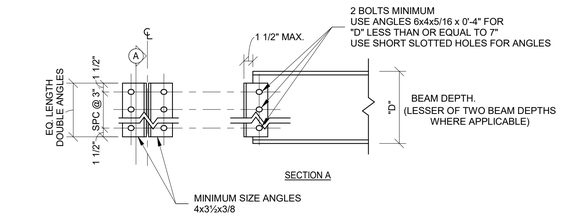
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

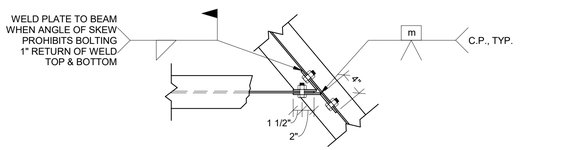
SHEET TITLE
MASONRY DETAILS

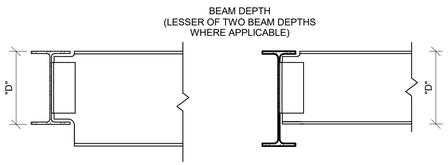
PROJECT NUMBER: 2023000333

SHEET NUMBER:

S521

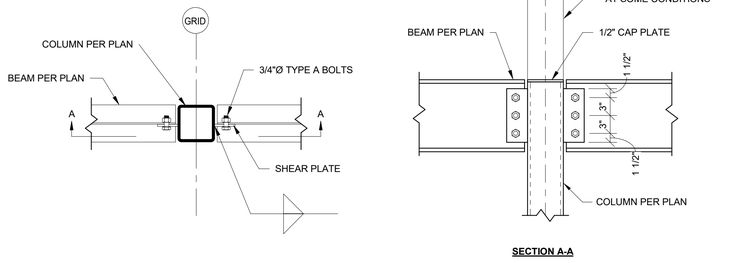




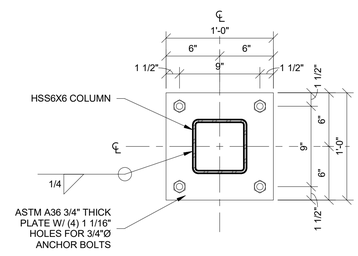


1 S530 BEAM TO BEAM CONNECTION
1" = 1'-0"

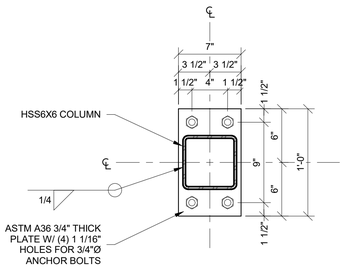
NOTES:
1. SEE PLAN OR GENERAL NOTES FOR CONNECTION FORCES.
2. ALL CONNECTIONS TO BE DESIGNED AS "CONVENTIONAL" TO PREVENT ADDITIONAL ECCENTRICITY IN CONNECTION.



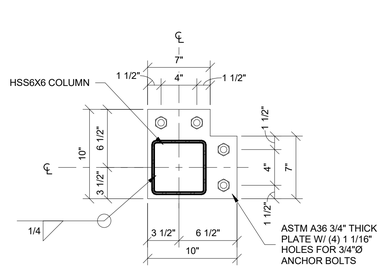
2 S530 TYPICAL BEAM TO COLUMN SHEAR CONNECTION
1" = 1'-0"



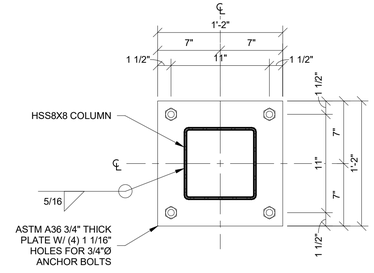
3 S530 BP1
1 1/2" = 1'-0"



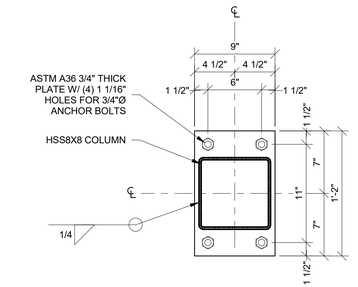
4 S530 BP2
1 1/2" = 1'-0"



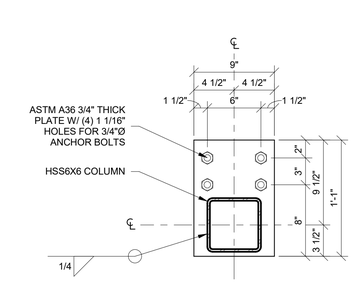
5 S530 BP3
1 1/2" = 1'-0"



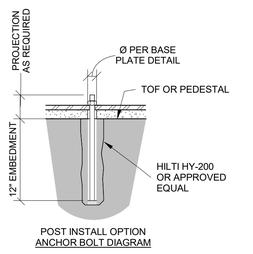
6 S530 BP4
1 1/2" = 1'-0"



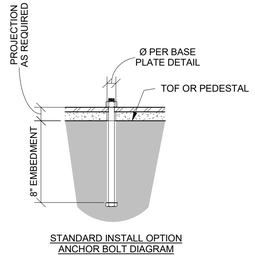
7 S530 BP5
1 1/2" = 1'-0"



8 S530 BP6
1 1/2" = 1'-0"

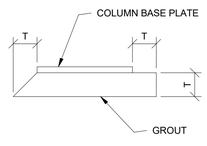


POST INSTALL OPTION
ANCHOR BOLT DIAGRAM



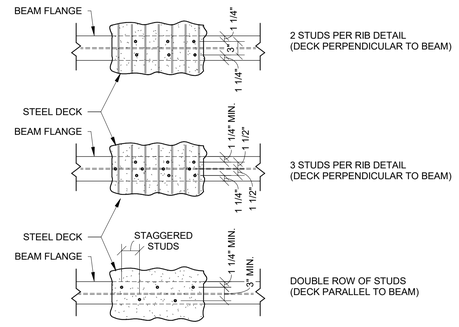
STANDARD INSTALL OPTION
ANCHOR BOLT DIAGRAM

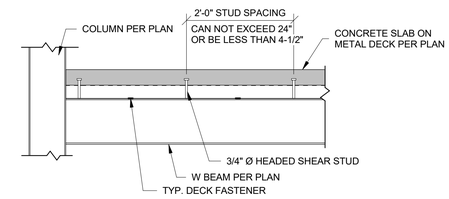
GROUT MAY BE BEVELED OR FORMED BUT SHALL EXTEND A MIN "T" BEYOND FACE OF BASE PLATE. "T"=1 1/2" FOR ANCHOR BOLT Ø UP TO 1"



GROUT PLACEMENT

9 S530 COLUMN ANCHOR BOLT DETAILS
1" = 1'-0"

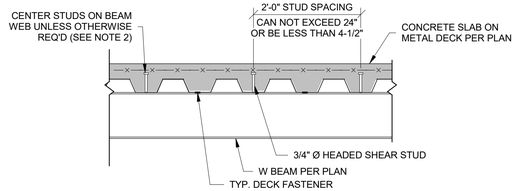




DECK IS PARALLEL TO BEAM

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 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. 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 ROWS, 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 & EDGE DIMENSIONS AS SHOWN ON PLAN DETAILS ABOVE.

10 S530 SHEAR STUD PLACEMENT DIAGRAM
3/4" = 1'-0"

PRINTS ISSUED
PERMIT SUBMITTAL 11/27/2024

REVISIONS:

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

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

STATE OF MISSOURI
CELESTE KAY
SHUCART
NUMBER
PE-2008022213
PROFESSIONAL ENGINEER

11/27/2024

DISCOVERY PARK - LOT #9 - A

200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
PODIUM DETAILS

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S530

11/26/2024 4:34:27 PM
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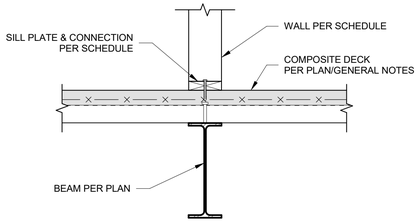
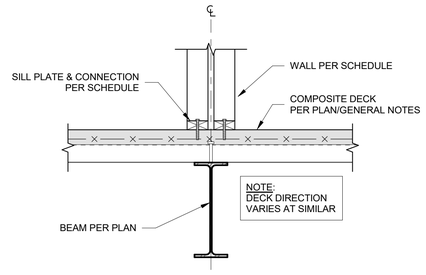
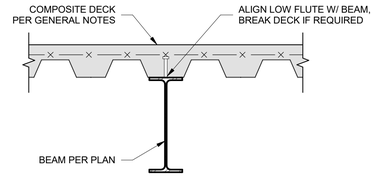


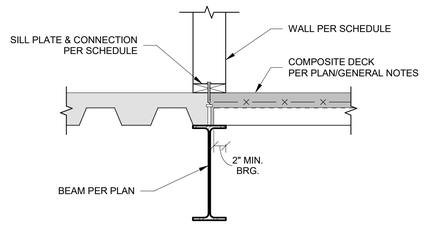
1 S531 COMPOSITE DECK BEARING AT BEAM
1" = 1'-0"



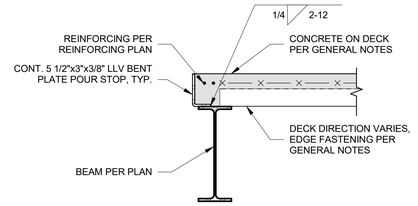
2 S531 COMPOSITE DECK BEARING AT BEAM AT DEMISING WALL
1" = 1'-0"



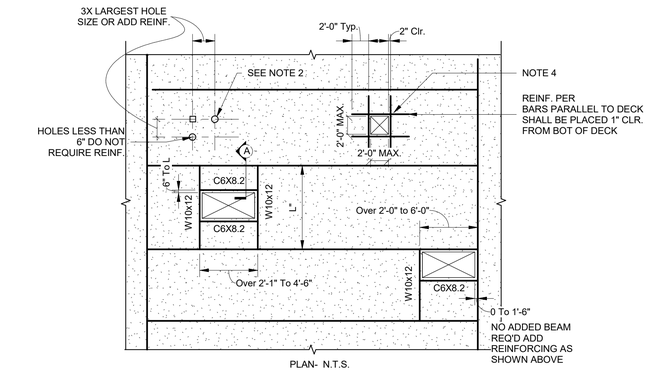
3 S531 COMPOSITE DECK PARALLEL TO BEAM
1" = 1'-0"

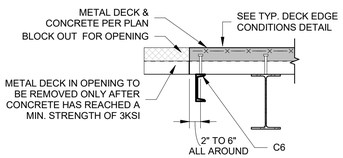


4 S531 COMPOSITE DECK TRANSITION AT BEAM
1" = 1'-0"



5 S531 TYPICAL POUR STOP
1" = 1'-0"

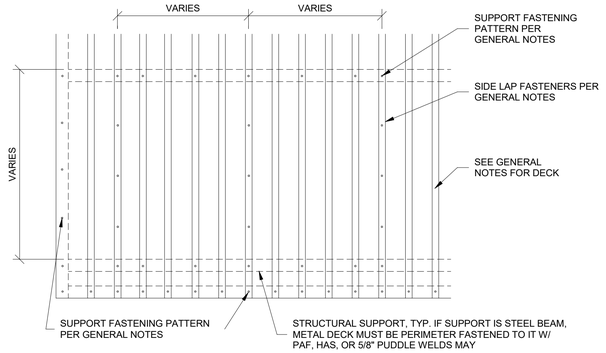




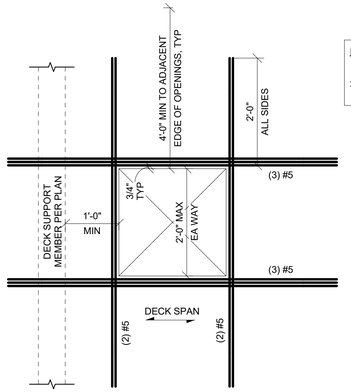
SECTION A

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

6 S531 TYPICAL FLOOR DECK OPENING
3/4" = 1'-0"

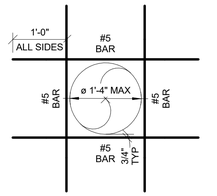


7 S531 DECK FASTENING DETAIL
1" = 1'-0"



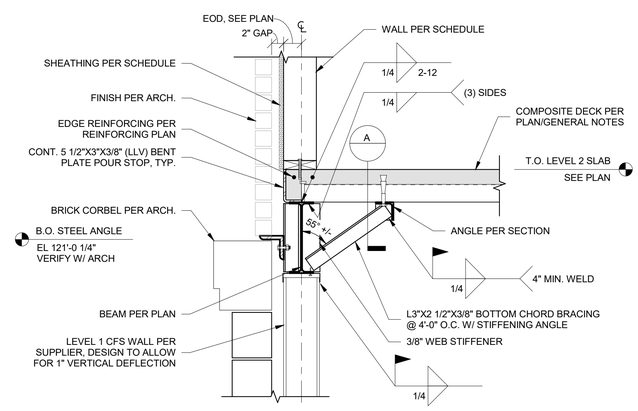
RECTANGULAR FLOOR PENETRATION

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

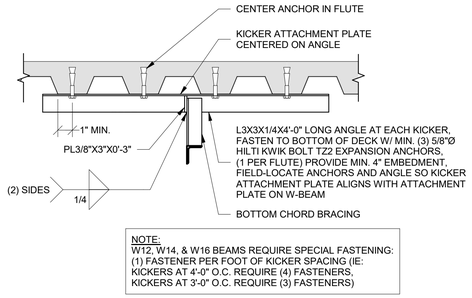


CIRCULAR FLOOR PENETRATION

8 S531 REINFORCED OPENING IN SLAB ON METAL DECK
3/4" = 1'-0"

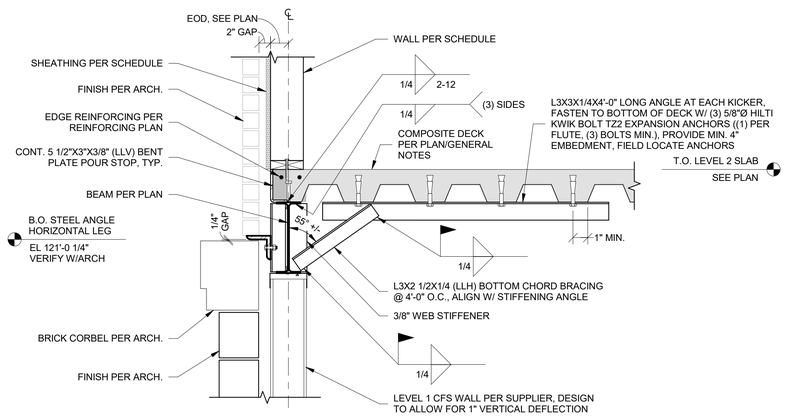


DECK PERPENDICULAR



NOTE:
W12, W14, & W16 BEAMS REQUIRE SPECIAL FASTENING: (1) FASTENER PER FOOT OF KICKER SPACING (IE: KICKERS AT 4'-0" O.C. REQUIRE (4) FASTENERS, KICKERS AT 3'-0" O.C. REQUIRE (3) FASTENERS)

SECTION A



DECK PERPENDICULAR

9 S531 EXTERIOR WALL SECTION AT KICKER
1" = 1'-0"

11/26/2024 4:58:28 PM
Autodesk Docs://2023000333 - Discovery Park Lee's Summit/2023000333 - Rivermarin - Lot 9A_R23.rvt

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REVISIONS:

McCLURE™
2001 W Broadway
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MISSOURI CERTIFICATE OF AUTHORITY NO. E-2006023253
EXPIRES: DECEMBER 31, 2024

STATE OF MISSOURI
CELESTE KAY SHOCKEY
NUMBER PE-2008022213
PROFESSIONAL ENGINEER
11/27/2024

DISCOVERY PARK - LOT #9 - A

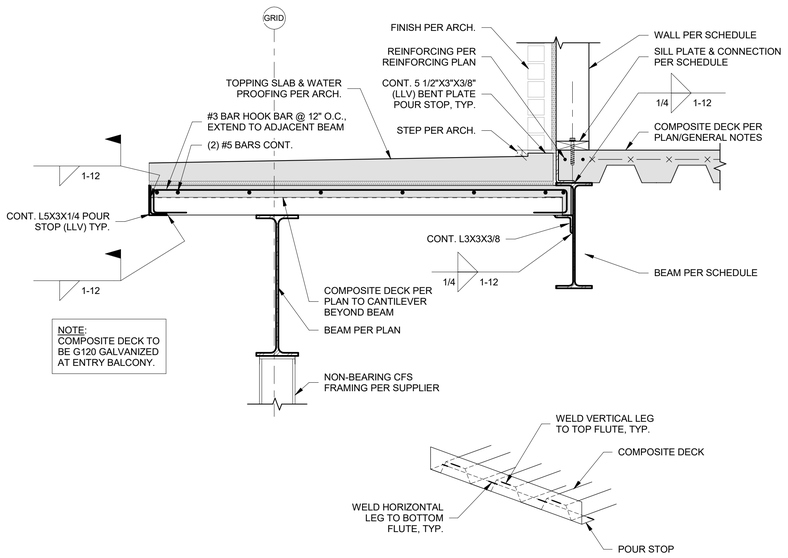
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
PODIUM DETAILS

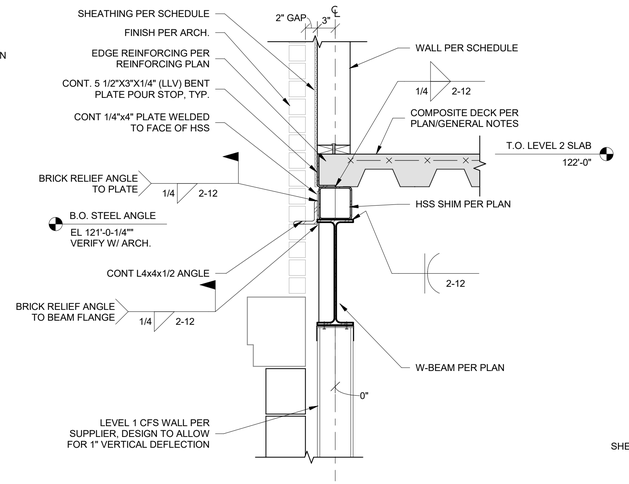
PROJECT NUMBER: 2023000333

SHEET NUMBER:

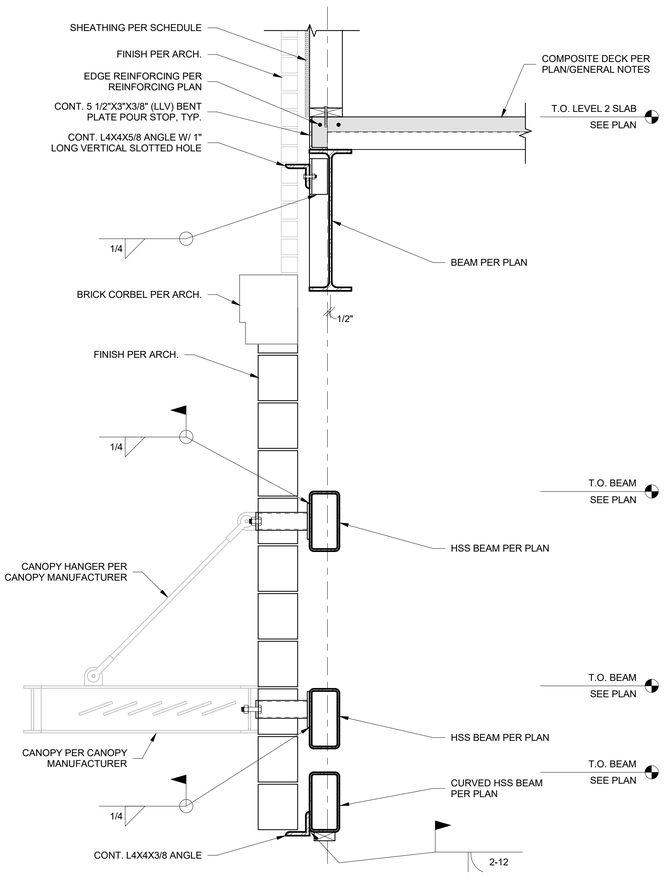
S531



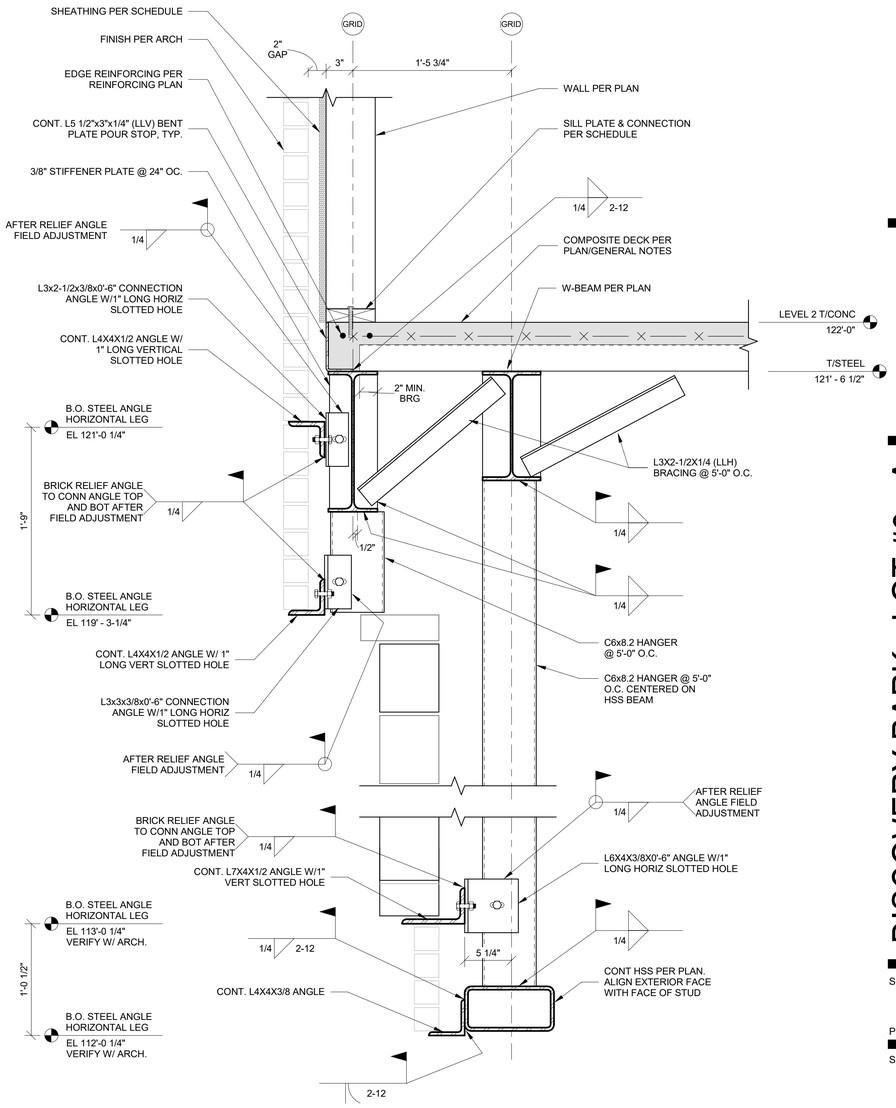
1 S532 SECTION AT BALCONY
1" = 1'-0"



2 S532 SECTION AT BUILT-UP BEAM
1" = 1'-0"



3 S532 SECTION AT CANOPY
1" = 1'-0"



4 S532 SECTION AT GARAGE
1 1/2" = 1'-0"

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DISCOVERY PARK - LOT #9 - A

200 NE ALURA WAY
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SHEET TITLE
PODIUM DETAILS

PROJECT NUMBER: 2023000333

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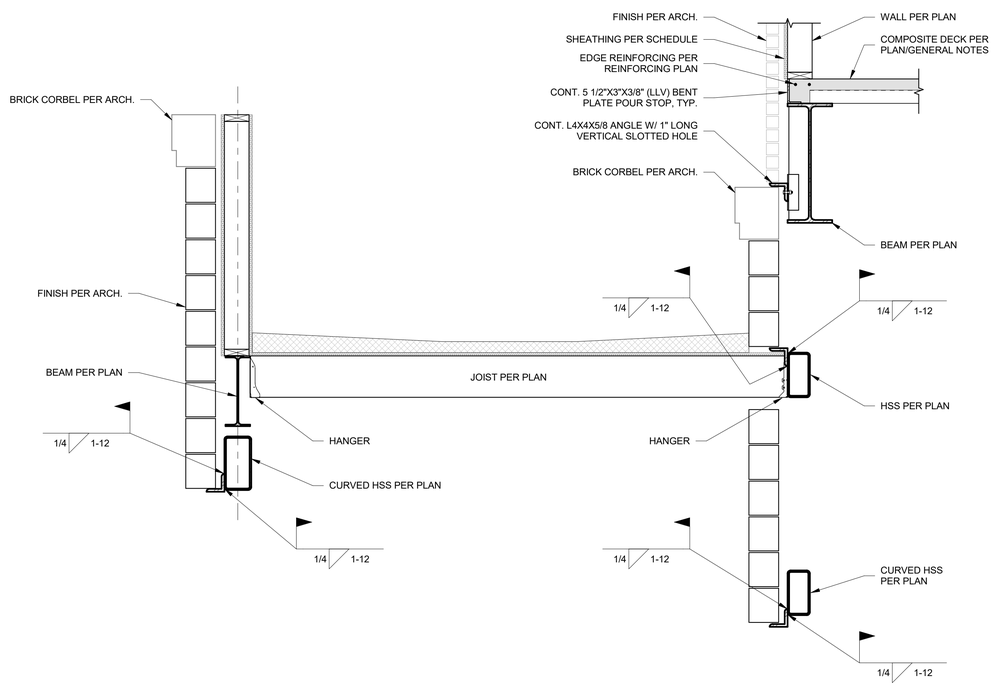
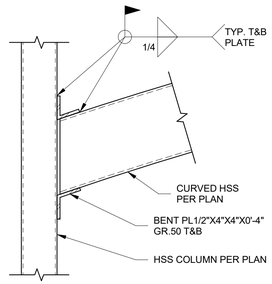
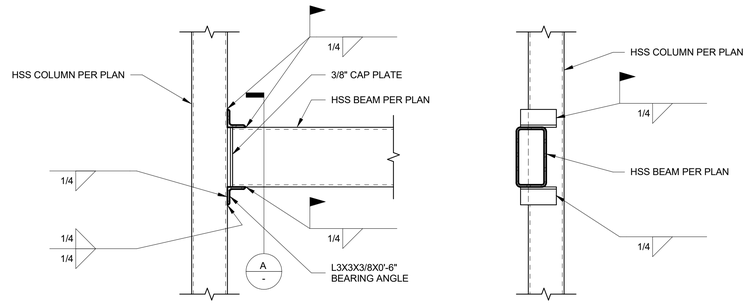
S532



1 S533 SECTION AT ENTRANCE CANOPY
3/4" = 1'-0"

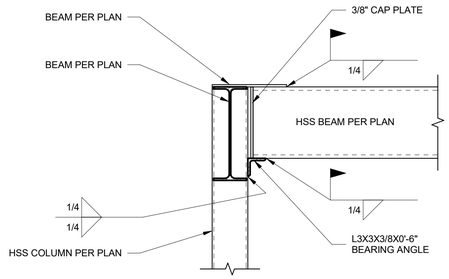


2 S533 CURVED BEAM TO HSS COLUMN
1" = 1'-0"

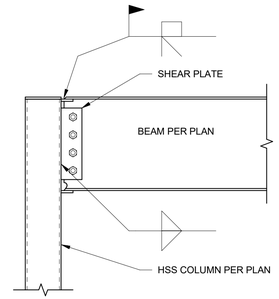


SECTION A

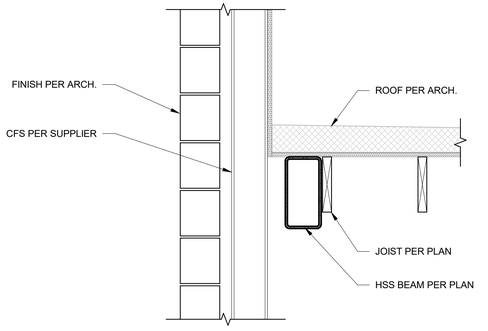
3 S533 OFFSET BEAM TO COLUMN CONNECTION
1" = 1'-0"



4 S533 MOMENT CONNECTION AT CANOPY
1" = 1'-0"



5 S533 MOMENT CONNECTION AT CANOPY
1" = 1'-0"



6 S533 SECTION AT ENTRANCE CANOPY ROOF
1" = 1'-0"

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NO. E-2006023253
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STATE OF MISSOURI
CELESTE KAY SCHOOLEY
NUMBER PE-2009022213
PROFESSIONAL ENGINEER

11/27/2024

DISCOVERY PARK - LOT #9 - A

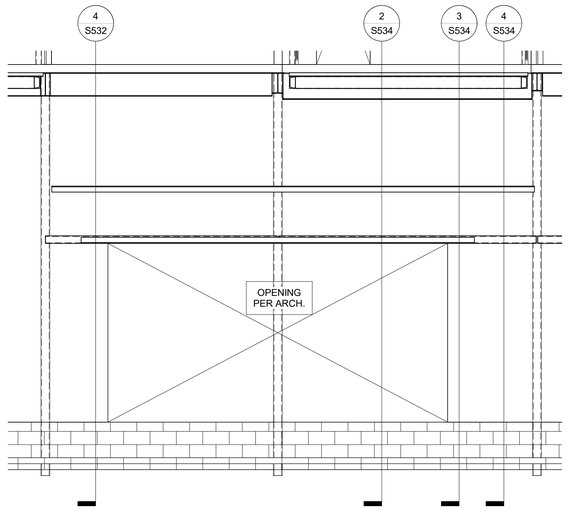
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
PODIUM DETAILS

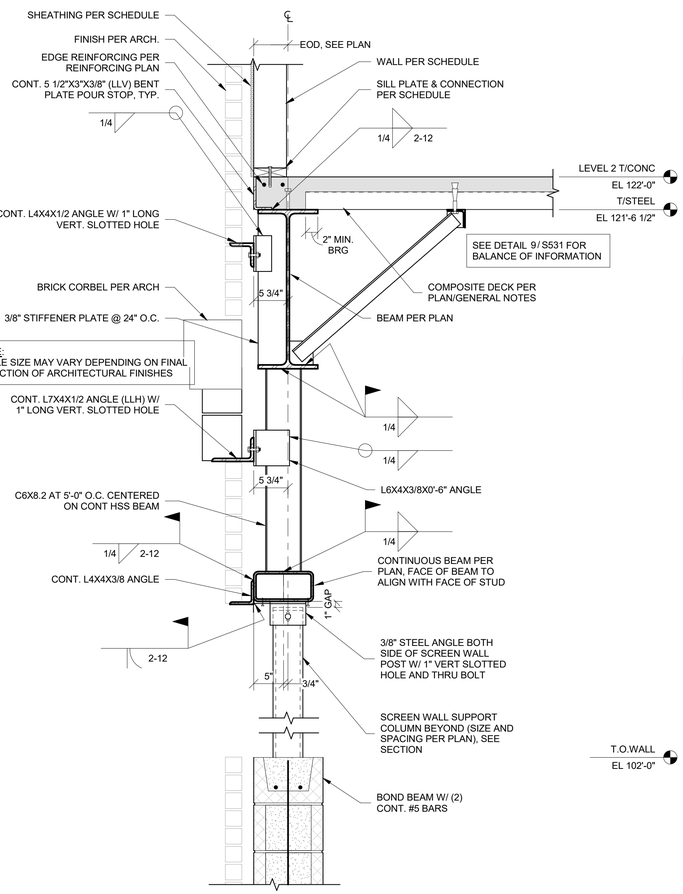
PROJECT NUMBER: 2023000333

SHEET NUMBER:

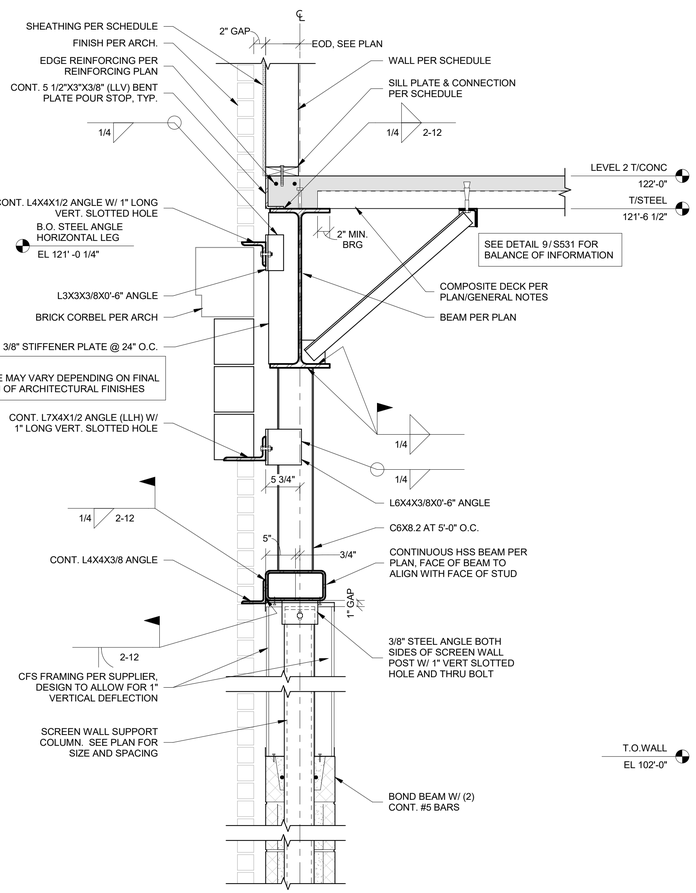
S533



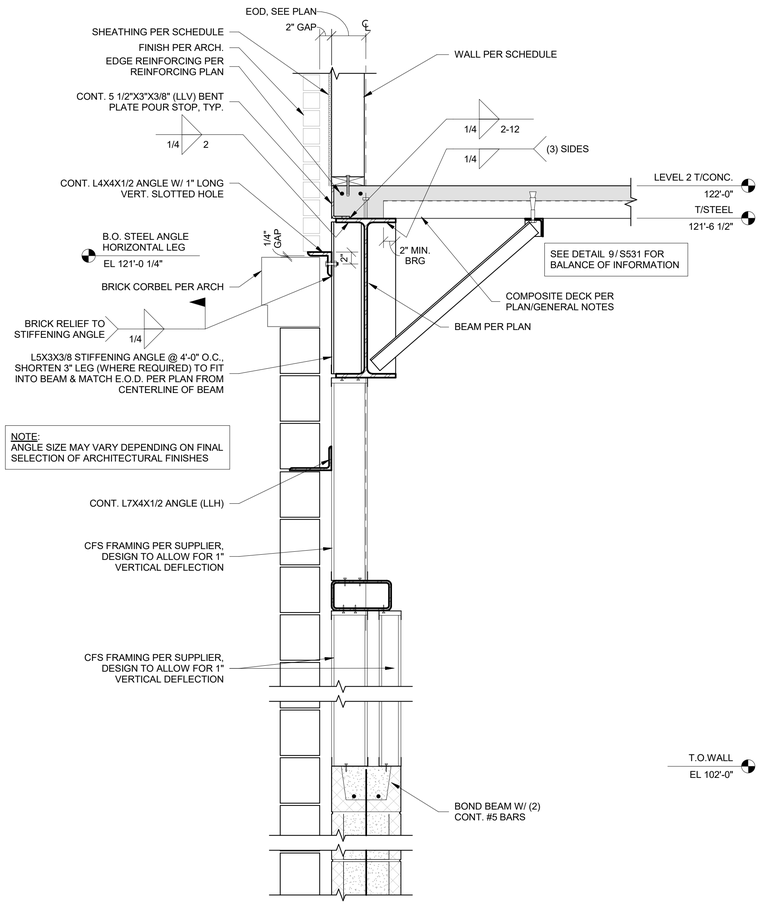
1 S534 Elevation 2 - a
1/4" = 1'-0"



2 S534 SECTION AT TYPICAL GARAGE OPENING FOR SCREEN WALL
1" = 1'-0"



3 S534 SECTION AT GARAGE SCREEN WALL END POST WITHIN FULL HIEIGHT WALL
1" = 1'-0"



4 S534 SECTION AT GARAGE BEYOND SCREEN WALL
1" = 1'-0"

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PROFESSIONAL ENGINEER

11/27/2024

DISCOVERY PARK - LOT #9 - A

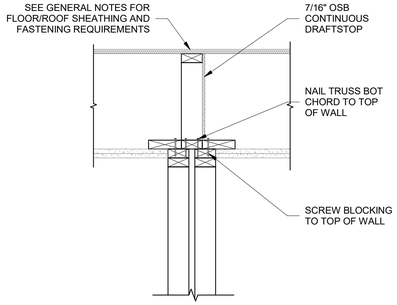
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
FRAMING AT TYPICAL GARAGE WALL OPENING

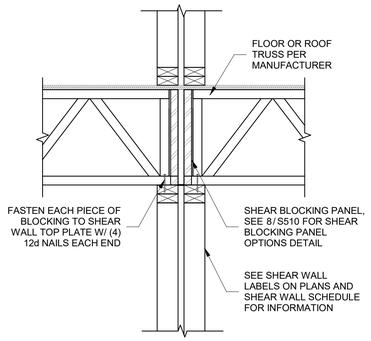
PROJECT NUMBER: 2023000333

SHEET NUMBER:

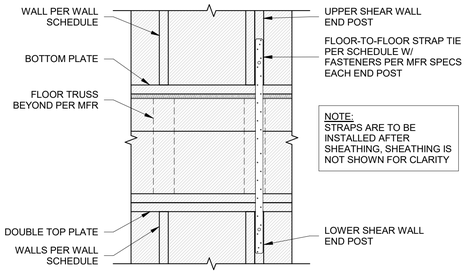
S534



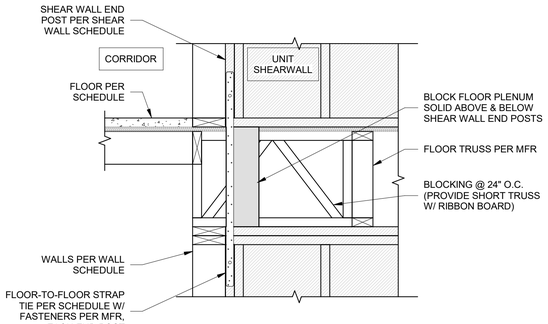
ROOF



WALL

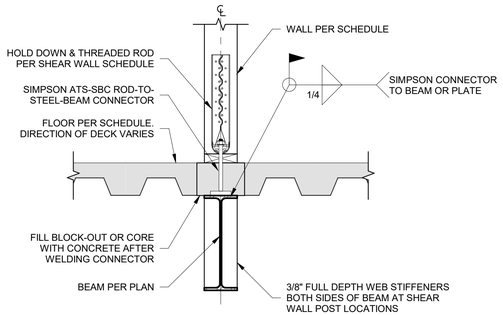


EXTERIOR SHEAR WALL ELEVATION



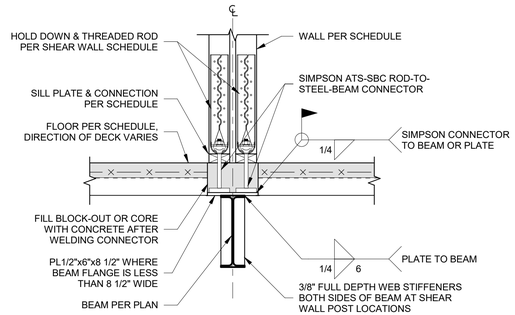
DEMISING UNIT SHEAR WALL ELEVATION

1 S540 TRUSS AT SHEAR WALL
1" = 1'-0"

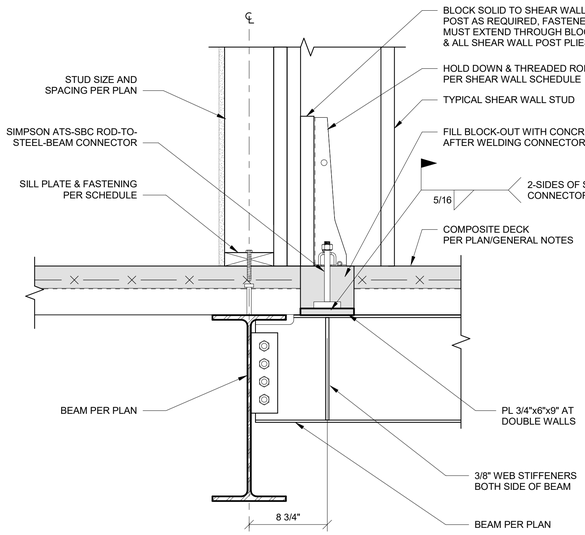


NOTE:
SEE LEVEL 2 FRAMING FOR HOLD DOWN LOCATIONS. WELD SIMPSON ATS-SBC ROD-TO-STEEL-BEAM CONNECTORS TO BEAM AND INSTALL ROD BEFORE PLACING CONCRETE, OR BLOCK OUT SLAB FOR LATER INSTALLATION.

2 S540 FLOOR-TO-FLOOR STRAP TIE AT SHEAR WALL END POSTS
1" = 1'-0"



NOTE:
SEE LEVEL 2 FRAMING FOR HOLD DOWN LOCATIONS. WELD SIMPSON ATS-SBC ROD-TO-STEEL-BEAM CONNECTORS TO BEAM AND INSTALL ROD BEFORE PLACING CONCRETE, OR BLOCK OUT SLAB FOR LATER INSTALLATION.

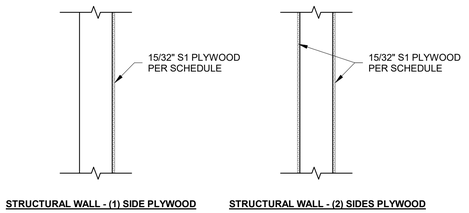


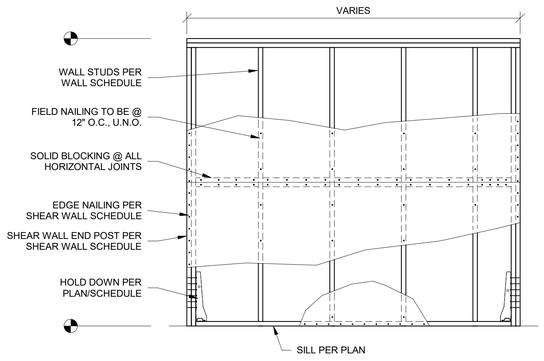
NOTE:
SEE LEVEL 2 FRAMING PLAN FOR HOLD DOWN LOCATIONS. WELD SIMPSON ATS-SBC ROD-TO-STEEL-BEAM CONNECTORS TO BEAM AND INSTALL ROD BEFORE PLACING CONCRETE, OR BLOCK OUT SLAB FOR LATER INSTALLATION.

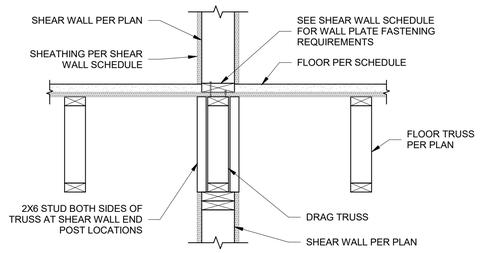
3 S540 SHEAR WALL HOLD DOWN AT STEEL BEAM
1" = 1'-0"

4 S540 SHEAR WALL HOLD DOWN AT STEEL BEAM WITH DEMISING WALL
1" = 1'-0"

5 S540 SHEAR WALL HOLD DOWN AT TYPICAL INTERIOR WALL
1 1/2" = 1'-0"







6 S540 TYPICAL SHEAR WALL SECTIONS
1" = 1'-0"

7 S540 SHEAR WALL NAILING
1/2" = 1'-0"

8 S540 SHEAR WALL PARALLEL TO FLOOR TRUSSES
1" = 1'-0"

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11/27/2024

DISCOVERY PARK - LOT #9 - A

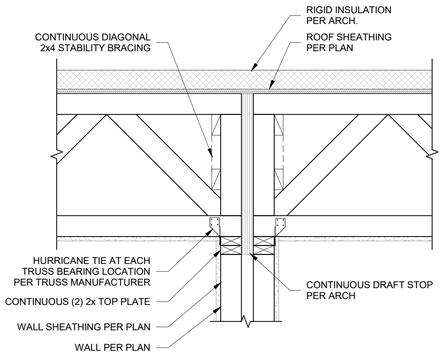
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
SHEAR WALL DETAILS

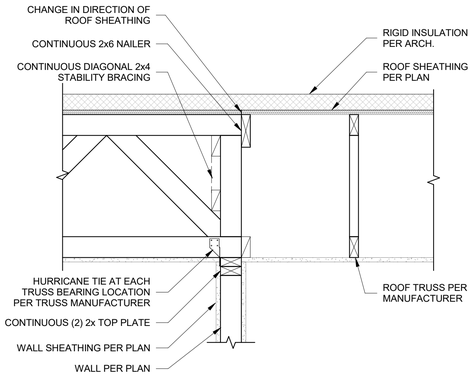
PROJECT NUMBER: 2023000333

SHEET NUMBER:

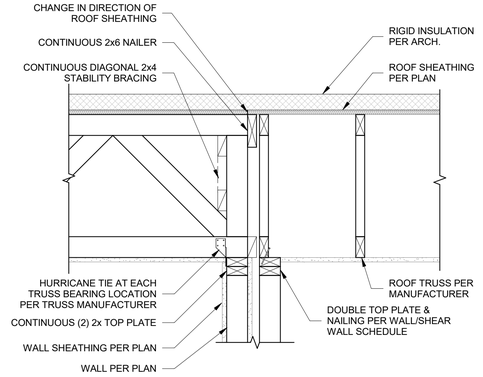
S540



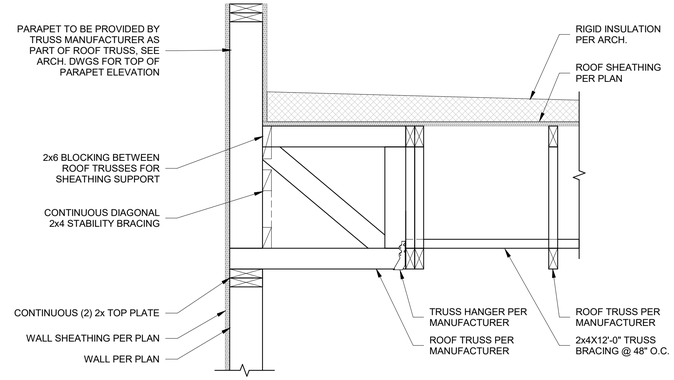
1 S550 ROOF TRUSS BEARING AT INTERIOR DEMISING WALL
1" = 1'-0"



2 S550 ROOF TRUSS BEARING TRANSITION
1" = 1'-0"



3 S550 ROOF TRUSS BEARING TRANSITION AT DEMISING WALL
1" = 1'-0"

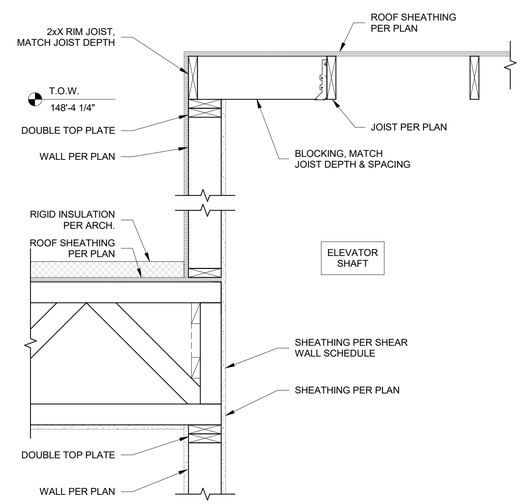


4 S550 ROOF TRUSS PARALLEL AT EXTERIOR WALL
1" = 1'-0"

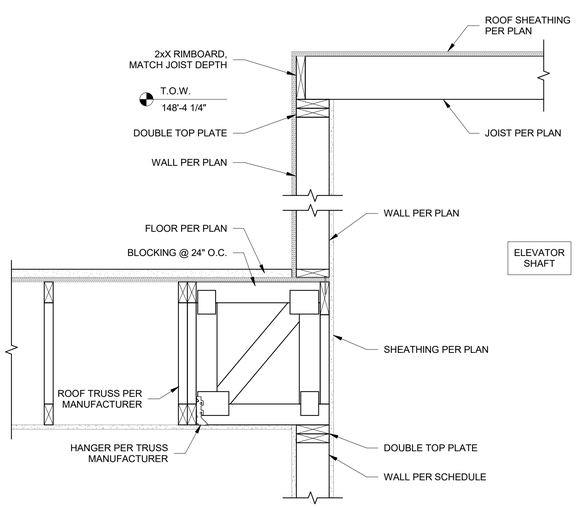
5 S550 ROOF TRUSS AT SINGLE INTERIOR WALL
1" = 1'-0"

6 S550 FRAMING AT CORRIDOR AT ROOF
1" = 1'-0"

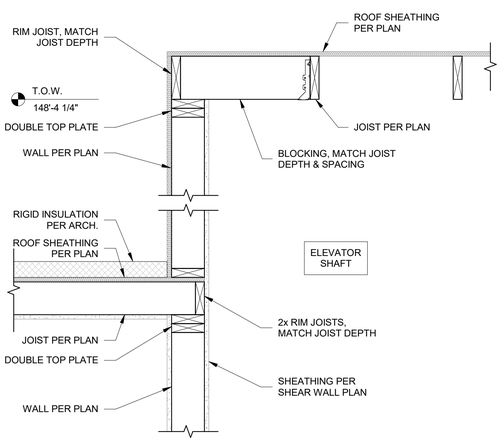
7 S550 ROOF TRUSS BEARING AT EXTERIOR WALL
1" = 1'-0"



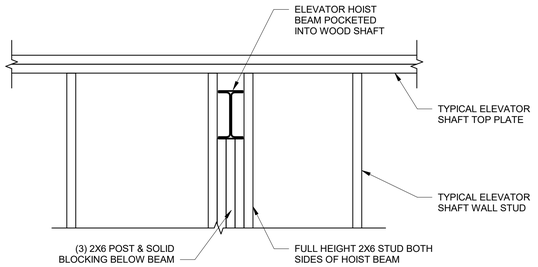
8 S550 SECTION AT ELEVATOR ROOF
1" = 1'-0"



9 S550 SECTION AT ELEVATOR ROOF
1" = 1'-0"



10 S550 SECTION AT ELEVATOR ROOF
1" = 1'-0"



11 S550 TYPICAL ELEVATOR HOIST BEAM ELEVATION
1" = 1'-0"

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REVISIONS:

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

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

STATE OF MISSOURI
CELESTE KAY BLUCKER
NUMBER PE-2008022213
PROFESSIONAL ENGINEER

11/27/2024

DISCOVERY PARK - LOT #9 - A

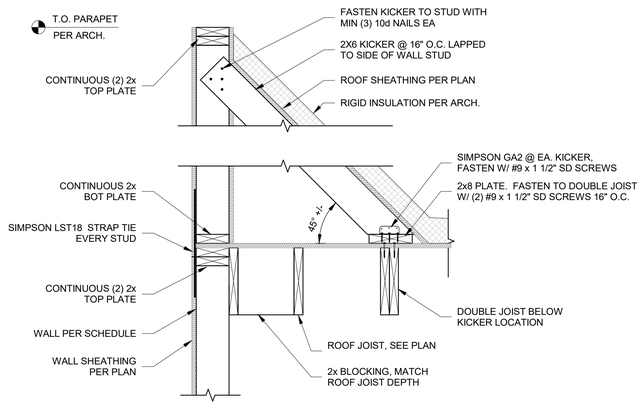
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
FRAMING DETAILS

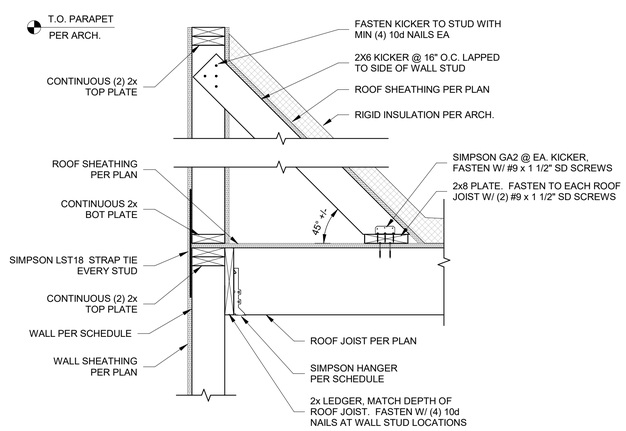
PROJECT NUMBER: 2023000333

SHEET NUMBER:

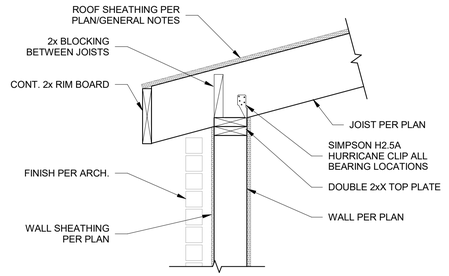
S550



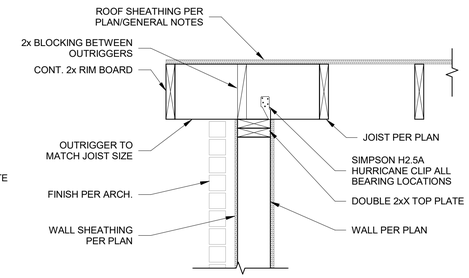
1 S551 FRAMING AT EXTERIOR WALL AT ROOF
1" = 1'-0"



2 S551 ROOF JOIST BEARING AT MAINTENANCE ROOM
1" = 1'-0"



3 S551 ROOF JOIST PARALLEL AT MAINTENANCE ROOM
1" = 1'-0"



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Columbia, MO 65203
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MISSOURI CERTIFICATE OF AUTHORITY
NO. E-2006023253
EXPIRES: DECEMBER 31, 2024

11/27/2024

DISCOVERY PARK - LOT #9 - A

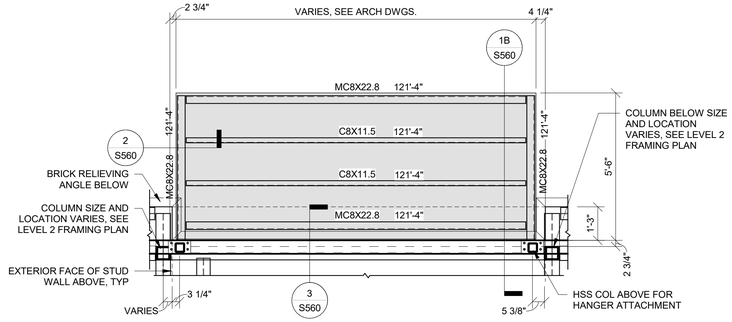
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
FRAMING DETAILS

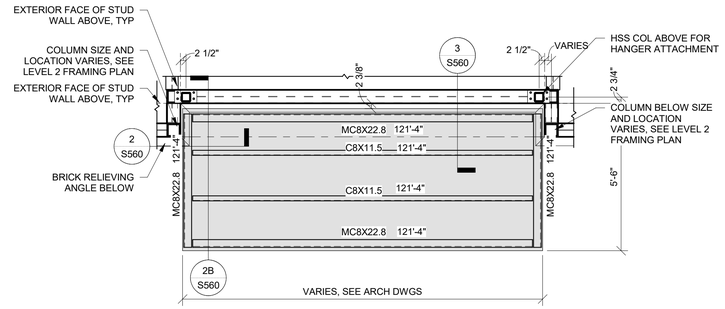
PROJECT NUMBER: 2023000333

SHEET NUMBER:

S551



1A S560 TYPICAL BALCONY - LEVEL 2 - ZONE B
3/8" = 1'-0"



2A S560 TYPICAL BALCONY - LEVEL 2 - ZONE A
3/8" = 1'-0"

1B S560 BALCONY SECTION - LEVEL 2 ZONE B
1" = 1'-0"

2B S560 BALCONY SECTION - LEVEL 2 ZONE A
1" = 1'-0"

2 S560 BALCONY EDGE SECTION
1" = 1'-0"

3 S560 BALCONY SECTION AT DOOR THRESHHOLD - LEVEL 2
1" = 1'-0"

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

STATE OF MISSOURI
CELESTE KAY SICKERT
NUMBER PE-2008022213
PROFESSIONAL ENGINEER

11/27/2024

DISCOVERY PARK - LOT #9 - A

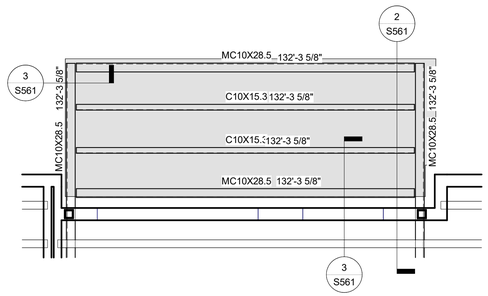
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
TYPICAL BALCONY PLANS & DETAILS - LEVEL 2

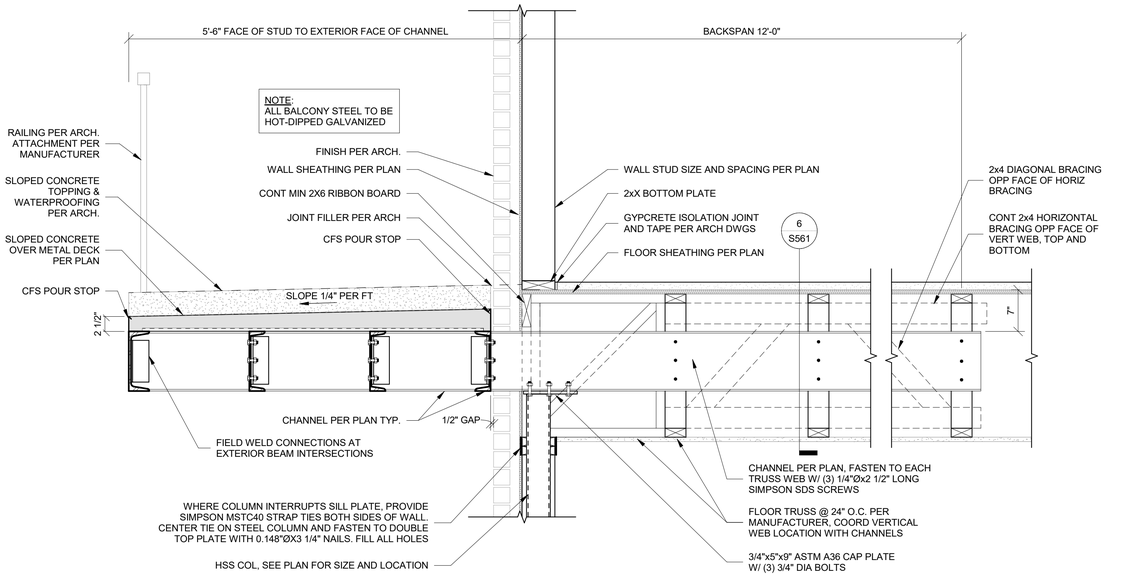
PROJECT NUMBER: 2023000333

SHEET NUMBER:

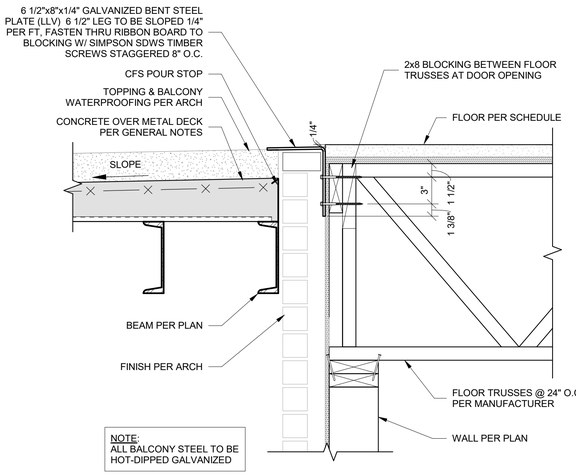
S560



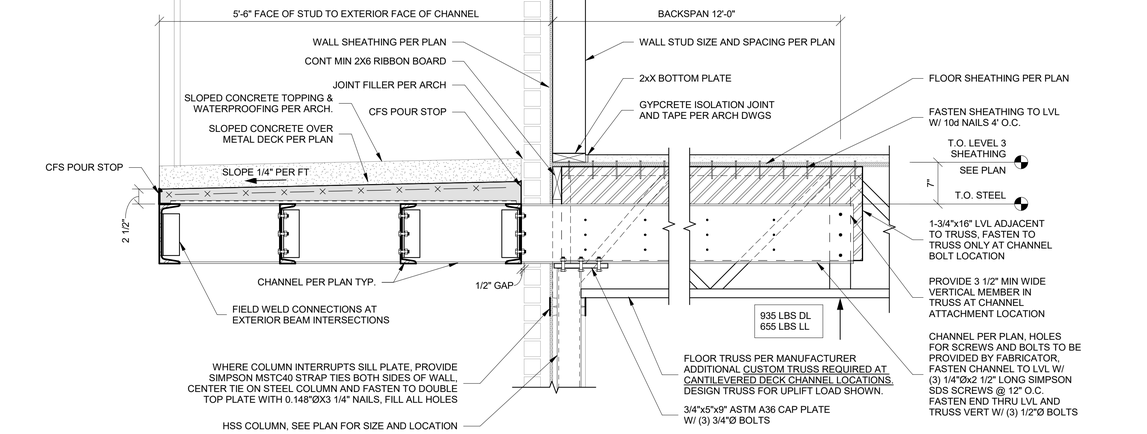
1 S561 TYPICAL BALCONY AT LEVEL 3
3/8" = 1'-0"



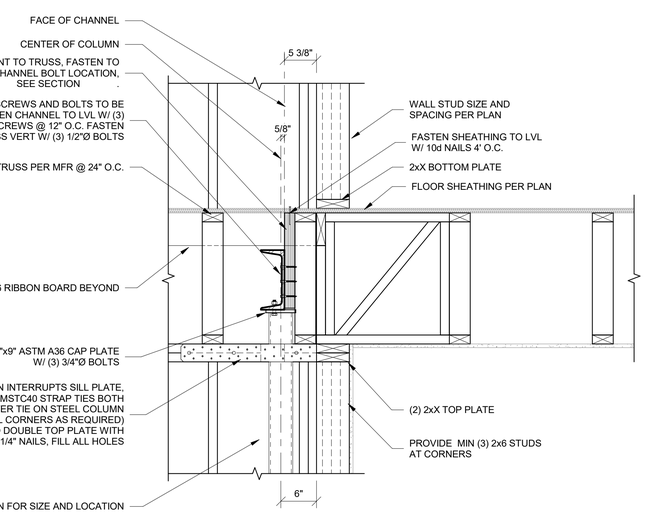
2 S561 BALCONY FRAMING SECTION AT CHANNEL - LEVEL 3
1" = 1'-0"



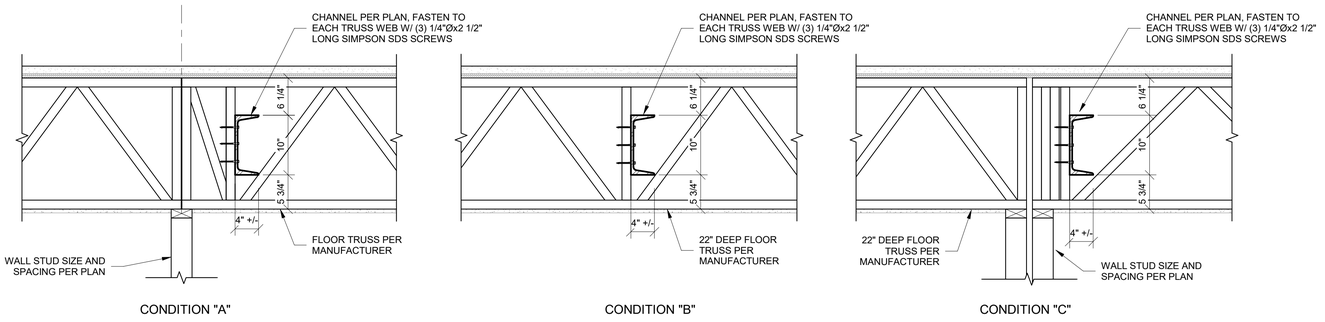
3 S561 BALCONY SECTION AT DOOR THRESHOLD - LEVEL 3
1 1/2" = 1'-0"



4 S561 BALCONY FRAMING SECTION - AT CHANNEL
1" = 1'-0"



5 S561 BALCONY FRAMING SECTION - CHANNEL BEARING ON COLUMN
1" = 1'-0"



6 S561 BALCONY BEAM PERPENDICULAR TO TRUSS CONNECTION
1" = 1'-0"

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

STATE OF MISSOURI
CELESTE KAY SICKERT
NUMBER PE-2008022213
PROFESSIONAL ENGINEER
11/27/2024

DISCOVERY PARK - LOT #9 - A

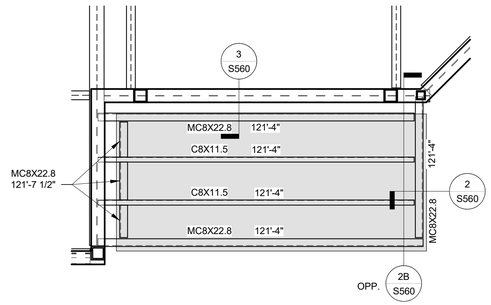
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
TYPICAL BALCONY PLANS & DETAILS - LEVEL 3

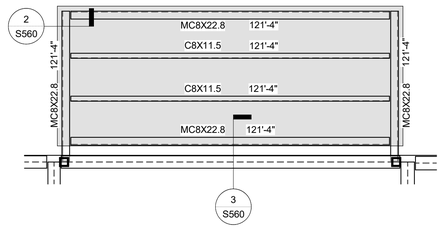
PROJECT NUMBER: 2023000333

SHEET NUMBER:

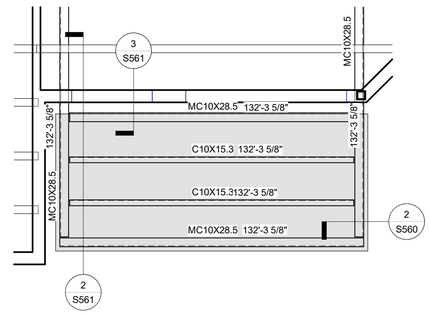
S561



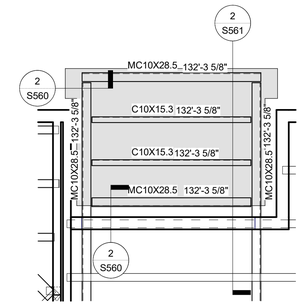
1 S562 NON-TYPICAL BALCONY AT LEVEL 2 - ZONE A
3/8" = 1'-0"



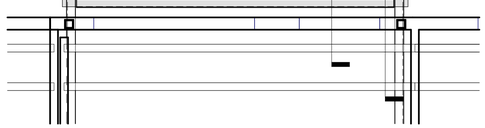
2 S562 NON-TYPICAL BALCONY AT LEVEL 2 NEAR INTERSECTION OF GRIDS 10-G.6
3/8" = 1'-0"



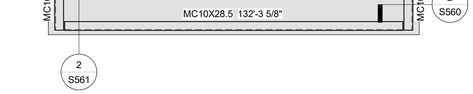
3 S562 NON-TYPICAL BALCONY AT LEVEL 3 - ZONE A
3/8" = 1'-0"



4 S562 NON-TYPICAL BALCONY AT LEVEL 3 NEAR INTERSECTION OF GRIDS 1-F.1
3/8" = 1'-0"



5 S562 NON-TYPICAL BALCONY AT LEVEL 3 NEAR INTERSECTION OF GRIDS 9.9-G.6
3/8" = 1'-0"



6 S562 NON-TYPICAL BALCONY AT LEVEL 3 NEAR INTERSECTION OF GRIDS 9.9-B
3/8" = 1'-0"

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MISSOURI CERTIFICATE OF AUTHORITY
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STATE OF MISSOURI
CELESTE KAY SACKETT
NUMBER PE-2008022213
PROFESSIONAL ENGINEER
11/27/2024

DISCOVERY PARK - LOT #9 - A

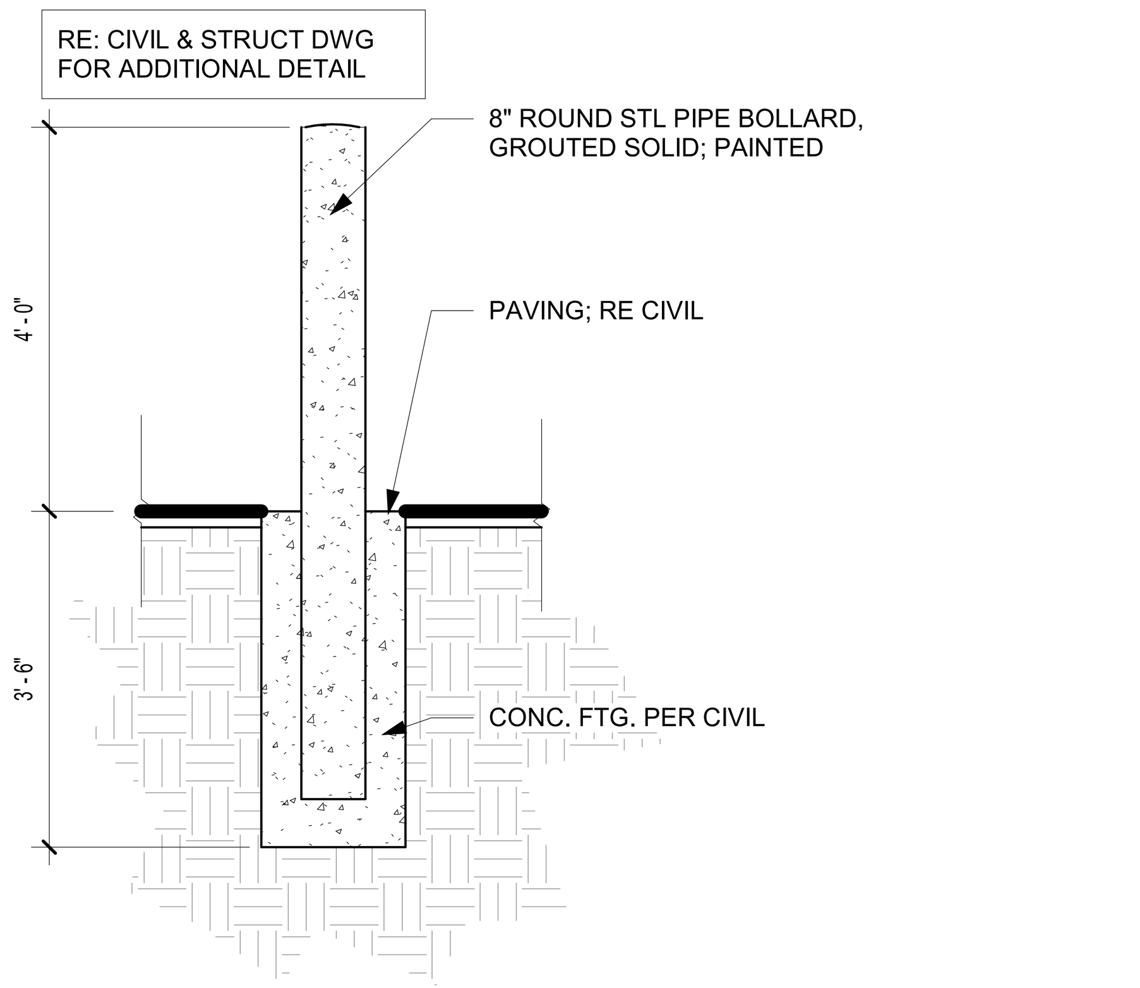
200 NE ALURA WAY
LEE'S SUMMIT, MO 64064

SHEET TITLE
ADDITIONAL BALCONY PLANS

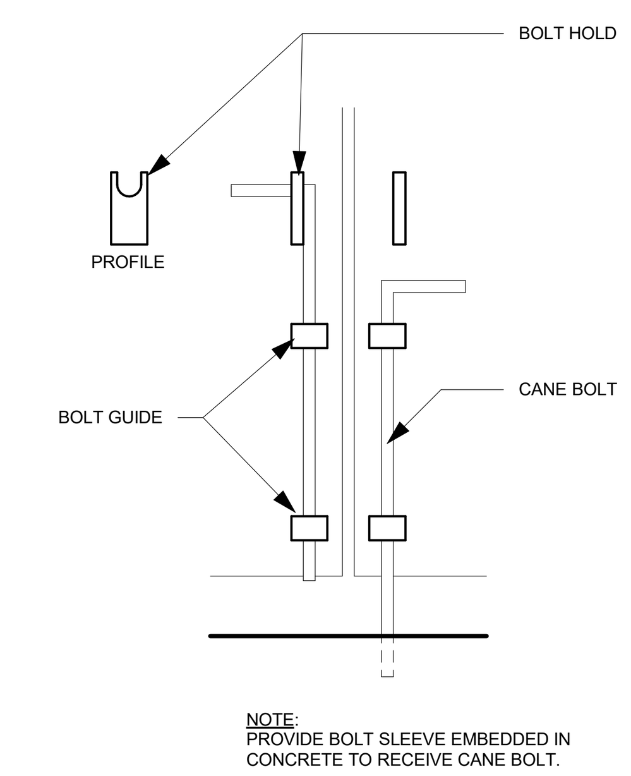
PROJECT NUMBER: 2023000333

SHEET NUMBER:

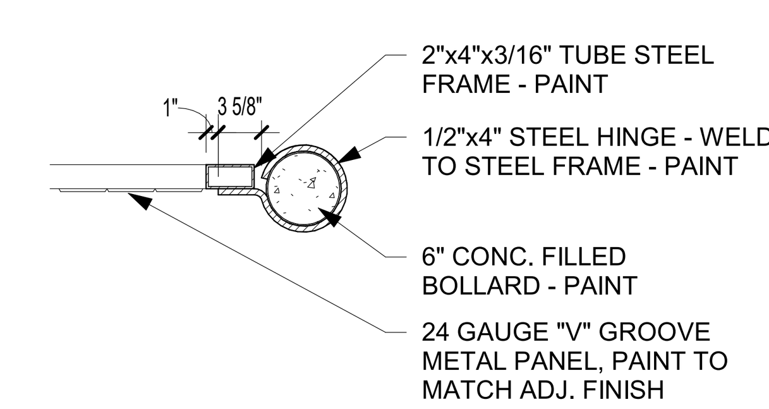
S562



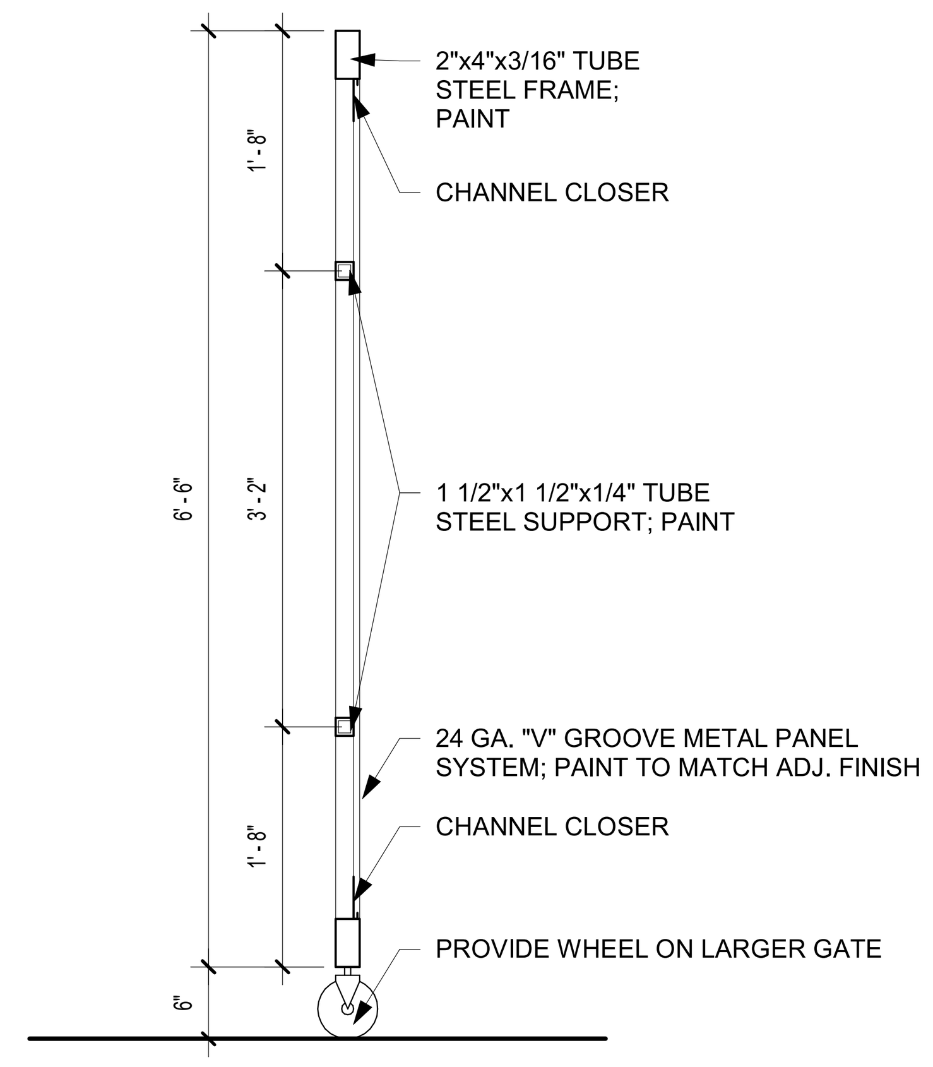
B3 SITE - BOLLARD - STEEL
1/2" = 1'-0"



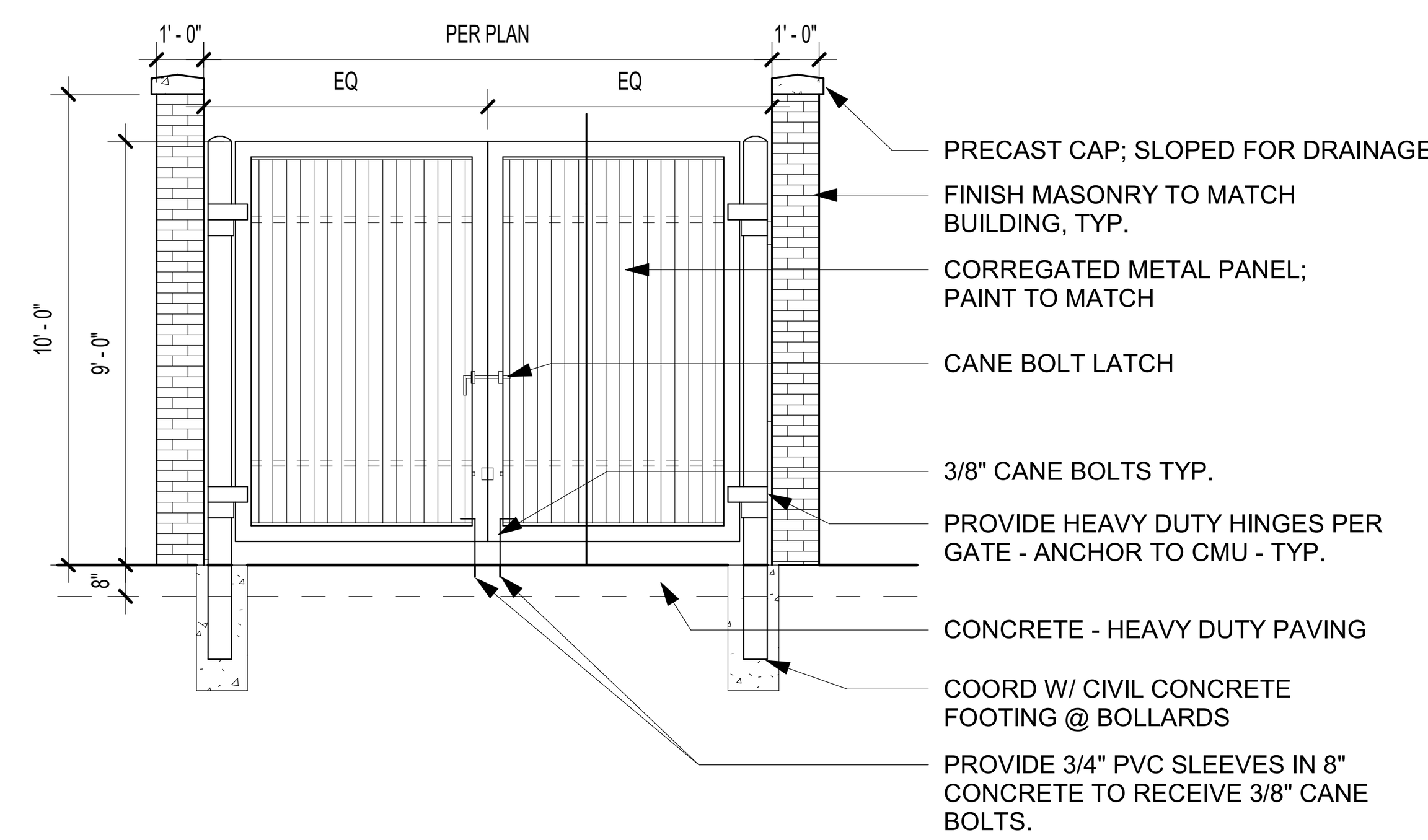
A4 SITE - CANE BOLT DETAIL
3" = 1'-0"



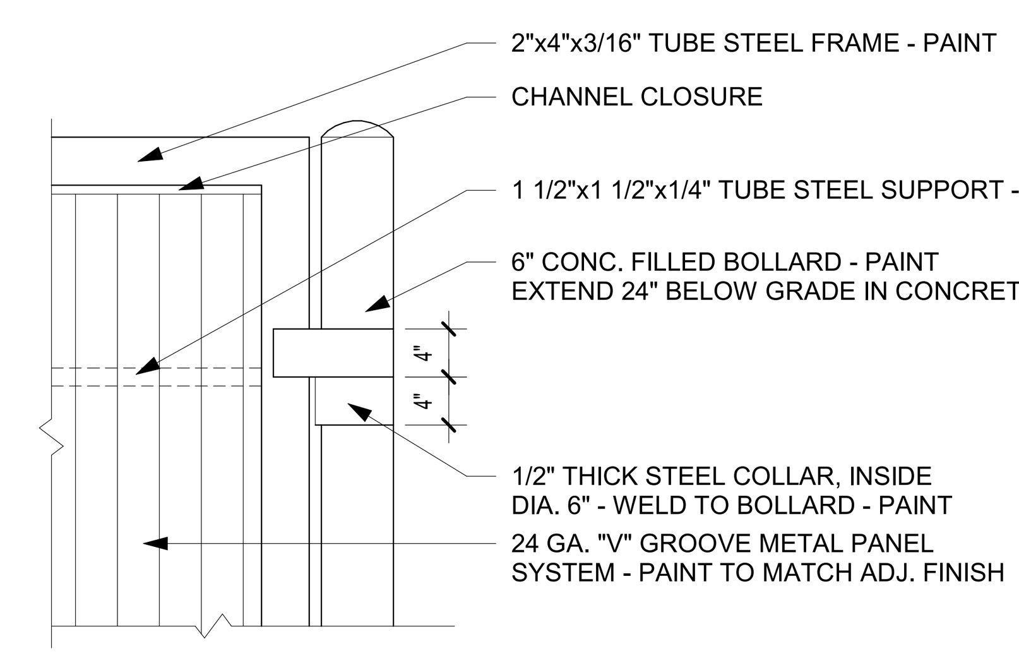
A3 TRASH GATE CROSS SECTION
3/4" = 1'-0"



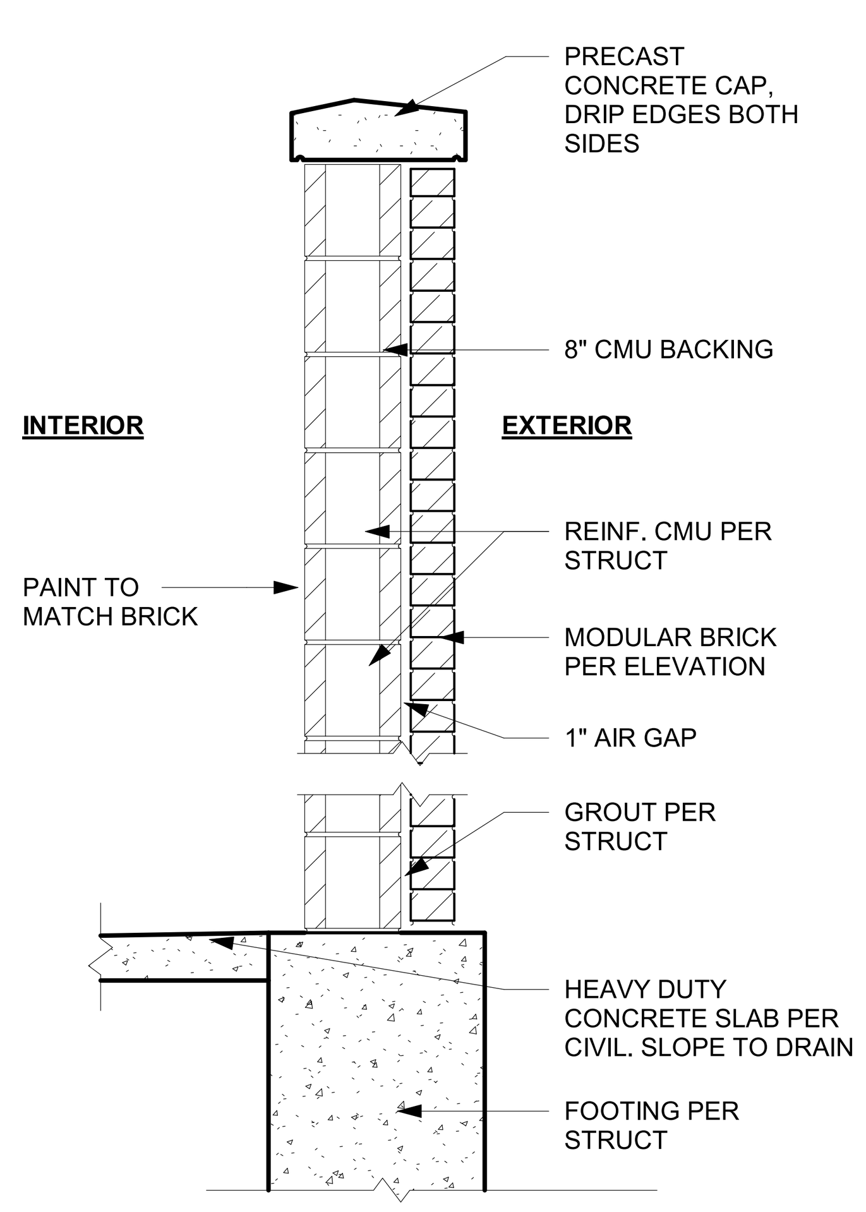
C2 TRASH GATE SECTION
3/4" = 1'-0"



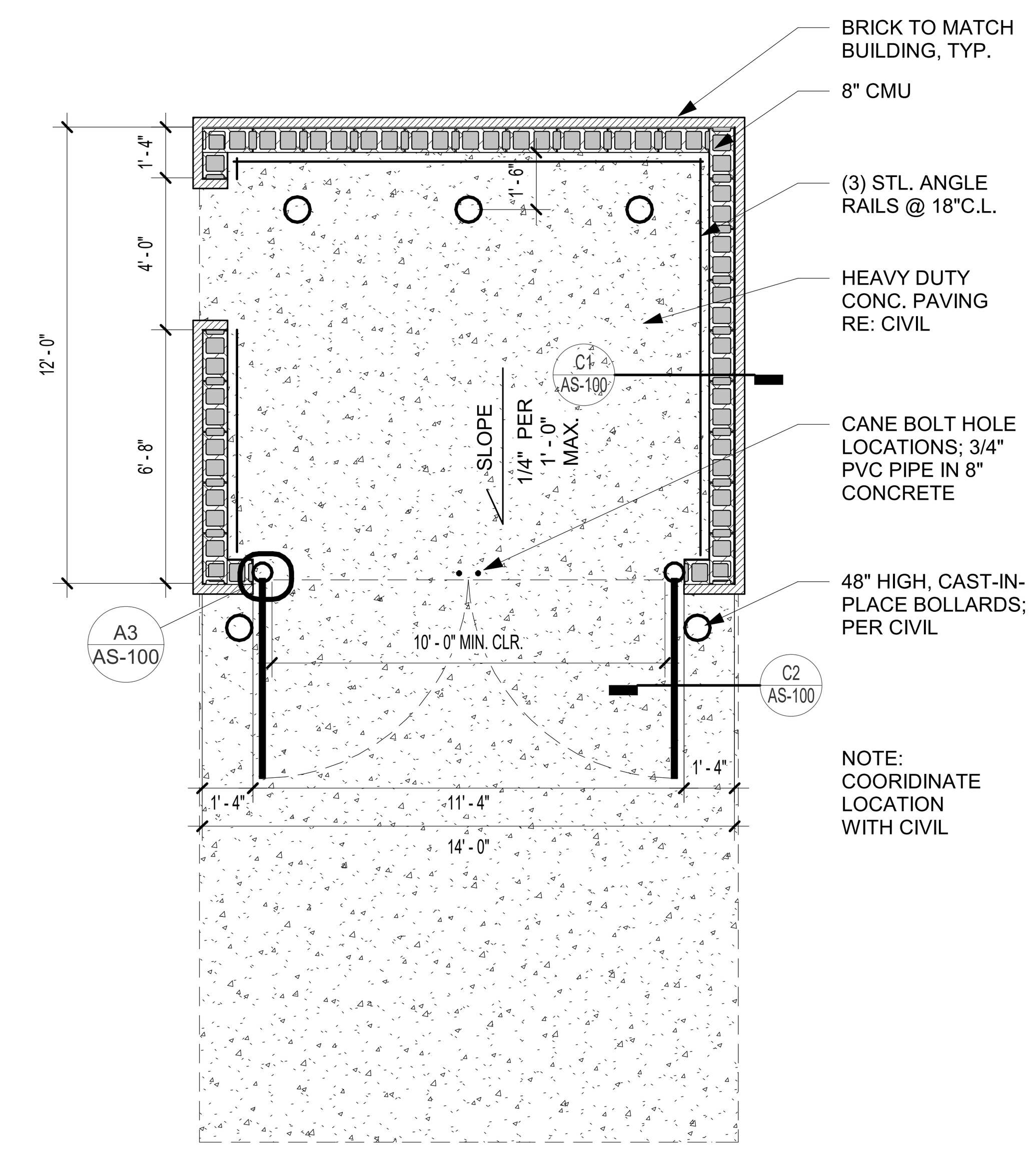
B2 ENCLOSURE FRONT ELEVATION
1/4" = 1'-0"



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



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



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

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11/27/2024 - CITY SUBMISSION

REVISIONS:

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

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
ARCHITECTURAL SITE AMENITIES

PROJECT NUMBER: 24017

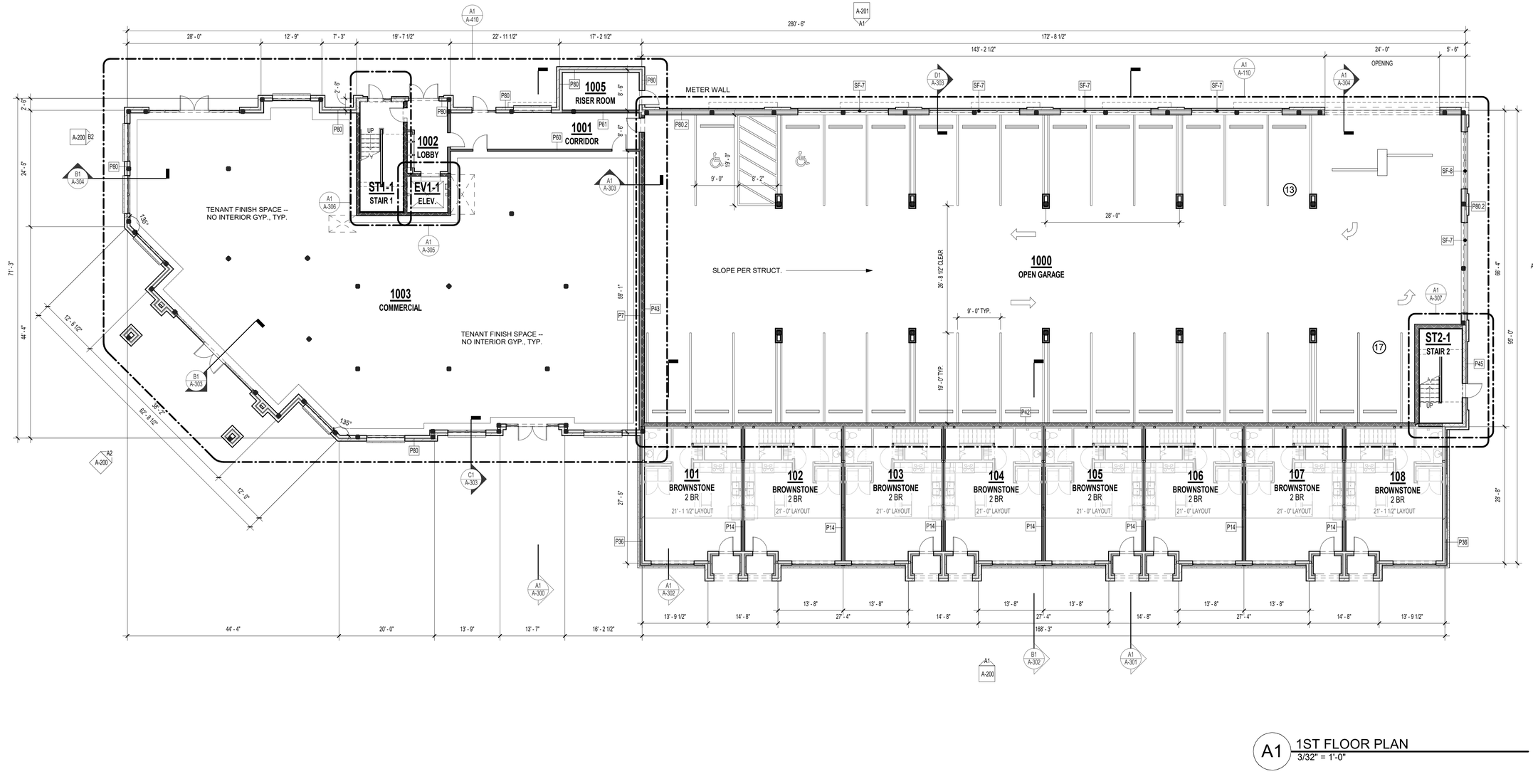
SHEET NUMBER:

AS-100

REFERENCE G-003 FOR GENERAL NOTES

PLAN LEGEND

- PARTIAL HEIGHT PARTITION
- NON-RATED PARTITION; SEE ASSEMBLIES G-100s
- 1 HR RATED PARTITION; SEE ASSEMBLIES G-100s
- 2 HR RATED PARTITION; SEE ASSEMBLIES G-100s
- A1 — WINDOW TYPE; SEE WINDOW SCHEDULE ON SHEET A-600
- 101 — DOOR TYPE; SEE DOOR SCHEDULE ON SHEET A-600
- P7 — PARTITION TYPE; SEE ASSEMBLIES G-100s
- 6' - 0" — FRAMING DIMENSIONS
- 6' - 0" LAYOUT — LAYOUT LINE DIMENSIONS
- HEARING/VISIBILITY
- ADA/ACCESSIBLE UNITS



A1 1ST FLOOR PLAN
3/32" = 1'-0"

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REVISIONS:

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSEN
NUMBER A-7365
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
FIRST FLOOR PLAN

PROJECT NUMBER: 24017

SHEET NUMBER:

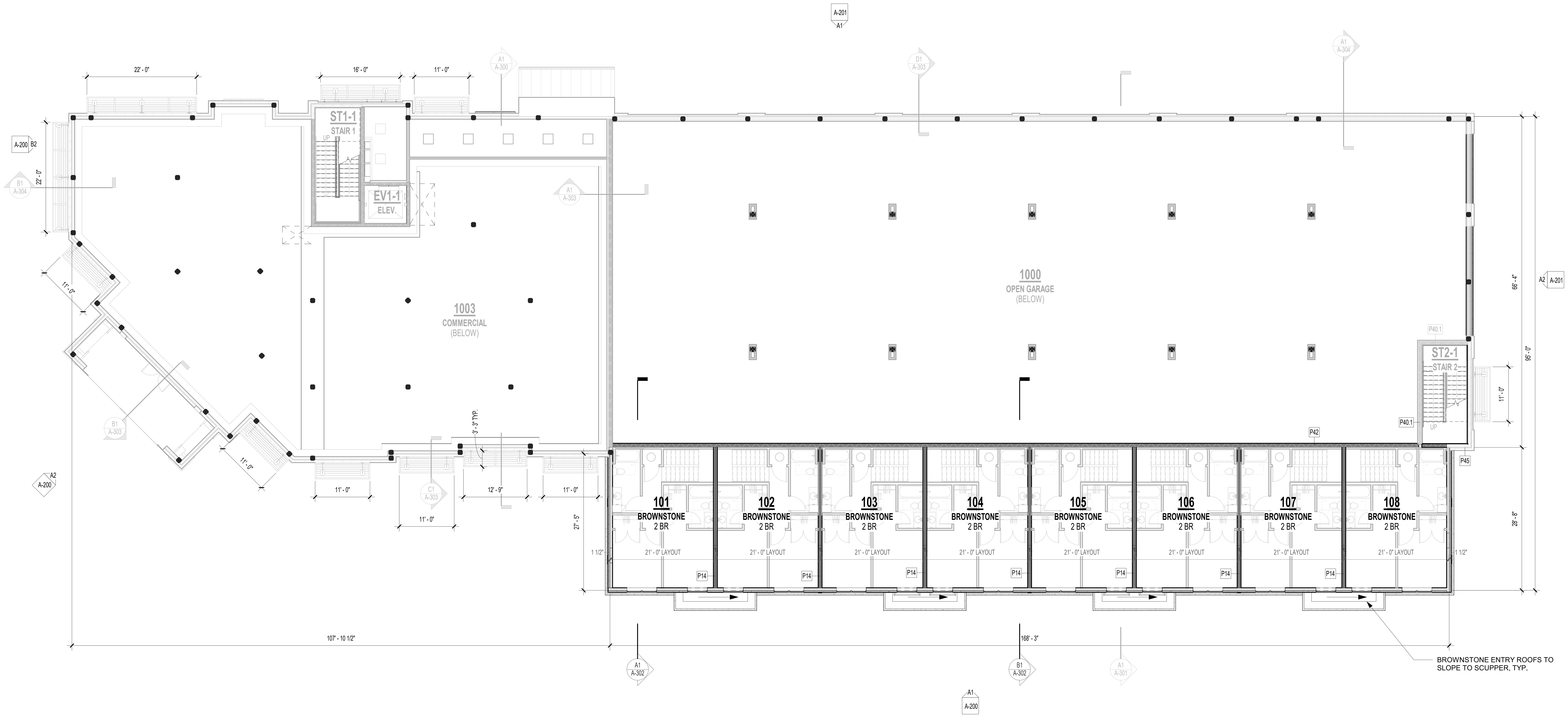
A-101

11/27/2024 9:05:57 AM
C:\Revit Local Files\24017_DPLS_LOT9_BLDGA_dhendriksen.rvt

REFERENCE G-003 FOR GENERAL NOTES

PLAN LEGEND

- PARTIAL HEIGHT PARTITION
- NON-RATED PARTITION; SEE ASSEMBLIES G-100s
- 1 HR RATED PARTITION; SEE ASSEMBLIES G-100s
- 2 HR RATED PARTITION; SEE ASSEMBLIES G-100s
- A1 — WINDOW TYPE; SEE WINDOW SCHEDULE ON SHEET A-600
- 101 — DOOR TYPE; SEE DOOR SCHEDULE ON SHEET A-600
- P7 — PARTITION TYPE; SEE ASSEMBLIES G-100s
- 6' - 0" — FRAMING DIMENSIONS
- 6' - 0" LAYOUT — LAYOUT LINE DIMENSIONS
- HEARING/VISIBILITY
- ADA/ACCESSIBLE UNITS



A1 SECOND FLOOR BROWNSTONES PLAN
3/32" = 1'-0"

PRINTS ISSUED
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REVISIONS:

rosemann & ASSOCIATES P.C.
ARCHITECTURE
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Kansas City, MO 64108-1404
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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
LICENSED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
SECOND FLOOR BROWNSTONES PLAN

PROJECT NUMBER: 24017

SHEET NUMBER:

A-102

Zone 11

Item	Calculation	Value	Status
AREA TO BE VENTED		**1120 S.F.**	
VENTING CALCULATION FACTOR PER **2018** IBC		300	
TOTAL REQUIRED VENTING	= (1120 S.F. x 144) / 300 =	**538 SQ.IN.**	
HIGH ROOF VENTING	= 538 SQ.IN. x **1** =	538 SQ.IN.	
LOW ROOF VENTING	= 538 SQ.IN. x **0** =	0 SQ.IN.	
HIGH ROOF VENTING		**538 SQ.IN.**	**REQUIRED**
PROVIDED HIGH ROOF VENTING		**762 SQ.IN.**	**PROVIDED**
(2) Intake Vent	@ 254 NFA =	508 SQ.IN./FT NFA	
(1) Exhaust Vent	@ 254 NFA =	254 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED		**762 SQ.IN.**	**PROVIDED**

Zone 12

Item	Calculation	Value	Status
AREA TO BE VENTED		**1145 S.F.**	
VENTING CALCULATION FACTOR PER **2018** IBC		300	
TOTAL REQUIRED VENTING	= (1145 S.F. x 144) / 300 =	**550 SQ.IN.**	
HIGH ROOF VENTING	= 550 SQ.IN. x **1** =	550 SQ.IN.	
LOW ROOF VENTING	= 550 SQ.IN. x **0** =	0 SQ.IN.	
HIGH ROOF VENTING		**550 SQ.IN.**	**REQUIRED**
PROVIDED HIGH ROOF VENTING		**762 SQ.IN.**	**PROVIDED**
(2) Intake Vent	@ 254 NFA =	508 SQ.IN./FT NFA	
(1) Exhaust Vent	@ 254 NFA =	254 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED		**762 SQ.IN.**	**PROVIDED**

Zone 13

Item	Calculation	Value	Status
AREA TO BE VENTED		**1131 S.F.**	
VENTING CALCULATION FACTOR PER **2018** IBC		300	
TOTAL REQUIRED VENTING	= (1131 S.F. x 144) / 300 =	**543 SQ.IN.**	
HIGH ROOF VENTING	= 543 SQ.IN. x **1** =	543 SQ.IN.	
LOW ROOF VENTING	= 543 SQ.IN. x **0** =	0 SQ.IN.	
HIGH ROOF VENTING		**543 SQ.IN.**	**REQUIRED**
PROVIDED HIGH ROOF VENTING		**762 SQ.IN.**	**PROVIDED**
(1) Intake Vent	@ 254 NFA =	254 SQ.IN./FT NFA	
(2) Exhaust Vent	@ 254 NFA =	508 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED		**762 SQ.IN.**	**PROVIDED**

Zone 14

Item	Calculation	Value	Status
AREA TO BE VENTED		**1136 S.F.**	
VENTING CALCULATION FACTOR PER **2018** IBC		300	
TOTAL REQUIRED VENTING	= (1136 S.F. x 144) / 300 =	**545 SQ.IN.**	
HIGH ROOF VENTING	= 545 SQ.IN. x **1** =	545 SQ.IN.	
LOW ROOF VENTING	= 545 SQ.IN. x **0** =	0 SQ.IN.	
HIGH ROOF VENTING		**545 SQ.IN.**	**REQUIRED**
PROVIDED HIGH ROOF VENTING		**762 SQ.IN.**	**PROVIDED**
(2) Intake Vent	@ 254 NFA =	508 SQ.IN./FT NFA	
(1) Exhaust Vent	@ 254 NFA =	254 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED		**762 SQ.IN.**	**PROVIDED**

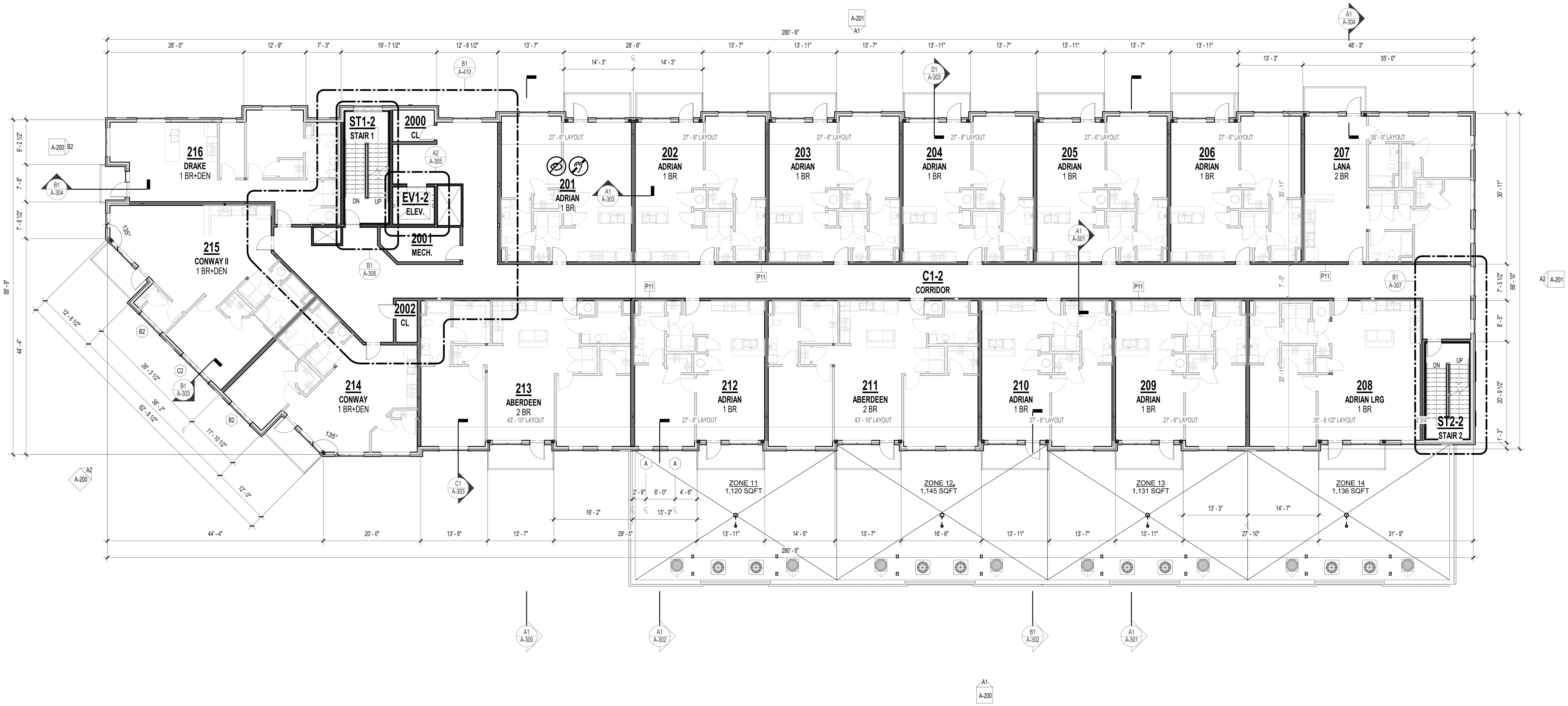
REFERENCE G-003 FOR GENERAL NOTES

PLAN LEGEND

- PARTIAL HEIGHT PARTITION
- NON-RATED PARTITION; SEE ASSEMBLIES G-100s
- 1 HR RATED PARTITION; SEE ASSEMBLIES G-100s
- 2 HR RATED PARTITION; SEE ASSEMBLIES G-100s
- A1 — WINDOW TYPE; SEE WINDOW SCHEDULE ON SHEET A-600
- 101 — DOOR TYPE; SEE DOOR SCHEDULE ON SHEET A-600
- P7 — PARTITION TYPE; SEE ASSEMBLIES G-100s
- 6' - 0" — FRAMING DIMENSIONS
- 6' - 0" LAYOUT — LAYOUT LINE DIMENSIONS
- HEARING/VISIBILITY
- ADA/ACCESSIBLE UNITS

ROOF PLAN LEGEND

- LINE OF DRAFTSTOPPING BELOW
- OD / RD — ROOF DRAIN WITH OVERFLOW DRAIN



A1 SECOND FLOOR PLAN
3/32" = 1'-0"

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REVISIONS:

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ENGINEERING
PLANNING
1526 Grand Boulevard
Kansas City, MO 64108-1404
p: 816.472.1448
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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
SECOND FLOOR PLAN

PROJECT NUMBER: 24017

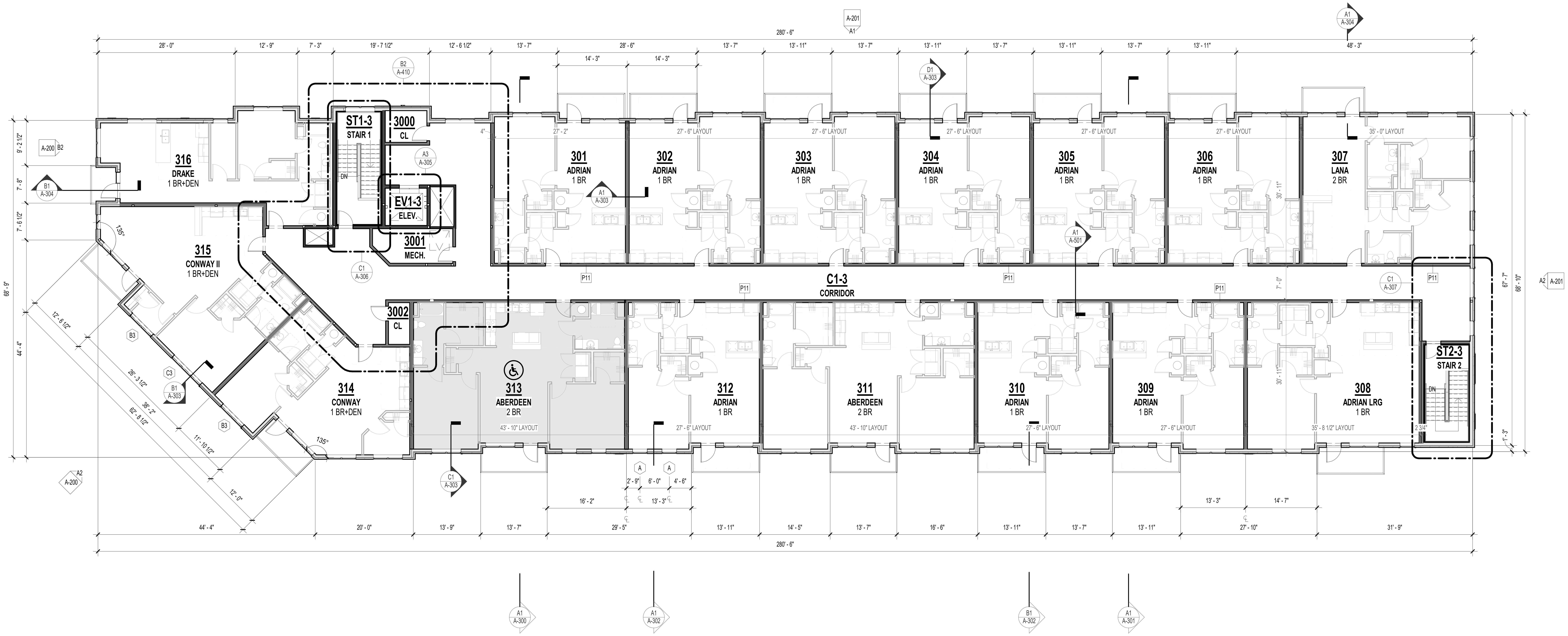
SHEET NUMBER:

A-103

REFERENCE G-003 FOR GENERAL NOTES

PLAN LEGEND

- PARTIAL HEIGHT PARTITION
- NON-RATED PARTITION; SEE ASSEMBLIES G-100s
- 1 HR RATED PARTITION; SEE ASSEMBLIES G-100s
- 2 HR RATED PARTITION; SEE ASSEMBLIES G-100s
- A1 — WINDOW TYPE; SEE WINDOW SCHEDULE ON SHEET A-600
- 101 — DOOR TYPE; SEE DOOR SCHEDULE ON SHEET A-600
- P7 — PARTITION TYPE; SEE ASSEMBLIES G-100s
- 6' - 0" — FRAMING DIMENSIONS
- 6' - 0" LAYOUT — LAYOUT LINE DIMENSIONS
- HEARING/VISIBILITY
- ADA/ACCESSIBLE UNITS



A1 THIRD FLOOR PLAN
3/32" = 1'-0"

PRINTS ISSUED
11/27/2024 - CITY SUBMISSION

REVISIONS:

rosemann & ASSOCIATES P.C.
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STATE OF MISSOURI — DAVID EUGENE HENDRIKSE — NUMBER A-7365 — REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
THIRD FLOOR PLAN

PROJECT NUMBER: 24017

SHEET NUMBER:

A-104

Zone 1				
AREA TO BE VENTED			2300 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC			300	
TOTAL REQUIRED VENTING	=	(2300 S.F. x 144) / 300 =	1104 SQ.IN.	
HIGH ROOF VENTING	=	1104 SQ.IN. x 1 =	1104 SQ.IN.	
LOW ROOF VENTING	=	1104 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING			1104 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING			1270 SQ.IN.	PROVIDED
(3) Intake Vent	@	254 NFA =	762 SQ.IN./FT NFA	
(2) Exhaust Vent	@	254 NFA =	508 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			1270 SQ.IN.	PROVIDED

Zone 2				
AREA TO BE VENTED			2171 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC			300	
TOTAL REQUIRED VENTING	=	(2171 S.F. x 144) / 300 =	1042 SQ.IN.	
HIGH ROOF VENTING	=	1042 SQ.IN. x 1 =	1042 SQ.IN.	
LOW ROOF VENTING	=	1042 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING			1042 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING			1270 SQ.IN.	PROVIDED
(2) Intake Vent	@	254 NFA =	508 SQ.IN./FT NFA	
(3) Exhaust Vent	@	254 NFA =	762 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			1270 SQ.IN.	PROVIDED

Zone 3				
AREA TO BE VENTED			2019 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC			300	
TOTAL REQUIRED VENTING	=	(2019 S.F. x 144) / 300 =	969 SQ.IN.	
HIGH ROOF VENTING	=	969 SQ.IN. x 1 =	969 SQ.IN.	
LOW ROOF VENTING	=	969 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING			969 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING			1016 SQ.IN.	PROVIDED
(2) Intake Vent	@	254 NFA =	508 SQ.IN./FT NFA	
(2) Exhaust Vent	@	254 NFA =	508 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			1016 SQ.IN.	PROVIDED

Zone 4				
AREA TO BE VENTED			2131 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC			300	
TOTAL REQUIRED VENTING	=	(2131 S.F. x 144) / 300 =	1023 SQ.IN.	
HIGH ROOF VENTING	=	1023 SQ.IN. x 1 =	1023 SQ.IN.	
LOW ROOF VENTING	=	1023 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING			1023 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING			1270 SQ.IN.	PROVIDED
(3) Intake Vent	@	254 NFA =	762 SQ.IN./FT NFA	
(2) Exhaust Vent	@	254 NFA =	508 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			1270 SQ.IN.	PROVIDED

Zone 5				
AREA TO BE VENTED			2019 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC			300	
TOTAL REQUIRED VENTING	=	(2019 S.F. x 144) / 300 =	969 SQ.IN.	
HIGH ROOF VENTING	=	969 SQ.IN. x 1 =	969 SQ.IN.	
LOW ROOF VENTING	=	969 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING			969 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING			1016 SQ.IN.	PROVIDED
(2) Intake Vent	@	254 NFA =	508 SQ.IN./FT NFA	
(2) Exhaust Vent	@	254 NFA =	508 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			1016 SQ.IN.	PROVIDED

Zone 6				
AREA TO BE VENTED			2132 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC			300	
TOTAL REQUIRED VENTING	=	(2132 S.F. x 144) / 300 =	1023 SQ.IN.	
HIGH ROOF VENTING	=	1023 SQ.IN. x 1 =	1023 SQ.IN.	
LOW ROOF VENTING	=	1023 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING			1023 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING			1270 SQ.IN.	PROVIDED
(3) Intake Vent	@	254 NFA =	762 SQ.IN./FT NFA	
(2) Exhaust Vent	@	254 NFA =	508 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			1270 SQ.IN.	PROVIDED

Zone 7				
AREA TO BE VENTED			1488 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC			300	
TOTAL REQUIRED VENTING	=	(1488 S.F. x 144) / 300 =	714 SQ.IN.	
HIGH ROOF VENTING	=	714 SQ.IN. x 1 =	714 SQ.IN.	
LOW ROOF VENTING	=	714 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING			714 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING			762 SQ.IN.	PROVIDED
(2) Intake Vent	@	254 NFA =	508 SQ.IN./FT NFA	
(1) Exhaust Vent	@	254 NFA =	254 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			762 SQ.IN.	PROVIDED

Zone 8				
AREA TO BE VENTED			1815 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC			300	
TOTAL REQUIRED VENTING	=	(1815 S.F. x 144) / 300 =	871 SQ.IN.	
HIGH ROOF VENTING	=	871 SQ.IN. x 1 =	871 SQ.IN.	
LOW ROOF VENTING	=	871 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING			871 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING			1016 SQ.IN.	PROVIDED
(2) Intake Vent	@	254 NFA =	508 SQ.IN./FT NFA	
(2) Exhaust Vent	@	254 NFA =	508 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			1016 SQ.IN.	PROVIDED

Zone 9				
AREA TO BE VENTED			1810 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC			300	
TOTAL REQUIRED VENTING	=	(1810 S.F. x 144) / 300 =	869 SQ.IN.	
HIGH ROOF VENTING	=	869 SQ.IN. x 1 =	869 SQ.IN.	
LOW ROOF VENTING	=	869 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING			869 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING			1016 SQ.IN.	PROVIDED
(2) Intake Vent	@	254 NFA =	508 SQ.IN./FT NFA	
(2) Exhaust Vent	@	254 NFA =	508 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			1016 SQ.IN.	PROVIDED

Zone 10				
AREA TO BE VENTED			288 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC			300	
TOTAL REQUIRED VENTING	=	(288 S.F. x 144) / 300 =	138 SQ.IN.	
HIGH ROOF VENTING	=	138 SQ.IN. x 1 =	138 SQ.IN.	
LOW ROOF VENTING	=	138 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING			138 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING			254 SQ.IN.	PROVIDED
(1) Intake Vent	@	254 NFA =	254 SQ.IN./FT NFA	
(0) Exhaust Vent	@	254 NFA =	0 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			254 SQ.IN.	PROVIDED

Zone 11				
AREA TO BE VENTED			1120 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC			300	
TOTAL REQUIRED VENTING	=	(1120 S.F. x 144) / 300 =	538 SQ.IN.	
HIGH ROOF VENTING	=	538 SQ.IN. x 1 =	538 SQ.IN.	
LOW ROOF VENTING	=	538 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING			538 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING			762 SQ.IN.	PROVIDED
(2) Intake Vent	@	254 NFA =	508 SQ.IN./FT NFA	
(1) Exhaust Vent	@	254 NFA =	254 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			762 SQ.IN.	PROVIDED

Zone 12				
AREA TO BE VENTED			1145 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC			300	
TOTAL REQUIRED VENTING	=	(1145 S.F. x 144) / 300 =	550 SQ.IN.	
HIGH ROOF VENTING	=	550 SQ.IN. x 1 =	550 SQ.IN.	
LOW ROOF VENTING	=	550 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING			550 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING			762 SQ.IN.	PROVIDED
(2) Intake Vent	@	254 NFA =	508 SQ.IN./FT NFA	
(1) Exhaust Vent	@	254 NFA =	254 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			762 SQ.IN.	PROVIDED

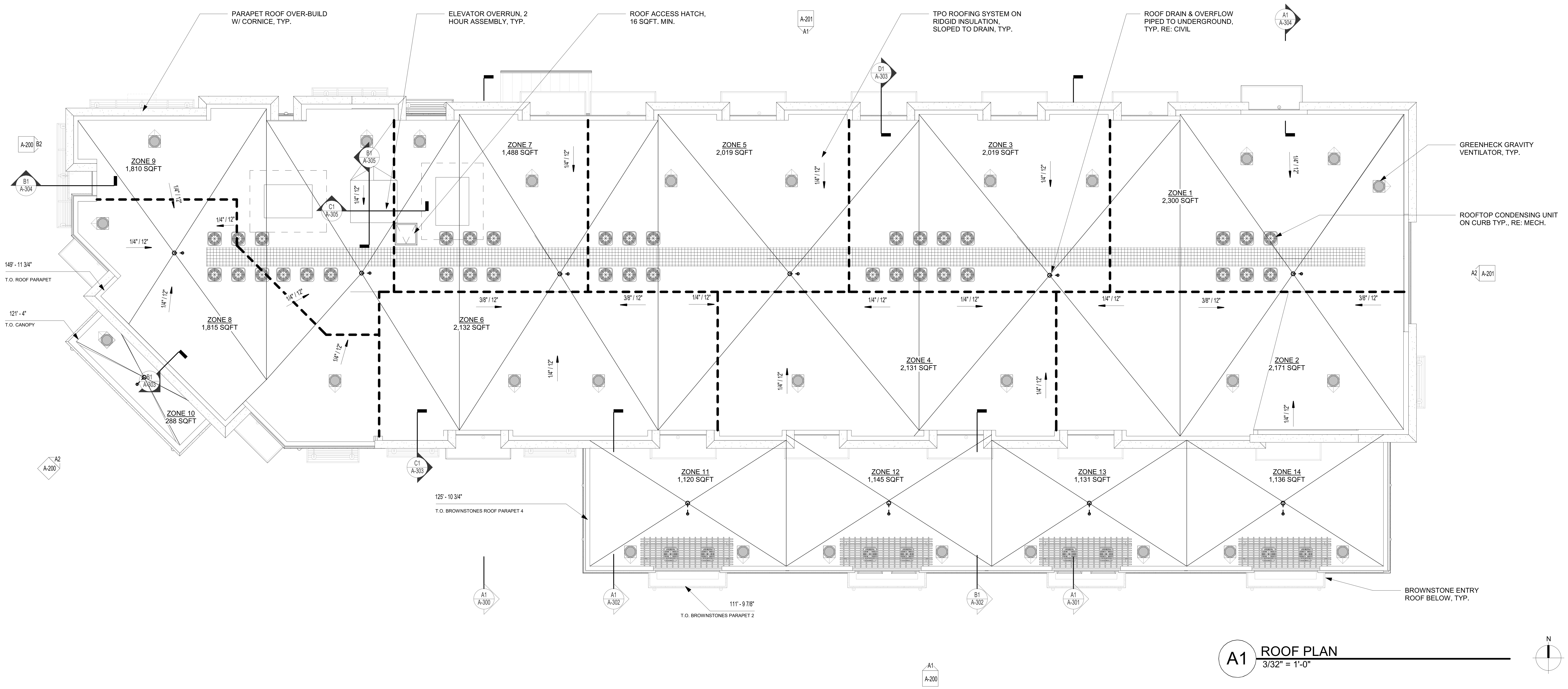
Zone 13				
AREA TO BE VENTED			1131 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC			300	
TOTAL REQUIRED VENTING	=	(1131 S.F. x 144) / 300 =	543 SQ.IN.	
HIGH ROOF VENTING	=	543 SQ.IN. x 1 =	543 SQ.IN.	
LOW ROOF VENTING	=	543 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING			543 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING			762 SQ.IN.	PROVIDED
(1) Intake Vent	@	254 NFA =	254 SQ.IN./FT NFA	
(2) Exhaust Vent	@	254 NFA =	508 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			762 SQ.IN.	PROVIDED

Zone 14				
AREA TO BE VENTED			1136 S.F.	
VENTING CALCULATION FACTOR PER 2018 IBC			300	
TOTAL REQUIRED VENTING	=	(1136 S.F. x 144) / 300 =	545 SQ.IN.	
HIGH ROOF VENTING	=	545 SQ.IN. x 1 =	545 SQ.IN.	
LOW ROOF VENTING	=	545 SQ.IN. x 0 =	0 SQ.IN.	
HIGH ROOF VENTING			545 SQ.IN.	REQUIRED
PROVIDED HIGH ROOF VENTING			762 SQ.IN.	PROVIDED
(2) Intake Vent	@	254 NFA =	508 SQ.IN./FT NFA	
(1) Exhaust Vent	@	254 NFA =	254 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			762 SQ.IN.	PROVIDED

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

ROOF PLAN LEGEND

- LINE OF DRAFTSTOPPING BELOW
- ROOF DRAIN WITH OVERFLOW DRAIN (OD, RD)



A1 ROOF PLAN
3/32" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7385
LICENSED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

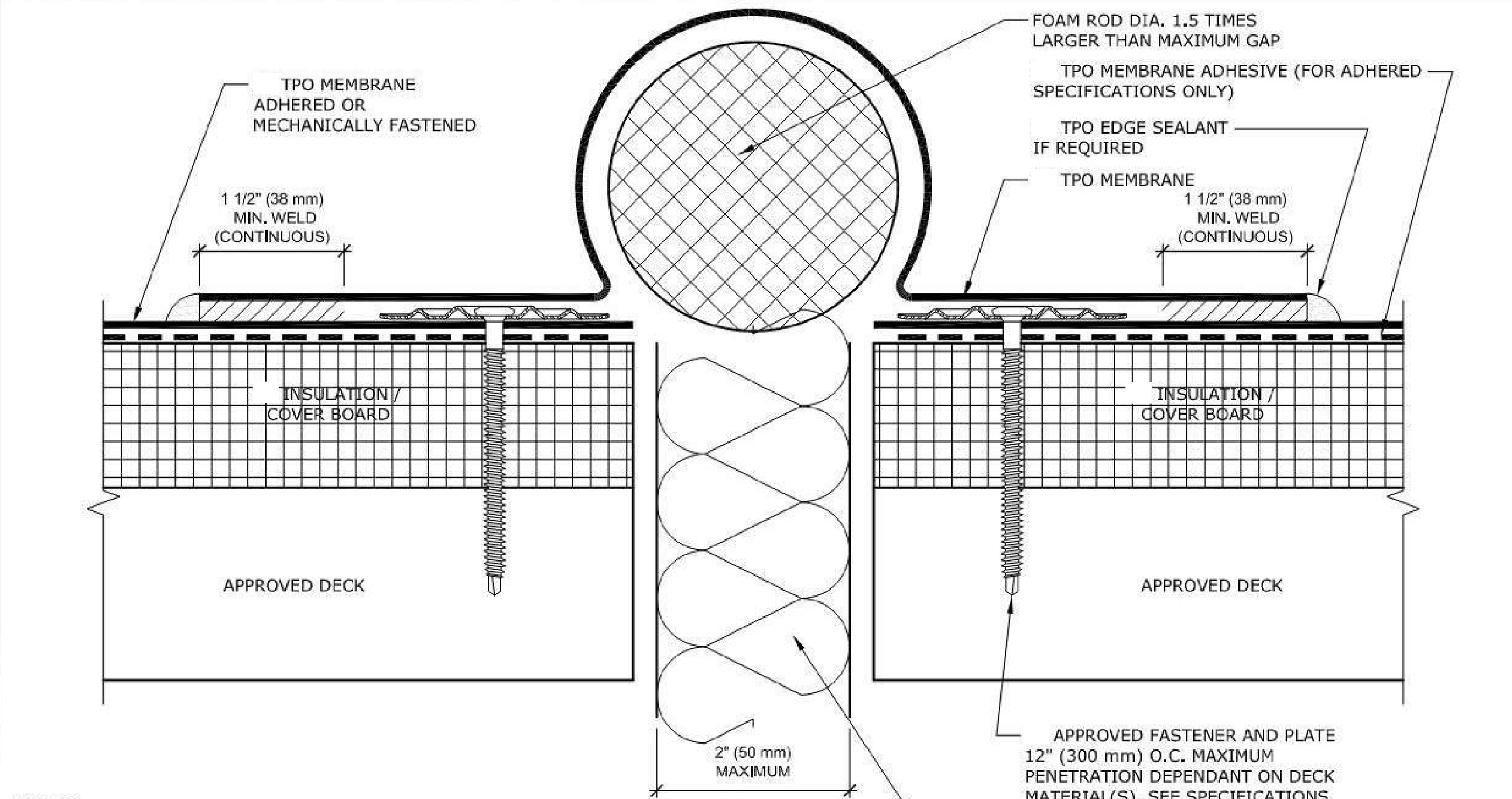
SHEET TITLE
ROOF PLAN

PROJECT NUMBER: 24017

SHEET NUMBER:

A-105

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

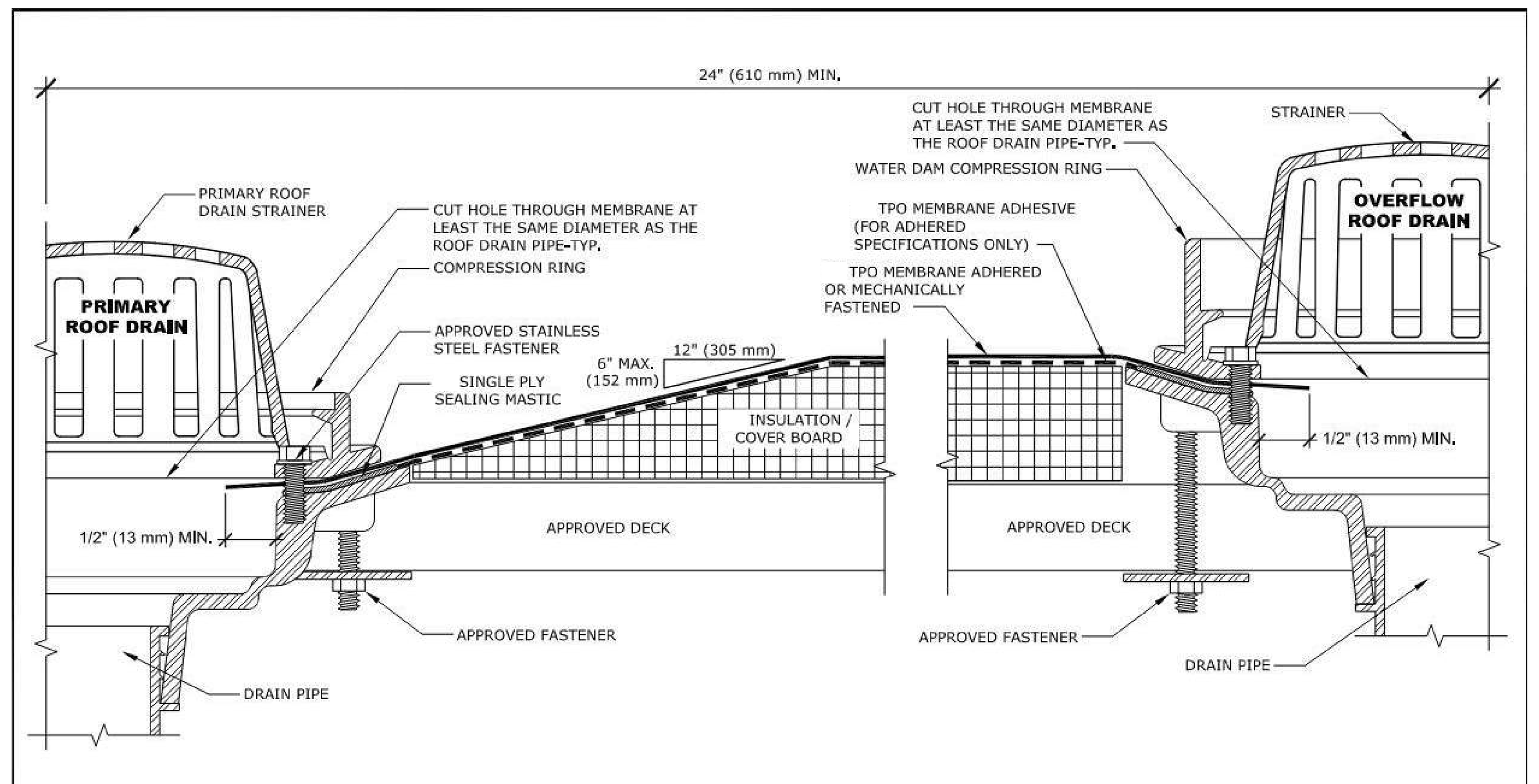


NOTES:

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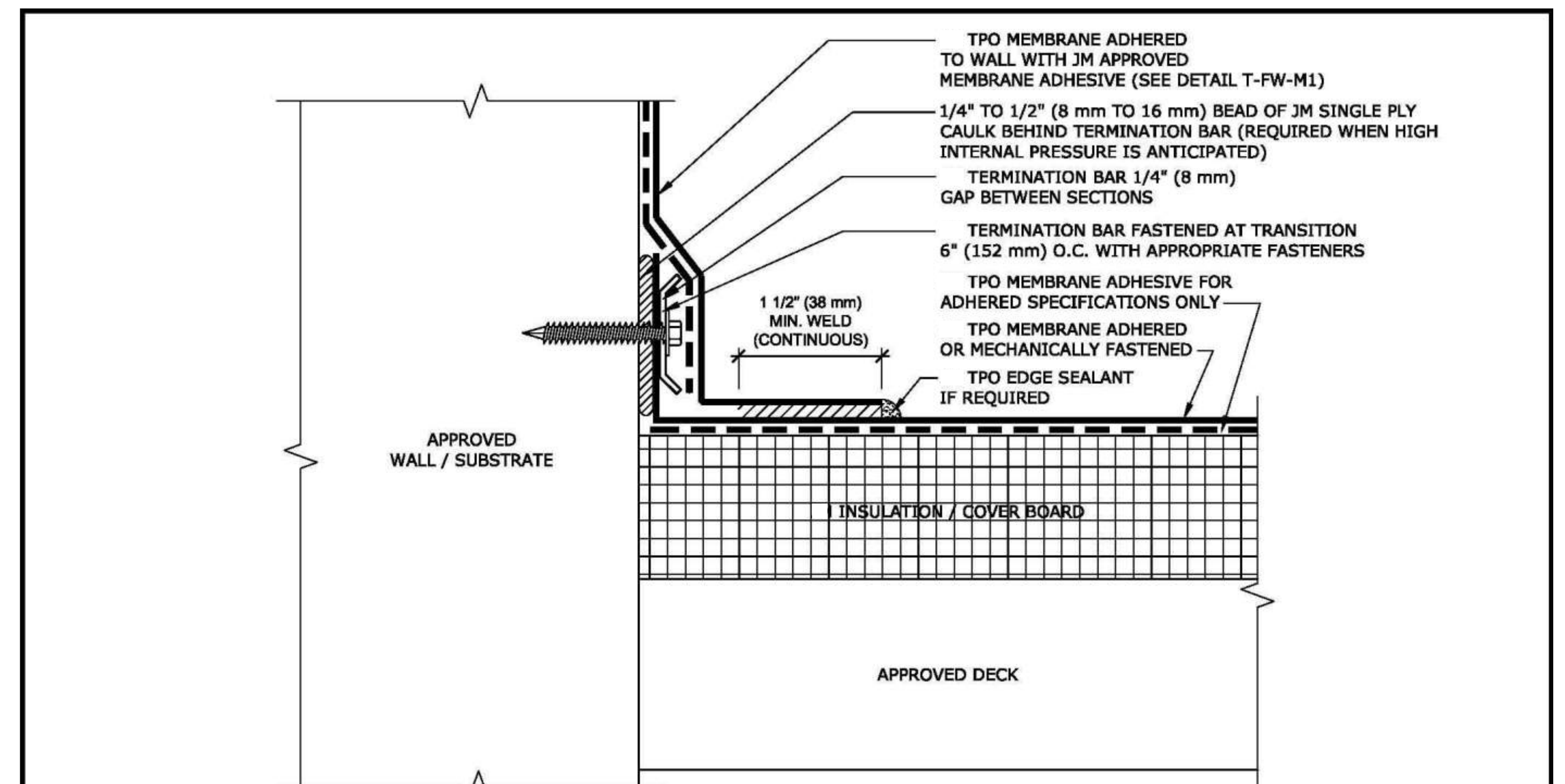
4. DRAIN AREA MUST BE PROPERLY TAPERED SO THAT THE DRAIN FLASHING IS NOT INSTALLED UNDER TENSION.
5. NO SEAMS OR FOLDS UNDER THE COMPRESSION RING.

PRIMARY AND OVERFLOW ROOF DRAIN

DRAWING NO. **T-DV-17** DRAINS-VENTS | MEMBRANE TYPE: TPO | SCALE N.T.S



NOTES:

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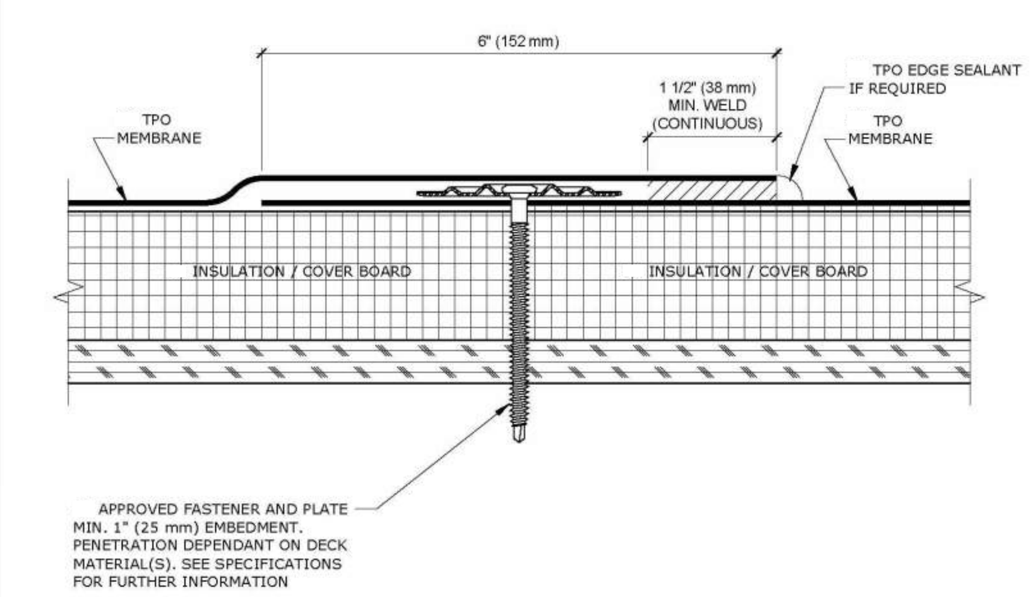
4. TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON-ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCLUDES FACTORY CUT MEMBRANE (SEE DETAIL T-MS-01).
5. THIS DETAIL IS ALSO SUITABLE FOR TERMINATION OF FLEECE BACKED MEMBRANES. NON FLEECE BACK MEMBRANE IS REQUIRED FOR WALL FLASHINGS.

MEMBRANE FLASHING BASE TIE-IN (HIGH INTERNAL PRESSURE)

DRAWING NO. **T-FW-B5** REPLACES TB-26A | MEMBRANE TYPE: TPO | SCALE N.T.S



NOTES:

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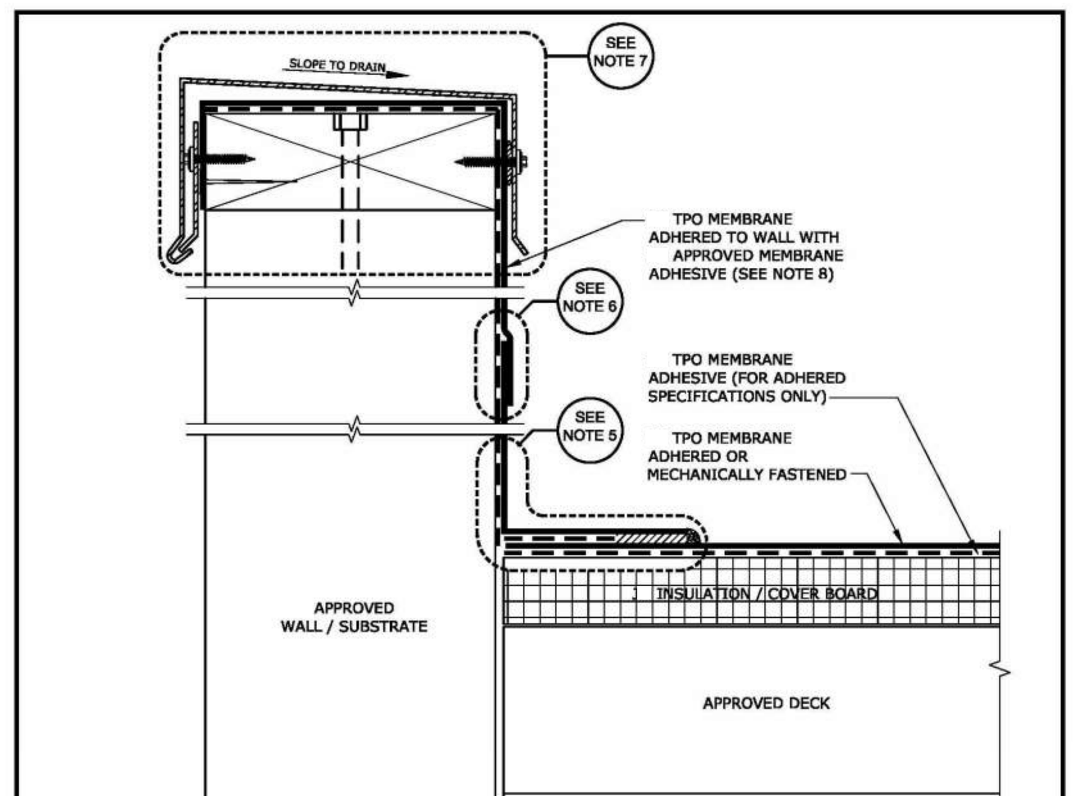
3. ANY CARPENTRY OR METAL WORK SHOULD BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS AND/OR PROJECT SPECIFICATIONS. THESE COMPONENTS SHOULD BE REVIEWED AND APPROVED BY A LICENSED DESIGN PROFESSIONAL.
4. TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON-ENCAPSULATED EDGES OF REINFORCED 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



NOTES:

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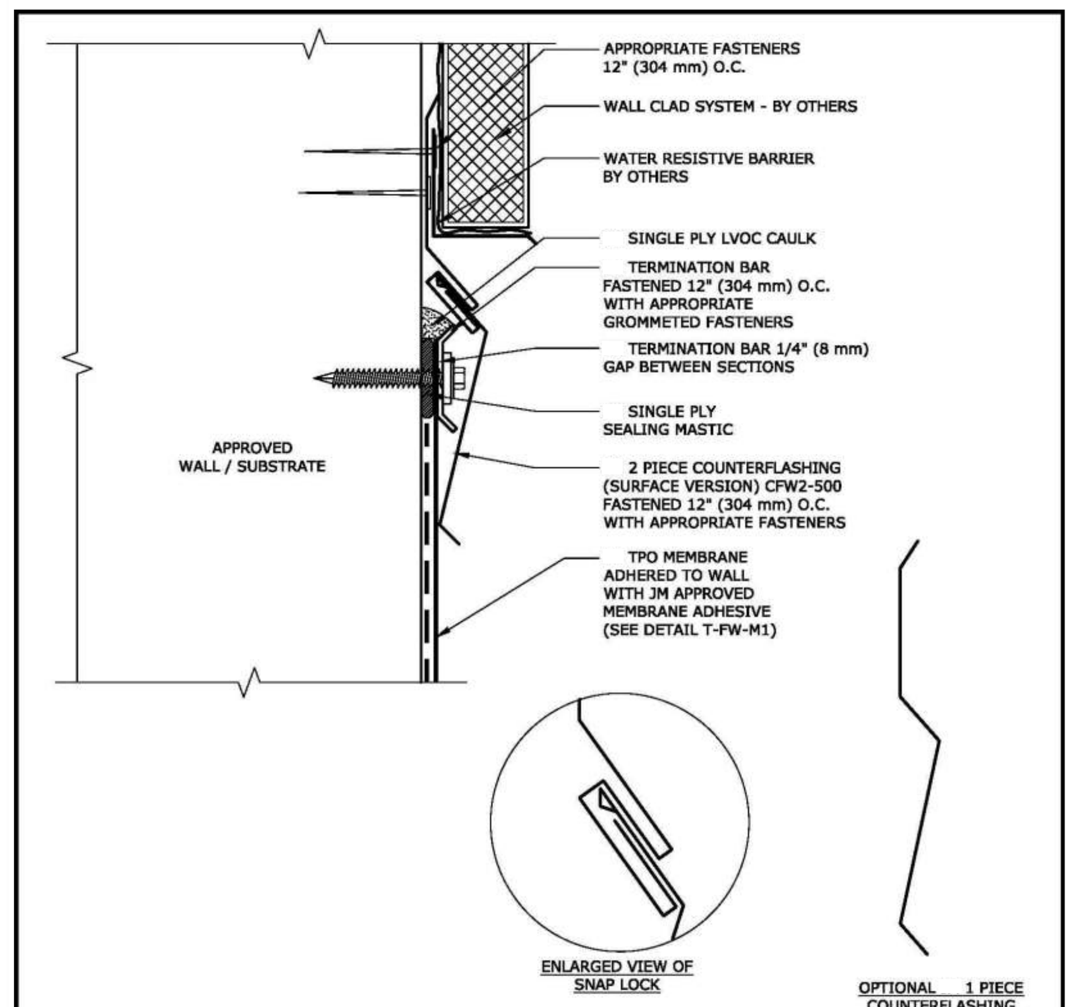
4. TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON-ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCLUDES FACTORY CUT MEMBRANE (SEE DETAIL T-MS-01).
5. FOR APPROVED BASE FLASHING FASTENING METHODS SEE T-FW-B DETAILS. A SUFFICIENT BACKER FASTENING STRIP MUST BE INSTALLED BEHIND SUBSTRATES DIRECTLY TO 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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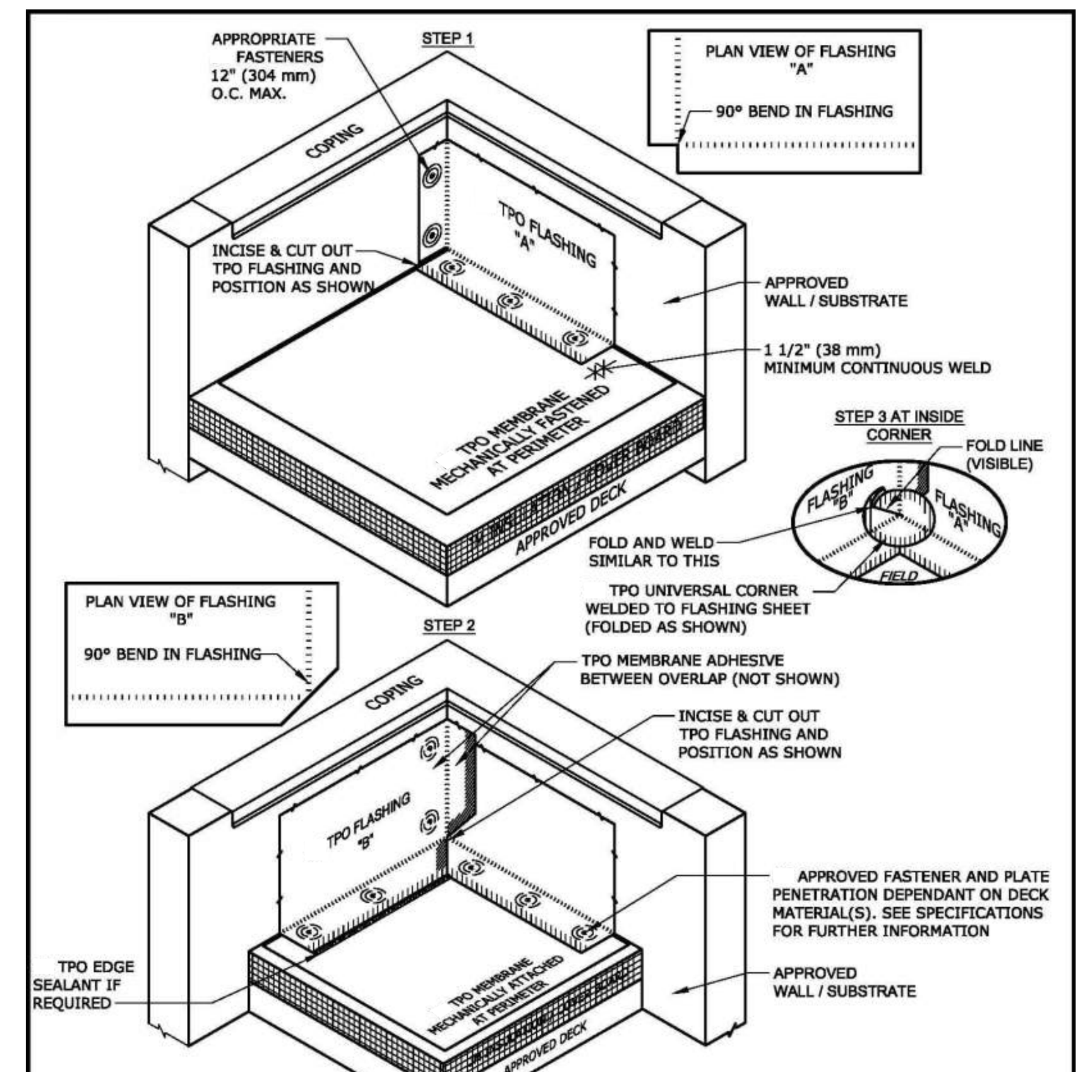
4. ALL SEALANTS / CAULKING SHALL BE PERIODICALLY INSPECTED AND MAINTAINED BY THE BUILDING OWNER THROUGHOUT THE LIFE OF THE ROOF.
5. MINIMUM FLASHING HEIGHT IS 8" (203 mm) ABOVE ROOF SURFACE.

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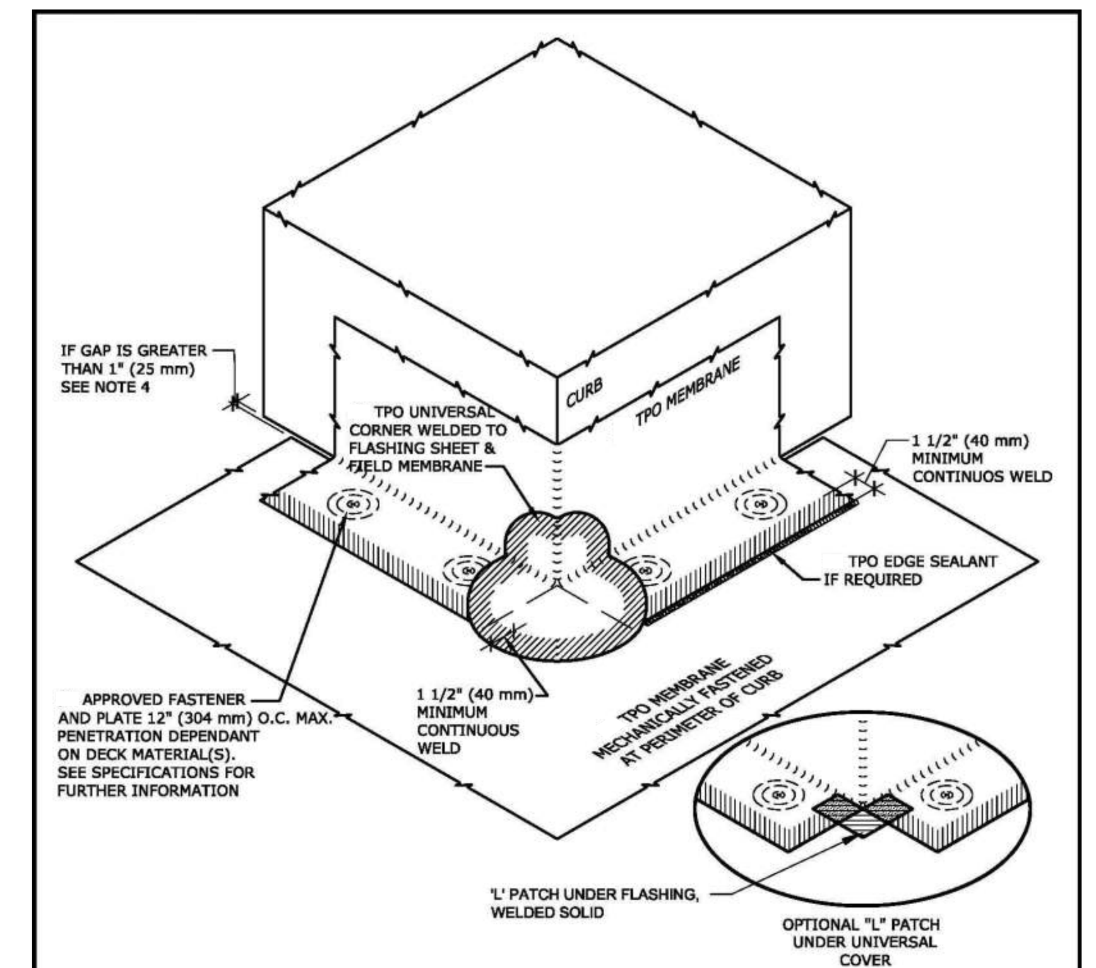
4. TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCLUDES FACTORY CUT EDGES (SEE DETAIL T-MS-01).

INSIDE CORNER

DRAWING NO. **T-FC-04** REPLACES TF-63 | MEMBRANE TYPE: TPO | SCALE N.T.S



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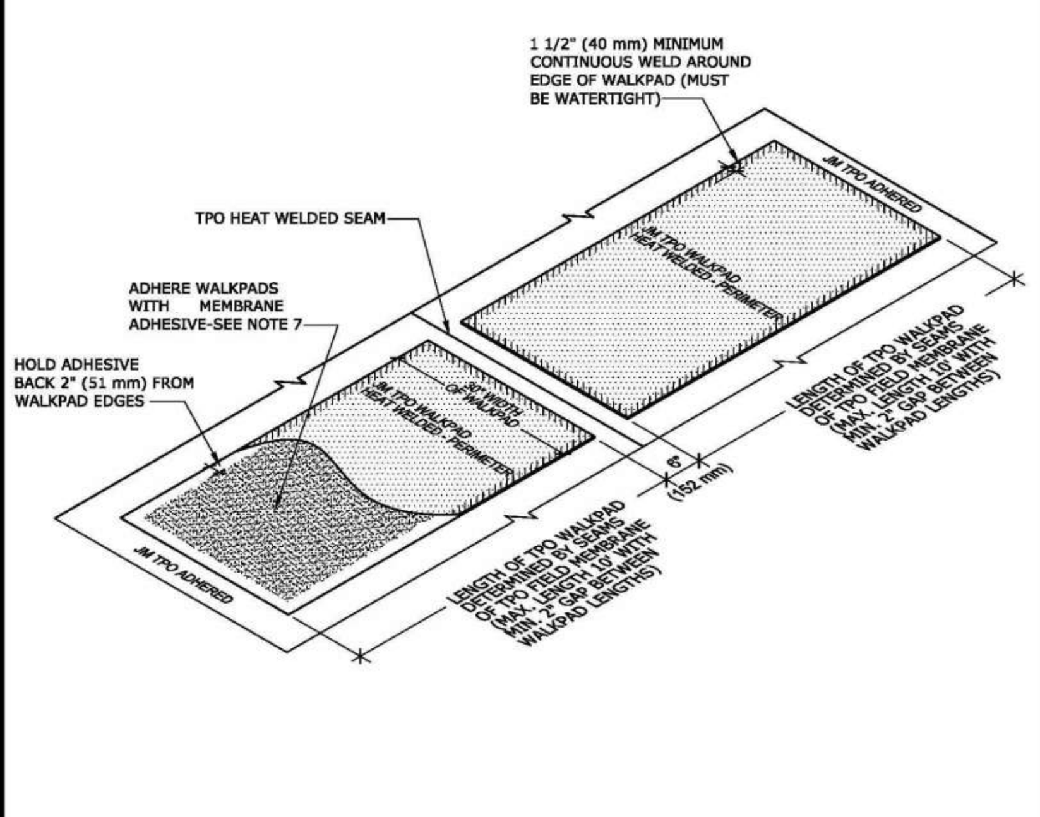
4. IF GAP OR CUT IN MEMBRANE IS GREATER THAN 1" UNDER TPO UNIVERSAL CORNER, AN "L" PATCH THAT EXTENDS OUT ONTO THE MEMBRANE A MINIMUM OF 2" MUST BE INSTALLED AT OUTSIDE CORNER. ("L" PATCH SHOWN AT RIGHT WITHOUT TPO UNIVERSAL CORNER)
5. TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON ENCAPSULATED EDGES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

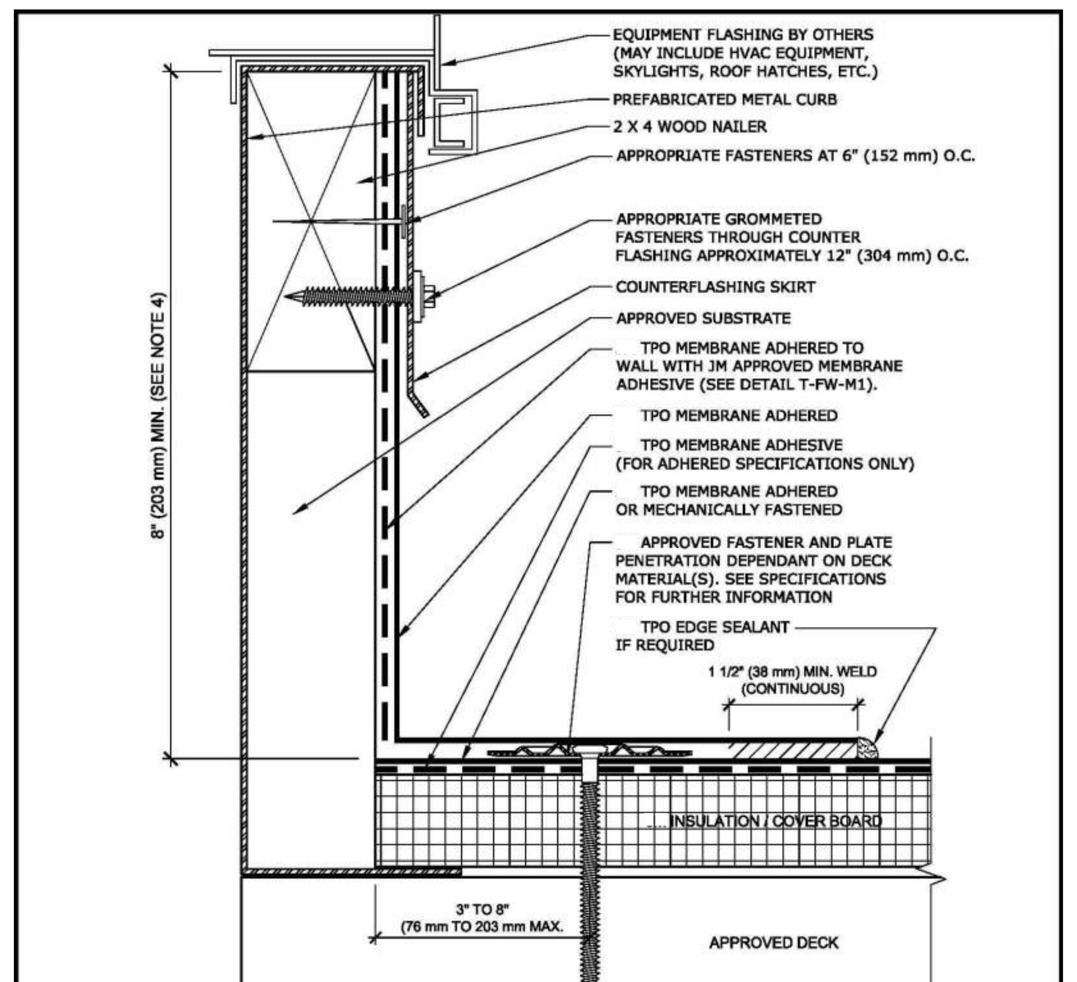


NOTES:

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. 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



NOTES:

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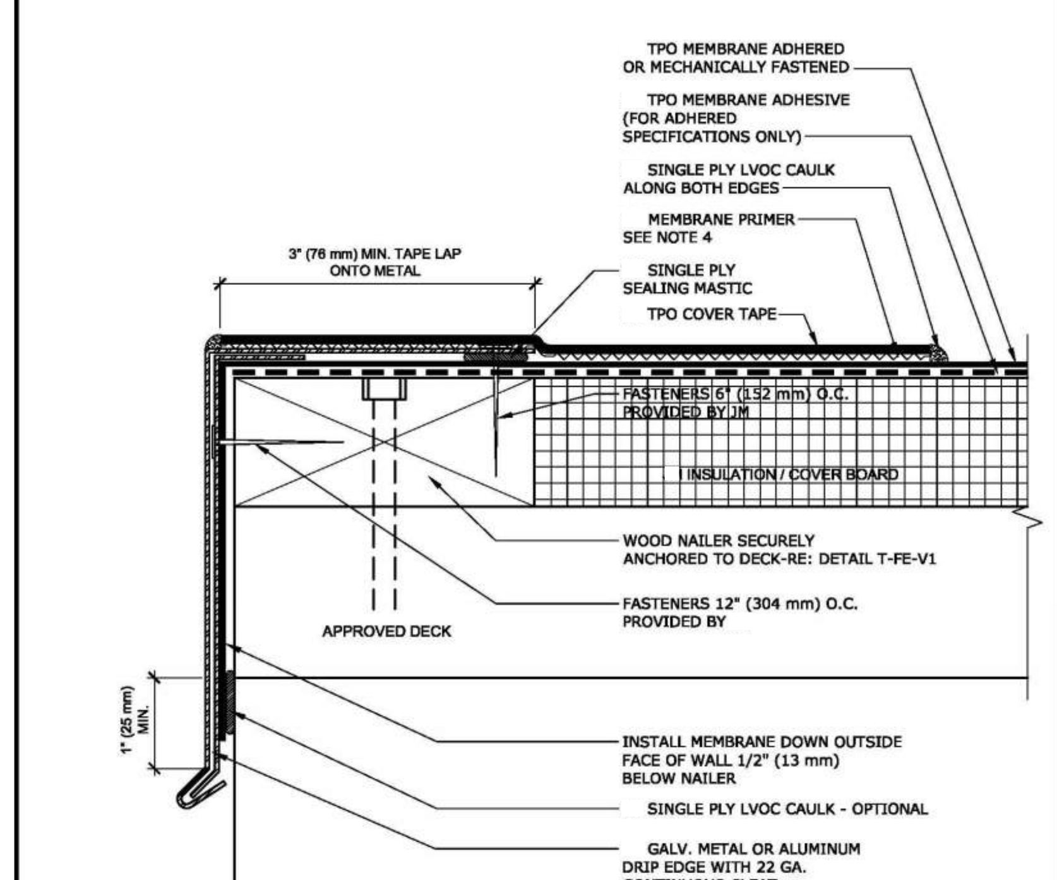
4. HEIGHT OF CURB TO BE ADJUSTED WITH NAILERS. IT IS PREFERRED TO RAISE CURB ONTO NAILERS TO EXTEND FLASHING HEIGHT.
5. TPO EDGE SEALANT IS REQUIRED ON ALL CUT AND NON ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCLUDES FACTORY CUT MEMBRANE (SEE DETAIL T-MS-01).
6. SEE T-FW-B DETAILS FOR APPROVED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



NOTES:

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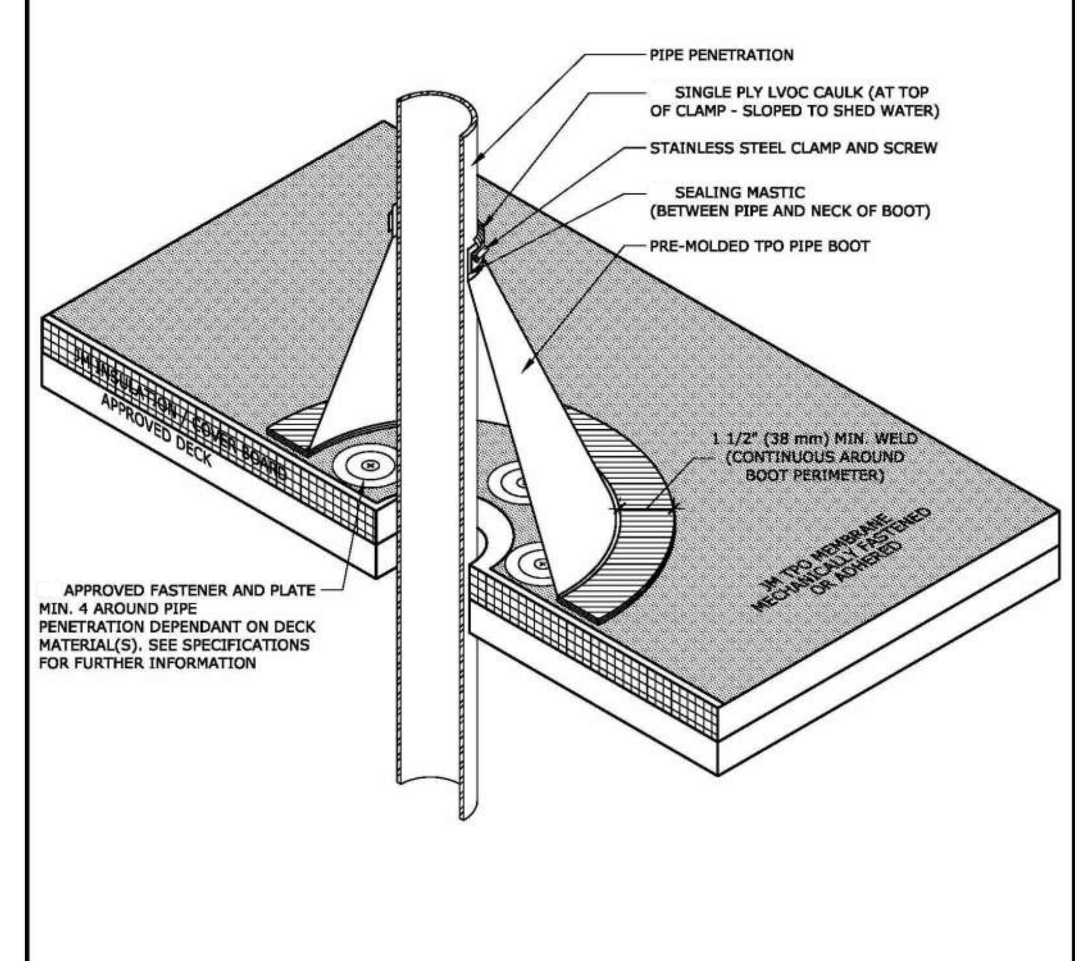
3. ANY CARPENTRY OR METAL WORK SHOULD BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS AND/OR PROJECT SPECIFICATIONS. THESE COMPONENTS SHOULD BE REVIEWED AND APPROVED BY A LICENSED DESIGN PROFESSIONAL.
4. TPO MEMBRANE PRIMER OR JM SINGLE PLY MEMBRANE PRIMER (LOW VOC) MUST BE APPLIED 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



NOTES:

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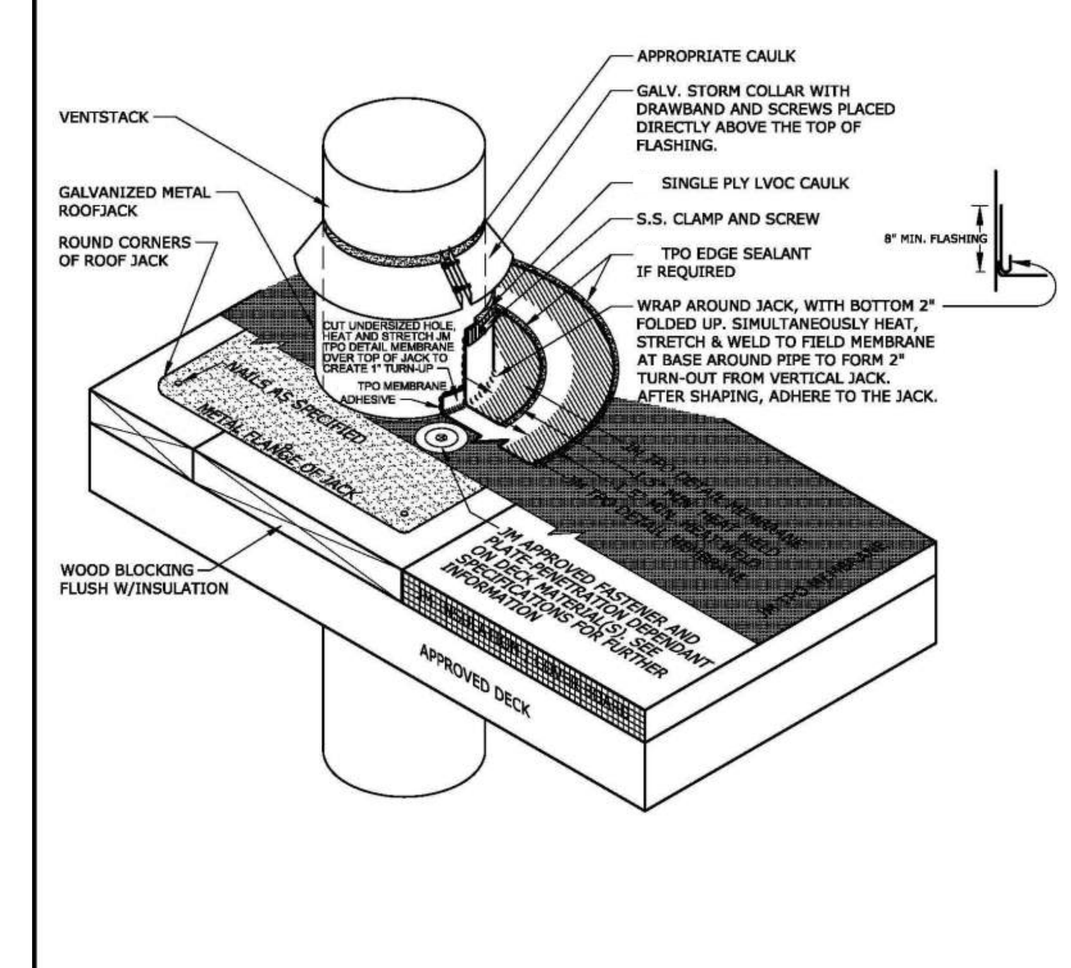
3. ANY CARPENTRY OR METAL WORK SHOULD BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS AND/OR PROJECT SPECIFICATIONS. THESE COMPONENTS SHOULD BE REVIEWED AND APPROVED BY A LICENSED DESIGN PROFESSIONAL.

TPO PIPE BOOT

DRAWING NO. **T-FP-01** REPLACES TF-50S | 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)

VENT PIPE

DRAWING NO. **T-DV-01** REPLACES TF-52 | MEMBRANE TYPE: TPO | SCALE N.T.S

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DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

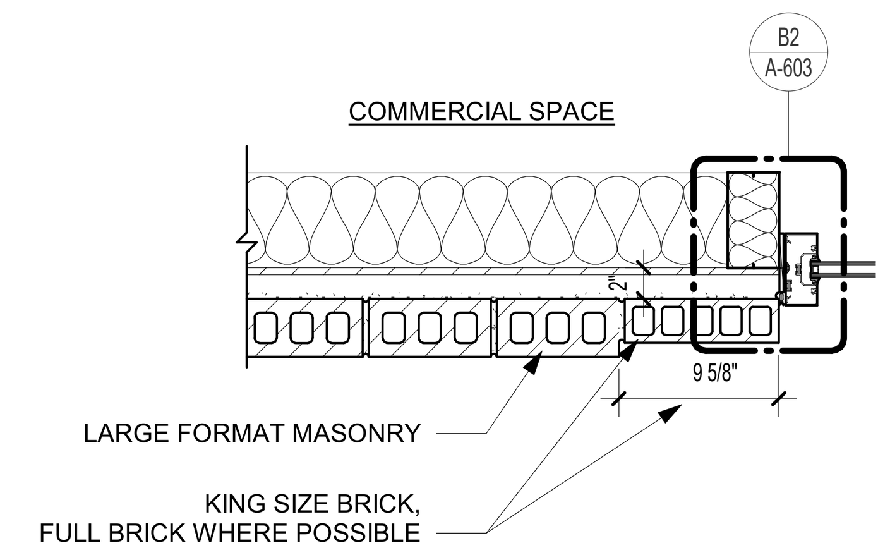
SHEET TITLE
ROOFING & FLASHING DETAILS

PROJECT NUMBER: 24017

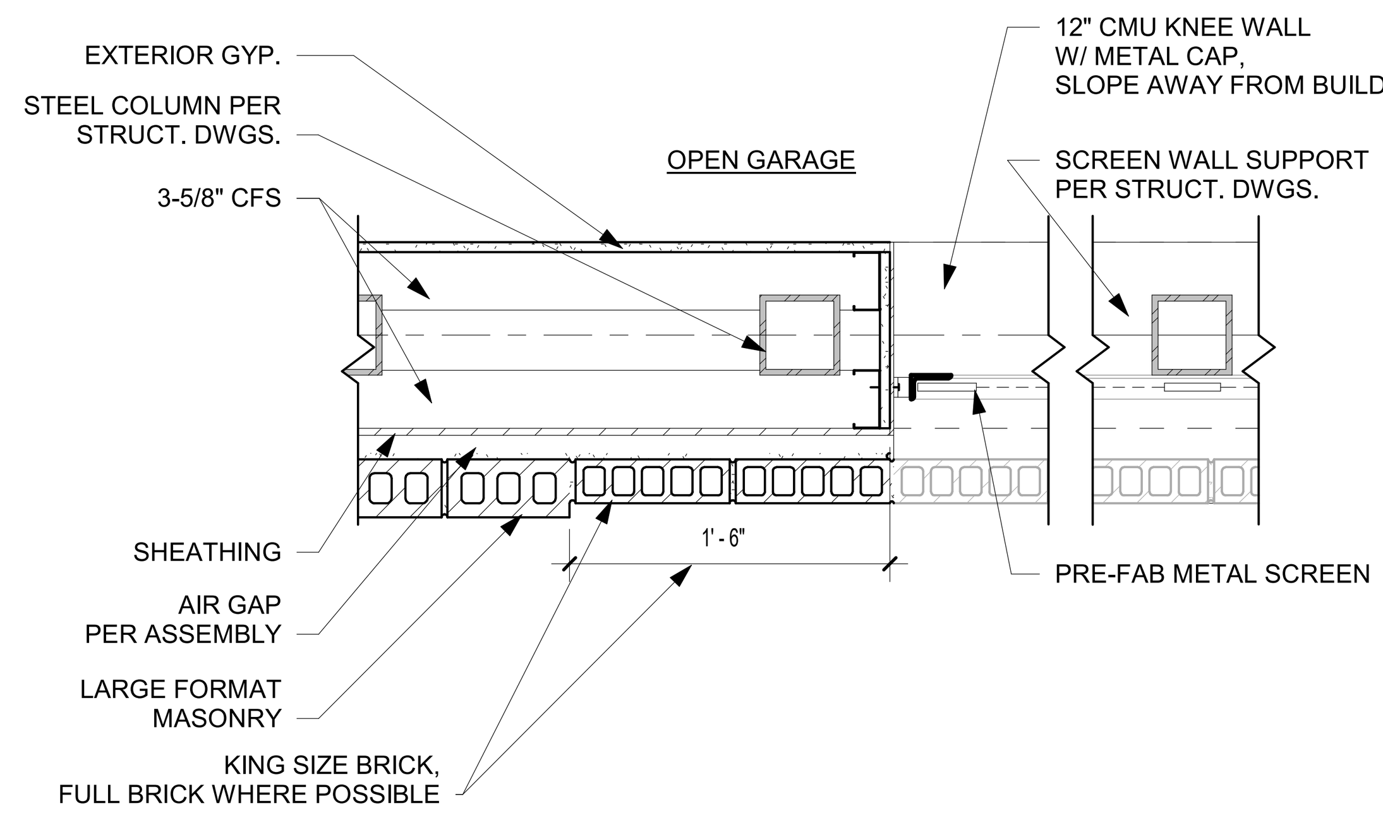
SHEET NUMBER:

A-106

11/27/2024 9:58:25 AM



B2 BRICK TRANSITION @ STOREFRONT (PLAN)
1" = 1'-0"

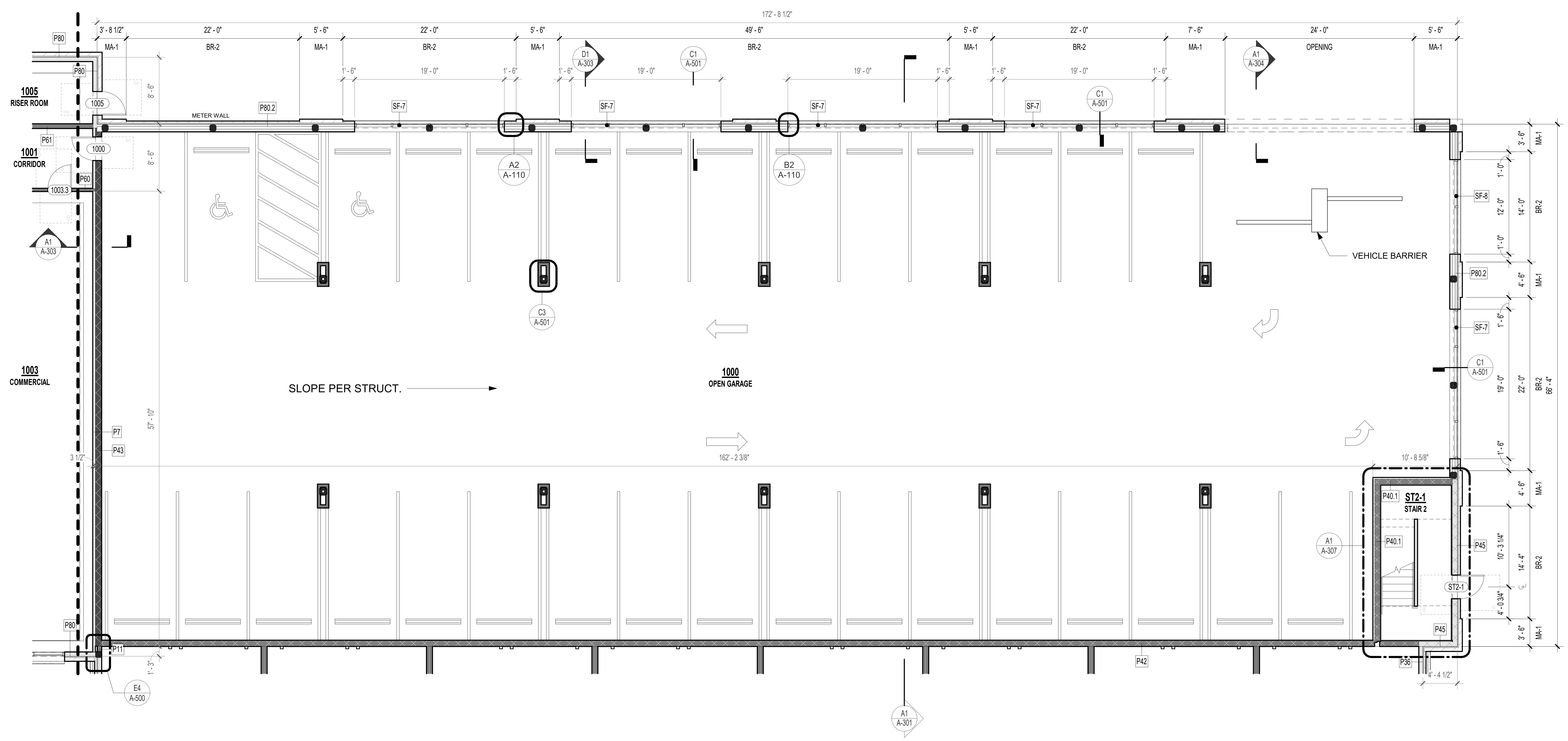


A2 BRICK TRANSITION @ SCREEN (PLAN)
1" = 1'-0"

REFERENCE G-003 FOR GENERAL NOTES

PLAN LEGEND

- PARTIAL HEIGHT PARTITION
- NON-RATED PARTITION; SEE ASSEMBLIES G-100s
- 1 HR RATED PARTITION; SEE ASSEMBLIES G-100s
- 2 HR RATED PARTITION; SEE ASSEMBLIES G-100s
- A1 — WINDOW TYPE; SEE WINDOW SCHEDULE ON SHEET A-600
- 101 — DOOR TYPE; SEE DOOR SCHEDULE ON SHEET A-600
- P7 — PARTITION TYPE; SEE ASSEMBLIES G-100s
- 6' - 0" — FRAMING DIMENSIONS
- 6' - 0" LAYOUT — LAYOUT LINE DIMENSIONS
- HEARING/VISIBILITY
- ADA/ACCESSIBLE UNITS



A1 1ST FLOOR ENLARGED PLAN - GARAGE
1/8" = 1'-0"

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11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
ENLARGED PLAN - 1ST FLOOR GARAGE

PROJECT NUMBER: 24017

SHEET NUMBER:

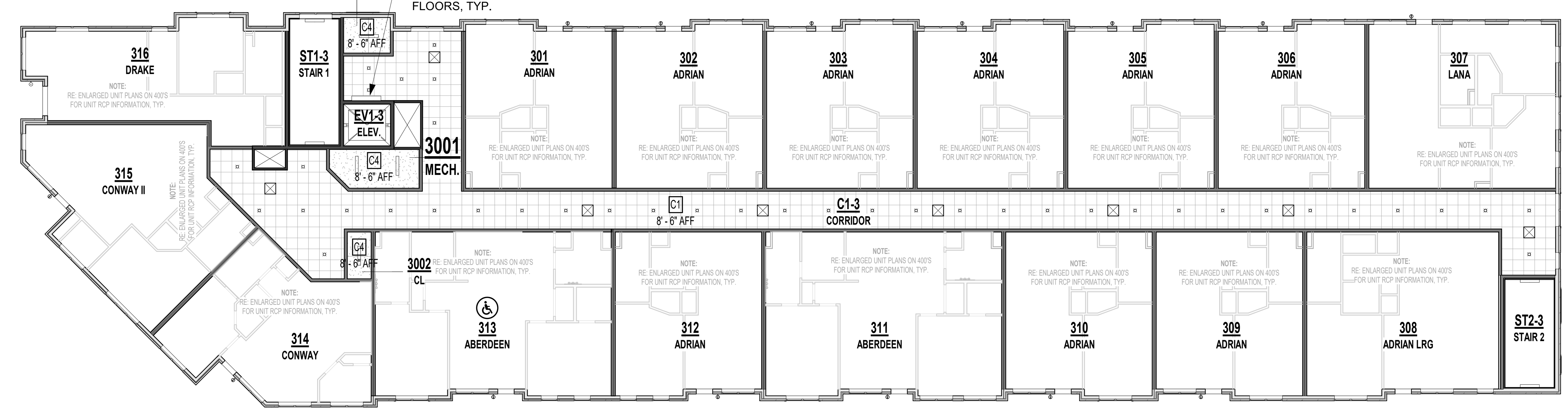
A-110

REFERENCE G-003 FOR GENERAL NOTES

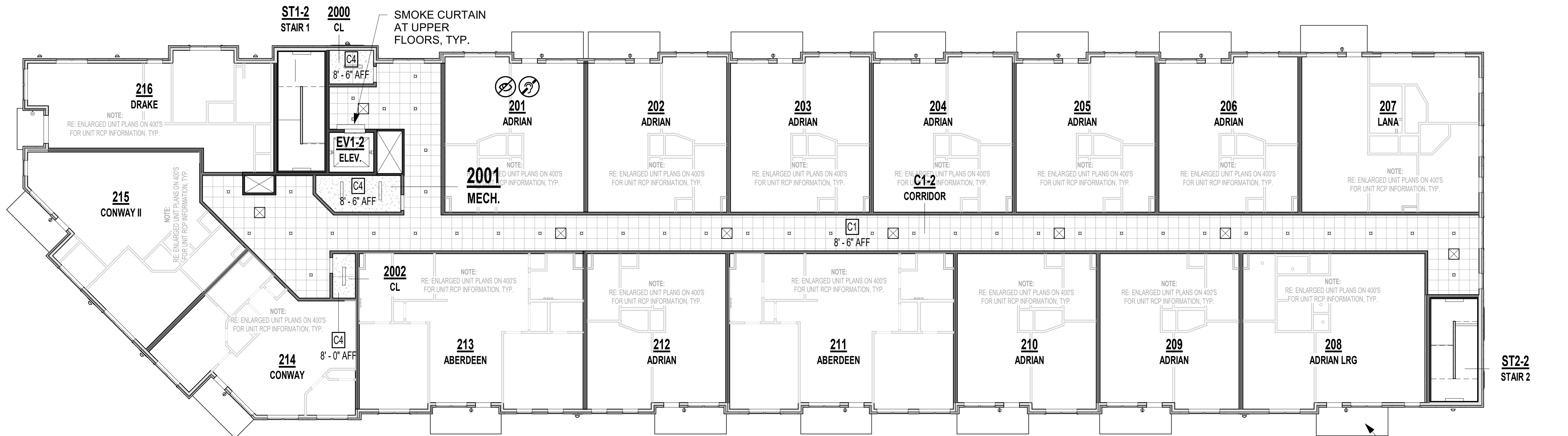
RCP LEGEND

- **C1** - 2' X 2' ACT SYSTEM 15/16" THICKNESS- ANGULAR TEGULAR EDGE, PER 095113
- **C3** - GWB ON METAL STUD
- **C4** - SMOOTH FIBERCEMENT BOARD. PROVIDE 1X BATTEN @ SEAMS. PAINT FINISH
- **C8** - GWB ON METAL STUD (EXTERIOR)WITH BLOWN INSULATION ABOVE
- 9' - 0" INDICATES CEILING HEIGHT. NOTE: UNLESS OTHERWISE NOTED ON THE PLANS ALL CEILINGS ARE TO BE 8'-0" A.F.F.

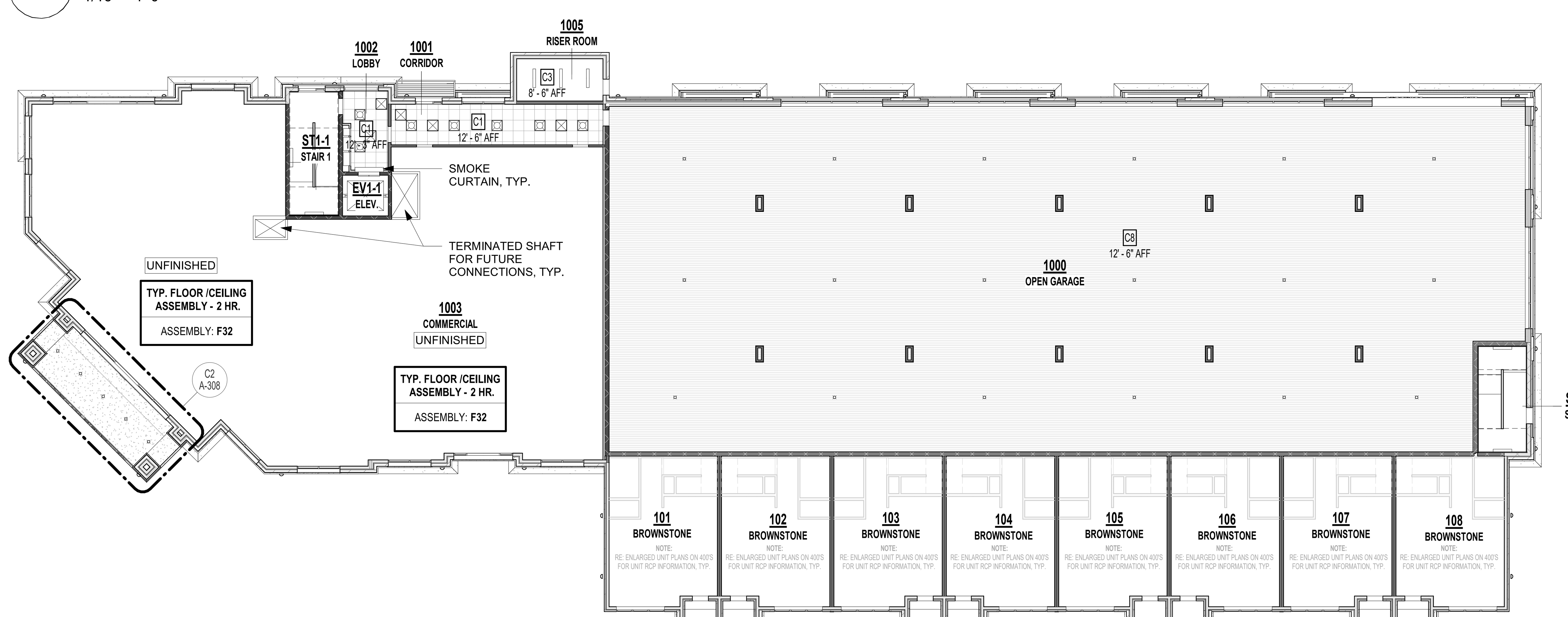
GENERAL NOTE: LIGHTS TO BE CENTERED IN ACT TILES



A3 THIRD FLOOR REFLECTED CEILING PLAN
1/16" = 1'-0"



A2 SECOND FLOOR REFLECTED CEILING PLAN
1/16" = 1'-0"



A1 FIRST FLOOR REFLECTED CEILING PLAN
1/16" = 1'-0"

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11/27/2024

DISCOVERY PARK - LOT #9 - A

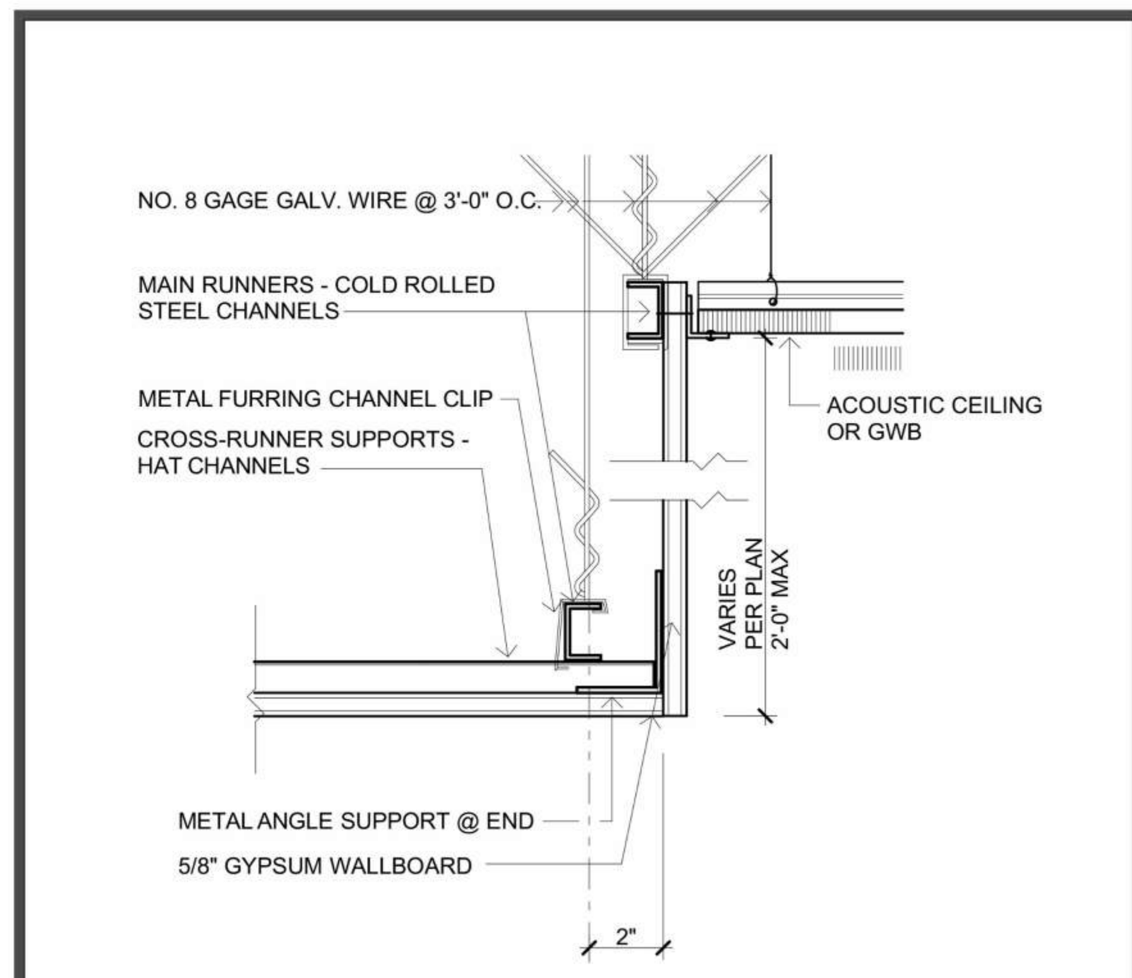
LEE'S SUMMIT, MO

SHEET TITLE
REFLECTED CEILING PLANS

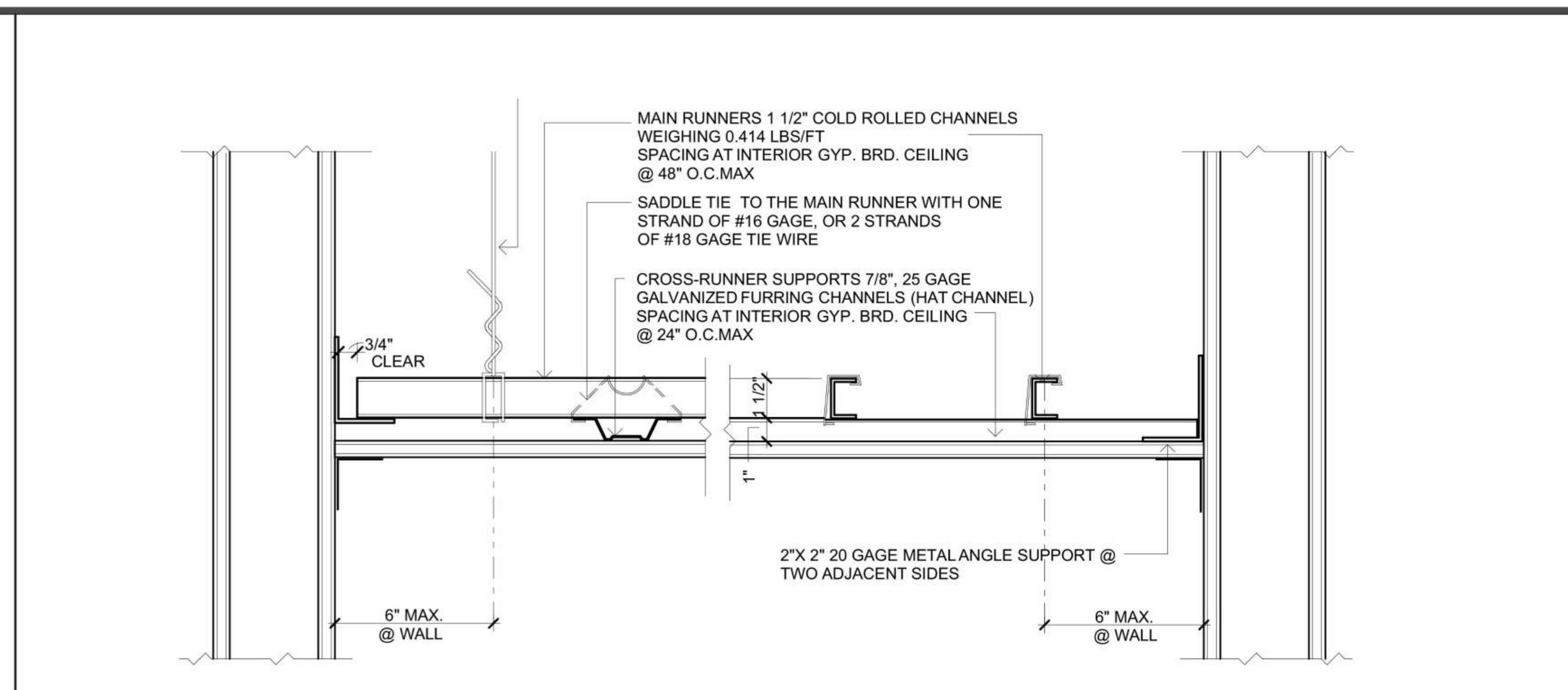
PROJECT NUMBER: 24017

SHEET NUMBER:

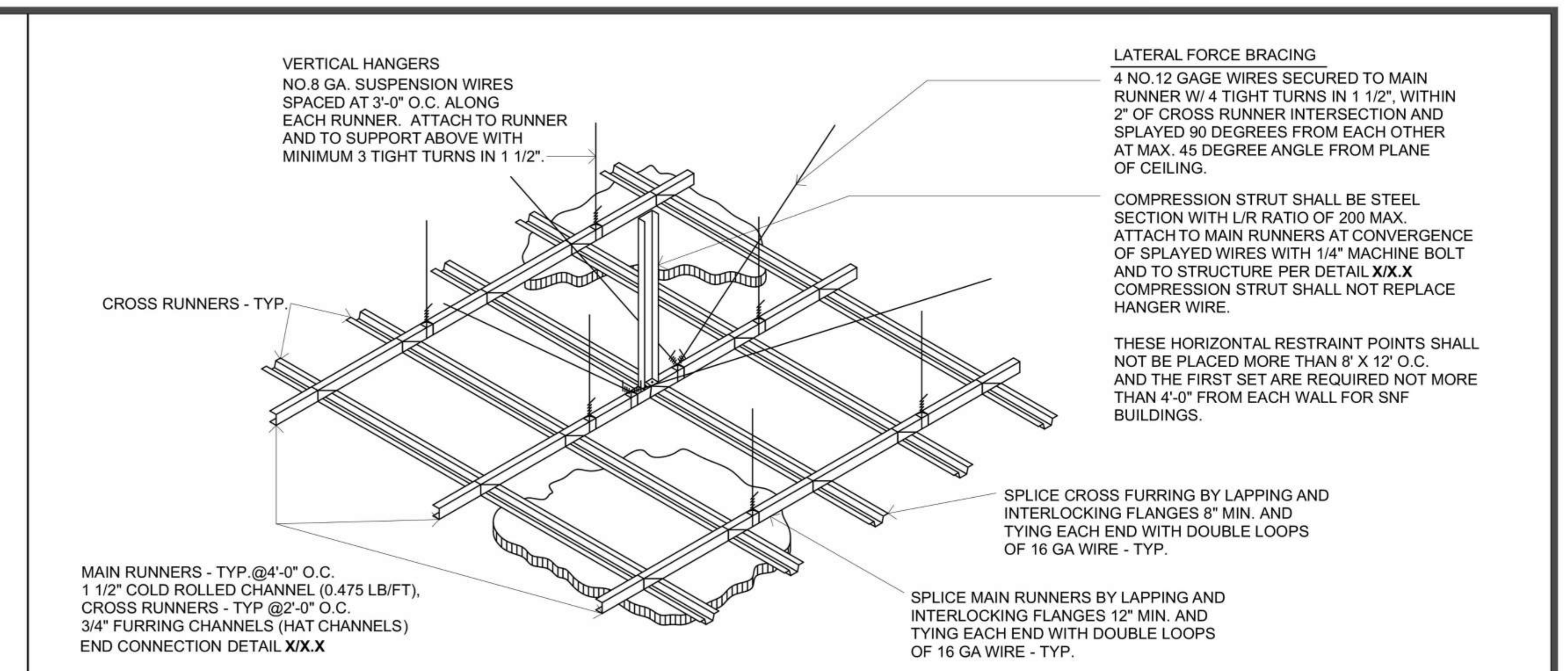
A-120



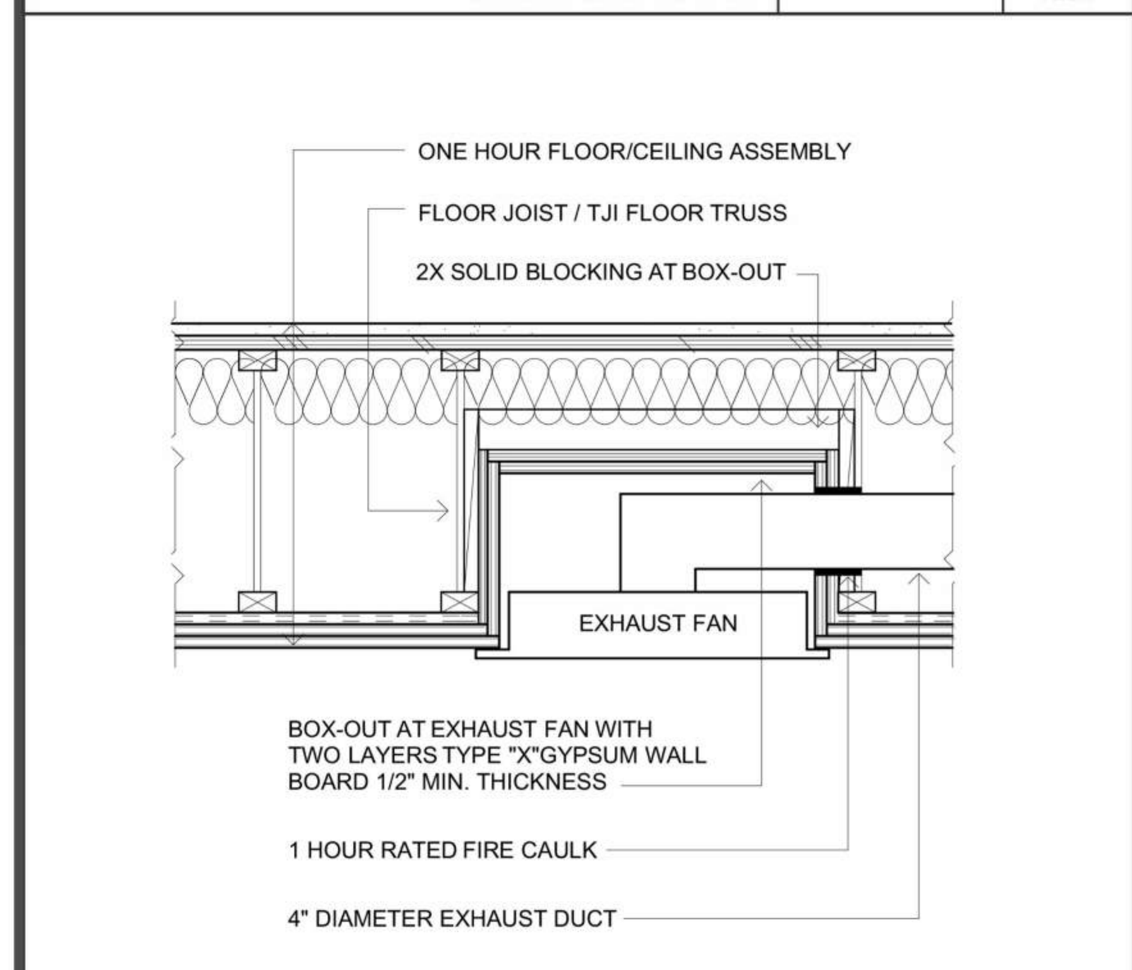
SUSPENDED CEILING/SOFFIT TRANSITION 3" = 1'-0" 20 A13.1



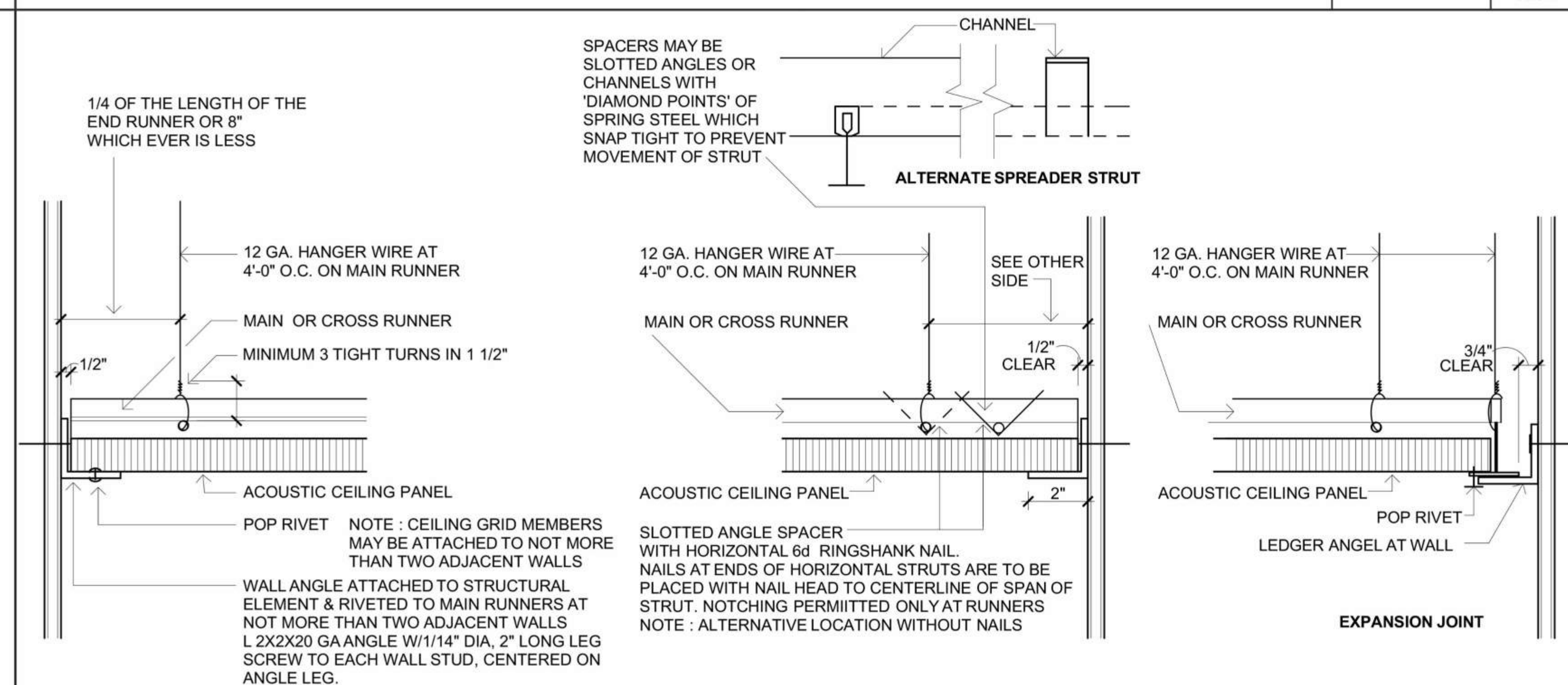
SUSPENDED GYPSUM WALL BOARD CEILING - CONNECTION DETAIL 3" = 1'-0" 12 A13.1



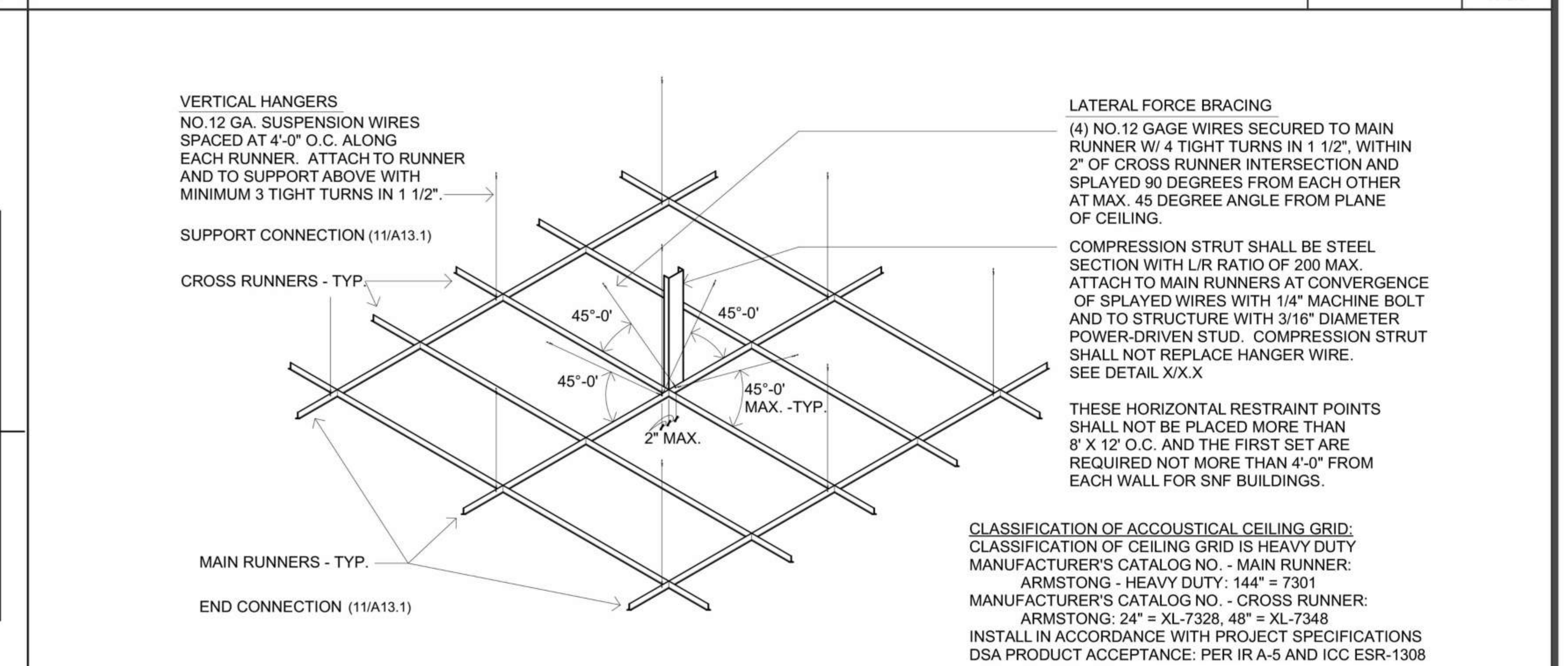
SUSPENDED GYPSUM BOARD CEILING GRID 1 1/2"= 1'-0" 4 A13.1



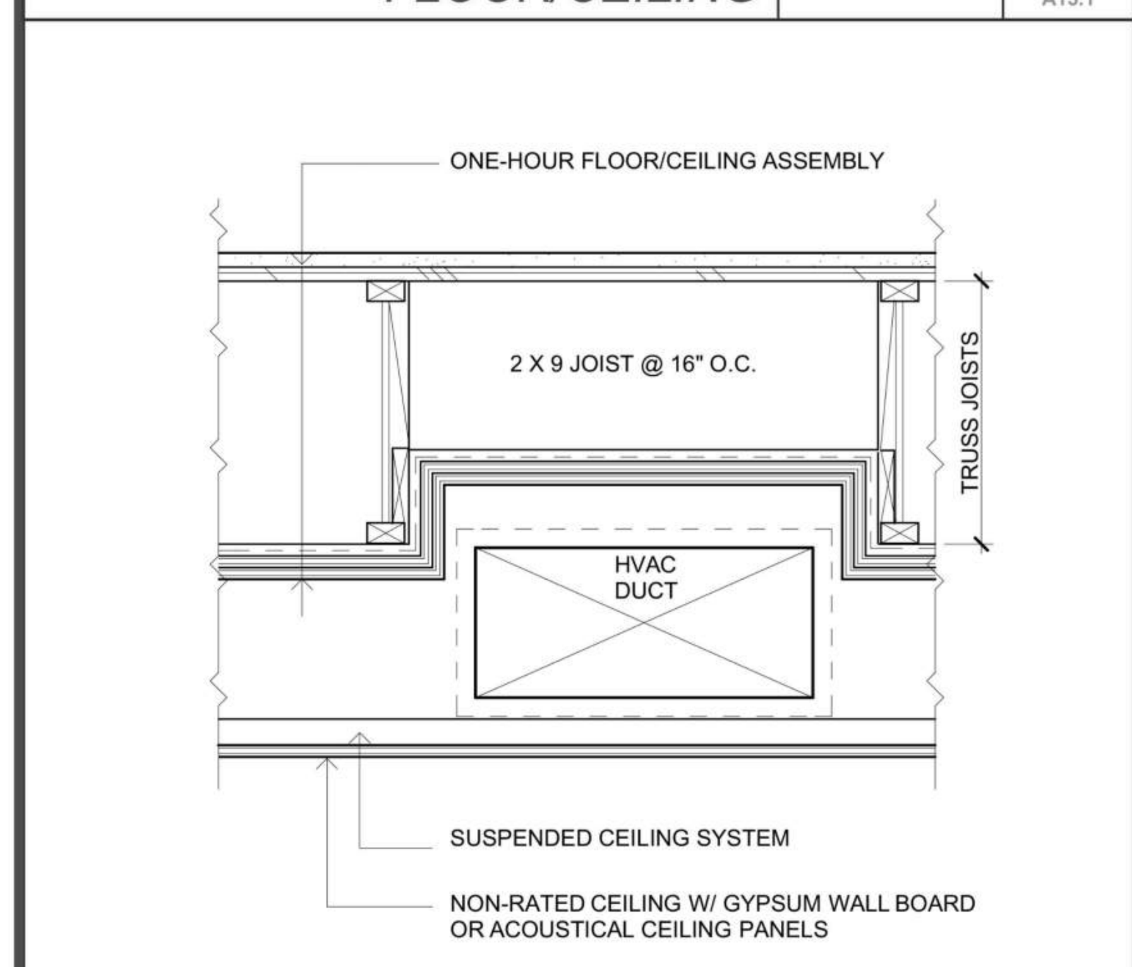
FAN EXHAUST AT FLOOR/CEILING 1 1/2"= 1'-0" 19 A13.1



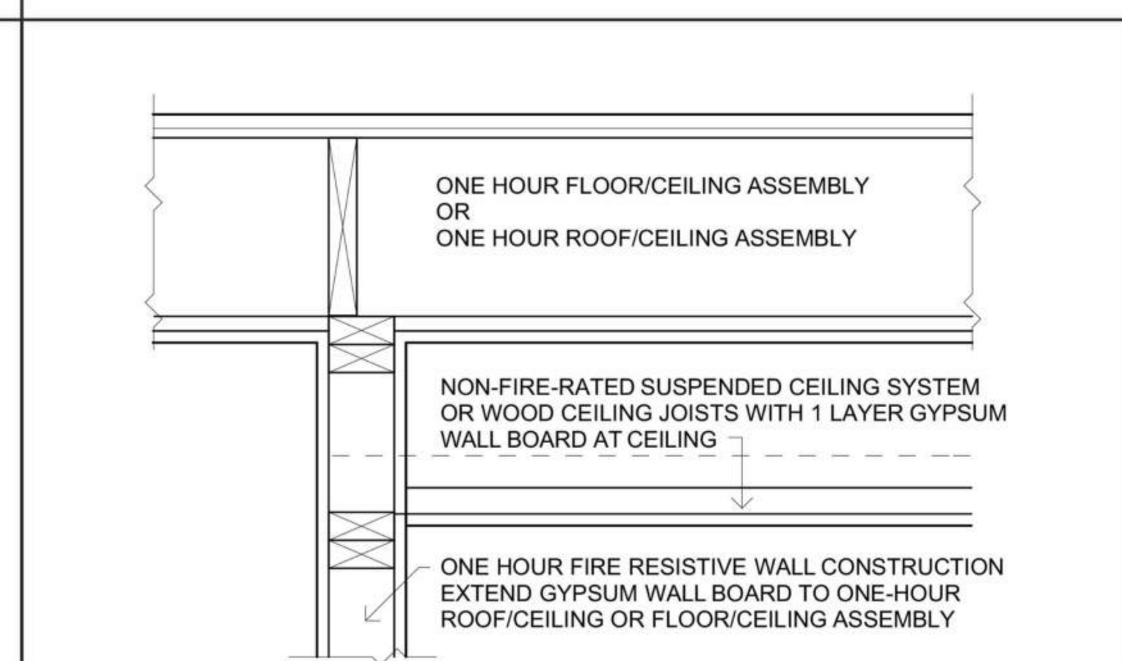
SUSPENDED LAY-IN CEILING - CONNECTION DETAIL 3" = 1'-0" 11 A13.1



SUSPENDED LAY-IN CEILING GRID 1 1/2"= 1'-0" 3 A13.1

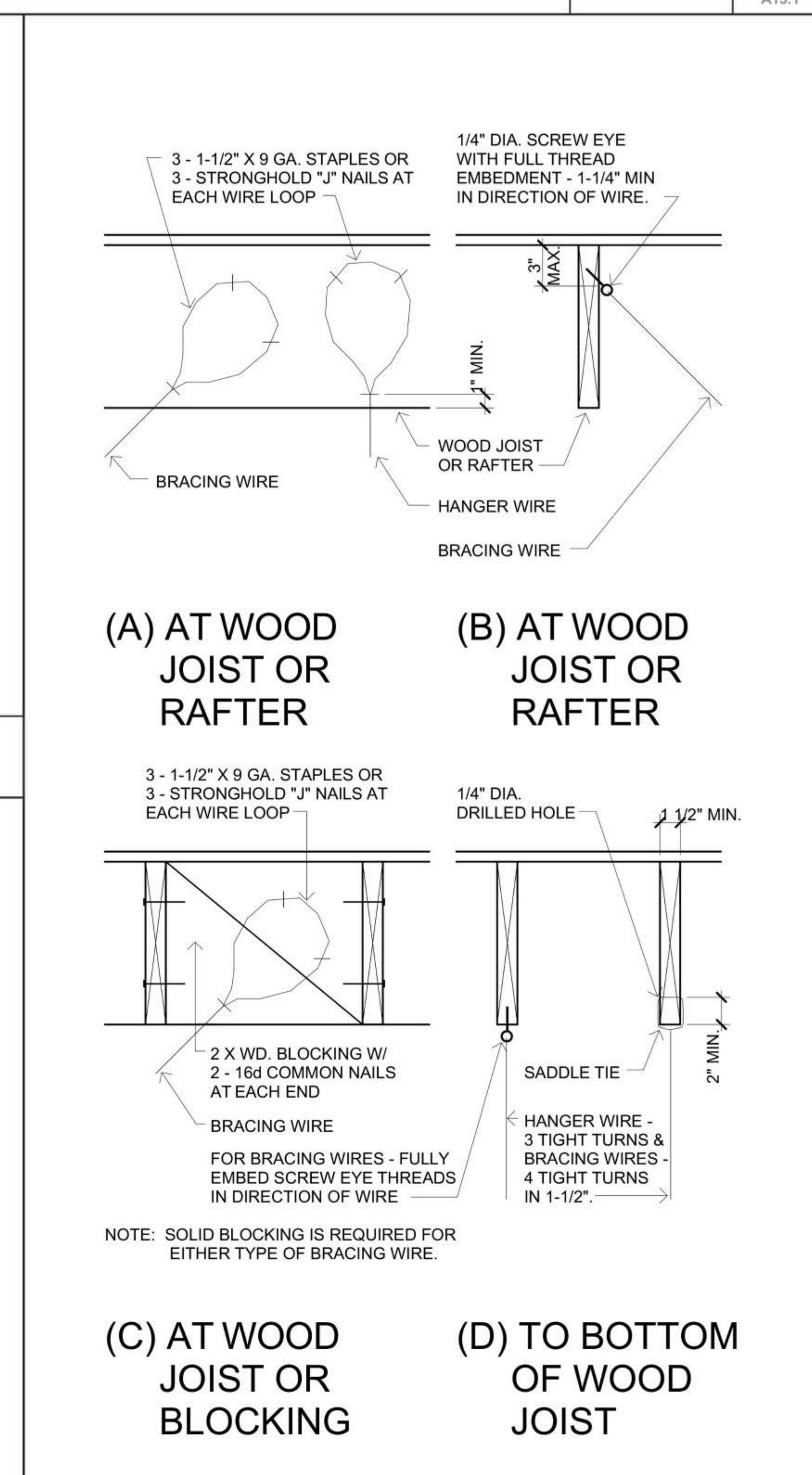


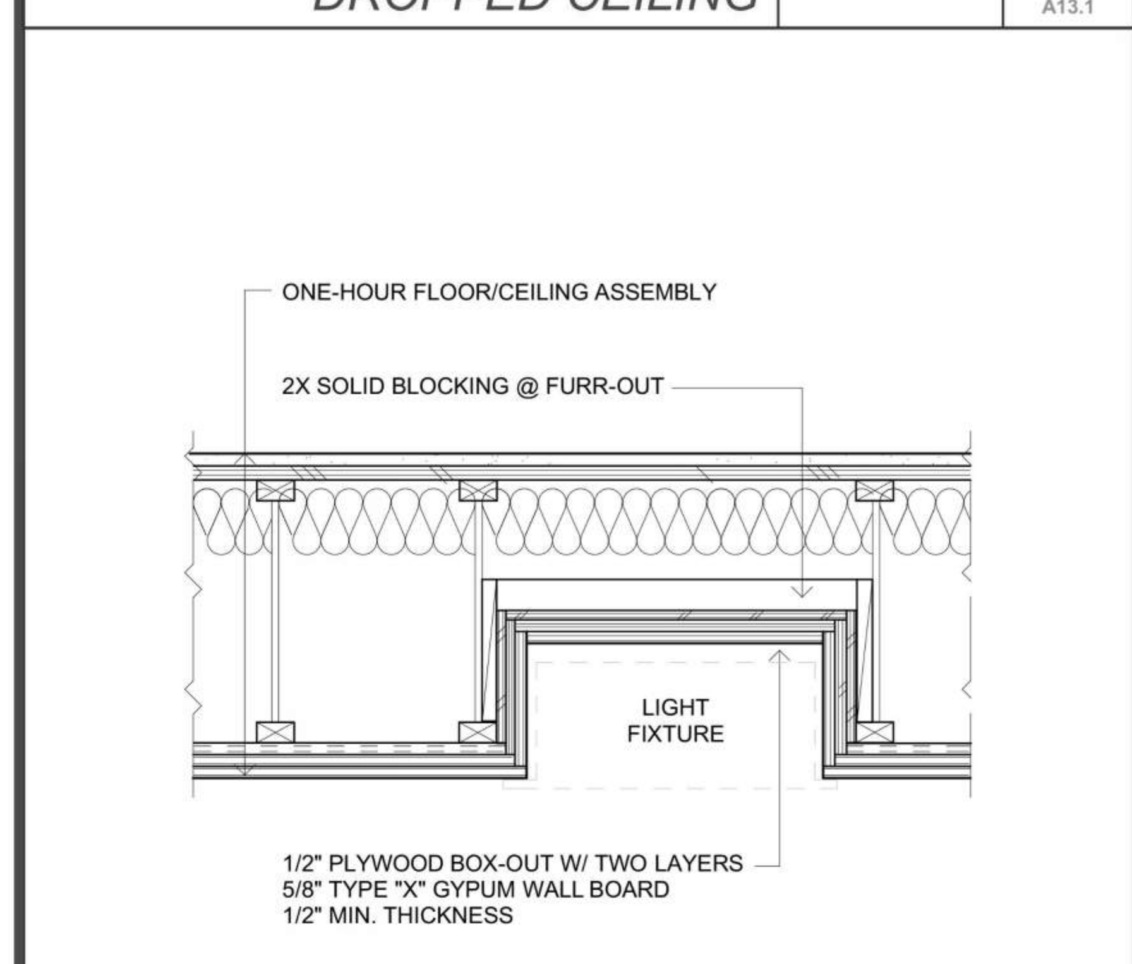
DUCT AT FLOOR/CEILING AND DROPPED CEILING 1 1/2"= 1'-0" 18 A13.1



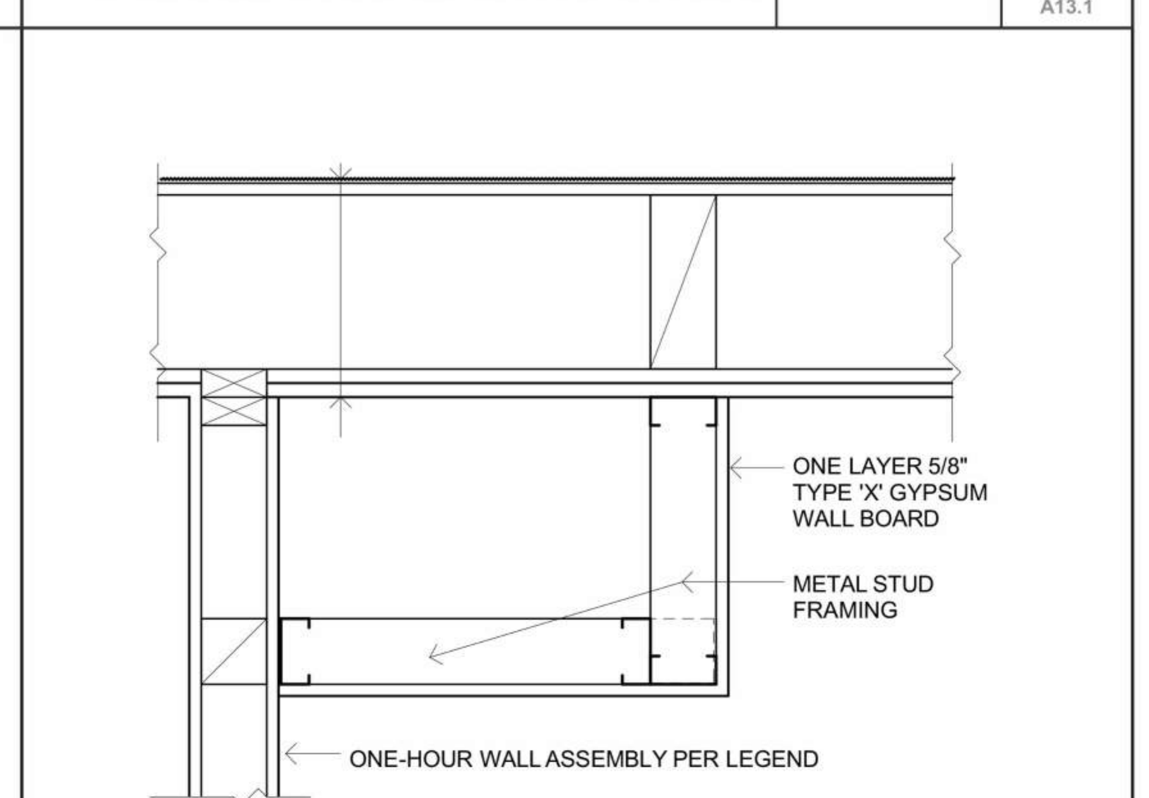
ONE HOUR ENVELOPE CONSTRUCTION (CORRIDORS, LOBBIES, ETC.)
DOOR OPENINGS SHALL BE PROTECTED BY A TIGHT-FITTING SMOKE AND DRAFT CONTROL ASSEMBLY HAVING A FIRE-PROTECTION RATING OF NOT LESS THAN 20 MINUTES. DOORS SHALL BE MAINTAINED SELF-CLOSING OR SHALL BE AUTOMATIC CLOSING BY ACTUATION OF A SMOKE DETECTOR.
ACCESS DOORS IN ROOF/CEILING ASSEMBLY SHALL BE APPROVED FIRE-RATED HORIZONTAL ACCESS DOOR ASSEMBLIES.
FOR LOCATION OF SMOKE DAMPERS, FIRE DAMPERS OR COMBINATION SEE MECHANICAL DRAWINGS

CORRIDOR CONSTRUCTION 1 1/2"= 1'-0" 14 A13.1





LIGHT FIXTURE AT FLOOR/CEILING 1 1/2"= 1'-0" 17 A13.1



RECESSED LIGHT FIXTURES AND DUCT OPENINGS IN THE NON-RATED SOFFIT ARE NOT REQUIRED TO BE PROTECTED
SOFFIT FRAMING SHALL BE NON-COMBUSTABLE CONSTRUCTION - CBC SECTION 803.11.2

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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11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
CEILING DETAILS

PROJECT NUMBER: 24017

SHEET NUMBER:

A-125

11/27/2024 9:36:41 AM

REFERENCE G-003 FOR GENERAL NOTES

MATERIAL LEGEND

- MA-1 - STONE - ROCK FACE
- MA-2 - STONE SILL - SMOOTH FACE
- BR-1 - BRICK - RED
- BR-2 - BRICK - DARK RED
- BR-3 - BRICK - GREY
- MTL-1 - METAL - DARK BRONZE
- STCO - STUCCO - COLOR TO MATCH STONE
- BRICK RELIEF ANGLE LOCATION

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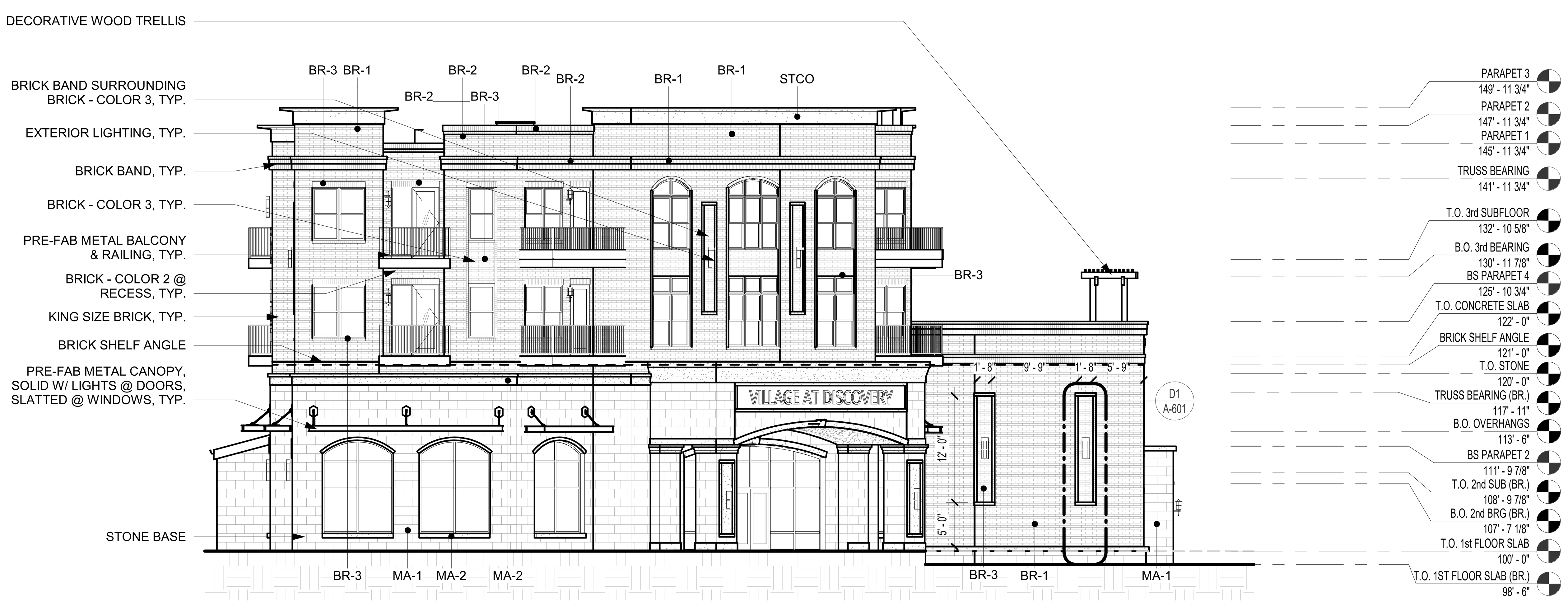
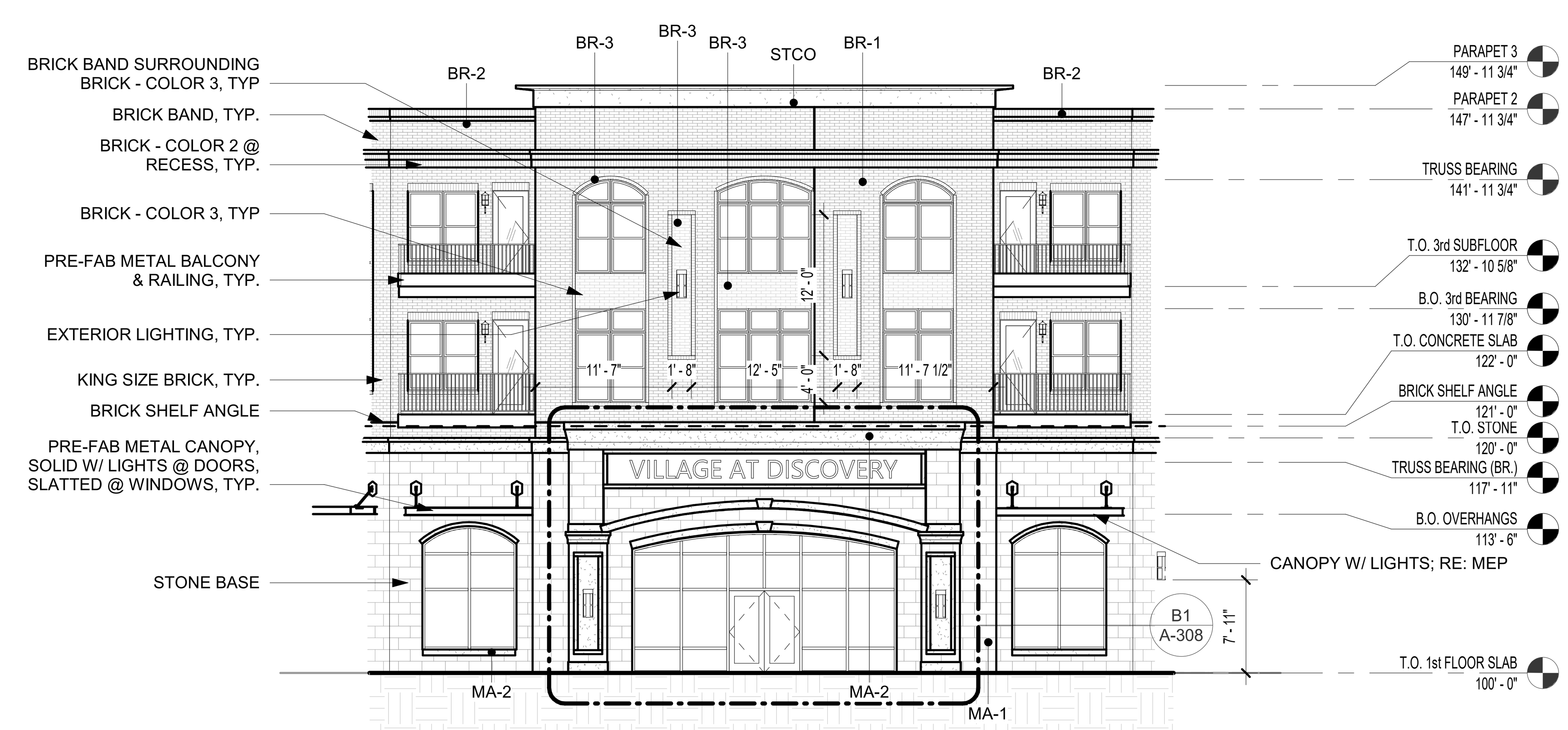
REVISIONS:



B2 WEST ELEVATION
3/32" = 1'-0"



A2 ENTRY ELEVATION
3/32" = 1'-0"

A1 SOUTH ELEVATION
3/32" = 1'-0"

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DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
EXTERIOR ELEVATIONS

PROJECT NUMBER: 24017

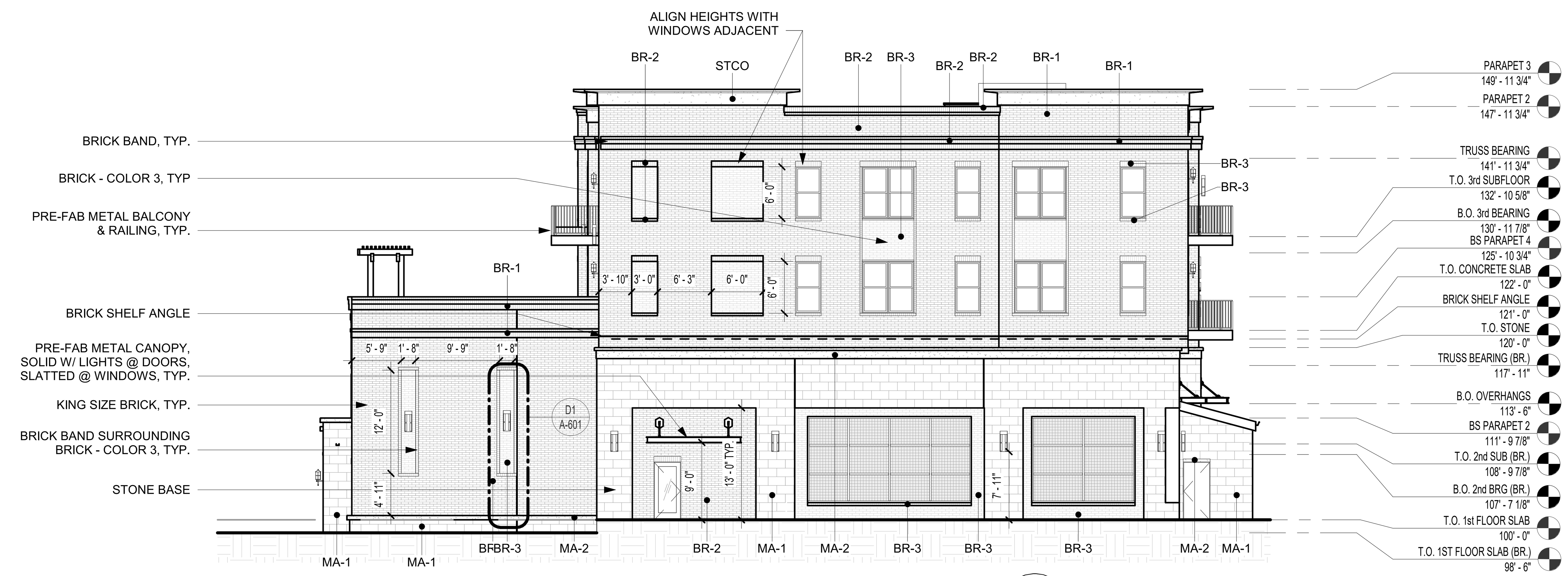
SHEET NUMBER:

A-200

REFERENCE G-003 FOR GENERAL NOTES

MATERIAL LEGEND

- MA-1 - STONE - ROCK FACE
- MA-2 - STONE SILL - SMOOTH FACE
- BR-1 - BRICK - RED
- BR-2 - BRICK - DARK RED
- BR-3 - BRICK - GREY
- MTL-1 - METAL - DARK BRONZE
- STCO - STUCCO - COLOR TO MATCH STONE
- BRICK RELIEF ANGLE LOCATION



A2 EAST ELEVATION
3/32" = 1'-0"

A1 NORTH ELEVATION
3/32" = 1'-0"

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11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
EXTERIOR ELEVATIONS

PROJECT NUMBER: 24017

SHEET NUMBER:

A-201

REFERENCE G-003 FOR GENERAL NOTES

MATERIAL LEGEND

- MA-1 - STONE - ROCK FACE
- MA-2 - STONE SILL - SMOOTH FACE
- BR-1 - BRICK - RED
- BR-2 - BRICK - DARK RED
- BR-3 - BRICK - GREY
- MTL-1 - METAL - DARK BRONZE
- STCO - STUCCO - COLOR TO MATCH STONE
- BRICK RELIEF ANGLE LOCATION

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NUMBER A-7395
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11/27/2024

B2 COLORED WEST ELEVATION
3/32" = 1'-0"

A2 COLORED ENTRY ELEVATION
3/32" = 1'-0"

A1 COLORED SOUTH ELEVATION
3/32" = 1'-0"

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
COLORED EXTERIOR ELEVATIONS

PROJECT NUMBER: 24017

SHEET NUMBER:

A-202

REFERENCE G-003 FOR GENERAL NOTES

MATERIAL LEGEND

- MA-1 - STONE - ROCK FACE
- MA-2 - STONE SILL - SMOOTH FACE
- BR-1 - BRICK - RED
- BR-2 - BRICK - DARK RED
- BR-3 - BRICK - GREY
- MTL-1 - METAL - DARK BRONZE
- STCO - STUCCO - COLOR TO MATCH STONE
- BRICK RELIEF ANGLE LOCATION

A2 COLORED EAST ELEVATION
3/32" = 1'-0"

A1 COLORED NORTH ELEVATION
3/32" = 1'-0"

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11/27/2024 - CITY SUBMISSION

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7385
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
COLORED EXTERIOR ELEVATIONS

PROJECT NUMBER: 24017

SHEET NUMBER:

A-203

11/27/2024 3:56:44 PM
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REFERENCE G-003 FOR GENERAL NOTES

FLOOR/CEILING ASSEMBLY-WOOD

F1 — **CONCRETE - NON-RATED - SLAB ON GRADE**
- CONCRETE SLAB ON GRADE PER STRUCT. DWGS.

F3 — **WOOD OPEN WEB TRUSS - 1HR**
- 1" GYPCRETE TOPPING
- 1/4" ACOUSTICAL MAT
- 19/32" MIN. 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

F7 — **WOOD 2X6 LUMBER - 1HR - CORRIDOR**
- 1" GYPCRETE TOPPING
- 3/8" ACOUSTICAL MAT
- 15/32" SHEATHING MIN, 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

FLOOR/CEILING ASSEMBLY-METAL

F37 — **METAL DECK AND CONCRETE - 2HR**
- CONCRETE TOPPING SLAB PER STRUCT.
- WELDED WIRE FABRIC PER STRUCT. DWGS.
- METAL DECKING PER STRUCT. DWGS.

INTERIOR PARTITION ASSEMBLIES

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.

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

EXTERIOR PARTITION ASSEMBLIES

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

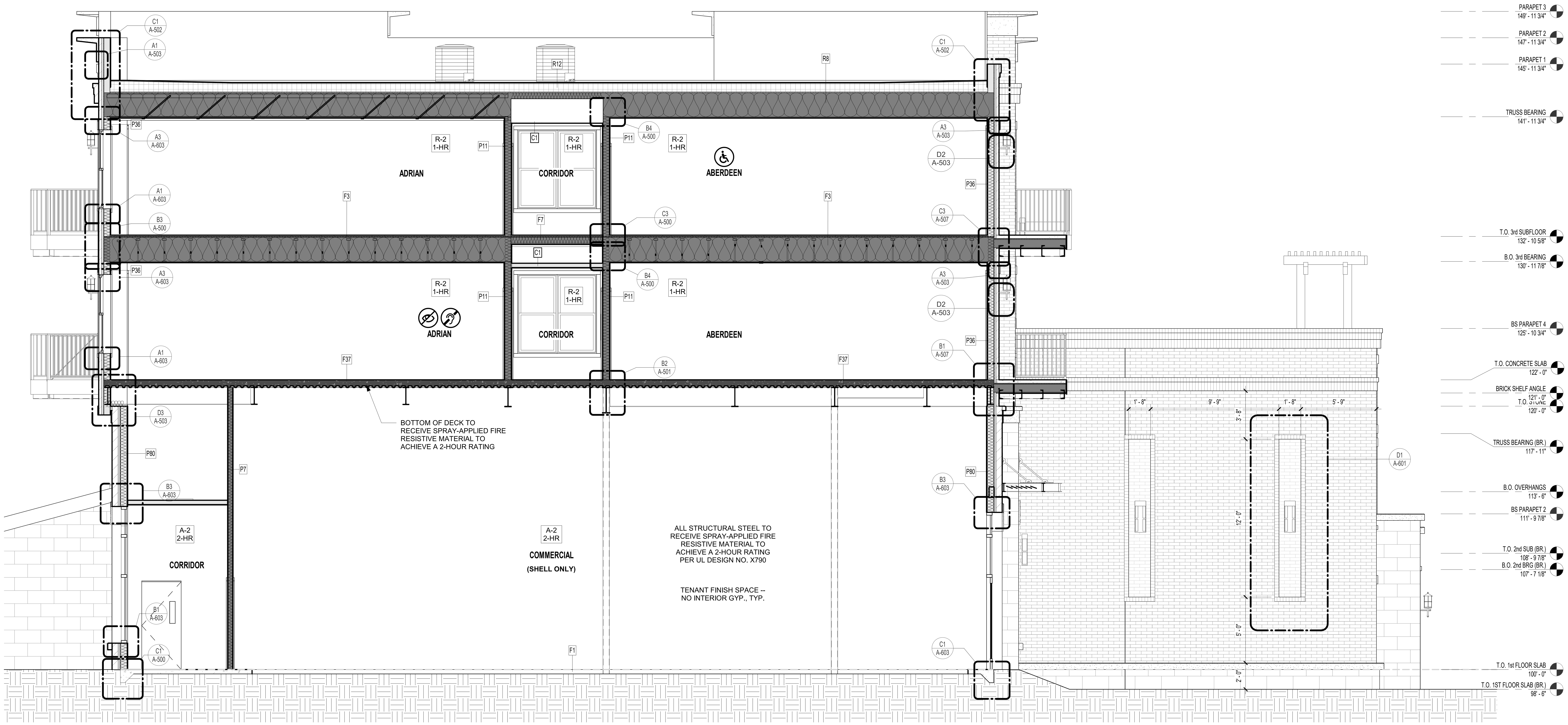
INTERIOR

P80 — **METAL 6" STUD - 1HR PARTITION - EXTERIOR**
- EXTERIOR FINISH SYSTEM PER ELEVATIONS - BRICK SHOWN
- WEATHER RESISTANT BARRIER PER SPECIFICATIONS
- (1) LAYER 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) LAYER 5/8" TYPE 'X' GYPSUM BOARD PER UL

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 PER LEE'S SUMMIT CODE, 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

R12 — **WOOD FLAT 2X6 LUMBER - 1HR - TOP OF ELEVATOR**
- TPO ROOFING MEMBRANE PER SPECIFICATIONS TO MEET IECC
- 1/2" COVERBOARD, NON-COMBUSTIBLE, WATER-RESISTANT
- PRE-SLOPED POLYISO RIGID INSULATION FOR SLOPE PER ROOF PLAN
- R-20 RIGID INSULATION MIN. (OR NECESSARY TO MEET MIN. IECC REQUIREMENT)
- VAPOR BARRIER CLASS 1, SELF ADHERED TO SHEATHING, AS REQUIRED
- SHEATHING PER STRUCTURAL DWGS.
- WOOD 2X6 FRAMING SPACED PER STRUCTURAL
- R-19 BATT INSULATION
- (2) LAYERS OF 5/8" TYPE 'X' GWB. PER GA ASSEMBLY



A1 SECTION @ COMMERCIAL
1/4" = 1'-0"

PRINTS ISSUED
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REVISIONS:

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7385
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
BUILDING SECTION

PROJECT NUMBER: 24017

SHEET NUMBER:

A-300

REFERENCE G-003 FOR GENERAL NOTES

FLOOR/CEILING ASSEMBLY-WOOD

F1

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

F3

WOOD OPEN WEB TRUSS - 1HR
- 1" GYPCRETE TOPPING
- 1/4" ACOUSTICAL MAT
- 19/32" MIN. 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

F7

WOOD 2X6 LUMBER - 1HR - CORRIDOR
- 1" GYPCRETE TOPPING
- 3/8" ACOUSTICAL MAT
- 15/32" SHEATHING MIN, 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

FLOOR/CEILING ASSEMBLY-METAL

F32

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

INTERIOR PARTITION ASSEMBLIES

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

P40

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

EXTERIOR PARTITION ASSEMBLIES

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

P40

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

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

P80.1

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

ROOF/CEILING ASSEMBLY-WOOD

R6

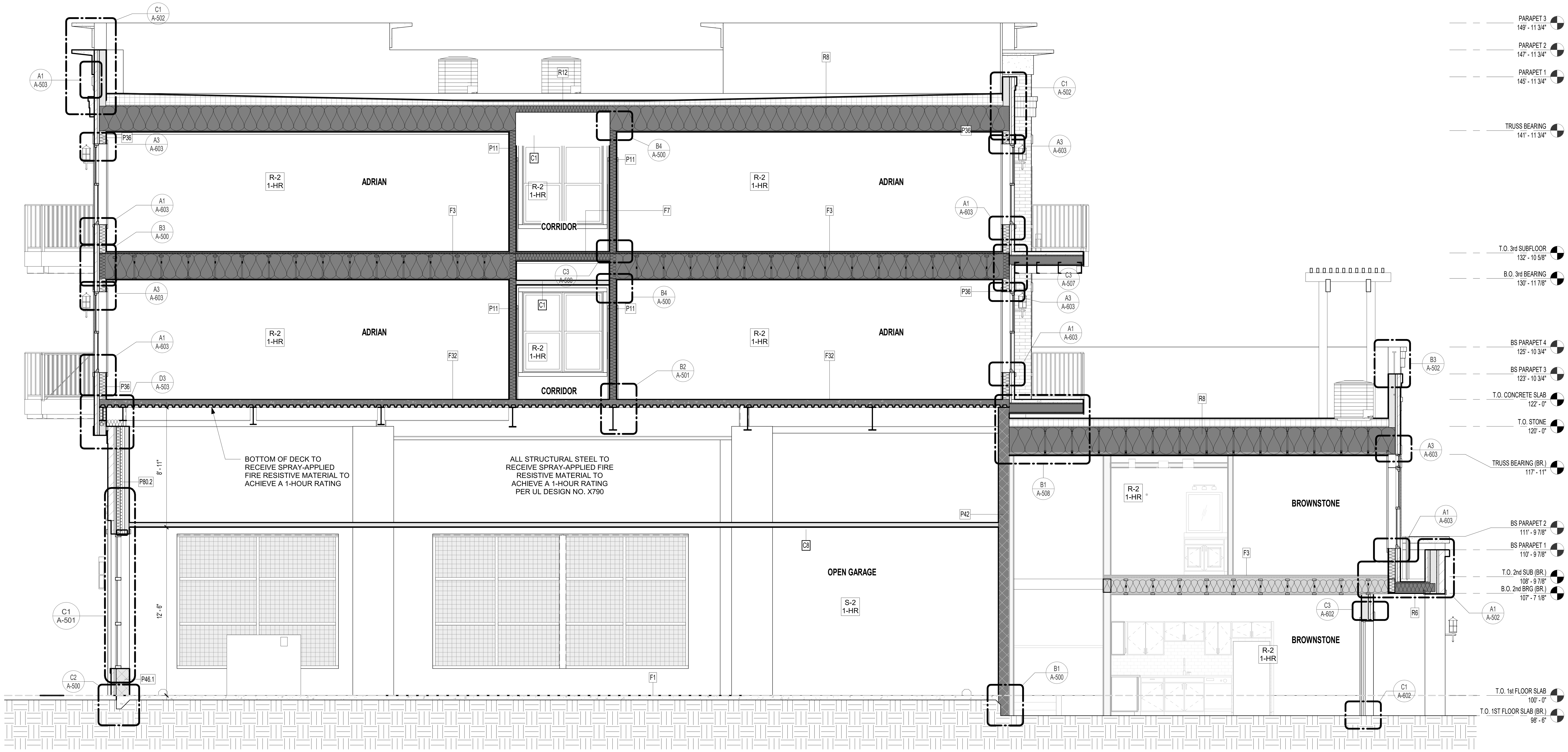
WOOD LOW SLOPE TRUSS - 1HR - TPO
- TPO ROOFING MEMBRANE, PER SPECIFICATION TO MEET IECC
- 1/2" COVERBOARD, NON-COMBUSTIBLE, WATER-RESISTANT.
- PRE-SLOPED POLYISO RIGID INSULATION FOR ALL CRICKETS
- 15/32" MIN. ROOF SHEATHING, SEE NOTE b.
- WOOD TRUSS FRAMING PER STRUCT. DWGS, MAX SPACING 24" OC - REFERENCE UL FOR CONSTRUCTION, TRUSS PRE-SLOPED TO DRAIN
- R-38 INSULATION PER IECC, INSTALLED PER UL
- VAPOR BARRIER CLASS 1 ON UNDERSIDE OF TRUSS, AS REQUIRED
- 25 MSG GALVANIZED STEEL RESILIENT CHANNELS, SPACED PER UL
- (1) LAYER OF 5/8" TYPE 'AG-C' GWB, BY AMERICAN GYPSUM CO, PER UL

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 PER LEE'S SUMMIT CODE, 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

R12

WOOD FLAT 2X6 LUMBER - 1HR - TOP OF ELEVATOR
- TPO ROOFING MEMBRANE PER SPECIFICATIONS TO MEET IECC
- 1/2" COVERBOARD, NON-COMBUSTIBLE, WATER-RESISTANT
- PRE-SLOPED POLYISO RIGID INSULATION FOR SLOPE PER ROOF PLAN
- R-20 RIGID INSULATION MIN. (OR NECESSARY TO MEET MIN. IECC REQUIREMENT)
- VAPOR BARRIER CLASS 1, SELF ADHERED TO SHEATHING, AS REQUIRED
- SHEATHING PER STRUCTURAL DWGS.
- WOOD 2X6 FRAMING SPACED PER STRUCTURAL
- R-19 BATT INSULATION
- (2) LAYERS OF 5/8" TYPE 'X' GWB. PER GA ASSEMBLY



A1 BUILDING SECTION @ BROWNSTONES & PARKING GARAGE
1/4" = 1'-0"

PRINTS ISSUED
11/27/2024 - CITY SUBMISSION

REVISIONS:

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
BUILDING SECTION

PROJECT NUMBER: 24017

SHEET NUMBER:

A-301

REFERENCE G-003 FOR GENERAL NOTES

FLOOR/CEILING ASSEMBLY-WOOD

F1

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

F3

WOOD OPEN WEB TRUSS - 1HR
- 1" GYPCRETE TOPPING
- 1/4" ACOUSTICAL MAT
- 19/32" MIN. 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

FLOOR/CEILING ASSEMBLY-METAL

F32

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

INTERIOR PARTITION ASSEMBLIES

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

EXTERIOR PARTITION ASSEMBLIES

P36

WOOD 2x6 STUD - NON-RATED EXTERIOR

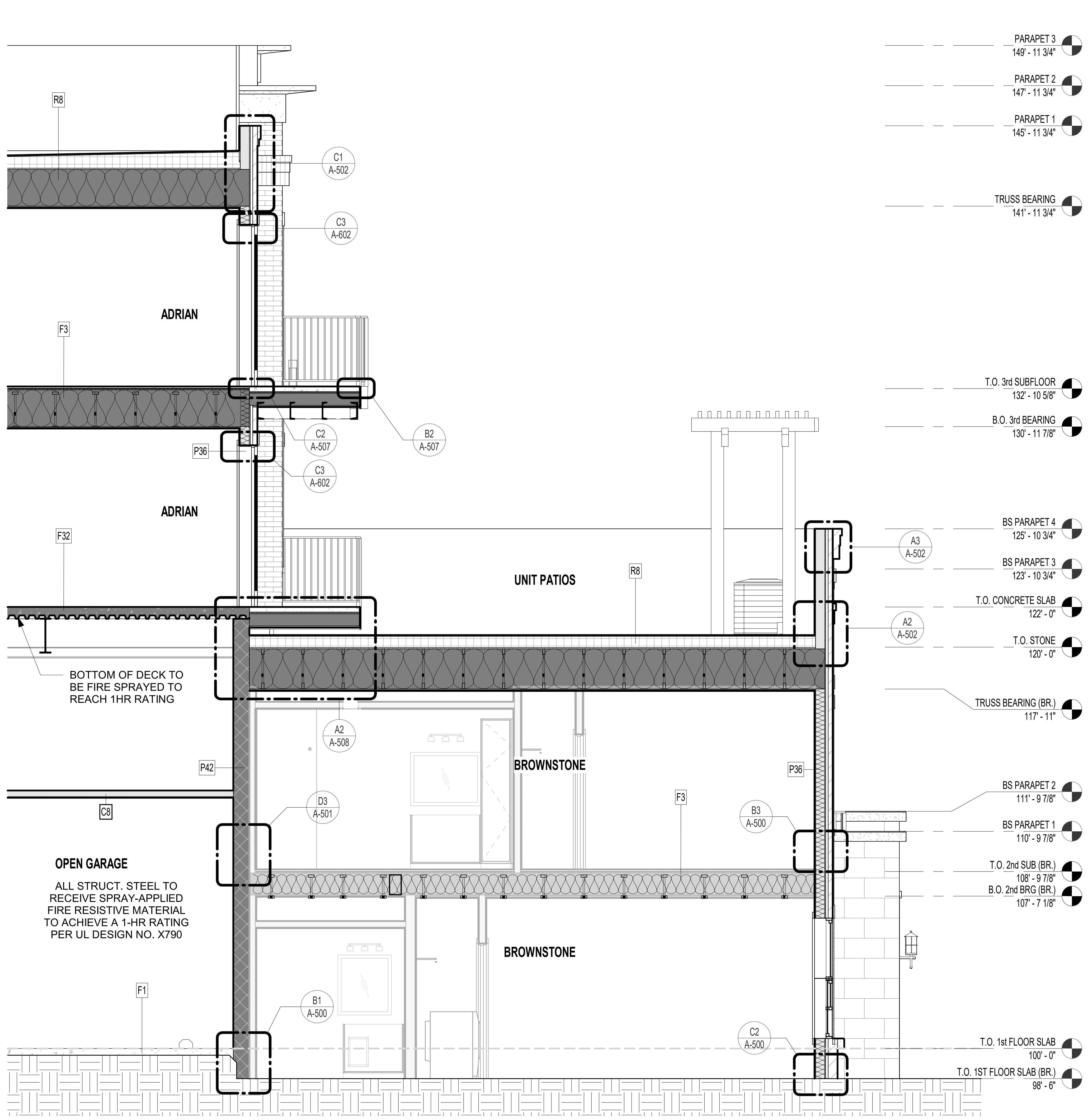
EXTERIOR
- EXTERIOR FINISH SYSTEM PER ELEVATIONS
- WEATHER RESISTANT BARRIER, PER SPECIFICATIONS
- (1) LAYER SHEATHING PER STRUCT. DWGS.
- 2x6 WOOD STUDS SPACED 16" O.C. MAX OR PER STRUCT. DWGS.
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD

INTERIOR

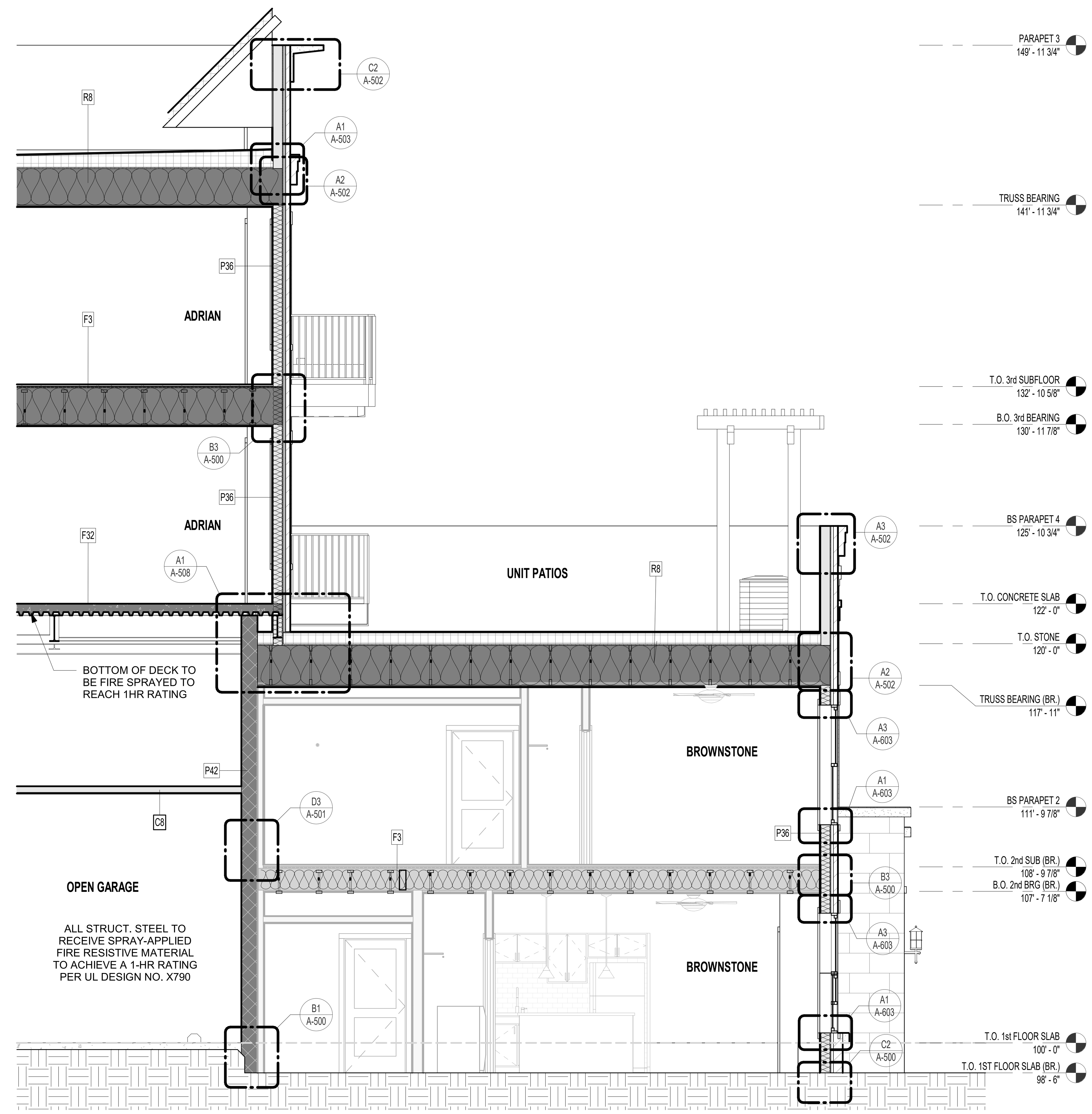
ROOF/CEILING ASSEMBLY-WOOD

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 PER LEE'S SUMMIT CODE, 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



B1 SECTION @ BROWNSTONES
1/4" = 1'-0"



A1 SECTION @ BROWNSTONES & PARKING GARAGE
1/4" = 1'-0"

PRINTS ISSUED
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REVISIONS:

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
BUILDING SECTIONS

PROJECT NUMBER: 24017

SHEET NUMBER:

A-302

REFERENCE G-003 FOR GENERAL NOTES

FLOOR/CEILING ASSEMBLY-WOOD

F1
CONCRETE - NON-RATED - SLAB ON GRADE
- CONCRETE SLAB ON GRADE PER STRUCT. DWGS.

F3
WOOD OPEN WEB TRUSS - 1HR
- 1" GYPCRETE TOPPING
- 1/4" ACOUSTICAL MAT
- 19/32" MIN. 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

F7
WOOD 2X6 LUMBER - 1HR - CORRIDOR
- 1" GYPCRETE TOPPING
- 3/8" ACOUSTICAL MAT
- 15/32" SHEATHING MIN, 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

FLOOR/CEILING ASSEMBLY-METAL

F32
METAL DECK AND CONCRETE - 1HR
- CONCRETE TOPPING SLAB PER STRUCT.
- WELDED WIRE FABRIC PER STRUCT. DWGS.
- METAL DECKING PER STRUCT. DWGS.

F37
METAL DECK AND CONCRETE - 2HR
- CONCRETE TOPPING SLAB PER STRUCT.
- WELDED WIRE FABRIC PER STRUCT. DWGS.
- METAL DECKING PER STRUCT. DWGS.

INTERIOR PARTITION ASSEMBLIES

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.

P14
WOOD DOUBLE 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 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

P41
CMU 8" BLOCK - 2HR FIRE BARRIER - INTERIOR
- 8" CMU (REINFORCING PER STRUCT)

EXTERIOR PARTITION ASSEMBLIES

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

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.)

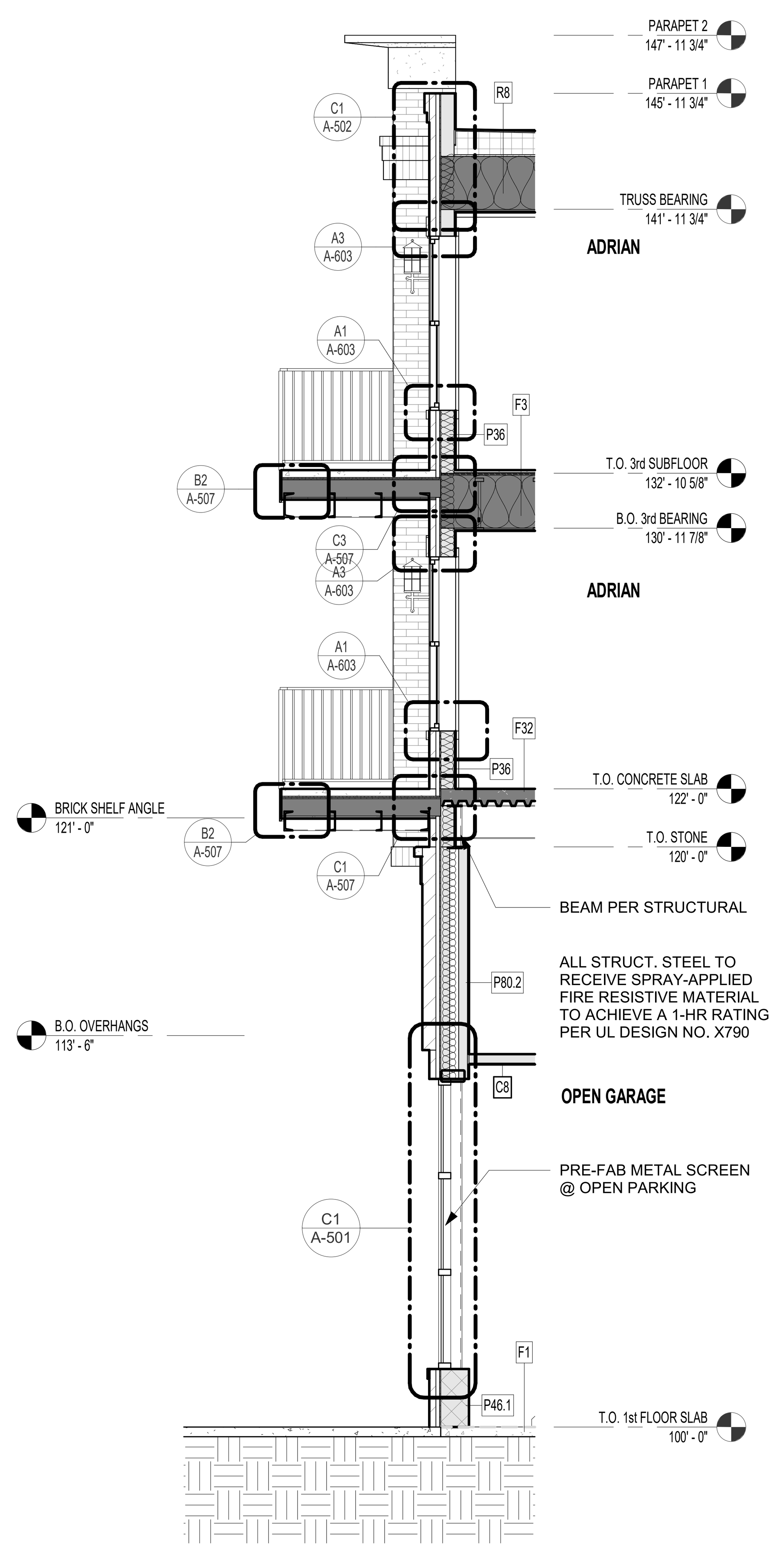
INTERIOR

P80
METAL 6" STUD - 1HR PARTITION - EXTERIOR
- EXTERIOR FINISH SYSTEM PER ELEVATIONS - BRICK SHOWN
- WEATHER RESISTANT BARRIER PER SPECIFICATIONS
- (1) LAYER 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) LAYER 5/8" TYPE 'X' GYPSUM BOARD PER UL

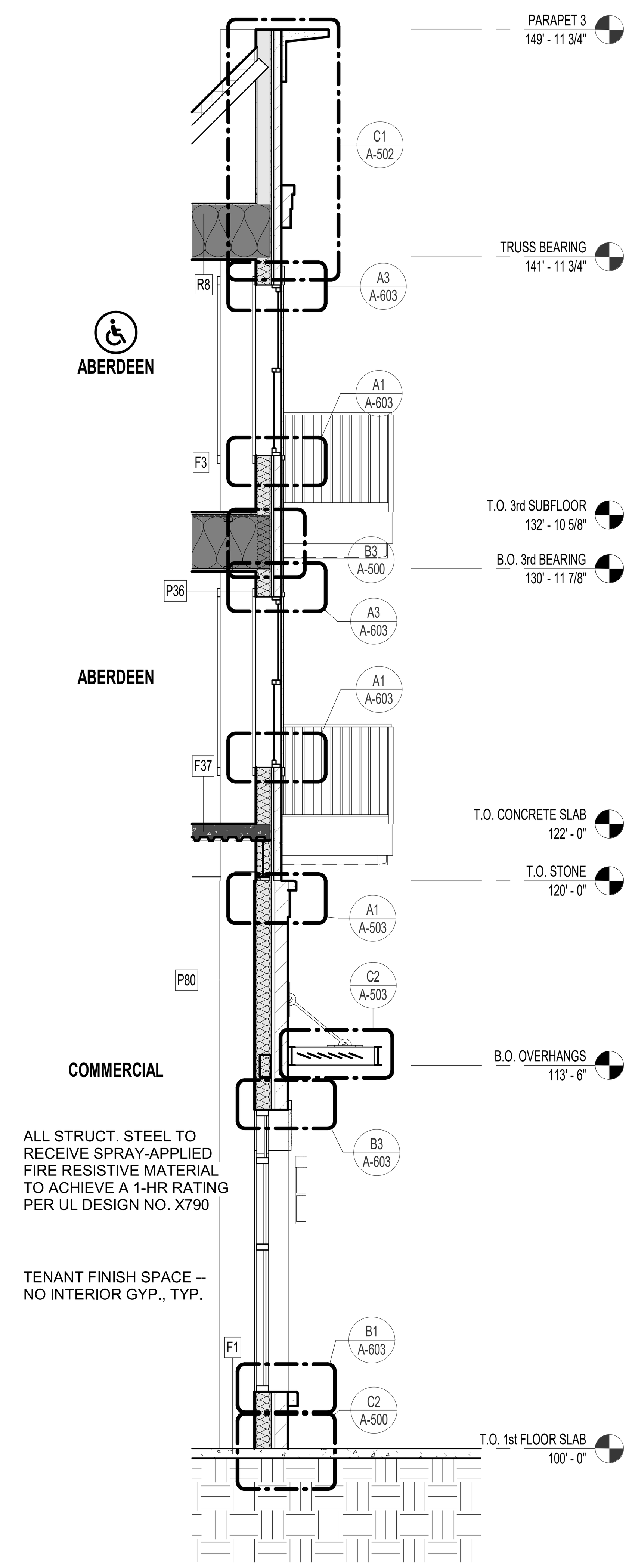
P80.1
DOUBLE METAL 3-5/8" STUD - NON-RATED PARTITION - EXTERIOR - PARKING
- EXTERIOR FINISH SYSTEM PER ELEVATIONS - BRICK SHOWN
- WEATHER RESISTANT BARRIER PER SPECIFICATIONS
- (1) LAYER SHEATHING PER STRUCT. DRAWINGS
- DOUBLE 3-5/8" METAL STUDS WITH 3-3/4" AIR GAP, SPACED PER STRUCTURAL ENGINEER (MIN 20 MSG)
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD

ROOF/CEILING ASSEMBLY-WOOD

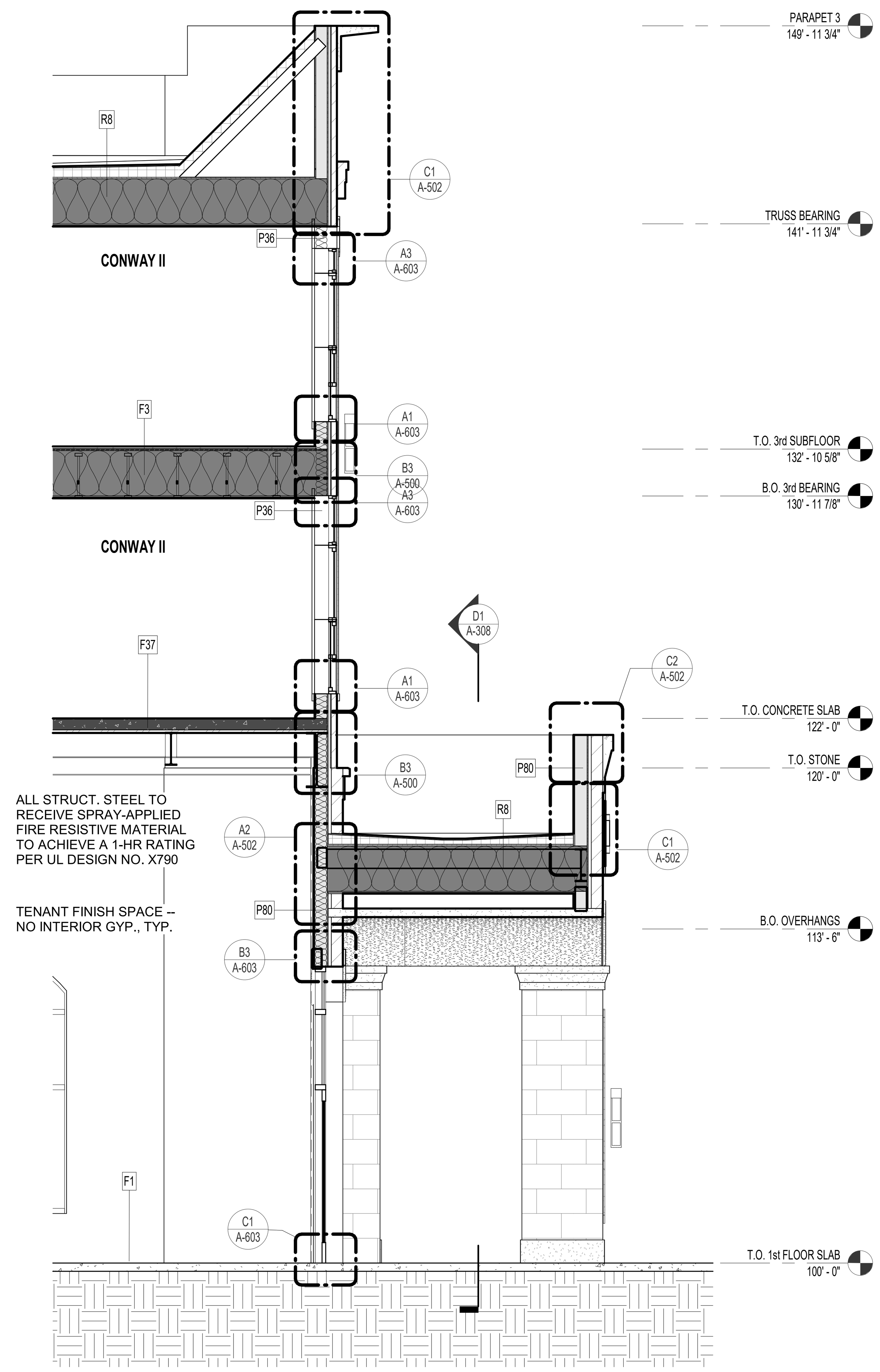
R8
WOOD PARALLEL CHORD TRUSS - 1HR - TPO
- TPO ROOFING, PER SPECIFICATION TO MEET IECC
- 1/2" COVERBOARD, NON-COMBUSTIBLE, WATER-RESISTANT
- TAPERED INSULATION, SLOPE PER PLAN
- 15/32" MIN. ROOF SHEATHING, SEE NOTE b.
- WOOD TRUSS FRAMING PER STRUCT. DWGS, MAX SPACING 24" OC - REFERENCE UL FOR CONSTRUCTION
- R-30 INSULATION PER LEE'S SUMMIT CODE, 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



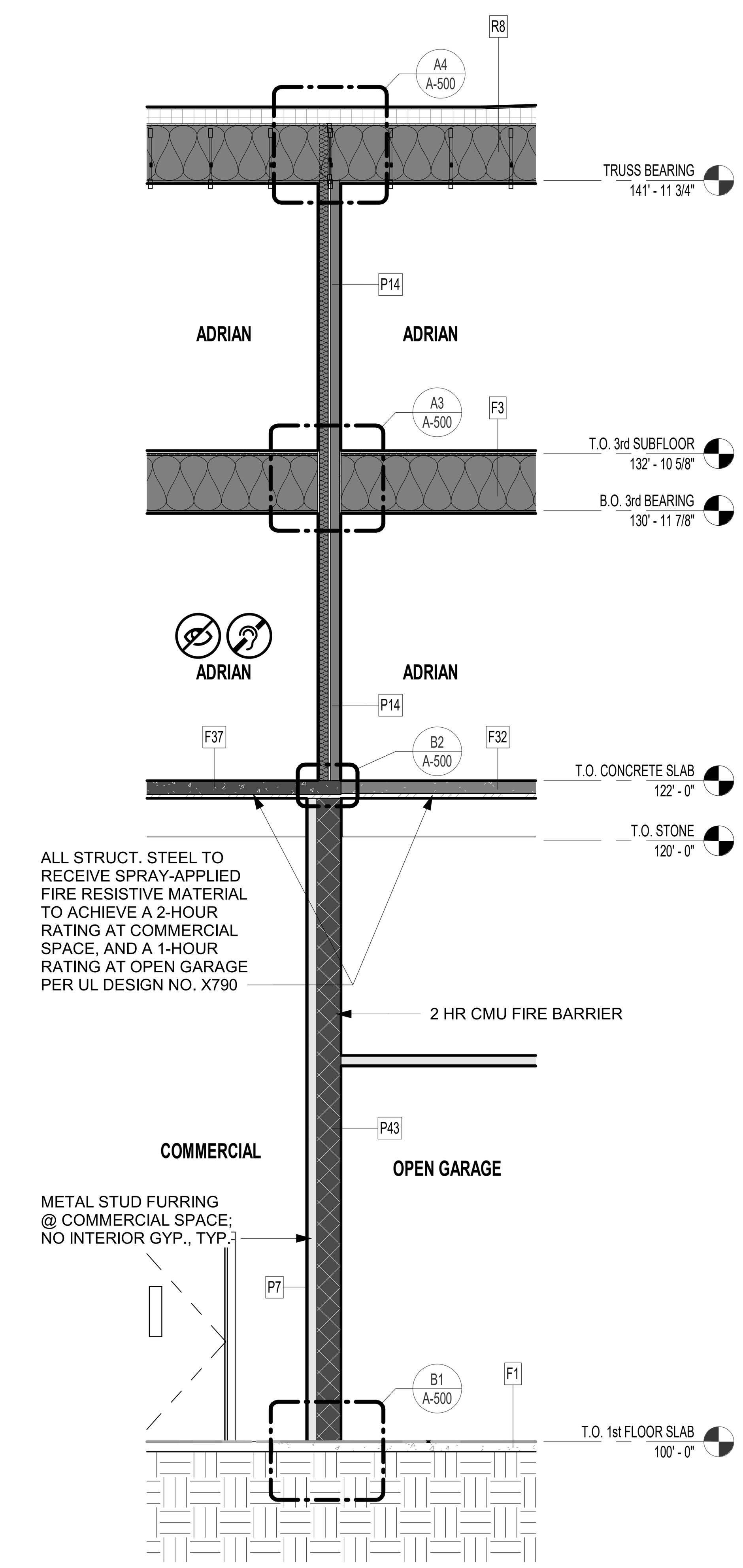
D1 SECTION @ PARKING GARAGE
1/4" = 1'-0"



C1 TYP. SECTION
1/4" = 1'-0"



B1 SECTION @ ENTRY
1/4" = 1'-0"



A1 SECTION @ FIRE BARRIER
1/4" = 1'-0"

PRINTS ISSUED
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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7385
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
WALL SECTIONS

PROJECT NUMBER: 24017

SHEET NUMBER:

A-303

REFERENCE G-003 FOR GENERAL NOTES

FLOOR/CEILING ASSEMBLY-WOOD

F1

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

F3

WOOD OPEN WEB TRUSS - 1HR
- 1" GYPCRETE TOPPING
- 1/4" ACOUSTICAL MAT
- 19/32" MIN. 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

FLOOR/CEILING ASSEMBLY-METAL

F32

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

F37

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

EXTERIOR PARTITION ASSEMBLIES

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

P80

METAL 6" STUD - 1HR PARTITION - EXTERIOR
- EXTERIOR FINISH SYSTEM PER ELEVATIONS - BRICK SHOWN
- WEATHER RESISTANT BARRIER PER SPECIFICATIONS
- (1) LAYER 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) LAYER 5/8" TYPE 'X' GYPSUM BOARD PER UL

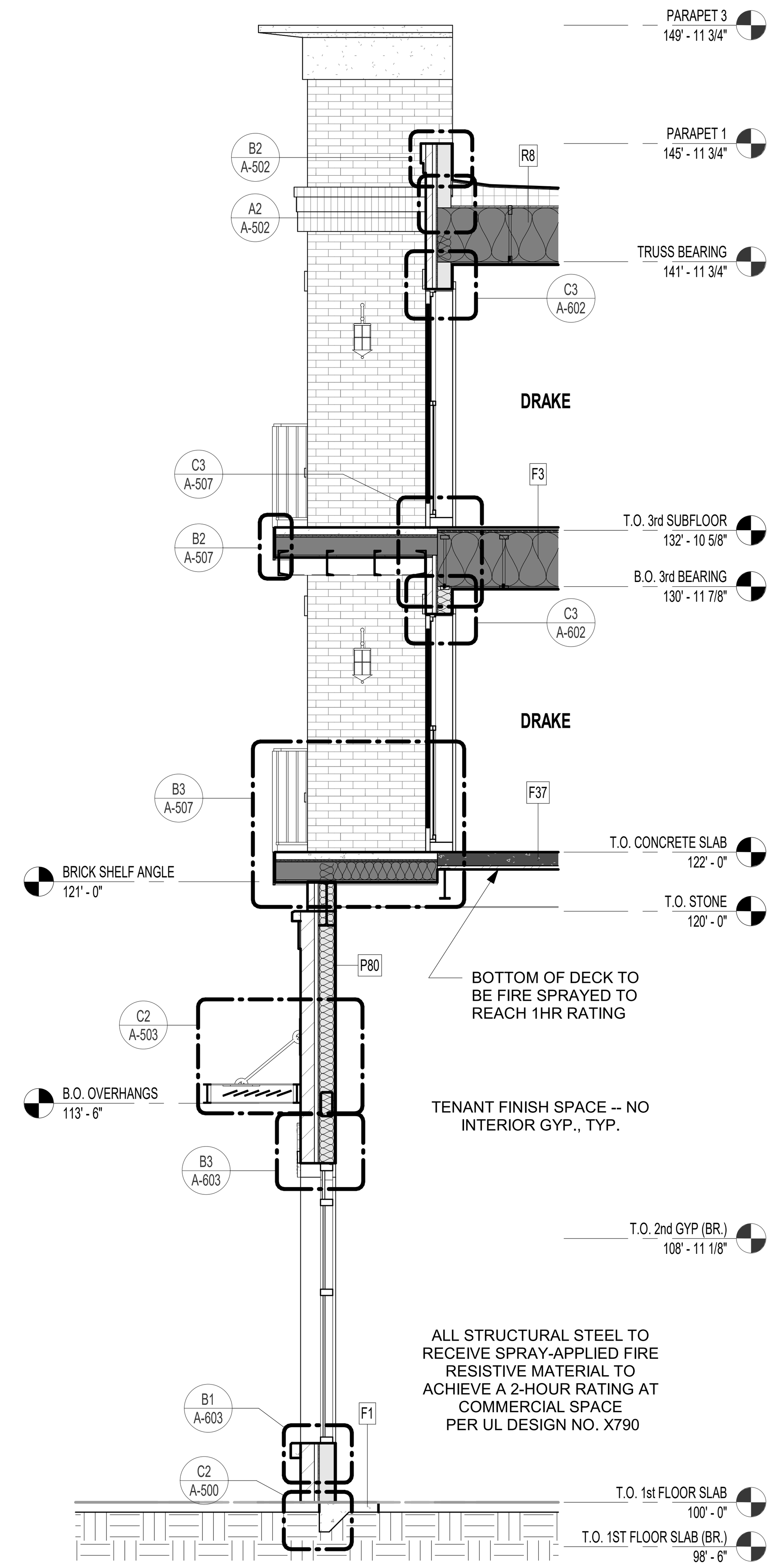
P80.1

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

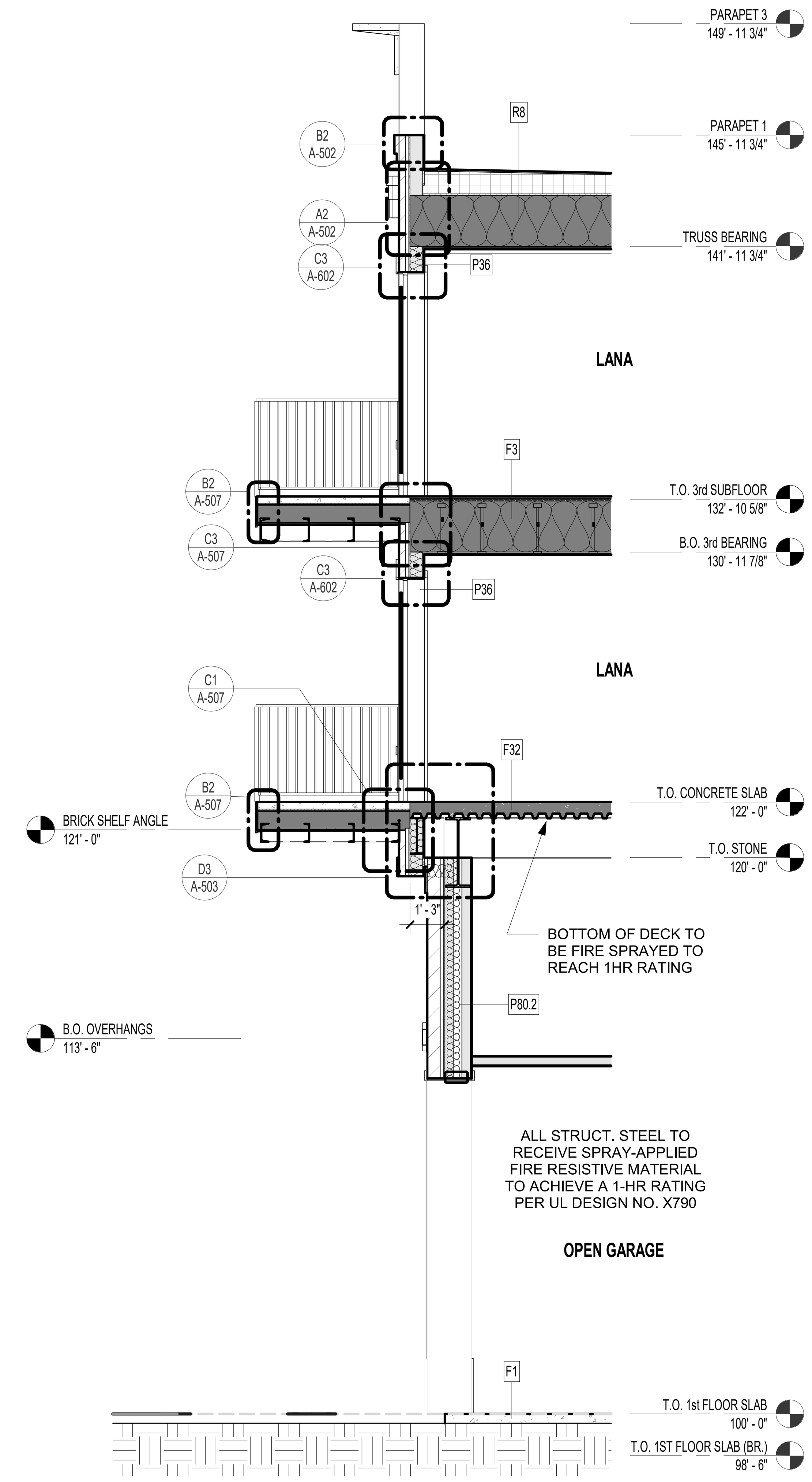
ROOF/CEILING ASSEMBLY-WOOD

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 PER LEE'S SUMMIT CODE, 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



B1 SECTION THROUGH RECESSED BALCONY
1/4" = 1'-0"



A1 SECTION THROUGH GRAGE OPENING
1/4" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
LICENSED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
WALL SECTIONS

PROJECT NUMBER: 24017

SHEET NUMBER:

A-304

FLOOR/CEILING ASSEMBLY-WOOD

F1	**CONCRETE - NON-RATED - SLAB ON GRADE** • CONCRETE SLAB ON GRADE PER STRUCT. DWGS.
F3	**WOOD OPEN WEB TRUSS - 1HR** • 1" GYPCRETE TOPPING • 1/4" ACOUSTICAL MAT • 19/32" MIN. 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
F6	**WOOD 2X10 LUMBER - 1HR - STAIR** • 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
F7	**WOOD 2X6 LUMBER - 1HR - CORRIDOR** • 1" GYPCRETE TOPPING • 3/8" ACOUSTICAL MAT • 15/32" SHEATHING MIN, 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

INTERIOR PARTITION ASSEMBLIES

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.
P23	**WOOD 2X6 STUD - 2HR BARRIER - INTERIOR** • (2) LAYERS 5/8" TYPE "X" GYPSUM BOARD • 25 MSG GALVANIZED RESILIENT CHANNEL, 24" O.C. • 2x6 WOOD STUDS SPACED 16" O.C. MAX OR PER STRUCT. DWGS. • 5-1/2" FRICTION FIT BATT INSULATION IN STUD CAVITY • (2) LAYERS 5/8" TYPE "X" GYPSUM BOARD
P41	**CMU 8" BLOCK - 2HR FIRE BARRIER - INTERIOR** • 8" CMU (REINFORCING PER STRUCT)
P75	**METAL 2 1/2" C-H STUD - 2HR RATED SHAFT - INTERIOR** • (2) LAYERS 5/8" TYPE 'X' GYPSUM BOARD PER UL • 2-1/2" C-H STUDS SPACED 24" O.C. • (1) LAYER 1" SHAFT WALL LINER
P54	**METAL 1/2" FURRING / HAT CHANNEL - NON-RATED FURRING - INTERIOR** • (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD • 1/2" FURRING / HAT CHANNEL, 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.

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 PER LEE'S SUMMIT CODE, 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
R12	**WOOD FLAT 2X6 LUMBER - 1HR - TOP OF ELEVATOR** • TPO ROOFING MEMBRANE PER SPECIFICATIONS TO MEET IECC • 1/2" COVERBOARD, NON-COMBUSTIBLE, WATER-RESISTANT • PRE-SLOPED POLYISO RIGID INSULATION FOR SLOPE PER ROOF PLAN • R-20 RIGID INSULATION MIN. (OR NECESSARY TO MEET MIN. IECC REQUIREMENT) • VAPOR BARRIER CLASS 1, SELF ADHERED TO SHEATHING, AS REQUIRED • SHEATHING PER STRUCTURAL DWGS. • WOOD 2X6 FRAMING SPACED PER STRUCTURAL • R-19 BATT INSULATION • (2) LAYERS OF 5/8" TYPE 'X' GWB. PER GA ASSEMBLY

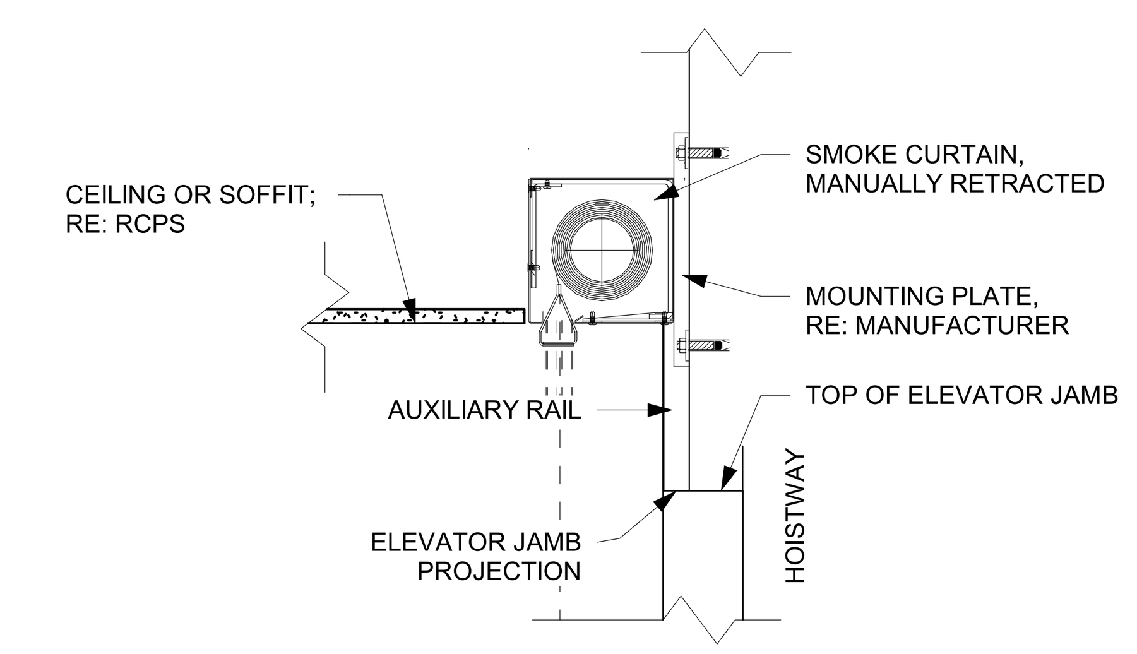
FLOOR/CEILING ASSEMBLY-METAL

F37	**METAL DECK AND CONCRETE - 2HR** • CONCRETE TOPPING SLAB PER STRUCT. • WELDED WIRE FABRIC PER STRUCT. DWGS. • METAL DECKING PER STRUCT. DWGS.

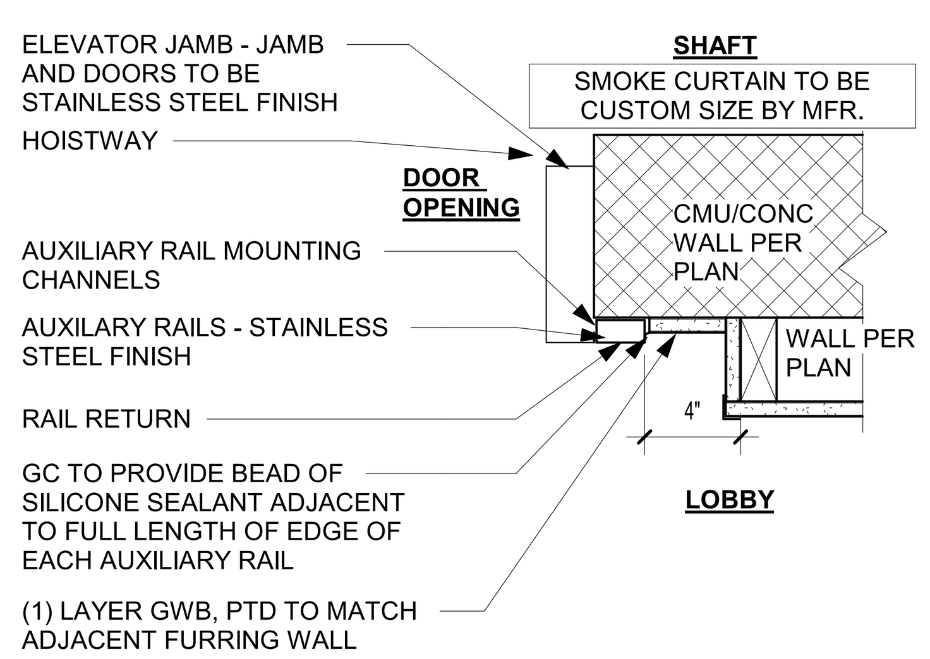
REFERENCE G-003 FOR GENERAL NOTES

PLAN LEGEND

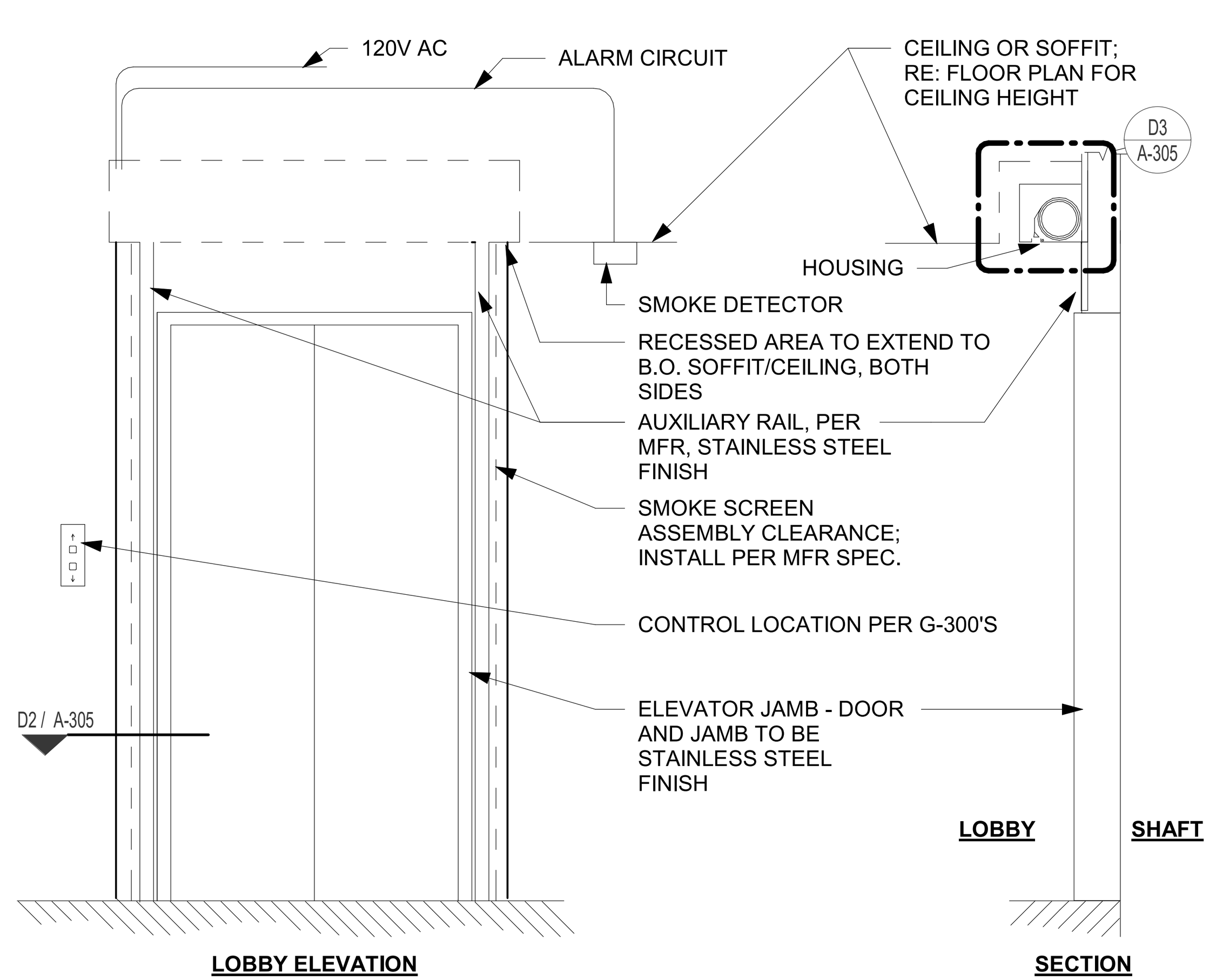
- PARTIAL HEIGHT PARTITION
- NON-RATED PARTITION; SEE ASSEMBLIES G-100s
- 1 HR RATED PARTITION; SEE ASSEMBLIES G-100s
- 2 HR RATED PARTITION; SEE ASSEMBLIES G-100s
- A1 — WINDOW TYPE; SEE WINDOW SCHEDULE ON SHEET A-600
- 101 — DOOR TYPE; SEE DOOR SCHEDULE ON SHEET A-600
- P7 — PARTITION TYPE; SEE ASSEMBLIES G-100s
- 6' - 0" — FRAMING DIMENSIONS
- 6' - 0" LAYOUT — LAYOUT LINE DIMENSIONS
- HEARING/VISIBILITY
- ADA/ACCESSIBLE UNITS



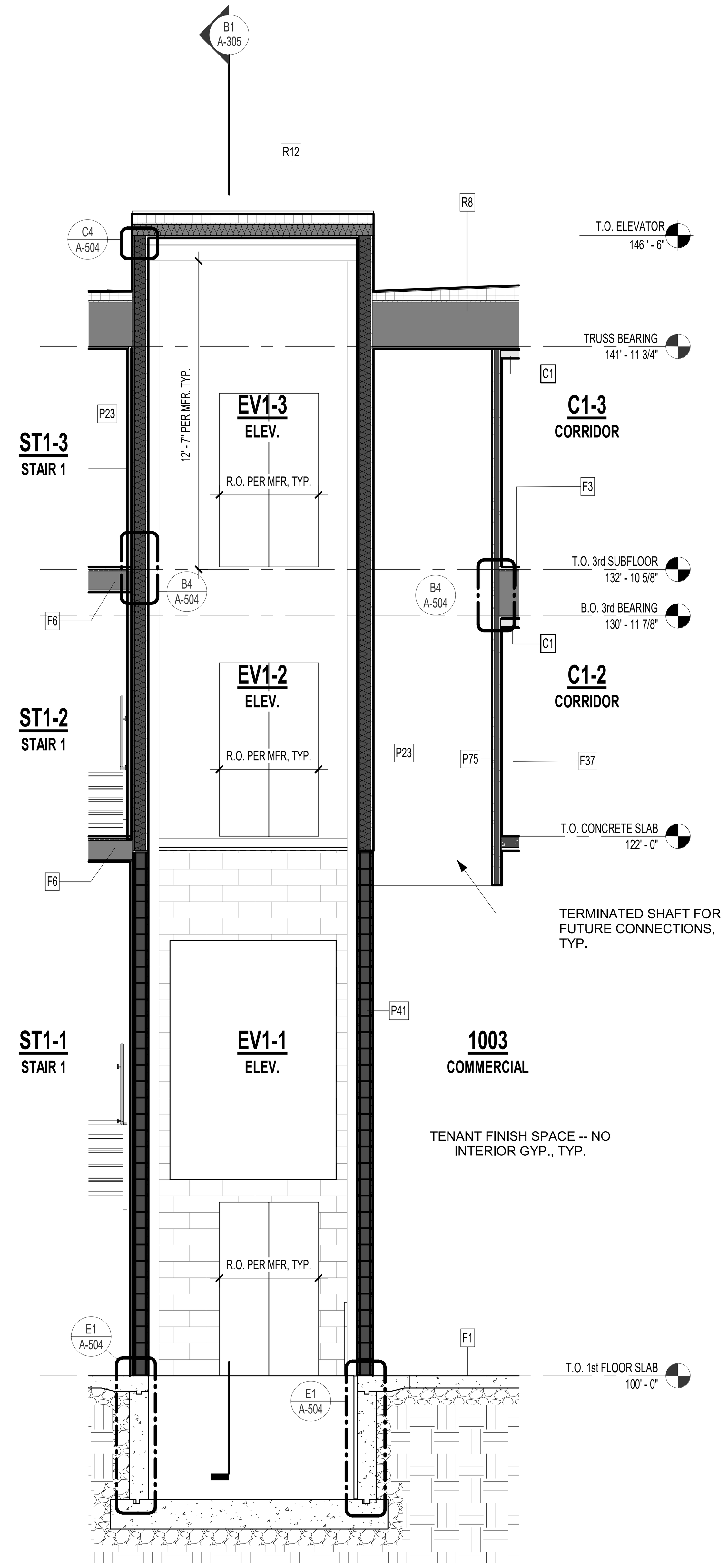
D3 SMOKE CURTAIN HEAD DTL
1 1/2" = 1'-0"



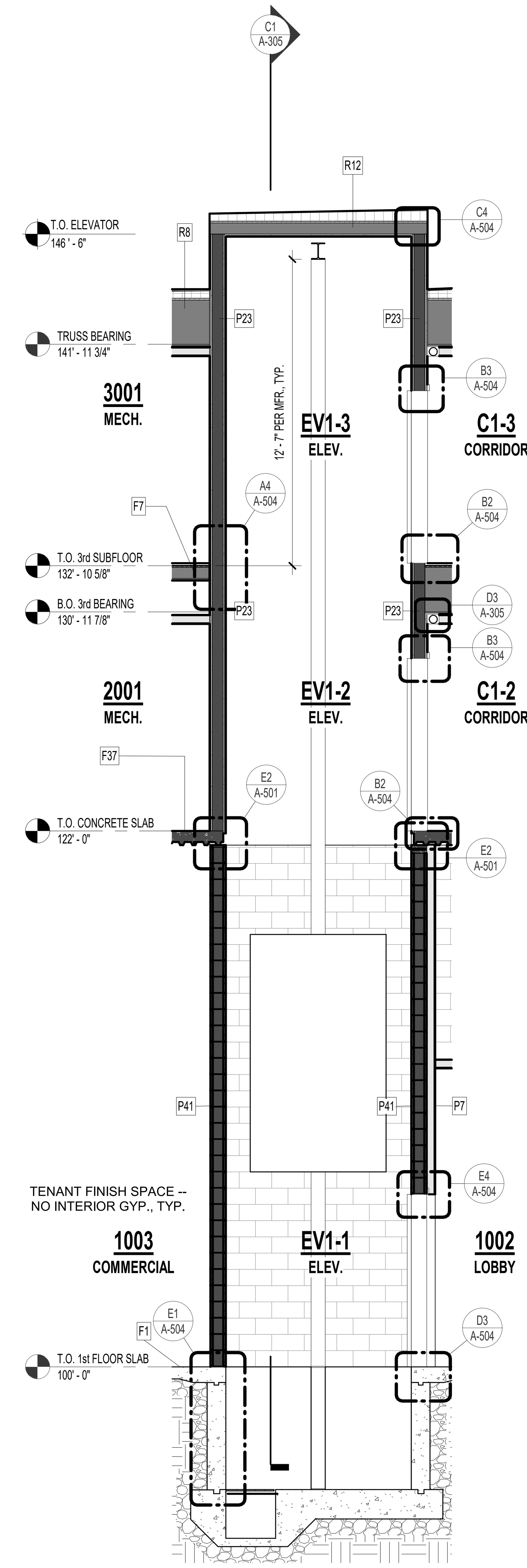
D2 SMOKE CURTAIN JAMB DTL
1 1/2" = 1'-0"



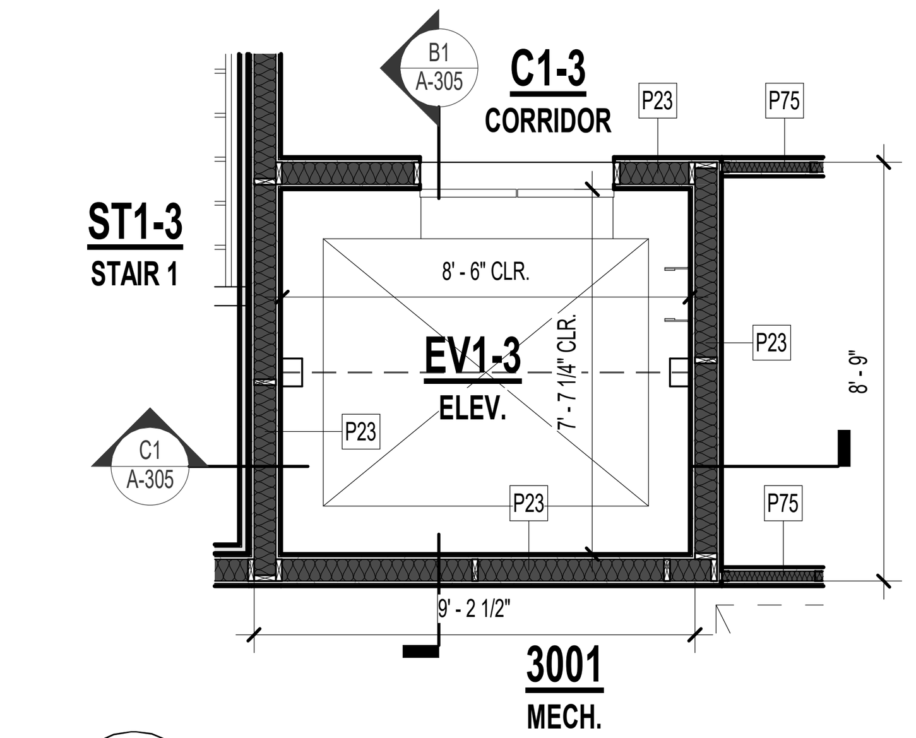
D1 SMOKE CURTAIN SECTION AND ELEVATION
1/2" = 1'-0"



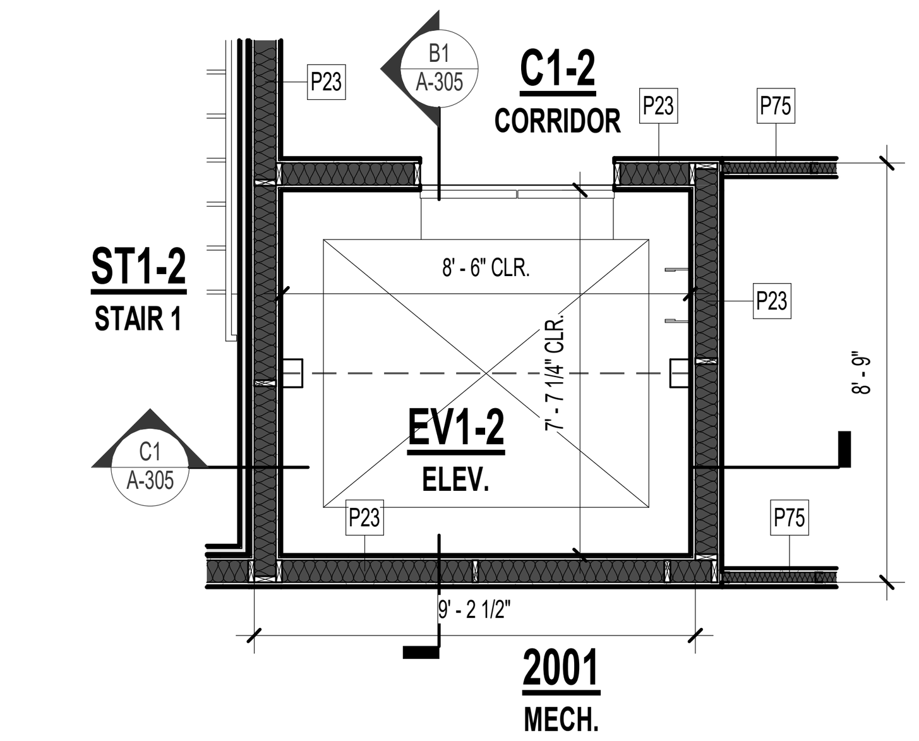
C1 ELEVATOR - SECTION 2
1/4" = 1'-0"



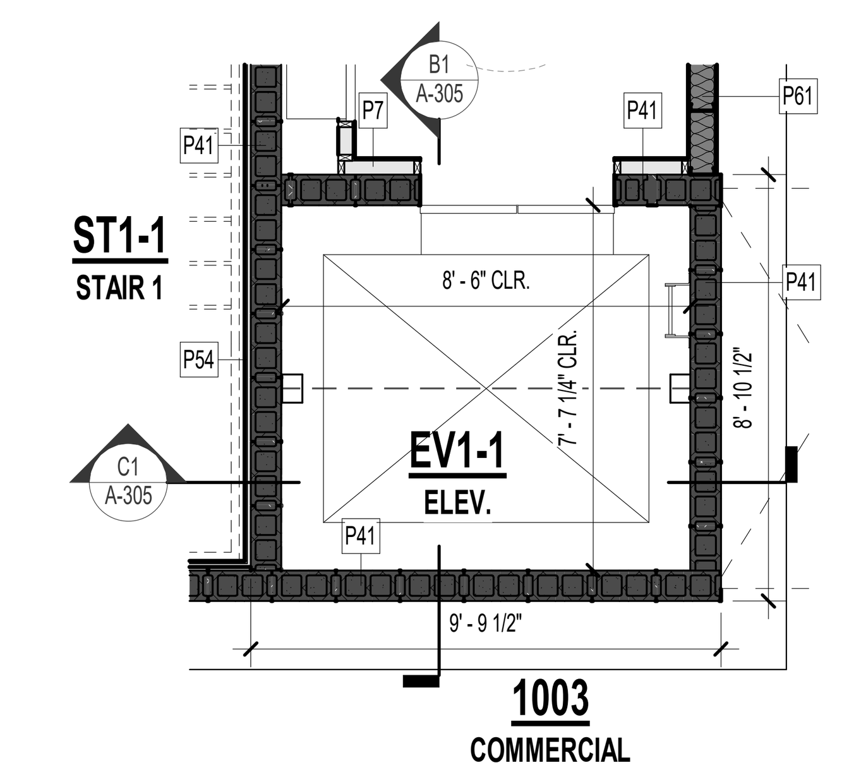
B1 ELEVATOR - SECTION 1
1/4" = 1'-0"



A3 ELEVATOR - 3RD FLOOR
1/4" = 1'-0"



A2 ELEVATOR - 2ND FLOOR
1/4" = 1'-0"



A1 ELEVATOR - 1ST FLOOR
1/4" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
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11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
ELEVATOR SECTION & DETAILS

PROJECT NUMBER: 24017

SHEET NUMBER:

A-305

FLOOR/CEILING ASSEMBLY-WOOD

F1

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

F3

WOOD OPEN WEB TRUSS - 1HR
- 1" GYPCRETE TOPPING
- 1/4" ACOUSTICAL MAT
- 19/32" MIN. 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

F7

WOOD 2X6 LUMBER - 1HR - CORRIDOR
- 1" GYPCRETE TOPPING
- 3/8" ACOUSTICAL MAT
- 15/32" SHEATHING MIN, 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

F6

WOOD 2X10 LUMBER - 1HR - STAIR
- 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

FLOOR/CEILING ASSEMBLY-METAL

F37

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

INTERIOR PARTITION ASSEMBLIES

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

P6

WOOD 2X2 STUD - NON-RATED FURRING - INTERIOR
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD ON OCCUPIED SIDE
- 2x2 WOOD STUDS SPACED 16" O.C.

P23

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

P41

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

P54

METAL 1/2" FURRING / HAT CHANNEL - NON-RATED FURRING - INTERIOR
- (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD
- 1/2" FURRING / HAT CHANNEL, 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.

EXTERIOR PARTITION ASSEMBLIES

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

P45

CMU 8" BLOCK - 1HR - EXTERIOR
EXTERIOR
- EXTERIOR FINISH SYSTEM PER ELEVATIONS - BRICK SHOWN
- WEATHER RESISTANT BARRIER PER SPECIFICATIONS
- R VALUE PER IECC AS INDICATED ON DRAWINGS / SPECIFICATIONS.
- 8" CMU (SIZING AND REINFORCING PER STRUCT)
- P54 WALL ASSEMBLY ATTACHED DIRECTLY TO CMU
  1. 7/8" FURRING / HAT CHANNEL, SPACED 16" O.C. (GAUGE DETERMINED BY WALL HEIGHT)
  2. (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD

INTERIOR

ROOF/CEILING ASSEMBLY-WOOD

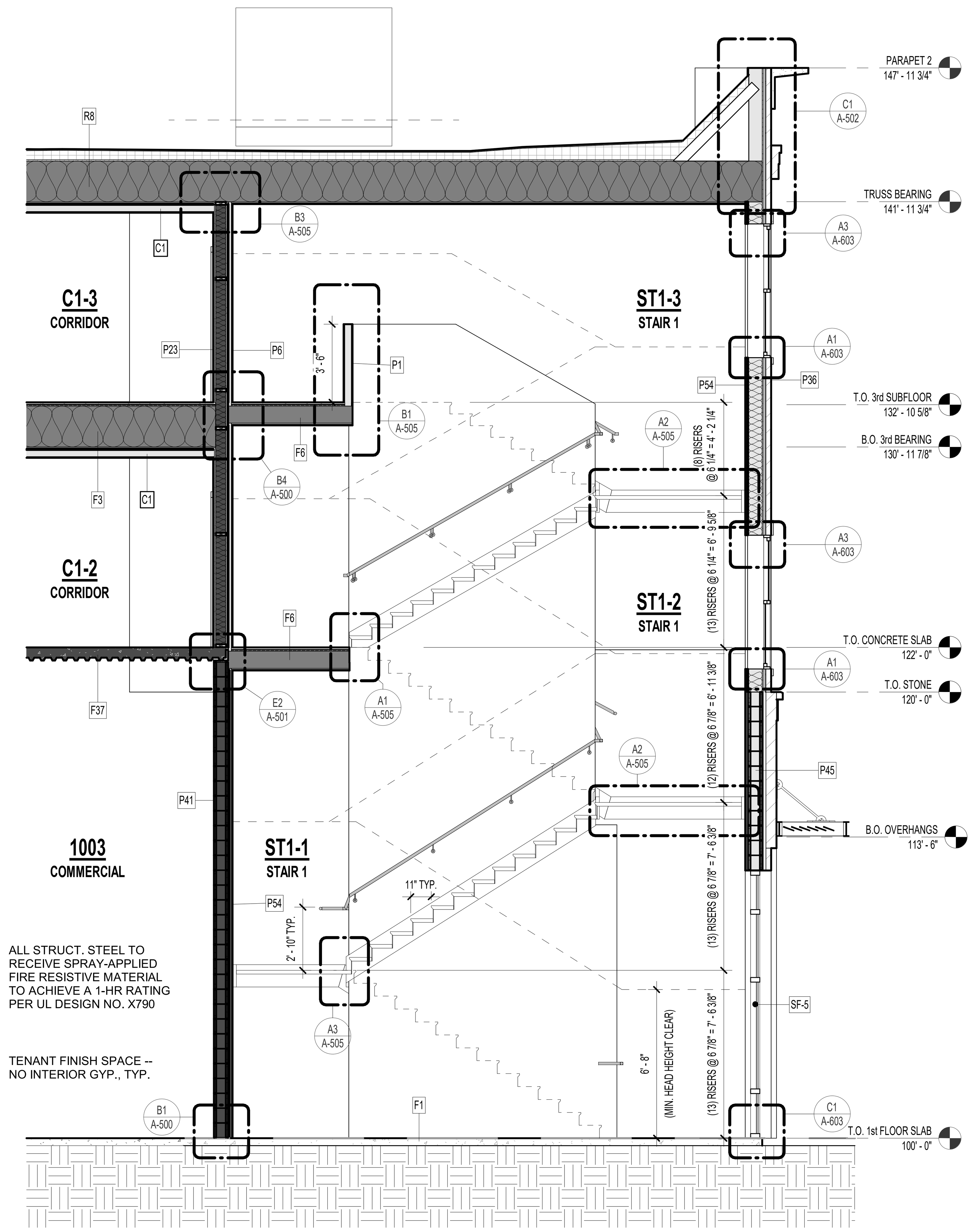
R8

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 PER LEE'S SUMMIT CODE, 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

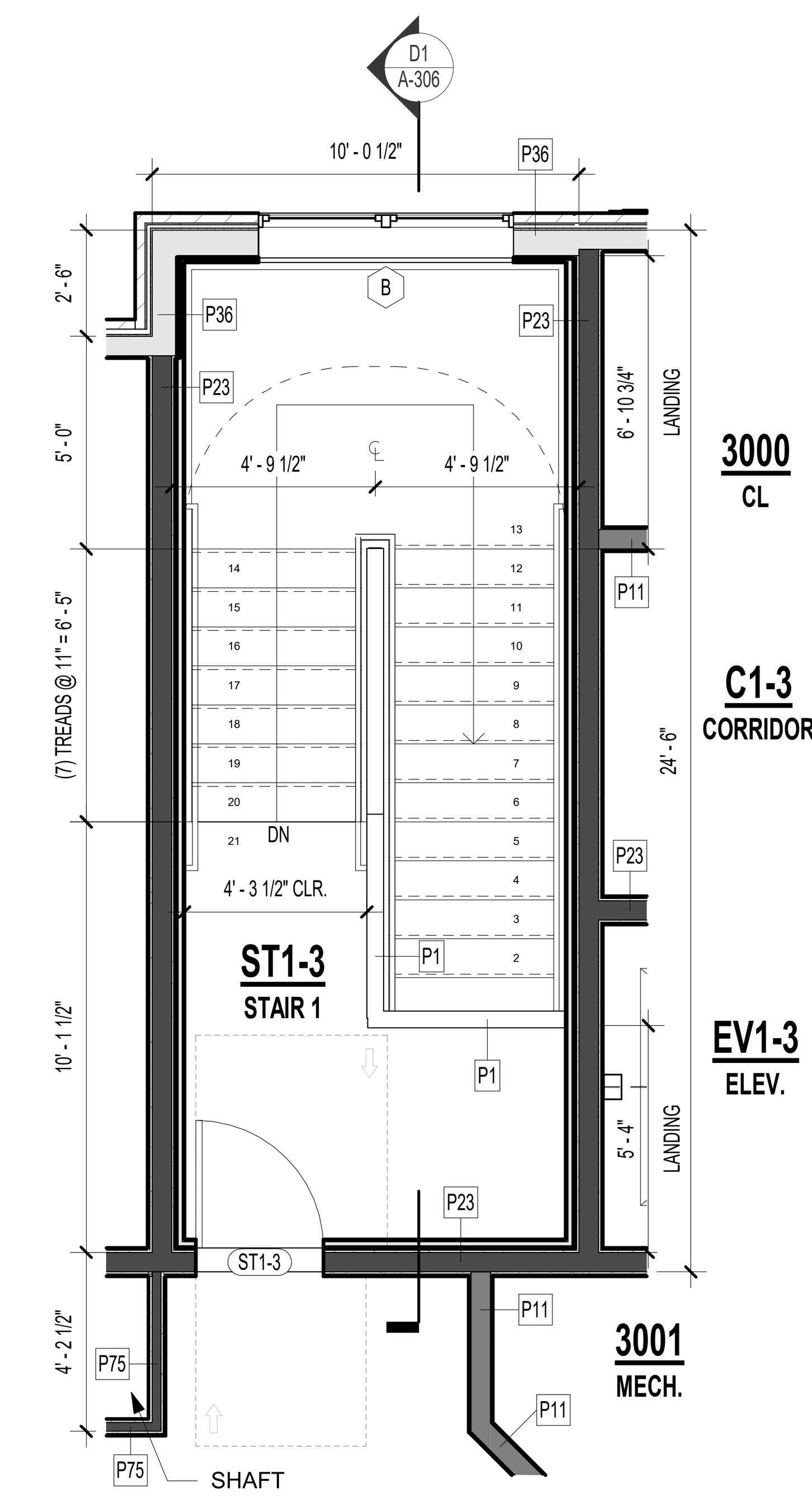
REFERENCE G-003 FOR GENERAL NOTES

PLAN LEGEND

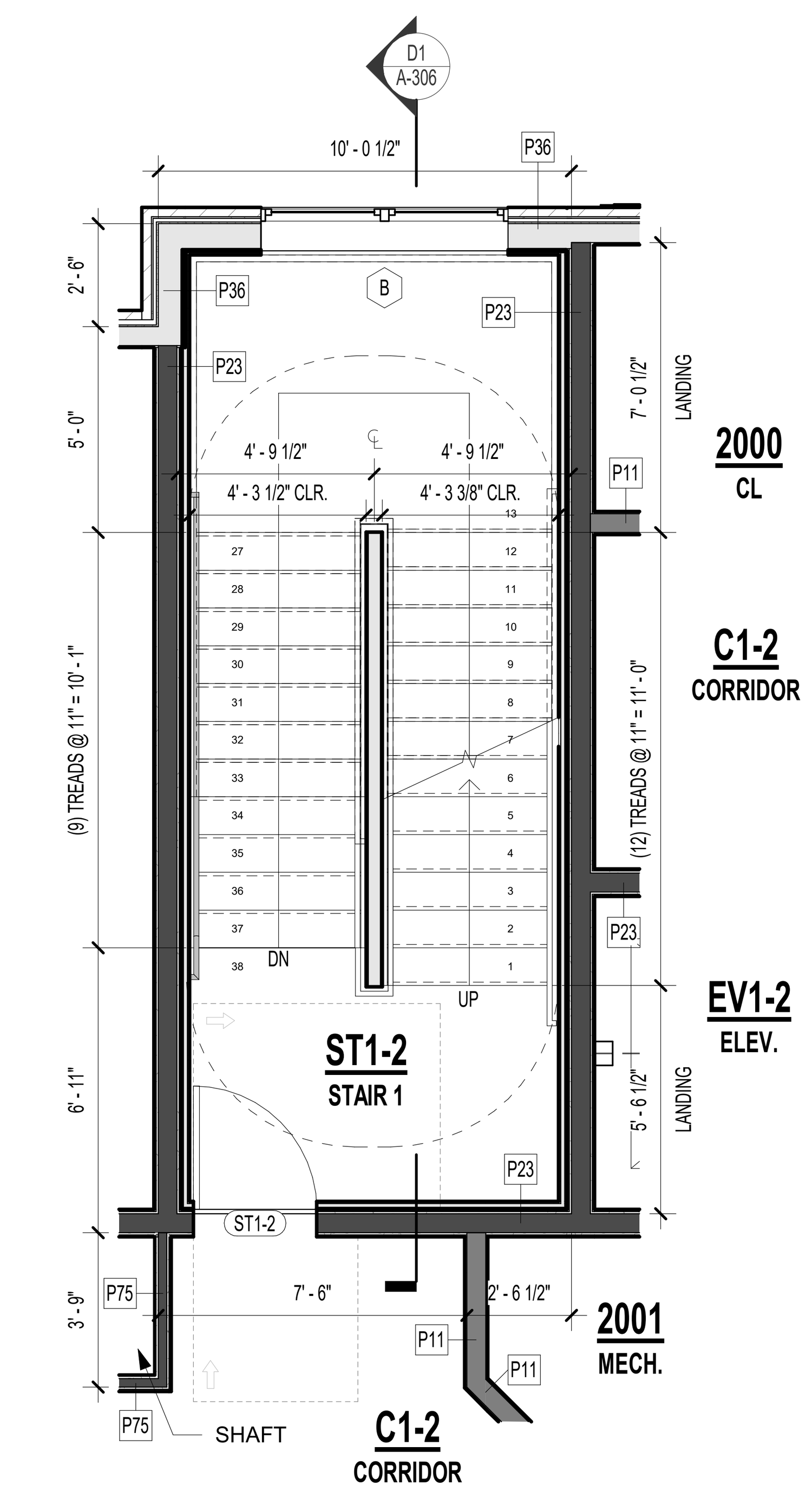
- PARTIAL HEIGHT PARTITION
- NON-RATED PARTITION; SEE ASSEMBLIES G-100s
- 1 HR RATED PARTITION; SEE ASSEMBLIES G-100s
- 2 HR RATED PARTITION; SEE ASSEMBLIES G-100s
- A1 — WINDOW TYPE; SEE WINDOW SCHEDULE ON SHEET A-600
- 101 — DOOR TYPE; SEE DOOR SCHEDULE ON SHEET A-600
- P7 — PARTITION TYPE; SEE ASSEMBLIES G-100s
- 6' - 0" — FRAMING DIMENSIONS
- 6' - 0" LAYOUT — LAYOUT LINE DIMENSIONS
- HEARING/VISIBILITY
- ADA/ACCESSIBLE UNITS



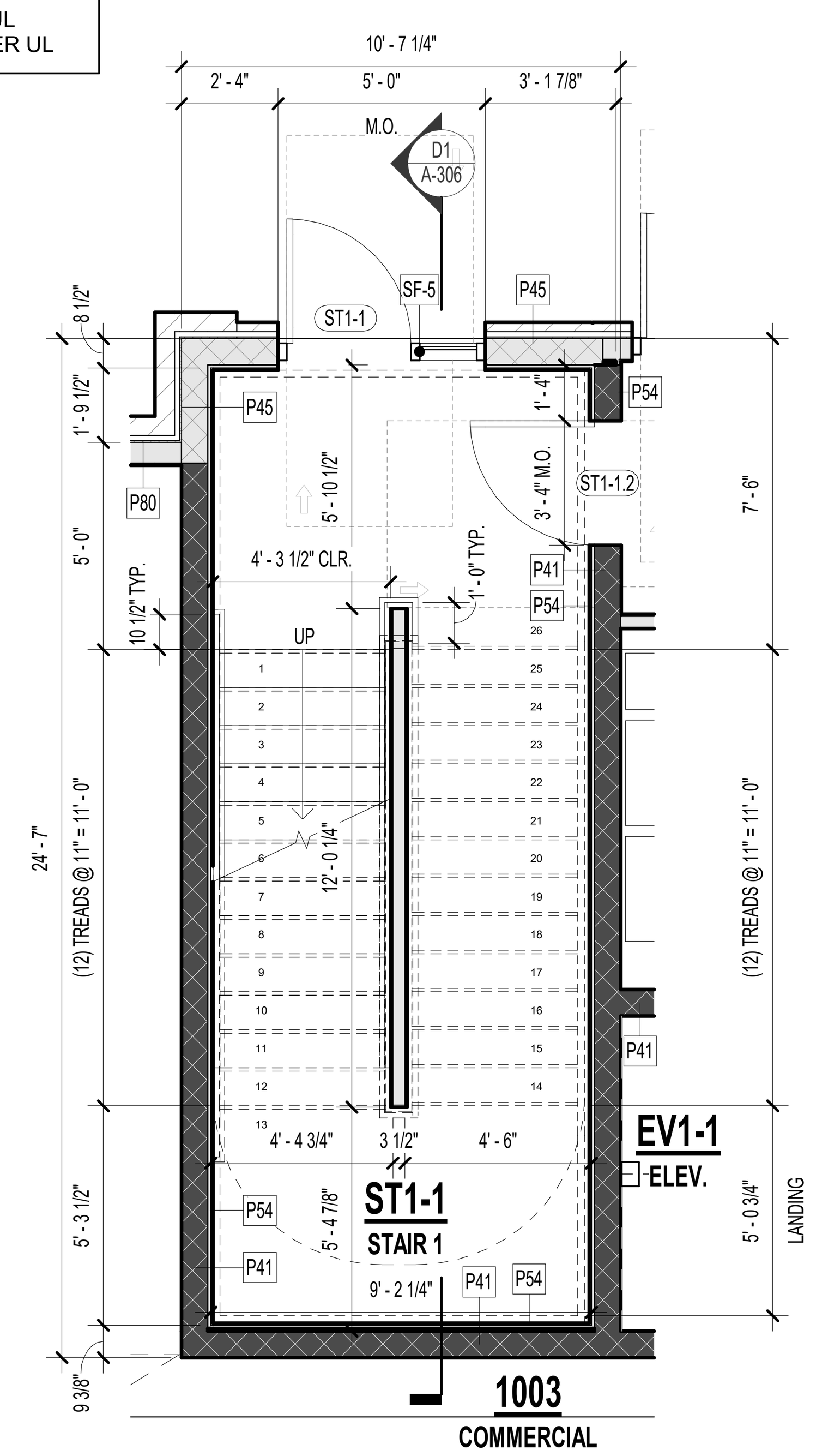
D1 STAIR 1 - SECTION
1/4" = 1'-0"



C1 STAIR 1 - 3RD FLOOR PLAN
1/4" = 1'-0"



B1 STAIR 1 - 2ND FLOOR PLAN
1/4" = 1'-0"



A1 STAIR 1 - 1ST FLOOR PLAN
1/4" = 1'-0"

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STATE OF MISSOURI — DAVID EUGENE HENDRIKSE — NUMBER A-7365 — REGISTERED ARCHITECT

11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
STAIR 1 SECTION & DETAILS

PROJECT NUMBER: 24017

SHEET NUMBER:

A-306

FLOOR/CEILING ASSEMBLY-WOOD

F1	**CONCRETE - NON-RATED - SLAB ON GRADE** • CONCRETE SLAB ON GRADE PER STRUCT. DWGS.
F3	**WOOD OPEN WEB TRUSS - 1HR** • 1" GYPCRETE TOPPING • 1/4" ACOUSTICAL MAT • 19/32" MIN. 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
F7	**WOOD 2X6 LUMBER - 1HR - CORRIDOR** • 1" GYPCRETE TOPPING • 3/8" ACOUSTICAL MAT • 15/32" SHEATHING MIN, 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
F6	**WOOD 2X10 LUMBER - 1HR - STAIR** • 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

FLOOR/CEILING ASSEMBLY-METAL

F32	**METAL DECK AND CONCRETE - 1HR** • CONCRETE TOPPING SLAB PER STRUCT. • WELDED WIRE FABRIC PER STRUCT. DWGS. • METAL DECKING PER STRUCT. DWGS.

INTERIOR PARTITION ASSEMBLIES

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
P6	**WOOD 2X2 STUD - NON-RATED FURRING - INTERIOR** • (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD ON OCCUPIED SIDE • 2x2 WOOD STUDS SPACED 16" O.C.
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
P40	**CMU 8" BLOCK - 1HR FIRE BARRIER - INTERIOR** • 8" CMU (REINFORCING PER STRUCT)
P54	**METAL 1/2" FURRING / HAT CHANNEL - NON-RATED FURRING - INTERIOR** • (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD • 1/2" FURRING / HAT CHANNEL, 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.

EXTERIOR PARTITION ASSEMBLIES

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*
P40.1	**CMU 8" BLOCK - 1HR FIRE BARRIER - EXTERIOR** • (1) LAYER 5/8" TYPE "X" EXTERIOR RATED GYPSUM BOARD • 2" RIGID INSULATION • 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

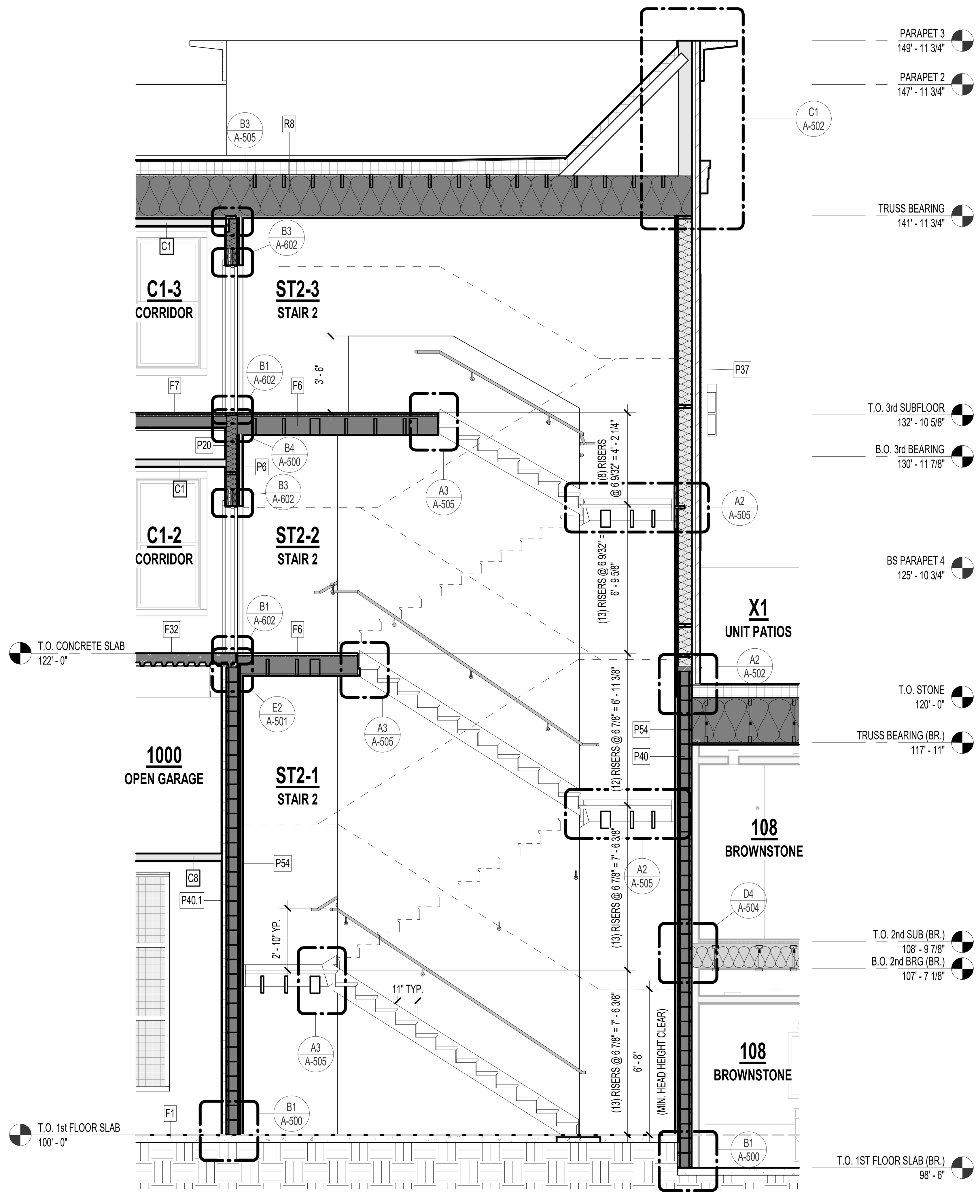
ROOF/CEILING ASSEMBLY-WOOD

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 PER LEE'S SUMMIT CODE, 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

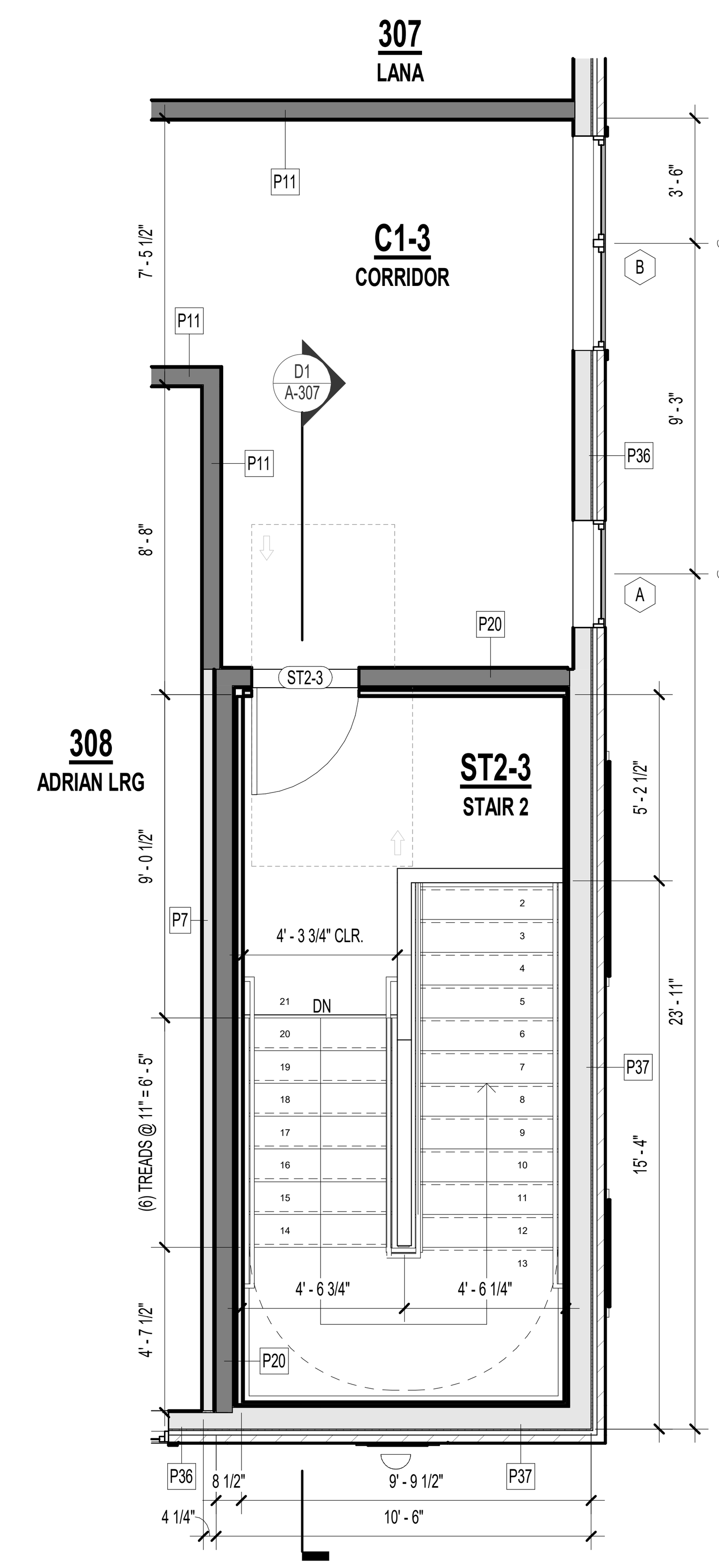
REFERENCE G-003 FOR GENERAL NOTES

PLAN LEGEND

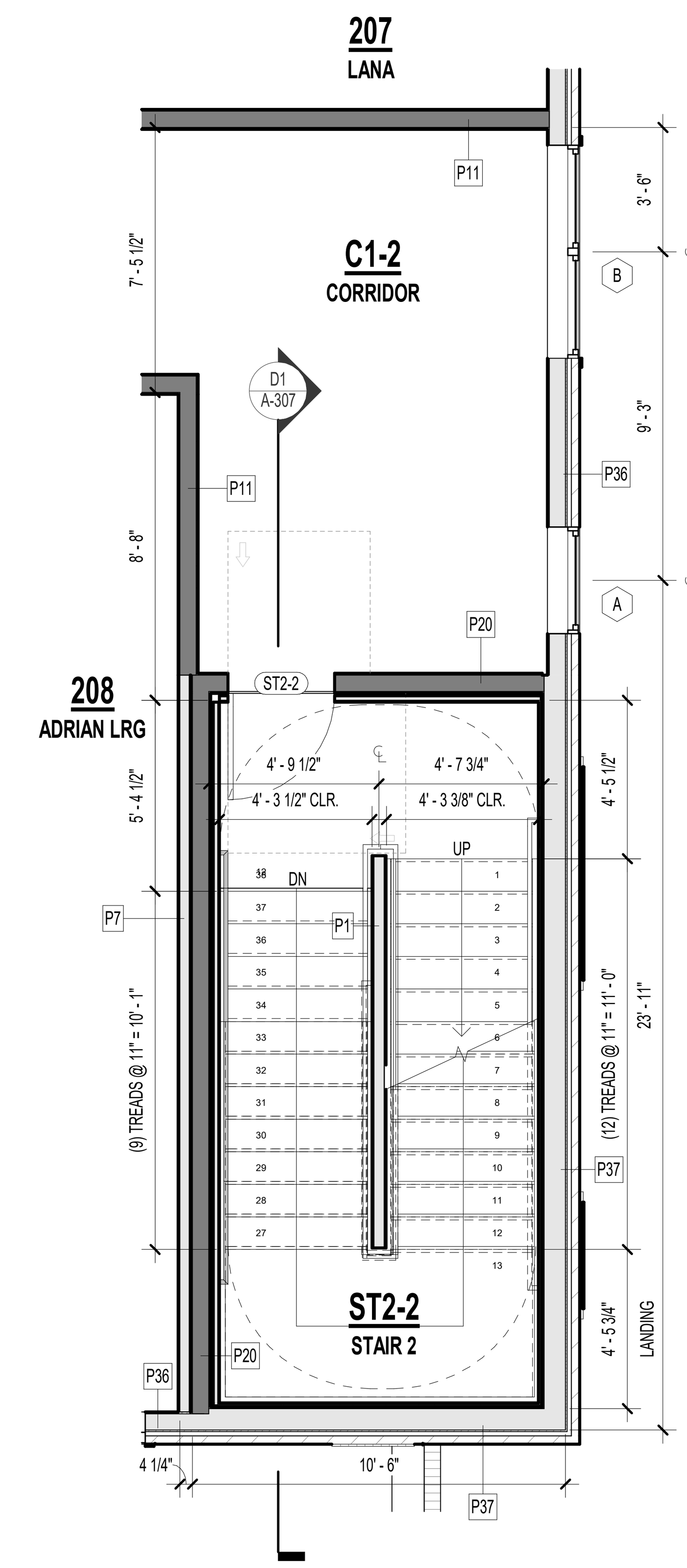
- PARTIAL HEIGHT PARTITION
- NON-RATED PARTITION; SEE ASSEMBLIES G-100s
- 1 HR RATED PARTITION; SEE ASSEMBLIES G-100s
- 2 HR RATED PARTITION; SEE ASSEMBLIES G-100s
- A1 — WINDOW TYPE; SEE WINDOW SCHEDULE ON SHEET A-600
- 101 — DOOR TYPE; SEE DOOR SCHEDULE ON SHEET A-600
- P7 — PARTITION TYPE; SEE ASSEMBLIES G-100s
- 6' - 0" — FRAMING DIMENSIONS
- 6' - 0" LAYOUT — LAYOUT LINE DIMENSIONS
- HEARING/VISIBILITY
- ADA/ACCESSIBLE UNITS



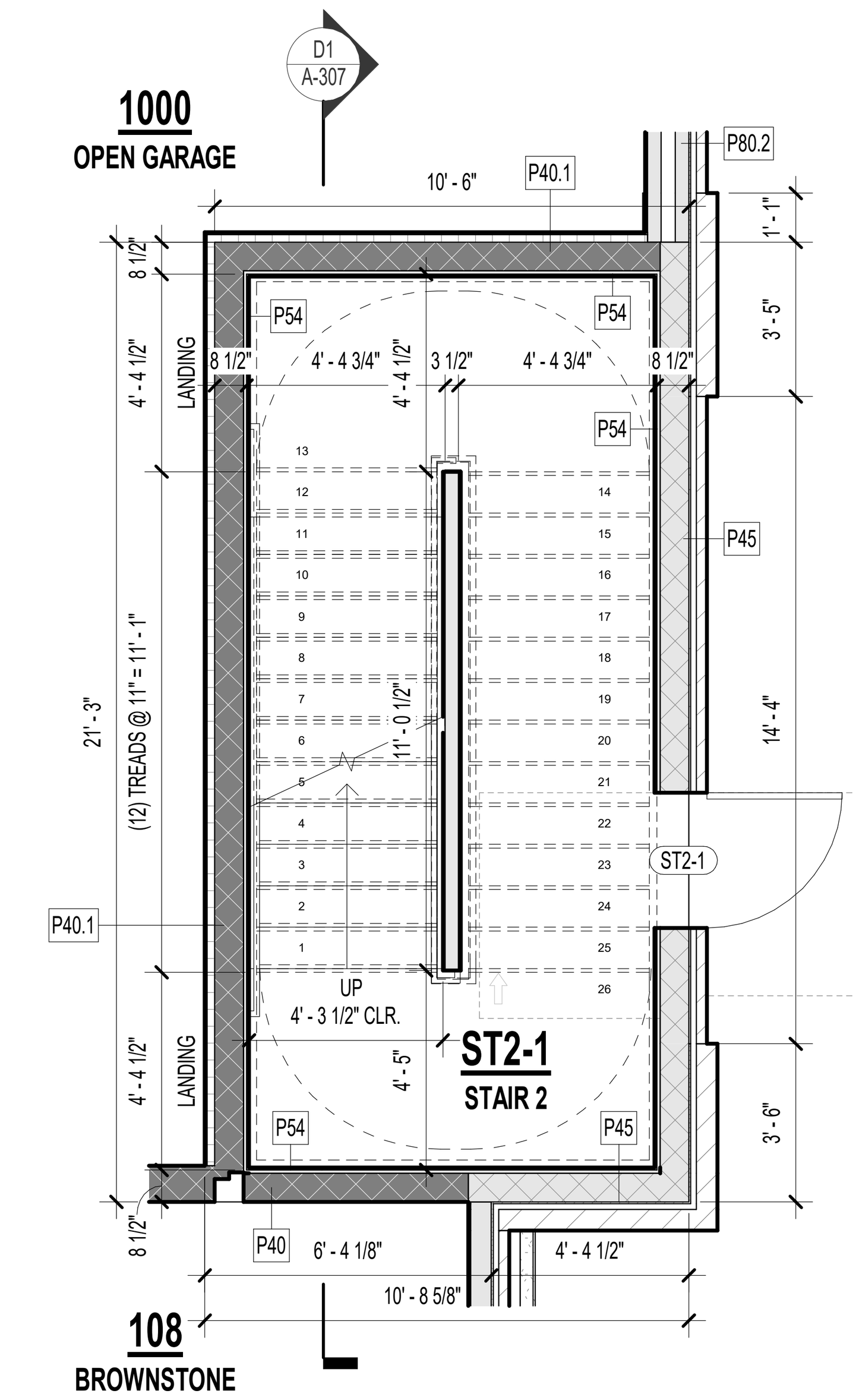
D1 STAIR 2 - SECTION
1/4" = 1'-0"



C1 STAIR 2 - 3RD FLOOR
1/4" = 1'-0"



B1 STAIR 2 - 2ND FLOOR
1/4" = 1'-0"



A1 STAIR 2 - 1ST FLOOR
1/4" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

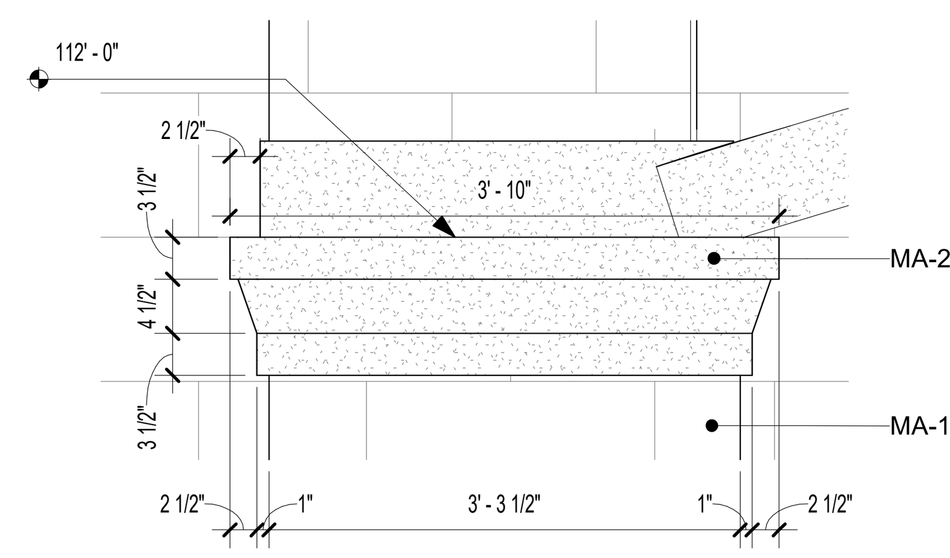
SHEET TITLE
STAIR 2 SECTION & DETAILS

PROJECT NUMBER: 24017

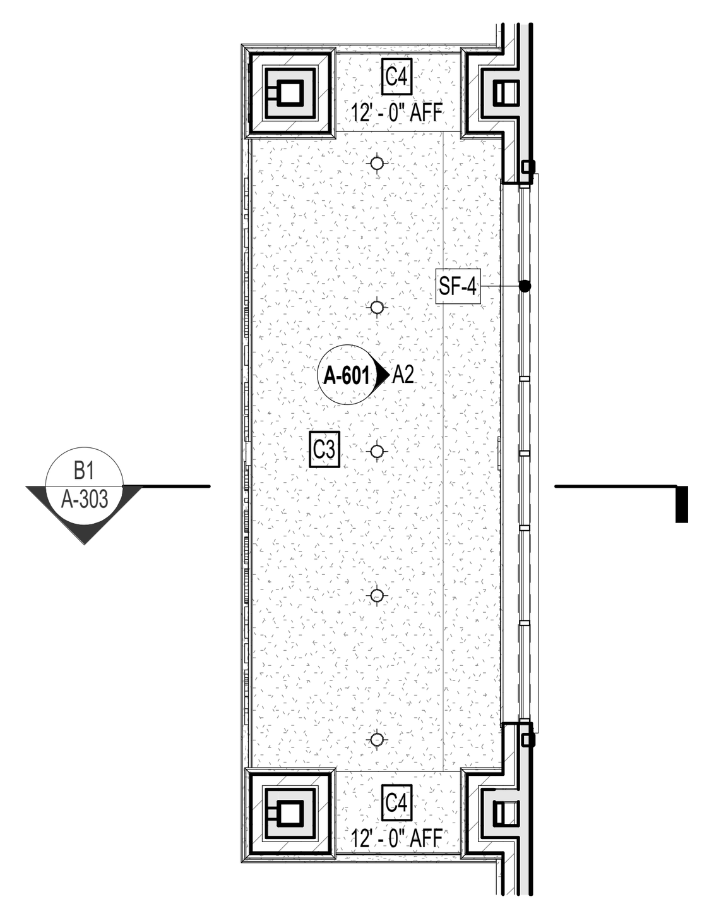
SHEET NUMBER:

A-307

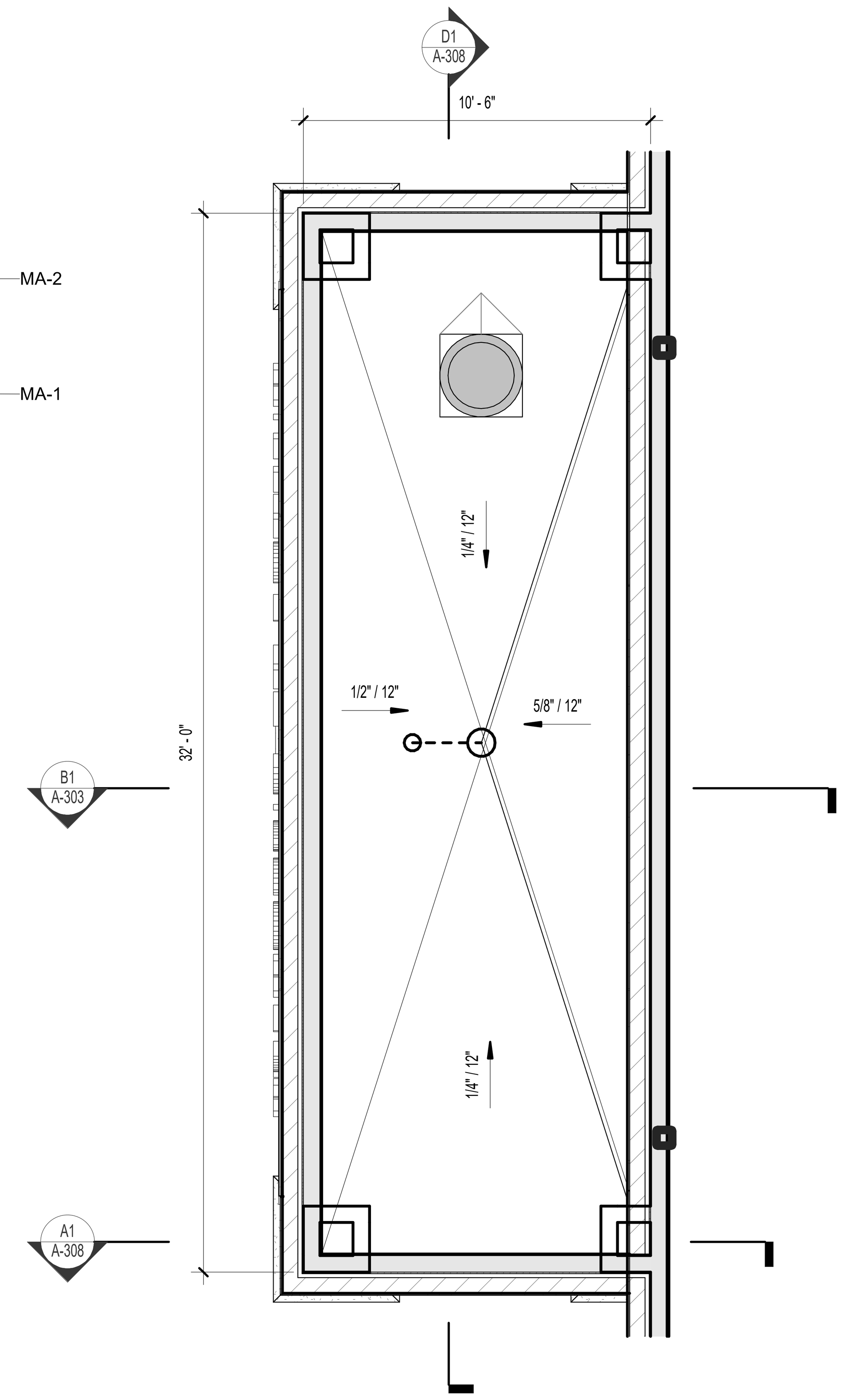
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-101 FOR PLAN LEGEND
REFERENCE A-120 FOR RCP LEGEND



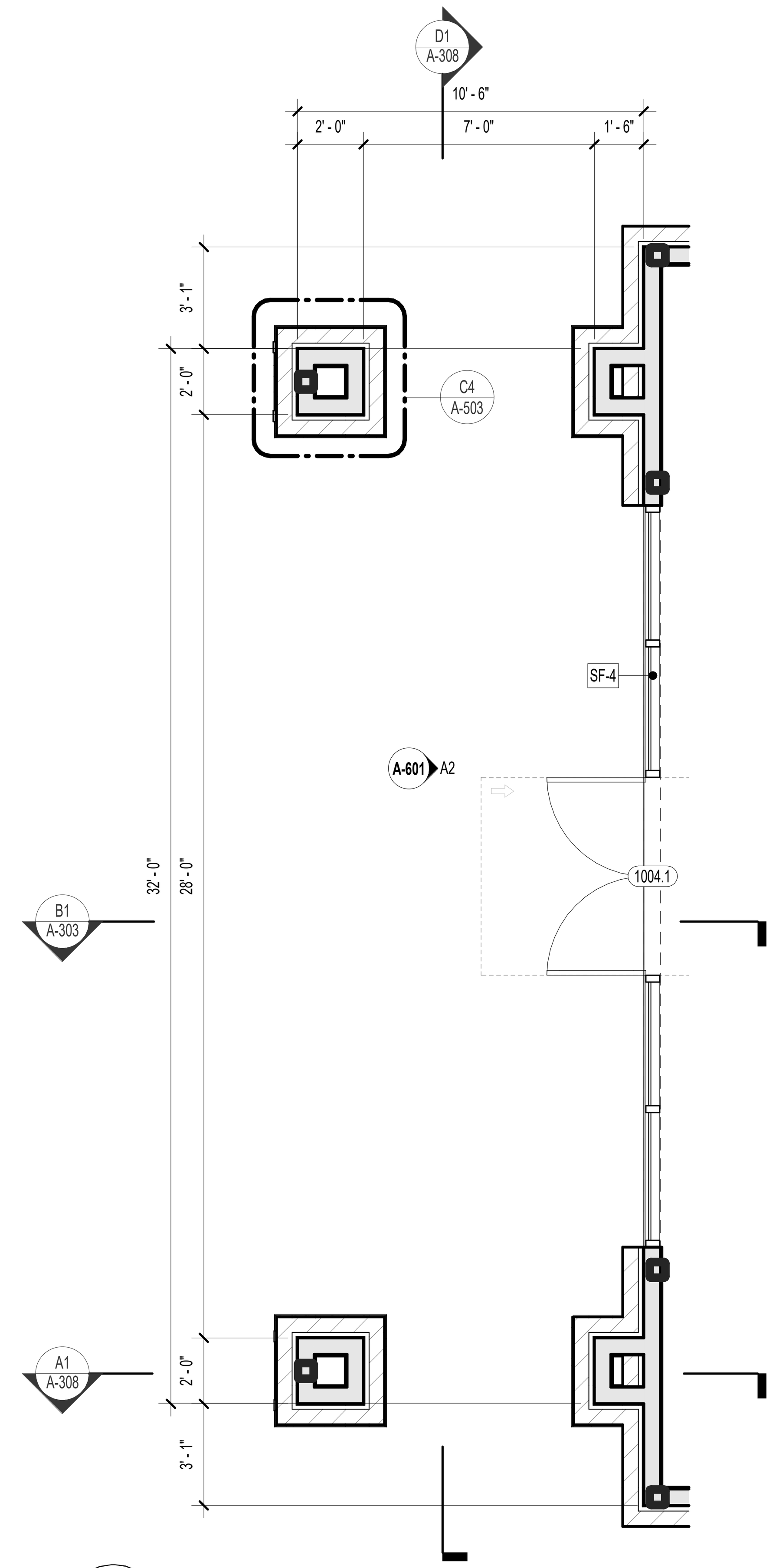
C3 ENTRY COLUMN CAP
3/4" = 1'-0"



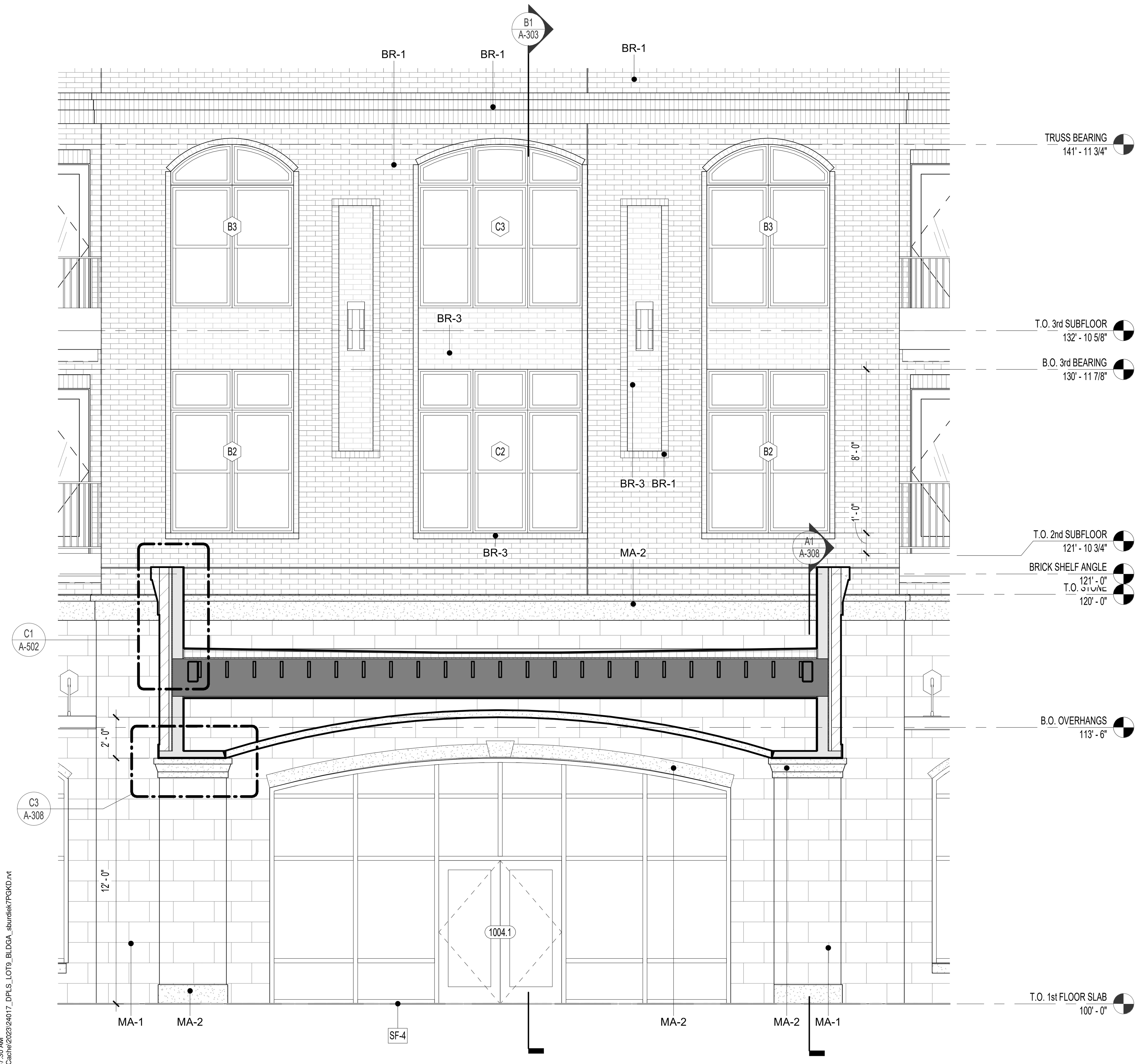
C2 FRONT CANOPY RCP
1/8" = 1'-0"



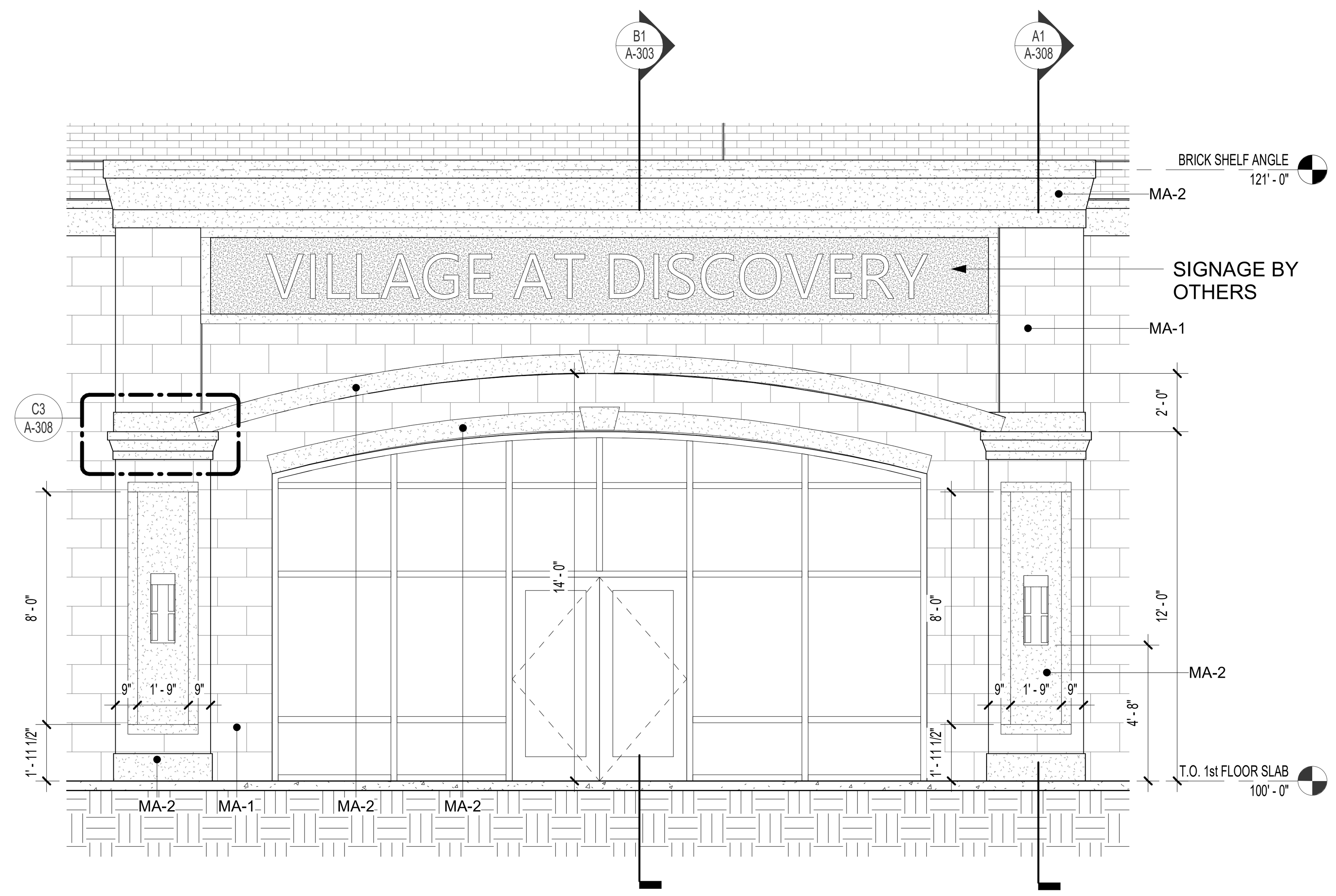
B2 FRONT CANOPY ROOF PLAN
1/4" = 1'-0"



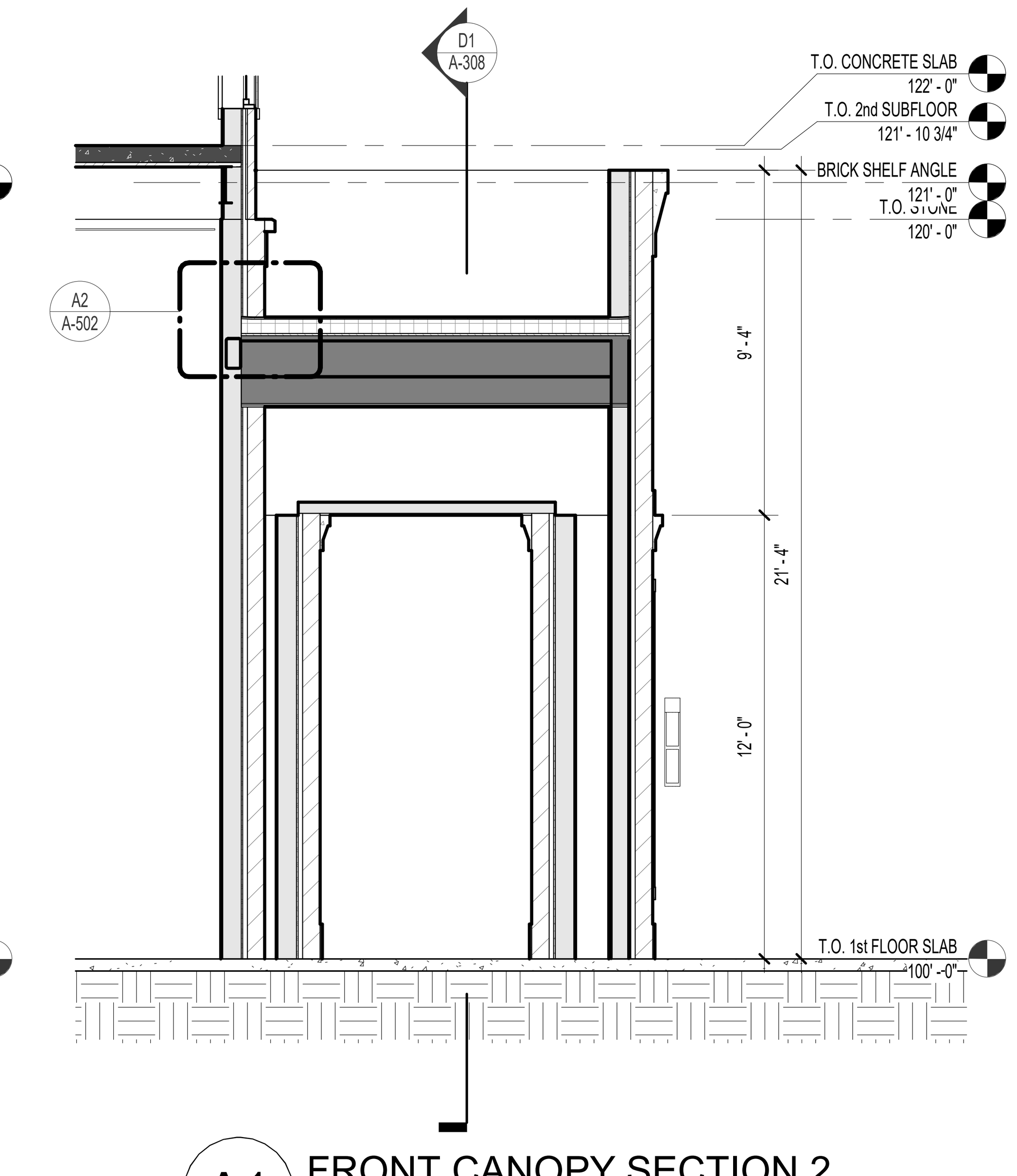
A2 FRONT CANOPY FLOOR PLAN
1/4" = 1'-0"



D1 FRONT CANOPY SECTION 1
1/4" = 1'-0"



B1 CANOPY ELEVATION
1/4" = 1'-0"



A1 FRONT CANOPY SECTION 2
1/4" = 1'-0"

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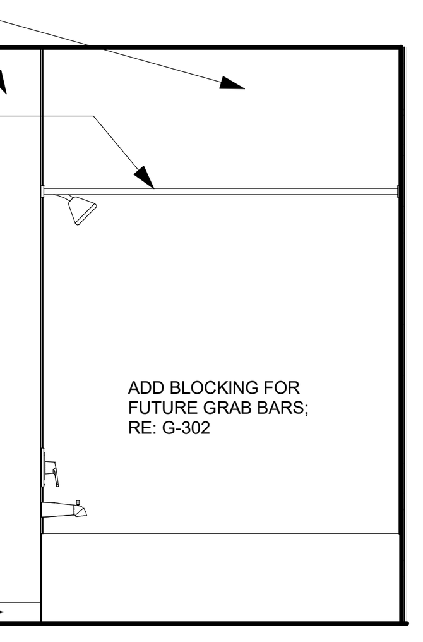
STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7385
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

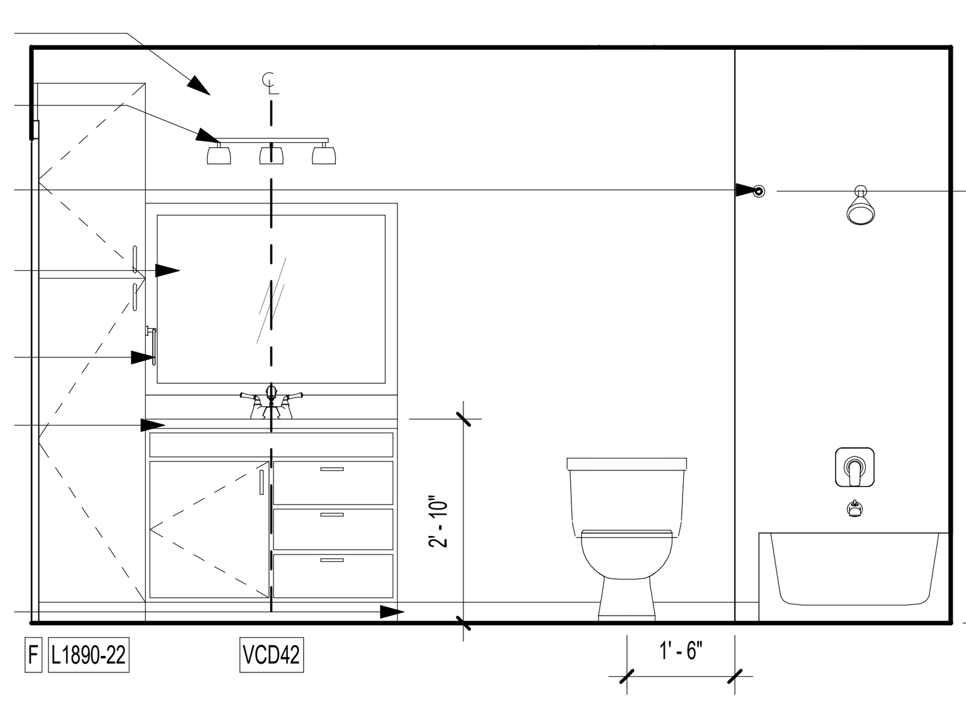
SHEET TITLE
FRONT CANOPY PLAN / ELEV. / SECTION / & DETAILS

PROJECT NUMBER: 24017

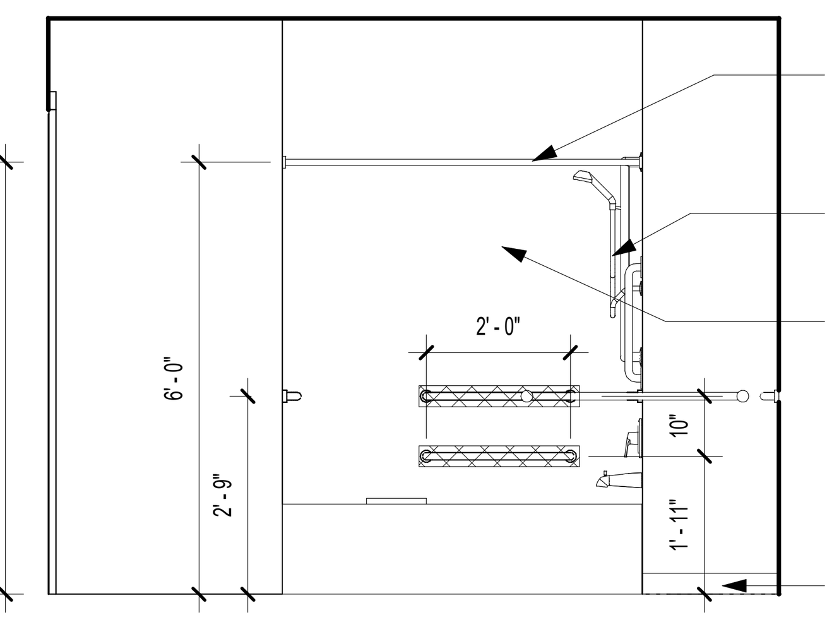
SHEET NUMBER:
A-308



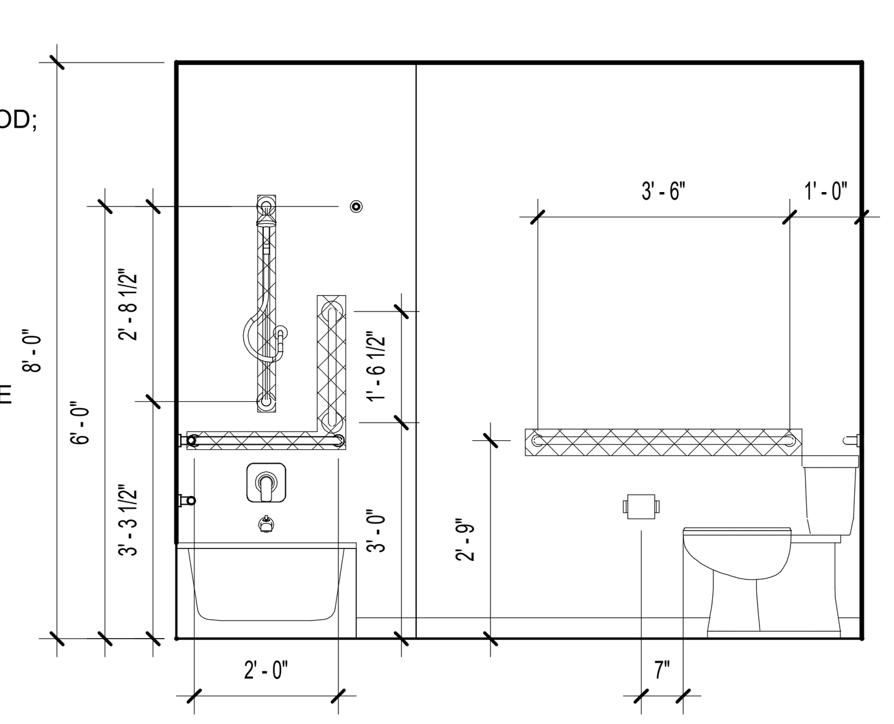
E4 ABERDEEN BATH 2 ELEV. 2
3/8" = 1'-0"



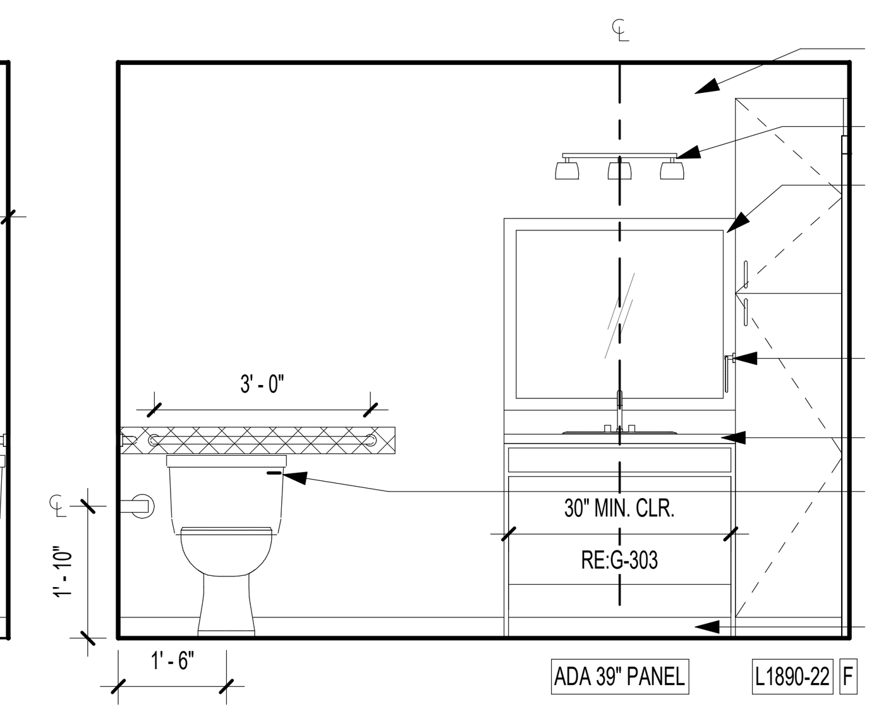
D4 ABERDEEN BATH 2 ELEV. 1
3/8" = 1'-0"



C4 ABERDEEN BATH 1 ELEV. 3
3/8" = 1'-0"



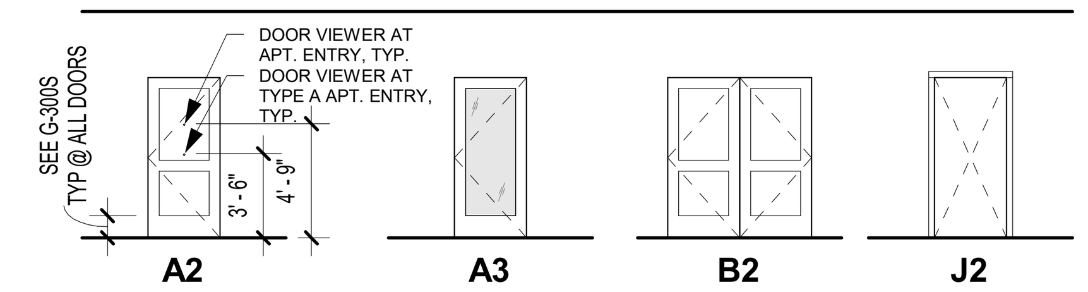
B4 ABERDEEN BATH 1 ELEV. 2
3/8" = 1'-0"



A4 ABERDEEN BATH 1 ELEV. 1
3/8" = 1'-0"

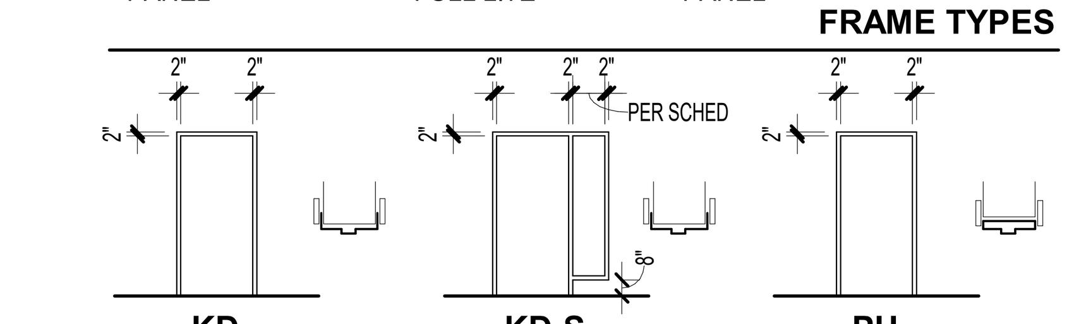
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-120 FOR RCP LEGEND

DOOR TYPES



A2 SINGLE SWING PANEL
A3 SINGLE SWING FULL LITE
B2 DOUBLE SWING PANEL
J2 CASED OPENING

FRAME TYPES



KD KNOCK DOWN w/ TRIM
KD-S KNOCK DOWN w/ SIDE LITE w/ TRIM
PH PRE-HUNG w/ TRIM

DOOR SCHEDULE - UNIT DOORS (BY UNIT TYPE)

Mark	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Hardware Group	Comments
001	3' - 0"	6' - 8"	1 3/4"	45	A2	KD	U1	
002	3' - 0"	6' - 8"	1 3/4"		A2	PH	U2	
005	2' - 6"	6' - 8"	1 3/4"		A2	PH	U6	UNDERCUT IF REQ'D
006.1	5' - 0"	6' - 8"	1 3/4"		B2	PH	U3	UNDERCUT IF REQ'D
008	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
009	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
010	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
011	3' - 0"	6' - 8"	1 3/4"		A2	PH	U2	
012	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
013	3' - 0"	6' - 8"	1 3/4"		A2	PH	U2	
014	3' - 0"	8' - 0"	1 3/4"		A3	SF/ALUM	U5	

ROOM FINISH SCHEDULE - UNITS

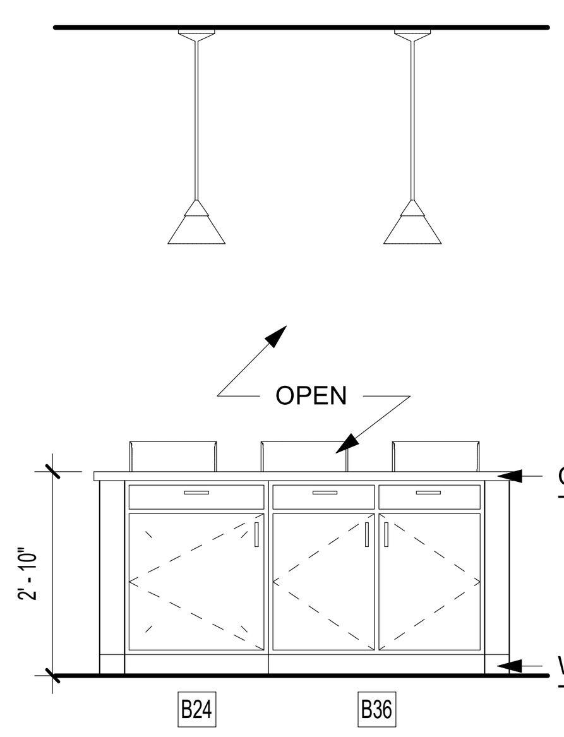
Number	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVT1	WB, PT3	PT1	PT4	
002	COAT	LVT1	WB, PT3	PT2	PT4	
003	LIVING	LVT1	WB, PT3	PT1	PT4	
004	KITCHEN	LVT1	WB, PT3	PT1	PT4	
005	MECH.	LVT1	--	PT2	--	
006	LAUNDRY	LVT1	WB, PT3	PT2	PT4	
007	HALLWAY	LVT1	WB, PT3	PT1	PT4	
008	BATH 1	LVT2	WB, PT3	PT1	PT4	
009	BATH 2	LVT2	WB, PT3	PT1	PT4	
010	BEDROOM 1	LVT1	WB, PT3	PT1	PT4	
011	CLOSET 1	LVT1	WB, PT3	PT2	PT4	
012	BEDROOM 2	LVT1	WB, PT3	PT1	PT4	
013	CLOSET 2	LVT1	WB, PT3	PT2	PT4	
014	BALCONY	CONCRETE				

UNIT PLAN LEGEND

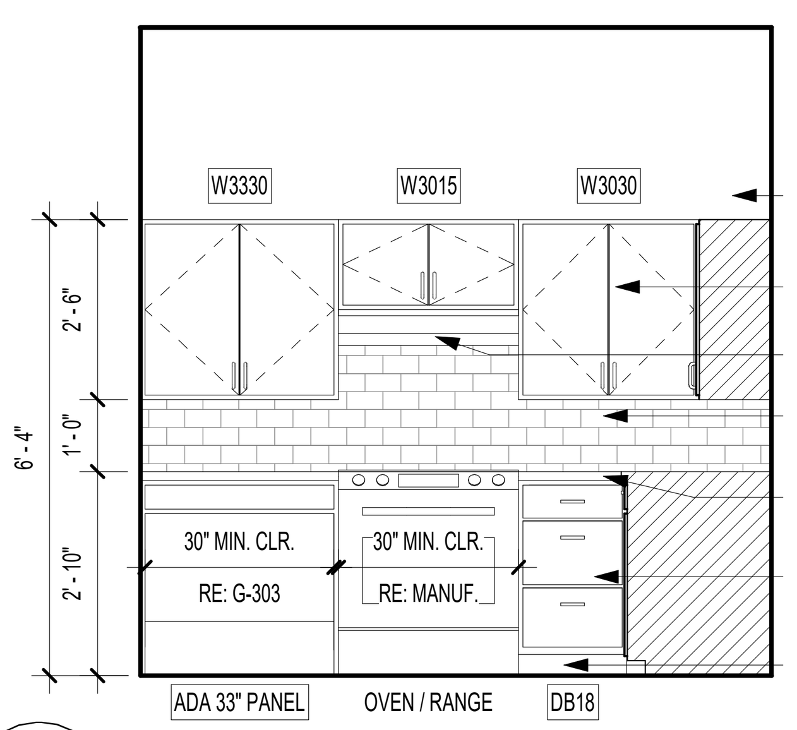
- PARTIAL HEIGHT PARTITION
- P1 WALL (UNLESS NOTED OTHERWISE); SEE PARTITION SCHEDULE FOR ASSEMBLY INFORMATION
- W3030 CASEWORK TAG
- 101 DOOR TAG
- ACCESSIBLE ROUTE (36" CLEAR; 32" MIN REQ'D @ DOOR OPENING PER ANSI A117.1)
- DRYER BOX LOCATION; COORD WITH MECH

NOTES:

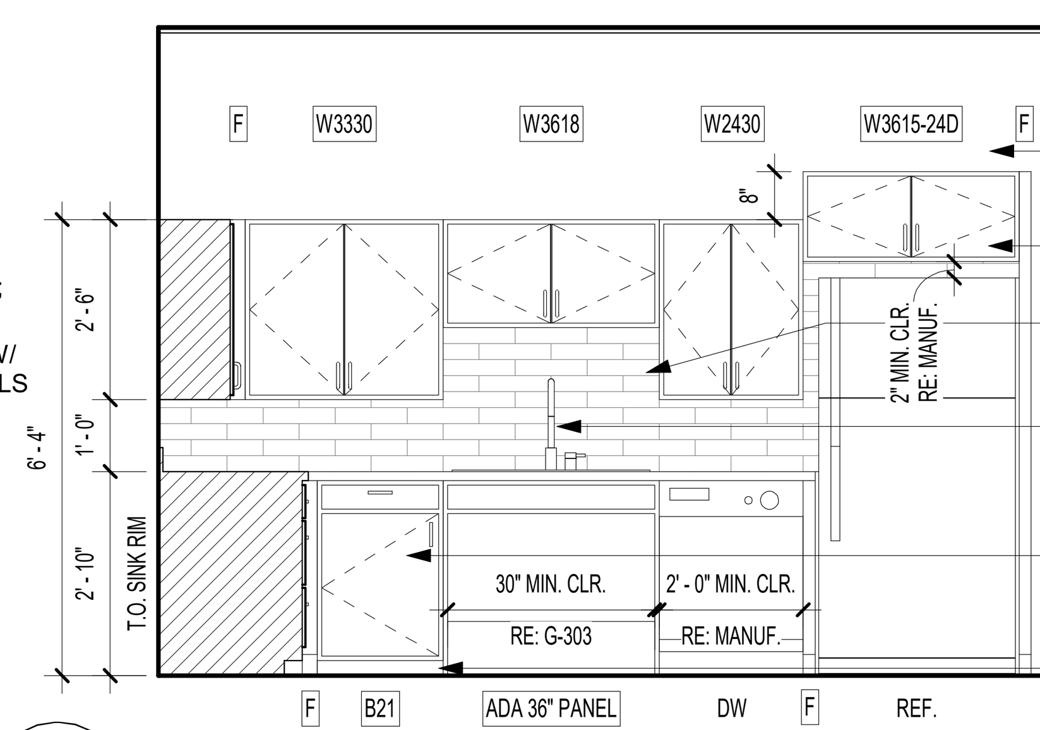
1. **SEE G-002 FOR ADDITIONAL GENERAL NOTES**
2. COORDINATE PLYWOOD BLOCKING AT POCKET DOORS WITH TOWEL BARS, TOWEL RIGNS, ROBE HOOKS, AND CLOSET SHELVING
3. WINDOW LOCATIONS & TYPE VARY PER PLAN, SEE A-100s FOR MORE INFORMATION
4. ALL LIGHT FIXTURES TO BE CENETED IN ROOM UNO
5. SEE G-300s FOR ACCESSIBILITY STANDARDS



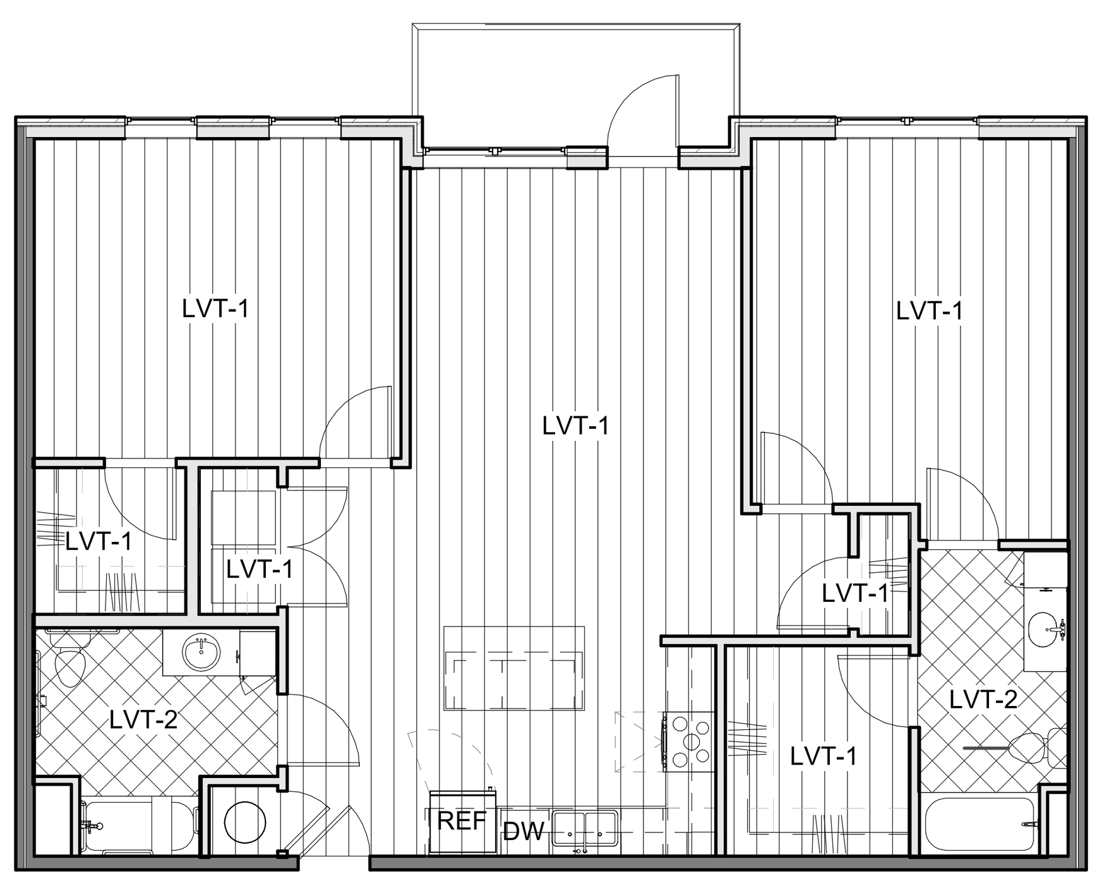
C3 ABERDEEN KITCHEN ELEV. 3
3/8" = 1'-0"



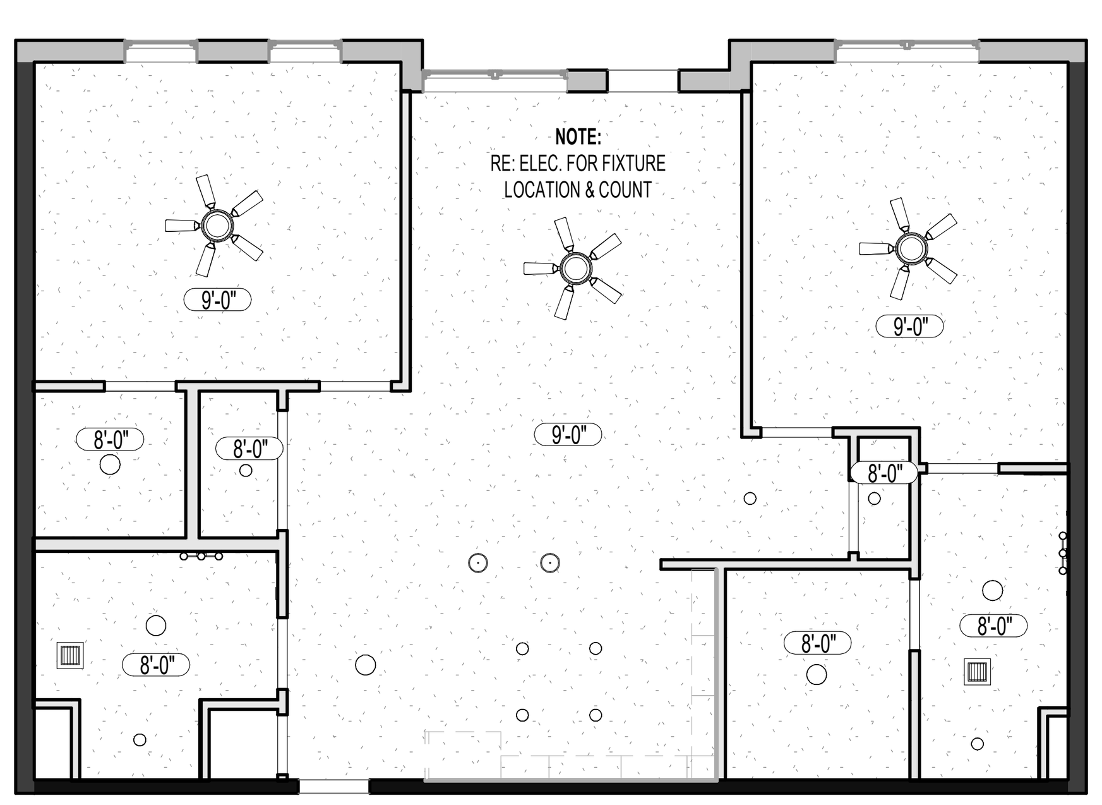
B3 ABERDEEN KITCHEN ELEV. 2
3/8" = 1'-0"



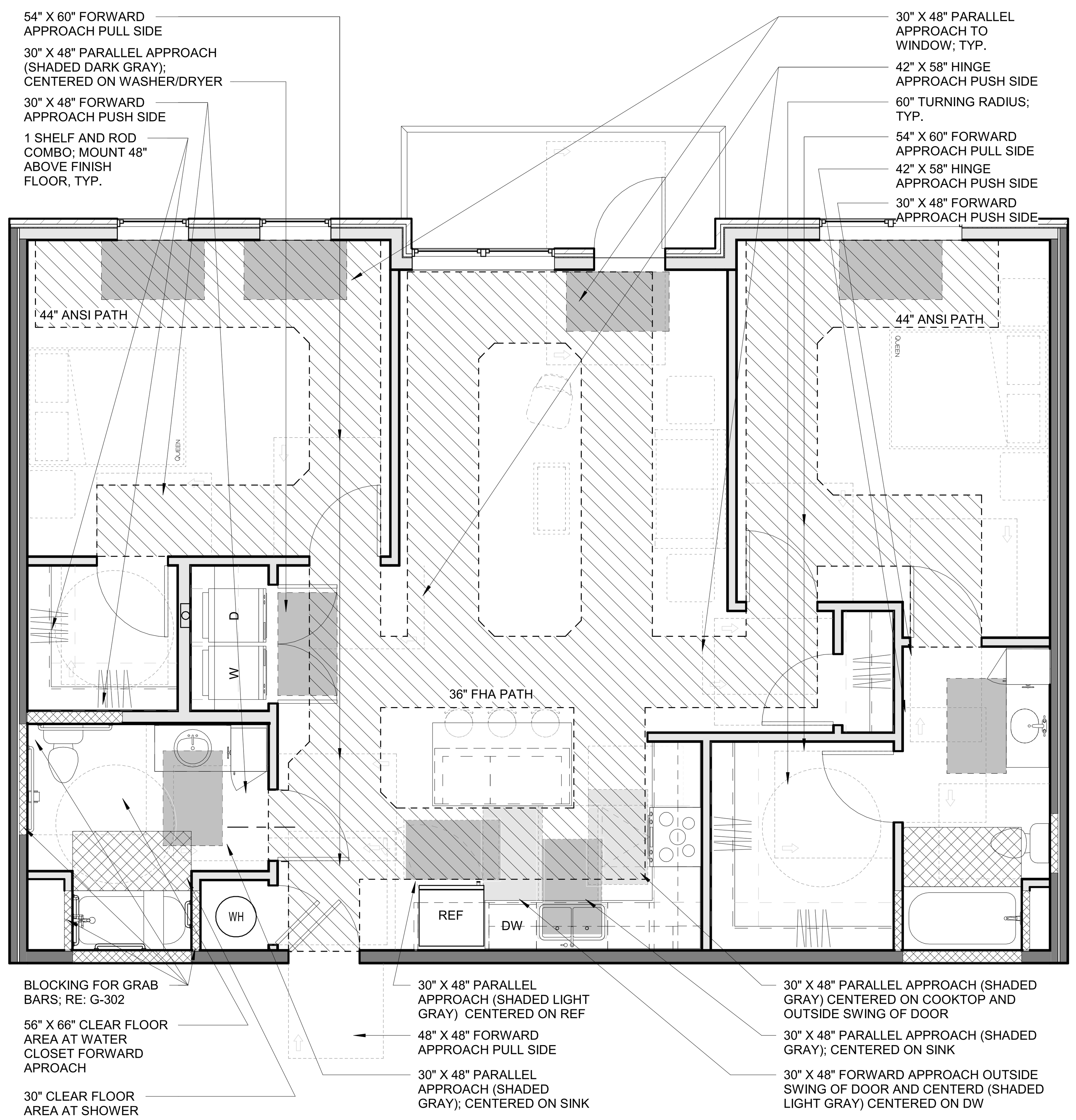
A3 ABERDEEN KITCHEN ELEV. 1
3/8" = 1'-0"



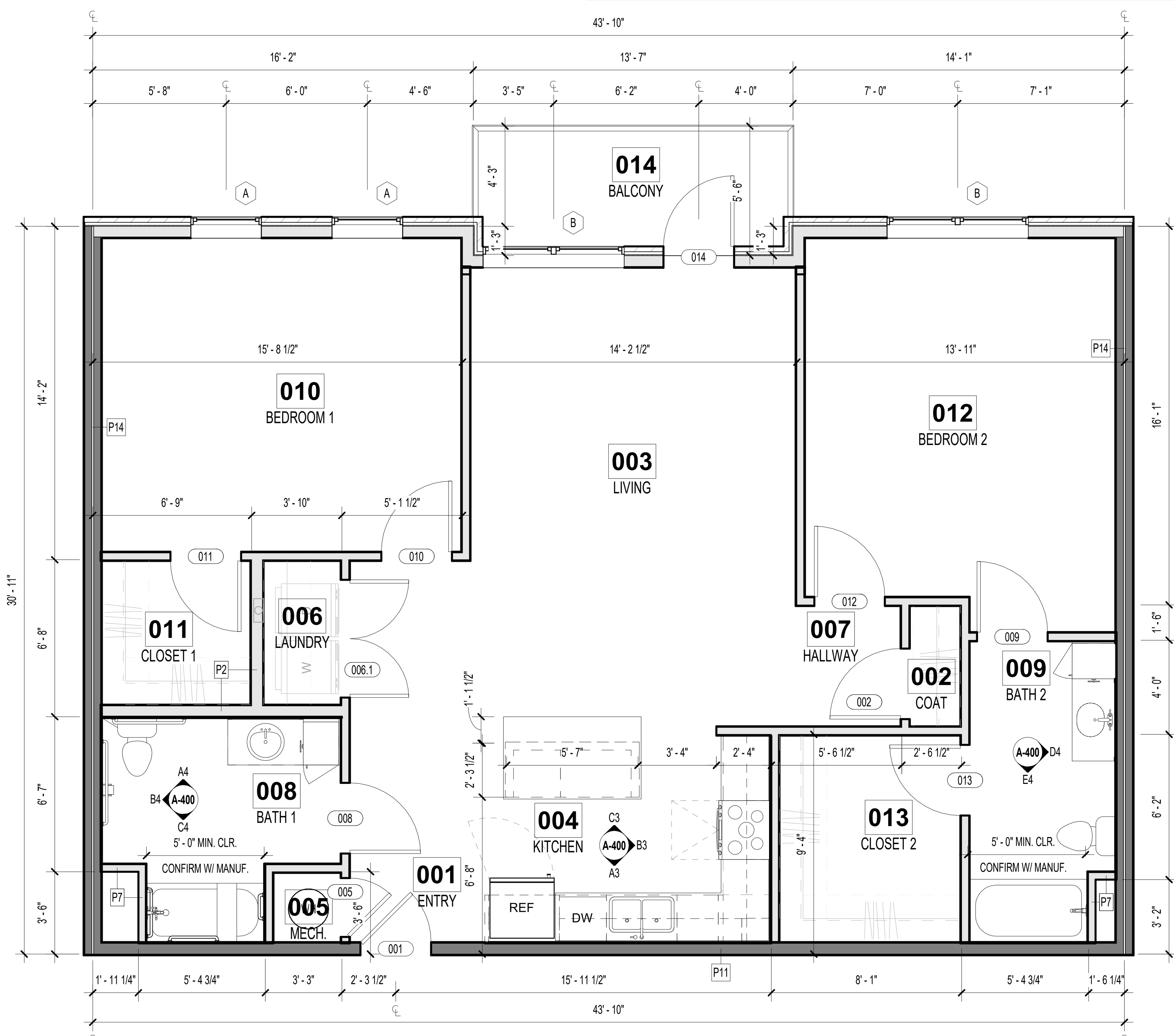
C2 UNIT FINISH PLAN - ABERDEEN (2 BR) - TYPE A
1/8" = 1'-0"



C1 UNIT RCP - ABERDEEN (2 BR) - TYPE A
1/8" = 1'-0"

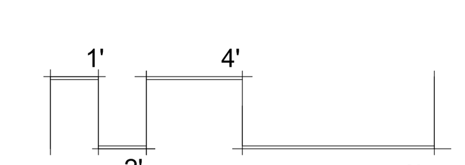


B1 UNIT CLEAR SPACE PLAN - ABERDEEN (2 BR) - TYPE A
1/4" = 1'-0"



A1 UNIT FLOOR PLAN - ABERDEEN (2 BR) - TYPE A
1/4" = 1'-0"

1,300 G.S.F



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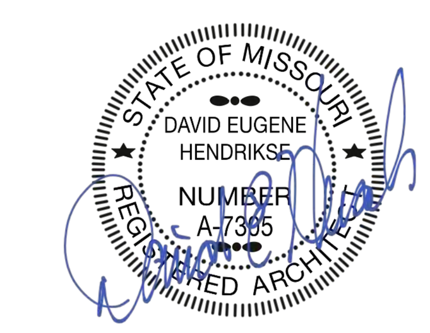


11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

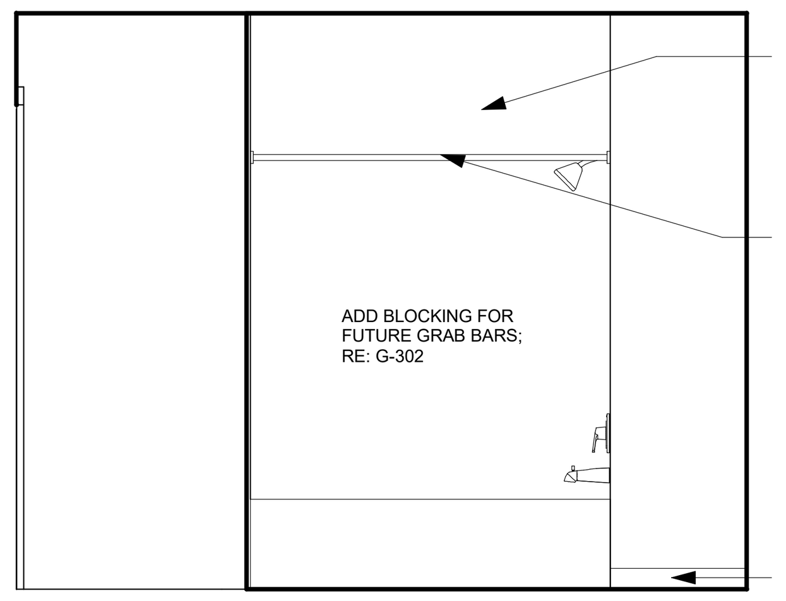
SHEET TITLE
ABERDEEN (2 BR) - TYPE A

PROJECT NUMBER: 24017

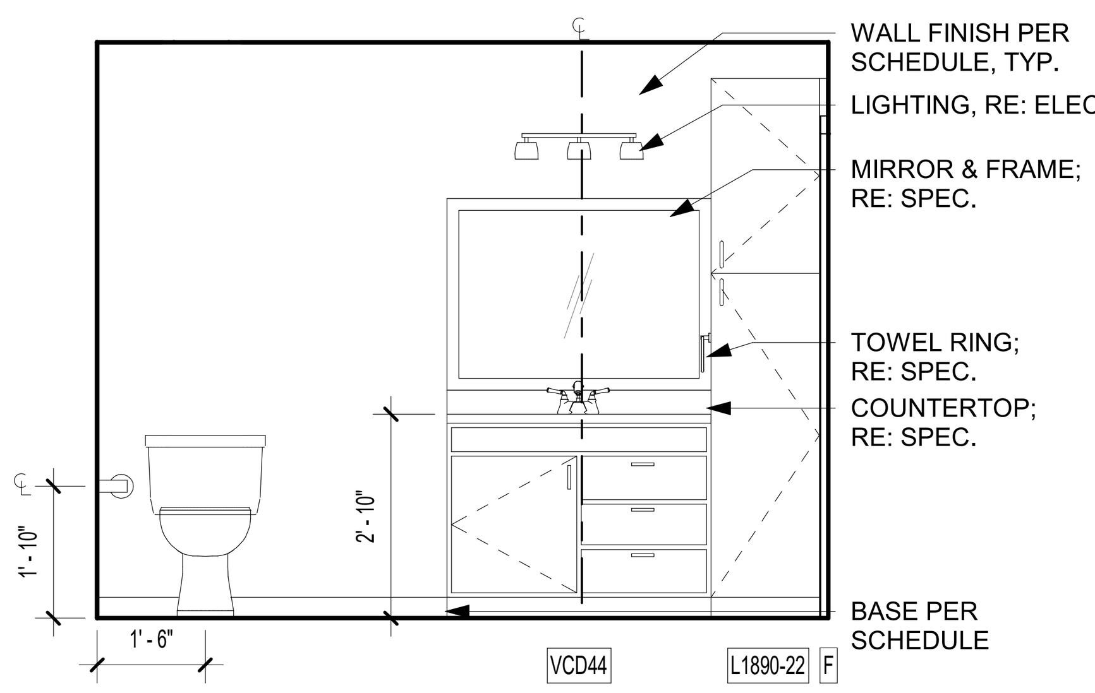
SHEET NUMBER:

A-400

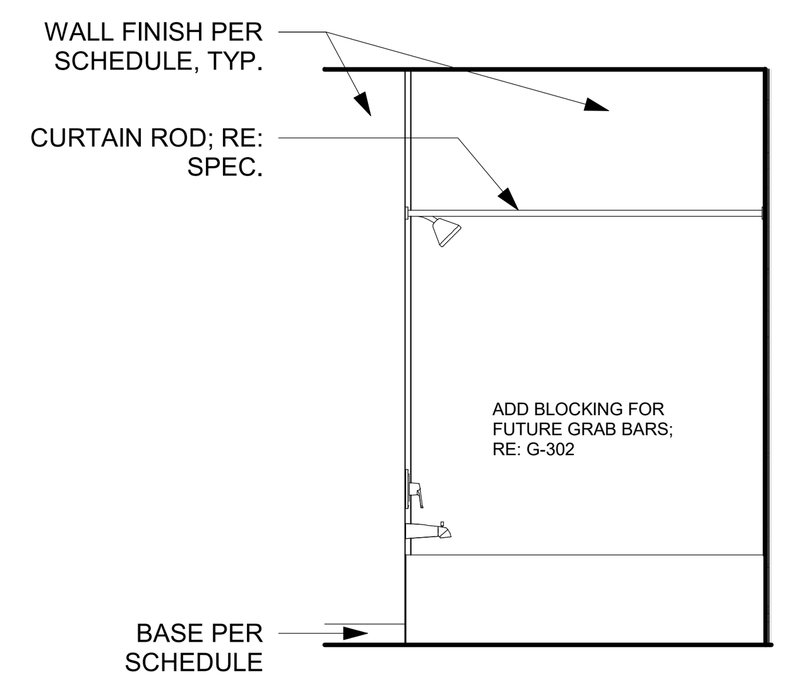
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-400 FOR UNIT PLAN LEGEND
REFERENCE A-120 FOR RCP LEGEND



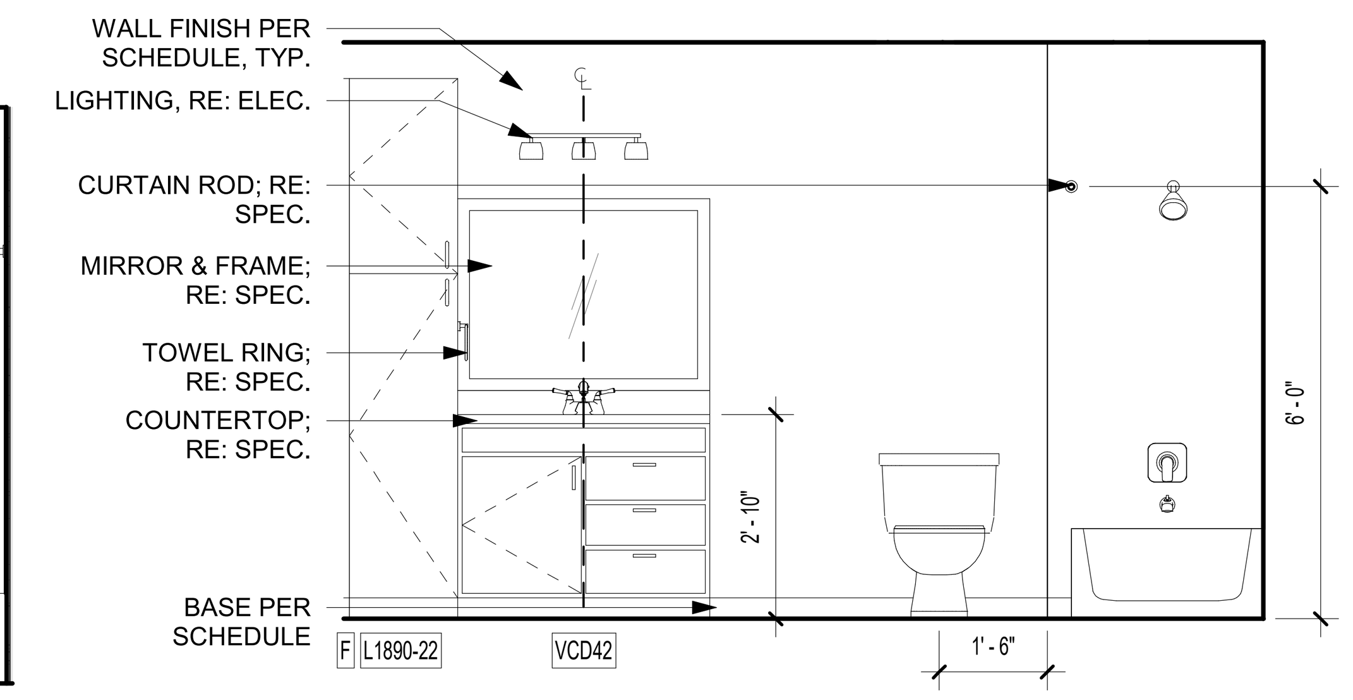
D4 ABERDEEN (TYPE B) BATH 1 ELEV. 3
3/8" = 1'-0"



C4 ABERDEEN (TYPE B) BATH 1 ELEV. 1
3/8" = 1'-0"

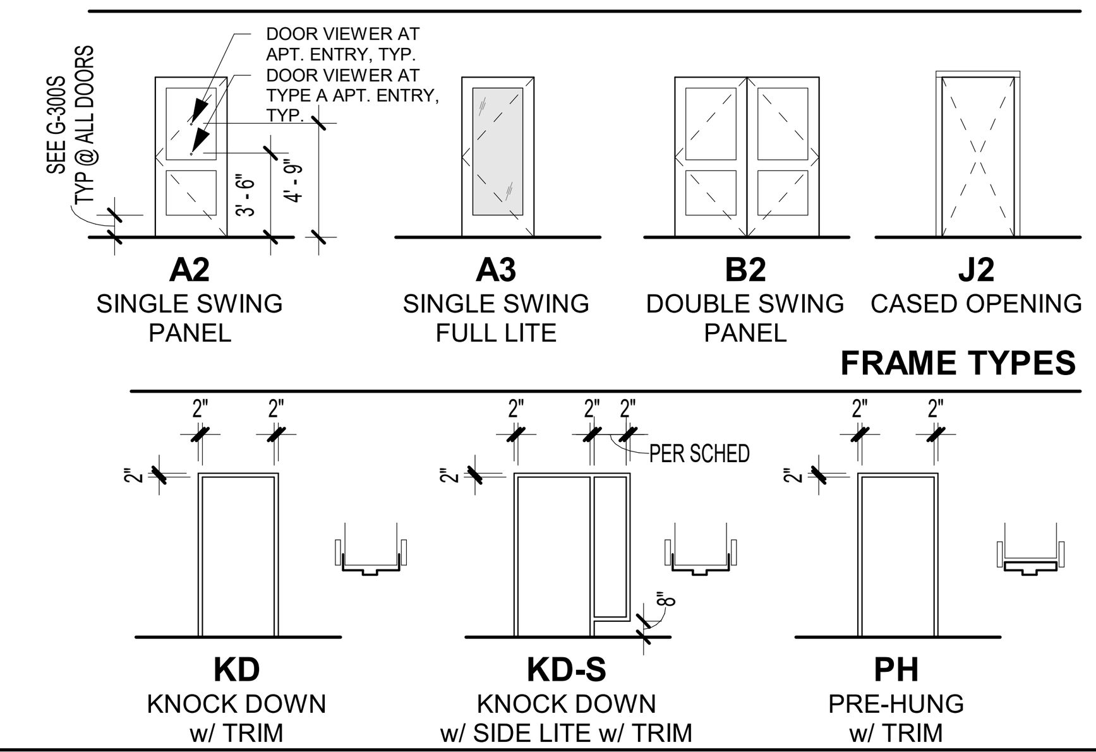


B4 ABERDEEN (TYPE B) BATH 2 ELEV. 2
3/8" = 1'-0"

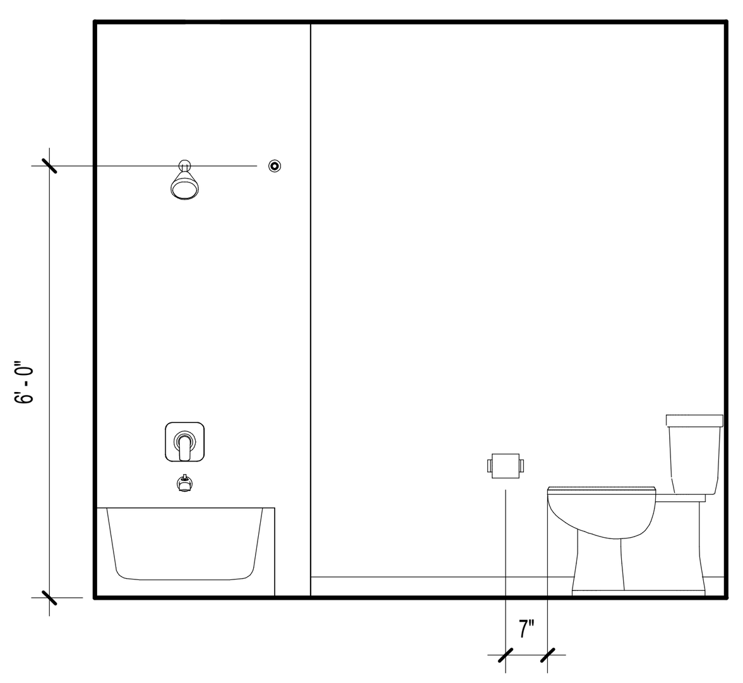


A4 ABERDEEN (TYPE B) BATH 2 ELEV. 1
3/8" = 1'-0"

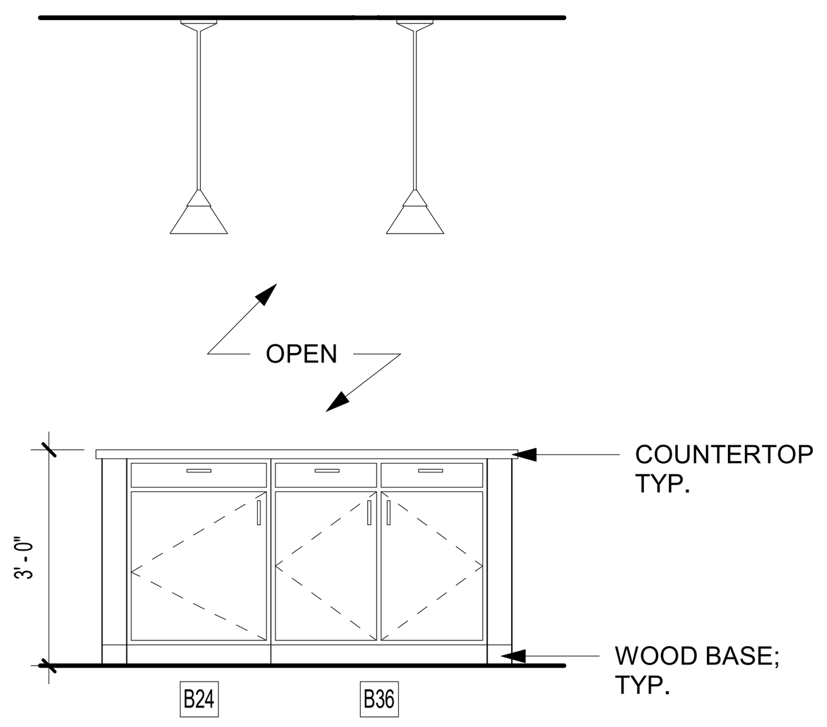
DOOR TYPES



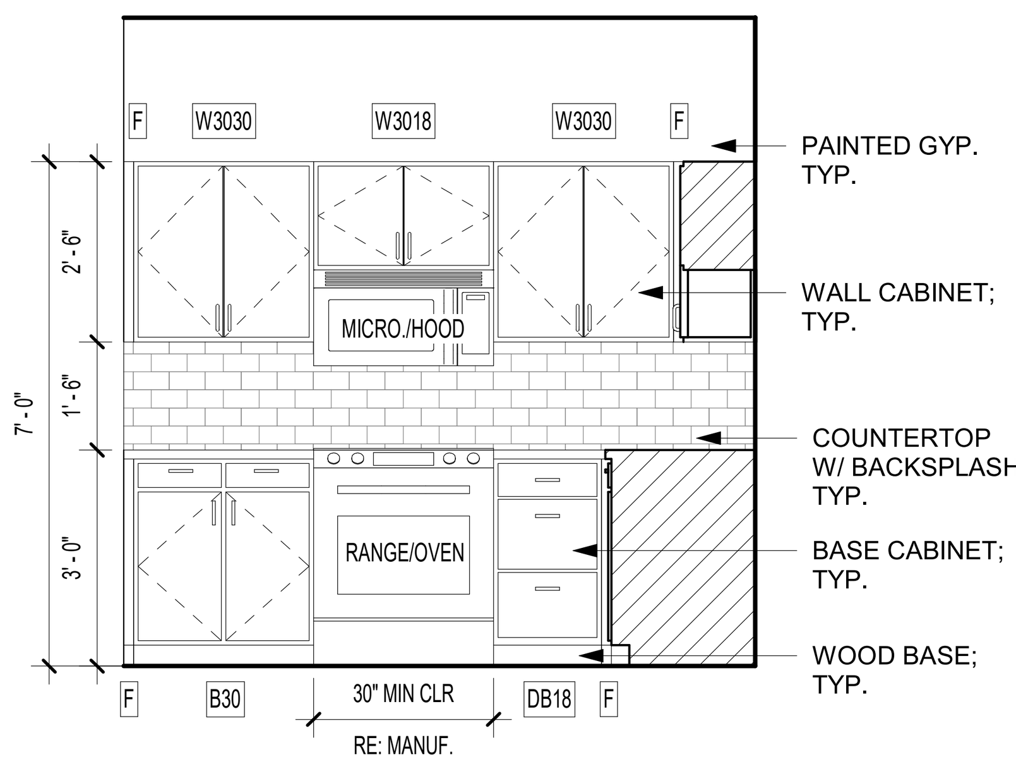
DOOR SCHEDULE - UNIT DOORS (BY UNIT TYPE)								
Mark	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Hardware Group	Comments
001	3' - 0"	6' - 8"	1 3/4"	45	A2	KD	U1	
002	3' - 0"	6' - 8"	1 3/4"		A2	PH	U2	
005	2' - 6"	6' - 8"	1 3/4"		A2	PH	U6	UNDERCUT IF REQ'D
006.1	5' - 0"	6' - 8"	1 3/4"		B2	PH	U3	UNDERCUT IF REQ'D
008	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
009	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
010	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
011	3' - 0"	6' - 8"	1 3/4"		A2	PH	U2	
012	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
013	3' - 0"	6' - 8"	1 3/4"		A2	PH	U2	
014	3' - 0"	8' - 0"	1 3/4"		A3	SF/ALUM	U5	



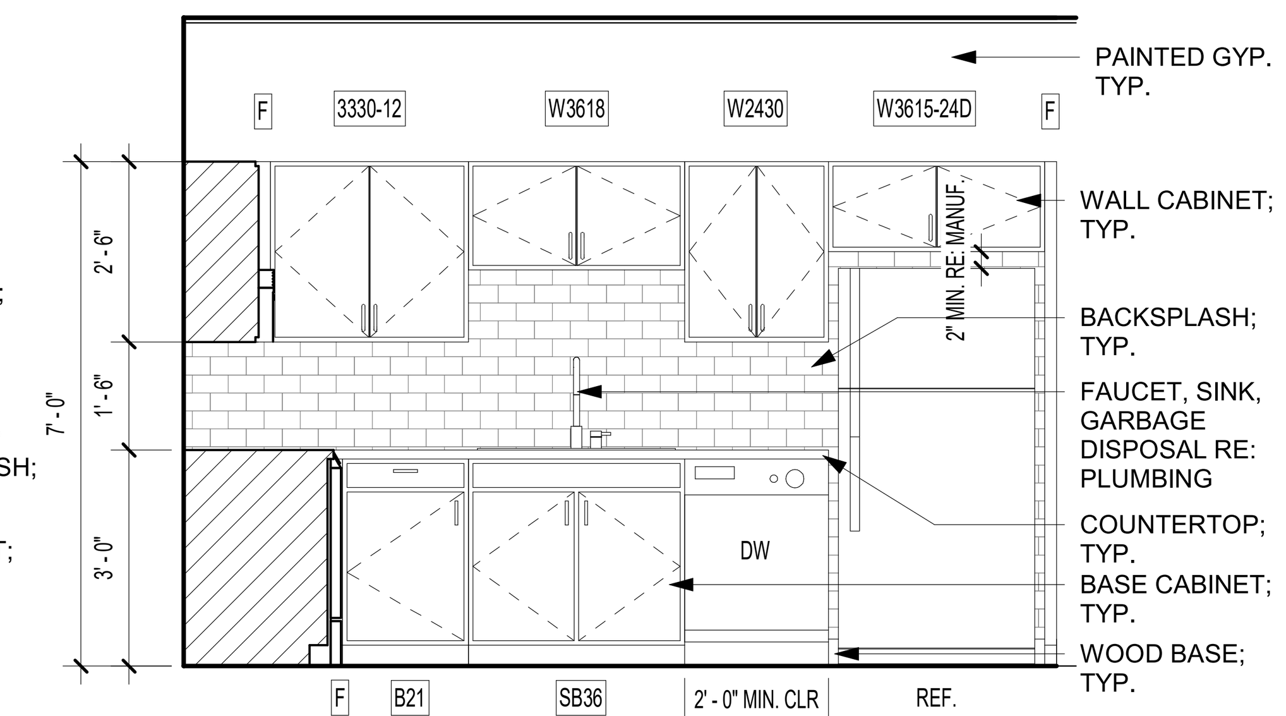
D3 ABERDEEN (TYPE B) BATH 1 ELEV. 2
3/8" = 1'-0"



C3 ABERDEEN (TYPE B) KITCHEN ELEV. 3
3/8" = 1'-0"

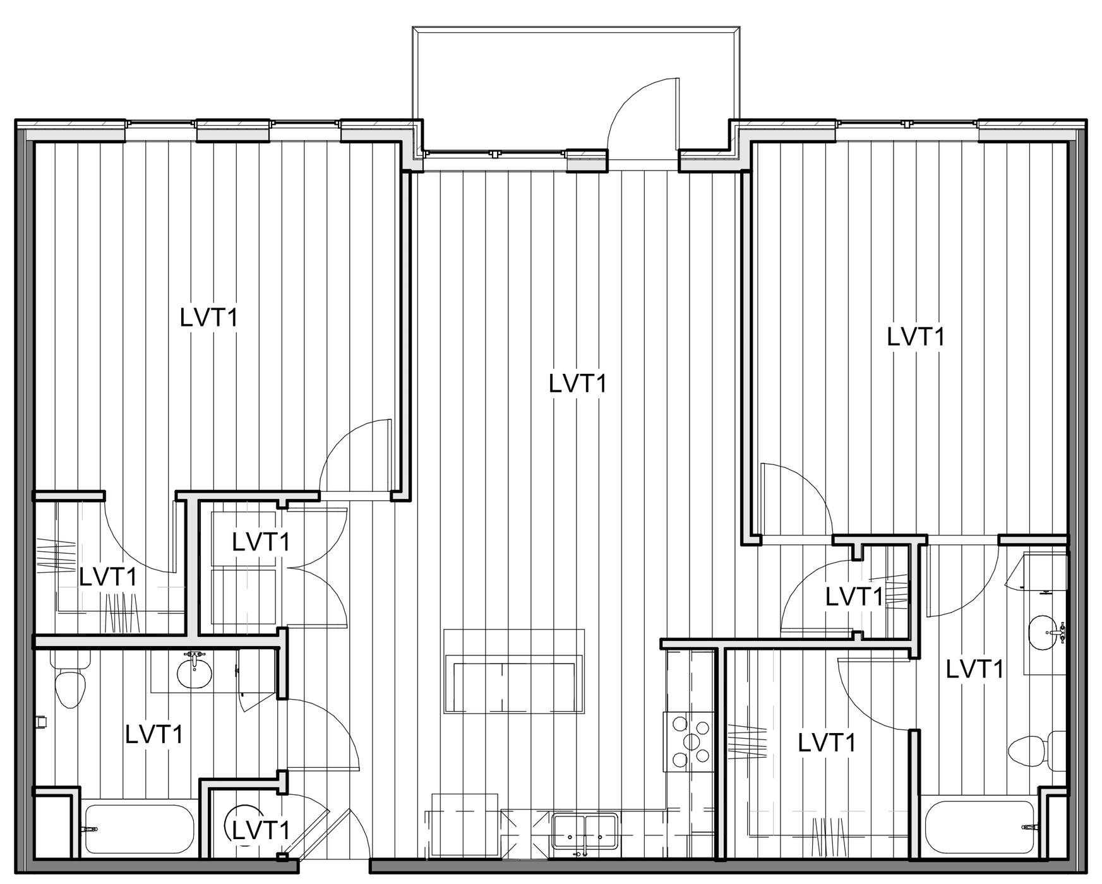


B3 ABERDEEN (TYPE B) KITCHEN ELEV. 2
3/8" = 1'-0"

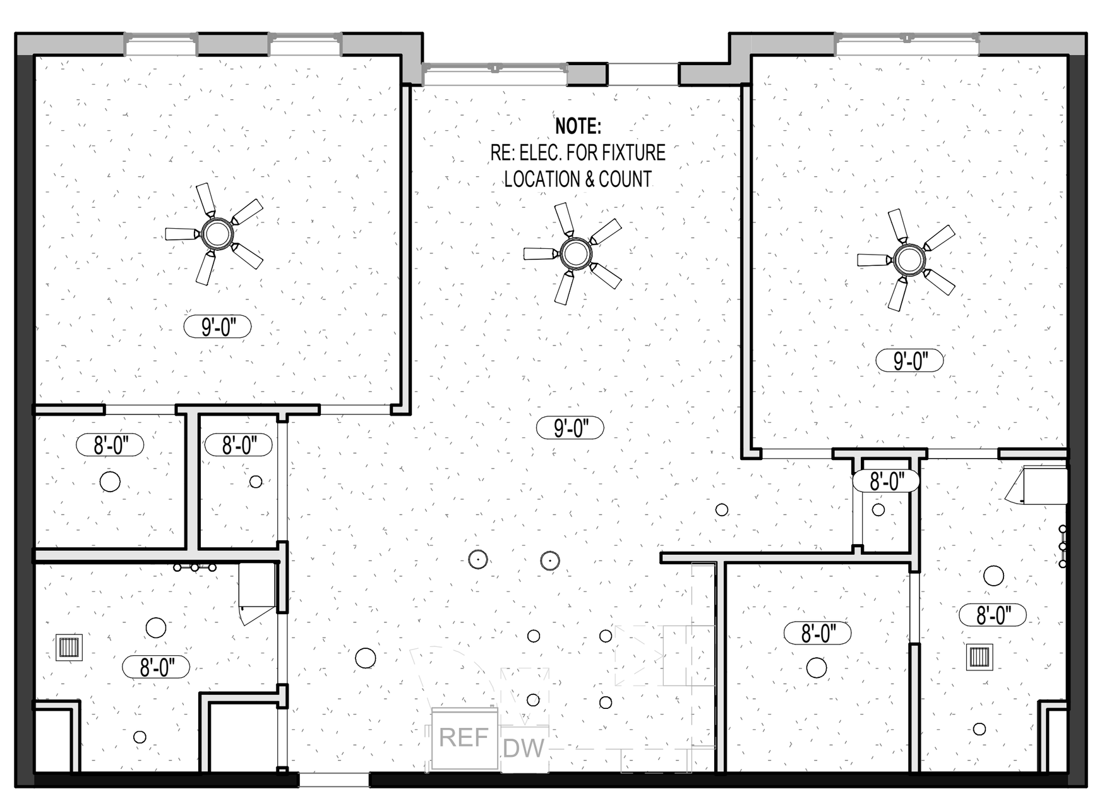


A3 ABERDEEN (TYPE B) KITCHEN ELEV. 1
3/8" = 1'-0"

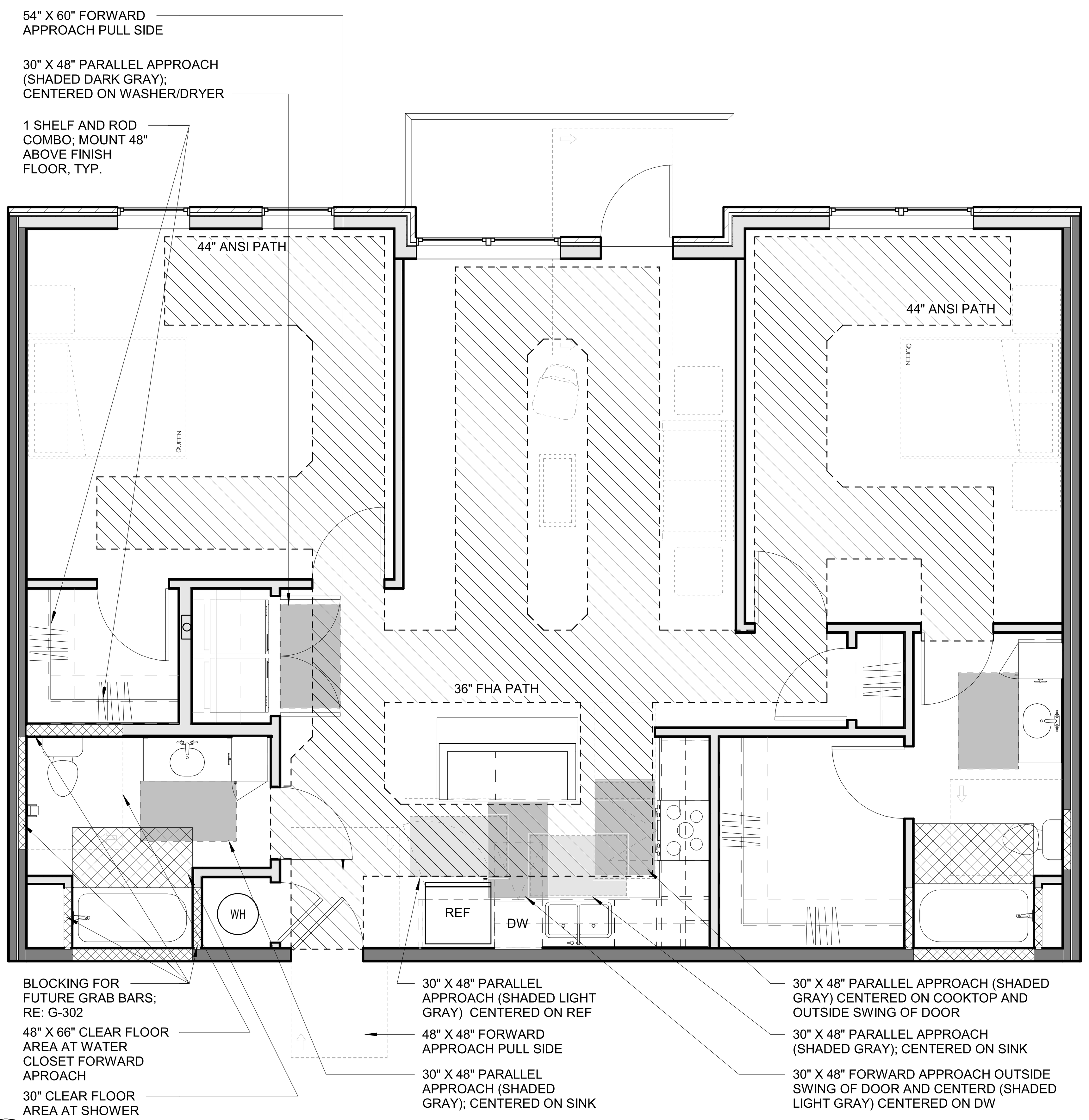
ROOM FINISH SCHEDULE - UNITS						
Number	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVT1	WB, PT 3	PT1	PT4	
002	COAT	LVT1	WB, PT 3	PT2	PT4	
003	LIVING	LVT1	WB, PT 3	PT1	PT4	
004	KITCHEN	LVT1	WB, PT 3	PT1	PT4	
005	MECH.	LVT1	--	PT2	--	
006	LAUNDRY	LVT1	WB, PT 3	PT2	PT4	
007	HALLWAY	LVT1	WB, PT 3	PT1	PT4	
008	BATH 1	LVT1	WB, PT 3	PT1	PT4	
009	BATH 2	LVT1	WB, PT 3	PT1	PT4	
010	BEDROOM 1	LVT1	WB, PT 3	PT1	PT4	
011	CLOSET 1	LVT1	WB, PT 3	PT2	PT4	
012	BEDROOM 2	LVT1	WB, PT 3	PT1	PT4	
013	CLOSET 2	LVT1	WB, PT 3	PT2	PT4	
014	BALCONY	CONCRETE				



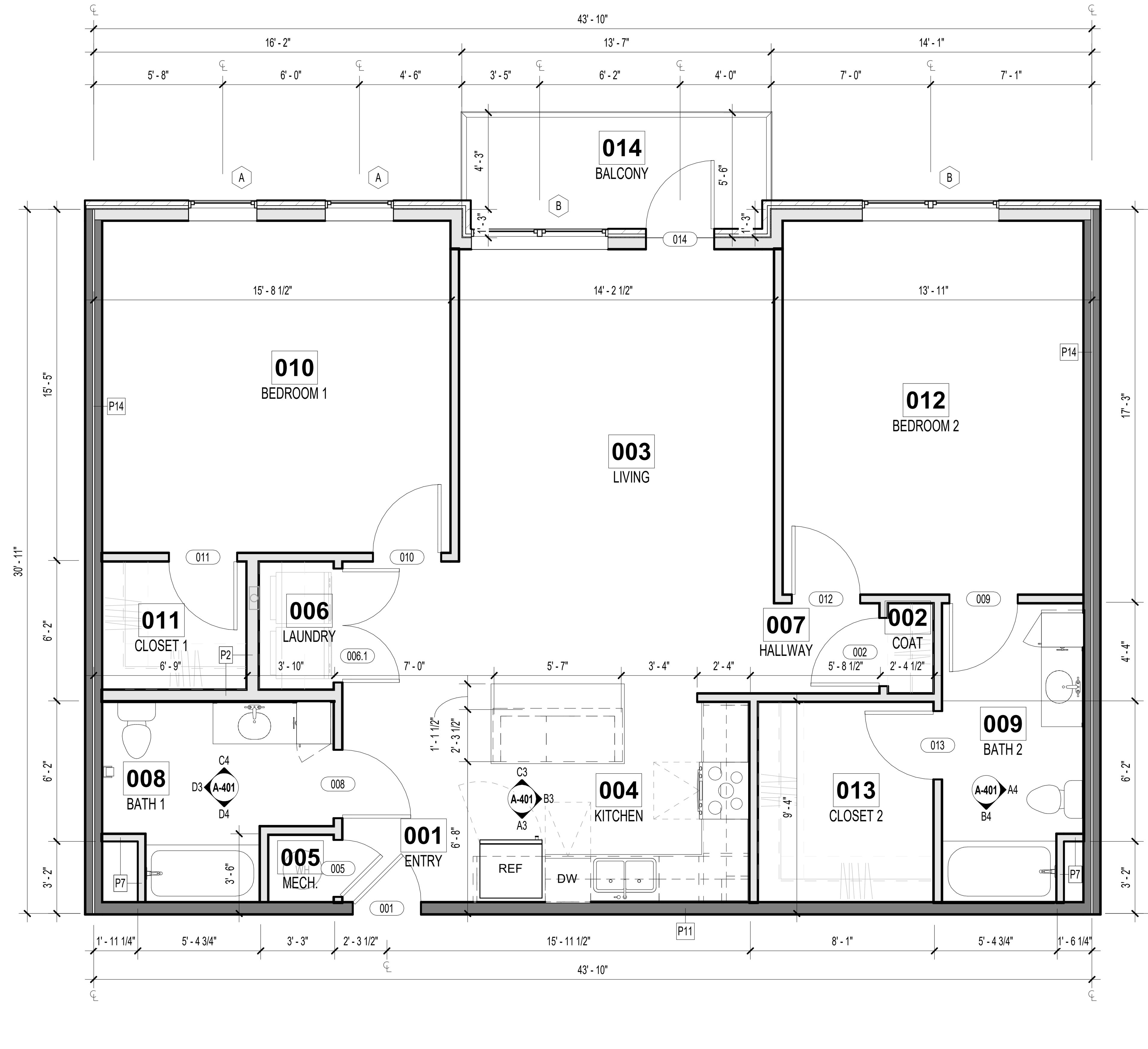
C2 UNIT FINISH PLAN - ABERDEEN (2 BR) - TYPE B
1/8" = 1'-0"



C1 UNIT RCP - ABERDEEN (2 BR) - TYPE B
1/8" = 1'-0"



B1 UNIT CLEAR SPACE PLAN - ABERDEEN (2 BR) - TYPE B
1/4" = 1'-0"



A1 UNIT FLOOR PLAN - ABERDEEN (2 BR) - TYPE B
1/4" = 1'-0"

1,300 G.S.F

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REVISIONS:

rosemann & ASSOCIATES P.C.
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1526 Grand Boulevard
Kansas City, MO 64108-1404
p: 816.472.1448
w: www.rosemann.com

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

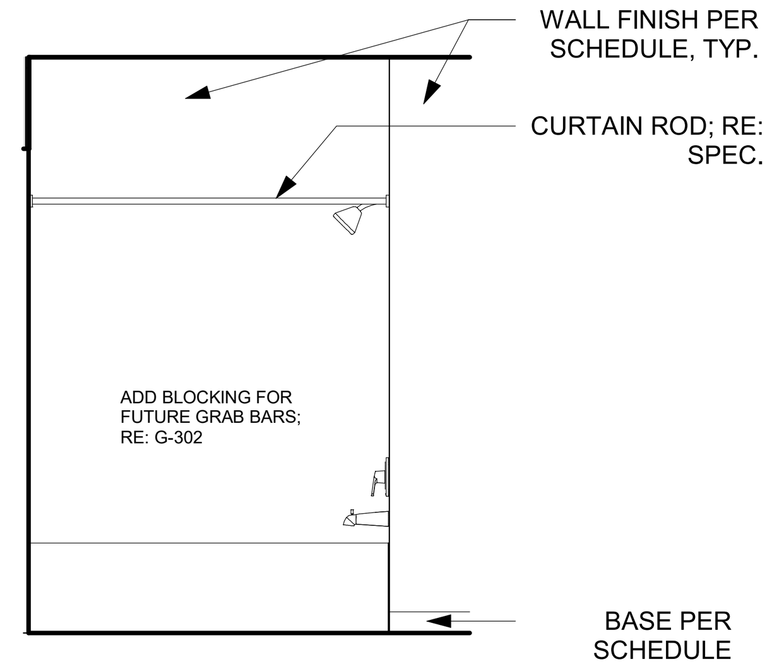
SHEET TITLE
ABERDEEN (2 BR) - TYPE B

PROJECT NUMBER: 24017

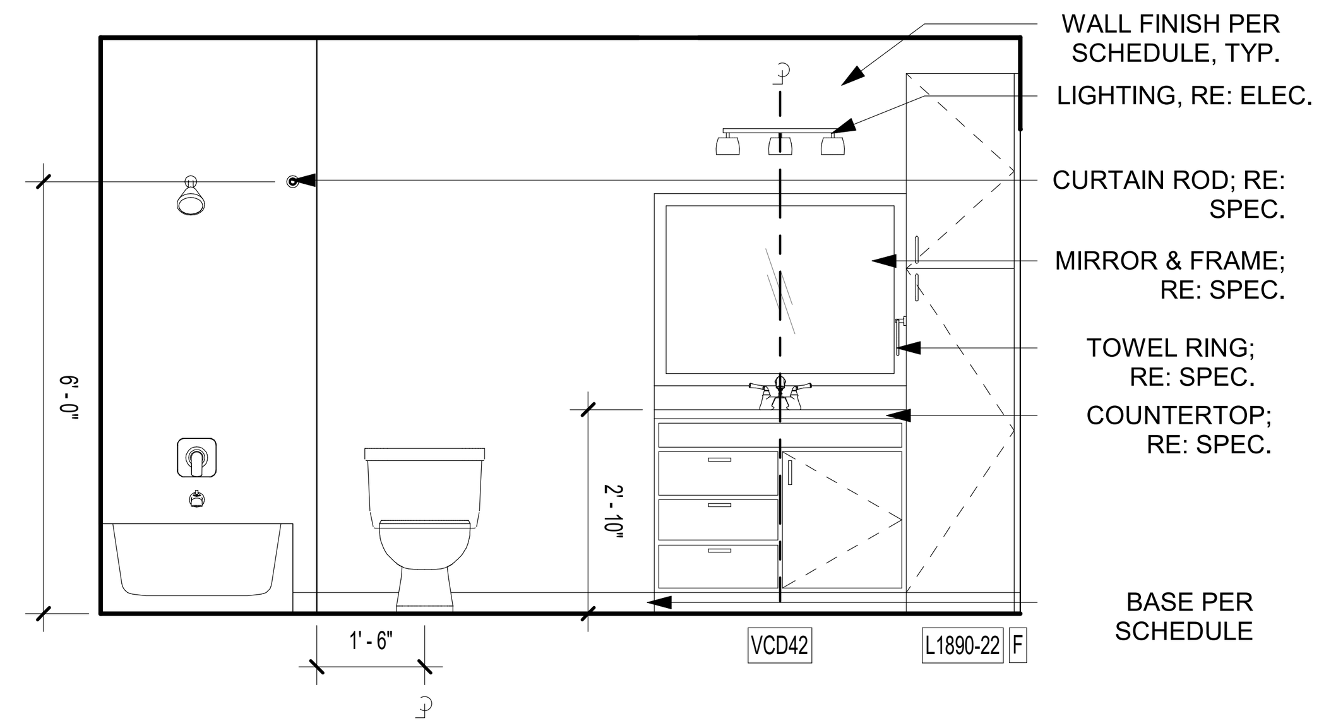
SHEET NUMBER:

A-401

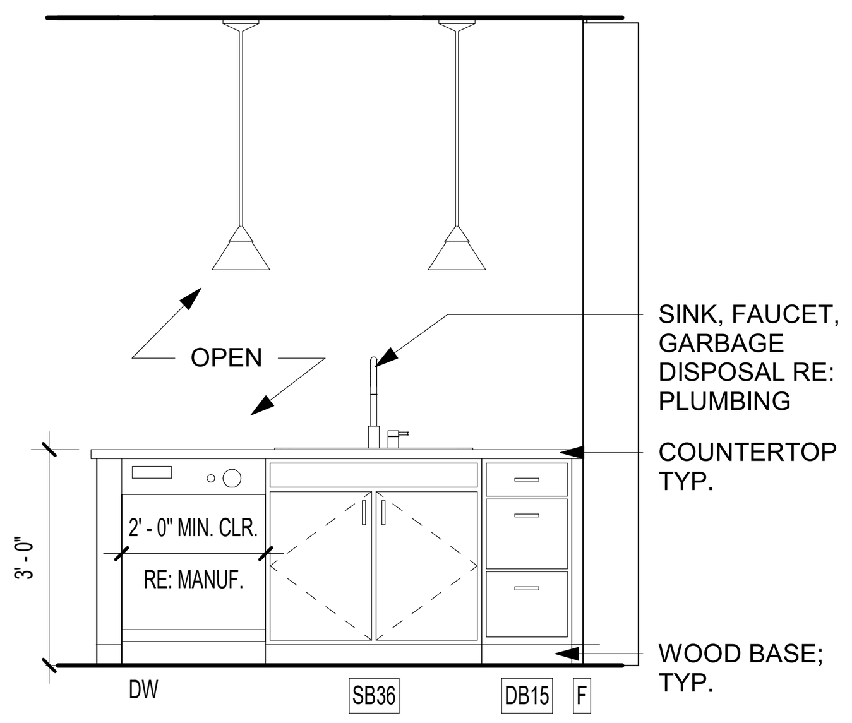
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-400 FOR UNIT PLAN LEGEND
REFERENCE A-120 FOR RCP LEGEND



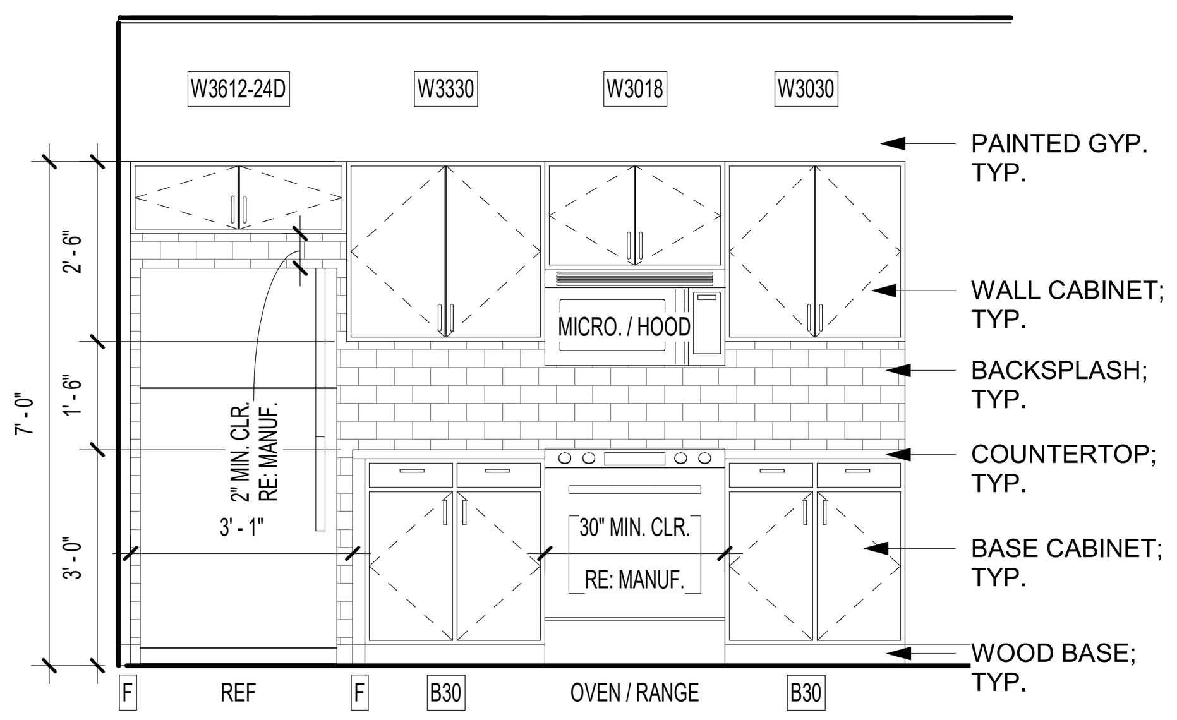
B4 ADRIAN BATH ELEV. 2
3/8" = 1'-0"



A4 ADRIAN BATH ELEV. 1
3/8" = 1'-0"

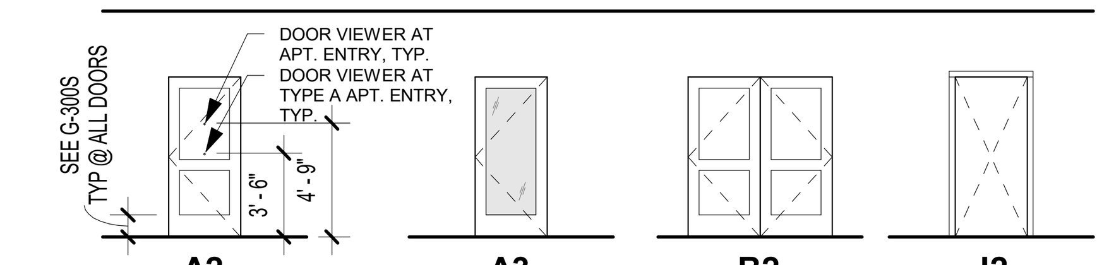


B3 ADRIAN KITCHEN ELEV. 2
3/8" = 1'-0"



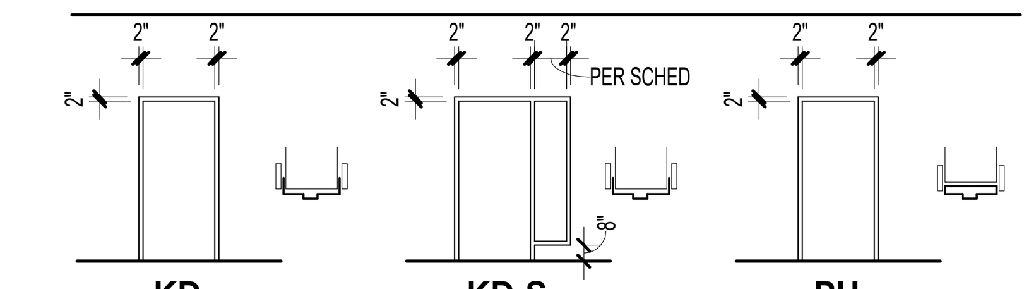
A3 ADRIAN KITCHEN ELEV. 1
3/8" = 1'-0"

DOOR TYPES



A2 SINGLE SWING PANEL
A3 SINGLE SWING FULL LITE
B2 DOUBLE SWING PANEL
J2 CASED OPENING

FRAME TYPES



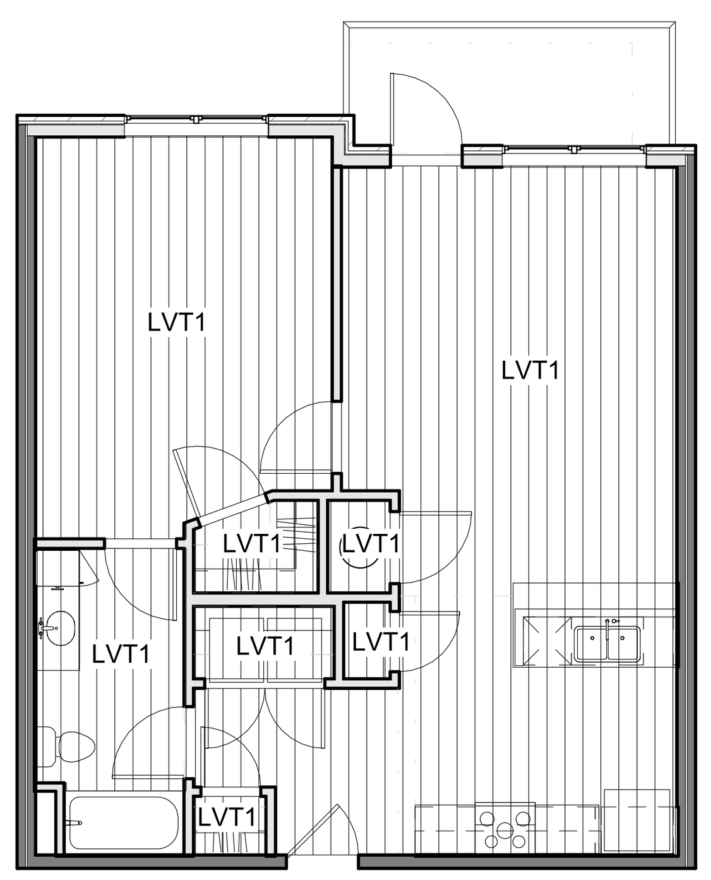
KD KNOCK DOWN w/ TRIM
KD-S KNOCK DOWN w/ SIDE LITE w/ TRIM
PH PRE-HUNG w/ TRIM

DOOR SCHEDULE - UNIT DOORS (BY UNIT TYPE)

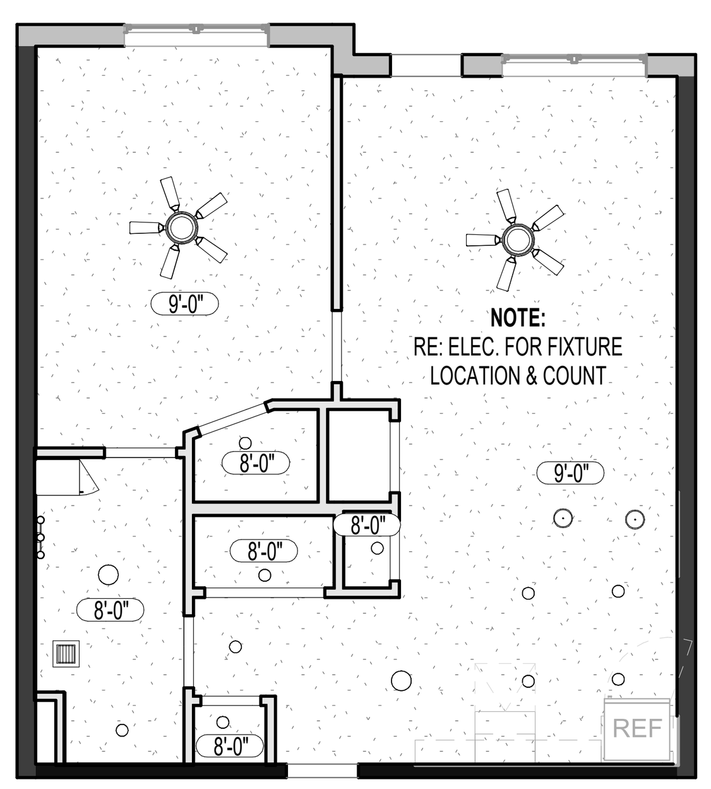
Mark	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Hardware Group	Comments
001	3' - 0"	6' - 8"	1 3/4"	45	A2	KD	U1	
002	2' - 6"	6' - 8"	1 3/4"		A2	PH	U6	
005	3' - 0"	6' - 8"	1 3/4"		A2	PH	U2	UNDERCUT IF REQ'D
006.1	5' - 0"	6' - 8"	1 3/4"		B2	PH	U3	UNDERCUT IF REQ'D
008	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
008A	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
010	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
011	3' - 0"	6' - 8"	1 3/4"		A2	PH	U2	
013	2' - 6"	6' - 8"	1 3/4"		A2	PH	U2	
014	3' - 0"	8' - 0"	1 3/4"		A3	SF/ALUM	U5	

ROOM FINISH SCHEDULE - UNITS

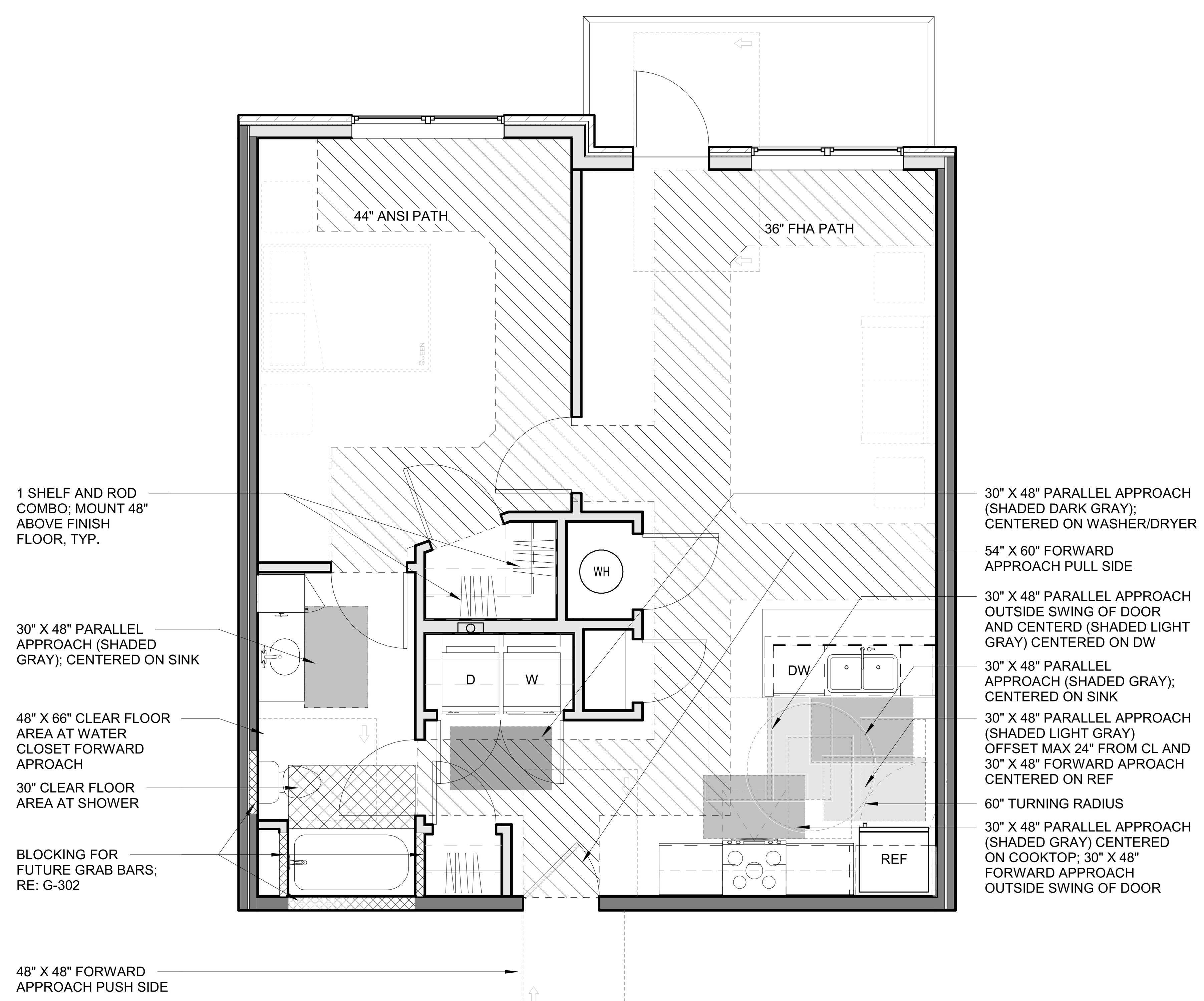
Number	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVT1	WB, PT3	PT1	PT4	
002	COAT	LVT1	WB, PT3	PT2	PT4	
003	LIVING	LVT1	WB, PT3	PT1	PT4	
004	KITCHEN	LVT1	WB, PT3	PT1	PT4	
005	MECH.	LVT1	--	PT2	--	
006	LAUNDRY	LVT1	WB, PT3	PT2	PT4	
008	BATHROOM	LVT1	WB, PT3	PT2	PT4	
010	BEDROOM	LVT1	WB, PT3	PT1	PT4	
011	CLOSET	LVT1	WB, PT3	PT2	PT4	
013	CLOSET	LVT1	WB, PT3	PT2	PT4	
014	BALCONY	CONCRETE				



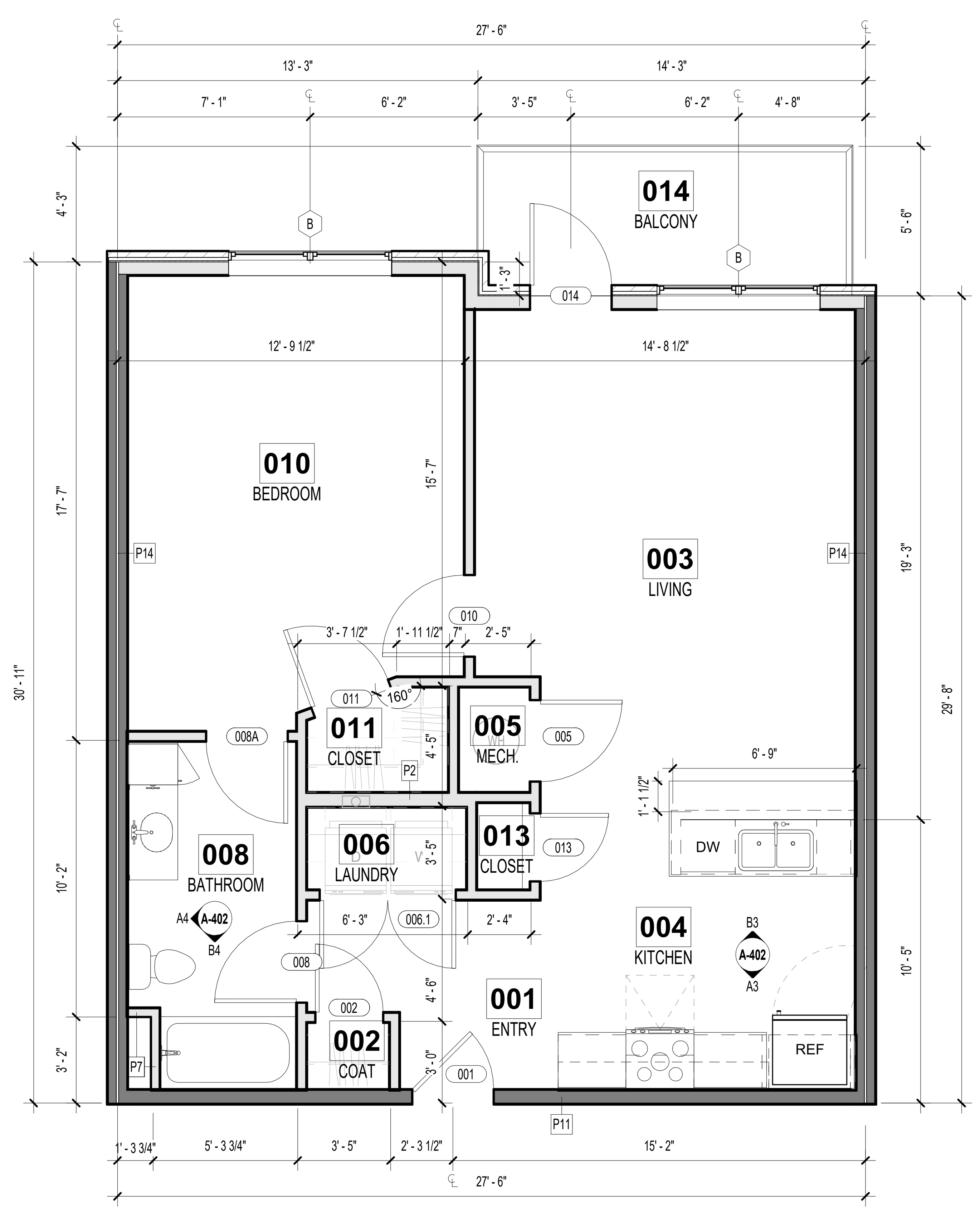
C2 UNIT FINISH PLAN - ADRIAN (1 BR) - TYPE B
1/8" = 1'-0"



C1 UNIT RCP - ADRIAN (1 BR) - TYPE B
1/8" = 1'-0"



B1 UNIT CLEAR SPACE PLAN - ADRIAN (1 BR) - TYPE B
1/4" = 1'-0"



A1 UNIT FLOOR PLAN - ADRIAN (1 BR) - TYPE B
1/4" = 1'-0"
823 G.S.F

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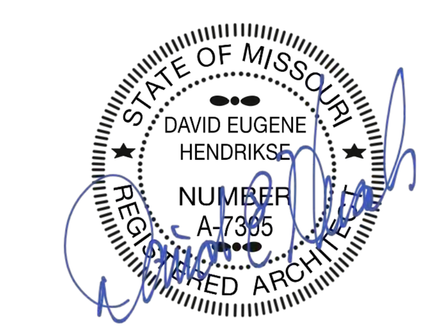


11/27/2024

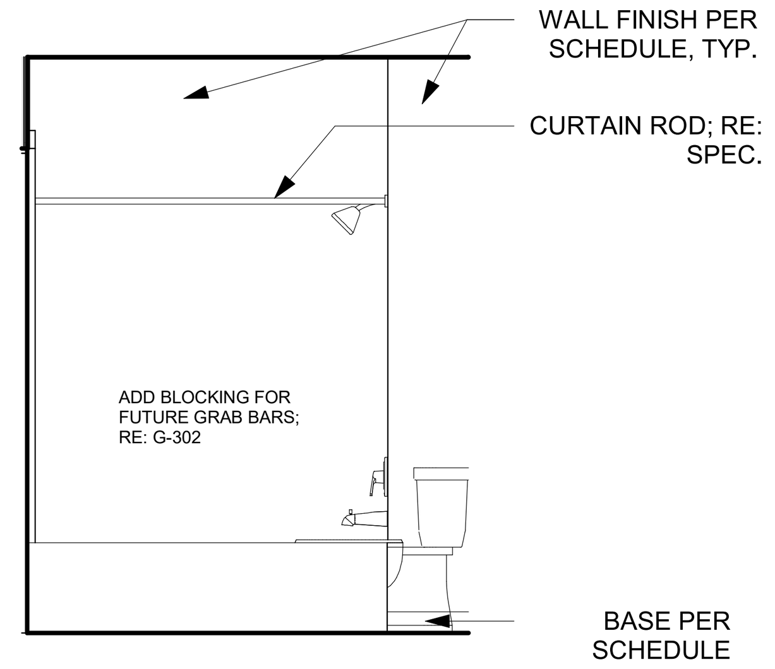
DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
ADRIAN (1 BR) - TYPE B

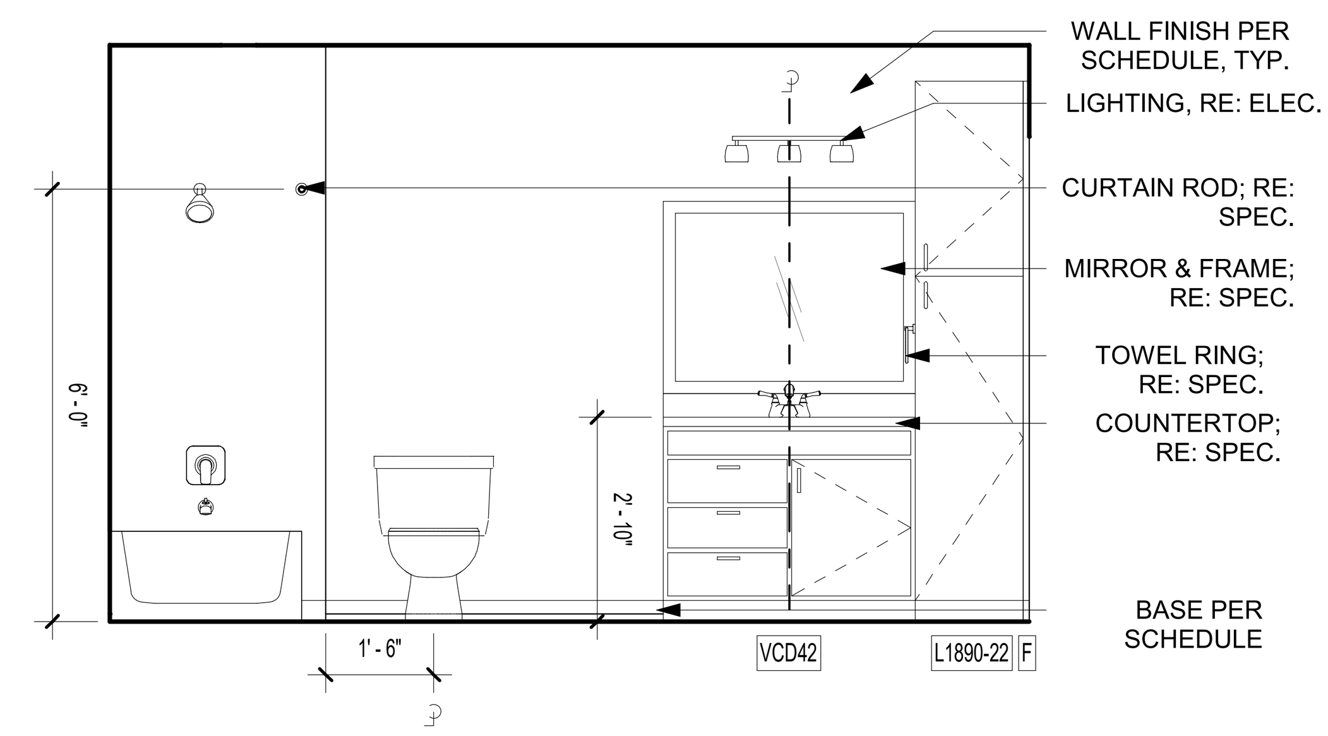
PROJECT NUMBER: 24017

SHEET NUMBER:

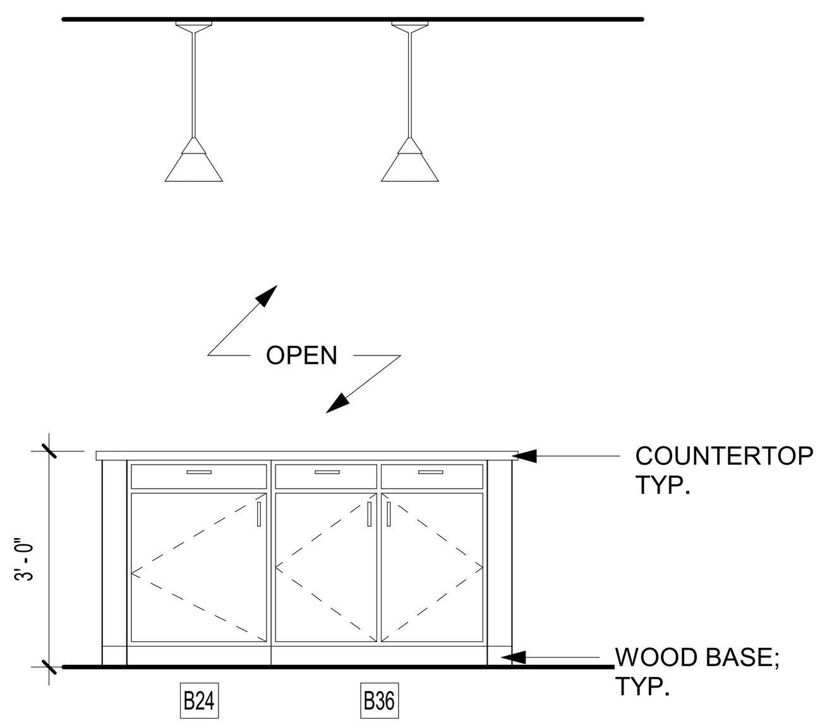
A-402



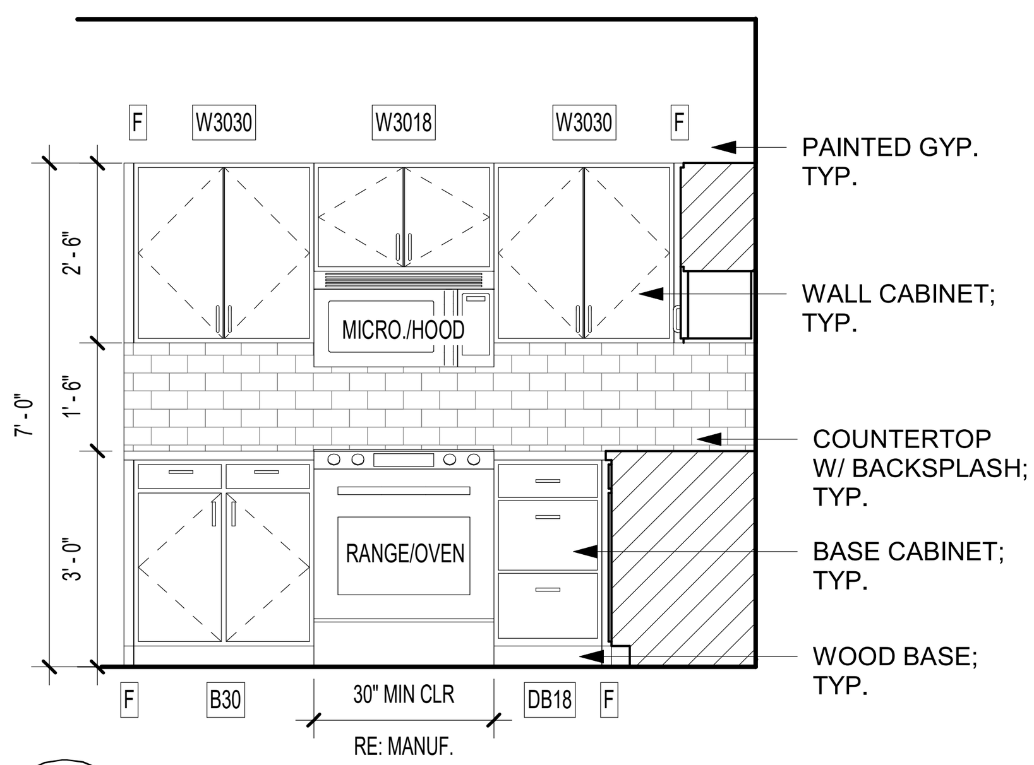
B4 ADRIAN LRG BATH ELEV. 2
3/8" = 1'-0"



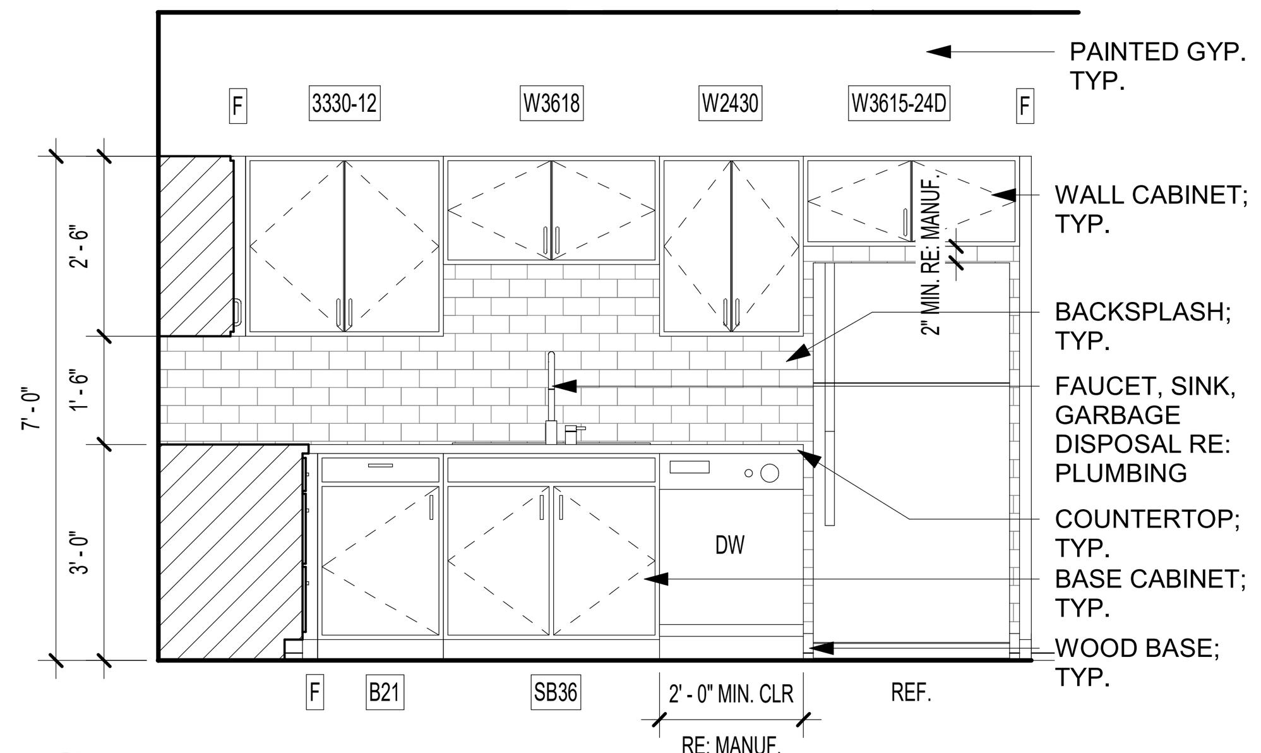
A4 ADRIAN LRG BATH ELEV. 1
3/8" = 1'-0"



C3 ADRIAN LRG KITCHEN ELEV. 2
3/8" = 1'-0"



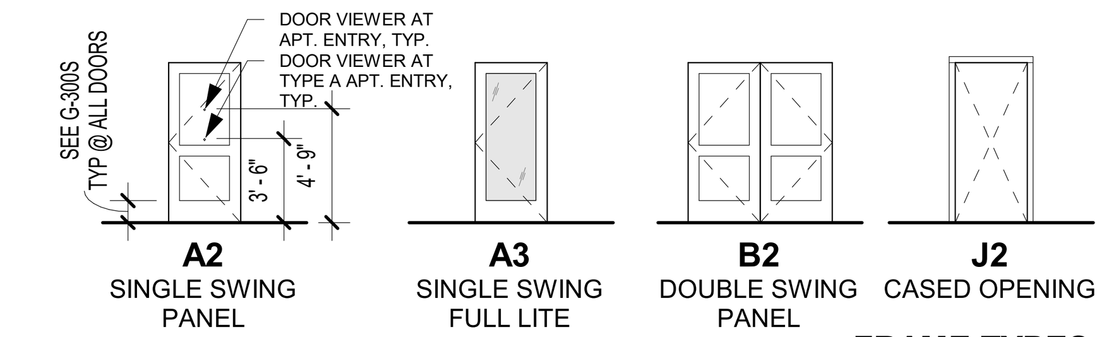
B3 ADRIAN LRG KITCHEN ELEV. 3
3/8" = 1'-0"



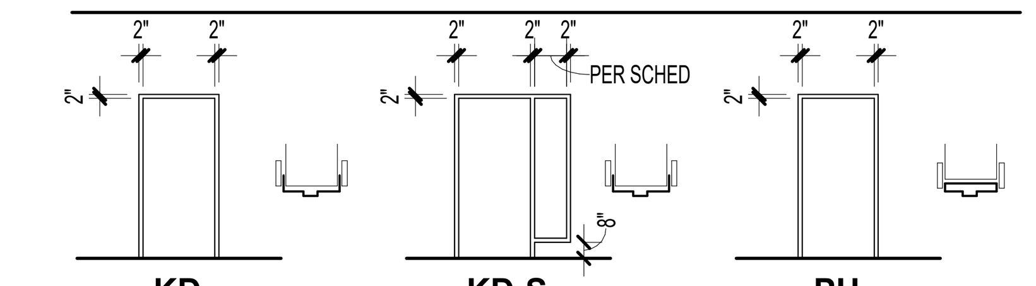
A3 ADRIAN LRG KITCHEN ELEV. 1
3/8" = 1'-0"

REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-400 FOR UNIT PLAN LEGEND
REFERENCE A-120 FOR RCP LEGEND

DOOR TYPES



FRAME TYPES



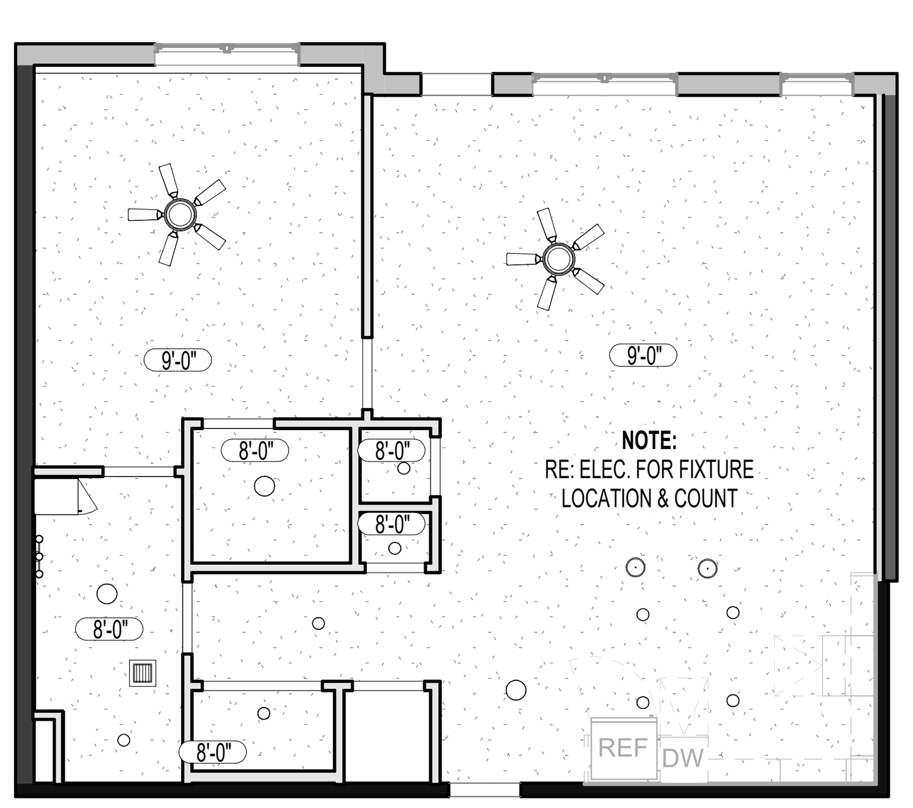
DOOR SCHEDULE - UNIT DOORS (BY UNIT TYPE)

Mark	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Hardware Group	Comments
001	3' - 0"	6' - 8"	1 3/4"	45	A2	KD	U1	
002	2' - 6"	6' - 8"	1 3/4"		A2	PH	U2	
005	3' - 0"	6' - 8"	1 3/4"		A2	PH	U6	UNDERCUT IF REQ'D
006	5' - 0"	6' - 8"	1 3/4"		B2	PH	U3	UNDERCUT IF REQ'D
008	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
008A	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
010	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
011	3' - 0"	6' - 8"	1 3/4"		A2	PH	U2	
013	2' - 6"	6' - 8"	1 3/4"		A2	PH	U2	
014	3' - 0"	8' - 0"	1 3/4"		A3	SF/ALUM	U5	

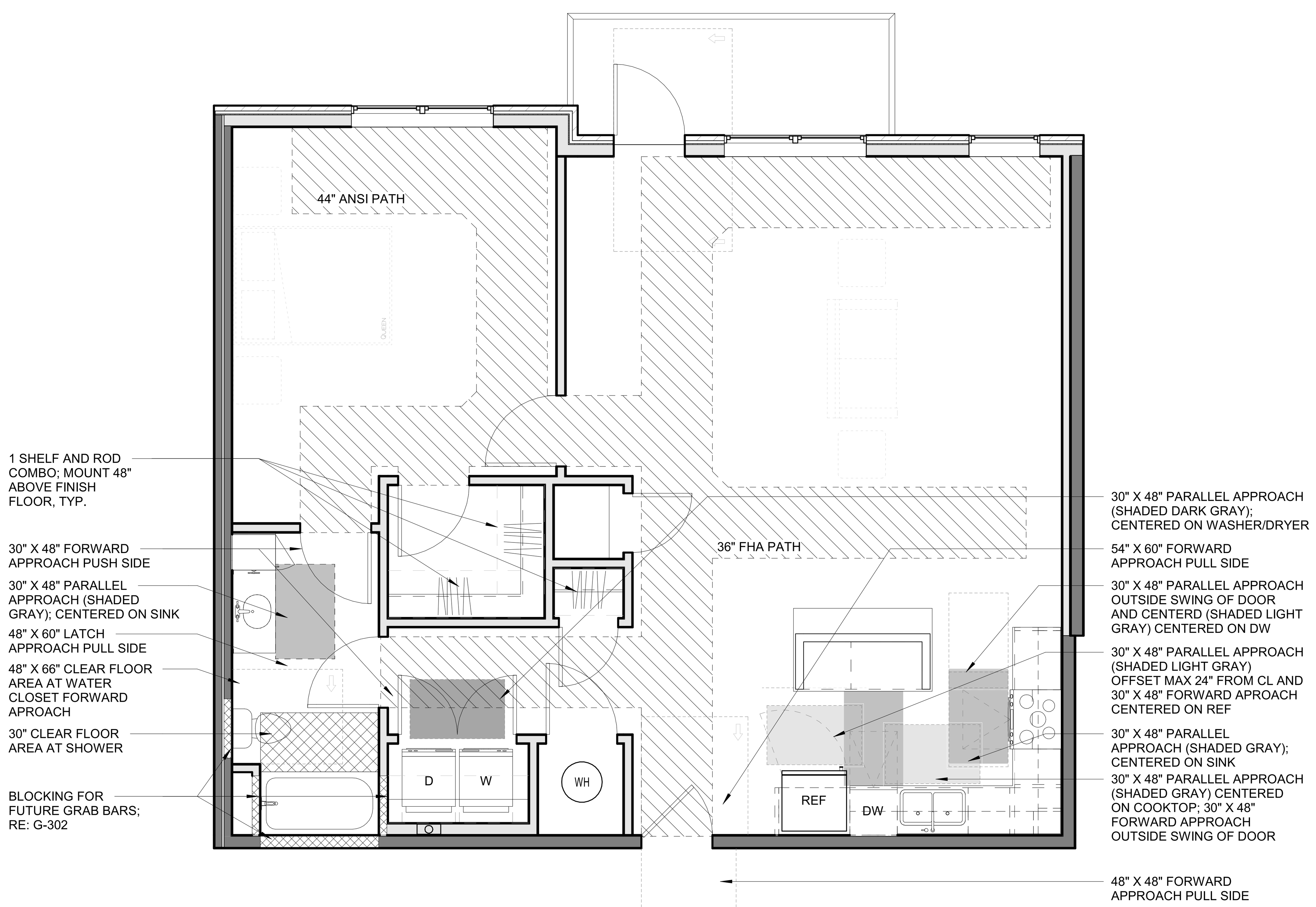
ROOM FINISH SCHEDULE - UNITS

Number	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVT1	WD, PT3	PT1	PT4	
002	COAT	LVT1	WD, PT3	PT2	PT4	
003	LIVING	LVT1	WD, PT3	PT1	PT4	
004	KITCHEN	LVT1	WD, PT3	PT1	PT4	
005	MECH.	LVT1	--	PT2	--	
006	LAUNDRY	LVT1	WD, PT3	PT2	PT4	
008	BATHROOM	LVT1	WD, PT3	PT2	PT4	
010	BEDROOM	LVT1	WD, PT3	PT1	PT4	
011	CLOSET	LVT1	WD, PT3	PT2	PT4	
013	CLOSET	LVT1	WD, PT3	PT2	PT4	
014	BALCONY	CONCRETE				

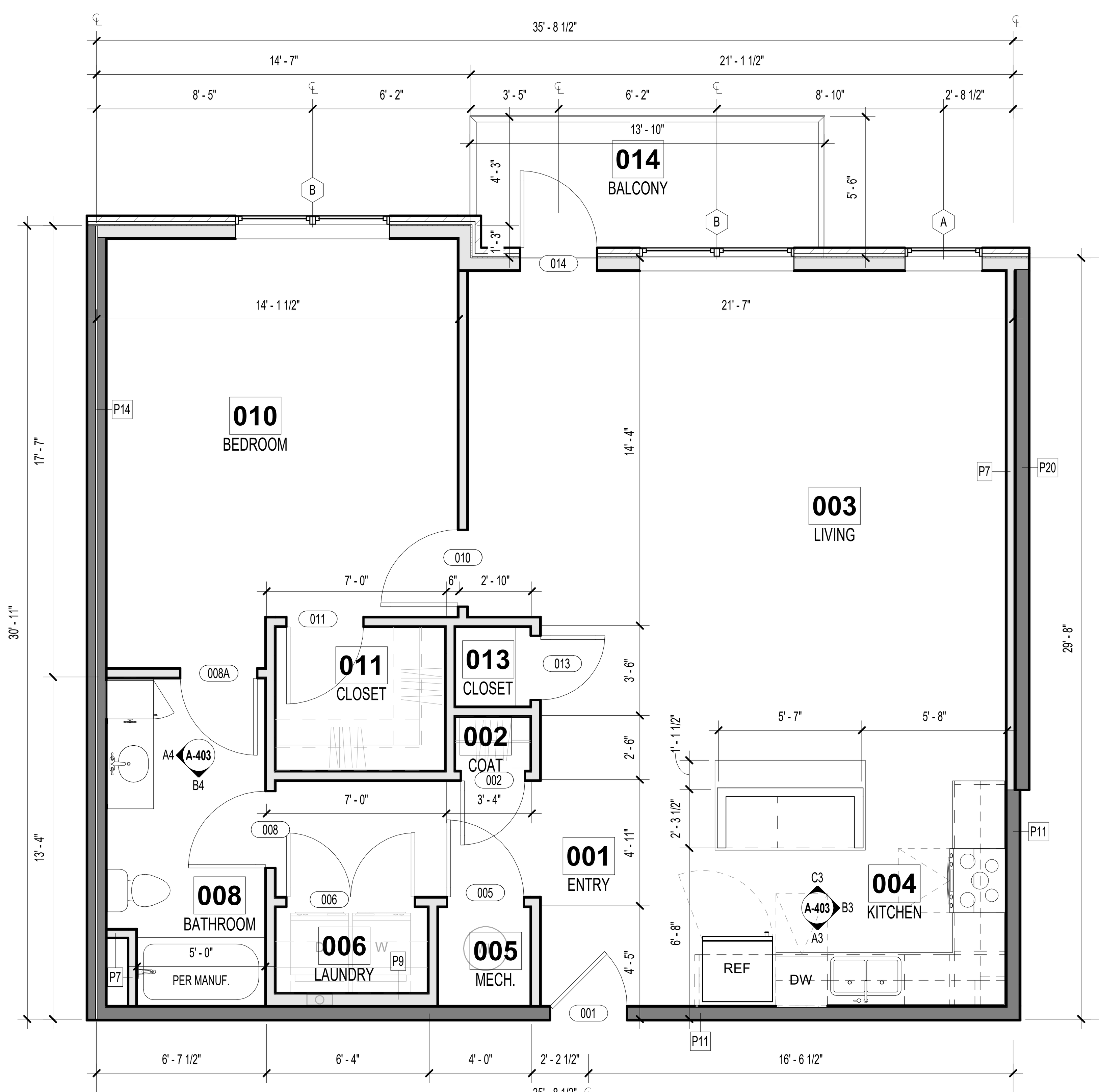
C2 UNIT FINISH PLAN - ADRIAN LRG (1 BR) - TYPE B
1/8" = 1'-0"



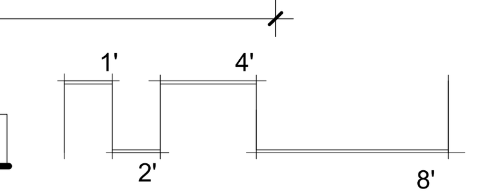
C1 UNIT RCP - ADRIAN LRG (1 BR) - TYPE B
1/8" = 1'-0"



B1 UNIT CLEAR SPACE PLAN - ADRIAN LRG (1 BR) - TYPE B
1/4" = 1'-0"



A1 UNIT FLOOR PLAN - ADRIAN LRG (1 BR) - TYPE B
1/4" = 1'-0"
1,087 G.S.F



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w: www.rosemann.com

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7385
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
ADRIAN LRG (1 BR) - TYPE B

PROJECT NUMBER: 24017

SHEET NUMBER:

A-403

REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-400 FOR UNIT PLAN LEGEND
REFERENCE A-120 FOR RCP LEGEND

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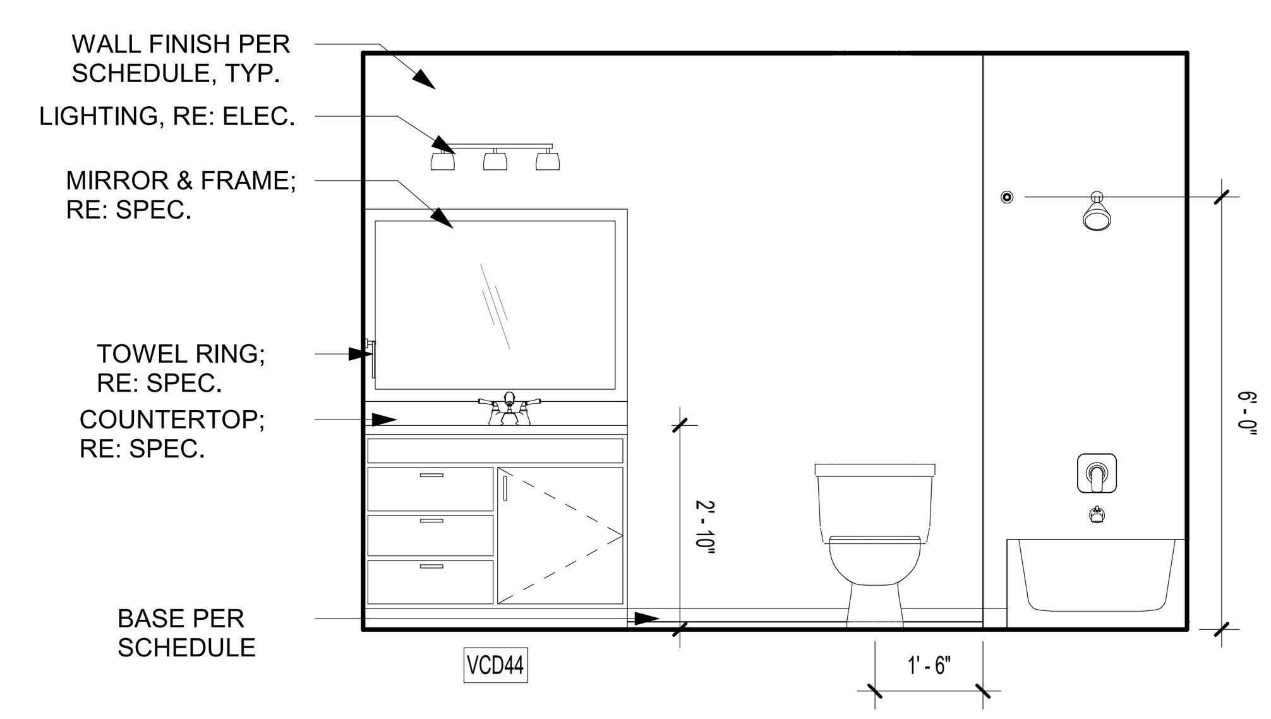
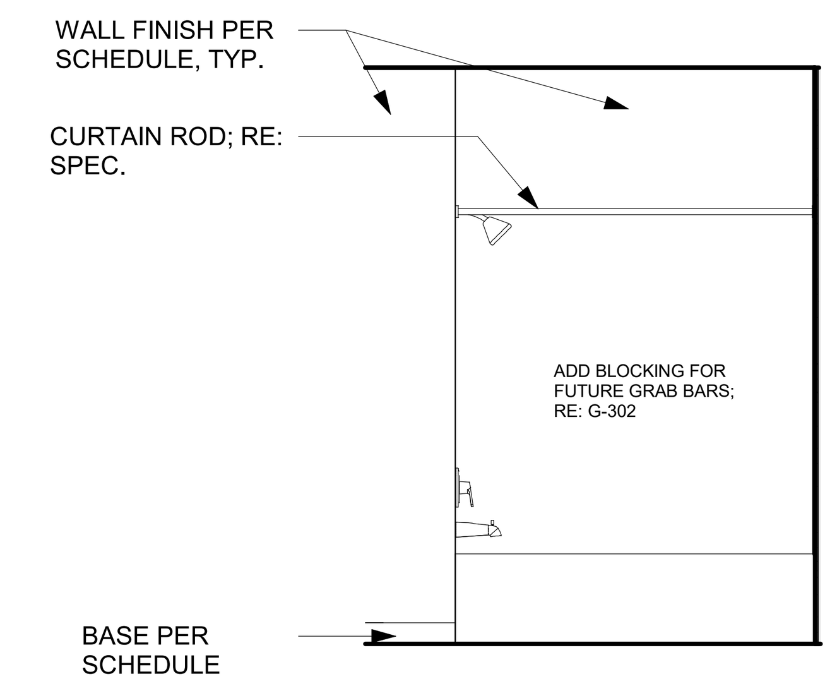
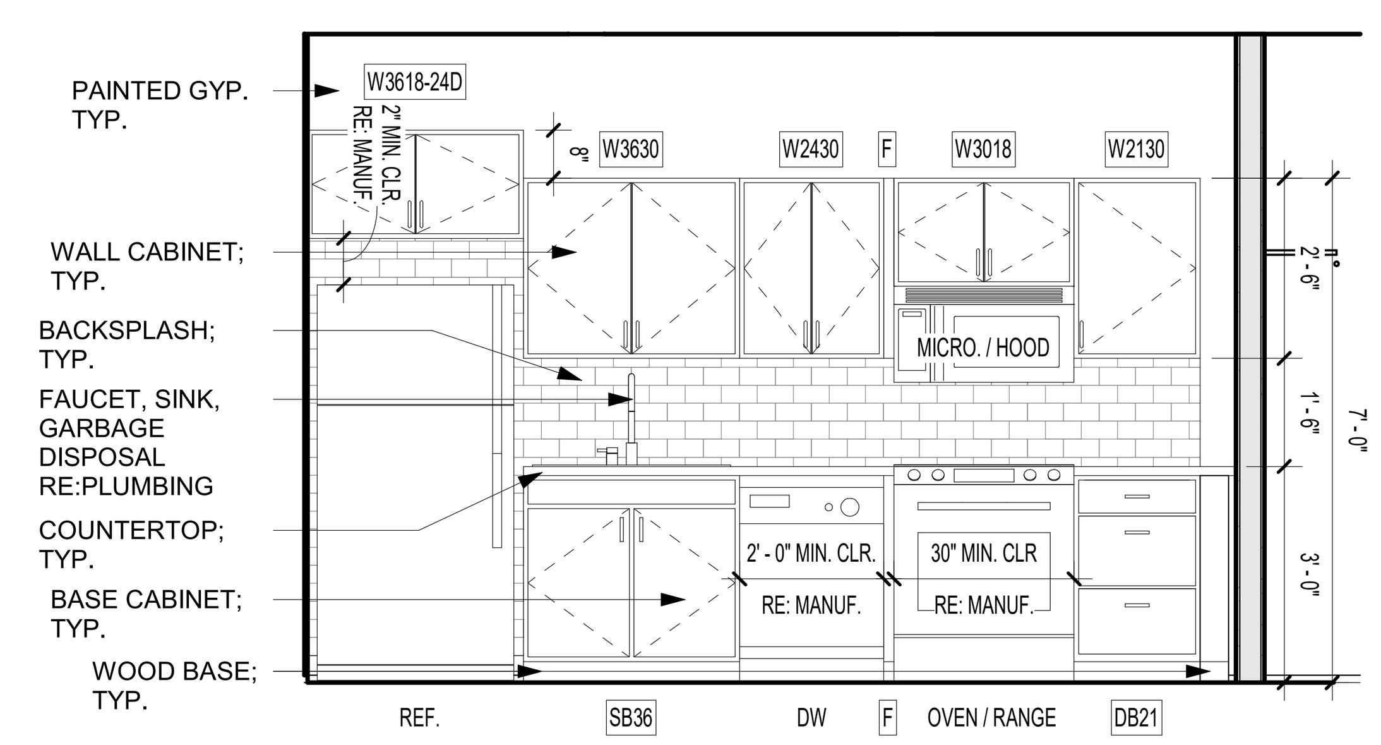
REVISIONS:



B4 CONWAY BATH ELEV. 2
3/8" = 1'-0"

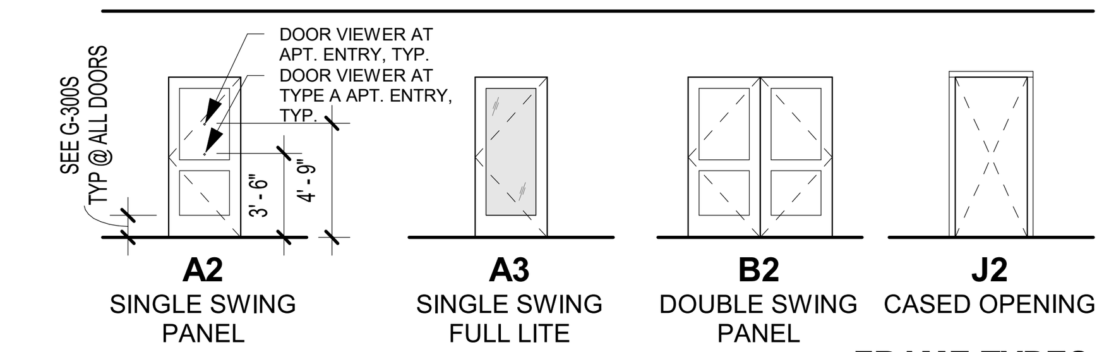


A4 CONWAY BATH ELEV. 1
3/8" = 1'-0"

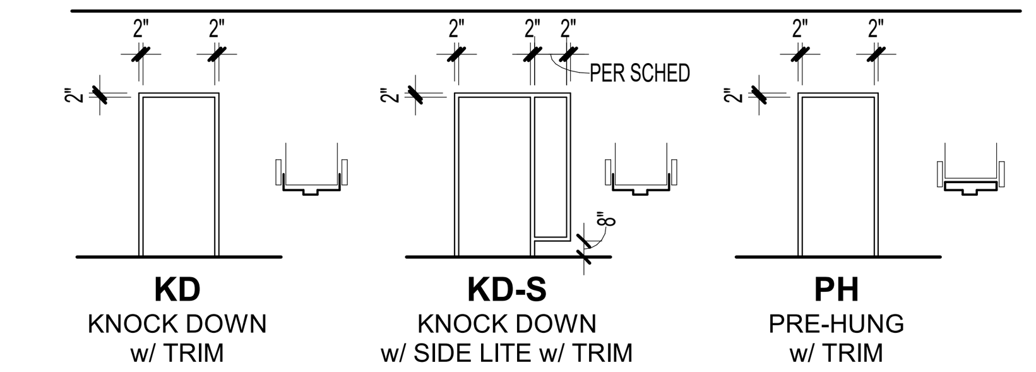


B3 CONWAY KITCHEN ELEV.
3/8" = 1'-0"

DOOR TYPES



FRAME TYPES



DOOR SCHEDULE - UNIT DOORS (BY UNIT TYPE)

Mark	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Hardware Group	Comments
001	3' - 0"	6' - 8"	1 3/4"	45	A2	KD	U1	
005	2' - 6"	6' - 8"	1 3/4"		A2	PH	U6	UNDERCUT IF REQ'D
006.1	5' - 0"	6' - 8"	1 3/4"		B2	PH	U3	UNDERCUT IF REQ'D
007	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
007A	3' - 0"	6' - 8"	1 3/4"		A2	PH	U2	
008A	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
008B	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
010	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
011	2' - 6"	6' - 8"	1 3/4"		A2	PH	U2	
014	3' - 0"	8' - 0"	1 3/4"		A3	SF/ALUM	U5	

ROOM FINISH SCHEDULE - UNITS

Number	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVT1	WB, PT3	PT1	PT4	
003	LIVING	LVT1	WB, PT3	PT1	PT4	
004	KITCHEN	LVT1	WB, PT3	PT1	PT4	
005	MECH.	LVT1	--	PT2	--	
006	LAUNDRY	LVT1	WB, PT3	PT2	PT4	
007	DEN	LVT1	WB, PT3	PT1	PT4	
007A	CL.	LVT1	WB, PT3	PT2	PT4	
008	BATHROOM	LVT1	WB, PT3	PT2	PT4	
010	BEDROOM	LVT1	WB, PT3	PT1	PT4	
011	CLOSET	LVT1	WB, PT3	PT2	PT4	
014	BALCONY	CONCRETE				

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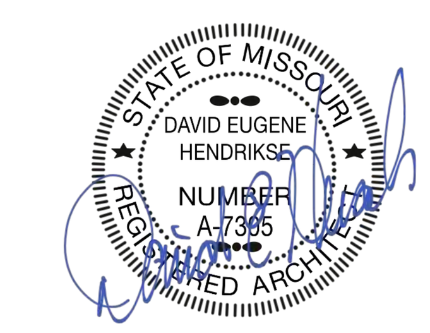
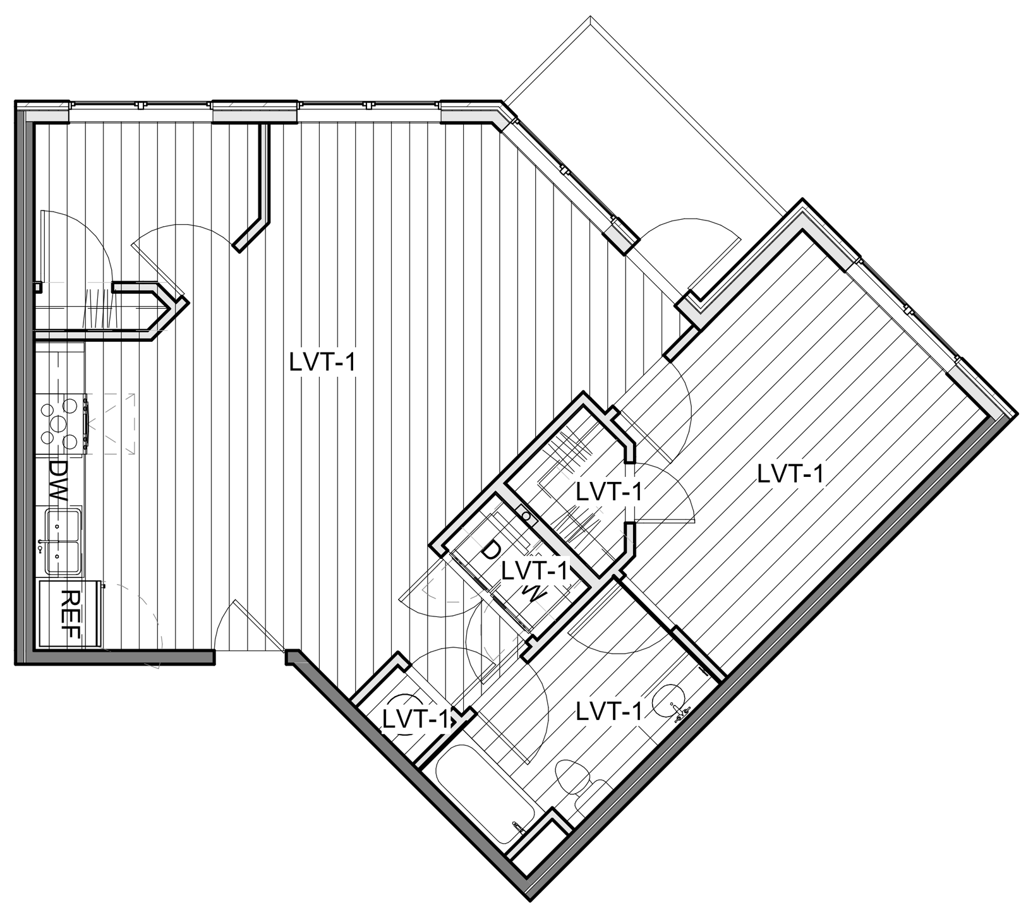
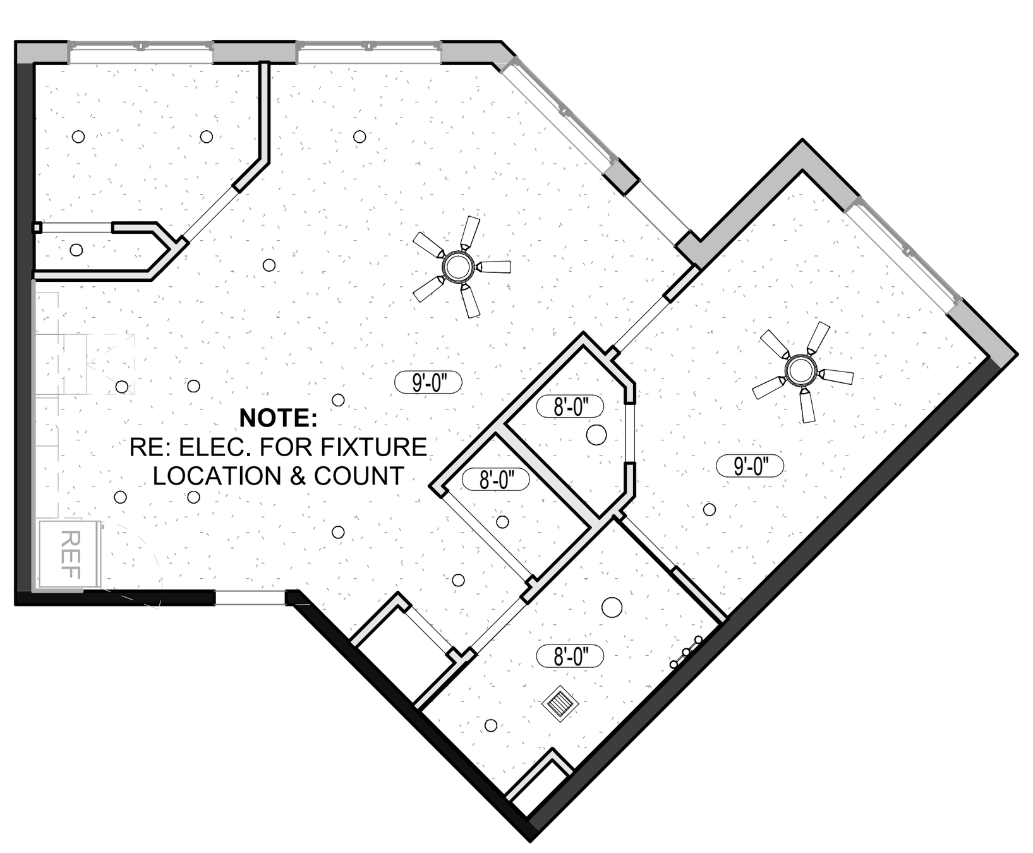


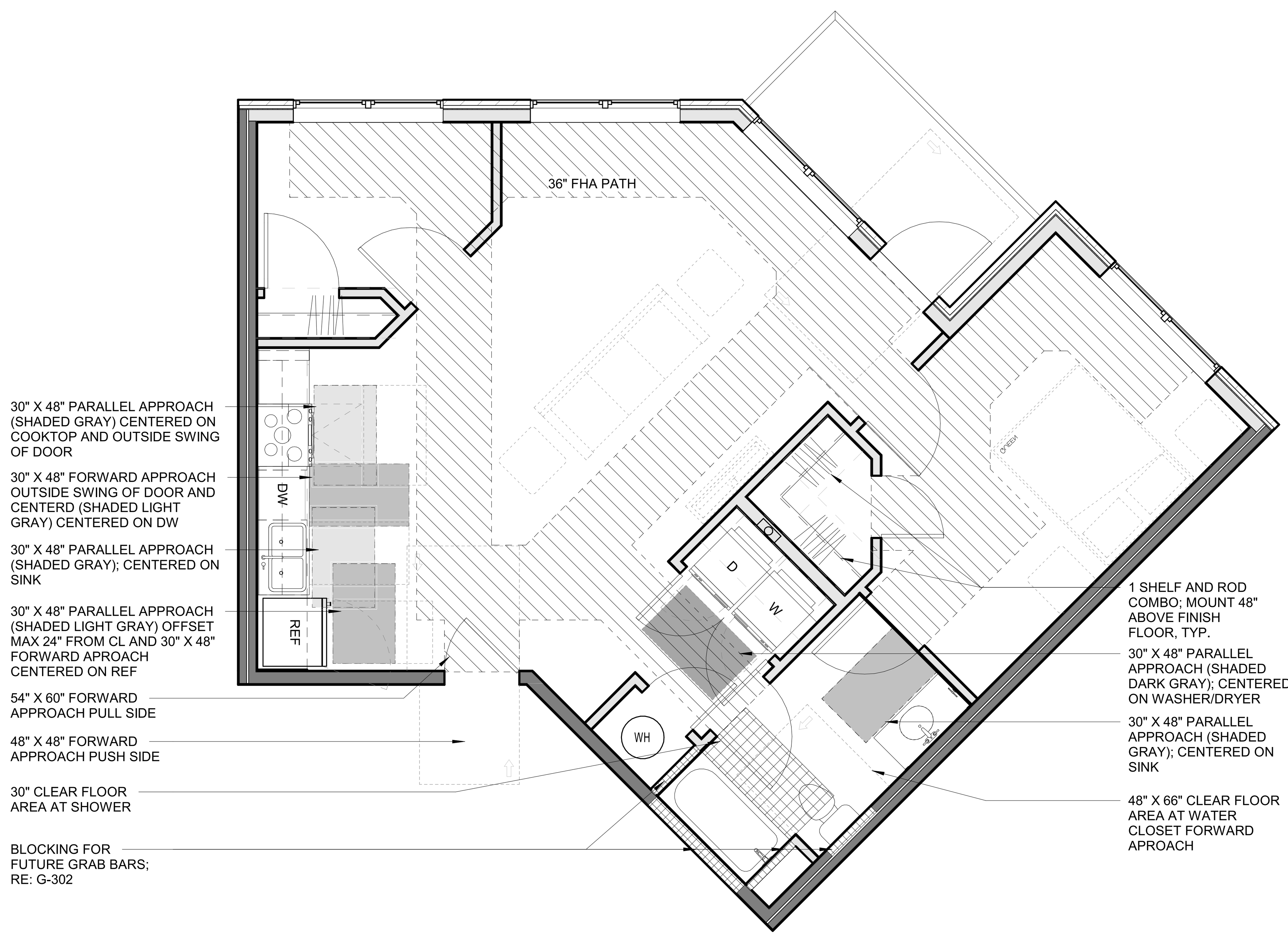
11/27/2024



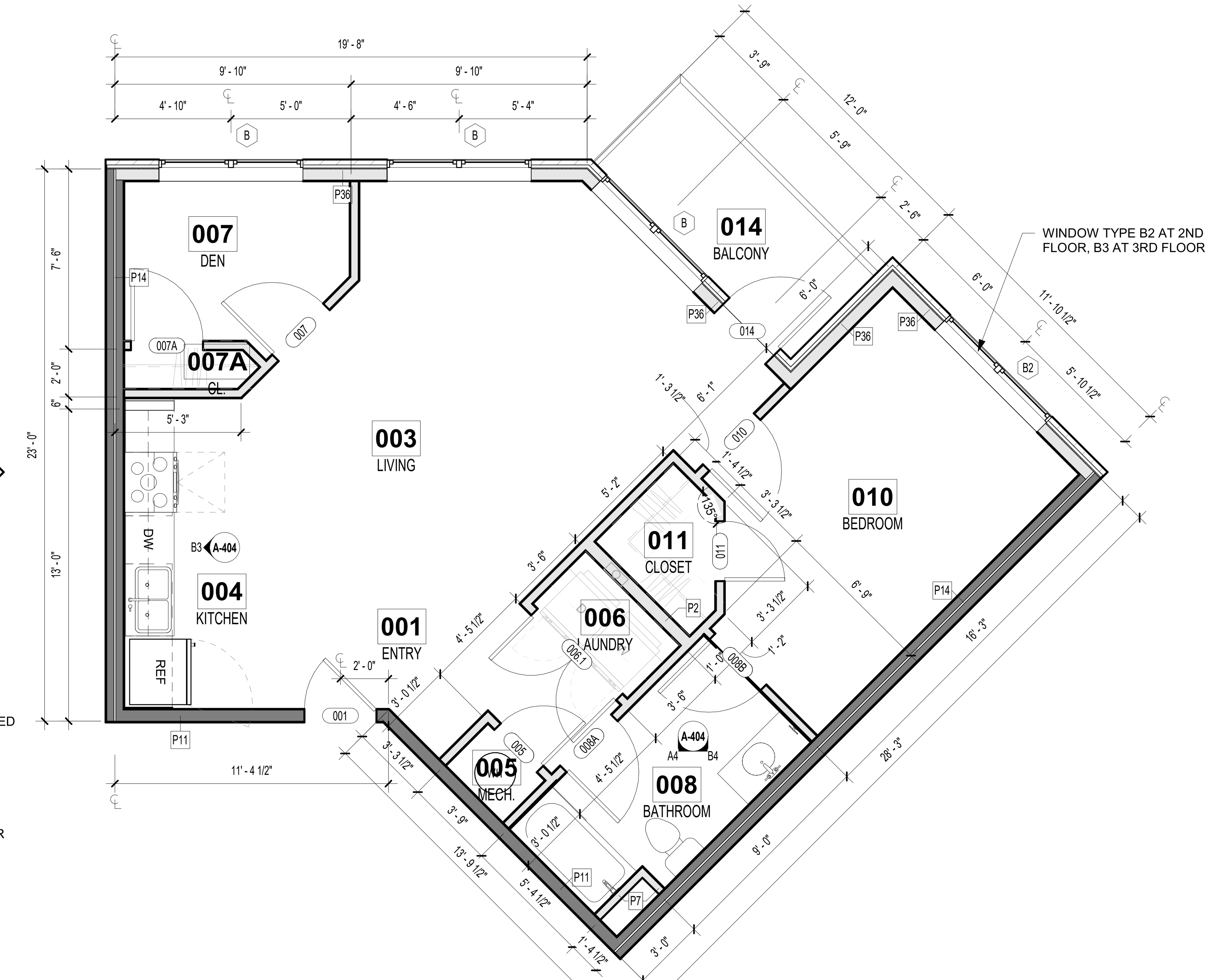
C2 UNIT FINISH PLAN - CONWAY (1 BR) - TYPE B
1/8" = 1'-0"



C1 UNIT RCP - CONWAY (1 BR) - TYPE B
1/8" = 1'-0"



B1 UNIT CLEAR SPACE PLAN - CONWAY (1 BR) - TYPE B
1/4" = 1'-0"



A1 UNIT FLOOR PLAN - CONWAY (1 BR) - TYPE B
1/4" = 1'-0"

843 G.S.F

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

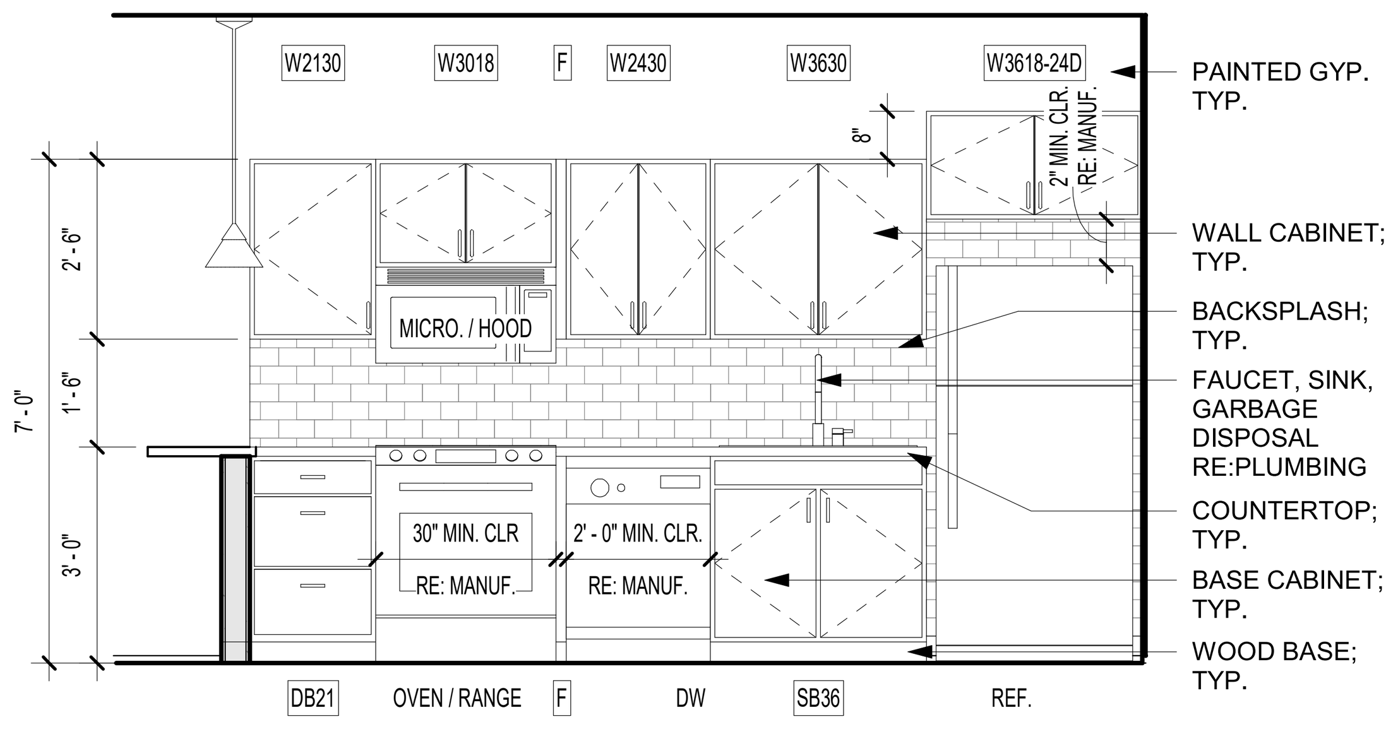
SHEET TITLE
CONWAY (1 BR) - TYPE B

PROJECT NUMBER: 24017

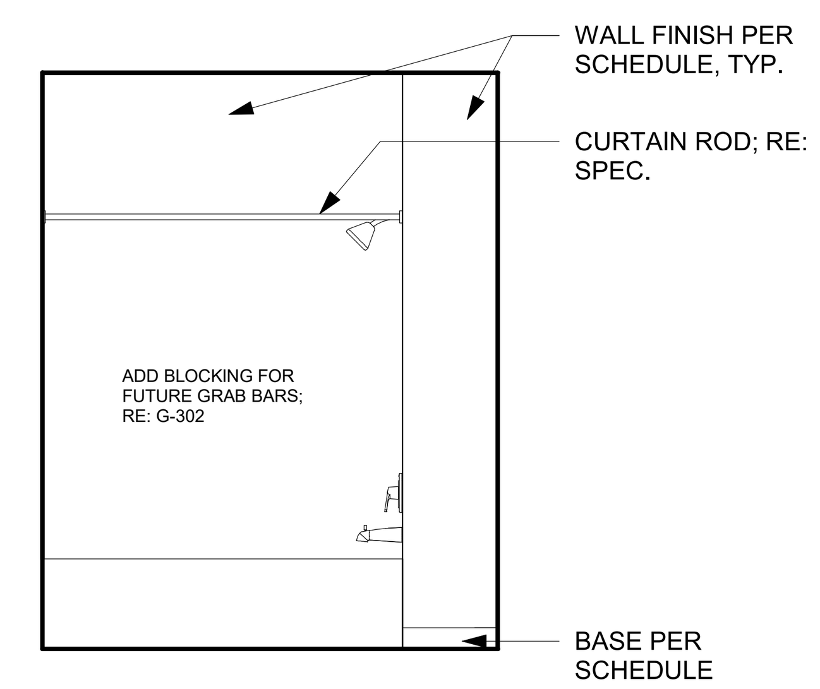
SHEET NUMBER:

A-404

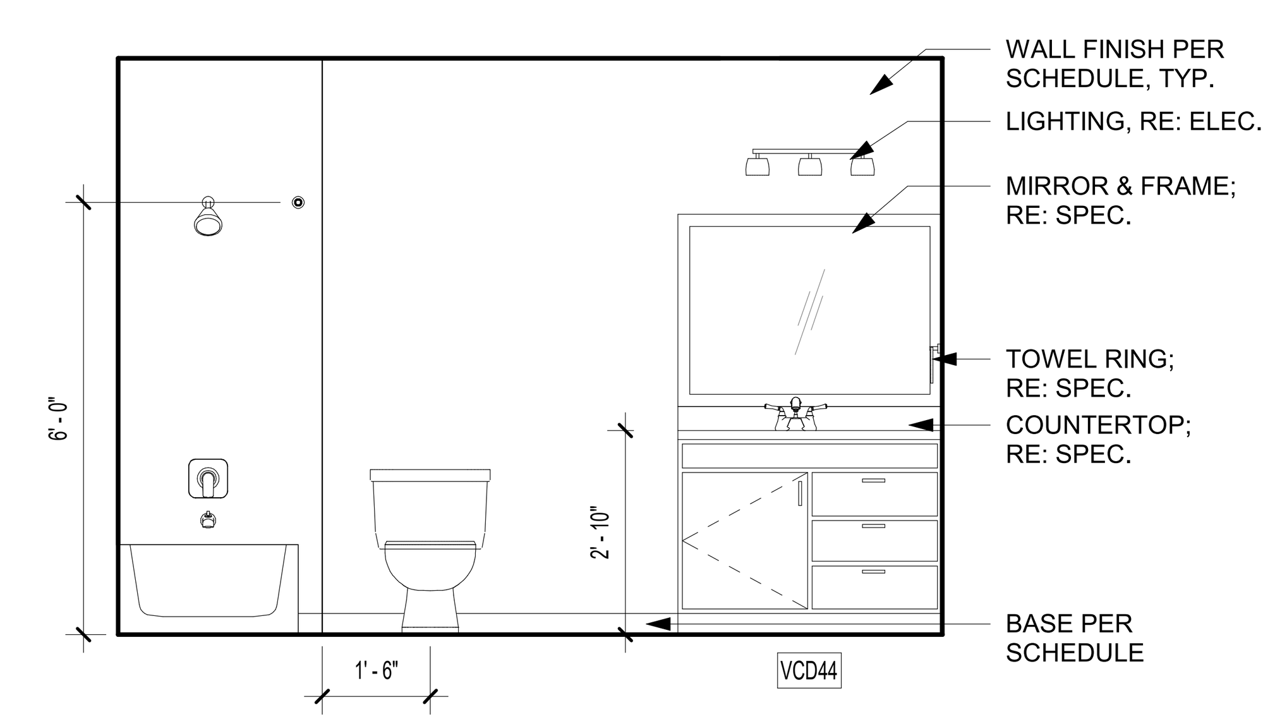
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-400 FOR UNIT PLAN LEGEND
REFERENCE A-120 FOR RCP LEGEND



C4 CONWAY II KITCHEN ELEV. 1
3/8" = 1'-0"

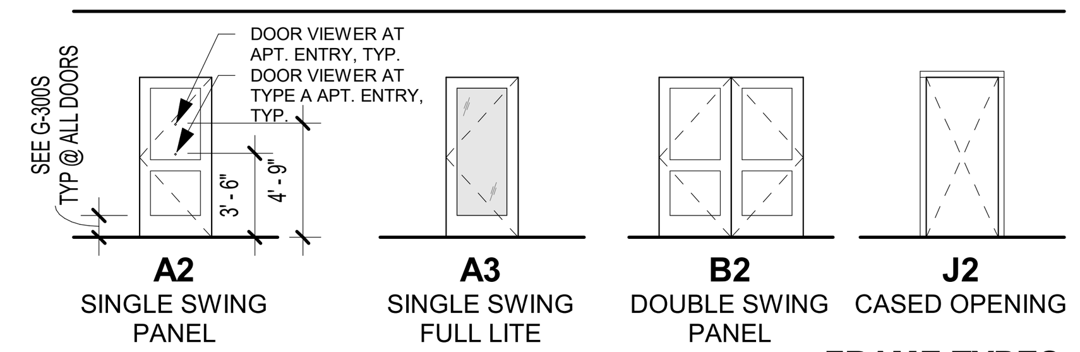


B4 CONWAY II BATH ELEV. 2
3/8" = 1'-0"

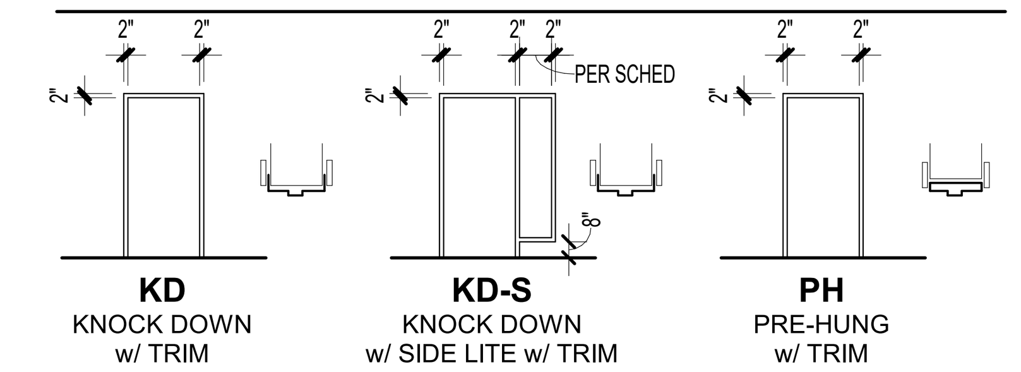


A4 CONWAY II BATH ELEV. 1
3/8" = 1'-0"

DOOR TYPES



FRAME TYPES



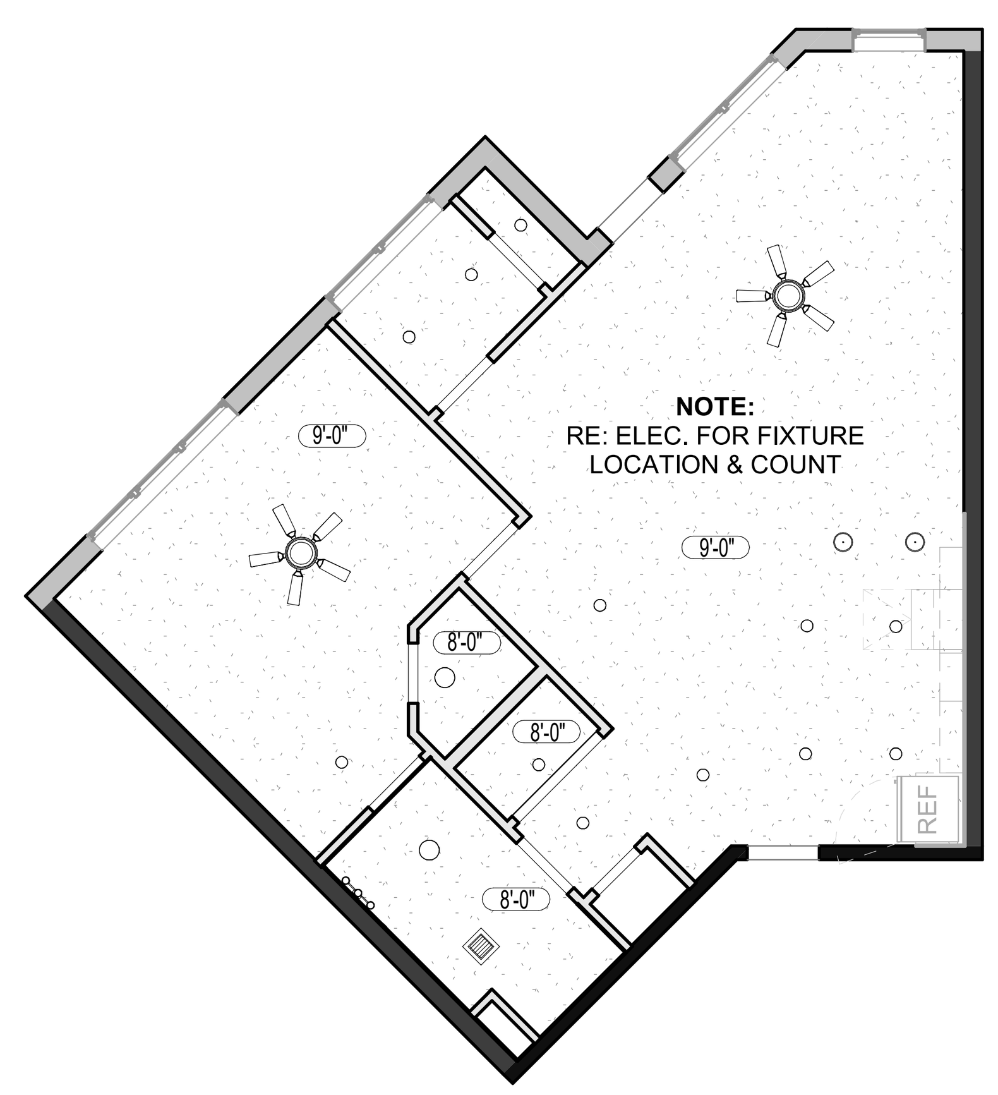
ROOM FINISH SCHEDULE - UNITS

Number	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVT1	WB, PT 3	PT1	PT4	
003	LIVING	LVT1	WB, PT 3	PT1	PT4	
004	KITCHEN	LVT1	WB, PT 3	PT1	PT4	
005	MECH.	LVT1	--	PT2	--	
006	LAUNDRY	LVT1	WB, PT 3	PT2	PT4	
007	DEN	LVT1	WB, PT 3	PT1	PT4	
007A	CL.	LVT1	WB, PT 3	PT2	PT4	
008	BATHROOM	LVT1	WB, PT 3	PT2	PT4	
010	BEDROOM	LVT1	WB, PT 3	PT1	PT4	
011	CLOSET	LVT1	WB, PT 3	PT2	PT4	
014	BALCONY	CONCRETE				

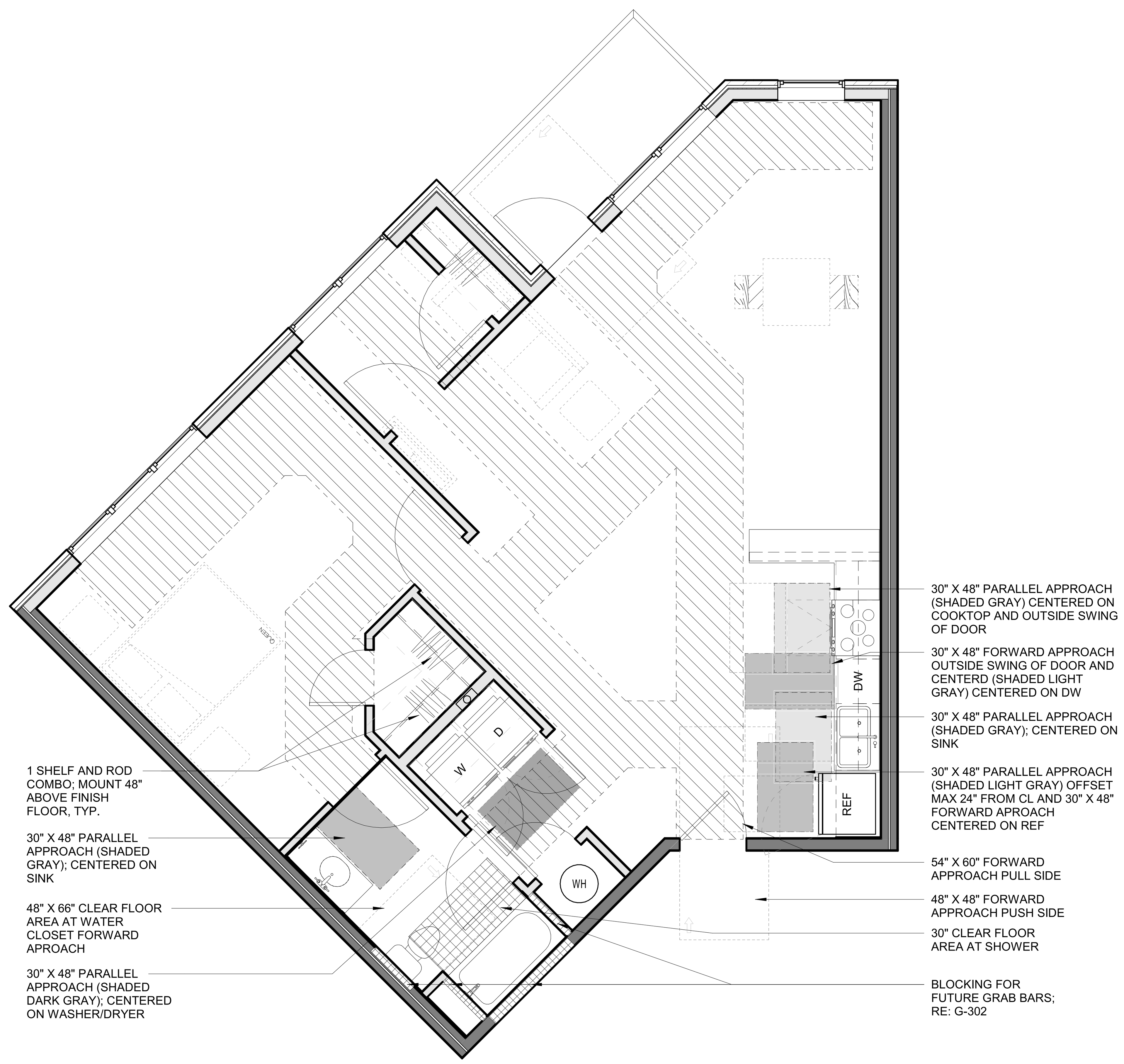
DOOR SCHEDULE - UNIT DOORS (BY UNIT TYPE)

Mark	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Hardware Group	Comments
001	3' - 0"	6' - 8"	1 3/4"		A2	KD	U1	
005	2' - 6"	6' - 8"	1 3/4"		A2	PH	U6	UNDERCUT IF REQ'D
006.1	5' - 0"	6' - 8"	1 3/4"		B2	PH	U3	UNDERCUT IF REQ'D
007	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
007A	3' - 0"	6' - 8"	1 3/4"		A2	PH	U2	
008	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
008A	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
010	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
011	2' - 6"	6' - 8"	1 3/4"		A2	PH	U2	
014	3' - 0"	8' - 0"	1 3/4"		A3	SF/ALUM	U5	

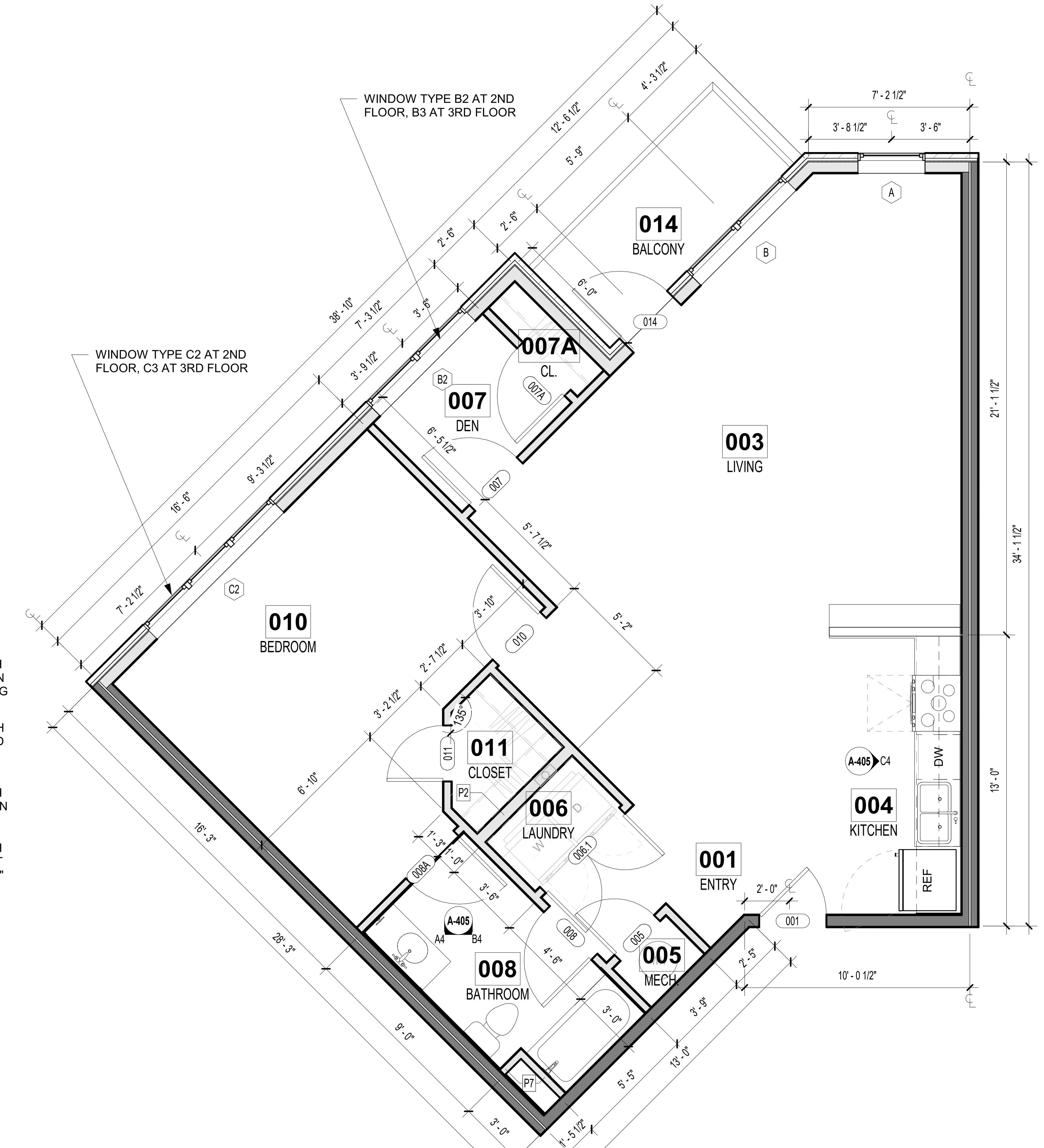
C2 UNIT FINISH PLAN - CONWAY II (1 BR) - TYPE B
1/8" = 1'-0"



C1 UNIT RCP - CONWAY II (1 BR) - TYPE B
1/8" = 1'-0"



B1 UNIT CLEAR SPACE PLAN - CONWAY II (1 BR) - TYPE B
1/4" = 1'-0"



A1 UNIT FLOOR PLAN - CONWAY II (1 BR) - TYPE B
1/4" = 1'-0"
1,024 G.S.F

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
CONWAY II (1 BR) - TYPE B

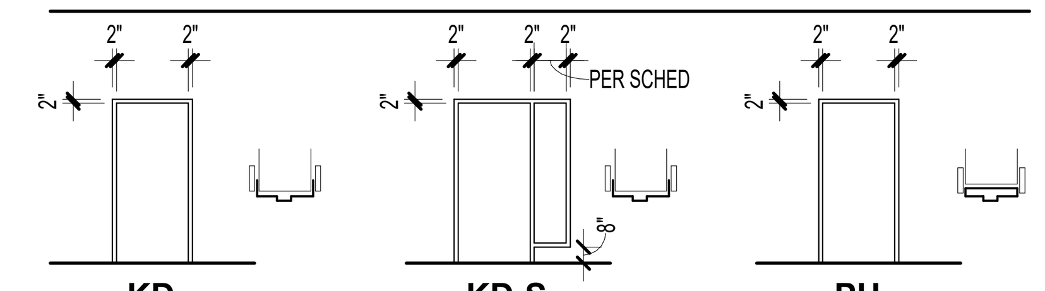
PROJECT NUMBER: 24017

SHEET NUMBER:

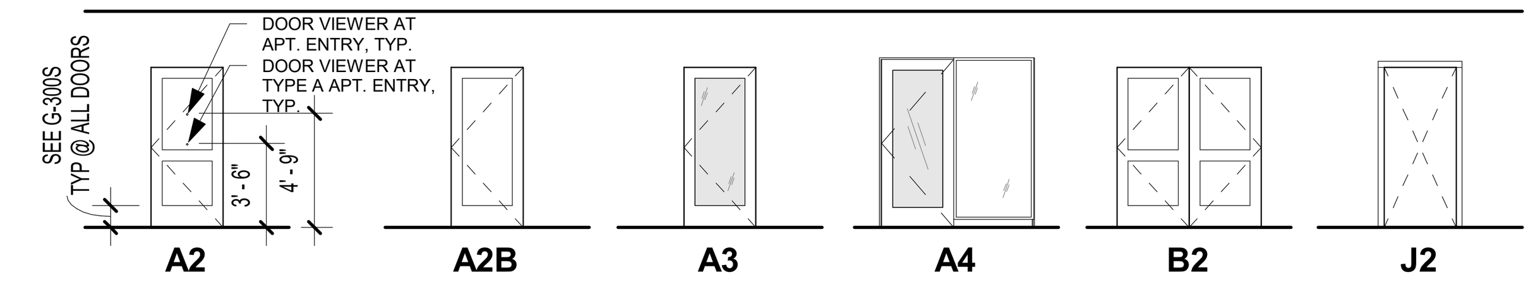
A-405

REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-400 FOR UNIT PLAN LEGEND
REFERENCE A-120 FOR RCP LEGEND

FRAME TYPES



DOOR TYPES

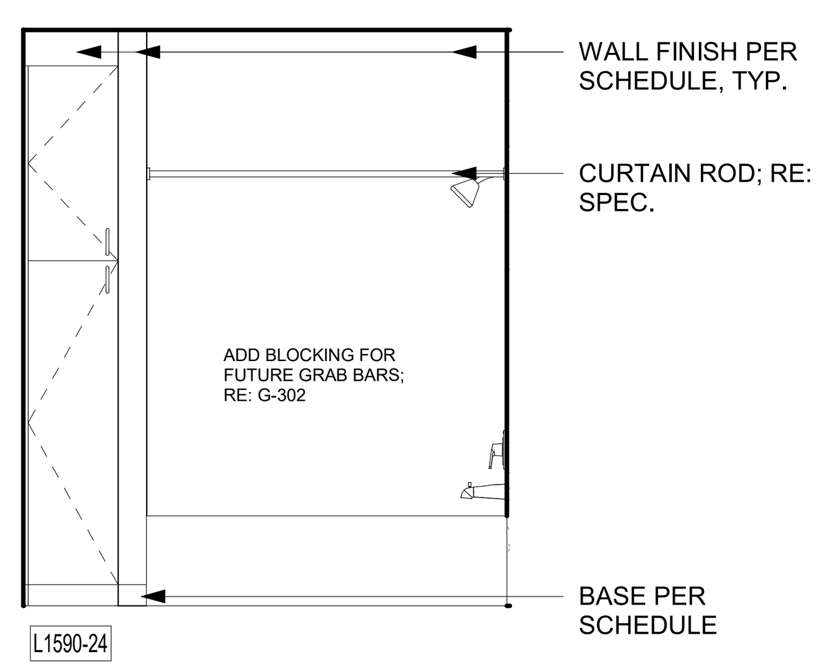


DOOR SCHEDULE - UNIT DOORS (BY UNIT TYPE)

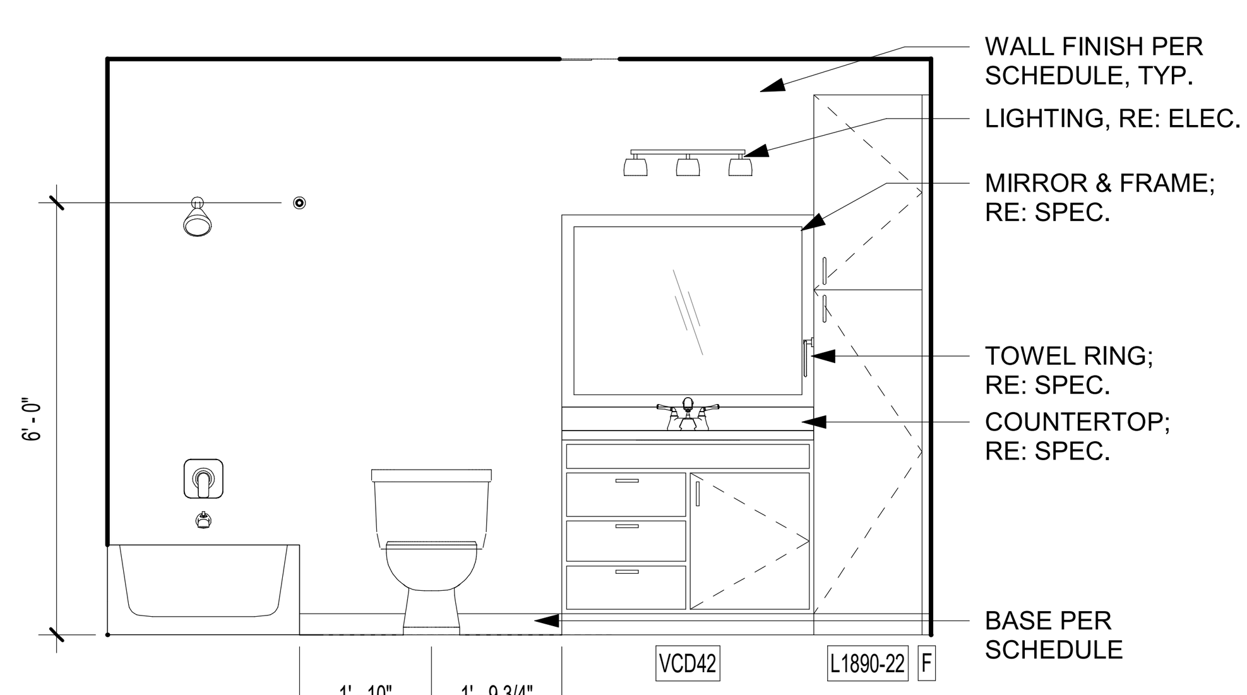
Mark	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Hardware Group	Comments
001	3' - 0"	6' - 8"	1 3/4"		A2	KD	U1	
005	3' - 0"	6' - 8"	1 3/4"		A2	PH	U6	UNDERCUT IF REQ'D
006	5' - 0"	6' - 8"	1 3/4"		B2	PH	U3	UNDERCUT IF REQ'D
007	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
008	2' - 6"	6' - 8"	1 3/4"		A2	PH	U4	
008A	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
010	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
011	3' - 0"	6' - 8"	1 3/4"		A2	PH	U2	
014	3' - 0"	8' - 0"	1 3/4"		A4	KD-S	U5	2'-0" SIDELITE

ROOM FINISH SCHEDULE - UNITS

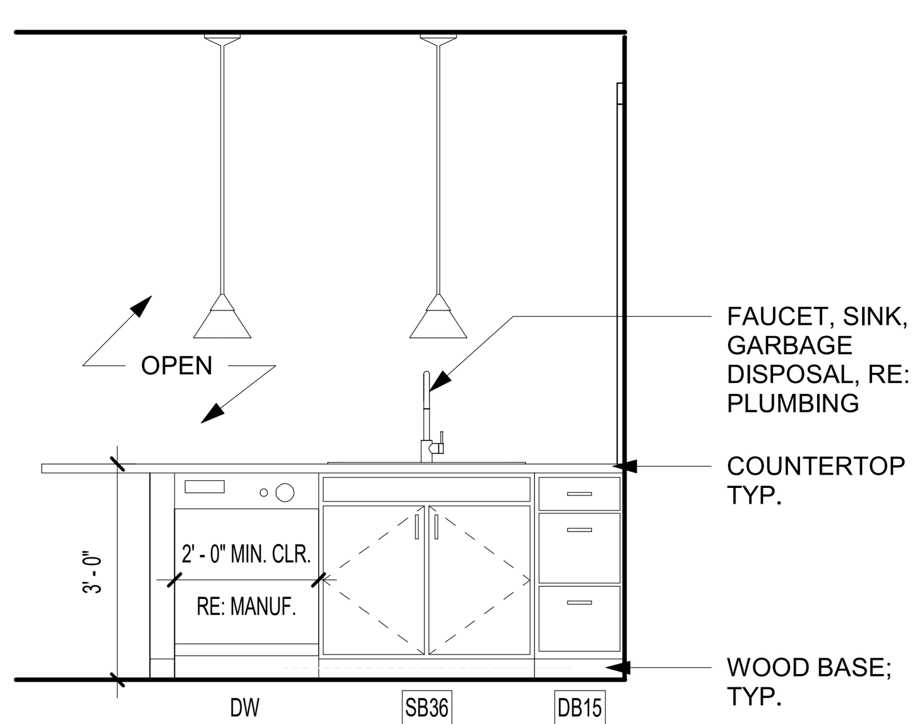
Number	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVT1	WB, PT3	PT1	PT4	
003	LIVING	LVT1	WB, PT3	PT1	PT4	
004	KITCHEN	LVT1	WB, PT3	PT1	PT4	
005	MECH	LVT1	--	PT2	--	
006	LAUNDRY	LVT1	WB, PT3	PT2	PT4	
007	DEN	LVT1	WB, PT3	PT1	PT4	
008	BATHROOM	LVT1	WB, PT3	PT2	PT4	
010	BEDROOM	LVT1	WB, PT3	PT1	PT4	
011	CLOSET	LVT1	WB, PT3	PT2	PT4	
014	BALCONY	CONCRETE				



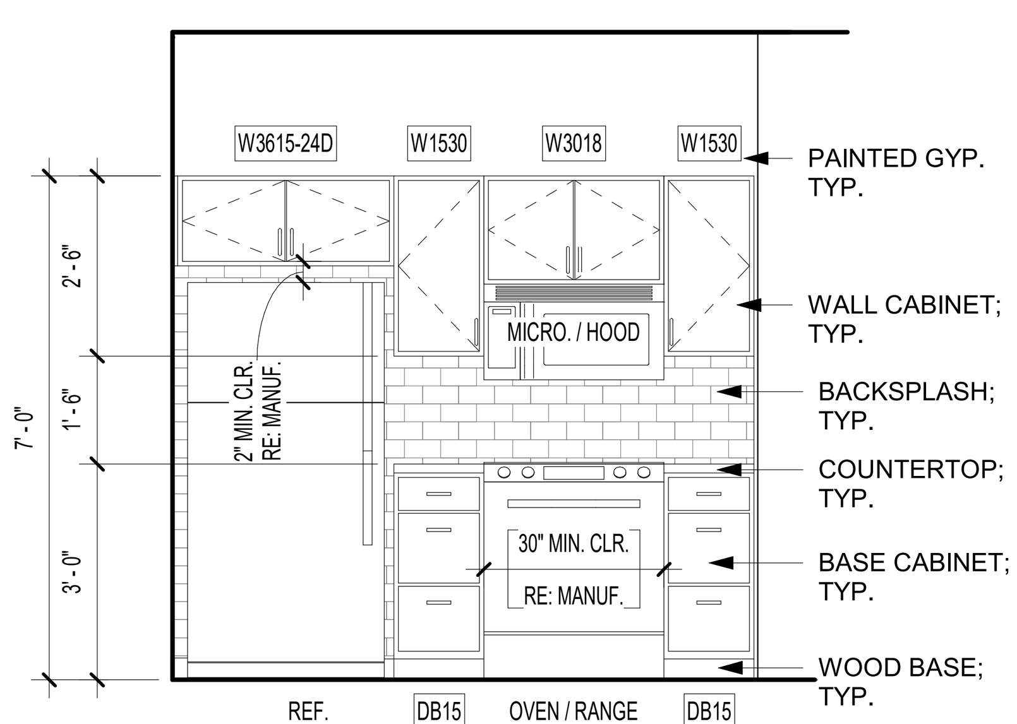
D3 DRAKE BATH ELEV. 2
3/8" = 1'-0"



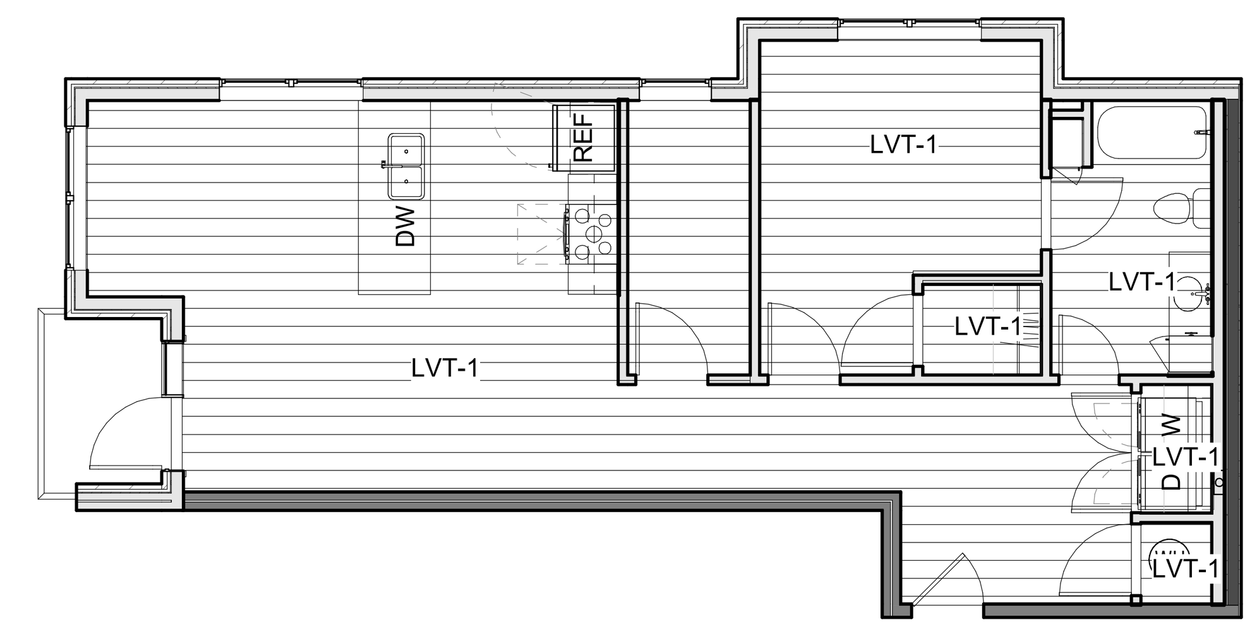
C3 DRAKE BATH ELEV. 1
3/8" = 1'-0"



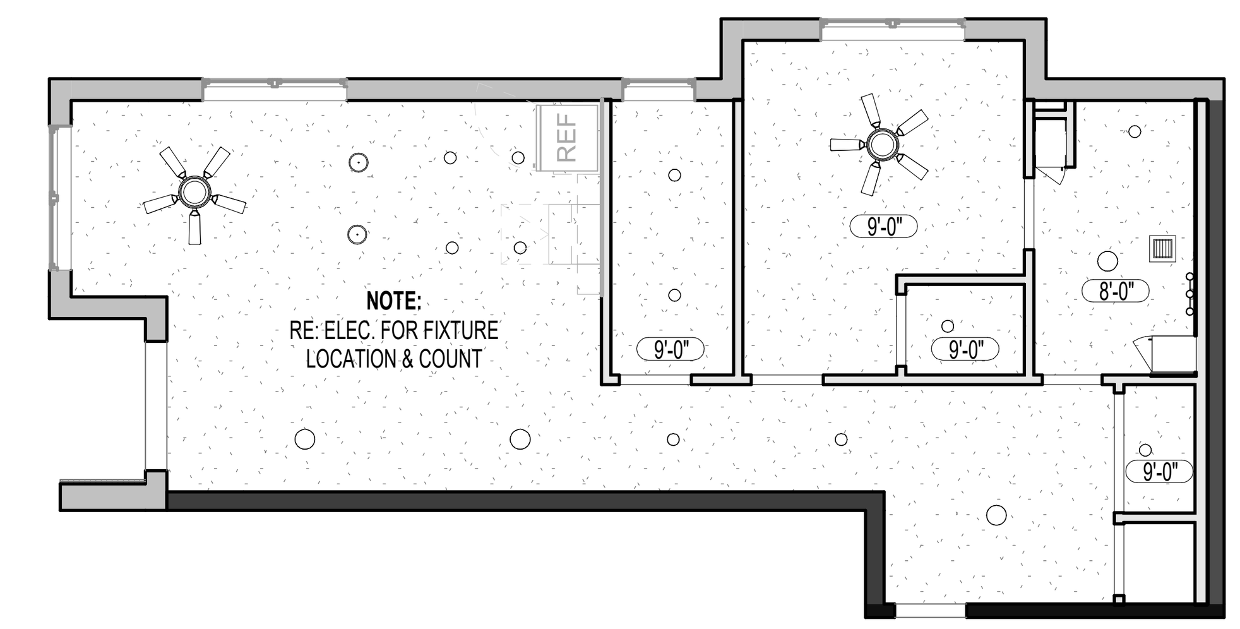
D2 DRAKE KITCHEN ELEV. 1
3/8" = 1'-0"



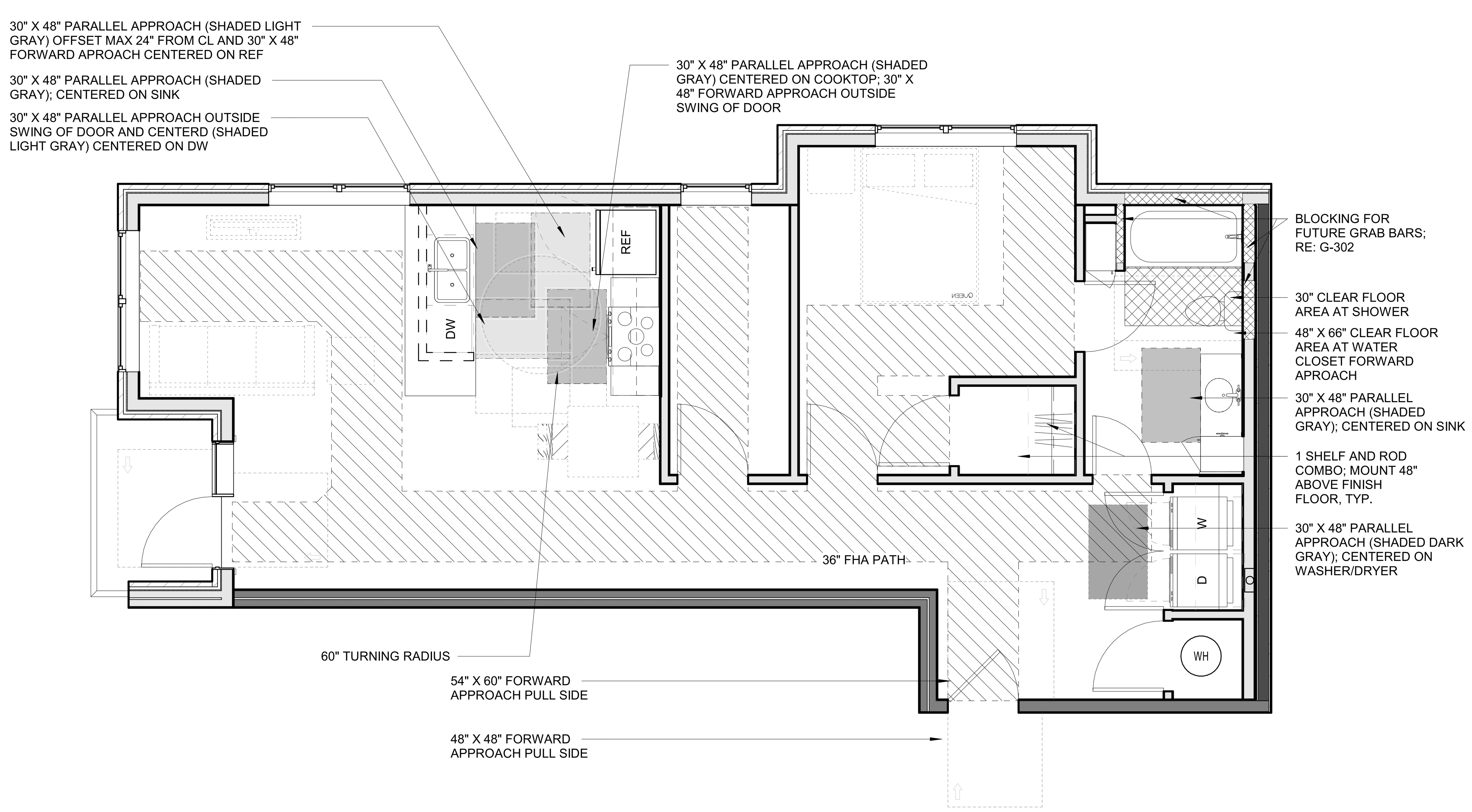
C2 DRAKE KITCHEN ELEV. 2
3/8" = 1'-0"



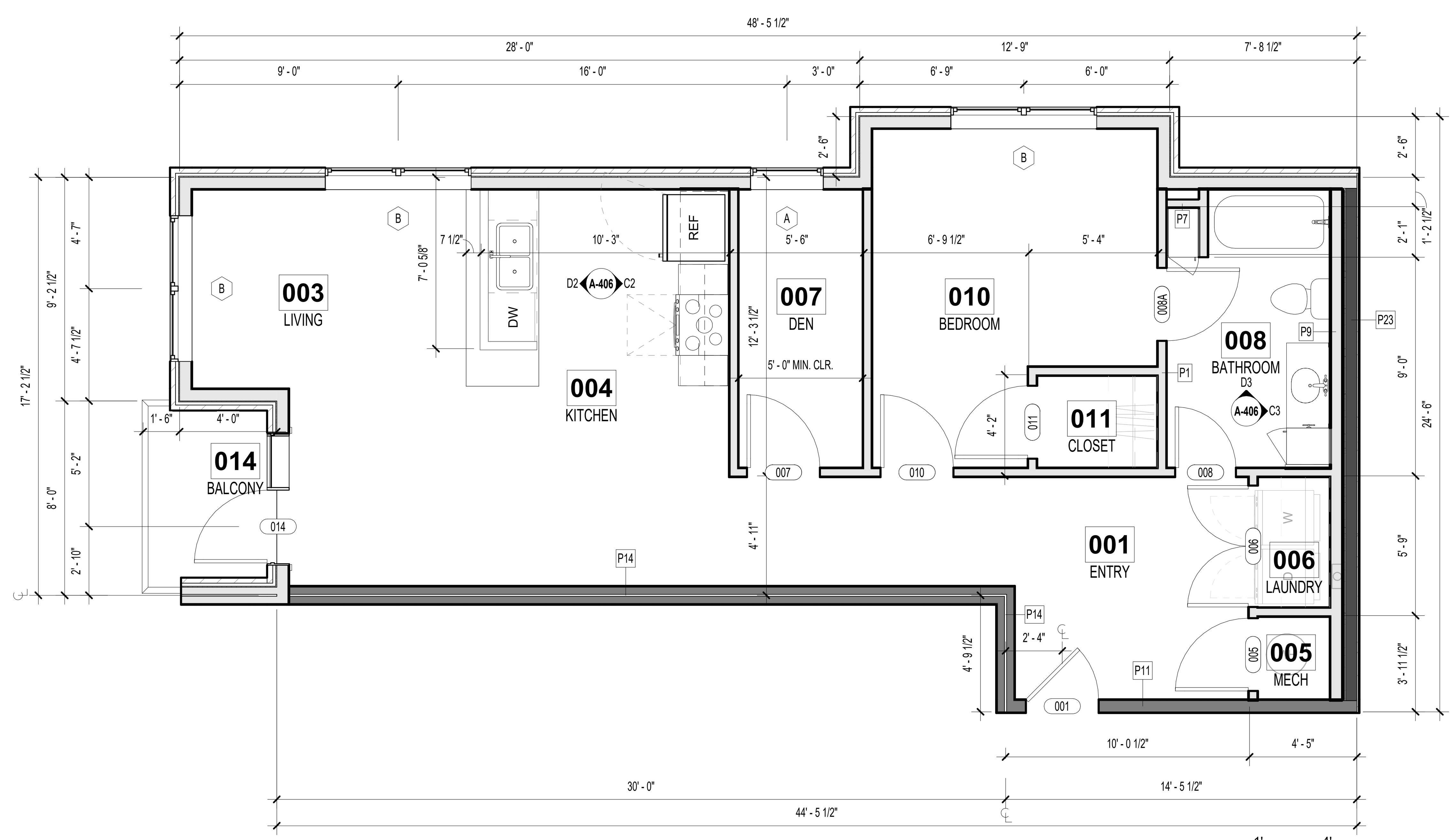
B2 UNIT FINISH PLAN - DRAKE (1 BR) - TYPE B
1/8" = 1'-0"



A2 UNIT RCP - DRAKE (1 BR) - TYPE B
1/8" = 1'-0"



D1 UNIT CLEAR SPACE PLAN - DRAKE (1 BR) - TYPE B
1/4" = 1'-0"



A1 UNIT FLOOR PLAN - DRAKE (1 BR) - TYPE B
1/4" = 1'-0"

898 G.S.F

1' 4' 2' 8'

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

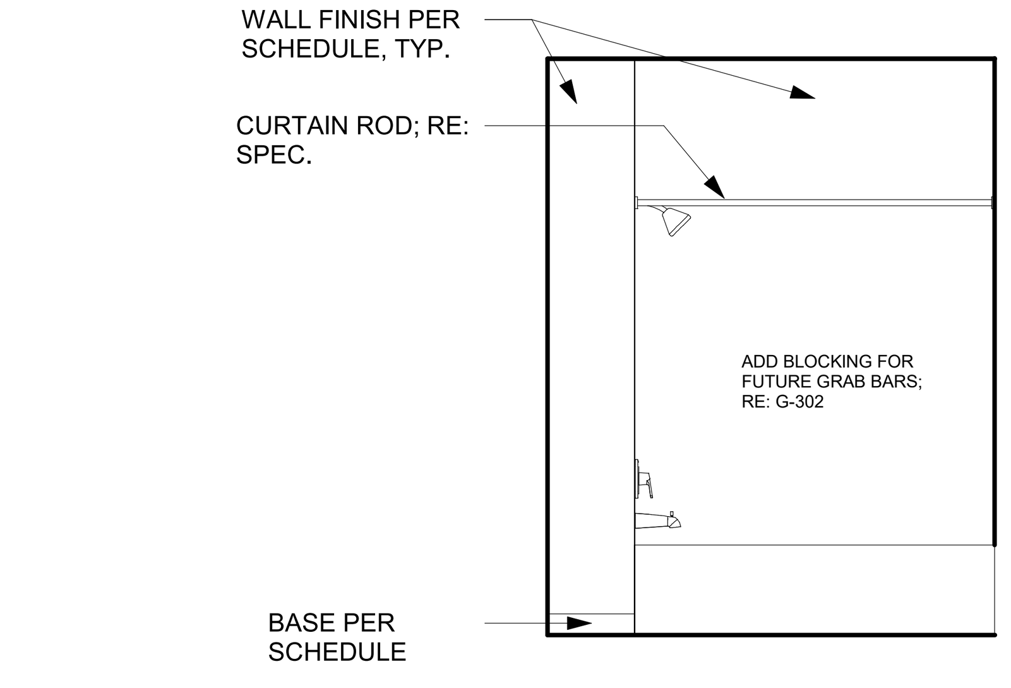
SHEET TITLE
DRAKE (1 BR) - TYPE B

PROJECT NUMBER: 24017

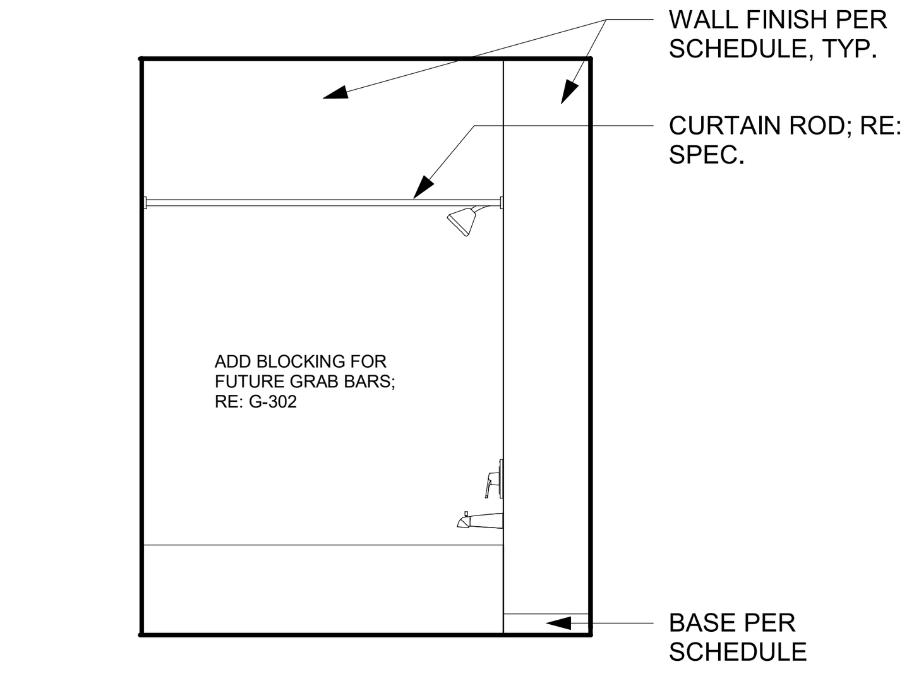
SHEET NUMBER:

A-406

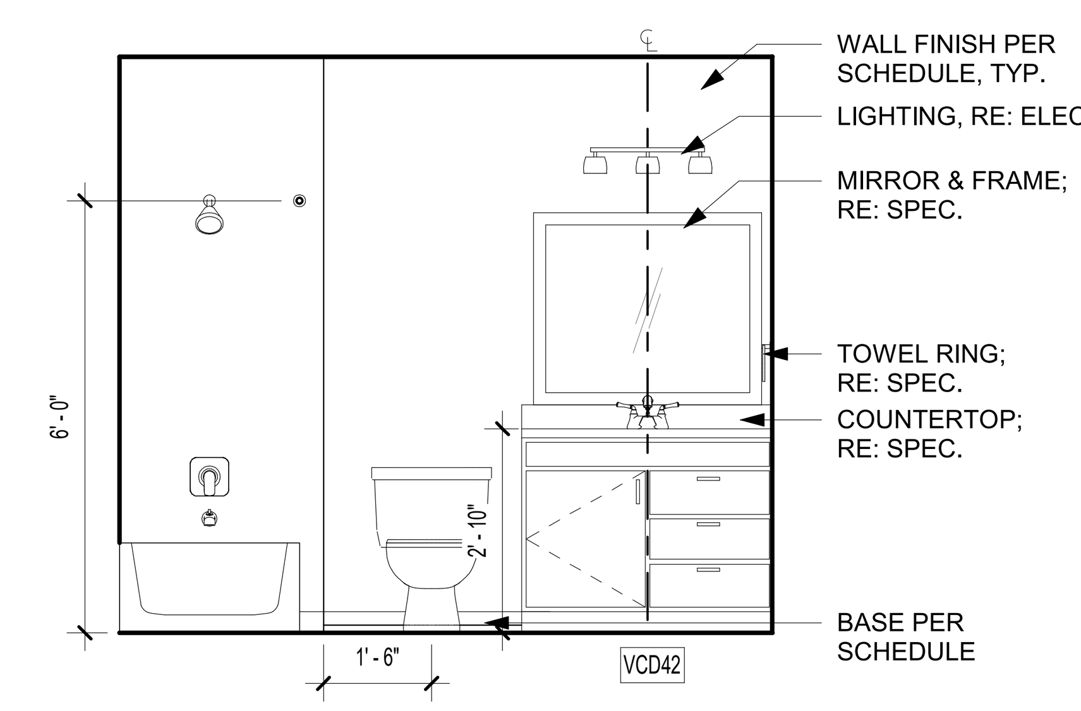
11/27/2024 9:40:30 AM



C4 LANA BATH 2 ELEV. 1
3/8" = 1'-0"

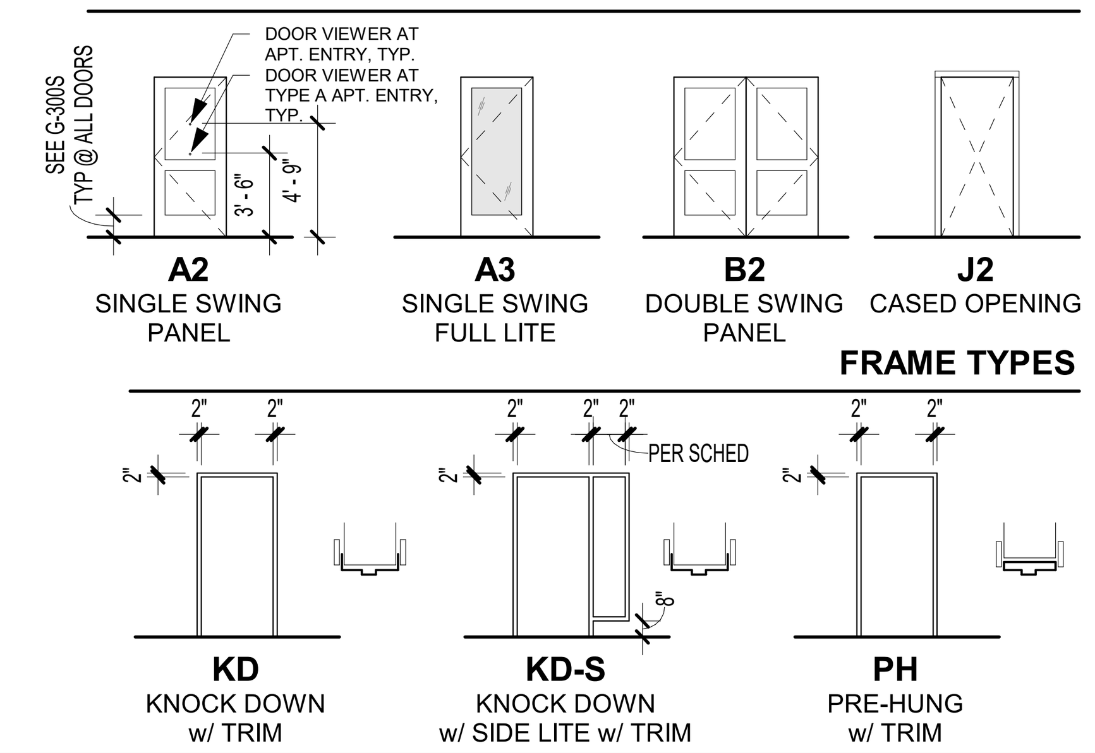


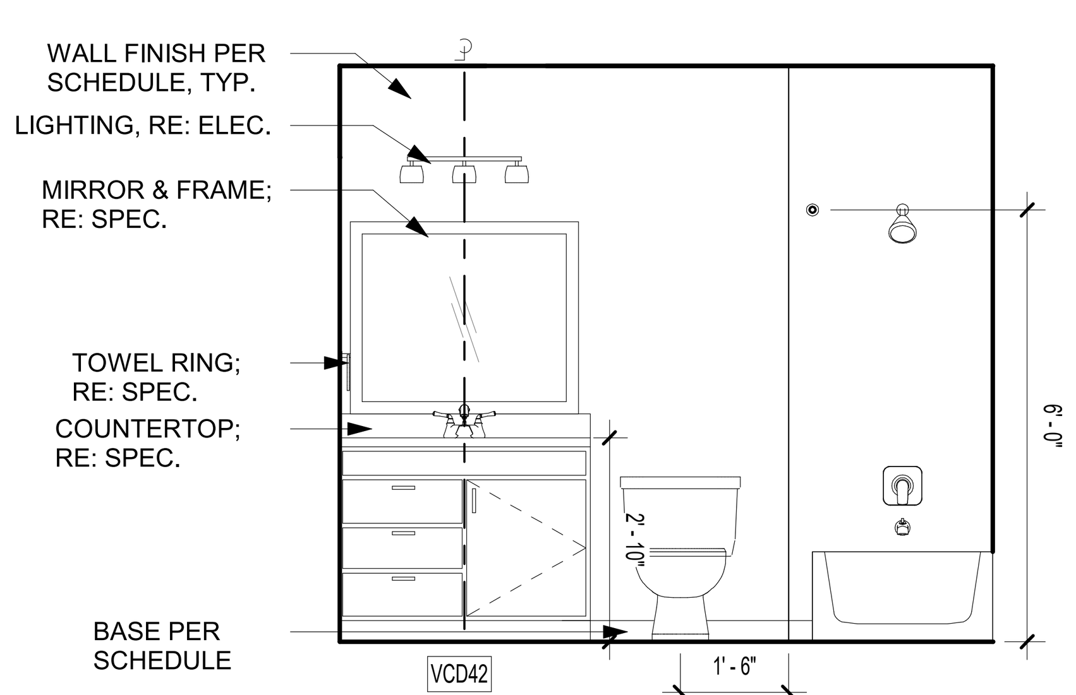
B4 LANA BATH 1 ELEV. 2
3/8" = 1'-0"



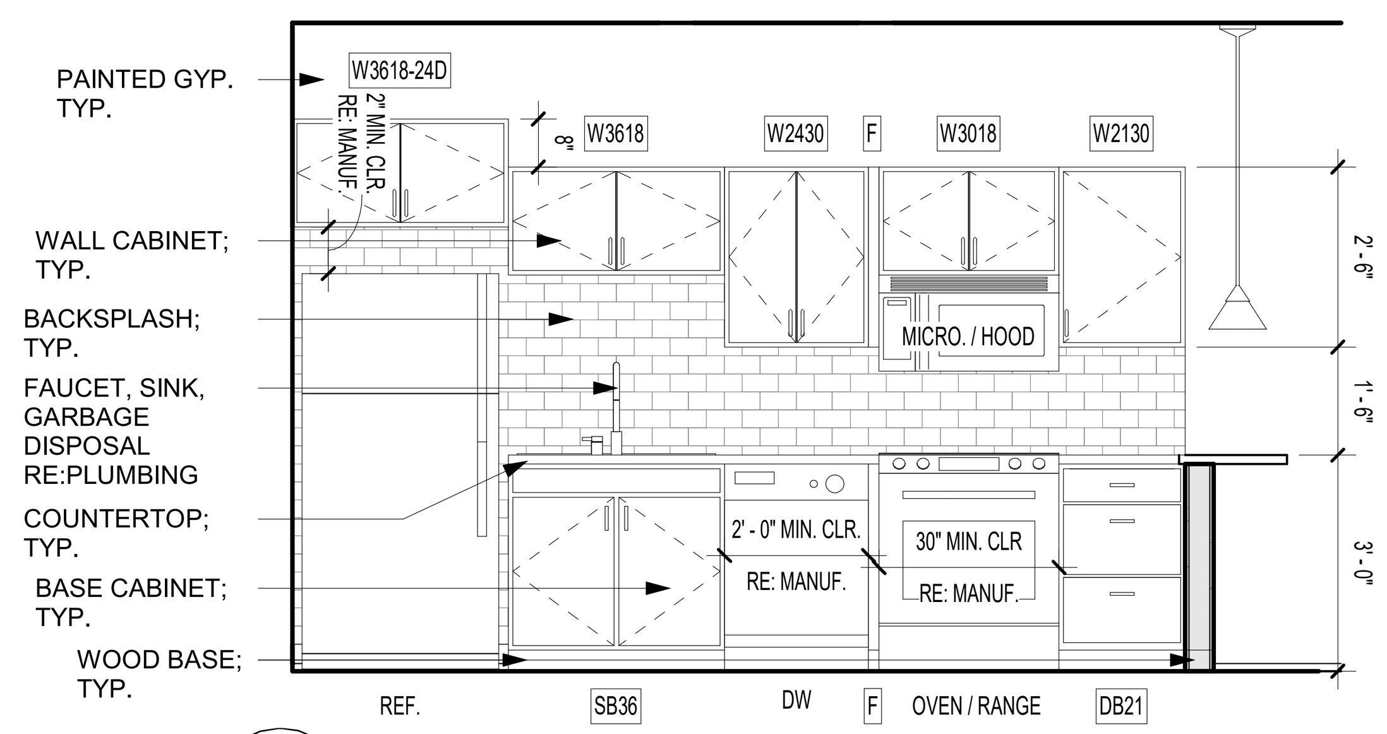
A4 LANA BATH 1 ELEV. 1
3/8" = 1'-0"

REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-400 FOR UNIT PLAN LEGEND
REFERENCE A-120 FOR RCP LEGEND

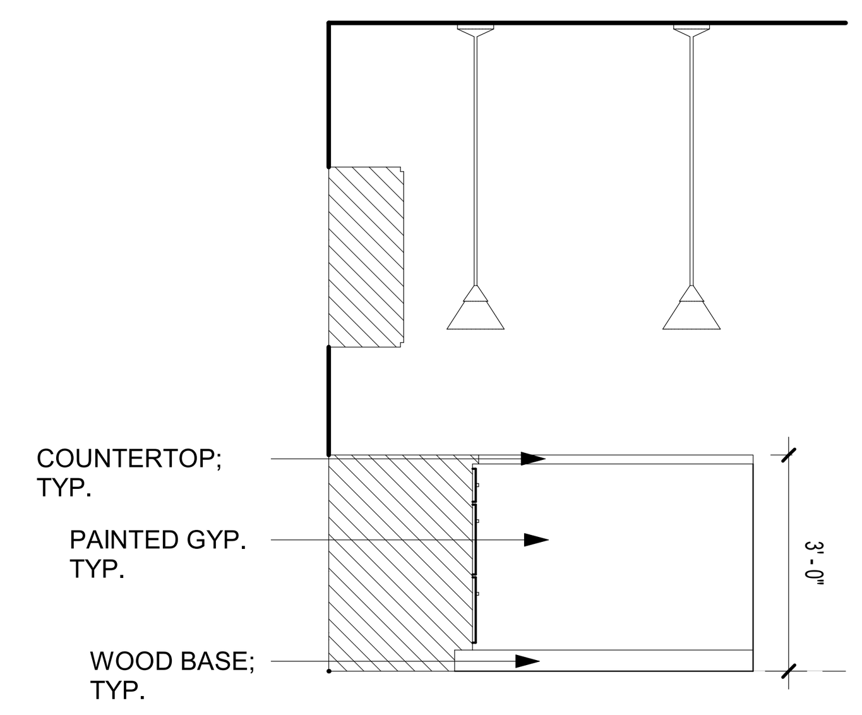




C3 LANA BATH 2 ELEV. 2
3/8" = 1'-0"



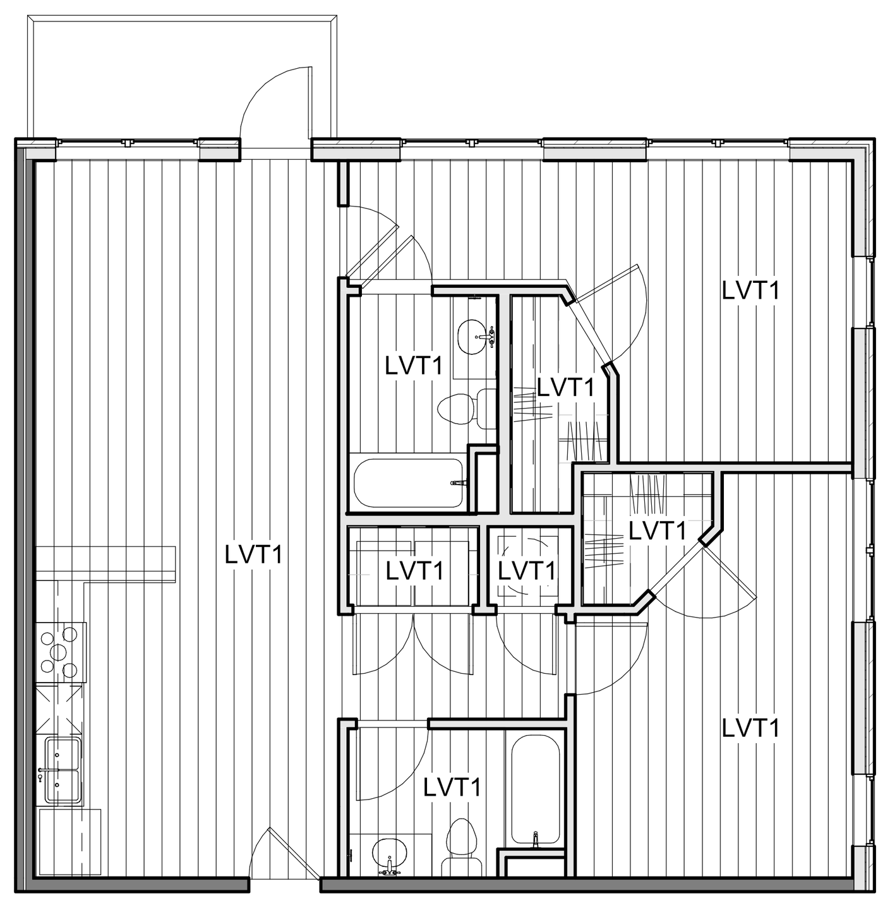
B3 LANA KITCHEN ELEV. 2
3/8" = 1'-0"



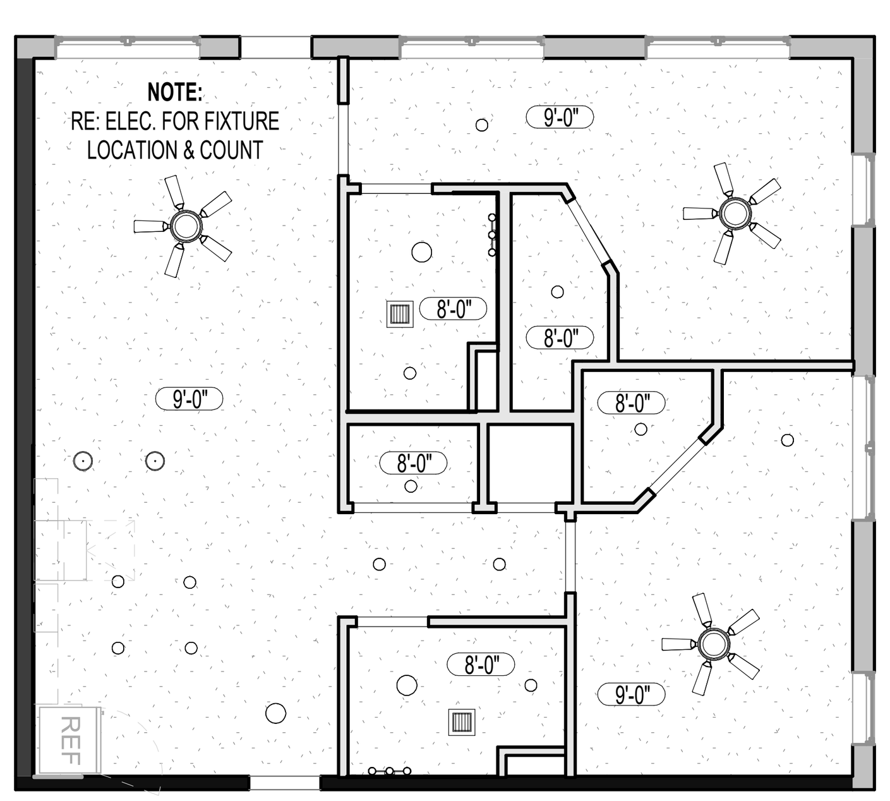
A3 LANA KITCHEN ELEV. 1
3/8" = 1'-0"

DOOR SCHEDULE - UNIT DOORS (BY UNIT TYPE)								
Mark	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Hardware Group	Comments
001	3' - 0"	6' - 8"	1 3/4"		A2	KD	U1	
005	2' - 6"	6' - 8"	1 3/4"		A2	PH	U6	UNDERCUT IF REQ'D
006.1	5' - 0"	6' - 8"	1 3/4"		B2	PH	U3	UNDERCUT IF REQ'D
008	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
009	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
010	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
011	3' - 0"	6' - 8"	1 3/4"		A2	PH	U2	
012	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
013	3' - 0"	6' - 8"	1 3/4"		A2	PH	U2	
014	3' - 0"	8' - 0"	1 3/4"		A3	SF/ALUM	U5	

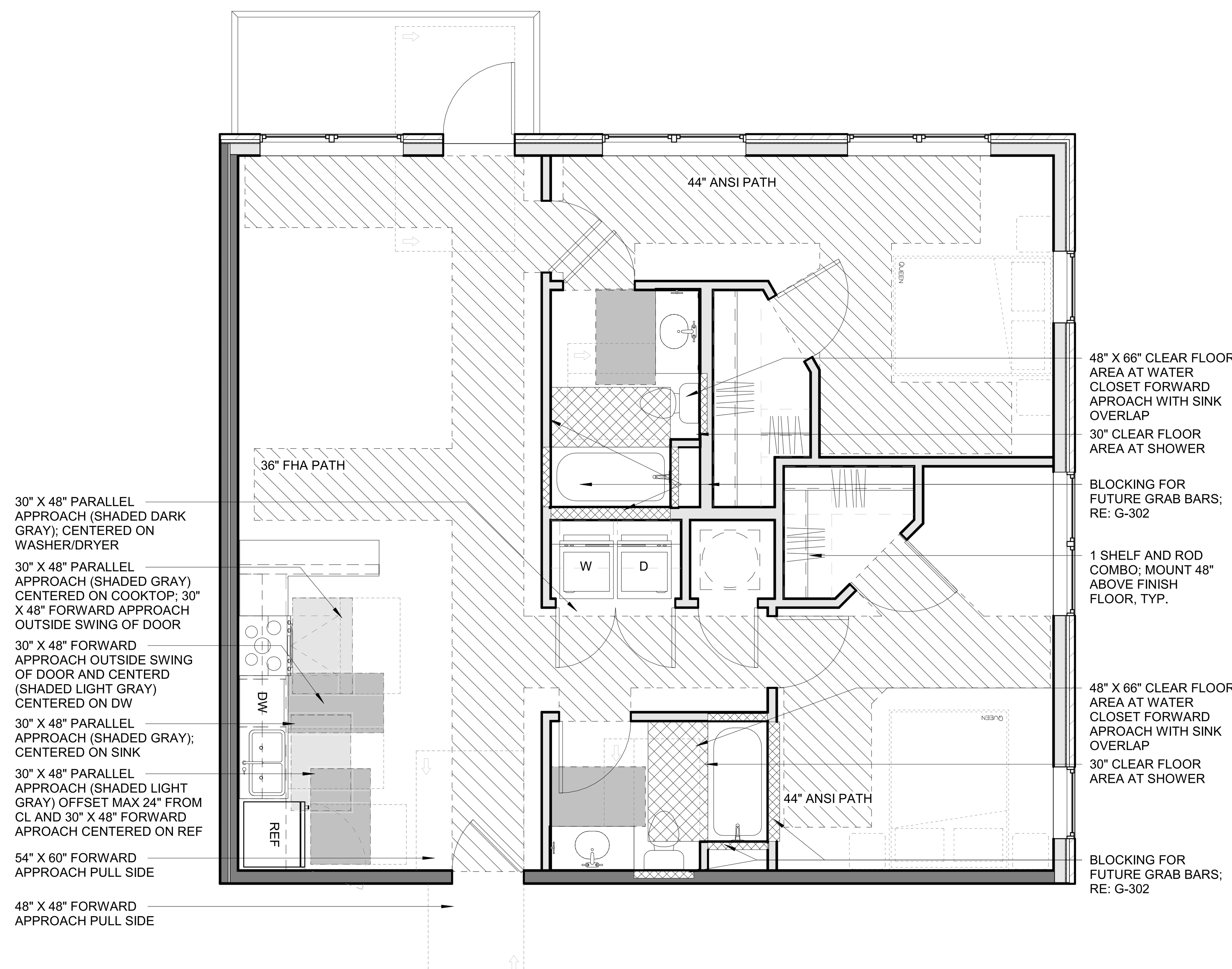
ROOM FINISH SCHEDULE - UNITS						
Number	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVT1	WB, PT3	PT1	PT4	
003	LIVING	LVT1	WB, PT3	PT1	PT4	
004	KITCHEN	LVT1	WB, PT3	PT1	PT4	
005	MECH.	LVT1	--	PT2	--	
006	LAUNDRY	LVT1	WB, PT3	PT2	PT4	
007	HALLWAY	LVT1	WB, PT3	PT1	PT4	
008	BATHROOM 1	LVT1	WB, PT3	PT2	PT4	
009	BATHROOM 2	LVT1	WB, PT3	PT2	PT4	
010	BEDROOM 1	LVT1	WB, PT3	PT1	PT4	
011	CLOSET	LVT1	WB, PT3	PT2	PT4	
012	BEDROOM 2	LVT1	WB, PT3	PT1	PT4	
013	CLOSET	LVT1	WB, PT3	PT2	PT4	
014	BALCONY	CONCRETE				



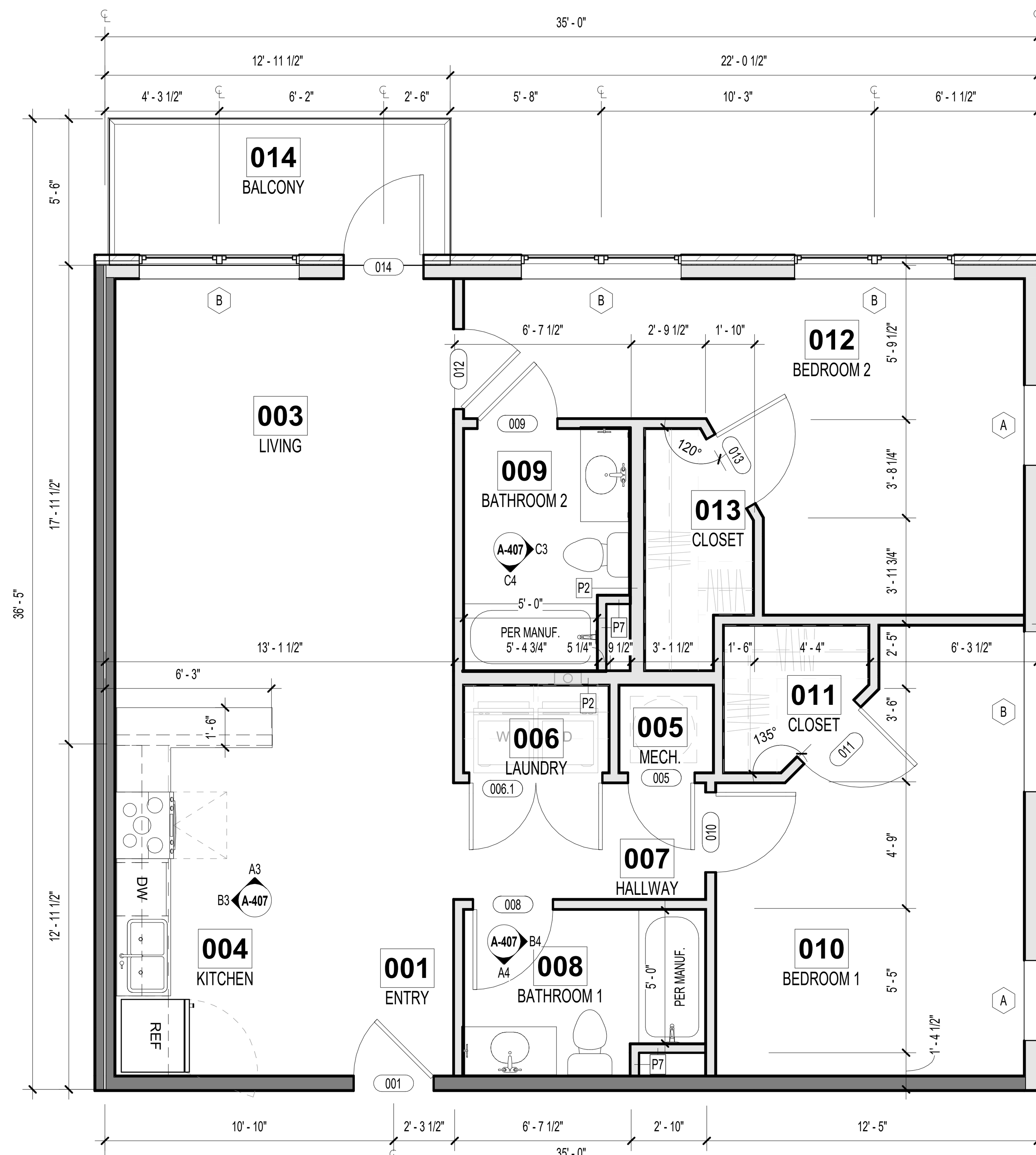
C2 UNIT FINISH PLAN - LANA (2 BR) - TYPE B
1/8" = 1'-0"



C1 UNIT RCP - LANA (2 BR) - TYPE B
1/8" = 1'-0"



B1 UNIT CLEAR SPACE PLAN - LANA (2 BR) - TYPE B
1/4" = 1'-0"



A1 UNIT FLOOR PLAN - LANA (2 BR) - TYPE B
1/4" = 1'-0"

1,062 G.S.F

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7385
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
LANA (2 BR) - TYPE B

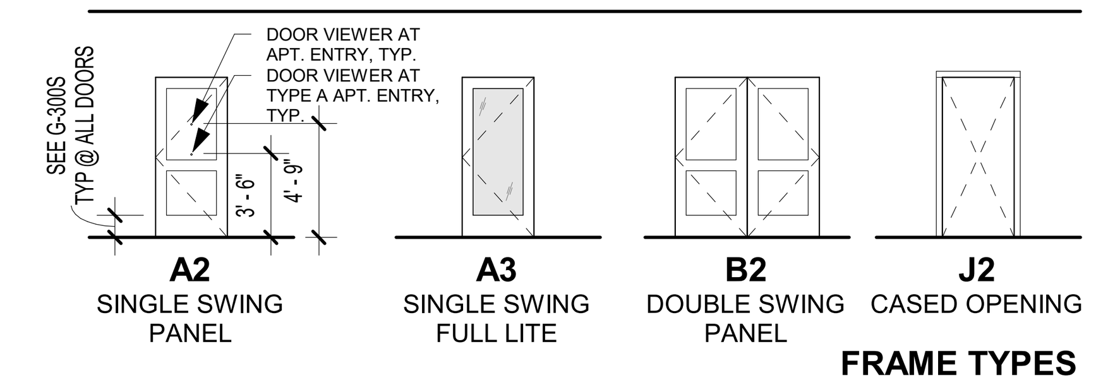
PROJECT NUMBER: 24017

SHEET NUMBER:

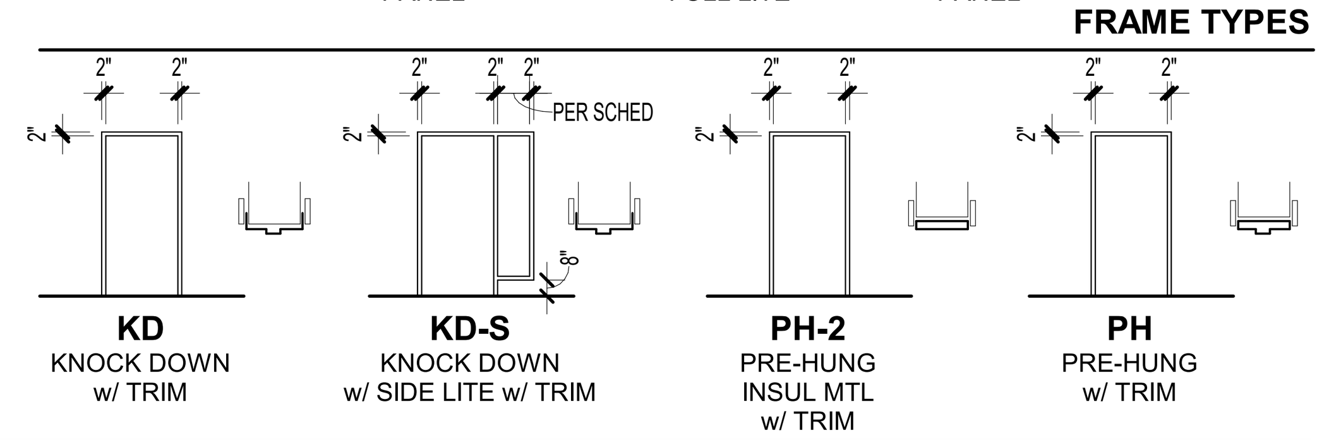
A-407

REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-400 FOR UNIT PLAN LEGEND
REFERENCE A-120 FOR RCP LEGEND

DOOR TYPES



FRAME TYPES

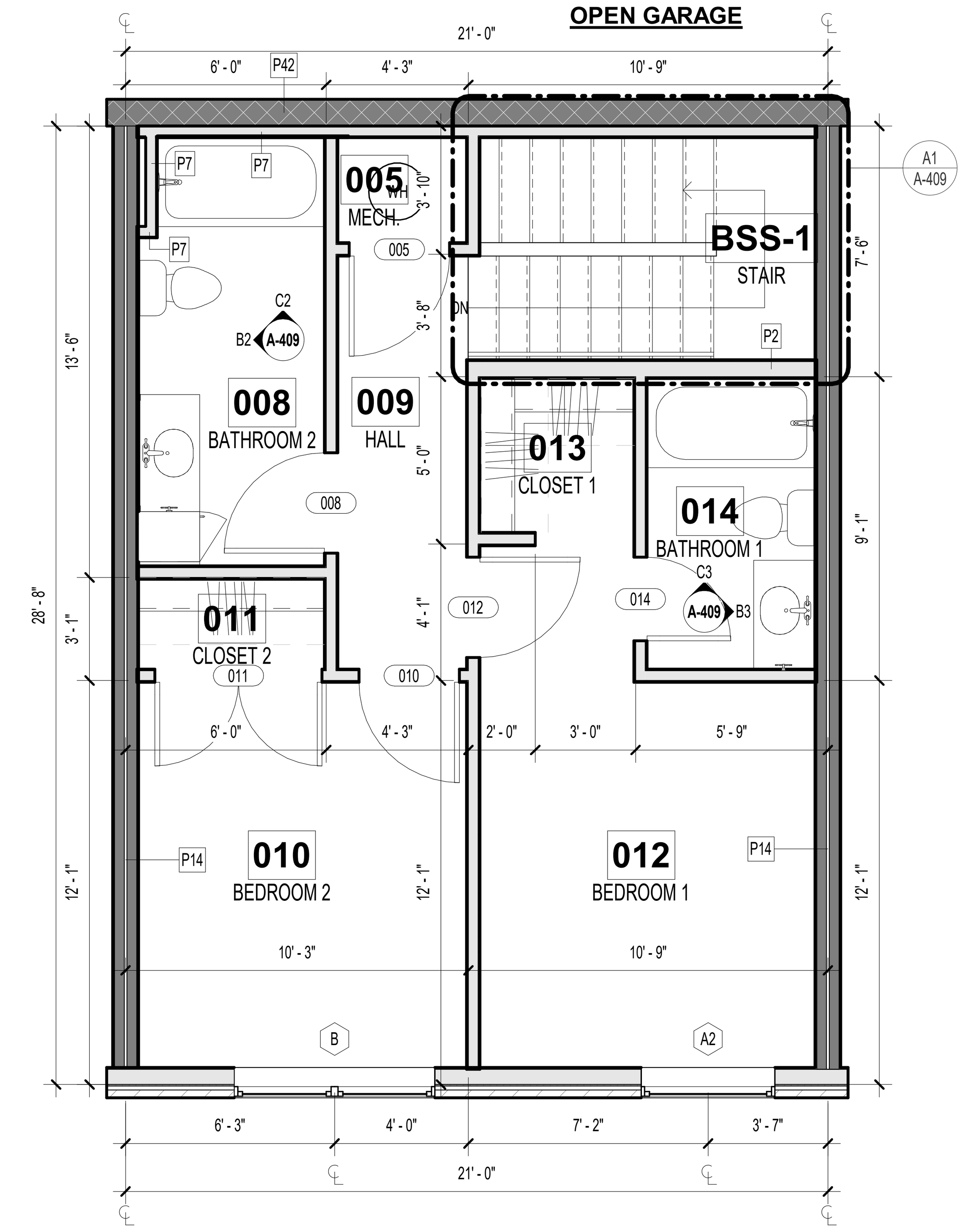


DOOR SCHEDULE - UNIT DOORS (BY UNIT TYPE)

Mark	Width	Height	Thickness	Fire Rating (Minutes)	Door Type	Frame Type	Hardware Group	Comments
001A	5' - 0"	9' - 0"	1 3/4"		J2	--	U8	
001B	3' - 0"	6' - 8"	1 3/4"		A2	PH-2	U1	
002	2' - 6"	6' - 8"	1 3/4"		A2	PH	U2	
005	3' - 0"	6' - 8"	1 3/4"		A2	PH	U6	UNDERCUT IF REQ'D
006.1	5' - 0"	6' - 8"	1 3/4"		B2	PH	U3	UNDERCUT IF REQ'D
007	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
008	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
010	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
011	5' - 0"	6' - 8"	1 3/4"		B2	PH	U3	
012	3' - 0"	6' - 8"	1 3/4"		A2	PH	U4	
014	2' - 6"	6' - 8"	1 3/4"		A2	PH	U4	

ROOM FINISH SCHEDULE - UNITS

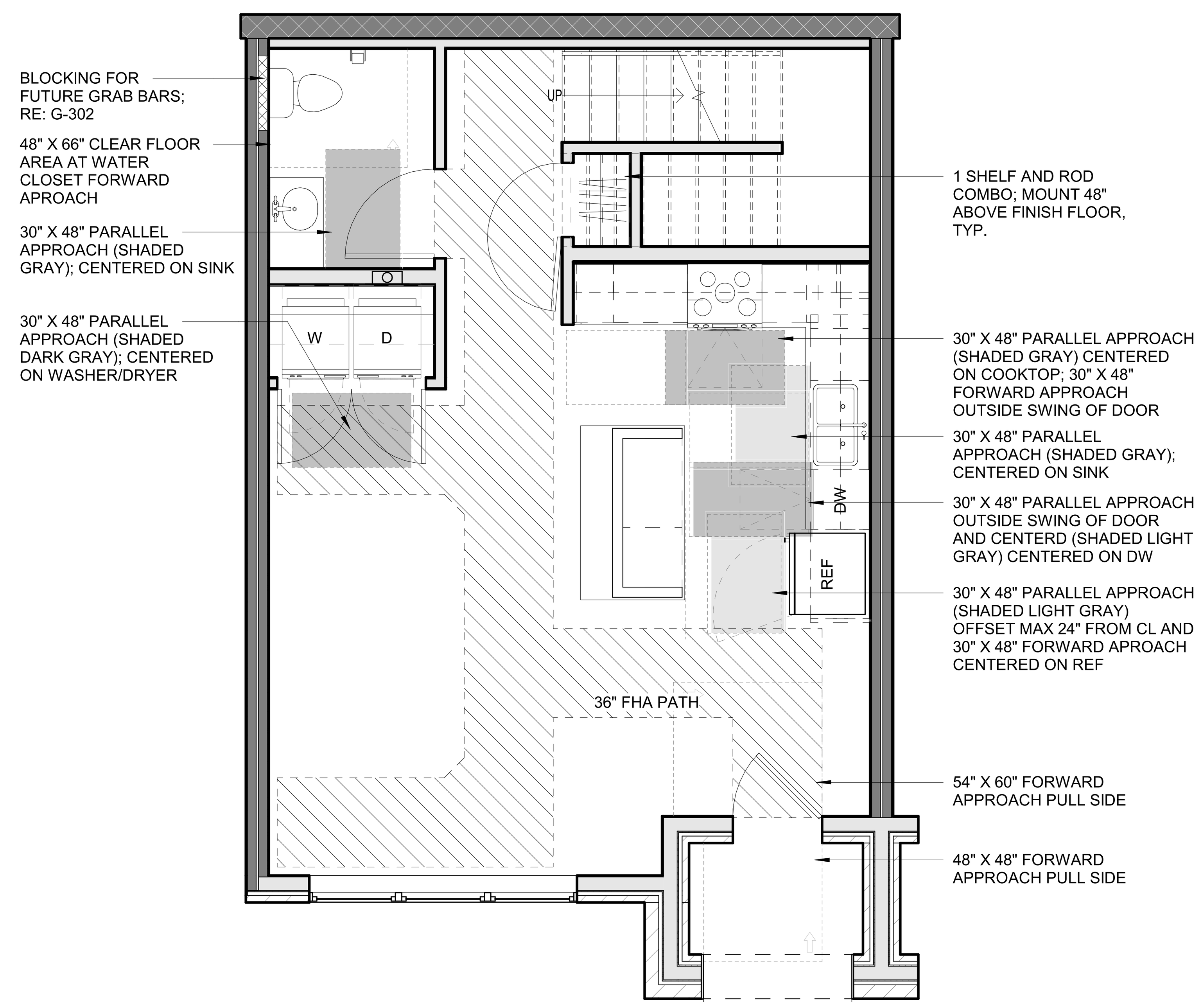
Number	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVT1	WB, PT3	PT1	PT-4	
002	COAT	LVT1	WB, PT3	PT2	PT-4	
003	LIVING	LVT1	WB, PT3	PT1	PT-4	
004	KITCHEN	LVT1	WB, PT3	PT1	PT-4	
005	MECH.	LVT1	--	PT2	--	
006	LAUNDRY	LVT1	WB, PT3	PT2	PT-4	
007	POWDER	LVT1	WB, PT3	PT2	PT-4	
008	BATHROOM 2	LVT1	WB, PT3	PT2	PT-4	
009	HALL	LVT1	WB, PT3	PT1	PT-4	
010	BEDROOM 2	LVT1	WB, PT3	PT1	PT-4	
011	CLOSET 2	LVT1	WB, PT3	PT2	PT-4	
012	BEDROOM 1	LVT1	WB, PT3	PT1	PT-4	
013	CLOSET 1	LVT1	WB, PT3	PT2	PT-4	
014	BATHROOM 1	LVT1	WB, PT3	PT2	PT-4	



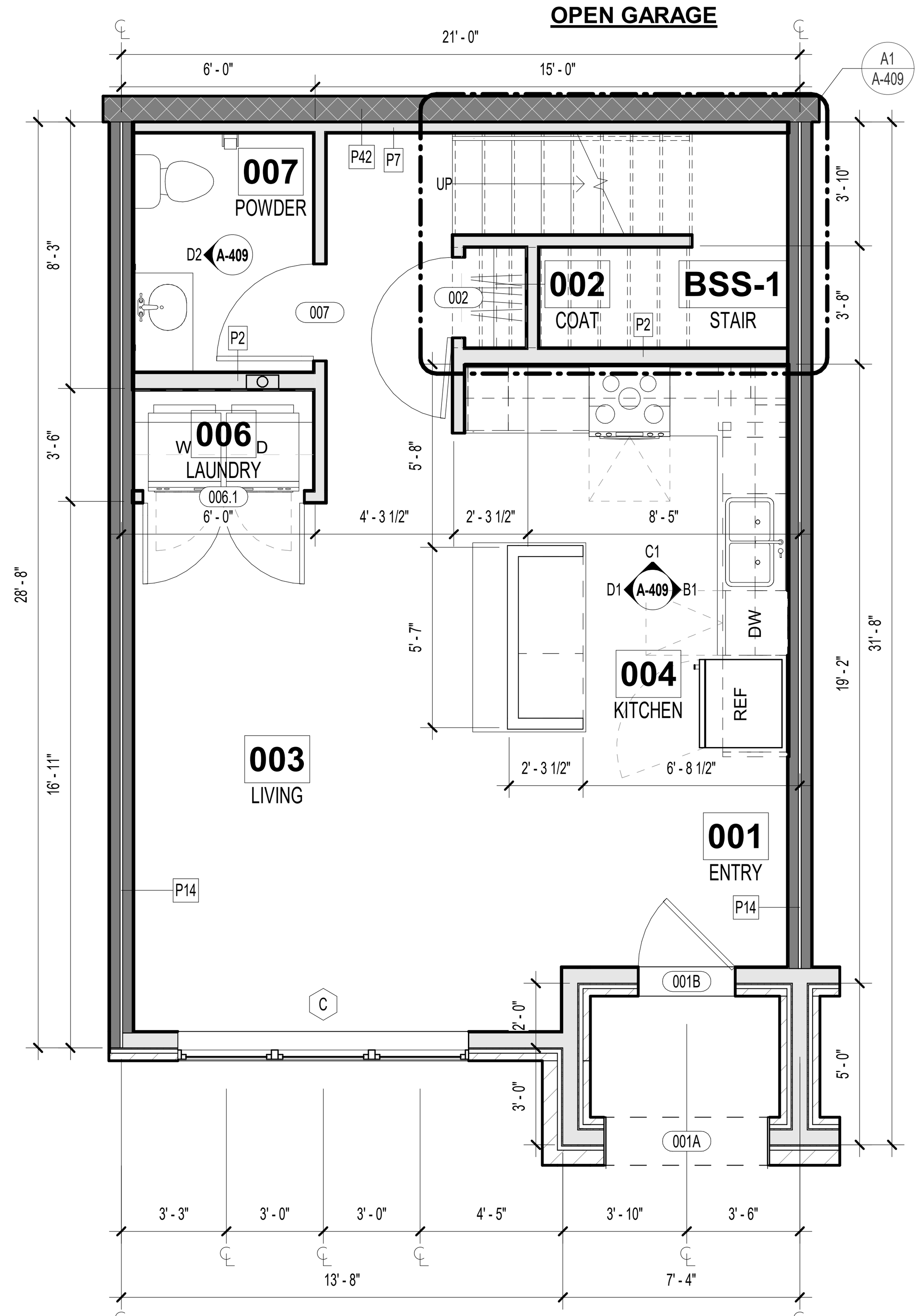
A2 UNIT FLOOR PLAN - TOWNHOME (2 BR) - SECOND FLOOR
602 G.S.F
1/4" = 1'-0"

D2 UNIT FINISH PLAN - TOWNHOME (2 BR) - FLR 2
1/8" = 1'-0"

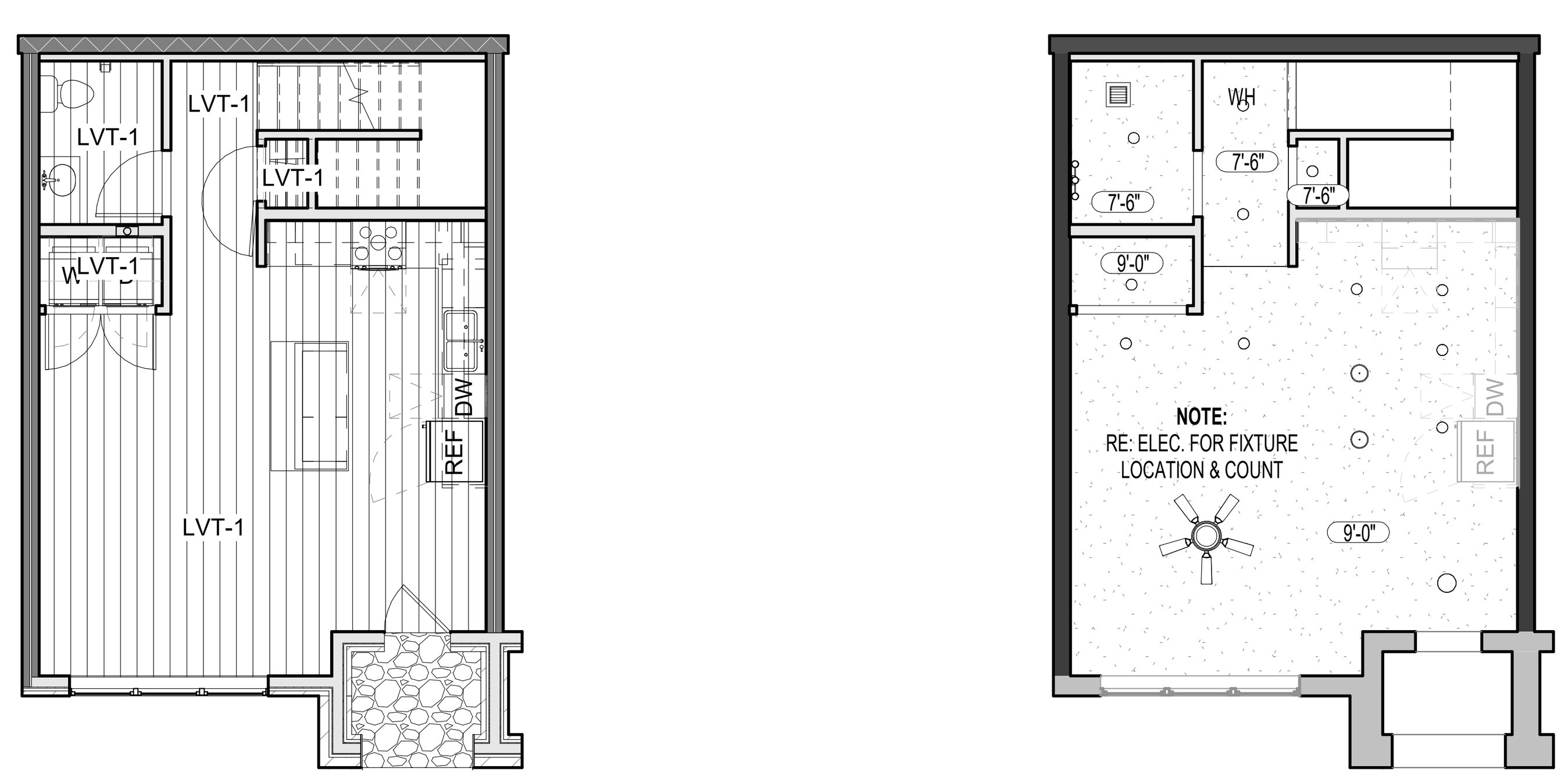
C2 UNIT RCP - TOWNHOME (2 BR) - FLR 2
1/8" = 1'-0"



B1 UNIT CLEAR SPACE PLAN - TOWNHOME (2 BR) - FLR 1
1/4" = 1'-0"



A1 UNIT FLOOR PLAN - TOWNHOME (2 BR) - FIRST FLOOR
590 G.S.F
1/4" = 1'-0"



D1 UNIT FINISH PLAN - TOWNHOME (2 BR) - FLR 1
1/8" = 1'-0"

C1 UNIT RCP - TOWNHOME (2 BR) - FLR 1
1/8" = 1'-0"

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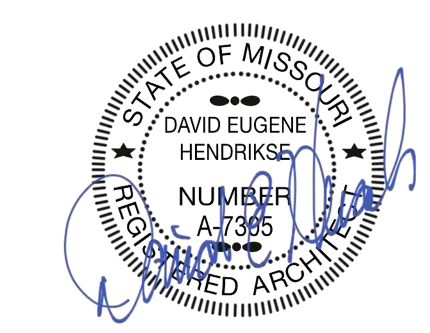

11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

SHEET TITLE
TOWNHOME (2 BR)

PROJECT NUMBER: 24017

SHEET NUMBER:

A-408

REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-400 FOR UNIT PLAN LEGEND

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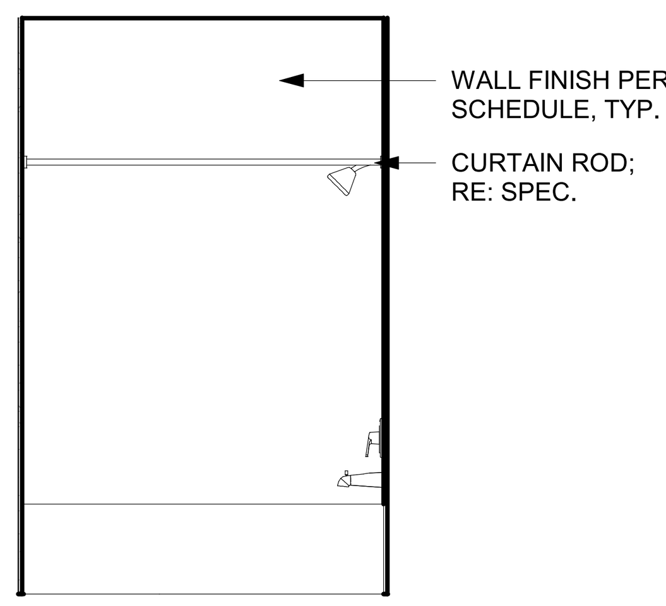
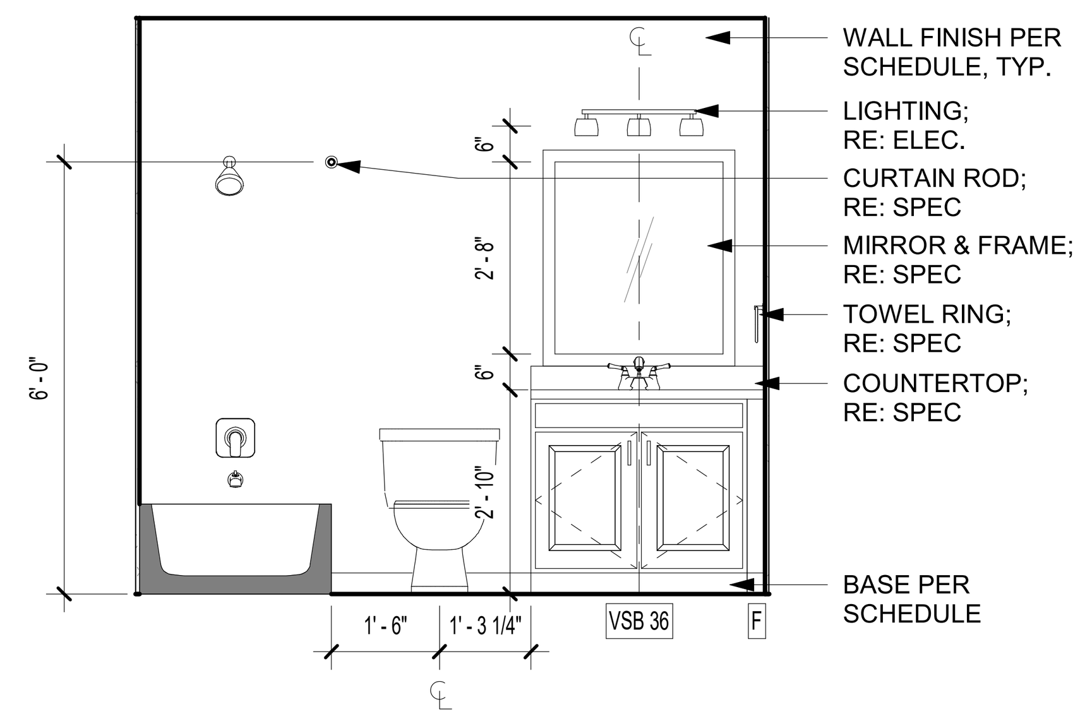
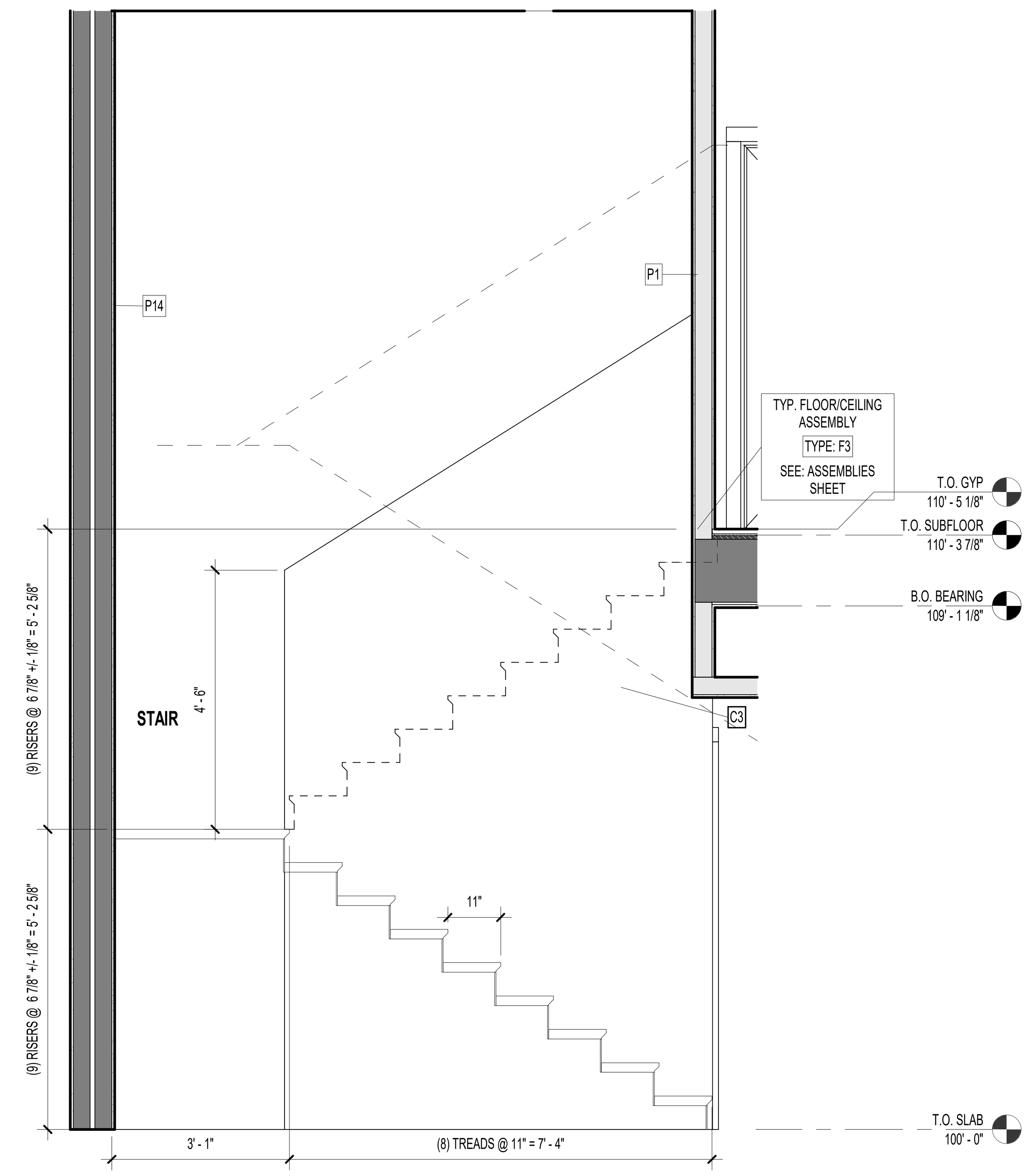
REVISIONS:



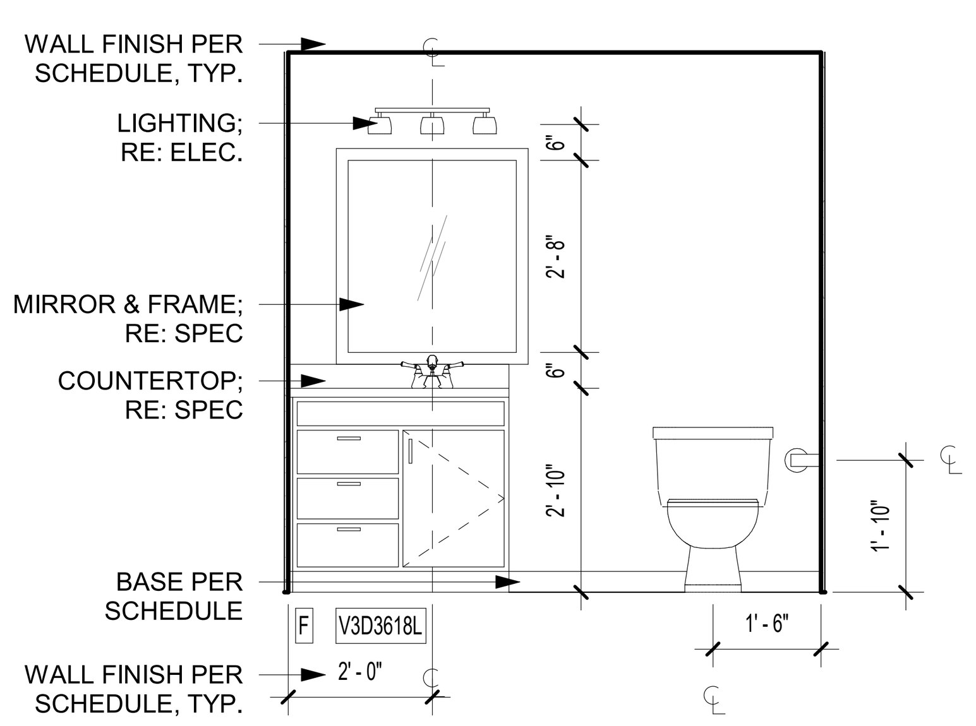
C3 TOWNHOME BATH 1 ELEV. 2
3/8" = 1'-0"



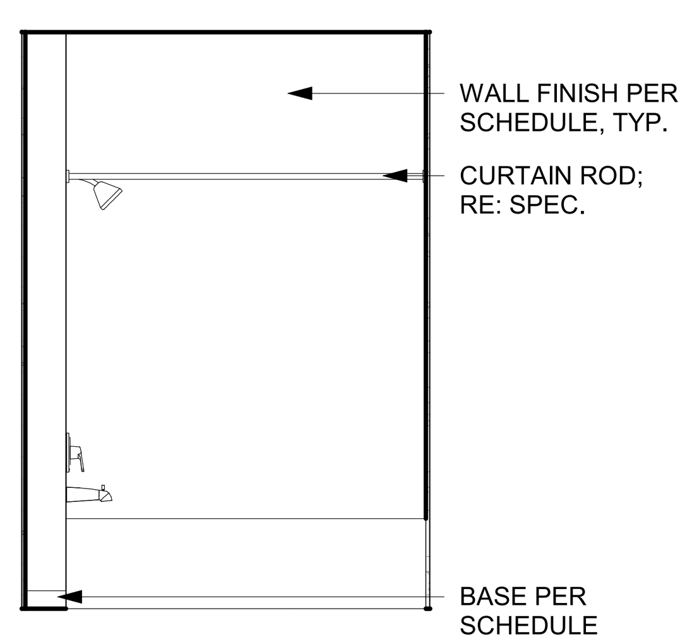
B3 TOWNHOME BATH 1 ELEV. 1
3/8" = 1'-0"



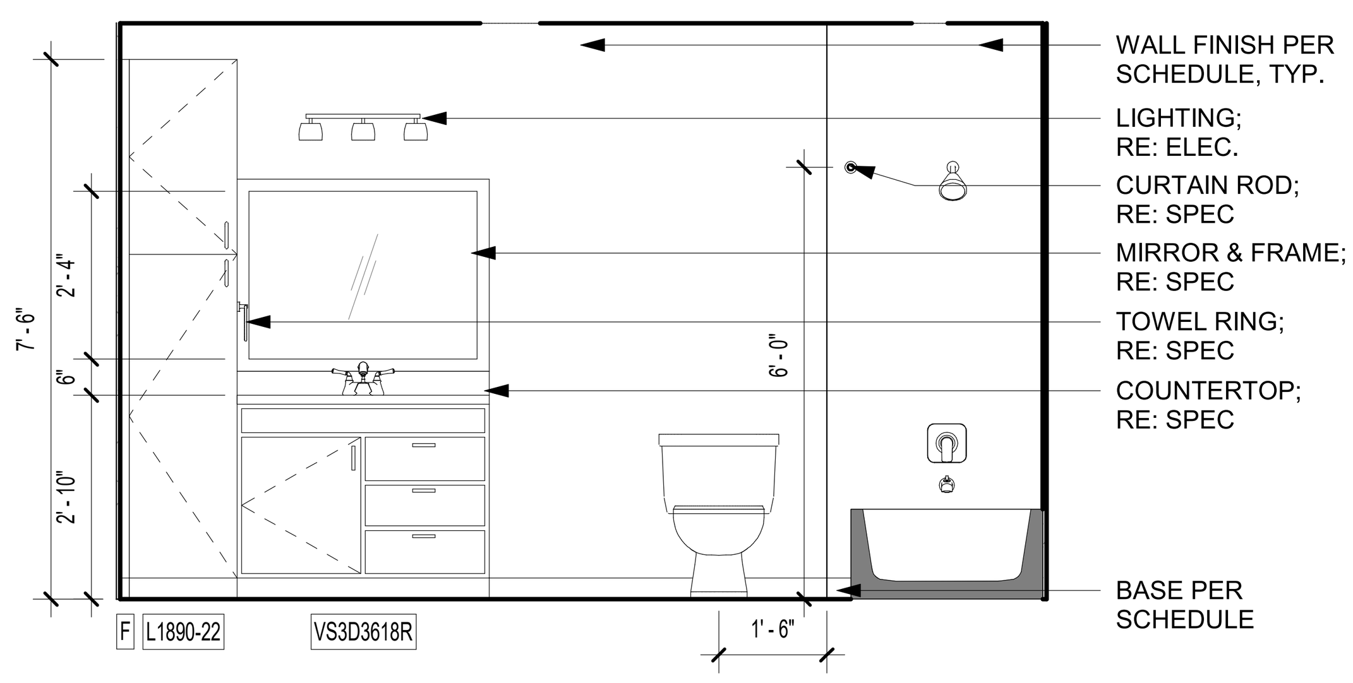
A2 BROWNSTONE STAIR SECTION
1/2" = 1'-0"



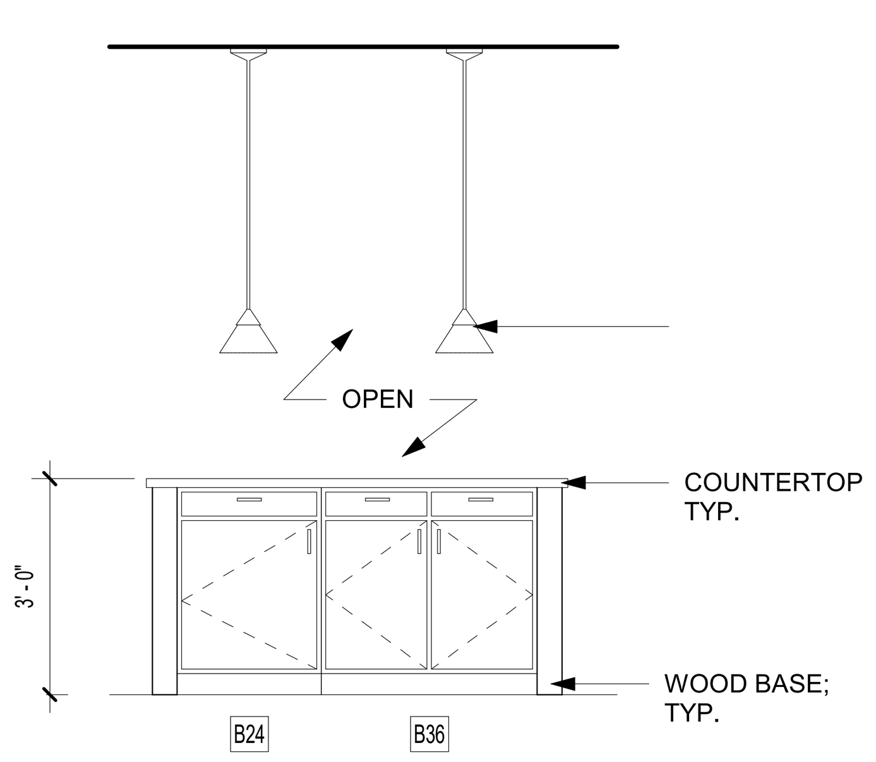
D2 TOWNHOME POWDER ELEV.
3/8" = 1'-0"



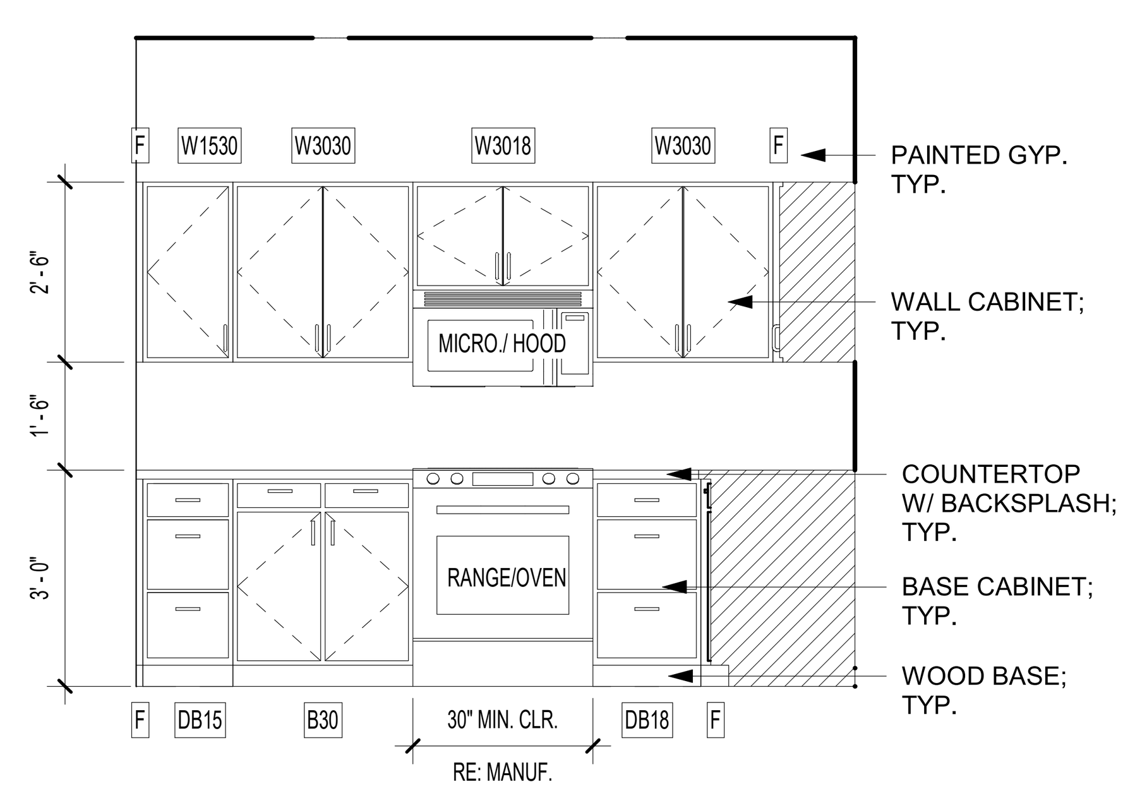
C2 TOWNHOME BATH 2 ELEV. 1
3/8" = 1'-0"



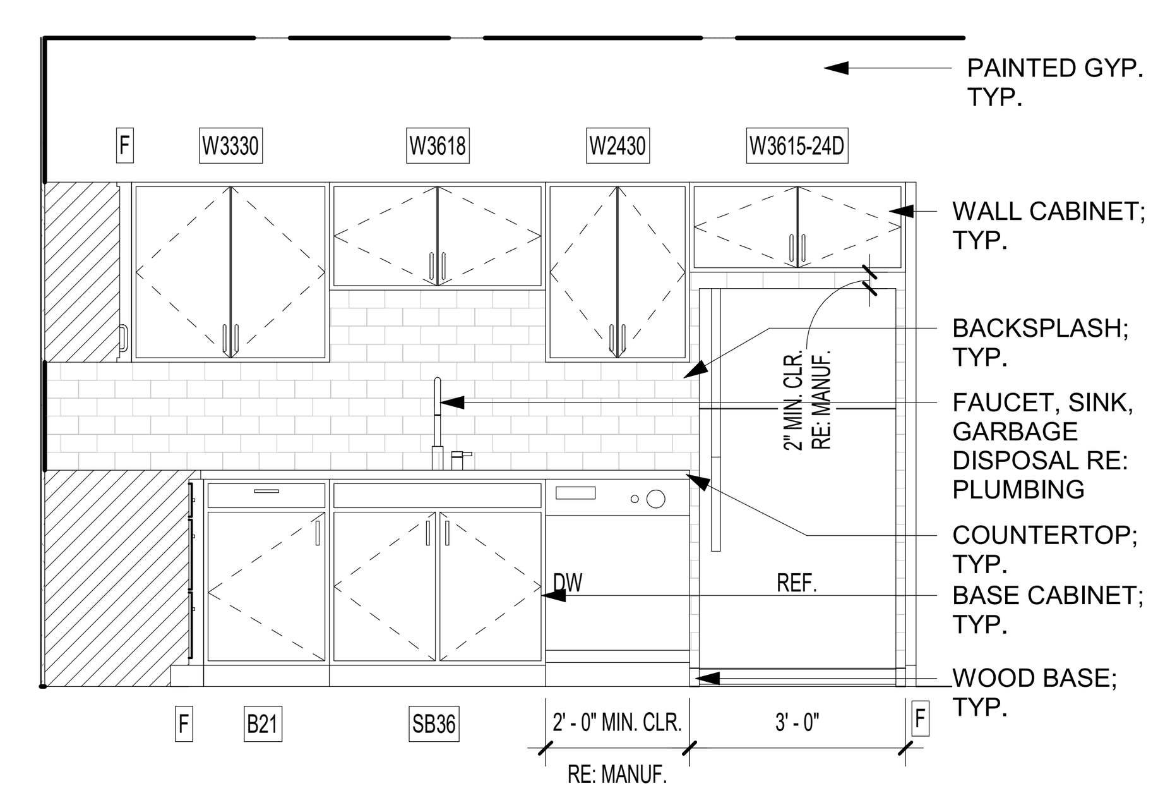
B2 TOWNHOME BATH 2 ELEV. 2
3/8" = 1'-0"



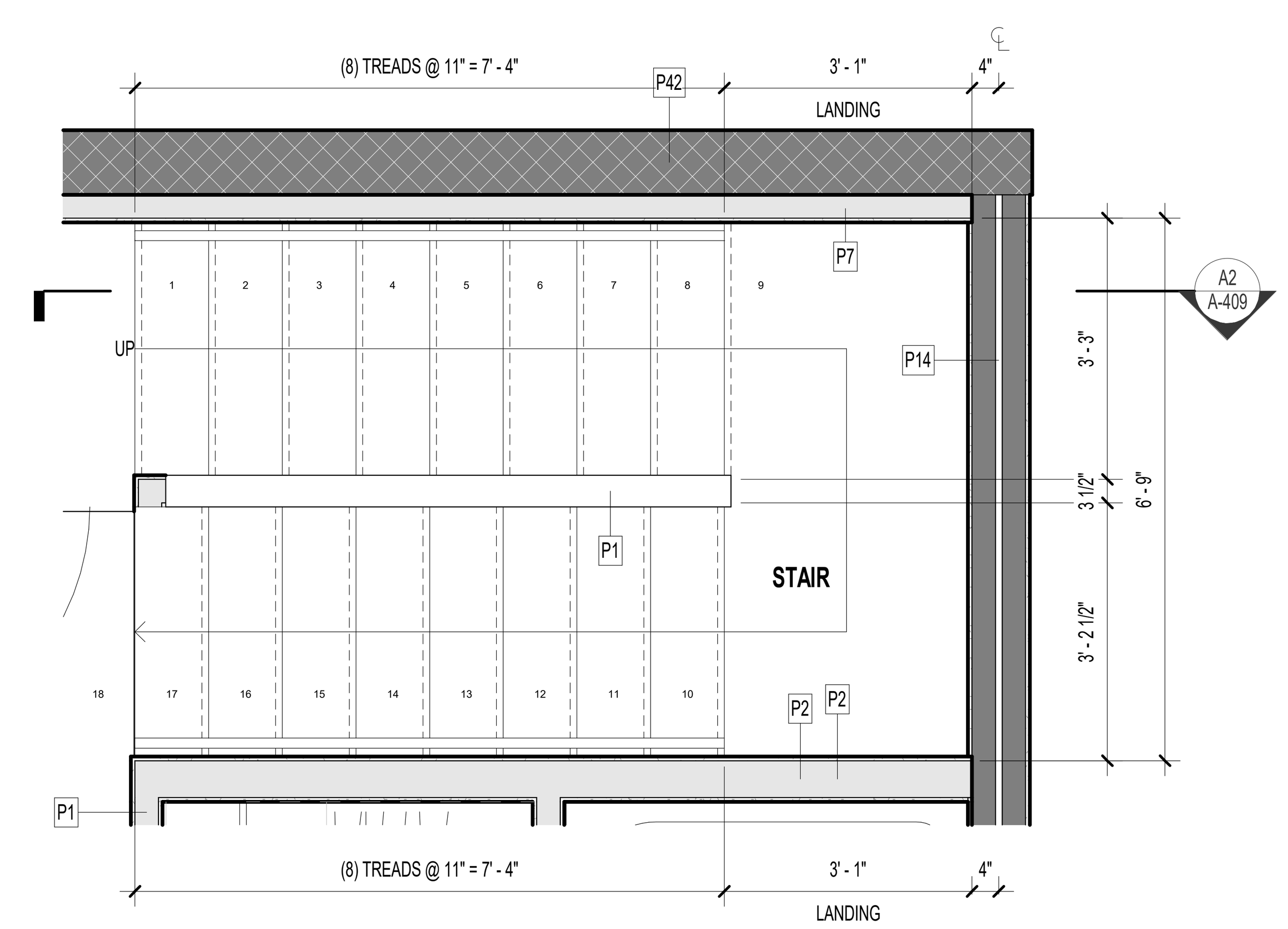
D1 TOWNHOME KITCHEN ELEV. 3
3/8" = 1'-0"



C1 TOWNHOME KITCHEN ELEV. 2
3/8" = 1'-0"



B1 TOWNHOME KITCHEN ELEV. 1
3/8" = 1'-0"



A1 TOWNHOME (2 BR) - STAIR PLAN
1/2" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
TOWNHOME (2 BR)

PROJECT NUMBER: 24017

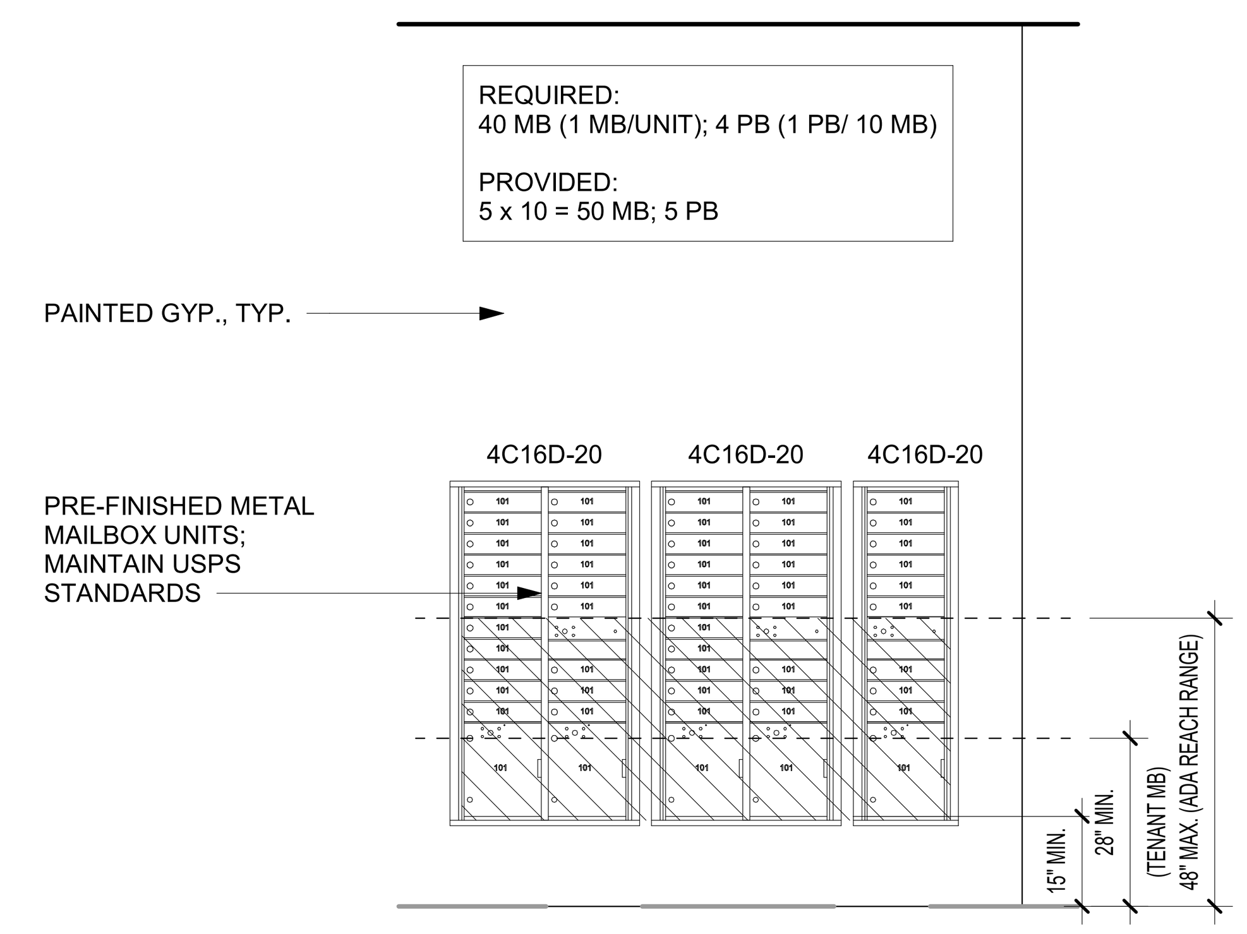
SHEET NUMBER:

A-409

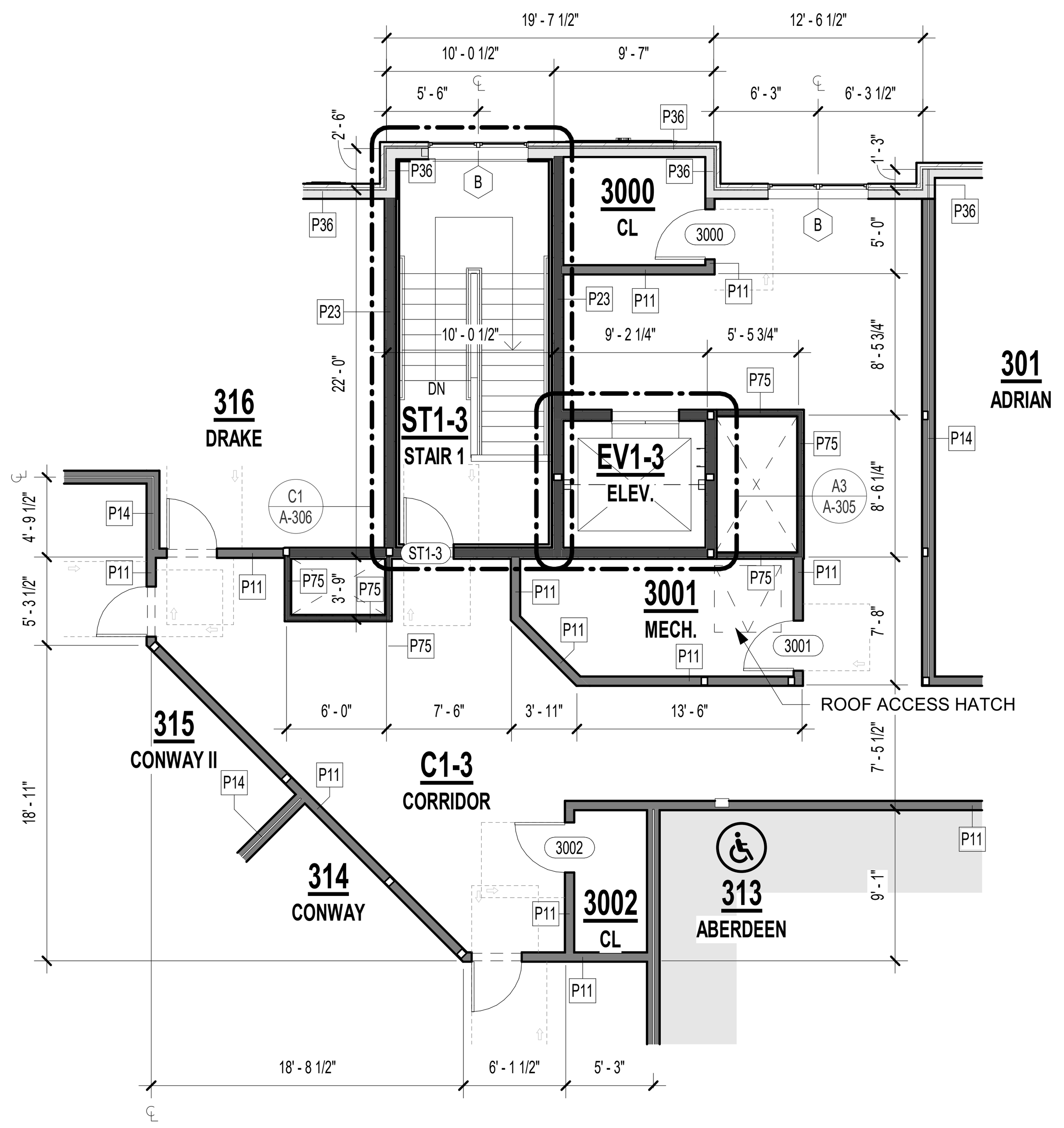
REFERENCE G-003 FOR GENERAL NOTES

PLAN LEGEND

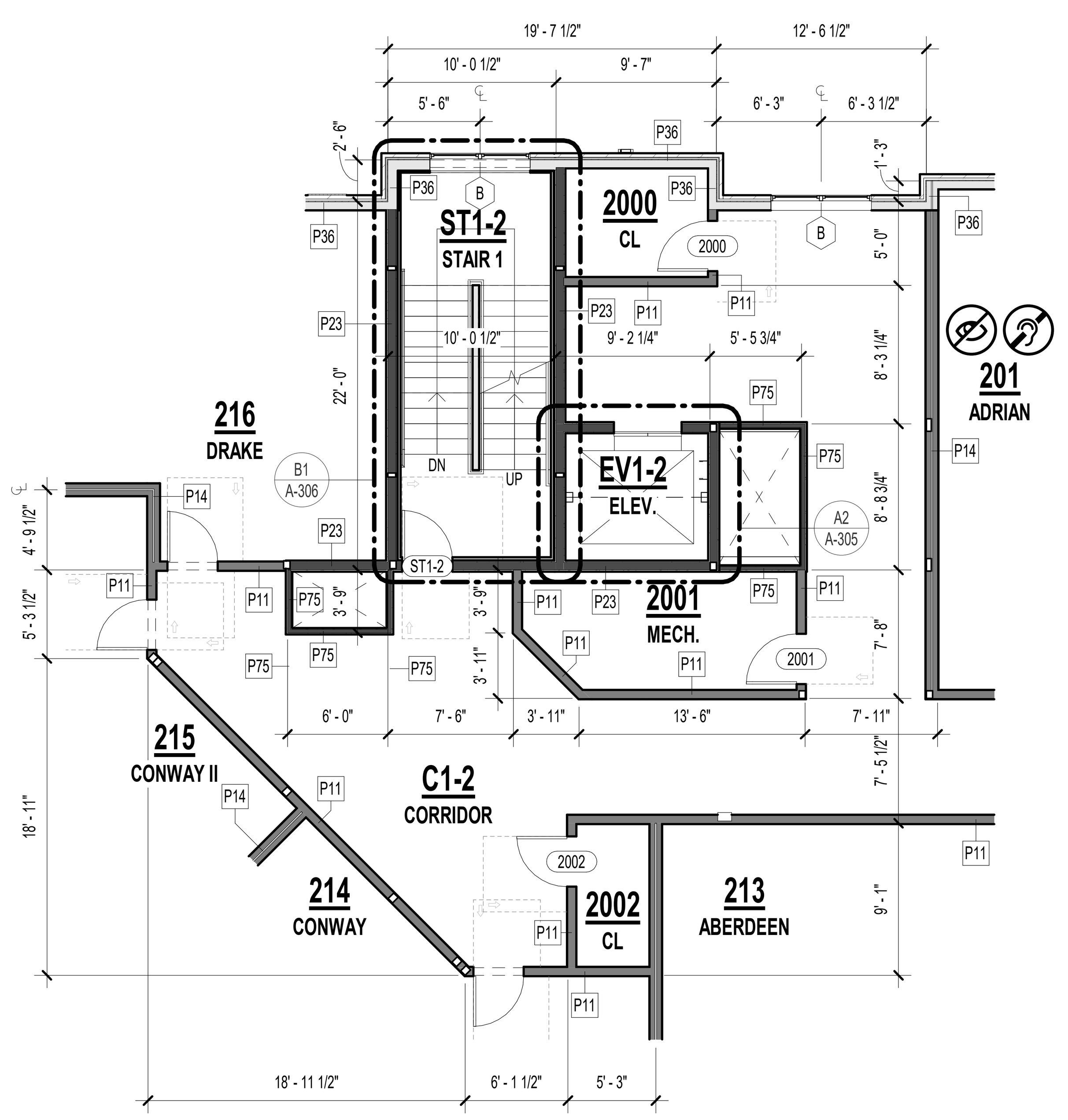
- PARTIAL HEIGHT PARTITION
- NON-RATED PARTITION; SEE ASSEMBLIES G-100s
- 1 HR RATED PARTITION; SEE ASSEMBLIES G-100s
- 2 HR RATED PARTITION; SEE ASSEMBLIES G-100s
- A1 — WINDOW TYPE; SEE WINDOW SCHEDULE ON SHEET A-600
- 101 — DOOR TYPE; SEE DOOR SCHEDULE ON SHEET A-600
- P7 — PARTITION TYPE; SEE ASSEMBLIES G-100s
- 6' - 0" — FRAMING DIMENSIONS
- 6' - 0" LAYOUT — LAYOUT LINE DIMENSIONS
- HEARING/VISIBILITY
- ADA/ACCESSIBLE UNITS



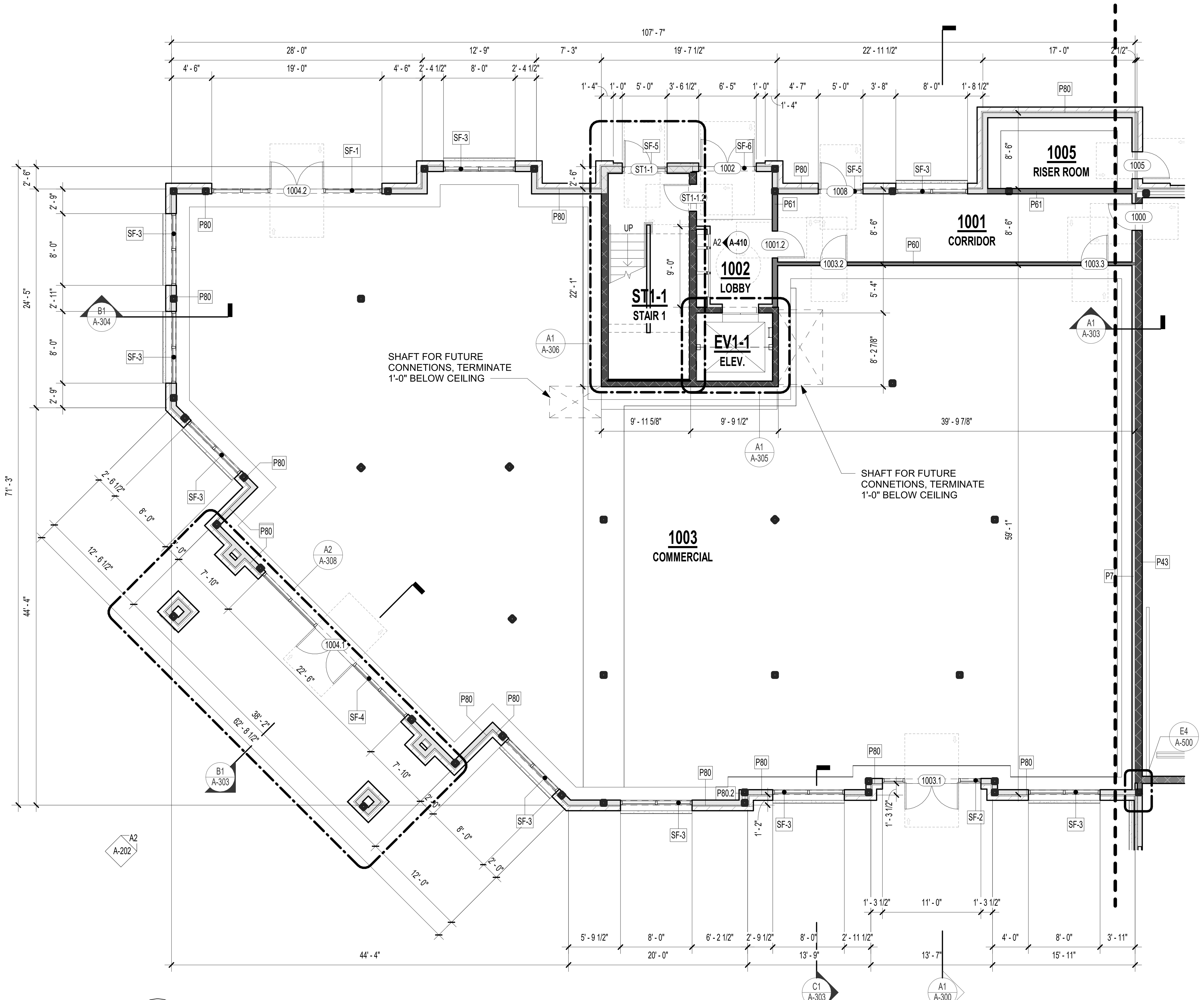
A2 LOBBY MAILBOX ELEVATION
3/8" = 1'-0"



B2 ENLARGED 3RD FLOOR COMMON AREAS PLAN
1/8" = 1'-0"



B1 ENLARGED 2ND FLOOR COMMON AREAS PLAN
1/8" = 1'-0"



A1 ENLARGED 1ST FLOOR COMMON AREAS PLAN
1/8" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7385
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

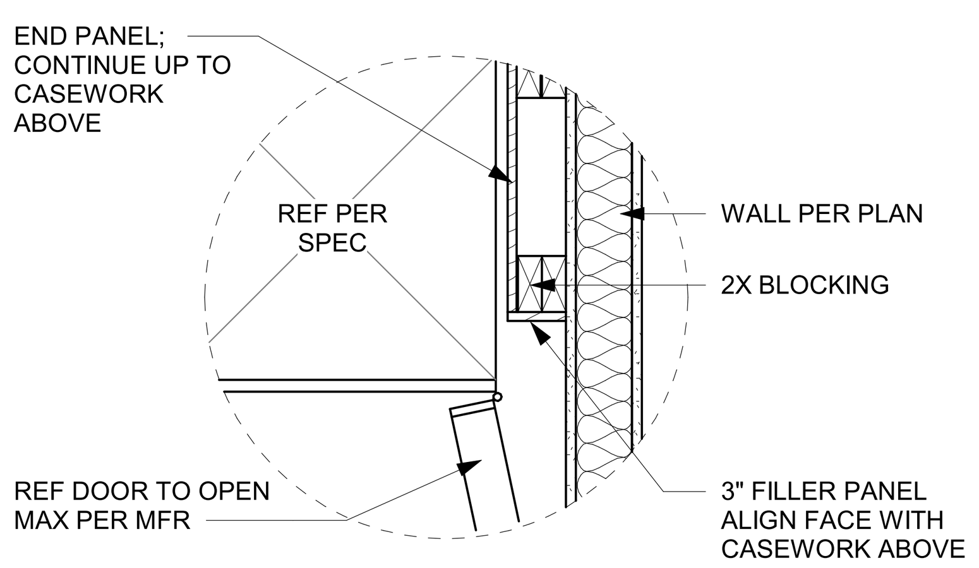
SHEET TITLE
ENLARGED COMMON AREAS

PROJECT NUMBER: 24017

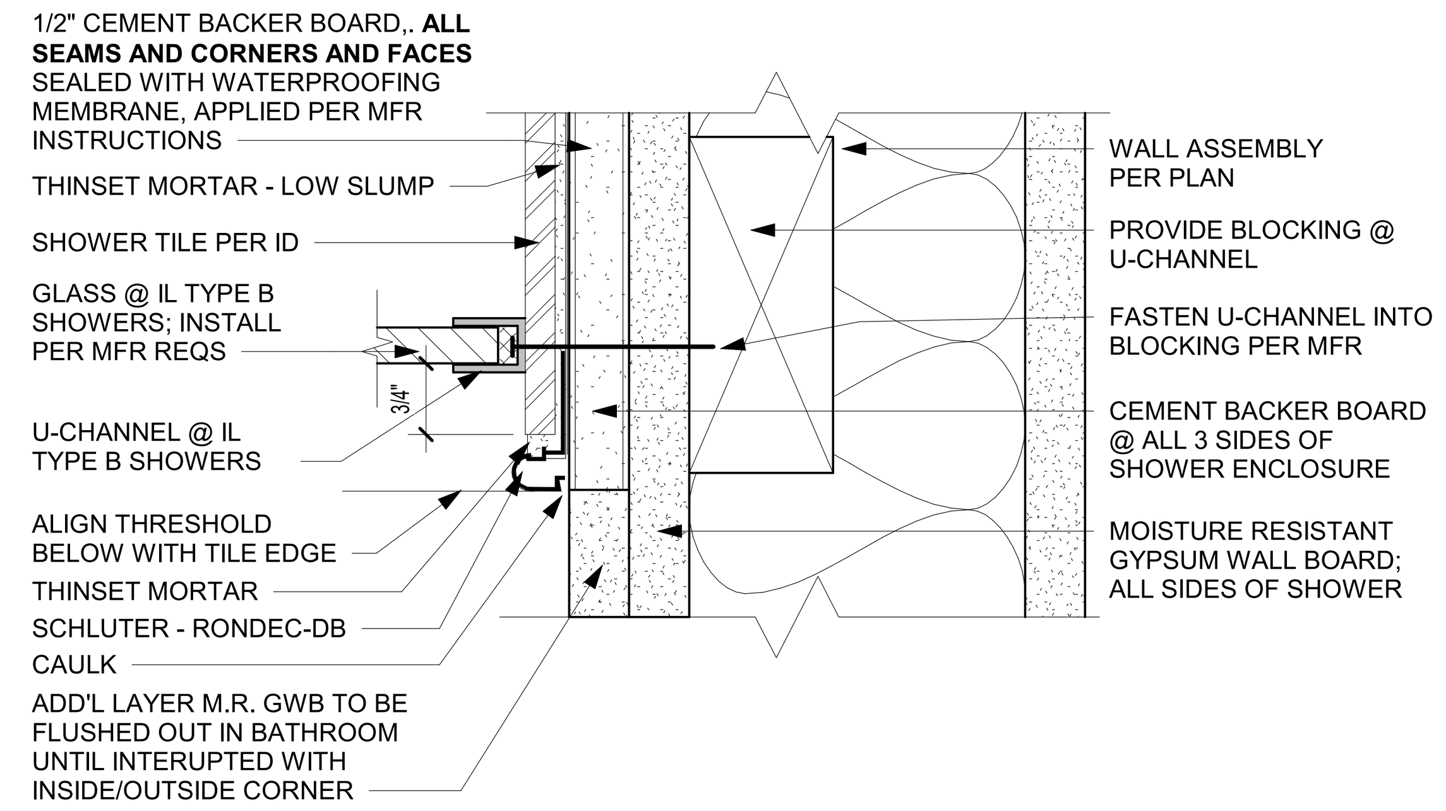
SHEET NUMBER:

A-410

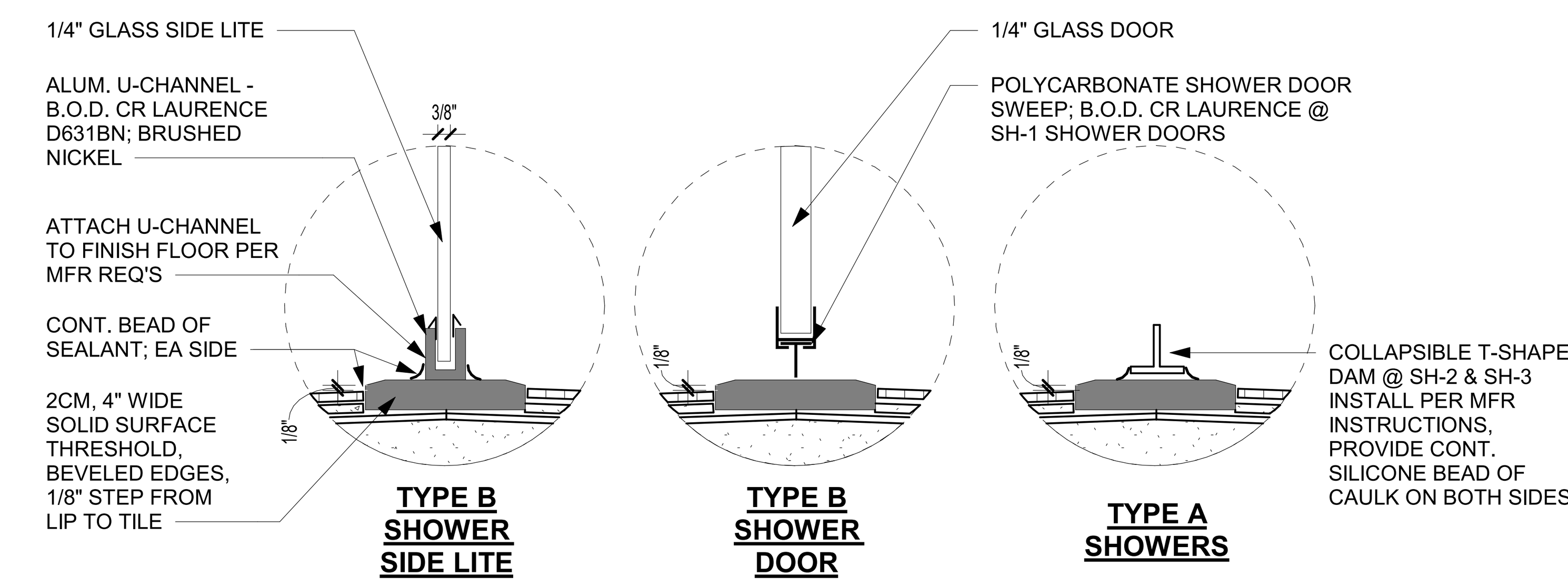
REFERENCE G-003 FOR GENERAL NOTES



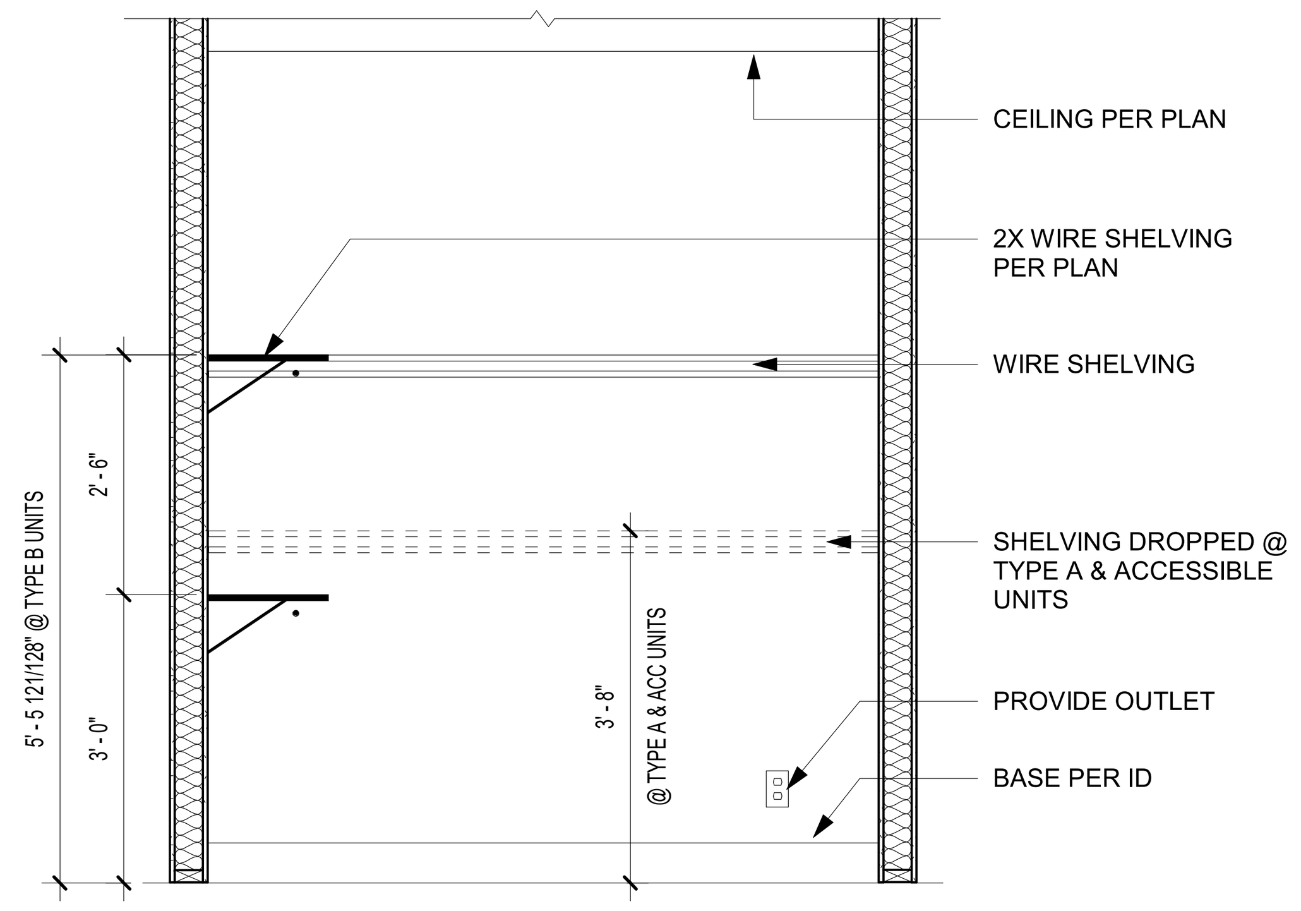
D4 UNIT DETAIL - REF FILLER
1" = 1'-0"



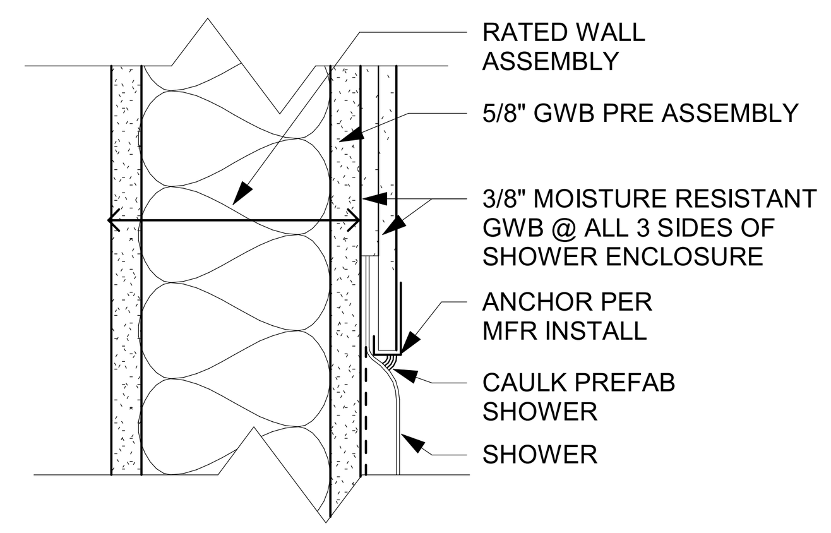
B4 UNIT DETAIL - TYPE B SHOWER - JAMB DETAIL (RATED WALL)
6" = 1'-0"



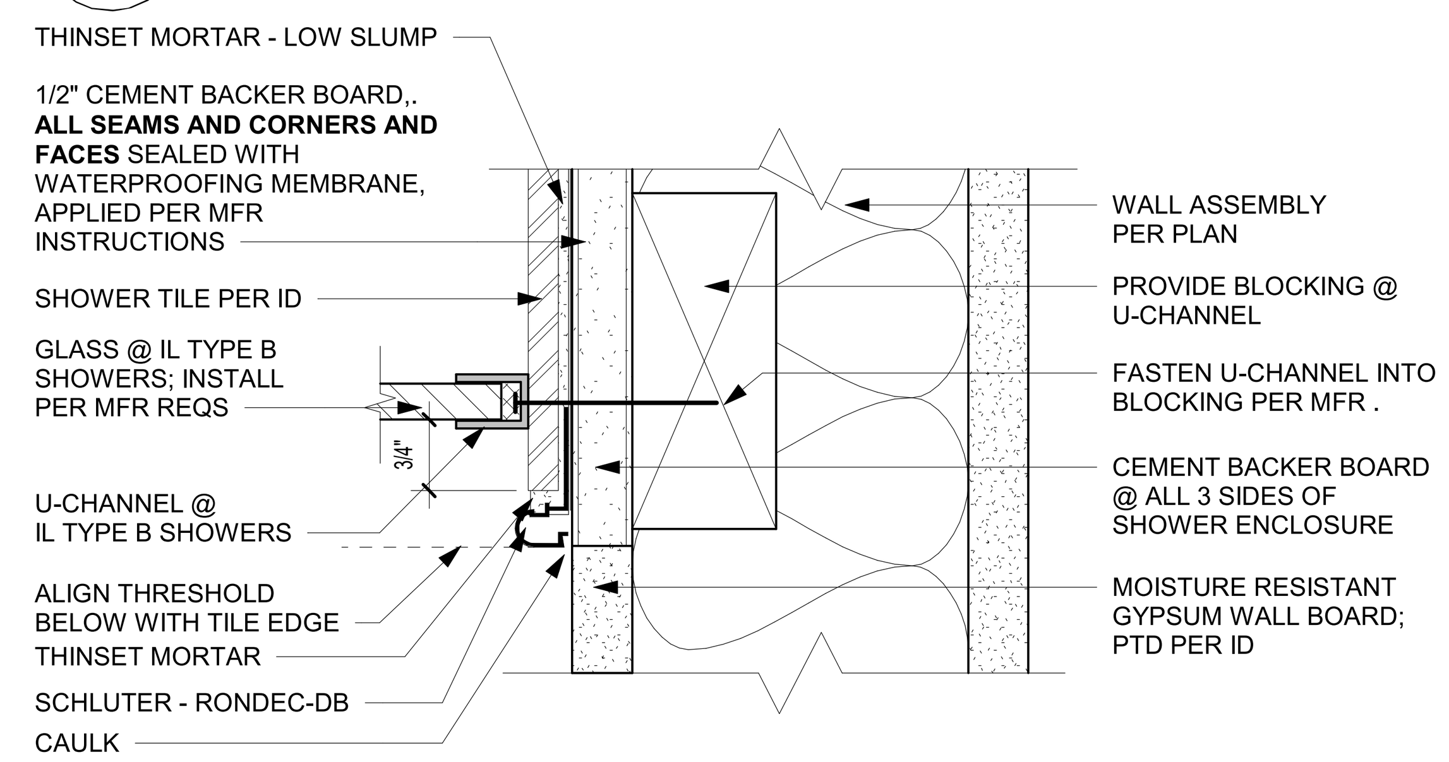
A4 UNIT DETAIL - SHOWER THRESHOLDS
3" = 1'-0"



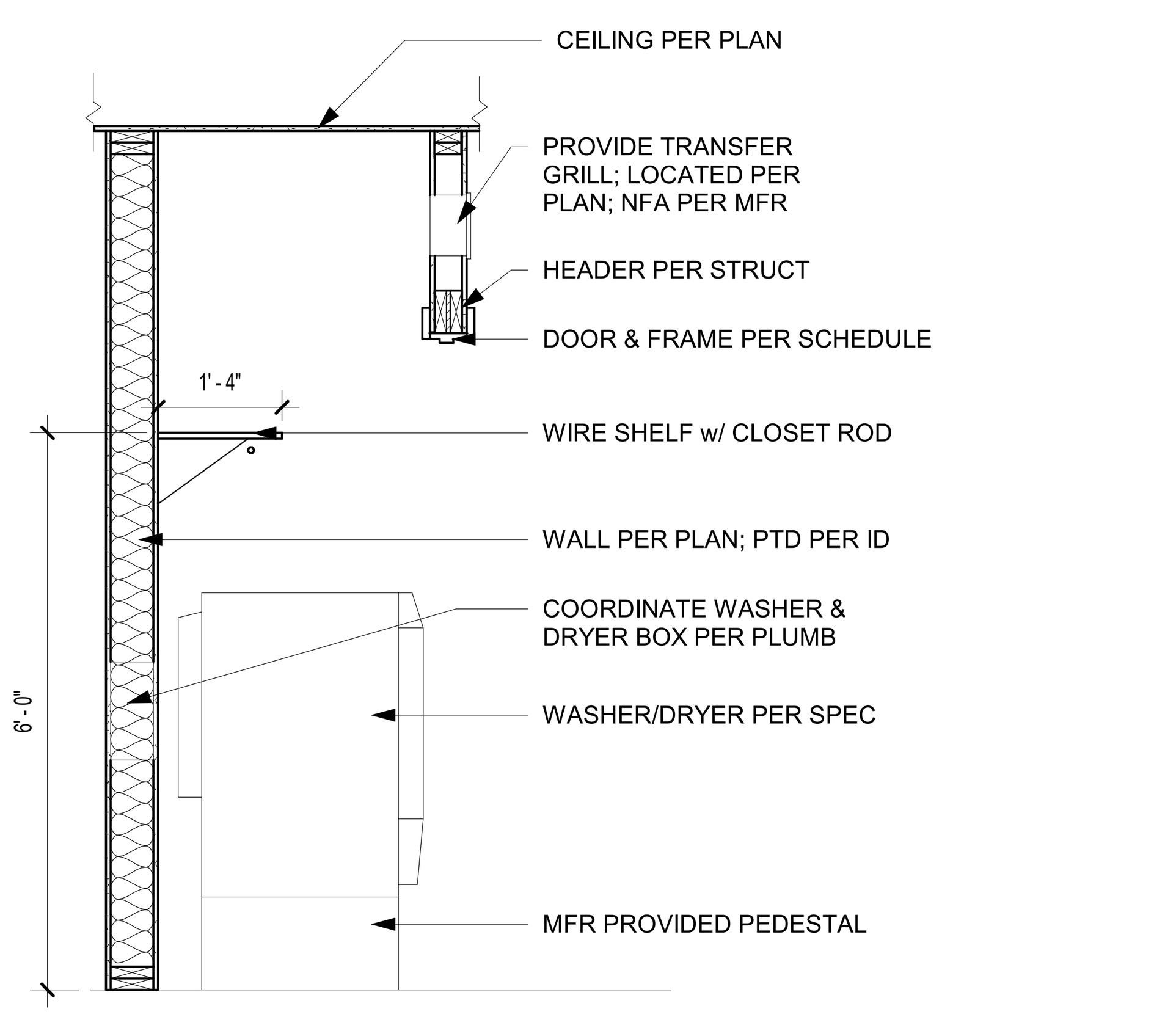
D3 UNIT DETAIL -TYPICAL WALK-IN CLOSET
1/2" = 1'-0"



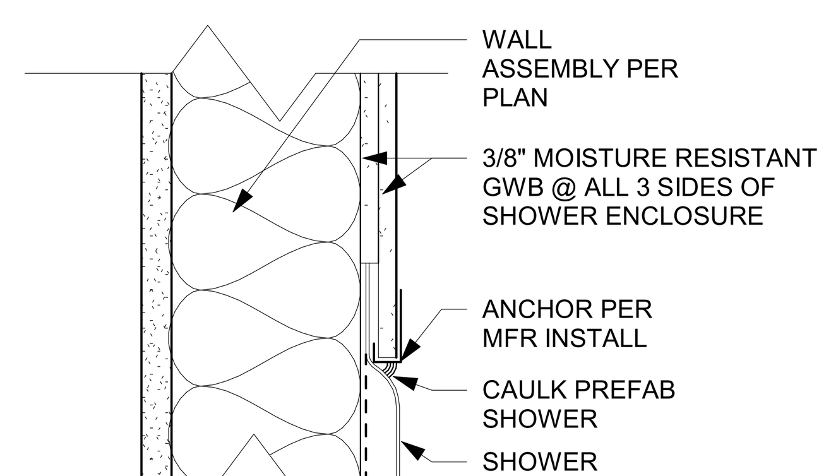
C3 UNIT DETAIL - SHOWER @ RATED WALL @ HEAD/JAMB
3" = 1'-0"



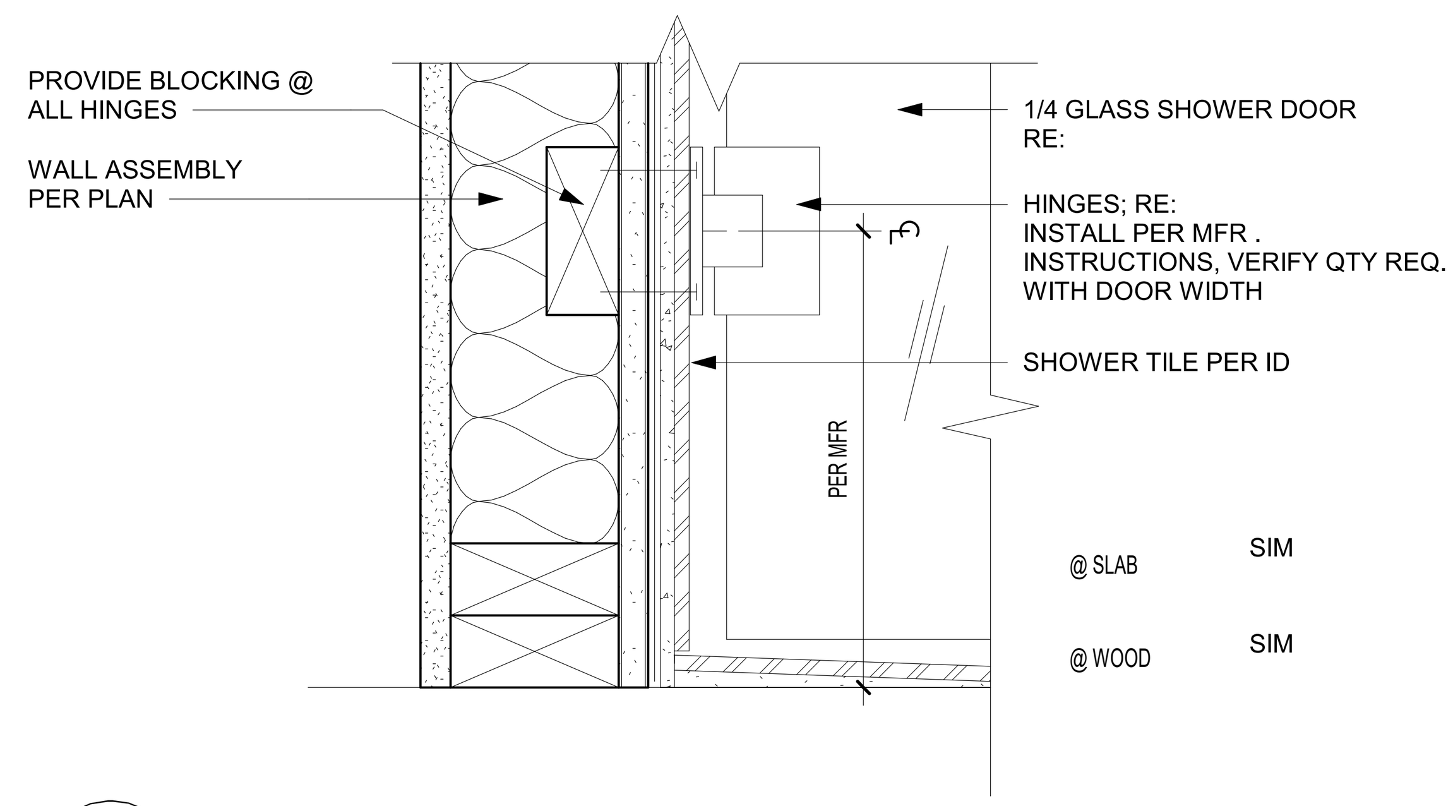
B3 UNIT DETAIL - TYPE B SHOWER - JAMB DETAIL (NON RATED WALL)
6" = 1'-0"



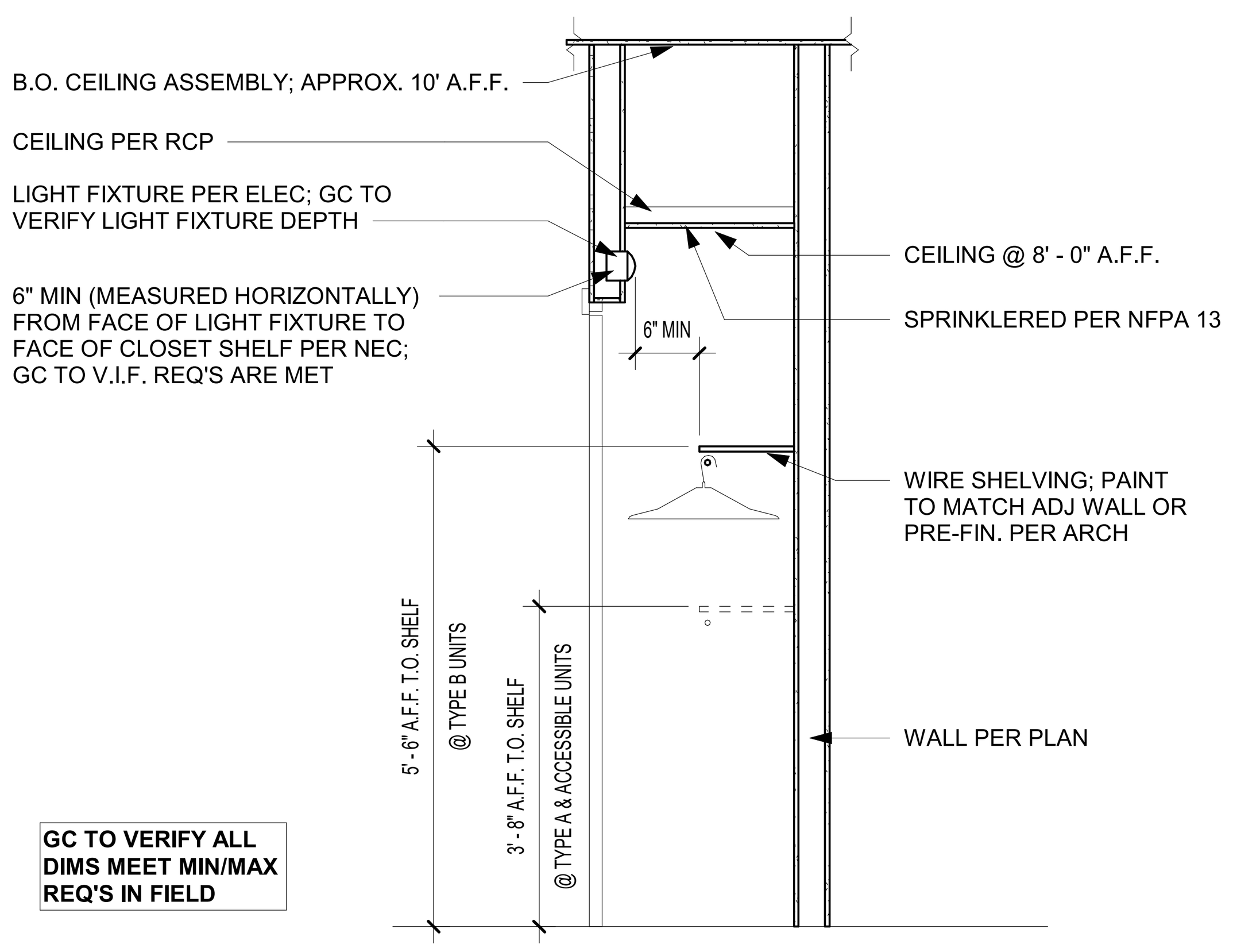
D2 UNIT DETAIL - TYP W/D CLOSET SECTION
1/2" = 1'-0"



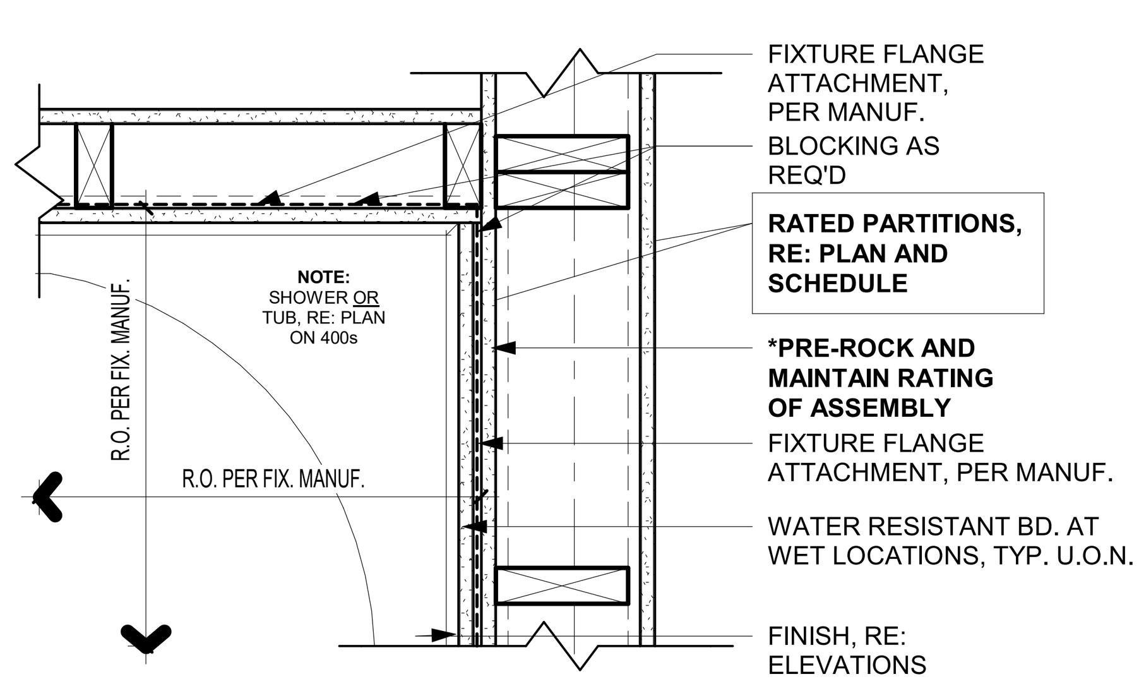
C2 UNIT DETAIL - SHOWER @ NON RATED WALL @ HEAD/JAMB
3" = 1'-0"



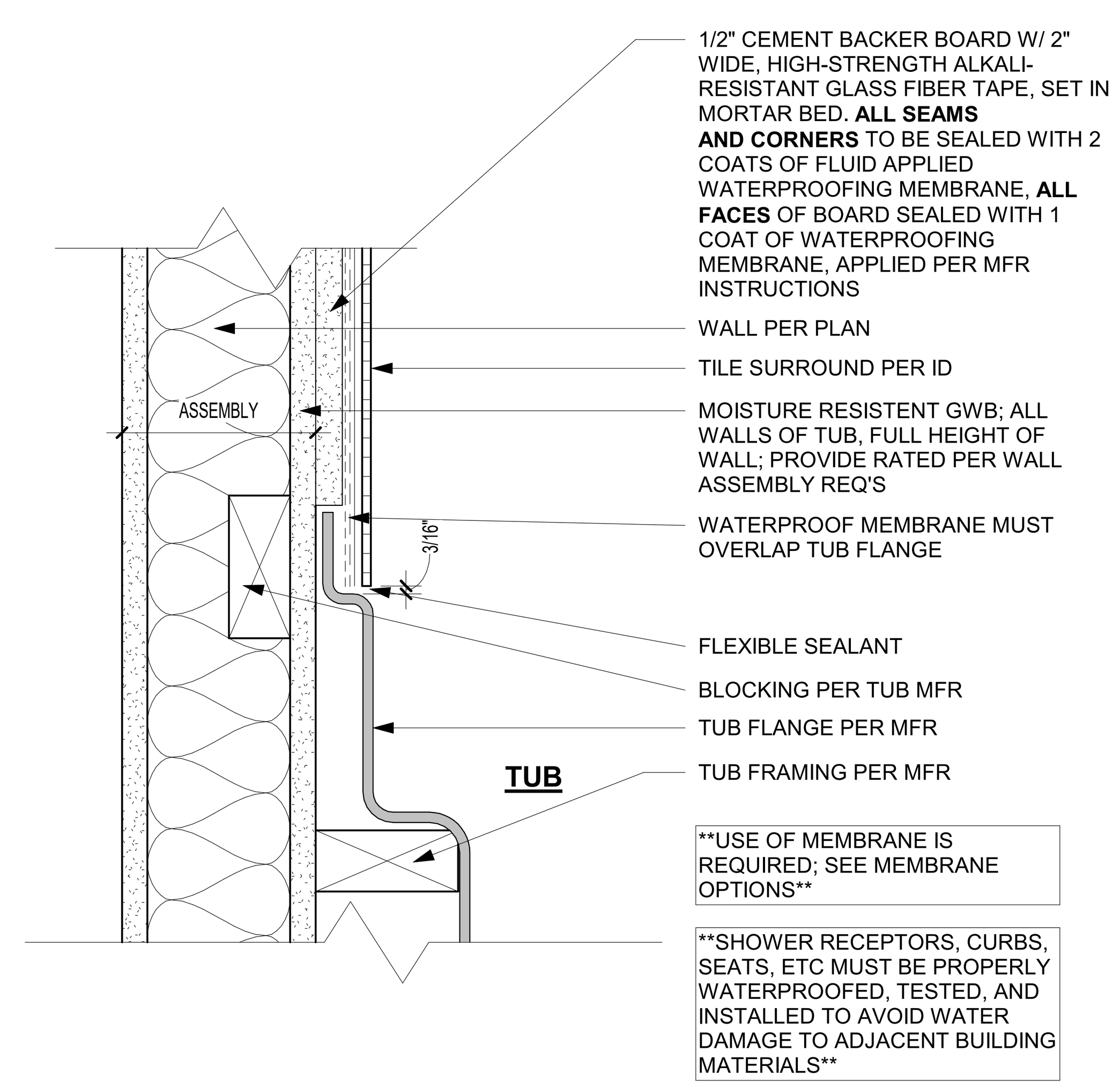
B2 UNIT DETAIL - TYPE B SHOWER DOOR HINGE
3" = 1'-0"



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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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
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REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
UNIT DETAILS

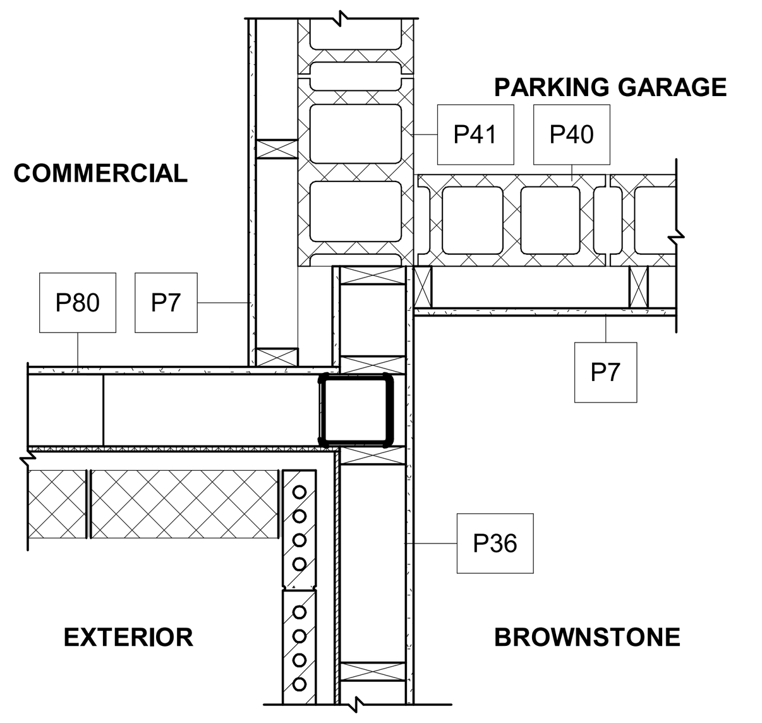
PROJECT NUMBER: 24017

SHEET NUMBER:

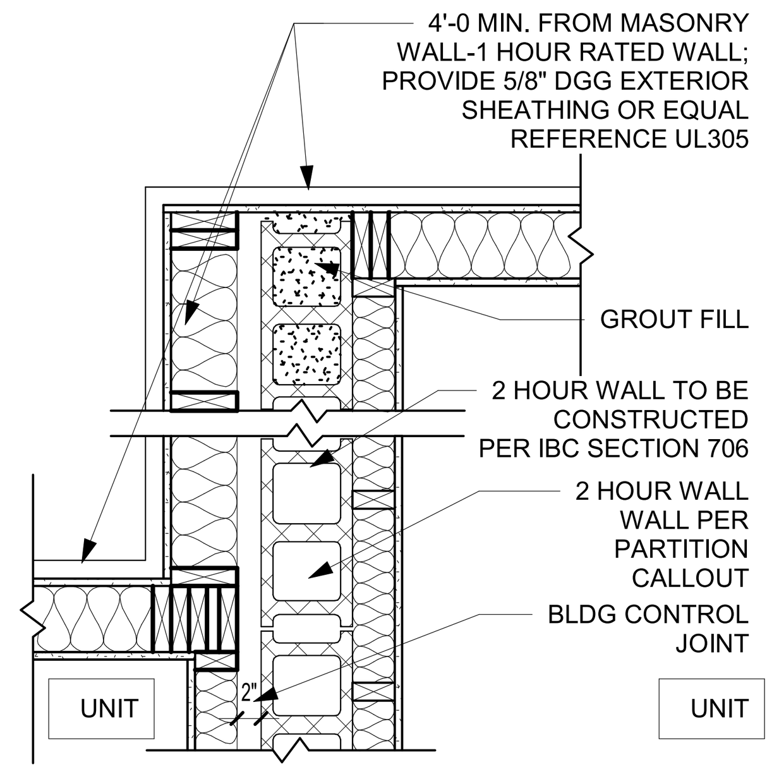
A-415

11/27/2024 9:41:38 AM

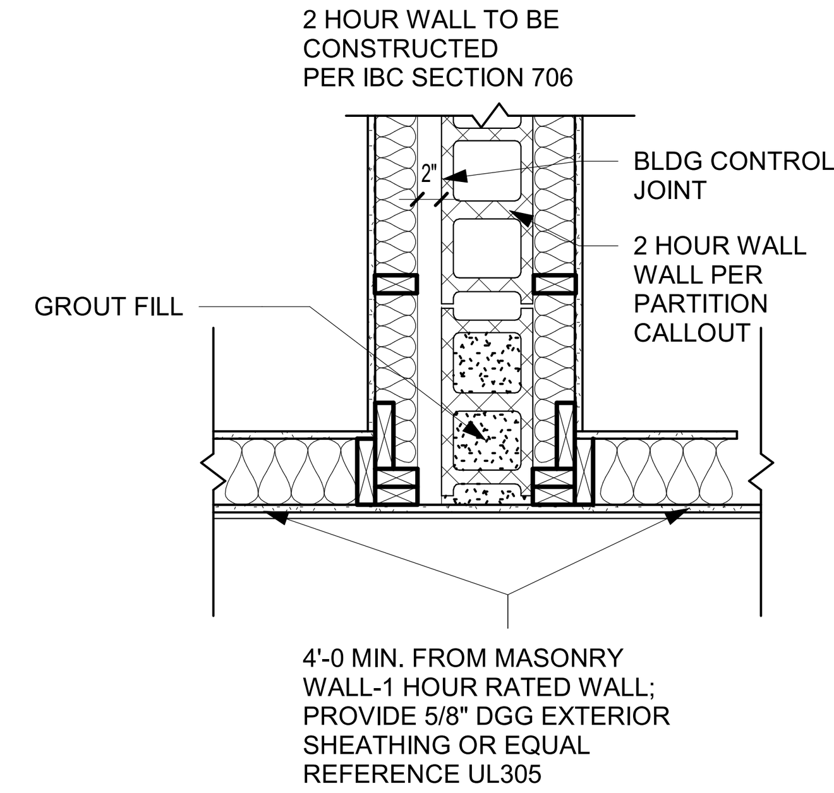
REFERENCE G-003 FOR GENERAL NOTES



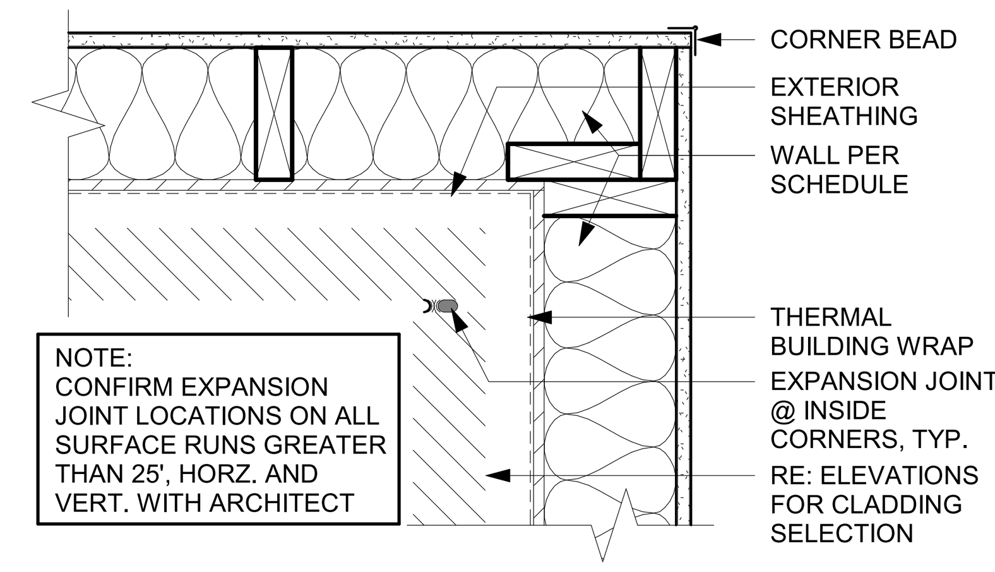
E4 Brownstone, Commercial, Parking Corner
3/4" = 1'-0"



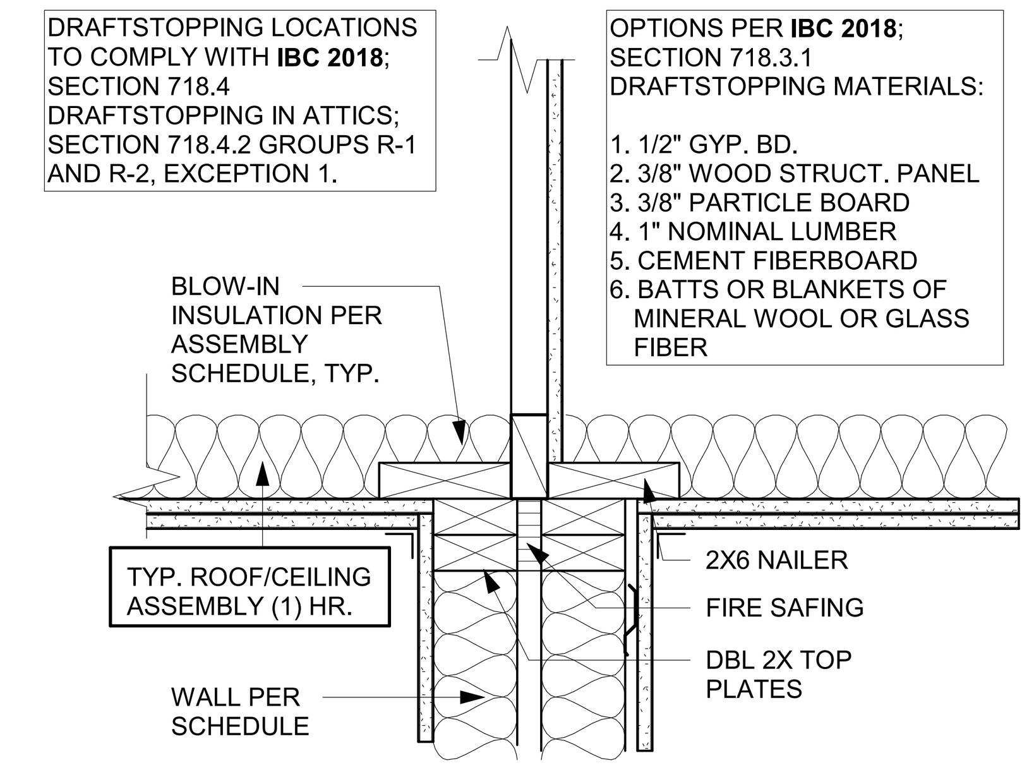
D4 2 HOUR WALL DETAIL 1 (PLAN)
3/4" = 1'-0"



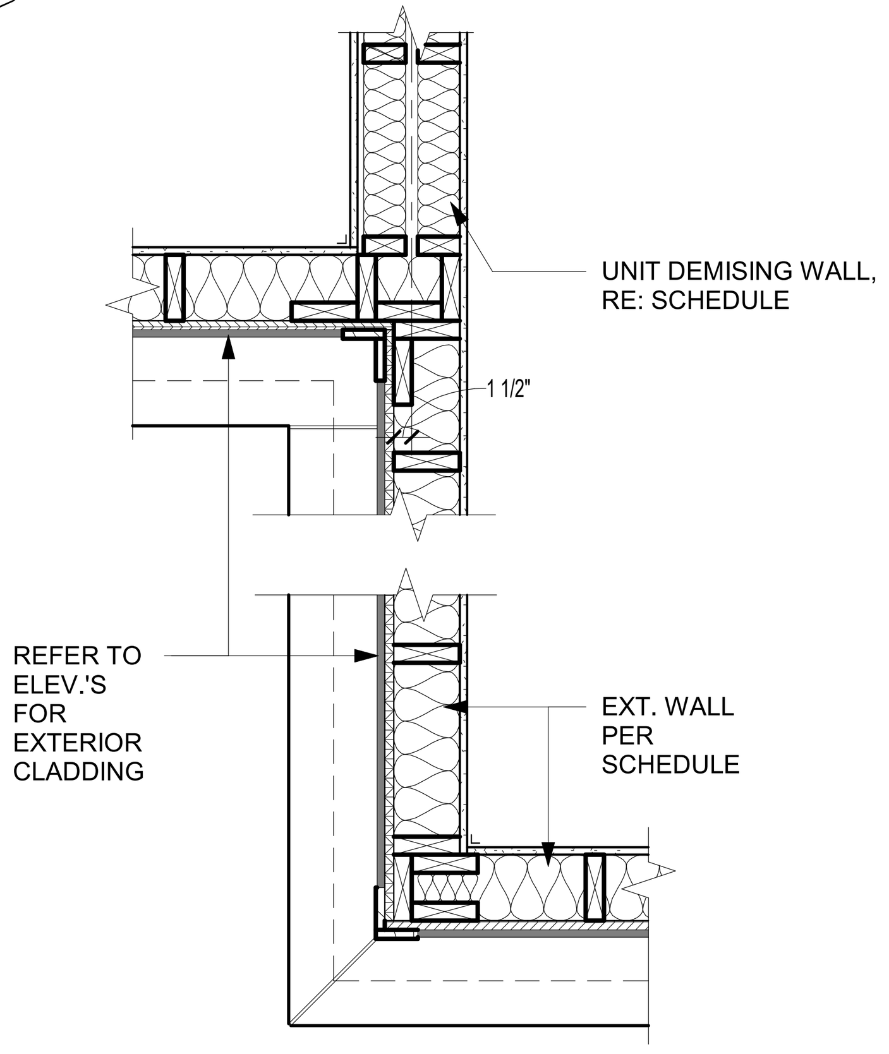
C4 2 HOUR WALL DETAIL 2 (PLAN)
3/4" = 1'-0"



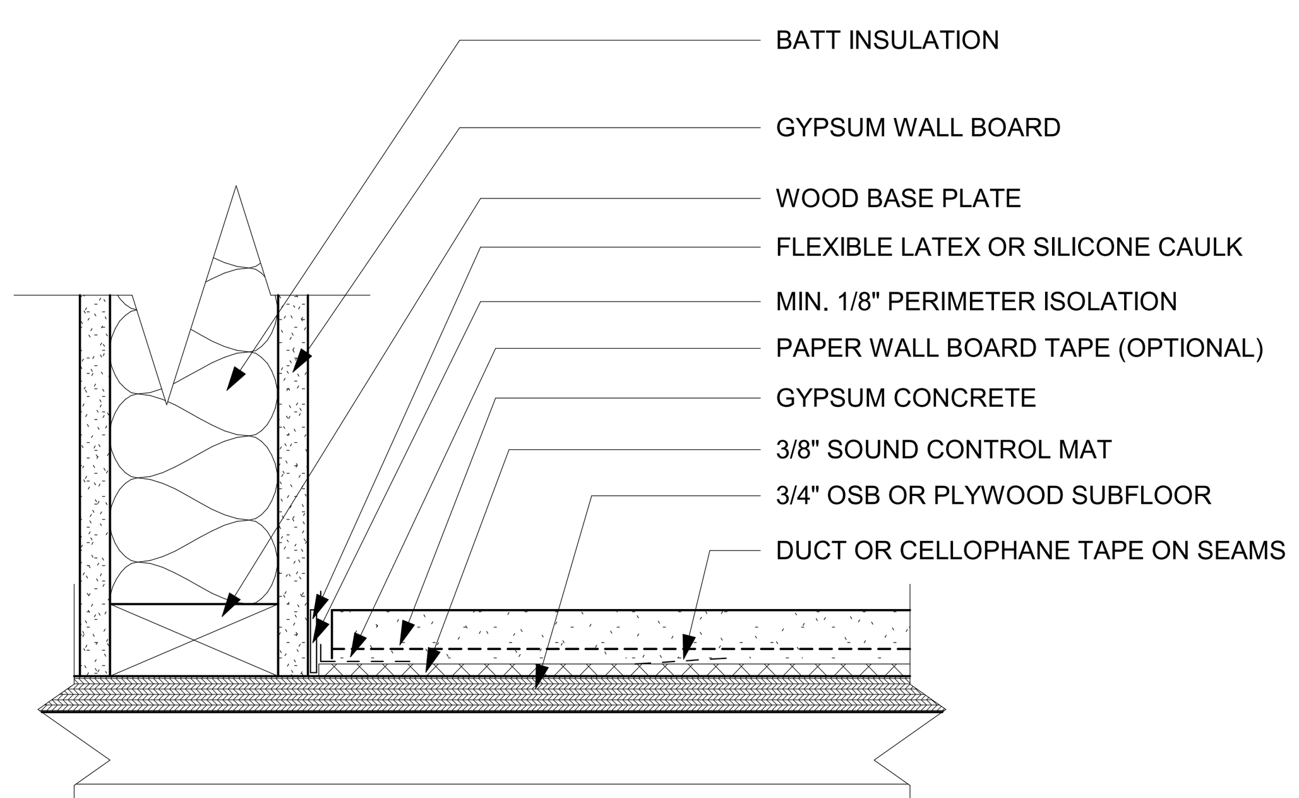
B5 FRAMING INSIDE CORNER (PLAN)
1 1/2" = 1'-0"



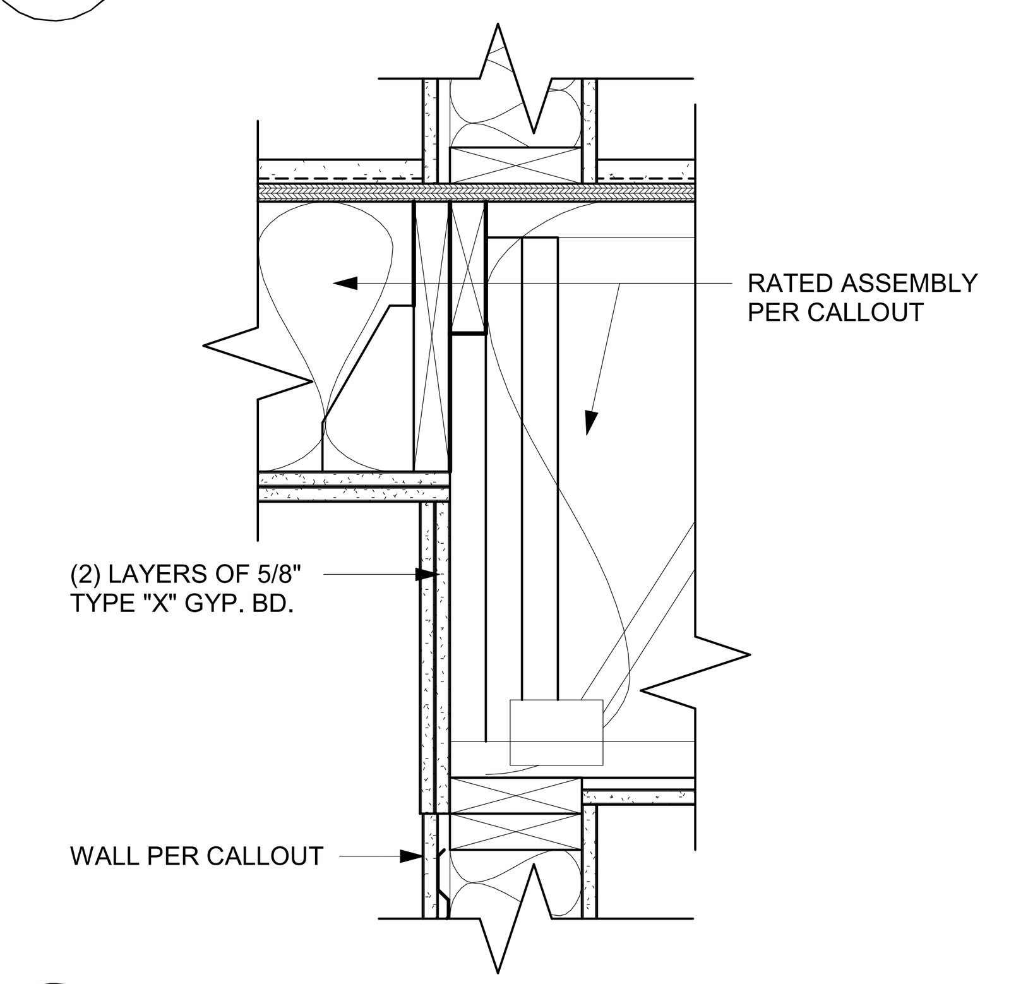
A4 PARTY WALL - DRAFTSTOP
1 1/2" = 1'-0"



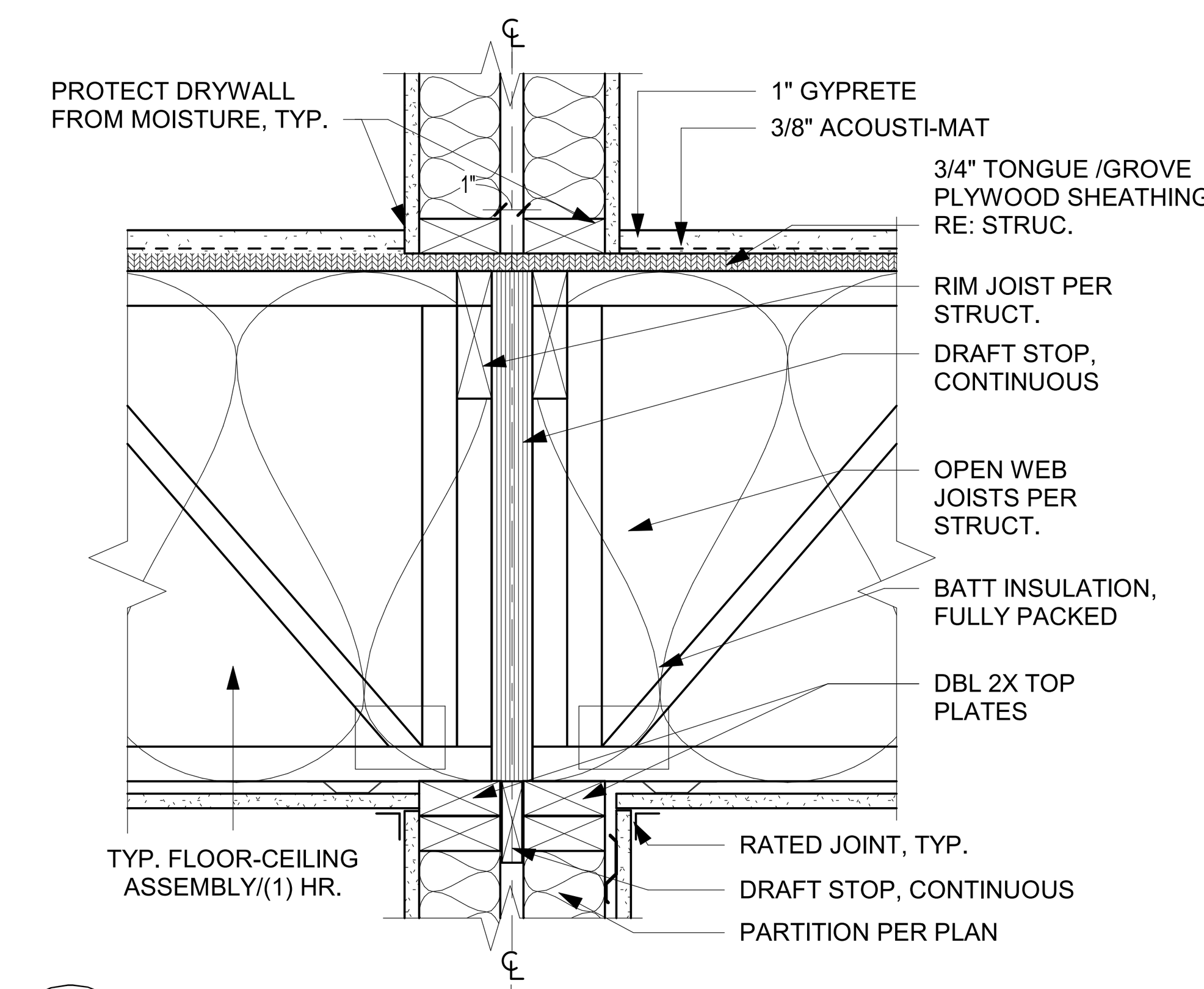
D3 CORNER FRAMING DETAIL - PLAN
3/4" = 1'-0"



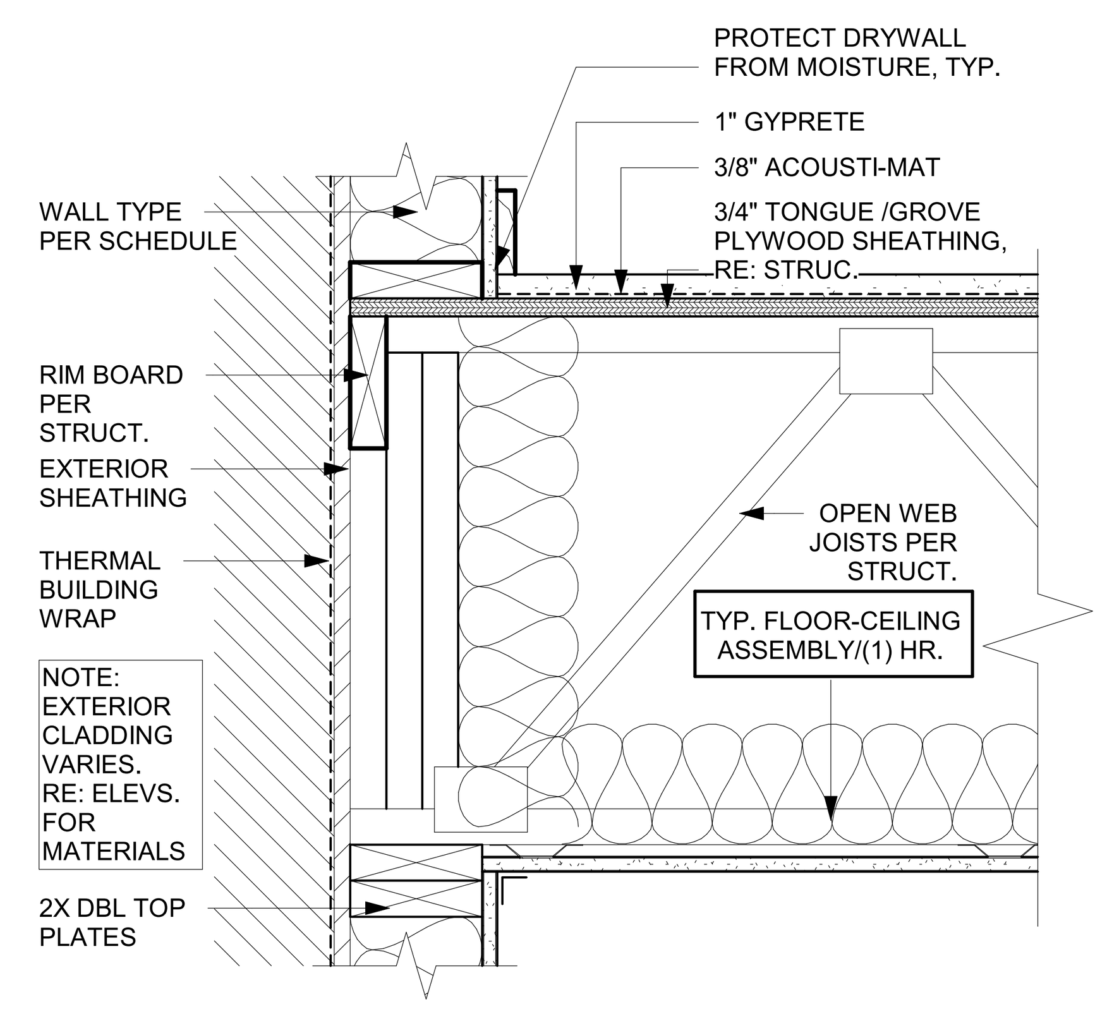
C3 FLOORS WITH SOUND CONTROLMATT, INTERIOR, PERIMETER ISOLATION DETAIL
3" = 1'-0"



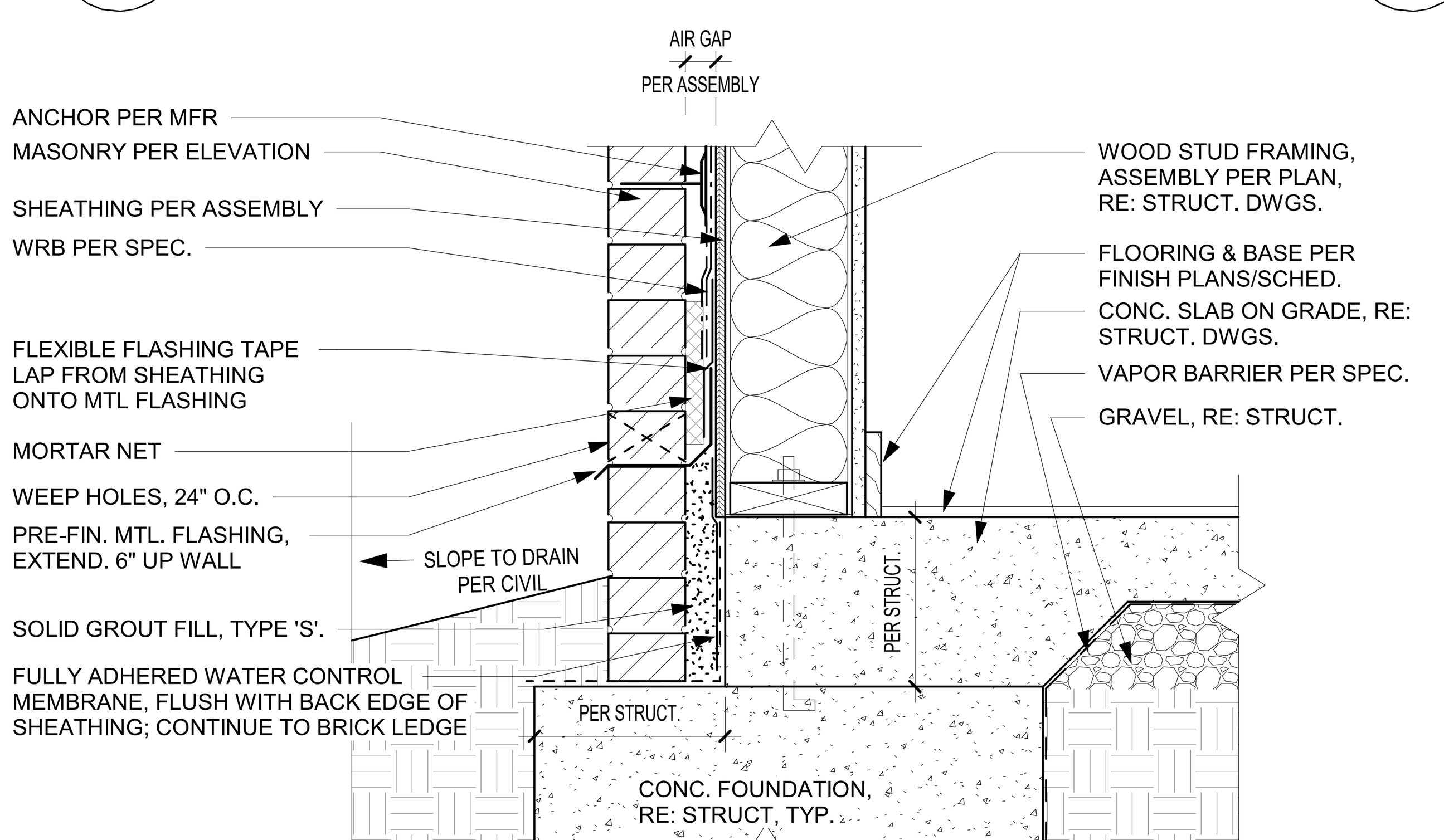
B4 FRAMING UPSET @ CORRIDORS
1 1/2" = 1'-0"



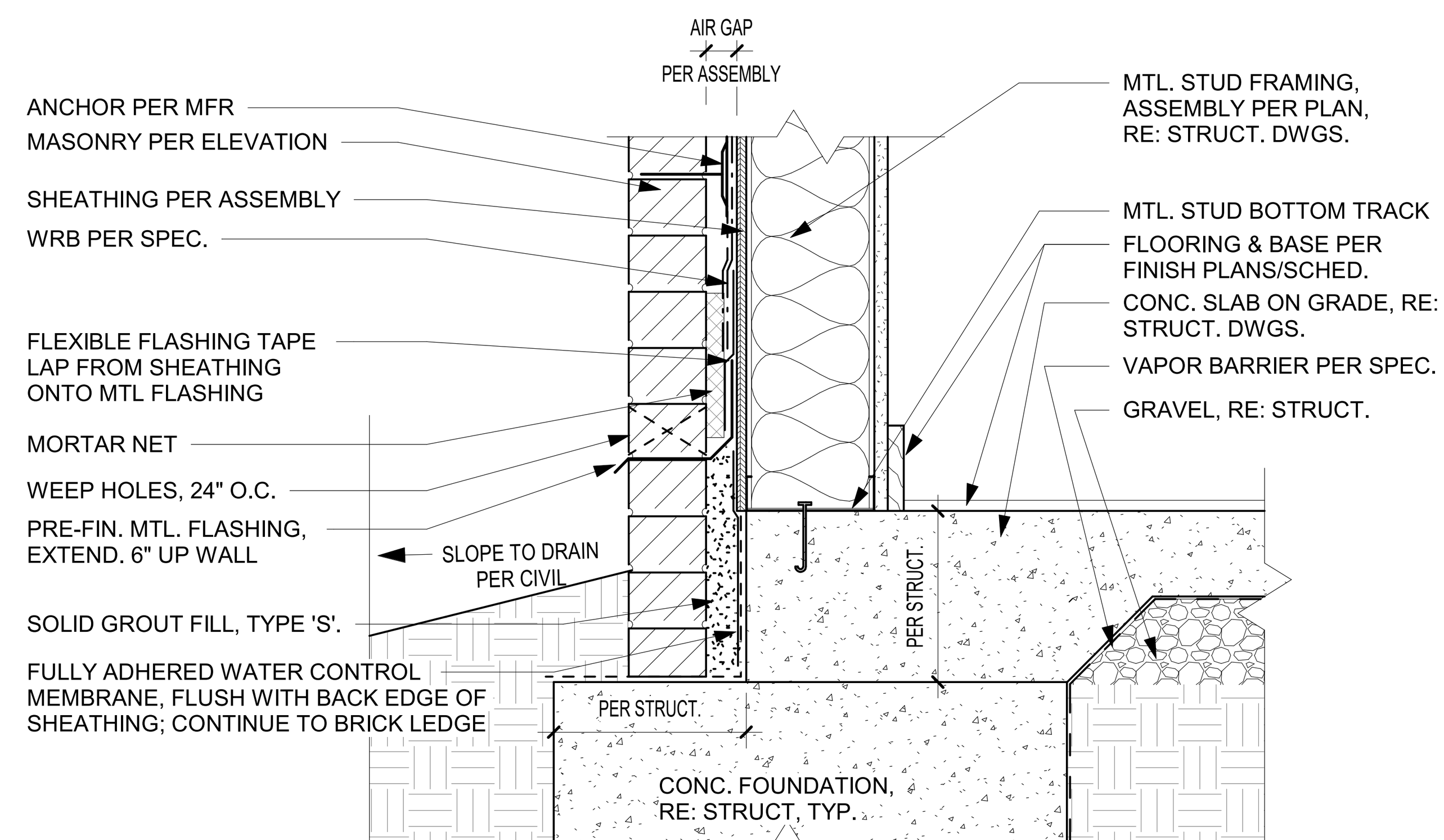
A3 PARTY WALL - SECTION 2
1 1/2" = 1'-0"



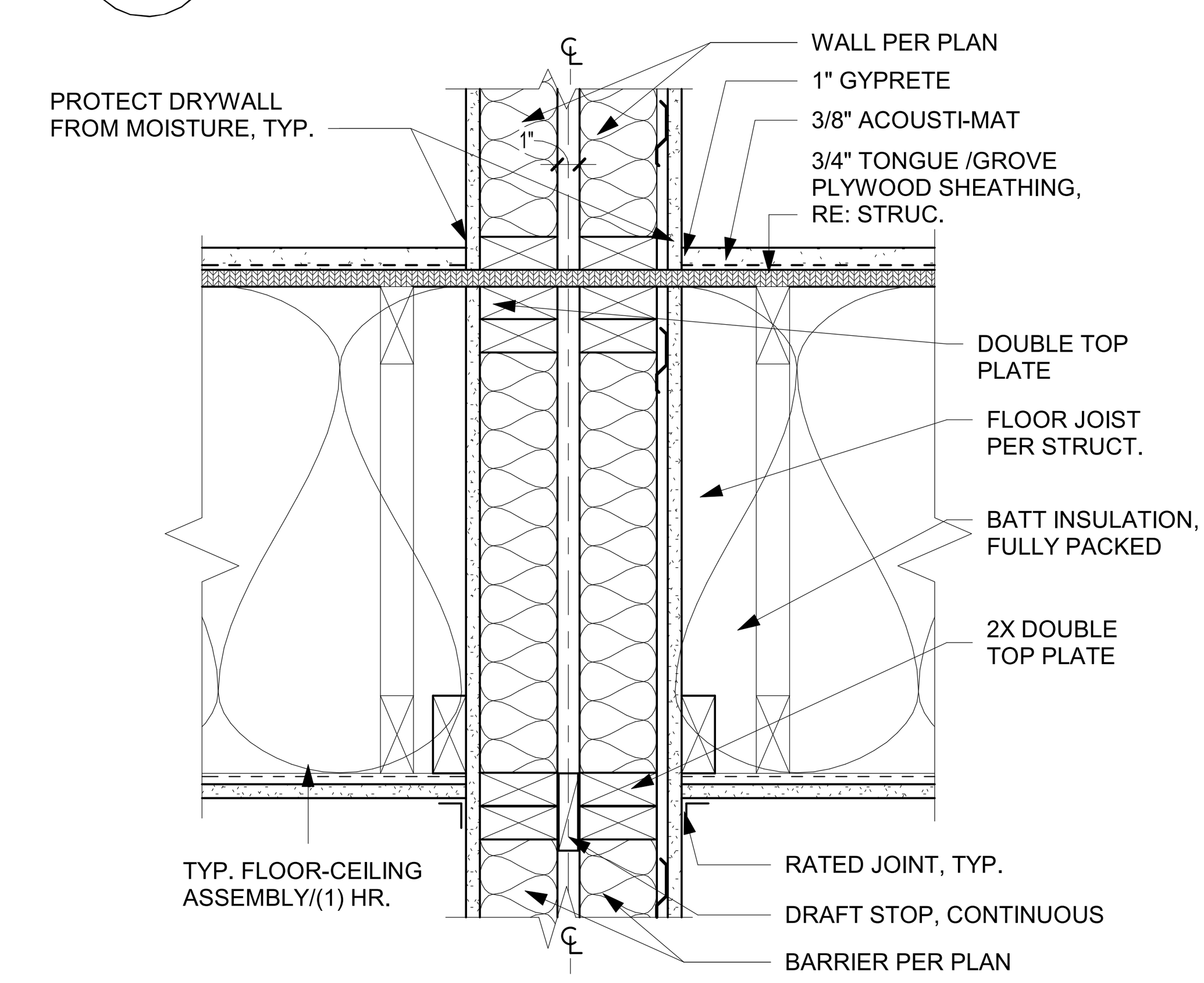
B3 FRAMING FLOOR/CLG DTL.
1 1/2" = 1'-0"



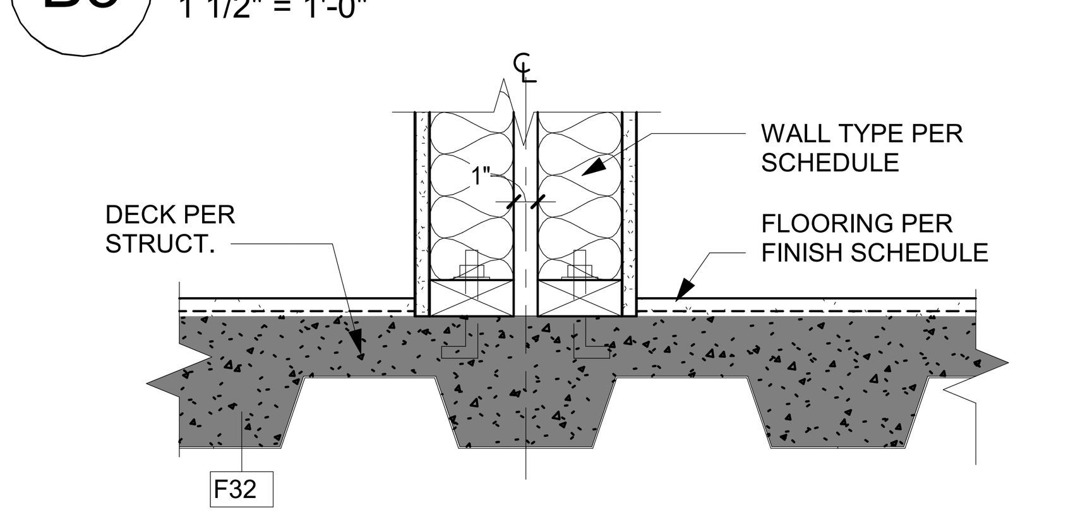
D2 FOUNDATION AT GRADE - WOOD STUD
1 1/2" = 1'-0"



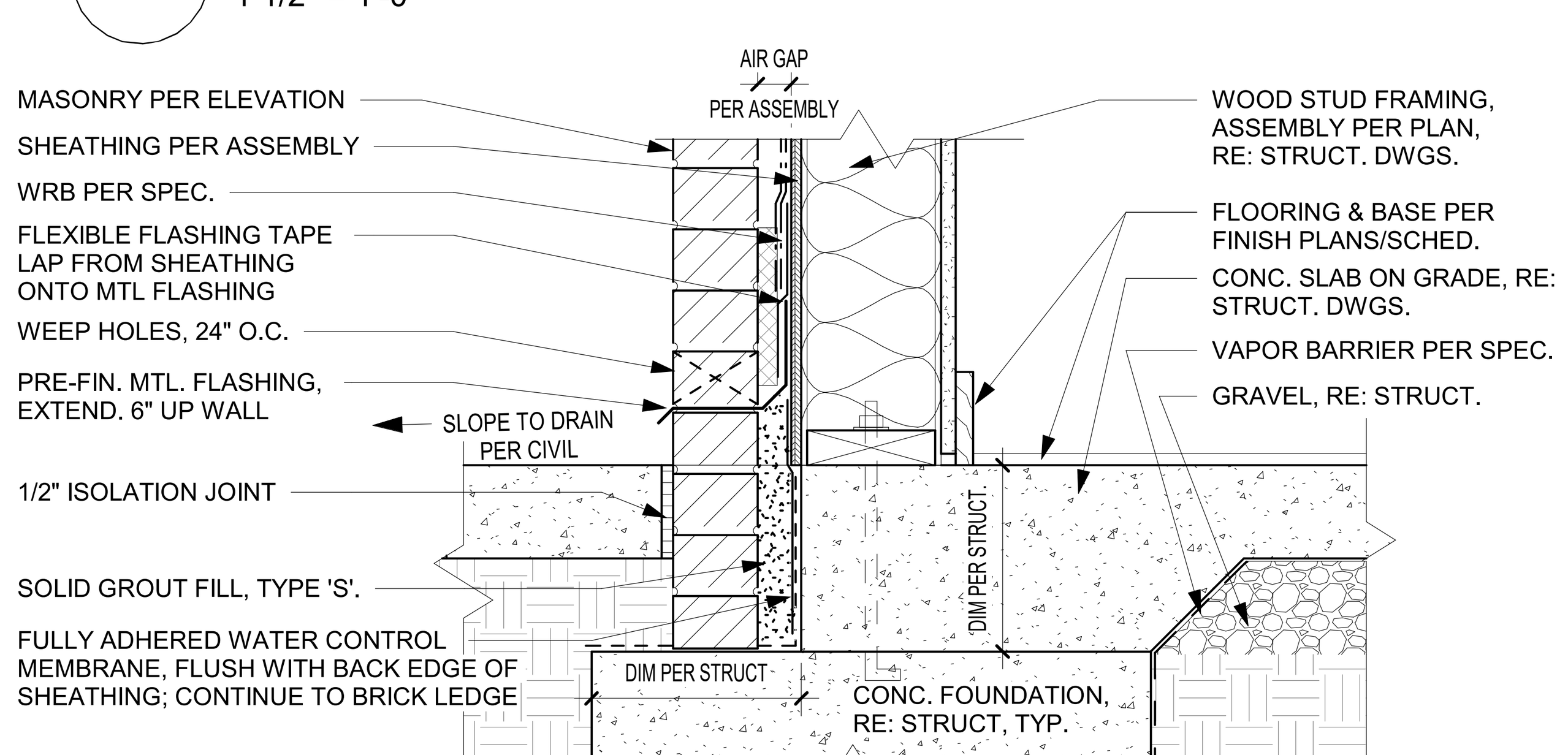
C2 FOUNDATION AT GRADE - MTL STUD
1 1/2" = 1'-0"



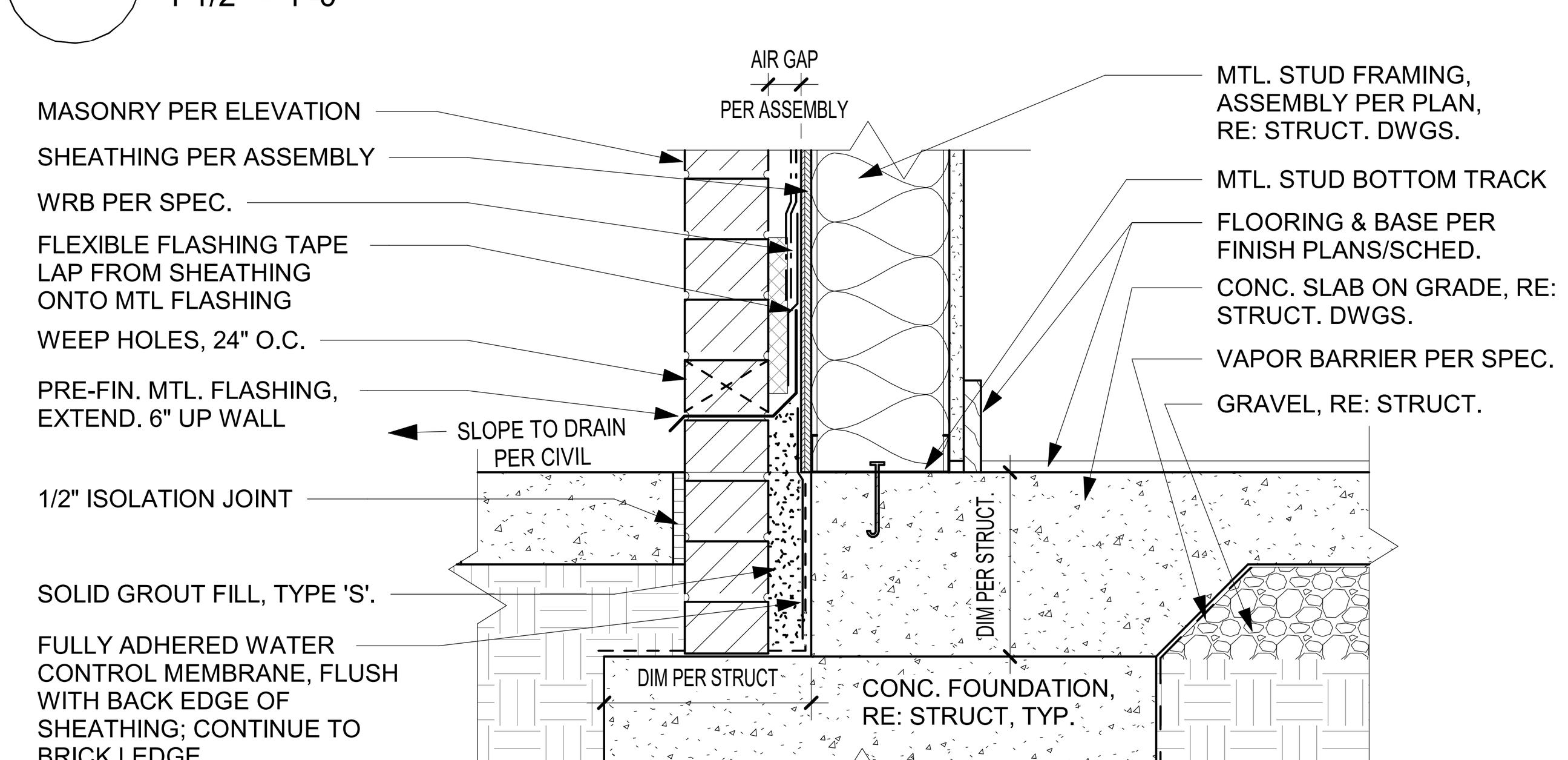
A2 PARTY WALL - SECTION
1 1/2" = 1'-0"



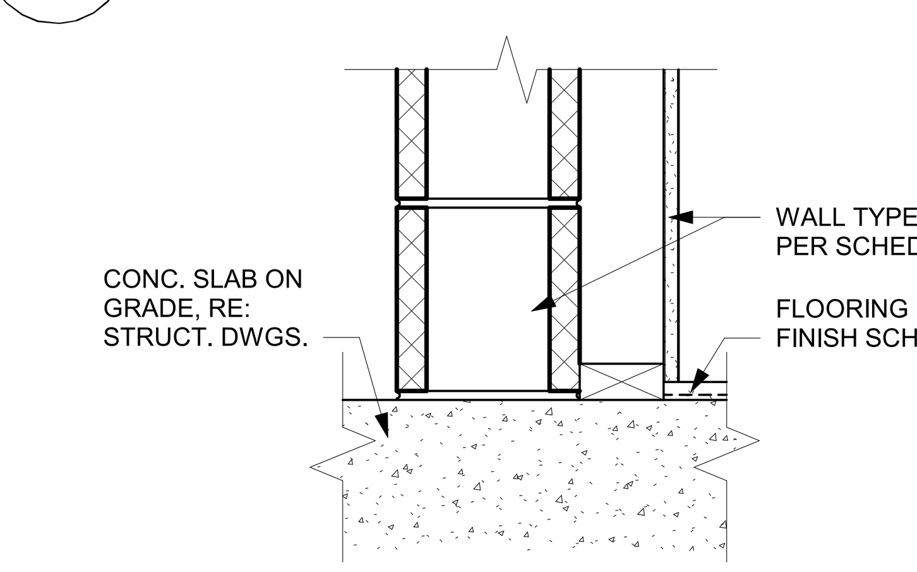
B2 PARTY WALL @ DECK
1 1/2" = 1'-0"



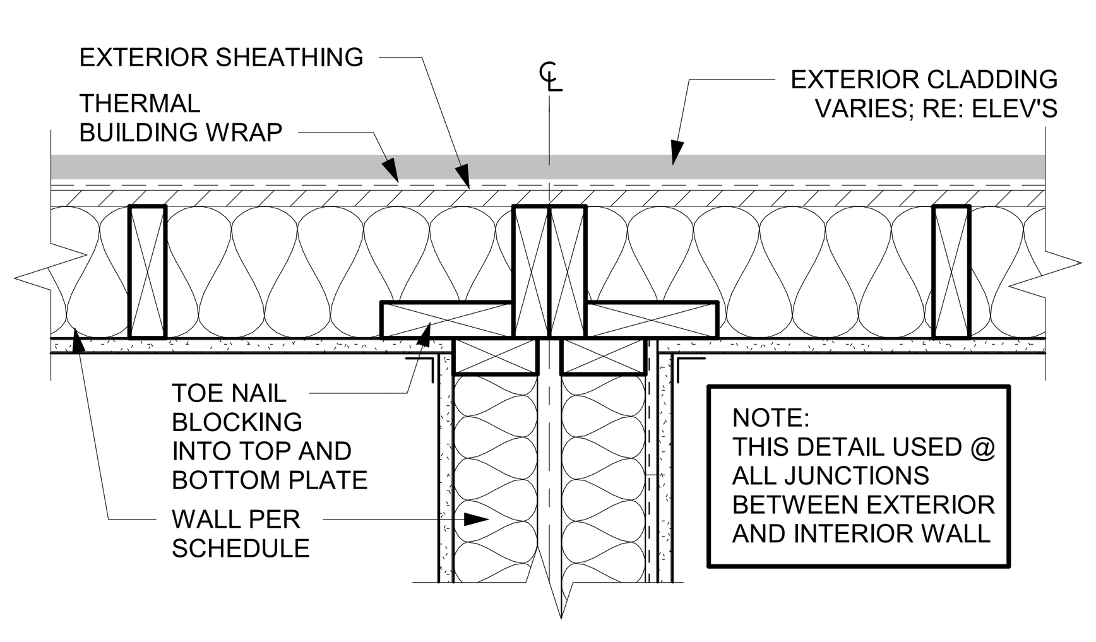
D1 FOUNDATION AT HARDSCAPE - WOOD STUD
1 1/2" = 1'-0"



C1 FOUNDATION AT HARDSCAPE - MTL STUD
1 1/2" = 1'-0"



B1 CMU WALL @ FOUNDATION
1 1/2" = 1'-0"



A1 PARTY WALL (PLAN)
1 1/2" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
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11/27/2024

DISCOVERY PARK - LOT #9 - A

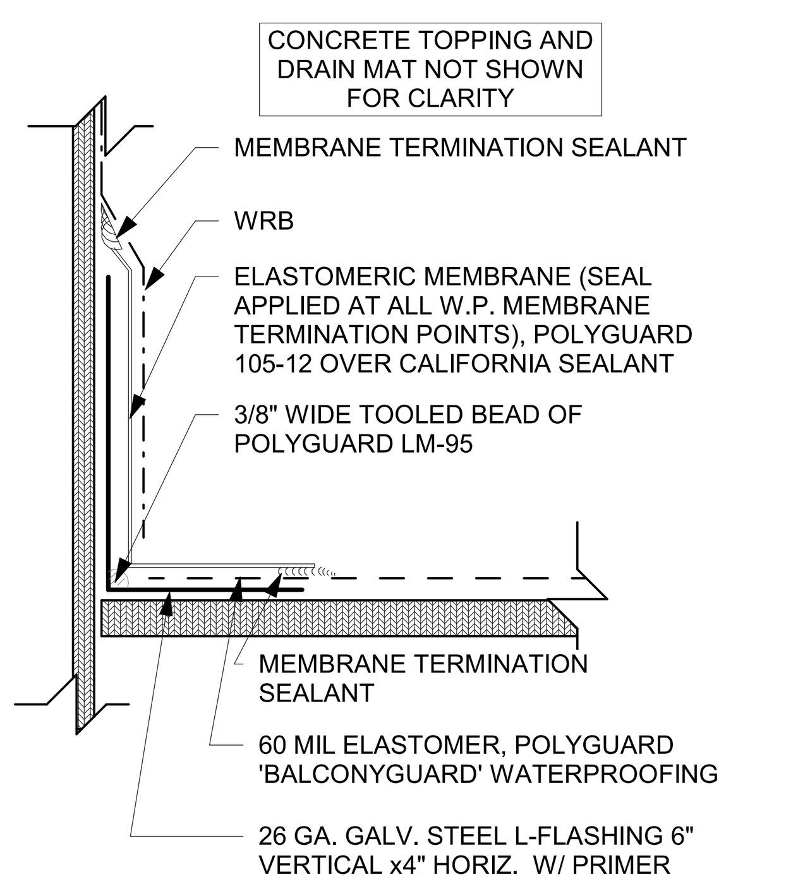
LEE'S SUMMIT, MO

SHEET TITLE
WALL DETAILS

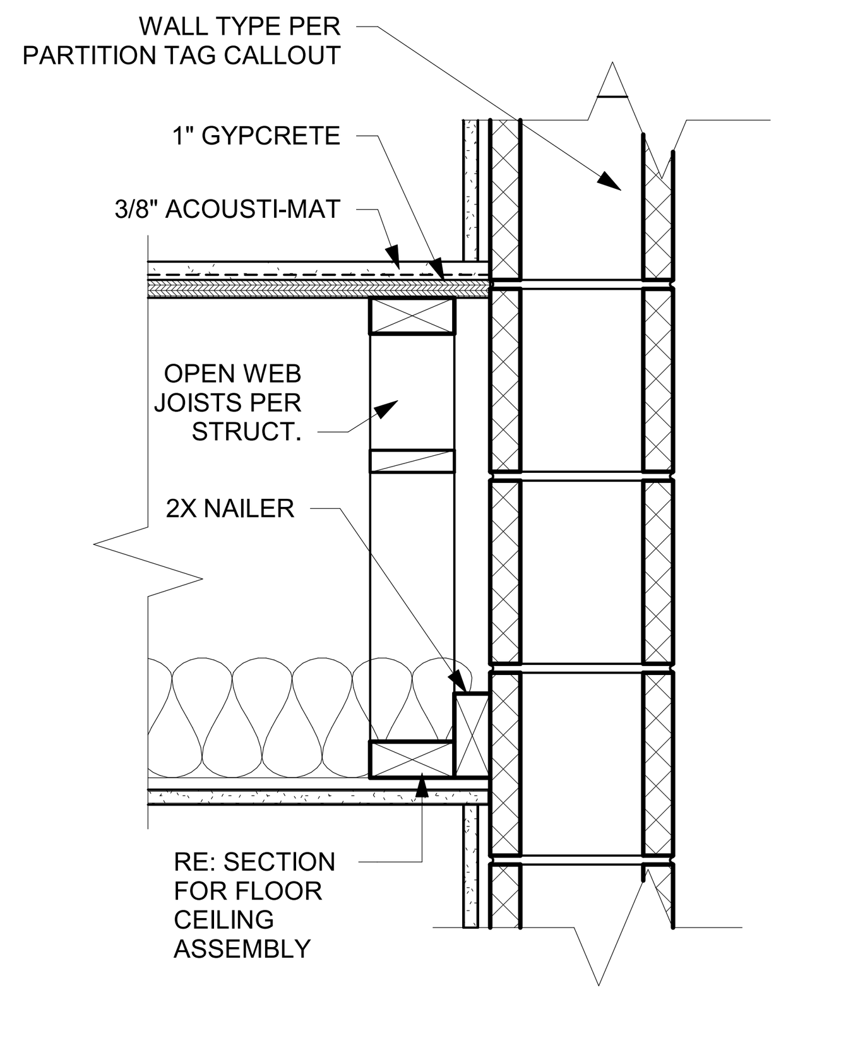
PROJECT NUMBER: 24017

SHEET NUMBER:

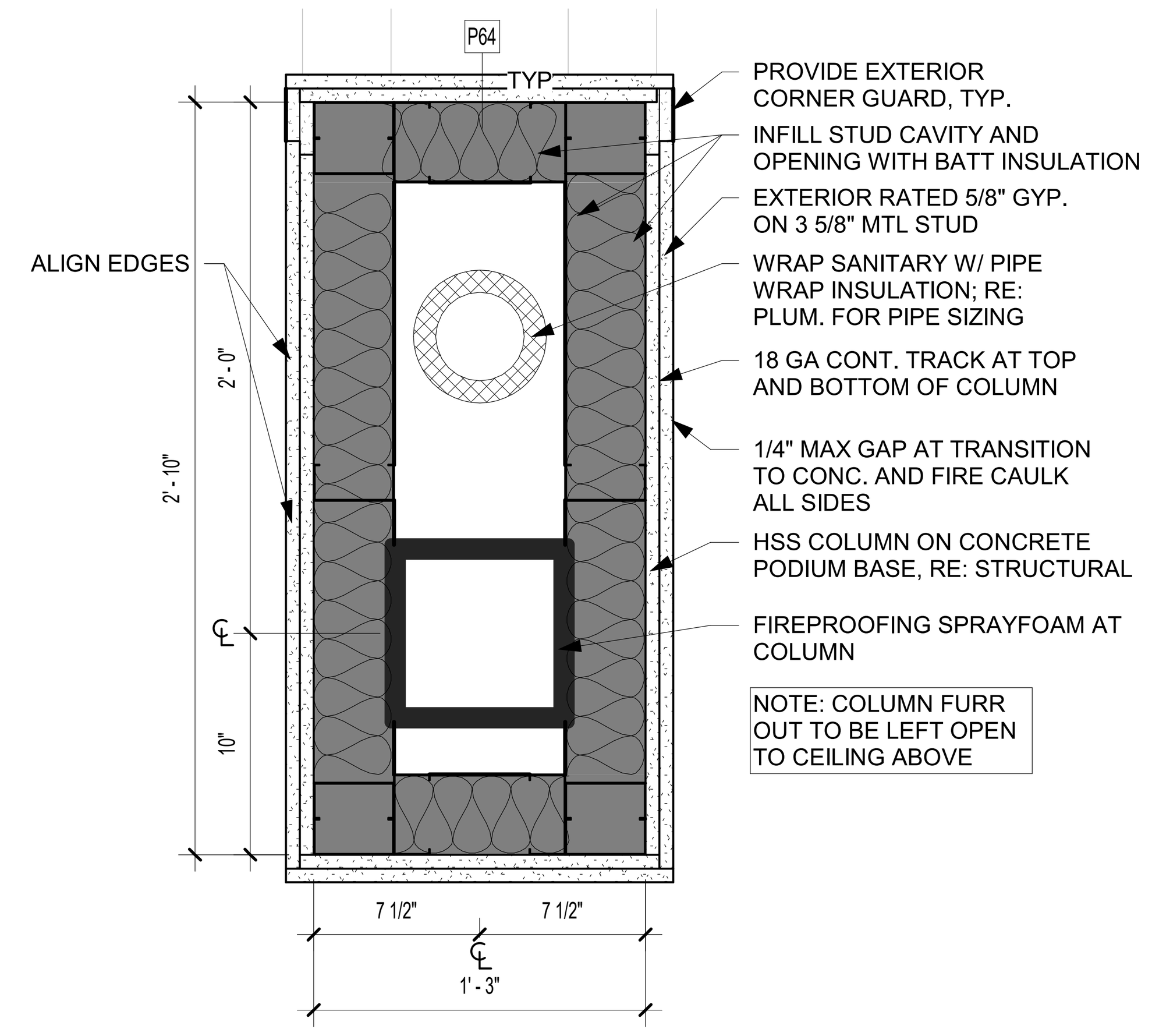
A-500



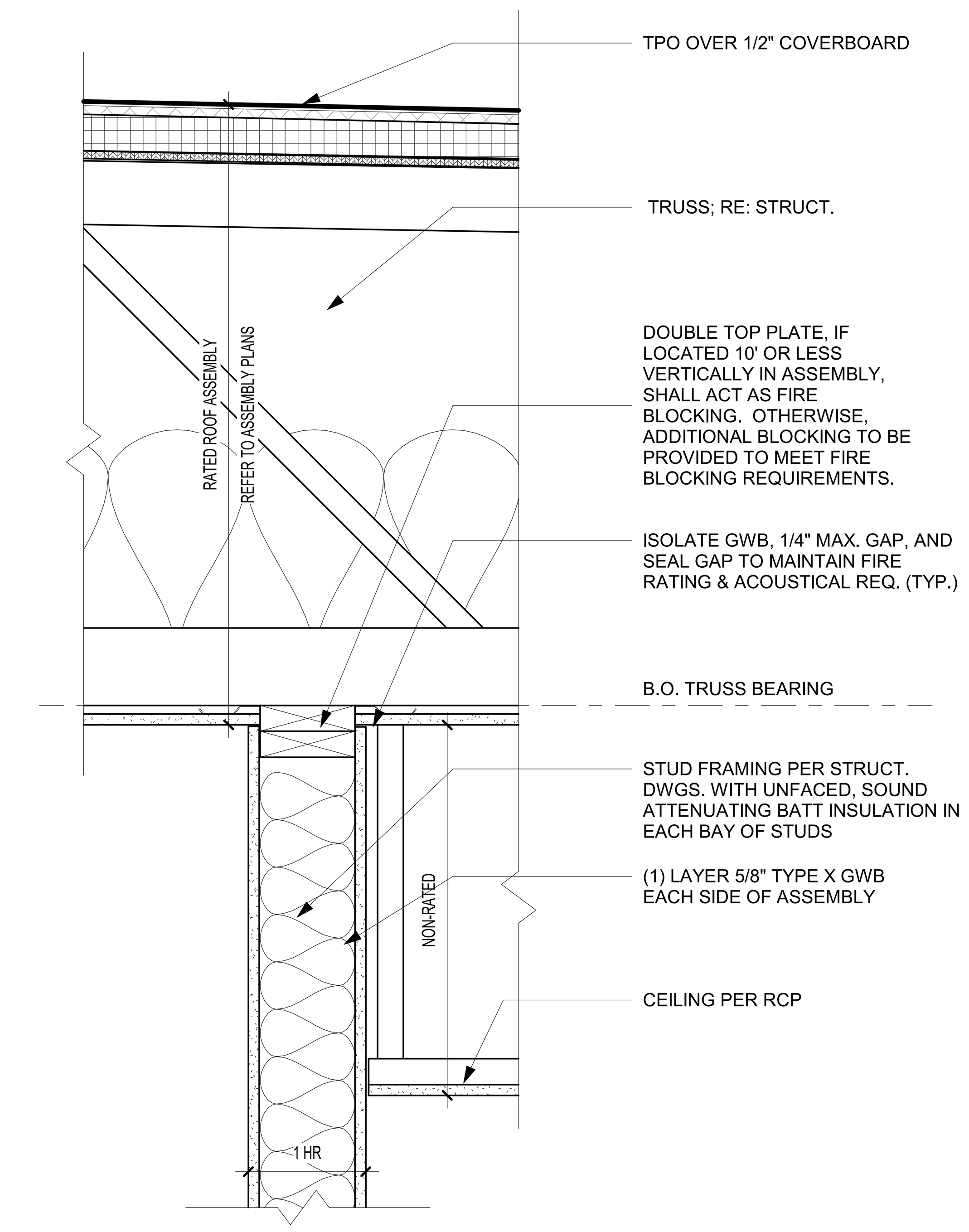
E3 FLASHING DETAIL AT BALCONY WALL
3" = 1'-0"



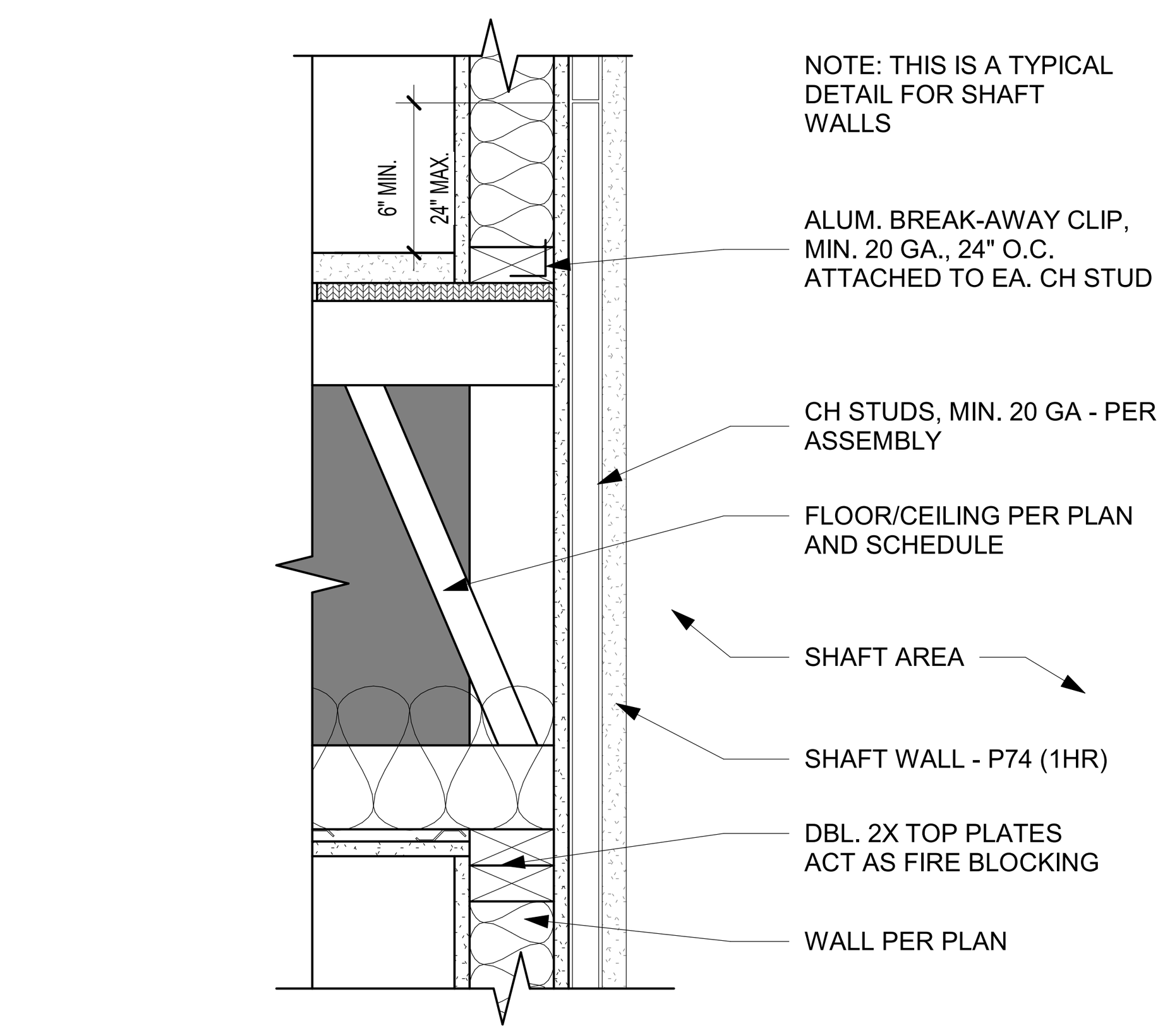
D3 CMU WALL FRAMING DETAIL
1 1/2" = 1'-0"



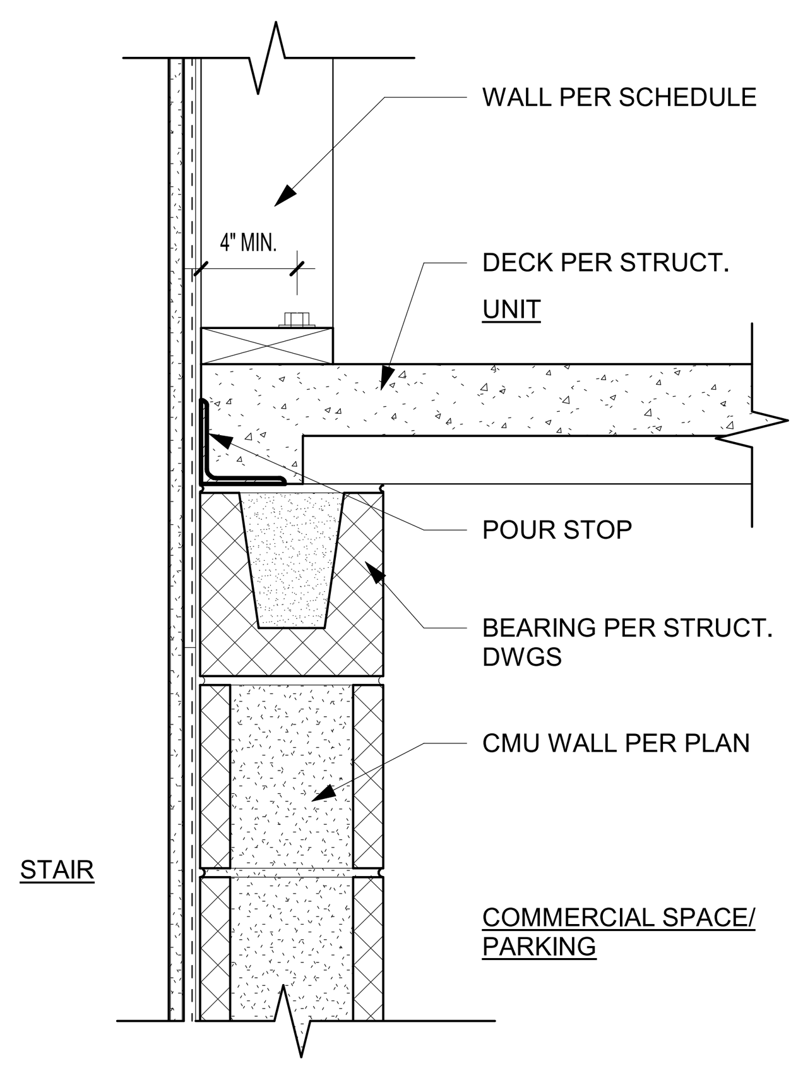
C3 TYP. GARAGE COLUMN FURR OUT
1 1/2" = 1'-0"



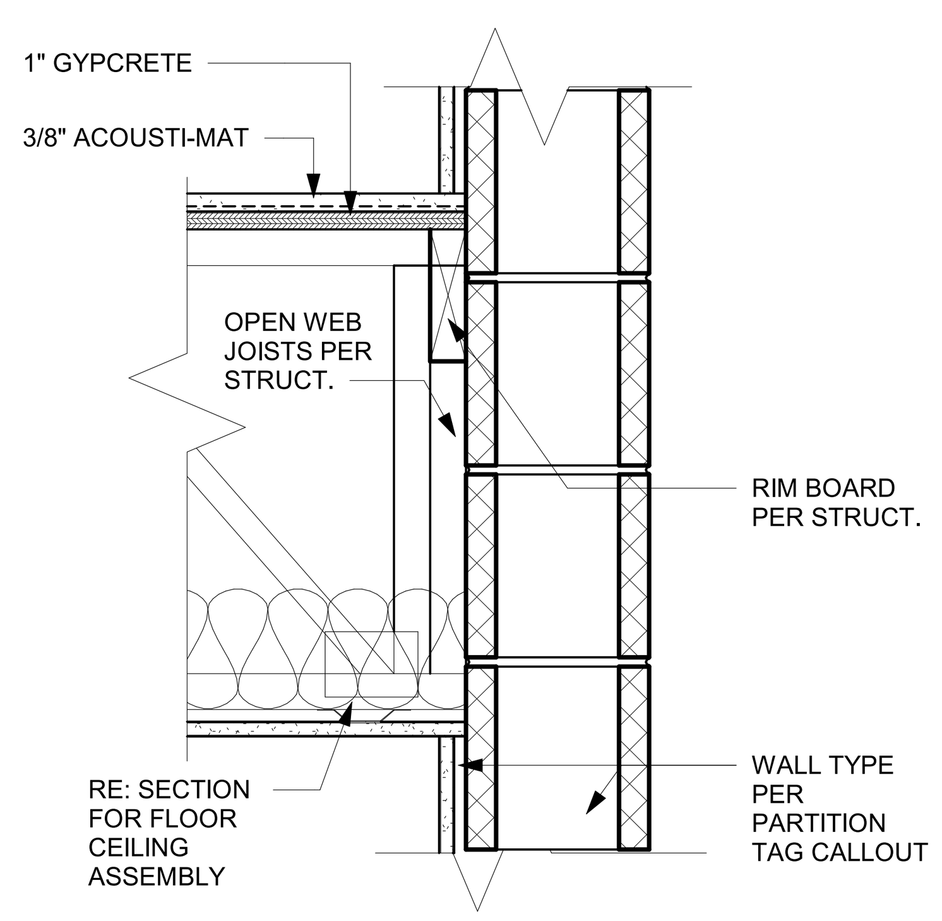
B3 WALL/RATED - WOOD STUD - 1 HOUR - ROOF/CEILING ASSEMBLY @ PARTITION PERP TO TRUSS (SECTION)
1 1/2" = 1'-0"



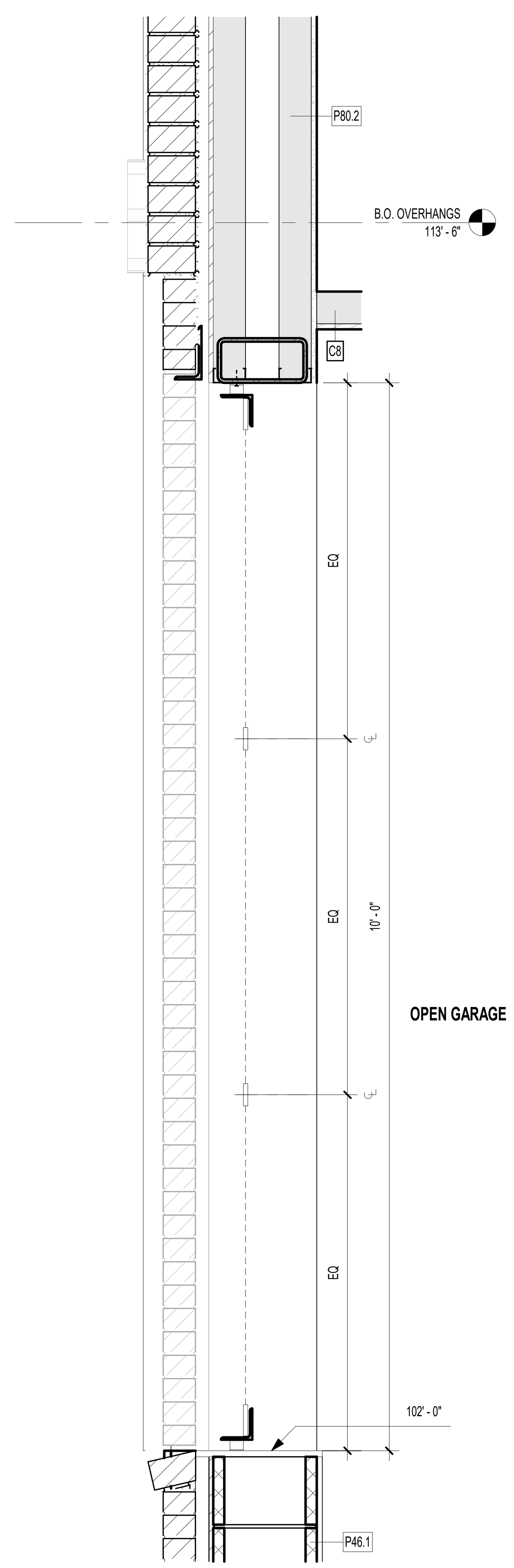
A3 SHAFT @ 2ND & 3RD FLOORS
1 1/2" = 1'-0"



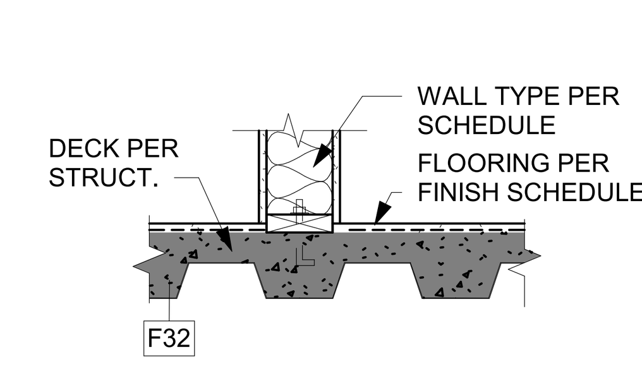
E2 DECK BEARING @ STAIRS
1 1/2" = 1'-0"



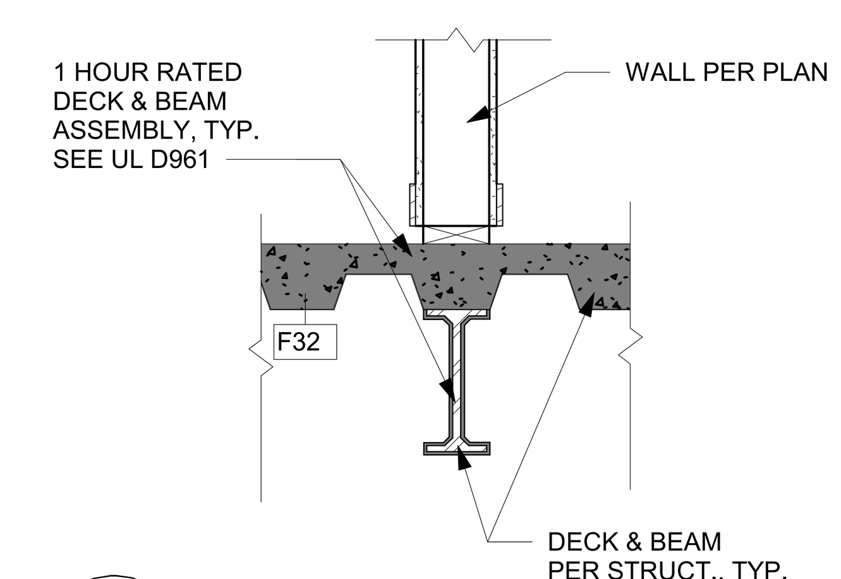
D2 CMU WALL FRAMING DETAIL
1 1/2" = 1'-0"



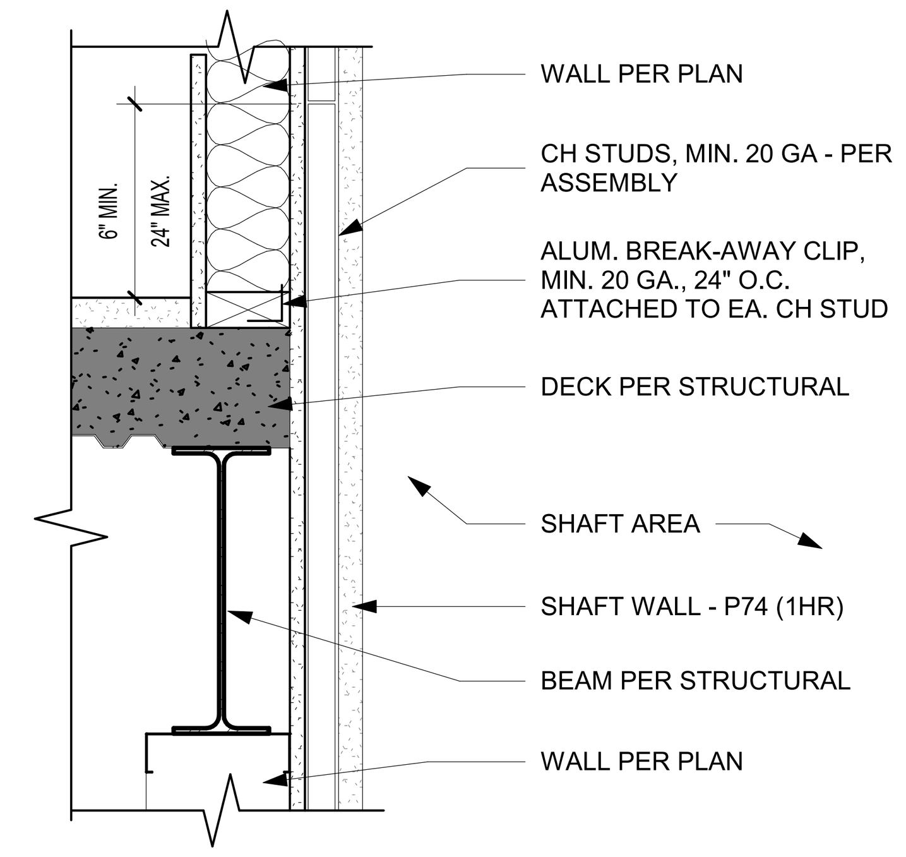
C1 PRE-FAB METAL SCREEN @ OPEN PARKING
1" = 1'-0"



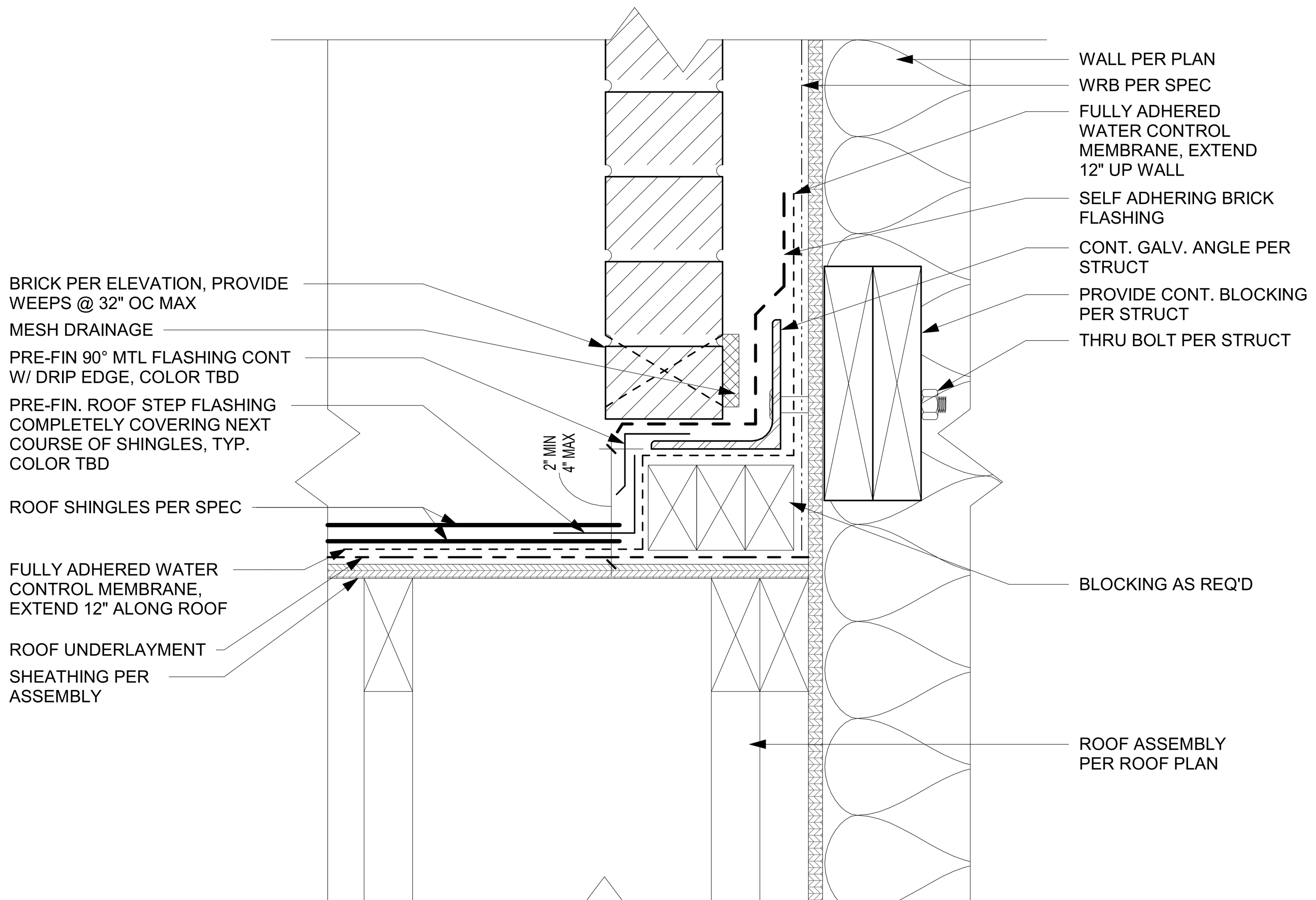
C2 WALL @ DECK
3/4" = 1'-0"



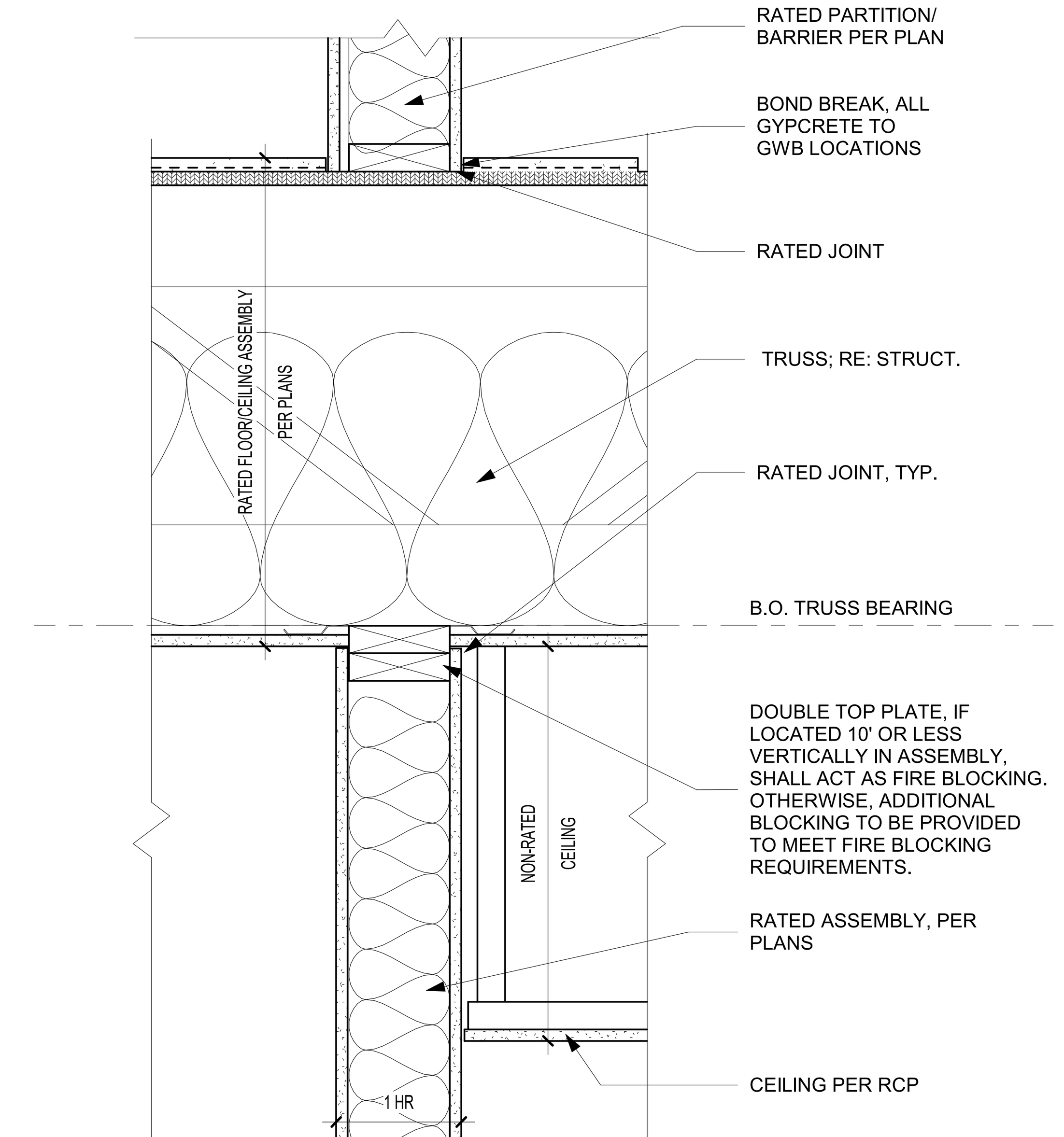
B2 BEAM @ DECK
3/4" = 1'-0"



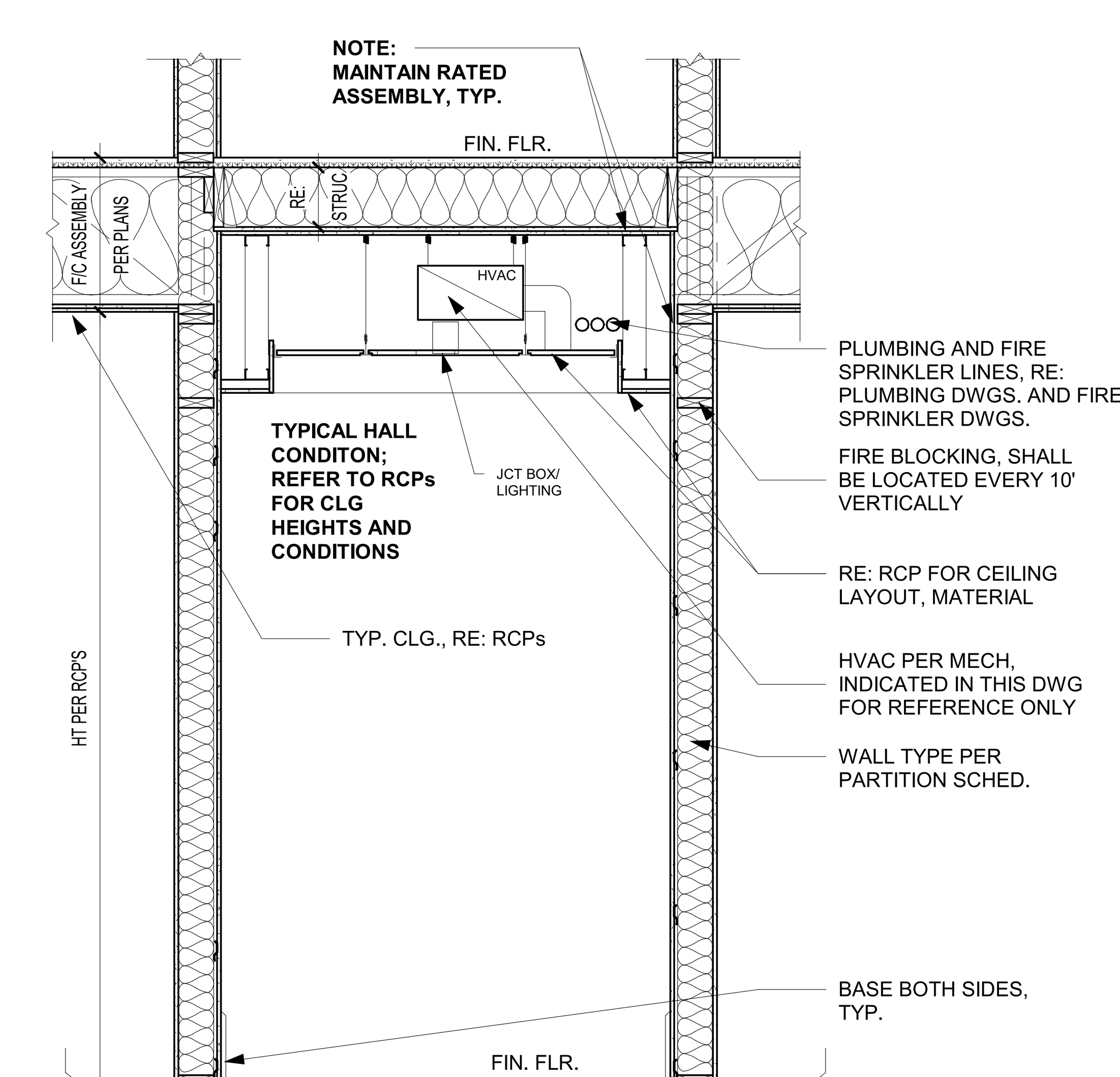
A2 SHAFT @ 1ST FLOOR COMMERCIAL SPACE
1 1/2" = 1'-0"



D1 THROUGH WALL FLASHING @ ROOF
3" = 1'-0"



B1 WALL/RATED - WOOD STUD - 1 HOUR - PARTITION WALL @ F/C (SECTION)
1 1/2" = 1'-0"



A1 FLOOR/CEILING @ CORRIDOR (SECTION)
1/2" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

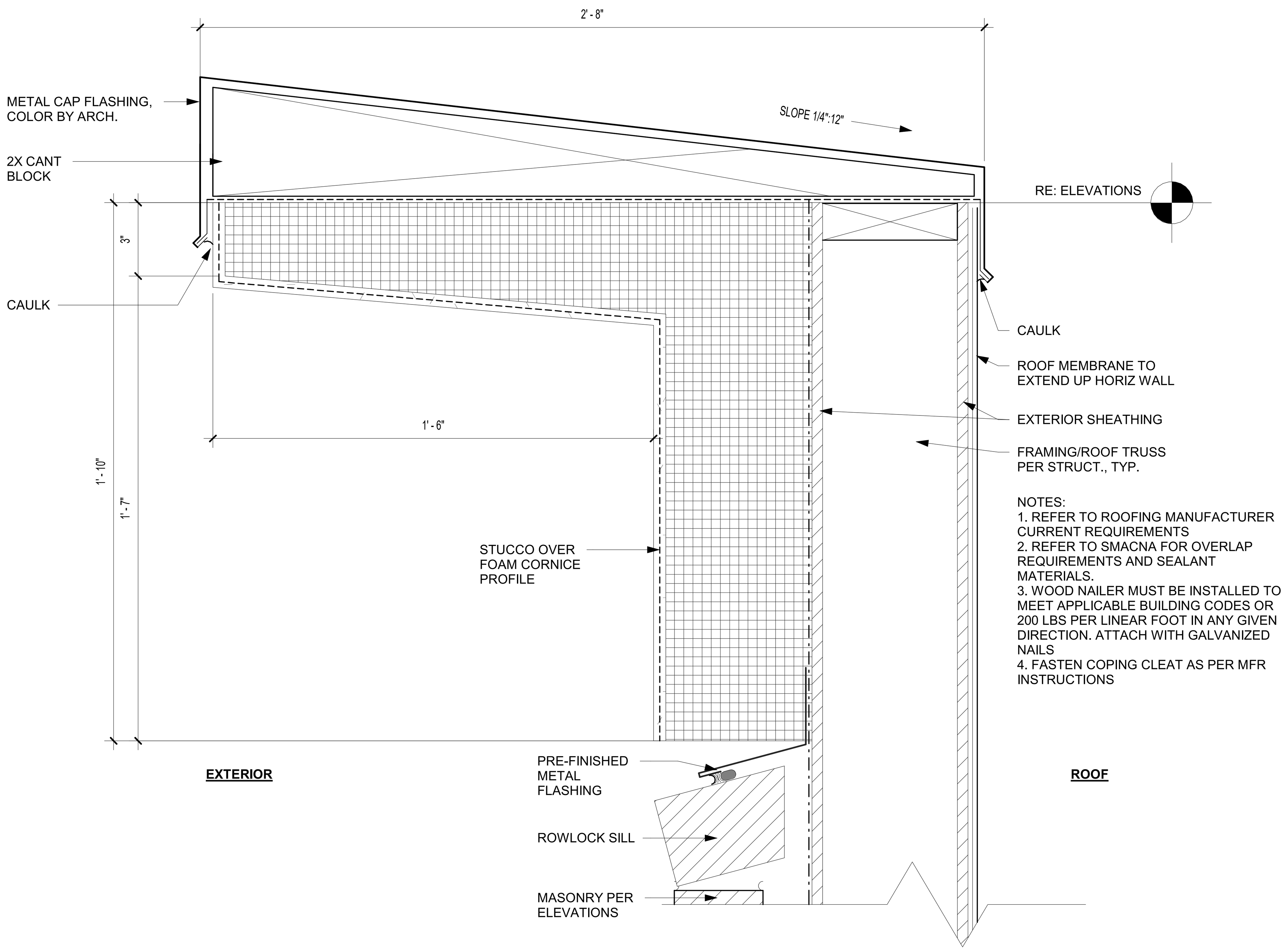
SHEET TITLE
WALL DETAILS

PROJECT NUMBER: 24017

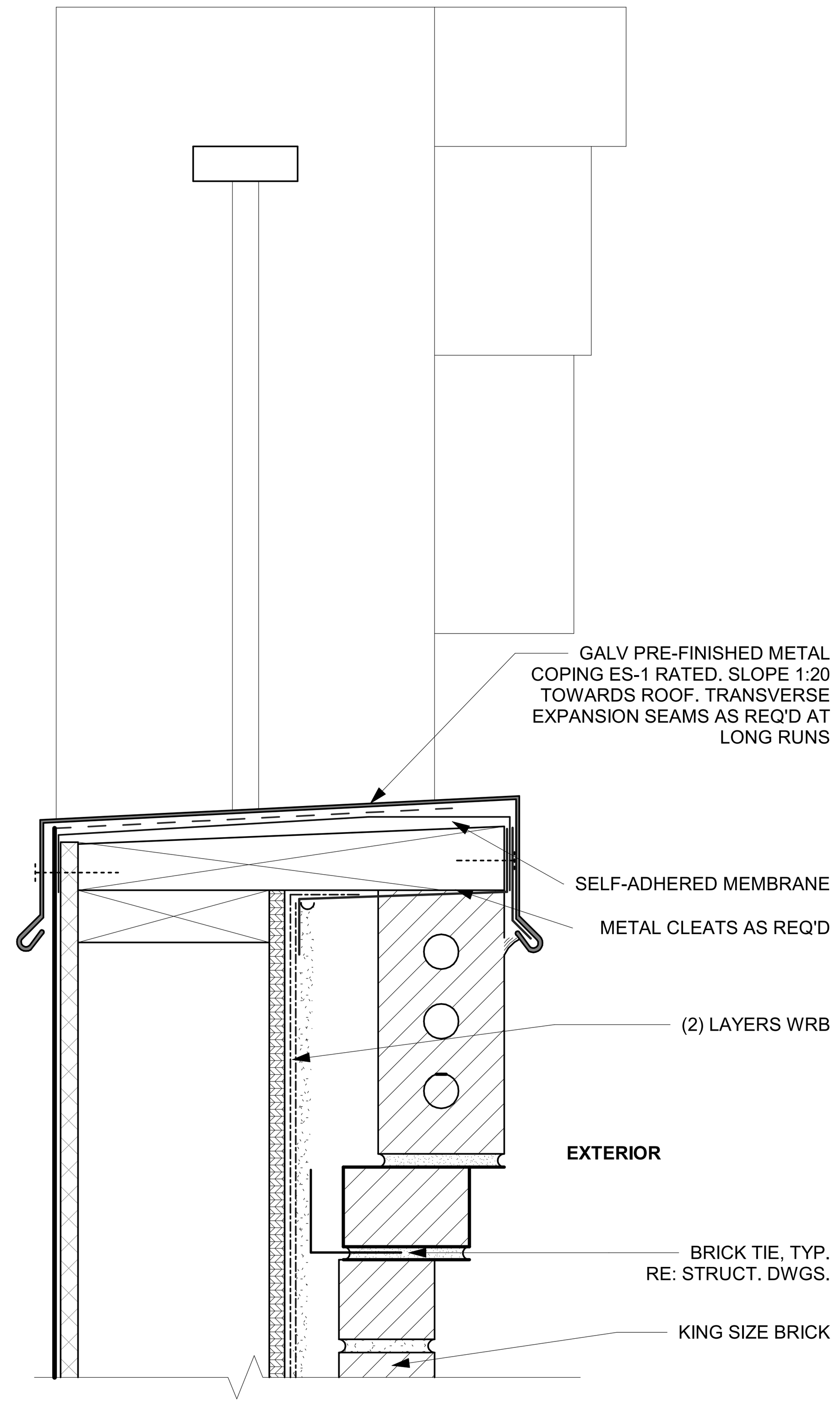
SHEET NUMBER:

A-501

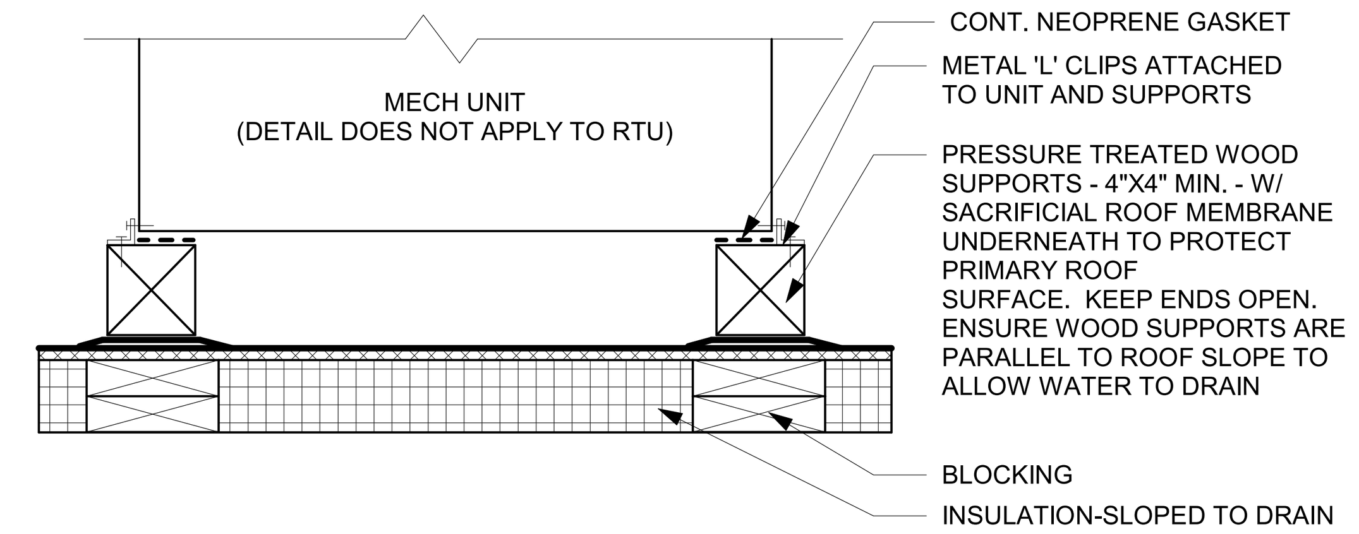
REFERENCE G-003 FOR GENERAL NOTES



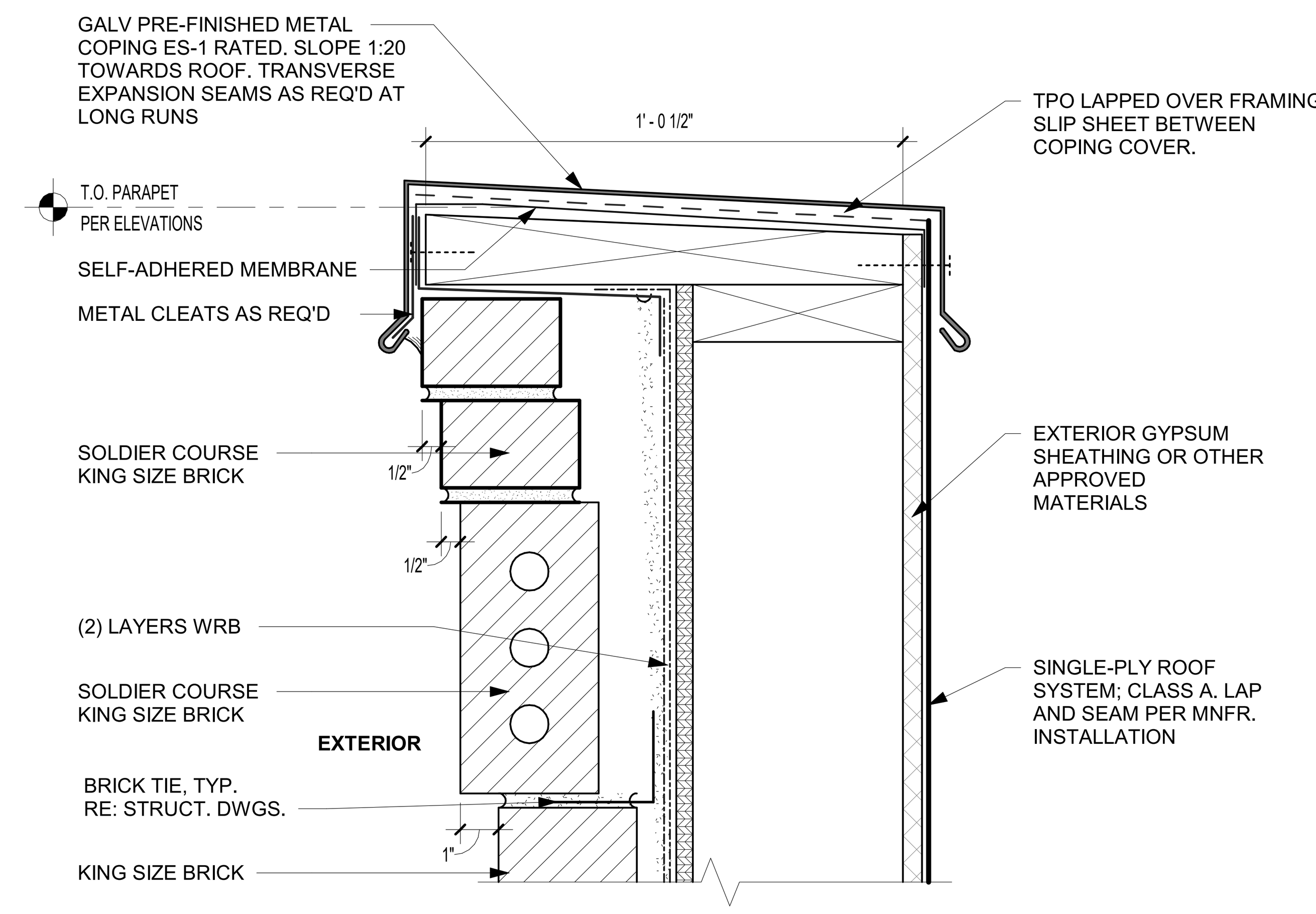
C2 PARAPET CORNICE
3" = 1'-0"



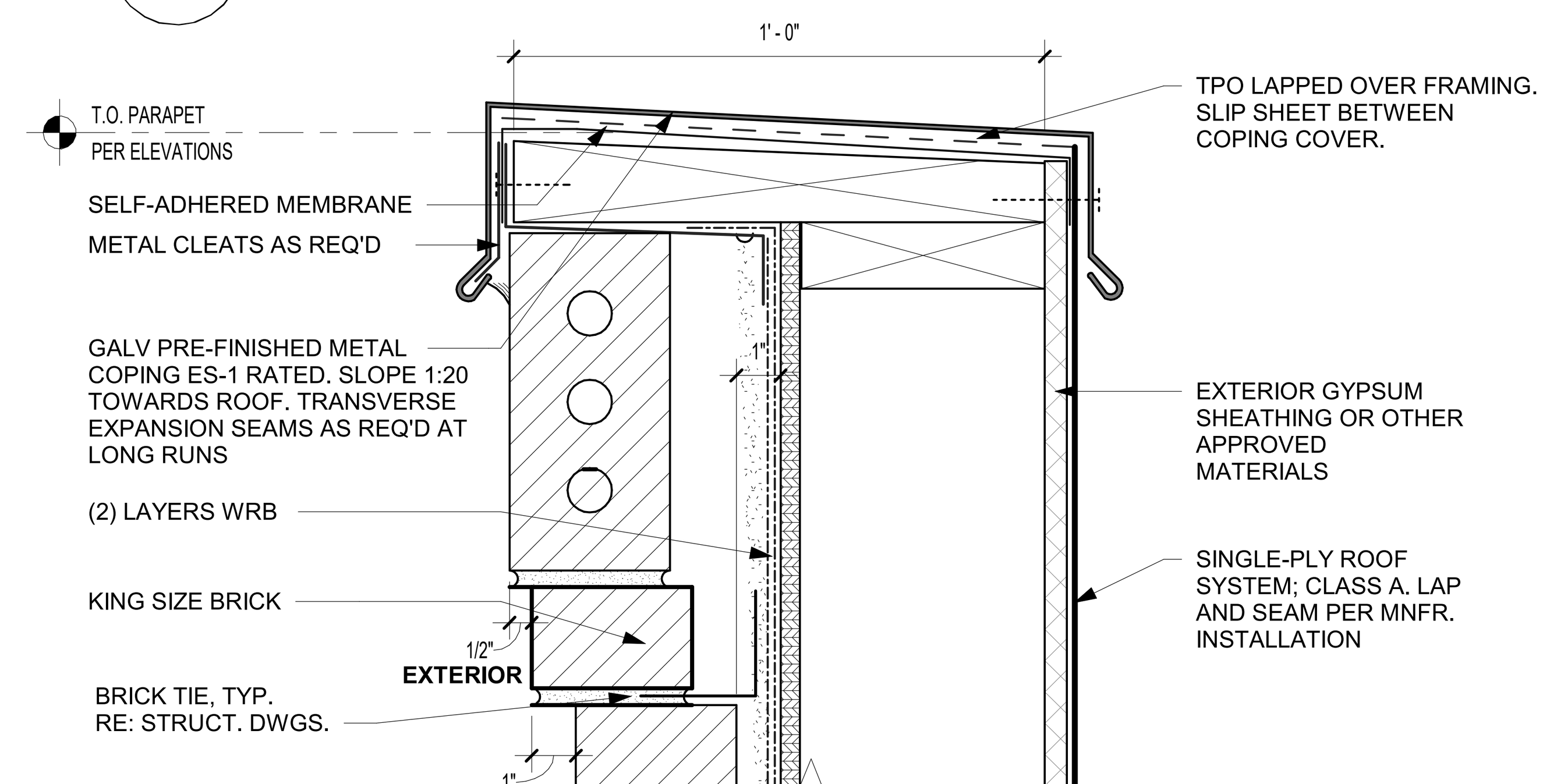
B3 PARAPET CAP @ BRICK W/ ATTACHED RAILING
3" = 1'-0"



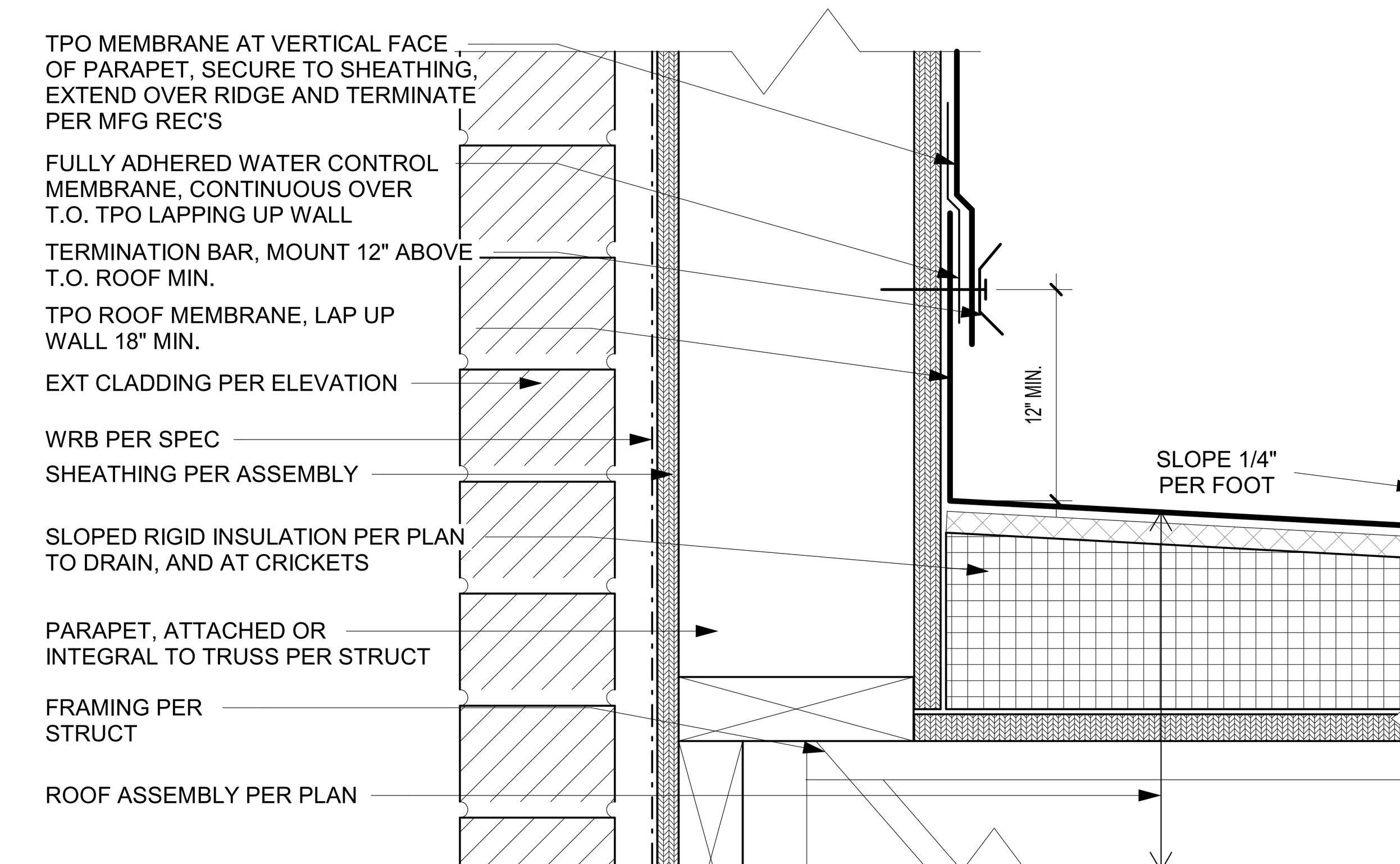
A4 ROOF - MECH UNIT ROOF SUPPORT BLOCKS
1 1/2" = 1'-0"



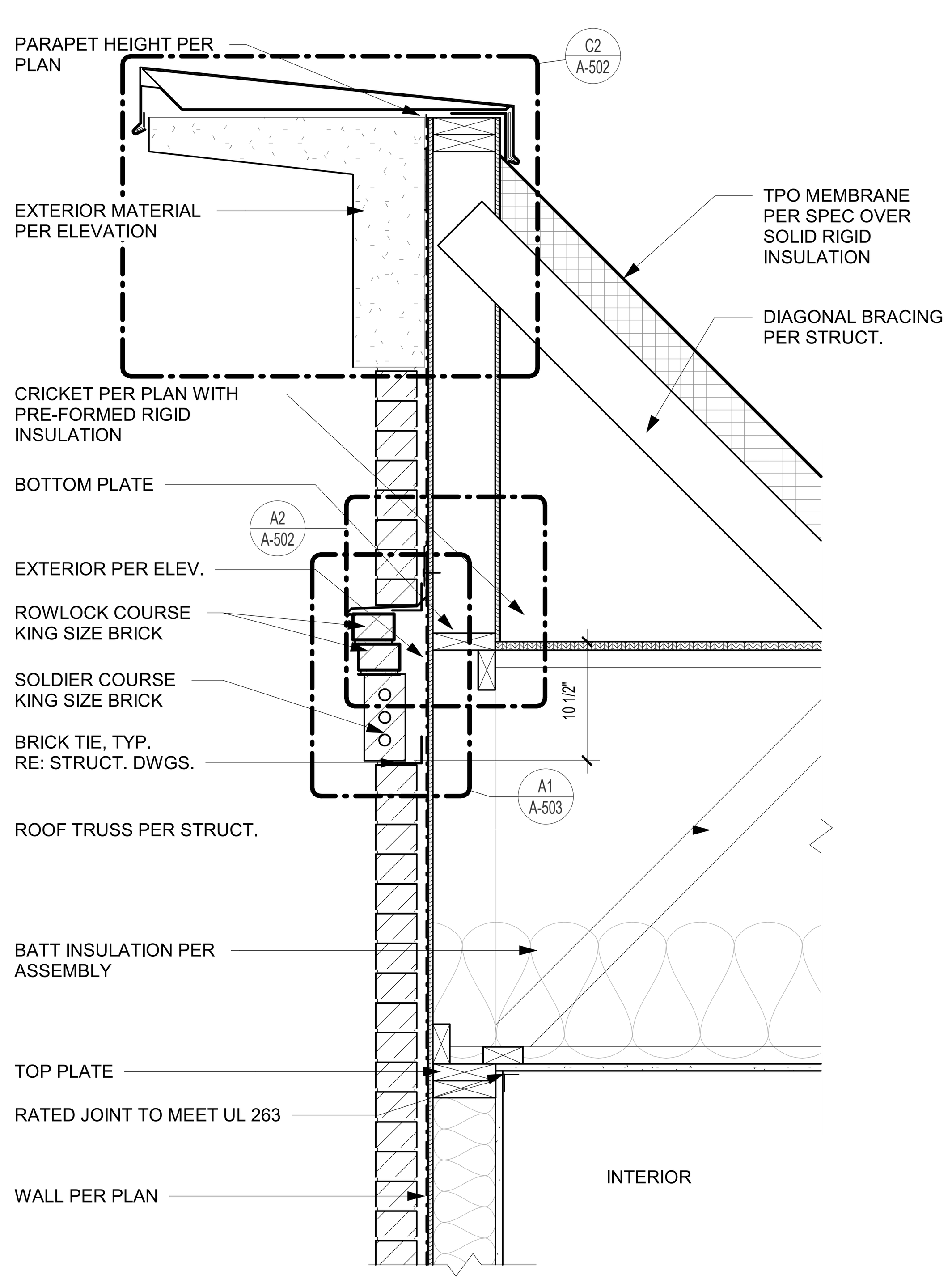
A3 PARAPET CAP @ BRICK - ALTERNATIVE
3" = 1'-0"



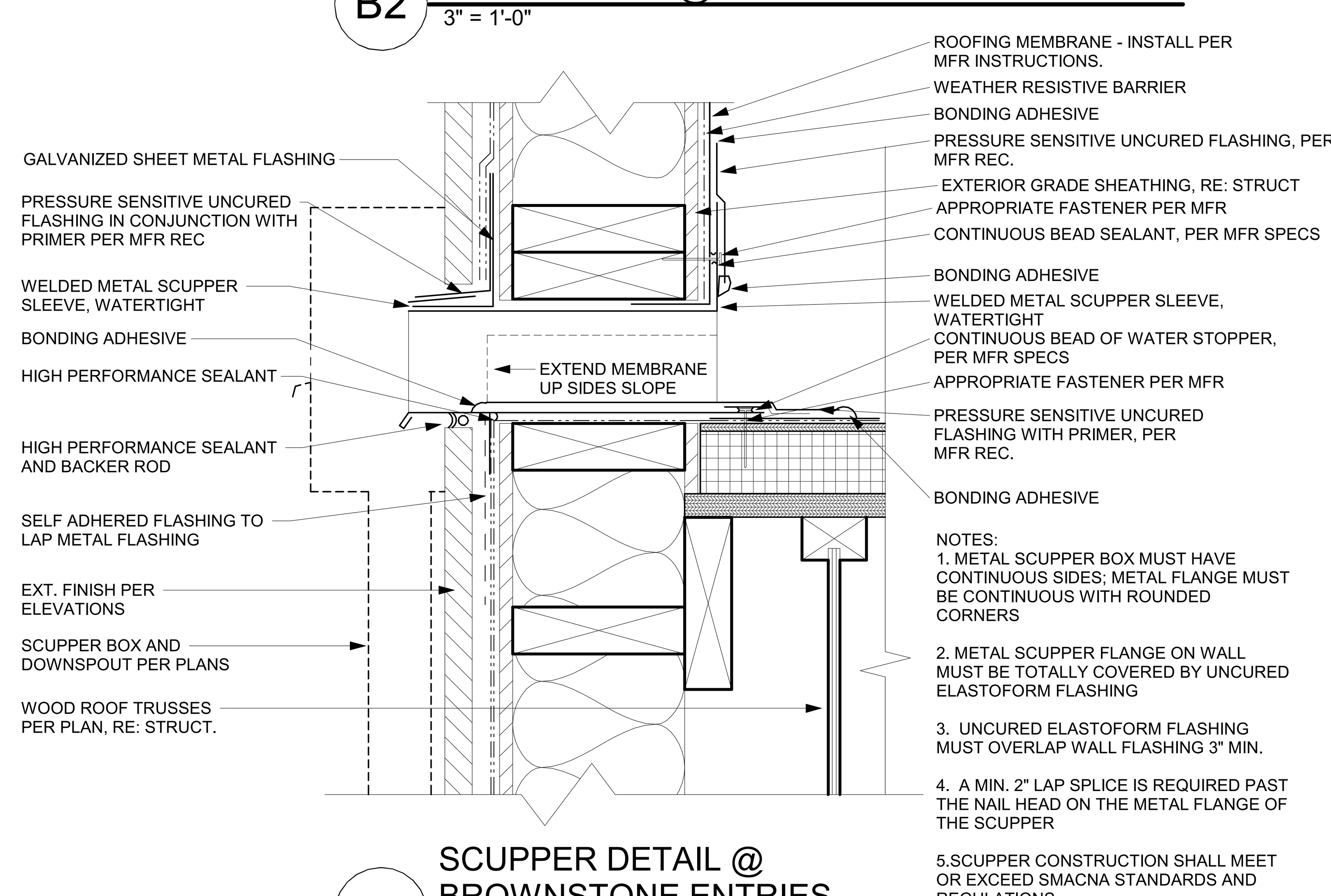
B2 PARAPET CAP @ BRICK
3" = 1'-0"



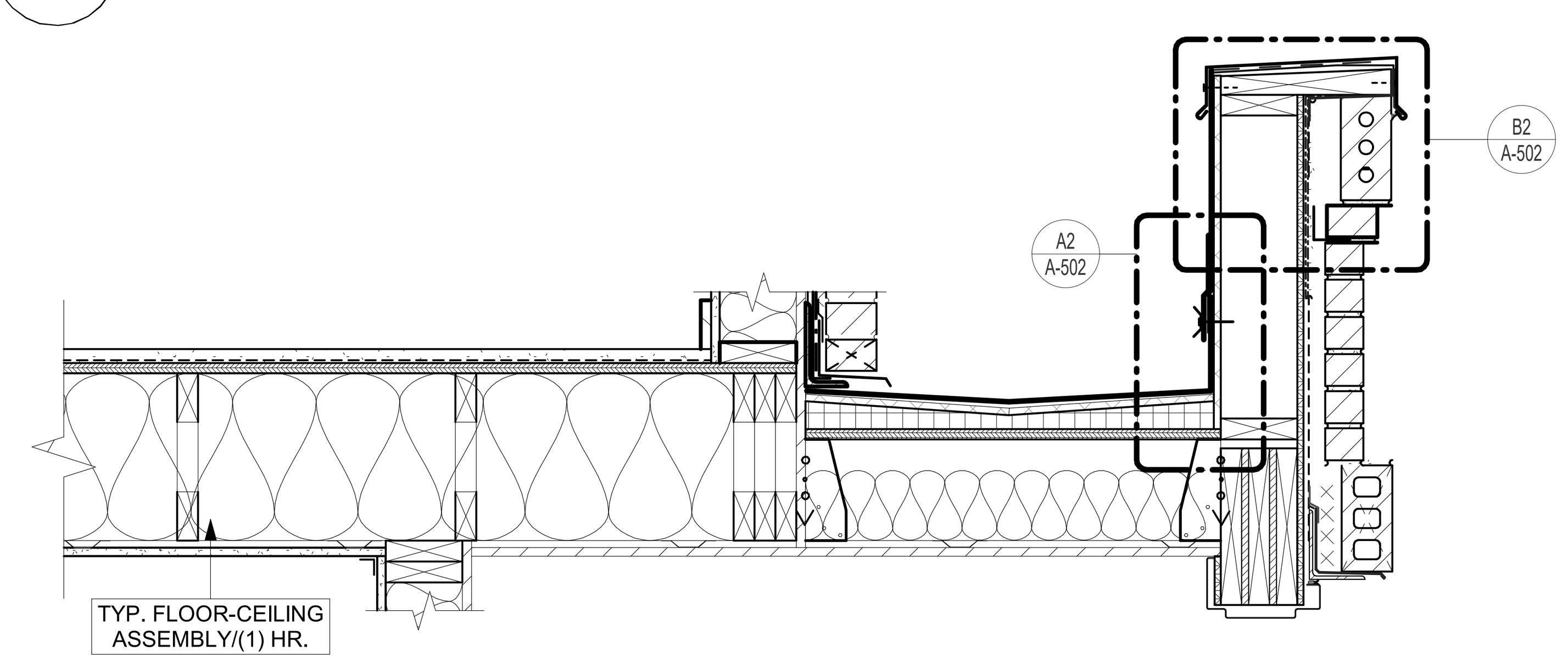
A2 ROOF - WOOD STUD - TPO PARAPET BASE AT WALL
3" = 1'-0"



C1 PARAPET (SECTION)
1" = 1'-0"



B1 SCUPPER DETAIL @ BROWNSTONE ENTRIES
3" = 1'-0"



A1 BROWNSTONE ENTRY
1" = 1'-0"

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NUMBER A-7385
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

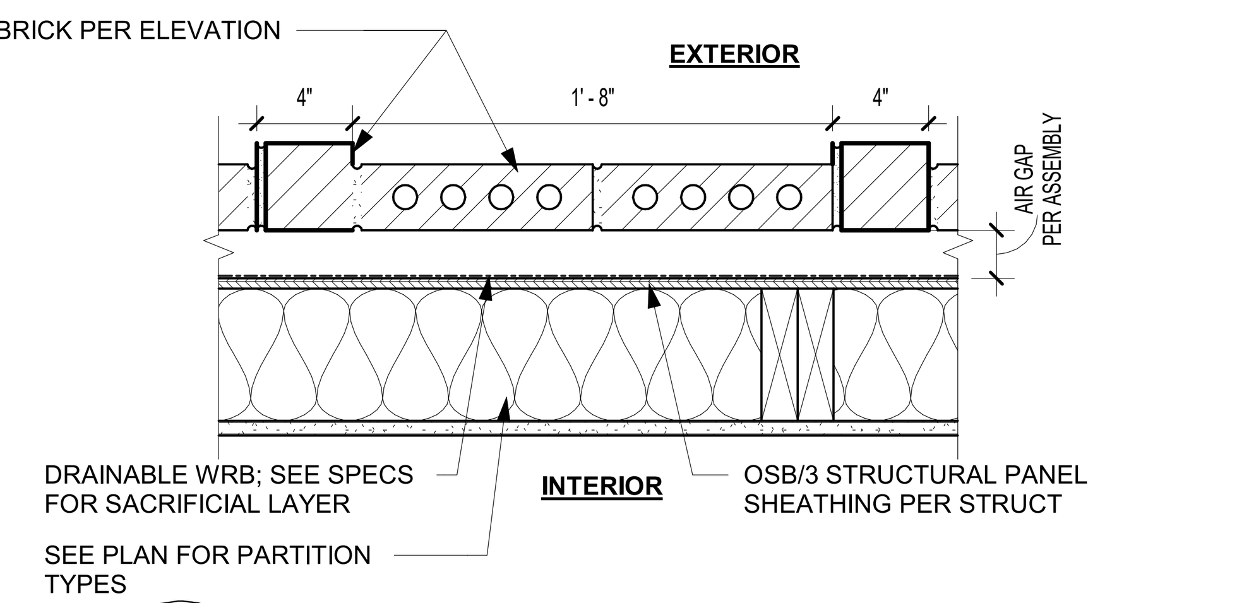
SHEET TITLE
PARAPET DETAILS

PROJECT NUMBER: 24017

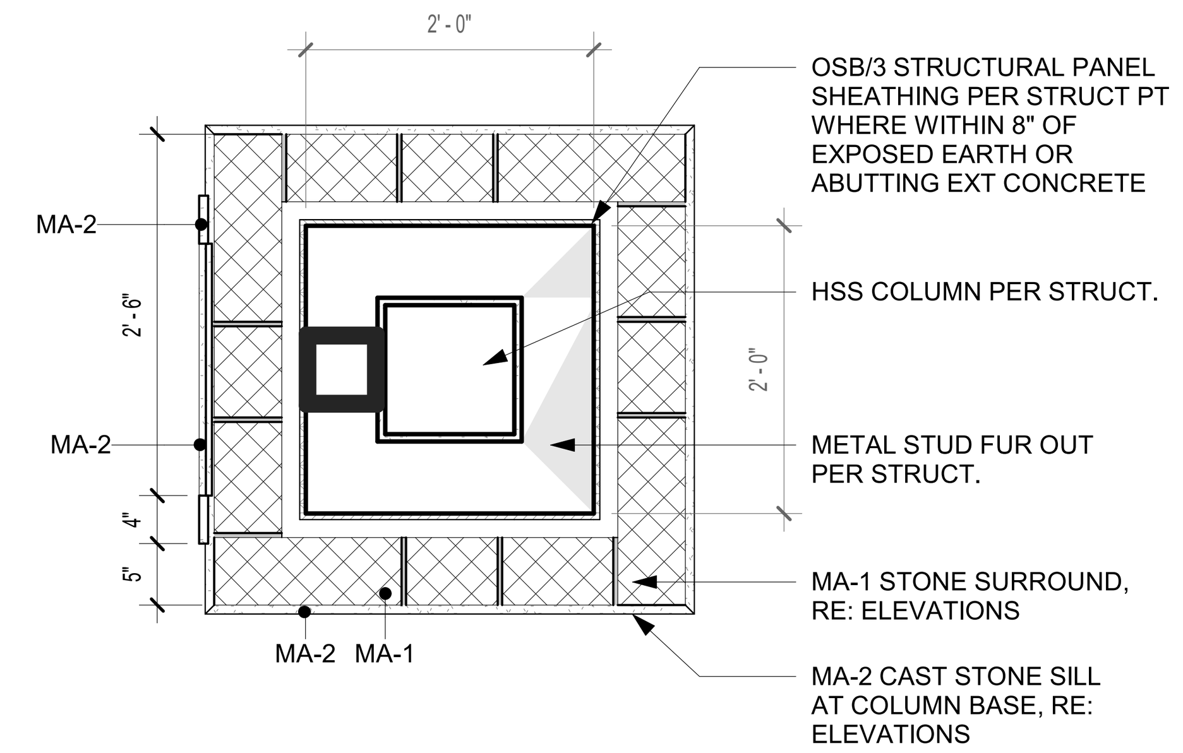
SHEET NUMBER:

A-502

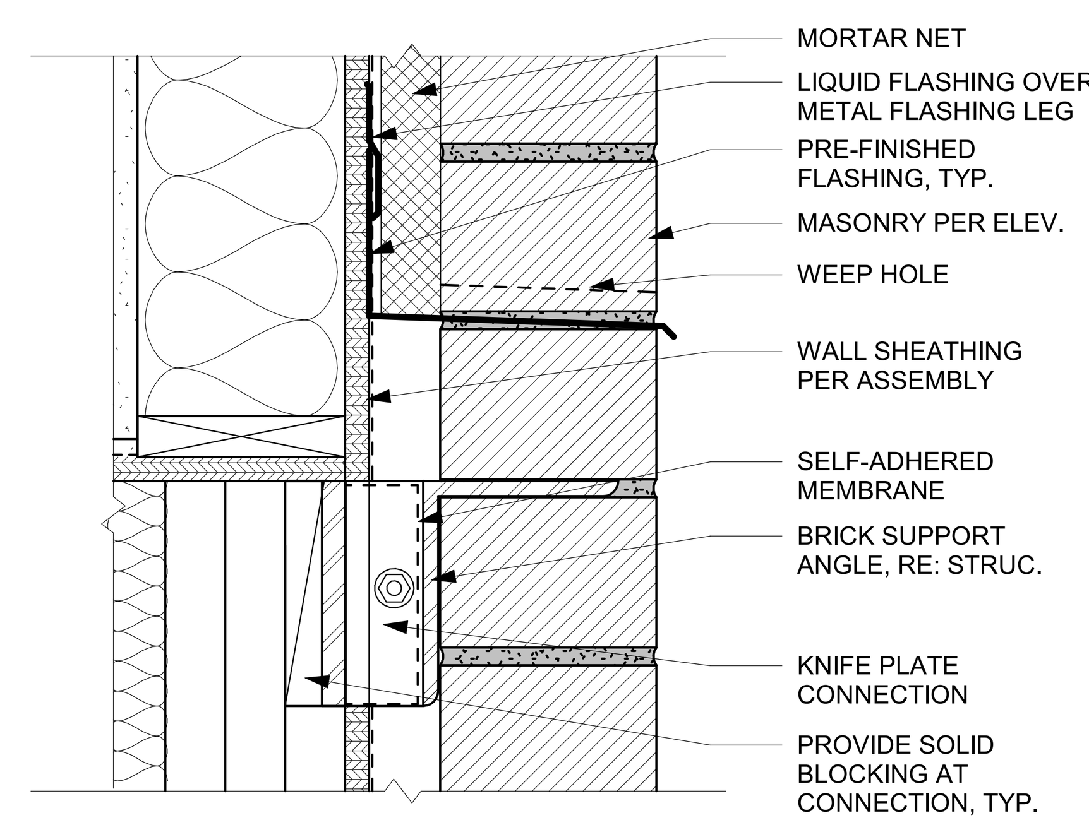
REFERENCE G-003 FOR GENERAL NOTES



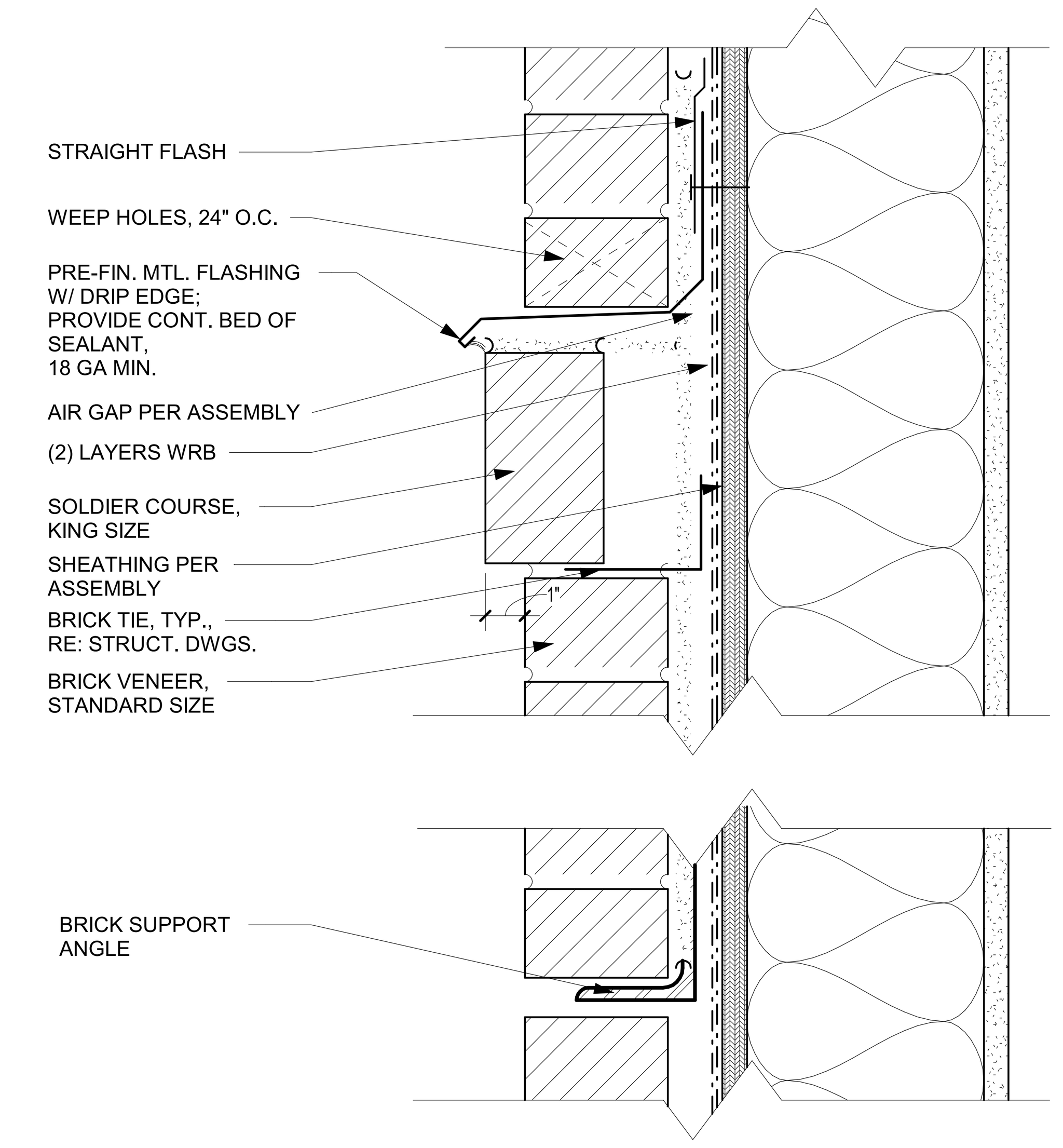
D4 BRICK - DECORATIVE DETAIL (PLAN)
1 1/2" = 1'-0"



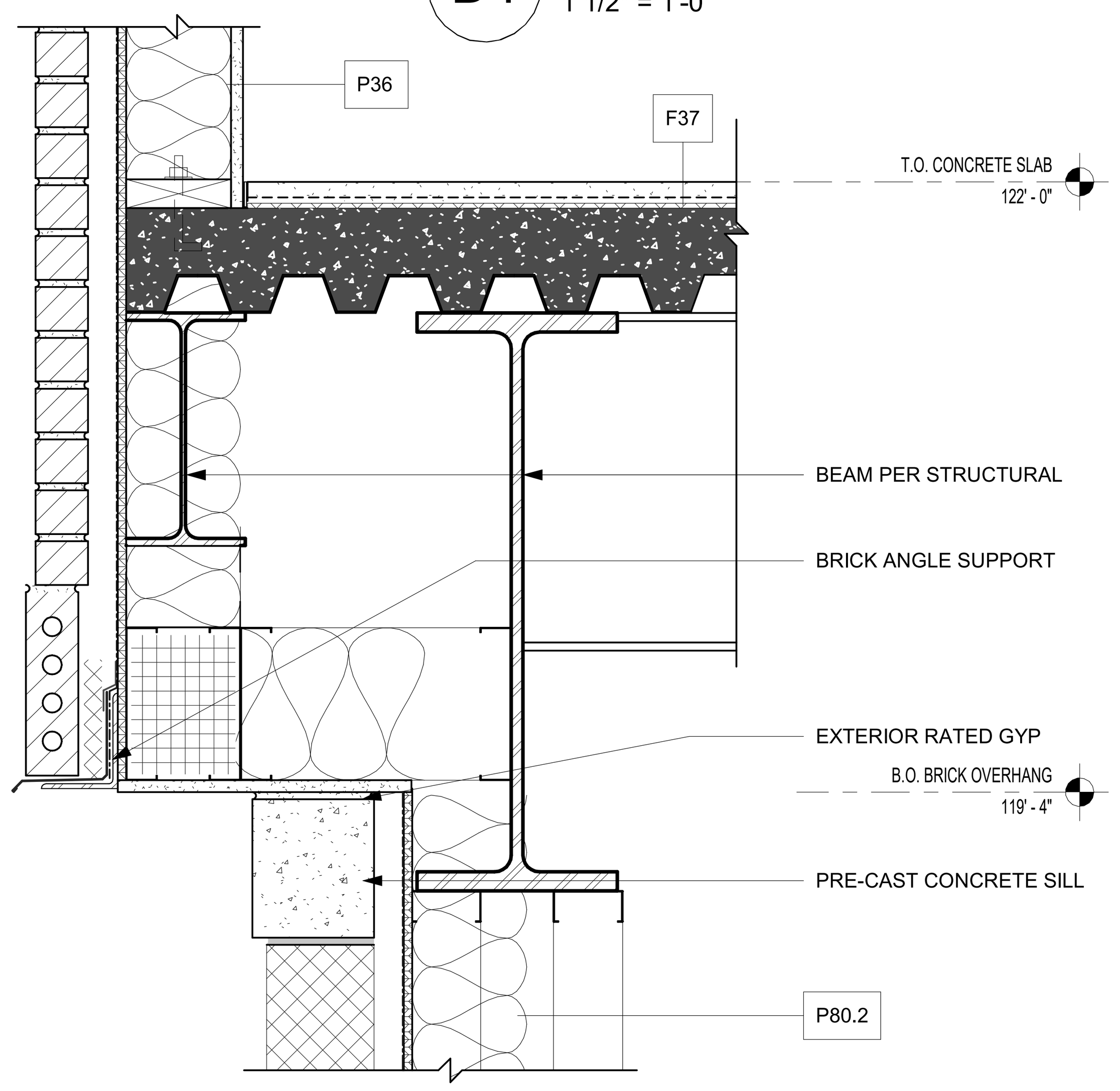
C4 FRONT CANOPY COLUMN DETAIL
3/4" = 1'-0"



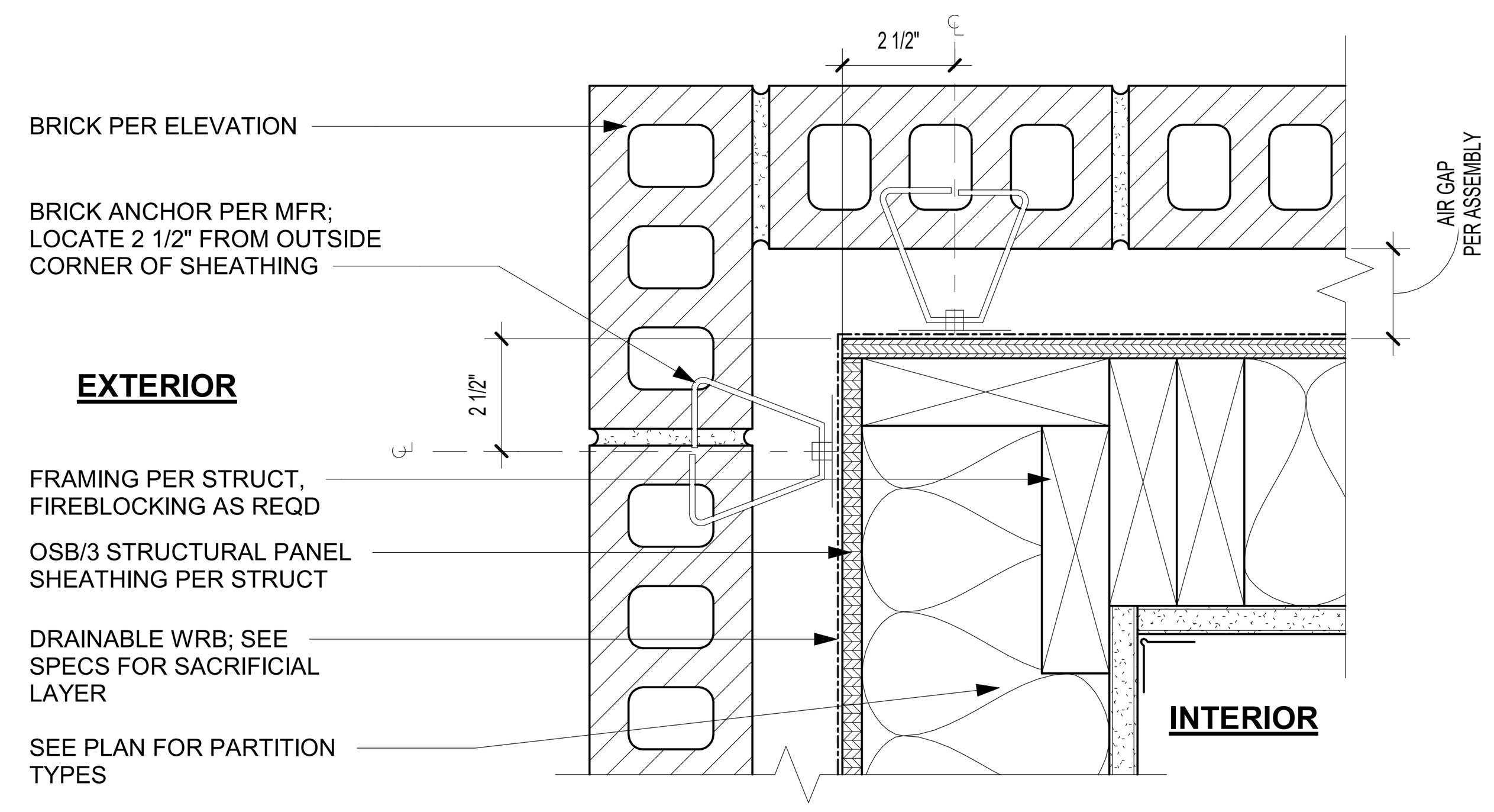
B4 BRICK SUPPORT ANGLE
N.T.S.



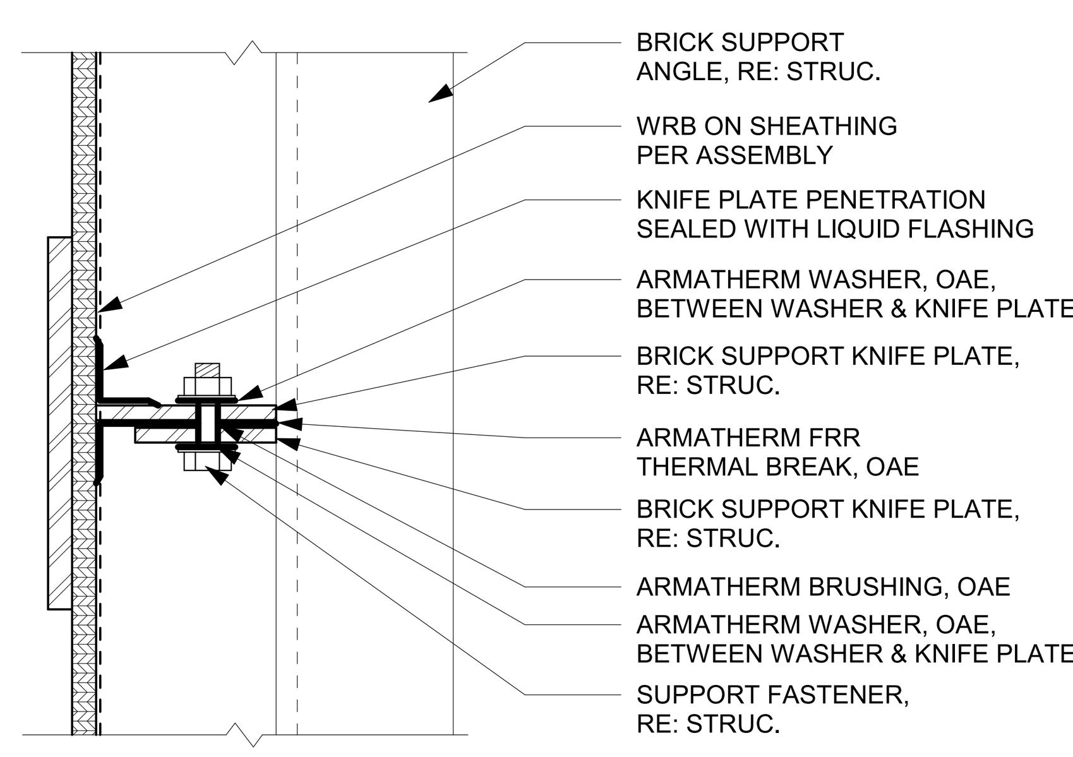
A3 SOLDIER BRICK BAND DETAIL
3" = 1'-0"



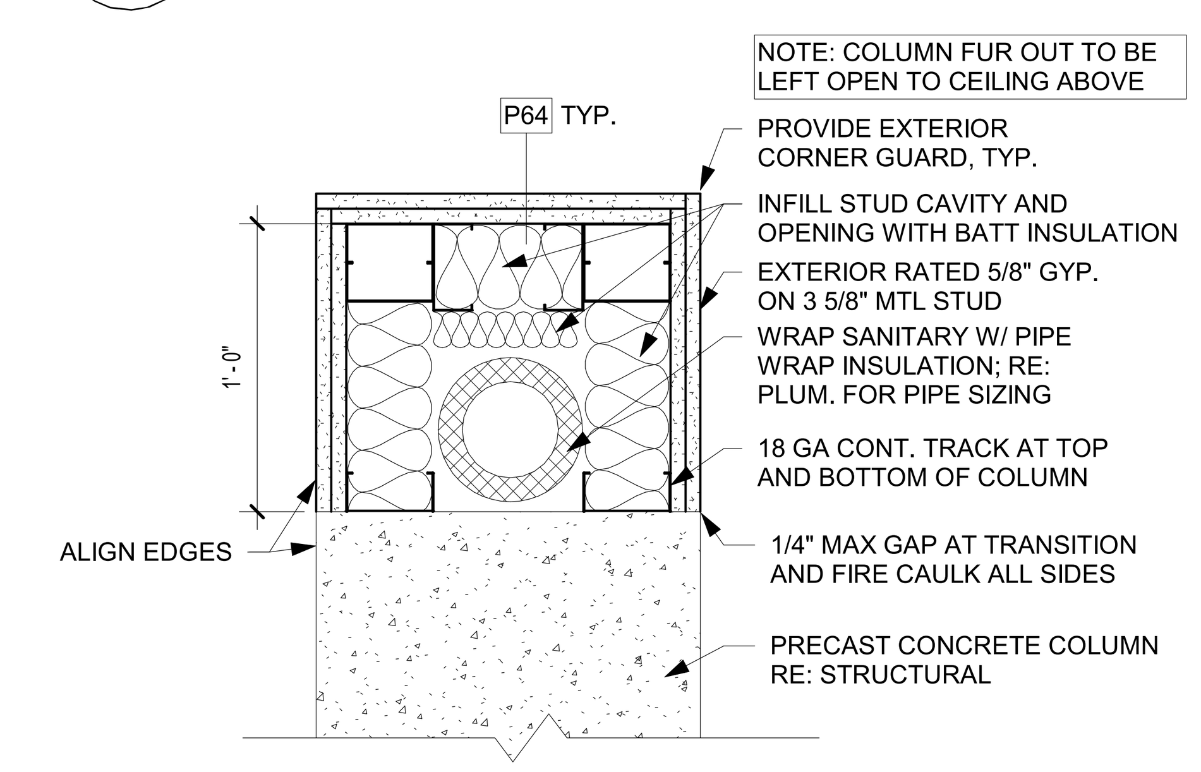
D3 BRICK OVERHANG OVER STONE BASE
1 1/2" = 1'-0"



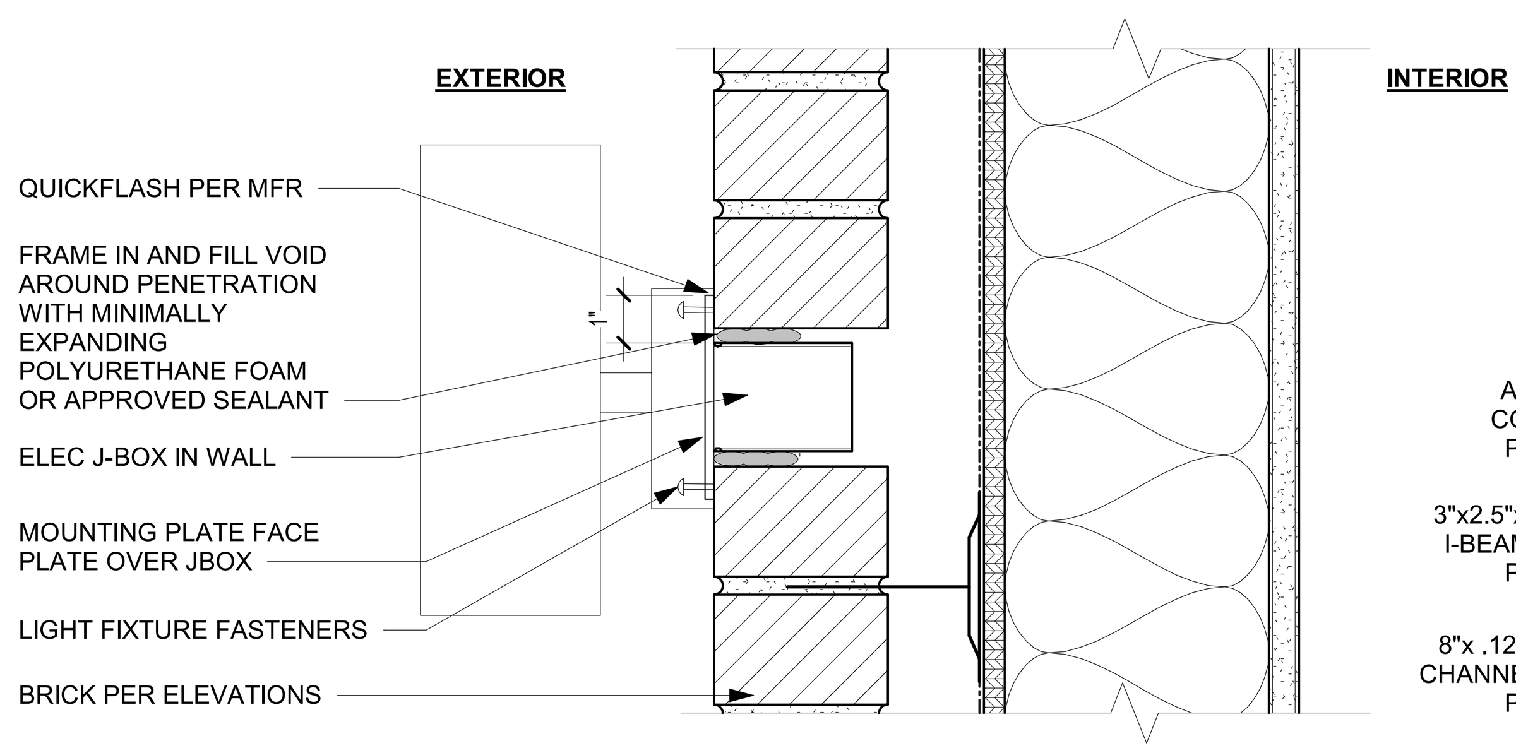
C3 BRICK - OUTSIDE CORNER (PLAN)
3" = 1'-0"



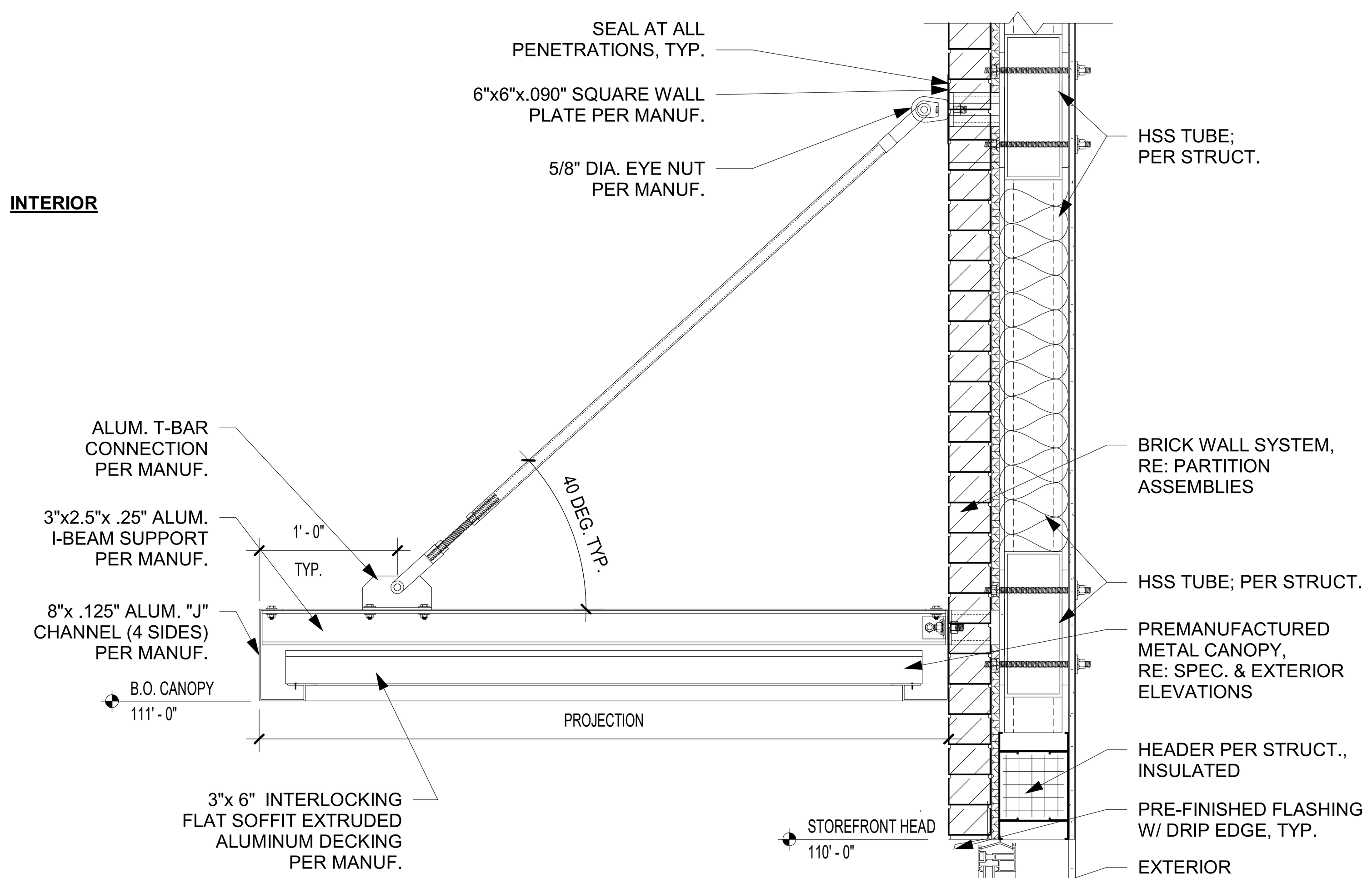
B3 KNIFE PLATE CONNECTION
N.T.S.



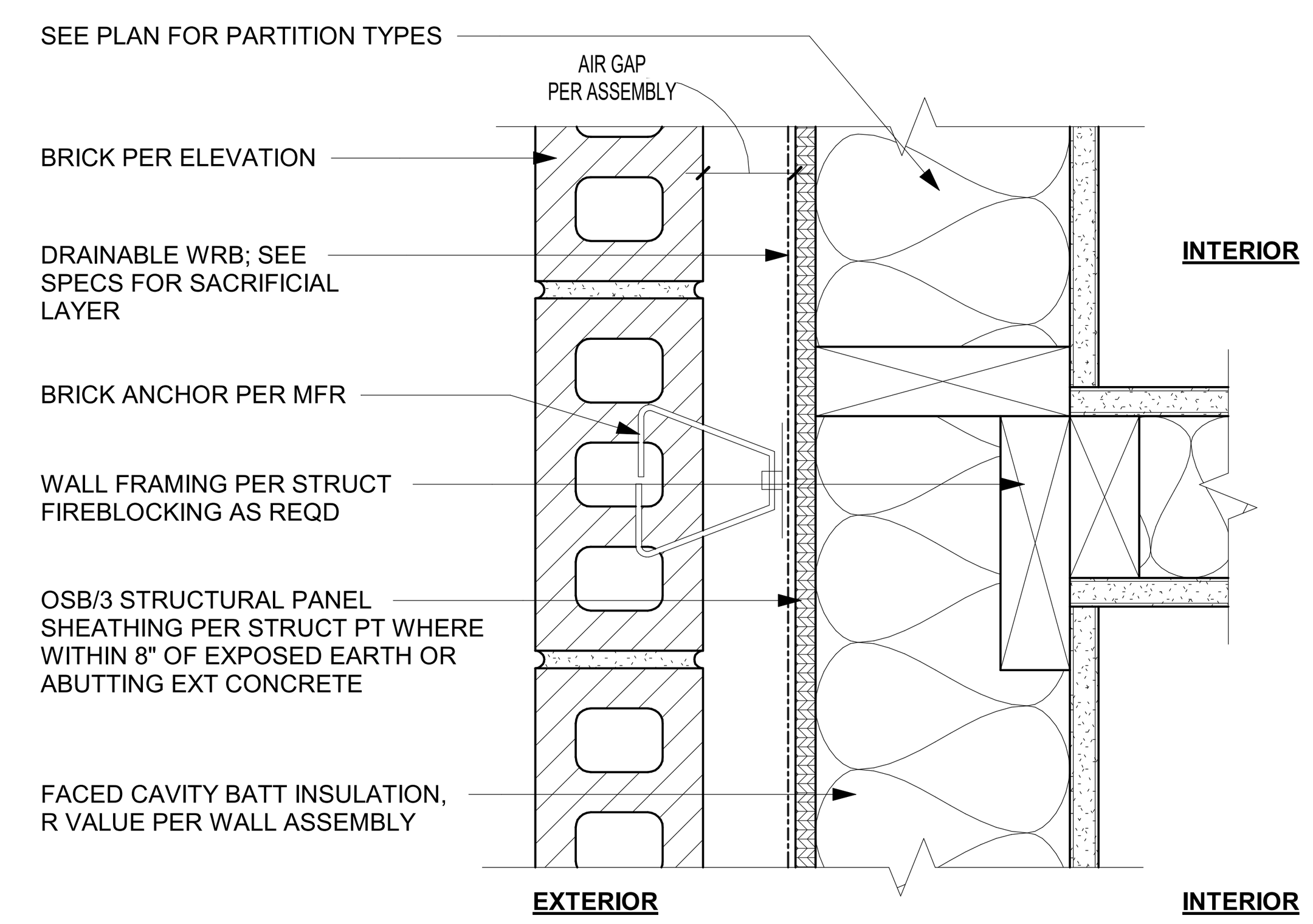
A2 FUR OUT AT COLUMN (PLAN)
1 1/2" = 1'-0"



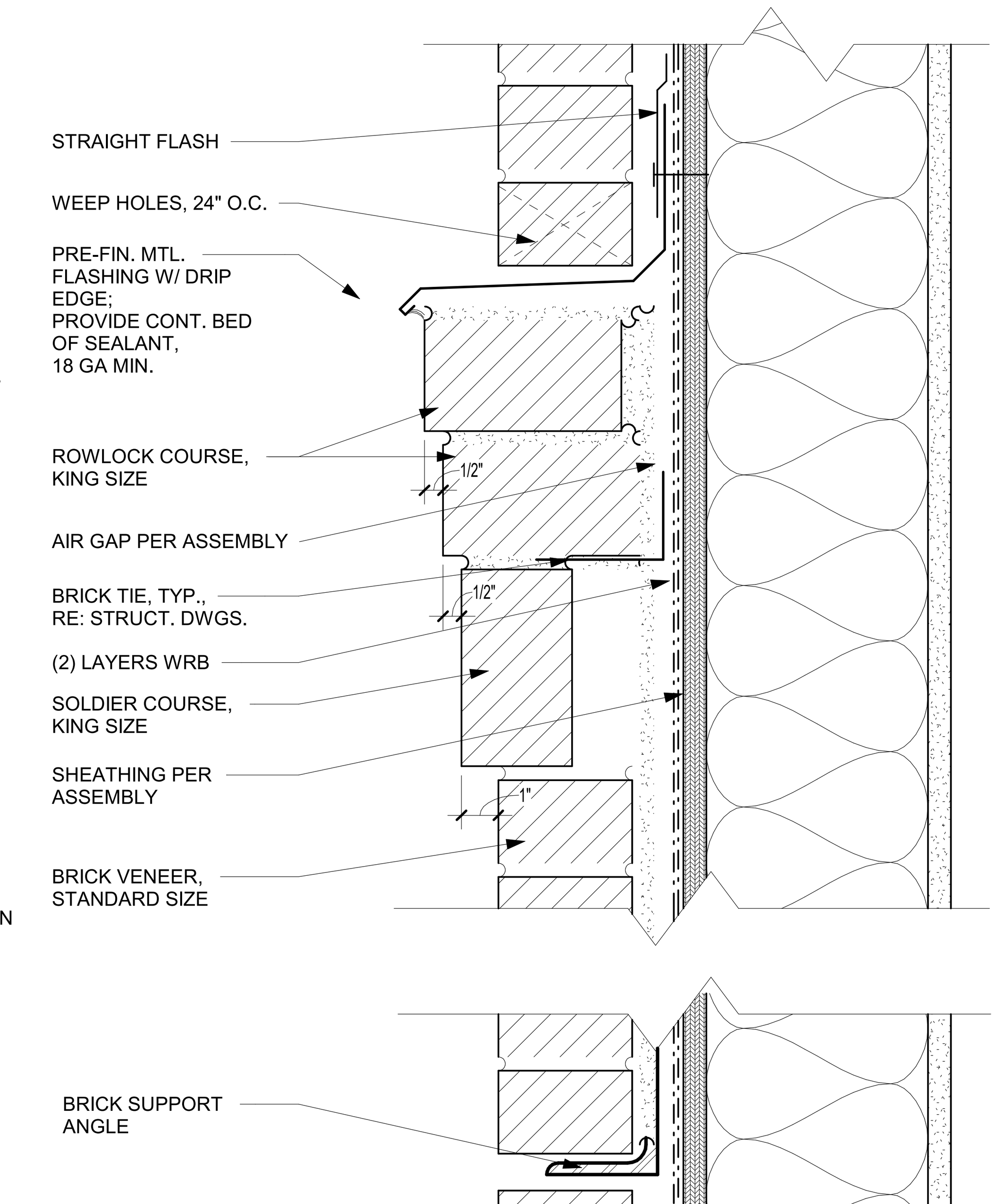
D2 FIXTURE PENETRATION
3" = 1'-0"

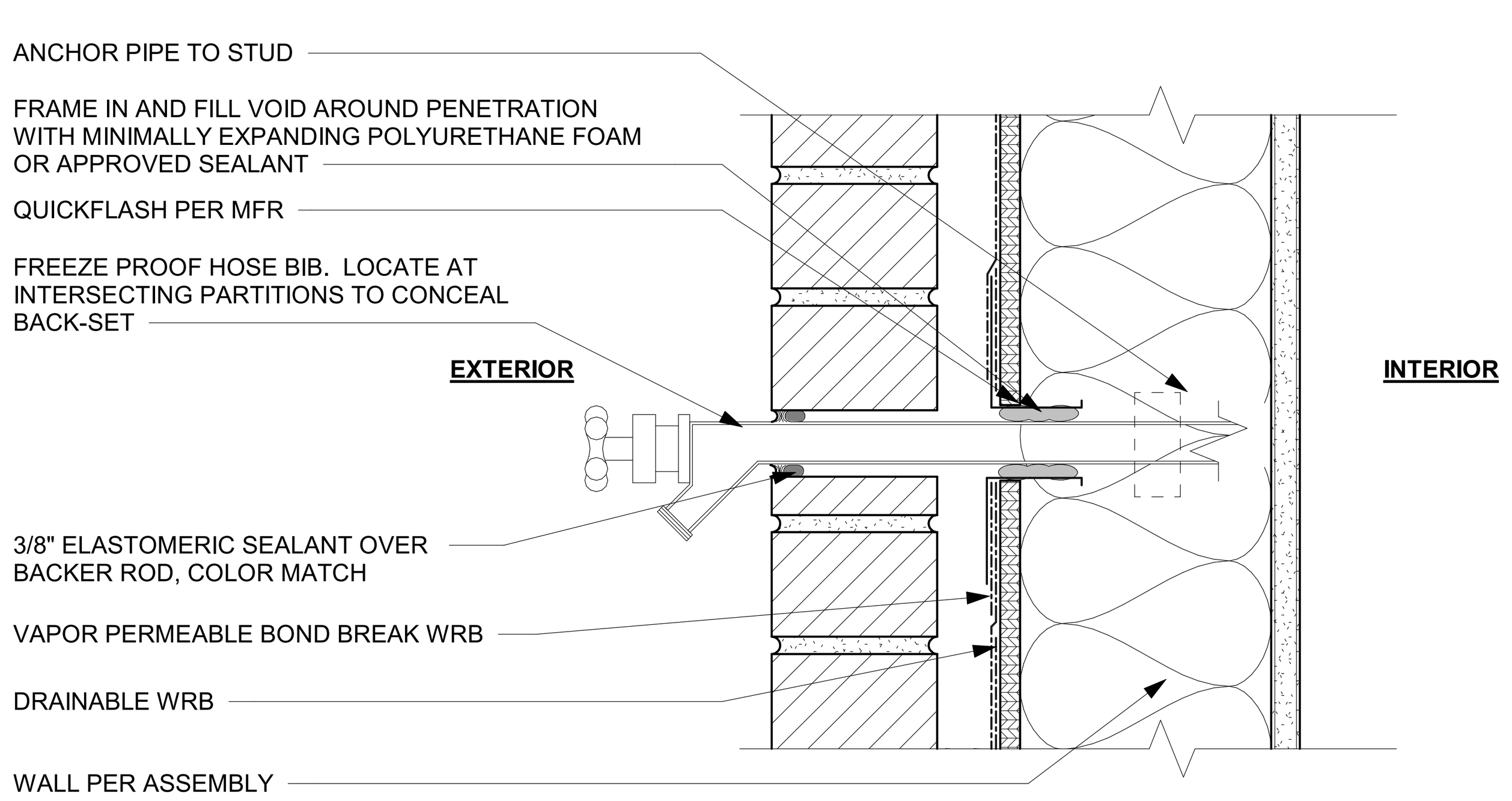


C2 CANOPY @ STEEL (SECTION)
1" = 1'-0"

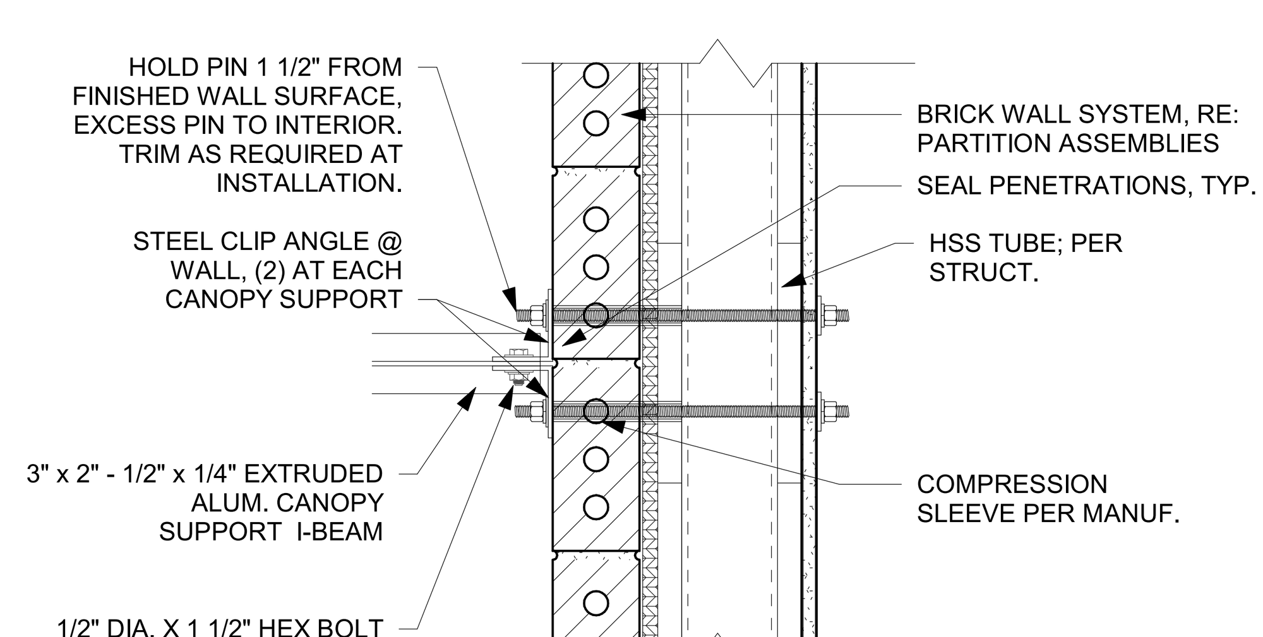


B2 BRICK - INTERIOR PARTITION TO EXTERIOR WALL (PLAN)
3" = 1'-0"

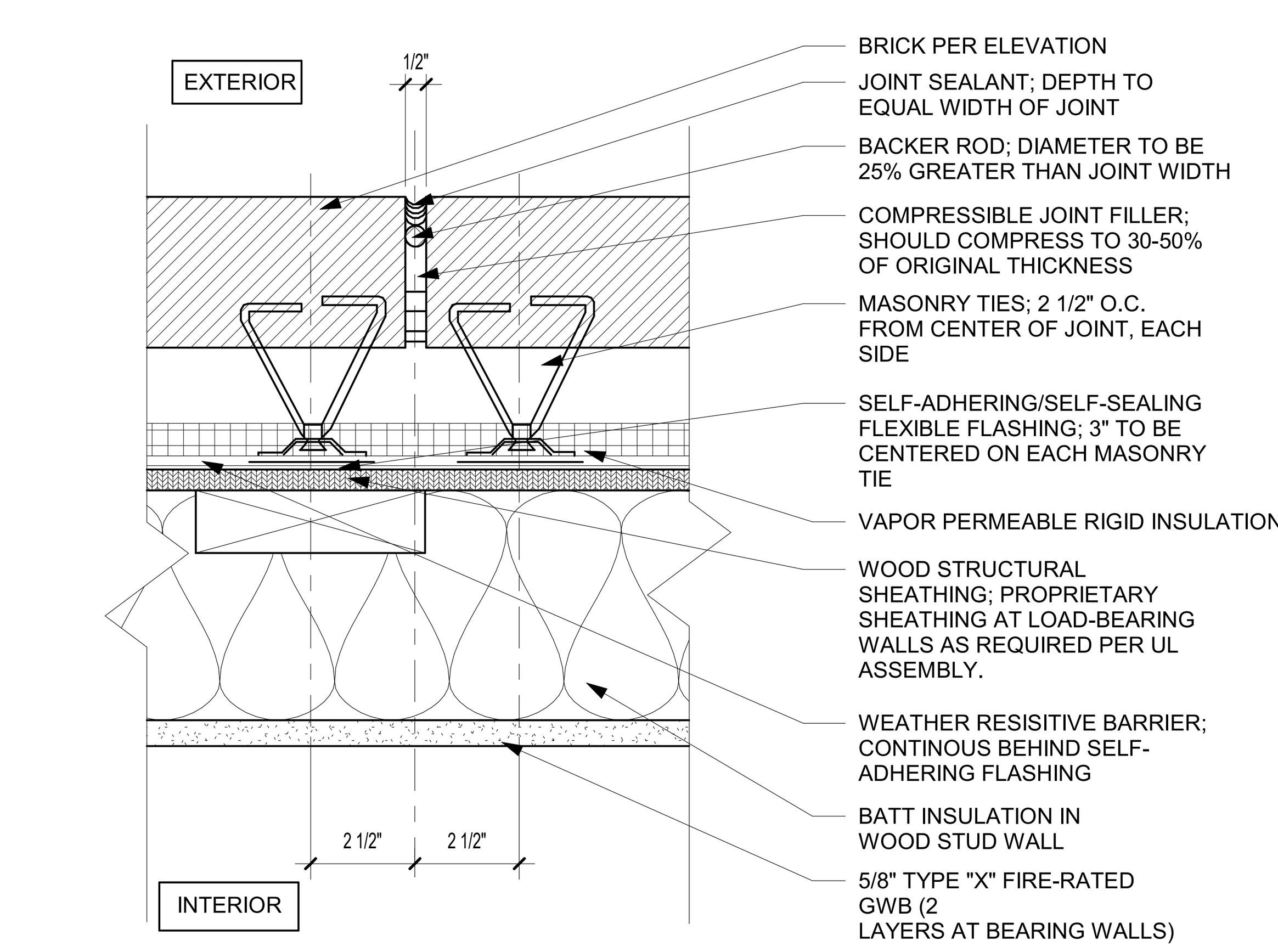




D1 HOSEBIB PENETRATION
3" = 1'-0"



C1 CANOPY DETAIL @ STEEL (PLAN)
1 1/2" = 1'-0"



B1 WALL/EXTERIOR - WOOD STUD/BRICK @ VERTICAL CONTROL JOINT (PLAN)
3" = 1'-0"

A1 WALL/EXTERIOR - BRICK BAND DETAIL
3" = 1'-0"

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DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

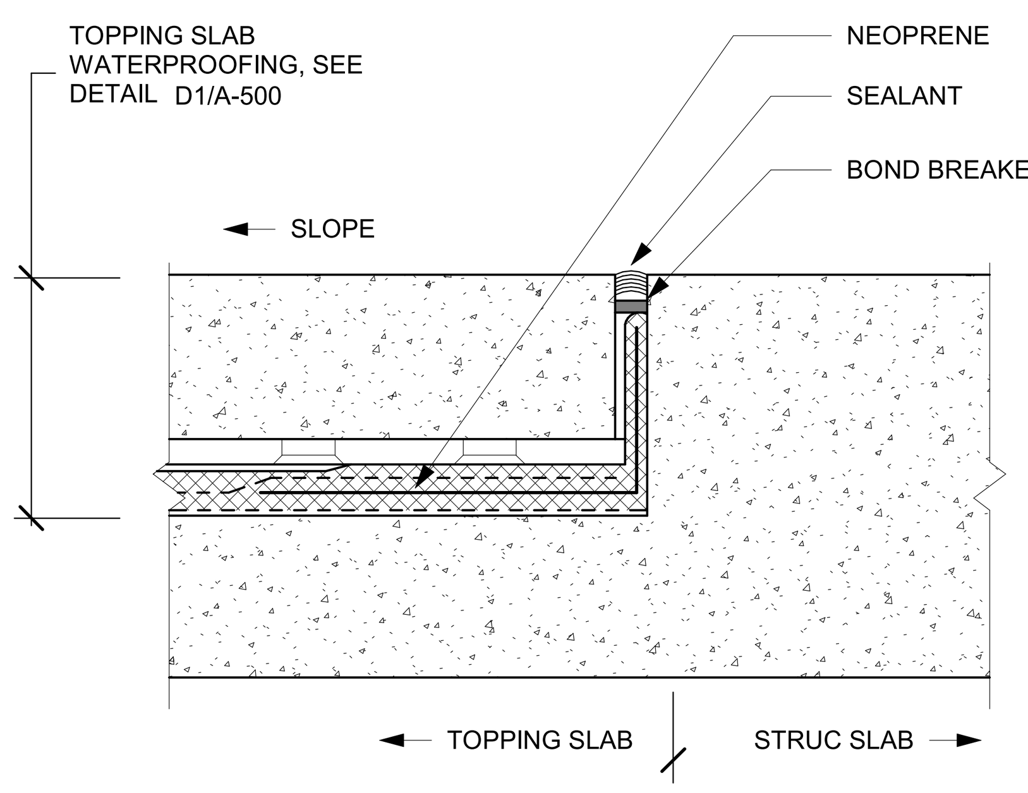
SHEET TITLE
BRICK PENETRATION DETAILS

PROJECT NUMBER: 24017

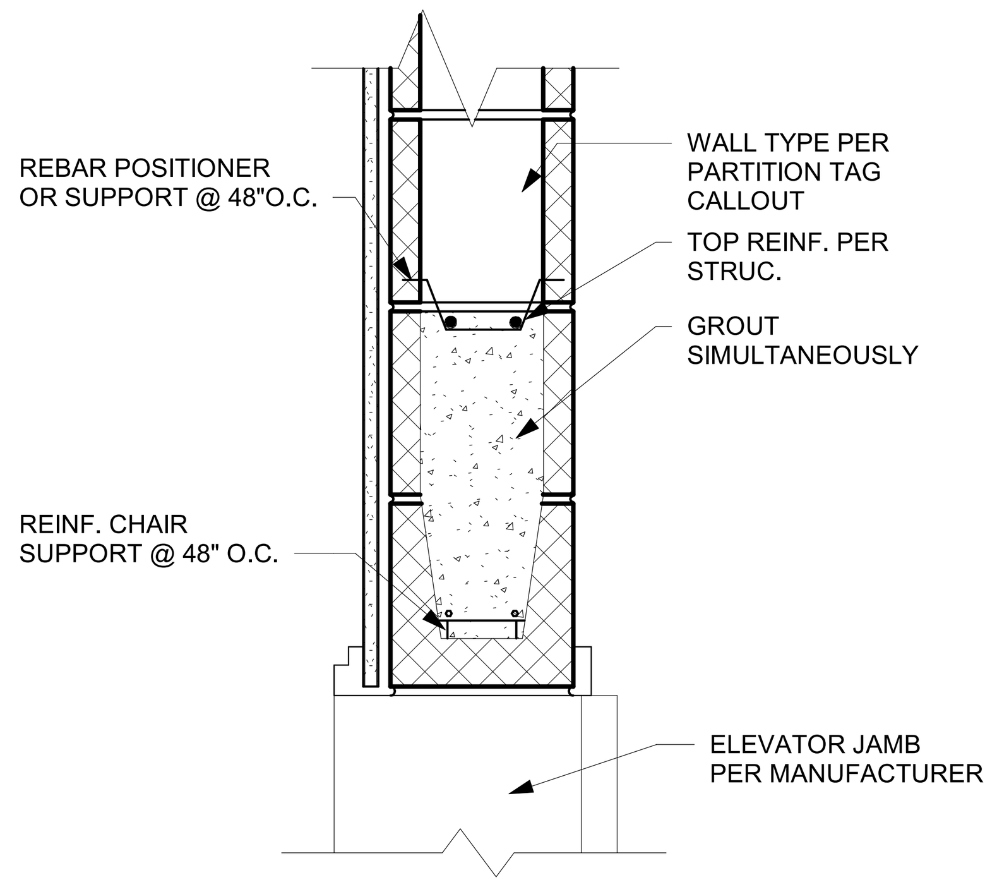
SHEET NUMBER:

A-503

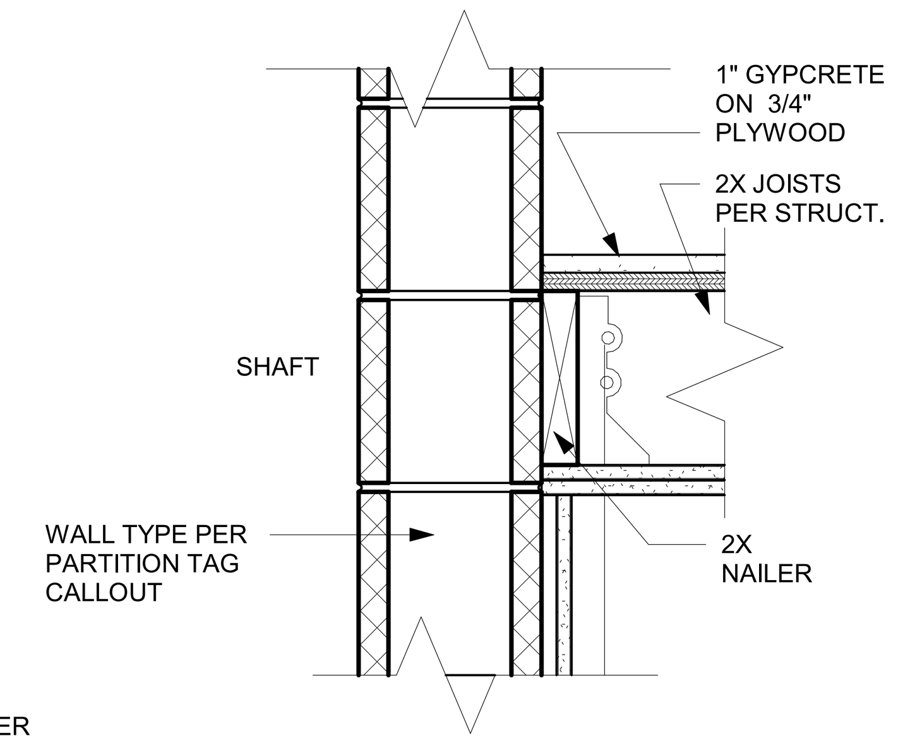
REFERENCE G-003 FOR GENERAL NOTES



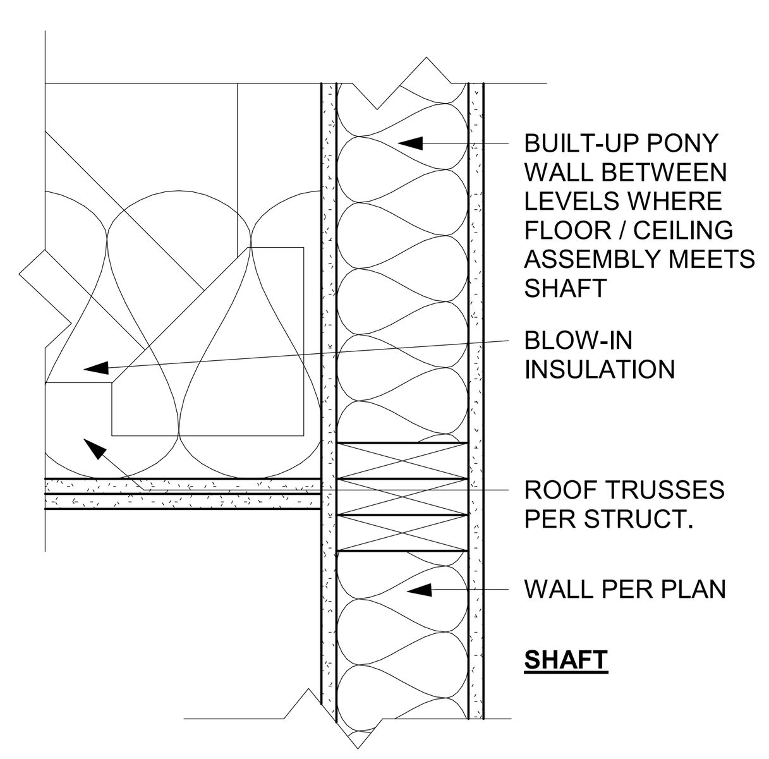
F4 TOPPING SLAB TRANSITION
N.T.S.



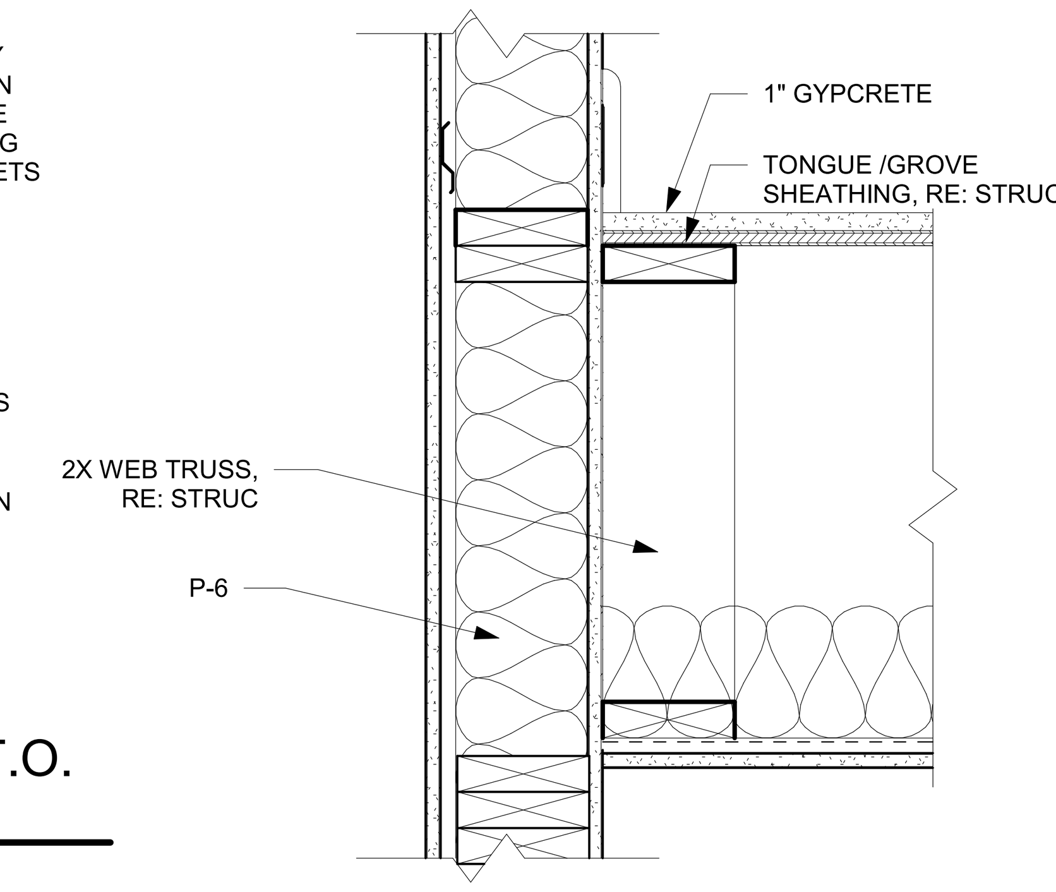
E4 ELEVATOR DOOR HEAD DETAIL
1 1/2" = 1'-0"



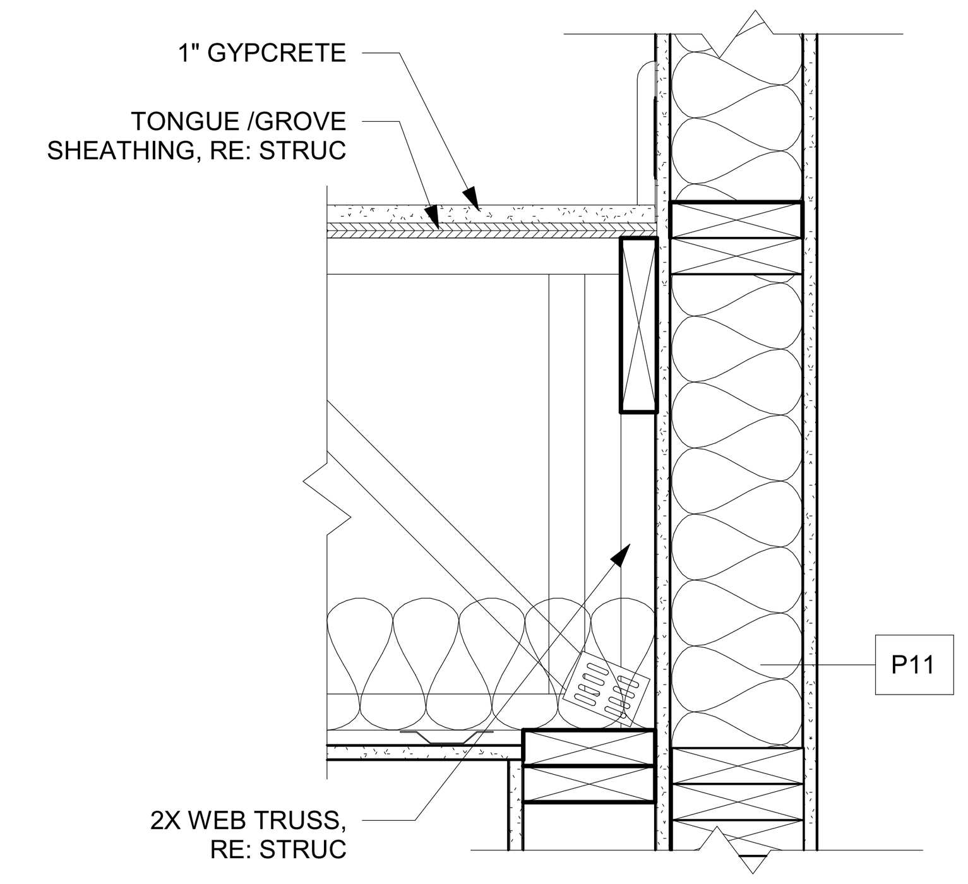
D4 ELEVATOR SHAFT DETAIL
1 1/2" = 1'-0"



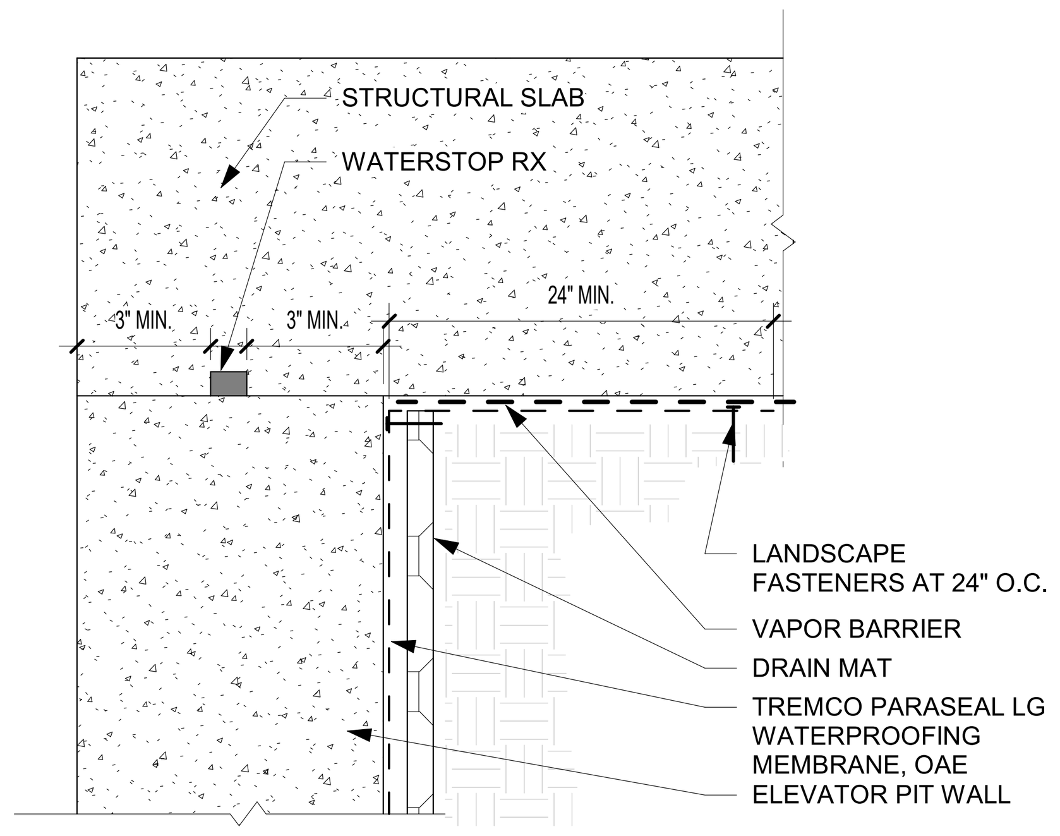
C4 ELEVATOR - WOOD/SHAFT @ T.O. ELEVATOR SHAFT
1 1/2" = 1'-0"



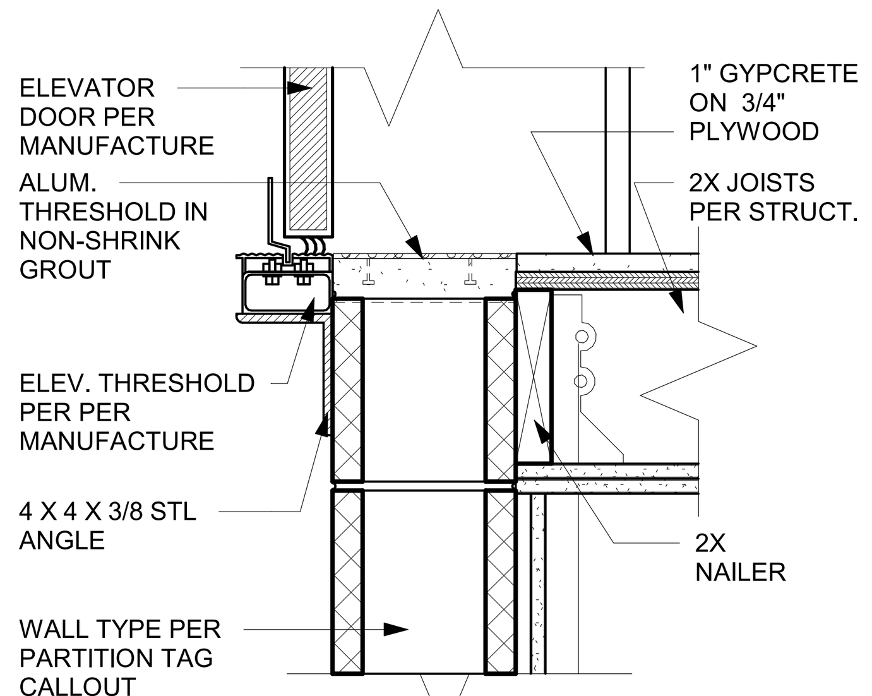
B4 ELEVATOR SHAFT DETAIL
1 1/2" = 1'-0"



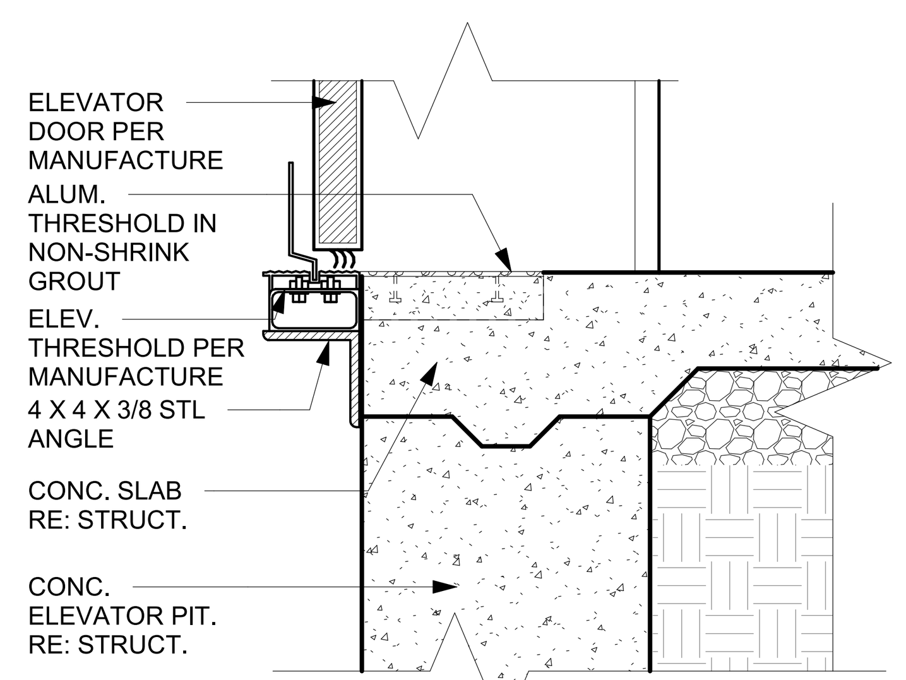
A4 ELEVATOR SHAFT DETAIL
1 1/2" = 1'-0"



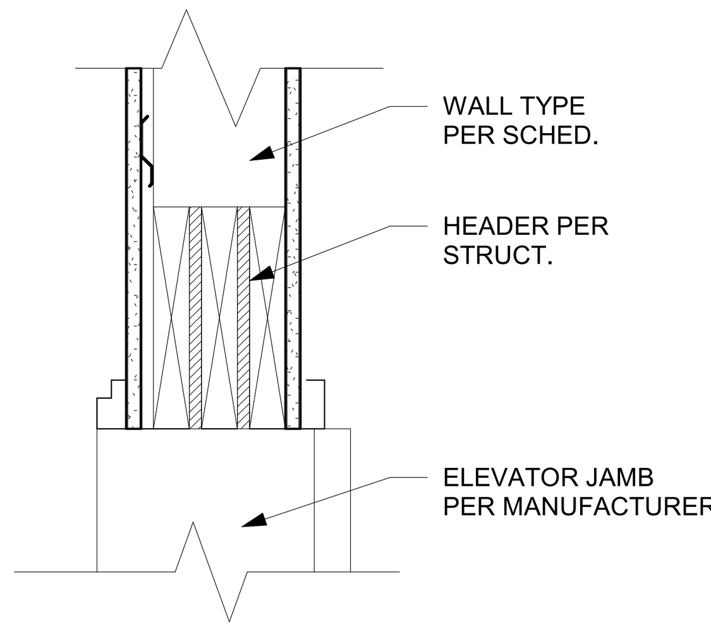
E3 ELEVATOR PIT WALL TO SLAB
N.T.S.



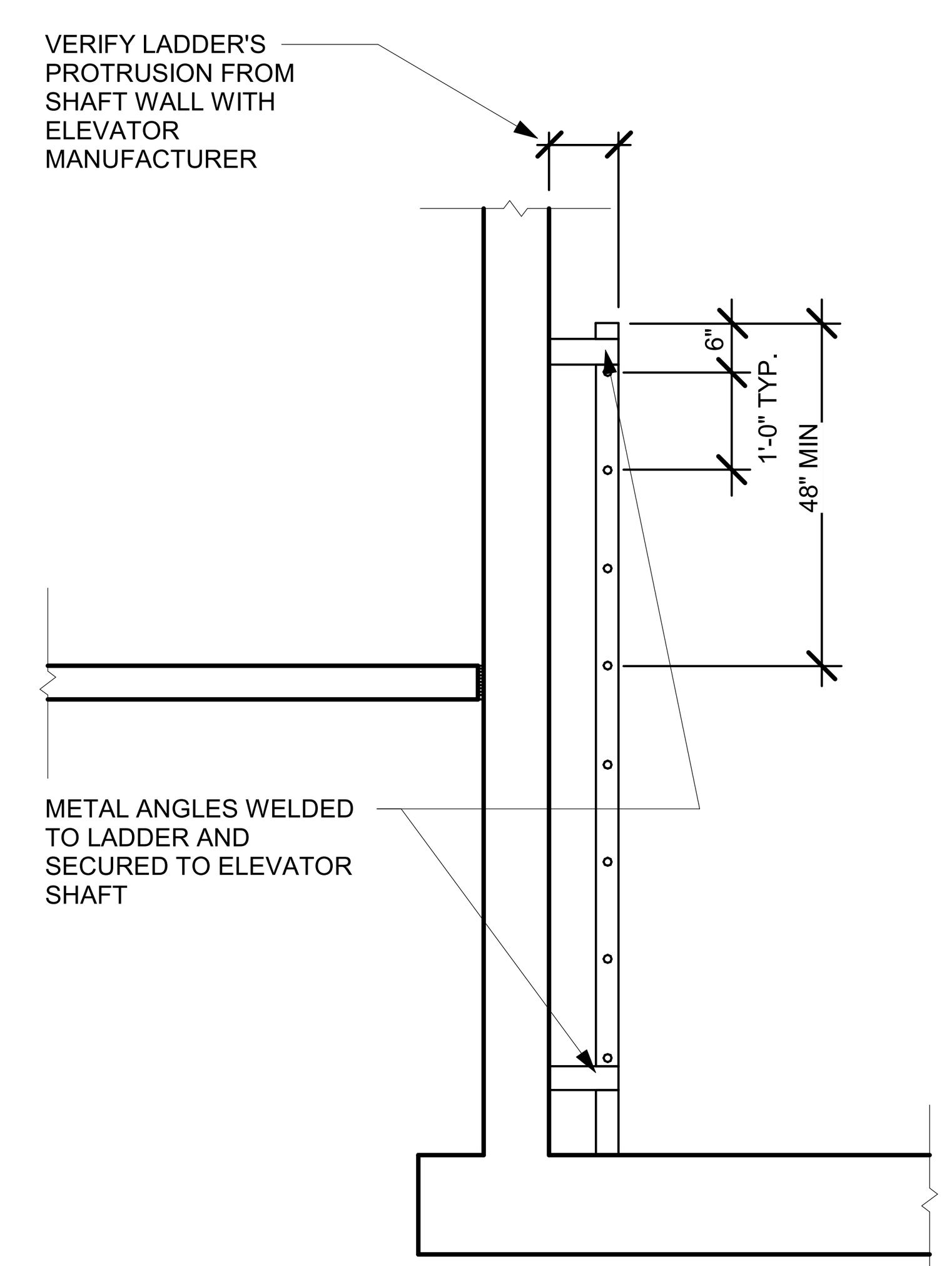
D3 ELEVATOR SHAFT AT THRESHOLD DETAIL
1 1/2" = 1'-0"

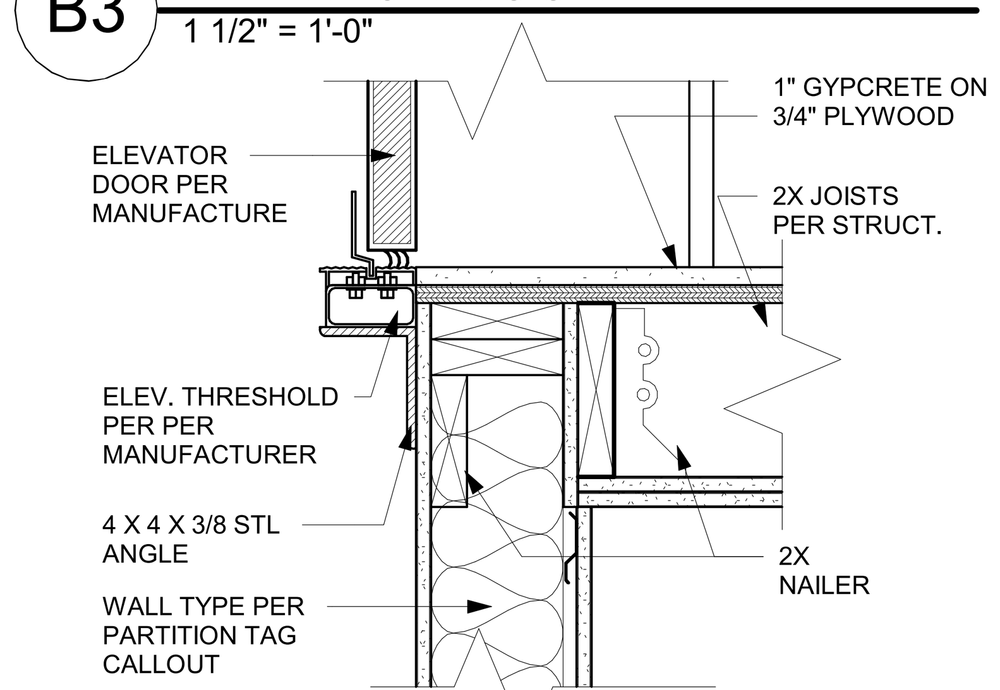


C3 ELEVATOR SHAFT THRESHOLD AT PIT
1 1/2" = 1'-0"



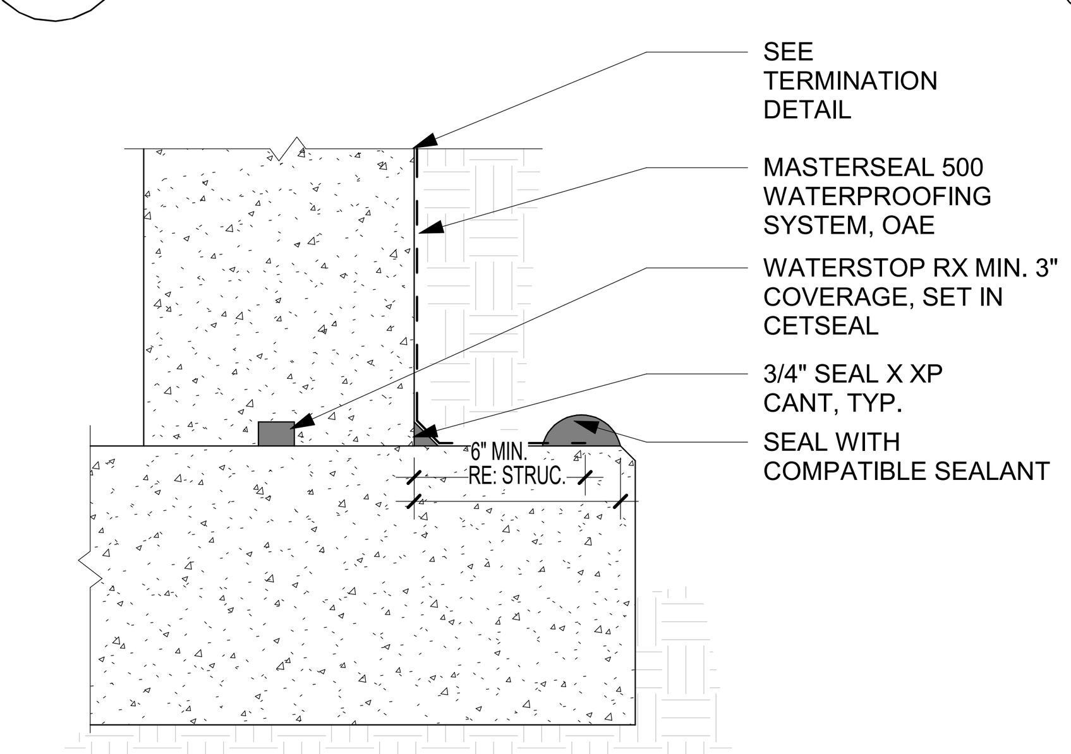
B3 ELEVATOR DOOR HEAD DETAIL
1 1/2" = 1'-0"



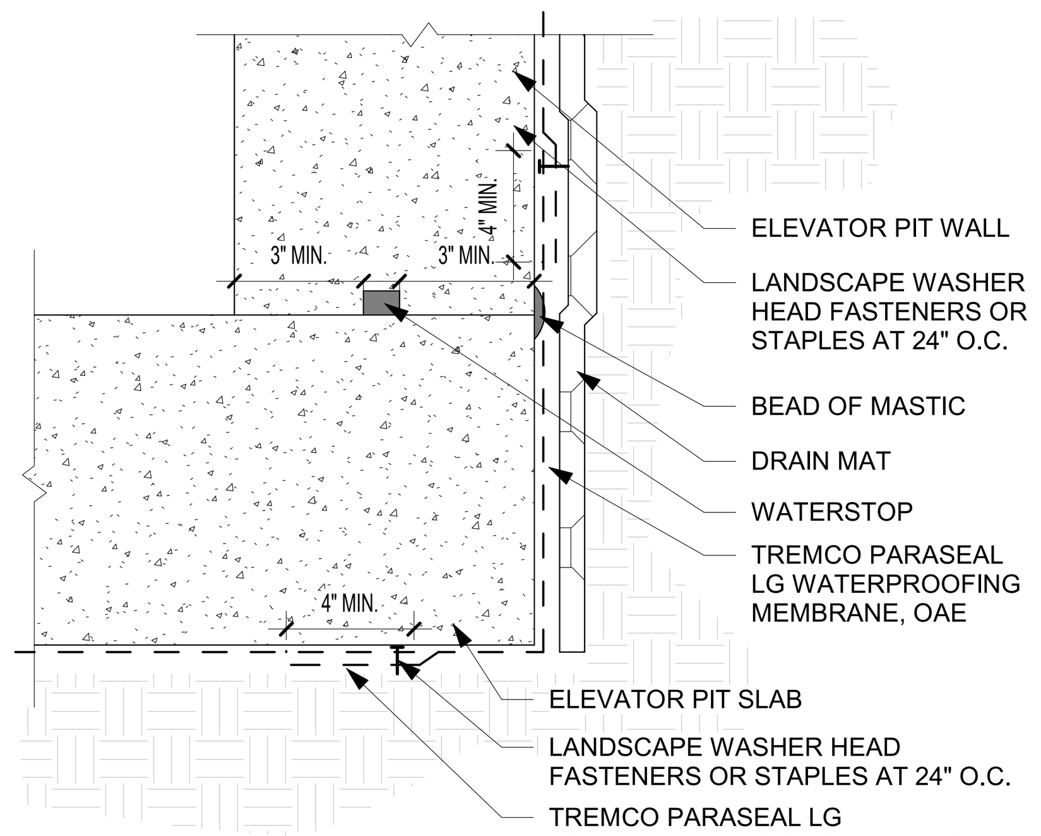


B2 ELEVATOR SHAFT @ THRESHOLD DETAIL
1 1/2" = 1'-0"

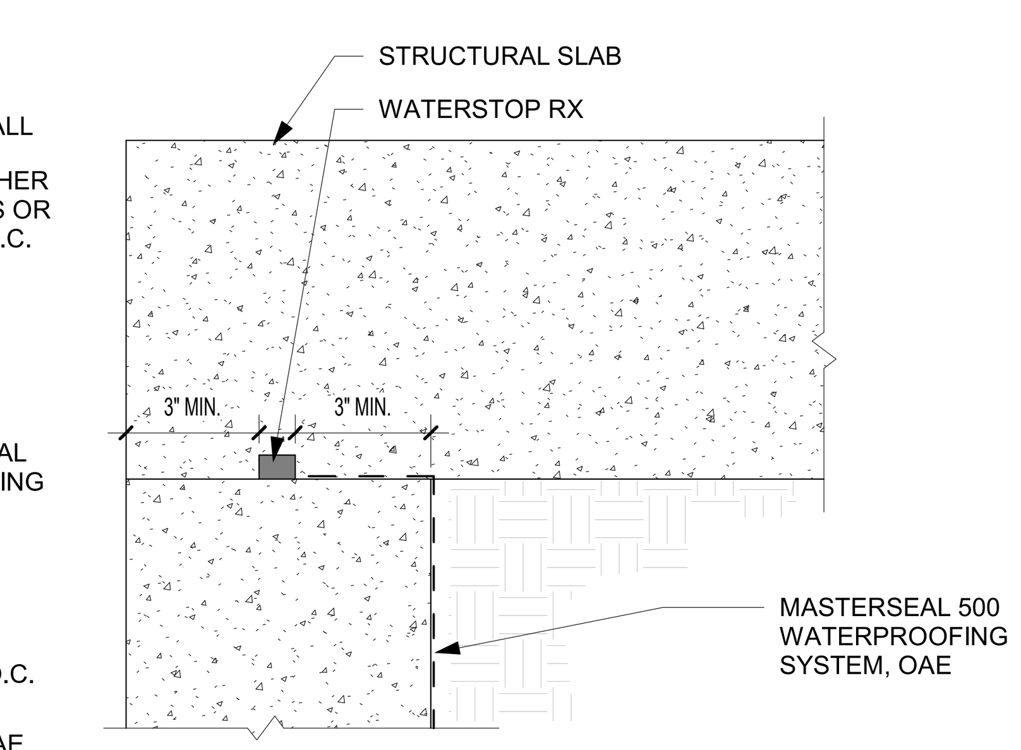
A2 ELEVATOR - CONC/PIT @ LADDER (SECTION)
1/2" = 1'-0"



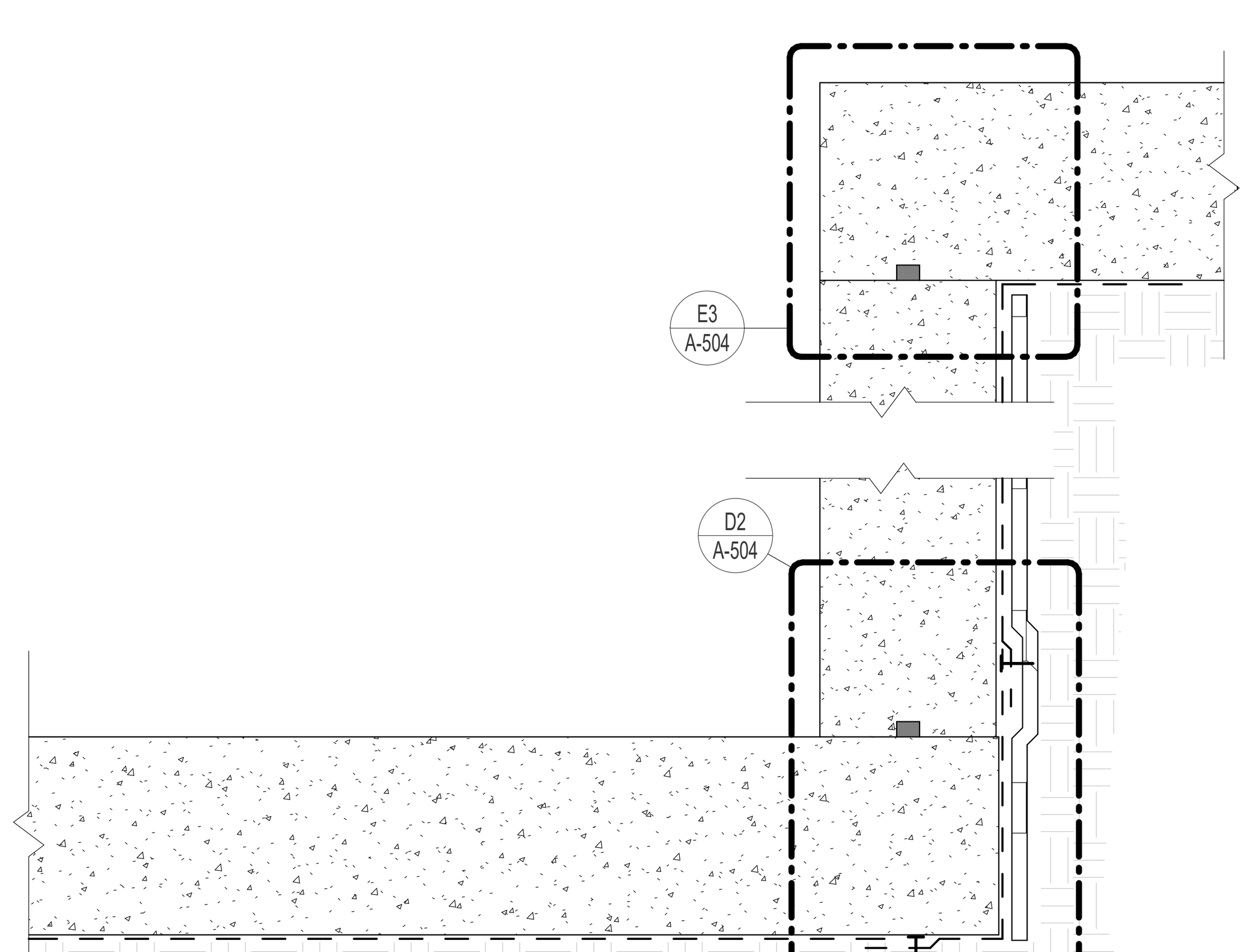
E2 SUBGRADE CONCRETE WALL
N.T.S.



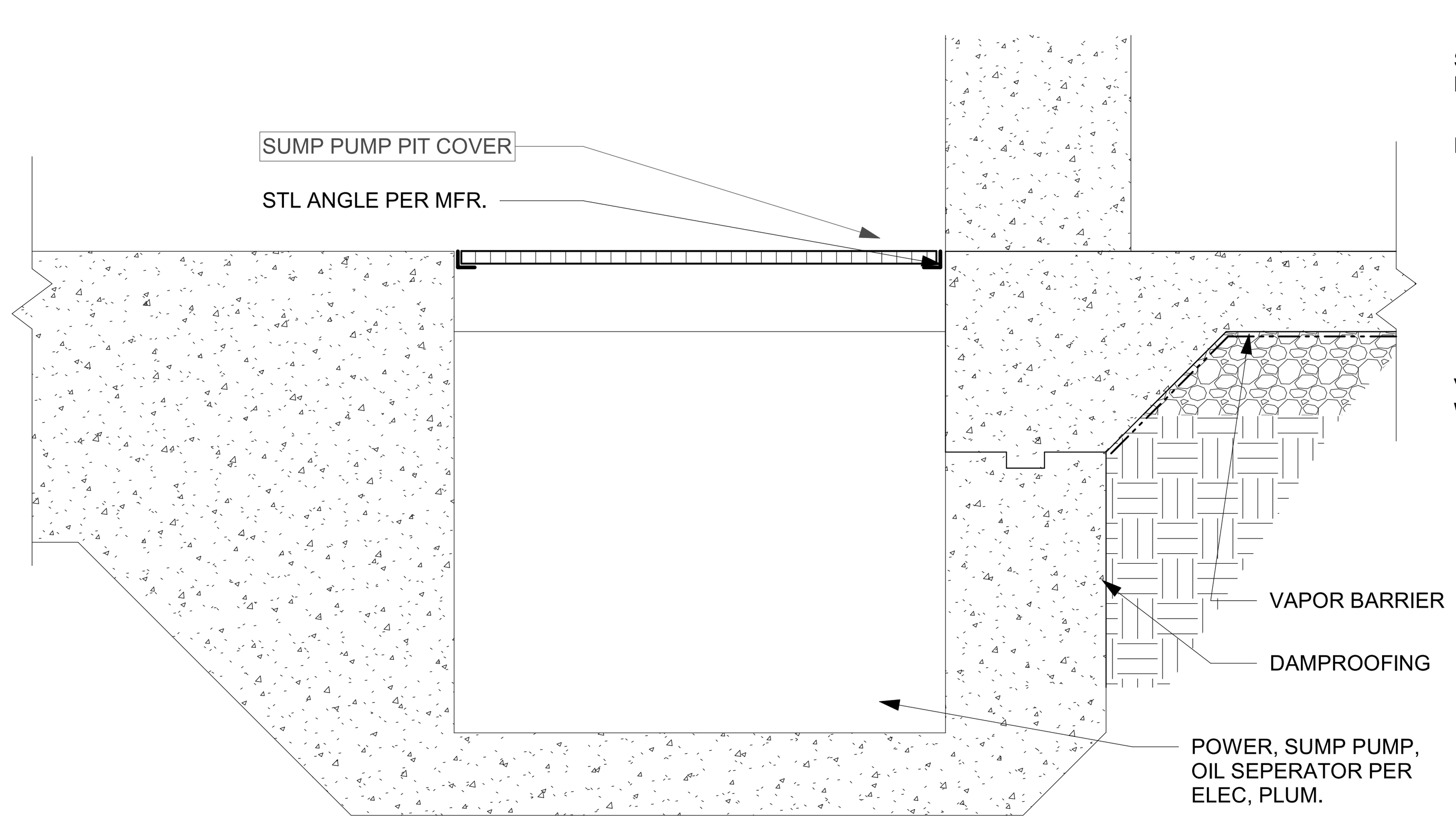
D2 ELEVATOR PIT SLAB TO WALL TRANSITION
N.T.S.



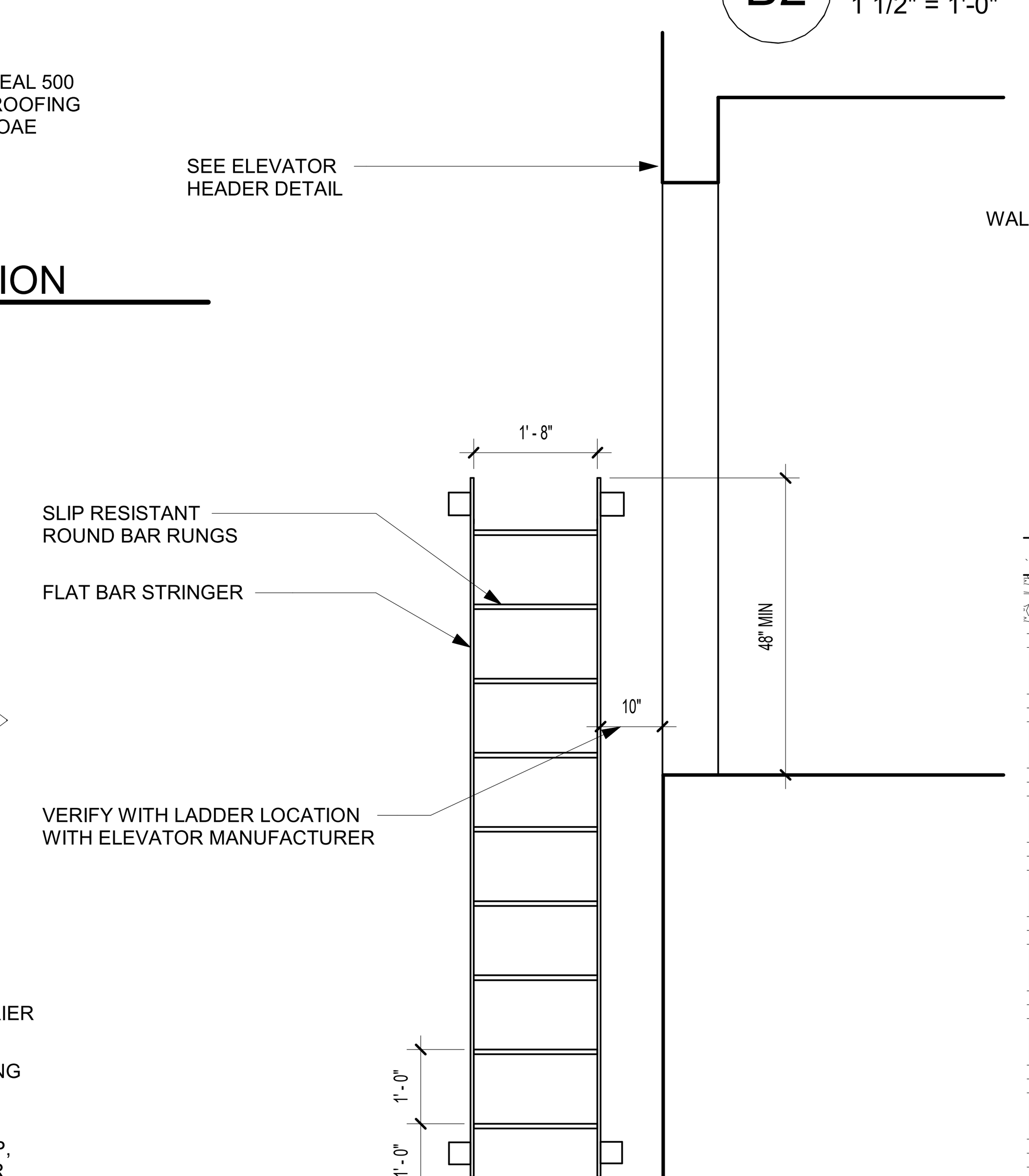
C2 WATERPROOFING TERMINATION
N.T.S.



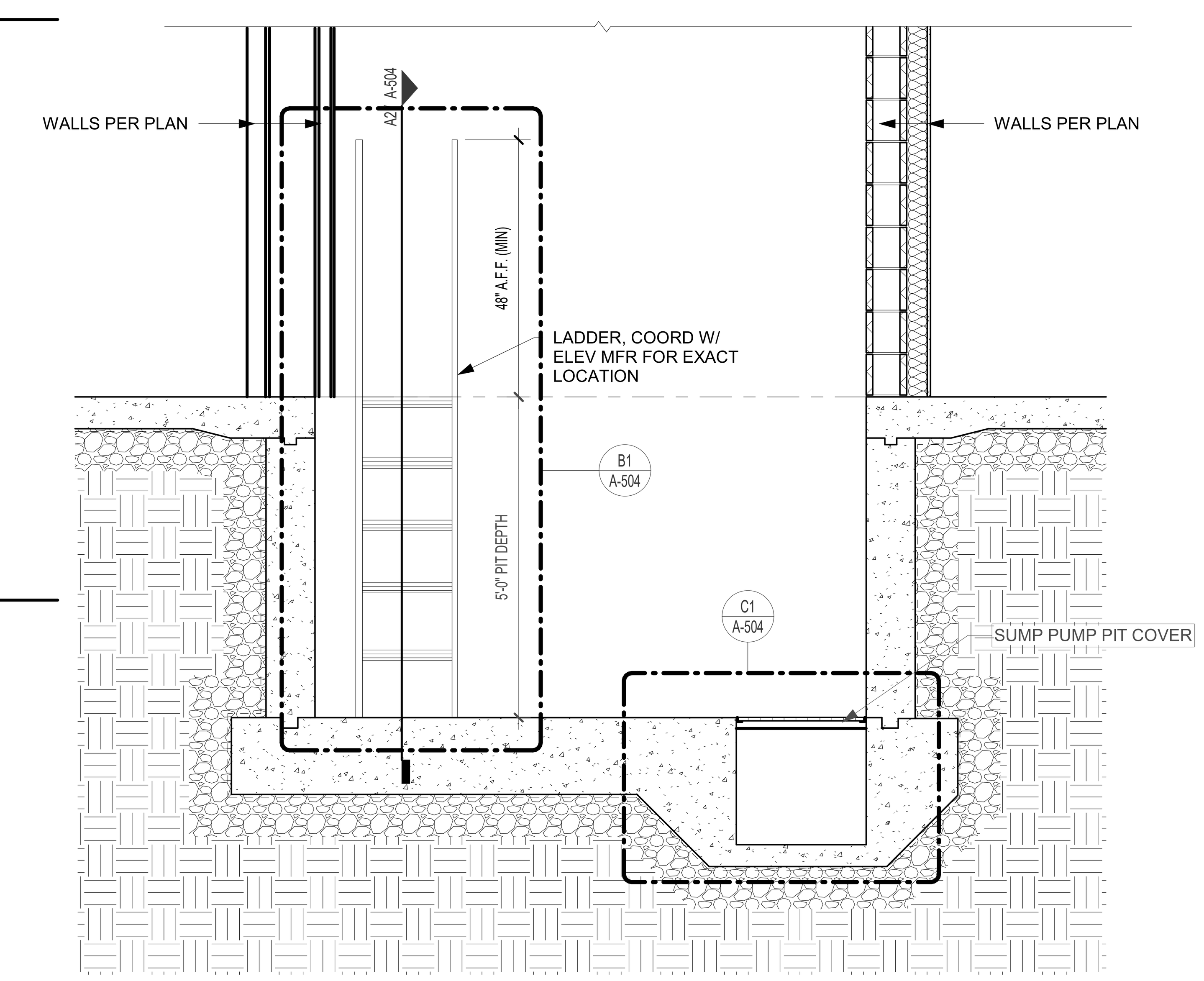
E1 ELEVATOR PIT WATERPROOFING
N.T.S.



C1 ELEVATOR - CONC/PIT @ SUMP
1 1/2" = 1'-0"



B1 ELEVATOR - CONC/PIT @ LADDER (ELEVATION)
1/2" = 1'-0"



A1 ELEVATOR - CONC/PIT (SECTION)
1/2" = 1'-0"

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DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
ELEVATOR DETAILS

PROJECT NUMBER: 24017

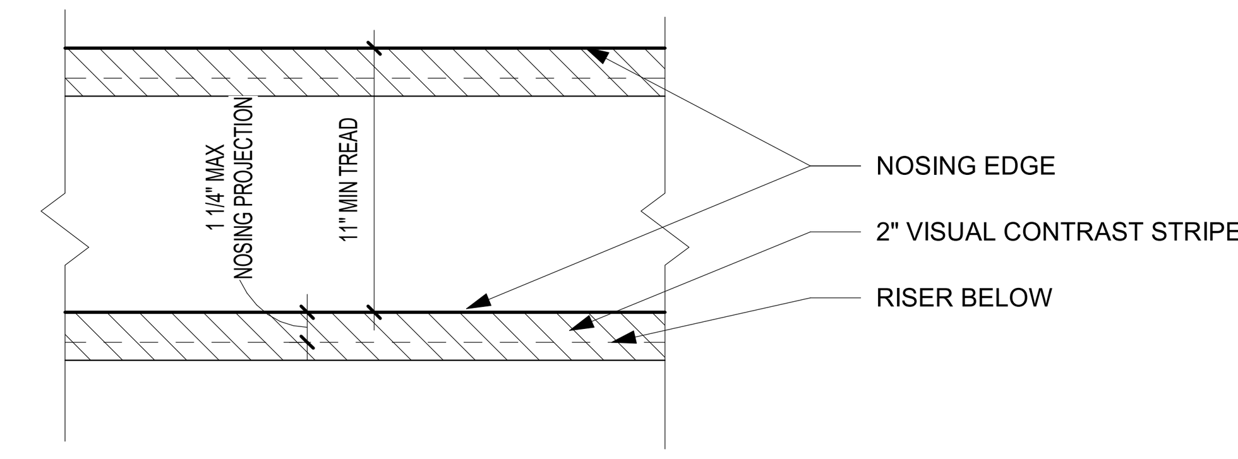
SHEET NUMBER:
A-504

REFERENCE G-003 FOR GENERAL NOTES

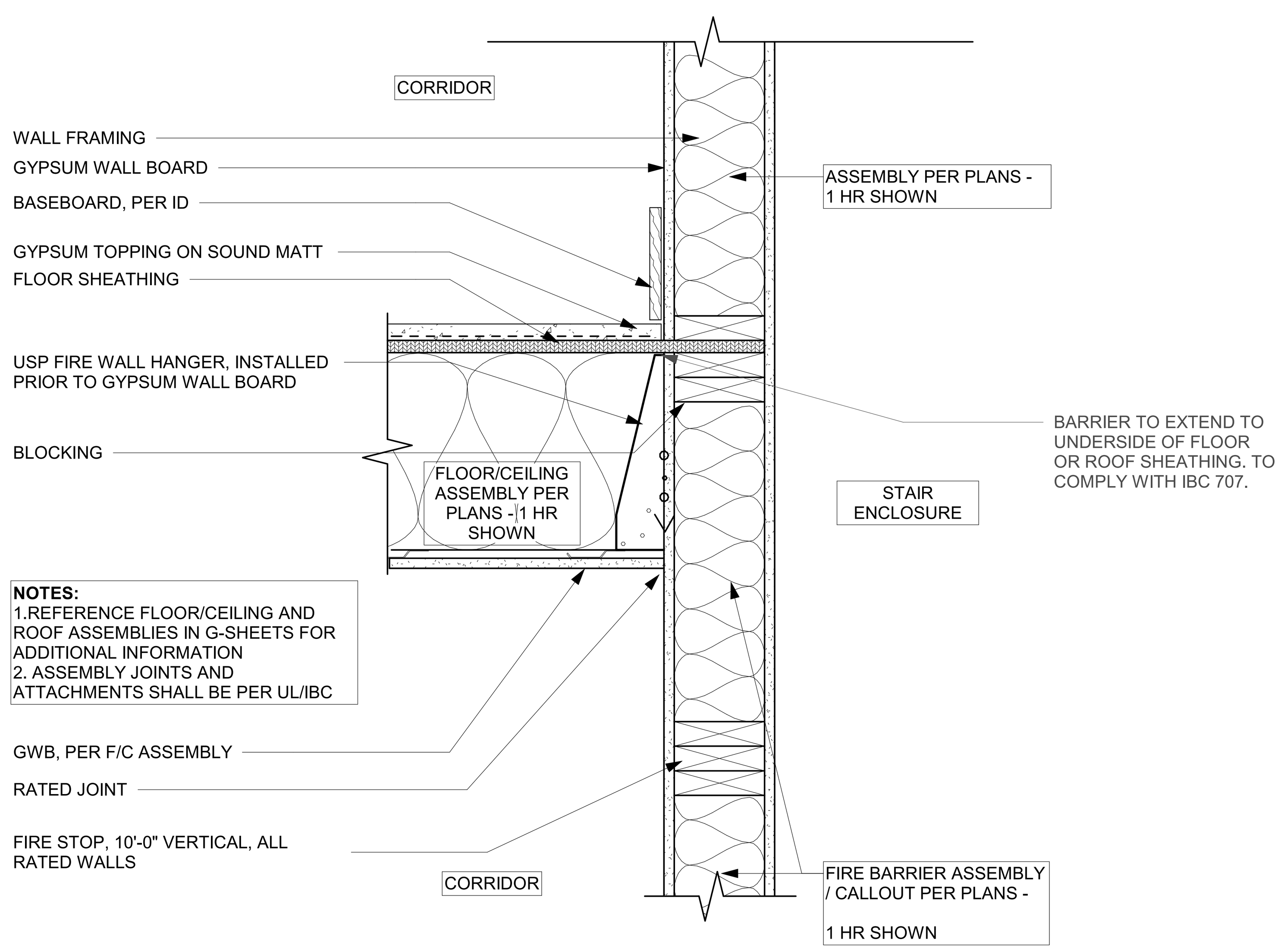
NOTE: Floor identification signs.
-A sign shall be provided at each floor landing in exit enclosures designating the floor level, the terminus of the top and bottom of the exit enclosure and the identification of the stair.
- story number
- the direction to the exit discharge
- and the availability of 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.

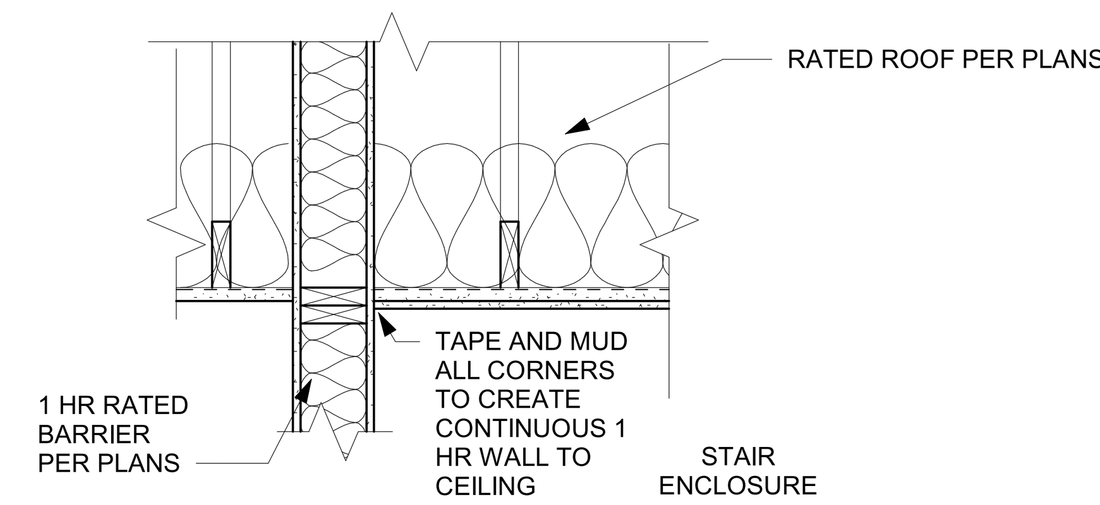
NOTE:
Stairway identification signs shall comply with all of the following requirements:
1. The signs shall be a minimum size of 18 inches by 12 inches.
2. The letters designating the identification of the stair enclosure shall be a minimum of 11/2 inches (38 mm) in height.
3. The number designating 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"



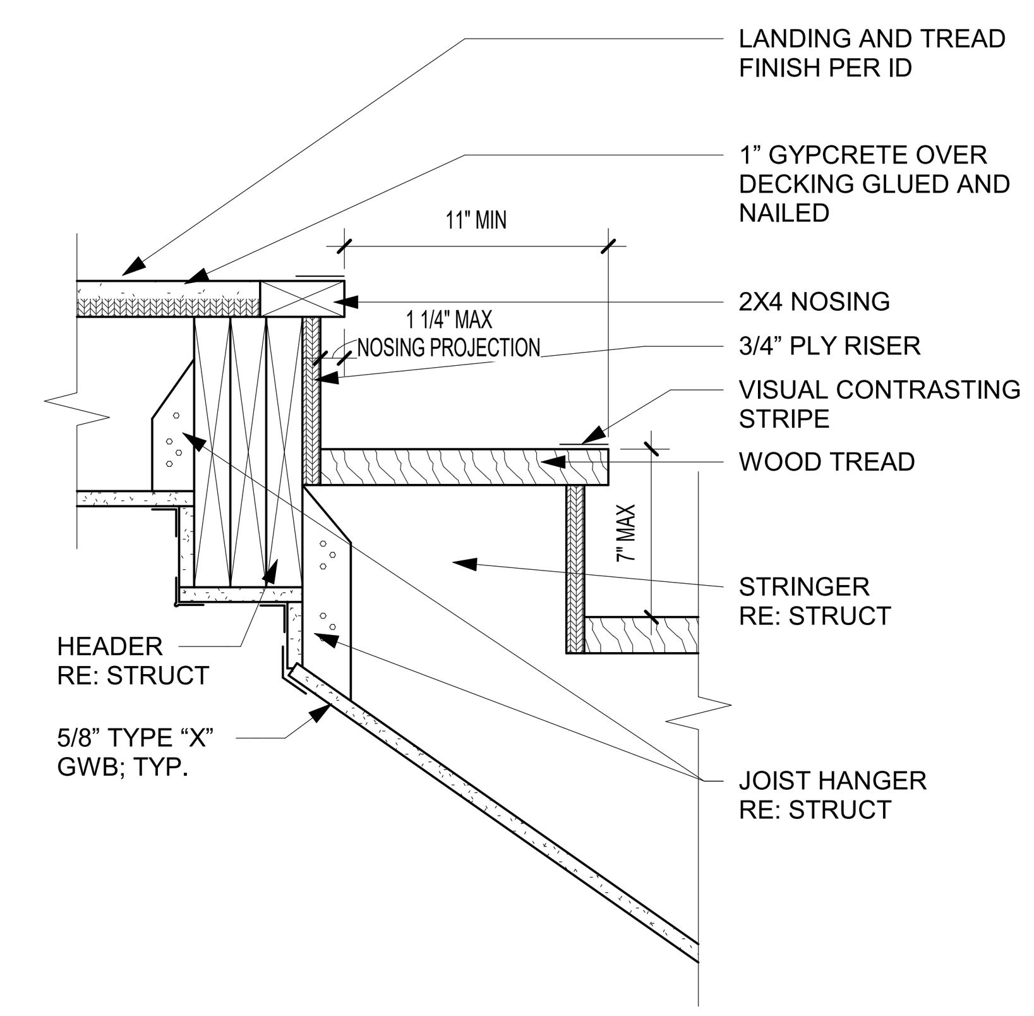
C2 STAIR - WOOD FRAMED RATED WALL (SECTION) 1
1 1/2" = 1'-0"



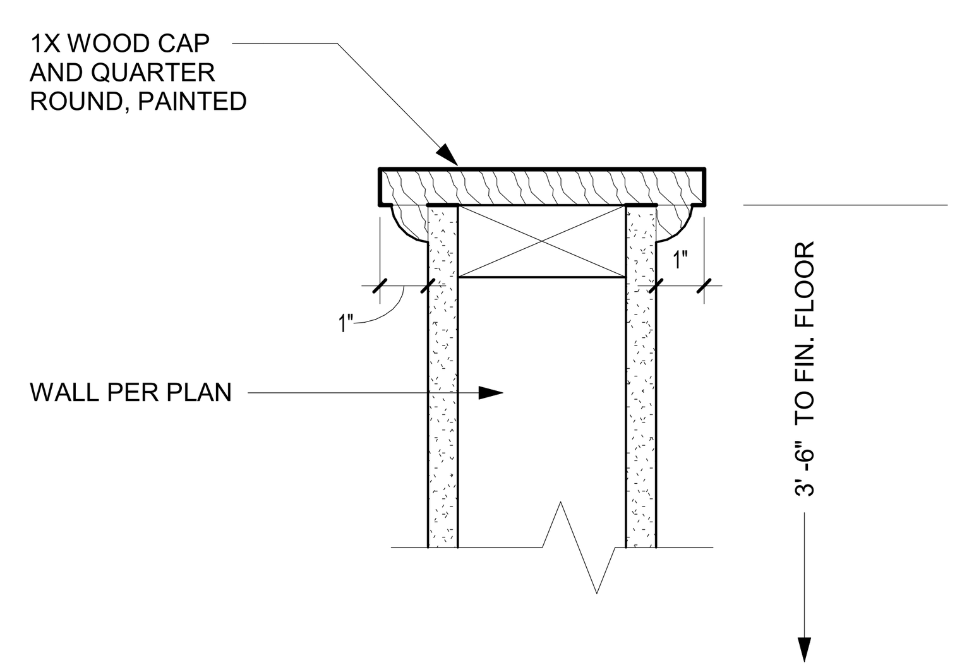
STAIR ENCAPSULATION - 1 HR:

(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.

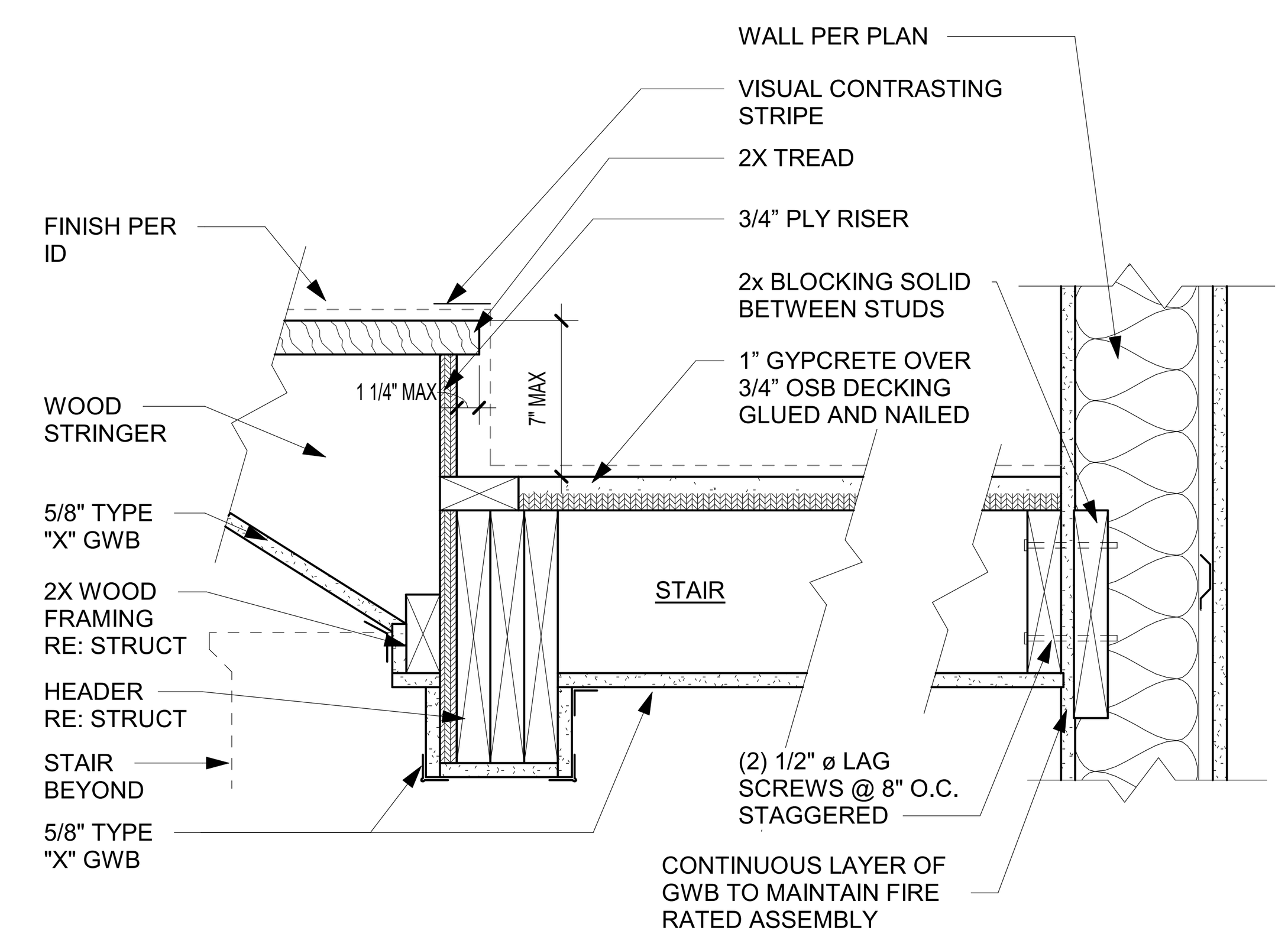
B3 STAIR - WOOD FRAMED 1 RATED CEILING (SECTION)
3/4" = 1'-0"



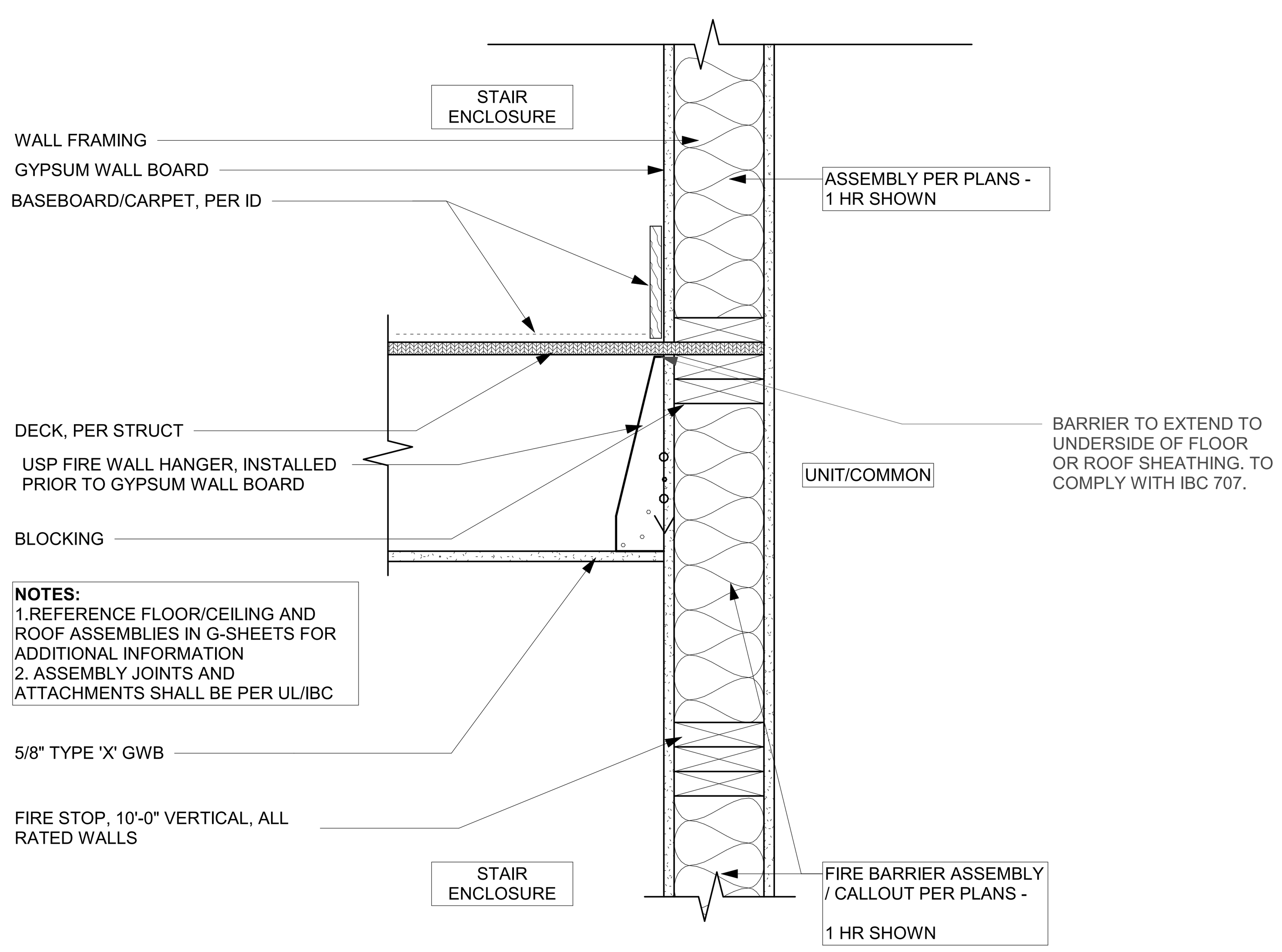
A3 STAIR - (WOOD) TOP @ FLOOR
1 1/2" = 1'-0"



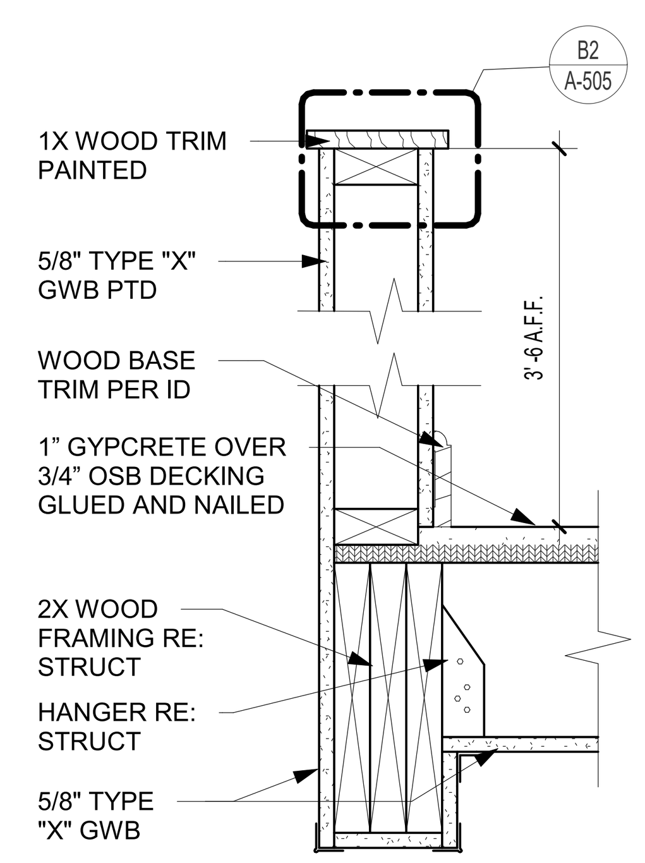
B2 STAIR - WOOD FRAMED KNEE WALL TOP
3" = 1'-0"



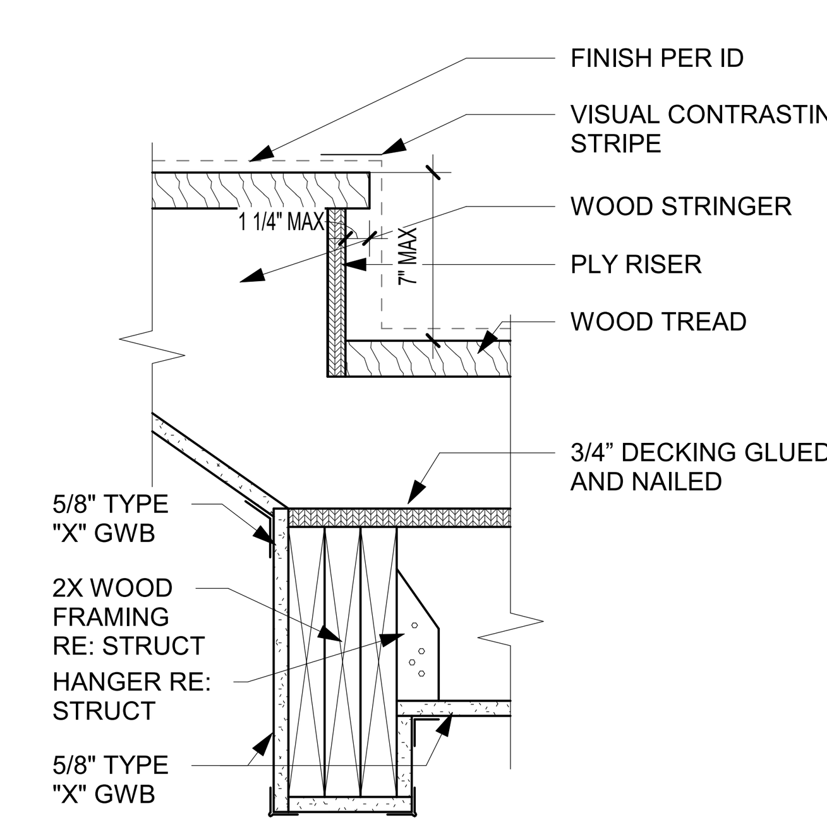
A2 STAIR - (WOOD) BASE @ PLATFORM
1 1/2" = 1'-0"



C1 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 HENDRIKSE
NUMBER A-7385
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

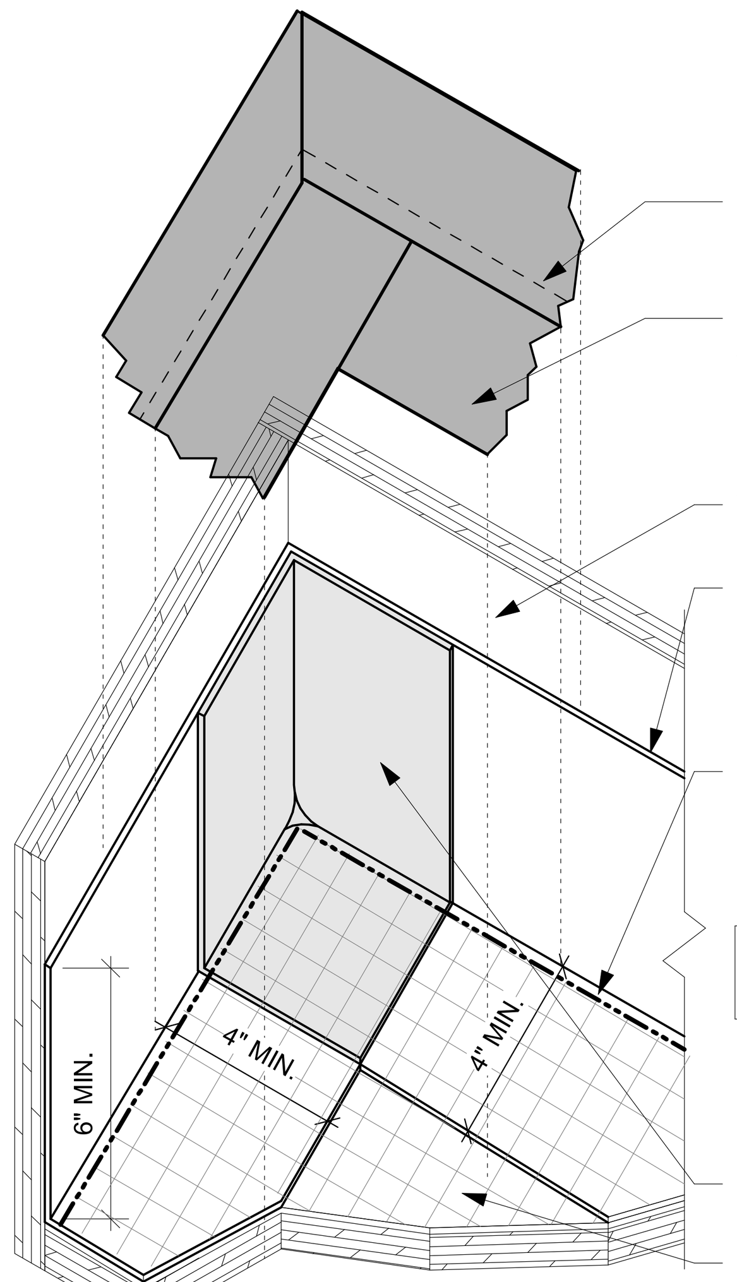
SHEET TITLE
STAIR DETAILS

PROJECT NUMBER: 24017

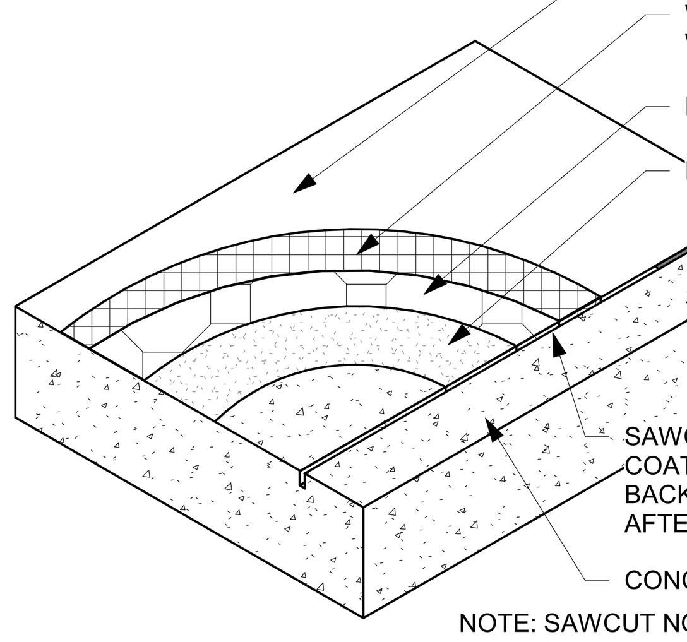
SHEET NUMBER:

A-505

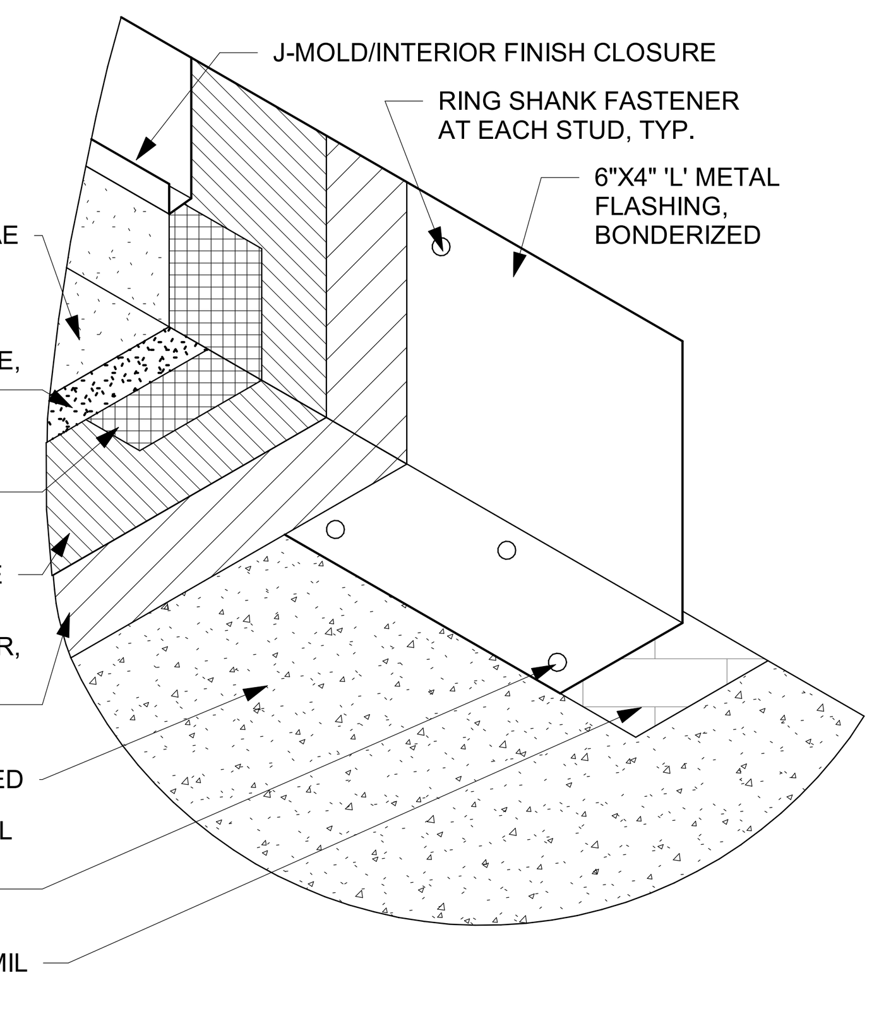
11/27/2024 9:41:58 AM



B3 INSIDE CORNER DETAIL @ FRAMED BALCONY
3" = 1'-0"



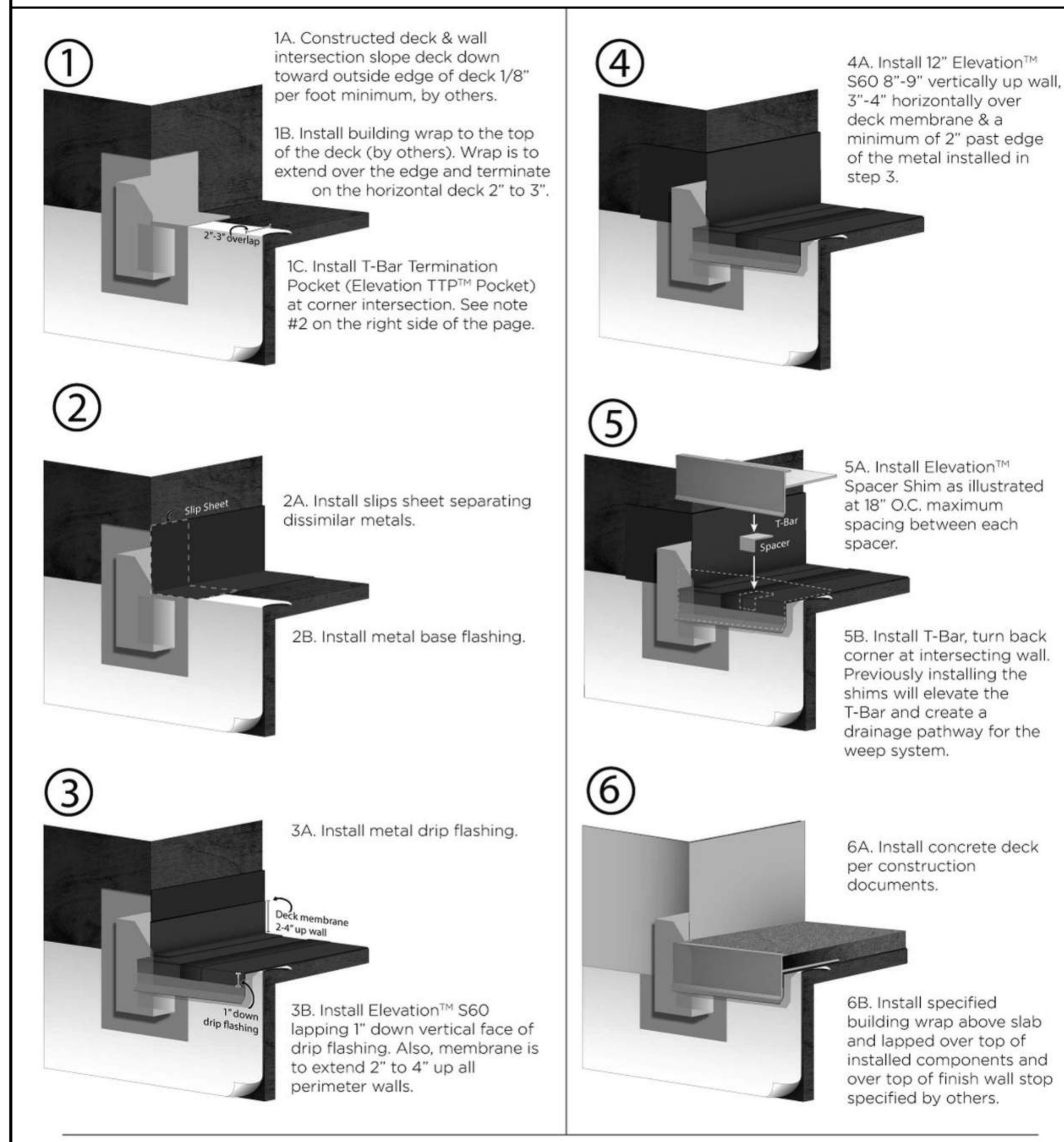
B2 VEHICULAR TRAFFIC COATING
N.T.S.



B1 TRAFFIC COATING WALL BASE
N.T.S.

11/27/2024 9:42:00 AM
C:\Revit Local Cache\2023\24017_DPLS_LOT9_BLDGA_sburdiek7PGKD.rvt

C2 -DECK INSTALLATION-INTERSECTING WALL



① 1A. Constructed deck & wall intersection slope deck down toward outside edge of deck 1/8" per foot minimum, by others.

1B. Install building wrap to the top of the deck (by others). Wrap is to extend over the edge and terminate on the horizontal deck 2" to 3".

1C. Install T-Bar Termination Pocket (Elevation TTP™ Pocket) at corner intersection. See note #2 on the right side of the page.

② 2A. Install slips sheet separating dissimilar metals.

2B. Install metal base flashing.

③ 3A. Install metal drip flashing.

3B. Install Elevation™ S60 lapping 1" down vertical face of drip flashing. Also, membrane is to extend 2" to 4" up all perimeter walls.

④ 4A. Install 12" Elevation™ S60 8"-9" vertically up wall, 3"-4" horizontally over deck membrane & a minimum of 2" past edge of the metal installed in step 3.

⑤ 5A. Install Elevation™ Spacer Shim as illustrated at 18" O.C. maximum spacing between each spacer.

5B. Install T-Bar, turn back corner at intersecting wall. Previously installing the shims will elevate the T-Bar and create a drainage pathway for the weep system.

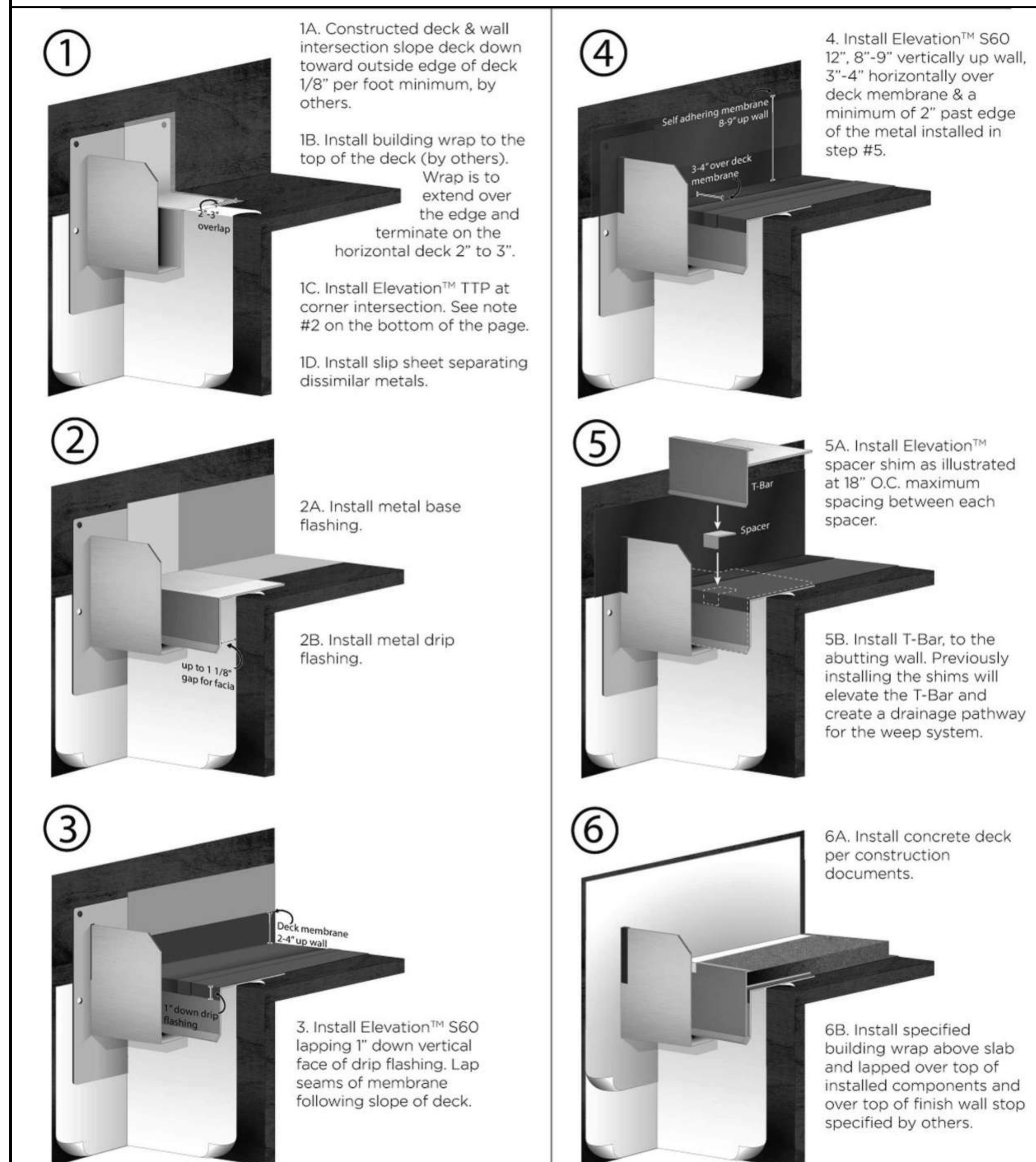
⑥ 6A. Install concrete deck per construction documents.

6B. Install specified building wrap above slab and lapped over top of installed components and over top of finish wall stop specified by others.

Note #1 - Elevation™ SM1 is applied to all waterproofing membrane termination points and to all exposed nailhead fasteners. (SM1 not required at 1" drip edge lap down termination)

Note #2 - The fascia system allowance area of the Elevation TTP™ Pocket is 1-1/8" wide. Whatever fascia system is specified cannot be more than 1-1/8" Thick. If thicker, the a custom made Elevation TTP™ pocket (or alternate method) may be required at added costs. Any gap left between the fascia system and the inside edge of the pocket trough is the responsibility of others to install sealant or to accomodate in any other way, if needed. For projects with decking that extends beyond the fascia, then this decking extension cannot exceed 1-1/8" and must be notched out at the balcony, breezeway or landing edge ends to allow for the pocket.

C1 - DECK INSTALLATION-ABUTTING WALL-DTL.



① 1A. Constructed deck & wall intersection slope deck down toward outside edge of deck 1/8" per foot minimum, by others.

1B. Install building wrap to the top of the deck (by others). Wrap is to extend over the edge and terminate on the horizontal deck 2" to 3".

1C. Install Elevation™ TTP at corner intersection. See note #2 on the bottom of the page.

1D. Install slip sheet separating dissimilar metals.

② 2A. Install metal base flashing.

2B. Install metal drip flashing.

③ 3. Install Elevation™ S60 lapping 1" down vertical face of drip flashing. Lap seams of membrane following slope of deck.

④ 4. Install Elevation™ S60 12", 8"-9" vertically up wall, 3"-4" horizontally over deck membrane & a minimum of 2" past edge of the metal installed in step #5.

⑤ 5A. Install Elevation™ spacer shim as illustrated at 18" O.C. maximum spacing between each spacer.

5B. Install T-Bar, to the abutting wall. Previously installing the shims will elevate the T-Bar and create a drainage pathway for the weep system.

⑥ 6A. Install concrete deck per construction documents.

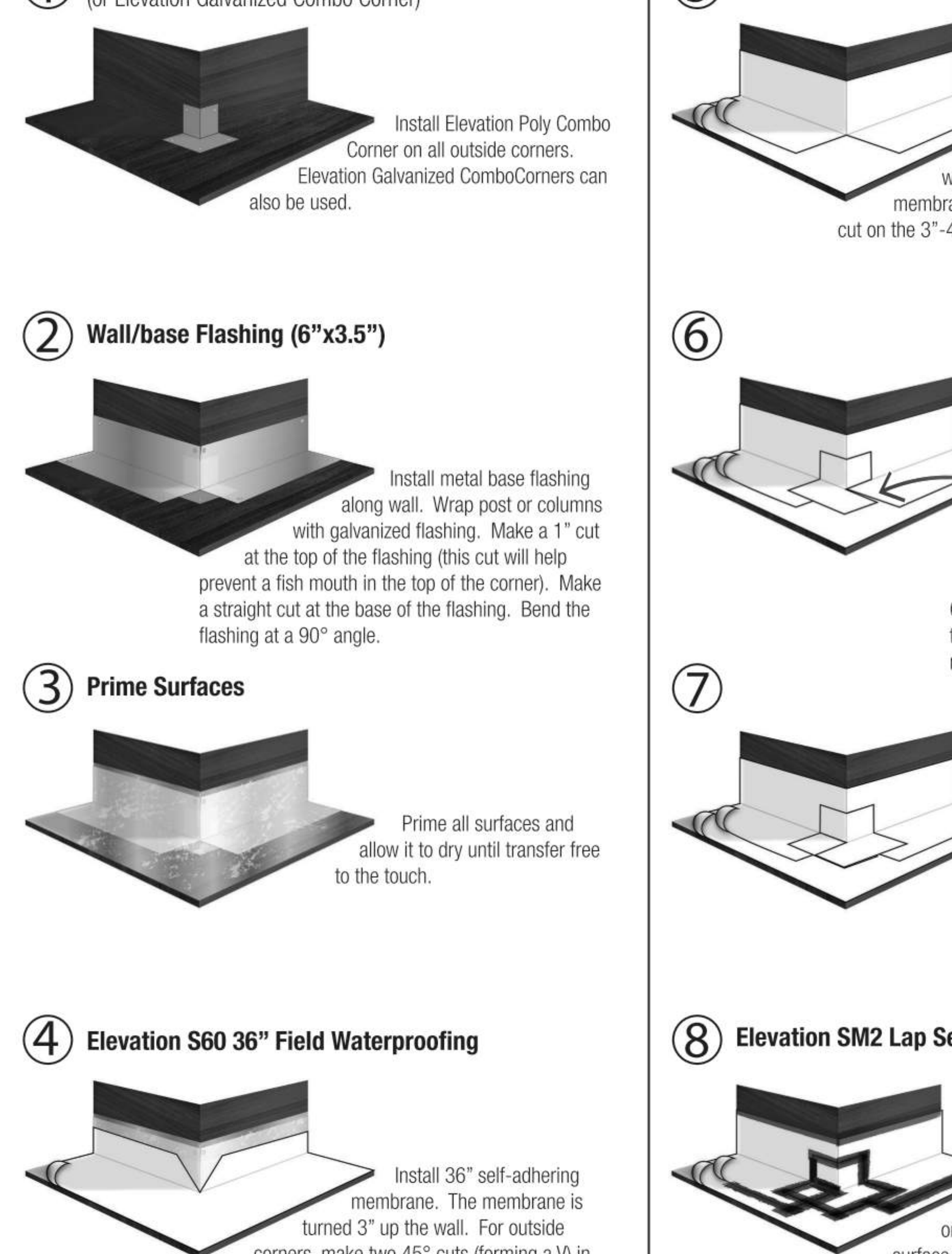
6B. Install specified building wrap above slab and lapped over top of installed components and over top of finish wall stop specified by others.

Note #1 - Lap sealant is applied to all Elevation™ S60 termination points (not required at 1" drip edge lap down termination) and to all exposed nail-head fasteners.

Note #2 - Any gap left between the fascia system and the inside edge of the TTP trough is the reponsibility of others to install sealant or to accomodate in any other way, if needed.

Note #3 - For brick or stone, do not cover trough of pocket with brick. Extension may be required.

B2 - OUTSIDE CORNER INSTALLATION - DETAIL



① **Elevation Poly Combo Corner** (or Elevation Galvanized Combo Corner)

Install Elevation Poly Combo Corner on all outside corners. Elevation Galvanized ComboCorners can also be used.

② **Wall/base Flashing (6"x3.5")**

Install metal base flashing along wall. Wrap post or columns with galvanized flashing. Make a 1" cut at the top of the flashing (this cut will help prevent a fish mouth in the top of the corner). Make a straight cut at the base of the flashing. Bend the flashing at a 90° angle.

③ **Prime Surfaces**

Prime all surfaces and allow it to dry until transfer free to the touch.

④ **Elevation S60 36" Field Waterproofing**

Install 36" self-adhering membrane. The membrane is turned 3" up the wall. For outside corners, make two 45° cuts (forming a V) in the membrane that turns up the wall.

⑤ **Elevation S60 12" Field Waterproofing Membrane**

Install 12" self-adhering membrane 8"-9" vertically up the wall and 3"-4" horizontally over deck membrane. For outside corners, make a straight cut on the 3"-4" horizontal section of the membrane.

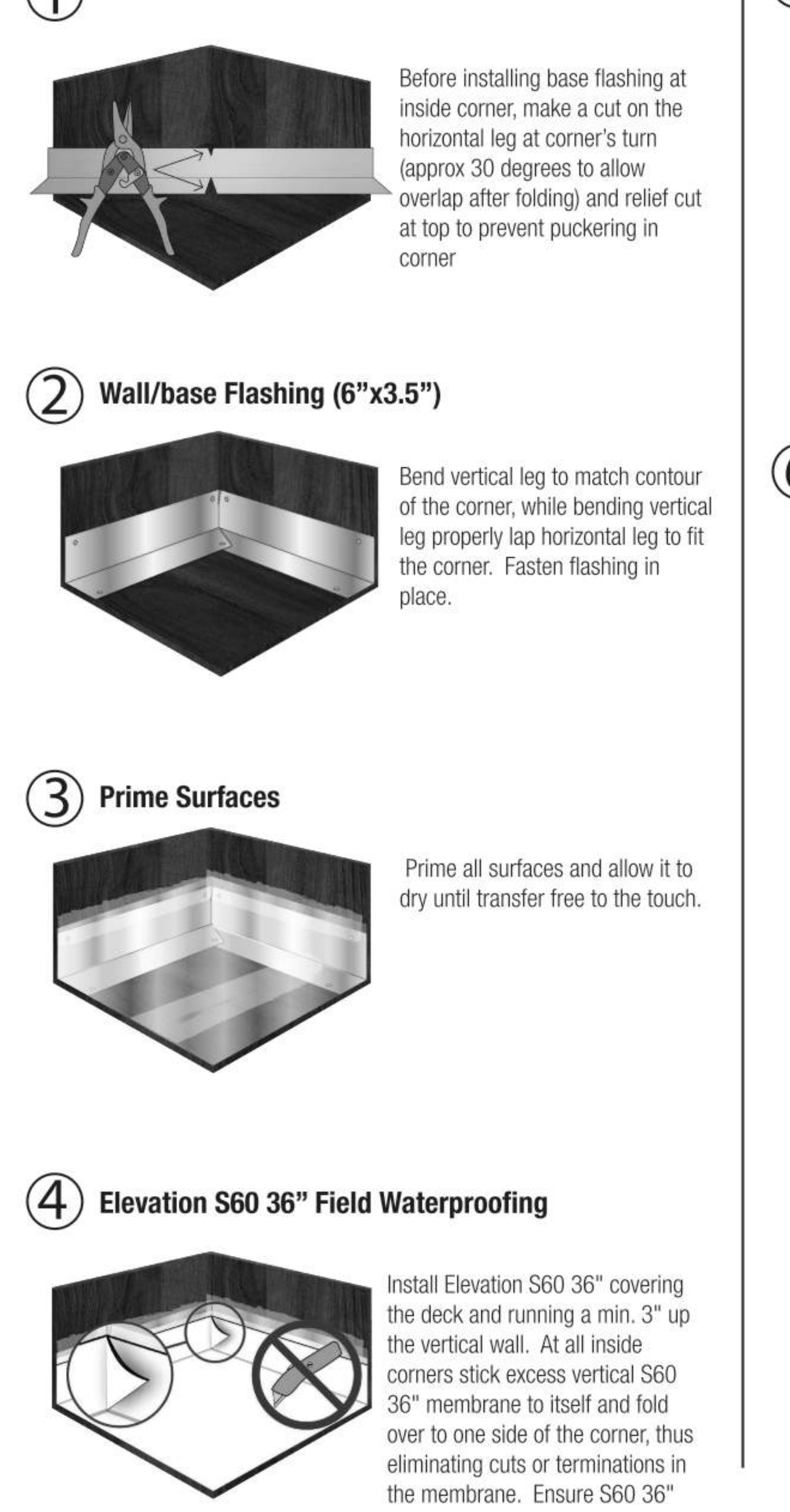
⑥ Cut two 8"x8" patches and install on the outside corner to provide reinforcement.

⑦

⑧ **Elevation SM2 Lap Sealant**

Tool sealant over all membrane edges, including those on the vertical walls and the horizontal surface. Sealant is applied to all waterproofing membrane termination points.

B1 - INSIDE CORNER INSTALLATION - DETAIL



① **Cut Wall Base Flashing**

Before installing base flashing at inside corner, make a cut on the horizontal leg at corner's turn (approx 30 degrees to allow overlap after folding) and relief cut at top to prevent puckering in corner

② **Wall/base Flashing (6"x3.5")**

Bend vertical leg to match contour of the corner, while bending vertical leg properly lap horizontal leg to fit the corner. Fasten flashing in place.

③ **Prime Surfaces**

Prime all surfaces and allow it to dry until transfer free to the touch.

④ **Elevation S60 36" Field Waterproofing**

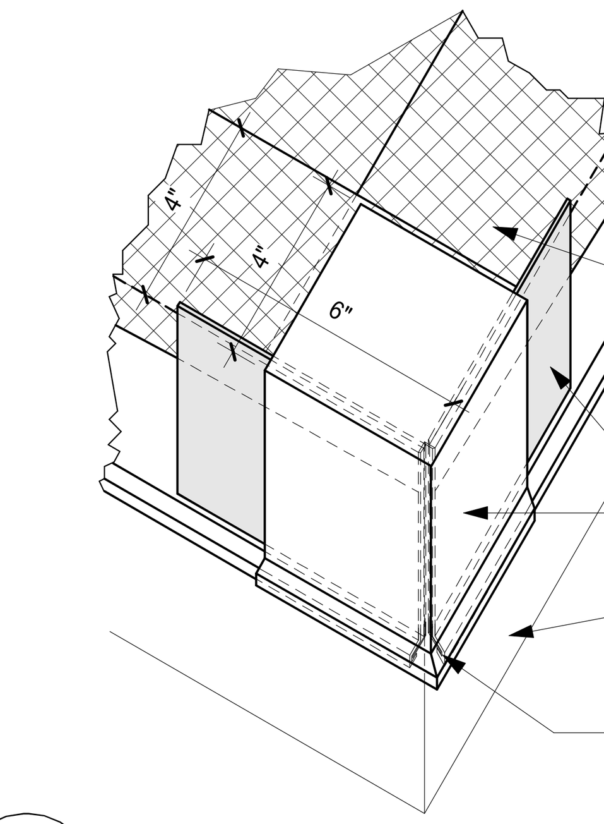
Install Elevation S60 36" covering the deck and running a min. 3" up the vertical wall. At all inside corners stick excess vertical S60 36" membrane to itself and fold over to one side of the corner, thus eliminating cuts or terminations in the membrane. Ensure S60 36" fits tight into the corner. wall.

⑤ **Elevation S60 12" Field Waterproofing Membrane**

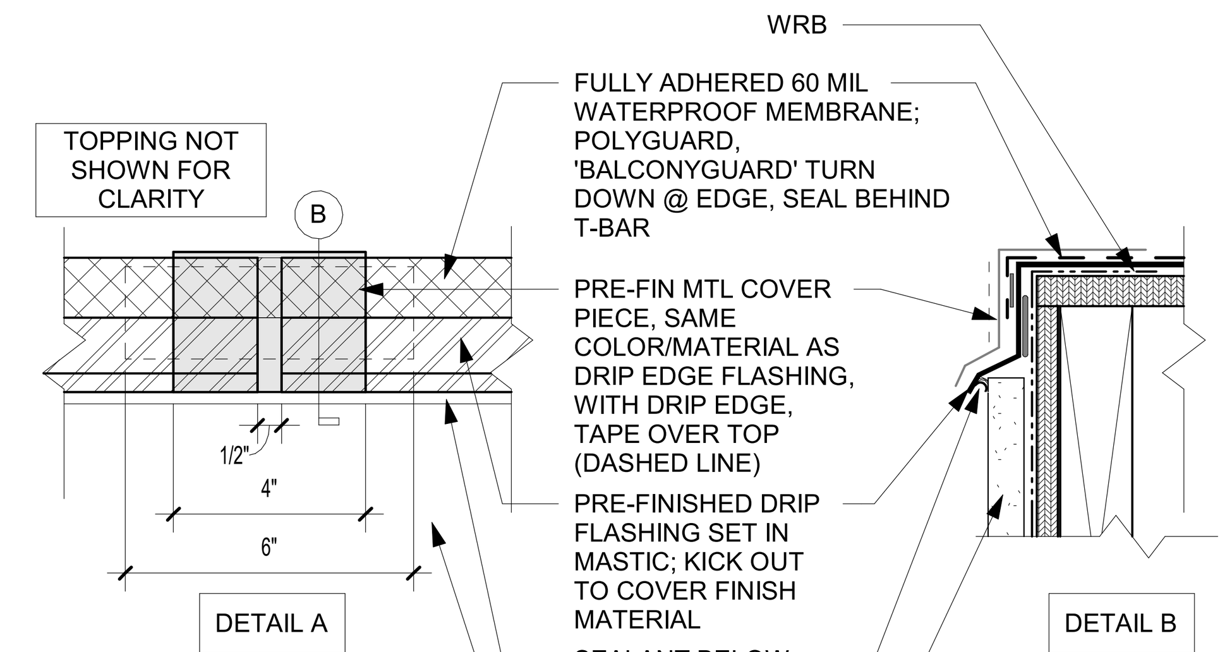
Install Elevation S60 12" 8 to 9 inches up the vertical wall, running down the wall and on to the horizontal deck a minimum of 3", overlap creates a positive shingle effect.
Make a relief cut on bottom portion of Elevation S60 12" to wall corner and lay on the horizontal deck ensuring overlap and a tight fit in the corner.

⑥ **Elevation SM2 Lap Sealant**

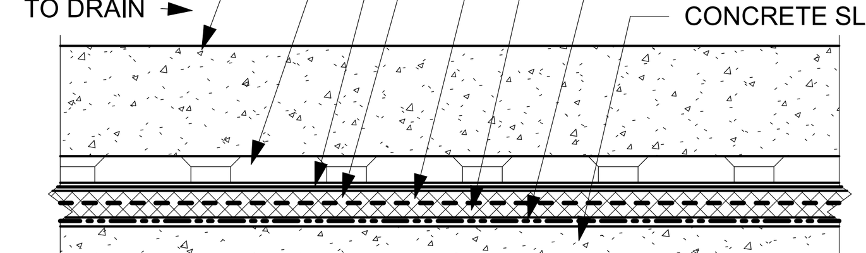
Tool sealant over all membrane edges, including those on the vertical walls and the horizontal surface. Sealant is applied to all waterproofing membrane termination points.



A4 OUTSIDE CORNER DETAIL @ FRAMED BALCONY
3" = 1'-0"

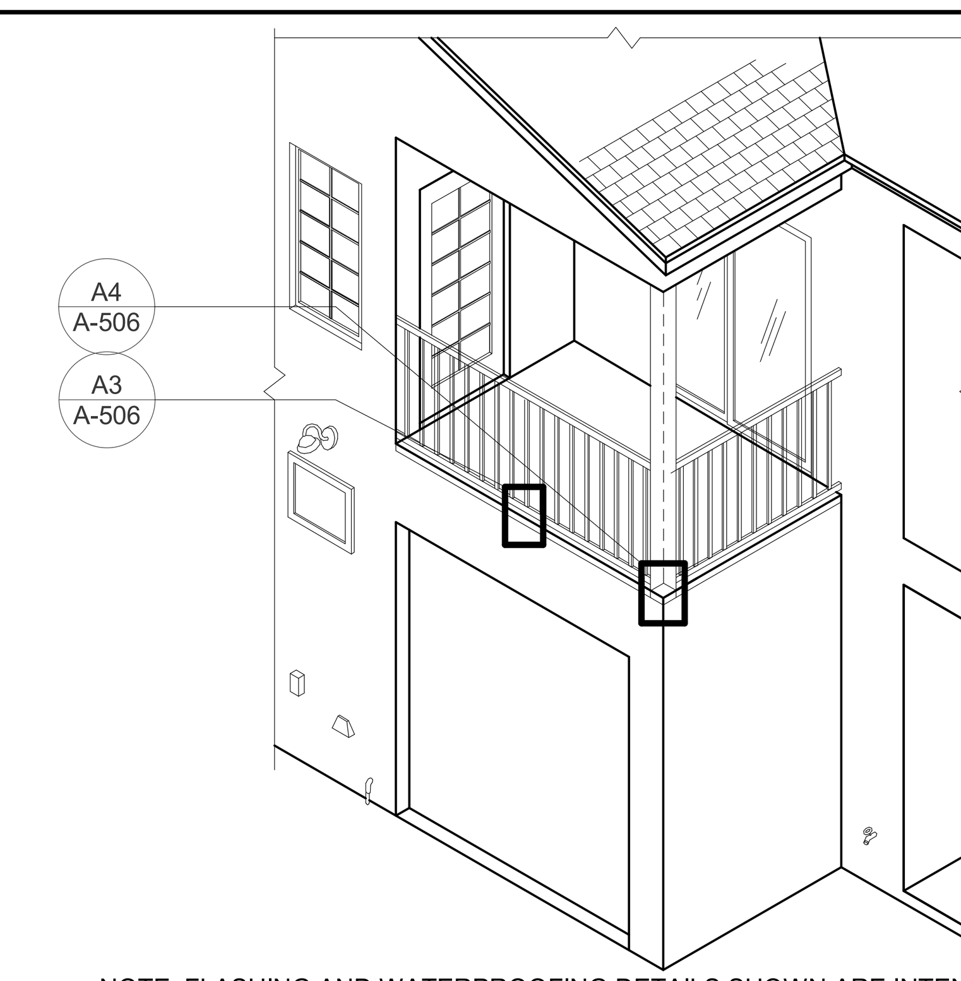


A3 OUTSIDE EDGE DETAIL @ FRAMED BALCONY
3" = 1'-0"



NOTE: PROTECTION COURSE TO EXTEND UP VERTICALLY AS HIGH AS H.A.R.A. BUT DO NOT EXTEND HORIZONTALLY ONTO SILL PANS

A2 TOPPING SLAB DECK WATERPROOFING
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.

A1 ISO REFERENCE
N.T.S.

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7395
REGISTERED ARCHITECT
11/27/2024

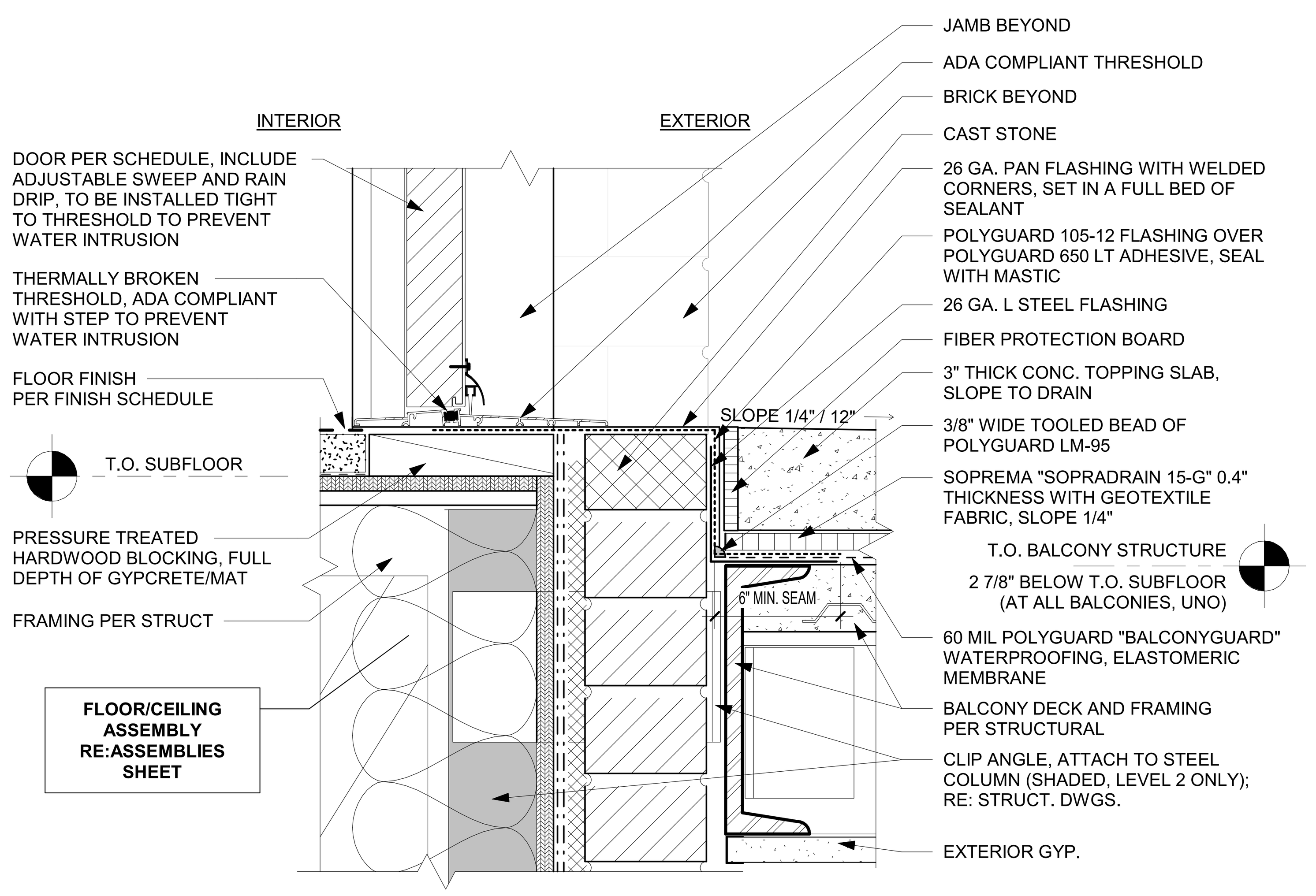
DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
BALCONY WATERPROOFING DETAILS

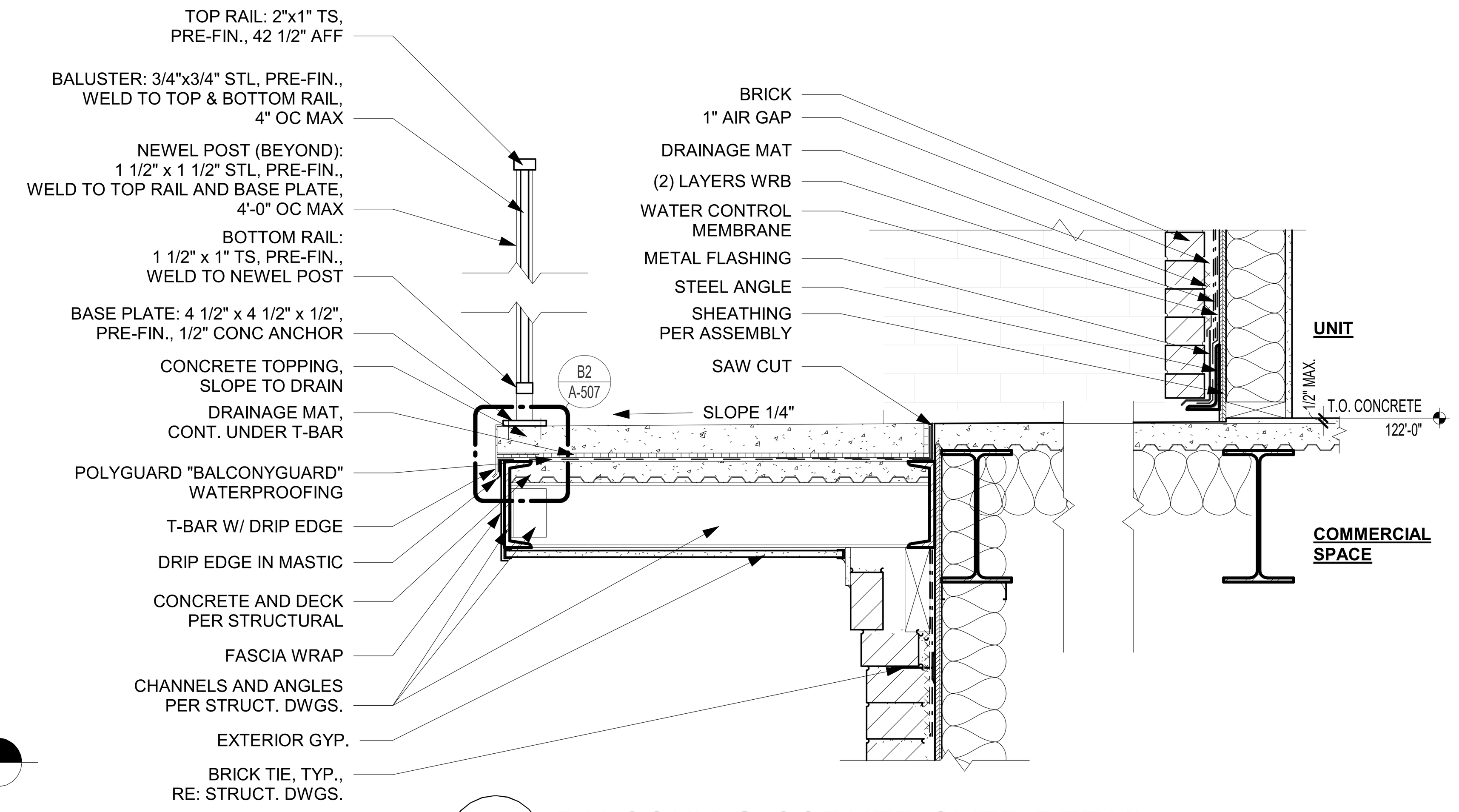
PROJECT NUMBER: 24017

SHEET NUMBER:
A-506

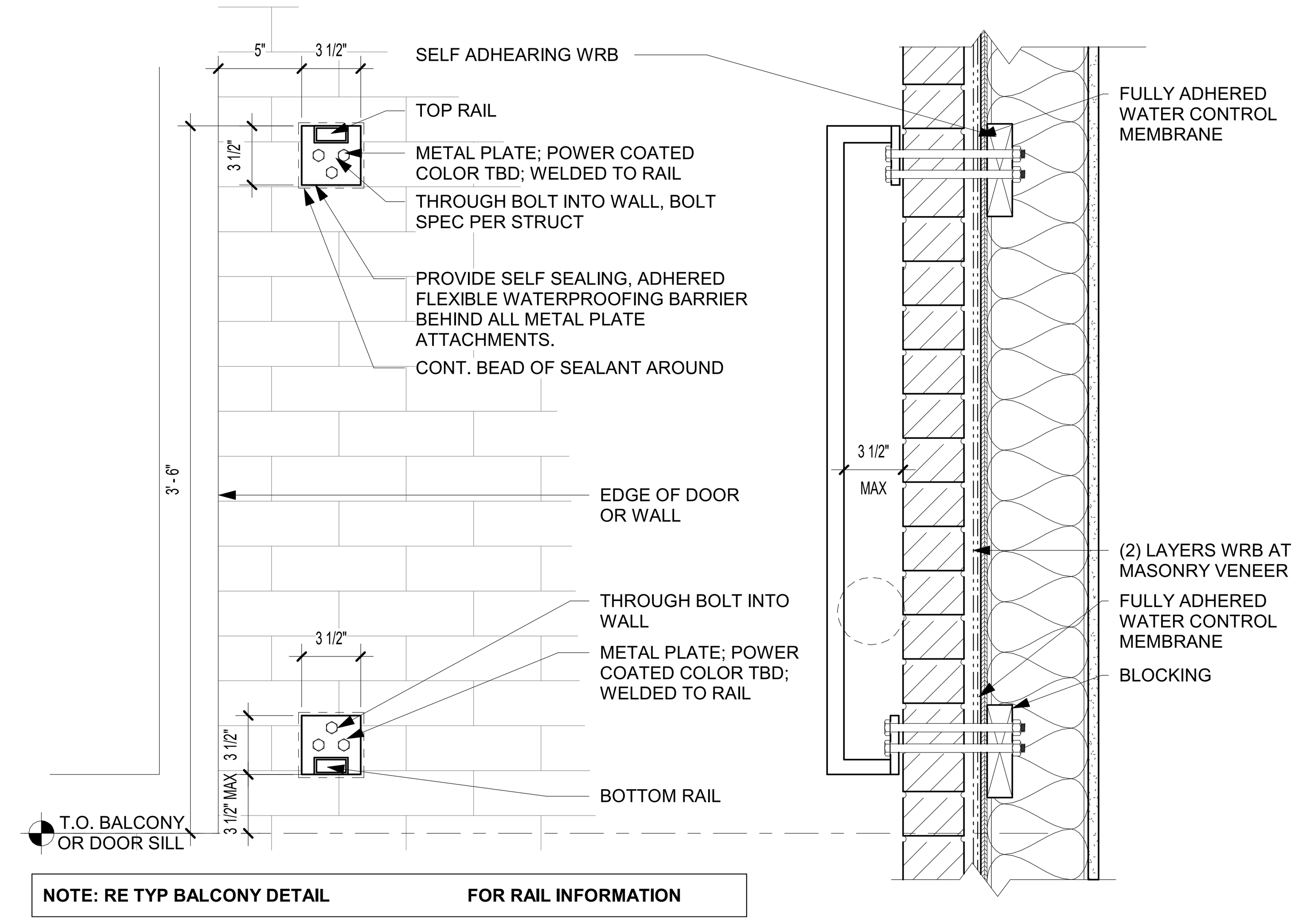
REFERENCE G-003 FOR GENERAL NOTES



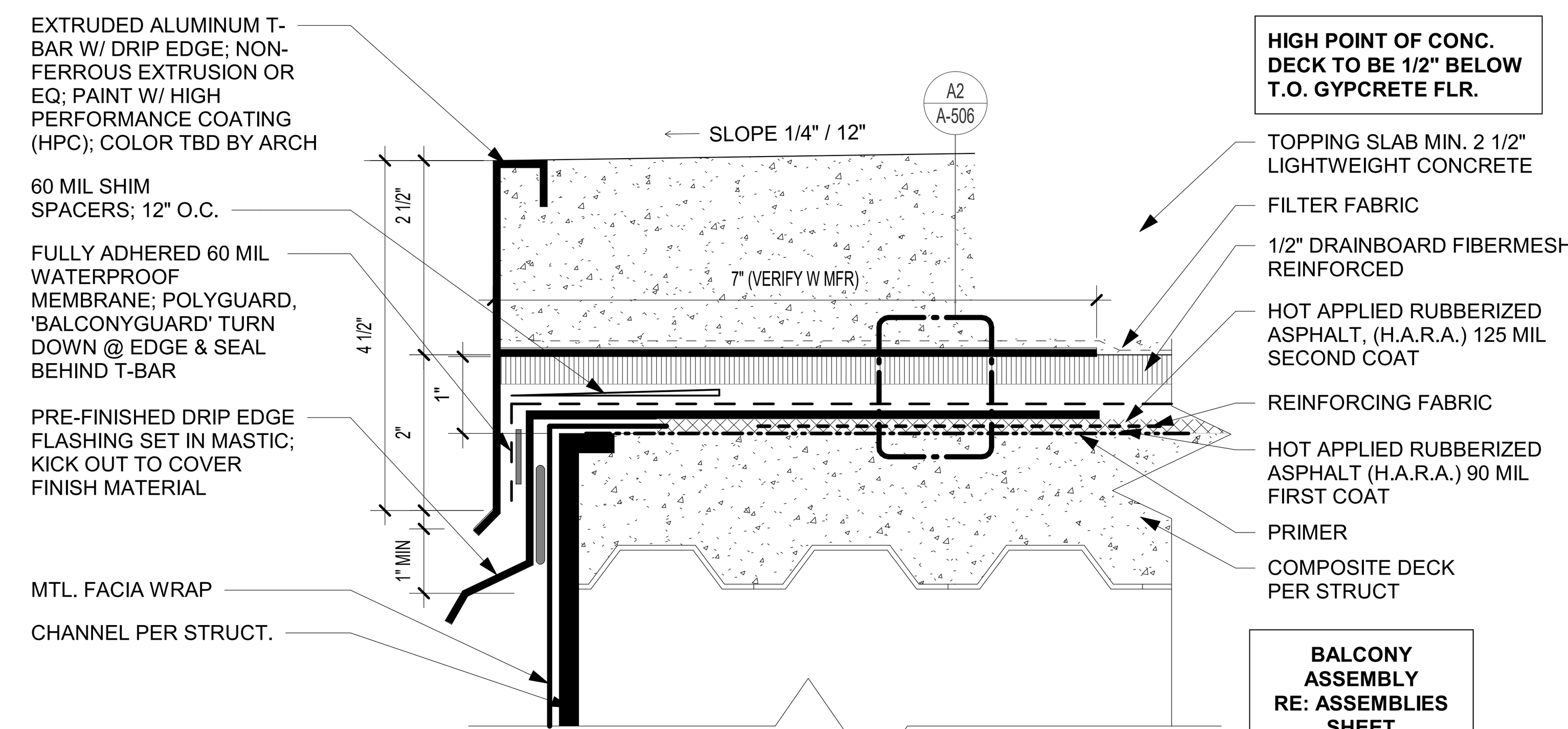
C3 BALCONY THRESHOLD DETAIL @ 3RD FLOOR
3" = 1'-0"



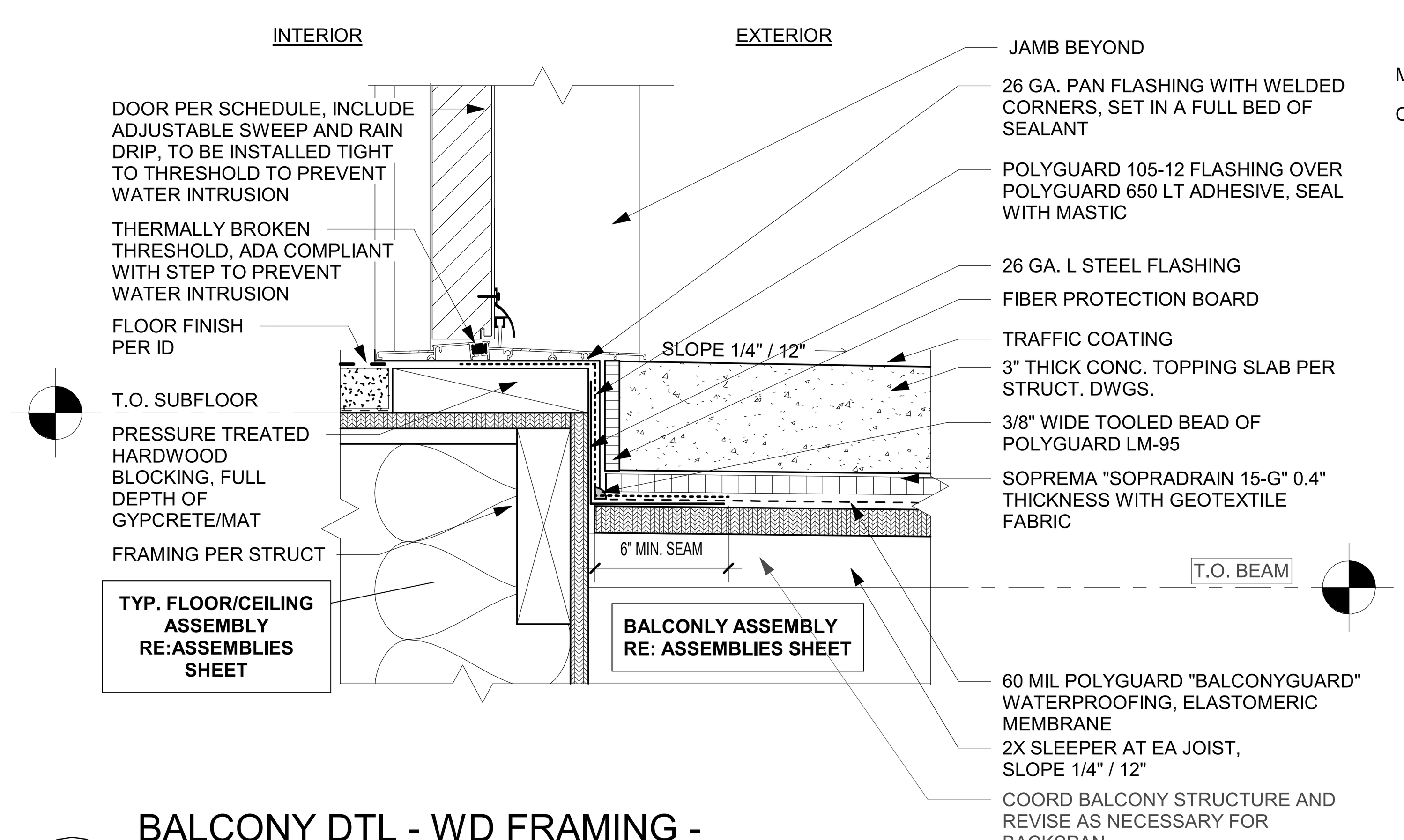
B3 BALCONY @ CORNER OVER RETAIL
1" = 1'-0"



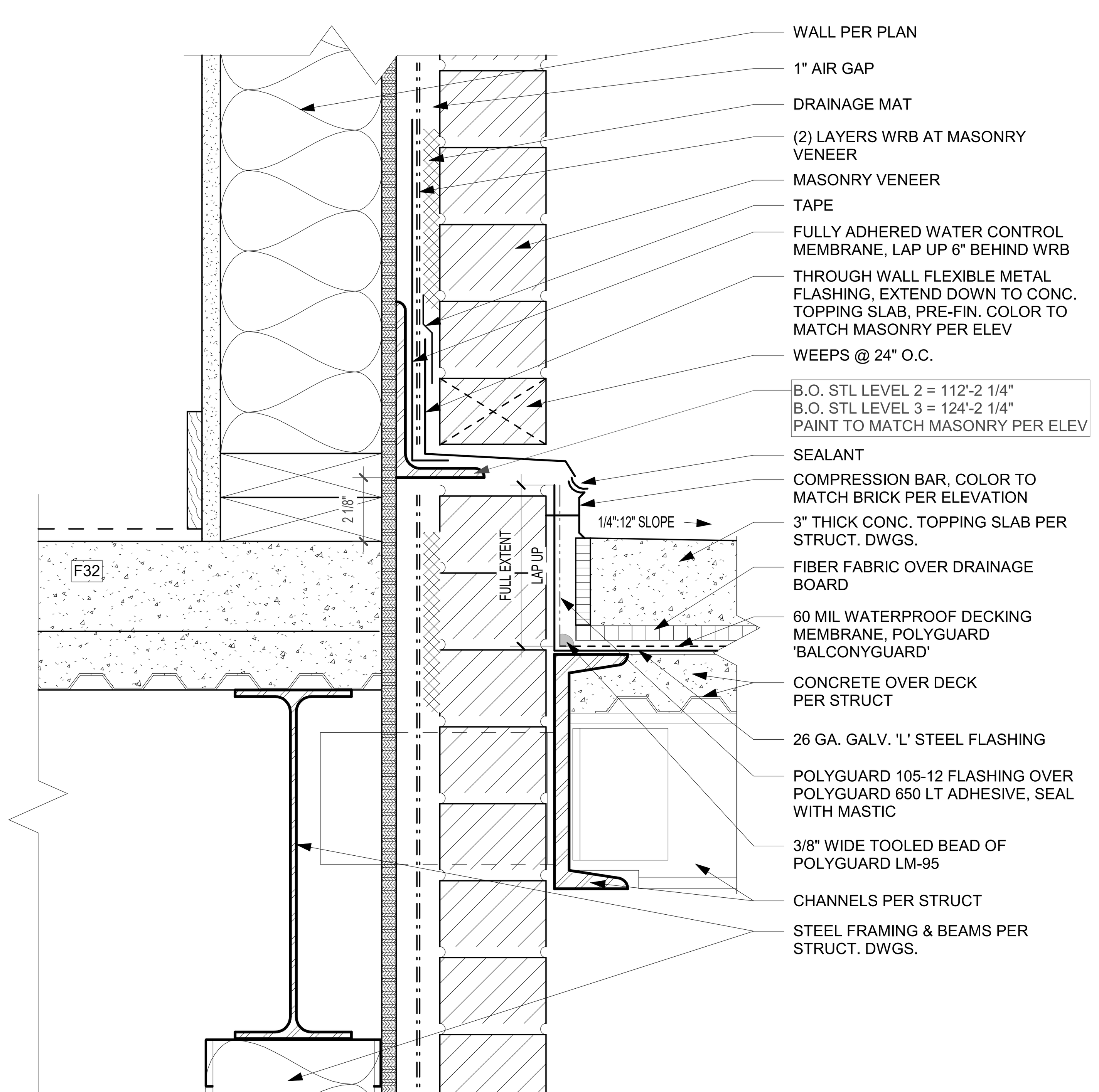
A3 RAILING - CONNECTIONS @ MASONRY VENEER
1 1/2" = 1'-0"



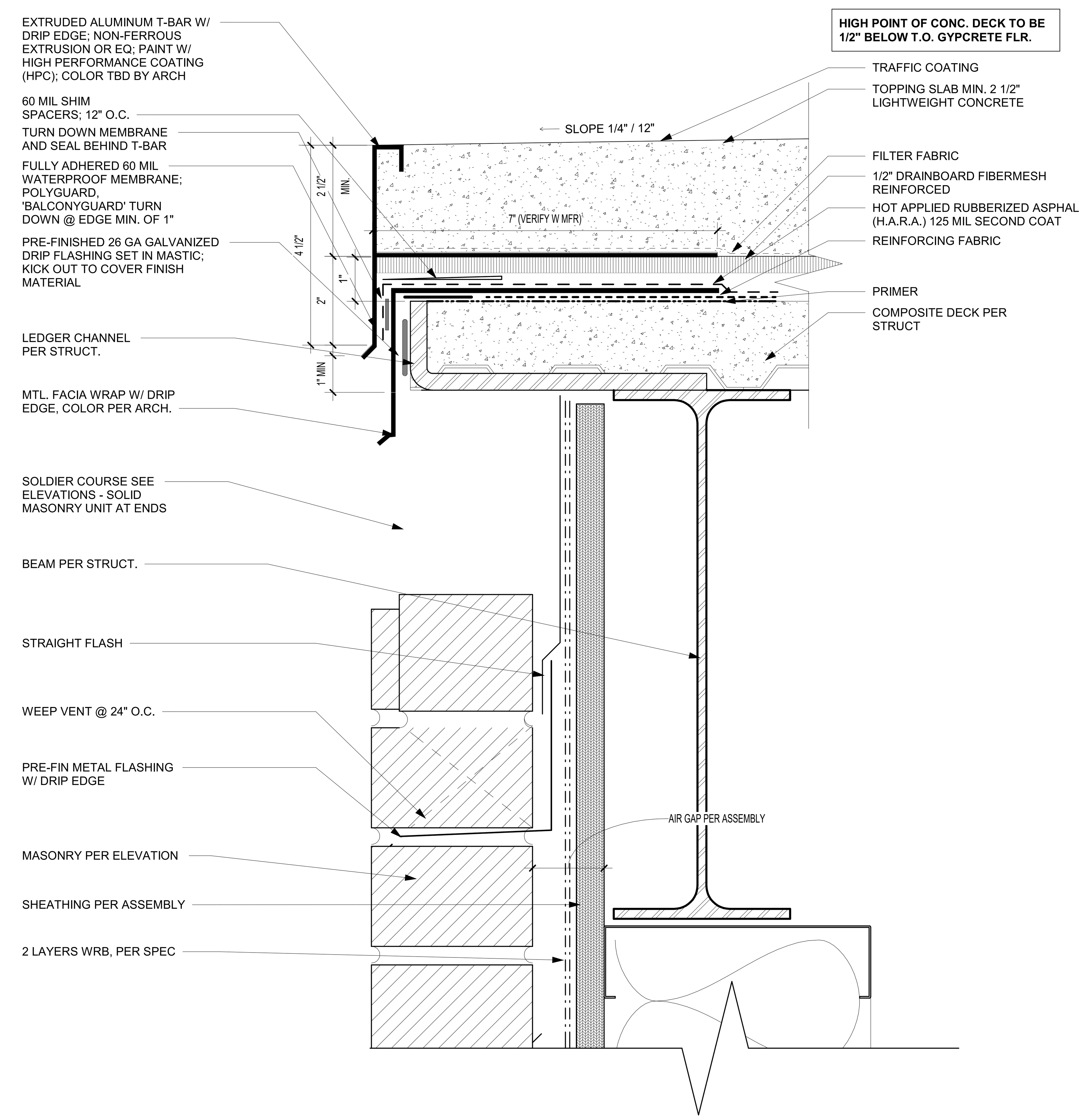
B2 BALCONY DETAIL - T-BAR AND FLASHING
6" = 1'-0"



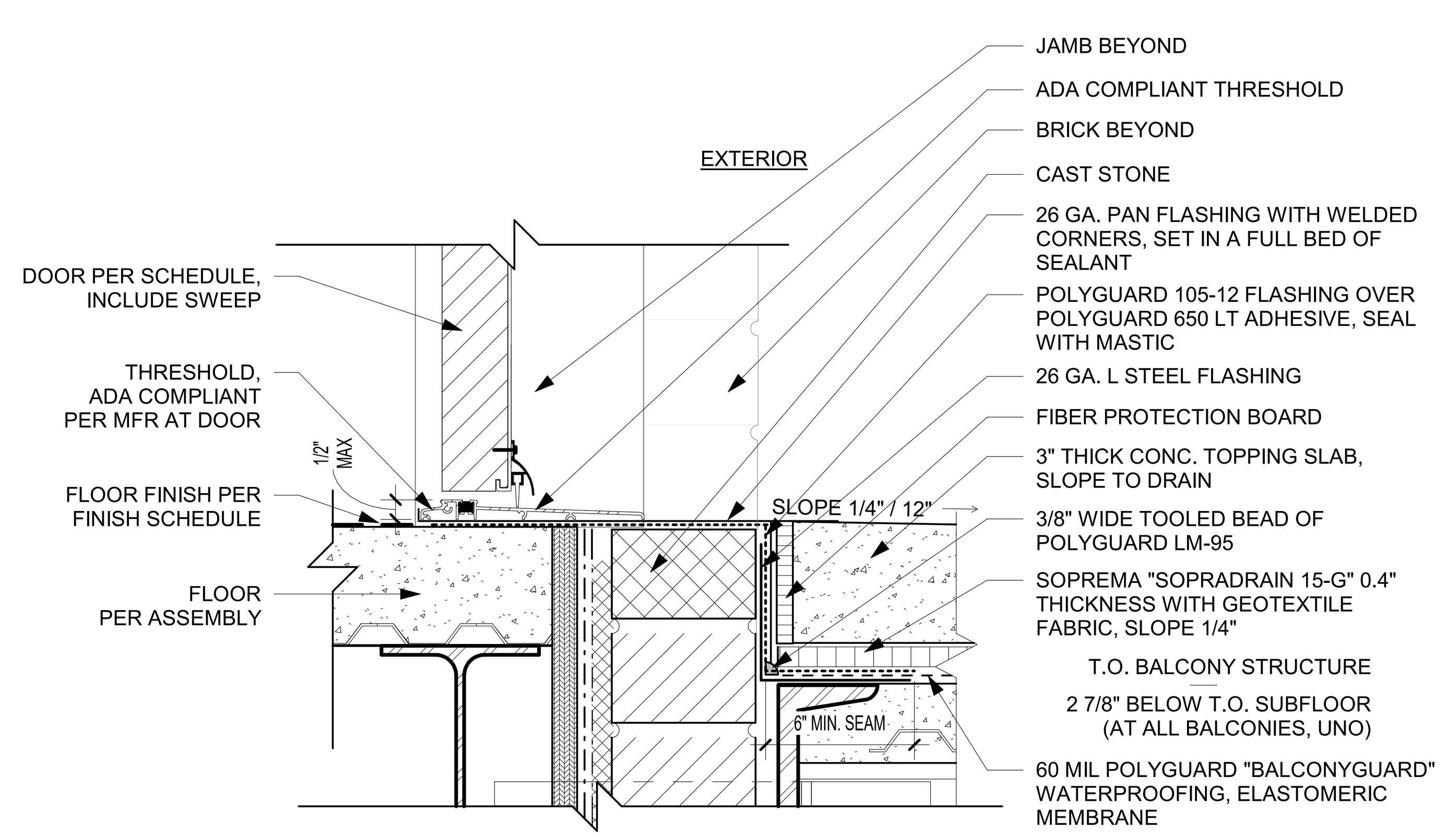
C2 BALCONY DTL - WD FRAMING - THRESHOLD (OUTSWING SHOWN)
3" = 1'-0"



B1 BALCONY @ COMMERCIAL SPACE
3" = 1'-0"



A1 BALCONY DETAIL - T-BAR AND FLASHING BRICK TRANSITION
6" = 1'-0"



C1 BALCONY THRESHOLD DETAIL @ COMMERCIAL SPACE
3" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT
11/27/2024

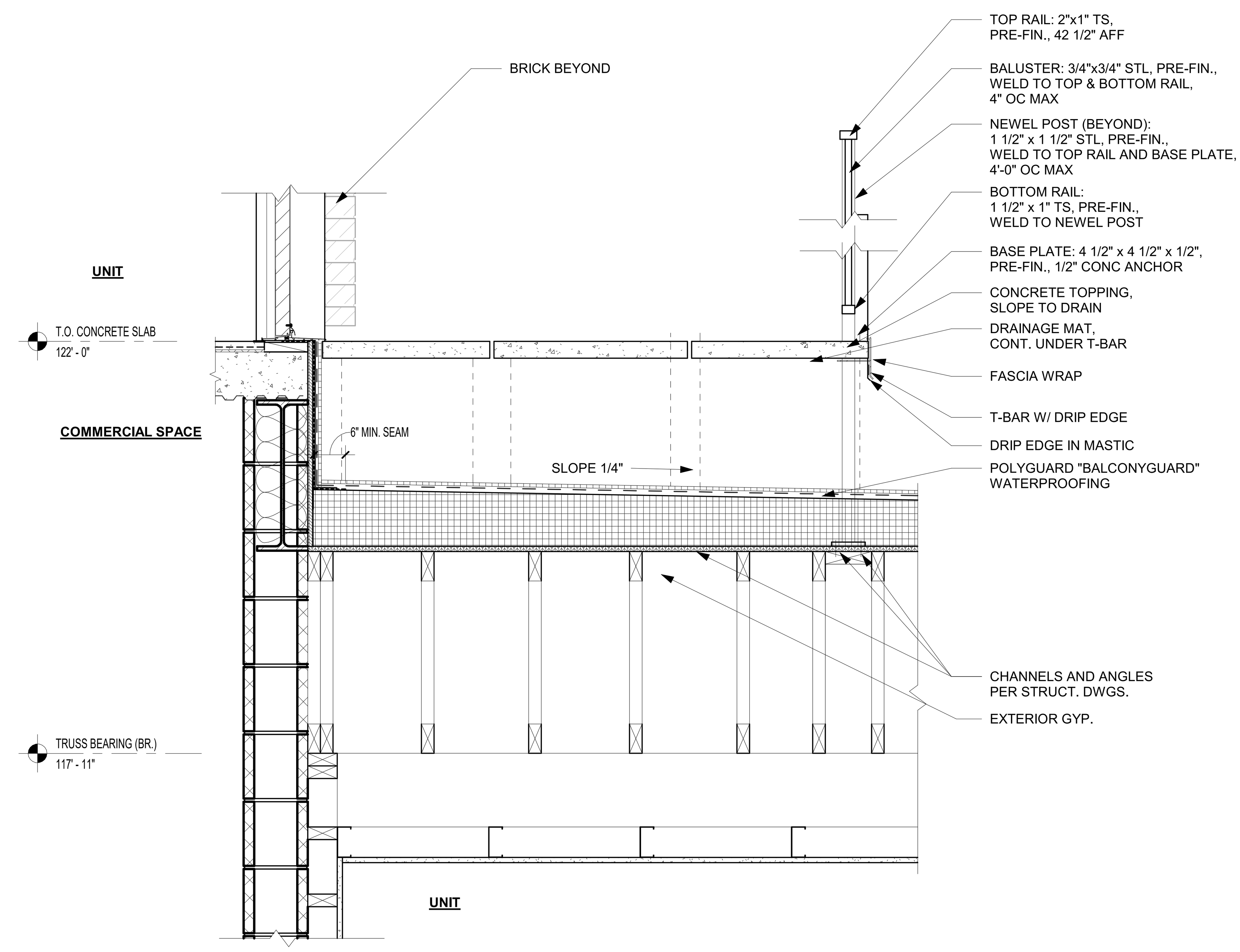
DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
BALCONY DETAILS

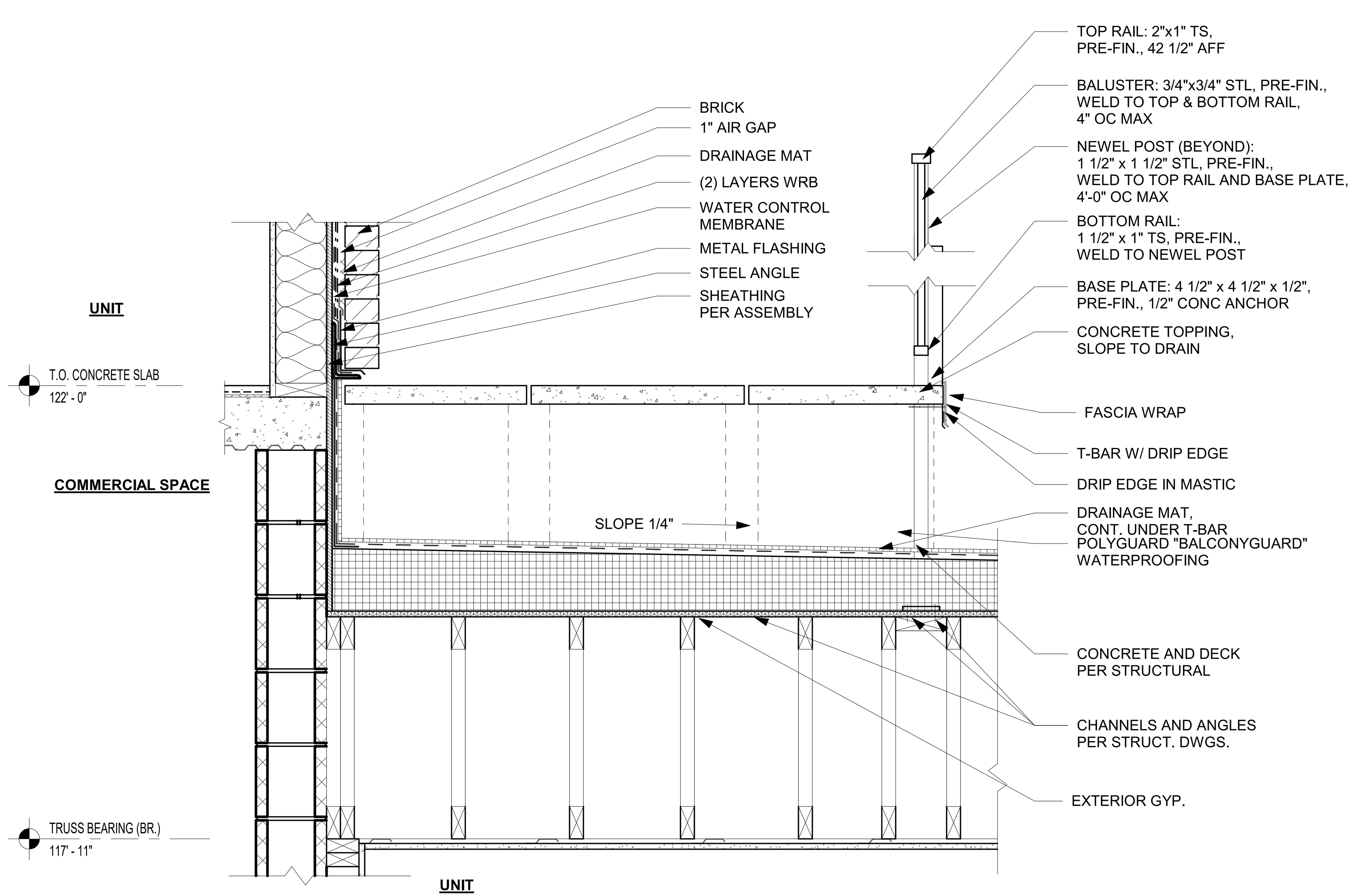
PROJECT NUMBER: 24017

SHEET NUMBER:
A-507

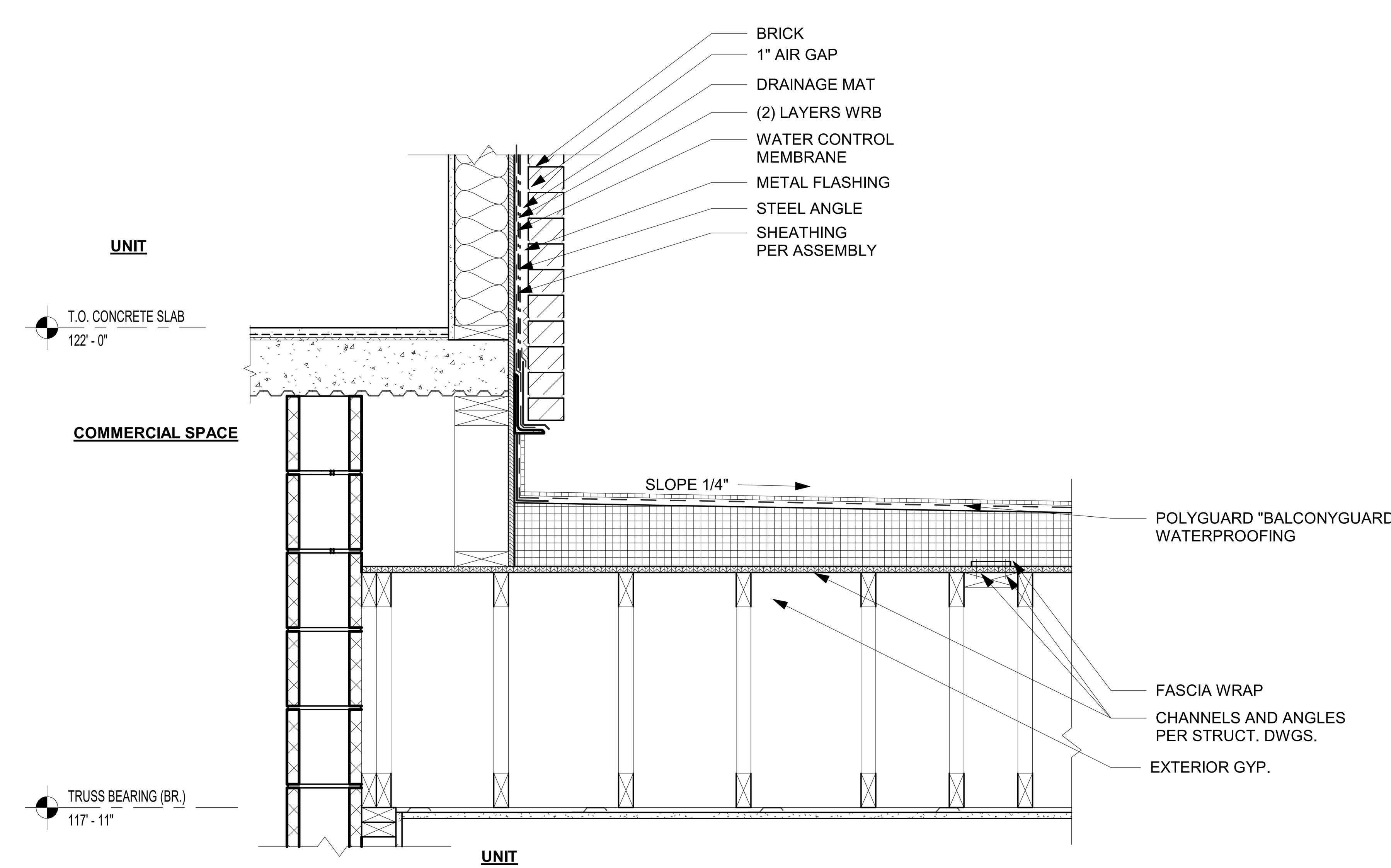
REFERENCE G-003 FOR GENERAL NOTES



A2 BALCONY @ DOOR THRESHOLD OVER BROWNSTONES
1" = 1'-0"



B1 BALCONY @ CORNER OVER BROWNSTONES
1" = 1'-0"



A1 BUMP OUT WALL OVER BROWNSTONES
1" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
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11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
BALCONY DETAILS AT BROWNSTONES

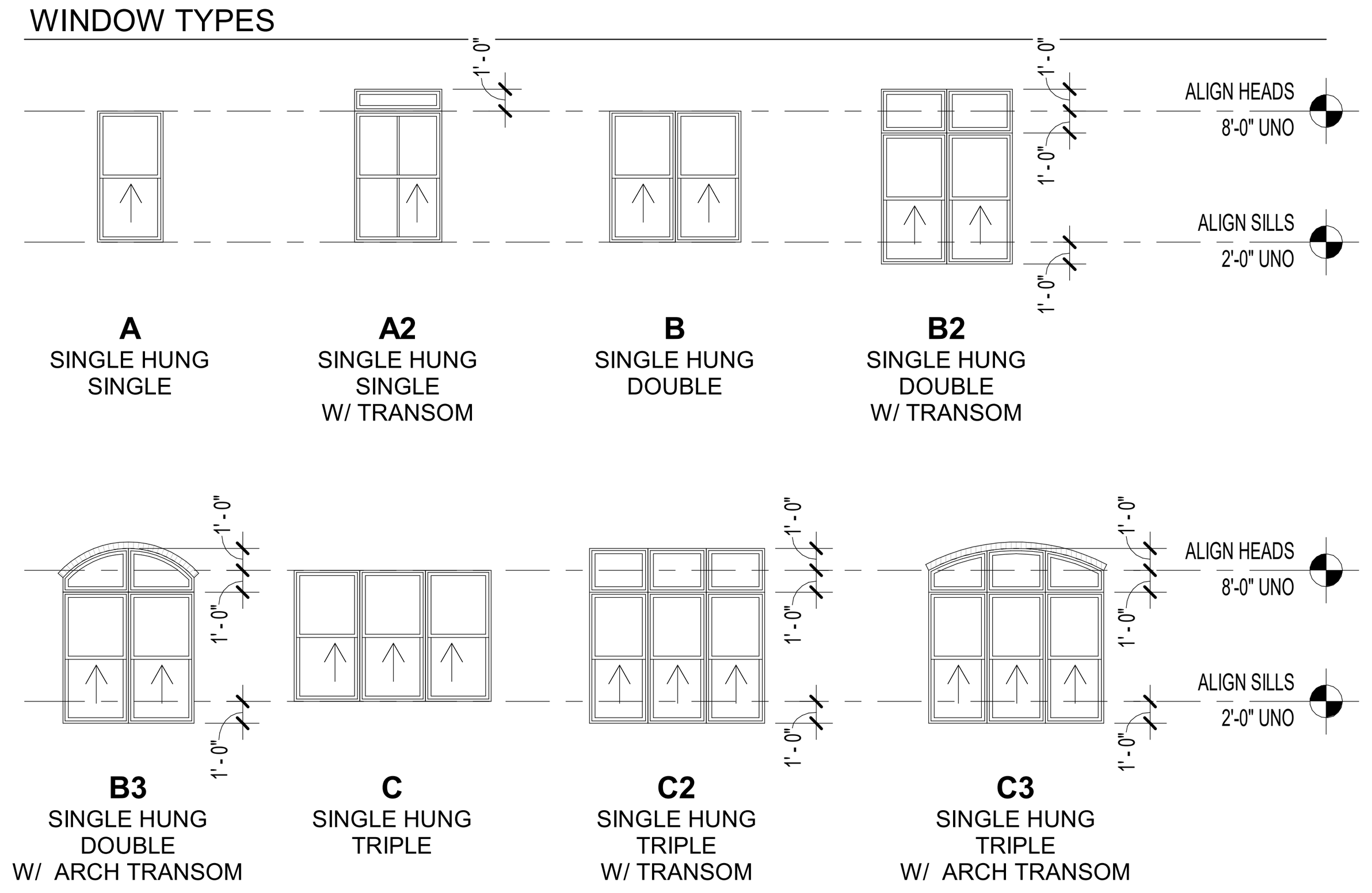
PROJECT NUMBER: 24017

SHEET NUMBER:

A-508

REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-602 & A-603 FOR DOOR AND WINDOW DETAILS

WINDOW TYPES



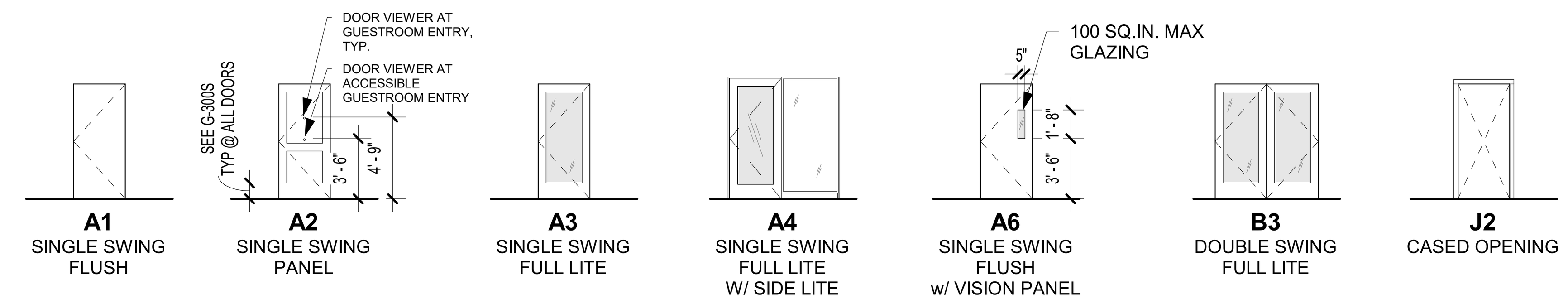
WINDOW COMMENTS:

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 A1 / A-600
5. SEE A1 / A-600 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

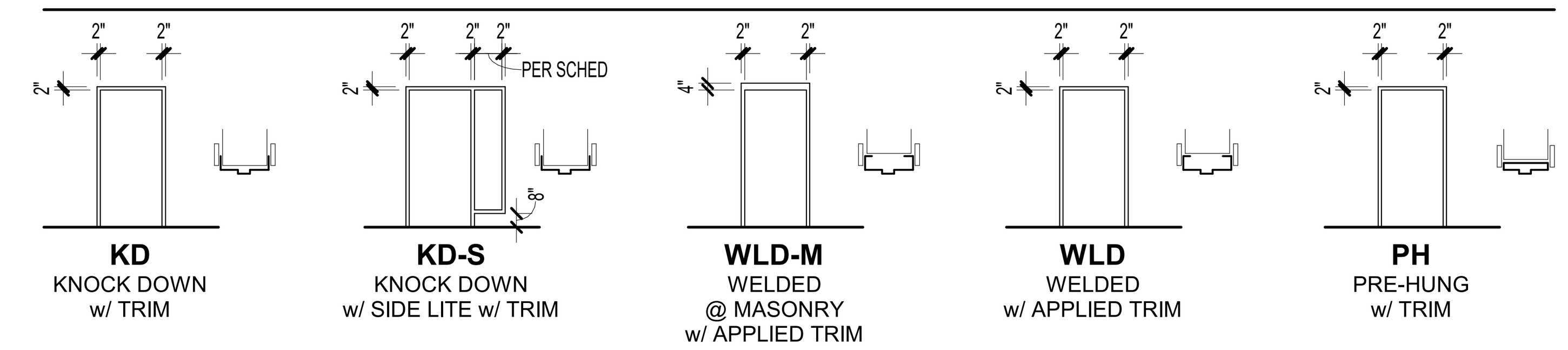
DOOR COMMENTS:

1. BOTTOM RAIL TO BE MINIMUM 10" TO ALLOW FOR A 10" KICK PLATE; TYPICALL 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



FRAME TYPES



WINDOW SCHEDULE

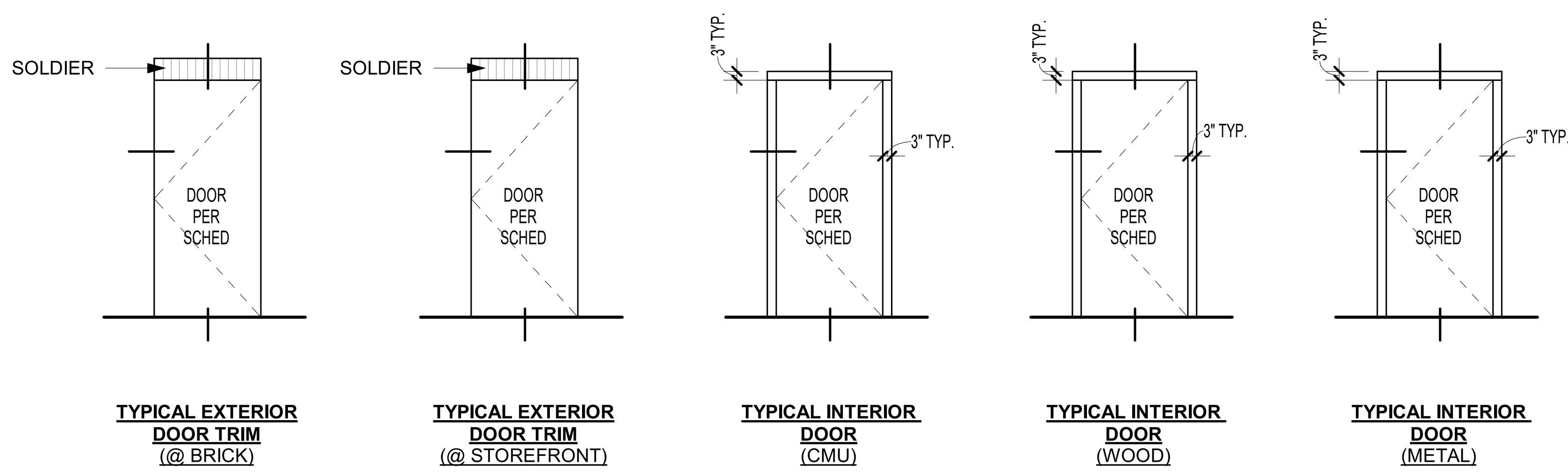
Type Mark	Width	Height	Comments
A	3' - 0"	6' - 0"	
A2	4' - 0"	7' - 0"	
B	6' - 0"	6' - 0"	
B2	6' - 0"	8' - 0"	
B3	6' - 0"	8' - 0"	
C	9' - 0"	6' - 0"	
C2	8' - 0"	8' - 0"	
C3	8' - 0"	8' - 0"	

DOOR SCHEDULE ABBREVIATIONS:

ALUM	ALUMINUM	**FGL / FBG**	FIBERGLASS	**N/A**	NOT APPLICABLE	**STL**	STEEL
ANO	ANODIZED	**HC WOOD / HCWD**	HOLLOW CORE WOOD	**PER MFR**	PER MANUFACTURER	**WD CLAD**	WOOD CLAD
BLK	BLACK	**HM**	HOLLOW METAL	**PRE-FIN**	PRE-FINISHED		
BRZ	BRONZE	**INSUL MTL**	INSULATED METAL	**PT / PTD**	PAINTED		
CLR	CLEAR	**MTL**	METAL	**SC WOOD / SCWD**	SOLID CORE WOOD		

DOOR SCHEDULE - COMMON AREA DOORS

Mark	Width	Height	Thickness	Fire Rating (Minutes)	Access Control (AC)	Panic Hardware	Door			Frame			Hardware Group	Comments
							Door Type	Door Material	Door Finish	Frame Type	Frame Material	Frame Finish		
T.O. 1st FLOOR SLAB														
1000	3' - 0"	6' - 8"	1 3/4"	90		Yes	A6	INSUL MTL	PTD	WLD-M	INSUL MTL	PTD	04	
1001.2	3' - 0"	6' - 8"	1 3/4"	45		No	A6	HM	PTD	WLD	HM	PTD	06	
1002	6' - 0"	7' - 0"	1 3/4"			Yes	B3	ALUM	PRE-FIN	SF	ALUM	PRE-FIN	01	
1003.1	6' - 0"	7' - 0"	1 3/4"			Yes	B3	ALUM	PRE-FIN	SF	ALUM	PRE-FIN	02	
1003.2	3' - 0"	6' - 8"	1 3/4"	45		Yes	A6	HM	PTD	WLD	HM	PTD	05	
1003.3	3' - 0"	6' - 8"	1 3/4"	45		Yes	A6	HM	PTD	WLD	HM	PTD	05	
1004.1	6' - 0"	7' - 0"	1 3/4"			Yes	B3	ALUM	PRE-FIN	ALUM	ALUM	PRE-FIN	02	
1004.2	6' - 0"	7' - 0"	1 3/4"			Yes	B3	ALUM	PRE-FIN	ALUM	ALUM	PRE-FIN	02	
1005	3' - 0"	6' - 8"	1 3/4"			No	A1	INSUL MTL	PTD	WLD-M	INSUL MTL	PTD	08	
1008	3' - 0"	7' - 0"	1 3/4"			Yes	A3	ALUM	PRE-FIN	SF	ALUM	PRE-FIN	03	
ST1-1	3' - 0"	7' - 0"	1 3/4"			Yes	A3	ALUM	PRE-FIN	SF	ALUM	PRE-FIN	09	
ST1-1.2	3' - 0"	6' - 8"	1 3/4"	90		No	A6	HM	PTD	WLD-M	HM	PTD	06	
ST2-1	3' - 0"	6' - 8"	1 3/4"			Yes	A3	ALUM	PRE-FIN	SF	ALUM	PRE-FIN	03	
T.O. 2nd GYPCRETE														
2000	3' - 0"	7' - 0"	1 3/4"	20		No	A1	SC WOOD	STAINED	KD	HM	PTD	06	
2001	3' - 0"	7' - 0"	1 3/4"	20		No	A1	SC WOOD	STAINED	KD	HM	PTD	06	
2002	3' - 0"	7' - 0"	1 3/4"	20		No	A1	SC WOOD	STAINED	KD	HM	PTD	07	
ST1-2	3' - 0"	6' - 8"	1 3/4"	90		Yes	A6	HM	PTD	WLD	HM	PTD	10	
ST2-2	3' - 0"	6' - 8"	1 3/4"	90		Yes	A6	HM	PTD	WLD	HM	PTD	10	
T.O. 3rd GYPCRETE														
3000	3' - 0"	7' - 0"	1 3/4"	20		No	A1	SC WOOD	STAINED	KD	HM	PTD	06	
3001	3' - 0"	7' - 0"	1 3/4"	20		No	A1	SC WOOD	STAINED	KD	HM	PTD	06	
3002	3' - 0"	7' - 0"	1 3/4"	20		No	A1	SC WOOD	STAINED	KD	HM	PTD	07	
ST1-3	3' - 0"	6' - 8"	1 3/4"	90		Yes	A6	HM	PTD	WLD	HM	PTD	10	
ST2-3	3' - 0"	6' - 8"	1 3/4"	90		Yes	A6	HM	PTD	WLD	HM	PTD	10	



A1 DOOR TRIM & CASING - TYPICAL
1/4" = 1'-0"

ROOM FINISH SCHEDULE

Number	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
T.O. 1st FLOOR SLAB						
1000	OPEN GARAGE	CONCRETE	--	--	--	
1001	CORRIDOR	CT2	WOOD	PAINTED GYP. BD.	PAINTED GYP. BD.	
1002	LOBBY	LVT1	WOOD	PAINTED GYP. BD.	PAINTED GYP. BD.	
1003	COMMERCIAL	--	--	--	--	
1005	RISER ROOM	CONCRETE	--	--	--	
EV1-1	ELEV.	CT1	--	--	--	
ST1-1	STAIR 1	CT1	VINYL	PAINTED GYP. BD.	--	
ST2-1	STAIR 2	CT1	VINYL	PAINTED GYP. BD.	--	
T.O. 2nd GYPCRETE						
2000	CL	CT1	VINYL	PAINTED GYP. BD.	PAINTED GYP. BD.	
2001	MECH.	CT1	VINYL	PAINTED GYP. BD.	PAINTED GYP. BD.	
2002	CL	CT1	VINYL	PAINTED GYP. BD.	PAINTED GYP. BD.	
C1-2	CORRIDOR	CT2	WOOD	PAINTED GYP. BD.	PAINTED GYP. BD.	
EV1-2	ELEV.	CT1	--	--	--	
ST1-2	STAIR 1	CT1	VINYL	PAINTED GYP. BD.	--	
ST2-2	STAIR 2	CT1	VINYL	PAINTED GYP. BD.	--	
T.O. 3rd GYPCRETE						
3000	CL	CT1	VINYL	PAINTED GYP. BD.	PAINTED GYP. BD.	
3001	MECH.	CT1	VINYL	PAINTED GYP. BD.	PAINTED GYP. BD.	
3002	CL	CT1	VINYL	PAINTED GYP. BD.	PAINTED GYP. BD.	
C1-3	CORRIDOR	CT2	WOOD	PAINTED GYP. BD.	PAINTED GYP. BD.	
EV1-3	ELEV.	CT1	--	--	--	
ST1-3	STAIR 1	CT1	VINYL	PAINTED GYP. BD.	--	
ST2-3	STAIR 2	CT1	VINYL	PAINTED GYP. BD.	--	

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
WINDOW / DOOR / FINISH SCHEDULES

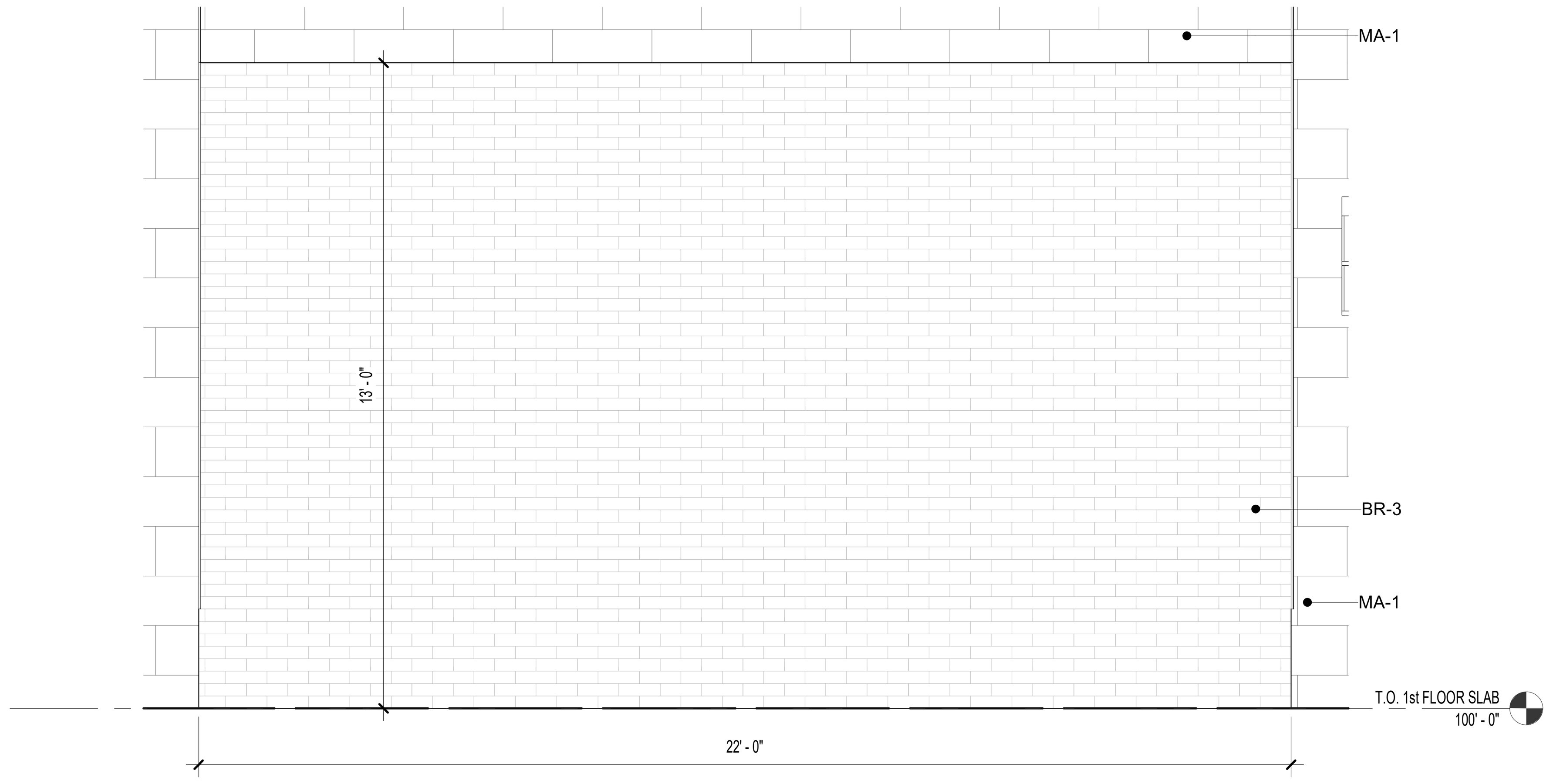
PROJECT NUMBER: 24017

SHEET NUMBER:

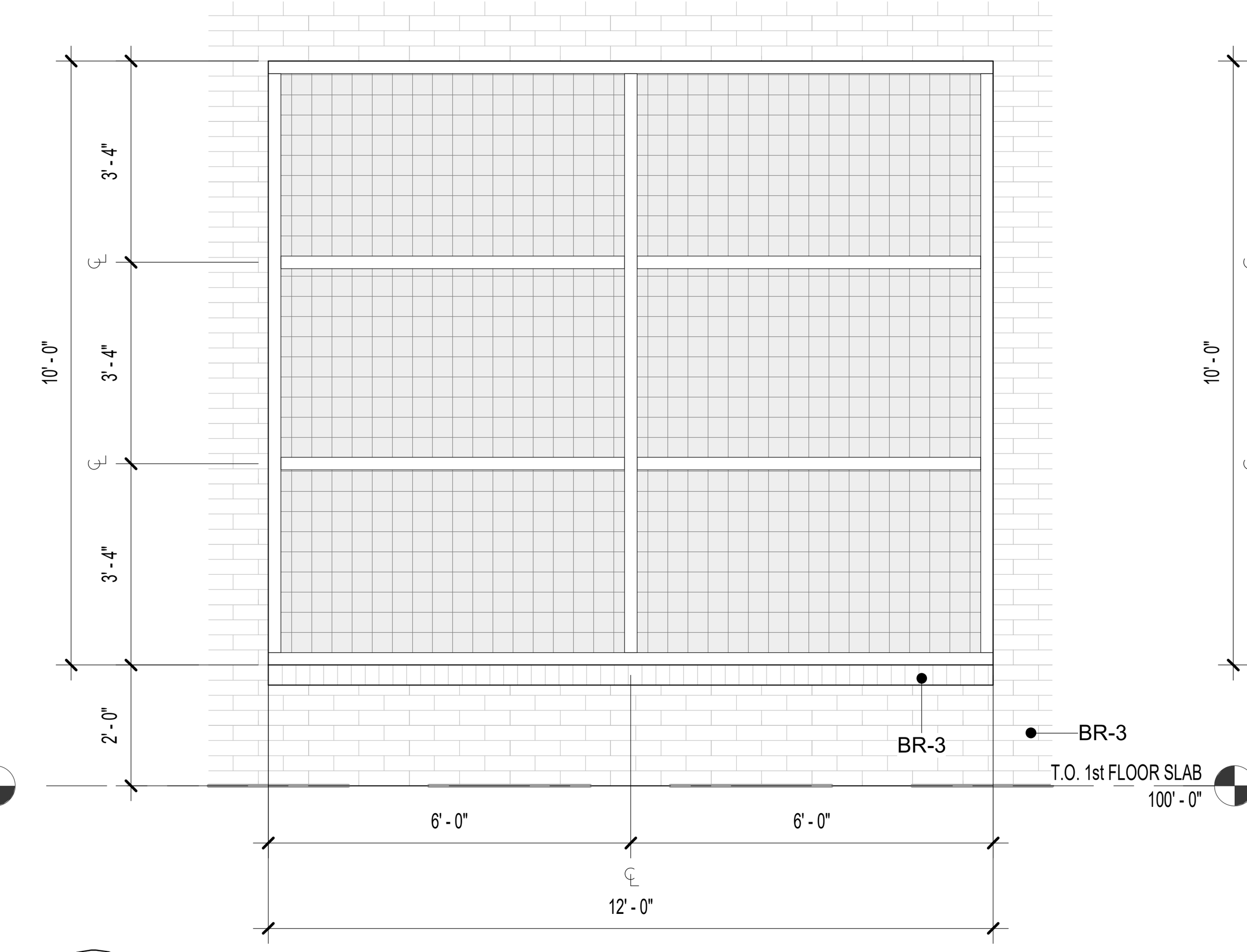
A-600

11/27/2024 9:42:09 AM
C:\Revit Local Cache\2023\24017_DPLS_LOT9_BLDGA_sburdick7PGKD.rvt

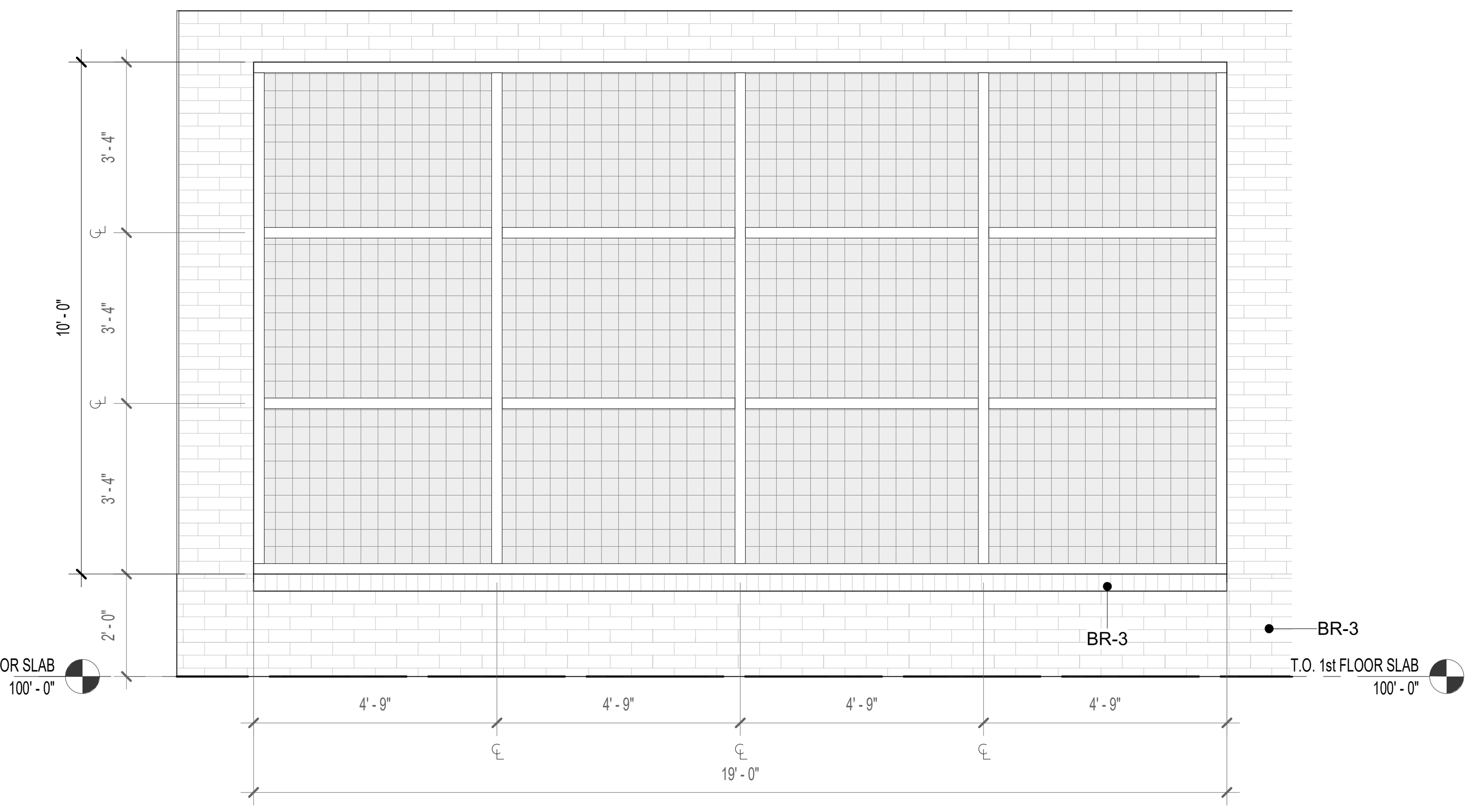
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-602 & A-603 FOR DOOR AND WINDOW DETAILS



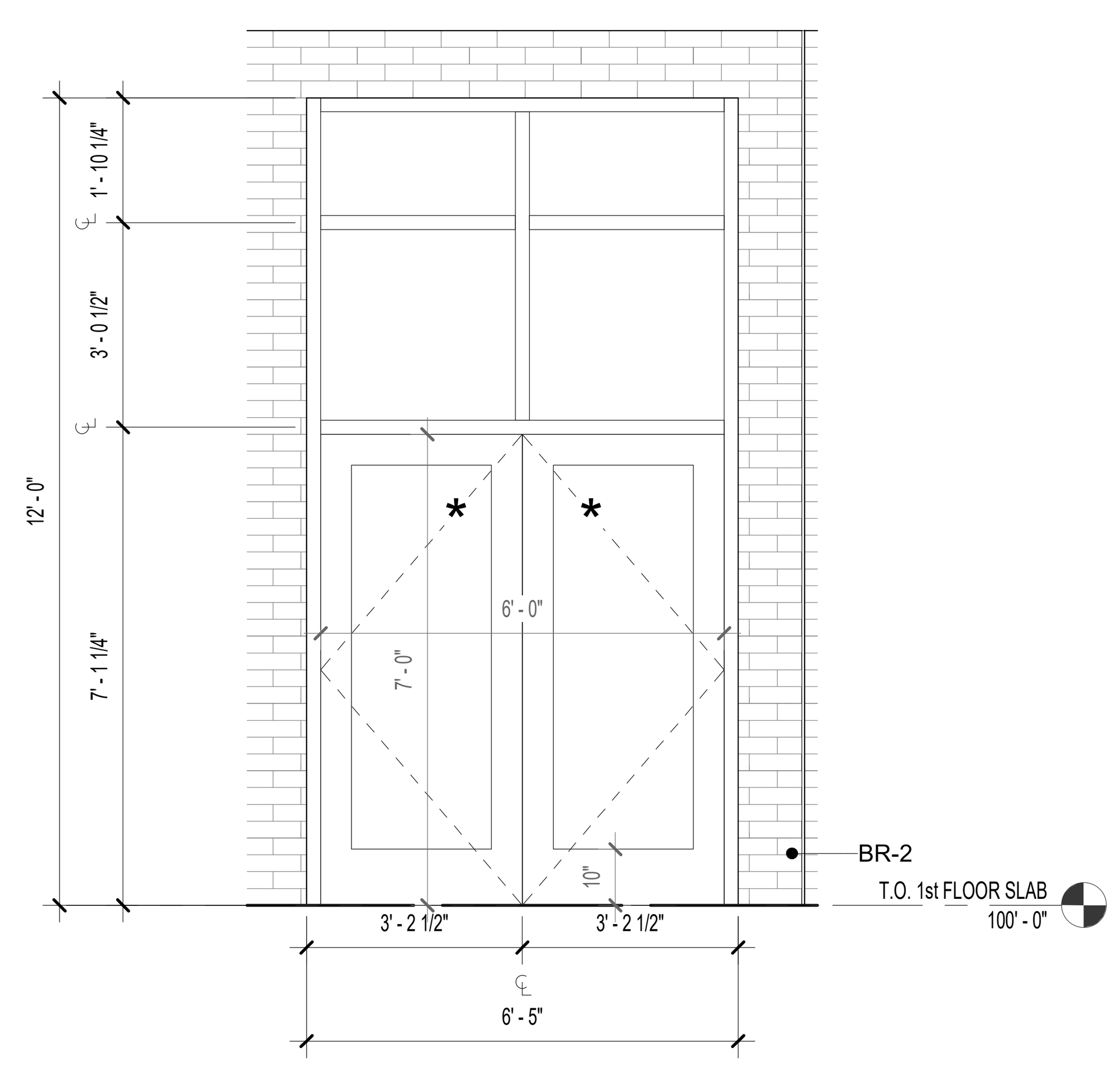
C3 METER WALL ELEVATION
3/8" = 1'-0"



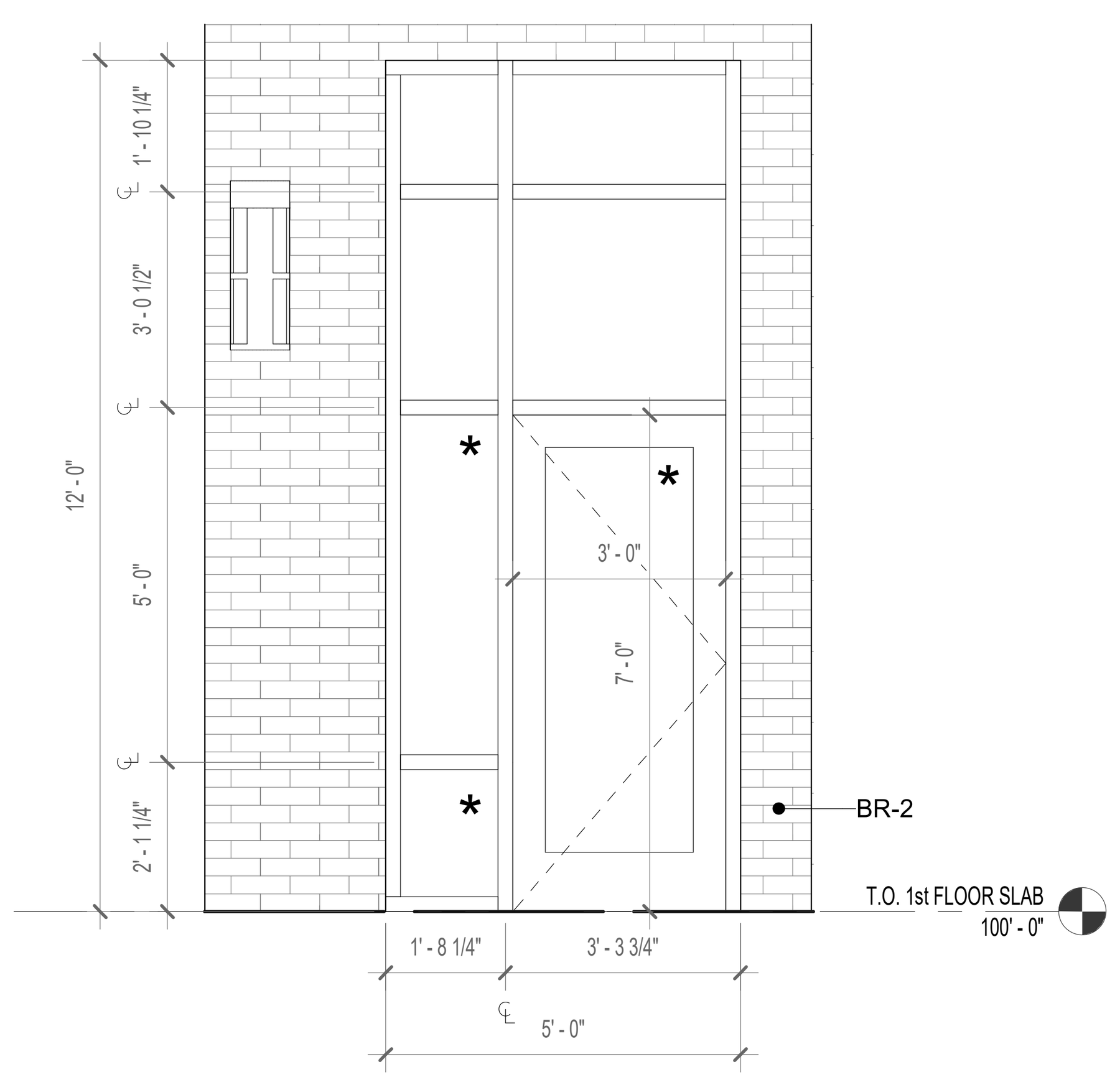
B3 SF-8 PANEL
3/8" = 1'-0"



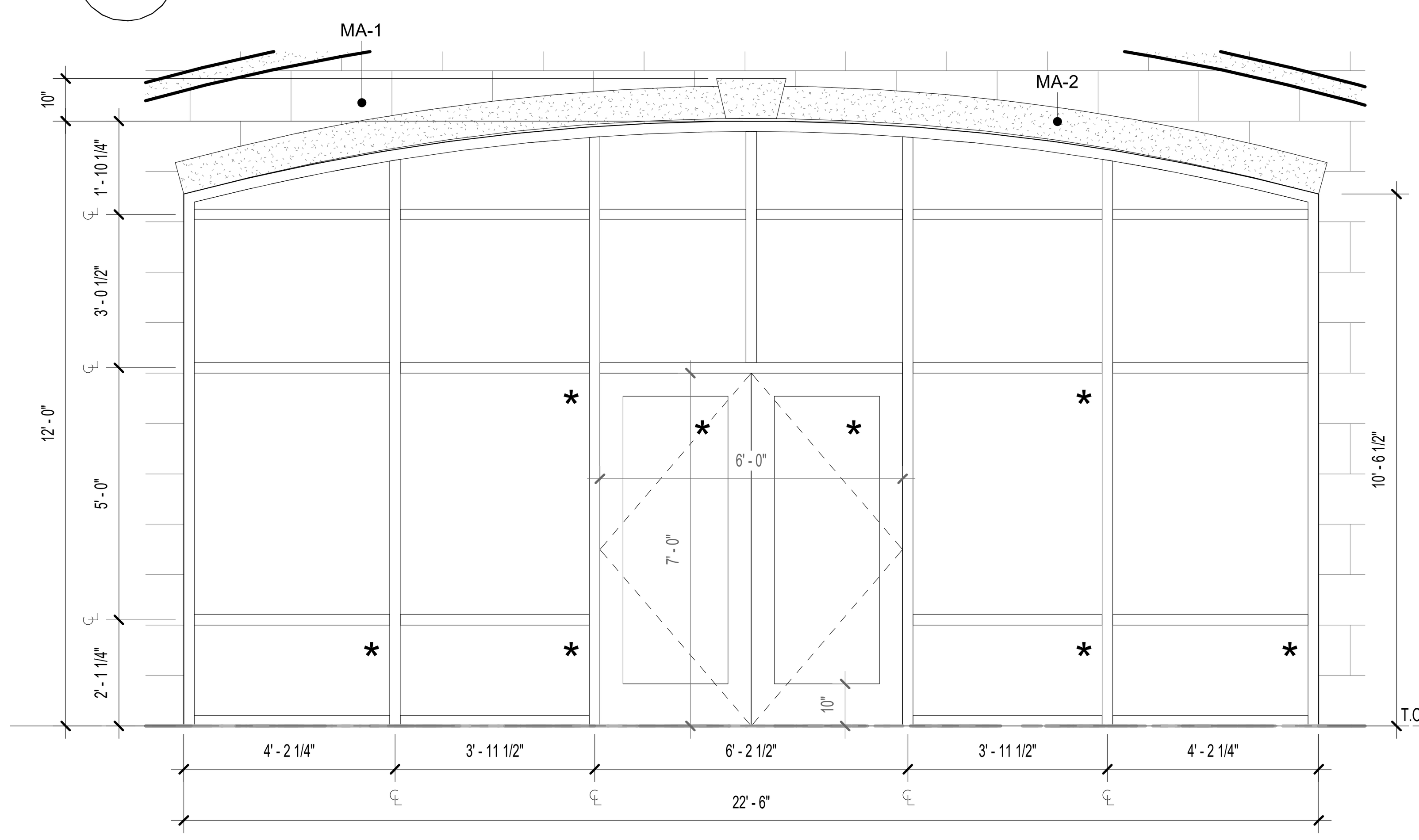
A3 SF-7 PANEL
3/8" = 1'-0"



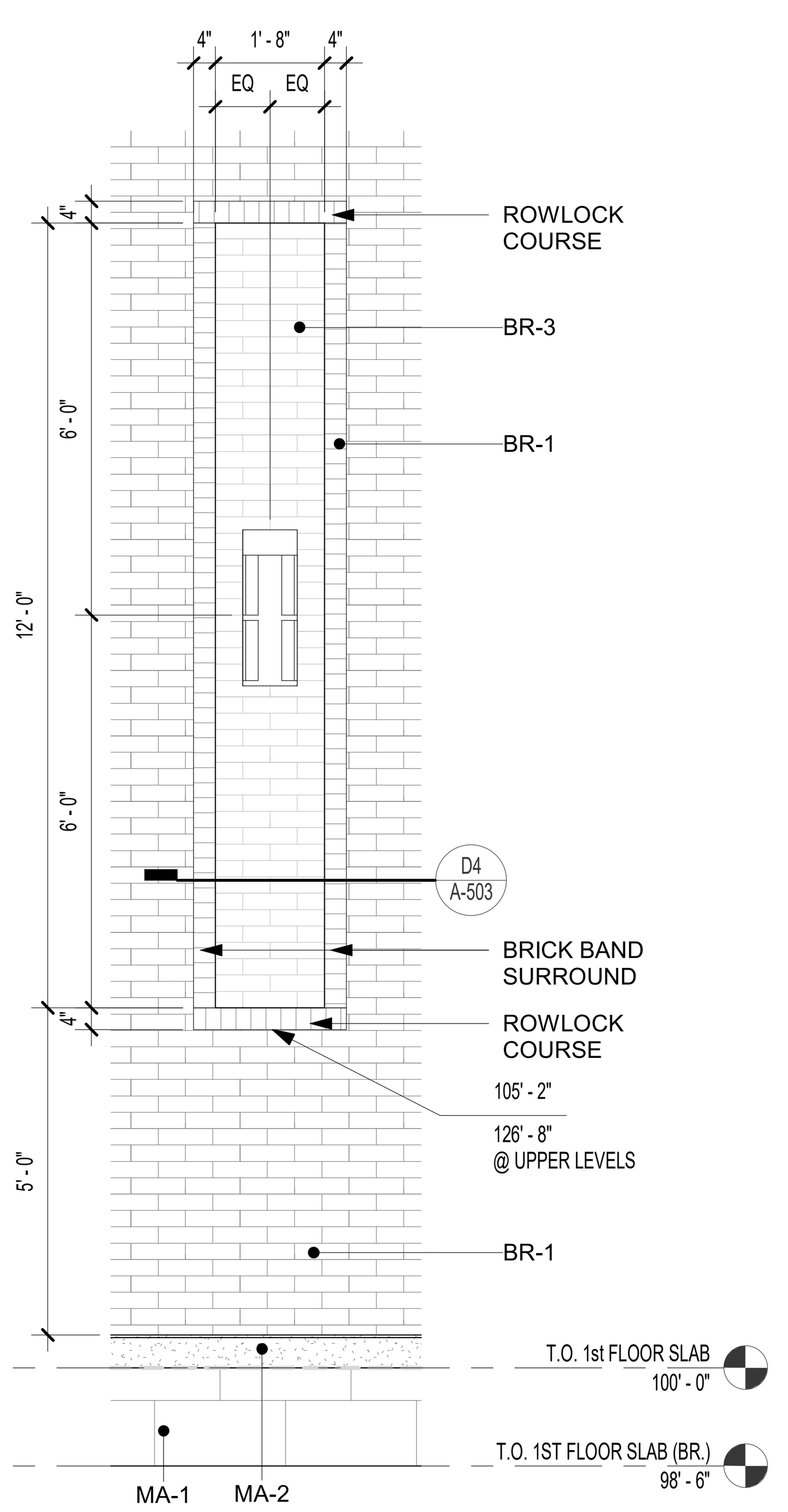
C2 SF-6 PANEL W/ DOOR
3/8" = 1'-0"



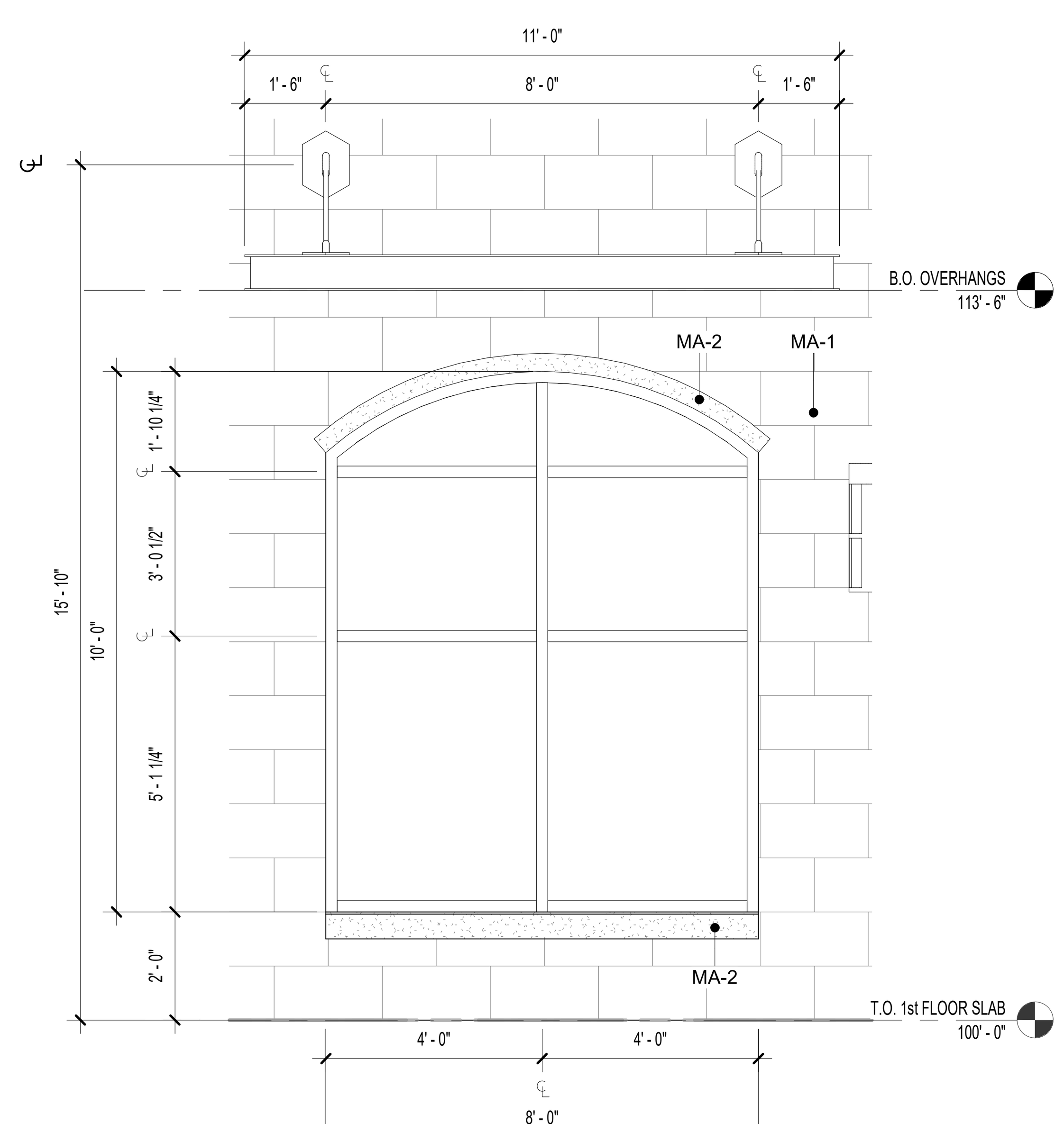
B2 SF-5 PANEL W/ DOOR
3/8" = 1'-0"



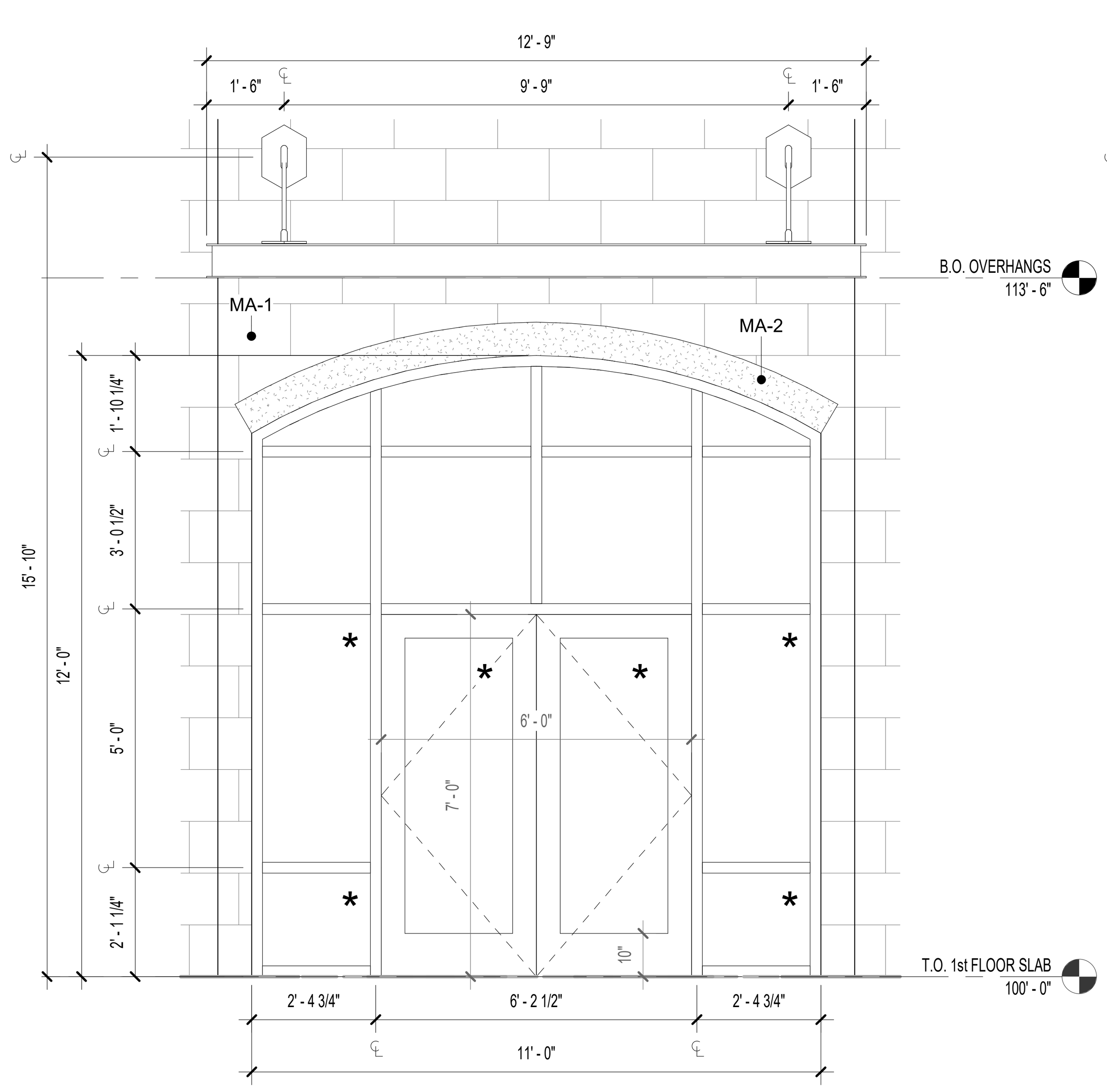
A2 SF-4 PANEL W/ DOOR
3/8" = 1'-0"



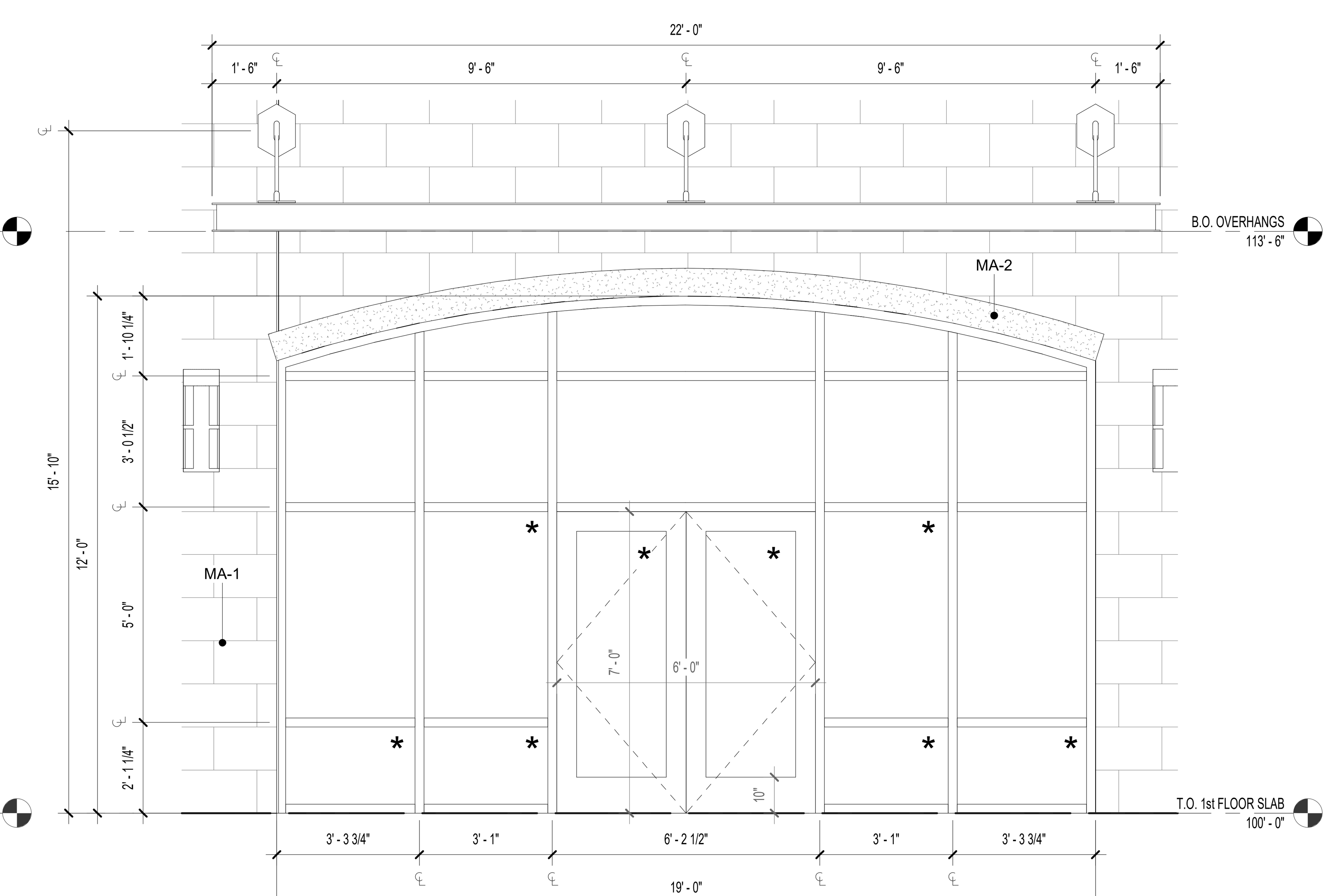
D1 DECORATIVE BRICK ELEVATION
3/8" = 1'-0"



C1 SF-3 PANEL
3/8" = 1'-0"



B1 SF-2 PANEL W/ DOOR
3/8" = 1'-0"



A1 SF-1 PANEL W/ DOOR
3/8" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7385
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

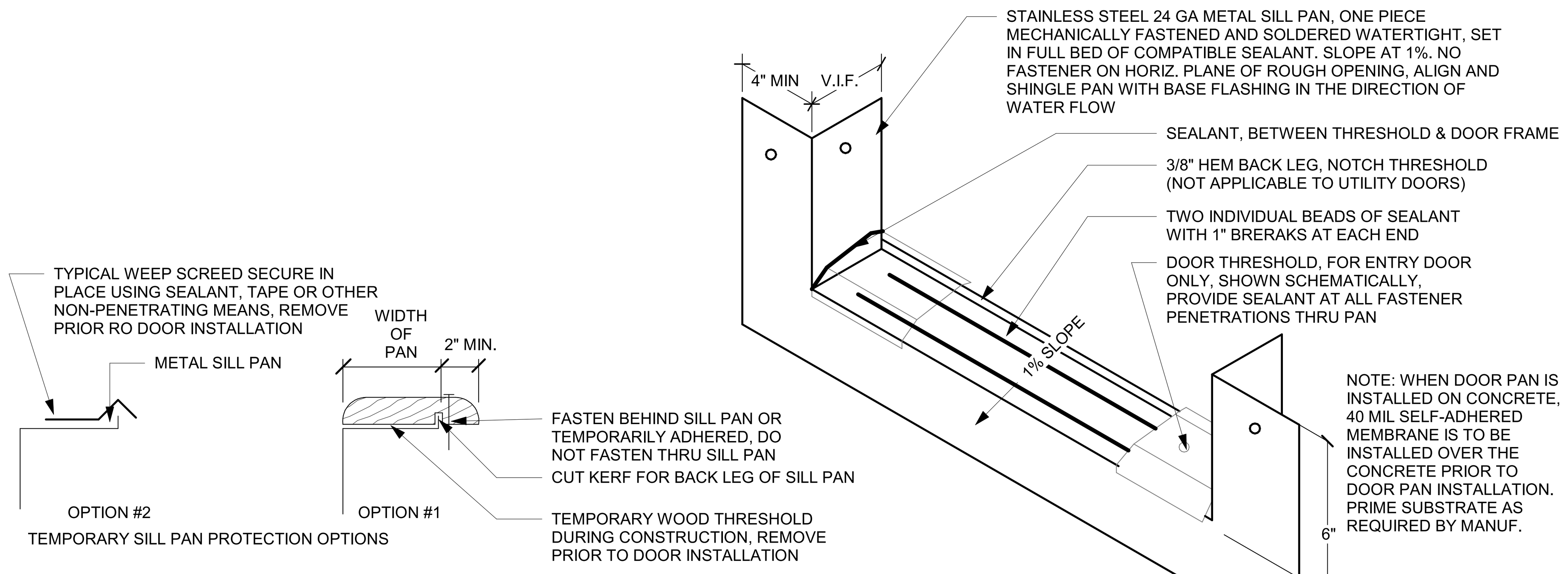
SHEET TITLE
STOREFRONT / FACADE ELEVATIONS

PROJECT NUMBER: 24017

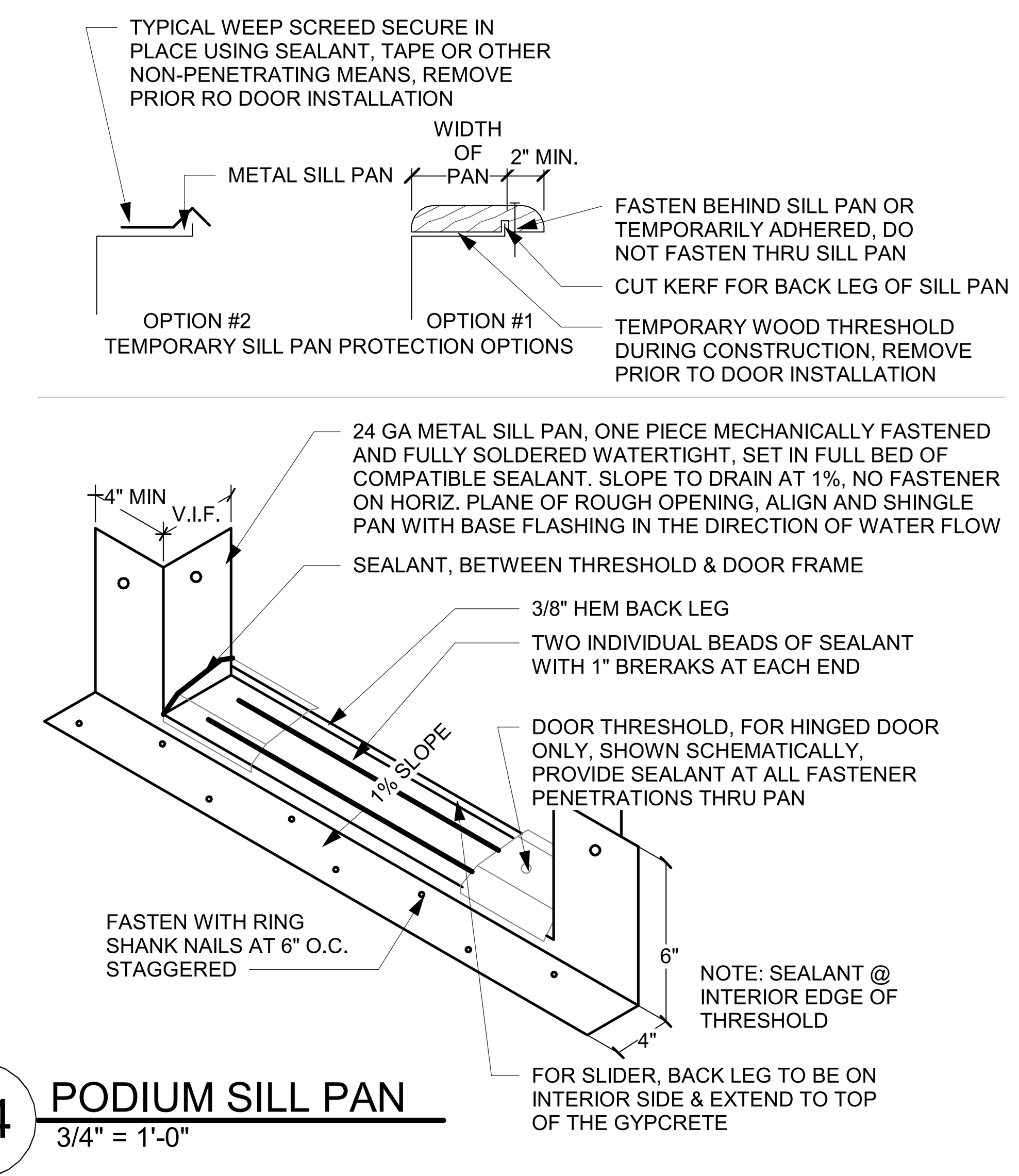
SHEET NUMBER:

A-601

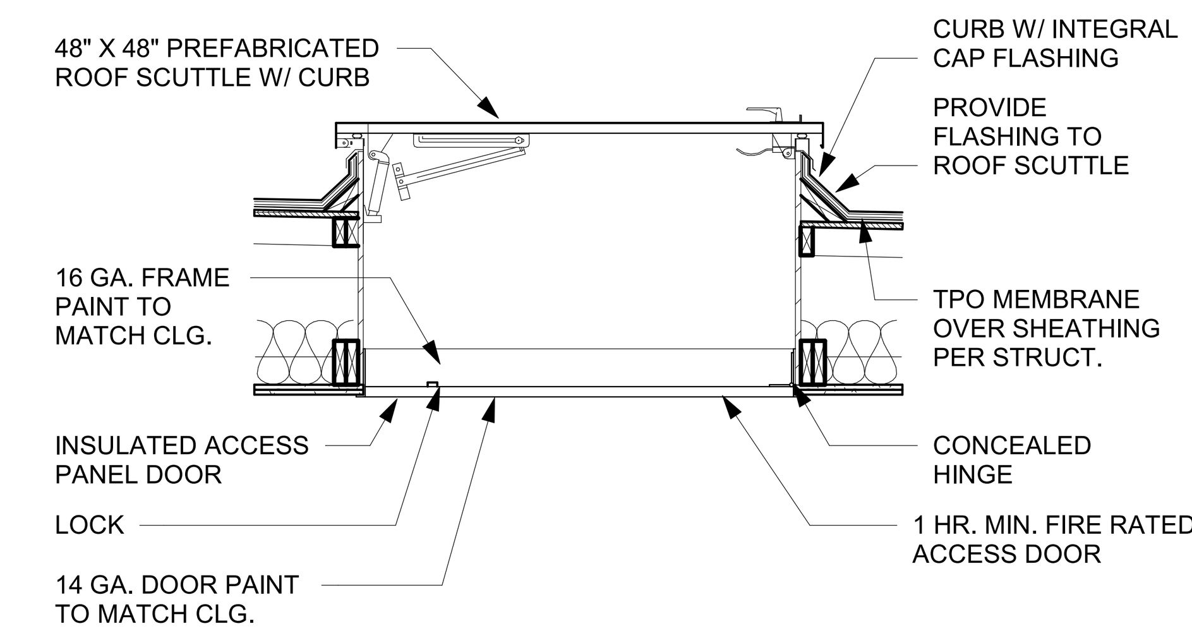
REFERENCE G-003 FOR GENERAL NOTES



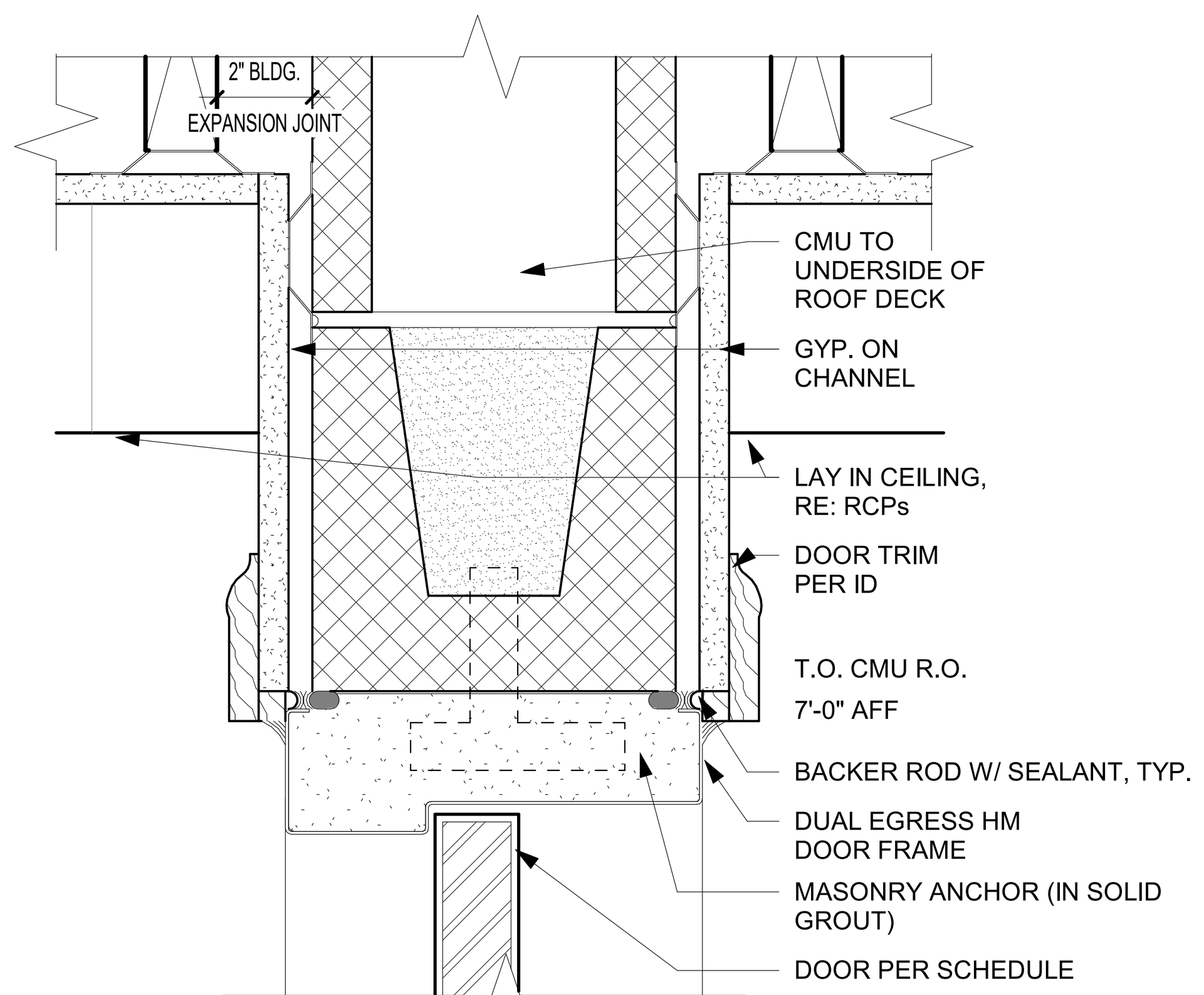
E4 TYPICAL GRADE SILL PAN
1" = 1'-0"



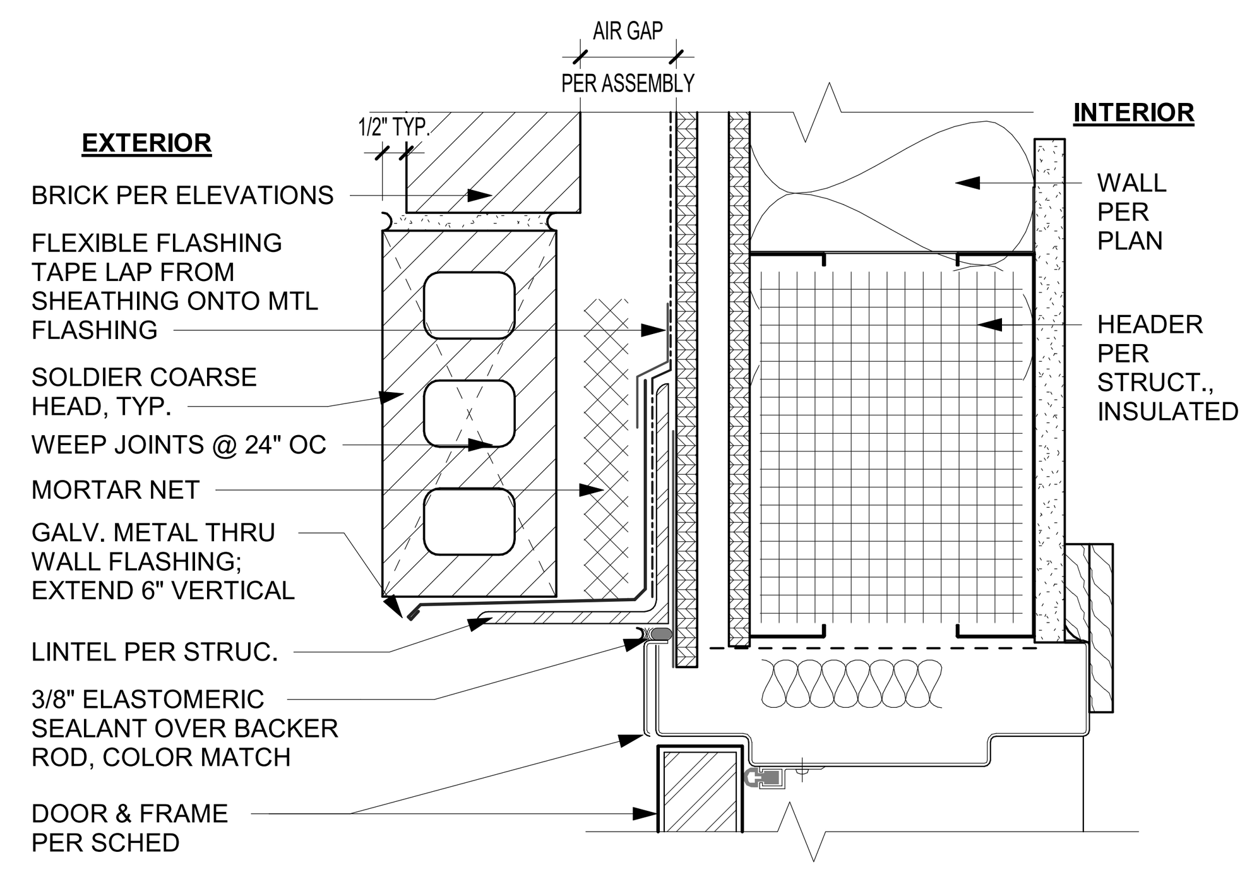
C4 PODIUM SILL PAN
3/4" = 1'-0"



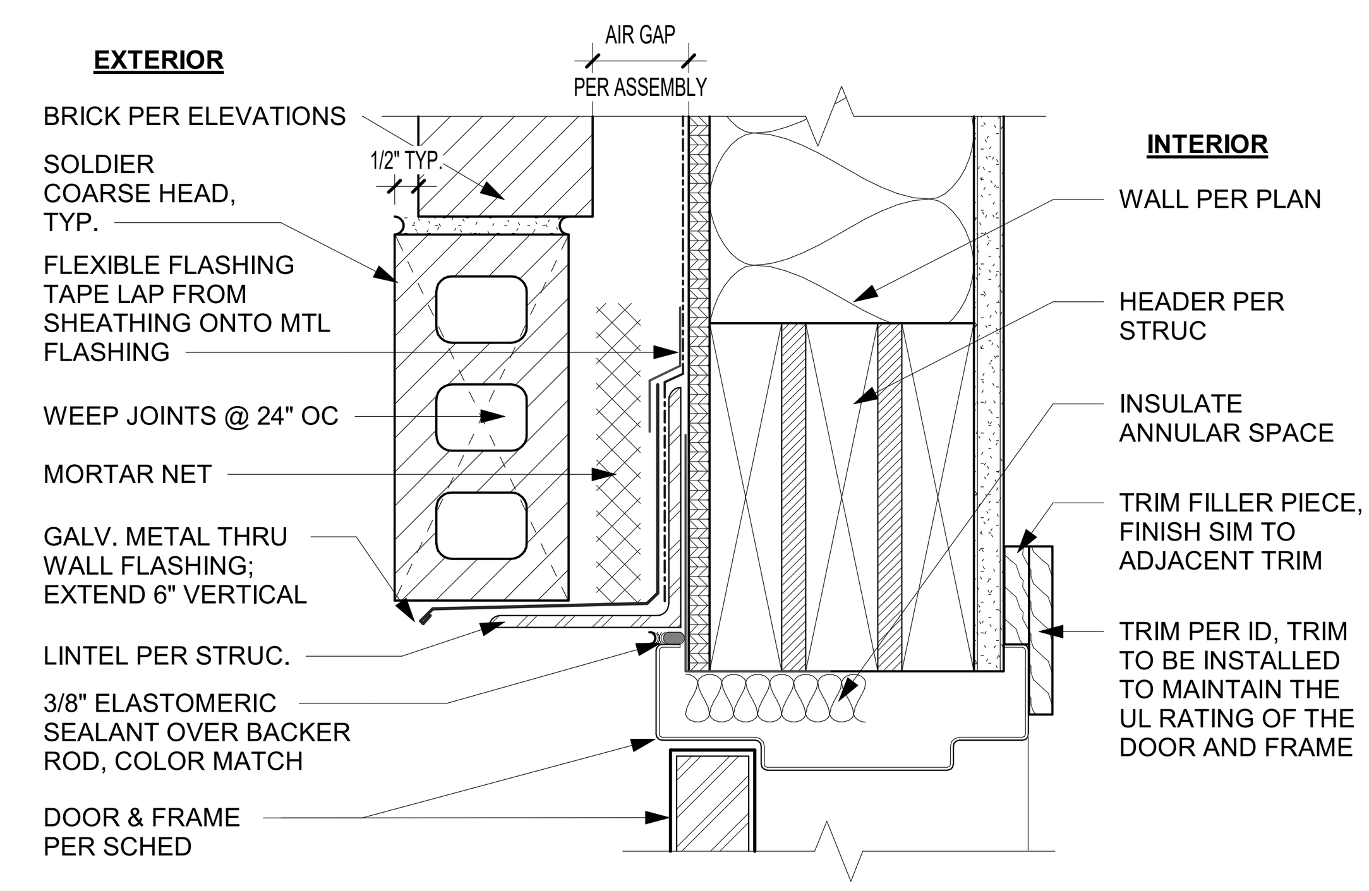
A4 ROOF SCUTTLE
1/2" = 1'-0"



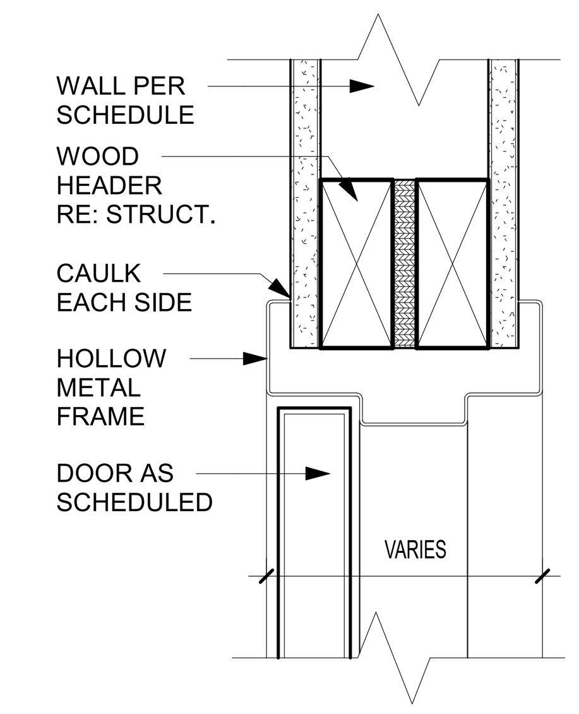
E3 INTERIOR DOOR HEAD - CMU FIREWALL
3" = 1'-0"



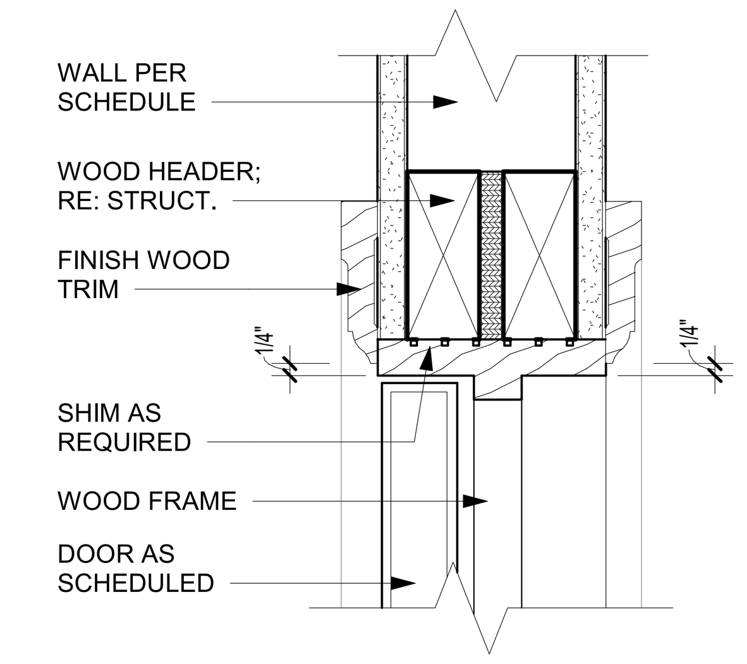
D3 EXTERIOR MTL DOOR HEAD- BRICK
3" = 1'-0"



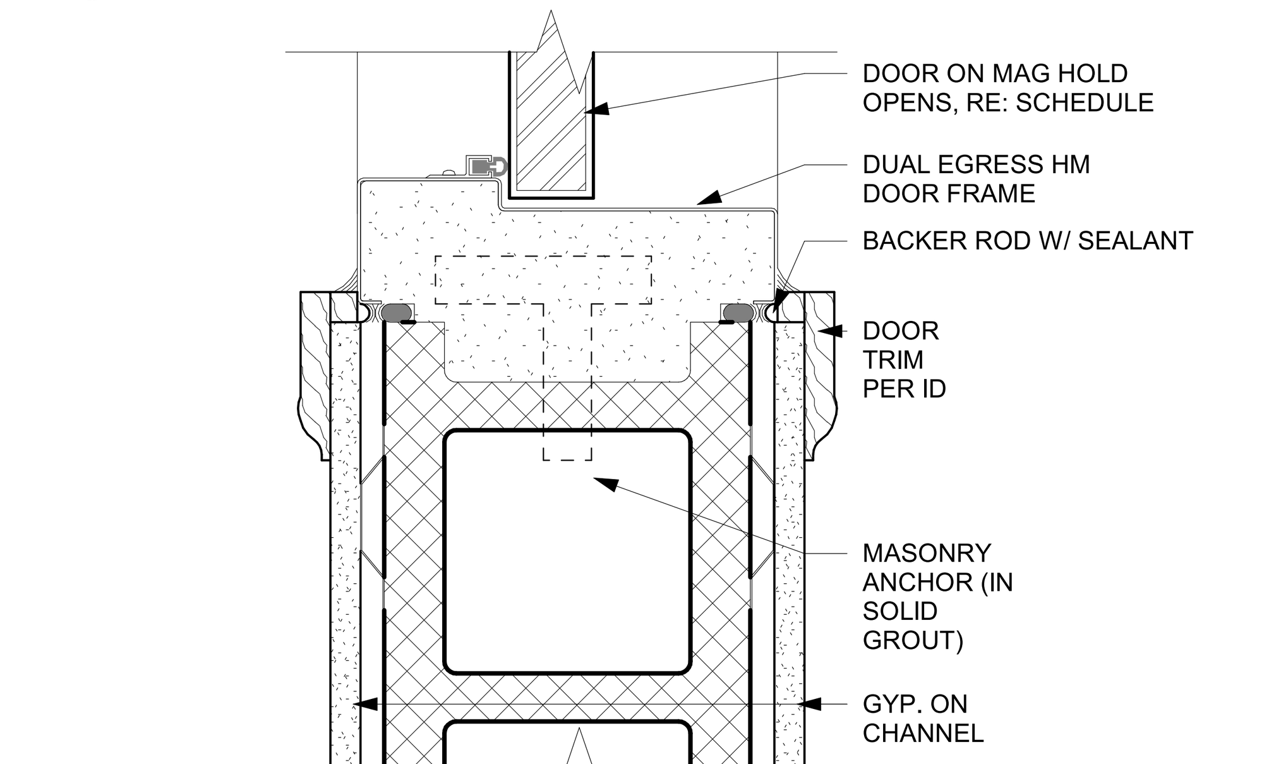
C3 EXTERIOR DOOR HEAD - BRICK
3" = 1'-0"



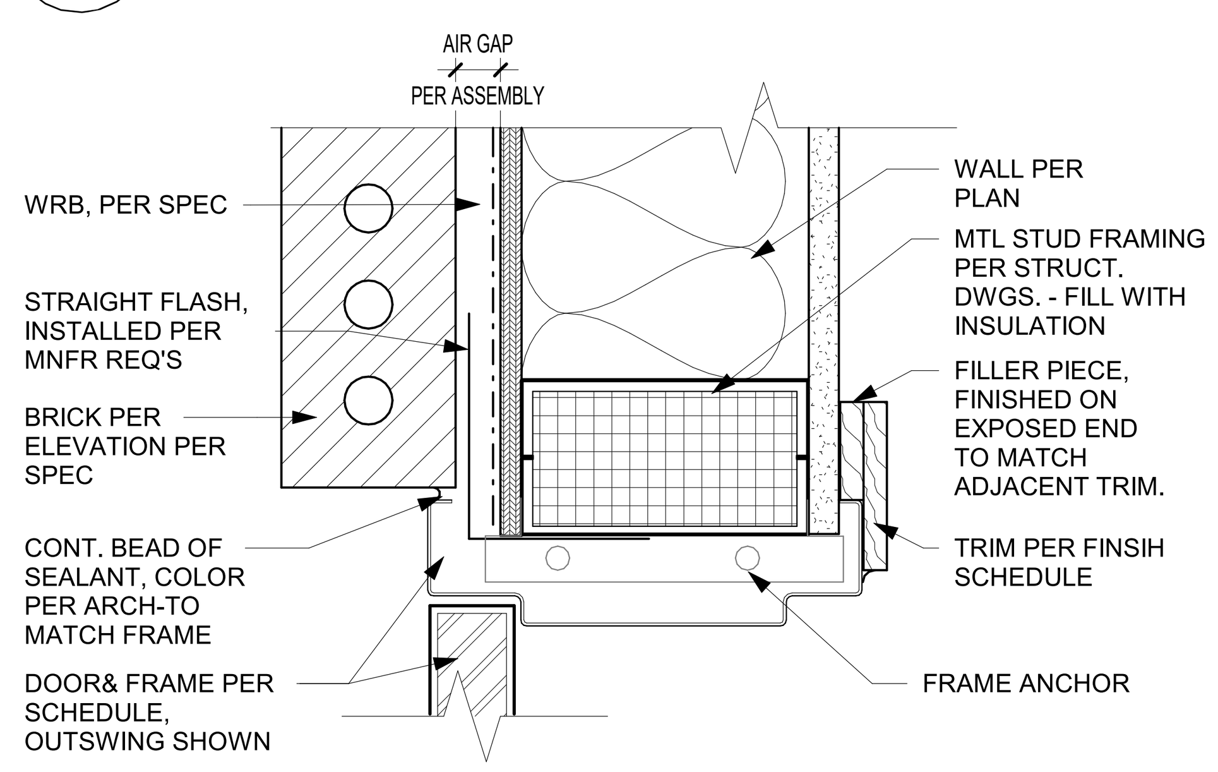
B3 INTERIOR DOOR HEAD - METAL
3" = 1'-0"



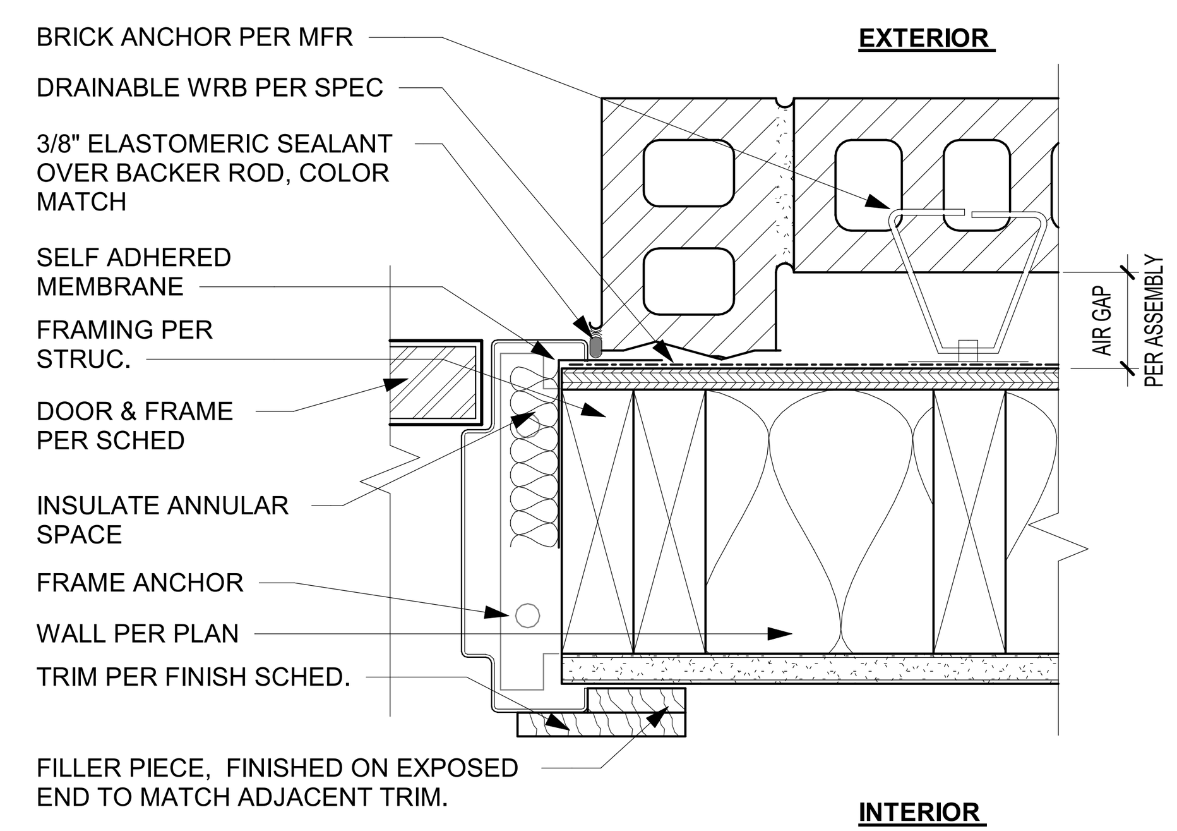
A3 INTERIOR DOOR HEAD - WOOD
3" = 1'-0"



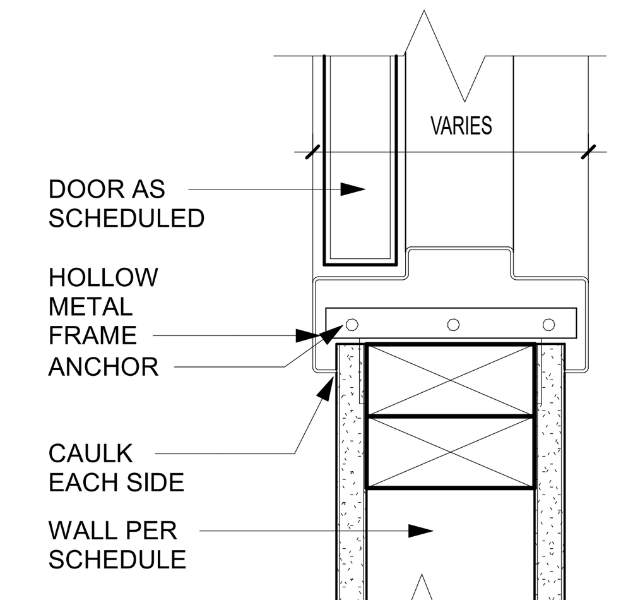
E2 INTERIOR DOOR JAMB - CMU FIREWALL
3" = 1'-0"



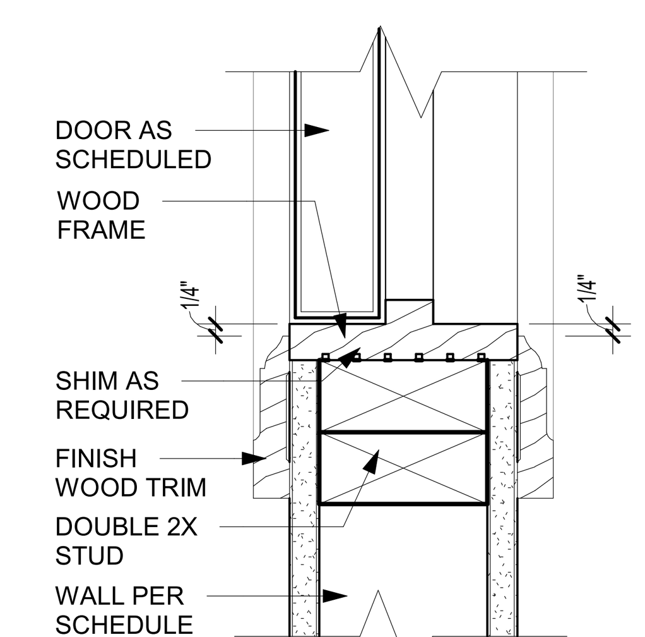
D2 EXTERIOR MTL DOOR JAMB - BRICK
3" = 1'-0"



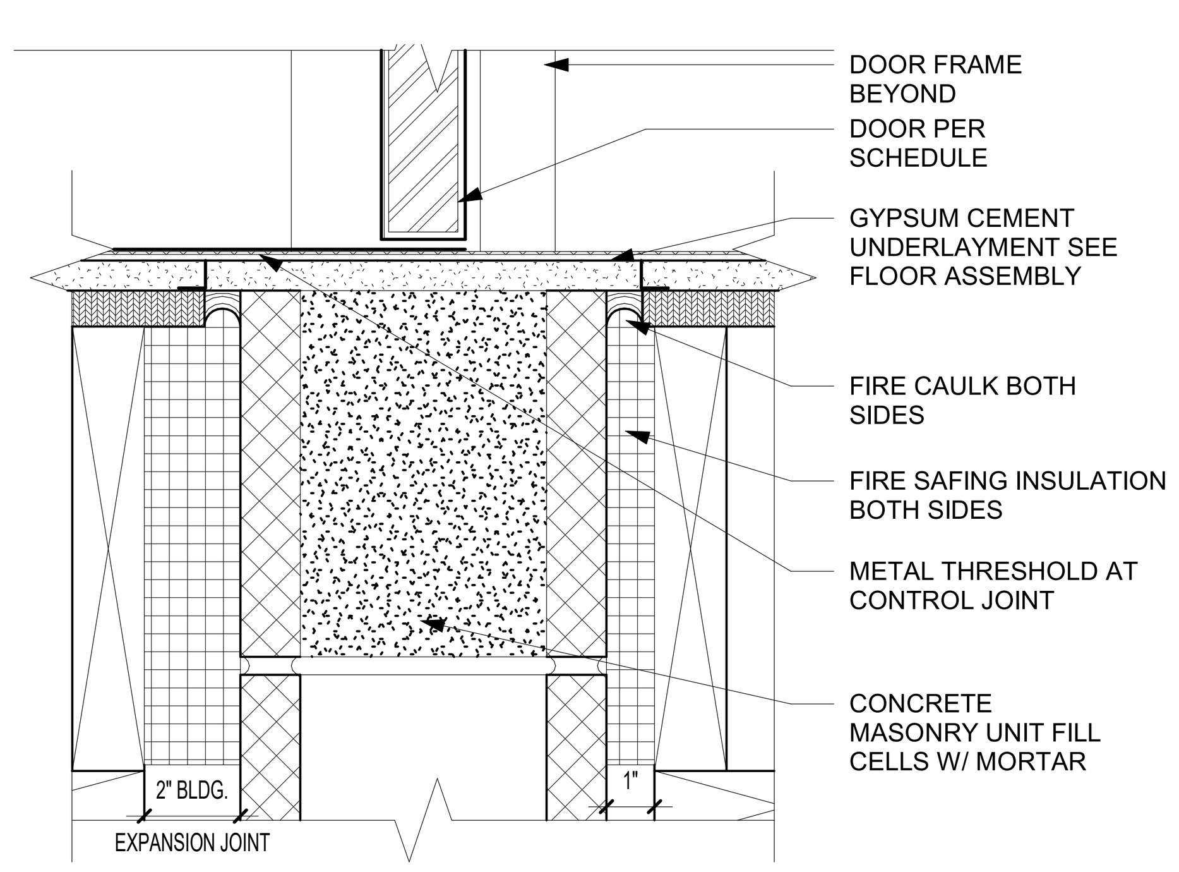
C2 EXTERIOR DOOR JAMB - BRICK
3" = 1'-0"



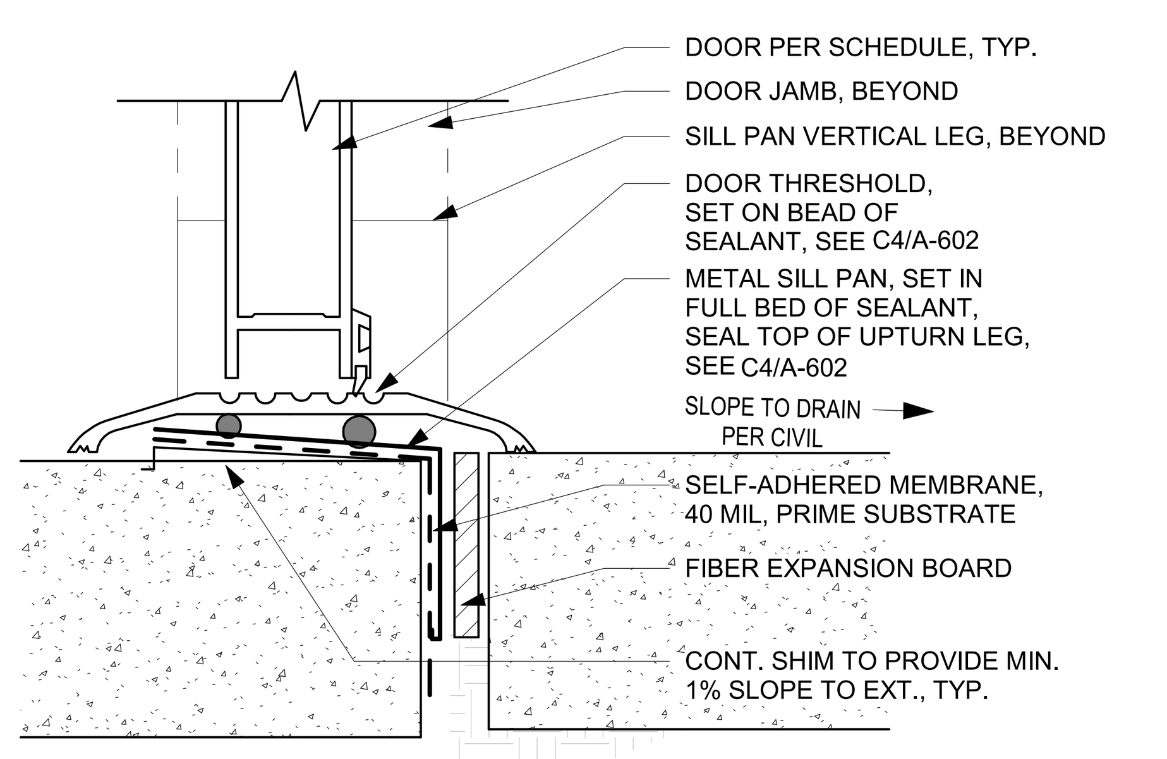
B2 INTERIOR DOOR JAMB - METAL
3" = 1'-0"



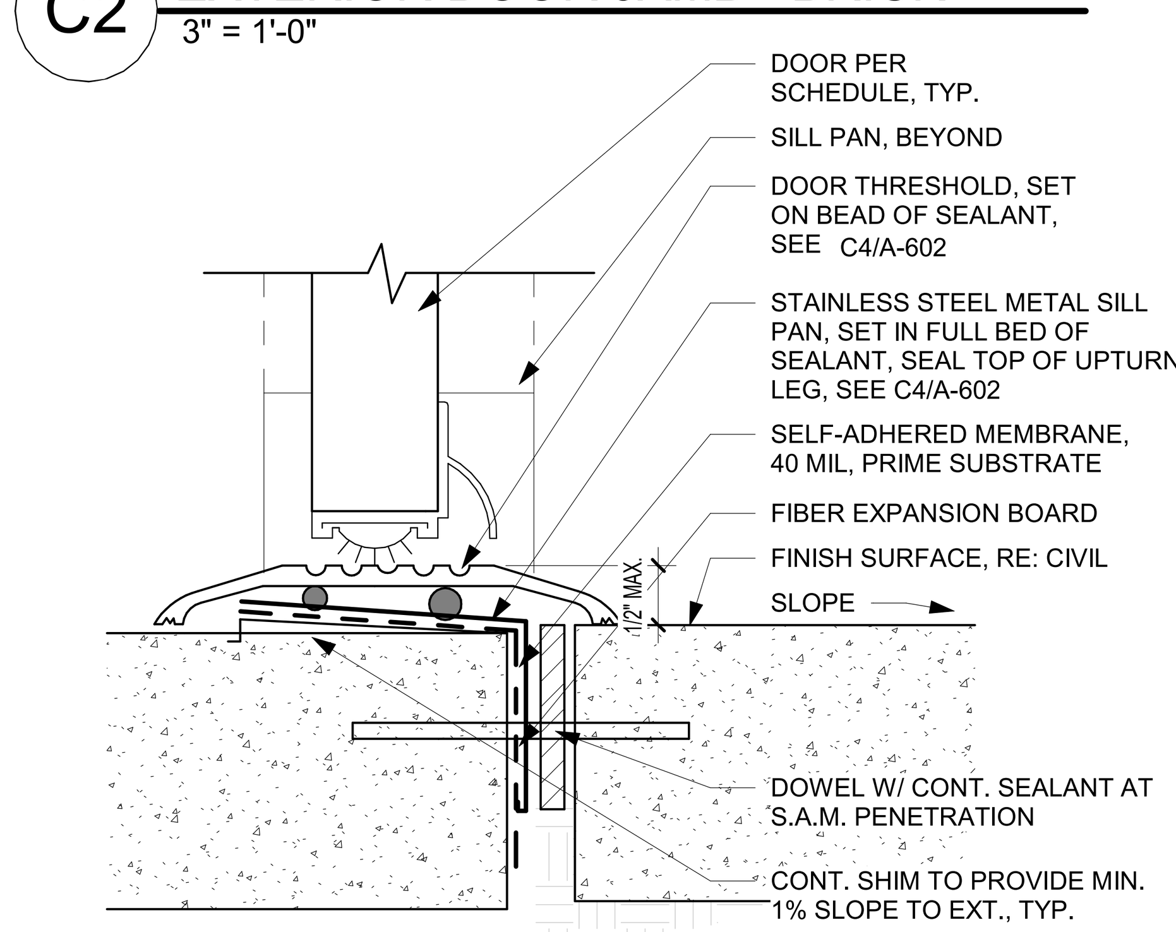
A2 INTERIOR DOOR JAMB - WOOD
3" = 1'-0"



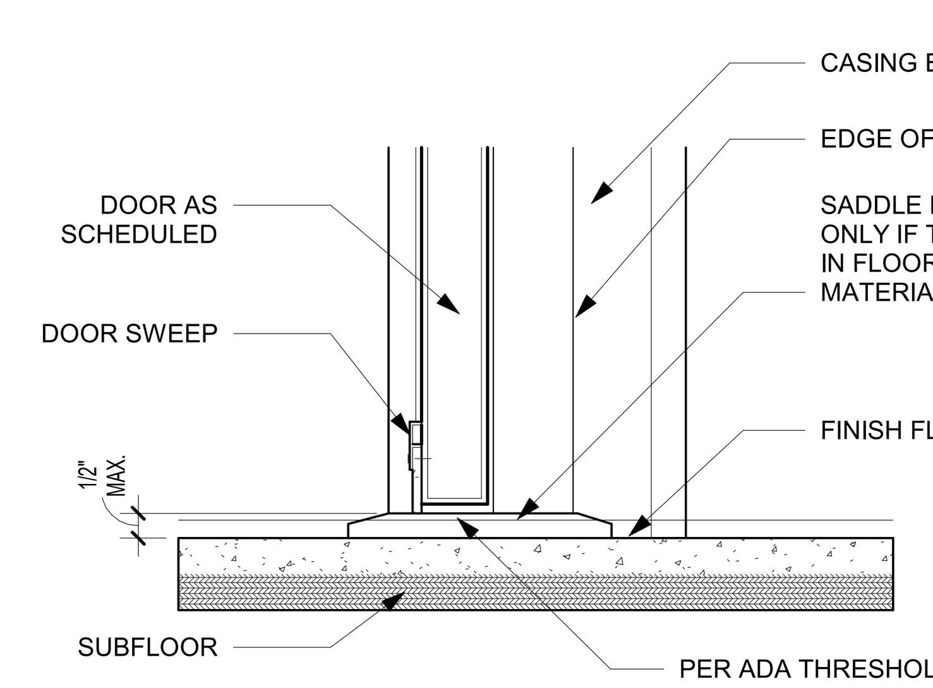
E1 INTERIOR DOOR SILL - CMU THRESHOLD
3" = 1'-0"



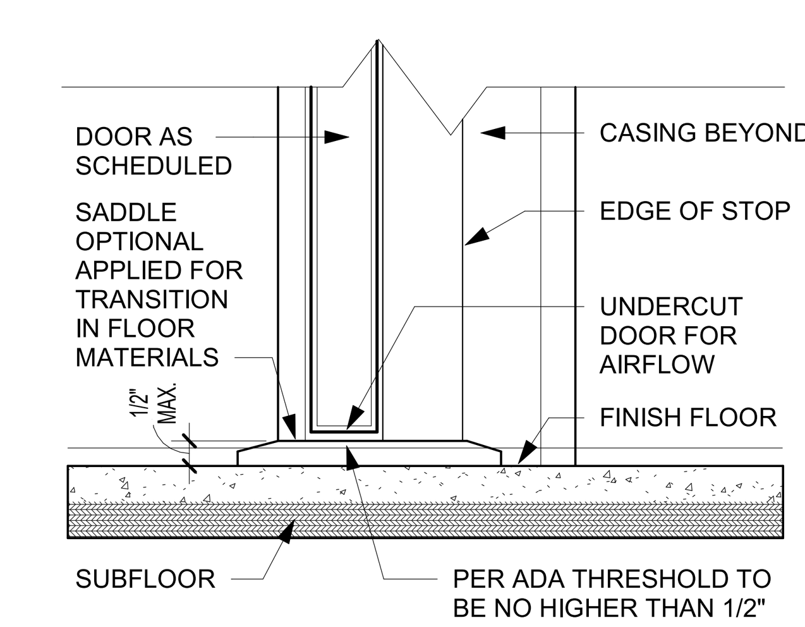
D1 EXTERIOR STOREFRONT DOOR THRESHOLD
1" = 1'-0"



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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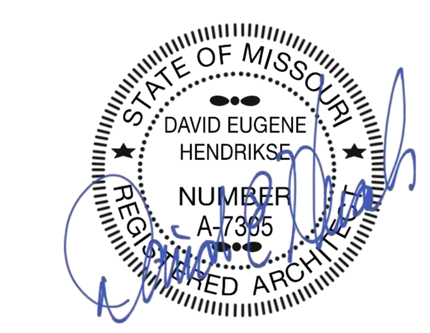


11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

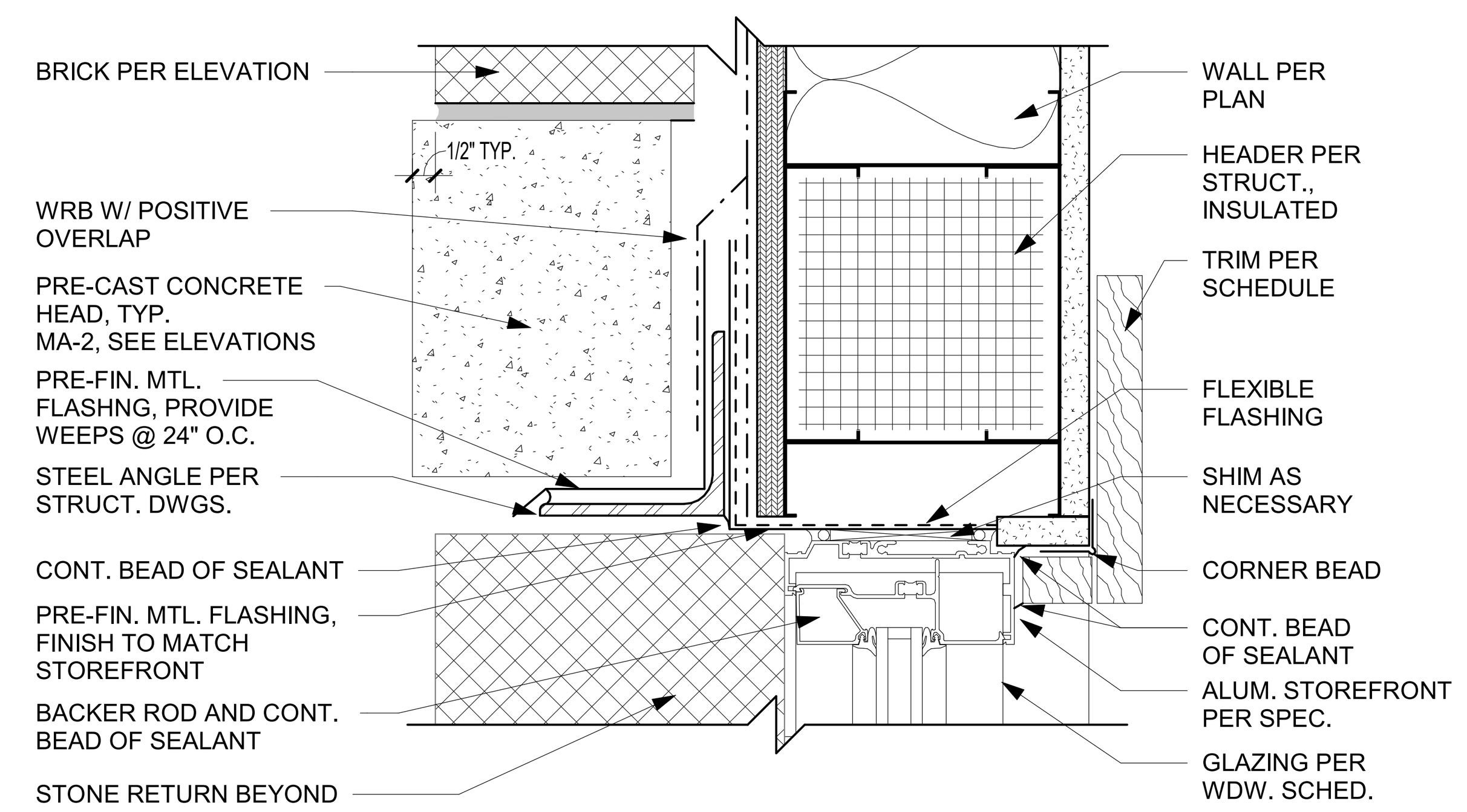
SHEET TITLE
DOOR DETAILS

PROJECT NUMBER: 24017

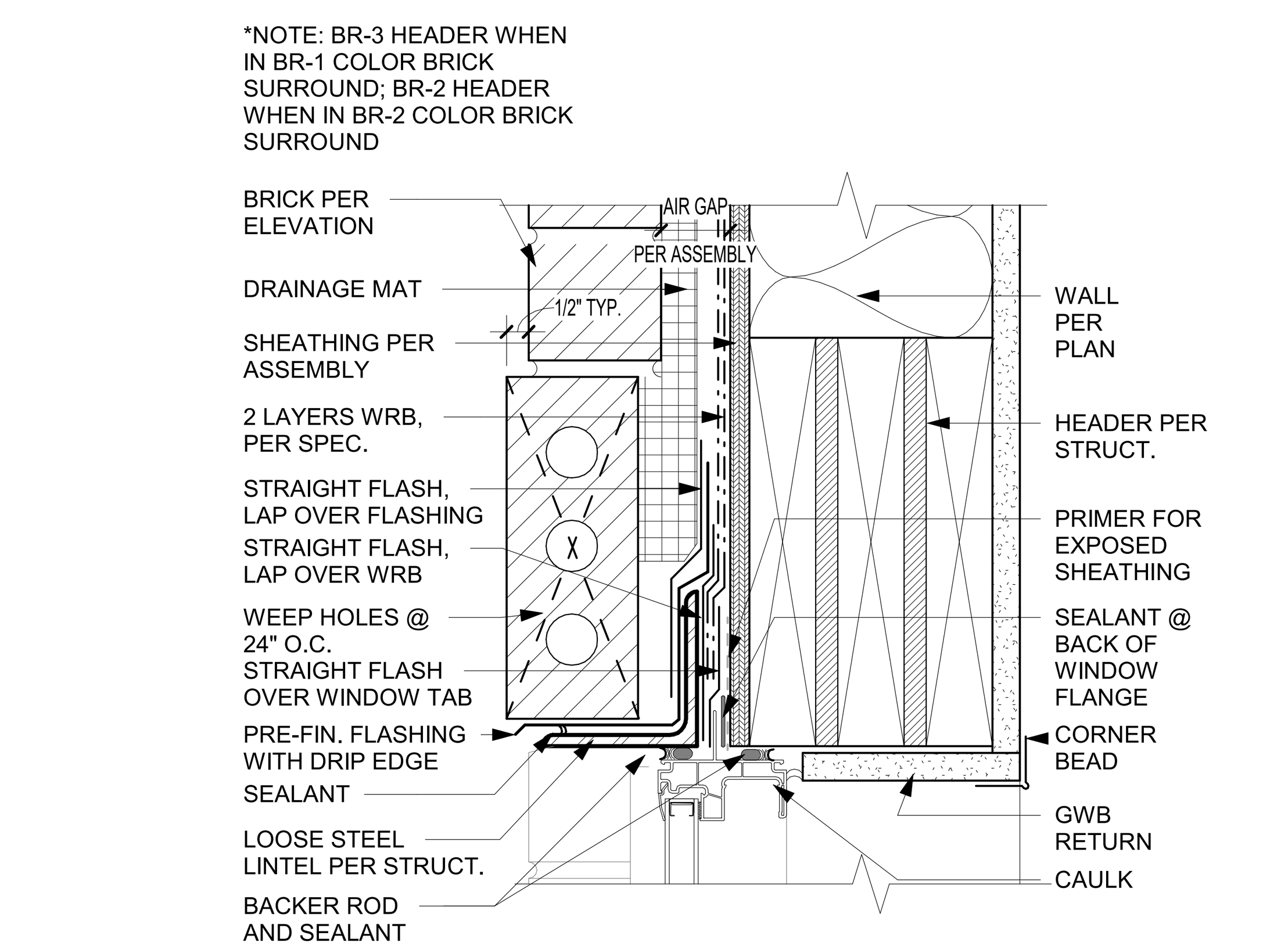
SHEET NUMBER:

A-602

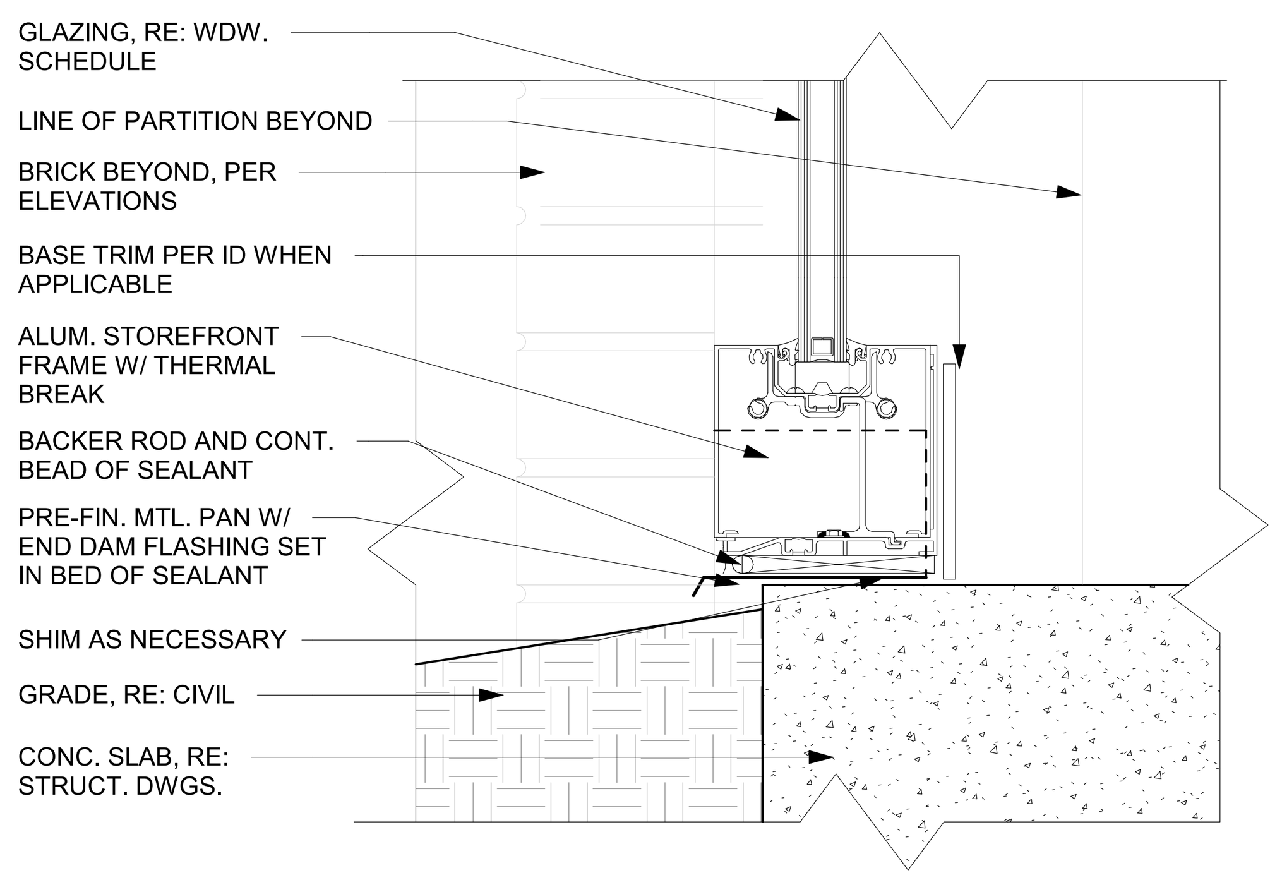
REFERENCE G-003 FOR GENERAL NOTES



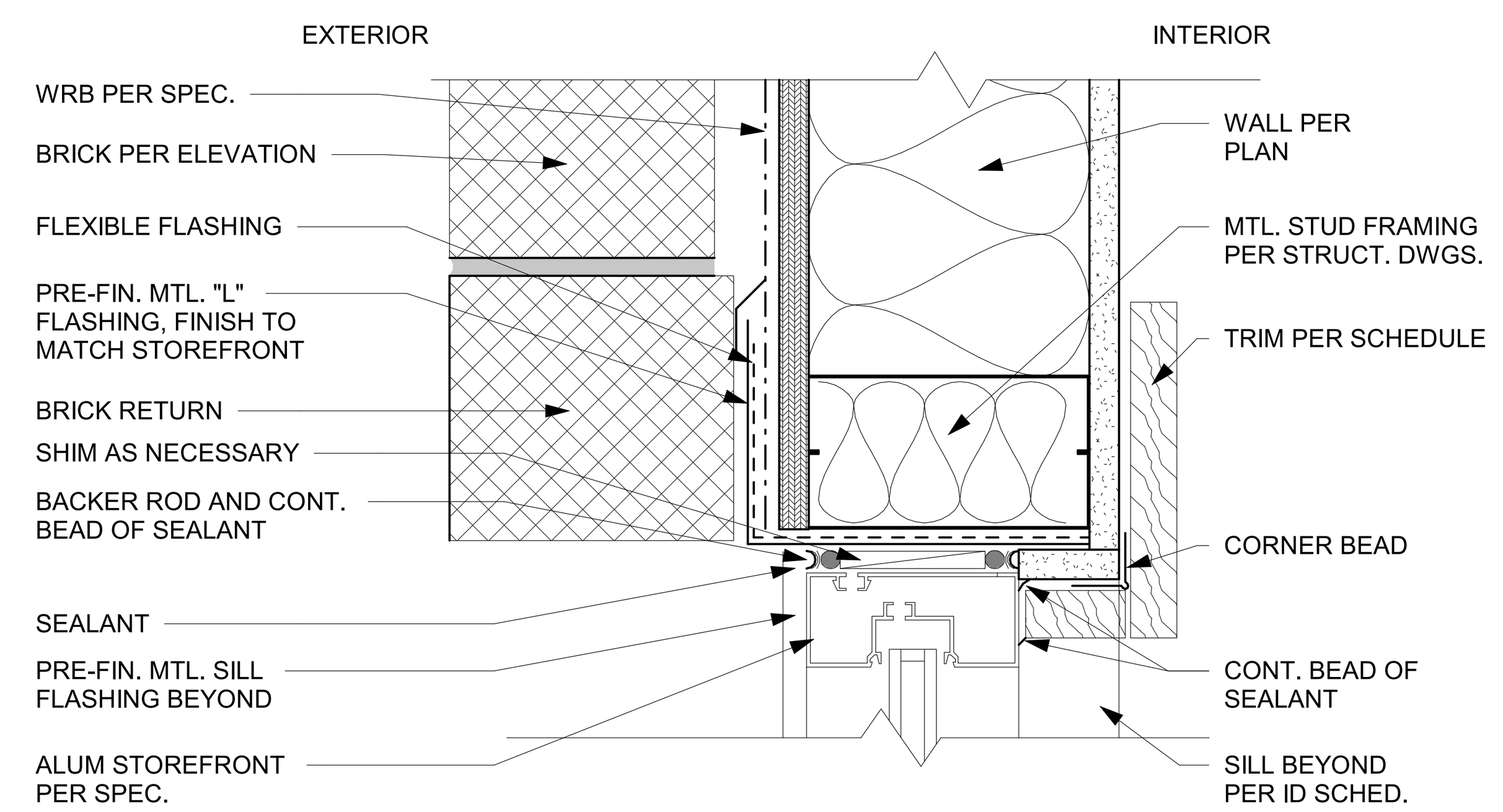
B3 STOREFRONT MTL HEAD - STONE
3" = 1'-0"



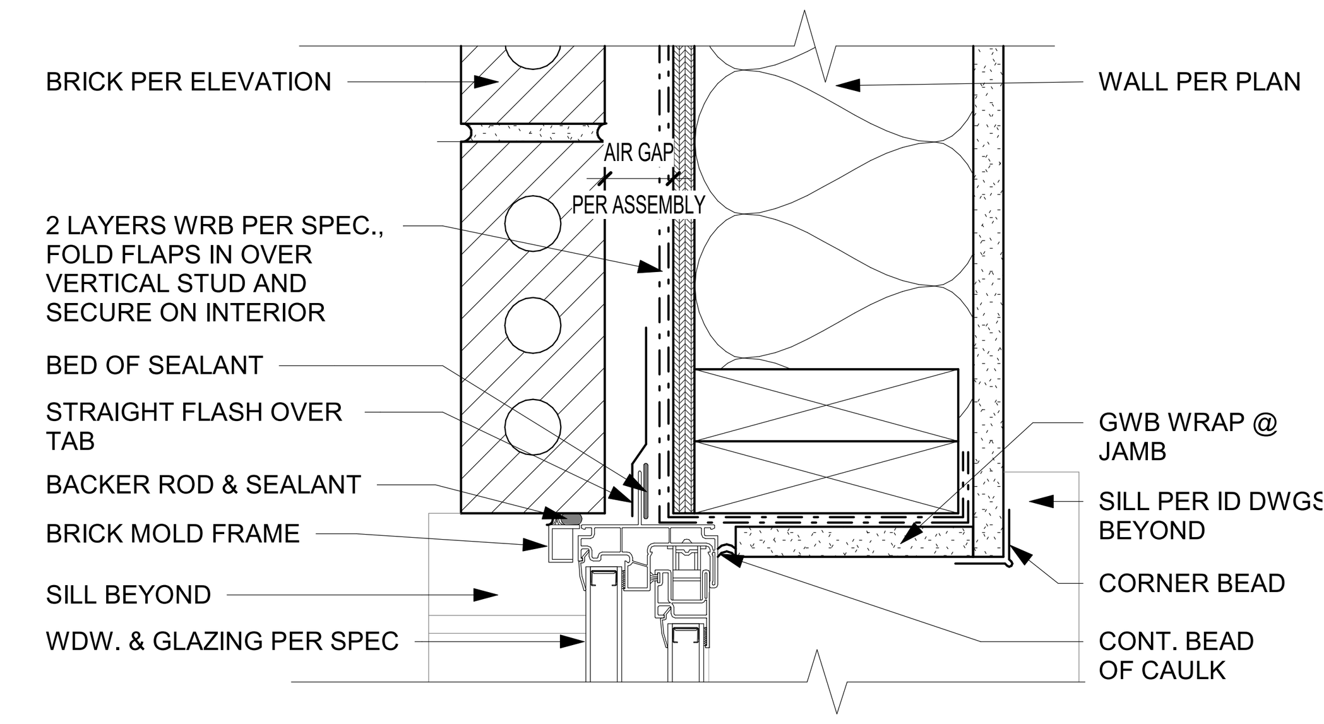
A3 WINDOW HEAD - BRICK
3" = 1'-0"



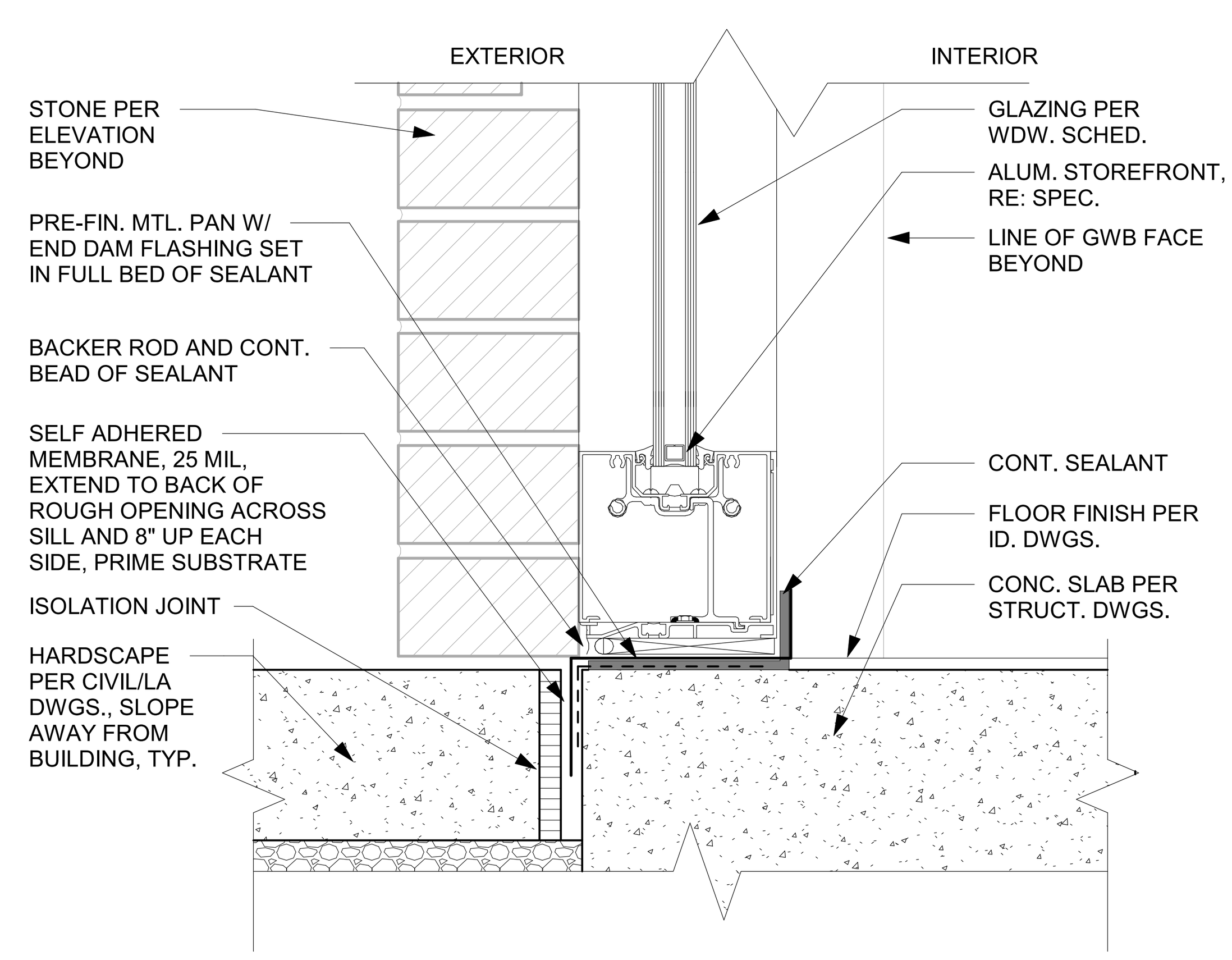
C2 STOREFRONT THRESHOLD - GRADE
3" = 1'-0"



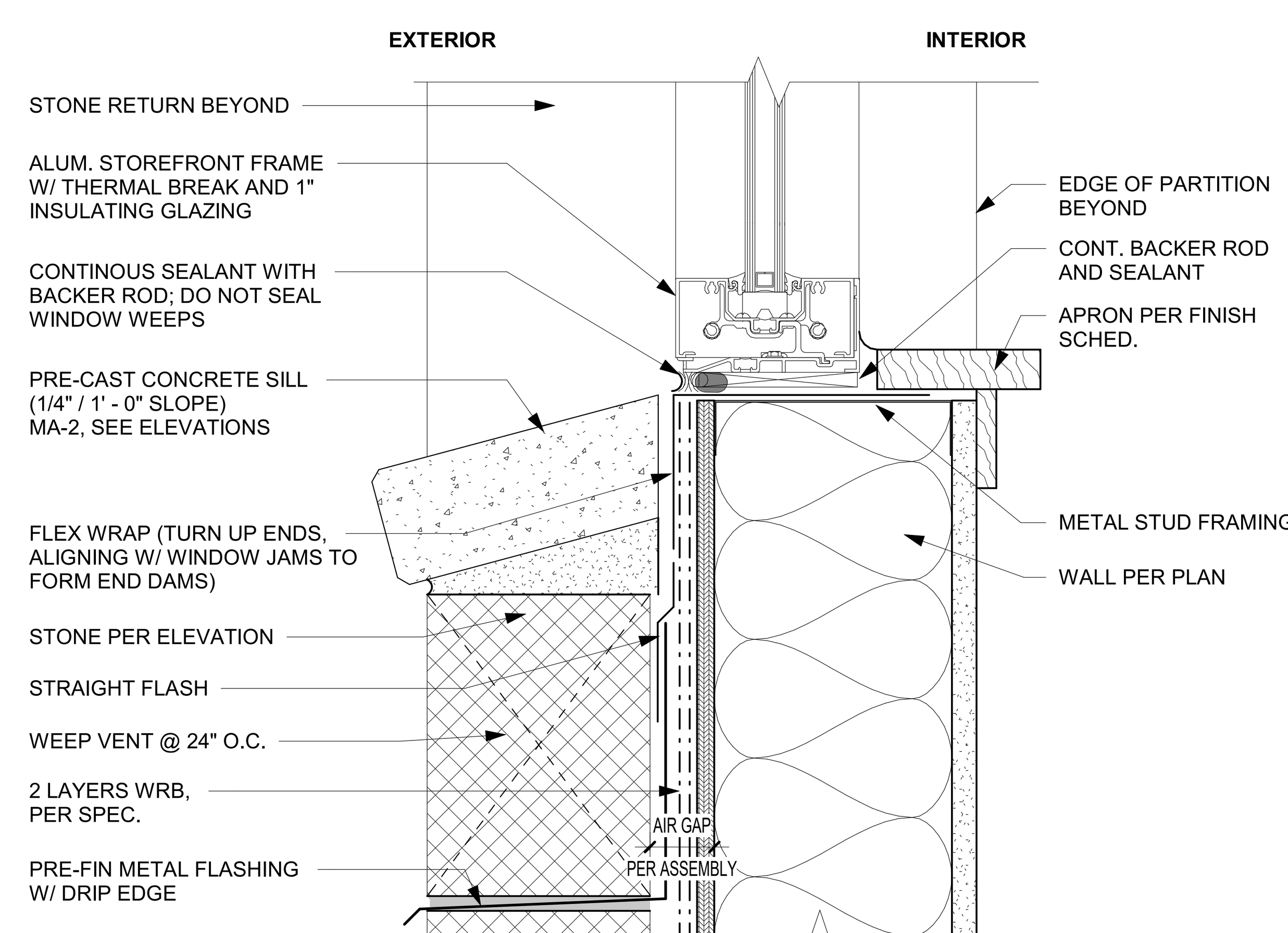
B2 STOREFRONT MTL JAMB - STONE
3" = 1'-0"



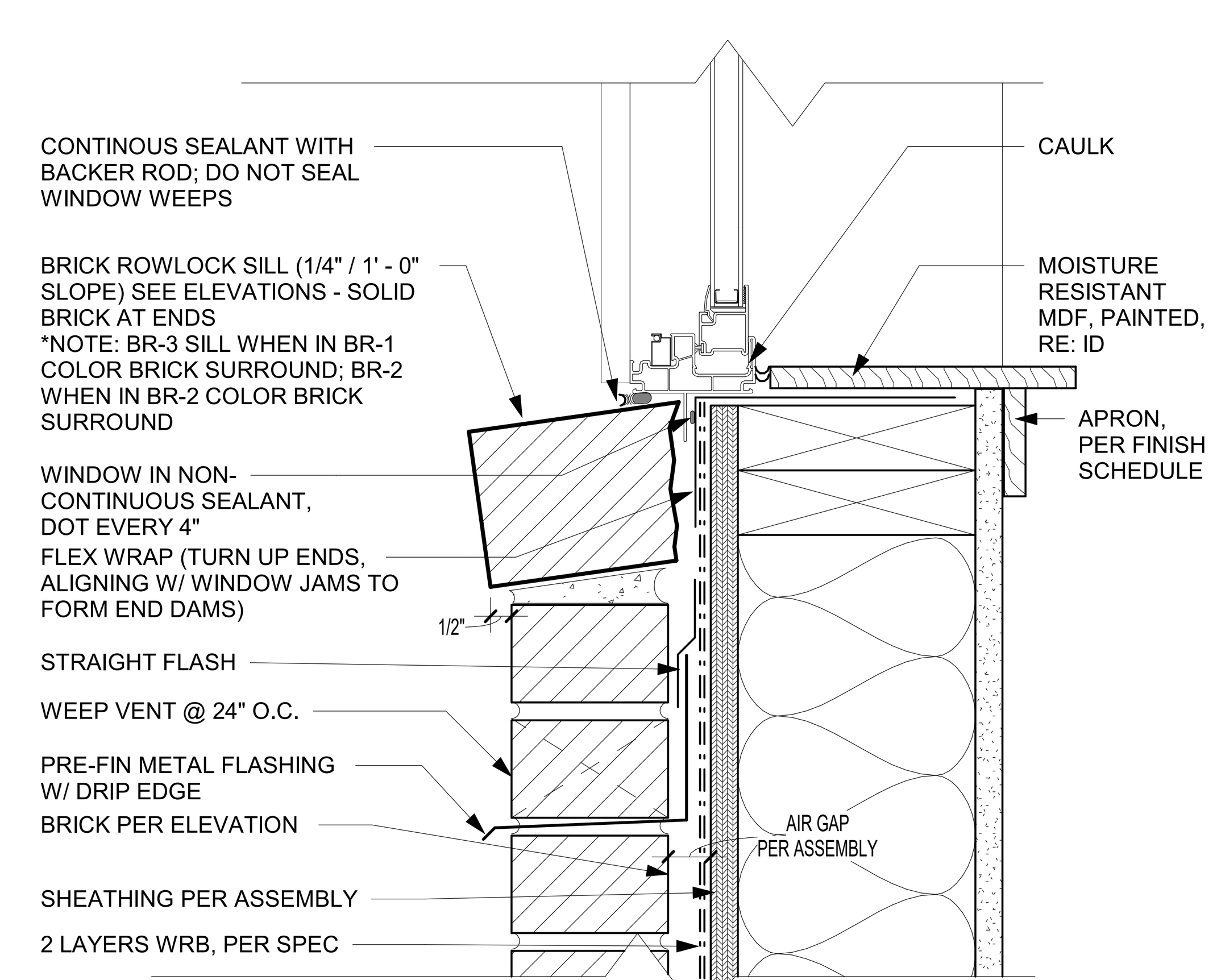
A2 WINDOW JAMB - BRICK
3" = 1'-0"



C1 STOREFRONT THRESHOLD - HARDSCAPE
3" = 1'-0"



B1 STOREFRONT SILL - STONE
3" = 1'-0"



A1 WINDOW SILL - BRICK
3" = 1'-0"

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7385
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A

LEE'S SUMMIT, MO

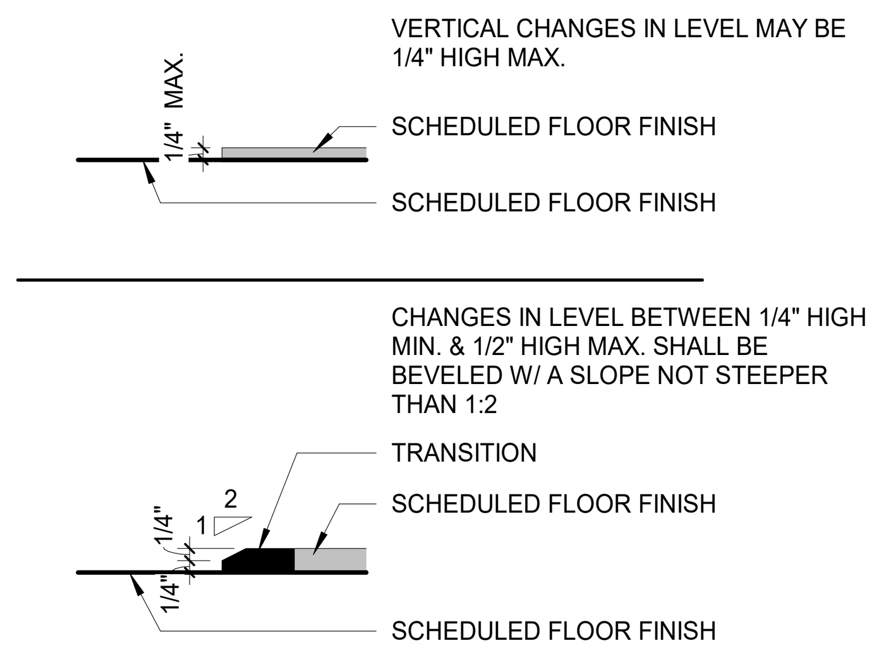
SHEET TITLE
WINDOW DETAILS

PROJECT NUMBER: 24017

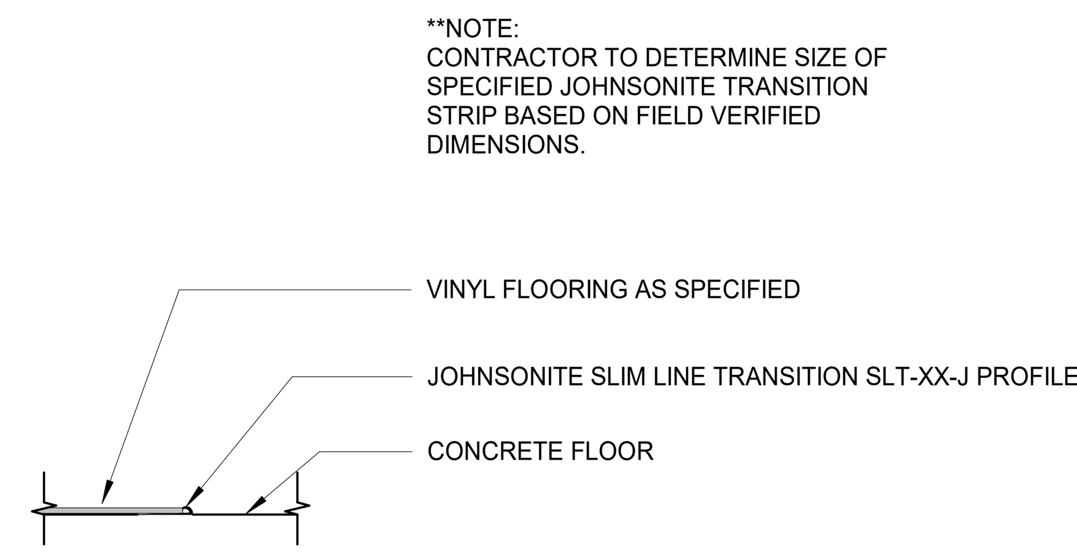
SHEET NUMBER:

A-603

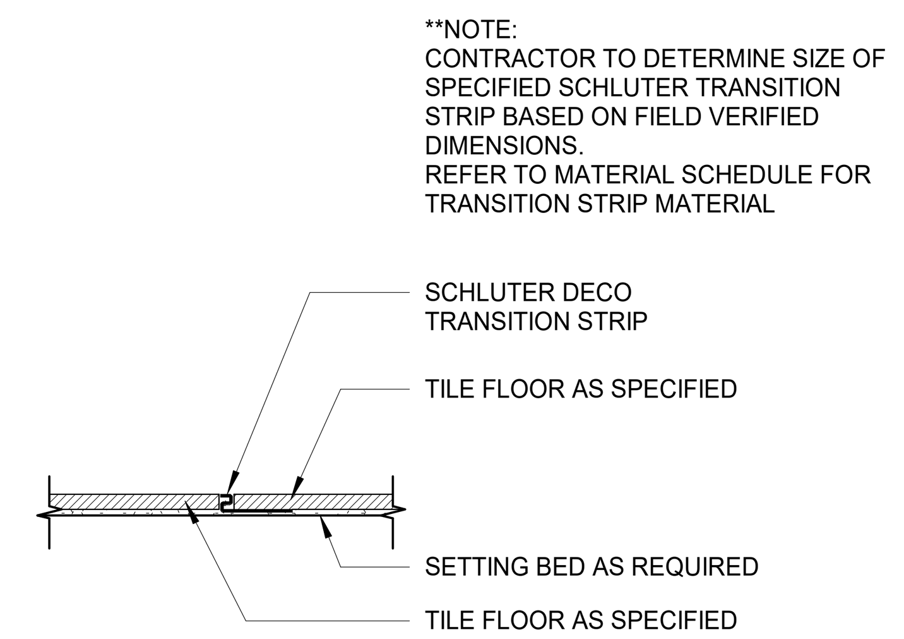
REFERENCE G-003 FOR GENERAL NOTES



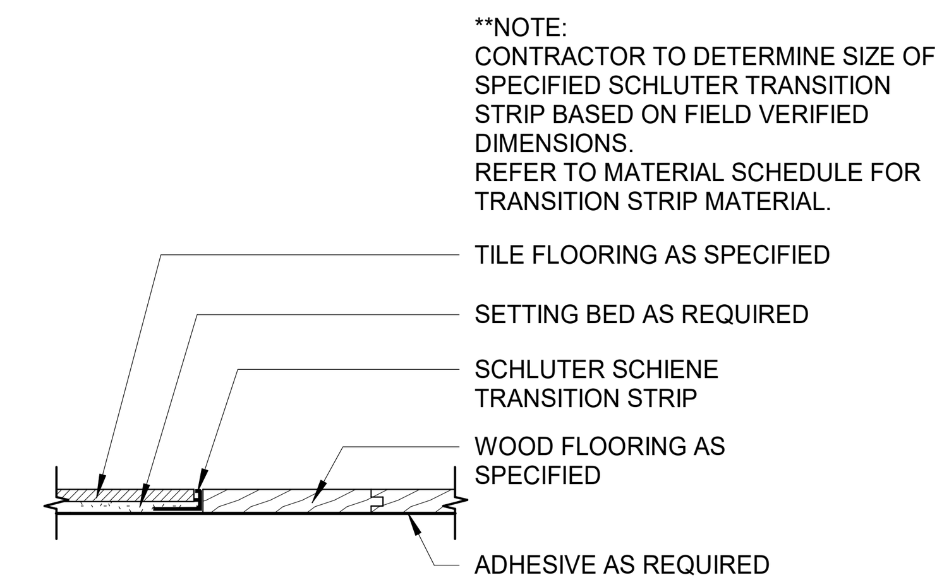
D4 FLOOR FINISH TRANSITION-CHANGE IN LEVEL
3" = 1'-0"



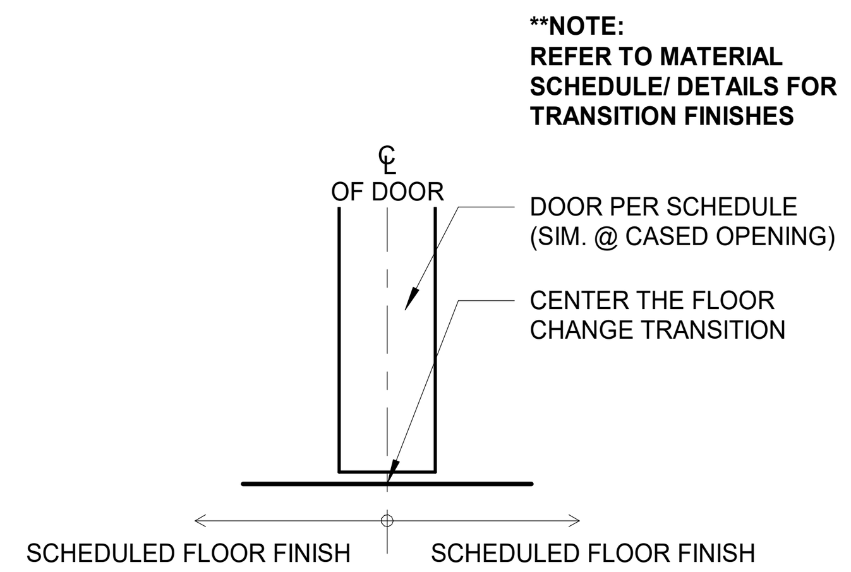
C4 VINYL / CONCRETE TRANSITION
3" = 1'-0"



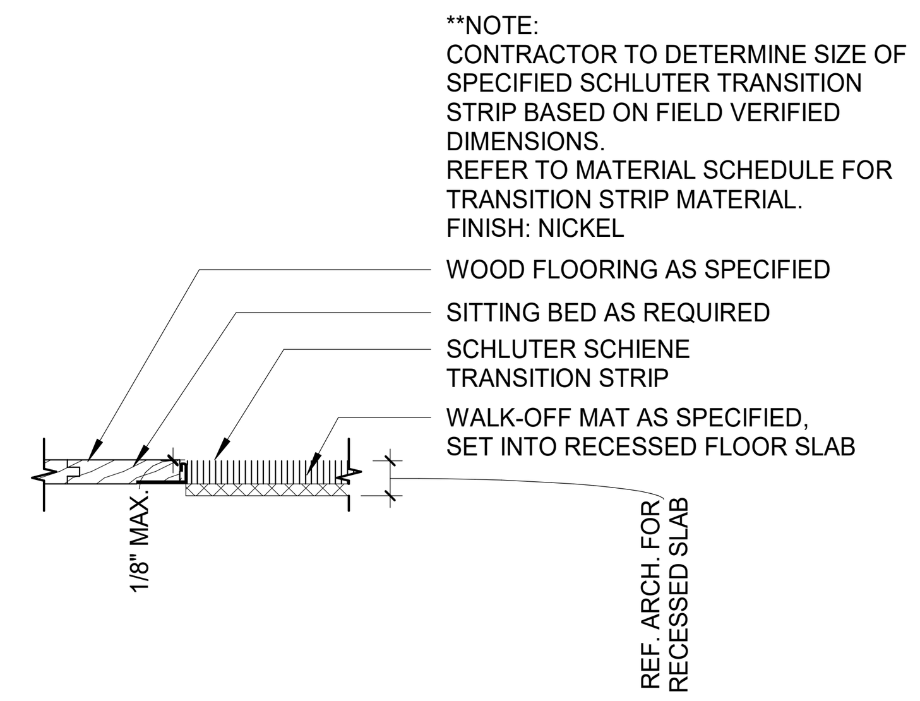
B4 TILE/ TILE TRANSITION
3" = 1'-0"



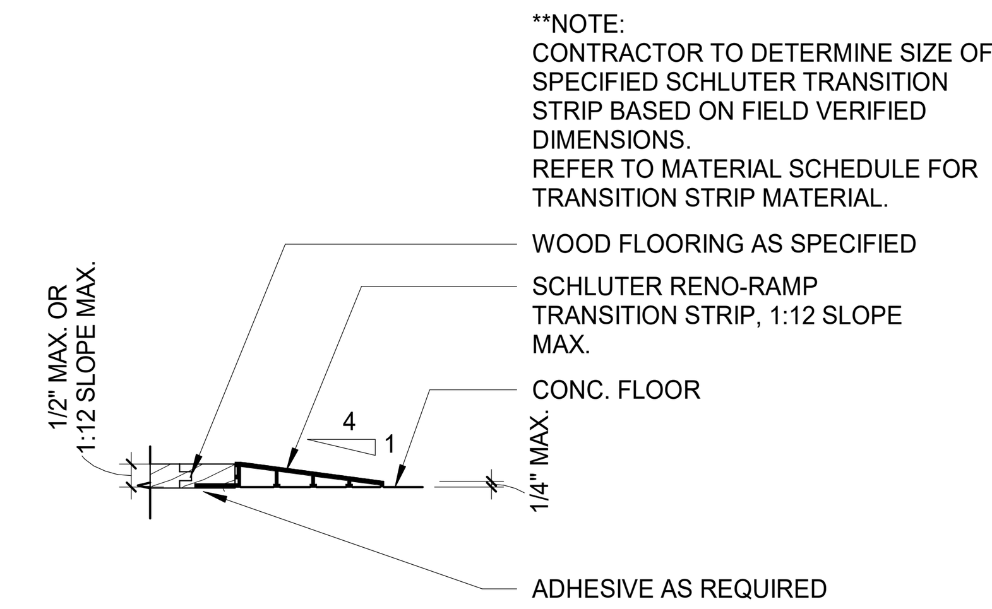
A4 TILE / WOOD TRANSITION
3" = 1'-0"



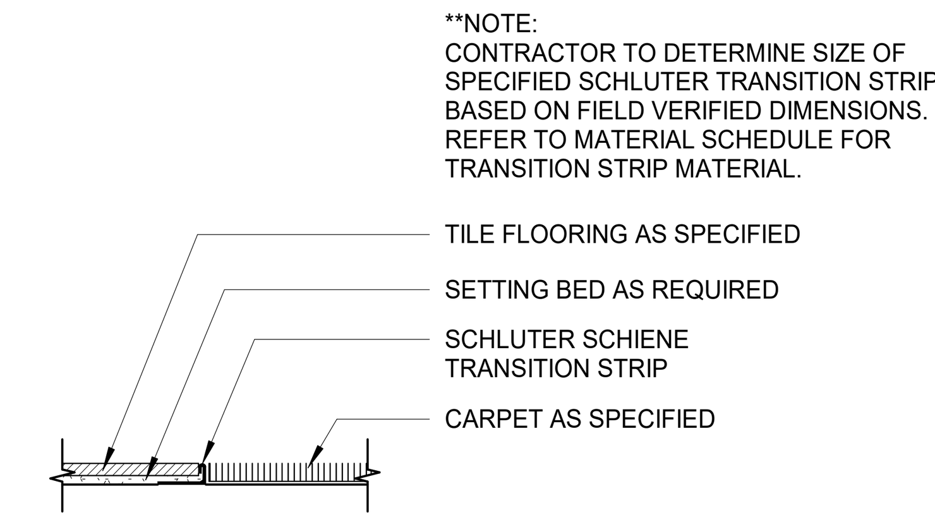
D3 FLOOR FINISH TRANSITION LOCATION
3" = 1'-0"



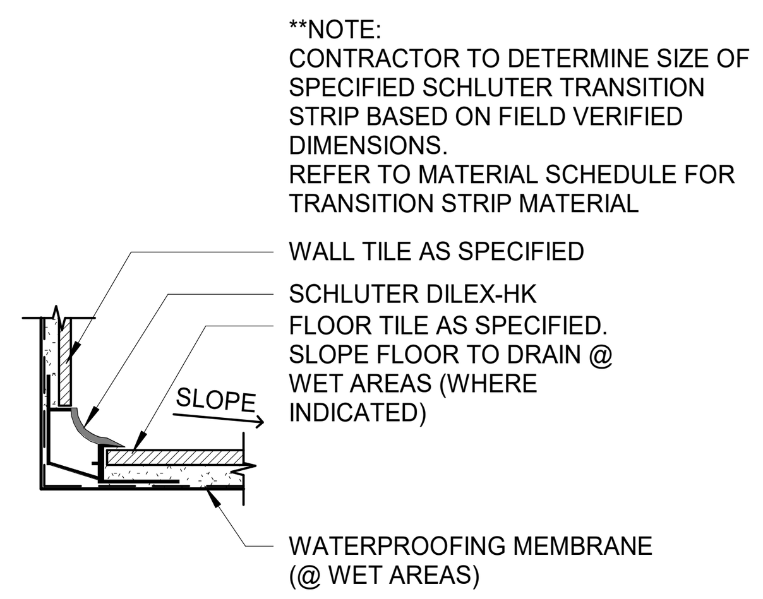
C3 WOOD / WALK-OFF MAT TRANSITION
3" = 1'-0"



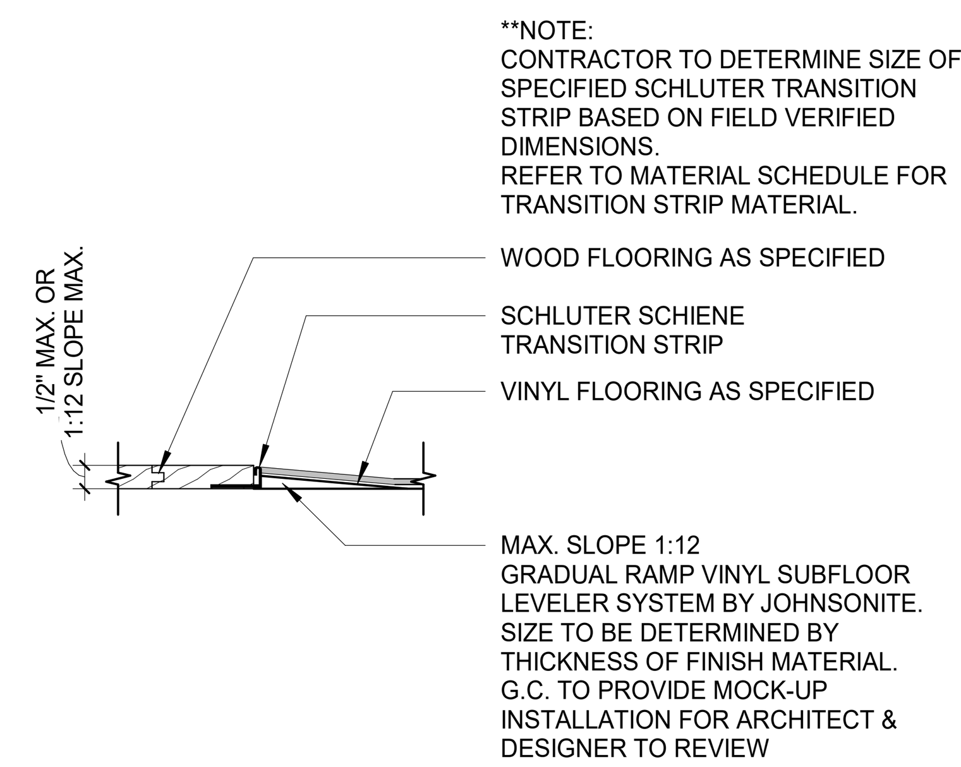
B3 WOOD / CONC. TRANSITION
3" = 1'-0"



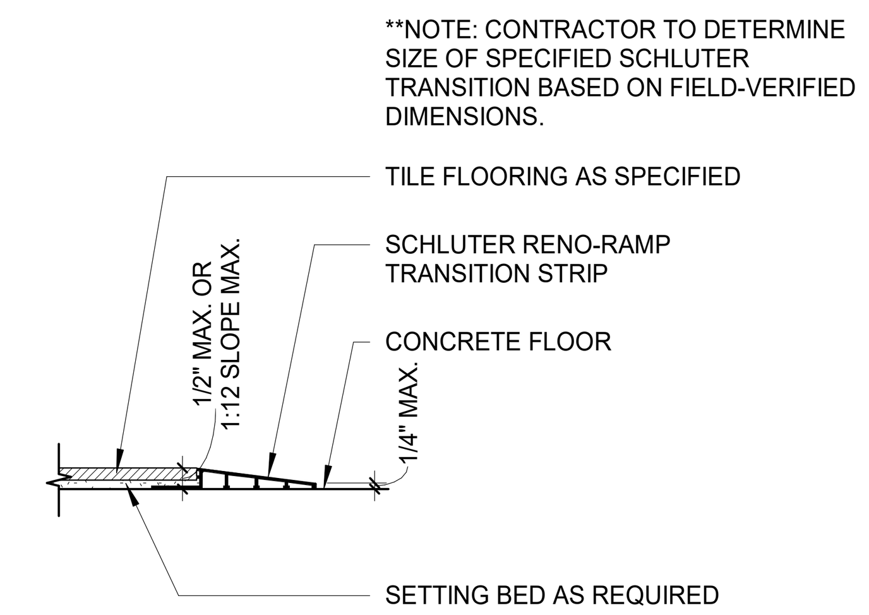
A3 TILE / CARPET TRANSITION
3" = 1'-0"



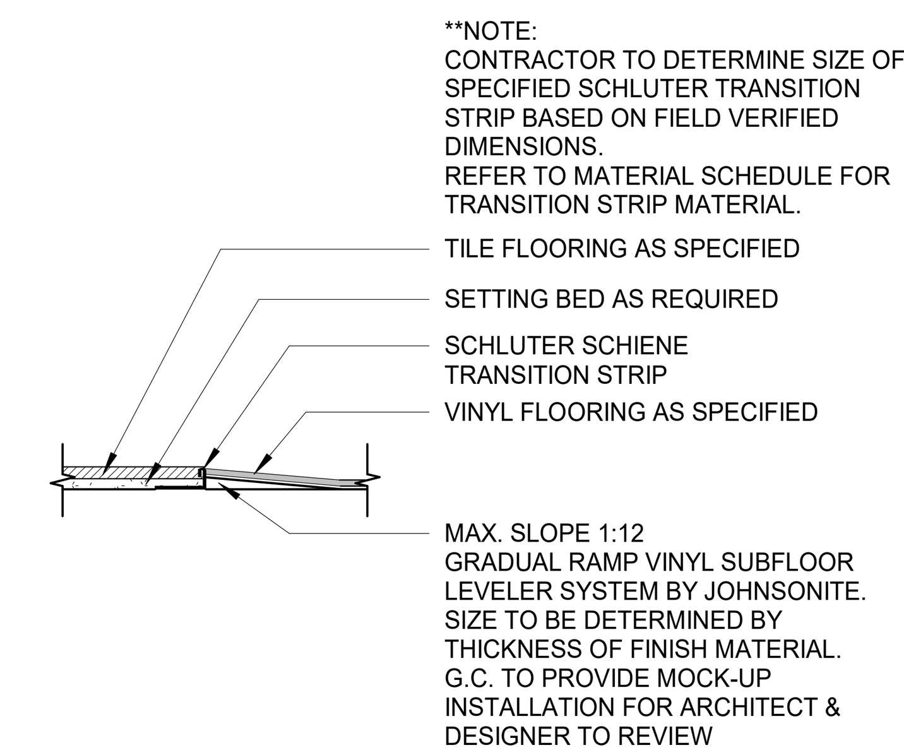
D2 FLOOR TILE TO WALL TILE TRANSITION
3" = 1'-0"



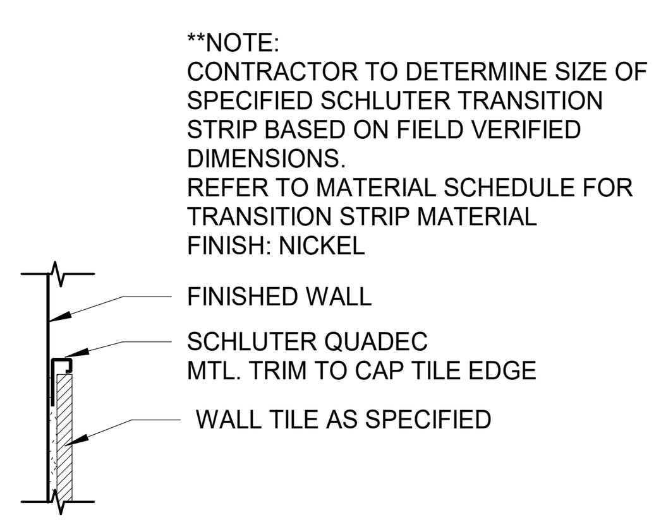
C2 WOOD / VINYL TRANSITION
3" = 1'-0"



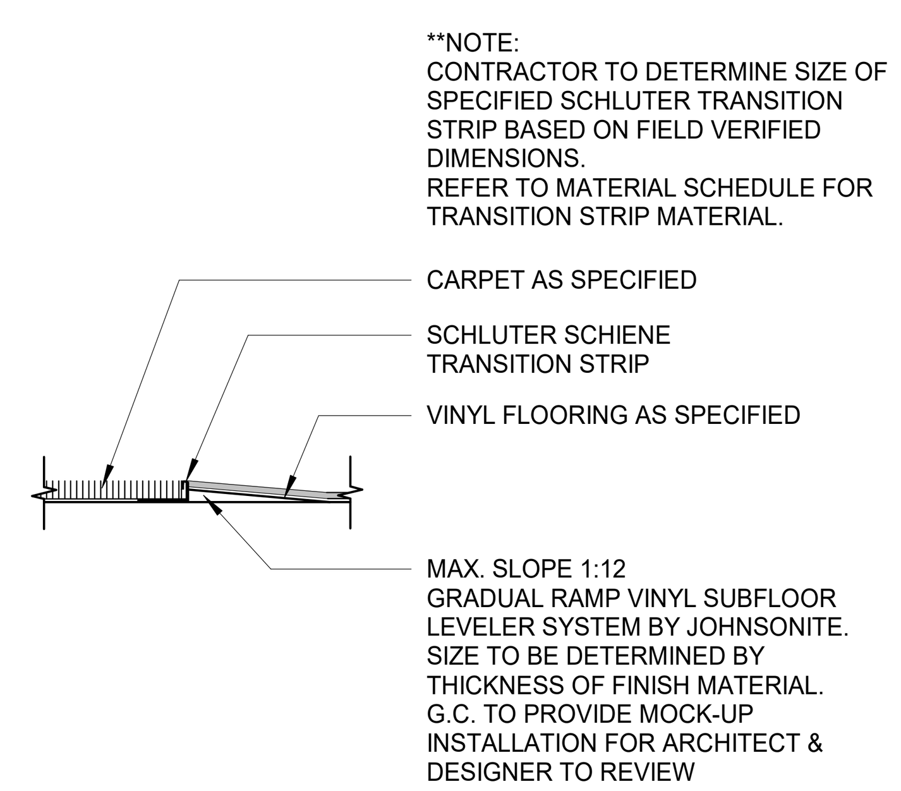
B2 TILE / CONC. TRANSITION
3" = 1'-0"



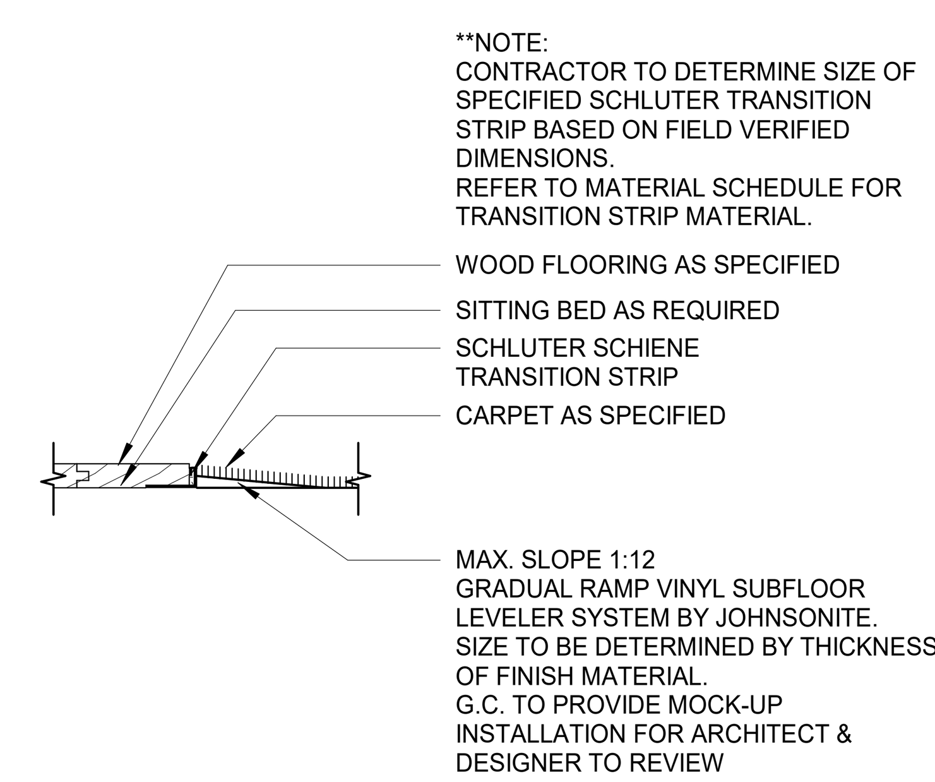
A2 TILE / VINYL TRANSITION
3" = 1'-0"



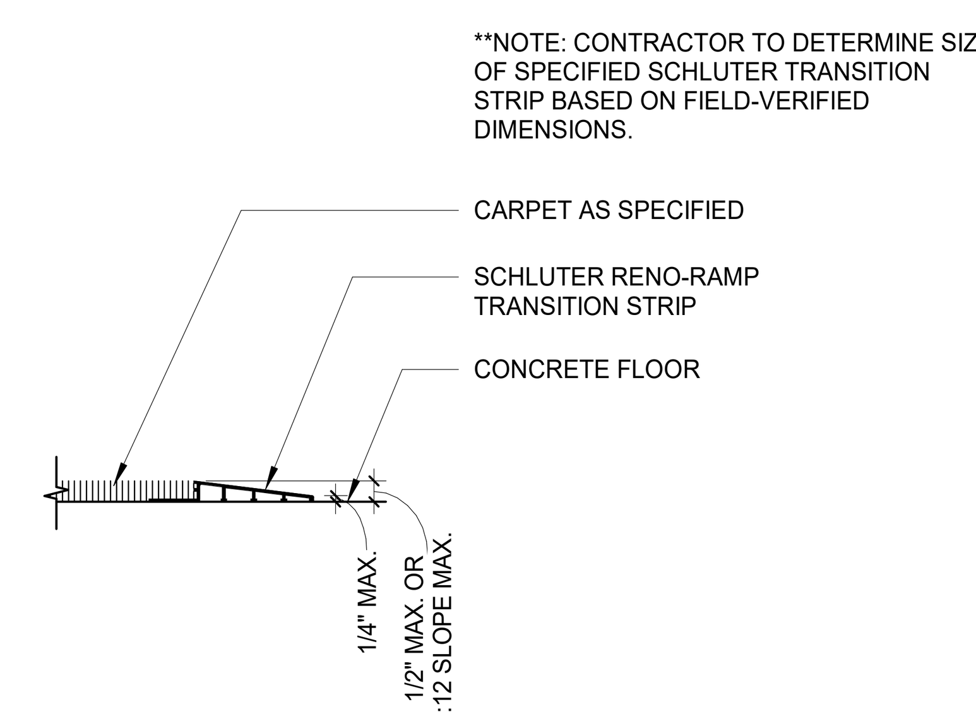
D1 WALL TILE EDGE AT BASE (VERT. & HORIZ.)
3" = 1'-0"



C1 CARPET / VINYL TRANSITION
3" = 1'-0"



B1 WOOD / CARPET TRANSITION
3" = 1'-0"



A1 CARPET / CONC. TRANSITION
3" = 1'-0"

PRINTS ISSUED
11/27/2024 - CITY SUBMISSION

REVISIONS:

rosemann & ASSOCIATES P.C.
ARCHITECTURE
INTERIOR DESIGN
ENGINEERING
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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-7355
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
FINISH TRANSITION DETAILS

PROJECT NUMBER: 24017

SHEET NUMBER:
A-700

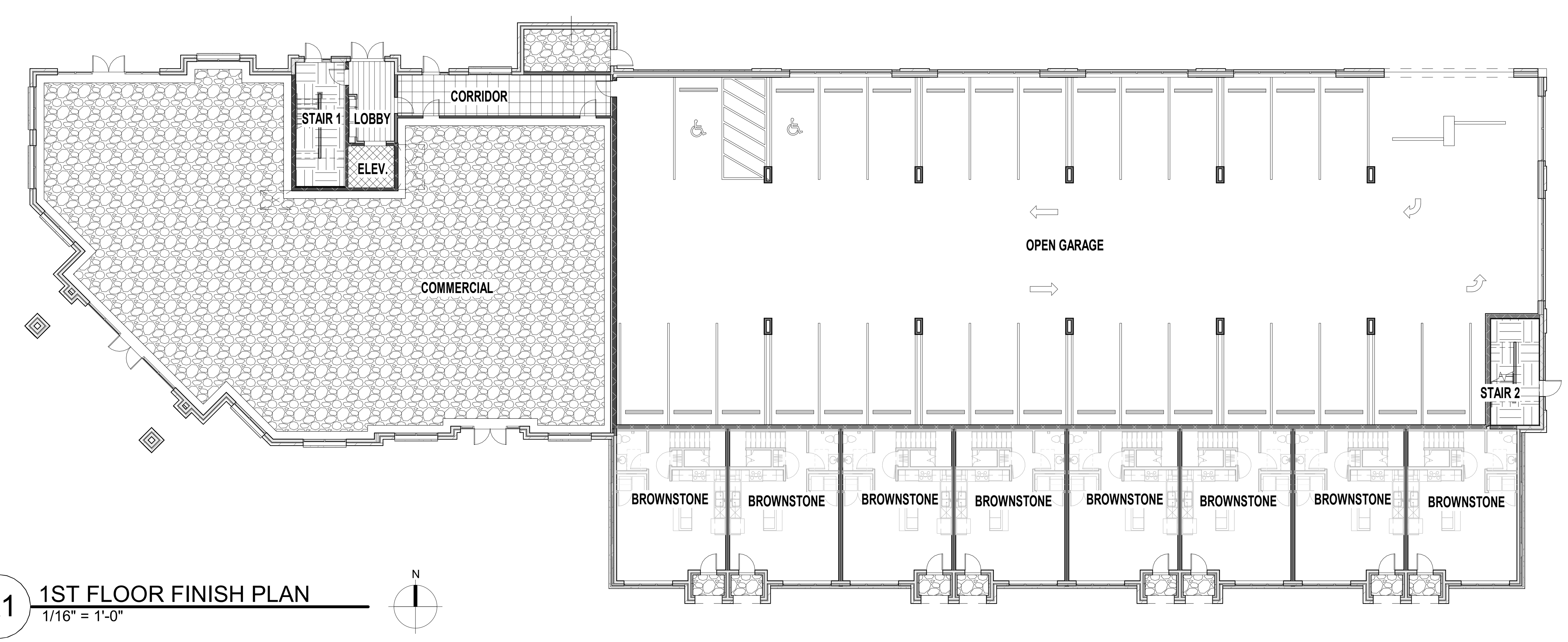
REFERENCE G-003 FOR GENERAL NOTES

FINISH LEGEND

	LVT1	LUXURY VINYL PLANK
	CT1	CARPET TILE 1
	CT2	CARPET TILE 2
	WOM	WALK OFF MAT
		UNFINISHED FLOOR

A3 THIRD FLOOR PLAN
1/16" = 1'-0"

A2 SECOND FLOOR PLAN
1/16" = 1'-0"



A1 1ST FLOOR FINISH PLAN
1/16" = 1'-0"

PRINTS ISSUED
11/27/2024 - CITY SUBMISSION

REVISIONS:

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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7365
REGISTERED ARCHITECT
11/27/2024

DISCOVERY PARK - LOT #9 - A
LEE'S SUMMIT, MO

SHEET TITLE
FINISH PLANS

PROJECT NUMBER: 24017

SHEET NUMBER:

A-710

Mechanical - Electrical - Plumbing Design Drawings for

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

GENERAL MEP SPECIFICATIONS

1. GENERAL

1.1. ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH LOCALLY ADOPTED CODES AND ORDINANCES.

1.2. IT IS THE RESPONSIBILITY OF CONTRACTOR TO REVIEW AND UNDERSTAND ALL DRAWINGS AND SPECIFICATIONS IN CONTRACT DOCUMENTS. EACH CONTRACTOR IS RESPONSIBLE FOR ALL WORK ASSOCIATED WITH THEIR TRADE, REGARDLESS OF WHERE WORK IS DEPICTED IN PROJECT DRAWINGS OR SPECIFICATIONS.

1.3. LAYOUT OF SYSTEMS SHOWN ON PLANS ARE APPROXIMATE AND SCHEMATIC IN NATURE. ALL SYSTEMS WILL NEED TO BE FIELD-COORDINATED. CONTRACTOR SHALL INCLUDE THIS COORDINATION IN THEIR SCOPE AND INCLUDE ALL COSTS OF MODIFYING LAYOUT AS REQUIRED IN THEIR BID. PLANS ARE NOT INTENDED TO BE SHOP DRAWINGS FROM WHICH MATERIALS CAN BE ORDERED, FABRICATED, OR INSTALLED WITHOUT ADDITIONAL FIELD MEASUREMENTS AND COORDINATION.

1.4. NOT ALL SPECIFIC PIECES AND COMPONENTS OF EACH SYSTEM ARE DETAILED OR OUTLINED ON PLANS. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY PARTS AND LABOR TO PRODUCE A COMPLETE AND FULLY OPERATIONAL SYSTEM UNLESS STATED OTHERWISE ON PLANS. CONTRACTOR IS TO PROVIDE AND INCLUDE ALL EQUIPMENT AND MATERIAL NEEDED TO COMPLETE WORK ASSOCIATED WITH THEIR BID UNLESS ANY ITEMS ARE SPECIFICALLY NOTED ON PLANS AS PROVIDED BY OTHERS. ALL MATERIALS TO BE NEW, FIRST CLASS, AND INSTALLED PER MANUFACTURER'S PUBLISHED INSTRUCTIONS.

1.5. WHERE CONFLICTS EXIST BETWEEN MEP PLANS AND CIVIL, ARCHITECTURAL, OR STRUCTURAL PLANS, NOTIFY MEP ENGINEER OF DISCREPANCIES FOR CLARIFICATION PRIOR TO PERFORMING ANY WORK THAT MAY CONTRADICT INFORMATION ELSEWHERE IN THE PROJECT PLANS.

1.6. THESE PLANS ARE NOT TO BE SCALED. SEE ARCHITECTURAL PLANS FOR DIMENSIONS. WHERE THERE IS A CONFLICT BETWEEN ARCHITECTURAL DIMENSIONS AND MEP DIMENSIONS, ARCHITECTURAL SHALL GOVERN.

1.7. CONTRACTOR IS TO INCLUDE IN THEIR SCOPE THE COST OF ALL PERMITS, INSPECTIONS, METERING, TAPS, ETC. ASSOCIATED WITH THEIR WORK.

1.8. CONTRACTOR IS RESPONSIBLE FOR ALL EXCAVATION, CUTTING, CORING, PATCHING, AND BACKFILL REQUIRED TO COMPLETE THEIR WORK, UNLESS NOTED OTHERWISE ON PLANS.

1.9. SPECIFIC EQUIPMENT MANUFACTURERS AND/OR MODEL NUMBERS LISTED ON PLANS ARE TO ESTABLISH A BASIS-OF-DESIGN FOR QUALITY AND PERFORMANCE, VERIFY THAT SUBSTITUTIONS WILL BE ACCEPTABLE PRIOR TO PURCHASE & INSTALLATION.

1.10. NOTIFY ENGINEER OF ANY MAJOR PLAN DISCREPANCIES OR CONFLICTS PRIOR TO PROVIDING BIDS OR COMPLETING ANY WORK.

1.11. SEE DISCIPLINE SHEETS FOR ADDITIONAL TRADE SPECIFIC SPECIFICATIONS.

1.12. WHERE SHUTDOWN OF ANY EXISTING UTILITY OR SERVICE TO BUILDING IS REQUIRED FOR COMPLETION OF WORK, COORDINATE OUTAGE WITH OWNER AS TO NOT DISRUPT TYPICAL OPERATIONS.

2. WORKMANSHIP

2.1. SYSTEMS SHALL BE INSTALLED IN A FIRST-CLASS MANNER USING BEST ACCEPTABLE METHODS AND PRACTICES.

2.2. ALL SYSTEMS SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BUILDING ORIENTATION. COMPONENTS SHALL BE INSTALLED LEVEL AND PLUMB WITH ATTENTION GIVEN TO OVERALL AESTHETICS.

2.3. CONTRACTOR IS RESPONSIBLE FOR COORDINATING EQUIPMENT LOCATIONS AND SYSTEM ROUTING WITH OTHER TRADES PRIOR TO INSTALLATION.

2.4. CONTRACTOR TO GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE THE COMPLETED PROJECT IS RELEASED TO THE OWNER, UNLESS NOTED OTHERWISE ON PLANS.

2.5. DURING INSTALLATION OF MATERIALS OR ACTIVITIES IN NEW WORK SCOPE, AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO REMAIN. ANY DAMAGE TO EXISTING SURFACES OR EQUIPMENT SHALL BE CORRECTED AT NO COST TO OWNER.

DEFERRED SUBMITTAL NOTES

1. FIRE ALARM SYSTEM

1.1. FIRE ALARM SYSTEM COMPONENTS SHOWN (IF APPLICABLE) ARE GENERAL AND SCHEMATIC IN NATURE, SHOWN FOR APPROXIMATE ROUGH-IN LOCATIONS AND QUANTITIES ONLY. CONTRACTOR TO VERIFY EXACT DEVICE LOCATIONS AND REQUIREMENTS WITH FIRE ALARM SYSTEM DESIGNER OF RECORD PRIOR TO ROUGH-IN.

1.2. FIRE ALARM CONTRACTOR SHALL PROVIDE DEFERRED SUBMITTAL PACKAGE FOR FIRE ALARM SYSTEM. SUBMITTAL SHALL INCLUDE BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS, EQUIPMENT SPECIFICATIONS FOR DEVICES AND PANELS, ETC. DESIGN SHALL BE SEALED BY A QUALIFIED DESIGN PROFESSIONAL LICENSED BY THE STATE.

2. FIRE SPRINKLER SYSTEM

2.1. WHERE COMBINED FIRE & DOMESTIC WATER SUPPLY LINES ARE SHOWN ON PLANS, INSTALLING CONTRACTOR SHALL VERIFY WITH FIRE SPRINKLER CONTRACTOR THAT INCOMING LINE SIZE IS ADEQUATE FOR FIRE SUPPRESSION SYSTEM.

2.2. FIRE SPRINKLER CONTRACTOR TO PROVIDE DEFERRED SUBMITTAL PACKAGE FOR FIRE SPRINKLER SYSTEM. SUBMITTAL SHALL INCLUDE HYDRAULIC CALCULATIONS AND SPRINKLER SYSTEM DRAWINGS SEALED BY A QUALIFIED DESIGN PROFESSIONAL LICENSED BY THE STATE.

REFERENCED CODES IN EFFECT

PROJECT HAS BEEN DESIGNED IN COMPLIANCE WITH THE FOLLOWING CODES LISTED BELOW, BUT THIS IS NOT AN EXHAUSTIVE LIST. PROJECT SHALL COMPLY WITH ALL APPLICABLE CODES, STANDARDS, AND LOCAL REQUIREMENTS.

- 2018 INTERNATIONAL MECHANICAL CODE
- 2018 INTERNATIONAL PLUMBING CODE
- 2018 INTERNATIONAL FUEL GAS CODE
- 2018 INTERNATIONAL FIRE CODE
- 2017 NATIONAL ELECTRIC CODE

FIRE RATED PENETRATION NOTES

- THIS BUILDING CONTAINS FIRE RATED ASSEMBLIES. SEE ARCHITECTURAL PLANS FOR LOCATIONS AND DETAILS.
- A UL-LISTED FIRESTOP SYSTEM SHALL BE INSTALLED AT EACH PENETRATION OF A HORIZONTAL OR VERTICAL RATED ASSEMBLY IN ACCORDANCE WITH ASTM E814 OR UL 1479.
- EACH CONTRACTOR IS RESPONSIBLE FOR PROVIDING PROTECTION FOR THEIR PENETRATIONS THRU RATED ASSEMBLIES.
- GENERAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING A CATALOG OF ALL UL LISTED FIRESTOP ASSEMBLIES, AND KEEPING A PHYSICAL COPY OF DETAILS FOR EACH USED FIRESTOP ASSEMBLY ON SITE FOR REFERENCE.

SHEET LIST TABLE

SHEET LIST TABLE (CONT.)

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 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: J21012

J2 DESIGN: ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:
Village at Discovery Lot 9A
200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

MECHANICAL ELECTRICAL PLUMBING COVER SHEET

SHEET NUMBER

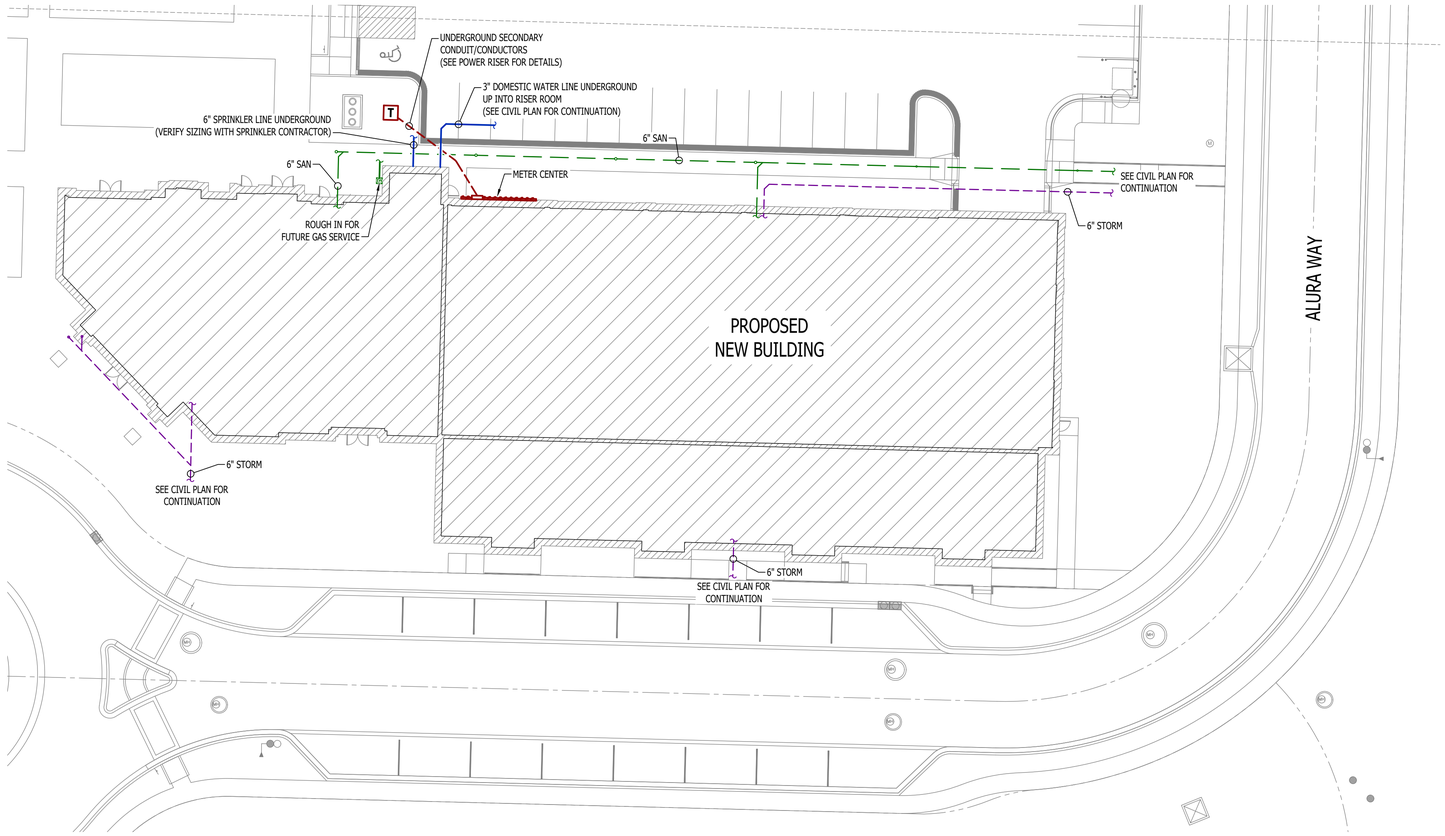
MEP1

SITE UTILITIES PLAN SYMBOL LEGEND

- SANITARY SEWER PIPING
- COLD WATER LINE
- WATER METER
- VALVE
- GAS LINE
- GAS METER
- TIE INTO EXISTING
- ELECTRIC

SITE UTILITIES PLAN GENERAL NOTES:

1. REFER TO CIVIL PLANS FOR EXACT UTILITY LOCATIONS, CONNECTIONS, DETAILS, ETC.
2. COORDINATE EXACT LOCATIONS OF ALL ELECTRICAL CONDUITS & EQUIPMENT WITH EVERGY.
3. SEE SEPARATE PLAN SUBMITTAL FOR LOT 9B FOR SITE LIGHTING ASSOCIATED WITH PARKING AREAS FOR LOT 9A.



SITE UTILITIES PLAN

SCALE: 1" = 20 ft

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

SITE UTILITIES PLAN

SHEET NUMBER

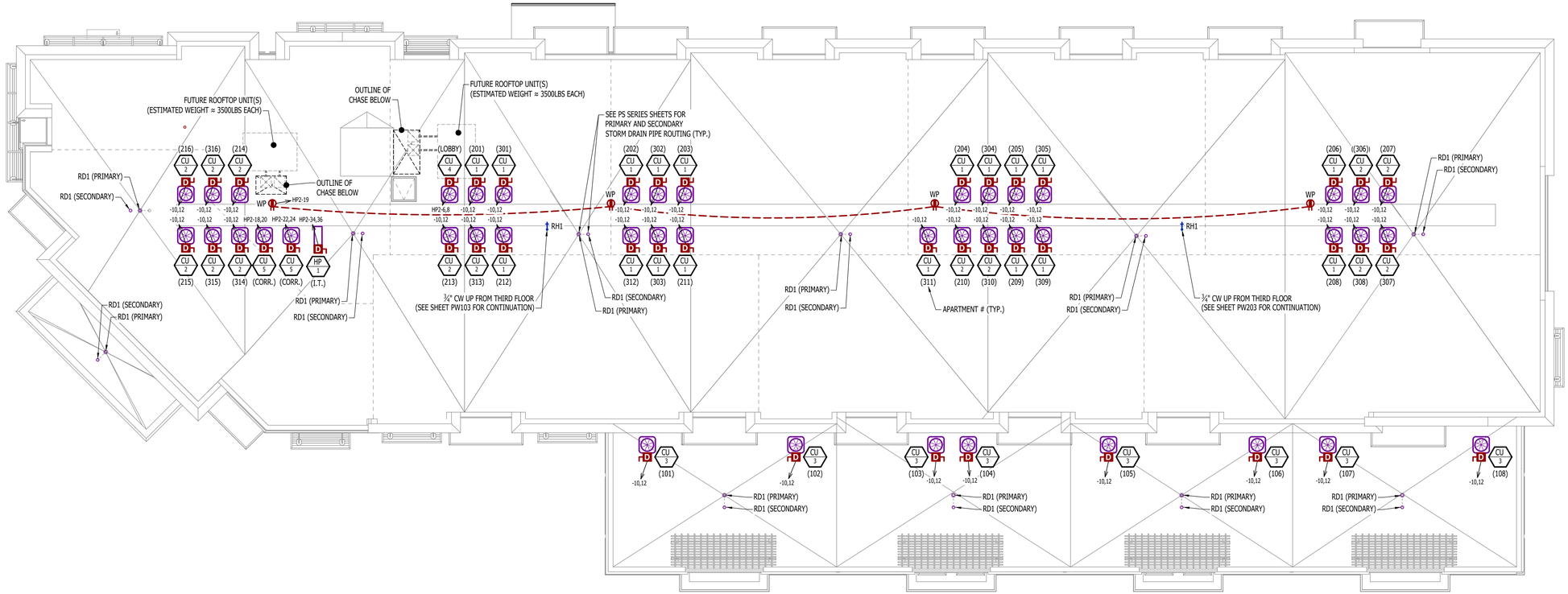
MEP2

ROOF MEP 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
- D — DISCONNECT
- CONDENSING UNIT
- STORM DRAIN PIPING

ROOF MEP PLAN GENERAL NOTES:

1. REFER TO TRADE SPECIFIC SHEETS FOR ADDITIONAL INFORMATION.



MEP PLAN - ROOF

SCALE: 3/32" = 1'-0"

STATE OF MISSOURI
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ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

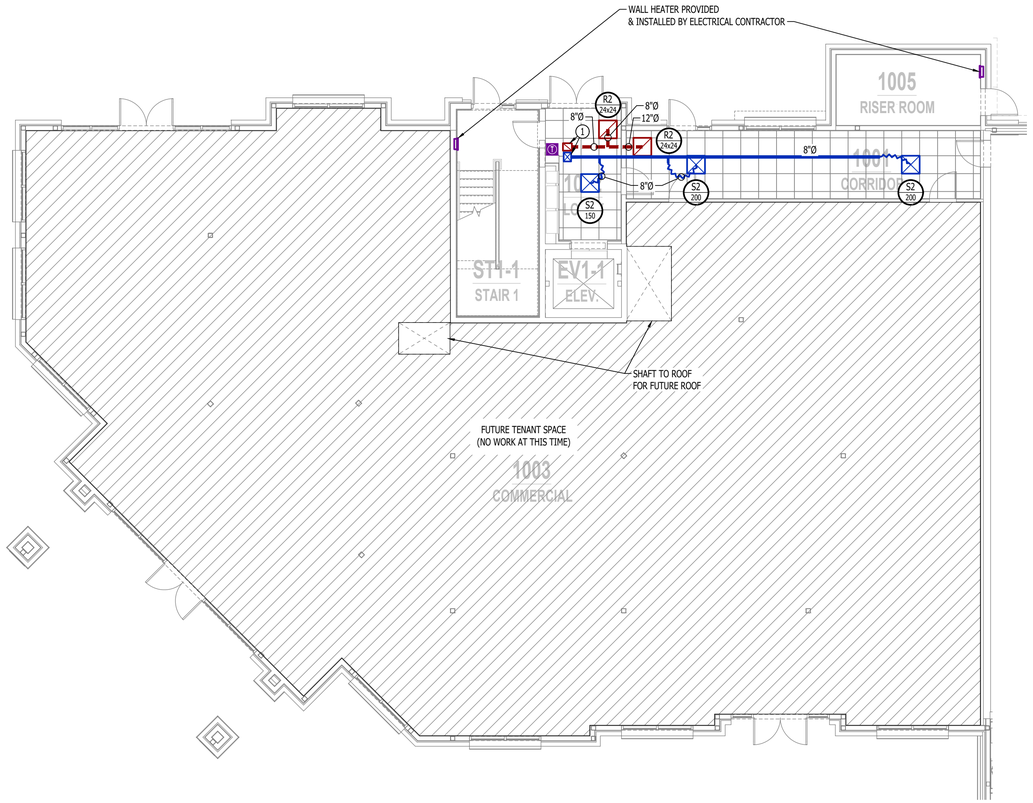
AHJ APPROVAL STAMP

SHEET TITLE

MEP PLAN - ROOF

SHEET NUMBER

MEP3



HVAC PLAN - 1ST FLOOR - AREA A

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

HVAC PLAN SYMBOL LEGEND

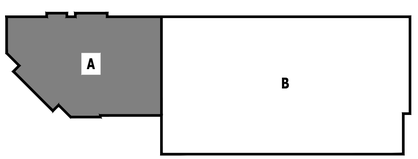
- EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)
- EQUIPMENT REFERENCE NUMBER
- DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)
- CUBIC FEET PER MINUTE (CFM) / FACE SIZE
- SUPPLY DUCTWORK
- RETURN DUCTWORK
- EXHAUST DUCTWORK
- OUTSIDE AIR DUCTWORK
- FLEX DUCT
- TIE INTO EXISTING
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
- CEILING RADIATION DAMPER
- FIRE RATED DAMPER
- SMOKE DAMPER
- THERMOSTAT

HVAC PLAN GENERAL NOTES:

1. SEE M500 & M600 SERIES SHEETS FOR ADDITIONAL HVAC NOTES, DETAIL, AND SCHEDULES.

HVAC PLAN KEY NOTES:

(1) 12x10 (OR EQUAL) SUPPLY & RETURN DOWN FROM SECOND FLOOR (SEE SHEET M102 FOR AIR-HANDLER LOCATION ON 2ND FLOOR).



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

J-SQUARED ENGINEERING
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J2 PROJECT No:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

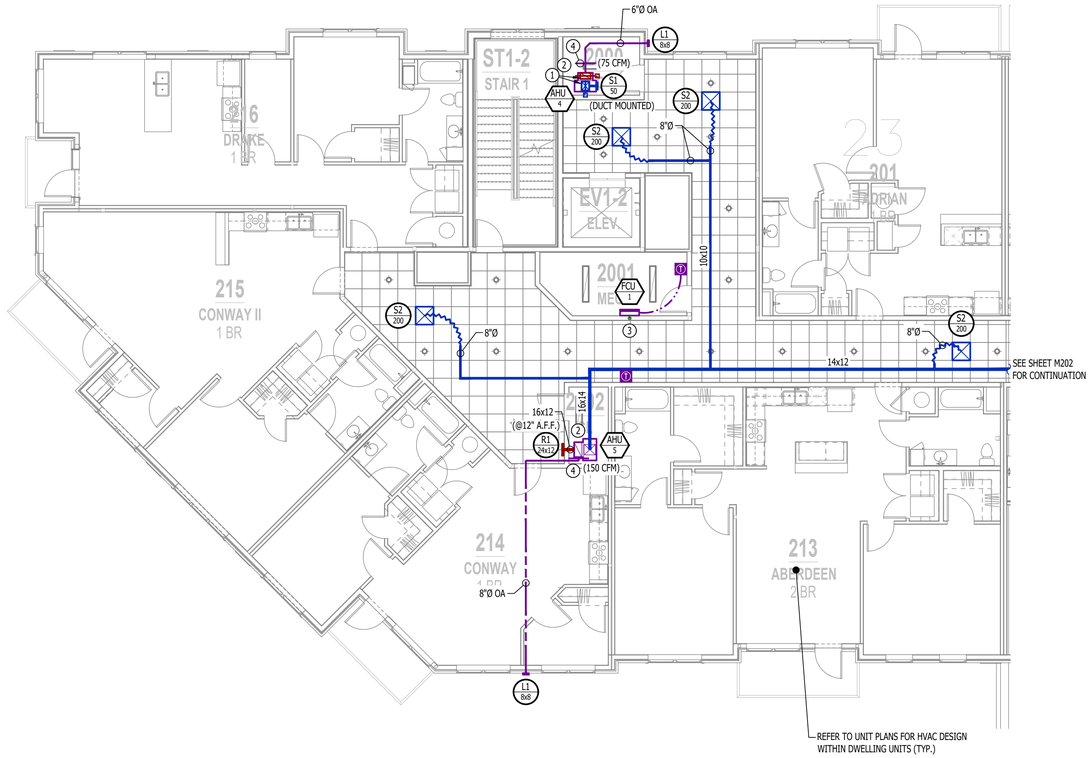
AHJ APPROVAL STAMP

SHEET TITLE

HVAC PLAN - 1ST FLOOR - AREA A

SHEET NUMBER

M101



HVAC PLAN - 2ND FLOOR - AREA A

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

HVAC PLAN SYMBOL LEGEND

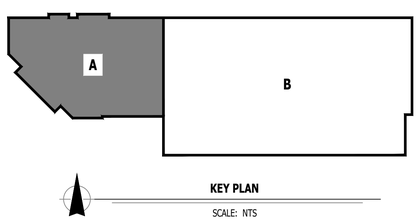
- X / # — EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE) / EQUIPMENT REFERENCE NUMBER
- X / # — DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE) / CUBIC FEET PER MINUTE (CFM) / FACE SIZE
- SUPPLY DUCTWORK
- RETURN DUCTWORK
- EXHAUST DUCTWORK
- OUTSIDE AIR DUCTWORK
- FLEX DUCT
- TIE INTO EXISTING
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
- CEILING RADIATION DAMPER
- FIRE RATED DAMPER
- SMOKE DAMPER
- THERMOSTAT

HVAC PLAN GENERAL NOTES:

1. SEE M500 & M600 SERIES SHEETS FOR ADDITIONAL HVAC NOTES, DETAIL, AND SCHEDULES.

HVAC PLAN KEY NOTES:

1. 12x10 (OR EQUAL) SUPPLY & RETURN DOWN TO 1ST FLOOR WITH FIRE-DAMPER AT FLOOR/CEILING PENETRATION.
2. AC CONDENSATE TO INDIRECT DISCHARGE INTO FLOOR DRAIN WITHIN MECHANICAL ROOM.
3. AC CONDENSATE TO INDIRECT DISCHARGE INTO HUB DRAIN; COORDINATE WITH PLUMBING CONTRACTOR.
4. BALANCE OUTSIDE AIR (OA) TO AMOUNT SHOWN (XXX CFM).



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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J2 PROJECT No:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

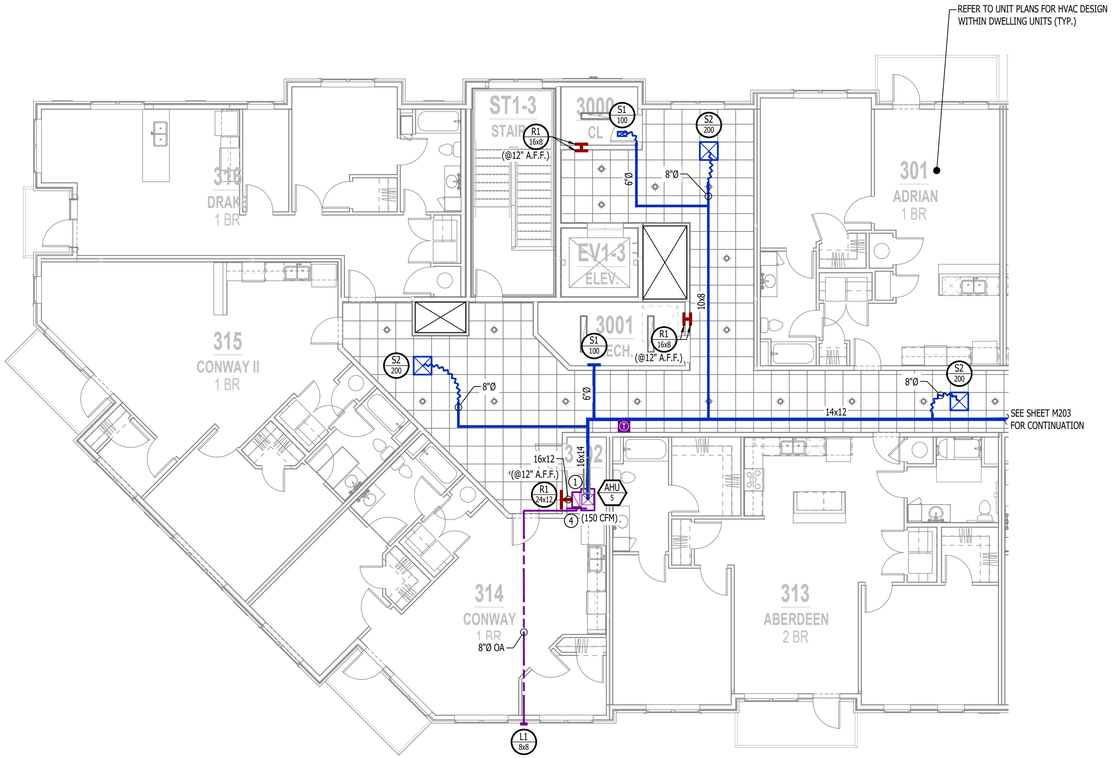
AHJ APPROVAL STAMP

SHEET TITLE

HVAC PLAN - 2ND FLOOR - AREA A

SHEET NUMBER

M102



HVAC PLAN - 3RD FLOOR - AREA A

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
- TIE INTO EXISTING
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
- CEILING RADIATION DAMPER
- FIRE RATED DAMPER
- SMOKE DAMPER
- THERMOSTAT

(4) BALANCE OUTSIDE AIR (OA) TO AMOUNT SHOWN (XXX CFM).

HVAC PLAN GENERAL NOTES:

1. SEE M500 & M600 SERIES SHEETS FOR ADDITIONAL HVAC NOTES, DETAIL, AND SCHEDULES.

HVAC PLAN KEY NOTES:

(1) AC CONDENSATE TO INDIRECT DISCHARGE INTO FLOOR DRAIN WITHIN MECHANICAL ROOM.

KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 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:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

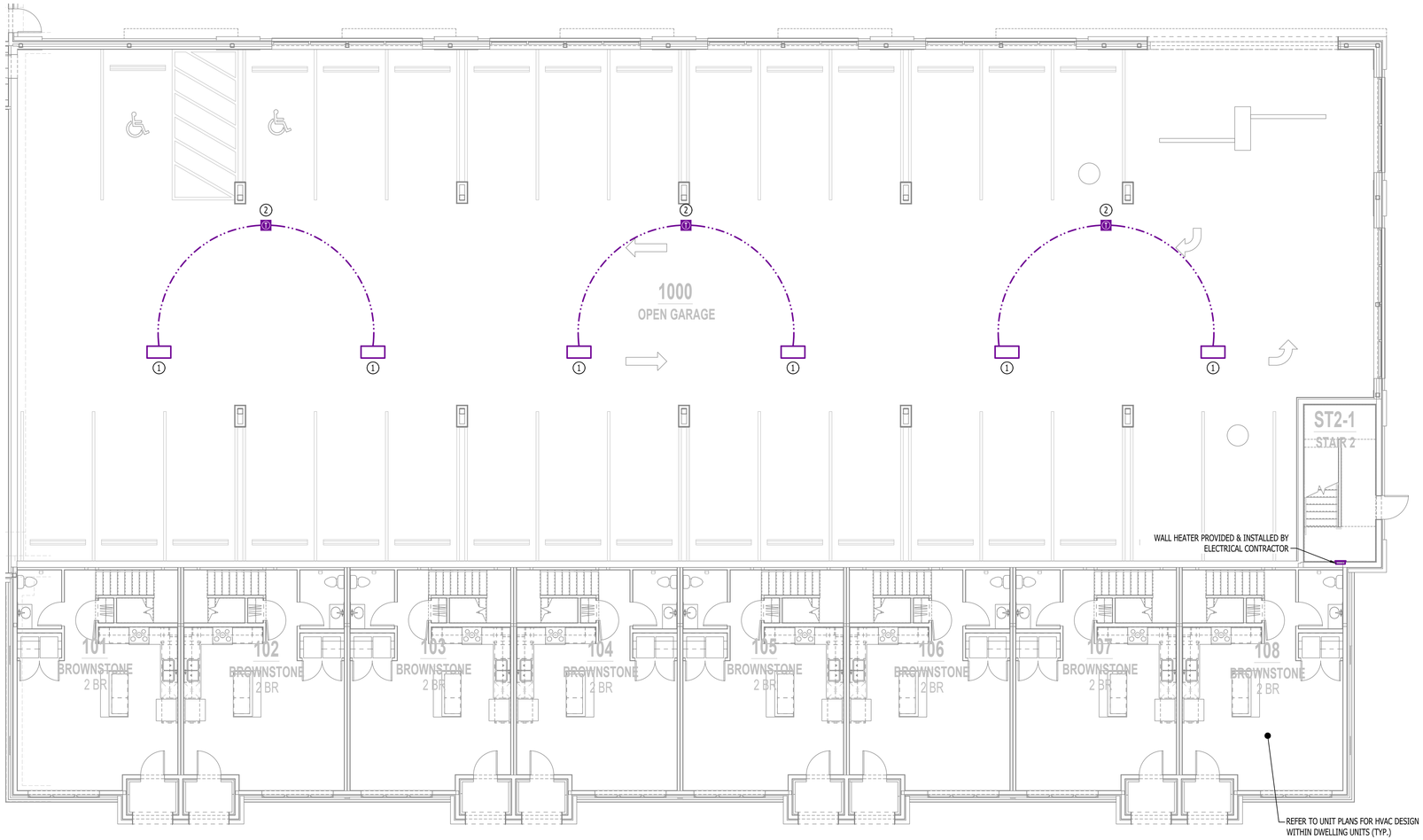
AHJ APPROVAL STAMP

SHEET TITLE

HVAC PLAN - 3RD FLOOR - AREA A

SHEET NUMBER

M103



HVAC PLAN - 1ST 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
- TIE INTO EXISTING
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
- CEILING RADIATION DAMPER
- FIRE RATED DAMPER
- SMOKE DAMPER
- THERMOSTAT

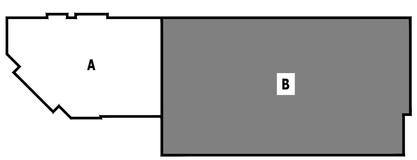
HVAC PLAN GENERAL NOTES:

1. SEE M500 & M600 SERIES SHEETS FOR ADDITIONAL HVAC NOTES, DETAIL, AND SCHEDULES.

HVAC PLAN KEY NOTES:

(1) PROVIDE & INSTALL 208V, 3PH, 5kW CONCEALED ZERO CLEARANCE PLENUM UNIT HEATER ABOVE CEILING (EQUAL TO BERKO #BPH138324) PROVIDE & INSTALL 24"x24" ACCESS PANEL.

(2) THERMOSTAT IN PLENUM SPACE FOR PLENUM HEATERS. SET TO 55°F. PROVIDE & INSTALL ACCESS PANEL.



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

HVAC PLAN - 1ST FLOOR - AREA B

SHEET NUMBER

M111

HVAC PLAN - 2ND FLOOR - AREA B

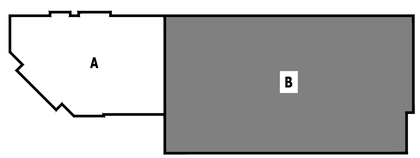
SCALE: 1/8" = 1'-0"

HVAC PLAN SYMBOL LEGEND

- X / # — EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)
- EQUIPMENT REFERENCE NUMBER
- X / # — DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)
- CUBIC FEET PER MINUTE (CFM) / FACE SIZE
- SUPPLY DUCTWORK
- RETURN DUCTWORK
- EXHAUST DUCTWORK
- OUTSIDE AIR DUCTWORK
- FLEX DUCT
- TIE INTO EXISTING
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
- CEILING RADIATION DAMPER
- FIRE RATED DAMPER
- SMOKE DAMPER
- THERMOSTAT

HVAC PLAN GENERAL NOTES:

1. SEE M500 & M600 SERIES SHEETS FOR ADDITIONAL HVAC NOTES, DETAIL, AND SCHEDULES.



KEY PLAN

SCALE: NTS

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200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

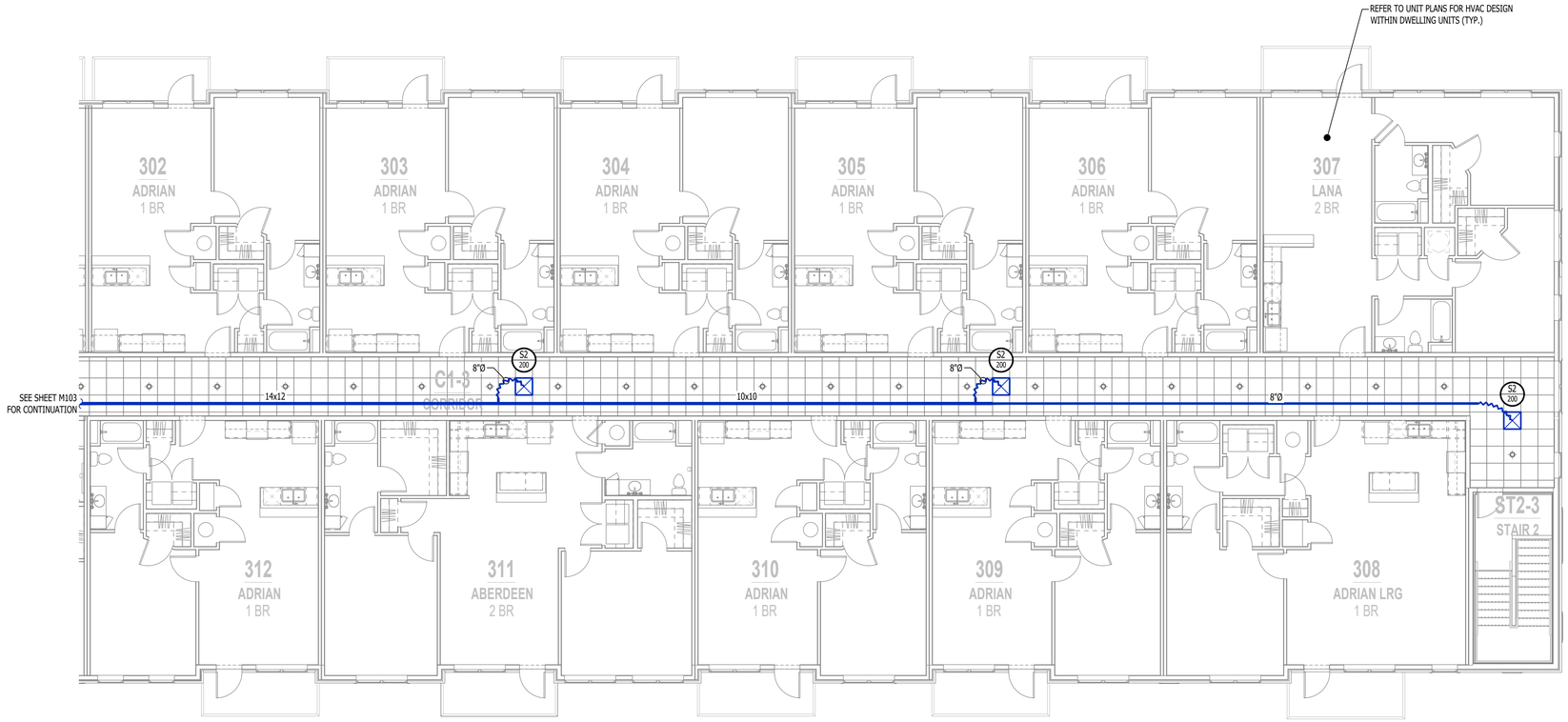
AHJ APPROVAL STAMP

SHEET TITLE

HVAC PLAN - 2ND FLOOR - AREA B

SHEET NUMBER

M112



HVAC PLAN - 3RD FLOOR - AREA B

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

HVAC PLAN SYMBOL LEGEND

- X / # — EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE) / EQUIPMENT REFERENCE NUMBER
- X / # — DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE) / CUBIC FEET PER MINUTE (CFM) / FACE SIZE
- SUPPLY DUCTWORK
- RETURN DUCTWORK
- EXHAUST DUCTWORK
- OUTSIDE AIR DUCTWORK
- FLEX DUCT
- TIE INTO EXISTING
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
- CEILING RADIATION DAMPER
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- SMOKE DAMPER
- THERMOSTAT

HVAC PLAN GENERAL NOTES:

1. SEE M500 & M600 SERIES SHEETS FOR ADDITIONAL HVAC NOTES, DETAIL, AND SCHEDULES.

KEY PLAN

SCALE: NTS

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SHEET TITLE

HVAC PLAN - 3RD 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

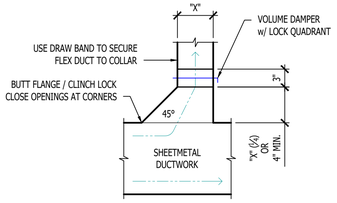
- 5.4.1. SPLIT SYSTEMS - WHERE CONDENSATE PIPING IS LOCATED IN UNCONDITIONED SPACE, INSULATE WITH ½" ELASTOMERIC. NO INSULATION REQUIRED WITHIN CONDITIONED SPACES.
- 5.4.2. VRV/VRF - INSULATE WITH ½" ELASTOMERIC.

6. TESTING AND BALANCING

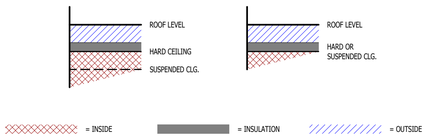
6.1. ALL SYSTEMS MUST BE BALANCED TO WITHIN 10% OF VALUES INDICATED ON PLAN.

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.



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

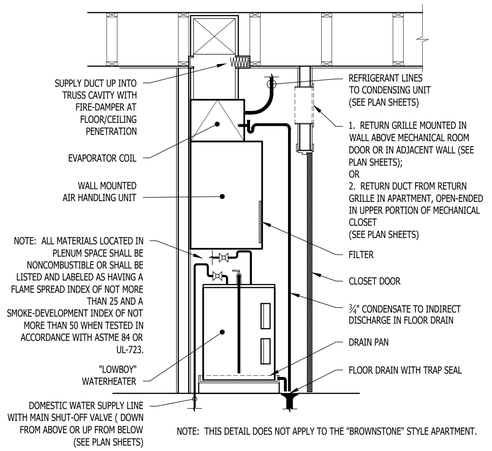
DUCT OUTSIDE THERMAL ENVELOPE INSULATION REQUIREMENTS

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

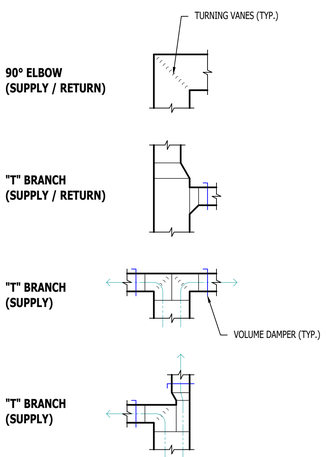
SPIRAL
- SUPPLY = 2" WRAP
- RETURN = 2" WRAP
- EXHAUST = 1½" WRAP
- OUTSIDE AIR = NONE

TYPICAL BUILDING INTERIOR DUCT INSULATION DIAGRAM

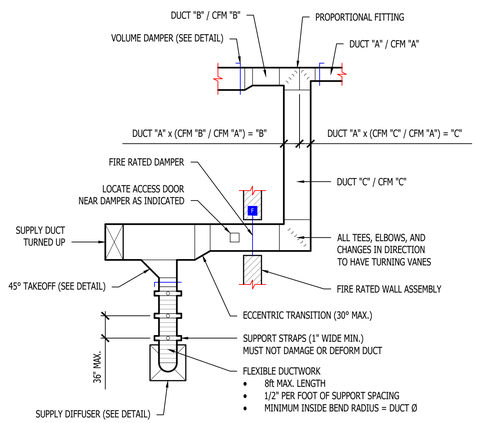


NOTE: THIS DETAIL DOES NOT APPLY TO THE "BROWNSTONE" STYLE APARTMENT.

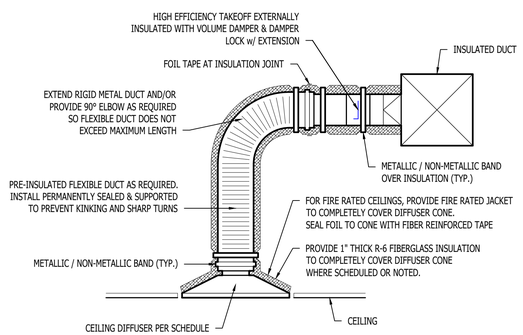
STACKED WATER HEATER / AHU DETAIL



TYPICAL DUCTWORK FITTINGS DETAIL



TYPICAL DUCTWORK DETAIL



TYPICAL LAY-IN DIFFUSER DETAIL

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Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

HVAC DETAILS

SHEET NUMBER

M501

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 HANDLING UNIT	1.5	UPFLOW	600	-	8	-	-	-	208/1	44	45-2	1, 2
AHU-2	AIR HANDLING UNIT	2.0	UPFLOW	800	-	8	-	-	-	208/1	44	45-2	1, 2
AHU-4	AIR HANDLING UNIT	1.5	UPFLOW	600	75 / 75	8	-	-	-	208/1	44	45-2	1, 2, 3
AHU-5	AIR HANDLING UNIT	3.5	UPFLOW	1400	150 / 150	15	-	-	-	208/1	51, 22	60-2, 25-2	1, 2, 3
CU-1	CONDENSING UNIT	1.5	-	-	-	-	13.2	17.8	13	208/1	12	20	4, 5
CU-2	CONDENSING UNIT	2	-	-	-	-	17.2	23	13	208/1	18	30	4, 5
CU-4	CONDENSING UNIT	1.5	-	-	-	-	13.2	17.8	13	208/1	12	20	4, 5
CU-5	CONDENSING UNIT	3.5	-	-	-	-	31.2	40	13	208/1	24	40	4, 5

NOTES:

1. PROVIDE AND INSTALL 7 DAY PROGRAMABLE HONEYWELL THERMOSTAT. COORDINATE EXACT MOUNTING LOCATION WITH OWNER.
2. INCLUDE CORROSION RESISTANT DRAIN PAN WITH OVERFLOW SWITCH WIRED TO SHUT DOWN UNIT.
3. WITH LOW LEAKAGE MOTORIZED OUTSIDE AIR DAMPER, DAMPER TO OPEN ON CALL FOR HEAT OR CALL FOR COOLING.
4. WITH FACTORY HAIL GUARD.
5. LOW AMBIENT PACKAGE FOR OPERATION TO 0° F.

AIR DEVICE SCHEDULE

TAG	SERVICE	MANUFACTURER (OR EQUAL)	MODEL (OR EQUAL)	SIZE	COLOR / FINISH	NOTES
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

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

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

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

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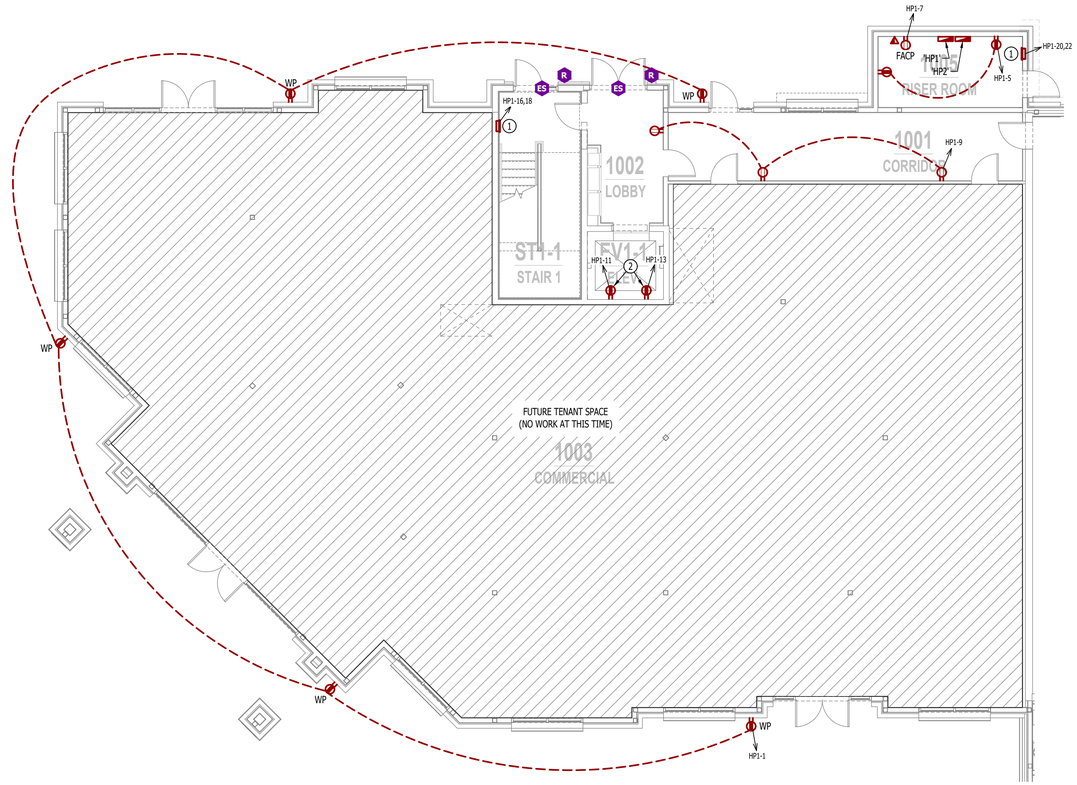
AHJ APPROVAL STAMP

SHEET TITLE

HVAC SCHEDULES

SHEET NUMBER

M601



POWER PLAN - 1ST FLOOR - AREA A

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

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)
- AP — WIRELESS ACCESS POINT, CEILING MOUNTED
- D — DISCONNECT
- R — READER
- ES — ELECTRIC STRIKE

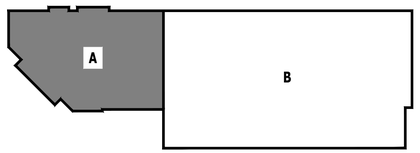
POWER PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.

POWER PLAN KEY NOTES:

(1) PROVIDE & INSTALL 120/208V, 1PH, 3000W RECESSED WALL HEATER (EQUAL TO #VFK404F).

(2) RECEPTACLE(S) LOCATED IN ELEVATOR PIT; SEE ELEVATOR PIT DETAIL FOR ADDITIONAL INFORMATION.



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 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:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

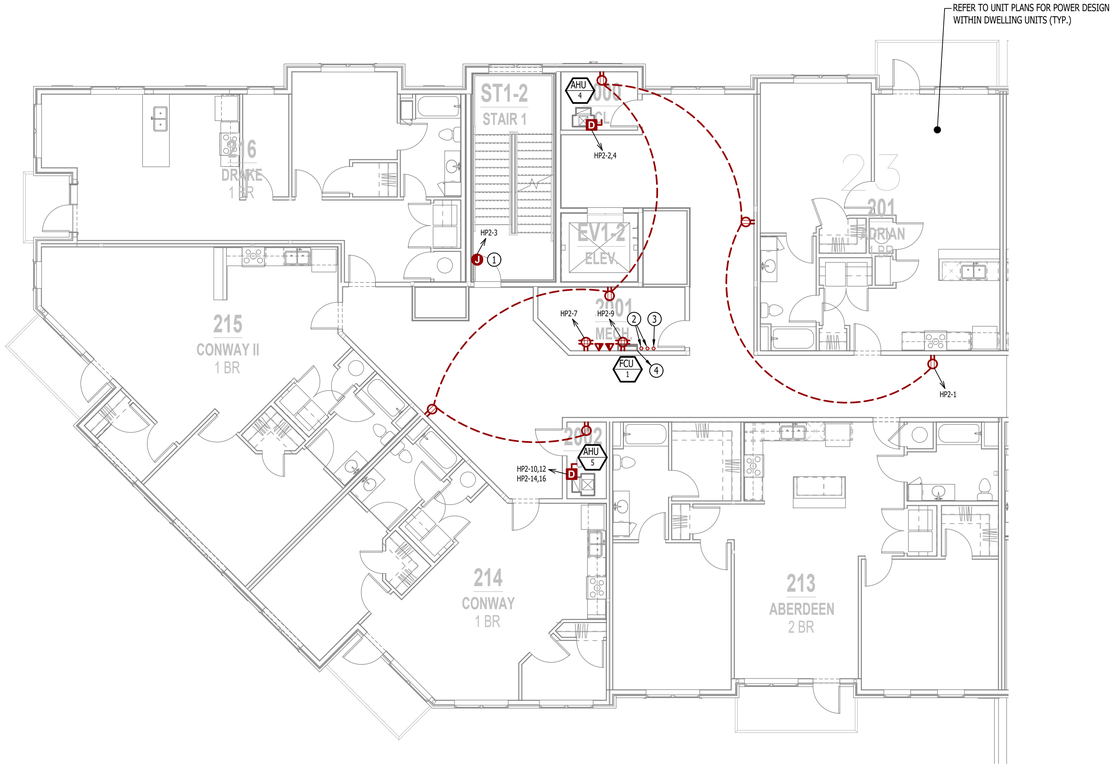
AHJ APPROVAL STAMP

SHEET TITLE

POWER PLAN - 1ST FLOOR - AREA A

SHEET NUMBER

EP101



POWER PLAN - 2ND FLOOR - AREA A

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

POWER PLAN SYMBOL LEGEND

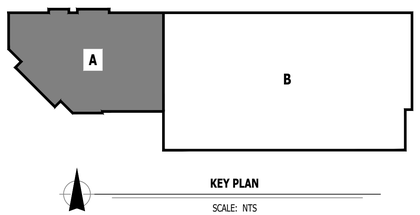
- CIRCUIT WIRING
- PX-XX — CIRCUIT TAG
- J — JUNCTION BOX
- XX (J) +42 — RECEPTACLE
  INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
  "WP" = WEATHERPROOF OUTDOOR RECEPTACLE
  "AW" = ABOVE WINDOW RECEPTACLE
  "AC" = ABOVE CEILING RECEPTACLE
  "EX" = EXISTING RECEPTACLE TO REMAIN
- (D) — GFCI DUPLEX CONVENIENCE RECEPTACLE
- (I) — 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)
- AP — WIRELESS ACCESS POINT, CEILING MOUNTED
- DJ — DISCONNECT
- R — READER
- ES — ELECTRIC STRIKE

POWER PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.

POWER PLAN KEY NOTES:

(1) POWER FOR MAG HOLD. WIRE THRU FIRE ALARM. SYSTEM TO RELEASE ON ALARM SIGNAL.
(2) (2) 3" CONDUIT FROM TELECOMMUNICATION DEMARCS STUBBED INTO I.T. CLOSET.
(3) 4" SLEEVE IN CEILING TO THIRD FLOOR.
(4) FAN COIL UNIT POWERED THRU HEAT PUMP 'HP-1' ON ROOF (SEE SHEET MEP3 FOR DETAILS).



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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Columbia, Missouri 65201
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www.j-squaredeng.com

J2 PROJECT No:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

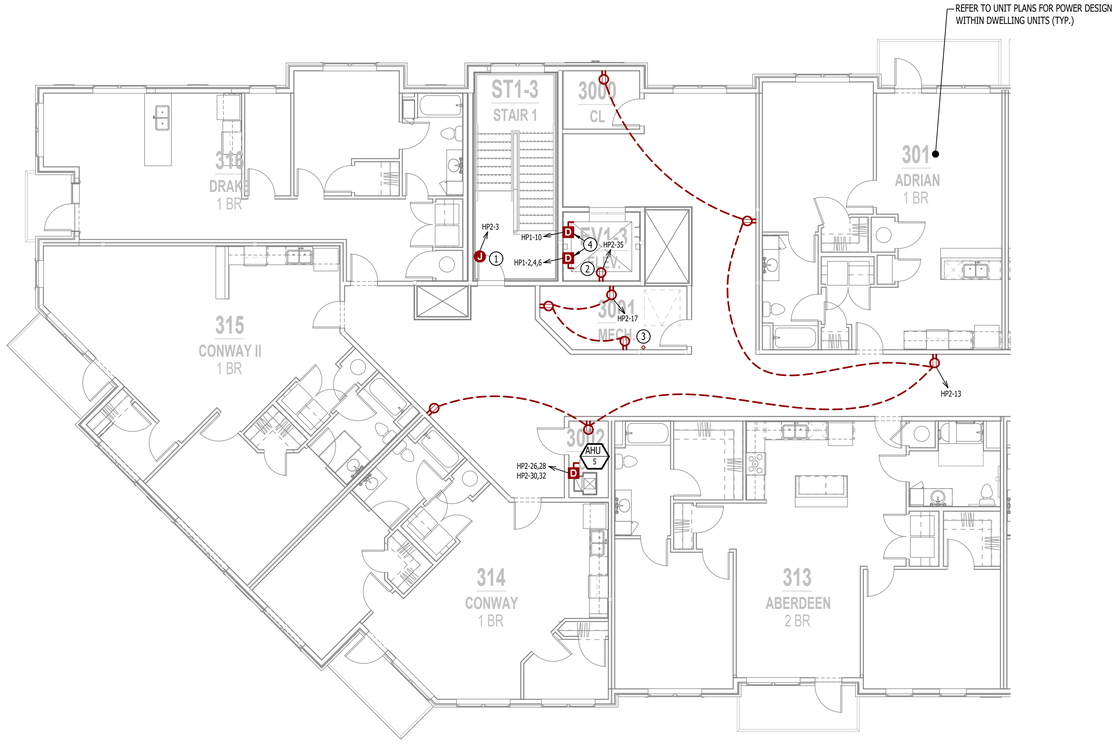
AHJ APPROVAL STAMP

SHEET TITLE

POWER PLAN - 2ND FLOOR - AREA A

SHEET NUMBER

EP102



POWER PLAN - 3RD FLOOR - AREA A

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

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)
- AP — WIRELESS ACCESS POINT, CEILING MOUNTED
- D — DISCONNECT
- R — READER
- ES — ELECTRIC STRIKE

POWER PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.

POWER PLAN KEY NOTES:

1. POWER FOR MAG HOLD. WIRE THRU FIRE ALARM. SYSTEM TO RELEASE ON ALARM SIGNAL.
2. RECEPTACLE IN ELEVATOR SHAFT; COORDINATE EXACT LOCATION & REQUIREMENTS WITH ELEVATOR EQUIPMENT SUPPLIER.
3. SLEEVE UP THRU FLOOR UP FROM SECOND FLOOR.
4. ELEVATOR DISCONNECT(S) LOCATED IN SHAFT ON THIRD FLOOR; COORDINATE EXACT LOCATION & REQUIREMENTS WITH ELEVATOR EQUIPMENT SUPPLIER. MAIN ELEVATOR DISCONNECT SHALL BE EQUAL TO BUSSMAN #PS SERIES QUIK-SPEC POWER MODULE.

KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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Columbia, Missouri 65201
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www.j-squaredeng.com

J2 PROJECT No:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

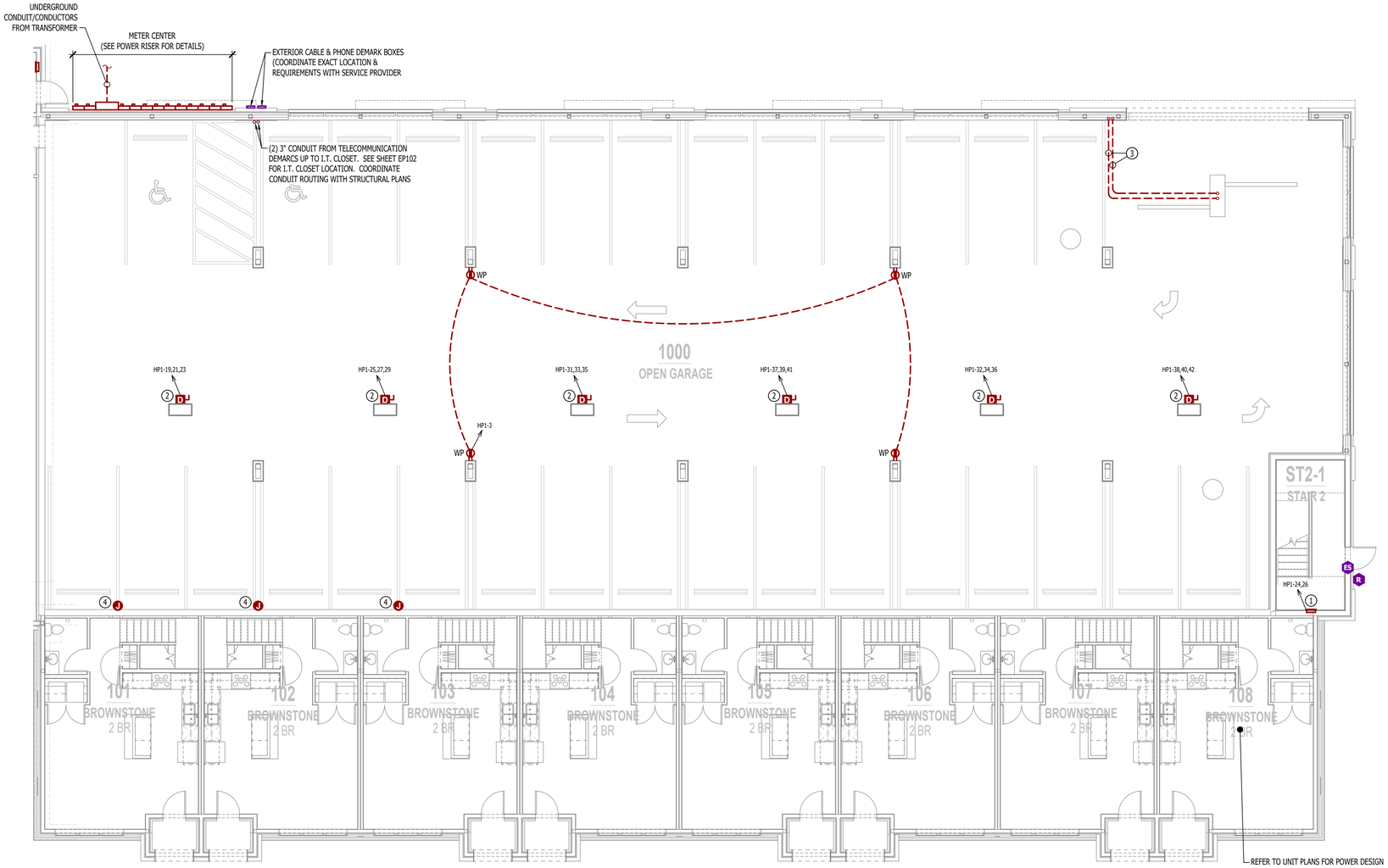
AHU APPROVAL STAMP

SHEET TITLE

POWER PLAN - 3RD FLOOR - AREA A

SHEET NUMBER

EP103



POWER PLAN - 1ST FLOOR - AREA B

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

POWER PLAN SYMBOL LEGEND

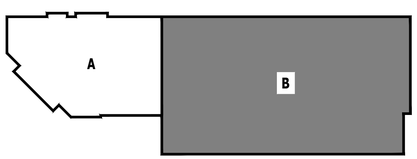
- CIRCUIT WIRING
- PX-XX — CIRCUIT TAG
- J — JUNCTION BOX
- XX (+42) — RECEPTACLE
  - INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
  - "WP" = WEATHERPROOF OUTDOOR RECEPTACLE
  - "AW" = ABOVE WINDOW RECEPTACLE
  - "AC" = ABOVE CEILING RECEPTACLE
  - "EX" = EXISTING RECEPTACLE TO REMAIN
- GFCI DUPLEX CONVENIENCE RECEPTACLE
- 208V RECEPTACLE
- QUADPLEX CONVENIENCE RECEPTACLE
- 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)
- AP — WIRELESS ACCESS POINT, CEILING MOUNTED
- D — DISCONNECT
- R — READER
- ES — ELECTRIC STRIKE

POWER PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.

POWER PLAN KEY NOTES:

1. PROVIDE & INSTALL RECESSED WALL HEATER (EQUAL TO #VFK404F).
2. POWER FOR PLENUM HEATER.
3. (2) ¾" UNDERGROUND PVC CONDUITS FOR POWER & COMMUNICATION FOR FUTURE ACCESS CONTROL/GATE OPERATOR. COORDINATE WITH G.C.
4. ROUGH IN FOR FUTURE EV-CHARGING STATION; PROVIDE & INSTALL 2" CONDUIT WITH PULL-STRING FROM ELECTRICAL ROOM; COORDINATE WITH G.C.



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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Columbia, Missouri 65201
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J2 PROJECT No:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

POWER PLAN - 1ST FLOOR - AREA B

SHEET NUMBER

EP111

POWER PLAN - 2ND FLOOR - AREA B

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

POWER PLAN SYMBOL LEGEND

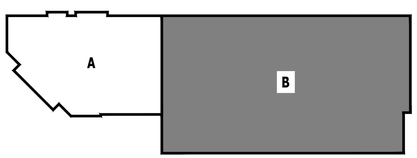
- CIRCUIT WIRING
- PX-XX — CIRCUIT TAG
- J — JUNCTION BOX
- XX (1) +42 — RECEPTACLE
  - INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
  - "WP" = WEATHERPROOF OUTDOOR RECEPTACLE
  - "AW" = ABOVE WINDOW RECEPTACLE
  - "AC" = ABOVE CEILING RECEPTACLE
  - "EX" = EXISTING 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)
- AP — WIRELESS ACCESS POINT, CEILING MOUNTED
- D — DISCONNECT
- R — READER
- ES — ELECTRIC STRIKE

POWER PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.

POWER PLAN KEY NOTES:

(1) POWER FOR MAG HOLD. WIRE THRU FIRE ALARM. SYSTEM TO RELEASE ON ALARM SIGNAL.



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
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NUMBER PE-2015017071
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PE-2015017071
MO Certificate of Authority # 2018029680

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www.j-squaredeng.com

J2 PROJECT No:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

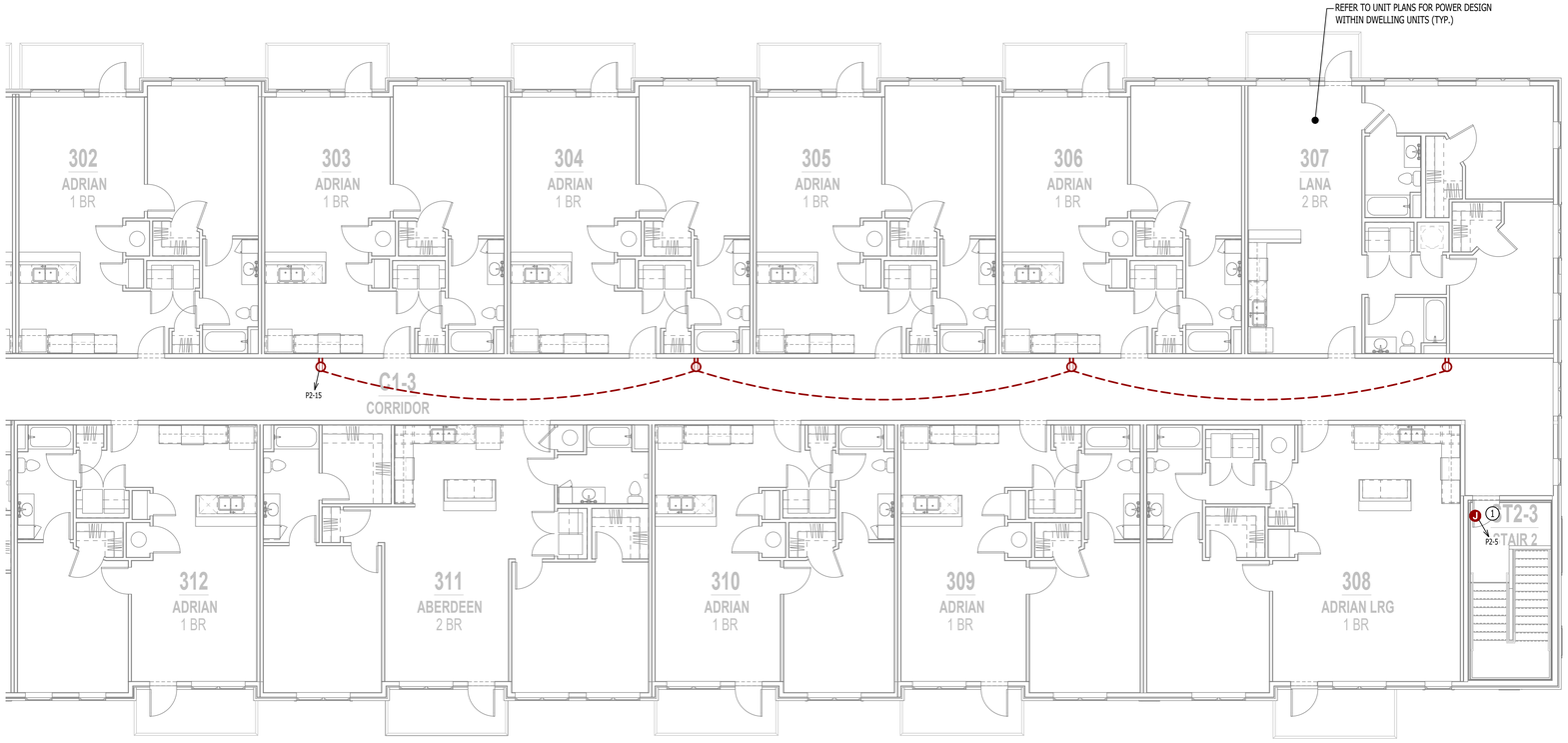
AHJ APPROVAL STAMP

SHEET TITLE

POWER PLAN - 2ND FLOOR - AREA B

SHEET NUMBER

EP112



POWER PLAN - 3RD FLOOR - AREA B

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

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
- 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)
- AP — WIRELESS ACCESS POINT, CEILING MOUNTED
- D — DISCONNECT
- R — READER
- ES — ELECTRIC STRIKE

POWER PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.

POWER PLAN KEY NOTES:

(1) POWER FOR MAG HOLD. WIRE THRU FIRE ALARM. SYSTEM TO RELEASE ON ALARM SIGNAL.

KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 2024
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MO Certificate of Authority # 2018029680

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J2 PROJECT No:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

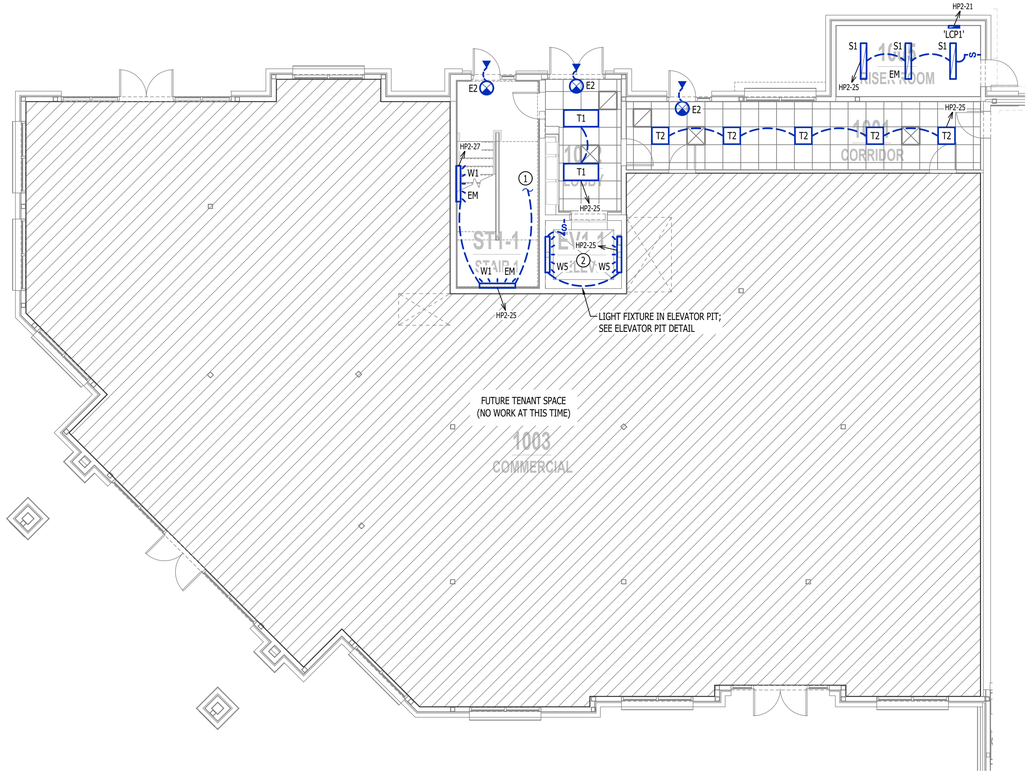
AHJ APPROVAL STAMP

SHEET TITLE

POWER PLAN - 3RD FLOOR - AREA B

SHEET NUMBER

EP113



LIGHTING PLAN - 1ST FLOOR - AREA A

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

LIGHTING PLAN GENERAL NOTES:

1. REFER TO E500 AND/OR E600 SERIES SHEETS FOR ADDITIONAL LIGHTING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES. SEE SHEET EL201 FOR ALL EXTERIOR BUILDING MOUNTED LIGHTING LOCAITONS AND DETAILS.
2. OCCUPANCY / VACANCY SENSOR QUANTITIES AND GENERAL LOCATIONS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO PROVIDE AND INSTALL SENSOR WITH SPACING PER MANUFACTURER SPECIFICATIONS AND INCLUDE ADDITIONAL SENSORS IF NECESSARY. CEILING-MOUNTED SENSORS SHALL BE INSTALLED WITHIN MANUFACTURE'S ACCEPTABLE MOUNTING HEIGHT RANGE.

LIGHTING PLAN KEY NOTES:

(1) CIRCUIT CONTINUES TO LEVEL ABOVE.

(2) ORIENT LIGHT FIXTURE(S) TO PROVIDE MINIMUM 10FC AT ALL POINTS ON FLOOR OF ELEVATOR PIT.

LIGHTING PLAN SYMBOL LEGEND

X1
EM
NL

- "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
- LIGHTING FIXTURE
- "EM" INDICATES EMERGENCY BATTERY BACKUP
- "NL" INDICATES UN-SWITCHED NIGHT LIGHT

EXIT LIGHT

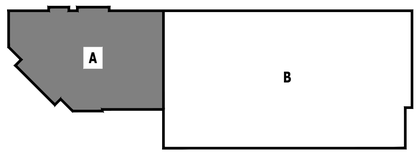
INDICATES REQUIRED REMOTE HEAD

EMERGENCY EGRESS LIGHT

S
X

SWITCH (WALL MOUNTED)

SWITCH TYPE:
- 3 = 3-WAY
- 4 = 4-WAY



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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J2 PROJECT No:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

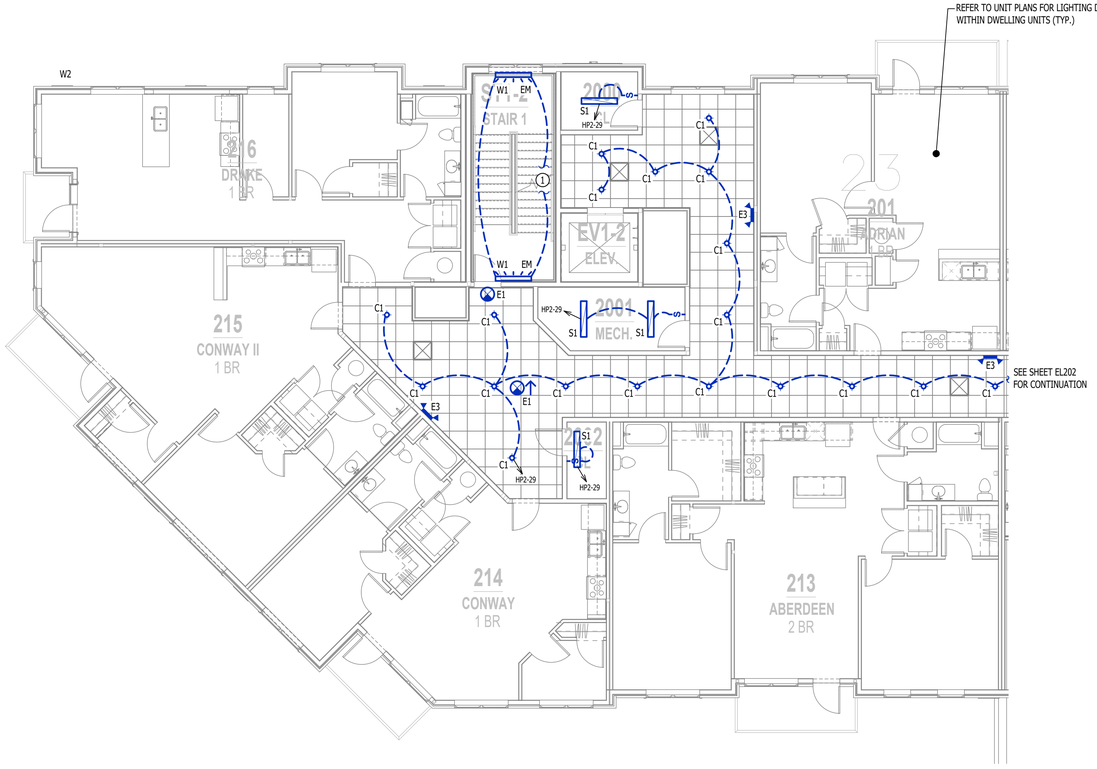
AHJ APPROVAL STAMP

SHEET TITLE

LIGHTING PLAN - 1ST FLOOR - AREA A

SHEET NUMBER

EL101



LIGHTING PLAN - 2ND FLOOR - AREA A

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

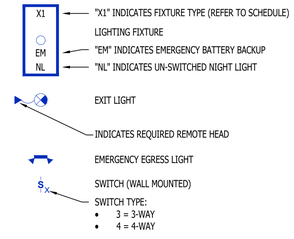
LIGHTING PLAN GENERAL NOTES:

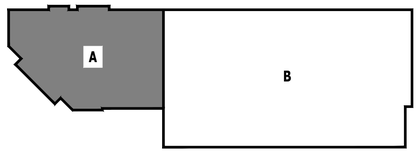
1. REFER TO E500 AND/OR E600 SERIES SHEETS FOR ADDITIONAL LIGHTING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES. SEE SHEET EL201 FOR ALL EXTERIOR BUILDING MOUNTED LIGHTING LOCAITONS AND DETAILS.
2. OCCUPANCY / VACANCY SENSOR QUANTITIES AND GENERAL LOCATIONS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO PROVIDE AND INSTALL SENSOR WITH SPACING PER MANUFACTURER SPECIFICATIONS AND INCLUDE ADDITIONAL SENSORS IF NECESSARY. CEILING-MOUNTED SENSORS SHALL BE INSTALLED WITHIN MANUFACTURE'S ACCEPTABLE MOUNTING HEIGHT RANGE.

LIGHTING PLAN KEY NOTES:

(1) CIRCUIT CONTINUES TO LEVEL ABOVE/BELOW.

LIGHTING PLAN SYMBOL LEGEND





KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

J-SQUARED ENGINEERING

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J2 PROJECT No:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

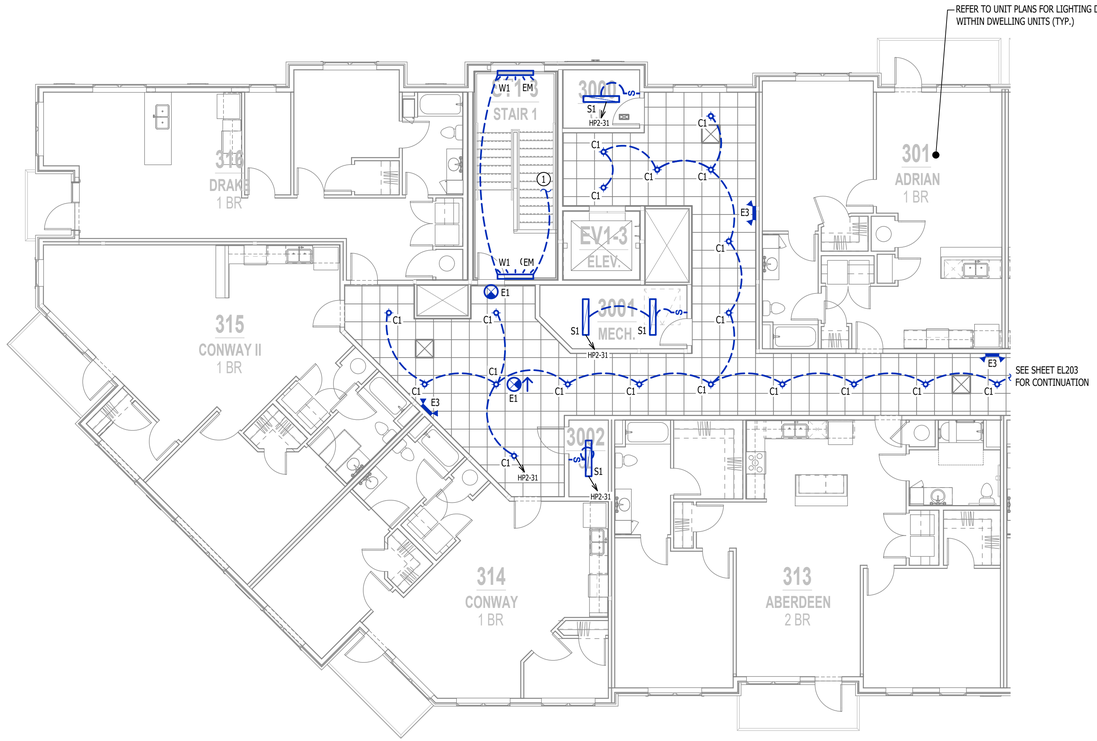
AHJ APPROVAL STAMP

SHEET TITLE

LIGHTING PLAN - 2ND FLOOR - AREA A

SHEET NUMBER

EL102



LIGHTING PLAN - 3RD FLOOR - AREA A

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

LIGHTING PLAN GENERAL NOTES:

1. REFER TO E500 AND/OR E600 SERIES SHEETS FOR ADDITIONAL LIGHTING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES. SEE SHEET EL201 FOR ALL EXTERIOR BUILDING MOUNTED LIGHTING LOCAITONS AND DETAILS.
2. OCCUPANCY / VACANCY SENSOR QUANTITIES AND GENERAL LOCATIONS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO PROVIDE AND INSTALL SENSOR WITH SPACING PER MANUFACTURER SPECIFICATIONS AND INCLUDE ADDITIONAL SENSORS IF NECESSARY. CEILING-MOUNTED SENSORS SHALL BE INSTALLED WITHIN MANUFACTURE'S ACCEPTABLE MOUNTING HEIGHT RANGE.

LIGHTING PLAN KEY NOTES:

(1) CIRCUIT UP FROM LEVEL BELOW.

LIGHTING PLAN SYMBOL LEGEND

- X1 / EM / NL — "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE); LIGHTING FIXTURE; "EM" INDICATES EMERGENCY BATTERY BACKUP; "NL" INDICATES UN-SWITCHED NIGHT LIGHT
- EXIT LIGHT — INDICATES REQUIRED REMOTE HEAD
- EMERGENCY EGRESS LIGHT
- S — SWITCH (WALL MOUNTED); SWITCH TYPE:
  - 3 = 3-WAY
  - 4 = 4-WAY

KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

J-SQUARED ENGINEERING
2400 Bluff Creek Drive, Suite 101
Columbia, Missouri 65201
573.234.4492
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J2 PROJECT No:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

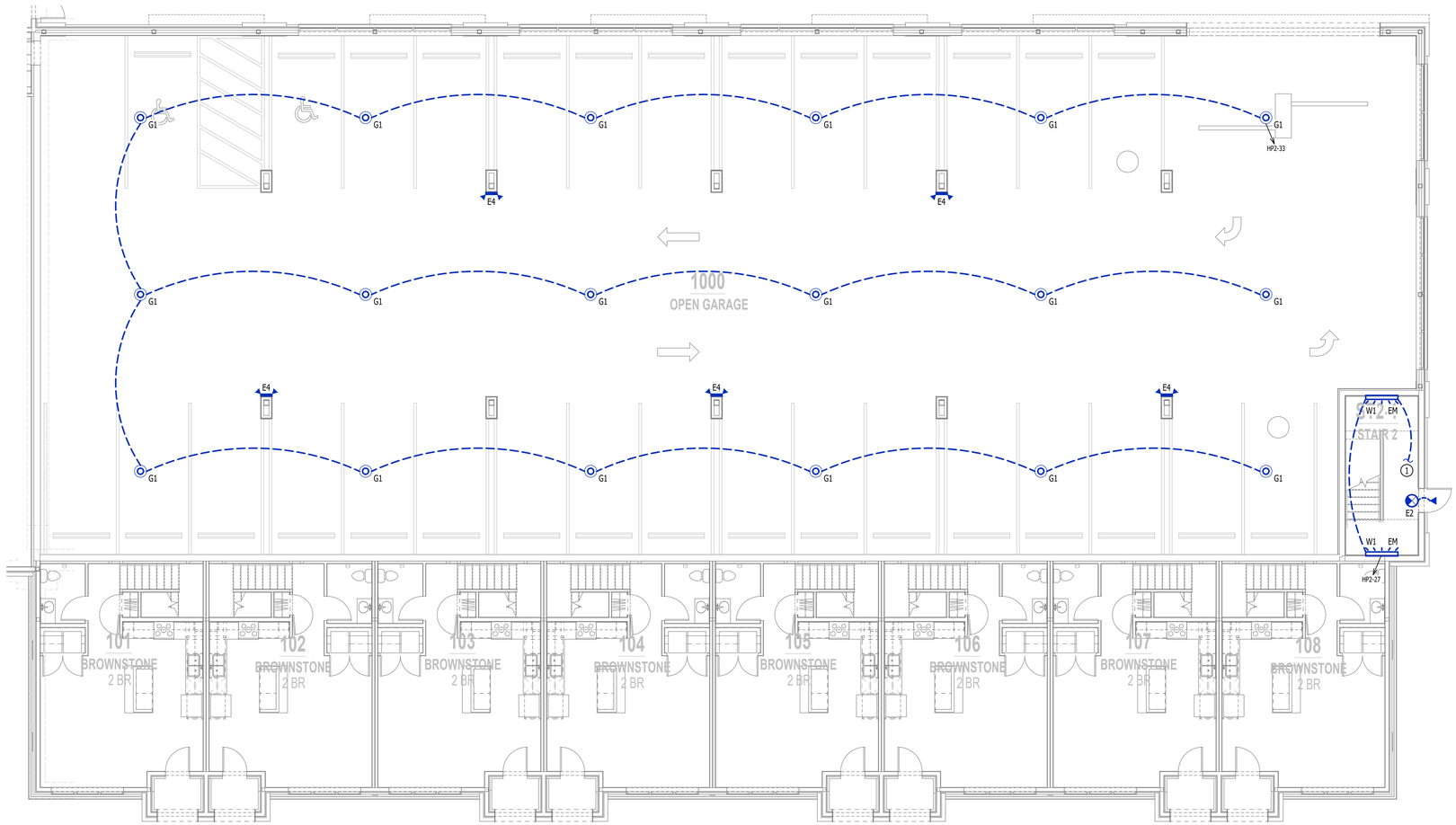
AHJ APPROVAL STAMP

SHEET TITLE

LIGHTING PLAN - 3RD FLOOR - AREA A

SHEET NUMBER

EL103



LIGHTING PLAN - 1ST FLOOR - AREA B

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

LIGHTING PLAN GENERAL NOTES:

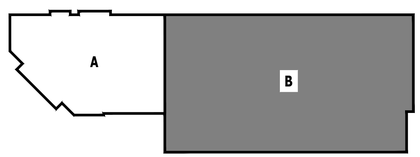
1. SEE 'UMEP' SHEETS FOR WORK INSIDE INDIVIDUAL UNITS.
2. REFER TO E500 AND/OR E600 SERIES SHEETS FOR ADDITIONAL LIGHTING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES. SEE SHEET EL201 FOR ALL EXTERIOR BUILDING MOUNTED LIGHTING LOCAITONS AND DETAILS.
3. OCCUPANCY / VACANCY SENSOR QUANTITIES AND GENERAL LOCATIONS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO PROVIDE AND INSTALL SENSOR WITH SPACING PER MANUFACTURER SPECIFICATIONS AND INCLUDE ADDITIONAL SENSORS IF NECESSARY. CEILING-MOUNTED SENSORS SHALL BE INSTALLED WITHIN MANUFACTURE'S ACCEPTABLE MOUNTING HEIGHT RANGE.

LIGHTING PLAN KEY NOTES:

(1) CIRCUIT CONTINUES TO LEVEL ABOVE.

LIGHTING PLAN SYMBOL LEGEND

- X1 / EM / NL — "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE); LIGHTING FIXTURE; "EM" INDICATES EMERGENCY BATTERY BACKUP; "NL" INDICATES UN-SWITCHED NIGHT LIGHT
- EXIT LIGHT; INDICATES REQUIRED REMOTE HEAD
- EMERGENCY EGRESS LIGHT
- $_X — SWITCH (WALL MOUNTED); SWITCH TYPE:
  - 3 = 3-WAY
  - 4 = 4-WAY



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

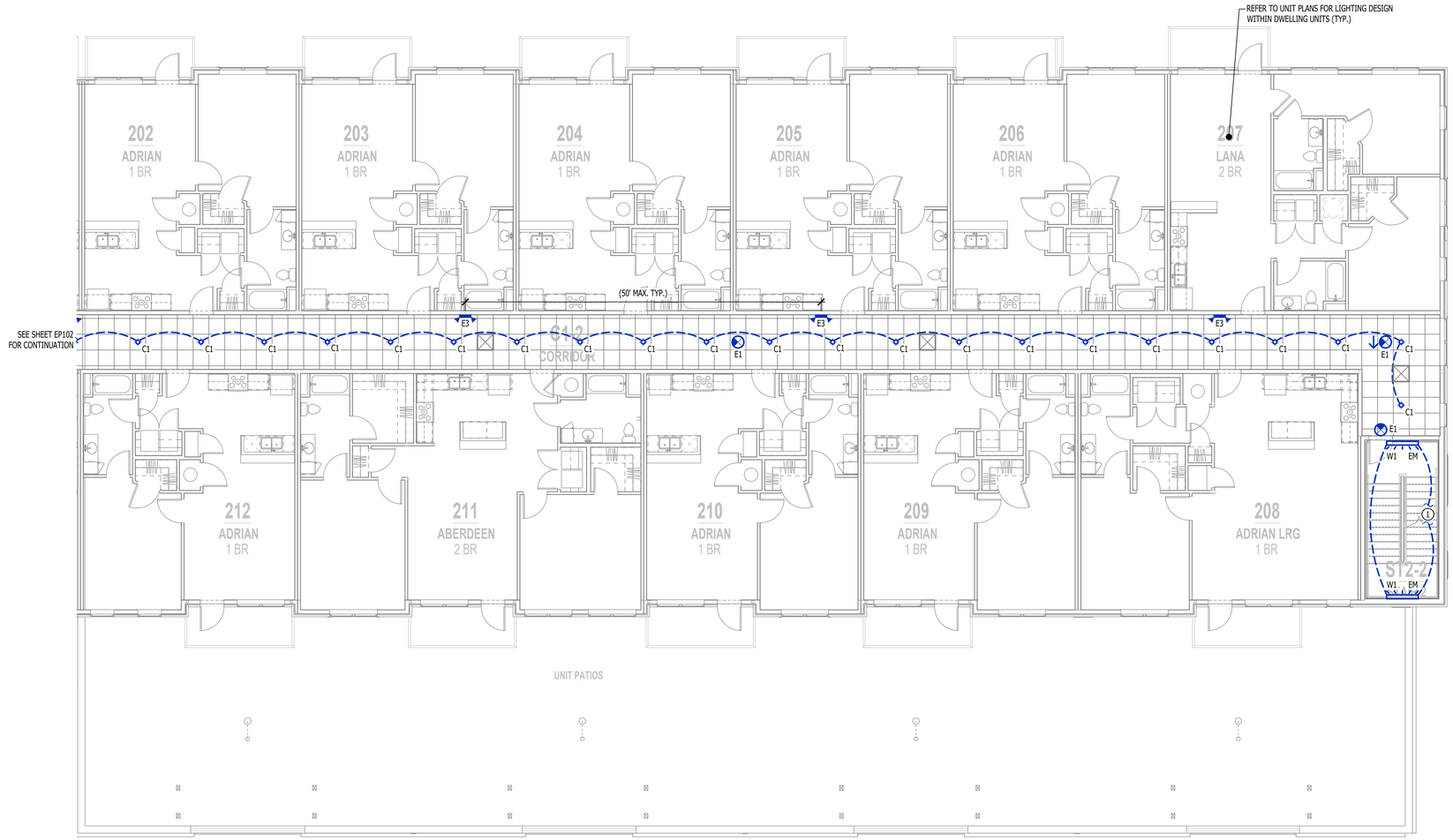
AHJ APPROVAL STAMP

SHEET TITLE

LIGHTING PLAN - 1ST FLOOR - AREA B

SHEET NUMBER

EL111



LIGHTING PLAN - 2ND FLOOR - AREA B

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

LIGHTING PLAN GENERAL NOTES:

1. REFER TO E500 AND/OR E600 SERIES SHEETS FOR ADDITIONAL LIGHTING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES. SEE SHEET EL201 FOR ALL EXTERIOR BUILDING MOUNTED LIGHTING LOCAITONS AND DETAILS.
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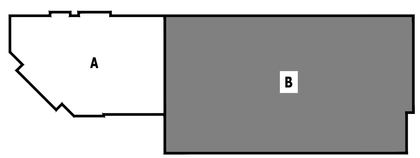
LIGHTING PLAN KEY NOTES:

(1) CIRCUIT CONTINUES TO LEVEL ABOVE/BELOW.

LIGHTING PLAN SYMBOL LEGEND

- X1 / EM / NL — "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE); LIGHTING FIXTURE; "EM" INDICATES EMERGENCY BATTERY BACKUP; "NL" INDICATES UN-SWITCHED NIGHT LIGHT
- EXIT LIGHT; INDICATES REQUIRED REMOTE HEAD
- EMERGENCY EGRESS LIGHT
- $_X — SWITCH (WALL MOUNTED); SWITCH TYPE:
  - 3 = 3-WAY
  - 4 = 4-WAY



KEY PLAN

SCALE: NTS

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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

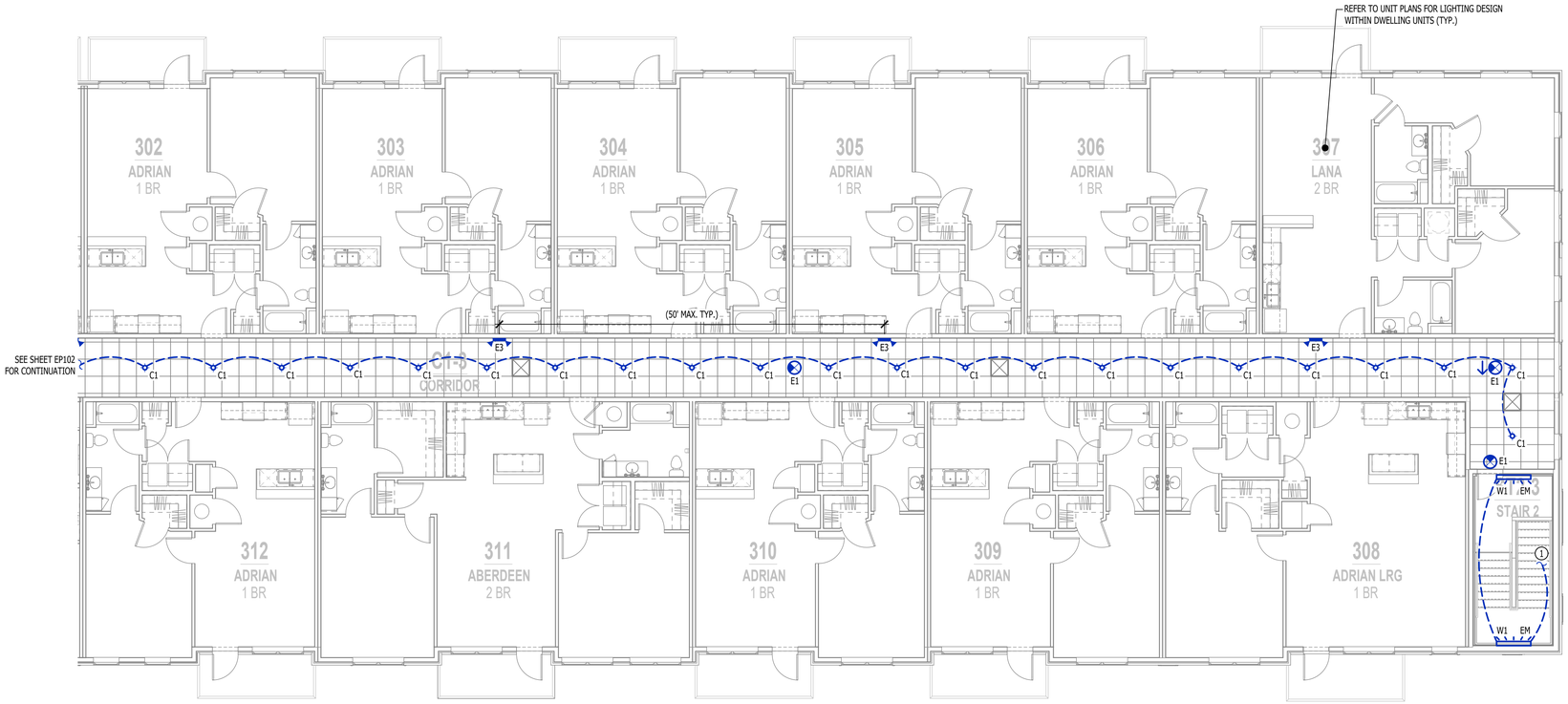
AHJ APPROVAL STAMP

SHEET TITLE

LIGHTING PLAN - 2ND FLOOR - AREA B

SHEET NUMBER

EL112



LIGHTING PLAN - 3RD FLOOR - AREA B

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

LIGHTING PLAN GENERAL NOTES:

1. REFER TO E500 AND/OR E600 SERIES SHEETS FOR ADDITIONAL LIGHTING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES. SEE SHEET EL201 FOR ALL EXTERIOR BUILDING MOUNTED LIGHTING LOCAITONS AND DETAILS.
2. OCCUPANCY / VACANCY SENSOR QUANTITIES AND GENERAL LOCATIONS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO PROVIDE AND INSTALL SENSOR WITH SPACING PER MANUFACTURER SPECIFICATIONS AND INCLUDE ADDITIONAL SENSORS IF NECESSARY. CEILING-MOUNTED SENSORS SHALL BE INSTALLED WITHIN MANUFACTURE'S ACCEPTABLE MOUNTING HEIGHT RANGE.

LIGHTING PLAN KEY NOTES:

(1) CIRCUIT UP FROM LEVEL BELOW.

LIGHTING PLAN SYMBOL LEGEND

- X1 / EM / NL — "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE); LIGHTING FIXTURE; "EM" INDICATES EMERGENCY BATTERY BACKUP; "NL" INDICATES UN-SWITCHED NIGHT LIGHT
- EXIT LIGHT; INDICATES REQUIRED REMOTE HEAD
- EMERGENCY EGRESS LIGHT
- S / X — SWITCH (WALL MOUNTED); SWITCH TYPE:
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  - 4 = 4-WAY

KEY PLAN

SCALE: NTS

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200 Northeast Alura Way
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AHJ APPROVAL STAMP

SHEET TITLE

LIGHTING PLAN - 3RD FLOOR - AREA B

SHEET NUMBER

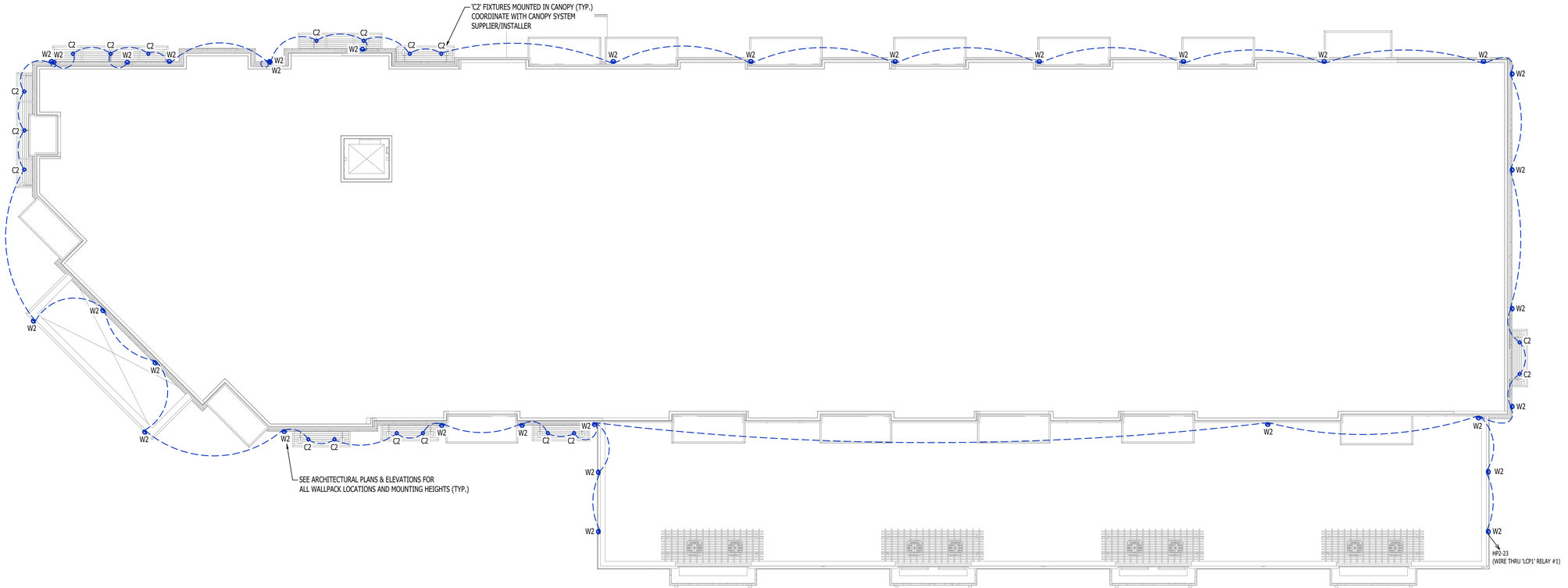
EL113

LIGHTING PLAN SYMBOL LEGEND

- X1 / EM / NL — "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE); LIGHTING FIXTURE; "EM" INDICATES EMERGENCY BATTERY BACKUP; "NL" INDICATES UN-SWITCHED NIGHT LIGHT
- EXIT LIGHT — INDICATES REQUIRED REMOTE HEAD
- EMERGENCY EGRESS LIGHT
- S_X — SWITCH (WALL MOUNTED); SWITCH TYPE:
  - 3 = 3-WAY
  - 4 = 4-WAY

LIGHTING PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.
2. OCCUPANCY / VACANCY SENSOR QUANTITIES AND GENERAL LOCATIONS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO PROVIDE AND INSTALL SENSOR WITH SPACING PER MANUFACTURER SPECIFICATIONS AND INCLUDE ADDITIONAL SENSORS IF NECESSARY. CEILING-MOUNTED SENSORS SHALL BE INSTALLED WITHIN MANUFACTURE'S ACCEPTABLE MOUNTING HEIGHT RANGE.



EXTERIOR BUILDING MOUNTED LIGHTING PLAN

SCALE: 3/32" = 1'-0"

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Village at Discovery Lot 9A

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Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

EXTERIOR BUILDING MOUNTED LIGHTING PLAN

SHEET NUMBER

EL201

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.

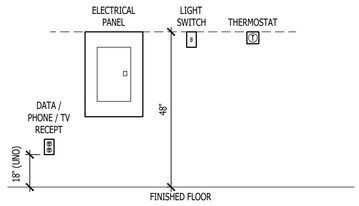
4. EMERGENCY LIGHTING

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.

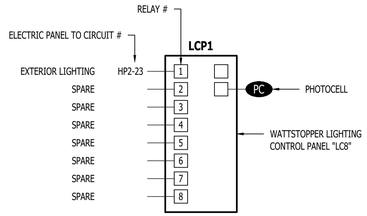
4.2. EMERGENCY LIGHTING SYSTEM SHALL PROVIDE 1FC AVERAGE AND 0.1FC MINIMUM ALONG EGRESS PATHS. ADJUST ANY EMERGENCY FIXTURES AS NECESSARY TO PROVIDE PROPER ILLUMINATION WITHOUT OBSTRUCTION FROM FURNITURE OR OBSTACLES.

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.



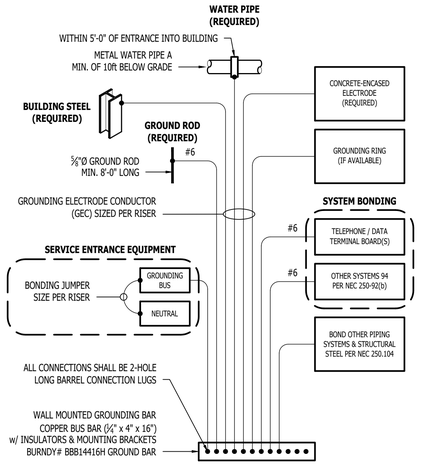
TYPICAL ADA MOUNTING HEIGHTS DETAIL



LIGHTING CONTROL PANEL SCHEDULE

RELAY #	OVERRIDE SWITCH	OPERATIONAL SCHEDULE
1	NO	ON DURING NIGHT HOURS (PHOTOCELL INPUT)
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-

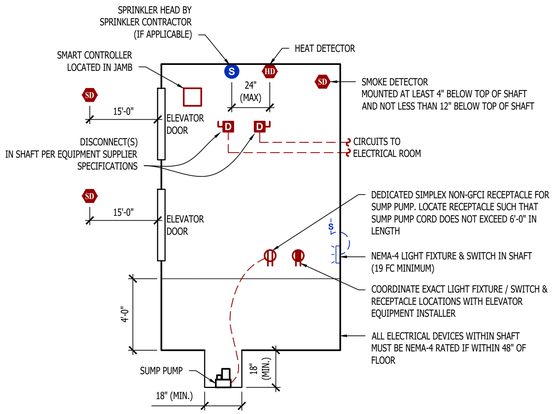
LIGHTING CONTROL PANEL



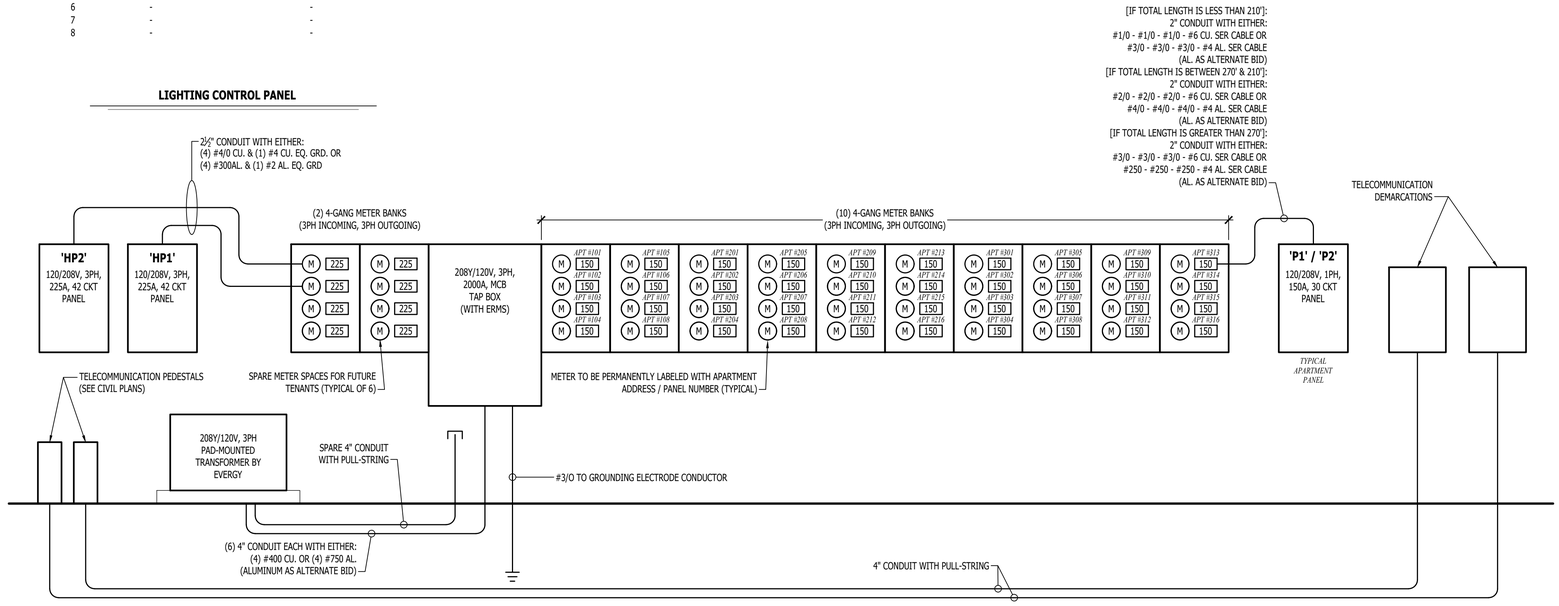
TYPICAL GROUNDING & BONDING DETAIL

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

STATE OF MISSOURI
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SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

E501

HOUSE PANEL 'HP1' SCHEDULE

VOLTAGE	PANEL SIZE	MOUNTING	AIC RATING		
208Y/120V 3-PH	225A MLO	SURFACE	22,000	PHASE "A" LOAD	175.5
				PHASE "B" LOAD	171
NEMA RATING: 1				PHASE "C" LOAD	164.5

CIRCUIT NUMBER	DESCRIPTION	BREAKER SIZE	AMPS	PHASE	AMPS	BREAKER SIZE	DESCRIPTION	CIRCUIT NUMBER
1	EXTERIOR RECEPTS.	20-1	7.5	A	42	60-3	ELEVATOR	2
3	GARAGE RECEPTS.	20-1	6	B	42	-	-	4
5	RISER ROOM RECEPTS.	20-1	3	C	42	-	-	6
7	FACP	20-1	3	A		ST	SHUNT TRIP SPACE	8
9	SPARE	20-1		B	5	20-1 ST	ELEVATOR LIGHTS & MISC.	10
11	ELEVATOR PIT RECEPT.	20-1	1.5	C		ST	SHUNT TRIP SPACE	12
13	SUMP PUMP RECEPT.	20-1	5	A			OPEN	14
15	SPARE	20-1		B	14	20-2	WALL HEATER	16
17	SPARE	20-1		C	14	-	-	18
19	PLENUM HEATER	20-3	15	A	14	20-2	WALL HEATER	20
21	-	-	15	B	14	-	-	22
23	-	-	15	C	14	20-2	WALL HEATER	24
25	PLENUM HEATER	20-3	15	A	14	-	-	26
27	-	-	15	B			OPEN	28
29	-	-	15	C			OPEN	30
31	PLENUM HEATER	20-3	15	A	15	20-3	PLENUM HEATER	32
33	-	-	15	B	15	-	-	34
35	-	-	15	C	15	-	-	36
37	PLENUM HEATER	20-3	15	A	15	20-3	PLENUM HEATER	38
39	-	-	15	B	15	-	-	40
41	-	-	15	C	15	-	-	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.

HOUSE PANEL 'HP2' SCHEDULE

VOLTAGE	PANEL SIZE	MOUNTING	AIC RATING		
208Y/120V 3-PH	225A MLO	SURFACE	22,000	PHASE "A" LOAD	145
				PHASE "B" LOAD	151
NEMA RATING: 1				PHASE "C" LOAD	137

CIRCUIT NUMBER	DESCRIPTION	BREAKER SIZE	AMPS	PHASE	AMPS	BREAKER SIZE	DESCRIPTION	CIRCUIT NUMBER
1	2ND FLOOR CORRIDOR RECEPTS.	20-1	7.5	A	35	45-2	AHU-4	2
3	MAG HOLDS	20-1	5	B	35	-	-	4
5	MAG HOLDS	20-1	5	C	12	20-2	CU-4	6
7	2ND FLOOR I.T. QUAD	20-1	3	A	12	-	-	8
9	2ND FLOOR I.T. QUAD	20-1	3	B	41	60-2	AHU-5	10
11	2ND FLOOR CORRIDOR RECEPTS.	20-1	6	C	41	-	-	12
13	3RD FLOOR CORRIDOR RECEPTS.	20-1	7.5	A	18	25-2	AHU-5	14
15	3RD FLOOR CORRIDOR RECEPTS.	20-1	6	B	18	-	-	16
17	3RD FLOOR CLOSET RECEPTS.	20-1	4.5	C	24	40-2	CU-5	18
19	ROOF RECEPTS	20-1	6	A	24	-	-	20
21	LIGHTING CONTROL PANEL	20-1	1	B	24	40-2	CU-5	22
23	EXTERIOR BUILDING LIGHTING	20-1	10	C	24	-	-	24
25	LOBBY LIGHTING	20-1	4	A	18	25-2	AHU-5	26
27	STAIRTOWER LIGHTING	20-1	4	B	18	-	-	28
29	SECOND LEVEL LIGHTING	20-1	5	C	41	60-2	AHU-5	30
31	THIRD LEVEL LIGHTING	20-1	5	A	41	-	-	32
33	GARAGE LIGHTING	20-1	9	B	11	20-2	FCU-1 / HP-1	34
35	ELEVATOR RECEPT.	20-1	1.5	C	11	-	-	36
37	SPARE	20-1		A			OPEN	38
39	SPARE	20-1		B			OPEN	40
41	SPARE	20-1		C			OPEN	42

NOTES:

A: PANEL SHALL BE EQUAL TO SQUARE D MODEL "QO"

B: ELECTRICIAN SHALL VERIFY BREAKER WITH EQUIPMENT PRIOR TO PURCHASE & INSTALL.

C: AFTER COMPLETION OF WORK, ELECTRICAN SHALL PROVIDE A TYPE WRITTEN PANEL DIRECTORY IN NEW PANEL.

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	
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	
W5	METALUX	4VT3-LD5-8-G-UNV-EL10W-L840-CD1-U	4' VAPORTITE LED	ELEVATOR PIT	8694	4000	80	120	67	

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.

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-1	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-1	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	189.5
				PHASE "B" LOAD	179
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-1 / AHU-2	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 / 18	25-2 / 30-2	CU-1 / CU-2	10
11	**DISHWASHER**	**20-1**	**8**	B	17 / 18	-	-	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	# OF SETS	CONDUCTORS				EQUIPMENT GROUND		MINIMUM CONDUIT SIZE (PER SET)
		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.

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 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: J21012

J2 DESIGN: ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

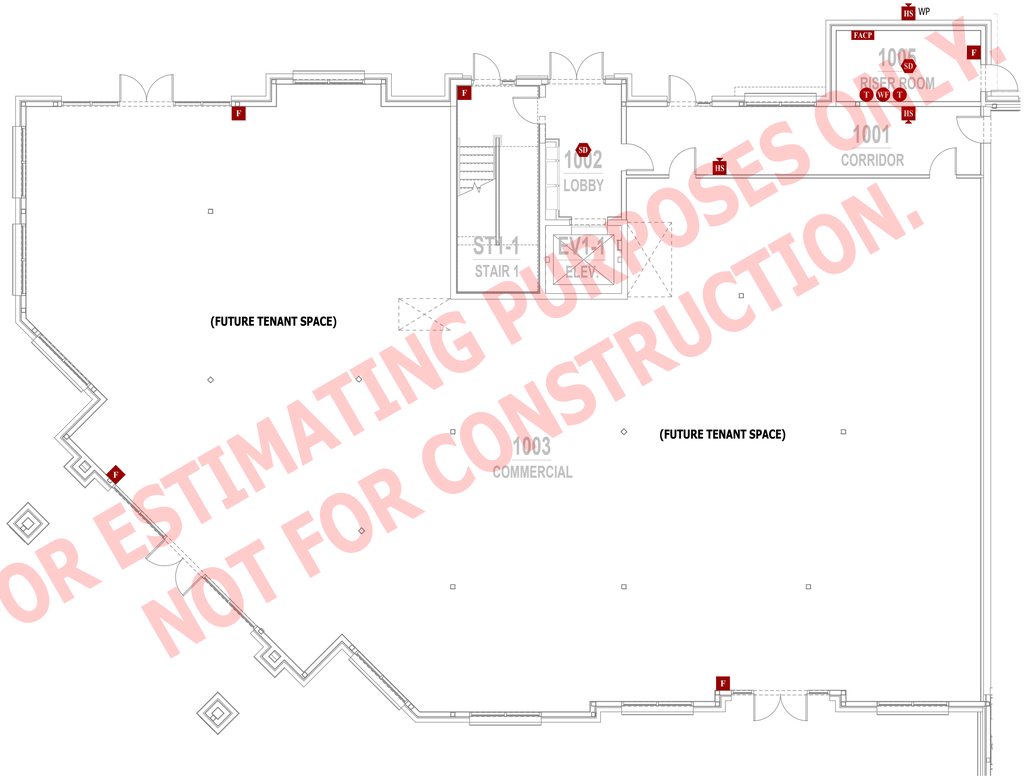
AHU APPROVAL STAMP

SHEET TITLE

ELECTRICAL SCHEDULES

SHEET NUMBER

E601



FIRE ALARM & SECURITY PLAN - 1ST FLOOR - AREA A

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

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.

DEFERRED SUBMITTAL NOTES

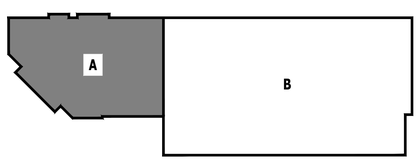
1. **FIRE ALARM CONTRACTOR SHALL PROVIDE DEFERRED SUBMITTAL PACKAGE FOR FIRE ALARM SYSTEM. SUBMITTAL SHALL INCLUDE BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS, EQUIPMENT SPECIFICATIONS FOR DEVICES AND PANELS, ETC. DESIGN SHALL BE SEALED BY A QUALIFIED DESIGN PROFESSIONAL LICENSED BY THE STATE.**
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 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)

FIRE ALARM PLAN SYMBOL LEGEND

F	MANUAL PULL STATION
M	MODULE
O	OUTPUT MODULE
SD	SMOKE DETECTOR
HD	HEAT 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



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
PROFESSIONAL ENGINEER
FOR ESTIMATING PURPOSES ONLY.
NOT FOR CONSTRUCTION.

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J2 PROJECT NO:	J21012
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CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

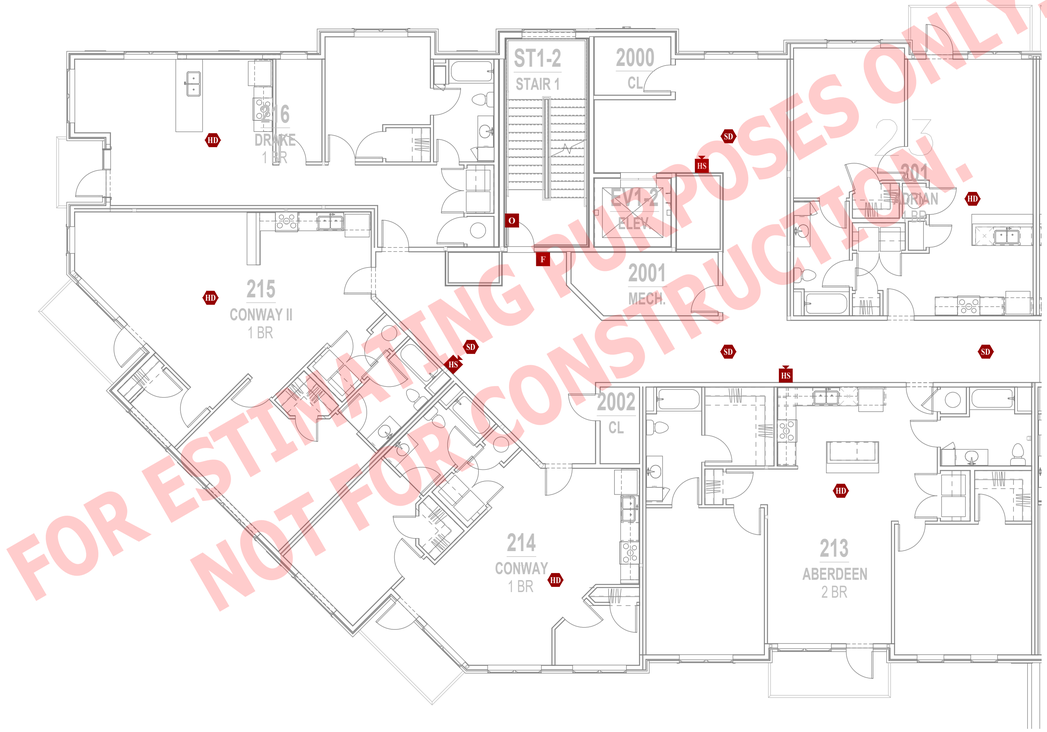
AHJ APPROVAL STAMP

SHEET TITLE

FIRE ALARM & SECURITY PLAN - 1ST FLOOR - AREA A

SHEET NUMBER

FS101



FIRE ALARM & SECURITY PLAN - 2ND FLOOR - AREA A

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

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 SUITTABLE 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.

DEFERRED SUBMITTAL NOTES

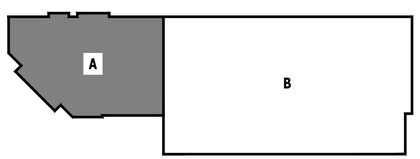
1. **FIRE ALARM CONTRACTOR SHALL PROVIDE DEFERRED SUBMITTAL PACKAGE FOR FIRE ALARM SYSTEM. SUBMITTAL SHALL INCLUDE BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS, EQUIPMENT SPECIFICATIONS FOR DEVICES AND PANELS, ETC. DESIGN SHALL BE SEALED BY A QUALIFIED DESIGN PROFESSIONAL LICENSED BY THE STATE.**
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 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)

FIRE ALARM PLAN SYMBOL LEGEND

F	MANUAL PULL STATION
M	MODULE
O	OUTPUT MODULE
SD	SMOKE DETECTOR
HD	HEAT 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



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
PROFESSIONAL ENGINEER
FOR ESTIMATING PURPOSES ONLY
NOT FOR CONSTRUCTION
DATE: 11-27-2024

J-SQUARED ENGINEERING
2400 Bluff Creek Drive, Suite 101
Columbia, Missouri 65201
573.234.4492
www.j-squaredeng.com

J2 PROJECT NO:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

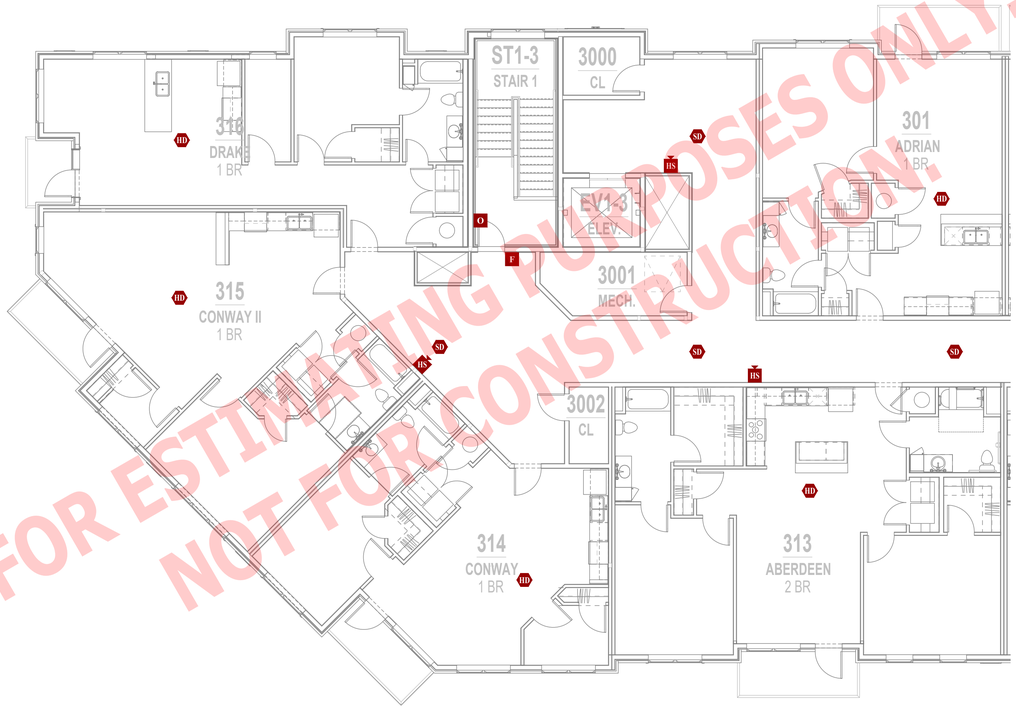
AHJ APPROVAL STAMP

SHEET TITLE

FIRE ALARM & SECURITY PLAN - 2ND FLOOR - AREA A

SHEET NUMBER

FS102



FIRE ALARM & SECURITY PLAN - 3RD FLOOR - AREA A

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

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.

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 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)
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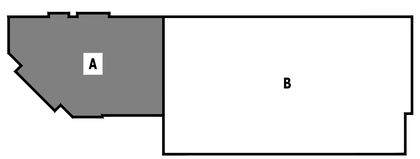
FIRE ALARM PLAN SYMBOL LEGEND

F	MANUAL PULL STATION
M	MODULE
O	OUTPUT MODULE
SD	SMOKE DETECTOR
HD	HEAT 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



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
PROFESSIONAL ENGINEER
FOR ESTIMATING PURPOSES ONLY
NOT FOR CONSTRUCTION
12/20/2024

J-SQUARED ENGINEERING
2400 Bluff Creek Drive, Suite 101
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J2 PROJECT No:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

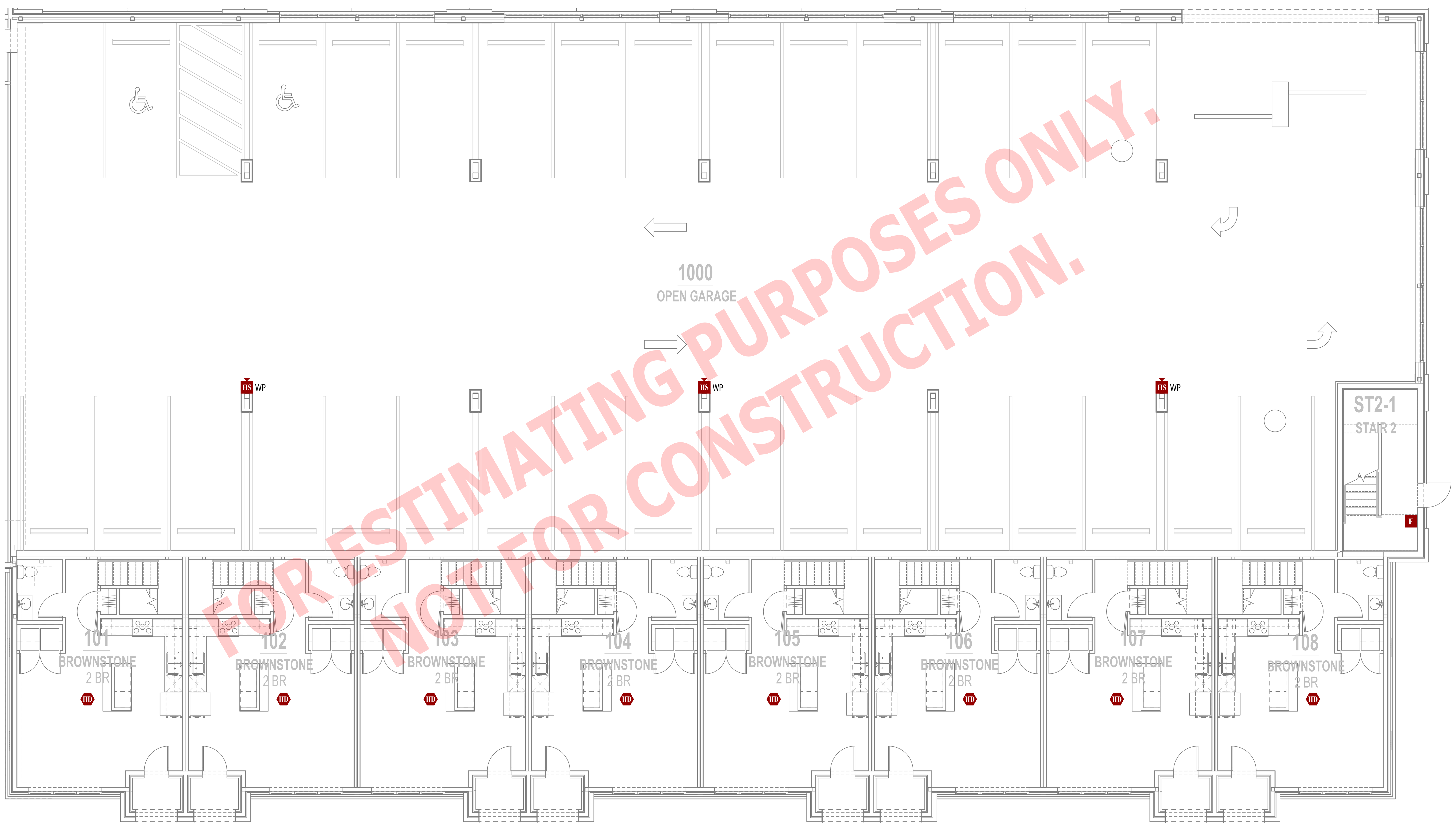
AHJ APPROVAL STAMP

SHEET TITLE

FIRE ALARM & SECURITY PLAN - 3RD FLOOR - AREA A

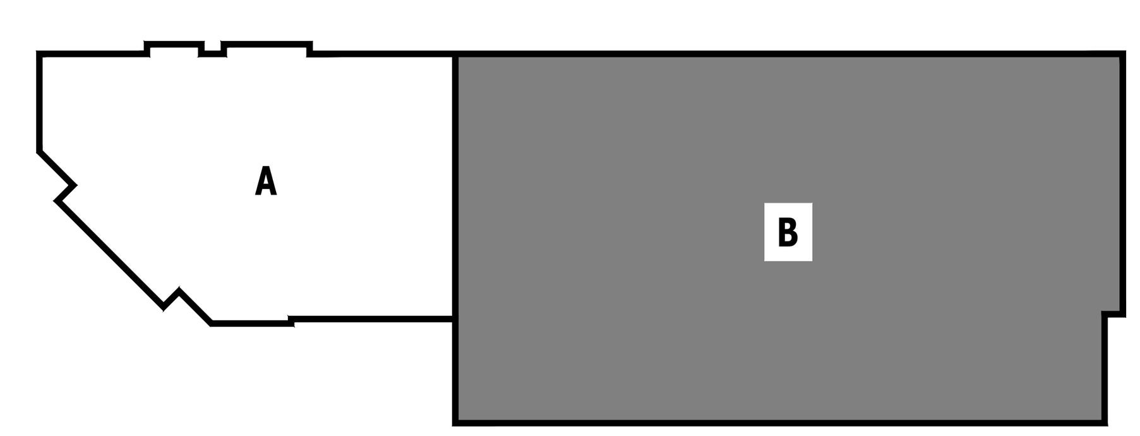
SHEET NUMBER

FS103



FIRE ALARM & SECURITY PLAN - 1ST FLOOR - AREA B

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



KEY PLAN

SCALE: NTS

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.

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.**
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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)
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   - 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)
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FIRE ALARM PLAN SYMBOL LEGEND

Symbol	Description
F	MANUAL PULL STATION
M	MODULE
O	OUTPUT MODULE
SD	SMOKE DETECTOR
HD	HEAT 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

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J2 PROJECT No:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:
Village at Discovery Lot 9A
200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

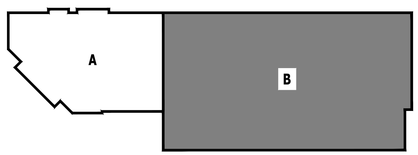
AHJ APPROVAL STAMP

SHEET TITLE
FIRE ALARM & SECURITY PLAN - 1ST FLOOR - AREA B

SHEET NUMBER
FS111

FIRE ALARM & SECURITY PLAN - 2ND FLOOR - AREA B

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



KEY PLAN

SCALE: NTS

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.
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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.**
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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)
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   - 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:
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8. WALL MOUNTED STROBE DEVICES (VISUAL ONLY):
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FIRE ALARM PLAN SYMBOL LEGEND

F	MANUAL PULL STATION
M	MODULE
O	OUTPUT MODULE
SD	SMOKE DETECTOR
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CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

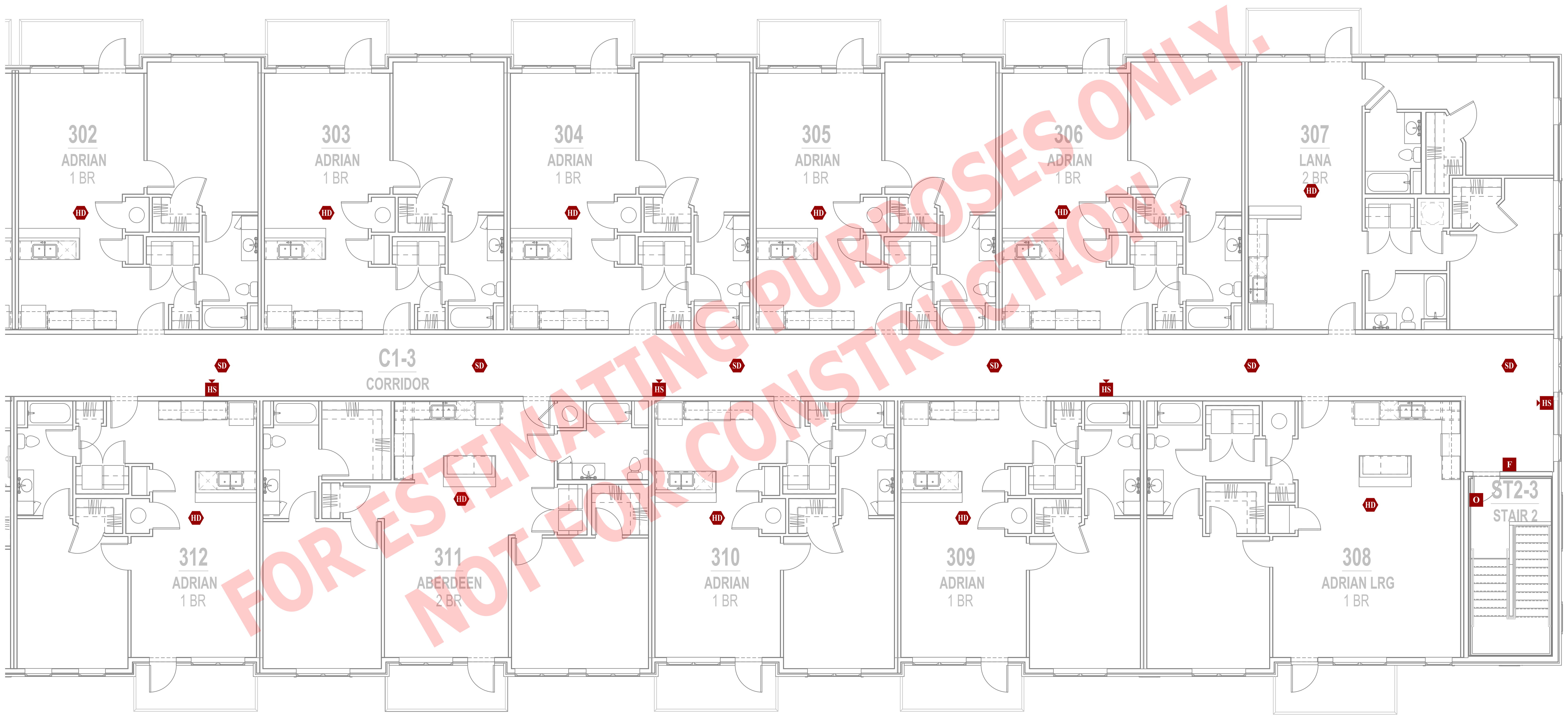
AHJ APPROVAL STAMP

SHEET TITLE

FIRE ALARM & SECURITY PLAN - 2ND FLOOR - AREA B

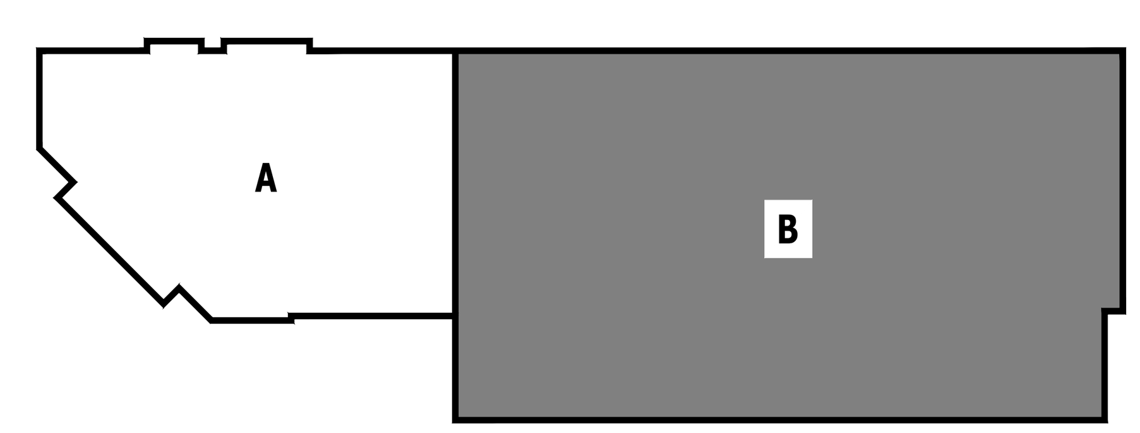
SHEET NUMBER

FS112



FIRE ALARM & SECURITY PLAN - 3RD FLOOR - AREA B

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



KEY PLAN

SCALE: NTS

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.
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FIRE ALARM DEVICE TYPICAL LOCATIONS:

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   - 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)

FIRE ALARM PLAN SYMBOL LEGEND

F	MANUAL PULL STATION
M	MODULE
O	OUTPUT MODULE
SD	SMOKE DETECTOR
HD	HEAT 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

STATE OF MISSOURI — JAMES P. WATSON — PROFESSIONAL ENGINEER

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J2 PROJECT No:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

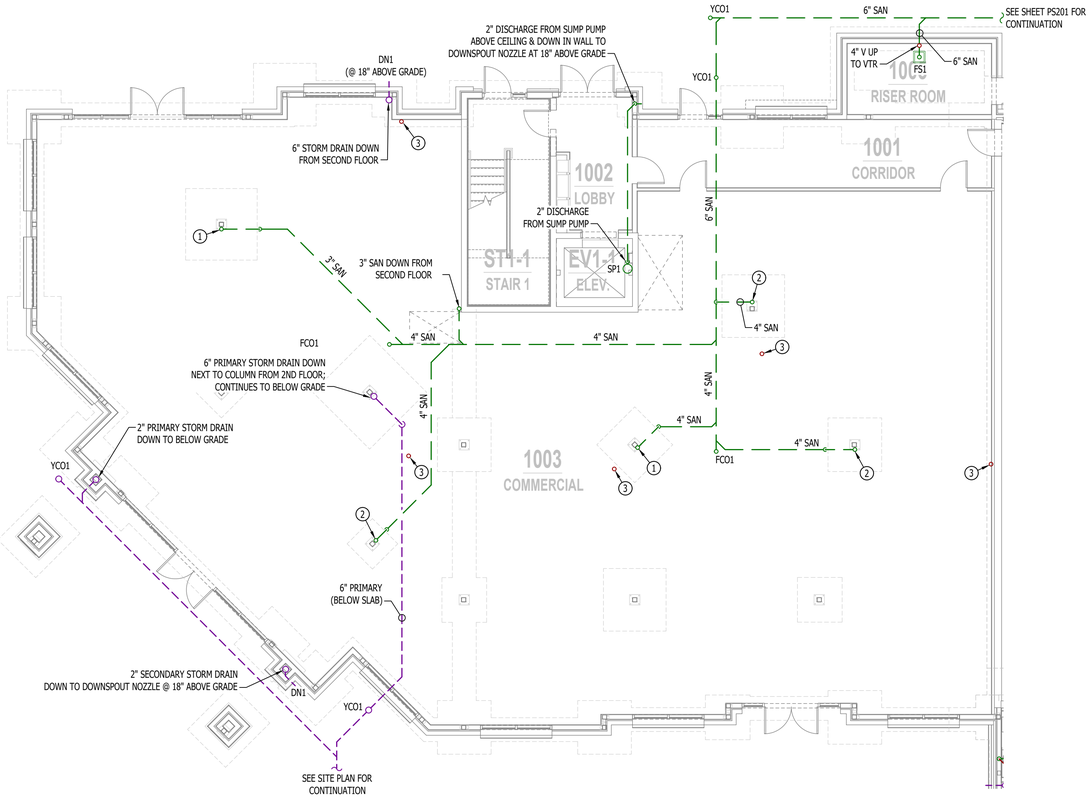
AHJ APPROVAL STAMP

SHEET TITLE

FIRE ALARM & SECURITY PLAN - 3RD FLOOR - AREA B

SHEET NUMBER

FS113



SANITARY SEWER PLAN - 1ST FLOOR - AREA A

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

SANITARY SEWER PLAN SYMBOL LEGEND

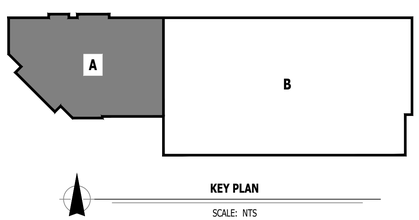
- SANITARY SEWER PIPING
- VENT PIPING
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

SANITARY SEWER PLAN GENERAL NOTES:

1. SEE SHEET PS01 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.

SANITARY SEWER PLAN KEY NOTES:

(1) 3" SAN DOWN FROM SECOND FLOOR NEXT TO COLUMN W/ C.O. AT BASE OF STACK.
(2) 4" SAN DOWN FROM SECOND FLOOR NEXT TO COLUMN.
(3) 3" VENT (CAPPED FOR FUTURE CONNECTION) UP TO SECOND FLOOR.



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

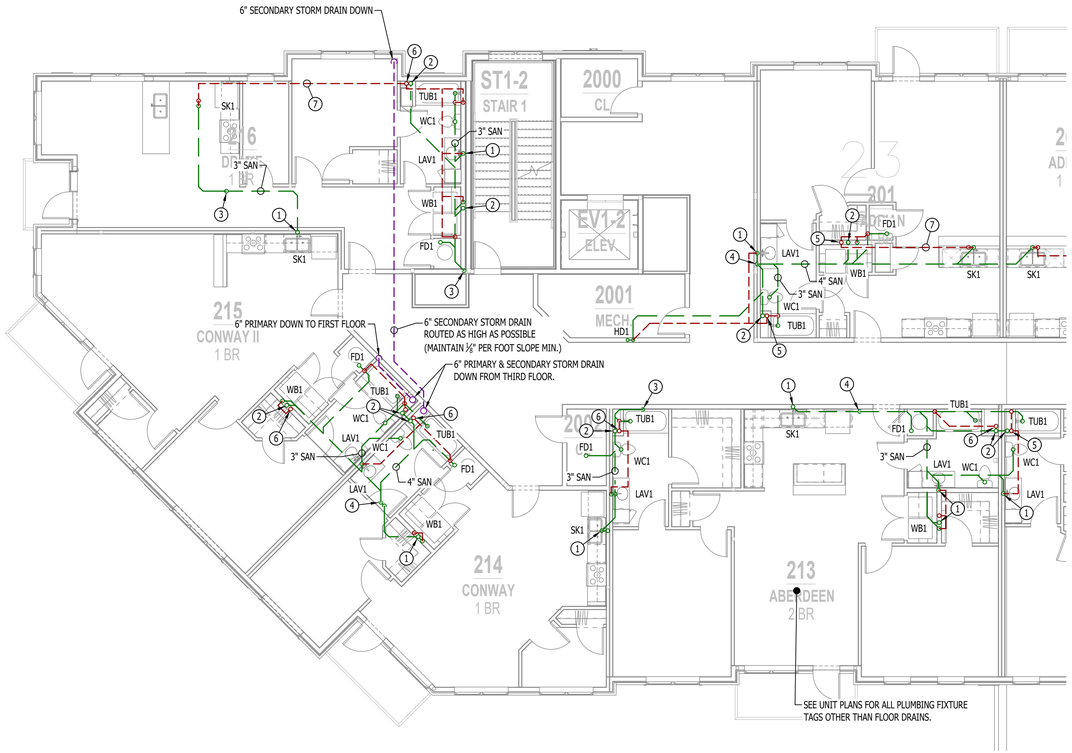
AHJ APPROVAL STAMP

SHEET TITLE

SANITARY SEWER PLAN - 1ST FLOOR - AREA A

SHEET NUMBER

PS101



SANITARY SEWER PLAN - 2ND FLOOR - AREA A

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

SANITARY SEWER PLAN SYMBOL LEGEND

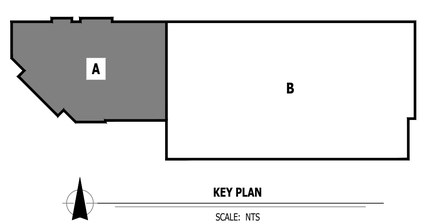
- SANITARY SEWER PIPING
- VENT PIPING
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

SANITARY SEWER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.

SANITARY SEWER PLAN KEY NOTES:

1. 2" SAN (WASTE/VENT STACK) DOWN FROM 3RD FLOOR.
2. 3" SAN DOWN FROM 3RD FLOOR.
3. 3" SAN DOWN TO 1ST FLOOR.
4. 4" SAN DOWN TO 1ST FLOOR.
5. 3" VENT UP TO THIRD FLOOR
6. 3" VENT UP FROM 1ST FLOOR CONTINUES UP TO 3RD FLOOR.
7. 2" ISLAND VENT, PER IPC 916, ROUTED BELOW FLOOR.



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

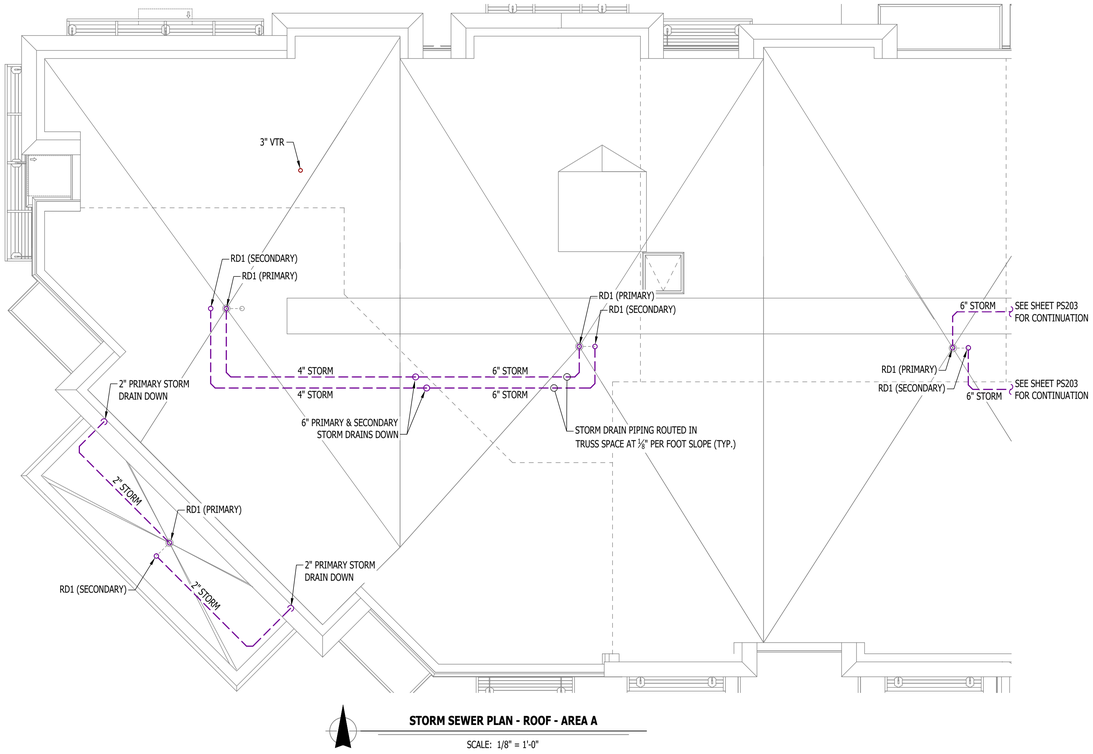
AHJ APPROVAL STAMP

SHEET TITLE

SANITARY SEWER PLAN - 2ND FLOOR - AREA A

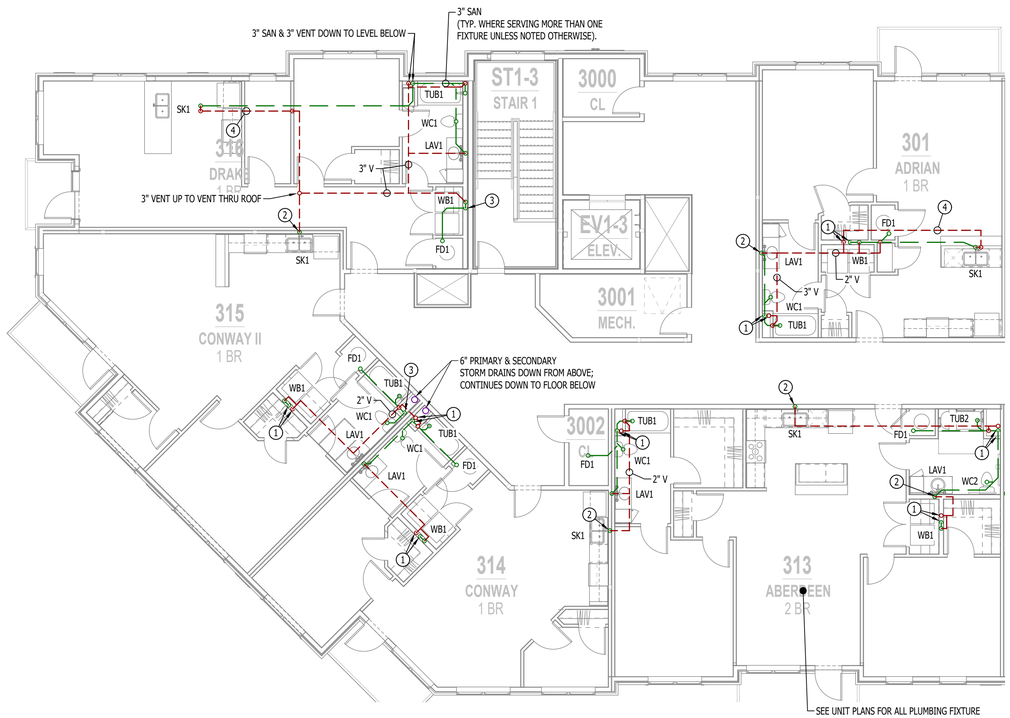
SHEET NUMBER

PS102



STORM SEWER PLAN - ROOF - AREA A

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



SANITARY SEWER PLAN - 3RD FLOOR - AREA A

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

SANITARY SEWER PLAN SYMBOL LEGEND

- SANITARY SEWER PIPING
- VENT PIPING
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

SANITARY SEWER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.

SANITARY SEWER PLAN KEY NOTES:

1. 3" SANITARY DOWN TO LEVEL BELOW. 3" VENT UP FROM LEVEL BELOW; CONTINUES UP TO VENT THRU ROOF
2. 2" SAN (WASTE STACK) DOWN TO LEVEL BELOW
3. 3" SAN (WASTE STACK) DOWN TO LEVEL BELOW
4. 2" ISLAND VENT, PER IPC 916, ROUTED BELOW FLOOR.

KEY PLAN

SCALE: NTS

STATE OF MISSOURI
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CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

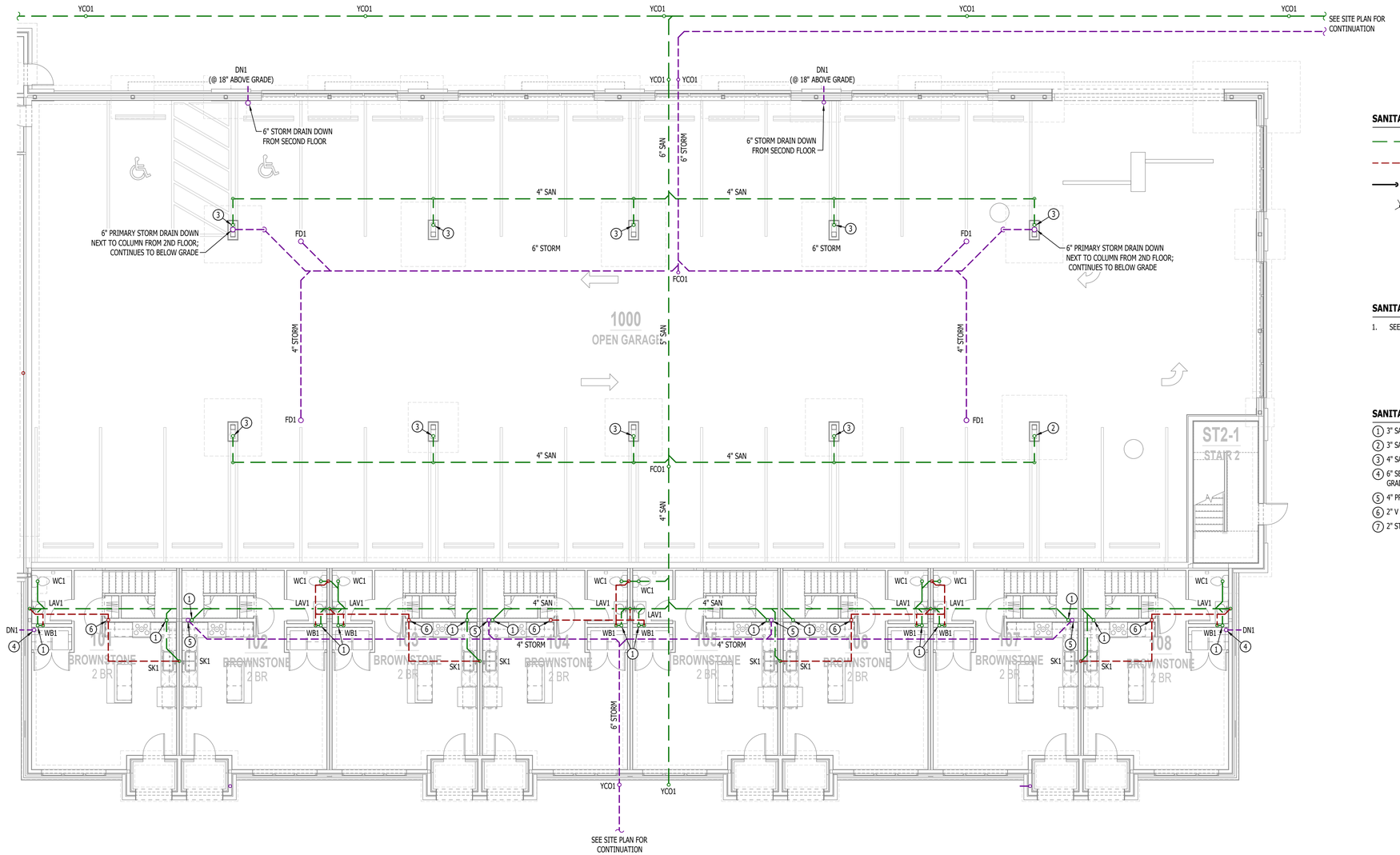
AHJ APPROVAL STAMP

SHEET TITLE

SANITARY SEWER PLAN - 3RD FLOOR - AREA A

SHEET NUMBER

PS103



SANITARY SEWER PLAN - 1ST FLOOR - AREA B

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

SANITARY SEWER PLAN SYMBOL LEGEND

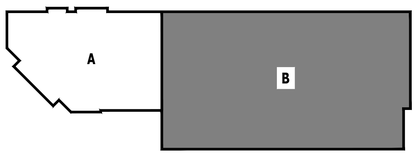
- SANITARY SEWER PIPING
- VENT PIPING
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

SANITARY SEWER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.

SANITARY SEWER PLAN KEY NOTES:

1. 3" SAN DOWN FROM SECOND FLOOR.
2. 3" SAN DOWN FROM SECOND FLOOR NEXT TO COLUMN.
3. 4" SAN DOWN FROM SECOND FLOOR NEXT TO COLUMN.
4. 6" SECONDARY STORM DRAIN PIPING DOWN FROM LEVEL ABOVE TO DOWNSPOUT NOZZLE 'DN1' AT 18" ABOVE GRADE.
5. 4" PRIMARY STORM DRAIN DOWN FROM LEVEL ABOVE.
6. 2" V UP TO LEVEL ABOVE.
7. 2" STORM DOWN FROM ENTRY ROOF ABOVE TO DOWNSPOUT NOZZLE 'DN1' AT 18" ABOVE GRADE.



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

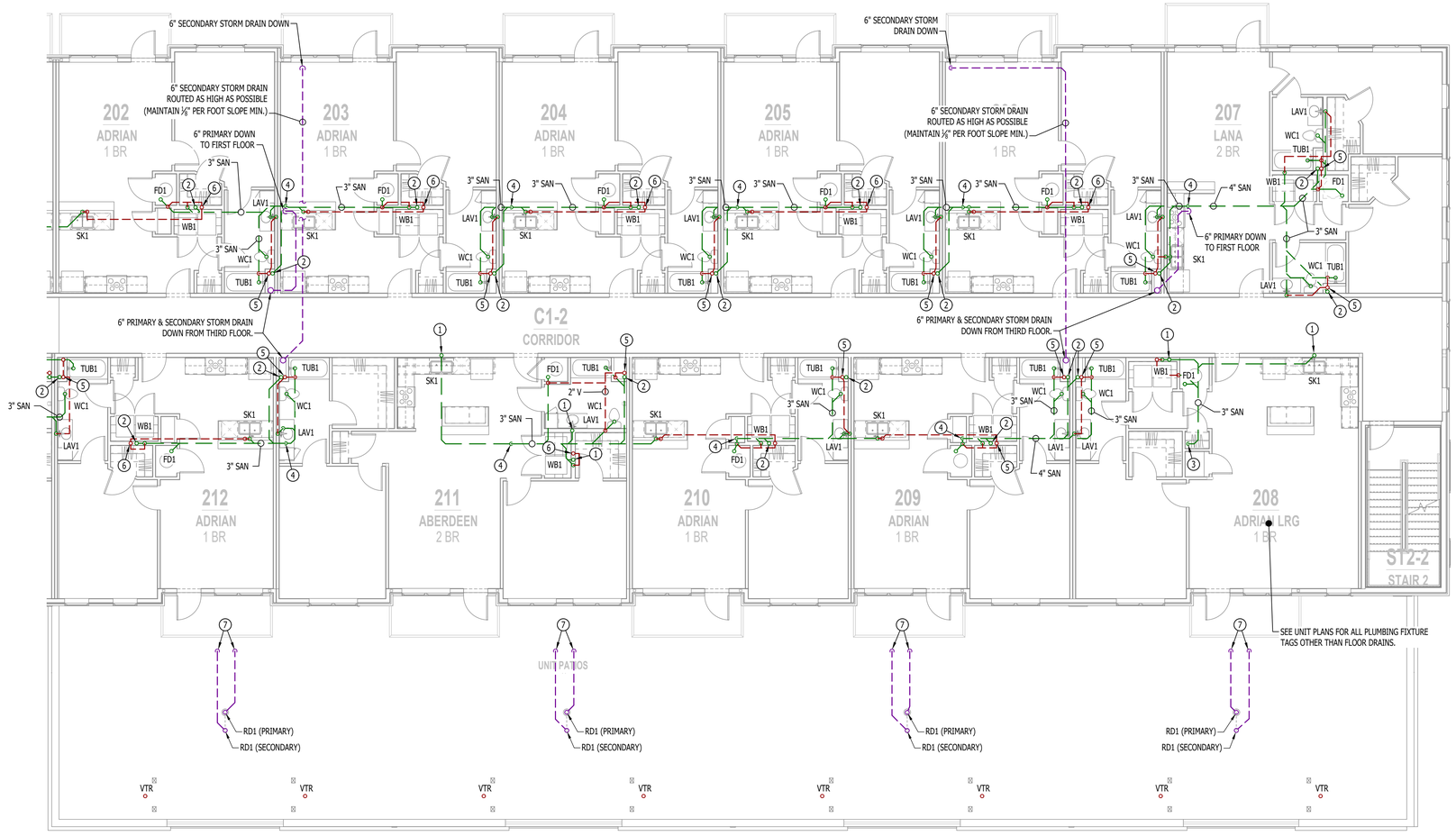
AHJ APPROVAL STAMP

SHEET TITLE

SANITARY SEWER PLAN - 1ST FLOOR - AREA B

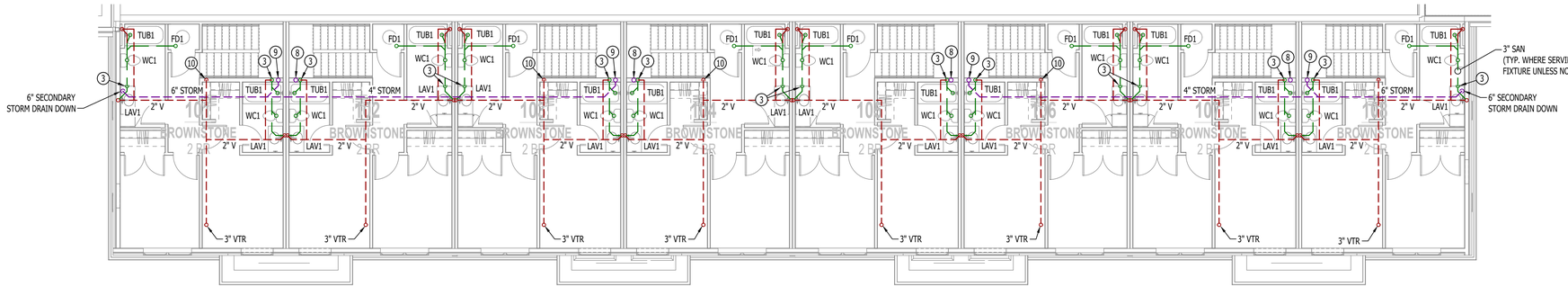
SHEET NUMBER

PS111



SANITARY SEWER PLAN - 2ND FLOOR - AREA B

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



SANITARY PLAN - SECOND FLOOR - BROWNSTONE

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

SANITARY SEWER PLAN SYMBOL LEGEND

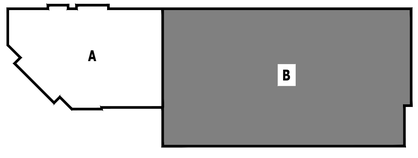
- SANITARY SEWER PIPING
- VENT PIPING
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

SANITARY SEWER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.

SANITARY SEWER PLAN KEY NOTES:

1. 2" SAN (WASTE STACK) DOWN FROM 3RD FLOOR.
2. 3" SAN DOWN FROM 3RD FLOOR.
3. 3" SAN DOWN TO 1ST FLOOR.
4. 4" SAN DOWN TO 1ST FLOOR.
5. 3" VENT UP TO THIRD FLOOR
6. 2" VENT UP TO 3RD FLOOR.
7. 4" PRIMARY & SECONDARY STORM DRAIN DOWN IN WALL BELOW.
8. 4" PRIMARY STORM DRAIN DOWN FROM ABOVE; CONTINUES DOWN TO LEVEL BELOW.
9. 4" SECONDARY STORM DRAIN DOWN FROM ABOVE.
10. 2" VENT UP FROM BELOW.



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 2024
PE-2015017071
MO Certificate of Authority # 2018029680

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J2 PROJECT NO:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

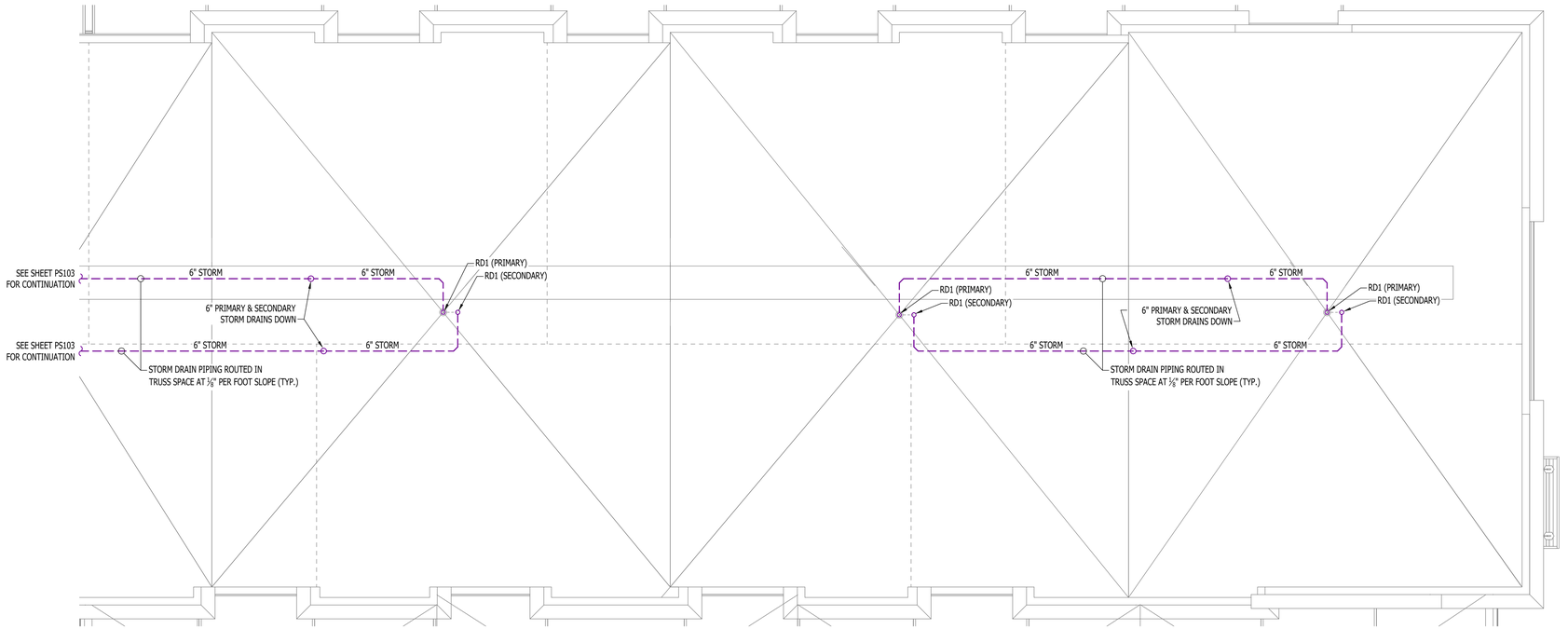
AHJ APPROVAL STAMP

SHEET TITLE

SANITARY SEWER PLAN - 2ND FLOOR - AREA B

SHEET NUMBER

PS112



STORM DRAIN PLAN - ROOF - AREA B

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

SANITARY SEWER PLAN - 3RD FLOOR - AREA B

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

SANITARY SEWER PLAN SYMBOL LEGEND

- SANITARY SEWER PIPING
- VENT PIPING
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

SANITARY SEWER PLAN GENERAL NOTES:

1. SEE SHEET PS01 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.

SANITARY SEWER PLAN KEY NOTES:

1. 3" SANITARY DOWN TO LEVEL BELOW. 3" VENT UP FROM LEVEL BELOW; CONTINUES UP TO VENT THRU ROOF
2. 2" SAN (WASTE STACK) DOWN TO LEVEL BELOW
3. 3" SAN (WASTE STACK) DOWN TO LEVEL BELOW
4. 2" VENT ROUTED BELOW FLOOR.

KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 2024
PE-2015017071
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

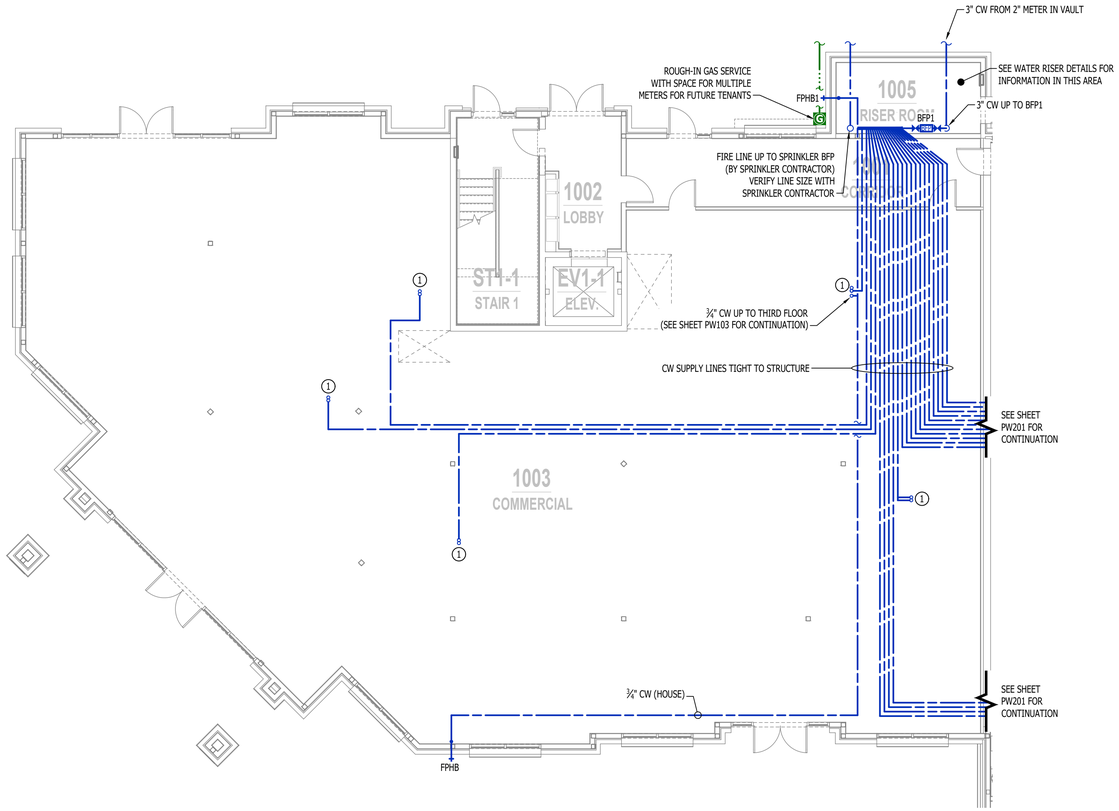
AHJ APPROVAL STAMP

SHEET TITLE

SANITARY SEWER PLAN - 3RD FLOOR - AREA B

SHEET NUMBER

PS113



WATER PLAN - 1ST FLOOR - AREA A

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

WATER PLAN SYMBOL LEGEND

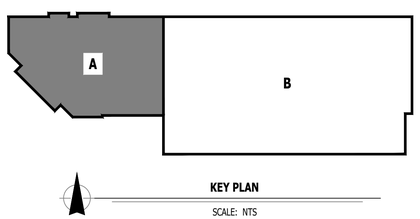
- COLD WATER LINE
- HOT WATER LINE
- HOT WATER RECIRCULATION LINE
- WATER METER
- VALVE
- PUMP
- GAS LINE
- GAS METER
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

WATER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.

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

STATE OF MISSOURI
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CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

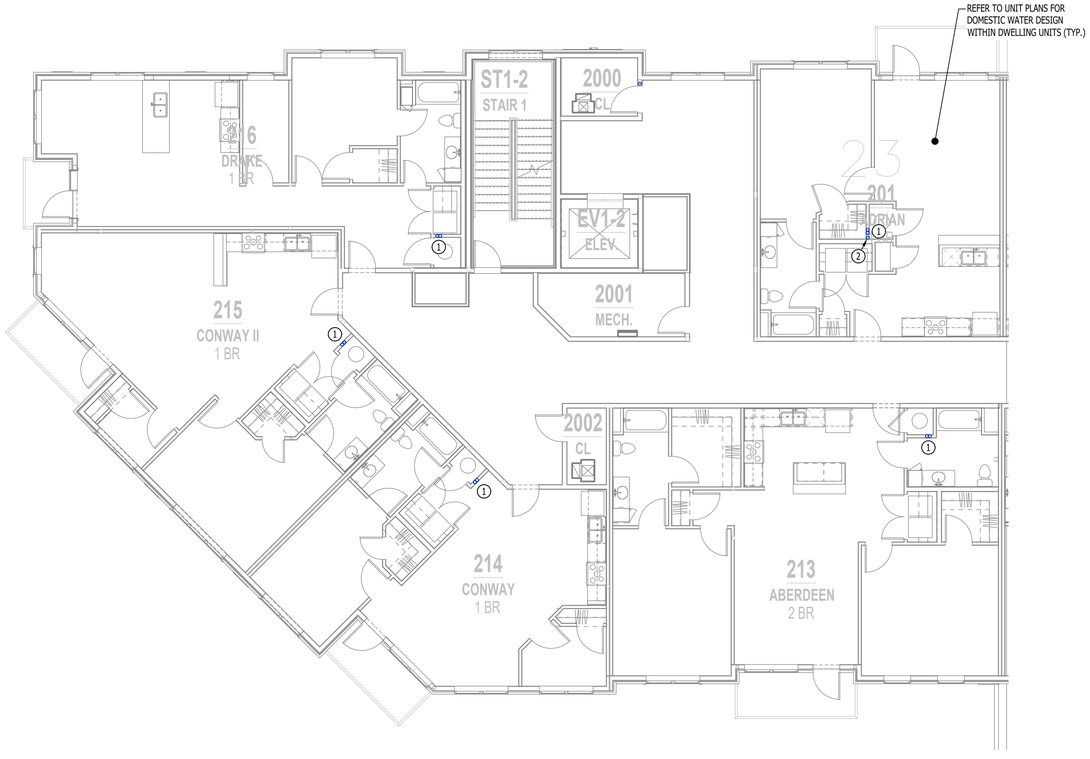
AHJ APPROVAL STAMP

SHEET TITLE

WATER PLAN - 1ST FLOOR - AREA A

SHEET NUMBER

PW101



WATER PLAN - 2ND FLOOR - AREA A

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

WATER PLAN SYMBOL LEGEND

- COLD WATER LINE
- HOT WATER LINE
- HOT WATER RECIRCULATION LINE
- WATER METER
- VALVE
- PUMP
- GAS LINE
- GAS METER
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

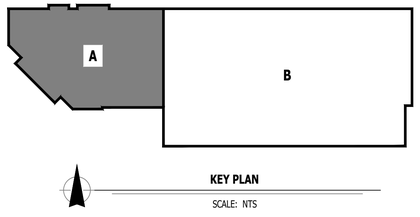
WATER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.

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).

(2) (1) ¾" HOUSE CW LINE UP TO ROOF HYDRANT.



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

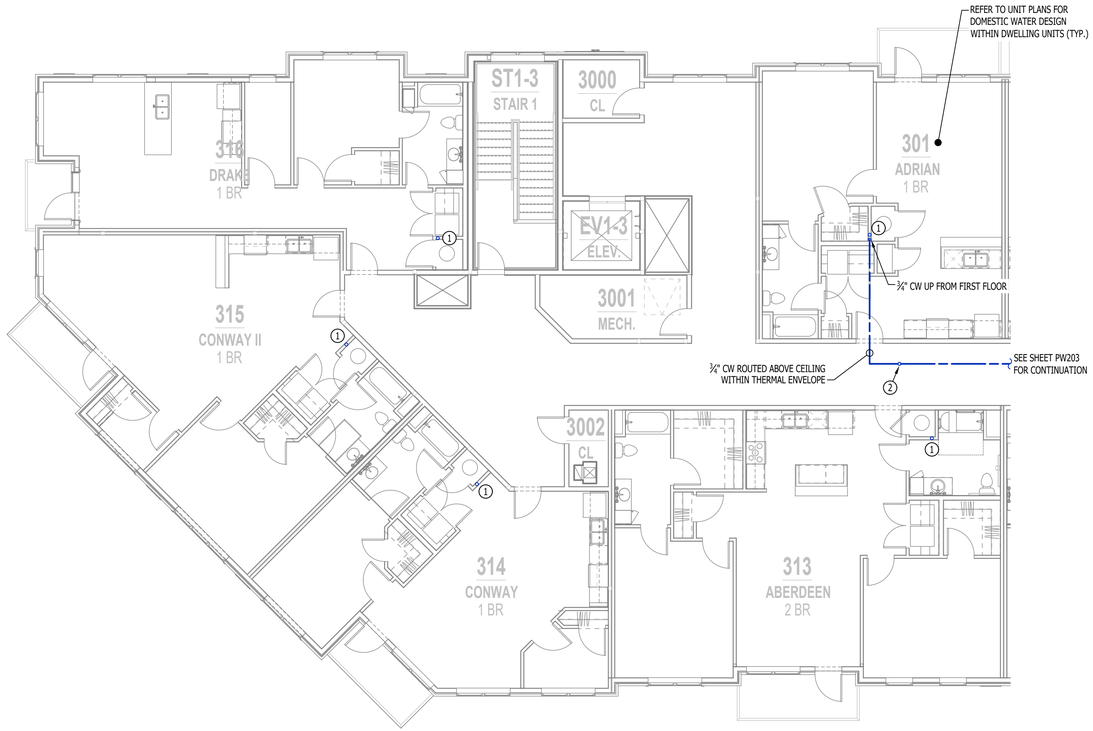
AHJ APPROVAL STAMP

SHEET TITLE

WATER PLAN - 2ND FLOOR - AREA A

SHEET NUMBER

PW102



WATER PLAN - 3RD FLOOR - AREA A

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

WATER PLAN SYMBOL LEGEND

- COLD WATER LINE
- HOT WATER LINE
- HOT WATER RECIRCULATION LINE
- WATER METER
- VALVE
- PUMP
- GAS LINE
- GAS METER
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

WATER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.

WATER PLAN KEY NOTES:

(1) (1) 1" CW UP FROM SECOND FLOOR TO SERVE APARTMENT ON THIRD FLOOR.

(2) ¾" CW UP TO ROOF HYDRANT 'RH1' ON ROOF (SEE SHEET MEP4)

KEY PLAN

SCALE: NTS

STATE OF MISSOURI
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Lee's Summit, Jackson County, MO 64064

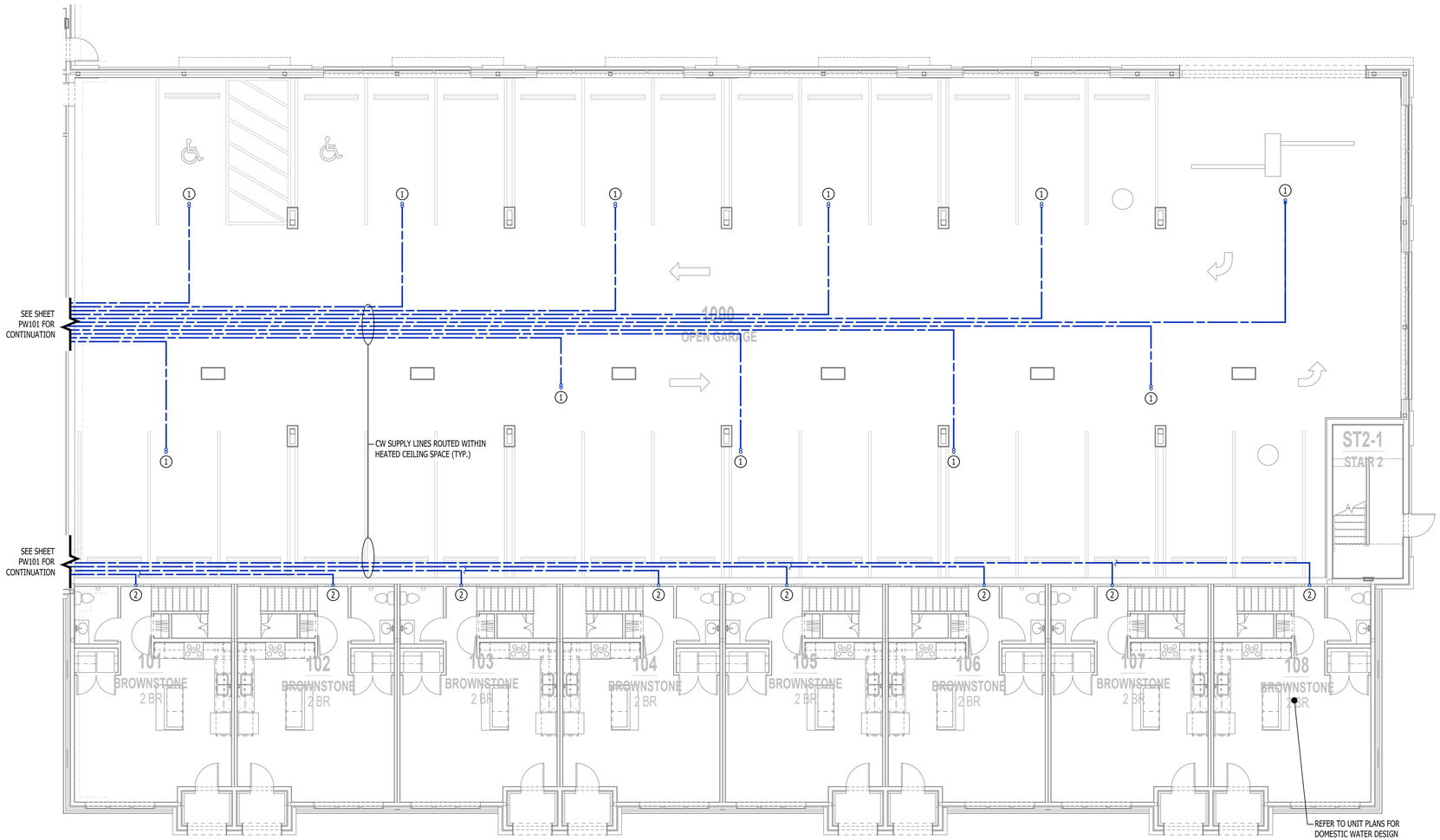
AHJ APPROVAL STAMP

SHEET TITLE

WATER PLAN - 3RD FLOOR - AREA A

SHEET NUMBER

PW103



WATER PLAN - 1ST FLOOR - AREA B

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

WATER PLAN SYMBOL LEGEND

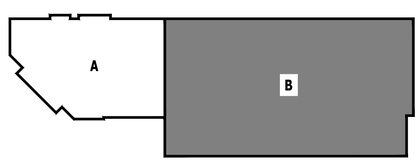
- COLD WATER LINE
- HOT WATER LINE
- HOT WATER RECIRCULATION LINE
- WATER METER
- VALVE
- PUMP
- GAS LINE
- GAS METER
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

WATER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.

WATER PLAN KEY NOTES:

1. (2) 1" CW UP INTO WALL ON SECOND LEVEL FOR APARTMENTS (SEE SHEET PW202 FOR CONTINUATION)
2. (1) 1" CW UP INTO MECHANICAL ROOM ON SECOND LEVEL FOR APARTMENTS (SEE SHEET PW202 FOR CONTINUATION)



KEY PLAN

SCALE: NTS

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 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:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

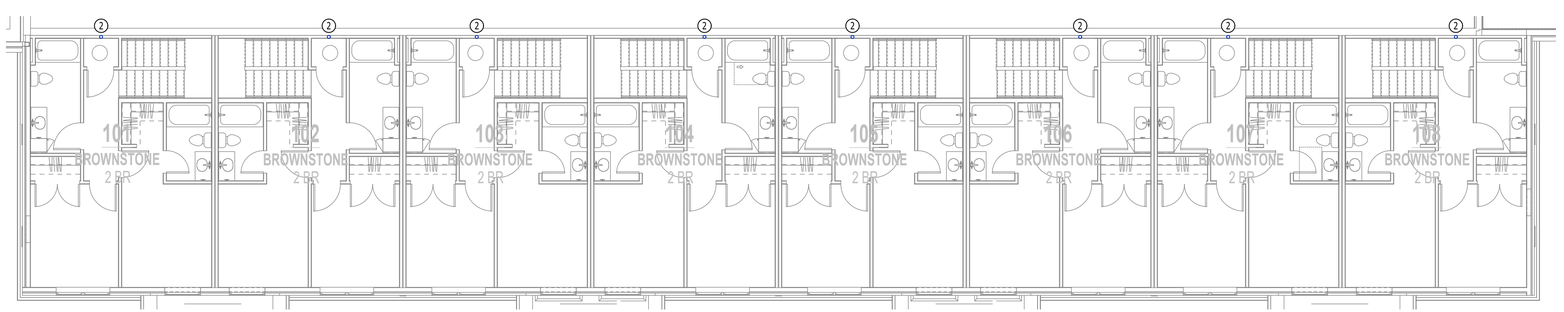
WATER PLAN - 1ST FLOOR - AREA B

SHEET NUMBER

PW111

WATER PLAN - 2ND FLOOR - AREA B

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



DOMESTIC WATER PLAN - 2ND FLOOR - BROWNSTONE

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

WATER PLAN SYMBOL LEGEND

- COLD WATER LINE
- HOT WATER LINE
- HOT WATER RECIRCULATION LINE
- WATER METER
- VALVE
- PUMP
- GAS LINE
- GAS METER
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

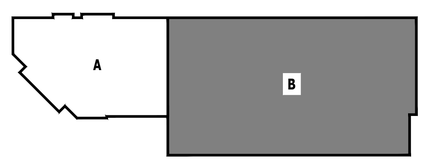
WATER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.

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).

(2) 1" CW UP INTO MECHANICAL CLOSET ON 2ND FLOOR TOWN HOME. SEE UNIT PLANS (UMEP SERIES SHEETS) FOR CONTINUATION.



KEY PLAN

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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

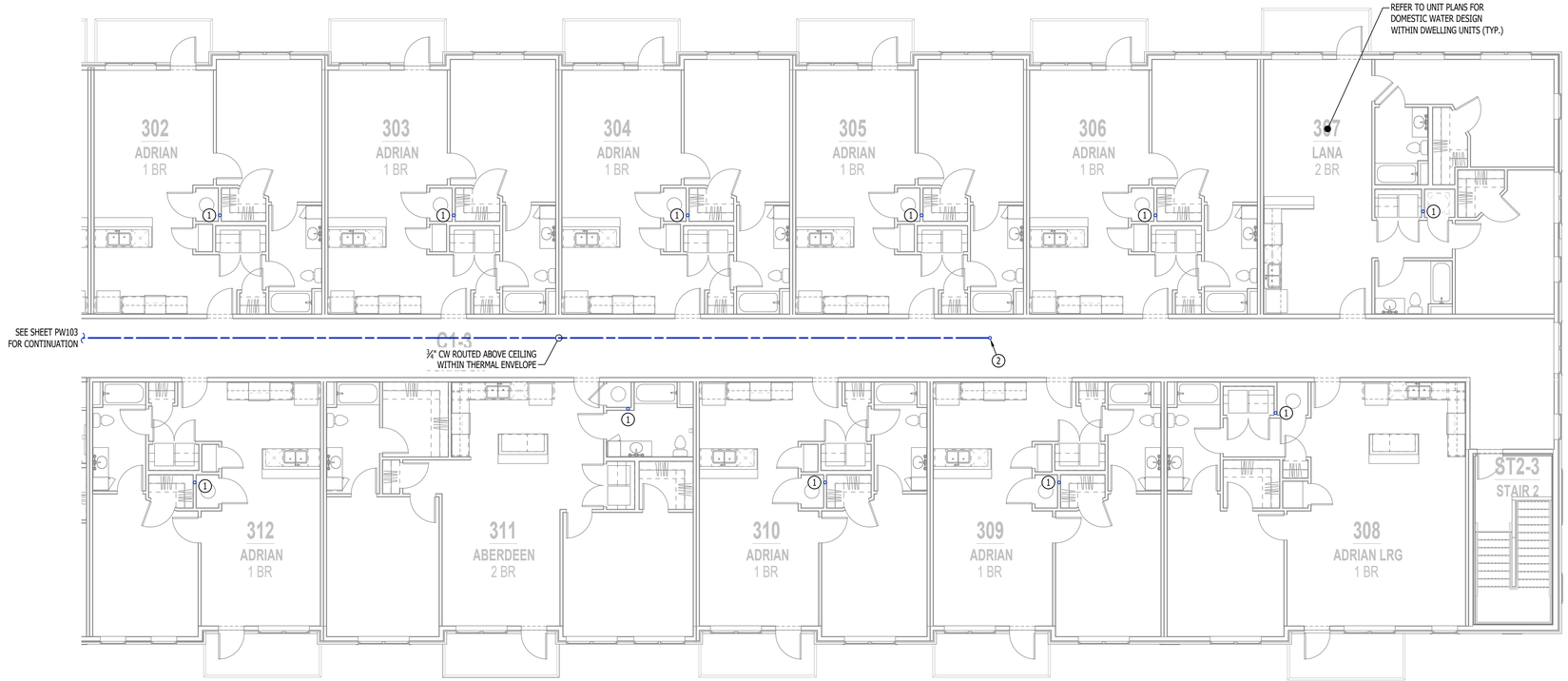
AHJ APPROVAL STAMP

SHEET TITLE

WATER PLAN - 2ND FLOOR - AREA B

SHEET NUMBER

PW112



WATER PLAN - 3RD FLOOR - AREA B

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

WATER PLAN SYMBOL LEGEND

- COLD WATER LINE
- HOT WATER LINE
- HOT WATER RECIRCULATION LINE
- WATER METER
- VALVE
- PUMP
- GAS LINE
- GAS METER
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

WATER PLAN GENERAL NOTES:

1. SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.

WATER PLAN KEY NOTES:

(1) (1) 1" CW UP FROM SECOND FLOOR TO SERVE APARTMENT ON THIRD FLOOR.

(2) ¾" CW UP TO ROOF HYDRANT 'RH1' ON ROOF (SEE SHEET MEP4)

KEY PLAN

SCALE: NTS

STATE OF MISSOURI
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

WATER PLAN - 3RD FLOOR - AREA B

SHEET NUMBER

PW113

PLUMBING SPECIFICATIONS

1. GENERAL

1.1. PLUMBING CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL ESCUTCHEONS, ½ 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: 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 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 - 2.5"
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	
FS1	FLOOR SINK	ZURN	FD2370	
LAV1	LAVATORY - INTEGRAL BOWL	-	-	WITH PFISTER #G142-8000 CHROME FAUCET
RD1	ROOF DRAIN	ZURN	Z100	
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
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'
YCO1	YARD CLEAN OUT	ZURN	Z1400	

NOTES:

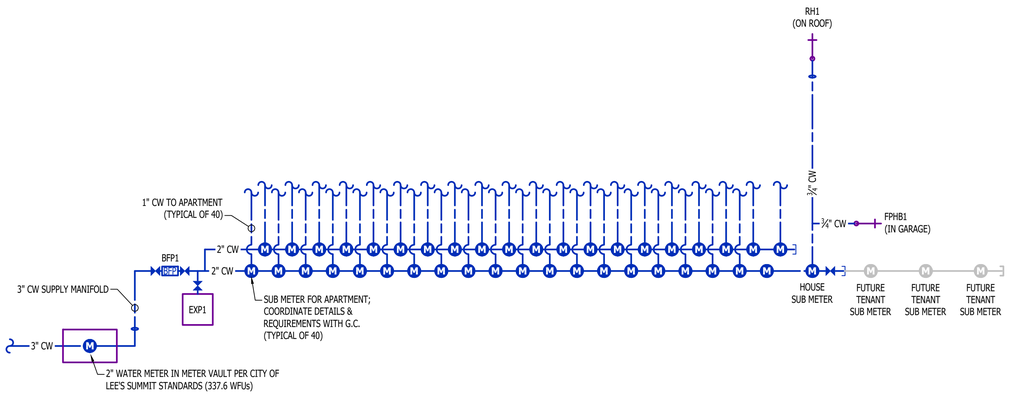
1. VERIFY NECESSARY FIXTURES MEET ADA REQUIREMENTS WITH ARCHITECT PRIOR TO INSTALLATION

PLUMBING CONNECTION SIZING SCHEDULE

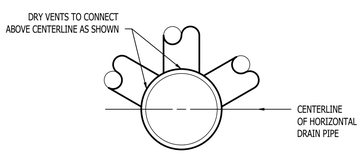
FIXTURE		SANITARY PIPING		SUPPLY PIPING	
TYPE	TYPICAL ABBREVIATION	WASTE CONNECTION	VENT CONNECTION	COLD WATER CONNECTION	HOT WATER CONNECTION
DRINKING FOUNTAIN	DF	1-1/2"	1-1/4"	1/2"	-
FLOOR DRAIN	FD	3"	2"	-	-
HAND / HAIR SINK	HS / SK	2"	1-1/4"	1/2"	1/2"
HOSE BIBB	HB	-	-	3/4"	-
LAVATORY	LAV	1-1/2"	1-1/4"	1/2"	1/2"
MOP SINK	MS	3"	1-1/2"	1/2"	1/2"
ICE MAKER OUTLET BOX	REF	-	-	1/2"	-
SHOWER	SH	3"	1-1/2"	1/2"	1/2"
URINAL	UR	2"	1-1/4"	3/4"	-
WATER CLOSET (FLUSH TANK)	WC	3"	2"	1/2"	-
WATER CLOSET (FLUSH VALVE)	WC	3"	2"	1"	-

NOTES:

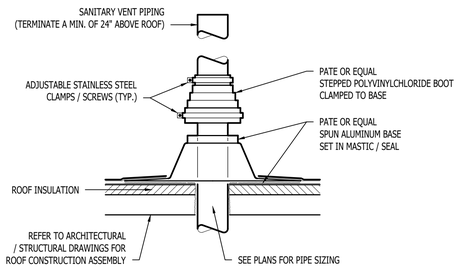
1. SIZES SHOWN ABOVE ARE TYPICAL UNLESS NOTED OTHERWISE ON PLANS



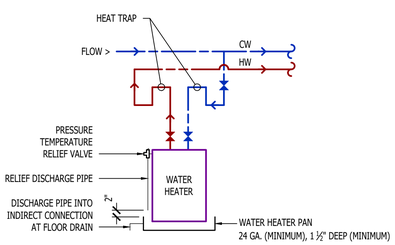
WATER RISER



DRY VENT DETAIL



SANITARY VENT THRU ROOF DETAIL



WATER HEATER DETAIL

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

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Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

PLUMBING DETAILS & SCHEDULES

SHEET NUMBER

P501

HVAC PLAN SYMBOL LEGEND

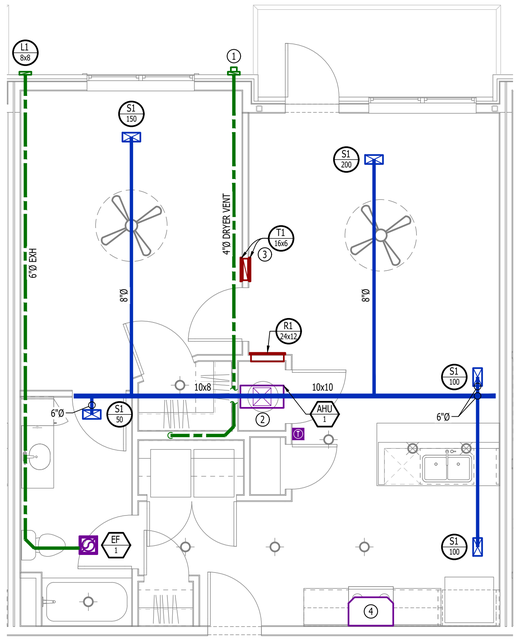
- EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)
- EQUIPMENT REFERENCE NUMBER
- DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)
- CUBIC FEET PER MINUTE (CFM) / FACE SIZE
- SUPPLY DUCTWORK
- RETURN DUCTWORK
- EXHAUST DUCTWORK
- FLEX DUCT
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
- CEILING RADIATION DAMPER
- BACK DRAFT DAMPER
- THERMOSTAT

HVAC PLAN GENERAL NOTES:

1. SEE M500 & M600 SERIES SHEETS 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

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

POWER PLAN SYMBOL LEGEND

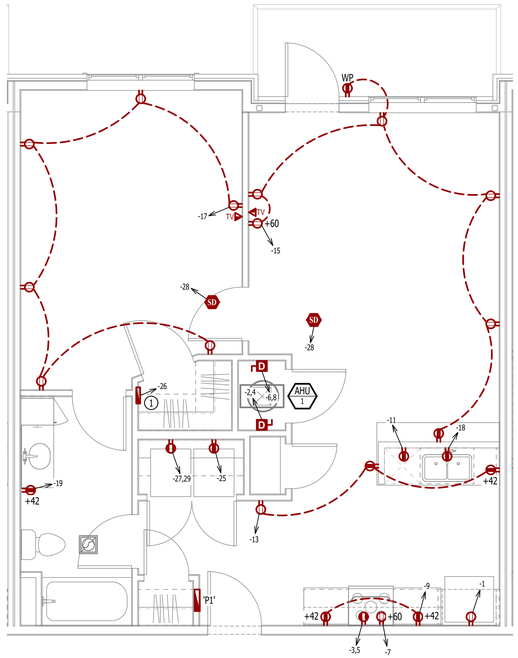
- CIRCUIT WIRING
- PX-XX — CIRCUIT TAG
- JUNCTION BOX
- XX +42 — RECEPTACLE
  - INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
  - "WP" = WEATHERPROOF OUTDOOR RECEPTACLE
- GFCI DUPLEX CONVENIENCE RECEPTACLE
- 208V RECEPTACLE
- QUADPLEX CONVENIENCE RECEPTACLE
- 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.
2. SEE SHEET MEP3 FOR CONDENSING UNIT LOCATIONS.
3. VERIFY EACH DATA/RECEPTACLE LOCATION WITH OWNER PRIOR TO INSTALLATION.
4. REFER TO "TYPICAL ADA MOUNTING HEIGHTS DETAIL", E500 & E600 SERIES SHEETS, OR 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

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

PLUMBING PLAN SYMBOL LEGEND

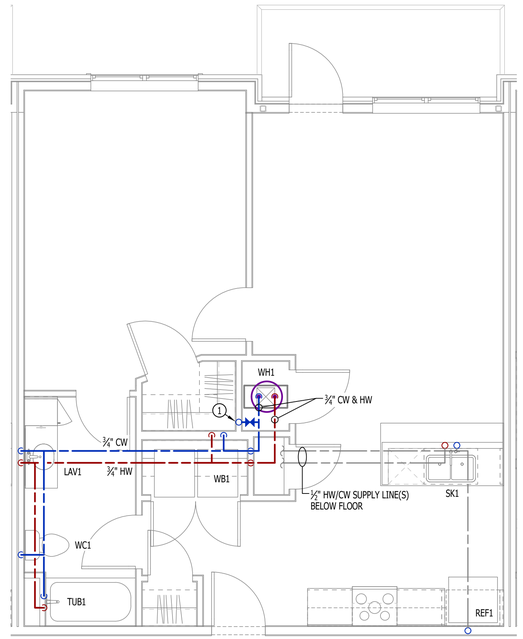
- COLD WATER LINE
- HOT WATER LINE
- VALVE
- PIPING TURNED DOWN / TURNED UP

WATER PLAN GENERAL NOTES:

1. SEE SHEET PS01 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. ¾" CW PIPE UP FROM BELOW WITH SHUT-OFF VALVE IN ACCESSIBLE LOCATION. SEE OVERALL PLUMBING PLANS FOR DETAILS.



WATER PLAN

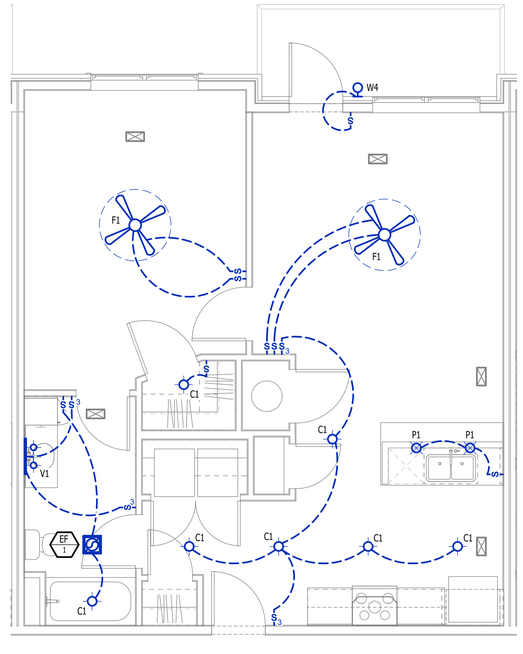
SCALE: 1/4" = 1'-0"

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.



POWER PLAN

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

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 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:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

MEP PLAN - UNIT TYPE ADRIAN-A

SHEET NUMBER

UMEP1.1

HVAC PLAN SYMBOL LEGEND

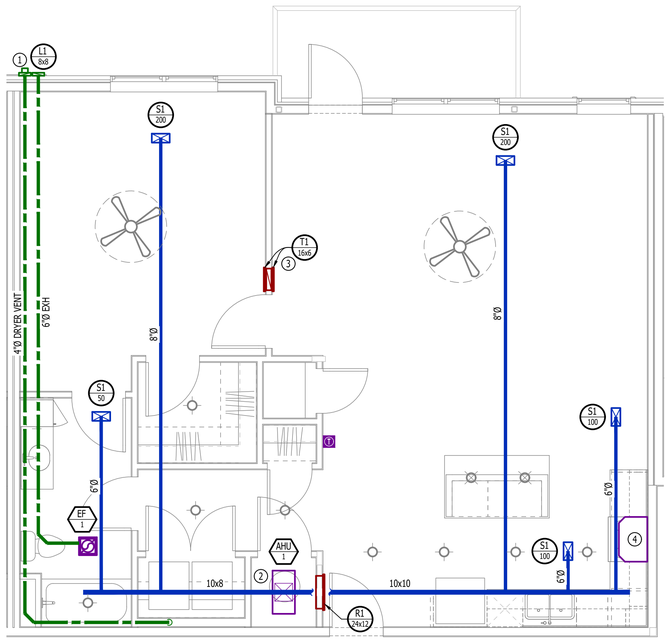
- EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)
- EQUIPMENT REFERENCE NUMBER
- DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)
- CUBIC FEET PER MINUTE (CFM) / FACE SIZE
- SUPPLY DUCTWORK
- RETURN DUCTWORK
- EXHAUST DUCTWORK
- FLEX DUCT
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- RETURN DIFFUSER
- BALANCE DAMPER
- MOTORIZED DAMPER
- CEILING RADIATION DAMPER
- BACK DRAFT DAMPER
- THERMOSTAT

HVAC PLAN GENERAL NOTES:

1. SEE M500 & M600 SERIES SHEETS 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

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)
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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)

POWER PLAN GENERAL NOTES:

1. SEE E500 & E600 SERIES SHEETS FOR POWER SCHEDULES, DETAILS, REQUIREMENTS, ETC.
2. SEE SHEET MEP3 FOR CONDENSING UNIT LOCATIONS.
3. VERIFY EACH DATA/RECEPTACLE LOCATION WITH OWNER PRIOR TO INSTALLATION.
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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

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

PLUMBING PLAN SYMBOL LEGEND

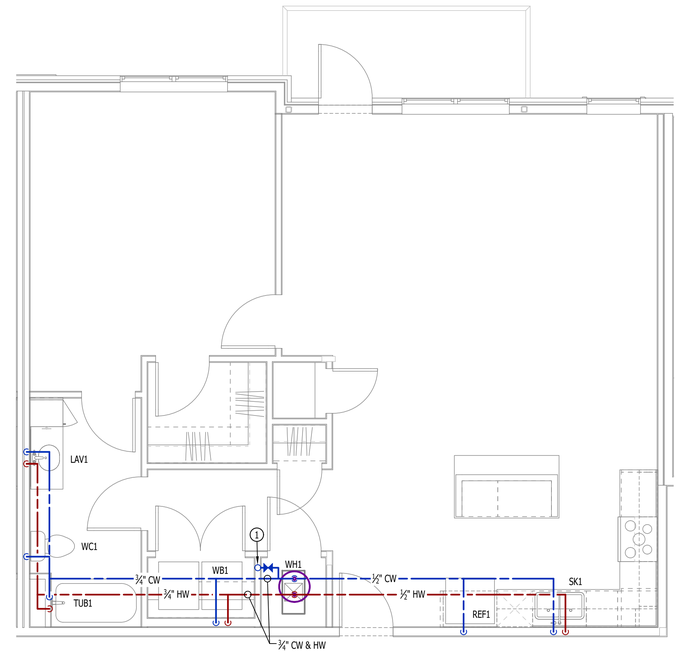
- COLD WATER LINE
- HOT WATER LINE
- VALVE
- PIPING TURNED DOWN / TURNED UP

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. ¾" CW PIPE UP FROM BELOW WITH SHUT-OFF VALVE IN ACCESSIBLE LOCATION. SEE OVERALL PLUMBING PLANS FOR DETAILS.



WATER PLAN

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

LIGHTING PLAN SYMBOL LEGEND

- X1 — LIGHTING FIXTURE
  - "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
- S3 — TOGGLE SWITCH
  - SWITCH TYPE
- D — DIMMER SWITCH

LIGHTING PLAN GENERAL NOTES:

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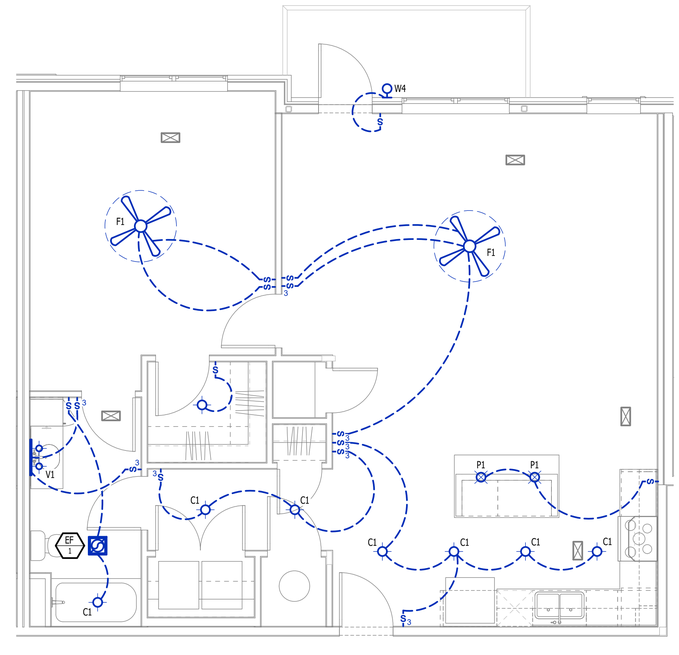
2. ALL LIGHTING SHOWN SHALL BE ON CIRCUIT 16 UNLESS NOTED OTHERWISE.



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AHJ APPROVAL STAMP

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SHEET NUMBER

UMEP1.2

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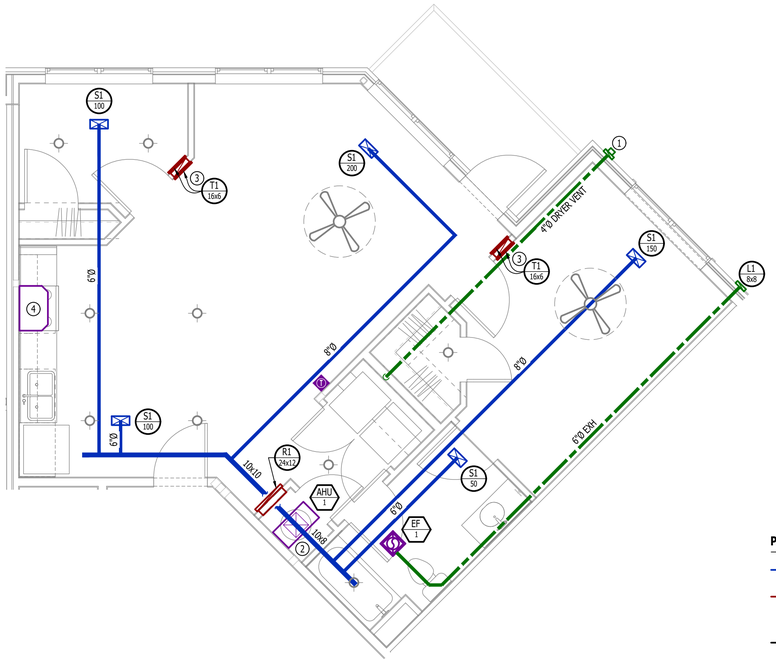

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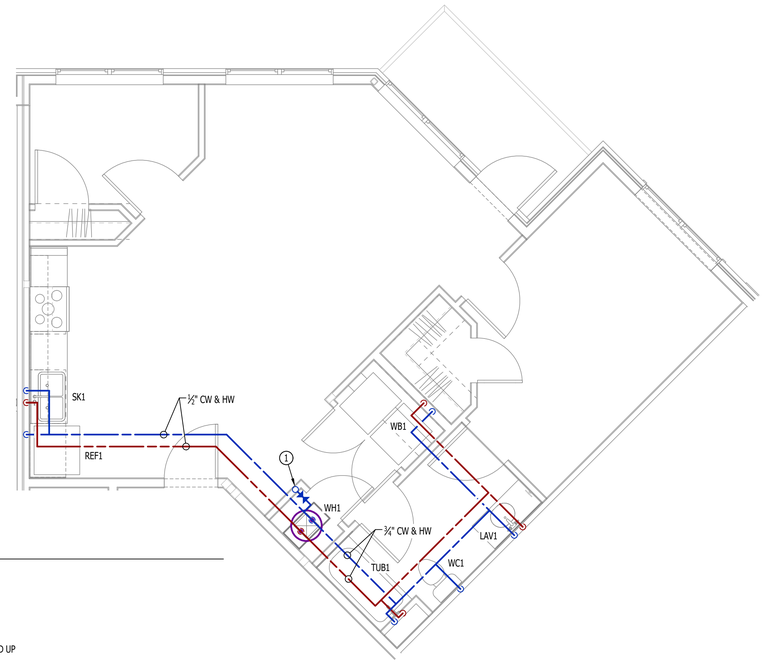

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- X1 — LIGHTING FIXTURE; "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
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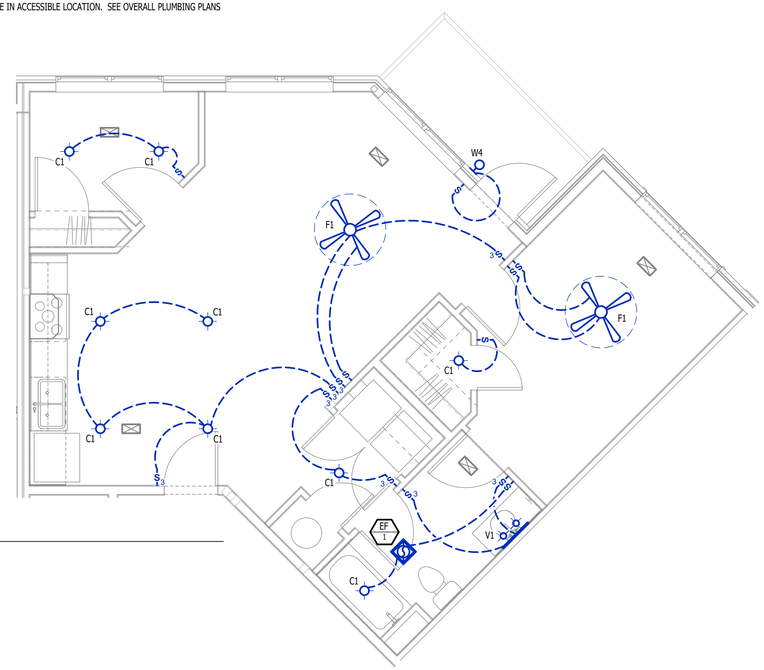

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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

MEP PLAN - UNIT TYPE CONWAY-A

SHEET NUMBER

UMEP1.3

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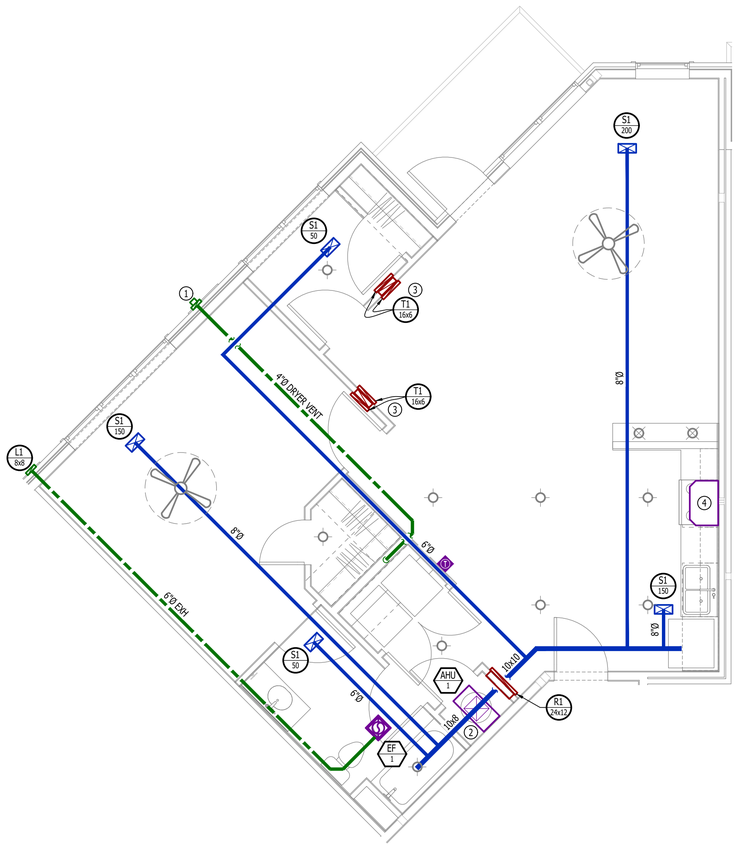

HVAC PLAN

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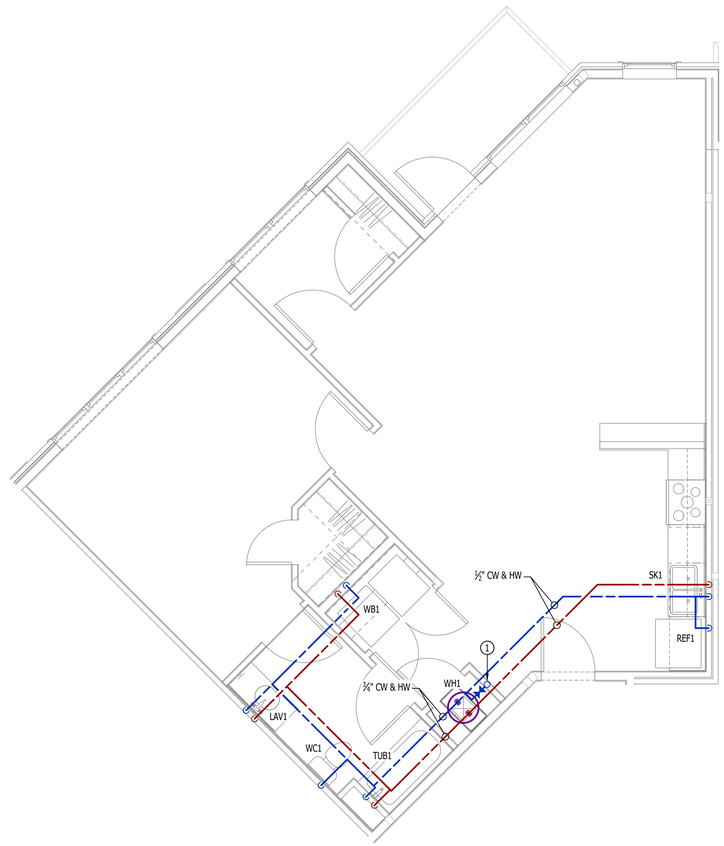

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SHEET TITLE

HVAC & PLUMBING PLAN - UNIT TYPE CONWAY-B

SHEET NUMBER

UMEP1.4.1

POWER PLAN SYMBOL LEGEND

- CIRCUIT WIRING
- PX-XX — CIRCUIT TAG
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- XX (P) +42 — RECEPTACLE
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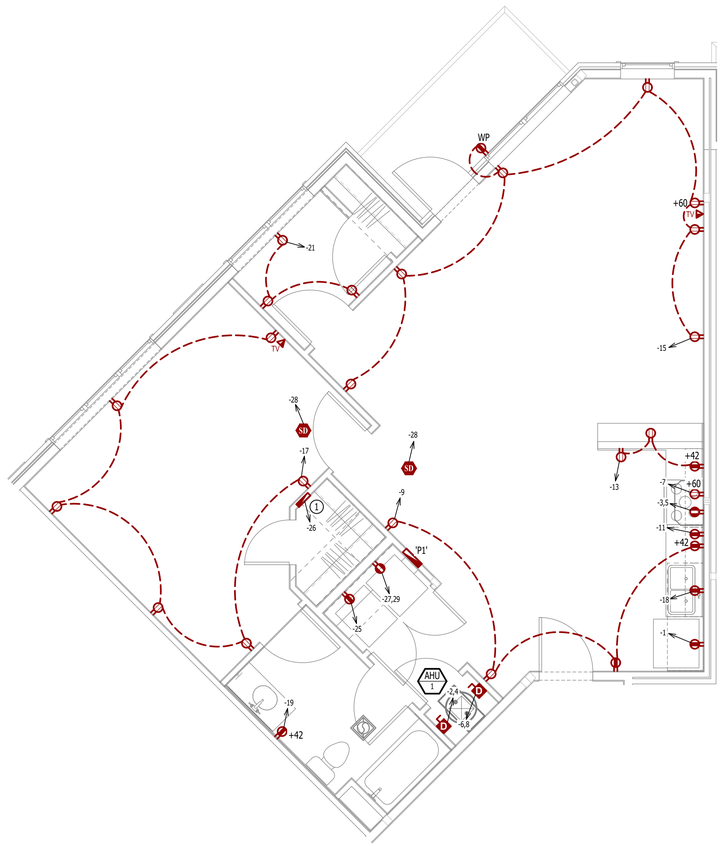

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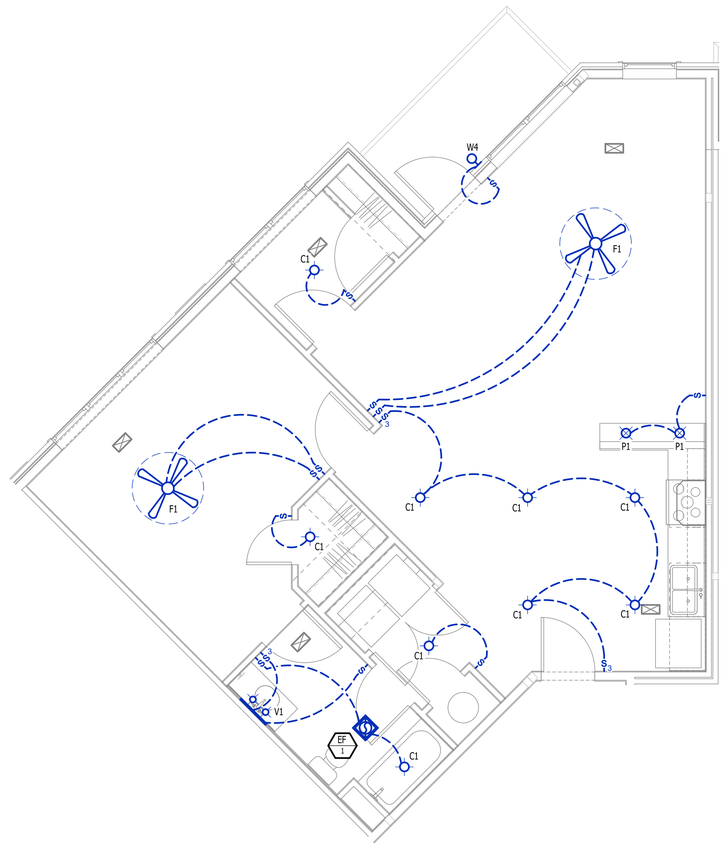

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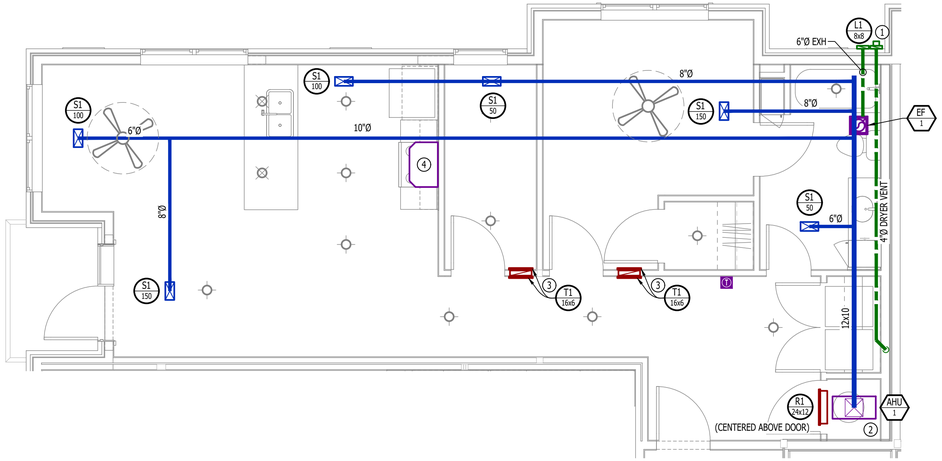
7. ALL DUCTWORK SHOWN SHALL ROUTE IN SPACE BETWEEN / THRU TRUSSES UNLESS NOTED OTHERWISE. SEE STRUCTURAL DRAWINGS FOR DETAILS.

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

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

PLUMBING PLAN SYMBOL LEGEND

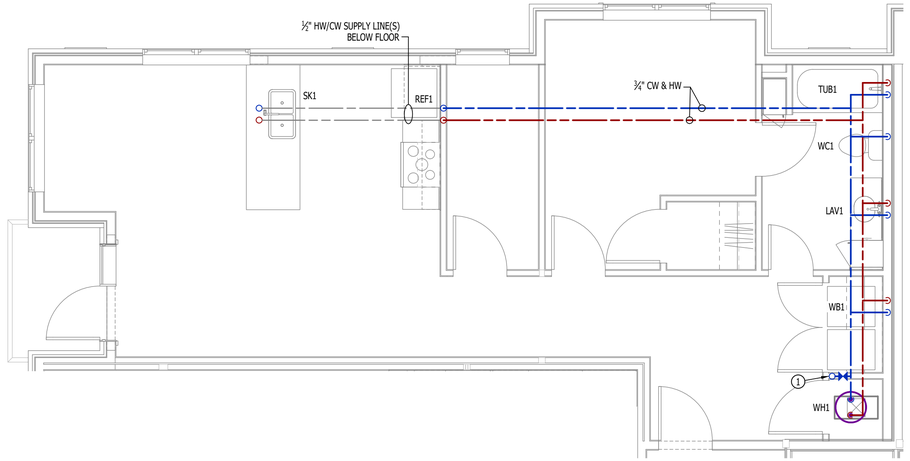
- COLD WATER LINE
- HOT WATER LINE
- VALVE
- PIPING TURNED DOWN / TURNED UP

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. ¾" CW PIPE UP FROM BELOW WITH SHUT-OFF VALVE IN ACCESSIBLE LOCATION. SEE OVERALL PLUMBING PLANS FOR DETAILS.



WATER PLAN

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

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 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: J21012

J2 DESIGN: ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

HVAC & PLUMBING PLAN - UNIT TYPE DRAKE

SHEET NUMBER

UMEP1.5.1

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 MEP3 FOR CONDENSING UNIT LOCATIONS.
3. VERIFY EACH DATA/RECEPTACLE LOCATION WITH OWNER PRIOR TO INSTALLATION.
4. REFER TO "TYPICAL ADA MOUNTING HEIGHTS DETAIL", E500 & E600 SERIES SHEETS, OR 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

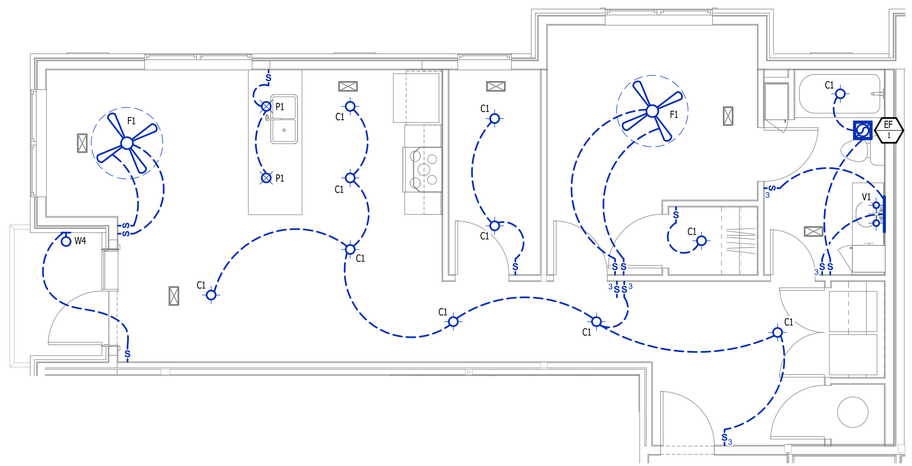
SCALE: 1/4" = 1'-0"

LIGHTING PLAN SYMBOL LEGEND

- X1 — LIGHTING FIXTURE
  - "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
- S_a — 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

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

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NUMBER PE-2015017071
PROFESSIONAL ENGINEER

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J2 PROJECT No: J21012
J2 DESIGN: ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

POWER & LIGHTING PLAN - UNIT TYPE DRAKE

SHEET NUMBER

UMEP1.5.2

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 M500 & M600 SERIES SHEETS 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.
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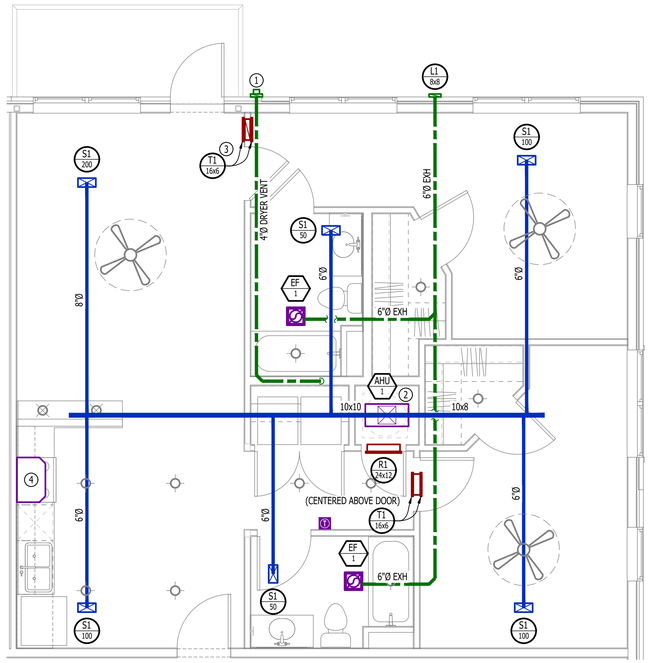

HVAC PLAN

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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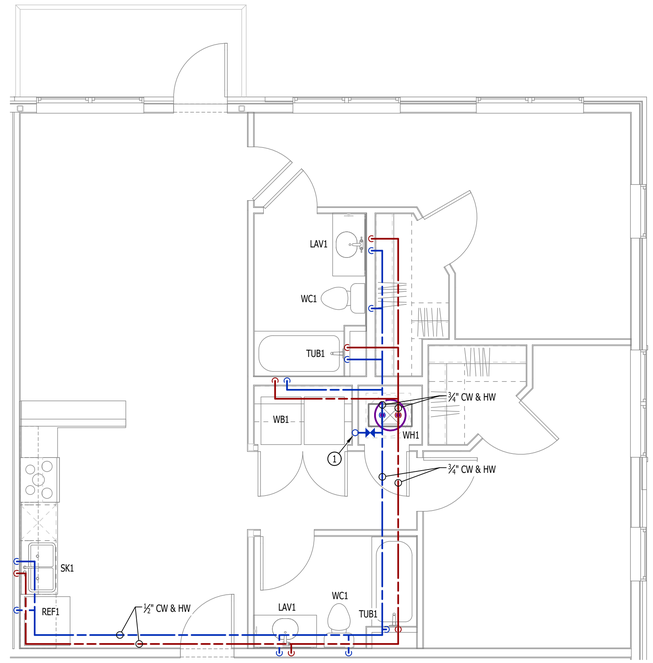

WATER PLAN

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

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 2024
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J2 PROJECT No: J21012

J2 DESIGN: ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

HVAC & PLUMBING PLAN - UNIT TYPE LANA

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
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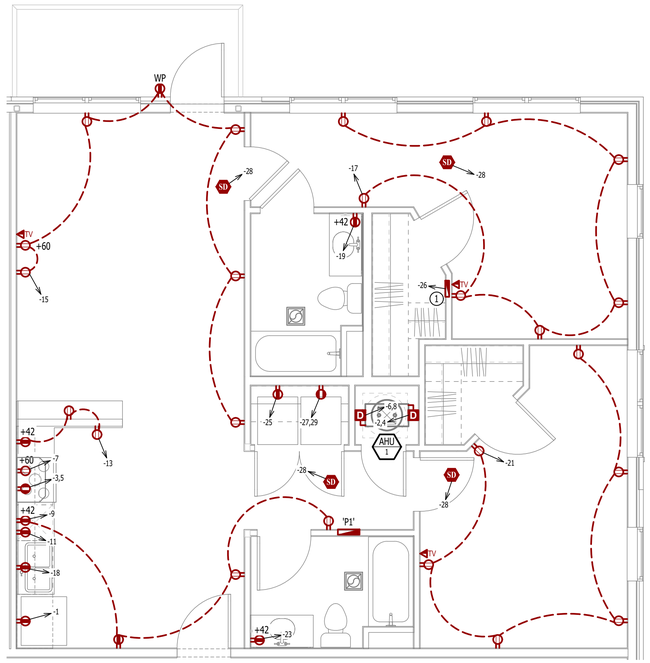

POWER PLAN

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

LIGHTING PLAN SYMBOL LEGEND

- X1 — LIGHTING FIXTURE
  - "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
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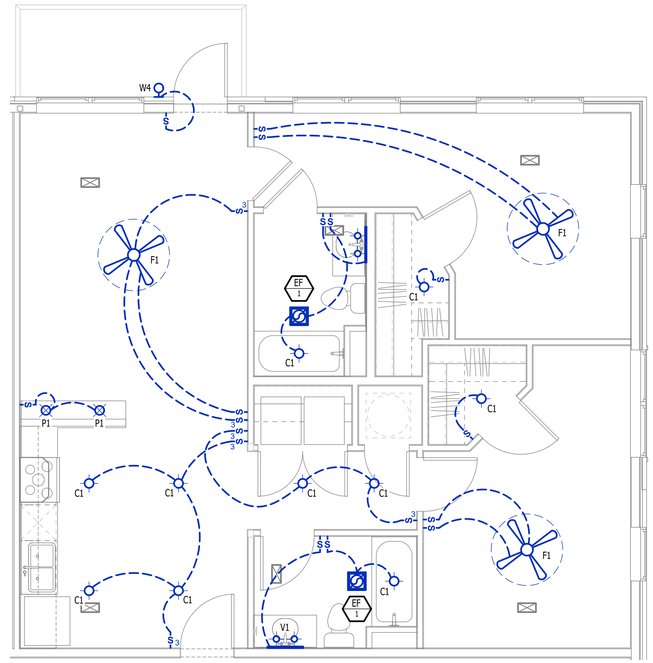

LIGHTING PLAN

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

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NUMBER PE-2015017071
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

POWER & LIGHTING PLAN - UNIT TYPE LANA

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")
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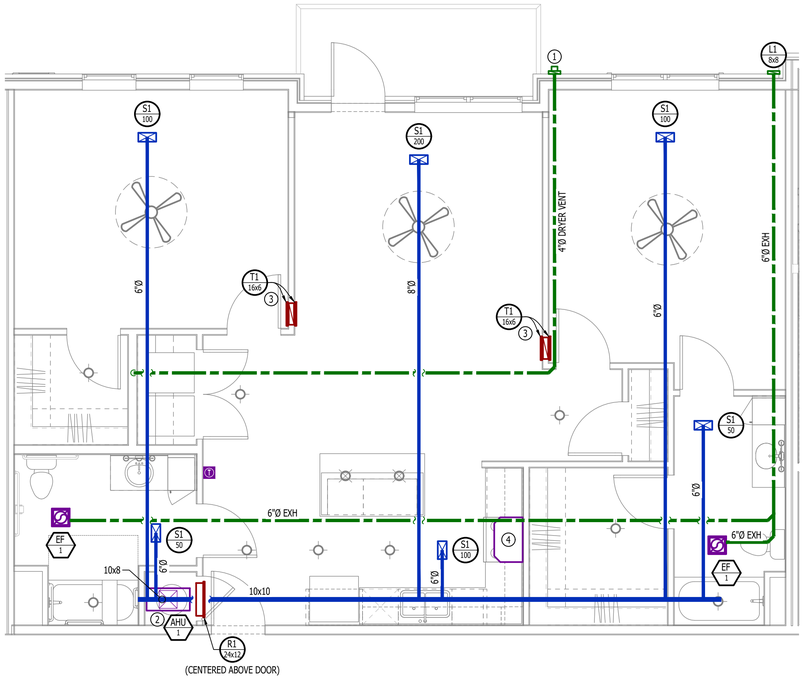

HVAC PLAN

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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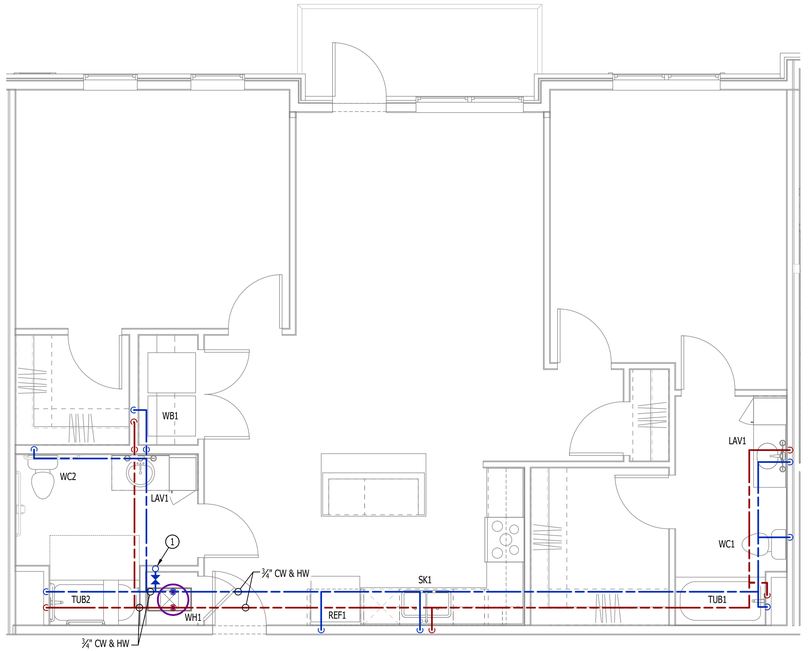

WATER PLAN

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

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JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

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ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

HVAC & PLUMBING PLAN - UNIT TYPE ABERDEEN-A

SHEET NUMBER

UMEP2.2.1

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)
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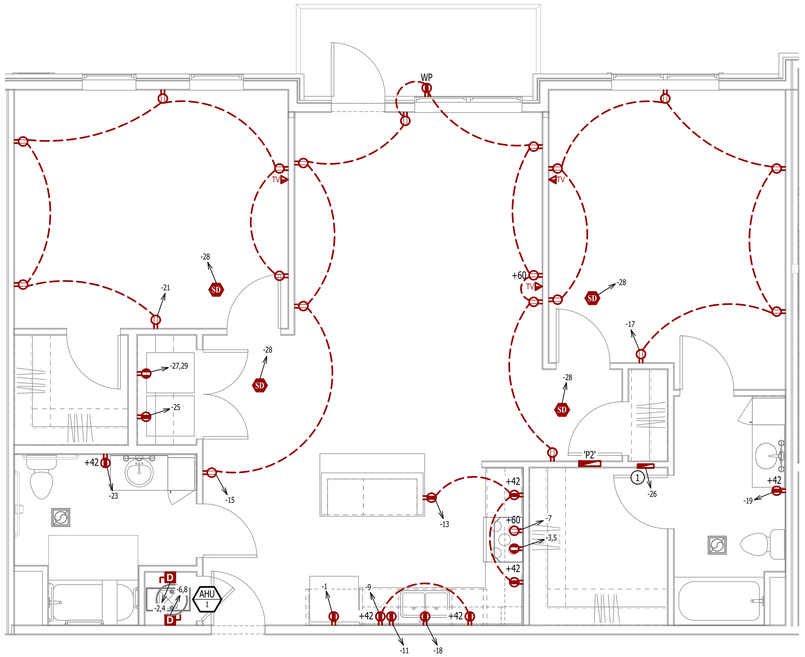

POWER PLAN

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- X1 — LIGHTING FIXTURE
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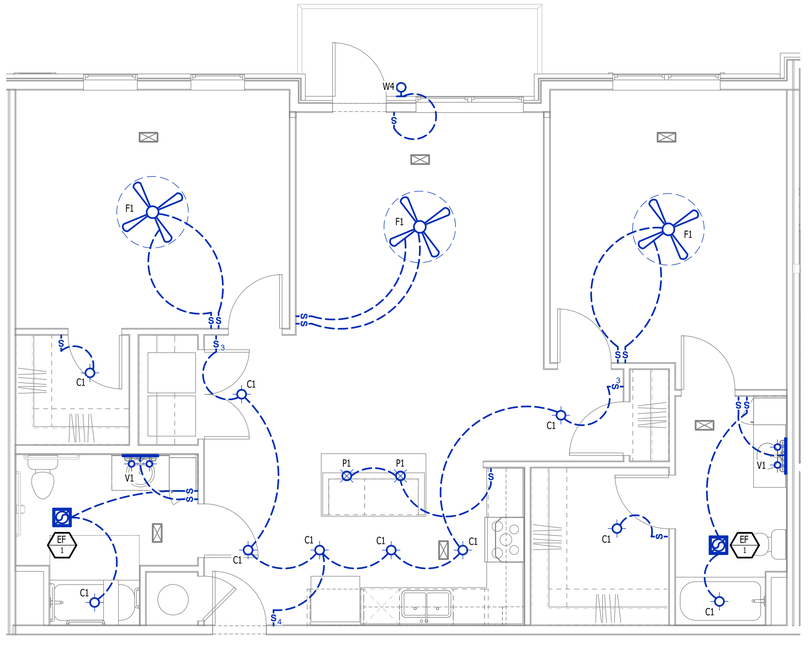

LIGHTING PLAN

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

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Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

POWER & LIGHTING PLAN - UNIT TYPE ABERDEEN-A

SHEET NUMBER

UMEP2.2.2

HVAC PLAN SYMBOL LEGEND

- EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)
- EQUIPMENT REFERENCE NUMBER
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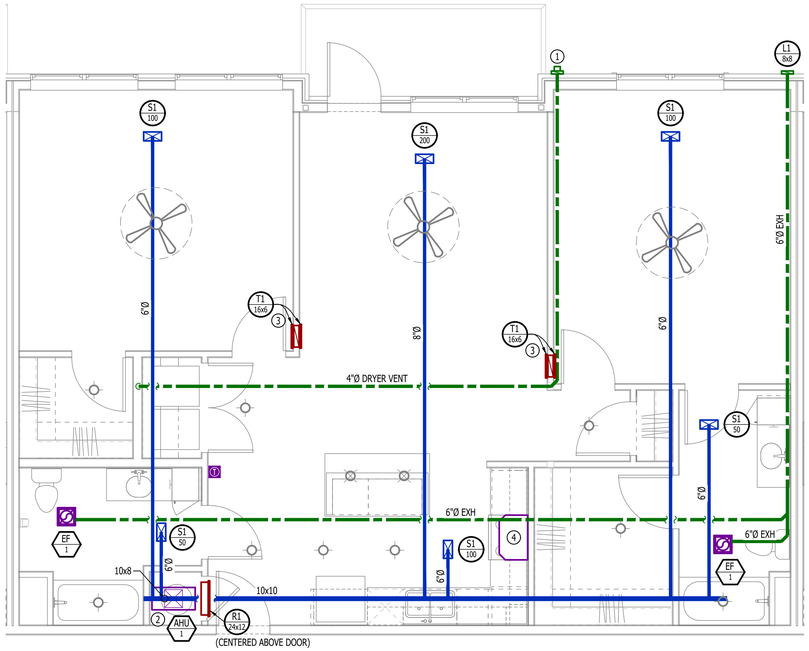
5. TOTAL DEVELOPED LENGTH OF EXHAUST DUCT SHALL BE INDICATED ON A PERMANENT LABEL WITHIN 6' OF DRYER VENT CONNECTION. DRYER DUCT ROUTING SHOWN IS FOR REFERENCE ONLY. OVERALL DUCT LENGTH SHALL BE CALCULATED BY HVAC CONTRACTOR PER 2018 IMC 504.8.4.
6. LOCATE ALL EXHAUST / DRYER VENT TERMINATIONS AT LEAST 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

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

PLUMBING PLAN SYMBOL LEGEND

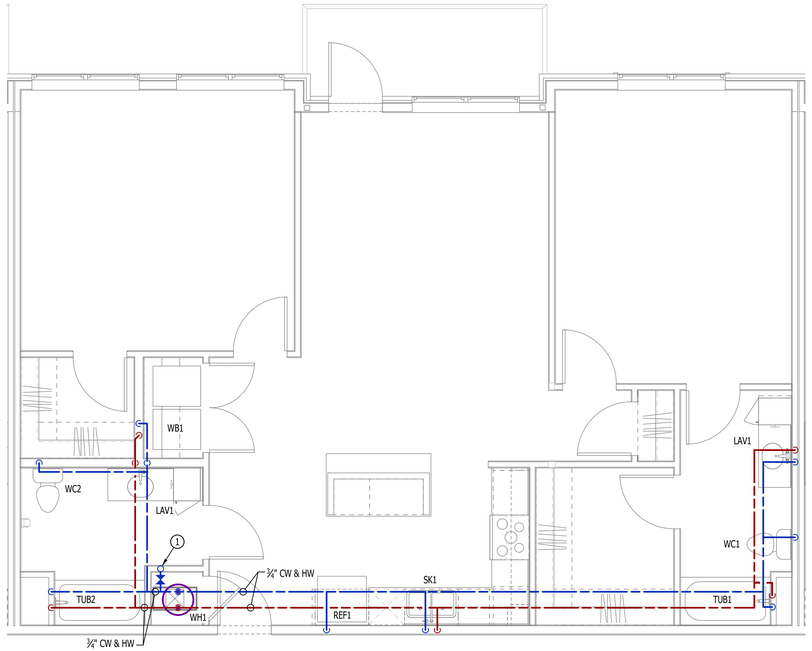
- COLD WATER LINE
- HOT WATER LINE
- VALVE
- PIPING TURNED DOWN / TURNED UP

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. ¾" CW PIPE UP FROM BELOW WITH SHUT-OFF VALVE IN ACCESSIBLE LOCATION. SEE OVERALL PLUMBING PLANS FOR DETAILS.



WATER PLAN

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

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
PROFESSIONAL ENGINEER

James Watson, P.E. November 27, 2024
PE-2015017071
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J2 PROJECT No: J21012
J2 DESIGN: ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

HVAC & PLUMBING PLAN - UNIT TYPE ABERDEEN-B

SHEET NUMBER

UMEP2.3.1

POWER PLAN SYMBOL LEGEND

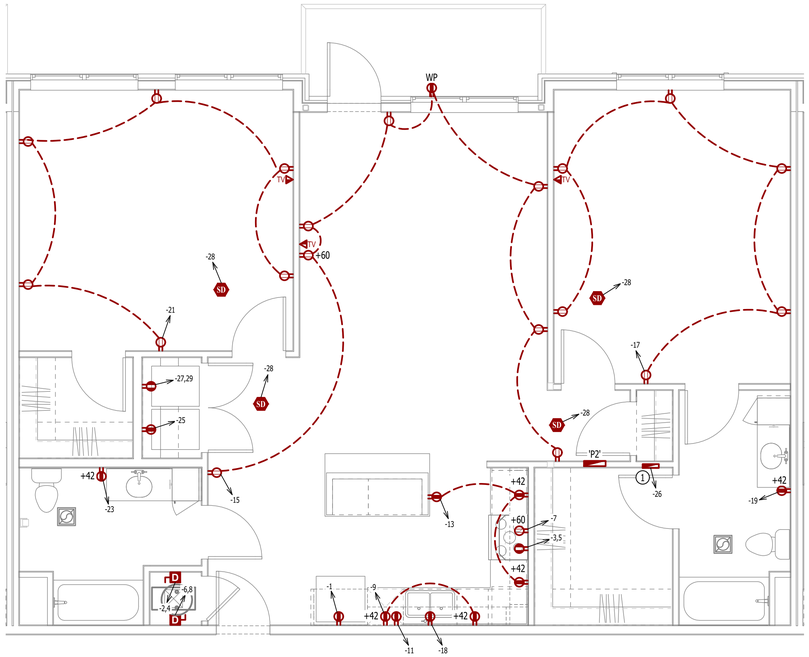
- CIRCUIT WIRING
- PX-XX — CIRCUIT TAG
- J — JUNCTION BOX
- XX +42 — RECEPTACLE
  - INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
  - "WP" = WEATHERPROOF OUTDOOR RECEPTACLE
- GFCI DUPLEX CONVENIENCE RECEPTACLE
- 208V RECEPTACLE
- QUADPLEX CONVENIENCE RECEPTACLE
- 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 MEP3 FOR CONDENSING UNIT LOCATIONS.
3. VERIFY EACH DATA/RECEPTACLE LOCATION WITH OWNER PRIOR TO INSTALLATION.
4. REFER TO "TYPICAL ADA MOUNTING HEIGHTS DETAIL", E500 & E600 SERIES SHEETS, OR 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

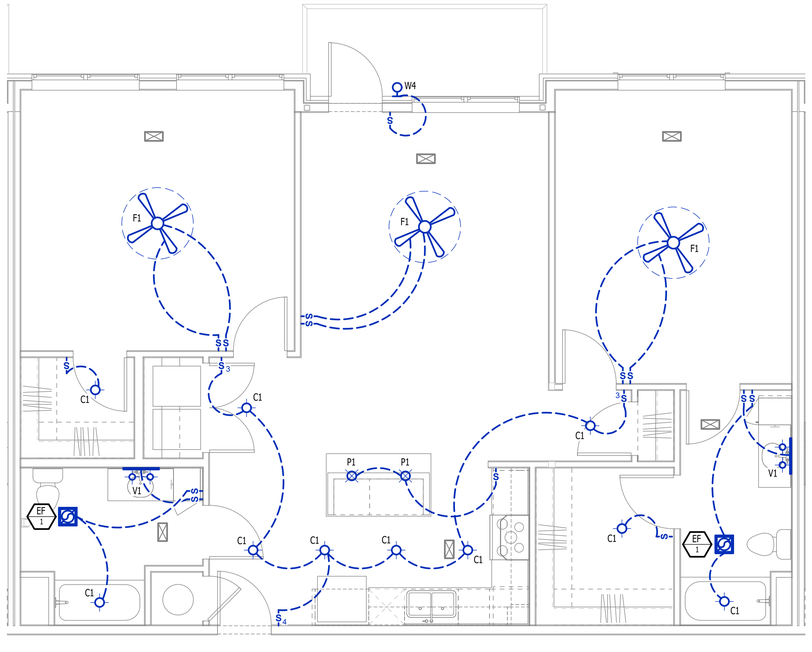
SCALE: 1/4" = 1'-0"

LIGHTING PLAN SYMBOL LEGEND

- X1 — LIGHTING FIXTURE
  - "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
- S3 — 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

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

STATE OF MISSOURI
JAMES P. WATSON
NUMBER PE-2015017071
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J2 PROJECT No:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

POWER & LIGHTING PLAN - UNIT TYPE ABERDEEN-B

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
- CEILING RADIATION DAMPER
- BACK DRAFT DAMPER
- THERMOSTAT

HVAC PLAN GENERAL NOTES:

1. SEE M500 & M600 SERIES SHEETS 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 FLOOR MOUNTED BELOW WATER HEATER ON SHELF ABOVE.
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. SUPPLY DIFFUSER IN FLOOR. SEE FIRST FLOOR HVAC PLAN FOR DUCT ROUTING.

PLUMBING PLAN SYMBOL LEGEND

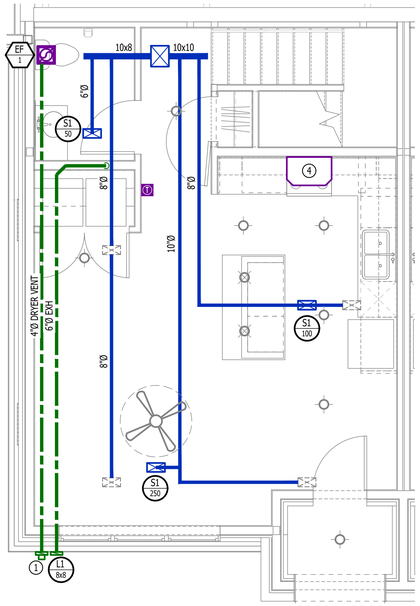
- COLD WATER LINE
- HOT WATER LINE
- VALVE
- PIPING TURNED DOWN / TURNED UP

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.

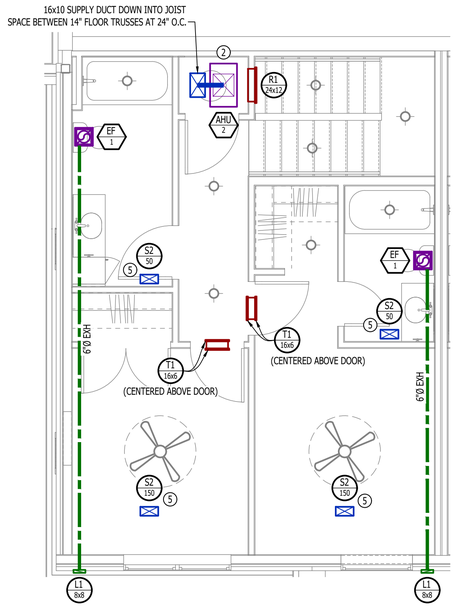
WATER PLAN KEY NOTES:

1. ¾" CW PIPE UP FROM BELOW WITH SHUT-OFF VALVE IN ACCESSIBLE LOCATION. SEE OVERALL PLUMBING PLANS FOR DETAILS.



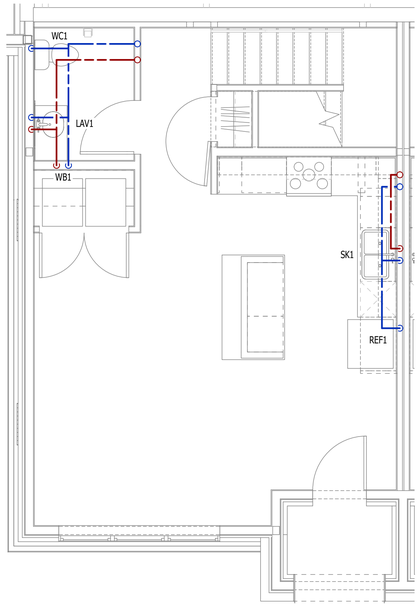
HVAC PLAN - FIRST FLOOR

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



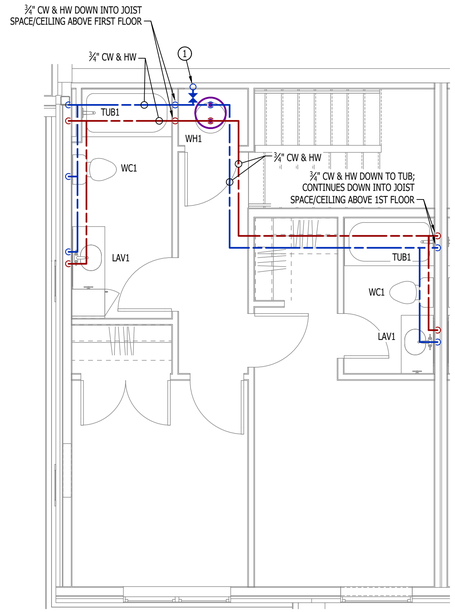
HVAC PLAN - SECOND FLOOR

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



WATER PLAN - FIRST FLOOR

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



WATER PLAN - SECOND FLOOR

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

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J2 PROJECT No:	J21012
J2 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMITTAL	11 - 27 - 2024

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

HVAC & PLUMBING PLAN - UNIT TYPE BROWNSTONE

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 MEP3 FOR CONDENSING UNIT LOCATIONS.
3. VERIFY EACH DATA/RECEPTACLE LOCATION WITH OWNER PRIOR TO INSTALLATION.
4. REFER TO "TYPICAL ADA MOUNTING HEIGHTS DETAIL", E500 & E600 SERIES SHEETS, OR 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.

LIGHTING PLAN SYMBOL LEGEND

- X1 — LIGHTING FIXTURE
  - "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
- S / S3 — TOGGLE SWITCH
  - SWITCH TYPE
- D — DIMMER SWITCH

LIGHTING PLAN GENERAL NOTES:

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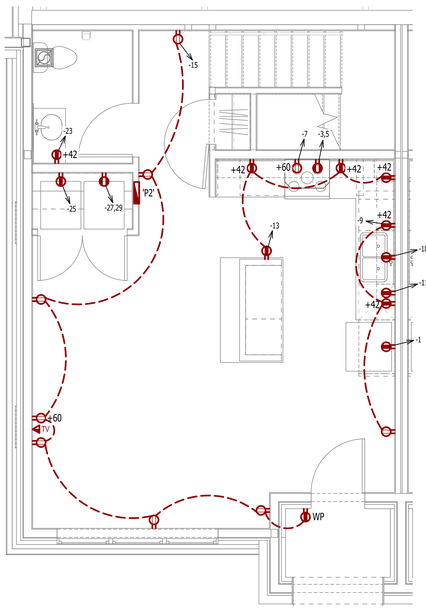
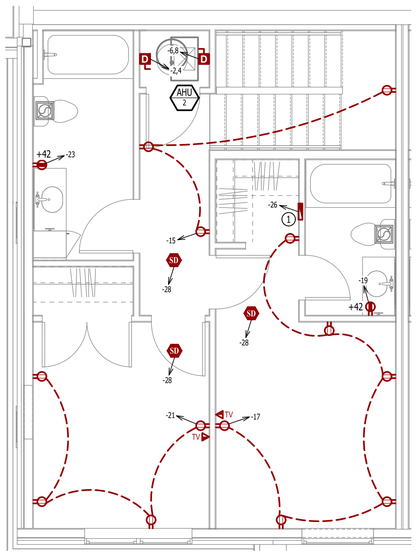


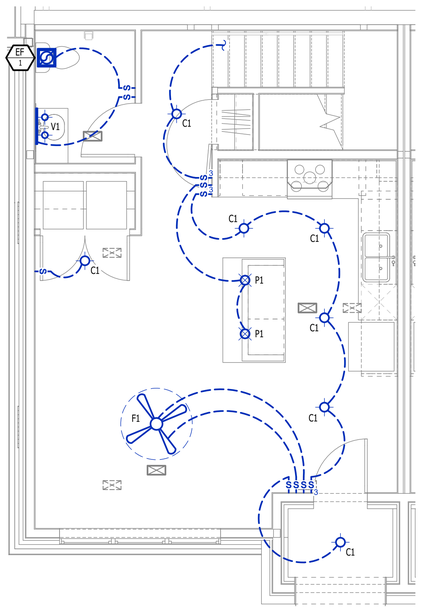
POWER PLAN - FIRST FLOOR

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



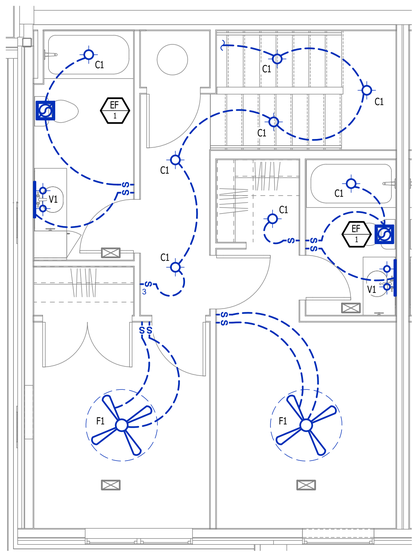
POWER PLAN - SECOND FLOOR

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



LIGHTING PLAN - FIRST FLOOR

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



LIGHTING PLAN - SECOND FLOOR

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

STATE OF MISSOURI
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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Village at Discovery Lot 9A

200 Northeast Alura Way
Lee's Summit, Jackson County, MO 64064

AHJ APPROVAL STAMP

SHEET TITLE

POWER & LIGHTING PLAN - UNIT TYPE BROWNSTONE

SHEET NUMBER

UMEP2.4.2