WILSHIRE HILLS III

Lee's Summit, MO

MHDC Project No. #22-057 MT

PRINTS ISSUED

10/30/23 PERMIT SUBMITTAL

REVISIONS:

1	12/15/23	Addendum 1 - Response to City Comments
2	03/14/24	Addendum 2
3	04/19/24	Addendum 3 - Response to City Comments #2
4	07/16/24	Addendum 4 - Response to City Comments
5	10/04/24	ASI 001

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-301	A-200	A-402
G-002	G-202	G-302	A-201	A-403
G-003	G-203	G-303	A-202	A-404
G-004	G-204	AS-101	A-203	A-410
G-005	G-205	A-101	A-300	A-411
G-006	G-206	A-102	A-301	A-500
G-007	G-207	A-103	A-302	A-501
G-100	G-208	A-104	A-303	A-502
G-101	G-209	A-120	A-304	A-503
G-102	G-210	A-121	A-400	A-600
G-200	G-300	A-122	A-401	A-700

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

SEAL

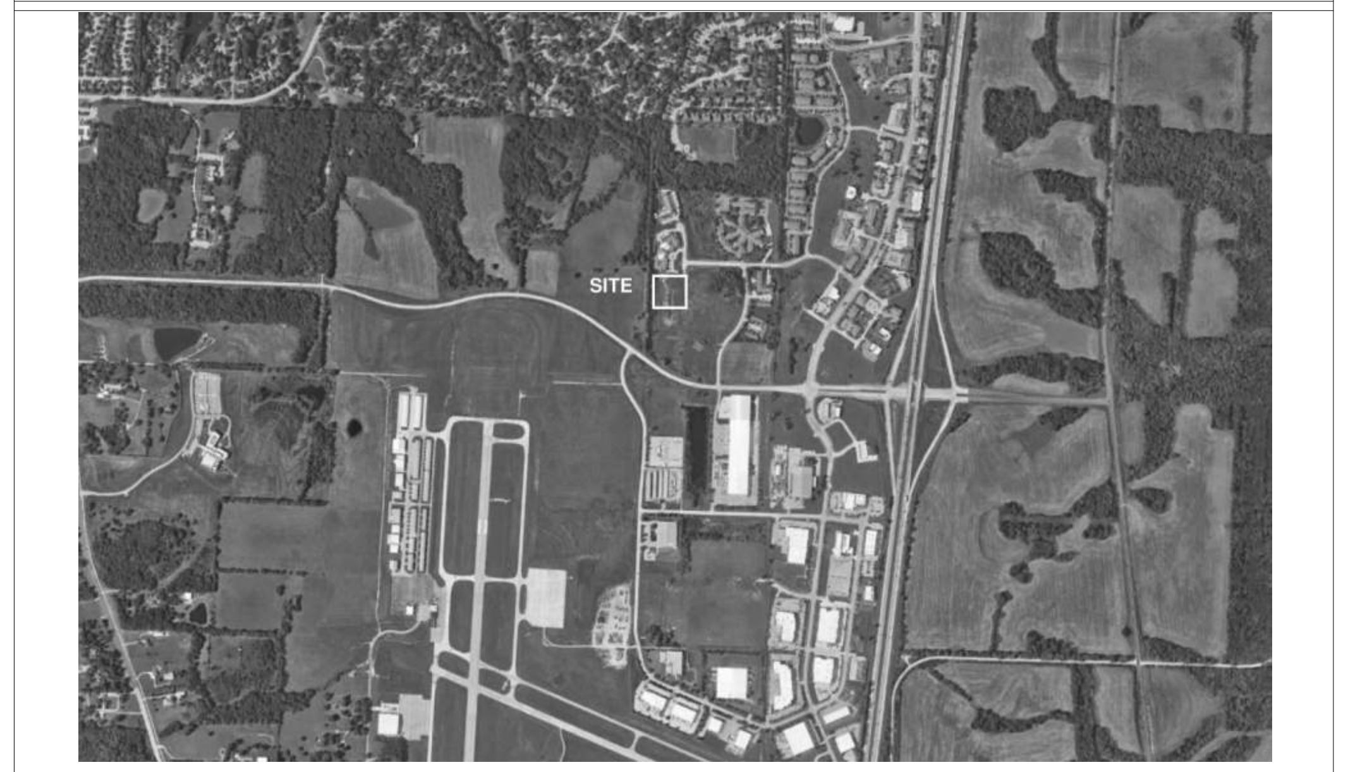
DAVID EUGENE HENDRIKSE
NUMBER A-7395

10/09/24

DAVID E. HENDRIKSE, AIA

REGIONAL MAP

VICINITY MAP



WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

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GENERAL

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ARCHITECTURAL

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■	10/30/23	A-403	TWO BEDROOM UNIT PLAN - TYPE B		
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■	10/30/23	M101	FIRST FLOOR HVAC PLAN	1	12/15/23
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■	10/30/23	E202	SECOND FLOOR POWER PLAN		
■	10/30/23	E203	THIRD FLOOR POWER PLAN		
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■	10/30/23	E303	ELECTRICAL SCHEDULES		
■	10/30/23	E401	ELECTRICAL SCHEDULES/DETAILS		
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■	10/30/23	SL100	SITE PHOTOMETRICS		

SHEET INDEX LEGEND

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

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

PROJECT DATA

PROJECT DESIGN INFORMATION

NEW CONSTRUCTION: YES

ZONING: MU - MIXED USE ZONING

CODE:
2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL RESIDENTIAL CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 INTERNATIONAL PLUMBING CODE
2018 INTERNATIONAL FIRE CODE
2017 NATIONAL ELECTRIC CODE
2009 ACCESSIBILITY CODE ICC/ANSI 117.1
2018 IECC ENERGY CODE
1998 - FAIR HOUSING ACT DESIGN MANUAL
2010 - ADA
UFAS

OCCUPANCY GROUP: R-2

TYPE OF CONSTRUCTION: TYPE V-A

NOTE: MHDC FORM 1200 FOR DESIGN/CONSTRUCTION COMPLIANCE GUIDELINES ARE UTILIZED IN THE DESIGN OF THE PROJECT

BUILDING SUMMARY:

ONE (1) TOTAL BUILDINGS
HEIGHT: 46' - 8"

SQUARE FOOTAGES:	GROSS	NET
3-STORY		
FIRST FLOOR	17,860 S.F.	17,437 S.F.
SECOND FLOOR	17,860 S.F.	17,437 S.F.
THIRD FLOOR	17,860 S.F.	17,437 S.F.
TOTAL	**53,580 S.F.**	**52,311 S.F.**

ENERGY CONSERVATION: SEE CODE ANALYSIS

UNIT SUMMARY: OVERALL UNIT TOTAL (3-STORY) = **50**

3-STORY (BLDG) UNITS

TYPE "A" UNITS (5% OF TOTAL)	(5) UNITS - TWO BEDROOM (3) UNITS - ONE BEDROOM
HI/VI UNITS (2% OF TOTAL)	(1) UNITS - TWO BEDROOM (1) UNITS - ONE BEDROOM
STANDARD UNITS	(26) UNITS - TWO BEDROOM (14) UNITS - ONE BEDROOM
TOTAL UNITS	**(50) UNITS**

SQUARE FOOTAGE:	GROSS	NET
TYPE "A" - 2 BEDROOM	880 S.F.	822 S.F.
TYPE "B" - 2 BEDROOM	880 S.F.	822 S.F.
TYPE "A" - 1 BEDROOM	711 S.F.	660 S.F.
TYPE "B" - 1 BEDROOM	711 S.F.	660 S.F.
TYPE "B" - 2 BEDROOM	1004 S.F.	935 S.F.

SITE SUMMARY: SEE CIVIL

NOTE: SQUARE FOOTAGE

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

PROJECT TEAM

OWNER

WILSHIRE HILLS III, L.P.
ADDRESS: 206 PEACH WAY
COLUMBIA, MO 65203
CONTACT: **BRIAN KIMES**
EMAIL: bkimes@jesmith.com
PHONE: 573.443.2021

ARCHITECT

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CONTACT: **MICHAEL GAILLARD**
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PHONE: 816.472.1448

CONTRACTOR

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ADDRESS: 206 PEACH WAY
COLUMBIA, MO 65203
CONTACT: **DEVIN BROWN**
EMAIL: dbrown@fairwayconstruction.net
PHONE:

STRUCTURAL ENGINEER

ROSEMANN & ASSOCIATES, P.C.
ADDRESS: 1526 Grand Boulevard
Kansas City, MO 64108
CONTACT: **Scott Rosemann**
EMAIL: srosemann@rosemann.com
PHONE: 816.472.1448

MECHANICAL, ELECTRICAL, PLUMBING ENGINEER

PEARSON KENT MCKINLEY RAAF ENGINEERS LLC
ADDRESS: 13300 W. 98TH STREET
LENEXA, KS 66215
CONTACT: **MIKE RAAF**
EMAIL: mike.raaf@pkmreng.com
PHONE: 913.492.2400

CIVIL ENGINEER

ENGINEERING SURVEYS & SERVICES
ADDRESS: 802 EL DORADO DRIVE
JEFFERSON CITY, MO 65101
CONTACT: **SARAH THOMPSON**
EMAIL: sthompson@ess-inc.com
PHONE: 573.449.2646

SIGNATURE BLOCK

OWNER:

WILSHIRE HILLS III, L.P.
206 PEACH WAY
COLUMBIA, MO 65203

BY: ______________________ DATE: ________
NAME

CONTRACTOR:

FAIRWAY CONSTRUCTION CO., INC.
206 PEACH WAY
COLUMBIA, MO 65203

BY: ______________________ DATE: ________
NAME

ARCHITECT:

ROSEMANN & ASSOCIATES, P.C.
1526 GRAND BOULEVARD
KANSAS CITY, MO 64108-1404

BY: ______________________ DATE: ________

BONDING COMPANY:

OWNER NAME
ADDRESS
CITY, ST ZIP

BY: ______________________ DATE: ________
NAME

MISSOURI HOUSING DEVELOPMENT COMMISSION

920 MAIN STREET, SUITE 1400
KANSAS CITY, MO 64105

BY: ______________________ DATE: ________
NAME

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

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
TITLE SHEET

PROJECT NUMBER: 23034

SHEET NUMBER:

G-001

ABBREVIATIONS

A

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

B

B.O.	BOTTOM OF
BD	BOARD
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BENCH MARK
BO	BY OTHERS
BOD	BOTTOM OF DECK(ING)
BOH	BACK OF HOUSE
BOT	BOTTOM (OF)
BRG	BEARING
BRKT	BRACKET
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
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
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
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
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 / PLAS	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
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
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
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

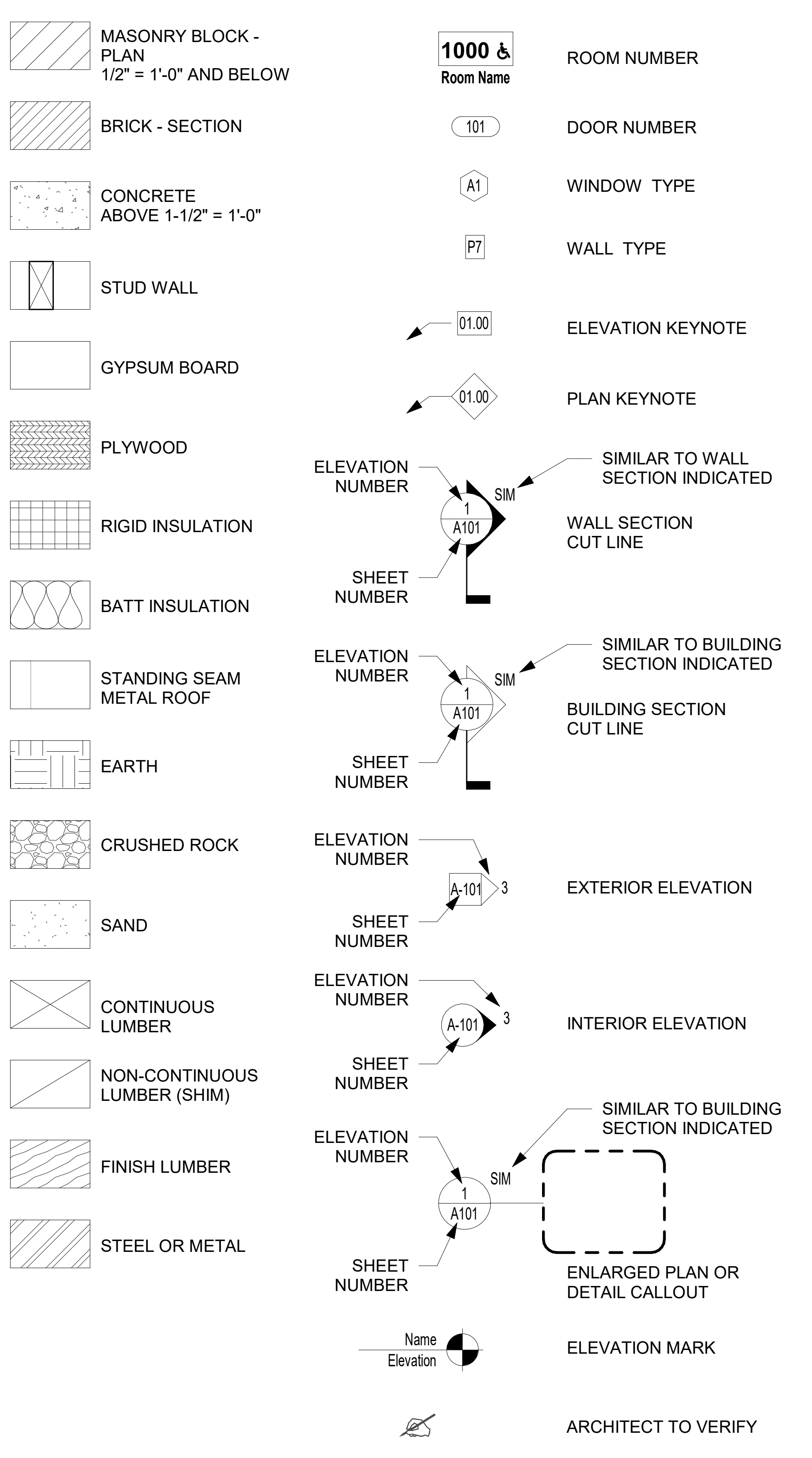
X

X	BY (2X4)

Y

YD	YARD / YARD DRAIN

MATERIAL LEGEND AND SYMBOLS



GENERAL NOTES

STANDARDS AND REGULATIONS

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

ADMINISTRATION OF THE WORK

1. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS AND SEQUENCES OF CONSTRUCTION.
2. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE SAFETY OF ALL CONSTRUCTION PERSONNEL AND AUTHORIZED VISITORS.
3. CONTRACTOR SHALL BECOME FULLY ACQUAINTED WITH THE CONDITIONS RELATED TO THE WORK. ANY KNOWN DISCREPANCIES BETWEEN THE DOCUMENTS AND ACTUAL CONDITIONS SHALL BE REPORTED TO THE OWNER FOR RESOLUTION PRIOR TO PROCEEDING WITH WORK RELATED TO THE DISCREPANCY.
4. CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL CONSTRUCTION AND DEMOLITION DEBRIS. CONTRACTOR SHALL OBTAIN APPROVAL OF OWNER (AND GOVERNING AUTHORITIES, IF APPLICABLE) FOR DETAILS RELATED TO 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
10/30/23 PERMIT SUBMITTAL

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DAVID EUGENE HENDRIKSE
NUMBER A-7305
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
GENERAL INFORMATION

PROJECT NUMBER: 23034

SHEET NUMBER:
G-002

10/27/2023 2:53:03 PM
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ROOF PLAN GENERAL NOTES

1. ALL NEW WORK TO MEET ALL APPLICABLE BUILDING, PLUMBING, MECHANICAL, HANDICAP, AND LIFE SAFETY CODES AND REQUIREMENTS.
2. THE MINIMUM NET FREE VENTILATING AREA SHALL BE 1/150 OF THE AREA OF THE SPACE VENTILATED. THE OPENINGS SHALL BE COVERED WITH CORROSION-RESISTANT MESH OR OTHER APPROVED MATERIALS WITH OPENINGS NOT MORE THAN 1/2" IN ANY DIRECTION.
3. WHERE RIDGE OR GABLE VENTS ARE UTILIZED, ADDITIONAL PROTECTION AGAINST SNOW INFILTRATION SHALL BE PROVIDED BY BALANCING THE AREA OF THE VENTS IN THE RIDGES AND THE EAVES SUCH THAT AT LEAST 1/2 OF THE VENTILATION AREA SHALL BE PROVIDED BY SOFFIT OR EAVE VENTS, WITH THE BALANCE OF THE VENTILATION OPENINGS PROVIDED BY THE GABLE OR RIDGE VENTS. REFERENCE IBC 2018 SECTION 1202.
4. ALL FLOOR JOIST BEARING HEIGHTS ARE 9'-1 1/8". ALL ROOF TRUSS BEARING HEIGHTS ARE 9' - 1 1/8". REFERENCE WALL SECTIONS ON A-300 SHEETS.
5. 1'-6" ROOF SOFFIT, UNLESS NOTED OTHERWISE, REF: ROOF PLAN.
6. CONTRACTOR TO INSTALL GUTTERS, DOWNSPOUTS AND ALL FLASHING PER APPLICABLE SMACNA GUIDELINES. IF ADDITIONAL DOWNSPOUTS ARE REQUIRED, CONTRACTOR SHALL CONFIRM LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION.
7. MEMBRANE ROOFING SYSTEM ON RIGID INSULATION, ALL ROOF LOCATIONS TYP. U.O.N.
8. COLORS T.B.D., COORDINATE WITH ARCHITECT.

REFLECTED CEILING PLAN GENERAL NOTES

1. SEE MEP SET FOR LOCATIONS OF ALL LIGHT FIXTURES AND MECHANICAL DIFFUSERS.
2. COORDINATE ANY DISCREPANCIES WITH MEP AND ARCHITECT PRIOR TO INSTALLATION.
3. REFERENCE ALL INTERIORS DRAWINGS FOR COORDINATION
4. ALL CEILINGS TO CONFORM TO 2018 IBC TABLE 803.13
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. DROPPED CEILINGS AT BATHROOMS ARE TO BE LOCATED AT 8'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED ON THE PLAN.
8. DROPPED CEILINGS AT BEDROOMS ARE TO BE LOCATED AT 9'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED ON THE PLAN.
9. DROP SOFFITS ABOVE KITCHEN CABINETS ARE INTENDED TO BE LOCATED AT 9'-0" ABOVE FINISHED FLOOR IN AREAS SHOWN TO ACCOMMODATE DUCT WORK, RECESSED LIGHTING, AND VENTING. INSTALL AS FRAMED GYPSUM BOARD SYSTEM.
10. ALL UN-HATCHED REGIONS ARE TO BE OPEN UNFINISHED CEILING TO THE STRUCTURAL DECK AND STRUCTURAL MEMBERS ABOVE. SURFACES TO BE CLEANED AND PATCHED/REPAIRED .
11. ALL EXISTING HISTORICAL CAPITALS, PEDIMENTS, PLASTER DETAILS, ETC. AT COLUMNS AND PILASTERS ARE TO REMAIN. SURFACES TO BE CLEANED AND PATCHED/REPAIRED. PAINT TO MATCH ADJACENT WALL.
12. WHERE CEILING HEIGHT IS B.O. FLOOR ASSEMBLY, FINISH TO BE LEVEL FOUR FINISH. ALL UNITS TO HAVE A LEVEL FOUR FINISH AT CEILINGS.
13. ALL MECH DUCTS WHICH FEED TO PLENUM SPACE VIA MECH SHAFTS SHALL BE ENCLOSED ON THE BOTTOM ACCORDING TO PROGRESSIVE ENGINEERING REPORT AER-09-038.
14. ACCESS TO EQUIPMENT SHALL BE THROUGH ACT WHERE AVAILABLE. WHERE NECESSARY, ACCESS THROUGH GWB CEILING TO USE ACCESS HATCHES. GC TO PROVIDE HATCHES AND HATCH LOCATION DIAGRAM PRIOR TO INSTALL.
15. ALL DIMENSIONS FOR CEILING TYPE C5 AND C1 ARE TO FINISHED FACE. ALL DIMENSIONS TO WALLS ARE TO F.O. STUD.
16. ALL DROPPED SOFFIT FRAMING IN COMMON AREAS SHALL BE OUT OF METAL STUDS. ONE (1) HOUR RATED CEILING THROUGHOUT BUILDING AT UNDERSIDE OF ROOF TRUSSES AND ARE PART OF THE FIRE RATED FLOOR-CEILING ASSEMBLY
17. ALL GYPSUM BOARD CEILINGS TO BE PAINTED PA-1 (U.O.N.).
18. MISCELLANEOUS SYMBOLS INDICATED ON REFLECTED CEILING PLAN ARE MECHANICAL IN NATURE. REFER TO MEP DRAWING SHEETS FOR FURTHER CLARIFICATION FOR ITEM IDENTIFICATION AND LOCATIONS.

PLAN GENERAL NOTES

01 - GENERAL

A. ALL NEW WORK TO MEET ALL APPLICABLE BUILDING, PLUMBING, MECHANICAL, ELECTRICAL, HANDICAP, AND LIFE SAFETY CODES AND REQUIREMENTS.
B. ALL WALL DIMENSIONS ARE TO FACE OF STUD, UNLESS NOTED OTHERWISE.
C. DO NOT SCALE DRAWINGS.
D. NOTIFY ARCHITECT OF ANY DISCREPANCIES BETWEEN PROJECT DOCUMENTS AND EXISTING CONDITIONS. ANY MODIFICATIONS DUE TO DIMENSIONAL CHANGES SHOULD BE PART OF THE PROJECT COST.
E. GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL THOROUGHLY FAMILIARIZE THEMSELVES TO ALL SITE SPECIFIC REQUIREMENTS AND EXTENTS OF THE NEW WORK PRIOR TO BIDDING. NO CHANGES IN THE CONTRACT WILL BE CONSIDERED FOR INFORMATION DISCERNABLE FROM THE EXISTING CONDITIONS OR THE PROJECT DOCUMENTS.
F. CONTRACTORS SHALL BE FAMILIAR AND INCORPORATE ALL PROVISIONS AND REQUIREMENTS ESTABLISHED BY CODES APPLICABLE TO THE PROJECT INCLUDING FAIR HOUSING, UFAS, ANSI, & ADAAG
G. REPORT ALL EXISTING CONDITIONS THAT ARE DAMAGED OR MARRED TO THE ARCHITECT PRIOR TO COMMENCEMENT OF THE NEW WORK.
H. TYPICAL TOP OF FIRST FLOOR SUBFLOOR ELEVATION IS REFERENCED AS 100'-0". CONTRACTOR SHALL VERIFY BUILDING FINISH FLOOR ELEVATION WITH ACTUAL CONDITIONS. COORDINATE ACTUAL GRADE WITH CIVIL DRAWINGS.
I. 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'.
J. MAIN LEVEL ELEVATION IS T.O. GYPCRETE, OR T.O. CONCRETE SLAB, RESPECTIVELY.
K. LEVELS ABOVE MAIN LEVEL ARE MEASURED TO T.O. SUBFLOOR.
L. WHOLE BUILDING TO MEET FAIR HOUSING ACT.
M. ALL PENETRATIONS INTO FIRE-RATED ASSEMBLIES ARE TO BE FIRESTOPPED WITH UL APPROVED FIRESTOPPING ASSEMBLIES. UL INFORMATION SHALL BE PROVIDED BY TRADE RESPONSIBLE FOR PENETRATION. REFERENCE THE G-200 SERIES.
N. THROUGH PENETRATIONS NOT LOCATED WITHIN WALL CAVITY OR FLOOR/CEILING/ROOF ASSEMBLY SHALL BE REQUIRED TO HAVE FIRE RESISTIVE PENETRATION WITH A T-RATING EQUAL TO OR EXCEEDING THE ASSEMBLY THAT IS PENETRATED.
O. CONTROL JOINTS IN GWB AT ALL UNIT CORRIDORS SHALL BE LOCATED AT INSIDE CORNER OF PILASTERS AND ACROSS TOP OF DROP SOFFIT AT PILASTERS. AT LOCATIONS WHICH THERE IS A 30’ SPAN BETWEEN PILASTERS, A CONTROL JOINT SHALL OCCUR AT THE CENTRAL LOCATION BETWEEN THE TWO PILASTERS ADJACENT TO THE NEAREST DOOR, RUNNING FROM HEAD TO T.O. PARTITION AT CORNER. AT LOCATIONS WHICH THERE IS A 30’ SPAN BETWEEN SOFFIT WHERE PILASTER OCCURS, A CONTROL JOINT SHALL OCCUR AT THE INSIDE CORNER OF PILASTER AND SOFFITS. CONTROL JOINTS SHALL OCCUR AT THE CORNERS OF ALL STOREFRONT, RUNNING TO THE T.O. THE PARTITION. GC TO VERIFY WITH ARCHITECT DURING CONSTRUCTION ALL CONTROL JOINT LOCATIONS PRIOR TO INSTALL.
P. PROVIDE FIREBLOCKING AND DRAFTSTOPPING AS REQUIRED AND IN ACCORDANCE WITH 2018 IBC, SECTION 718.
Q. CONTRACTOR TO PROVIDE FIRE BLOCKING AT FIRE SEPARATION PARTITION AT 10' ON CENTER VERTICALLY, TYPICAL. CONTRACTOR TO PROVIDE FIRE BLOCKING AT FIRE SEPARATION PARTITION AT ALL BACK-TO-BACK ELECTRICAL OUTLETS.
R. ALL INTERIOR WALLS ARE TYPE P1, UNLESS NOTED OTHERWISE. ALL EXTERIOR WALLS ARE TYPE P30, UNLESS NOTED OTHERWISE. SEE SHEET G-102 FOR PARTITION SCHEDULE.
S. ALL EXTERIOR MATERIALS TO BE APPLIED PER MANUFACTURER RECOMMENDATIONS AND WITH ASSOCIATED PRODUCTS (SUCH AS STAPLES, NAILS, TAPER, SEALANT).

03 - CONCRETE

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

04 - MASONRY

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

05 - METALS

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

06 - WOOD, PLASTICS AND COMPOSITES

A. ALL COMMON SPACE, UNIT TOILET ROOMS, AND BATHROOMS TO HAVE BLOCKING FOR GRAB BARS. SEE G-301 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. ALL PUBLIC SOAP DISPENSERS TO BE INSTALLED IN SIDE WALL OF SINK OVER COUNTER.
B. ALL FIREPLACES TO BE INSTALLED PER MANUFACTURERS REQUIREMENTS AND TO MEET FIRE RATING OF WALLS ADJACENT.
C. ALL BACK OF HOUSE CORNERS TO HAVE CORNER GUARDS, PER INTERIORS.
D. ADDITIONAL CORNER GUARDS AT COMMON SPACES, PER INTERIORS
E. PROVIDE VENTILATED WIRE SHELVING AT ALL CLOSETS AND PANTRY UNO. REFERENCE ENLARGED FLOOR PLAN NOTES ON A-400 SHEETS FOR LOCATIONS. DEPTH TO BE COORDINATED WITH ANY LIGHT FIXTURES TO NOT ENCROACH ON IFC CLEARANCES.
F. TOILET PAPER DISPENSER TO BE INSTALLED PER A2/G-302 AND 2009 ICC ANSI 117.1
G. SEE G-301 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 D4/G-300 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.

PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:

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DAVID EUGENE HENDRIKSE
NUMBER A-7365
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
PLAN GENERAL NOTES

PROJECT NUMBER: 23034

SHEET NUMBER:

G-003

WEATHER-RESISTIVE BARRIER INSTALLATION GUIDELINES

WEATHER-RESISTIVE BARRIER INSTALLATION ON VERTICAL WALLS

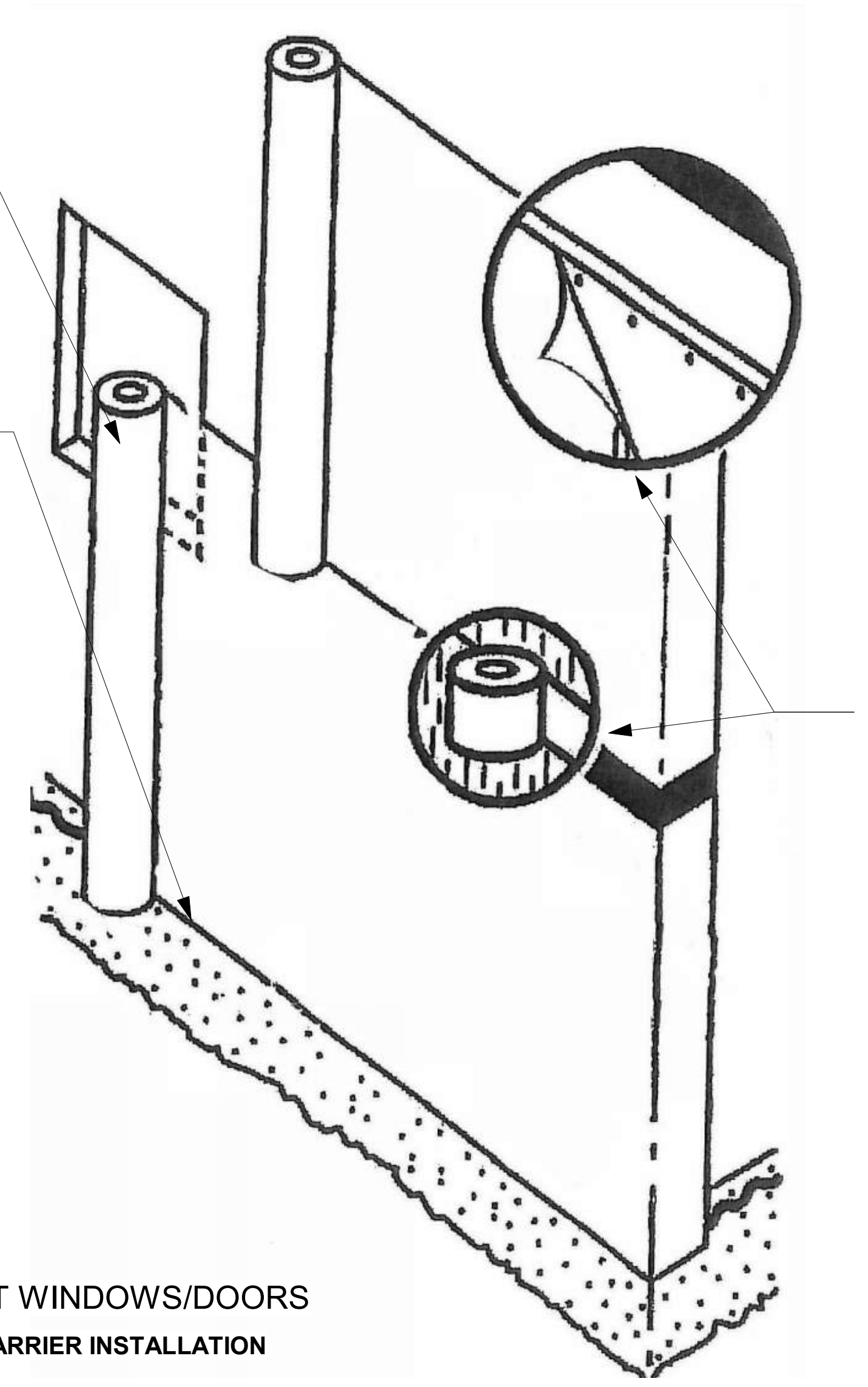
PRIOR TO INSTALLATION OF WINDOWS OR DOORS

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

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

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

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



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

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

FLASHING SYSTEM INSTALLATION AT WINDOWS/DOORS

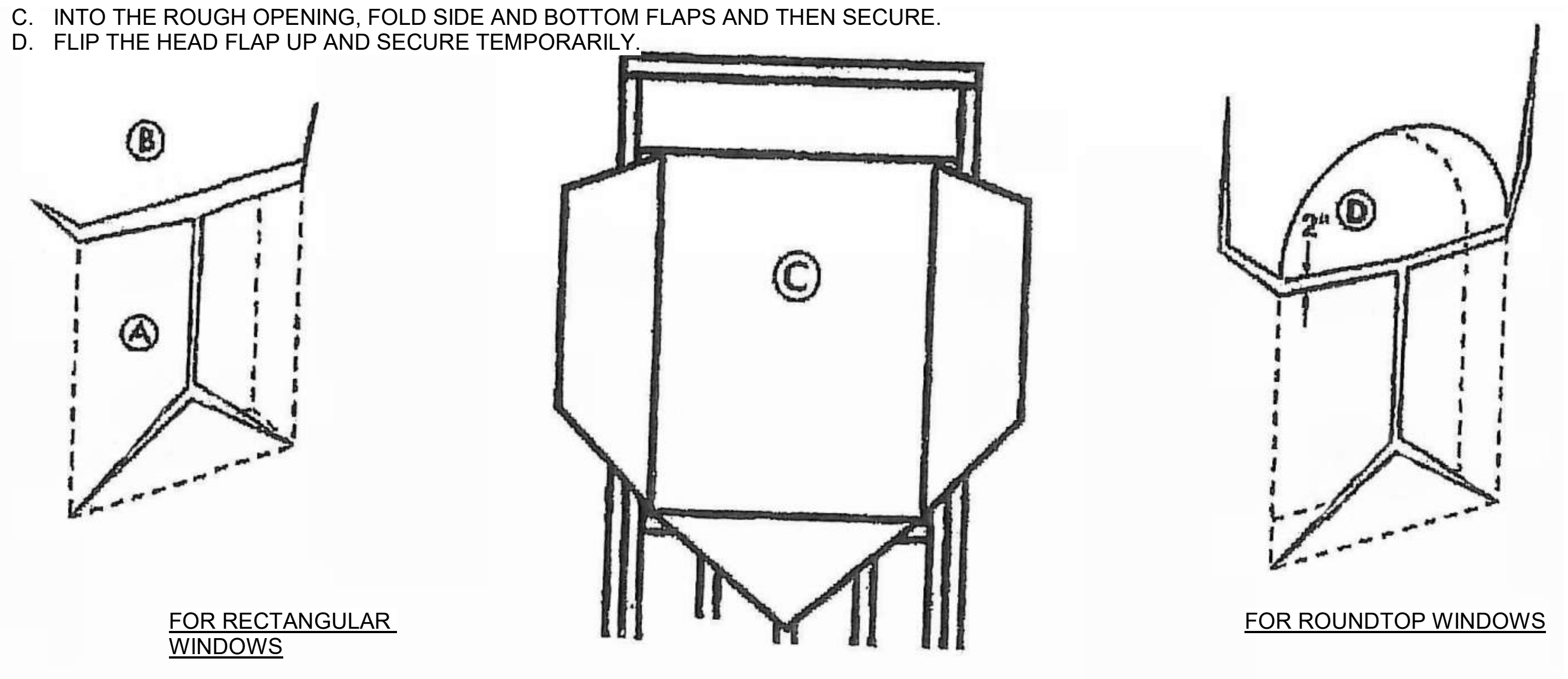
UPON COMPLETION OF WEATHER-RESISTIVE BARRIER INSTALLATION

GENERAL INSTRUCTIONS

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

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

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

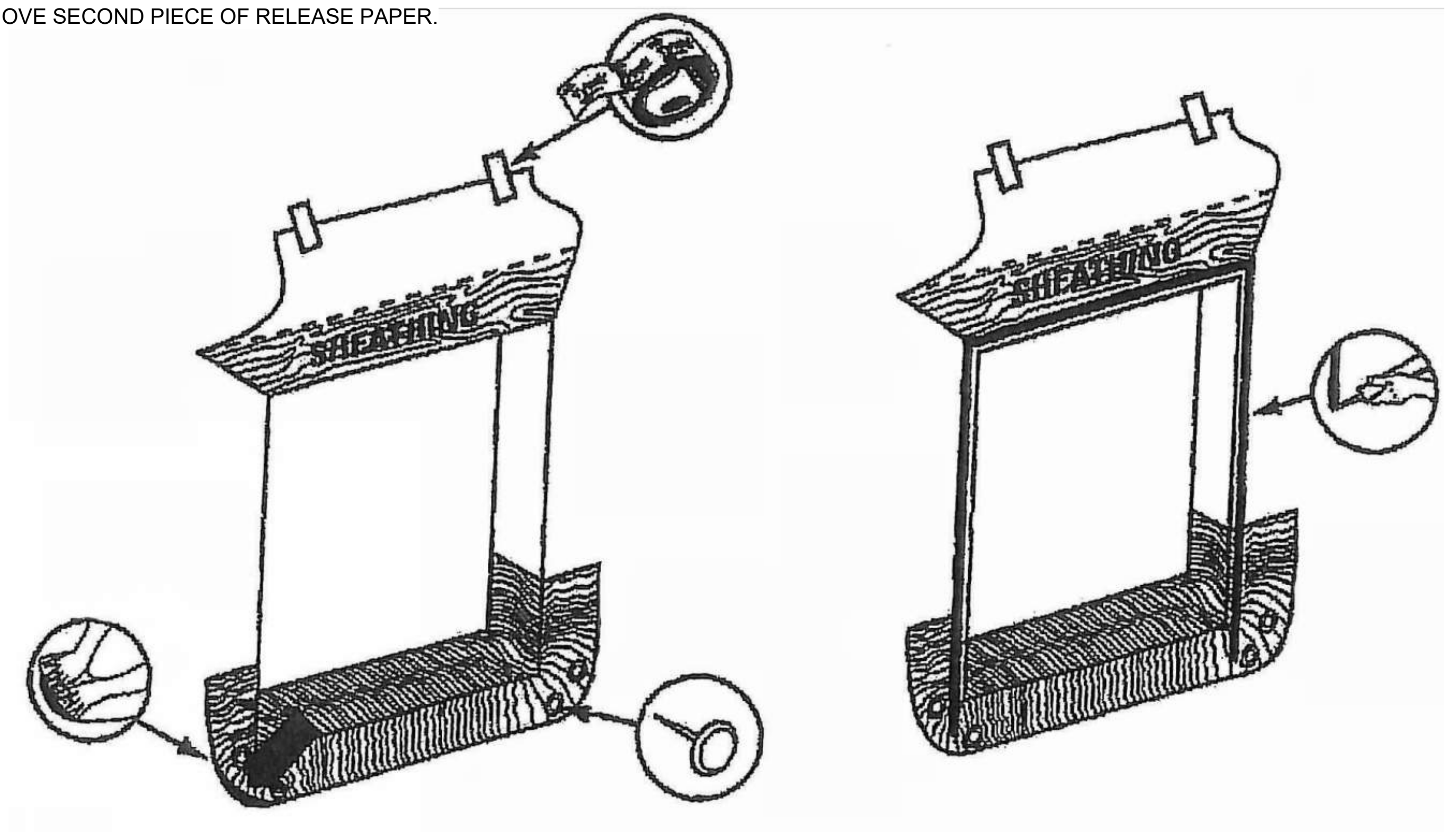


FOR RECTANGULAR WINDOWS

FOR ROUNDTOP WINDOWS

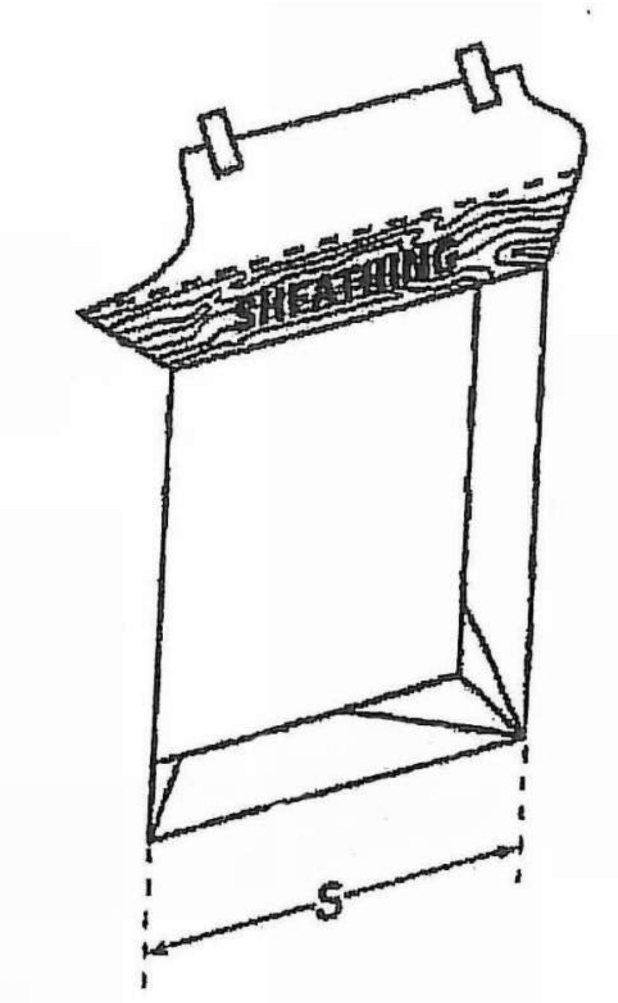
STEP 7

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



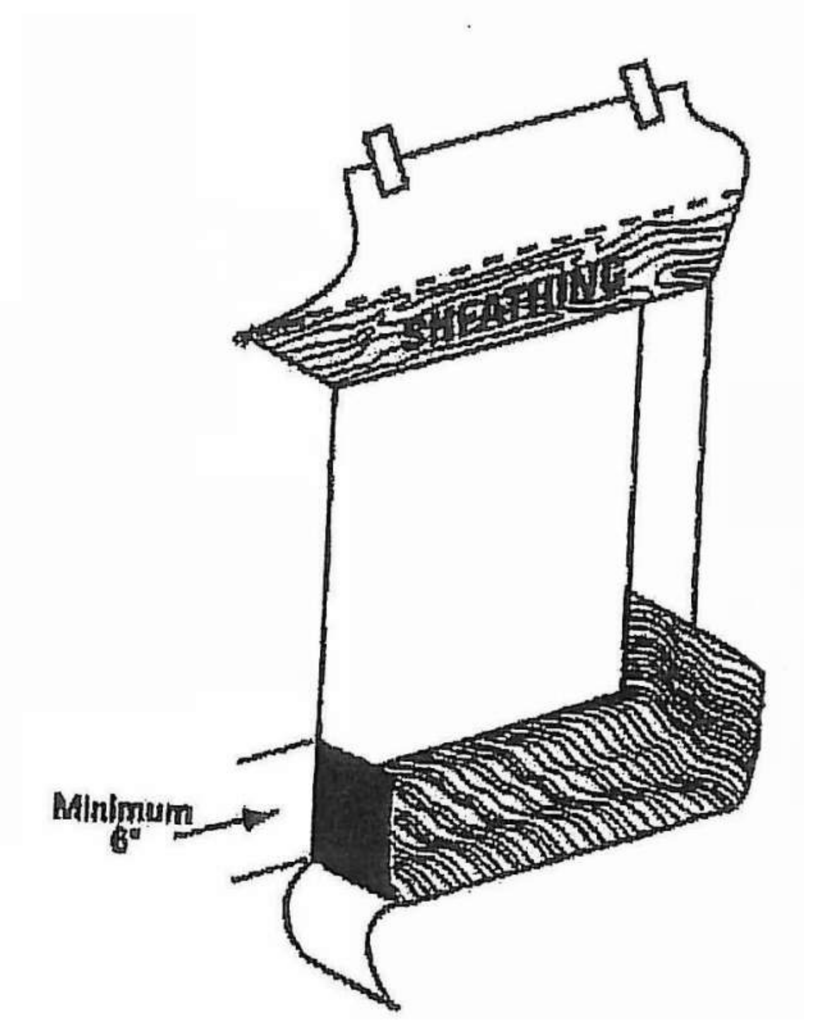
STEP 8

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



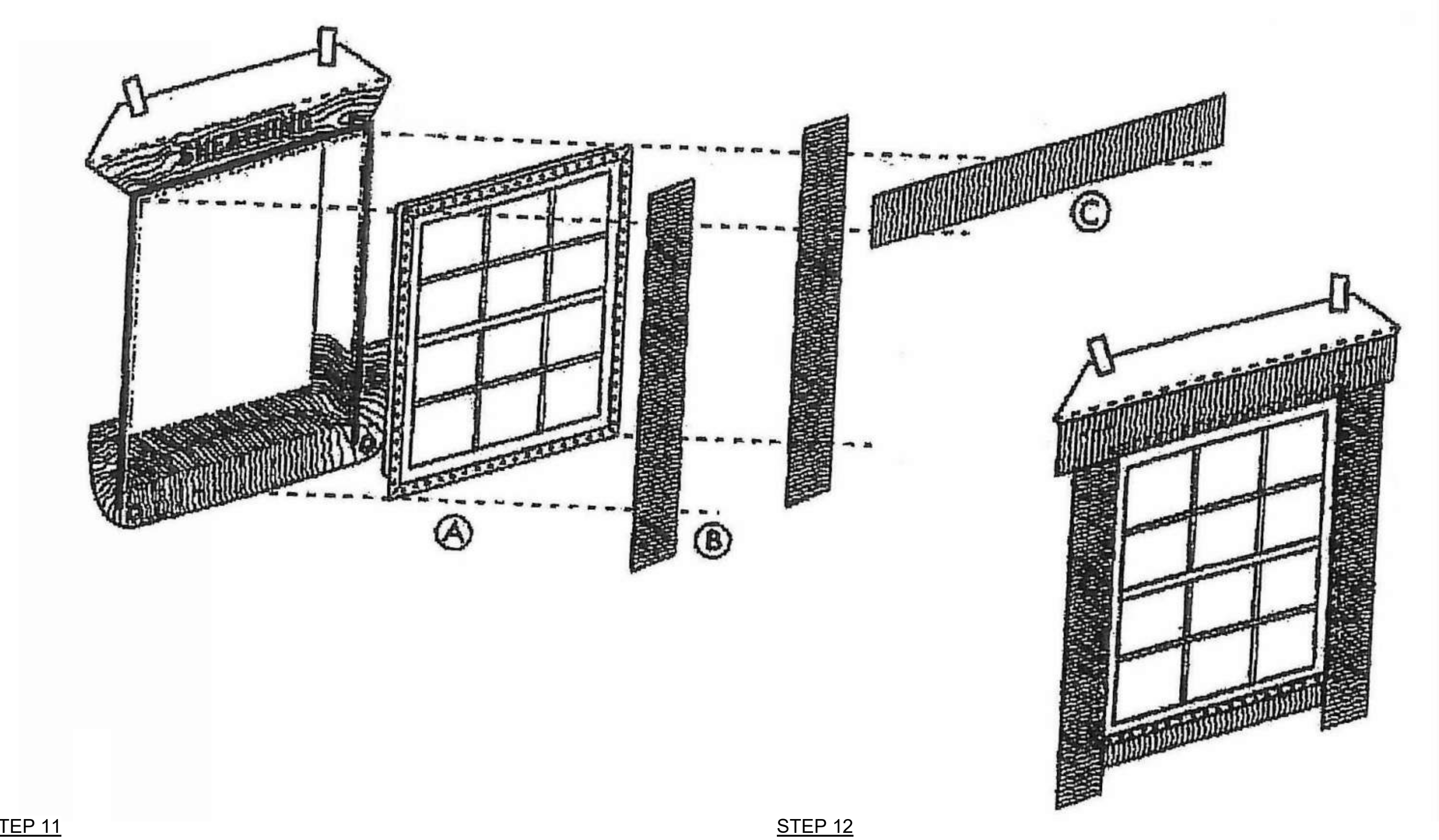
STEP 9

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



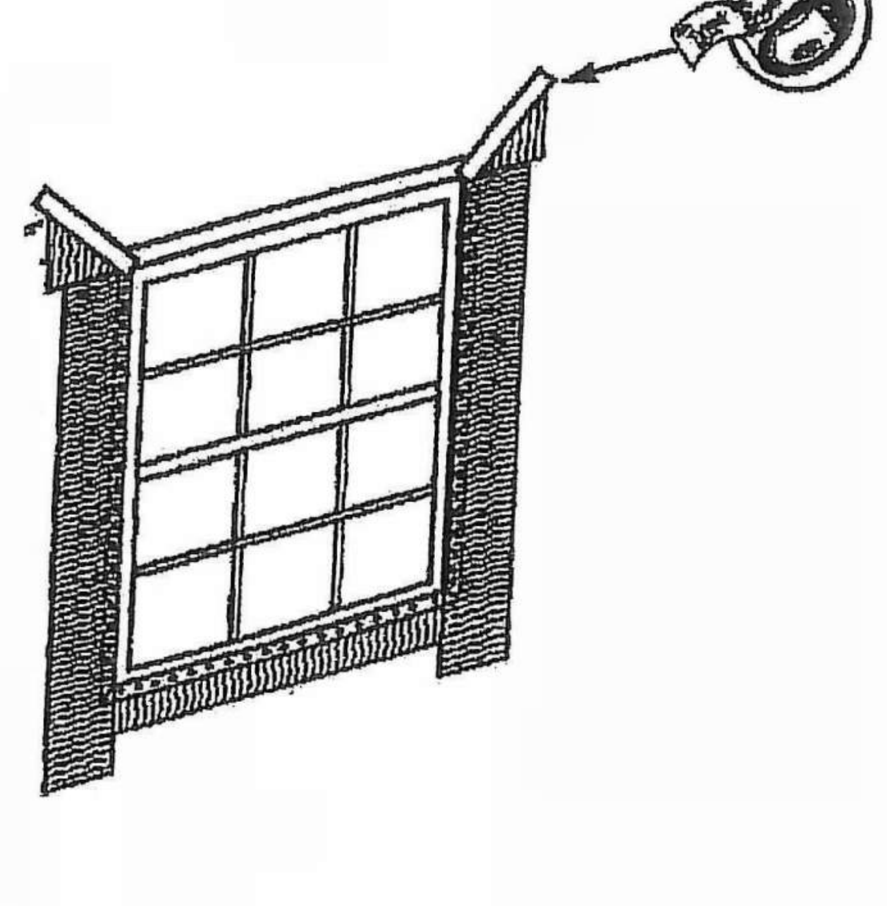
STEP 10

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



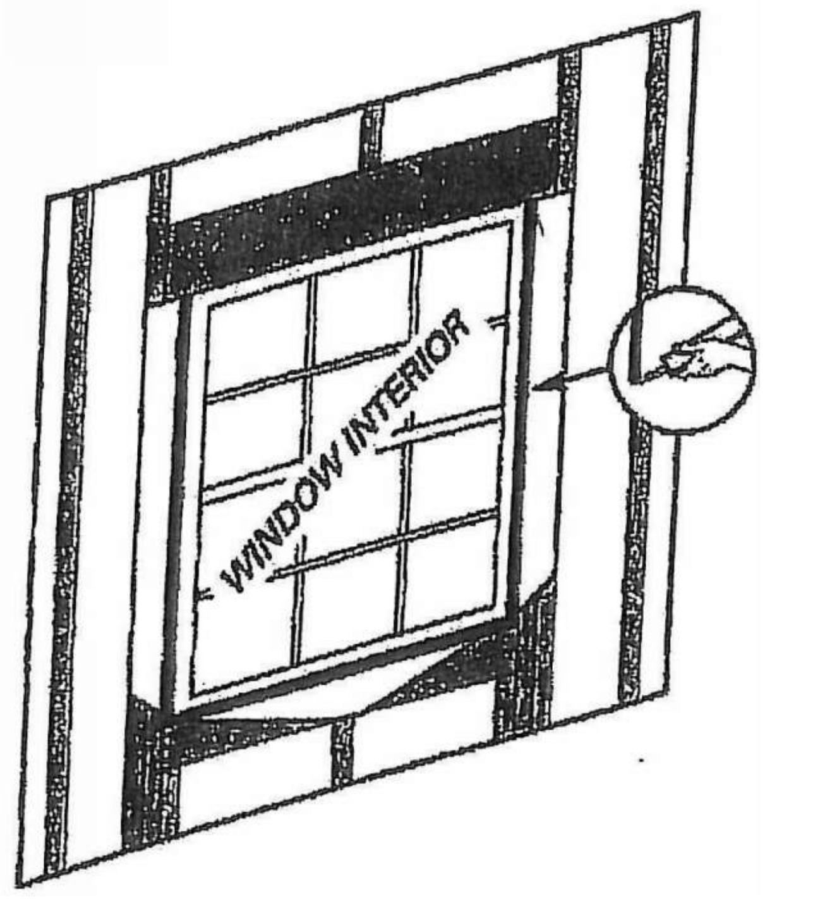
STEP 11

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



STEP 12

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



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DAVID EUGENE HENDRIKSE
NUMBER A-7305
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
GENERAL INFORMATION

PROJECT NUMBER: 23034

SHEET NUMBER:
G-004

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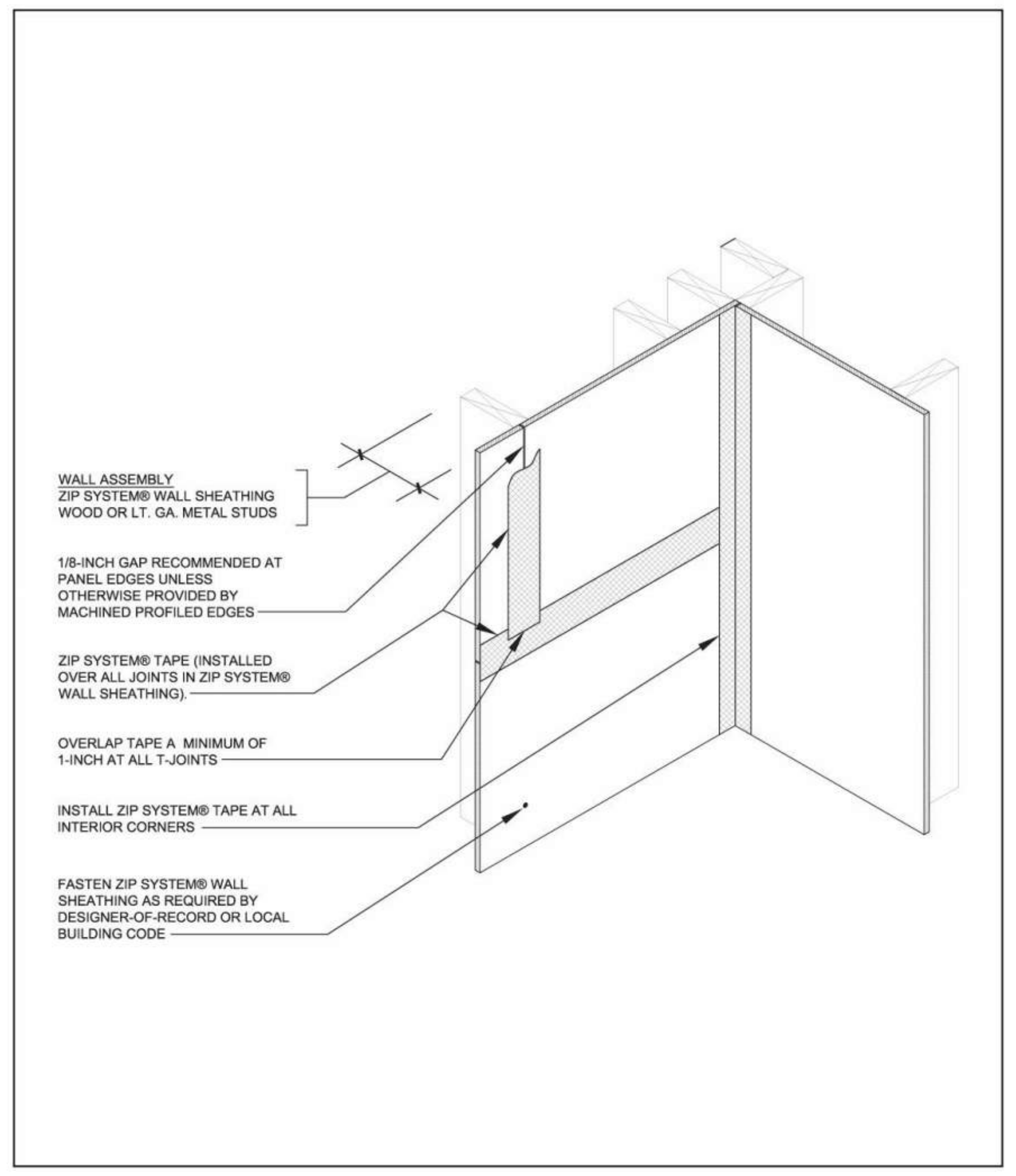
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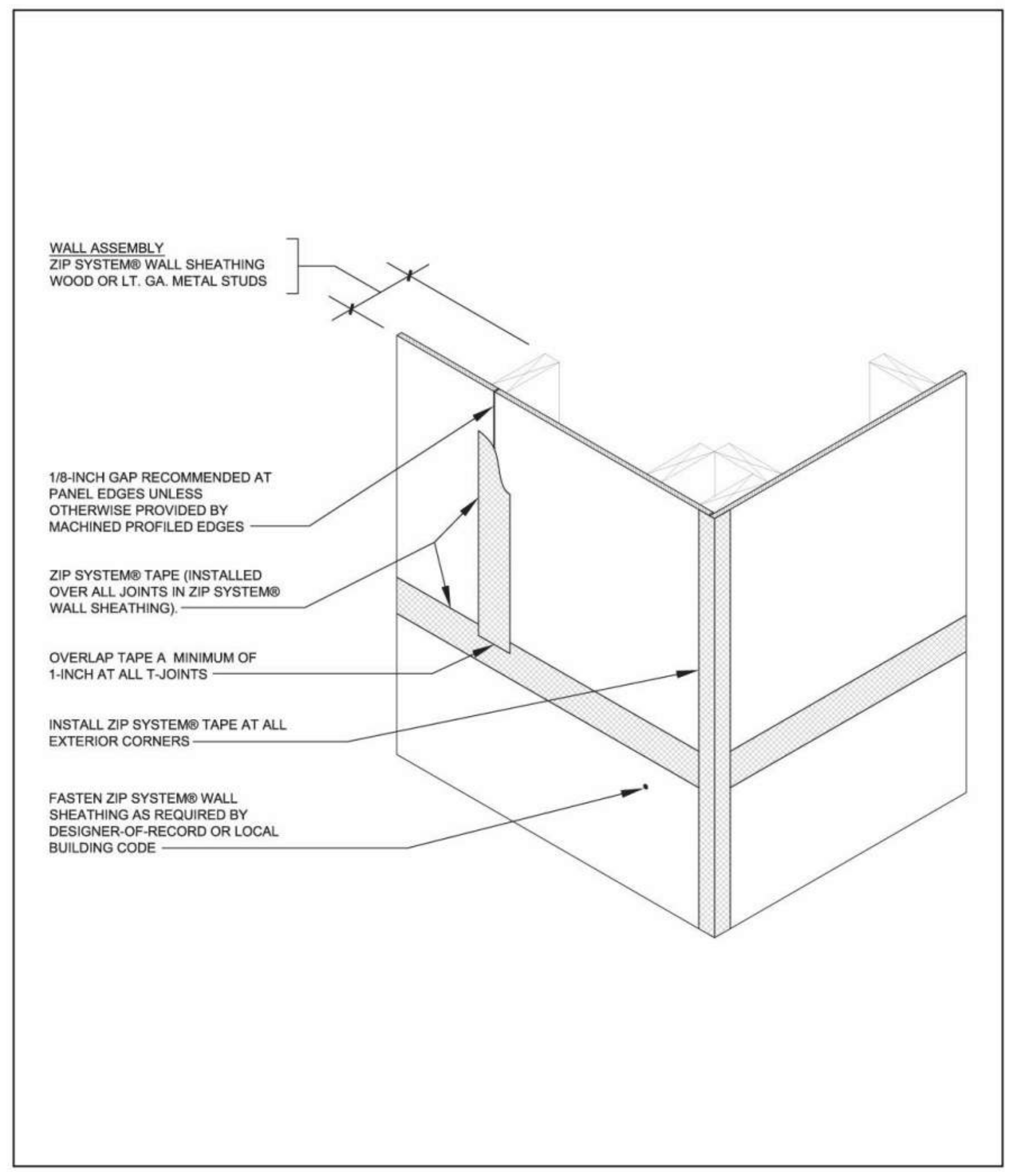
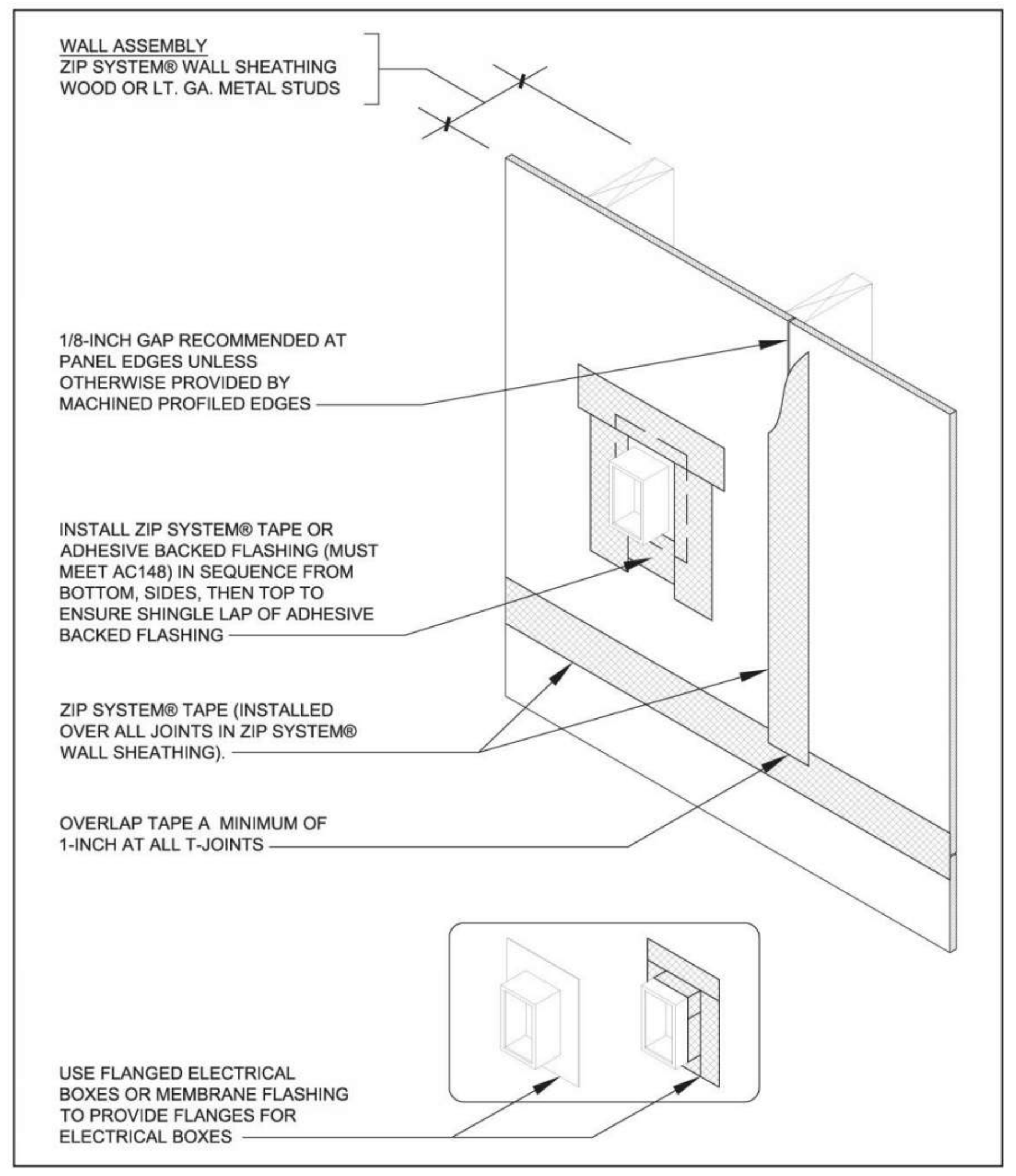
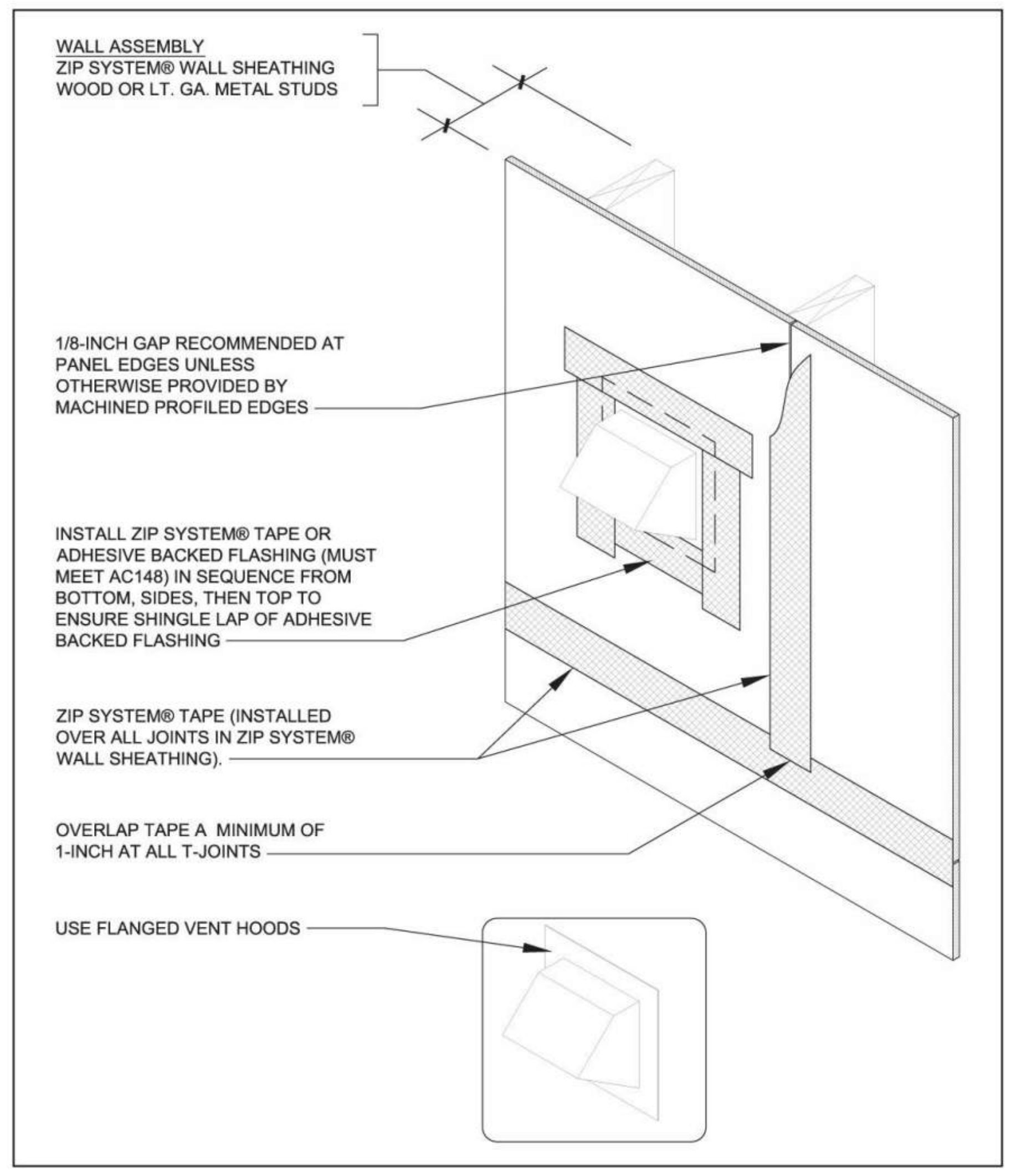
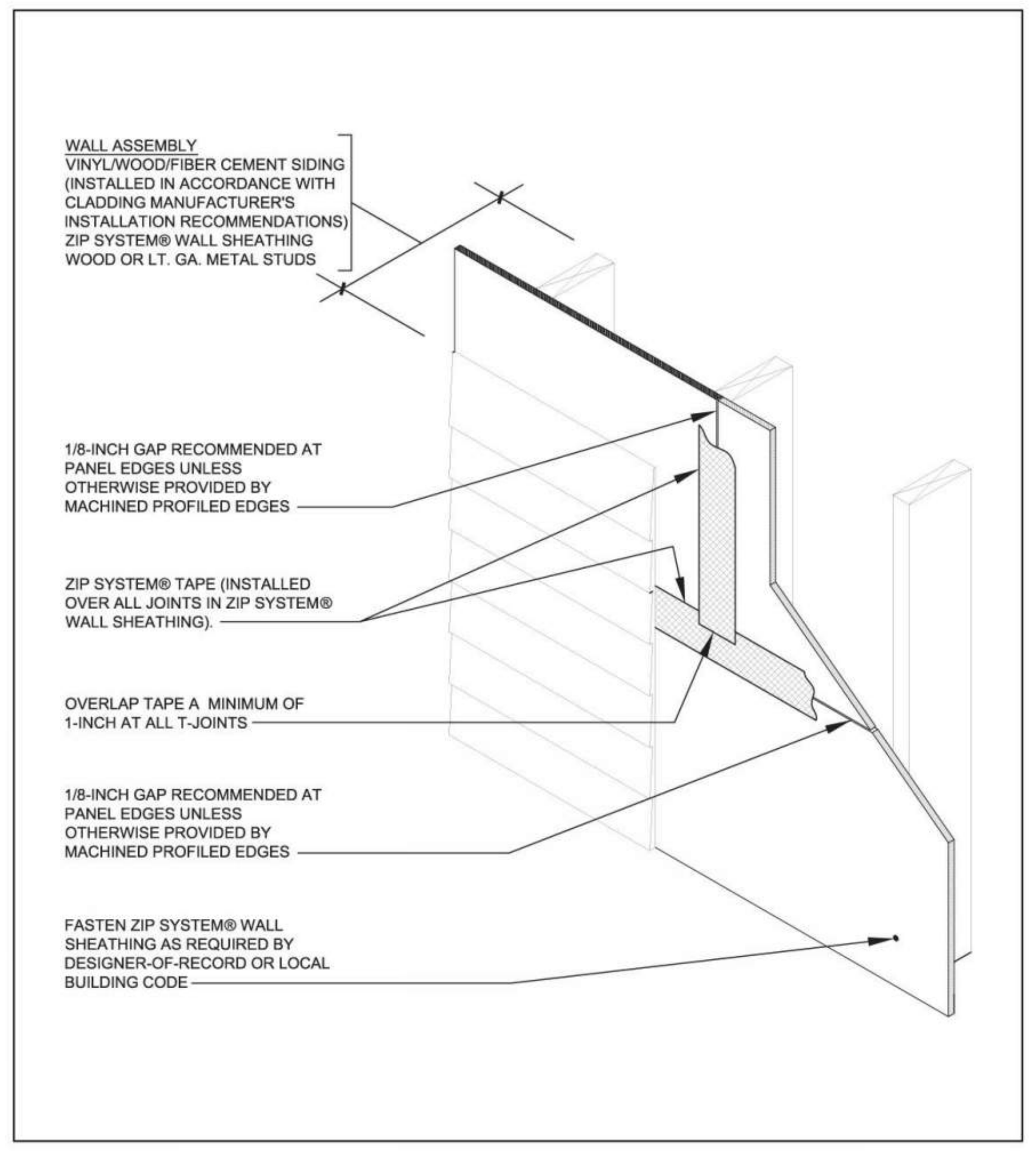
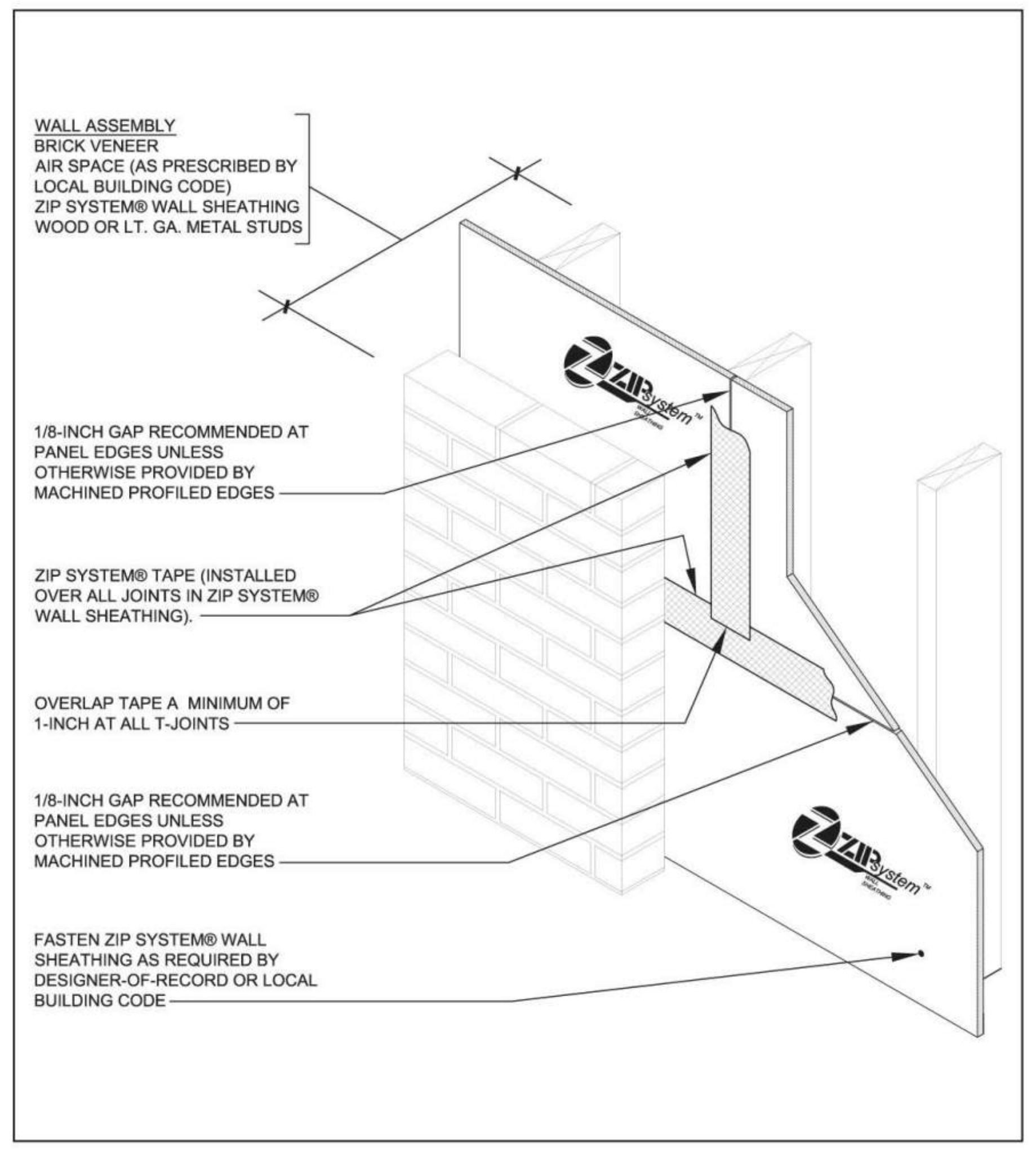
ZIP SYSTEM® WALL SHEATHING
WOOD OR LT. GA. METAL STUDS
1/8-INCH GAP RECOMMENDED AT PANEL EDGES UNLESS OTHERWISE PROVIDED BY MACHINED PROFILED EDGES
ZIP SYSTEM® TAPE (INSTALLED OVER ALL JOINTS IN ZIP SYSTEM® WALL SHEATHING).
OVERLAP TAPE A MINIMUM OF 1-INCH AT ALL T-JOINTS
INSTALL ZIP SYSTEM® TAPE AT ALL INTERIOR CORNERS
FASTEN ZIP SYSTEM® WALL SHEATHING AS REQUIRED BY DESIGNER-OF-RECORD OR LOCAL BUILDING CODE


WALL ASSEMBLY
ZIP SYSTEM® WALL SHEATHING
WOOD OR LT. GA. METAL STUDS
1/8-INCH GAP RECOMMENDED AT PANEL EDGES UNLESS OTHERWISE PROVIDED BY MACHINED PROFILED EDGES
ZIP SYSTEM® TAPE (INSTALLED OVER ALL JOINTS IN ZIP SYSTEM® WALL SHEATHING).
OVERLAP TAPE A MINIMUM OF 1-INCH AT ALL T-JOINTS
INSTALL ZIP SYSTEM® TAPE AT ALL EXTERIOR CORNERS
FASTEN ZIP SYSTEM® WALL SHEATHING AS REQUIRED BY DESIGNER-OF-RECORD OR LOCAL BUILDING CODE


WALL ASSEMBLY
ZIP SYSTEM® WALL SHEATHING
WOOD OR LT. GA. METAL STUDS
1/8-INCH GAP RECOMMENDED AT PANEL EDGES UNLESS OTHERWISE PROVIDED BY MACHINED PROFILED EDGES
INSTALL ZIP SYSTEM® TAPE OR ADHESIVE BACKED FLASHING (MUST MEET AC148) IN SEQUENCE FROM BOTTOM, SIDES, THEN TOP TO ENSURE SHINGLE LAP OF ADHESIVE BACKED FLASHING
ZIP SYSTEM® TAPE (INSTALLED OVER ALL JOINTS IN ZIP SYSTEM® WALL SHEATHING).
OVERLAP TAPE A MINIMUM OF 1-INCH AT ALL T-JOINTS
USE FLANGED ELECTRICAL BOXES OR MEMBRANE FLASHING TO PROVIDE FLANGES FOR ELECTRICAL BOXES


WALL ASSEMBLY
ZIP SYSTEM® WALL SHEATHING
WOOD OR LT. GA. METAL STUDS
1/8-INCH GAP RECOMMENDED AT PANEL EDGES UNLESS OTHERWISE PROVIDED BY MACHINED PROFILED EDGES
INSTALL ZIP SYSTEM® TAPE OR ADHESIVE BACKED FLASHING (MUST MEET AC148) IN SEQUENCE FROM BOTTOM, SIDES, THEN TOP TO ENSURE SHINGLE LAP OF ADHESIVE BACKED FLASHING
ZIP SYSTEM® TAPE (INSTALLED OVER ALL JOINTS IN ZIP SYSTEM® WALL SHEATHING).
OVERLAP TAPE A MINIMUM OF 1-INCH AT ALL T-JOINTS
USE FLANGED VENT HOODS


WALL ASSEMBLY
VINYL/WOOD/FIBER CEMENT SIDING (INSTALLED IN ACCORDANCE WITH CLADDING MANUFACTURER'S INSTALLATION RECOMMENDATIONS)
ZIP SYSTEM® WALL SHEATHING
WOOD OR LT. GA. METAL STUDS
1/8-INCH GAP RECOMMENDED AT PANEL EDGES UNLESS OTHERWISE PROVIDED BY MACHINED PROFILED EDGES
ZIP SYSTEM® TAPE (INSTALLED OVER ALL JOINTS IN ZIP SYSTEM® WALL SHEATHING).
OVERLAP TAPE A MINIMUM OF 1-INCH AT ALL T-JOINTS
1/8-INCH GAP RECOMMENDED AT PANEL EDGES UNLESS OTHERWISE PROVIDED BY MACHINED PROFILED EDGES
FASTEN ZIP SYSTEM® WALL SHEATHING AS REQUIRED BY DESIGNER-OF-RECORD OR LOCAL BUILDING CODE


WALL ASSEMBLY
BRICK VENEER
AIR SPACE (AS PRESCRIBED BY LOCAL BUILDING CODE)
ZIP SYSTEM® WALL SHEATHING
WOOD OR LT. GA. METAL STUDS
1/8-INCH GAP RECOMMENDED AT PANEL EDGES UNLESS OTHERWISE PROVIDED BY MACHINED PROFILED EDGES
ZIP SYSTEM® TAPE (INSTALLED OVER ALL JOINTS IN ZIP SYSTEM® WALL SHEATHING).
OVERLAP TAPE A MINIMUM OF 1-INCH AT ALL T-JOINTS
1/8-INCH GAP RECOMMENDED AT PANEL EDGES UNLESS OTHERWISE PROVIDED BY MACHINED PROFILED EDGES
FASTEN ZIP SYSTEM® WALL SHEATHING AS REQUIRED BY DESIGNER-OF-RECORD OR LOCAL BUILDING CODE
ZIP System

Brick Mould Windows (continued)

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

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

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

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

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

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

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

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

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

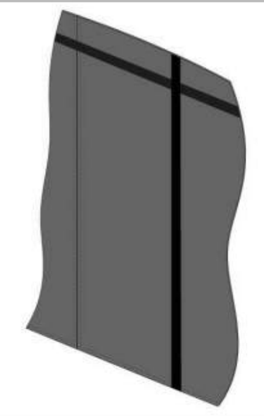
10. From the interior, apply low-pressure polyurethane foam (for windows) between the rough opening and the window frame. (Caulk sealant compatible with the sill flashing may be used at the sill if the opening between the sill flashing and window is too narrow to allow the use of low-pressure polyurethane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

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

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

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

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

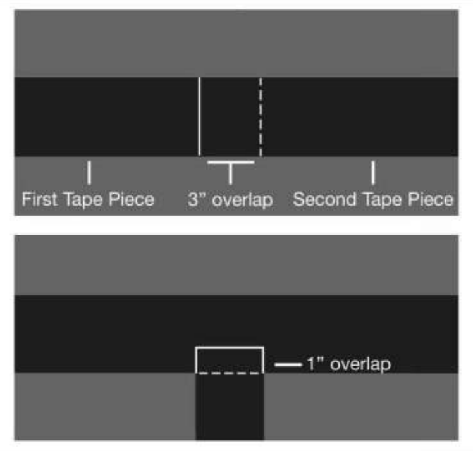


Step 2. Wherever tape splices occur at a horizontal or vertical seam, create an overlapping splice of at least 3".

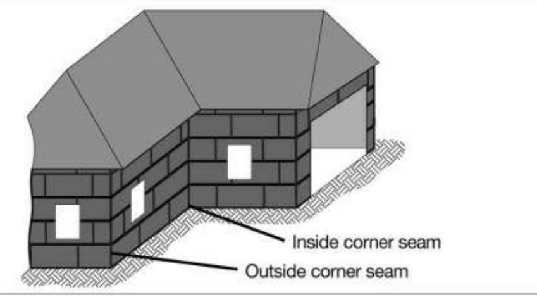
At T-joints, the tape pieces should overlap by at least 1". Apply moderate pressure onto the surface of the tape to ensure a secure bond between the panel and the tape.

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

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

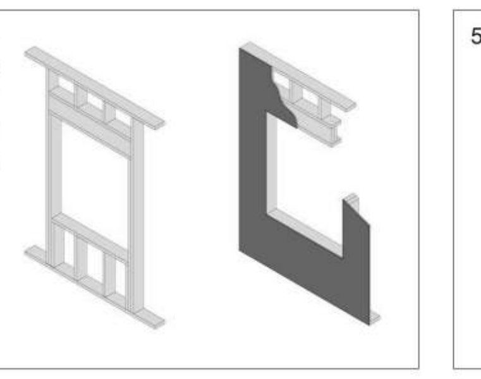


Step 3. Tape inside and outside corner seams.



Flanged Windows

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



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

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

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

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

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

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

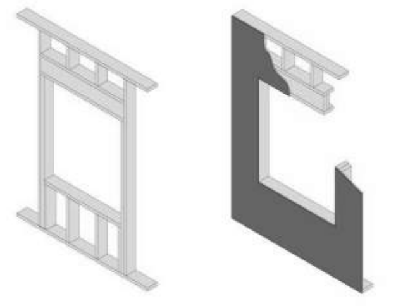
   *DO NOT tape bottom flange.

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

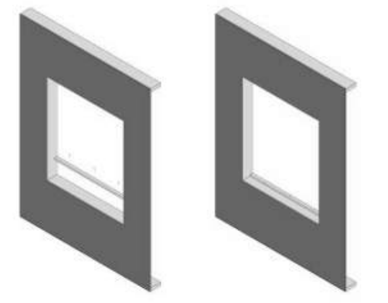
   When using ZIP System tape, butyl, silicone or polyurethane sealants are acceptable. Do not use latex sealants with ZIP System tape. If using another flashing tape, follow the flashing manufacturer's recommendation in selecting a sealant compatible with that flashing.

Brick Mould Windows

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



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



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

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DAVID EUGENE HENDRIKSE
NUMBER A-7305
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
GENERAL INFORMATION

PROJECT NUMBER: 23034

SHEET NUMBER:
G-005

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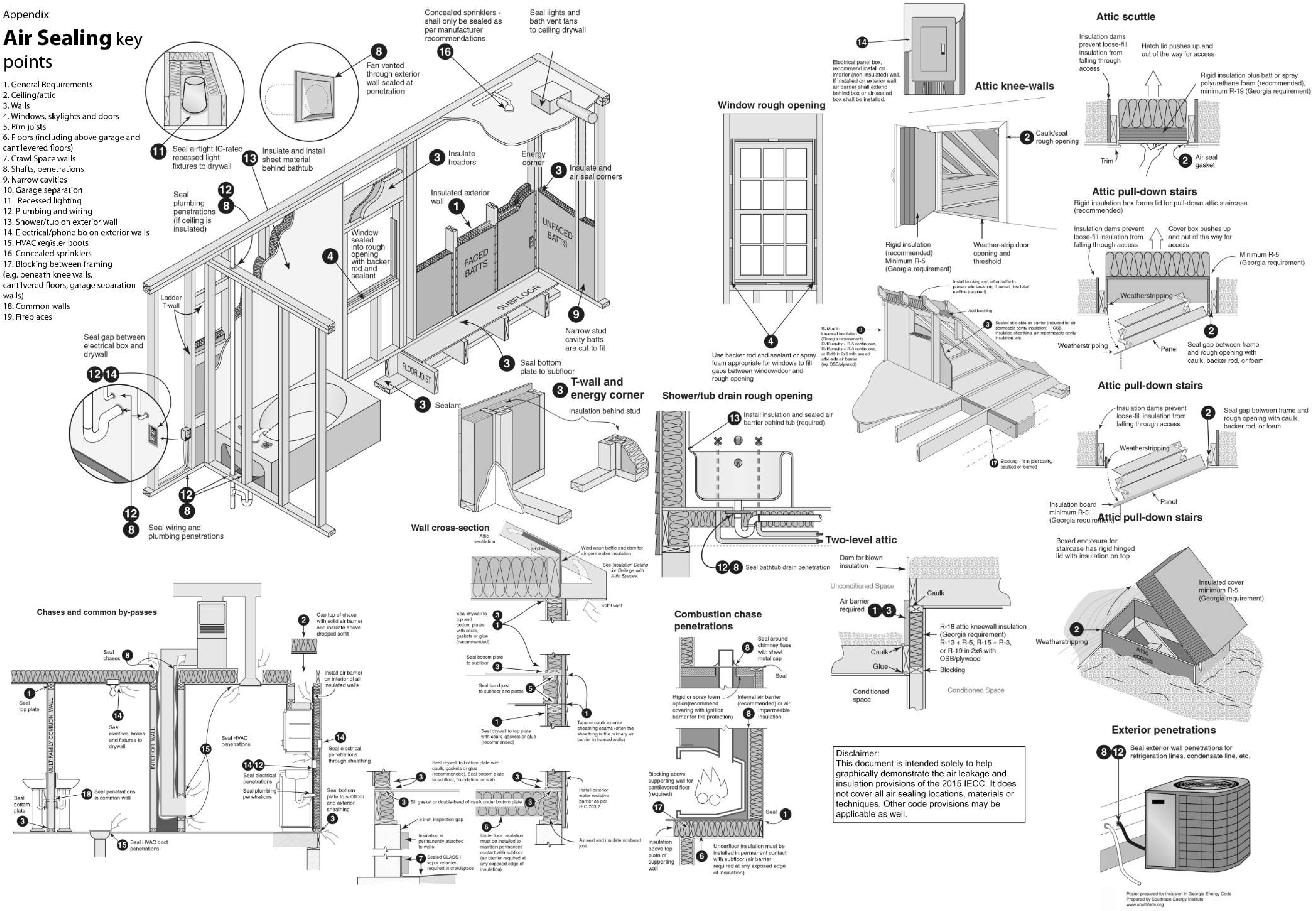
REVISIONS:



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

11 Seal airtight IC-rated recessed light fixtures to drywall
8 Fan vented through exterior wall sealed at penetration
16 Concealed sprinklers - shall only be sealed as per manufacturer recommendations
Seal lights and bath vent fans to ceiling drywall
13 Insulate and install sheet material behind bathtub
3 Insulate headers
Energy corner
3 Insulate and air seal corners
Insulated exterior wall 1
12 8 Seal plumbing penetrations (if ceiling is insulated)
4 Window sealed into rough opening with backer rod and sealant
FACED BATTS
UNFACED BATTS
SUBFLOOR
FLOOR JOIST
Ladder T-wall
9 Narrow stud cavity batts are cut to fit
3 Seal bottom plate to subfloor
3 Sealant
Seal gap between electrical box and drywall
12 14
12 8
12 8 Seal wiring and plumbing penetrations
3 T-wall and energy corner
Insulation behind stud
Wall cross-section
Attic ventilation
Wind wash baffle and dam for air-permeable insulation
See Insulation Details for Ceilings with Attic Spaces.
Soffit vent
Seal drywall to top and bottom plates with caulk, gaskets or glue (recommended) 3 1
Seal bottom plate to subfloor 3
Seal band joist to subfloor and plates 5
1 Seal drywall to top plate with caulk, gaskets or glue (recommended)
1 Tape or caulk exterior sheathing seams (often the sheathing is the primary air barrier in framed walls)
Seal drywall to bottom plate with caulk, gaskets or glue (recommended). Seal bottom plate to subfloor, foundation, or slab 3
3 Sill gasket or double-bead of caulk under bottom plate
3-inch inspection gap
Insulation is permanently attached to walls
7 Sealed CLASS I vapor retarder required in crawlspace
6 Underfloor insulation must be installed to maintain permanent contact with subfloor (air barrier required at any exposed edge of insulation)
Install exterior water resistive barrier as per IRC 703.2
Air seal and insulate rim/band joist
Chases and common by-passes
2 Cap top of chase with solid air barrier and insulate above dropped soffit
Seal chases 8
Install air barrier on interior of all insulated walls
1 Seal top plate
14 Seal electrical boxes and fixtures to drywall
MULTIFAMILY COMMON WALL
INTERIOR WALL
15 Seal HVAC penetrations
14 Seal electrical penetrations through sheathing
14 12 Seal electrical penetrations
Seal plumbing penetrations
18 Seal penetrations in common wall
Seal bottom plate 3
Seal bottom plate to subfloor and exterior sheathing 3
15 Seal HVAC boot penetrations
Window rough opening
4 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
13 Install insulation and sealed air barrier behind tub (required)
12 8 Seal bathtub drain penetration
Combustion chase penetrations
8 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 8 impermeable insulation
Blocking above supporting wall for cantilevered floor (required)
17
Seal 1
Insulation above top plate of supporting wall
6 Underfloor insulation must be installed in permanent contact with subfloor (air barrier required at any exposed edge of insulation)
14 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
2 Caulk/seal rough opening
Rigid insulation (recommended) Minimum R-5 (Georgia requirement)
Weather-strip door opening and threshold
Install blocking and rafter baffle to prevent wind-washing if vented, insulated roofline (required)
Add blocking
R-18 attic kneewall insulation (Georgia requirement) R-13 cavity + R-5 continuous, R-15 cavity + R-3 continuous, or R-19 in 2x6 with sealed attic-side air barrier (eg. OSB/plywood) 3
3 Sealed attic-side air barrier (required for air permeable cavity insulation)— OSB, insulated sheathing, air impermeable cavity insulation, etc.
17 Blocking - fit in joist cavity, caulked or foamed
Two-level attic
Dam for blown insulation
Unconditioned Space
Air barrier required 1 3
Caulk
R-18 attic kneewall insulation (Georgia requirement) R-13 + R-5, R-15 + R-3, or R-19 in 2x6 with OSB/plywood
Caulk
Glue
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
2 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
Weatherstripping
Panel
2 Seal gap between frame and rough opening with caulk, backer rod, or foam
Attic pull-down stairs
Insulation dams prevent loose-fill insulation from falling through access
2 Seal gap between frame and rough opening with caulk, backer rod, or foam
Weatherstripping
Panel
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)
2 Weatherstripping
Attic access
Exterior penetrations
8 12 Seal exterior wall penetrations for refrigeration lines, condensate line, etc.

Disclaimer:
This document is intended solely to help graphically demonstrate the air leakage and insulation provisions of the 2015 IECC. It does not cover all air sealing locations, materials or techniques. Other code provisions may be applicable as well.

Poster prepared for inclusion in Georgia Energy Code
Prepared by Southface Energy Institute
www.southface.org

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DAVID EUGENE HENDRIKSE
NUMBER A-7365
10/30/23

WILSHIRE HILLS III

LEE'S SUMMIT, MISSOURI

MHDC - 22-057

SHEET TITLE
GENERAL INFORMATION

PROJECT NUMBER: 23034

SHEET NUMBER:

G-006

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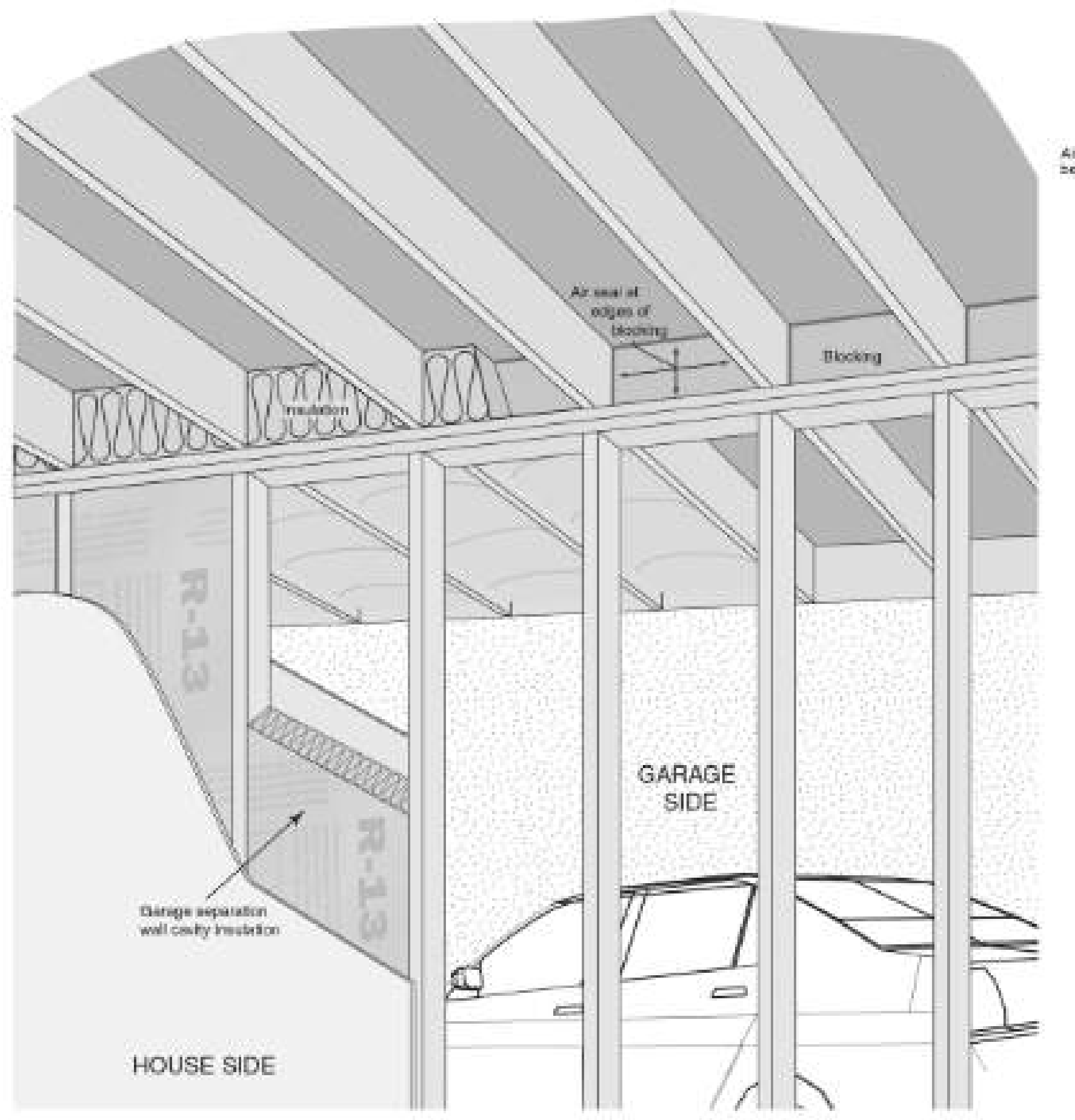
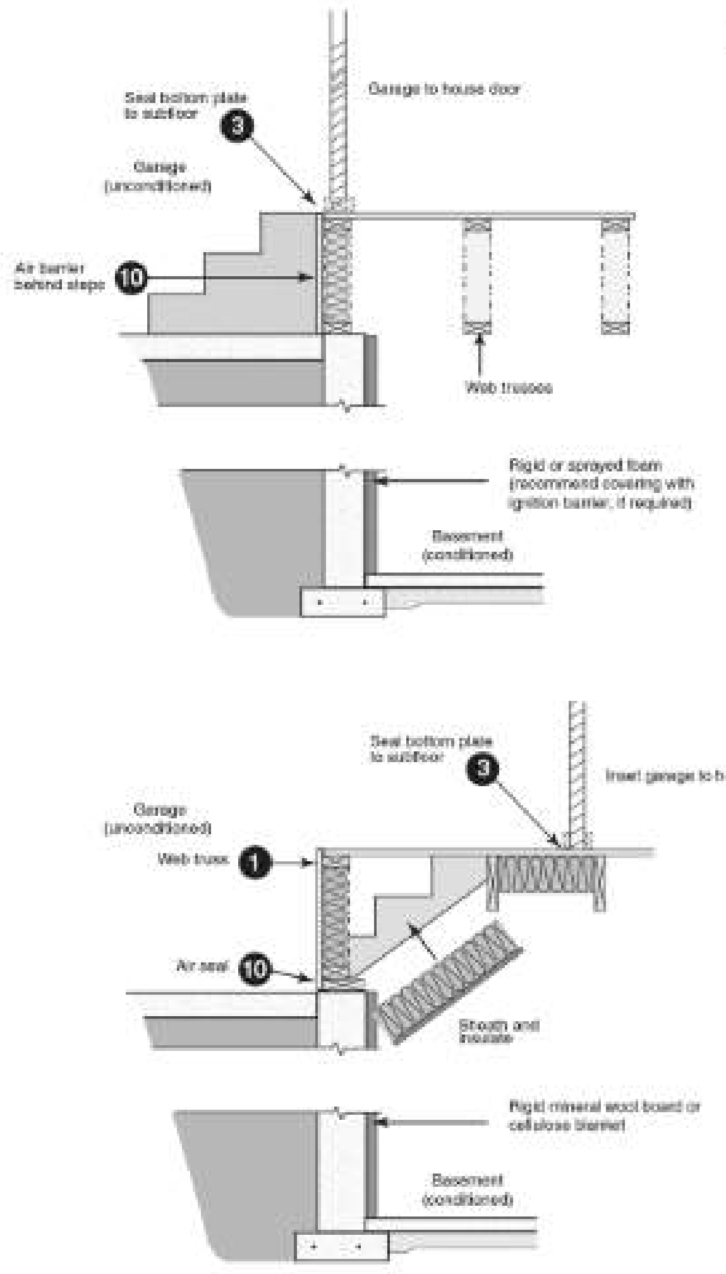
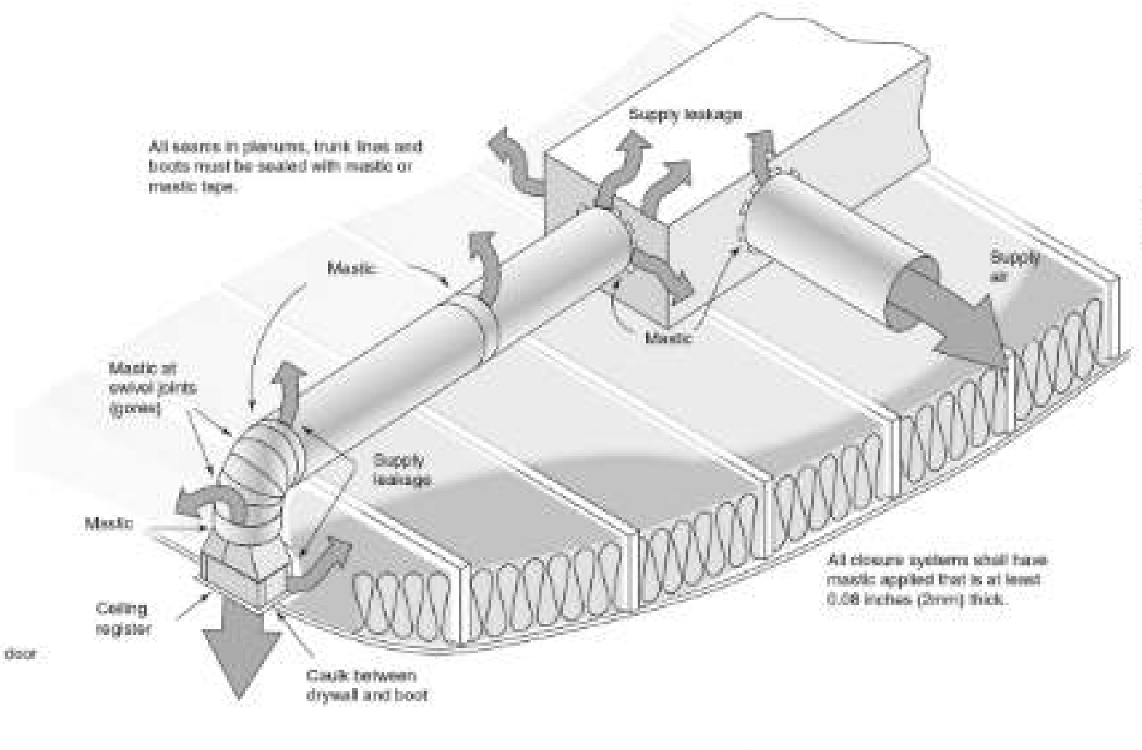
Garage blocking and sealing key points

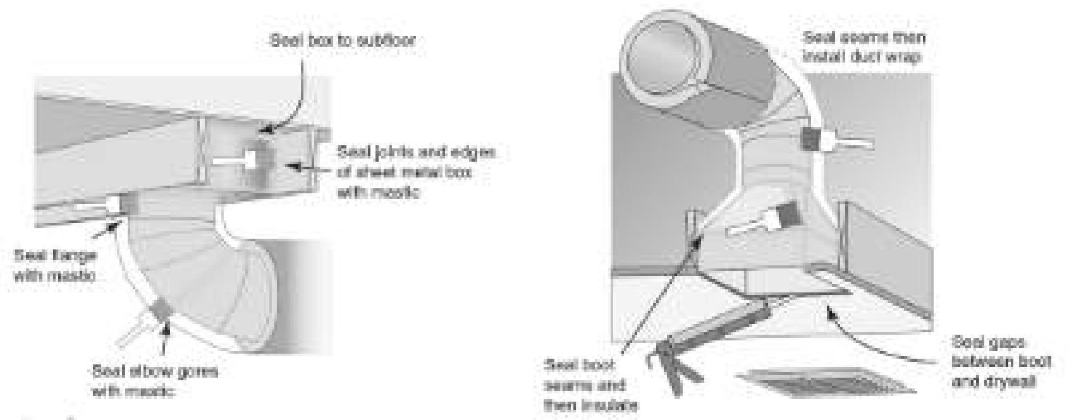
Blocking, air sealing and insulation required above garage separation wall


Air seal at edges of blocking
Blocking
Insulation
R-13
R-13
GARAGE SIDE
Garage separation wall cavity insulation
HOUSE SIDE

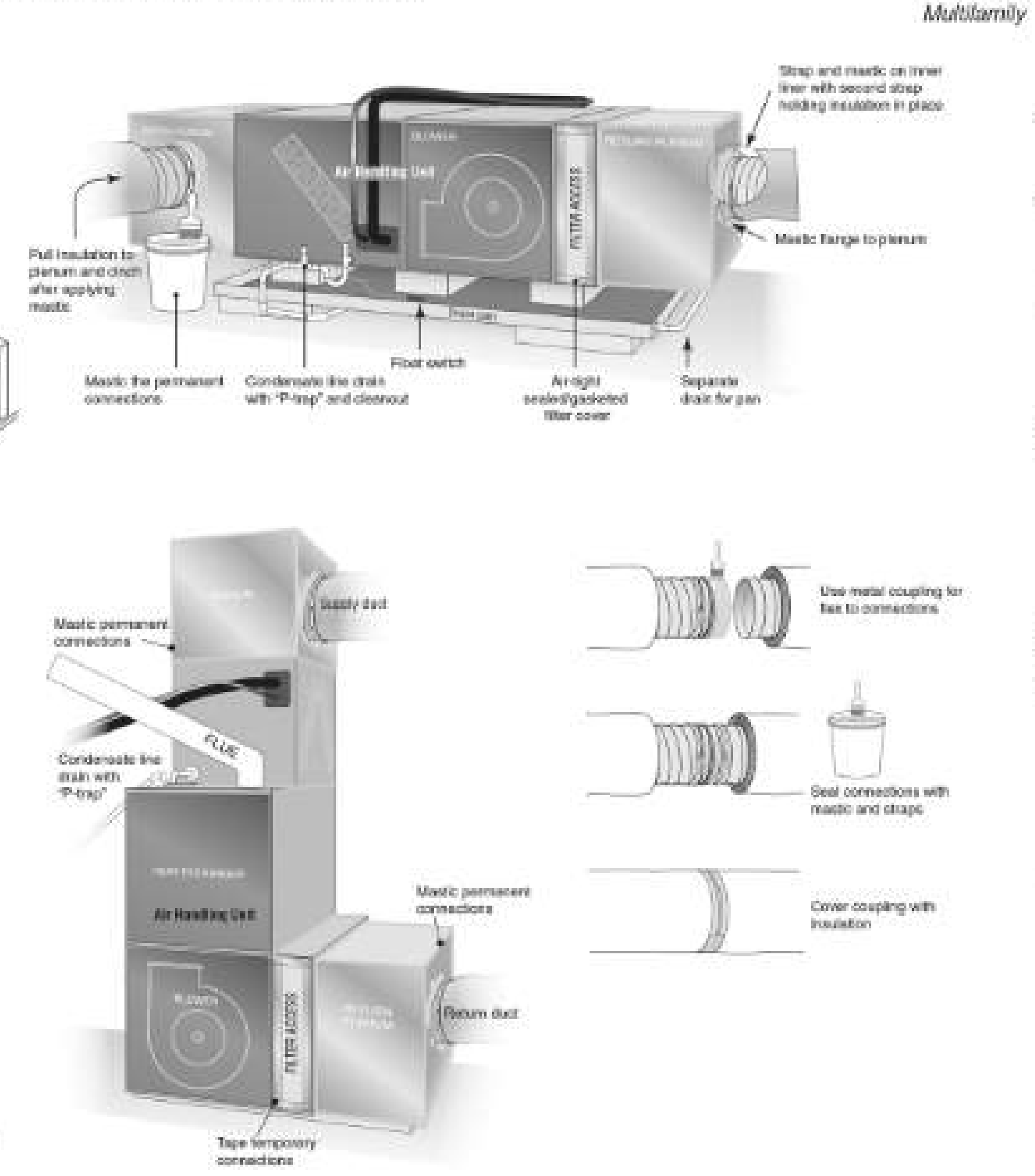

Seal bottom plate to subfloor ③
Garage to house door
Garage (unconditioned)
Air barrier behind steps ⑩
Web trusses
Rigid or sprayed foam (recommend covering with ignition barrier, if required)
Basement (conditioned)
Seal bottom plate to subfloor ③
Insert garage to house door
Garage (unconditioned)
Web truss ①
Air seal ⑩
Sheath and insulate
Rigid mineral wool board or cellulose blanket
Basement (conditioned)

Duct Sealing key points


All seams in plenums, trunk lines and boots must be sealed with mastic or mastic tape.
Supply leakage
Mastic
Mastic
Supply air
Mastic at swivel joints (gores)
Supply leakage
Mastic
Ceiling register
Caulk between drywall and boot
All closure systems shall have mastic applied that is at least 0.08 inches (2mm) thick.

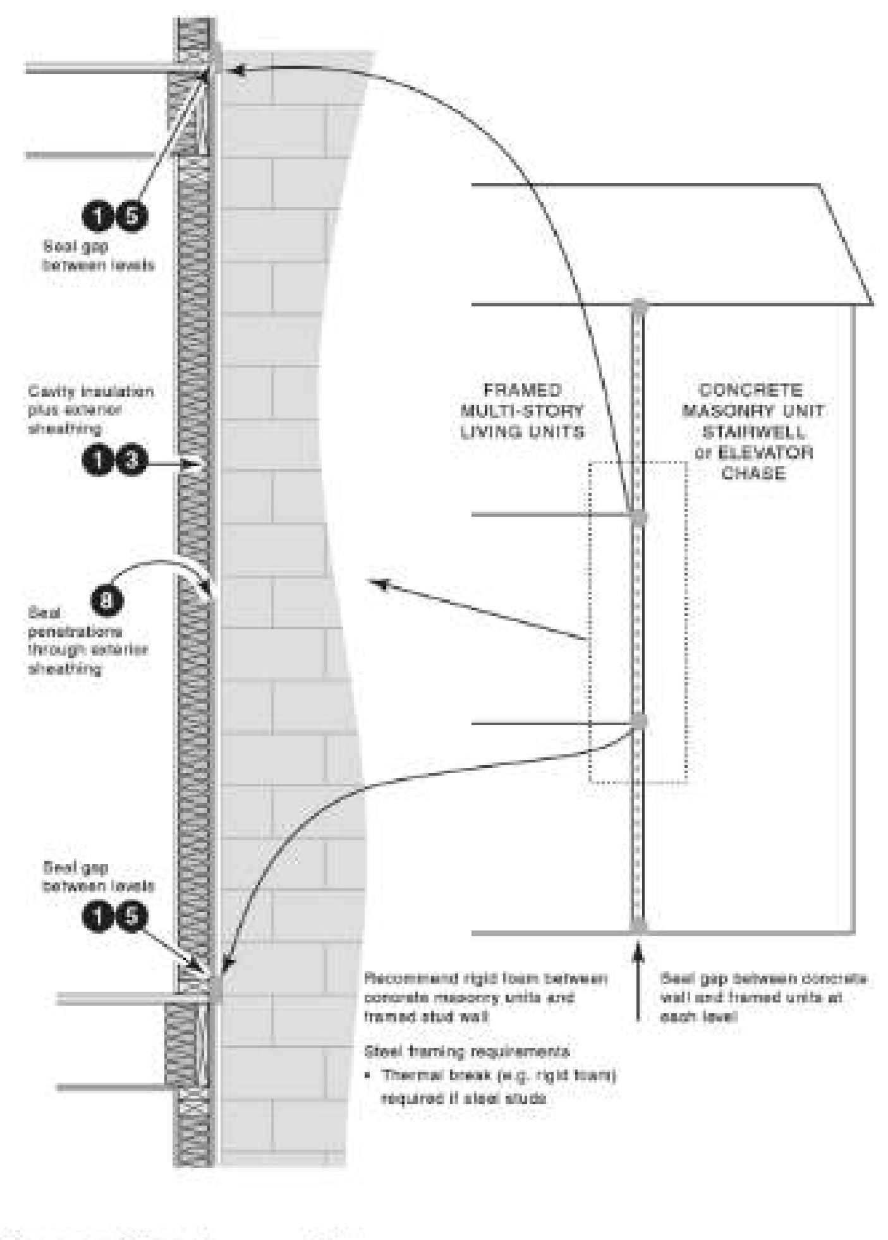

Seal box to subfloor
Seal joints and edges of sheet metal box with mastic
Seal flange with mastic
Seal elbow gores with mastic
Seal seams then install duct wrap
Seal boot seams and then insulate
Seal gaps between boot and drywall

Air Handler Sealing key points

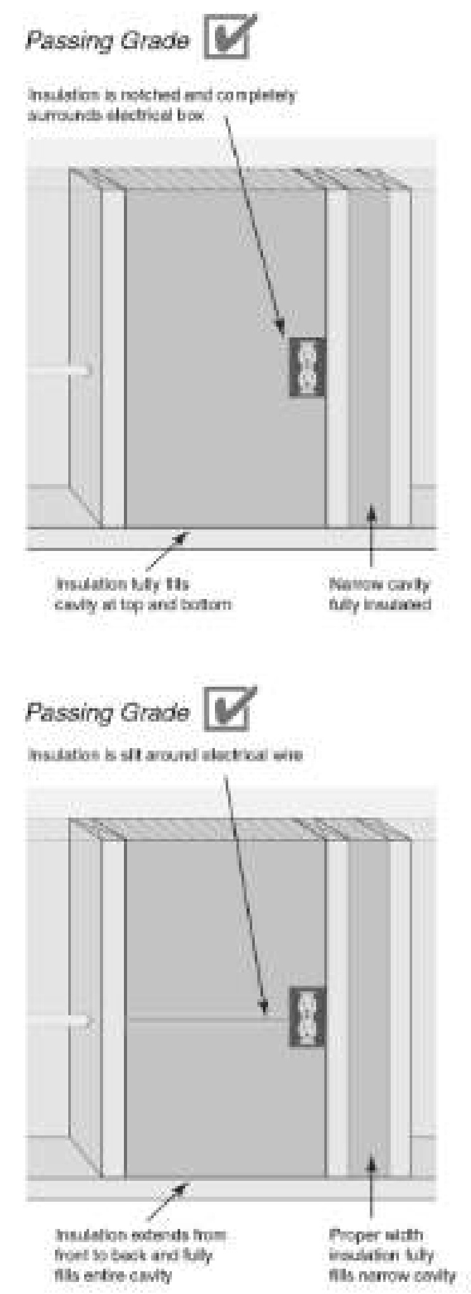

Strap and mastic on inner liner with second strap holding insulation in place
Air Handling Unit
FILTER ACCESS
Mastic flange to plenum
Pull insulation to plenum and cinch after applying mastic
Mastic the permanent connections
Condensate line drain with "P-trap" and cleanout
Float switch
Air-tight sealed/gasketed filter cover
Separate drain for pan
Mastic permanent connections
Supply duct
FLUE
Condensate line drain with "P-trap"
Air Handling Unit
FILTER ACCESS
Mastic permanent connections
Return duct
Tape temporary connections
Use metal coupling for flex to connections
Seal connections with mastic and straps
Cover coupling with insulation

Air sealing key points *continued*

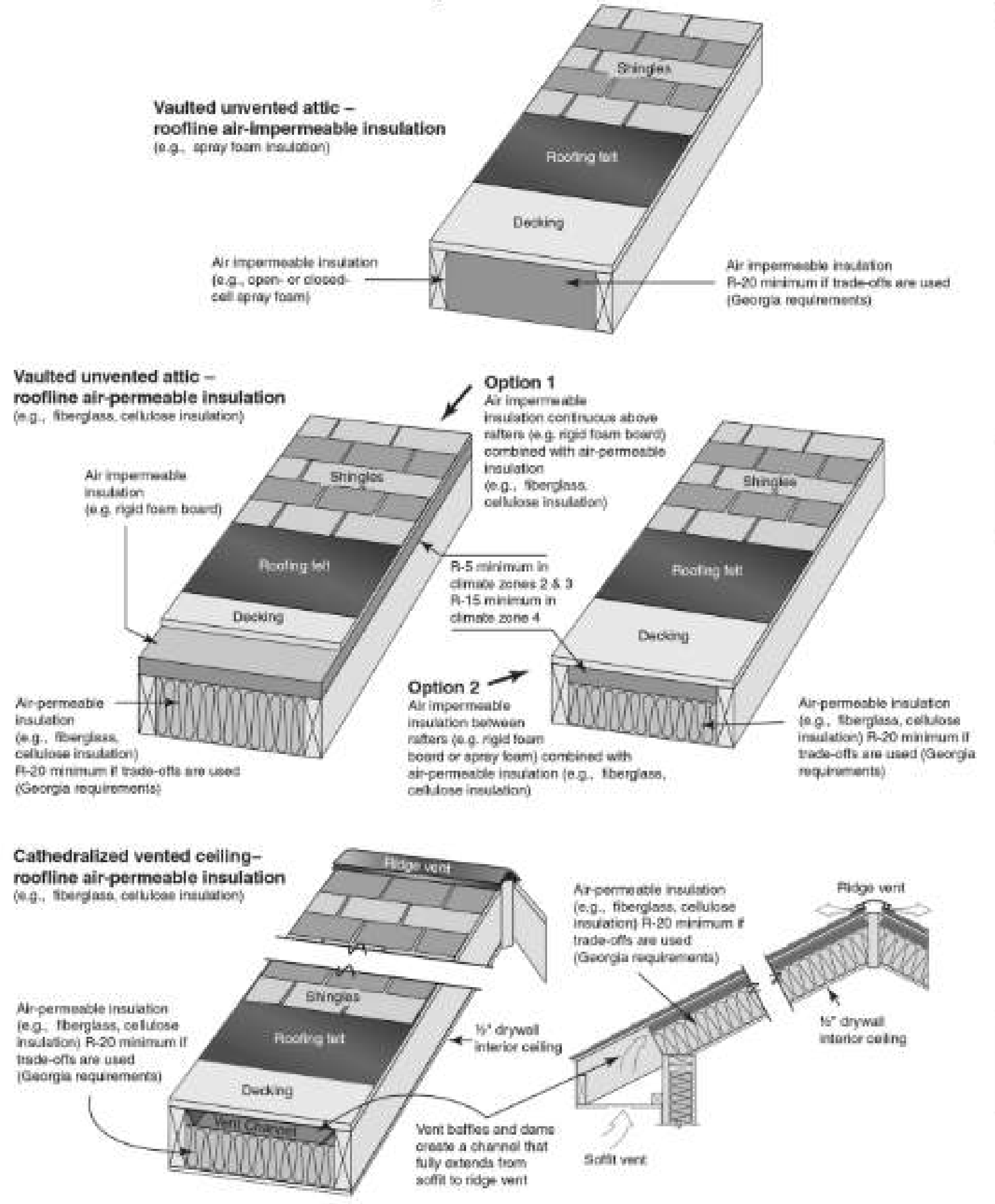
Multifamily


①⑤ Seal gap between levels
Cavity insulation plus exterior sheathing ①③
⑧ Seal penetrations through exterior sheathing
Seal gap between levels ①⑤
FRAMED MULTI-STORY LIVING UNITS
CONCRETE MASONRY UNIT STAIRWELL or ELEVATOR CHASE
Recommend rigid foam between concrete masonry units and framed stud wall
Steel framing requirements
• Thermal break (e.g. rigid foam) required if steel studs
Seal gap between concrete wall and framed units at each level

Wall Insulation key points

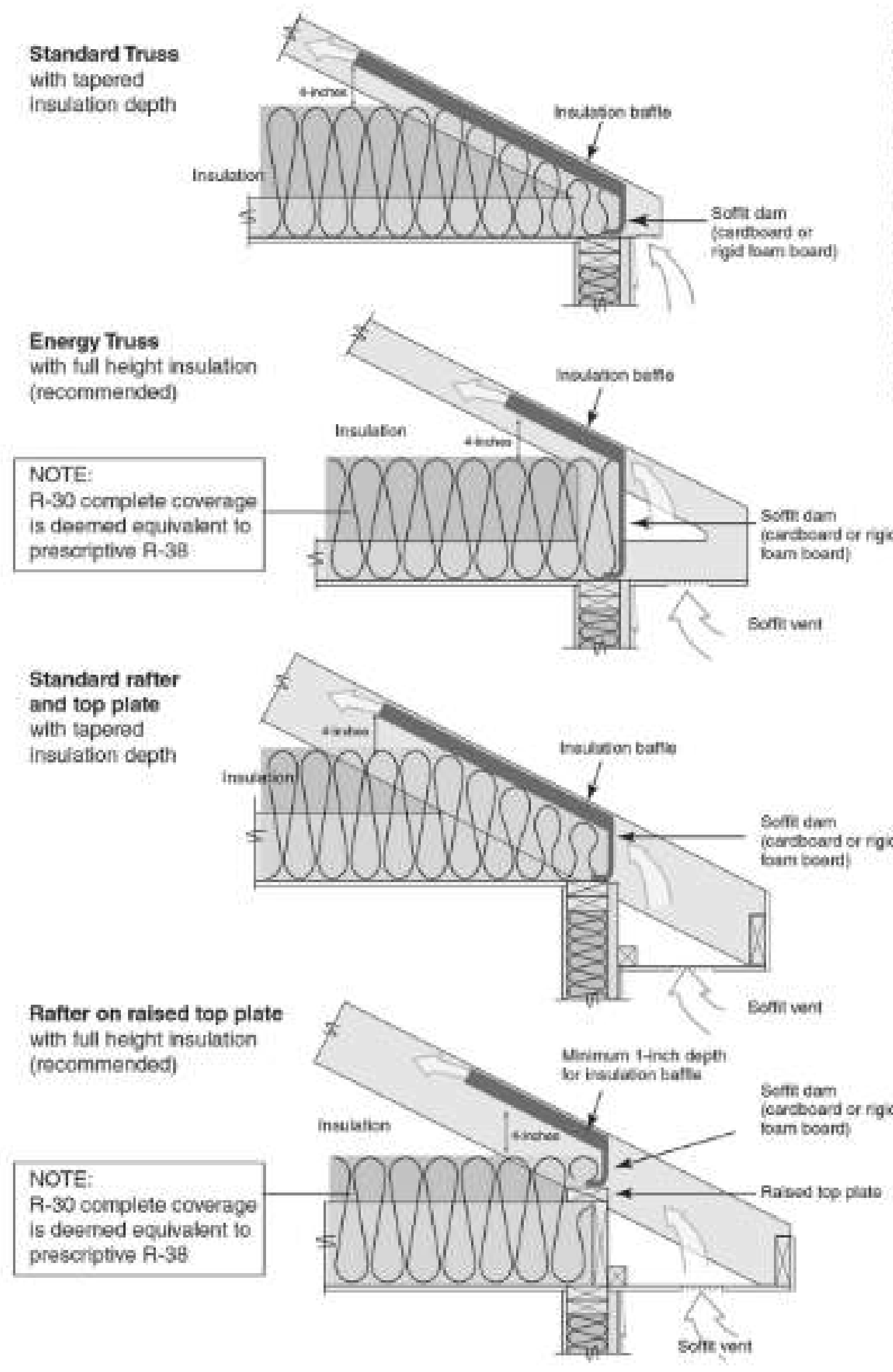

Passing Grade ☑
Insulation is notched and completely surrounds electrical box
Insulation fully fills cavity at top and bottom
Narrow cavity fully insulated
Passing Grade ☑
Insulation is slit around electrical wire
Insulation extends from front to back and fully fills entire cavity
Proper width insulation fully fills narrow cavity

Roofline Installed Insulation Options


Vaulted unvented attic – roofline air-impermeable insulation (e.g., spray foam insulation)
Shingles
Roofing felt
Decking
Air impermeable insulation (e.g., open- or closed-cell spray foam)
Air impermeable insulation R-20 minimum if trade-offs are used (Georgia requirements)
Vaulted unvented attic – roofline air-permeable insulation (e.g., fiberglass, cellulose insulation)
Option 1
Air impermeable insulation continuous above rafters (e.g. rigid foam board) combined with air-permeable insulation (e.g., fiberglass, cellulose insulation)
Air impermeable insulation (e.g. rigid foam board)
Shingles
Roofing felt
Decking
R-5 minimum in climate zones 2 & 3
R-15 minimum in climate zone 4
Air-permeable insulation (e.g., fiberglass, cellulose insulation) R-20 minimum if trade-offs are used (Georgia requirements)
Option 2
Air impermeable insulation between rafters (e.g. rigid foam board or spray foam) combined with air-permeable insulation (e.g., fiberglass, cellulose insulation)
Air-permeable insulation (e.g., fiberglass, cellulose insulation) R-20 minimum if trade-offs are used (Georgia requirements)
Cathedralized vented ceiling– roofline air-permeable insulation (e.g., fiberglass, cellulose insulation)
Ridge vent
Shingles
Roofing felt
Decking
Vent Channel
Air-permeable insulation (e.g., fiberglass, cellulose insulation) R-20 minimum if trade-offs are used (Georgia requirements)
½" drywall interior ceiling
Air-permeable insulation (e.g., fiberglass, cellulose insulation) R-20 minimum if trade-offs are used (Georgia requirements)
Ridge vent
½" drywall interior ceiling
Vent baffles and dams create a channel that fully extends from soffit to ridge vent
Soffit vent

Insulation Details for Ceilings with Attic spaces

Rafter and Truss


Standard Truss with tapered insulation depth
4-inches
Insulation baffle
Insulation
Soffit dam (cardboard or rigid foam board)
Energy Truss with full height insulation (recommended)
Insulation baffle
Insulation
4-inches
Soffit dam (cardboard or rigid foam board)
Soffit vent
Standard rafter and top plate with tapered insulation depth
4-inches
Insulation baffle
Insulation
Soffit dam (cardboard or rigid foam board)
Soffit vent
Rafter on raised top plate with full height insulation (recommended)
Minimum 1-inch depth for insulation baffle
Soffit dam (cardboard or rigid foam board)
Insulation
4-inches
Raised top plate
Soffit vent

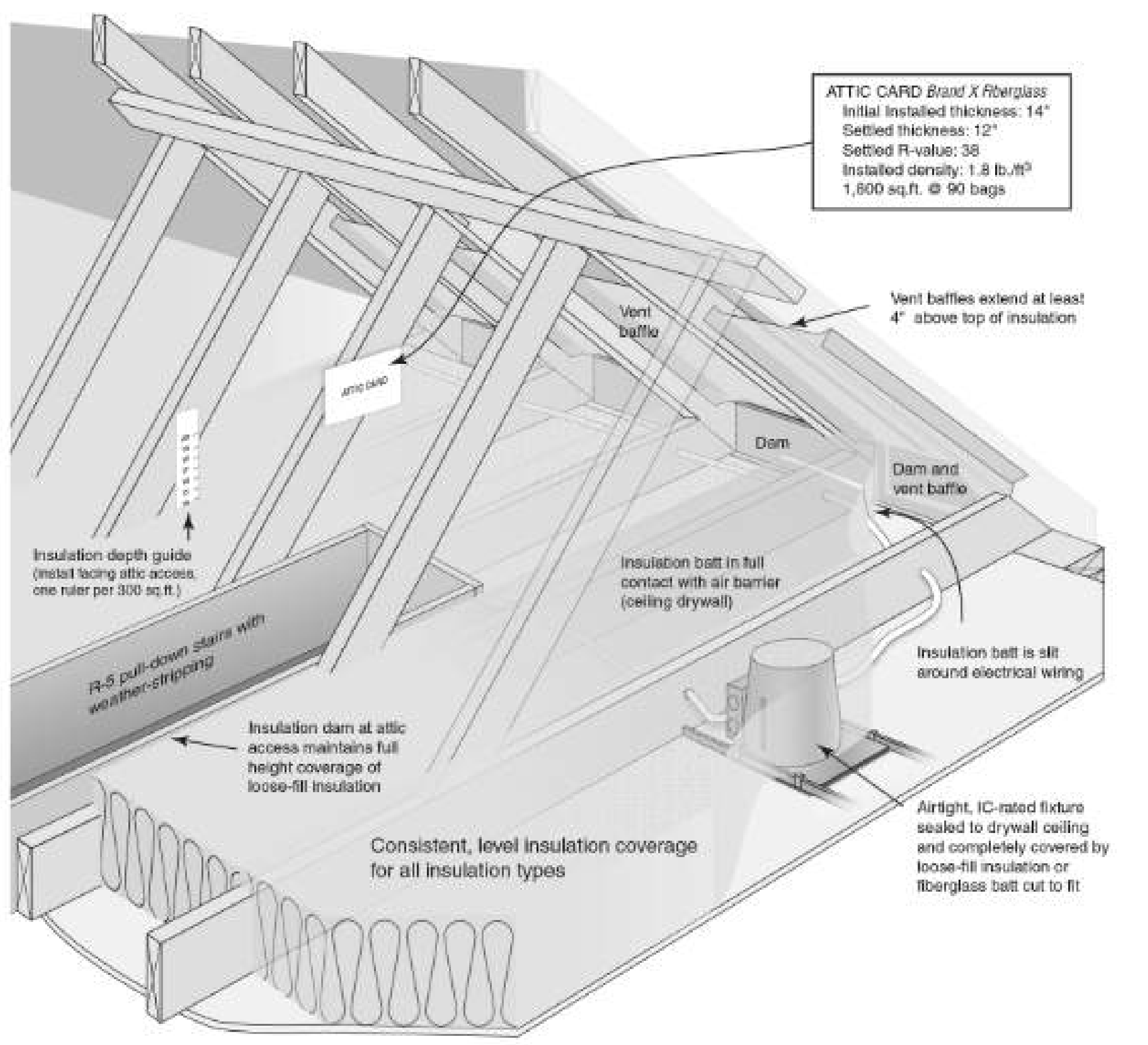
NOTE:
R-30 complete coverage is deemed equivalent to prescriptive R-38

NOTE:
R-30 complete coverage is deemed equivalent to prescriptive R-38

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

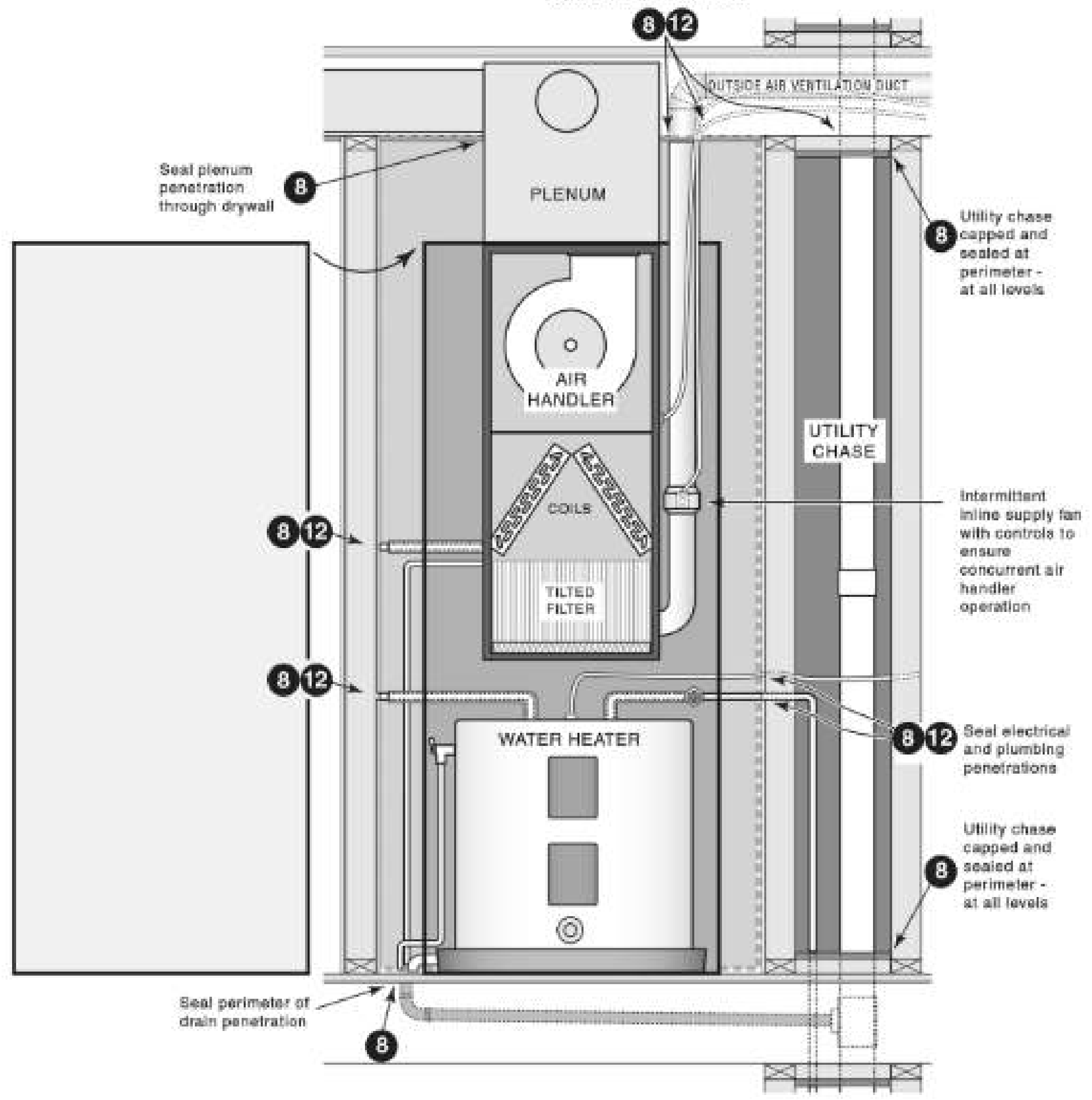
Passing Grade ☑


Vent baffle
ATTIC CARD
Dam
Dam and vent baffle
Vent baffles extend at least 4" above top of insulation
Insulation depth guide (install facing attic access, one ruler per 300 sq.ft.)
R-5 pull-down stairs with weather-stripping
Insulation batt in full contact with air barrier (ceiling drywall)
Insulation batt is slit around electrical wiring
Insulation dam at attic access maintains full height coverage of loose-fill insulation
Consistent, level insulation coverage for all insulation types
Airtight, IC-rated fixture sealed to drywall ceiling and completely covered by loose-fill insulation or fiberglass batt cut to fit

ATTIC CARD *Brand X Fiberglass*
Initial installed thickness: 14"
Settled thickness: 12"
Settled R-value: 38
Installed density: 1.8 lb./ft³
1,800 sq.ft. @ 90 bags

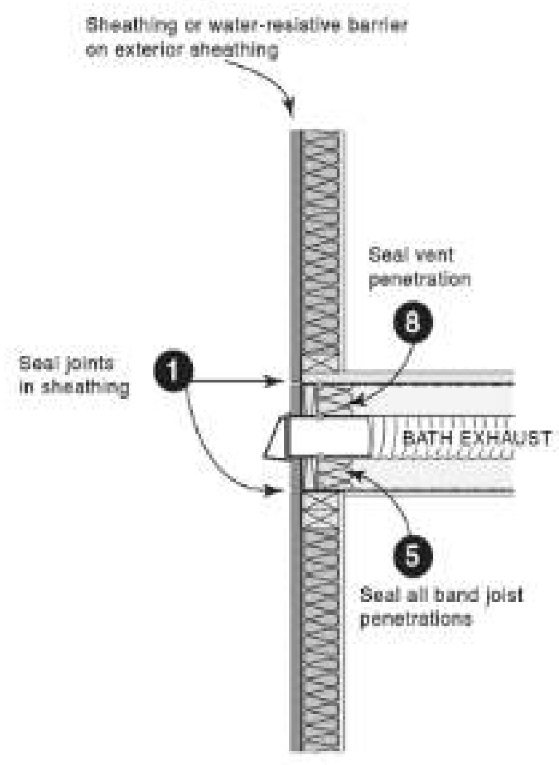
Air sealing key points *continued*

Multifamily Mechanical Closet


Seal electrical and plumbing penetrations and perimeter of outside air ventilation duct ⑧⑫
OUTSIDE AIR VENTILATION DUCT
Seal plenum penetration through drywall ⑧
PLENUM
AIR HANDLER
COILS
TILTED FILTER
WATER HEATER
UTILITY CHASE
⑧ Utility chase capped and sealed at perimeter - at all levels
⑧⑫
⑧⑫
Intermittent inline supply fan with controls to ensure concurrent air handler operation
⑧⑫ Seal electrical and plumbing penetrations
⑧ Utility chase capped and sealed at perimeter - at all levels
Seal perimeter of drain penetration ⑧

Air sealing key points *continued*

Multifamily


Sheathing or water-resistive barrier on exterior sheathing
Seal vent penetration ⑧
Seal joints in sheathing ①
BATH EXHAUST VENT
⑤ Seal all band joist penetrations

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.

Disclaimer:
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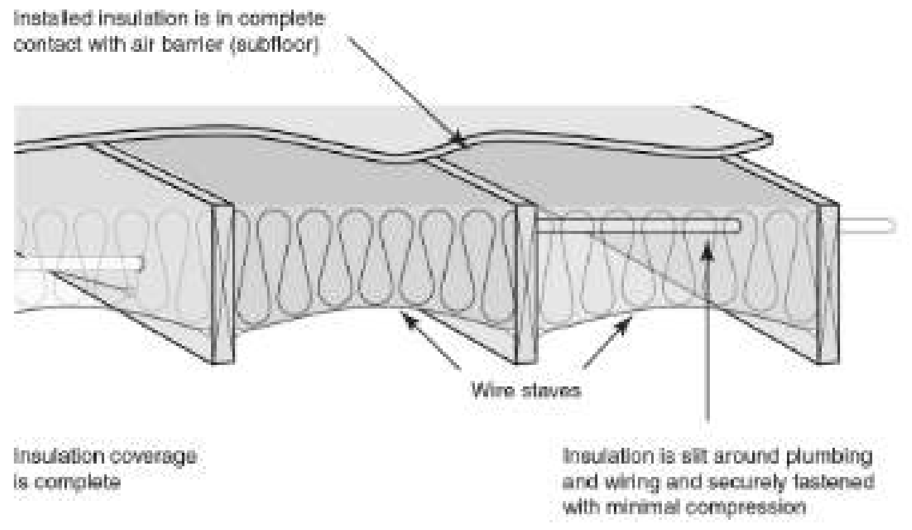
Floor Insulation key points

Passing Grade ☑


Installed insulation is in complete contact with air barrier (subfloor)
Wire staves
Insulation coverage is complete
Insulation is slit around plumbing and wiring and securely fastened with minimal compression

PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:

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ARCHITECTURE
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DAVID EUGENE HENDRIKSE
NUMBER A-7395
10/30/23

WILSHIRE HILLS III

LEE'S SUMMIT, MISSOURI

MHDC - 22-057

SHEET TITLE
GENERAL INFORMATION

PROJECT NUMBER: 23034

SHEET NUMBER:

G-007

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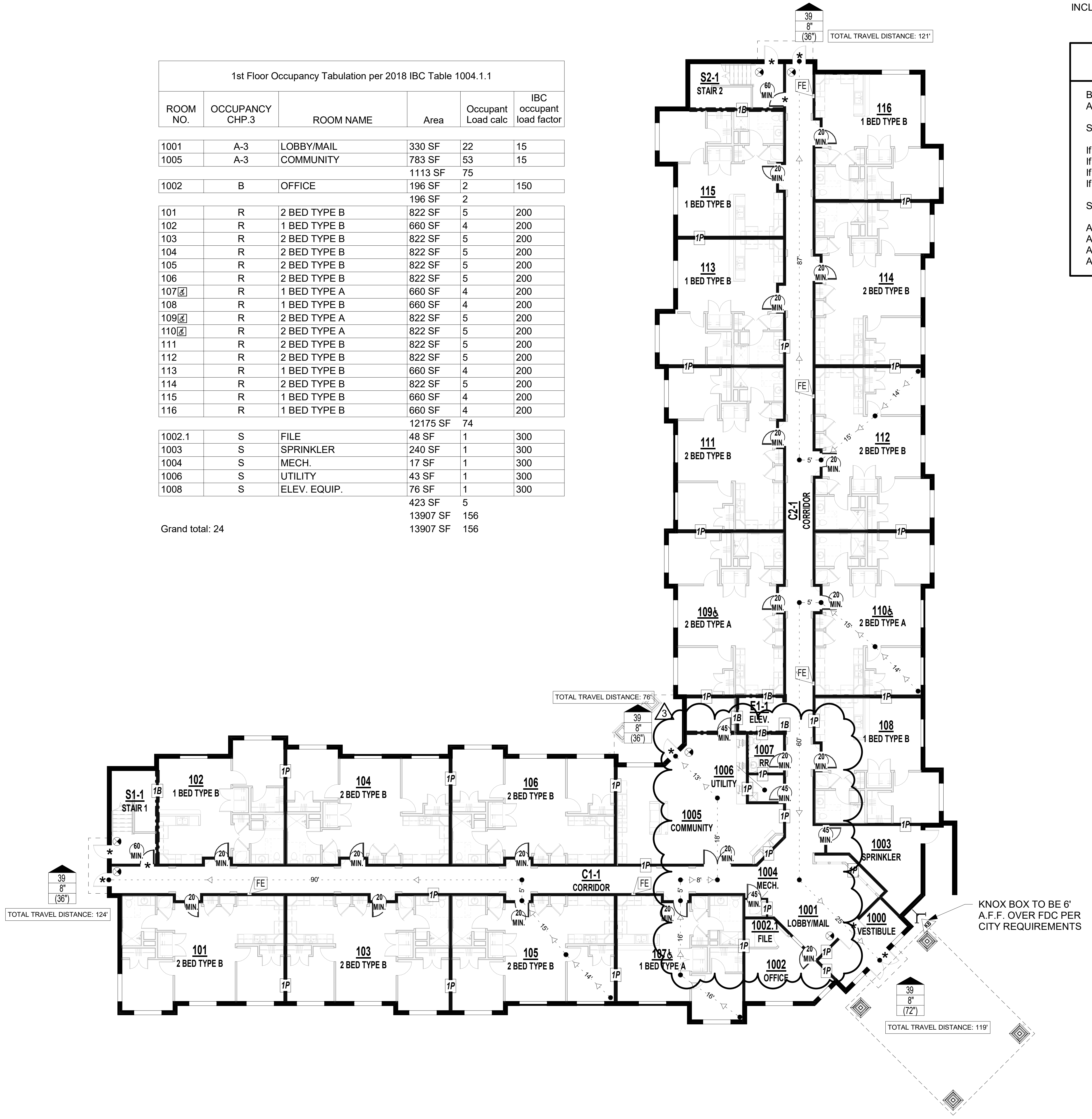
REFERENCE G-003 FOR GENERAL NOTES

1st Floor Occupancy Tabulation per 2018 IBC Table 1004.1.1

ROOM NO.	OCCUPANCY CHP.3	ROOM NAME	Area	Occupant Load calc	IBC occupant load factor
1001	A-3	LOBBY/MAIL	330 SF	22	15
1005	A-3	COMMUNITY	783 SF	53	15
			1113 SF	75	
1002	B	OFFICE	196 SF	2	150
			196 SF	2	
101	R	2 BED TYPE B	822 SF	5	200
102	R	1 BED TYPE B	660 SF	4	200
103	R	2 BED TYPE B	822 SF	5	200
104	R	2 BED TYPE B	822 SF	5	200
105	R	2 BED TYPE B	822 SF	5	200
106	R	2 BED TYPE B	822 SF	5	200
107 ♿	R	1 BED TYPE A	660 SF	4	200
108	R	1 BED TYPE B	660 SF	4	200
109 ♿	R	2 BED TYPE A	822 SF	5	200
110 ♿	R	2 BED TYPE A	822 SF	5	200
111	R	2 BED TYPE B	822 SF	5	200
112	R	2 BED TYPE B	822 SF	5	200
113	R	1 BED TYPE B	660 SF	4	200
114	R	2 BED TYPE B	822 SF	5	200
115	R	1 BED TYPE B	660 SF	4	200
116	R	1 BED TYPE B	660 SF	4	200
			12175 SF	74	
1002.1	S	FILE	48 SF	1	300
1003	S	SPRINKLER	240 SF	1	300
1004	S	MECH.	17 SF	1	300
1006	S	UTILITY	43 SF	1	300
1008	S	ELEV. EQUIP.	76 SF	1	300
			423 SF	5	
			13907 SF	156	
Grand total: 24			13907 SF	156	



KNOX BOX TO BE 6' A.F.F. OVER FDC PER CITY REQUIREMENTS

A1 1ST FLOOR CODE PLAN
1/16" = 1'-0"

CODE PLAN GENERAL NOTES:

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

AREA INCREASE

BASED ON TYPE V-A CONSTRUCTION WITH
AN ALLOWABLE SF OF 12,000 SF

SECTION 506.2 (EQUATION 5-2)

If = [F/P - 0.25] W/30
If = [830/830 - 0.25] 30/30
If = [0.75] 1
If = 0.75

SECTION 506.2 (EQUATION 5-1)

Aa = {At + [At x If] + [At x Is]}
Aa = {12,000 + [12,000 x 0.75] + [12,000 x 0]}
Aa = {12,000 + [9,000] + 0}
Aa = 21,000 SF

CODE REVIEW

PROJECT NAME: WILSHIRE HILLS III
PROJECT LOCATION: LEE'S SUMMIT, MO
CODE: 2018 IBC
CODE REVIEW COMPLETED BY: SARAH BURDIEK

CHAPTER THREE

SECTION 302 CLASSIFICATION:	R-2

CHAPTER FOUR

SECTION 402 COVERED MALL BUILDINGS:	N/A
SECTION 403 HIGH RISE BUILDINGS:	N/A
SECTION 404 ATRIUMS:	N/A
SECTION 405 UNDERGROUND BUILDINGS:	N/A
SECTION 406 MOTOR-VEHICLE-RELATED OCCUP:	N/A
SECTION 407 GROUP I-2:	N/A
SECTION 408 GROUP I-3:	N/A
SECTION 409 MOTION PICTURE PROJECTION ROOMS:	N/A
SECTION 410 STAGES AND PLATFORMS:	N/A
SECTION 411 SPECIAL AMUSEMENT BUILDINGS:	N/A
SECTION 412 AIRCRAFT RELATED OCCUP:	N/A
SECTION 413 COMBUSTIBLE STORAGE:	N/A
SECTION 414 HAZARDOUS MATERIALS:	N/A
SECTION 415 GROUPS H-1, H-2, H-3, H-4, H-5:	N/A

CHAPTER FIVE

TABLE 504.3 ALLOWABLE HT IN FEET ABOVE GRADE:	R S13R: 60'	
SECTION 504.4 ALLOWABLE # OF STORIES ABOVE GRADE:	R-2 TYPE V-A; 4 STORIES	
506.2 ALLOWABLE AREA/FLOOR:	R-2 TYPE V-A: 12,000 SF	
SECTION 504 HEIGHT MODIFICATIONS:	NONE TAKEN	
SECTION 506.2.3 AREA MODIFICATIONS:	ALLOWABLE 12,000 SF	ACTUAL 17,860 SF
506.2 FRONTAGE INCREASE:	SEE AREA INCREASE CALCULATION	
SECTION 507 UNLIMITED AREA BUILDINGS:	N/A	
TABLE 508.2 ACCESSORY OCCUPANCIES:	MAX 10% AREA / FLOOR MAX 12,000 SF TOTAL	
TABLE 508.3.3 REQUIRED SEPARATION OF OCCUPANCIES:	1 HR SEPARATION ACCESSORY OCCUPANCIES ONLY	
TABLE 509 INCIDENTAL USE AREAS:	N/A	

CHAPTER SIX

TABLE 601 FIRE RESISTANCE REQUIREMENTS FOR BUILDING ELEMENTS (HOURS):	
STRUCTURAL FRAME:	V-A - 1 HR
BEARING WALLS, EXTERIOR:	V-A - 1 HR
BEARING WALLS, INTERIOR:	V-A - 1 HR
NONBEARING WALLS AND PARTITIONS, INTERIOR:	0 HOUR
FLOOR CONSTRUCTION:	V-A - 1 HR
ROOF CONSTRUCTION:	V-A - 1 HR
TABLE 602 FIRE RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE:	R-2 VA 10 </= 1 HR, 0 HR >30 FEET

CHAPTER SEVEN

SECTION 704 FIRE-RESISTANCE RATING OF STRUCTURAL MEMBERS:	1 HR RE: 601
TABLE 705.8 MAX AREA EXTERIOR WALL OPENINGS:	(UNPROTECTED)
SECTION 706 FIRE WALLS:	V-A - 2 HR (NONE REQ'D)
SECTION 707 FIRE BARRIERS:	1 HR
SECTION 708 FIRE PARTITIONS:	1 HR
SECTION 709 SMOKE BARRIERS:	DAMPERS REQUIRED
SECTION 710 SMOKE PARTITIONS:	0 HR
SECTION 711 HORIZONTAL ASSEMBLIES:	1 HR
SECTION 712 VERTICAL OPENINGS:	1 HR R-2
SECTION 713 SHAFT ENCLOSURES:	1 HR (< 3 STORIES)
SECTION 714 PENETRATIONS:	VARIES
SECTION 715 FIRE-RESISTANT JOINT SYSTEMS:	1 HR (TO MATCH SYSTEMS)
SECTION 716 OPENING PROTECTIVES:	CORRIDOR - 20 MIN., EXTERIOR - 3/4 HR CORRIDOR TO STAIR - 1 HR
SECTION 717 DUCTS AND AIR TRANSFER OPENINGS:	1.5 HOUR DAMPER RATING
SECTION 718 CONCEALED SPACES:	NONE

CHAPTER NINE

SECTION 903 AUTOMATIC SPRINKLER SYSTEM:	REQUIRED, NFPA 13R
SECTION 905 STANDPIPE SYSTEM:	REQUIRED
SECTION 907 FIRE ALARM & DETECTION SYSTEM:	REQUIRED, NFPA 72
SECTION 909 SMOKE CONTROL SYSTEM:	NOT REQUIRED

CHAPTER TEN

TABLE 1004.1.1 MAX FLOOR AREA ALLOW/OCCUP:	200 GROSS - RESIDENTIAL
SECTION 1005.3 EGRESS WIDTH/ OCCUP SERVED:	STAIRS 0.3/OCC, OTHER EGRESS 0.2/OCC.
SECTION 1006.2.1 COMMON PATH OF TRAVEL:	125' COMMON PATH 20 OCC. MAX. SINGLE EXIT
SECTION 1006.3.2 NUMBER OF EXITS & EXIT PER STORY	> 500 OCCUPANTS: 2 EXITS
SECTION 1009 ACCESSIBLE EGRESS:	1 / 30x48 SPACE / 200 OCC.
SECTION 1014 HANDRAIL HEIGHTS:	34" MIN. - 38" MAX.
TABLE 1017.2 EXIT ACCESS TRAVEL DISTANCE:	250' SPRINKLED
TABLE 1019.3 STAIRWELL EGRESS:	3 STORIES - RE: 713
TABLE 1020.1 CORRIDOR FIRE RESISTANCE RATING:	RE: 708: 0.5 HR

CHAPTER ELEVEN

TABLE 1106.1 ACCESSIBLE PARKING SPACES:	AS PER CIVIL

CHAPTER TWELVE

1203.5 NATURAL VENTILATION:	4% VENTILATION
1205.2 NATURAL LIGHT:	NOT LESS THAN 8% FLOOR AREA SERVED

CHAPTER TWENTY NINE

TABLE 2902.1 PLUMBING FAC. NO.	1 WC / UNIT; 1 LAVATORY / UNIT

2018 IECC

CLIMATE ZONE: 4A CONST. TYPE: V-A CHAPTER 4-RESIDENTIAL ENERGY EFFICIENCY

PROJECT COMPLYING WITH 2018 IECC VIA PERFORMANCE METHOD; REFERENCE COMCHECK.

MEETS 2018 IECC SECTION R402.1.2 PER PRELIMINARY COMCHECK.

BELOW ARE GENERAL GUIDELINES:

TABLE 402.1.2- BUILDING ENVELOPE REQUIREMENTS
FENESTRATION U-FACTOR = 0.32
SKYLIGHT U-FACTOR = 0.55
GLAZED FENESTRATIONS SHGC = 0.40
CEILING R-VALUE = 49
WOOD FRAME WALL R-VALUE = 20
MASS WALL R-VALUE = 8/13
FLOOR R-VALUE = 19
BASEMENT WALL R-VALUE = 10/13
SLAB R-VALUE = 10, 2 ft.

ALL OF IECC 2018 APPLIES, HOWEVER PARTICULAR NOTE SHALL BE TAKEN OF THE FOLLOWING. ADDITIONALLY, GC TO PROVIDE INSULATION, FENESTRATION, AND OTHER REQUIREMENTS PER BELOW:

1. AIR LEAKAGE PER SECTION R402.4
2. AIR BARRIER PENETRATIONS PER R402.4.1.1
3. AIR LEAKAGE OF FENESTRATION PER SECTION R402.4.3
4. BUILDING MECHANICAL SYSTEM REQUIREMENTS PER SECTION R403
5. DUCT/PLENUM INSULATION AND SEALING PER R403.3
6. PIPING INSULATION PER R403.4
7. SERVICE WATER HEATING PER SECTION R403.5
8. LIGHTING ELECTRICAL SYSTEMS PER SECTION R404

CODE PLAN LEGEND

100	NUMBER OF OCCUPANTS EXITING
20"	REQUIRED EXIT WIDTH
(72")	EXIT WIDTH PROVIDED BY DESIGN
━	EXT. - RATED PARTITION (IBC CH. 6) SEE ASSEMBLY SHEET FOR MORE INFO ON EXTERIOR RATED WALLS
─	NON - RATED PARTITION
1P━━1P	1 HR RATED PARTITION (IBC 708)
1B━ ━1B	1 HR RATED BARRIER (IBC 707)
1000 ♿ Room Name	ROOM NUMBER
FE	FIRE EXTINGUISHER CABINET OR SURFACE MTD. AT CONC.
KB	FIRE DEPARTMENT KNOX BOX (DEFER SUBMITTAL FOR LOC.)
Y	FIRE DEPARTMENT CONNECTION
(60/S)	DOOR RATING
*	DOOR WITH PANIC HARDWARE (SEE DOOR SCHEDULE)
⊗	EXIT SIGNAGE; SEE ELECTRICAL
●	EGRESS STARTING POINT
20'	EGRESS DISTANCE OF TRAVEL
▷	EGRESS DIRECTION OF TRAVEL

PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:

1	12/15/23	Addendum 1 - Response to City Comments
3	04/19/24	Addendum 3 - Response to City Comments #2

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DAVID EUGENE HENDRIKSE
NUMBER A-7395
04/19/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
CODE ANALYSIS

PROJECT NUMBER: 23034

SHEET NUMBER:

G-100

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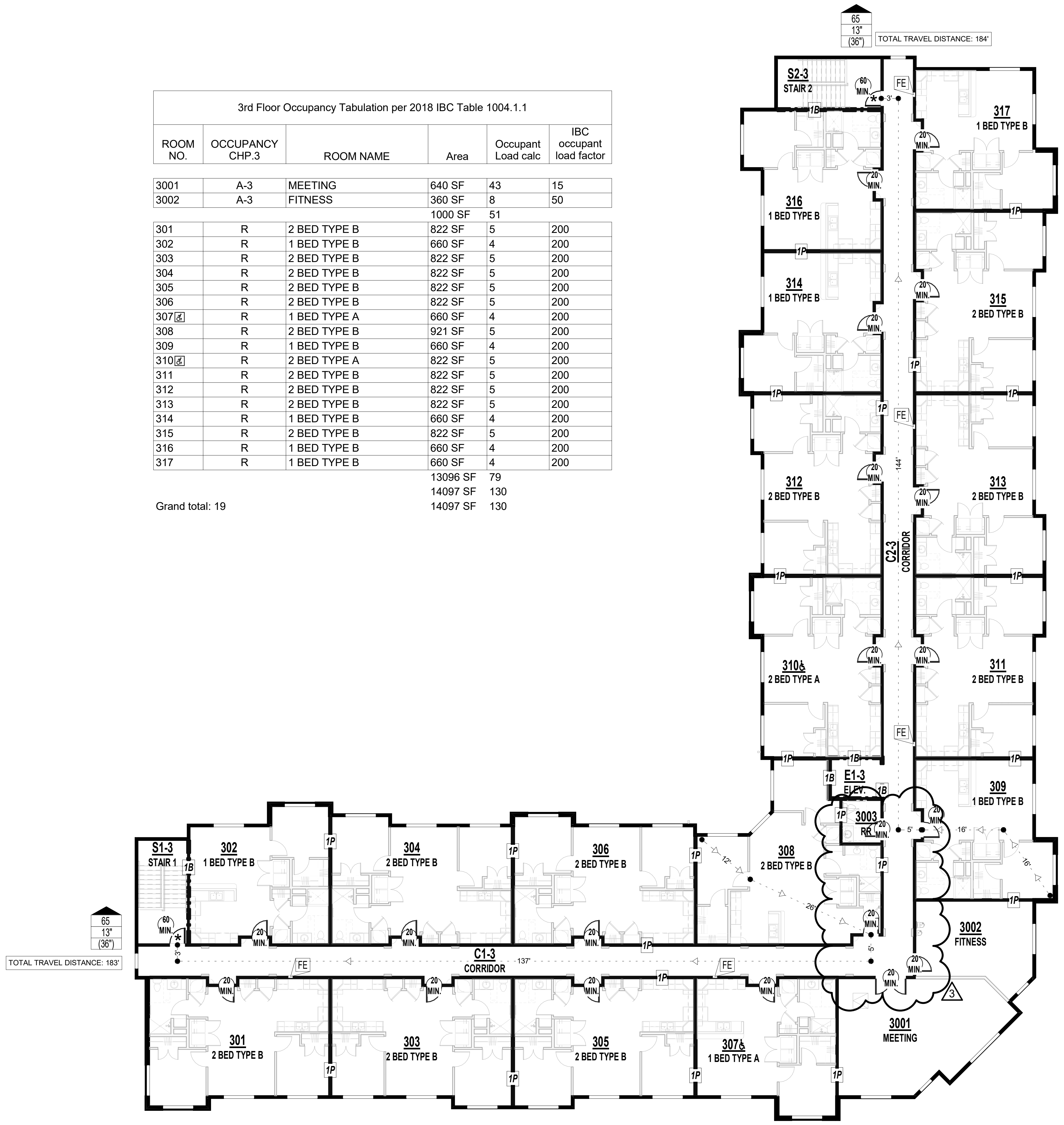
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE G-100 FOR CODE LEGEND

3rd Floor Occupancy Tabulation per 2018 IBC Table 1004.1.1

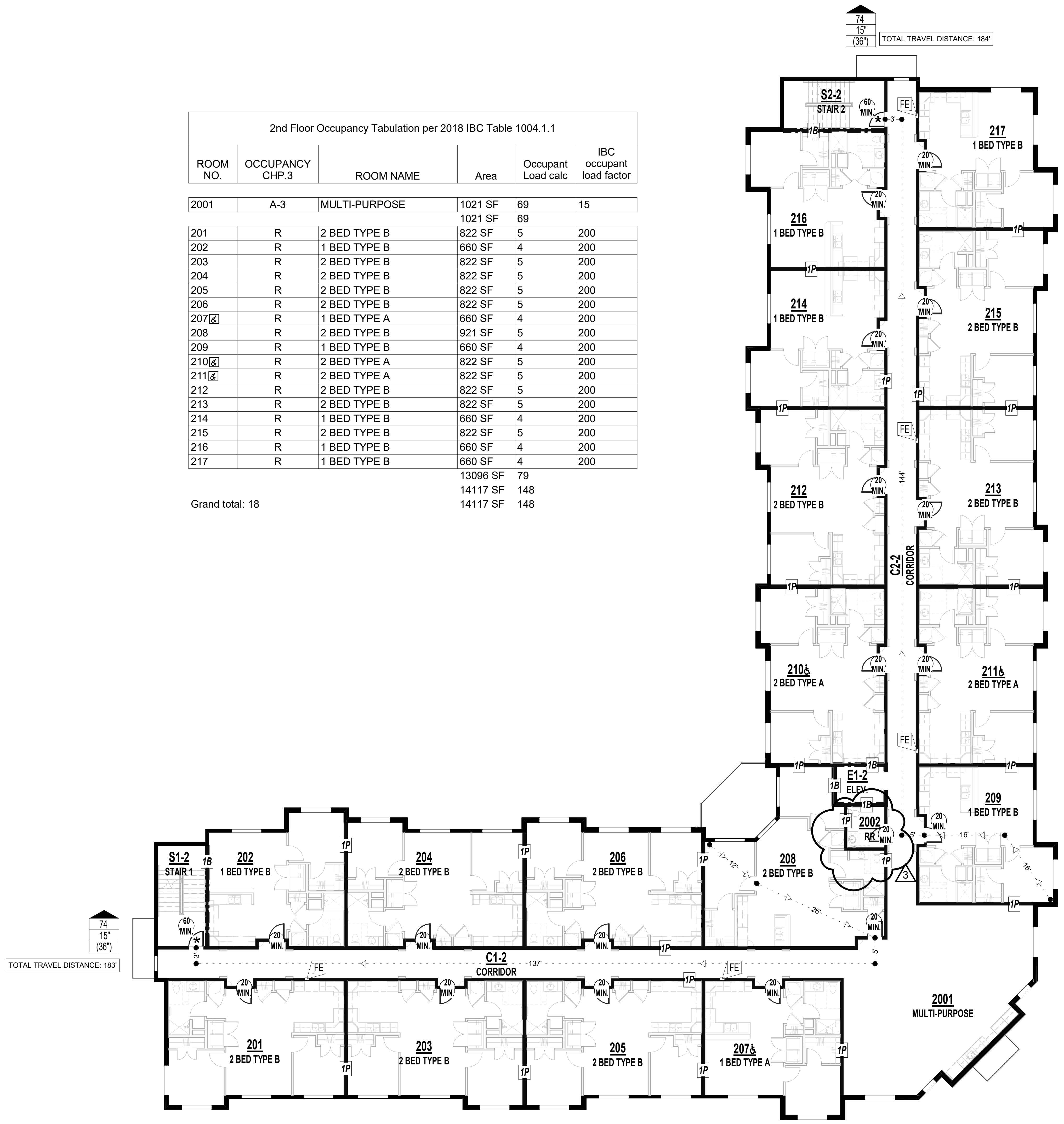
ROOM NO.	OCCUPANCY CHP.3	ROOM NAME	Area	Occupant Load calc	IBC occupant load factor
3001	A-3	MEETING	640 SF	43	15
3002	A-3	FITNESS	360 SF	8	50
			1000 SF	51	
301	R	2 BED TYPE B	822 SF	5	200
302	R	1 BED TYPE B	660 SF	4	200
303	R	2 BED TYPE B	822 SF	5	200
304	R	2 BED TYPE B	822 SF	5	200
305	R	2 BED TYPE B	822 SF	5	200
306	R	2 BED TYPE B	822 SF	5	200
307♿	R	1 BED TYPE A	660 SF	4	200
308	R	2 BED TYPE B	921 SF	5	200
309	R	1 BED TYPE B	660 SF	4	200
310♿	R	2 BED TYPE A	822 SF	5	200
311	R	2 BED TYPE B	822 SF	5	200
312	R	2 BED TYPE B	822 SF	5	200
313	R	2 BED TYPE B	822 SF	5	200
314	R	1 BED TYPE B	660 SF	4	200
315	R	2 BED TYPE B	822 SF	5	200
316	R	1 BED TYPE B	660 SF	4	200
317	R	1 BED TYPE B	660 SF	4	200
			13096 SF	79	
			14097 SF	130	
Grand total: 19			14097 SF	130	



A2 THIRD FLOOR PLAN
1/16" = 1'-0"

2nd Floor Occupancy Tabulation per 2018 IBC Table 1004.1.1

ROOM NO.	OCCUPANCY CHP.3	ROOM NAME	Area	Occupant Load calc	IBC occupant load factor
2001	A-3	MULTI-PURPOSE	1021 SF	69	15
			1021 SF	69	
201	R	2 BED TYPE B	822 SF	5	200
202	R	1 BED TYPE B	660 SF	4	200
203	R	2 BED TYPE B	822 SF	5	200
204	R	2 BED TYPE B	822 SF	5	200
205	R	2 BED TYPE B	822 SF	5	200
206	R	2 BED TYPE B	822 SF	5	200
207♿	R	1 BED TYPE A	660 SF	4	200
208	R	2 BED TYPE B	921 SF	5	200
209	R	1 BED TYPE B	660 SF	4	200
210♿	R	2 BED TYPE A	822 SF	5	200
211♿	R	2 BED TYPE A	822 SF	5	200
212	R	2 BED TYPE B	822 SF	5	200
213	R	2 BED TYPE B	822 SF	5	200
214	R	1 BED TYPE B	660 SF	4	200
215	R	2 BED TYPE B	822 SF	5	200
216	R	1 BED TYPE B	660 SF	4	200
217	R	1 BED TYPE B	660 SF	4	200
			13096 SF	79	
			14117 SF	148	
Grand total: 18			14117 SF	148	



A1 2ND FLOOR CODE PLAN
1/16" = 1'-0"

PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:

3	04/19/24	Addendum 3 - Response to City Comments #2

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DAVID EUGENE HENDRIKSE
NUMBER A-7395
04/19/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
CODE PLANS

PROJECT NUMBER: 23034

SHEET NUMBER:
G-101

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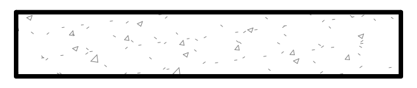
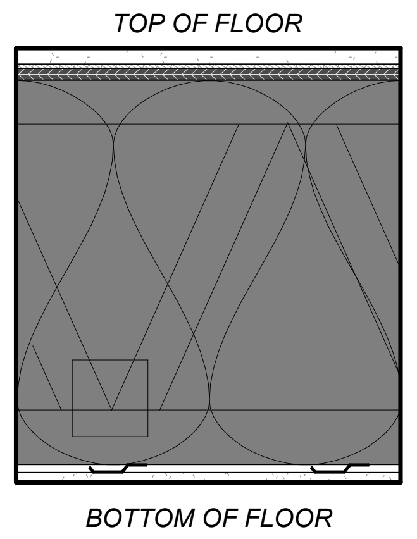
FLOOR/CEILING ASSEMBLIES - WOOD



F1

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

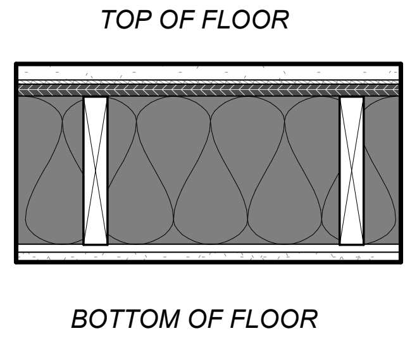
NOTES
- a. SEE STRUCTURAL FOR REINFORCING AND THICKNESS
- b. VERIFY SLAB ELEVATIONS WITH CIVIL AND LANDSCAPE



F3

WOOD OPEN WEB TRUSS - 1HR
- 1" GYPCRETE TOPPING
- 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

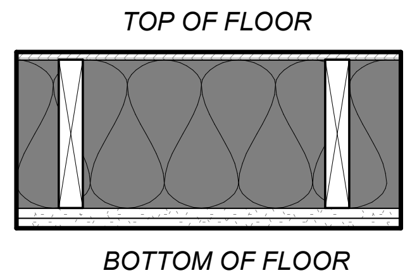
NOTES: 5
- a. ASSEMBLY TO COMPLY WITH UL DESIGN L528 (JUN 27, 2024)
- b. STRUCTURAL SHALL SUPERCEDE IF STRUCT SHEATHING IS THICKER OR DIFFERENT TYPE THAN LISTED ABOVE. PROVIDE REQ MIN ABOVE.
- c. REFER TO UL FOR SCREW PATTERN
- d. STC TO BE MIN. 50 PER IBC CHAPTER 12, IIC TO BE EQUAL OR GREATER THAN 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
- 1" GYPCRETE TOPPING
- 1/4" ACOUSTICAL MAT
- MIN 15/32" TYPE 'C/D' SHEATHING OR PER UL SYSTEM, SEE NOTE b.
- 2X10 WOOD JOISTS SPACED MAX 16" O.C.; REFER TO STRUCTURAL FOR REQUIRED SPACING IF MORE RESTRICTIVE
- CROSS BRIDGING PER UL
- UNFACED FIBERGLASS INSULATION COMPLETELY FILLED IN CONCEALED CAVITY TO COMPLY WITH NFPA 13 CONCEALED SPACES AND UL
- 25 MSG GALVANIZED RESILIENT CHANNEL SPACED PER UL.
- (1) LAYER OF 5/8" TYPE 'C' GWB PER UL

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

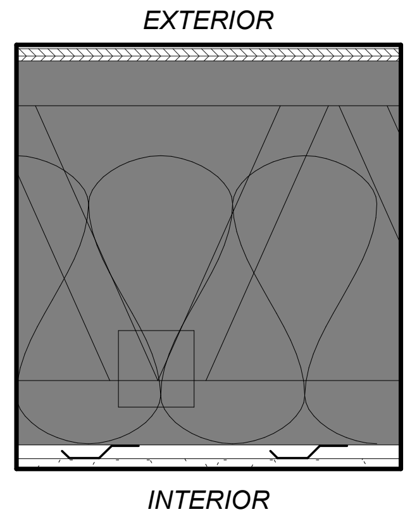


F19

WOOD 2X10 LUMBER - 1HR - T.O. ELEVATOR SHAFT
- 1/2" SHEATHING PER IBC
- WOOD 2X10 JOISTS SPACED PER STRUCTURAL
- UNFACED FIBERGLASS INSULATION COMPLETELY FILLED IN CONCEALED CAVITY TO COMPLY WITH NFPA 13 CONCEALED SPACES.
- (2) LAYERS 5/8" TYPE X GWB. PER IBC

NOTES:
- a. ASSEMBLY TO COMPLY WITH 2018 IBC TABLE 721.1(3) ITEM 21-1.1
- b. REFER TO IBC FOR SCREW PATTERN
- c. FIRE CAULK BOTTOM OF CEILING TO WALL, CONTINUOUSLY

ROOF/CEILING ASSEMBLIES - WOOD



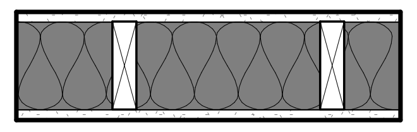
R3

WOOD SLOPED TRUSS - 1HR - SHINGLES
- ASPHALT SHINGLES PER SPECIFICATIONS
- ROOF UNDERLAYMENT PER SPECIFICATIONS
- 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
- 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 'C' GWB

NOTES:
- a. ASSEMBLY TO COMPLY WITH UL DESIGN P545 (APR 4, 2019)
- 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

INTERIOR BARRIER ASSEMBLIES - WOOD - 1 HR RATED

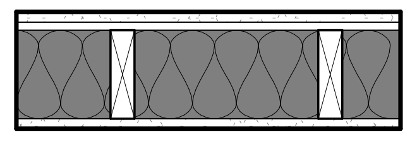
5



P20

WOOD 2X6 STUD - 1HR BARRIER - INTERIOR
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD
- 2x6 WOOD STUDS SPACED 24" 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 U309 (JAN 30, 2024)
- b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS
- c. SHALL COMPLY WITH IBC SECTION 7 FOR FIRE BARRIERS

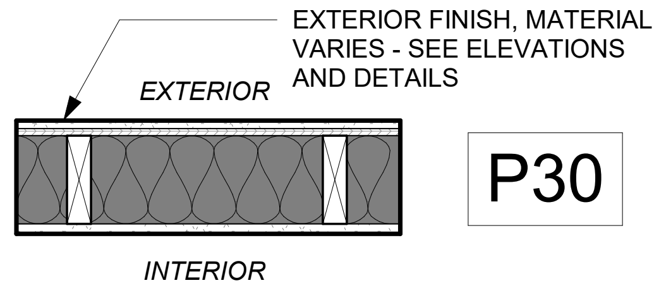


P21

WOOD 2X6 STUD - 1HR BARRIER - INTERIOR SOUND DAMPENING
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD
- 25 MSG GALVANIZED RESILIENT CHANNEL, SPACED 24" O.C.
- 2x6 WOOD STUDS SPACED 24" 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 U309 (JAN 30, 2024)
- b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS
- c. SHALL COMPLY WITH IBC SECTION 7 FOR FIRE BARRIERS
- d. STC SHALL BE 50 OR OVER AT UNIT ASSEMBLIES, MEETING ASTM E90 (STC 51 BASED UPON TESTING NGC 2011071)
- e. WHERE BARRIER DIVIDES A CORRIDOR AND A UNIT, CORRIDOR SIDE SHALL RECEIVE THE RESILIENT CHANNEL

EXTERIOR PARTITION ASSEMBLIES - WOOD - RATING VARIES


EXTERIOR FINISH, MATERIAL VARIES - SEE ELEVATIONS AND DETAILS
EXTERIOR
INTERIOR

P30

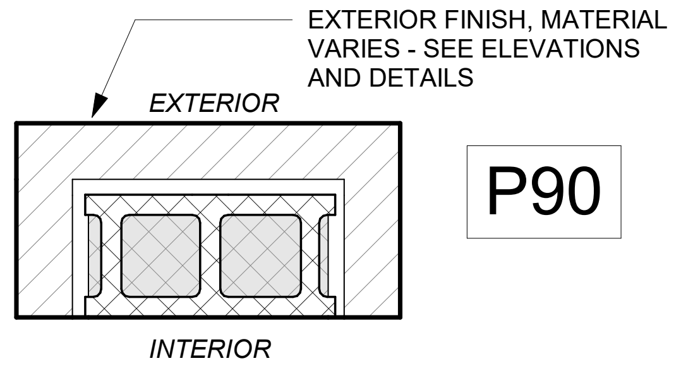
WOOD 2X6 STUD - 1HR PARTITION - EXTERIOR (INTERIOR RATED)

EXTERIOR
- EXTERIOR FINISH SYSTEM PER ELEVATIONS
- WEATHER RESISTANT BARRIER, PER SPECIFICATIONS
- (1) LAYER SHEATHING PER STRUCT. DWGS.
- 2x6 WOOD STUDS SPACED 24" O.C. MAX OR PER STRUCT. DWGS.
- 5-1/2" KRAFT OR FOIL FACED BATT INSULATION IN STUD CAVITY, R-VALUE PER DRAWINGS/SPECIFICATIONS TO MEET IECC.
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD

INTERIOR

NOTES:
- a. ASSEMBLY TO COMPLY WITH 2024 IBC, TABLE 721.1(2), MATERIAL #16, ITEM NUMBER 16-1.4
- b. RATING FROM THE INTERIOR SIDE ONLY
- c. EXTERIOR SYSTEM TO BE PER DETAILS AND ELEVATIONS

SITE WALL ASSEMBLIES

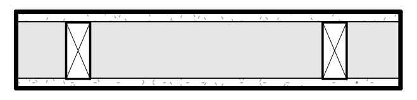

EXTERIOR FINISH, MATERIAL VARIES - SEE ELEVATIONS AND DETAILS
EXTERIOR
INTERIOR

P90

CMU 8" BLOCK - SITE WALL
- EXTERIOR FINISH PER SPEC, WRAP CORNERS, BRICK WITH 1" AIR GAP SHOWN
- 8" CMU (REINFORCING PER STRUCT)

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

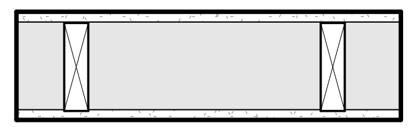
INTERIOR PARTITION ASSEMBLIES - WOOD - NON RATED



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

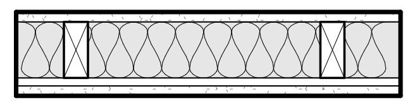
NOTES:
- a. ATTACH GYPSUM WITH 1-1/4" TYPE 'W' STEEL SCREWS @ 12" O.C.



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

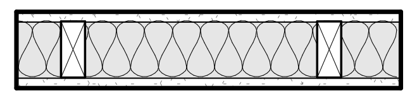
NOTES:
- a. ATTACH GYPSUM WITH 1-1/4" TYPE 'W' STEEL SCREWS @ 12" O.C.



P3

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

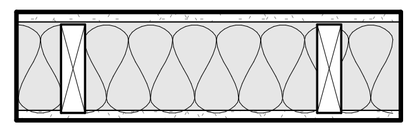
NOTES:
- a. ATTACH GYPSUM WITH 1-1/4" TYPE 'W' STEEL SCREWS AT 12" O.C.



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

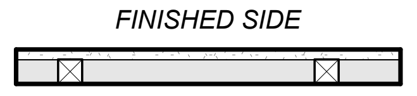
NOTES:
- a. ATTACH GYPSUM WITH 1-1/4" TYPE 'W' STEEL SCREWS @ 12" O.C.



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

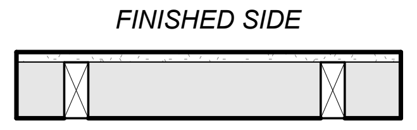
NOTES:
- a. ATTACH GYPSUM WITH 1-1/4" TYPE 'W' STEEL SCREWS @ 12" O.C.



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.

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



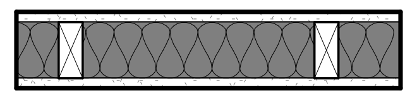
P7

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.

INTERIOR PARTITION ASSEMBLIES - WOOD - 1 HR RATED

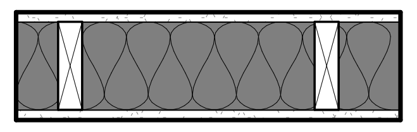
5



P10

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

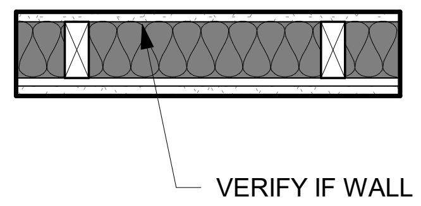
NOTES:
- a. ASSEMBLY TO COMPLY WITH UL DESIGN U309 (JAN 30, 2024)
- b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS



P11

WOOD 2X6 STUD - 1HR PARTITION - INTERIOR
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD
- 2x6 WOOD STUDS SPACED 24" 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 U309 (JAN 30, 2024)
- b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS

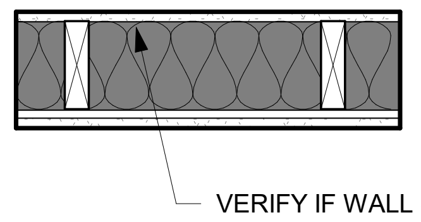


VERIFY IF WALL SHEATHING FOR SHEAR W/ STRUCT DWGS. IS REQUIRED. SHEATHING SHALL ATTACH DIRECTLY TO STUDS PER STRUCT.

P12

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

NOTES:
- a. ASSEMBLY TO COMPLY WITH UL DESIGN U309 (JAN 30, 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.

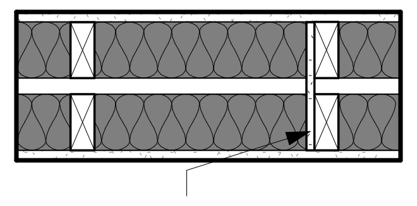


VERIFY IF WALL SHEATHING FOR SHEAR W/ STRUCT DWGS. IS REQUIRED. SHEATHING SHALL ATTACH DIRECTLY TO STUDS PER STRUCT.

P13

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

NOTES:
- a. ASSEMBLY TO COMPLY WITH UL DESIGN U309 (JAN 30, 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.



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

P14

WOOD DOUBLE 2X4 STUD - 1HR PARTITION - INTERIOR
- (1) LAYER 5/8" TYPE "X" GYPSUM BOARD
- 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 (SEPT 23, 2020)
- b. REFER TO UL FOR SCREW PATTERN AND OTHER REQUIREMENTS
- c. PROVIDE 1/2" GYP BOARD DRAFT STOP AT MAX 10'-0" O.C.
- d. STC SHALL BE 50 OR OVER AT UNIT ASSEMBLIES, MEETING ASTM E90 (STC 61 BASED UPON TESTING TL11-120)

PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:

1	12/15/23	Addendum 1 - Response to City Comments
5	10/04/24	ASI 001

rosemann & ASSOCIATES P.C.
ARCHITECTURE
INTERIOR DESIGN
ENGINEERING
PLANNING

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Kansas City, MO 64108-1404
p: 816.472.1448

w: www.rosemann.com

DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

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

10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
ASSEMBLIES - PARTITION, CEILING, ROOF

PROJECT NUMBER: 23034

SHEET NUMBER:
G-102

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UL DESIGN - U309

5

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

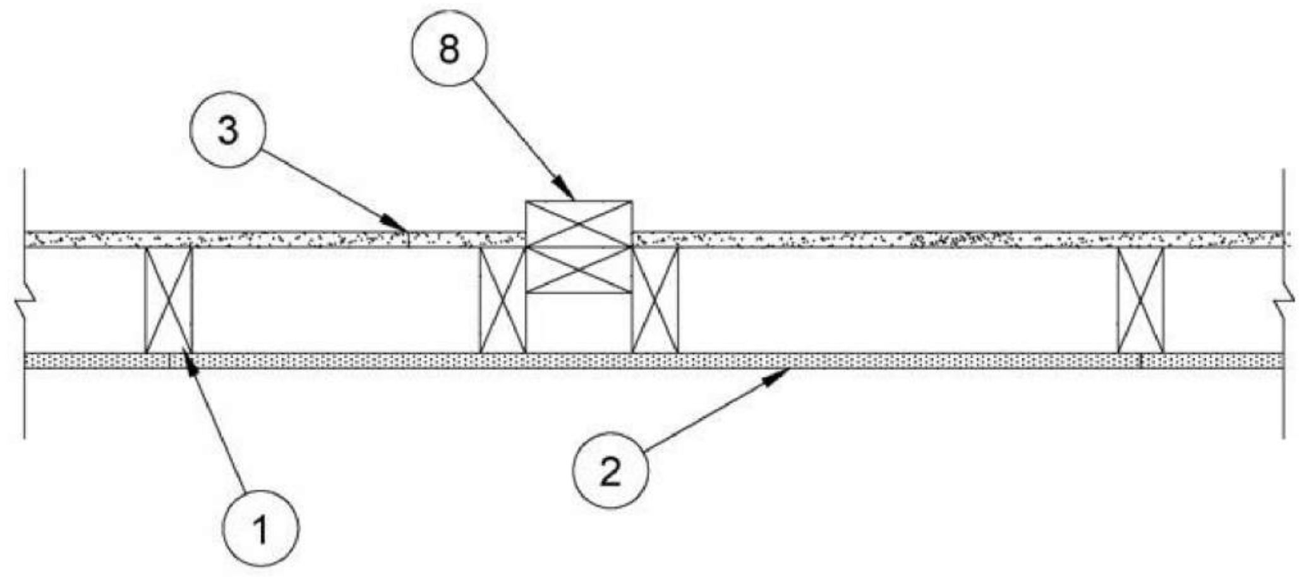
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

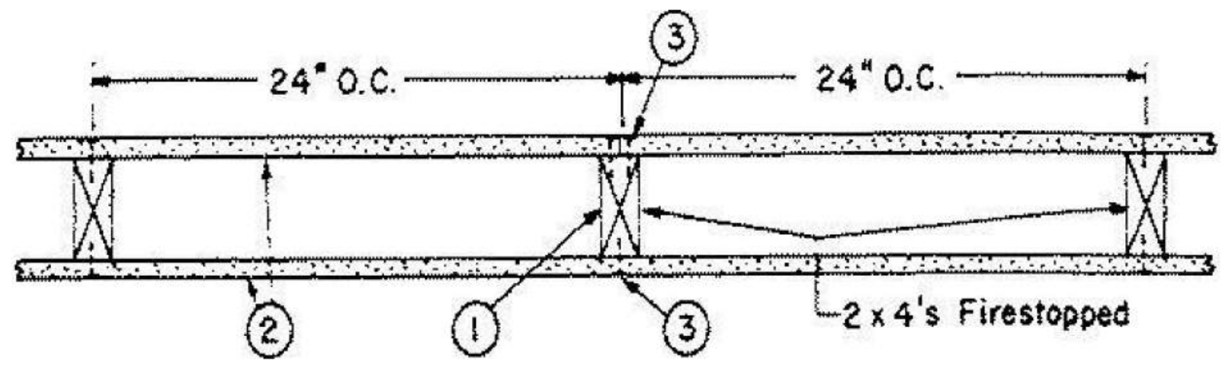
Design No. **U309**

January 30, 2024

Bearing Wall Rating — 1 Hr.
Finish Rating — See Items 2, 2A and 2B
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 24 in. OC effectively firestopped.

2. **Gypsum Board* —** 5/8 in. thick, 4 ft wide, applied either horizontally or vertically, nailed to studs and bearing plates with 6d cement coated nails min. 1-7/8 in. long, 0.0915 in. shank diam and 1/4 in. diam heads spaced 7 in. OC. Finish Rating 27 Min. When used in widths other than 48 in., gypsum board to be installed horizontally.

When **Steel Framing Members*** (Items 5 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 Item 6, resilient channels are used, 5/8 in. thick, 4 ft wide 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, M-Glass, AG-C, LightRoc

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

CABOT MANUFACTURING ULC — Type X, 5/8 Type X, Type Blueglass Exterior Sheathing

CERTAINTEED GYPSUM INC — Type X-1, Types EGRG, GlasRoc, GlasRoc-2, Type C, Type LWTX

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

GEORGIA-PACIFIC GYPSUM L L C — Types 5, 6, 9, C, DAP, DD, DA, DAPC, DGG, DS, GPFS6, LS (finish rating 23 min), Type X, Veneer Plaster Base - Type X, Water Rated - Type X, Sheathing - Type X, Soffit - Type X, TG-C, 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, FSW, FSW-3, FSW-5, FSW-C, FSW-G, FSMR-C, FSW-6 (finish rating 20 min), FSL, FSW-8, RSX

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type C, PG-9, PG-11, PG-C, PGS-WRS, PGI

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

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

THAI GYPSUM PRODUCTS PCL — Type X, Type C

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 4E. Not evaluated for use with Steel Framing Members, Furring Channels or Fiber, Sprayed.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 530 (finish rating 23 min)

2B. **Gypsum Board* —** (As an alternate to Item 2) — 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 two screws 1 and 4 in. from edge of board or nailed to studs and bearing plates with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 1/4 in. diam heads spaced 7 in. OC. When used in widths of other than 48 in., gypsum boards are to be installed horizontally.
GEORGIA-PACIFIC GYPSUM L L C — Type DGG, GreenGlass Type X (finish rating 23 min).

2C. **Gypsum Board* —** (As an alternate to Item 2) — 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 (finish rating 27 min)

NATIONAL GYPSUM CO — Type SBWB

2D. **Gypsum Board* —** (As an alternate to Items 2 through 2C) — 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 ES

2E. **Gypsum Board* —** (As an alternate to Item 2) — 5/8 in. thick, 4 ft. wide, paper surfaced applied vertically or horizontally and 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

2F. **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

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

THAI GYPSUM PRODUCTS PCL — 5/8" Easi-Lite Type X

2H. **Wall and Partition Facings and Accessories* —** (As an alternate to Item 2) — 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.

2I. **Gypsum Board* —** (As an alternate to Item 2) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a 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

2J. **Gypsum Board* —** (As an alternate to Item 2) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing as described in Item 2 or 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. When square edge boards are used joint treatment, Item 3, may be omitted.
AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C

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

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 max 8 in. OC, with last screw 1/2 in. from edge of board. When used in widths of other than 48 in., gypsum boards are to be installed horizontally.
CERTAINTEED GYPSUM INC — Type X-1, Types EGRG, GlasRoc, GlasRoc-2, Type C

3. **Joints and Fastener Heads —** Wallboard joints covered with paper tape and joint compound. Fastener heads covered with joint compound. Gypsum plaster not more than 1/8 in. thick may be applied over the wallboard in addition to the specified joint treatment.

4. **Batts and Blankets* —** (Not Shown) — Optional glass fiber insulation.
CERTAINTEED CORP

JOHNS MANVILLE

OWENS CORNING

4A. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 4) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft^3. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft^3, in accordance with the application instructions supplied with the product. When Item 5 is used, Fiber, Sprayed shall be SANCTUARY.

Applegate Greenfiber Acquisition LLC — SANCTUARY for use with wet or dry application. Insulmax is to be used for dry application only

4B. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 4) — 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

4C. **Batts and Blankets* —** Required for use with resilient channels, Item 6, 3 in. thick mineral wool batts, placed to fill interior of wall, attached to the 4 in. face of the studs with staples placed 24 in. OC.
ROCKWOOL — Type SAFEnSOUND, min. 1.69 pcf.

THERMAFIBER/OWENS CORNING — Type SAFB, SAFB FF

4D. **Glass Fiber Insulation —** (As an alternate to Item 4C) — 3 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, attached to the 4 in. face of the studs with staples placed 24 in. OC. See **Batts and Blankets** (BKNV or BZJZ) Catagories for names of Classified companies.

4E. **Batts and Blankets* —** (Required for use with Wall and Partition Facings and Accessories, 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.

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

4G. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 4) — Spray-applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. 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

5. **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 3-9/16 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)

5A. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 5) — 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

5B. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 5) — 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 5Ba) 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

5C. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 5) — 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 5Cb. 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 5Ca) to studs. Clips spaced 48 in. OC, and secured to studs with No. 8 × 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
REGUPOL AMERICA — Type SonusClip

5D. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 5) — 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 5Da) 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

5E. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 5) — 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

5F **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 5) — 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 5Fa) 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

6. **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 4C or 4D is required.

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. **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.

9. **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

9A. **Mineral and Fiber Board* —** (Optional, Not Shown) — For use with Items 9B-9E) — 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

9B. **Glass Fiber Insulation —** (For use with Item 9A) — 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.

9C. **Batts and Blankets* —** (As an alternate to Item 9B, For use with Item 9A), 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.
ROCKWOOL — Type SAFEnSOUND, min. 1.69 pcf.

THERMAFIBER/OWENS CORNING — Type SAFB, SAFB FF

9D. **Adhesive —** (For use with Item 9A) — 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 9A).

9E. **Gypsum Board* —** (For use with Item 9A) — 5/8 in. thick, 4 ft wide, applied vertically over Mineral and Fiber Board (Item 9A) 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 9A). 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.

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10/30/23 PERMIT SUBMITTAL

REVISIONS:

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NUMBER A-7395
10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
UL ASSEMBLIES

PROJECT NUMBER: 23034

SHEET NUMBER:

G-200

UL DESIGN - U309 - CONT.

AMERICAN GYPSUM CO — Type AG-C

CERTAINTEED GYPSUM INC — Type FRPC, 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

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

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

PANEL REY S A — Types PRC, PRC2

THAI GYPSUM PRODUCTS PCL — Type C

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

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

9F. **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 2). 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 2) 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

10. **Wall and Partition Facings and Accessories* —** (CLBV) (Optional, Not Shown) — For use with Item 1, Item 2, Item 3, Items 4, and Item 6. For maximum fire rating of 1 hour. On one side of the wall, over the first layer of Gypsum Board (Item 2), 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 first layer and as specified in Item 2 shall be installed over the membrane. Additional layer of Gypsum Board to be installed through the membrane to the stud as specified in Item 2 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 4.

On the other side of the wall prior to the installation of the Gypsum Board install Resilient Channels as per Item 6. Over the Resilient Channel install 3/4 inch thick SONOpan panel secured to the Resilient Channel 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 2 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 2), 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 2 with drywall screws as specified in Item 2. Panels not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

MSL — RefleXor membrane, SONOpan 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 2024-01-30

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2024 IBC, CHAPTER 7, SECTION 721, TABLE 721.1(2), MATERIAL #16, ITEM NUMBER 16-1.4

16-1.4q	2" × 6" wood studs at 24" centers with double top plates, single bottom plates; interior side covered with 5/8" Type X gypsum wallboard, 4' wide, applied vertically with all joints over framing or blocking and fastened with 2 1/4" Type S drywall screws spaced 7" on center. Joints covered with tape and joint compound. Exterior covered with 15/32" wood structural panels, applied vertically with edges over framing or blocking and fastened with 6d common nails (bright) at 12" on center in the field and 6" on center on panel edges. R-19 fiberglass insulation installed in stud cavity. Rating established from the gypsum-covered side only.

UL DESIGN - U341

UL Product iQ®

UL Solutions

Design/System/Construction/Assembly Usage Disclaimer

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

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

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

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

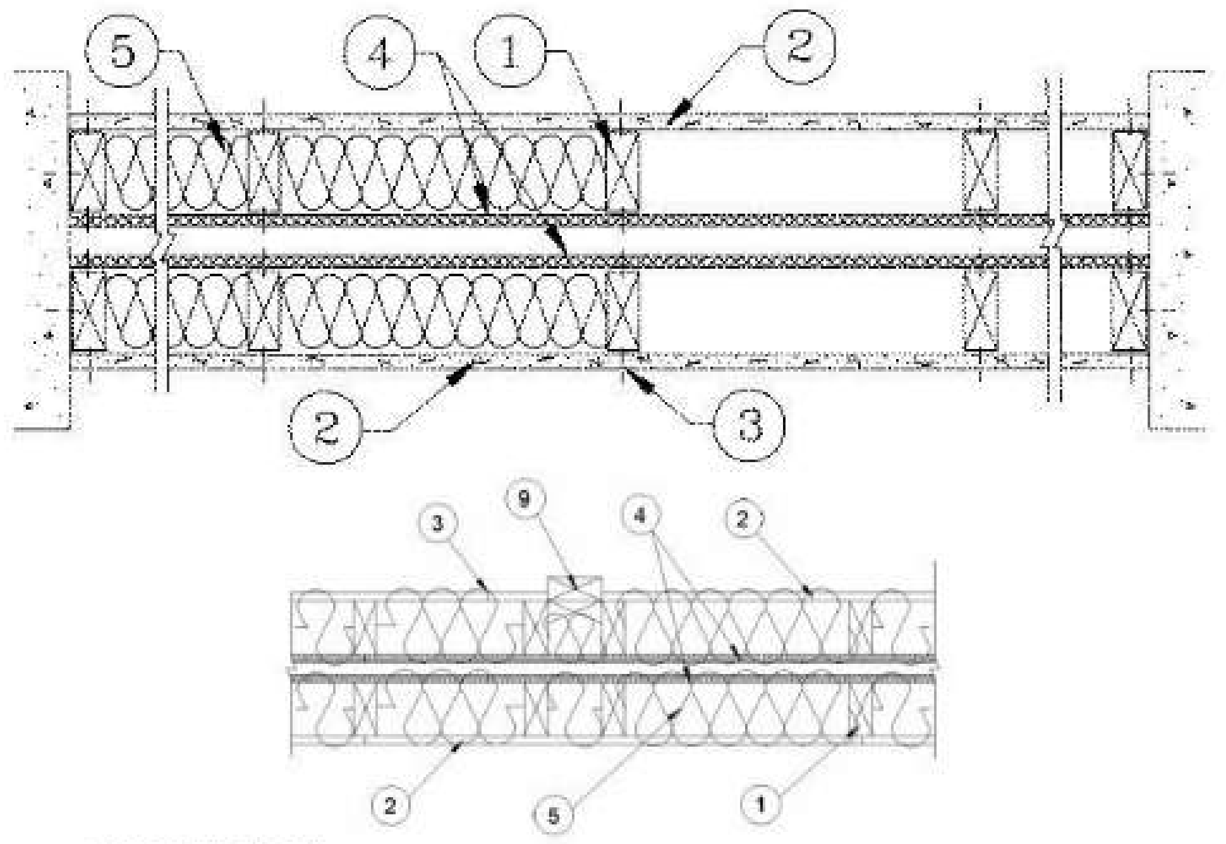
Design No. U341

August 4, 2023

Bearing Wall Rating — 1 Hr.
Finish Rating — Min 20 min.
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

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

Feedback



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

Feedback

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

Feedback

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.

Feedback

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

5B. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 5) when Sheathing (Item 4) is used on both halves of wall - Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions

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DAVID EUGENE HENDRIKSE
NUMBER A-7305
10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
UL ASSEMBLIES

PROJECT NUMBER: 23034

SHEET NUMBER:
G-201

10/3/2024 11:53:26 AM
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UL DESIGN - U341 - CONT.

supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.
NU-WOOL CO INC — Cellulose Insulation

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

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

5E. Deleted.

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

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

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

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

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

b. **Steel Framing Members*** — Used to attach furring channels (Item 6Ba) to studs. Clips spaced 48 in. OC., and secured to studs with 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips.
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

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

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

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

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

6E. **Steel Framing Members*** — (Optional, Not Shown) — Resilient channels and Steel Framing Members as described below:

a. **Resilient Channels** —Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to resilient channels as described in Item 2.

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

PAC INTERNATIONAL L L C — Type RC-1 Boost

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

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

CLARKDIETRICH BUILDING SYSTEMS — Type ClarkDietrich Sound Clip

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

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

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

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

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

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

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

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

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

CERTAINTEED GYPSUM INC — Type C

CERTAINTEED GYPSUM INC — Type LGFC-C/A

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

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

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

PANEL REY S A — Type PRC

THAI GYPSUM PRODUCTS PCL — Type C

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

USG BORAL DRYWALL SFZ LLC — Type C

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

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

Last Updated on 2023-08-04

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UL DESIGN - L516

UL Product **iQ**®

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- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation anc 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 produ manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information f each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materia and alternate methods of construction.
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BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for Unitec 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

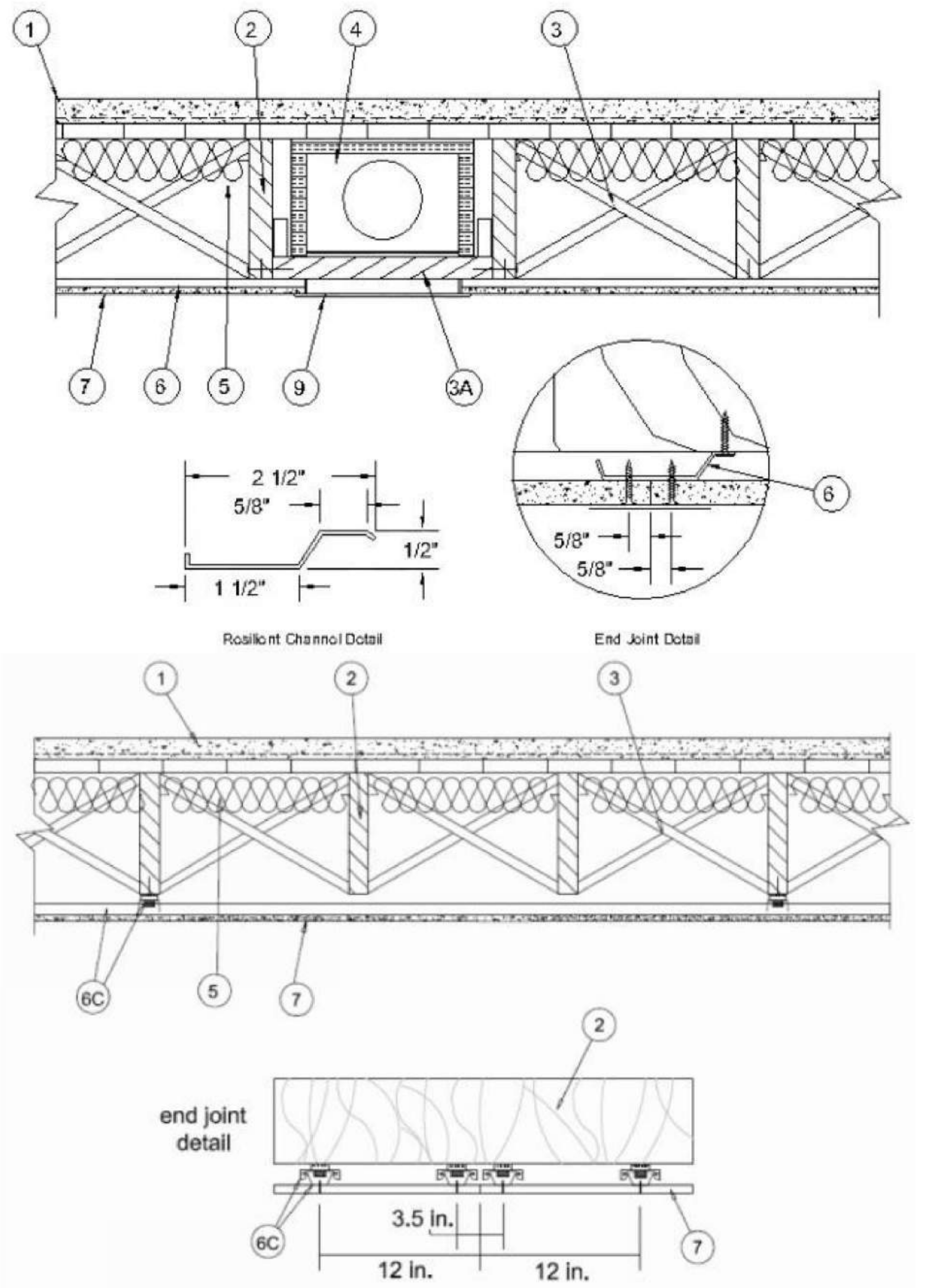
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada Design Criteria and Allowable Variances

Design No. **L516**

July 11, 2023

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 used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certificatio (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 jois 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 t 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 sh 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 jois 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 ir 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 jois 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. Prime 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 thicknes 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 thicknes 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-Fil 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 jois 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 minimu 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 m 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 jois with joints staggered.

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

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

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

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

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 jois 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

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DAVID EUGENE HENDRIKSE
NUMBER A-7305
10/30/23

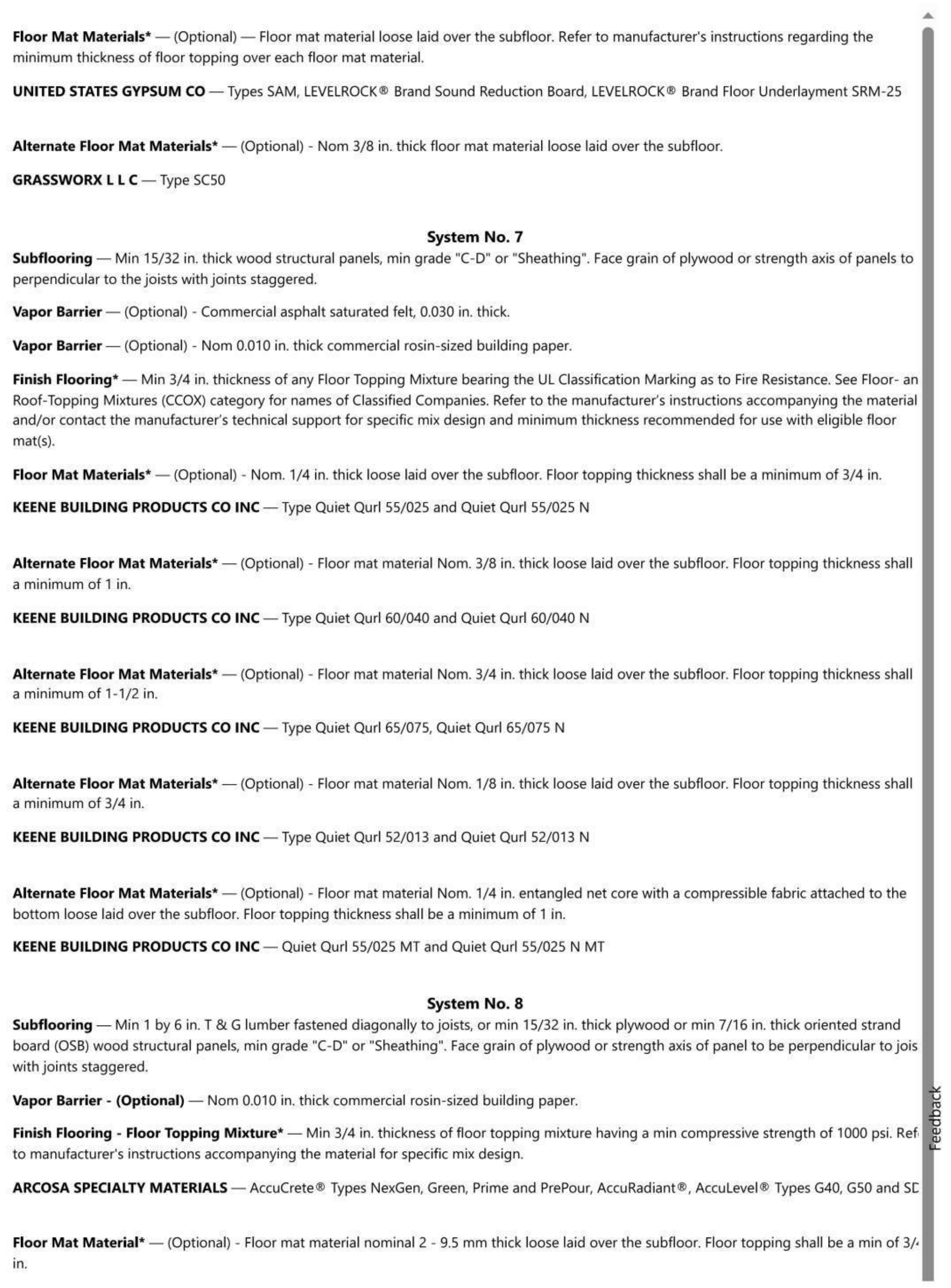
WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
UL ASSEMBLIES

PROJECT NUMBER: 23034

SHEET NUMBER:
G-202

UL DESIGN - L516 - CONT.



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

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

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

GRASSWORX L L C — Type SC50

System No. 7

Subflooring — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to 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- an 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 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 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 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

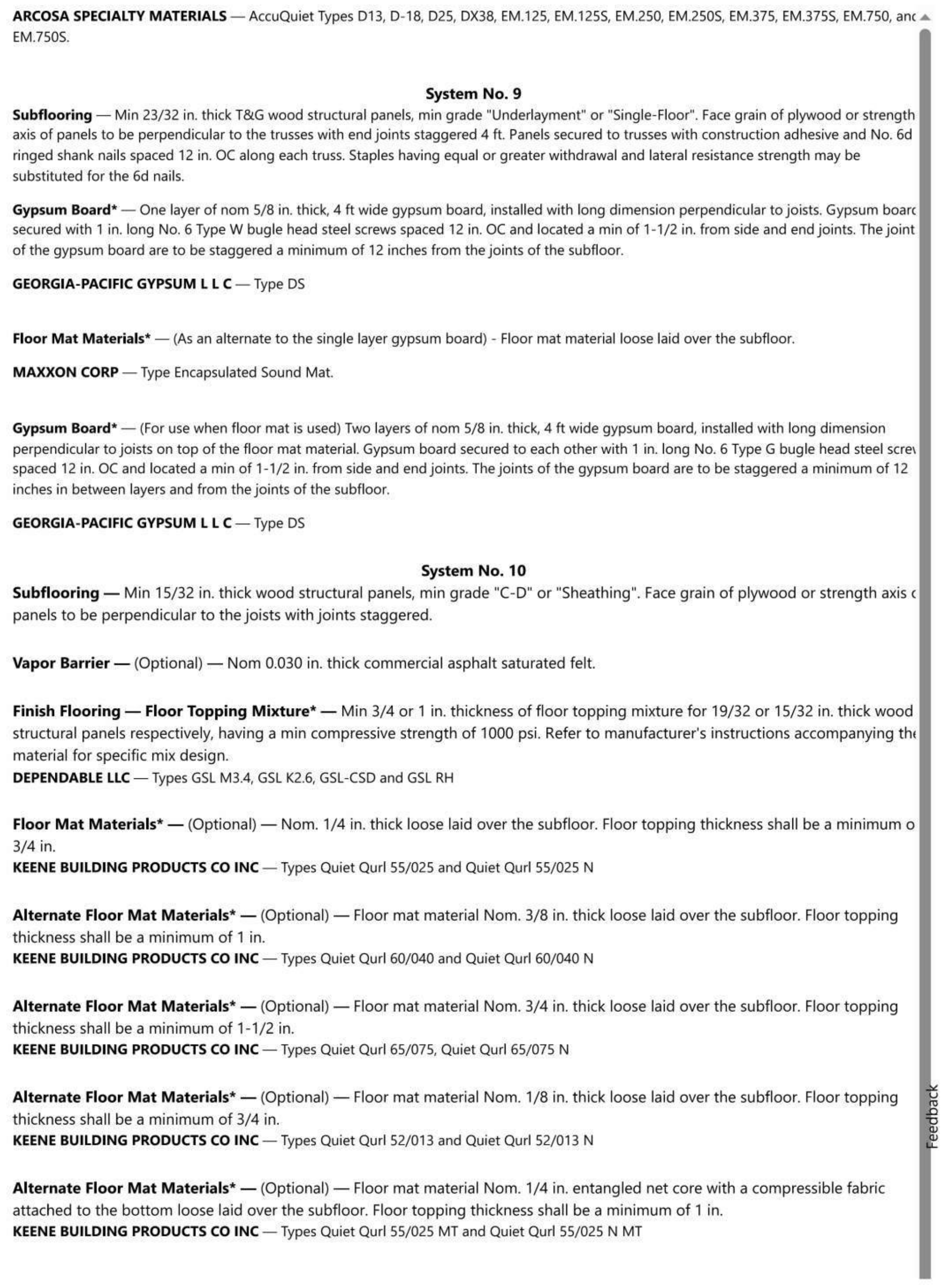
Subflooring — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to jois with joints staggered.

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. Ref 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 SD

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/ 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, anc EM.750S.

System No. 9

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

Gypsum Board* — One layer of nom 5/8 in. thick, 4 ft wide gypsum board, installed with long dimension perpendicular to joists. Gypsum boarc 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 joint 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 screv 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 c 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

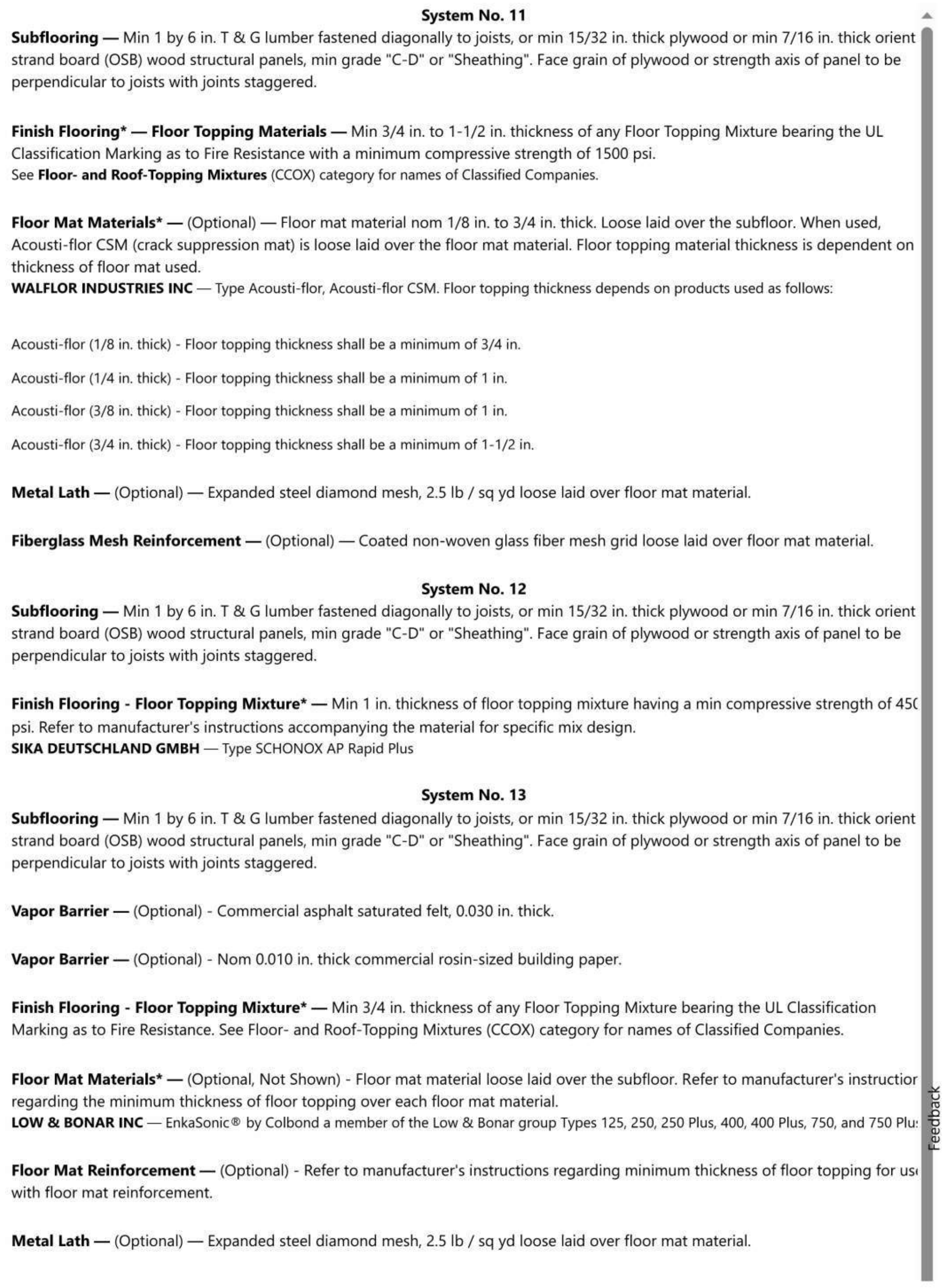
Floor Mat Materials* — (Optional) — Nom. 1/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum o 3/4 in.
KEENE BUILDING PRODUCTS CO INC — Types Quiet Qurl 55/025 and Quiet Qurl 55/025 N

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 orient strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

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

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

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

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

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

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

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

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

System No. 12

Subflooring — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick orient 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 45(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 orient 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.

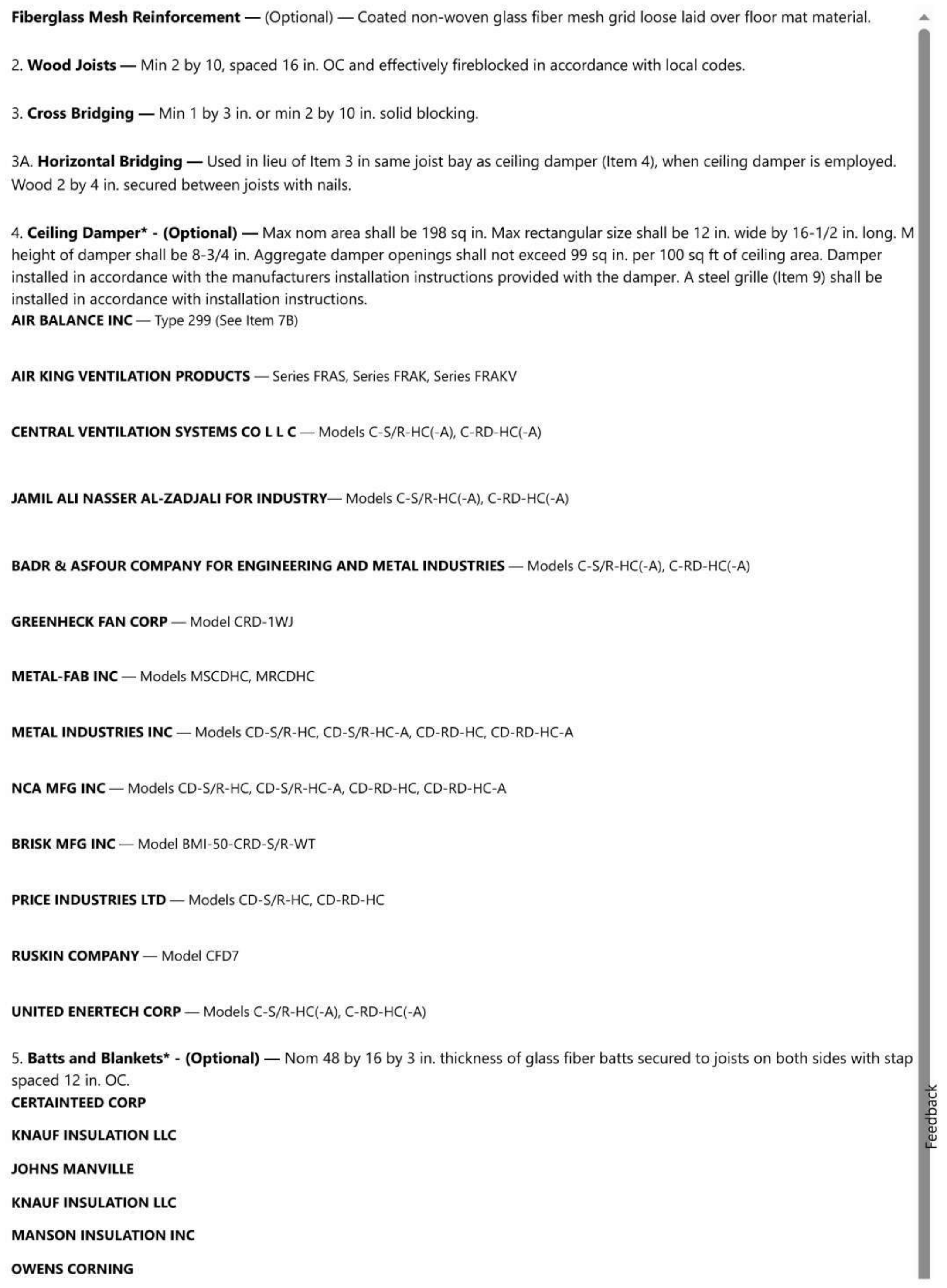
Vapor Barrier — (Optional) - Nom 0.010 in. thick commercial rosin-sized building paper.

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 instructior regarding the minimum thickness of floor topping over each floor mat material.
LOW & BONAR INC — EnkaSonic® by Colbond a member of the Low & Bonar group Types 125, 250, 250 Plus, 400, 400 Plus, 750, and 750 Plu:

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

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



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

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

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

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

4. **Ceiling Damper* - (Optional) —** Max nom area shall be 198 sq in. Max rectangular size shall be 12 in. wide by 16-1/2 in. long. M 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

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

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

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

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

RUSKIN COMPANY — Model CFD7

UNITED ENERTECH CORP — Models C-S/R-HC(-A), C-RD-HC(-A)

5. **Batts and Blankets* - (Optional) —** Nom 48 by 16 by 3 in. thickness of glass fiber batts secured to joists on both sides with stap spaced 12 in. OC.
CERTAINTEED CORP

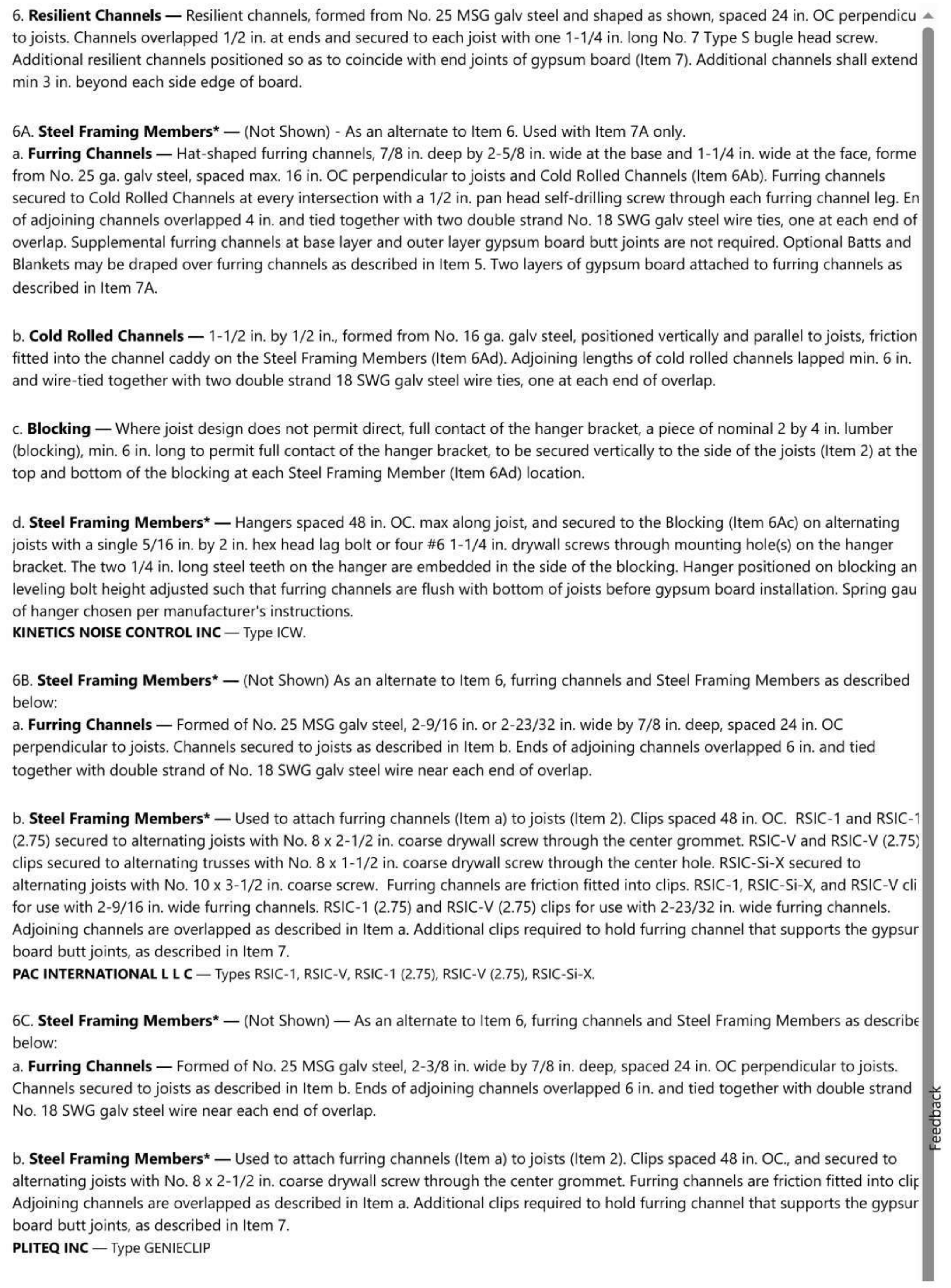
KNAUF INSULATION LLC

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 perpendicu 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, forme 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. En of adjoining channels overlapped 4 in. and tied together with two double strand No. 18 SWG galv steel wire ties, one at each end of overlap. Supplemental furring channels at base layer and outer layer gypsum board butt joints are not required. Optional Batts and Blankets may be draped over furring channels as described in Item 5. Two layers of gypsum board attached to furring channels as described in Item 7A.

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

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

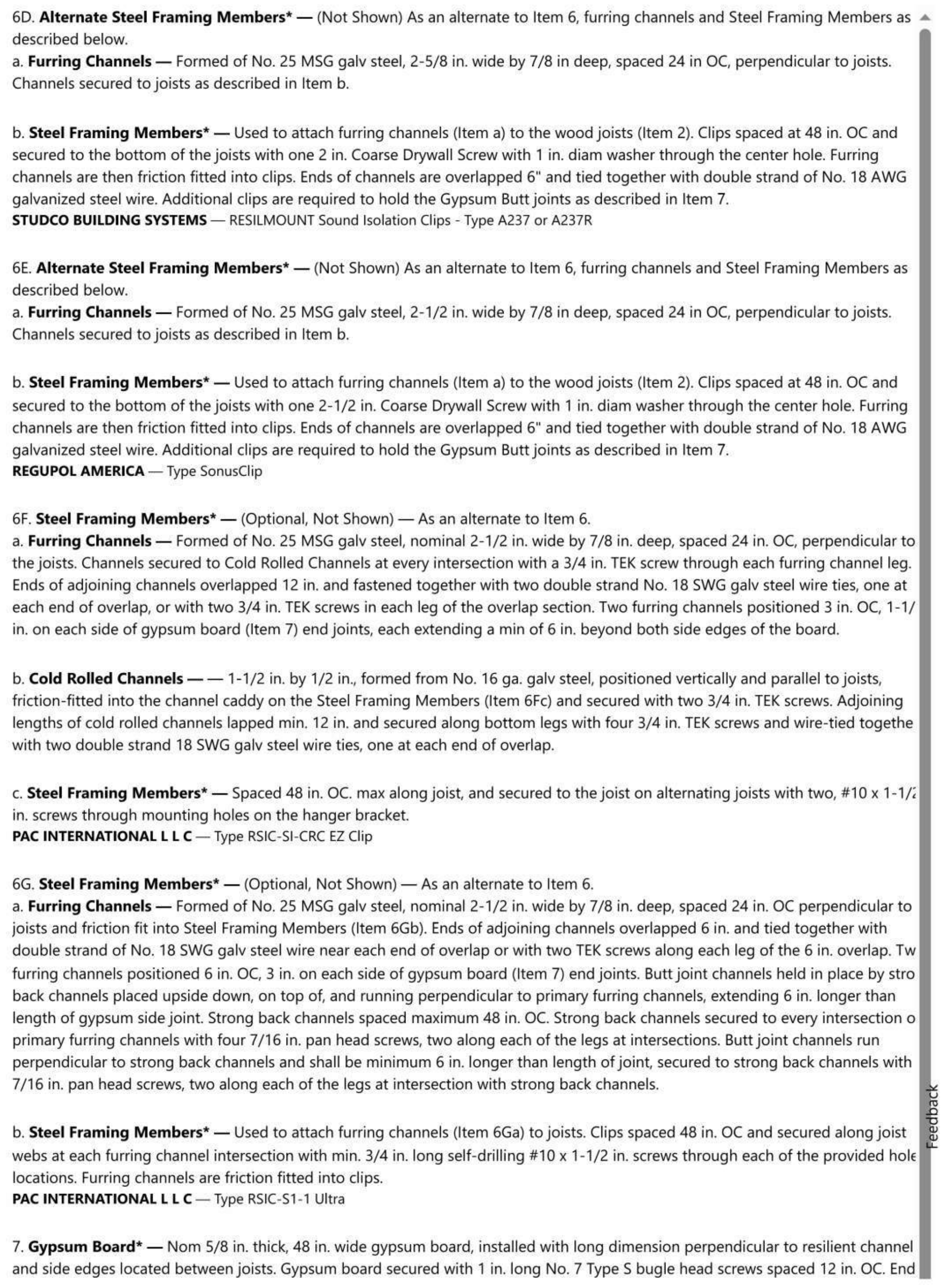
d. **Steel Framing Members* —** Hangers spaced 48 in. OC. max along joist, and secured to the Blocking (Item 6Ac) on alternating joists with a single 5/16 in. by 2 in. hex head lag bolt or four #6 1-1/4 in. drywall screws through mounting hole(s) on the hanger bracket. The two 1/4 in. long steel teeth on the hanger are embedded in the side of the blocking. Hanger positioned on blocking an leveling bolt height adjusted such that furring channels are flush with bottom of joists before gypsum board installation. Spring gau 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 cli 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 gypsur 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 describe 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 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 clip Adjoining channels are overlapped as described in Item a. Additional clips required to hold furring channel that supports the gypsur board butt joints, as described in Item 7.
PLITEQ INC — Type GENIECLIP



6D. **Alternate Steel Framing Members* —** (Not Shown) As an alternate to Item 6, furring channels and Steel Framing Members as described below.
a. **Furring Channels —** Formed of No. 25 MSG galv steel, 2-5/8 in. wide by 7/8 in deep, spaced 24 in OC, perpendicular to joists. Channels secured to joists as described in Item b.

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

6E. **Alternate Steel Framing Members* —** (Not Shown) As an alternate to Item 6, furring channels and Steel Framing Members as described below.
a. **Furring Channels —** Formed of No. 25 MSG galv steel, 2-1/2 in. wide by 7/8 in deep, spaced 24 in OC, perpendicular to joists. Channels secured to joists as described in Item b.

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

6F. **Steel Framing Members* —** (Optional, Not Shown) — As an alternate to Item 6.
a. **Furring Channels —** Formed of No. 25 MSG galv steel, nominal 2-1/2 in. wide by 7/8 in. deep, spaced 24 in. OC, perpendicular to the joists. Channels secured to Cold Rolled Channels at every intersection with a 3/4 in. TEK screw through each furring channel leg. Ends of adjoining channels overlapped 12 in. and fastened together with two double strand No. 18 SWG galv steel wire ties, one at each end of overlap, or with two 3/4 in. TEK screws in each leg of the overlap section. Two furring channels positioned 3 in. OC, 1-1/ 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.

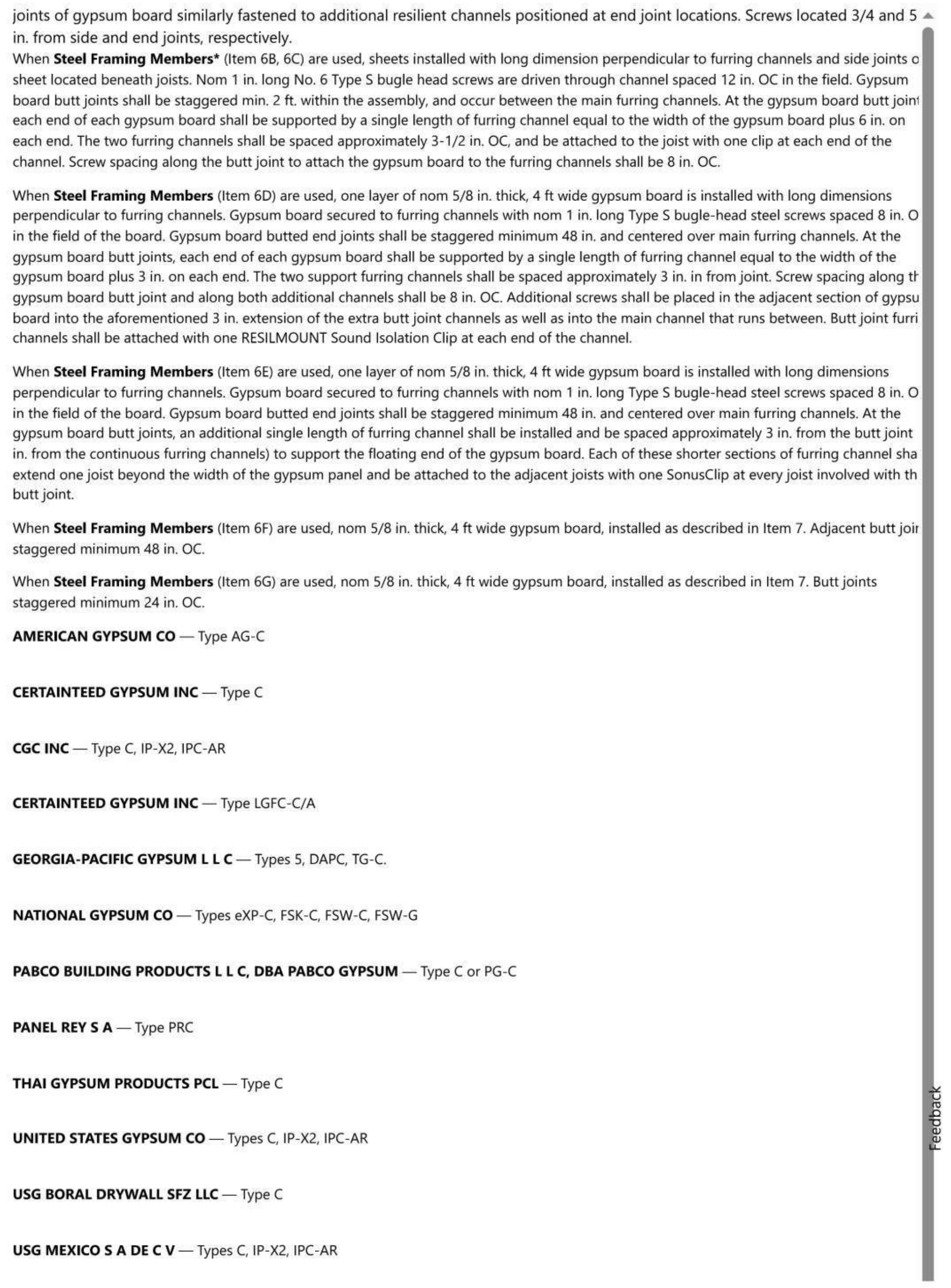
b. **Cold Rolled Channels — —** 1-1/2 in. by 1/2 in., formed from No. 16 ga. galv steel, positioned vertically and parallel to joists, friction-fitted into the channel caddy on the Steel Framing Members (Item 6Fc) and secured with two 3/4 in. TEK screws. Adjoining lengths of cold rolled channels lapped min. 12 in. and secured along bottom legs with four 3/4 in. TEK screws and wire-tied togethe 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/ 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. Tw 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 stro 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 o 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 channel 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 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 o 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 join 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. O 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 th gypsum board butt joint and along both additional channels shall be 8 in. OC. Additional screws shall be placed in the adjacent section of gypsu 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 furri 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. O 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 in. from the continuous furring channels) to support the floating end of the gypsum board. Each of these shorter sections of furring channel sha 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 th 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 joir 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

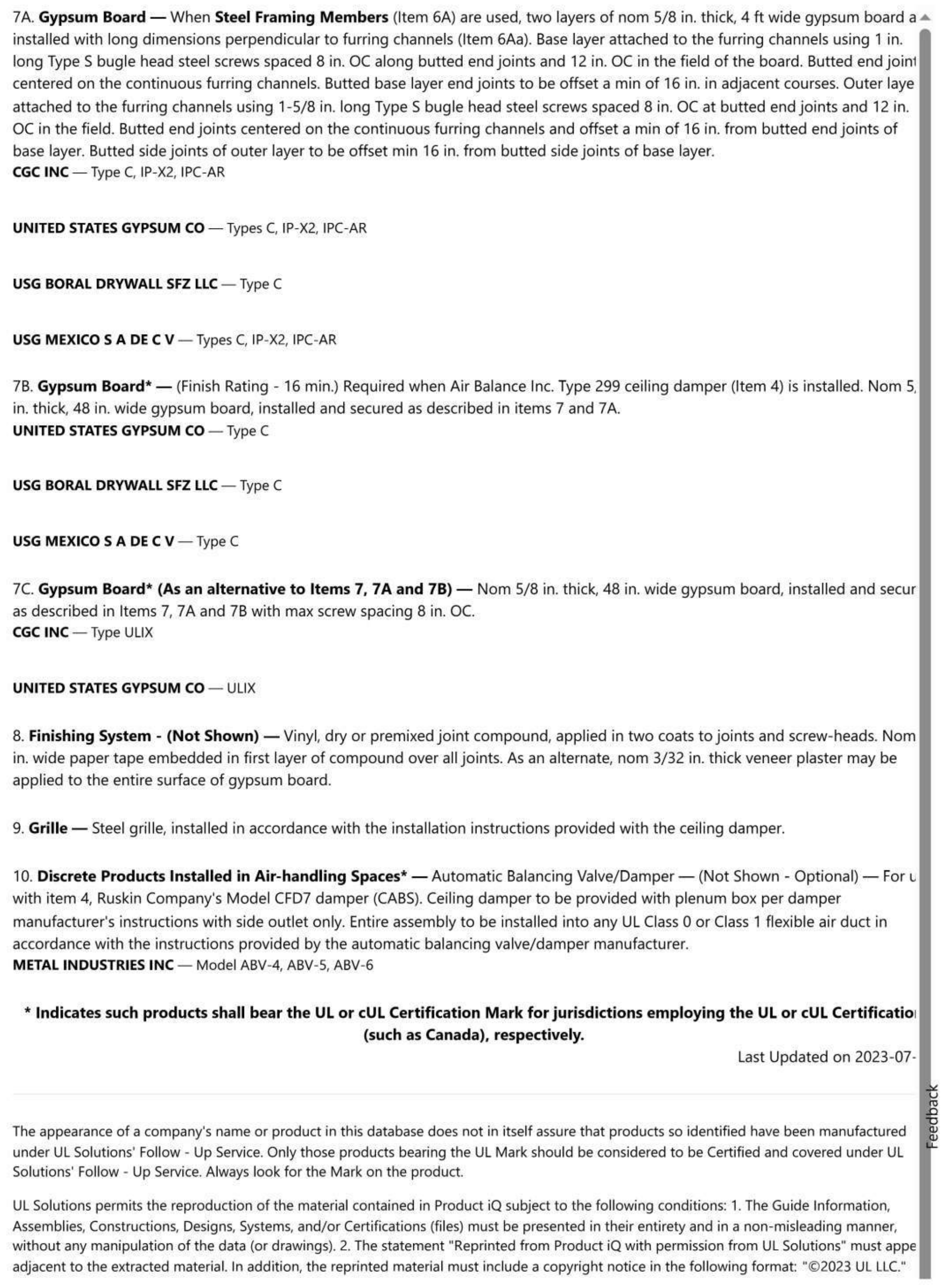
PANEL REY S A — Type PRC

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 a 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 joint centered on the continuous furring channels. Butted base layer end joints to be offset a min of 16 in. in adjacent courses. Outer laye attached to the furring channels using 1-5/8 in. long Type S bugle head steel screws spaced 8 in. OC at butted end joints and 12 in. OC in the field. Butted end joints centered on the continuous furring channels and offset a min of 16 in. from butted end joints of base layer. Butted side joints of outer layer to be offset min 16 in. from butted side joints of base layer.
CGC INC — Type C, IP-X2, IPC-AR

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

USG BORAL DRYWALL SFZ LLC — Type C

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

7B. **Gypsum Board* —** (Finish Rating - 16 min.) Required when Air Balance Inc. Type 299 ceiling damper (Item 4) is installed. Nom 5, 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 secur 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 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 u 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 Certificatio (such as Canada), respectively.**

Last Updated on 2023-07-

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DAVID EUGENE HENDRIKSE
NUMBER A-7365
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
UL ASSEMBLIES

PROJECT NUMBER: 23034

SHEET NUMBER:
G-203

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UL DESIGN - L528

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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

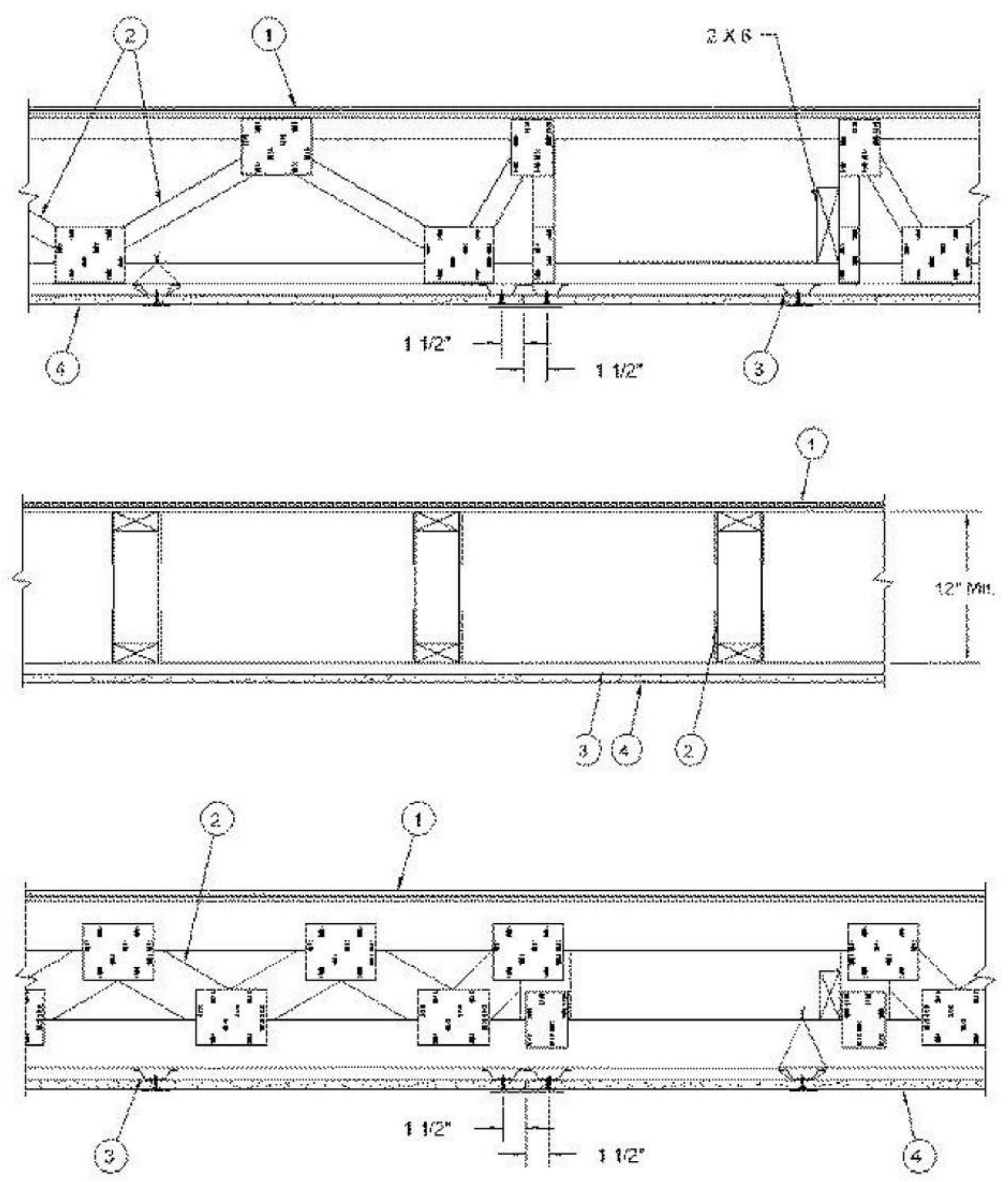
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

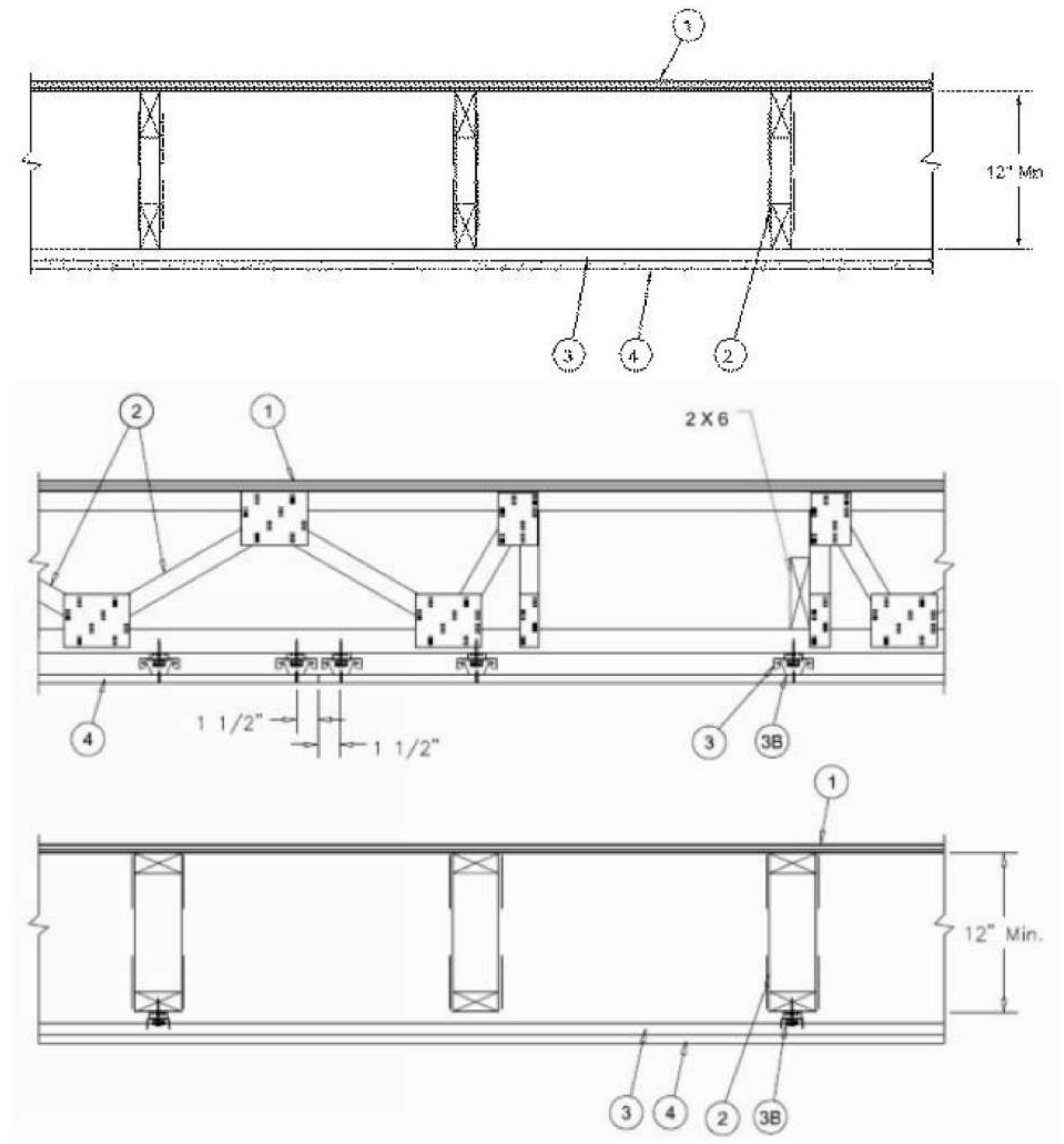
Design No. **L528**

June 27, 2024

Unrestrained Assembly Rating - 1 Hr.
Finish Rating - 22 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. **Flooring System —** The flooring system shall consist of one of the following:

System No. 1

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. TetraGRIP™ nails measuring 2-3/8 in. long, 0.113 in. diameter, 0.272 in. round head, and helically threaded shank with barbed features on the helix meeting ASTM F1667 and having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

System No. 2

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. TetraGRIP™ nails measuring 2-3/8 in. long, 0.113 in. diameter, 0.272 in. round head, and helically threaded shank with barbed features on the helix meeting ASTM F1667 and having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

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 lightweight insulating concrete with **Perlite Aggregate*** or **Vermiculite Aggregate***, or gypsum concrete.

See **Perlite Aggregate** (CFFX) and **Vermiculite Aggregate** (CJZZ) categories for names of manufacturers.

System No. 3

Subflooring — Min 23/32 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) — Commercial asphalt saturated felt, 0.030 in. thick.

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. (3 mm) 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. (32 mm)

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. (38 mm)

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. 4

Subflooring — Min 23/32 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) — Commercial asphalt saturated felt, 0.010 in. thick.

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

LATICRETE SUPERCAP L L C — Types LRK, HSLRK

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

Alternate Floor Mat Material* — (Optional) - Floor mat material nominal 3/8 in. thick loose laid over the subfloor. Floor topping shall be a min 3/4 in. thick.

System No. 5

Subflooring — Min 23/32 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) — Commercial asphalt saturated felt, 0.030 in. thick.

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. 6

Subflooring — Min 23/32 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) — Commercial asphalt saturated felt, 0.030 in. thick.

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 1.2 cu feet of preformed foam concentrate to 94 lbs Type I Portland cement, 300 lbs of sand with 5-1/2 gal of water.

AERIX INDUSTRIES — Floor Topping Mixture

System No. 7

Deleted.

System No. 8

Subflooring — Min 23/32 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) — Commercial asphalt saturated felt, 0.030 in. thick.

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 regarding the minimum thickness of floor topping over each floor mat material.

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. 9

Subflooring — Min 23/32 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) — Commercial asphalt saturated felt, 0.030 in. thick.

Finish Flooring — Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a min compressive strength of 1000 psi. Mixture shall consist of 5 to 8 gal of water to 80 lbs of floor topping mixture to 2.1 cu ft of sand. 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).

ULTRA QUIET FLOORS — UQF-A, UQF-Super Blend, UQF-Plus 200

System No. 10

Subflooring — Min 23/32 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) Commercial asphalt saturated felt, 0.030 in. thick.

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

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

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.

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

System No. 11

Subflooring — Min 1 by 6 in. T & G lumber fastened diagonally to trusses, 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. 12

Subflooring — Min 23/32 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) — Commercial asphalt saturated felt, 0.030 in. thick.

Finish Flooring — Floor Topping Mixture* — Min 3/4 in. thickness of floor topping 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.

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. 13

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.

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. 14

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. TetraGRIP™ nails measuring 2-3/8 in. long, 0.113 in. diameter, 0.272 in. round head, and helically threaded shank with barbed features on the helix meeting ASTM F1667 and having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. 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. 15

Subflooring — Min 23/32 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) — Commercial asphalt saturated felt, 0.030 in. thick.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of floor topping 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. 16

Subflooring — Min 23/32 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 3/32 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

PLITEQ INC — Type GenieMat RST02

Floor Mat Materials* — (Optional) — Nom 3/16 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

PLITEQ INC — Type GenieMat FF03NP

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.

PLITEQ INC — Type GenieMat FF06

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

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DAVID EUGENE HENDRIKSE
NUMBER A-7365
10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
UL ASSEMBLIES

PROJECT NUMBER: 23034

SHEET NUMBER:

G-204

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PLITEQ INC — Type GenieMat FF10

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

PLITEQ INC — Type GenieMat FF17

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

PLITEQ INC — Type GenieMat FF25

System No. 17

Subflooring — Nom. 1-1/2 in. thick T & G laminated composite plywood sub-floor panels to be perpendicular to the trusses with end joints staggered 4 ft. End joints centered over top chord of trusses. Subfloor panels secured to trusses with construction adhesive and #8 by 3 in. wood screws spaced 12 in. OC in the field and 6 in. OC at the end joints.
RSP INDUSTRIES INC — SAP board

System No. 18

Subflooring — Min 15/32 in. thick wood structural panels, min grade "Underlayment" or "Single-Floor". Panels secured to trusses with construction adhesive and No. 6d ringed shank nails spaced 12 in. OC along each truss.

Wall and Partition Facings and Accessories* - Sound Barrier (Optional) — Acoustic Sleeper pads stapled to the top of the subfloor, the bottom of the finish floor, or to 5/16 in. thick by 1-1/2 in. wide wood strips and centered over wood trusses. Acoustic Sleeper pads are to be spaced appropriately so that the finish floor panels are fastened through Acoustic Sleeper pads to the trusses.
STC ARCHITECTURAL PRODUCTS L L C DBA STC SOUND CONTROL — Acoustic Sleeper

Finish Floor — 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. Butt joints of panels have the option of being sealed with any UL Classified caulk or sealant found under - Fill, Void or Cavity Materials* (XHHW).

System No. 19

Structural Cement-Fiber Units* — For use with **UNITED STATES GYPSUM CO** Types C, IP-X2, IPC-AR and ULIX or AMERICAN GYPSUM CO Type AG-C. gypsum boards only. Nom 3/4 in. thick, with long edges tongue and grooved. Long dimension of panels to be perpendicular to wood trusses with end joints staggered a min of 2 ft and centered over the trusses. Panels secured to wood trusses with 1-5/8 in. long, No. 8, self- countersinking wood screw spaced a max of 12 in. OC in the field with a screw located 1 in. and 2 in. from each edge, and 8 in. OC on the perimeter with a screw located 2 in. from each edge, located 1/2 in. from the end edges of the panel.
UNITED STATES GYPSUM CO — Types STRUCTO-CRETE, USGSP

System No. 20

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. TetraGRIP™ nails measuring 2-3/8 in. long, 0.113 in. diameter, 0.272 in. round head, and helically threaded shank with barbed features on the helix meeting ASTM F1667 and having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

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. 21

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. TetraGRIP™ nails measuring 2-3/8 in. long, 0.113 in. diameter, 0.272 in. round head, and helically threaded shank with barbed features on the helix meeting ASTM F1667 and having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

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. 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. 22

Subflooring — Min 23/32 in. thick T & G wood structural panels described and installed as shown in System No. 1.

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 12 in. OC around the perimeter and 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 L L C — Type 1/2 in. Square Edge Exacor™ Board

System No. 23

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. Fastened with 8d ringed shank nails spaced 12 in. OC along each truss.

Finish Floor - Building Units* — Min 1/2 in. thick, supplied in 4 by 8 ft panels, fastened to trusses through subfloor with 8d ringed shank nails spaced a max of 12 in. OC. All joints to be staggered a min of 12 in. with adjacent sub-floor joints.
ECTEK INTERNATIONAL INC — Type MegaBoard, 1/2 in. thick

System No. 24

Subflooring — Building Units* — Nom 3/4 in. thick, tongue and grooved boards. Long dimension of boards to be perpendicular to wood trusses with end joints staggered a min of 4 ft. and centered over the trusses. Boards secured to trusses with min 2 in. long screws or 2 in. x 0.113 in. Ring Shank nails spaced a max of 12 in. OC in the field with screws/nails located 1 in. from long edge, and max 8 in. OC along the end joints with screws/nails located 1/2 in. from end joint.

ECTEK INTERNATIONAL INC — Type MegaBoard, 3/4 in. thick

Finish Floor (optional) — Building Units* — Min 1/2 in. thick, supplied in 4 by 8 ft panels, fastened to trusses through subfloor with 2-3/8 in. long 8d ringed shank nails spaced a max of 12 in. OC. All joints to be staggered a min of 12 in. with adjacent sub-floor joints.

ECTEK INTERNATIONAL INC — Type MegaBoard, 1/2 in. thick

System No. 25

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. TetraGRIP™ nails measuring 2-3/8 in. long, 0.113 in. diameter, 0.272 in. round head, and helically threaded shank with barbed features on the helix meeting ASTM F1667 and having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

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. 26

Subflooring – Building Units* — Nom 3/4 in. thick, ship-lap or tongue-in-groove edge detail. Long dimension of boards to be perpendicular to trusses with end joints staggered a min of 4 ft. and centered over the trusses. Boards secured to trusses with #8 x 2 in. long screws or 2 in. long by 0.113 in. ring shank nails spaced a max of 12 in. OC in the field and 8 in. OC along butt ends. Fasteners located 1/2 in. from butt edges and 2 in. from long edges of the board. When Finish Floor (see below) is not used, must be used with Item 7I).

AMERIFORM L L C — Type Nocom

Finish floor – (Optional) - Min 1/2 in. thick, supplied in 4 ft by 8 ft panels, installed perpendicular or parallel to trusses with panel edges offset a min of 24 in. with adjacent sub-floor joints. Panels secured to subfloor with construction adhesive and corrosion resistant fasteners spaced a max of 12 in. OC. around perimeter and in the field of the panel. Fasteners located 1/2 in. at butt edges and 2 in. from long edge of the boards.

MULTI-PANELS – Type M4 Panel

System No. 27

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. TetraGRIP™ nails measuring 2-3/8 in. long, 0.113 in. diameter, 0.272 in. round head, and helically threaded shank with barbed features on the helix meeting ASTM F1667 and having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Finish Floor – Building Units* - (Optional) - Min 1/2 in. thick, supplied in 4 ft by 8 ft panels, installed perpendicular or parallel to trusses with panel edges offset a min of 24 in. with adjacent sub-floor joints. Panels secured to subfloor with construction adhesive and corrosion resistant fasteners s spaced a max of 12 in. OC. around perimeter and in the field of the panel. Fasteners located 1/2 in. at butt edges and 2 in. from long edges of the board.

MULTI-PANELS – Type M4 Panel

System No. 28

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. TetraGRIP™ nails measuring 2-3/8 in. long, 0.113 in. diameter, 0.272 in. round head, and helically threaded shank with barbed features on the helix meeting ASTM F1667 and having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a min compressive strength of 900 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

TECNODRY SA DE CV – Type SURFACE GYP

2. **Trusses —** Parallel chord trusses, spaced a max 24 in. OC, fabricated from nom 2 by 4 in. lumber with lumber oriented vertically or horizontally. Min truss depth is 12 in. when item 9 is not employed. Min truss depth is 18 in. when item 9 is employed. Truss members secured together with min No. 20 MSG galv steel truss 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 approx 7/8 in. centers with four rows of teeth per in. of plate width.

3. **Furring Channels —** Hat channels, 7/8 in. deep by 2-9/16 in. or 2-11/16 in. or 2-23/32 in. wide at the base and 1-7/16 in. wide at the face, formed from No. 25 ga galv steel, spaced 24 in. OC perpendicular to trusses. Channels secured to trusses with double strand of No. 18 SWG galv steel wire spaced 48 in. OC. 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. Two furring channels used at end joints of gypsum board (Item 4), each extending a min of 6 in. beyond both side edges of the board.

3A. **Resilient Channels —** (Not Shown) — As an alternate to Item 3, resilient channel formed from No. 26 MSG galv steel, spaced 16 in. OC perpendicular to trusses. Channels secured to each truss with 1-1/4 in. long No. 6 Type S bugle head steel screw. Channels overlapped at splices 4 in. Two resilient channels used at end joints of gypsum board (Item 4), each extending a min of 6 in. beyond both side edges of the board.

3B. **Steel Framing Members* —** (Optional)— Used as an alternate method to attach furring channels to trusses (Item 2). Clips spaced 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to the bottom chord of 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 the bottom chord of 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 3. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two min 7/16 in. long No. 6 self-tapping framing screws, 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 4. When Fiber, Sprayed (Item 6) is used, furring channel spacing reduced to 16 in. OC and two layers of nom 5/8 in. thick, 4 ft wide gypsum board shall be installed as described in Item 4.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-V, RSIC-1 (2.75), RSIC-V (2.75)

3C. **Steel Framing Members* —** (Optional, Not Shown) — Used as an alternate method to attach furring channels to trusses. Clips spaced 48 in. OC., and secured to the bottom chord to alternating trusses 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. 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. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 4. Two layers of gypsum board required as described in Item 4. Not evaluated for use with Item 6. When Item 3C is used and Batts and Blankets* are added per Section III Item 18 Blanket Insulation in the General Information of this Directory (BXUV), clips spaced 48 in. OC, furring channels spaced 16 in. OC max, 3-1/2 in. max. Batts and Blankets* secured to plywood subfloor with staples spaced 12 in. OC or to the trusses with 0.090 in. diam galv steel wires spaced 12 in. OC, and two layers of gypsum board required as described in Item 4A. When the Batts and Blankets* are draped over the furring channel/gypsum panel ceiling membrane, the clip spacing shall be reduced to 24 in. OC and secured to consecutive trusses, the furring channel spacing shall be reduced to 12 in. OC, and two layers of gypsum board required as described in Item 4A.
KINETICS NOISE CONTROL INC — Type Isomax.

3D. **Steel Framing Members* —** (Optional, Not Shown) — For Use with Item 7- Used as an alternate method to attach furring channels to trusses. Clips spaced 48 in. OC. and secured to the bottom chord to alternating trusses with one No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips. 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. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 4. Not evaluated for use with Item 6.
PLITEQ INC — Type Genie Clip

3E. **Steel Framing Members* —** (Optional, Not Shown) — For use with Item 7B - Used as an alternate method to attach furring channels to trusses. 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 in. and tied together with double strand of No. 18 SWG galv steel wire .Additional clips are required to hold the Gypsum Butt joints as described in item 4. Not evaluated for use with Item 6.
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237 or A237R

3F. **Resilient Channels —** For use with Item 4B and 7A - Resilient channels, formed from No. 25 MSG galv steel and shaped as shown, spaced 12 in. OC perpendicular to joist. Channels overlapped 4 in. at splices and secured to each joist with 1-1/4 in. Type S screws. Min end clearance of channels to wall to be 1/2 in. Additional resilient channels positioned so as to coincide with end joints of gypsum board.

3G. **Resilient Channels —** For Use With Item 4C and 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 7C is applied over the resilient channel/gypsum panel ceiling membrane.

3H. **Steel Framing Members* —** (Optional, Not Shown) — Used as an alternate method to attach furring channels to trusses. 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 in. and tied together with double strand of No. 18 SWG galv steel wire .Additional clips are required to hold the Gypsum Butt joints as described in item 4. Not evaluated for use with Item 6.
REGUPOL AMERICA — Type SonusClip

3I. **Steel Framing Members —** (Not Shown) — For use with Items 4C and 7F, As an alternate to Item 3, 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, 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.
USG INTERIORS LLC — Type DGL or RX

3J. **Steel Framing Members* —** (Optional, Not Shown) — Used to attach resilient channels (Item 3A) to trusses (Item 2). Clips spaced 48 in. OC on adjacent trusses, 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 Truss 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

3K. **Resilient Channels —** For use with items 3L, 4F, and 7G — Formed from min 26 MSG galv steel installed perpendicular to trusses. When Item 7G is draped over channels, channels spaced a maximum 12 in. OC. Channels secured to each truss as described in Item 3L.

Channel ends butted and centered under the joists and attached to the joists with one screw at each end. Additional resilient channels positioned so as to coincide with end joints of gypsum board as shown in the above illustration. Additional channels shall extend min 3 in. beyond each side edge of board.

3L. **Steel Framing Members* —** (Optional, Not Shown) — Used as an alternate method to attach resilient channelsto joists (Item 2). For use with items 3K, 4F and 7G. 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 joists and attached to the joists with one accessory at each end. Additional accessories used to hold resilient channels that support the gypsum board end joints, as described in Item 3K. The accessory envelops the mounting edge of the resilient channel. The accessory and resilient channel are fastened to the joists with the screws supplied with the accessory and per the accessory manufacturer's installation instructions.
PAC INTERNATIONAL L L C — Types RC-1 Boost

3M. **Steel Framing Members* —** (Optional, Not Shown) — As an alternate to Item 3.
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 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 4), 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 3Md) 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 3Md) 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 1-1/2 in. screws through mounting holes on the hanger bracket.
PAC INTERNATIONAL L L C — Type RSIC-SI-CRC EZ Clip

3N. **Steel Framing Members* —** (Optional, Not Shown) — As an alternate to Item 3.
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 trusses and friction fit into Steel Framing Members (Item 3Nc). 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 4). 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 3Nc) location with 16d nails or minimum 2-1/2 in. screws.

c. **Steel Framing Members* —** Used to attach furring channels (Item 3Na) 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

3O. **Resilient Channels —** For Use With Item 4G and 7C. Formed from min 25 MSG galv steel installed perpendicular to trusses and spaced 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 panel end joint. Additional channels shall extend min 6 in. beyond each side edge of panel. Insulation, Item 7C is applied over the resilient channel/gypsum panel ceiling membrane.

3P. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 3) — 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., spaced 24 in. OC max perpendicular to trusses. Channels secured to trusses as described in Item 3Pb. 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 4.

B. **Steel Framing Members* —** Used to attach furring channels (Item 3Pa) 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

3Q. **Steel Framing Members* —** (Optional, Not Shown) — Used as an alternate method to attach resilient channels (items 3 and 3G) to joists (Item 2). For use with items 3K, 4F and 7G. 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 joists and attached to the joists with one accessory at each end. Additional accessories used to hold resilient channels that support the gypsum board end joints, as described in Item 3K. The accessory envelops the mounting edge of the resilient channel. The accessory and resilient channel are fastened to the joists with the 2in. screws supplied with the accessory and per the accessory manufacturer's installation instructions.

PAC INTERNATIONAL L L C — Types RC-1 Boost

3R. **Steel Framing Members*** — (Optional) — As an alternate to Item 3G — Used as an alternate method to attach furring channels to trusses (Item 2). Clips spaced 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to the bottom chord of alternating trusses with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. RSIC-1 and RSIC-V 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 3. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two min 7/16 in. long No. 6 self-tapping framing screws, 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 4. When Fiber, Sprayed (Item 6) is used, furring channel spacing reduced to 16 in. OC and two layers of nom 5/8 in. thick, 4 ft wide gypsum board shall be installed as described in Item 4.

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

3S. **Steel Framing Members*** — (Optional, Not Shown) — As an alternate to Item 3G.

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 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 4), 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 3Md) 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 3Md) 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

3T. **Steel Framing Members*** — (Optional, Not Shown) — As an alternate to Item 3G.

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 trusses and friction fit into Steel Framing Members (Item 3Nc). 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 4). 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 3Nc) location with 16d nails or minimum 2-1/2 in. screws.

c. **Steel Framing Members*** — Used to attach furring channels (Item 3Na) 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 2in. 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

3U. **Steel Framing Members* —** (Optional, Not Shown) — For Use with Item 7G- Used as an alternate method to attach furring channels to trusses. Clips spaced 48 in. OC. and secured to the bottom chord to alternating trusses with one No. 8 x 2-1/2 in. screw and washer through the center hole. Furring channels are friction fitted into clips. 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 screw attached with two pan head screws on each leg of overlap. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 4. Not evaluated for use with Item 6.

ISOTECH INDUSTRIES INC. — Type ISOWALL

4. **Gypsum Board* —** One layer of nom 5/8 in. thick, 4 ft wide gypsum board, installed with long dimension perpendicular to furring or resilient channels. Gypsum board secured with 1 in. long No. 6 Type S bugle head steel screws spaced 12 in. OC and located a min of 1-1/2 in. from side and end joints. End joints secured to both resilient channels as shown in the end joint detail. When **Steel Framing Members** (Item 3B and 3P) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimension perpendicular to furring channels. Gypsum board secured to furring channels with nom 1 in. long No. 6 Type S bugle head screws spaced 12 in. OC in the field of the board. Gypsum board butt joints shall be staggered 2 ft within the assembly, and shall 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 at each butt joint shall be spaced approximately 3-1/2 in. OC, and be attached to the bottom chord of the truss with one clip at each end of the channel. Screw spacing along the gypsum board butt joint shall be 8 in. OC. When both **Steel Framing Members** (Item 3B) and **Fiber, Sprayed** (Items 6 or 6A) are used, furring channel spacing reduced to 16 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 No. 6 Type S bugle head screws spaced 12 in. OC in the field of the board. Gypsum board butt joints shall be staggered 2 ft within the assembly, and shall 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 at each butt joint shall be spaced approximately 3-1/2 in. OC, and be attached to the bottom chord of the truss with one RSIC-1 clip at each end of the channel. Screw spacing along the gypsum board butt joint shall be 8 in. OC. Outer layer secured to furring channels using 1-5/8 in. long No. 6 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 3C) are used, two layers of nom 5/8 in. thick, 4 ft wide are installed with long dimensions perpendicular to furring channels. Base layer attached to the 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 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 No. 6 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. When **Steel Framing Members** (Item 3D)

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NUMBER A-7395
10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
UL ASSEMBLIES

PROJECT NUMBER: 23034

SHEET NUMBER:
G-205

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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 No. 6 Type S bugle-head steel screws spaced 12 in. OC in the field of the board. Gypsum board butted end joints shall be staggered minimum 16 in. within the assembly. . 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. These additional furring channels shall be attached to underside of the truss with Genie clips as described in Item 3D. Screw spacing along the gypsum board butt joint shall be 6 in. OC. When **Steel Framing Members** (Item 3E) 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 **Fiber, Sprayed** (Items 6 or 6A) 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 No. 6 Type S bugle head steel screws spaced 12 in. OC and located a min of 1-1/2 in. from side and end joints. End joints secured to both resilient channels as shown in the end joint detail. Outer layer gypsum board secured with 1-5/8 in. long No. 6 Type S bugle head steel screws spaced 12 in. OC and located a min of 1-1/2 in. from side and end joints. Outer layer shall be finished as described in Item 5. When **Foamed Plastic** insulation (Item 7E) is applied to the underside of the subflooring, screw spacing shall be reduced to 8 in. OC with minimum 1-1/4 in. long Type S screws to install gypsum to the resilient channels (Item 3A). Resilient channels (Item 3A) to be spaced maximum 12 in. OC. Butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. End joints secured to both resilient channels as shown in end joint detail.

When **Steel Framing Members** (Item 3E) 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.

When **Steel Framing Members*** (Item 3I) are used, one layer of 5/8 in. thick, 48 in. wide gypsum board, installed with long dimension perpendicular to cross channels with side joints centered along main runners. Gypsum board fastened to cross channels with 1 in. long No. 8 Type S bugle head steel screws located 1/2 in. from end joints and 1-3/4 in. from side joints and spaced 8 in. OC along the end joints and in the field. 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. Gypsum board sheets screw attached to leg of wall angle with 1 in. long No. 8 Type S bugle head steel screws spaced 12 in. OC. End joints of panels shall be staggered with spacing between joints on adjacent panels not less than 4 ft OC.

When **Steel Framing Members** (Item 3J) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to resilient channels. Gypsum board secured to resilient channels with nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the board and located 3/4 in. from side joints and 1-1/2 in. from end joints. Gypsum board joints are to be staggered by a minimum of 24 in.

When **Steel Framing Members** (Item 3M) are used, nom 5/8 in. thick, 4 ft wide gypsum board, installed as described in Item 4. Adjacent butt joints staggered minimum 48 in. OC.

When **Steel Framing Members** (Item 3N) are used, nom 5/8 in. thick, 4 ft wide gypsum board, installed as described in Item 4. Butt joints staggered minimum 24 in. OC.

When **Steel Framing Members** (Item 3U) are used, nom 5/8 in. thick, 4 ft wide gypsum board, installed as described in Item 4. Butt joints staggered minimum 48 in. OC.

AMERICAN GYPSUM CO — Type AG-C

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

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

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

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

4A. **Gypsum Board —** For use when Item 3C is used and **Batts and Blankets*** are secured to the plywood subfloor, to the trusses or draped over the furring channel/gypsum panel ceiling membrane as described in Item 3C. For method of gypsum board installation, see Item 4.
CGC INC — Types C, IP-X2, IPC-AR

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

USG BORAL DRYWALL SFZ LLC — Type C

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

4B. **Gypsum Board* —** For use when **Batts and Blankets*** (Item 7A) and Resilient Channels (Item 3F) are used. Nom 5/8 in. thick, 4 ft wide gypsum board installed with long dimension perpendicular to resilient channels. Nom 1 in. long No. Type S bugle head screws are driven through channel spaced 8 in. OC. End joints of gypsum board similarly fastened to additional resilient channels positioned at end joint locations.
AMERICAN GYPSUM CO — Type AG-C.

CERTAINTEED GYPSUM INC — Type LGFC-C/A

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

4C. **Gypsum Board* —** For use with Items 3G and 7C or 3I and 7F, or 3I and 7C. Nom 5/8 in. thick, 48 in. wide gypsum panels installed with long dimension perpendicular to resilient channels. Gypsum panels secured with 1 in. long Type S bugle head steel screws spaced 8 in. OC and located a min of 1/2 in. from side joints and 3 in. from the end joints. Finish Rating with this ceiling system is 20 min.
CGC INC — Type ULIX

UNITED STATES GYPSUM CO — Type ULIX

4D. **Gypsum Board* —** For use when Flooring System (Item 1) consists of both System No. 1 and min 15/32 in. plywood, min grade "Underlayment" or "Sturd-I-Floor" with T & G edges and conforming with PS1-83 specifications, or min 3/4 in. thickness of any Floor Topping Mixture (CCOX) bearing the UL Classification Marking as to Fire Resistance, min Truss depth (Item 2) is 18 in. and Batts and Blankets (Item 7D) and Resilient Channels (Item 3A) are used. One layer of nom 5/8 in. thick, 48 in. wide gypsum board installed with long dimension perpendicular to resilient channels. Gypsum board secured with 1 in. long Type S bugle head steel screws. Screws spaced 1 in. from side joints, and 12 in. OC in the rest of the field. Screws spaced 1-1/2 in. from the end joints. End joints secured to both resilient channels as shown in end joint detail. When batt insulation (Item 7D) is draped over the resilient channel/gypsum board ceiling membrane, the resilient channel (Item 3A) spacing shall be reduced to 12 in. OC., and gypsum board screws spaced 1 in. from side joints, and 8 in. OC in the rest of the field. For use only with Ceiling Damper described in Item 9R.
PANEL REY S A — Type PRC2

4F. **Gypsum Board* —** For use with Items 3K, 3L, and 7G— One layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to resilient channels. Gypsum board secured to resilient channels with min nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the board and located 3/4 in. from side joints and 1-1/2 in. from end joints. Gypsum board butt joints are to be staggered by a minimum of 24 in.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type C

4G. **Gypsum Board* —** For use with Items 3G and 7C. Nom 5/8 in. thick, 48 in. wide gypsum panels installed with long dimension perpendicular to resilient channels. Gypsum panels secured with 1 in. long Type S bugle head steel screws spaced 8 in. OC and located a min of 1/2 in. from side joints and 3 in. from the end joints.
AMERICAN GYPSUM CO — Type AG-C.

5. **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.

6. **Fiber, Sprayed* —** (Dry Dense Packed 100% Borate Formulation) — (Not Shown, Optional) — 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 6 (Fiber, Sprayed, Dry Dense Packed) is used, Furring Channels (Item 3F) or Resilient Channels (Item 3A) spacing shall be reduced to 12 in. OC. When Item 6 (Fiber, Sprayed, Dry Dense Packed) is used, two layers of gypsum board required as described in Item 4. Not evaluated for use with Item 3C.
APPLEGATE GREENFIBER ACQUISITION LLC — Insulmax and SANCTUARY to be used with dry application only.

6A. **Fiber, Sprayed* —** (Loose Fill 100% Borate Formulation) — (Not Shown, Optional) — 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. When Item 6A (Fiber, Sprayed, Loose Fill) is used, Furring Channels (Item 3F) or Resilient Channels (Item 3A) spacing shall be reduced to 12 in. OC. When Item 6A (Fiber Sprayed, Loose Fill) is used, two layers of gypsum board required as described in Item 4. Not evaluated for use with Item 3C.
APPLEGATE GREENFIBER ACQUISITION LLC — Insulmax & SANCTUARY to be used with dry application only.

7. **Batts and Blankets* —** (Not Shown) — For use with Item 3D — Nom 3 in. thick mineral wool insulation held suspended in the concealed space with 0.090 in. diam galv steel wires attached to the wood trusses at 18 in. OC.

7A. **Batts and Blankets* —** For Use With Items 3F and 4B — 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, draped over the resilient channel/gypsum panel ceiling membrane. No limit on overall thickness.

7B. **Batts and Blankets* —** (Not Shown) — For use with Item 3E — Nom 3-1/2 in. thick, min. 2 pcf fiber glass insulation held suspended in the concealed space with nominal 0.090 in. diam galv steel wires attached to the wood trusses at nominally 16 in. OC.

7C. **Batts and Blankets* or Fiber, Sprayed* —** For Use with Item 4C (Not Shown) — Min. 3-1/2 in thick with no limit on maximum thickness fitted in the concealed space, draped over the resilient channel (Item 3G)/gypsum board (Item 4C or 4G) ceiling membrane.

7D. **Batts and Blankets* —** For Use With Item 4D — Insulation may be secured to plywood subfloor with staples spaced 12 in. OC or to the trusses with 0.090 in. diam galv steel wires spaced 12 in. OC. Insulation may alternatively be draped over the resilient channels and gypsum board ceiling membrane, and the resilient channels and gypsum board attachment shall be modified as specified in Item 4D. Any glass fiber insulation bearing the UL Classification Marking for Surface Burning Characteristics and/or Fire Resistance, and having a min density of 0.5 pcf and max thickness of 3-1/2 in. may be used.

7E. **Foamed Plastic* —** (As alternate to Item 6 and 6A, Not Shown) — Spray foam insulation applied directly to the underside of the plywood subflooring. 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. Spray foam insulation is limited to use with minimum 18 in. deep trusses (Item 2). When spray foam insulation is installed, resilient channels (Item 3A) shall be installed maximum 12 in. OC, with channels adjacent to butt joints of gypsum board (Item 4) spaced maximum 3 in. away from gypsum butt joints. Gypsum board (Item 4) 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 (Item 9) in the concealed space, minimum 1 in. clearance to be maintained between damper housing and spray foam insulation. Not evaluated for use with Items 3, 3B through 3F, 3G, 6, 6A, 7 through 7D. Not evaluated with Flooring System (Item 1) Configuration No. 1.
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.

7F. **Batts and Blankets* —** (Not Shown) For Use with Item 3I and 4C — Glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. 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 Steel Framing Members and gypsum panel membrane.

7G. **Batts and Blankets* —** (Not Shown) For Use with Item 3L, 3K, 3U, and 4F — Glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. 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 Steel Framing Members and gypsum panel membrane.

7H. **Foamed Plastic* —** (As alternate to Items 6 and 7) — Spray foam insulation applied directly to the underside of the plywood subflooring. 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 4). Spray foam insulation is limited for use with minimum 18 in. deep trusses (Item 2). When spray foam insulation is installed, resilient channels (Item 3A) 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 (Item 9) in the concealed space, no clearance is necessary between damper housing and spray foam insulation. Only for use with item 3A not evaluated for use with alternates to item 3A.
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.

7I. **Batts and Blankets* —** (Not Shown - Required as indicated with Flooring System No. 26) - Glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. Min. 3-1/2 in. thick, 0.92 pcf density, draped over the resilient or furring channels and gypsum panel membrane. Resilient or furring channels to be spaced 12 in. OC with extra channels installed at butt joints as indicated above.

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

9. **Ceiling Damper* —** (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. 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 10) shall be installed in accordance with installation instructions.
MIAMI TECH INC — Model Series RxCRD, RxCRDS or RxCRPD

9A. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. Max damper assembly size nom 18 in. long by 18 in. wide and 4-1/4 in. high, or 8 in. diam. fabricated from galv steel. 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 — Model CFD7T, CFD7T-END-BT, CFD7T-90-BT, CFD7T-ST-BT, CFD7T-SB, CFD7T-R6-DB, CFD-7T-IB6 or CFDR7T

9B. Deleted.

9C. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. Max 12 in. diameter damper with 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. 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 — Series 57

9D. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. Max 20 in. long by 16 in. wide by 4 in. high rectangular damper with duct board 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*. 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

9E. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. Max 14 in. long by 14 in.wide by rectangular damper with 90° boot. The maximum size of damper/boot assembly is 14 in. long by 14 in. wide and 18 in. high 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 ceiling area. Damper assembly installed in accordance with the manufacturers installation instructions.
AIRE TECHNOLOGIES INC — Models 50 w/ Boot, 50EA w/ Boot, 51 w/Boot, 50 w/ Box, 50EA w/ Box or 51 w/Box

9F. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8). — For use with min 18 in. deep trusses Not for use with flooring system 1 or 17. 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.
LLOYD INDUSTRIES INC — Model CRD 50-BT, CRD 50-EA-BT, CRD 55-BT, CRD 55 EA-BT

UNITED ENERTECH CORP — Model C-S/R-WT-L, C-S/R-EA-L, C-S/R-BT, C-S/R-EA-BL

9G. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8). For use with min 18 in. deep trusses Not for use with flooring system 1 or 17. 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

9H. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8). Ceiling damper & fan assembly for use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. 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 10) shall be installed in accordance with installation instructions.
PANASONIC CORPORATION, PANASONIC CORPORATION OF NORTH AMERICA — Model PC-RD05C5

9I. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8). Ceiling damper & fan assembly for use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. 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 10) shall be installed in accordance with installation instructions.
BROAN-NUTONE L L C — Model RDFUWT

9J. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8). Ceiling damper & fan assembly for use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. 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 10) shall be installed in accordance with installation instructions.
BROAN-NUTONE L L C — Models RDJ1 and RDH

9K. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8). For use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. 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

9L. **Alternate Ceiling Damper* —** (Optional, To be used with Air Duct Item 8). Ceiling damper & fan assembly for use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. 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 10) shall be installed in accordance with installation instructions.
BROAN-NUTONE L L C — Model RDMWT

9M. **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 10) shall be installed in accordance with installation instructions.
BROAN-NUTONE L L C — Model RDMWT2

9N. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8) — For use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. 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

9O. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8) — For use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. 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

9P. **Alternate Ceiling Damper* —** For use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. Max nom area shall be 324 sq in. with the length not to exceed 24 in. and the width not to exceed 20 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 10) shall be installed in accordance with installation instructions.
C&S AIR PRODUCTS — Model RD-521

POTTORFF — Model CFD-521

9Q. **Alternate Ceiling Damper* —** For use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. Max nom area shall be 196 sq in. with the length not to exceed 26 in. and the width not to exceed 14 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 10) 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

9R. **Alternate Ceiling Damper* —** For use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. 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 10) shall be installed in accordance with installation instructions.
C&S AIR PRODUCTS — Models RD-521-IP, RD-521-NP

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

9S. **Alternate Ceiling Damper* —** For use with min 18 in. deep trusses. Not for use with flooring system 1 or 17. 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 10) shall be installed in accordance with installation instructions.
C&S AIR PRODUCTS — Models RD-521-90, RD-521-NP90

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

9T. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8.) — For use with min 18 in. deep trusses. For use with Item 4D only. Not for use with flooring system 1. 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

9U. **Alternate Ceiling Damper* —** (Optional, to be used with Air Duct Item 8) 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

9V. **Alternate Ceiling Damper* —** (Optional, to be used with Air Duct Item 8) 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

9W. **Alternate Ceiling Damper* — —** (Optional, to be used with Air Duct Item 8) For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. 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

9X **Ceiling Damper* —** (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. 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

9Y **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. 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

9Z **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. 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

9AA. **Alternate Ceiling Damper* —** (Optional, to be used with Air Duct Item 8) 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

9AB. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. 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.

9AC. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. 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

9AD. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. 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

9AE. **Alternate Ceiling Damper* —** (Optional. To be used with Air Duct Item 8.) — For use with min. 18 in. deep trusses. Not for use with flooring system 1 or 17. 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

10. **Grille —** Aluminum or Steel grille, installed in accordance with the installation instructions provided with the ceiling damper.

11. **Discrete Products Installed in Air-handling Spaces* —** Automatic Balancing Valve/Damper — (Not Shown - Optional) — For use with item 9A, 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.
NAILOR 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 2024-06-27

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NUMBER A-7365
10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
UL ASSEMBLIES

PROJECT NUMBER: 23034

SHEET NUMBER:
5
G-206

UL DESIGN - P545

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

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

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

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

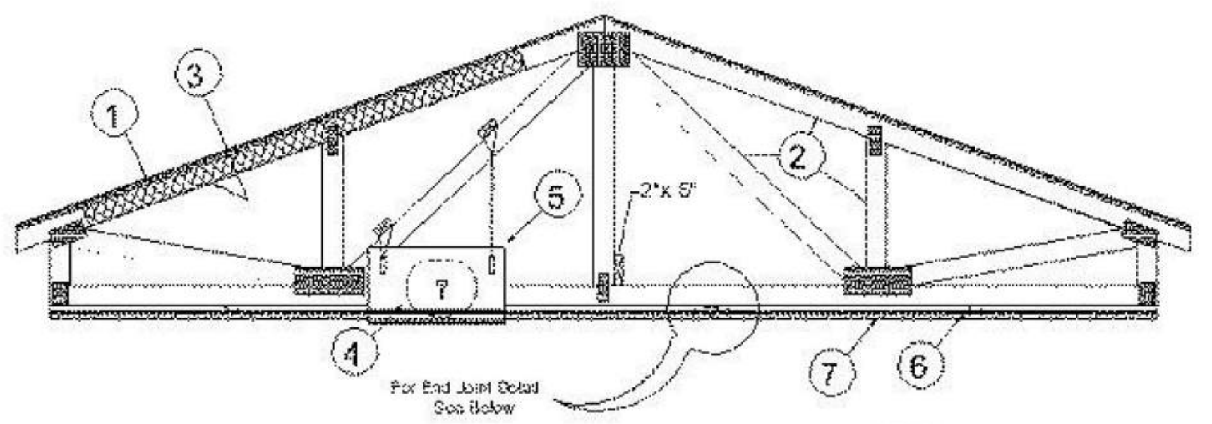
Design No. **P545**

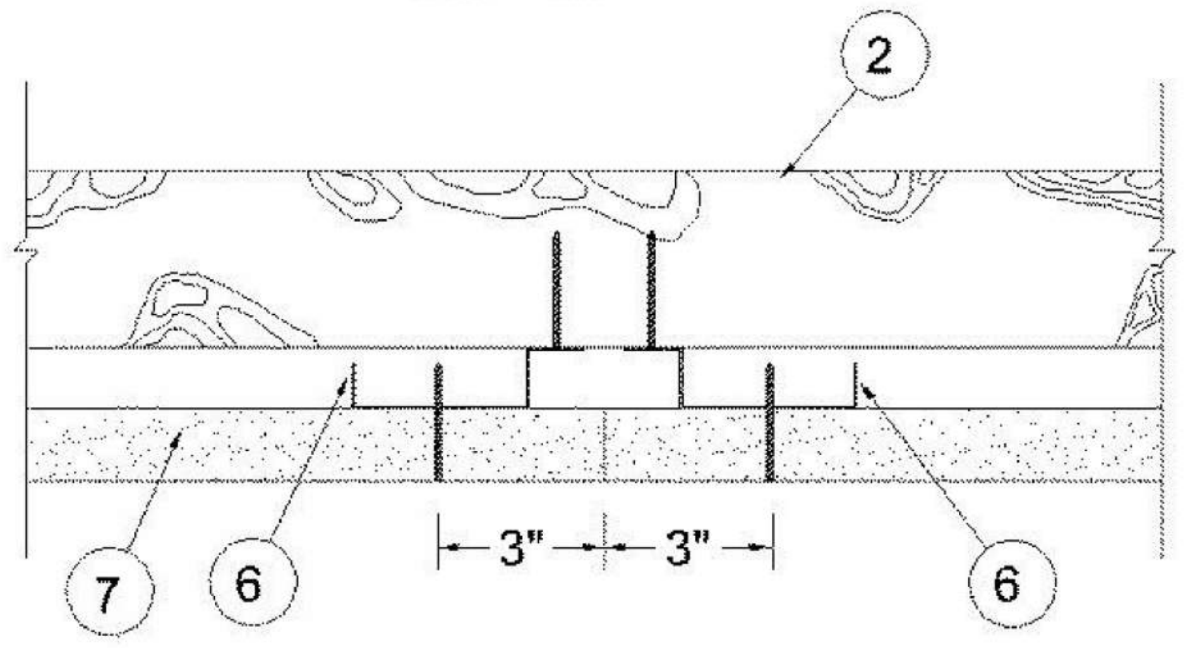
June 26, 2023

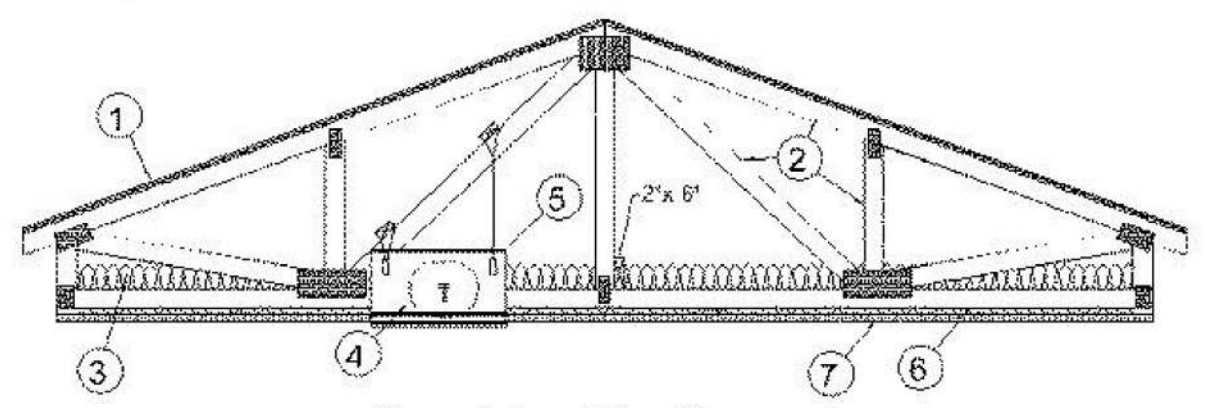
Unrestrained Assembly Rating — 1 Hr.
Finish Rating — 24 or 25 Min (See Items 3 and 3A)
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

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

Feedback







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.

Feedback

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 — INS735, INS745, INS750LD, Insulmax, and SANCTUARY for use with wet or dry application. INS510LD, INS515LD, INS541LD, INS735, INS765LD, and INS773LD 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.
SES FOAM INC — Sucraseal

Feedback

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

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

3F. **Foamed Plastic* —** (As alternate to Item 3 - not to be used in combination with any alternates to item 3) — Spray foam insulation applied directly to the underside of the underside of the roofing system. Spray foam insulation installed to a maximum thickness of 11 in. at a nominal 1.0 lb/ft^3 - 2.5 lb/ft^3 density, while maintaining a minimum 7 in. clearance between the spray foam insulation and the gypsum board (Item 7). Spray foam insulation is limited for use with minimum 18 in. deep trusses (Item 2). When spray foam insulation is installed, resilient channels (Item 6) shall be installed maximum 12 in. OC, with channels adjacent to butt joints of gypsum board spaced maximum 3 in. away from gypsum butt joints. Gypsum board to be installed using minimum 1-1/4 in. long Type S screws, spaced maximum 8 in. OC, and butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels, as illustrated above. If used with a ceiling damper (Items 5 through 5AC) in the concealed space, no clearance is necessary between damper housing and spray foam insulation. Only for use with item 5 not evaluated for use with alternates to item 5. Only for use with item 6 not evaluated for use with alternates to item 6.
CARLISLE SPRAY FOAM INSULATION — Types SealTite Pro Closed Cell (CC), SealTite Pro Open Cell (OC), SealTite Pro OCX, SealTite Pro No Trim 21, SealTite Pro One Zero, SealTite PRO HFO, Foamsulate Closed Cell, Foamsulate OCX, Foamsulate 70, Foamsulate HFO, and Foamsulate HFO 2.0.

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

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

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

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

Feedback

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

Feedback

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

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

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

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

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

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

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

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

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

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

Feedback

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

Feedback

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

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

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

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

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

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

GREENHECK FAN CORP — Model CRD-300WT

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

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

6A. **Steel Framing Members* —** (Not Shown) — As an alternate to Item 6, furring channels and Steel Framing Members* as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 16 in. OC perpendicular to trusses. When batt insulation (Item 3) is draped over the resilient channel/gypsum board ceiling membrane, the resilient channel spacing shall be reduced to 12 in. OC. Channels secured to trusses as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap.

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

Feedback

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.

PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:
5 10/04/24 ASI 001

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DAVID EUGENE HENDRIKSE
NUMBER A-7365
10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
UL ASSEMBLIES

PROJECT NUMBER: 23034

SHEET NUMBER:
5 G-207

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UL DESIGN - P545 (CONT.)

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.

Feedback

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

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

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

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

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

Last Updated on 2023-06-26

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Feedback

UL DESIGN - W-L1003

THROUGH-PENETRATION FIRESTOP SYSTEM

Assembly Usage Disclaimer

XHEZ - Through-penetration Firestop Systems

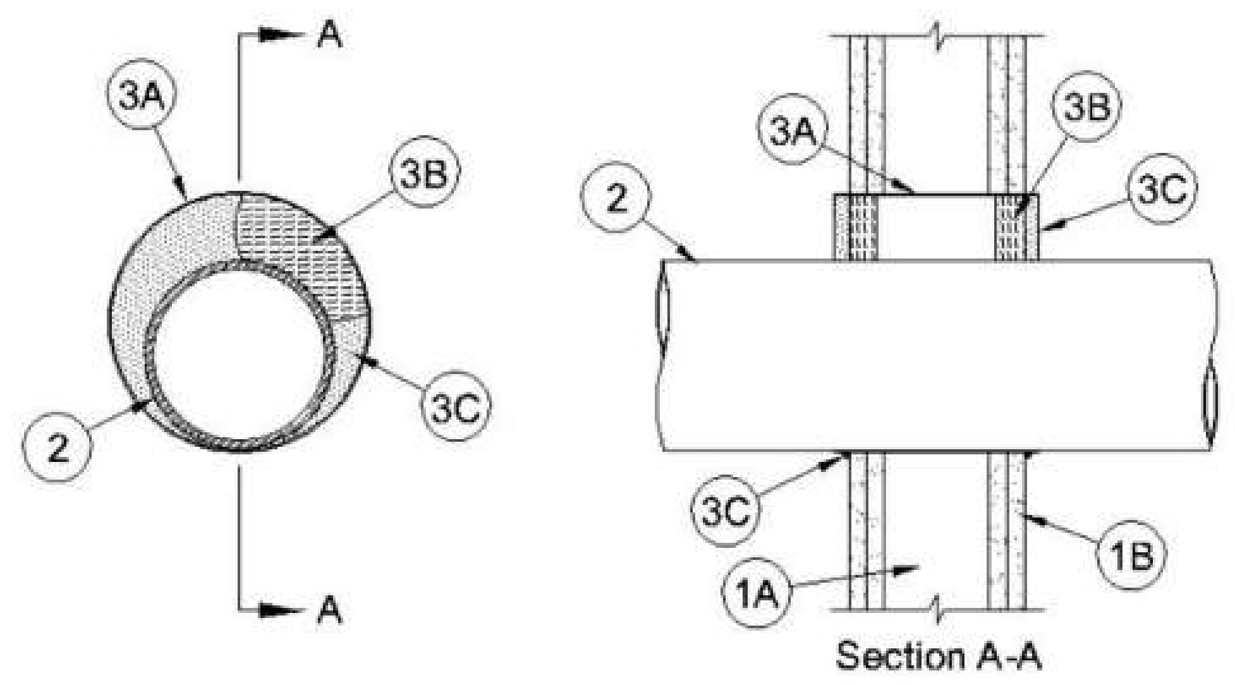
See General Information for Through-penetration Firestop Systems

System No. W-L-1003

February 14, 2008

F Ratings — 1 and 2 Hr (See Item 1)

T Rating — 0 Hr



1. **Wall Assembly —** The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

   A. **Studs —** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC with nom 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min 3-1/2 in. (89 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.

   B. **Gypsum Board* —** Nom 5/8 in. (16 mm) thick, 4 ft (1.2 m) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, U400 or V400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 15 in. (381 mm).
   The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. **Through-Penetrant —** One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The space between pipes, conduits or tubing and the steel sleeve (Item 3A) shall be min of 0 in. (point contact) to max 2-3/8 in. (60 mm). Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

   A. **Steel Pipe —** Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

   B. **Iron Pipe —** Nom 12 in. (305 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. (305 mm) diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.

   C. **Conduit —** Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.

   D. **Copper Tubing —** Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.

   E. **Copper Pipe —** Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

3. **Firestop System —** Installed symmetrically on both sides of wall assembly. The details of the firestop system shall be as follows.

   A. **Steel Sleeve —** Cylindrical sleeve fabricated from min 0.019 in. thick (0.48 mm) galv sheet steel and having a min 2 in. (51 mm) lap along the longitudinal seam. Length of steel sleeve to be equal to thickness of wall plus 1 to 4 in. (25 to 102 mm) such that, when installed, the ends of the sleeve will project approx 1/2 to 2 in. (13 to 51 mm) beyond the surface of the wall on both sides of the wall assembly.
   Sleeve installed by coiling the sheet steel to a diam smaller than the through opening, inserting the coil through the openings and releasing the coil to let it uncoil against the circular cutouts in the gypsum board layers.

   B. **Packing Material —** Min 1 in. (25 mm) thickness of mineral wool batt insulation firmly packed into steel sleeve on both sides of wall assembly as permanent forms. Packing material to be recessed min 1/2 in. (13 mm) from end of steel sleeve (flush with or recessed into gypsum board surface) on both sides of wall assembly.

   B1. **Packing Material —** (Not shown) — As an alternate to Item B, nom 1 in. (25 mm) thick polyethylene backer rod may be used. The backer rod is to be recessed within the steel sleeve a min of 1 in. (25 mm) from each surface of wall.

   C. **Fill, Void or Cavity Materials* — Caulk or Sealant —** When mineral wool batt insulation is used, caulk or sealant applied to fill the steel sleeve to a min depth of 1/2 in. (13 mm) on both sides of wall assembly. When backer rod is used, a min thickness of 1 in. (25 mm) of caulk or sealant is required flush with both sides of wall. A nom 1/4 in. (6 mm) diam continuous bead of caulk or sealant shall be applied around the circumference of the steel sleeve at its egress from the gypsum board layers on both sides of the wall assembly.
   3M COMPANY — CP 25WB+, IC 15WB+ or FB-3000 WT

*** 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 2008-02-14

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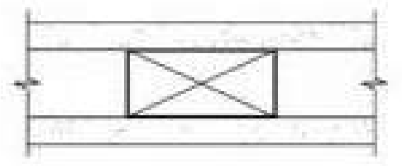
UL DESIGN - WG3640

WALL ASSEMBLY
ASSEMBLY RATING - 1 HOUR

RESOURCE: GA-600-2018 FIRE RESISTANCE AND SOUND CONTROL DESIGN MANUAL



Thickness: 2-7/8" (Fire)
Approx. Weight: 7 psf (Fire)
Fire Test: UL R1319, 9-12-96,
UL Design U338

GYPSUM WALLBOARD, WOOD STUDS
Fire Design:
One layer 5/8" type X gypsum wallboard or gypsum veneer base applied parallel or at right angles to each side of either 2 x 3 or 2 x 4 wood studs, turned flatwise, 24" o.c. with 6d cement-coated nails, 1-7/8" long, 0.0915" shank, 1/4" heads, 7" o.c. Horizontal joints staggered not less than 12" on OPPOSITE SIDES. (NLB)

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REVISIONS:
5 10/04/24 ASI 001

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7395
REGISTERED ARCHITECT
10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
UL ASSEMBLIES

PROJECT NUMBER: 23034

SHEET NUMBER:
5
G-208

UL DESIGN - W-L2003

THROUGH-PENETRATION FIRESTOP SYSTEM

Assembly Usage Disclaimer

XHEZ - Through-penetration Firestop Systems

See General Information for Through-penetration Firestop Systems

System No. W-L-2003

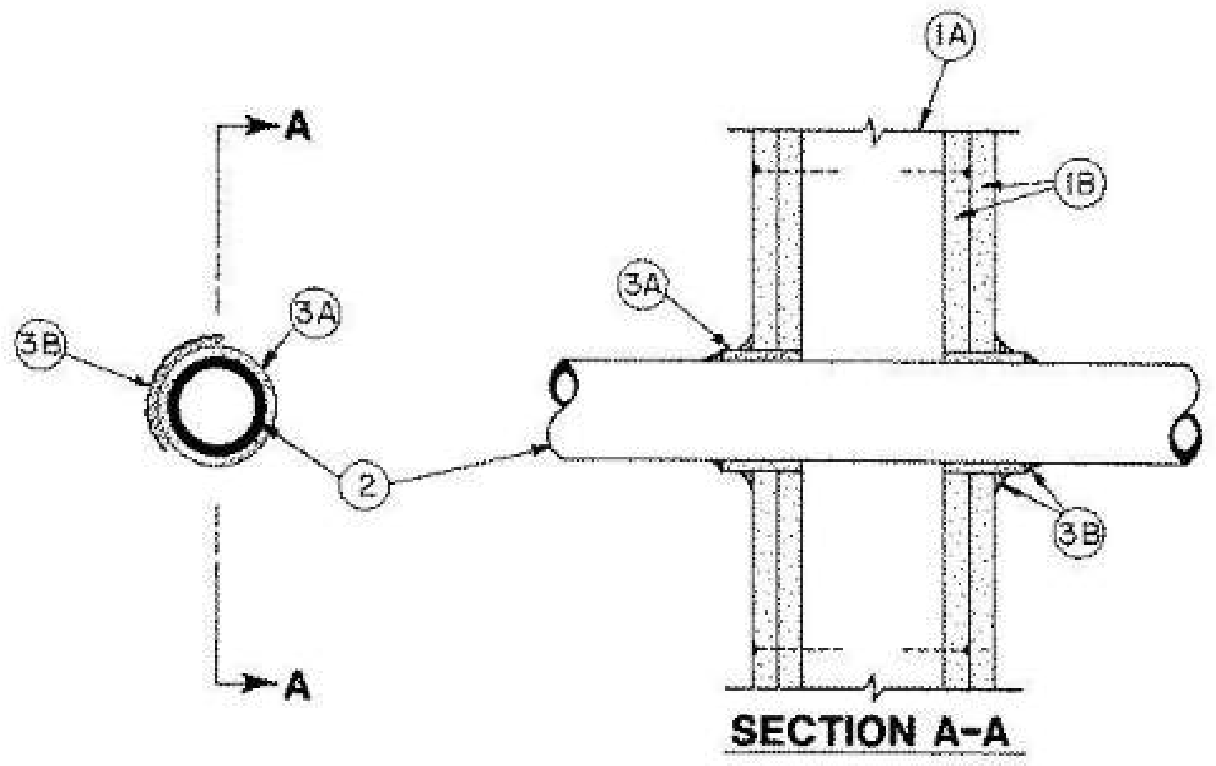
November 20, 2009

F Ratings — 1 and 2 Hr (See Item 3)

T Ratings — 1 and 2 Hr (See Item 3)

L Rating At Ambient — 7 CFM/sq ft (See Item 3B)

L Rating At 400 F — less than 1 CFM/sq ft (See Item 3B)



1. **Wall Assembly —** The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

   A. **Studs —** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC with nom 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min 3-5/8 in. (92 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.

   B. **Gypsum Board* —** 5/8 in. (16 mm) thick, 4 ft (122 cm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, U400 or V400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 3-1/8 in. (79 mm).

2. **Through Penetrants —** One nonmetallic pipe or conduit to be centered in the through opening. The annular space between pipe or conduit and periphery of opening shall be min 1/4 in. (6 mm) and max 3/8 in. (10 mm). Pipe or conduit to be rigidly supported on both sides of the floor-ceiling assembly. The following types and sizes of nonmetallic pipes or conduits may be used:

   A. **Polyvinyl Chloride (PVC) Pipe —** Nom 2 in. (51 mm) diam (or smaller) Schedule 40 solid core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.

   B. **Rigid Nonmetallic Conduit++ —** Nom 2 in. (51 mm) diam (or smaller)(Schedule 40 or 80) PVC conduit installed in accordance with the National electric Code (NFPA No. 70).

   C. **Chlorinated Polyvinyl Chloride (CPVC) Pipe —** Nom 2 in. (51 mm) diam (or smaller) SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.

   D. **Cellular Core Polyvinyl Chloride (ccPVC) Pipe —** Nom 2 in. (51 mm) diam (or smaller) Schedule 40 cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.

   E. **Acrylonitrile Butadiene Styrene (ABS) Pipe —** Nom 2 in. (51 mm) diam (or smaller) Schedule 40 solid core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

   F. **Cellular Core Acrylonitrile Butadiene Styrene (ccABS) Pipe —** Nom 2 in. (51 mm) diam (or smaller) Schedule 40 cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

3. **Firestop System —** Installed symmetrically on both sides of wall assembly. The hourly F and T Ratings for the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed. The details of the firestop system shall be as follows.

   A. **Fill, Void or Cavity Materials* — Wrap Strip —** Nom 1/4 in. (6 mm) thick intumescent elastomeric material faced on one side with aluminum foil, supplied in 2 in. (51 mm) wide strips. Nom 2 in. (51 mm) wide strip tightly wrapped around nonmetallic pipe (foil side out) with seam butted. Wrap strip layer securely bound with steel wire or aluminum foil tape and slid into annular space approx 1-1/4 in. (32 mm) such that approx 3/4 in. (19 mm) of the wrap strip protrudes from the wall surface.
   3M COMPANY — FS-195+

   B. **Fill, Void or Cavity Materials* — Caulk, Sealant or Putty —** Min 5/8 in. (16 mm) thickness of caulk or putty applied into annular space between wrap strip and periphery of opening. A nom 1/4 in. (6 mm) diam bead of caulk or putty to be applied to the wrap strip/wall interface and to the exposed edge of the wrap strip layers approx 3/4 in. (19 mm) from the wall surface.
   3M COMPANY — CP 25WB+ caulk or MP+ Stix putty, IC 15WB+ caulk, FireDam 150+ caulk or FB-3000 WT sealant. (Note: L Ratings apply only when Type CP 25WB+ caulk or FB-3000 WT sealant is used. CP 25WB+ and FireDam 150+ not suitable for use with CPVC pipes.)

   C. **Foil Tape —** (not shown) — Nom 4 in. (102 mm) wide, 3 mil thick aluminum tape wrapped around pipe prior to the installation of the wrap strip (Item 3A). Min of one wrap, flush with both sides of wall and proceeding outward. Tape is not required for pipes shown in Items 2A, 2B and 2C.

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Last Updated on 2009-11-20

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NUMBER A-7305

10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
UL ASSEMBLIES

PROJECT NUMBER: 23034

SHEET NUMBER:
5
G-209

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UL DESIGN - U356

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. **U356**

August 4, 2023

Bearing Wall Rating - 1 Hr Rating Exposed to Fire on Interior Face Only
Bearing Wall Rating — 1 Hr Rating Exposed to Fire on Exterior Face (See Item 6E)
Finish Rating — 23 Min or 25 Min (See Item 2C)
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

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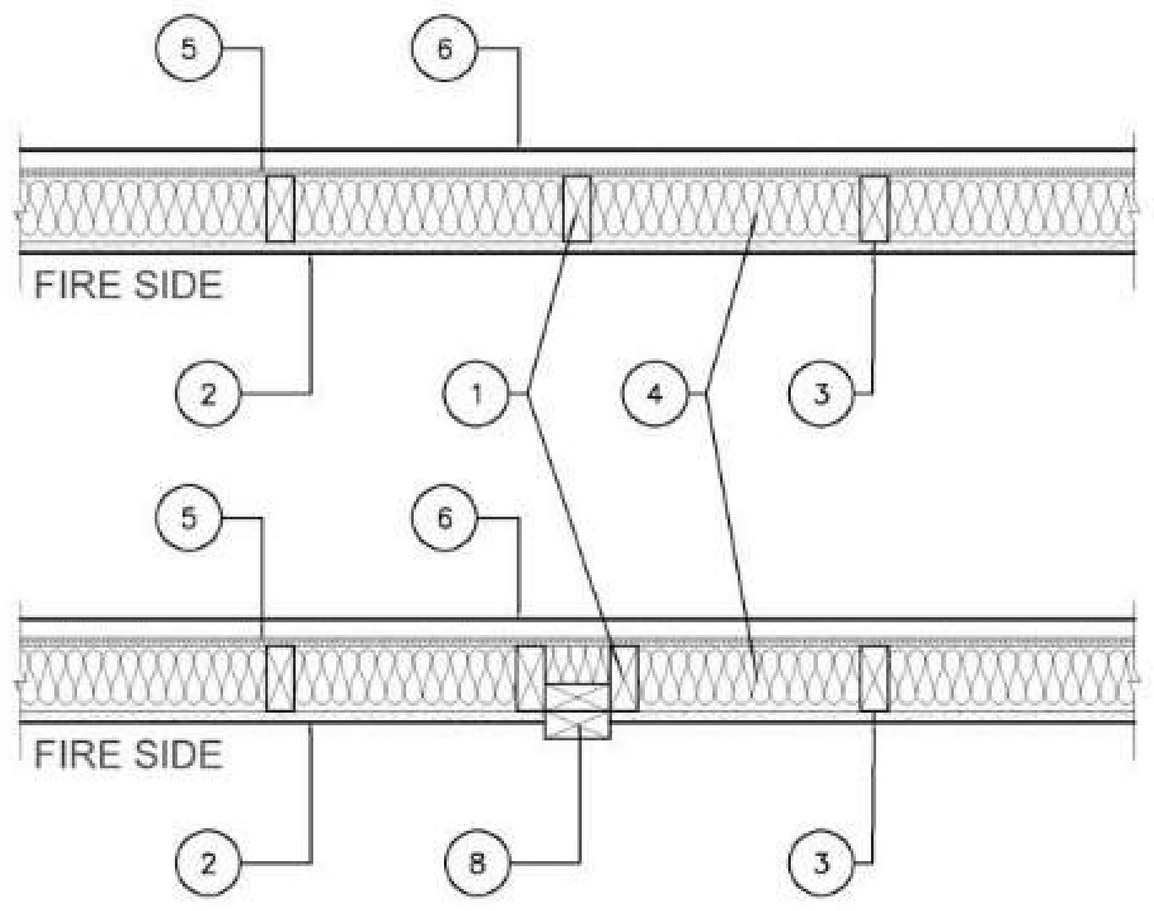

1. **Wood Studs —** Nom 2 by 4 in. spaced 16 in. OC with two 2 by 4 in. top and one 2 by 4 in. bottom plates. Studs laterally-braced by wood structural panel sheathing (Item 5). When **Mineral and Fiber Boards*** (Item 5A) are considered as bracing for the studs, the load is restricted to 76% of allowable axial load. Walls effectively fire stopped at top and bottom of wall.

2. **Gypsum Board* — Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305.** Nom 5/8 in. thick, 4 ft wide, applied vertically and nailed to studs and bearing plates 7 in. OC with 6d cement-coated nails, 1-7/8 in. long with 1/4 in. diam head.

When Item **Steel Framing Members*** (Item 7 or any alternate clips), is used, gypsum panels attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC.

When Item 7A **Steel Framing Members***, is used, two layers of gypsum panels attached to furring channels. Base layer attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC. Face layer attached to furring channels with 1-5/8 in. long Type S bugle-head steel screws spaced 12 in. OC. All joints in face layers staggered with joints in base layers.

AMERICAN GYPSUM CO (View Classification) — CKNX.R14196

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

CABOT MANUFACTURING ULC (View Classification) — CKNX.R25370

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R3660

CGC INC (View Classification) — CKNX.R19751

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R18482

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

NATIONAL GYPSUM CO (View Classification) — CKNX.R3501

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

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

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

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

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

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

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

2A. **Gypsum Board* —** (As an alternate to Item 2, Not Shown) — Any 5/8 in. thick 4 ft wide gypsum panels that are eligible for use in Design Nos. L501, G512 or U305, supplied by the Classified Companies listed below shown in the **Gypsum Board*** (CKNX) category. Applied vertically and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board.
CGC INC

UNITED STATES GYPSUM CO

USG BORAL DRYWALL SFZ LLC

USG MEXICO S A DE C V

2B. **Gypsum Board* —** (As an alternate to Item 2, Not Shown) — 5/8 in. thick 4 ft wide gypsum panels applied vertically and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board.

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

CABOT MANUFACTURING ULC — Type X, 5/8 Type X, Type Blueglass Exterior Sheathing

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

GEORGIA-PACIFIC GYPSUM L L C — Types X, Veneer Plaster Base-Type X, Water Rated-Type X, Sheathing Type-X, Soffit-Type X, Type X ComfortGuard Sound Deadening Gypsum Board.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types PG-11, PGS-WRS, PGI.

THAI GYPSUM PRODUCTS PCL — Type C or Type X

2C. **Gypsum Board* —** (As an alternate to Item 2, Not Shown) — For Use with Item 5A only - 5/8 in. thick 4 ft wide gypsum panels applied horizontally and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screws 1 in.and 4 in. from edges of board. Finish Rating is 25 min.
CABOT MANUFACTURING ULC — 5/8 Type X, Type Blueglass Exterior Sheathing

GEORGIA-PACIFIC GYPSUM L L C — Type X, Veneer Plaster Base-Type X, Water Rated-Type X, Sheathing Type-X, Soffit-Type X

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types PG-11, PGS-WRS, PGI

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

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

2F. **Gypsum Board* —** (As an alternate to Item 2) — Not to be used with item 7. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically or horizontally and fastened to the studs and plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board.
CERTAINTEED GYPSUM INC — Type SilentFX

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

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

2I. **Gypsum Board* —** (As an alternate to Item 2) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. When used in widths of other than 48 in., gypsum boards are to be installed horizontally.
AMERICAN GYPSUM CO — Types AGX-1 (finish rating 25 min.), M-Glass (finish rating 25 min.), AG-C (finish rating 25 min.), LightRoc (finish rating 25 min.)

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

2J. **Gypsum Board* —** (As an alternate to Item 2) - 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread steel screws spaced a max 8 in. OC with the last screw 1 in. from edge of board. When used in widths other than 48 in., gypsum boards are to be installed horizontally.
CERTAINTEED GYPSUM INC — Type C, Type X-1(finish rating 26 min), Easi-Lite Type X (finish rating 24 min), Easi-Lite Type X-2, Type EGRG or GlasRoc or GlasRoc Sheathing (finish rating 23 min)

3. **Joints and Fastener Heads —** (Not Shown) — Gypsum board joints covered with tape and joint compound. Fastener heads covered with joint compound.

4. **Batts and Blankets* —** Mineral fiber or glass fiber insulation, 3-1/2 in. thick, pressure fit to fill wall cavities between studs and plates. Mineral fiber insulation to be unfaced and to have a min density of 3 pcf. Glass fiber insulation to be faced with aluminum foil or kraft paper and to have a min density of 0.9 pcf (min R-13 thermal insulation rating).
See **Batts and Blankets*** (BKNV) Category in the Building Materials Directory and **Batts and Blankets*** (BZJZ) Category in the Fire Resistance Directory for names of Classified Companies.

4A. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 4) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft^3. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft^3, in accordance with the application instructions supplied with the product.
Applegate Greenfiber Acquisition LLC — INS515LD, INS541LD, Insulmax, and SANCTUARY are to be used for dry application only.

4B. **Fiber, Sprayed* —** As an alternate to Item 4 and 4A — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. Nominal dry density of 4.58 lb/ft^3.
NU-WOOL CO INC — Cellulose Insulation

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

4D. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 4) — Spray applied, granulated mineral fiber material. The fiber is applied with adhesive, at a minimum density of 4.0 pcf, to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. See Fiber, Sprayed (CCAZ).
AMERICAN ROCKWOOL MANUFACTURING, LLC — Type Rockwool Premium Plus

5. **Wood Structural Panel Sheathing —** Min 7/16 in. thick, 4 ft wide wood structural panels, min grade "C-D" or "Sheathing". Installed with long dimension of sheet (strength axis) or face grain of plywood parallel with or perpendicular to studs. Vertical joints centered on studs. Horizontal joints backed with nom 2 by 4 in. wood blocking. Attached to studs on exterior side of wall with 6d cement coated box nails spaced 6 in. OC at perimeter of panels and 12 in. OC along interior studs.

5A. **Mineral and Fiber Boards* —** As an alternate to Item 5 - Min 1/2 in. thick, 4 ft wide sheathing, installed vertically to studs. Vertical joints centered on studs. Horizontal joints backed with nom 2 by 4 in. wood blocking. Attached to studs on exterior side of wall with 1-1/2 in. long galvanized roofing nails spaced 6 in. OC at perimeter of panels and 12 in. OC along interior studs. As an option a weather resistive barrier may be applied over the Mineral and Fiber Boards.

6. **Exterior Facings —** Installed in accordance with the manufacturer's installation instructions. One of the following exterior facings is to be applied over the sheathing:
A. **Vinyl Siding — Molded Plastic* —** Contoured rigid vinyl siding having a flame spread value of 20 or less.
See **Molded Plastic** (BTAT) category in the Building Materials Directory for names of manufacturers.

B. **Particle Board Siding —** Hardboard exterior sidings including patterned panel or lap siding.

C. **Wood Structural Panel or Lap Siding —** APA Rated Siding, Exterior, plywood, OSB or composite panels with veneer faces and structural wood core, per PS 1 or APA Standard PRP-108, including textured, rough sawn, medium density overlay, brushed, grooved and lap siding.

D. **Cementitious Stucco —** Portland cement or synthetic stucco systems with self-furring metal lath or adhesive base coat. Thickness from 3/8 to 3/4 in., depending on system.

E. **Brick Veneer —** Any type on nom 4 in. wide brick veneer. When brick veneer is used, the rating is applicable with exposure on either face. Brick veneer fastened with corrugated metal wall ties attached over sheathing to wood studs with 8d nail per tie: ties spaced not more than each sixth course of brick and max 32 in. OC horizontally. One in. air space provided between brick veneer and sheathing.

F. **Exterior Insulation and Finish System (EIFS) —** Nom 1 in. **Foamed Plastic*** insulation bearing the UL Classification Marking, attached over sheathing and finished with coating system, or Portland cement or synthetic stucco systems, in accordance with manufacturer's instructions. See **Foamed Plastic** (BRYX and CCVW) categories for names of Classified companies.

G. **Siding —** Aluminum or steel siding attached over sheathing to studs.

H. **Fiber-Cement Siding —** Fiber-cement exterior sidings including smooth and patterned panel or lap siding.

I. **Wall and Partition Facings and Accessories* —** Stone veneer is mortar bonded to a lath, scratch coat and water resistant barrier applied to sheathing, installed in accordance with the manufacturers installation instructions, and meeting the requirements of local code agencies.
ELDORADO STONE OPERATIONS L L C — Type Eldorado Stone

J. **Cementitious Backer Units —** 1/2 in. or 5/8 in., min. 32 in. wide.- Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with cement board screws of adequate length to penetrate stud by a minimum 3/4 in., spaced a max of 8 in. OC. Horizontal joints need not be backed by framing. When Cementitious Backer Units are used, the rating is applicable with exposure on either face. Cementitious Backer Units for use as substrate for exterior finishes such as ceramic tile, slate, marble, natural stone, manufactured stone, thin brick, or Portland cement or synthetic stucco.
NATIONAL GYPSUM CO — Type PermaBase

K. **Building Units** – 1 in., 2 in. or 3 in. thick, 4 ft. wide composite exterior cement backer board with rigid insulation, finished with ceramic tile, marble, natural stone, manufactured stone, thin brick, Portland cement or synthetic stucco.

NATIONAL GYPSUM CO – Type PBCI

6A. **Building Units* — As an alternate to Exterior Facing Item 6 —** Insulated steel panels, 12 through 42 in. wide. Attached over sheathing through retainer clips to studs or support steel with No. 14 hex head self-tapping screws located at each joint in the concealed lip of the units and spaced in accordance with the structural design requirements. KINGSPAN INSULATED PANELS INC — Types 200, 300, 400, 900, or KS series, 2 through 6 in. thickness; CWP-V, H, 2 through 3 in. nominal thickness or Designwall 2000 or Designwall 4000, 2 and 3 in. nominal thickness.

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

b. **Steel Framing Members* —** Used to attach furring channels (Item 7A) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-1 (2.75).

7A. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. Two layers of gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Aa) to interior side of studs. Clips spaced 48 in. OC., and secured to studs with two No. 8 x 2-1/2 in. coarse drywall screws, one through the hole at each end of the clip. Furring channels are friction fitted into clips.
KINETICS NOISE CONTROL INC — Type Isomax.

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

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

7C. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire.Gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Ca) to studs. Clips spaced 48 in. OC., and secured to studs with 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips.
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

7D. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 7Db. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Da) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
REGUPOL AMERICA — Type SonusClip

7E. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — Resilient channels and Steel Framing Members as described below:
a. **Resilient Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No. 8 15 x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach resilient channels (Item 7Ea) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Resilient channels are secured to clips with one No. 10 x 1/2 in. pan-head self-drilling screw.
KEENE BUILDING PRODUCTS CO INC — Type RC+ Assurance Clip

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

b **Steel Framing Members* —** Used to attach furring channels (Item 7Fa) to studs. Clips spaced maximum 48 in. OC. Clips secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips.

CLARKDIETRICH BUILDING SYSTEMS — Type ClarkDietrich Sound Clip

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

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

Last Updated on 2023-08-04

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PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:
1 12/15/23 Addendum 1 - Response to City Comments
5 10/04/24 ASI 001

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DAVID EUGENE HENDRIKSE
10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
UL ASSEMBLIES

PROJECT NUMBER: 23034

SHEET NUMBER:
5
G-210

REFERENCE G-003 FOR GENERAL NOTES

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

GENERAL NOTES

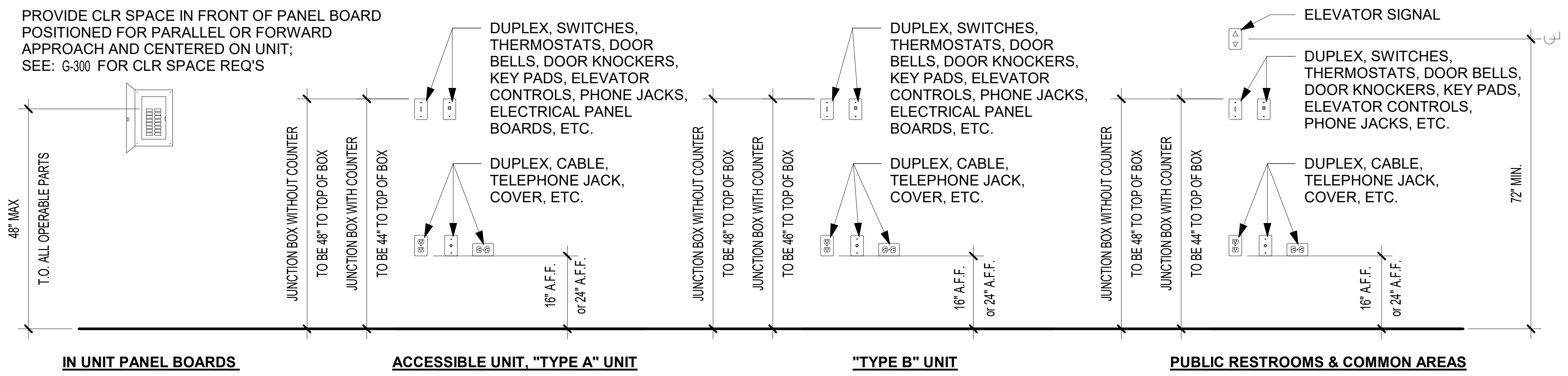
1. THE PROJECT SHALL MEET ALL APPLICABLE CODES SPECIFIED BY LOCAL AND FEDERAL REQUIREMENTS, INCLUDING BUT NOT LIMITED TO THE INFORMATION PRESENTED ON THE FOLLOWING G-300 SHEETS.
   - A. LOCAL AND FEDERAL REQUIREMENTS SHALL SUPERCEDE ANY CONFLICTING INFORMATION
2. ALL DIMENSIONS PROVIDED ON THE FOLLOWING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

UNIVERSAL DESIGN REQ'S

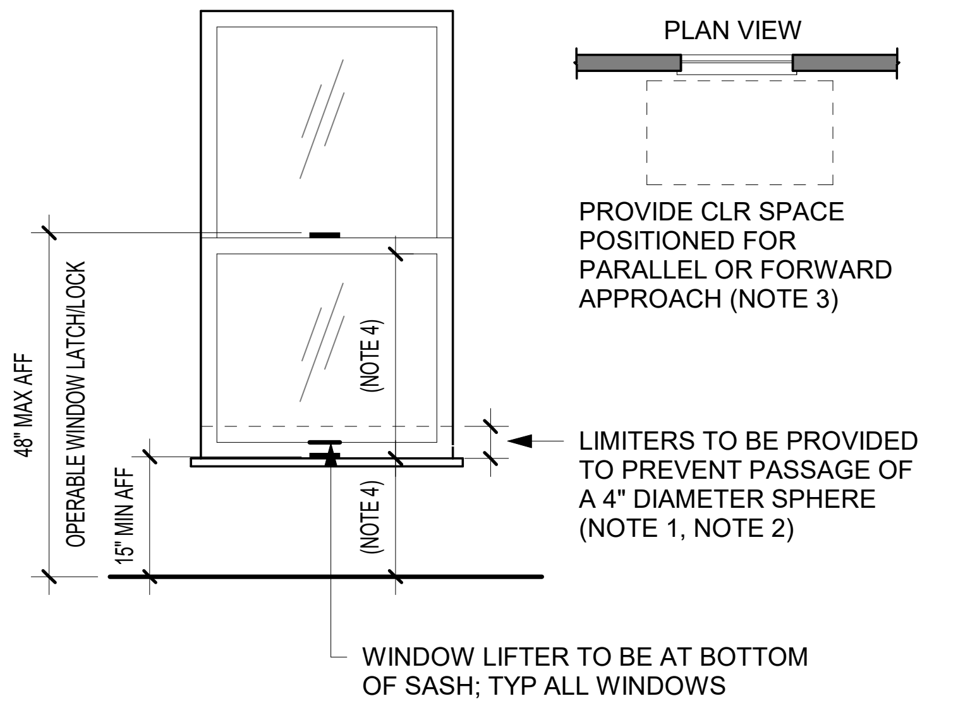
REQUIREMENTS FOR UNIVERSAL DESIGN HOUSING FOR THE ELDERLY AND SINGLE FAMILY DWELLINGS.

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


PROVIDE CLR SPACE IN FRONT OF PANEL BOARD POSITIONED FOR PARALLEL OR FORWARD APPROACH AND CENTERED ON UNIT; SEE: G-300 FOR CLR SPACE REQ'S
48" MAX
T.O. ALL OPERABLE PARTS
DUPLEX, SWITCHES, THERMOSTATS, DOOR BELLS, DOOR KNOCKERS, KEY PADS, ELEVATOR CONTROLS, PHONE JACKS, ELECTRICAL PANEL BOARDS, ETC.
DUPLEX, CABLE, TELEPHONE JACK, COVER, ETC.
JUNCTION BOX WITHOUT COUNTER
TO BE 48" TO TOP OF BOX
JUNCTION BOX WITH COUNTER
TO BE 44" TO TOP OF BOX
16" A.F.F.
or 24" A.F.F.
DUPLEX, SWITCHES, THERMOSTATS, DOOR BELLS, DOOR KNOCKERS, KEY PADS, ELEVATOR CONTROLS, PHONE JACKS, ELECTRICAL PANEL BOARDS, ETC.
DUPLEX, CABLE, TELEPHONE JACK, COVER, ETC.
JUNCTION BOX WITHOUT COUNTER
TO BE 48" TO TOP OF BOX
JUNCTION BOX WITH COUNTER
TO BE 46" TO TOP OF BOX
16" A.F.F.
or 24" A.F.F.
ELEVATOR SIGNAL
DUPLEX, SWITCHES, THERMOSTATS, DOOR BELLS, DOOR KNOCKERS, KEY PADS, ELEVATOR CONTROLS, PHONE JACKS, ETC.
DUPLEX, CABLE, TELEPHONE JACK, COVER, ETC.
JUNCTION BOX WITHOUT COUNTER
TO BE 48" TO TOP OF BOX
JUNCTION BOX WITH COUNTER
TO BE 44" TO TOP OF BOX
16" A.F.F.
or 24" A.F.F.
72" MIN.
IN UNIT PANEL BOARDS
ACCESSIBLE UNIT, "TYPE A" UNIT
"TYPE B" UNIT
PUBLIC RESTROOMS & COMMON AREAS

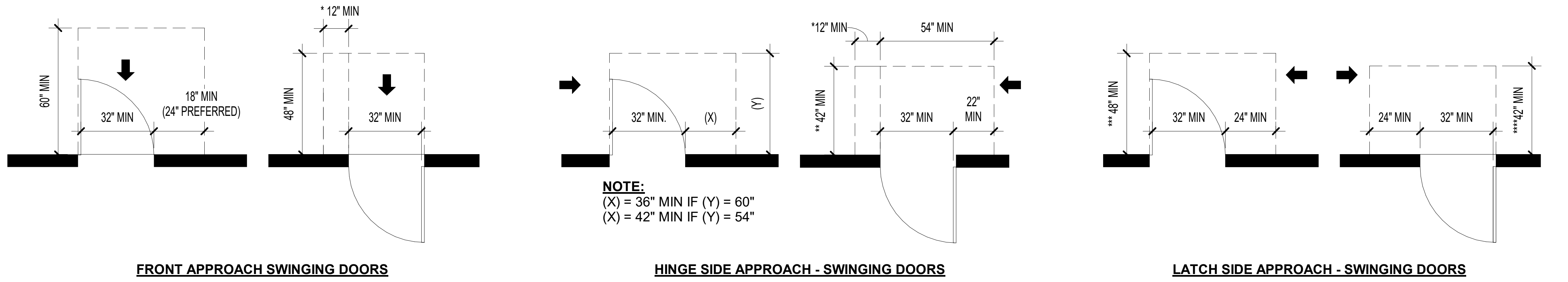
D4 MOUNTING HEIGHTS
NOT TO SCALE


PLAN VIEW
PROVIDE CLR SPACE POSITIONED FOR PARALLEL OR FORWARD APPROACH (NOTE 3)
48" MAX AFF
OPERABLE WINDOW LATCH/LOCK
15" MIN AFF
(NOTE 4)
(NOTE 4)
LIMITERS TO BE PROVIDED TO PREVENT PASSAGE OF A 4" DIAMETER SPHERE (NOTE 1, NOTE 2)
WINDOW LIFTER TO BE AT BOTTOM OF SASH; TYP ALL WINDOWS

NOTES:
1. *PROVIDE LIMITERS AT R-2 OCCUPANCIES WHERE BOTTOM OF CLEAR OPENING OF OPERABLE PORTION OF WINDOW IS LOCATED LESS THAN 36" AFF AND GREATER THAN 72" FROM FINISHED GRADE OR OTHER SURFACE BELOW.*
2. *NOT USED.*
3. *CLEAR SPACE REQUIRED WHERE OPERATION OF WINDOW IS REQUIRED FOR EGRESS AND/OR NATURAL VENTILATION*
4. AT WINDOWS REQUIRED FOR EGRESS:
   - A. 44" MAX AFF TO BOTTOM OF CLEAR OPENING
   - B. 24" MIN OPERABLE BOTTOM PANE
   - C. MINIMUM NET CLEAR OPENING OF 5.7 SQ.FT. (CAN REDUCE TO 5.0 SQ.FT. AT GRADE LEVEL WINDOWS)

A4 WINDOW LATCH/LOCK REQ'S
NOT TO SCALE

DOORS



NOTE:
(X) = 36" MIN IF (Y) = 60"
(X) = 42" MIN IF (Y) = 54"

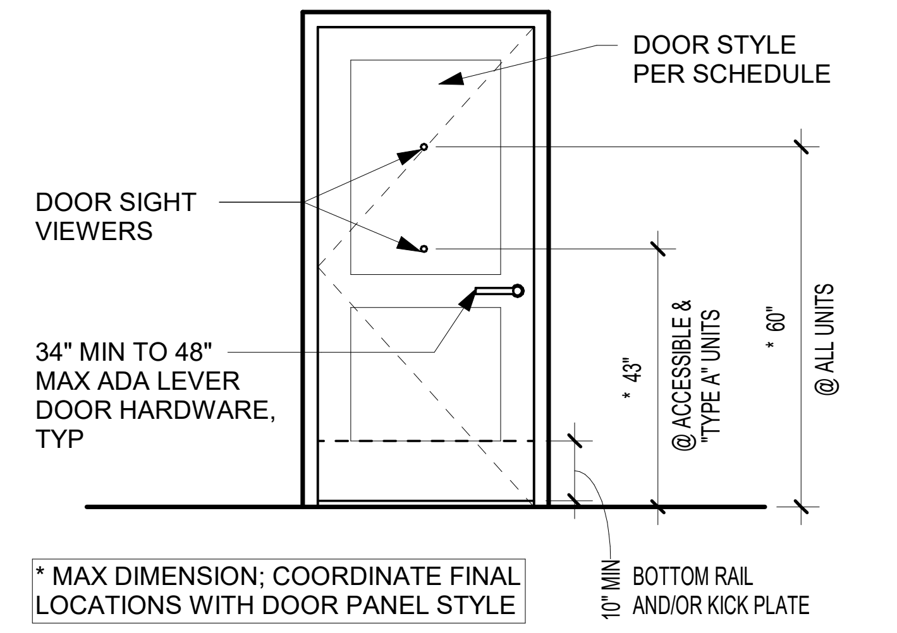
NOTE:
DOOR CLEARANCES ARE REQUIRED FOR ALL DOORS AT THE FOLLOWING LOCATIONS:
PUBLIC AREAS, ACCESSIBLE UNITS, "TYPE A" UNITS

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

GENERAL LEGEND:

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

D3 DOOR CLEARANCES
NOT TO SCALE


DOOR STYLE PER SCHEDULE
DOOR SIGHT VIEWERS
34" MIN TO 48" MAX ADA LEVER DOOR HARDWARE, TYP
* 43"
@ ACCESSIBLE & "TYPE A" UNITS
* 60"
@ ALL UNITS
10" MIN
BOTTOM RAIL AND/OR KICK PLATE

* MAX DIMENSION; COORDINATE FINAL LOCATIONS WITH DOOR PANEL STYLE

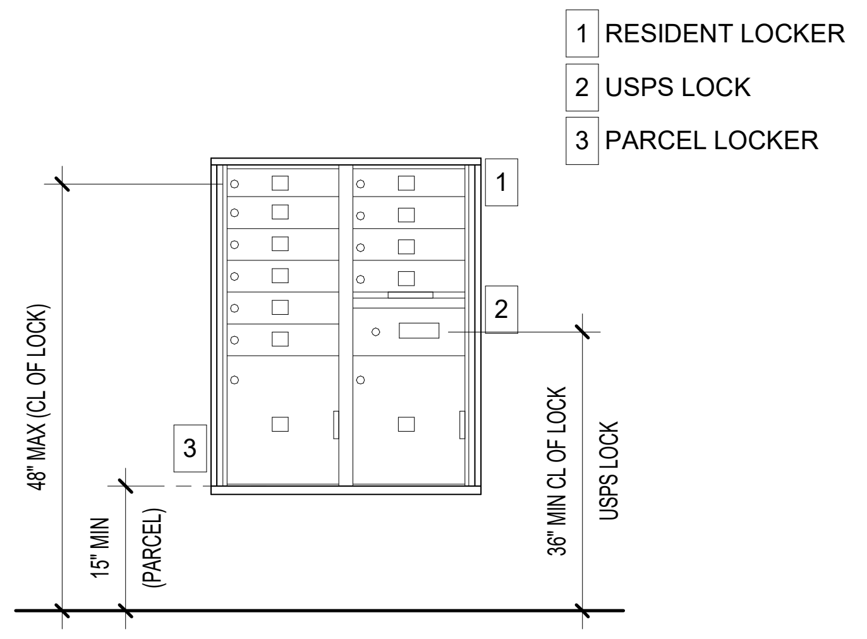
A3 DOOR HARDWARE HEIGHTS
NOT TO SCALE

MAIL BOXES

100% OF MAILBOXES PROVIDED MEET ACCESSIBILITY GUIDELINES

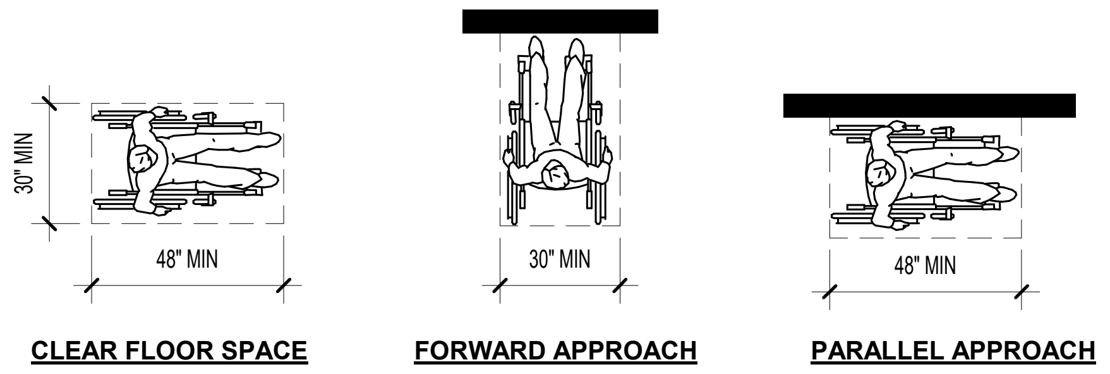
ACCESSIBLE MAILBOXES
48" MAX AFF (CL OF LOCK)
PROVIDE **30"x48"** CLEAR FLOOR SPACE AT ALL ACCESSIBLE LOCKERS, CENTERED ON MAILBOX

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



E2 FULLY ACCESSIBLE MAIL BOXES
NOT TO SCALE

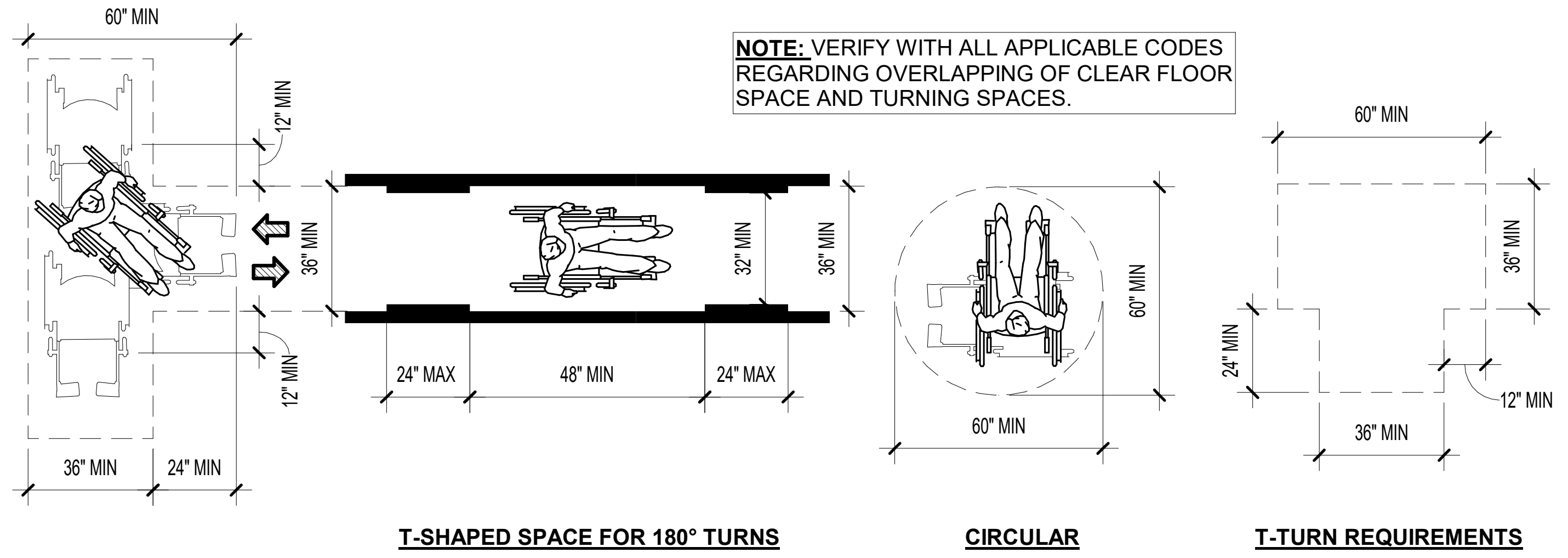
CLEAR FLOOR SPACES



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

C2 CLEAR FLOOR SPACE
NOT TO SCALE

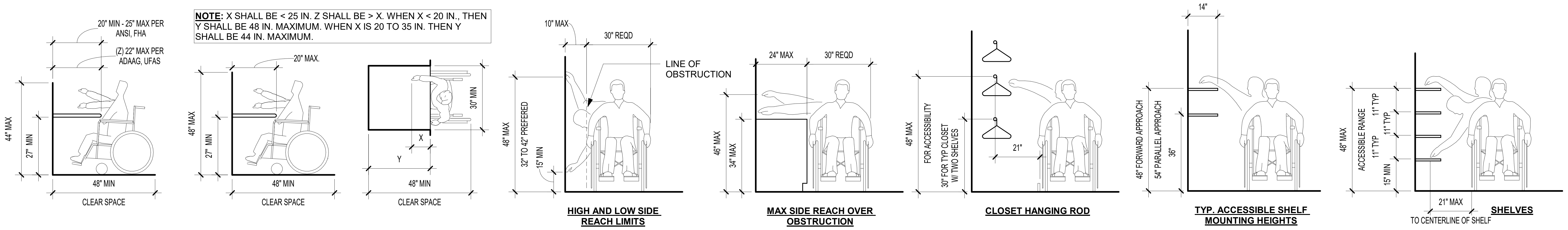
NOTE: VERIFY WITH ALL APPLICABLE CODES REGARDING OVERLAPPING OF CLEAR FLOOR SPACE AND TURNING SPACES.



A2 WHEELCHAIR TURNING SPACE
NOT TO SCALE

REACH RANGES

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



D1 REACH REQUIREMENTS
NOT TO SCALE

PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:

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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

DAVID EUGENE HENDRIKSE
NUMBER A-7305
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
ACCESSIBILITY STANDARDS

PROJECT NUMBER: 23034

SHEET NUMBER:

G-300

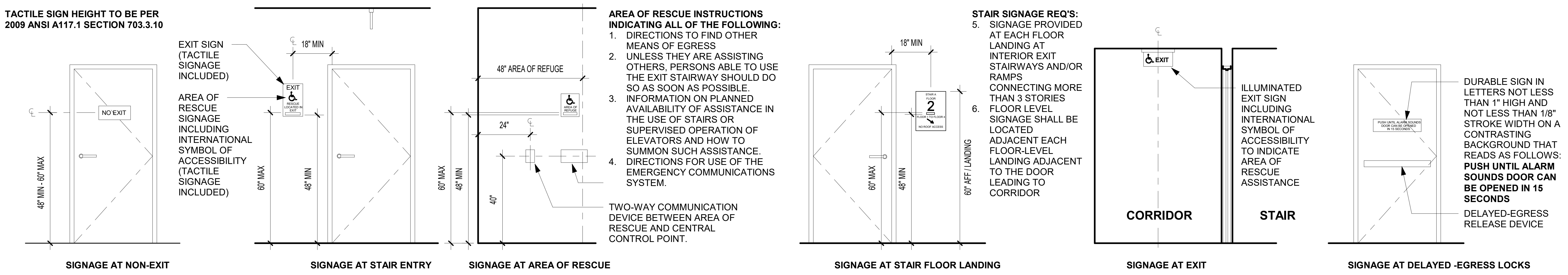
10/27/2023 2:53:39 PM
C:\Revit Local Cache\2023\23034_Wilshire Hills III_Central_R23_revit9TUCAR.rvt

REFERENCE G-003 FOR GENERAL NOTES

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

SIGNAGE

TACTILE SIGN HEIGHT TO BE PER 2009 ANSI A117.1 SECTION 703.3.10



NO EXIT
48" MIN - 60" MAX
EXIT SIGN (TACTILE SIGNAGE INCLUDED)
AREA OF RESCUE SIGNAGE INCLUDING INTERNATIONAL SYMBOL OF ACCESSIBILITY (TACTILE SIGNAGE INCLUDED)
18" MIN
EXIT
RESCUE LOCATED IN EXIT
60" MAX
48" MIN
48" AREA OF REFUGE
AREA OF REFUGE
24"
40"
60" MAX
48" MIN
18" MIN
STAIR A
FLOOR
2
FLOOR 1 TO FLOOR 4
NO ROOF ACCESS
60" MAX
48" MIN
60" AFF / LANDING
EXIT
CORRIDOR
STAIR
ILLUMINATED EXIT SIGN INCLUDING INTERNATIONAL SYMBOL OF ACCESSIBILITY TO INDICATE AREA OF RESCUE ASSISTANCE
PUSH UNTIL ALARM SOUNDS DOOR CAN BE OPENED IN 15 SECONDS
DELAYED-EGRESS RELEASE DEVICE

SIGNAGE AT NON-EXIT

SIGNAGE AT STAIR ENTRY

SIGNAGE AT AREA OF RESCUE

SIGNAGE AT STAIR FLOOR LANDING

SIGNAGE AT EXIT

SIGNAGE AT DELAYED -EGRESS LOCKS

AREA OF RESCUE INSTRUCTIONS INDICATING ALL OF THE FOLLOWING:
1. DIRECTIONS TO FIND OTHER MEANS OF EGRESS
2. UNLESS THEY ARE ASSISTING OTHERS, PERSONS ABLE TO USE THE EXIT STAIRWAY SHOULD DO SO AS SOON AS POSSIBLE.
3. INFORMATION ON PLANNED AVAILABILITY OF ASSISTANCE IN THE USE OF STAIRS OR SUPERVISED OPERATION OF ELEVATORS AND HOW TO SUMMON SUCH ASSISTANCE.
4. DIRECTIONS FOR USE OF THE EMERGENCY COMMUNICATIONS SYSTEM.

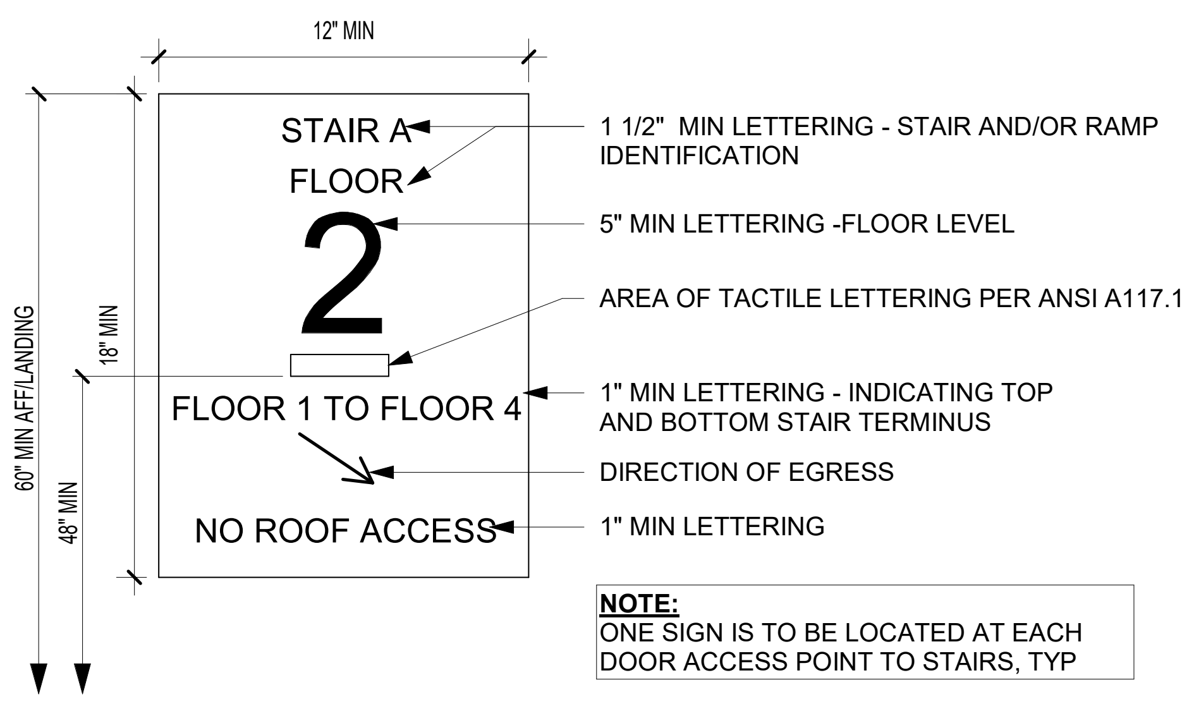
TWO-WAY COMMUNICATION DEVICE BETWEEN AREA OF RESCUE AND CENTRAL CONTROL POINT.

STAIR SIGNAGE REQ'S:
5. SIGNAGE PROVIDED AT EACH FLOOR LANDING AT INTERIOR EXIT STAIRWAYS AND/OR RAMPS CONNECTING MORE THAN 3 STORIES
6. FLOOR LEVEL SIGNAGE SHALL BE LOCATED ADJACENT EACH FLOOR-LEVEL LANDING ADJACENT TO THE DOOR LEADING TO CORRIDOR

DURABLE SIGN IN LETTERS NOT LESS THAN 1" HIGH AND NOT LESS THAN 1/8" STROKE WIDTH ON A CONTRASTING BACKGROUND THAT READS AS FOLLOWS: **PUSH UNTIL ALARM SOUNDS DOOR CAN BE OPENED IN 15 SECONDS**

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

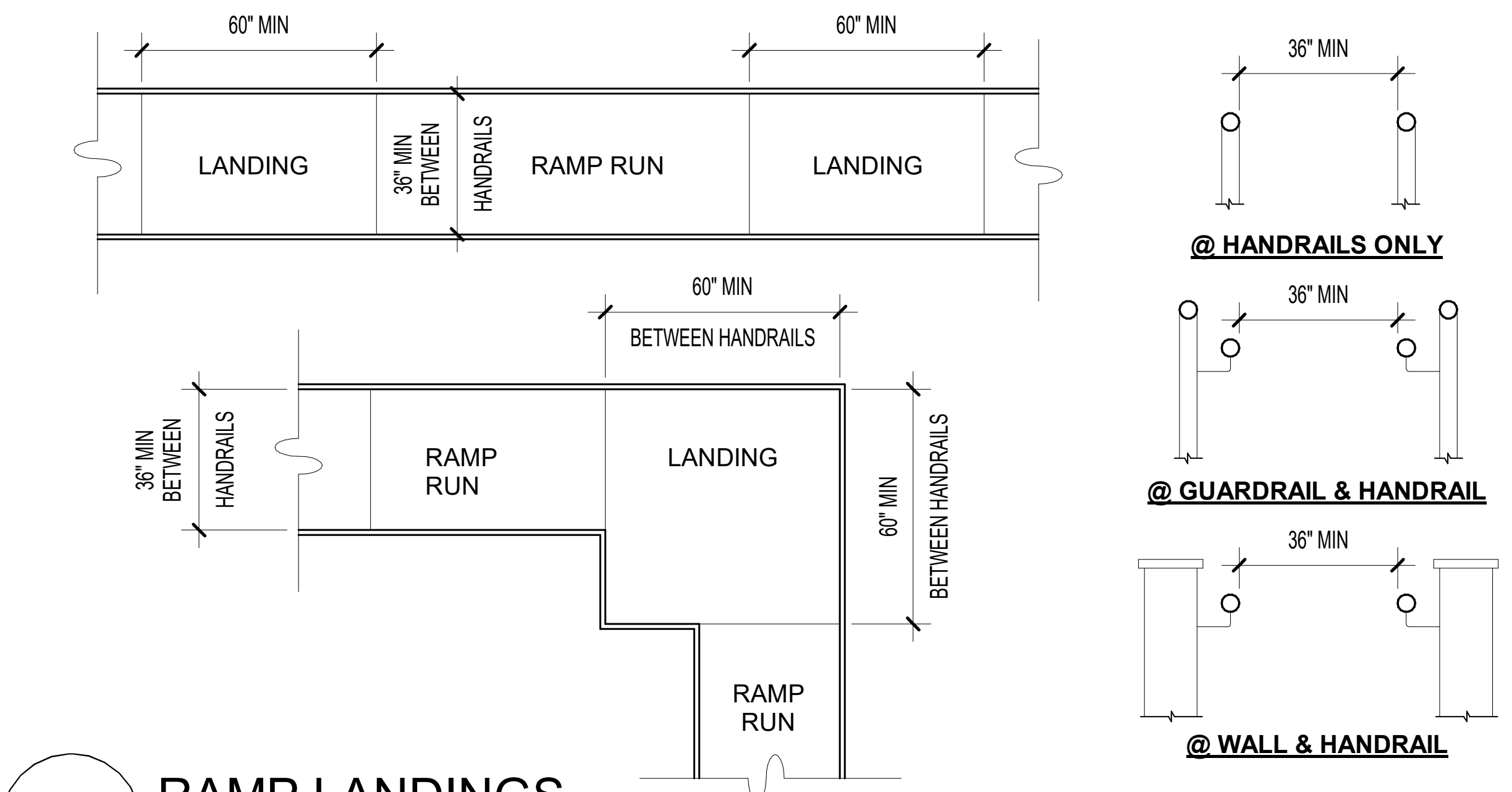


12" MIN
STAIR A
FLOOR
2
FLOOR 1 TO FLOOR 4
NO ROOF ACCESS
60" MIN AFF/LANDING
18" MIN
48" MIN
1 1/2" MIN LETTERING - STAIR AND/OR RAMP IDENTIFICATION
5" MIN LETTERING -FLOOR LEVEL
AREA OF TACTILE LETTERING PER ANSI A117.1
1" MIN LETTERING - INDICATING TOP AND BOTTOM STAIR TERMINUS
DIRECTION OF EGRESS
1" MIN LETTERING

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

A4 EGRESS STAIR SIGNAGE
NOT TO SCALE

RAMPS

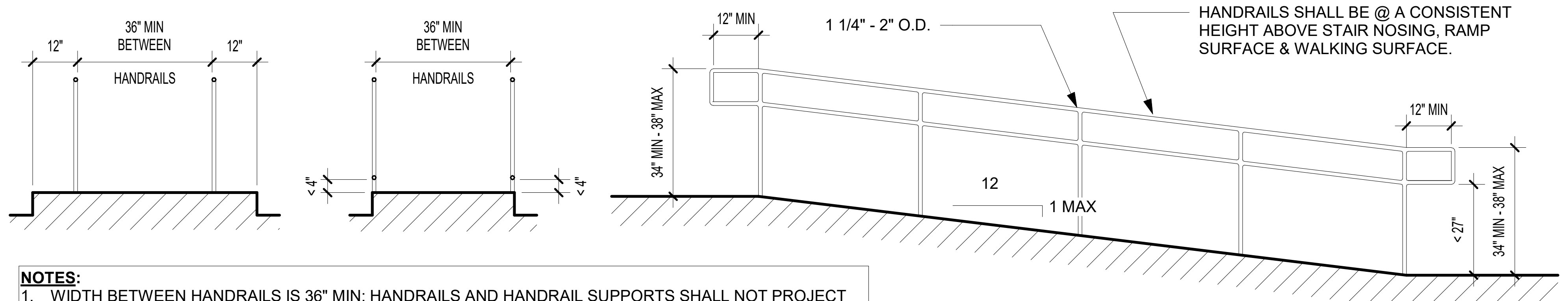


@ HANDRAILS ONLY

@ GUARDRAIL & HANDRAIL

@ WALL & HANDRAIL

D3 RAMP LANDINGS
NOT TO SCALE



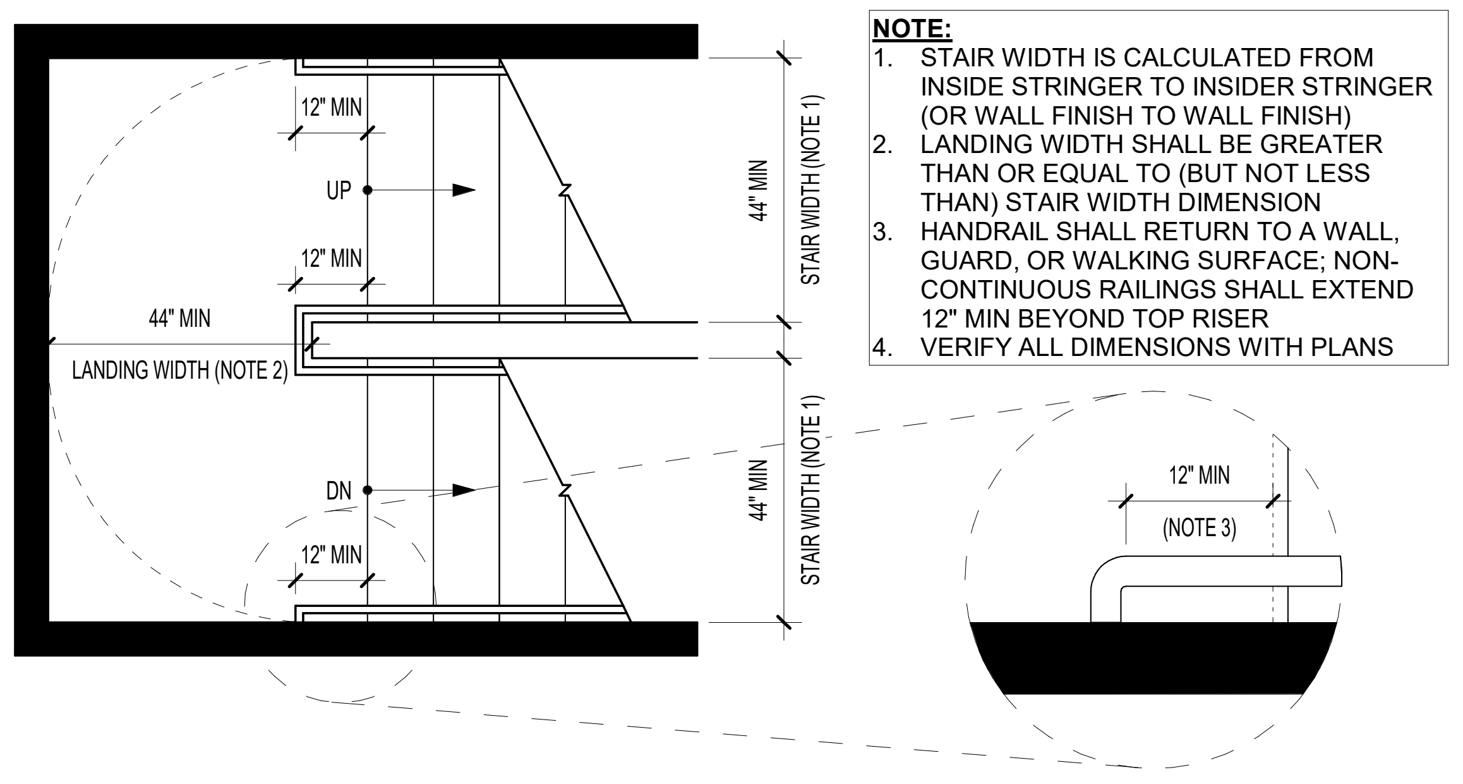
NOTES:
1. WIDTH BETWEEN HANDRAILS IS 36" MIN; HANDRAILS AND HANDRAIL SUPPORTS SHALL NOT PROJECT INTO THE REQUIRED CLEAR WIDTH OF THE RAMP RUN.
2. CROSS SLOPE OF RAMP SURFACES SHALL BE NO GREATER THAN 1:48 AND SHALL BE STABLE, FIRM, AND SLIP-RESISTANT. IF THE SLOPE IS EQ. OR GREATER THAN 1:20 YOU ARE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

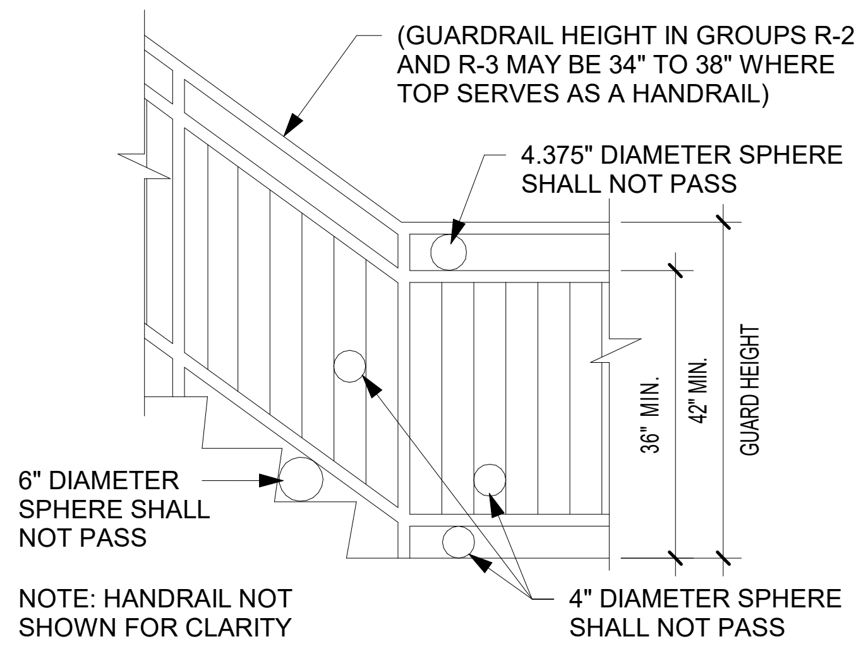
CARPET	MAX PILE HEIGHT SHALL BE 1/2 IN. EXPOSED EDGES OF CARPET SHALL BE FASTENED TO FLOOR SURFACES AND HAVE TRIM ALONG THE ENTIRE LENGTH OF THE EXPOSED EDGE. IF CARPET TILE IS USED ON AN ACCESSIBLE GROUND OF FLOOR SURFACE, IT SHALL HAVE A MAXIMUM COMBINED THICKNESS OF PILE, CUSHION, AND BACKING HEIGHT OF 1/2 IN.		
RAMPS	SLOPE	MAX RISE	MAX HORIZONTAL PROJECTION
	1:12 TO <1:16 1:16 TO <1:20	30 IN. 30 IN.	30 FT. 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

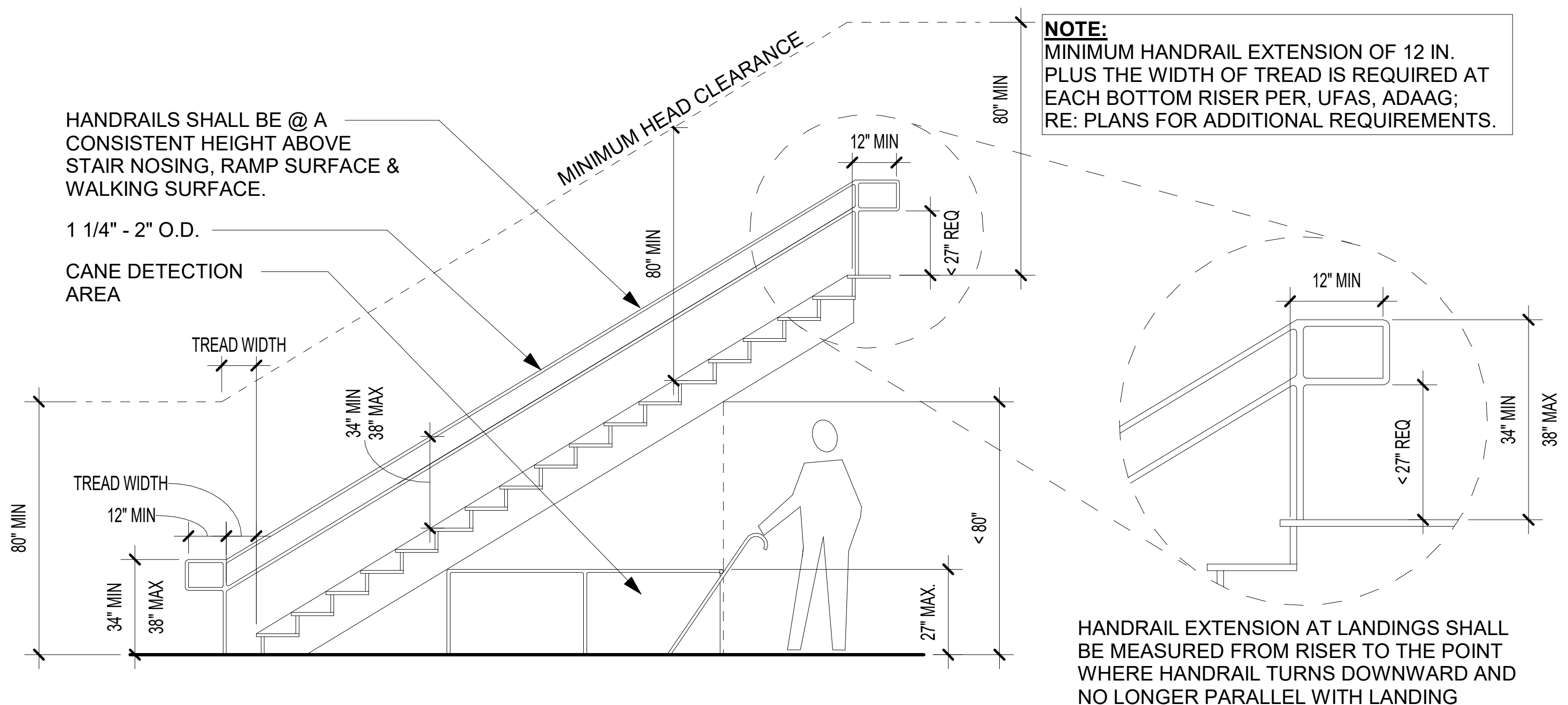
D2 EGRESS STAIR REQ'S
NOT TO SCALE



(GUARDRAIL HEIGHT IN GROUPS R-2 AND R-3 MAY BE 34" TO 38" WHERE TOP SERVES AS A HANDRAIL)
4.375" DIAMETER SPHERE SHALL NOT PASS
6" DIAMETER SPHERE SHALL NOT PASS
36" MIN.
42" MIN.
GUARD HEIGHT
4" DIAMETER SPHERE SHALL NOT PASS

NOTE: HANDRAIL NOT SHOWN FOR CLARITY

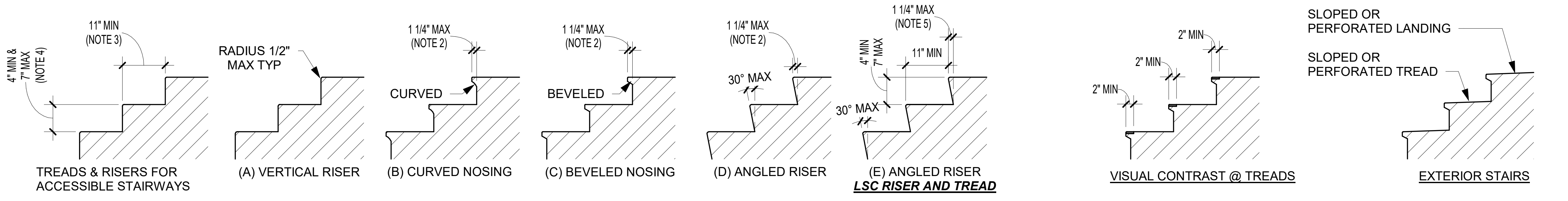
C2 STAIR OPENING GUARD LIMITATIONS
NOT TO SCALE



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.

HANDRAIL EXTENSION AT LANDINGS SHALL BE MEASURED FROM RISER TO THE POINT WHERE HANDRAIL TURNS DOWNWARD AND NO LONGER PARALLEL WITH LANDING (TYPICAL AT STAIRS AND RAMPS)

B2 STAIR PROTECTION & HANDRAIL DETAIL
NOT TO SCALE



TREADS & RISERS FOR ACCESSIBLE STAIRWAYS

(A) VERTICAL RISER

(B) CURVED NOSING

(C) BEVELED NOSING

(D) ANGLED RISER

(E) ANGLED RISER
LSC RISER AND TREAD

VISUAL CONTRAST @ TREADS

EXTERIOR STAIRS

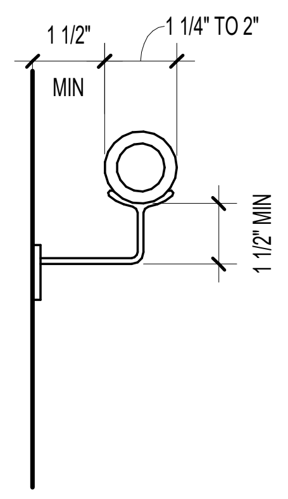
NOTES:
1. **REFER TO THE CODE OF THE CITY & STAIR DETAILS BEFORE DETERMINING THE STYLE OF THE STAIR**
2. 3/4" MIN NOSING PROJECTION WITHIN R-2 DWELLING UNITS WITH SOLID RISERS WHERE THE TREAD DEPTH IS LESS THAN 11"
3. 10" MIN TREAD DEPTH WITHIN INDIVIDUAL R-2 DWELLING UNITS.
4. 7 3/4" MAX RISER HEIGHT 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
10/30/23 PERMIT SUBMITTAL

REVISIONS:

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DAVID EUGENE HENDRIKSE
NUMBER A-7305
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
ACCESSIBILITY STANDARDS

PROJECT NUMBER: 23034

SHEET NUMBER:

G-301

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REFERENCE G-003 FOR GENERAL NOTES

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

AGE APPROPRIATE REQ'S

AGE APPROPRIATE SPEC. FOR WATER CLOSETS

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

CHILDREN'S REACH RANGES FROM A WHEELCHAIR

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

TOILET, BATH, LAUNDRY ACCESSORY SCHEDULE

TOILET, BATH, AND LAUNDRY ACCESSORY SCHEDULE (SPEC 10 2800)

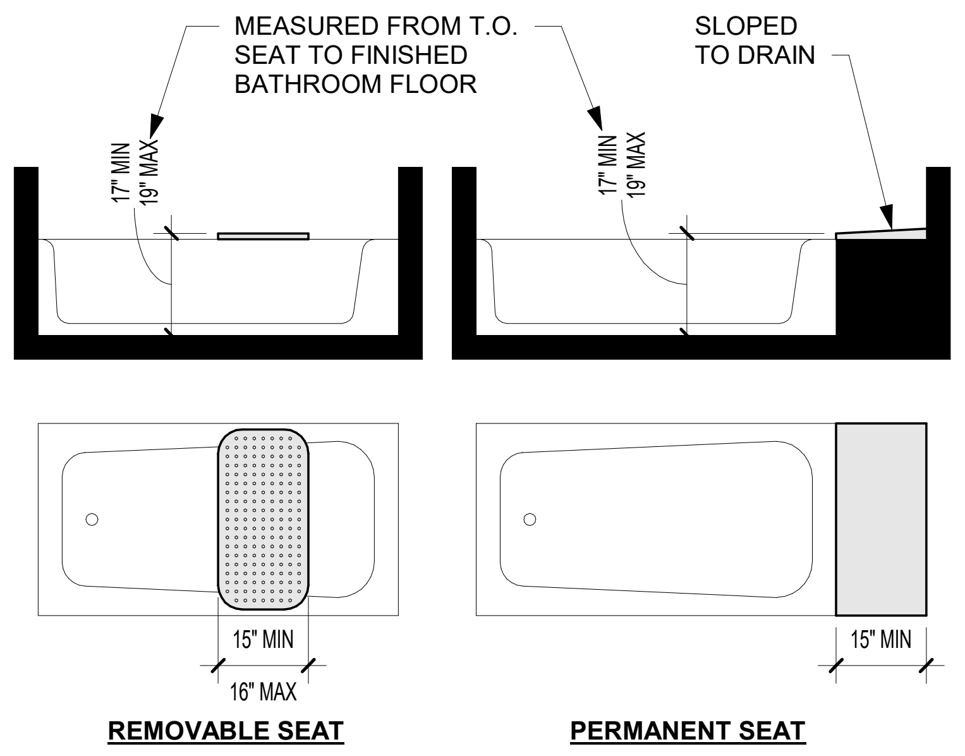
ACCESSORY	MOUNTING HEIGHT	LOCATION
MIRROR	SEE G-XXX	PUBLIC & UNIT
PAPER TOWEL DISP/RECP	3'-4" AFF TO TOP OF CONTROLS	PUBLIC
TOILET PAPER DISPENSER	SEE G-301	PUBLIC & UNIT
GRAB BARS	SEE G-301 (2'-10" AFF UNO)	PUBLIC & UNIT
SANITARY NAPKIN RECEPTOR	1'-7" AFF & 3'-6" FROM REAR WALL	PUBLIC
DRINKING FOUNTAIN	PER MFR	PUBLIC
DRINKING FOUNTAIN - ACCESSIBLE	SEE G-301	PUBLIC
WATER CLOSET (FLOOR-MOUNTED)	1'-4" AFF MIN TO RIM	PUBLIC & UNIT
WATER CLOSET - ACCESSIBLE (FLOOR-MOUNTED)	SEE G-301	PUBLIC & UNIT
LAVATORY	STANDARD (SEE INTERIOR ELEVATIONS)	PUBLIC & UNIT
LAVATORY - ACCESSIBLE	2' - 10" AFF TO TOP OF SINK RIM (FOR SURFACE MOUNTED SINKS)...	PUBLIC & UNIT
SOAP DISPENSER	3'-8" AFF TO CONTROLS	PUBLIC

REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION

GENERAL NOTES

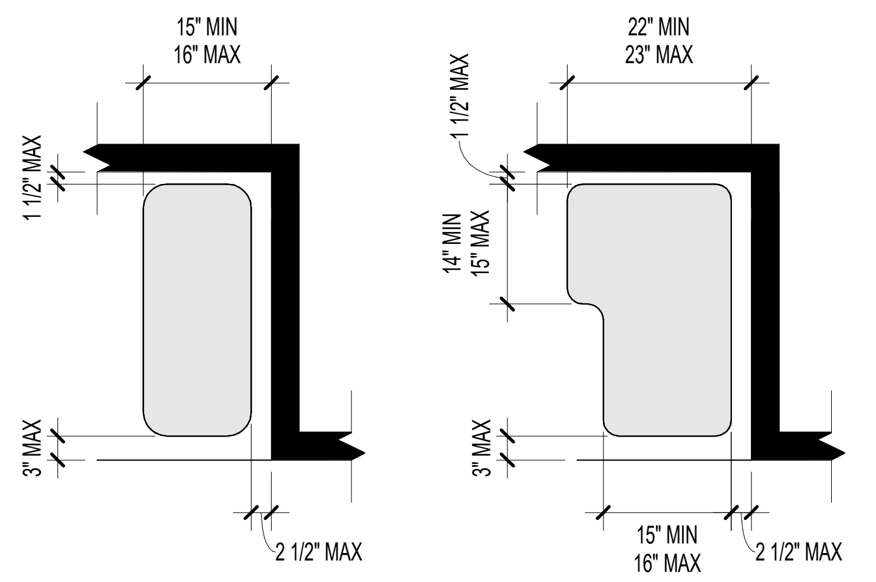
1. GRAB BAR BLOCKING IS REQUIRED AT ALL TOILET, SHOWER AND BATHTUB GRAB BAR LOCATIONS; APPLICABLE AT ALL PUBLIC SPACES, ACCESSIBLE UNITS, "TYPE A" UNITS, AND "TYPE B" UNITS.
2. CONTRACTOR SHALL BE FAMILIAR AND INCORPORATE ALL PROVISIONS AND REQUIREMENTS ESTABLISHED BY CODES APPLICABLE TO THE PROJECT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

TUB SEAT



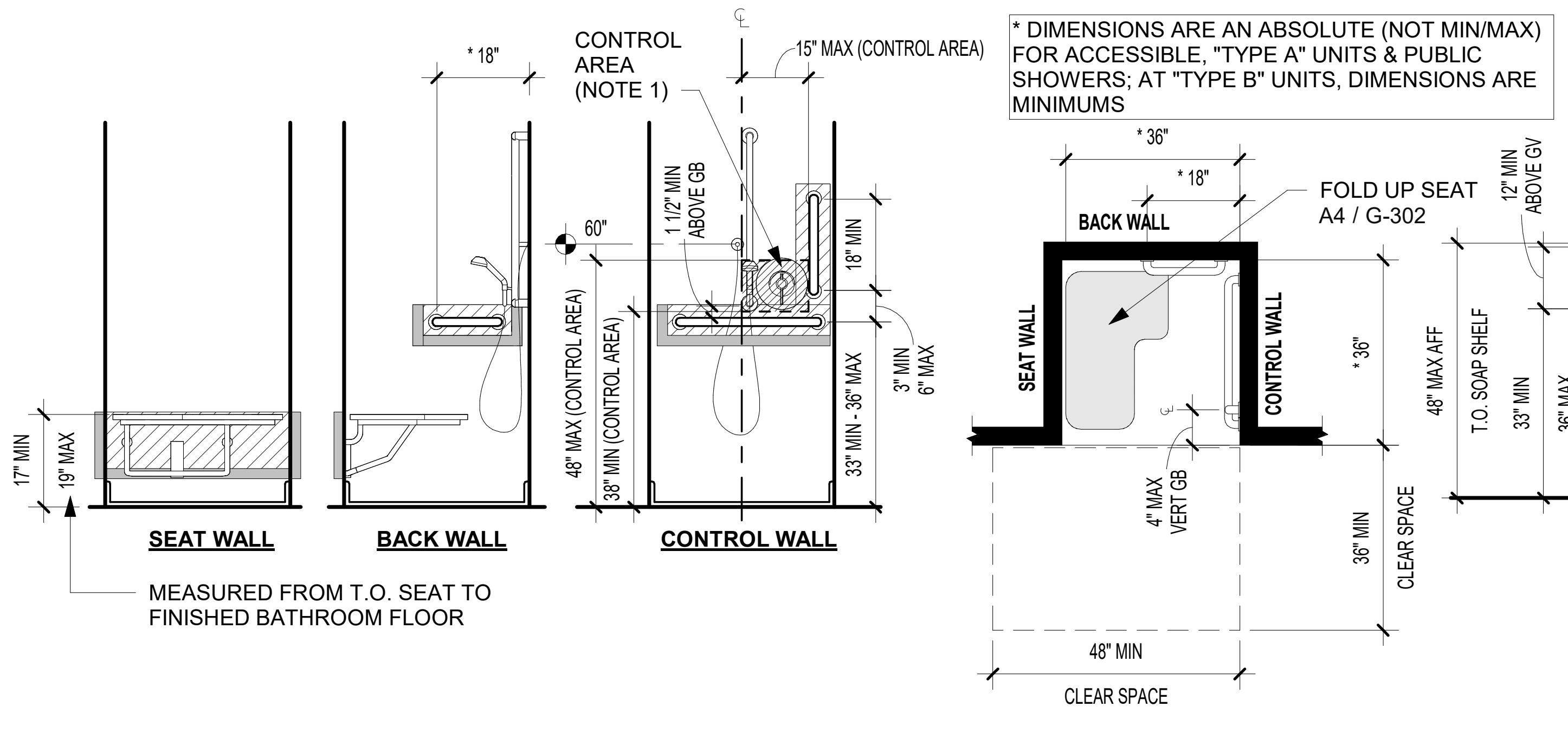
B4 BATHTUB SEAT
NOT TO SCALE

SHOWER SEAT



A4 SHOWER SEAT
NOT TO SCALE

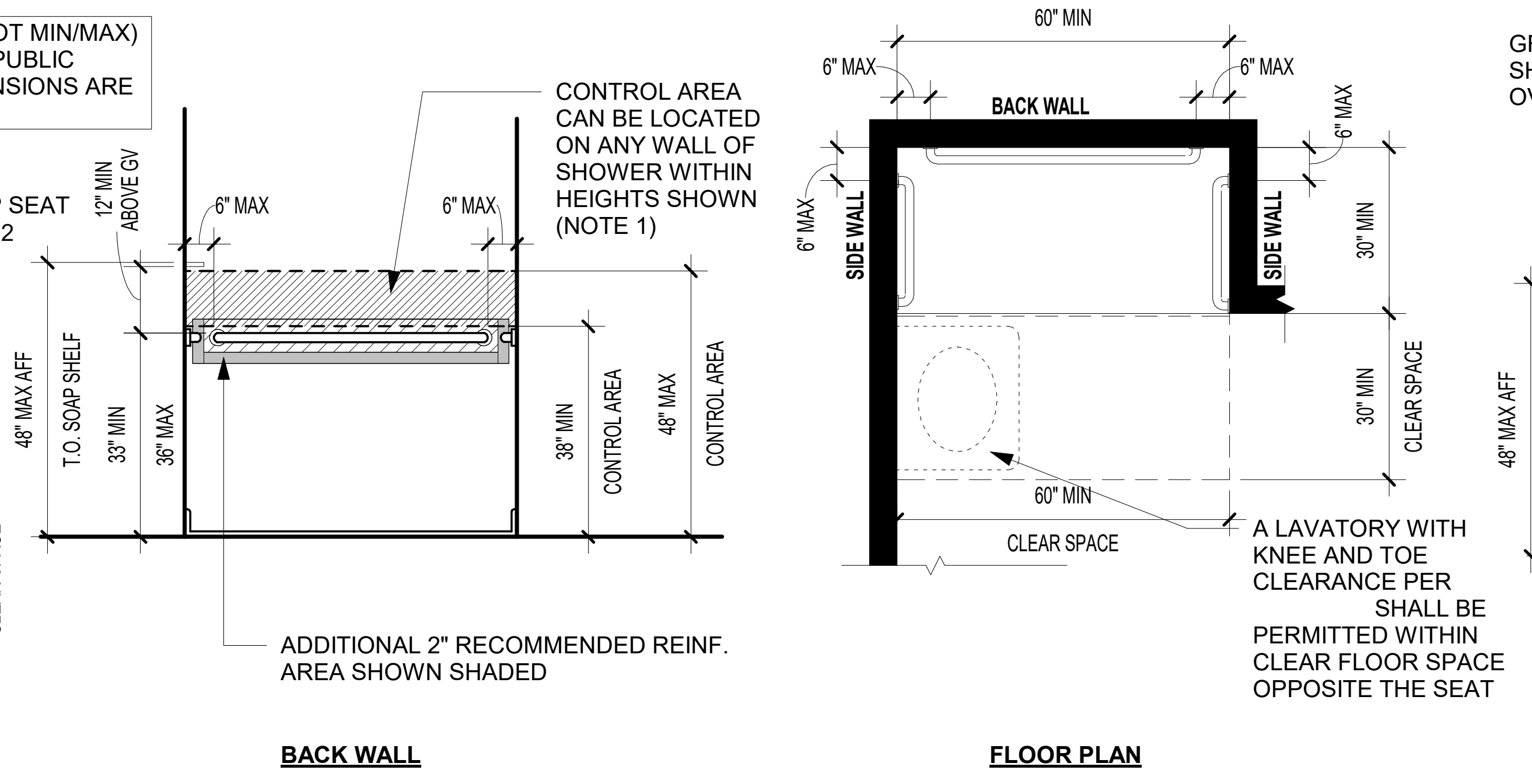
SHOWERS



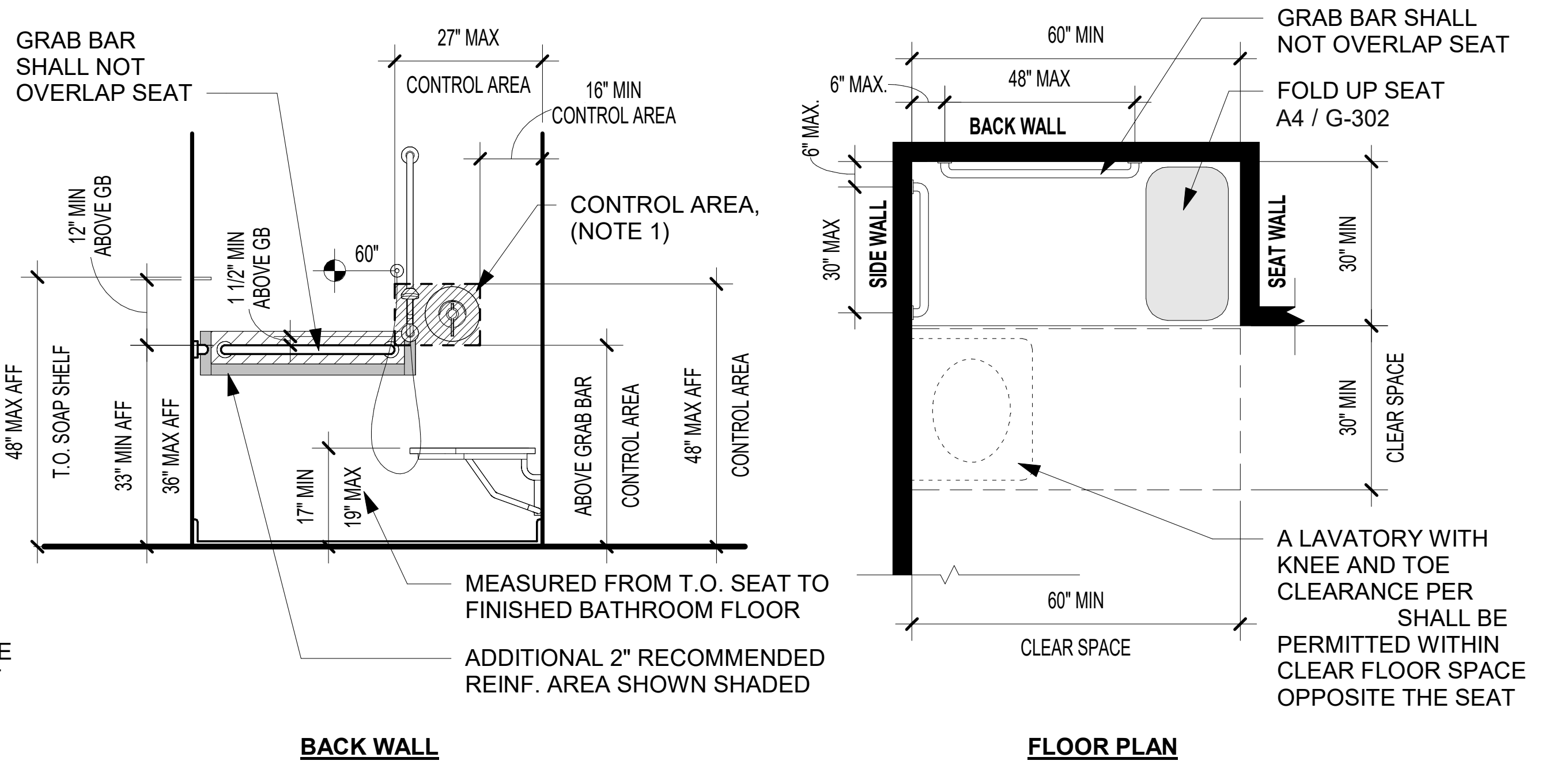
MEASURED FROM T.O. SEAT TO FINISHED BATHROOM FLOOR

* DIMENSIONS ARE AN ABSOLUTE (NOT MIN/MAX) FOR ACCESSIBLE, "TYPE A" UNITS & PUBLIC SHOWERS; AT "TYPE B" UNITS, DIMENSIONS ARE MINIMUMS

D3 TRANSFER SHOWER
NOT TO SCALE


CONTROL AREA CAN BE LOCATED ON ANY WALL OF SHOWER WITHIN HEIGHTS SHOWN (NOTE 1)
12" MIN ABOVE GV
6" MAX
48" MAX AFF
T.O. SOAP SHELF
33" MIN
36" MAX
38" MIN
CONTROL AREA
48" MAX
CONTROL AREA
ADDITIONAL 2" RECOMMENDED REINF. AREA SHOWN SHADED
BACK WALL
60" MIN
6" MAX
BACK WALL
SIDE WALL
SIDE WALL
30" MIN
30" MIN
CLEAR SPACE
60" MIN
CLEAR SPACE
A LAVATORY WITH KNEE AND TOE CLEARANCE PER SHALL BE PERMITTED WITHIN CLEAR FLOOR SPACE OPPOSITE THE SEAT
FLOOR PLAN

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



B3 ROLL-IN SHOWER W/ SEAT
NOT TO SCALE

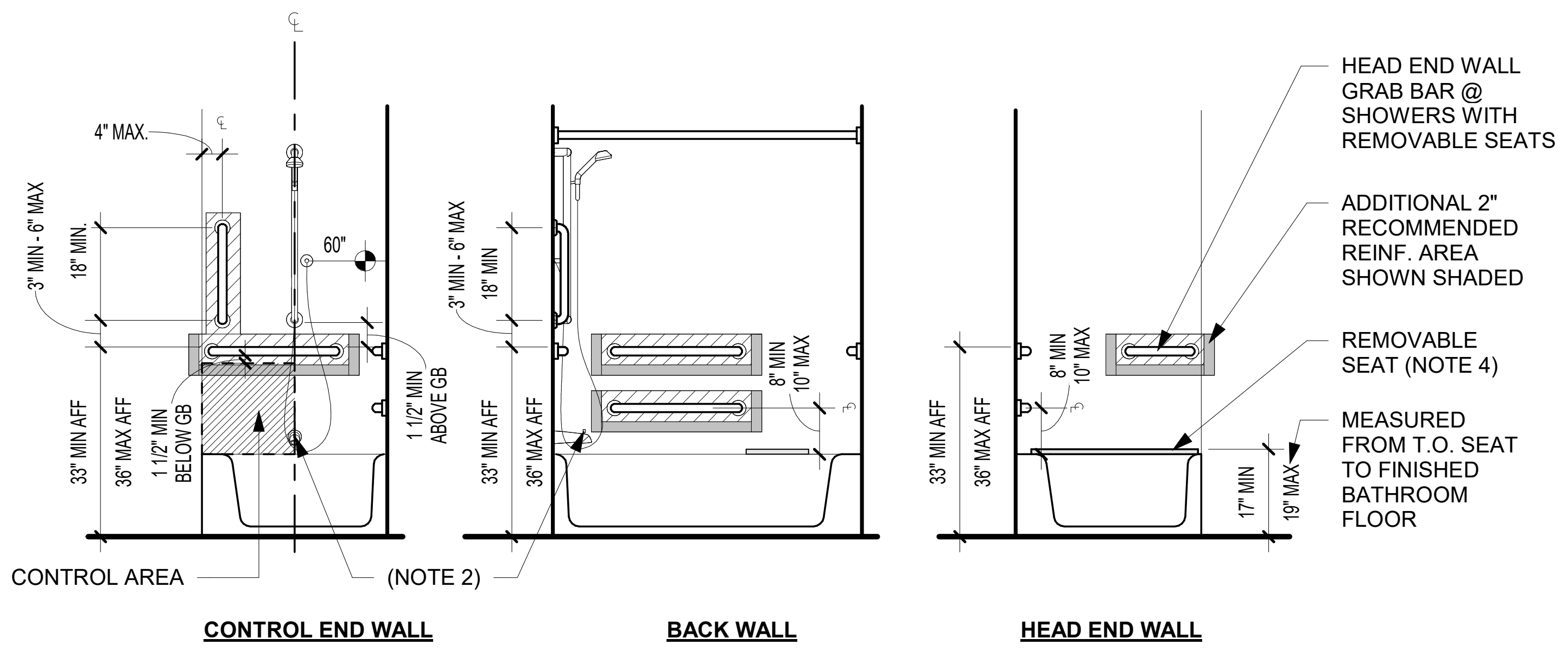
SHOWER NOTES

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

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

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

TUB

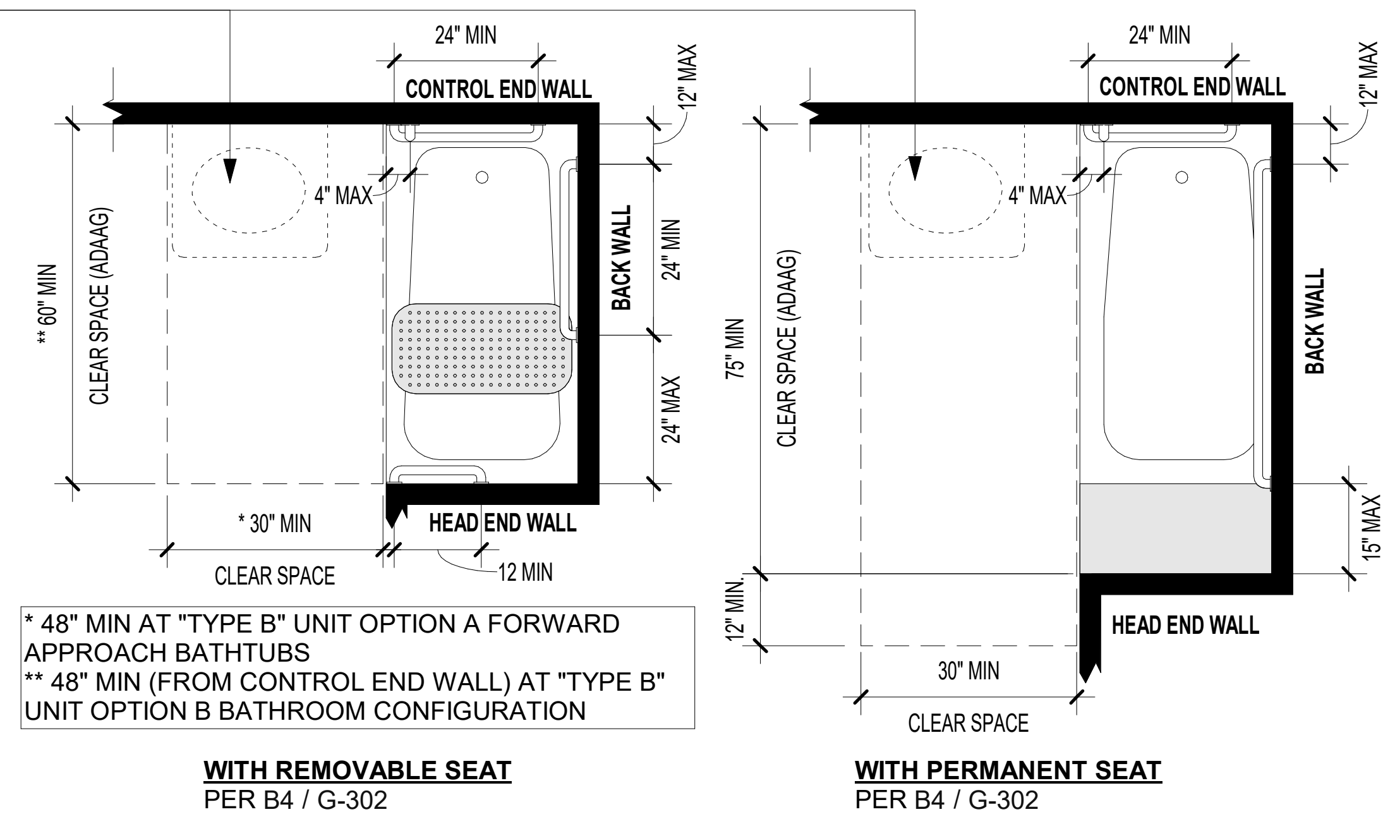


D2 BATHTUB HEIGHT REQ'S
NOT TO SCALE

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

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

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



* 48" MIN AT "TYPE B" UNIT OPTION A FORWARD APPROACH BATHTUBS
** 48" MIN (FROM CONTROL END WALL) AT "TYPE B" UNIT OPTION B BATHROOM CONFIGURATION

C2 BATHTUB CLEARANCES
NOT TO SCALE

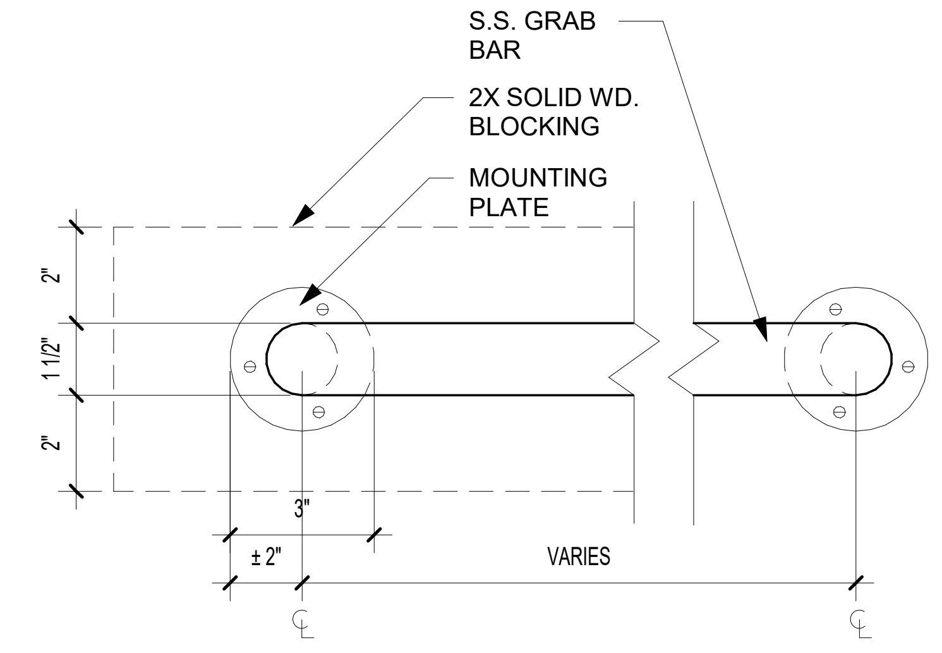
TUB NOTES

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

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

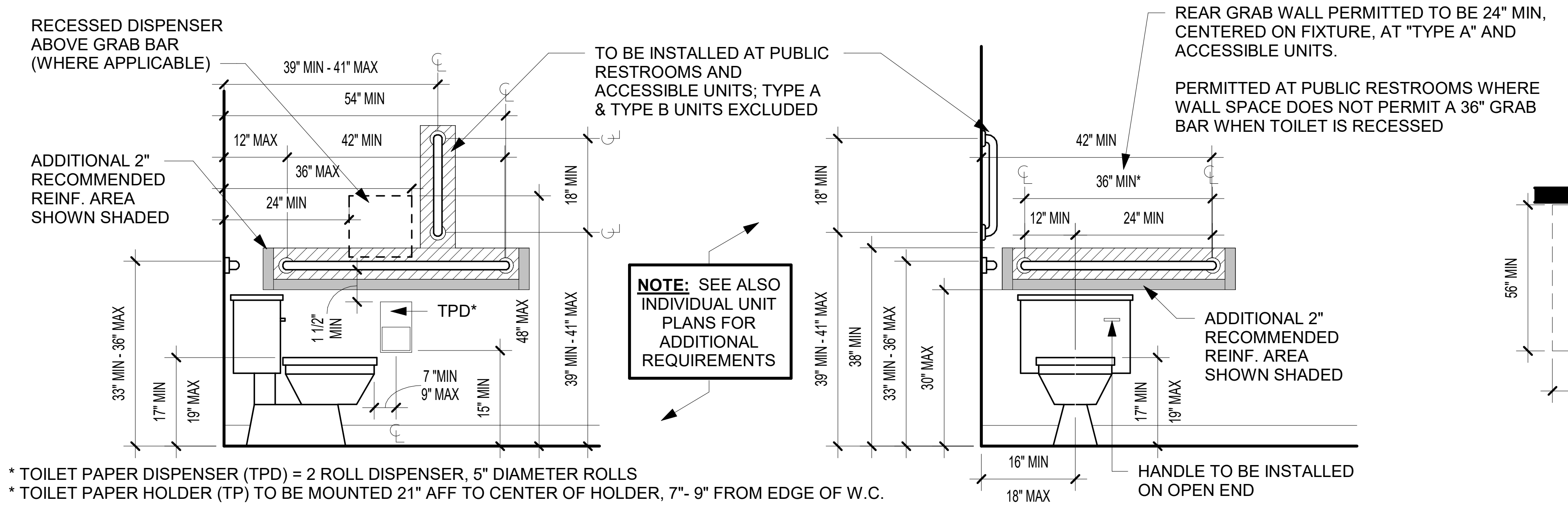
1. A HAND SHOWER WITH A HOSE OF 59" MINIMUM IN LENGTH TO BE PROVIDED.
   A. HAND SHOWER SHALL HAVE A CONTROL WITH A NONPOSITIVE SHUT OFF FEATURE.
2. NO PIN KNOB DIVERTERS IN ACCESSIBLE OR "TYPE A" UNITS AT TUB FAUCETS.
3. ADDITIONAL 2" RECOMMENDED REINFORCED AREA AROUND GRAB BARS (SHOWN SHADED).
4. REMOVABLE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

GRAB BAR



A2 GRAB BAR DETAIL
NOT TO SCALE

TOILET


RECESSED DISPENSER ABOVE GRAB BAR (WHERE APPLICABLE)
39" MIN - 41" MAX
54" MIN
12" MAX
42" MIN
36" MAX
24" MIN
ADDITIONAL 2" RECOMMENDED REINF. AREA SHOWN SHADED
TO BE INSTALLED AT PUBLIC RESTROOMS AND ACCESSIBLE UNITS; TYPE A & TYPE B UNITS EXCLUDED
18" MIN
1 1/2" MIN
TPD*
7 "MIN
9" MAX
15" MIN
48" MAX
39" MIN - 41" MAX
33" MIN - 36" MAX
17" MIN
19" MAX
42" MIN
36" MIN*
12" MIN
24" MIN
18" MIN
39" MIN - 41" MAX
38" MIN
33" MIN - 36" MAX
30" MAX
17" MIN
19" MAX
16" MIN
18" MAX
ADDITIONAL 2" RECOMMENDED REINF. AREA SHOWN SHADED
HANDLE TO BE INSTALLED ON OPEN END

NOTE: SEE ALSO INDIVIDUAL UNIT PLANS FOR ADDITIONAL REQUIREMENTS

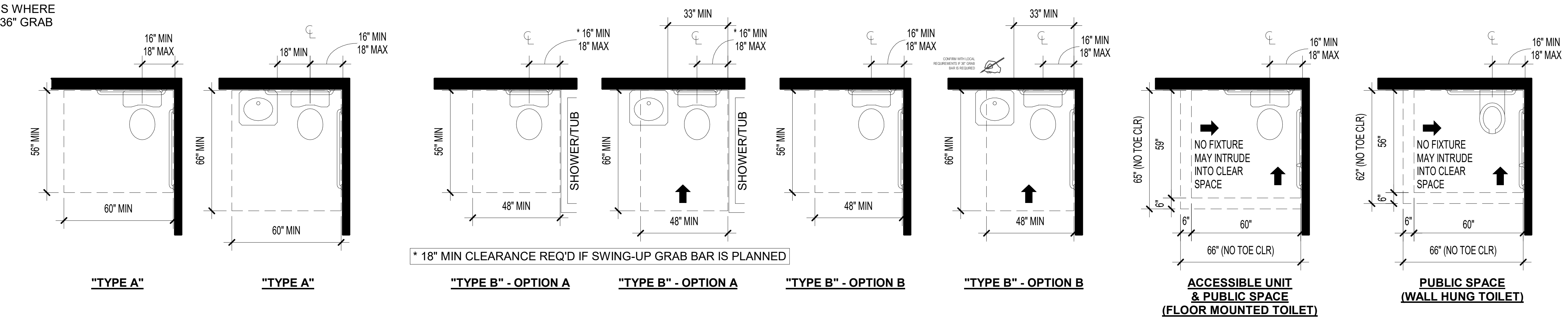
REAR GRAB WALL PERMITTED TO BE 24" MIN, CENTERED ON FIXTURE, AT "TYPE A" AND ACCESSIBLE UNITS.

PERMITTED AT PUBLIC RESTROOMS WHERE WALL SPACE DOES NOT PERMIT A 36" GRAB BAR WHEN TOILET IS RECESSED

* 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

WHERE TOILET PARTITIONS EXTEND TO FINISHED FLOOR (NO TOE CLEARANCE PROVIDED); CLEARANCE REQ'S INCREASE BY +6" EACH SIDE



* 18" MIN CLEARANCE REQ'D IF SWING-UP GRAB BAR IS PLANNED

C1 TOILET APPROACHES
NOT TO SCALE

PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

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DAVID EUGENE HENDRIKSE
NUMBER A-7305
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
ACCESSIBILITY STANDARDS

PROJECT NUMBER: 23034

SHEET NUMBER:
G-302

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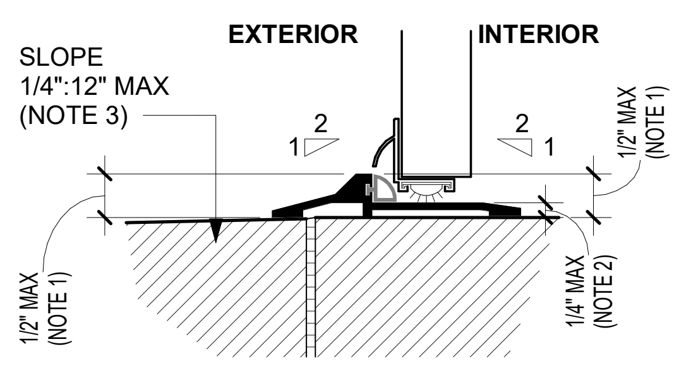
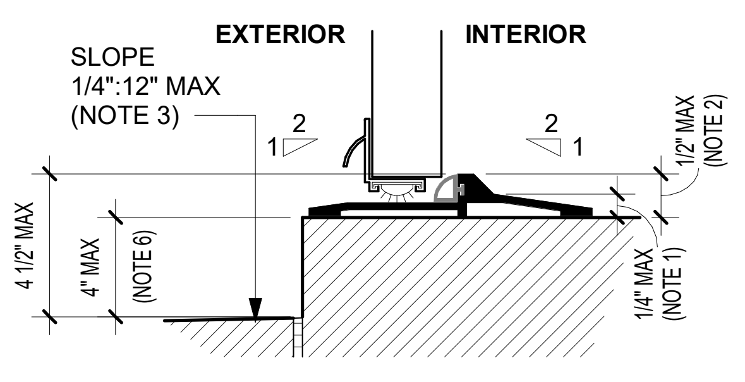
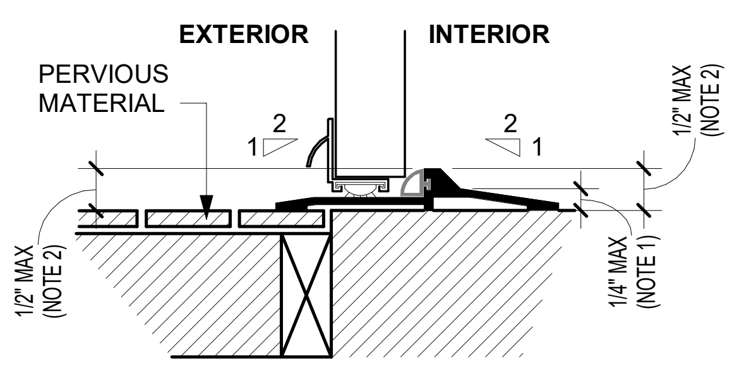
REFERENCE G-003 FOR GENERAL NOTES

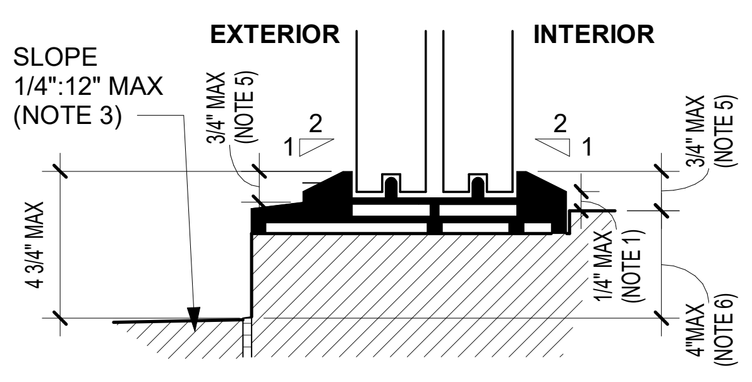
DIAGRAMS BELOW ARE APPLICABLE TO PUBLIC SPACES AND ALL UNIT TYPES UNLESS NOTED OTHERWISE

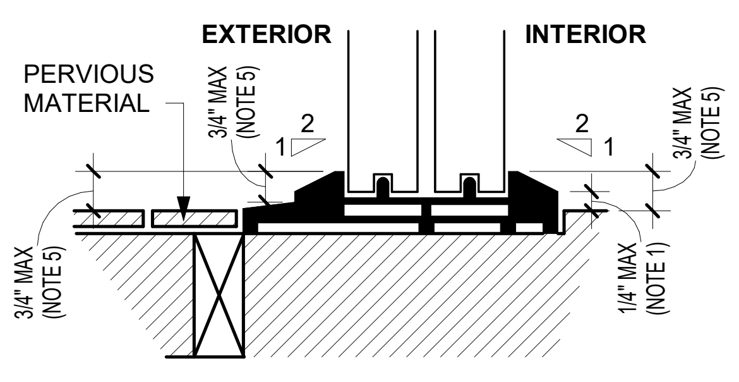
THRESHOLD











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

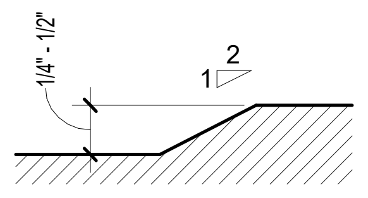


IMAGE 3

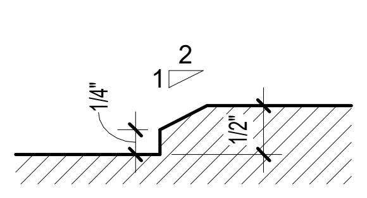


IMAGE 2

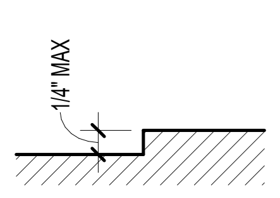
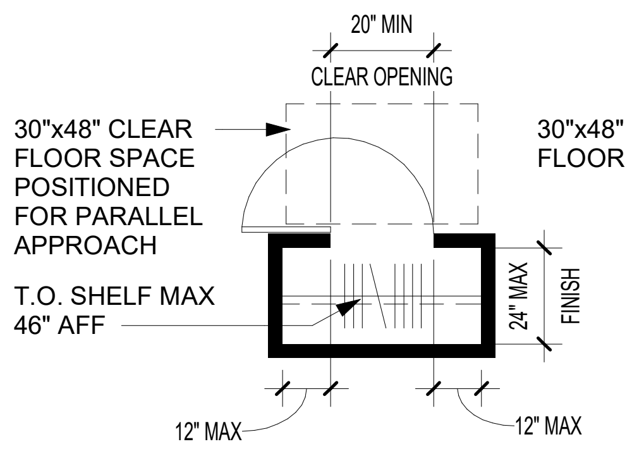


IMAGE 1

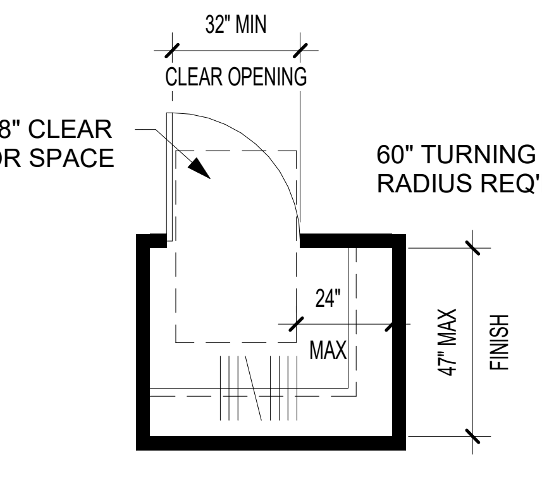
NOTES:
1. CHANGES IN LEVEL OF 1/4" MAXIMUM IN HEIGHT SHALL BE PERMITTED TO BE VERTICAL WITH NO BEVEL PROVIDED **(IMAGE 1)**
2. CHANGES IN LEVEL GREATER THAN 1/4" SHALL BE BEVELED WITH A 1:2 SLOPE FOR UP TO 1/2" MAX **(IMAGE 2,3)**
3. FINISHED SURFACE OUTSIDE OF PRIMARY ENTRY DOOR MAY BE SLOPED AT A MAXIMUM 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

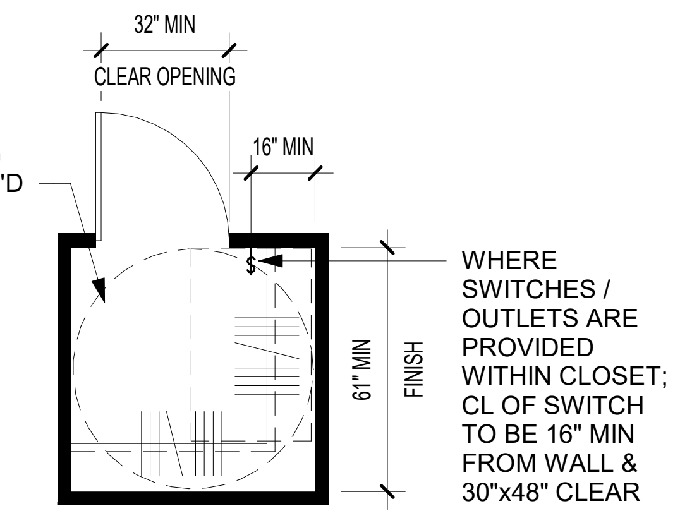
CLOSETS



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

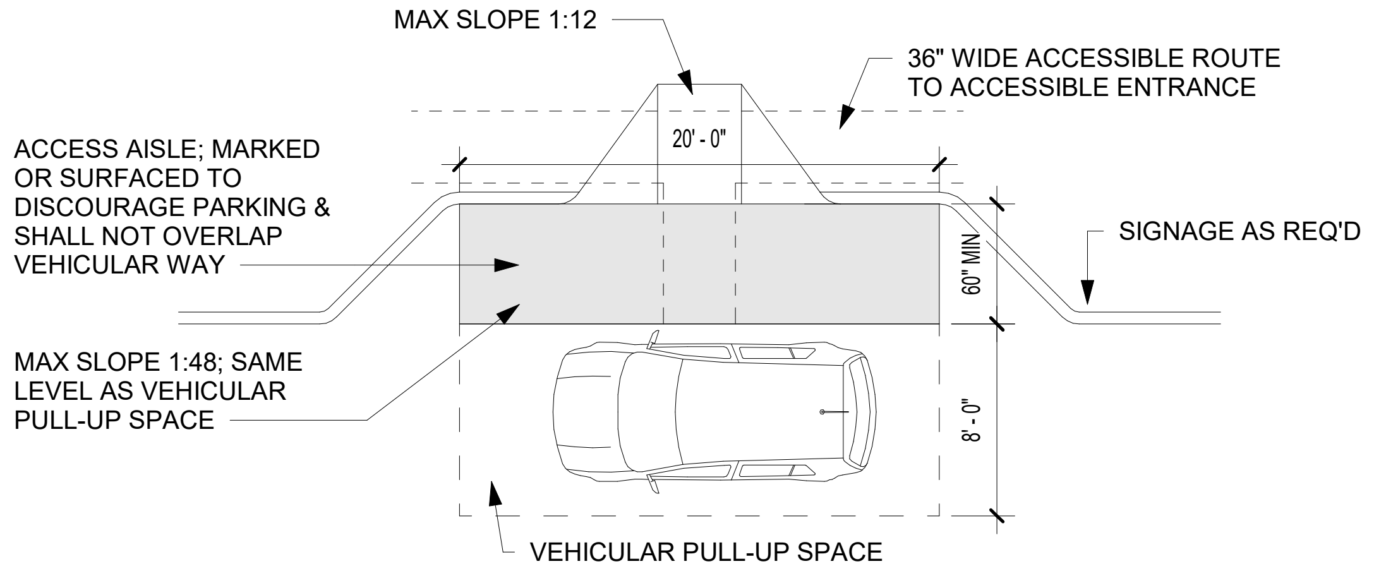

32" MIN
CLEAR OPENING
60" TURNING RADIUS REQ'D
16" MIN
61" MIN
FINISH
61" MIN
FINISH
WHERE SWITCHES / OUTLETS ARE PROVIDED WITHIN CLOSET; CL OF SWITCH TO BE 16" MIN FROM WALL & 30"x48" CLEAR FLOOR SPACE POSITION FOR FORWARD APPROACH PROVIDED

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

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

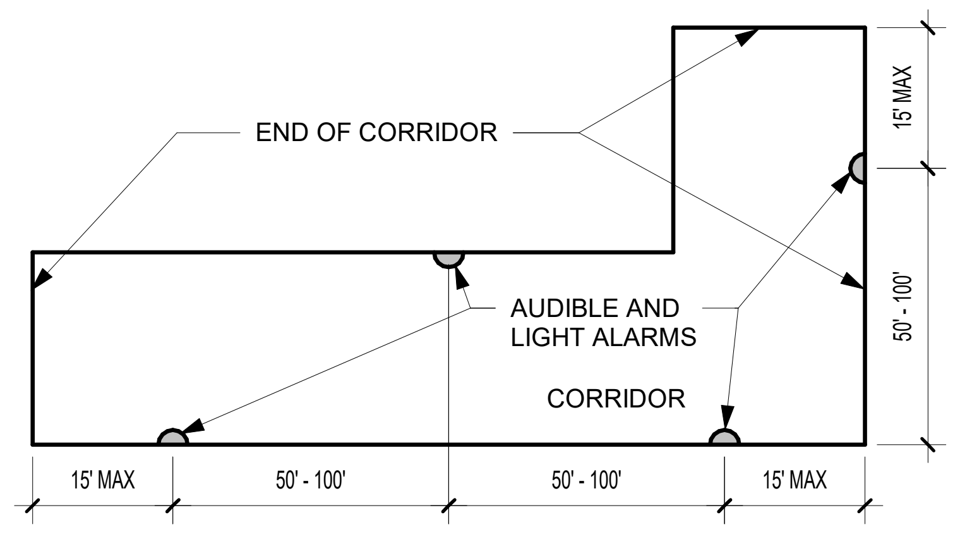
A4 CLOSET DIMENSIONS
NOT TO SCALE

PASSENGER LOADING ZONE

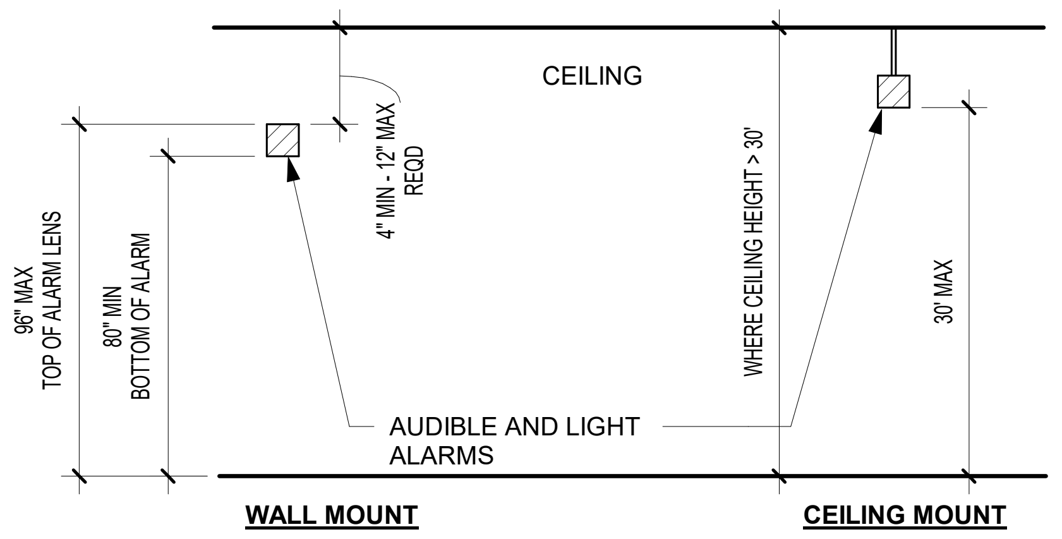

MAX SLOPE 1:12
36" WIDE ACCESSIBLE ROUTE TO ACCESSIBLE ENTRANCE
20' - 0"
ACCESS AISLE; MARKED OR SURFACED TO DISCOURAGE PARKING & SHALL NOT OVERLAP VEHICULAR WAY
SIGNAGE AS REQ'D
60" MIN
MAX SLOPE 1:48; SAME LEVEL AS VEHICULAR PULL-UP SPACE
8' - 0"
VEHICULAR PULL-UP SPACE

D3 PASSENGER LOADING ZONE
NOT TO SCALE

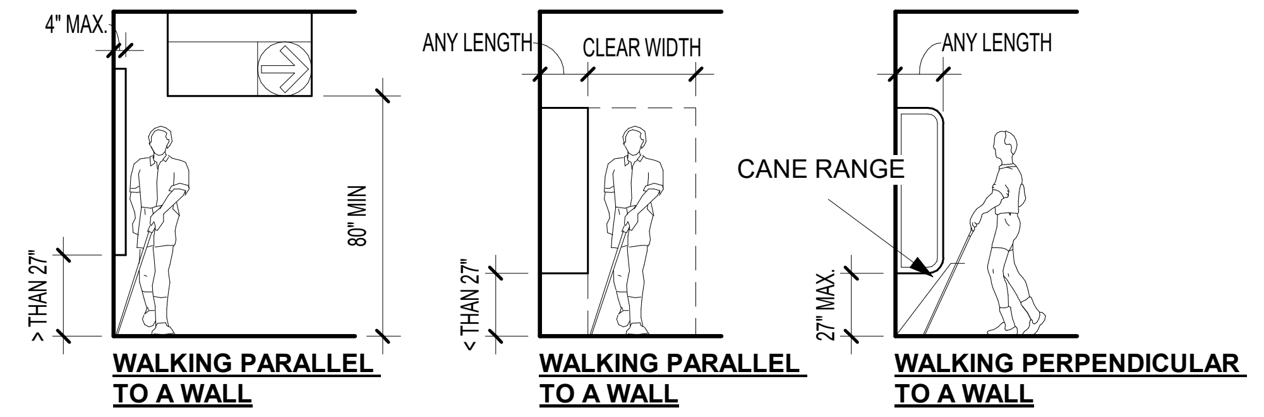
HEARING & VISION IMPAIRED



C3 ALARM SPACING IN CORRIDOR
NOT TO SCALE

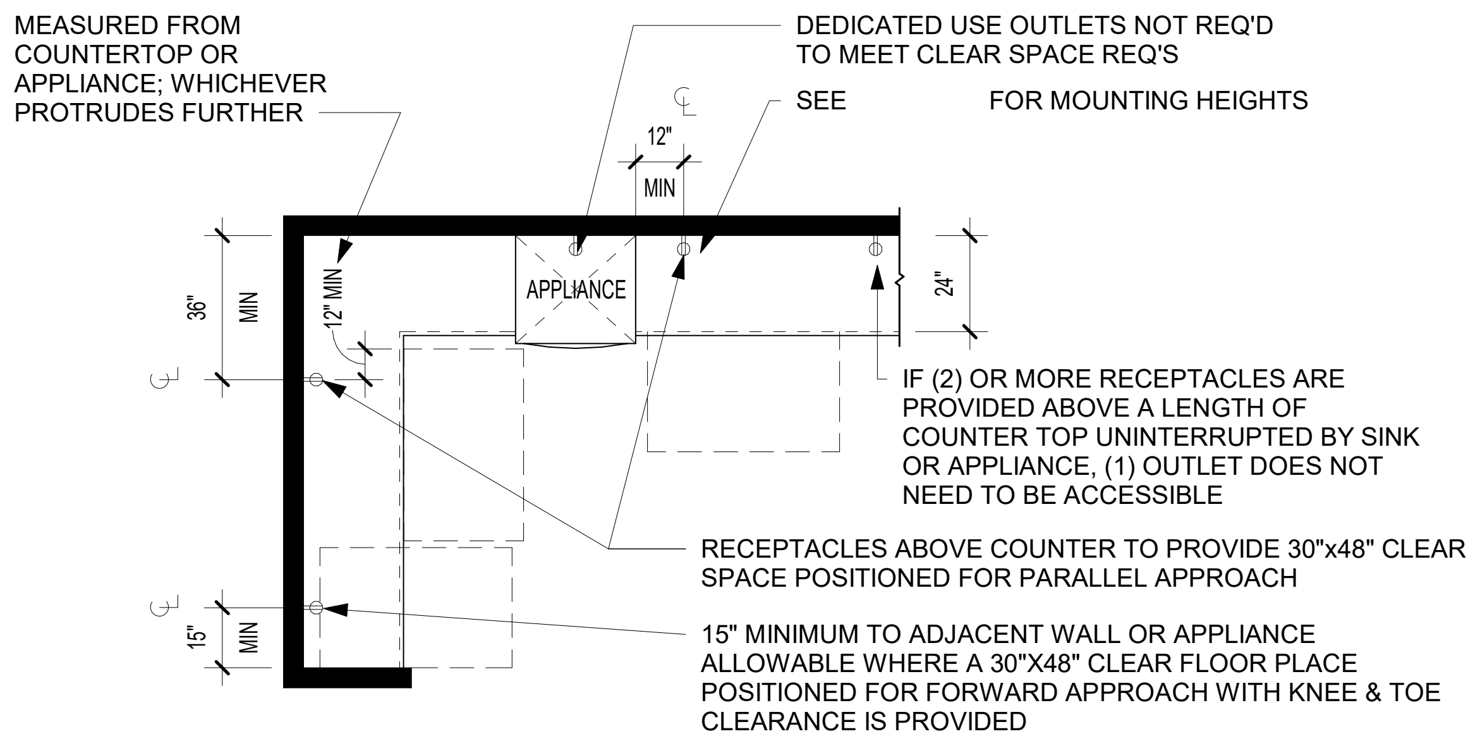


B3 CEILING/ WALL MOUNTED ALARM LOCATIONS
NOT TO SCALE


4" MAX.
80" MIN
> THAN 27"
WALKING PARALLEL TO A WALL
ANY LENGTH
CLEAR WIDTH
< THAN 27"
WALKING PARALLEL TO A WALL
ANY LENGTH
CANE RANGE
27" MAX.
WALKING PERPENDICULAR TO A WALL

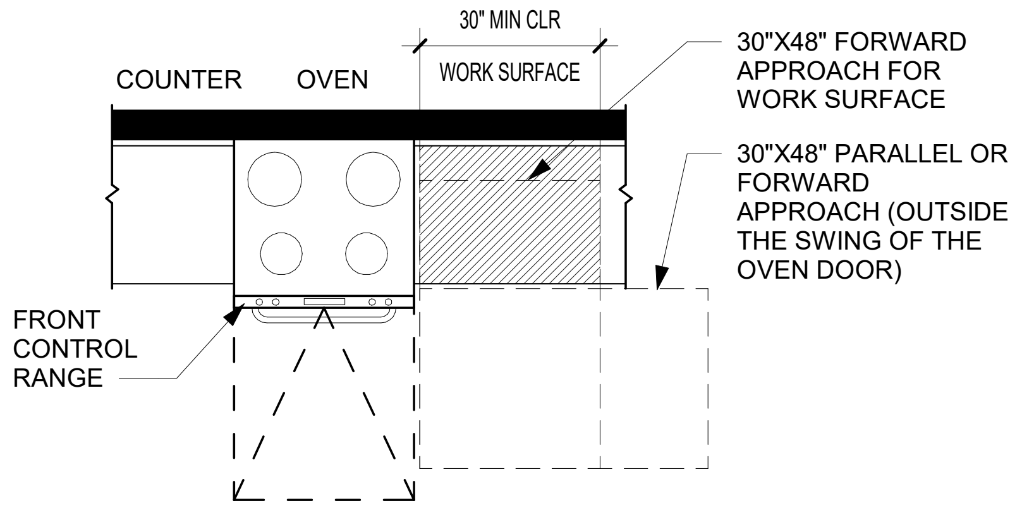
A3 PROTRUDING OBJECTS
NOT TO SCALE

KITCHENS


MEASURED FROM COUNTERTOP OR APPLIANCE; WHICHEVER PROTRUDES FURTHER
DEDICATED USE OUTLETS NOT REQ'D TO MEET CLEAR SPACE REQ'S
SEE FOR MOUNTING HEIGHTS
12"
MIN
APPLIANCE
36"
MIN
12" MIN
24"
IF (2) OR MORE RECEPTACLES ARE PROVIDED ABOVE A LENGTH OF COUNTER TOP UNINTERRUPTED BY SINK OR APPLIANCE, (1) OUTLET DOES NOT NEED TO BE ACCESSIBLE
RECEPTACLES ABOVE COUNTER TO PROVIDE 30"x48" CLEAR SPACE POSITIONED FOR PARALLEL APPROACH
15"
MIN
15" MINIMUM TO ADJACENT WALL OR APPLIANCE ALLOWABLE WHERE A 30"X48" CLEAR FLOOR PLACE POSITIONED FOR FORWARD APPROACH WITH KNEE & TOE CLEARANCE IS PROVIDED

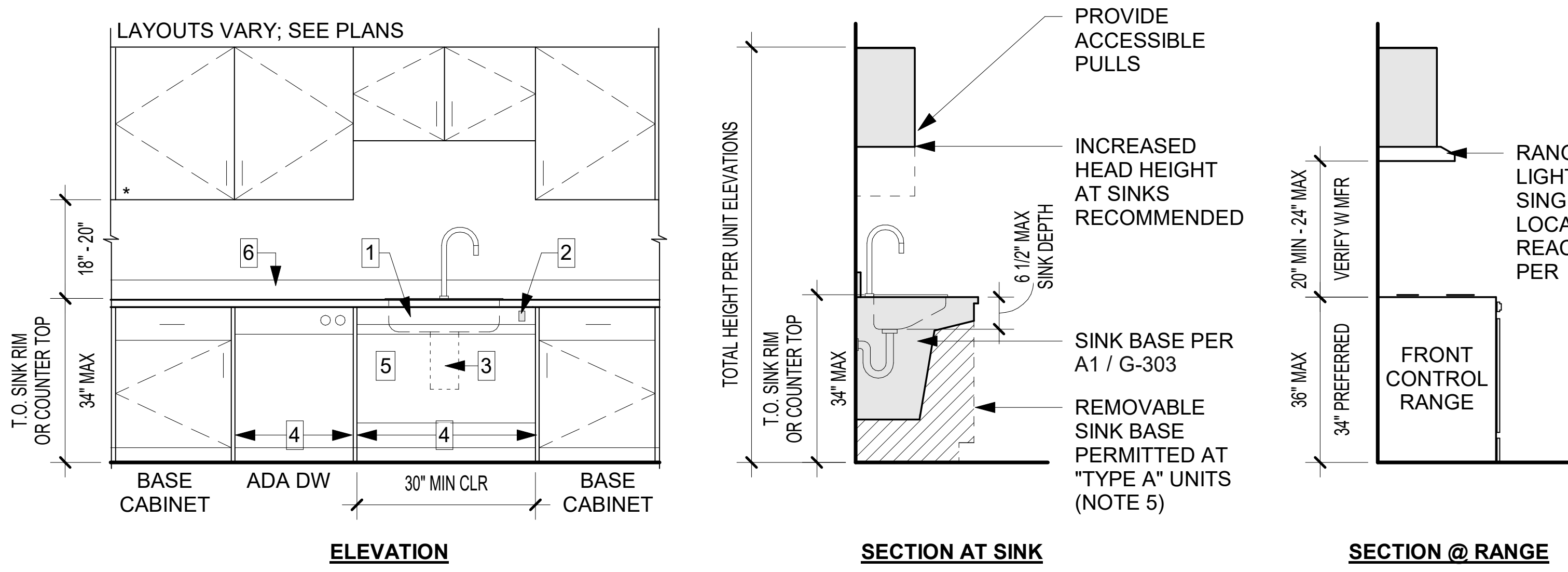
D2 ABOVE COUNTER RECEPTACLES
NOT TO SCALE

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


30" MIN CLR
COUNTER
OVEN
WORK SURFACE
30"X48" FORWARD APPROACH FOR WORK SURFACE
30"X48" PARALLEL OR FORWARD APPROACH (OUTSIDE THE SWING OF THE OVEN DOOR)
FRONT CONTROL RANGE

C2 OVEN WITH WORK SPACE
NOT TO SCALE

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



B2 KITCHEN REQUIREMENTS
NOT TO SCALE

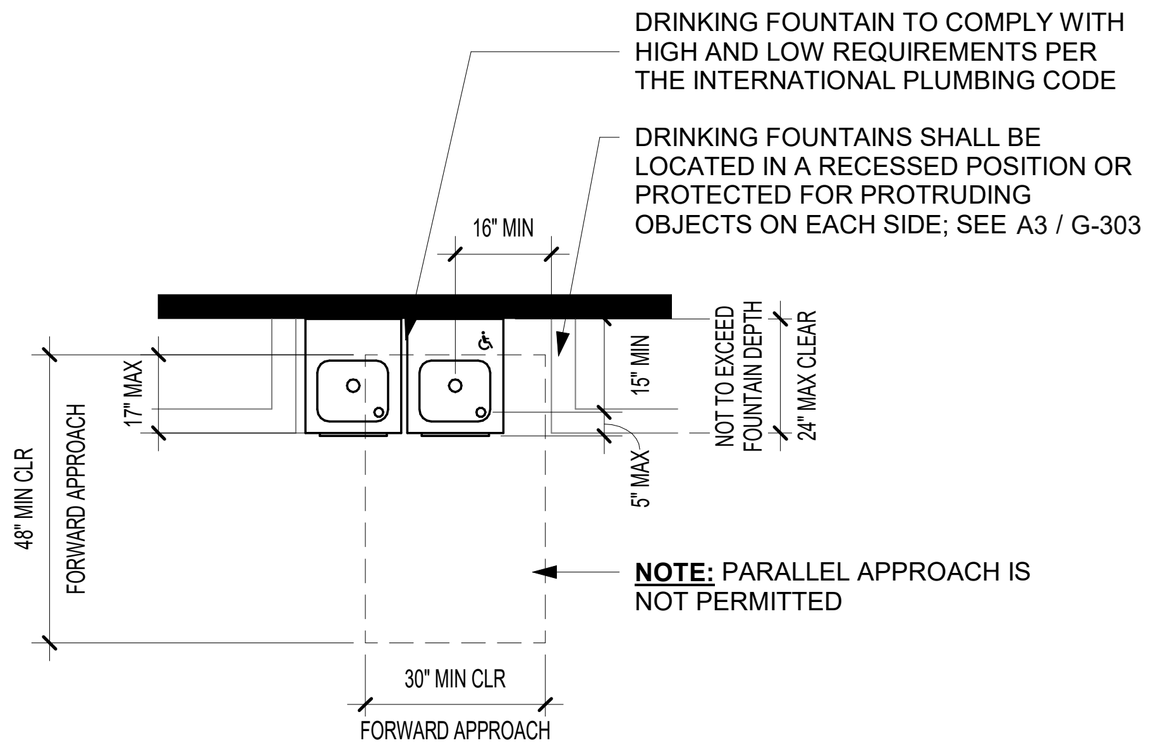
KITCHEN NOTES

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

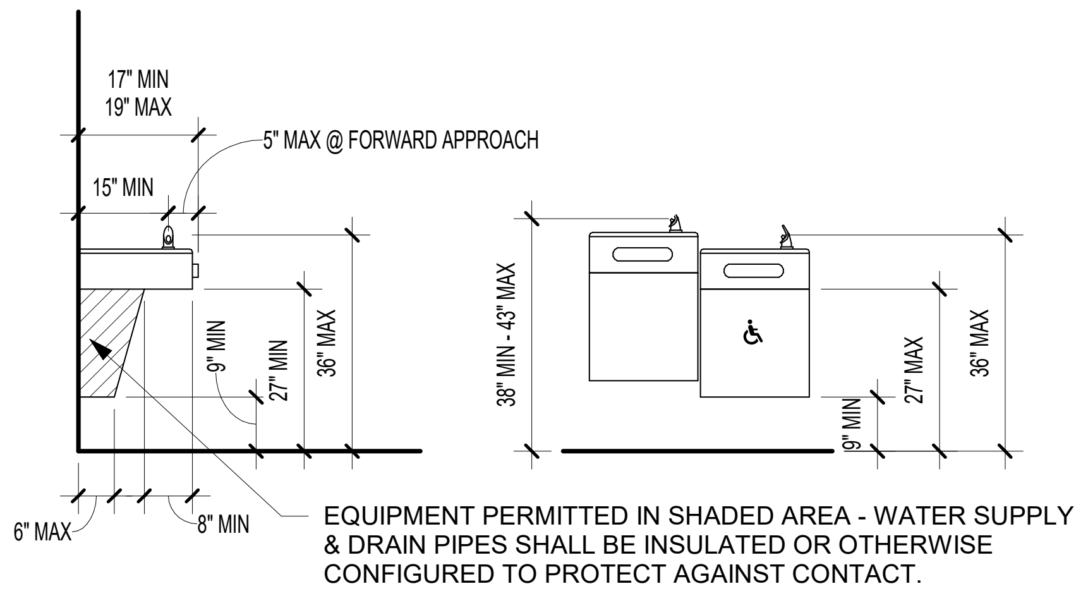
SEE UNIT PLANS AND/OR INTERIOR ELEVATIONS FOR "TYPE B" OR EXEMPT KITCHENS

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

DRINKING FOUNTAINS

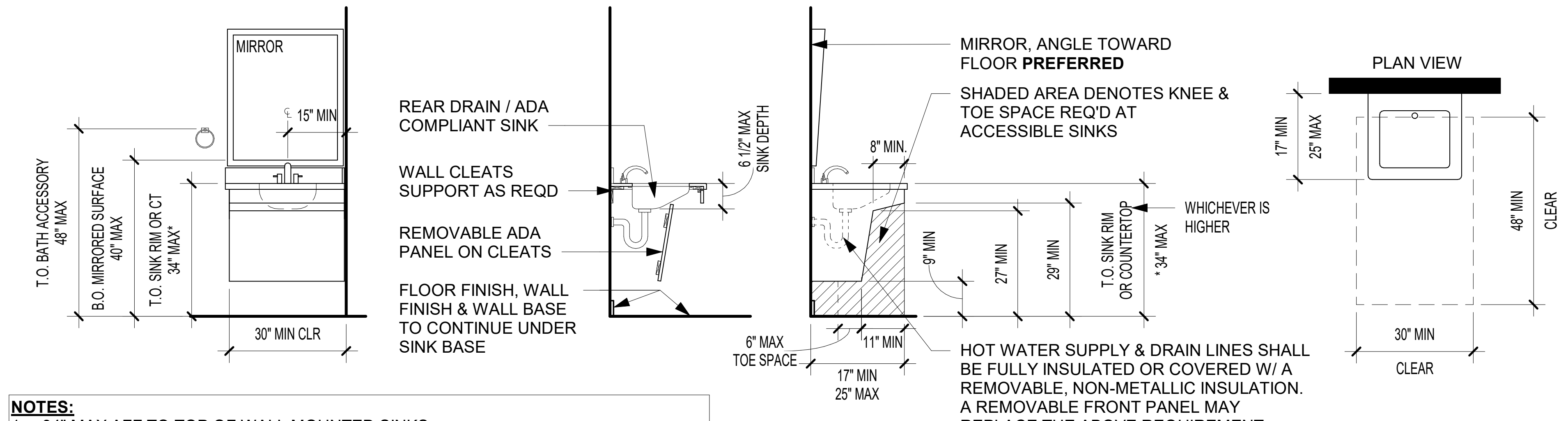

DRINKING FOUNTAIN TO COMPLY WITH HIGH AND LOW REQUIREMENTS PER THE INTERNATIONAL PLUMBING CODE
DRINKING FOUNTAINS SHALL BE LOCATED IN A RECESSED POSITION OR PROTECTED FOR PROTRUDING OBJECTS ON EACH SIDE; SEE A3 / G-303
16" MIN
17" MAX
15" MIN
NOT TO EXCEED FOUNTAIN DEPTH
24" MAX CLEAR
5" MAX
48" MIN CLR FORWARD APPROACH
NOTE: PARALLEL APPROACH IS NOT PERMITTED
30" MIN CLR
FORWARD APPROACH

D1 DRINKING FOUNTAINS CLEAR SPACE REQUIREMENTS
NOT TO SCALE


17" MIN
19" MAX
5" MAX @ FORWARD APPROACH
15" MIN
9" MIN
27" MIN
36" MAX
38" MIN - 43" MAX
9" MIN
27" MAX
36" MAX
6" MAX
8" MIN
EQUIPMENT PERMITTED IN SHADED AREA - WATER SUPPLY & DRAIN PIPES SHALL BE INSULATED OR OTHERWISE CONFIGURED TO PROTECT AGAINST CONTACT.

C1 DRINKING FOUNTAIN HEIGHT REQUIREMENTS
NOT TO SCALE

SINKS


MIRROR
15" MIN
T.O. BATH ACCESSORY 48" MAX
B.O. MIRRORED SURFACE 40" MAX
T.O. SINK RIM OR CT 34" MAX*
30" MIN CLR
REAR DRAIN / ADA COMPLIANT SINK
WALL CLEATS SUPPORT AS REQD
REMOVABLE ADA PANEL ON CLEATS
FLOOR FINISH, WALL FINISH & WALL BASE TO CONTINUE UNDER SINK BASE
6 1/2" MAX SINK DEPTH
MIRROR, ANGLE TOWARD FLOOR PREFERRED
SHADED AREA DENOTES KNEE & TOE SPACE REQ'D AT ACCESSIBLE SINKS
8" MIN.
9" MIN
27" MIN
29" MIN
T.O. SINK RIM OR COUNTERTOP
* 34" MAX
WHICHEVER IS HIGHER
6" MAX TOE SPACE
11" MIN
17" MIN
25" MAX
HOT WATER SUPPLY & DRAIN LINES SHALL BE FULLY INSULATED OR COVERED W/ A REMOVABLE, NON-METALLIC INSULATION. A REMOVABLE FRONT PANEL MAY REPLACE THE ABOVE REQUIREMENT
PLAN VIEW
17" MIN
25" MAX
48" MIN
CLEAR
30" MIN
CLEAR

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

PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

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

DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

DAVID EUGENE HENDRIKSE
NUMBER A-7395
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
ACCESSIBILITY STANDARDS

PROJECT NUMBER: 23034

SHEET NUMBER:
G-303

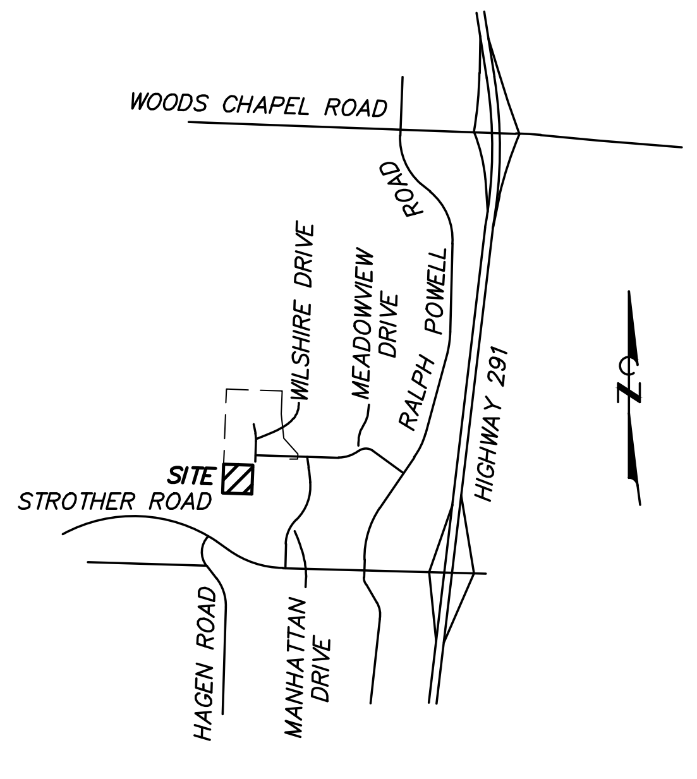
10/27/2023 2:53:48 PM
C:\Revit Local Cache\2023\23034_Wilshire Hills III_Central_R23_revit9TUCAR.rvt

WILSHIRE HILLS PHASE III

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

SITE PLAN

JUNE 30, 2023
REVISED: MAY 1, 2024



VICINITY MAP

NOT TO SCALE

LEGEND

▬	PROPERTY LINE
E	ELECTRIC LINE
T	TELECOMMUNICATIONS LINE
UE	UNDERGROUND ELECTRIC LINE
UT	UNDERGROUND TELECOMMUNICATIONS LINE
UFO	UNDERGROUND FIBER OPTIC LINE
S	SANITARY SEWER LINE
SS	STORM SEWER LINE
G	GAS LINE
W	WATER LINE
X	FENCE
	TREE & BRUSH LINE
	DRAINAGE SWALE
750	EXISTING CONTOUR
→	ANCHOR
⊕	TEST BORING
⌖	IRON
△CP#	CONTROL POINT
EM	ELECTRIC METER
FES	FLARED END SECTION
FH	FIRE HYDRANT
FL	FLOW LINE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PVC	POLYVINYL CHLORIDE PIPE
TW	TOP OF WALL
UP	UTILITY POLE
WM	WATER METER
WV	WATER VALVE
YL	YARD LIGHT
	SILT FENCE
▶	TEMPORARY DIVERSION DIKE
○	TREE PRESERVATION BARRIER
750	FINISH CONTOUR
750	FINISH GRADE CONTOUR
50.0	TOP OF CURB ELEVATION
49.5	TOP OF PAVEMENT ELEVATION
49.5	FINISH GRADE ELEVATION
S	PROPOSED SANITARY SEWER LINE
W	PROPOSED WATER LINE
UE	PROPOSED UNDERGROUND ELECTRIC
UT	PROPOSED UNDERGROUND TELECOMMUNICATIONS
▪	PROPOSED STORM SEWER
S	EXISTING SANITARY SEWER LINE
W	EXISTING WATER LINE
UE	EXISTING UNDERGROUND ELECTRIC
UT	EXISTING UNDERGROUND TELECOMMUNICATIONS
▫	EXISTING STORM SEWER
⋈	PROPOSED WATER VALVE
	PROPOSED FIRE HYDRANT & VALVE
	THRUST BLOCK
	THRUST COLLAR
▨	STANDARD DUTY CONCRETE
▨	HEAVY DUTY CONCRETE

UTILITY NOTES

THE LOCATIONS, SIZES, AND MATERIAL TYPES OF UNDERGROUND UTILITIES INDICATED ON THE PLAT, NOT VISIBLE OR APPARENT FROM THE SURFACE, ARE SHOWN IN THEIR APPROXIMATE LOCATIONS FROM A MISSOURI ONE CALL SYSTEM LOCATE, OR UTILITY COMPANY RECORDS AND WERE NOT VERIFIED IN THE FIELD.

WATER
JACKSON COUNTY PWSD #14
CITY OF LEE'S SUMMIT
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
CONTACT: PUBLIC WORKS DEPARTMENT 816–969–1800
12" DI ALONG THE NORTH SIDE OF MEADOWVIEW DRIVE.
30" PCCP ALONG THE WEST PROPERTY LINE.

SANITARY SEWER
CITY OF LEE'S SUMMIT
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
CONTACT: WES OWEN 816–969–1955
AS SHOWN

STORM SEWER
CITY OF LEE'S SUMMIT
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
CONTACT: SHAWN GRAFF 816–969–1800
AS SHOWN

ELECTRIC
EVERGY
1300 SE HAMBLEN ROAD
LEE'S SUMMIT, MISSOURI 64081
CONTACT: 888–471–5275

FIBER OPTIC
GOOGLE FIBER
2812 WEST 47TH STREET
KANSAS CITY, KS 66103
CONTACT: CRAIG YOUNG 870–219–5630

GAS
MISSOURI GAS ENERGY
3025 SE CLOVER ROAD
LEE'S SUMMIT, MISSOURI 64081
CONTACT: BECCA ORR 816–969–2230

TELECOM
AT&T
215 N. SPRING STREET, 2nd FLOOR
INDEPENDENCE, MO 64050
CONTACT: MARK MANION 816–275–2341
AS SHOWN

TIME WARNER CABLE
CONTACT: ROY BELLIS 913–643–1914
AS SHOWN

COMCAST CABLE COMMUNICATIONS
3400 NW DUNCAN ROAD
BLUE SPRINGS, MO 64015
CONTACT: BARBARA BROWN 816–795–2255
AS SHOWN

Call BEFORE you DIG
TOLL FREE
1–800–DIG–RITE
MISSOURI ONE–CALL SYSTEM, INC.

SURVEY CONTROL POINTS

MODIFIED STATE PLANE COORDINATES
NAD 83, MISSOURI CENTRAL ZONE, NAVD 88, U.S. SURVEY FEET

POINT #	NORTH	EAST	ELEVATION	DESCRIPTION
CP1	1021333.86	2826648.68	929.50	PK
CP176	1021358.38	2827317.26	923.23	DH
CP177	1020927.07	2826507.36	951.74	IR
CP178	1021669.21	2826691.72	922.55	IR
CP179	1021367.58	2826896.04	922.38	IR
CP500	1021193.58	2826970.42	921.04	IR
CP501	1020639.36	2827222.04	925.57	DH

ENTERPRISE GREEN COMMUNITIES NOTE

CONSTRUCTION SHALL ADHERE TO ALL ENTERPRISE GREEN COMMUNITIES REQUIREMENTS. ALL MANDATORY ITEMS LISTED BELOW:

1. LOCATION AND NEIGHBORHOOD FABRIC
   - 2.1 – SENSITIVE SITE PROTECTION (CIVIL)
     - 2.1.1 – NO SENSITIVE AREAS ONSITE. NO FLOODPLAINS ONSITE, NO AQUATIC ECOSYSTEMS (I.E. WETLANDS OR DEEPWATER HABITATS) ONSITE, NO ENDANGERED SPECIES (NO ENDANGERED SPECIES ONSITE AND THUS NO DESTRUCTION OF HABITAT), AND NO AGRICULTURAL SOILS ONSITE
   - 2.2 – CONNECTIONS TO EXISTING DEVELOPMENT AND INFRASTRUCTURE (CIVIL)
     - 2.2.1 – >25% OF THE SURROUNDING SITE IS DEVELOPED AND HAS ACCESS TO EXISTING ROAD, WATER, AND SEWER
     - 2.2.2 – NEW DRIVEWAYS AND SIDEWALKS WERE PROVIDED TO GIVE ACCESS TO THE EXISTING PEDESTRIAN NETWORKS ALONG NE WILSHIRE DRIVE.
     - 2.2.3 – SITE LESS THAN 5 ACRES
   - 2.3 – COMPACT DEVELOPMENT (CIVIL)
     - 2.3.1 – 50 UNITS/2.54 AC = 19.68 UNITS/AC > 3.01 (PER CENTER FOR NEIGHBORHOOD TECHNOLOGY "RESIDENTIAL DENSITY OF A LOCATION" CALCULATOR)
     - 2.3.2 – 19.68 UNITS/AC > 15 UNITS PER ACRE FOR MULTI–FAMILY BUILDINGS GREATER THAN 2 STORIES
   - 2.5 – PROXIMITY TO SERVICES AND COMMUNITY RESOURCES (CIVIL)
     - 2.5.1 – GREATER THAN FOUR SERVICES AND/OR COMMUNITY RESOURCES ARE LOCATED WITHIN A HALF MILE OF THE PROJECT SITE.
   - 2.6 – PRESERVATION OF AND ACCESS TO OPEN SPACE FOR RURAL/TRIBAL/SMALL TOWN
     - 2.6.1 – GREATER THAN 10% OF THE PROJECT ACREAGE HAS BEEN SET ASIDE AS ACCESSIBLE OPEN SPACE FOR ALL RESIDENTS TO USE.
   - 2.15 – ACCESS TO BROADBAND: BROADBAND READY (CIVIL)
     - 2.15.1 – SITE WILL HAVE BROADBAND INFRASTRUCTURE INSTALLED AND INTERNET SERVICE WILL BE PROVIDED THROUGHOUT THE BUILDING
2. SITE IMPROVEMENTS
   - 3.1 – ENVIRONMENTAL REMEDIATION (CIVIL)
     - 3.1.1 – NO HAZARDOUS MATERIAL IS FOUND ON THE SITE. IT HAS BEEN MASS GRADED AND PAD READY BEFORE CONSTRUCTION.
   - 3.2 – MINIMIZATION OF DISTURBANCE DURING STAGING AND CONSTRUCTION (CIVIL)
     - 3.2.1 – SWPPP AND ESC PLANS WERE CREATED TO BE IMPLEMENTED DURING THE CONSTRUCTION PHASE PROCESS OF THIS PROJECT.
   - 3.3 – ECOSYSTEM SERVICES/LANDSCAPE (CIVIL)
     - 3.3.1 – NO INVASIVE PLANT SPECIES WERE USED IN THE LANDSCAPE PLAN. ALL PLANT SPECIES ARE SUSCEPTIBLE TO THE PLANTING REGION AND SHALL BE WELL SUITED WITHIN THE ENVIRONMENT. ALL DISTURBED AREAS WILL BE PLANTED, SEEDED OR XERISCAPED.
   - 3.4 – SURFACE STORMWATER MANAGEMENT
     - 3.4.1 – ONSITE RUNOFF HAS BEEN TREATED FOR THE WATER QUALITY STORM EVENT USING AN ONSITE REGIONAL DETENTION BASIN.
   - 3.6 – EFFICIENT IRRIGATION AND WATER REUSE (IRRIGATION CONTRACTOR)

BUILDING & PARKING NOTE ①

LOT SIZE = 110,478 SQ. FT.

BUILDING AREA
BUILDING FOOTPRINT = 17,860 SQ. FT.
TOTAL SQ. FT. = 53,580 SQ. FT.

FLOOR AREA RATIO = 1:0.67

NUMBER OF DWELLING UNITS = 50 UNITS

NUMBER OF BEDS = 82

IMPERVIOUS COVERAGE = 76,230 SQ. FT.

REQUIRED PARKING

1 SPACE PER 2 BEDS	= 50 SPACES
1 SPACE PER EMPLOYEE ON MAX SHIFT	= 2 SPACES
TOTAL REQUIRED	= 52 SPACES

PROVIDED PARKING

STANDARD	= 48 SPACES
ACCESSIBLE	= 11 SPACES
TOTAL PROVIDED	= 59 SPACES

IMPERVIOUS AREA

PRE PROJECT

PERVIOUS	= 0.00 ACRE
IMPERVIOUS	= 2.54 ACRE
TOTAL	= 2.54 ACRE

POST PROJECT

PERVIOUS	= 1.29 ACRE
IMPERVIOUS	= 1.25 ACRE
TOTAL	= 2.54 ACRE

MDNR PERMIT

MDNR PERMIT NO. MORA26418.

PROPERTY DESCRIPTION

PROPOSED LOT 5 OF WILSHIRE HILLS – 5TH PLAT

BENCH MARK

BM – MISSOURI DEPARTMENT OF TRANSPORTATION VRS NETWORK.

PROPERTY OWNER

JEFFREY E. SMITH INVESTMENT CO, LLC
206 PEACH WAY
COLUMBIA, MISSOURI 65203

ZONING NOTE

THIS PROPERTY IS ZONED "P–MIX" PLANNED MIXED USE DISTRICT

FLOODPLAIN NOTE

THIS PROPERTY IS LOCATED IN ZONE X "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD" AS SHOWN BY FIRM COMMUNITY PANEL NUMBER 29095C0430G, DATED JANUARY 20, 2017.

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	C3.01	JOINT PLAN
	C4.01	GRADING & DRAINAGE PLAN
	C5.01	STORM SEWER PLAN
	C6.01	STORM SEWER PROFILES
	C7.01	UTILITY PLAN & PROFILE
③	C8.01–C8.03	ACCESSIBILITY PLAN
	C9.01	INITIAL EROSION CONTROL PLAN
	C9.02	FINAL EROSION CONTROL PLAN
	C10.01–C10.03	SITE DETAILS
	C11.01–C11.02	STORM SEWER DETAILS
	C12.01	SANITARY SEWER DETAILS
②	C13.01–C13.02	WATER DETAILS
	C14.01–C14.03	EROSION CONTROL DETAILS
	C15.01	PRE–DEVELOPMENT DRAINAGE AREA MAP
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	C15.03	STORM SEWER DRAINAGE AREA MAP
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	RW1.01	RETAINING WALL PLAN
	RW2.01	RETAINING WALL DETAILS

WILSHIRE HILLS PHASE III

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WILSHIRE HILLS PHASE III
3200 NE MANHATTAN DR
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

5/1/2024
MATTHEW AARON KRIETE
NUMBER PE-2007002811
Matthew A Kriete

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

IF ORIGINAL SIGNATURE OR DIGITAL AUTHENTICATION IS NOT PRESENT THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.

Date
JUNE 30, 2023

Revised	
①	FEBRUARY 6, 2024
②	APRIL 17, 2024
③	MAY 1, 2024

Design: ST Drawn: MJS

COVER

Sheet
C0.01

CONSTRUCTION DOCUMENTS

ES&S PROJECT NO. 15925

SEQUENCE OF EVENTS

1. PRIOR TO CONSTRUCTION, COORDINATE AND HAVE A PRE–CONSTRUCTION MEETING REGARDING SWPPP TRAINING WITH CONSTRUCTION PERSONNEL.
2. DETERMINE ALL UTILITY FIELD LOCATES AS NECESSARY.
3. CONSTRUCT TEMPORARY CONSTRUCTION ENTRANCE AND CONCRETE WASH OUT. INSTALL ALL PERIMETER EROSION AND SEDIMENT CONTROL PER PLAN.
4. COMMENCE ALL CLEARING AND GRUBBING PER PLAN. CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS.
5. STRIP TOPSOIL IN GRADING AREAS AND STOCKPILE IN AREAS AS SHOWN ON PLAN.
6. COMMENCE SITE GRADING. FILL ACTIVITIES SHALL MEET THE REQUIREMENTS OF THE GEOTECHNICAL REPORT.
7. CONSTRUCT RETAINING WALL AND FENCE.
8. INSTALL STORM SEWERS PER PLAN. INSTALL INLET PROTECTION IMMEDIATELY UPON COMPLETION OF EACH STORM STRUCTURE.
9. UTILIZE ONSITE FILL MATERIALS FOR OVER EXCAVATED AREAS. FOLLOW GEOTECHNICAL REPORT REQUIREMENTS FOR FILL MATERIAL.
10. INSTALL SITE UTILITIES AS GRADING ALLOWS.
11. FINALIZE BUILDING SUBGRADE PREPARATION IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT.
12. BEGIN BUILDING CONSTRUCTION.
13. FINALIZE PAVEMENT SUBGRADE PREPARATION. INSTALL BASE MATERIAL AS REQUIRED FOR PAVED AREAS. REMOVE INLET PROTECTION AROUND INLETS NO MORE THAN 48 HOURS PRIOR TO PLACING STABILIZED BASE COURSE.
14. COMMENCE PAVEMENT AND SIDEWALK CONSTRUCTION. REMOVE TEMPORARY CONSTRUCTION ENTRANCE ONLY PRIOR TO PAVEMENT CONSTRUCTION IN THAT AREA (PAVE THIS AREA LAST).
15. COMPLETE FINISH GRADING, TOPSOIL, PLACEMENT, SEED/SOD, AND MULCH ALL DISTURBED AREAS. EXCESS TOPSOIL SHALL BE MOVED TO NEIGHBORING SITE.
16. INSTALL LANDSCAPING.
17. REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL WHEN ALL DISTURBED AREAS ARE STABILIZED.

CONSTRUCTION NOTES

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL IDENTIFIED PROPERTY CORNERS, LAND SURVEY CORNERS, AND ACCESSORIES. THE CONTRACTOR SHALL CAUSE THE CORNERS AND ACCESSORIES TO BE REFERENCED BY A LICENSED LAND SURVEYOR, AND ANY SUCH CORNER OR ACCESSORIES DISTURBED OR DESTROYED DURING CONSTRUCTION SHALL BE RESET BY THE SURVEYOR AT THE ORIGINAL LOCATION, AND FILE THE RESTORATIONS AND MONUMENT DOCUMENTS AS THE LAW REQUIRES.
4. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO ENGINEERING SURVEYS AND SERVICES FOR REVIEW AND APPROVAL FOR ALL MATERIALS BEFORE ORDERING.
5. ALL DIMENSIONS ARE TO BACK OF CURB, FACE OF SIDEWALK, OR EDGE OF PAVEMENT, UNLESS OTHERWISE NOTED.
6. CONCRETE DRIVEWAY APRONS SHALL BE CONSTRUCTED AS PER CITY OF LEE'S SUMMIT SPECIFICATIONS. CONTRACTOR SHALL OBTAIN PERMIT FROM CITY TO WORK WITHIN STREET RIGHT–OF–WAY.
7. ALL STRIPING SHALL BE 4" WIDE WHITE LINES, ACCESSIBLE SPACES SHALL BE 4" WIDE BLUE LINES AND ALL STRIPING SHALL BE A MINIMUM OF 2 COATS.
8. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
9. ALL TRAFFIC CONTROL SHALL BE PER CURRENT MUTCD REQUIREMENTS AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. A TRAFFIC CONTROL PLAN WILL BE REQUIRED FOR ANY WORK WITHIN THE RIGHT–OF–WAY.
10. CONTRACTOR SHALL NOTIFY ADJACENT PROPERTY OWNERS IN WRITING 30 DAYS PRIOR TO CONSTRUCTION.
11. IF A CONFLICT EXISTS BETWEEN THE CIVIL PLANS AND CIVIL SPECIFICATIONS, THE CIVIL PLANS SHALL GOVERN.
12. ALL INCIDENTAL ITEMS INCLUDING BUT NOT LIMITED TO SIGNS, PAVEMENT MARKING, PAVEMENT, CURBS, TRUNCATED DOMES, FENCING, LANDSCAPING, IRRIGATION, ETC. EITHER DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE RETURNED TO ORIGINAL CONDITIONS BY THE CONTRACTOR.

HAZARDOUS SUBSTANCE NOTE

1. SUBSTANCES REGULATED BY FEDERAL LAW UNDER THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) OR THE COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA) WHICH ARE TRANSPORTED, STORED OR USED FOR MAINTENANCE, CLEANING OR REPAIRS SHALL BE MANAGED ACCORDING TO THE PROVISIONS OF RCRA AND CERCLA.
2. ALL PAINTS, SOLVENTS, PETROLEUM PRODUCTS AND PETROLEUM WASTE PRODUCTS (EXCEPT FUELS) AND STORAGE CONTAINERS (SUCH AS DRUMS, CANS OR CARTONS) SHALL BE STORED SUCH THAT THESE MATERIALS ARE NOT EXPOSED TO STORM WATER. SUFFICIENT PRACTICES OF SPILL PREVENTION, CONTROL AND/OR MANAGEMENT SHALL BE PROVIDED TO PREVENT ANY SPILLS OF THESE POLLUTANTS FROM ENTERING A WATER OF THE STATE. ANY CONTAINMENT SYSTEM USED TO IMPLEMENT THIS REQUIREMENT SHALL BE CONSTRUCTED OF MATERIALS COMPATIBLE WITH THE SUBSTANCES CONTAINED AND SHALL ALSO PREVENT THE CONTAMINATION OF GROUNDWATER.
3. THE APPLICANT SHALL NOTIFY BY TELEPHONE AND IN WRITING THE DEPARTMENT OF NATURAL RESOURCES, WATER POLLUTION CONTROL PROGRAM, POST OFFICE BOX 176, JEFFERSON CITY, MO 65102, 1–800–361–4827, OF ANY OIL SPILLS OR IF HAZARDOUS SUBSTANCES ARE FOUND DURING THE PROSECUTION OF WORK UNDER THIS PERMIT.

ELECTRIC NOTES

SITE CONTRACTOR SHALL CONTACT EVERGY TO COORDINATE INSTALLATION OF ELECTRIC SERVICES. RESPONSIBILITY OF INSTALLATION SHALL BE AS FOLLOWS.

	SUPPLIED BY:	INSTALLED BY:
SECONDARY		
CONDUIT	CONTRACTOR	CONTRACTOR
CONDUCTOR	EVERGY	EVERGY
METER	EVERGY	EVERGY
CONNECTIONS	---	EVERGY
TRANSFORMER	EVERGY	EVERGY
TRANSFORMER PAD	EVERGY	CONTRACTOR
PRIMARY		
CONDUIT, CONNECTORS, ETC.	CONTRACTOR	CONTRACTOR
CONDUCTOR	EVERGY	EVERGY
CONNECTIONS	---	EVERGY

GRADING AND STORM SEWER CONSTRUCTION NOTES

1. ALL STORM SEWER PIPES AND INLETS SHALL MEET HEAVY DUTY TRAFFIC (HS20) LOADING AND BE INSTALLED ACCORDINGLY.
2. CONCRETE STORM SEWER INLETS & JUNCTION BOXES SHALL BE INSTALLED PER THE CITY OF LEE'S SUMMIT SPECIFICATIONS AND AS DETAILED IN THESE PLANS.
3. REINFORCED CONCRETE PIPE (RCP) SHALL BE INSTALLED PER THE "EMBEDMENT OF RCP STORM SEWER PIPE" DETAIL. PIPE CLASS SHALL BE APPROPRIATE TO DEPTH AND BEDDING MATERIAL AS SHOWN IN SCHEDULE.
4. ALL RCP PIPE JOINTS SHALL BE SOIL TIGHT PER CURRENT MODOT SPECIFICATIONS SECTION 726.3.1.
5. ALL HDPE PIPE SHALL BE ADS N–12 ST SOIL TIGHT, SMOOTH INTERIOR PIPE OR APPROVED EQUAL. INSTALLATION SHALL FOLLOW THE "EMBEDMENT OF PLASTIC STORM SEWER PIPE" DETAIL.
6. PVC PIPE MAY BE USED IN LIEU OF HDPE FOR DIAMETERS LESS THAN 15". PVC PIPE SHALL BE SDR 35 OR GREATER, AS REQUIRED BY DEPTH OR AS NOTED IN THESE PLANS.
7. INLINE DRAIN AND DRAIN BASINS SHALL BE NYLOPLAST, HARCO, OR APPROVED EQUAL AND SHALL BE PVC CONFORMING TO ASTM D1784 CELL CLASS 12454. JOINTS SHALL BE WATER TIGHT FLEXIBLE ELASTOMERIC SEALS CONFORMING TO ASTM D3212. INLINE DRAIN AND DRAIN BASIN GRATES AND FRAMES SHALL BE DUCTILE IRON CONFORMING TO ASTM A536 GRADE 70–50–05, OR 80–55–06.
8. CONTRACTOR SHALL ADJUST ALL GRATES, MANHOLES, VALVE BOXES, ETC. TO MATCH FINISH GRADES, AS REQUIRED.
9. ALL STRUCTURE CONNECTIONS SHALL BE WATERTIGHT.
10. ALL CONCRETE STORM STRUCTURES SHALL HAVE A SMOOTH UNIFORM POURED CONCRETE INVERT FROM INVERT IN TO INVERT OUT.
11. ALL STORM SEWER MANHOLES IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT, AND SHALL HAVE TRAFFIC BEARING RING & COVERS. MANHOLES IN UNPAVED AREAS SHALL BE FLUSH WITH FINISH GRADE. LIDS SHALL BE LABELED "STORM SEWER". TOP OF BOXES SHALL BE SLOPED TO MATCH PAVEMENT GRADE.
12. PIPE LENGTHS ARE GIVEN FROM CENTER OF STRUCTURE OR DOWNSTREAM END OF FLARED END SECTIONS.
13. ALL FLARED END SECTIONS FOR CONCRETE PIPE SHALL BE REINFORCED PRECAST CONCRETE. ALL FLARED END SECTIONS FOR PLASTIC PIPE SHALL BE GALVANIZED METAL UNLESS OTHERWISE NOTED.
14. ALL SITES USED FOR IMPORTING OR EXPORTING OF FILL MATERIAL SHALL HAVE AN ACTIVE MISSOURI DEPARTMENT OF NATURAL RESOURCES LAND DISTURBANCE PERMIT, AS REQUIRED.
15. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS, TREES AND BRUSH, AND OTHER MATERIAL CREATED AS A RESULT OF CONSTRUCTION. MATERIAL SHALL BE DISPOSED OF IN COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. BURNING ON SITE SHALL BE ALLOWED BY PERMIT ONLY.
16. CONTRACTOR SHALL REMOVE ALL STUMPS BY EXCAVATING TO INCLUDE REMOVAL OF ASSOCIATED ROOT SYSTEM.
17. CONTRACTOR SHALL NOT ADVANCE TRENCH EXCAVATION BEYOND AMOUNT THAT CAN ACCOMMODATE PIPE INSTALLATION AND BACKFILLING AT THE END OF EACH DAY.
18. ENGINEERED FILL SHOULD BE FREE OF FROZEN SOIL, ORGANICS, RUBBISH, LARGE ROCKS, WOOD, OR OTHER DELETERIOUS MATERIAL. COHESIVE FILLS SHOULD BE UNIFORMLY COMPACTED TO AT LEAST 95 PERCENT OF THE "STANDARD" MAXIMUM DRY DENSITY AND BE WITHIN –2 TO +4 PERCENT OF OPTIMUM MOISTURE CONTENT AS DESCRIBED BY ASTM D698. GRANULAR FILLS SHOULD BE UNIFORMLY COMPACTED TO AT LEAST 95 PERCENT OF THE "STANDARD" MAXIMUM DRY DENSITY. THE MOISTURE CONTENT SHOULD BE HIGH ENOUGH TO PROVIDE FOR PROPER COMPACTION BUT LOW ENOUGH TO PREVENT UNDUE PUMPING. PLACE FILL MATERIAL IN LOOSE LIFTS NOT TO EXCEED 8 INCHES IN THICKNESS.
19. ROCKS AND STONES THAT EXCEED THE THICKNESS OF THE LOOSE LIFT FILL LAYER SHOULD BE REMOVED AND DISPOSED OF OFF THE IMMEDIATE CONSTRUCTION AREA.
20. IMPORTED SOILS PROPOSED FOR USE AS FILL OR BACKFILL SHOULD BE REVIEWED AND ANALYZED BY THE GEOTECHNICAL ENGINEER PRIOR TO USE ON SITE. SOIL CLASSIFIED AS MH, OH, OL, OR PT (HIGH PLASTICITY SOILS AND ORGANIC SOILS) BY THE UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487) SHOULD NOT BE IMPORTED FOR USE AS ENGINEERED FILL. SUITABLE IMPORTED MATERIALS FOR GENERAL SITE FILL ARE THOSE THAT CLASSIFY AS GW, GM, GC, SC, AND CL IN ACCORDANCE WITH ASTM D 2487. MATERIALS CLASSIFIED AS CH SHOULD BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO THEIR IMPORTATION AND ONLY USED OUTSIDE THE BUILDING PAD AT DEPTHS BELOW THE UPPER 2 FEET OF SUBGRADE. SUBJECT TO FINAL DESIGN REQUIREMENTS FOR WALL BACKFILL, SUITABLE IMPORTED MATERIALS FOR WALL AND TRENCH BACKFILL ARE THOSE THAT CLASSIFY AS GW, GP, GM, GC, SM, SW, SP, SC, AND CL IN ACCORDANCE WITH ASTM D2487.
21. FILLS PLACED IN AREAS WHERE THE NATURAL SLOPE IS GREATER THAN 5H:1V (HORIZONTAL TO VERTICAL) SHOULD BE BENCHED INTO THE EXISTING GRADE TO REDUCE THE POTENTIAL FOR SLIPPAGE BETWEEN EXISTING SLOPES AND ENGINEERED FILL. BENCHES SHOULD BE LEVEL AND WIDE ENOUGH TO ACCOMMODATE COMPACTION AND EARTH MOVING EQUIPMENT.
22. FILL AND SUBGRADE CONSTRUCTION SHOULD NOT BE STARTED ON FOUNDATION SOIL, PARTIALLY COMPLETED FILL, OR SUBGRADES THAT CONTAIN FROST OR ICE. FILL SHOULD NOT BE CONSTRUCTED USING FROZEN SOIL. FROZEN SOIL SHOULD BE REMOVED PRIOR TO PLACING FILL MATERIAL.
23. AFTER STRIPPING AND GRUBBING OPERATIONS ARE COMPLETED AND PRIOR TO FILL PLACEMENT, AREAS TO BE FILLED SHALL BE PROOF ROLLED USING A LOADED TANDEM AXLE DUMP TRUCK TO IDENTIFY SOFT AND UNSUITABLE AREAS. SOFT MATERIAL MAY BE MOISTURE CONDITIONED AND REUSED AS ENGINEERED FILL, UNSUITABLE AND DELETERIOUS MATERIAL SHALL BE REMOVED FROM SITE.
24. ALL NEW UTILITY TRENCHES SHOULD BE BACKFILLED IN ACCORDANCE WITH APPROPRIATE CONTROLLED ENGINEERED FILL SPECIFICATIONS.
25. FIELD DENSITY TESTS SHOULD BE CONDUCTED IN ACCORDANCE WITH ASTM D6938 (NUCLEAR METHODS) OR ASTM D 1556 (SAND CONE METHOD). FIELD DENSITY TESTS SHOULD BE PERFORMED AT THE RATE OF ONE TEST PER 2,500 SQUARE FEET PER LIFT WITHIN THE BUILDING AND 10,000 SQUARE FEET PER LIFT BENEATH PAVEMENTS, SIDEWALKS, AND OTHER POTENTIAL STRUCTURAL AREAS WITH A MINIMUM OF 3 TESTS PER LIFT AND ONE TEST PER 150 LINEAL FEET PER LIFT FOR FOUNDATION, TRENCH AND WALL BACKFILL.
26. BUILDING PAD AND PARKING AREAS SHALL BE PROOF–ROLLED WITH A FULLY LOADED TANDEM AXLE DUMP TRUCK TO IDENTIFY ANY SOFT OR UNSUITABLE AREAS, PRIOR TO BASE ROCK PLACEMENT. THE PROOF–ROLL SHALL BE OBSERVED BY THE PROJECT GEOTECHNICAL ENGINEER. AREAS IDENTIFIED AS UNSUITABLE SHALL BE OVER EXCAVATED AND RECONSTRUCTED WITH ENGINEERED FILL.
27. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM ALL BUILDINGS FOR ALL LANDSCAPED AND PAVED AREAS.
28. CONTRACTOR SHALL PLACE STOCKPILED TOPSOIL FROM SITE IN ALL LANDSCAPE AREAS TO A MINIMUM DEPTH OF OF 6", UNLESS NOTED OTHERWISE IN PROJECT SPECIFICATIONS. ANY EXCESS TOPSOIL SHALL BE DISPOSED OF ONSITE PER OWNER.

PLAN REFERENCE NOTES ⬠1

1. THESE PLANS ARE PART OF A LARGE PLAN FOR THE DEVELOPMENT OF WILSHIRE HILLS. THE FULL SET OF PLANS INCLUDES THE FOLLOWING LIST, PREPARED BY AND DATED SPECIFICALLY FEBRUARY 16, 2024.
   a. ROAD & STORM SEWER PLAN
   b. UTILITY EXTENSION PLAN
   c. SANITARY SEWER EXTENSION PLAN
   d. MASS GRADING & EROSION CONTROL PLAN
2. IMPROVEMENTS FROM THE PUBLIC IMPRVOMENT PLAN (PDP) ARE SHOWN AS GREY SCALED ON THIS PLAN AND ARE ASSUMED TO BE THE EXISTING CONDITION FOR THESE PLANS.

SUBSTITUTION AND ALTERNATIVE MATERIALS NOTE

1. THE FOLLOWING MATERIALS WILL BE CONSIDERED ACCEPTABLE AS ALTERNATIVE/SUBSTITUTE MATERIAL.
   a. WATER MAIN, SERVICE FITTINGS, AND PIPES MAY BE SUBSTITUTED WITH EQUIVALENT ALTERNATIVE MATERIAL. ACCEPTABLE MATERIALS, SELECTED AS APPROPRIATE FOR PIPE SIZE, INCLUDE:
      i 280 PSI PRESSURE RATED, GASKETED BELL AND JOINT PVC
      ii DUCTILE IRON (BAGGED)
      iii SMALL DIAMETER TUBING: PEX–A, PEX–B, SDR9 PVC
   b. STORM: HDPE CAN BE SUBSTITUTED WITH RCP AND CMP (ALUMINIZED/SMOOTH WALL). CMP MUST BE INSTALLED UNDER MANUFACTURERS OBSERVATION. RCP MAY NOT BE SUBSTITUTED.

ALL SUBSTITUTIONS MUST BE NOTED IN THE BID PROVIDING A DEDUCTED ALTERNATIVE VALUE VERSUS THE AS DESIGNATED MATERIALS. ALL SUBSTITUTIONS MUST BE APPROVED BY THE ENGINEER AND OWNER PRIOR TO USE.

WATER NOTES

1. ALL WATER LINE CONSTRUCTION SHALL BE PER CURRENT CITY OF LEE'S SUMMIT WATER UTILITY STANDARDS AND SPECIFICATIONS UNLESS NOTED OTHERWISE.
2. SITE CONTRACTOR SHALL FURNISH AND INSTALL:
   a. ALL WATER MAINS AND FIRE HYDRANTS
   b. DOMESTIC LINES TO WITHIN 5' OF BUILDING
   c. METERS
   d. BACKFLOW PREVENTERS
   e. ALL VALVES
   f. FIRE RISER
3. BUILDING CONTRACTOR SHALL CONNECT TO DOMESTIC WITHIN 5' OF BUILDING.
4. SITE CONTRACTOR SHALL INSTALL FIRE RISERS IN BUILDINGS TURN AND CAP 18 INCHES ABOVE FINISH FLOOR (SEE MEP PLANS FOR EXACT LOCATION).
5. ALL VALVES, TEES, CROSSES, BENDS AND REDUCERS SHALL BE RESTRAINED.
6. WATER METER BOXES SHALL BE PLACED INTERNAL TO BUILDING.
7. ACTUAL DEPTH OF THE 30–INCH WATER MAIN ON THE WEST EDGE OF THE PROPERTY WILL BE FIELD VERIFIED BEFORE ANY GRADING WORK BEGINS.
8. ALL WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA STANDARD C651 LATEST EDITION.

FIRE NOTES ⬠1

1. ALL ISSUES PERTAINING TO LIFE SAFETY AND PROPERTY PROTECTION FROM THE HAZARDS OF FIRE, EXPLOSION OR DANGEROUS CONDITIONS IN NEW AND EXISTING BUILDINGS, STRUCTURES AND PREMISES, AND TO THE SAFETY TO FIRE FIGHTERS AND EMERGENCY RESPONDERS DURING EMERGENCY OPERATIONS, SHALL BE IN ACCORDANCE WITH THE 2018 INTERNATIONAL FIRE CODE.
2. AN APPROVED WATER SUPPLY CAPABLE OF SUPPLYING THE REQUIRED FIRE FLOW FOR FIRE PROTECTION SHALL BE PROVIDED TO PREMISES UPON WHICH FACILITIES, BUILDINGS OR PORTIONS OF BUILDINGS ARE HEREAFTER CONSTRUCTED OR MOVED INTO OR WITHIN THE JURISDICTION.
3. PRIOR TO ANY COMBUSTIBLE CONSTRUCTION, WILSHIRE DRIVE SHALL BE COMPLETED THROUGH STROTHER ROAD, ALL PUBLIC AND PRIVATE HYDRANTS SHALL BE IN PLACE AND OPERABLE, AND THE APARTMENT PARKING LOT'S ASPHALT BASE SHALL BE IN PLACE.
4. THE LOCATION OF FIRE DEPARTMENT CONNECTIONS SHALL BE APPROVED BY THE FIRE CODE OFFICIAL. CONNECTIONS SHALL BE A 4–INCH STORZ TYPE FITTING AND LOCATED WITHIN 100 FEET OF A FIRE HYDRANT, OR AS APPROVED BY THE CODE OFFICIAL.

GENERAL CONSTRUCTION NOTES

1. PARKING SUMMARY
   a. REQUIRED PARKING
   b. PROVIDED PARKING
      i. 48 STANDARD SPACES
      ii. 11 ACCESSIBLE SPACES
      iii. 59 TOTAL SPACES
2. SITE PAVEMENT SHALL BE PLACE AS FOLLOWS:
   a. CONCRETE PAVING
      i. STANDARD DUTY SHALL BE A MINIMUM OF 6–INCHES THICK REINFORCED CONCRETE WITH A MINIMUM 4" OF CRUSHED STONE BASE (SEE DETAIL SHEET C10.01).
      ii. HEAVY DUTY SHALL BE A MINIMUM 8–INCHES THICK REINFORCED CONCRETE WITH A MINIMUM 6–INCHES OF CRUSHED STONE BASE (SEE DETAIL SHEET C10.01).
   b. CONCRETE CURB (SEE DETAIL ON SHEET C10.01)
      i. ALL CURB SHALL BE 24–INCHES WIDE FROM BACK OF CURB TO EDGE OF GUTTER PAN.
      ii. CURB SHALL HAVE A MINIMUM 4–INCH OF CRUSHED STONE BASE.
      iii. ALL ACCESSIBLE CONCRETE PAVING SHALL BE DOWELED TO CURB.
   c. SIDEWALKS (SEE DETAIL ON SHEET C10.01–C10.03)
      i. TO BE FOUR INCH (4") THICK CONCRETE.
      ii. ALL SIDEWALK AT BACK OF CURB SHALL BE DOWELED TO CURB (SEE DETAIL ON SHEET C10.01).
      iii. SIDEWALKS SHALL NOT BE POURED UNTIL BUILDING EXTERIOR FINISHES ARE SUBSTANTIALLY COMPLETE. ANY PLACEMENT OF SIDEWALK PRIOR, WITHOUT OWNER'S APPROVAL, SHALL BE AT THE PAVING CONTRACTOR'S SOLE RISK.
   d. CONCRETE JOINTS
      i. CONCRETE PARKING LOT PAVING AND SIDEWALK SHALL BE PROVIDED JOINTS FOR PER THE JOINT PLAN AND PER DETAIL ON SHEET C10.01.
      ii. EXPANSION JOINTS SHOULD BE PLACED EVERY 100 LINEAL FEET FOR PARKING LOT PAVEMENT AND EVERY 50 LINEAL FEET FOR SIDEWALK, MINIMUM
      iii. PAVING JOINTS SHALL BE CONTINUOUS THRU CURB AND GUTTER.
      iv. PAVING JOINTS FOR SIDEWALK AT BACK OF CURB SHALL ALIGN WITH CURB AND GUTTER JOINTS.
   e. STANDARD DUTY CONCRETE PAVEMENT SHALL BE USED BELOW THE PORTE COCHERE.
   f. ALL DUMPSTER PADS AND APPROACHES SHALL BE HEAVY DUTY CONCRETE PAVEMENT.
3. SITE ACCESSIBILITY
   a. ALL ACCESSIBLE PARKING STALLS, CROSSWALKS, AND OTHER ACCESSIBLE ROUTES WITHIN THE PARKING AREA SHALL BE STANDARD DUTY CONCRETE, UNLESS NOTED OTHERWISE
   b. ACCESSIBLE CONCRETE PARKING SHALL HAVE A MAXIMUM SLOPE OF 1.7% IN ALL DIRECTIONS.
   c. ALL SIDEWALKS SHALL BE CONSTRUCTED AS FOLLOWS:
      i. 1.7% MAXIMUM CROSS SLOPE.
      ii. 4.7% MAXIMUM RUNNING SLOPE.
      iii. LANDINGS AT 1.7% MAX SLOPE IN ALL DIRECTIONS.
   d. RAMPS SHALL BE CONSTRUCTED AS FOLLOWS:
      i. 7.5% MAXIMUM RUNNING SLOPE
      ii. MAXIMUM RISE 6–INCHES
      iii. MAXIMUM CROSS SLOPE OF 1.7%
   e. LANDINGS SHALL BE PROVIDED AS THE INTERSECTION OF ALL SIDEWALKS AND AT THE TOP AND BOTTOM OF ALL RAMPS.
   f. ALL SIDEWALKS SHALL BE CONSIDERED ACCESSIBLE, UNLESS NOTED OTHERWISE.
   g. ALL SITE AMENITIES SHALL BE ACCESSIBLE.
   h. ALL DUMPSTERS SHALL BE ACCESSIBLE.
   i. NO ELEMENTS SHALL PROJECT MORE THAN 4" INTO AN ACCESSIBLE ROUTE.
4. FENCING
   a. ALL FENCING ABOVE RETAINING WALL SHALL BE 4' BLACK VINYL COATED CHAINLINK FENCE.
5. DUMPSTER ENCLOSURE
   a. ALL ENCLOSURES SHALL BE BLOCK WITH BRICK VENEER.
   b. ALL GATES SHALL BE STEEL FRAME AND VINYL SLATS.
   c. SEE ARCHITECTURAL PLANS FOR DETAILS.
6. MONUMENT SIGN
   a. SHALL BE BLOCK AND BRICK VENEER CONSTRUCTION.
   b. SIGN SHALL HAVE A 4' BY 8' SIGN FACE WITH 2' X 2' COLUMNS EACH END.
   c. ALL LIGHTING SHALL BE GROUND MOUNTED.
   d. A MINIMUM 2" PVC CONDUIT SHALL BE EXTENDED FROM THE HOUSE PANEL TO THE MONUMENT SIGN FOR POWER.
7. MAINTENANCE BUILDING
   a. PROVIDE A MINIMUM 2" PVC CONDUIT FROM THE HOUSE PANEL FOR ELECTRICAL SERVICE.
   b. MAINTENANCE BUILDING SHALL BE BRICK WAINSCOT AND SIDING.
   c. SEE ARCHITECTURAL PLANS.
8. FLAG POLE
   a. SEE ARCHITECTURAL PLANS FOR LOCATION AND DETAIL OF FLAG POLE
   b. FLAG POLE SHALL BE PROVIDED WITH AN ACCESSIBLE PATH.
   c. ALL LIGHTING SHALL BE GROUND MOUNTED, SEE MEP PLANS FOR LIGHTING DESIGN.
   d. A MINIMUM 2" PVC CONDUIT SHALL BE EXTENDED FROM THE HOUSE PANEL TO THE FLAG POLE FOR POWER.
9. SANITARY SEWER SERVICES SHALL BE TIED NEAR THE MIDDLE OF SLAB TO REDUCE DEPTH BELOW SLAB WHEN BUILDING IS OVER 150FT LONG. SEWER INVERT TO BE MINIMUM 5' BELOW FFE IN ORDER TO COME OUT BELOW THE FOOTING.
10. SITE CONTRACTOR SHALL BE RESPONSIBLE FOR
    a. COORDINATION OF THE INSTALLATION OF THE WATER METER WITH THE UTILITY.
    b. COORDINATION OF WITH UTILITY PROVIDER FOR THE WATER MAIN TAP
    c. THE STANDARD SERVICE CONNECTION OR NEW MANHOLE LOCATION
    d. INSTALLATION OF THE FIRE RISER FOR WATER SERVICE INTO THE BUILDING, STUBBED 18" ABOVE FINISH FLOOR.
11. SITE CONTRACTOR SHALL BE RESPONSIBLE FOR
    a. INSTALLATION THE CONNECTION OF THE SITE SEWER SERVICE TO THE MAIN INCLUDING ALL MATERIALS AND LABOR. THE CONTRACTOR SHALL PROVIDE TWENTY–FOUR (24) HOURS' NOTICE TO THE DEPARTMENT FOR CONNECTION. NONE OF THE BUILDING SEWER OR PLUMBING OR SANITARY DRAINAGE SYSTEM SHALL BE COVERED OR ENCLOSED UNTIL INSPECTED, HYDRAULICALLY TESTED, AND APPROVED BY THE DEPARTMENT
12. THE SITE CONTACTOR SHALL PERFORM A SITE SURVEY AFTER CLEARING & GRUBBING IN ORDER TO CONFIRM TOPO ON PLANS IS ACCURATE PRIOR TO MASS GRADING.
13. ALL 3–STORY OR TALLER BUILDINGS SHALL HAVE A LIGHTNING ROD (SEE ARCHITECTURAL).
14. LANDSCAPING
    a. PLANTS SHALL BE PROPERLY SELECTED TO FOR SITE CONDITION CONDITIONS SUCH AS:
       i. SHADE, PARTIAL SHADE, FULL SUN
       ii. WELL DRAINED OR POORLY DRAINED SOILS.
       iii. SUITABLE FOR USDA PLANT HARDINESS ZONE.
    b. SHADE TREES SHALL BE MINIMUM 2" CALIPER, UNLESS NOTED OTHERWISE.
    c. EVERGREEN TREES SHALL BE AT LEAST 6–FOOT TALL.
    d. SHRUBS SHALL BE 3–5 GALLON.
    e. SOD SHALL BE PLACE ON ALL DISTURBED AREAS AND AT A MINIMUM:
       i. BETWEEN THE BUILDING/PARKING LOT AND DISTURBED SITE FRONTAGE.
       ii. BETWEEN THE PARKING LOT AND BUILDING(S).
       iii. BETWEEN PARKING LOT AND SIDEWALKS.
       iv. A MINIMUM 15–FEET BEYOND EDGE OF SIDEWALK, PARKING LOT, AND SITE AMENITIES.
    f. ALL AREAS NOT SODDED SHALL BE HYDROSEEDED.
    g. TURF REINFORCEMENT MATS AND EROSION CONTROL BLANKETS SHALL BE PLACED AS NOTED ON PLAN.
15. IRRIGATION SYSTEM NOTES
    a. ALL SODDED AREA SHALL BE IRRIGATED.
    b. ALL HYDROSEEDED LAWN AREAS SHALL BE IRRIGATED.
    c. IRRIGATION METER AND BACKFLOW PREVENT SHALL BE PLACED PER PLAN.
    d. IRRIGATION METER SHALL BE INSTALLED PER LOCAL JURISDICTION.
    e. IRRIGATION CONTROLLER SHALL BE PLACED PER PLAN.
    f. IRRIGATION BACKFLOW PREVENTOR SHALL BE PLACED ABOVE GROUND WITHIN A LOCKABLE HOUSING CONSTRUCTED OR POWDER COATED STEEL FRAME AND MESH. BACKFLOW PREVENTOR SHALL BE PROPERLY PROTECTED FROM FROST.
    g. IRRIGATION SHALL BE ZONED. ALL PLANTING BEDS AND TURF SHALL BE SEPARATELY ZONED.
    h. CONSTRUCTOR SHALL SUBMIT IRRIGATION PLANS TO THE OWNER A MINIMUM OF 30 DAYS PRIOR TO PROPOSED INSTALLATION FOR APPROVAL. SHOW NOTE THAT IRRIGATION DESIGN DRAWINGS ARE TO BE SUBMITTED FOR APPROVAL.
16. THE MISSOURI DEPARTMENT OF NATURAL RESOURCES DATABASE OF WELLS (WISDIM) DOES NOT PROVIDE EVIDENCE FOR ANY ACTIVE, INACTIVE, OR ABANDONED OAL AND/OR GAS WELLS ON THE PROPERTY.

STORM WATER POLLUTION PREVENTION PLAN NOTES

1. CONTRACTOR SHALL FOLLOW THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES. A COPY OF THIS PLAN, SWPPP, AND ALL PERMITS SHALL REMAIN ON SITE THROUGHOUT CONSTRUCTION.
2. CONTRACTORS ARE REQUIRED TO SUBMIT TO CITY INSPECTION STAFF COPIES OF THEIR INSPECTION REPORTS REQUIRED BY THE SWPPP ON A MONTHLY BASIS.
3. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED AND APPROVAL HAS BEEN RECEIVED FROM ALL GOVERNING AUTHORITIES.
4. IMMEDIATELY UPON COMPLETION OF FINISH GRADING IN EACH AREA, ALL LANDSCAPING AREAS SHALL BE STABILIZED PER PLANS AND/OR SPECIFICATIONS.
5. SHOULD CONSTRUCTION STOP FOR LONGER THAN 14 DAYS, THE SITE SHALL BE SEEDED AS SPECIFIED IN THE SWPPP.
6. SITE INSPECTION SHOULD OCCUR ON A REGULAR SCHEDULE AND WITHIN 24 HOURS OF A STORM EVENT OF 0.25 INCHES OR GREATER. REGULARLY SCHEDULED INSPECTION SHALL BE A MINIMUM OF ONCE EVERY 7 CALENDAR DAYS. ANY DEFICIENCIES SHALL BE NOTED IN A WEEKLY REPORT OF THE INSPECTION AND CORRECTED WITHIN SEVEN CALENDAR DAYS OF THE REPORT.
7. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE AS THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SOIL SEDIMENT FROM LEAVING THE SITE.
8. CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL ORDINANCES THAT APPLY.
9. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ON SITE INSPECTION.
10. CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
11. ALL SLOPES GREATER THAN 3:1 SHALL BE REINFORCED BY NORTH AMERICAN GREEN P300 PERMANENT TURF REINFORCEMENT MAT OR APPROVED EQUAL.
12. ALL ROLLED EROSION CONTROL MATS, BIONETS, BLANKETS, ETC. SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS. INSTALLATION SHALL RESULT IN A PRODUCT THAT IS TIGHTLY SECURED TO THE GROUND THAT FORCES RUNOFF TO DRAIN OVER, NOT UNDER, THE PRODUCT. GRASS SHALL BE PLANTED PRIOR TO PRODUCT PLACEMENT SO IT WILL GROW THRU THE BLANKET. ALL ASPECTS OF THE PRODUCT SHALL BE FIRMLY SECURED TO THE GROUND SO IT CAN BE MOWED OVER WITHOUT GETTING TANGLED IN THE MOWER.
13. CONTRACTOR SHALL REMOVE ALL TRASH, DEBRIS, TREES & BRUSH AND OTHER MATERIAL CREATED AS A RESULT OF THE CONSTRUCTION WORK AND THE SITE SHALL BE RETURNED TO ITS ORIGINAL CONDITION.
14. ALL PERIMETER LANDSCAPED AREAS SHALL BE GRASS COVERED.
15. IN ORDER TO TERMINATE A MISSOURI DEPARTMENT OF NATURAL RESOURCES (MDNR) STATE OPERATING PERMIT, THE CONTRACTOR SHALL SUBMIT A REQUEST FOR TERMINATION OF OPERATING PERMIT FORM TO MDNR. A PERMIT IS ELIGIBLE FOR TERMINATION WHEN EITHER PERENNIAL VEGETATION, PAVEMENT, BUILDINGS, OR STRUCTURES USING PERMANENT MATERIALS COVER ALL AREAS THAT HAVE BEEN DISTURBED. VEGETATIVE COVER SHOULD BE AT LEAST 70% OF FULLY ESTABLISHED PLANT DENSITY OVER 100% OF THE DISTURBED AREA. A COPY OF THE REQUEST FOR TERMINATION OF OPERATING PERMIT FORM SHALL BE SUBMITTED TO THE CITY OF COLUMBIA AT WHICH TIME THE CITY WILL REMOVE THE PROJECT FROM ITS INSPECTION SCHEDULE.
16. THE SITE CONTRACTOR SHALL INCLUDE MAINTENANCE OF ALL BMP'S AS PART OF THEIR CONTRACT AND SHALL BE RESPONSIBLE FOR THE PROJECT UNTIL THE NPDES PERMIT IS TERMINATED.
17. SOIL STOCKPILES SHALL COMPLY WITH THE CITY OF LEE'S SUMMIT.

UTILITY CONSTRUCTION NOTES

1. LOCATION OF SITE UTILITIES SHALL BE VERIFIED BY CONTRACTOR AND THE PROPER UTILITY COMPANY PROVIDING SERVICE PRIOR TO THE START OF CONSTRUCTION.
2. EXISTING UTILITIES SHALL BE VERIFIED IN FIELD PRIOR TO INSTALLATION OF ANY NEW LINES.
3. UTILITY TIE–INS ARE SHOWN IN APPROXIMATE LOCATIONS. REFER TO MEP PLANS FOR EXACT TIE–IN OF ALL UTILITIES.
4. SITE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE SPECIFICATIONS OF LEE'S SUMMIT WATER DEPARTMENT AND CITY OF LEE'S SUMMIT PUBLIC WORKS WITH REGARDS TO MATERIALS AND INSTALLATION OF THE WATER AND SEWER LINES, RESPECTIVELY.
5. OWNER OR OWNER'S AGENT WILL BE RESPONSIBLE FOR ALL TAP AND TIE ON FEES REQUIRED. SITE CONRACTOR IS RESPONSIBLE FOR COST OF UNDERGROUND SERVICE CONNECTIONS TO THE BUILDING.
6. ALL WATER AND SANITARY LEADS TO BUILDING SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLAN AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AT END, VISIBLE ABOVE FINISHED GRADE.
7. ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS, BACKFILL OF TRENCHES THROUGH ANY IMPROVED AREAS, SUCH AS STREET, DRIVES OR PARKING LOTS SHALL BE COMPACTED TO MINIMUM 95% STANDARD PROCTOR DENSITY (ASTM D–698).
8. PROPOSED ELECTRIC, TELEPHONE, TELEVISION, AND GAS LINES ARE SHOWN FOR COORDINATION PURPOSES ONLY. SYSTEM DESIGN PREPARED BY EACH RESPECTIVE AGENCY. REFER TO MEP PLANS FOR CONDUIT REQUIREMENTS.
9. ALL UNDERGROUND UTILITY CONDUITS SHALL BE PLACED 48" BELOW FINISH GRADE UNLESS NOTED OTHERWISE.
10. WATER MAINS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY, MEASURED EDGE TO EDGE, FROM ANY EXISTING OR PROPOSED SANITARY SEWER. WATER MAINS CROSSING SANITARY SEWERS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL CLEAR DISTANCE OF 18 INCHES BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SANITARY SEWER. CENTER A FULL LENGTH OF WATER MAIN OVER OR UNDER THE SEWER SO BOTH WATER MAIN JOINTS ARE AS FAR FROM THE SEWER AS POSSIBLE. AT SANITARY SEWER CROSSINGS, PLACE COMPACTED CLAY SOIL BACKFILL 18 INCHES ABOVE OR BELOW THE WATER MAIN FOR A DISTANCE OF AT LEAST 10 FEET ON EITHER SIDE OF THE SANITARY SEWER. CONTRACTOR SHALL NOTIFY ENGINEER IF HORIZONTAL AND VERTICAL SEPARATION CANNOT BE PROVIDED.
11. ALL UNDERGROUND LINES SHALL BE INSTALLED, INSPECTED AND APPROVED BEFORE BACKFILLING.
12. TOPS OF EXISTING ELECTRIC, SANITARY, STORM, WATER, TELECOMMUNICATION, GAS, IRRIGATION, CHILLED WATER, AND STEAM STRUCTURES SHALL BE RAISED AS NECESSARY TO BE FLUSH WITH PROPOSED FINISHED ELEVATIONS.
13. ALL CONCRETE FOR ENCASEMENTS SHALL HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 P.S.I.
14. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODE AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSION AND THE FINAL CONNECTION OF SERVICE.
15. REFER TO ARCHITECTURAL <MEP> PLANS FOR SITE LIGHTING PLAN.
16. PVC CONDUIT SHALL BE SCHEDULE 40 PVC WITH LONG SWEEPS ONLY (36" MINIMUM RADIUS) AND CONTAIN PULLTAPE, UNLESS OTHERWISE NOTED.
17. SITE CONTRACTOR SHALL PROVIDE AND INSTALL THE CONCRETE PAD FOR THE TRANSFORMER PER THE ELECTRIC COMPANY SPECIFICATIONS.
18. SITE CONTRACTOR SHALL CONTACT EVERGY TO COORDINATE INSTALLATION OF NEW TRANSFORMERS.
19. A MINIMUM 18" OF VERTICAL SEPARATION SHALL BE MAINTAINED BETWEEN THE OUTSIDE OF THE ELECTRIC CONDUIT AND THE OUTSIDE OF THE WATER, STORM SEWER, SANITARY SEWER, OR GAS PIPE AT ALL CROSSINGS.
20. STUBS FOR FUTURE UTILITIES SHOULD BE CLEARLY MARKED AND ES&S CONTACTED FOR DATA COLLECTION.

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660-826-8618
www.ess-inc.com
MO Engineering Corp. # 2004005018

WILSHIRE HILLS PHASE III
3200 NE WILSHIRE DR
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

2/22/2024
MATTHEW AARON KRIETE
NUMBER PE-2007002811

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

IF ORIGINAL SIGNATURE OR DIGITAL AUTHENTICATION IS NOT PRESENT THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.

CONSTRUCTION DOCUMENTS

Date
JUNE 30, 2023

Revised	
⬠1	FEBRUARY 22, 2024

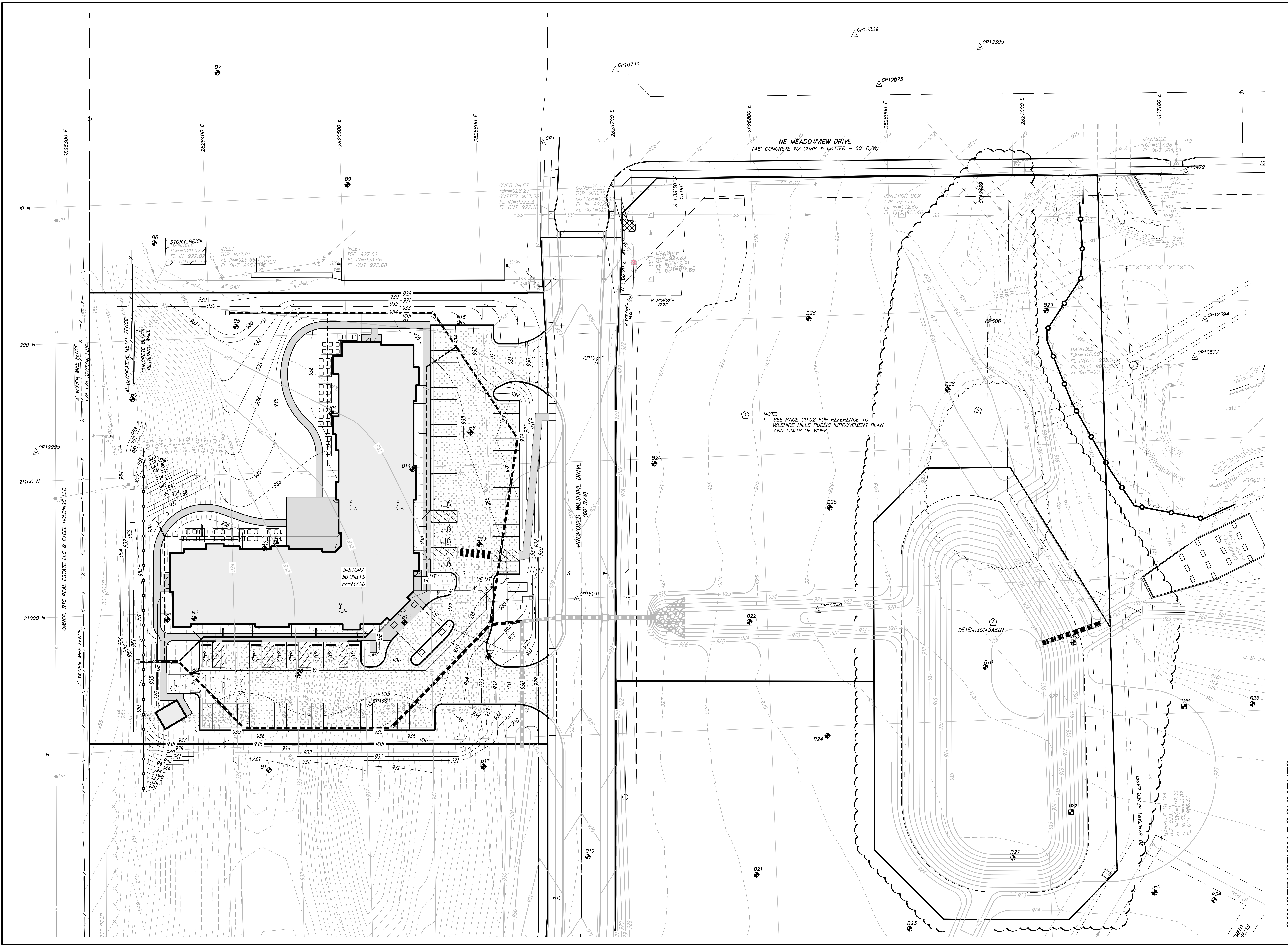
Design: ST Drawn: MJS

GENERAL NOTES

Sheet
C0.02

ES&S PROJECT NO. 15925

P:\GENERAL PROJECTS\15925E–JES–WILSHIRE–HILLS–3–ENG\CAD\15925 COVER & DETAILS.DWG 2/23/2024



NOTE:
1. SEE PAGE C0.02 FOR REFERENCE TO WILSHIRE HILLS PUBLIC IMPROVEMENT PLAN AND LIMITS OF WORK

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MO Engineering Corp. # 2004005018

N

SCALE: 1" = 30'

WILSHIRE HILLS PHASE III

3200 NE WILSHIRE DR
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

4/17/2024
MATTHEW AARON KRIETE
NUMBER PE-2007002811

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

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Date
JUNE 30, 2023

Revised
1 FEBRUARY 22, 2024
2 APRIL 17, 2024

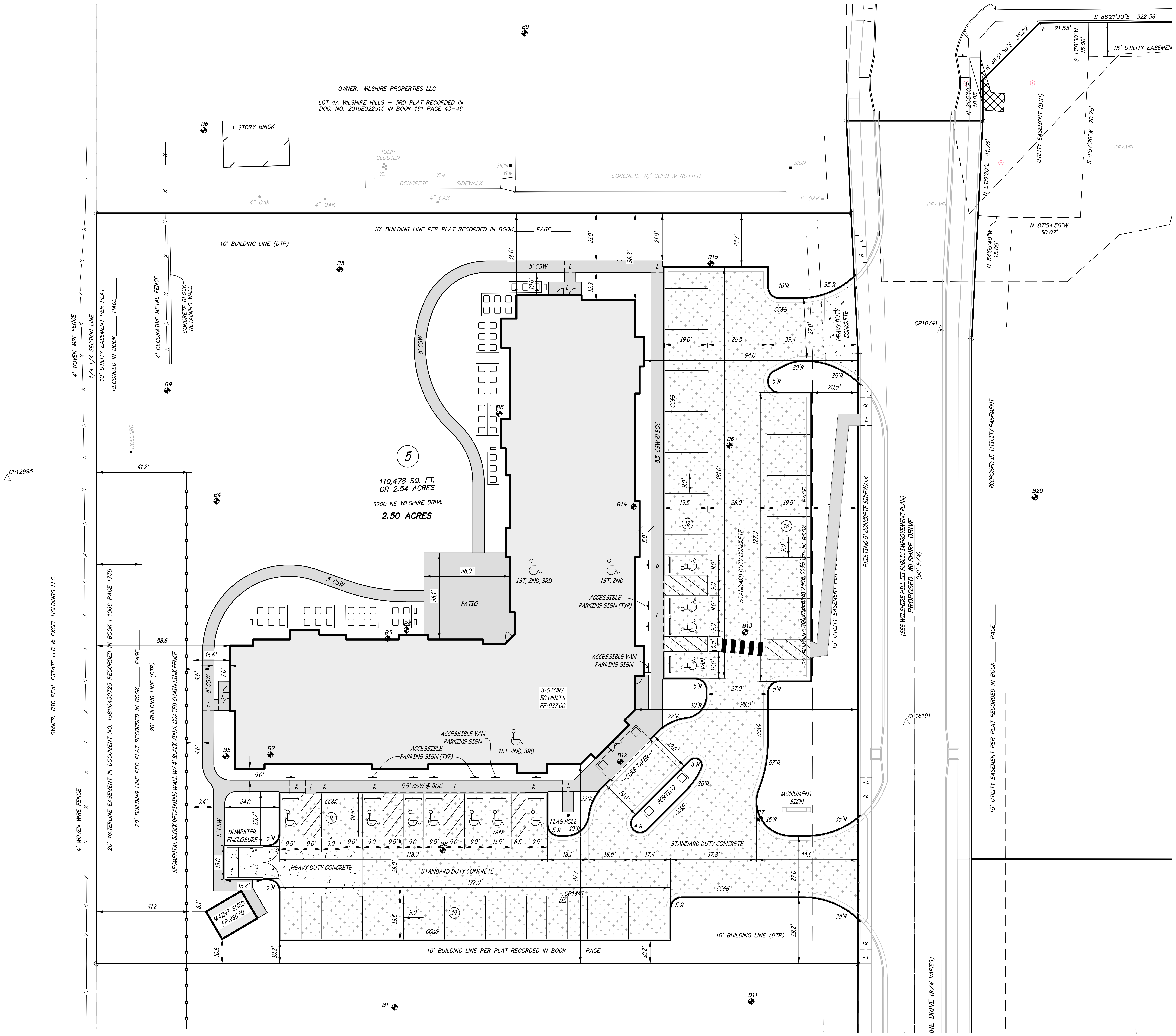
CONSTRUCTION DOCUMENTS

Design: ST Drawn: MJS

OVERALL PLAN

Sheet
C1.01

ES&S PROJECT NO. 15925


OWNER: WILSHIRE PROPERTIES LLC
LOT 4A WILSHIRE HILLS – 3RD PLAT RECORDED IN DOC. NO. 2016E022915 IN BOOK 161 PAGE 43-46
1 STORY BRICK
CONCRETE W/ CURB & GUTTER
10' BUILDING LINE PER PLAT RECORDED IN BOOK_____ PAGE_____
10' BUILDING LINE (DTP)
5
110,478 SQ. FT. OR 2.54 ACRES
3200 NE WILSHIRE DRIVE
2.50 ACRES
3-STORY
50 UNITS
FF=937.00
PATIO
5' CSW
5.5' CSW @ BOC
ACCESSIBLE PARKING SIGN (TYP)
ACCESSIBLE VAN PARKING SIGN
1ST, 2ND, 3RD
1ST, 2ND
STANDARD DUTY CONCRETE
HEAVY DUTY CONCRETE
CC&G
DUMPSTER ENCLOSURE
MAINT. SHED FF=935.50
FLAG POLE
CURB TAPER
PORTICO
MONUMENT SIGN
HEAVY DUTY CONCRETE
EXISTING 5' CONCRETE SIDEWALK
(SEE WILSHIRE HILL III PUBLIC IMPROVEMENT PLAN)
PROPOSED WILSHIRE DRIVE (60' R/W)
IRE DRIVE (R/W VARIES)
15' UTILITY EASEMENT
PROPOSED 15' UTILITY EASEMENT
15' UTILITY EASEMENT PER PLAT RECORDED IN BOOK_____ PAGE_____
UTILITY EASEMENT (DTP)
S 88°21'30"E 322.38'
N 46°51'50"E 35.22'
N 5°00'20"E 41.75'
S 4°57'20"W 70.75'
N 87°54'50"W 30.07'
N 84°59'40"W 15.00'
S 1°38'30"W 15.00'
GRAVEL
OWNER: RTC REAL ESTATE LLC & EXCEL HOLDINGS LLC
4' WOVEN WIRE FENCE
1/4 1/4 SECTION LINE
10' UTILITY EASEMENT PER PLAT RECORDED IN BOOK_____ PAGE_____
4' DECORATIVE METAL FENCE
CONCRETE BLOCK RETAINING WALL
20' WATERLINE EASEMENT IN DOCUMENT NO. 19810450725 RECORDED IN BOOK I 1066 PAGE 1736
20' BUILDING LINE PER PLAT RECORDED IN BOOK_____ PAGE_____
20' BUILDING LINE (DTP)
SEGMENTAL BLOCK RETAINING WALL W/ 4' BLACK VINYL COATED CHAIN LINK FENCE
CP12995
CP10741
CP16191
CP1441
B1
B2
B3
B4
B5
B6
B7
B8
B9
B11
B12
B13
B14
B15
B20
98.0'
94.0'
172.0'
118.0'
181.0'
127.0'

NOTE:
1. SEE PAGE C0.02 FOR REFERENCE TO WILSHIRE HILLS PUBLIC IMPROVEMENT PLAN AND LIMITS OF WORK

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MO Engineering Corp. # 2004005018

N

0 1"
SCALE: 1" = 20'

WILSHIRE HILLS PHASE III
3200 NE WILSHIRE DR
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

5/1/2024
MATTHEW AARON KRIETE
NUMBER PE-2007002811

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

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Date
JUNE 30, 2023

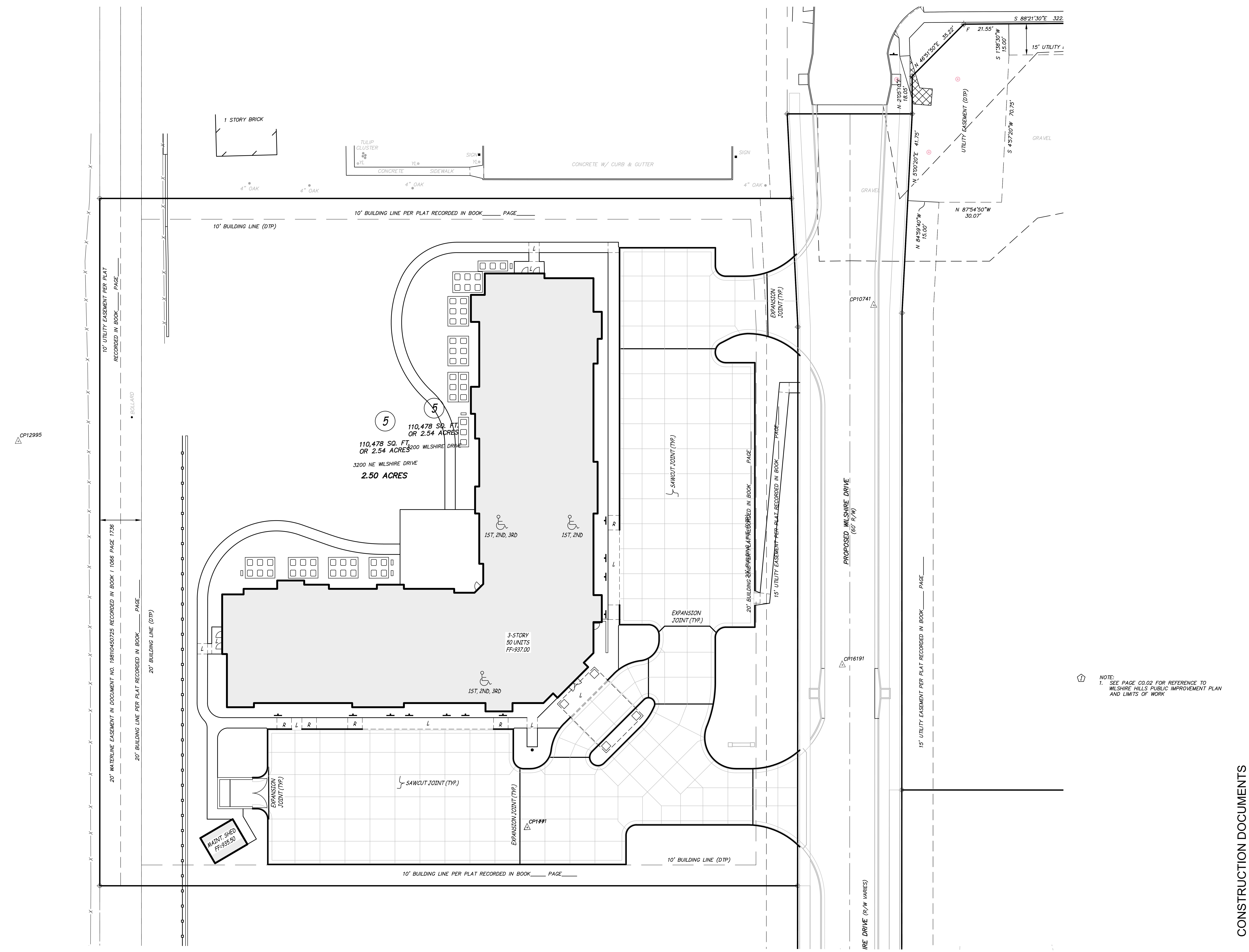
Revised	
①	FEBRUARY 22, 2024
③	MAY 1, 2024

Design: ST Drawn: MJS

SITE PLAN

Sheet
C2.01

ES&S PROJECT NO. 15925



①
NOTE:
1. SEE PAGE C0.02 FOR REFERENCE TO WILSHIRE HILLS PUBLIC IMPROVEMENT PLAN AND LIMITS OF WORK

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N

0 1"
SCALE: 1" = 20'

WILSHIRE HILLS PHASE III
3200 NE WILSHIRE DR
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

5/1/2024

MATTHEW AARON KRIETE
NUMBER
PE-2007002811

Matthew A Kriete

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

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Date
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Revised	
①	FEBRUARY 22, 2024
③	MAY 1, 2024

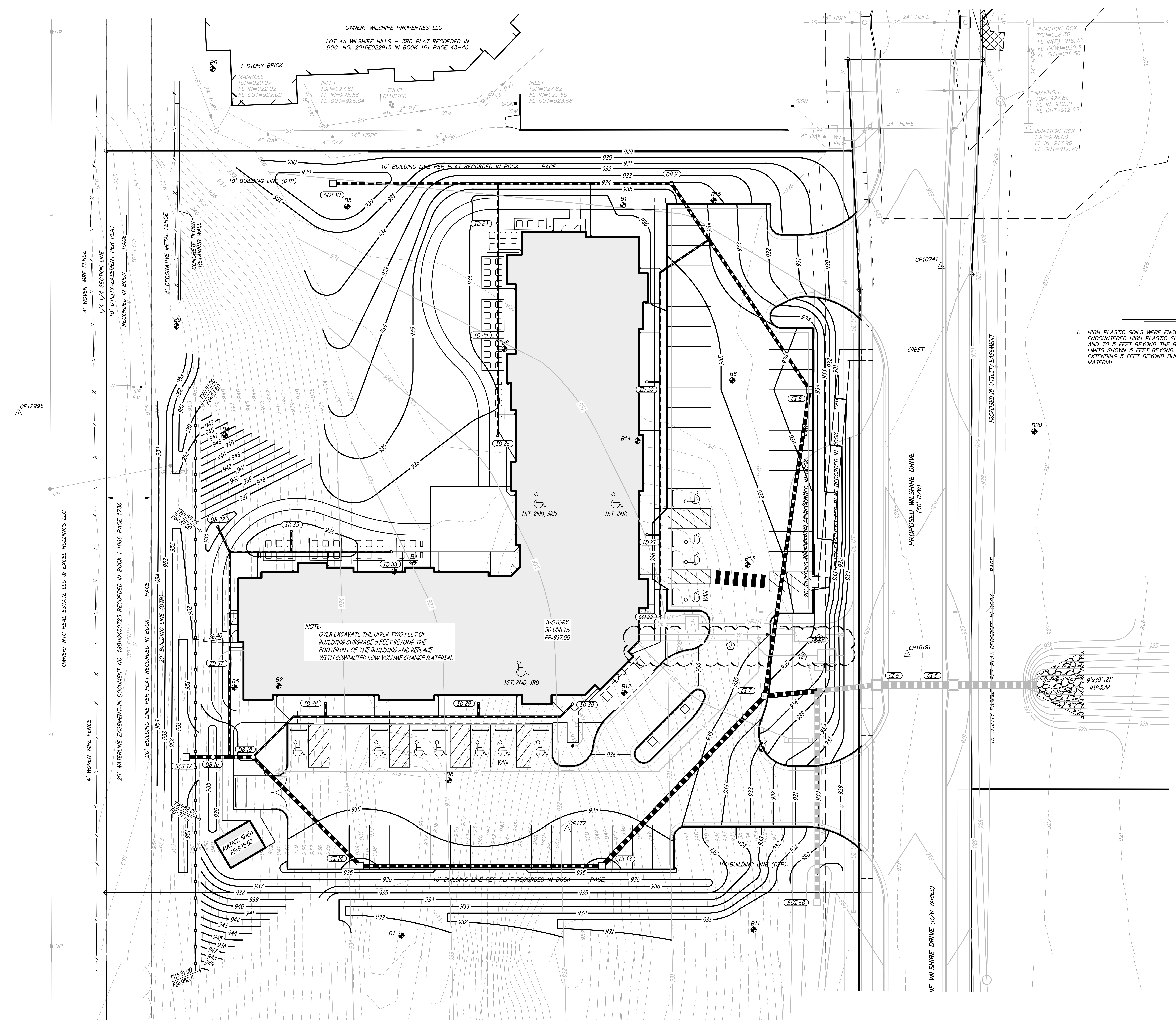
CONSTRUCTION DOCUMENTS

Design: ST Drawn: MJS

JOINT PLAN

Sheet
C3.01

ES&S PROJECT NO. 15925


OWNER: WILSHIRE PROPERTIES LLC
LOT 4A WILSHIRE HILLS – 3RD PLAT RECORDED IN DOC. NO. 2016E022915 IN BOOK 161 PAGE 43–46
1 STORY BRICK
OWNER: RTC REAL ESTATE LLC & EXCEL HOLDINGS LLC
4' WOVEN WIRE FENCE
1/4 1/4 SECTION LINE
10' UTILITY EASEMENT PER PLAT RECORDED IN BOOK ___ PAGE ___
4' DECORATIVE METAL FENCE
CONCRETE BLOCK RETAINING WALL
20' WATERLINE EASEMENT IN DOCUMENT NO. 1981I0450725 RECORDED IN BOOK I 1066 PAGE 1736
20' BUILDING LINE PER PLAT RECORDED IN BOOK ___ PAGE ___
20' BUILDING LINE (DTP)
10' BUILDING LINE PER PLAT RECORDED IN BOOK ___ PAGE ___
10' BUILDING LINE (DTP)
3-STORY
50 UNITS
FF=937.00
1ST, 2ND, 3RD
1ST, 2ND
MAINT. SHED
FF=935.50
PROPOSED WILSHIRE DRIVE (60' R/W)
NE WILSHIRE DRIVE (R/W VARIES)
PROPOSED 15' UTILITY EASEMENT
CREST
9'x30'x21' RIP-RAP
INLET TOP=927.81 FL IN=925.56 FL OUT=925.04
INLET TOP=927.82 FL IN=923.66 FL OUT=923.68
MANHOLE TOP=929.97 FL IN=922.02 FL OUT=922.02
JUNCTION BOX TOP=928.30 FL IN(E)=916.70 FL IN(W)=920.3 FL OUT=916.50
MANHOLE TOP=927.84 FL IN=912.71 FL OUT=912.65
JUNCTION BOX TOP=928.00 FL IN=917.90 FL OUT=917.70
TULIP CLUSTER
SIGN
VAN
CP10741
CP12995
CP16191
CP177
TW=51.00 FG=50.50
TW=55.75 FG=37.00
TW=52.00 FG=37.00
TW=51.00 FG=950.5

NOTE:
OVER EXCAVATE THE UPPER TWO FEET OF BUILDING SUBGRADE 5 FEET BEYONG THE FOOTPRINT OF THE BUILDING AND REPLACE WITH COMPACTED LOW VOLUME CHANGE MATERIAL

EARTHWORK NOTES ①

1. HIGH PLASTIC SOILS WERE ENCOUNTERED IN THE AREA. CONTRACTOR SHALL OVER–EXCAVATE ENCOUNTERED HIGH PLASTIC SOILS WITHIN THE 2 FOOT OF FINISHED SUBGRADE BUILDING PAD AND TO 5 FEET BEYOND THE BUILDING, AND AT LEAST 1 FOOT BELOW PAVEMENT SUBGRADE LIMITS SHOWN 5 FEET BEYOND. ANY FILL PLACED WITHIN THE UPPER 2 FEET OF SUBGRADE EXTENDING 5 FEET BEYOND BUILDING FOOTPRINT SHOULD CONSIST OF LOW VOLUME CHANGE MATERIAL.

① NOTE:
1. SEE PAGE C0.02 FOR REFERENCE TO WILSHIRE HILLS PUBLIC IMPROVEMENT PLAN AND LIMITS OF WORK

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N

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SCALE: 1" = 20'

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4/17/2024
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NUMBER
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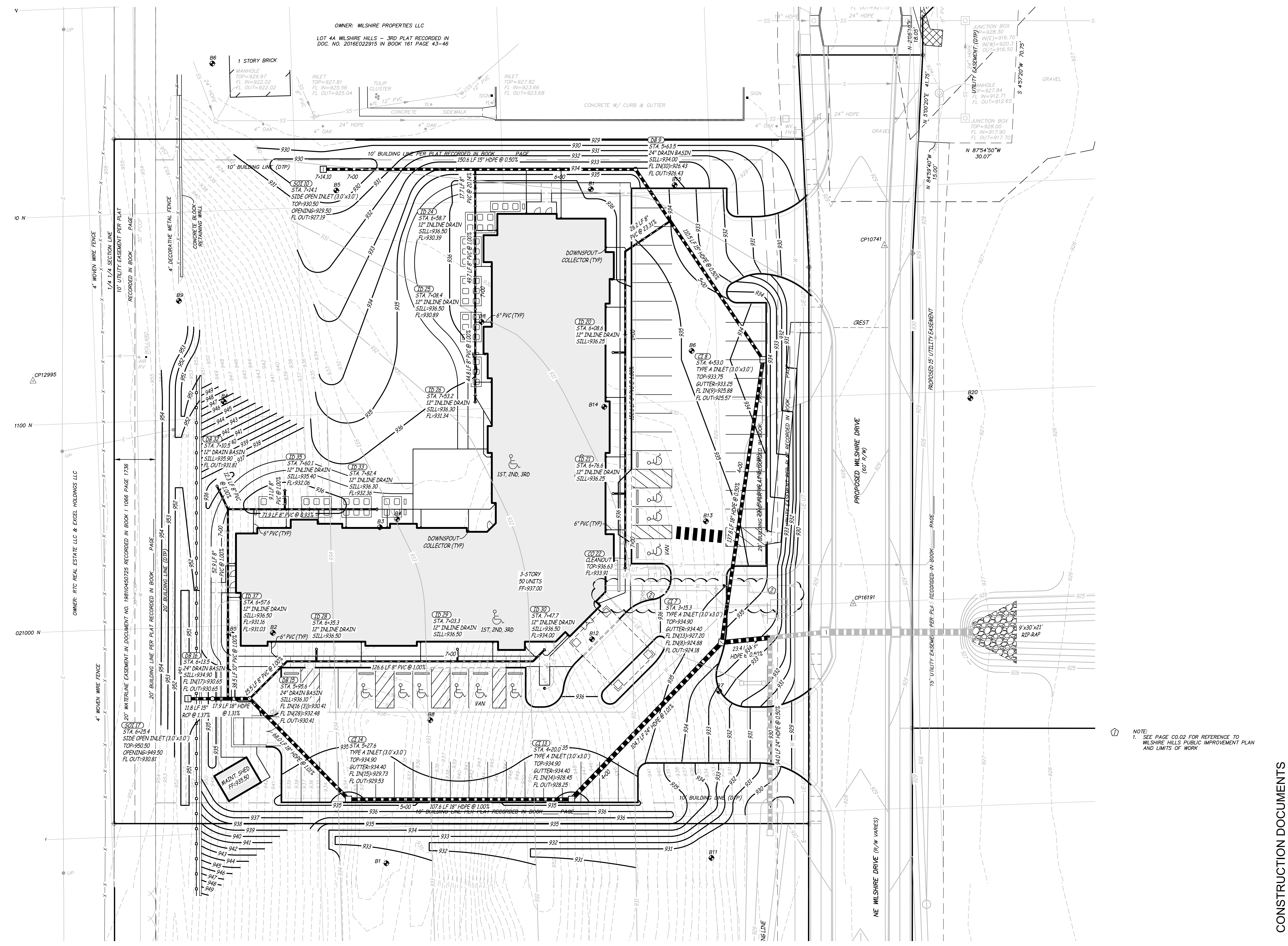
Revised	
①	FEBRUARY 22, 2024
②	APRIL 17, 2024

Design: ST Drawn: MJS

GRADING & DRAINAGE PLAN

Sheet
C4.01

ES&S PROJECT NO. 15925


OWNER: WILSHIRE PROPERTIES LLC
LOT 4A WILSHIRE HILLS – 3RD PLAT RECORDED IN DOC. NO. 2016E022915 IN BOOK 161 PAGE 43–46
1 STORY BRICK
MANHOLE TOP=929.97 FL IN=922.02 FL OUT=922.02
INLET TOP=927.81 FL IN=925.56 FL OUT=925.04
TULIP CLUSTER
12" PVC
INLET TOP=927.82 FL IN=923.66 FL OUT=923.68
CONCRETE W/ CURB & GUTTER
CONCRETE
SIDEWALK
24" HDPE
4" OAK
SIGN
JUNCTION BOX TOP=928.30 IN(E)=916.70 IN(W)=920.3 OUT=916.50
UTILITY EASEMENT (DTP)
MANHOLE TOP=927.84 FL IN=912.71 FL OUT=912.65
JUNCTION BOX TOP=928.00 FL IN=917.90 FL OUT=917.70
N 87°54'50"W 30.07'
S 4°57'20"W 70.75'
N 5°00'20"E 41.75'
N 2°05'13"E 18.05'
N 84°59'40"W 15.00'
GRAVEL
10' BUILDING LINE PER PLAT RECORDED IN BOOK ___ PAGE ___
150.6 LF 15" HDPE @ 0.50%
10' BUILDING LINE (DTP)
DB 9 STA. 5+63.5 24" DRAIN BASIN SILL=934.00 FL IN(10)=926.43 FL OUT=926.43
SOI 10 STA. 7+14.1 SIDE OPEN INLET (3.0'x3.0') TOP=930.50 OPENING=929.50 FL OUT=927.19
7+14.10
7+00
6+00
ID 24 STA. 6+58.7 12" INLINE DRAIN SILL=936.50 FL=930.39
17.7 LF 8" PVC @ 20.14%
26.2 LF 8" PVC @ 23.31%
110.5 LF 15" HDPE @ 0.50%
ID 25 STA. 7+08.4 12" INLINE DRAIN SILL=936.50 FL=930.89
49.7 LF 8" PVC @ 1.00%
44.8 LF 8" PVC @ 1.00%
6" PVC (TYP)
DOWNSPOUT COLLECTOR (TYP)
ID 20 STA. 6+08.6 12" INLINE DRAIN SILL=936.25
CI 8 STA. 4+53.0 TYPE A INLET (3.0'x3.0') TOP=933.75 GUTTER=933.25 FL IN(9)=925.88 FL OUT=925.57
CP10741
CREST
PROPOSED 15' UTILITY EASEMENT
B20
ID 26 STA. 7+53.2 12" INLINE DRAIN SILL=936.30 FL=931.34
B14
1ST, 2ND, 3RD
ID 21 STA. 6+76.6 12" INLINE DRAIN SILL=936.25
PROPOSED WILSHIRE DRIVE (60' R/W)
DB 32 STA. 7+10.5 12" DRAIN BASIN SILL=935.90 FL OUT=931.81
ID 35 STA. 7+60.1 12" INLINE DRAIN SILL=935.40 FL=932.06
ID 33 STA. 7+82.4 12" INLINE DRAIN SILL=936.30 FL=932.36
9.1 LF 8" PVC @ 1.00%
12.3 LF 8" PVC @ 1.00%
71.9 LF 8" PVC @ 0.93%
6" PVC (TYP)
B3
B4
DOWNSPOUT COLLECTOR (TYP)
137.8 LF 18" HDPE @ 0.50%
B13
CO 22 CLEANOUT TOP=936.63 FL=933.91
VAN
3-STORY 50 UNITS FF=937.00
CP16191
CP12995
1100 N
021000 N
OWNER: RTC REAL ESTATE LLC & EXCEL HOLDINGS LLC
4' WOVEN WIRE FENCE
1/4 1/4 SECTION LINE
10' UTILITY EASEMENT PER PLAT RECORDED IN BOOK ___ PAGE ___
4' DECORATIVE METAL FENCE
CONCRETE BLOCK RETAINING WALL
20' WATERLINE EASEMENT IN DOCUMENT NO. 1981I0450725 RECORDED IN BOOK I 1066 PAGE 1736
20' BUILDING LINE PER PLAT RECORDED IN BOOK ___ PAGE ___
20' BUILDING LINE (DTP)
52.9 LF 8" PVC @ 1.00%
ID 37 STA. 6+57.6 12" INLINE DRAIN SILL=936.50 FL=931.16 FL=931.03
ID 28 STA. 6+35.3 12" INLINE DRAIN SILL=936.50
ID 29 STA. 7+03.3 12" INLINE DRAIN SILL=936.50
1ST, 2ND, 3RD
ID 30 STA. 7+47.7 12" INLINE DRAIN SILL=936.50 FL=934.00
CI 7 STA. 3+15.3 TYPE A INLET (3.0'x3.0') TOP=934.90 GUTTER=934.40 FL IN(13)=927.20 FL IN(8)=924.88 FL OUT=924.18
23.4 LF 24" HDPE @ 0.50%
9'x30'x21' RIP-RAP
B12
B5
B2
6" PVC (TYP)
DB 16 STA. 6+13.5 24" DRAIN BASIN SILL=934.90 FL IN(17)=930.65 FL OUT=930.65
38.5 LF 10" PVC @ 1.00%
25.5 LF 8" PVC @ 1.00%
126.6 LF 8" PVC @ 1.00%
7+00
DB 15 STA. 5+95.6 24" DRAIN BASIN SILL=936.10 FL IN(16 (3))=930.41 FL IN(28)=932.48 FL OUT=930.41
11.8 LF 15" RCP @ 1.37%
17.9 LF 18" HDPE @ 1.31%
SOI 17 STA. 6+25.4 SIDE OPEN INLET (3.0'x3.0') TOP=950.50 OPENING=949.50 FL OUT=930.81
B8
VAN
CI 14 STA. 5+27.6 TYPE A INLET (3.0'x3.0') TOP=934.90 GUTTER=934.40 FL IN(15)=929.73 FL OUT=929.53
68.0 LF 18" HDPE @ 1.01%
CI 13 STA. 4+20.0 TYPE A INLET (3.0'x3.0') TOP=934.90 GUTTER=934.40 FL IN(14)=928.45 FL OUT=928.25
104.7 LF 24" HDPE @ 1.01%
94.0 LF 24" HDPE @ 0.50%
4+00
5+00
MAINT. SHED FF=935.50
107.6 LF 18" HDPE @ 1.00%
10' BUILDING LINE PER PLAT RECORDED IN BOOK ___ PAGE ___
10' BUILDING LINE (DTP)
15' UTILITY EASEMENT PER PLAT RECORDED IN BOOK ___ PAGE ___
NE WILSHIRE DRIVE (R/W VARIES)
B1
B11
B6
B9
UP

① NOTE:
1. SEE PAGE C0.02 FOR REFERENCE TO WILSHIRE HILLS PUBLIC IMPROVEMENT PLAN AND LIMITS OF WORK

CONSTRUCTION DOCUMENTS

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1775 West Main Street, Sedalia, MO 65301
660-826-8618
www.ess-inc.com
MO Engineering Corp. # 2004005018

N

SCALE: 1" = 20'

WILSHIRE HILLS PHASE III

3200 NE WILSHIRE DR
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

4/17/2024
MATTHEW AARON KRIETE
NUMBER PE-2007002811
Matthew A Kriete

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

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Date
JUNE 30, 2023

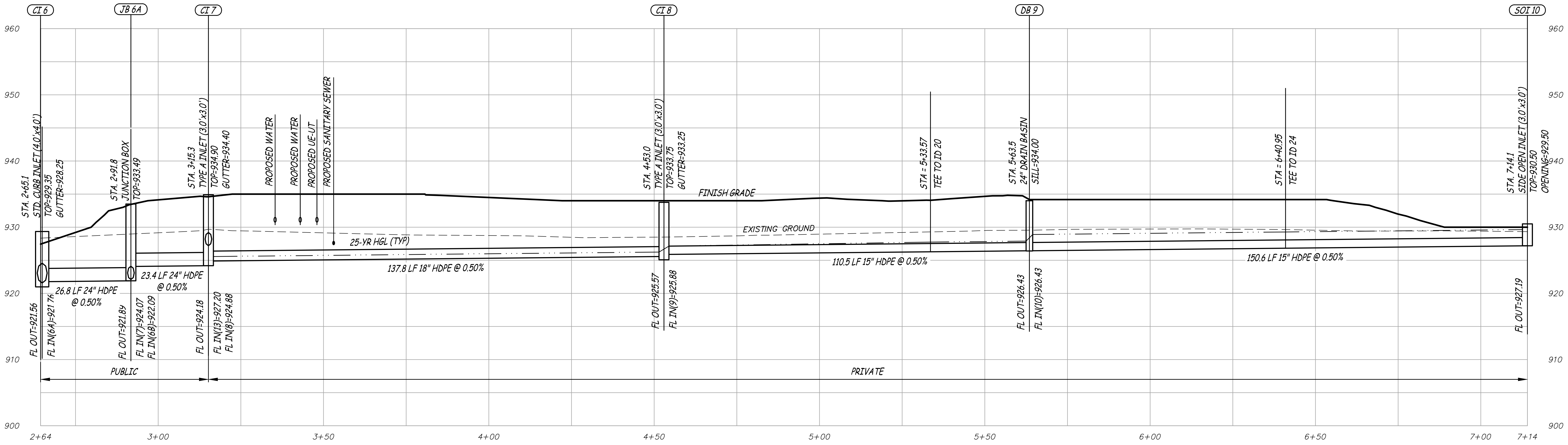
Revised	
①	FEBRUARY 22, 2024
②	APRIL 17, 2024

Design: ST Drawn: MJS

STORM SEWER PLAN

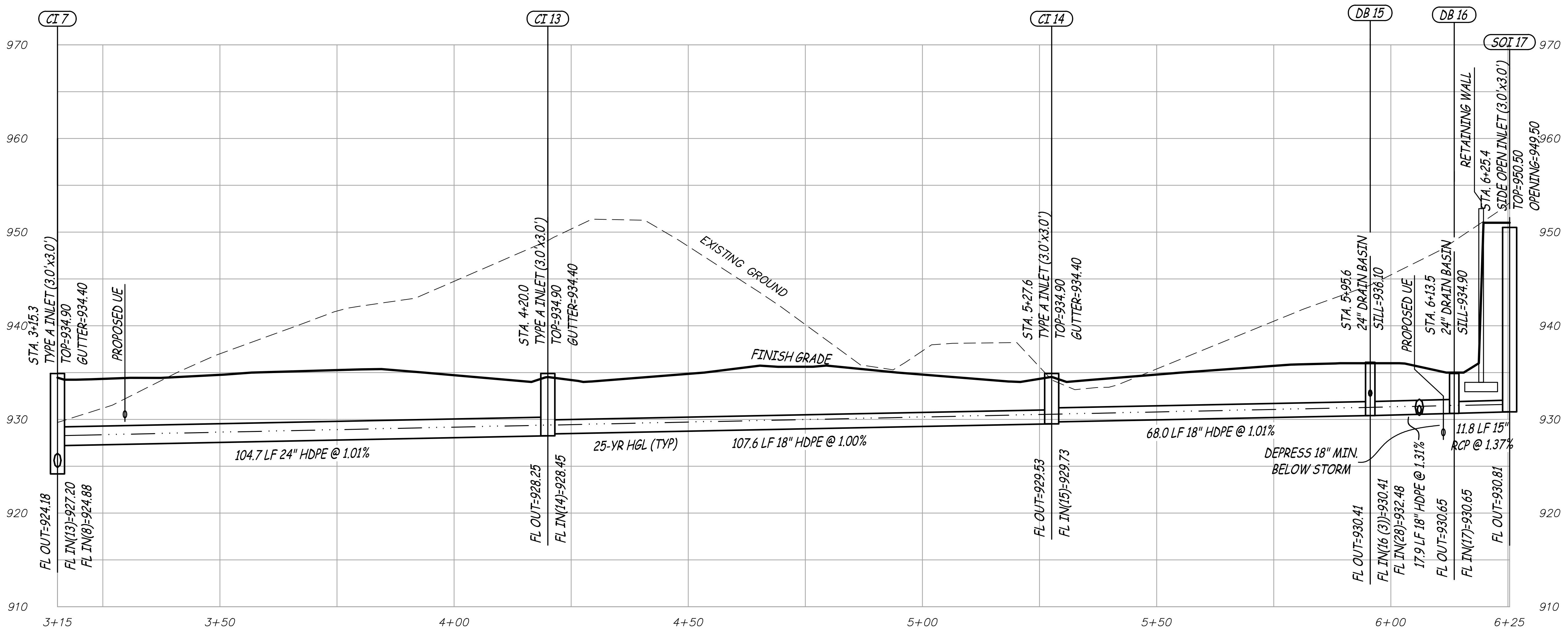
Sheet
C5.01

ES&S PROJECT NO. 15925



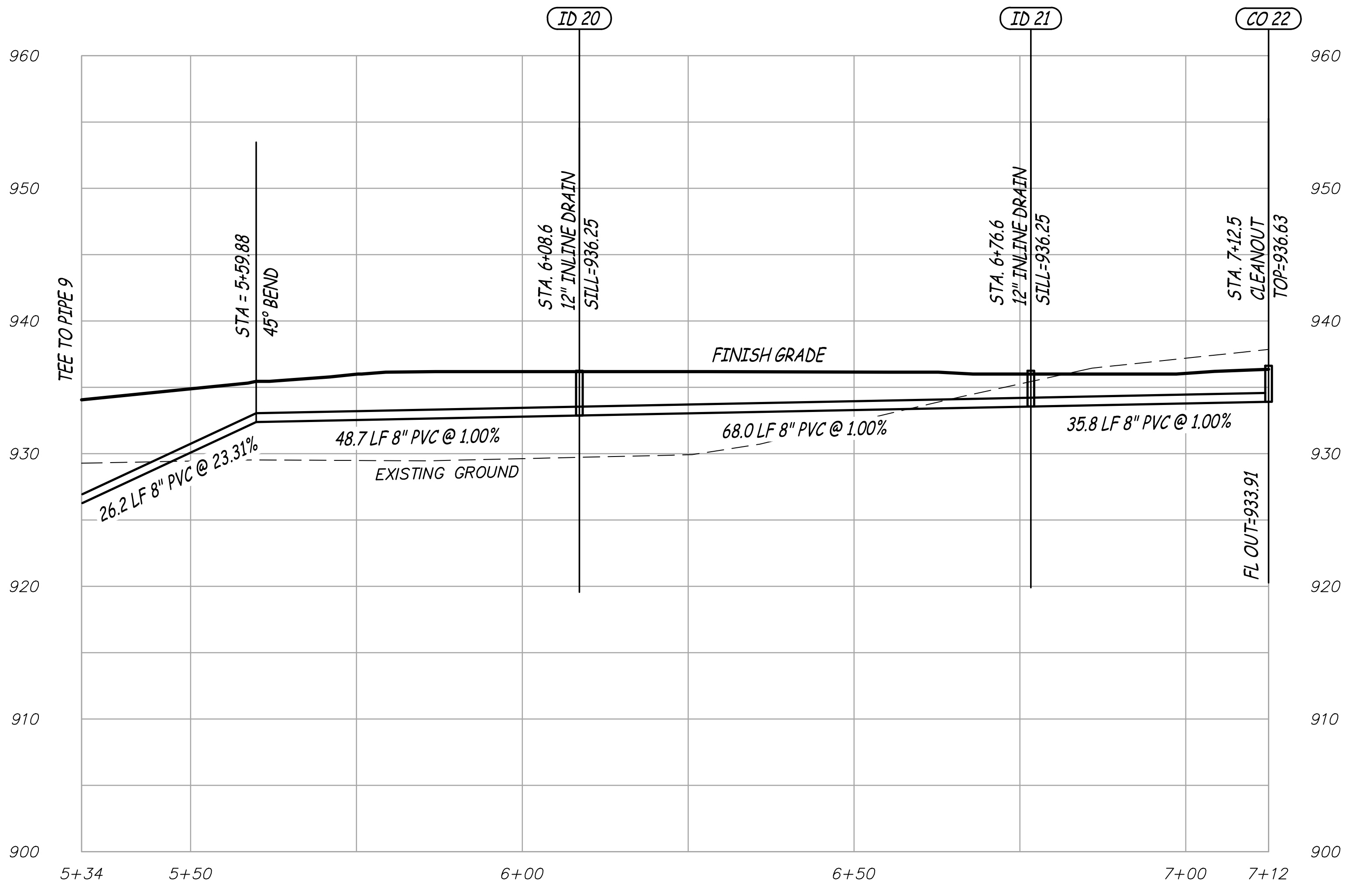
TMI 6 THRU SOI 10

SCALE – HORIZ. 1" = 20'
VERT. 1" = 10'



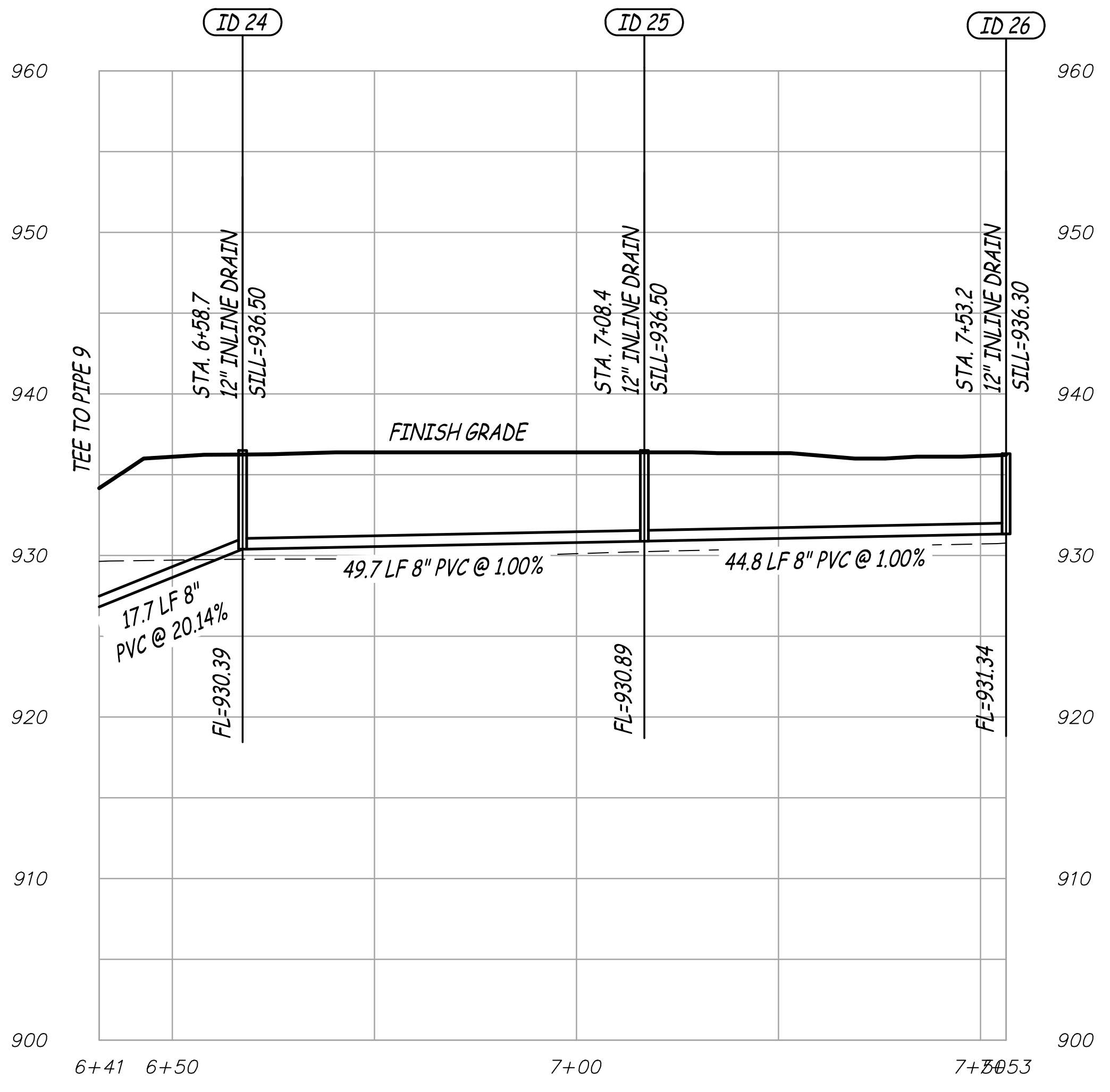
CI 7 THRU SOI 17 (PRIVATE)

SCALE – HORIZ. 1" = 20'
VERT. 1" = 10'



TEE 9 THRU CO 22 (PRIVATE)

SCALE – HORIZ. 1" = 20'
VERT. 1" = 10'



TEE 10 THRU ID 26 (PRIVATE)

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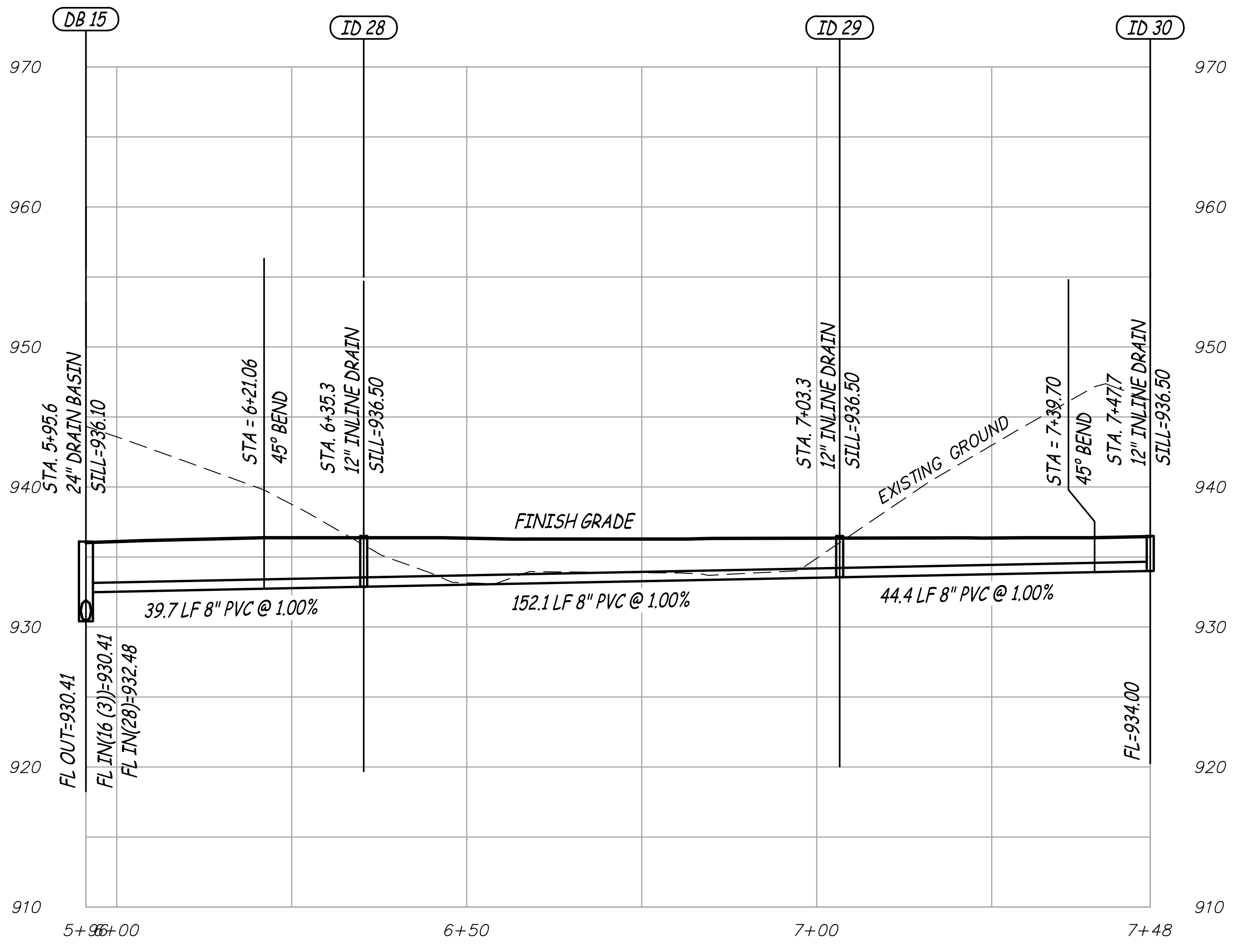
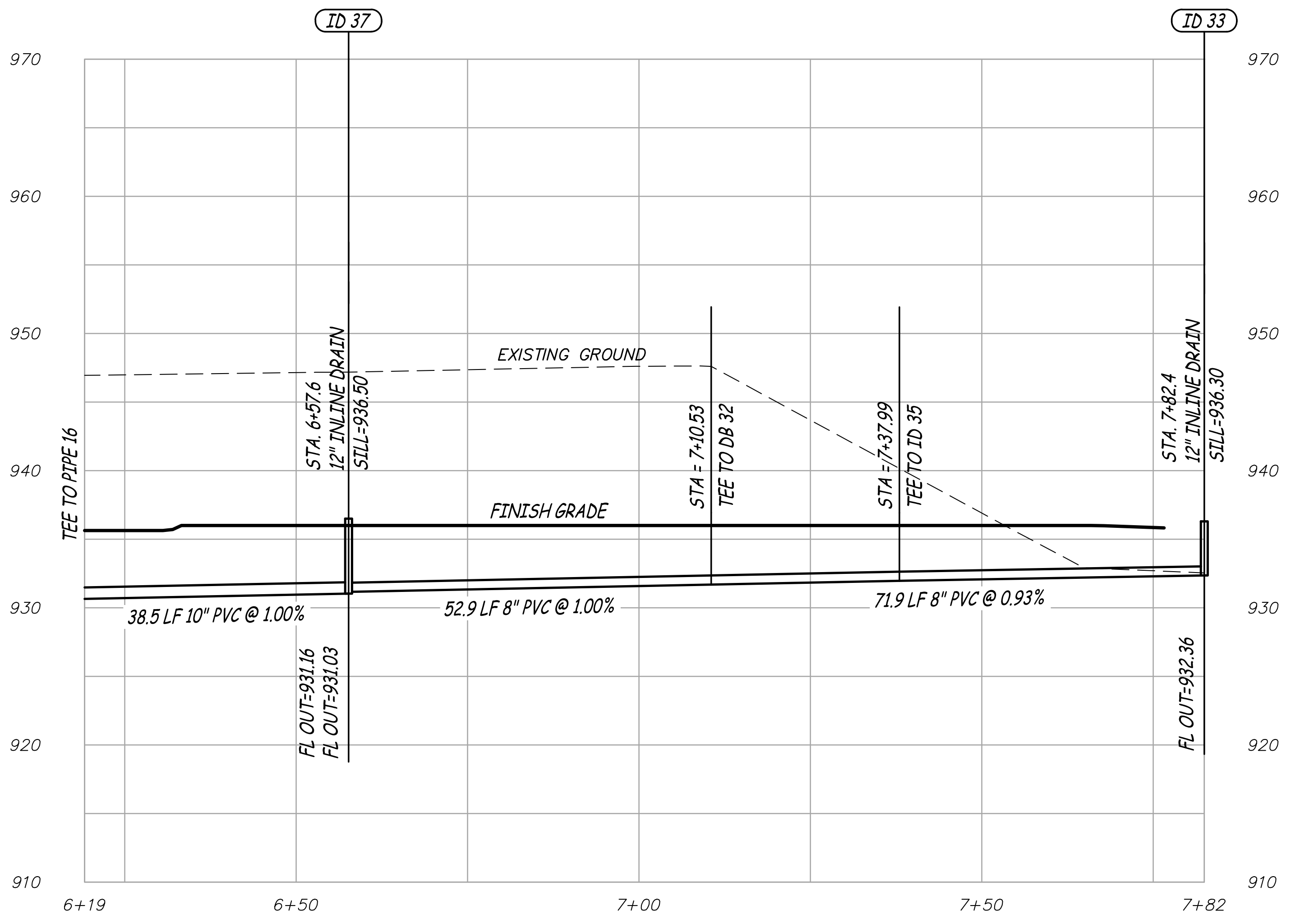
VERT. 1" = 10'



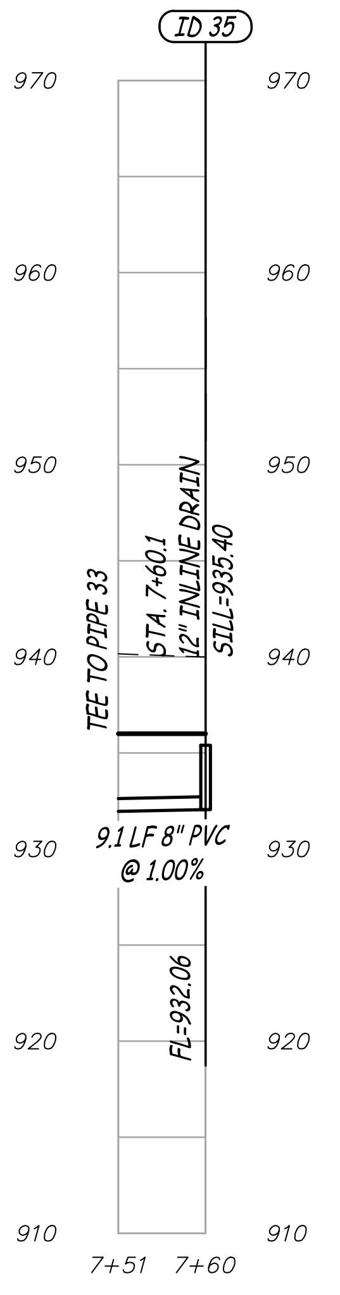
DB 15 THRU ID 30 (PRIVATE)

SCALE – HORIZ. 1" = 20'
VERT. 1" = 10'



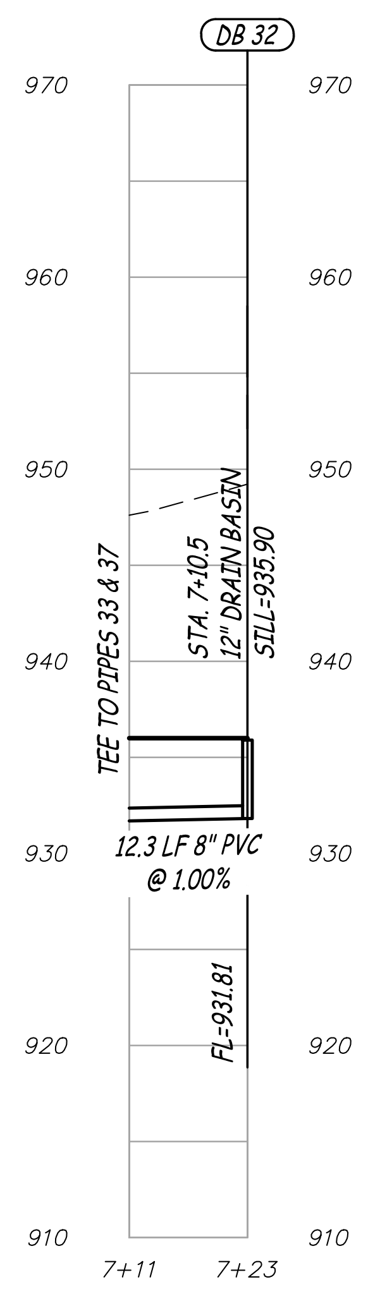
TEE 16 THRU ID 33

SCALE – HORIZ. 1" = 20'
VERT. 1" = 10'



TEE 33 THRU ID 35 (PRIVATE)

SCALE – HORIZ. 1" = 20'
VERT. 1" = 10'



DB 32 THRU TEE 33–37

SCALE – HORIZ. 1" = 20'
VERT. 1" = 10'

CONSTRUCTION DOCUMENTS

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MO Engineering Corp. # 2004005018

WILSHIRE HILLS PHASE III

3200 NE WILSHIRE DR
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

2/22/2024

MATTHEW AARON KRIETE
NUMBER
PE-2007002811

Matthew A. Kriete

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

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Date
JUNE 30, 2023

Revised
① FEBRUARY 22, 2024

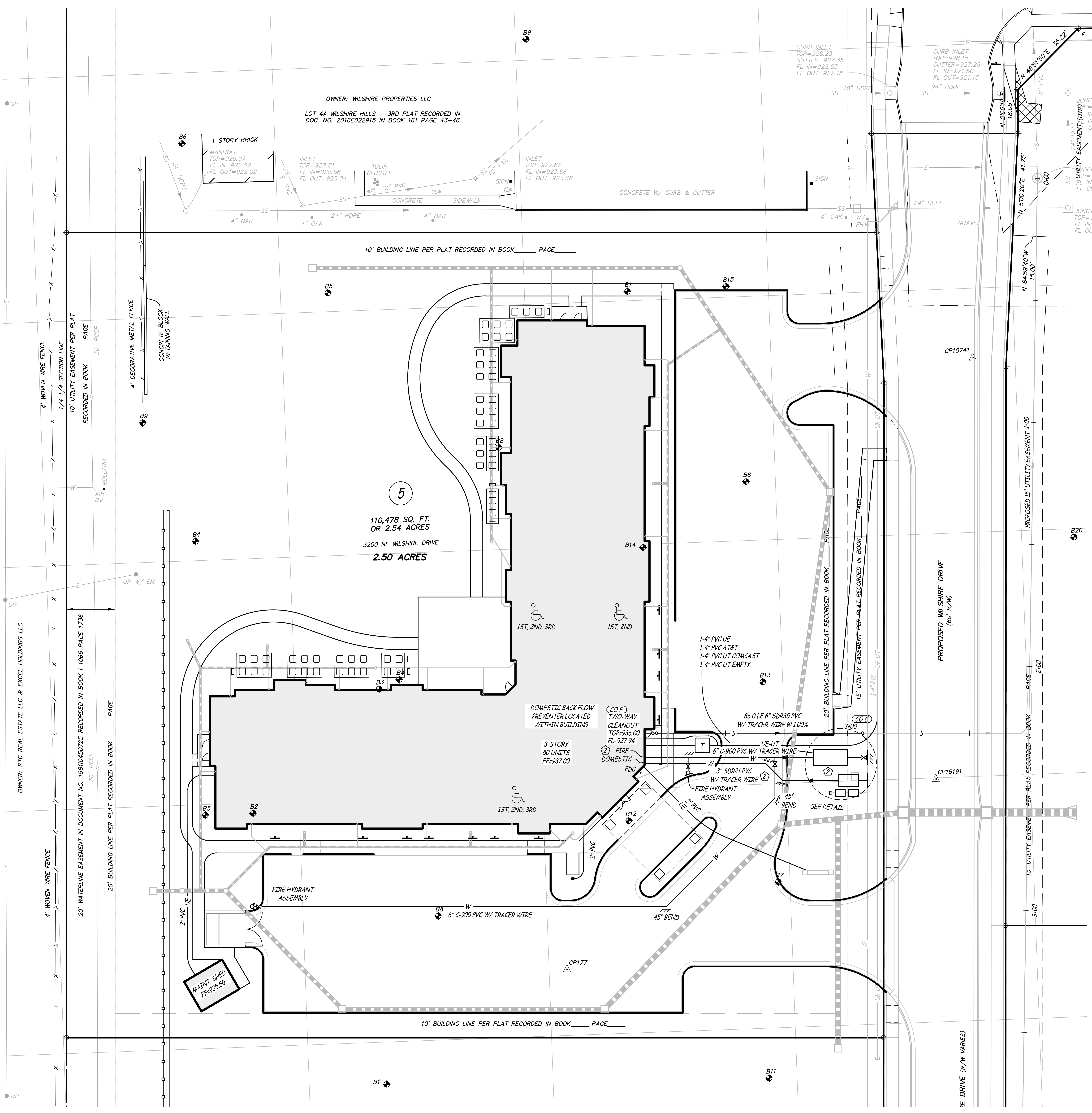
Design: ST Drawn: MJS

STORM SEWER PROFILES

Sheet
C6.01

ES&S PROJECT NO. 15925

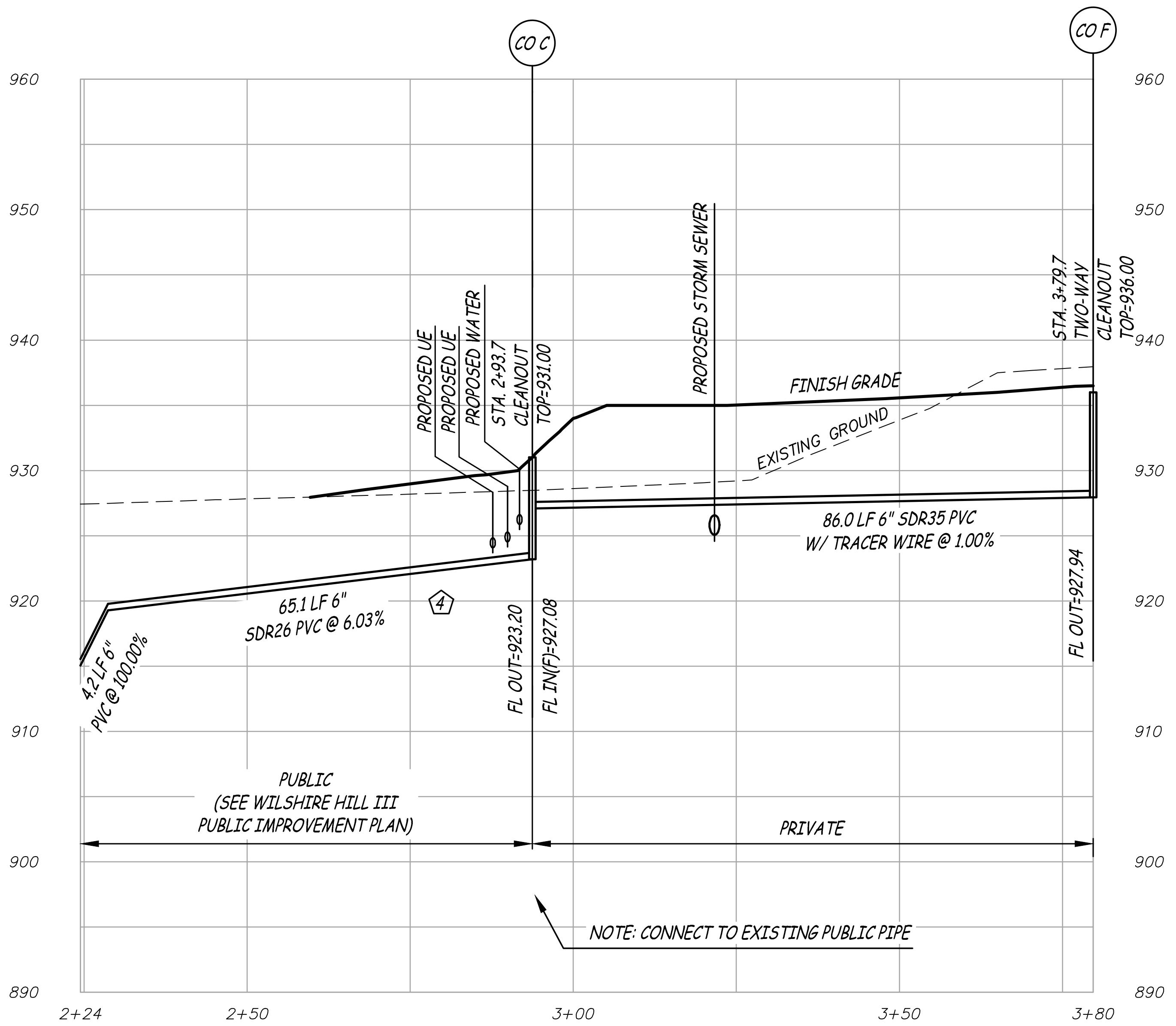
P:\GENERAL PROJECTS\15925E-JES-WILSHIRE-HILLS-3-ENG\CAD\15925 SITE PLAN.DWG 2/23/2024


OWNER: WILSHIRE PROPERTIES LLC
LOT 4A WILSHIRE HILLS – 3RD PLAT RECORDED IN DOC. NO. 2016E022915 IN BOOK 161 PAGE 43-46
1 STORY BRICK
MANHOLE TOP=929.97 FL IN=922.02 FL OUT=922.02
INLET TOP=927.81 FL IN=925.56 FL OUT=925.04
TULIP CLUSTER
INLET TOP=927.82 FL IN=923.66 FL OUT=923.68
CONCRETE W/ CURB & GUTTER
CURB INLET TOP=928.23 GUTTER=927.35 FL IN=922.53 FL OUT=922.18
CURB INLET TOP=928.15 GUTTER=927.29 FL IN=921.50 FL OUT=921.15
JUNCTION BOX TOP=928.30 IN(E)=916.70 IN(W)=920.3 OUT=916.50
MANHOLE TOP=927.84 FL IN=912.71 FL OUT=912.65
JUNCTION BOX TOP=928.00 FL IN=917.90 FL OUT=917.70
10' BUILDING LINE PER PLAT RECORDED IN BOOK____ PAGE____
4' WOVEN WIRE FENCE
1/4 1/4 SECTION LINE
10' UTILITY EASEMENT PER PLAT RECORDED IN BOOK____ PAGE____
4' DECORATIVE METAL FENCE
CONCRETE BLOCK RETAINING WALL
5
110,478 SQ. FT. OR 2.54 ACRES
3200 NE WILSHIRE DRIVE
2.50 ACRES
1ST, 2ND, 3RD
1ST, 2ND
DOMESTIC BACK FLOW PREVENTER LOCATED WITHIN BUILDING
CO F TWO-WAY CLEANOUT TOP=936.00 FL=927.94
3-STORY 50 UNITS FF=937.00
FIRE
DOMESTIC
FDC
1-4" PVC UE
1-4" PVC AT&T
1-4" PVC UT COMCAST
1-4" PVC UT EMPTY
86.0 LF 6" SDR35 PVC W/ TRACER WIRE @ 1.00%
CO C
UE-UT
6" C-900 PVC W/ TRACER WIRE
3" SDR21 PVC W/ TRACER WIRE
FIRE HYDRANT ASSEMBLY
45° BEND
SEE DETAIL
2" PVC
UE
OWNER: RTC REAL ESTATE LLC & EXCEL HOLDINGS LLC
20' WATERLINE EASEMENT IN DOCUMENT NO. 1981I045025 RECORDED IN BOOK I 1066 PAGE 1736
20' BUILDING LINE PER PLAT RECORDED IN BOOK____ PAGE____
FIRE HYDRANT ASSEMBLY
6" C-900 PVC W/ TRACER WIRE
45° BEND
MAINT. SHED FF=935.50
CP177
CP10741
CP16191
10' BUILDING LINE PER PLAT RECORDED IN BOOK____ PAGE____
20' BUILDING LINE PER PLAT RECORDED IN BOOK____ PAGE____
15' UTILITY EASEMENT PER PLAT RECORDED IN BOOK____ PAGE____
PROPOSED WILSHIRE DRIVE (60' R/W)
PROPOSED 15' UTILITY EASEMENT
15' UTILITY EASEMENT PER PLAT RECORDED IN BOOK____ PAGE____
S 1°38'30"W 15.00'
21.55'
N 46°51'50"E 35.22'
N 20°51'03"E 18.05'
N 5°00'20"E 41.75'
S 4°57'20"W 70.75'
N 84°59'40"W 15.00'
UTILITY EASEMENT (OTP)
GRAVEL
DRIVE (R/W VARIES)

UTILITY NOTES

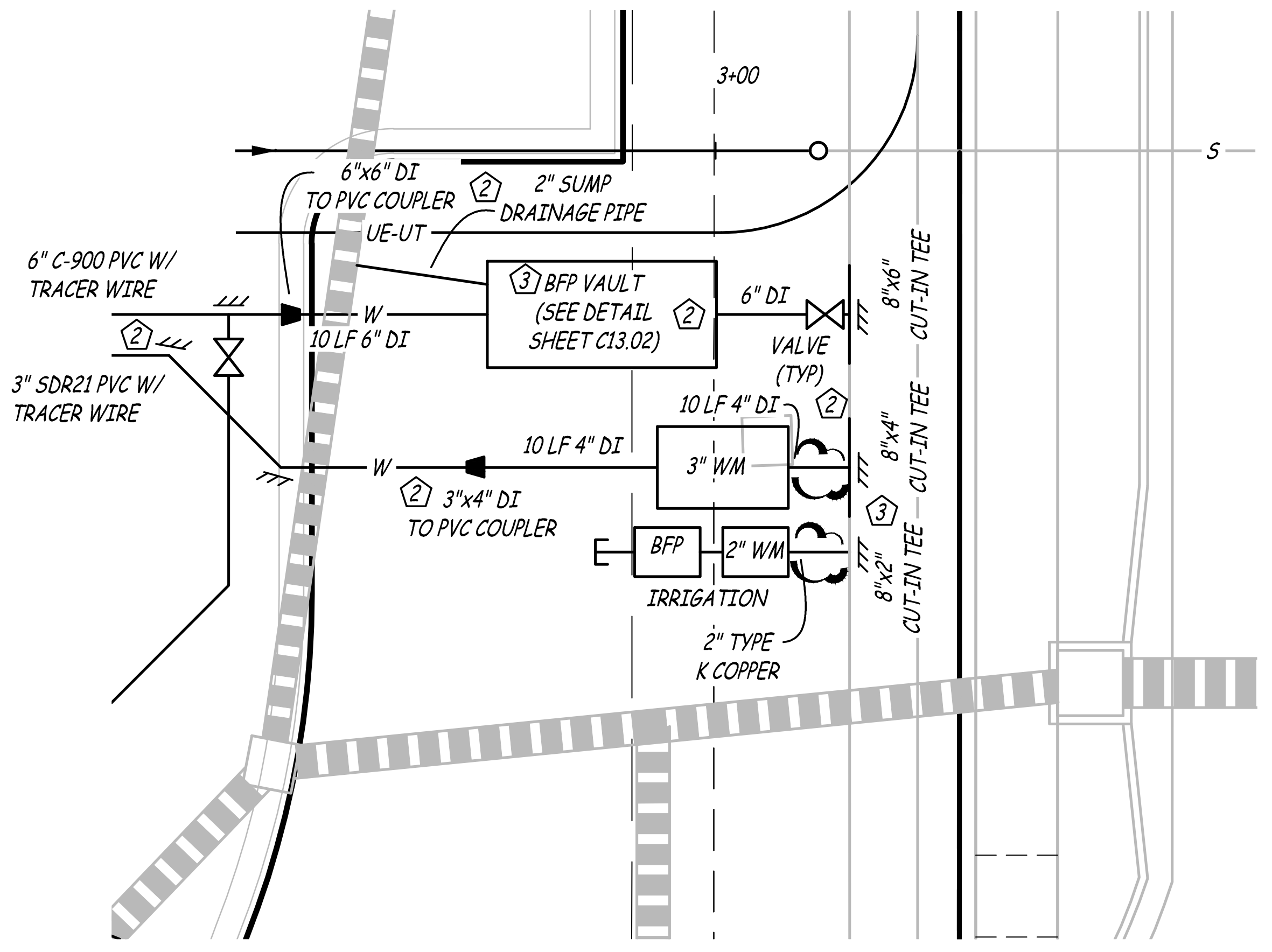
1. ALL ISSUES PERTAINING TO LIFE SAFETY AND PROPERTY PROTECTION FROM THE HAZARDS OF FIRE, EXPLOSION OR DANGEROUS CONDITIONS IN NEW AND EXISTING BUILDINGS, STRUCTURES AND PREMISES, AND TO THE SAFETY TO FIRE FIGHTERS AND EMERGENCY RESPONDERS DURING EMERGENCY OPERATIONS, SHALL BE IN ACCORDANCE WITH THE 2018 INTERNATIONAL FIRE CODE.

2. PRIOR TO ANY COMBUSTIBLE CONSTRUCTION, WILSHIRE DRIVE SHALL BE COMPLETED THROUGH TO STROTHER ROAD, ALL PUBLIC AND PRIVATE HYDRANTS SHALL BE IN PLACE AND OPERABLE, AND THE APARTMENT PARKING LOT'S ASPHALT BASE SHALL BE IN PLACE.


CO C
CO F
960
950
940
930
920
910
900
890
PROPOSED UE
PROPOSED UE
PROPOSED WATER
STA. 2+93.7 CLEANOUT TOP=931.00
PROPOSED STORM SEWER
FINISH GRADE
EXISTING GROUND
STA. 3+79.7 TWO-WAY CLEANOUT TOP=936.00
86.0 LF 6" SDR35 PVC W/ TRACER WIRE @ 1.00%
65.1 LF 6" SDR26 PVC @ 6.03%
4
4.2 LF 6" PVC @ 100.00%
FL OUT=923.20
FL IN(F)=927.08
FL OUT=927.94
PUBLIC (SEE WILSHIRE HILL III PUBLIC IMPROVEMENT PLAN)
PRIVATE
NOTE: CONNECT TO EXISTING PUBLIC PIPE
2+24
2+50
3+00
3+50
3+80

SERVICE CONNECTION THRU CO F (PRIVATE)

SCALE – HORIZ. 1" = 20'
VERT. 1" = 10'



DETAIL

SCALE: 1" = 10'

① NOTE:
1. SEE PAGE C0.02 FOR REFERENCE TO WILSHIRE HILLS PUBLIC IMPROVEMENT PLAN AND LIMITS OF WORK

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N

0 1"
SCALE: 1" = 20'

WILSHIRE HILLS PHASE III

3200 NE WILSHIRE DR
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

4/17/24

MATTHEW AARON KRIETE
NUMBER PE-2007002811

Matthew A Kriete

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

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Date
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Revised	
1	FEBRUARY 6, 2024
2	MARCH 27, 2024
3	APRIL 17, 2024

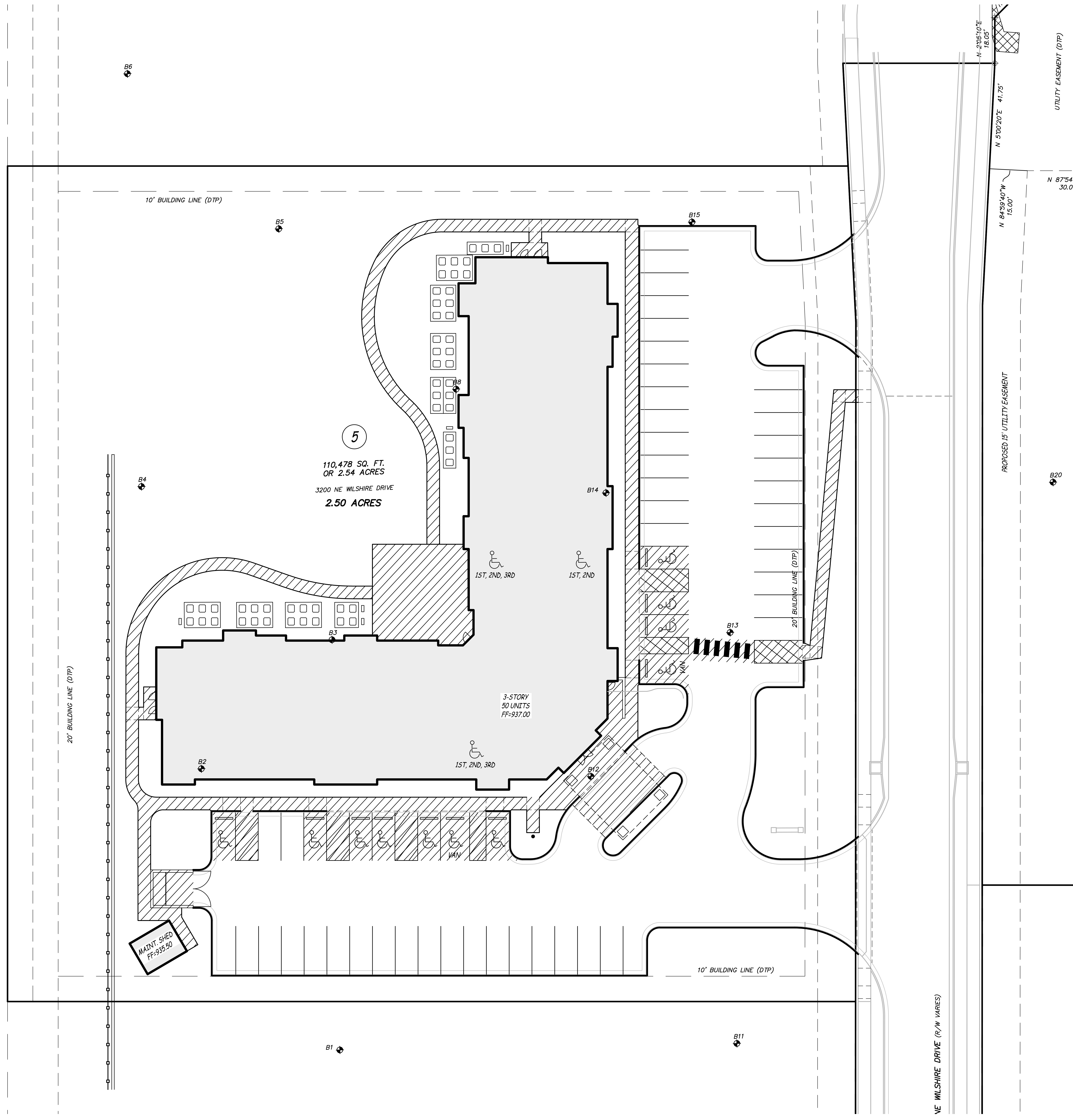
Design: ST Drawn: MJS

UTILITY PLAN & PROFILE

Sheet
C7.01

ES&S PROJECT NO. 15925

CONSTRUCTION DOCUMENTS



ACCESSIBILITY NOTES

CODE REQUIRES THE FOLLOWING:

1. SIDEWALK SHALL NOT EXCEED 5% (1'–0" IN 20'–0") SLOPE WITH A 2% (1'–0" IN 50'–0") CROSS–SLOPE AND SHALL BE 5' WIDE EXCEPT AS NOTED ON SITE PLAN. PROVIDE STAIRS, RAMPS, CURBS, ETC., AS NOTED AND DETAILED.
2. PARKING AREAS FOR ACCESSIBLE SPACES AND ACCESS AISLE SHALL NOT EXCEED A 2% (1'–0" IN 50'–0") IN ANY DIRECTION. OTHER PORTIONS OF THE ACCESSIBLE ROUTE SHALL NOT EXCEED A 5% (1'–0" IN 20'–0") LONGITUDINAL SLOPE NOR A 2% (1'–0" IN 50'–0") CROSS–SLOPE. OTHER PARKING AREAS AND CROSS–SLOPE OR DRIVES SHALL NOT EXCEED A 5% (1'–0" IN 20'–0") SLOPE.
3. RAMPS SHALL NOT EXCEED 8.33% (1'–0" IN 12'–0") SLOPE WITH A 2% (1'–0" IN 50'–0") CROSS–SLOPE AND SHALL BE 5' WIDE EXCEPT AS NOTED ON SITE LAYOUT PLAN. RISE OF RAMP SHALL NOT EXCEED 6".
4. ALL SIDEWALK INTERSECTIONS SHALL HAVE A 5' x 5' LANDING AT 1/4" PER 1' MAX SLOPE IN ALL DIRECTIONS.

THESE PLANS AND SPECIFICATIONS HAVE BEEN DESIGNED WITH TOLERANCE BELOW THE CODE TO IMPROVE POST CONSTRUCTION COMPLIANCE. REFERENCE THE PLAN SHEETS AND DETAILS FOR SPECIFIED GRADES AND MAXIMUM GRADES.

FAIR HOUSING ACCESSIBILITY GUIDELINES

(FROM FAIR HOUSING ACT DESIGN MANUAL, REVISED APRIL 1998)

THE DESIGN REQUIREMENTS OF THE GUIDELINES TO WHICH NEW BUILDINGS AND DWELLING UNITS MUST COMPLY ARE PRESENTED IN ABRIDGED FORM BELOW. DWELLING UNITS ARE NOT SUBJECT TO THESE REQUIREMENTS ONLY IN THE RARE INSTANCE WHERE THERE ARE EXTREMES OF TERRAIN OR UNUSUAL CHARACTERISTICS OF THE SITE.

REQUIREMENT 1

ACCESSIBLE BUILDING ENTRANCE ON AN ACCESSIBLE ROUTE:
COVERED MULTIFAMILY DWELLINGS MUST HAVE AT LEAST ONE BUILDING ENTRANCE ON AN ACCESSIBLE ROUTE, UNLESS IT IS IMPRACTICAL TO DO SO BECAUSE OF TERRAIN OR UNUSUAL CHARACTERISTICS OF THE SITE. FOR ALL SUCH DWELLINGS WITH A BUILDING ENTRANCE ON AN ACCESSIBLE ROUTE THE FOLLOWING SIX REQUIREMENTS APPLY.

REQUIREMENT 2

ACCESSIBLE AND USABLE PUBLIC AND COMMON USE AREAS:
PUBLIC AND COMMON USE AREAS MUST BE READILY ACCESSIBLE TO AND USABLE BY PEOPLE WITH DISABILITIES.

REQUIREMENT 3

USABLE DOORS:
ALL DOORS DESIGNED TO ALLOW PASSAGE INTO AND WITHIN ALL PREMISES MUST BE SUFFICIENTLY WIDE TO ALLOW PASSAGE BY PERSONS IN WHEELCHAIRS. SEE ARCH PLANS.

REQUIREMENT 4

ACCESSIBLE ROUTE INTO AND THROUGH THE COVERED DWELLING UNIT:
THERE MUST BE AN ACCESSIBLE ROUTE INTO AND THROUGH THE DWELLING UNITS, PROVIDING ACCESS FOR PEOPLE WITH DISABILITIES THROUGHOUT THE UNIT. SEE ARCH PLANS

REQUIREMENT 5

LIGHT SWITCHES, ELECTRICAL OUTLETS, THERMOSTATS AND OTHER ENVIRONMENTAL CONTROLS IN ACCESSIBLE LOCATIONS:
ALL PREMISES WITHIN THE DWELLING UNITS MUST CONTAIN LIGHT SWITCHES, ELECTRICAL OUTLETS, THERMOSTATS AND OTHER ENVIRONMENTAL CONTROLS IN ACCESSIBLE LOCATIONS. SEE ARCH PLANS

REQUIREMENT 6

REINFORCED WALLS FOR GRAB BARS:
ALL PREMISES WITHIN DWELLING UNITS MUST CONTAIN REINFORCEMENTS IN BATHROOM WALLS TO ALLOW LATER INSTALLATION OF GRAB BARS AROUND TOILET, TUB, SHOWER STALL AND SHOWER SEAT, WHERE SUCH FACILITIES ARE PROVIDED. SEE ARCH PLANS.

REQUIREMENT 7

USABLE KITCHENS AND BATHROOMS:
DWELLING UNITS MUST CONTAIN USABLE KITCHENS AND BATHROOMS SUCH THAT AN INDIVIDUAL WHO USES A WHEELCHAIR CAN MANEUVER ABOUT THE SPACE. SEE ARCH PLANS.

NOTE: DESCRIPTIONS OF THE SEVEN REQUIREMENTS ABOVE ARE OF AN ABBREVIATED NATURE. REFER TO THE COMPLETE HUD FAIR HOUSING ACCESSIBILITY GUIDELINES FOR DETAILED DESCRIPTION OF EACH REQUIREMENT. REFER TO NOTES AND DETAILS ON VARIOUS PLAN SHEETS FOR CERTAIN SPECIFIC REQUIREMENTS OF THE FAIR HOUSING ACCESSIBILITY GUIDELINES (FHA) AND THE UNIFORM FEDERAL ACCESSIBILITY STANDARDS (UFAS).

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N

0 1"
SCALE: 1" = 20'

WILSHIRE HILLS PHASE III
3200 NE WILSHIRE DR
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

5/1/2024
MATTHEW AARON KRIETE
NUMBER
PE-2007002811

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

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JUNE 30, 2023

Revised	
1	FEBRUARY 22, 2024
3	MAY 1, 2024

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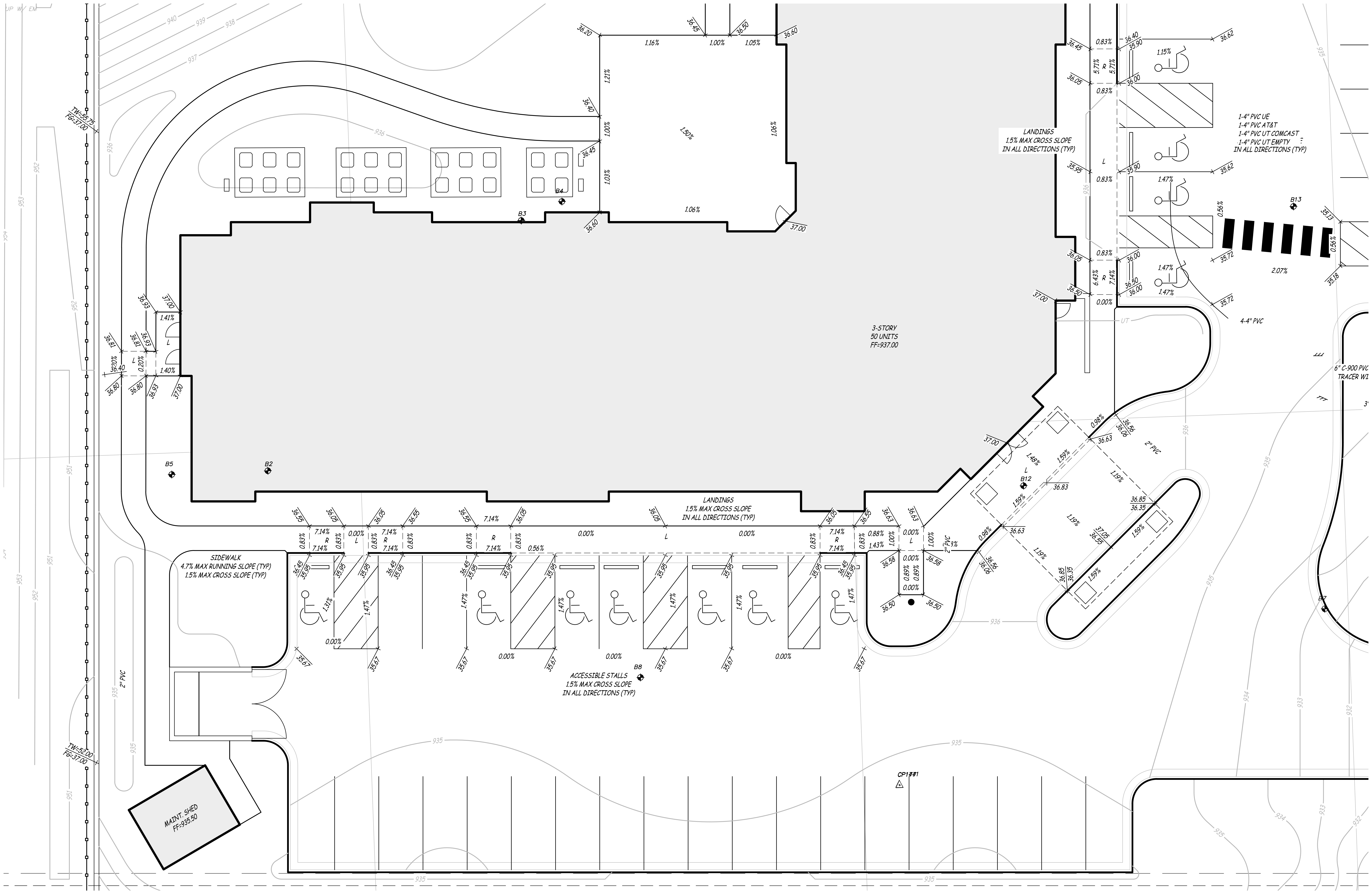
ACCESSIBILITY PLAN

Sheet
C8.01

ES&S PROJECT NO. 15925

P:\GENERAL PROJECTS\15925-JES-WILSHIRE-HILLS-3-ENG\CAD\15925 SITE PLAN.DWG 5/1/2024



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0 1"
SCALE: 1" = 10'

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2/22/2024

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1	FEBRUARY 22, 2024

CONSTRUCTION DOCUMENTS

Design: ST Drawn: MJS

ACCESSIBILITY PLAN

Sheet
C8.02

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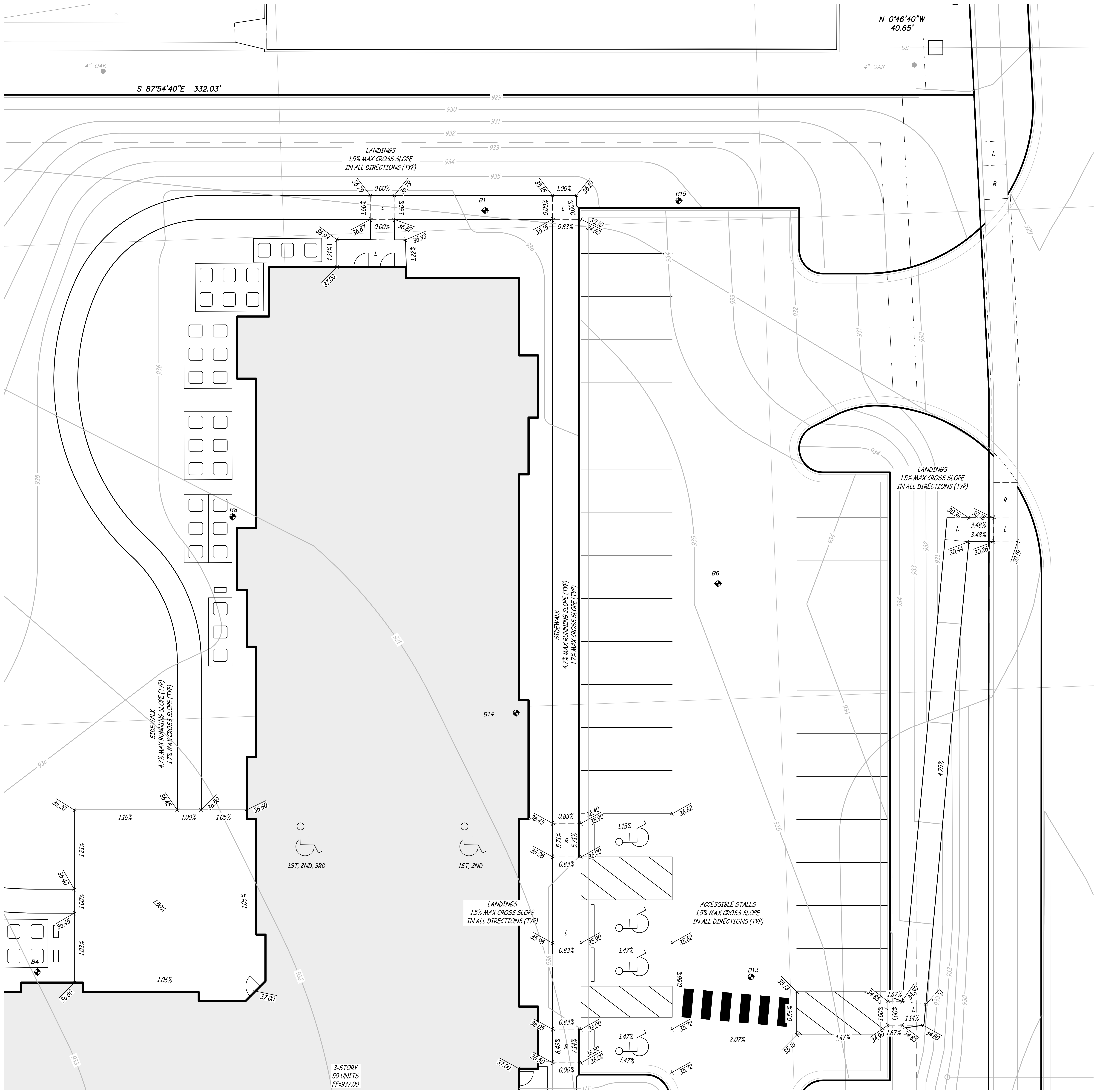

① NOTE:
1. REFERENCE TO PUBLIC IMPROVEMENT PLAN

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N

0 1"
SCALE: 1" = 10'

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5/1/2024

MATTHEW AARON KRIETE
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③	MAY 1, 2024

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ACCESSIBILITY PLAN

Sheet
C8.03

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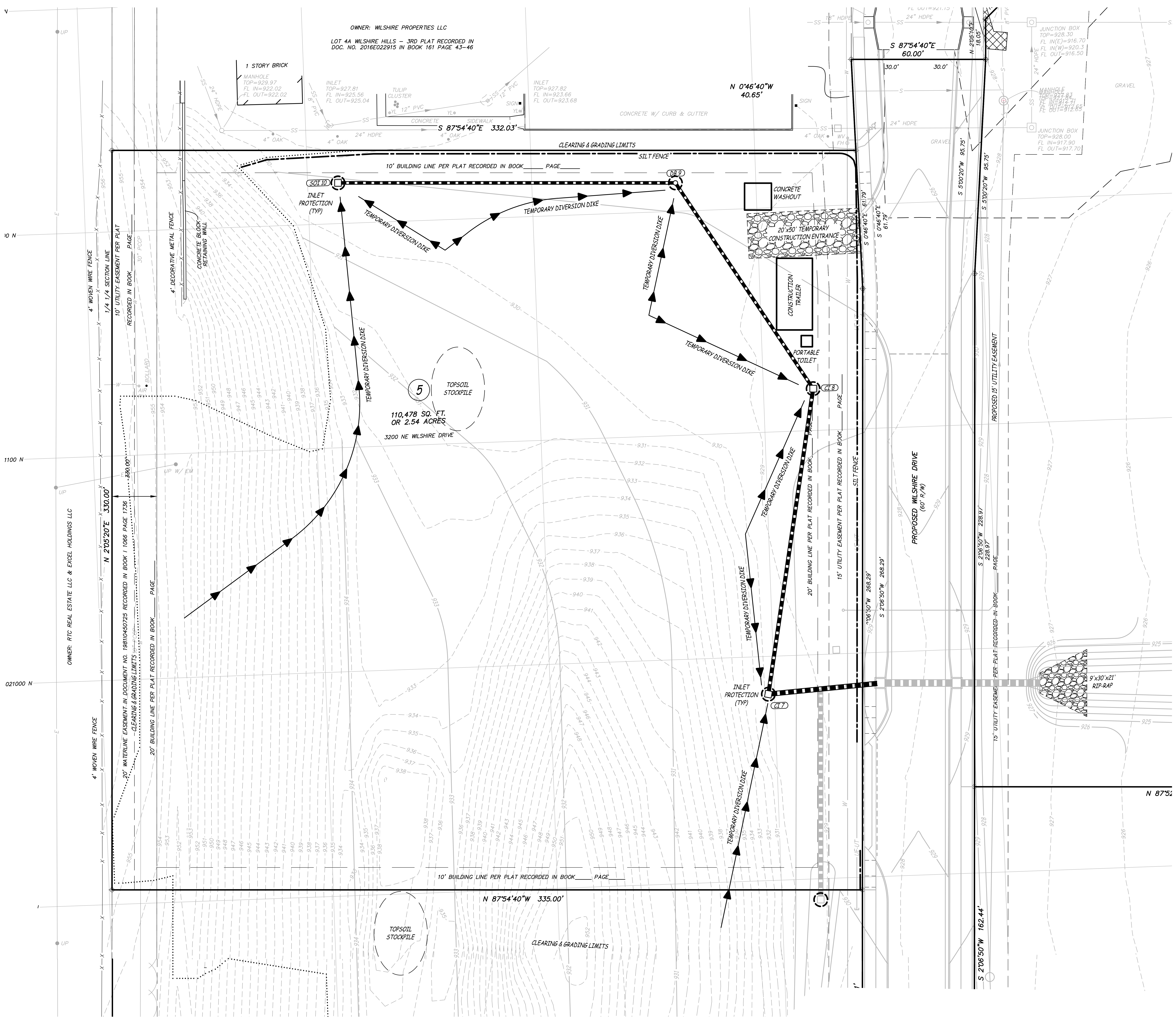
CONSTRUCTION DOCUMENTS



OWNER: WILSHIRE PROPERTIES LLC
LOT 4A WILSHIRE HILLS – 3RD PLAT RECORDED IN DOC. NO. 2016E022915 IN BOOK 161 PAGE 43–46
1 STORY BRICK
MANHOLE TOP=929.97 FL IN=922.02 FL OUT=922.02
INLET TOP=927.81 FL IN=925.56 FL OUT=925.04
TULIP CLUSTER
INLET TOP=927.82 FL IN=923.66 FL OUT=923.68
CONCRETE W/ CURB & GUTTER
N 0°46'40"W 40.65'
S 87°54'40"E 332.03'
S 87°54'40"E 60.00'
30.0'
30.0'
N 2°05'20"E 18.05'
JUNCTION BOX TOP=928.30 FL IN(E)=916.70 FL IN(W)=920.3 FL OUT=916.50
JUNCTION BOX TOP=928.00 FL IN=917.90 FL OUT=917.70
GRAVEL
24" HDPE
12" PVC
4" OAK
SIGN
CLEARING & GRADING LIMITS
SILT FENCE
10' BUILDING LINE PER PLAT RECORDED IN BOOK_____ PAGE_____
SOI 10
DI 9
INLET PROTECTION (TYP)
TEMPORARY DIVERSION DIKE
CONCRETE WASHOUT
20'x50' TEMPORARY CONSTRUCTION ENTRANCE
CONSTRUCTION TRAILER
PORTABLE TOILET
CI 8
CI 7
S 0°46'40"E 61.79'
S 5°00'20"W 95.75'
4' WOVEN WIRE FENCE
1/4 1/4 SECTION LINE
10' UTILITY EASEMENT PER PLAT RECORDED IN BOOK _____ PAGE _____
4' DECORATIVE METAL FENCE
CONCRETE BLOCK RETAINING WALL
5
TOPSOIL STOCKPILE
110,478 SQ. FT. OR 2.54 ACRES
3200 NE WILSHIRE DRIVE
N 2°05'20"E 330.00'
OWNER: RTC REAL ESTATE LLC & EXCEL HOLDINGS LLC
20' WATERLINE EASEMENT IN DOCUMENT NO. 1981I0450725 RECORDED IN BOOK I 1066 PAGE 1736
CLEARING & GRADING LIMITS
20' BUILDING LINE PER PLAT RECORDED IN BOOK _____ PAGE _____
20' BUILDING LINE PER PLAT RECORDED IN BOOK _____ PAGE _____
15' UTILITY EASEMENT PER PLAT RECORDED IN BOOK _____ PAGE _____
SILT FENCE
S 2°06'50"W 268.29'
PROPOSED WILSHIRE DRIVE (60' R/W)
PROPOSED 15' UTILITY EASEMENT
S 2°06'50"W 228.97'
15' UTILITY EASEMENT PER PLAT RECORDED IN BOOK _____ PAGE
9'x30'x21' RIP-RAP
N 87°52'
10' BUILDING LINE PER PLAT RECORDED IN BOOK_____ PAGE_____
N 87°54'40"W 335.00'
TOPSOIL STOCKPILE
CLEARING & GRADING LIMITS
S 2°06'50"W 162.44'
1100 N
021000 N
UP
UP W/ EM
AIR

N

0 1"

SCALE: 1" = 20'

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WILSHIRE HILLS PHASE III

STREET ADDRESS
LEE'S SUMMIT JACKSON COUNTY, MISSOURI

1/23/2024

MATTHEW AARON KRIETE
NUMBER PE-2007002811

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

IF ORIGINAL SIGNATURE OR DIGITAL AUTHENTICATION IS NOT PRESENT THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.

Date
JUNE 30, 2023

Revised
① JANUARY 23, 2024

Design: ST Drawn: MJS

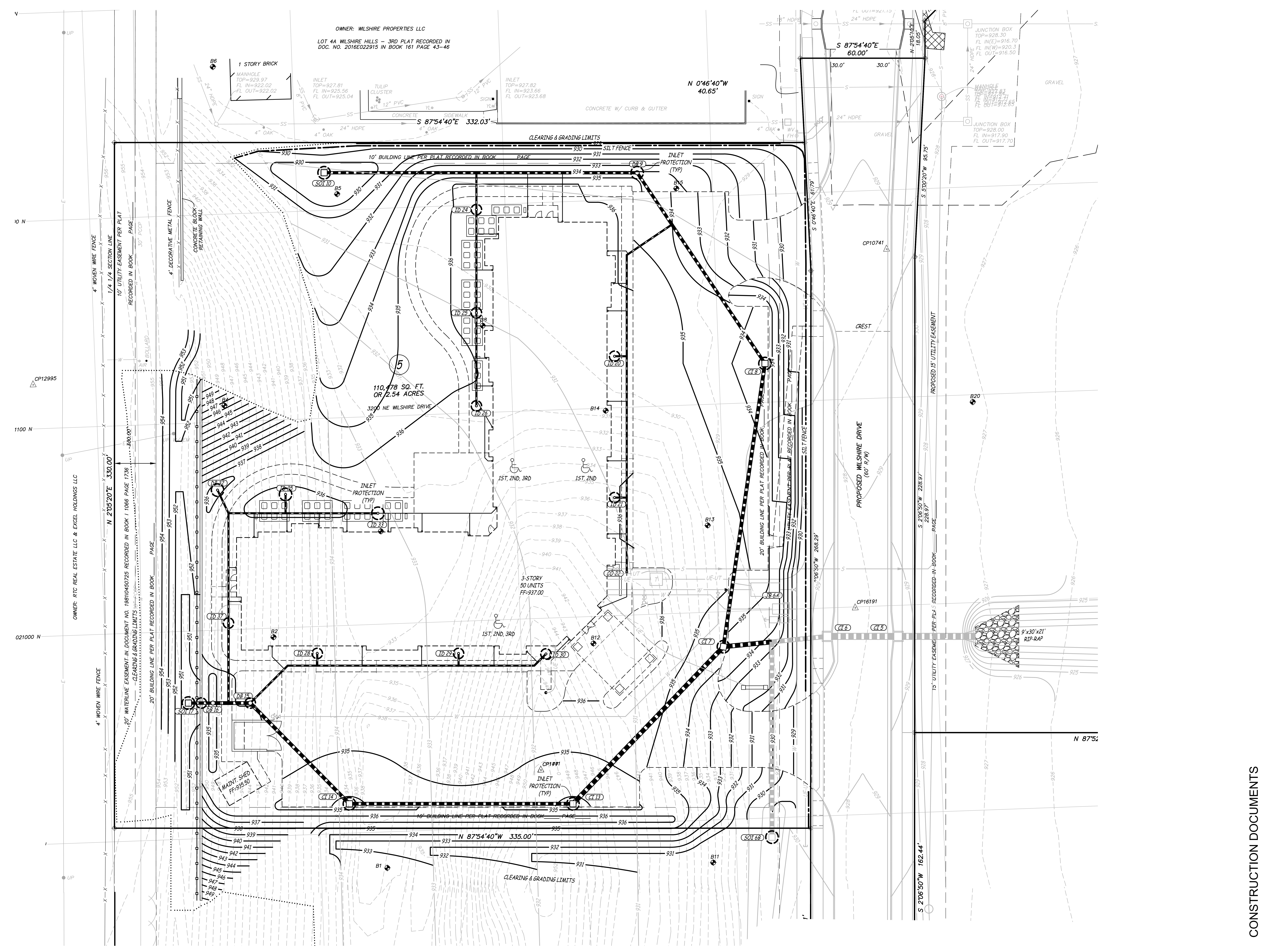
INITIAL EROSION CONTROL PLAN

Sheet
C9.01

ES&S PROJECT NO. 15925

CONSTRUCTION DOCUMENTS

P:\GENERAL PROJECTS\15925E–JES–WILSHIRE–HILLS–3–ENG\CAD\15925 EROSION.DWG 4/19/2024


OWNER: WILSHIRE PROPERTIES LLC
LOT 4A WILSHIRE HILLS – 3RD PLAT RECORDED IN DOC. NO. 2016E022915 IN BOOK 161 PAGE 43–46
1 STORY BRICK
MANHOLE TOP=929.97 FL IN=922.02 FL OUT=922.02
INLET TOP=927.81 FL IN=925.56 FL OUT=925.04
INLET TOP=927.82 FL IN=923.66 FL OUT=923.68
TULIP CLUSTER
CONCRETE W/ CURB & GUTTER
S 87°54'40"E 332.03'
N 0°46'40"W 40.65'
S 87°54'40"E 60.00'
30.0' 30.0'
JUNCTION BOX TOP=928.30 FL IN(E)=916.70 FL IN(W)=920.3 FL OUT=916.50
JUNCTION BOX TOP=928.00 FL IN=917.90 FL OUT=917.70
CLEARING & GRADING LIMITS
SILT FENCE
10' BUILDING LINE PER PLAT RECORDED IN BOOK ___ PAGE ___
INLET PROTECTION (TYP)
SOI 10
DB 9
ID 24
ID 25
ID 20
ID 21
ID 22
ID 26
ID 30
ID 33
ID 36
ID 37
ID 28
ID 29
DB 15
DB 16
DB 32
SOI 17
SOI 6B
CI 5
CI 6
CI 7
CI 8
CI 13
CI 14
IB 6A
110,478 SQ. FT. OR 2.54 ACRES
3200 NE WILSHIRE DRIVE
3-STORY 50 UNITS FF=937.00
1ST, 2ND, 3RD
1ST, 2ND
MAINT. SHED FF=935.50
CP10741
CP12995
CP16191
CP1771
CREST
PROPOSED WILSHIRE DRIVE (60' R/W)
PROPOSED 15' UTILITY EASEMENT
15' UTILITY EASEMENT PER PLAT RECORDED IN BOOK ___ PAGE ___
20' BUILDING LINE PER PLAT RECORDED IN BOOK ___ PAGE ___
9'x30'x21' RIP-RAP
S 2°06'50"W 228.91'
S 2°06'50"W 162.44'
S 5°00'20"W 95.75'
S 0°46'40"E 61.79'
2°06'50"W 268.29'
N 87°54'40"W 335.00'
N 2°05'20"E 330.00'
OWNER: RTC REAL ESTATE LLC & EXCEL HOLDINGS LLC
4' WOVEN WIRE FENCE
1/4 1/4 SECTION LINE
10' UTILITY EASEMENT PER PLAT RECORDED IN BOOK ___ PAGE ___
4' DECORATIVE METAL FENCE
CONCRETE BLOCK RETAINING WALL
20' WATERLINE EASEMENT IN DOCUMENT NO. 1981I0450725 RECORDED IN BOOK I 1066 PAGE 1736
20' BUILDING LINE PER PLAT RECORDED IN BOOK ___ PAGE ___
10' BUILDING LINE PER PLAT RECORDED IN BOOK ___ PAGE ___
GRAVEL
B1
B2
B5
B6
B8
B11
B12
B13
B14
B15
B20
1100 N
1021000 N
24" HDPE
12" PVC
4" OAK

CONSTRUCTION DOCUMENTS

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N

0 1"
SCALE: 1" = 20'

WILSHIRE HILLS PHASE III

STREET ADDRESS
LEE'S SUMMIT JACKSON COUNTY, MISSOURI

4/17/2024
MATTHEW AARON KRIETE
NUMBER PE-2007002811

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

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Date
JUNE 30, 2023

Revised	
1	JANUARY 23, 2024
2	APRIL 17, 2024

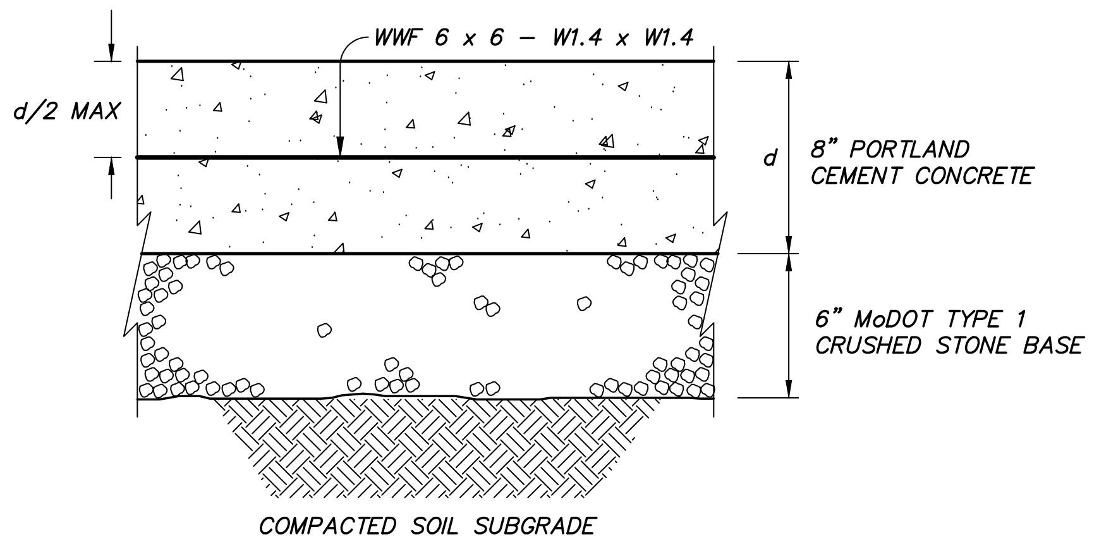
Design: ST Drawn: MJS

FINAL EROSION CONTROL PLAN

Sheet
C9.02

ES&S PROJECT NO. 15925

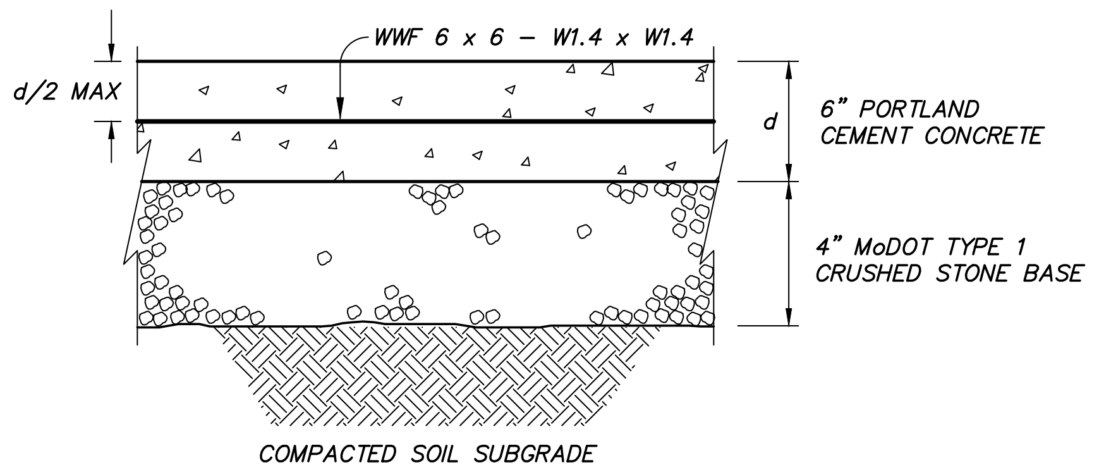
P:\GENERAL PROJECTS\15925E–JES–WLSHIRE–HILLS–3–ENG\CAD\15925 EROSION.DWG 4/19/2024


WWF 6 x 6 – W1.4 x W1.4
d/2 MAX
d
8" PORTLAND CEMENT CONCRETE
6" MoDOT TYPE 1 CRUSHED STONE BASE
COMPACTED SOIL SUBGRADE

NOTE: TOP OF REINFORCEMENT SHALL BE A MINIMUM OF 2" BELOW THE TOP OF PAVEMENT.

HEAVY DUTY CONCRETE PAVEMENT

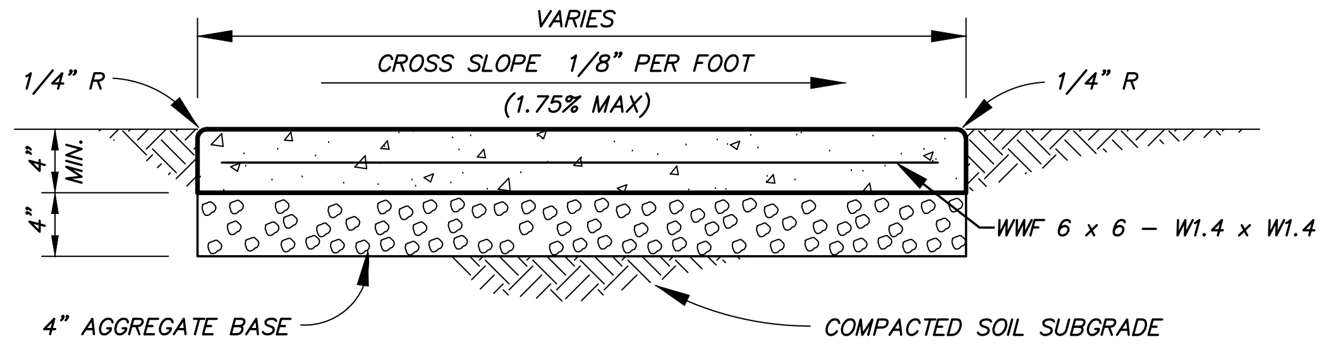
NOT TO SCALE


WWF 6 x 6 – W1.4 x W1.4
d/2 MAX
d
6" PORTLAND CEMENT CONCRETE
4" MoDOT TYPE 1 CRUSHED STONE BASE
COMPACTED SOIL SUBGRADE

NOTE: TOP OF REINFORCEMENT SHALL BE A MINIMUM OF 2" BELOW THE TOP OF PAVEMENT.

STANDARD DUTY CONCRETE PAVEMENT

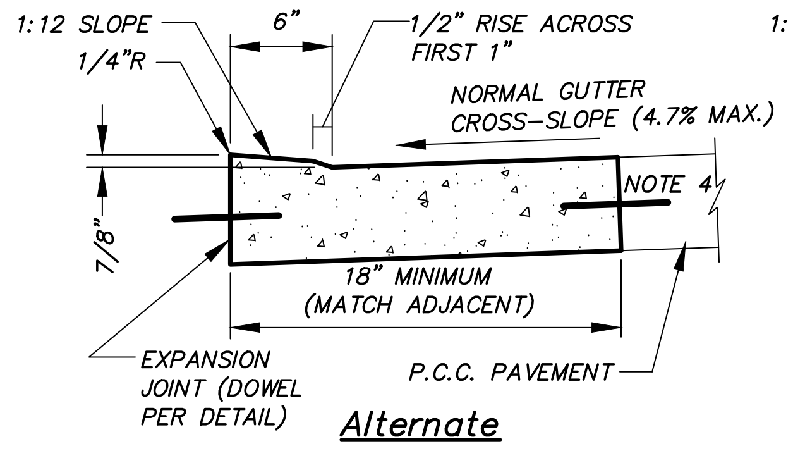
NOT TO SCALE



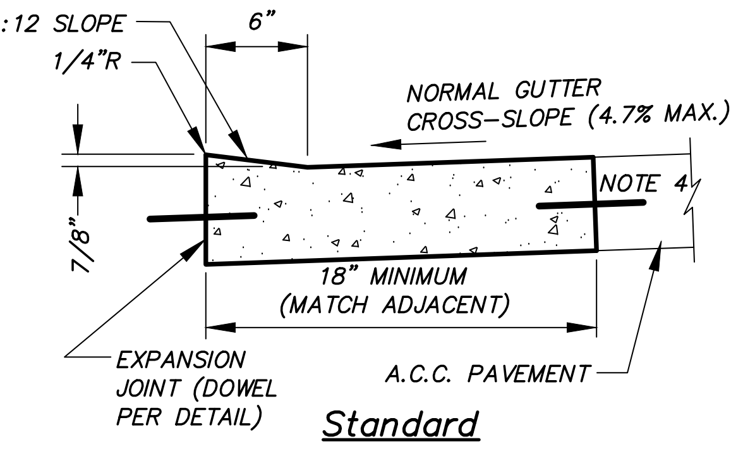
NOTES:
1. SIDEWALK SHALL BE 5–8% AIR-ENTRAINED, 6 BAG MIX, 4,000 PSI PORTLAND CEMENT CONCRETE.
2. INSTALL TRANSVERSE EXPANSION JOINTS TO MATCH STREET OR CURB AND GUTTER EXPANSION JOINTS AND AT ALL DRIVEWAY APPROACHES, FIXED STRUCTURES, BUILDINGS, AND SIDEWALK RAMPS. SPACING SHALL NOT EXCEED 50'.
3. FOR SIDEWALKS UP TO 6 FT. WIDE, INSTALL TRANSVERSE SAW-CUT JOINTS AT SPACING EQUAL TO SIDEWALK WIDTH.
4. FOR SIDEWALKS WIDER THAN 6 FT., INSTALL LONGITUDINAL SAW JOINT AT CENTERLINE OR AT A SPACING NOT TO EXCEED 5 FT. TRANSVERSE SAW-CUT JOINT SPACING EQUAL TO HALF SIDEWALK WIDTH.
5. IF SIDEWALK IS REINFORCED, NO STEEL SHALL BE PLACED THROUGH AN EXPANSION JOINT.
6. SEE SEPARATE DETAIL FOR ADDITIONAL CONCRETE JOINT REQUIREMENTS.

CONCRETE SIDEWALK

NOT TO SCALE


1:12 SLOPE
1/4"R
6"
1/2" RISE ACROSS FIRST 1"
NORMAL GUTTER CROSS-SLOPE (4.7% MAX.)
NOTE 4
7/8"
18" MINIMUM (MATCH ADJACENT)
EXPANSION JOINT (DOWEL PER DETAIL)
P.C.C. PAVEMENT

Alternate

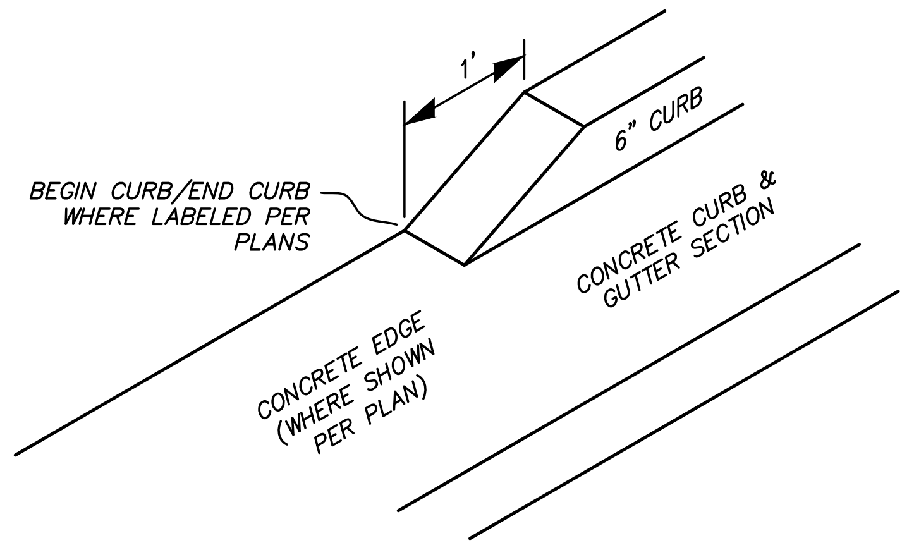

1:12 SLOPE
1/4"R
6"
NORMAL GUTTER CROSS-SLOPE (4.7% MAX.)
NOTE 4
7/8"
18" MINIMUM (MATCH ADJACENT)
EXPANSION JOINT (DOWEL PER DETAIL)
A.C.C. PAVEMENT

Standard

NOTES:
1. CONCRETE THICKNESS AND BASE SHALL MATCH ADJACENT CONCRETE PAVEMENT OR ADJACENT CURB AND GUTTER.
2. EXPANSION JOINTS AND CONTRACTION JOINTS SHALL BE PLACED AT LOCATIONS SIMILAR TO THE ADJACENT PAVEMENT AND CURB & GUTTER.
3. CURB EDGE SHALL BE TOOLED WITH 1/4" RADIUS.
4. WHERE PAVEMENT IS P.C.C. DOWEL USING 12" LONG #4 BARS AT 24" CTRS.

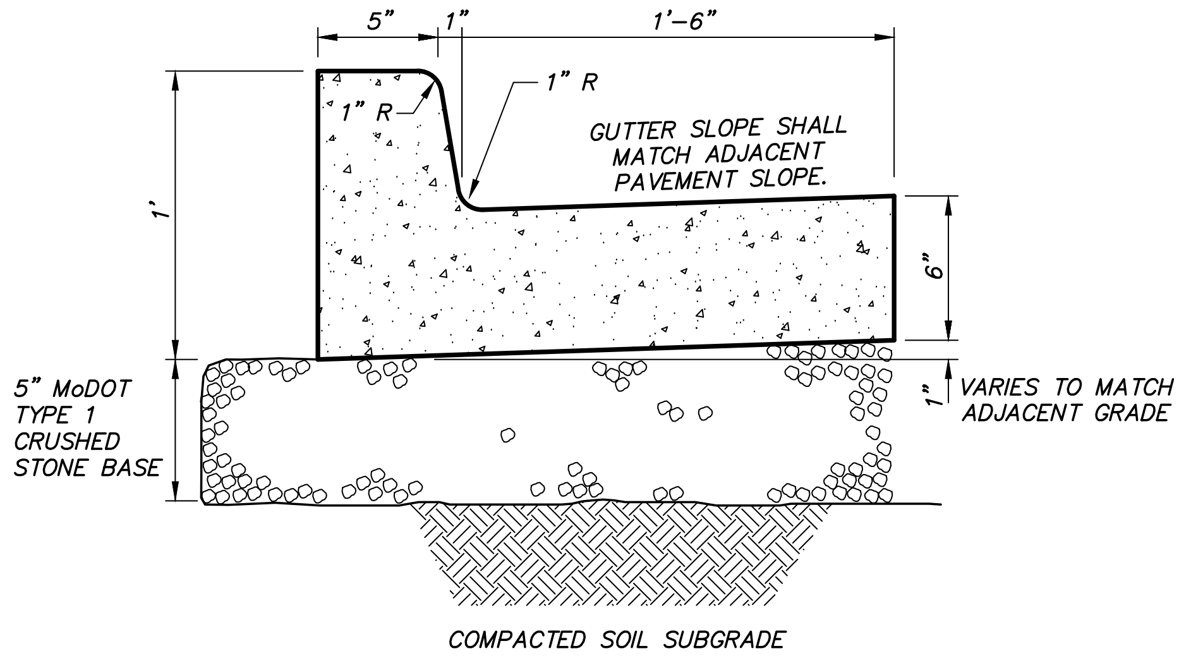
SIDEWALK RAMP CURB

NOT TO SCALE


1'
6" CURB
BEGIN CURB/END CURB WHERE LABELED PER PLANS
CONCRETE CURB & GUTTER SECTION
CONCRETE EDGE (WHERE SHOWN PER PLAN)

BEGIN CURB / END CURB DETAIL

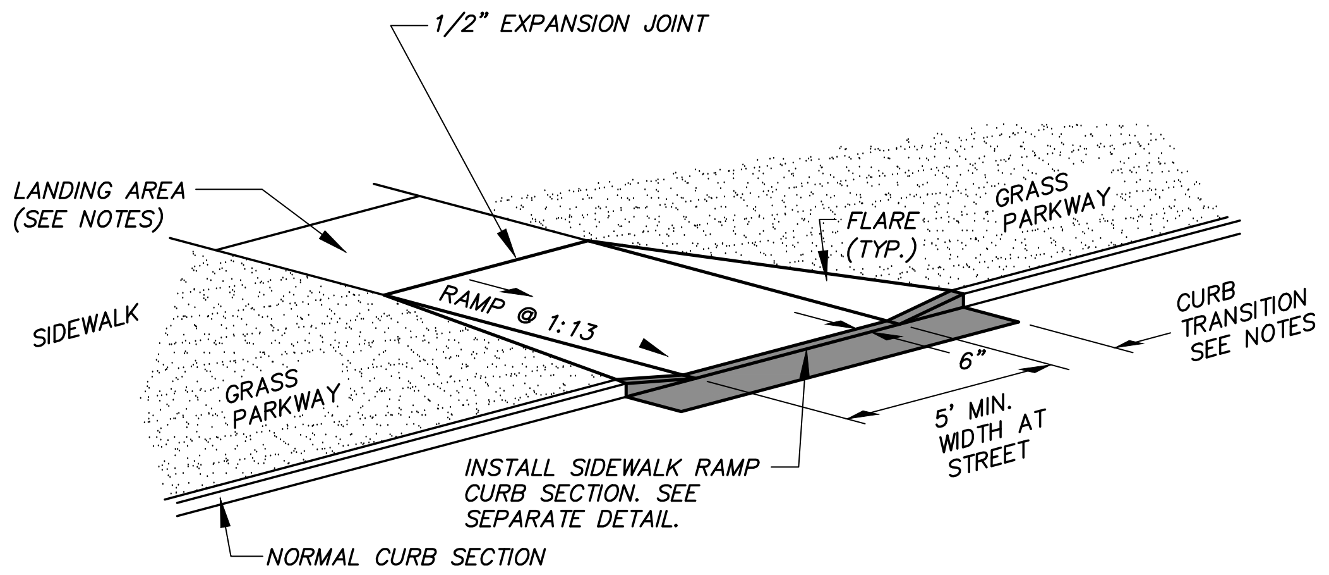
NOT TO SCALE


5"
1"
1'-6"
1" R
1" R
GUTTER SLOPE SHALL MATCH ADJACENT PAVEMENT SLOPE.
1'
6"
1"
VARIES TO MATCH ADJACENT GRADE
5" MoDOT TYPE 1 CRUSHED STONE BASE
COMPACTED SOIL SUBGRADE

NOTES:
1. CURB AND GUTTER MAY BE INTEGRAL IF CONCRETE PAVEMENT IS USED.
2. INSTALL TRANSVERSE EXPANSION JOINTS TO MATCH ADJACENT PAVEMENT,OR AT EVERY 150' MAX.
3. INSTALL SAW-CUT JOINTS TO MATCH ADJACENT PAVEMENT OR EVERY 10' MAX.
4. SAW-CUT JOINTS SHALL EXTEND THROUGH THE ENTIRE CURB SECTION FROM THE TOP OF CURB TO A DEPTH OF 2" BELOW THE GUTTER SURFACE.

6" CONCRETE CURB & GUTTER SECTION

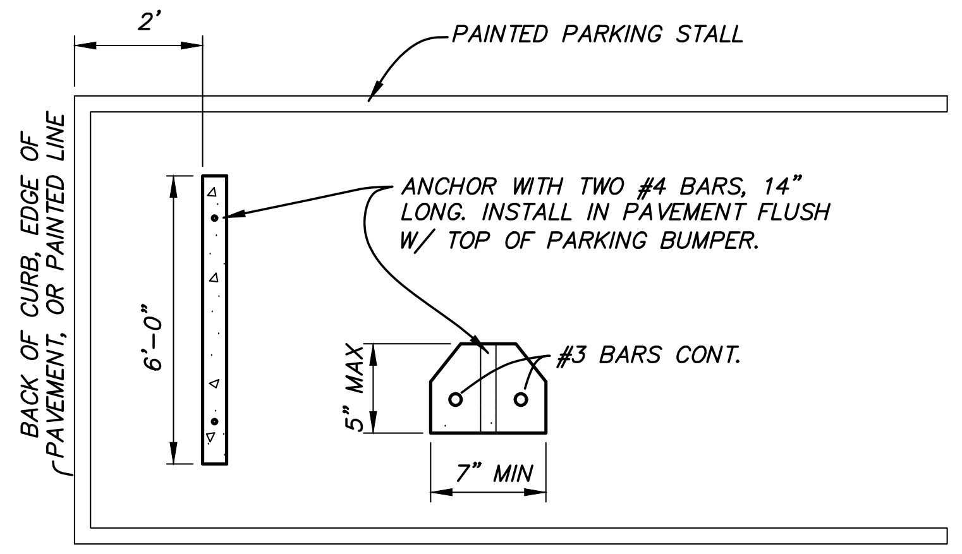
NOT TO SCALE



NOTES:
1. RAMP SHALL BE 4" THICK P.C.C.
2. EXPANSION JOINT SHALL BE 1/2" PREFORMED CORK OR BITUMINOUS EXPANSION JOINT MATERIAL.
3. ALL SLOPES ARE MEASURED FROM THE HORIZONTAL.
4. REPLACE STANDARD CURB SECTION WITH SIDEWALK RAMP CURB SECTION – SEE SEPARATE DETAIL.
5. RAMP LENGTH IS DEPENDENT ON 1:13 MAX SLOPE. USE FLATTER WHEN POSSIBLE.
6. LANDING AREA SHALL BE 4'-0" MIN WIDTH, CROSS SLOPE OF LANDING SHALL NOT EXCEED 1.7%.
7. FLARES ARE REQUIRED AT RAMPS TO KEEP GRASS PARKWAY SLOPES IN CONFORMANCE WITH THE TYPICAL CROSS SECTION.
8. CURB TRANSITION LENGTH IS DEPENDENT ON FLARE SLOPE.
9. MAXIMUM RAMP CROSS SLOPE IS 1.7% IN ALL DIRECTIONS.

PERPENDICULAR CURB RAMP

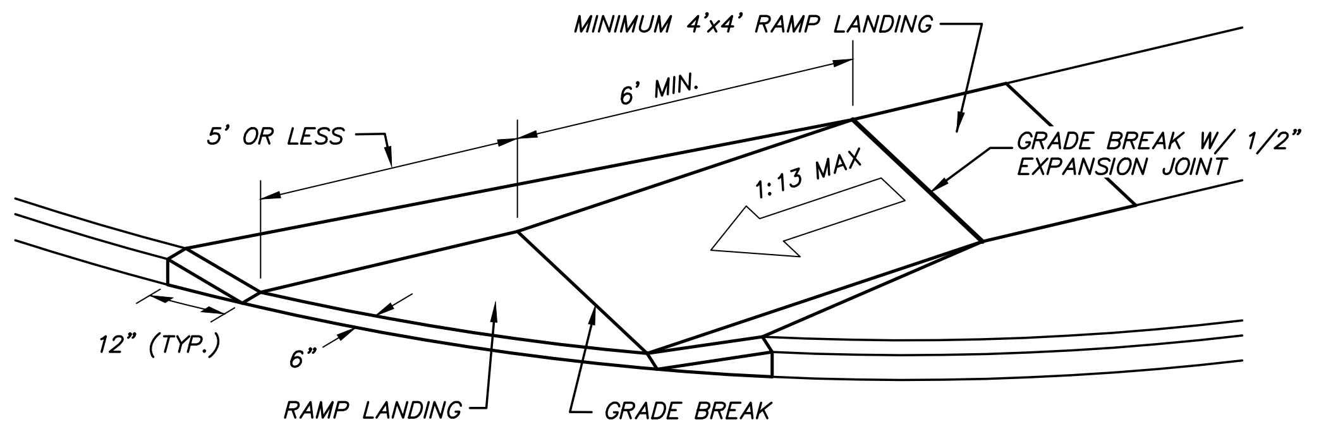
NOT TO SCALE


2'
PAINTED PARKING STALL
BACK OF CURB, EDGE OF PAVEMENT, OR PAINTED LINE
6'-0"
ANCHOR WITH TWO #4 BARS, 14" LONG. INSTALL IN PAVEMENT FLUSH W/ TOP OF PARKING BUMPER.
#3 BARS CONT.
5" MAX
7" MIN

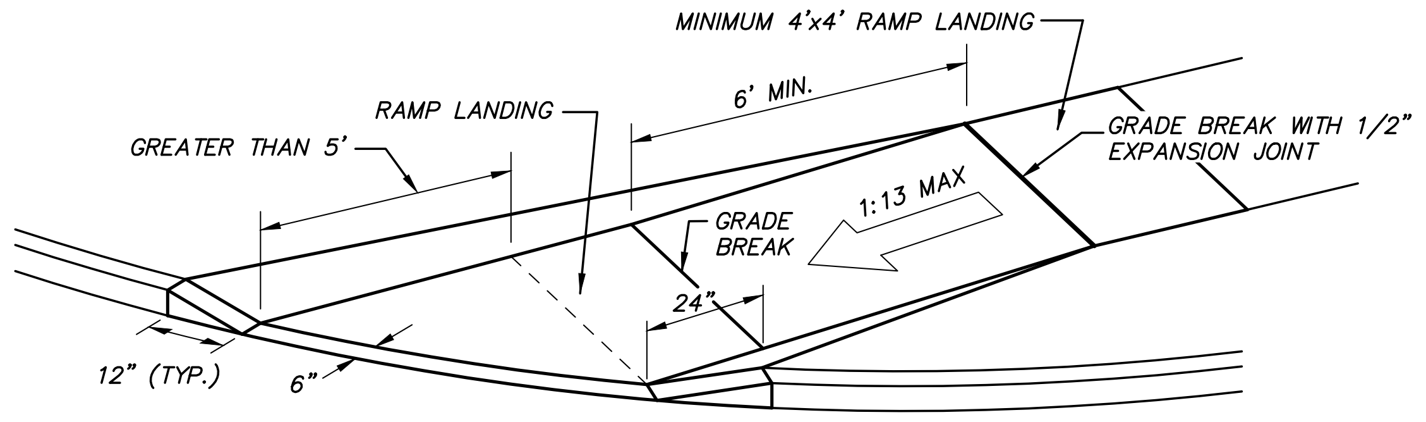
NOTES:
1. CONCRETE SHALL BE A MINIMUM 5,000 PSI AND AIR-ENTRAINED.
2. PROVIDE A MINIMUM 2 SLOTS ON THE BOTTOM OF THE BUMPER FOR DRAINAGE.

CONCRETE PARKING BUMPER

NOT TO SCALE


MINIMUM 4'x4' RAMP LANDING
6' MIN.
5' OR LESS
1:13 MAX
GRADE BREAK W/ 1/2" EXPANSION JOINT
12" (TYP.)
6"
RAMP LANDING
GRADE BREAK

CONDITION 1

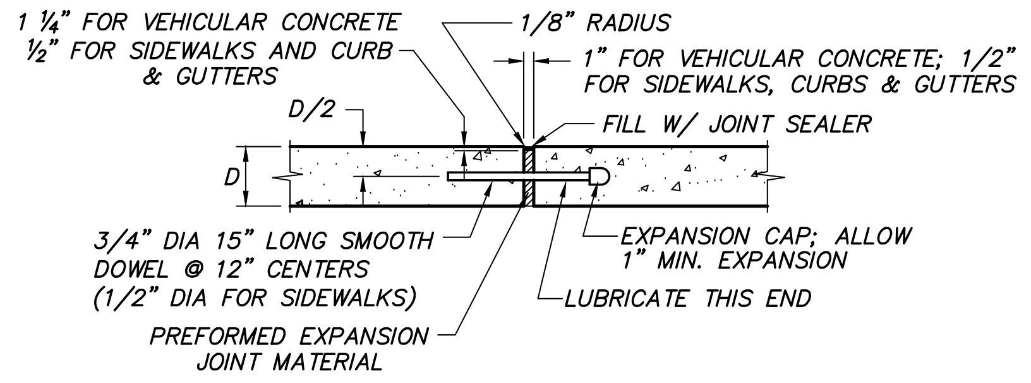


CONDITION 2

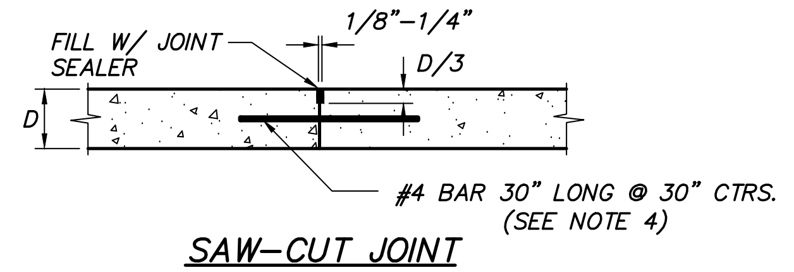
NOTES:
1. RAMP SHALL BE 4" THICK PORTLAND CEMENT CONCRETE – SEE SPECS.
2. EXPANSION JOINTS SHALL BE 1/2" PREFORMED CORK OR BITUMINOUS EXPANSION JOINT MATERIAL.
3. MAXIMUM RAMP CROSS SLOPE IS 1.7%.
4. MAXIMUM RAMP LONGITUDINAL SLOPE IS 1:13. USE A FLATTER RAMP SLOPE WHEN POSSIBLE.
5. RAMP LANDING SLOPE SHALL NOT EXCEED 1.7% IN ALL DIRECTIONS.

SKEW / RADIAL CURB RAMPS

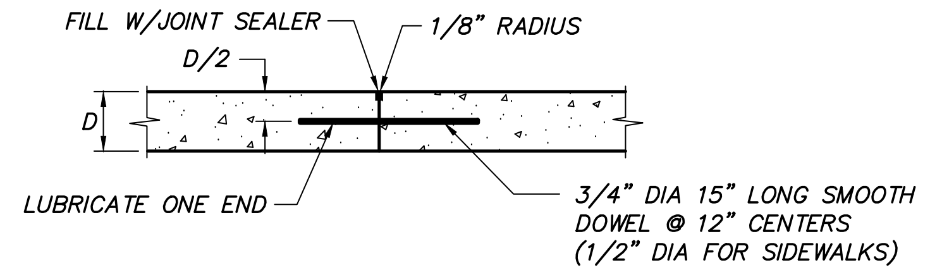
NOT TO SCALE


1 ¼" FOR VEHICULAR CONCRETE
½" FOR SIDEWALKS AND CURB & GUTTERS
1/8" RADIUS
1" FOR VEHICULAR CONCRETE; 1/2" FOR SIDEWALKS, CURBS & GUTTERS
D/2
FILL W/ JOINT SEALER
D
3/4" DIA 15" LONG SMOOTH DOWEL @ 12" CENTERS (1/2" DIA FOR SIDEWALKS)
EXPANSION CAP; ALLOW 1" MIN. EXPANSION
LUBRICATE THIS END
PREFORMED EXPANSION JOINT MATERIAL

EXPANSION JOINT



SAW-CUT JOINT

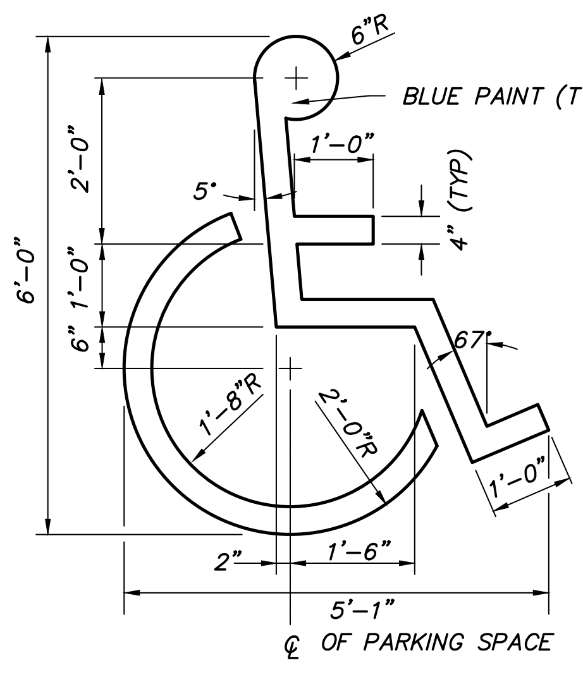

FILL W/JOINT SEALER
1/8" RADIUS
D/2
D
LUBRICATE ONE END
3/4" DIA 15" LONG SMOOTH DOWEL @ 12" CENTERS (1/2" DIA FOR SIDEWALKS)

CONSTRUCTION JOINT

NOTES:
1. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL SUBMIT A PAVEMENT JOINT PLAN OF ALL CONCRETE PAVEMENT FOR APPROVAL.
2. CONCRETE PAVEMENT SHALL HAVE SAW-CUT OR CONSTRUCTION JOINTS EVERY 10 FEET FOR 4 INCH THICK PAVEMENT, 12 FEET FOR 5 INCH THICK PAVEMENT, AND 15 FEET FOR 6 INCH THICK PAVEMENT OR GREATER. PANELS SHALL BE CUT SUCH THAT PANELS ARE NEARLY SQUARE AND DO NOT EXCEED 100 SQUARE FEET IN AREA OR 1.4 LENGTH TO WIDTH RATIO. EXPANSION JOINTS SHALL BE PROVIDED AT ALL FIXED STRUCTURES, SUCH AS: LIGHT STANDARD FOUNDATIONS, SEWER STRUCTURES, BUILDINGS, WALLS, BOTTOM OF STAIRS, ROOF DRAINS, ETC., AND EVERY 100 FEET MAXIMUM. DOWEL BARS SHALL BE PROVIDED AT TRANSVERSE JOINTS IN ALL HEAVY DUTY PAVEMENT DRIVE AISLES.
3. THIS DETAIL APPLIES TO ALL CONCRETE PAVEMENT FOR PARKING LOTS, DRIVE/ACCESS AISLES, CURBS & GUTTERS, AND SIDEWALKS.
4. INCLUDE BAR WITH TRANSVERSE SAW-CUT JOINTS FOR HEAVY DUTY PAVEMENT. OMIT BAR WITH SAW-CUT JOINTS FOR STANDARD DUTY PAVEMENT AND SIDEWALKS.
5. PROVIDE CONSTRUCTION JOINT AT END OF DAYS WORK OR IF CONCRETE PLACEMENT IS SUSPENDED FOR MORE THAN 30 MINUTES.
6. SAW-CUT JOINTS SHALL BE CUT WITHIN 12 HOURS OF INITIAL SET OF CONCRETE. RAVELED JOINTS WILL NOT BE ACCEPTED.
7. ELASTOMERIC POLYURETHANE OR SILICONE JOINT SEALANT IS REQUIRED FOR ALL JOINTS AND SHALL BE LIGHT GRAY IN COLOR.
8. OMIT DOWEL BARS FOR EXPANSION JOINTS AT BUILDINGS, LIGHT STANDARDS, AND ROOF DRAINS.

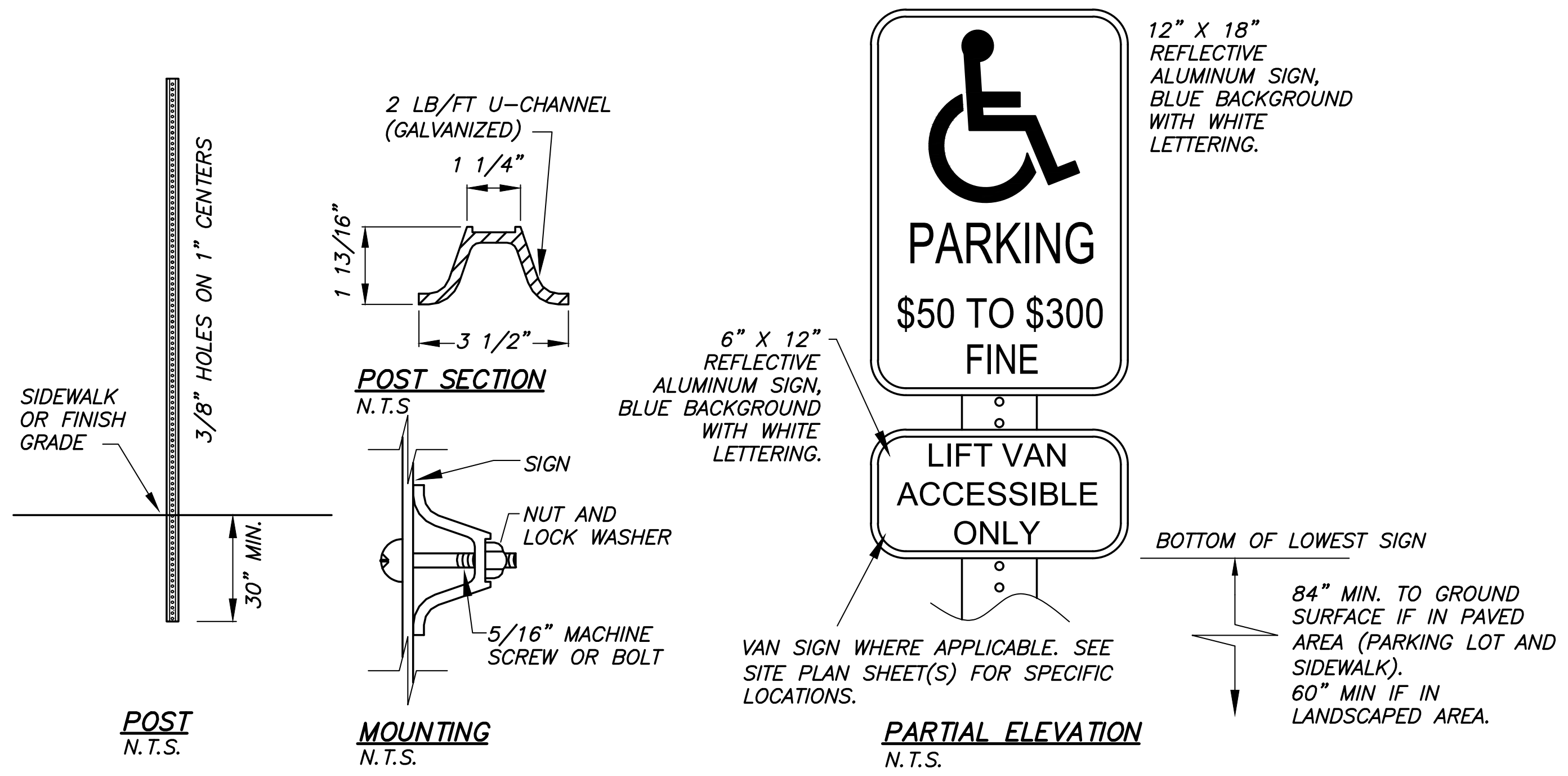
CONCRETE PAVEMENT JOINTS

NOT TO SCALE



ACCESSIBLE SYMBOL FOR PARKING SPACES

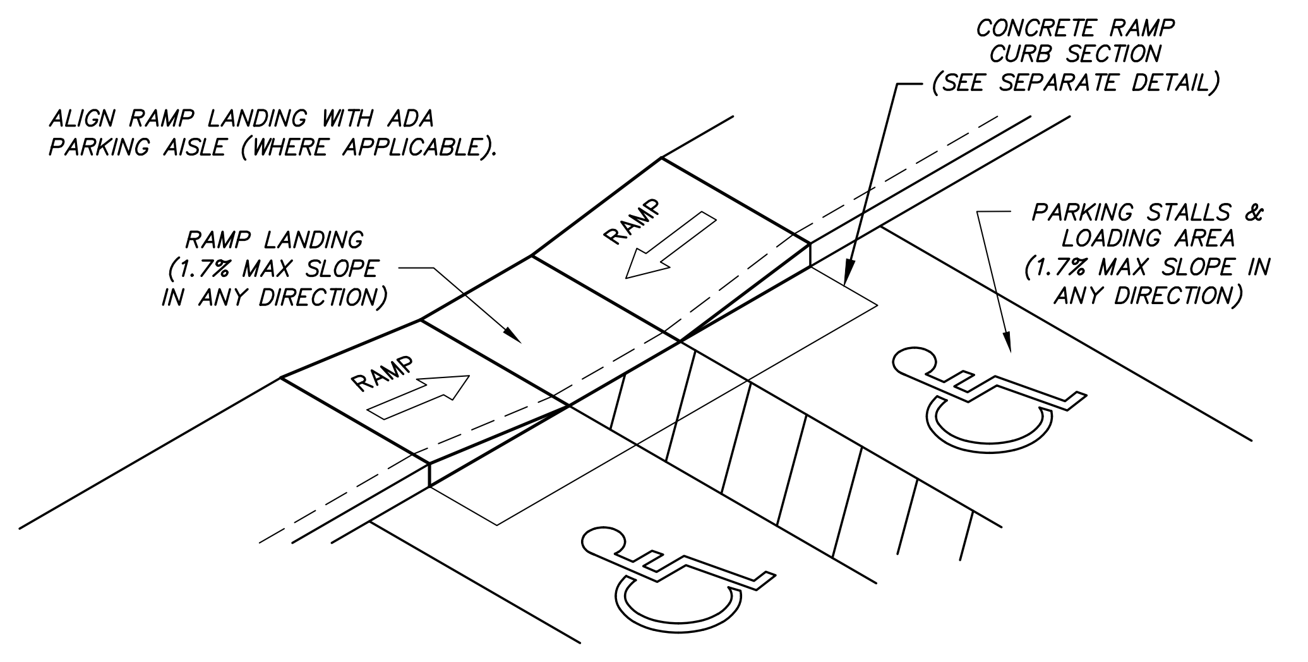
NO SCALE


SIDEWALK OR FINISH GRADE
3/8" HOLES ON 1" CENTERS
30" MIN.
POST
N.T.S.
2 LB/FT U-CHANNEL (GALVANIZED)
1 1/4"
1 13/16"
3 1/2"
POST SECTION
N.T.S
SIGN
NUT AND LOCK WASHER
5/16" MACHINE SCREW OR BOLT
MOUNTING
N.T.S.
PARKING
$50 TO $300 FINE
LIFT VAN ACCESSIBLE ONLY
12" X 18" REFLECTIVE ALUMINUM SIGN, BLUE BACKGROUND WITH WHITE LETTERING.
6" X 12" REFLECTIVE ALUMINUM SIGN, BLUE BACKGROUND WITH WHITE LETTERING.
VAN SIGN WHERE APPLICABLE. SEE SITE PLAN SHEET(S) FOR SPECIFIC LOCATIONS.
BOTTOM OF LOWEST SIGN
84" MIN. TO GROUND SURFACE IF IN PAVED AREA (PARKING LOT AND SIDEWALK).
60" MIN IF IN LANDSCAPED AREA.
PARTIAL ELEVATION
N.T.S.

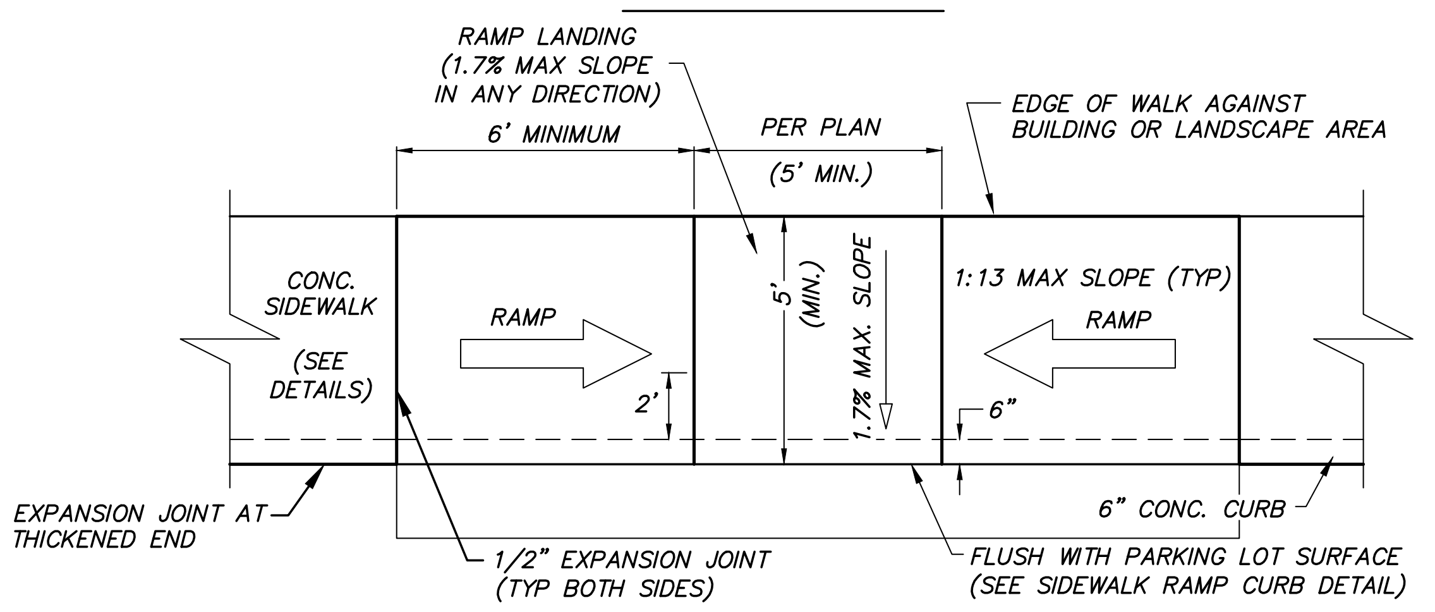
NOTES:
1. SEE SITE PLAN SHEET(S) FOR SIGN LOCATIONS.
2. ALL SIGNS SHALL BE 0.80 ENGINEER GRADE REFLECTIVE ALUMINUM.

ACCESSIBLE PARKING STALL SIGNAGE

NOT TO SCALE


ALIGN RAMP LANDING WITH ADA PARKING AISLE (WHERE APPLICABLE).
CONCRETE RAMP CURB SECTION (SEE SEPARATE DETAIL)
RAMP LANDING (1.7% MAX SLOPE IN ANY DIRECTION)
RAMP
RAMP
PARKING STALLS & LOADING AREA (1.7% MAX SLOPE IN ANY DIRECTION)

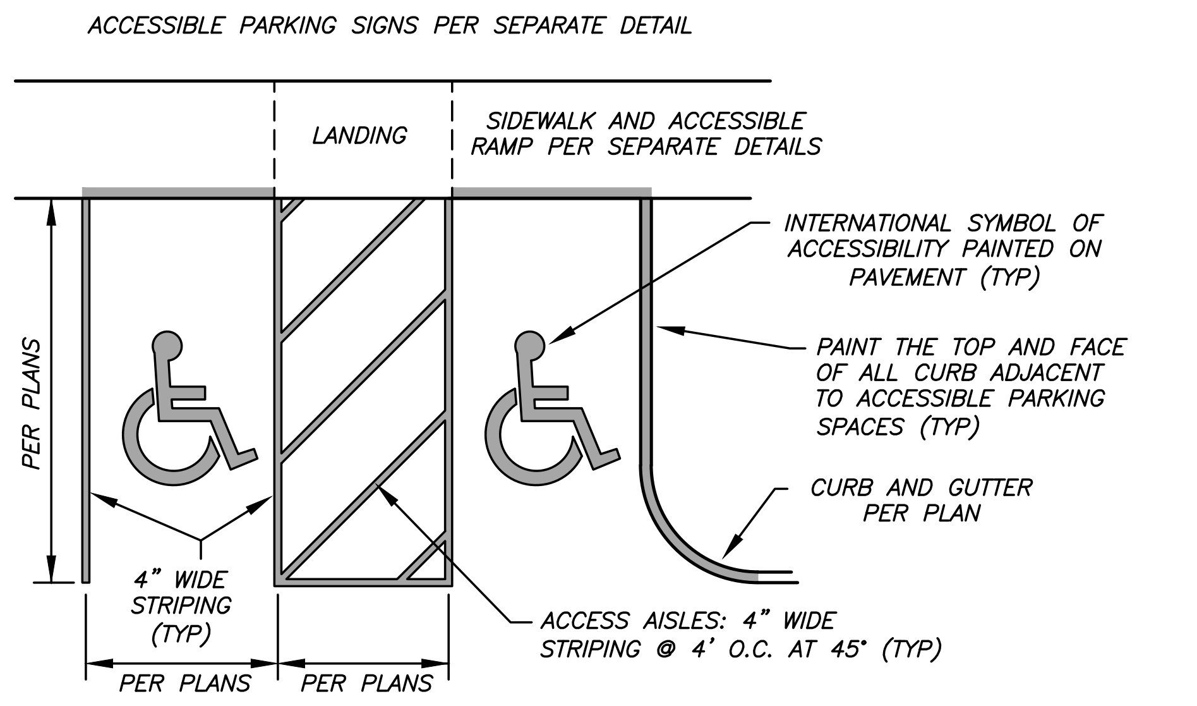
ISOMETRIC


RAMP LANDING (1.7% MAX SLOPE IN ANY DIRECTION)
6' MINIMUM
PER PLAN
(5' MIN.)
EDGE OF WALK AGAINST BUILDING OR LANDSCAPE AREA
CONC. SIDEWALK
(SEE DETAILS)
RAMP
2'
5' (MIN.)
1.7% MAX. SLOPE
1:13 MAX SLOPE (TYP)
RAMP
6"
EXPANSION JOINT AT THICKENED END
6" CONC. CURB
1/2" EXPANSION JOINT (TYP BOTH SIDES)
FLUSH WITH PARKING LOT SURFACE (SEE SIDEWALK RAMP CURB DETAIL)

NOTES:
1. RAMP SHALL BE 4" THICK PORTLAND CEMENT CONCRETE – SEE SPECS.
2. EXPANSION JOINT SHALL BE 1/2" PREFORMED CORK OR BITUMINOUS EXPANSION JOINT MATERIAL.
3. MAXIMUM RAMP CROSS SLOPE IS 1.7%.
4. MAXIMUM RAMP LONGITUDINAL SLOPE IS 1:13. USE A FLATTER RAMP SLOPE WHEN POSSIBLE.
5. RAMP LANDING SLOPE SHALL NOT EXCEED 1.7% IN ALL DIRECTIONS.

PARALLEL CURB RAMP

NOT TO SCALE


ACCESSIBLE PARKING SIGNS PER SEPARATE DETAIL
LANDING
SIDEWALK AND ACCESSIBLE RAMP PER SEPARATE DETAILS
INTERNATIONAL SYMBOL OF ACCESSIBILITY PAINTED ON PAVEMENT (TYP)
PAINT THE TOP AND FACE OF ALL CURB ADJACENT TO ACCESSIBLE PARKING SPACES (TYP)
CURB AND GUTTER PER PLAN
PER PLANS
4" WIDE STRIPING (TYP)
ACCESS AISLES: 4" WIDE STRIPING @ 4' O.C. AT 45° (TYP)
PER PLANS
PER PLANS

NOTES:
1. ALL ACCESSIBLE STRIPING SHALL BE BLUE RETROREFLECTIVE.
2. ALL PAVEMENT WITHIN ACCESSIBLE PARKING AREAS SHALL BE AT 1.7% OR LESS SLOPE IN ALL DIRECTIONS.

ACCESSIBLE PARKING STALL STRIPING (MISSOURI)

NOT TO SCALE

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WILSHIRE HILLS PHASE III
3200 NE WILSHIRE DR
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

6/30/2023
MATTHEW AARON KRIETE
NUMBER PE-2007002811

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

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Date
JUNE 30, 2023

Revised

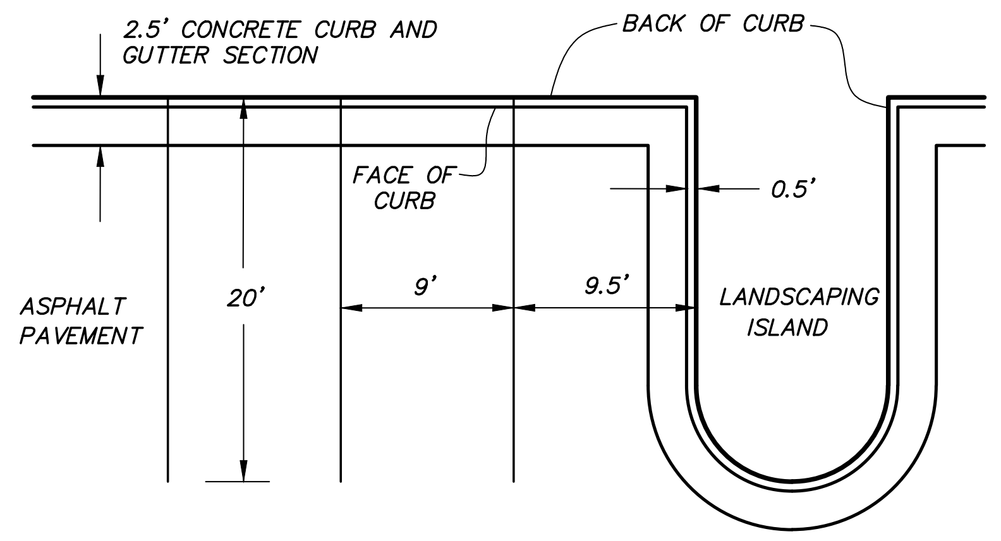
Design: ST Drawn: MJS

SITE DETAILS

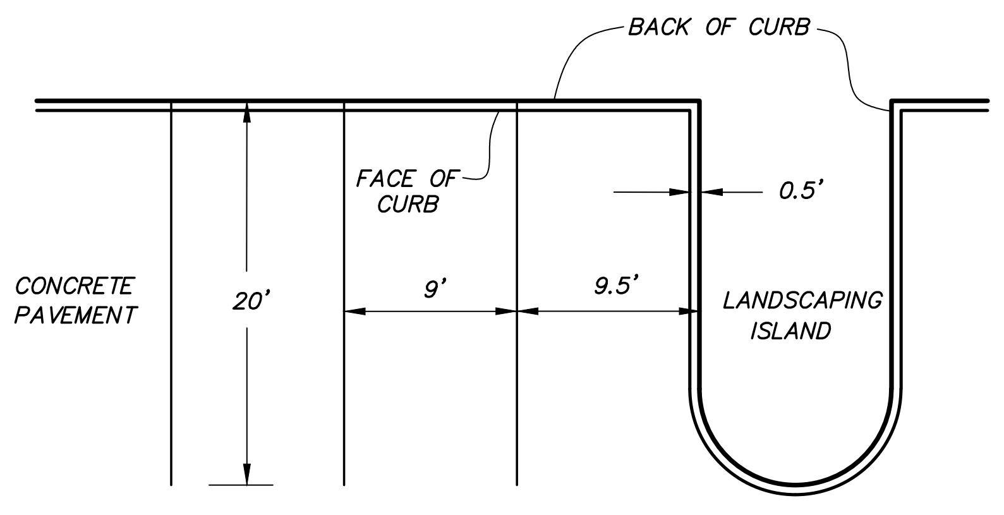
Sheet
C10.01

ES&S PROJECT NO. 15925

P:\GENERAL PROJECTS\15925E-JES-WILSHIRE-HILLS-3-ENG\CAD\15925 COVER & DETAILS.DWG 6/30/2023



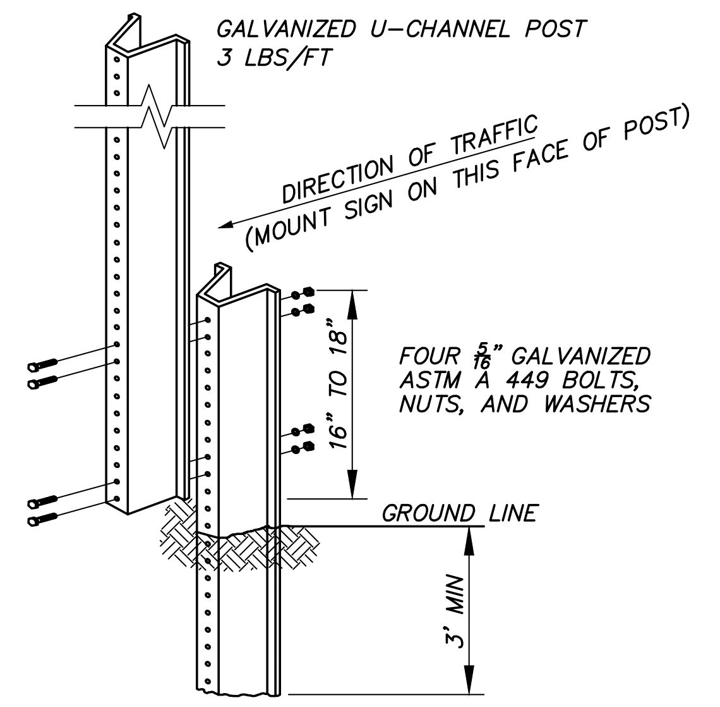
ASPHALT PAVEMENT



CONCRETE PAVEMENT

TYPICAL PARKING STALL DETAIL

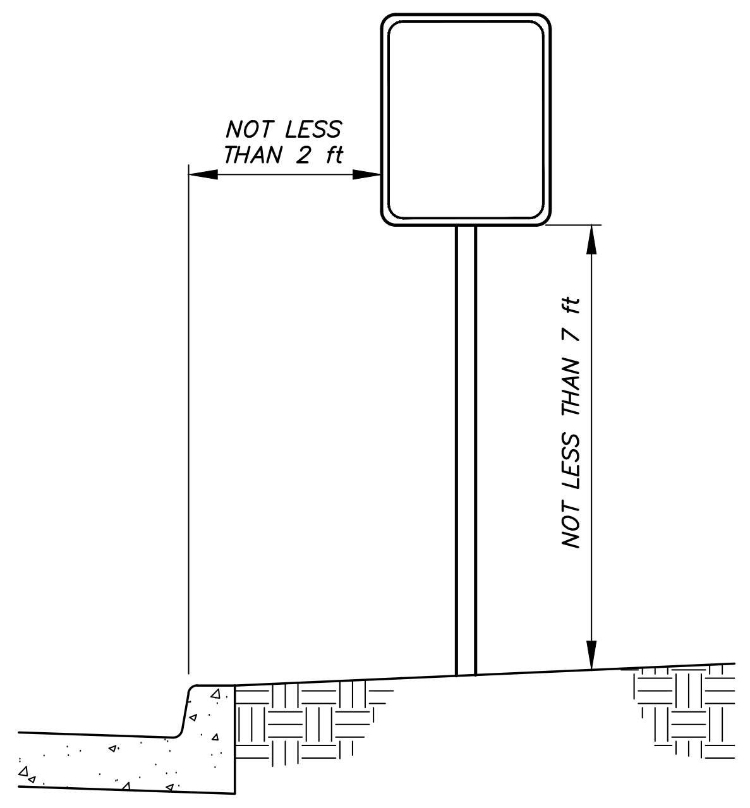
NOT TO SCALE


GALVANIZED U-CHANNEL POST 3 LBS/FT
DIRECTION OF TRAFFIC (MOUNT SIGN ON THIS FACE OF POST)
FOUR 5/16" GALVANIZED ASTM A 449 BOLTS, NUTS, AND WASHERS
16" TO 18"
GROUND LINE
3' MIN

NOTES:
1. STUB HEIGHT AND SPLICE LAP SHALL BE 16" TO 18".
2. SPLICE SHALL NOT EXTEND BELOW THE GROUND.
3. ONLY ONE SPLICE WILL BE ALLOWED PER POST.
4. USE OF SPLICE IS OPTIONAL.
5. SIGNS SHALL BE 7' MIN. FROM FINISH GRADE TO BOTTOM OF LOWEST MOUNTED SIGN.

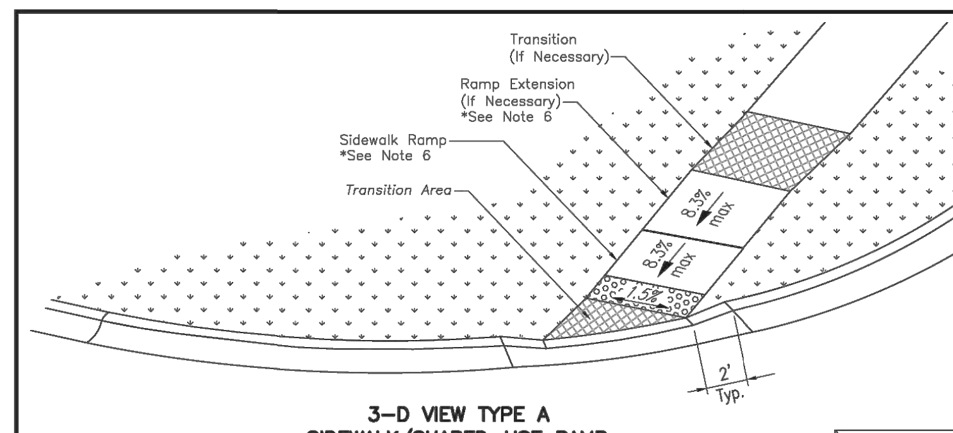
SIGN POST DETAIL

NOT TO SCALE

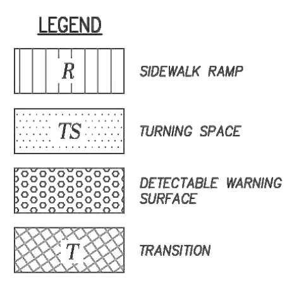


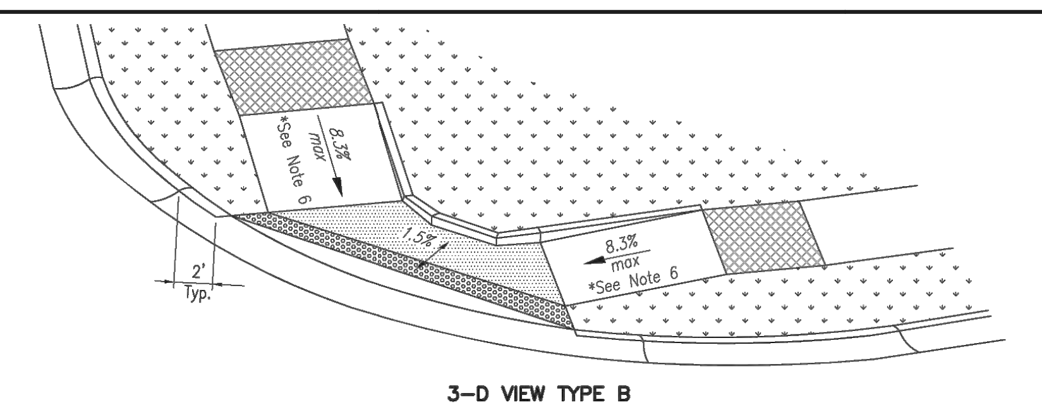
URBAN ROADSIDE SIGN LOCATION

NOT TO SCALE

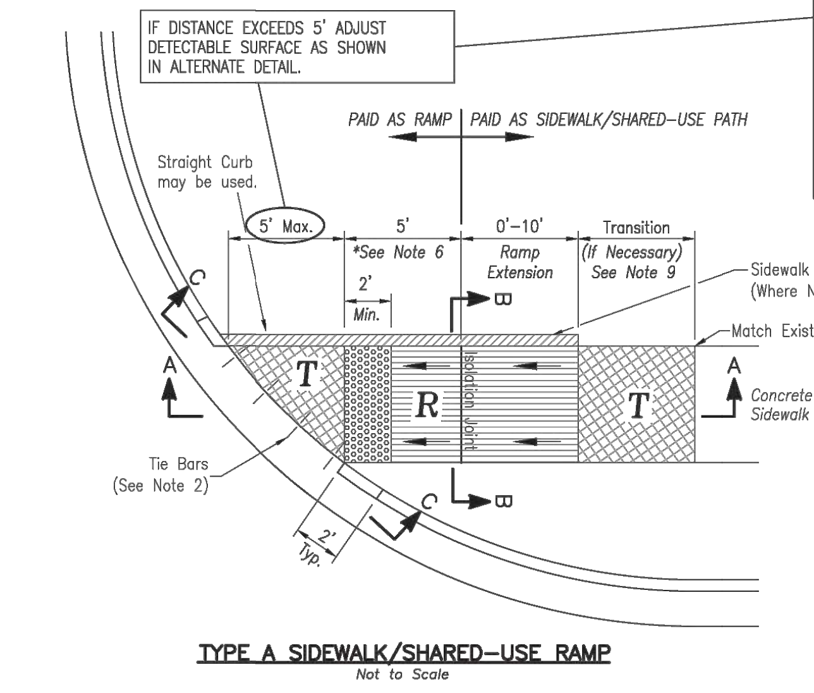

Transition (If Necessary)
Ramp Extension (If Necessary) *See Note 6
Sidewalk Ramp *See Note 6
Transition Area
2' Typ.

3-D VIEW TYPE A SIDEWALK/SHARED-USE RAMP

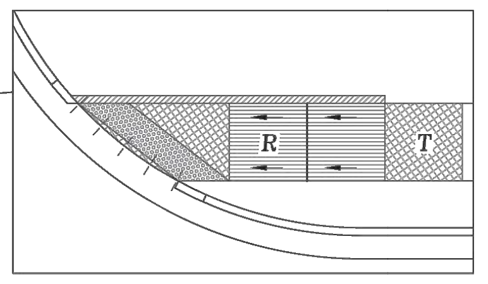




3-D VIEW TYPE B SIDEWALK/SHARED-USE RAMP


IF DISTANCE EXCEEDS 5' ADJUST DETECTABLE SURFACE AS SHOWN IN ALTERNATE DETAIL.
PAID AS RAMP
PAID AS SIDEWALK/SHARED-USE PATH
Straight Curb may be used
5' Min.
*See Note 6
Ramp Extension
Transition (If Necessary) See Note 9
Sidewalk Curb (Where Necessary)
Match Existing
Concrete Sidewalk
Tie Bars (See Note 2)
T
R
T

TYPE A SIDEWALK/SHARED-USE RAMP
Not to Scale

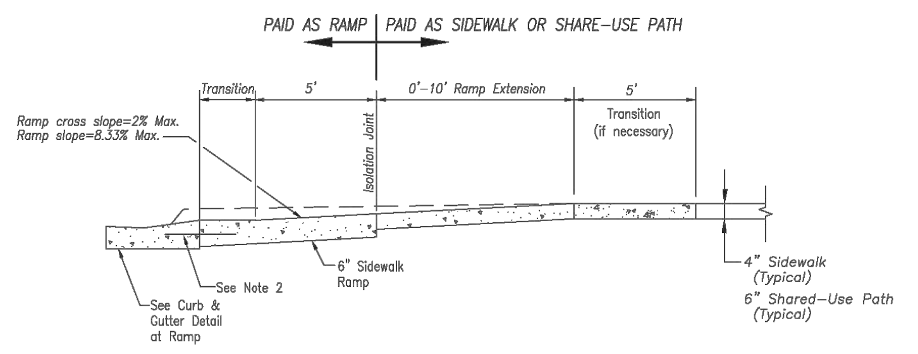


ALTERNATE DETECTABLE SURFACE LAYOUT

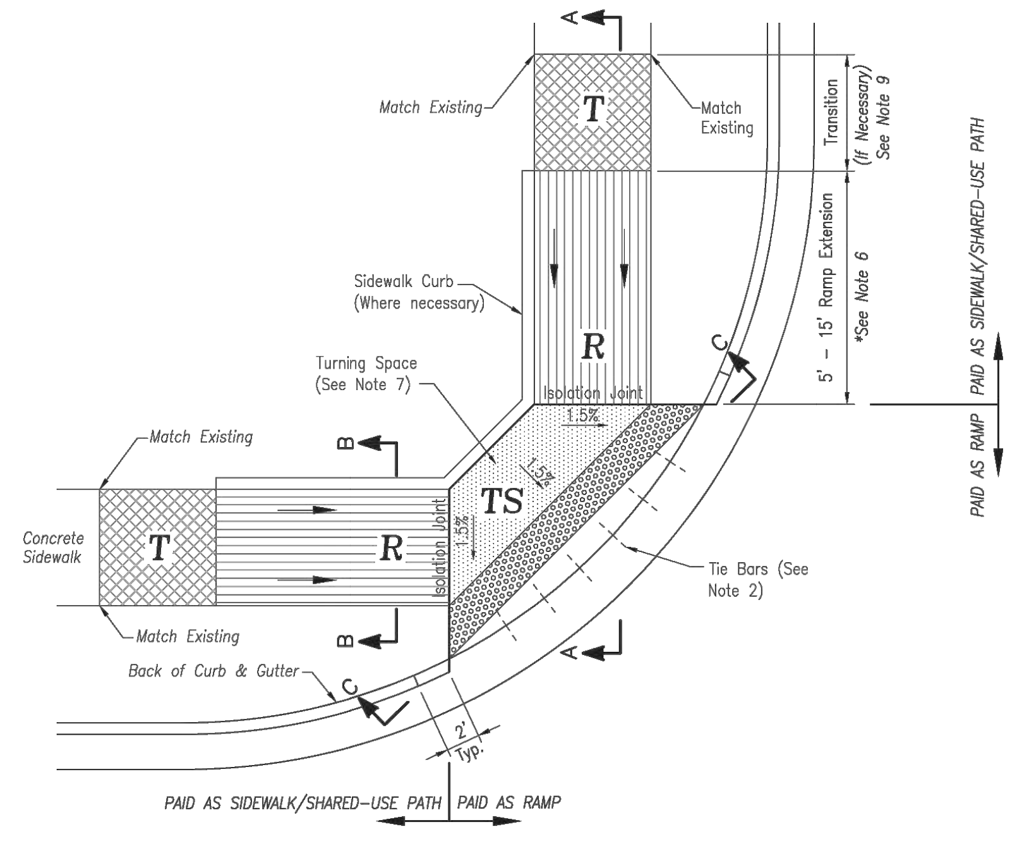
SIDEWALK/SHARED-USE PATH & SIDEWALK/SHARED-USE RAMP NOTES:

1. CURB RAMP OPENING, NOT INCLUDING FLARES, SHALL MATCH EXISTING SIDEWALK WIDTH AND OPENING SHALL BE AT LEAST 48" WIDE.
2. USE 18" LONG #4 EPOXY COATED TIE BARS @ 24" O.C. EMBED TIE BARS 9" IN EACH DIRECTION.
3. ALL RAMPS, SIDEWALKS, SHARED-USE PATHS SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
4. LONGITUDINAL JOINT SPACING TO MATCH WIDTH OF SIDEWALK.
5. ISOLATION JOINTS SHALL BE PLACED WHERE WALK ABUTS DRIVEWAYS AND SIMILAR STRUCTURES, AND 100' CENTERS MAX.
6. ADA MAXIMUM RAMP SLOPE = 8.33%
ADA MAXIMUM CROSS SLOPE = 2.0%

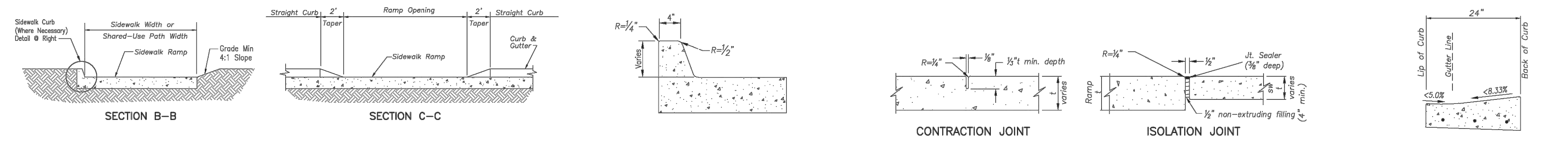
*ROADWAY EXCEPTION: WHERE EXISTING ROAD PROFILE GRADE DOES NOT ALLOW RAMP TO MEET RAMP SLOPE REQUIREMENT OF 8.33% OR LESS, THE RAMP SHALL BE EXTENDED TO A LENGTH OF 15 FEET TO MATCH EXISTING SIDEWALK. CROSS SLOPE OF RAMP SHALL BE 1.5%, ±0.5%.
7. TURNING SPACES SHALL BE 1.5%, ±0.5%, SLOPE IN ANY DIRECTION. TURNING SPACES SHALL HAVE A MINIMUM 4'x4' TURNING AREA. TURNING SPACES, WITH A SIDEWALK CURB, SHALL HAVE A 5' TURNING AREA PERPENDICULAR TO THE SIDEWALK CURB.
8. FOR RETROFIT WORK, SLOPES TO BE DETERMINED IN FIELD BY CONTRACTOR AND APPROVED BY CITY INSPECTOR
9. RAMP EXTENSION AREA SHALL NOT BE USED AS TRANSITION TO EXISTING SIDEWALK. ANY TRANSITIONS REQUIRED TO MATCH RAMPS TO EXISTING SIDEWALK SHALL REQUIRE REMOVAL AND REPLACEMENT OF ADDITIONAL SIDEWALK BEYOND THE RAMP AREA. SIDEWALK TRANSITION LENGTH SHALL BE EQUAL TO OR GREATER THAN THE WIDTH OF THE EXISTING SIDEWALK. RAMP EXTENSIONS SHALL BE A CONTINUOUS SLOPE.
10. ALL SIDEWALK AND RAMP CONSTRUCTION SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).


PAID AS RAMP
PAID AS SIDEWALK OR SHARE-USE PATH
Transition
5'
0'-10' Ramp Extension
Transition (If necessary)
4" Sidewalk (Typical)
6" Shared-Use Path (Typical)
See Curb & Gutter Detail at Ramp
See Note 2
4" Sidewalk Ramp

SECTION A-A


Match Existing
Match Existing
T
Transition (If Necessary) See Note 9
Sidewalk Curb (Where necessary)
Turning Space (See Note 7)
R
5' - 15' Ramp Extension *See Note 6
TS
Concrete Sidewalk
T
R
Match Existing
Back of Curb & Gutter
Tie Bars (See Note 2)
PAID AS SIDEWALK/SHARED-USE PATH
PAID AS RAMP

TYPE B SIDEWALK/SHARED-USE RAMP
Not to Scale



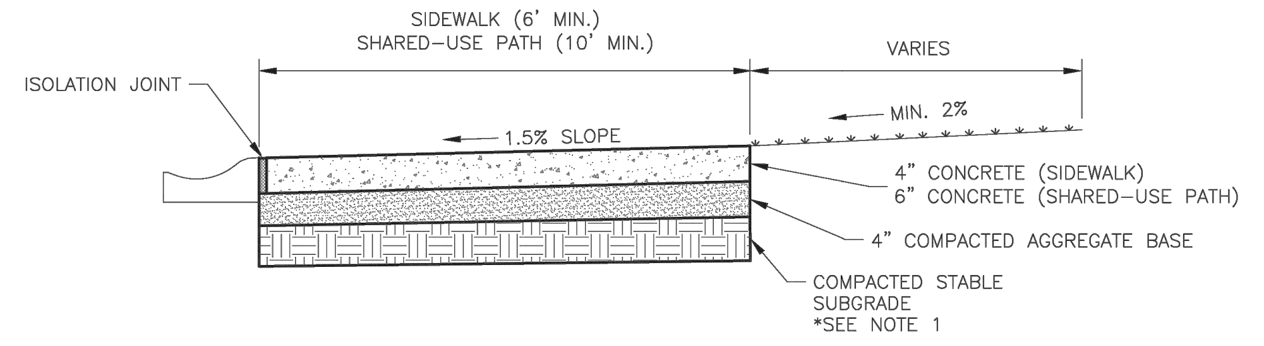
TYPE A & B SIDEWALK RAMP
Not to Scale

SIDEWALK CURB DETAIL
Not to Scale

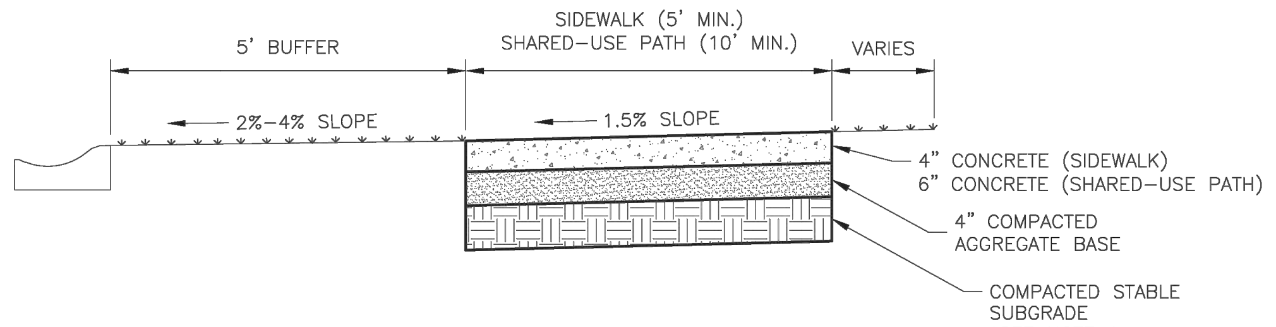
JOINT DETAILS
Not to Scale

CURB & GUTTER DETAIL AT RAMP
Not to Scale

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
ADA RAMP RETROFIT DETAIL
Drawn By: MJF
Checked By: DL
Date: 05/2021
GEN-3A


SIDEWALK (6' MIN.)
SHARED-USE PATH (10' MIN.)
VARIES
ISOLATION JOINT
1.5% SLOPE
MIN. 2%
4" CONCRETE (SIDEWALK)
6" CONCRETE (SHARED-USE PATH)
4" COMPACTED AGGREGATE BASE
COMPACTED STABLE SUBGRADE *SEE NOTE 1

SIDEWALK/SHARED-USE PATH WITHOUT BUFFER
NOT TO SCALE

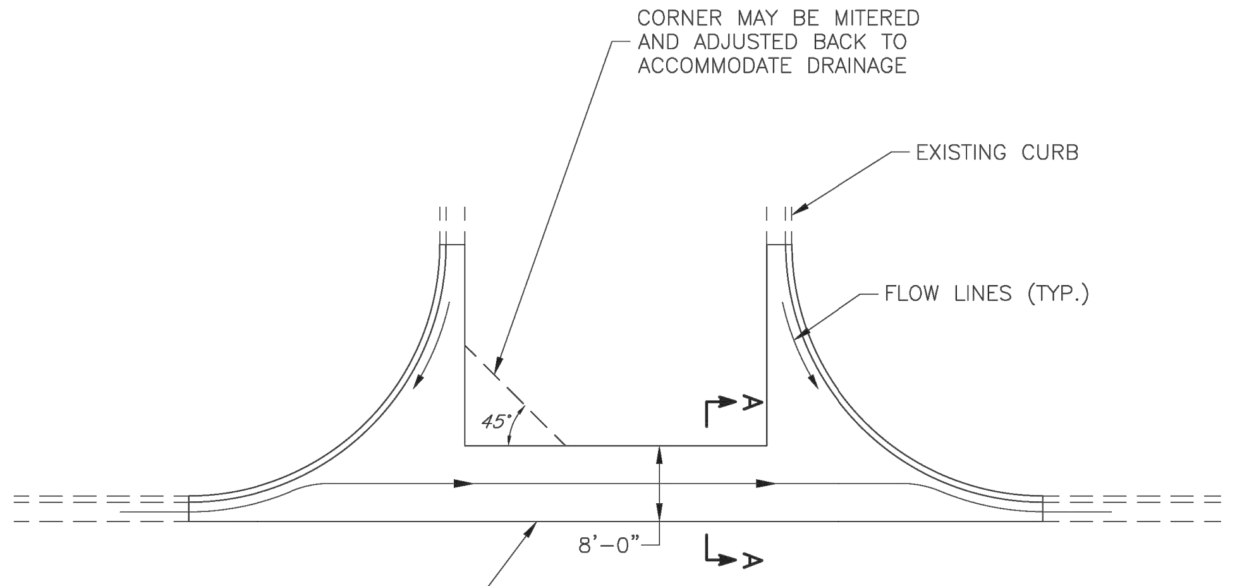

5' BUFFER
SIDEWALK (5' MIN.)
SHARED-USE PATH (10' MIN.)
VARIES
2%-4% SLOPE
1.5% SLOPE
4" CONCRETE (SIDEWALK)
6" CONCRETE (SHARED-USE PATH)
4" COMPACTED AGGREGATE BASE
COMPACTED STABLE SUBGRADE *SEE NOTE 1

SIDEWALK/SHARED-USE PATH WITH BUFFER
NOT TO SCALE

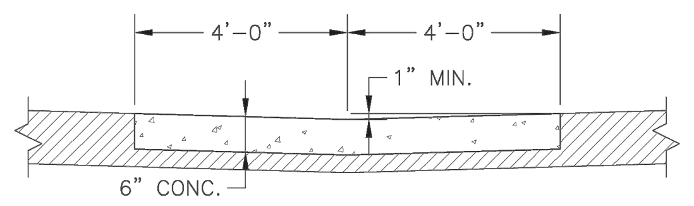
GENERAL NOTES:

1. SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
2. 1.5% CROSS SLOPE MUST BE MAINTAINED THROUGH DRIVEWAYS.
3. KCMMB 4K CONCRETE MIX SHALL BE REQUIRED FOR ALL SIDEWALKS/SHARED-USE PATHS.
4. ALL SIDEWALK/SHARED-USE PATHS SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
5. AN ISOLATION JOINT SHALL BE PLACED AT A MAXIMUM OF 100 FT. CONSTRUCTION JOINTS SHALL BE PLACED THE SAME WIDTH OF SIDEWALK/SHARED-USE PATHS, BUT NO GREATER THAN 10 FT.
6. AN ISOLATION JOINT SHALL BE PLACED WHERE THE SIDEWALK/SHARED-USE PATHS MEETS A RESIDENTIAL DRIVEWAY.
7. SHARED-USE PATHS WIDTH SHALL BE 10 FT. WIDE.
8. SIDEWALK/SHARED-USE PATHS FINISHING SHALL BE FULL BROOM FINISH OR AS DIRECTED BY CITY INSPECTOR.
9. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
SIDEWALK/SHARED-USE PATH DETAIL
Date: 05/2021
Drawn By: MJF
Checked By: DL
GEN-2


CORNER MAY BE MITERED AND ADJUSTED BACK TO ACCOMMODATE DRAINAGE
EXISTING CURB
FLOW LINES (TYP.)
45°
8'-0"
CONCRETE (KCCMB) VALLEY GUTTER

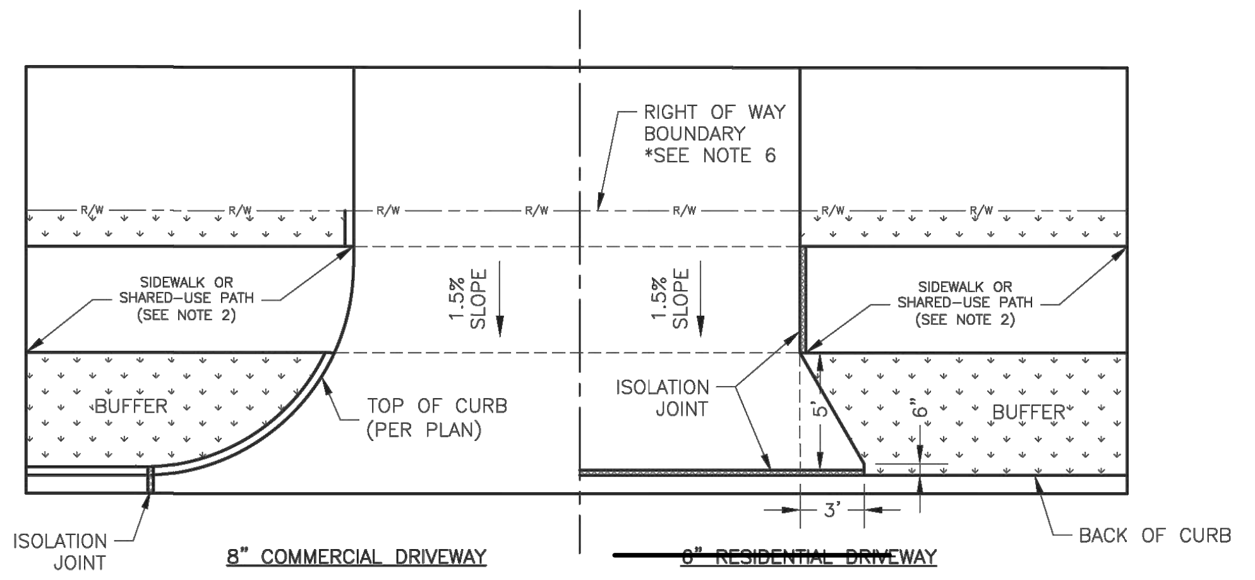
SECTION



SECTION
Scale: 1" = 1'-0"

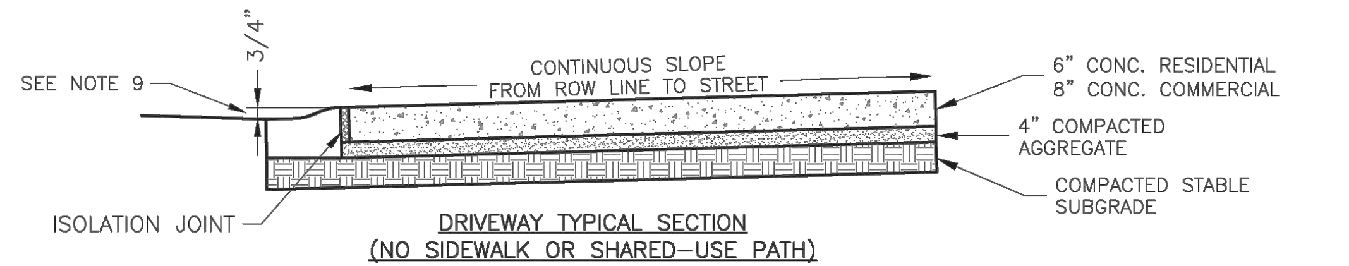
VALLEY GUTTER DETAIL
Intersection of Two Public Streets

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
VALLEY GUTTER DETAIL
Date: 05/2021
Drawn By: MJF
Checked By: DL
GEN-7

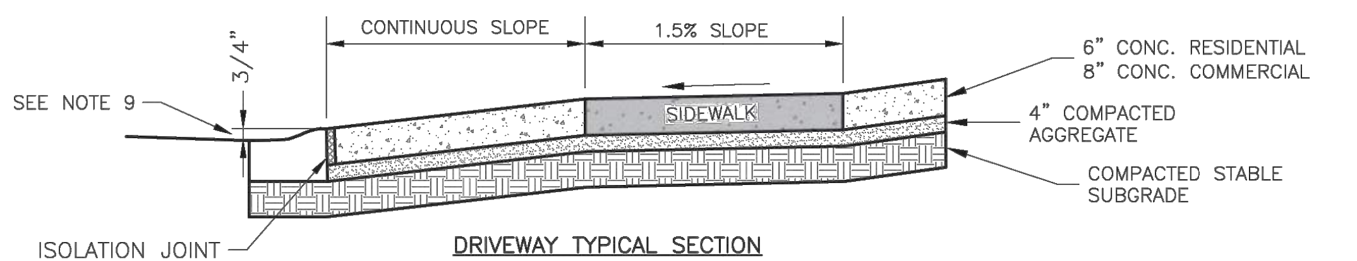


8" COMMERCIAL DRIVEWAY
~~6" RESIDENTIAL DRIVEWAY~~

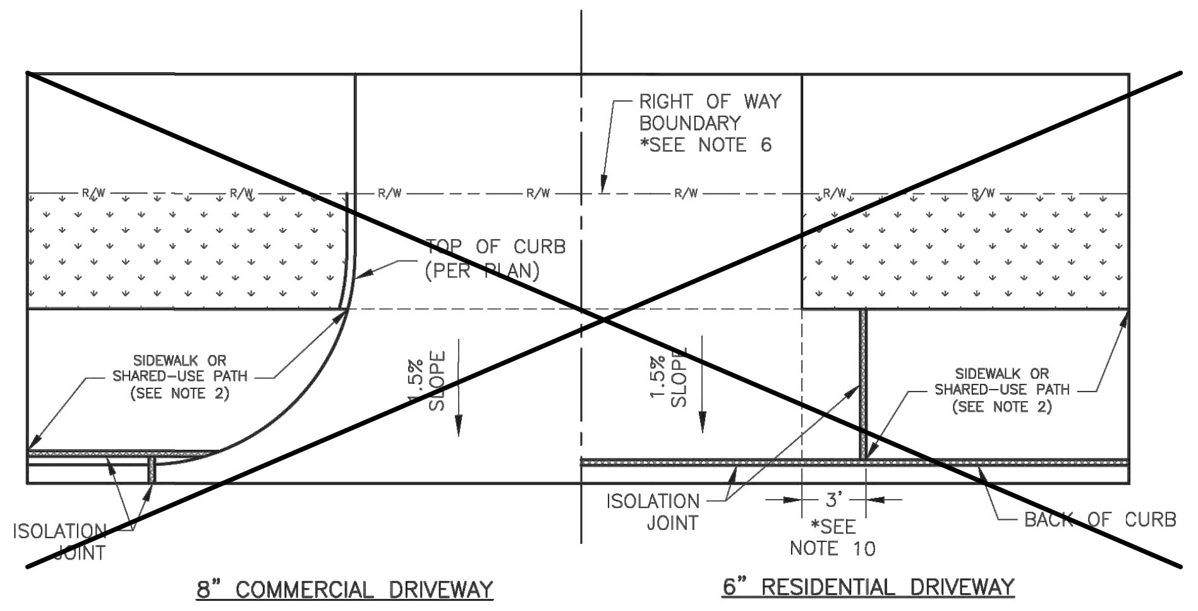
DRIVEWAY WITH BUFFER
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(NO SIDEWALK OR SHARED-USE PATH)
NOT TO SCALE

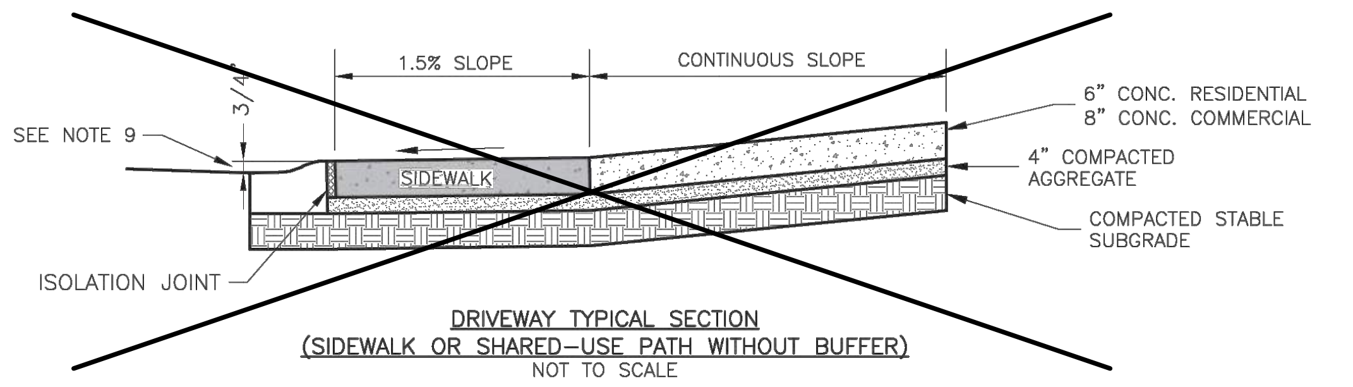


DRIVEWAY TYPICAL SECTION
(SIDEWALK OR SHARED-USE PATH WITH BUFFER)
NOT TO SCALE



~~8" COMMERCIAL DRIVEWAY~~
~~6" RESIDENTIAL DRIVEWAY~~

DRIVEWAY WITHOUT BUFFER
NOT TO SCALE



~~DRIVEWAY TYPICAL SECTION~~
~~(SIDEWALK OR SHARED-USE PATH WITHOUT BUFFER)~~
~~NOT TO SCALE~~

GENERAL NOTES
1. SUBGRADE SHALL BE STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
2. ALL DRIVE APPROACHES SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG) FOR SLOPE REQUIREMENTS WHEN SIDEWALK IS REQUIRED (SEE ADA RAMP RETROFIT DETAIL GEN-3B, SIDEWALK/SHARED USE PATH RAMP AT DRIVEWAY DETAIL).
3. JOINT AT BACK OF CURB LINE SHALL BE AN ISOLATION JOINT FOR RESIDENTIAL DRIVEWAYS.
4. KCMMB 4K CONCRETE MIX IS REQUIRED FOR ALL CURBS.
5. COMMERCIAL DRIVEWAYS, IN THE PUBLIC RIGHT OF WAY, SHALL BE KCMMB 4K CONCRETE MIX.
6. RESIDENTIAL DRIVEWAYS, IN THE PUBLIC RIGHT OF WAY, KCMMB 4K CONCRETE MIX IS RECOMMENDED. OTHER CONCRETE MIXES NEED TO BE APPROVED BY CITY INSPECTOR.
7. A JOINT MUST BE INSTALLED AT THE RIGHT OF WAY BOUNDARY FOR PROPERTY DELINEATION.
8. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.
9. ¾" FROM TOP OF CURB TO FLOWLINE AT DRIVEWAY (TYPE CG-1 CURB ONLY). MUST MAINTAIN ORIGINAL FLOWLINE OF CURB.
10. SIDEWALK ADJOINING CURB SHALL BE 6" THICK, EXTENDING 3' FROM THE DRIVEWAY.
11. THE MAXIMUM WIDTH OF A RESIDENTIAL DRIVEWAY IS 36 FEET WITHIN THE RIGHT OF WAY.

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
DRIVEWAY DETAIL
Drawn By: MJF
Checked By: DL
Date: 05/2021
GEN-1

CONSTRUCTION DOCUMENTS

Engineering Surveys & Services
DELIVERING YOUR VISION ™
1113 Fay Street, Columbia, MO 65201
573 - 449 - 2646
802 El Dorado Drive, Jefferson City, MO 65101
573-636-3303
1775 West Main Street, Sedalia, MO 65301
660-826-8618
www.ess-inc.com
MO Engineering Corp. # 2004005018

WILSHIRE HILLS PHASE III
3200 NE WILSHIRE DR
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

6/30/2023
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Date
JUNE 30, 2023

Revised

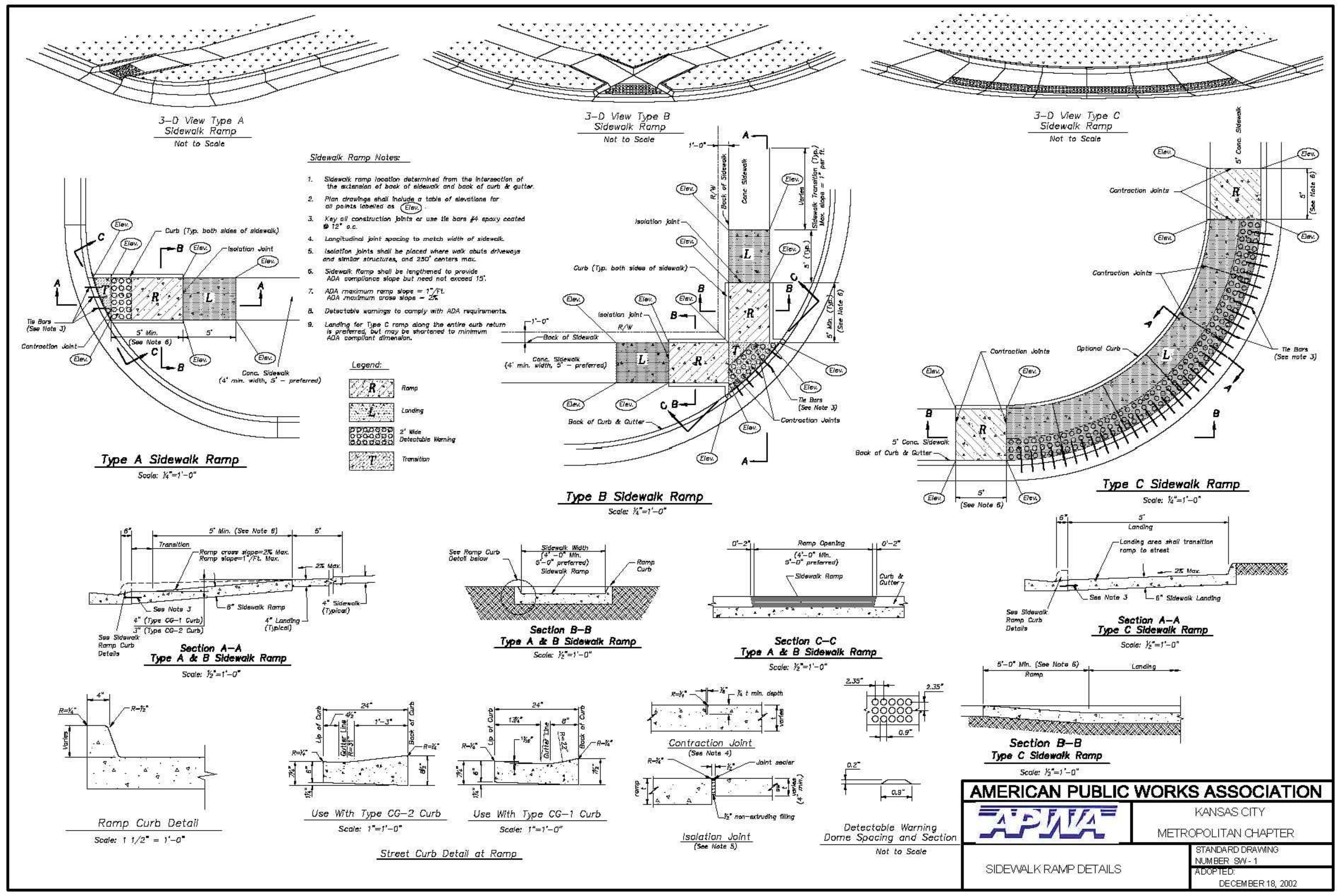
Design: ST Drawn: MJS

SITE DETAILS

Sheet
C10.02

ES&S PROJECT NO. 15925

P:\GENERAL PROJECTS\15925-JES-WLSHIRE-HILLS-3-ENG\CAD\15925 COVER & DETAILS.DWG 10/8/2024



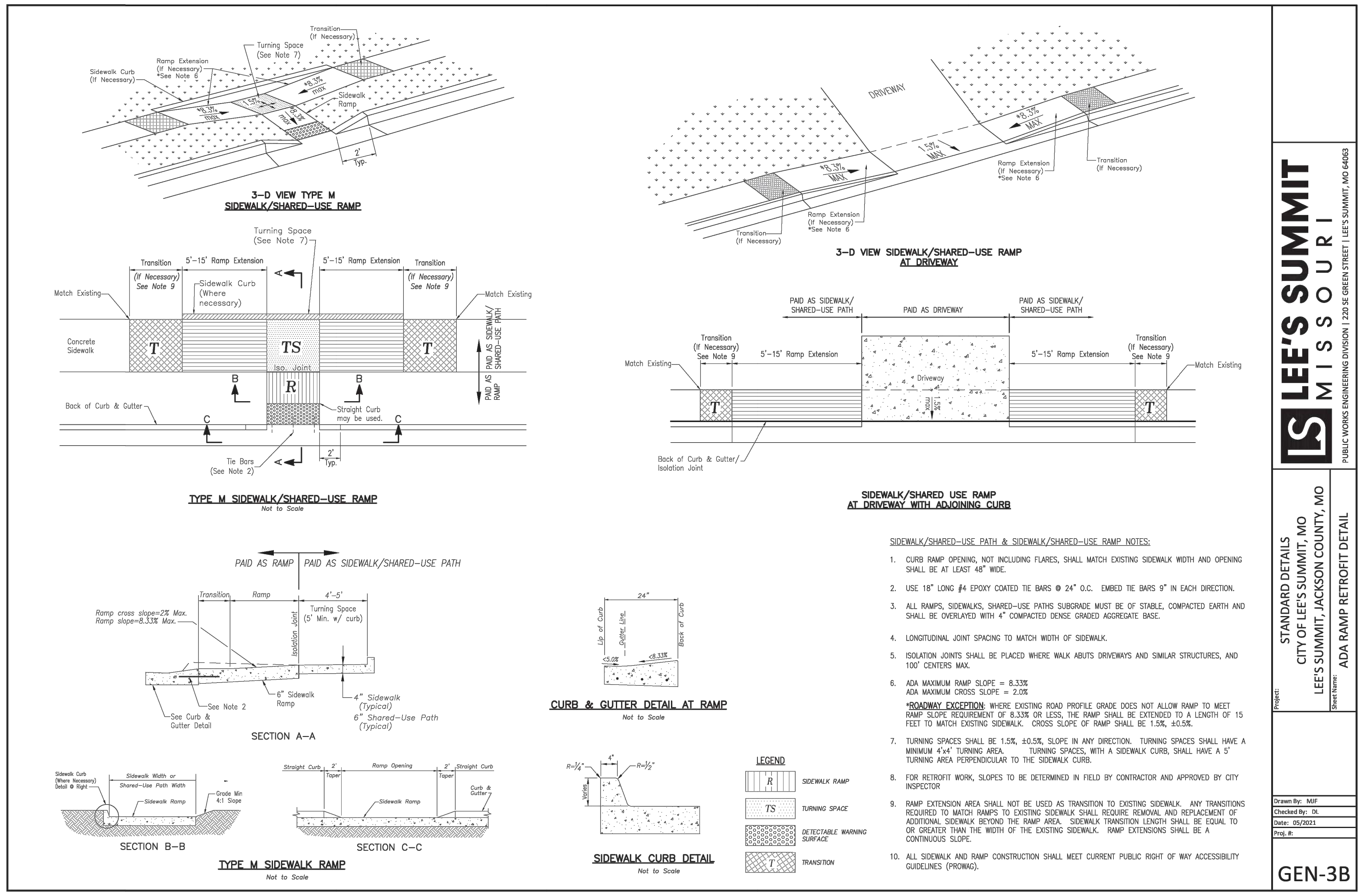
Sidewalk Ramp Notes:

1. Sidewalk ramp location determined from the intersection of the extension of back of sidewalk and back of curb & gutter.
2. Plan drawings shall include a table of elevations for all points labelled as (Elev.).
3. Key all construction joints or use tie bars #4 epoxy coated @ 12" o.c.
4. Longitudinal joint spacing to match width of sidewalk.
5. Isolation joints shall be placed where walk abuts driveways and similar structures, and 250' centers max.
6. Sidewalk Ramp shall be lengthened to provide ADA compliance slope but need not exceed 15'.
7. ADA maximum ramp slope = 1"/Ft. ADA maximum cross slope = 2%.
8. Detectable warnings to comply with ADA requirements.
9. Landing for Type C ramp along the entire curb return is preferred, but may be shortened to minimum ADA compliant dimension.

Legend:

R	Ramp
L	Landing
▨	2' Wide Detectable Warning
T	Transition

AMERICAN PUBLIC WORKS ASSOCIATION
KANSAS CITY
METROPOLITAN CHAPTER
SIDEWALK RAMP DETAILS
STANDARD DRAWING NUMBER SW - 1
ADOPTED: DECEMBER 18, 2002


3-D VIEW TYPE M SIDEWALK/SHARED-USE RAMP
TYPE M SIDEWALK/SHARED-USE RAMP
Not to Scale
3-D VIEW SIDEWALK/SHARED-USE RAMP AT DRIVEWAY
SIDEWALK/SHARED USE RAMP AT DRIVEWAY WITH ADJOINING CURB
SECTION A–A
SECTION B–B
SECTION C–C
TYPE M SIDEWALK RAMP
Not to Scale
CURB & GUTTER DETAIL AT RAMP
Not to Scale
SIDEWALK CURB DETAIL
Not to Scale
Turning Space (See Note 7)
Transition (If Necessary) See Note 9
5'-15' Ramp Extension
Match Existing
Concrete Sidewalk
Sidewalk Curb (Where necessary)
Back of Curb & Gutter
Tie Bars (See Note 2)
Straight Curb may be used
PAID AS SIDEWALK/SHARED-USE PATH
PAID AS DRIVEWAY
PAID AS RAMP
DRIVEWAY

LEGEND

R	SIDEWALK RAMP
TS	TURNING SPACE
▨	DETECTABLE WARNING SURFACE
T	TRANSITION

SIDEWALK/SHARED-USE PATH & SIDEWALK/SHARED-USE RAMP NOTES:

1. CURB RAMP OPENING, NOT INCLUDING FLARES, SHALL MATCH EXISTING SIDEWALK WIDTH AND OPENING SHALL BE AT LEAST 48" WIDE.
2. USE 18" LONG #4 EPOXY COATED TIE BARS @ 24" O.C. EMBED TIE BARS 9" IN EACH DIRECTION.
3. ALL RAMPS, SIDEWALKS, SHARED-USE PATHS SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
4. LONGITUDINAL JOINT SPACING TO MATCH WIDTH OF SIDEWALK.
5. ISOLATION JOINTS SHALL BE PLACED WHERE WALK ABUTS DRIVEWAYS AND SIMILAR STRUCTURES, AND 100' CENTERS MAX.
6. ADA MAXIMUM RAMP SLOPE = 8.33%
   ADA MAXIMUM CROSS SLOPE = 2.0%

   ***ROADWAY EXCEPTION**: WHERE EXISTING ROAD PROFILE GRADE DOES NOT ALLOW RAMP TO MEET RAMP SLOPE REQUIREMENT OF 8.33% OR LESS, THE RAMP SHALL BE EXTENDED TO A LENGTH OF 15 FEET TO MATCH EXISTING SIDEWALK. CROSS SLOPE OF RAMP SHALL BE 1.5%, ±0.5%.
7. TURNING SPACES SHALL BE 1.5%, ±0.5%, SLOPE IN ANY DIRECTION. TURNING SPACES SHALL HAVE A MINIMUM 4'x4' TURNING AREA. TURNING SPACES, WITH A SIDEWALK CURB, SHALL HAVE A 5' TURNING AREA PERPENDICULAR TO THE SIDEWALK CURB.
8. FOR RETROFIT WORK, SLOPES TO BE DETERMINED IN FIELD BY CONTRACTOR AND APPROVED BY CITY INSPECTOR
9. RAMP EXTENSION AREA SHALL NOT BE USED AS TRANSITION TO EXISTING SIDEWALK. ANY TRANSITIONS REQUIRED TO MATCH RAMPS TO EXISTING SIDEWALK SHALL REQUIRE REMOVAL AND REPLACEMENT OF ADDITIONAL SIDEWALK BEYOND THE RAMP AREA. SIDEWALK TRANSITION LENGTH SHALL BE EQUAL TO OR GREATER THAN THE WIDTH OF THE EXISTING SIDEWALK. RAMP EXTENSIONS SHALL BE A CONTINUOUS SLOPE.
10. ALL SIDEWALK AND RAMP CONSTRUCTION SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).

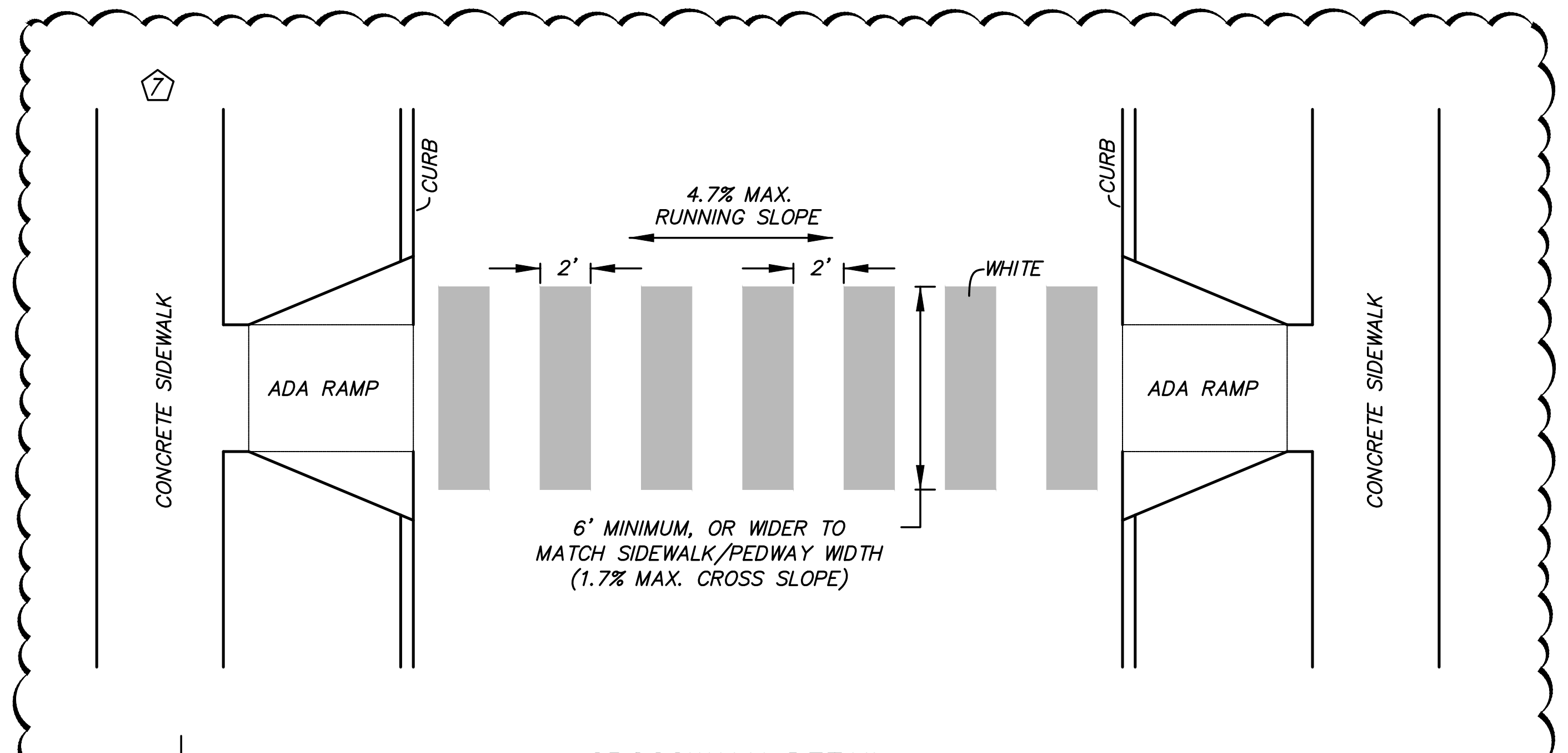
LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

Project: STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO

Sheet Name: ADA RAMP RETROFIT DETAIL

Drawn By: MJF
Checked By: DL
Date: 05/2021
Proj. #:

GEN-3B



CROSSWALK DETAIL

NOT TO SCALE

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573-636-3303

1775 West Main Street, Sedalia, MO 65301
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MO Engineering Corp. # 2004005018

WILSHIRE HILLS PHASE III
3200 NE MANHATTAN DR
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

10/4/2024
MATTHEW AARON KRIETE
NUMBER PE-2007002811

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

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Date
JUNE 30, 2023

Revised	
7	OCTOBER 4, 2024

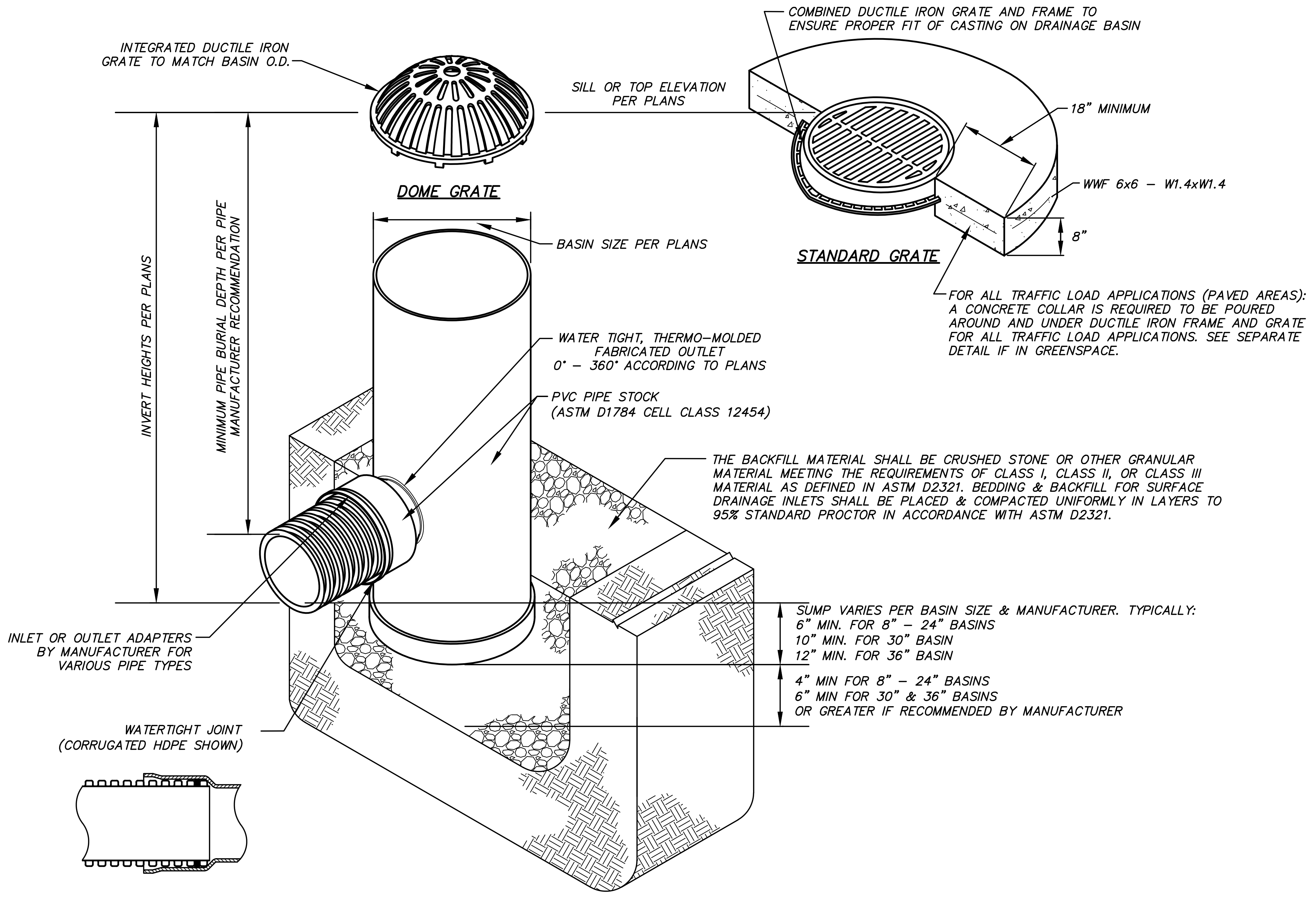
Design: ST Drawn: MJS

SITE DETAILS

Sheet
C10.03

ES&S PROJECT NO. 15925

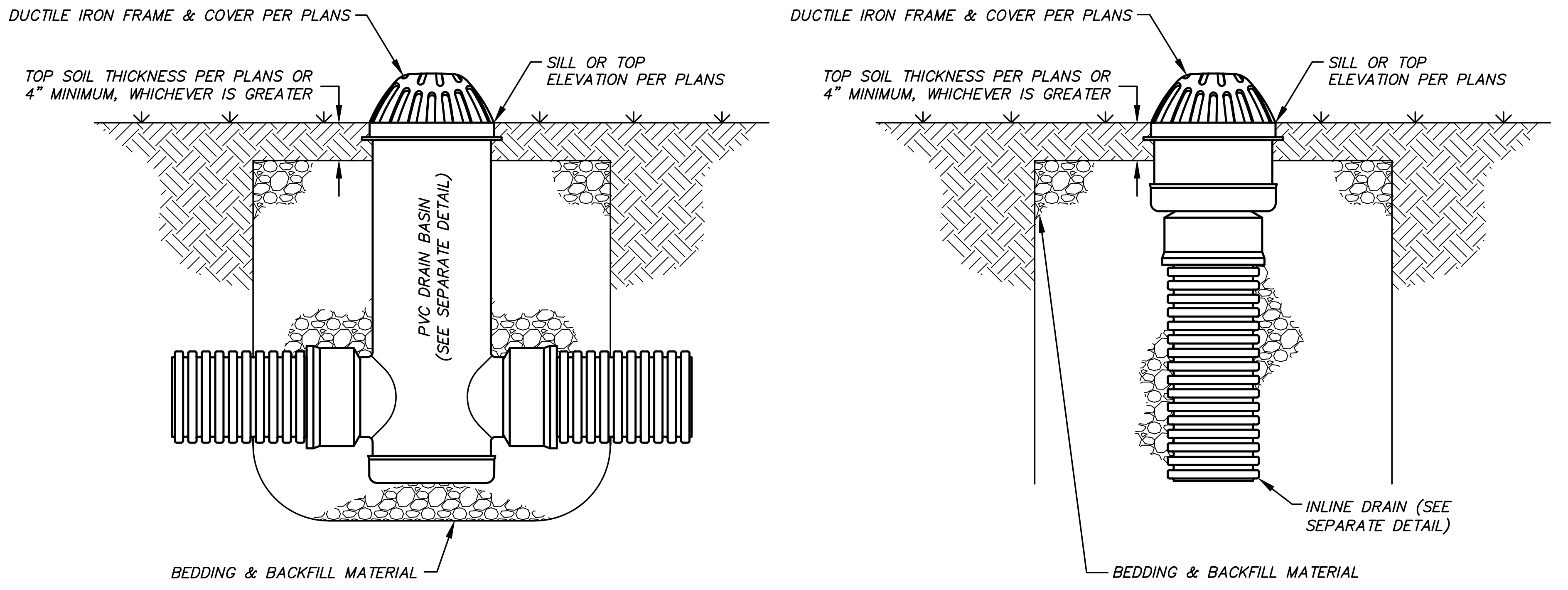
CONSTRUCTION DOCUMENTS


INTEGRATED DUCTILE IRON GRATE TO MATCH BASIN O.D.
DOME GRATE
COMBINED DUCTILE IRON GRATE AND FRAME TO ENSURE PROPER FIT OF CASTING ON DRAINAGE BASIN
SILL OR TOP ELEVATION PER PLANS
18" MINIMUM
WWF 6x6 – W1.4xW1.4
8"
STANDARD GRATE
FOR ALL TRAFFIC LOAD APPLICATIONS (PAVED AREAS): A CONCRETE COLLAR IS REQUIRED TO BE POURED AROUND AND UNDER DUCTILE IRON FRAME AND GRATE FOR ALL TRAFFIC LOAD APPLICATIONS. SEE SEPARATE DETAIL IF IN GREENSPACE.
BASIN SIZE PER PLANS
INVERT HEIGHTS PER PLANS
MINIMUM PIPE BURIAL DEPTH PER PIPE MANUFACTURER RECOMMENDATION
WATER TIGHT, THERMO-MOLDED FABRICATED OUTLET 0° – 360° ACCORDING TO PLANS
PVC PIPE STOCK (ASTM D1784 CELL CLASS 12454)
THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS I, CLASS II, OR CLASS III MATERIAL AS DEFINED IN ASTM D2321. BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN LAYERS TO 95% STANDARD PROCTOR IN ACCORDANCE WITH ASTM D2321.
INLET OR OUTLET ADAPTERS BY MANUFACTURER FOR VARIOUS PIPE TYPES
SUMP VARIES PER BASIN SIZE & MANUFACTURER. TYPICALLY:
6" MIN. FOR 8" – 24" BASINS
10" MIN. FOR 30" BASIN
12" MIN. FOR 36" BASIN
4" MIN FOR 8" – 24" BASINS
6" MIN FOR 30" & 36" BASINS
OR GREATER IF RECOMMENDED BY MANUFACTURER
WATERTIGHT JOINT (CORRUGATED HDPE SHOWN)

NOTES:
1. ALL CONNECTIONS SHALL BE WATERTIGHT.
2. SEE PLANS FOR GRATE TYPE FOR EACH BASIN.
3. ALL FRAMES & GRATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70–50–05, OR 80–55–06.
4. ALL STANDARD OR SOLID GRATES SHALL BE MEET H–20 LOAD RATING. DOME GRATES HAVE NO LOAD RATING.
5. DRAIN BASINS SHALL BE CUSTOM MANUFACTURED AS A SINGLE UNIT ACCORDING TO PLAN DIMENSIONS. RISERS SHALL NOT BE ALLOWED WITHOUT PRIOR APPROVAL BY ENGINEER.
6. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE & PVC PIPE.
7. STORM INLET TOP/GRATE SHALL BE LABELED TO DISCOURAGE DUMPING OF POLLUTANTS TO WATERWAY.

PVC DRAIN BASIN & GRATE

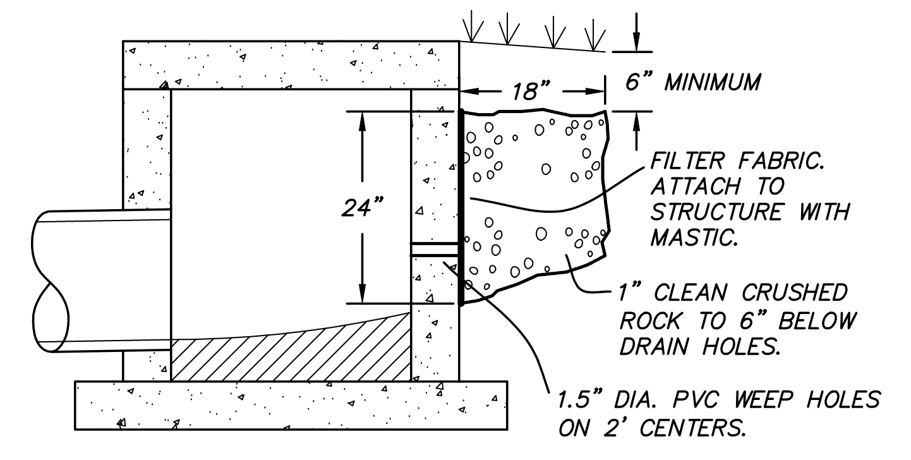
NOT TO SCALE


DUCTILE IRON FRAME & COVER PER PLANS
TOP SOIL THICKNESS PER PLANS OR 4" MINIMUM, WHICHEVER IS GREATER
SILL OR TOP ELEVATION PER PLANS
PVC DRAIN BASIN (SEE SEPARATE DETAIL)
BEDDING & BACKFILL MATERIAL
DUCTILE IRON FRAME & COVER PER PLANS
TOP SOIL THICKNESS PER PLANS OR 4" MINIMUM, WHICHEVER IS GREATER
SILL OR TOP ELEVATION PER PLANS
INLINE DRAIN (SEE SEPARATE DETAIL)
BEDDING & BACKFILL MATERIAL

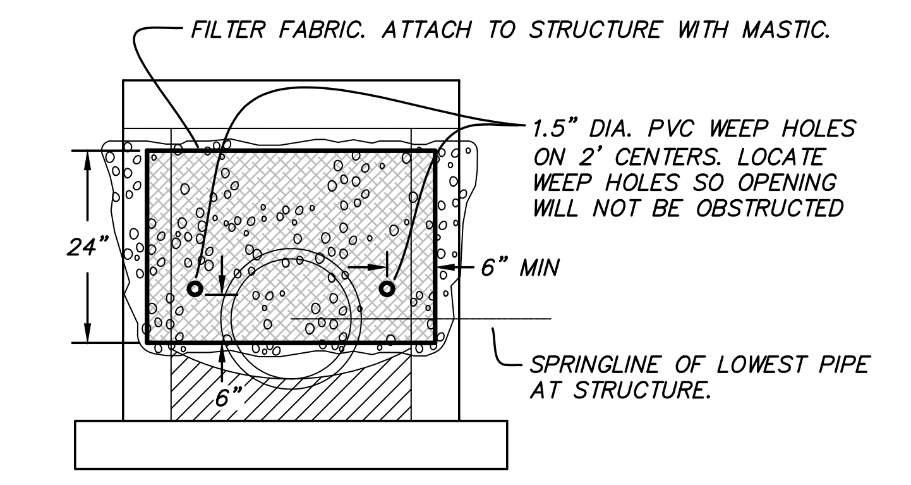
NOTES:
1. THE BEDDING & BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS I, CLASS II, OR CLASS III MATERIAL AS DEFINED IN ASTM D2321. ALL BEDDING & BACKFILL SHALL BE PLACED & COMPACTED UNIFORMLY IN LIFTS TO 95% STANDARD PROCTOR IN ACCORDANCE WITH ASTM D2321.
2. STORM INLET TOP/GRATE SHALL BE LABELED TO DISCOURAGE DUMPING OF POLLUTANTS TO WATERWAY.

PVC BASIN/DRAIN INSTALLATION FOR NON–TRAFFIC/GREENSPACE AREAS ONLY

NOT TO SCALE


18"
6" MINIMUM
24"
FILTER FABRIC. ATTACH TO STRUCTURE WITH MASTIC.
1" CLEAN CRUSHED ROCK TO 6" BELOW DRAIN HOLES.
1.5" DIA. PVC WEEP HOLES ON 2' CENTERS.

CROSS SECTION


FILTER FABRIC. ATTACH TO STRUCTURE WITH MASTIC.
1.5" DIA. PVC WEEP HOLES ON 2' CENTERS. LOCATE WEEP HOLES SO OPENING WILL NOT BE OBSTRUCTED
24"
6" MIN
6"
SPRINGLINE OF LOWEST PIPE AT STRUCTURE.

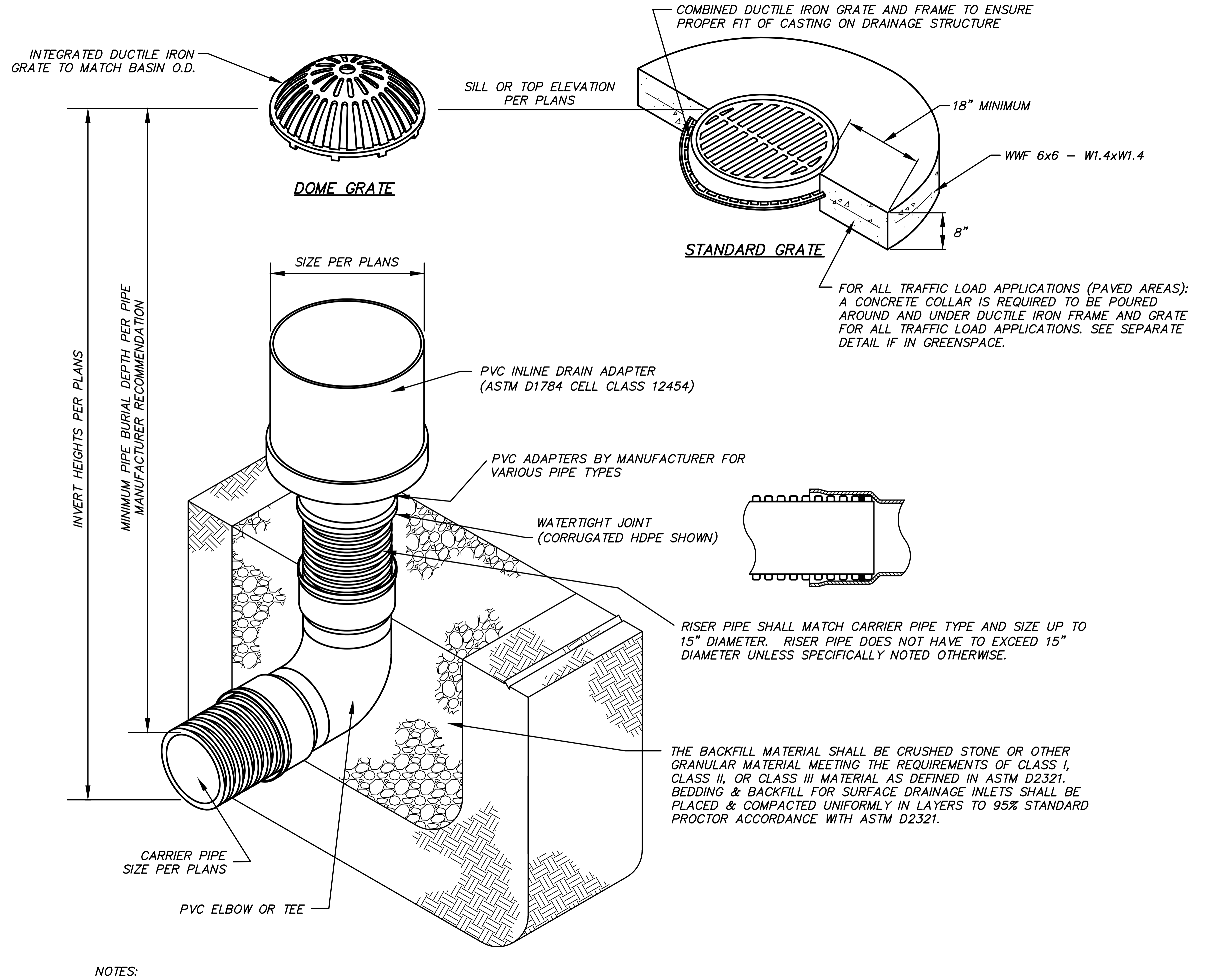
ELEVATION

NOTES:
1. PLACE WEEP HOLES ON UPSTREAM FACE OF ALL STRUCTURES AND ALSO ON PAVEMENT FACE OF CURB INLET STRUCTURES.
2. WEEP HOLE FILTER FABRIC SHALL CONSIST OF A NON WOVEN, POLYPROPYLENE TYPE FABRIC SUCH AS: TENCATE MIRAFI 180N, GEOTEX 801, OR APPROVED EQUAL.

WEEP HOLES

FOR CONCRETE STORM SEWER STRUCTURES

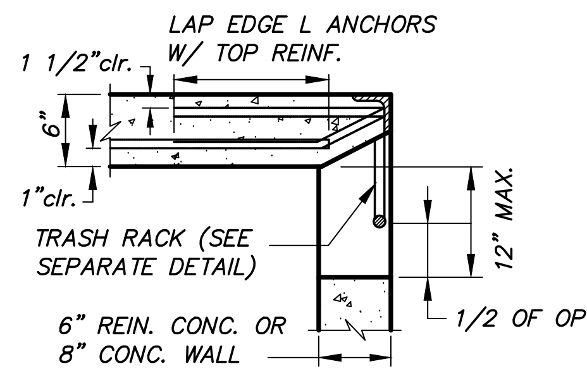
NOT TO SCALE


INTEGRATED DUCTILE IRON GRATE TO MATCH BASIN O.D.
DOME GRATE
COMBINED DUCTILE IRON GRATE AND FRAME TO ENSURE PROPER FIT OF CASTING ON DRAINAGE STRUCTURE
SILL OR TOP ELEVATION PER PLANS
18" MINIMUM
WWF 6x6 – W1.4xW1.4
8"
STANDARD GRATE
FOR ALL TRAFFIC LOAD APPLICATIONS (PAVED AREAS): A CONCRETE COLLAR IS REQUIRED TO BE POURED AROUND AND UNDER DUCTILE IRON FRAME AND GRATE FOR ALL TRAFFIC LOAD APPLICATIONS. SEE SEPARATE DETAIL IF IN GREENSPACE.
SIZE PER PLANS
INVERT HEIGHTS PER PLANS
MINIMUM PIPE BURIAL DEPTH PER PIPE MANUFACTURER RECOMMENDATION
PVC INLINE DRAIN ADAPTER (ASTM D1784 CELL CLASS 12454)
PVC ADAPTERS BY MANUFACTURER FOR VARIOUS PIPE TYPES
WATERTIGHT JOINT (CORRUGATED HDPE SHOWN)
RISER PIPE SHALL MATCH CARRIER PIPE TYPE AND SIZE UP TO 15" DIAMETER. RISER PIPE DOES NOT HAVE TO EXCEED 15" DIAMETER UNLESS SPECIFICALLY NOTED OTHERWISE.
THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS I, CLASS II, OR CLASS III MATERIAL AS DEFINED IN ASTM D2321. BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN LAYERS TO 95% STANDARD PROCTOR ACCORDANCE WITH ASTM D2321.
CARRIER PIPE SIZE PER PLANS
PVC ELBOW OR TEE

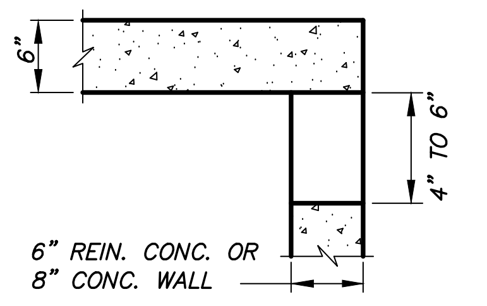
NOTES:
1. ALL CONNECTIONS SHALL BE WATERTIGHT.
2. SEE PLANS FOR GRATE TYPE FOR EACH DRAIN.
3. ALL FRAMES & GRATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70–50–05, OR 80–55–06.
4. ALL STANDARD OR SOLID GRATES SHALL BE MEET H–20 LOAD RATING. DOME GRATES HAVE NO LOAD RATING.
5. DRAIN ADAPTER SHALL BE CUSTOM MANUFACTURED AS A SINGLE UNIT ACCORDING TO PLAN DIMENSIONS. RISERS SHALL NOT BE ALLOWED WITHOUT PRIOR APPROVAL BY ENGINEER.
6. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE & PVC PIPE.
7. STORM INLET TOP/GRATE SHALL BE LABELED TO DISCOURAGE DUMPING OF POLLUTANTS TO WATERWAY.

PVC INLINE DRAIN & GRATE

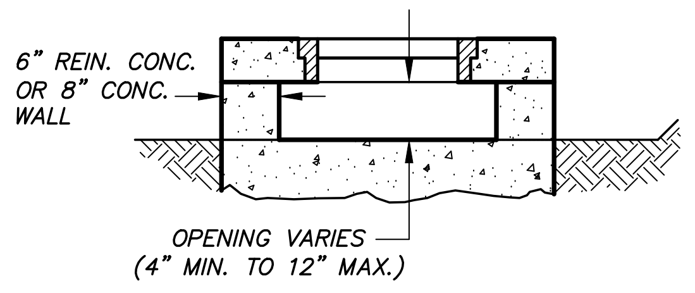
NOT TO SCALE


LAP EDGE L ANCHORS W/ TOP REINF.
1 1/2"clr.
6"
1"clr.
TRASH RACK (SEE SEPARATE DETAIL)
12" MAX.
1/2 OF OPG.
6" REIN. CONC. OR 8" CONC. WALL

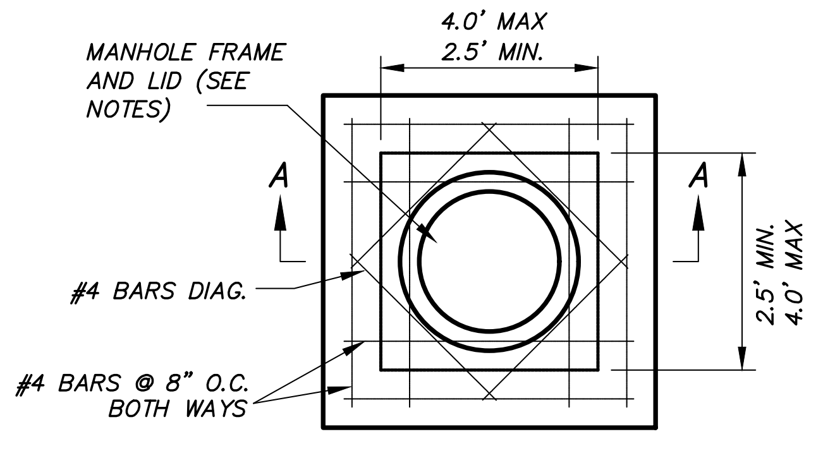
OPENINGS OVER 6"



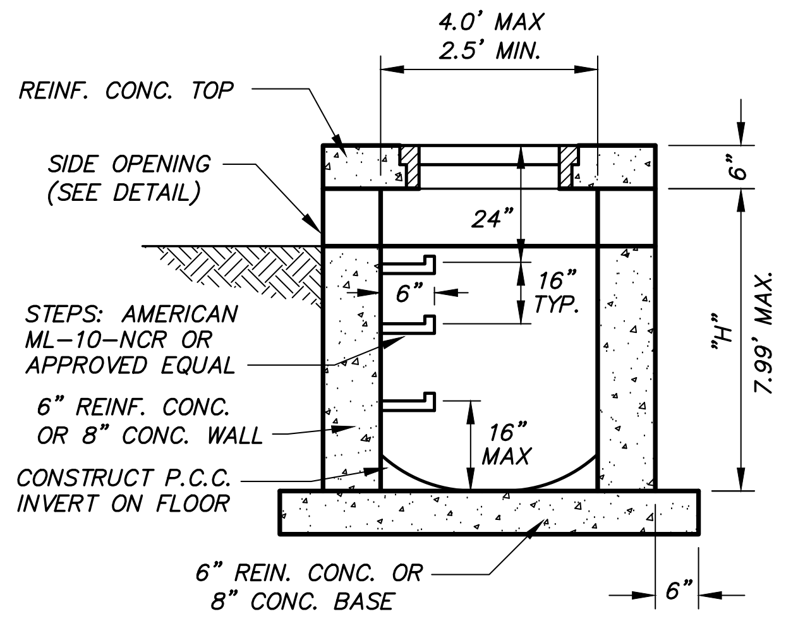
OPENINGS 4" TO 6"


6" REIN. CONC. OR 8" CONC. WALL
OPENING VARIES (4" MIN. TO 12" MAX.)

SIDE OPENING DETAIL


MANHOLE FRAME AND LID (SEE NOTES)
4.0' MAX
2.5' MIN.
A
A
#4 BARS DIAG.
#4 BARS @ 8" O.C. BOTH WAYS
2.5' MIN.
4.0' MAX

PLAN VIEW

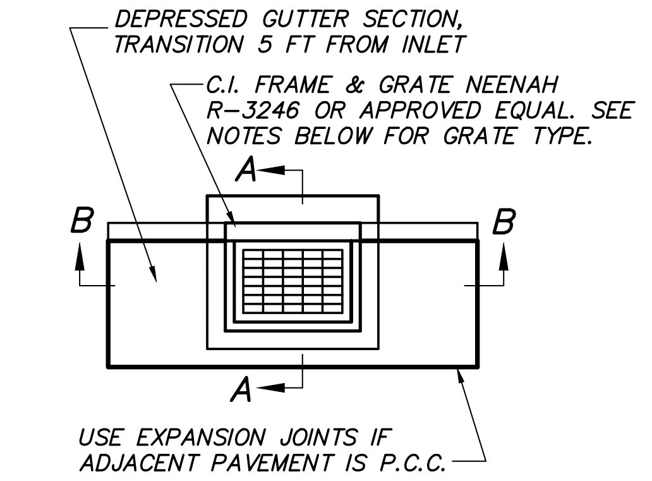

4.0' MAX
2.5' MIN.
REINF. CONC. TOP
SIDE OPENING (SEE DETAIL)
6"
24"
6"
16" TYP.
STEPS: AMERICAN ML–10–NCR OR APPROVED EQUAL
"H"
7.99' MAX.
6" REINF. CONC. OR 8" CONC. WALL
16" MAX
CONSTRUCT P.C.C. INVERT ON FLOOR
6" REIN. CONC. OR 8" CONC. BASE
6"

SECTION A–A

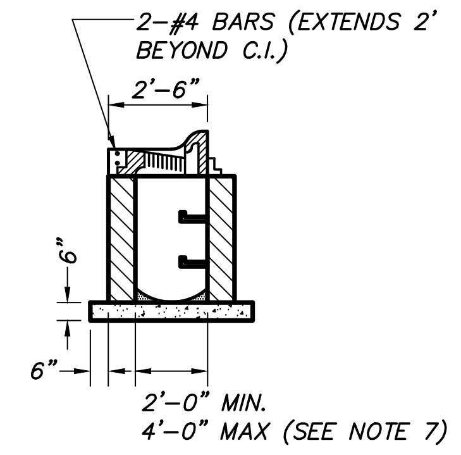
NOTES:
1. CONCRETE SHALL BE 4,000 PSI AT 28 DAYS WITH 6% AIR.
2. REINFORCING STEEL SHALL BE GRADE 60.
3. INSTALL WEEP HOLES PER SEPARATE DETAIL.
4. REINFORCED CONCRETE SHALL BE #4 BARS AT 12" CTRS, BOTH WAYS AND #4 BARS DIAGONAL AT PIPE OPENINGS.
5. FRAME AND LID SHALL BE NEENAH R–1960–A (TYPE C LID), DEETER 1180, OR APPROVED EQUAL.
6. SIDE OPENINGS SHALL BE 6" HIGH ON ALL FOUR SIDES UNLESS NOTED OTHERWISE.
7. INSTALL TRASH RACK ON OPENINGS OVER 6". SEE SEPARATE DETAIL.
8. FORM ALL INVERTS FOR SMOOTH FLOW THRU STRUCTURE.
9. SEE SEPARATE DETAIL FOR CONCRETE BOX DESIGN FOR DIMENSIONS THAT EXCEED THE MAXIMUMS LISTED HERE.
10. STEPS NOT REQUIRED WHERE "H" IS LESS THAN 4'. PLACE STEPS ON VACANT WALL WHEN POSSIBLE. STAGGER STEPS 2" EACH WAY FROM CENTERLINE OF FRAME AND LID.
11. FRAME AND LID SHALL BE CENTERED ON CENTERLINE OF STEPS.
12. STORM INLET TOP/GRATE SHALL BE LABELED TO DISCOURAGE DUMPING OF POLLUTANTS TO WATERWAY.

SIDE OPENING INLET

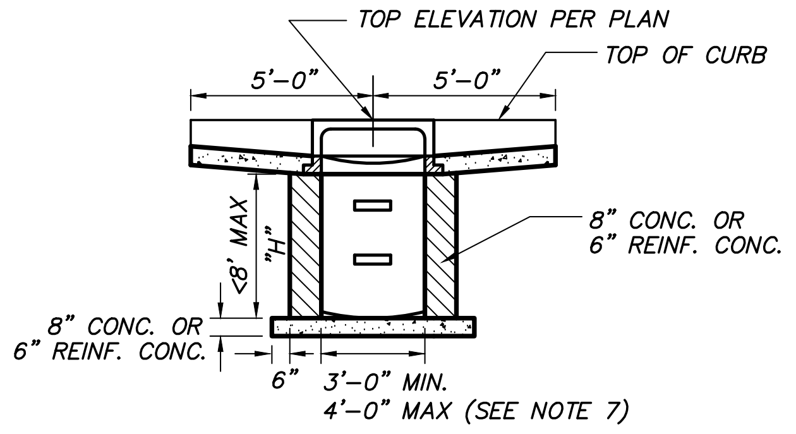
NOT TO SCALE


DEPRESSED GUTTER SECTION, TRANSITION 5 FT FROM INLET
C.I. FRAME & GRATE NEENAH R–3246 OR APPROVED EQUAL. SEE NOTES BELOW FOR GRATE TYPE.
A
B
B
A
USE EXPANSION JOINTS IF ADJACENT PAVEMENT IS P.C.C.

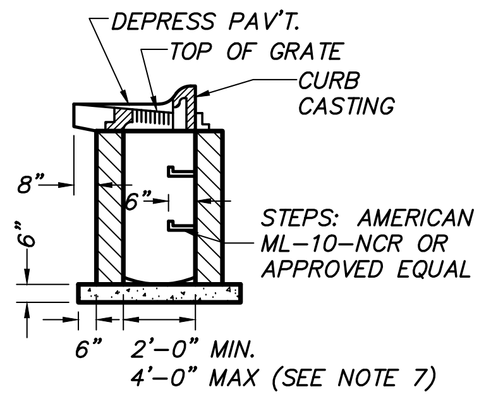
PLAN – SINGLE



SECTION A–A
ALTERNATE



SECTION B–B



SECTION A–A

NOTES:
1. CONCRETE SHALL BE 4,000 PSI AT 28 DAYS WITH 6% AIR.
2. INSTALL WEEP HOLES PER SEPARATE DETAIL.
3. REINFORCED CONCRETE SHALL BE #4 BARS AT 12" CTRS, BOTH WAYS AND #4 BARS DIAGONAL AT PIPE OPENINGS FOR BOXES UP TO 4.0' WIDTH AND <8' HEIGHT. SEE SEPARATE DETAIL FOR CONCRETE BOX DESIGN FOR DIMENSIONS THAT EXCEED THESE MAXIMUMS.
4. FORM ALL INVERTS FOR SMOOTH FLOW THRU STRUCTURE WITH NON SHRINK GROUT.
5. STEPS NOT REQUIRED WHERE "H" IS LESS THAN 4' PLACE STEPS ON VACANT WALL WHEN POSSIBLE. STAGGER STEPS 2" FROM CENTERLINE OF FRAME AND GRATE. TOP STEP SHALL BE 24" BELOW GRATE. STEP SPACING SHALL BE 16" TO BOTTOM OF STRUCTURE.
6. GRATE SHALL BE NEENAH TYPE C IF AT LOW POINT (SUMP) OR TYPE L BICYCLE VANE GRATE WHEN INLET IS SET ON GRADE (NOT IN SUMP).
7. FOR STRUCTURES LARGER THAN 3'x2' FOR SINGLE INLETS, OR 6'–2"x2' FOR DOUBLE INLETS, INSTALL REINFORCED CONCRETE TOP WITH 3'x2' OR 6'–2"x2' OPENING.
8. FOR BOXES <4' WIDE AND <8' TALL TOP REINFORCEMENT SHALL BE #4 BARS @ 8" E.W. WITH #4 BARS DIAGONAL AT OPENING. BOXES >4' WIDE AND >8' TALL REINFORCEMENT SHALL BE PER SEPARATE DETAIL.
9. TOP ELEVATION SHOWN ON THE PLAN SHALL BE THE CENTER OF THE CURB RETURN OF THE CASTING.
10. SLOPE THE TOP TO MATCH ADJACENT GRADE IF NOT LOCATED AT LOW POINT. MAINTAIN WATERTIGHTNESS.
11. STORM INLET TOP/GRATE SHALL BE LABELED TO DISCOURAGE DUMPING OF POLLUTANTS TO WATERWAY.

TYPE "A" INLET (CURB INLET)

NOT TO SCALE

P:\GENERAL PROJECTS\15925E-JES-WILSHIRE-HILLS-3-ENG\CAD\15925 COVER & DETAILS.DWG 6/30/2023

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WILSHIRE HILLS PHASE III

3200 NE WILSHIRE DR
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

6/30/2023

MATTHEW AARON KRIETE
NUMBER PE-2007002811

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

IF ORIGINAL SIGNATURE OR DIGITAL AUTHENTICATION IS NOT PRESENT THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.

Date
JUNE 30, 2023

Revised

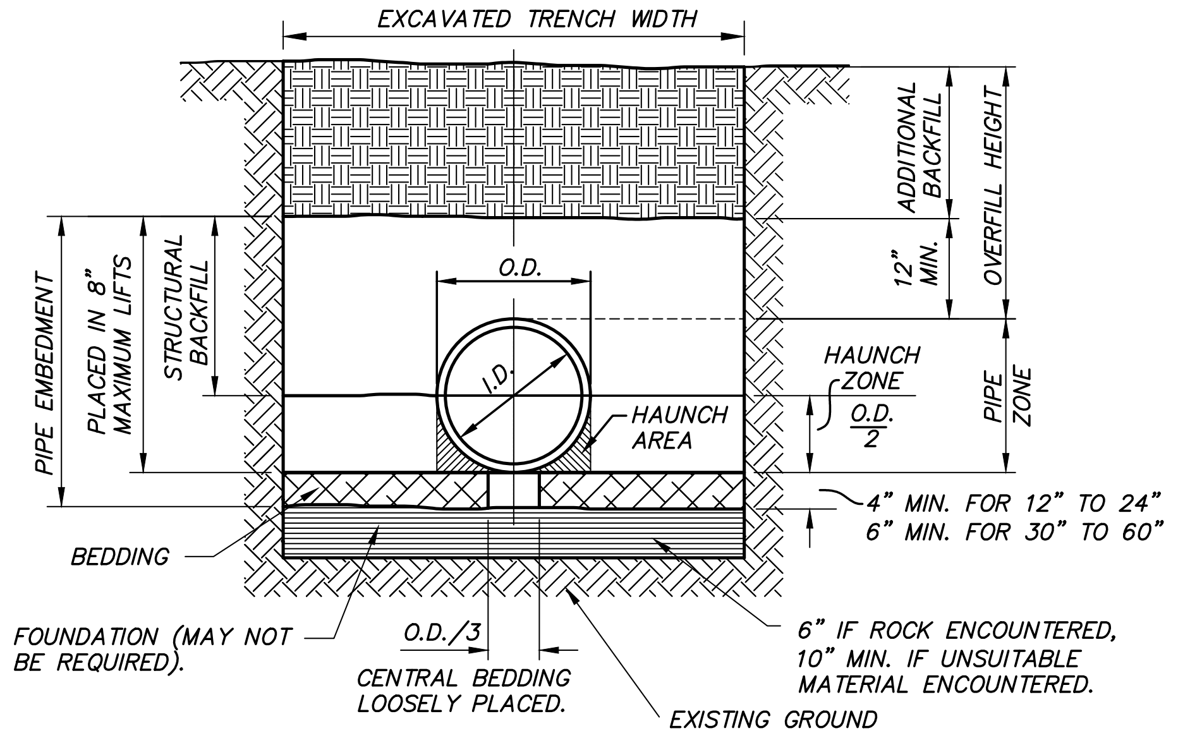
CONSTRUCTION DOCUMENTS

Design: ST Drawn: MJS

STORM SEWER DETAILS

Sheet
C11.01

ES&S PROJECT NO. 15925



TYPICAL TRENCH DETAIL

BACKFILL NOTES:

1. BEDDING, HAUNCH, AND STRUCTURAL BACKFILL SHALL BE IN CONFORMANCE WITH AASHTO M145 A1 OR A-3 COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS DEFINED BY ASTM D698.
2. ALL PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND ASTM D2321 LATEST ADDITION.
3. HAUNCH, STRUCTURAL, AND ADDITIONAL BACKFILL SHALL BE PLACED IN LIFTS NOT TO EXCEED 8 INCHES AND COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DEFINED BY ASTM D698.

TABLE II
MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIA. (IN.)	MINIMUM COVER (FT) FOR INDICATED AXLE LOADS (THOUSANDS OF POUNDS)			
	18–50	50–75	75–110	110–150
12–36	2.0	2.5	3.0	3.0
42–48	3.0	3.0	3.5	4.0

THE CONTRACTOR SHALL PROVIDE MINIMUM COVER PLUS ANY ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. IN UNPAVED SITUATIONS, THE SURFACE MUST BE MAINTAINED TO A LEVEL AND NON-RUTTED CONDITION.

LEGEND

I.D. = NORMAL INSIDE DIAMETER OF PIPE.
O.D. = OUTSIDE DIAMETER OF PIPE.
H = FILL COVER HEIGHT OVER PIPE (FEET).
MIN. = MINIMUM
MAX = MAXIMUM
▨ = UNDISTURBED SOIL

CONSTRUCTION SEQUENCE:

1. PLACE BEDDING MATERIAL TO GRADE.
2. COMPACT BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
3. INSTALL PIPE TO GRADE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE SPRINGLINE.
5. COMPLETE BACKFILL ACCORDING TO SPECIFICATIONS.

TABLE I
CORRUGATED HDPE AND POLYVINYL CHLORIDE CIRCULAR PIPE

SPECIFIED DIA OF PIPE (IN.)	MIN OVERFILL HEIGHT (FT)	HDPE MAX OVERFILL HEIGHT* (FT)	POLYVINYL CHLORIDE MAX OVERFILL HEIGHT* (FT)		VIRGIN RESIN (AASHTO M294) OVERFILL HEIGHT* (FT)			ENGINEERED COMPOUND (RECYCLED, ASTM F2648) OVERFILL HEIGHT* (FT)			TRENCH WIDTH (IN.)
			SDR 35#	SDR 26#	CLASS 1**	CLASS 2**	CLASS 3**	CLASS 1**	CLASS 2**	CLASS 3**	
12	2	26	15	30	43	29	21	27	19	12	34
15	2	28	15	30	45	30	22	27	20	13	39
18	2	24	15	30	40	27	19	25	18	11	44
24	2	20	15	30	36	25	17	22	16	12	55
30	2.5	17	N/A	N/A	29	21	15	16	12	6	67
36	2.5	19	N/A	N/A	34	23	16	21	15	10	76
42	2.5	19	N/A	N/A	31	23	16	17	13	7	84
48	2.5	17	N/A	N/A	30	20	14	18	13	10	95
54	2.5	9	N/A	N/A	33	22	15	N/A	N/A	N/A	104
60	2.5	9	N/A	N/A	33	22	15	20	15	10	113

TABLE ASSUMES STANDARD PROCTOR DENSITY OF 95%
* MAXIMUM OVERFILL MEASURED FROM THE TOP OF PIPE TO SURFACE
** CLASS 1 – CRUSHED ROCK, ANGULAR; AASHTO M43 – 5, 6, 56, 57, 67
** CLASS 2 – CLEAN, COURSE GRAINED SOILS TO BORDERLINE CLEAN FINES; AASHTO M43 – 5, 6, 56, 57, 67; AASHTO M145 – A1, A3
** CLASS 3 – COURSE GRAINED SOILS WITH FINES AND INORGANIC FINE-GRAINED SOILS; AASHTO M43 – GRAVEL AND SAND WITH <10% FINES; AASHTO M145 – A-2-4, A-2-5, A-2-6, A-4, OR A-6 WITH >30% RETAINED ON #200 SIEVE
** REFER TO CURRENT ADS INC. DRAINAGE HANDBOOK FOR A COMPLETE LISTING OF SUITABLE MATERIALS
# PER ASTM D-3034 FOR PIPE UP TO 15" AND ASTM F679 OVER 15"

EMBEDMENT OF PLASTIC STORM SEWER PIPE

NOT TO SCALE

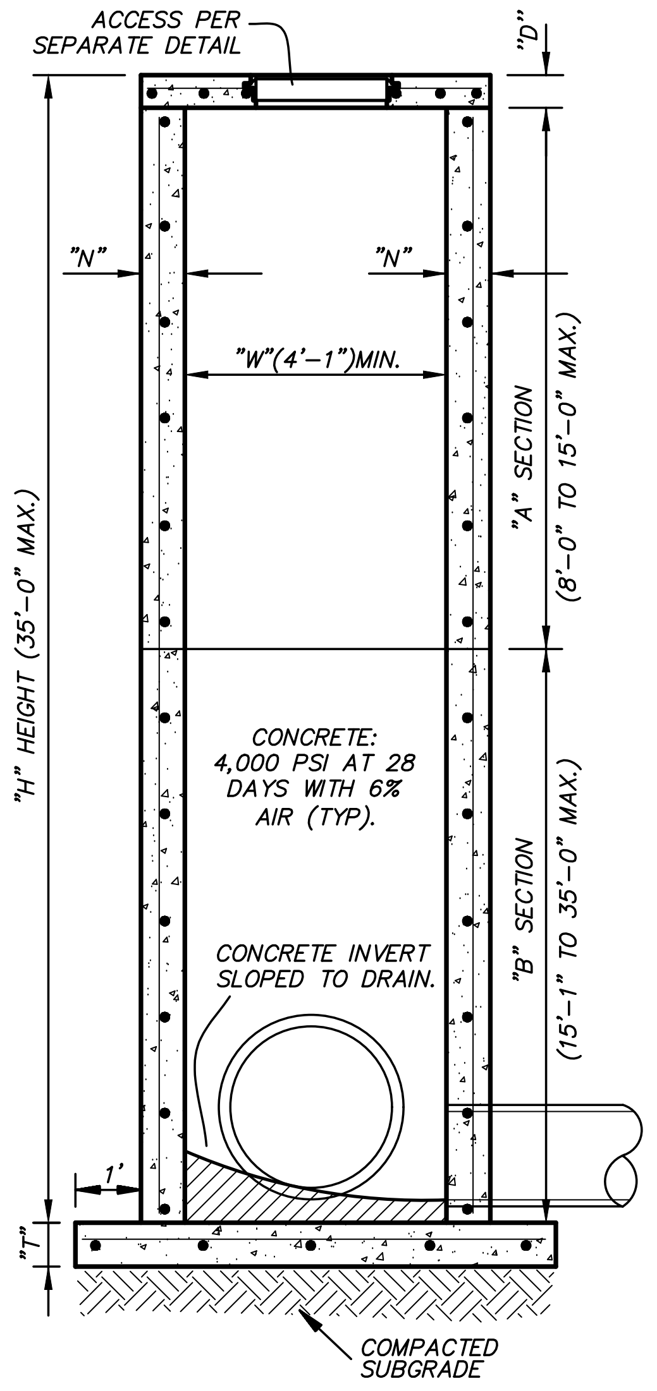

ACCESS PER SEPARATE DETAIL
"D"
"N"
"N"
"W"(4'-1")MIN.
"H" HEIGHT (35'-0" MAX.)
"A" SECTION (8'-0" TO 15'-0" MAX.)
"B" SECTION (15'-1" TO 35'-0" MAX.)
CONCRETE: 4,000 PSI AT 28 DAYS WITH 6% AIR (TYP).
CONCRETE INVERT SLOPED TO DRAIN.
1'
"T"
COMPACTED SUBGRADE

TABLE OF "T" & "N" DIMENSIONS				
SECTION	WIDTH ("W")	"T"	"N"	"D"
"A"	BETWEEN 4' & 7'	6" + PIPE THICKNESS	8"	6"
	GREATER THAN 7'	6" + PIPE THICKNESS	8"	8"
"B"	4'-1"	6" + PIPE THICKNESS	8"	8"
	BETWEEN 4' & 7'	6" + PIPE THICKNESS	10"	8"

REINFORCEMENT SCHEDULE, TOP		
DIMENSIONS	STEEL	SPECIAL PATTERN
W1 = 7' OR LESS W2 = 7' OR LESS	#4's @ 8" E.W. #4's @ 8" E.W.	DIAGONAL @ COVER DIAGONAL @ COVER
W1 = 7' OR LESS W2 = GREATER THAN 7'	#4's @ 8" E.W. #4'S @ 6" E.W.	DIAGONAL @ COVER DIAGONAL @ COVER
W1 = GREATER THAN 7' W2 = GREATER THAN 7'	#4's @ 6" E.W. #4's @ 6" E.W.	DIAGONAL @ COVER DIAGONAL @ COVER

REINFORCEMENT SCHEDULE, WALLS			
SECTION	WIDTH ("W")	HOR.	VERT.
"A"	4'-1"	#4's @ 9"	#4's @ 10"
	BETWEEN 4' & 7'	#6's @ 9"	#4's @ 10"
	GREATER THAN 7'	#5's @ 4 1/2"	#4's @ 10"
"B"	4'-1"	#4's @ 6"	#4's @ 10"
	BETWEEN 4' & 7'	#6's @ 6"	#4's @ 10"

REINFORCEMENT SCHEDULE, BASE	
SECTION	
"A" ONLY	#4's @ 6" E.W.
"A" & "B"	#6's @ 6" E.W.

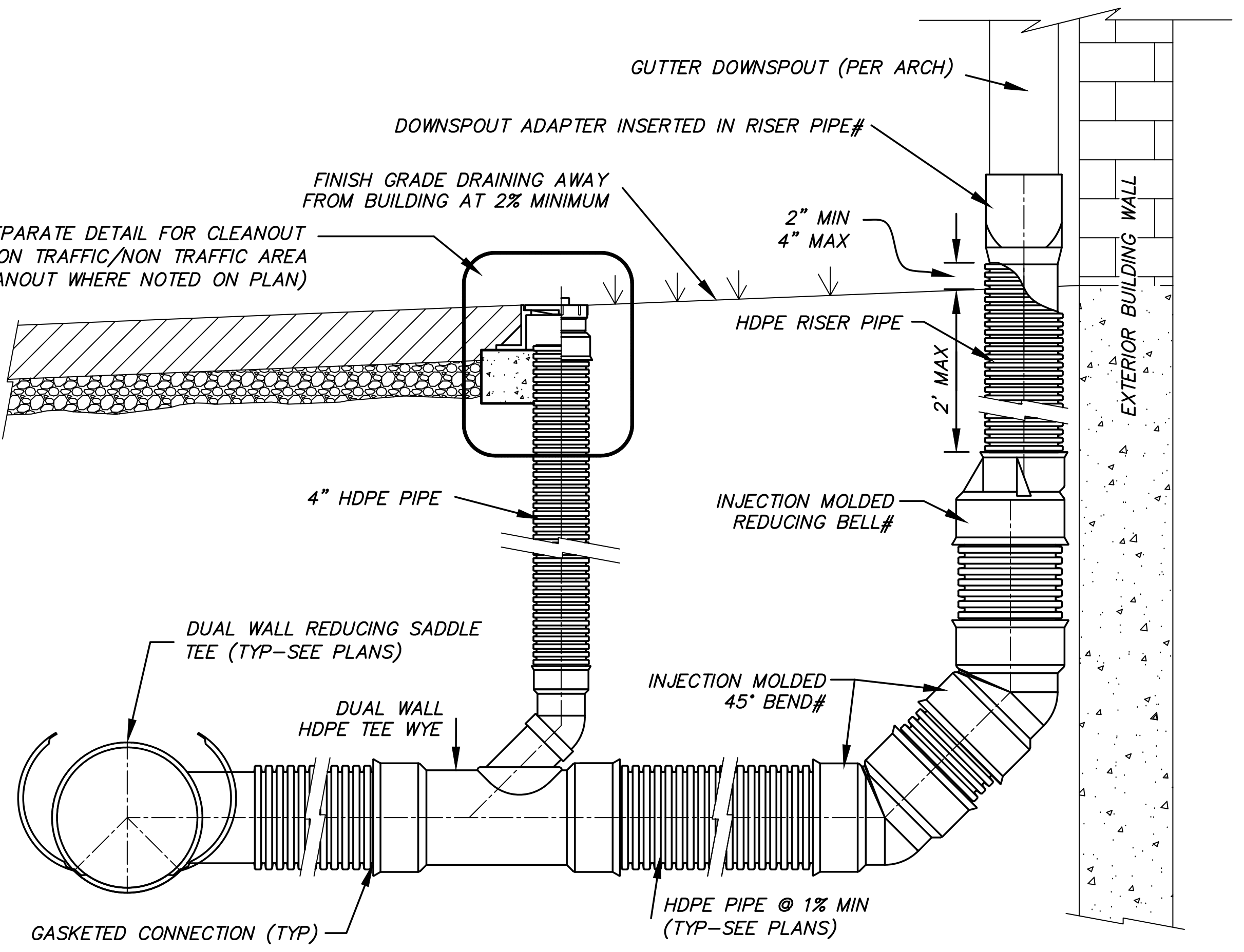
NOTES:

1. SEE PLANS FOR CURB INLET, JUNCTION BOX, CATCH BASIN, ETC. DESIGNATION. SEE CORRESPONDING DETAILS FOR ACCESS FRAME AND GRATE/LID REQUIREMENTS.
2. ALL EXPOSED CORNERS SHALL HAVE 3/4" CHAMFERS.
3. ALL #4 & #5 REINFORCING BARS SHALL HAVE 1-1/2" MINIMUM COVER. LARGER BAR SIZES SHALL HAVE 2" MINIMUM COVER.
4. PIPES SHALL CONNECT TO THE FLAT FACES OF THE STRUCTURE. CONNECTIONS SHALL NOT BE MADE AT CORNERS OF STRUCTURE.
5. ALL REINFORCING BARS SHALL BE GRADE 60.
6. INSTALL WEEP HOLES AND STEPS PER SEPARATE DETAILS.

STORM SEWER LARGE CONCRETE BOX REINFORCEMENT

(WIDTH GREATER THAN 4'; HEIGHT 8' AND GREATER)

NOT TO SCALE


GUTTER DOWNSPOUT (PER ARCH)
DOWNSPOUT ADAPTER INSERTED IN RISER PIPE#
FINISH GRADE DRAINING AWAY FROM BUILDING AT 2% MINIMUM
SEE SEPARATE DETAIL FOR CLEANOUT TOP BASED ON TRAFFIC/NON TRAFFIC AREA (INSTALL CLEANOUT WHERE NOTED ON PLAN)
2" MIN 4" MAX
HDPE RISER PIPE
2' MAX
EXTERIOR BUILDING WALL
4" HDPE PIPE
INJECTION MOLDED REDUCING BELL#
DUAL WALL REDUCING SADDLE TEE (TYP–SEE PLANS)
DUAL WALL HDPE TEE WYE
INJECTION MOLDED 45° BEND#
GASKETED CONNECTION (TYP)
HDPE PIPE @ 1% MIN (TYP–SEE PLANS)

OR APPROVED EQUAL

NOTES:

1. SEE PLANS TO DETERMINE IF FITTINGS AND JOINTS ARE SOIL TIGHT (ST) OR WATER TIGHT (WT).
2. INSTALL ALL PIPING PER SEPARATE DETAIL OR MANUFACTURER'S WRITTEN INSTRUCTIONS.
3. THIS DETAIL IS FOR GENERAL LAYOUT PURPOSES ONLY. ADDITIONAL COUPLERS, GASKETS, FITTINGS, ETC. MAY BE NECESSARY PER MANUFACTURER'S REQUIREMENTS.
4. IF GUTTER DOWNSPOUT SIZE EXCEEDS THE LARGEST AVAILABLE MANUFACTURER DOWNSPOUT ADAPTER, THE HDPE PIPE SIZE SHALL BE INCREASED TO ACCOMMODATE THE DOWNSPOUT AND THE DOWNSPOUT ADAPTER SHALL BE REPLACED WITH AN HDPE END CAP PREFABRICATED OR CUT TO FIT THE DOWNSPOUT GUTTER AND UPSIZED HDPE PIPE. CAP/PIPE SHALL BE INSTALLED SO CAP IS 2" ABOVE FINISHED GRADE, MINIMUM.
5. SDR35 PVC PIPE MAY BE SUBSTITUTED FOR ANY HDPE PIPE AND/OR FITTING UP TO 15" IN DIAMETER.

GUTTER DOWNSPOUT CONNECTION

NOT TO SCALE

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WILSHIRE HILLS PHASE III
3200 NE WILSHIRE DR
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

6/30/2023
MATTHEW AARON KRIETE
NUMBER PE-2007002811

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

IF ORIGINAL SIGNATURE OR DIGITAL AUTHENTICATION IS NOT PRESENT THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.

Date
JUNE 30, 2023

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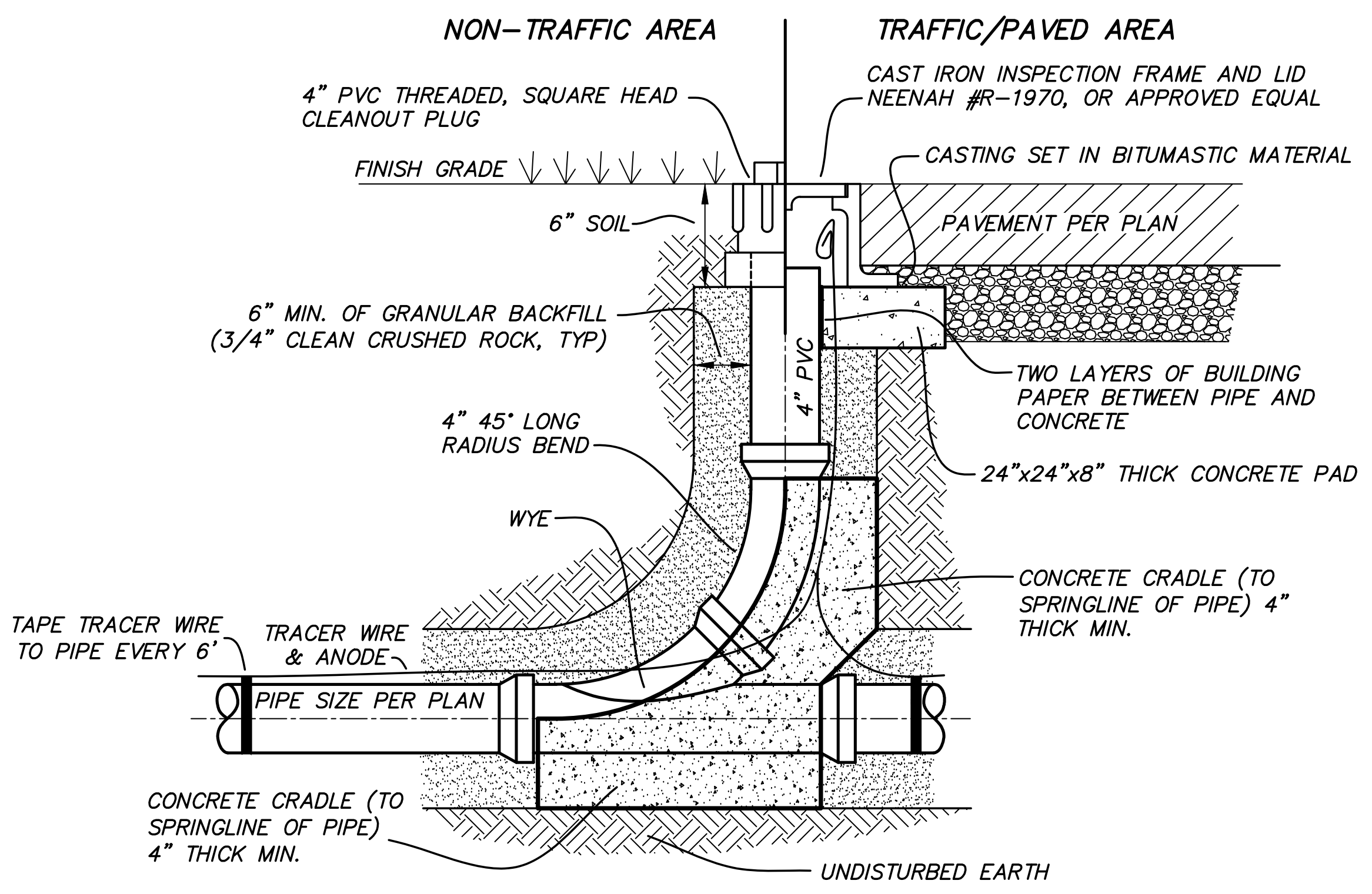
CONSTRUCTION DOCUMENTS

Design: ST Drawn: MJS

STORM SEWER DETAILS

Sheet
C11.02

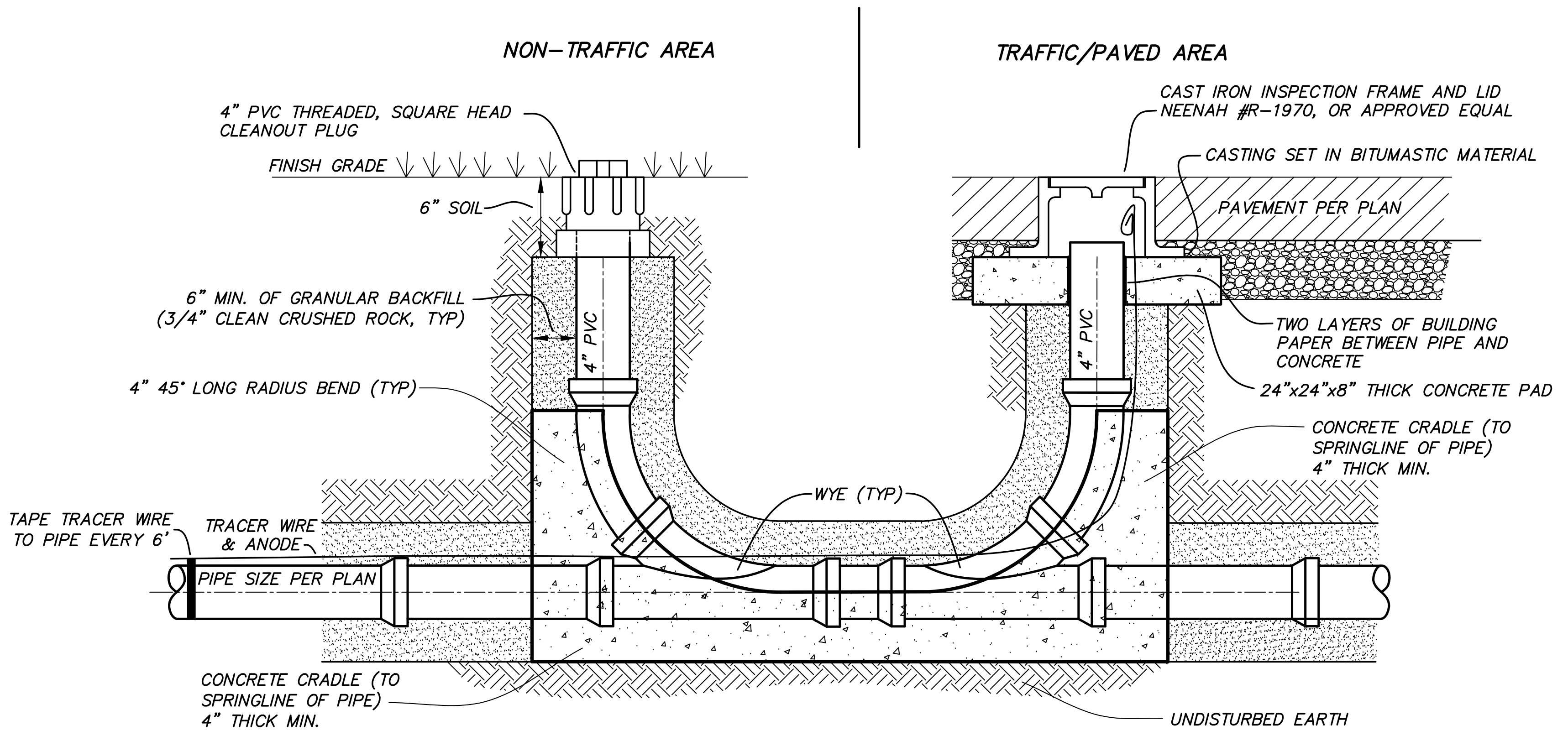
ES&S PROJECT NO. 15925


NON–TRAFFIC AREA
TRAFFIC/PAVED AREA
4" PVC THREADED, SQUARE HEAD CLEANOUT PLUG
CAST IRON INSPECTION FRAME AND LID NEENAH #R–1970, OR APPROVED EQUAL
FINISH GRADE
CASTING SET IN BITUMASTIC MATERIAL
6" SOIL
PAVEMENT PER PLAN
6" MIN. OF GRANULAR BACKFILL (3/4" CLEAN CRUSHED ROCK, TYP)
4" PVC
TWO LAYERS OF BUILDING PAPER BETWEEN PIPE AND CONCRETE
4" 45° LONG RADIUS BEND
24"x24"x8" THICK CONCRETE PAD
WYE
CONCRETE CRADLE (TO SPRINGLINE OF PIPE) 4" THICK MIN.
TAPE TRACER WIRE TO PIPE EVERY 6'
TRACER WIRE & ANODE
PIPE SIZE PER PLAN
CONCRETE CRADLE (TO SPRINGLINE OF PIPE) 4" THICK MIN.
UNDISTURBED EARTH

NOTES:
1. ALL PIPE & FITTINGS SHALL BE WATER TIGHT, GASKETED, SDR35 PVC.
2. INSTALL ALL PIPING PER SEPARATE DETAIL OR MANUFACTURER'S WRITTEN INSTRUCTIONS.
3. THIS DETAIL IS FOR GENERAL LAYOUT PURPOSES ONLY. ADDITIONAL COUPLERS, GASKETS, FITTINGS, ETC. MAY BE NECESSARY PER MANUFACTURER'S REQUIREMENTS
4. TOP SHALL BE SET FLUSH WITH FINISH GRADE.
5. INSTALL IN THE DIRECTION OF FLOW AS SHOWN UNLESS OTHERWISE INDICATED IN PLANS.

IN–LINE SANITARY SEWER CLEANOUT W/ TRACER WIRE

NOT TO SCALE

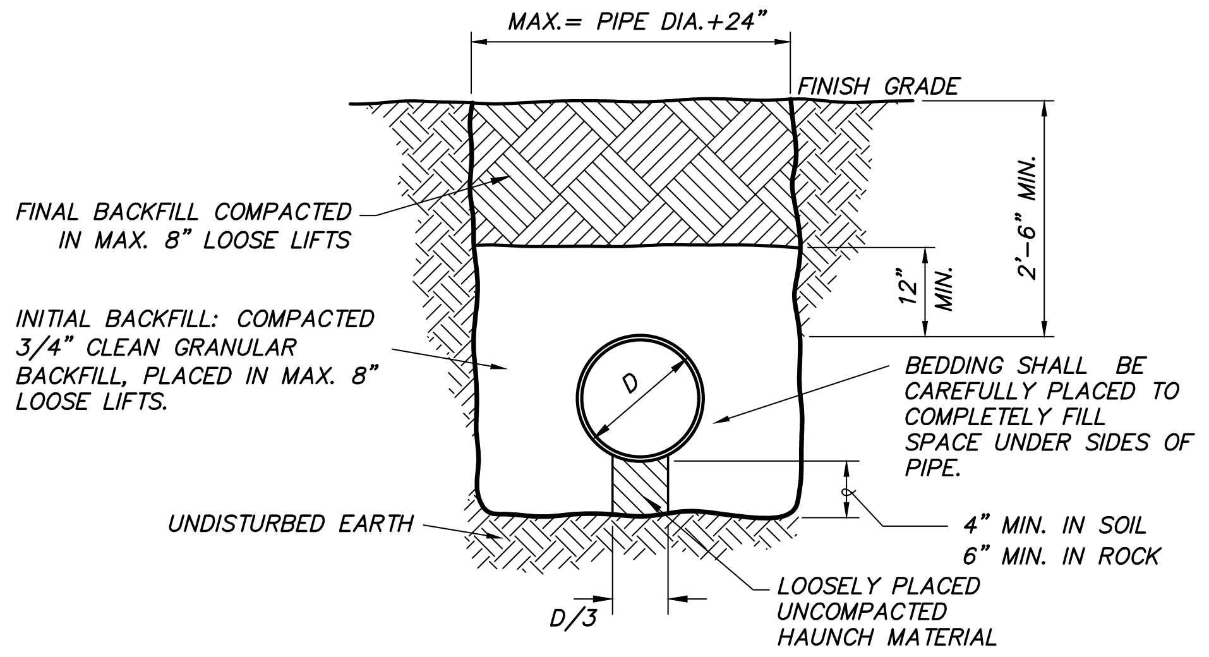

NON–TRAFFIC AREA
TRAFFIC/PAVED AREA
4" PVC THREADED, SQUARE HEAD CLEANOUT PLUG
CAST IRON INSPECTION FRAME AND LID NEENAH #R–1970, OR APPROVED EQUAL
FINISH GRADE
CASTING SET IN BITUMASTIC MATERIAL
6" SOIL
PAVEMENT PER PLAN
6" MIN. OF GRANULAR BACKFILL (3/4" CLEAN CRUSHED ROCK, TYP)
4" PVC
4" PVC
TWO LAYERS OF BUILDING PAPER BETWEEN PIPE AND CONCRETE
4" 45° LONG RADIUS BEND (TYP)
24"x24"x8" THICK CONCRETE PAD
CONCRETE CRADLE (TO SPRINGLINE OF PIPE) 4" THICK MIN.
WYE (TYP)
TAPE TRACER WIRE TO PIPE EVERY 6'
TRACER WIRE & ANODE
PIPE SIZE PER PLAN
CONCRETE CRADLE (TO SPRINGLINE OF PIPE) 4" THICK MIN.
UNDISTURBED EARTH

NOTES:
1. ALL PIPE & FITTINGS SHALL BE WATER TIGHT, GASKETED, SDR35 PVC.
2. INSTALL ALL PIPING PER SEPARATE DETAIL OR MANUFACTURER'S WRITTEN INSTRUCTIONS.
3. THIS DETAIL IS FOR GENERAL LAYOUT PURPOSES ONLY. ADDITIONAL COUPLERS, GASKETS, FITTINGS, ETC. MAY BE NECESSARY PER MANUFACTURER'S REQUIREMENTS
4. TOP SHALL BE SET FLUSH WITH FINISH GRADE.
5. INSTALL IN THE DIRECTION OF FLOW AS SHOWN UNLESS OTHERWISE INDICATED IN PLANS.

TWO WAY SANITARY CLEANOUT W/ TRACER WIRE

NOT TO SCALE

PIPE DIA.	MIN. TRENCH WIDTH
≤ 6"	PIPE DIA. + 18"
8"–10"	PIPE DIA. + 10"
12"–36"	PIPE DIA. + 12"


MAX.= PIPE DIA.+24"
FINISH GRADE
FINAL BACKFILL COMPACTED IN MAX. 8" LOOSE LIFTS
2'–6" MIN.
12" MIN.
INITIAL BACKFILL: COMPACTED 3/4" CLEAN GRANULAR BACKFILL, PLACED IN MAX. 8" LOOSE LIFTS.
D
BEDDING SHALL BE CAREFULLY PLACED TO COMPLETELY FILL SPACE UNDER SIDES OF PIPE.
UNDISTURBED EARTH
4" MIN. IN SOIL
6" MIN. IN ROCK
D/3
LOOSELY PLACED UNCOMPACTED HAUNCH MATERIAL

EMBEDMENT OF PVC SANITARY SEWER PIPE

NOT TO SCALE

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MO Engineering Corp. # 2004005018

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6/30/2023

MATTHEW AARON KRIETE
NUMBER
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Date
JUNE 30, 2023

Revised

CONSTRUCTION DOCUMENTS

Design: ST Drawn: MJS

SANITARY SEWER DETAILS

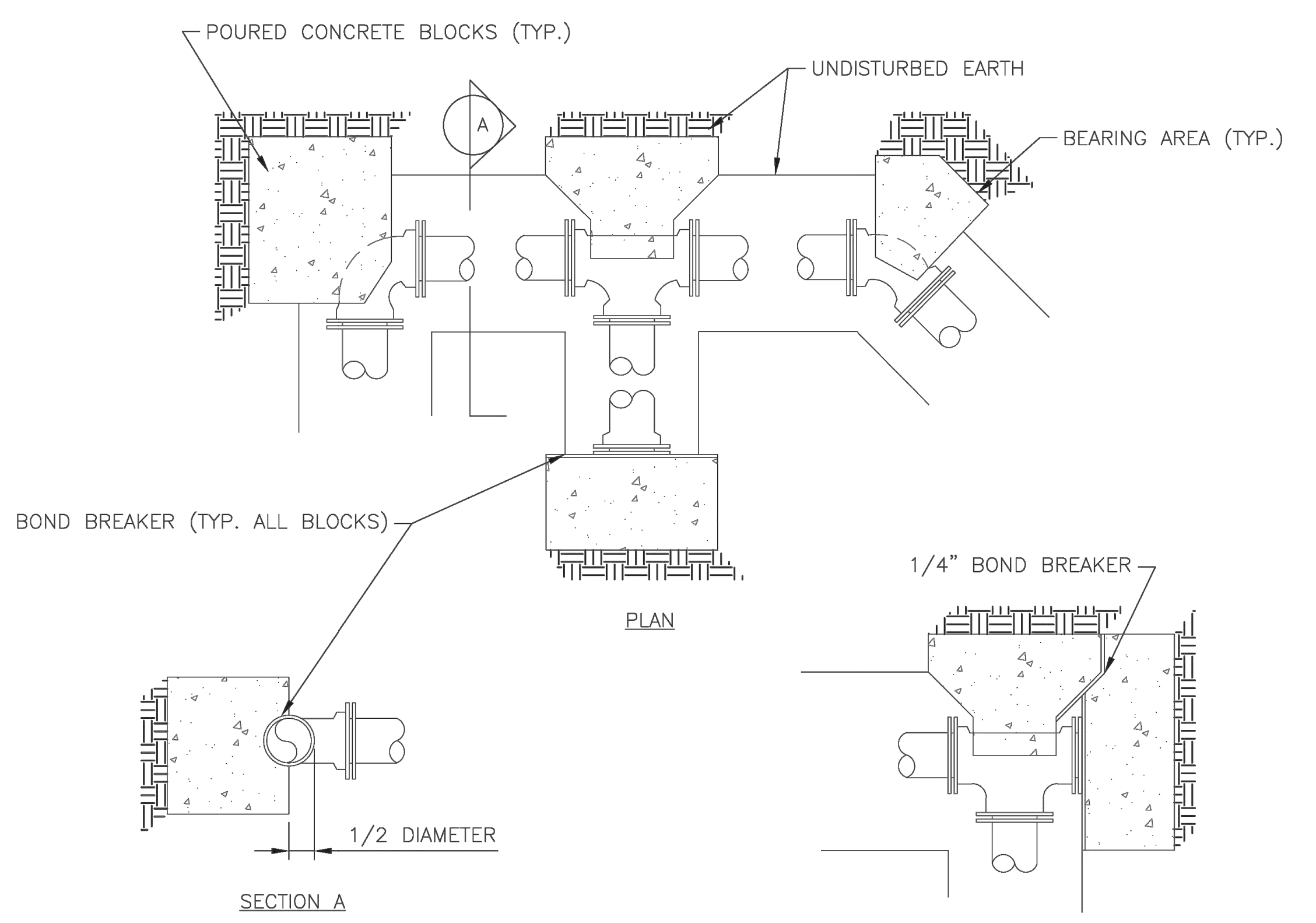
Sheet
C12.01

ES&S PROJECT NO. 15925

P:\GENERAL PROJECTS\15925E–JES–WILSHIRE–HILLS–3–ENG\CAD\15925 COVER & DETAILS.DWG 6/30/2023

REQUIRED CONCRETE BEARING AREA (SQUARE FEET – SF)

NOM. DIA. (INCHES)	180 TEE, PLUG	90 BEND	45 BEND	22.5 BEND	11.25 BEND
6	4.7	6.7	4.0	4.0	4.0
8	8.4	11.8	6.4	4.0	4.0
10	13.1	18.5	10.0	5.1	4.0
12	18.8	26.7	14.4	7.4	4.0
14	25.7	36.3	19.6	10.0	5.0
16	33.5	47.4	25.6	13.1	6.6
18	42.4	REST. JT.	32.5	16.5	8.3
20	REST. JT.	REST. JT.	40.1	20.4	10.3
24	REST. JT.	REST. JT.	REST. JT.	29.4	14.8

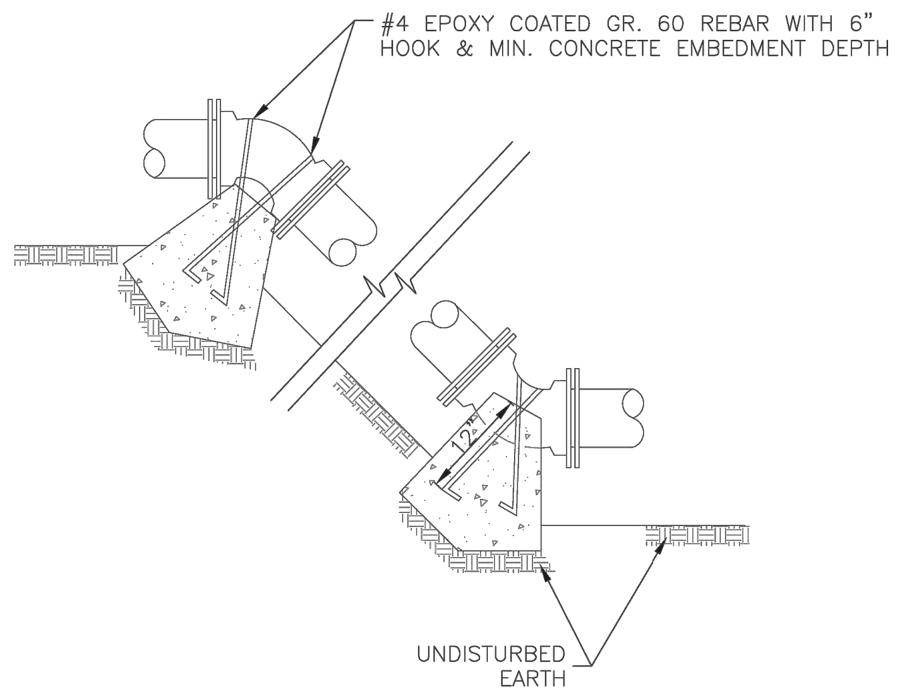


NOTES:
1. ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT.
2. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.
3. BEARING AREA MUST BE AGAINST UNDISTURBED SOIL.
4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
HORIZONTAL THRUST BLOCK
Date: 01/2016
Drawn By: JN
Checked By: DL
WAT-1

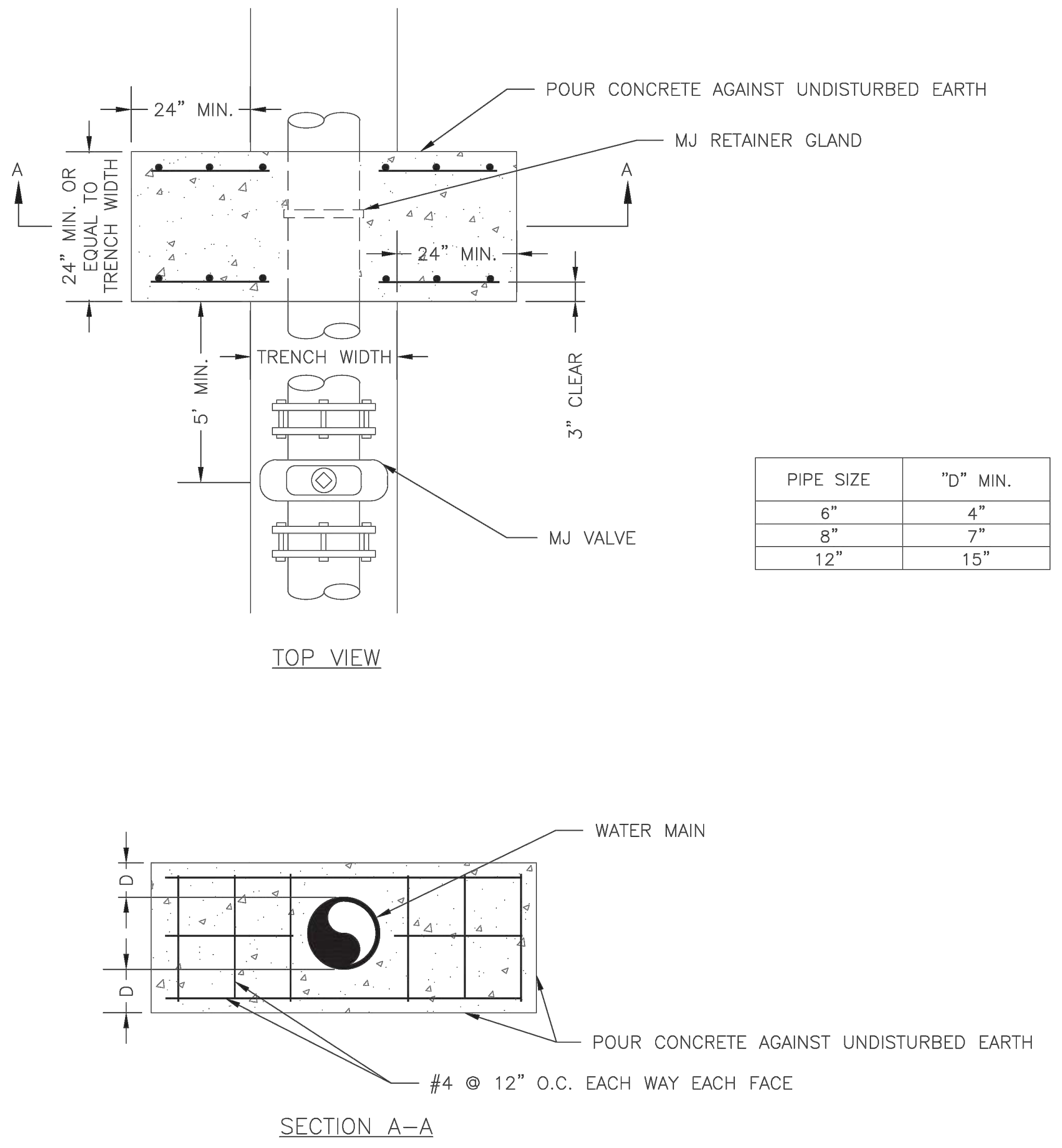
REQUIRED CONCRETE VOLUME (CUBIC FEET – CF)

NOM. DIA. (INCHES)	180 TEE, PLUG	90 BEND	45 BEND	22.5 BEND	11.25 BEND
6	50.5	71.4	38.6	19.7	9.9
8	89.8	126.9	68.7	35.0	17.6
10	140.2	198.3	107.3	54.7	27.5
12	202.0	REST. JT.	154.6	78.8	39.6
14	REST. JT.	REST. JT.	210.4	107.3	53.9
16	REST. JT.	REST. JT.	REST. JT.	140.1	70.4
18	REST. JT.	REST. JT.	REST. JT.	177.3	89.1
20	REST. JT.	REST. JT.	REST. JT.	REST. JT.	110.0
24	REST. JT.	REST. JT.	REST. JT.	REST. JT.	158.4


#4 EPOXY COATED GR. 60 REBAR WITH 6" HOOK & MIN. CONCRETE EMBEDMENT DEPTH
UNDISTURBED EARTH

NOTES:
1. ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT.
2. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.
3. BEARING MUST BE AGAINST UNDISTURBED SOIL.
4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.

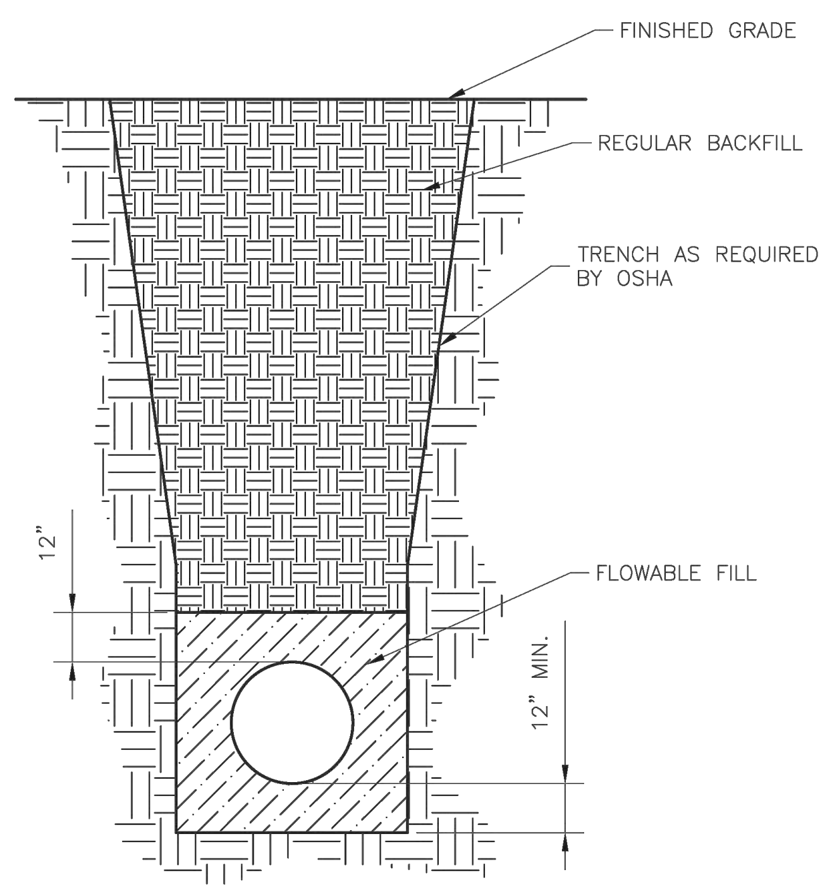
LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
VERTICAL THRUST BLOCK
Date: WAT-2
Drawn By: JN
Checked By: DL
WAT-2


24" MIN.
POUR CONCRETE AGAINST UNDISTURBED EARTH
MJ RETAINER GLAND
A
A
24" MIN. OR EQUAL TO TRENCH WIDTH
24" MIN.
5' MIN.
TRENCH WIDTH
3" CLEAR
MJ VALVE
TOP VIEW
WATER MAIN
D
D
POUR CONCRETE AGAINST UNDISTURBED EARTH
#4 @ 12" O.C. EACH WAY EACH FACE
SECTION A–A

PIPE SIZE	"D" MIN.
6"	4"
8"	7"
12"	15"

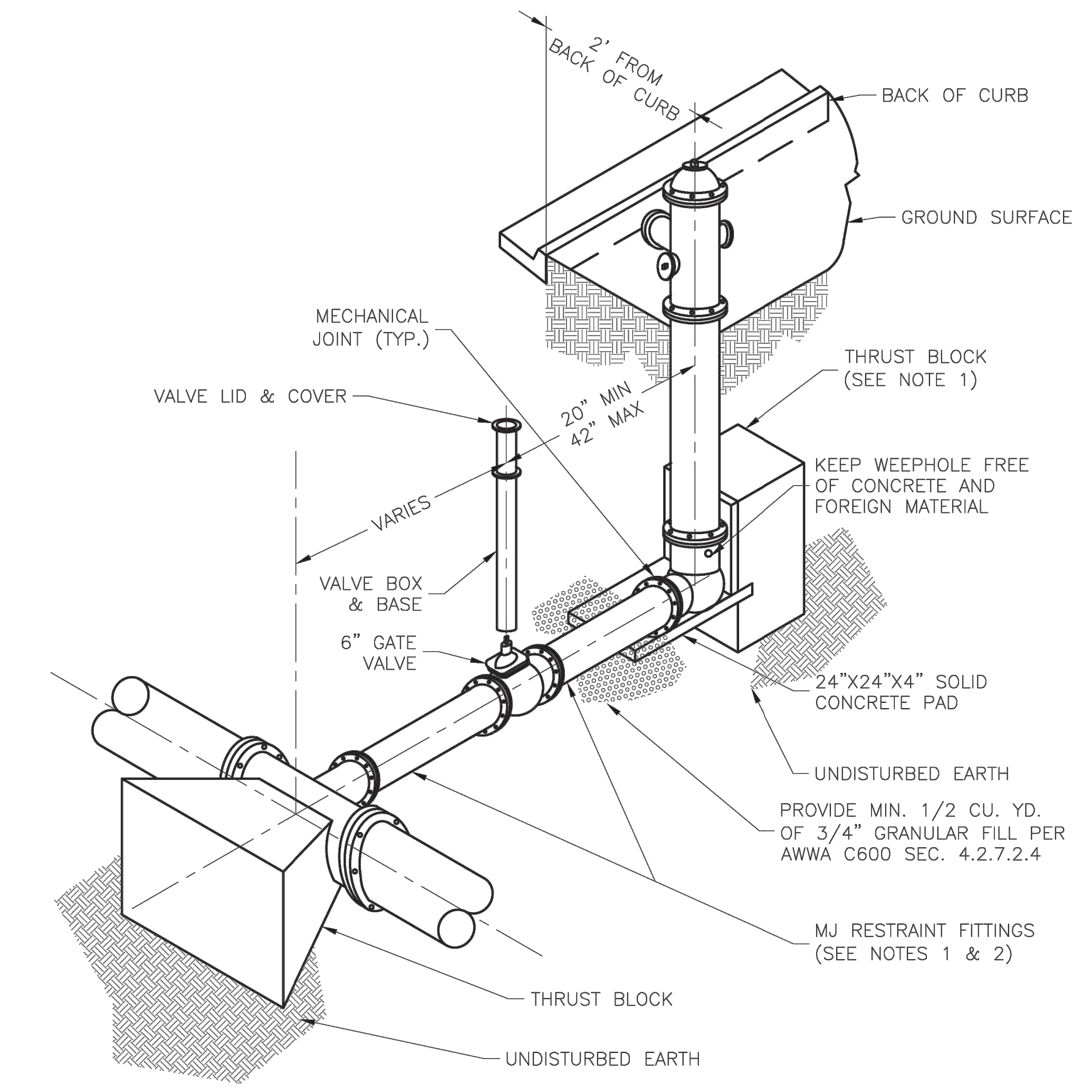
NOTE:
THIS DETAIL NOT TO BE USED FOR PIPE GREATER THAN 12"

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
STRADDLE BLOCK
Date: 01/2016
Drawn By: JN
Checked By: DL
WAT-3



NOTES:
1. FLOWABLE FILL SHALL MEET THE REQUIREMENTS OF THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL.
2. REGULAR BACKFILL ABOVE THE TRENCH CHECK SHALL BE FREE OF DEBRIS, ORGANIC MATTER, AND STONES > 6" IN ANY DIMENSION.
3. TOP OF FLOWABLE BACKFILL SHALL EXTEND 12" ABOVE THE TOP OF THE PIPE.
4. LENGTH OF TRENCH CHECK SHALL BE A MINIMUM OF 12".

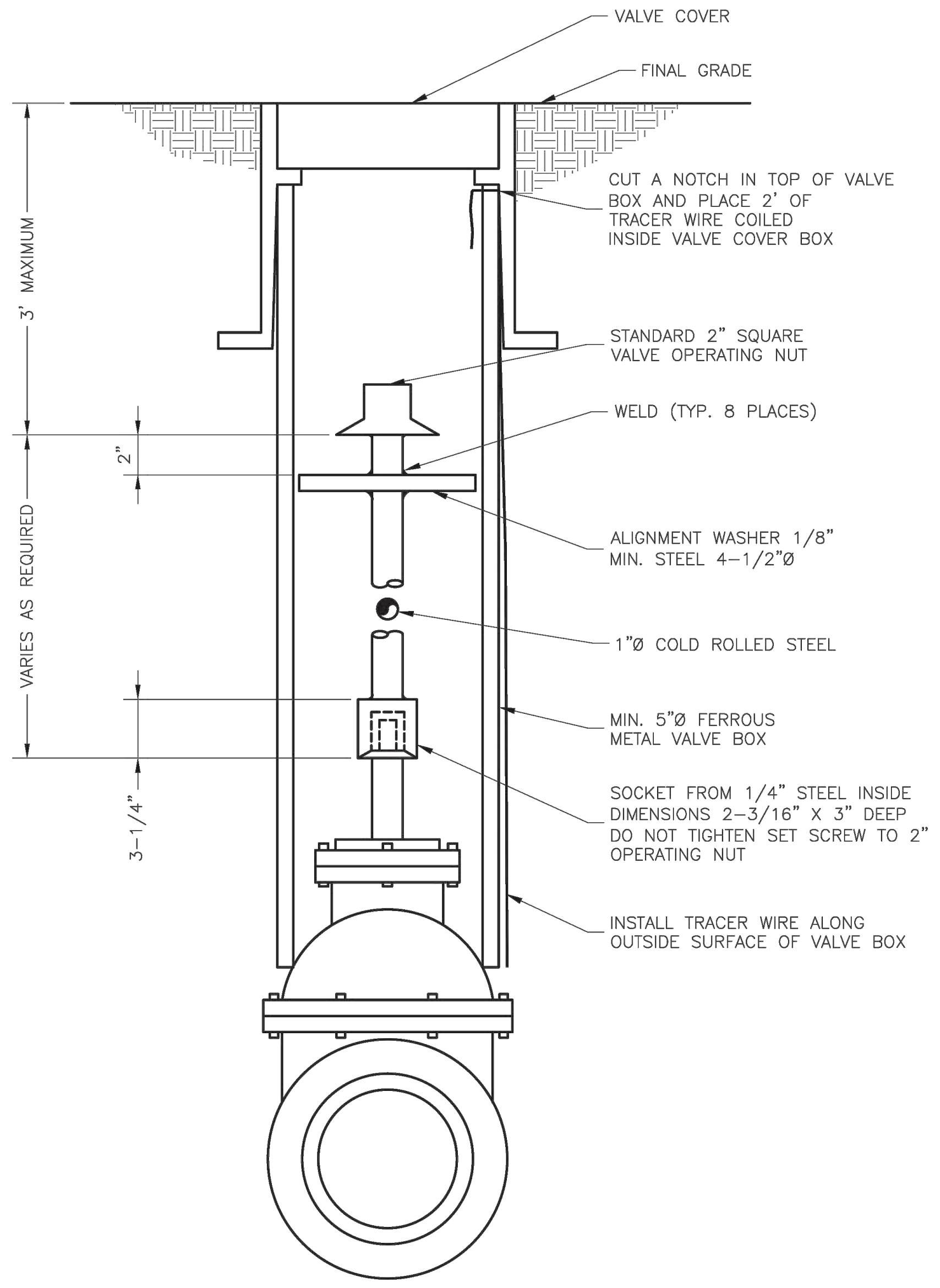
LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
WATER TRENCH CHECK DETAIL
Date: 01/2016
Drawn By: JN
Checked By: DL
WAT-6


2' FROM BACK OF CURB
BACK OF CURB
GROUND SURFACE
MECHANICAL JOINT (TYP.)
VALVE LID & COVER
20" MIN 42" MAX
THRUST BLOCK (SEE NOTE 1)
VARIES
KEEP WEEPHOLE FREE OF CONCRETE AND FOREIGN MATERIAL
VALVE BOX & BASE
6" GATE VALVE
24"X24"X4" SOLID CONCRETE PAD
UNDISTURBED EARTH
PROVIDE MIN. 1/2 CU. YD. OF 3/4" GRANULAR FILL PER AWWA C600 SEC. 4.2.7.2.4
MJ RESTRAINT FITTINGS (SEE NOTES 1 & 2)
THRUST BLOCK
UNDISTURBED EARTH

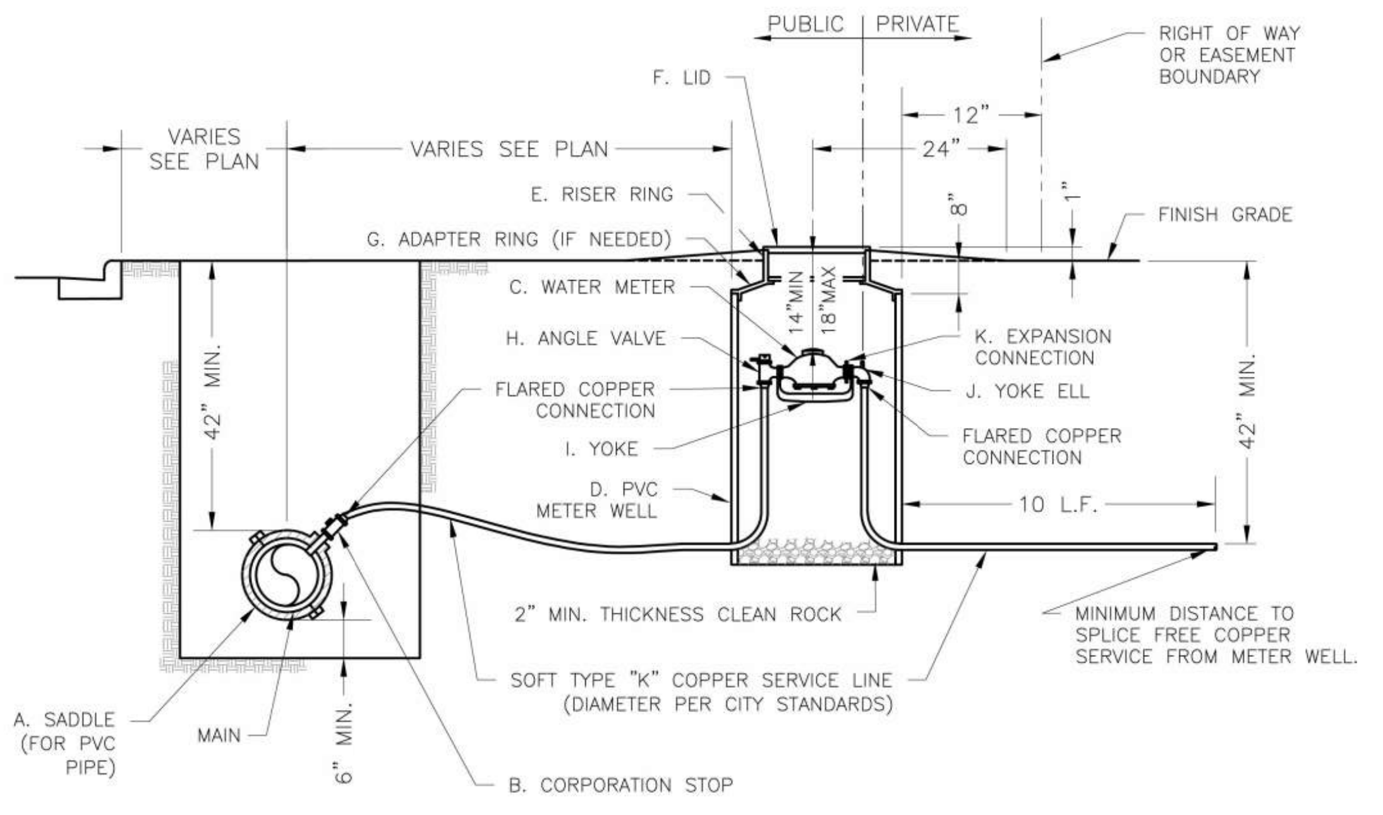
NOTES:

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

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
HYDRANT - STRAIGHT SET
Date: 01/2016
Drawn By: JN
Checked By: DL
WAT-7


VALVE COVER
FINAL GRADE
CUT A NOTCH IN TOP OF VALVE BOX AND PLACE 2' OF TRACER WIRE COILED INSIDE VALVE COVER BOX
3' MAXIMUM
STANDARD 2" SQUARE VALVE OPERATING NUT
WELD (TYP. 8 PLACES)
2"
ALIGNMENT WASHER 1/8" MIN. STEEL 4–1/2"Ø
VARIES AS REQUIRED
1"Ø COLD ROLLED STEEL
MIN. 5"Ø FERROUS METAL VALVE BOX
SOCKET FROM 1/4" STEEL INSIDE DIMENSIONS 2–3/16" X 3" DEEP DO NOT TIGHTEN SET SCREW TO 2" OPERATING NUT
3–1/4"
INSTALL TRACER WIRE ALONG OUTSIDE SURFACE OF VALVE BOX

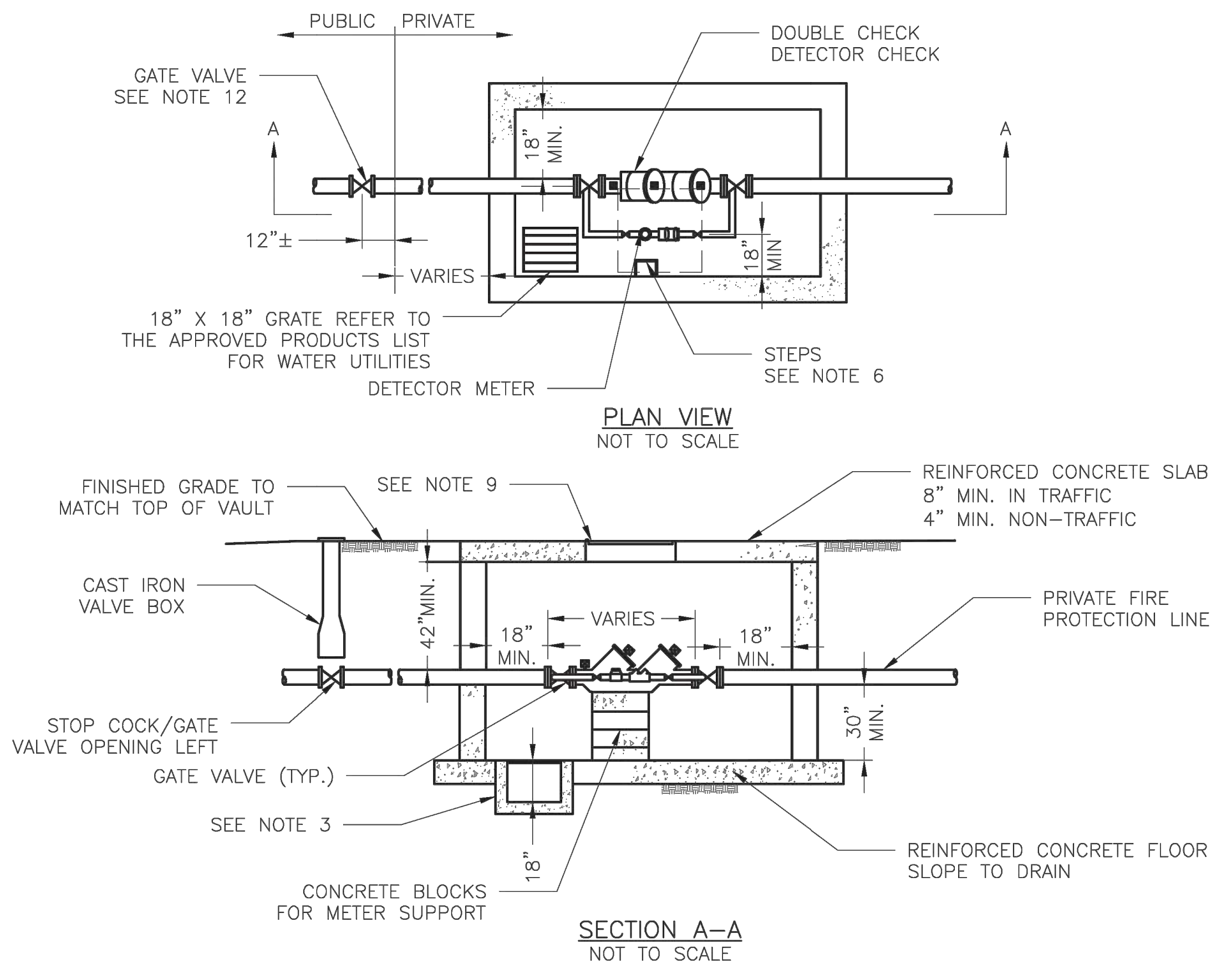
LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
VALVE STEM EXTENSION AND VALVE BOX
Date: 01/2016
Drawn By: JN
Checked By: DL
WAT-9



NOTES:

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

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
SERVICE CONNECTION WITH METER WELL ⟨1⟩
Date: 08/2023
Drawn By: MJF
Checked By: KLY
WAT-11


PUBLIC | PRIVATE
GATE VALVE SEE NOTE 12
DOUBLE CHECK DETECTOR CHECK
A
A
18" MIN.
12"±
VARIES
18" MIN
18" X 18" GRATE REFER TO THE APPROVED PRODUCTS LIST FOR WATER UTILITIES
DETECTOR METER
STEPS SEE NOTE 6
PLAN VIEW
NOT TO SCALE
FINISHED GRADE TO MATCH TOP OF VAULT
SEE NOTE 9
REINFORCED CONCRETE SLAB 8" MIN. IN TRAFFIC 4" MIN. NON–TRAFFIC
CAST IRON VALVE BOX
42" MIN.
18" MIN.
VARIES
18" MIN.
PRIVATE FIRE PROTECTION LINE
STOP COCK/GATE VALVE OPENING LEFT
30" MIN.
GATE VALVE (TYP.)
SEE NOTE 3
18"
CONCRETE BLOCKS FOR METER SUPPORT
REINFORCED CONCRETE FLOOR SLOPE TO DRAIN
SECTION A–A
NOT TO SCALE

GENERAL NOTES:

1. METER VAULT WALLS TO BE POURED OR PRECAST CONCRETE.
2. METER VAULT ROOF TO BE REINFORCED CONCRETE OPENING CENTERED OVER DETECTOR METER.
3. METER VAULT TO BE LOCATED, WHEN POSSIBLE, OUTSIDE TRAFFIC AREA WHERE SURFACE WATER WILL NOT DRAIN INTO IT. VAULT MUST BE KEPT FREE OF WATER. PROVIDE CONCRETE SUMP AS A MINIMUM. WHERE PRACTICAL, PROVIDE A 2" PIPE DRAIN WITH AN ABOVE–GROUND DISCHARGE POINT. PROJECT OWNER MAY DESIRE A PERMANENTLY INSTALLED SUMP PUMP.
4. ALL PIPE SHALL BE DUCTILE IRON CLASS 50. ALL PIPE FITTINGS FROM THE CITY WATER MAIN THROUGH THE VAULT SHALL BE PROVIDED WITH RESTRAINED JOINT FITTINGS.
5. ALL FITTINGS TO BE BRASS.
6. STEPS SHALL BE IN ACCORDANCE WITH THE APPROVED PRODUCTS LIST FOR WATER UTILITIES AND SHALL BE ON 16" CENTERS.
7. A DEPARTMENT OF NATURAL RESOURCES APPROVED DOUBLE CHECK DETECTOR CHECK BACKFLOW PREVENTER MUST BE USED. FOR A COPY OF THE MISSOURI DEPARTMENT OF NATURAL RESOURCES APPROVED BACKFLOW PREVENTION ASSEMBLIES, CONTACT THE WATER UTILITIES OPERATIONS DIVISION AT 816–969–1940. AS OF JANUARY 1, 1987, THE DNR REQUIRES FIRE SPRINKLER SYSTEMS USING CHEMICALS TO HAVE A DNR APPROVED PRESSURE BACKFLOW PREVENTER INSTALLED, PRIOR TO THE MIXING POINT.
8. ALL VALVES SHALL HAVE RISING STEMS.
9. FOR MANHOLE COVERS, SELECT A MANHOLE FOUND ON THE APPROVED PRODUCTS LIST FOR WATER UTILITIES SUITABLE FOR EITHER TRAFFIC OR NON–TRAFFIC CONDITIONS.
10. A MINIMUM OF 18" CLEARANCE SHALL BE PROVIDED AROUND ALL PIPING, VALVES, APPURTENANCES, ETC.
11. METER SHALL BE OWNED AND MAINTAINED BY THE WATER UTILITIES DEPARTMENT.
12. IF PUBLIC WATER IS LOCATED ON THE OPPOSITE SIDE OF THE STREET, THEN THE PUBLIC WATER MAIN RESPONSIBILITY OF THE WATER UTILITIES DEPARTMENT ENDS AT THE GATE VALVE NEAREST THE VAULT.

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
VAULT FOR DOUBLE CHECK DETECTOR CHECK
Date: 02/2016
Drawn By: JN
Checked By: DL
WAT-12

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MO Engineering Corp. # 2004005018

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LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

2/22/2024
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NUMBER
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Matthew A Kriete

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Date
JUNE 30, 2023

Revised
⟨1⟩ FEBRUARY 22, 2024

CONSTRUCTION DOCUMENTS

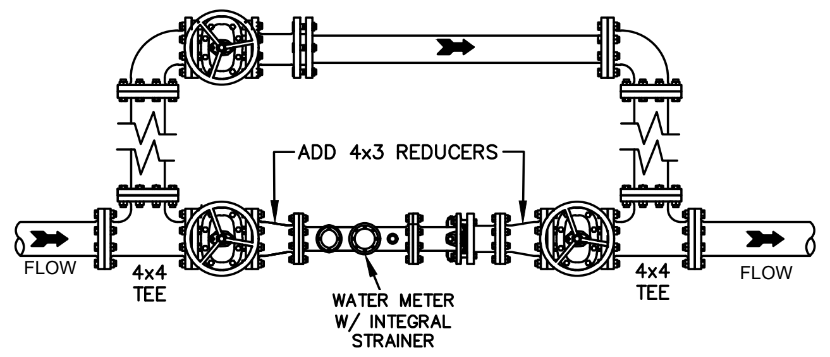
Design: ST Drawn: MJS

WATER DETAILS

Sheet
C13.01

ES&S PROJECT NO. 15925

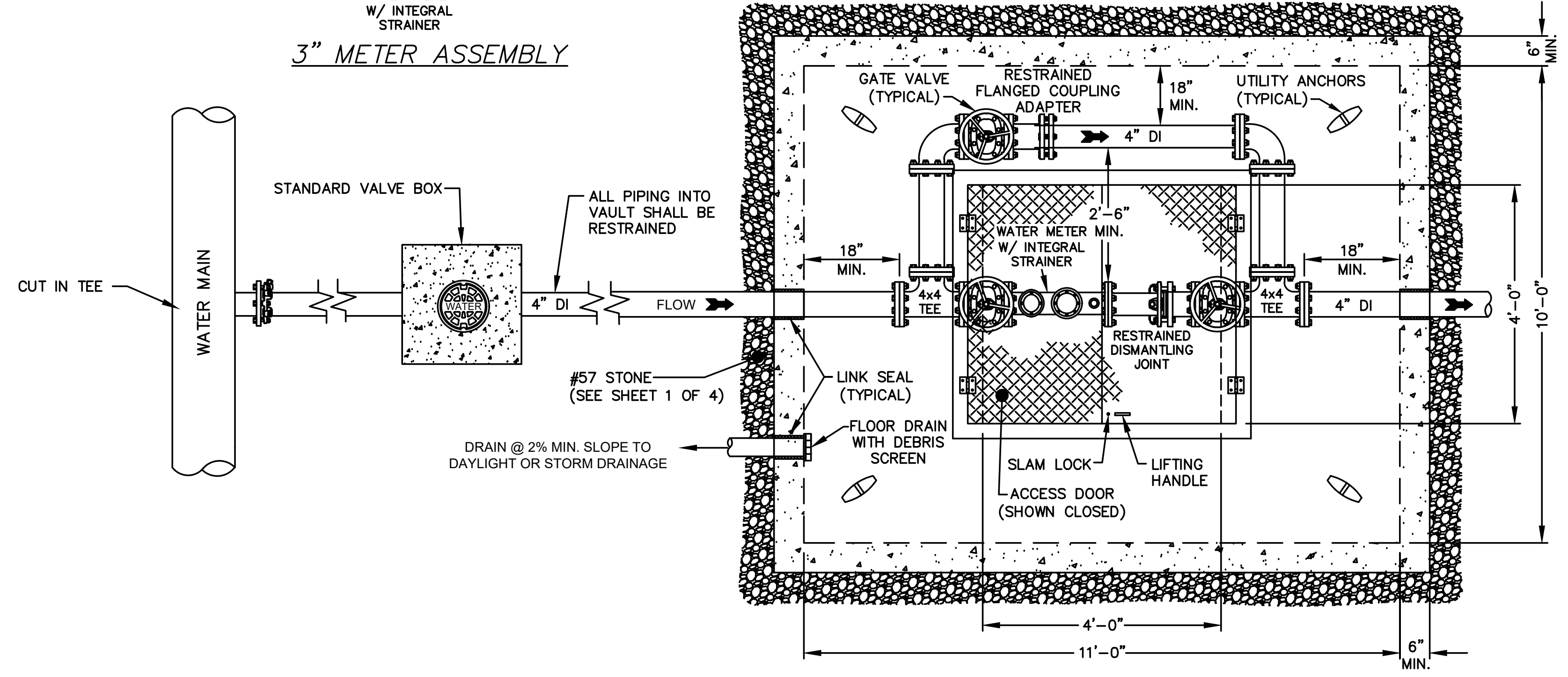
P:\GENERAL PROJECTS\15925E-JES-WILSHIRE-HILLS-3-ENG\CAD\15925 COVER & DETAILS.DWG 2/23/2024



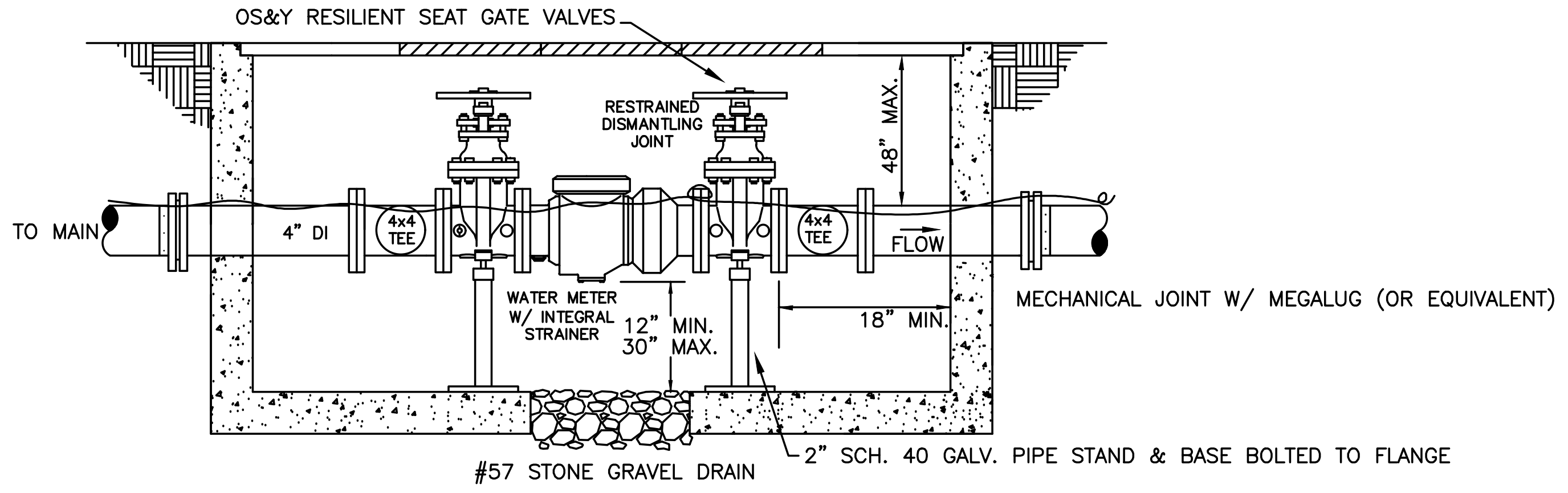
3" METER ASSEMBLY

PLAN VIEW

(SEE SHEET 1 OF 4 FOR SECTION VIEW)


CUT IN TEE
WATER MAIN
STANDARD VALVE BOX
WATER
4" DI
ALL PIPING INTO VAULT SHALL BE RESTRAINED
FLOW
#57 STONE (SEE SHEET 1 OF 4)
DRAIN @ 2% MIN. SLOPE TO DAYLIGHT OR STORM DRAINAGE
LINK SEAL (TYPICAL)
FLOOR DRAIN WITH DEBRIS SCREEN
GATE VALVE (TYPICAL)
RESTRAINED FLANGED COUPLING ADAPTER
18" MIN.
4" DI
UTILITY ANCHORS (TYPICAL)
6" MIN.
18" MIN.
4x4 TEE
2'-6" MIN.
WATER METER W/ INTEGRAL STRAINER
RESTRAINED DISMANTLING JOINT
4x4 TEE
18" MIN.
4" DI
4'-0"
10'-0"
SLAM LOCK
LIFTING HANDLE
ACCESS DOOR (SHOWN CLOSED)
4'-0"
11'-0"
6" MIN.

PLAN VIEW


OS&Y RESILIENT SEAT GATE VALVES
RESTRAINED DISMANTLING JOINT
48" MAX.
TO MAIN
4" DI
4x4 TEE
4x4 TEE
FLOW
WATER METER W/ INTEGRAL STRAINER
12" MIN.
30" MAX.
18" MIN.
MECHANICAL JOINT W/ MEGALUG (OR EQUIVALENT)
#57 STONE GRAVEL DRAIN
2" SCH. 40 GALV. PIPE STAND & BASE BOLTED TO FLANGE

SECTION VIEW

GENERAL NOTES:

1. METER VAULT WILL BE POURED CONCRETE OR PRECAST REINFORCED CONCRETE. A CONCRETE FLOOR SHALL BE REQUIRED. THE FLOOR SHALL BE SLOPED TO A GRATE-COVERED DRAIN SUMP.
2. METER VAULT ROOF TO BE REINFORCED CONCRETE.
3. METER VAULT TO BE LOCATED, WHEN POSSIBLE, OUTSIDE TRAFFIC AREA AND WHERE SURFACE WATER WILL NOT DRAIN INTO IT.
4. STEPS SHALL BE IN ACCORDANCE WITH WATER UTILITIES LIST OF ACCEPTABLE MANUFACTURERS AND MODELS AND SHALL BE ON 16" CENTERS.
5. VALVES MUST HAVE FLANGED ENDS, BE IN ALIGNMENT, AND BE ADEQUATELY SECURED TO WITHSTAND THRUST WITH METER REMOVAL.
6. ALL PIPE SHALL BE DUCTILE IRON CLASS 50. ALL PIPE AND FITTINGS FROM THE CITY WATER MAIN THROUGH THE VAULT SHALL BE PROVIDED WITH RESTRAINED JOINT FITTINGS.
7. IF HIGHER CONTINUOUS RATE OF FLOW IS REQUIRED, A LARGER BY-PASS MAY BE PERMITTED, BUT NOT LARGER THAN PRIMARY DOMESTIC SERVICE.
8. ALL VALVES SHALL BE RISING STEM VALVES.
9. PROVIDE THE CONCRETE SUMP AS A MINIMUM. WHERE PRACTICAL, PROVIDE A 2" PIPE DRAIN WITH AN ABOVE GROUND DISCHARGE POINT. PROJECT OWNER MAY DESIRE A PERMANENTLY INSTALLED SUMP PUMP.
10. A MINIMUM OF 18" CLEARANCE SHALL BE PROVIDED AROUND ALL PIPING, VALVES, APPURTENANCES, ETC.
11. METER SHALL BE OWNED AND MAINTAINED BY THE WATER UTILITIES DEPARTMENT.
12. THE PUBLIC WATER MAIN RESPONSIBILITY OF THE WATER UTILITIES DEPARTMENT ENDS AT THE GATE VALVE.

WATER METER VAULT ⬠2 ⬠3

NOT TO SCALE

\\192.168.0.99\PROJECTS\GENERAL PROJECTS\15925E-JES-WILSHIRE-HILLS-3-ENG\CAD\15925 COVER & DETAILS.DWG 4/17/2024

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LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

4/17/24
MATTHEW AARON KRIETE
NUMBER PE-2007002811

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

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Date
MARCH 27, 2024

Revised
⬠3 APRIL 17, 2024

CONSTRUCTION DOCUMENTS

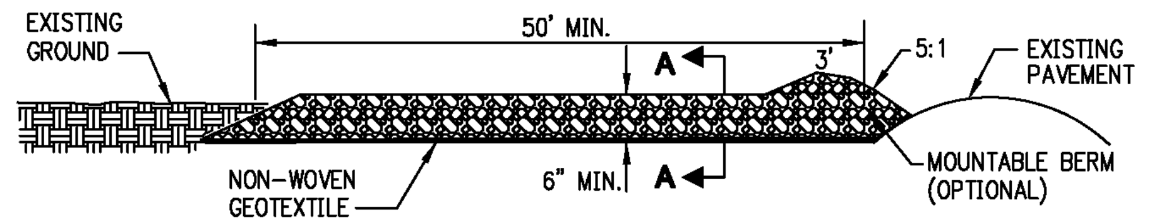
Design: ST Drawn: MJS

WATER DETAILS

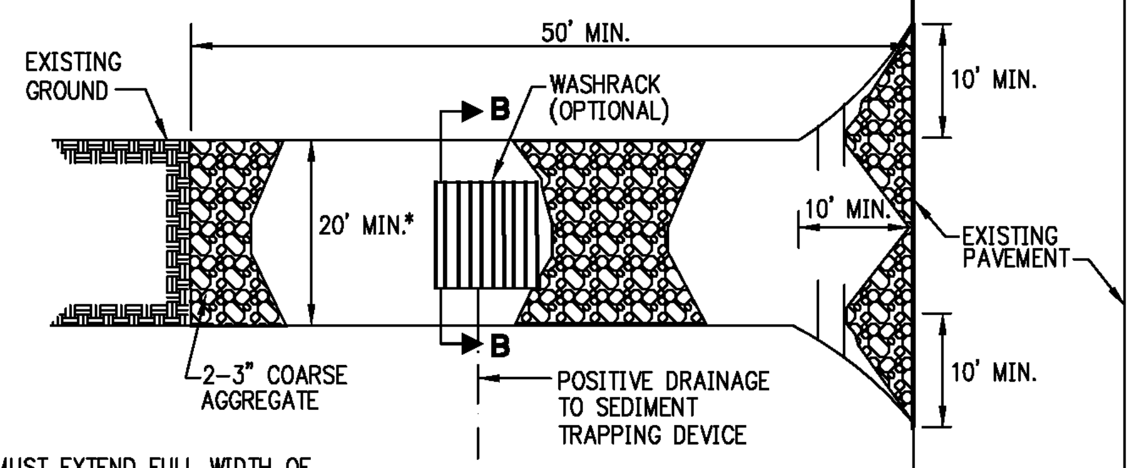
Sheet
C13.02

ES&S PROJECT NO. 15925

TEMPORARY CONSTRUCTION ENTRANCE

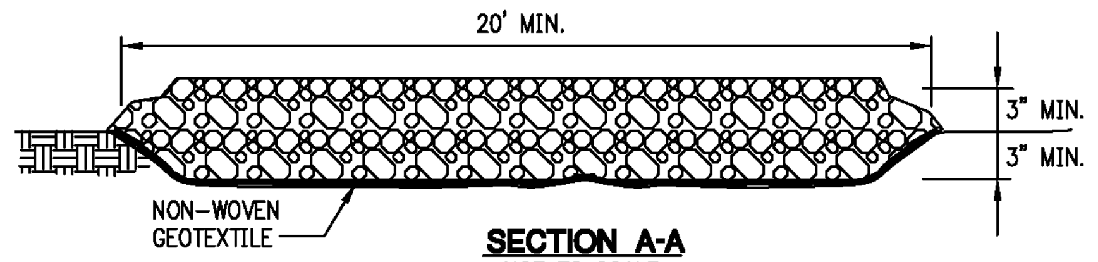


SIDE ELEVATION
NOT TO SCALE

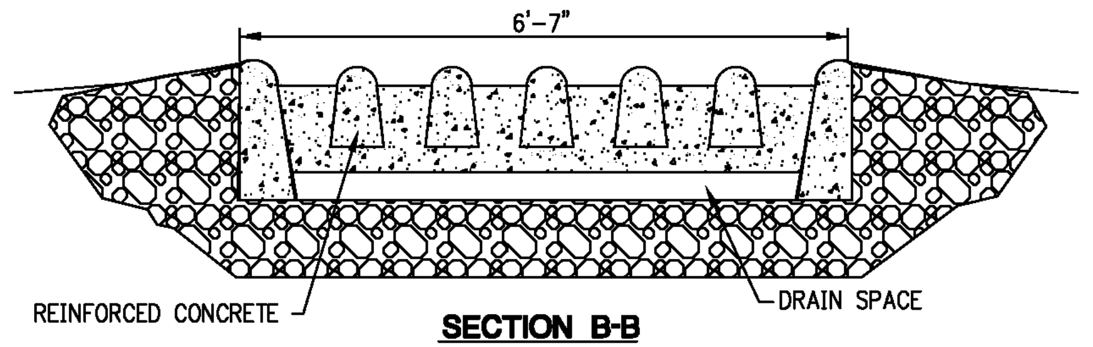


* MUST EXTEND FULL WIDTH OF INGRESS AND EGRESS OPERATION

PLAN VIEW
NOT TO SCALE



SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE

SOURCE: MODIFIED FROM VA. DCR, 1992

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TEMPORARY CONSTRCUTION ENTRANCE PAD NOTES:

A) INSTALLATION:

1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS. IF POSSIBLE, LOCATE WHERE PERMANENT ROADS WILL EVENTUALLY BE CONSTRUCTED.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. IF SLOPE TOWARDS THE PUBLIC ROAD EXCEEDS 2%, CONSTRUCT A 6-TO 8-INCH HIGH RIDGE WITH 3H:1V SIDE SLOPES ACROSS THE FOUNDATION APPROXIMATELY 15 FEET FROM THE EDGE OF THE PUBLIC ROAD TO DIVERT RUNOFF AWAY FROM IT.
4. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES ALONG PUBLIC ROADS.
5. PLACE STONE TO DIMENSIONS AND GRADE AS SHOWN ON PLANS. LEAVE SURFACE SMOOTH AND SLOPED FOR DRAINAGE.
6. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE.
7. IF WET CONDITIONS ARE ANTICIPATED, PLACE GEOTEXTILE FABRIC ON THE GRADED FOUNDATION TO IMPROVE STABILITY.

B) TROUBLESHOOTING:

1. CONSULT WITH A QUALIFIED DESIGN PROFESSIONAL IF ANY OF THE FOLLOWING OCCUR:
    a. INADEQUATE RUNOFF CONTROL TO THE EXTENT THAT SEDIMENT WASHES ONTO PUBLIC ROAD – INSTALL DIVERSIONS OR OTHER RUNOFF CONTROL MEASURES.
    b. SMALL STONE, THIN PAD, OR ABSENCE OF GEOTEXTILE FABRIC RESULTS IN RUTS AND MUDDY CONDITIONS AS STONE IS PRESSED INTO SOIL – INCREASE STONE SIZE OR PAD THICKNESS OR ADD GEOTEXTILE FABRIC.
    c. PAD TOO SHORT FOR HEAVY CONSTRUCTION TRAFFIC – EXTEND PAD BEYOND THE MINIMUM 50-FOOT LENGTH AS NECESSARY.

C) INSPECTION AND MAINTENANCE:

1. INSPECT STONE PAD AND SEDIMENT DISPOSAL AREA WEEKLY AND AFTER 1/2-INCH OR GREATER STORM EVENTS.
2. RESHAPE PAD AS NEEDED FOR PROPER DRAINAGE AND RUNOFF CONTROL.
3. TOPDRESS WITH CLEAN 2-AND 3-INCH STONE AS NEEDED.
4. IMMEDIATELY REMOVE MUD OR SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROAD. REPAIR ANY BROKEN ROAD PAVEMENT IMMEDIATELY.
5. REMOVE ALL TEMPORARY ROAD MATERIALS FROM AREAS WHERE PERMANENT VEGETATION WILL BE ESTABLISHED.

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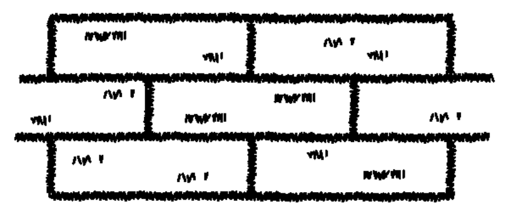
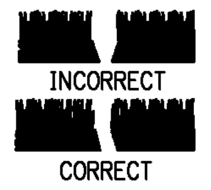
TEMPORARY CONSTRUCTION ENTRANCE
STANDARD DRAWING NUMBER ESC-01
ADOPTED:

SODDING

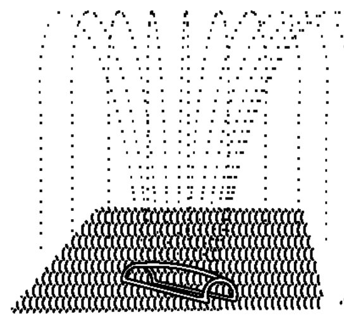


LAY SOD IN A STAGGERED PATTERN. BUTT THE STRIPS TIGHTLY AGAINST EACH OTHER. DO NOT LEAVE SPACES AND DO NOT OVERLAP. A SHARPENED MASON'S TROWEL IS A HANDY TOOL FOR TUCKING DOWN THE ENDS AND TRIMMING PIECES.

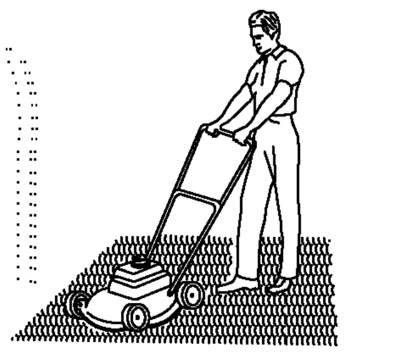


BUTTING – ANGLED ENDS CAUSED BY THE AUTOMATIC SOD CUTTER MUST BE MATCHED CORRECTLY.

ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL.

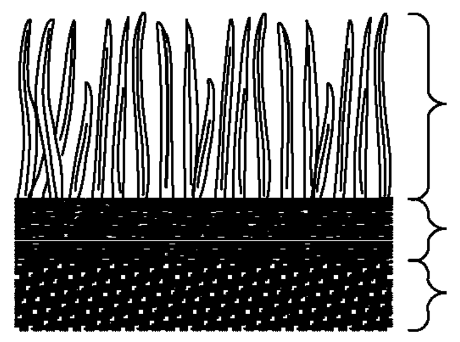


WATER TO A DEPTH OF 4" AS NEEDED. WATER WELL AS SOON AS THE SOD IS LAID.



MOW WHEN THE SOD IS ESTABLISHED, TYPICALLY IN 2-3 WEEKS. SET THE MOWER AT 2 TO 3 INCHES HIGH.

APPEARANCE OF GOOD SOD



SHOOTS – GRASS BLADES SHOULD BE GREEN AND HEALTHY, MOWED AT A 2"-3" CUTTING HEIGHT.

THATCH – GRASS CLIPPINGS AND DEAD LEAVES, UP TO 1/2" THICK.

ROOT ZONE – SOIL AND ROOTS SHOULD BE 1/2"-3/4" THICK, WITH DENSE ROOT MAT FOR STRENGTH.

SOURCE: MODIFIED FROM VA. DCR, 1992

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SODDING NOTES:

A) SODDING:

1. THE SOD SHALL BE DENSELY ROOTED, NURSERY GROWN, AND A PERENNIAL GRASS. THE SOD SHALL CONTAIN A GROWTH OF NOT MORE THAN 10 PERCENT OF OTHER GRASSES, SHALL BE FREE FROM ALL PROHIBITED AND NOXIOUS WEEDS, AND SHALL BE CUT IN STRIPS OF UNIFORM THICKNESS. THE RANGE OF ACCEPTABLE THICKNESS SHALL BE 1/2 TO 1 1/2 INCH, WITH EACH STRIP CONTAINING AT LEAST ONE (1) SQUARE YARD. SOD SHALL BE CUT IN STRIPS NOT LESS THAN 12 INCHES WIDE.
2. FERTILIZER SHALL BE INORGANIC 12-12-12 OR 13-13-13 GRADE, UNIFORM IN COMPOSITION, FREE FLOWING, SUITABLE FOR APPLICATION WITH APPROVED EQUIPMENT, AND DELIVERED TO THE SITE IN CONVENIENT CONTAINERS, EACH FULLY LABELED. LABELS SHALL CONFORM TO APPLICABLE STATE FERTILIZER LAWS AND BEARING THE NAME, TRADE NAME OR TRADEMARK, AND WARRANTY OF THE PRODUCER.
3. BEFORE TILLING OPERATIONS, FERTILIZER SHALL BE SPREAD UNIFORMLY AT THE RATE OF 300 POUNDS PER ACRE. FERTILIZING RATE IS EQUIVALENT TO 3.5 POUND PER 500 SQUARE FEET.
4. THE SOD BED SHALL HAVE A UNIFORM SURFACE FREE FROM WASHES AND DEPRESSIONS. IT SHALL CONFORM TO THE FINISHED GRADE PROFILE AND CROSS SECTION SHOWN ON THE PLANS. THE SOIL, EXCEPT WHERE FRESH TOP SOIL HAS BEEN APPLIED AND COMPACTED, SHALL BE THOROUGHLY TILLED TO A DEPTH OF 2 INCHES.
5. FRESHLY GRADED AREAS WHICH HAVE SET LONG ENOUGH TO BECOME DRY AND CRUSTED OVER SHALL BE TILLED, AS SPECIFIED ABOVE, BEFORE PLACING THE SOD.
6. SOD SHALL NOT BE PLACED DURING A DROUGHT NOR ON FROZEN GROUND UNLESS AUTHORIZED BY THE ENGINEER.
7. SOD SHALL BE MOIST WHEN IT IS PLACED. SOD STRIPS SHALL BE LAID ALONG CONTOUR LINES, COMMENCING AT THE LOWEST POINT OF THE AREA AND WORKING UPWARD. THE TRANSVERSE JOINTS OF SOD STRIPS SHALL BE STAGGERED AND THE SOD CAREFULLY PLACED TO PRODUCE TIGHT JOINTS. THE SOD SHALL BE FIRMED AND WATERED IMMEDIATELY AFTER IT IS PLACED. THE FIRMING SHALL BE ACCOMPLISHED BY APPLICATION OF A ROLLER WEIGHING BETWEEN 60 AND 90 POUNDS PER LINEAL FOOT OF ROLLER.
8. ON 2H:1V SLOPES OR STEEPER THE SOD SHALL BE ANCHORED WITH 1/2-INCH SQUARE BY 8-INCH LONG WOODEN PEGS DRIVEN INTO THE GROUND, 3 PEGS TO THE SQUARE YARD OR OTHER APPROVED CONFIGURATION. PEGGING SHALL BE DONE IMMEDIATELY AFTER SOD IS FIRMED. THE AREA SHALL THEN BE CLEARED OF LOOSE SOD, EXCESS OR BROKEN ANCHORS, EXCESSIVE SOIL, AND OTHER FOREIGN MATERIALS.

B) TROUBLESHOOTING:

1. CONSULT WITH A QUALIFIED DESIGN PROFESSIONAL IF ANY OF THE FOLLOWING OCCUR:
    a. VARIATION IN TOPOGRAPHY ON SITE INDICATE THE SODDING MATERIALS WILL NOT FUNCTION AS INTENDED; CHANGES IN PLAN MAY BE NEEDED.
    b. DESIGN SPECIFICATIONS FOR SOD VARIETY CANNOT BE MET OR IRRIGATION IS NOT POSSIBLE; SUBSTITUTION OR SEEDING MAY BE REQUIRED. UNAPPROVED SUBSTITUTIONS COULD RESULT IN EROSION OR SODDING FAILURE.
2. COMMON PROBLEMS:
    a. SOD LAID ON POORLY PREPARED SOIL OR UNSUITABLE SURFACE DIES BECAUSE IT IS UNABLE TO ROOT – REMOVE DEAD SOD, PREPARE SURFACE, AND RESOD.
    b. SOD NOT ADEQUATELY IRRIGATED AFTER INSTALLATION CAUSES ROOT DIEBACK, GRASS TO NOT ROOT RAPIDLY, AND DRYING OUT – IRRIGATE SOD AND UNDERLYING SOIL TO THE DEPTH OF 4 INCHES AND KEEP MOIST UNTIL ROOTS ARE ESTABLISHED.
    c. SOD NOT ANCHORED PROPERLY IS LOOSENED BY RUNOFF – REPLACE DAMAGED AREAS AND ANCHOR SOD.
    d. SLOW GROWTH DUE TO LACK OF NITROGEN CAUSES YELLOWING OF LEAF BLADES – REFERTILIZE SOD, BUT AVOID FERTILIZING COOL SEASON GRASSES FROM LATE MAY THROUGH JULY.

C) MAINTENANCE AND INSPECTION:

1. THE SODDED AREA SHALL BE THOROUGHLY WATERED DAILY FOR A PERIOD OF FIFTEEN DAYS AFTER PLACING EXCEPT WHEN THOROUGHLY WETTED BY RAIN. ANY PORTION OF THE SOD THAT IS NOT IN GOOD GROWING CONDITION FOLLOWING THE FIRST FULL GROWING SEASON (SPRING TO FALL), SHALL BE REPLACED WITH FRESH LIVE SOD.

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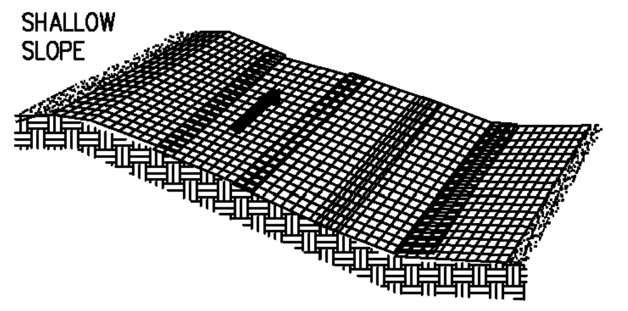
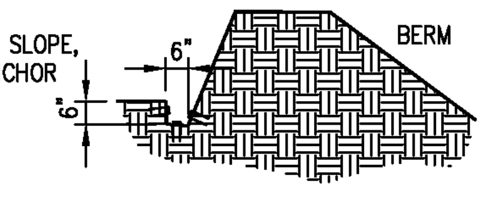
SODDING
STANDARD DRAWING NUMBER ESC-02
ADOPTED:

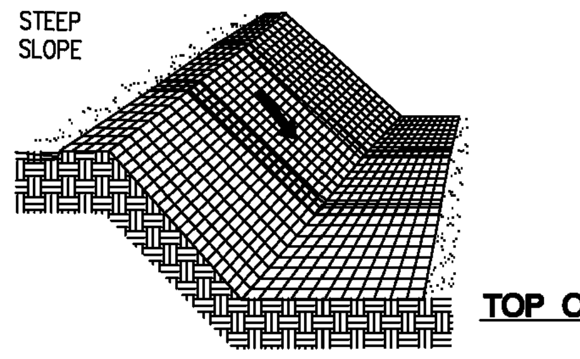
EROSION CONTROL BLANKET



NOTE:
ON SHALLOW SLOPES, PROTECTIVE EROSION CONTROL BLANKETS MAY BE APPLIED ACROSS THE SLOPE.

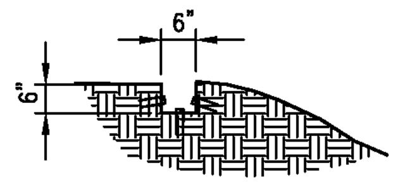
NOTE:
WHERE THERE IS A BERM AT THE TOP OF THE SLOPE, BRING THE MATERIAL OVER THE BERM AND ANCHOR IT BEHIND THE BERM.



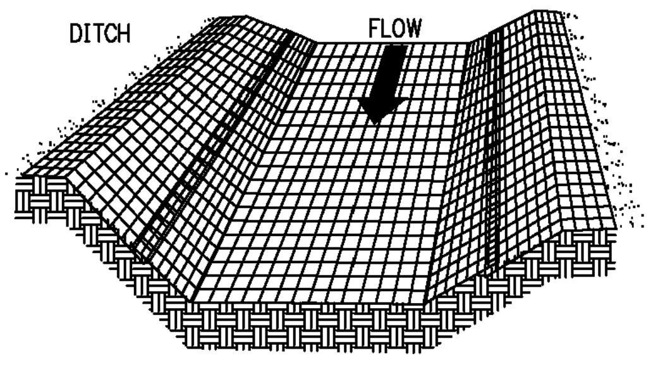


NOTE:
ON STEEP SLOPES, APPLY PROTECTIVE BLANKET PERPENDICULAR TO THE DIRECTION OF FLOW AND ANCHOR SECURELY.

TOP OF SLOPE BLANKET ANCHOR SLOT



NOTE:
BRING MATERIAL DOWN TO A LEVEL AREA BEFORE TERMINATING THE INSTALLATION.



NOTE:
IN DITCHES, APPLY PROTECTIVE COVERING PARALLEL TO THE DIRECTION OF FLOW. USE CHECK SLOTS AS REQUIRED. AVOID JOINING MATERIAL IN THE CENTER OF THE DITCH IF AT ALL POSSIBLE. FOLLOW BLANKET MANUFACTURER'S RECOMMENDATIONS FOR ALLOWABLE VELOCITY AND SHEAR STRESS.

SOURCE: MODIFIED FROM VA. DCR, 1992

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EROSION CONTROL BLANKET NOTES (1 OF 2):

A) SITE PREPARATION:

AFTER SITE HAS BEEN SHAPED AND GRADED, PREPARE A FRIABLE SEEDBED RELATIVELY FREE FROM CLODS AND ROCKS MORE THAN 1 1/2 INCHES IN DIAMETER AND ANY FOREIGN MATERIAL THAT WILL PREVENT UNIFORM CONTACT OF THE PROTECTIVE COVERING WITH THE SOIL SURFACE.

B) PLANTING:

LIME, FERTILIZE, AND SEED IN ACCORDANCE WITH SEEDING OR PLANTING PLAN. WHEN USING JUTE MESH ON A SEEDED AREA, APPLY APPROXIMATELY ONE HALF THE SEED AFTER LAYING THE MAT. THE PROTECTIVE COVERING CAN BE LAID OVER SPRIGGED AREAS WHERE SMALL GRASS PLANTS HAVE BEEN INSERTED INTO THE SOIL. WHERE GROUND COVERS ARE TO BE PLANTED, LAY THE PROTECTIVE COVERING FIRST AND THEN PLANT THROUGH THE MATERIAL AS PER PLANTING PLAN.

C) LAYING AND STAPLING:

IF INSTRUCTIONS HAVE BEEN FOLLOWED, ALL NEEDED CHECK SLOTS WILL HAVE BEEN INSTALLED, AND THE PROTECTIVE COVERING WILL BE LAID ON A FRIABLE SEEDBED FREE FROM CLODS, ROCKS, ROOTS, ETC. THAT MIGHT IMPEDE GOOD CONTACT.

1. START LAYING THE PROTECTIVE COVERING FROM THE TOP OF THE CHANNEL OR SLOPE AND UNROLL DOWN-GRADE. ALLOW TO LAY LOOSELY ON SOIL; DO NOT STRETCH.
2. UPSLOPE ENDS OF THE BLANKET SHOULD BE BURIED IN AN ANCHOR SLOT NO LESS THAN 6-INCHES DEEP. TAMP EARTH
3. FIRMLY OVER THE MATERIAL. WHEN TOP IS RELATIVELY FLAT, EXTEND BLANKET ABOUT 40 INCHES AWAY FROM SLOPE. STAPLE THE MATERIAL AT A MINIMUM OF EVERY 12 INCHES ACROSS THE TOP END.
4. EDGES OF THE MATERIAL SHALL BE STAPLED EVERY 3 FEET. WHERE MULTIPLE WIDTHS ARE LAID SIDE BY SIDE, THE ADJACENT EDGES SHALL BE OVERLAPPED A MINIMUM OF 6 INCHES AND STAPLED TOGETHER.
5. STAPLES SHALL BE PLACED DOWN THE CENTER, STAGGERED WITH THE EDGES AT 3-FOOT INTERVALS.

D) TROUBLESHOOTING:

CONSULT WITH A QUALIFIED DESIGN PROFESSIONAL, IF ANY OF THE FOLLOWING OCCUR:

1. MOVEMENT OF THE BLANKET OR EROSION UNDER THE BLANKET IS OBSERVED.
2. VARIATIONS IN TOPOGRAPHY ON SITE INDICATE EROSION CONTROL MAT WILL NOT FUNCTION AS INTENDED; CHANGES IN PLAN MAY BE NEEDED, OR A BLANKET WITH A SHORTER OR LONGER LIFE MAY BE NEEDED.
3. DESIGN SPECIFICATIONS FOR SEED VARIETY, SEEDING DATES, OR EROSION CONTROL MATERIALS CANNOT BE MET; SUBSTITUTION MAY BE REQUIRED. UNAPPROVED SUBSTITUTIONS COULD RESULT IN FAILURE TO ESTABLISH VEGETATION.

E) MAINTENANCE & INSPECTION

INSPECT CONTROLS AFTER EACH RAIN EVENT OF 1/2 INCH OR GREATER, AND EVERY 7 DAYS UNTIL VEGETATION IS ESTABLISHED, FOR EROSION OR UNDERMINING BENEATH THE NETTING, BLANKETS, OR MATS. IF ANY AREA SHOWS EROSION, PULL BACK THAT PORTION OF THE MATERIAL, ADD SOIL, TAMP DOWN, AND RESEED; RESECURE THE MATERIAL IN PLACE. IF NETTING, BLANKETS OR MATS BECOME DISLOCATED OR DAMAGED, REPAIR OR REPLACE AND RESECURE IMMEDIATELY.

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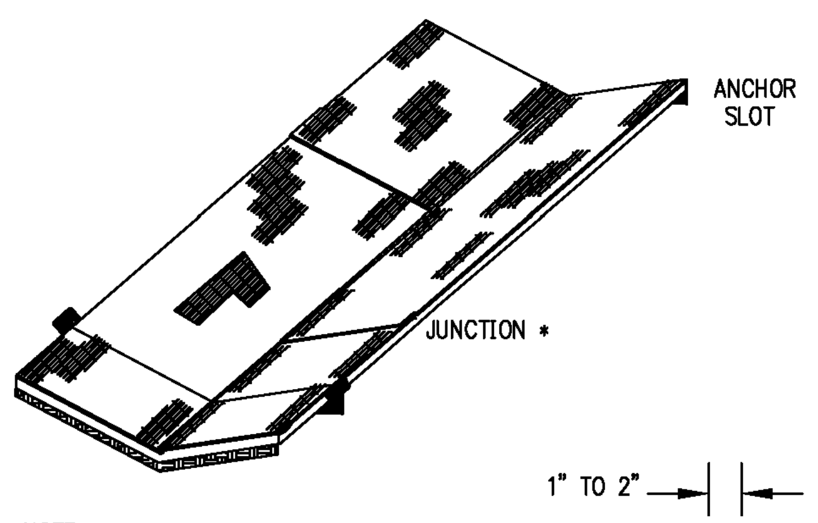
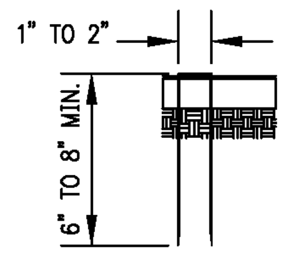
EROSION CONTROL BLANKET
SHEET 1 OF 2
STANDARD DRAWING NUMBER ESC-04
ADOPTED:

EROSION CONTROL BLANKET INSTALLATION FOR CHANNELS



NOTE:
* JUNCTION: OVERLAP TOP BLANKET 6 INCHES MINIMUM AND STAPLE EVERY 6 INCHES ACROSS.



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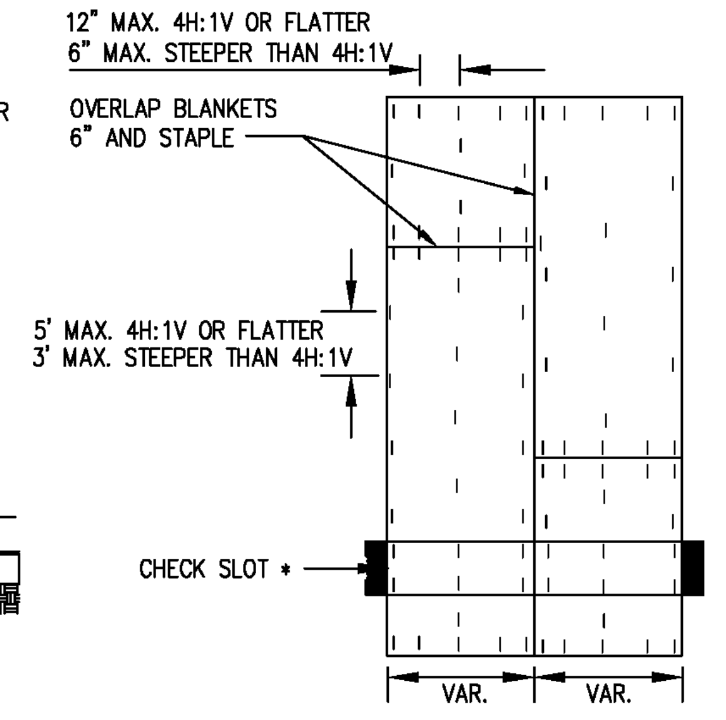
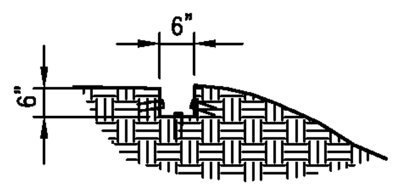
NOTE:
STAPLE FORMED FROM NO.11 STEEL WIRE.
MIN. 8" STAPLE LENGTH FOR SANDY SOIL.
MIN. 6" STAPLE LENGTH FOR OTHER SOIL.


12" MAX. 4H:1V OR FLATTER
6" MAX. STEEPER THAN 4H:1V
OVERLAP BLANKETS 6" AND STAPLE
5' MAX. 4H:1V OR FLATTER
3' MAX. STEEPER THAN 4H:1V
CHECK SLOT *
VAR.
VAR.

PLAN VIEW
STAPLING DIAGRAM
NOT TO SCALE

NOTE:
* CHECK SLOTS AT MIN. 50' INTERVALS; NOT REQUIRED WITH ALL COMBINATION BLANKETS

NOTE:
APPROXIMATELY 200 STAPLES ARE REQUIRED PER 100 SQ. YDS. OF MATERIAL ROLL. ANCHOR SLOTS, JUNCTION SLOTS, AND CHECK SLOTS TO BE BURIED 6" TO 12" DEEP.



ANCHOR SLOT

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EROSION CONTROL BLANKET NOTES (2 OF 2):

F) STAPLES:

STAPLES FOR ANCHORING BLANKET SHALL BE NO. 11-GAUGE WIRE OR HEAVIER. THEIR LENGTH SHALL BE A MINIMUM OF 6 INCHES. A LARGER STAPLE WITH A LENGTH OF UP TO 12 INCHES SHALL BE USED ON LOOSE, SANDY, OR UNSTABLE SOILS.

G) JOINING PREOTECTIVE COVERINGS:

OVERLAP THE END OF THE PREVIOUS ROLL A MINIMUM OF 6 INCHES AND STAPLE. STAPLE ACROSS THE END OF THE ROLL JUST BELOW THE ANCHOR SLOT AND ACROSS THE MATERIAL EVERY 6 INCHES.

H) TERMINAL END:

AT THE POINT AT WHICH THE MATERIAL IS DISCONTINUED, OR WHERE THE PROTECTIVE COVERING MEETS A STRUCTURE OF SOME TYPE, STAPLE A MINIMUM OF EVERY 12 INCHES.

I) FINAL CHECK:

THESE INSTALLATION CRITERIA MUST BE ADHERED TO:
1. ALL DISTURBED AREAS ARE SEEDED.
2. PROTECTIVE BLANKET IS IN UNIFORM CONTACT WITH THE SOIL.
3. ALL LAP JOINTS ARE SECURE.
4. ALL STAPLES ARE DRIVEN FLUSH WITH THE GROUND.

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KANSAS CITY
METROPOLITAN CHAPTER
EROSION CONTROL BLANKET
SHEET 2 OF 2
STANDARD DRAWING NUMBER ESC-05
ADOPTED:

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MO Engineering Corp. # 2004005018

WILSHIRE HILLS PHASE III
3200 NE WILSHIRE DR
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

6/30/2023
MATTHEW AARON KRIETE
NUMBER PE-2007002811
Matthew A Kriete

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

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Date
JUNE 30, 2023

Revised

Design: ST Drawn: MJS

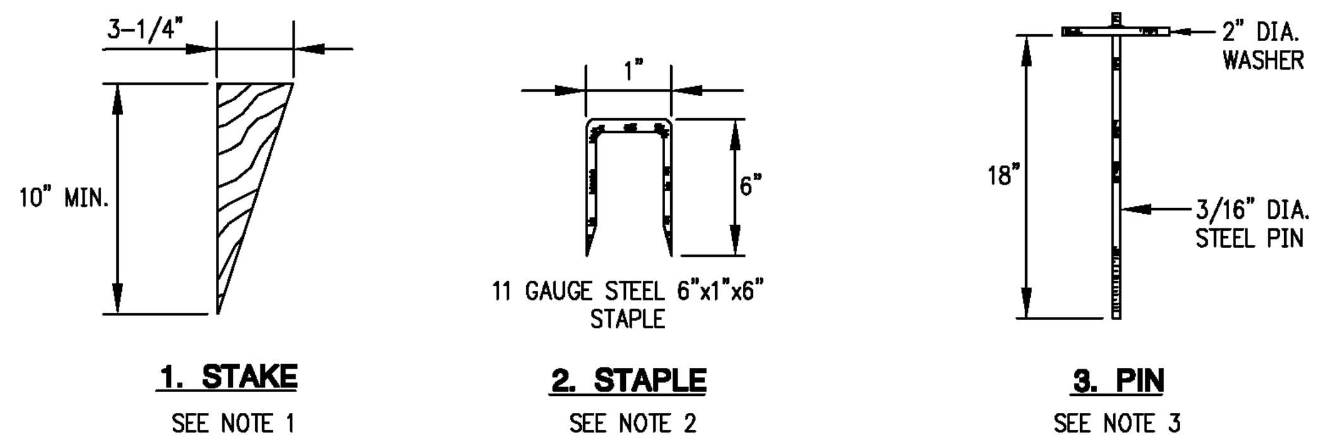
EROSION CONTROL DETAILS

Sheet
C14.01

ES&S PROJECT NO. 15925

CONSTRUCTION DOCUMENTS

STAKES, STAPLES, AND PINS



STAKES, STAPLES, AND PINS FOR INSTALLATION OF ROLLED EROSION CONTROL PRODUCTS
NOT TO SCALE

STAKES, STAPLES, AND PINS NOTES:
GENERAL NOTES:

1. STAKES SHALL BE 1x4 TRIANGULAR SURVEY STAKES A MINIMUM OF 10" IN LONG.
2. STAPLES SHALL BE 11 GAUGE STEEL A MINIMUM OF 1" WIDE BY 6" IN LONG. A 2"x8" STAPLE MAY BE REQUIRED IN CERTAIN SOIL CONDITIONS.
3. STEEL PINS SHALL BE 3/16 DIAMETER BY 18" IN LONG WITH A 2" DIAMETER WASHER ON TOP. (SEE ILLUSTRATION.)
4. ANCHORING METHODS AND RECOMMENDATIONS VARY BY MANUFACTURERS. THE EXPECTATION OF HIGH VELOCITIES SHOULD DICTATE THE USE OF MORE SUBTANTIAL ANCHORING.

SOURCE: MODIFIED FROM VA. DCR, 1992

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AMERICAN PUBLIC WORKS ASSOCIATION
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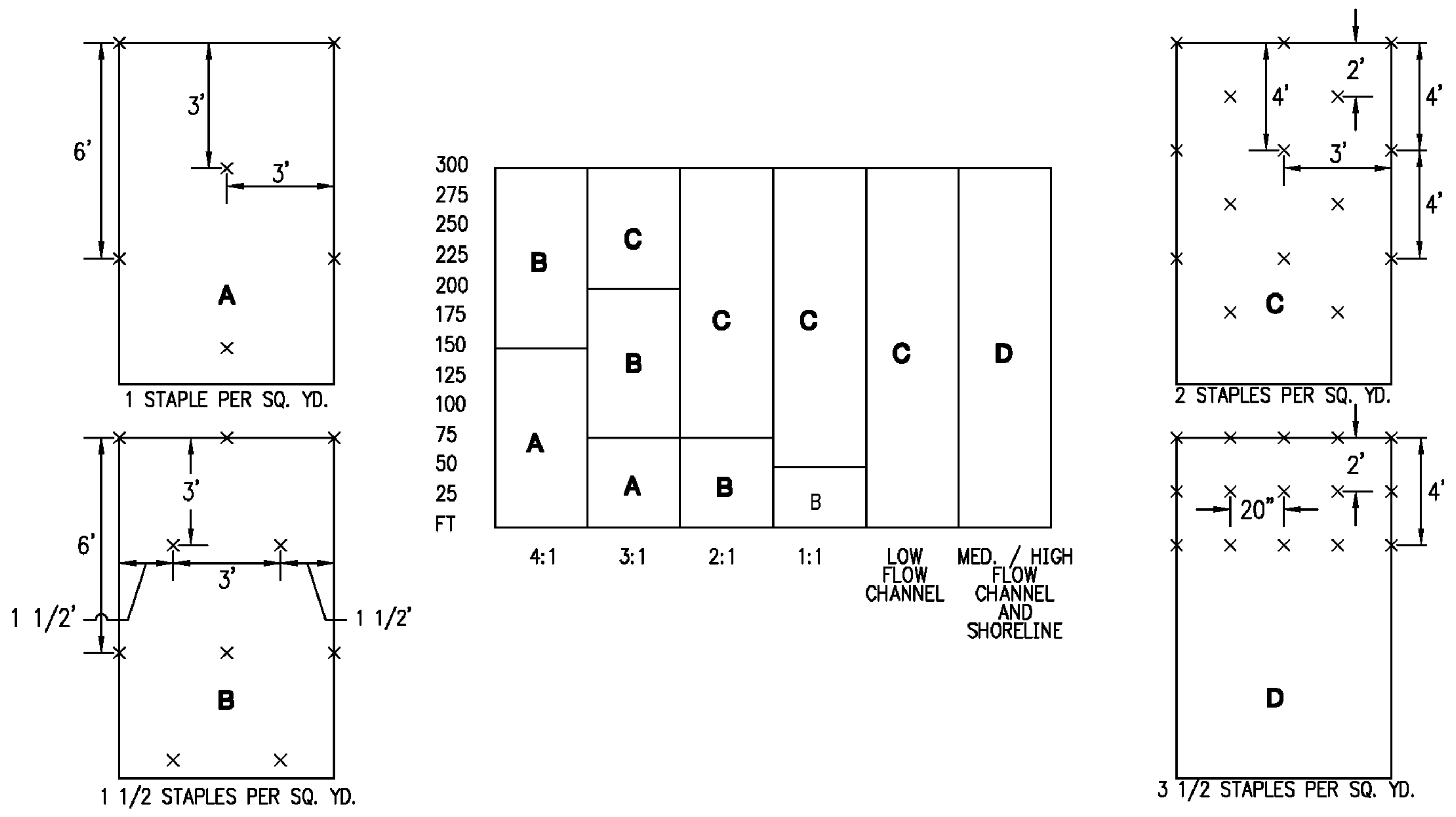
METROPOLITAN CHAPTER
STAKES, STAPLES, AND PINS
STANDARD DRAWING NUMBER ESC-08
ADOPTED:

STAPLE PATTERNS FOR ROLLED EROSION CONTROL PRODUCTS



GENERAL STAPLE PATTERN GUIDE AND RECOMMENDATIONS FOR ROLLED EROSION CONTROL PRODUCTS
NOT TO SCALE

NOTE:
FOR OPTIMUM RESULTS, THESE RECOMMENDED STAPLE PATTERN GUIDES MUST BE FOLLOWED UNLESS OTHERWISE DICTATED BY THE MANUFACTURER. SUGGESTED ANCHORING METHODS VARY BY MANUFACTURER. THIS CHART SHOWS HOW SLOPE LENGTHS AND GRADIENTS AFFECT STAPLING PATTERNS.

SOURCE: MODIFIED FROM VA. DCR, 1992

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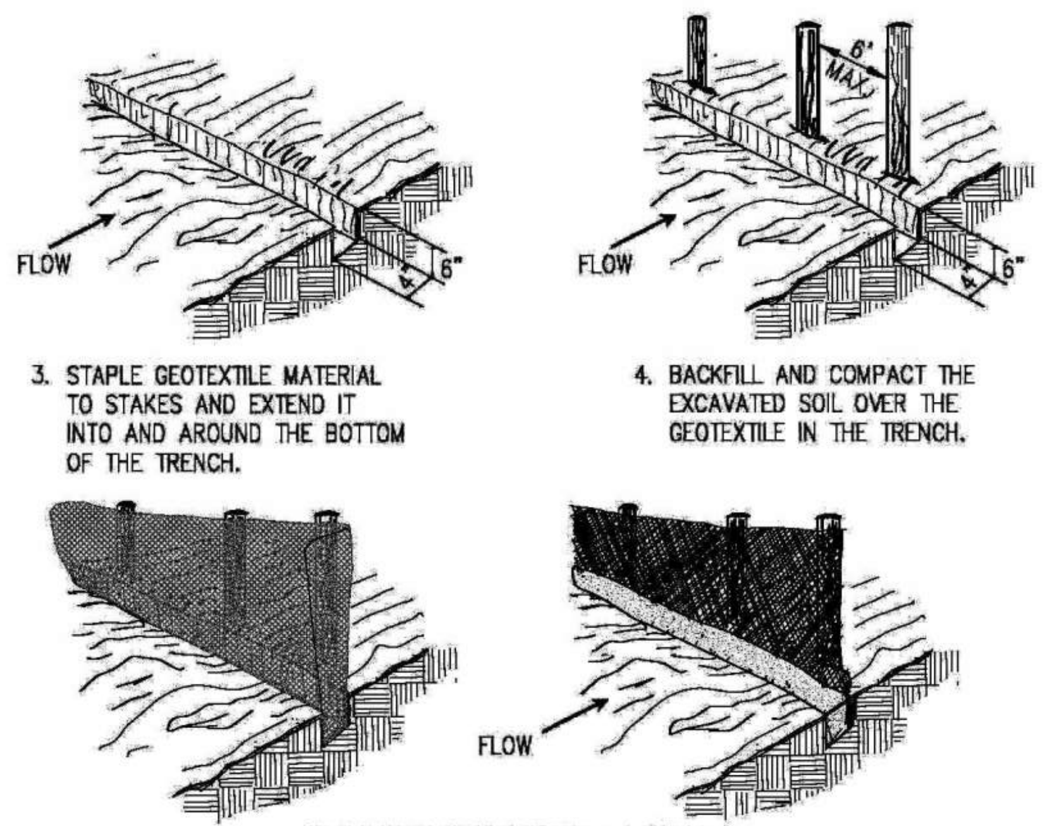
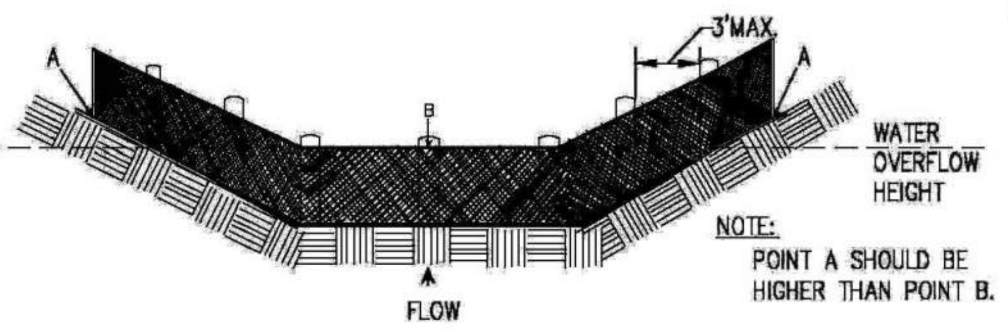
METROPOLITAN CHAPTER
STAPLE PATTERNS FOR ROLLED EROSION CONTROL PRODUCTS
STANDARD DRAWING NUMBER ESC-09
ADOPTED:

SEDIMENT FENCE

1. EXCAVATE A 6"x4" TRENCH.
2. SET THE STAKES ALONG THE DOWN SLOPE SIDE OF THE TRENCH.
3. STAPLE GEOTEXTILE MATERIAL TO STAKES AND EXTEND IT INTO AND AROUND THE BOTTOM OF THE TRENCH.
4. BACKFILL AND COMPACT THE EXCAVATED SOIL OVER THE GEOTEXTILE IN THE TRENCH.



SHEET FLOW INSTALLATION
(PERSPECTIVE VIEW)
NOT TO SCALE



NOTE:
POINT A SHOULD BE HIGHER THAN POINT B.

DRAINAGEWAY INSTALLATION
(FRONT ELEVATION)
NOT TO SCALE

SEDIMENT FENCE NOTES:

A) INSTALLATION:

1. THE HEIGHT OF SEDIMENT FENCE SHALL BE A MINIMUM OF 16 INCHES ABOVE THE ORIGINAL GROUND SURFACE AND SHALL NOT EXCEED 34 INCHES ABOVE THE GROUND SURFACE.
2. THE FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE UNAVOIDABLE, FILTER CLOTH SHALL BE SECURELY SPLICED TOGETHER ONLY AT SUPPORT POSTS, WITH A MAX 6-INCH OVERLAP.
3. DIG A TRENCH AT LEAST 6 INCHES DEEP AND 4 INCHES WIDE ALONG THE FENCE ALIGNMENT.
4. DRIVE POSTS AT LEAST 24 INCHES INTO THE GROUND ON THE DOWNSLOPE SIDE OF THE TRENCH. SPACE POSTS A MAXIMUM OF 6 FEET APART.
5. EXTRA-STRENGTH SEDIMENT FENCE FABRIC SHALL BE USED. POSTS FOR THIS TYPE OF FABRIC SHALL BE PLACED A MAXIMUM OF 6 FEET APART. THE SEDIMENT FABRIC SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING A MINIMUM OF ONE INCH LONG, HEAVY-DUTY WIRE STAPLES OR TIE-WIRES, AND EIGHT INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
6. PLACE THE BOTTOM 1 FOOT OF FABRIC IN THE MINIMUM-OF-6-INCH DEEP TRENCH, LAPPING TOWARD THE UPSLOPE SIDE. BACKFILL WITH COMPACTED EARTH OR GRAVEL.
7. IF A SEDIMENT FENCE IS TO BE CONSTRUCTED ACROSS A DITCH LINE OR SWALE, IT MUST BE OF SUFFICIENT LENGTH TO ELIMINATE ENDFLOW, AND THE PLAN CONFIGURATION SHALL RESEMBLE AN ARC OR HORSESHOE, PLACED ON A CONTOUR, WITH THE ENDS ORIENTED UPSLOPE. EXTRA-STRENGTH SEDIMENT FABRIC SHALL BE USED WITH A MAXIMUM 3-FOOT SPACING OF POSTS.
8. TO REDUCE MAINTENANCE, EXCAVATE A SHALLOW SEDIMENT STORAGE AREA IN THE UPSLOPE SIDE OF THE FENCE. PROVIDE GOOD ACCESS IN AREAS OF HEAVY SEDIMENTATION FOR CLEAN OUT AND MAINTENANCE.
9. SEDIMENT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.

B) TROUBLESHOOTING:

1. DETERMINE THE EXACT LOCATION OF UNDERGROUND UTILITIES, BEFORE FENCE INSTALLATION SO UTILITIES ARE NOT DISTURBED.
2. GRADE ALIGNMENT OF FENCE AS NEEDED TO PROVIDE A BROAD, NEARLY LEVEL AREA UPSTREAM OF FENCE TO ALLOW SEDIMENT COLLECTION AREA.

C) INSPECTION MAINTENANCE:

1. INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
3. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. AVOID DAMAGING OR UNDERMINING THE FENCE DURING CLEANOUT. SEDIMENT ACCUMULATION SHOULD NOT EXCEED 1/2 THE HEIGHT OF THE FENCE.
4. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY AND COMPLETELY STABILIZED.

SOURCE: MODIFIED FROM VA. DCR, 1992

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AMERICAN PUBLIC WORKS ASSOCIATION
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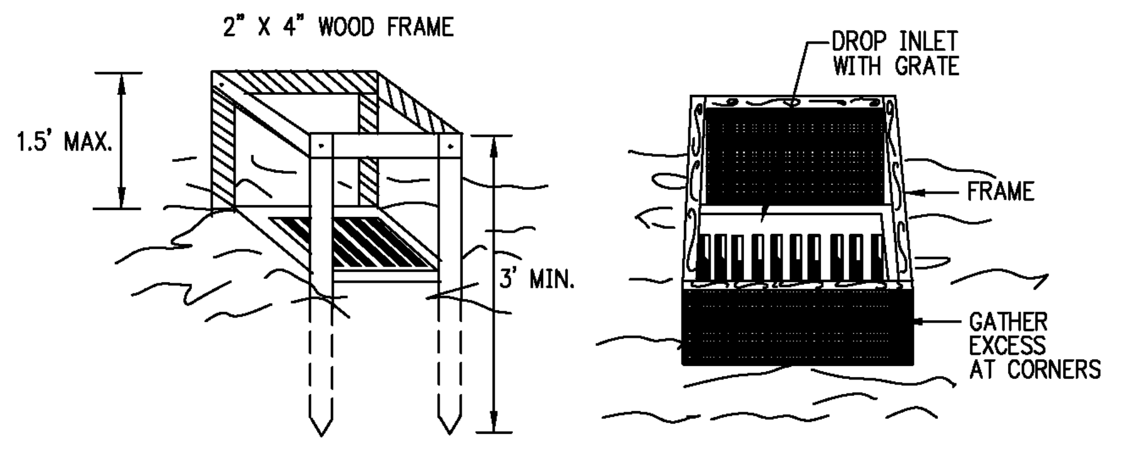
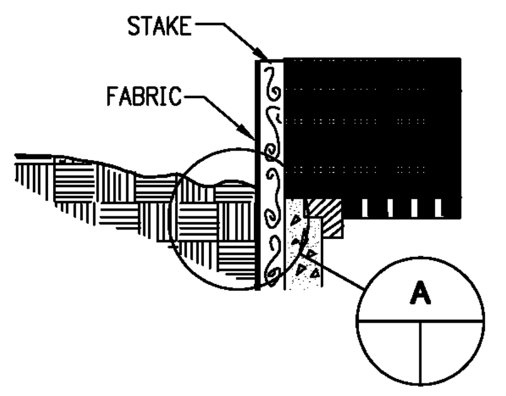
METROPOLITAN CHAPTER
SEDIMENT FENCE
STANDARD DRAWING NUMBER ESC-10
ADOPTED:

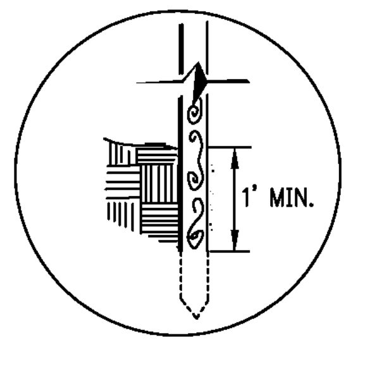
SEDIMENT FENCE DROP INLET PROTECTION



PERSPECTIVE VIEWS
NOT TO SCALE



ELEVATION OF STAKE AND FABRIC ORIENTATION



DETAIL A
NOT TO SCALE

SEDIMENT FENCE DROP INLET PROTECTION NOTES:

A) CONSTRUCTION SPECIFICATIONS:

1. SEDIMENT FENCE SHALL CONFORM TO THE CONSTRUCTION SPECIFICATIONS FOR EXTRA STRENGTH FOUND IN THE TABLE BELOW AND SHALL BE CUT FROM A CONTINUOUS ROLL TO AVOID JOINTS.

PHYSICAL PROPERTIES OF FABRIC IN SEDIMENT FENCE:

PHYSICAL PROPERTY	TEST	REQUIREMENTS
FILTERING EFFICIENCY	ASTM 5141	75%
TENSILE STRENGTH AT 20% (MAX.) ELONGATION*	ASTM 4632 AASHTO M288-96	EXTRA STRENGTH - 50 LBS./LINEAR INCH
FLOW RATE	ASTM 5141	0.2 GAL./SQ.FT/ MINUTE**
ULTRAVIOLET RADIATION STABILITY %	ASTM D 4355	90%

* REQUIREMENTS REDUCED BY 50% AFTER SIX MONTHS OF INSTALLATION.
** HIGH POROSITY FABRIC MADE BY BETTER SUITED FOR THIS DEVICE.

2. FOR STAKES, USE 2X4 WOOD OR EQUIVALENT METAL WITH A MINIMUM LENGTH OF 3 FEET.
3. SPACE STAKES EVENLY AROUND THE PERIMETER OF THE INLET A MAXIMUM OF 3 FEET APART, AND SECURELY DRIVE THEM INTO THE GROUND, APPROXIMATELY 18 INCHES DEEP.
4. TO PROVIDE NEEDED STABILITY TO THE INSTALLATION, FRAME WITH 2X4 WOOD STRIPS AROUND THE CREST OF THE OVERFLOW AREA AT A MAXIMUM OF 1.5 FEET ABOVE THE DROP INLET CREST.
5. PLACE THE BOTTOM 12 INCHES OF THE FABRIC IN A TRENCH AND BACKFILL THE TRENCH WITH 12-INCHES OF COMPACTED SOIL.
6. FASTEN FABRIC SECURELY BY STAPLES, OR WIRE IT TO THE STAKES AND FRAME. JOINTS MUST BE OVERLAPPED TO THE NEXT STAKE.
7. IT MAY BE NECESSARY TO BUILD A TEMPORARY DIKE ON THE DOWNSLOPE SIDE OF THE STRUCTURE TO PREVENT BYPASS FLOW.

B) INSPECTION AND MAINTENANCE:

1. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN EVENT OF 1/2 INCH OR GREATER AND REPAIRS MADE AS NEEDED.
2. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
3. STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

SOURCE: MODIFIED FROM VA. DCR, 1992

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METROPOLITAN CHAPTER
SEDIMENT FENCE DROP INLET PROTECTION
STANDARD DRAWING NUMBER ESC-19
ADOPTED:

P:\GENERAL PROJECTS\15925E-JES-WILSHIRE-HILLS-3-ENG\CAD\15925 COVER & DETAILS.DWG 6/30/2023

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WILSHIRE HILLS PHASE III
3200 NE WILSHIRE DR
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

CONSTRUCTION DOCUMENTS

6/30/2023
MATTHEW AARON KRIETE
NUMBER PE-2007002811

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

IF ORIGINAL SIGNATURE OR DIGITAL AUTHENTICATION IS NOT PRESENT THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.

Date
JUNE 30, 2023

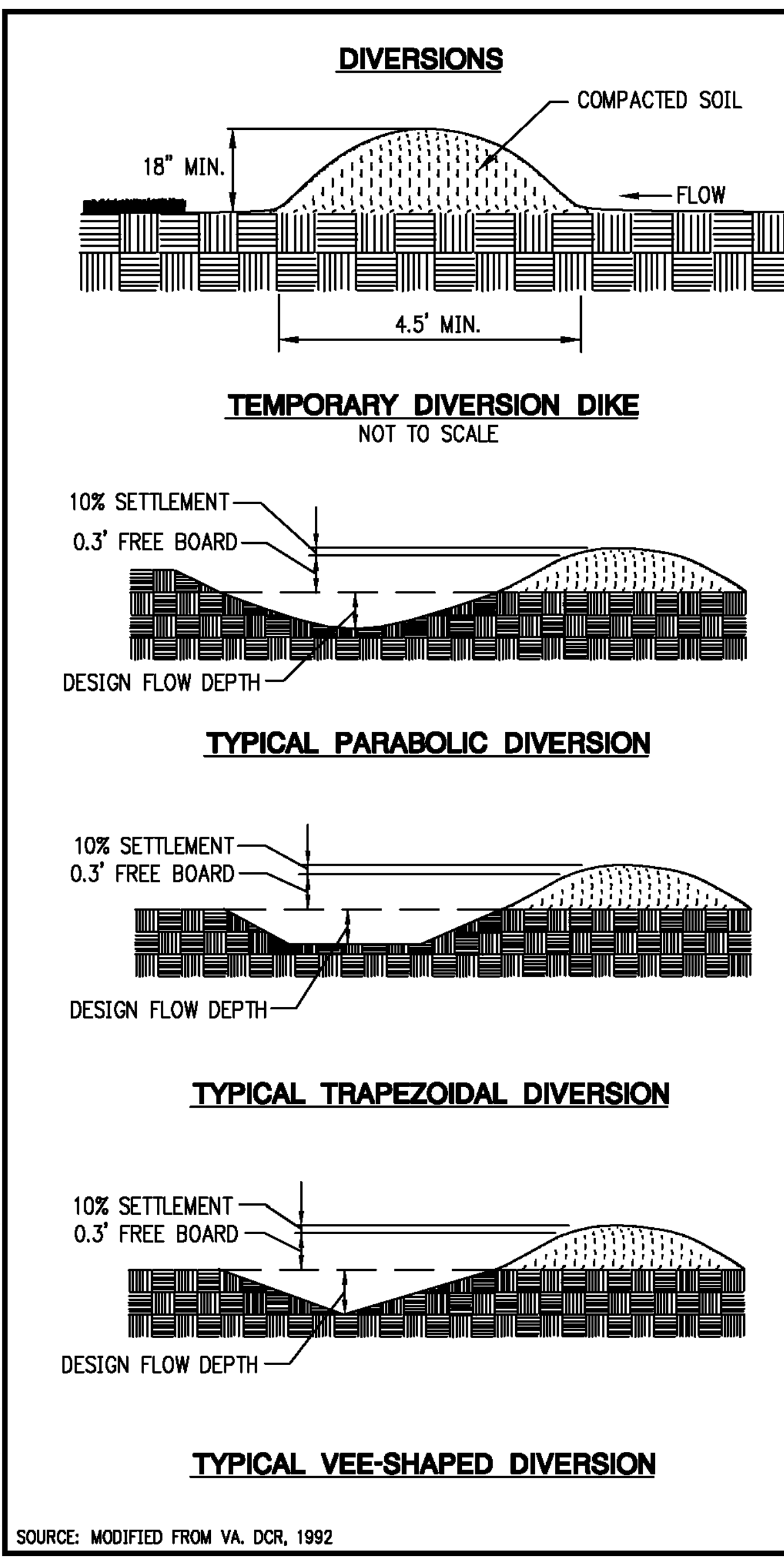
Revised

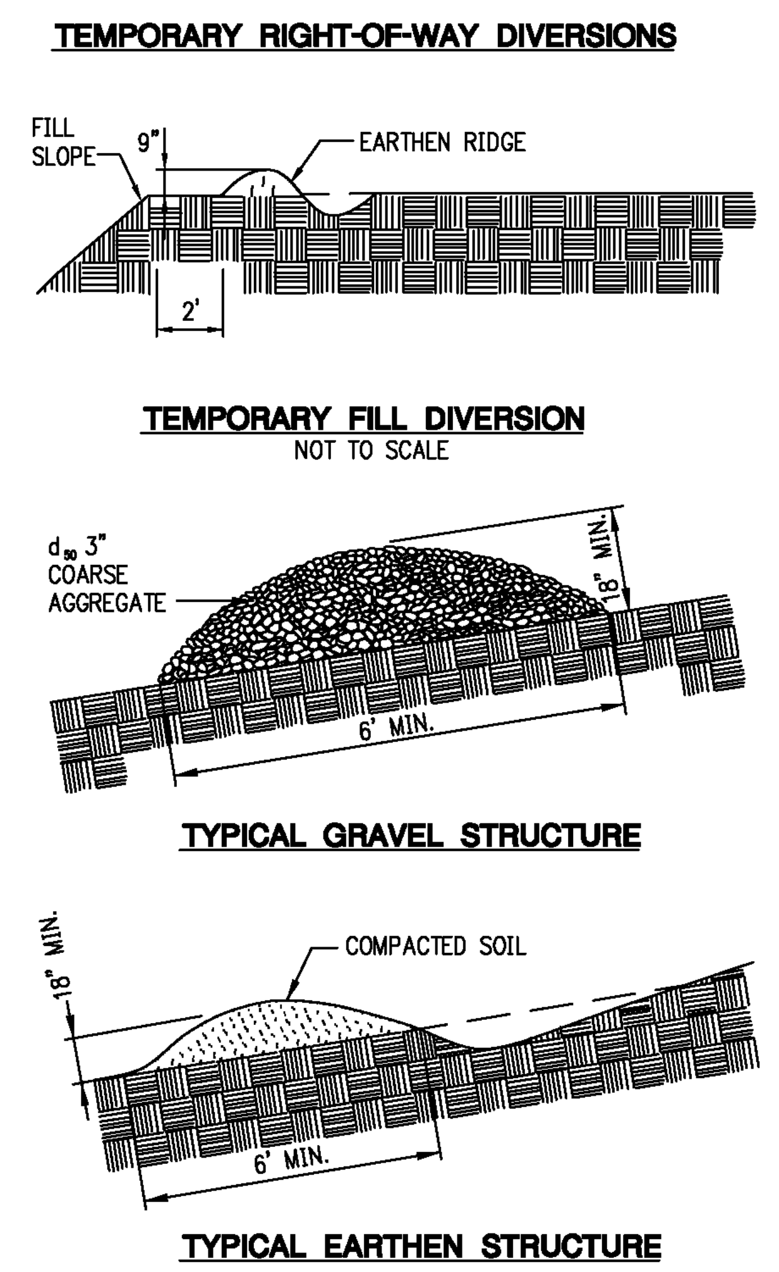
Design: ST Drawn: MJS

EROSION CONTROL DETAILS

Sheet
C14.02

ES&S PROJECT NO. 15925





TEMPORARY FILL DIVERSION NOTES:

1. THE DIVERSION SHALL BE CONSTRUCTED AT THE TOP OF THE FILL AT THE END OF EACH WORK DAY AS NEEDED.
2. THE DIVERSION SHALL BE LOCATED AT LEAST 2 FEET INSIDE THE TOP EDGE OF THE FILL.
3. THE SUPPORTING RIDGE SHALL BE CONSTRUCTED WITH A UNIFORM HEIGHT ALONG ITS ENTIRE LENGTH. WITHOUT UNIFORM HEIGHT, THE FILL DIVERSION MAY BE SUSCEPTIBLE TO BREACHING.

RIGHT-OF-WAY DIVERSION DETAIL NOTES:

1. THE DIVERSION SHALL BE INSTALLED AS SOON AS THE RIGHT-OF-WAY HAS BEEN CLEARED AND/OR GRADED.
2. ALL EARTHEN DIVERSIONS SHALL BE MACHINE- OR HAND-COMPACTED IN 8-INCH LIFTS.
3. THE OUTLET OF THE DIVERSION SHALL BE LOCATED IN AN UNDISTURBED AND STABILIZED AREA WHEN AT ALL POSSIBLE. THE FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED OUTLET.
4. EARTHENED DIVERSIONS WHICH WILL NOT BE SUBJECT TO CONSTRUCTION TRAFFIC SHOULD BE STABLIIZED IN ACCORDANCE WITH TEMPORARY SEEDING.

DIVERSION DETAIL NOTES:

1. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE DIVERSION.
2. THE DIVERSION SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS-SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN, FREE OF IRREGULARITIES WHICH WILL IMPEDE FLOW.
3. FILLS SHALL BE COMPACTED AS NEEDED TO PREVENT UNEQUAL SETTLEMENT THAT WOULD CAUSE DAMAGE IN THE COMPLETED DIVERSION. FILL SHALL BE COMPOSED OF SOIL WHICH IS FREE FROM EXCESSIVE ORGANIC DEBRIS, ROCKS, OR OTHER OBJECTIONABLE MATERIALS.
4. ALL EARTH REMOVED AND NOT NEEDED IN CONSTRUCTION SHALL BE SPREAD OR DISPOSED OF SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE DIVERSION.
5. PERMANENT STABILIZATION OF DISTURBED AREAS SHALL BE DONE IN ACCORDANCE WITH SECTION 2151.

TEMPORARY DIVERSION DIKE NOTES:

1. TEMPORARY DIVERSION DIKES MUST BE INSTALLED AS A FIRST STEP IN THE LAND-DISTURBING ACTIVITY AND MUST BE FUNCTIONAL PRIOR TO UPSLOPE LAND DISTURBANCE.
2. THE DIKE SHOULD BE ADEQUATELY COMPACTED TO PREVENT FAILURE.
3. TEMPORARY OR PERMANENT SEEDING AND MULCH SHALL BE APPLIED TO THE DIKE IMMEDIATELY FOLLOWING ITS CONSTRUCTION.
4. THE DIKE SHOULD BE LOCATED TO MINIMIZE DAMAGES BY CONSTRUCTION OPERATIONS AND TRAFFIC.

SOURCE: MODIFIED FROM VA. DCR, 1992

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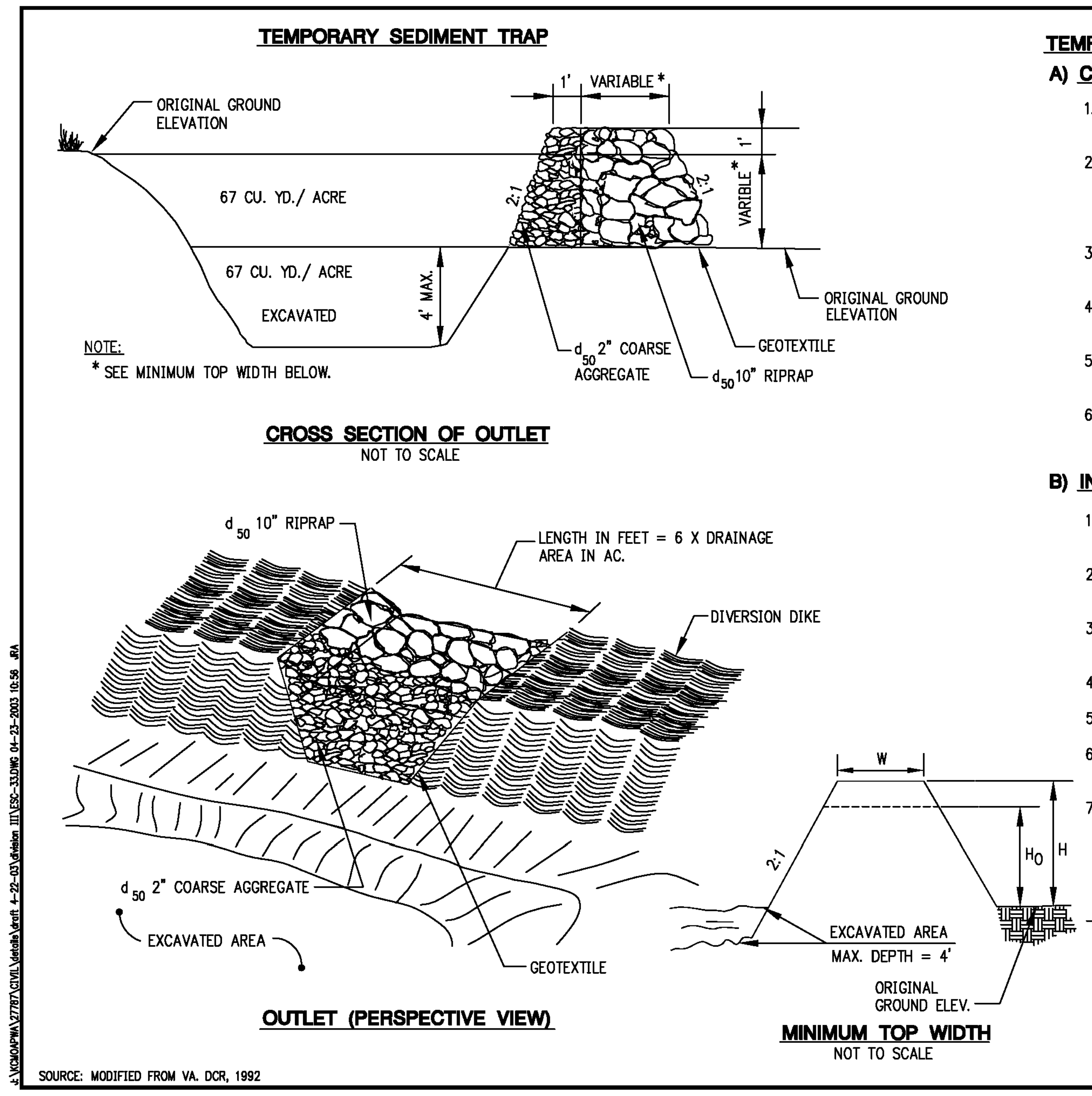
METROPOLITAN CHAPTER
DIVERSIONS
STANDARD DRAWING NUMBER ESC-29
ADOPTED:



H	H_O	W
1.5	0.5	2.0
2.0	1.0	2.0
2.5	1.5	2.5
3.0	2.0	2.5
3.5	2.5	3.0
4.0	3.0	3.0
4.5	3.5	4.0
5.0	4.0	4.5

TEMPORARY SEDIMENT TRAP NOTES:

A) CONSTRUCTION SPECIFICATIONS:

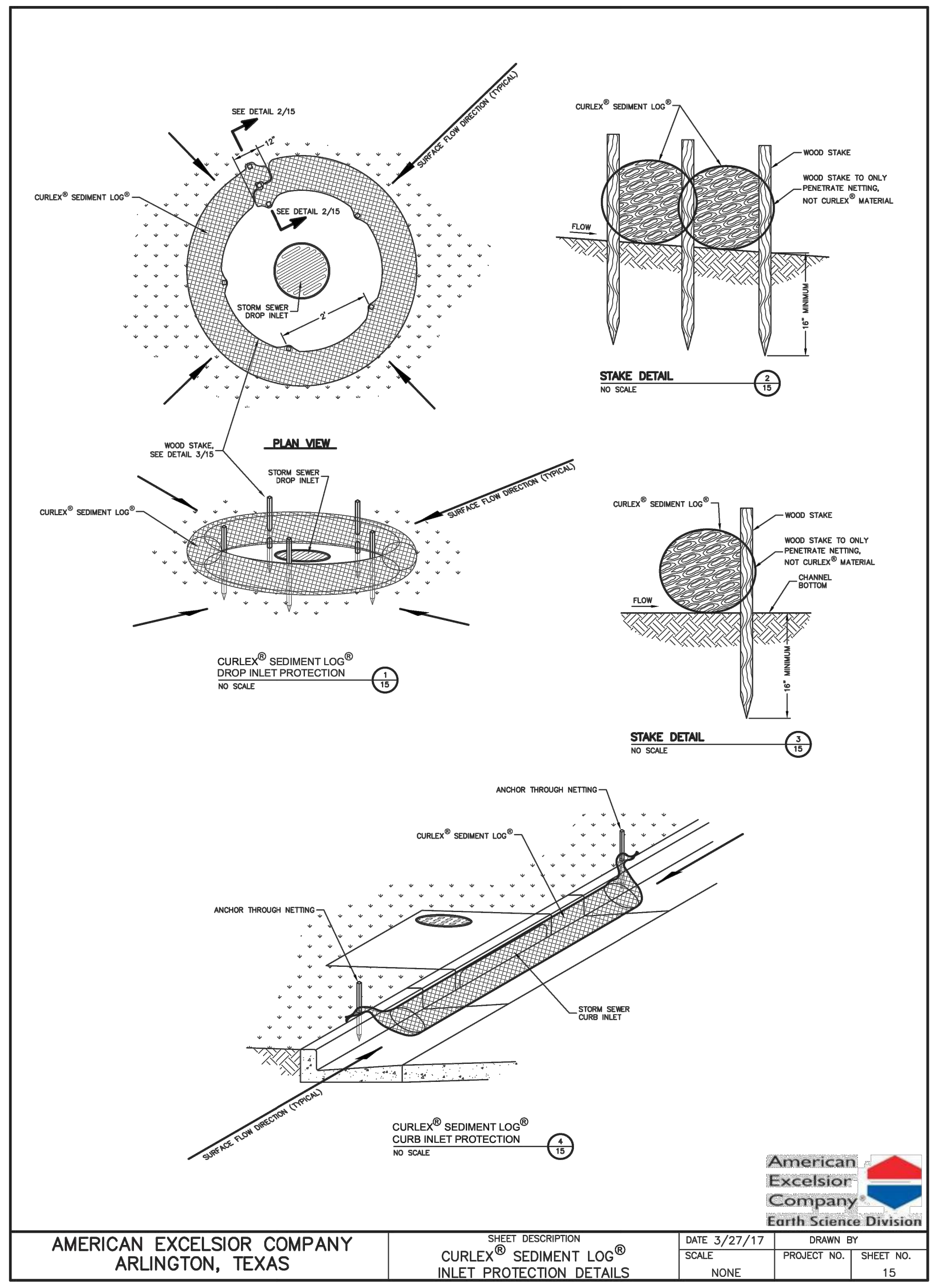
1. THE AREA UNDER THE EMBANKMENT SHALL BE CLEARED, GRUBBED, AND STRIPPED OF ANY VEGETATION AND ROOT MAT.
2. FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHOULD BE COMPACTED IN 6-INCH LAYERS BY TRAVERSING WITH CONSTRUCTION EQUIPMENT.
3. THE EARTHEN EMBANKMENT SHALL BE SEEDED WITH TEMPORARY OR PERMANENT VEGETATION IMMEDIATELY AFTER INSTALLATION.
4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT TO MINIMIZE EROSION AND WATER POLLUTION.
5. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE UPSLOPE DRAINAGE AREA HAS BEEN STABILIZED.
6. ALL CUT AND FILL SLOPES SHALL BE 2H:1V OR FLATTER EXCEPT FOR EXCAVATED, WET STORAGE AREAS WHICH MAY BE AT A MAXIMUM 1H:1V GRADE.

B) INSPECTION AND MAINTENANCE:

1. INSPECT THE TEMPORARY SEDIMENT TRAP AFTER EACH STORM EVENT OF 1/2-INCH OR GREATER.
2. REMOVE AND PROPERLY DISPOSE OF SEDIMENT WHEN IT ACCUMULATES TO ONE-HALF THE DESIN VOLUME AS INDICATED BY THE CLEAN-OUT STAKE.
3. PERIODICALLY CHECK THE EMBANKMENT, SPILLWAY, AND OUTLET APRON FOR EROSION DAMAGE, SETTLING SEEPAGE, OR SLUMPING ALONG THE TOE AND REPAIR IMMEDIATELY.
4. REPLACE THE SPILLWAY GRAVEL FACING IF IT BECOMES CLOGGED.
5. INSPECT VEGETATION AND RESEED IF NECESSARY.
6. REPLACE ANY DISPLACED RIPRAP SO THAT NO REPLACEMENT ROCK IS ABOVE THE DESIGN GRADE.
7. REMOVE THE TEMPORARY SEDIMENT TRAP AFTER THE DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED, INSPECTED, AND APPROVED. DO SO BY DRAINING ANY WATER, REMOVING THE SEDIMENT TO A DESIGNATED DISPOSAL AREA, AND GRADING THE SITE TO BLEND WITH THE SURROUNDING AREA; THEN STABILIZE.

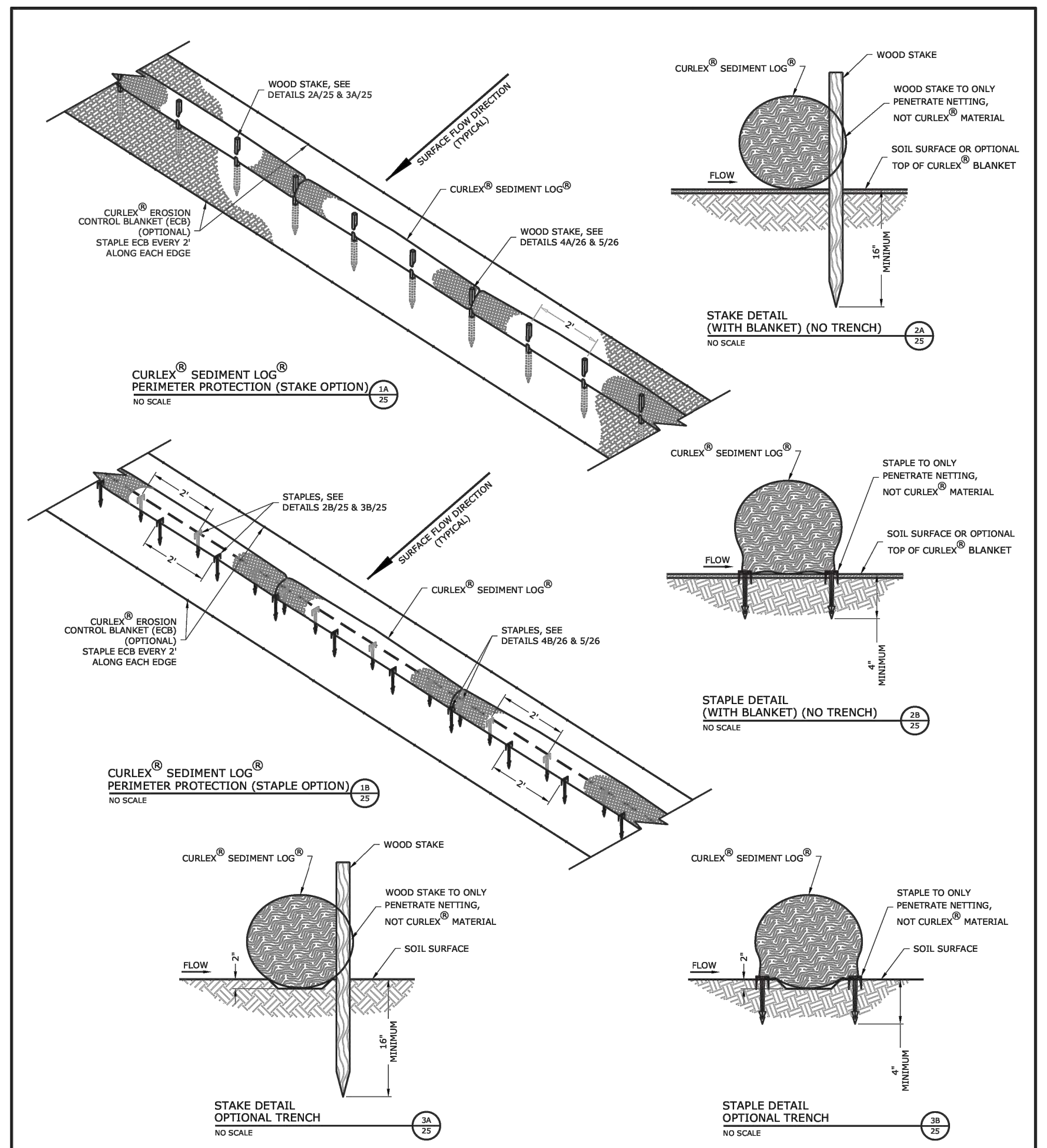
SOURCE: MODIFIED FROM VA. DCR, 1992

AMERICAN PUBLIC WORKS ASSOCIATION
APWA
KANSAS CITY
METROPOLITAN CHAPTER
TEMPORARY SEDIMENT TRAP
STANDARD DRAWING NUMBER ESC-33
ADOPTED:



AMERICAN EXCELSIOR COMPANY
ARLINGTON, TEXAS

SHEET DESCRIPTION	DATE	SCALE	DRAWN BY	PROJECT NO.	SHEET NO.
CURLEX® SEDIMENT LOG® INLET PROTECTION DETAILS	3/27/17	NONE			15

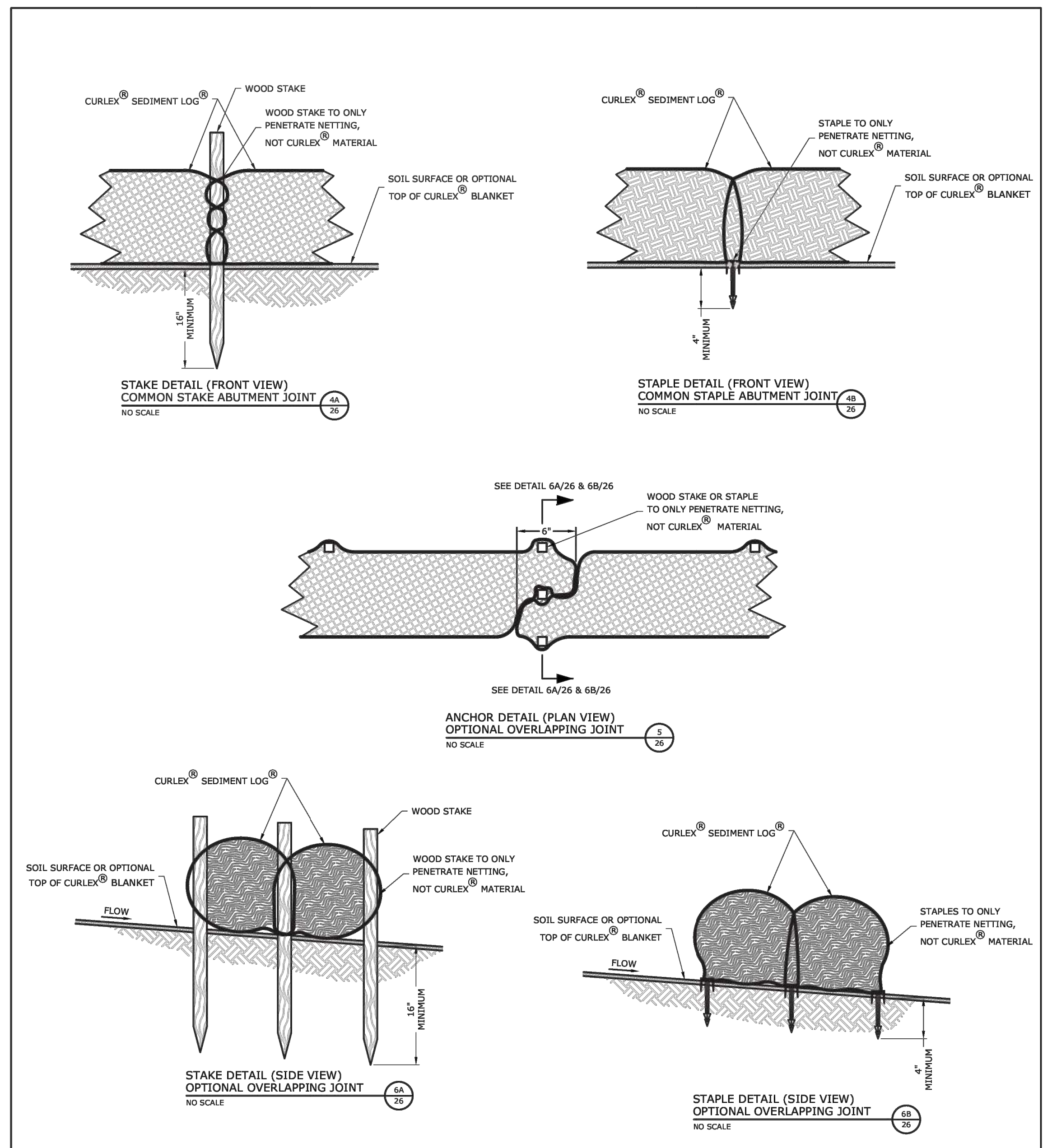

WOOD STAKE, SEE DETAILS 3A/25 & 3A/25
SURFACE FLOW DIRECTION (TYPICAL)
CURLEX® EROSION CONTROL BLANKET (ECB) (OPTIONAL) STAPLE ECB EVERY 2' ALONG EACH EDGE
CURLEX® SEDIMENT LOG®
WOOD STAKE, SEE DETAILS 4A/26 & 5/26
CURLEX® SEDIMENT LOG® PERIMETER PROTECTION (STAKE OPTION)
STAKE DETAIL (WITH BLANKET) (NO TRENCH)
STAPLES, SEE DETAILS 3B/25 & 3B/25
CURLEX® SEDIMENT LOG® PERIMETER PROTECTION (STAPLE OPTION)
STAPLE DETAIL (WITH BLANKET) (NO TRENCH)
WOOD STAKE TO ONLY PENETRATE NETTING, NOT CURLEX® MATERIAL
SOIL SURFACE OR OPTIONAL TOP OF CURLEX® BLANKET
STAPLE TO ONLY PENETRATE NETTING, NOT CURLEX® MATERIAL
FLOW
16" MINIMUM
4" MINIMUM
STAKE DETAIL OPTIONAL TRENCH
STAPLE DETAIL OPTIONAL TRENCH
NO SCALE

NOTES:
1. RECOMMENDED STAPLES ARE E-STAPLE®, 1 IN X 6 IN, U-SHAPED,11 GAUGE WIRE, OR 2 IN X 8 IN, U-SHAPED, 8 GAUGE WIRE.
2. STAPLES SHALL BE INSTALLED 24 IN APART ON EACH SIDE OF THE CURLEX® SEDIMENT LOG®. THE TWO ROWS OF STAPLES SHALL BE STAGGERED BY 12 IN ALONG THE LENGTH OF THE CURLEX® SEDIMENT LOG®. INSTALLATION OF ONE CURLEX® SEDIMENT LOG® SHALL INCLUDE ONE STAPLE ON EACH END OF THE PRODUCT. ALL STAPLES SHALL BE FULLY INSERTED INTO THE SUBGRADE BELOW THE CURLEX® SEDIMENT LOG®.
3. ADJOIN TWO CURLEX® SEDIMENT LOGS BY PLACING STAPLES THROUGH THE NETTING OF BOTH LOGS ON BOTH SIDES OF THE PRODUCTS.
4. ANCHORING WITH STAPLES IS ONLY APPLICABLE FOR 6 IN AND 9 IN CURLEX® SEDIMENT LOGS AND SHALL NOT BE USED IN CHANNELIZED FLOW APPLICATIONS.
5. STAKES MAY BE USED IN CONJUNCTION WITH STAPLES FOR ADDITIONAL ANCHORING OF 6 IN AND 9 IN CURLEX® SEDIMENT LOGS, AS DEEMED NECESSARY BY THE ENGINEER.
6. RECOMMENDED WOODEN STAKES ARE 1 ⅛" x 1 ⅛" x 30' FOR 6', 9', AND 12" SEDIMENT LOGS.
7. RECOMMENDED WOODEN STAKES ARE 1 ⅛" x 1 ⅛" x 48" FOR 20" SEDIMENT LOGS.
8. CURLEX® SEDIMENT LOG® PERIMETER CONTROL DETAILS CONTINUE ON SHEET 26.

American Excelsior Company
Earth Science Division

AMERICAN EXCELSIOR COMPANY
ARLINGTON, TEXAS

SHEET DESCRIPTION	DATE	SCALE	DRAWN BY	PROJECT NO.	SHEET NO.
CURLEX® SEDIMENT LOG® PERIMETER CONTROL DETAILS	5/15/17	NONE			25

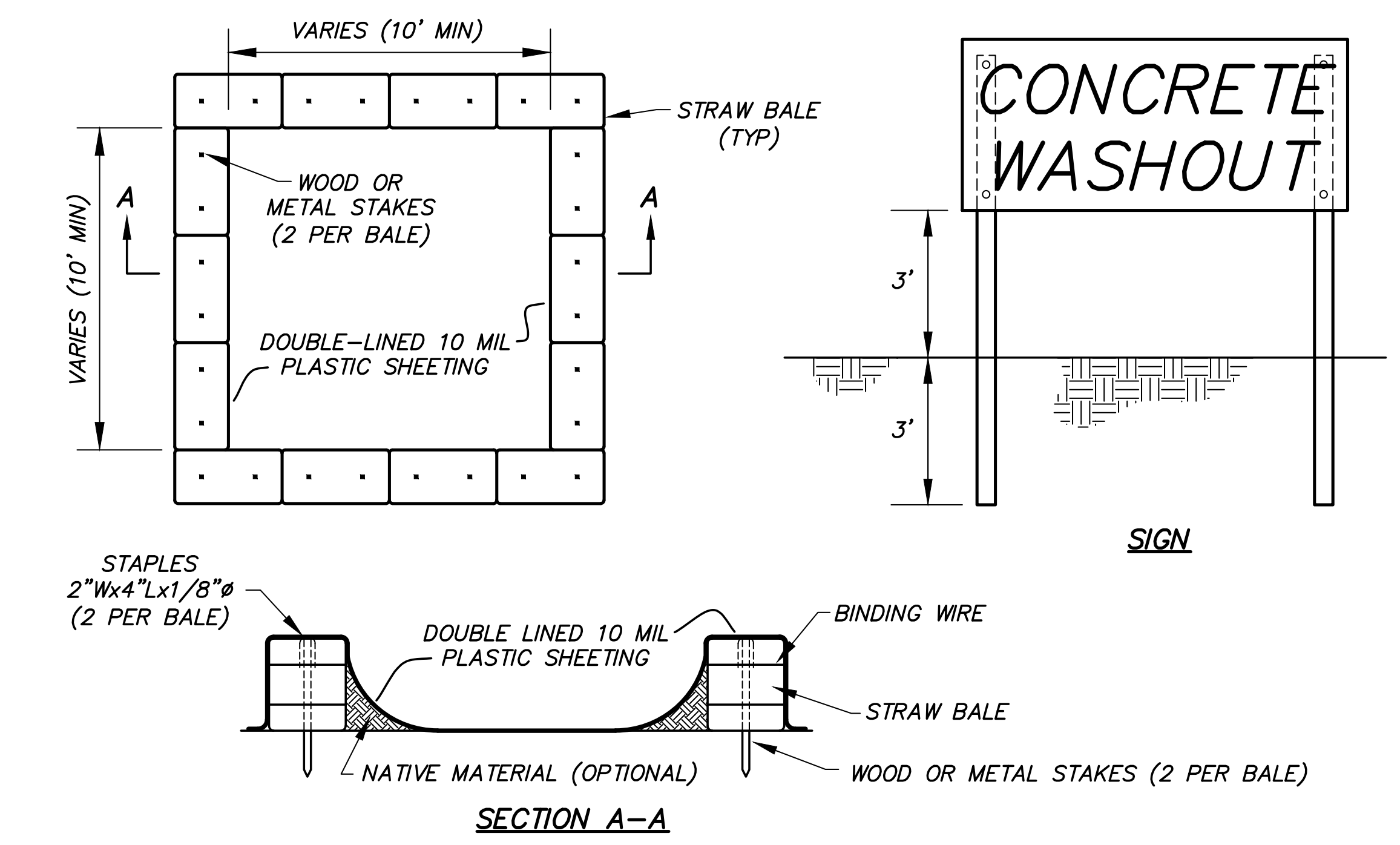

CURLEX® SEDIMENT LOG®
WOOD STAKE
WOOD STAKE TO ONLY PENETRATE NETTING, NOT CURLEX® MATERIAL
SOIL SURFACE OR OPTIONAL TOP OF CURLEX® BLANKET
STAKE DETAIL (FRONT VIEW) COMMON STAKE ABUTMENT JOINT
STAPLE TO ONLY PENETRATE NETTING, NOT CURLEX® MATERIAL
STAPLE DETAIL (FRONT VIEW) COMMON STAPLE ABUTMENT JOINT
SEE DETAIL 6A/26 & 6B/26
WOOD STAKE OR STAPLE TO ONLY PENETRATE NETTING, NOT CURLEX® MATERIAL
ANCHOR DETAIL (PLAN VIEW) OPTIONAL OVERLAPPING JOINT
FLOW
16" MINIMUM
4" MINIMUM
STAKE DETAIL (SIDE VIEW) OPTIONAL OVERLAPPING JOINT
STAPLE DETAIL (SIDE VIEW) OPTIONAL OVERLAPPING JOINT
NO SCALE

NOTES:
1. RECOMMENDED STAPLES ARE E-STAPLE®, 1 IN X 6 IN, U-SHAPED, 11 GAUGE WIRE, OR 2 IN X 8 IN, U-SHAPED, 8 GAUGE WIRE.
2. STAPLES SHALL BE INSTALLED 24 IN APART ON EACH SIDE OF THE CURLEX® SEDIMENT LOG®. THE TWO ROWS OF STAPLES SHALL BE STAGGERED BY 12 IN ALONG THE LENGTH OF THE CURLEX® SEDIMENT LOG®. INSTALLATION OF ONE CURLEX® SEDIMENT LOG® SHALL INCLUDE ONE STAPLE ON EACH END OF THE PRODUCT. ALL STAPLES SHALL BE FULLY INSERTED INTO THE SUBGRADE BELOW THE CURLEX® SEDIMENT LOG®.
3. ADJOIN TWO CURLEX® SEDIMENT LOGS BY PLACING STAPLES THROUGH THE NETTING OF BOTH LOGS ON BOTH SIDES OF THE PRODUCTS.
4. ANCHORING WITH STAPLES IS ONLY APPLICABLE FOR 6 IN AND 9 IN CURLEX® SEDIMENT LOGS AND SHALL NOT BE USED IN CHANNELIZED FLOW APPLICATIONS.
5. STAKES MAY BE USED IN CONJUNCTION WITH STAPLES FOR ADDITIONAL ANCHORING OF 6 IN AND 9 IN CURLEX® SEDIMENT LOGS, AS DEEMED NECESSARY BY THE ENGINEER.
6. RECOMMENDED WOODEN STAKES ARE 1 ⅛" x 1 ⅛" x 30' FOR 6', 9', AND 12" SEDIMENT LOGS.
7. RECOMMENDED WOODEN STAKES ARE 1 ⅛" x 1 ⅛" x 48" FOR 20" SEDIMENT LOGS.

American Excelsior Company
Earth Science Division

AMERICAN EXCELSIOR COMPANY
ARLINGTON, TEXAS

SHEET DESCRIPTION	DATE	SCALE	DRAWN BY	PROJECT NO.	SHEET NO.
CURLEX® SEDIMENT LOG® PERIMETER CONTROL DETAILS	5/8/17	NONE			26


VARIES (10' MIN)
STRAW BALE (TYP)
A
A
WOOD OR METAL STAKES (2 PER BALE)
DOUBLE-LINED 10 MIL PLASTIC SHEETING
VARIES (10' MIN)
CONCRETE WASHOUT
3'
3'
SIGN
STAPLES 2"Wx4"Lx1/8"ø (2 PER BALE)
DOUBLE LINED 10 MIL PLASTIC SHEETING
BINDING WIRE
STRAW BALE
NATIVE MATERIAL (OPTIONAL)
WOOD OR METAL STAKES (2 PER BALE)
SECTION A-A

NOTES:
1. ALL CONCRETE WASTE MATERIAL, INCLUDING WASHOUT WATER, SHALL BE TOTALLY CONTAINED.
2. SEE SWPPP FOR MORE DETAILS.
3. UPON PROJECT COMPLETION CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL CONCRETE WASTE FROM THE OWNER'S PROPERTY PER ALL APPLICABLE SOLID WASTE REGULATIONS.
4. CONSTRUCT SIGN OF WEATHER PROOF MATERIALS OF A SIZE EASILY READABLE BY CONCRETE TRUCK DRIVERS. PLACE SIGN WITHIN 10' OF WASHOUT.
5. CONTRACTOR SHALL CONTAIN WASHOUT WATERS AT ALL TIMES.

CONCRETE WASHOUT AREA

NOT TO SCALE

CONSTRUCTION DOCUMENTS

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WILSHIRE HILLS PHASE III
3200 NE WILSHIRE DR
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

6/30/2023
MATTHEW AARON KRIETE
NUMBER PE-2007002811

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

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EROSION CONTROL DETAILS

Sheet
C14.03

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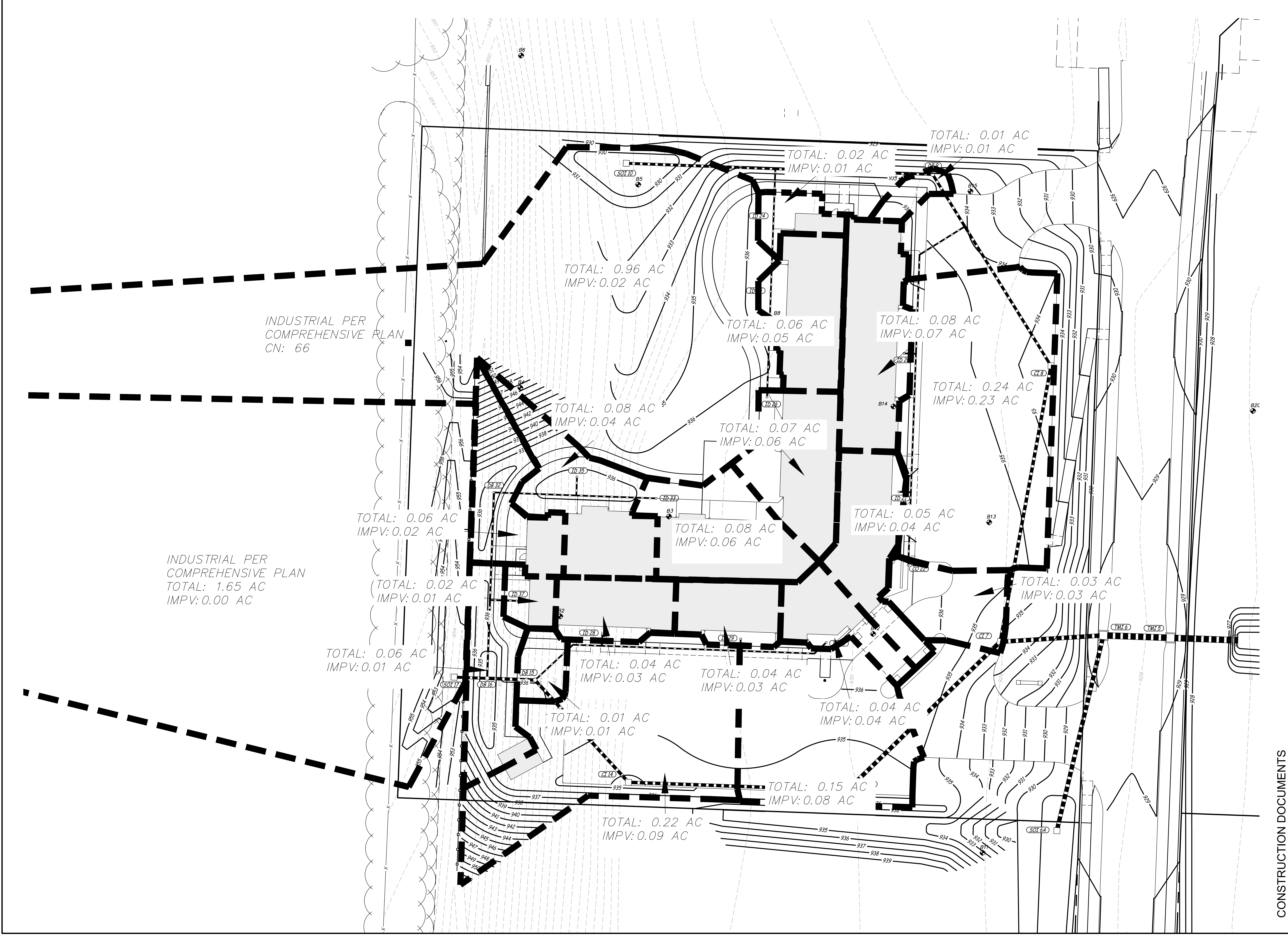

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0 1"
SCALE: 1" = 20'

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STORM SEWER
DRAINAGE AREA MAP

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C15.01

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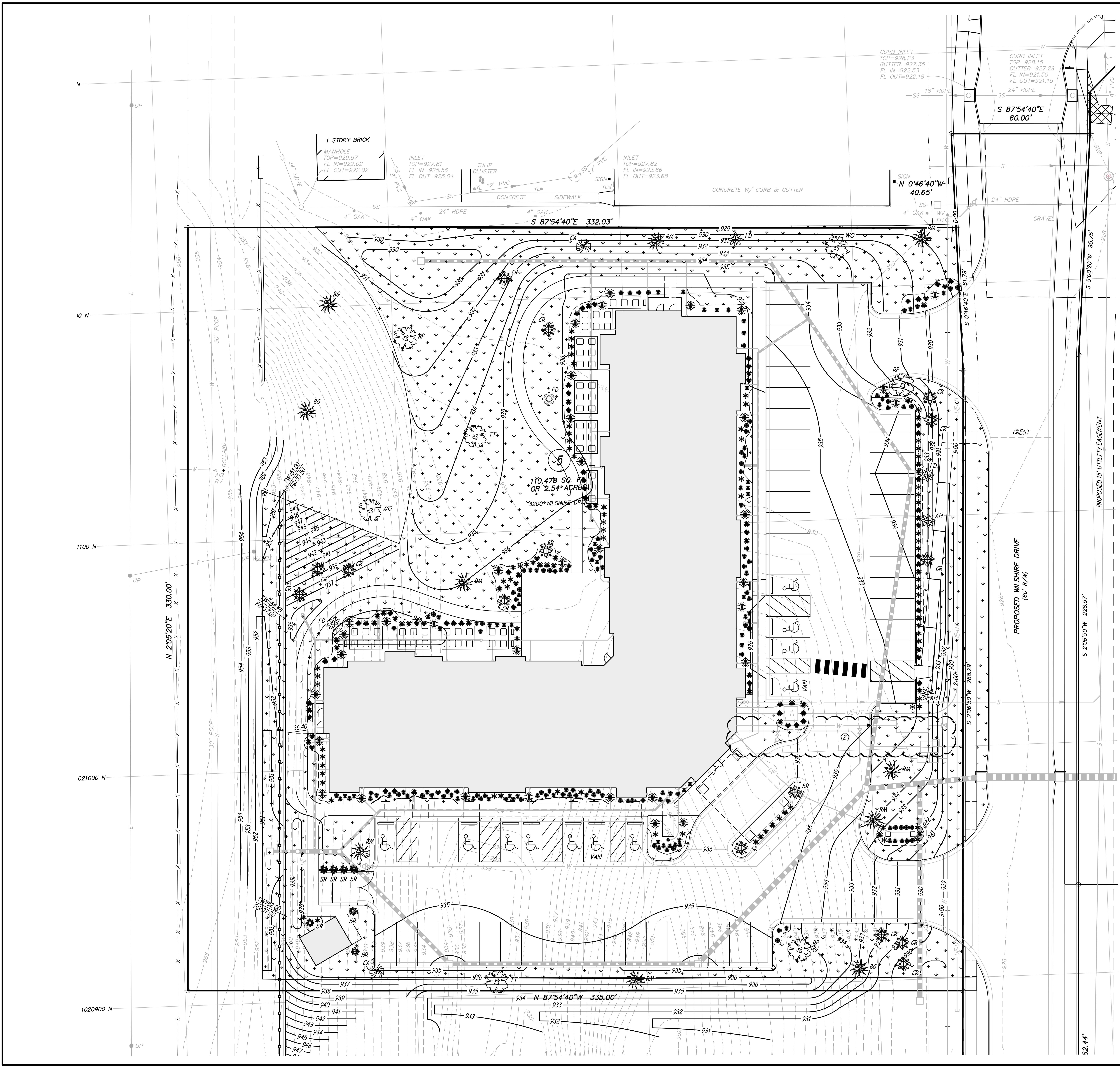
1 STORY BRICK
MANHOLE TOP=929.97 FL IN=922.02 FL OUT=922.02
INLET TOP=927.81 FL IN=925.56 FL OUT=925.04
TULIP CLUSTER
INLET TOP=927.82 FL IN=923.66 FL OUT=923.68
CONCRETE W/ CURB & GUTTER
CURB INLET TOP=928.23 GUTTER=927.35 FL IN=922.53 FL OUT=922.18
CURB INLET TOP=928.15 GUTTER=927.29 FL IN=921.50 FL OUT=921.15
S 87°54'40"E 60.00'
N 0°46'40"W 40.65'
S 87°54'40"E 332.03'
S 5°00'20"W 95.75'
S 0°46'40"E 61.79'
110,478 SQ. FT. OR 2.54± ACRES
3200 WILSHIRE DR
CREST
PROPOSED 15' UTILITY EASEMENT
PROPOSED WILSHIRE DRIVE (60' R/W)
S 2°06'50"W 228.97'
S 2°06'50"W 268.29'
N 2°05'20"E 330.00'
N 87°54'40"W 335.00'
VAN

LANDSCAPING REQUIREMENTS	
REQUIRED	PROVIDED
PARKING LOT 1. AT LEAST 5% OF ENTIRE AREA LANDSCAPED 2. ONE END ISLAND OF EVERY PARKING PLANTED WITH TREES 3. NO TREE LOCATED LESS THAN 4 FEET FROM BACK OF CURB 4. SCREENING AT HEIGHT OF 2.5 FEET ALONG EDGE OF LOT. MINIMUM 12 SHRUBS PER 40 LINEAR FEET. SHRUBS AT LEAST 18 INCHES TALL AT TIME OF PLANTING.	1. 7% 2. YES 3. YES 4. YES
STREET FRONTAGE 1. ONE TREE FOR EACH 30 FEET OF STREET FRONTAGE --- 330FT / 30FT = 12 TREES 2. MINIMUM 20-FOOT LANDSCAPE STRIP ALONG LENGTH 3. ONE SHRUB EVERY 20 FEET OF STREET FRONTAGE --- 330FT / 20FT = 16.5 SHRUBS	1. 13 TREES 2. YES 3. 42 SHURBS
OPEN YARD AREAS 1. MINIMUM TWO SHRUBS PER 5,000 SQUARE FEET TOTAL AREA ---110,645 SF / 5,000 SF = 22 SHRUBS 2. ALL OPEN AREAS NOT PAVED SHALL BE SOD. 3. ONE TREE FOR EVERY 5,000 SQUARE FEET OF LOT AREA ---110,645 SF / 5,000 SF = 22 TREES 4. DETAILED TRASH STORAGE WITH SCREENING METHODS.	1. 139 SHRUBS 2. YES 3. 41 TREES 4. YES

IRRIGATION NOTES

1. CONTRACTOR SHALL PROVIDE IRRIGATION OF ALL PLANTING BEDS AND SODDED LAWN AREAS.
2. ALL SLOPES SHALL BE TEMPORARILY IRRIGATED UNTIL VEGETATION IS FULLY ESTABLISHED.
3. IRRIGATION SYSTEM SHALL BE DESIGN BUILD. THE SYSTEM SHALL BE DESIGNED TO PREVENT OVER WATERING AND INCLUDE RAIN SHUT-OFF DEVICES.
4. IRRIGATION SHALL BE ZONED. ALL PLANTING BENDS AND TURF SHALL BE SEPARATELY ZONED.
5. CONTRACTOR SHALL SUBMIT IRRIGATION PLANS TO THE OWNER A MINIMUM OF 30 DAYS PRIOR TO PROPOSED INSTALLATION FOR APPROVAL.
6. ALL SLOPES SHALL BE TEMPORARILY IRRIGATED UNTIL VEGETATION IS FULLY ESTABLISHED.
7. IRRIGATION SYSTEM SHALL BE DESIGN BUILD. THE SYSTEM SHALL BE DESIGNED TO PREVENT OVER WATERING AND INCLUDE RAIN SHUT-OFF DEVICES.
8. IRRIGATION SYSTEM SHALL BE ZONED FOR SPECIFIC WATER NEEDS IN EACH PLANTING AREA.
9. IRRIGATION OPERATION AND MAINTENANCE MANUAL TO BE SUPPLIED BY CONTRACTOR.
10. IRRIGATION SYSTEM SHALL INCLUDE FLOW SENSOR THAT DETECTS & REPORTS HIGH FLOW CONDITIONS DUE TO BROKEN PIPES OR POPPED SPRINKLER HEADS.
11. IRRIGATION SYSTEM SHALL INCLUDE PRESSURE REGULATOR & MASTER SHUT-OFF VALVE.

LANDSCAPING NOTE

1. ALL PLANT MATERIAL SHALL BE:
   a. FREE OF DISEASE AND INSECTS.
   b. CONFORMING TO AMERICAN STANDARD FOR NURSERY STOCK OF THE AMERICAN ASSOCIATION OF NURSERYMEN.
2. SPREAD TOPSOIL AMONG ALL LANDSCAPED AREAS. FOCUS ON PLANTING BEDS BEFORE DISTRIBUTING TO LAWN AREAS.
3. PLANTING MATERIALS SHALL BE OF THE FOLLOWING MINIMUM SIZE
   a. LARGE DECIDUOUS SHADE TREES (MATURE HEIGHT >45') = 3" DHB
   b. MEDIUM DECIDUOUS SHADE TREES (MATURE HEIGHT 30'-45') = 3" DHB
   c. SMALL DECIDUOUS SHADE TREES (MATURE HEIGHT 20'-30') = 2" DHB
   d. ORNAMENTAL TREE (MATURE HEIGHT <20') = 2" DHB
   e. EVERGREEN TREES: MINIMUM HEIGHT OF 8 FEET AT PLANTING.
   f. MEDIUM SHRUBS = 18-24 INCH BALLED AND BURLAPPED OR 2-GAL CONTAINER
   g. MEDIUM SHRUBS = 24-30 INCH BALLED AND BURLAPPED OR 5-GAL CONTAINER
   h. GRASS, SEED, SOD = >80% PURE LIVE SEED, 99% WEED FREE
8. LIVING LANDSCAPING SHALL BE USED TO COVER ALL OPEN GROUND SUPPLEMENTED WITH HARD WOOD MULCH.
9. ALL TRANSFORMERS, A/C UNITS, AND OTHER VISIBLE UTILITIES TO BE SCREENED WITH PLANTS.
10. LANDSCAPING SHALL BE PLANTED SUCH THAT THE MATURE SPREAD OF THE PLANT IS TO REMAIN 2' FROM THE BUILDING.
11. OWNER/TENANT/AGENT SHALL BE JOINTLY RESPONSIBLE FOR THE MAINTENANCE IN GOOD CONDITION OF PLANT MATERIAL.

SEEDING / SODDING SPECIFICATIONS

1. FINISH GRADE SHOWN ON PLAN INCLUDES 6" OF TOPSOIL RESPREAD FROM STOCKPILES.
2. ALL DISTURBED AREAS SHALL BE SEEDED OR SODDED PER SPECIFICATIONS.
3. ALL LAWN AREAS TO BE SOD.
4. IMMEDIATELY UPON COMPLETION OF FINISH GRADING IN EACH AREA, ALL LANDSCAPED AREAS SHALL BE SEEDED AND MULCHED.

▨	SOD

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0 1"
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4/17/2024
MATTHEW AARON KRIETE
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Date
SEPTEMBER 28, 2023

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2	APRIL 17, 2024

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LANDSCAPE PLAN

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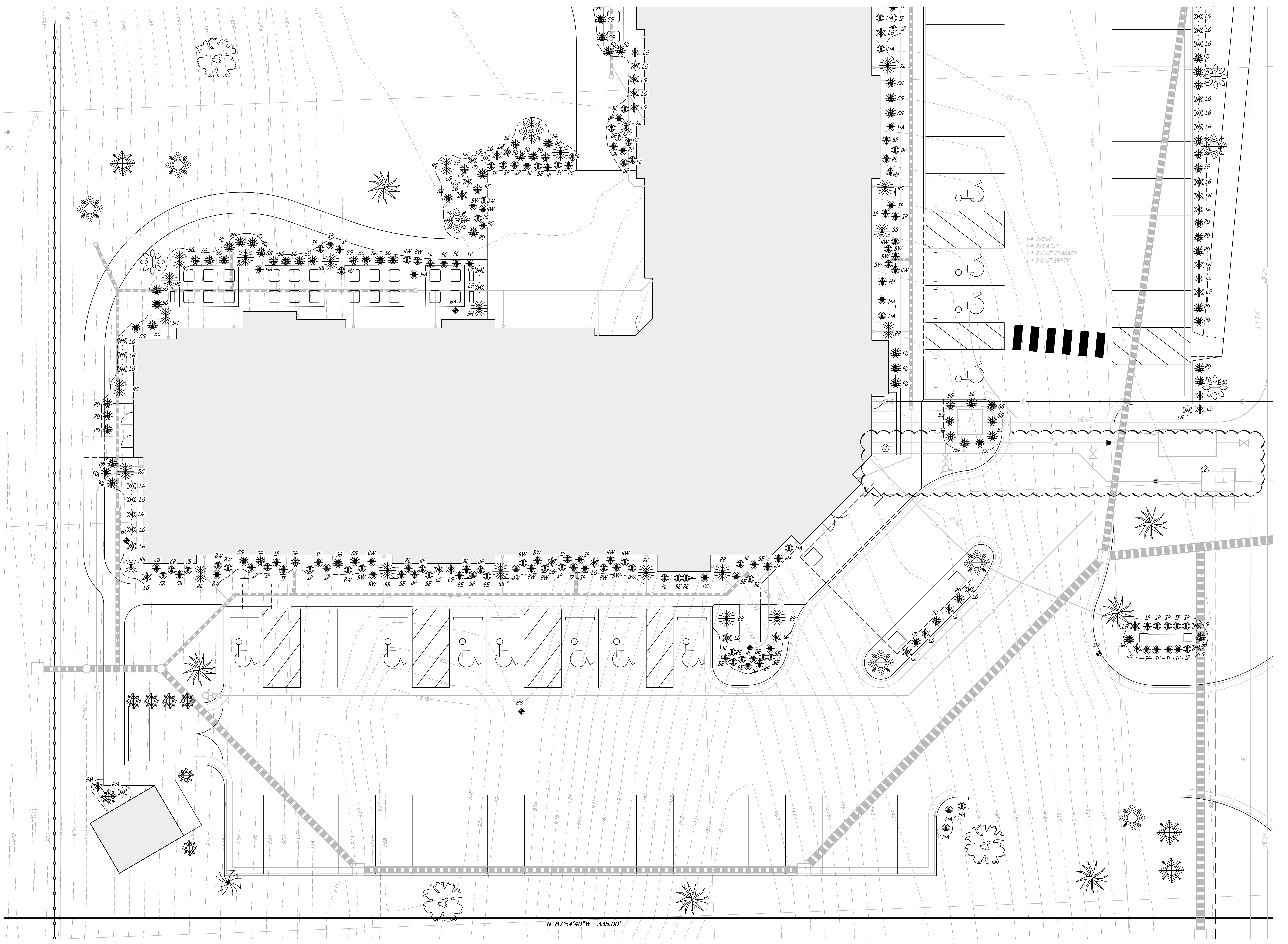

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5/1/2024

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Matthew A Kriete

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②	APRIL 17, 2024
③	MAY 1, 2024

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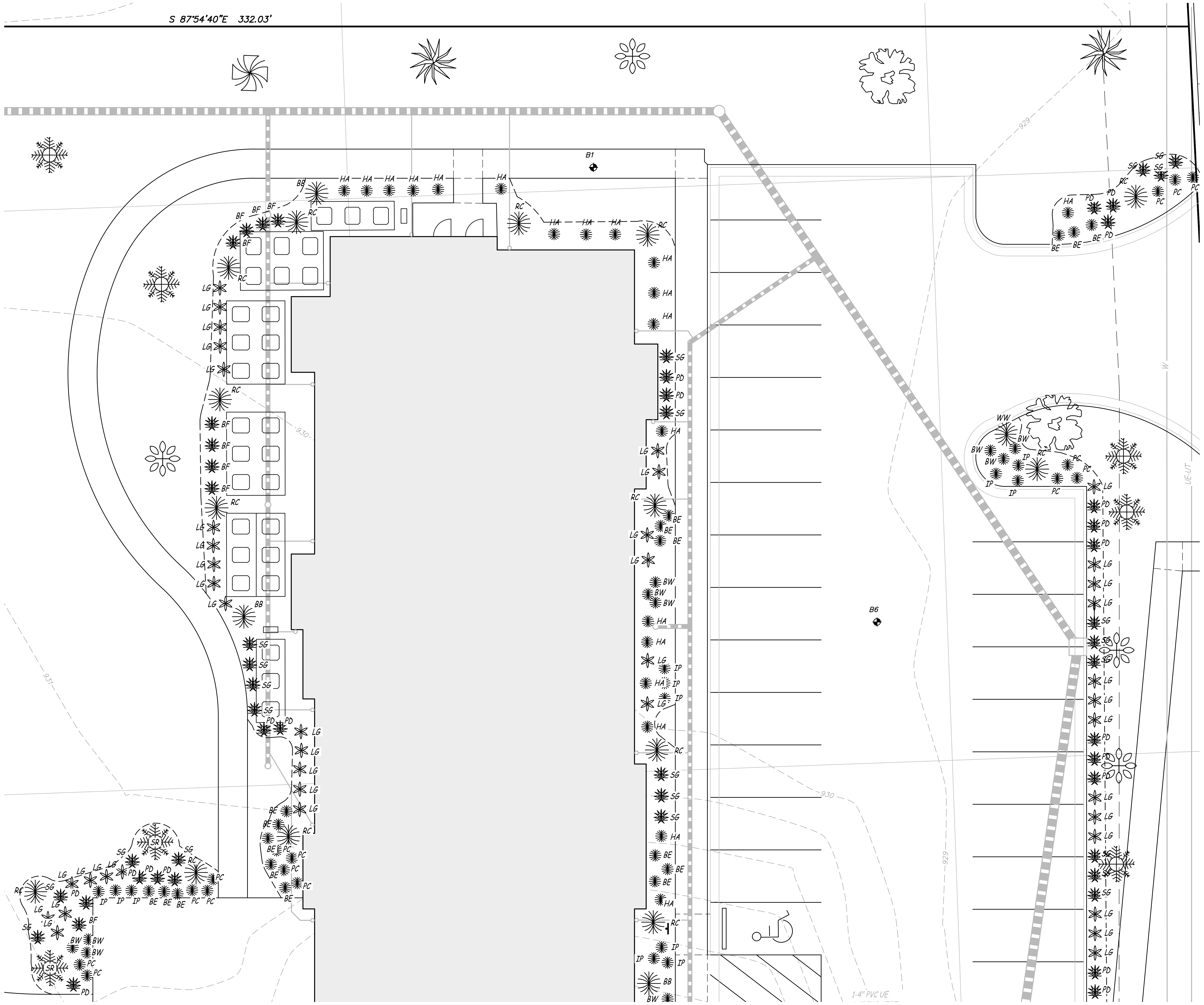

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⟨3⟩	MAY 1, 2024

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LANDSCAPE PLAN

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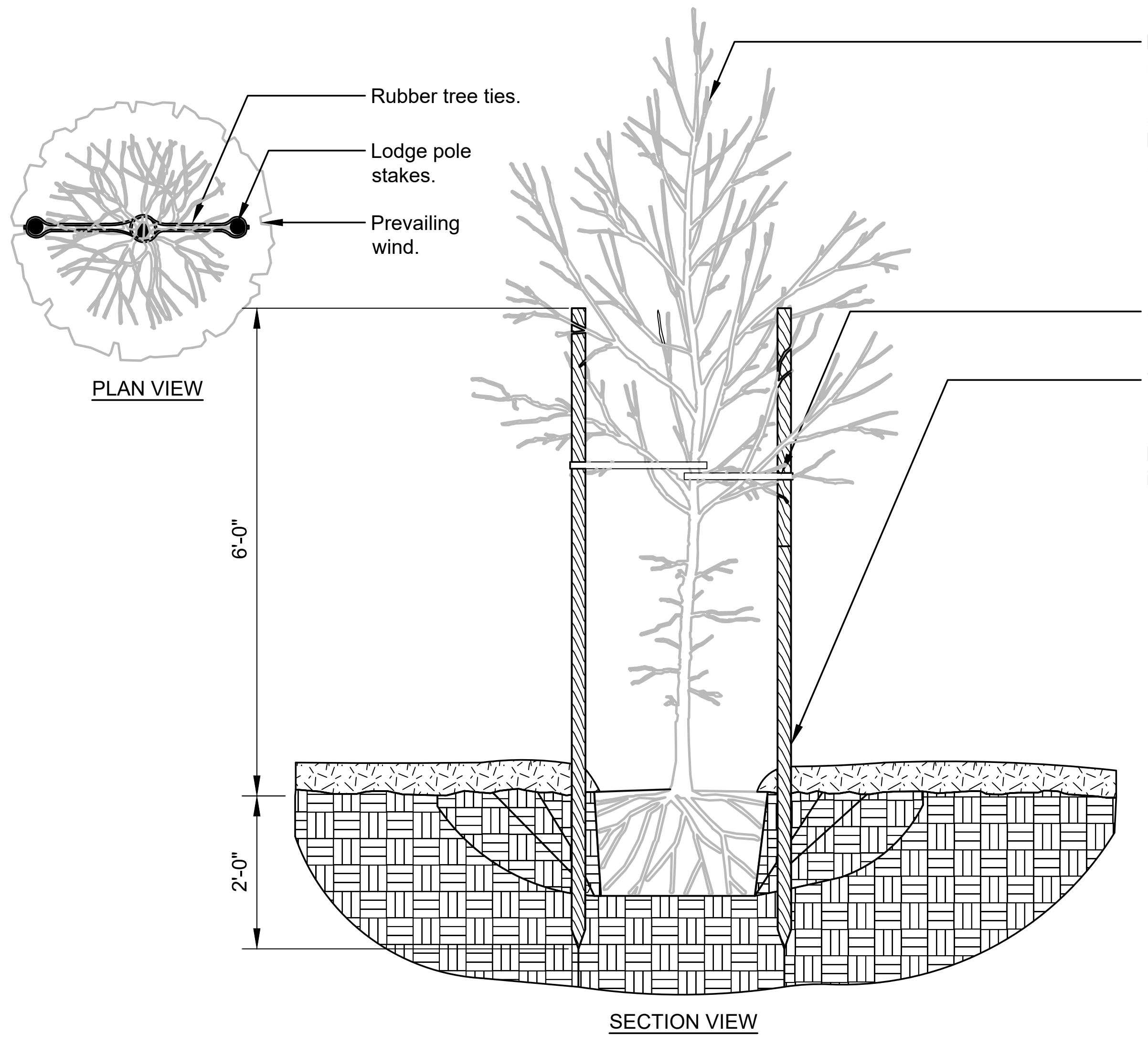
Rubber tree ties.
Lodge pole stakes.
Prevailing wind.
PLAN VIEW
Remove nursery stake. If central leader needs to be straightened or held erect, it is acceptable to attach a ½" x 8' bamboo pole to the central leader and trunk.
32" long non - abrasive rubber ties.
Two (2) three inch lodge pole pine stakes. Install approximately 2" away from the edge of the root ball. Stake location shall not interfere with permanent branches.
6'-0"
2'-0"
SECTION VIEW

TREE STAKING - LODGE POLES (2)

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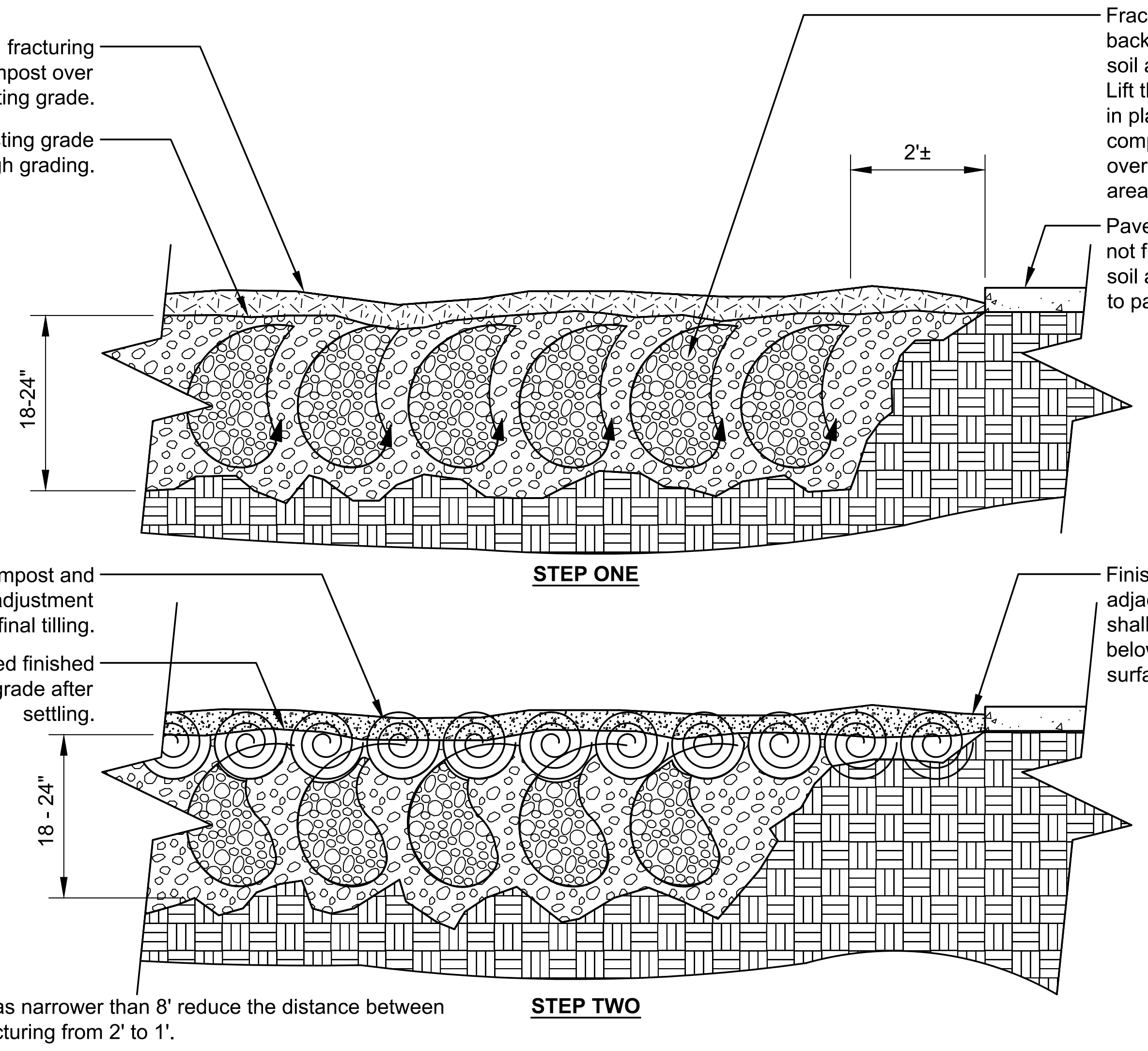
Before starting soil fracturing apply 2 - 3" of compost over existing grade.
Existing grade after rough grading.
Fracture soil using a backhoe. Dig into the soil and the compost. Lift the soil and drop in place to fracture compaction. Repeat over entire planting area.
2'±
Pavement. Do not fracture soil adjacent to pavement.
18-24"
STEP ONE
Apply 3 - 4" of compost and required chemical adjustment prior to final tilling.
Proposed finished grade after settling.
Finish grade adjacent to paving shall be 1 - 2" below pavement surface.
18 - 24"
STEP TWO

Notes:
1- For planting areas narrower than 8' reduce the distance between paving and soil fracturing from 2' to 1'.

2- See planting soil specification for additional requirements.

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MODIFIED EXISTING SOIL - COMPACTED SUB SOIL (FRACTURING)

PLANT SCHEDULE

SYMBOL	LARGE DECIDUOUS SHADE TREES									
	LABEL	QTY	COMMON NAME	BOTANICAL NAME	MATURE HEIGHT (FT)	MATURE SPREAD (FT)	SHADE/SUN	ZONE	FLOWERING	NATIVE REGION
	TT	2	TULIP TREE	LIRIODENDRON TULIPIFERA	60–90	30–50	FULL SUN	4–9	YES, MAY–JUNE	EASTERN U.S.
	WO	2	WHITE OAK	QUERCUS ALBA	50–80	50–80	FULL SUN	3–9	NA	EASTERN U.S.
	RP	3	RED MAPLE	ACER RUBRUM	40–70	30–50	FULL SUN–PART SHADE	3–9	YES, MARCH–APRIL	CENTRAL & EASTERN U.S.

SYMBOL	MEDIUM DECIDUOUS SHADE TREES									
	LABEL	QTY	COMMON NAME	BOTANICAL NAME	MATURE HEIGHT (FT)	MATURE SPREAD (FT)	SHADE/SUN	ZONE	FLOWERING	NATIVE REGION
	RM	7	RED SUNSET RED MAPLE	ACER RUBRUM 'RED SUNSET'	40–50	30–40	FULL SUN–PART SHADE	3–9	YES, MARCH	CENTRAL & EASTERN U.S.
	BG	3	BLACK GUM	NYSSA SYLVATICA 'WILDFIRE'	30–50	20–30	FULL SUN–PART SHADE	3–9	NA	CENTRAL & EASTERN U.S.

SYMBOL	SMALL DECIDUOUS SHADE TREES									
	LABEL	QTY	COMMON NAME	BOTANICAL NAME	MATURE HEIGHT (FT)	MATURE SPREAD (FT)	SHADE/SUN	ZONE	FLOWERING	NATIVE REGION
	AH	2	AMERICAN HORNBEAM	CARPINUS CAROLINIANA	20–35	20–35	PART SHADE–FULL SUN	3–9	NA	CENTRAL & EASTERN U.S.
	FD	4	FLOWERING DOGWOOD	CORNUS FLORIDA	15–30	15–30	FULL SUN–PART SHADE	5–9	YES, APRIL–MAY	CENTRAL & EASTERN U.S.

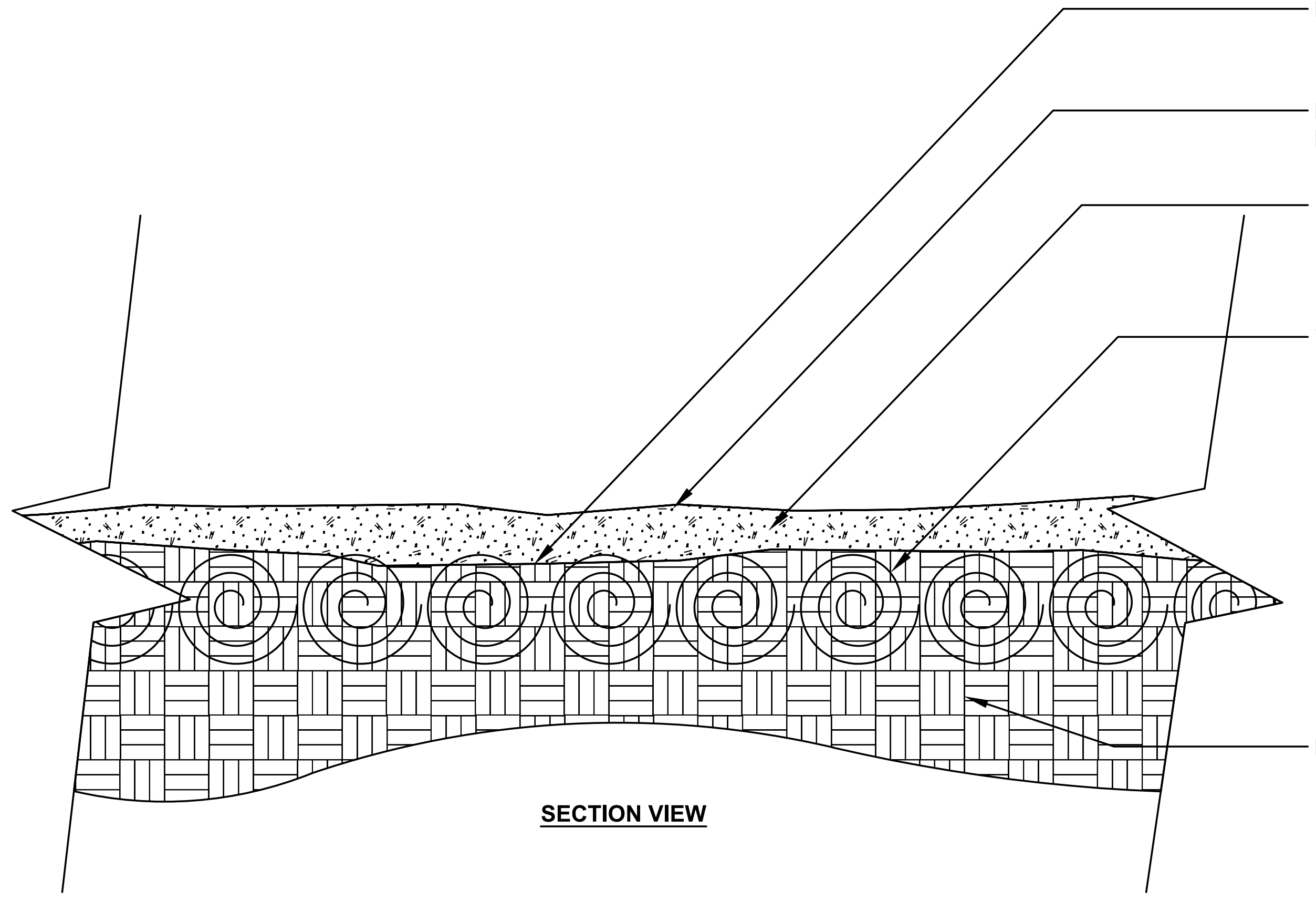
SYMBOL	ORNAMENTAL DECIDUOUS SHADE TREES									
	LABEL	QTY	COMMON NAME	BOTANICAL NAME	MATURE HEIGHT (FT)	MATURE SPREAD (FT)	SHADE/SUN	ZONE	FLOWERING	NATIVE REGION
	CA	2	PRAIRIFIRE CRABAPPLE	MALUS 'PRAIRIFIRE'	15–20	15–20	FULL SUN	4–8	YES, APRIL–MAY	U.S

SYMBOL	CONIFERS OR EVERGREEN TREES									
	LABEL	QTY	COMMON NAME	BOTANICAL NAME	MATURE HEIGHT (FT)	MATURE SPREAD (FT)	SHADE/SUN	ZONE	FLOWERING	NATIVE REGION
	SR	11	JUNIPER 'SKYROCKET'	JUNIPERUS SCOPULORUM 'SKYROCKET'	15–20	2–3	FULL SUN	4–9	NA	WESTERN U.S.
	CR	12	CANAERTH RED CEDAR	JUNIPERUS VIRGINIANA "CANAERTH"	20–35	8–15	FULL SUN	3–9	NA	CENTRAL & EASTERN U.S.

SYMBOL	EVERGREEN SHRUBS									
	LABEL	QTY	COMMON NAME	BOTANICAL NAME	MATURE HEIGHT (FT)	MATURE SPREAD (FT)	SHADE/SUN	ZONE	FLOWERING	NATIVE REGION
	LG	74	LITTLE GIANT DWARF ARBORVITAE'	THUJA OCCIDENTALS LITTLE GIANT	3–4	3–4	FULL SUN– PART SHADE	3–8	NA	EASTERN U.S.

SYMBOL	DECIDUOUS SHRUBS									
	LABEL	QTY	COMMON NAME	BOTANICAL NAME	MATURE HEIGHT (FT)	MATURE SPREAD (FT)	SHADE/SUN	ZONE	FLOWERING	NATIVE REGION
	RC	21	RED CHOKEBERRY	ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA'	6–8	3–4	FULL SUN–PART SHADE	4–9	YES, APRIL	CENTRAL & EASTERN U.S.
	HA	33	SMOOTH HYDRANGEA	HYDRANGEA ARBORESCENS 'ANNABELLE'	3–5	4–6	PART SHADE	3–9	YES, JUNE–SEPTEMBER	CENTRAL & EASTERN U.S.
	BB	11	BUTTON BUSH 'SUGAR SHACK'	CEPHALANTHUS OCCIDENTALIS 'SMCOSS' SUGAR SHACK	3–4	3–4	FULL SUN–PART SHADE	4–10	YES, JUNE–JULY	CENTRAL & EASTERN U.S.
	IP	37	INDIAN PAINTBRUSH	CASTILLEJA COCCINEA	1–2	1–1.5	FULL SUN–PART SHADE	4–8	YES, SPRING–SUMMER	EASTERN U.S.
	BW	33	BUTTERFLY WEED	ASCLEPIAS TUBEROSA	1–2.5	1–2	FULL SUN	3–9	YES, JUNE–AUGUST	U.S.
	BE	43	BLACK–EYED SUSANS "GOLDSTURMM"	RUDBECKIA FULGIDA	2–3	1.5–2	FULL SUN–PART SHADE	3–9	YES, JUNE–AUGUST	U.S.
	PC	21	PURPLE CONEFLOWER	ECHINACEA PURPUREA	2–5	1–2	FULL SUN–PART SHADE	3–8	YES, JUNE–AUGUST	U.S.

SYMBOL	ORNAMENTAL GRASSES									
	LABEL	QTY	COMMON NAME	BOTANICAL NAME	MATURE HEIGHT (FT)	MATURE SPREAD (FT)	SHADE/SUN	ZONE	FLOWERING	NATIVE REGION
	SG	46	SWITCH GRASS	PANICUM VIRGATUM	3–6	2–3	FULL SUN	3–9	YES, AUGUST–SEPTEMBER	U.S. AND CANADA
	PD	41	PRAIRIE DROPSEED	SPOROBOLUS HETEROLEPIS	2–3	2–3	FULL SUN	3–9	YES, AUGUST–OCTOBER	U.S.


Finished grade after settlement.
Finished grade after tilling but before settlement.
Apply 2 - 3" compost.
Till compost into top 6" of soil.
Existing soil.
SECTION VIEW

Notes:
1- See planting soil specifications for additional requirements.

MODIFIED EXISTING SOIL - COMPACTED SURFACE SOIL

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9/28/2023

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LANDSCAPE PLAN

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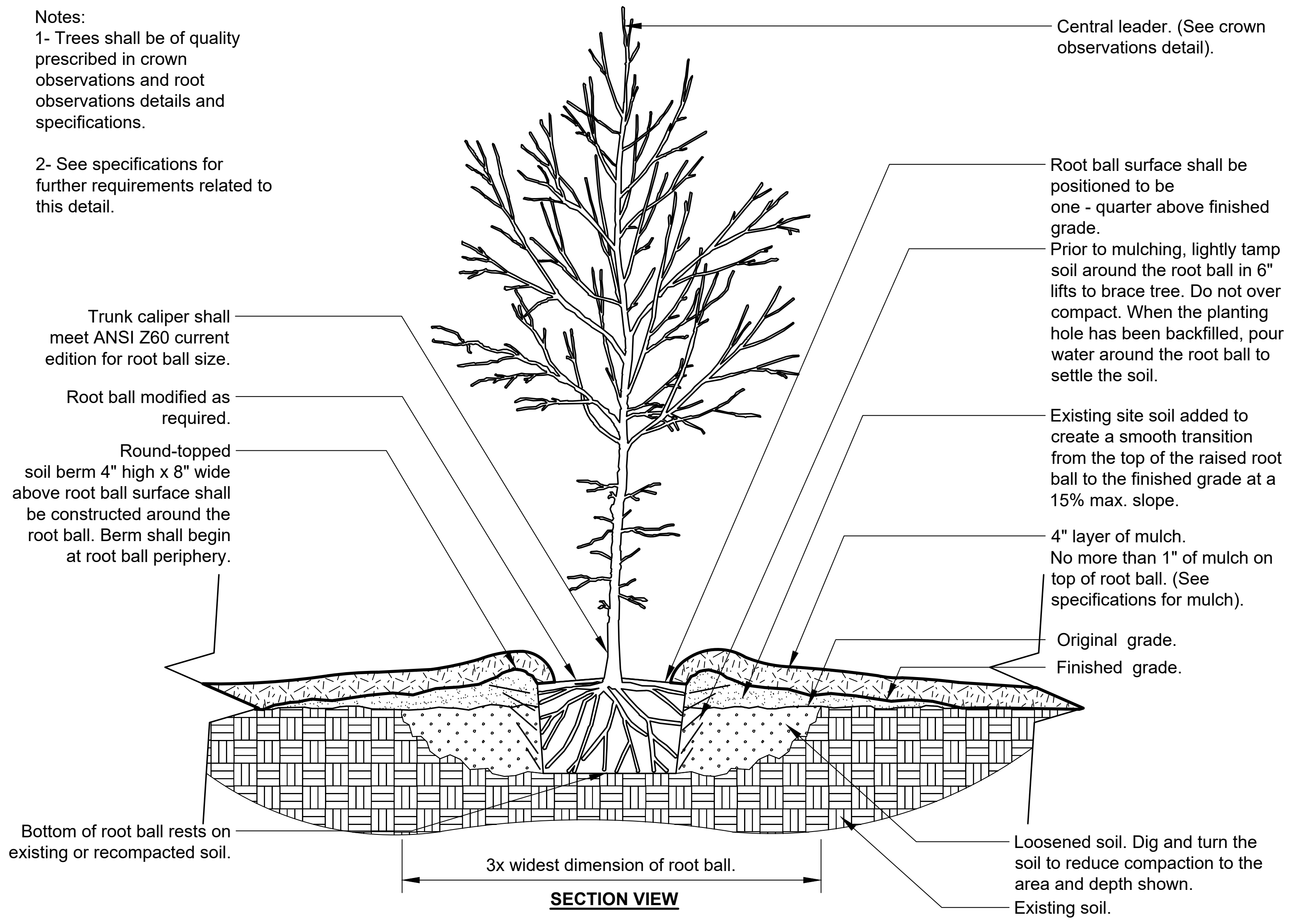
ES&S PROJECT NO. 15925

Notes:
1- Trees shall be of quality prescribed in crown observations and root observations details and specifications.

2- See specifications for further requirements related to this detail.


Central leader. (See crown observations detail).
Root ball surface shall be positioned to be one - quarter above finished grade.
Prior to mulching, lightly tamp soil around the root ball in 6" lifts to brace tree. Do not over compact. When the planting hole has been backfilled, pour water around the root ball to settle the soil.
Existing site soil added to create a smooth transition from the top of the raised root ball to the finished grade at a 15% max. slope.
4" layer of mulch. No more than 1" of mulch on top of root ball. (See specifications for mulch).
Original grade.
Finished grade.
Trunk caliper shall meet ANSI Z60 current edition for root ball size.
Root ball modified as required.
Round-topped soil berm 4" high x 8" wide above root ball surface shall be constructed around the root ball. Berm shall begin at root ball periphery.
Bottom of root ball rests on existing or recompacted soil.
3x widest dimension of root ball.
Loosened soil. Dig and turn the soil to reduce compaction to the area and depth shown.
Existing soil.
SECTION VIEW

TREE IN POORLY DRAINED SOIL

URBAN TREE FOUNDATION © 2014
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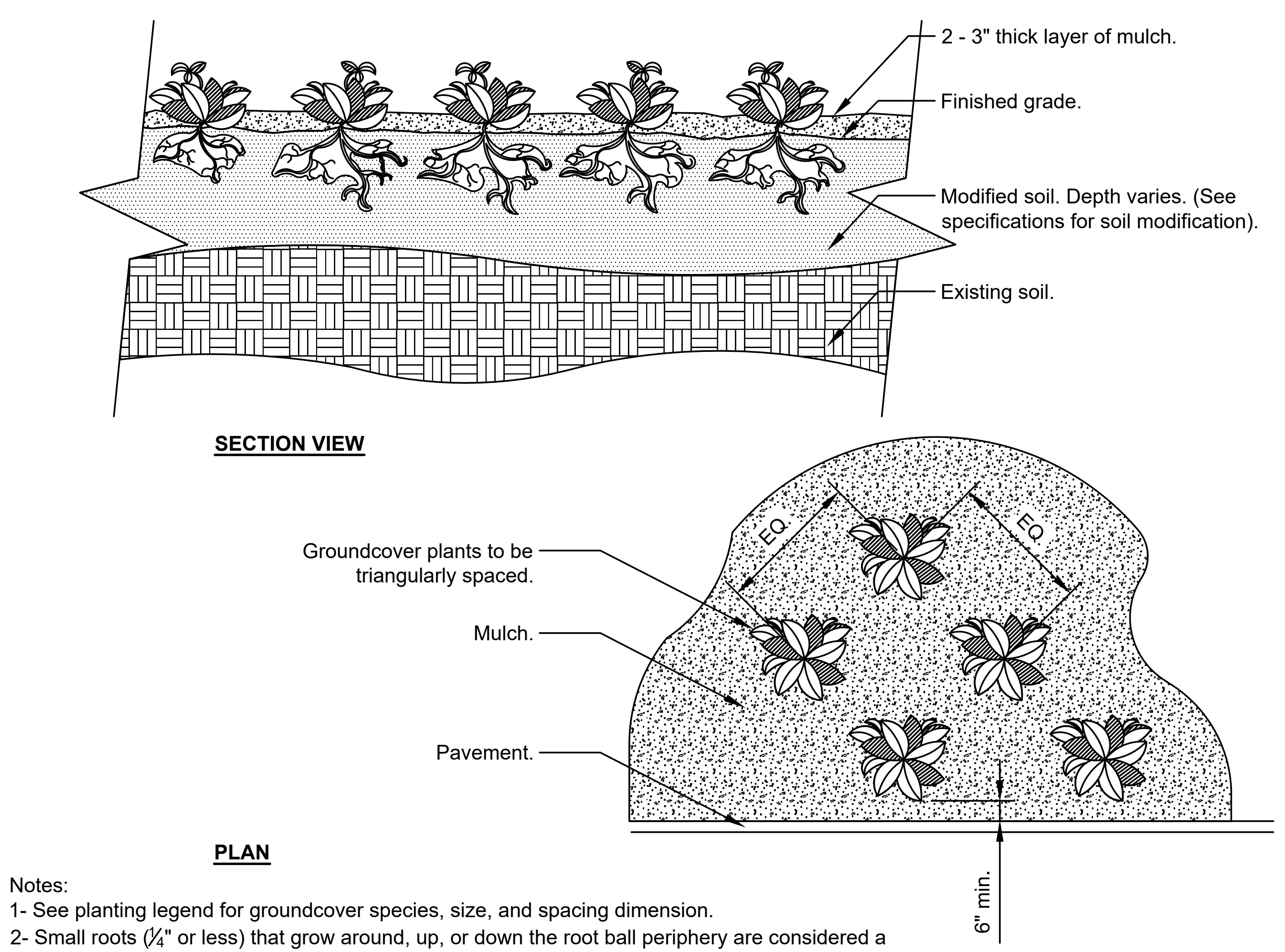
2 - 3" thick layer of mulch.
Finished grade.
Modified soil. Depth varies. (See specifications for soil modification).
Existing soil.
SECTION VIEW
EQ.
EQ.
Groundcover plants to be triangularly spaced.
Mulch.
Pavement.
6" min.
PLAN

Notes:
1- See planting legend for groundcover species, size, and spacing dimension.
2- Small roots (¼" or less) that grow around, up, or down the root ball periphery are considered a normal condition in container production and are acceptable however they should be eliminated at the time of planting. Roots on the periperhy can be removed at the time of planting. (See root ball shaving container detail).
3- Settle soil around root ball of each groundcover prior to mulching.

GROUNDCOVER

URBAN TREE FOUNDATION © 2014
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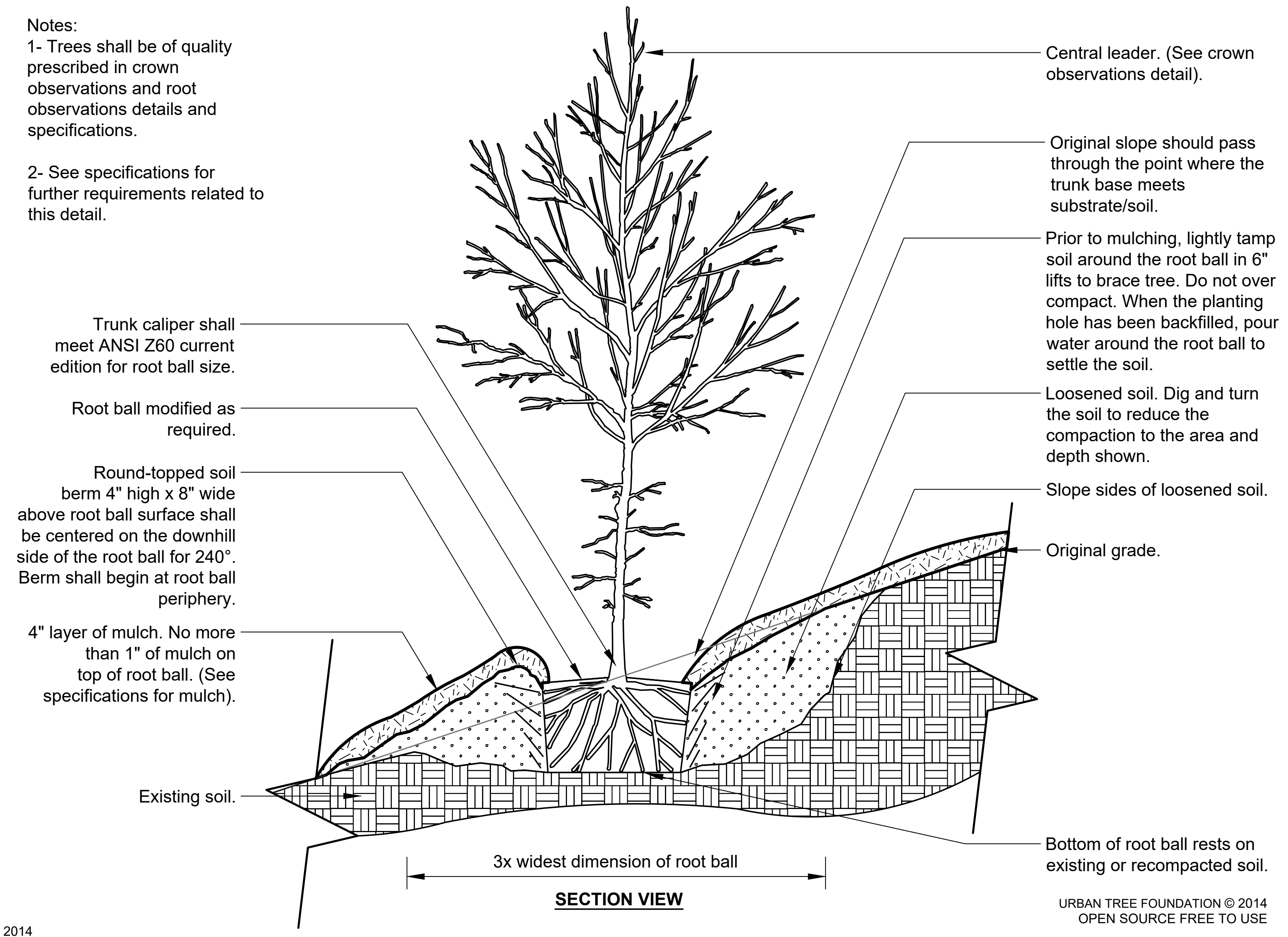
Notes:
1- Trees shall be of quality prescribed in crown observations and root observations details and specifications.

2- See specifications for further requirements related to this detail.


Central leader. (See crown observations detail).
Original slope should pass through the point where the trunk base meets substrate/soil.
Prior to mulching, lightly tamp soil around the root ball in 6" lifts to brace tree. Do not over compact. When the planting hole has been backfilled, pour water around the root ball to settle the soil.
Loosened soil. Dig and turn the soil to reduce the compaction to the area and depth shown.
Slope sides of loosened soil.
Original grade.
Trunk caliper shall meet ANSI Z60 current edition for root ball size.
Root ball modified as required.
Round-topped soil berm 4" high x 8" wide above root ball surface shall be centered on the downhill side of the root ball for 240°. Berm shall begin at root ball periphery.
4" layer of mulch. No more than 1" of mulch on top of root ball. (See specifications for mulch).
Existing soil.
Bottom of root ball rests on existing or recompacted soil.
3x widest dimension of root ball
SECTION VIEW

URBAN TREE FOUNDATION © 2014
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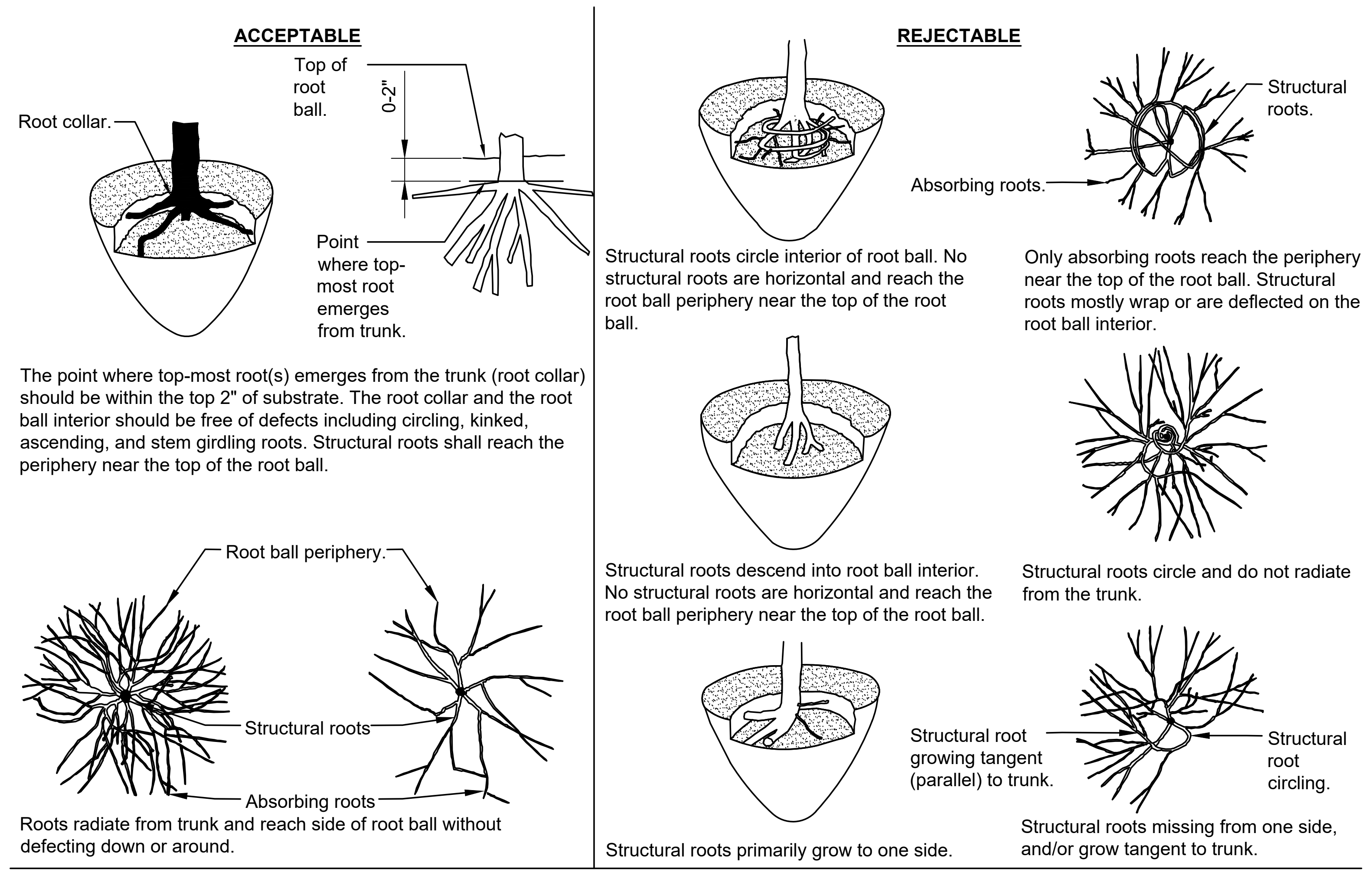
TREE ON SLOPE 5% (20:1) TO 50% (2:1) - UNMODIFIED SOIL



The point where top-most root(s) emerges from the trunk (root collar) should be within the top 2" of substrate. The root collar and the root ball interior should be free of defects including circling, kinked, ascending, and stem girdling roots. Structural roots shall reach the periphery near the top of the root ball.

Roots radiate from trunk and reach side of root ball without defecting down or around.

Structural roots circle interior of root ball. No structural roots are horizontal and reach the root ball periphery near the top of the root ball.

Only absorbing roots reach the periphery near the top of the root ball. Structural roots mostly wrap or are deflected on the root ball interior.

Structural roots descend into root ball interior. No structural roots are horizontal and reach the root ball periphery near the top of the root ball.

Structural roots circle and do not radiate from the trunk.

Structural roots primarily grow to one side.

Structural roots missing from one side, and/or grow tangent to trunk.

Notes:
1- Observations of roots shall occur prior to acceptance. Roots and soil may be removed during the observation process; substrate/soil shall be replaced after the observations have been completed.

2- See specifications for observation process and requirements.

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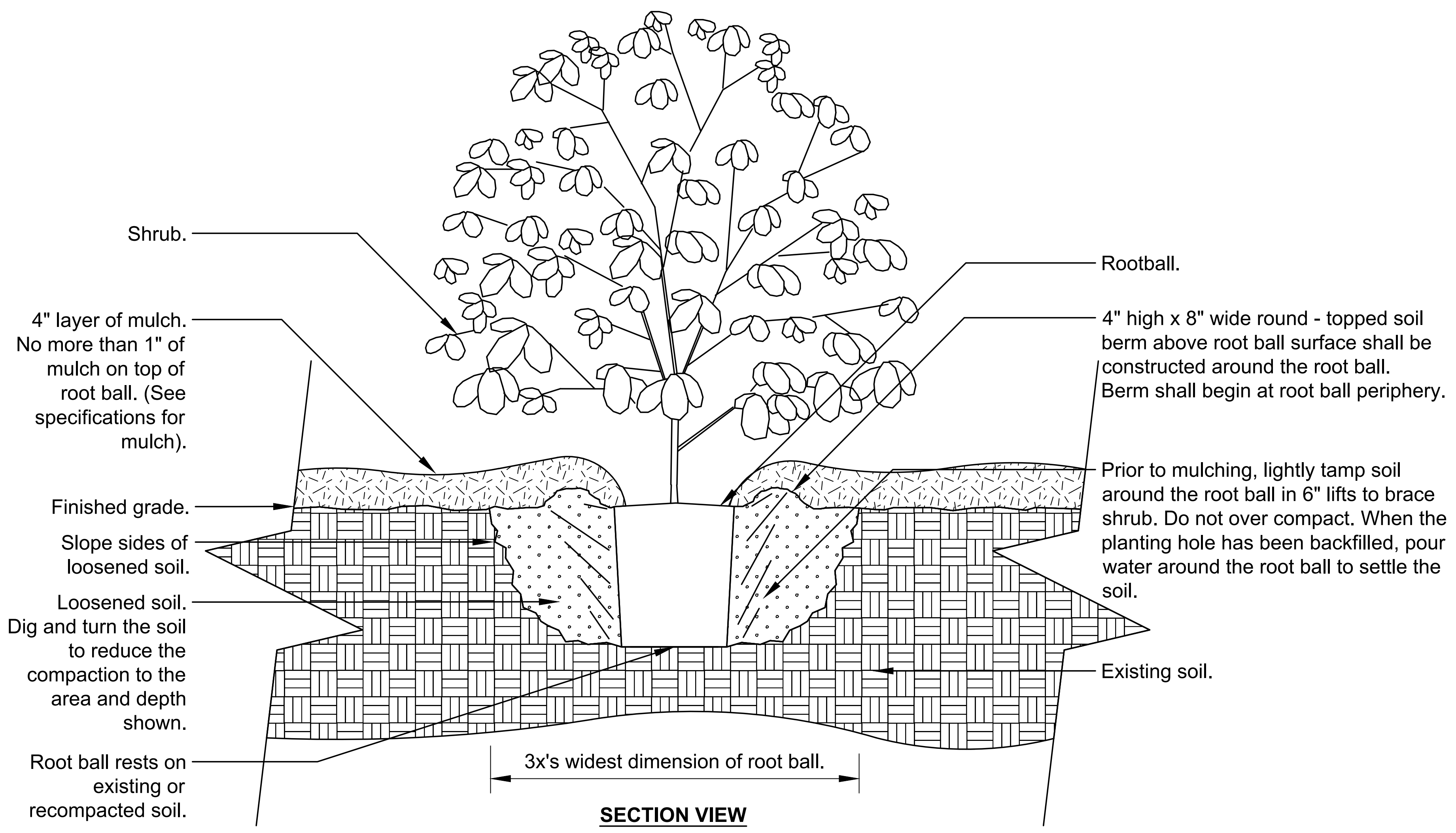
ROOT OBSERVATIONS DETAIL - BALLED AND BURLAPPED


Shrub.
4" layer of mulch. No more than 1" of mulch on top of root ball. (See specifications for mulch).
Finished grade.
Slope sides of loosened soil.
Loosened soil. Dig and turn the soil to reduce the compaction to the area and depth shown.
Root ball rests on existing or recompacted soil.
Rootball.
4" high x 8" wide round - topped soil berm above root ball surface shall be constructed around the root ball. Berm shall begin at root ball periphery.
Prior to mulching, lightly tamp soil around the root ball in 6" lifts to brace shrub. Do not over compact. When the planting hole has been backfilled, pour water around the root ball to settle the soil.
Existing soil.
3x's widest dimension of root ball.
SECTION VIEW

Notes:
1- Shrubs shall be of quality prescribed in the root observations detail and specifications.

2- See specifications for further requirements related to this detail.

SHRUB - UNMODIFIED SOIL

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www.ess-inc.com
MO Engineering Corp. # 2004005018

N
0 1"
SCALE: 1" = 20'

WILSHIRE HILLS PHASE III
3200 NE WILSHIRE DR
LEE'S SUMMIT JACKSON COUNTY, MO

9/28/2023
MATTHEW AARON KRIETE
NUMBER
PE-2007002811

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

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Date
SEPTEMBER 28, 2023

Revised

Design: ST Drawn: MJS

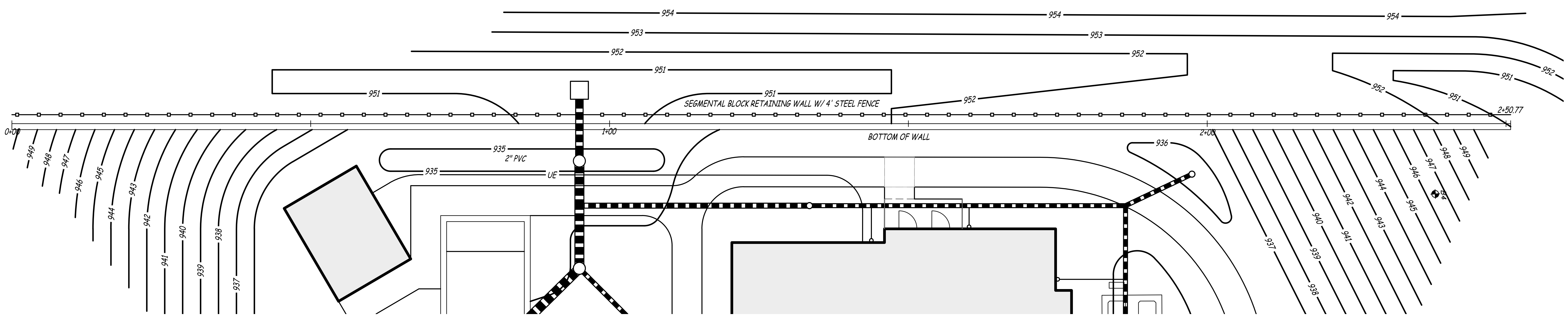
LANDSCAPE PLAN

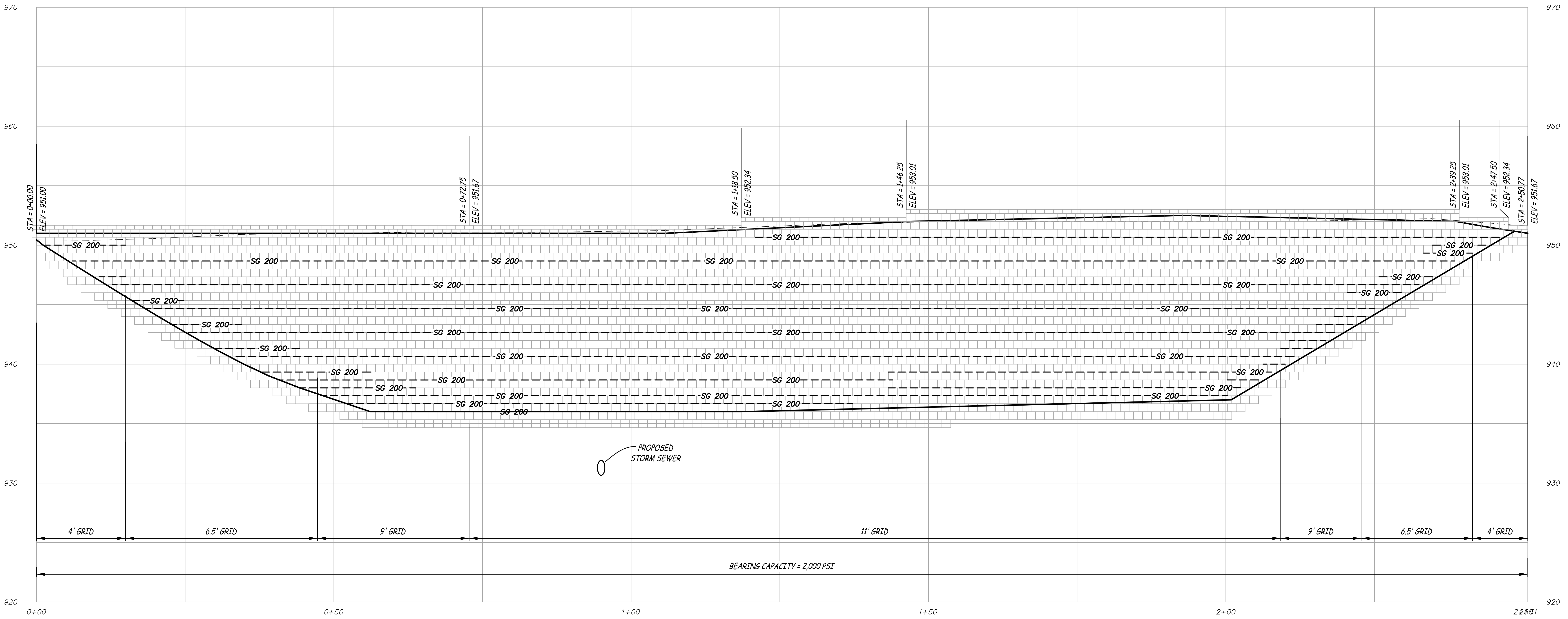
Sheet
L1.05

ES&S PROJECT NO. 15925

RETAINING WALL NOTES

1. RETAINING WALL DESIGN:
    - A. STRUCTURAL DESIGN HEREIN REPRESENTS A FINISHED STRUCTURE. THE GENERAL CONTRACTOR/OWNER SHALL PROVIDE ALL INTERIM BRACING, SHORING, INTERIM DRAINAGE PROVISIONS, DRAINAGE DIVERSION AND EROSION PROTECTION REQUIRED UNTIL FINAL CAPPING, PAVING, CURBING, AND COMPLETION OF FINAL STORM DRAIN SYSTEM IS COMPLETE.
    - B. THE WALL IS NOT CONSIDERED COMPLETE UNTIL ALL FINAL GRADING AND STORMWATER CONVEYANCE IS COMPLETE.
    - C. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO ENSURE ALL FINAL GRADES DRAIN AWAY FROM THE TOP OF THE RETAINING WALL.
2. ENGINEERING SURVEYS & SERVICE SHALL BE NOTIFIED IF ANY SETTLEMENT IS OBSERVED DURING CONSTRUCTION.
3. MATERIAL PROPERTIES:
    - A. SEGMENTAL BLOCK UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C1372 HAVING A MINIMUM 28–DAY COMPRESSIVE STRENGTH OF 3,000 PSI AND A MAXIMUM MOISTURE ABSORPTION OF 8%. ALL UNITS SHALL BE SOUND AND FREE OF CRACKS OR OTHER DEFECTS THAT WOULD INTERFERE WITH THE PROPER PLACING OF THE UNIT OR SIGNIFICANTLY IMPAIR THE STRENGTH OR PERFORMANCE OF THE CONSTRUCTION.
    - B. COMPACTED REINFORCED BACKFILL AND DRAINAGE SHALL BE FREE OF ORGANIC MATERIAL. THE ROCK SHALL BE A WELL GRADED GRAVEL OR LIMESTONE WITH A MAXIMUM PARTICLE SIZE OF 2" AND A MAXIMUM OF 20% PASSING A NO. 200 SIEVE. LIMESTONE SCREENINGS ARE NOT ACCEPTABLE FOR STRUCTURE WALL BACKFILL. MATERIAL SHALL BE MODOT TYPE 1/5 OR APPROVED EQUAL.
    - C. THE GEOGRID SHALL BE A HIGH DENSITY POLYETHYLENE EXPANDED SHEET OR POLYESTER WOVEN FIBER MATERIAL, SPECIFICALLY FABRICATED FOR USE AS SOIL REINFORCEMENT. ACCEPTABLE GEOGRID TYPES AND MANUFACTURER
        - TYPE I: SG 200 BY STRATA OR APPROVED EQUAL
    - D. DRAINAGE PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM F 405 OR ASTM F 758.
    - E. CONSTRUCTION ADHESIVE SHALL BE EXTERIOR GRADE ADHESIVE AS
4. RECOMMENDED BY THE SEGMENTAL CONCRETE WALL UNIT MANUFACTURER. EXCAVATION: IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXCAVATE TO THE GRADES ON THE PLAN. EXCAVATION MEANS AND METHOD ARE ALSO THE CONTRACTOR'S RESPONSIBILITY INCLUDING: BENCHING, SHORING, STABILITY OF ALL RESPECTIVE EXCAVATIONS, AND THE EFFECTS ON ADJACENT PROPERTIES AND
5. STRUCTURES.
   FOUNDATION SOIL PREPARATION:
    - A. FOLLOWING EXCAVATION FOR THE LEVELING PAD AND THE REINFORCED SOIL ZONE, FOUNDATION SOIL SHALL BE EXAMINED BY THE OWNER'S GEOTECHNICAL ENGINEER TO ASSURE THE ACTUAL FOUNDATION SOIL STRENGTH MEETS OR EXCEEDS THE ASSUMED DESIGN BEARING STRENGTH. SOIL NOT MEETING THE REQUIRED STRENGTH SHALL BE REMOVED AND REPLACED WITH SOIL MEETING THE DESIGN CRITERIA, AS DIRECTED BY THE OWNER'S GEOTECHNICAL ENGINEER.
    - B. FOUNDATION SOIL IS DEFINED AS THE SOIL UNDER THE SEGMENTAL RETAINING WALL VOLUME, EXTENDING FROM THE TOE OF THE LEVELING PAD TO THE BACK OF THE REINFORCED MASS.
6. BASE LEVELING PAD SHALL BE COMPACTED WITH A VIBRATORY PLATE OR ROLLER AND COMPACTION TESTING TO A MINIMUM OF 95% OF STANDARD PROCTOR DENSITY (ASTM D 698) AT A MOISTURE CONTENT OF –2% TO +4% OF OPTIMUM MOISTURE CONTENT.
7. PLACE DRAINAGE AGGREGATE A MINIMUM OF 12" DIRECTLY BEHIND AND BETWEEN THE UNITS AND LEVEL WITH THE TOP OF THE UNIT. PLACE REINFORCED BACKFILL DIRECTLY AGAINST DRAINAGE FILL. COMPACT DRAINAGE AGGREGATE WITH 3 PASSES OF A VIBRATORY COMPACTOR. COMPACTION TESTING OF DRAINAGE AGGREGATE IS NOT REQUIRED. EXCESS MATERIAL SHALL BE REMOVED FROM TOP OF UNITS PRIOR TO INSTALLATION OF NEXT COURSE.
8. GEOGRID INSTALLATION:
    - A. GEOGRID SHALL BE LAID AT THE PROPER ELEVATION AND ORIENTATION AS SHOWN ON THE DRAWINGS.
    - B. THE GEOGRID REINFORCEMENT SHALL BE LAID HORIZONTALLY ON LEVEL, COMPACTED BACKFILL, AND EMBEDDED IN THE BLOCK.
    - C. THE GEOGRID SHALL BE PULLED TIGHT AFTER THE NEXT ROW OF BLOCK AND DRAINAGE AGGREGATE HAS BEEN PLACED.
    - D. THE GEOGRID SHALL BE PLACED WITH THE AXIAL STRENGTH PERPENDICULAR TO THE WALL FACE ALL LOCATIONS.
9. REINFORCED BACKFILL
    - E. MATERIAL SHALL BE PLACED IN 8" MAXIMUM LIFTS AND COMPACTED TO A MINIMUM 95% OF STANDARD PROCTOR DENSITY (ASTM D 698) AT A MOISTURE CONTENT OF –2% TO +4% OF OPTIMUM MOISTURE CONTENT.
    - F. REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED FROM THE BACK OF THE WALL REARWARD INTO THE EMBANKMENT TO ENSURE THAT THE GEOGRID REMAINS TIGHT.
    - G. TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY ON THE GEOGRID. A MINIMUM BACKFILL THICKNESS OF 6" SHALL BE MAINTAINED TO OPERATE TRACKED VEHICLES OVER THE GEOGRID. TURNING OF TRACKED CONSTRUCTION EQUIPMENT SHALL BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING THE GEOGRID.
10. FIELD QUALITY CONTROL:
    - H. THE OWNER OR OWNER'S REPRESENTATIVE IS RESPONSIBLE FOR ENGAGING THE SERVICES OF AN INDEPENDENT THIRD PARTY INSPECTOR TO OBSERVE AND VERIFY ALL SOIL PROPERTIES AS WELL AS VERIFY CORRECT INSTALLATION OF ALL SYSTEM COMPONENTS TO MEET THE REQUIREMENTS OF THESE GENERAL NOTES AND DRAWINGS.
    - I. EACH LIFT OF REINFORCED BACKFILL MATERIAL AND BASE LEVELING PAD SHOULD BE COMPACTION TESTED AT A FREQUENCY OF ONE TEST PER 2,500 SQUARE FEET OR A MINIMUM OF 2 TESTS PER LIFT.





RETAINING WALL

SCALE – HORIZ. 1" = 10'
VERT. 1" = 5'

BLOCK PROPERTIES	
BLOCK TYPE	VERSA–LOK
BLOCK STYLE	SQUARE FOOT

WALL PROPERTIES		
BACKSLOPE	6:1 9.46	H:V DEGREES
TOESLOPE	3:1 18.43	H:V DEGREES
BATTER	5.36	DEGREES
SETBACK	1"	INCHES
SURCHARGE		
DEAD LOAD	0	PSF
LIVE LOAD	100	PSF

ASSUMED DESIGN SOIL PARAMETERS			
	DESCRIPTION	ϕ	γ
		(DEGREES)	(PCF)
FOUNDATION SOIL	CRUSHED LIMESTONE	38	130
RETAINED SOIL	CLAY SOIL	19	106
REINFORCED BACKFILL	CRUSHED LIMESTONE	38	130

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N

SCALE: 1" = 10'

WILSHIRE HILLS PHASE III

3200 NE WILSHIRE DR
LEE'S SUMMIT JACKSON COUNTY, MISSOURI

2/23/2024
JOSHUA DAVID LEHMEN
NUMBER PE-2012000779

Joshua David Lehmen

JOSHUA D. LEHMEN
PROFESSIONAL ENGINEER
PE-2012000779

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Date
JULY 13, 2023

Revised
(1) FEBRUARY 22, 2024

Design: JL Drawn: MJS

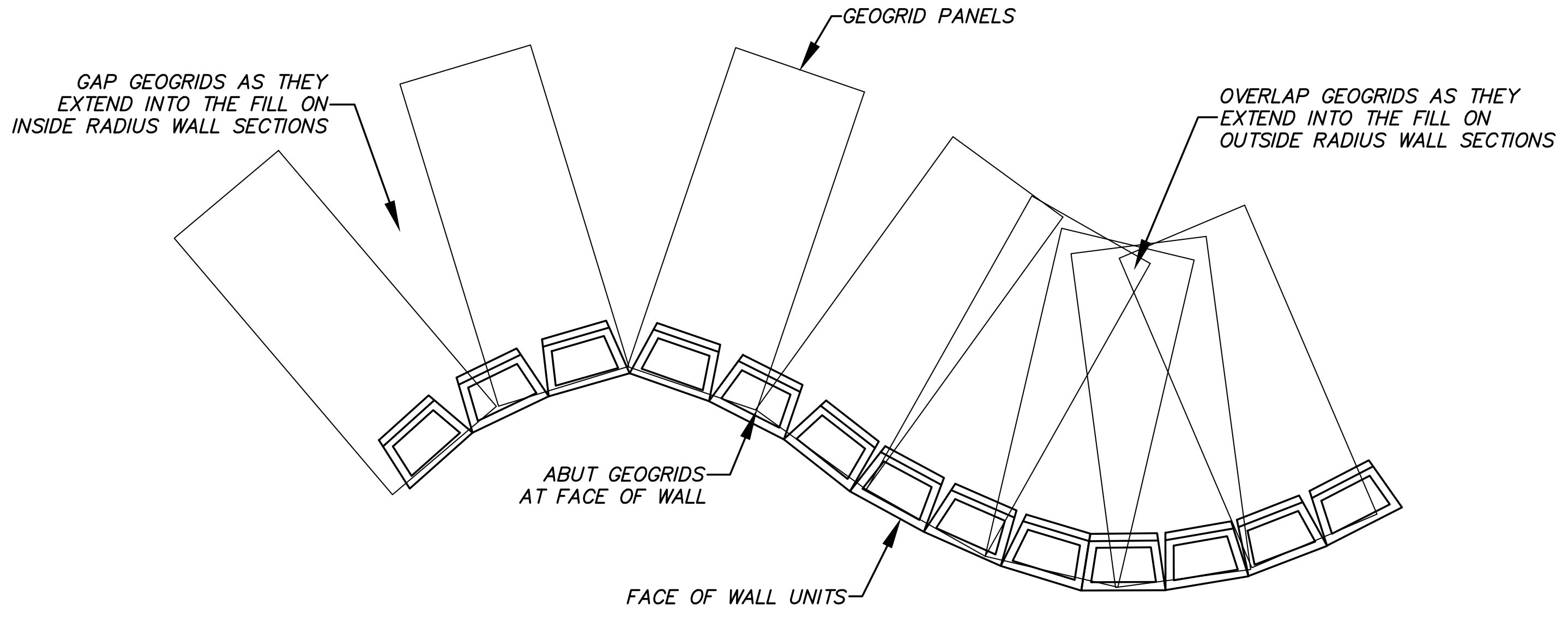
RETAINING WALL PLAN

Sheet
RW1.01

CONSTRUCTION DOCUMENTS

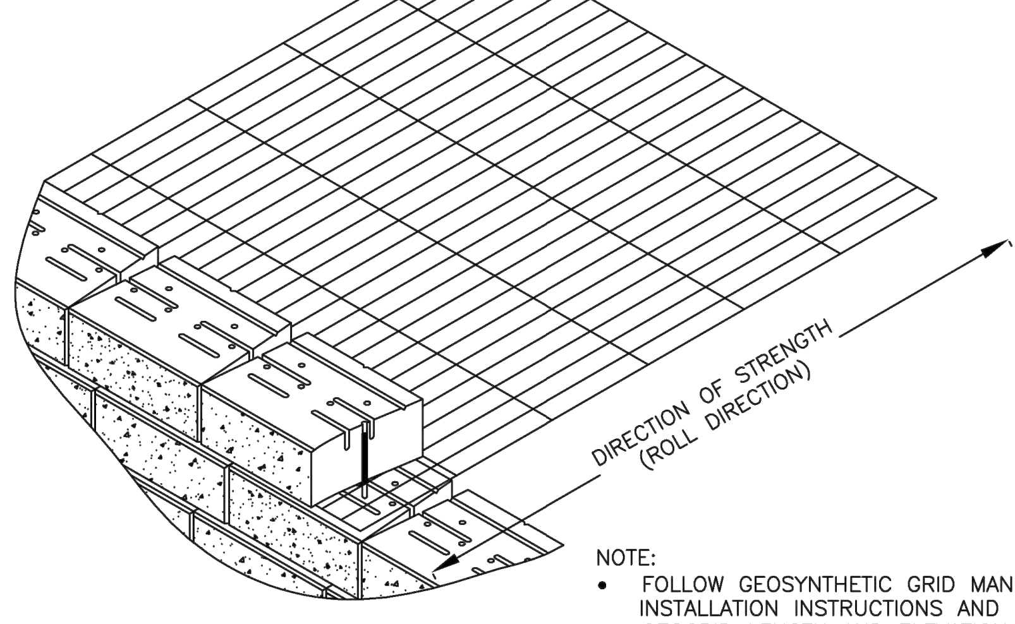
ES&S PROJECT NO. 15925

P:\GENERAL PROJECTS\15925E-JES-WILSHIRE-HILLS-3-ENG\CAD\15925 WALL PLAN .DWG 2/27/2024


GEOGRID PANELS
GAP GEOGRIDS AS THEY EXTEND INTO THE FILL ON INSIDE RADIUS WALL SECTIONS
OVERLAP GEOGRIDS AS THEY EXTEND INTO THE FILL ON OUTSIDE RADIUS WALL SECTIONS
ABUT GEOGRIDS AT FACE OF WALL
FACE OF WALL UNITS

WALL RADIUS DETAIL

NOT TO SCALE

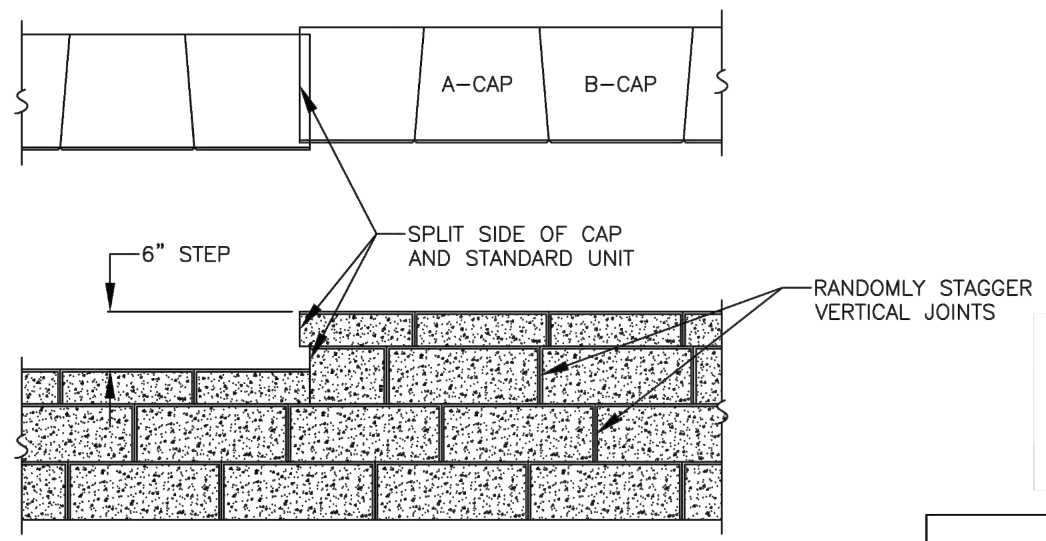


NOTE:
- FOLLOW GEOSYNTHETIC GRID MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SPECIFICATIONS
- GEOGRID LENGTH AND ELEVATION PLACEMENT SHALL BE DETERMINED BY WALL DESIGN ENGINEER

GEOSYNTHETIC INSTALLATION DETAIL

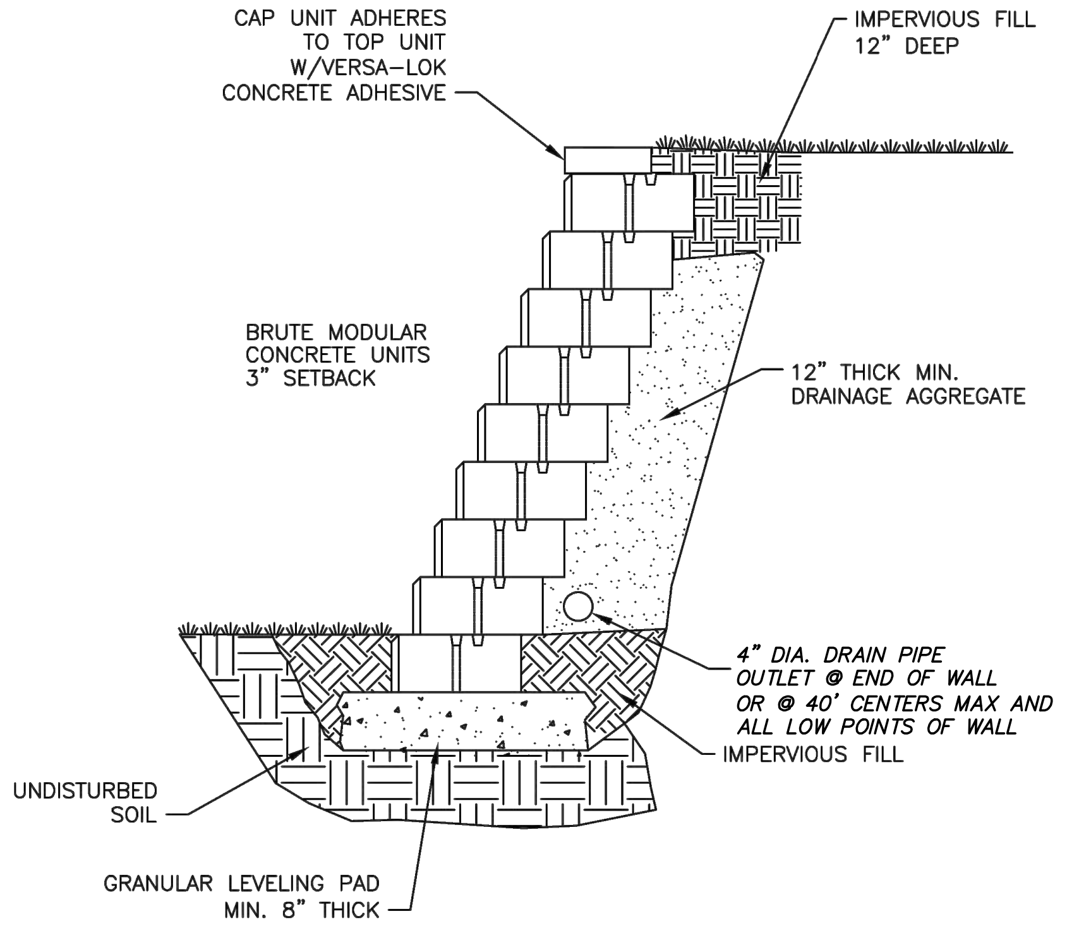
SCALE: NONE

FOR STRAIGHT WALLS, ALTERNATE A-CAP AND B-CAP


A-CAP
B-CAP
6" STEP
SPLIT SIDE OF CAP AND STANDARD UNIT
RANDOMLY STAGGER VERTICAL JOINTS

CAPPING DETAIL-PROFILE

STEP AT TOP OF WALL
SCALE: NONE


CAP UNIT ADHERES TO TOP UNIT W/VERSA-LOK CONCRETE ADHESIVE
IMPERVIOUS FILL 12" DEEP
BRUTE MODULAR CONCRETE UNITS 3" SETBACK
12" THICK MIN. DRAINAGE AGGREGATE
4" DIA. DRAIN PIPE OUTLET @ END OF WALL OR @ 40' CENTERS MAX AND ALL LOW POINTS OF WALL
IMPERVIOUS FILL
UNDISTURBED SOIL
GRANULAR LEVELING PAD MIN. 8" THICK

TYPICAL SECTION-UNREINFORCED RETAINING WALL

SCALE: NONE

THESE PRELIMINARY DETAILS ARE INTENDED AS AN AID IN DESIGNING ATTRACTIVE, DURABLE RETAINING WALLS WITH VERSA-LOK STANDARD UNITS. FINAL DETERMINATION OF THE SUITABILITY OF ANY INFORMATION OR MATERIAL FOR THE USE CONTEMPLATED, AND ITS MANNER OF USE, IS THE SOLE RESPONSIBILITY OF THE USER. A FINAL PROJECT SPECIFIC DESIGN SHOULD BE PREPARED BY A QUALIFIED, LICENSED, PROFESSIONAL ENGINEER.

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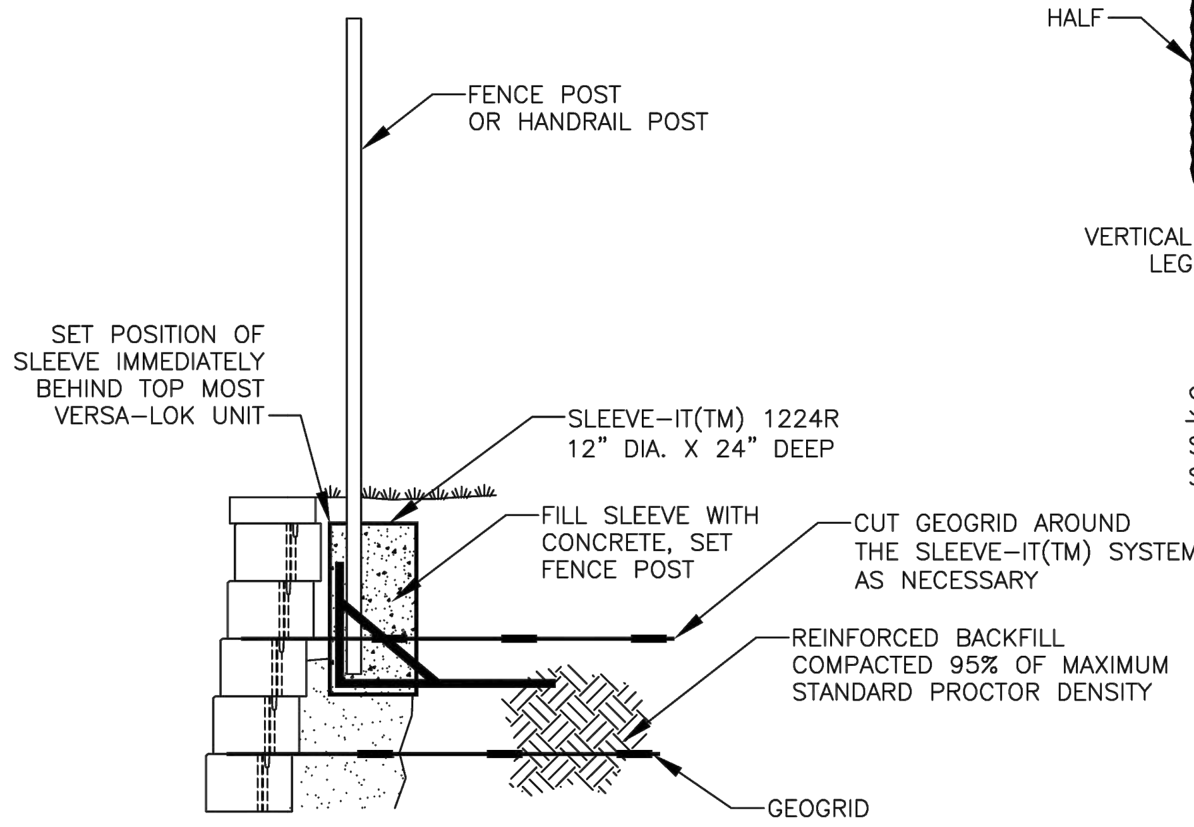
BRUTE DETAILS
UNREINFORCED RETAINING WALL

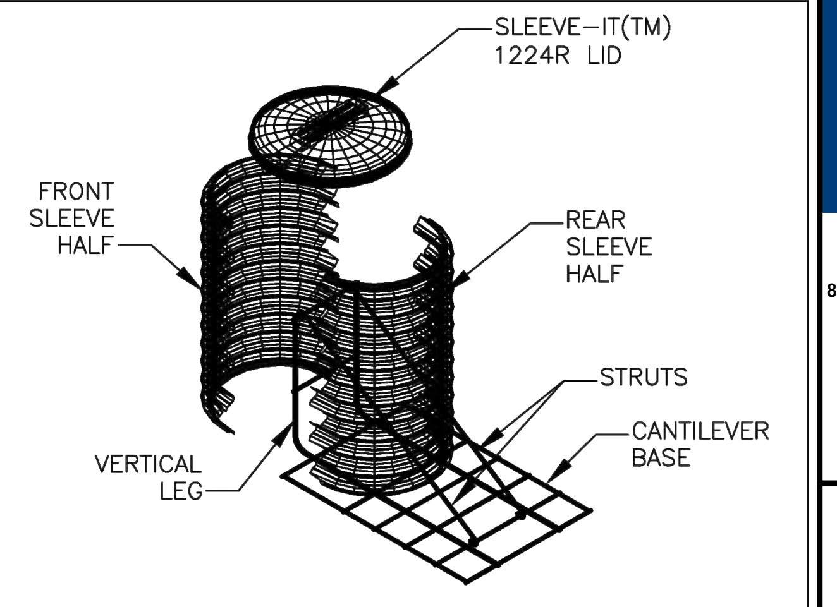
SCALE: AS NOTED
DRAWN BY: PPS
CHECKED BY:
DATE: 10/04
DWG. NO. brute unreinforced wall

*FENCING SYSTEMS APPROVED FOR USE WITH SLEEVE-IT(TM) 1224R ARE LIMITED TO THE FOLLOWING HEIGHTS: CHAIN LINK-UP TO 8-FT, PRIVACY -UP TO 6-FT (WOODEN, PVC, METAL). POST SIZE 4"X4" MAX.


FENCE POST OR HANDRAIL POST
SET POSITION OF SLEEVE IMMEDIATELY BEHIND TOP MOST VERSA-LOK UNIT
SLEEVE-IT(TM) 1224R 12" DIA. X 24" DEEP
FILL SLEEVE WITH CONCRETE, SET FENCE POST
CUT GEOGRID AROUND THE SLEEVE-IT(TM) SYSTEM AS NECESSARY
REINFORCED BACKFILL COMPACTED 95% OF MAXIMUM STANDARD PROCTOR DENSITY
GEOGRID

FENCE POST DETAIL W/ SLEEVE-IT(TM) 1224R

SQUARE FOOT UNIT-WITH SLEEVE-IT(TM) 1224R
SCALE: NONE



SLEEVE-IT(TM) ISO 1224R

SYSTEM COMPONENTS
SCALE: NONE

SEE SLEEVE-IT(TM) SYSTEM MANUFACTURER, STRATA SYSTEMS FOR COMPLETE SPECIFICATIONS, AND TECHNICAL GUIDANCE

THESE PRELIMINARY DETAILS ARE INTENDED AS AN AID IN DESIGNING ATTRACTIVE, DURABLE RETAINING WALLS WITH VERSA-LOK UNITS. FINAL DETERMINATION OF THE SUITABILITY OF ANY INFORMATION OR MATERIAL FOR THE USE CONTEMPLATED, AND ITS MANNER OF USE, IS THE SOLE RESPONSIBILITY OF THE USER. A FINAL PROJECT SPECIFIC DESIGN SHOULD BE PREPARED BY A QUALIFIED, LICENSED, PROFESSIONAL ENGINEER.

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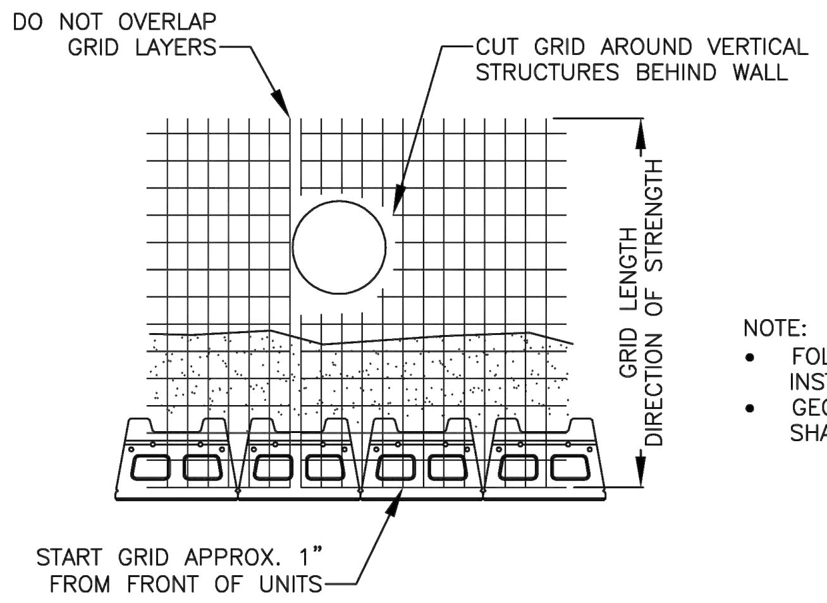
VERSA-LOK SQUARE FOOT DETAILS
FENCEPOST WITH SLEEVE IT

SCALE: 3/4"=1'
DRAWN BY: PPS
CHECKED BY:
DATE: 10/2007
DWG. NO. sf fencepost with sleeve it


DO NOT OVERLAP GRID LAYERS
CUT GRID AROUND VERTICAL STRUCTURES BEHIND WALL
GRID LENGTH DIRECTION OF STRENGTH
START GRID APPROX. 1" FROM FRONT OF UNITS

NOTE:
- FOLLOW GEOSYNTHETIC GRID MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SPECIFICATIONS
- GEOGRID LENGTH AND ELEVATION PLACEMENT SHALL BE DETERMINED BY WALL DESIGN ENGINEER

GEOSYNTHETIC AT STRUCTURES BEHIND WALL

SQUARE FOOT UNIT
SCALE: NONE

THESE PRELIMINARY DETAILS ARE INTENDED AS AN AID IN DESIGNING ATTRACTIVE, DURABLE RETAINING WALLS WITH VERSA-LOK UNITS. FINAL DETERMINATION OF THE SUITABILITY OF ANY INFORMATION OR MATERIAL FOR THE USE CONTEMPLATED, AND ITS MANNER OF USE, IS THE SOLE RESPONSIBILITY OF THE USER. A FINAL PROJECT SPECIFIC DESIGN SHOULD BE PREPARED BY A QUALIFIED, LICENSED, PROFESSIONAL ENGINEER.

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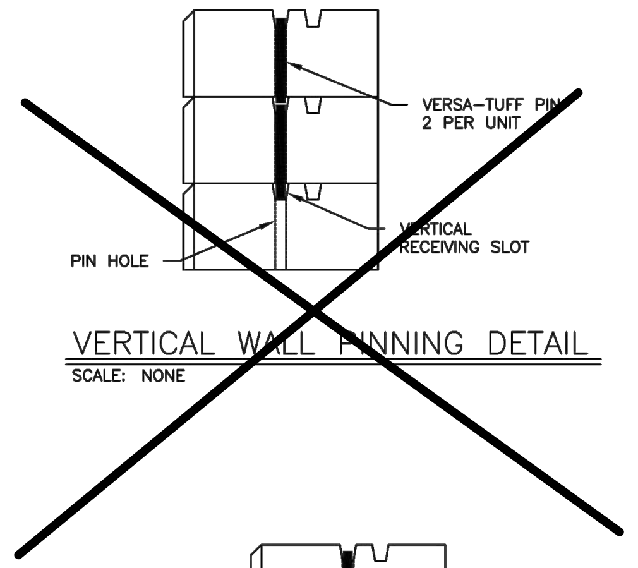
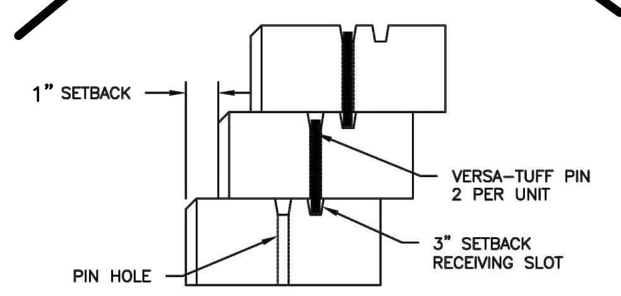
VERSA-LOK SQUARE FOOT DETAILS
GEOSYNTHETIC INSTALLATION

SCALE: 1/2"=1'
DRAWN BY: PPS
CHECKED BY:
DATE: 10/2007
DWG. NO. sf geosynthetic installation detail



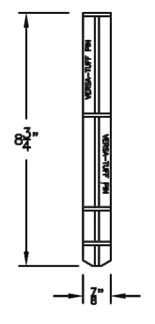
~~VERTICAL WALL PINNING DETAIL~~

~~SCALE: NONE~~



3" SETBACK PINNING DETAIL

SCALE: NONE



VERSA-LOK BRUTE PIN

SCALE: NONE

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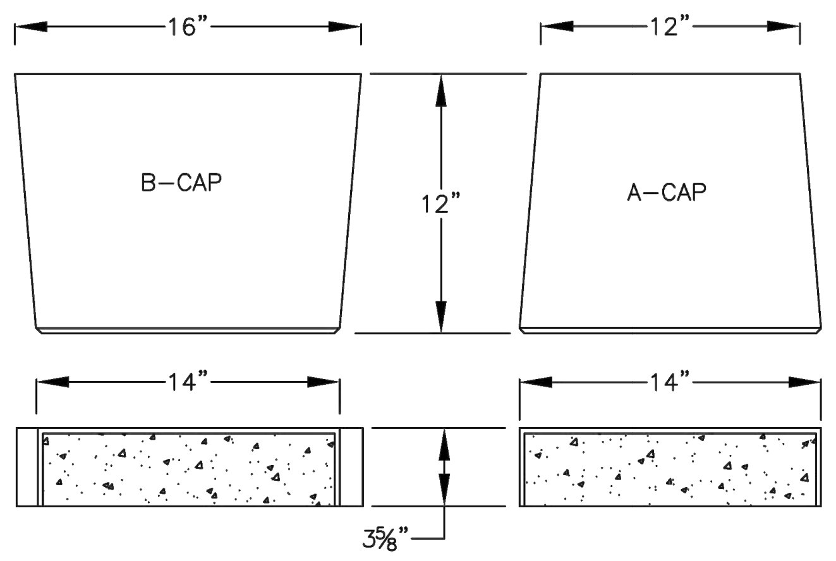
BRUTE DETAILS
PINNING

SCALE: AS NOTED
DRAWN BY: PPS
CHECKED BY:
DATE: 10/04
DWG. NO. brute pinning



VERSA-LOK CAP UNITS

UNIT DIMENSIONS
SCALE: NONE

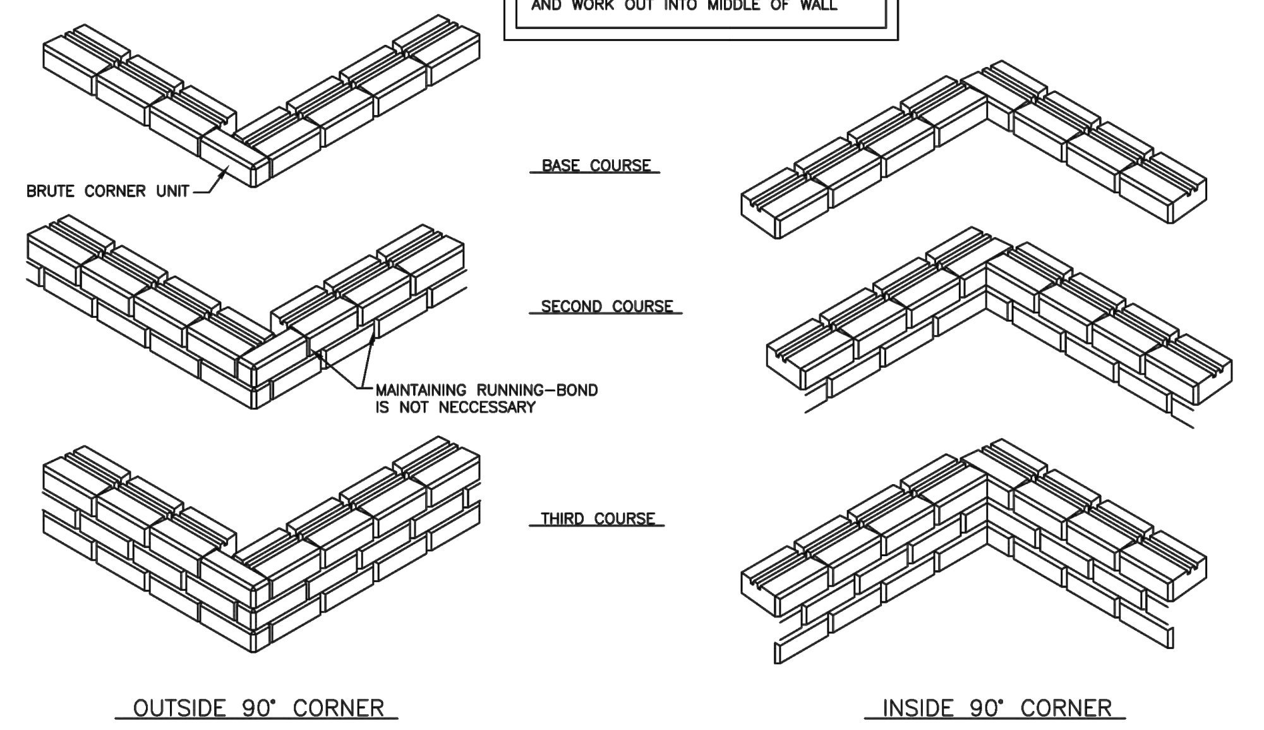
THESE PRELIMINARY DETAILS ARE INTENDED AS AN AID IN DESIGNING ATTRACTIVE, DURABLE RETAINING WALLS WITH VERSA-LOK UNITS. FINAL DETERMINATION OF THE SUITABILITY OF ANY INFORMATION OR MATERIAL FOR THE USE CONTEMPLATED, AND ITS MANNER OF USE, IS THE SOLE RESPONSIBILITY OF THE USER. A FINAL PROJECT SPECIFIC DESIGN SHOULD BE PREPARED BY A QUALIFIED, LICENSED, PROFESSIONAL ENGINEER.

VERSA-LOK®
Retaining Wall Systems
(800)770-4525 fax(651)770-4089
6348 Hwy36 Ste1, Oakdale,MN 55128 *Solid Solutions.*™

VERSA-LOK SQUARE FOOT DETAILS
CAP UNITS

SCALE: 1 1/2"=1'
DRAWN BY: PPS
CHECKED BY:
DATE: 10/2007
DWG. NO. sf cap units

NOTE:
FOR ALL COURSES,
ALWAYS START CONSTRUCTION AT CORNERS
AND WORK OUT INTO MIDDLE OF WALL



INSTALLATION SEQUENCE

SCALE: NONE

THESE PRELIMINARY DETAILS ARE INTENDED AS AN AID IN DESIGNING ATTRACTIVE, DURABLE RETAINING WALLS WITH VERSA-LOK STANDARD UNITS. FINAL DETERMINATION OF THE SUITABILITY OF ANY INFORMATION OR MATERIAL FOR THE USE CONTEMPLATED, AND ITS MANNER OF USE, IS THE SOLE RESPONSIBILITY OF THE USER. A FINAL PROJECT SPECIFIC DESIGN SHOULD BE PREPARED BY A QUALIFIED, LICENSED, PROFESSIONAL ENGINEER.

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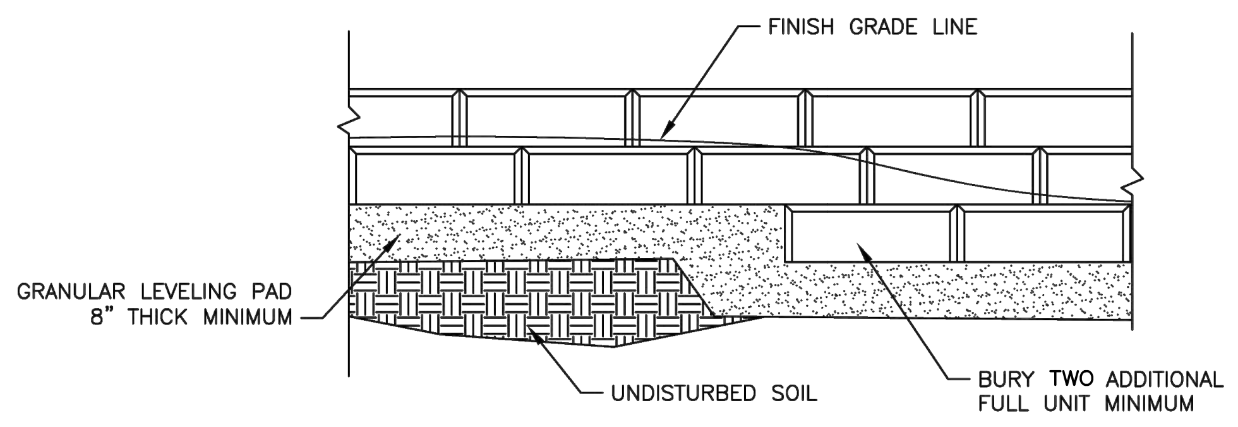
BRUTE DETAILS
CORNER DETAILS

SCALE: AS NOTED
DRAWN BY: PPS
CHECKED BY:
DATE: 10/04
DWG. NO. brute corner details


FINISH GRADE LINE
GRANULAR LEVELING PAD 8" THICK MINIMUM
UNDISTURBED SOIL
BURY TWO ADDITIONAL FULL UNIT MINIMUM

NOTE:
-LIMIT CHANGES IN BASE ELEVATION TO 8" PER STEP TO AVOID DIFFERENTIAL SETTLEMENT
-STEP OFTEN ENOUGH TO MAINTAIN MINIMUM REQUIRED EMBEDMENT

STEPPING BASE DETAIL

SCALE: NONE

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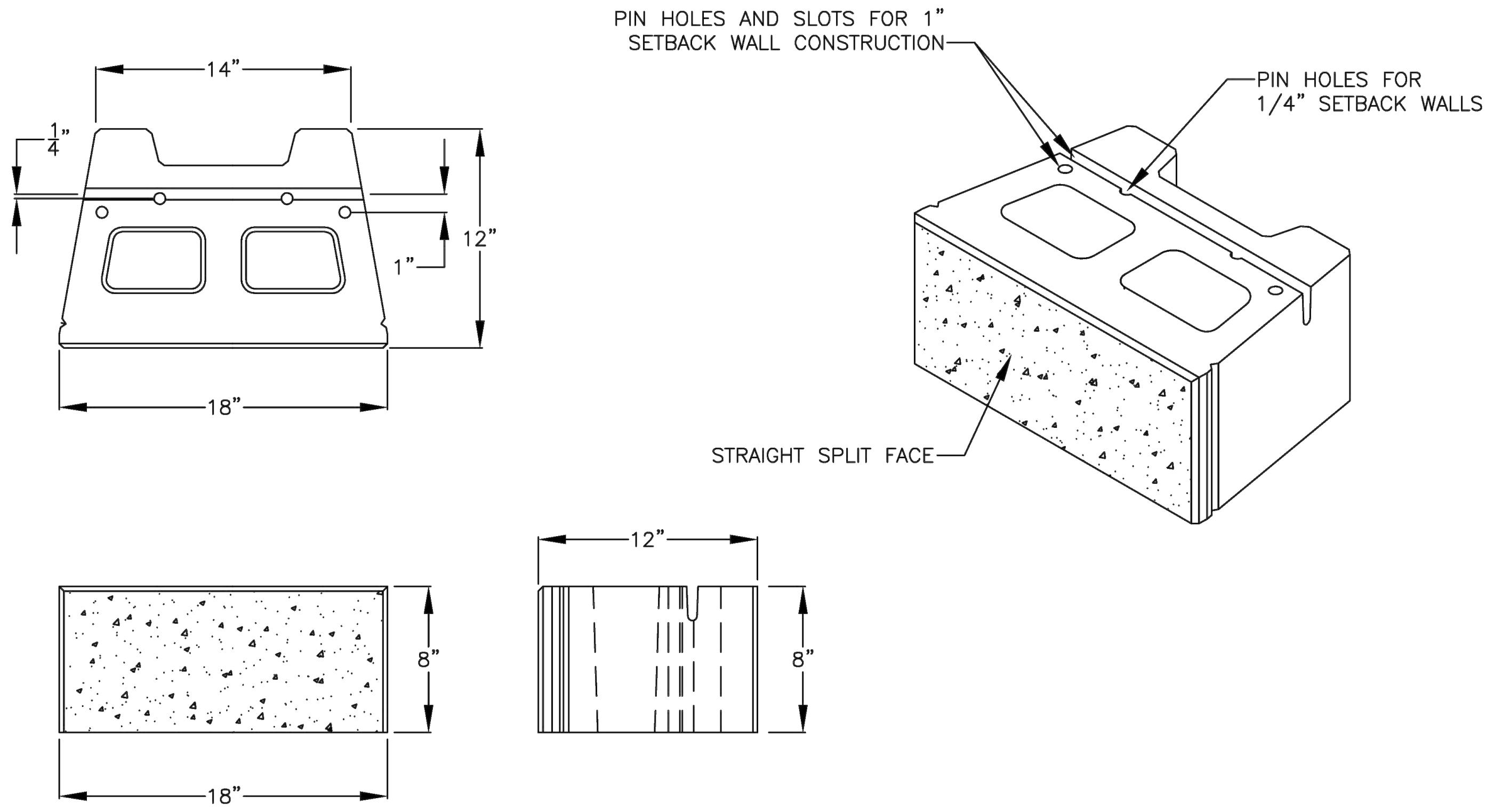
BRUTE DETAILS
BASE STEPPING

SCALE: AS NOTED
DRAWN BY: PPS
CHECKED BY:
DATE: 10/04
DWG. NO. brute base stepping


PIN HOLES AND SLOTS FOR 1" SETBACK WALL CONSTRUCTION
PIN HOLES FOR 1/4" SETBACK WALLS
14"
$\frac{1}{4}$"
1"
12"
18"
STRAIGHT SPLIT FACE
12"
8"
8"
18"

VERSA-LOK SQUARE FOOT UNIT

UNIT DIMENSIONS
SCALE: NONE

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VERSA-LOK SQUARE FOOT DETAILS
SQUARE FOOT UNIT

SCALE: 1 1/2"=1'
DRAWN BY: PPS
CHECKED BY:
DATE: 10/2007
DWG. NO. square foot unit

CONSTRUCTION DOCUMENTS

ES&S
Engineering Surveys & Services
DELIVERING YOUR VISION ™

1113 Fay Street, Columbia, MO 65201
573 - 449 - 2646
802 El Dorado Drive, Jefferson City, MO 65101
573-636-3303
1775 West Main Street, Sedalia, MO 65301
660-826-8618
www.ess-inc.com
MO Engineering Corp. # 2004005018

N

0 1"
SCALE: 1" = 10'

WILSHIRE HILLS PHASE III
3200 NE WILSHIRE DR
LEE'S SUMMIT JACKSON COUNTY, MISSOURI

7/13/2023
JOSHUA DAVID LEHMEN
NUMBER PE-2012000779

Joshua David Lehmen

JOSHUA D. LEHMEN
PROFESSIONAL ENGINEER
PE-2012000779

IF ORIGINAL SIGNATURE OR DIGITAL AUTHENTICATION IS NOT PRESENT THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.

Date
JULY 13, 2023

Revised
① FEBRUARY 23, 2024

Design: JL Drawn: MJS

RETAINING WALL DETAILS

Sheet
RW2.01

ES&S PROJECT NO. 15925

GENERAL REQUIREMENTS

1. CONTRACTOR SHALL PERFORM ALL WORK IN CONFORMANCE WITH THE 2018 IBC CODE, AS AMENDED BY THE CITY OF LEE'S SUMMIT, MO.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION AND SHALL BE RESPONSIBLE FOR COORDINATING ALL CONTRACT DOCUMENTS, INCLUDING ALL REQUIREMENTS, OPENINGS, ETC. WHETHER SHOWN ON STRUCTURAL DRAWINGS OR NOT. CONTRACTOR SHALL REVIEW/VERIFY ALL DIMENSIONS & ELEVATIONS AND REPORT ANY DISCREPANCIES, INCONSISTENCIES, OR DIFFICULTIES AFFECTING THE WORK TO THE ARCHITECT AND ENGINEER BEFORE PROCEEDING WITH THE WORK.
3. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO COMPLETE THE WORK.
4. THESE DRAWINGS ARE FOR THIS SPECIFIC PROJECT AND NO OTHER USE IS AUTHORIZED, OR PERMITTED.
5. THE BUILDING IS NOT STRUCTURALLY STABLE UNTIL ALL FRAMING, CONNECTIONS, SHEATHING, PERMANENT BRACING, ETC. ARE COMPLETE. THE CONTRACTOR IS THE SOLE PARTY RESPONSIBLE FOR THE STABILITY OF THE BUILDING UNTIL SUCH TIME AS IT IS COMPLETE. THE DESIGN OF ALL TEMPORARY BRACING SYSTEMS IS THE RESPONSIBILITY OF THE CONTRACTOR AS A MEANS AND METHODS OF CONSTRUCTION ITEM. ALL TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL ALL STRUCTURAL WORK IS COMPLETE. THE DESIGN LOADS SHALL NOT BE EXCEEDED AT ANY TIME DURING CONSTRUCTION.
6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS AND SEQUENCES OF CONSTRUCTION.

USE OF CONSTRUCTION DRAWINGS

1. CONTRACTOR SHALL NOT SCALE DRAWINGS. ONLY WRITTEN DIMENSIONS OR KEYED NOTES SHALL BE USED. CONTACT ENGINEER 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, FOOTINGS, DEMISING WALLS
   - C. TO TOP OF STRUCTURAL STEEL

STRUCTURAL DESIGN CRITERIA

1. ROOF LIVE LOAD = 30 psf (+ CODE PRESCRIBED DRIFT)
2. FLOOR LIVE LOAD = 40 psf @ UNITS
   = 100 psf @ CORRIDORS & COMMON AREAS
3. STRUCTURE DEAD LOAD = ACTUAL WEIGHT OF MATERIALS
4. MISC. M.E.P. LOADS = 10 psf
5. SNOW LOAD
   - GROUND SNOW LOAD, Pg = 20 psf
   - ROOF SNOW LOAD, Pf = 15.4 psf
6. LATERAL LOADS - WIND:
   - A. BASIC WIND SPEED, Vult = 109 MPH
   - B. EXPOSURE = B
7. LATERAL LOADS - SEISMIC:
   - A. OCCUPANCY CATEGORY = II
   - B. IMPORTANCE = 1.0
   - C. SITE CLASS = C (PER GEOTECH)
   - D. S_{DS} = 0.087g
   - E. S_{D1} = 0.068g
   - F. C_S = 0.0435
   - G. BASE SHEAR = 89.3 KIPS
   - H. DESIGN CATEGORY = B
   - I. RESPONSE = 2
   - J. ANALYSIS PROCEDURE = EQUIVALENT LATERAL FORCE PROCEDURE

COMPONENTS & CLADDING PRESSURES (PSF):

	ZONE	EFFECTIVE AREA (SF)							
		10		20		50		100	
ROOF	1	27.0	-27.0	27.0	-27.0	27.0	-27.0	27.0	-27.0
	2	27.0	-27.0	27.0	-27.0	27.0	-27.0	27.0	-27.0
	3	27.0	-27.0	27.0	-27.0	27.0	-27.0	27.0	-27.0
WALL	4	27.0	-27.0	27.0	-27.0	27.0	-27.0	27.0	-27.0
	5	27.0	-27.0	27.0	-27.0	27.0	-27.0	27.0	-27.0

NOTE: C&C ELEMENTS NOT SPECIFICALLY DESIGNED ON THESE DWGS SHALL BE DESIGNED TO THE WIND PRESSURES STIPULATED BY ASCE 7-16 FOR THE TRIBUTARY AREA OF THE SPECIFIC COMPONENTS.

a = 20' (ASCE 7-16, FIG. 30.4-1)

FOUNDATION CRITERIA

1. THE GEOTECHNICAL REPORT WAS PREPARED BY ENGINEERING SURVEYS & SERVICES. THE PROJECT NUMBER IS L14879, AND THE ENGINEER CAN BE REACHED AT 573.449.2646.
2. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS AND RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT UNLESS SPECIFIED OR DETAILED OTHERWISE. NOTIFY ENGINEER OF ANY DISCREPANCIES, INCONSISTENCIES OR DIFFICULTIES PRIOR TO PROCEEDING WITH THE WORK.
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY SOIL CONDITIONS THAT ARE IN VARIANCE WITH THE GEOTECHNICAL REPORT.
4. FOUNDATIONS, GRADE BEAMS, AND RETAINING WALLS ARE DESIGNED TO BEAR ON SOIL CAPABLE OF SAFELY SUPPORTING 2,000 psf.
5. THE CONTRACTOR SHALL PROVIDE FOR DEWATERING AT ALL EXCAVATIONS, REGARDLESS OF THE SOURCE OF WATER.
6. ALL FOUNDATION EXCAVATIONS SHALL BE INSPECTED BY A QUALIFIED GEOTECHNICAL ENGINEER, APPROVED BY THE ARCHITECT/ENGINEER, PRIOR TO PLACEMENT OF ANY FOUNDATION ELEMENT.
7. RETAINING STRUCTURES ARE DESIGNED FOR 55 psf OF EQUIVALENT FLUID PRESSURE.
8. ALL CONCRETE IN STRUCTURAL WORK, RETAINING BACKFILL, SHALL HAVE ATTAINED ITS DESIGN STRENGTH AND BE TEMPORARILY BRACED PRIOR TO BEING BACKFILLED.
9. MOISTURE CONTENT IN ALL SOILS BELOW BUILDINGS SHALL NOT BE ALLOWED TO CHANGE AFTER EXCAVATIONS AND AFTER FINAL GRADING FOR SLABS ON GRADE ARE COMPLETE. ANY SUBGRADE MATERIALS THAT BECOME DESICCATED, SOFTENED BY WATER, OR OTHERWISE DISTURBED SHALL BE RECOMPACTED TO CONFORM TO THE GEOTECHNICAL REPORT.
10. DO NOT PLACE ANY FOUNDATIONS OR CONCRETE ON FROZEN GROUND.
11. COLUMN ANCHORS AND SHEAR WALL HOLDOWN ANCHORS SHOULD BE PRE-SET IN CONCRETE WHEN POSSIBLE, OR DRILLED AND EPOXIED IF NECESSARY. PERIMETER ANCHORS MAY BE "WET" SET IN CONCRETE.

CONCRETE CRITERIA

1. ALL CONCRETE SHALL CONFORM TO THE LATEST EDITION OF THE AMERICAN CONCRETE INSTITUTE DOCUMENTS, AND CONCRETE REINFORCING STEEL INSTITUTE MANUAL OF STANDARD PRACTICE.
2. ALL CAST-IN-PLACE CONCRETE, EXCEPT EXTERIOR FLATWORK, SHALL ACHIEVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500psi. NOT LESS THAN 500 POUNDS OF CEMENT SHALL BE USED PER CUBIC YARD OF CONCRETE REGARDLESS OF STRENGTHS OBTAINED, AND NOT OVER 6 GALLONS OF WATER PER 100 POUNDS OF CEMENT. DESIGN MIX TO ACHIEVE A MAXIMUM OF 4 INCHES OF SLUMP. ALL FOOTING CONCRETE SHALL BE AIR-ENTRAINED WITH 6% +/-1% AIR. SLAB CONCRETE SHALL NOT BE AIR-ENTRAINED.
3. ALL CAST-IN-PLACE CONCRETE FOR EXTERIOR FLATWORK SHALL ACHIEVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4500psi. NOT LESS THAN 560 POUNDS OF CEMENT SHALL BE USED PER CUBIC YARD OF CONCRETE REGARDLESS OF STRENGTHS OBTAINED, AND NOT OVER 5 GALLONS OF WATER PER 100 POUNDS OF CEMENT. DESIGN MIX TO ACHIEVE A MAXIMUM OF 4 INCHES OF SLUMP. ALL EXTERIOR FLATWORK CONCRETE SHALL BE AIR-ENTRAINED WITH 6% +/-1% AIR.
4. THE PRECEDING MIX DESIGNS MAY HAVE WATER-REDUCING ADMIXTURES INCLUDED TO IMPROVE WORKABILITY. ALL WATER-REDUCING ADMIXTURES SHALL CONFORM TO ASTM C494.
5. THE PRECEDING MIX DESIGNS MAY HAVE ASTM C618 CLASS C FLY ASH SUBSTITUTED FOR UP TO 15% OF THE CEMENT CONTENT. THE TOTAL CEMENTITIOUS CONTENT MAY NOT BE REDUCED.
6. ALL INTERIOR CONCRETE SLABS ON GRADE SHALL BE PLACED ABOVE 15mil VAPOR BARRIER EQUIVALENT TO STEGO WRAP. ALL VAPOR BARRIER JOINTS SHALL BE LAPPED A MIN. OF 6" AND SEALED PER MANUFACTURER'S RECOMMENDATIONS. THE VAPOR BARRIER SHALL BE PLACED ABOVE A COURSE OF FREE-DRAINING GRANULAR MATERIAL AS SPECIFIED IN THE GEOTECHNICAL REPORT. ALL DAMAGED AREAS OF THE VAPOR BARRIER SHALL BE SEALED PER THE MANUFACTURER'S RECOMMENDATIONS PRIOR TO PLACEMENT OF CONCRETE.
7. PRIOR TO PLACEMENT OF ANY CONCRETE THE CONTRACTOR SHALL VERIFY THAT ALL DIMENSIONS, ELEVATIONS, CONCRETE INSERTS, EMBEDDED ITEMS, AND ANY OPENINGS ARE CORRECT, AND RIGIDLY SECURED. THIS APPLIES TO ALL ITEMS SHOWN ON THE STRUCTURAL, ARCHITECTURAL, AND/OR M.E.P. DRAWINGS.
8. ALL CONTRACTION JOINTS IN CONCRETE SLABS ON GRADE SHALL BE LOCATED AS SHOWN ON PLANS. WHERE NOT SHOWN, LIMIT CONTROLLED AREAS TO NOT MORE THAN 225 SQUARE FEET, AND PANELS NOT GREATER THAN 15 FEET ON ANY SIDE, NOR HAVING A PANEL LENGTH TO WIDTH RATIO GREATER THAN 1.4 TO 1.0. ALL CONTRACTION JOINTS SHALL BE CUT TO A DEPTH OF A MINIMUM OF 1/3 OF THE SLAB DEPTH, AND SHALL BE CUT WITHIN 12 HOURS OF CONCRETE PLACEMENT.
9. ALL CONCRETE IS TO BE REINFORCED UNLESS SPECIFICALLY NOTED AS UNREINFORCED. PROVIDE REINFORCING IN ALL CONCRETE NOT OTHERWISE SHOWN WITH THE SAME REINFORCING AS SIMILAR SECTIONS.
10. ALL REINFORCING SHALL BE DETAILED PER ACI 315 AND MEET THE REQUIREMENTS OF ACI 318, CURRENT EDITIONS, UNLESS NOTED OTHERWISE.
11. CONSTRUCTION JOINTS IN BEAMS, SLABS, AND GRADE BEAMS SHALL OCCUR IN THE MIDDLE THIRD OF THE SPAN UNLESS NOTED OTHERWISE. PROVIDE 2x4 HORIZONTAL KEYS AT ALL CONSTRUCTION JOINTS.
12. VERTICAL COLD JOINTS SHALL BE PROVIDED IN CONTINUOUS CONCRETE WALLS AT 25'-0" MAX.
13. NO ALUMINUM ITEMS SHALL BE EMBEDDED IN CONCRETE.
14. LIMIT CHLORIDE-ION CONTENT OF ALL ADMIXTURES TO 0.06% BY WEIGHT OF CEMENT.

REINFORCING STEEL CRITERIA

1. ALL REINFORCING SHALL BE DETAILED, FABRICATED, PLACED AND SUPPORTED IN ACCORDANCE WITH THE CURRENT EDITION OF ACI 315.
2. ALL REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615 GRADE 60, EXCEPT FOR ALL WELDED REINFORCING WHICH SHALL CONFORM TO ASTM A706 GRADE 60. WELDING SHALL CONFORM TO AWS D1.4, STRUCTURAL WELDING CODE.
3. ALL WELDED PLAIN WIRE FABRIC SHALL BE SUPPLIED IN SHEETS AND SHALL CONFORM TO ASTM A185. PROVIDE REINFORCING CHAIRS FOR ALL SLAB-ON-GRADE REINFORCING. WWF SHALL NOT BE "PULLED UP" DURING PLACEMENT. ALL WWF SHALL BE 2" BELOW TOP OF SLAB FOR 4" THICK SLABS. OVERLAP EACH SHEET TWO FULL PANELS AND TIE CROSS WIRES ON EACH SIDE.
4. CLEAR MINIMUM COVERAGE OF CONCRETE OVER ALL REINFORCING STEEL SHALL BE AS FOLLOWS:
   (ALL COVERAGE SHALL BE NOMINAL BAR DIAMETER MINIMUM.)

A.	CONCRETE PLACED AGAINST EARTH	3"
B.	FORMED CONCRETE AGAINST EARTH	2"
C.	FORMED SLABS	1"
D.	BEAMS OR COLUMNS	1-1/2"
E.	OTHER	2"

5. PROVIDE CORNER BARS AT ALL WALLS, GRADE BEAMS AND BEAMS IN THE EXTERIOR FACE. ALL CORNER BARS SHALL LAP A MINIMUM OF 24" IN EACH DIRECTION, OR 40 BAR DIAMETERS. ALL CORNER BARS SHALL MATCH SIZE AND SPACING OF HORIZONTAL BARS. WHERE THERE ARE NO VERTICAL BARS IN THE EXTERIOR FACE, PROVIDE 3-#4 VERTICAL SUPPORT BARS.
6. ALL REINFORCING BARS MARKED CONTINUOUS SHALL BE LAPPED 40 BAR DIAMETERS (24" MINIMUM) AT SPLICES AND EMBEDMENTS, UNLESS NOTED OTHERWISE AS CLASS 'B' SPLICES. SPLICE ALL TOP BARS AT MIDSPAN, AND ALL BOTTOM BARS OVER SUPPORTS, UNLESS NOTED OTHERWISE.
7. ALL REINFORCING STEEL ACCESSORIES SHALL BE IN ACCORDANCE WITH THE ACI DETAILING HANDBOOK, AND THE CONCRETE REINFORCING STEEL INSTITUTE DESIGN HANDBOOK. THE MAXIMUM SPACING OF ALL ACCESSORIES SHALL BE 4'-0" ON CENTER. ALL ACCESSORIES ON EXPOSED SURFACES ARE TO HAVE PLASTIC COATED FEET.
8. ALL DOWELS SHALL BE THE SAME SIZE AND SPACING AS ADJOINING MAIN BARS (SPLICE LENGTHS SHALL BE 40 BAR DIAMETERS, OR 24" MINIMUM, UNLESS NOTED OTHERWISE).
9. AT ALL OPENINGS IN CONCRETE WALLS AND SLABS, PROVIDE 2-#5 BARS (LENGTH = R.O. + 80 BAR DIAMETERS) AT EACH OF FOUR SIDES, AND 2-#5 X 5'-0" LG DIAGONALLY AT EACH OF FOUR CORNERS.
10. ALL SLABS AND STAIRS NOT SHOWN OTHERWISE SHALL BE REINFORCED WITH #4 BARS @ 12" O.C. EACH WAY. ALL PORCHES SHALL BE DOWELED TO ADJACENT WALLS OR GRADE BEAMS WITH #4 BARS @ 12" O.C. AND SHALL BE SLOPED 1/8" PER FOOT (MINIMUM) FOR DRAINAGE, UNLESS NOTED OTHERWISE.
11. ALLOW 1 TON OF REINFORCING STEEL TO BE USED IN THE FIELD AS DIRECTED BY THE ENGINEER-OF-RECORD (DELIVERY AND LABOR FOR SAME TO BE INCLUDED).

STRUCTURAL STEEL CRITERIA

1. ALL STRUCTURAL STEEL BEAMS AND COLUMNS SHALL CONFORM TO ASTM A992, GRADE 50 STEEL. ALL MISC. STEEL SHALL BE ASTM A36 GRADE STEEL. ALL HOLLOW STRUCTURAL SECTIONS (HSS) SHALL BE ASTM A500, GRADE B.
2. ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" IN THE 13TH EDITION OF THE AISC STEEL CONSTRUCTION MANUAL.
3. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF AWS D1.1-10, AND ALL ELECTRODES SHALL BE E70XX. ALL WELDS SHALL BE PERFORMED BY CERTIFIED WELDERS.
4. ALL ANCHOR BOLTS SHALL BE 3/4" DIAMETER, ASTM F1554, GRADE 36 UNLESS NOTED OTHERWISE.
5. ALL BASE PLATES FOR COLUMNS SUPPORTING FLOORS OR ROOFS SHALL BE GROUTED BEFORE THE FLOOR OR ROOF FRAMING IS INSTALLED.
6. ALL BOLTS NOT OTHERWISE SPECIFIED SHALL BE 3/4" DIAMETER HIGH-STRENGTH BOLTS (ASTM A325-N). ALL BOLTS SHALL BE FULLY PRETENSIONED, AND ALL CONNECTIONS SHALL HAVE A MINIMUM OF 2 BOLTS. ALL BEAM CONNECTIONS SHALL BE DESIGNED PER THE AISC MANUAL OF STEEL CONSTRUCTION "FRAMED BEAM CONNECTIONS" FOR THE INDICATED REACTIONS, OR AT LEAST 0.4x BEAM TOTAL SHEAR CAPACITY SHOWN IN THE ALLOWABLE UNIFORM LOAD TABLES, WHICHEVER IS GREATER. ALL CONNECTIONS SHALL ALSO ACCOUNT FOR ECCENTRICITY WHERE REQUIRED BY AISC. CONNECTION DESIGN AND SHOP DRAWING PREPARATION SHALL BE COMPLETED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROJECT STATE, AND ALL SHOP DRAWINGS AND CONNECTION CALCULATIONS SHALL BEAR THEIR SEAL. ALL BOLTED CONNECTIONS SHALL BE ASSEMBLED AND INSPECTED IN ACCORDANCE WITH RCSC-2009, SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL MISCELLANEOUS METALS, WHETHER SHOWN ON STRUCTURAL DRAWINGS OR NOT. REFERENCE ARCHITECTURAL DRAWINGS FOR ADDITIONAL MISC. METALS.
8. PROVIDE (1) L 6x3-1/2x3/8 LOOSE LINTEL FOR EACH 4" WIDTH OF MASONRY. MAX SPAN = 6'-0". LOOSE LINTELS SHALL BEAR ON 6" OF SOLID MASONRY ON EACH END. ALL LOOSE LINTELS SHALL BE GALVANIZED AND INSTALLED WITH THE LONG LEG VERTICAL (LLV).
9. ALL DESIGN, FABRICATION, AND INSTALLATION OF STEEL DECKING SHALL COMPLY WITH THE RECOMMENDATIONS OF THE STEEL DECK INSTITUTE. ANY & ALL STEEL ROOF DECKING SHALL BE GALVANIZED, UNLESS NOTED OTHERWISE.

TIMBER AND WOOD FRAMING CRITERIA

1. ALL WOOD FRAMING MEMBERS, WOOD CONSTRUCTION, AND FASTENERS SHALL BE IN ACCORDANCE WITH THE APPLICABLE CODE, AND THE CURRENT EDITION OF THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS).
2. ALL WOOD MEMBERS USED IN BENDING (ie HEADERS, BEAMS), SHALL BE DOUGLAS FIR-LARCH #1 OR ANY SPECIES WHICH MEETS THE FOLLOWING PROPERTIES: Fb=1000psi, E=1,600,000psi.
3. ALL WOOD MEMBERS USED IN COMPRESSION (ie STUDS, POSTS), SHALL BE DOUGLAS FIR-LARCH #2 OR ANY SPECIES WHICH MEETS THE FOLLOWING PROPERTIES: Fc=1350psi, E=1,600,000psi.
4. ALL WOOD MEMBERS SHALL BE SEASONED LUMBER WITH A MOISTURE CONTENT AT OR BELOW 19% IN SERVICE.
5. ALL WOOD PLATES, SILLS AND SLEEPERS WHICH REST ON CONCRETE, MASONRY, OR WHICH ARE IN CONTACT WITH THE EARTH SHALL BE TREATED WOOD. ALL FASTENERS IN CONTACT WITH TREATED LUMBER SHALL BE GALVANIZED. ALL ANCHOR BOLTS SHALL BE 1/2" DIAMETER GALVANIZED BOLTS AT 32" O.C. UNLESS NOTED OTHERWISE. A MINIMUM OF (2) ANCHORS ARE REQUIRED PER SILL PLATE SEGMENT WITH (1) BOLT LOCATED FROM THE END OF EACH SEGMENT A MINIMUM OF 4" BUT NOT MORE THAN 12".
6. ALL JOIST HANGERS SHALL HAVE ICC APPROVAL AND SHALL BE EQUAL TO SIMPSON STRONG-TIE "LUS" HANGERS FOR TYPICAL WOOD CONSTRUCTION, "HUCQ" OR "HGLTV" HANGERS FOR ATTACHMENT OF BEAMS AND GIRDERS, "LB" OR "HB" HANGERS FOR WELD-ON APPLICATIONS TO STEEL BEAMS, AND "WMU" HANGERS FOR MASONRY ATTACHMENT, UNLESS NOTED OTHERWISE. HANGERS SHALL BE WELDED TO STEEL BEAMS UNLESS OTHERWISE APPROVED BY THE EOR. ALL HANGERS SHALL HAVE MAXIMUM NAILING PER THE MANUFACTURER'S SPECIFICATIONS.
7. ALL NAILS SHALL BE COMMON WIRE NAILS WITH SIZES AND SPACING CONFORMING TO TABLE 2304.9.1 OF THE SPECIFIED EDITION OF THE IBC.
8. ALL FLOOR SHEATHING SHALL BE 3/4" APA RATED TONGUE AND GROOVE PLYWOOD, STRUCTURAL 1, EXTERIOR GRADE PANELS. ALL FLOOR SHEATHING SHALL BE GLUED AND NAILED WITH 10d COMMON NAILS AT 12" O.C. TO ALL SUPPORTS, 6" O.C. MAX. @ PANEL EDGES, AND @ 4" O.C. MAX. AT DIAPHRAGM EDGES, EXCEPT AS NOTED IN THE ROOF/FLOOR PLAN NAILING SCHEDULE. ALL PANEL EDGES SHALL BE STAGGERED. ANY STANDING WATER THAT ACCUMULATES ON FLOORS SHALL BE REMOVED WITHIN 24 HOURS.
9. ALL ROOF SHEATHING SHALL BE 5/8" APA RATED TONGUE AND GROOVE SHEATHING (AT CONTRACTOR'S OPTION, SQUARE-EDGED PANELS MY BE USED WITH ROOF CLIPS), STRUCTURAL 1, EXPOSURE 1 PANELS. ALL ROOF SHEATHING SHALL BE ATTACHED WITH 10d COMMON NAILS AT 12" O.C. TO ALL SUPPORTS, 6" O.C. MAX. AT PANEL EDGES, AND @ 4" O.C. MAX. AT DIAPHRAGM EDGES, EXCEPT AS NOTED IN THE ROOF/FLOOR PLAN NAILING SCHEDULE. ALL PANEL EDGES SHALL BE STAGGERED.
10. ALL WALL SHEATHING SHALL BE APA RATED OSB, EXPOSURE 1, STRUCTURAL 1 PANELS. ALL WALL SHEATHING SHALL BE ATTACHED WITH 8d COMMON NAILS AT 6" O.C. MAX. AT PANEL EDGES, AND AT 12" O.C. IN THE FIELD FOR 16" STUD SPACING (6" O.C. MAX. IN THE FIELD FOR 24" STUD SPACING), EXCEPT AS NOTED IN THE SHEATHING ATTACHMENT SCHEDULE. IF NAILING LESS THAN 2" O.C. IS REQUIRED, A 3X OR (2)2X STUDS SHALL BE REQUIRED AT ADJOINING PANELS, AND NAILING SHALL BE STAGGERED.
11. ALL BEARING WALLS SHALL BE CONSTRUCTED PER STRUCTURAL DETAILS AND SHALL SUPERSEDE THE ARCHITECTURAL DRAWINGS. IF ANY DISCREPANCIES EXIST BETWEEN STRUCTURAL AND ARCHITECTURAL DRAWINGS IN THE CONSTRUCTION OR SIZE OF BEARING WALLS, THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE ARCHITECT AND ENGINEER FOR CLARIFICATION.
12. ALL STRUCTURAL HEADERS ARE TO BE CONSTRUCTED PER STRUCTURAL PLANS AND DETAILS. IF ANY OPENINGS IN BEARING WALLS GREATER THAN 1'-4" ARE NOT SPECIFIED ON THE DRAWINGS, THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE ENGINEER FOR CLARIFICATION.
13. ALL JOIST BLOCKING AND BRIDGING SHALL BE SOLID WOOD OR CROSS BRIDGING OF EITHER WOOD OR METAL STRAPS. SPACING OF BLOCKING SHALL NOT EXCEED 8'-0" O.C.
14. BRIDGING OF STUD BEARING WALLS AND SHEAR WALLS SHALL BE SOLID, AND MATCH SHEATHING JOINTS.
15. ALL LAMINATED VENEER LUMBER (LVL) SHALL BE EQUIVALENT TO TRUSS JOIST "MICROLLAM" WITH AN ALLOWABLE FLEXURAL BENDING STRESS (Fb) OF 2600psi AND A MODULUS OF ELASTICITY (E) OF 1,900,000psi.
16. ALL PARALLEL STRAND LUMBER (PSL) SHALL BE EQUIVALENT TO TRUSS JOIST "PARALLAM" WITH AN ALLOWABLE FLEXURAL BENDING STRESS (Fb) OF 2900psi AND A MODULUS OF ELASTICITY (E) OF 2,000,000psi.
17. ALL ENGINEERED WOOD ROOF AND FLOOR TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH THE TRUSS PLATE INSTITUTE'S NATIONAL DESIGN STANDARD FOR METAL-PLATE CONNECTED WOOD TRUSS CONSTRUCTION (ANSI/TPI-1 CURRENT EDITION). TRUSSES SHALL BE DESIGNED AND MANUFACTURED BY AN AUTHORIZED MEMBER OF THE WOOD TRUSS COUNCIL OF AMERICA (WTCA). TRUSS DESIGN SHALL CONFORM TO SPECIFIED CODES, ALLOWABLE STRESS INCREASES, DEFLECTION LIMITATIONS AND OTHER APPLICABLE CRITERIA OF THE GOVERNING CODE.
18. ENGINEERED WOOD TRUSS DESIGN CRITERIA:
   ROOF TRUSSES:

TOP CHORD LIVE LOAD	= 30 psf	
TOP CHORD DEAD LOAD	= 10 psf	
BOTTOM CHORD LIVE LOAD	= 20 psf	(NON-CONCURRENT W/ TCLL)
BOTTOM CHORD DEAD LOAD	= 15 psf	
ALLOWABLE DEFLECTION	= L/360 TL	(1/2" MAX LL, 1" MAX TL DEFLECTION)

   (TRUSS DESIGNER TO CALCULATE AND DESIGN FOR SNOW DRIFT AS APPLICABLE)
   FLOOR TRUSSES:

TOP CHORD LIVE LOAD	= 40 psf	(100 psf @ COMMON AREAS)
TOP CHORD DEAD LOAD	= 30 psf	(INCLUDES 5 psf TRUSS WEIGHT)
BOTTOM CHORD LIVE LOAD	= 0 psf	
BOTTOM CHORD DEAD LOAD	= 15 psf	
ALLOWABLE DEFLECTION	= L/360 TL	(1/2" MAX LL, 1" MAX TL DEFLECTION)

19. WOOD TRUSS SHOP DRAWINGS SHOWING COMPLETE ERECTION AND FABRICATION DETAILS AND CALCULATIONS (INCLUDING CONNECTIONS) SHALL BE SUBMITTED TO THE PROJECT ARCHITECT/ENGINEER FOR REVIEW PRIOR TO FABRICATION AND/OR ERECTION. THESE SHOP DRAWINGS SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER, REGISTERED IN THE PROJECT STATE. SHOP DRAWINGS SHALL ALSO BE SUBMITTED TO THE LOCAL GOVERNMENT CONTROLLING AGENCY WHEN REQUIRED BY THAT AGENCY.
20. ALL WOOD TRUSSES SHALL BE SECURELY BRACED BOTH DURING ERECTION AND PERMANENTLY, AS INDICATED ON THE APPROVED TRUSS DESIGN DRAWINGS AND IN ACCORDANCE WITH TPI'S COMMENTARY AND RECOMMENDATIONS FOR HANDLING, INSTALLING AND BRACING METAL-PLATE CONNECTED WOOD TRUSSES (HIB-91, BOOKLET), THE LATEST EDITION OF THE ANSI/TPI-1, AND "THE GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING, RESTRAINING, AND BRACING OF METAL PLATE CONNECTED WOOD TRUSSES" (BCSI 1-08) AND RELATED SUMMARY SHEETS.
21. THE TRUSS MANUFACTURER SHALL SUPPLY ALL HARDWARE AND FASTENERS FOR JOINING TRUSS MEMBERS TOGETHER AND FASTENING TRUSS MEMBERS TO THEIR SUPPORTS. METAL CONNECTOR PLATES SHALL BE MANUFACTURED BY A MEMBER OF THE WOOD TRUSS COUNCIL OF AMERICA (WTCA) AND SHALL BE 20 GAUGE MINIMUM. CONNECTOR PLATES SHALL MEET OR EXCEED ASTM A653, GRADE 33, WITH ASTM A924 GALVANIZED COATING DESIGNATION G60.
22. SHIPMENT, HANDLING, AND ERECTION OF TRUSSES SHALL BE BY EXPERIENCED, QUALIFIED PERSONS AND SHALL BE PERFORMED IN A MANNER SO AS NOT TO ENDANGER LIFE OR PROPERTY. APPARENT TRUSS DAMAGE SHALL BE REPORTED TO THE TRUSS MANUFACTURER FOR EVALUATION PRIOR TO ERECTION. CUTTING OR ALTERATION OF TRUSSES IS NOT PERMITTED.

CONCRETE MASONRY UNITS CRITERIA

1. CONCRETE BLOCK USED IN EXTERIOR WALLS OR LOAD BEARING WALLS SHALL MEET THE REQUIREMENTS OF ASTM C90 AND HAVE A MINIMUM NET COMPRESSIVE STRENGTH OF 2,000 PSI AND LAID UP USING TYPE N MORTAR SUCH THAT F'M EQUALS 1,500 PSI. ANY BLOCK IN CONTACT WITH EARTH SHALL BE NORMAL WEIGHT UNITS, LAID USING TYPE "S" MORTAR AND GROUTED SOLID.
2. THE CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY BRACING FOR ALL MASONRY WALLS DURING CONSTRUCTION.
3. ALL CONCRETE BLOCK SHALL HAVE 9 GAUGE (OR LARGER) HOT-DIP GALVANIZED HORIZONTAL JOINT REINFORCING (LADDER OR TRUSS) PER SPECIFICATIONS (16" MAXIMUM VERTICAL SPACING).
4. CAVITY WALL CONSTRUCTION SHALL BE REINFORCED AS DESIGNED FOR SPECIFIC CONCRETE BLOCK USED. THE HORIZONTAL JOINT REINFORCING SHALL BE OF THE LADDER OR TRUSS STYLE PER SPECIFICATION AND CONTINUOUS BETWEEN BRICK AND BLOCK, AS PRESCRIBED BY ARCHITECTURAL DRAWINGS, AND/OR SPECIFICATIONS.
5. CONCRETE BLOCK SHALL BE REINFORCED AS FOLLOWS IN 8" WALLS (U.N.O.):
   - A. VERTICAL REINFORCING SHALL BE A MINIMUM OF 1 - #4 BAR IN 8" WALLS AT 32" ON CENTER, AT EACH CORNER, AT EACH DOOR AND WINDOW JAMB, EACH SIDE OF CONTROL JOINTS AND IN THE END VOID OF EACH LENGTH OF WALL. LAP SPLICES FOR MASONRY VERTICAL REINFORCING SHALL BE 48 BAR DIAMETERS OR 24" MIN.
   - B. HORIZONTAL JOINT REINFORCING SHALL BE AS NOTED ABOVE. CONTINUOUS HORIZONTAL BARS SHALL BE INCLUDED PER SECTION OR DETAIL IN BOND BEAM OR OPTIONAL RUNNING BOND BEAM WHERE NOTED. WHERE BOND BEAMS ARE CONTINUOUS AT CORNERS OF WALLS, SUPPLY CORNER BARS MATCHING SIZE OF HORIZONTAL BARS (MINIMUM 2'-0" OR 40 BAR DIAMETERS IN EACH DIRECTION).
6. GROUT, WHERE NOTED ABOVE, SHALL HAVE A MINIMUM DESIGN ULTIMATE COMPRESSIVE STRENGTH OF 2,500 PSI AT 28 DAY TEST AND 3/8" MAXIMUM AGGREGATE SIZE.
7. NON-LOAD BEARING CONCRETE BLOCK WALLS SHALL BE ISOLATED FROM ADJACENT STRUCTURAL ELEMENTS WITH VERTICAL 3/8" CONTROL JOINTS AND AT THE TOP OF THE WALL WITH 1" AIR SPACE OR COMPRESSIBLE MATERIAL AND SUPPORT PER ARCHITECTURAL DETAIL.
8. WALLS SHALL BE ANCHORED TOP AND BOTTOM BY DOWELS MATCHING WALL VERTICAL REINFORCING (UNLESS NOTED OTHERWISE) FROM FLOOR SLAB BOTTOM AND BRACING ANGLES AT THE TOP, PER DETAILS ON THE DRAWINGS.

MASONRY VENEER CRITERIA

1. MASONRY VENEER SHALL HAVE A MINIMUM AVERAGE NET-AREA COMPRESSIVE STRENGTH OF 3,000 PSI. GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI.
2. WIRE TIES SHALL BE AT LEAST WIRE SIZE W1.7 (9 ga.) AND EXTEND AT LEAST HALFWAY THROUGH THE VENEER, BUT MAINTAIN AT LEAST 5/8" COVER ON THE OUTSIDE FACE. OUTER ENDS OF WIRES ARE TO BE BENT 90 DEGREES AND EXTEND 2" PARALLEL TO THE FACE OF THE VENEER.
3. ADJUSTABLE ANCHORS THAT ALLOW VERTICAL OR HORIZONTAL ADJUSTMENT BUT RESIST TENSION AND COMPRESSION FORCES PERPENDICULAR TO THE PLANE OF THE WALL SHALL BE USED FOR ATTACHMENT OVER SHEATHING TO WOOD STUDS. WIRE COMPONENTS OF ADJUSTABLE ANCHORS SHALL CONFORM TO THE SIZE AND INSTALLATION REQUIREMENTS OF THAT ANCHOR TYPE. ALL ANCHORS SHALL BE GALVANIZED.
4. CORRUGATED OR SHEET METAL ANCHORS ARE NOT ALLOWED.
5. MASONRY VENEER ANCHORS SHALL BE PROVIDED AT 32" ON CENTER HORIZONTALLY AND AT 16" ON CENTER VERTICALLY. AT LEAST ONE ANCHOR SHALL BE PROVIDED FOR EVERY 3.5 SQ. FT. OF WALL AREA (REDUCED TO 2.67 SQ. FT. FOR ADJUSTABLE TWO-PIECE ANCHORS). REFERENCE PROJECT SPECIFICATIONS FOR FURTHER INFORMATION ON ACCEPTABLE PRODUCTS.
6. ALL MASONRY SHALL HAVE 9 GAUGE HOT-DIP GALVANIZED HORIZONTAL JOINT REINFORCING (LADDER OR TRUSS) PER SPECIFICATIONS (16" MAXIMUM VERTICAL SPACING).
7. LINTELS OVER ALL OPENINGS IN WALLS NOT OTHERWISE COVERED SHALL BE ONE 6"x3-1/2"x3/8" ANGLE FOR EACH 4" WIDTH OF MASONRY. MAX SPAN = 6'-0". ALL EXTERIOR LINTELS TO BE GALVANIZED.

WOOD UPLIFT LOAD RESISTING SYSTEM

1. THESE NOTES ARE INTENDED TO SUPPLEMENT THE STRUCTURAL PLANS, DETAILS, AND WALL ELEVATIONS. WHERE CONFLICT EXISTS, PLANS, DETAILS, AND WALL ELEVATIONS SHALL GOVERN. CONNECTIONS BELOW ARE MINIMUM AND DO NOT RELIEVE ENGINEERED TRUSS ENGINEER FROM CONNECTION DESIGN.
2. ROOF TRUSSES, TRUSS GIRDERS, JOISTS, AND BEAMS TO WALL CONNECTIONS:

A.	TYPICAL TRUSSES AND JOISTS:	(1) SIMPSON H2.5A AT EA. END
B.	2 SPAN TRUSSES AND JOISTS:	(1) SIMPSON H2.5A AT EA. END & (2) H2.5A AT INTERMEDIATE SUPPORTS (ONE EA. SIDE)
C.	GIRDER TRUSS, UNO:	(2) SIMPSON H2.5A AT EA. END

3. TOP PLATES TO FLOOR STUDS: (1) SIMPSON H6 @ 48" O.C.
4. GROUND FLOOR STUDS TO MUD SILL PLATE: (2) SIMPSON H3 @ 48" O.C. FOR ROOF BEARING WALLS.
5. FASTEN ALL ROOF LOAD BEARING HEADERS UP TO 10'-0" SPAN W/ (1) CS20 STRAP TO JACK STUDS AT EA. END AND PROVIDE (1) CS20 FLOOR-TO-FLOOR STRAP AT KING STUDS BELOW.
6. WHERE WALL OPENIN IS GREATER THAN 5'-0" WIDE, PROVIDE (1) CS22 STRAP AT MID-SPAN OF OPENING HEADER. STRAP SHALL EXTEND TO BOTTOM OF HEADER ON EA. SIDE.
7. PROVIDE (1) CS22 STRAP @ 48" O.C. THROUGH ALL FLOOR CAVITIES AT ROOF BEARING WALLS.

SHOP DRAWING REVIEW CRITERIA

1. THE GENERAL CONTRACTOR WILL SUBMIT SHOP DRAWINGS FOR REVIEW BY ROSEMANN & ASSOCIATES, P.C. AS NOTED BELOW. THE CONTRACTOR WILL REVIEW ALL SHOP DRAWINGS PRIOR TO SUBMITTAL TO THE ENGINEER, AND ALL SHOP DRAWINGS SHALL BEAR THE GENERAL CONTRACTOR'S SHOP DRAWING STAMP. THE G.C.'S REVIEW SHALL DETERMINE THE CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND OPERATIONS OF CONSTRUCTION AND ALL SAFETY PRECAUTIONS; ALL OF WHICH ARE ITEMS THAT ARE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
2. ALL SHOP DRAWINGS MUST BE ORIGINAL DOCUMENTS AND SHALL NOT BE REPRODUCTIONS OF THESE CONTRACT DOCUMENTS WITHOUT THE PRIOR, WRITTEN CONSENT OF ROSEMANN & ASSOCIATES, P.C.
3. ROSEMANN & ASSOCIATES, P.C. SHALL ASSUME THAT NO SUBMISSION COMPRISES A VARIATION UNLESS THE GC ADVISES ROSEMANN & ASSOCIATES, P.C. WITH WRITTEN DOCUMENTATION.
4. ICC REPORTS, MATERIAL SAFETY DATA SHEETS, AND NATIONAL ASSOCIATION OR ORGANIZATION GUIDELINES, SPECIFICATIONS, OR GENERAL PRODUCT INFORMATION DO NOT CONSITUTE SHOP DRAWINGS AND WILL NOT BE REVIEWED. SUBMITTALS SHALL CLEARLY INDICATE THE PRODUCT SELECTED AND ITS INTENDED PURPOSE, WHERE APPROPRIATE.
5. THE GENERAL CONTRACTOR SHALL SUBMIT THE FOLLOWING SHOP DRAWINGS AND RELATED MATERIALS (AS APPLICABLE):
   - A. CONCRETE MIX DESIGNS AND MATERIAL CERTIFICATES
   - B. REINFORCING STEEL SHOP DRAWINGS INCLUDING ERECTION DRAWINGS AND BENDING DETAILS. BAR LISTS AND QUANTITIES WILL NOT BE REVIEWED.
   - C. WOOD TRUSS SHOP DRAWINGS INCLUDING ERECTION/PLACEMENT DRAWINGS AND INDIVIDUAL TRUSS DESIGNS AND CALCULATIONS, WHICH BEAR THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE PROJECT STATE. TRUSSES ON PLACEMENT PLANS SHALL BE NUMBERED IN A LOGICAL, ORGANIZED ORDER. TRUSS CUT SHEETS SHALL BE PROVIDED IN A SIMILAR ORDER.
   - D. MISCELLANEOUS ANCHORS SHOWN ON THE STRUCTURAL DRAWINGS
   - E. STRUCTURAL STEEL SHOP DRAWINGS AND CONNECTION DESIGN
   - F. ELEVATIONS OF ALL REINFORCED CMU WALLS SHOWING ALL REINFORCING
   - G. CMU GROUT AND MORTAR MIX DESIGNS
   - H. STANDARD DETAILS AND BRIDGING INFORMATION FOR LIGHT GAUGE METAL FRAMING; ERECTION PLANS AND DETAILS FOR LIGHT GAUGE METAL JOISTS AND LINTELS
6. THE FOLLOWING ITEMS ARE TO BE DEFERRED DESIGN SUBMITTALS:
   ENGINEERED WOOD TRUSSES, STEEL CONNECTION DESIGN AND DETAILING, ELEVATORS, RAILINGS

SPECIAL INSPECTION CRITERIA

1. THE STRUCTURAL DESIGN FOR THIS PROJECT IS BASED ON THE COMPLETION OF STRUCTURAL INSPECTIONS DURING CONSTRUCTION IN ACCORDANCE WITH CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE. ONE OR MORE, QUALIFIED SPECIAL INSPECTORS SHALL BE EMPLOYED BY THE OWNER.
2. THE SPECIAL INSPECTOR(S) SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, OWNER, ARCHITECT, ENGINEER AND GENERAL CONTRACTOR.
3. ALL OBSERVED DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR RESOLUTION. IF ANY DISCREPANCY IS NOT IMMEDIATELY RESOLVED BY THE CONTRACTOR, THE SPECIAL INSPECTOR SHALL IMMEDIATELY NOTIFY THE DESIGN AUTHORITY, BUILDING OFFICIAL, AND STRUCTURAL ENGINEER.
4. THE SPECIAL INSPECTOR(S) SHALL SUBMIT A FINAL SIGNED REPORT STATING THAT THE WORK REQUIRING SPECIAL INSPECTION WAS COMPLETED IN CONFORMANCE WITH THE APPROVED CONTRACT DOCUMENTS TO THE BEST OF THEIR KNOWLEDGE, AND IN CONFORMANCE WITH THE APPLICABLE BUILDING CODE.
5. THE FOLLOWING ITEMS WILL REQUIRE SPECIAL INSPECTION FOR THIS PROJECT (AS APPLICABLE):
   - A. PLACEMENT OF CONCRETE
   - B. BOLTS INSTALLED IN CONCRETE
   - C. PLACEMENT OF REINFORCING STEEL
   - D. TESTING OF CONCRETE
   - E. VERIFICATION OF SOIL BEARING CAPACITIES
   - F. STRUCTURAL STEEL ERECTION, BOLTING AND WELDING
   - G. REBAR & GROUT PLACEMENT IN CMU
   - H. METAL-PLATE CONNECTED WOOD TRUSS RESTRAINT/BRACING INSPECTION PER 2018 IBC 1705.5.2

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I, SCOTT M. ROSEMANN, P.E. DO HEREBY ACCEPT PROFESSIONAL RESPONSIBILITY AS REQUIRED BY THE PROFESSIONAL REGISTRATION LAWS OF THIS STATE FOR THE STRUCTURAL DESIGN DRAWINGS CONSISTING OF THE S-SERIES DRAWINGS. 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 ARCHITECTURE OR OTHER ENGINEERING PROJECT OR SURVEY.

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PRINTS ISSUED
10/30/23 - PERMIT SUBMITTAL

REVISIONS:

1	12/15/23	Addendum 1 – Response to City Comments

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NUMBER PE-2008002204
03/05/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
STRUCTURAL GENERAL NOTES

PROJECT NUMBER: 23034

SHEET NUMBER:
S-001

DRAWN BY: SAH
CHECKED BY: MIH

IBC TABLE 2304.10.1
FASTENING SCHEDULE

CONNECTION	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
ROOF		
1. BLOCKING BETWEEN CEILING JOISTS, RAFTERS, OR TRUSSES TO TOP PLATE OR OTHER FRAMING BELOW	3-8d COMMON (2 1/2"x0.131") 3-10d BOX (3"x0.128") 3-3" x 0.131" NAILS 3-3" 14 GAGE STAPLES, 7/16" CROWN	EACH END, TOENAIL
BLOCKING BETWEEN RAFTERS OR TRUSS NOT AT THE WALL TOP PLATE, TO RAFTER OR TRUSS	2-8d COMMON (2 1/2"x0.131") 2-3" x 0.131" NAILS 2-3" 14 GAGE STAPLES	EACH END, TOENAIL
	2-16d COMMON (3 1/2"x0.162") 3-3" x 0.131" NAILS 3-3" 14 GAGE STAPLES	END NAIL
FLAT BLOCKING TO TRUSS AND WEB FILLER	16d COMMON (3 1/2"x0.162") 3" x 0.131" NAILS 3" 14 GAGE STAPLES	FACE NAIL @ 6" O.C.
2. CEILING JOISTS TO TOP PLATE	3-8d COMMON (2 1/2"x0.131") 3-10d BOX (3"x0.128") 3-3" x 0.131" NAILS 3-3" 14 GAGE STAPLES, 7/16" CROWN	EACH JOIST, TOENAIL
3. CEILING JOIST NOT ATTACHED TO PARALLEL RAFTER, LAPS OVER PARTITIONS (NO THRUST); SEE SECTION 2308.7.3.1, TABLE 2308.7.3.1	3-16d COMMON (3 1/2"x0.162") 4-10d BOX (3"x0.128") 4-3" x 0.131" NAILS 4-3" 14 GAGE STAPLES, 7/16" CROWN	FACE NAIL
4. CEILING JOIST ATTACHED TO PARALLEL RAFTER (HEEL JOINT); SEE SECTION 2308.7.3.1, TABLE 2308.7.3.1)	PER TABLE 2308.7.3.1	FACE NAIL
5. COLLAR TIE TO RAFTER	3-10d COMMON (3"x0.148") 4-10d BOX (3"x0.128") 4-3" x 0.131" NAILS 4-3" 14 GAGE STAPLES, 7/16" CROWN	FACE NAIL
6. RAFTER OR ROOF TRUSS TO TOP PLATE (SEE SECTION 2308.7.5, TABLE 2308.7.5)	3-10d COMMON (3"x0.148") 3-16d BOX (3 1/2"x0.135") 4-10d BOX (3"x0.128") 4-3" x 0.131" NAILS 4-3" 14 GAGE STAPLES, 7/16" CROWN	TOENAIL[c]
7. ROOF RAFTERS TO RIDGE VALLEY OR HIP RAFTERS, OR ROOF RAFTERS TO 2" RIDGE BEAM	2-16d COMMON (3 1/2"x0.162") 3-10d BOX (3"x0.128") 3-3" x 0.131" NAILS 3-3" 14 GAGE STAPLES, 7/16" CROWN	END NAIL
	3-10d COMMON (3 1/2"x0.148") 4-16d BOX (3 1/2"x0.135") 4-10d BOX (3"x0.128") 4-3" x 0.131" NAILS 4-3" 14 GAGE STAPLES, 7/16" CROWN	TOENAIL
WALL		
8. STUD TO STUD (NOT AT BRACED WALL PANELS)	16d COMMON (3 1/2"x0.162")	FACE NAIL @ 24" O.C.
	10d BOX (3"x0.128") 3" x 0.131" NAILS 3" 14 GAGE STAPLES, 7/16" CROWN	FACE NAIL @ 16" O.C.
9. STUD TO STUD AND ABUTTING STUDS AT INTERSECTING WALL CORNERS (AT BRACED WALL PANELS)	16d COMMON (3 1/2"x0.162")	FACE NAIL @ 16" O.C.
	16d BOX (3 1/2"x0.135")	FACE NAIL @ 12" O.C.
	3"x0.131" NAILS 3" 14 GAGE STAPLES, 7/16" CROWN	FACE NAIL @ 12" O.C.
10. BUILT-UP HEADER (2" TO 2" HEADER)	16d COMMON (3 1/2"x0.162")	FACE NAIL @ 16" O.C. EA. EDGE
	16d BOX (3 1/2"x0.135")	FACE NAIL @ 12" O.C. EA. EDGE
11. CONTINUOUS HEADER TO STUD	4-8d COMMON (2 1/2"x0.131") 4-10d BOX (3"x0.128")	TOENAIL
12. TOP PLATE TO TOP PLATE	16d COMMON (3 1/2"x0.162")	FACE NAIL @ 16" O.C.
	10d BOX (3"x0.128") 3" x 0.131" NAILS 3" 14 GAGE STAPLES, 7/16" CROWN	FACE NAIL @ 12" O.C.
13. TOP PLATE TO TOP PLATE, AT END JOINTS	8-16d COMMON (3 1/2"x0.162") 12-10d BOX (3"x0.128") 12-3" x 0.131" NAILS 12-3" 14 GAGE STAPLES, 7/16" CROWN	EACH SIDE OF END JOINT, FACE NAIL (MIN. 24" LAP SPLICE LENGTH EACH SIDE OF END JOINT)
14. BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST, OR BLOCKING (NOT AT BRACED WALL PANELS)	16d COMMON (3 1/2"x0.162")	FACE NAIL @ 16" O.C.
	16d BOX (3 1/2"x0.135") 3" x 0.131" NAILS 3" 14 GAGE STAPLES, 7/16" CROWN	FACE NAIL @ 12" O.C.
15. BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST, OR BLOCKING AT BRACED WALL PANELS	2-16d COMMON (3 1/2"x0.162") 3-16d BOX (3 1/2"x0.135") 4-3" x 0.131" NAILS 4-3" 14 GAGE STAPLES, 7/16" CROWN	FACE NAIL @ 16" O.C.
16. STUD TO TOP OR BOTTOM PLATE	4-8d COMMON (2 1/2"x0.131") 4-10d BOX (3"x0.128") 4-3" x 0.131" NAILS 4-3" 14 GAGE STAPLES, 7/16" CROWN	TOENAIL
	2-16d COMMON (3 1/2"x0.162") 3-10d BOX (3"x0.128") 3-3" x 0.131" NAILS 3-3" 14 GAGE STAPLES, 7/16" CROWN	END NAIL
17. TOP PLATES, LAPS AT CORNERS AND INTERSECTIONS	2-16d COMMON (3 1/2"x0.162") 3-10d BOX (3"x0.128") 3-3" x 0.131" NAILS 3-3" 14 GAGE STAPLES, 7/16" CROWN	FACE NAIL
18. 1" BRACE TO EACH STUD AND PLATE	2-8d COMMON (2 1/2"x0.131") 2-10d BOX (3"x0.128") 2-3" x 0.131" NAILS 2-3" 14 GAGE STAPLES, 7/16" CROWN	FACE NAIL
19. 1" x 6" SHEATHING TO EACH BEARING	2-8d COMMON (2 1/2"x0.131") 2-10d BOX (3"x0.128")	FACE NAIL
20. 1" x 8" AND WIDER SHEATHING TO EACH BEARING	3-8d COMMON (2 1/2"x0.131") 3-10d BOX (3"x0.128")	FACE NAIL
(CONTINUED)		

IBC TABLE 2304.10.1
FASTENING SCHEDULE (CONT.)

CONNECTION	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION	
FLOOR			
21. JOIST TO SILL, TOP PLATE, OR GIRDER	3-8d COMMON (2 1/2"x0.131") 3-10d BOX (3"x0.128") 3-3" x 0.131" NAILS 3-3" 14 GAGE STAPLES, 7/16" CROWN	TOENAIL	
22. RIM JOIST, BAND JOIST, OR BLOCKING TO TOP PLATE, SILL, OR OTHER FRAMING BELOW	8d COMMON (2 1/2"x0.131") 10d BOX (3"x0.128") 3-3" x 0.131" NAILS 3-3" 14 GAGE STAPLES	TOENAIL @ 6" O.C.	
23. 1" x 6" SUBFLOOR OR LESS TO EACH JOIST	2-8d COMMON (2 1/2"x0.131") 2-10d BOX (3"x0.128")	FACE NAIL	
24. 2 SUBFLOOR TO JOIST OR GIRDER	2-16d COMMON (3 1/2"x0.162")	FACE NAIL	
25. 2" PLANKS (PLANK & BEAM - FLOOR & ROOF)	2-16d COMMON (3 1/2"x0.162")	EACH BEARING, FACE NAIL	
26. BUILT-UP GIRDERS AND BEAMS, 2" LUMBER LAYERS	20d COMMON (4"x0.192")	FACE NAIL AT T&B @ 32" O.C. STAGGERED ON OPP. SIDES	
	10d BOX (3"x0.128") 3" x 0.131" NAILS 3" 14 GAGE STAPLES, 7/16" CROWN	FACE NAIL AT T&B @ 24" O.C. STAGGERED ON OPP. SIDES	
	AND: 2-20d COMMON (4"x0.192") 3-10d BOX (3"x0.128") 3-3" x 0.131" NAILS 3-3" 14 GAGE STAPLES, 7/16" CROWN	FACE NAIL @ ENDS AND AT EACH SPLICE	
27. LEDGER STRIP SUPPORTING JOISTS OR RAFTERS	3-16d COMMON (3 1/2"x0.162") 4-10d BOX (3"x0.128") 4-3" x 0.131" NAILS 4-3" 14 GAGE STAPLES, 7/16" CROWN	FACE NAIL EACH JOIST OR RAFTER	
28. JOIST TO BAND JOIST OR RIM JOIST	3-16d COMMON (3 1/2"x0.162") 4-10d BOX (3"x0.128") 4-3" x 0.131" NAILS 4-3" 14 GAGE STAPLES, 7/16" CROWN	END NAIL	
29. BRIDGING OR BLOCKING TO JOIST, RAFTER, OR TRUSS	2-8d COMMON (2 1/2"x0.131") 2-10d BOX (3"x0.128") 2-3" x 0.131" NAILS 2-3" 14 GAGE STAPLES, 7/16" CROWN	TOENAIL EACH END	
WOOD STRUCTURAL PANELS, SUBFLOOR, ROOF, AND INTERIOR WALL SHEATHING TO FRAMING AND PARTICLEBOARD WALL SHEATHING TO FRAMING[a]			
		EDGES (INCHES)	INTERMEDIATE SUPPORTS (INCHES)
30. 3/8" - 1/2"	6d COMMON OR DEFORMED (2"x0.113") (SUBFLOOR AND WALL)	6	12
	8d COMMON OR DEFORMED (2 1/2"x0.131") (ROOF) OR RSRS-01 (2 3/8"x0.113") NAIL (ROOF)[d]	6	12
	2 3/8"x0.113" NAIL (SUBFLOOR AND WALL)	6	12
	1 3/4" 16 GAGE STAPLE, 7/16" CROWN (ROOF)	4	8
	2 3/8"x0.113" NAIL (ROOF)	4	8
	1 3/4" 16 GAGE STAPLE, 7/16" CROWN (ROOF)	3	6
31. 19/32" - 3/4"	4-8d COMMON (2 1/2"x0.131") 4-10d BOX (3"x0.128")	6	12
	16d COMMON (3 1/2"x0.162")	6	12
	10d BOX (3"x0.128") 3" x 0.131" NAILS 3" 14 GAGE STAPLES, 7/16" CROWN	4	8
32. 7/8" - 1 1/4"	8-16d COMMON (3 1/2"x0.162") 12-10d BOX (3"x0.128") 12-3" x 0.131" NAILS 12-3" 14 GAGE STAPLES, 7/16" CROWN	6	12
OTHER EXTERIOR WALL SHEATHING			
33. 1/2" FIBERBOARD SHEATHING[b]	1 1/2" GALVANIZED ROOFING NAIL (7/16" HEAD DIA.) 1 1/4" 16 GAGE STAPLE w/ 7/16" OR 1" CROWN	3	6
34. 25/32" FIBERBOARD SHEATHING[b]	1 3/4" GALVANIZED ROOFING NAIL (7/16" HEAD DIA.) 1 1/2" 16 GAGE STAPLE w/ 7/16" OR 1" CROWN	3	6
WOOD STRUCTURAL PANELS, COMBINATION SUBFLOOR UNDERLAYMENT TO FRAMING			
35. 3/4" AND LESS	8d COMMON (2 1/2"x0.131") 6d DEFORMED (2"x0.113")	6	12
36. 7/8" - 1"	8d COMMON (2 1/2"x0.131") 8d DEFORMED (2 1/2"x0.131")	6	12
37. 1 1/8" - 1 1/4"	10d COMMON (3"x0.148") 8d DEFORMED (2 1/2"x0.131")	6	12
PANEL SIDING TO FRAMING			
38. 1/2" OR LESS	6d CORROSION-RESISTANT SIDING (1 7/8"x0.106") 6d CORROSION-RESISTANT CASING (2"x0.099")	6	12
39. 5/8"	8d CORROSION-RESISTANT SIDING (2 3/8"x0.128") 8d CORROSION-RESISTANT CASING (2 1/2"x0.113")	6	12
WOOD STRUCTURAL PANELS, SUBFLOOR, ROOF, AND INTERIOR WALL SHEATHING TO FRAMING AND PARTICLEBOARD WALL SHEATHING TO FRAMING[a]			
40. 1/4"	4d CASING (1 1/2"x0.080") 4d FINISH (1 1/2"x0.072")	6	12
41. 3/8"	6d CASING (2"x0.099") 6d FINISH (PANEL SUPPORTS @ 24")	6	12

a. NAILS SPACED AT 6" AT INTERMEDIATE SUPPORTS WHERE SPANS ARE 48" OR MORE. FOR NAILING OF WOOD STRUCTURAL PANEL AND PARTICLEBOARD DIAPHRAGMS AND SHEAR WALLS, REFER TO SECTION 2305. NAILS FOR WALL SHEATHING ARE PERMITTED TO BE COMMON, BOX, OR CASING.
b. SPACING SHALL BE 6" ON CENTER ON THE EDGES AND 12" ON CENTER AT INTERMEDIATE SUPPORTS FOR NONSTRUCTURAL APPLICATIONS. PANEL SUPPORTS AT 16" (20" IF STRENGTH AXIS IN THE LONG DIRECTION OF THE PANEL, UNLESS OTHERWISE MARKED).
c. WHERE A RAFTER IS FASTENED TO AN ADJACENT PARALLEL CEILING JOIST IN ACCORDANCE WITH THIS SCHEDULE AND THE CEILING JOIST IS FASTENED TO THE TOP PLATE IN ACCORDANCE WITH THIS SCHEDULE, THE NUMBER OF TOENAILS IN THE RAFTER SHALL BE PERMITTED TO BE REDUCED BY ONE NAIL.
d. RSRS-01 IS A ROOF SHEATHING RING SHANK NAIL MEETING THE SPECIFICATIONS IN ASTM F1667.

ABBREVIATIONS

@	AT
A.B.	ANCHOR BOLT(S)
A.B.C.	AGGREGATE BASE COURSE
ADD'L	ADDITIONAL
ANCH.	ANCHOR
APPROX.	APPROXIMATE(LY)
ARCH.	ARCHITECT OR ARCHITECTURAL DOCUMENTS
AVG.	AVERAGE
BLDG	BUILDING
BLK	BLOCK
BM	BEAM
B.O.D.	BOTTOM OF DECK
BOT. OR B.	BOTTOM
BRG	BEARING
BTWN OR B/W	BETWEEN
BW	BUTT WELD
CANT.	CANTILEVER
C-C	CENTER TO CENTER
CEIL. OR CLG.	CEILING
C.I.P.	CAST IN PLACE
CJ	CONTROL JOINT OR CONSTRUCTION JOINT
CL OR CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CL	CENTER LINE
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CONN.	CONNECTION
CONSTR.	CONSTRUCTION
CONT.	CONTINUE OR CONTINUOUS
CONTR.	CONTRACTOR
COV.	COVER
CTR. OR CNTR	CENTER
CTR'D	CENTERED
DBL	DOUBLE
DEPR	DEPRESSION
DET OR DTL	DETAIL
DIA.	DIAMETER
DIAG.	DIAGONAL
DIM.	DIMENSION
DN	DOWN
DP	DEEP
DWG	DRAWING(S)
DWL	DOWEL
EA.	EACH
E.F.	EACH FACE
EJ	EXPANSION JOINT
E OR ELEC.	ELECTRICAL
EL. OR ELEV.	ELEVATION
EMBED.	EMBEDMENT OR EMBEDDED
ENGR	ENGINEER
EOR	ENGINEER OF RECORD
EQ	EQUAL
E.S.	EACH SIDE
E.W.	EACH WAY
E-W	EAST-WEST
EXC	EXCAVATE
EXIST.	EXISTING
EXP.	EXPANSION
EXT.	EXTERIOR
FAB	FABRICATION
FDN OR FNDN	FOUNDATION
F.F.	FAR FACE OR FINISHED FLOOR
FIN.	FINISH
FLG.	FLANGE
FLR.	FLOOR
F.S.	FAR SIDE
FT.	FOOT OR FEET
FTG	FOOTING
GA.	GAGE OR GAUGE
GALV.	GALVANIZED
GC OR GEN CONTR	GENERAL CONTRACTOR
GLU-LAM	GLUE-LAMINATED
GR OR GRD	GRADE
GWB	GYPSUM WALL BOARD
GYP	GYPCRETE OR GYPSUM WALL BOARD
H.A.S.	HEADED ANCHOR STUD
HI	HIGH
HORIZ. OR HOR.	HORIZONTAL
HT.	HEIGHT
I.D.	INSIDE DIAMETER
I.F.	INSIDE FACE
ILO	IN LIEU OF
IN.	INCH
INCL	INCLUDE
INFO	INFORMATION
INT.	INTERIOR
JT.	JOINT
K	KIP (1000 LBS)
LB	POUND(S)
LG	LONG
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LO	LOW
LOC.	LOCATION OR LOCATED
LT OR LGT.	LIGHT
LW	LIGHT WEIGHT
MACH.	MACHINE
MSRY	MASONRY
MATL	MATERIAL
MAX.	MAXIMUM
M.B.	MACHINE BOLT
MECH.	MECHANICAL
MEMB.	MEMBRANE
MEZZ.	MEZZANINE
MFR.	MANUFACTURER
MID.	MIDDLE
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MTL	METAL
N.F.	NEAR FACE
NO.	NUMBER
N.S.	NEAR SIDE
N-S	NORTH-SOUTH
N.T.S.	NOT TO SCALE
NW	NORMAL WEIGHT
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
O.F.	OUTSIDE FACE
O.H.	OVERHANG
OPNG	OPENING
OPP	OPPOSITE
OPP HD	OPPOSITE HAND
PAR.	PARALLEL
P.C. OR P/C	PRECAST
PCF	POUNDS PER CUBIC FOOT
PEN	PENETRATION
PL	PLATE
PERP.	PERPENDICULAR
P.L.	PROPERTY LINE
PLF	POUNDS PER LINEAL FOOT
PLY	PLYWOOD
PRELIM.	PRELIMINARY
PSI	POUNDS PER SQUARE INCH
PT	PRESERVATIVE TREATED OR POST-TENSIONED
R OR RAD.	RADIUS
RAP	RAMMED AGGREGATE PIER
RE. OR REF.	REFERENCE
REINF.	REINFORCED OR REINFORCING
REQ'D	REQUIRED
SCHED.	SCHEDULE
SECT	SECTION
SEOR	STRUCTURAL ENGINEER OF RECORD
SHTHG	SHEATHING
SH OR SHT	SHEET
SIM.	SIMILAR
SLV	SLEEVE OR SHORT LEG VERTICAL
SLH	SHORT LEG HORIZONTAL
SOG	SLAB ON GRADE
SP OR SPCS	SPACE(S)
SPCG	SPACING
SPEC.	SPECIFICATION
SQ.	SQUARE
STD.	STANDARD
STIFF.	STIFFENER
STL	STEEL
STRUCT.	STRUCTURE OR STRUCTURAL
SYM.	SYMMETRIC(AL)
T.	TOP
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
THK	THICK
THK'ND	THICKENED
T.O.C.	TOP OF CONCRETE
T.O.F.	TOP OF FOOTING
TOPG	TOPPING
T.O.S.	TOP OF STEEL OR TOP OF SLAB
T.O.W.	TOP OF WALL
TR	TRUSS
TYP.	TYPICAL
U.N.O	UNLESS NOTED OTHERWISE
VERT.	VERTICAL
W/	WITH
W/O	WITHOUT
WD	WOOD
W.P.	WORKING POINT
WT. OR WGT.	WEIGHT
WWF OR WWM	WELDED WIRE FABRIC
X-BRACE	CROSS BRACING

CONCRETE STRENGTH=4000 psi					CONCRETE STRENGTH=4500 psi					CONCRETE STRENGTH=5000 psi				
CASE / BAR SIZE	DEVELOPMENT LENGTH OR CLASS A LAP		CLASS B LAP		CASE / BAR SIZE	DEVELOPMENT LENGTH OR CLASS A LAP		CLASS B LAP		CASE / BAR SIZE	DEVELOPMENT LENGTH OR CLASS A LAP		CLASS B LAP	
	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS		TOP BARS	OTHER BARS	TOP BARS	OTHER BARS		TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	19	15	24	19	#3	18	14	23	18	#3	17	13	22	17
#4	25	19	33	25	#4	24	18	31	24	#4	23	17	29	23
#5	31	24	41	31	#5	30	23	38	30	#5	28	22	36	28
#6	37	29	49	37	#6	35	27	46	35	#6	34	26	43	34
#7	54	42	71	54	#7	51	40	67	51	#7	49	38	63	49
#8	62	48	81	62	#8	59	45	76	59	#8	56	43	72	56
#9	70	54	91	70	#9	66	51	86	66	#9	63	48	81	63
#10	79	61	102	79	#10	74	57	96	74	#10	70	54	92	70
#11	87	67	113	87	#11	82	64	107	82	#11	78	60	102	78

NOTES:
1. UNLESS SPECIFICALLY INDICATED OTHERWISE ON THE CONTRACT DRAWINGS, USE THE MINIMUM LENGTH FOR A CLASS B LAP SPLICE OR THE MINIMUM DEVELOPMENT LENGTH INDICATED IN THE TABLES ABOVE MULTIPLIED BY THE APPLICABLE FACTOR(S) LISTED BELOW.
2. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS.
3. WHERE THE CLEAR SPACING BETWEEN BARS LAP SPLICED OR EMBEDDED AT ANY SECTION IS LESS THAN 2 BAR DIAMETERS, OR WHERE THE BAR COVER IS LESS THAN OR EQUAL TO THE BAR DIAMETER. INCREASE THE TABULATED BAR SPLICE OR DEVELOPMENT LENGTH BY 50%.
4. TABLE IS FOR 1 OR 2 BAR BUNDLES ONLY. FOR DEVELOPMENT LENGTHS AND TENSION LAP SPLICE LENGTHS OF BUNDLED BARS REFER TO ACI 318-14, 25.6 OR CONTACT THE STRUCTURAL ENGINEER.
5. MECHANICAL COUPLERS MAY BE SUBSTITUTED FOR TENSION LAP SPLICED BARS PROVIDED THAT THEY MEET THE REQUIREMENTS OF ACI 318-14, 25.5.7.

PRINTS ISSUED
10/30/23 - PERMIT SUBMITTAL

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SCOTT M. ROSEMANN
NUMBER
PE-2008002204
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
STRUCTURAL GENERAL NOTES

PROJECT NUMBER: 23034

SHEET NUMBER:
S-002

DRAWN BY: SAH
CHECKED BY: MIH

10/31/2023 8:38:40 AM
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STATEMENT OF SPECIAL INSPECTIONS

This Statement of Special Inspections is submitted in accordance with the requirements of the 2018 International Building Code (IBC) Sections 1704 and 1705.

Special Inspections and Structural Observations applicable to this project:

• Special Inspections for Standard Buildings (per IBC 1704.2)	REQUIRED
• Special Inspections for Seismic Resistance (per IBC 1705.12)	NOT REQUIRED
• Special Inspections for Wind Resistance (per IBC 1705.11)	NOT REQUIRED
• Structural Observations for Seismic Resistance (per IBC 1704.6.2)	NOT REQUIRED
• Structural Observations for Wind Resistance (per IBC 1704.6.3)	NOT REQUIRED

This Statement of Special Inspections is intended to apply only to items within the scope of work of the Structural Engineer. See Statement of Special Inspections prepared by the design professional in responsible charge for additional special inspection requirements applicable to other disciplines.

The following Schedules of Special Inspections summarize the Special Inspections and Tests required. Special Inspectors shall refer to the approved plans and specifications for detailed special inspection requirements. Any additional tests and inspections required by the approved plans and specifications shall also be performed.

Special Inspections and Testing shall be performed in accordance with the approved plans and specifications, this statement and IBC Sections 1704 and 1705. The owner shall retain and directly pay for the special inspections and testing as required by IBC section 1704.2.

Interim Special Inspection Reports shall be submitted to the Building Official and the Registered Design Professional in Responsible Charge in accordance with IBC Section 1704.2.4. A Final Report of Special Inspections shall be submitted to the Building Official and the Registered Design Professional in Responsible Charge in accordance with IBC Section 1704.2.4.

This Statement of Special Inspections has been developed with the understanding that the Building Official will:
- Review and approve the qualifications of the Special Inspectors who will perform the inspections.
- Monitor special inspection activities on the job site to assure that the Special Inspectors are qualified and are performing their duties as called for in this Statement of Special Inspections.
- Review submitted inspection reports.
- Perform inspections as required by IBC Section 110 and the local building code.

Structural Observations, when required, will be performed by a registered professional engineer from **Rosemann & Associates, P.C.** or a specified delegate. At the conclusion of the work included in the permit, the structural observer shall submit to the Building Official a written statement that the site visits have been made and identify any reported deficiencies that, to the best of the structural observer's knowledge, have not been resolved.

Structural Observation does not include or waive the responsibility for the Special Inspections included in this Statement of Special Inspections or the inspections required by IBC Section 110.

STANDARD BUILDING SPECIAL INSPECTION REQUIREMENTS (per IBC Section 1704.2):
Provide inspections required in the Schedule of Special Inspections for Standard Buildings.

1704.2.5 INSPECTION OF FABRICATORS

MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT
VERIFY FABRICATION/QUALITY CONTROL PROCEDURES	IN-PLANT REVIEW (3)	Y	PERIODIC
1705.1.1 SPECIAL CASES (WORK UNUSUAL IN NATURE, INCLUDING BUT NOT LIMITED TO ALTERNATIVE MATERIALS AND SYSTEMS, UNUSUAL DESIGN APPLICATIONS, MATERIALS AND SYSTEMS WITH SPECIAL MANUFACTURER'S REQUIREMENTS)	SUBMITTAL REVIEW, SHOP (3) AND/OR FIELD INSPECTION	Y	

1705.2 STEEL CONSTRUCTION

MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT
1. FABRICATOR AND ERECTOR DOCUMENTS (VERIFY REPORTS AND CERTIFICATES AS LISTED IN AISC 360, CHAPTER N, PARAGRAPH 3.2 FOR COMPLIANCE WITH CONSTRUCTION DOCUMENTS)	SUBMITTAL REVIEW	Y	EACH SUBMITTAL
2. MATERIAL VERIFICATION OF STRUCTURAL STEEL	SHOP (3) AND FIELD INSPECTION	Y	PERIODIC
3. EMBEDMENTS (VERIFY DIAMETER, GRADE, TYPE, LENGTH, EMBEDMENT. SEE 1705.3 FOR ANCHORS)	FIELD INSPECTION	Y	PERIODIC
4. VERIFY MEMBER LOCATIONS, BRACES, STIFFENERS, AND APPLICATION OF JOINT DETAILS AT EACH CONNECTION COMPLY WITH CONSTRUCTION DOCUMENTS	FIELD INSPECTION	Y	PERIODIC
5. STRUCTURAL STEEL WELDING:			
A. INSPECTION TASKS PRIOR TO WELDING (OBSERVE, OR PERFORM FOR EACH WELDED JOINT OR MEMBER, THE QA TASKS LISTED IN AISC 360, TABLE N5.4-1)	SHOP (3) AND FIELD INSPECTION	Y	OBSERVE OR PERFORM AS NOTED (4)
B. INSPECTION TASKS DURING WELDING (OBSERVE, OR PERFORM FOR EACH WELDED JOINT OR MEMBER, THE QA TASKS LISTED IN AISC 360, TABLE N5.4-2)	SHOP (3) AND FIELD INSPECTION	Y	OBSERVE (4)
C. INSPECTION TASKS AFTER WELDING (OBSERVE, OR PERFORM FOR EACH WELDED JOINT OR MEMBER, THE QA TASKS LISTED IN AISC 360, TABLE N5.4-3)	SHOP (3) AND FIELD INSPECTION	Y	OBSERVE OR PERFORM AS NOTED (4)
D. NONDESTRUCTIVE TESTING (NDT) OF WELDED JOINTS: *SEE COMMENTARY*			
1) COMPLETE PENETRATION GROOVE WELDS 5/16" OR GREATER IN RISK CATEGORY III OR IV	SHOP (3) OR FIELD ULTRASONIC TESTING - 100%	Y	PERIODIC
2) COMPLETE PENETRATION GROOVE WELDS 5/16" OR GREATER IN *RISK CATEGORY* II	SHOP (3) OR FIELD ULTRASONIC TESTING - 10% OF WELDS MINIMUM	Y	PERIODIC
3) THERMALLY CUT SURFACES OF ACCESS HOLES WHEN MATERIAL T > 2"	SHOP (3) OR FIELD MAGNETIC PARTICAL OR PENETRANT TESTING	N	PERIODIC
4) WELDED JOINTS SUBJECT TO FATIGUE WHEN REQUIRED BY AISC 360, APPENDIX 3, TABLE A-3.1	SHOP (3) OR FIELD RADIOGRAPHIC OR ULTRASONIC TESTING	Y	PERIODIC
5) FABRICATOR'S NDT REPORTS WHEN FABRICATOR PERFORMS NDT	VERIFY REPORTS	Y	EACH SUBMITTAL (5)
6. STRUCTURAL STEEL BOLTING:	SHOP (3) AND FIELD INSPECTION		
A. INSPECTION TASKS PRIOR TO BOLTING (OBSERVE, OR PERFORM TASKS FOR EACH BOLTED CONNECTION, IN ACCORDANCE WITH QA TASKS LISTED IN AISC 360, TABLE N5.6-1)		Y	OBSERVE OR PERFORM AS NOTED (4)
B. INSPECTION TASKS DURING BOLTING (OBSERVE THE QA TASKS LISTED IN AISC 360, TABLE N5.6-2)		Y	OBSERVE (4)
1) PRE-TENSIONED AND SLIP-CRITICAL JOINTS		Y	
A) TURN-OF-NUT WITH MATCHING MARKINGS		N	PERIODIC
B) DIRECT TENSION INDICATOR		Y	PERIODIC
C) TWIST-OFF TYPE TENSION CONTROL BOLT		Y	PERIODIC
D) TURN-OF-NUT WITHOUT MATCHING MARKINGS		N	CONTINUOUS
E) CALIBRATED WRENCH		Y	CONTINUOUS
2) SNUG-TIGHT JOINTS		N	PERIODIC
C. INSPECTION TASKS AFTER BOLTING (PERFORM TASKS FOR EACH BOLTED CONNECTION IN ACCORDANCE WITH QA TASKS LISTED IN AISC 360, TABLE N5.6-3)			PERFORM (4)
7. INSPECTION OF STEEL ELEMENTS OF COMPOSITE CONSTRUCTION PRIOR TO CONCRETE PLACEMENT IN ACCORDANCE WITH QA TASKS LISTED IN AISC 360, TABLE N6.1	SHOP (3) AND FIELD INSPECTION AND TESTING	Y	OBSERVE OR PERFORM AS NOTED (4)

1705.2 STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL

MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT
1. MATERIAL VERIFICATION OF COLD-FORMED STEEL DECK:			
A. IDENTIFICATION MARKINGS	FIELD INSPECTION	N	PERIODIC
B. MANUFACTURER'S CERTIFIED TEST REPORTS	SUBMITTAL REVIEW	N	EACH SUBMITTAL
2. CONNECTION OF COLD-FORMED STEEL DECK TO SUPPORTING STRUCTURE:	SHOP (3) AND FIELD INSPECTION	N	
A. WELDING		N	PERIODIC
B. OTHER FASTENERS (IN ACCORDANCE WITH AISC 360,SECTION N6)		N	
1) VERIFY FASTENERS ARE IN CONFORMANCE WITH APPROVED SUBMITTAL		N	PERIODIC
2) VERIFY FASTENER INSTALLATION IS IN CONFORMANCE WITH APPROVED SUBMITTAL AND MANUFACTURER'S RECOMMENDATIONS		N	PERIODIC
3. REINFORCING STEEL	SHOP (3) AND FIELD INSPECTION		
A. VERIFICATION OF WELDABILITY OF STEEL OTHER THAN ASTM A706		N	PERIODIC
B. REINFORCING STEEL RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, BOUNDARY ELEMENTS OF SPECIAL CONCRETE STRUCTURAL WALLS AND SHEAR REINFORCEMENT		Y	CONTINUOUS
C. SHEAR REINFORCEMENT		Y	CONTINUOUS
D. OTHER REINFORCING STEEL		Y	PERIODIC
4. COLD-FORMED STEEL TRUSSES SPANNING 60 FEET OR GREATER			
A. VERIFY TEMPORARY AND PERMANENT RESTRAINT/BRACING ARE INSTALLED IN ACCORDANCE WITH THE APPROVED TRUSS SUBMITTAL PACKAGE	FIELD INSPECTION	N	PERIODIC

1705.3 INSPECTION OF CONCRETE CONSTRUCTION

MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT
1. INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS AND PLACEMENT	SHOP (3) AND FIELD INSPECTION	Y	PERIODIC
2. REINFORCING BAR WELDING:	FIELD INSPECTION	Y	
A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706; B. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"; C. INSPECT ALL OTHER WELDS			PERIODIC PERIODIC CONTINUOUS
3. INSPECTION OF ANCHORS CAST IN CONCRETE	FIELD INSPECTION	Y	PERIODIC
4. INSPECTION OF ANCHORS INSTALLED IN HARDENED CONCRETE	FIELD INSPECTION	Y	
A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4A			PERIODIC OR AS REQUIRED BY MANUF.
5. VERIFYING USE OF REQUIRED DESIGN MIX	FIELD INSPECTION	Y	PERIODIC
6. AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP & AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	FIELD TESTING	Y	CONTINUOUS
7. INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	FIELD INSPECTION	Y	CONTINUOUS
8. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	FIELD INSPECTION	Y	PERIODIC
9. INSPECTION OF PRESTRESSED CONCRETE:	FIELD INSPECTION	Y	
A. APPLICATION OF PRESTRESSING FORCES B. GROUTING OF BONDED PRESTRESSING TENDONS IN THE SEISMIC-FORCE-RESISTING SYSTEM			CONTINUOUS CONTINUOUS
10. ERECTION OF PRECAST CONCRETE MEMBERS	FIELD INSPECTION	Y	
A. INSPECT IN ACCORDANCE WITH CONSTRUCTION DOCUMENTS B. PERFORM INSPECTIONS OF WELDING AND BOLTING IN ACCORDANCE WITH SECTION 1705.2			PERIODIC PER SECTION 1705.2
11. VERIFICATION OF 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.	FIELD INSPECTION AND TESTING	Y	PERIODIC
12. INSPECT FORMWORK FOR SHAPE, LOCATION, AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	FIELD INSPECTION	Y	PERIODIC
13. CONCRETE STRENGTH TESTING AND VERIFICATION OF COMPLIANCE WITH CONSTRUCTION DOCUMENTS	FIELD TESTING	Y	PERIODIC

NOTE: ADDITIONAL INSPECTION MAY BE REQUIRED FOR THE SEISMIC FORCE RESISTING SYSTEMS PER IBC 1707.

1705.4 INSPECTION OF MASONRY CONSTRUCTION

MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT
LEVEL A QUALITY ASSURANCE			
1. COMPLIANCE WITH REQUIRED INSPECTION PROVISIONS OF THE CONSTRUCTION DOCUMENTS AND THE APPROVED SUBMITTALS SHALL BE VERIFIED	SUBMITTAL REVIEW AND FIELD INSPECTION	Y	PERIODIC
LEVEL B QUALITY ASSURANCE			
1. COMPLIANCE WITH REQUIRED INSPECTION PROVISIONS OF THE CONSTRUCTION DOCUMENTS AND THE APPROVED SUBMITTALS SHALL BE VERIFIED	SUBMITTAL REVIEW AND FIELD INSPECTION	Y	PERIODIC
2. VERIFICATION OF f'_M AND f'_{AAC} PRIOR TO CONSTRUCTION EXCEPT WHERE SPECIFICALLY EXEMPTED BY THIS CODE	SUBMITTAL REVIEW AND/OR SHOP (3)	Y	PERIODIC
3. VERIFICATION OF SLUMP FLOW & VSI AS DELIVERED TO THE SITE FOR SELF-CONSOLIDATING GROUT	FIELD INSPECTION AND TESTING	Y	CONTINUOUS
4. AS MASONRY CONSTRUCTION BEGINS, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:	FIELD INSPECTION	Y	
A. PROPORTIONS OF SITE-PREPARED MORTAR			PERIODIC
B. CONSTRUCTION OF MORTAR JOINTS			PERIODIC
C. LOCATION OF REINFORCEMENT, CONNECTORS, PRESTRESSING TENDONS, AND ANCHORAGES			PERIODIC
D. PRESTRESSING TECHNIQUE			PERIODIC
E. GRADE & SIZE OF PRESTRESSING TENDONS AND ANCHORAGES			PERIODIC
F. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY			CONTINUOUS FOR 1ST 5000 SQ. FT; THEN PERIODIC
5. PRIOR TO GROUTING, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:	FIELD INSPECTION	Y	
A. GROUT SPACE IS CLEAN			PERIODIC
B. PLACEMENT OF REINFORCEMENT AND CONNECTORS, AND PRESTRESSING TENDONS AND ANCHORAGES			PERIODIC
C. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS			PERIODIC
D. CONSTRUCTION OF MORTAR JOINTS			PERIODIC
E. GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES			PERIODIC
6. DURING CONSTRUCTION, THE INSPECTION PROGRAM SHALL VERIFY:	FIELD INSPECTION	Y	
A. SIZE AND LOCATION OF STRUCTURAL ELEMENTS			PERIODIC
B. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES OR OTHER CONSTRUCTION			PERIODIC
C. WELDING OF REINFORCING BARS			CONTINUOUS
D. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMP BELOW 40 DEG. F) OR HOT WEATHER (TEMP ABOVE 90 DEG. F)			PERIODIC
E. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE			CONTINUOUS
F. PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS IS IN COMPLIANCE			CONTINUOUS
G. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS			CONTINUOUS FOR 1ST 5000 SQ. FT; THEN PERIODIC
7. PREPARATION OF ANY REQUIRED GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS SHALL BE OBSERVED	FIELD INSPECTION	Y	PERIODIC
LEVEL C QUALITY ASSURANCE			
1. COMPLIANCE WITH REQUIRED INSPECTION PROVISIONS OF THE CONSTRUCTION DOCUMENTS AND THE APPROVED SUBMITTALS SHALL BE VERIFIED	SUBMITTAL REVIEW AND FIELD INSPECTION	Y	PERIODIC
2. VERIFICATION OF f'_M AND f'_{AAC} PRIOR TO CONSTRUCTION EXCEPT WHERE SPECIFICALLY EXEMPTED BY THIS CODE	SUBMITTAL REVIEW AND/OR SHOP (3)	Y	PERIODIC
3. VERIFICATION OF SLUMP FLOW & VSI AS DELIVERED TO THE SITE FOR SELF-CONSOLIDATING GROUT	FIELD INSPECTION AND TESTING	Y	CONTINUOUS
4. VERIFICATION OF PROPORTIONS OF MATERIALS IN PREMIXED OR PREBLENDED MORTAR, PRESTRESSING GROUT, AND OTHER GROUT OTHER THAN SELF-CONSOLIDATING GROUND, AS DELIVERED TO SITE	FIELD INSPECTION AND TESTING	Y	CONTINUOUS
5. THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:	FIELD INSPECTION	Y	
A. PROPORTIONS OF SITE-PREPARED MORTAR, GROUT, AND PRESTRESSING GROUT FOR BONDED TENDONS			PERIODIC
B. GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES			PERIODIC
C. PLACEMENT OF MASONRY UNITS AND CONSTRUCTION OF MORTAR JOINTS			PERIODIC
D. LOCATION OF REINFORCEMENT, CONNECTORS, PRESTRESSING TENDONS, AND ANCHORAGES			CONTINUOUS
E. GROUT SPACE PRIOR TO GROUTING			CONTINUOUS
F. PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS			CONTINUOUS
G. SIZE AND LOCATION OF STRUCTURAL ELEMENTS			PERIODIC
H. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES OR OTHER CONSTRUCTION			CONTINUOUS
I. WELDING OF REINFORCING BARS			CONTINUOUS
J. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMP BELOW 40 DEG. F) OR HOT WEATHER (TEMP ABOVE 90 DEG. F)			PERIODIC
K. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE			CONTINUOUS
L. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS			CONTINUOUS
M. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY			CONTINUOUS
6. PREPARATION OF ANY REQUIRED GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS SHALL BE OBSERVED	FIELD INSPECTION	Y	CONTINUOUS

1705.6 INSPECTION OF SOILS

MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	FIELD INSPECTION	Y	PERIODIC
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	FIELD INSPECTION	Y	PERIODIC
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	FIELD INSPECTION	Y	PERIODIC
4. VERIFY USE OF PROPER MATERIALS, DENSITIES, AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF CONTROLLED FILL	FIELD INSPECTION	Y	CONTINUOUS
5. PRIOR TO PLACEMENT OF CONTROLLED FILL, OBSERVE SUBGRADE AND VERIFY THAT THE SITE HAS BEEN PREPARED PROPERLY	FIELD INSPECTION	Y	PERIODIC

1705.11 INSPECTION OF WOOD CONSTRUCTION

MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT
1. VERIFY FABRICATION/QUALITY CONTROL AT FABRICATION PLANT FOR PREFABRICATED WOOD STRUCTURAL ELEMENTS AND ASSEMBLIES	SHOP (3) AND FIELD INSPECTION	Y	PERIODIC
2. FOR HIGH LOAD DIAPHRAGMS, VERIFICATION OF GRADE AND THICKNESS OF STRUCTURAL PANEL SHEATHING	SHOP (3) AND FIELD INSPECTION	Y	PERIODIC
3. FOR HIGH LOAD DIAPHRAGMS, VERIFICATION OF NOMINAL SIZE OF FRAMING MEMBERS AT ADJOINING PANEL EDGES NAIL OR STAPLE DIAMETER AND LENGTH, NUMBER OF FASTENER LINES, AND SPACING BETWEEN FASTENERS IN EACH LINE AND AT EDGE MARGINS AGREES WITH CONTRACT DOCUMENTS.	FIELD INSPECTION	Y	PERIODIC
4. INSPECTION OF FIELD GLUING OPERATIONS OF ELEMENTS OF THE LATERAL FORCE RESISTING SYSTEM	FIELD INSPECTION	Y	CONTINUOUS
5. INSPECTION OF NAILING, BOLTING, ANCHORING, AND OTHER FASTENING OF COMPONENTS WITHIN THE LATERAL FORCE RESISTING SYSTEM, INCLUDING WOOD SHEARWALLS, WOOD DIAPHRAGMS, DRAG STRUTS, BRACES, SHEAR PANELS, AND HOLDOWNS (WHERE FASTENER SPACING IS 4" ON CENTER OR LESS)	FIELD INSPECTION	Y	PERIODIC

NOTE: ADDITIONAL INSPECTION MAY BE REQUIRED FOR THE WIND/SEISMIC FORCE RESISTING SYSTEMS PER IBC 1706 & 1707.

1705.11.1 STRUCTURAL WOOD SPECIAL INSPECTIONS FOR WIND RESISTANCE

MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT
1. INSPECTION OF FIELD GLUING OPERATIONS OF ELEMENTS OF THE MAIN WINDFORCE-RESISTING SYSTEM	FIELD INSPECTION	Y	CONTINUOUS
2. INSPECTION OF NAILING, BOLTING, ANCHORING AND OTHER FASTENING OF COMPONENTS WITHIN THE MAIN WINDFORCE-RESISTING SYSTEM	SHOP (3) AND FIELD INSPECTION	Y	PERIODIC

1705.11.2 COLD-FORMED STEEL SPECIAL INSPECTIONS FOR WIND RESISTANCE

MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT
1. INSPECTION DURING WELDING OPERATIONS OF ELEMENTS OF THE MAIN WINDFORCE-RESISTING SYSTEM	SHOP (3) AND FIELD INSPECTION	N	PERIODIC
2.INSPECTIONS FOR SCREW ATTACHMENT, BOLTING, ANCHORING AND OTHER FASTENING OF COMPONENTS WITHIN THE MAIN WINDFORCE-RESISTING SYSTEM	SHOP (3) AND FIELD INSPECTION	N	PERIODIC

1705.11.3 WIND-RESISTING COMPONENTS

MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT
1. ROOF CLADDING	SHOP (3) AND FIELD INSPECTION	Y	PERIODIC
2. WALL CLADDING	SHOP (3) AND FIELD INSPECTION	Y	PERIODIC

1705.14 SPRAYED FIRE RESISTANT MATERIALS

MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT
1. VERIFY SURFACE CONDITION PREPARATION OF STRUCTURAL MEMBERS	FIELD INSPECTION	Y	PERIODIC
2. VERIFY APPLICATION OF SPRAYED FIRE-RESISTANT MATERIALS	FIELD INSPECTION	Y	PERIODIC
3. VERIFY AVERAGE THICKNESS OF SPRAYED FIRE-RESISTANT MATERIALS APPLIED TO STRUCTURAL MEMBERS	FIELD INSPECTION	Y	PERIODIC
4. VERIFY DENSITY OF THE SPRAYED FIRE-RESISTANT MATERIAL COMPLIES WITH APPROVED FIRE-RESISTANT DESIGN	FIELD INSPECTION AND TESTING	Y	PER IBC SECTION 1705.13.5
5. VERIFY THE COHESIVE/ADHESIVE BOND STRENGTH OF THE CURED SPRAYED FIRE-RESISTANT MATERIAL	FIELD INSPECTION AND TESTING	Y	PER IBC SECTION 1705.13.6

1705.15 MASTIC AND INTUMESCENT FIRE-RESISTANT COATINGS

MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT
INSPECT MASTIC AND INTUMESCENT FIRE-RESISTANT COATINGS APPLIED TO STRUCTURAL ELEMENTS AND DECKS	FIELD INSPECTION	Y	PERIODIC

1705.16 EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS)

MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT
1. VERIFY MATERIALS, DETAILS AND INSTALLATIONS ARE PER THE APPROVED CONSTRUCTION DOCUMENTS	FIELD INSPECTION	Y	PERIODIC
2. INSPECTION OF WATER-RESISTIVE BARRIER OVER SHEATHING SUBSTRATE	FIELD INSPECTION	Y	PERIODIC

1705.17 FIRE-RESISTANT PENETRATIONS AND JOINTS

MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT
1. INSPECT PENETRATION FIRESTOP SYSTEMS	FIELD TESTING	Y	PER ASTM E2174
2. INSPECT FIRE-RESISTANT JOINT SYSTEMS	FIELD TESTING	Y	PER ASTM E2393

1705.18 SMOKE CONTROL SYSTEMS

MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT
1. LEAKAGE TESTING AND RECORDING OF DEVICE LOCATIONS PRIOR TO CONCEALMENT	FIELD TESTING	Y	PERIODIC
2. PRIOR TO OCCUPANCY AND AFTER SUFFICIENT COMPLETION, PRESSURE DIFFERENCE TESTING, FLOW MEASUREMENTS, AND DETECTION AND CONTROL VERIFICATION	FIELD TESTING	Y	PERIODIC

(3) SPECIAL INSPECTIONS AS REQUIRED BY SECTION 1704.2.5 ARE NOT REQUIRED WHERE THE FABRICATOR IS APPROVED IN ACCORDANCE WITH IBC SECTION 1704.2.5.1

(4) OBSERVE ON A RANDOM BASIS; OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS. PERFORM THESE TASKS FOR EACH WELDED JOINT, BOLTED CONNECTION, OR STEEL ELEMENT.

(5) NDT OF WELDS COMPLETED IN AN APPROVED FABRICATOR'S SHOP MAY BE PERFORMED BY THAT FABRICATOR WHEN APPROVED BY THE AJH. REFER TO AISC 360, N7.

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SCOTT M. ROSEMANN
NUMBER PE-2008002204
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
SPECIAL INSPECTIONS

PROJECT NUMBER: 23034

SHEET NUMBER:
S-003

DRAWN BY: SAH
CHECKED BY: MIH

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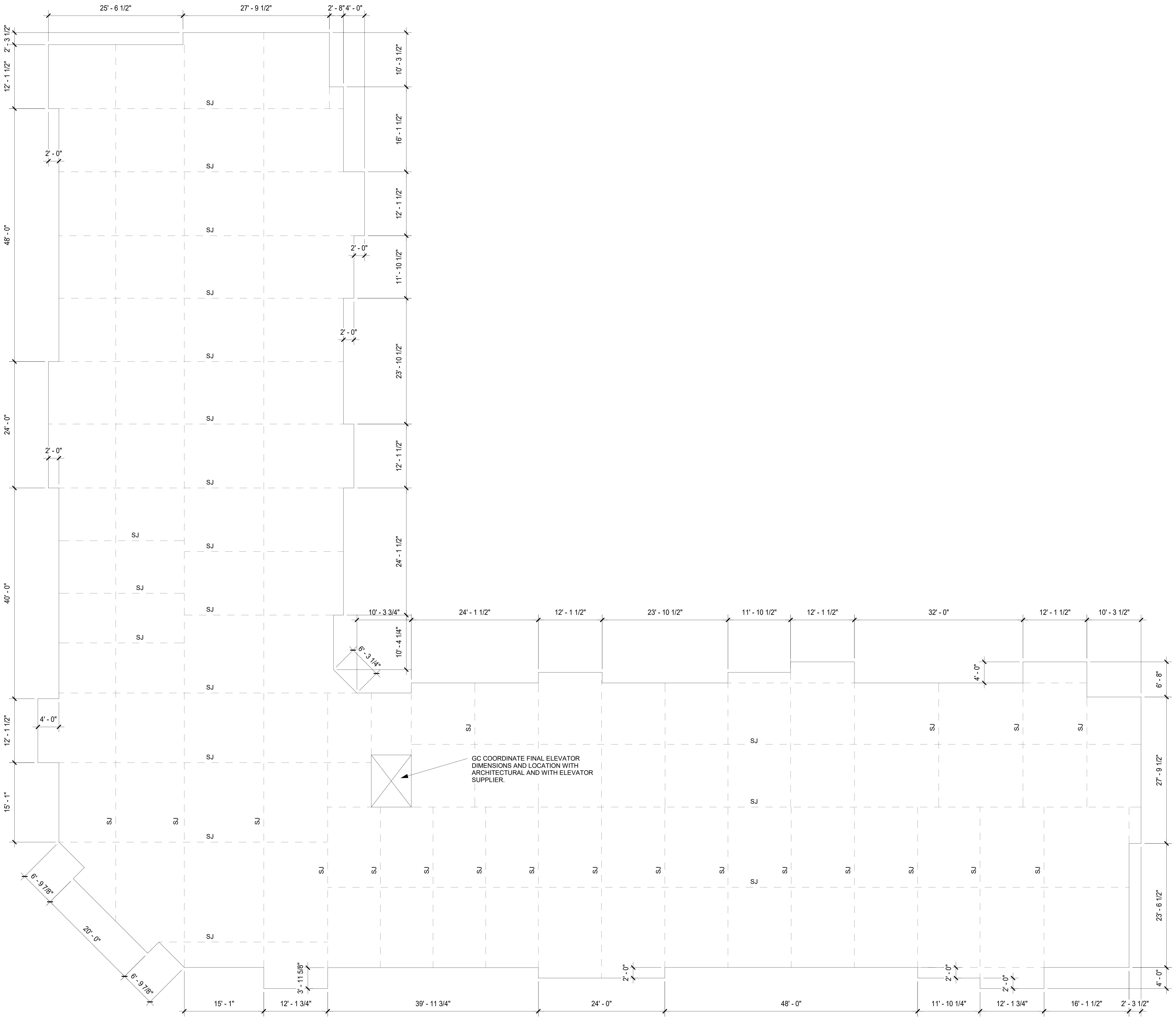

GC COORDINATE FINAL ELEVATOR DIMENSIONS AND LOCATION WITH ARCHITECTURAL AND WITH ELEVATOR SUPPLIER.

1 Slab Dimension Plan

3/32" = 1'-0"

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SCOTT M. ROSEMANN
NUMBER PE-2008002204
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
SLAB DIMENSION PLAN

PROJECT NUMBER: 23034

SHEET NUMBER:

S-100

DRAWN BY: SAH
CHECKED BY: MIH

SHEATHING ATTACHMENT SCHEDULE

FLOOR	WALL TYPE		
	"SHEAR WALLS"	EXTERIOR	CORRIDOR
3RD	5/8" GYP BD DIRECTLY APPLIED TO "SHEARWALL" SIDE w/ 6d NAILS @ 7" O.C. - UNBLOCKED	7/16" OSB SHEATHING ON EXTERIOR SIDE w/ 8d NAILS @ 6" O.C. & 5/8" GYP BD ON INT. SIDE w/ 6d NAILS @ 7" O.C.	5/8" GYP BD DIRECTLY APPLIED TO ONE SIDE w/ 6d NAILS @ 7" O.C. - UNBLOCKED
2ND	TWO-PLY 5/8" GYP BD: BASE SHEET: 6d NAILS @ 9" O.C. - BLOCKED FACE SHEET: 8d NAILS @ 7" O.C. - BLOCKED	7/16" OSB SHEATHING ON EXTERIOR SIDE w/ 8d NAILS @ 6" O.C. & 5/8" GYP BD ON INT. SIDE w/ 6d NAILS @ 7" O.C.	5/8" GYP BD DIRECTLY APPLIED TO ONE SIDE w/ 6d NAILS @ 7" O.C. - UNBLOCKED
1ST	7/16" OSB SHEATHING ON "SHEAR WALL" SIDE w/ 8d NAILS @ 6" O.C.- BLOCKED	7/16" OSB SHEATHING ON EXTERIOR SIDE w/ 8d NAILS @ 6" O.C. & 5/8" GYP BD ON INT. SIDE w/ 6d NAILS @ 7" O.C.	5/8" GYP BD DIRECTLY APPLIED TO ONE SIDE w/ 6d NAILS @ 7" O.C. - UNBLOCKED

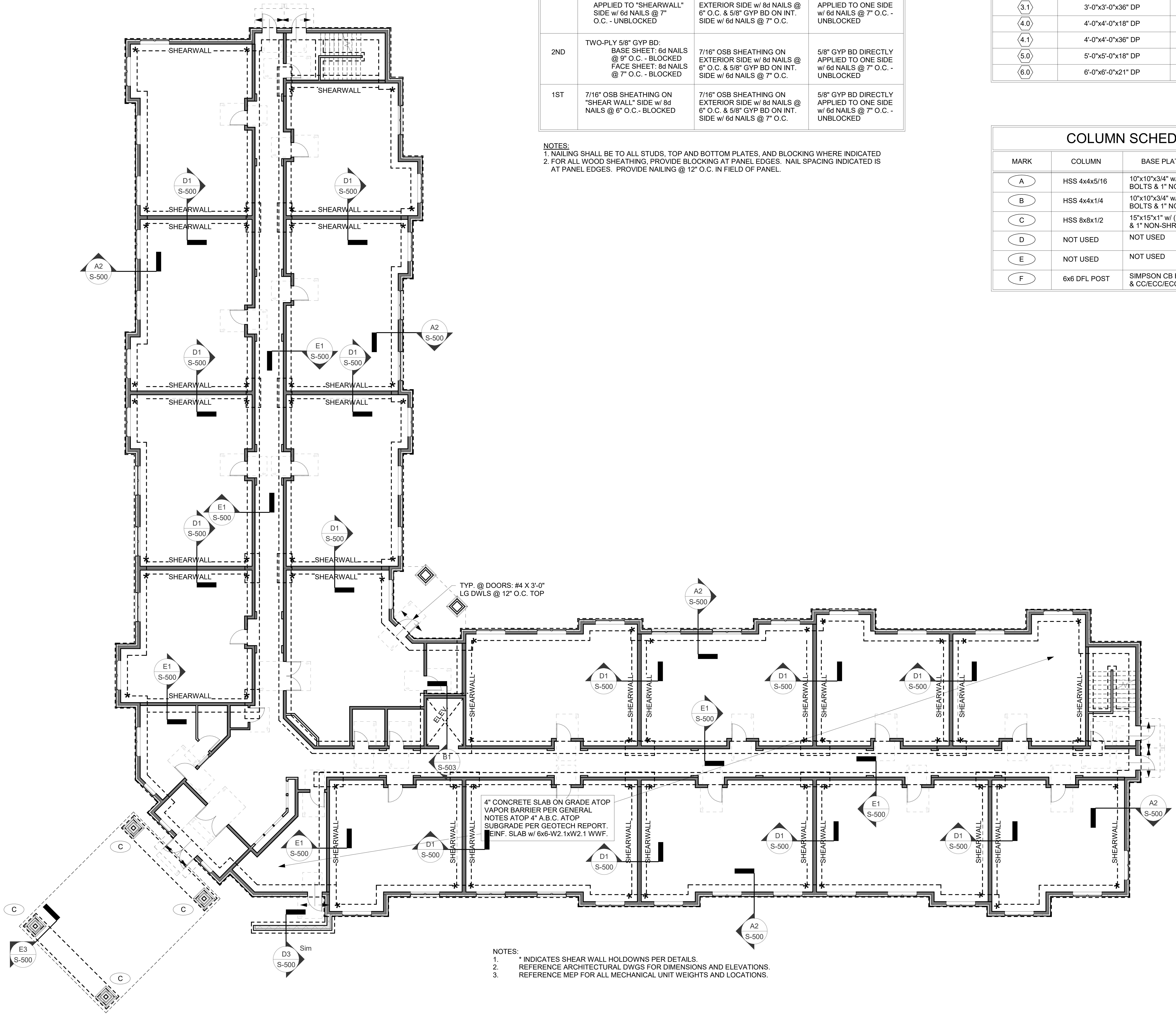
NOTES:
1. NAILING SHALL BE TO ALL STUDS, TOP AND BOTTOM PLATES, AND BLOCKING WHERE INDICATED
2. FOR ALL WOOD SHEATHING, PROVIDE BLOCKING AT PANEL EDGES. NAIL SPACING INDICATED IS AT PANEL EDGES. PROVIDE NAILING @ 12" O.C. IN FIELD OF PANEL.

FOOTING SCHEDULE

MARK	FOOTING SIZE	REINFORCING (TOP & BOTTOM)
3.0	3'-0"x3'-0"x18" DP	#6 @ 12" O.C.
3.1	3'-0"x3'-0"x36" DP	#6 @ 12" O.C.
4.0	4'-0"x4'-0"x18" DP	#6 @ 12" O.C.
4.1	4'-0"x4'-0"x36" DP	#6 @ 12" O.C.
5.0	5'-0"x5'-0"x18" DP	#6 @ 12" O.C.
6.0	6'-0"x6'-0"x21" DP	#6 @ 12" O.C.

COLUMN SCHEDULE

MARK	COLUMN	BASE PLATE & ANCHOR BOLTS
A	HSS 4x4x5/16	10"x10"x3/4" w/ (4)3/4" DIA. X 18" LG BOLTS & 1" NON-SHRINK GROUT
B	HSS 4x4x1/4	10"x10"x3/4" w/ (4)3/4" DIA. X 18" LG BOLTS & 1" NON-SHRINK GROUT
C	HSS 8x8x1/2	15"x15"x1" w/ (8)1" DIA. X 18" LG BOLTS & 1" NON-SHRINK GROUT
D	NOT USED	NOT USED
E	NOT USED	NOT USED
F	6x6 DFL POST	SIMPSON CB BASE (CAST IN FOOTING) & CC/ECC/ECCL CAP



TYP. @ DOORS: #4 X 3'-0" LG DWLS @ 12" O.C. TOP

4" CONCRETE SLAB ON GRADE ATOP VAPOR BARRIER PER GENERAL NOTES ATOP 4" A.B.C. ATOP SUBGRADE PER GEOTECH REPORT. REINF. SLAB w/ 6x6-W2.1xW2.1 WWF.

NOTES:
1. * INDICATES SHEAR WALL HOLDOWNS PER DETAILS.
2. REFERENCE ARCHITECTURAL DWGS FOR DIMENSIONS AND ELEVATIONS.
3. REFERENCE MEP FOR ALL MECHANICAL UNIT WEIGHTS AND LOCATIONS.

1 Foundation Plan
3/32" = 1'-0"

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SCOTT M. ROSEMANN
PE-2006002204
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

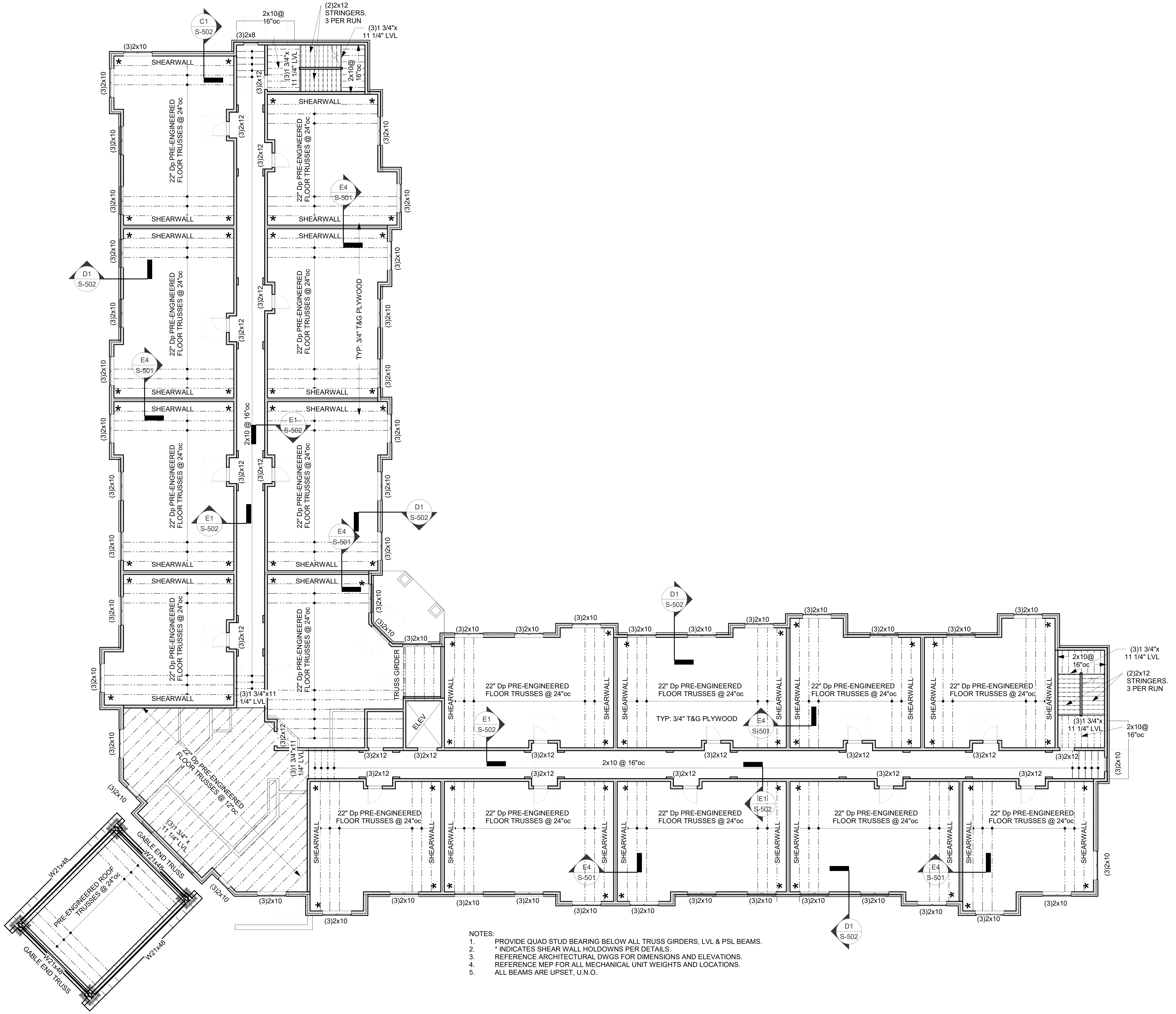
SHEET TITLE
FOUNDATION PLAN

PROJECT NUMBER: 23034

SHEET NUMBER:

S-101

DRAWN BY: SAH
CHECKED BY: MIH



NOTES:
1. PROVIDE QUAD STUD BEARING BELOW ALL TRUSS GIRDERS, LVL & PSL BEAMS.
2. * INDICATES SHEAR WALL HOLDOWNS PER DETAILS.
3. REFERENCE ARCHITECTURAL DWGS FOR DIMENSIONS AND ELEVATIONS.
4. REFERENCE MEP FOR ALL MECHANICAL UNIT WEIGHTS AND LOCATIONS.
5. ALL BEAMS ARE UPSET, U.N.O.

1 2nd Floor Framing Plan
3/32" = 1'-0"

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NUMBER PE-2008002204
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
2ND FLOOR FRAMING PLAN

PROJECT NUMBER: 23034

SHEET NUMBER:
S-102

DRAWN BY: SAH CHECKED BY: MIH

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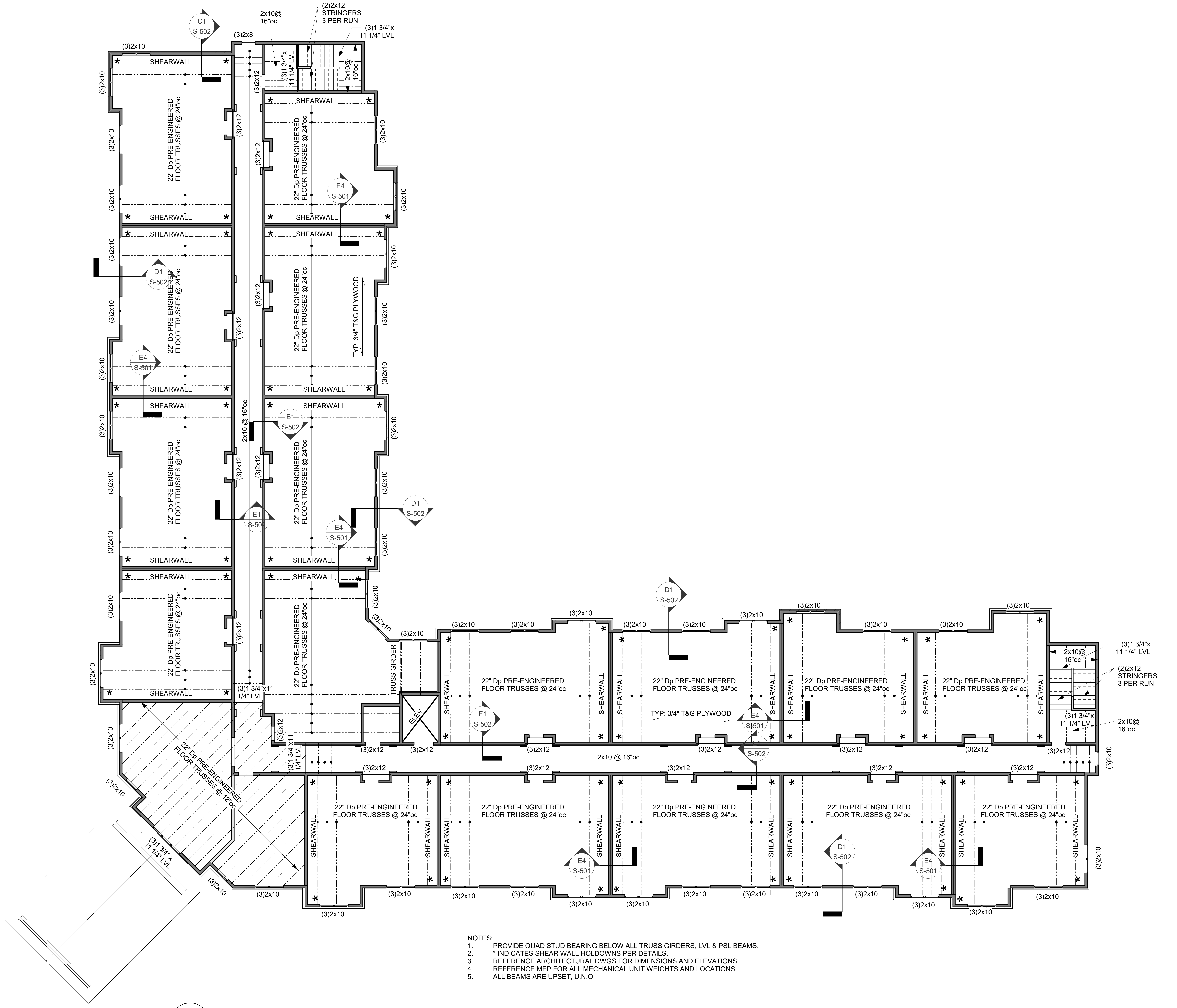

NOTES:
1. PROVIDE QUAD STUD BEARING BELOW ALL TRUSS GIRDERS, LVL & PSL BEAMS.
2. * INDICATES SHEAR WALL HOLDOWNS PER DETAILS.
3. REFERENCE ARCHITECTURAL DWGS FOR DIMENSIONS AND ELEVATIONS.
4. REFERENCE MEP FOR ALL MECHANICAL UNIT WEIGHTS AND LOCATIONS.
5. ALL BEAMS ARE UPSET, U.N.O.

1 3rd Floor Framing Plan
3/32" = 1'-0"

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NUMBER PE-2003002204
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
3RD FLOOR FRAMING PLANS

PROJECT NUMBER: 23034

SHEET NUMBER:

S-103

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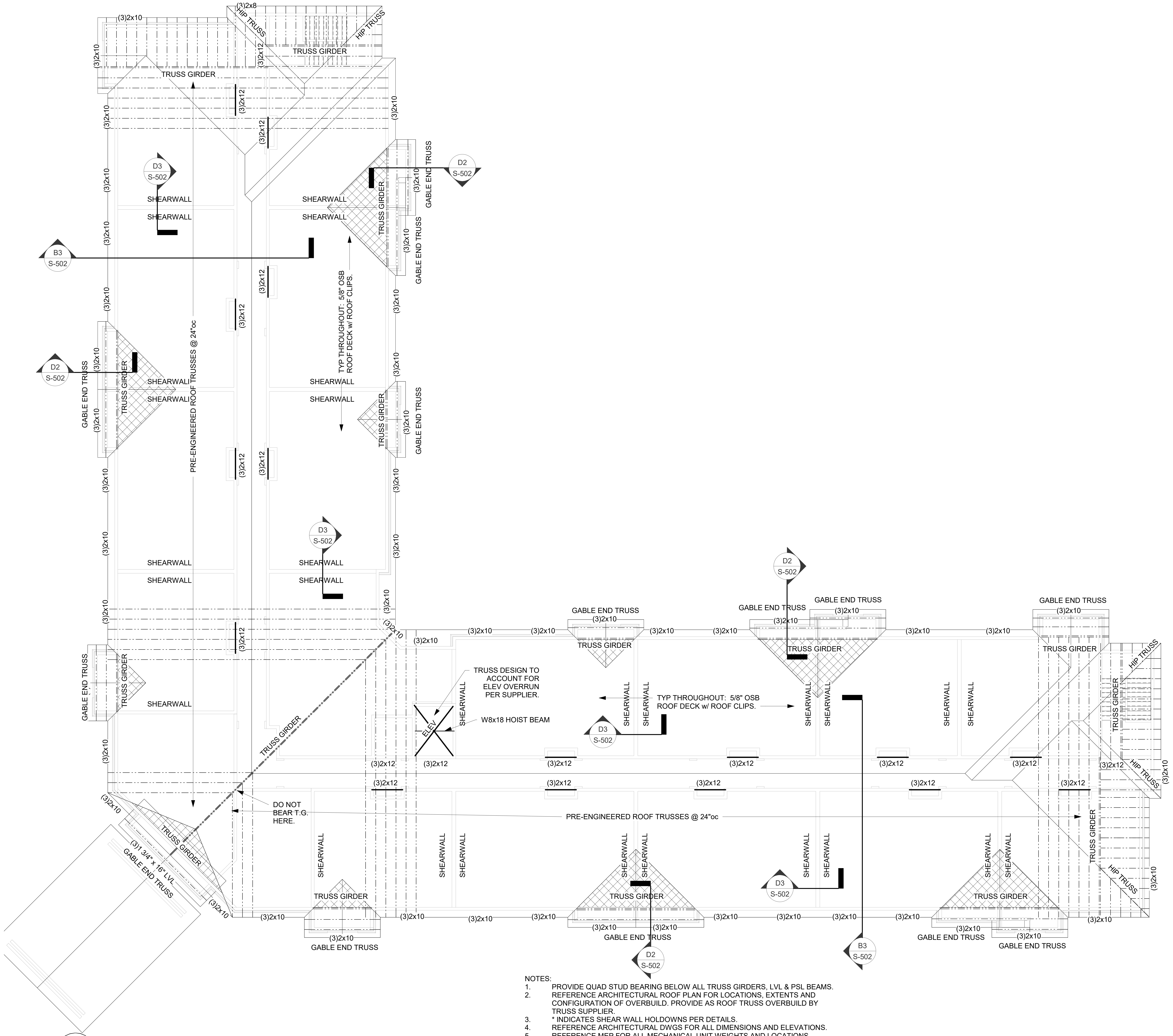

NOTES:
1. PROVIDE QUAD STUD BEARING BELOW ALL TRUSS GIRDERS, LVL & PSL BEAMS.
2. REFERENCE ARCHITECTURAL ROOF PLAN FOR LOCATIONS, EXTENTS AND CONFIGURATION OF OVERBUILD. PROVIDE AS ROOF TRUSS OVERBUILD BY TRUSS SUPPLIER.
3. * INDICATES SHEAR WALL HOLDOWNS PER DETAILS.
4. REFERENCE ARCHITECTURAL DWGS FOR ALL DIMENSIONS AND ELEVATIONS.
5. REFERENCE MEP FOR ALL MECHANICAL UNIT WEIGHTS AND LOCATIONS.
6. ALL BEAMS ARE UPSET, U.N.O.

1 Roof Framing Plan
3/32" = 1'-0"

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SCOTT M. ROSEMANN
NUMBER PE-2008002204
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

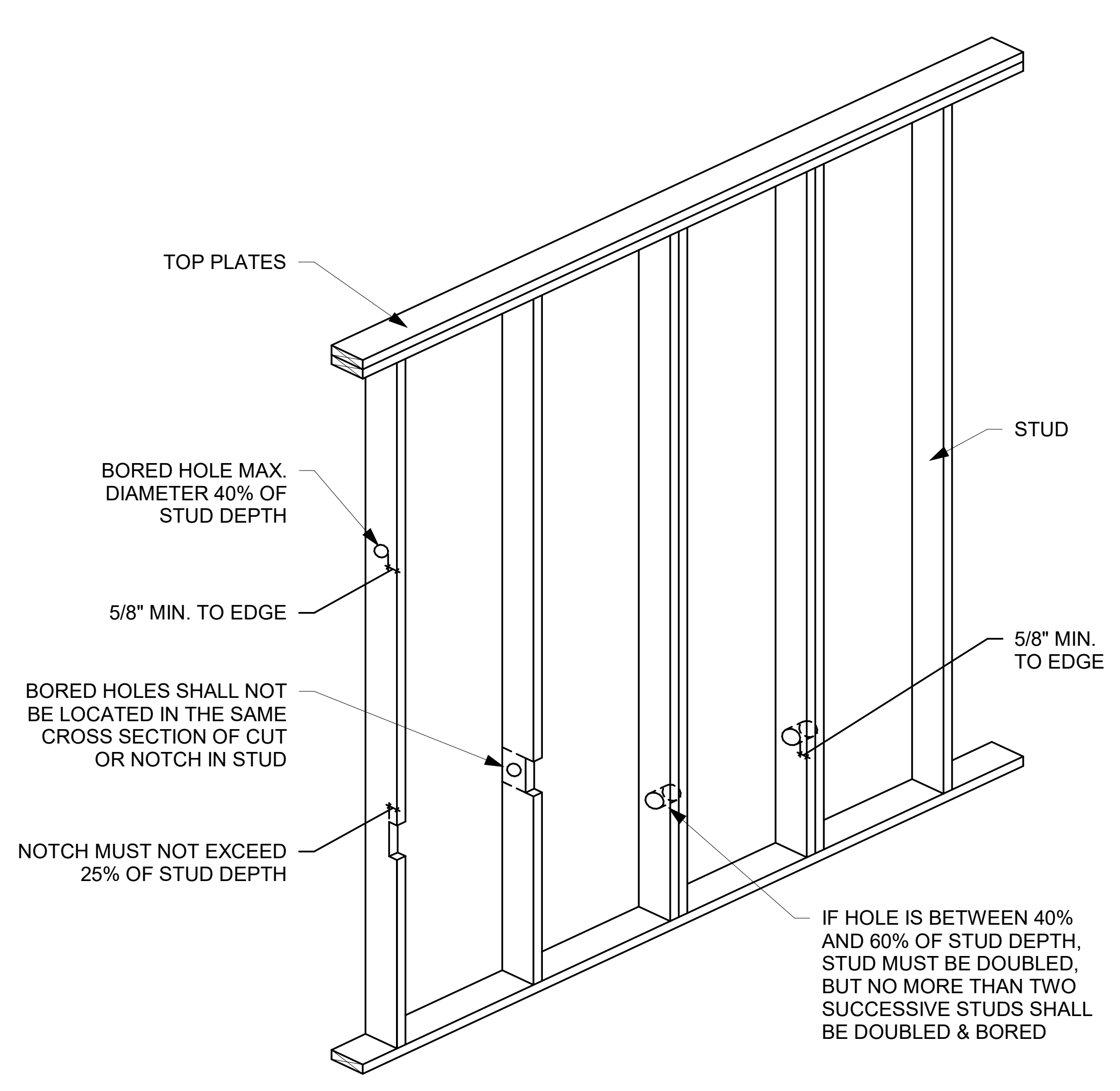
SHEET TITLE
ROOF FRAMING PLAN

PROJECT NUMBER: 23034

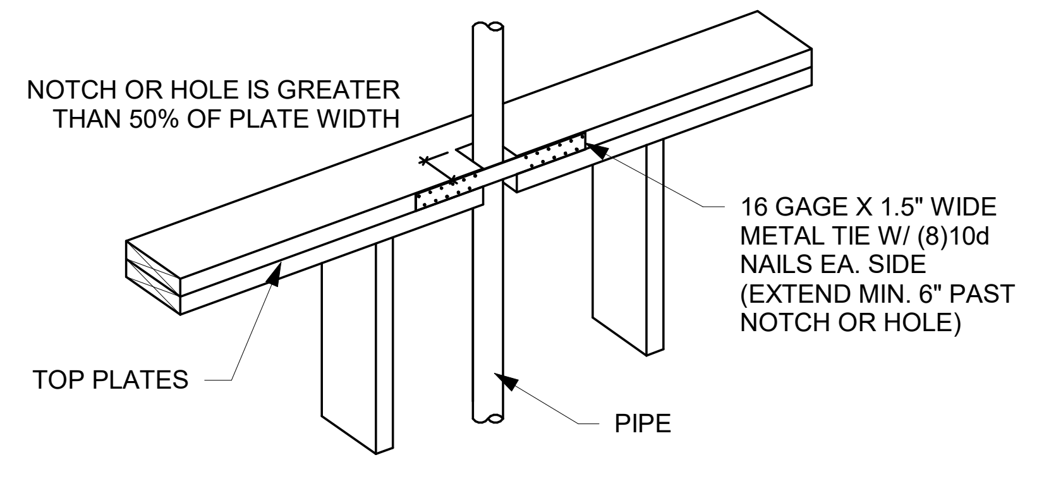
SHEET NUMBER:

S-104

DRAWN BY: SAH
CHECKED BY: MIH

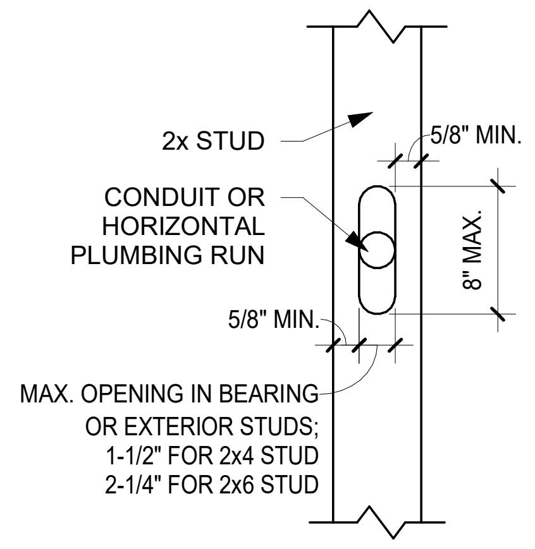

TOP PLATES
BORED HOLE MAX. DIAMETER 40% OF STUD DEPTH
5/8" MIN. TO EDGE
BORED HOLES SHALL NOT BE LOCATED IN THE SAME CROSS SECTION OF CUT OR NOTCH IN STUD
NOTCH MUST NOT EXCEED 25% OF STUD DEPTH
STUD
5/8" MIN. TO EDGE
IF HOLE IS BETWEEN 40% AND 60% OF STUD DEPTH, STUD MUST BE DOUBLED, BUT NO MORE THAN TWO SUCCESSIVE STUDS SHALL BE DOUBLED & BORED

B4 STUDS - BORED OR NOTCHED1
N.T.S.


NOTCH OR HOLE IS GREATER THAN 50% OF PLATE WIDTH
16 GAGE X 1.5" WIDE METAL TIE W/ (8)10d NAILS EA. SIDE (EXTEND MIN. 6" PAST NOTCH OR HOLE)
TOP PLATES
PIPE

EXTERIOR, BEARING, OR SHEAR WALL

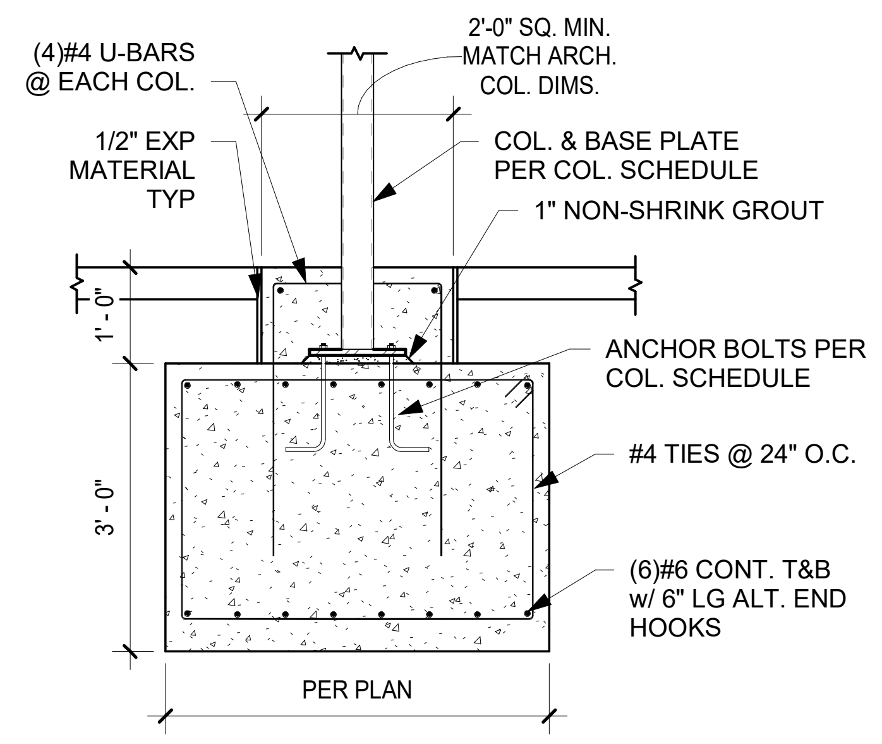
A5 PLATE PENETRATION1
N.T.S.


2x STUD
5/8" MIN.
CONDUIT OR HORIZONTAL PLUMBING RUN
8" MAX.
5/8" MIN.
MAX. OPENING IN BEARING OR EXTERIOR STUDS; 1-1/2" FOR 2x4 STUD 2-1/4" FOR 2x6 STUD

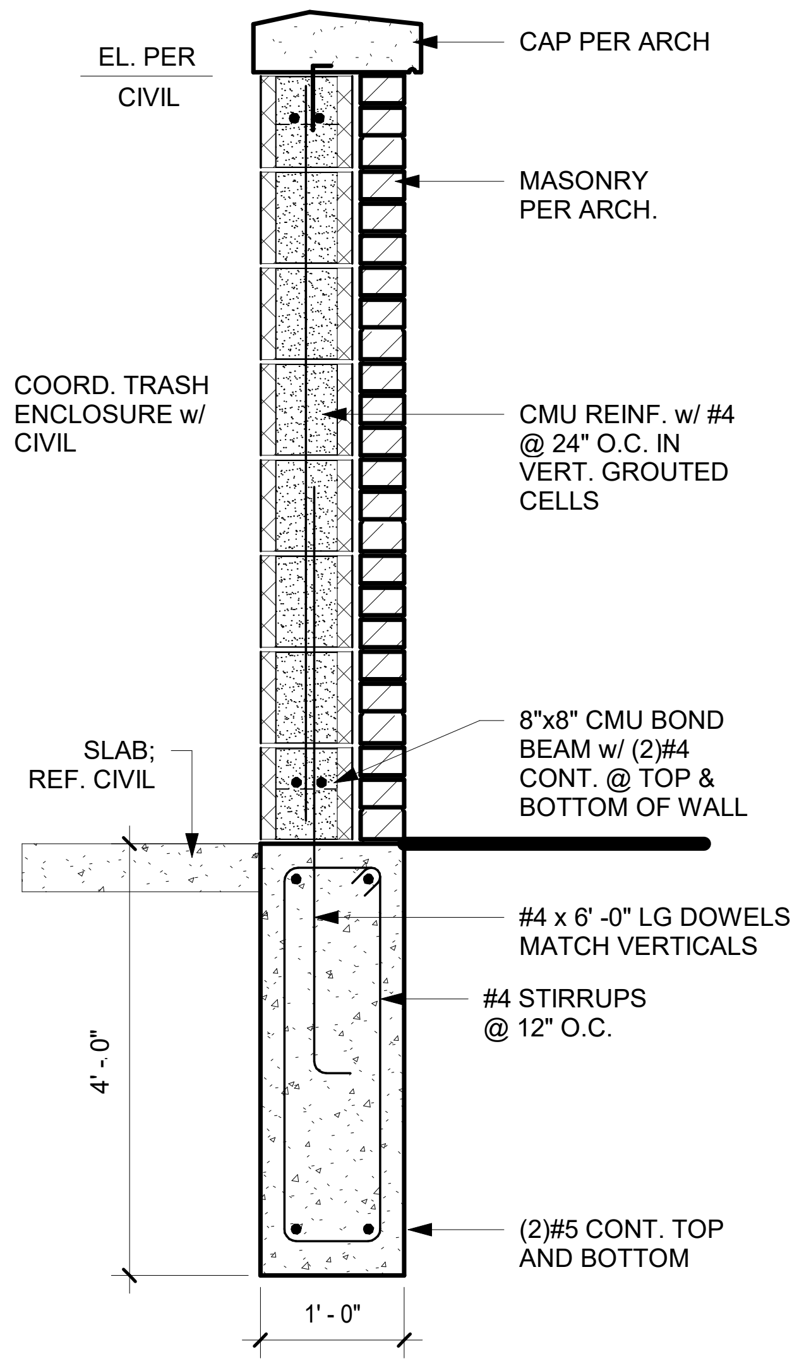
FLOOR	ANTICIPATED CUMULATIVE SHRINKAGE
5TH	1/4"
4TH	1/2"
3RD	3/4"
2ND	1"
1ST	1-1/4"

GAP REQUIRED ABOVE & BELOW

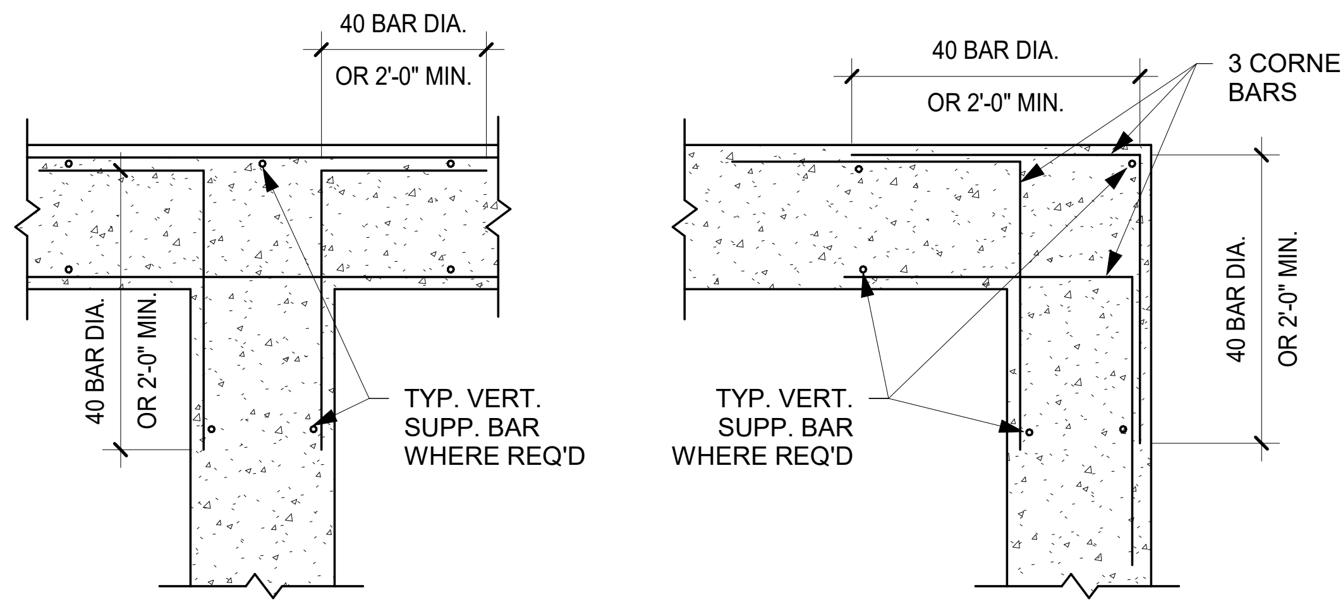
A4 STUD PENETRATION - SHRINKAGE1
N.T.S.


(4)#4 U-BARS @ EACH COL.
2'-0" SQ. MIN. MATCH ARCH. COL. DIMS.
1/2" EXP MATERIAL TYP
COL. & BASE PLATE PER COL. SCHEDULE
1" NON-SHRINK GROUT
1' - 0"
ANCHOR BOLTS PER COL. SCHEDULE
#4 TIES @ 24" O.C.
3' - 0"
(6)#6 CONT. T&B w/ 6" LG ALT. END HOOKS
PER PLAN

E3 CANOPY FOOTING
1/2" = 1'-0"

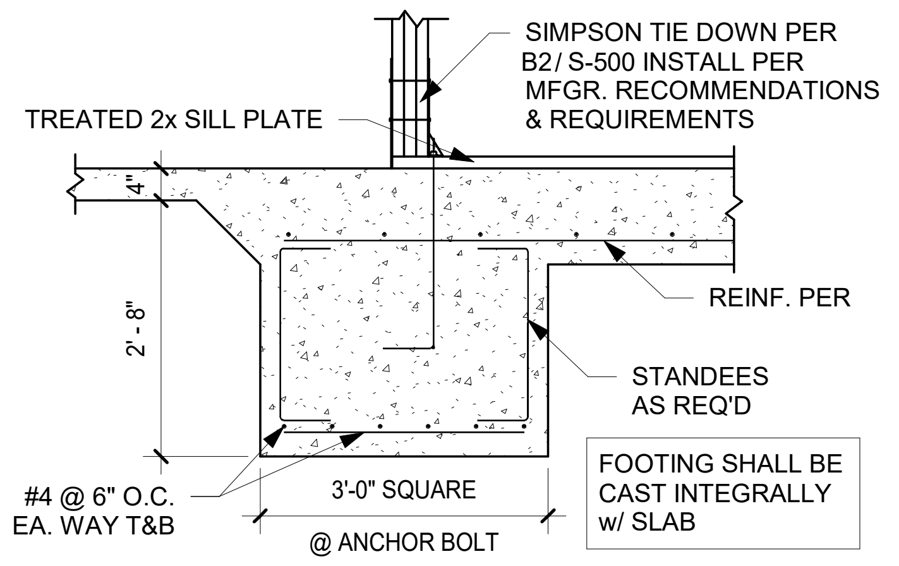

EL. PER CIVIL
CAP PER ARCH
MASONRY PER ARCH.
COORD. TRASH ENCLOSURE w/ CIVIL
CMU REINF. w/ #4 @ 24" O.C. IN VERT. GROUTED CELLS
SLAB; REF. CIVIL
8"x8" CMU BOND BEAM w/ (2)#4 CONT. @ TOP & BOTTOM OF WALL
#4 x 6' -0" LG DOWELS MATCH VERTICALS
#4 STIRRUPS @ 12" O.C.
4' - 0"
(2)#5 CONT. TOP AND BOTTOM
1' - 0"

D3 TRASH ENCLOSURE WALL SECTION2
3/4" = 1'-0"

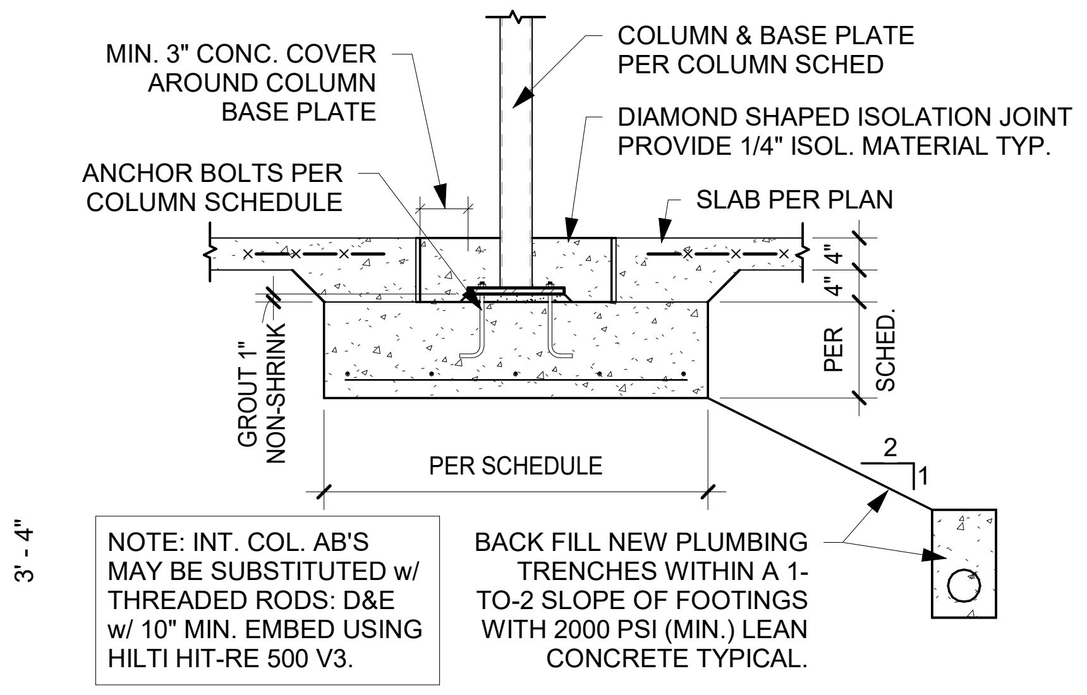

40 BAR DIA.
OR 2'-0" MIN.
40 BAR DIA. OR 2'-0" MIN.
TYP. VERT. SUPP. BAR WHERE REQ'D
40 BAR DIA.
OR 2'-0" MIN.
3 CORNER BARS
TYP. VERT. SUPP. BAR WHERE REQ'D
40 BAR DIA. OR 2'-0" MIN.

PROVIDE CORNER BARS AT ALL CORNERS IN CONCRETE WALLS, GRADE BEAMS, AND THICKENED SLABS

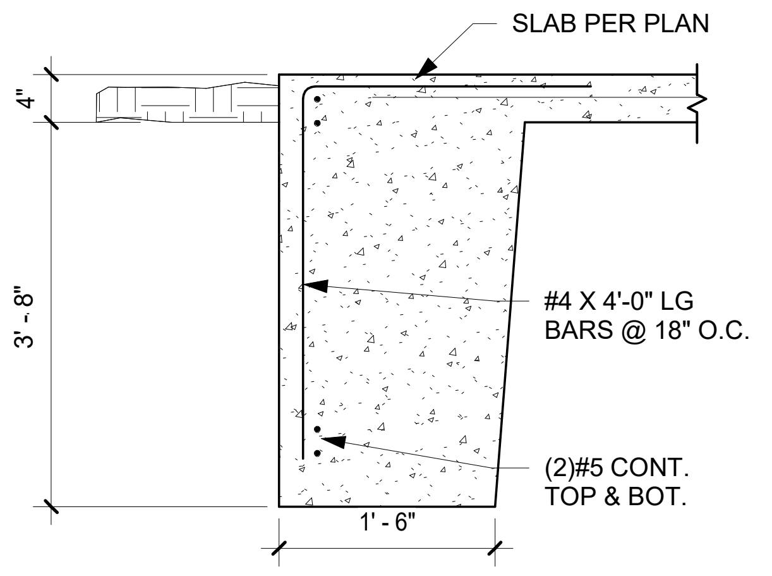
C3 TYP. CORNER BARS2
3/4" = 1'-0"


SIMPSON TIE DOWN PER B2/ S-500 INSTALL PER MFGR. RECOMMENDATIONS & REQUIREMENTS
TREATED 2x SILL PLATE
4"
2' - 8"
REINF. PER
STANDEES AS REQ'D
#4 @ 6" O.C. EA. WAY T&B
3'-0" SQUARE
@ ANCHOR BOLT
FOOTING SHALL BE CAST INTEGRALLY w/ SLAB

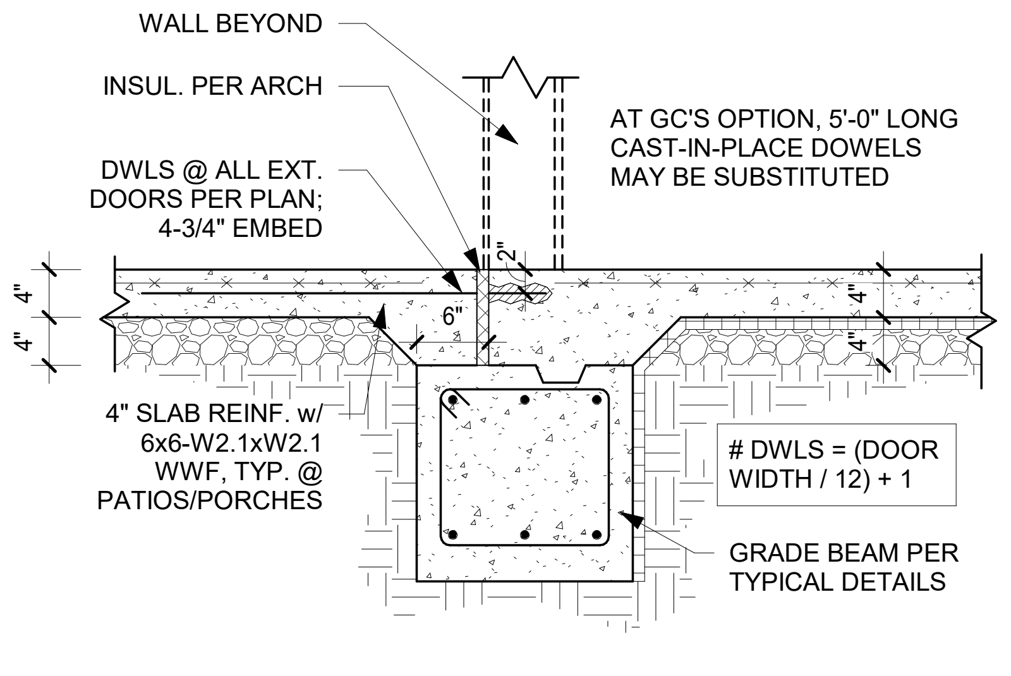
B3 SHEAR WALL FOUNDATION DETAIL1
1/2" = 1'-0"


MIN. 3" CONC. COVER AROUND COLUMN BASE PLATE
COLUMN & BASE PLATE PER COLUMN SCHED
DIAMOND SHAPED ISOLATION JOINT PROVIDE 1/4" ISOL. MATERIAL TYP.
ANCHOR BOLTS PER COLUMN SCHEDULE
SLAB PER PLAN
4"
4"
GROUT 1" NON-SHRINK
PER SCHED.
PER SCHEDULE
2
1
3' - 4"
NOTE: INT. COL. AB'S MAY BE SUBSTITUTED w/ THREADED RODS: D&E w/ 10" MIN. EMBED USING HILTI HIT-RE 500 V3.
BACK FILL NEW PLUMBING TRENCHES WITHIN A 1-TO-2 SLOPE OF FOOTINGS WITH 2000 PSI (MIN.) LEAN CONCRETE TYPICAL.

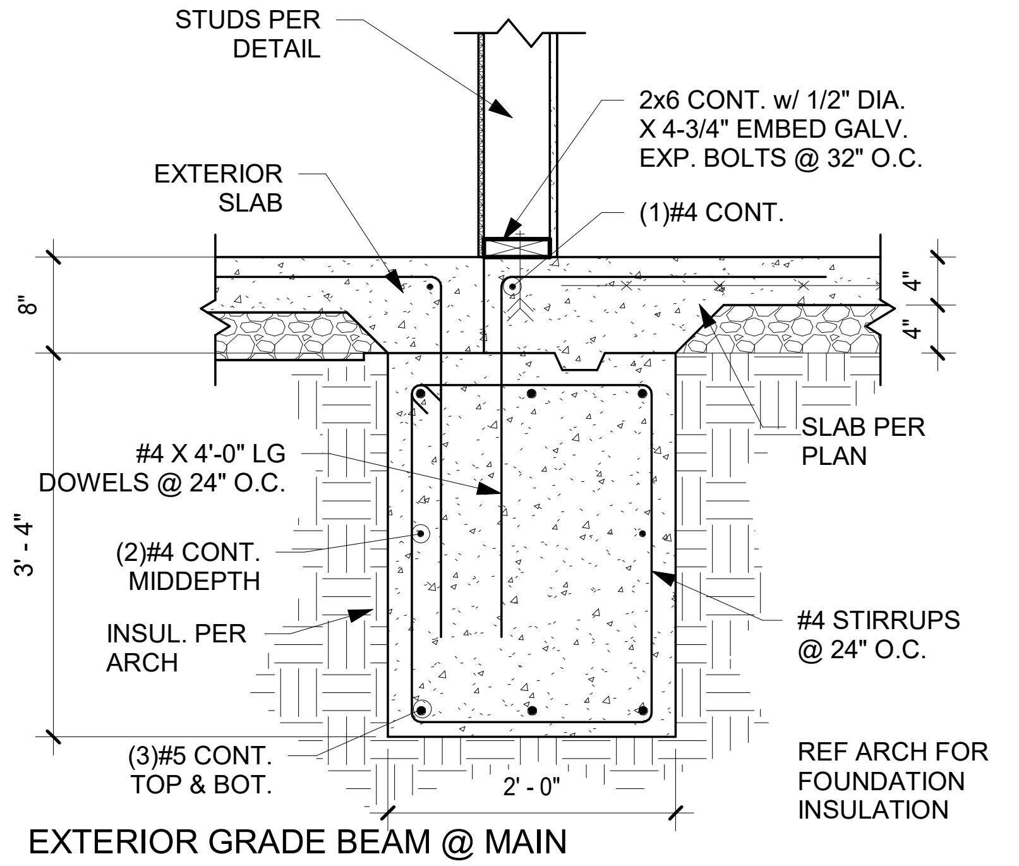
A3 TYP. COLUMN FOOTING1
1/2" = 1'-0"



E2 SLAB TURNDOWN
3/4" = 1'-0"


WALL BEYOND
INSUL. PER ARCH
AT GC'S OPTION, 5'-0" LONG CAST-IN-PLACE DOWELS MAY BE SUBSTITUTED
DWLS @ ALL EXT. DOORS PER PLAN; 4-3/4" EMBED
4"
4"
6"
4"
4" SLAB REINF. w/ 6x6-W2.1xW2.1 WWF, TYP. @ PATIOS/PORCHES
# DWLS = (DOOR WIDTH / 12) + 1
GRADE BEAM PER TYPICAL DETAILS

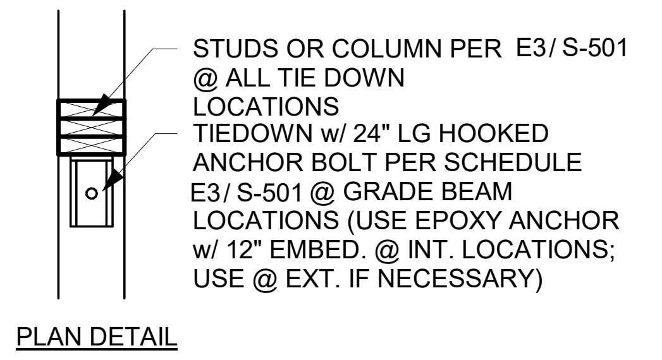
D2 TYP. FNDN @ EXTERIOR DOOR
3/4" = 1'-0"



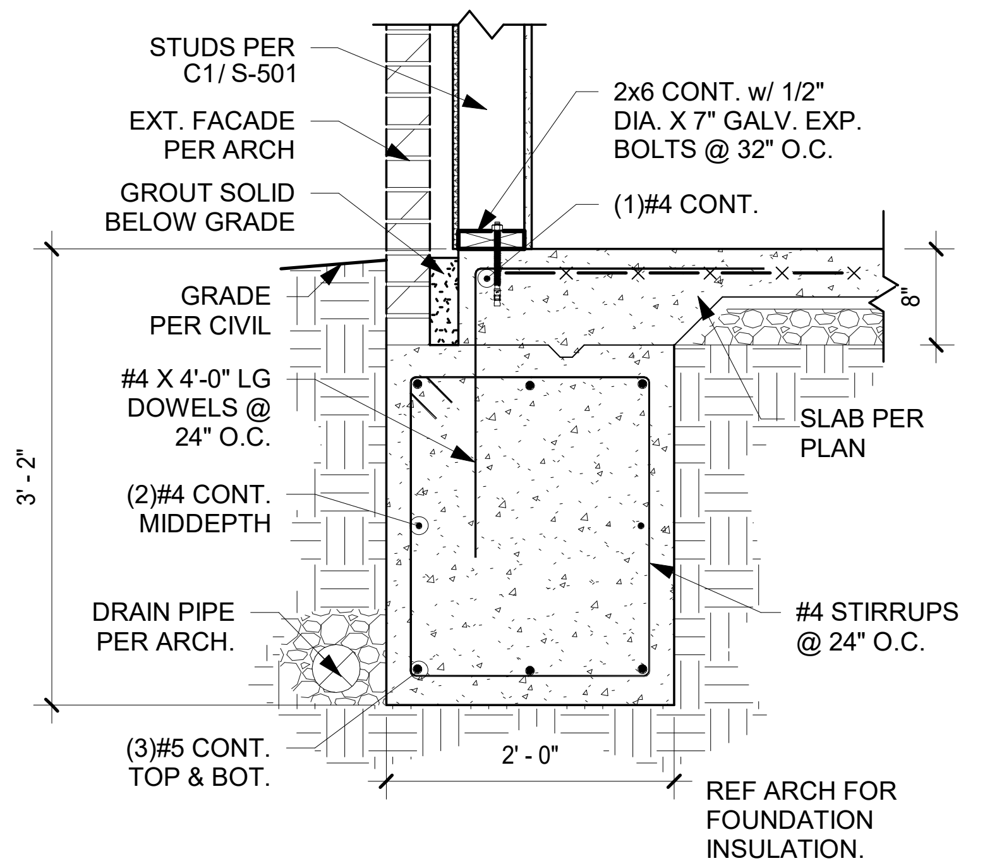
EXTERIOR GRADE BEAM @ MAIN ENTRANCE

C2 3/4" = 1'-0"

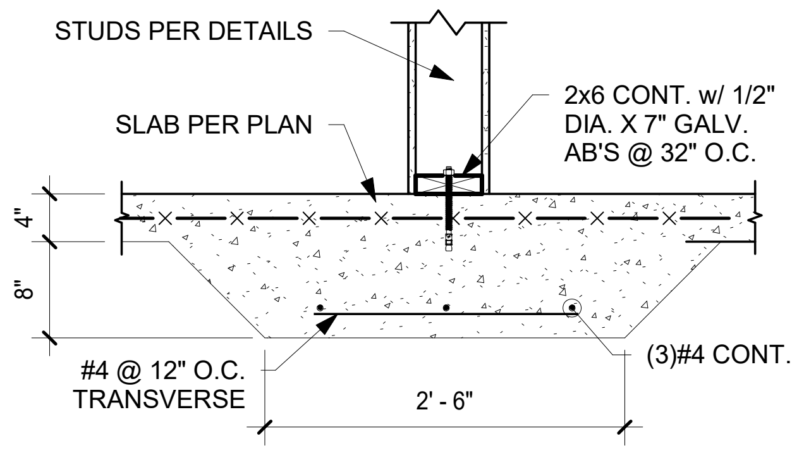
NOTE: PROVIDE FOUNDATION PER B4/S-500 BELOW HOLDOWNS


STUDS OR COLUMN PER E3/ S-501 @ ALL TIE DOWN LOCATIONS
TIEDOWN w/ 24" LG HOOKED ANCHOR BOLT PER SCHEDULE E3/ S-501 @ GRADE BEAM LOCATIONS (USE EPOXY ANCHOR w/ 12" EMBED. @ INT. LOCATIONS; USE @ EXT. IF NECESSARY)
PLAN DETAIL

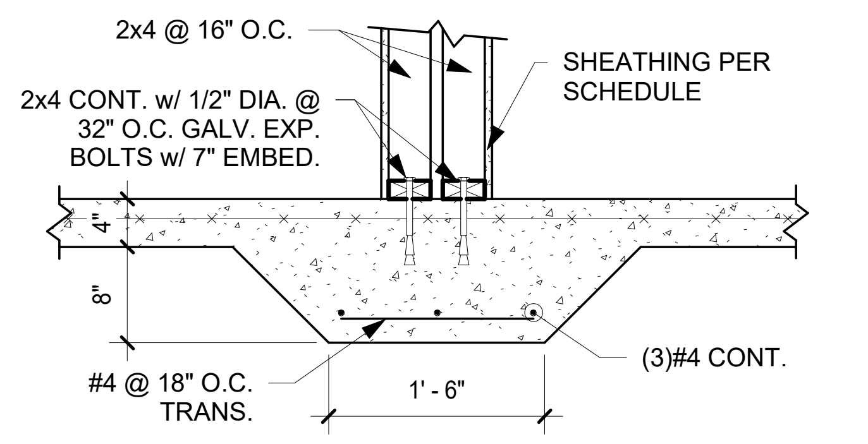
B2 TYP. SHEARWALL FOUNDATION ANCHOR1
3/4" = 1'-0"



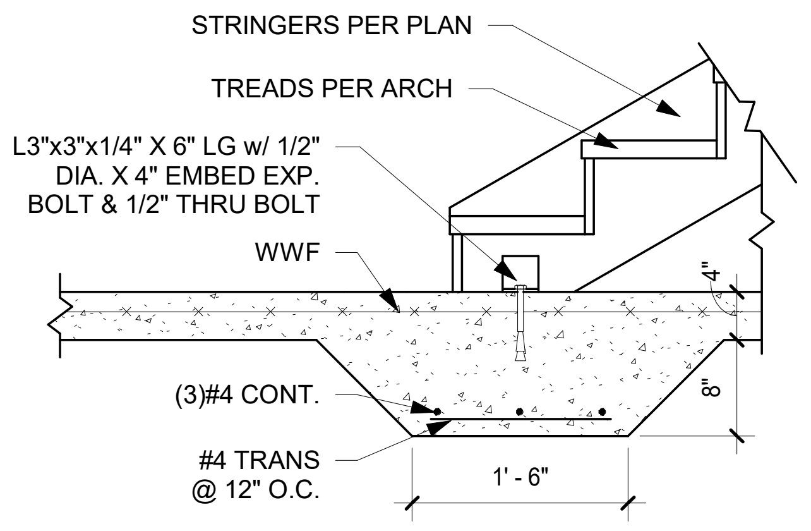
A2 EXTERIOR GRADE BEAM
3/4" = 1'-0"



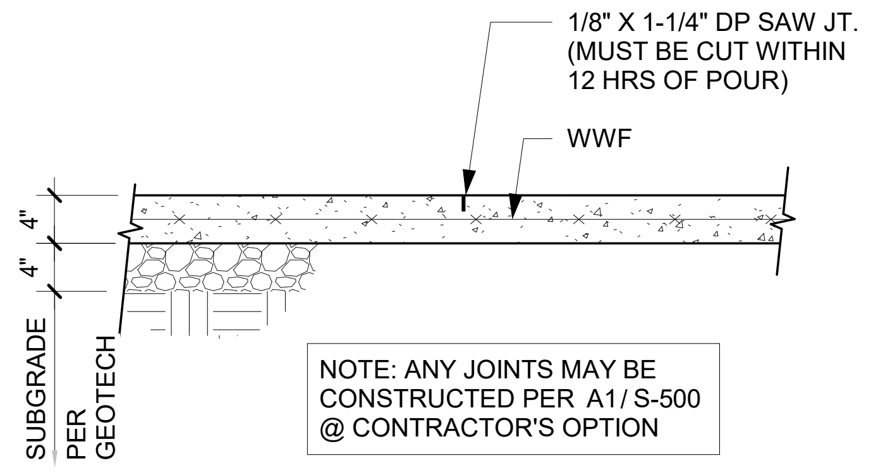
E1 THICKENED SLAB AT CORRIDOR1
3/4" = 1'-0"



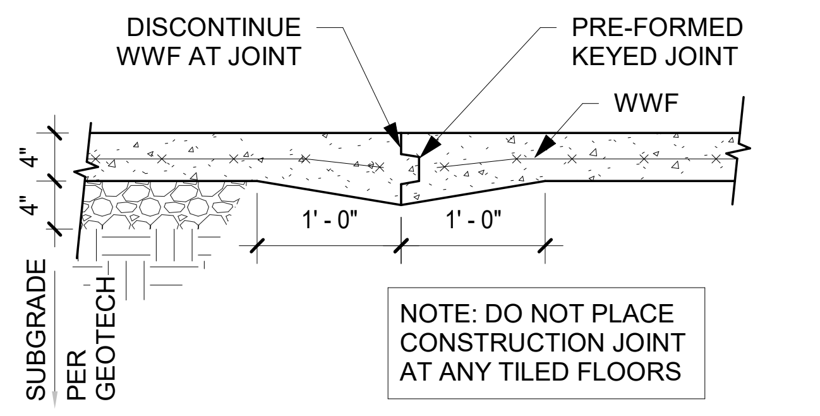
D1 THICKENED SLAB AT SHEARWALL
3/4" = 1'-0"



C1 THICKENED SLAB AT STAIR2
3/4" = 1'-0"


1/8" X 1-1/4" DP SAW JT. (MUST BE CUT WITHIN 12 HRS OF POUR)
WWF
4"
SUBGRADE PER GEOTECH
NOTE: ANY JOINTS MAY BE CONSTRUCTED PER A1/ S-500 @ CONTRACTOR'S OPTION

B1 TYP. SAW JOINT2
3/4" = 1'-0"



A1 TYP. CONSTRUCTION JOINT2
3/4" = 1'-0"

PRINTS ISSUED
10/30/23 - PERMIT SUBMITTAL

REVISIONS:

rosemann & ASSOCIATES P.C.
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INTERIOR DESIGN
ENGINEERING
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SCOTT M. ROSEMANN
PE-2008002204
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
STRUCTURAL DETAILS

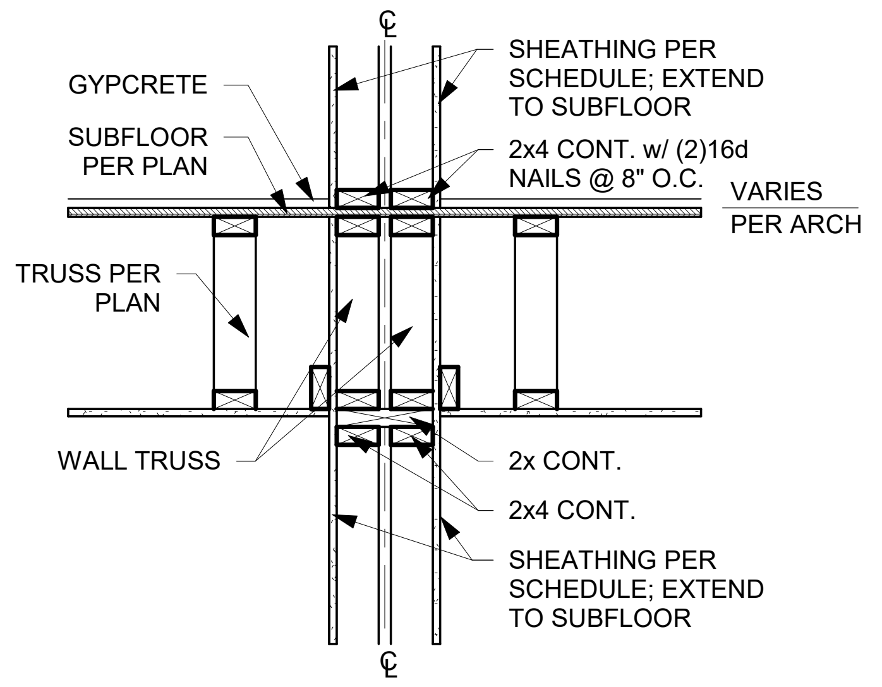
PROJECT NUMBER: 23034

SHEET NUMBER:

S-500

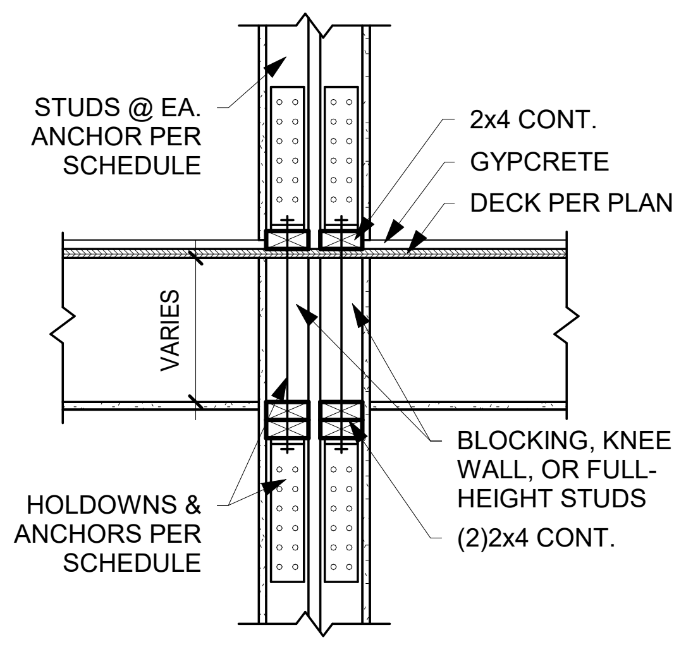
DRAWN BY: SAH CHECKED BY: MIH

10/31/2023 8:38:54 AM
C:\Revit Local Cache\2023\23034_Wilshire Hills III_STRUCTURAL_Central_R23_revit38ACBAW.rvt


GYPCRETE
SUBFLOOR PER PLAN
TRUSS PER PLAN
WALL TRUSS
SHEATHING PER SCHEDULE; EXTEND TO SUBFLOOR
2x4 CONT. w/ (2)16d NAILS @ 8" O.C.
VARIES PER ARCH
2x CONT.
2x4 CONT.
SHEATHING PER SCHEDULE; EXTEND TO SUBFLOOR

REF ARCH FOR ALL RATED ASSEMBLIES

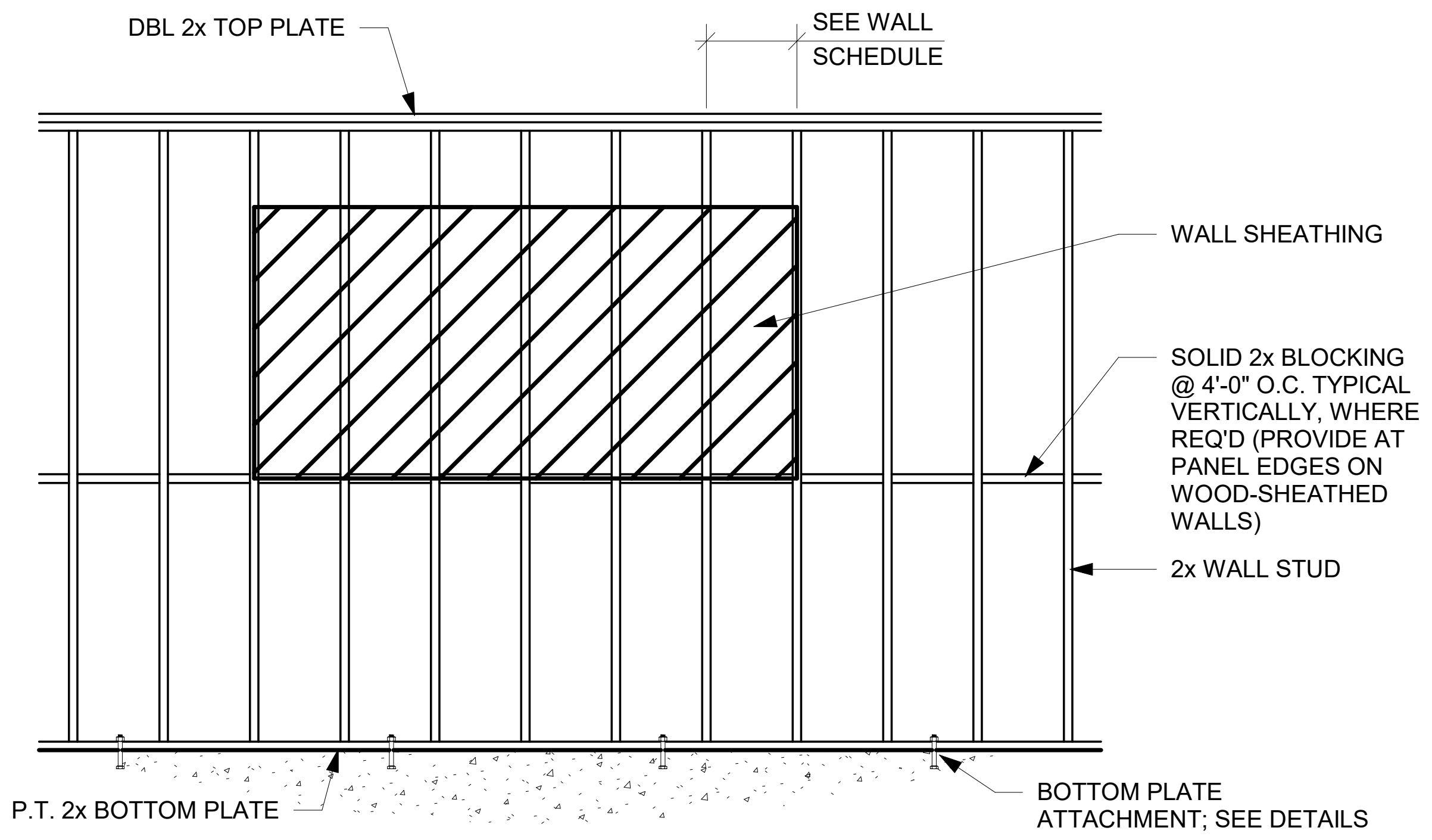
E4 PARTY WALL NON-BEARING
3/4" = 1'-0"


STUDS @ EA. ANCHOR PER SCHEDULE
2x4 CONT.
GYPCRETE
DECK PER PLAN
VARIES
BLOCKING, KNEE WALL, OR FULL-HEIGHT STUDS
HOLDOWNS & ANCHORS PER SCHEDULE
(2)2x4 CONT.

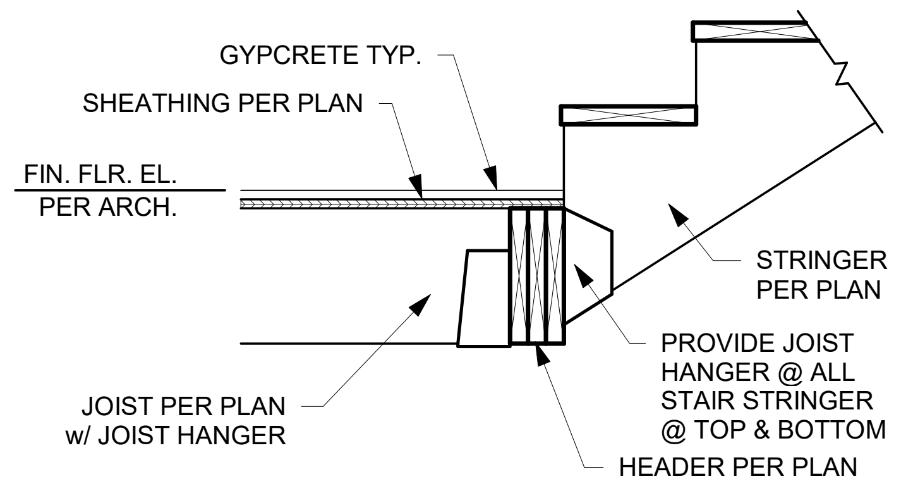
SHEARWALL ANCHORAGE			
FLOOR	HOLDOWN	ANCHOR	STUDS
3RD	MSTC52 STRAP		(2)2x4
2ND	MSTC52 STRAP		(4)2x4
1ST	HDU14-SDS2.5	1-1/8" DIA.	6x4

NOTE:
PROVIDE REQ'D FASTENERS PER MANUF. SPECS.

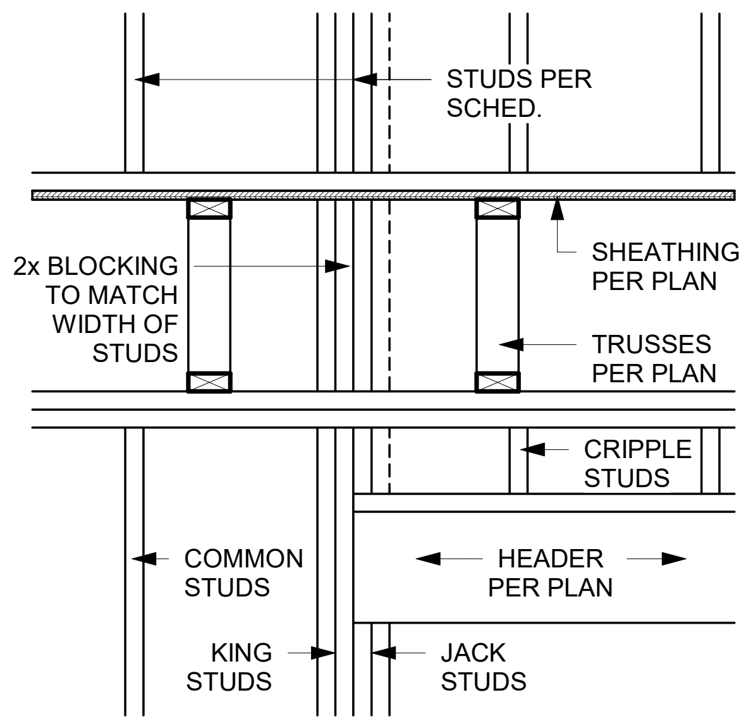
E3 SHEARWALL HOLDOWN SCHEDULE
3/4" = 1'-0"


DBL 2x TOP PLATE
SEE WALL SCHEDULE
WALL SHEATHING
SOLID 2x BLOCKING @ 4'-0" O.C. TYPICAL VERTICALLY, WHERE REQ'D (PROVIDE AT PANEL EDGES ON WOOD-SHEATHED WALLS)
2x WALL STUD
P.T. 2x BOTTOM PLATE
BOTTOM PLATE ATTACHMENT; SEE DETAILS

D1 TYP. WOOD STUD WALL CONSTRUCTION
N.T.S.


GYPCRETE TYP.
SHEATHING PER PLAN
FIN. FLR. EL. PER ARCH.
STRINGER PER PLAN
PROVIDE JOIST HANGER @ ALL STAIR STRINGER @ TOP & BOTTOM
JOIST PER PLAN w/ JOIST HANGER
HEADER PER PLAN

D3 TYP. STAIR FRAMING1
3/4" = 1'-0"

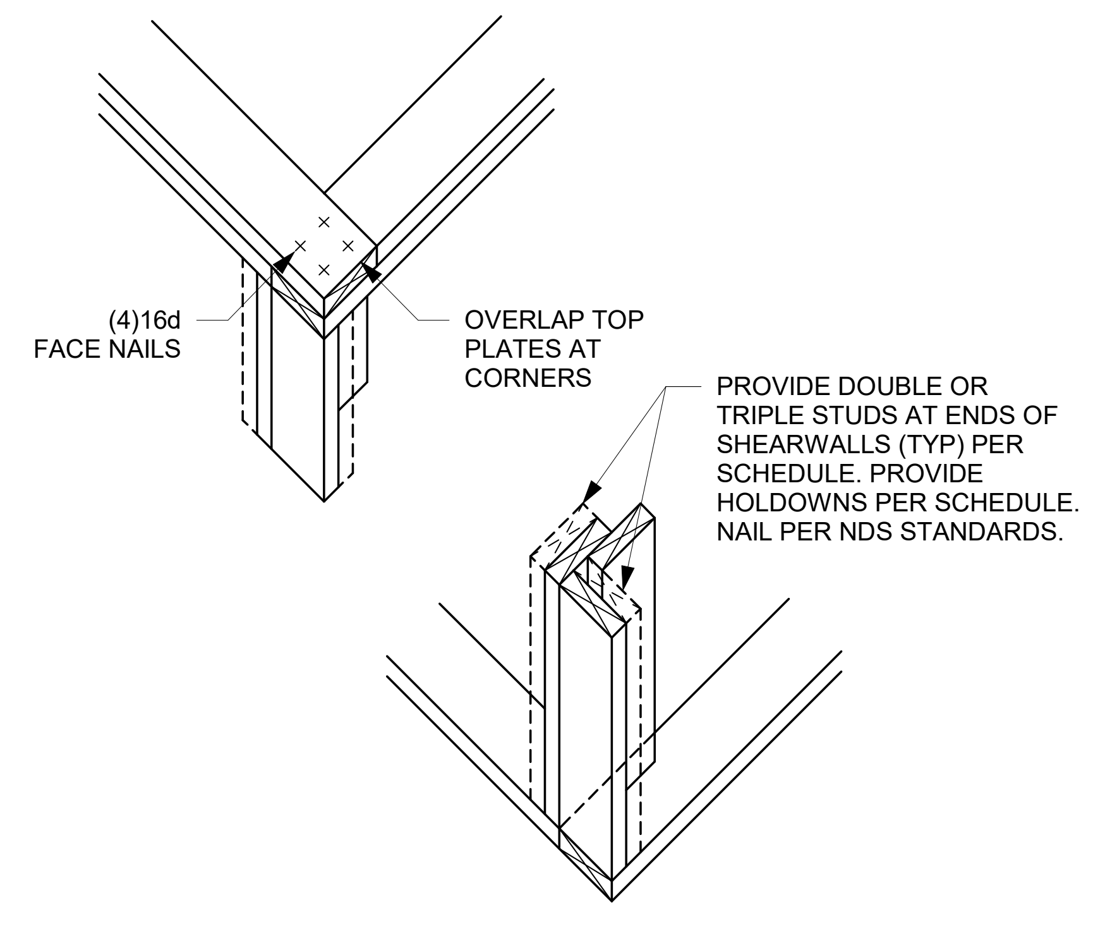


D2 TYP. BLOCKING DETAIL AT HEADERS
3/4" = 1'-0"

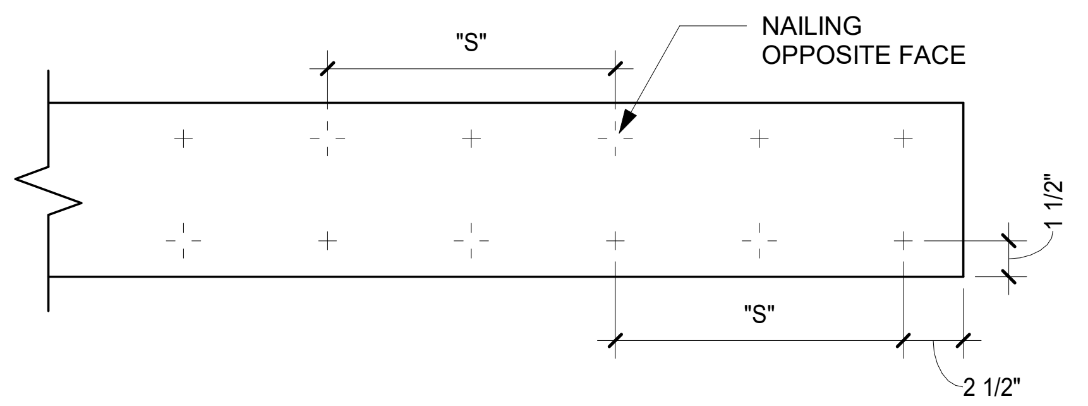
KING STUD SCHEDULE

LOCATION / LEVEL	UP TO 4'-0" OPENING		UP TO 8'-0" OPENING		UP TO 10'-0" OPENING	
	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR
ALL FLOORS	(1) 2x KING	(1) 2x KING	(1) 2x KING	(2) 2x KING	(2) 2x KING	(3) 2x KING

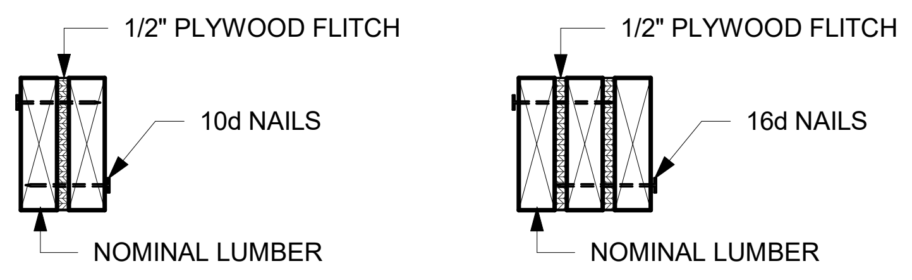
C4 KING STUD SCHEDULE2
1/8" = 1'-0"


(4)16d FACE NAILS
OVERLAP TOP PLATES AT CORNERS
PROVIDE DOUBLE OR TRIPLE STUDS AT ENDS OF SHEARWALLS (TYP) PER SCHEDULE. PROVIDE HOLDOWNS PER SCHEDULE. NAIL PER NDS STANDARDS.

C3 TYP. 2x CORNER FRAMING DETAILS
N.T.S.



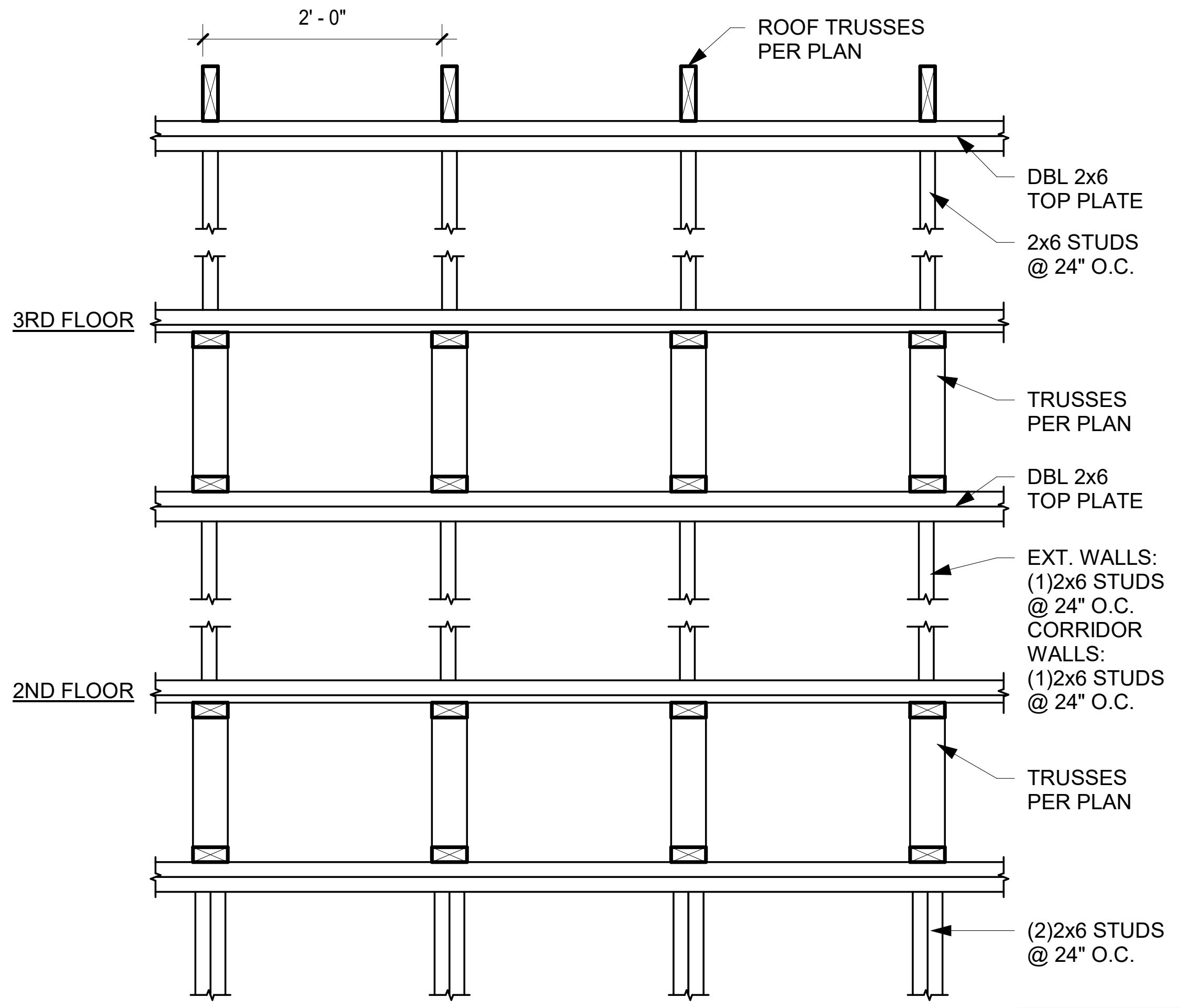
LUMBER SIZE:	NAIL SPACING "S":
2x6 OR 2x8	12" O.C. EACH FACE
2x10	8" O.C. EACH FACE
2x12	6" O.C. EACH FACE



2-PLY BEAM

3-PLY BEAM

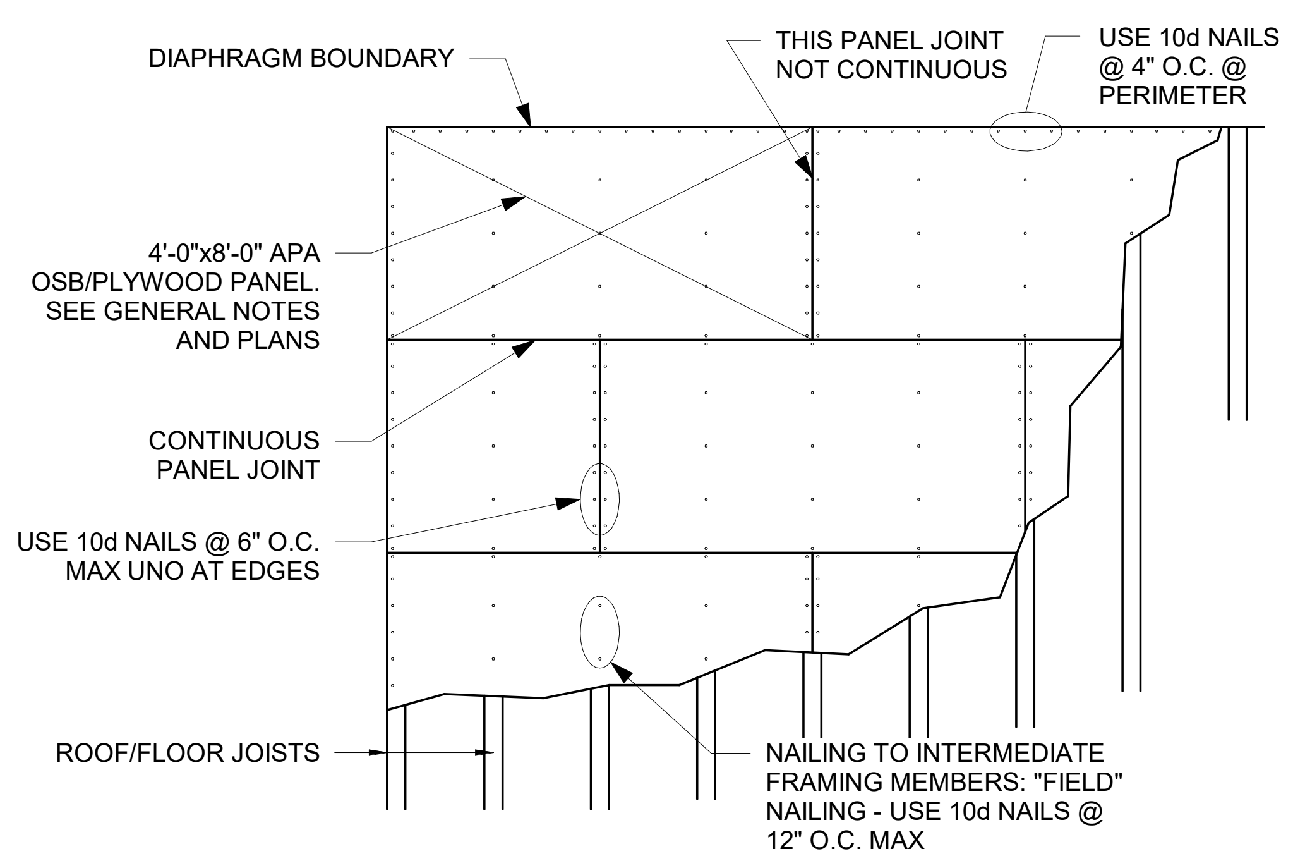
C2 TYP. BUILT-UP BEAM DETAIL
1 1/2" = 1'-0"



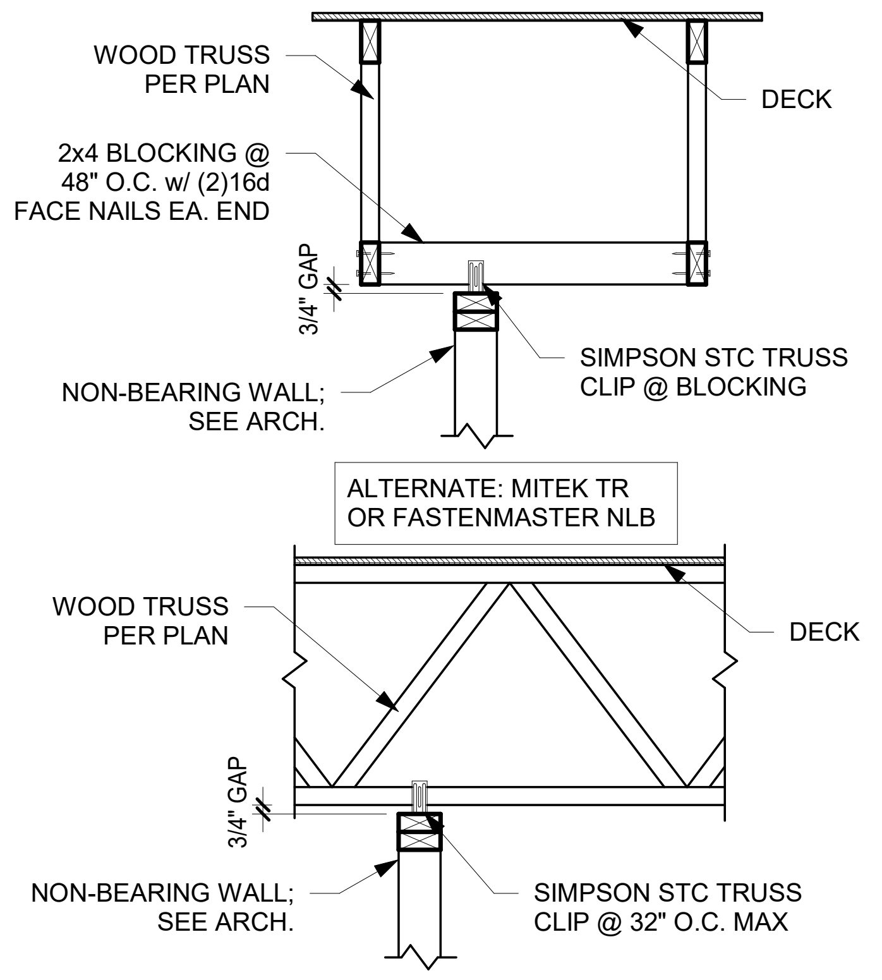
NOTES:
REF. STRUCTURAL NOTES FOR GRADE & SPECIES REQUIREMENTS
APPLIES TO ALL CORRIDOR, EXTERIOR, & OTHER BEARING WALLS, U.N.O.

ALIGN ALL STUDS w/ TRUSSES

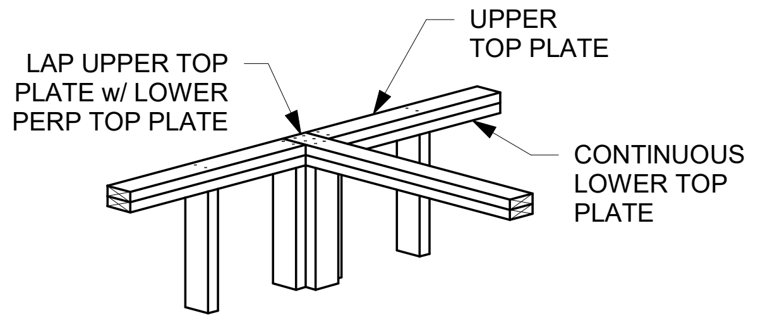
C1 WALL FRAMING SCHEDULE
3/4" = 1'-0"


DIAPHRAGM BOUNDARY
THIS PANEL JOINT NOT CONTINUOUS
USE 10d NAILS @ 4" O.C. @ PERIMETER
4'-0"x8'-0" APA OSB/PLYWOOD PANEL. SEE GENERAL NOTES AND PLANS
CONTINUOUS PANEL JOINT
USE 10d NAILS @ 6" O.C. MAX UNO AT EDGES
ROOF/FLOOR JOISTS
NAILING TO INTERMEDIATE FRAMING MEMBERS: "FIELD" NAILING - USE 10d NAILS @ 12" O.C. MAX

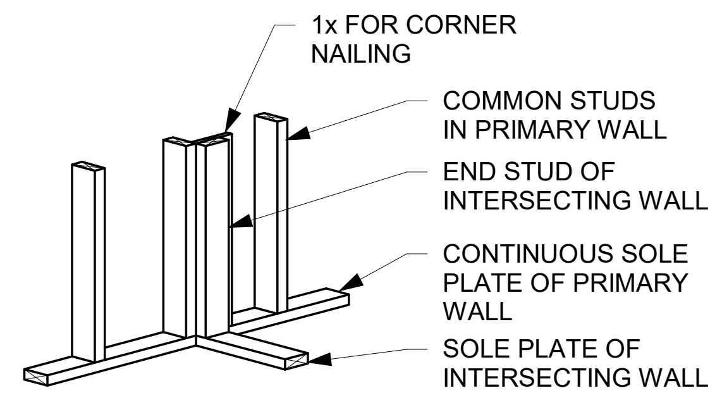
B4 ROOF/FLOOR PLAN NAILING SCHEDULE
N.T.S.


WOOD TRUSS PER PLAN
DECK
2x4 BLOCKING @ 48" O.C. w/ (2)16d FACE NAILS EA. END
3/4" GAP
SIMPSON STC TRUSS CLIP @ BLOCKING
NON-BEARING WALL; SEE ARCH.
ALTERNATE: MITEK TR OR FASTENMASTER NLB
WOOD TRUSS PER PLAN
DECK
3/4" GAP
NON-BEARING WALL; SEE ARCH.
SIMPSON STC TRUSS CLIP @ 32" O.C. MAX

B3 TYP. NON-BEARING PARTITION WALL
N.T.S.

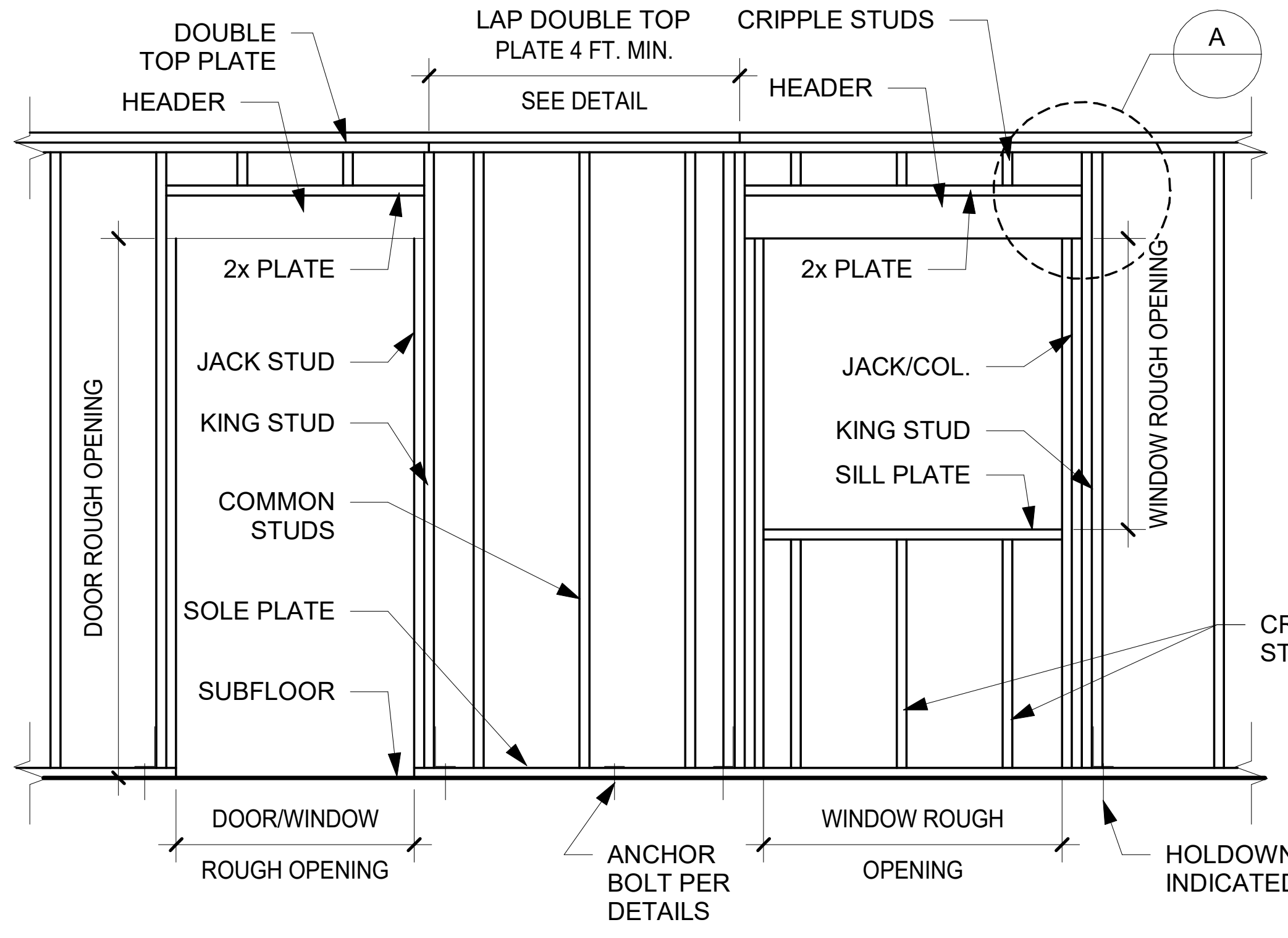

LAP UPPER TOP PLATE w/ LOWER PERP TOP PLATE
UPPER TOP PLATE
CONTINUOUS LOWER TOP PLATE

TOP PLATE INTERSECTION

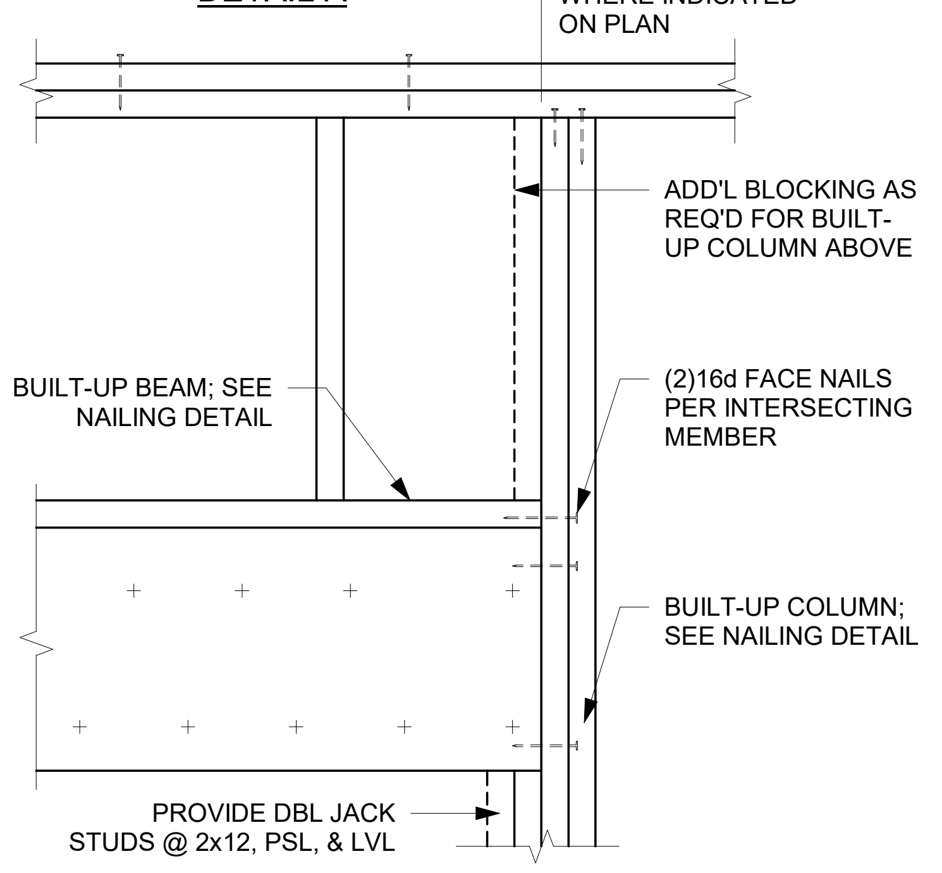

1x FOR CORNER NAILING
COMMON STUDS IN PRIMARY WALL
END STUD OF INTERSECTING WALL
CONTINUOUS SOLE PLATE OF PRIMARY WALL
SOLE PLATE OF INTERSECTING WALL

SOLE PLATE INTERSECTION

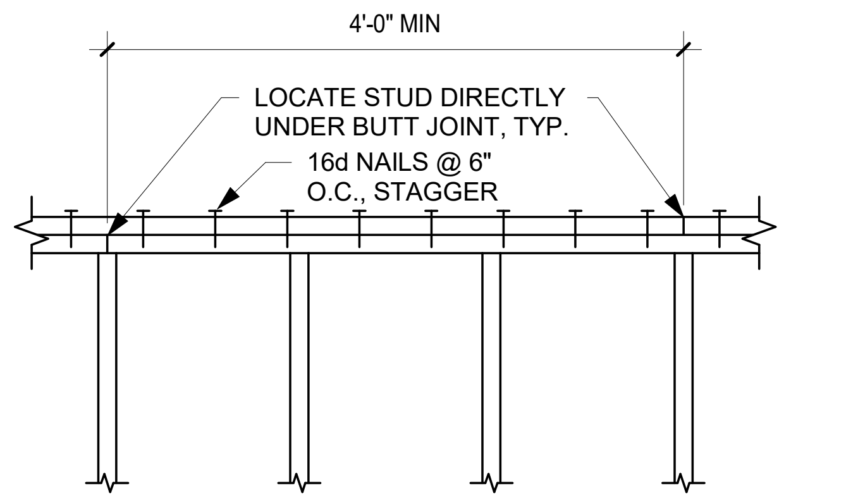
B2 TYP. INTERSECTION FRAMING DETAILS
N.T.S.



DETAIL A

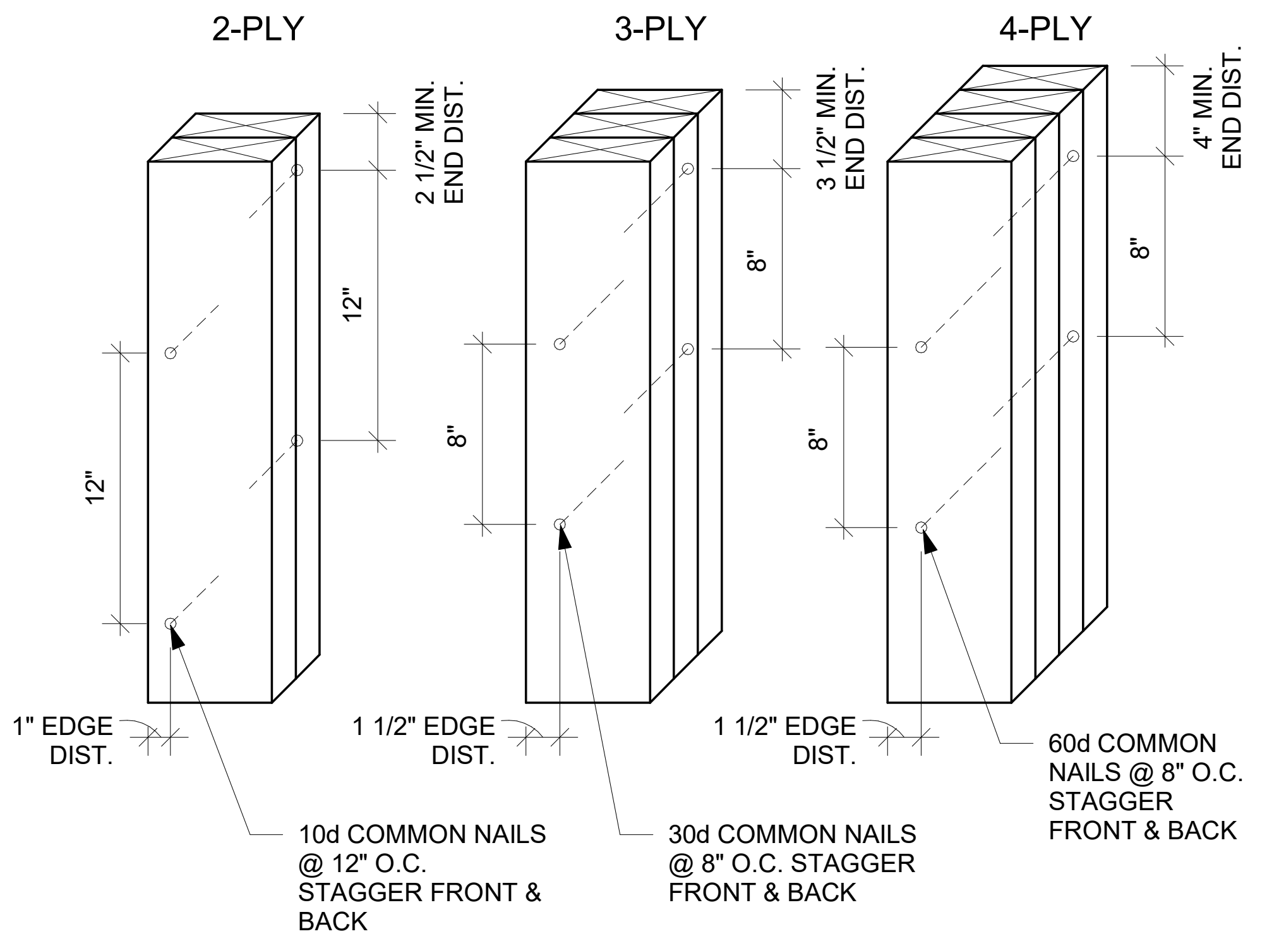

SHEARWALL WHERE INDICATED ON PLAN
ADD'L BLOCKING AS REQ'D FOR BUILT-UP COLUMN ABOVE
BUILT-UP BEAM; SEE NAILING DETAIL
(2)16d FACE NAILS PER INTERSECTING MEMBER
BUILT-UP COLUMN; SEE NAILING DETAIL
PROVIDE DBL JACK STUDS @ 2x12, PSL, & LVL

A1 TYP. OPENING IN LOAD BEARING WALL
N.T.S.

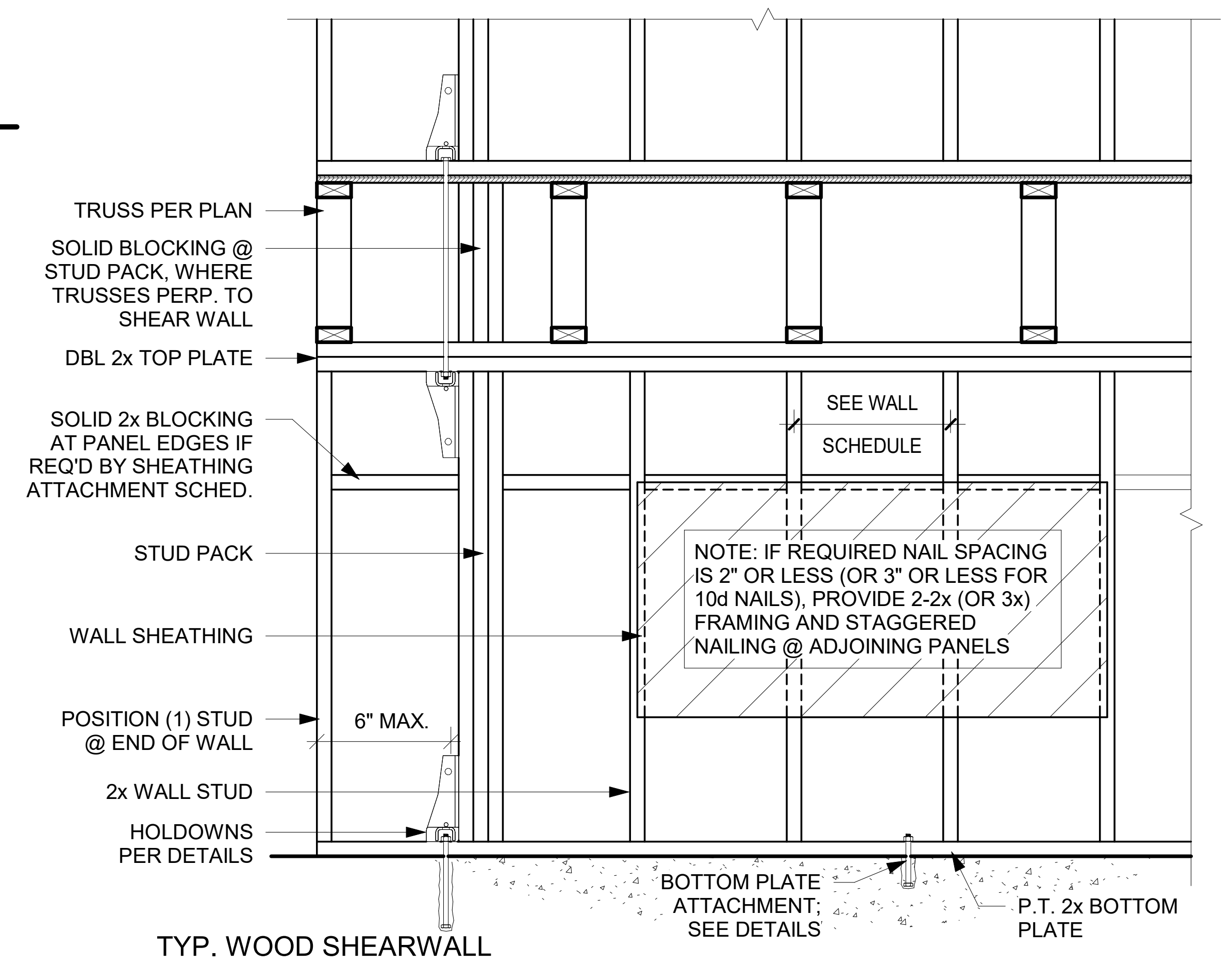

4'-0" MIN
LOCATE STUD DIRECTLY UNDER BUTT JOINT, TYP.
16d NAILS @ 6" O.C., STAGGER

NOTES:
1. THIS DETAIL APPLIES AT ALL EXTERIOR WALLS AND INTERIOR SHEARWALLS.
2. DO NOT SPLICE TOP PLATES WITHIN 6'-0" OF SHEARWALL ENDS.

A4 TYP. TOP PLATE LAP SPLICE DETAIL
N.T.S.


2-PLY
3-PLY
4-PLY
2 1/2" MIN. END DIST.
12"
12"
1" EDGE DIST.
10d COMMON NAILS @ 12" O.C. STAGGER FRONT & BACK
3 1/2" MIN. END DIST.
8"
8"
1 1/2" EDGE DIST.
30d COMMON NAILS @ 8" O.C. STAGGER FRONT & BACK
4" MIN. END DIST.
8"
8"
1 1/2" EDGE DIST.
60d COMMON NAILS @ 8" O.C. STAGGER FRONT & BACK

A3 TYP. 2x BUILT-UP JACK/TRIMMER STUDS
N.T.S.


TRUSS PER PLAN
SOLID BLOCKING @ STUD PACK, WHERE TRUSSES PERP. TO SHEAR WALL
DBL 2x TOP PLATE
SOLID 2x BLOCKING AT PANEL EDGES IF REQ'D BY SHEATHING ATTACHMENT SCHED.
STUD PACK
WALL SHEATHING
POSITION (1) STUD @ END OF WALL
6" MAX.
2x WALL STUD
HOLDOWNS PER DETAILS
SEE WALL SCHEDULE
BOTTOM PLATE ATTACHMENT; SEE DETAILS
P.T. 2x BOTTOM PLATE

NOTE: IF REQUIRED NAIL SPACING IS 2" OR LESS (OR 3" OR LESS FOR 10d NAILS), PROVIDE 2-2x (OR 3x) FRAMING AND STAGGERED NAILING @ ADJOINING PANELS

A2 TYP. WOOD SHEARWALL CONSTRUCTION
N.T.S.

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SCOTT M. ROSEMANN
NUMBER PE-2008002204
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
STRUCTURAL DETAILS

PROJECT NUMBER: 23034

SHEET NUMBER:
S-501

DRAWN BY: SAH
CHECKED BY: MIH

10/31/2023 8:38:56 AM
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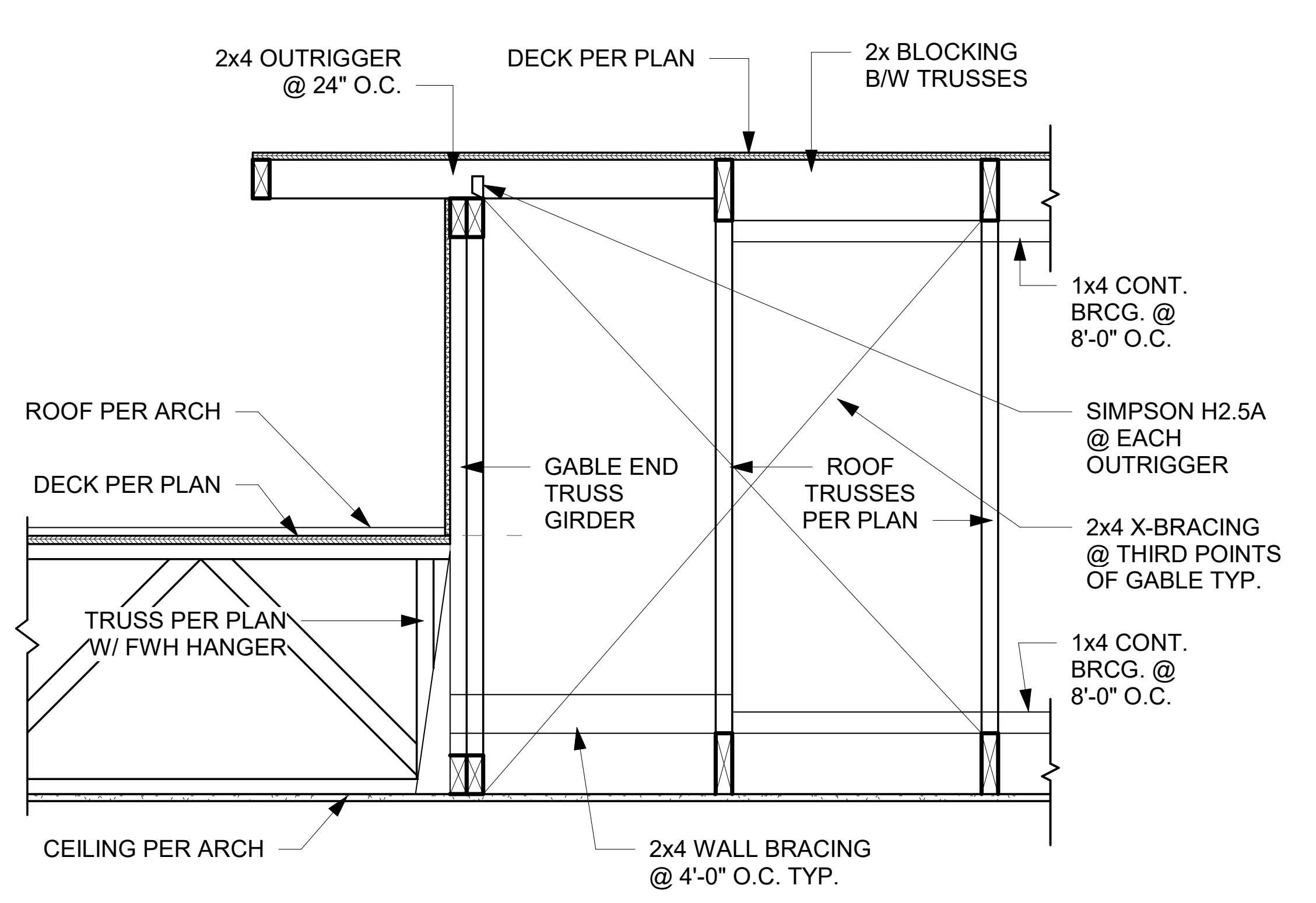
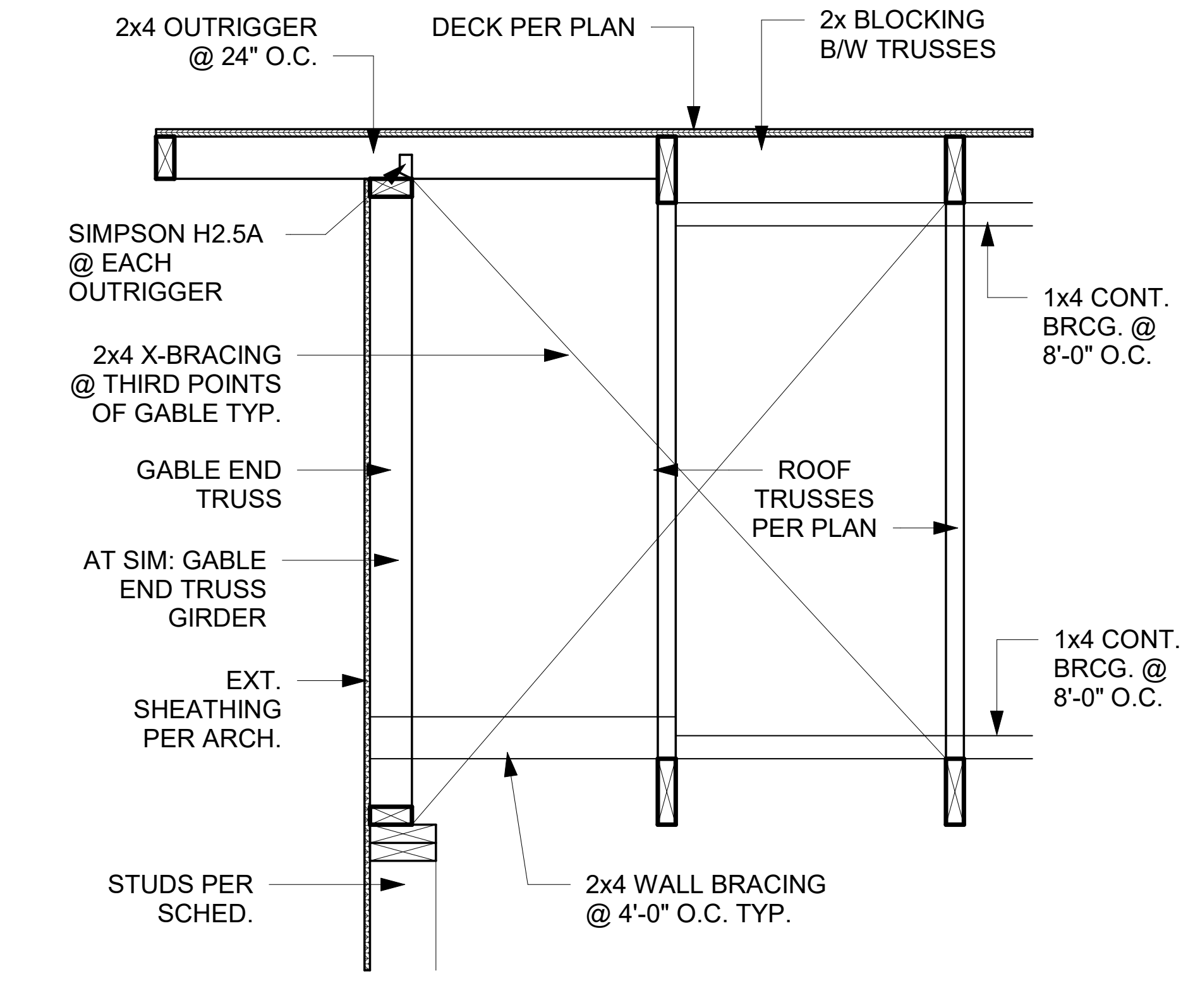
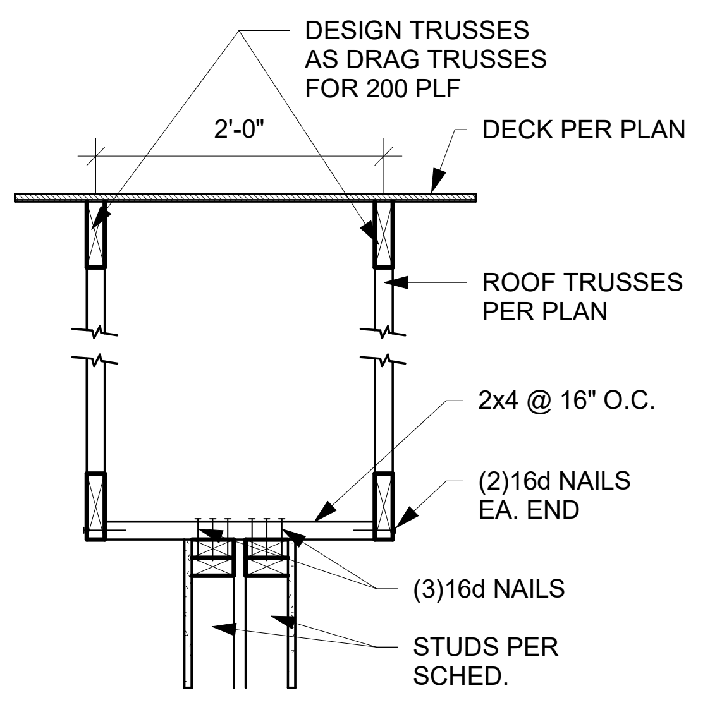

2x4 OUTRIGGER @ 24" O.C.
DECK PER PLAN
2x BLOCKING B/W TRUSSES
1x4 CONT. BRCG. @ 8'-0" O.C.
SIMPSON H2.5A @ EACH OUTRIGGER
ROOF PER ARCH
DECK PER PLAN
GABLE END TRUSS GIRDER
ROOF TRUSSES PER PLAN
2x4 X-BRACING @ THIRD POINTS OF GABLE TYP.
TRUSS PER PLAN W/ FWH HANGER
1x4 CONT. BRCG. @ 8'-0" O.C.
CEILING PER ARCH
2x4 WALL BRACING @ 4'-0" O.C. TYP.

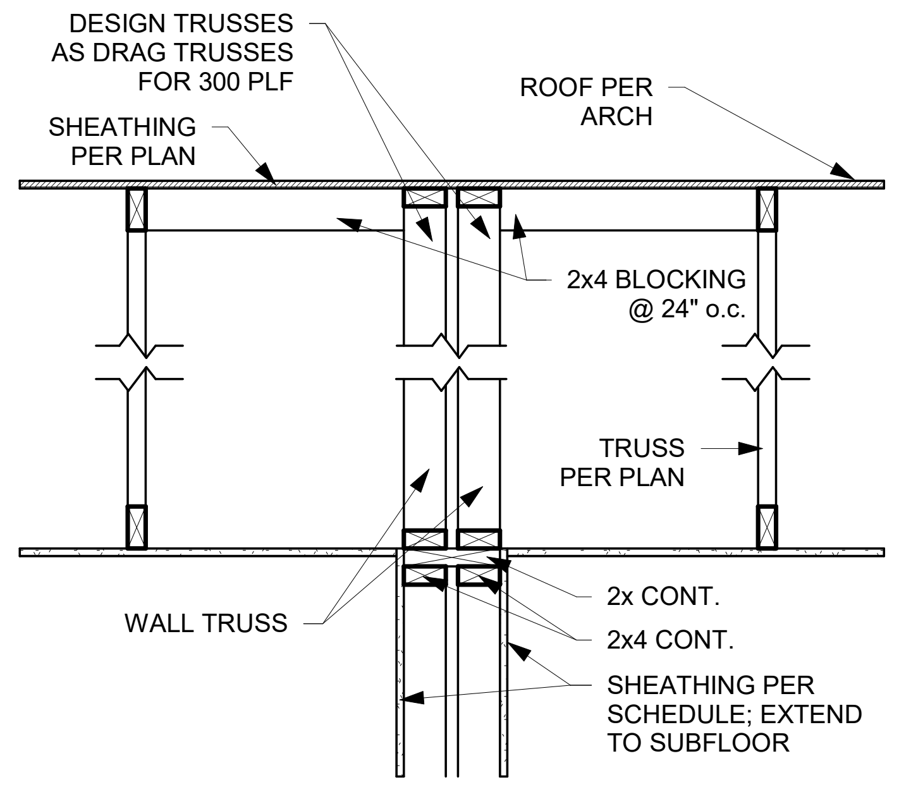
B4 GABLE END DETAIL
3/4" = 1'-0"


2x4 OUTRIGGER @ 24" O.C.
DECK PER PLAN
2x BLOCKING B/W TRUSSES
SIMPSON H2.5A @ EACH OUTRIGGER
1x4 CONT. BRCG. @ 8'-0" O.C.
2x4 X-BRACING @ THIRD POINTS OF GABLE TYP.
GABLE END TRUSS
ROOF TRUSSES PER PLAN
AT SIM: GABLE END TRUSS GIRDER
1x4 CONT. BRCG. @ 8'-0" O.C.
EXT. SHEATHING PER ARCH.
STUDS PER SCHED.
2x4 WALL BRACING @ 4'-0" O.C. TYP.

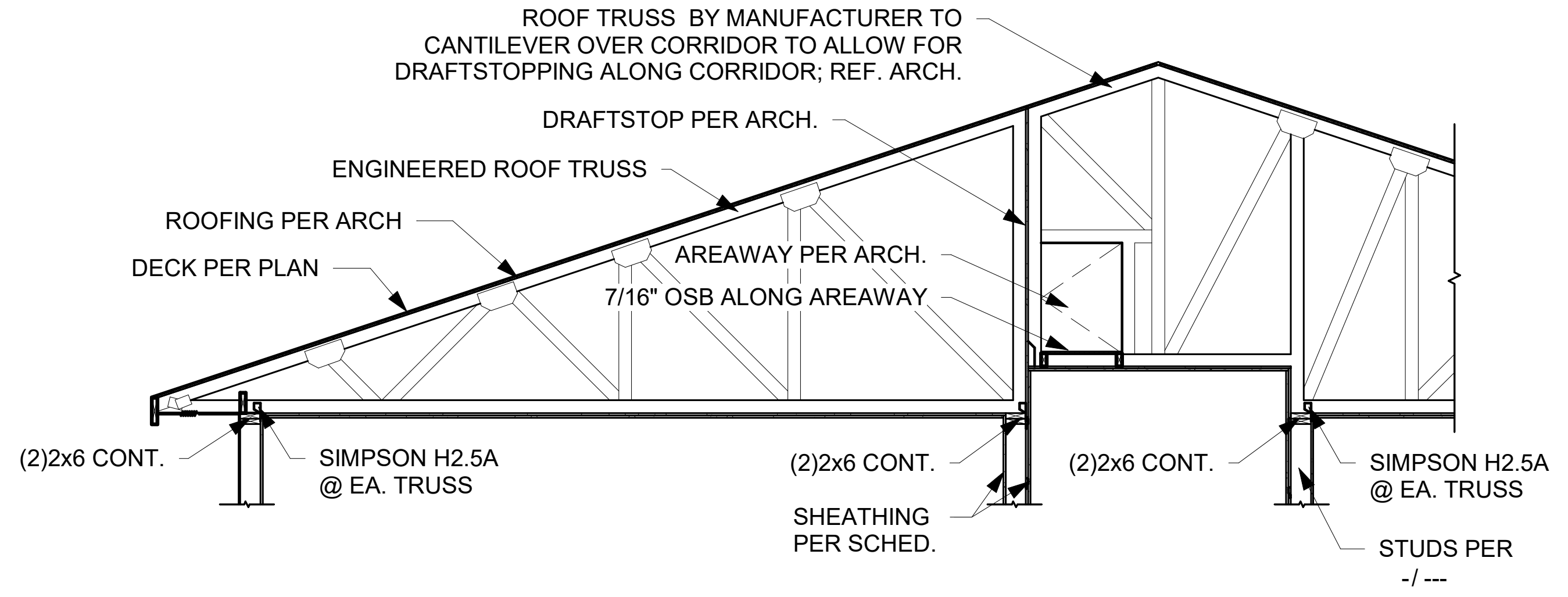
A4 GABLE END DETAIL
3/4" = 1'-0"



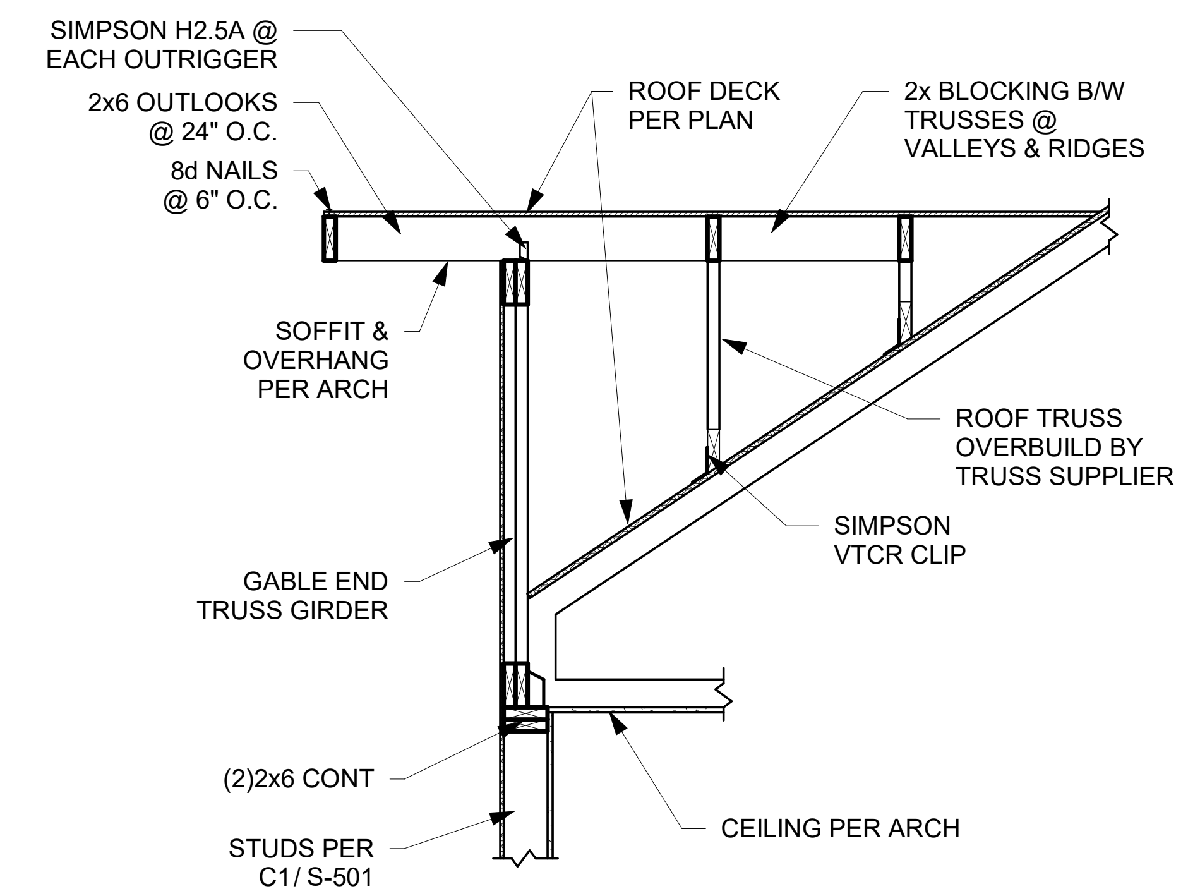
D3 ROOF TRUSS @ SHEARWALL
3/4" = 1'-0"



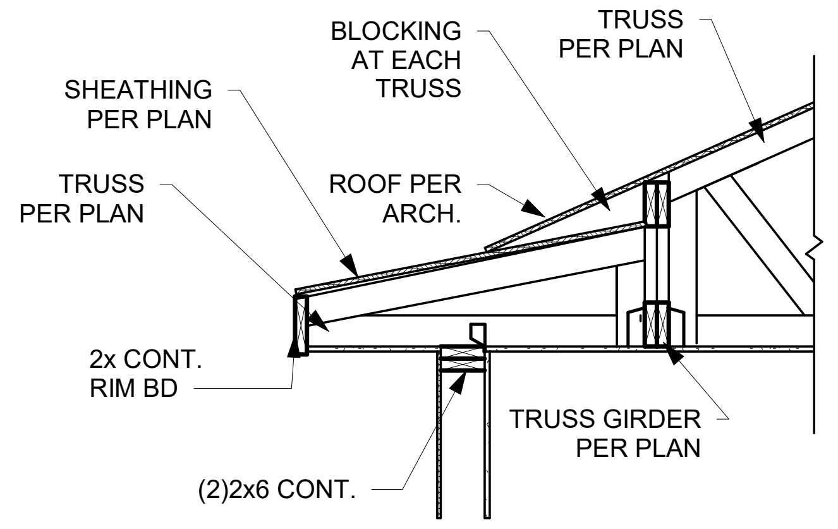
C3 ROOF TRUSS @ SHEARWALL
3/4" = 1'-0"



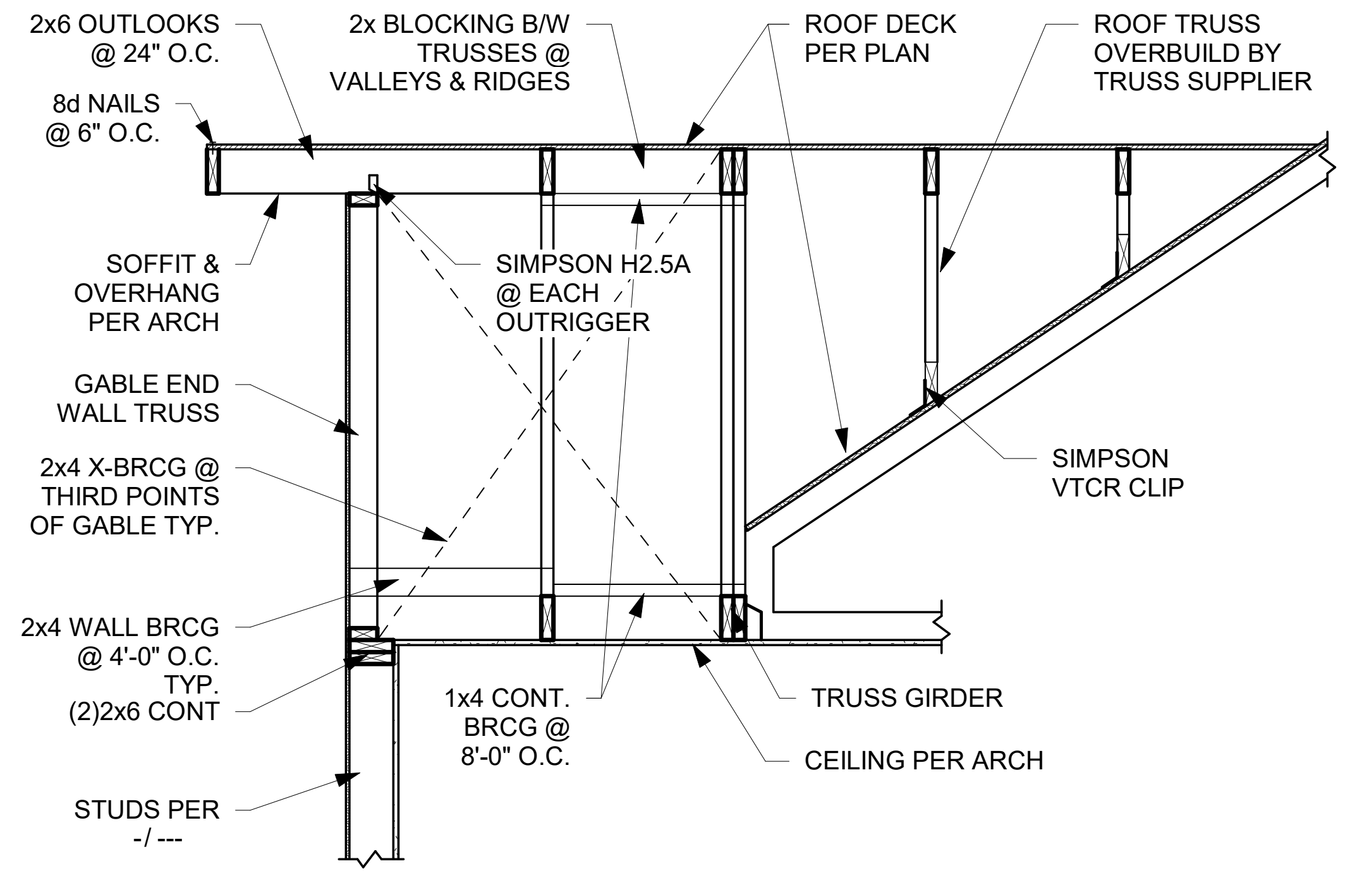
B3 ROOF TRUSS DETAIL
1/4" = 1'-0"



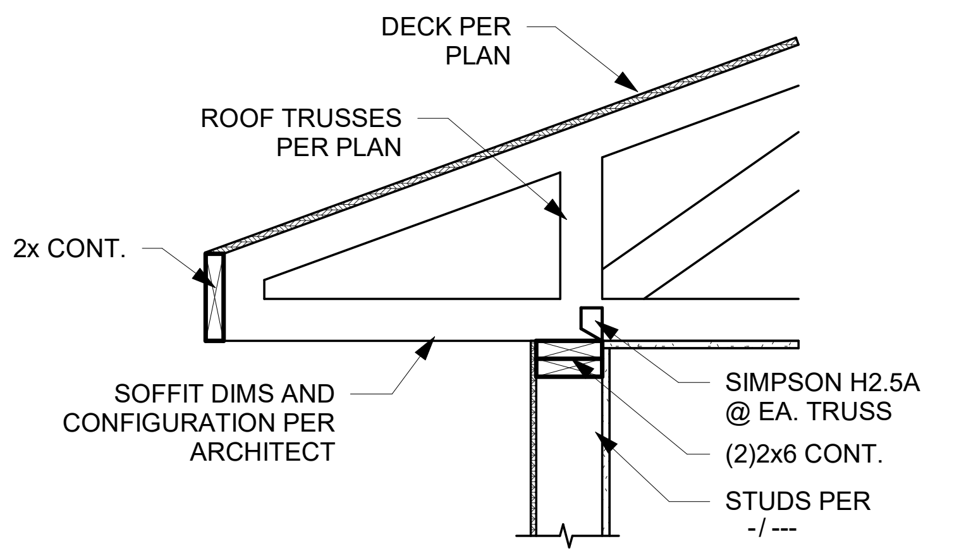
A3 GABLE END DETAIL
1/2" = 1'-0"



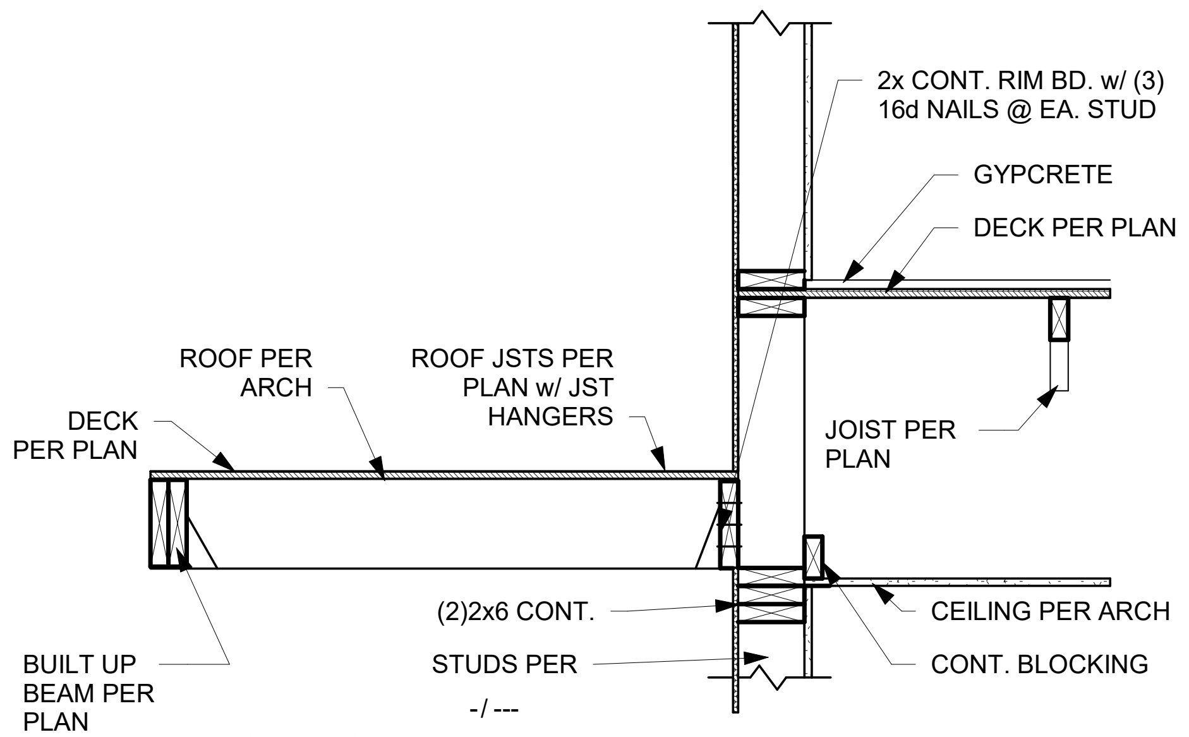
E2 LOW ROOF DETAIL
1/2" = 1'-0"


2x6 OUTLOOKS @ 24" O.C.
2x BLOCKING B/W TRUSSES @ VALLEYS & RIDGES
ROOF DECK PER PLAN
ROOF TRUSS OVERBUILD BY TRUSS SUPPLIER
8d NAILS @ 6" O.C.
SOFFIT & OVERHANG PER ARCH
SIMPSON H2.5A @ EACH OUTRIGGER
GABLE END WALL TRUSS
SIMPSON VTCR CLIP
2x4 X-BRCG @ THIRD POINTS OF GABLE TYP.
2x4 WALL BRCG @ 4'-0" O.C. TYP.
(2)2x6 CONT
1x4 CONT. BRCG @ 8'-0" O.C.
TRUSS GIRDER
CEILING PER ARCH
STUDS PER -/ ---

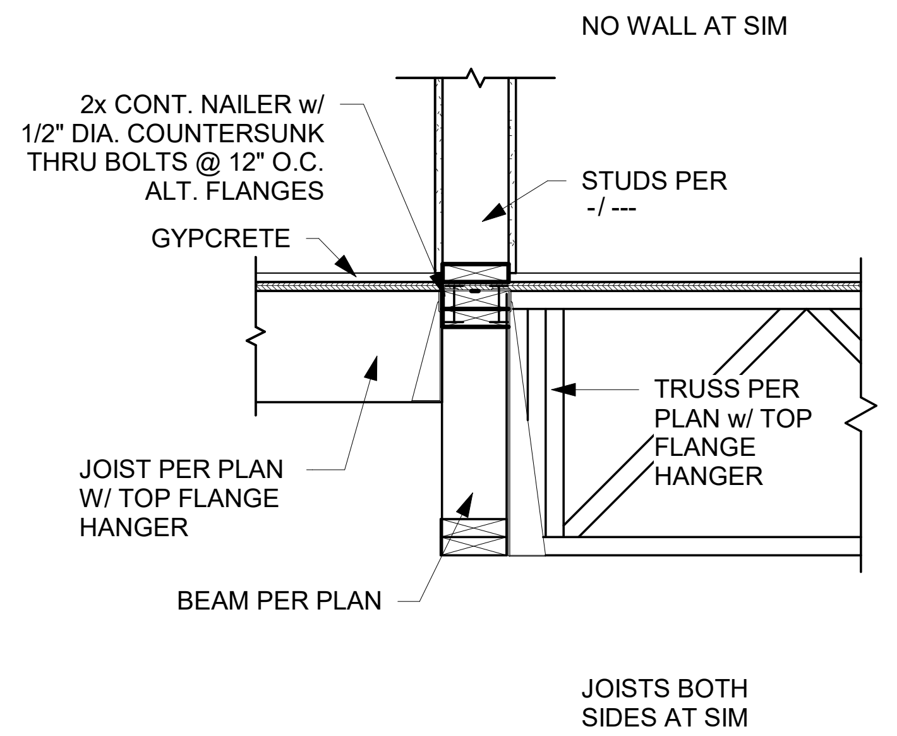
D2 GABLE END DETAIL
1/2" = 1'-0"



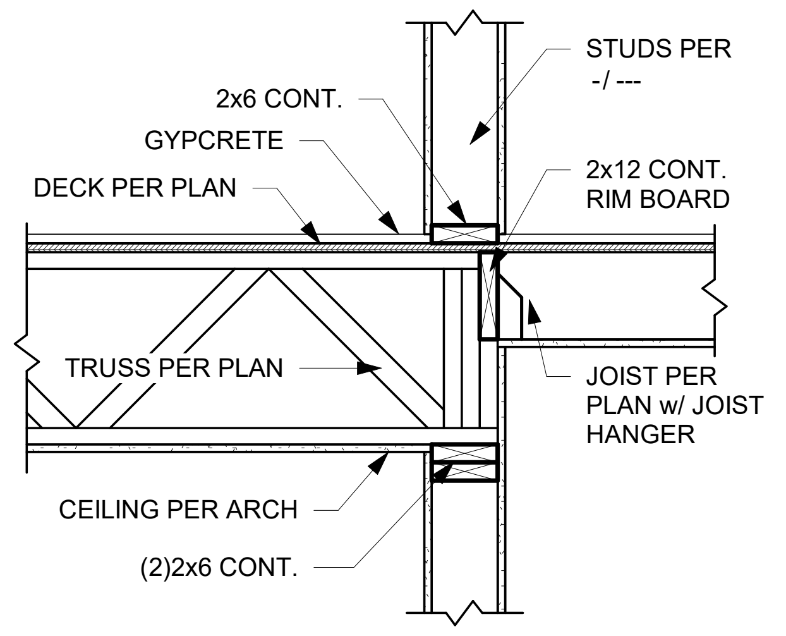
C2 ROOF TRUSS BEARING DETAIL
3/4" = 1'-0"



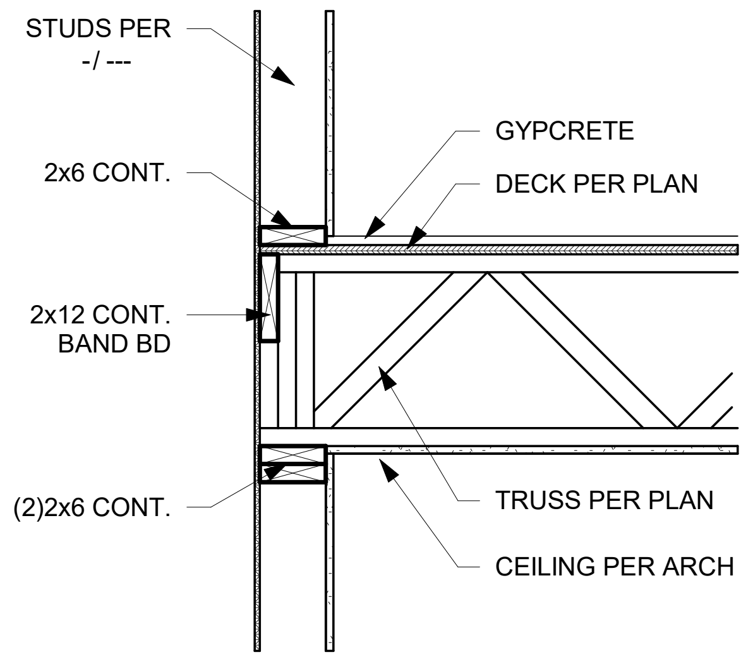
B2 CANOPY ROOF FRAMING
3/4" = 1'-0"


NO WALL AT SIM
2x CONT. NAILER w/ 1/2" DIA. COUNTERSUNK THRU BOLTS @ 12" O.C. ALT. FLANGES
STUDS PER -/ ---
GYPCRETE
TRUSS PER PLAN w/ TOP FLANGE HANGER
JOIST PER PLAN W/ TOP FLANGE HANGER
BEAM PER PLAN
JOISTS BOTH SIDES AT SIM

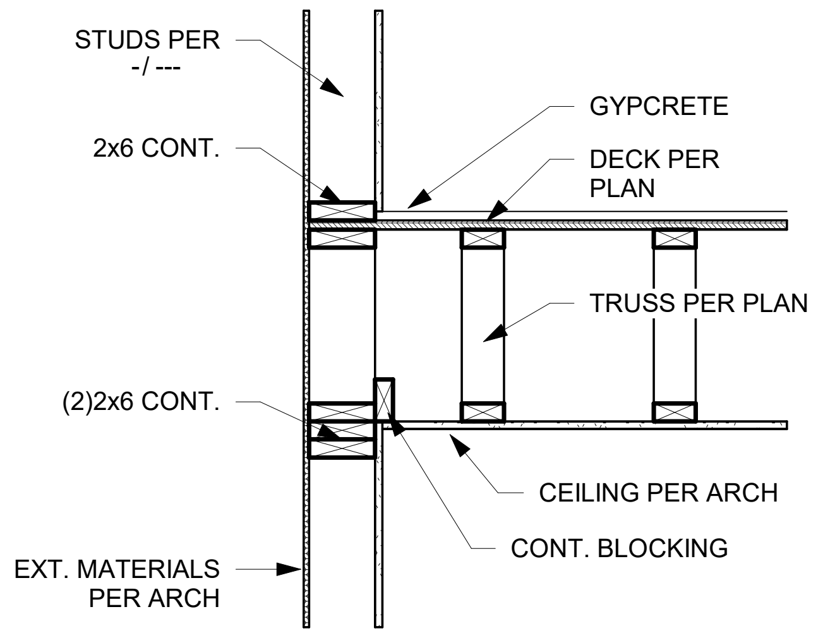
A2 WOOD BEAM DETAIL @ WALL
3/4" = 1'-0"



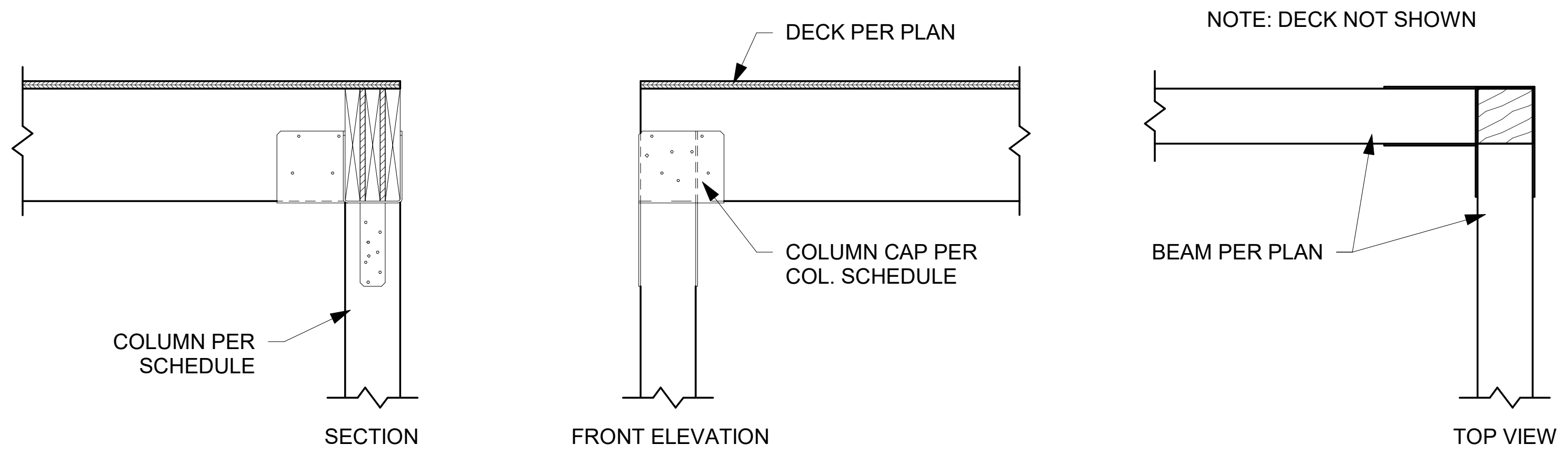
E1 CORRIDOR BEARING DETAIL
3/4" = 1'-0"



D1 EXTERIOR BEARING DETAIL
3/4" = 1'-0"



C1 EXTERIOR NON-BEARING DETAIL
3/4" = 1'-0"



A1 WOOD BEAM TO COLUMN DETAIL
3/4" = 1'-0"

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SCOTT M. ROSEMANN
NUMBER PE-2008002204
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
STRUCTURAL DETAILS

PROJECT NUMBER: 23034

SHEET NUMBER:

S-502

DRAWN BY: SAH CHECKED BY: MIH

10/31/2023 8:38:58 AM
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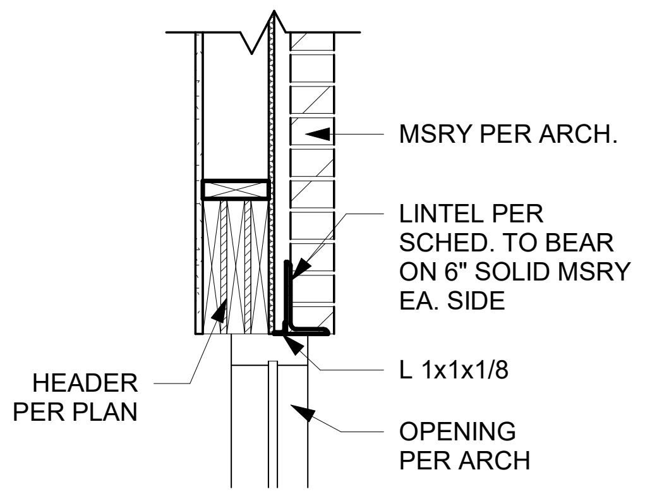
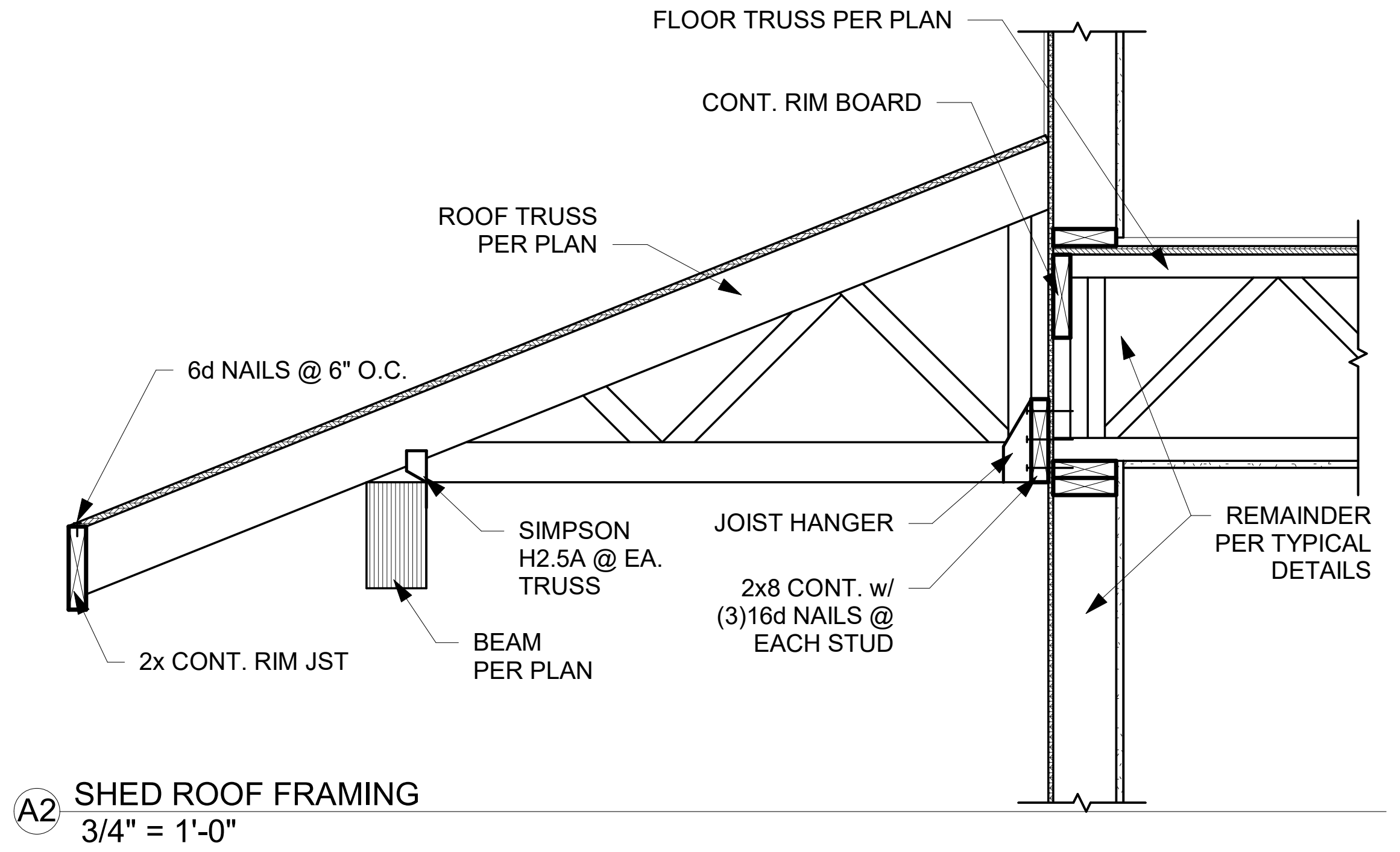


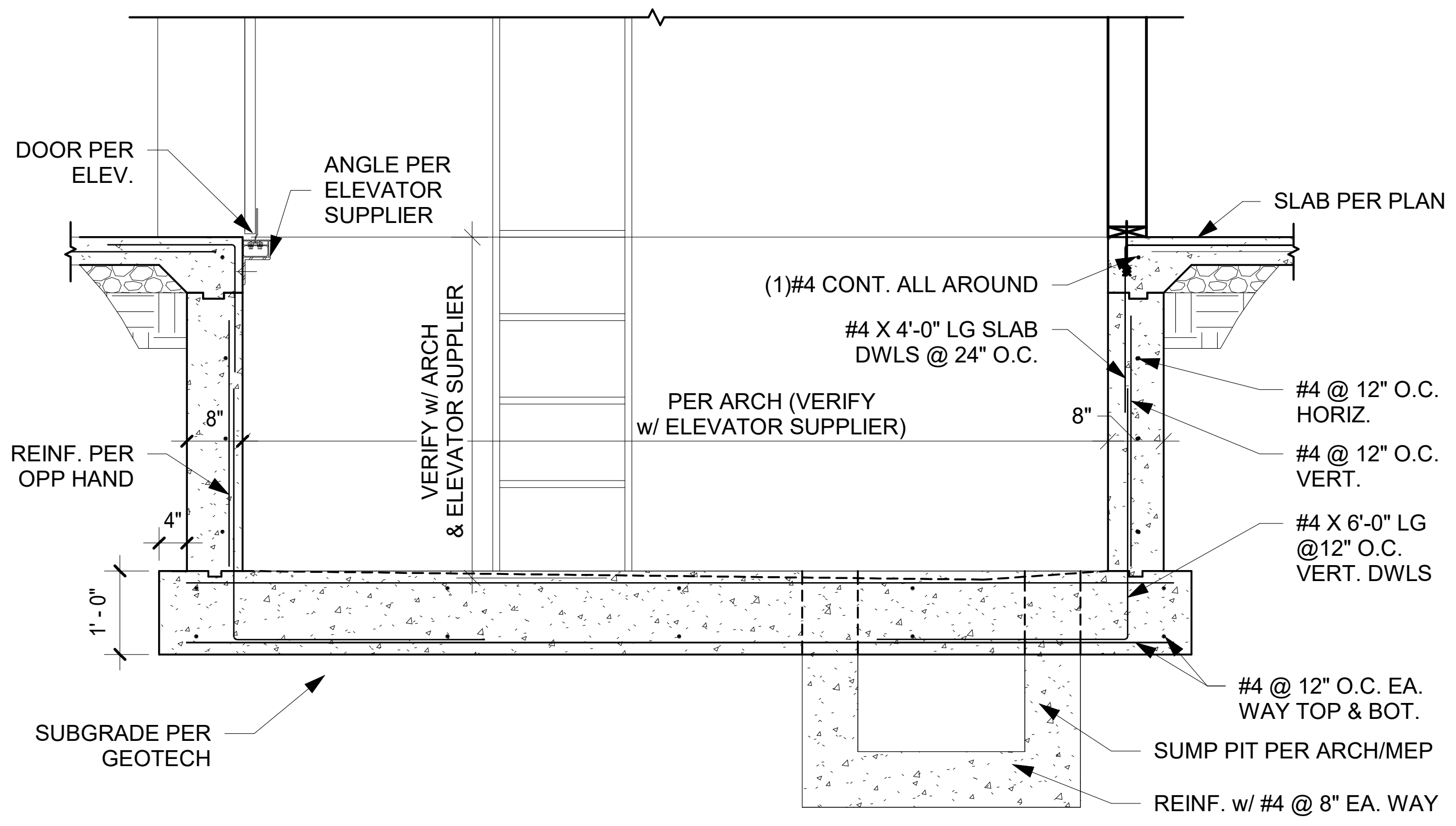
LINTEL	SPAN
L 6"x3-1/2"x3/8"	UP TO 6'-0"
7"x3-1/2"x3/8" BENT PL	>6'-0" TO 9'-0"
8"x3-1/2"x3/8" BENT PL	>9'-0" TO 12'-0"

NOTE: ALL LOOSE LINTELS SHALL BE GALVANIZED

B2 TYP. LOOSE LINTEL DETAIL2
3/4" = 1'-0"

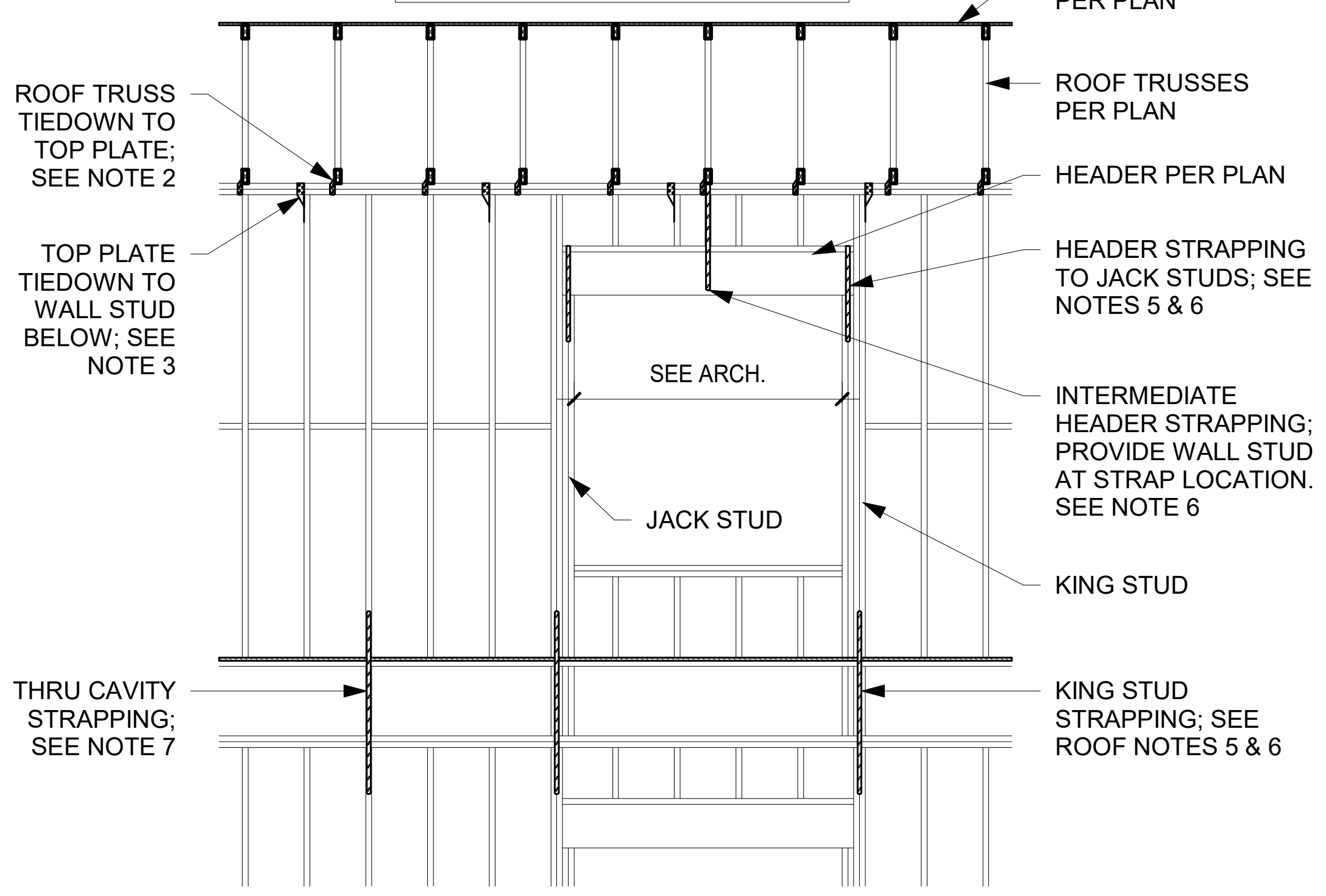


A2 SHED ROOF FRAMING
3/4" = 1'-0"


DOOR PER ELEV.
ANGLE PER ELEVATOR SUPPLIER
SLAB PER PLAN
(1)#4 CONT. ALL AROUND
#4 X 4'-0" LG SLAB DWLS @ 24" O.C.
VERIFY w/ ARCH & ELEVATOR SUPPLIER
PER ARCH (VERIFY w/ ELEVATOR SUPPLIER)
8"
8"
#4 @ 12" O.C. HORIZ.
#4 @ 12" O.C. VERT.
REINF. PER OPP HAND
4"
#4 X 6'-0" LG @12" O.C. VERT. DWLS
1'-0"
#4 @ 12" O.C. EA. WAY TOP & BOT.
SUBGRADE PER GEOTECH
SUMP PIT PER ARCH/MEP
REINF. w/ #4 @ 8" EA. WAY

B1 ELEVATOR PIT DETAIL
1/2" = 1'-0"

NOTE NUMBERS REFER TO "WOOD UPLIFT LOAD RESISTING SYSTEM" ON GENERAL NOTES SHEET S-001


ROOF SHEATHING PER PLAN
ROOF TRUSSES PER PLAN
ROOF TRUSS TIEDOWN TO TOP PLATE; SEE NOTE 2
HEADER PER PLAN
TOP PLATE TIEDOWN TO WALL STUD BELOW; SEE NOTE 3
HEADER STRAPPING TO JACK STUDS; SEE NOTES 5 & 6
SEE ARCH.
INTERMEDIATE HEADER STRAPPING; PROVIDE WALL STUD AT STRAP LOCATION. SEE NOTE 6
JACK STUD
KING STUD
THRU CAVITY STRAPPING; SEE NOTE 7
KING STUD STRAPPING; SEE ROOF NOTES 5 & 6

A1 ROOF TIEDOWN/STRAPPING DETAIL
1/4" = 1'-0"

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SCOTT M. ROSEMANN
NUMBER PE-2008002204
10/30/23

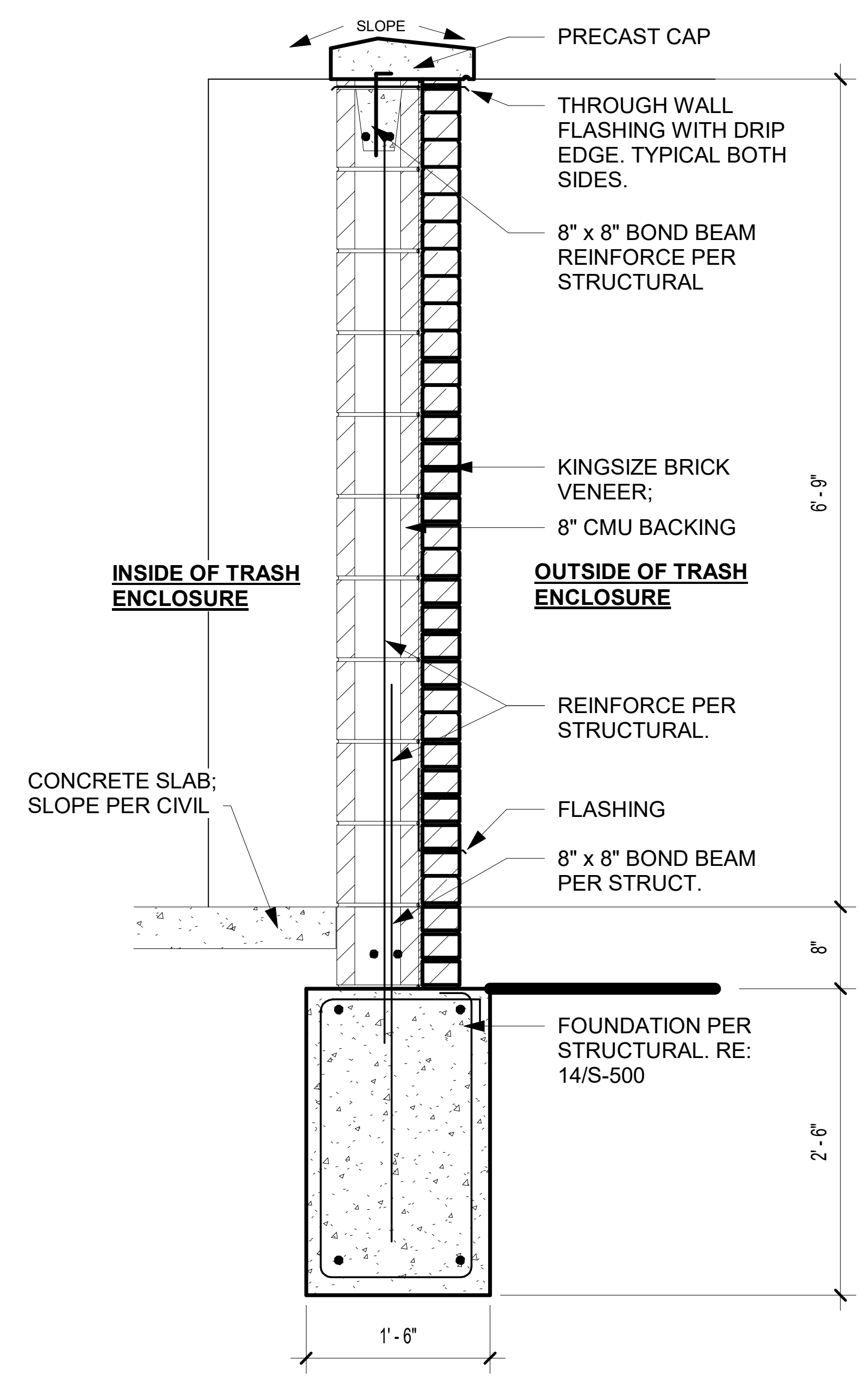
WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
STRUCTURAL DETAILS

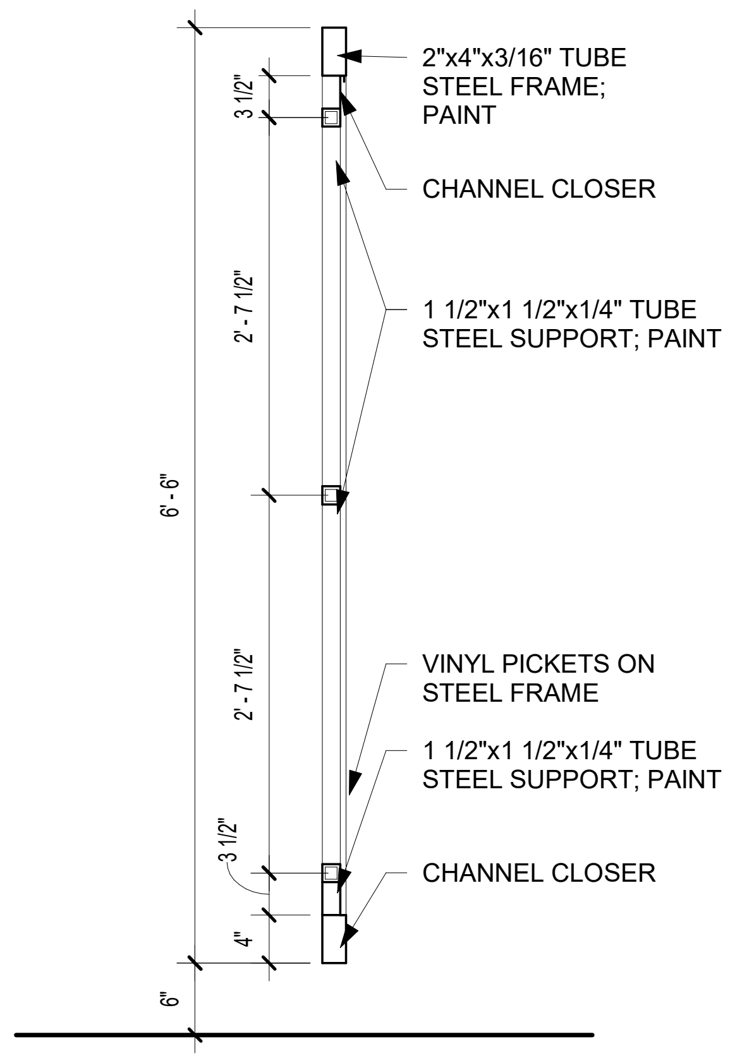
PROJECT NUMBER: 23034

SHEET NUMBER:
S-503

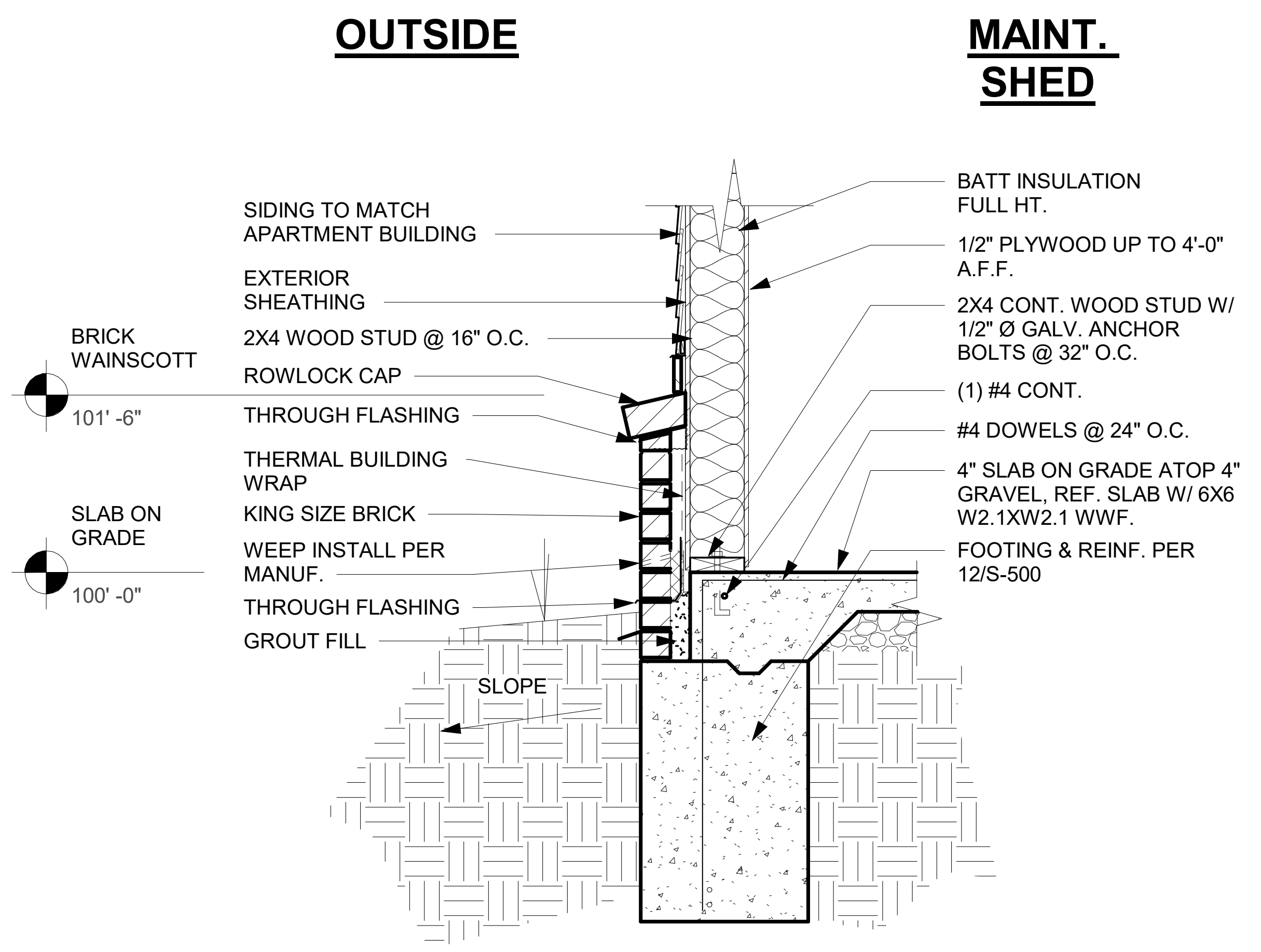
DRAWN BY: SAH
CHECKED BY: MIH


SLOPE
PRECAST CAP
THROUGH WALL FLASHING WITH DRIP EDGE. TYPICAL BOTH SIDES.
8" x 8" BOND BEAM REINFORCE PER STRUCTURAL
KINGSIZE BRICK VENEER;
8" CMU BACKING
INSIDE OF TRASH ENCLOSURE
OUTSIDE OF TRASH ENCLOSURE
REINFORCE PER STRUCTURAL.
CONCRETE SLAB; SLOPE PER CIVIL
FLASHING
8" x 8" BOND BEAM PER STRUCT.
FOUNDATION PER STRUCTURAL. RE: 14/S-500
6'-9"
8"
2'-6"
1'-6"

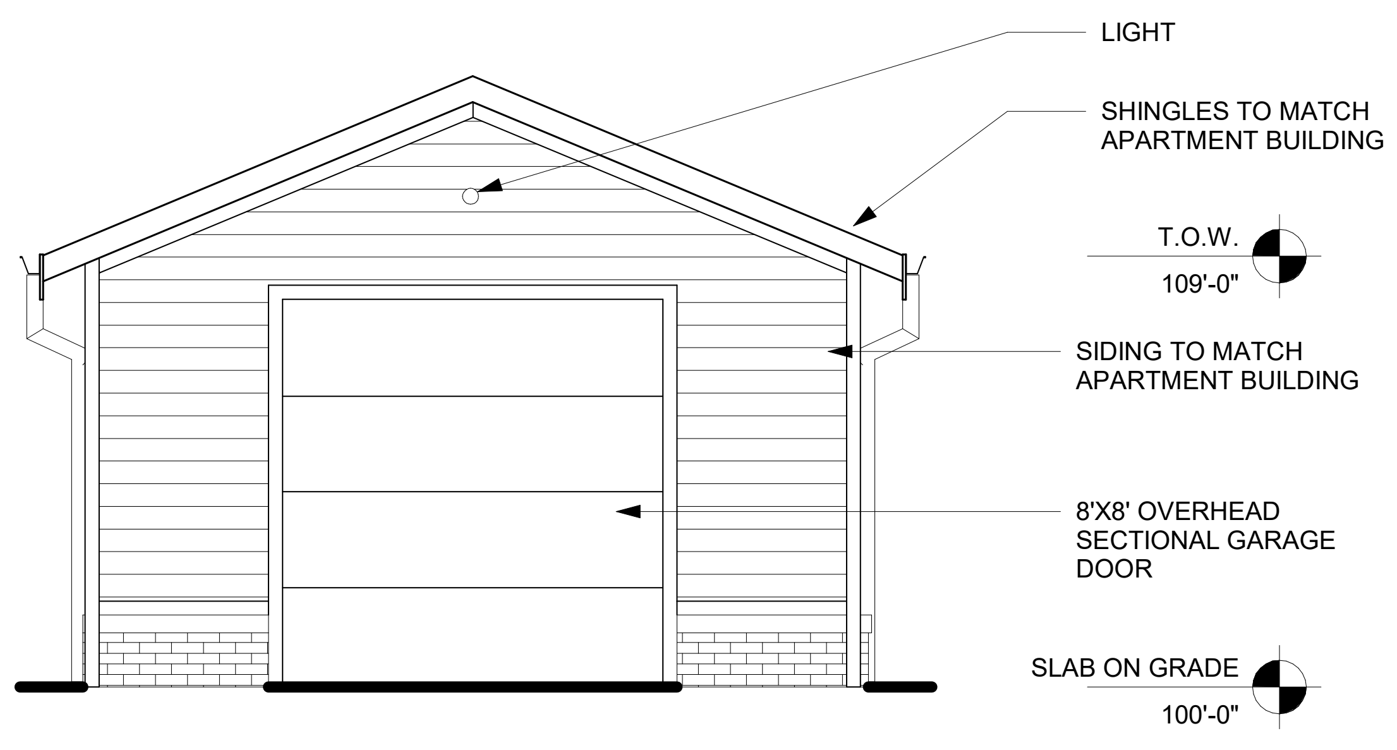
D5 TRASH ENCLOSURE SECTION
3/4" = 1'-0"


2"x4"x3/16" TUBE STEEL FRAME; PAINT
CHANNEL CLOSER
1 1/2"x1 1/2"x1/4" TUBE STEEL SUPPORT; PAINT
VINYL PICKETS ON STEEL FRAME
1 1/2"x1 1/2"x1/4" TUBE STEEL SUPPORT; PAINT
CHANNEL CLOSER
3 1/2"
2'-7 1/2"
2'-7 1/2"
3 1/2"
4"
6'-6"
6"

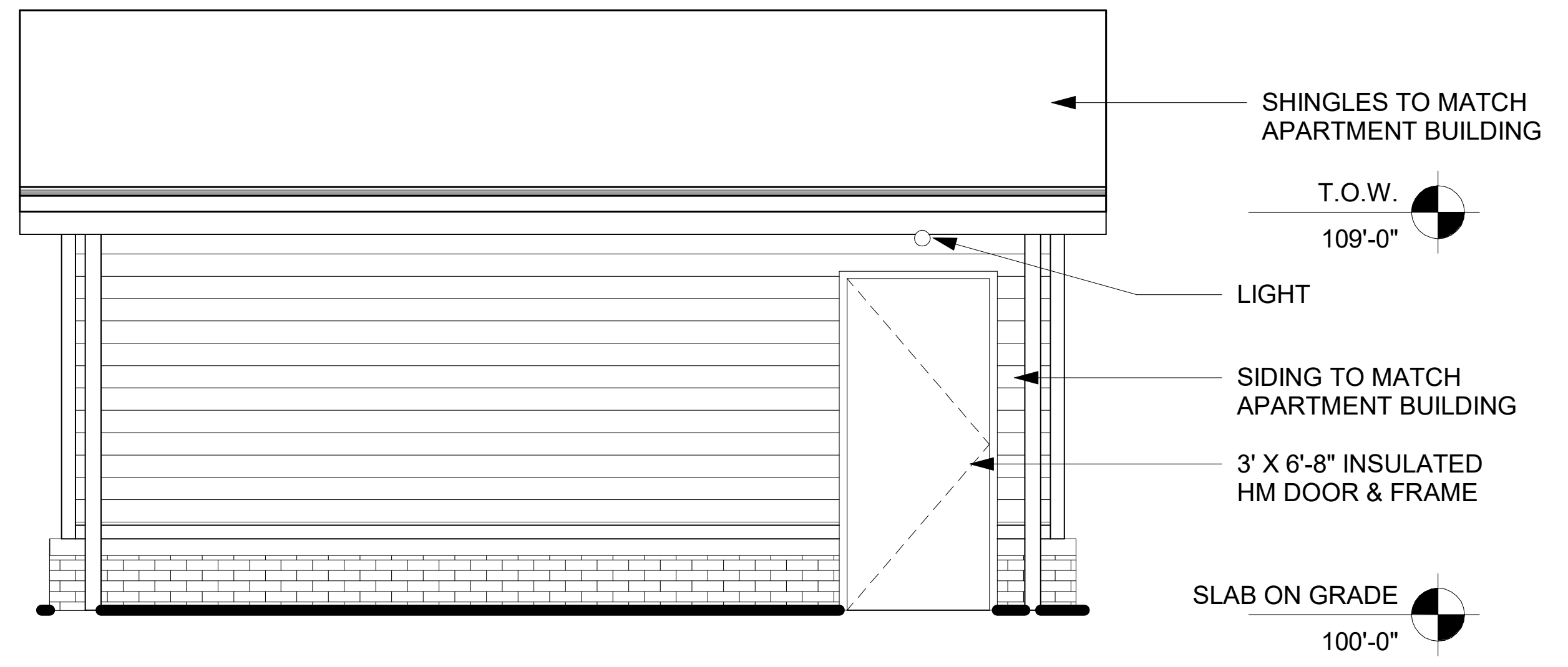
D4 TRASH ENCLOSURE GATE SECTION
3/4" = 1'-0"



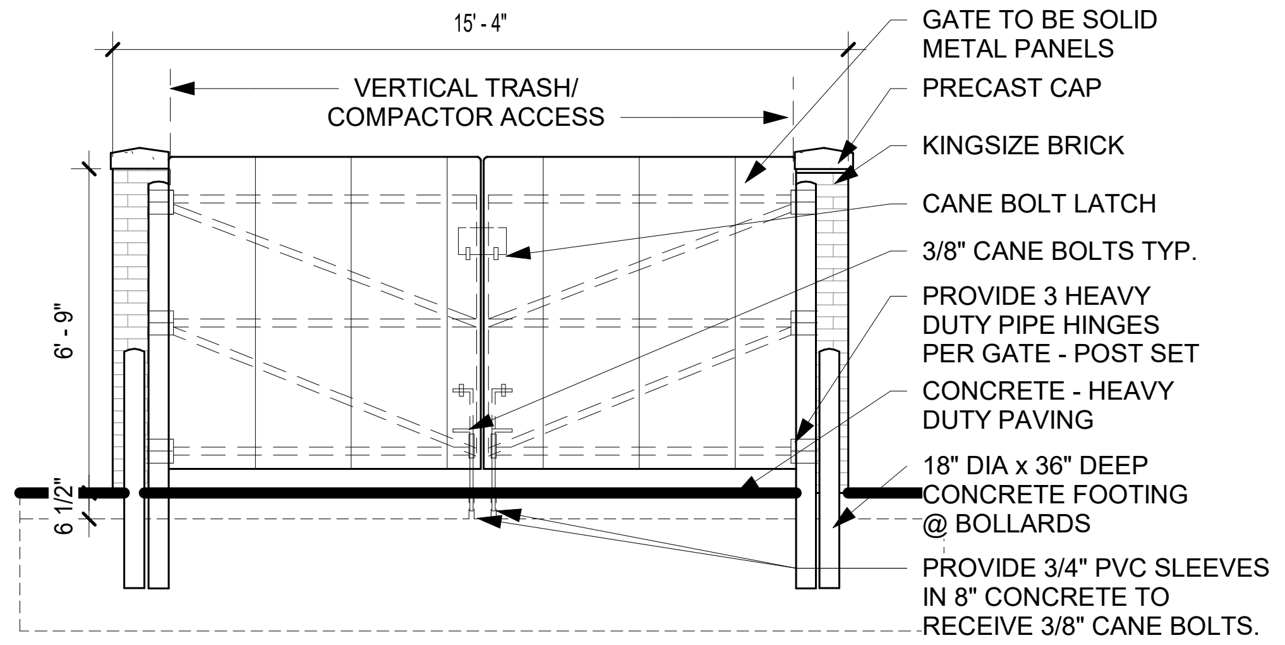
D3 MAINTENANCE SHED SECTION
3/4" = 1'-0"


LIGHT
SHINGLES TO MATCH APARTMENT BUILDING
T.O.W.
109'-0"
SIDING TO MATCH APARTMENT BUILDING
8'X8' OVERHEAD SECTIONAL GARAGE DOOR
SLAB ON GRADE
100'-0"

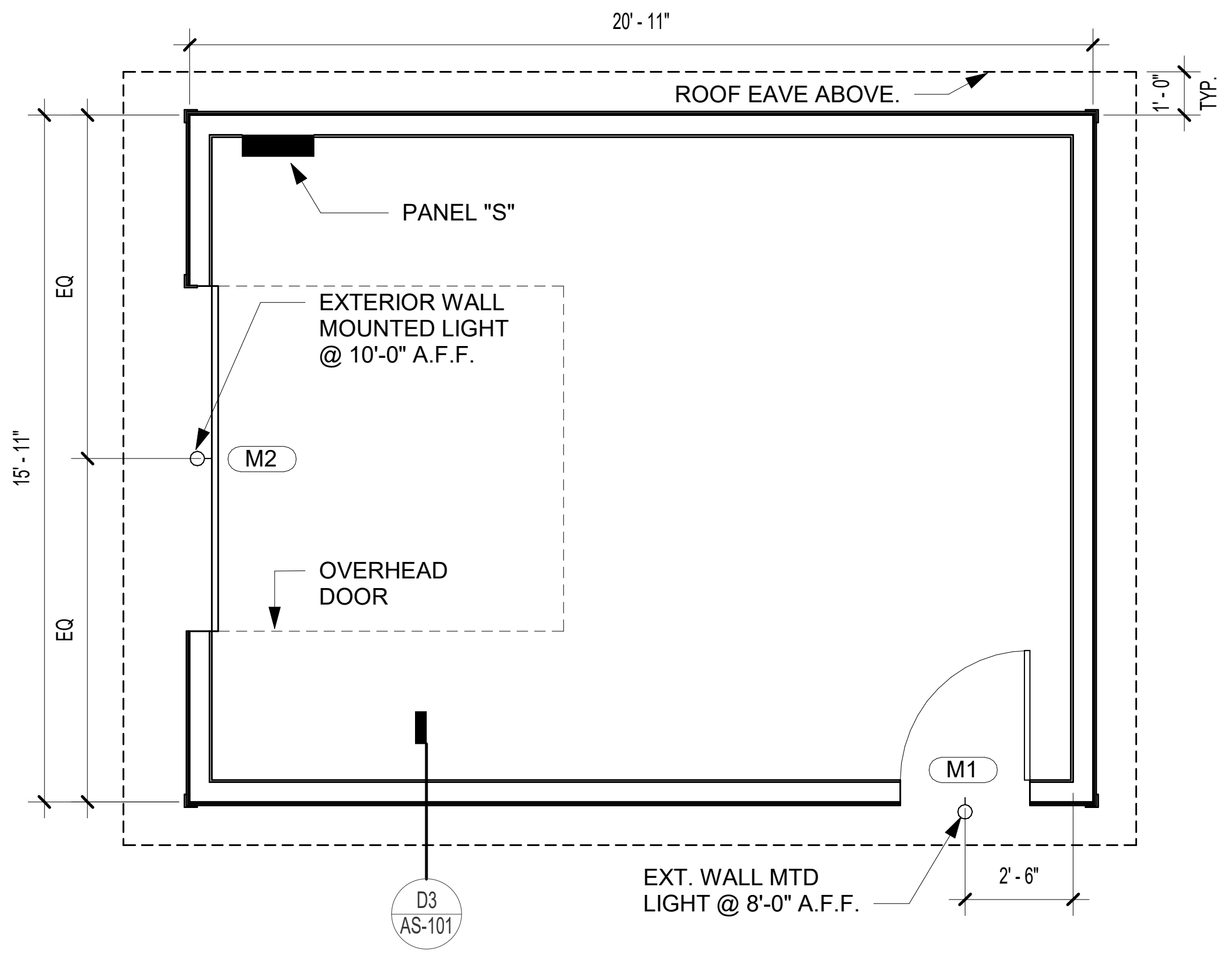
D1 MAINTENANCE SHED FRONT ELEVATION
1/4" = 1'-0"


SHINGLES TO MATCH APARTMENT BUILDING
T.O.W.
109'-0"
LIGHT
SIDING TO MATCH APARTMENT BUILDING
3' X 6'-8" INSULATED HM DOOR & FRAME
SLAB ON GRADE
100'-0"

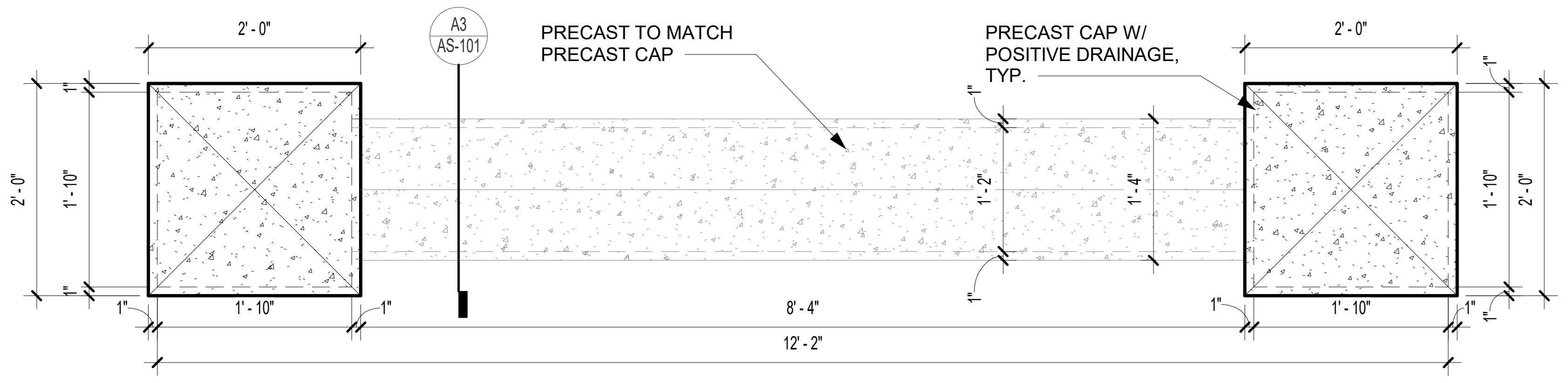
C1 MAINTENANCE SHED SIDE ELEVATION
1/4" = 1'-0"


15' - 4"
VERTICAL TRASH/ COMPACTOR ACCESS
6'-9"
6 1/2"
GATE TO BE SOLID METAL PANELS
PRECAST CAP
KINGSIZE BRICK
CANE BOLT LATCH
3/8" CANE BOLTS TYP.
PROVIDE 3 HEAVY DUTY PIPE HINGES PER GATE - POST SET
CONCRETE - HEAVY DUTY PAVING
18" DIA x 36" DEEP CONCRETE FOOTING @ BOLLARDS
PROVIDE 3/4" PVC SLEEVES IN 8" CONCRETE TO RECEIVE 3/8" CANE BOLTS.

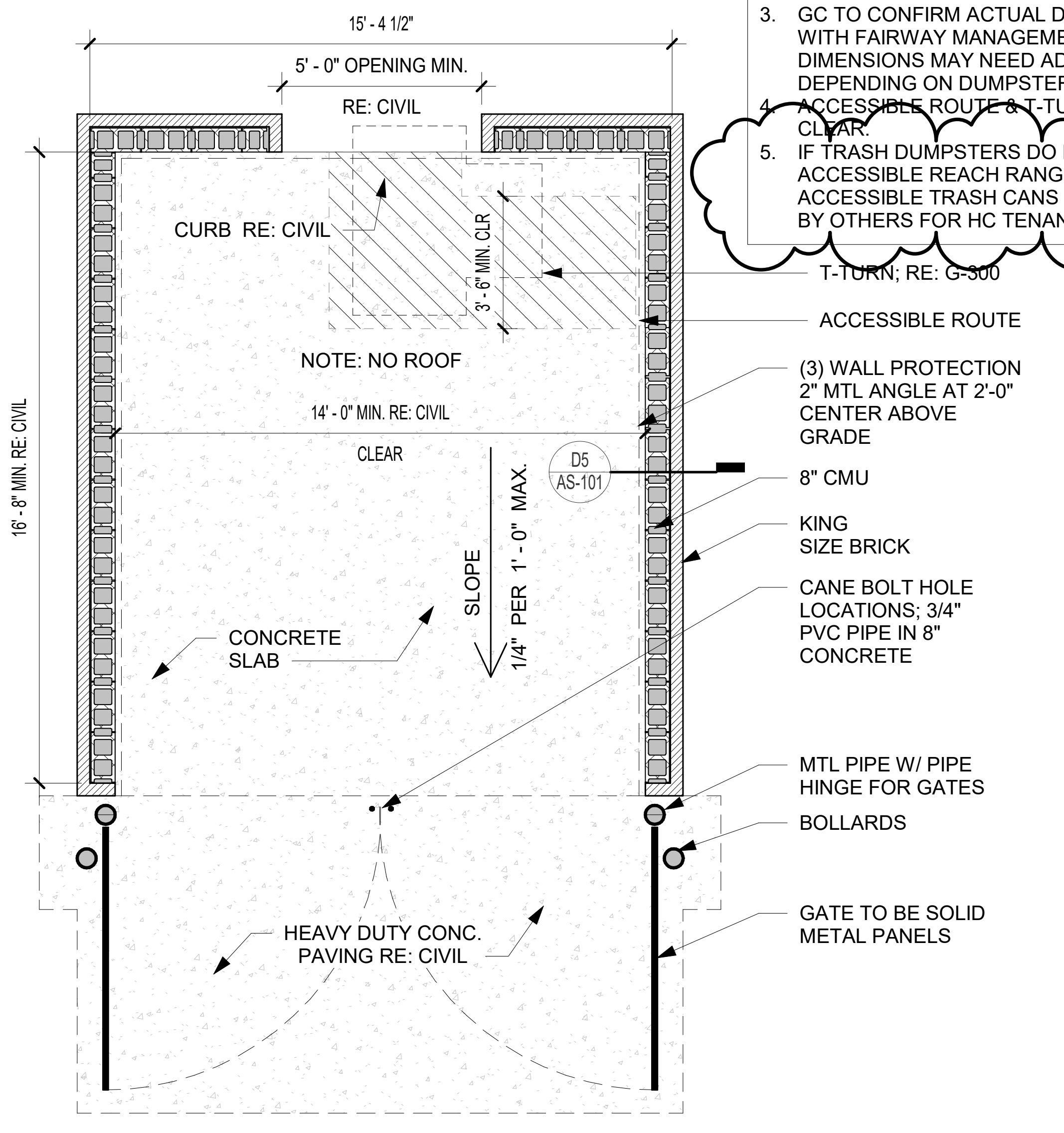
B5 TRASH ENCLOSURE ELEVATION
1/4" = 1'-0"



B3 MAINTENANCE SHED FLOOR PLAN
1/4" = 1'-0"



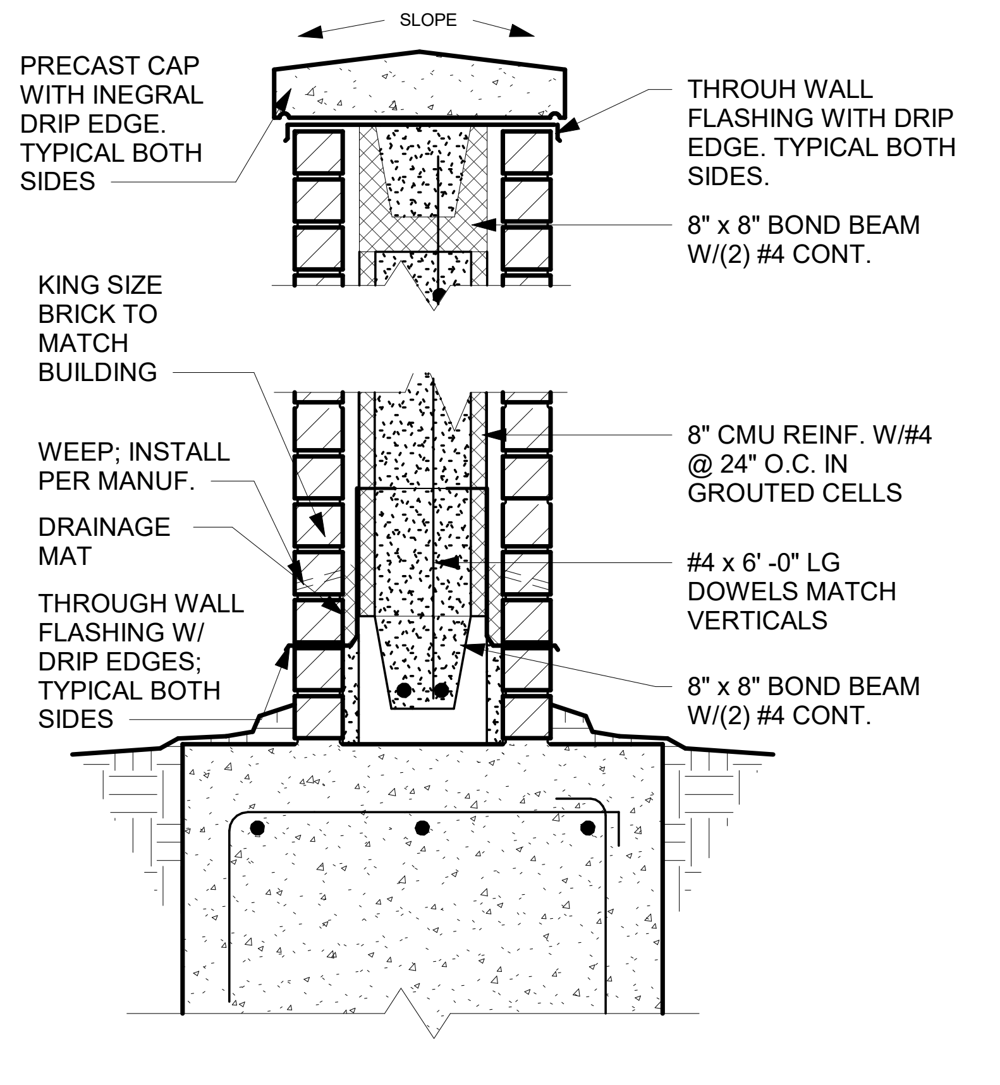
B1 MONUMENT SIGN PLAN
3/4" = 1'-0"



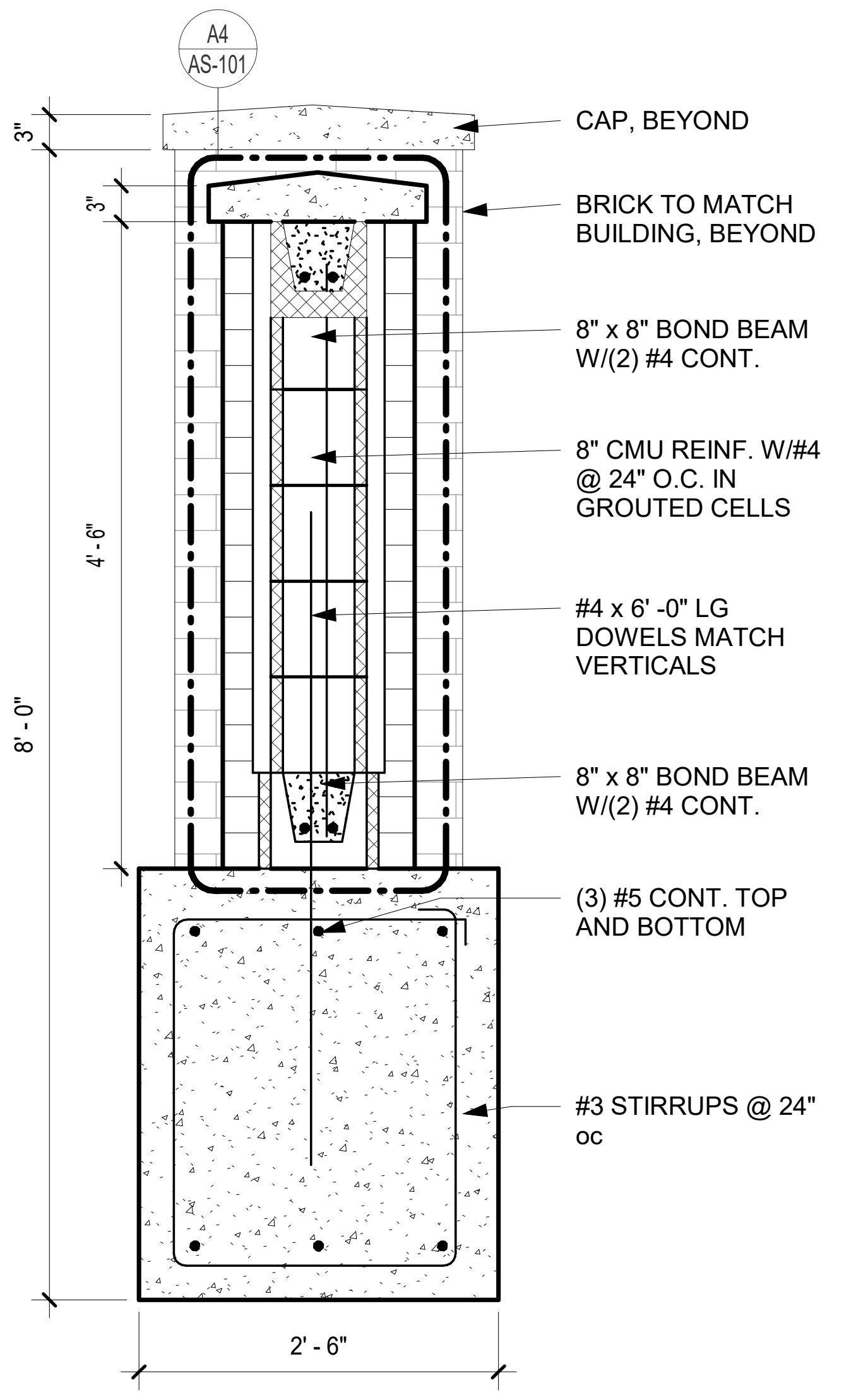
NOTE:
1. LOCATE TRASH ENCLOSURE PER CIVIL.
2. TRASH ENCLOSURE HAS NO ROOF.
3. GC TO CONFIRM ACTUAL DUMPSTER SIZE WITH FAIRWAY MANAGEMENT. ENCLOSURE DIMENSIONS MAY NEED ADJUSTMENT DEPENDING ON DUMPSTER MANUF. USED.
4. ACCESSIBLE ROUTE & T-TURN TO REMAIN CLEAR.
5. IF TRASH DUMPSTERS DO NOT REACH ACCESSIBLE REACH RANGES PROVIDE ACCESSIBLE TRASH CANS TO BE DUMPED BY OTHERS FOR HC TENANTS.

5

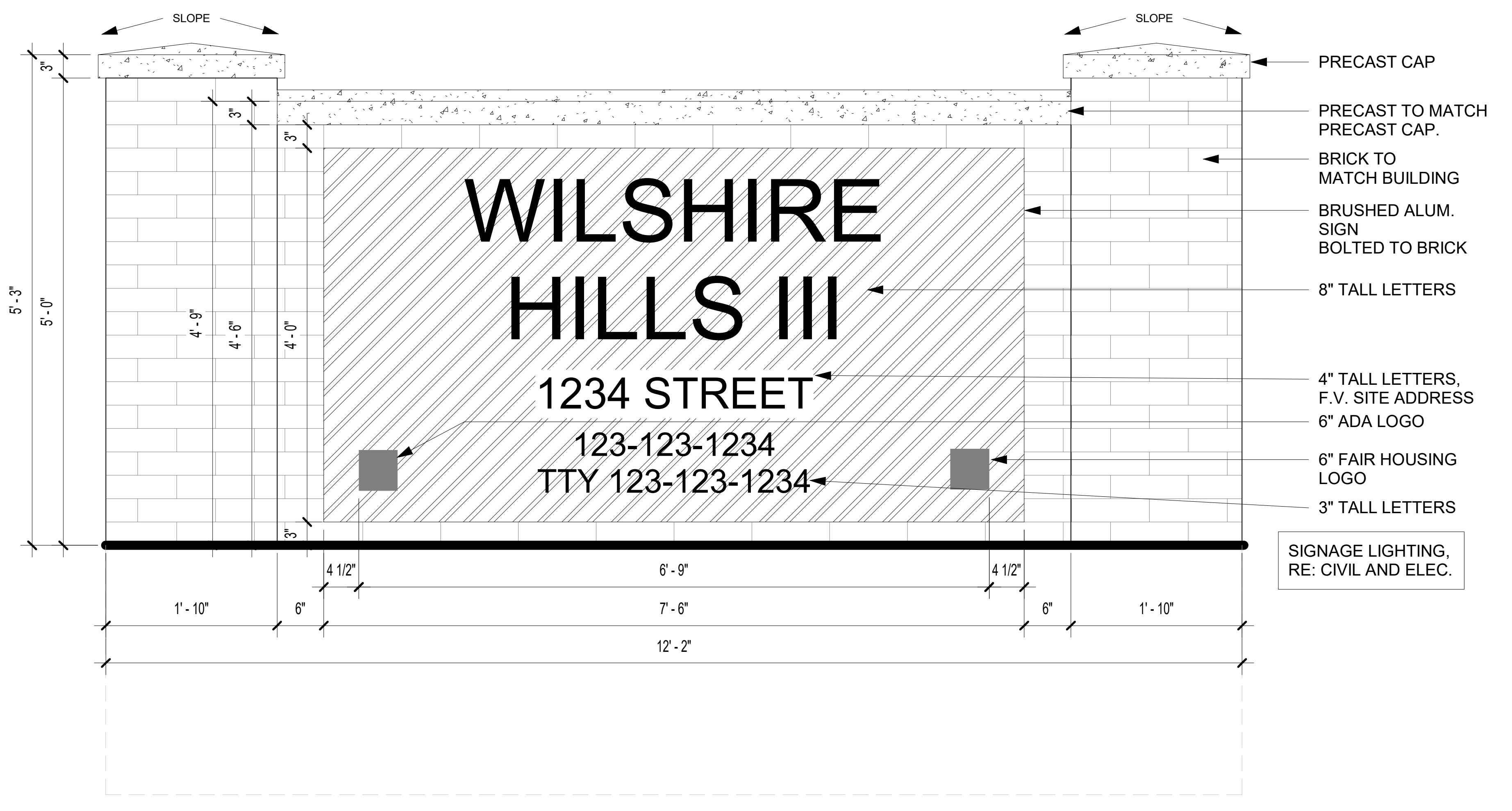
A5 TRASH ENCLOSURE FLOOR PLAN
1/4" = 1'-0"


SLOPE
PRECAST CAP WITH INEGRAL DRIP EDGE. TYPICAL BOTH SIDES
THROUH WALL FLASHING WITH DRIP EDGE. TYPICAL BOTH SIDES.
8" x 8" BOND BEAM W/(2) #4 CONT.
KING SIZE BRICK TO MATCH BUILDING
WEEP; INSTALL PER MANUF.
DRAINAGE MAT
THROUGH WALL FLASHING W/ DRIP EDGES; TYPICAL BOTH SIDES
8" CMU REINF. W/#4 @ 24" O.C. IN GROUTED CELLS
#4 x 6' -0" LG DOWELS MATCH VERTICALS
8" x 8" BOND BEAM W/(2) #4 CONT.

A4 MONUMENT SIGN SECTION
1" = 1'-0"


A4
AS-101
CAP, BEYOND
BRICK TO MATCH BUILDING, BEYOND
8" x 8" BOND BEAM W/(2) #4 CONT.
8" CMU REINF. W/#4 @ 24" O.C. IN GROUTED CELLS
#4 x 6' -0" LG DOWELS MATCH VERTICALS
8" x 8" BOND BEAM W/(2) #4 CONT.
(3) #5 CONT. TOP AND BOTTOM
#3 STIRRUPS @ 24" oc
3"
3"
4'-6"
8'-0"
2'-6"

A3 MONUMENT SIGN SECTION
3/4" = 1'-0"



A1 MONUMENT SIGN FRONT ELEVATION
3/4" = 1'-0"

PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:

4	07/16/24	Addendum 4 - Response to City Comments
5	10/04/24	ASI 001

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DAVID EUGENE HENDRIKSE
NUMBER A-7395
10/09/24

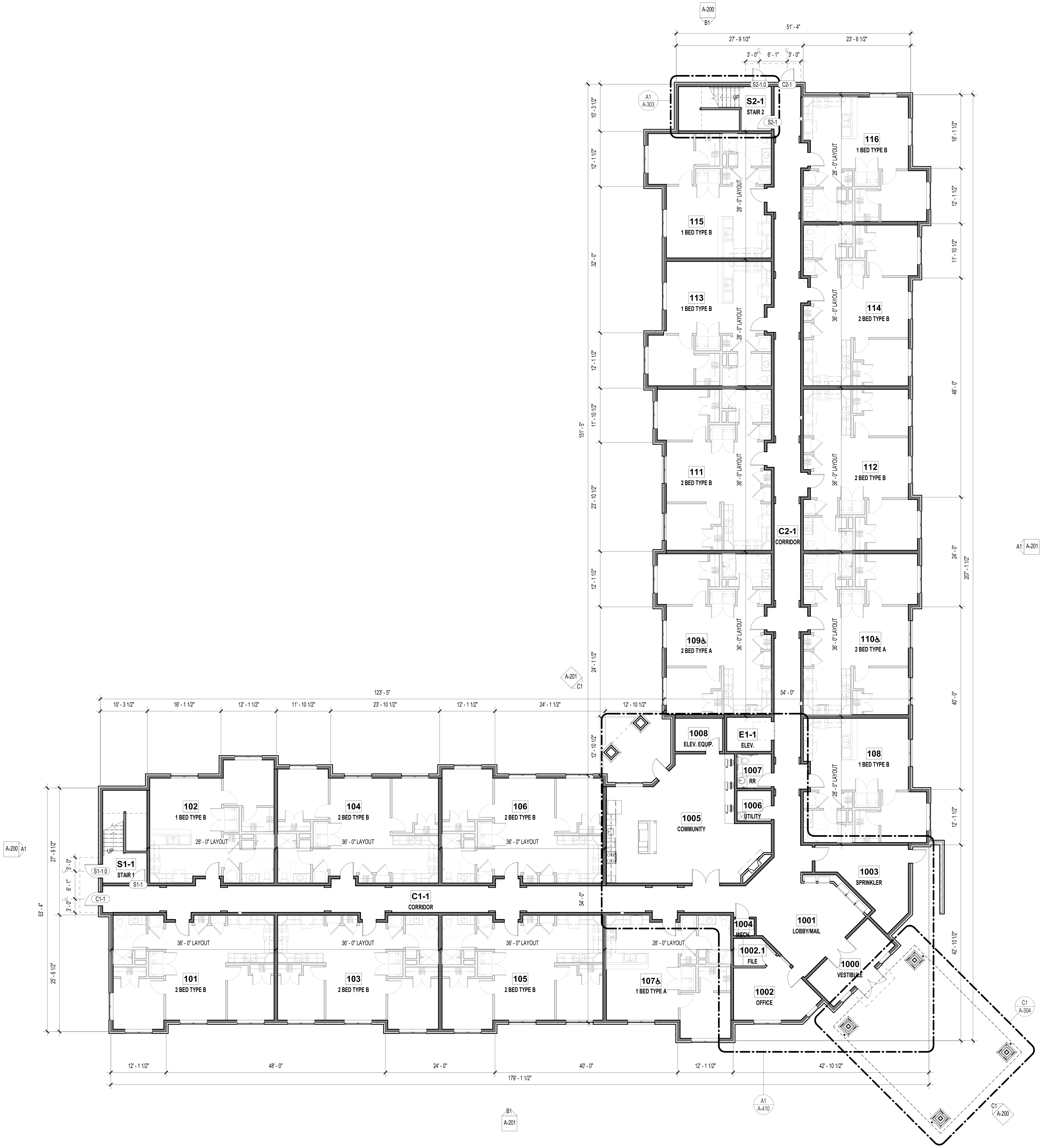
WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
ARCHITECTURAL SITE AMENITIES

PROJECT NUMBER: 23034

SHEET NUMBER:

AS-101



A1 FIRST FLOOR PLAN
3/32" = 1'-0"

REFERENCE G-003 FOR GENERAL NOTES

PLAN LEGEND

▭	PARTIAL HEIGHT PARTITION
▭	NON-RATED PARTITION; SEE ASSEMBLIES
▬	1 HR RATED PARTITION; SEE ASSEMBLIES
A1	WINDOW TYPE; SEE WINDOW SCHEDULE
101	DOOR TYPE; SEE DOOR SCHEDULE
P7	PARTITION TYPE; SEE ASSEMBLIES
6' - 0"	FRAMING DIMENSIONS
6' - 0" LAYOUT	LAYOUT LINE DIMENSIONS

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DAVID EUGENE HENDRIKSE
NUMBER A-7395
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
FIRST FLOOR PLAN

PROJECT NUMBER: 23034

SHEET NUMBER:

A-101

10/27/2023 2:50:39 PM
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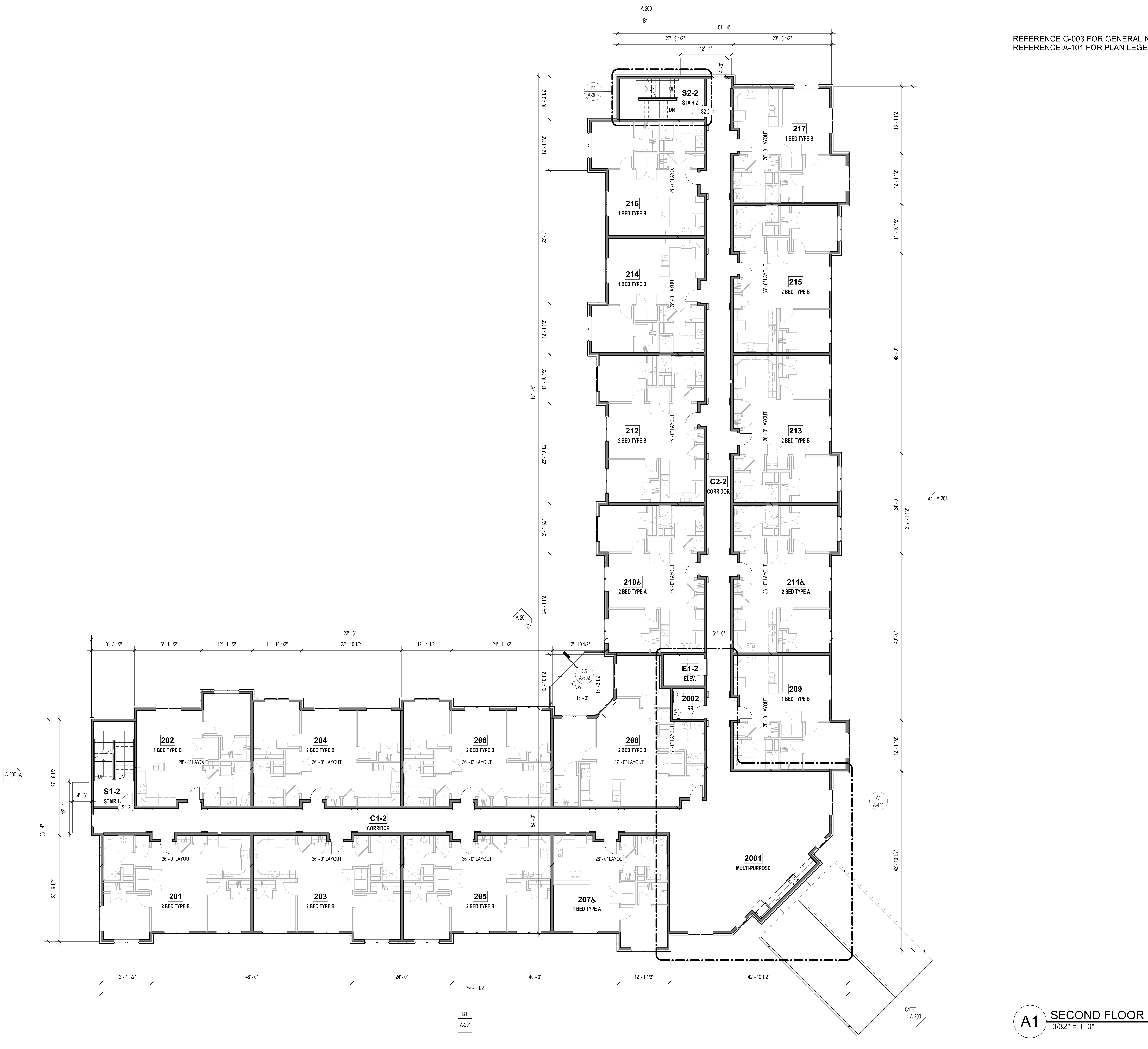
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-101 FOR PLAN LEGEND



A1 SECOND FLOOR PLAN
3/32" = 1'-0"

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DAVID EUGENE HENDRIKSE
NUMBER A-7305
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
SECOND FLOOR PLAN

PROJECT NUMBER: 23034

SHEET NUMBER:
A-102

10/27/2023 2:50:48 PM
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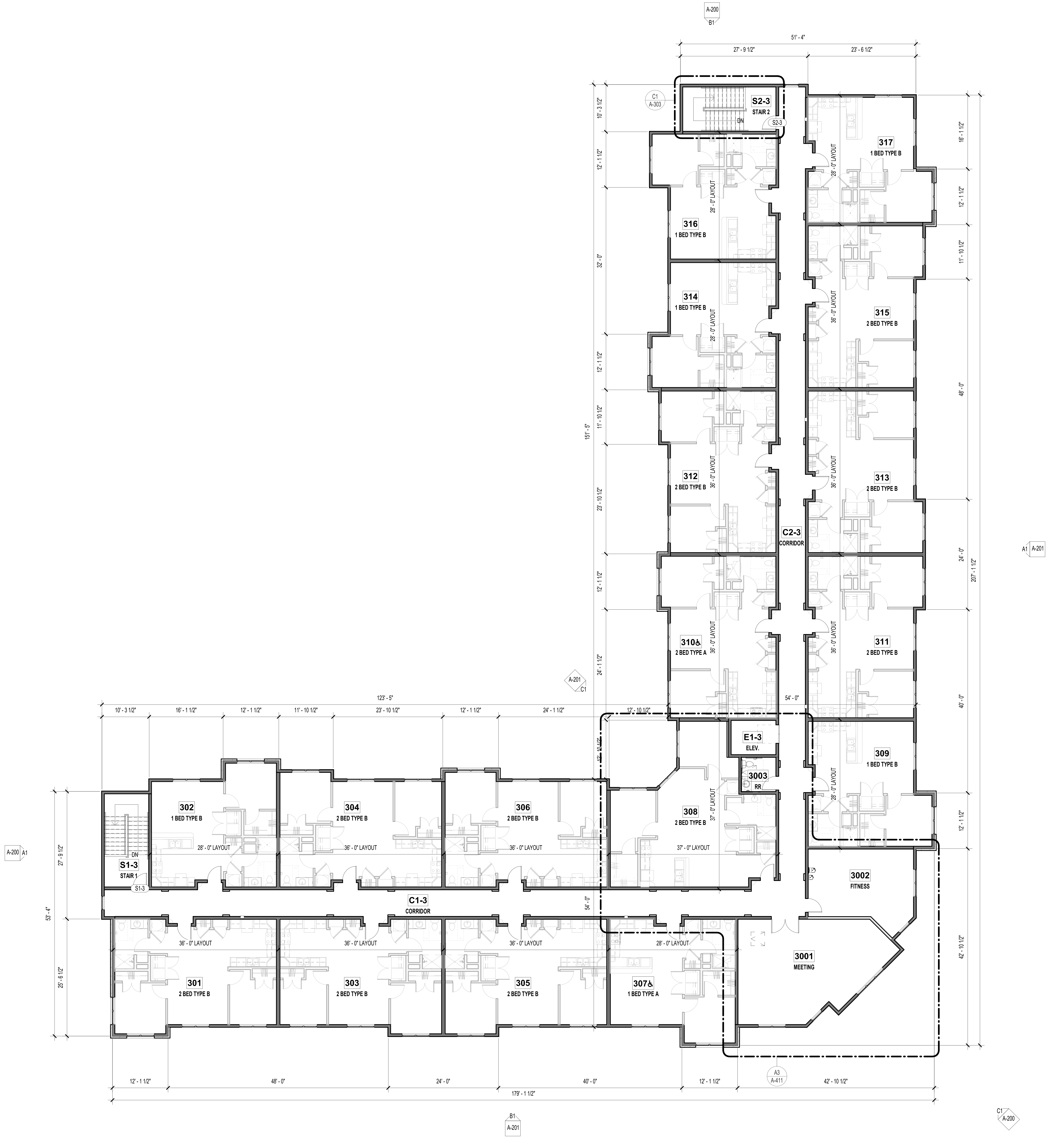
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-101 FOR PLAN LEGEND



A1 THIRD FLOOR PLAN
3/32" = 1'-0"

C1
A-200

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DAVID EUGENE HENDRIKSE
NUMBER A-7365
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
THIRD FLOOR PLAN

PROJECT NUMBER: 23034

SHEET NUMBER:

A-103

AREA A

AREA TO BE VENTED			**2065 S.F.**	
VENTING CALCULATION FACTOR PER **2018** IBC			300	
TOTAL REQUIRED VENTING	=	(2065 S.F. x 144) / 300 =	**991 SQ.IN.**	
HIGH ROOF VENTING	=	991 SQ.IN. x **0.4** =	396 SQ.IN.	
LOW ROOF VENTING	=	991 SQ.IN. x **0.6** =	595 SQ.IN.	
HIGH ROOF VENTING			**396 SQ.IN.**	**REQUIRED**
PROVIDED HIGH ROOF VENTING			**416 SQ.IN.**	**PROVIDED** ☑
(12) LF RIDGE VENT	@	18 NFA =	216 SQ.IN./FT NFA	
(4) BOX VENT	@	50 NFA =	200 SQ.IN./FT NFA	
LOW ROOF VENTING			**595 SQ.IN.**	**REQUIRED**
PROVIDED LOW ROOF VENTING			**600 SQ.IN.**	**PROVIDED** ☑
(12) LF SOFFIT VENT	@	50 NFA =	600 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			**1016 SQ.IN.**	**PROVIDED** ☑

AREA B

AREA TO BE VENTED			**1783 S.F.**	
VENTING CALCULATION FACTOR PER **2018** IBC			300	
TOTAL REQUIRED VENTING	=	(1783 S.F. x 144) / 300 =	**856 SQ.IN.**	
HIGH ROOF VENTING	=	856 SQ.IN. x **0.4** =	342 SQ.IN.	
LOW ROOF VENTING	=	856 SQ.IN. x **0.6** =	514 SQ.IN.	
HIGH ROOF VENTING			**342 SQ.IN.**	**REQUIRED**
PROVIDED HIGH ROOF VENTING			**344 SQ.IN.**	**PROVIDED** ☑
(8) LF RIDGE VENT	@	18 NFA =	144 SQ.IN./FT NFA	
(4) BOX VENT	@	50 NFA =	200 SQ.IN./FT NFA	
LOW ROOF VENTING			**514 SQ.IN.**	**REQUIRED**
PROVIDED LOW ROOF VENTING			**600 SQ.IN.**	**PROVIDED** ☑
(12) LF SOFFIT VENT	@	50 NFA =	600 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			**944 SQ.IN.**	**PROVIDED** ☑

AREA C

AREA TO BE VENTED			**2201 S.F.**	
VENTING CALCULATION FACTOR PER **2018** IBC			300	
TOTAL REQUIRED VENTING	=	(2201 S.F. x 144) / 300 =	**1056 SQ.IN.**	
HIGH ROOF VENTING	=	1056 SQ.IN. x **0.4** =	422 SQ.IN.	
LOW ROOF VENTING	=	1056 SQ.IN. x **0.6** =	634 SQ.IN.	
HIGH ROOF VENTING			**422 SQ.IN.**	**REQUIRED**
PROVIDED HIGH ROOF VENTING			**452 SQ.IN.**	**PROVIDED** ☑
(14) LF RIDGE VENT	@	18 NFA =	252 SQ.IN./FT NFA	
(4) BOX VENT	@	50 NFA =	200 SQ.IN./FT NFA	
LOW ROOF VENTING			**634 SQ.IN.**	**REQUIRED**
PROVIDED LOW ROOF VENTING			**700 SQ.IN.**	**PROVIDED** ☑
(14) LF SOFFIT VENT	@	50 NFA =	700 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			**1152 SQ.IN.**	**PROVIDED** ☑

AREA D

AREA TO BE VENTED			**2055 S.F.**	
VENTING CALCULATION FACTOR PER **2018** IBC			300	
TOTAL REQUIRED VENTING	=	(2055 S.F. x 144) / 300 =	**986 SQ.IN.**	
HIGH ROOF VENTING	=	986 SQ.IN. x **0.4** =	394 SQ.IN.	
LOW ROOF VENTING	=	986 SQ.IN. x **0.6** =	592 SQ.IN.	
HIGH ROOF VENTING			**394 SQ.IN.**	**REQUIRED**
PROVIDED HIGH ROOF VENTING			**444 SQ.IN.**	**PROVIDED** ☑
(8) LF RIDGE VENT	@	18 NFA =	144 SQ.IN./FT NFA	
(6) BOX VENT	@	50 NFA =	300 SQ.IN./FT NFA	
LOW ROOF VENTING			**592 SQ.IN.**	**REQUIRED**
PROVIDED LOW ROOF VENTING			**600 SQ.IN.**	**PROVIDED** ☑
(12) LF SOFFIT VENT	@	50 NFA =	600 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			**1044 SQ.IN.**	**PROVIDED** ☑

AREA E

AREA TO BE VENTED			**2103 S.F.**	
VENTING CALCULATION FACTOR PER **2018** IBC			300	
TOTAL REQUIRED VENTING	=	(2103 S.F. x 144) / 300 =	**1009 SQ.IN.**	
HIGH ROOF VENTING	=	1009 SQ.IN. x **0.4** =	404 SQ.IN.	
LOW ROOF VENTING	=	1009 SQ.IN. x **0.6** =	605 SQ.IN.	
HIGH ROOF VENTING			**404 SQ.IN.**	**REQUIRED**
PROVIDED HIGH ROOF VENTING			**416 SQ.IN.**	**PROVIDED** ☑
(12) LF RIDGE VENT	@	18 NFA =	216 SQ.IN./FT NFA	
(4) BOX VENT	@	50 NFA =	200 SQ.IN./FT NFA	
LOW ROOF VENTING			**605 SQ.IN.**	**REQUIRED**
PROVIDED LOW ROOF VENTING			**700 SQ.IN.**	**PROVIDED** ☑
(14) LF SOFFIT VENT	@	50 NFA =	700 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			**1116 SQ.IN.**	**PROVIDED** ☑

AREA F

AREA TO BE VENTED			**1983 S.F.**	
VENTING CALCULATION FACTOR PER **2018** IBC			300	
TOTAL REQUIRED VENTING	=	(1983 S.F. x 144) / 300 =	**952 SQ.IN.**	
HIGH ROOF VENTING	=	952 SQ.IN. x **0.4** =	381 SQ.IN.	
LOW ROOF VENTING	=	952 SQ.IN. x **0.6** =	571 SQ.IN.	
HIGH ROOF VENTING			**381 SQ.IN.**	**REQUIRED**
PROVIDED HIGH ROOF VENTING			**416 SQ.IN.**	**PROVIDED** ☑
(12) LF RIDGE VENT	@	18 NFA =	216 SQ.IN./FT NFA	
(4) BOX VENT	@	50 NFA =	200 SQ.IN./FT NFA	
LOW ROOF VENTING			**571 SQ.IN.**	**REQUIRED**
PROVIDED LOW ROOF VENTING			**600 SQ.IN.**	**PROVIDED** ☑
(12) LF SOFFIT VENT	@	50 NFA =	600 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			**1016 SQ.IN.**	**PROVIDED** ☑

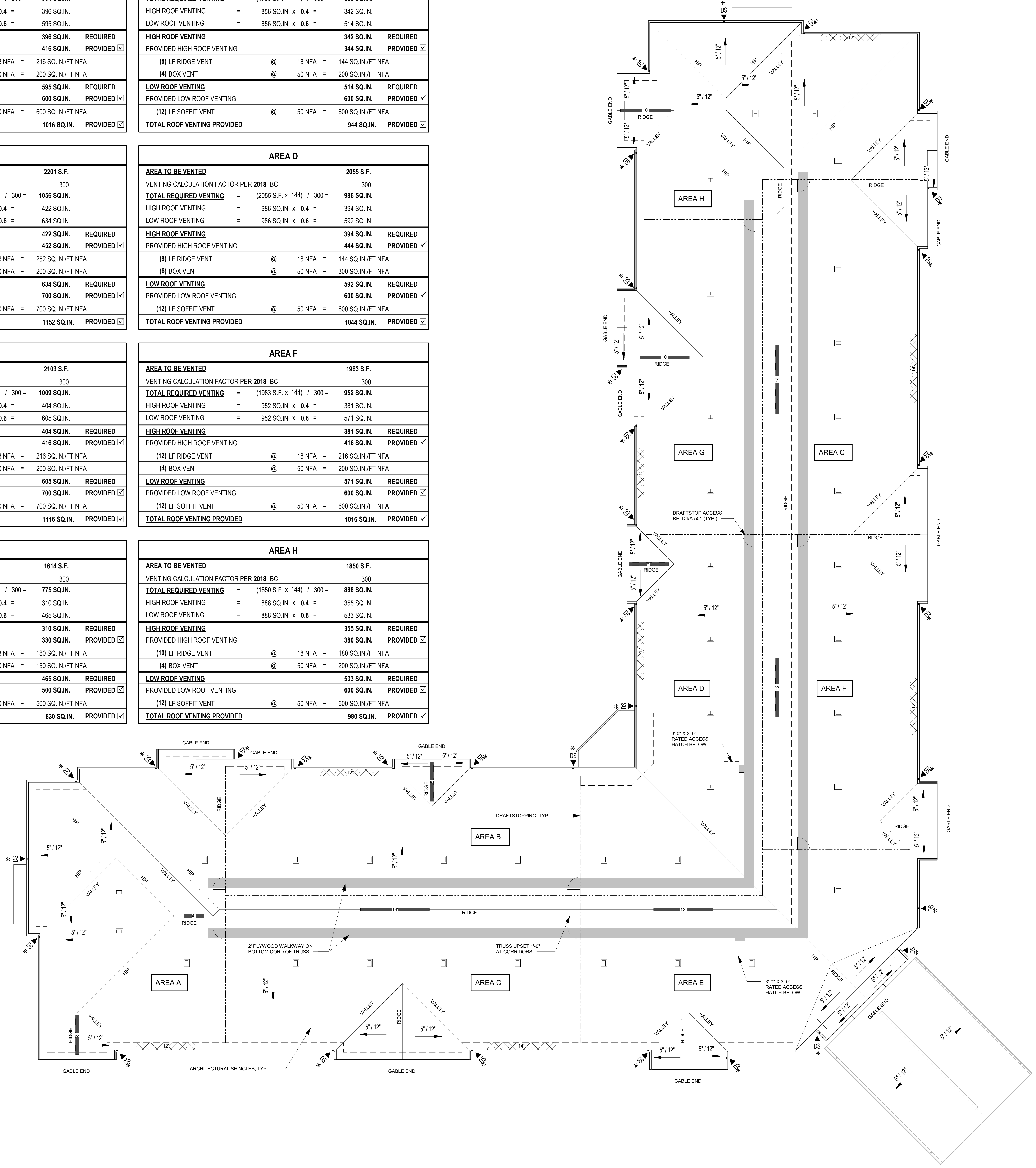
AREA G

AREA TO BE VENTED			**1614 S.F.**	
VENTING CALCULATION FACTOR PER **2018** IBC			300	
TOTAL REQUIRED VENTING	=	(1614 S.F. x 144) / 300 =	**775 SQ.IN.**	
HIGH ROOF VENTING	=	775 SQ.IN. x **0.4** =	310 SQ.IN.	
LOW ROOF VENTING	=	775 SQ.IN. x **0.6** =	465 SQ.IN.	
HIGH ROOF VENTING			**310 SQ.IN.**	**REQUIRED**
PROVIDED HIGH ROOF VENTING			**330 SQ.IN.**	**PROVIDED** ☑
(10) LF RIDGE VENT	@	18 NFA =	180 SQ.IN./FT NFA	
(3) BOX VENT	@	50 NFA =	150 SQ.IN./FT NFA	
LOW ROOF VENTING			**465 SQ.IN.**	**REQUIRED**
PROVIDED LOW ROOF VENTING			**500 SQ.IN.**	**PROVIDED** ☑
(10) LF SOFFIT VENT	@	50 NFA =	500 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			**830 SQ.IN.**	**PROVIDED** ☑

AREA H

AREA TO BE VENTED			**1850 S.F.**	
VENTING CALCULATION FACTOR PER **2018** IBC			300	
TOTAL REQUIRED VENTING	=	(1850 S.F. x 144) / 300 =	**888 SQ.IN.**	
HIGH ROOF VENTING	=	888 SQ.IN. x **0.4** =	355 SQ.IN.	
LOW ROOF VENTING	=	888 SQ.IN. x **0.6** =	533 SQ.IN.	
HIGH ROOF VENTING			**355 SQ.IN.**	**REQUIRED**
PROVIDED HIGH ROOF VENTING			**380 SQ.IN.**	**PROVIDED** ☑
(10) LF RIDGE VENT	@	18 NFA =	180 SQ.IN./FT NFA	
(4) BOX VENT	@	50 NFA =	200 SQ.IN./FT NFA	
LOW ROOF VENTING			**533 SQ.IN.**	**REQUIRED**
PROVIDED LOW ROOF VENTING			**600 SQ.IN.**	**PROVIDED** ☑
(12) LF SOFFIT VENT	@	50 NFA =	600 SQ.IN./FT NFA	
TOTAL ROOF VENTING PROVIDED			**980 SQ.IN.**	**PROVIDED** ☑

REFERENCE G-003 FOR GENERAL NOTES



1 ROOF PLAN
3/32" = 1'-0"

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DAVID EUGENE HENDRIKSE
NUMBER A-7395
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
ROOF PLAN

PROJECT NUMBER: 23034

SHEET NUMBER:

A-104

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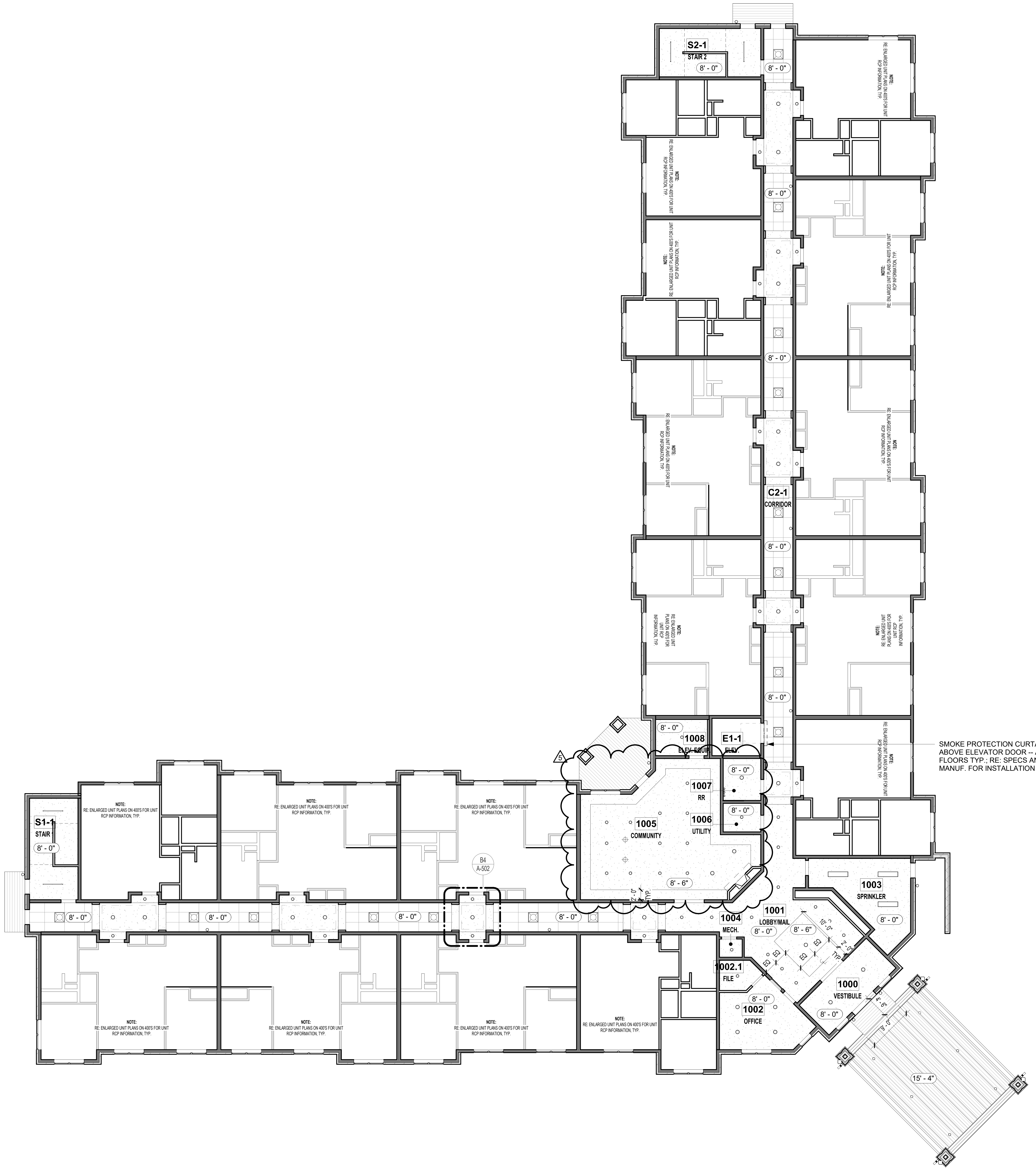
REFERENCE G-003 FOR GENERAL NOTES

RCP LEGEND

⊞	**C2** - 2' X 4' ACT SYSTEM - CERAMAGUARD UNPERFORATED SQUARE LAY-IN, PER 095113
▨	**C3** - GWB ON METAL STUD
☐	**C4** - SMOOTH FIBERCEMENT BOARD. PROVIDE 1X BATTEN @ SEAMS. PAINT FINISH
▤	**C8** - TONGUE & GROOVE (EXTERIOR) - SIZE: 1X6' PTD PER ARCH RECOMMENDATIONS
9' - 0"	INDICATES CEILING HEIGHT



SMOKE PROTECTION CURTAIN ABOVE ELEVATOR DOOR -- ALL FLOORS TYP.; RE: SPECS AND MANUF. FOR INSTALLATION

1 FIRST FLOOR REFLECTED CEILING PLAN
3/32" = 1'-0"

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DAVID EUGENE HENDRIKSE
NUMBER A-7395
10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
FIRST FLOOR REFLECTED CEILING PLAN
PROJECT NUMBER: 23034
SHEET NUMBER:
A-120

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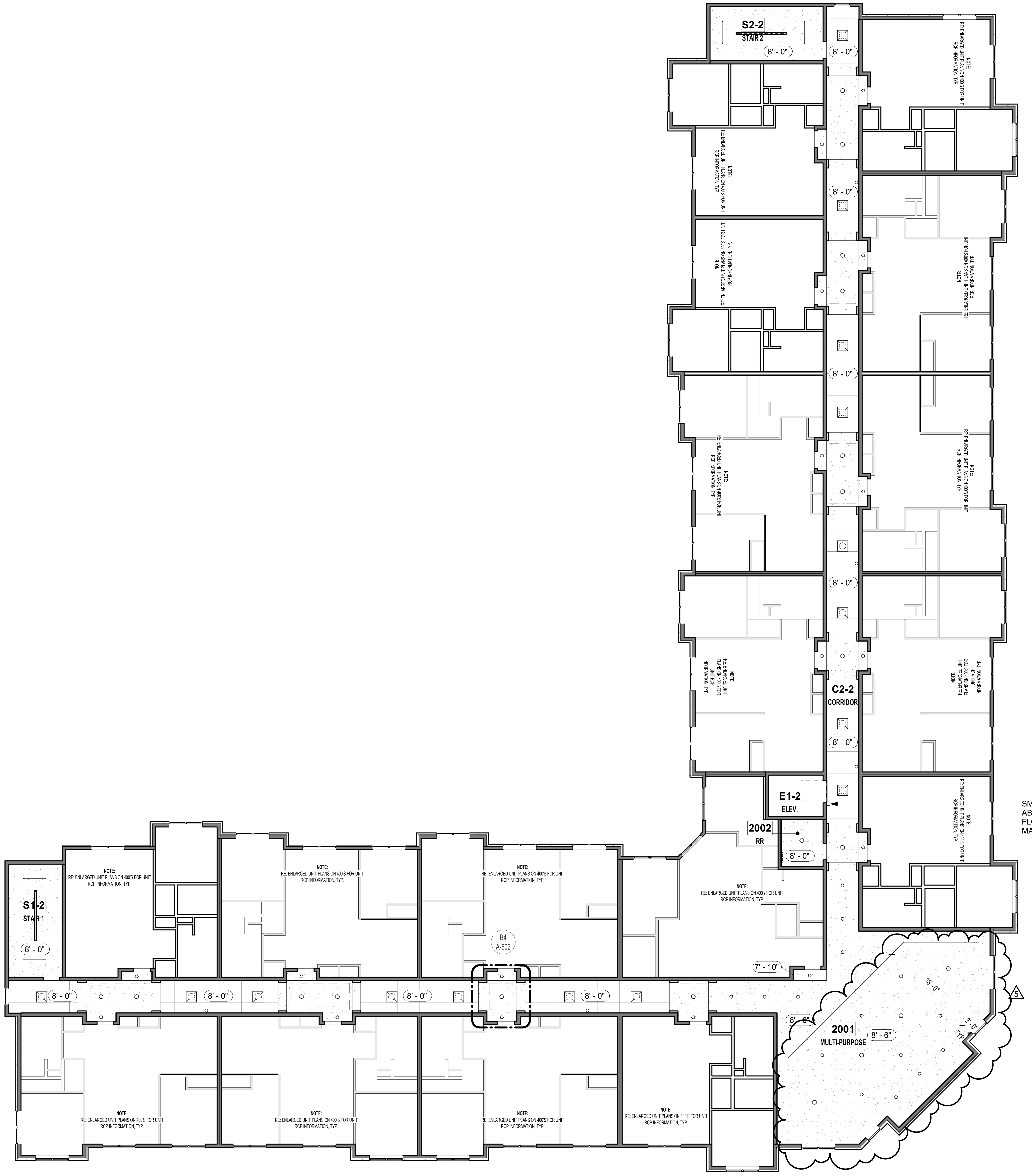
REFERENCE A-120 FOR RCP LEGEND



SMOKE PROTECTION CURTAIN ABOVE ELEVATOR DOOR -- ALL FLOORS TYP.; RE: SPECS AND MANUF. FOR INSTALLATION

1 SECOND FLOOR REFLECTED CEILING PLAN
3/32" = 1'-0"

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NUMBER A-7395
10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
SECOND FLOOR REFLECTED CEILING PLAN

PROJECT NUMBER: 23034

SHEET NUMBER:
A-121

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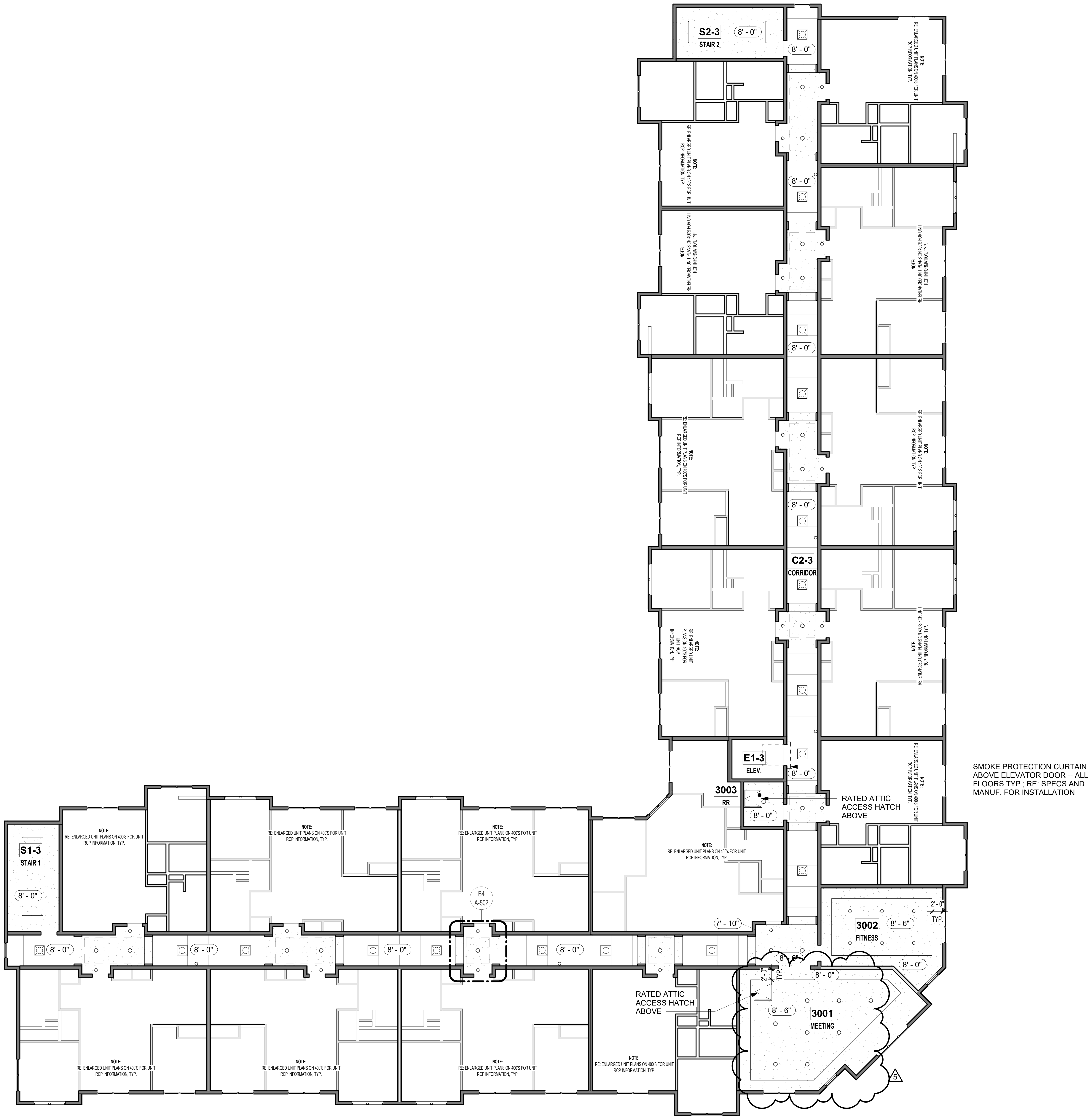
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-120 FOR RCP LEGEND


S2-3
STAIR 2
8' - 0"
NOTE:
RE: ENLARGED UNIT PLANS ON 400'S FOR UNIT RCP INFORMATION, TYP.
8' - 0"
8' - 0"
8' - 0"
C2-3
CORRIDOR
E1-3
ELEV.
8' - 0"
3003
RR
8' - 0"
SMOKE PROTECTION CURTAIN ABOVE ELEVATOR DOOR -- ALL FLOORS TYP.; RE: SPECS AND MANUF. FOR INSTALLATION
RATED ATTIC ACCESS HATCH ABOVE
7' - 10"
3002
8' - 6"
FITNESS
2' - 0"
TYP.
8' - 0"
8' - 6"
8' - 0"
2' - 0"
TYP.
8' - 6"
3001
MEETING
5
RATED ATTIC ACCESS HATCH ABOVE
S1-3
STAIR 1
8' - 0"
B4
A-502
8' - 0"
8' - 0"
8' - 0"
8' - 0"
NOTE:
RE: ENLARGED UNIT PLANS ON 400'S FOR UNIT RCP INFORMATION, TYP.

1

THIRD FLOOR REFLECTED CEILING PLAN

3/32" = 1'-0"

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DAVID EUGENE HENDRIKSE
NUMBER A-7395
10/09/24

WILSHIRE HILLS III

LEE'S SUMMIT, MISSOURI

MHDC Project No. #22-057 MT

SHEET TITLE
THIRD FLOOR REFLECTED CEILING PLAN

PROJECT NUMBER: 23034

SHEET NUMBER:

A-122

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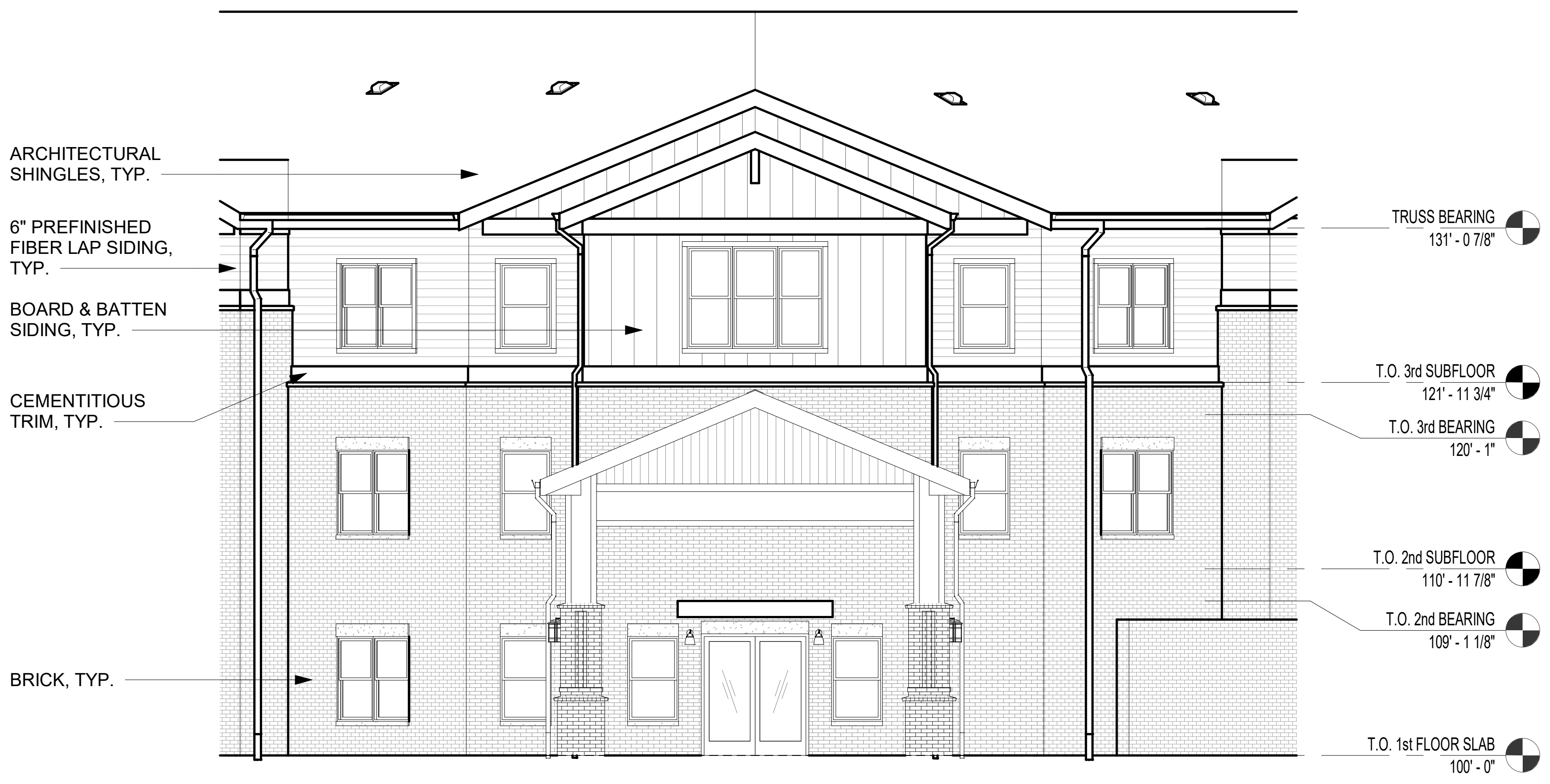
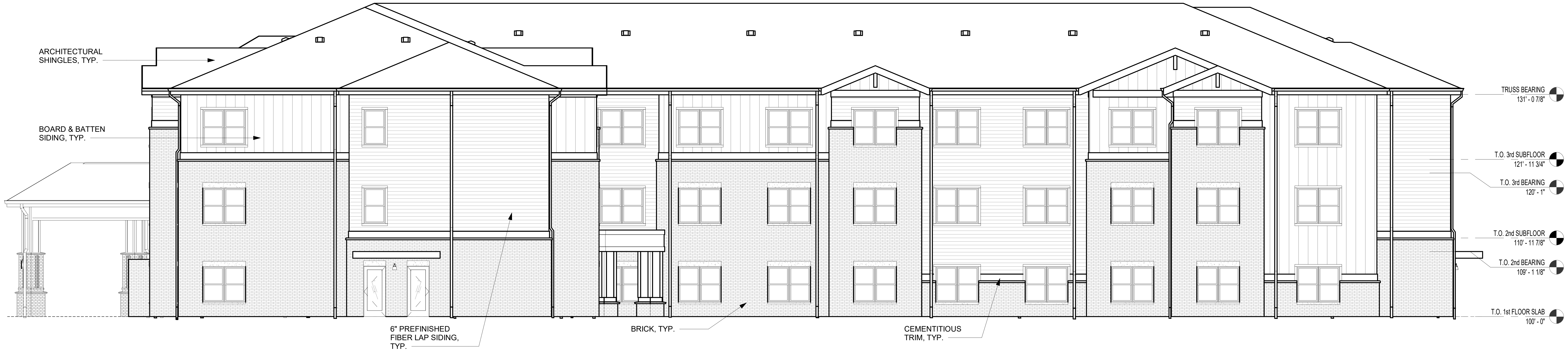
REFERENCE G-003 FOR GENERAL NOTES

MATERIAL LEGEND

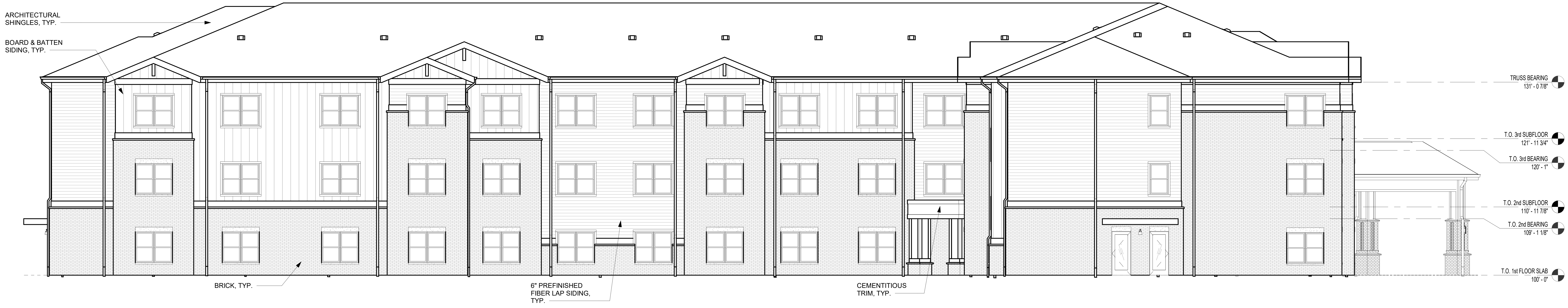
▤	6" PREFININISHED FIBER LAP SIDING
▥	BOARD & BATTEN SIDING
▦	FACE BRICK
░	CAST STONE BANDING, WINDOW SILLS AND CAPS
▩	SPLIT FACE CMU
☐	PREFINISHED FIBER TRIM - 3-1/2" & 5-1/2" AT WINDOW 11-1/4" AT BANDING 3-1/2" VERTICAL OUTSIDE / INSIDE CORNER TRIM


ARCHITECTURAL SHINGLES, TYP.
6" PREFINISHED FIBER LAP SIDING, TYP.
BOARD & BATTEN SIDING, TYP.
CEMENTITIOUS TRIM, TYP.
BRICK, TYP.
TRUSS BEARING 131' - 0 7/8"
T.O. 3rd SUBFLOOR 121' - 11 3/4"
T.O. 3rd BEARING 120' - 1"
T.O. 2nd SUBFLOOR 110' - 11 7/8"
T.O. 2nd BEARING 109' - 1 1/8"
T.O. 1st FLOOR SLAB 100' - 0"

C1 FRONT ELEVATION
1/8" = 1'-0"


ARCHITECTURAL SHINGLES, TYP.
BOARD & BATTEN SIDING, TYP.
6" PREFINISHED FIBER LAP SIDING, TYP.
BRICK, TYP.
CEMENTITIOUS TRIM, TYP.
TRUSS BEARING 131' - 0 7/8"
T.O. 3rd SUBFLOOR 121' - 11 3/4"
T.O. 3rd BEARING 120' - 1"
T.O. 2nd SUBFLOOR 110' - 11 7/8"
T.O. 2nd BEARING 109' - 1 1/8"
T.O. 1st FLOOR SLAB 100' - 0"

B1 EAST ELEVATION
1/8" = 1'-0"


ARCHITECTURAL SHINGLES, TYP.
BOARD & BATTEN SIDING, TYP.
BRICK, TYP.
6" PREFINISHED FIBER LAP SIDING, TYP.
CEMENTITIOUS TRIM, TYP.
TRUSS BEARING 131' - 0 7/8"
T.O. 3rd SUBFLOOR 121' - 11 3/4"
T.O. 3rd BEARING 120' - 1"
T.O. 2nd SUBFLOOR 110' - 11 7/8"
T.O. 2nd BEARING 109' - 1 1/8"
T.O. 1st FLOOR SLAB 100' - 0"

A1 NORTH ELEVATION
1/8" = 1'-0"

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DAVID EUGENE HENDRIKSE
NUMBER A-7365
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
EXTERIOR ELEVATIONS

PROJECT NUMBER: 23034

SHEET NUMBER:

A-200

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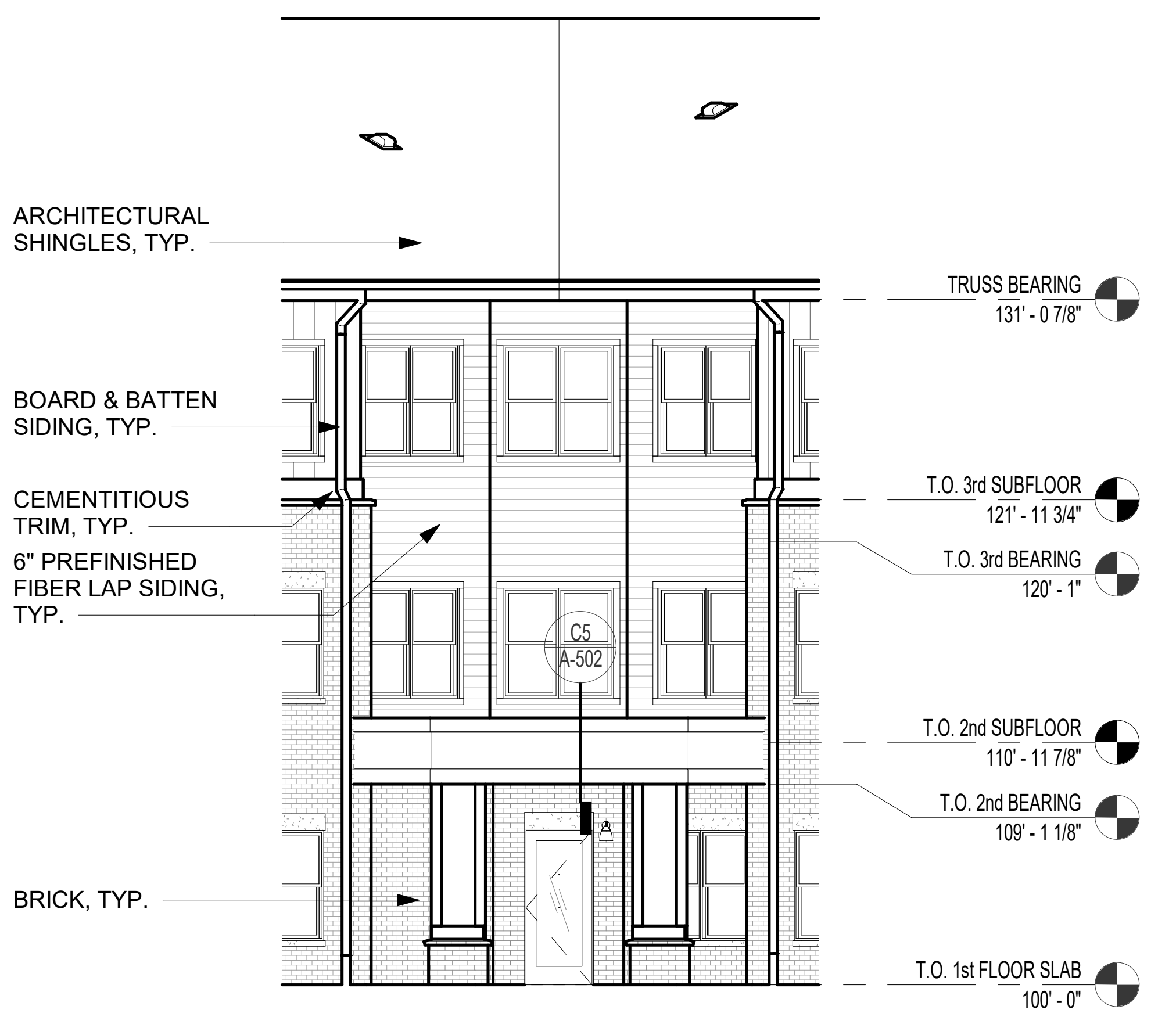
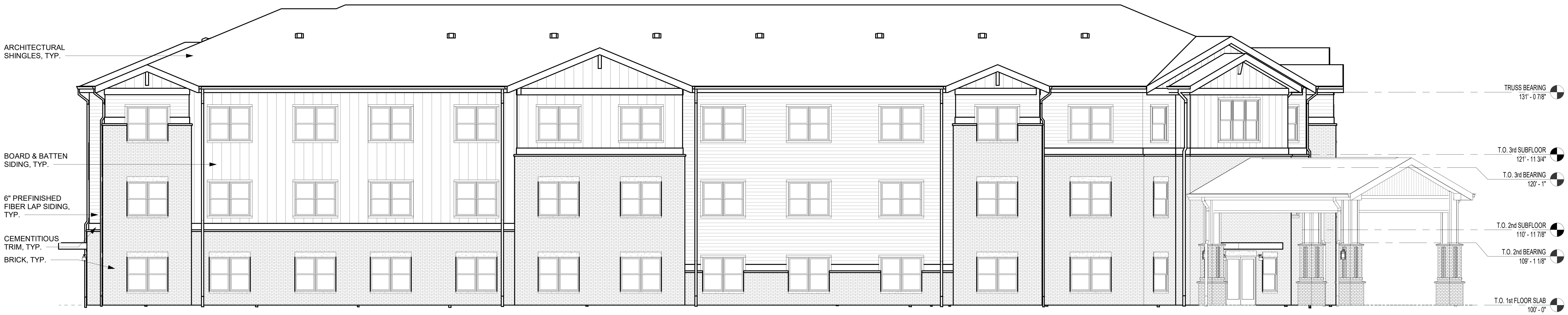
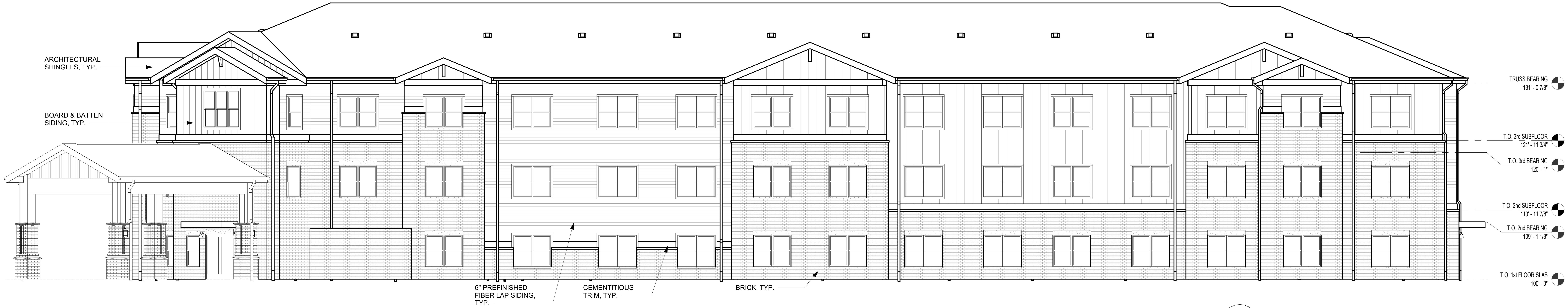
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-200 FOR MATERIALS LEGEND



C1 REAR ELEVATION
1/8" = 1'-0"



B1 WEST ELEVATION
1/8" = 1'-0"



A1 SOUTH ELEVATION
1/8" = 1'-0"

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REVISIONS:

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DAVID EUGENE HENDRIKSE
NUMBER A-7305
10/30/23

WILSHIRE HILLS III

LEE'S SUMMIT, MISSOURI

MHDC - 22-057

SHEET TITLE
EXTERIOR ELEVATIONS

PROJECT NUMBER: 23034

SHEET NUMBER:

A-201

10/27/2023 2:51:22 PM
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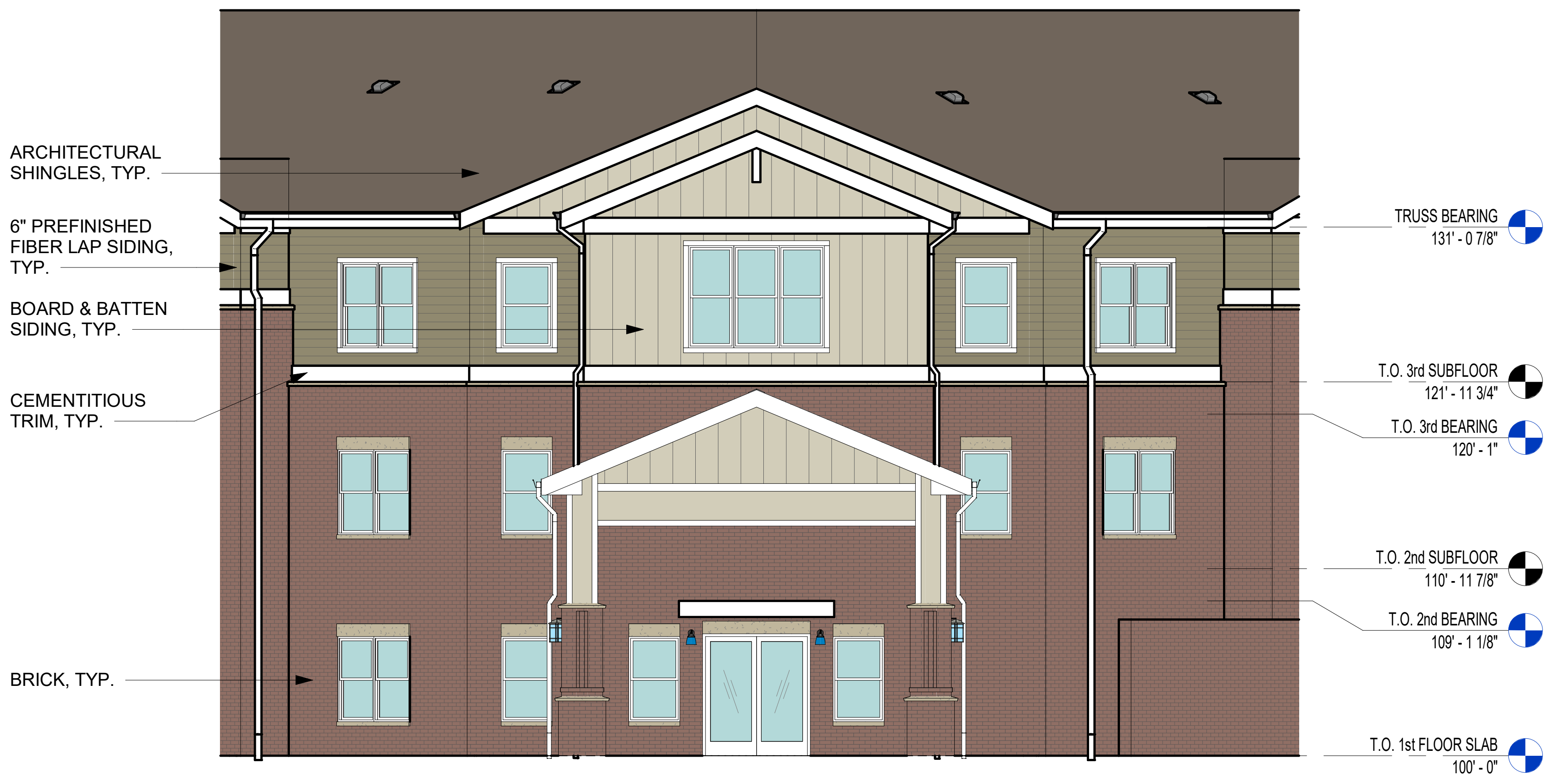
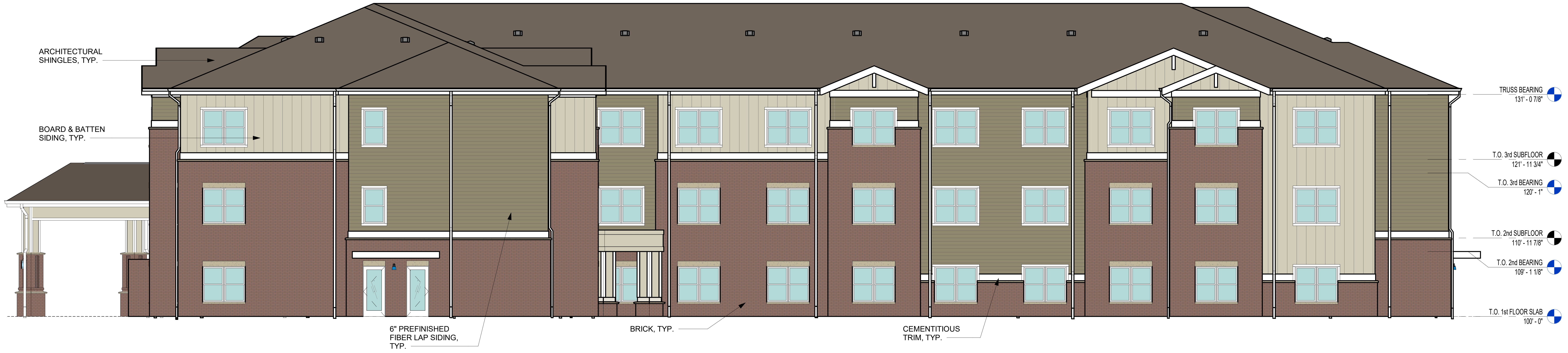

ARCHITECTURAL SHINGLES, TYP.
6" PREFINISHED FIBER LAP SIDING, TYP.
BOARD & BATTEN SIDING, TYP.
CEMENTITIOUS TRIM, TYP.
BRICK, TYP.
TRUSS BEARING 131' - 0 7/8"
T.O. 3rd SUBFLOOR 121' - 11 3/4"
T.O. 3rd BEARING 120' - 1"
T.O. 2nd SUBFLOOR 110' - 11 7/8"
T.O. 2nd BEARING 109' - 1 1/8"
T.O. 1st FLOOR SLAB 100' - 0"

C1 FRONT ELEVATION
1/8" = 1'-0"

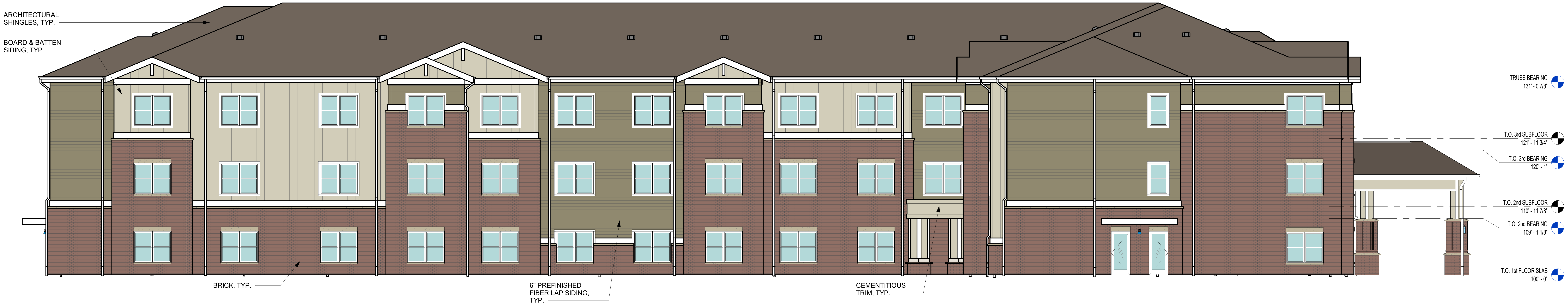
REFERENCE G-003 FOR GENERAL NOTES

MATERIAL LEGEND

▨	6" PREFININISHED FIBER LAP SIDING JAMES HARDIE - MONTEREY TAUPE
▨	BOARD & BATTEN SIDING JAMES HARDIE - COBBLE STONE
▨	FACE BRICK HERITAGE TRAIL
▨	PRE-CAST STONE BANDING, WINDOW SILLS AND CAPS NATURAL COLOR
▨	SPLIT FACE CMU
☐	PREFINISHED FIBER TRIM - 3-1/2" & 5-1/2" AT WINDOW 11-1/4" AT BANDING 3-1/2" VERTICAL OUTSIDE / INSIDE CORNER TRIM JAMES HARDIE - ARCTIC WHITE


ARCHITECTURAL SHINGLES, TYP.
BOARD & BATTEN SIDING, TYP.
6" PREFINISHED FIBER LAP SIDING, TYP.
BRICK, TYP.
CEMENTITIOUS TRIM, TYP.
TRUSS BEARING 131' - 0 7/8"
T.O. 3rd SUBFLOOR 121' - 11 3/4"
T.O. 3rd BEARING 120' - 1"
T.O. 2nd SUBFLOOR 110' - 11 7/8"
T.O. 2nd BEARING 109' - 1 1/8"
T.O. 1st FLOOR SLAB 100' - 0"

B1 EAST ELEVATION
1/8" = 1'-0"


ARCHITECTURAL SHINGLES, TYP.
BOARD & BATTEN SIDING, TYP.
BRICK, TYP.
6" PREFINISHED FIBER LAP SIDING, TYP.
CEMENTITIOUS TRIM, TYP.
TRUSS BEARING 131' - 0 7/8"
T.O. 3rd SUBFLOOR 121' - 11 3/4"
T.O. 3rd BEARING 120' - 1"
T.O. 2nd SUBFLOOR 110' - 11 7/8"
T.O. 2nd BEARING 109' - 1 1/8"
T.O. 1st FLOOR SLAB 100' - 0"

A1 NORTH ELEVATION
1/8" = 1'-0"

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REVISIONS:

4	07/16/24	Addendum 4 - Response to City Comments

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DAVID EUGENE HENDRIKSE
NUMBER A-7395
07/16/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
EXTERIOR ELEVATIONS - COLORED
PROJECT NUMBER: 23034
SHEET NUMBER:
A-202
4

7/16/2024 9:42:53 AM
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REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-202 FOR COLORED MATERIALS LEGEND

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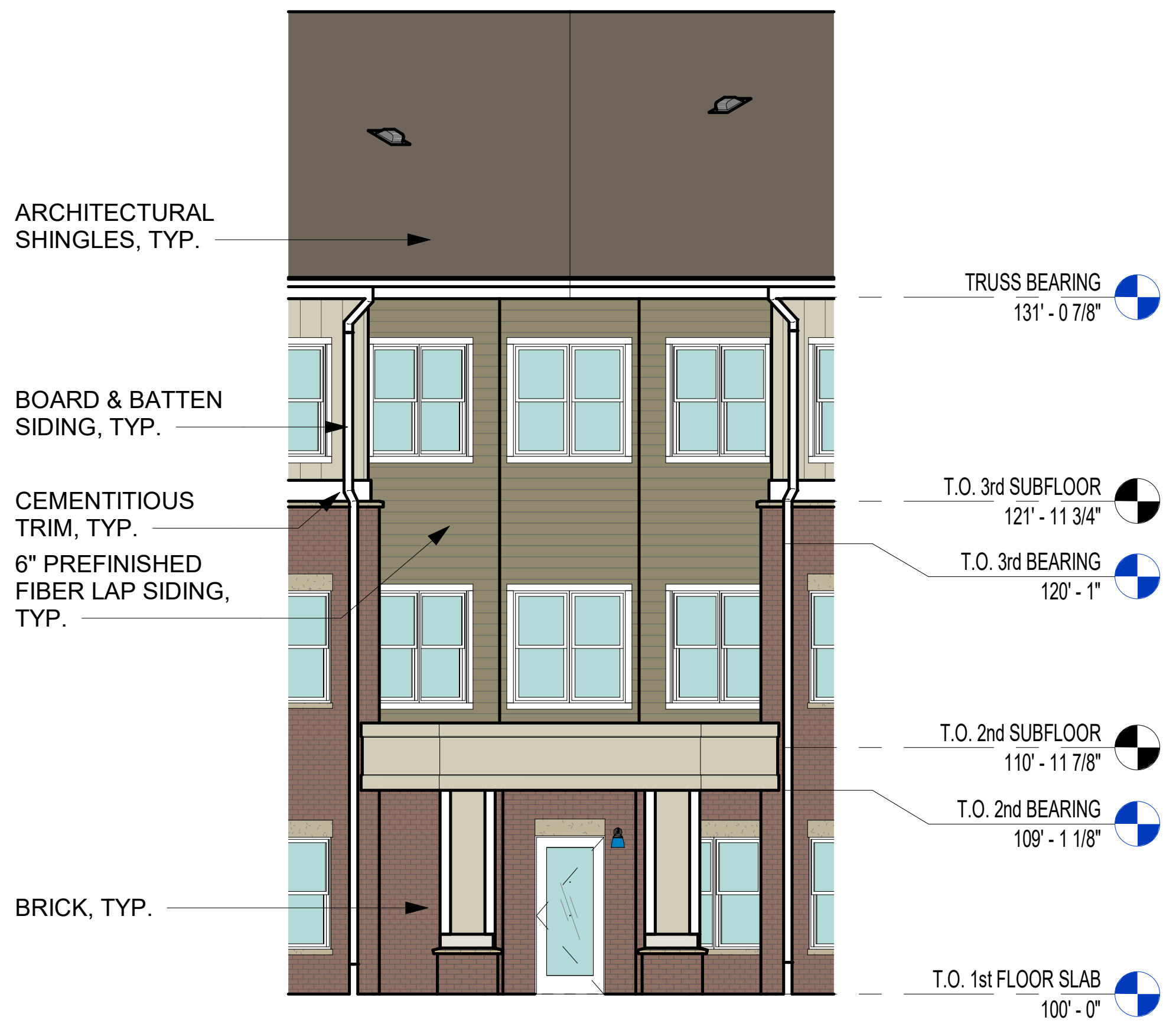
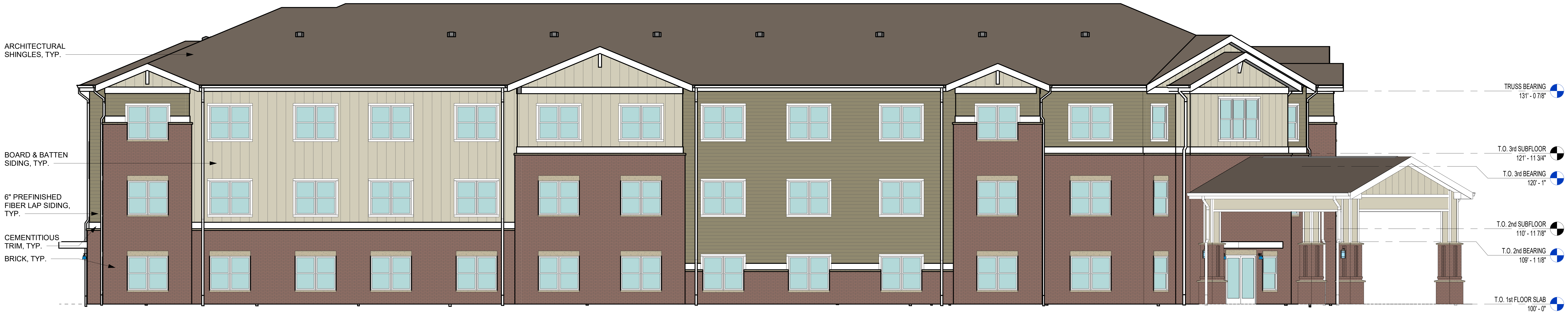
REVISIONS:

4	07/16/24	Addendum 4 - Response to City Comments



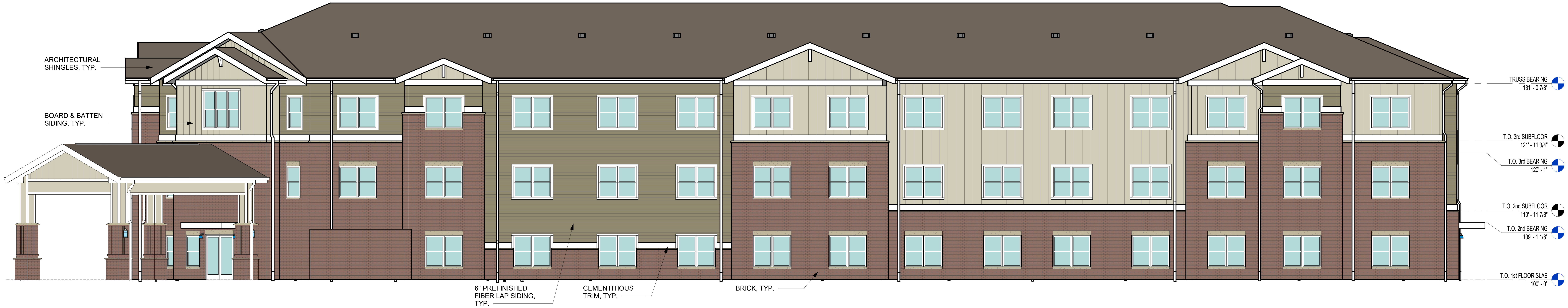
ARCHITECTURAL SHINGLES, TYP.
BOARD & BATTEN SIDING, TYP.
CEMENTITIOUS TRIM, TYP.
6" PREFINISHED FIBER LAP SIDING, TYP.
BRICK, TYP.
TRUSS BEARING 131' - 0 7/8"
T.O. 3rd SUBFLOOR 121' - 11 3/4"
T.O. 3rd BEARING 120' - 1"
T.O. 2nd SUBFLOOR 110' - 11 7/8"
T.O. 2nd BEARING 109' - 1 1/8"
T.O. 1st FLOOR SLAB 100' - 0"

C1 REAR ELEVATION
1/8" = 1'-0"



ARCHITECTURAL SHINGLES, TYP.
BOARD & BATTEN SIDING, TYP.
6" PREFINISHED FIBER LAP SIDING, TYP.
CEMENTITIOUS TRIM, TYP.
BRICK, TYP.
TRUSS BEARING 131' - 0 7/8"
T.O. 3rd SUBFLOOR 121' - 11 3/4"
T.O. 3rd BEARING 120' - 1"
T.O. 2nd SUBFLOOR 110' - 11 7/8"
T.O. 2nd BEARING 109' - 1 1/8"
T.O. 1st FLOOR SLAB 100' - 0"

B1 WEST ELEVATION
1/8" = 1'-0"



ARCHITECTURAL SHINGLES, TYP.
BOARD & BATTEN SIDING, TYP.
6" PREFINISHED FIBER LAP SIDING, TYP.
CEMENTITIOUS TRIM, TYP.
BRICK, TYP.
TRUSS BEARING 131' - 0 7/8"
T.O. 3rd SUBFLOOR 121' - 11 3/4"
T.O. 3rd BEARING 120' - 1"
T.O. 2nd SUBFLOOR 110' - 11 7/8"
T.O. 2nd BEARING 109' - 1 1/8"
T.O. 1st FLOOR SLAB 100' - 0"

A1 SOUTH ELEVATION
1/8" = 1'-0"

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DAVID EUGENE HENDRIKSE
NUMBER A-7395
07/16/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
EXTERIOR ELEVATIONS - COLORED

PROJECT NUMBER: 23034

SHEET NUMBER:
A-203
4

7/16/2024 9:42:57 AM
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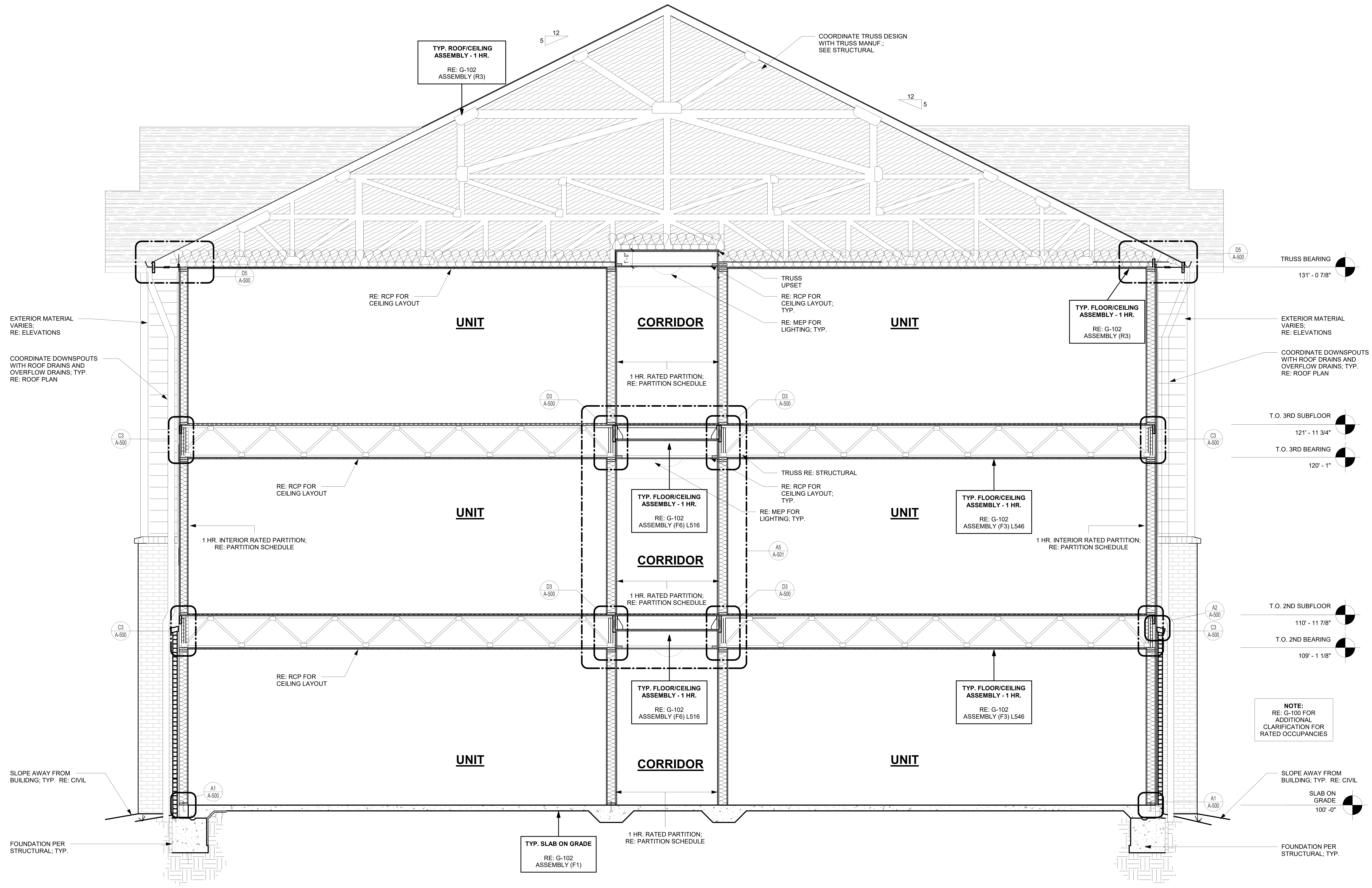
REFERENCE G-003 FOR GENERAL NOTES



TYP. ROOF/CEILING ASSEMBLY - 1 HR.
RE: G-102 ASSEMBLY (R3)
12
5
COORDINATE TRUSS DESIGN WITH TRUSS MANUF.; SEE STRUCTURAL
12
5
D5
A-500
D5
A-500
1'-0"
TRUSS BEARING
131' - 0 7/8"
RE: RCP FOR CEILING LAYOUT
TRUSS UPSET
RE: RCP FOR CEILING LAYOUT; TYP.
RE: MEP FOR LIGHTING; TYP.
TYP. FLOOR/CEILING ASSEMBLY - 1 HR.
RE: G-102 ASSEMBLY (R3)
EXTERIOR MATERIAL VARIES; RE: ELEVATIONS
UNIT
CORRIDOR
UNIT
EXTERIOR MATERIAL VARIES; RE: ELEVATIONS
COORDINATE DOWNSPOUTS WITH ROOF DRAINS AND OVERFLOW DRAINS; TYP. RE: ROOF PLAN
1 HR. RATED PARTITION; RE: PARTITION SCHEDULE
COORDINATE DOWNSPOUTS WITH ROOF DRAINS AND OVERFLOW DRAINS; TYP. RE: ROOF PLAN
D3
A-500
D3
A-500
T.O. 3RD SUBFLOOR
121' - 11 3/4"
C3
A-500
C3
A-500
T.O. 3RD BEARING
120' - 1"
TRUSS RE: STRUCTURAL
RE: RCP FOR CEILING LAYOUT
RE: RCP FOR CEILING LAYOUT; TYP.
TYP. FLOOR/CEILING ASSEMBLY - 1 HR.
RE: G-102 ASSEMBLY (F6) L516
RE: MEP FOR LIGHTING; TYP.
TYP. FLOOR/CEILING ASSEMBLY - 1 HR.
RE: G-102 ASSEMBLY (F3) L546
UNIT
UNIT
1 HR. INTERIOR RATED PARTITION; RE: PARTITION SCHEDULE
1 HR. INTERIOR RATED PARTITION; RE: PARTITION SCHEDULE
A5
A-501
CORRIDOR
D3
A-500
1 HR. RATED PARTITION; RE: PARTITION SCHEDULE
D3
A-500
A2
A-500
T.O. 2ND SUBFLOOR
110' - 11 7/8"
C3
A-500
C3
A-500
T.O. 2ND BEARING
109' - 1 1/8"
RE: RCP FOR CEILING LAYOUT
TYP. FLOOR/CEILING ASSEMBLY - 1 HR.
RE: G-102 ASSEMBLY (F6) L516
TYP. FLOOR/CEILING ASSEMBLY - 1 HR.
RE: G-102 ASSEMBLY (F3) L546
NOTE:
RE: G-100 FOR ADDITIONAL CLARIFICATION FOR RATED OCCUPANCIES
UNIT
CORRIDOR
UNIT
SLOPE AWAY FROM BUILIDNG; TYP. RE: CIVIL
SLOPE AWAY FROM BUILDING; TYP. RE: CIVIL
A1
A-500
A1
A-500
SLAB ON GRADE
100' -0"
FOUNDATION PER STRUCTURAL; TYP.
TYP. SLAB ON GRADE
RE: G-102 ASSEMBLY (F1)
1 HR. RATED PARTITION; RE: PARTITION SCHEDULE
FOUNDATION PER STRUCTURAL; TYP.

A1 OVERALL BUILDING SECTION
3/8" = 1'-0"

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DAVID EUGENE HENDRIKSE
NUMBER A-7395
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

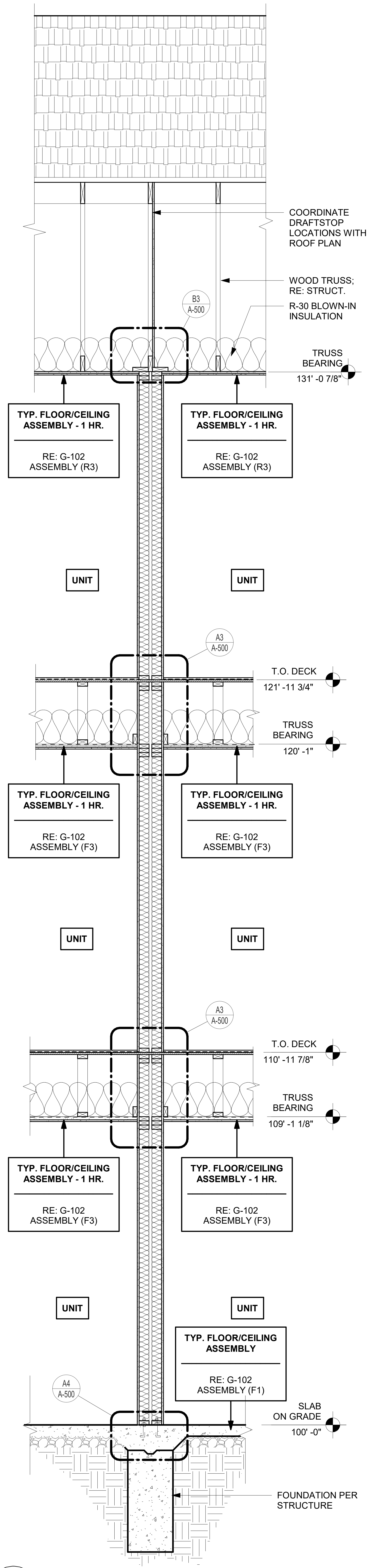
SHEET TITLE
OVERALL BUILDING SECTION

PROJECT NUMBER: 23034

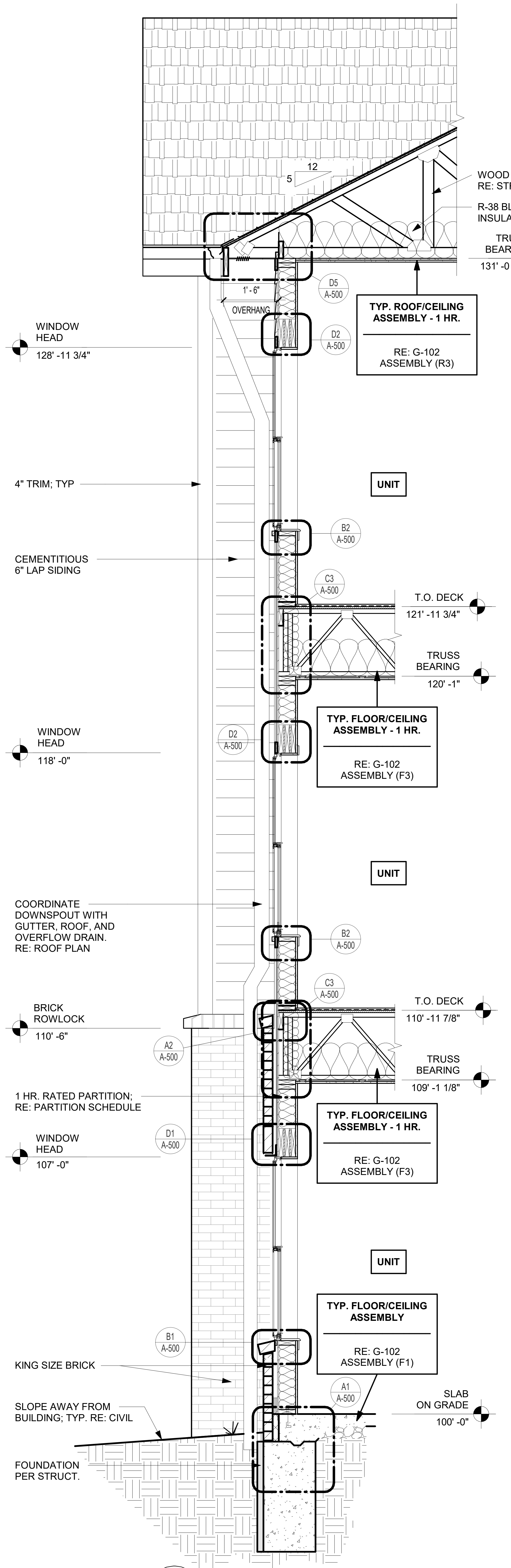
SHEET NUMBER:

A-300

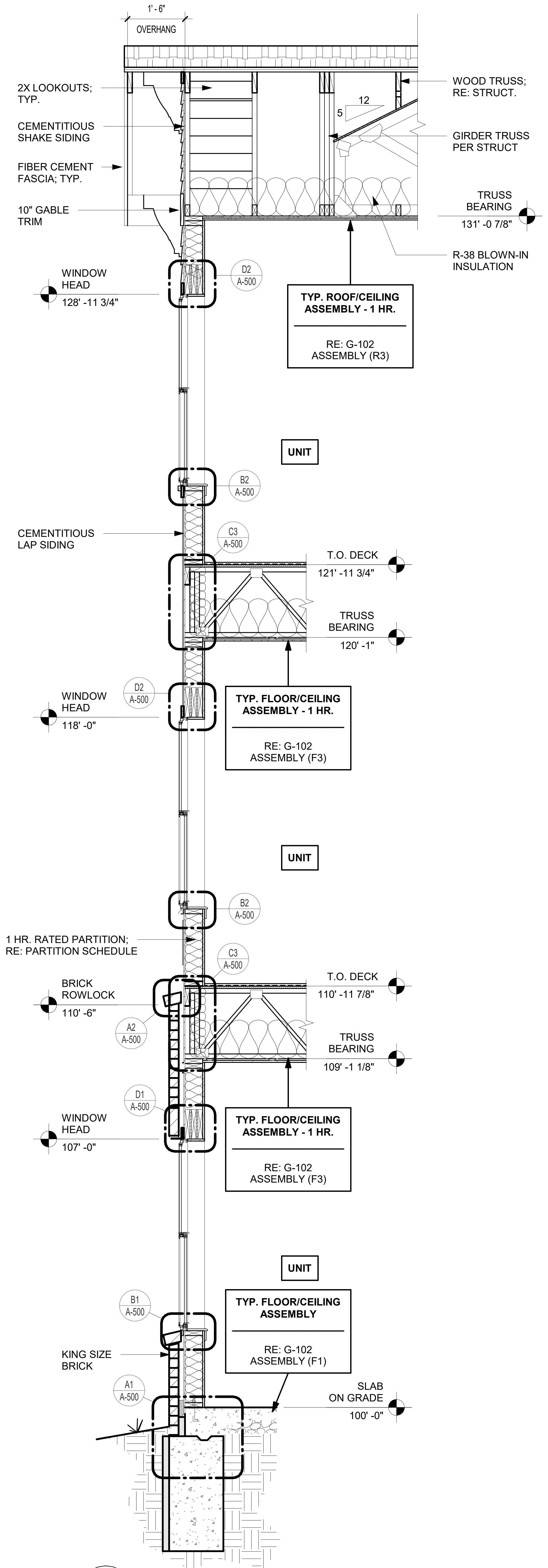
REFERENCE G-003 FOR GENERAL NOTES


COORDINATE DRAFTSTOP LOCATIONS WITH ROOF PLAN
WOOD TRUSS; RE: STRUCT.
B3 A-500
R-30 BLOWN-IN INSULATION
TRUSS BEARING 131' -0 7/8"
TYP. FLOOR/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (R3)
TYP. FLOOR/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (R3)
UNIT
UNIT
A3 A-500
T.O. DECK 121' -11 3/4"
TRUSS BEARING 120' -1"
TYP. FLOOR/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (F3)
TYP. FLOOR/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (F3)
UNIT
UNIT
A3 A-500
T.O. DECK 110' -11 7/8"
TRUSS BEARING 109' -1 1/8"
TYP. FLOOR/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (F3)
TYP. FLOOR/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (F3)
UNIT
UNIT
TYP. FLOOR/CEILING ASSEMBLY RE: G-102 ASSEMBLY (F1)
A4 A-500
SLAB ON GRADE 100' -0"
FOUNDATION PER STRUCTURE

1 WALL SECTION - DEMISING WALL
1/2" = 1'-0"


12
5
WOOD TRUSS; RE: STRUCT.
R-38 BLOWN-IN INSULATION
TRUSS BEARING 131' -0 7/8"
1' - 6"
OVERHANG
D5 A-500
D2 A-500
WINDOW HEAD 128' -11 3/4"
TYP. ROOF/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (R3)
4" TRIM; TYP
UNIT
B2 A-500
CEMENTITIOUS 6" LAP SIDING
C3 A-500
T.O. DECK 121' -11 3/4"
TRUSS BEARING 120' -1"
D2 A-500
WINDOW HEAD 118' -0"
TYP. FLOOR/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (F3)
UNIT
COORDINATE DOWNSPOUT WITH GUTTER, ROOF, AND OVERFLOW DRAIN. RE: ROOF PLAN
B2 A-500
C3 A-500
T.O. DECK 110' -11 7/8"
BRICK ROWLOCK 110' -6"
A2 A-500
TRUSS BEARING 109' -1 1/8"
1 HR. RATED PARTITION; RE: PARTITION SCHEDULE
TYP. FLOOR/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (F3)
D1 A-500
WINDOW HEAD 107' -0"
UNIT
B1 A-500
TYP. FLOOR/CEILING ASSEMBLY RE: G-102 ASSEMBLY (F1)
KING SIZE BRICK
A1 A-500
SLAB ON GRADE 100' -0"
SLOPE AWAY FROM BUILDING; TYP. RE: CIVIL
FOUNDATION PER STRUCT.

A2 WALL SECTION
1/2" = 1'-0"



A1 WALL SECTION
1/2" = 1'-0"

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DAVID EUGENE HENDRIKSE
NUMBER A-7365
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
WALL SECTIONS

PROJECT NUMBER: 23034

SHEET NUMBER:

A-301

10/27/2023 4:14:05 PM
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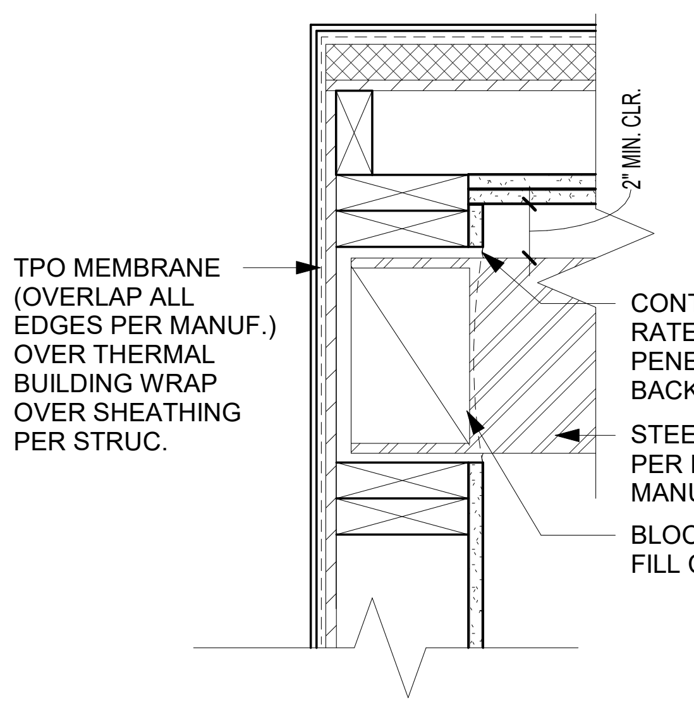
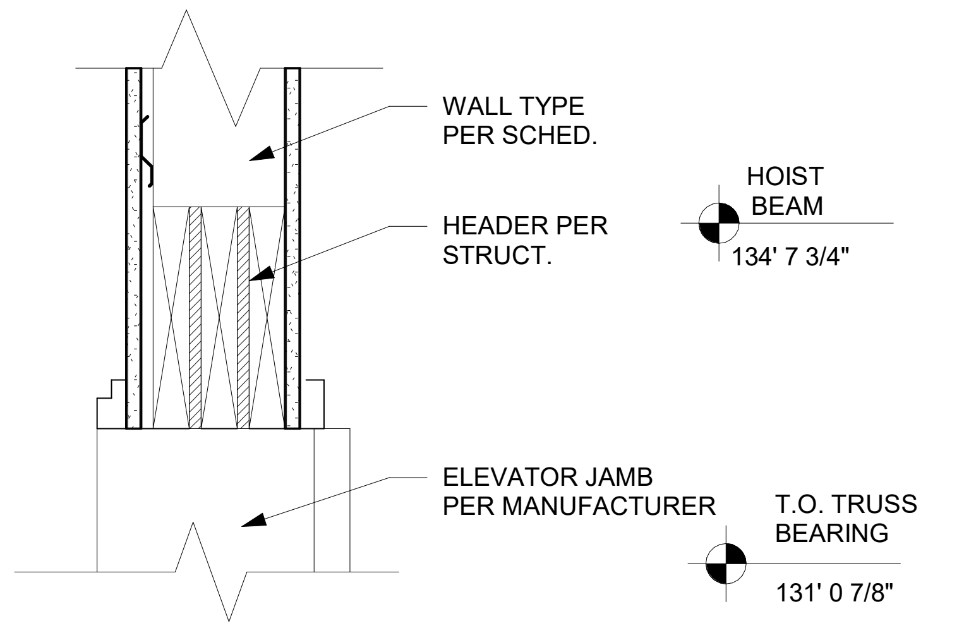
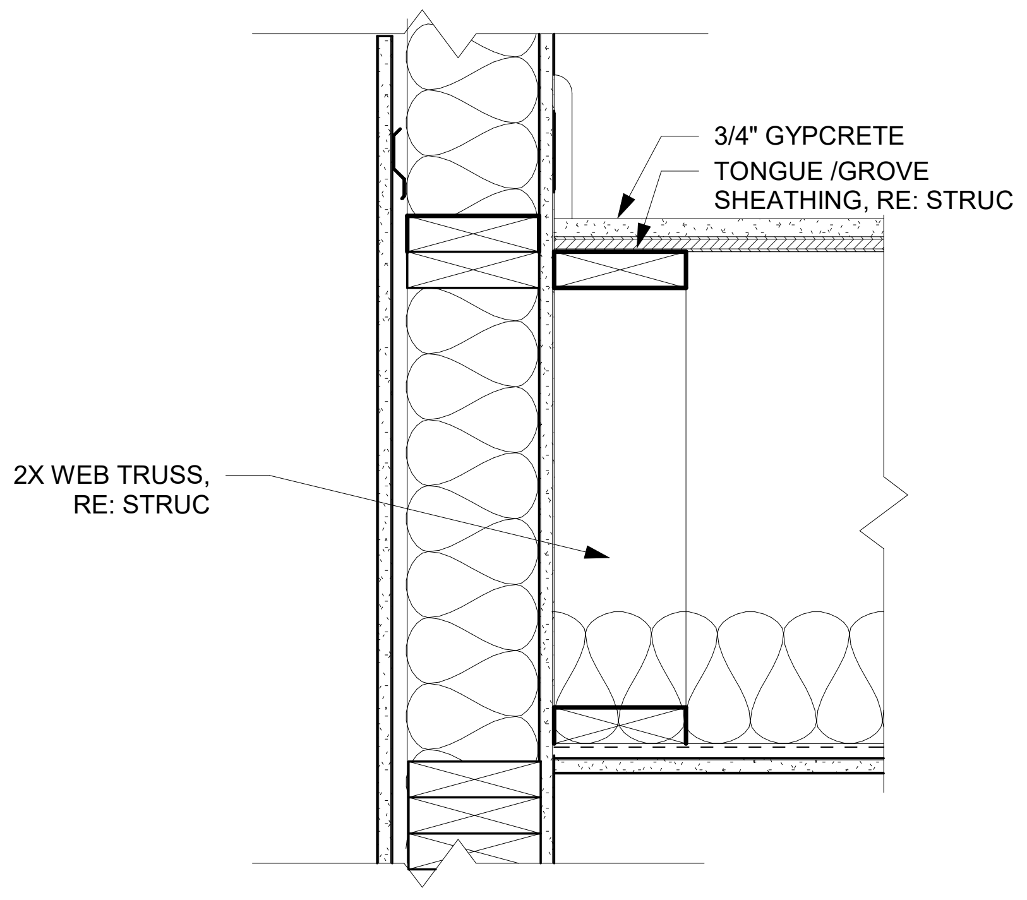
REFERENCE G-003 FOR GENERAL NOTES


TPO MEMBRANE (OVERLAP ALL EDGES PER MANUF.) OVER THERMAL BUILDING WRAP OVER SHEATHING PER STRUC.
2" MIN. CLR.
CONT. FIRE CAULK AT RATED WALL PENETRATION WITH BACKEROD AS REQ.
STEEL HOIST BEAM PER ELEVATOR MANUF.
BLOCKING TO FILL CAVITY

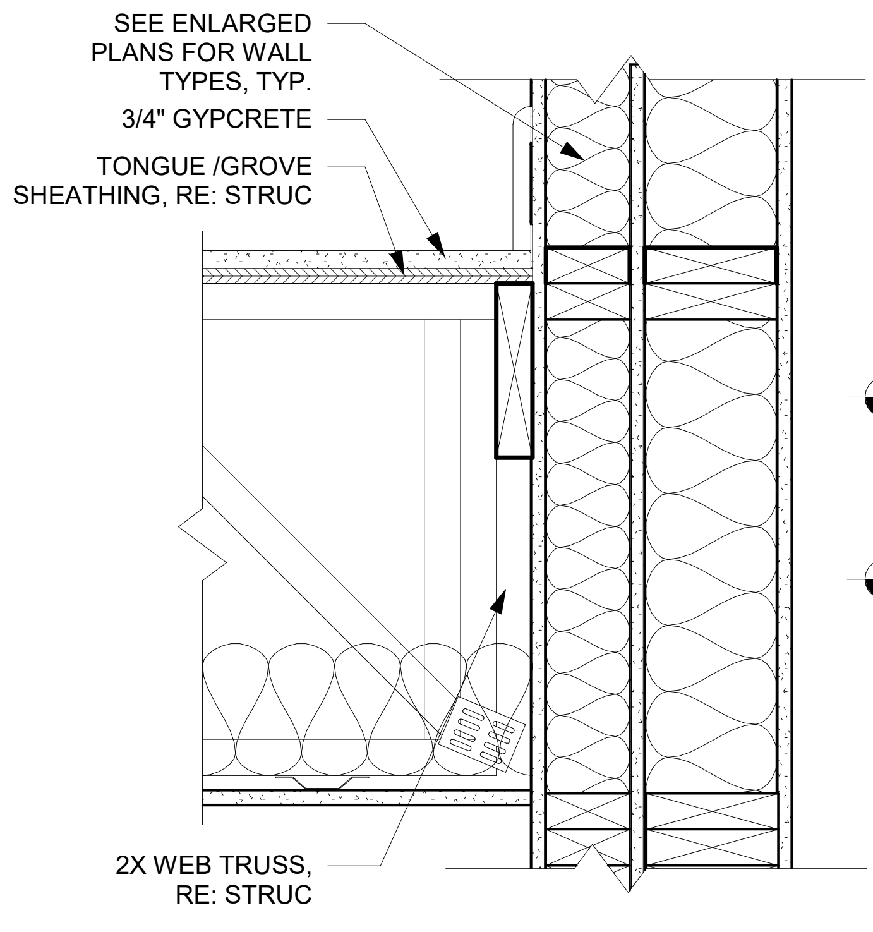
D5 HOIST BEAM DETAIL
1 1/2" = 1'-0"



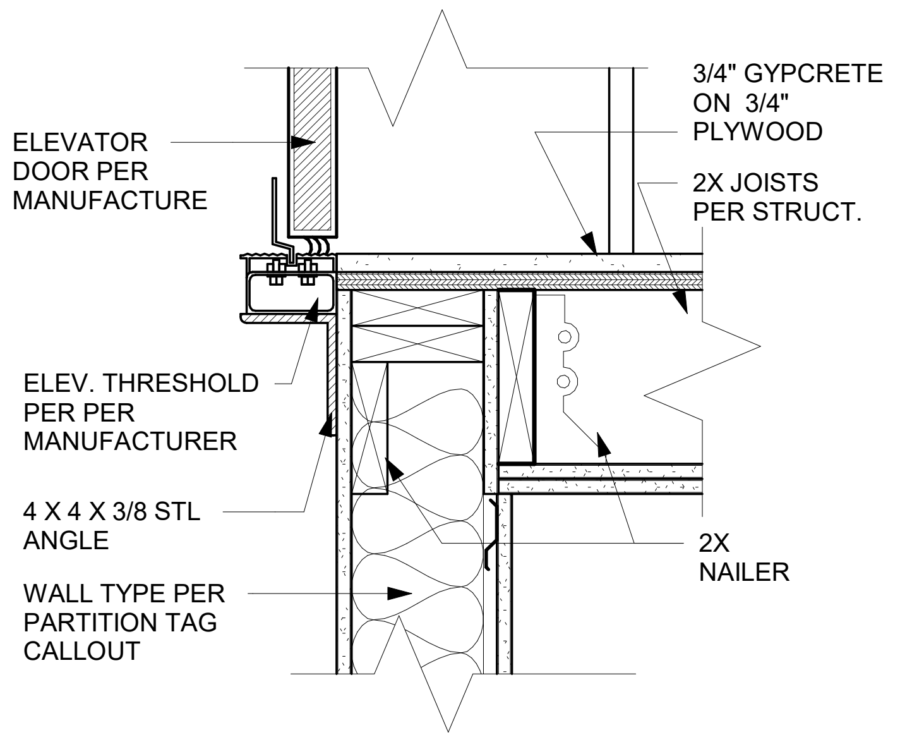
D4 ELEVATOR DOOR HEAD DETAIL
1 1/2" = 1'-0"



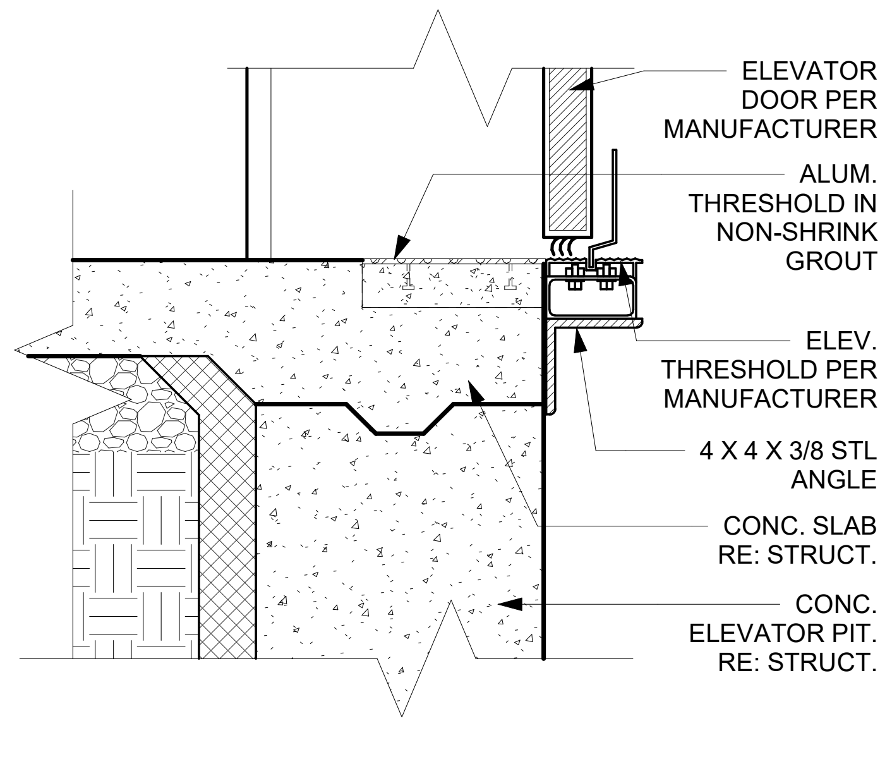
C5 ELEVATOR SHAFT DETAIL
1 1/2" = 1'-0"


SEE ENLARGED PLANS FOR WALL TYPES, TYP.
3/4" GYPCRETE
TONGUE /GROVE SHEATHING, RE: STRUC
2X WEB TRUSS, RE: STRUC

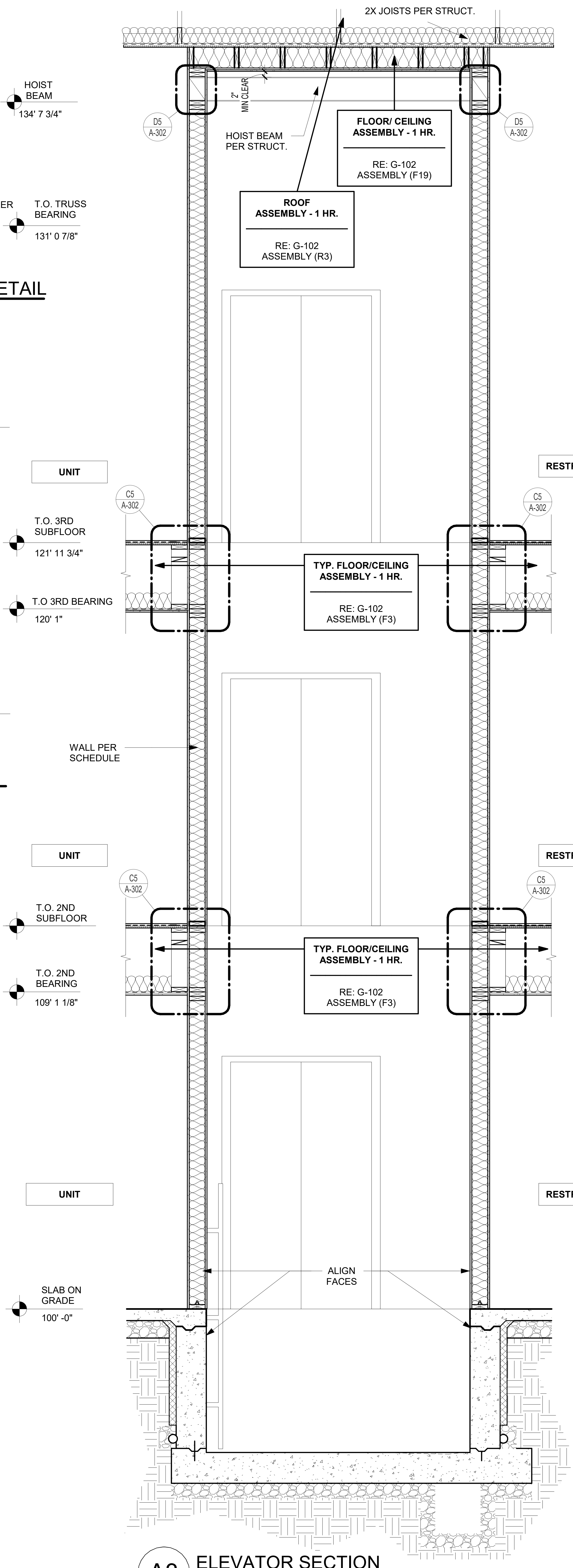
C4 ELEVATOR SHAFT DETAIL
1 1/2" = 1'-0"


ELEVATOR DOOR PER MANUFACTURE
3/4" GYPCRETE ON 3/4" PLYWOOD
2X JOISTS PER STRUCT.
ELEV. THRESHOLD PER PER MANUFACTURER
4 X 4 X 3/8 STL ANGLE
WALL TYPE PER PARTITION TAG CALLOUT
2X NAILER

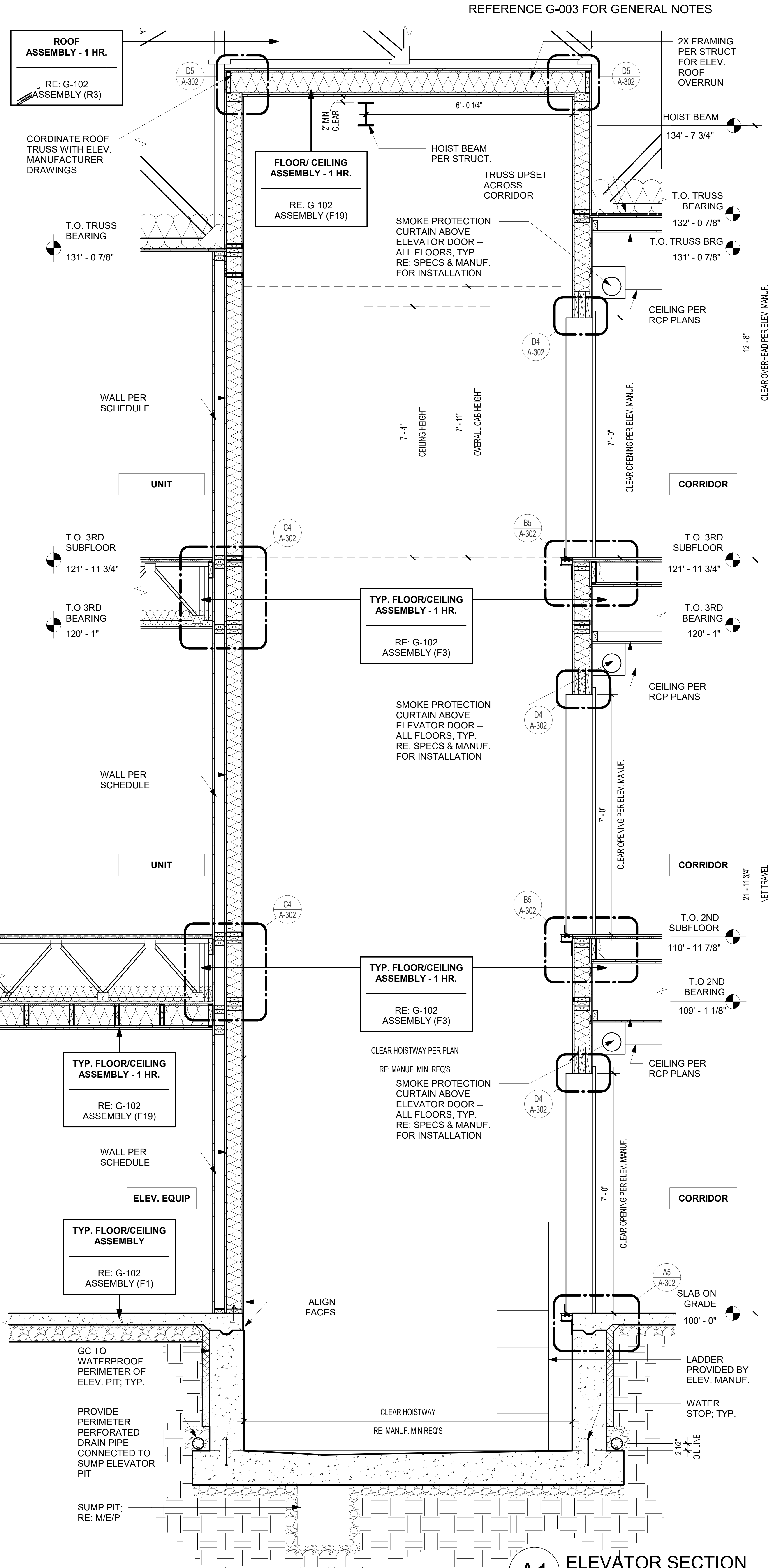
B5 ELEVATOR SHAFT @ THRESHOLD DETAIL
1 1/2" = 1'-0"


ELEVATOR DOOR PER MANUFACTURE
ALUM. THRESHOLD IN NON-SHRINK GROUT
ELEV. THRESHOLD PER MANUFACTURER
4 X 4 X 3/8 STL ANGLE
CONC. SLAB RE: STRUCT.
CONC. ELEVATOR PIT. RE: STRUCT.

A5 ELEVATOR SHAFT THRESHOLD @ PIT
1 1/2" = 1'-0"



A3 ELEVATOR SECTION
1/2" = 1'-0"



A1 ELEVATOR SECTION
1/2" = 1'-0"

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DAVID EUGENE HENDRIKSE
NUMBER A-7305
10/30/23

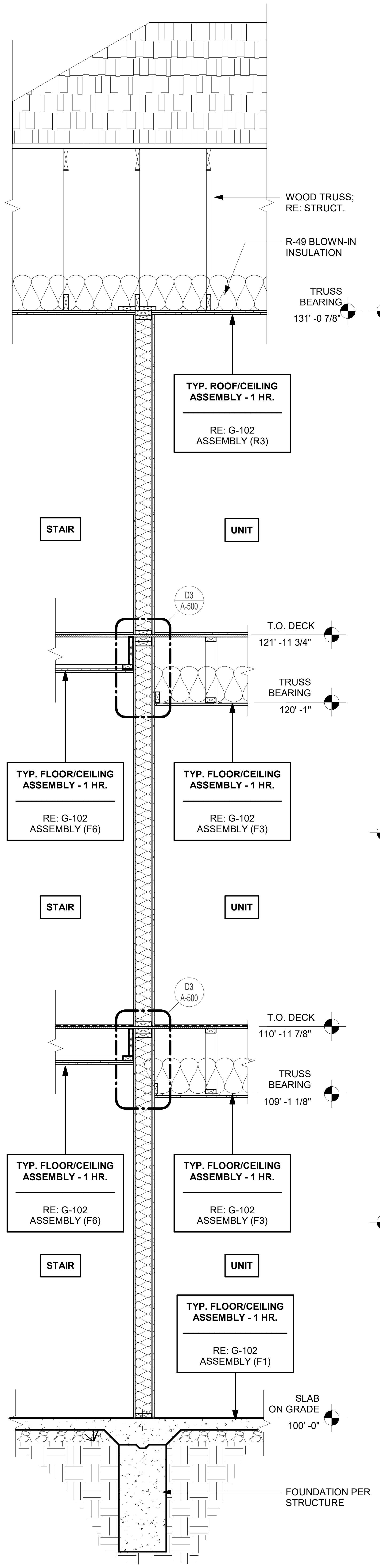
WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
ELEVATOR SECTION & DETAILS

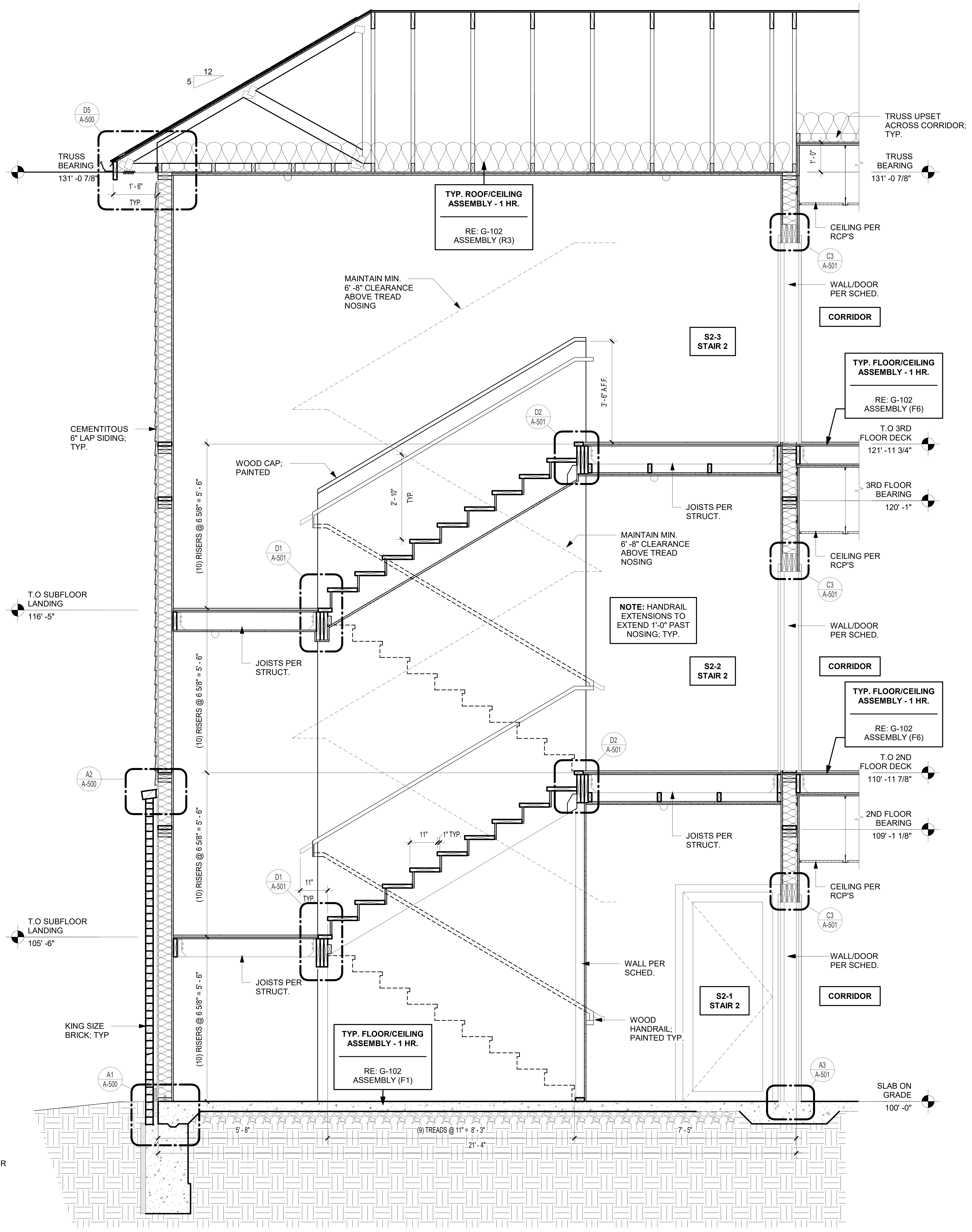
PROJECT NUMBER: 23034

SHEET NUMBER:
A-302

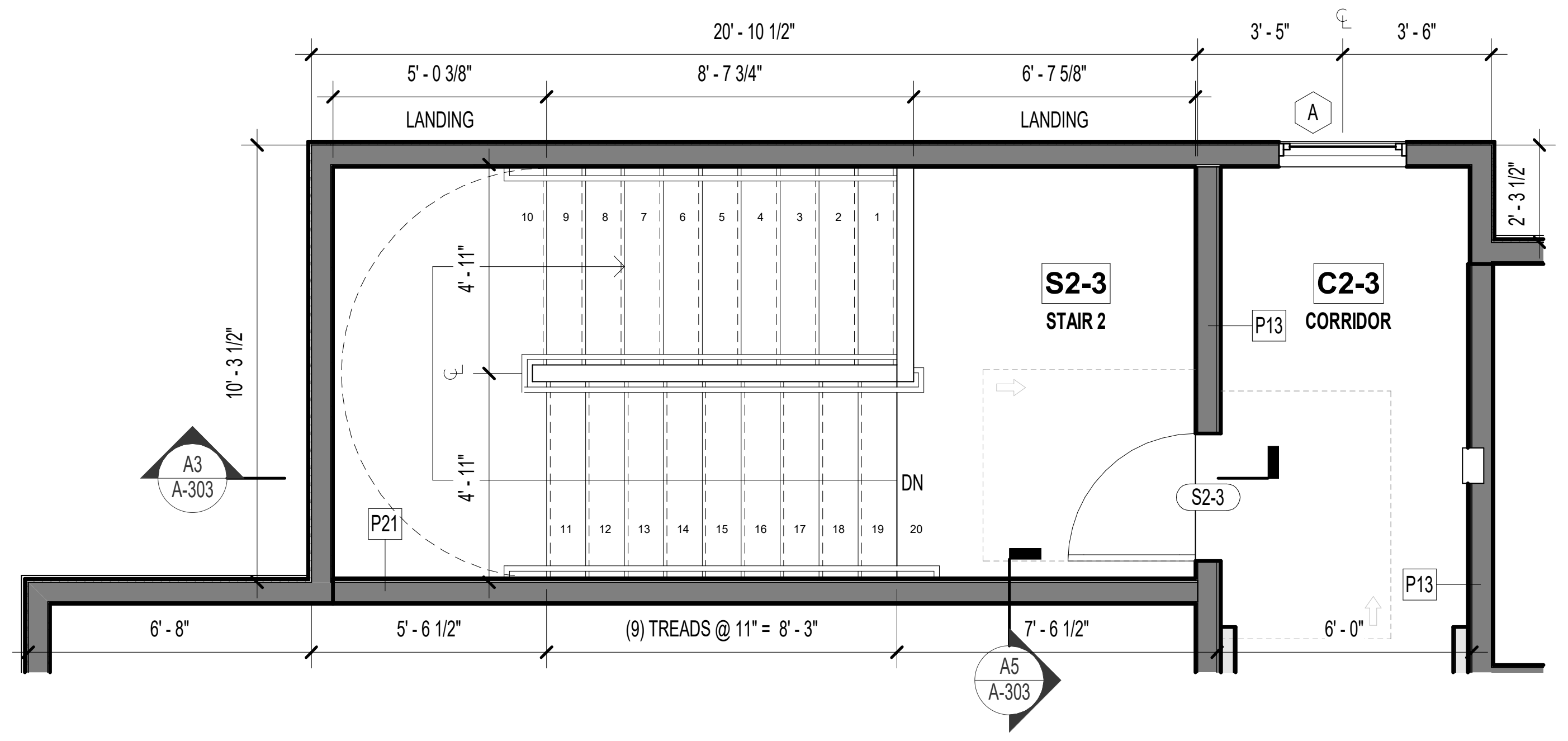
REFERENCE G-003 FOR GENERAL NOTES


WOOD TRUSS; RE: STRUCT.
R-49 BLOWN-IN INSULATION
TRUSS BEARING 131' -0 7/8"
TYP. ROOF/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (R3)
STAIR
UNIT
D3 A-500
T.O. DECK 121' -11 3/4"
TRUSS BEARING 120' -1"
TYP. FLOOR/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (F6)
TYP. FLOOR/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (F3)
STAIR
UNIT
D3 A-500
T.O. DECK 110' -11 7/8"
TRUSS BEARING 109' -1 1/8"
TYP. FLOOR/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (F6)
TYP. FLOOR/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (F3)
STAIR
UNIT
TYP. FLOOR/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (F1)
SLAB ON GRADE 100' -0"
FOUNDATION PER STRUCTURE

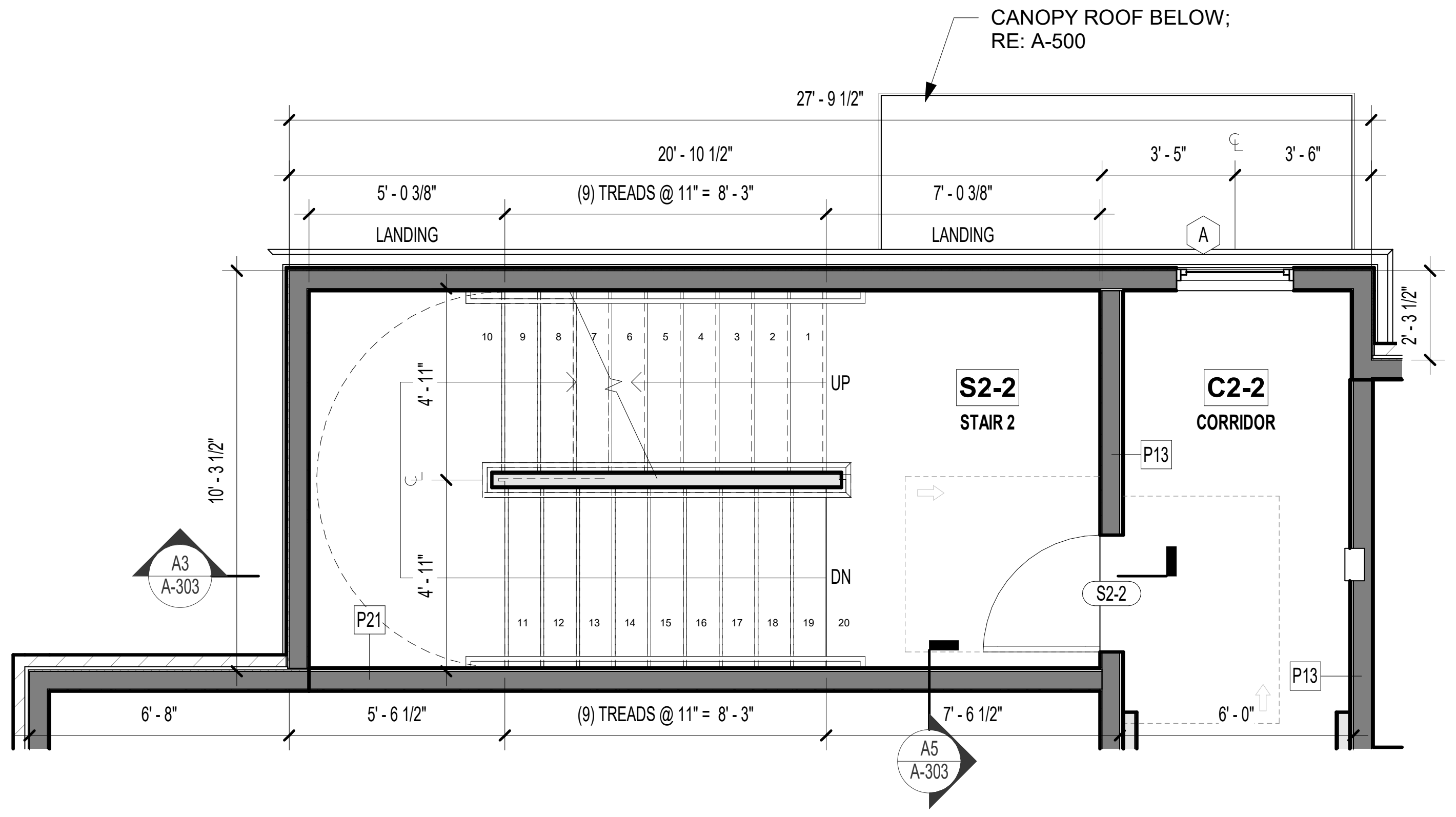
A5 STAIRWELL SECTION
1/2" = 1'-0"


5 12
D5 A-500
TRUSS BEARING 131' -0 7/8"
1' - 6" TYP.
TYP. ROOF/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (R3)
TRUSS UPSET ACROSS CORRIDOR; TYP.
1' - 0"
TRUSS BEARING 131' -0 7/8"
CEILING PER RCP'S
C3 A-501
MAINTAIN MIN. 6' -8" CLEARANCE ABOVE TREAD NOSING
WALL/DOOR PER SCHED.
CORRIDOR
S2-3 STAIR 2
TYP. FLOOR/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (F6)
CEMENTITOUS 6" LAP SIDING; TYP.
3' - 6" A.F.F.
D2 A-501
T.O 3RD FLOOR DECK 121' -11 3/4"
WOOD CAP; PAINTED
2' - 10" TYP.
JOISTS PER STRUCT.
3RD FLOOR BEARING 120' -1"
(10) RISERS @ 6 5/8" = 5' - 6"
D1 A-501
MAINTAIN MIN. 6' -8" CLEARANCE ABOVE TREAD NOSING
CEILING PER RCP'S
C3 A-501
T.O SUBFLOOR LANDING 116' -5"
NOTE: HANDRAIL EXTENSIONS TO EXTEND 1'-0" PAST NOSING; TYP.
WALL/DOOR PER SCHED.
JOISTS PER STRUCT.
(10) RISERS @ 6 5/8" = 5' - 6"
S2-2 STAIR 2
CORRIDOR
TYP. FLOOR/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (F6)
D2 A-501
A2 A-500
T.O 2ND FLOOR DECK 110' -11 7/8"
JOISTS PER STRUCT.
2ND FLOOR BEARING 109' -1 1/8"
11" 1" TYP
(10) RISERS @ 6 5/8" = 5' - 6"
D1 A-501
11" TYP
CEILING PER RCP'S
C3 A-501
T.O SUBFLOOR LANDING 105' -6"
WALL/DOOR PER SCHED.
JOISTS PER STRUCT.
WALL PER SCHED.
S2-1 STAIR 2
CORRIDOR
KING SIZE BRICK; TYP
WOOD HANDRAIL; PAINTED TYP.
(10) RISERS @ 6 5/8" = 5' - 6"
TYP. FLOOR/CEILING ASSEMBLY - 1 HR. RE: G-102 ASSEMBLY (F1)
A1 A-500
A3 A-501
SLAB ON GRADE 100' -0"
5' - 8"
(9) TREADS @ 11" = 8' - 3"
7' - 5"
21' - 4"

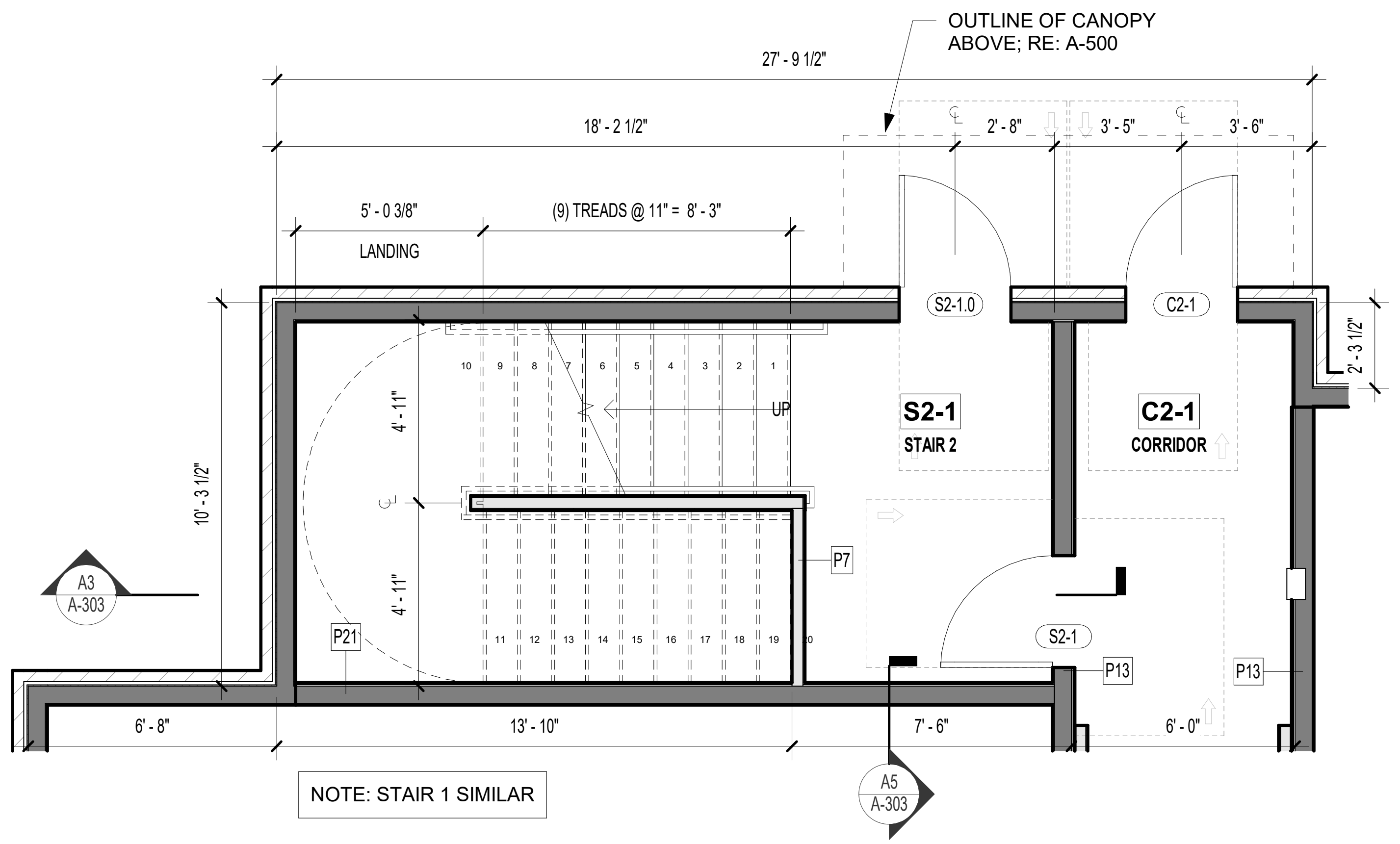
A3 STAIR SECTION
1/2" = 1'-0"



C1 3RD FLOOR STAIR PLAN
1/4" = 1'-0"



B1 2ND FLOOR STAIR PLAN
1/4" = 1'-0"



NOTE: STAIR 1 SIMILAR

A1 1ST FLOOR STAIR PLAN
1/4" = 1'-0"

PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:

rosemann & ASSOCIATES P.C.
ARCHITECTURE
INTERIOR DESIGN
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w: www.rosemann.com
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DAVID EUGENE HENDRIKSE
NUMBER A-7305
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
STAIR SECTION & DETAILS

PROJECT NUMBER: 23034

SHEET NUMBER:

A-303

10/27/2023 2:51:32 PM
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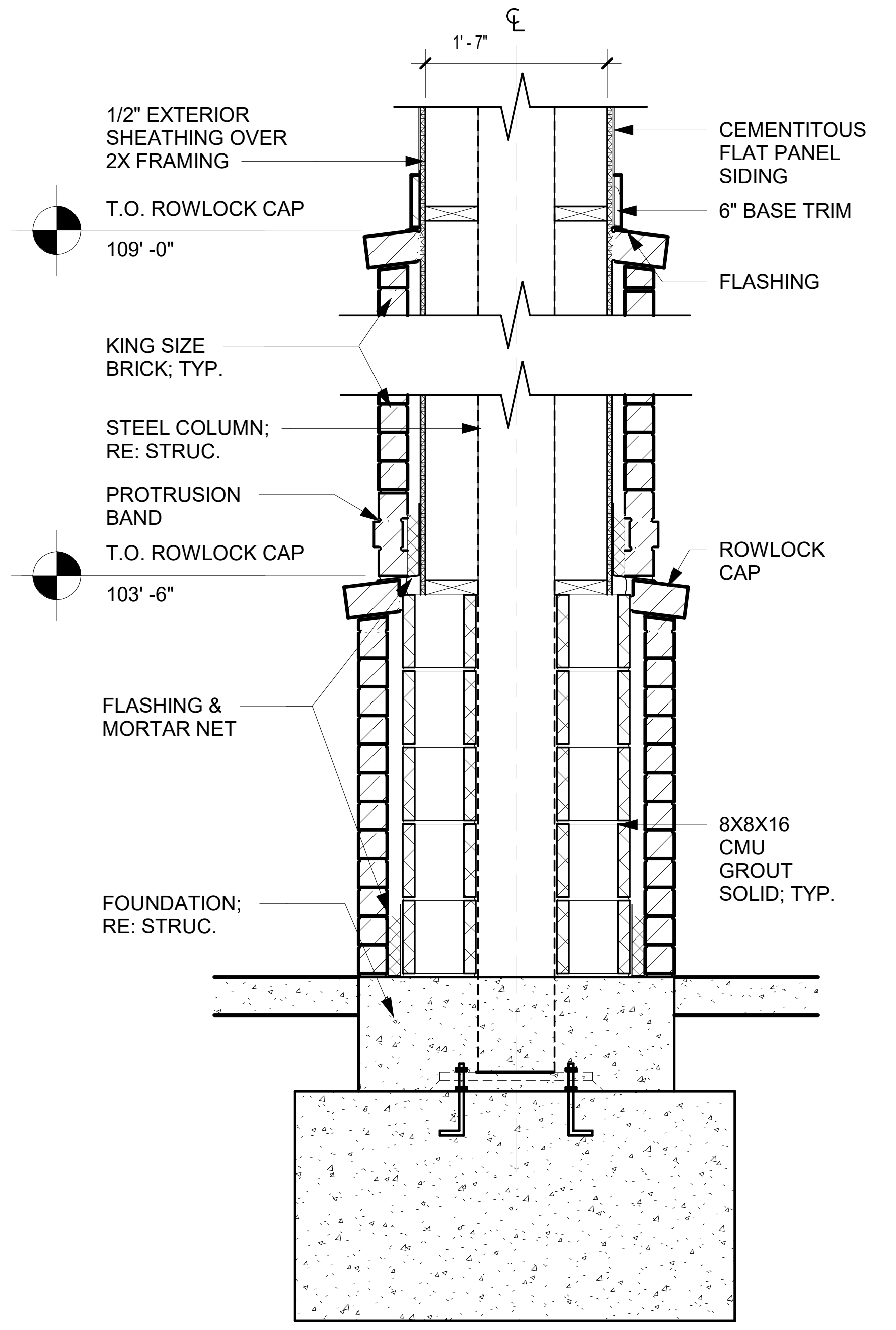
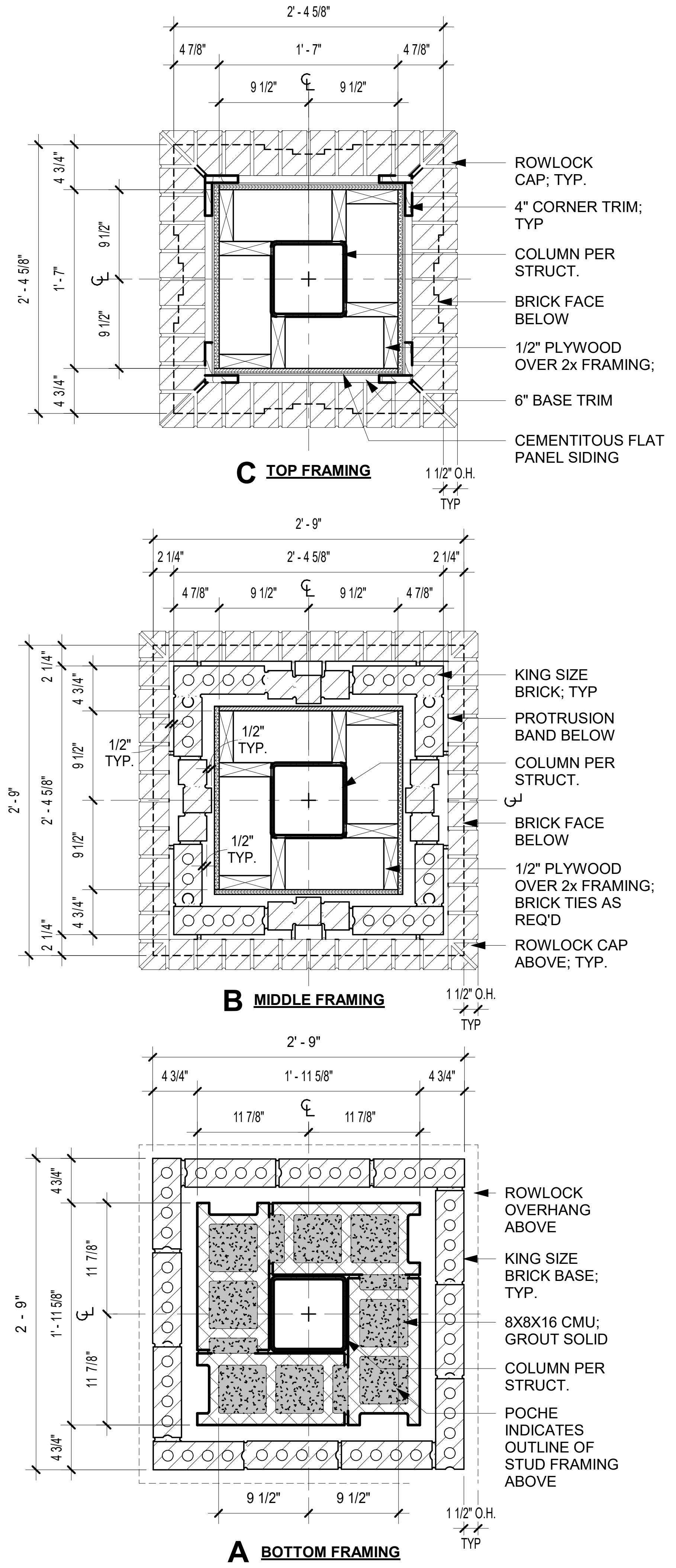


C5 CANOPY COLUMN SECTION DETAIL
3/4" = 1'-0"



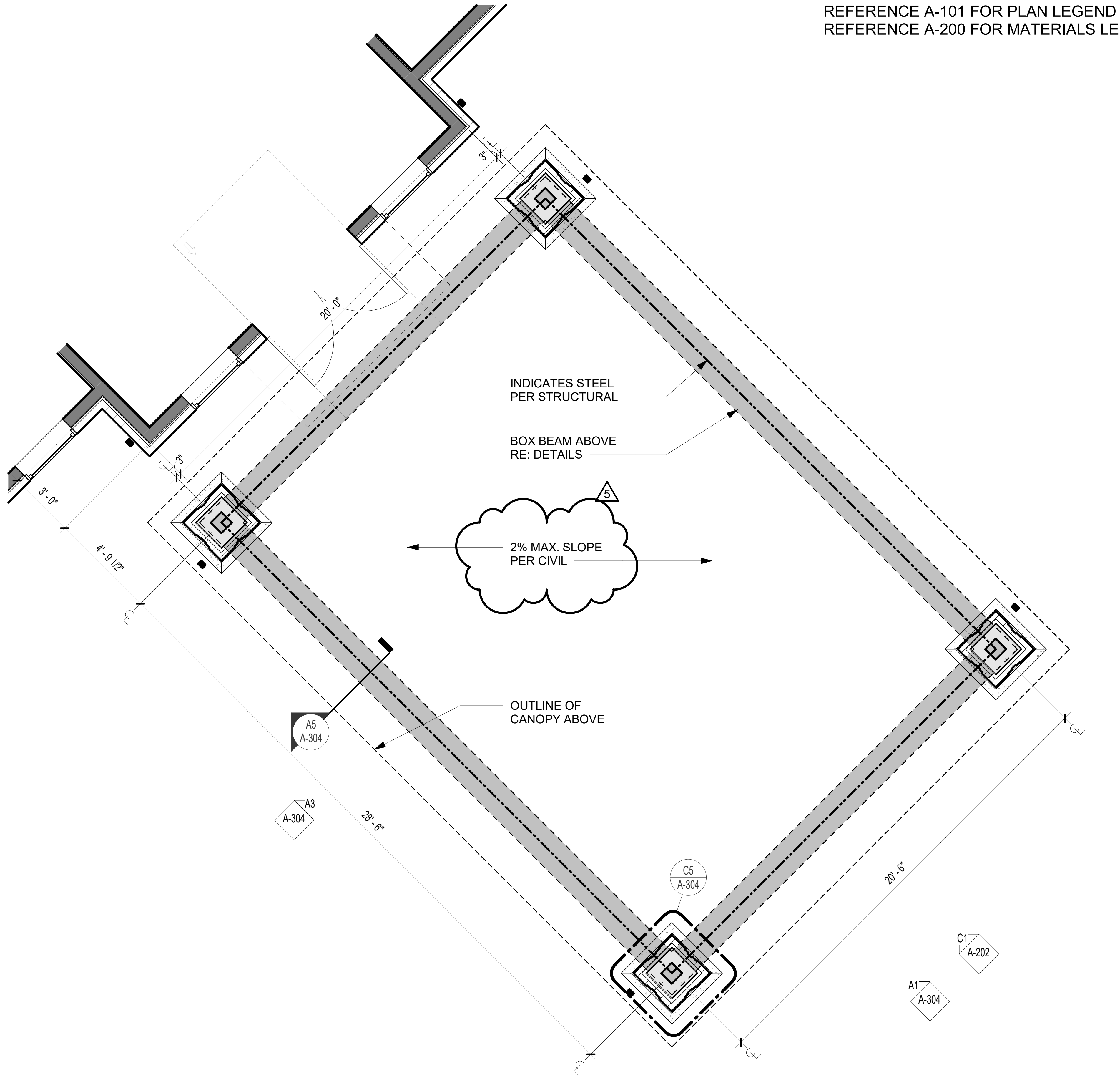
C TOP FRAMING

B MIDDLE FRAMING

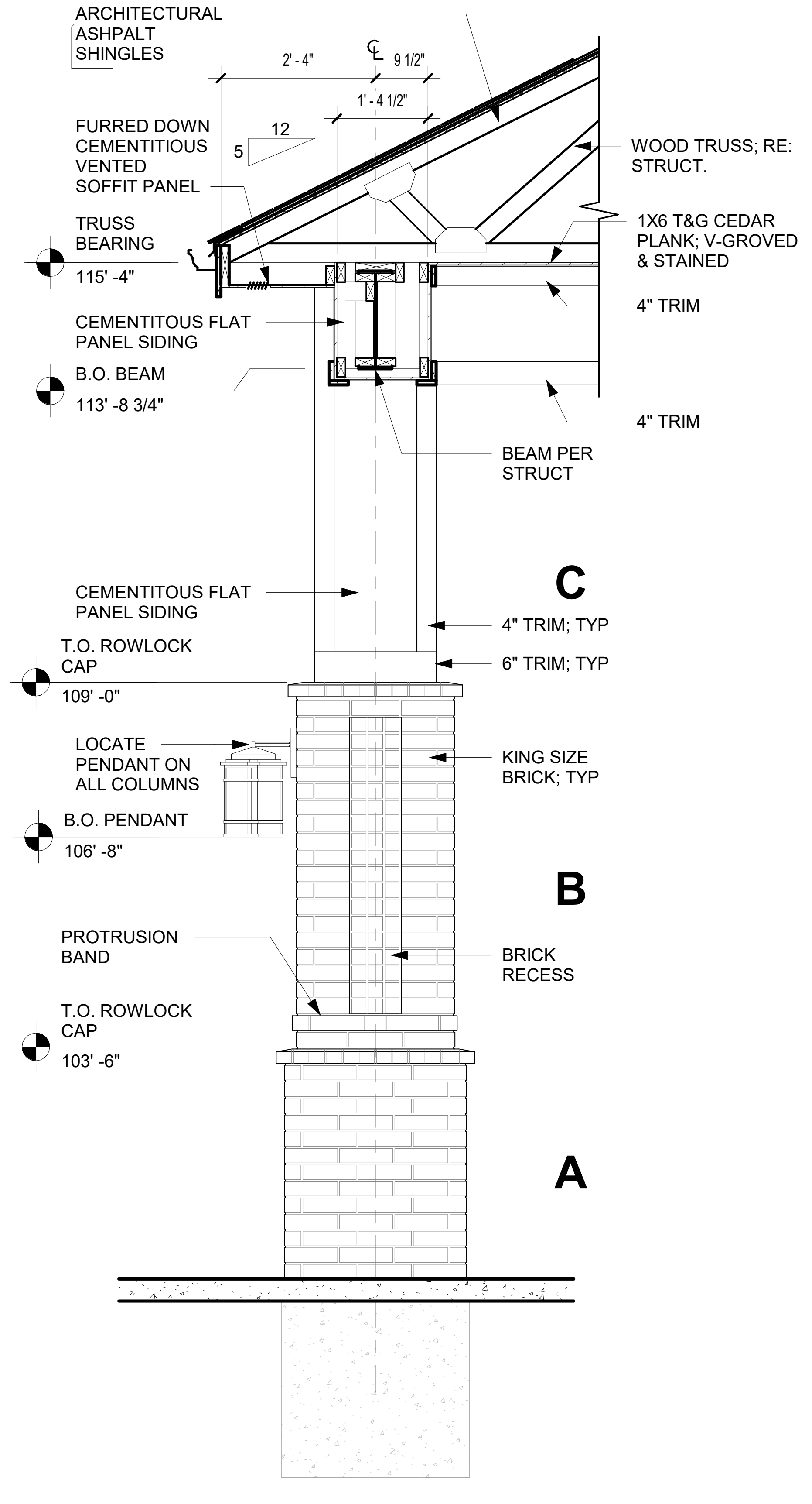
A BOTTOM FRAMING

C3 CANOPY COLUMN PLAN
1" = 1'-0"

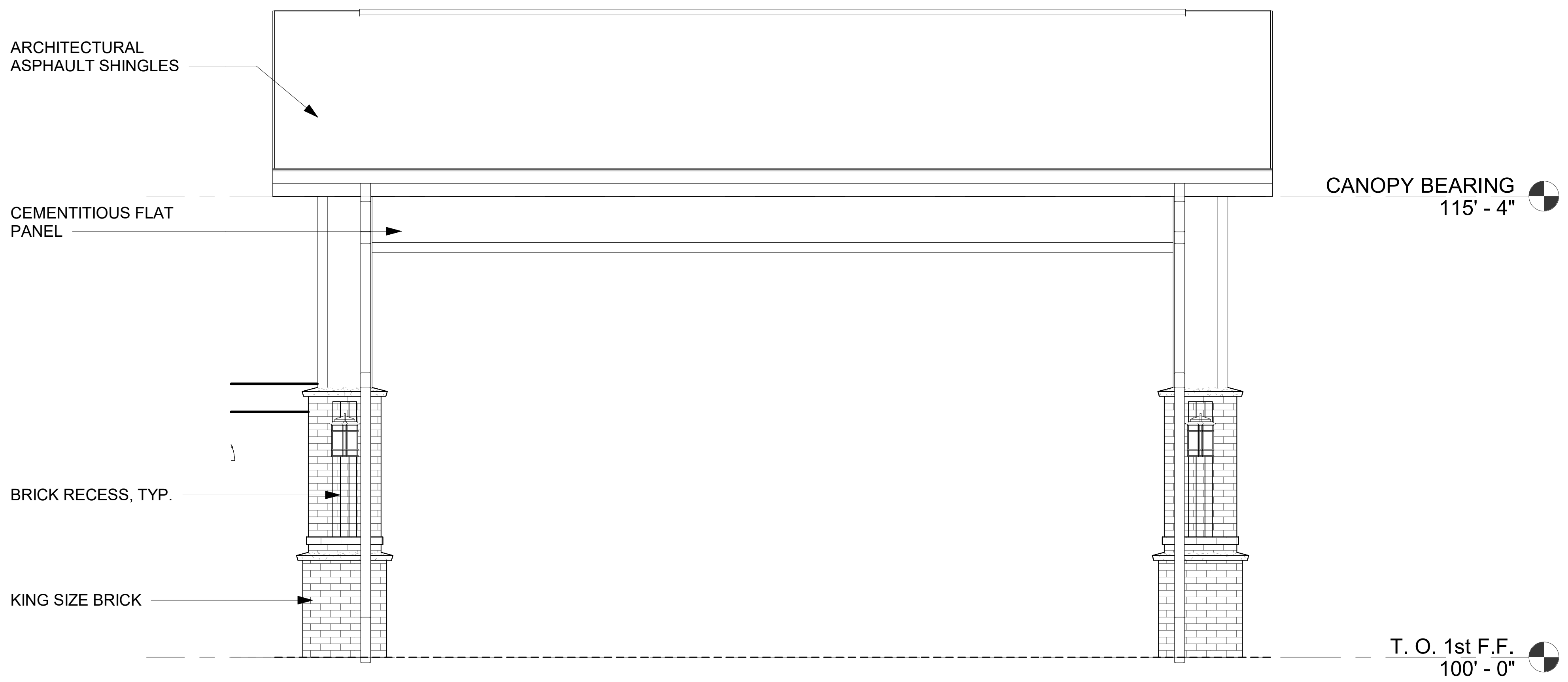
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-101 FOR PLAN LEGEND
REFERENCE A-200 FOR MATERIALS LEGEND



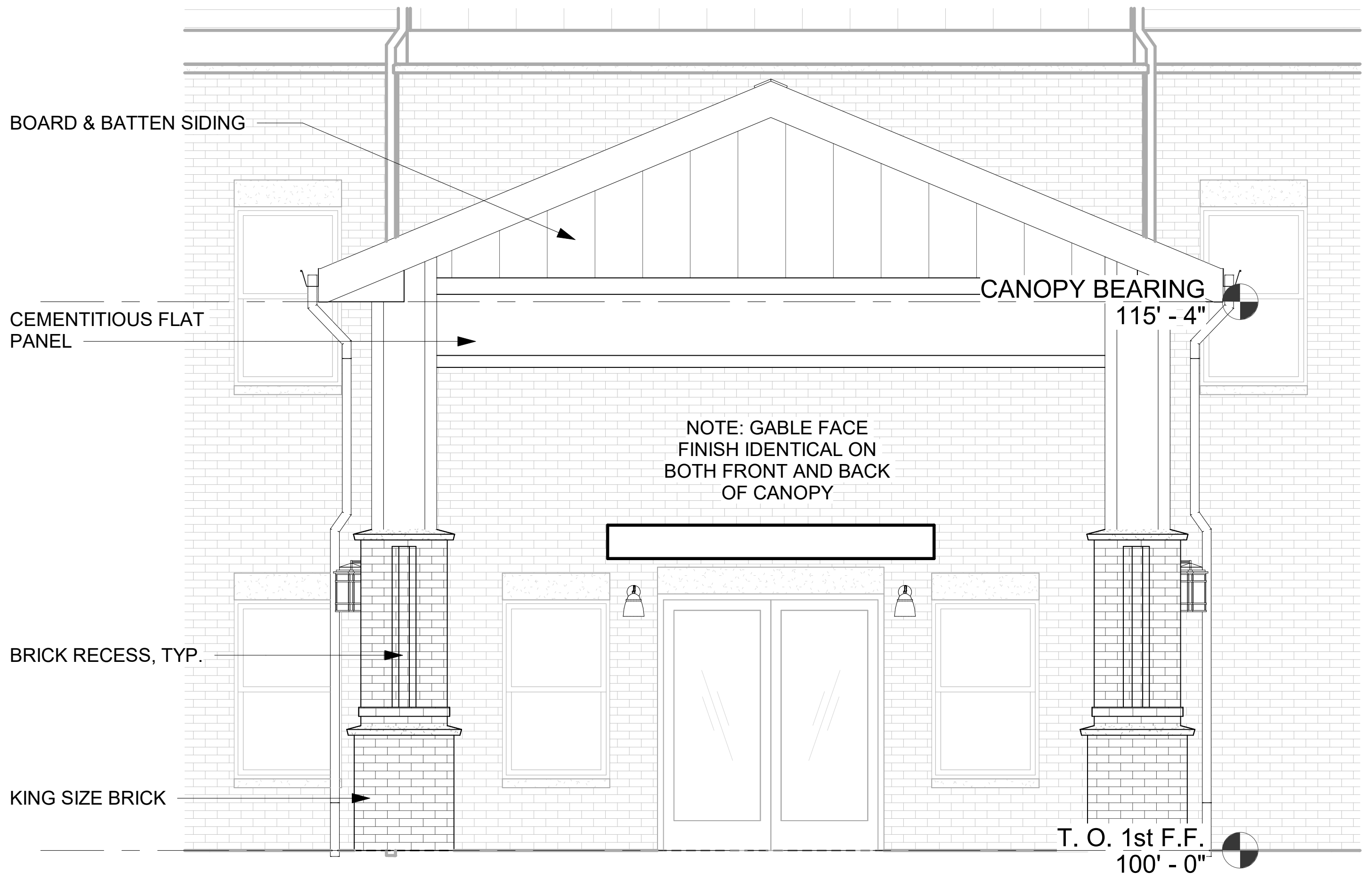
C1 CANOPY PLAN
1/4" = 1'-0"



A5 CANOPY SECTION
1/2" = 1'-0"



A3 CANOPY SIDE ELEVATION
1/4" = 1'-0"



A1 CANOPY FRONT ELEVATION
1/4" = 1'-0"

PRINTS ISSUED
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REVISIONS:
5 10/04/24 ASI 001

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DAVID EUGENE HENDRIKSE
NUMBER A-7395
10/09/24

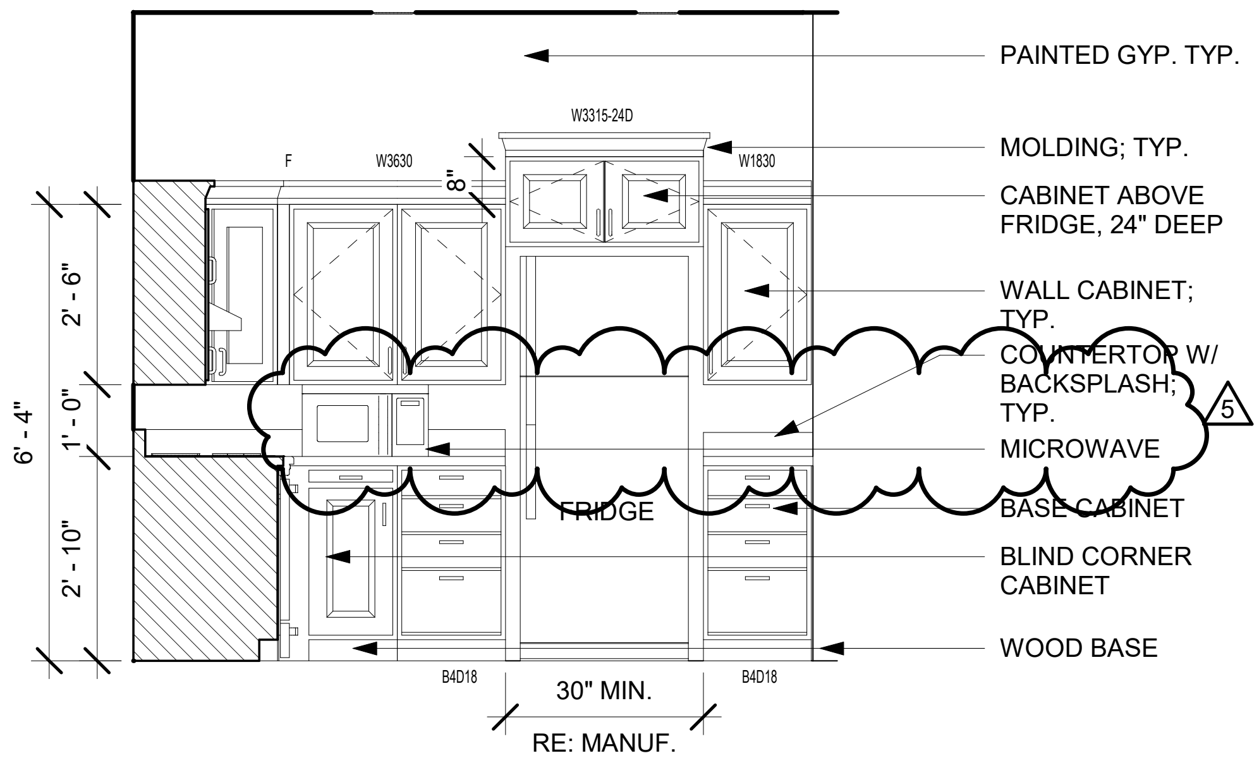
WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
FRONT CANOPY PLAN / ELEV. / SECTION / & DETAILS

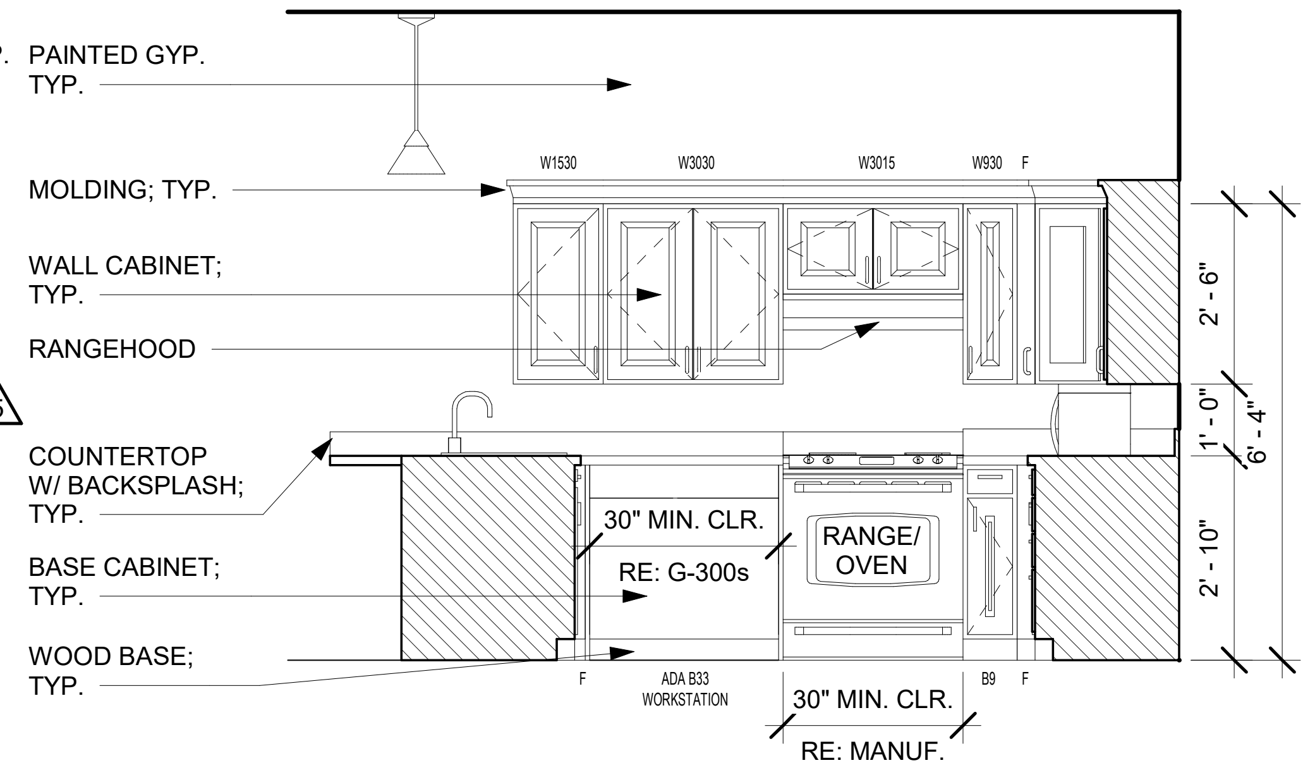
PROJECT NUMBER: 23034

SHEET NUMBER:

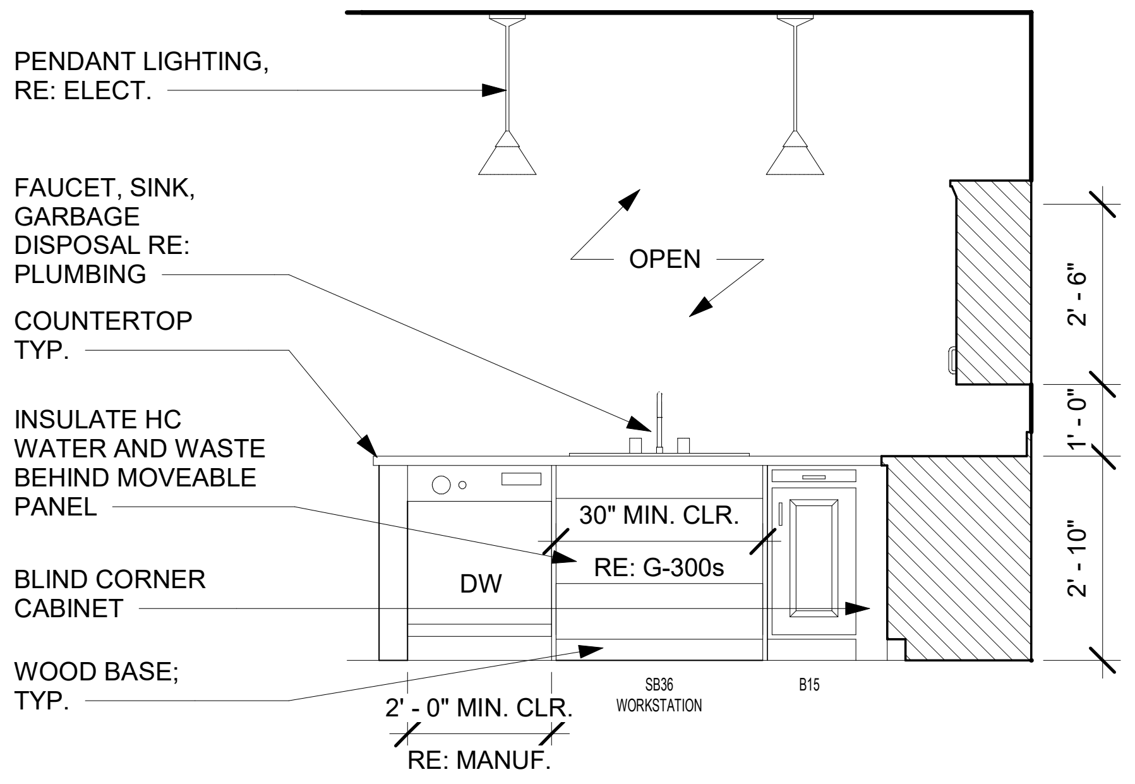
A-304



C5 ONE BED TYPE A KITCHEN ELEV. 1
3/8" = 1'-0"



C4 ONE BED TYPE A KITCHEN ELEV. 2
3/8" = 1'-0"



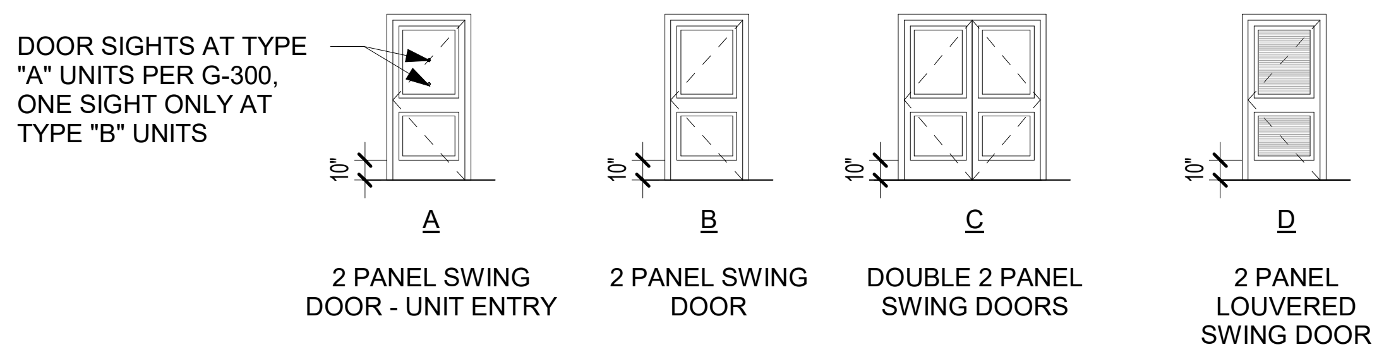
C3 ONE BED TYPE A KITCHEN ELEV. 3
3/8" = 1'-0"

REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-101 FOR PLAN LEGEND
REFERENCE A-120 FOR RCP LEGEND

PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:
5 10/04/24 ASI 001

DOOR TYPES


DOOR SIGHTS AT TYPE "A" UNITS PER G-300, ONE SIGHT ONLY AT TYPE "B" UNITS
10"
A
2 PANEL SWING DOOR - UNIT ENTRY
B
2 PANEL SWING DOOR
C
DOUBLE 2 PANEL SWING DOORS
D
2 PANEL LOUVERED SWING DOOR

DOOR SCHEDULE - 1 BED UNITS

Mark	Width	Height	Thickness	Type Mark	Door Material	Door Finish	Frame Material	Frame Finish	Fire Rating	Comments	Hardware Group
001	3' - 0"	6' - 8"	0' - 1 3/4"	A	WD S.C.	PT-3	TIMELY MT-1	PT-3	20 MIN.	FACTORY KERF FOR SMOKE SEAL, FRAME READY FOR WOOD CASING	U1
002	2' - 10"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			
005	3' - 0"	6' - 8"	0' - 1 3/8"	D	WD H.C.	PT-3	WD	PT-3			
006	5' - 0"	6' - 8"	0' - 1 3/8"	C	WD H.C.	PT-3	WD	PT-3			
008	3' - 0"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			
009	3' - 0"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			
010	3' - 0"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			

ROOM FINISH SCHEDULE - 1 BED TYPE A UNITS

Number	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVP-1	WB-1, PT-3	PT-1	PT-2	
002	COAT	LVP-1	WB-1, PT-3	PT-1	PT-2	
003	LIVING	LVP-1	WB-1, PT-3	PT-1	PT-2	
004	KITCHEN	LVP-1	WB-1, PT-3	PT-1	PT-2	CABS. W/ PL COUNTER W/ SPLASH
005	MECH	--	--	--	--	
006	LAUNDRY	SV-1	WB-1, PT-3	PT-1	PT-2	
008	BATH	SV-1	WB-1, PT-3	PT-1	PT-2	CABS. W/ PL COUNTER W/ SPLASH
009	BEDROOM	LVP-1	WB-1, PT-3	PT-1	PT-2	
010	CLOSET	LVP-1	WB-1, PT-3	PT-1	PT-2	

UNIT FINISH LEGEND

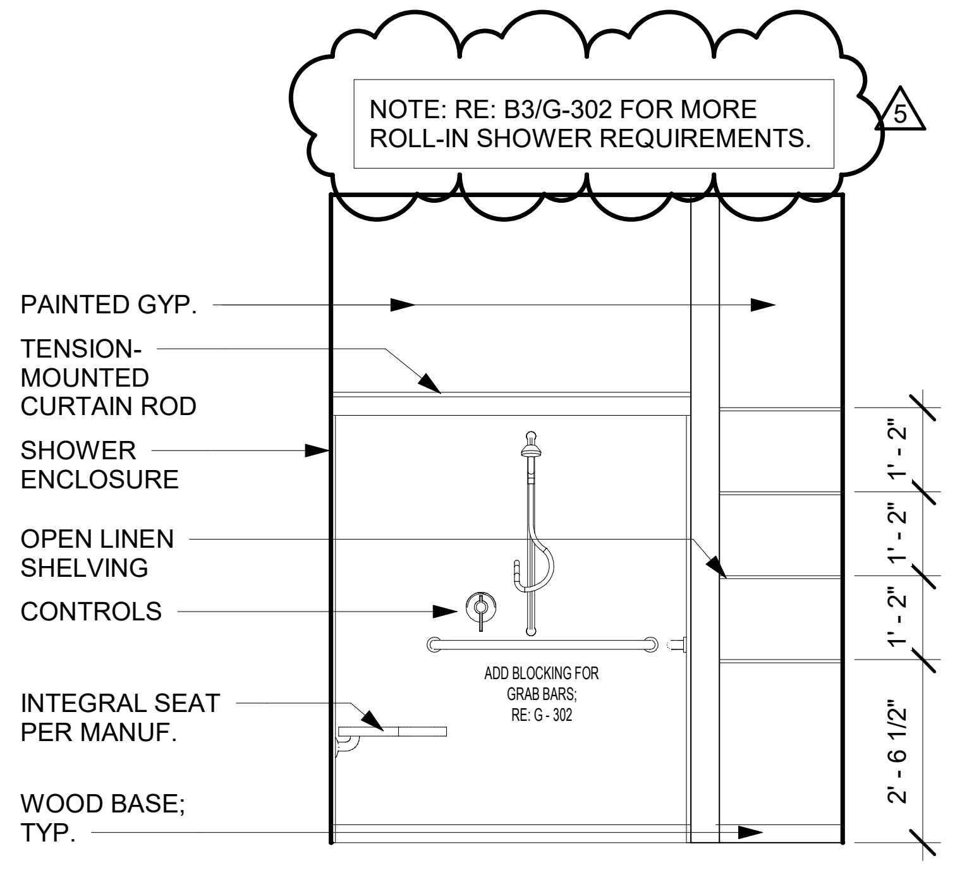
CARPET:
CPT-1 MOHAWK PROPERTIES COLLECTION: BROADLOOM (SMARTSTRAND W/ NANOLOC), PM395 NEUTRAL SHIFT, #859 TWILIGHT JUNGLE

LUXURY VINYL PLANK:
LVP-1 MOHAWK REXFORD COLLECTION: 12MIL, RP811, #890 STURDY BROWN

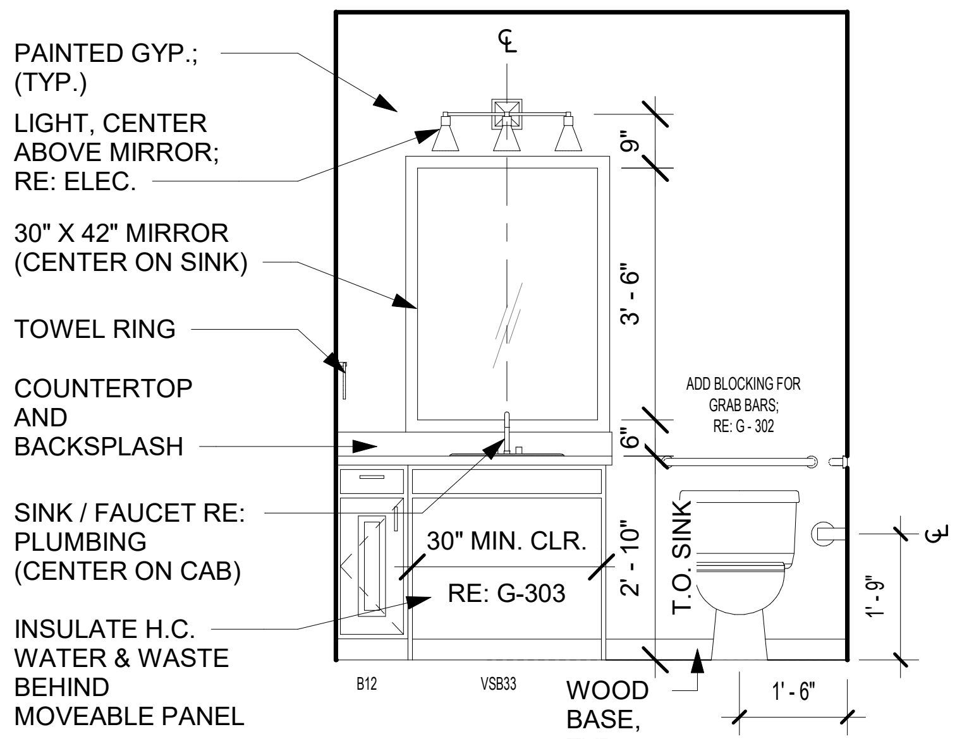
SHEET VINYL:
SV-1 MOHAWK PORTICO COLLECTION: #592 COOL SANDS

BASE:
WB-1 WOOD BASE, FJ623, 9/16" X 3.25" COLONIAL, PT-3; WOOD SHOE MOLD, FJ129, 7/16" X 11/16" COLONIAL, PT-3

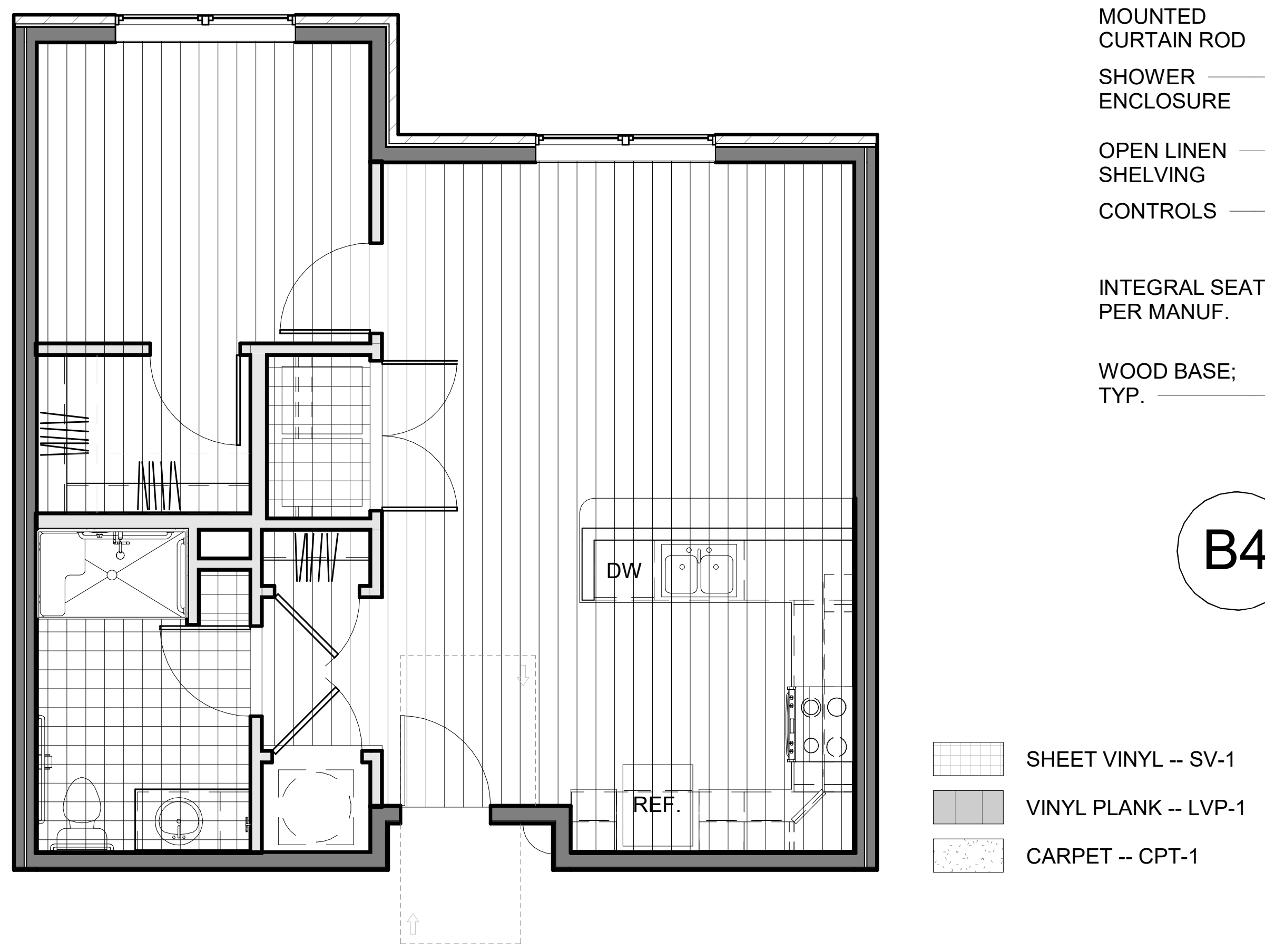
PAINT:
PT-1 SHERWIN WILLIAMS, SW 7044 AMAZING GRAY, EGGSHELL
PT-2 SHERWIN WILLIAMS, SW 7042 SHOJI WHITE, FLAT
PT-3 SHERWIN WILLIAMS, SW 7042 SHOJI WHITE, SEMI-GLOSS



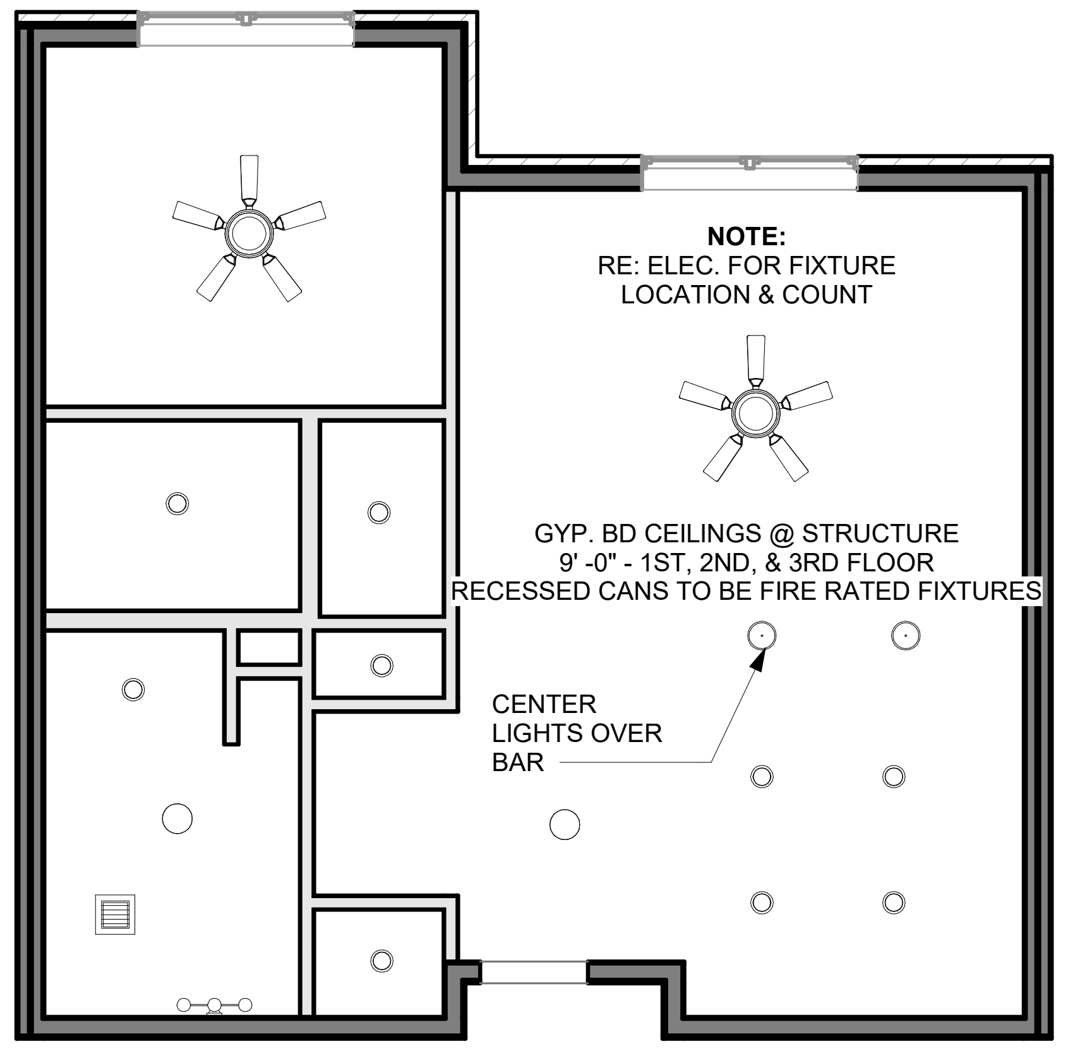
B4 ONE BED TYPE A BATH ELEV. 1
3/8" = 1'-0"


PAINTED GYP.; (TYP.)
LIGHT, CENTER ABOVE MIRROR; RE: ELEC.
30" X 42" MIRROR (CENTER ON SINK)
TOWEL RING
COUNTERTOP AND BACKSPLASH
SINK / FAUCET RE: PLUMBING (CENTER ON CAB)
INSULATE H.C. WATER & WASTE BEHIND MOVEABLE PANEL
WOOD BASE, TYP.
30" MIN. CLR.
RE: G-303
ADD BLOCKING FOR GRAB BARS; RE: G - 302
T.O. SINK
B12
VSB33
9"
3' - 6"
6"
2' - 10"
1' - 9"
1' - 6"

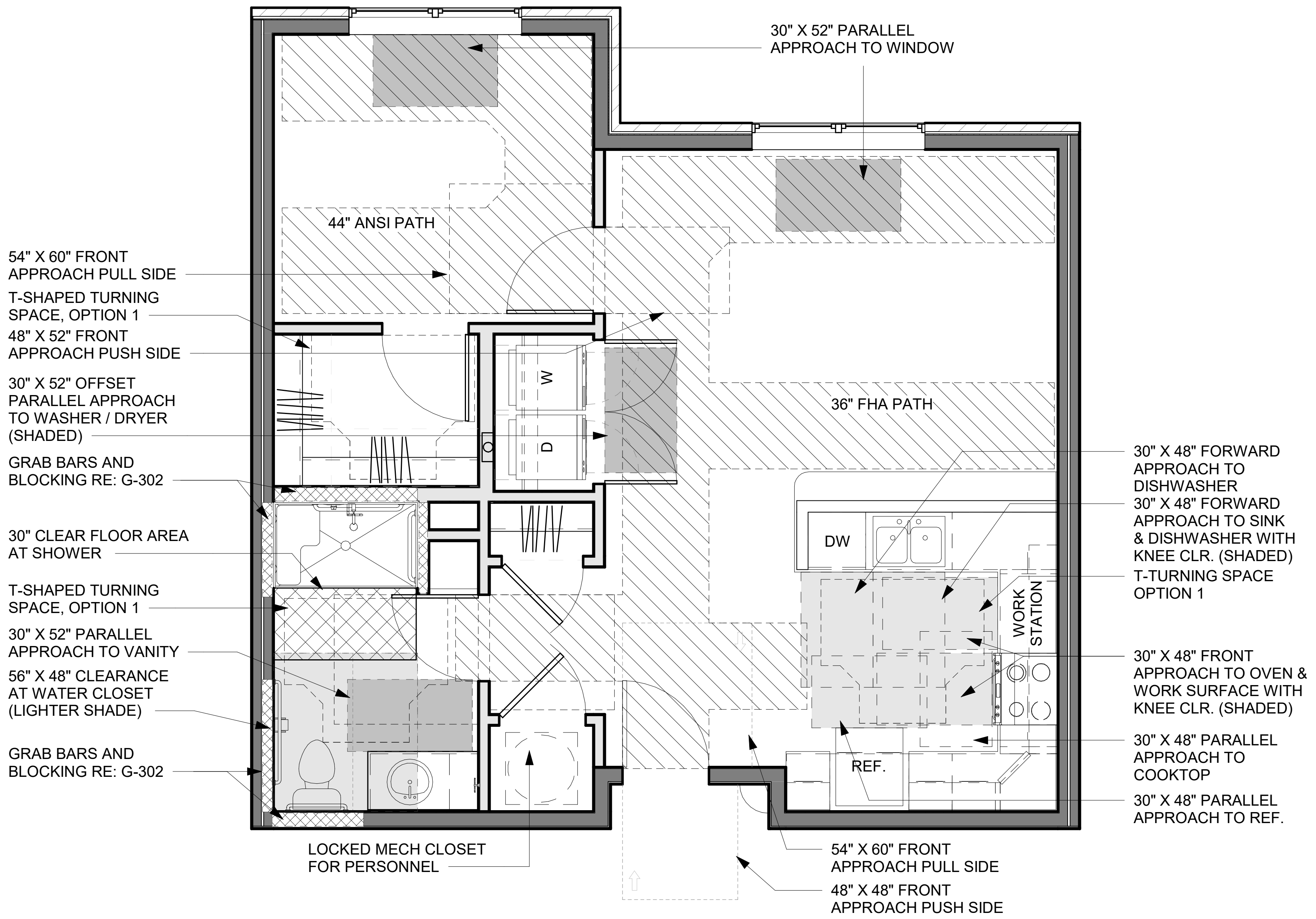
B3 ONE BED TYPE A BATH ELEV. 2
3/8" = 1'-0"



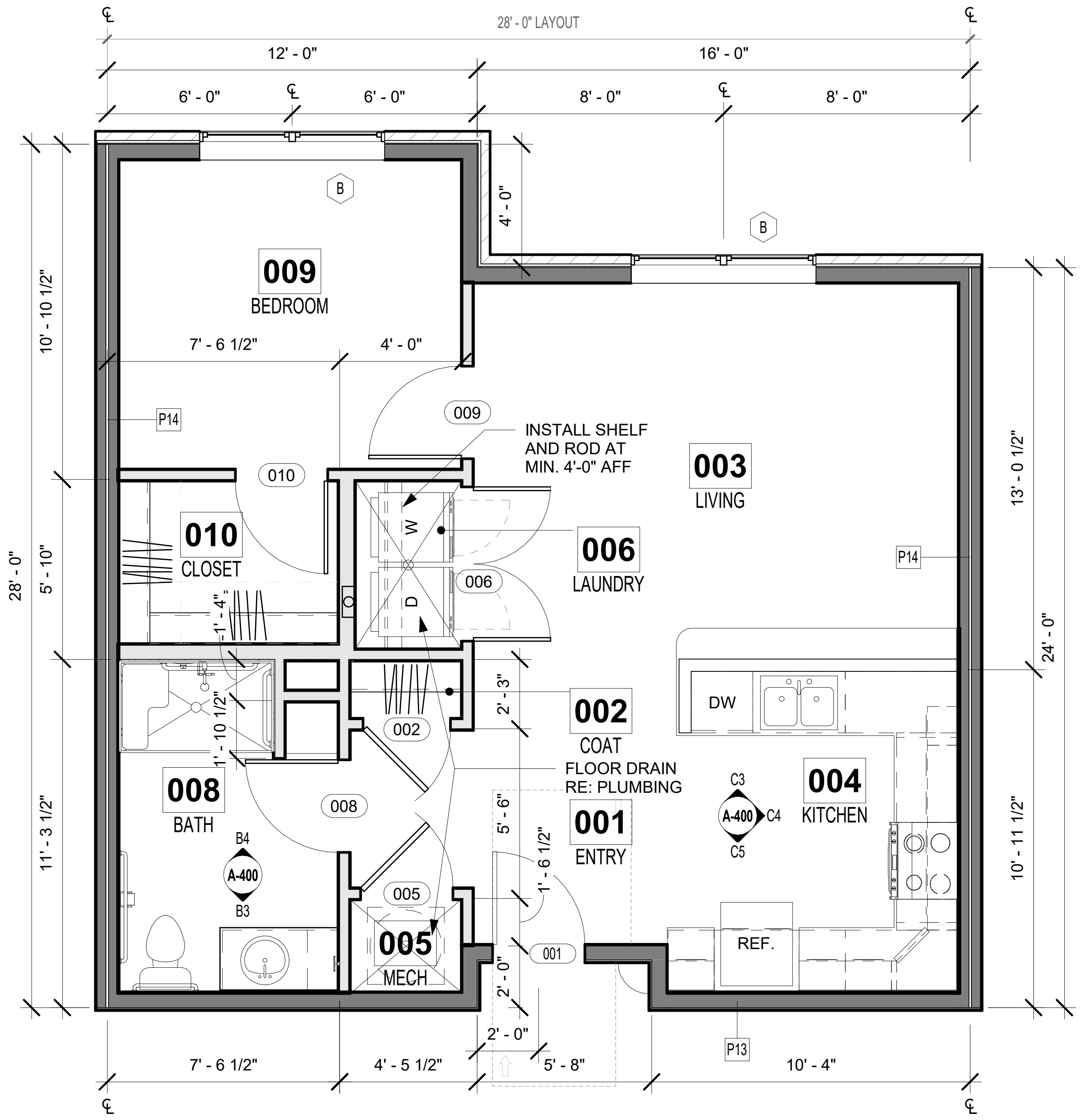
B5 ONE BEDROOM UNIT - TYPE A - FINISH PLAN
3/16" = 1'-0"


NOTE:
RE: ELEC. FOR FIXTURE LOCATION & COUNT
GYP. BD CEILINGS @ STRUCTURE
9' -0" - 1ST, 2ND, & 3RD FLOOR
RECESSED CANS TO BE FIRE RATED FIXTURES
CENTER LIGHTS OVER BAR

A5 ONE BEDROOM UNIT - TYPE A - FIRST FLOOR REFLECTED CEILING PLAN
3/16" = 1'-0"


30" X 52" PARALLEL APPROACH TO WINDOW
44" ANSI PATH
54" X 60" FRONT APPROACH PULL SIDE
T-SHAPED TURNING SPACE, OPTION 1
48" X 52" FRONT APPROACH PUSH SIDE
30" X 52" OFFSET PARALLEL APPROACH TO WASHER / DRYER (SHADED)
GRAB BARS AND BLOCKING RE: G-302
30" CLEAR FLOOR AREA AT SHOWER
T-SHAPED TURNING SPACE, OPTION 1
30" X 52" PARALLEL APPROACH TO VANITY
56" X 48" CLEARANCE AT WATER CLOSET (LIGHTER SHADE)
GRAB BARS AND BLOCKING RE: G-302
LOCKED MECH CLOSET FOR PERSONNEL
W
D
36" FHA PATH
DW
WORK STATION
REF.
30" X 48" FORWARD APPROACH TO DISHWASHER
30" X 48" FORWARD APPROACH TO SINK & DISHWASHER WITH KNEE CLR. (SHADED)
T-TURNING SPACE OPTION 1
30" X 48" FRONT APPROACH TO OVEN & WORK SURFACE WITH KNEE CLR. (SHADED)
30" X 48" PARALLEL APPROACH TO COOKTOP
30" X 48" PARALLEL APPROACH TO REF.
54" X 60" FRONT APPROACH PULL SIDE
48" X 48" FRONT APPROACH PUSH SIDE

A3 ONE BEDROOM UNIT - TYPE A - CLEAR SPACE PLAN
1/4" = 1'-0"



A1 ONE BEDROOM UNIT - TYPE A - FLOOR PLAN
1/4" = 1'-0"

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DAVID EUGENE HENDRIKSE
NUMBER A-7395
10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
ONE BEDROOM UNIT PLAN - TYPE A

PROJECT NUMBER: 23034

SHEET NUMBER:
A-400

10/3/2024 11:52:45 AM
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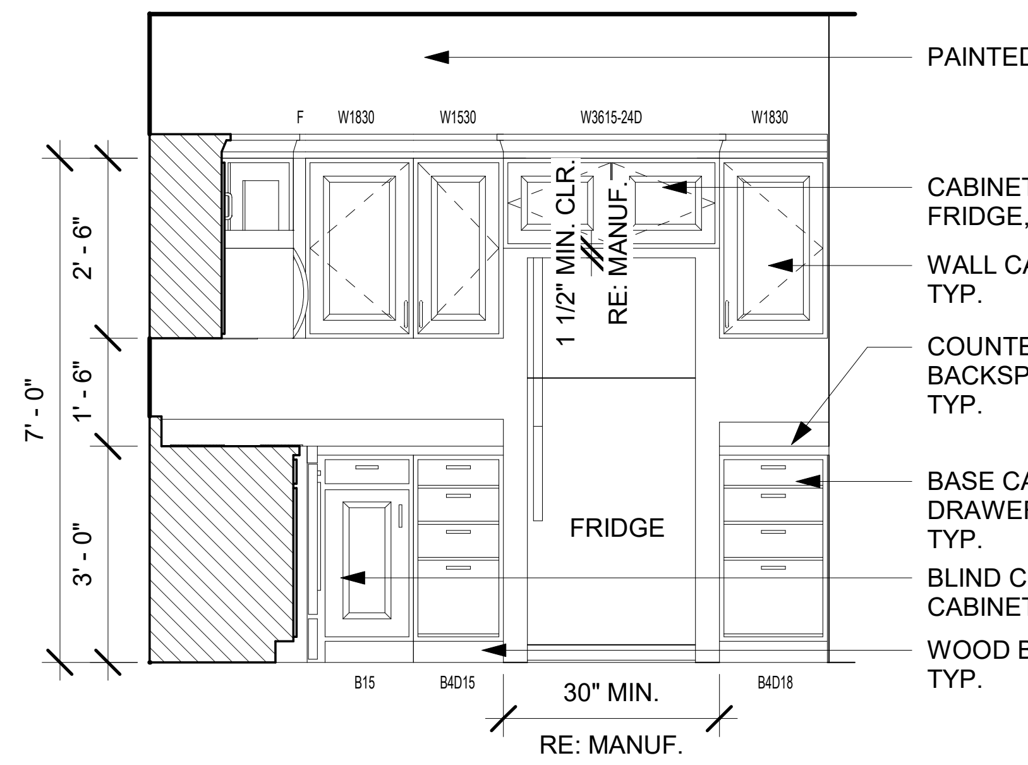
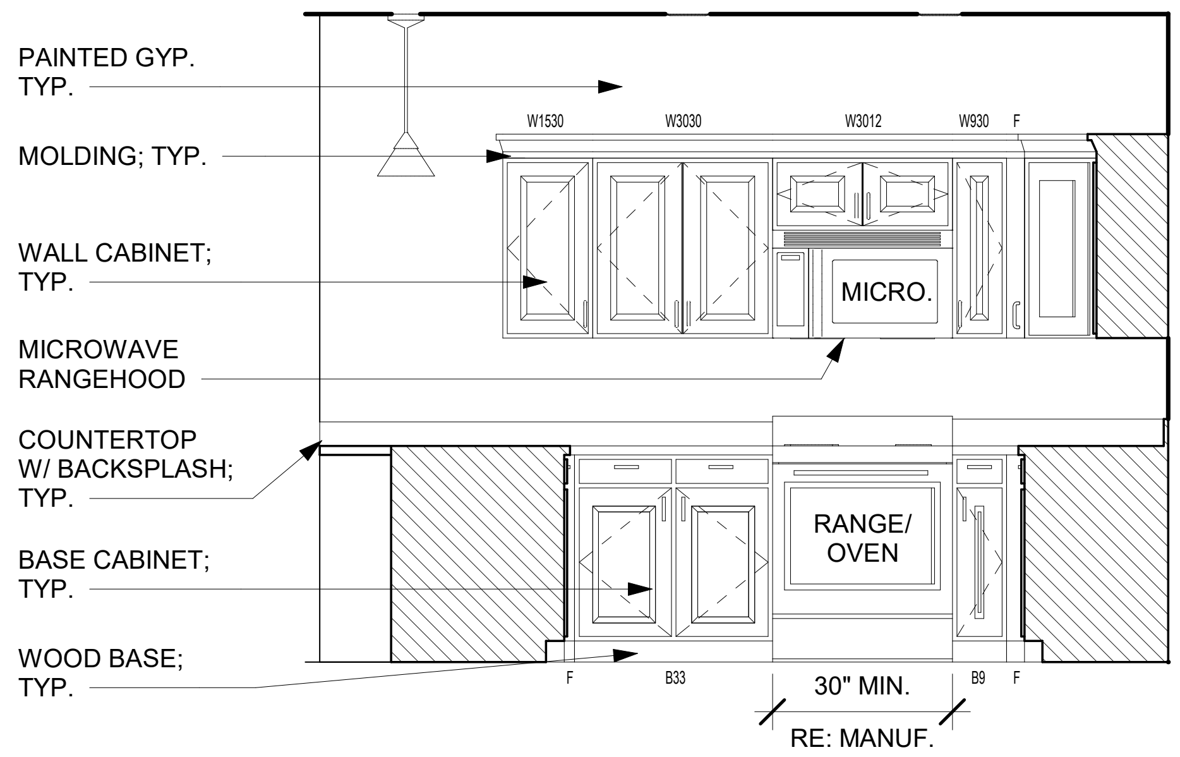
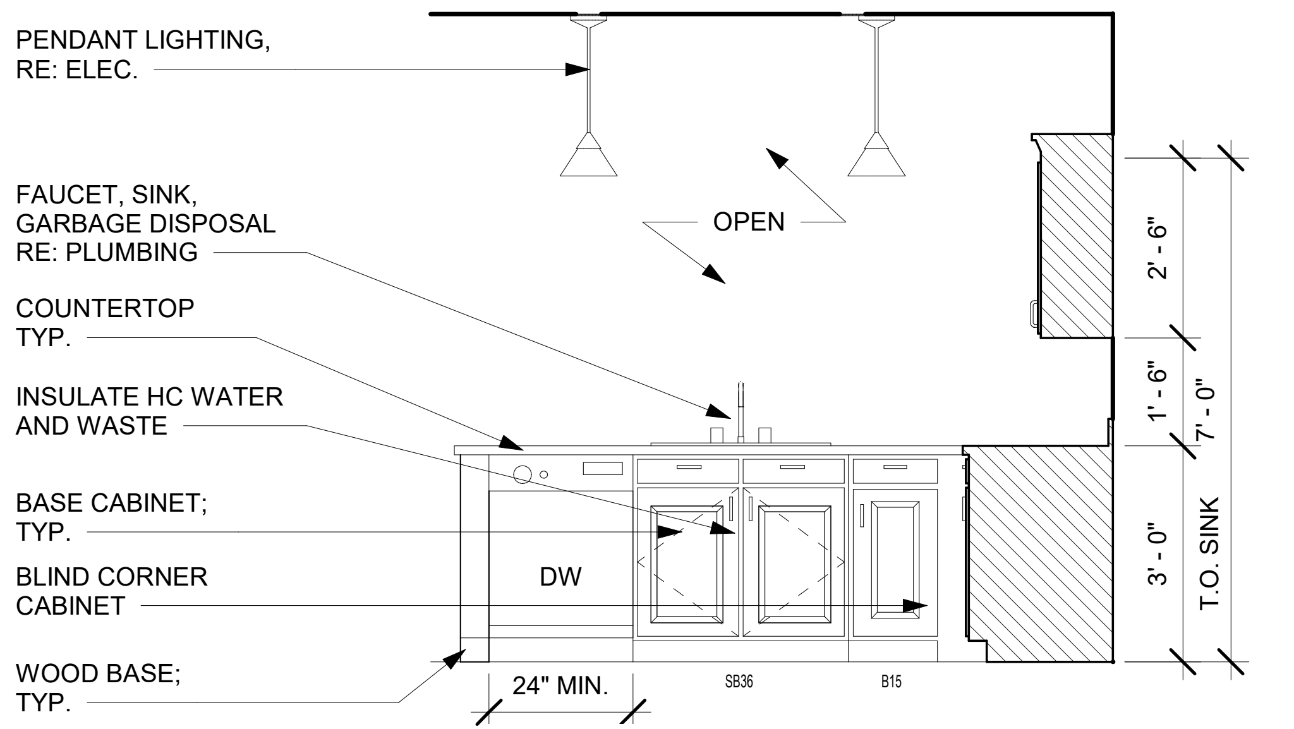


C5 ONE BED TYPE B KITCHEN ELEV. 1
3/8" = 1'-0"



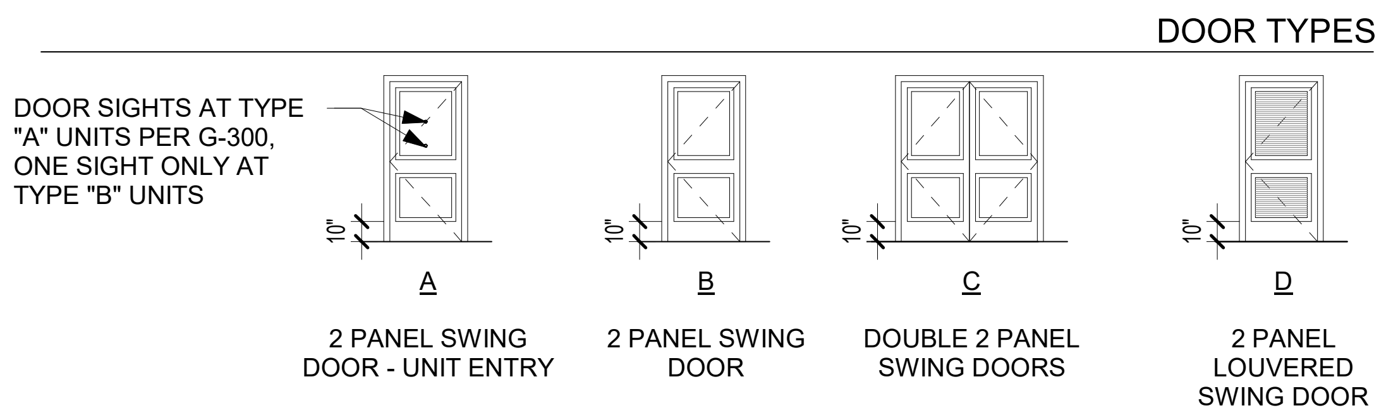
C4 ONE BED TYPE B KITCHEN ELEV. 2
3/8" = 1'-0"



C3 ONE BED TYPE B KITCHEN ELEV. 3
3/8" = 1'-0"

REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-101 FOR PLAN LEGEND
REFERENCE A-120 FOR RCP LEGEND

DOOR TYPES


DOOR SIGHTS AT TYPE "A" UNITS PER G-300, ONE SIGHT ONLY AT TYPE "B" UNITS
10"
10"
10"
10"

A
2 PANEL SWING DOOR - UNIT ENTRY

B
2 PANEL SWING DOOR

C
DOUBLE 2 PANEL SWING DOORS

D
2 PANEL LOUVERED SWING DOOR

DOOR SCHEDULE - 1 BED UNITS

Mark	Width	Height	Thickness	Type Mark	Door Material	Door Finish	Frame Material	Frame Finish	Fire Rating	Comments	Hardware Group
001	3' - 0"	6' - 8"	0' - 1 3/4"	A	WD S.C.	PT-3	TIMELY MT-1	PT-3	20 MIN.	FACTORY KERF FOR SMOKE SEAL, FRAME READY FOR WOOD CASING	U1
002	2' - 10"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			
005	3' - 0"	6' - 8"	0' - 1 3/8"	D	WD H.C.	PT-3	WD	PT-3			
006	5' - 0"	6' - 8"	0' - 1 3/8"	C	WD H.C.	PT-3	WD	PT-3			
008	3' - 0"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			
009	3' - 0"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			
010	3' - 0"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			

ROOM FINISH SCHEDULE - 1 BED TYPE B UNITS

Number	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVP-1	WB-1, PT-3	PT-1	PT-2	
002	COAT	LVP-1	WB-1, PT-3	PT-1	PT-2	
003	LIVING	LVP-1	WB-1, PT-3	PT-1	PT-2	
004	KITCHEN	LVP-1	WB-1, PT-3	PT-1	PT-2	CABS. W/ PL COUNTER W/ SPLASH
005	MECH	--	--	--	--	
006	LAUNDRY	SV-1	WB-1, PT-3	PT-1	PT-2	
008	BATH	SV-1	WB-1, PT-3	PT-1	PT-2	CABS. W/ PL COUNTER W/ SPLASH
009	BEDROOM	CPT-1	WB-1, PT-3	PT-1	PT-2	
010	CLOSET	CPT-1	WB-1, PT-3	PT-1	PT-2	

UNIT FINISH LEGEND

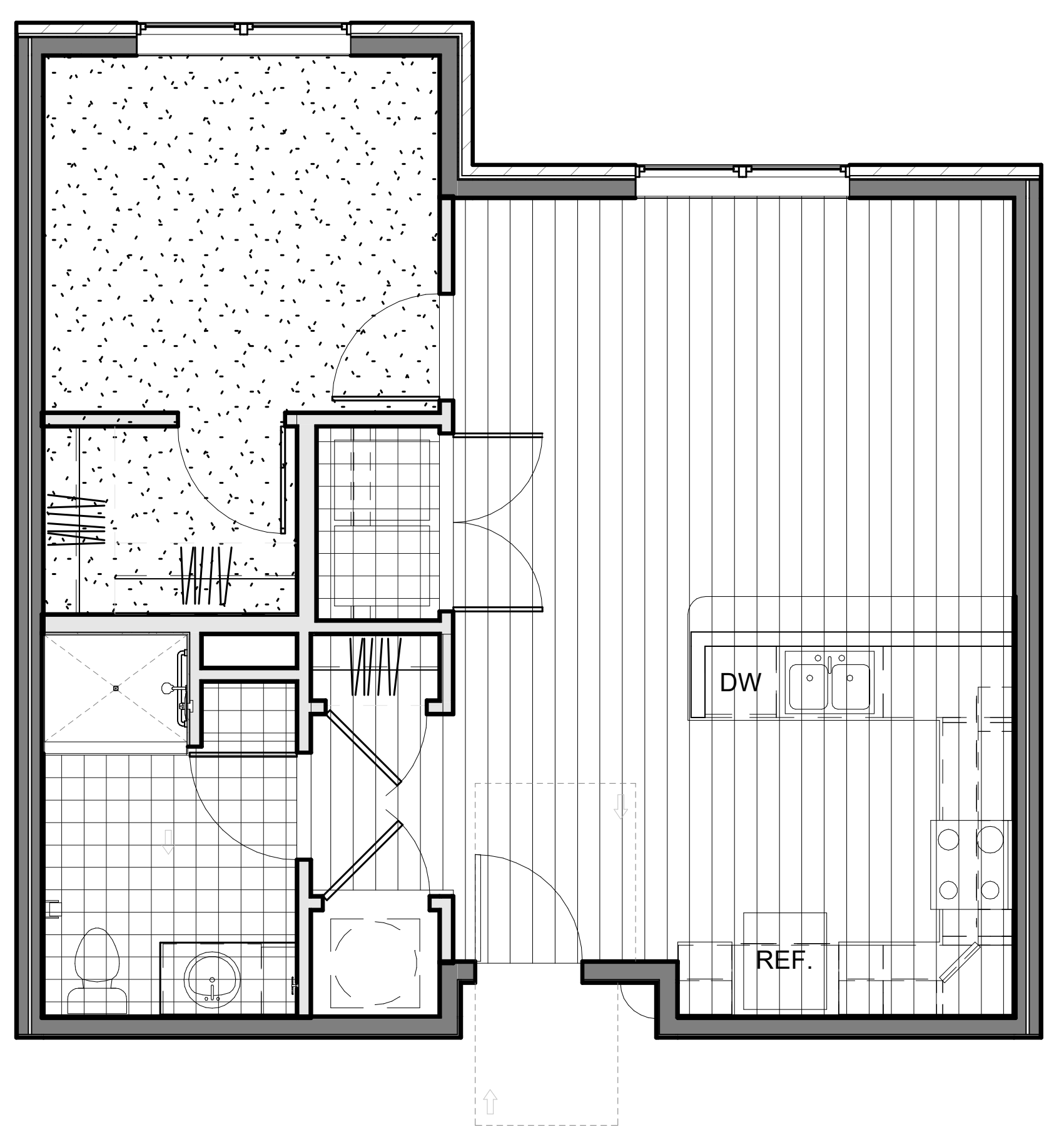
CARPET:
CPT-1 MOHAWK PROPERTIES COLLECTION: BROADLOOM (SMARTSTRAND W/ NANOLOC), PM395 NEUTRAL SHIFT, #859 TWILIGHT JUNGLE

LUXURY VINYL PLANK:
LVP-1 MOHAWK REXFORD COLLECTION: 12MIL, RP811, #890 STURDY BROWN

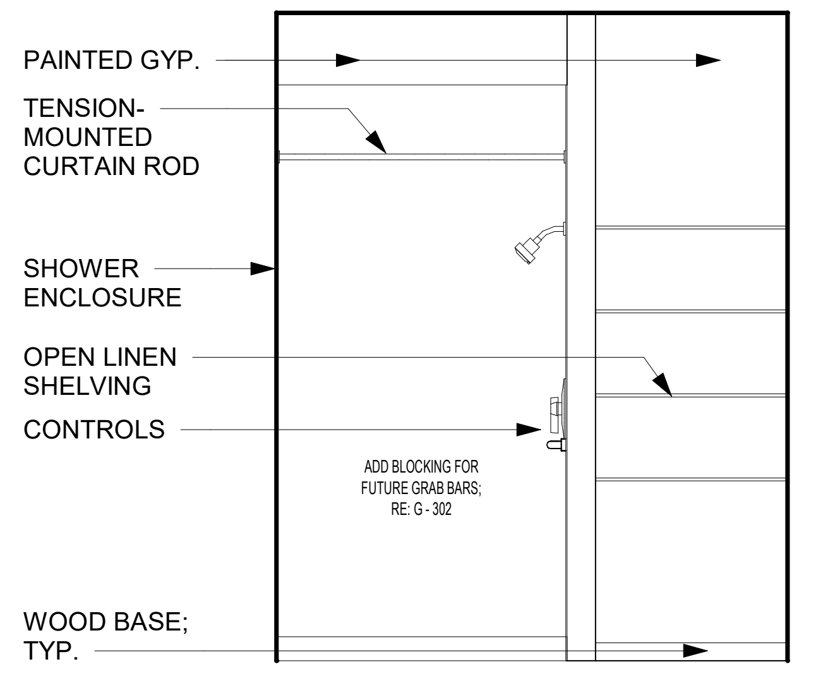
SHEET VINYL:
SV-1 MOHAWK PORTICO COLLECTION: #592 COOL SANDS

BASE:
WB-1 WOOD BASE, FJ623, 9/16" X 3.25" COLONIAL, PT-3; WOOD SHOE MOLD, FJ129, 7/16" X 11/16" COLONIAL, PT-3

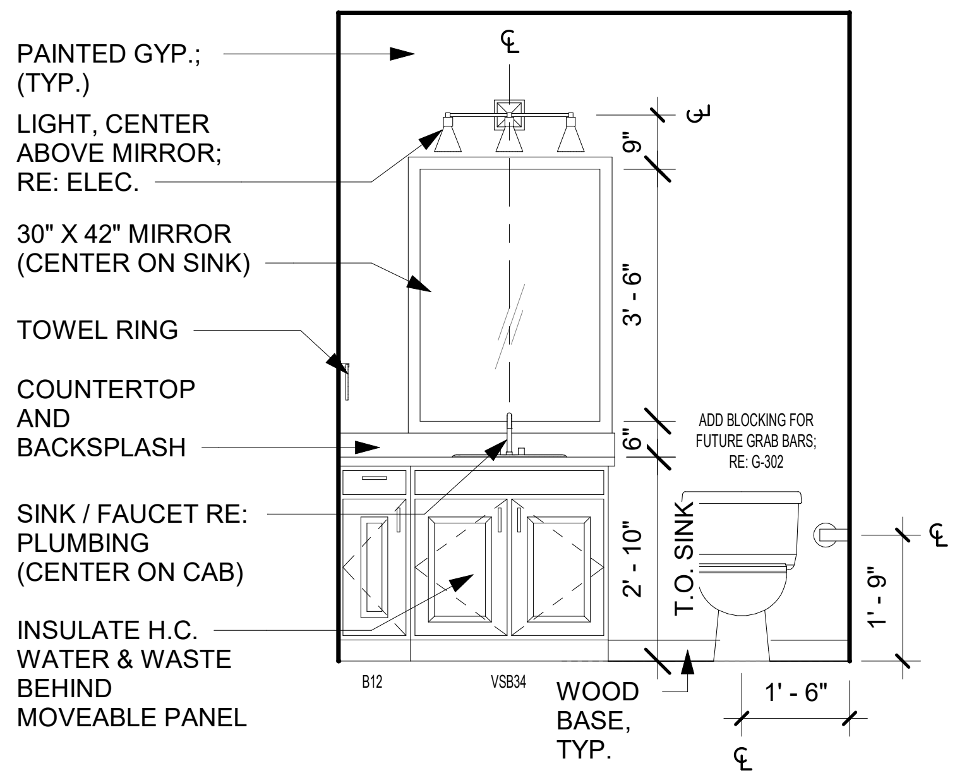
PAINT:
PT-1 SHERWIN WILLIAMS, SW 7044 AMAZING GRAY, EGGSHELL
PT-2 SHERWIN WILLIAMS, SW 7042 SHOJI WHITE, FLAT
PT-3 SHERWIN WILLIAMS, SW 7042 SHOJI WHITE, SEMI-GLOSS



B5 ONE BEDROOM UNIT - TYPE B - FINISH PLAN
3/16" = 1'-0"

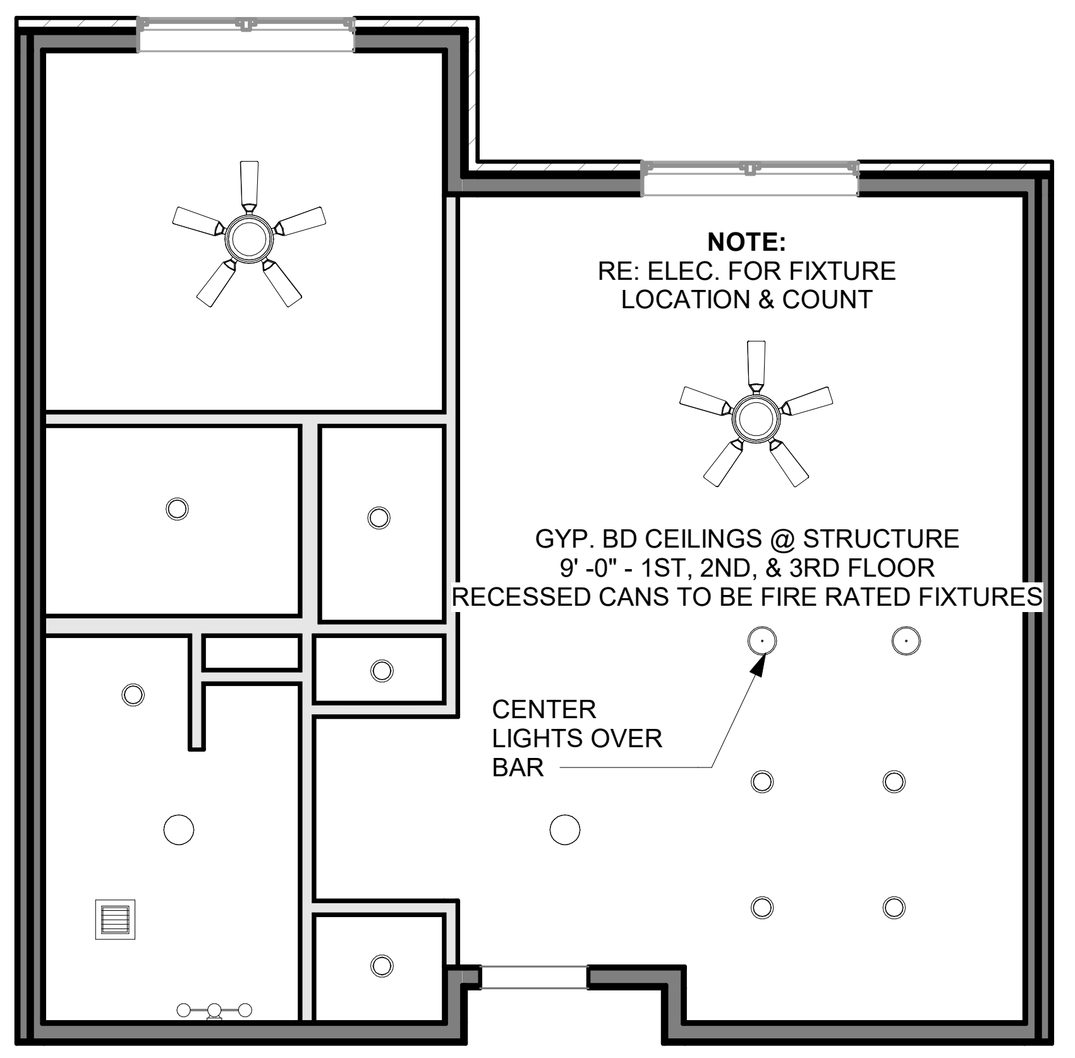

PAINTED GYP.
TENSION-MOUNTED CURTAIN ROD
SHOWER ENCLOSURE
OPEN LINEN SHELVING
CONTROLS
ADD BLOCKING FOR FUTURE GRAB BARS; RE: G - 302
WOOD BASE; TYP.

B4 ONE BED TYPE B BATH ELEV. 1
3/8" = 1'-0"

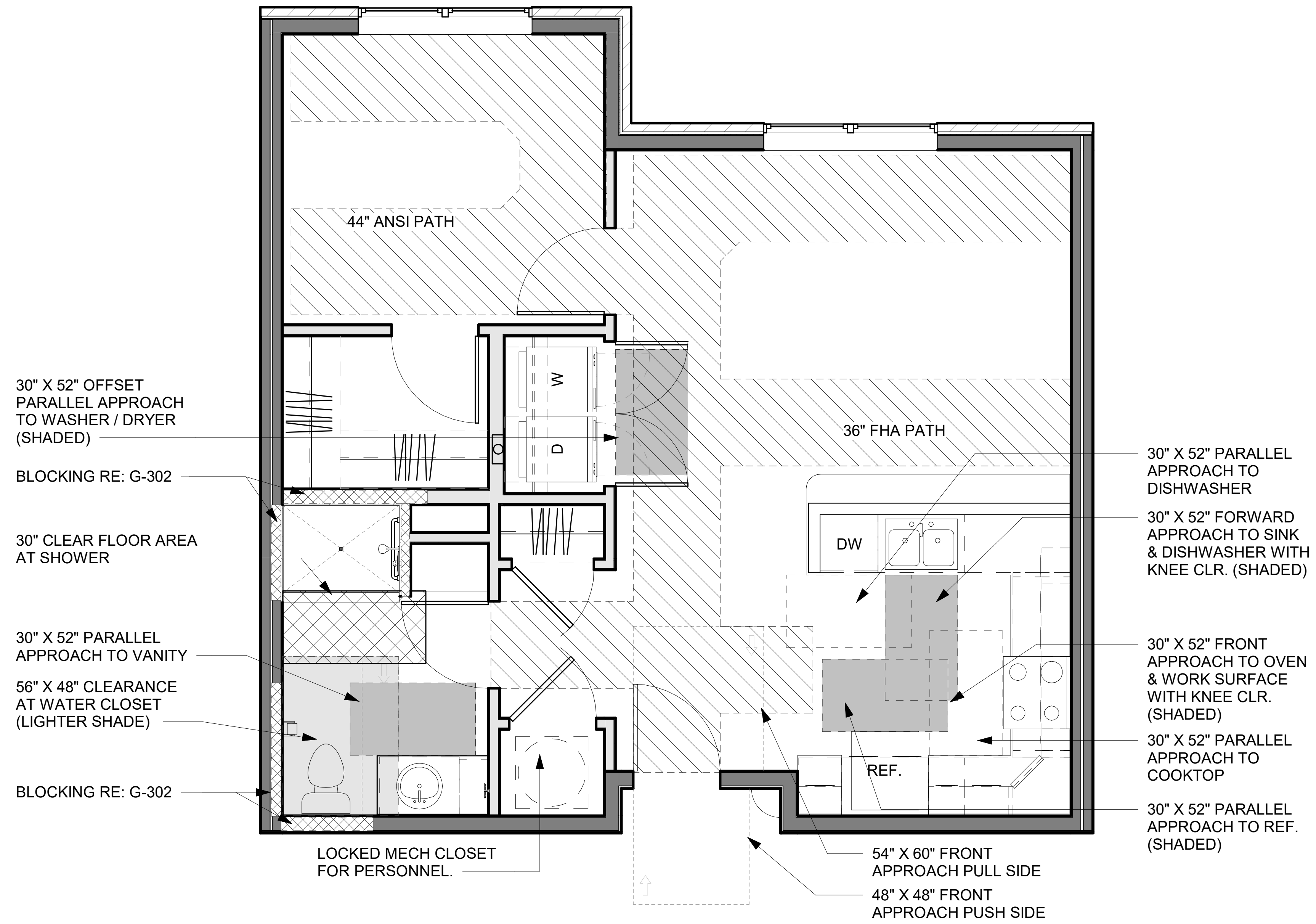

PAINTED GYP.; (TYP.)
LIGHT, CENTER ABOVE MIRROR; RE: ELEC.
30" X 42" MIRROR (CENTER ON SINK)
TOWEL RING
COUNTERTOP AND BACKSPLASH
SINK / FAUCET RE: PLUMBING (CENTER ON CAB)
INSULATE H.C. WATER & WASTE BEHIND MOVEABLE PANEL
9"
3' - 6"
6"
2' - 10"
T.O. SINK
ADD BLOCKING FOR FUTURE GRAB BARS; RE: G-302
1' - 9"
1' - 6"
B12
VSB34
WOOD BASE, TYP.

B3 ONE BED TYPE B BATH ELEV. 2
3/8" = 1'-0"

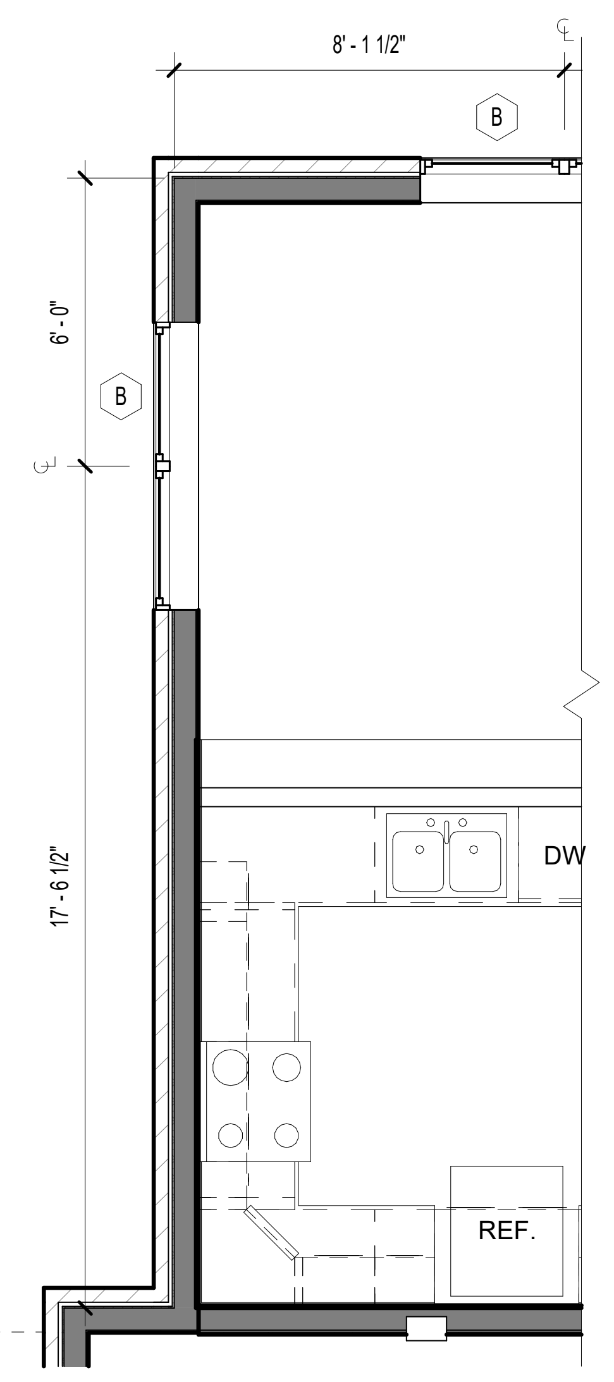
▨ SHEET VINYL -- SV-1
▥ VINYL PLANK -- LVP-1
░ CARPET -- CPT-1


NOTE:
RE: ELEC. FOR FIXTURE LOCATION & COUNT
GYP. BD CEILINGS @ STRUCTURE
9' -0" - 1ST, 2ND, & 3RD FLOOR
RECESSED CANS TO BE FIRE RATED FIXTURES
CENTER LIGHTS OVER BAR

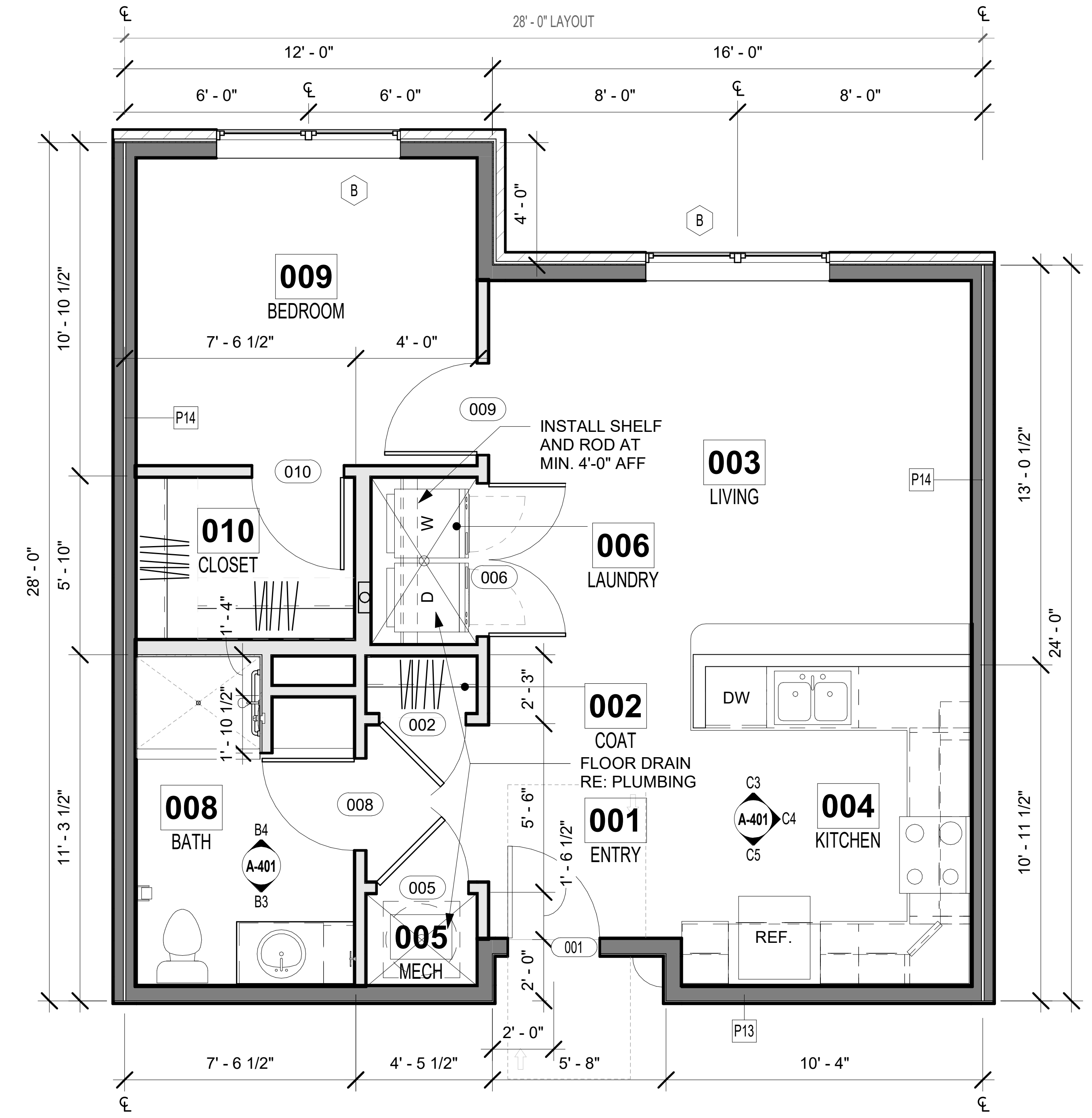
A5 ONE BEDROOM UNIT - TYPE B - REFLECTED CEILING PLAN
3/16" = 1'-0"


44" ANSI PATH
36" FHA PATH
W
D
DW
REF.
30" X 52" OFFSET PARALLEL APPROACH TO WASHER / DRYER (SHADED)
BLOCKING RE: G-302
30" CLEAR FLOOR AREA AT SHOWER
30" X 52" PARALLEL APPROACH TO VANITY
56" X 48" CLEARANCE AT WATER CLOSET (LIGHTER SHADE)
BLOCKING RE: G-302
LOCKED MECH CLOSET FOR PERSONNEL.
30" X 52" PARALLEL APPROACH TO DISHWASHER
30" X 52" FORWARD APPROACH TO SINK & DISHWASHER WITH KNEE CLR. (SHADED)
30" X 52" FRONT APPROACH TO OVEN & WORK SURFACE WITH KNEE CLR. (SHADED)
30" X 52" PARALLEL APPROACH TO COOKTOP
30" X 52" PARALLEL APPROACH TO REF. (SHADED)
54" X 60" FRONT APPROACH PULL SIDE
48" X 48" FRONT APPROACH PUSH SIDE

A3 ONE BEDROOM UNIT - TYPE B - CLEAR SPACE PLAN
1/4" = 1'-0"



A2 ONE BEDROOM UNIT - END UNIT
1/4" = 1'-0"



A1 ONE BEDROOM UNIT - TYPE B - FLOOR PLAN
1/4" = 1'-0"

PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:

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

DAVID EUGENE HENDRIKSE
NUMBER A-7305
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
ONE BEDROOM UNIT PLAN - TYPE B

PROJECT NUMBER: 23034

SHEET NUMBER:

A-401

10/27/2023 2:52:02 PM
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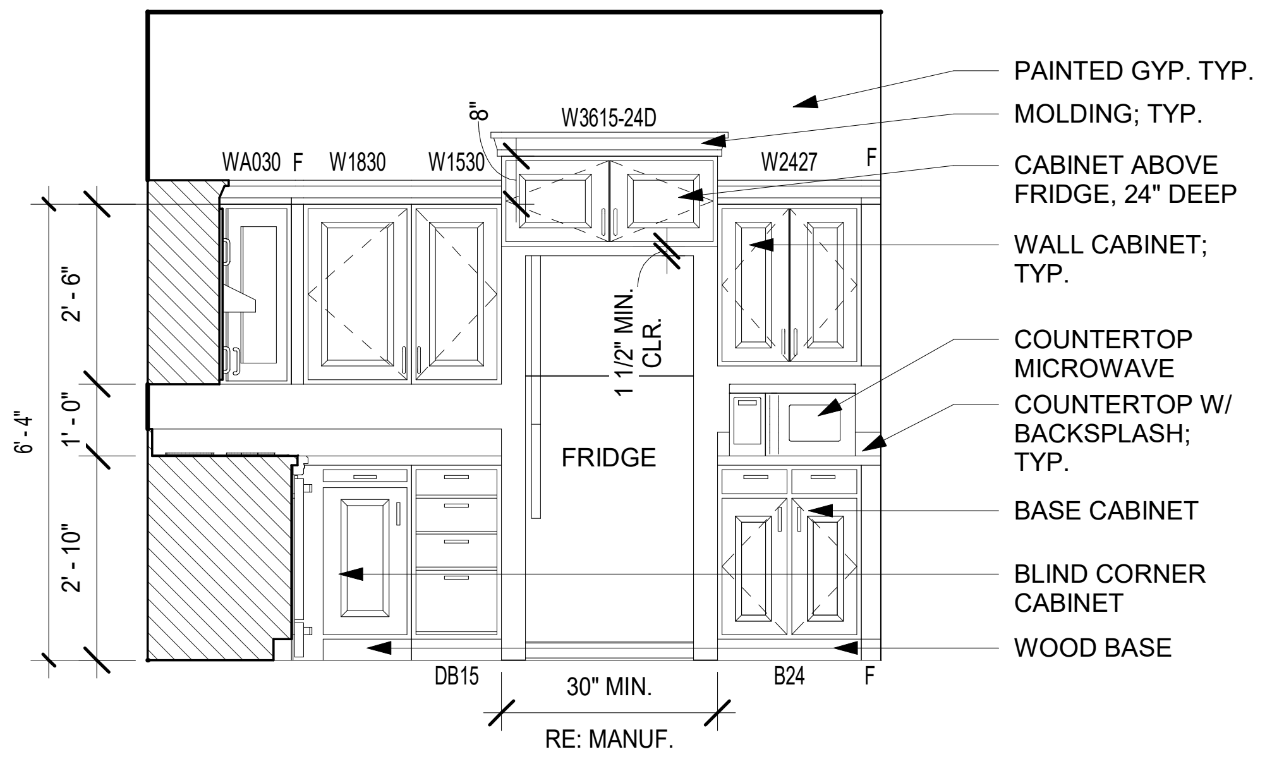
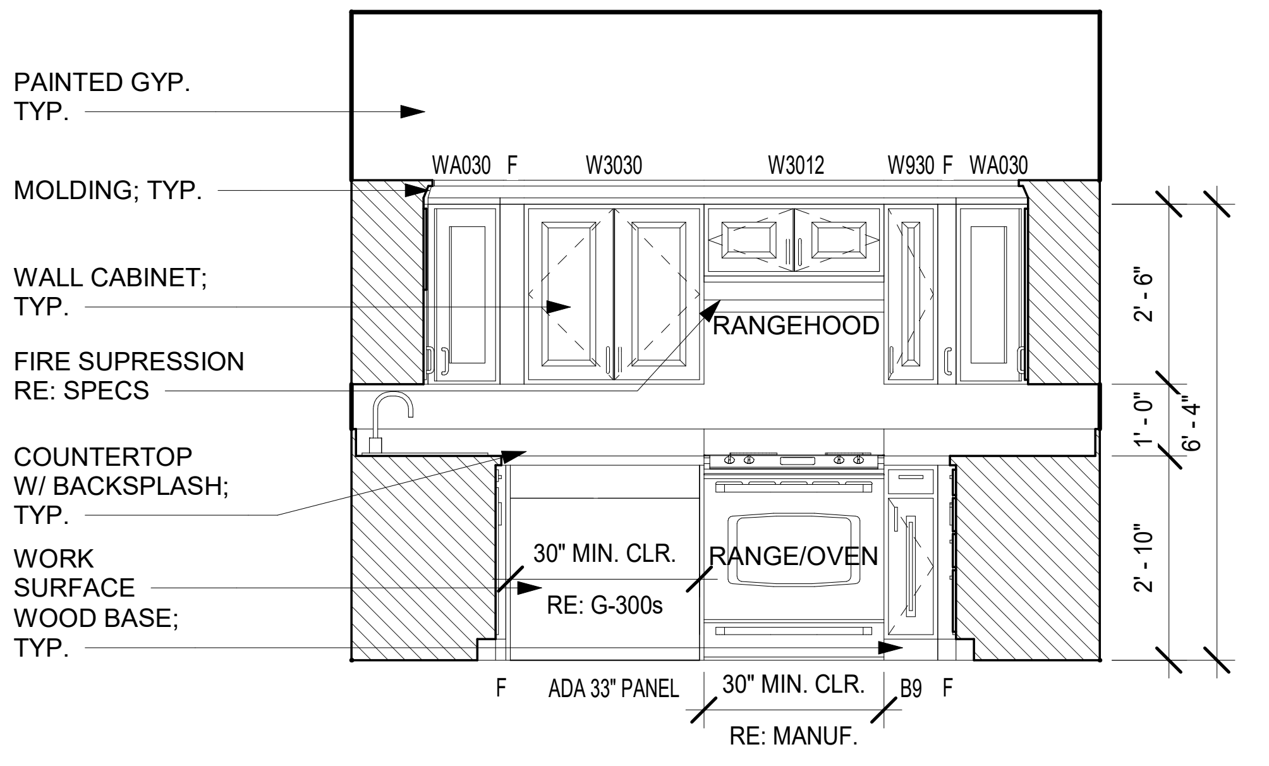
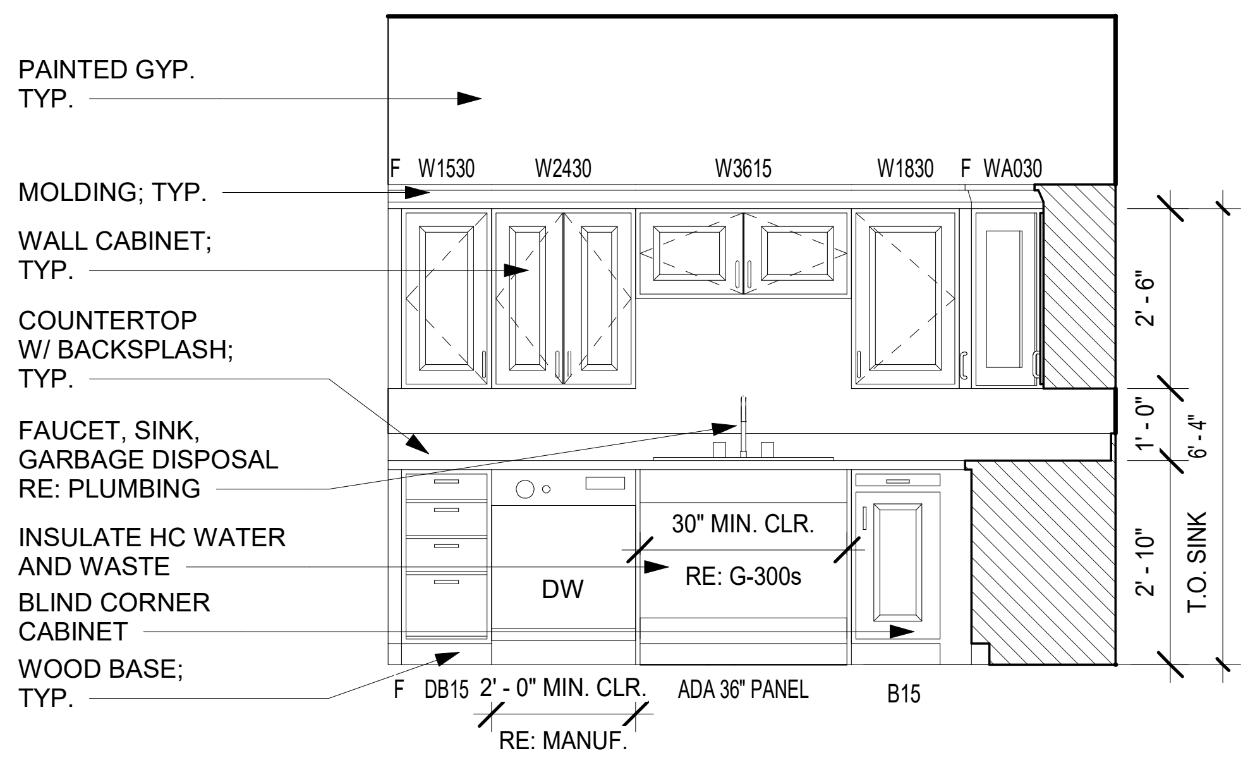


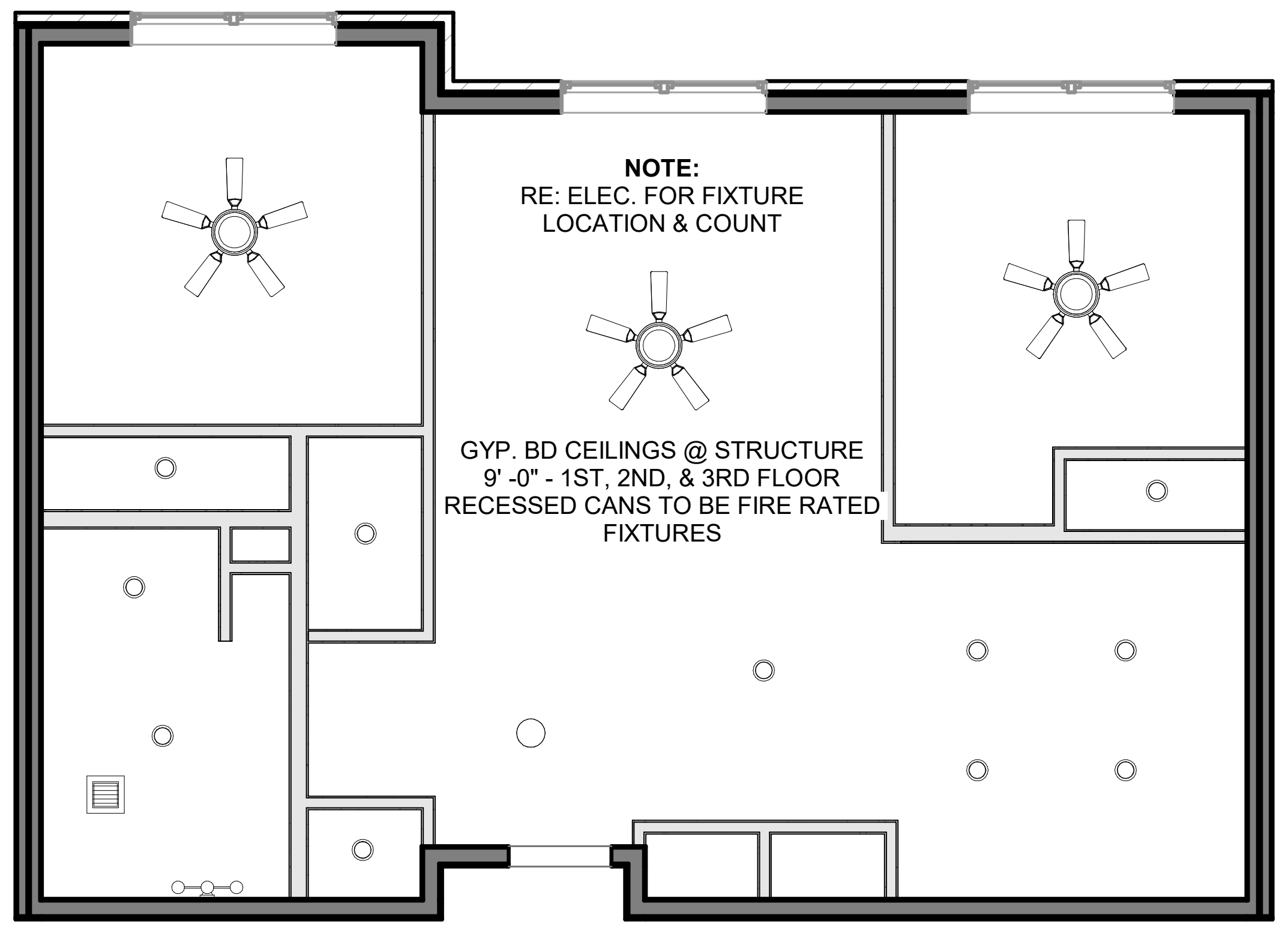
D5 TWO BED TYPE A KITCHEN ELEV. 1
3/8" = 1'-0"


PAINTED GYP. TYP.
MOLDING; TYP.
WALL CABINET; TYP.
FIRE SUPRESSION RE: SPECS
COUNTERTOP W/ BACKSPLASH; TYP.
WORK SURFACE WOOD BASE; TYP.
WA030 F W3030 W3012 W930 F WA030
RANGEHOOD
30" MIN. CLR.
RE: G-300s
RANGE/OVEN
F ADA 33" PANEL 30" MIN. CLR. B9 F
RE: MANUF.
2' - 6"
1' - 0"
2' - 10"
6' - 4"

D4 TWO BED TYPE A KITCHEN ELEV. 2
3/8" = 1'-0"

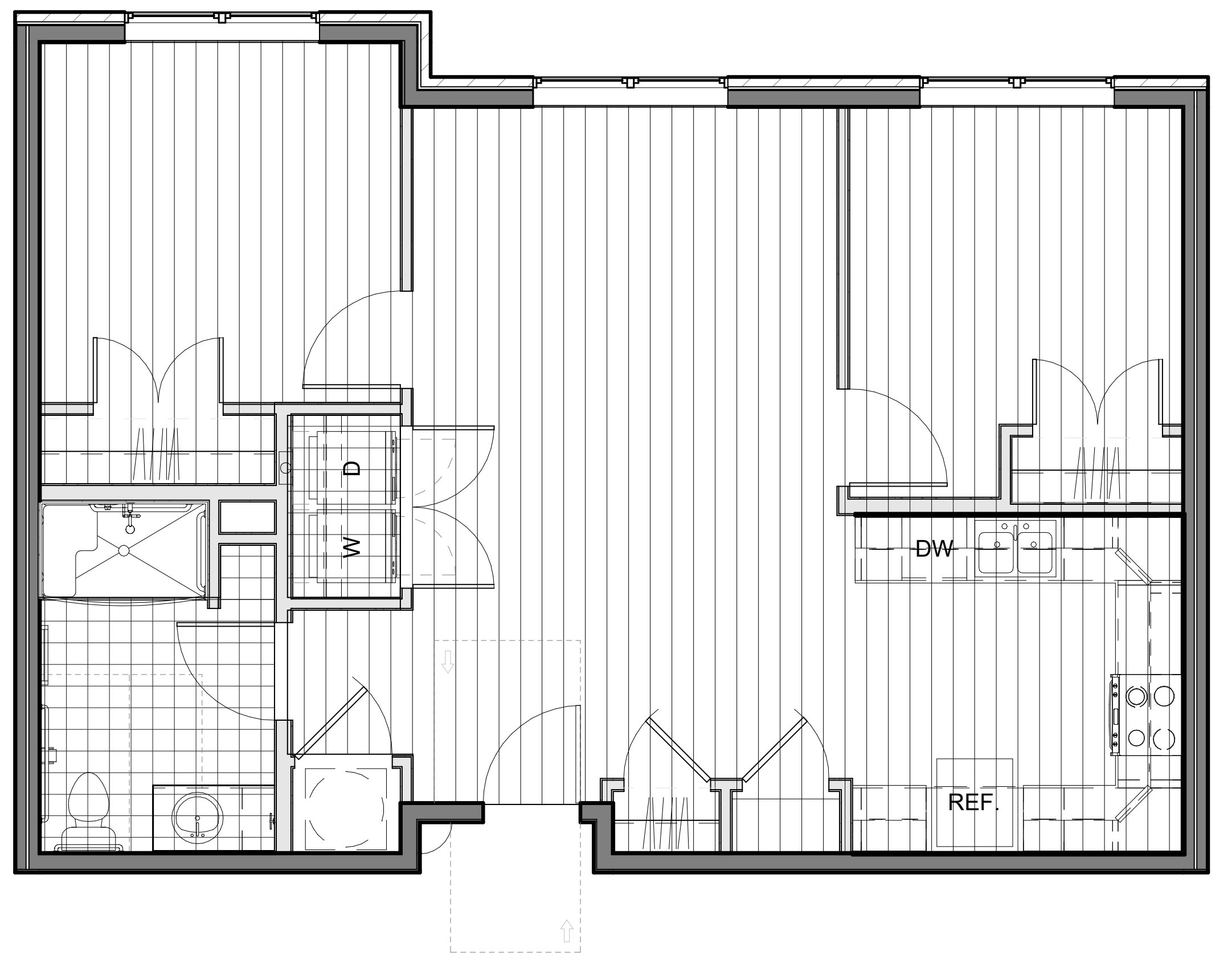

PAINTED GYP. TYP.
MOLDING; TYP.
WALL CABINET; TYP.
COUNTERTOP W/ BACKSPLASH; TYP.
FAUCET, SINK, GARBAGE DISPOSAL RE: PLUMBING
INSULATE HC WATER AND WASTE
BLIND CORNER CABINET
WOOD BASE; TYP.
F W1530 W2430 W3615 W1830 F WA030
DW
30" MIN. CLR.
RE: G-300s
F DB15 2' - 0" MIN. CLR. ADA 36" PANEL B15
RE: MANUF.
2' - 6"
1' - 0"
2' - 10"
6' - 4"
T.O. SINK

C5 TWO BED TYPE A KITCHEN ELEV. 3
3/8" = 1'-0"


NOTE:
RE: ELEC. FOR FIXTURE LOCATION & COUNT
GYP. BD CEILINGS @ STRUCTURE 9' -0" - 1ST, 2ND, & 3RD FLOOR RECESSED CANS TO BE FIRE RATED FIXTURES

C3 TWO BEDROOM UNIT - TYPE A - REFLECTED CEILING PLAN
3/16" = 1'-0"

▦	SHEET VINYL -- SV-1
▥	VINYL PLANK -- LVP-1
░	CARPET -- CPT-1



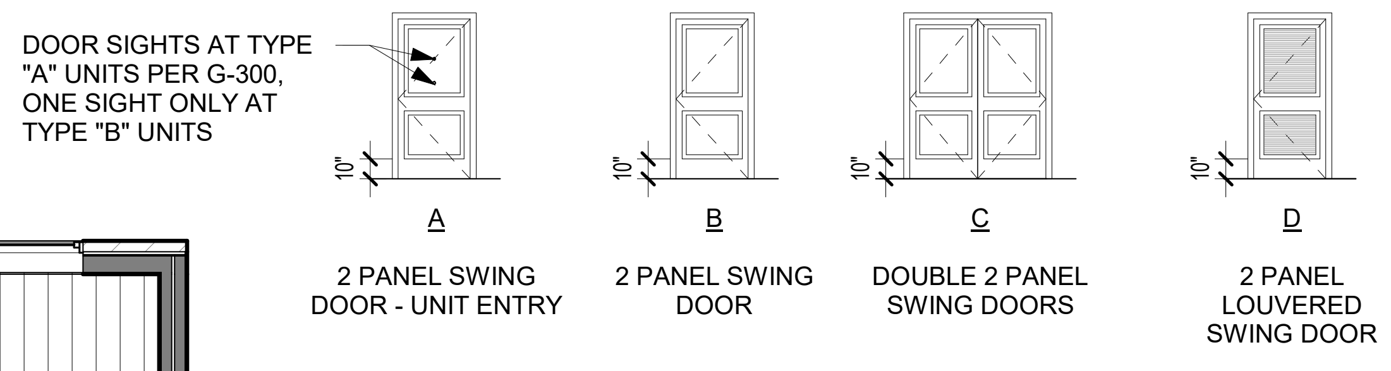
C1 TWO BEDROOM UNIT - TYPE A - FINISH PLAN
3/16" = 1'-0"

REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-101 FOR PLAN LEGEND
REFERENCE A-120 FOR RCP LEGEND

ROOM FINISH SCHEDULE - 2 BED TYPE A UNITS						
Number	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVP-1	WB-1, PT-3	PT-1	PT-2	
002	CLOSET	LVP-1	WB-1, PT-3	PT-1	PT-2	
003	LIVING	LVP-1	WB-1, PT-3	PT-1	PT-2	
004	KITCHEN	LVP-1	WB-1, PT-3	PT-1	PT-2	CABS. W/ PL COUNTER W/ SPLASH
005	MECH	--	--	--	--	
006	LAUNDRY	LVP-1	WB-1, PT-3	PT-1	PT-2	
008	BATH	SV-1	WB-1, PT-3	PT-1	PT-2	CABS. W/ PL COUNTER W/ SPLASH
009	BEDROOM	LVP-1	WB-1, PT-3	PT-1	PT-2	
010	CLOSET	LVP-1	WB-1, PT-3	PT-1	PT-2	
012	BEDROOM	LVP-1	WB-1, PT-3	PT-1	PT-2	
013	CLOSET	LVP-1	WB-1, PT-3	PT-1	PT-2	
014	PANTRY	LVP-1	WB-1, PT-3	PT-1	PT-2	

DOOR SCHEDULE - 2 BED UNITS											
Mark	Width	Height	Thickness	Type Mark	Door Material	Door Finish	Frame Material	Frame Finish	Fire Rating	Comments	Hardware Group
001	3' - 0"	6' - 8"	0' - 1 3/4"	A	WD S.C.	PT-3	TIMELY MT-1	PT-3	20 MIN.	FACTORY KERF FOR SMOKE SEAL, FRAME READY FOR WOOD CASING	U1
002	2' - 8"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			
005	3' - 0"	6' - 8"	0' - 1 3/8"	D	WD H.C.	PT-3	WD	PT-3			
006	5' - 0"	6' - 8"	0' - 1 3/8"	C	WD H.C.	PT-3	WD	PT-3			
008	3' - 0"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			
009	3' - 0"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			
010	4' - 0"	6' - 8"	0' - 1 3/8"	C	WD H.C.	PT-3	WD	PT-3			
012	3' - 0"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			
013	4' - 0"	6' - 8"	0' - 1 3/8"	C	WD H.C.	PT-3	WD	PT-3			
014	2' - 8"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			

DOOR TYPES


DOOR SIGHTS AT TYPE "A" UNITS PER G-300, ONE SIGHT ONLY AT TYPE "B" UNITS
10"
A
2 PANEL SWING DOOR - UNIT ENTRY
B
2 PANEL SWING DOOR
C
DOUBLE 2 PANEL SWING DOORS
D
2 PANEL LOUVERED SWING DOOR

UNIT FINISH LEGEND

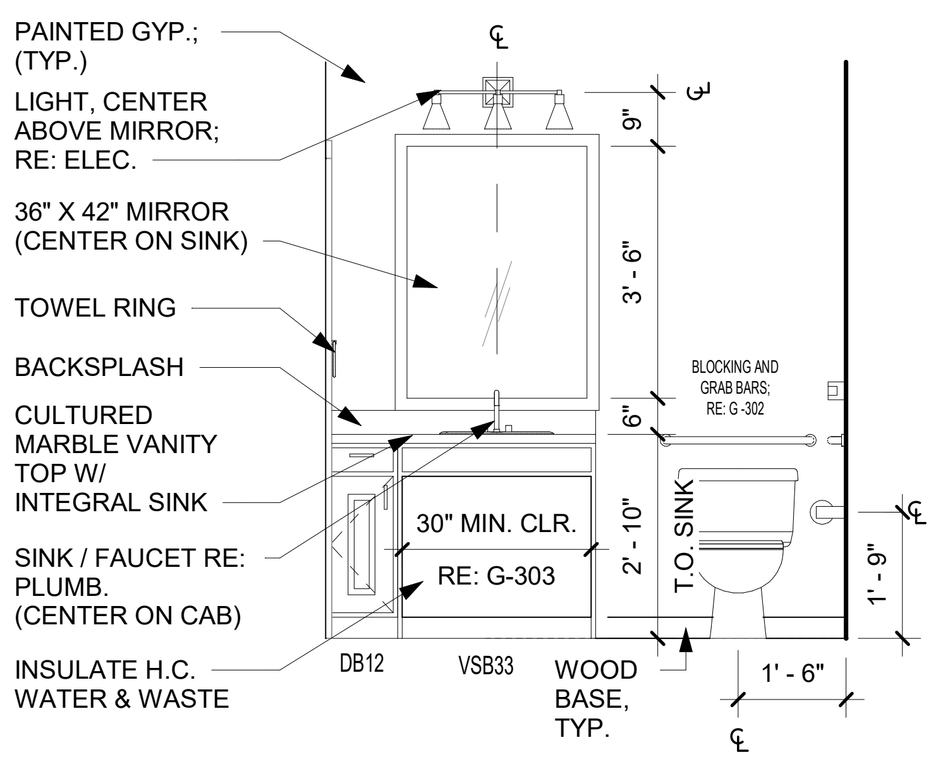
CARPET:
CPT-1 MOHAWK PROPERTIES COLLECTION: BROADLOOM (SMARTSTRAND W/ NANOLOC), PM395 NEUTRAL SHIFT, #859 TWILIGHT JUNGLE

LUXURY VINYL PLANK:
LVP-1 MOHAWK REXFORD COLLECTION: 12MIL, RP811, #890 STURDY BROWN

SHEET VINYL:
SV-1 MOHAWK PORTICO COLLECTION: #592 COOL SANDS

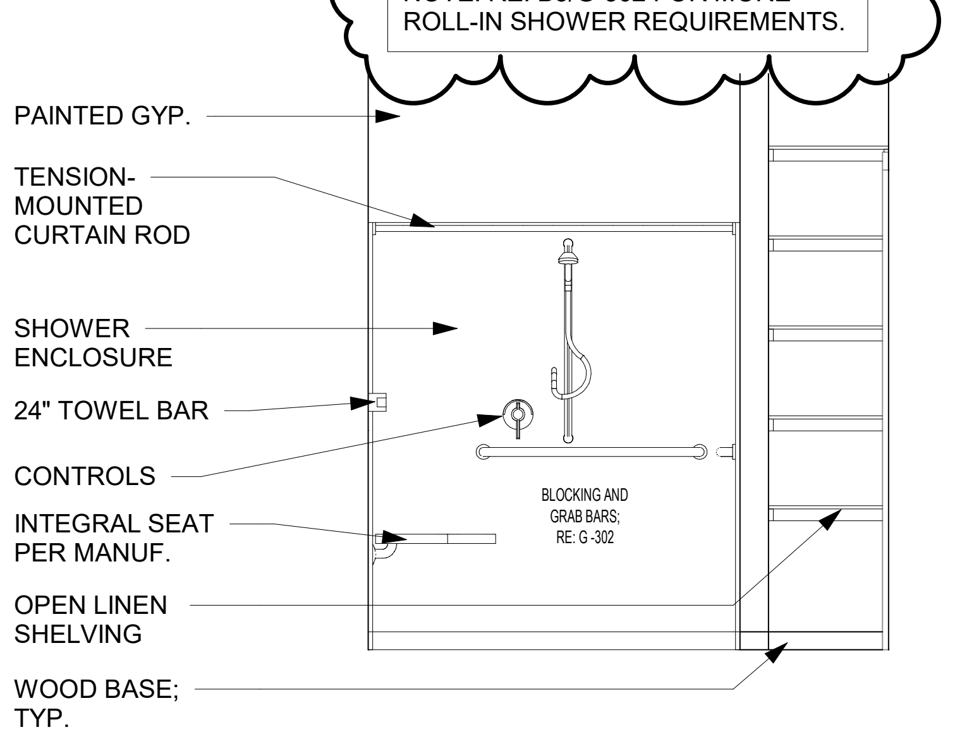
BASE:
WB-1 WOOD BASE, FJ623, 9/16" X 3.25" COLONIAL, PT-3; WOOD SHOE MOLD, FJ129, 7/16" X 11/16" COLONIAL, PT-3

PAINT:
PT-1 SHERWIN WILLIAMS, SW 7044 AMAZING GRAY, EGGSHELL
PT-2 SHERWIN WILLIAMS, SW 7042 SHOJI WHITE, FLAT
PT-3 SHERWIN WILLIAMS, SW 7042 SHOJI WHITE, SEMI-GLOSS

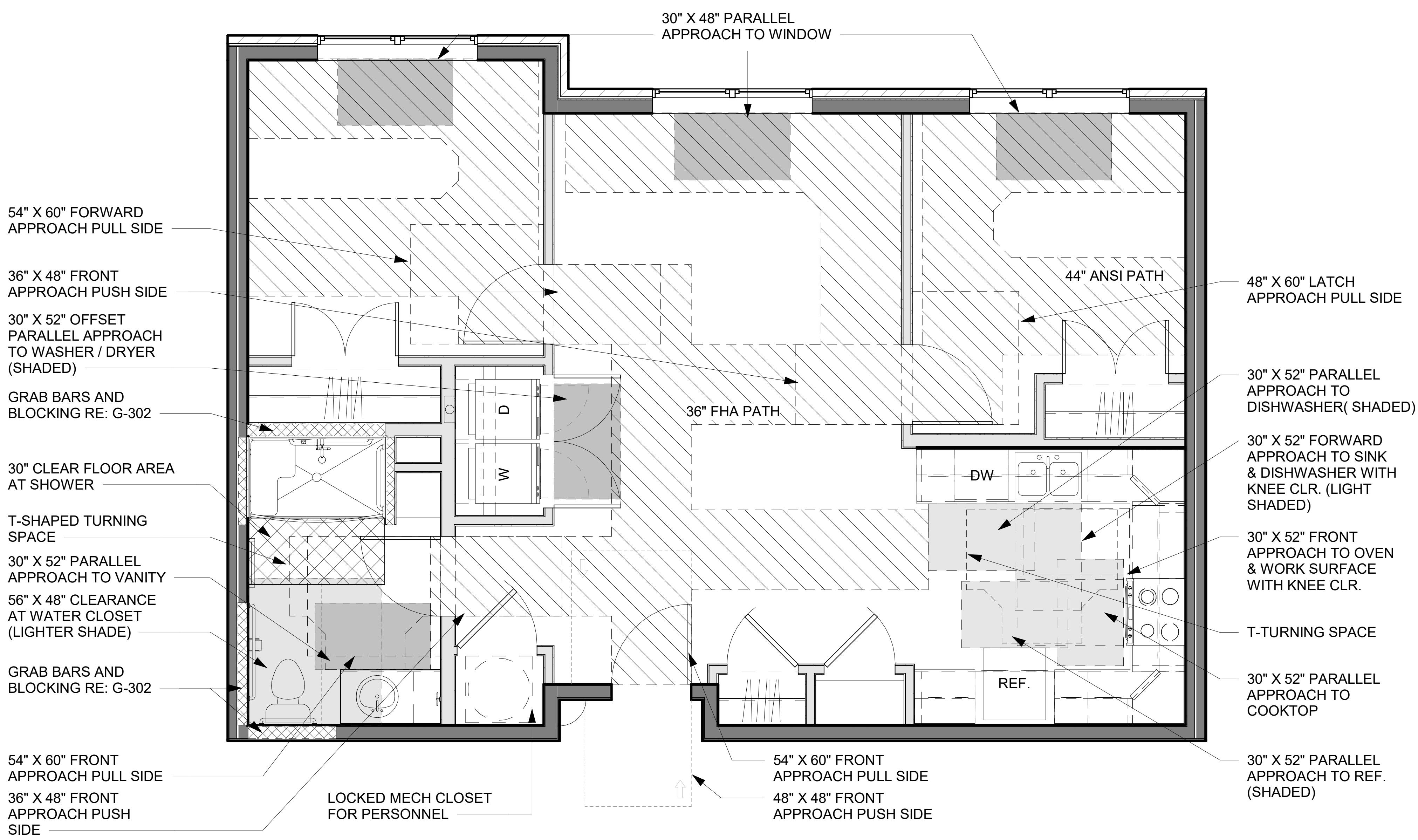

PAINTED GYP.; (TYP.)
LIGHT, CENTER ABOVE MIRROR; RE: ELEC.
36" X 42" MIRROR (CENTER ON SINK)
TOWEL RING
BACKSPLASH
CULTURED MARBLE VANITY TOP W/ INTEGRAL SINK
SINK / FAUCET RE: PLUMB. (CENTER ON CAB)
INSULATE H.C. WATER & WASTE
BLOCKING AND GRAB BARS; RE: G-302
30" MIN. CLR.
RE: G-303
T.O. SINK
DB12 VSB33
WOOD BASE, TYP.
9"
3' - 6"
6"
2' - 10"
1' - 9"
1' - 6"

B5 TWO BED TYPE A BATH ELEV. 2
3/8" = 1'-0"

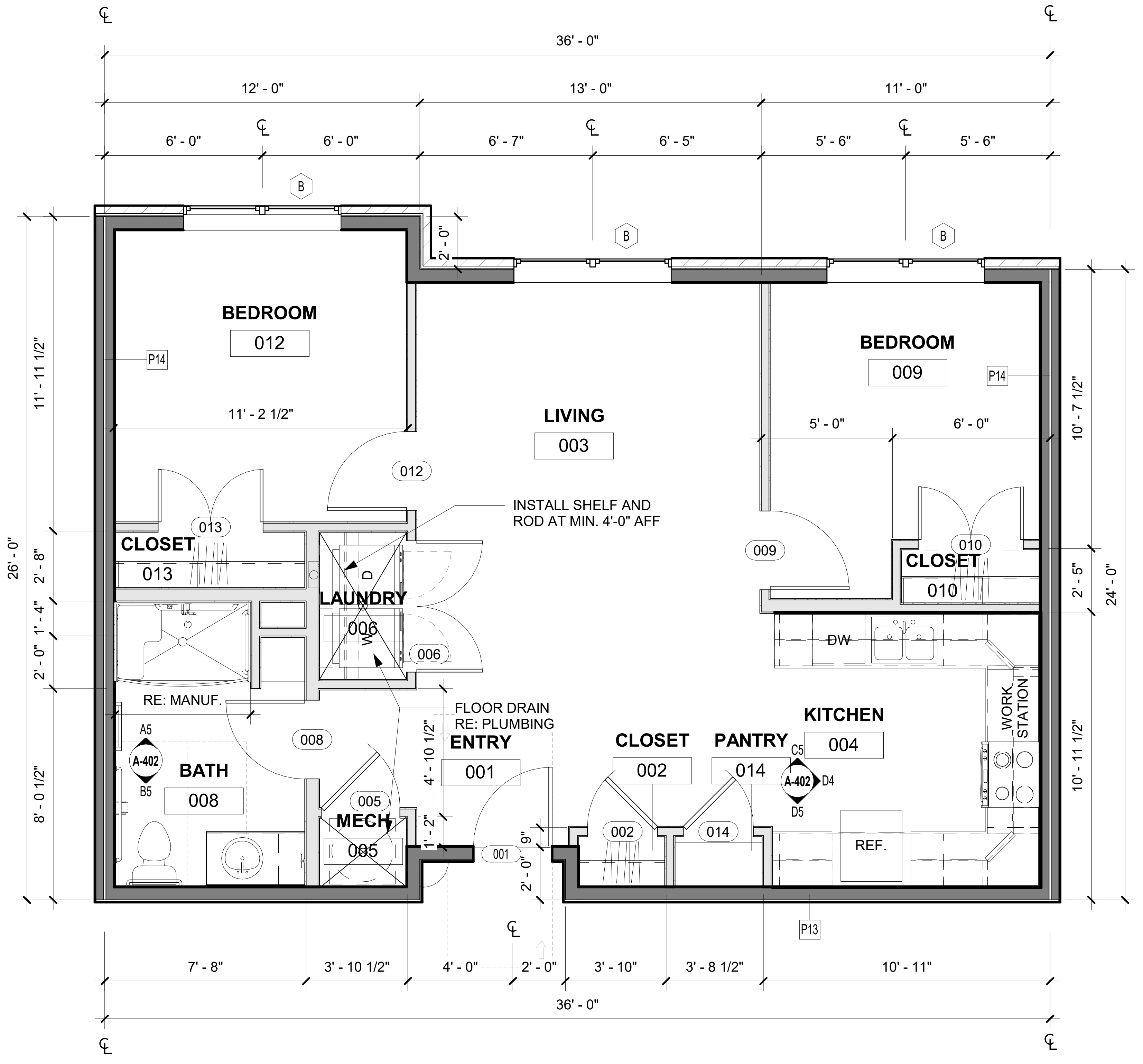
NOTE: RE: B3/G-302 FOR MORE ROLL-IN SHOWER REQUIREMENTS.



A5 TWO BED TYPE A BATH ELEV. 1
3/8" = 1'-0"


30" X 48" PARALLEL APPROACH TO WINDOW
54" X 60" FORWARD APPROACH PULL SIDE
36" X 48" FRONT APPROACH PUSH SIDE
30" X 52" OFFSET PARALLEL APPROACH TO WASHER / DRYER (SHADED)
GRAB BARS AND BLOCKING RE: G-302
30" CLEAR FLOOR AREA AT SHOWER
T-SHAPED TURNING SPACE
30" X 52" PARALLEL APPROACH TO VANITY
56" X 48" CLEARANCE AT WATER CLOSET (LIGHTER SHADE)
GRAB BARS AND BLOCKING RE: G-302
54" X 60" FRONT APPROACH PULL SIDE
36" X 48" FRONT APPROACH PUSH SIDE
LOCKED MECH CLOSET FOR PERSONNEL
36" FHA PATH
44" ANSI PATH
48" X 60" LATCH APPROACH PULL SIDE
30" X 52" PARALLEL APPROACH TO DISHWASHER(SHADED)
30" X 52" FORWARD APPROACH TO SINK & DISHWASHER WITH KNEE CLR. (LIGHT SHADED)
30" X 52" FRONT APPROACH TO OVEN & WORK SURFACE WITH KNEE CLR.
T-TURNING SPACE
30" X 52" PARALLEL APPROACH TO COOKTOP
30" X 52" PARALLEL APPROACH TO REF. (SHADED)
54" X 60" FRONT APPROACH PULL SIDE
48" X 48" FRONT APPROACH PUSH SIDE
D
W
DW
REF.

A3 TWO BEDROOM UNIT - TYPE A - CLEAR SPACE PLAN
1/4" = 1'-0"



A1 TWO BEDROOM UNIT - TYPE A - FLOOR PLAN
1/4" = 1'-0"

PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:
5 10/04/24 ASI 001

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

DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

DAVID EUGENE HENDRIKSE
NUMBER A-7395
10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
TWO BEDROOM UNIT PLAN - TYPE A

PROJECT NUMBER: 23034

SHEET NUMBER:

10/3/2024 11:52:57 AM
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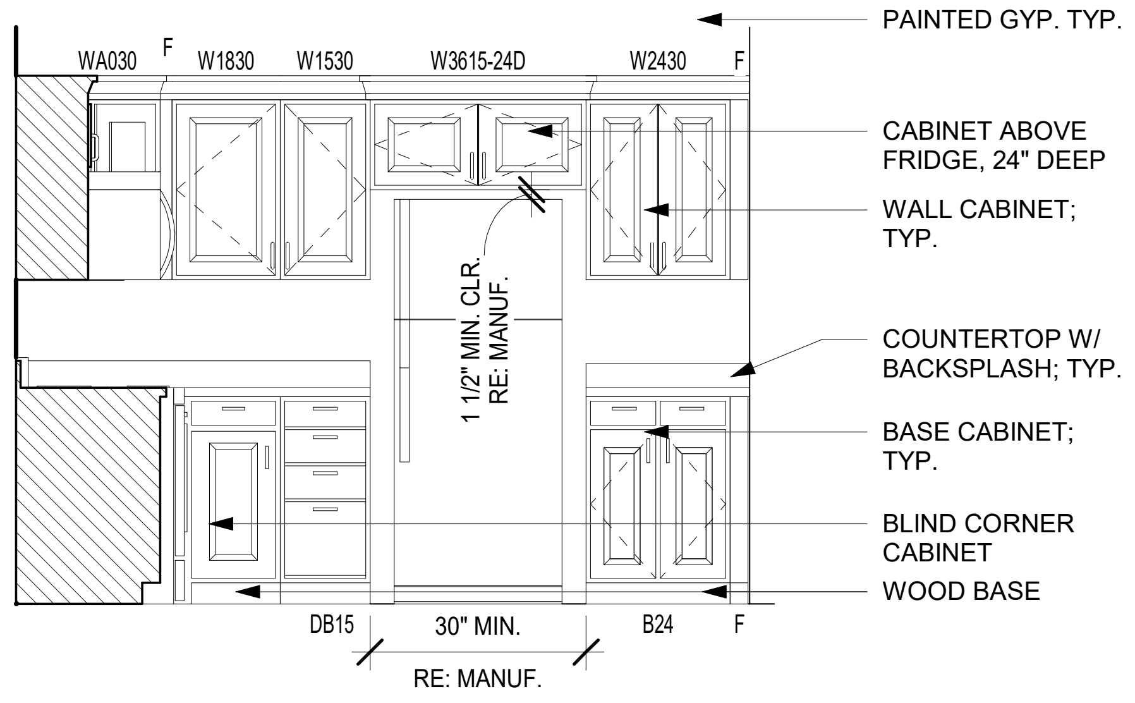
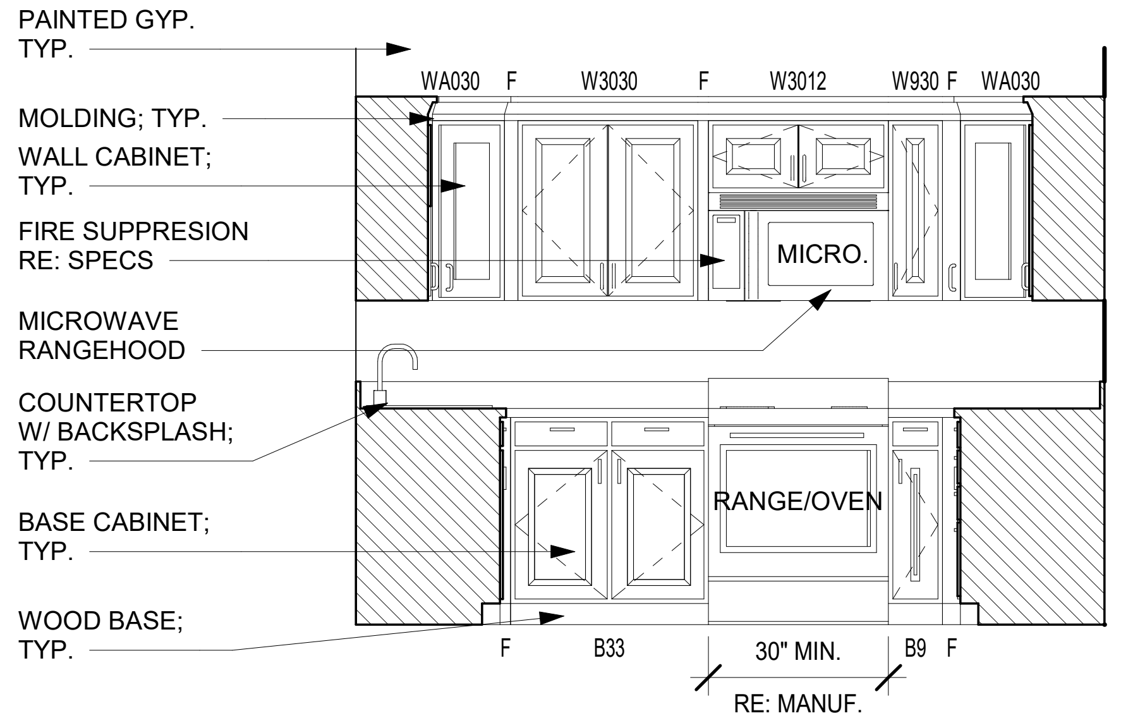
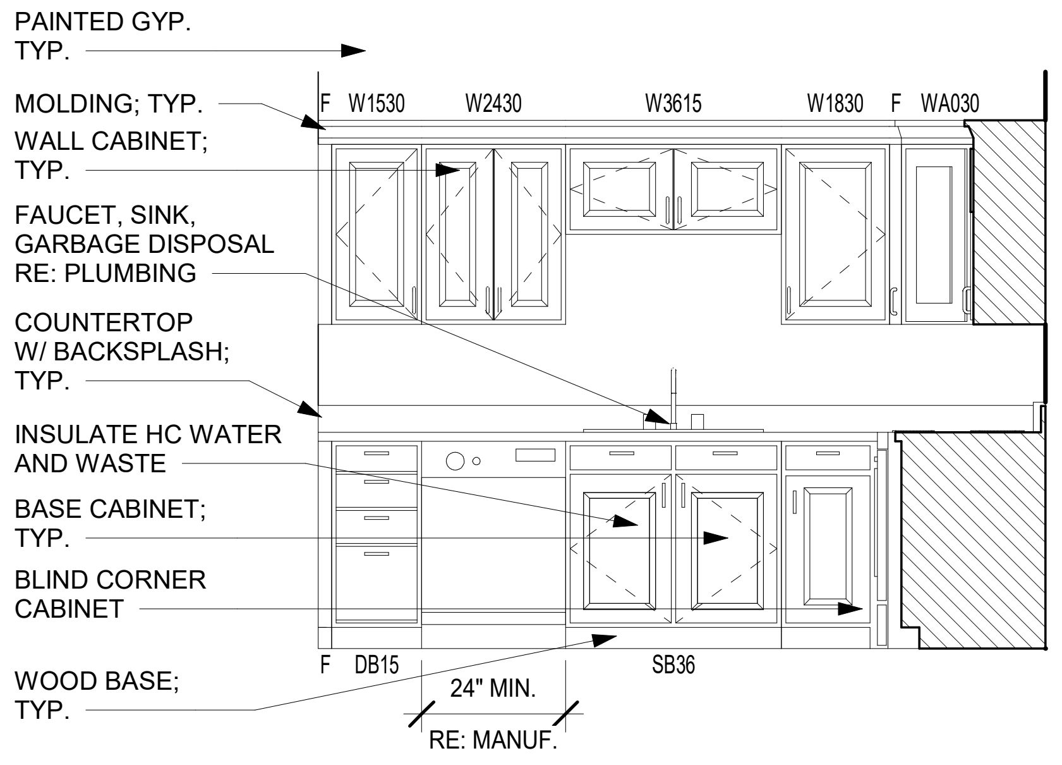


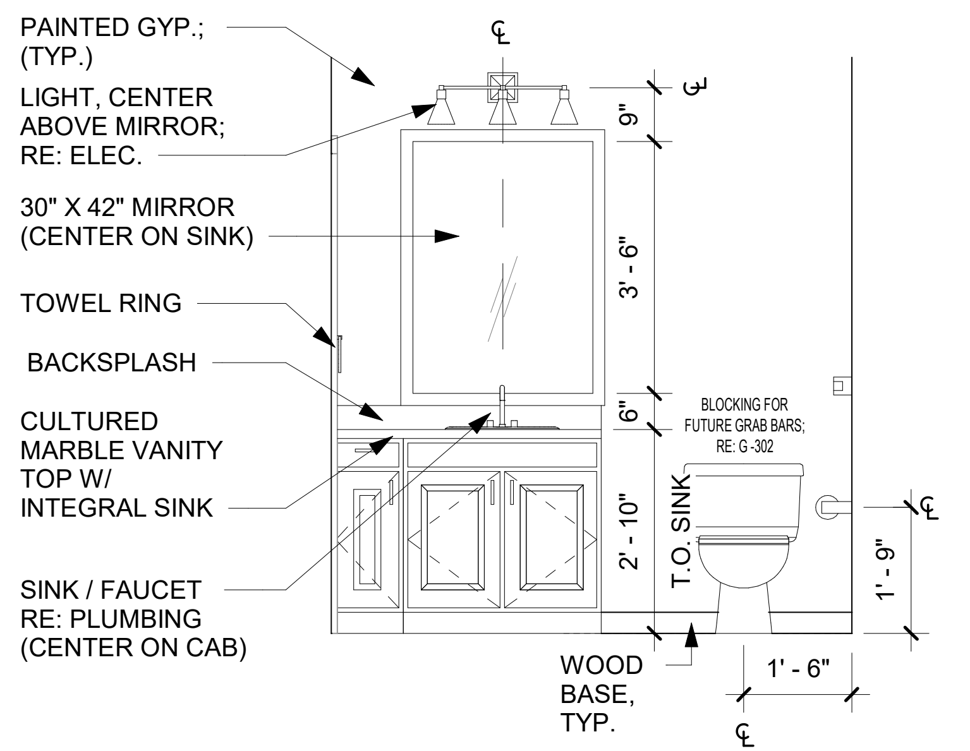
D5 TWO BED TYPE B KITCHEN ELEV. 1
3/8" = 1'-0"



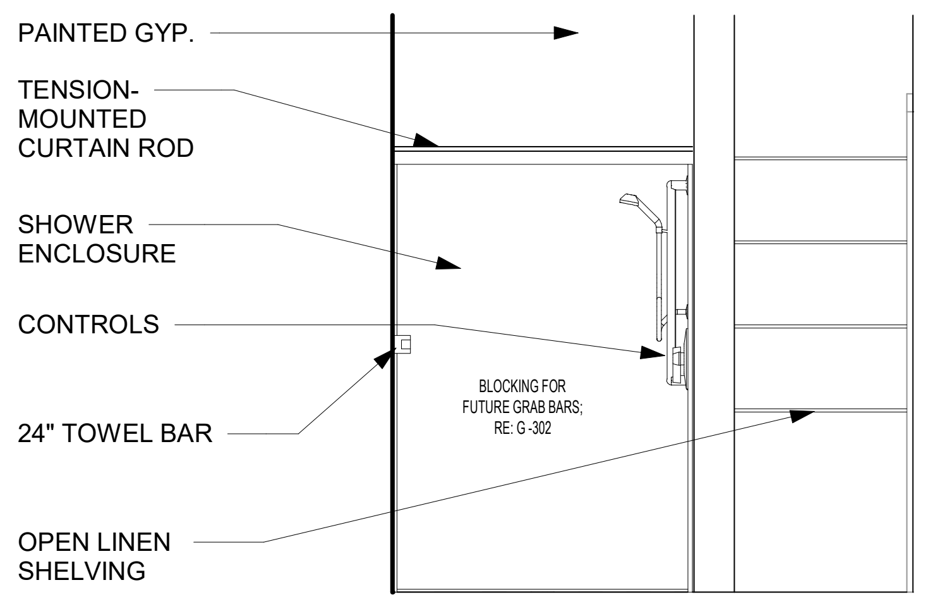
D4 TWO BED TYPE B KITCHEN ELEV. 2
3/8" = 1'-0"



C5 TWO BED TYPE B KITCHEN ELEV. 3
3/8" = 1'-0"


PAINTED GYP.; (TYP.)
LIGHT, CENTER ABOVE MIRROR; RE: ELEC.
30" X 42" MIRROR (CENTER ON SINK)
TOWEL RING
BACKSPLASH
CULTURED MARBLE VANITY TOP W/ INTEGRAL SINK
SINK / FAUCET RE: PLUMBING (CENTER ON CAB)
9"
3' - 6"
6"
2' - 10"
T.O. SINK
BLOCKING FOR FUTURE GRAB BARS; RE: G-302
1' - 9"
1' - 6"
WOOD BASE, TYP.

C4 TWO BED TYPE B BATH ELEV. 2
3/8" = 1'-0"



B5 TWO BED TYPE B BATH ELEV. 1
3/8" = 1'-0"

UNIT FINISH LEGEND

CARPET:
CPT-1 MOHAWK PROPERTIES COLLECTION: BROADLOOM (SMARTSTRAND W/ NANOLOC), PM395 NEUTRAL SHIFT, #859 TWILIGHT JUNGLE

LUXURY VINYL PLANK:
LVP-1 MOHAWK REXFORD COLLECTION: 12MIL, RP811, #890 STURDY BROWN

SHEET VINYL:
SV-1 MOHAWK PORTICO COLLECTION: #592 COOL SANDS

BASE:
WB-1 WOOD BASE, FJ623, 9/16" X 3.25" COLONIAL, PT-3; WOOD SHOE MOLD, FJ129, 7/16" X 11/16" COLONIAL, PT-3

PAINT:
PT-1 SHERWIN WILLIAMS, SW 7044 AMAZING GRAY, EGGSHELL
PT-2 SHERWIN WILLIAMS, SW 7042 SHOJI WHITE, FLAT
PT-3 SHERWIN WILLIAMS, SW 7042 SHOJI WHITE, SEMI-GLOSS

ROOM FINISH SCHEDULE - 2 BED TYPE B UNITS

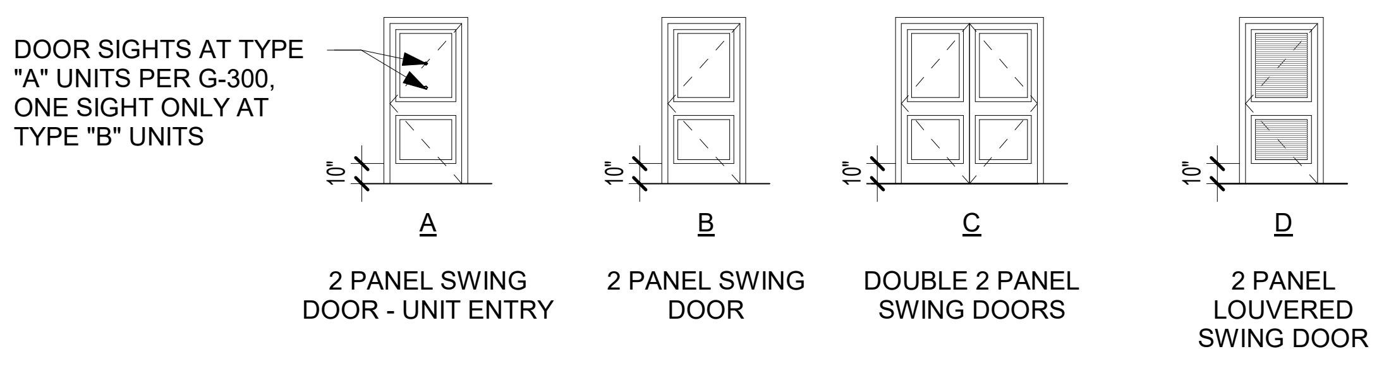
Number	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVP-1	WB-1, PT-3	PT-1	PT-2	
002	CLOSET	LVP-1	WB-1, PT-3	PT-1	PT-2	
003	LIVING	LVP-1	WB-1, PT-3	PT-1	PT-2	
004	KITCHEN	LVP-1	WB-1, PT-3	PT-1	PT-2	CABS. W/ PL COUNTER W/ SPLASH
005	MECH	--	--	--	--	
006	LAUNDRY	SV-1	WB-1, PT-3	PT-1	PT-2	
008	BATH	SV-1	WB-1, PT-3	PT-1	PT-2	CABS. W/ PL COUNTER W/ SPLASH
009	BEDROOM	CPT-1	WB-1, PT-3	PT-1	PT-2	
010	CLOSET	CPT-1	WB-1, PT-3	PT-1	PT-2	
012	BEDROOM	CPT-1	WB-1, PT-3	PT-1	PT-2	
013	CLOSET	CPT-1	WB-1, PT-3	PT-1	PT-2	
014	PANTRY	LVP-1	WB-1, PT-3	PT-1	PT-2	

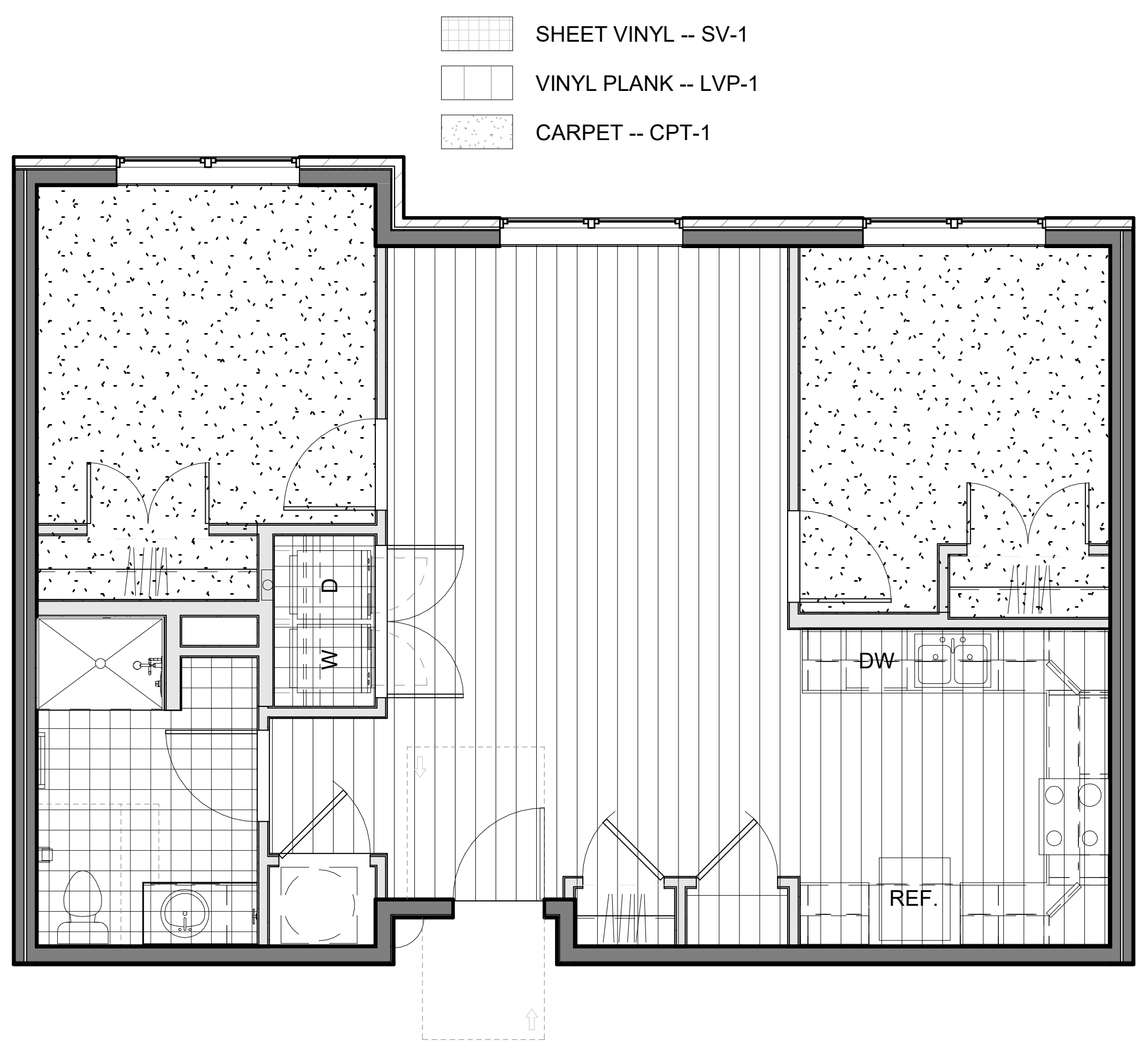
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-101 FOR PLAN LEGEND
REFERENCE A-120 FOR RCP LEGEND

DOOR SCHEDULE - 2 BED UNITS

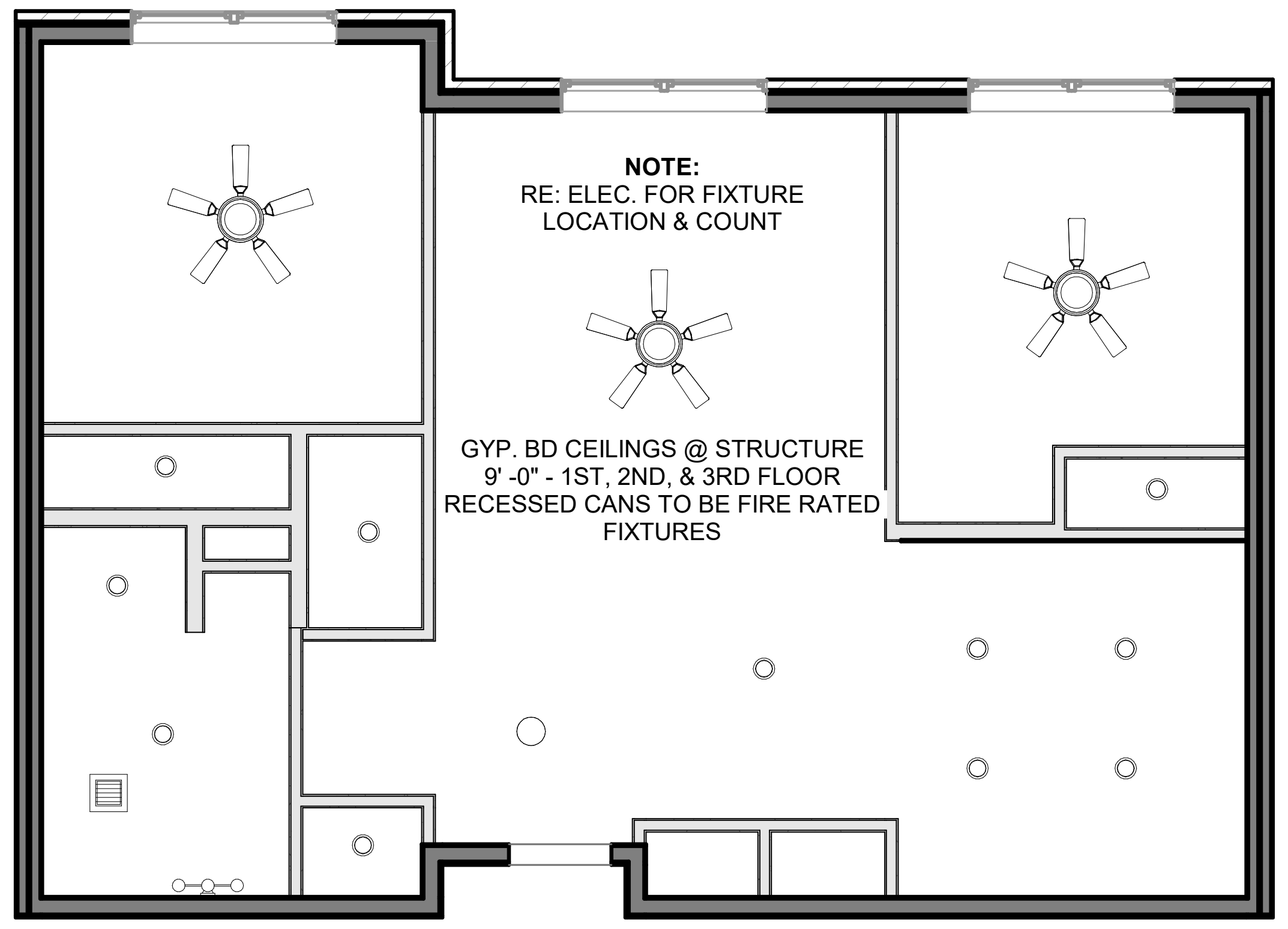
Mark	Width	Height	Thickness	Type Mark	Door Material	Door Finish	Frame Material	Frame Finish	Fire Rating	Comments	Hardware Group
001	3' - 0"	6' - 8"	0' - 1 3/4"	A	WD S.C.	PT-3	TIMELY MT-1	PT-3	20 MIN.	FACTORY KERF FOR SMOKE SEAL, FRAME READY FOR WOOD CASING	U1
002	2' - 8"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			
005	3' - 0"	6' - 8"	0' - 1 3/8"	D	WD H.C.	PT-3	WD	PT-3			
006	5' - 0"	6' - 8"	0' - 1 3/8"	C	WD H.C.	PT-3	WD	PT-3			
008	3' - 0"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			
009	3' - 0"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			
010	4' - 0"	6' - 8"	0' - 1 3/8"	C	WD H.C.	PT-3	WD	PT-3			
012	3' - 0"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			
013	4' - 0"	6' - 8"	0' - 1 3/8"	C	WD H.C.	PT-3	WD	PT-3			
014	2' - 8"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			

DOOR TYPES

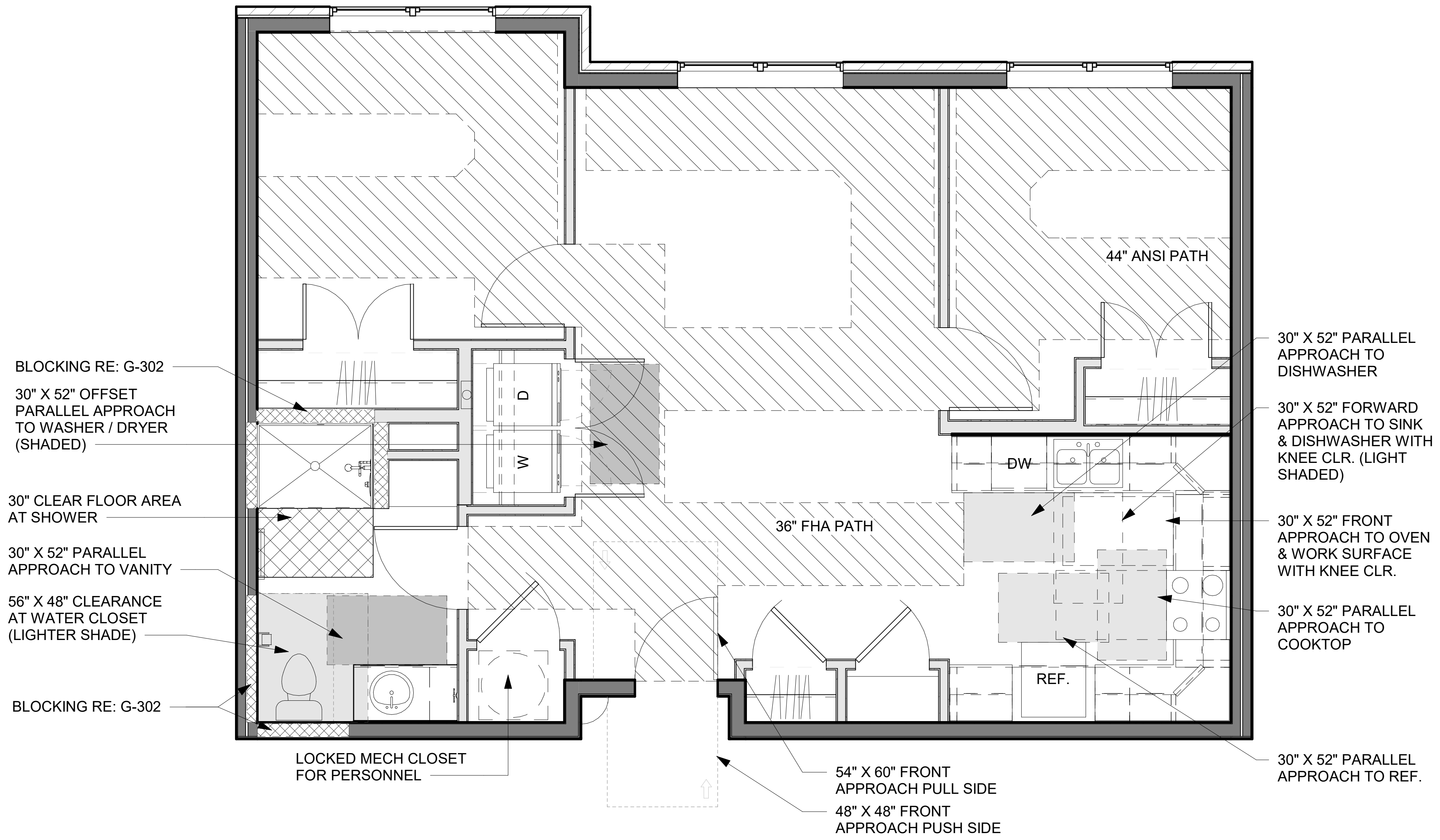

DOOR SIGHTS AT TYPE "A" UNITS PER G-300, ONE SIGHT ONLY AT TYPE "B" UNITS
10'
A
B
C
D
2 PANEL SWING DOOR - UNIT ENTRY
2 PANEL SWING DOOR
DOUBLE 2 PANEL SWING DOORS
2 PANEL LOUVERED SWING DOOR



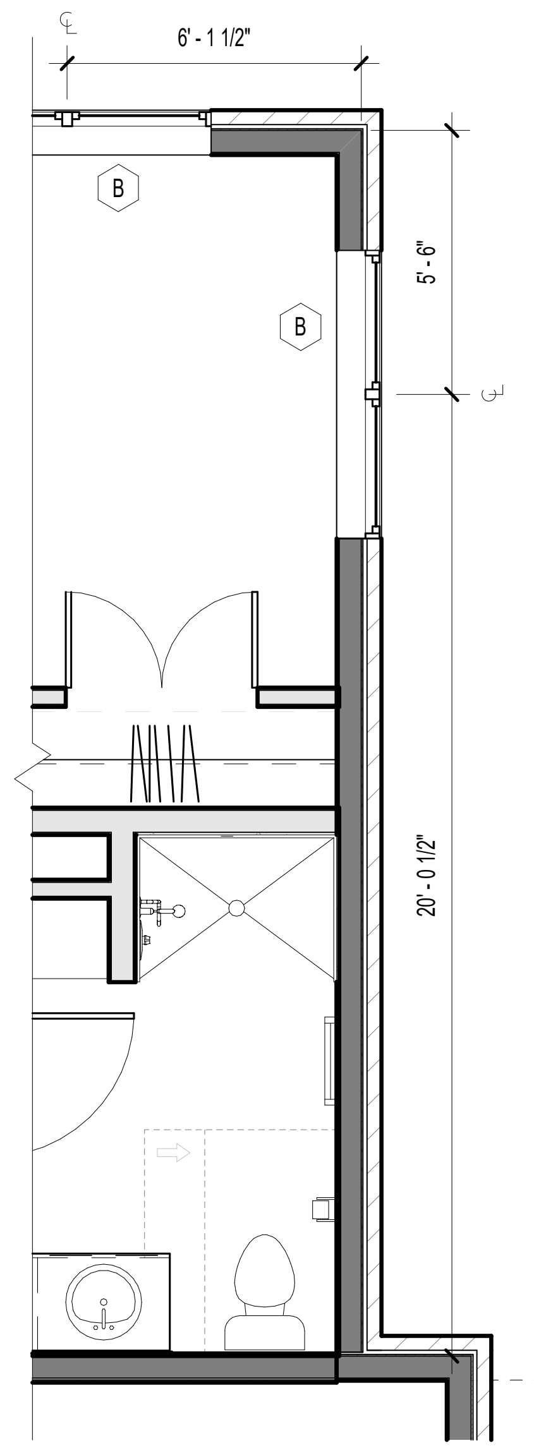
B2 TWO BEDROOM UNIT - TYPE B - FINISH PLAN
3/16" = 1'-0"


NOTE:
RE: ELEC. FOR FIXTURE LOCATION & COUNT
GYP. BD CEILINGS @ STRUCTURE 9'-0" - 1ST, 2ND, & 3RD FLOOR RECESSED CANS TO BE FIRE RATED FIXTURES

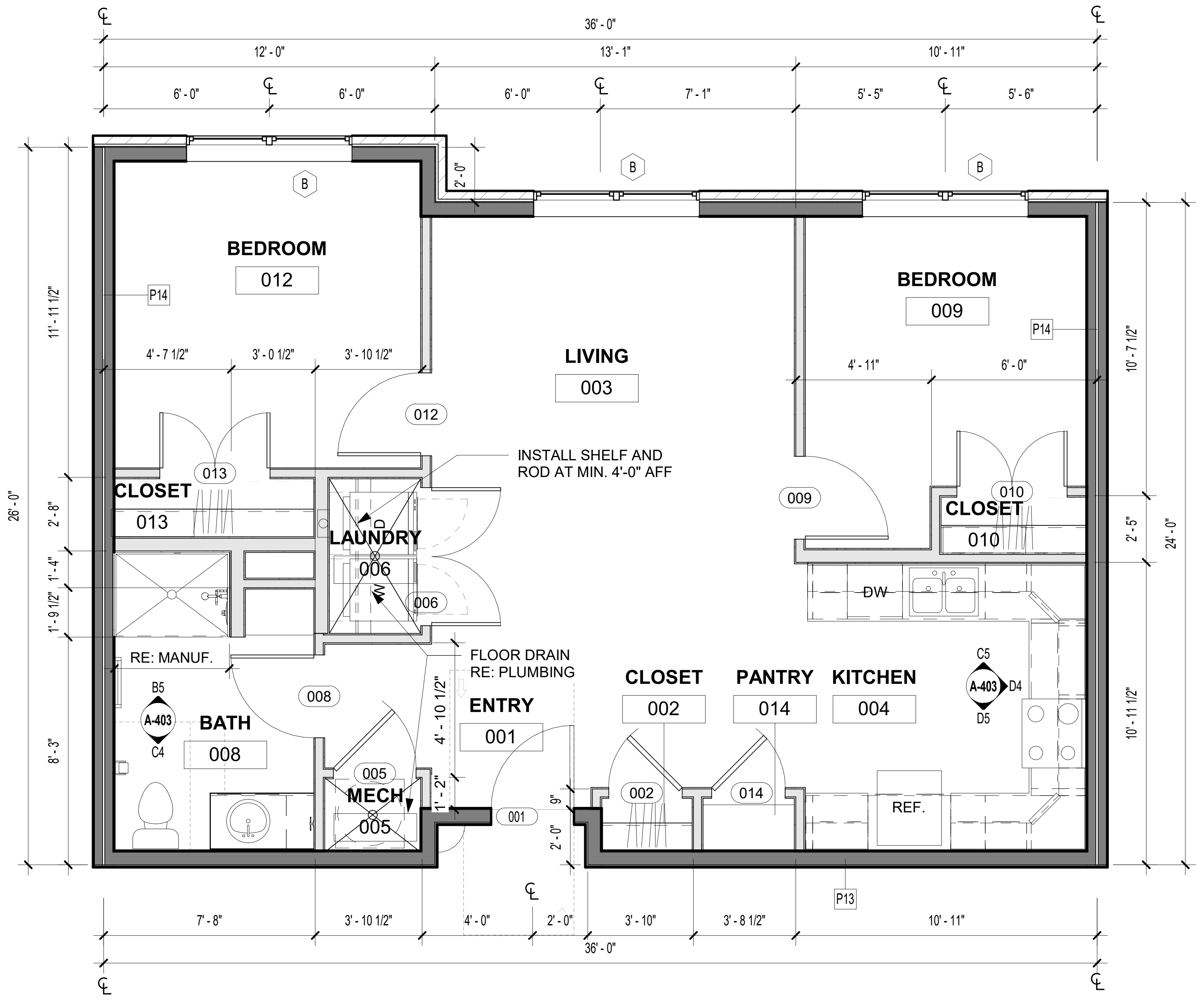
B1 TWO BEDROOM UNIT - TYPE B - REFLECTED CEILING PLAN
3/16" = 1'-0"


44" ANSI PATH
BLOCKING RE: G-302
30" X 52" OFFSET PARALLEL APPROACH TO WASHER / DRYER (SHADED)
30" CLEAR FLOOR AREA AT SHOWER
30" X 52" PARALLEL APPROACH TO VANITY
56" X 48" CLEARANCE AT WATER CLOSET (LIGHTER SHADE)
BLOCKING RE: G-302
LOCKED MECH CLOSET FOR PERSONNEL
D
W
DW
36" FHA PATH
REF.
30" X 52" PARALLEL APPROACH TO DISHWASHER
30" X 52" FORWARD APPROACH TO SINK & DISHWASHER WITH KNEE CLR. (LIGHT SHADED)
30" X 52" FRONT APPROACH TO OVEN & WORK SURFACE WITH KNEE CLR.
30" X 52" PARALLEL APPROACH TO COOKTOP
30" X 52" PARALLEL APPROACH TO REF.
54" X 60" FRONT APPROACH PULL SIDE
48" X 48" FRONT APPROACH PUSH SIDE

A3 TWO BEDROOM UNIT - TYPE B - CLEAR SPACE PLAN
1/4" = 1'-0"



A2 TWO BEDROOM UNIT - END UNIT
1/4" = 1'-0"



A1 TWO BEDROOM UNIT - TYPE B - FLOOR PLAN
1/4" = 1'-0"

10/27/2023 2:52:23 PM
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PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

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STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7305
REGISTERED ARCHITECT
10/30/23

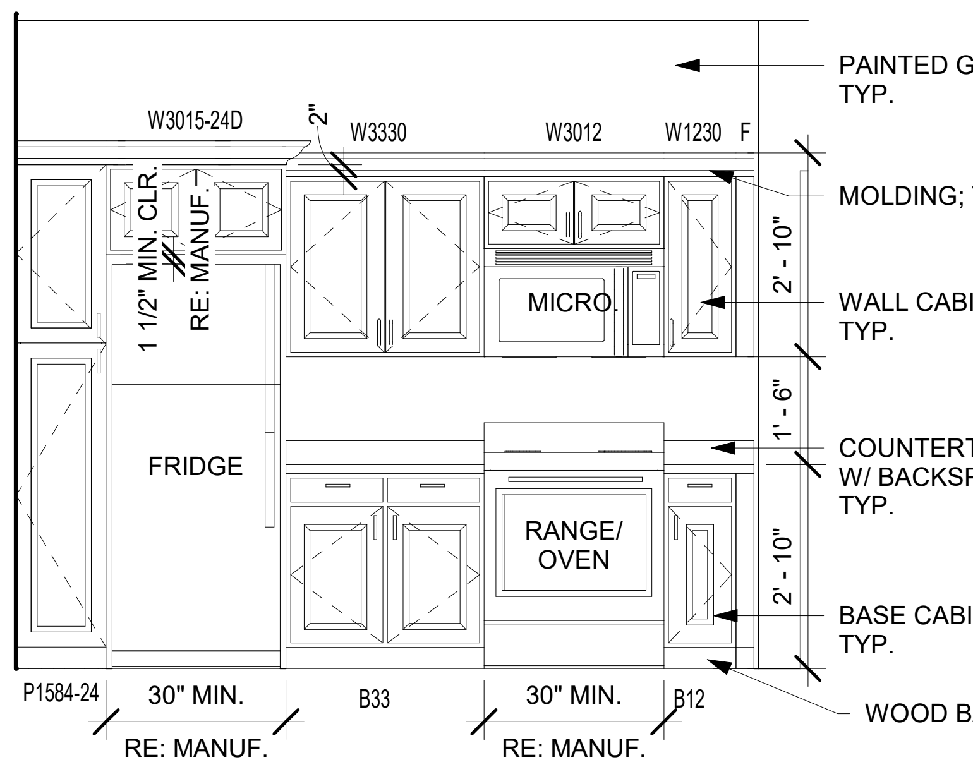
WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
TWO BEDROOM UNIT PLAN - TYPE B

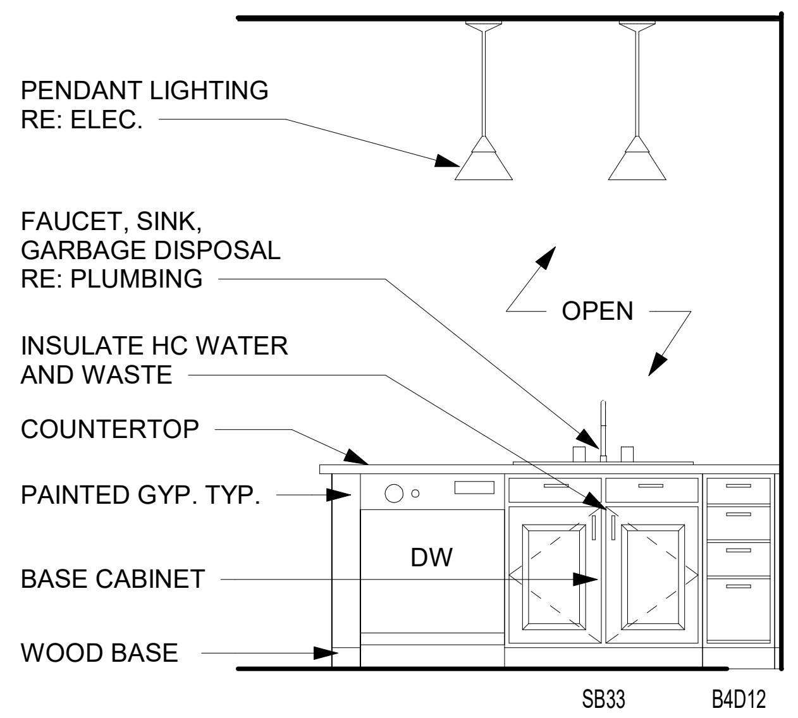
PROJECT NUMBER: 23034

SHEET NUMBER:

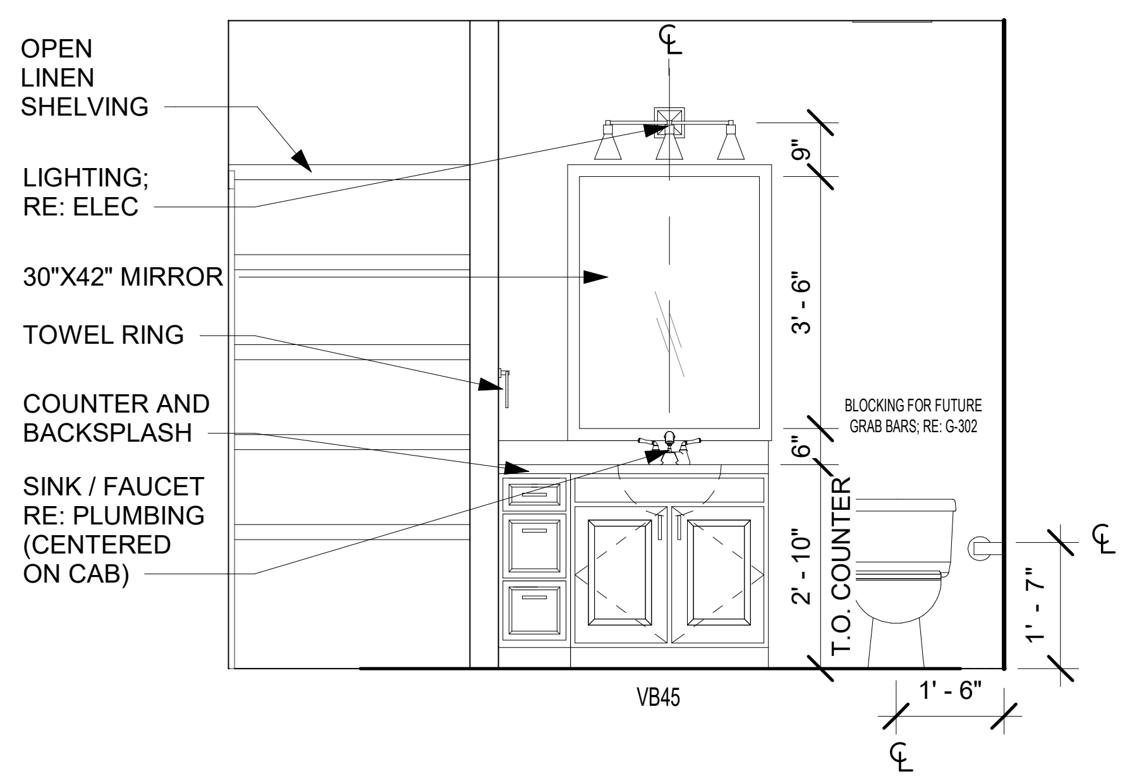
A-403



D5 TWO BED CORNER - KITCHEN ELEV. 1
3/8" = 1'-0"



D4 TWO BED CORNER - KITCHEN ELEV. 2
3/8" = 1'-0"



D3 TWO BED CORNER - BATH ELEV. 1
3/8" = 1'-0"

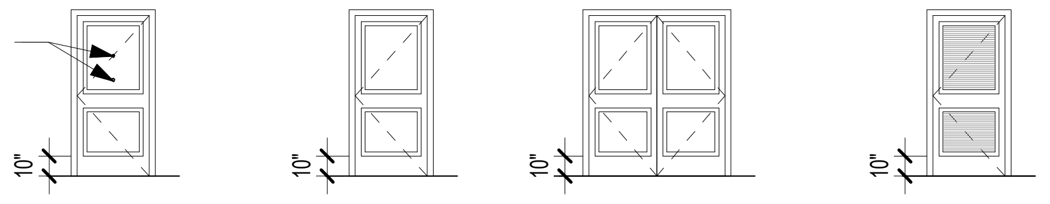
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-101 FOR PLAN LEGEND
REFERENCE A-120 FOR RCP LEGEND

DOOR SCHEDULE - 2 BED CORNER UNIT

Mark	Width	Height	Thickness	Type Mark	Door Material	Door Finish	Frame Material	Frame Finish	Fire Rating	Comments	Hardware Group
001	3' - 0"	6' - 8"	0' - 1 3/4"	A	WD S.C.	PT-3	TIMELY MT-1	PT-3	20 MIN.	FACTORY KERF FOR SMOKE SEAL, FRAME READY FOR WOOD CASING	U1
002	3' - 0"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			
005	3' - 0"	6' - 8"	0' - 1 3/8"	D	WD H.C.	PT-3	TIMELY MT-1	PT-3			
006	5' - 0"	6' - 8"	0' - 1 3/8"	C	WD H.C.	PT-3	WD	PT-3			
007	3' - 0"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			
008	3' - 0"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			
010	3' - 0"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			
011	3' - 0"	6' - 8"	0' - 1 3/8"	B	WD H.C.	PT-3	WD	PT-3			

DOOR TYPES

DOOR SIGHTS AT TYPE "A" UNITS PER G-300, ONE SIGHT ONLY AT TYPE "B" UNITS

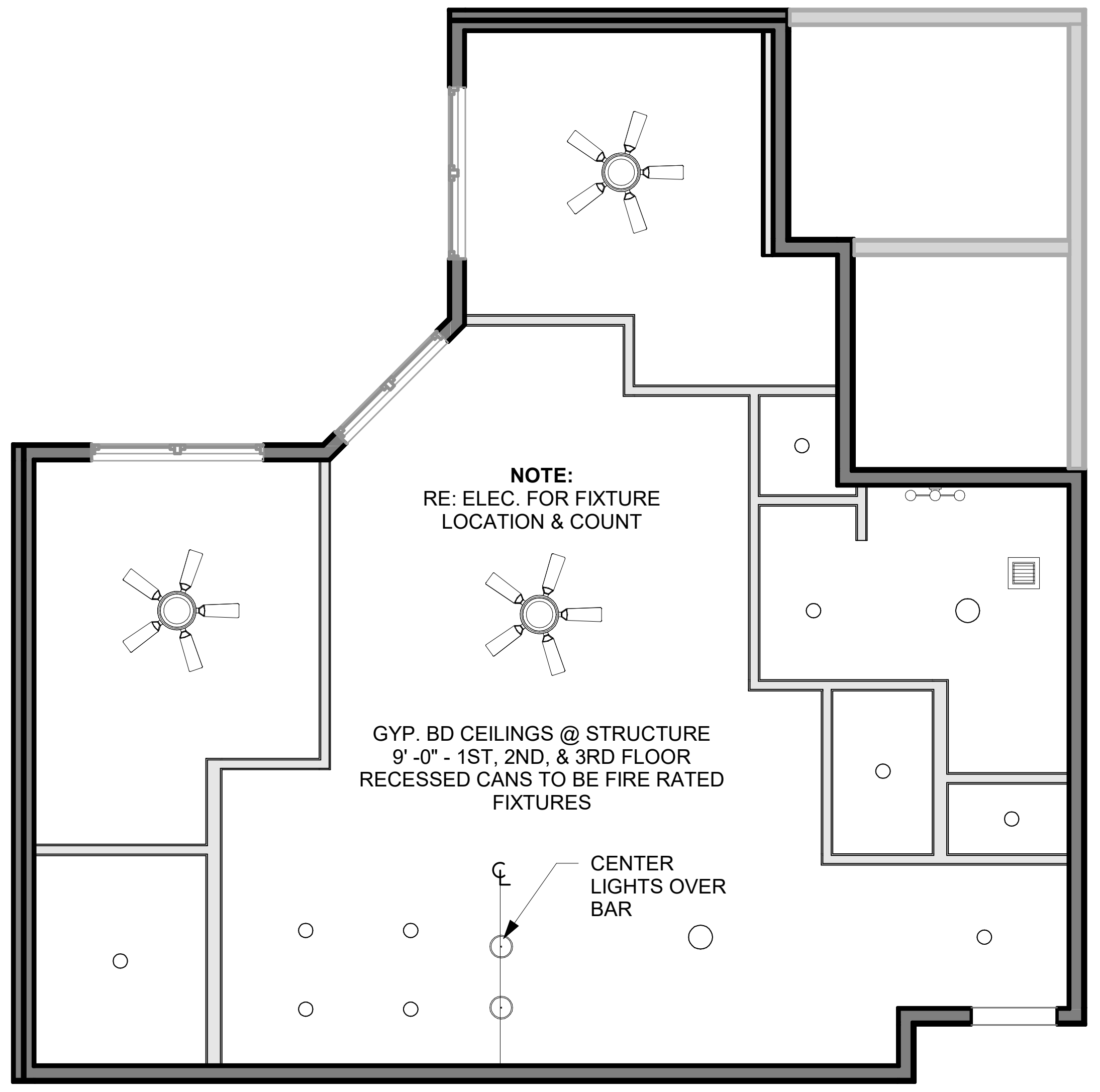


A
2 PANEL SWING DOOR - UNIT ENTRY

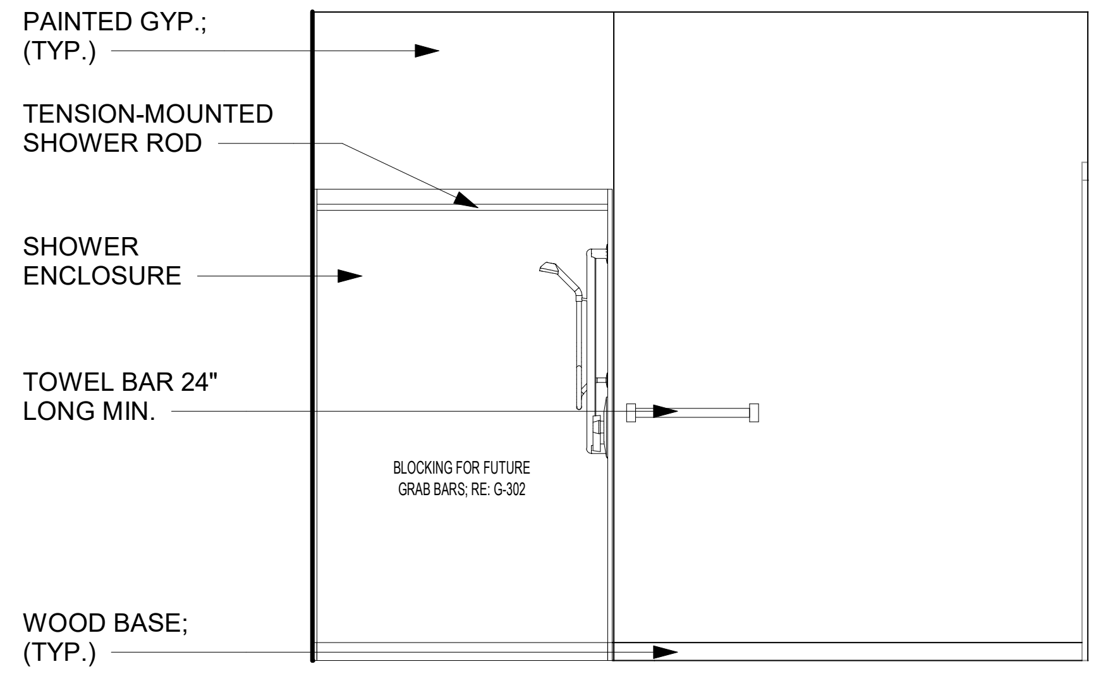
B
2 PANEL SWING DOOR

C
DOUBLE 2 PANEL SWING DOORS

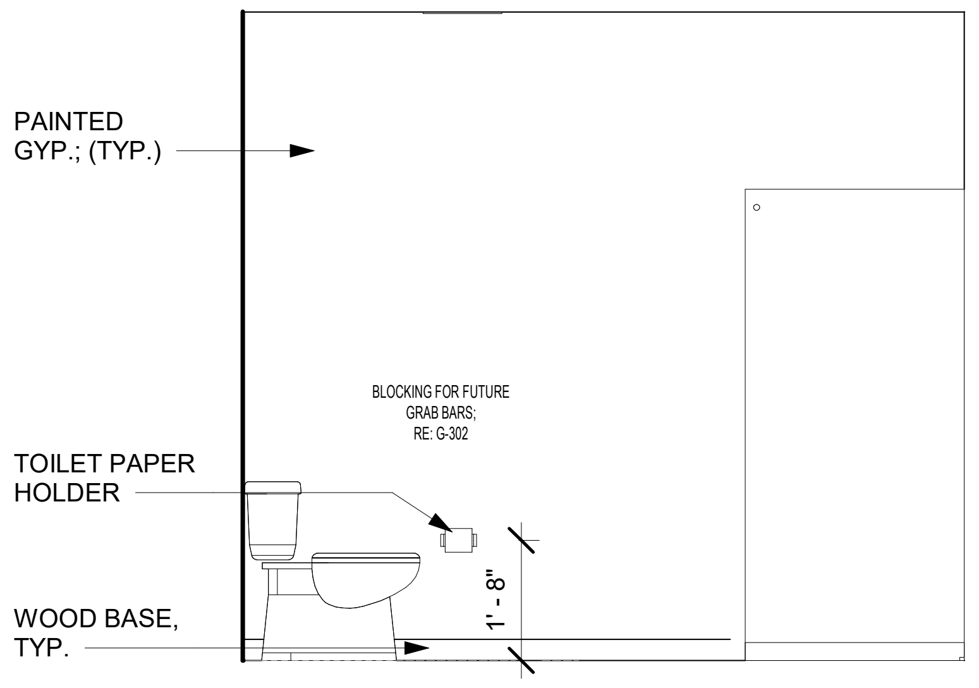
D
2 PANEL LOUVERED SWING DOOR


NOTE:
RE: ELEC. FOR FIXTURE
LOCATION & COUNT
GYP. BD CEILINGS @ STRUCTURE
9' -0" - 1ST, 2ND, & 3RD FLOOR
RECESSED CANS TO BE FIRE RATED
FIXTURES
CENTER
LIGHTS OVER
BAR

B5 TWO BEDROOM CORNER UNIT - TYPE B - REFLECTED CEILING PLAN
3/16" = 1'-0"



B4 TWO BED CORNER - BATH ELEV. 3
3/8" = 1'-0"



B3 TWO BED CORNER - BATH ELEV. 2
3/8" = 1'-0"

ROOM FINISH SCHEDULE - 2 BED CORNER UNITS

Number	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
001	ENTRY	LVP-1	WB-1, PT-3	PT-1	PT-2	
002	COAT	LVP-1	WB-1, PT-3	PT-1	PT-2	
003	LIVING	LVP-1	WB-1, PT-3	PT-1	PT-2	
004	KITCHEN	LVP-1	WB-1, PT-3	PT-1	PT-2	CABS. W/ PL COUNTER W/ SPLASH
005	MECH	--	--	--	--	
006	LAUNDRY	SV-1	WB-1, PT-3	PT-1	PT-2	
007	BATH	SV-1	WB-1, PT-3	PT-1	PT-2	CABS. W/ PL COUNTER W/ SPLASH
008	BEDROOM 2	CPT-1	WB-1, PT-3	PT-1	PT-2	
010	BEDROOM 1	CPT-1	WB-1, PT-3	PT-1	PT-2	
011	CLOSET 1	CPT-1	WB-1, PT-3	PT-1	PT-2	

UNIT FINISH LEGEND

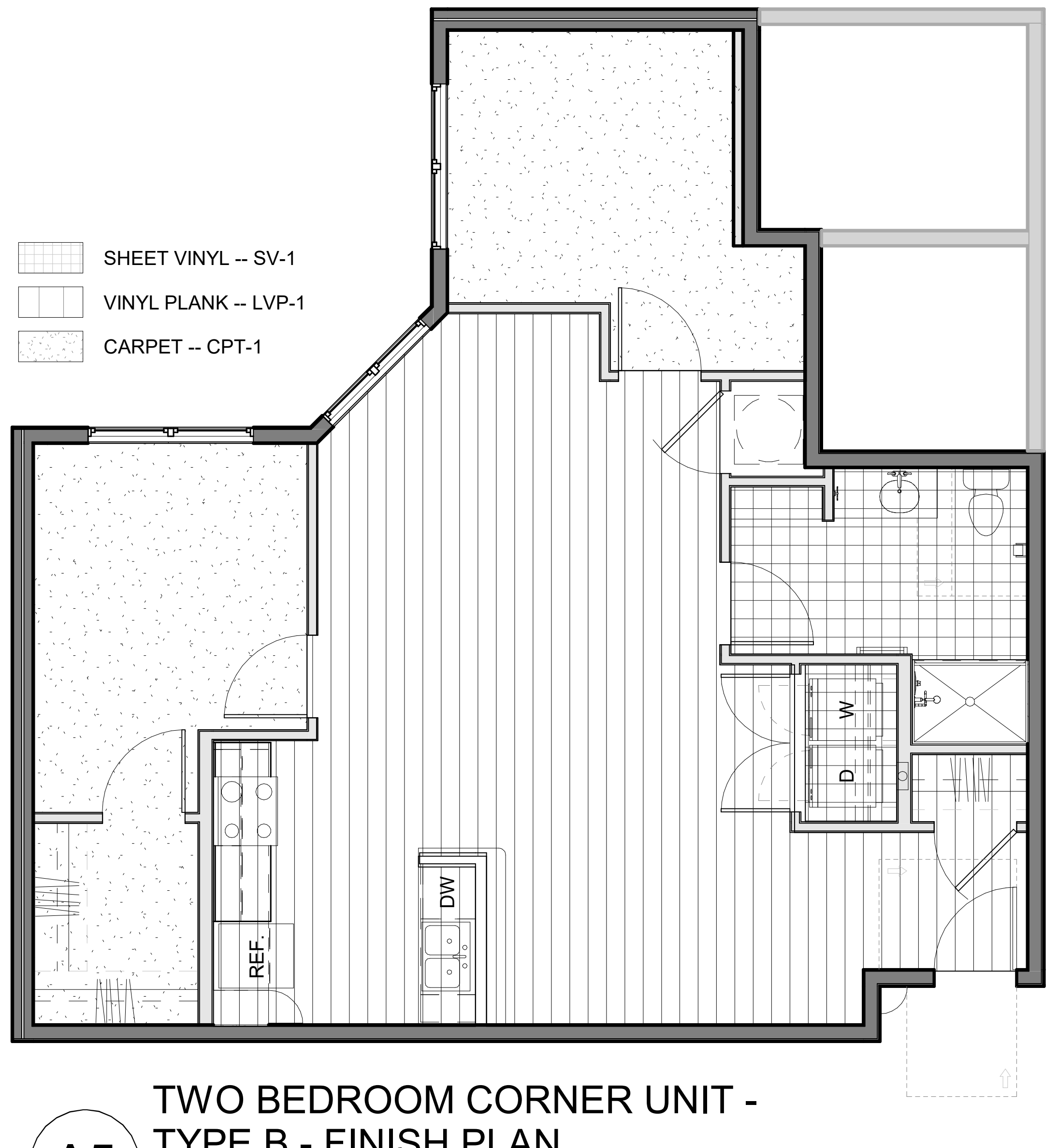
CARPET:
CPT-1 MOHAWK PROPERTIES COLLECTION: BROADLOOM (SMARTSTRAND W/ NANOLOC), PM395 NEUTRAL SHIFT, #859 TWILIGHT JUNGLE

LUXURY VINYL PLANK:
LVP-1 MOHAWK REXFORD COLLECTION: 12MIL, RP811, #890 STURDY BROWN

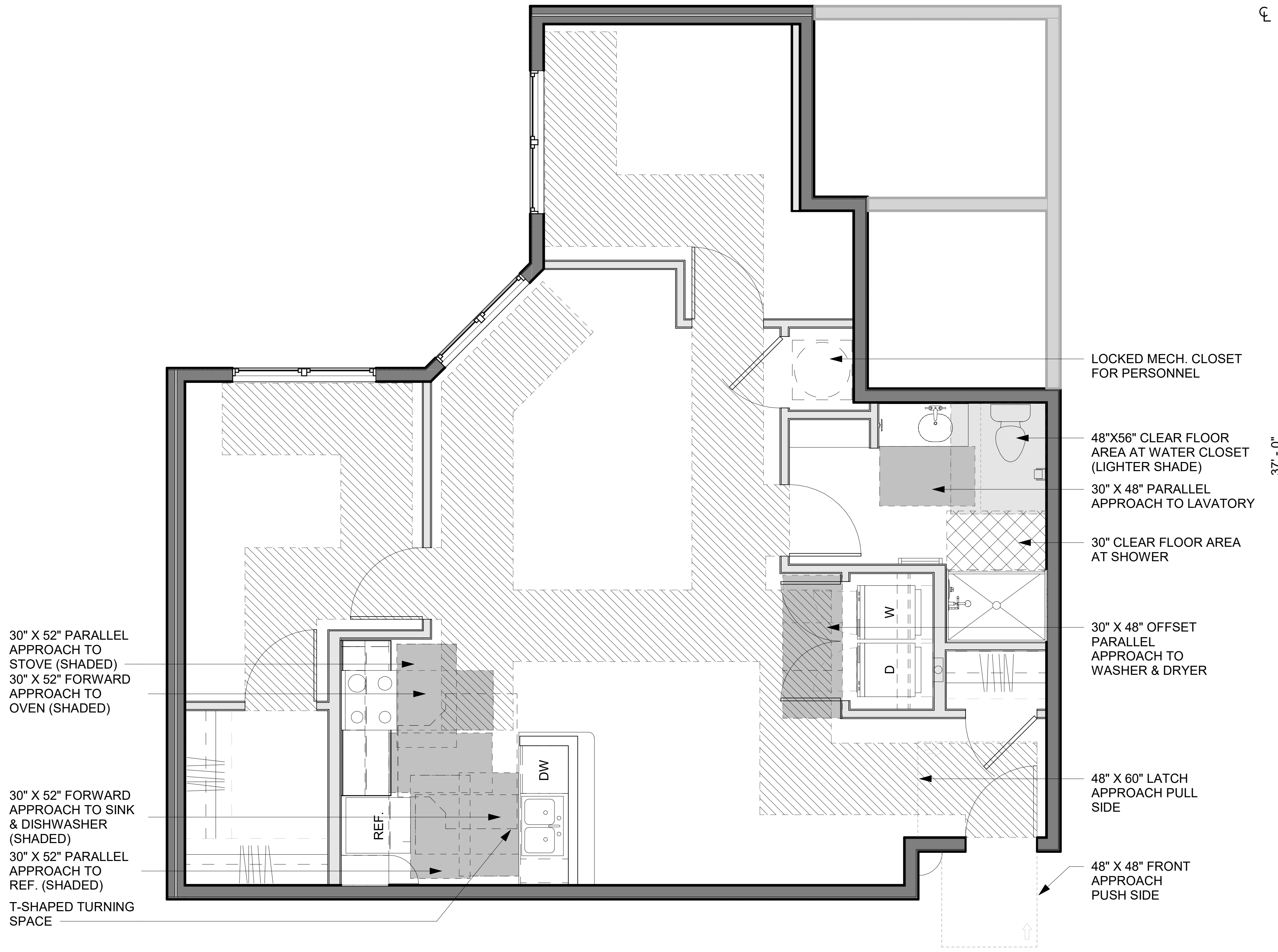
SHEET VINYL:
SV-1 MOHAWK PORTICO COLLECTION: #592 COOL SANDS

BASE:
WB-1 WOOD BASE, FJ623, 9/16" X 3.25" COLONIAL, PT-3; WOOD SHOE MOLD, FJ129, 7/16" X 11/16" COLONIAL, PT-3

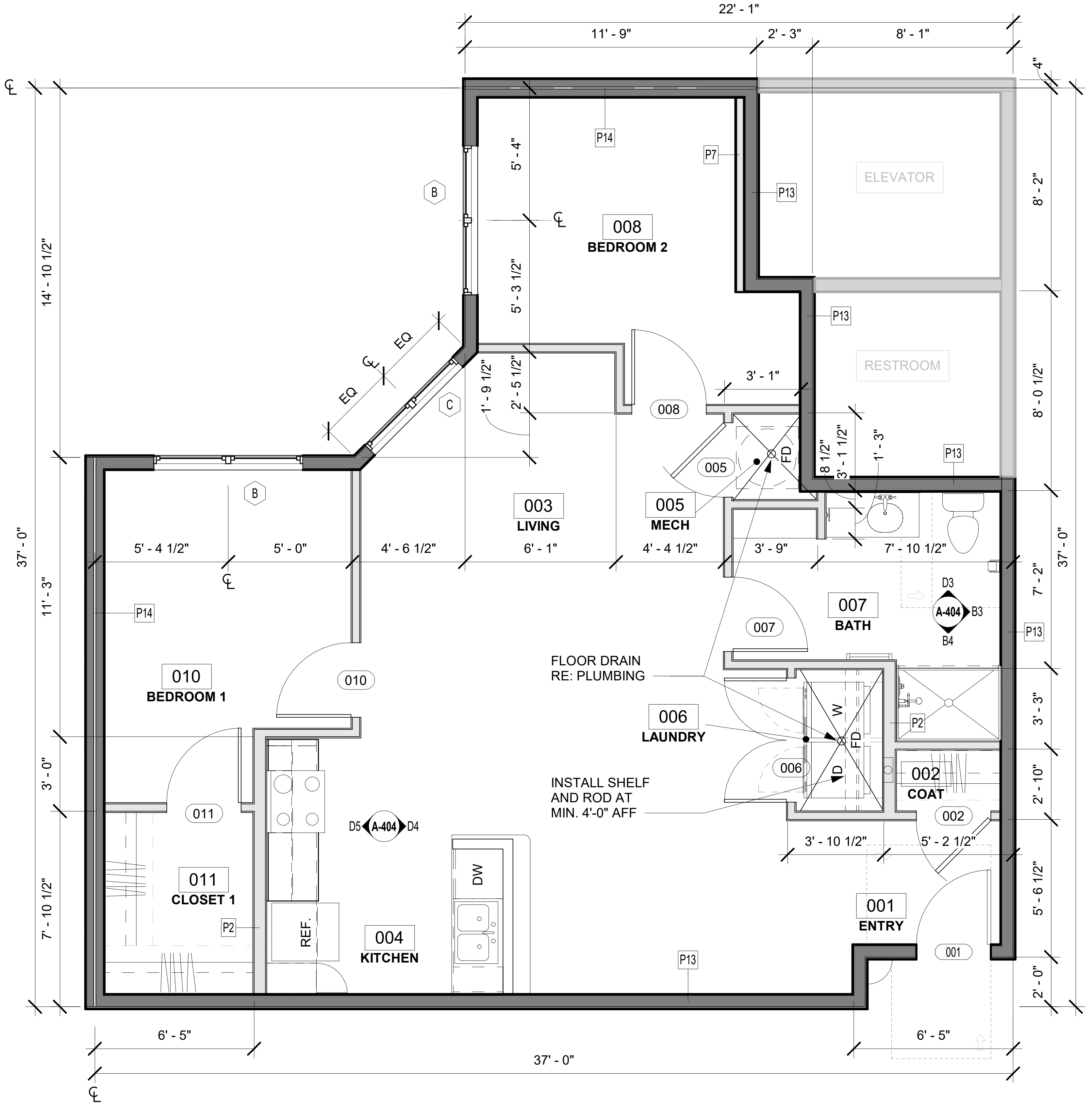
PAINT:
PT-1 SHERWIN WILLIAMS, SW 7044 AMAZING GRAY, EGGSHELL
PT-2 SHERWIN WILLIAMS, SW 7042 SHOJI WHITE, FLAT
PT-3 SHERWIN WILLIAMS, SW 7042 SHOJI WHITE, SEMI-GLOSS



A5 TWO BEDROOM CORNER UNIT - TYPE B - FINISH PLAN
3/16" = 1'-0"



A3 TWO BEDROOM CORNER UNIT - TYPE B - CLEAR SPACE PLAN
1/4" = 1'-0"



A1 TWO BEDROOM CORNER UNIT - TYPE B - FLOOR PLAN
1/4" = 1'-0"

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DAVID EUGENE HENDRIKSE
NUMBER A-7395
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

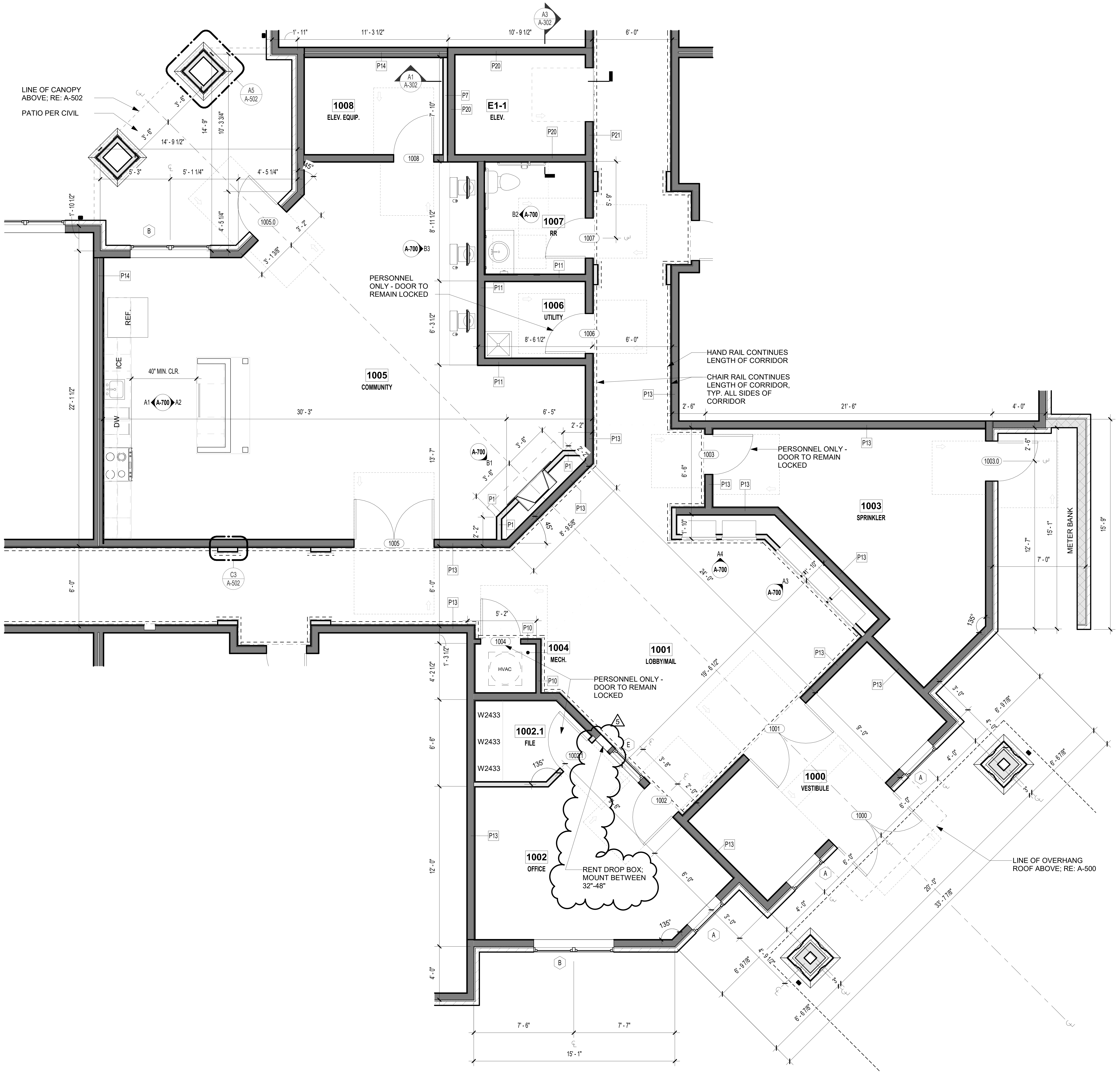
SHEET TITLE
TWO BEDROOM CORNER UNIT
PLAN - TYPE B

PROJECT NUMBER: 23034

SHEET NUMBER:

A-404

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



A1 1ST FLOOR ENLARGED PLAN
1/4" = 1'-0"

PRINTS ISSUED

10/30/23 PERMIT SUBMITTAL

REVISIONS:

1	12/15/23	Addendum 1 - Response to City Comments
5	10/04/24	ASI 001

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DAVID EUGENE HENDRIKSE
NUMBER A-7395
10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
ENLARGED FLOOR PLANS - COMMON AREAS

PROJECT NUMBER: 23034

SHEET NUMBER:

A-410

10/3/2024 11:53:01 AM
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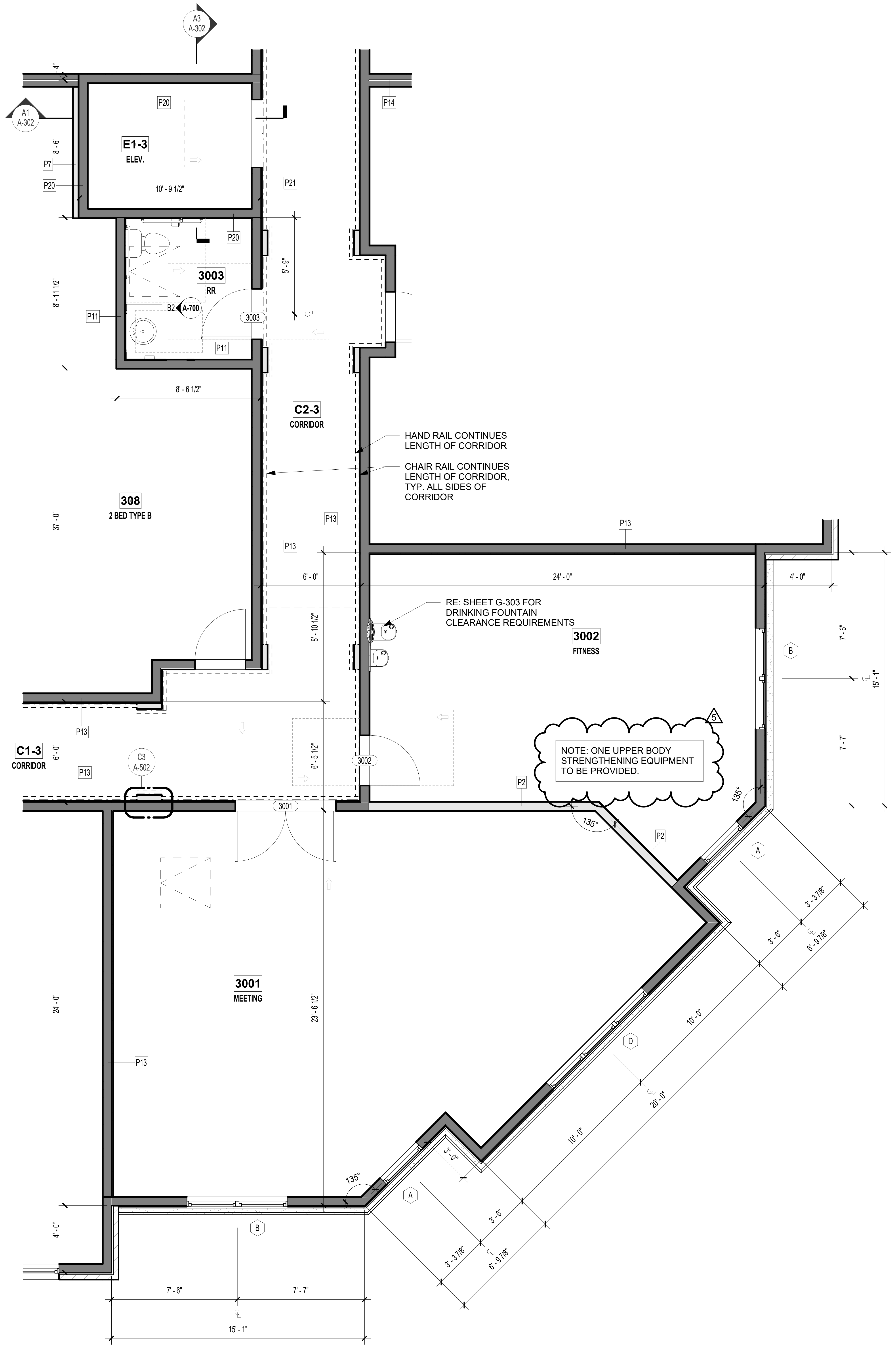
REFERENCE G-003 FOR GENERAL NOTES
REFERENCE A-101 FOR PLAN LEGEND

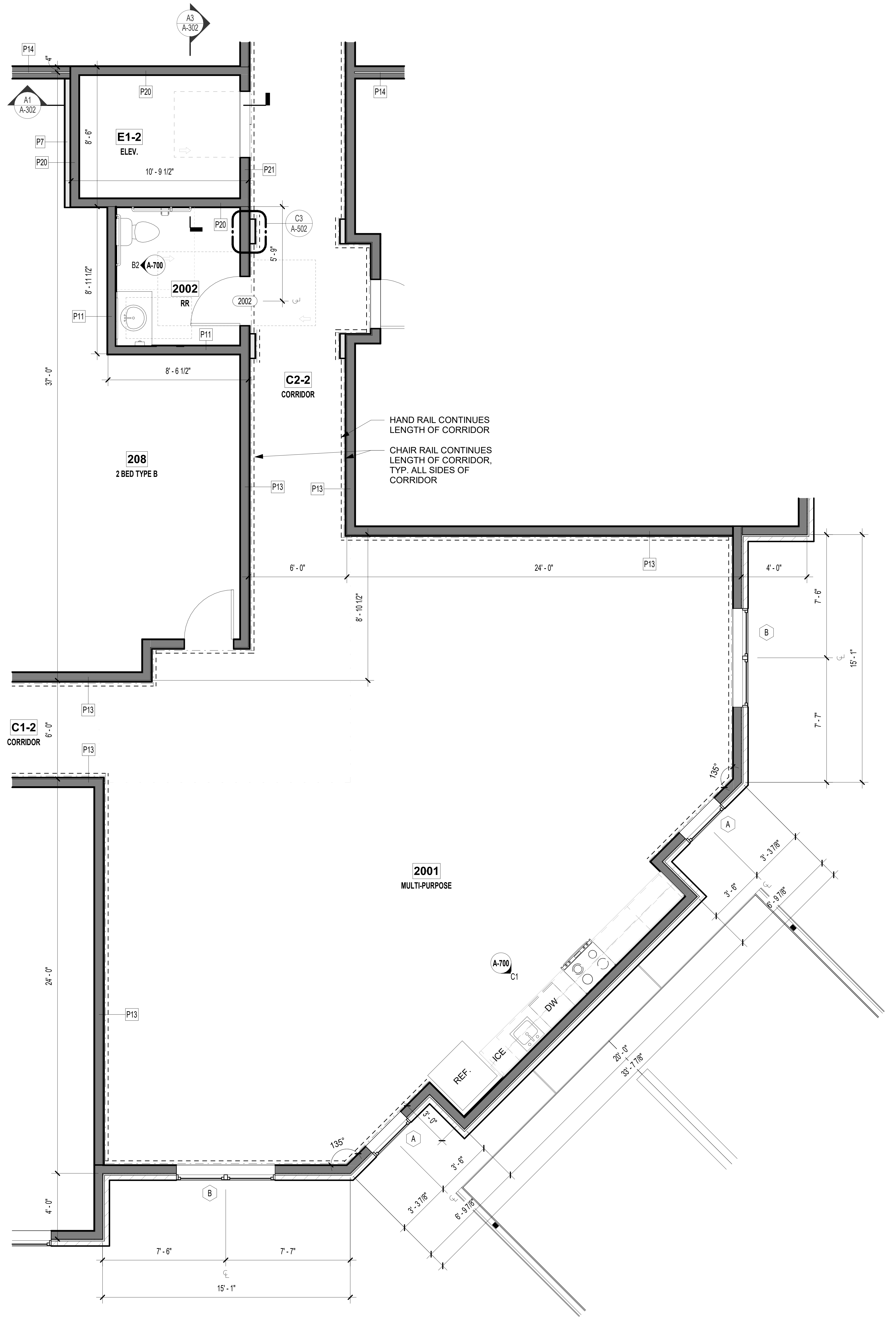
PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:

1	12/15/23	Addendum 1 - Response to City Comments
5	10/04/24	ASI 001



A3 **3RD FLOOR ENLARGED PLAN**
1/4" = 1'-0"



A1 **2ND FLOOR ENLARGED PLAN**
1/4" = 1'-0"

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DAVID EUGENE HENDRIKSE
NUMBER A-7395
10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
ENLARGED FLOOR PLANS - COMMON AREAS

PROJECT NUMBER: 23034

SHEET NUMBER:
A-411

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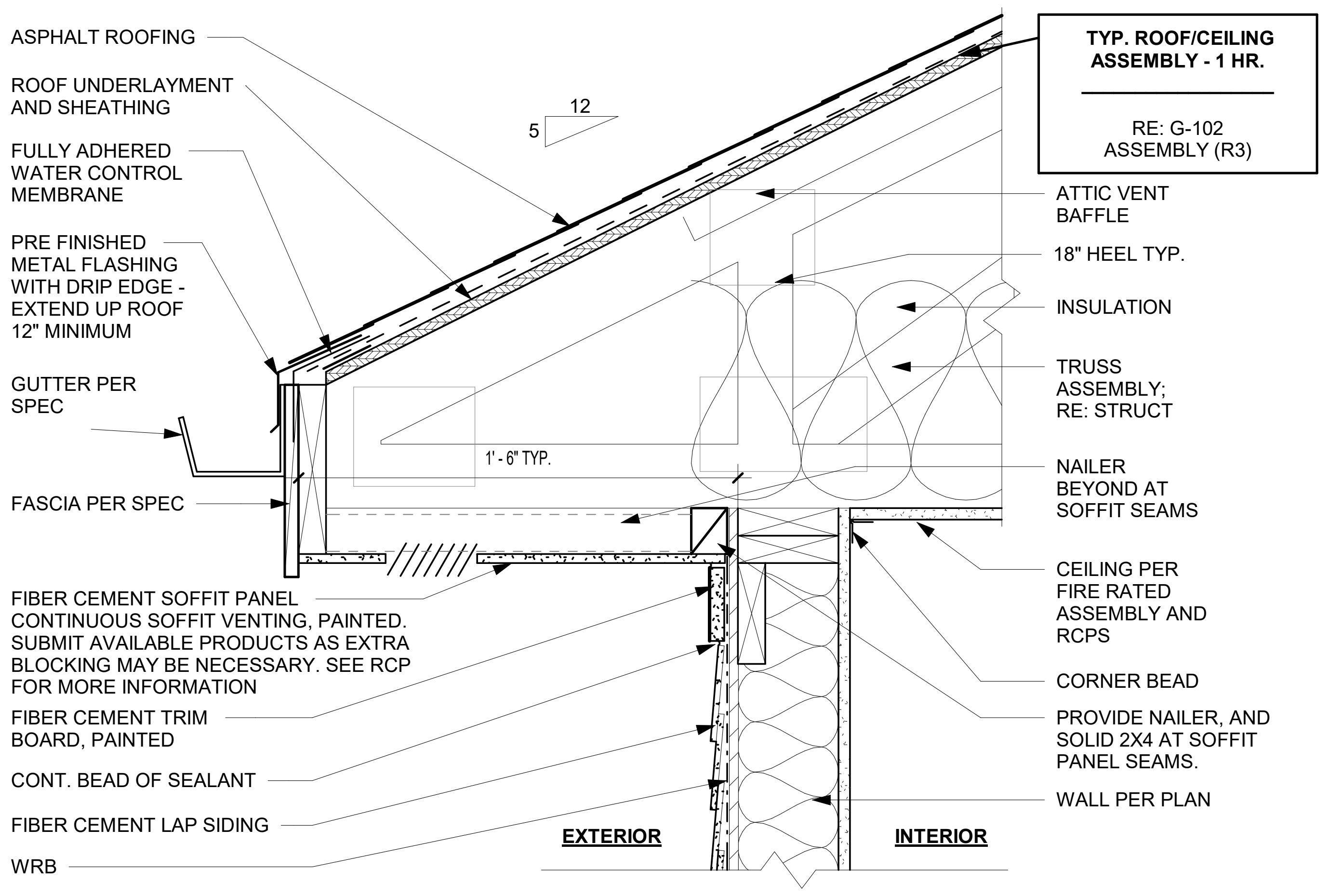
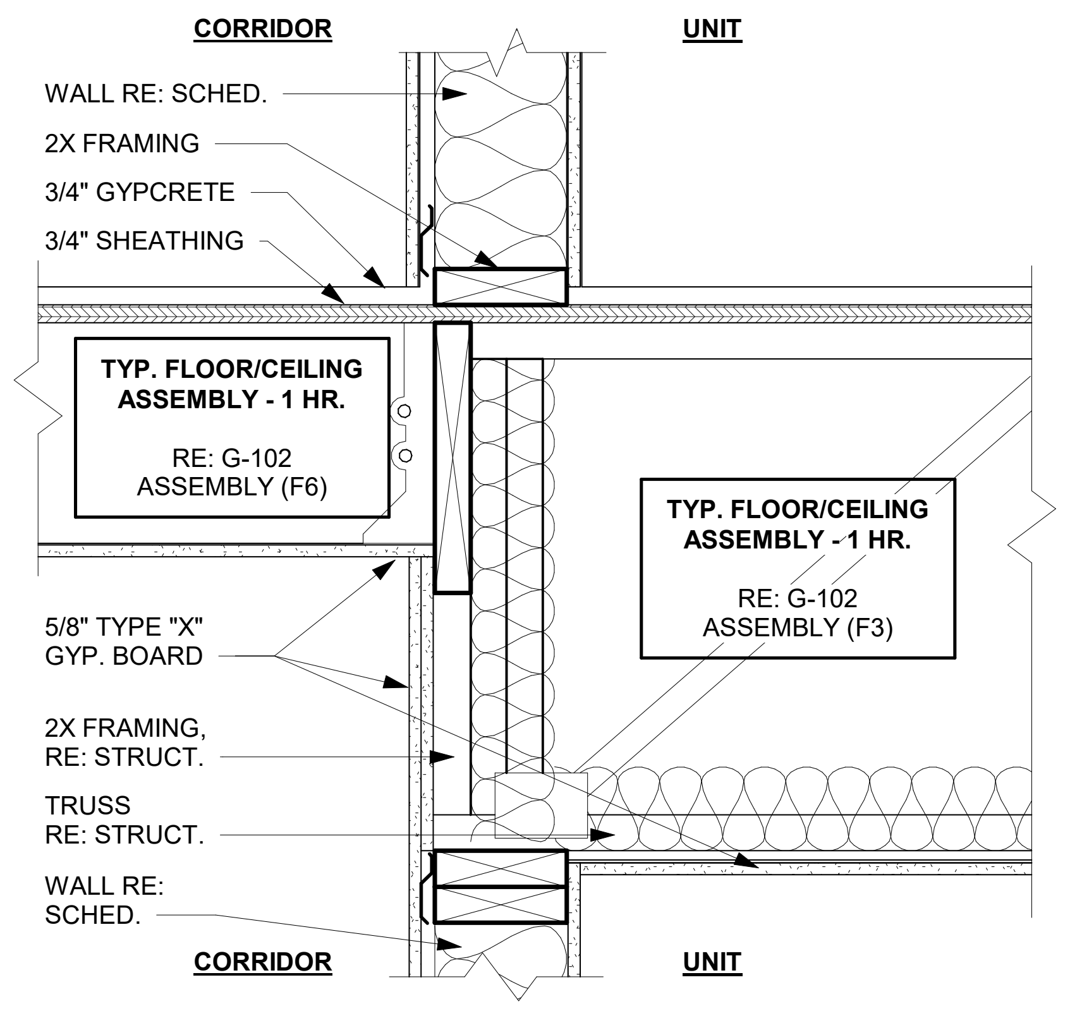
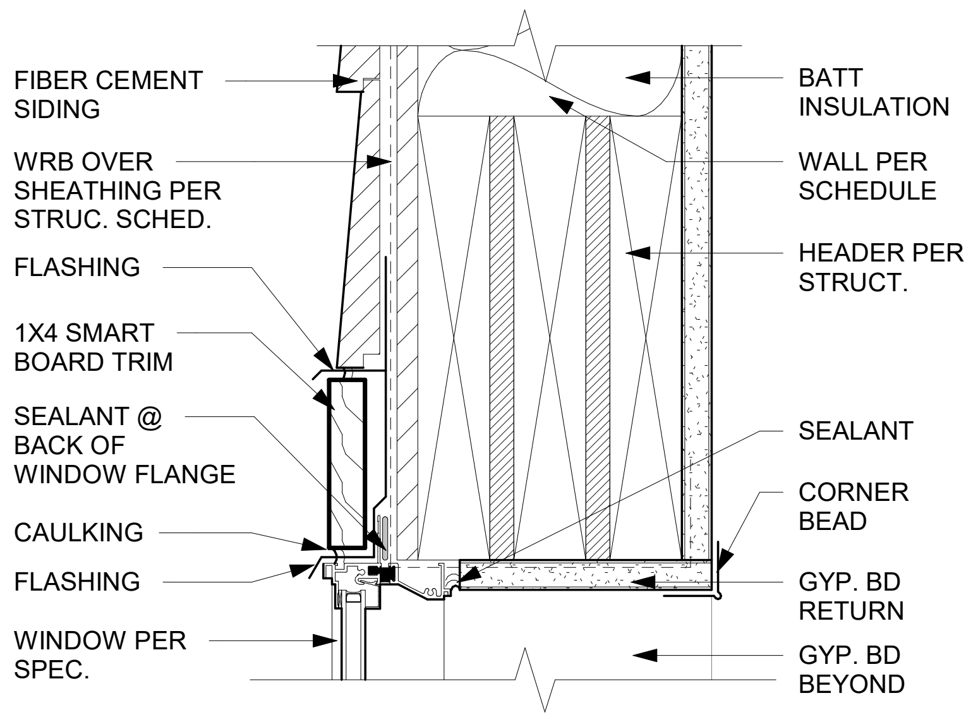

ASPHALT ROOFING
ROOF UNDERLAYMENT AND SHEATHING
FULLY ADHERED WATER CONTROL MEMBRANE
PRE FINISHED METAL FLASHING WITH DRIP EDGE - EXTEND UP ROOF 12" MINIMUM
GUTTER PER SPEC
FASCIA PER SPEC
FIBER CEMENT SOFFIT PANEL CONTINUOUS SOFFIT VENTING, PAINTED. SUBMIT AVAILABLE PRODUCTS AS EXTRA BLOCKING MAY BE NECESSARY. SEE RCP FOR MORE INFORMATION
FIBER CEMENT TRIM BOARD, PAINTED
CONT. BEAD OF SEALANT
FIBER CEMENT LAP SIDING
WRB
5
12
1'-6" TYP.
EXTERIOR
INTERIOR
TYP. ROOF/CEILING ASSEMBLY - 1 HR.
RE: G-102 ASSEMBLY (R3)
ATTIC VENT BAFFLE
18" HEEL TYP.
INSULATION
TRUSS ASSEMBLY; RE: STRUCT
NAILER BEYOND AT SOFFIT SEAMS
CEILING PER FIRE RATED ASSEMBLY AND RCPS
CORNER BEAD
PROVIDE NAILER, AND SOLID 2X4 AT SOFFIT PANEL SEAMS.
WALL PER PLAN

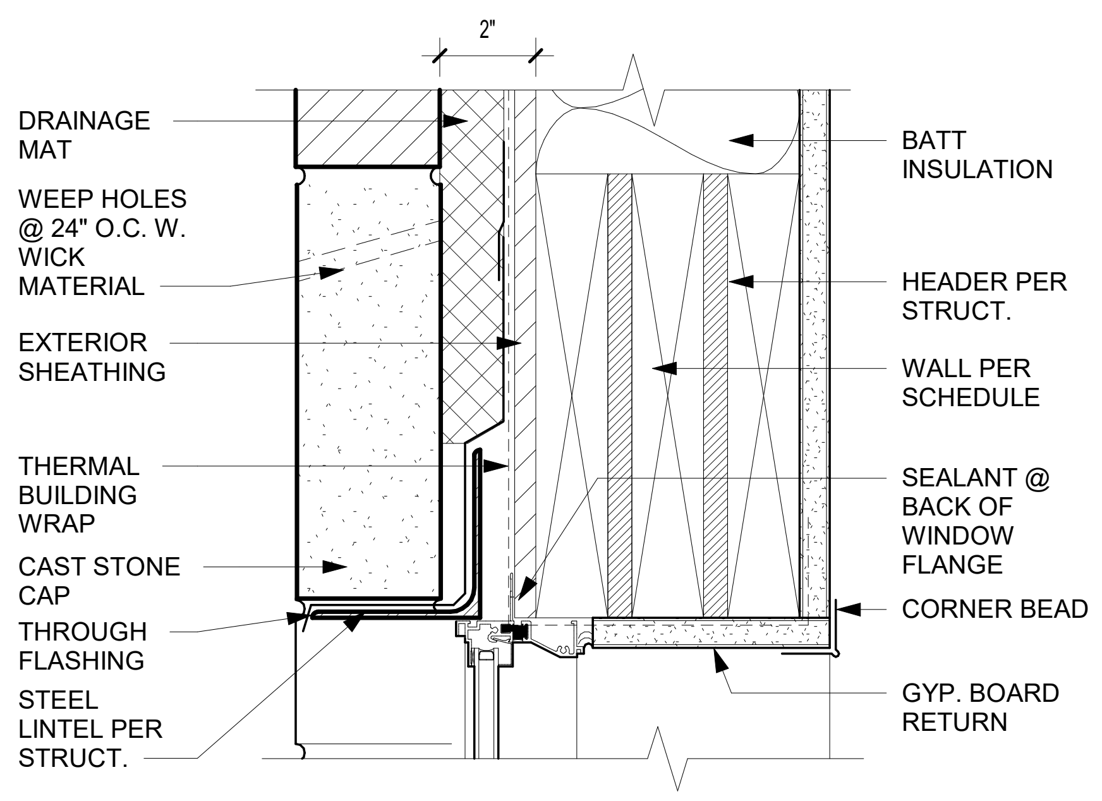
D5 TYP. 5/12 EAVE DETAIL @ SIDING
1 1/2" = 1'-0"



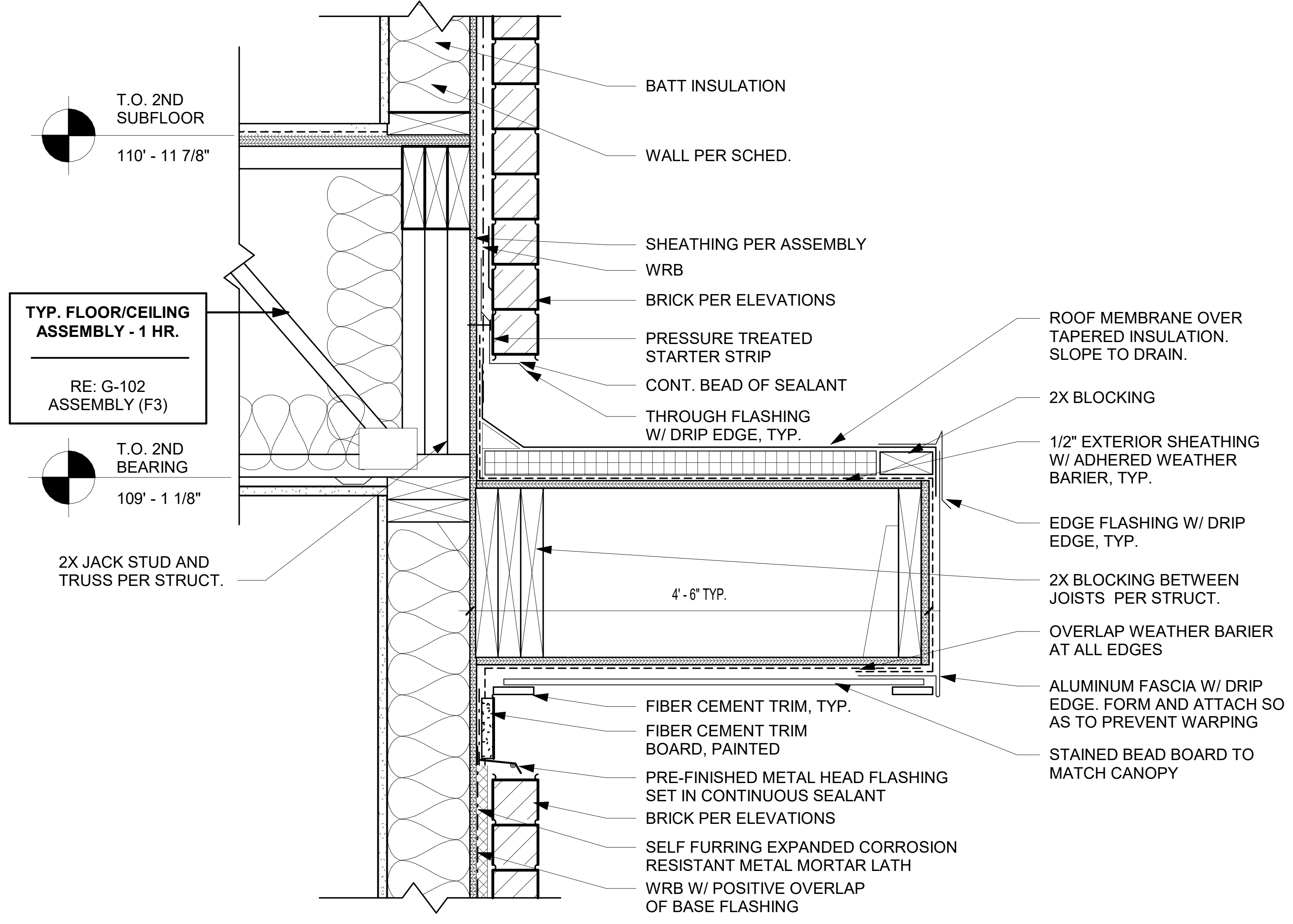
D3 FRAMING FLOOR / CEILING DETAIL
1 1/2" = 1'-0"



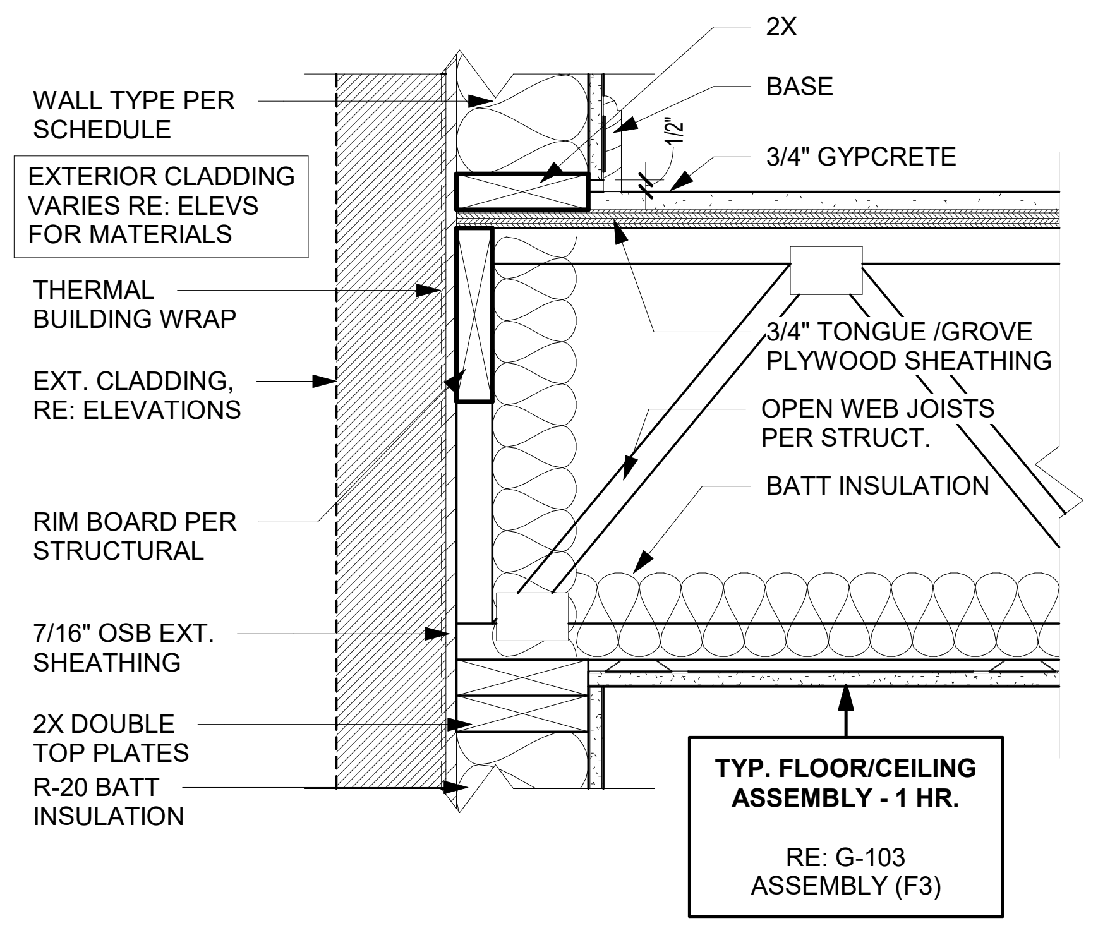
D2 WINDOW HEAD @ SIDING
3" = 1'-0"



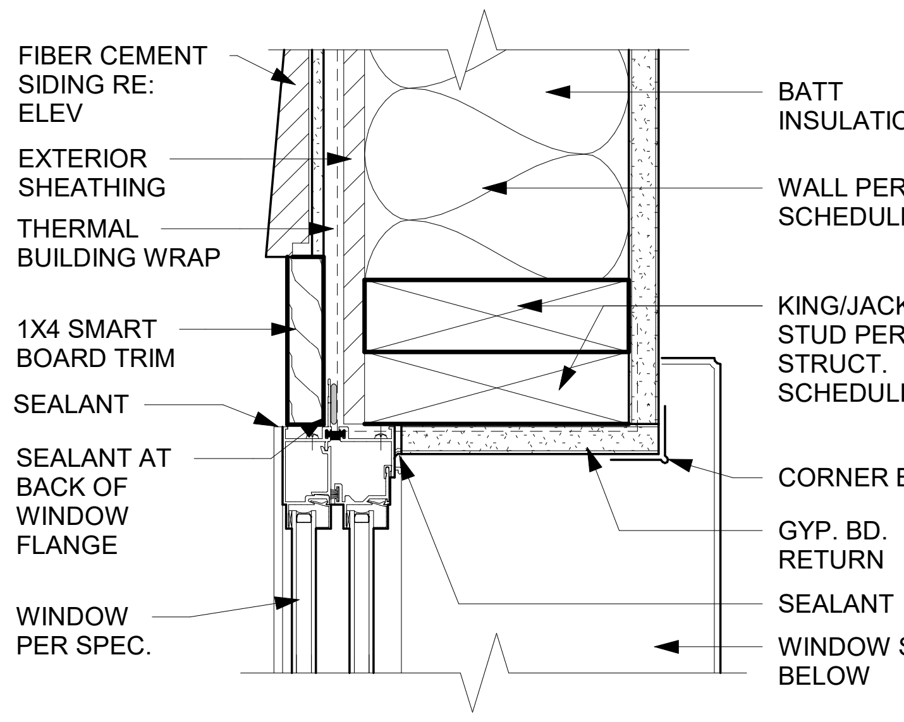
D1 WINDOW HEAD @ BRICK
3" = 1'-0"


T.O. 2ND SUBFLOOR
110' - 11 7/8"
TYP. FLOOR/CEILING ASSEMBLY - 1 HR.
RE: G-102 ASSEMBLY (F3)
T.O. 2ND BEARING
109' - 1 1/8"
2X JACK STUD AND TRUSS PER STRUCT.
BATT INSULATION
WALL PER SCHED.
SHEATHING PER ASSEMBLY
WRB
BRICK PER ELEVATIONS
PRESSURE TREATED STARTER STRIP
CONT. BEAD OF SEALANT
THROUGH FLASHING W/ DRIP EDGE, TYP.
4' - 6" TYP.
FIBER CEMENT TRIM, TYP.
FIBER CEMENT TRIM BOARD, PAINTED
PRE-FINISHED METAL HEAD FLASHING SET IN CONTINUOUS SEALANT
BRICK PER ELEVATIONS
SELF FURRING EXPANDED CORROSION RESISTANT METAL MORTAR LATH
WRB W/ POSITIVE OVERLAP OF BASE FLASHING
ROOF MEMBRANE OVER TAPERED INSULATION. SLOPE TO DRAIN.
2X BLOCKING
1/2" EXTERIOR SHEATHING W/ ADHERED WEATHER BARIER, TYP.
EDGE FLASHING W/ DRIP EDGE, TYP.
2X BLOCKING BETWEEN JOISTS PER STRUCT.
OVERLAP WEATHER BARIER AT ALL EDGES
ALUMINUM FASCIA W/ DRIP EDGE. FORM AND ATTACH SO AS TO PREVENT WARPING
STAINED BEAD BOARD TO MATCH CANOPY

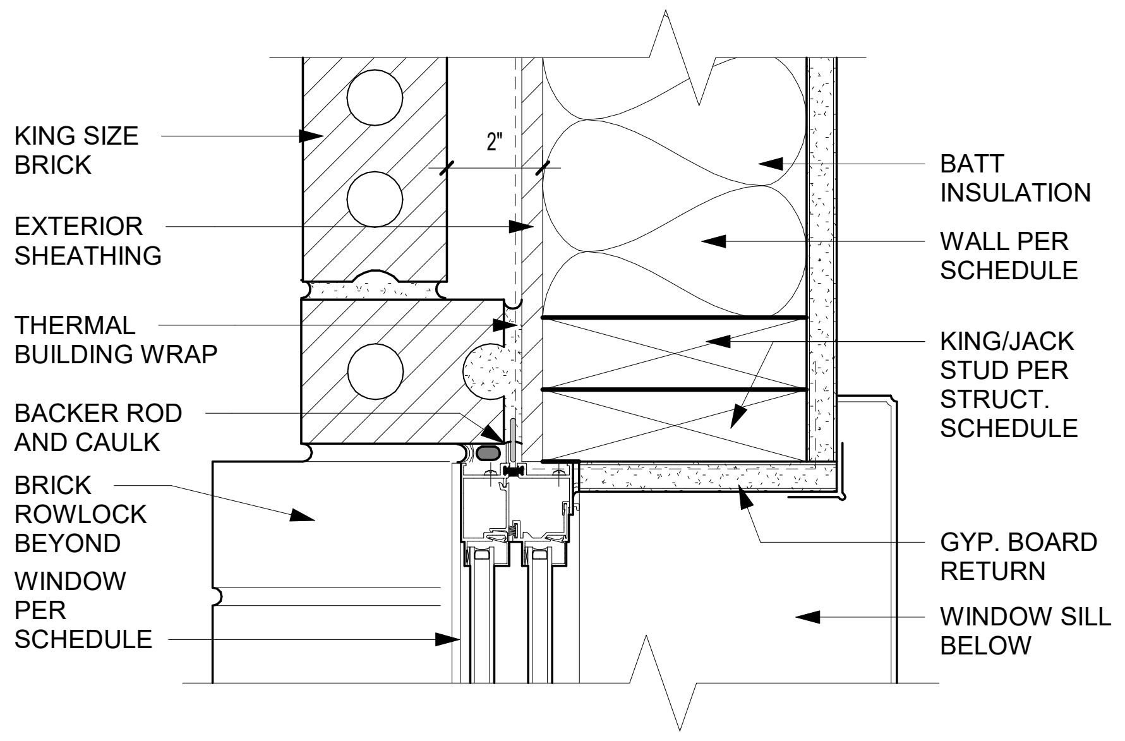
B5 TYP. DETAIL @ CANOPY
1 1/2" = 1'-0"



C3 FRAMING FLOOR/CEILING DETAIL
1 1/2" = 1'-0"



C2 WINDOW JAMB @ SIDING
3" = 1'-0"

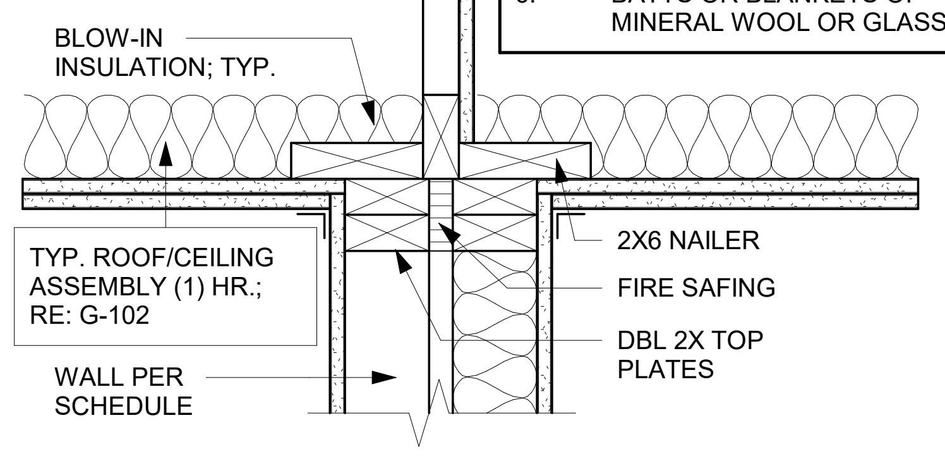


C1 WINDOW JAMB @ BRICK
3" = 1'-0"

DRAFTSTOPPING LOCATIONS TO COMPLY WITH IBC 2018; SECTION 718.4 DRAFTSTOPPING IN ATTICS.

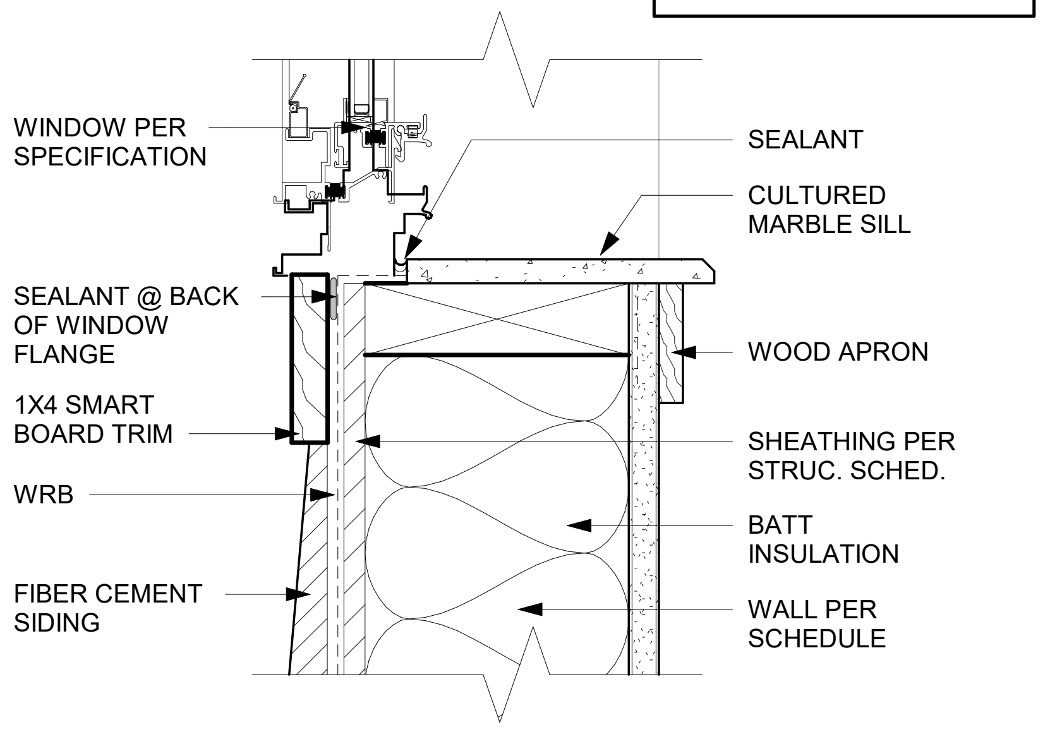
OPTIONS PER IBC 2018; SECTION 718.4.1 DRAFTSTOPPING MATERIALS:

1. 1/2" GYP. BD.
2. 3/8" WOOD STRUCT. PANEL
3. 3/8" PARTICLE BOARD
4. 1" NOMINAL LUMBER
5. CEMENT FIBERBOARD
6. BATTS OR BLANKETS OF MINERAL WOOL OR GLASS FIBER



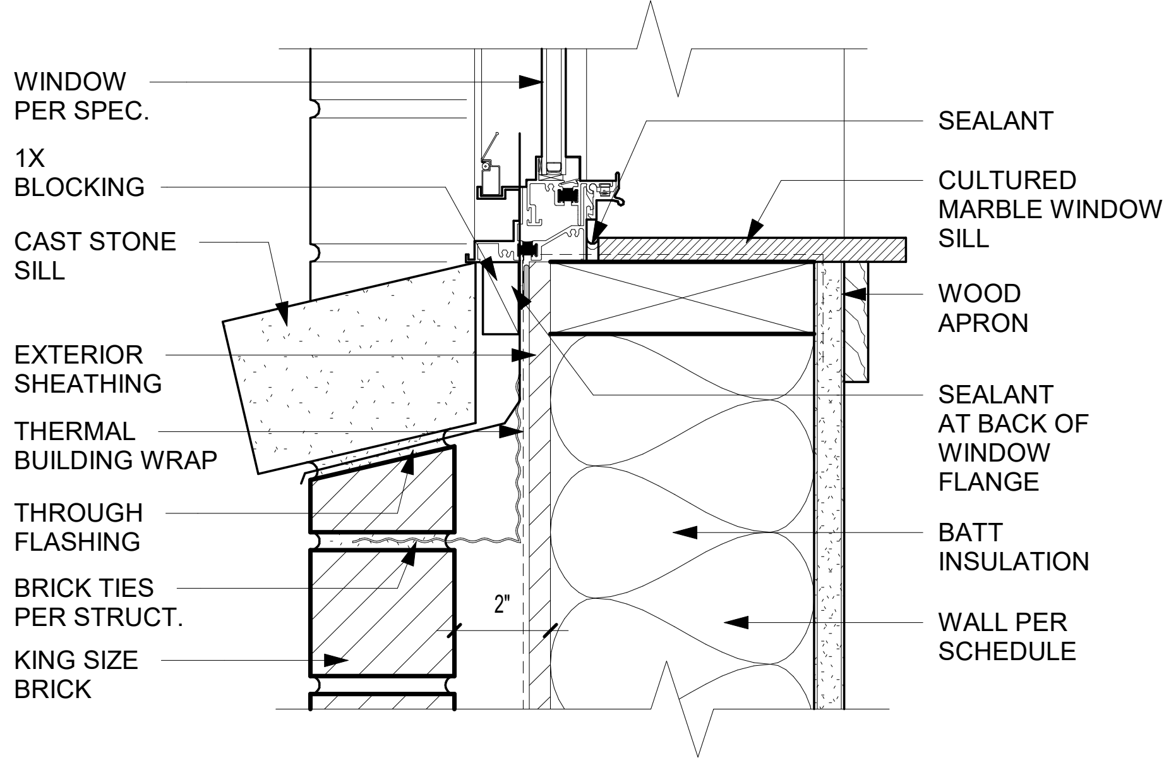
B3 DRAFT STOP @ DEMISING WALL
1 1/2" = 1'-0"

NOTE: ALL SILL HEIGHTS TO BE MIN. 24" A.F.F., TYP.

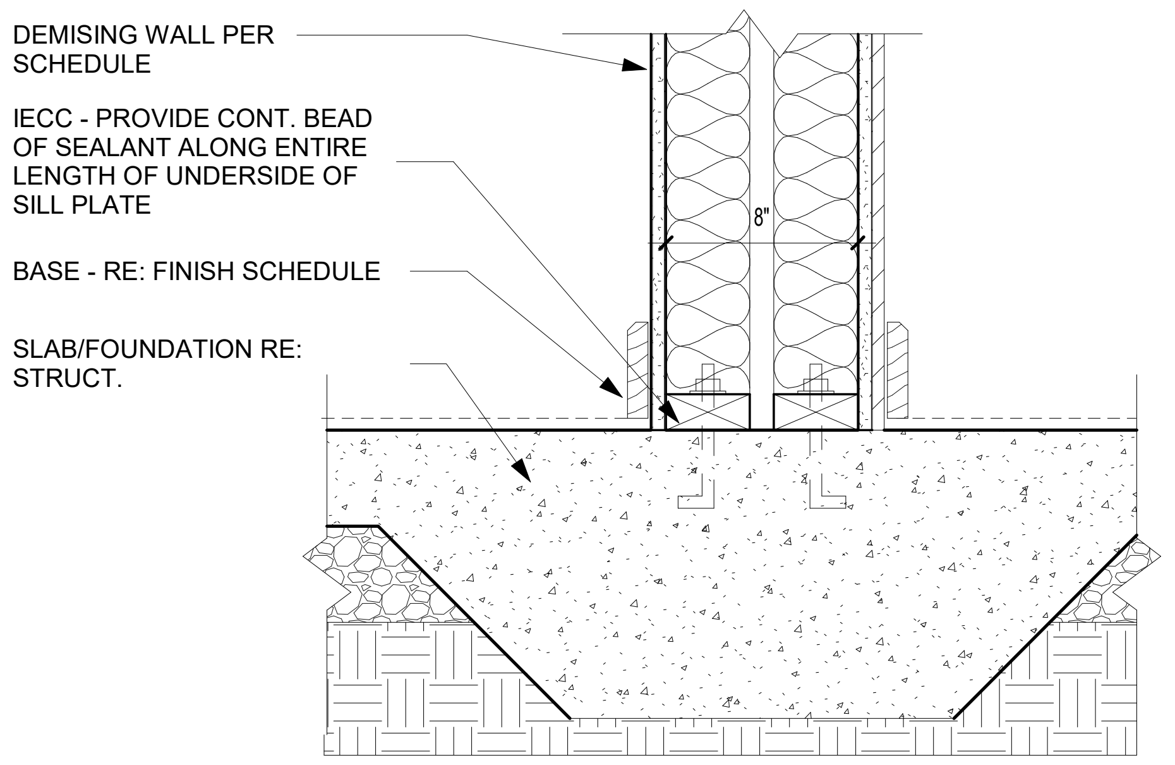


B2 WINDOW SILL @ SIDING
3" = 1'-0"

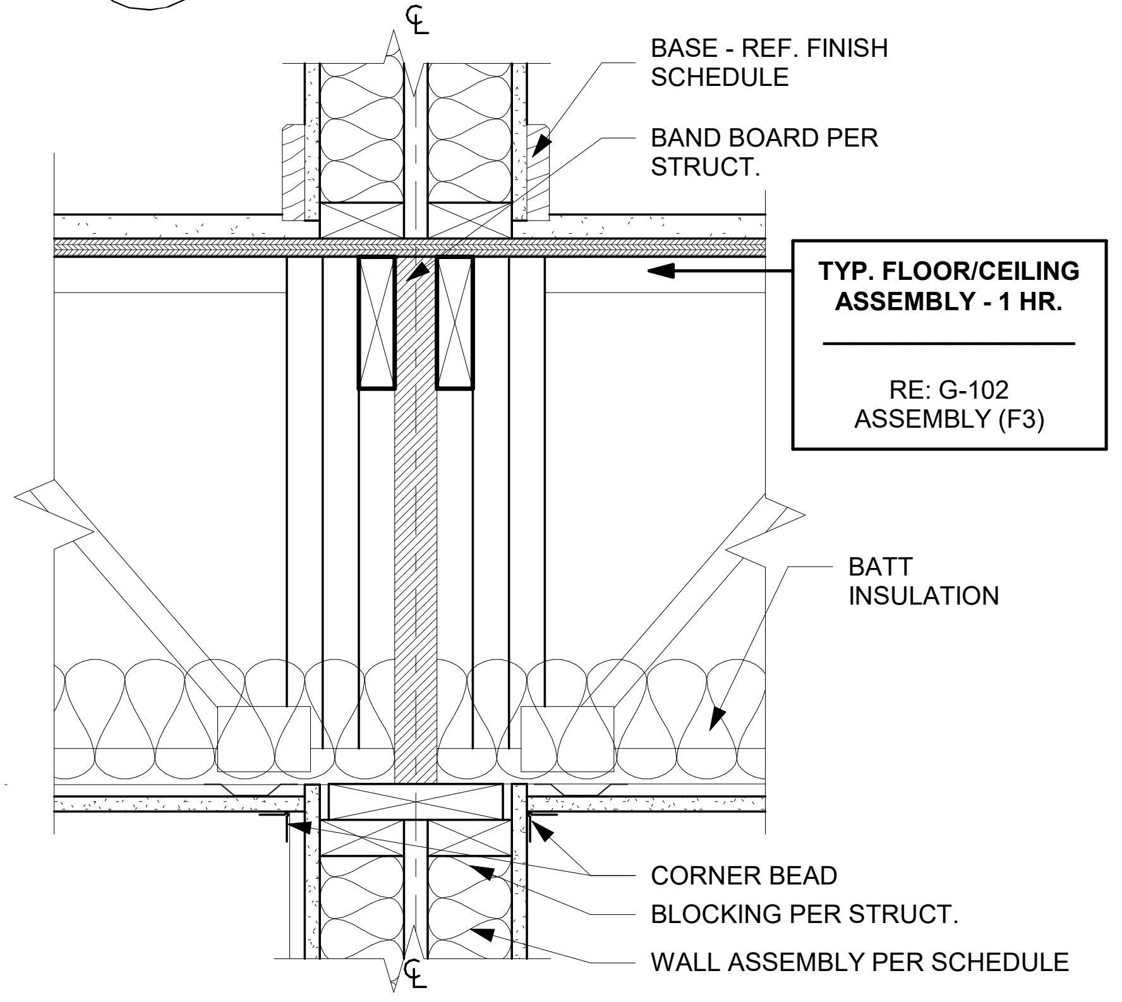
NOTE: ALL SILL HEIGHTS TO BE MIN. 24" A.F.F., TYP.



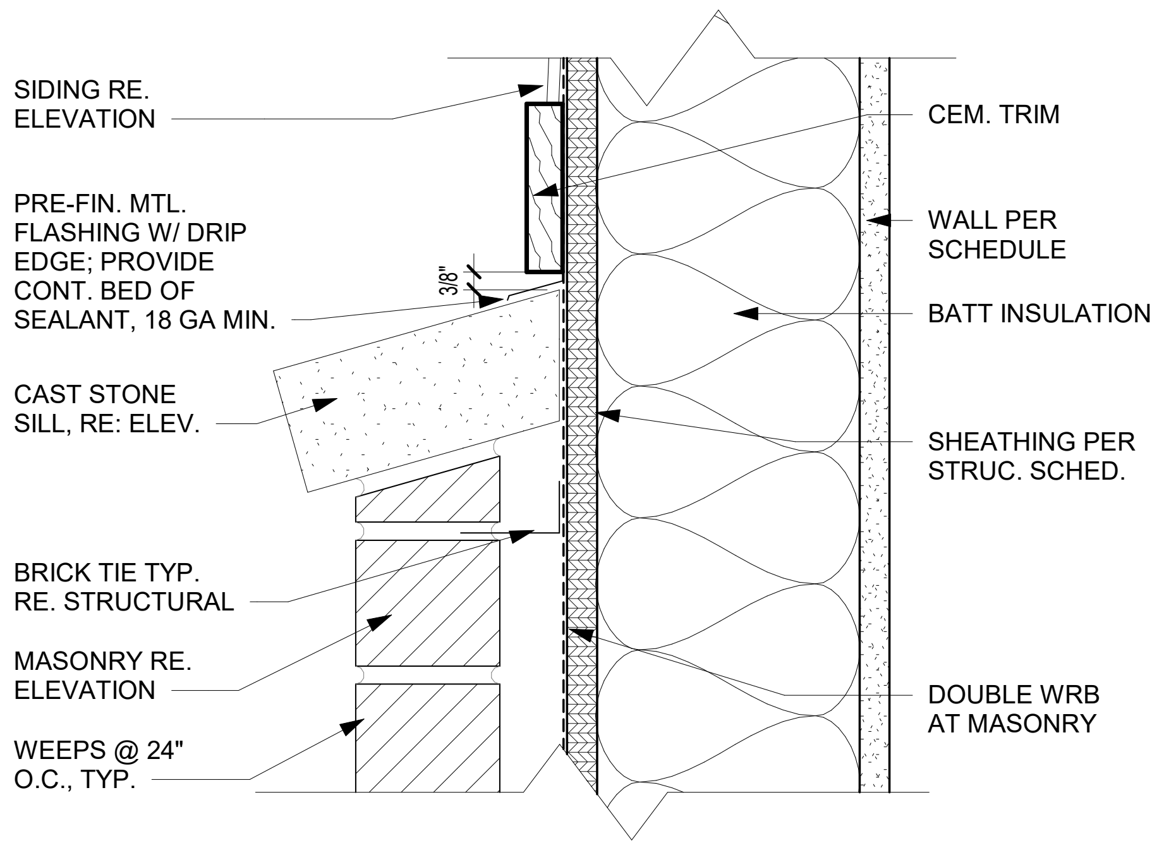
B1 WINDOW SILL @ BRICK
3" = 1'-0"


DEMISING WALL PER SCHEDULE
IECC - PROVIDE CONT. BEAD OF SEALANT ALONG ENTIRE LENGTH OF UNDERSIDE OF SILL PLATE
BASE - RE: FINISH SCHEDULE
SLAB/FOUNDATION RE: STRUCT.
8"

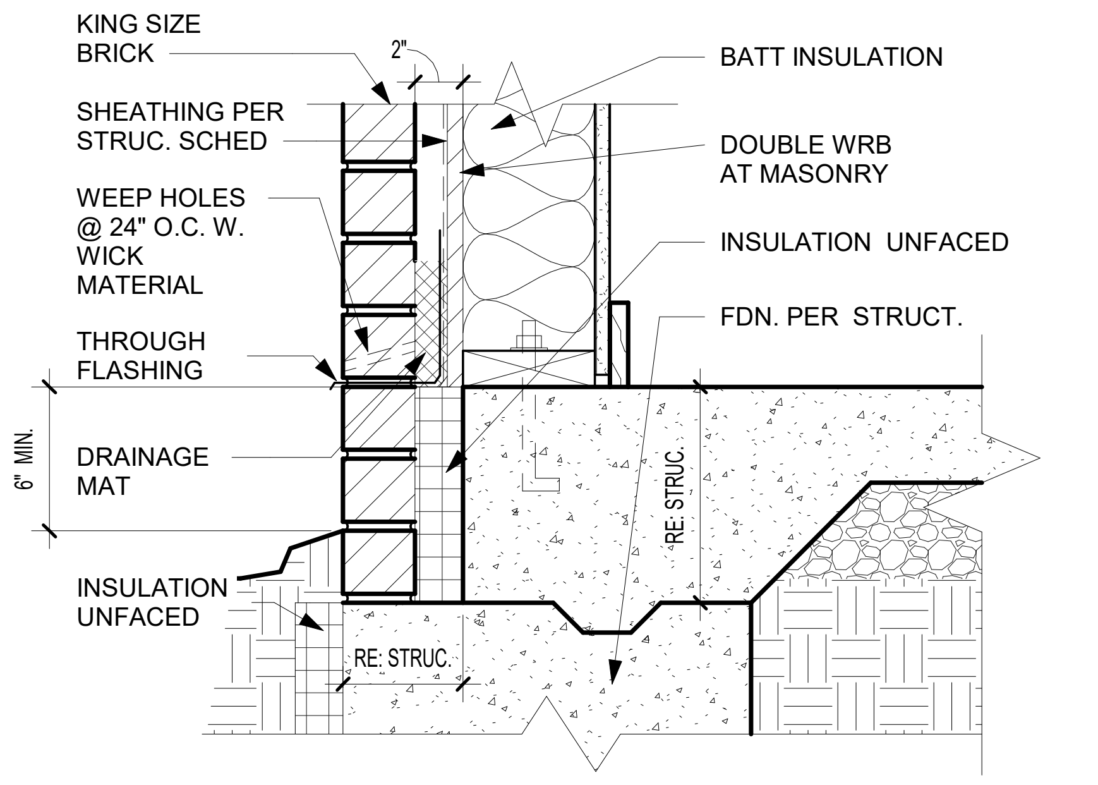
A4 TYP. FOUNDATION @ DEMISING WALL
1 1/2" = 1'-0"



A3 FRAMING FLOOR/ CEILING DETAIL @ DEMISING WALL
1 1/2" = 1'-0"


SIDING RE. ELEVATION
PRE-FIN. MTL. FLASHING W/ DRIP EDGE; PROVIDE CONT. BED OF SEALANT, 18 GA MIN.
3/8"
CAST STONE SILL, RE: ELEV.
BRICK TIE TYP. RE. STRUCTURAL
MASONRY RE. ELEVATION
WEEPS @ 24" O.C., TYP.
CEM. TRIM
WALL PER SCHEDULE
BATT INSULATION
SHEATHING PER STRUC. SCHED.
DOUBLE WRB AT MASONRY

A2 BRICK TO SIDING TRANSITION
3" = 1'-0"



A1 FOUNDATION DETAIL @ BRICK
1 1/2" = 1'-0"

PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:

rosemann & ASSOCIATES P.C.
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DAVID EUGENE HENDRIKSE
NUMBER A-7365
10/30/23

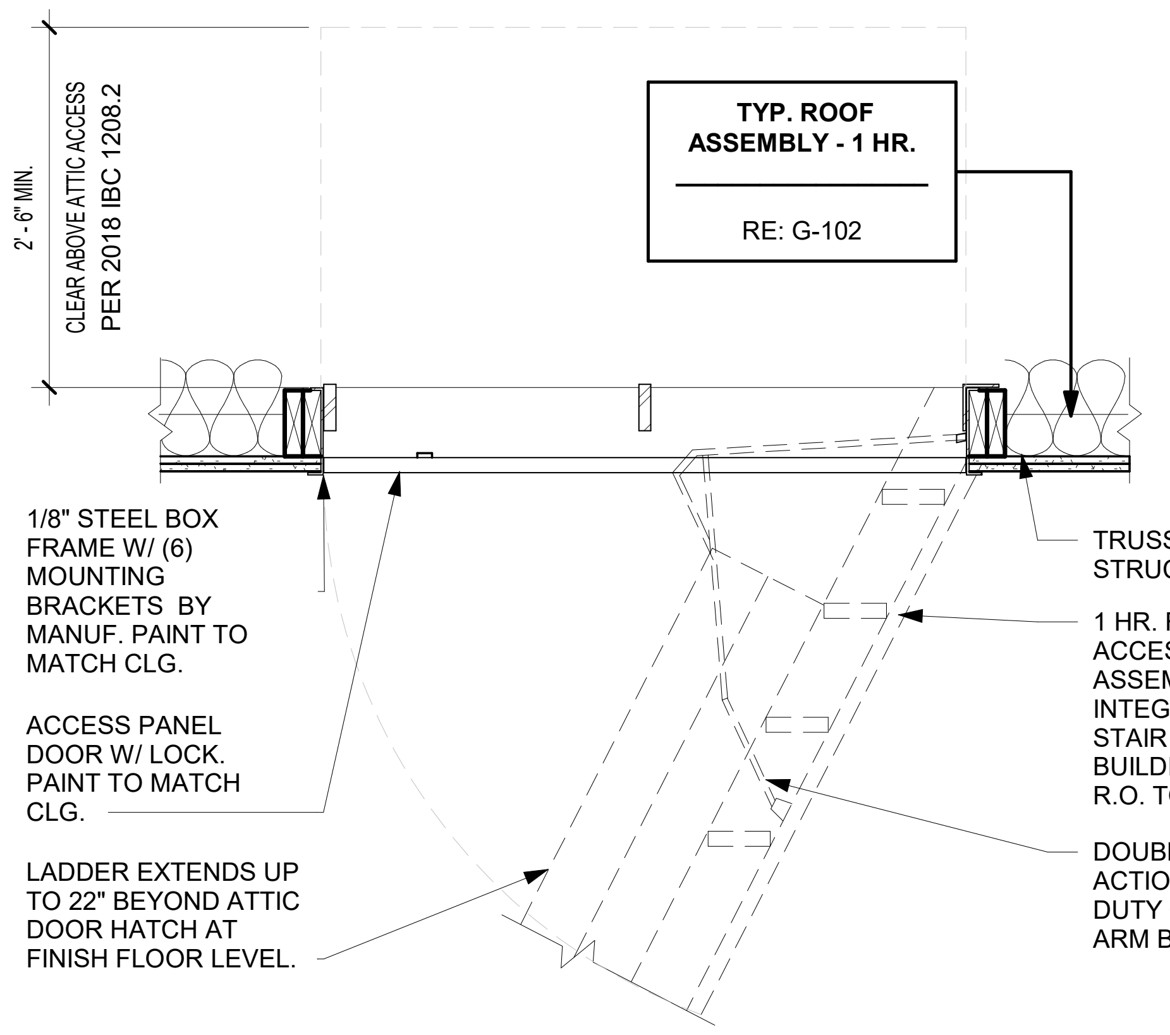
WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

SHEET TITLE
DETAILS

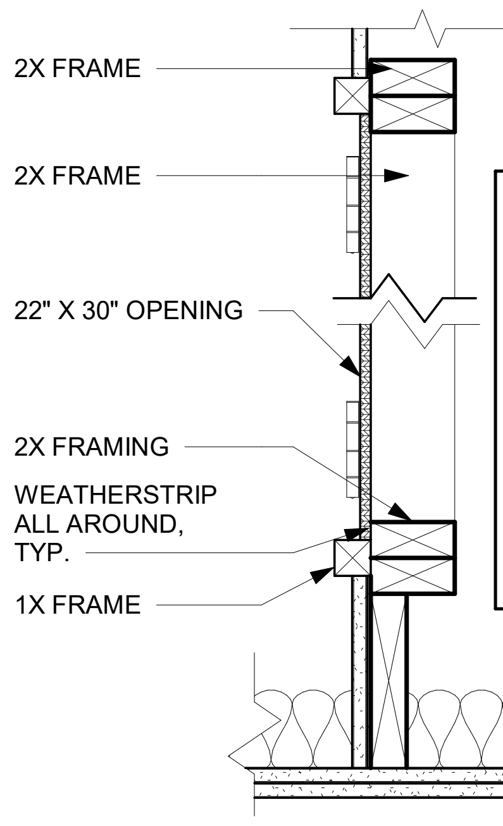
PROJECT NUMBER: 23034

SHEET NUMBER:
A-500

10/27/2023 2:52:41 PM
C:\Revit Local Cache\2023\23034_Wilshire Hills III_Central_R23_revit9TUCAR.rvt


2' - 6" MIN.
CLEAR ABOVE ATTIC ACCESS
PER 2018 IBC 1208.2
TYP. ROOF ASSEMBLY - 1 HR.
RE: G-102
1/8" STEEL BOX FRAME W/ (6) MOUNTING BRACKETS BY MANUF. PAINT TO MATCH CLG.
ACCESS PANEL DOOR W/ LOCK. PAINT TO MATCH CLG.
LADDER EXTENDS UP TO 22" BEYOND ATTIC DOOR HATCH AT FINISH FLOOR LEVEL.
TRUSS PER STRUCTURAL.
1 HR. FIRE RATED ACCESS DOOR ASSEMBLY WITH INTEGRAL FOLDING STAIR BY "MEEKS BUILDING CENTER" R.O. TO BE 30" X 54".
DOUBLE SPRING ACTION HEAVY DUTY OPERATING ARM BY MANUF.

D5 ATTIC ACCESS DETAIL
3/4" = 1'-0"

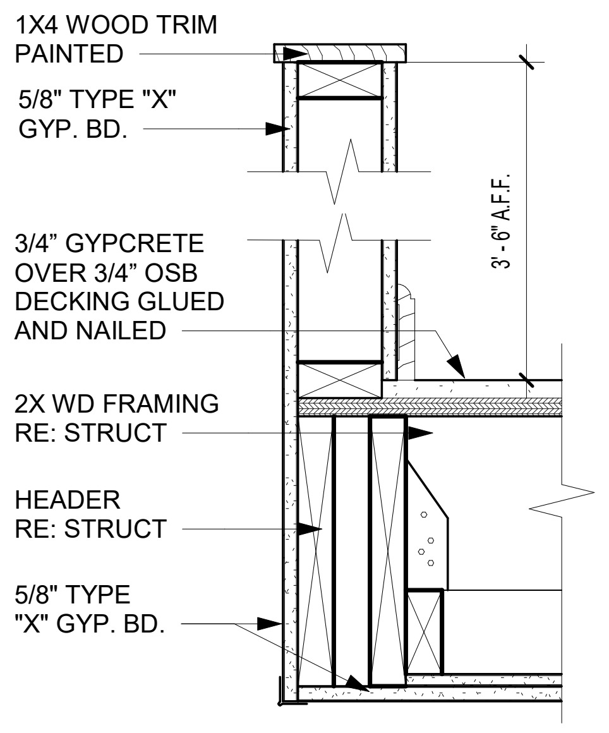


NOTE: DRAFTSTOPPING LOCATIONS TO COMPLY WITH IBC 2018; SECTION 708.4.2 DRAFTSTOPPING IN ATTICS;

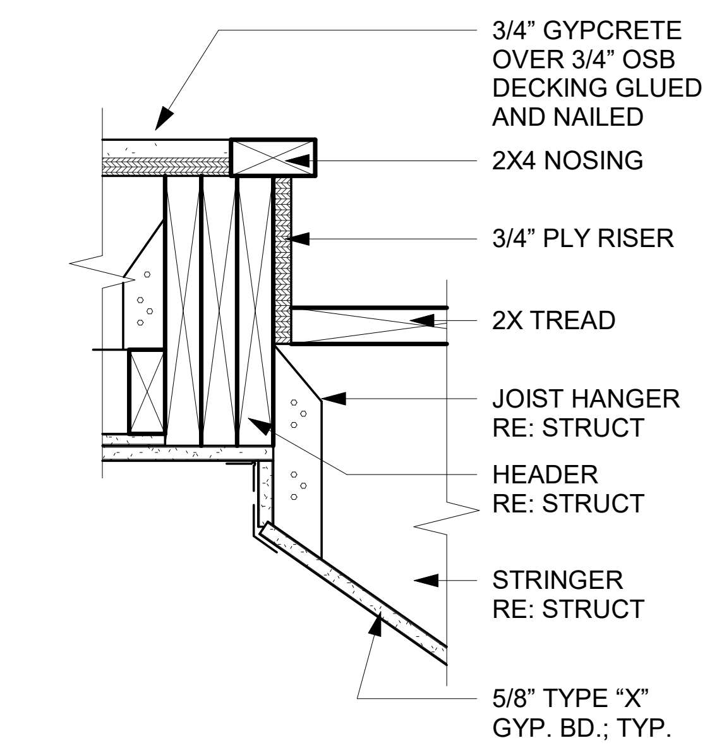
DRAFTSTOPPING MATERIALS:

1. 1/2" GYP. BD.
2. 3/8" WOOD STRUCT. PANEL
3. 3/8" PARTICLE BOARD
4. 1" NOMINAL LUMBER
5. CEMENT FIBERBOARD
6. BATTS OR BLANKETS OF MINERAL WOOL OR GLASS FIBER

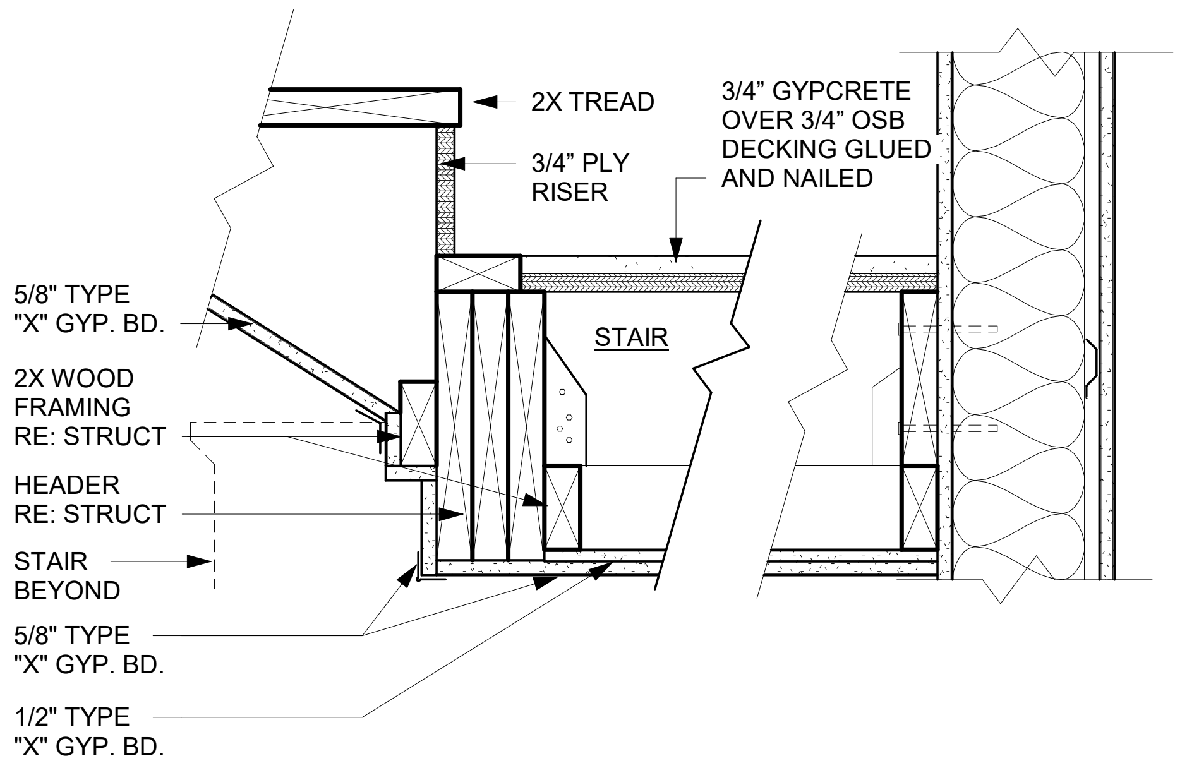
D4 DRAFT STOP ACCESS PANEL
1 1/2" = 1'-0"



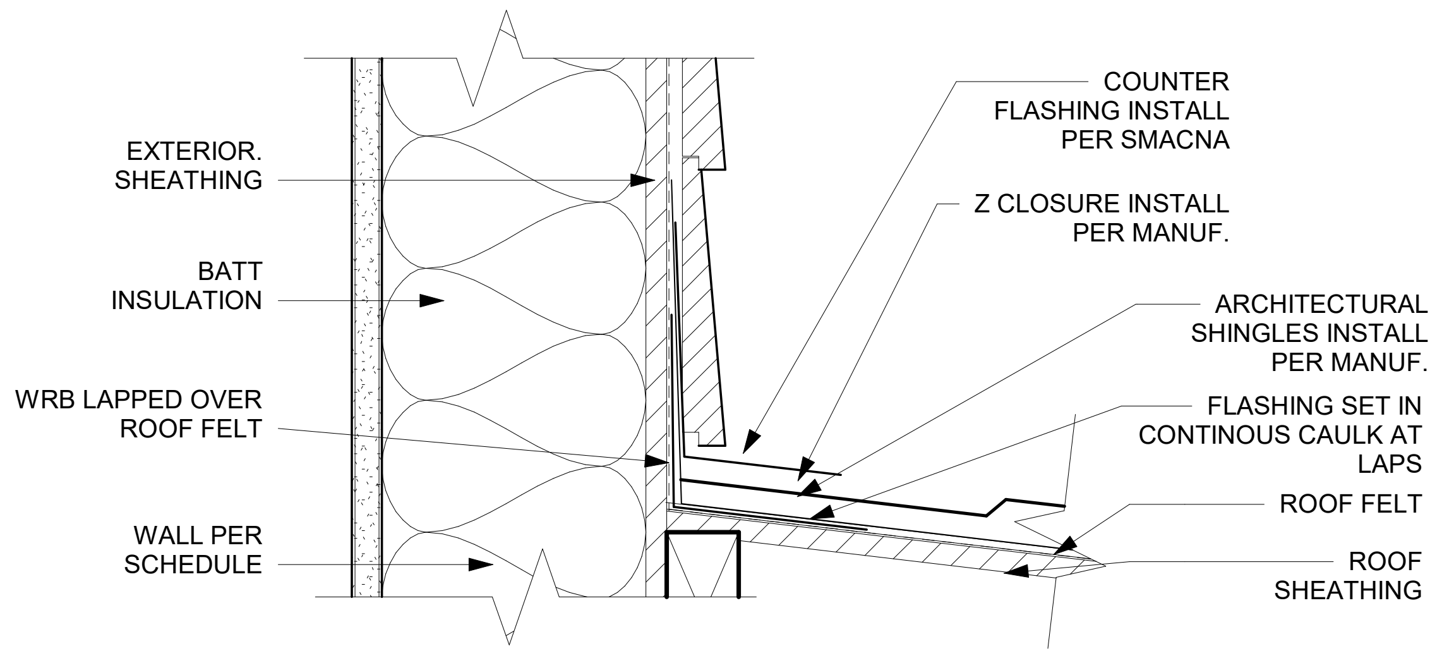
D3 STAIR KNEE WALL DETAIL
1 1/2" = 1'-0"



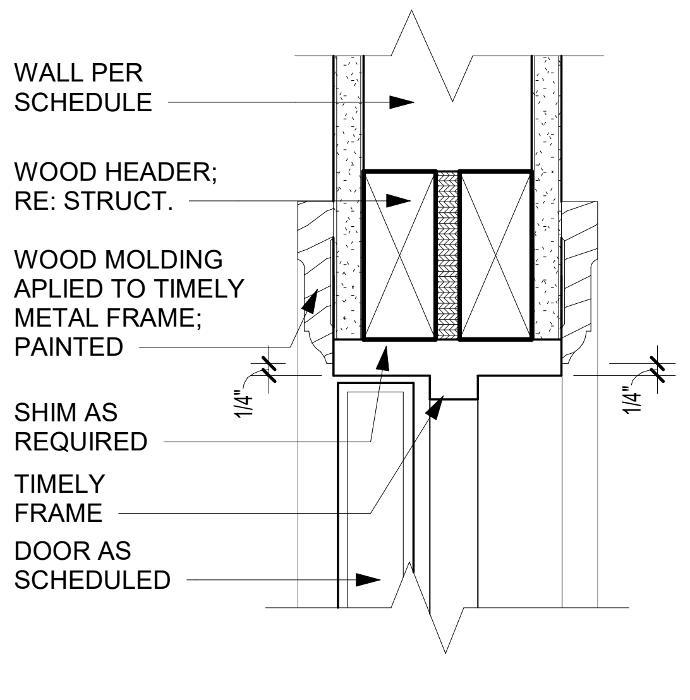
D2 STAIR DETAIL
1 1/2" = 1'-0"



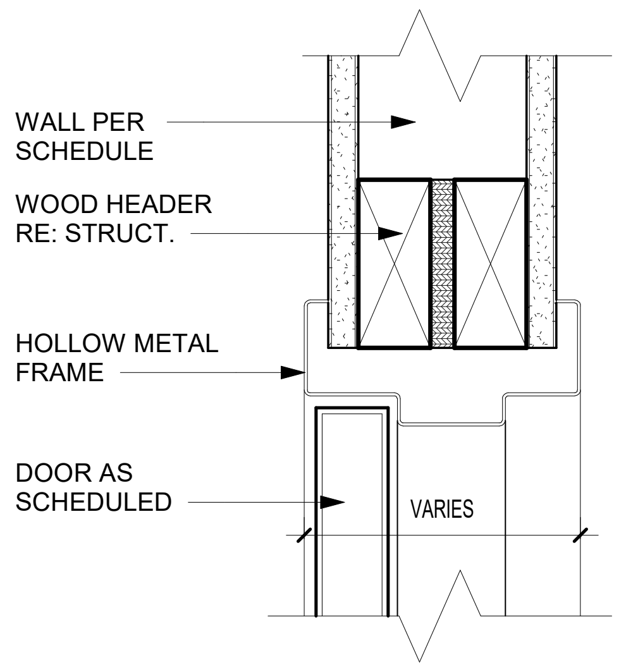
D1 STAIR PLATFORM DTL.
1 1/2" = 1'-0"


EXTERIOR. SHEATHING
BATT INSULATION
WRB LAPPED OVER ROOF FELT
WALL PER SCHEDULE
COUNTER FLASHING INSTALL PER SMACNA
Z CLOSURE INSTALL PER MANUF.
ARCHITECTURAL SHINGLES INSTALL PER MANUF.
FLASHING SET IN CONTINOUS CAULK AT LAPS
ROOF FELT
ROOF SHEATHING

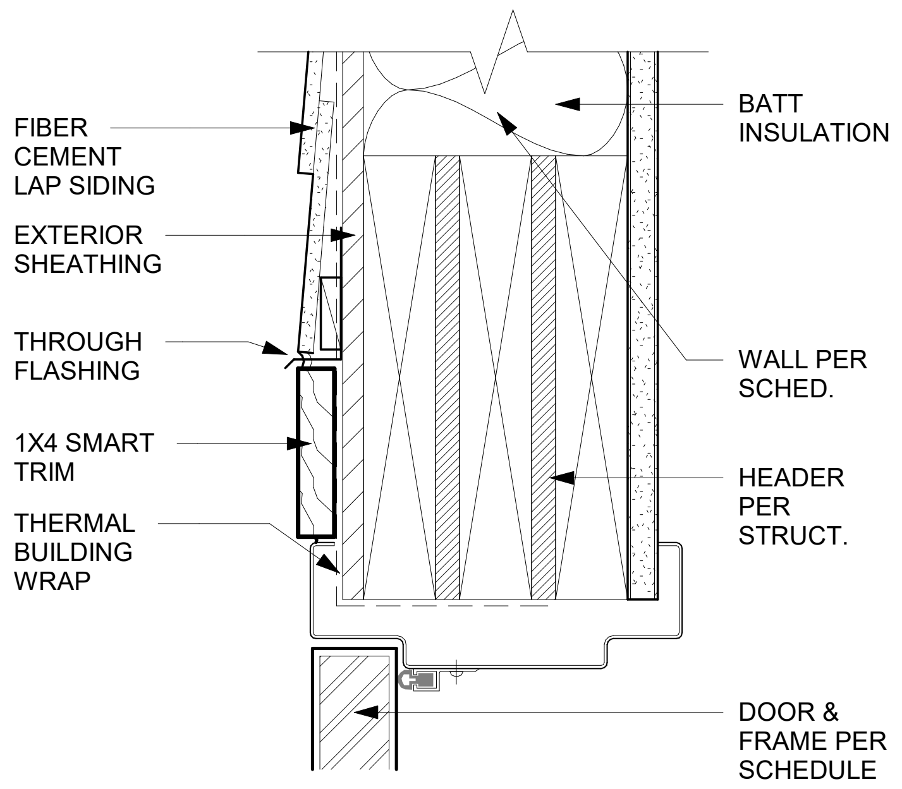
C5 ROOF CONNECTION
3" = 1'-0"



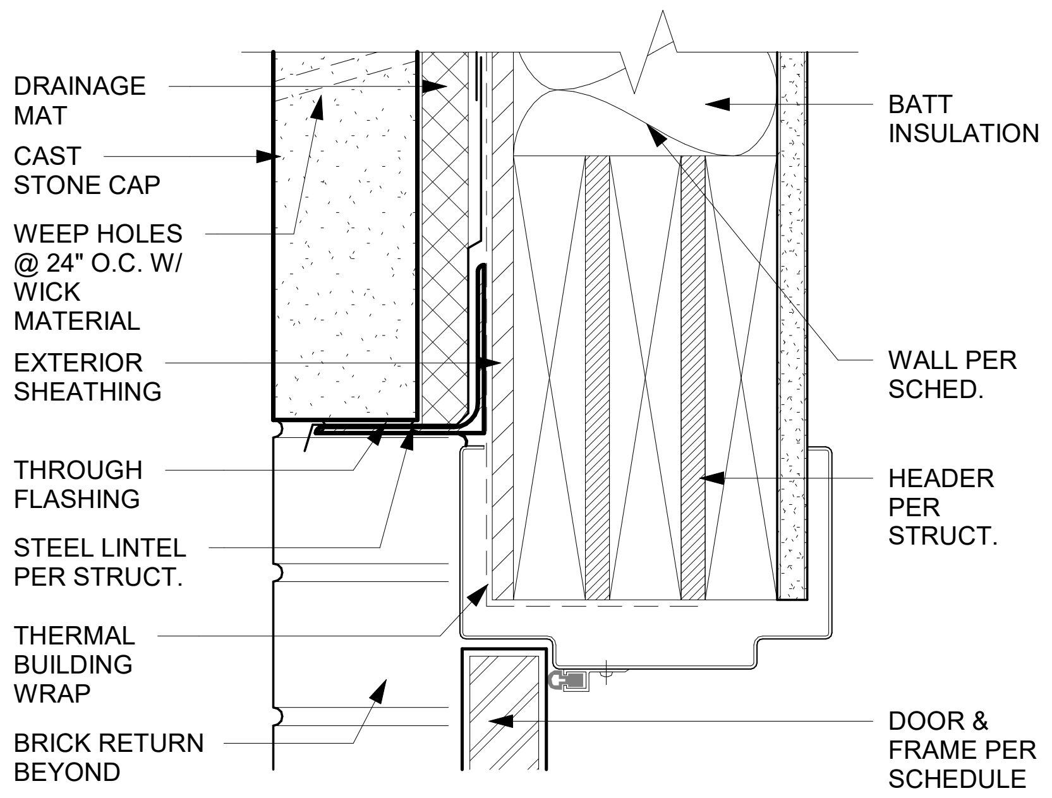
C4 INT. DOOR FRAME HEAD
3" = 1'-0"



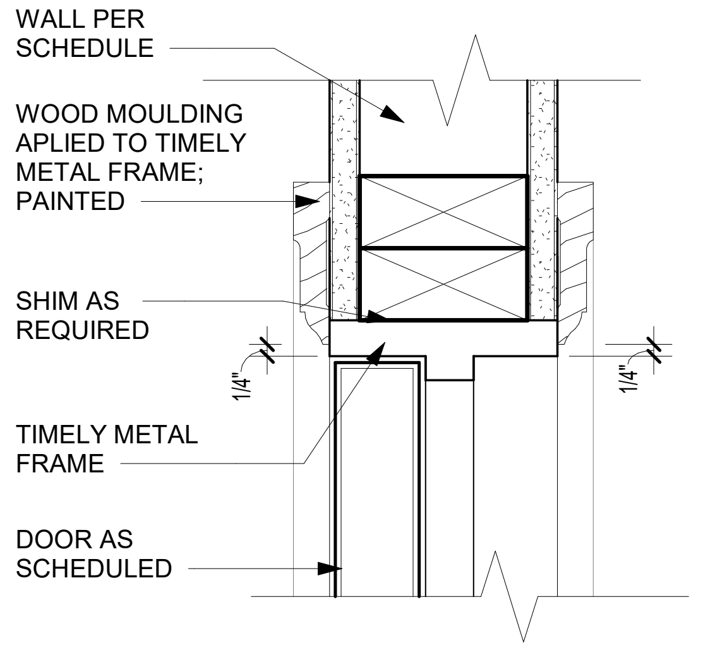
C3 INT DOOR METAL FRAME HEAD
3" = 1'-0"



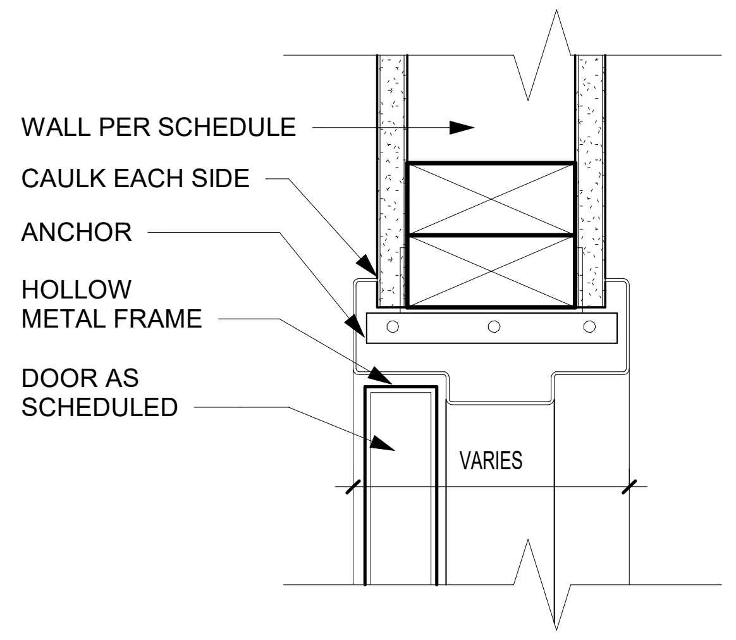
C2 EXT. DOOR HEAD @ SIDING
3" = 1'-0"



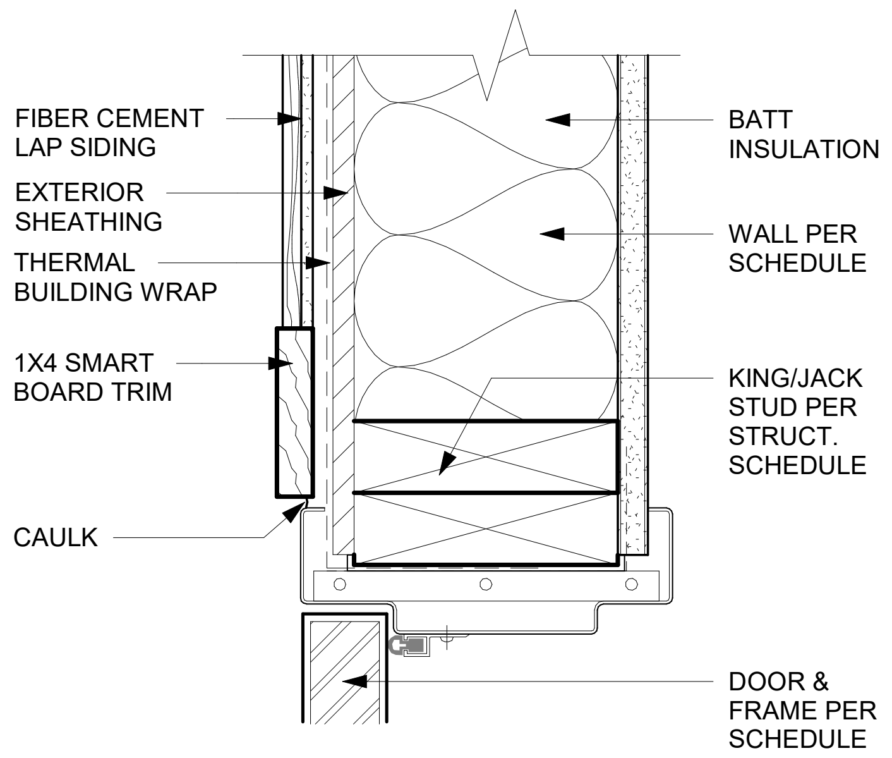
C1 EXTERIOR DOOR HEAD @ BRICK
3" = 1'-0"



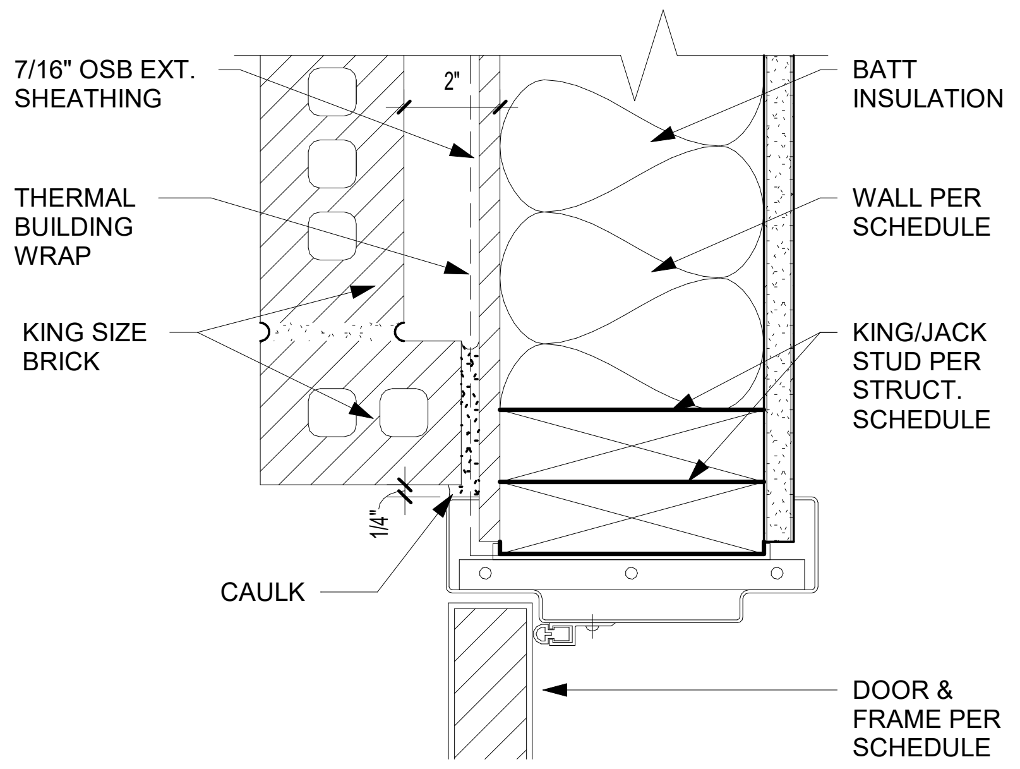
B4 INT. DOOR JAMB DETAIL
3" = 1'-0"



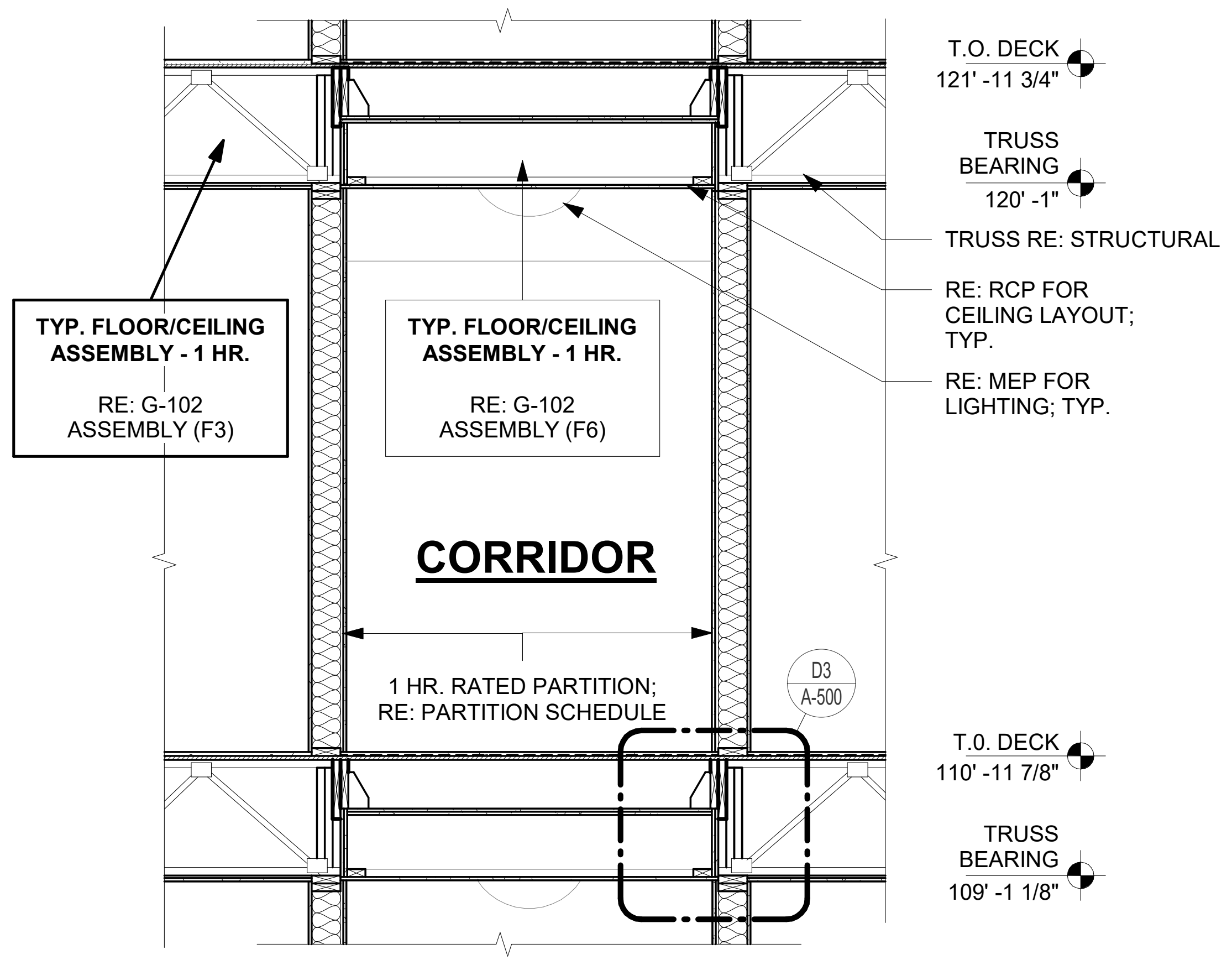
B3 INT. DOOR METAL JAMB DETAIL
3" = 1'-0"



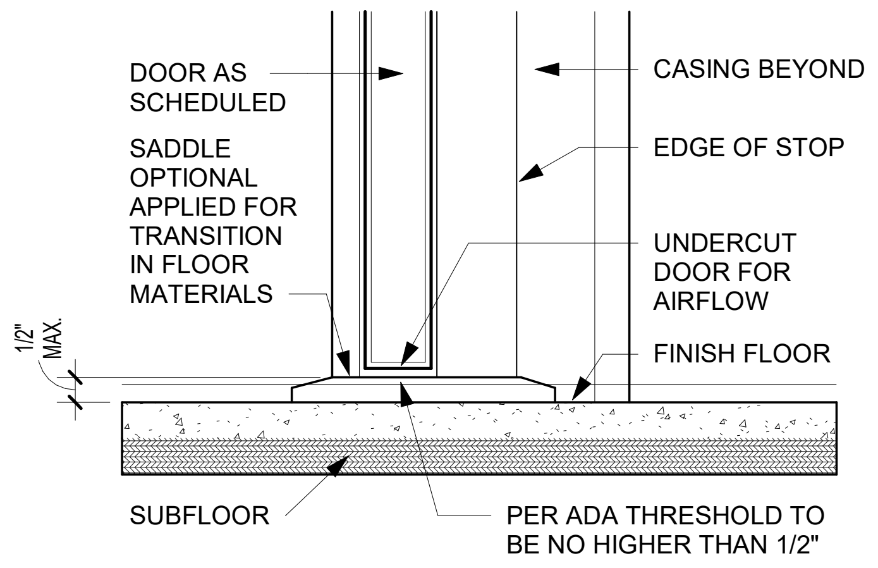
B2 EXT. DOOR JAMB @ SIDING
3" = 1'-0"



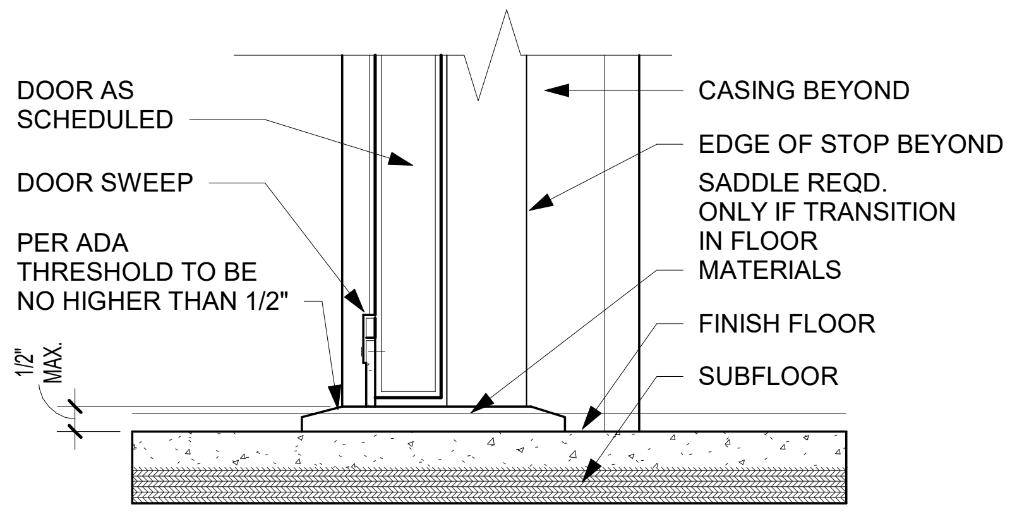
B1 EXT. DOOR JAMB @ BRICK
3" = 1'-0"


TYP. FLOOR/CEILING ASSEMBLY - 1 HR.
RE: G-102 ASSEMBLY (F3)
TYP. FLOOR/CEILING ASSEMBLY - 1 HR.
RE: G-102 ASSEMBLY (F6)
CORRIDOR
1 HR. RATED PARTITION; RE: PARTITION SCHEDULE
D3
A-500
T.O. DECK
121' -11 3/4"
TRUSS BEARING
120' -1"
TRUSS RE: STRUCTURAL
RE: RCP FOR CEILING LAYOUT; TYP.
RE: MEP FOR LIGHTING; TYP.
T.O. DECK
110' -11 7/8"
TRUSS BEARING
109' -1 1/8"

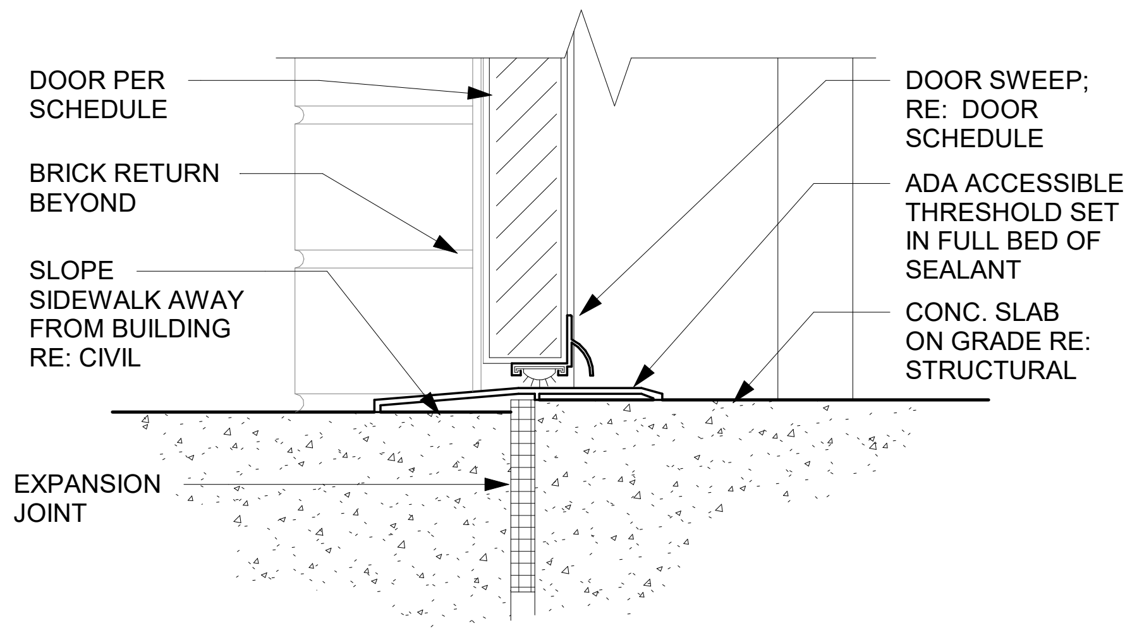
A5 CORRIDOR UPSET DETAIL
3/8" = 1'-0"


DOOR AS SCHEDULED
SADDLE OPTIONAL APPLIED FOR TRANSITION IN FLOOR MATERIALS
1/2" MAX.
SUBFLOOR
CASING BEYOND
EDGE OF STOP
UNDERCUT DOOR FOR AIRFLOW
FINISH FLOOR
PER ADA THRESHOLD TO BE NO HIGHER THAN 1/2"

A4 INTERIOR DOOR SILL DETAIL
3" = 1'-0"


DOOR AS SCHEDULED
DOOR SWEEP
PER ADA THRESHOLD TO BE NO HIGHER THAN 1/2"
1/2" MAX.
CASING BEYOND
EDGE OF STOP BEYOND
SADDLE REQD. ONLY IF TRANSITION IN FLOOR MATERIALS
FINISH FLOOR
SUBFLOOR

A3 INT. DOOR SILL @ RATED DOOR
3" = 1'-0"


DOOR PER SCHEDULE
BRICK RETURN BEYOND
SLOPE SIDEWALK AWAY FROM BUILDING RE: CIVIL
EXPANSION JOINT
DOOR SWEEP; RE: DOOR SCHEDULE
ADA ACCESSIBLE THRESHOLD SET IN FULL BED OF SEALANT
CONC. SLAB ON GRADE RE: STRUCTURAL

A1 EXT. THRESHOLD @ BRICK
3" = 1'-0"

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PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:

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DENVER ▲ KANSAS CITY ▲ ST. LOUIS ▲ ATLANTA

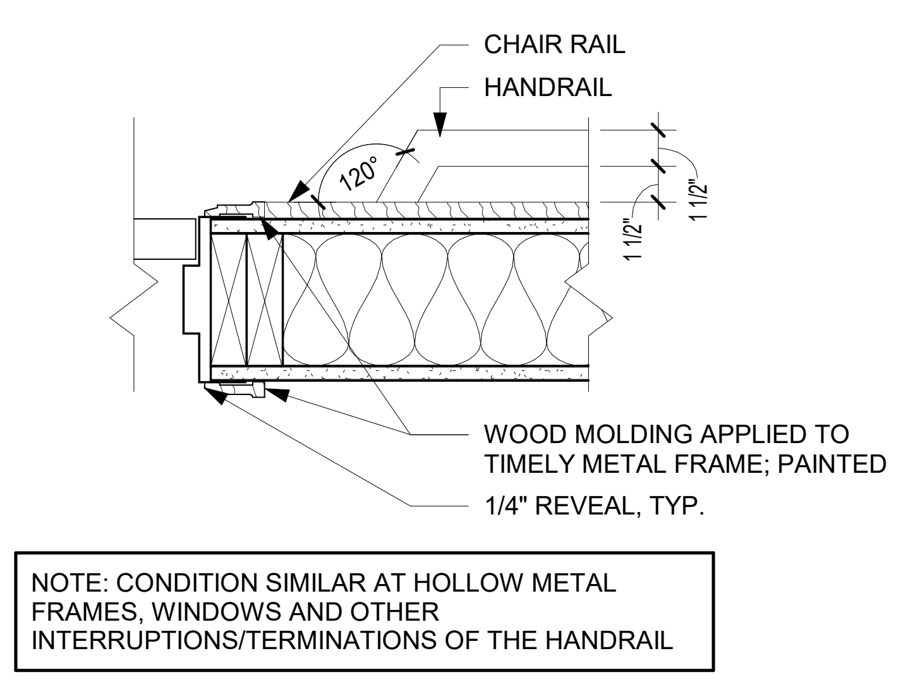
STATE OF MISSOURI
DAVID EUGENE HENDRIKSE
NUMBER A-7395
REGISTERED ARCHITECT
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC - 22-057

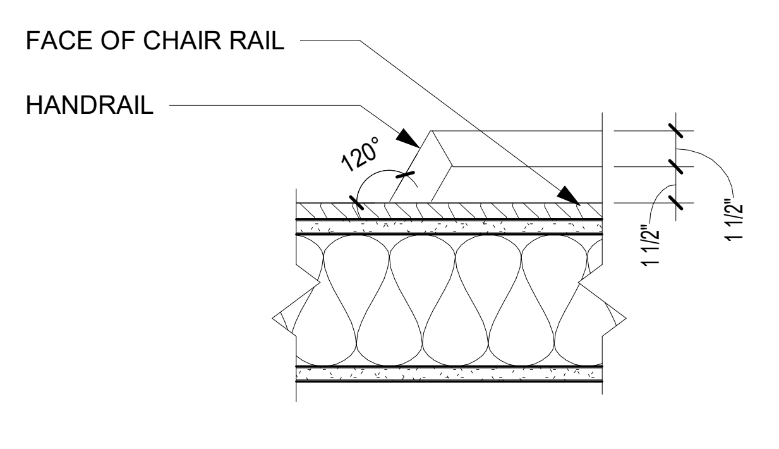
SHEET TITLE
DETAILS

PROJECT NUMBER: 23034

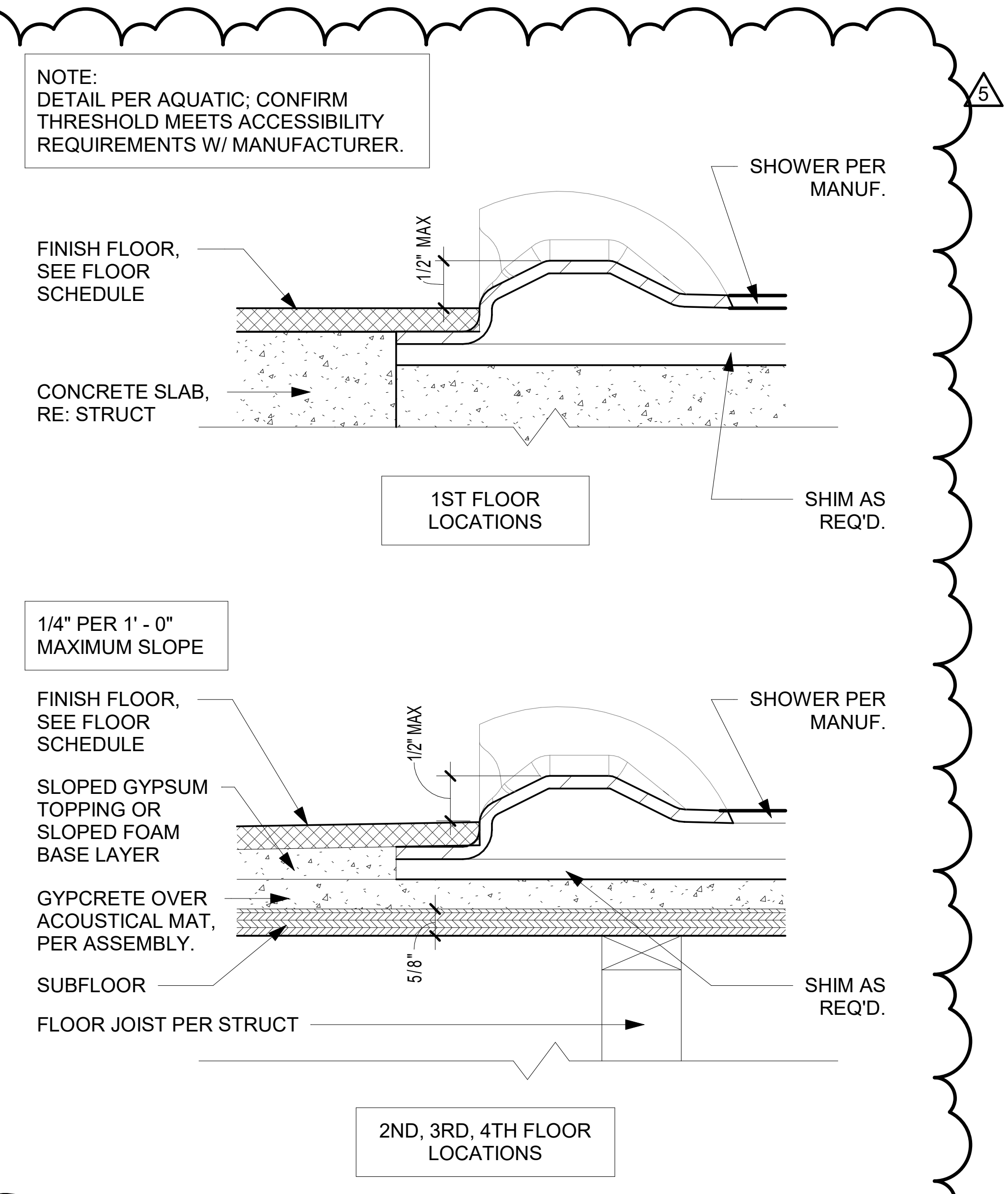
SHEET NUMBER:
A-501


CHAIR RAIL
HANDRAIL
120°
1 1/2"
1 1/2"
WOOD MOLDING APPLIED TO TIMELY METAL FRAME; PAINTED
1/4" REVEAL, TYP.
NOTE: CONDITION SIMILAR AT HOLLOW METAL FRAMES, WINDOWS AND OTHER INTERRUPTIONS/TERMINATIONS OF THE HANDRAIL

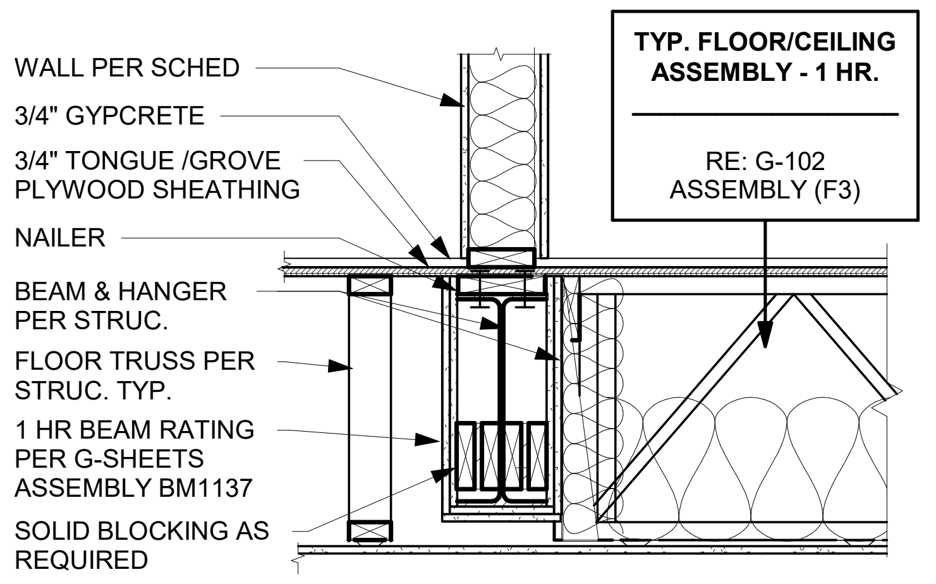
E2 HANDRAIL TO DOOR TRANSITION
1 1/2" = 1'-0"



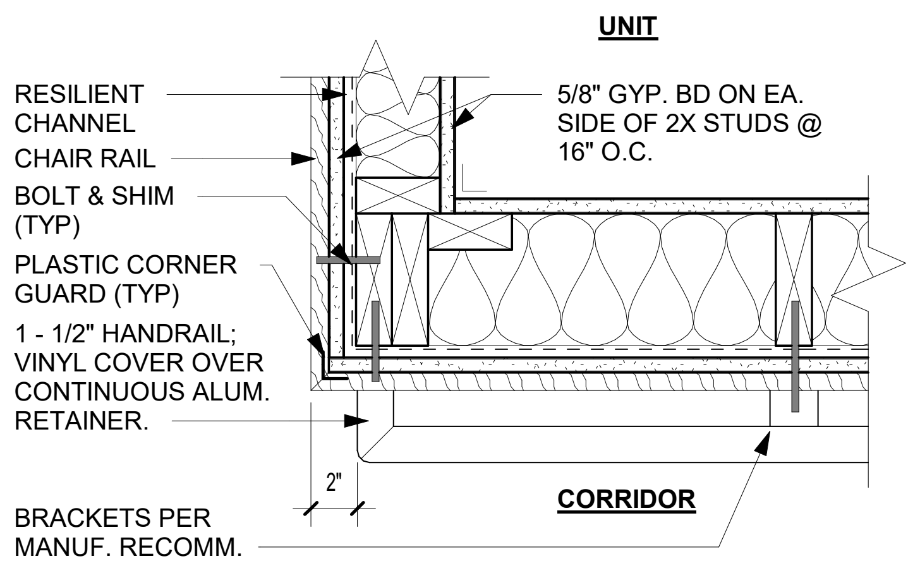
E1 HANDRAIL TO CHAIR RAIL TRANSITION
1 1/2" = 1'-0"


NOTE:
DETAIL PER AQUATIC; CONFIRM THRESHOLD MEETS ACCESSIBILITY REQUIREMENTS W/ MANUFACTURER.
5
SHOWER PER MANUF.
FINISH FLOOR, SEE FLOOR SCHEDULE
1/2" MAX
CONCRETE SLAB, RE: STRUCT
1ST FLOOR LOCATIONS
SHIM AS REQ'D.
1/4" PER 1' - 0" MAXIMUM SLOPE
FINISH FLOOR, SEE FLOOR SCHEDULE
SHOWER PER MANUF.
1/2" MAX
SLOPED GYPSUM TOPPING OR SLOPED FOAM BASE LAYER
GYPCRETE OVER ACOUSTICAL MAT, PER ASSEMBLY.
SUBFLOOR
5/8"
SHIM AS REQ'D.
FLOOR JOIST PER STRUCT
2ND, 3RD, 4TH FLOOR LOCATIONS

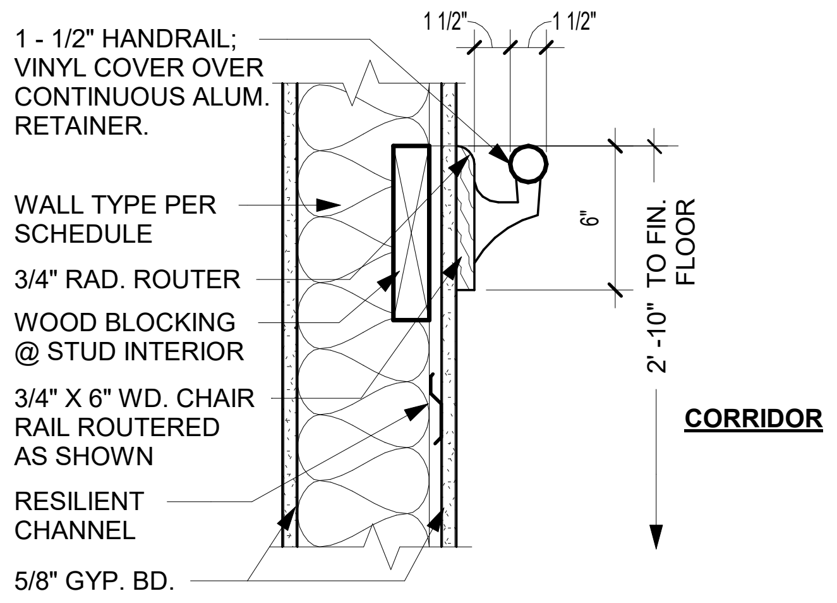
D5 ROLL-IN SHOWER TRANSITION DETAILS
3/4" = 1'-0"


WALL PER SCHED
3/4" GYPCRETE
3/4" TONGUE /GROVE PLYWOOD SHEATHING
NAILER
BEAM & HANGER PER STRUC.
FLOOR TRUSS PER STRUC. TYP.
1 HR BEAM RATING PER G-SHEETS ASSEMBLY BM1137
SOLID BLOCKING AS REQUIRED
TYP. FLOOR/CEILING ASSEMBLY - 1 HR.
RE: G-102 ASSEMBLY (F3)

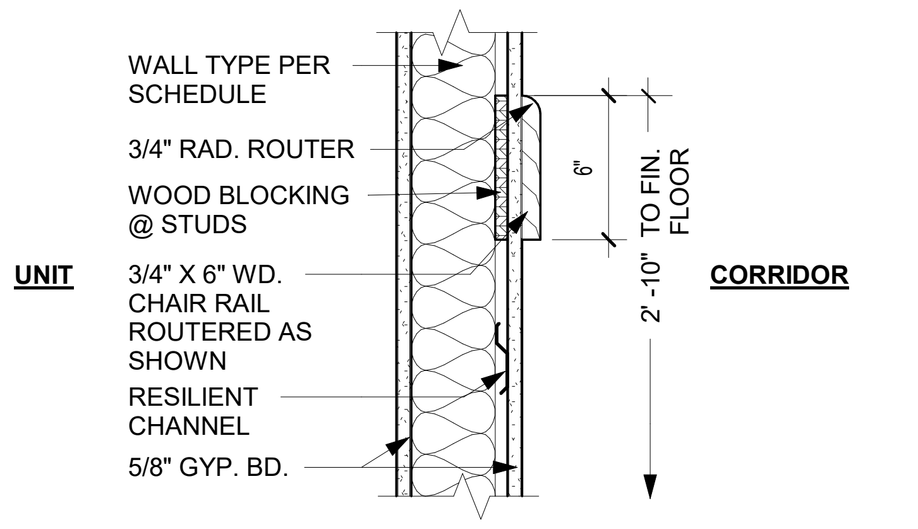
D4 UPSET BEAM DETAIL
3/4" = 1'-0"


UNIT
RESILIENT CHANNEL
CHAIR RAIL
BOLT & SHIM (TYP)
PLASTIC CORNER GUARD (TYP)
1 - 1/2" HANDRAIL; VINYL COVER OVER CONTINUOUS ALUM. RETAINER.
BRACKETS PER MANUF. RECOMM.
5/8" GYP. BD ON EA. SIDE OF 2X STUDS @ 16" O.C.
2"
CORRIDOR

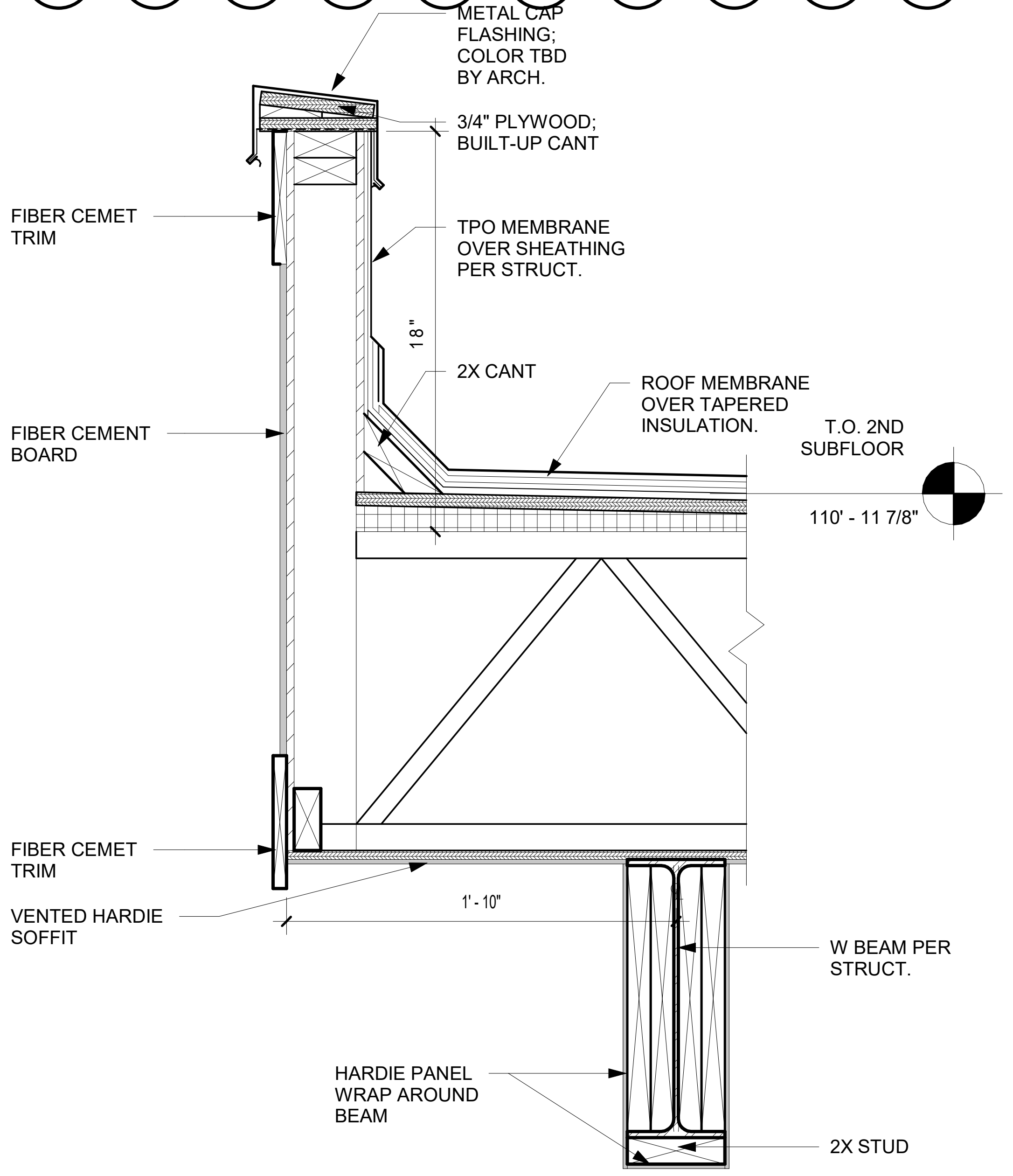
D3 HANDRAIL TO CORNER TRANSITION
1 1/2" = 1'-0"


1 - 1/2" HANDRAIL; VINYL COVER OVER CONTINUOUS ALUM. RETAINER.
1 1/2"
1 1/2"
WALL TYPE PER SCHEDULE
3/4" RAD. ROUTER
WOOD BLOCKING @ STUD INTERIOR
3/4" X 6" WD. CHAIR RAIL ROUTERED AS SHOWN
RESILIENT CHANNEL
5/8" GYP. BD.
6"
2'-10" TO FIN. FLOOR
CORRIDOR

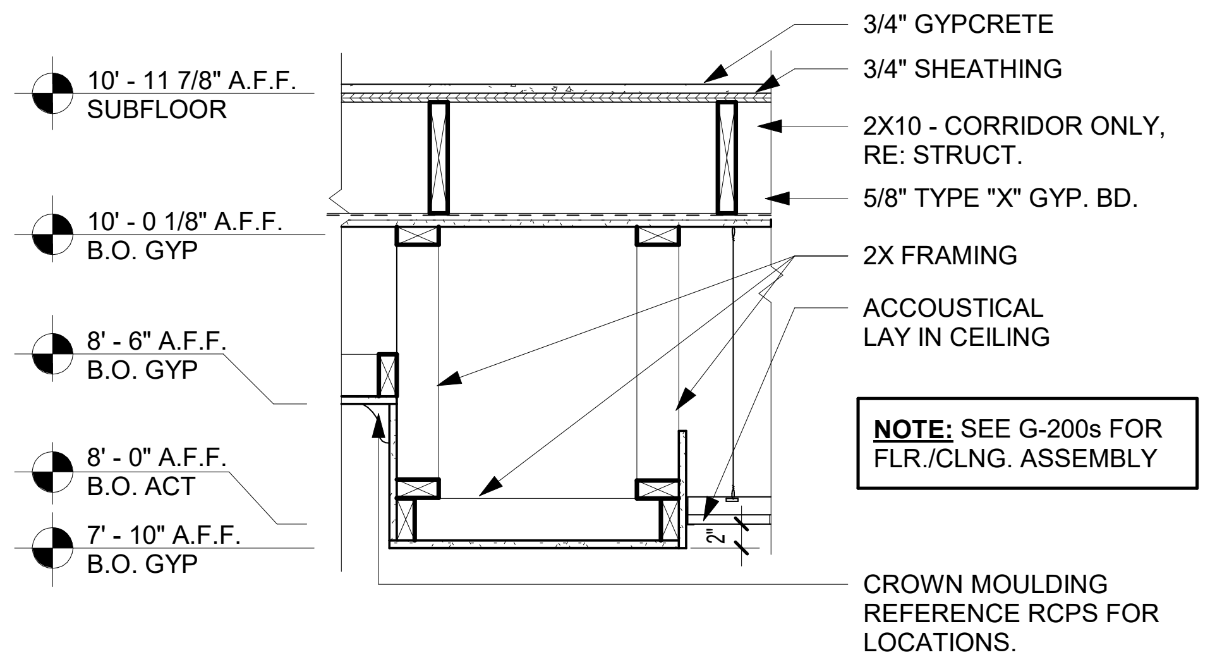
D2 HANDRAIL DETAIL
1 1/2" = 1'-0"



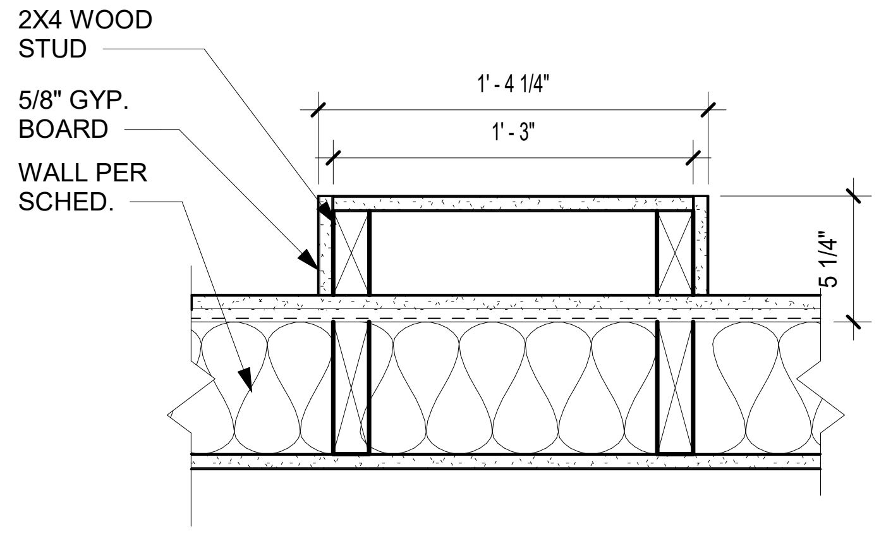
D1 CHAIR RAIL DETAIL
1 1/2" = 1'-0"


METAL CAP FLASHING; COLOR TBD BY ARCH.
3/4" PLYWOOD; BUILT-UP CANT
FIBER CEMET TRIM
TPO MEMBRANE OVER SHEATHING PER STRUCT.
18"
2X CANT
FIBER CEMENT BOARD
ROOF MEMBRANE OVER TAPERED INSULATION.
T.O. 2ND SUBFLOOR
110' - 11 7/8"
FIBER CEMET TRIM
VENTED HARDIE SOFFIT
1' - 10"
W BEAM PER STRUCT.
HARDIE PANEL WRAP AROUND BEAM
2X STUD

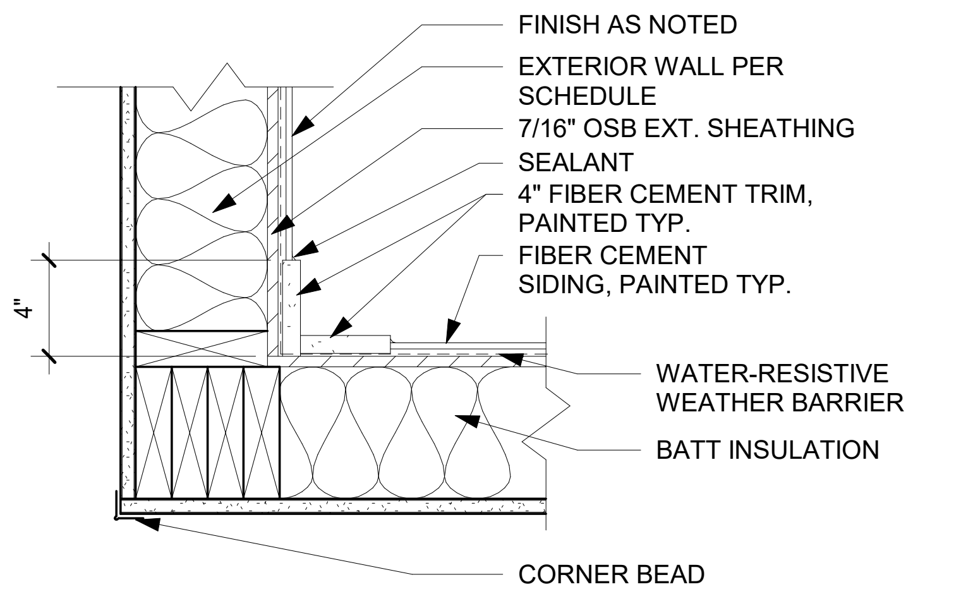
C5 PARAPET @ BACK PATIO
1 1/2" = 1'-0"


10' - 11 7/8" A.F.F. SUBFLOOR
10' - 0 1/8" A.F.F. B.O. GYP
8' - 6" A.F.F. B.O. GYP
8' - 0" A.F.F. B.O. ACT
7' - 10" A.F.F. B.O. GYP
3/4" GYPCRETE
3/4" SHEATHING
2X10 - CORRIDOR ONLY, RE: STRUCT.
5/8" TYPE "X" GYP. BD.
2X FRAMING
ACCOUSTICAL LAY IN CEILING
NOTE: SEE G-200s FOR FLR./CLNG. ASSEMBLY
CROWN MOULDING REFERENCE RCPS FOR LOCATIONS.

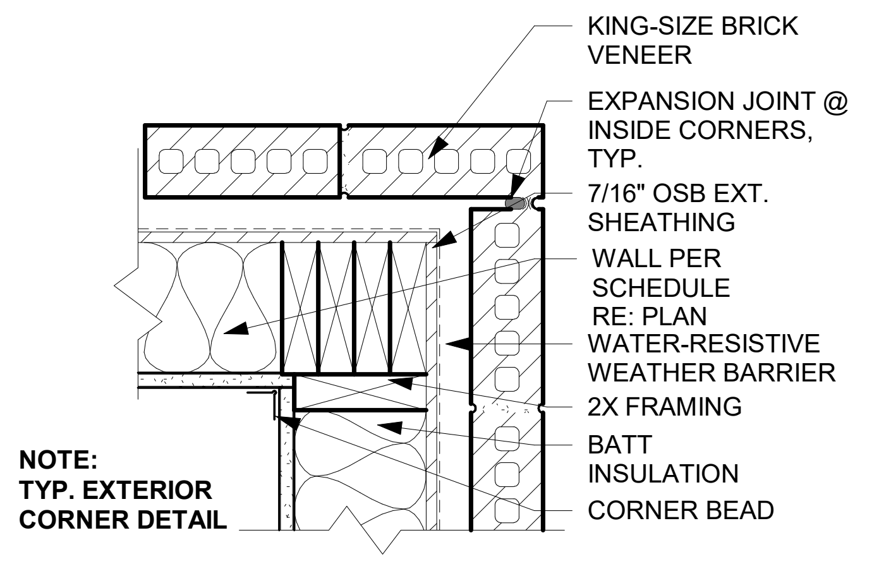
C4 TYPICAL UNIT ENTRY SOFFIT SECTION
3/4" = 1'-0"



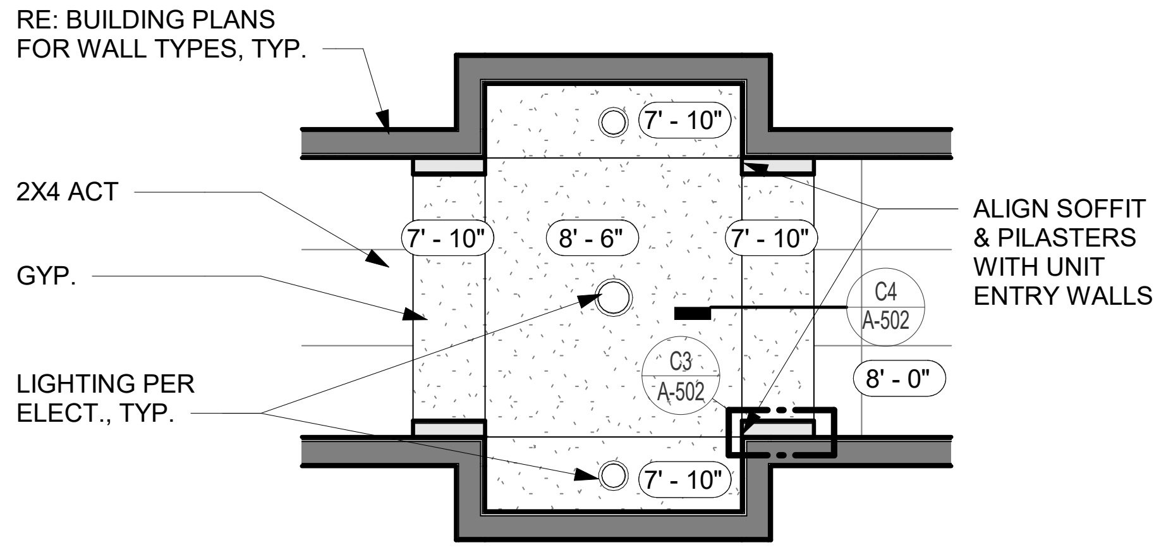
C3 TYPICAL PILASTER DETAIL
1 1/2" = 1'-0"


FINISH AS NOTED
EXTERIOR WALL PER SCHEDULE
7/16" OSB EXT. SHEATHING
SEALANT
4" FIBER CEMENT TRIM, PAINTED TYP.
FIBER CEMENT SIDING, PAINTED TYP.
4"
WATER-RESISTIVE WEATHER BARRIER
BATT INSULATION
CORNER BEAD

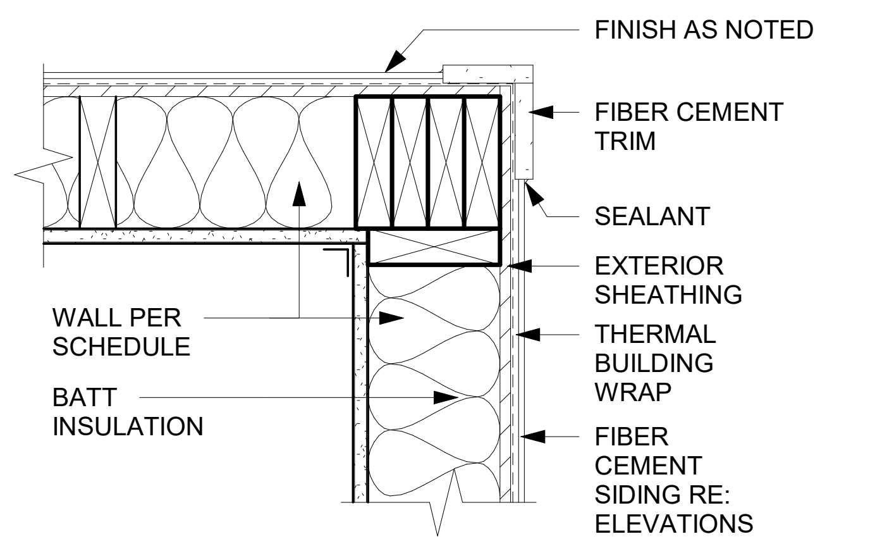
C2 SIDING @ INSIDE CORNER
1 1/2" = 1'-0"


KING-SIZE BRICK VENEER
EXPANSION JOINT @ INSIDE CORNERS, TYP.
7/16" OSB EXT. SHEATHING
WALL PER SCHEDULE RE: PLAN
WATER-RESISTIVE WEATHER BARRIER
2X FRAMING
BATT INSULATION
CORNER BEAD
NOTE: TYP. EXTERIOR CORNER DETAIL

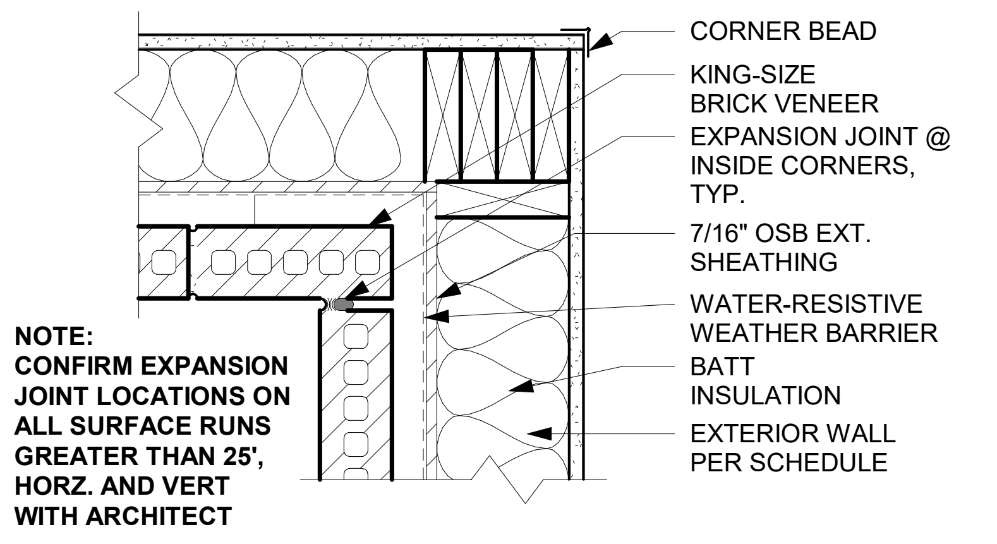
C1 BRICK @ OUTSIDE CORNER
1 1/2" = 1'-0"


RE: BUILDING PLANS FOR WALL TYPES, TYP.
2X4 ACT
GYP.
LIGHTING PER ELECT., TYP.
7' - 10"
7' - 10"
8' - 6"
7' - 10"
C4 A-502
C3 A-502
8' - 0"
7' - 10"
ALIGN SOFFIT & PILASTERS WITH UNIT ENTRY WALLS

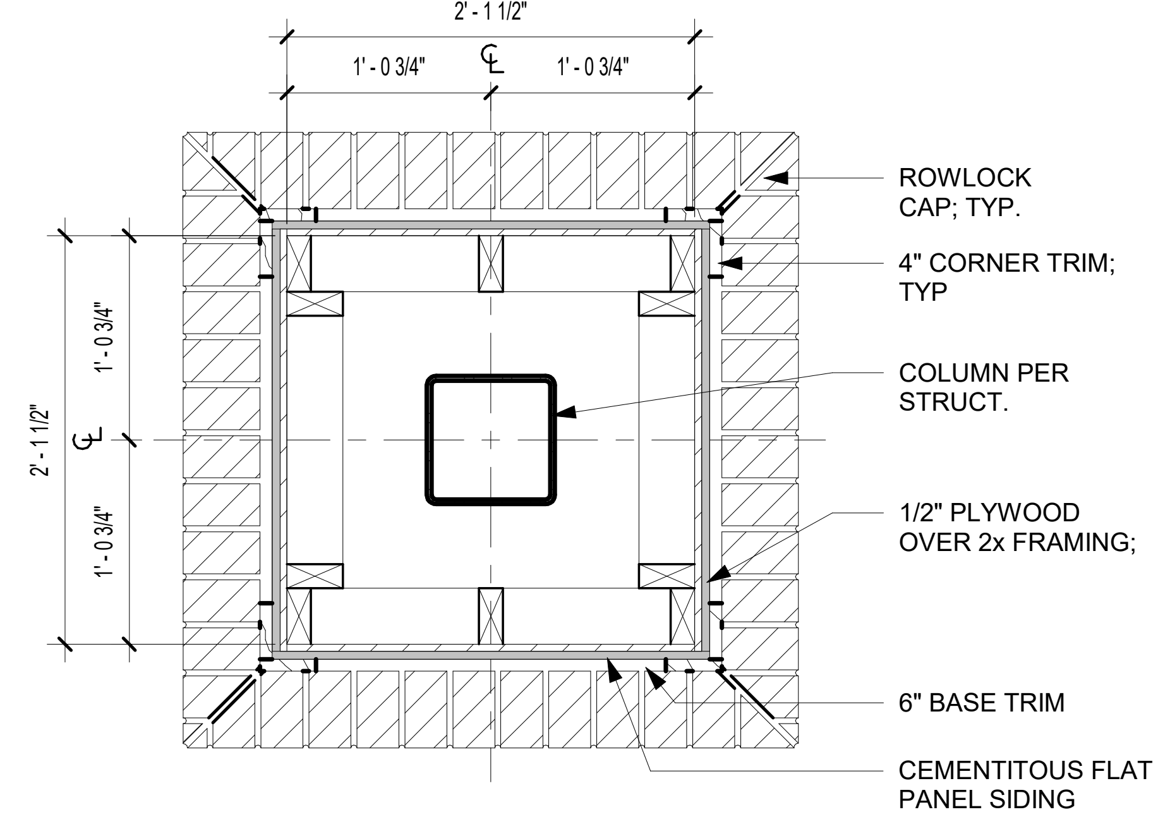
B4 TYP. CEILING @ UNIT ENTRY
1/4" = 1'-0"



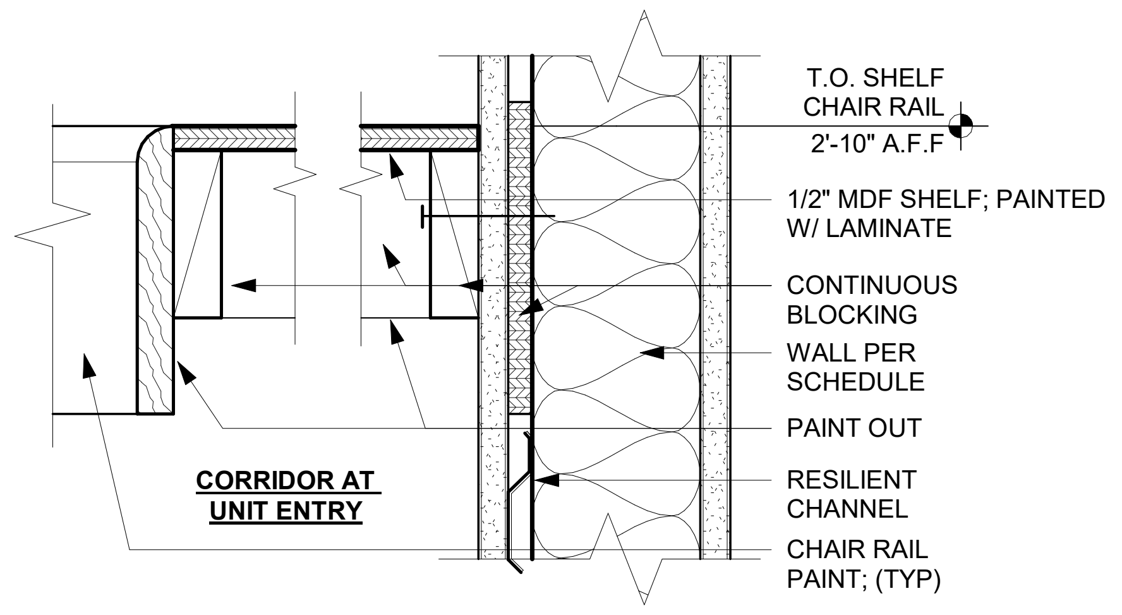
B2 SIDING @ OUTSIDE CORNER
1 1/2" = 1'-0"


CORNER BEAD
KING-SIZE BRICK VENEER
EXPANSION JOINT @ INSIDE CORNERS, TYP.
7/16" OSB EXT. SHEATHING
WATER-RESISTIVE WEATHER BARRIER
BATT INSULATION
EXTERIOR WALL PER SCHEDULE
NOTE: CONFIRM EXPANSION JOINT LOCATIONS ON ALL SURFACE RUNS GREATER THAN 25', HORZ. AND VERT WITH ARCHITECT

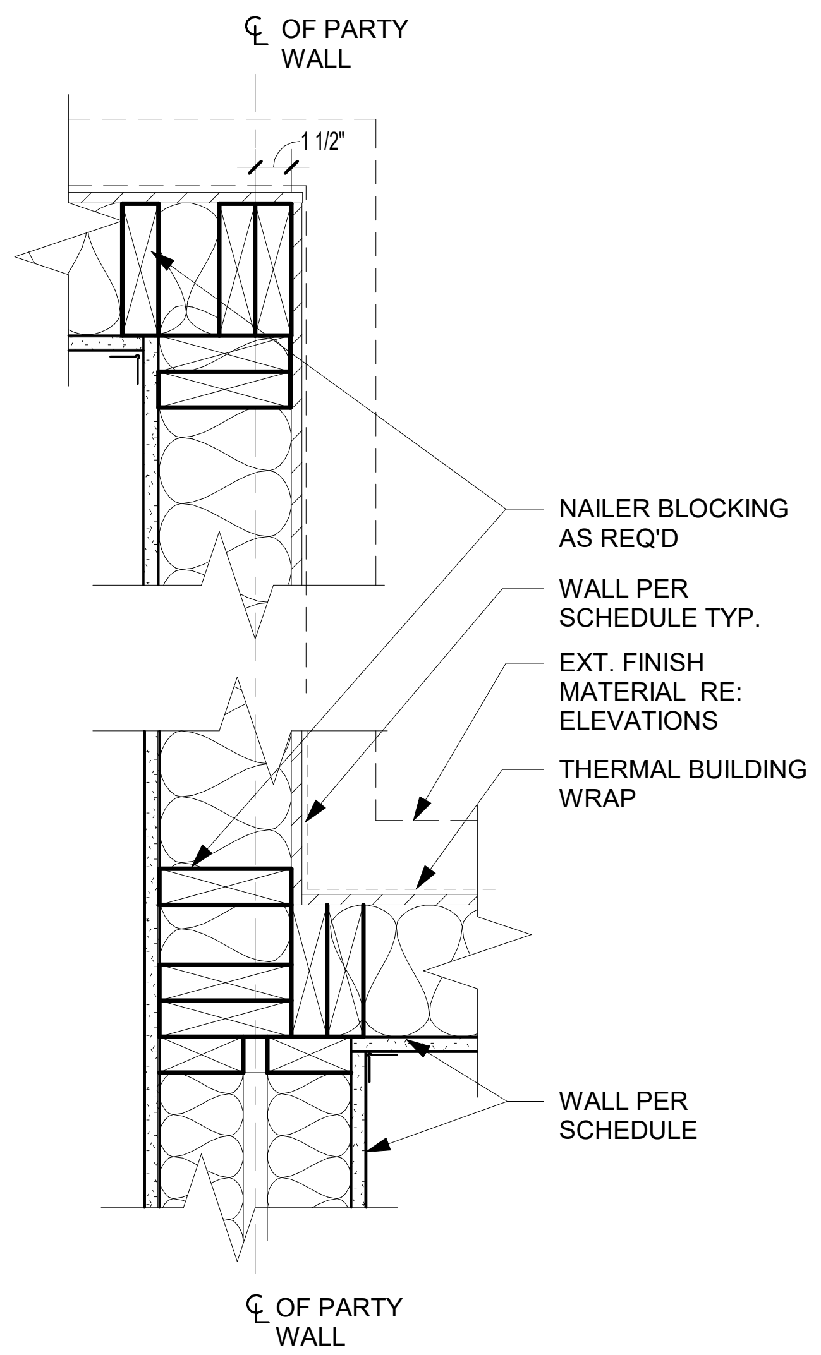
B1 BRICK @ INSIDE CORNER
1 1/2" = 1'-0"



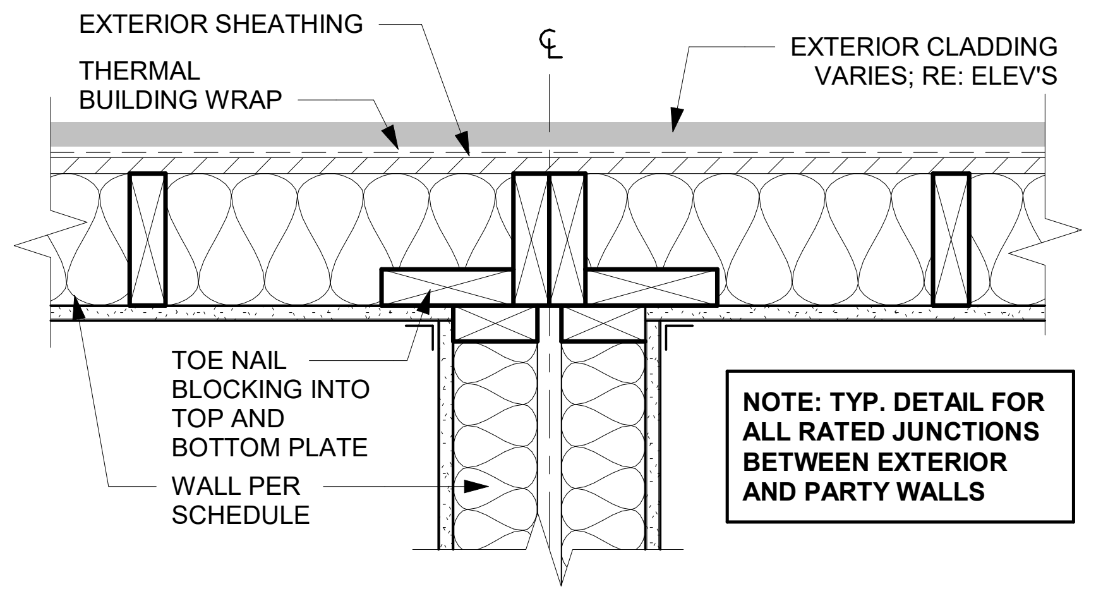
A5 EXTERIOR COLUMN PLAN DETAIL
1" = 1'-0"



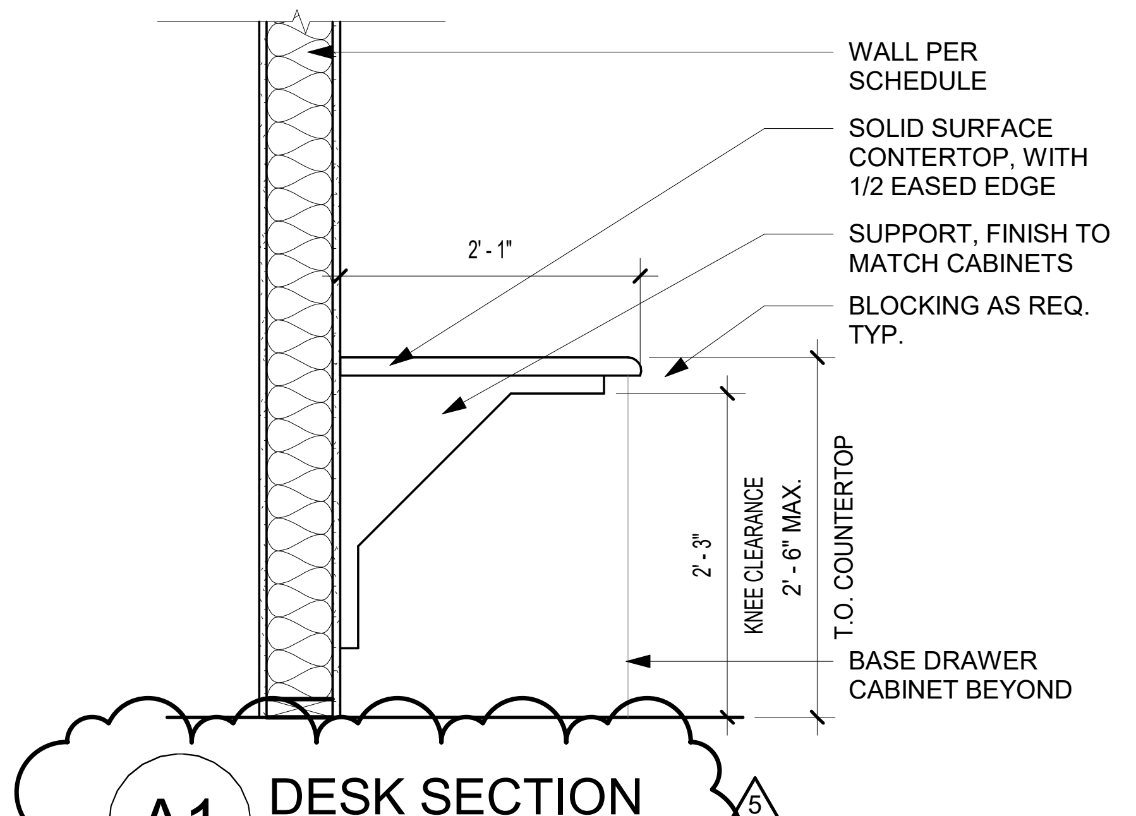
A4 PURSE SHELF AT UNIT ENTRY
3" = 1'-0"



A3 EXTERIOR DEMISING WALL FIRE SEPARATION DETAIL
1 1/2" = 1'-0"


EXTERIOR SHEATHING
THERMAL BUILDING WRAP
℄
EXTERIOR CLADDING VARIES; RE: ELEV'S
TOE NAIL BLOCKING INTO TOP AND BOTTOM PLATE
WALL PER SCHEDULE
NOTE: TYP. DETAIL FOR ALL RATED JUNCTIONS BETWEEN EXTERIOR AND PARTY WALLS

A2 PARTY WALL FIRE SEPARATION PLAN DETAIL
1 1/2" = 1'-0"


WALL PER SCHEDULE
SOLID SURFACE CONTERTOP, WITH 1/2 EASED EDGE
2' - 1"
SUPPORT, FINISH TO MATCH CABINETS
BLOCKING AS REQ. TYP.
2' - 3"
KNEE CLEARANCE 2' - 6" MAX.
T.O. COUNTERTOP
BASE DRAWER CABINET BEYOND
5

A1 DESK SECTION
3/4" = 1'-0"

PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:

5	10/04/24	ASI 001

rosemann & ASSOCIATES P.C.
ARCHITECTURE
INTERIOR DESIGN
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DAVID EUGENE HENDRIKSE
NUMBER A-7395
10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
DETAILS

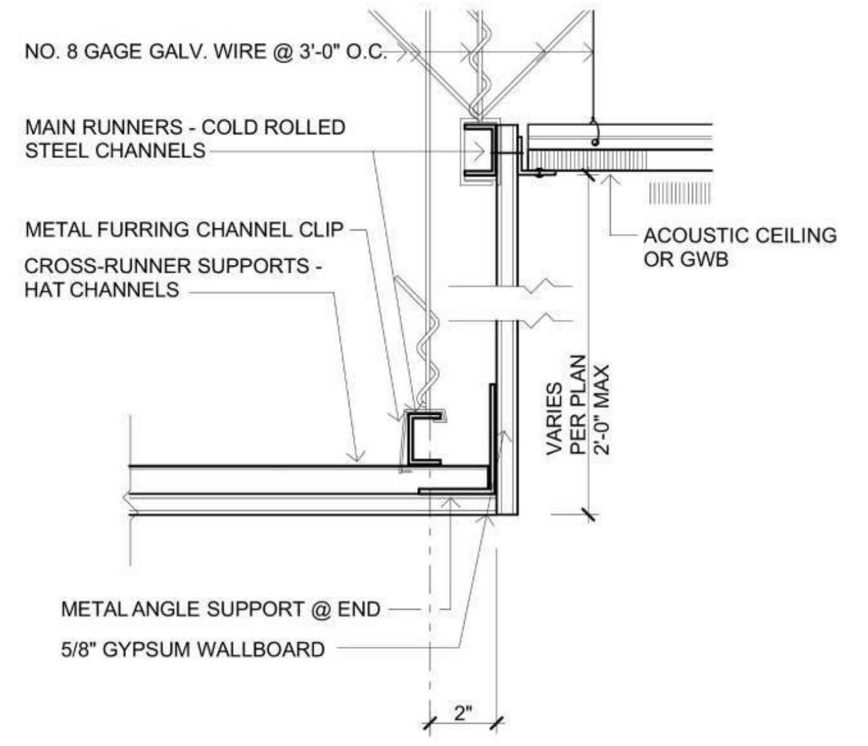
PROJECT NUMBER: 23034

SHEET NUMBER:

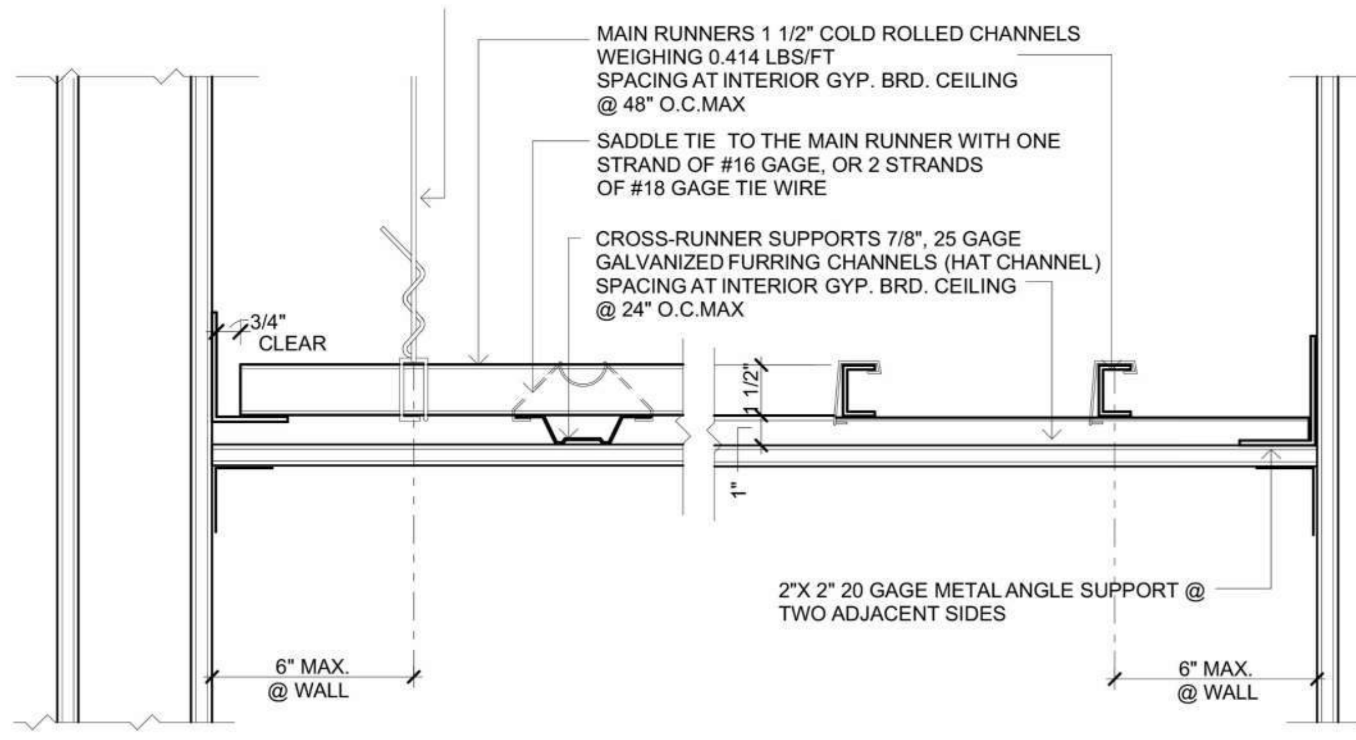
A-502

10/8/2024 7:52:18 AM
C:\Revit Local Cache\2023\23034_Wilshire Hills III_Central_R23_sburdiek7PGKD.rvt

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


NO. 8 GAGE GALV. WIRE @ 3'-0" O.C.
MAIN RUNNERS - COLD ROLLED STEEL CHANNELS
METAL FURRING CHANNEL CLIP
CROSS-RUNNER SUPPORTS - HAT CHANNELS
ACOUSTIC CEILING OR GWB
VARIES PER PLAN 2'-0" MAX
METAL ANGLE SUPPORT @ END
5/8" GYPSUM WALLBOARD
2"

SUSPENDED CEILING/SOFFIT TRANSITION 3" = 1'-0" 20 A13.1



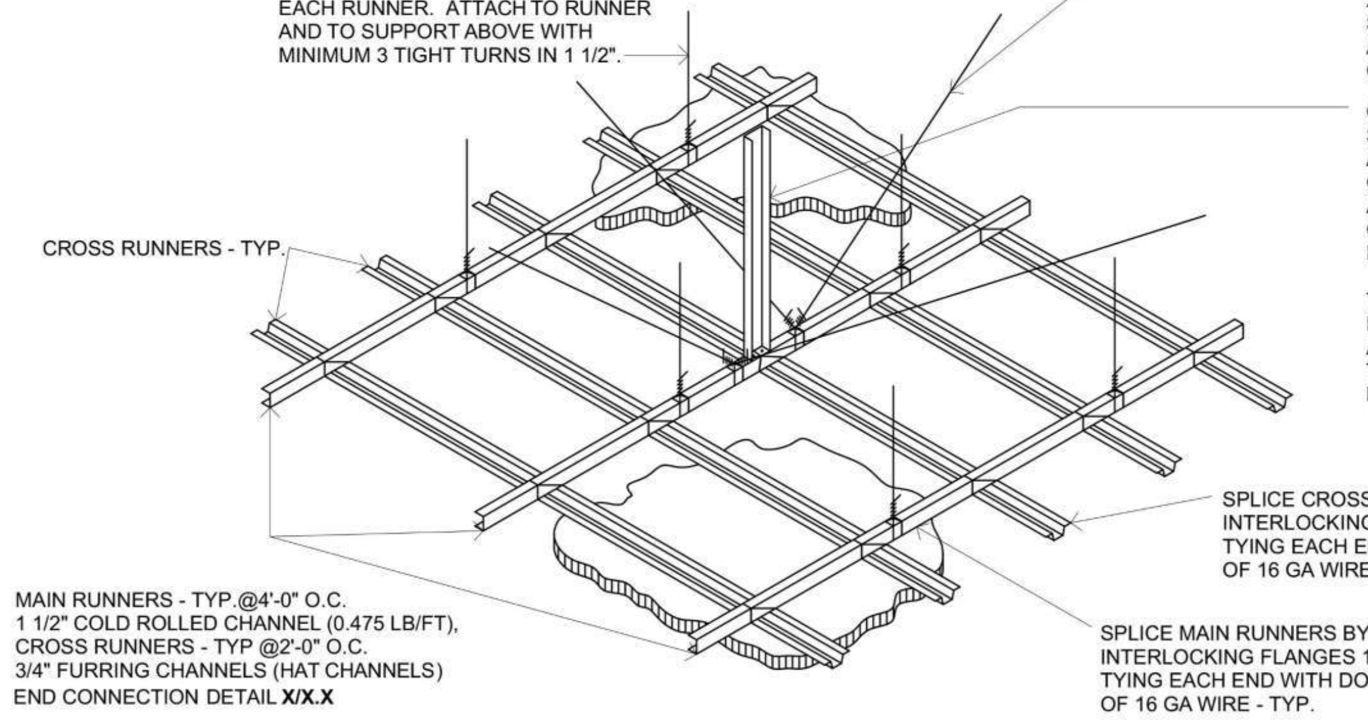
MAIN RUNNERS 1 1/2" COLD ROLLED CHANNELS WEIGHING 0.414 LBS/FT SPACING AT INTERIOR GYP. BRD. CEILING @ 48" O.C.MAX

SADDLE TIE TO THE MAIN RUNNER WITH ONE STRAND OF #16 GAGE, OR 2 STRANDS OF #18 GAGE TIE WIRE

CROSS-RUNNER SUPPORTS 7/8", 25 GAGE GALVANIZED FURRING CHANNELS (HAT CHANNEL) SPACING AT INTERIOR GYP. BRD. CEILING @ 24" O.C.MAX

2"X 2" 20 GAGE METAL ANGLE SUPPORT @ TWO ADJACENT SIDES

SUSPENDED GYPSUM WALL BOARD CEILING - CONNECTION DETAIL 3" = 1'-0" 12 A13.1



VERTICAL HANGERS
NO.8 GA. SUSPENSION WIRES SPACED AT 3'-0" O.C. ALONG EACH RUNNER. ATTACH TO RUNNER AND TO SUPPORT ABOVE WITH MINIMUM 3 TIGHT TURNS IN 1 1/2".

LATERAL FORCE BRACING
4 NO.12 GAGE WIRES SECURED TO MAIN RUNNER W/ 4 TIGHT TURNS IN 1 1/2", WITHIN 2" OF CROSS RUNNER INTERSECTION AND SPLAYED 90 DEGREES FROM EACH OTHER AT MAX. 45 DEGREE ANGLE FROM PLANE OF CEILING.

COMPRESSION STRUT SHALL BE STEEL SECTION WITH L/R RATIO OF 200 MAX. ATTACH TO MAIN RUNNERS AT CONVERGENCE OF SPLAYED WIRES WITH 1/4" MACHINE BOLT AND TO STRUCTURE PER DETAIL **X/X.X** COMPRESSION STRUT SHALL NOT REPLACE HANGER WIRE.

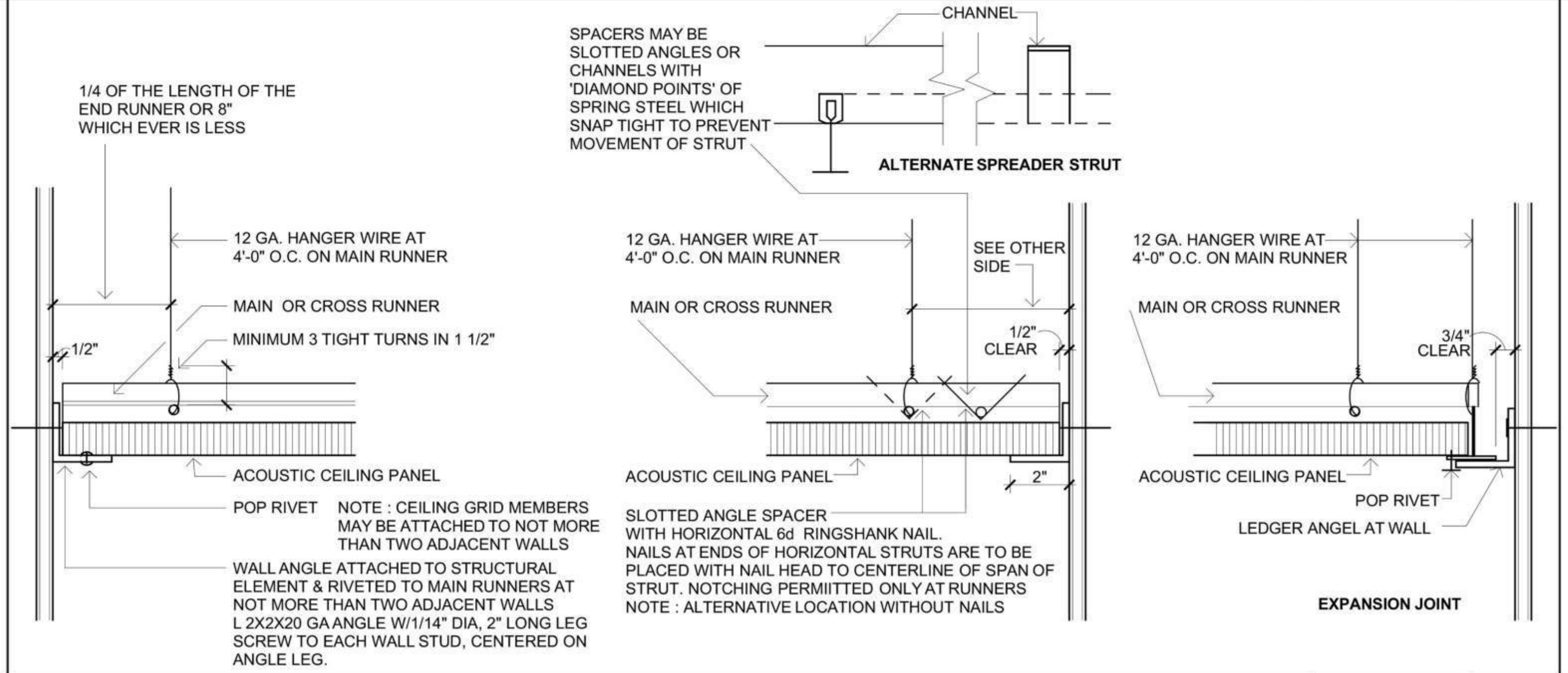
THESE HORIZONTAL RESTRAINT POINTS SHALL NOT BE PLACED MORE THAN 8' X 12' O.C. AND THE FIRST SET ARE REQUIRED NOT MORE THAN 4'-0" FROM EACH WALL FOR SNF BUILDINGS.

SPLICE CROSS FURRING BY LAPPING AND INTERLOCKING FLANGES 8" MIN. AND TYING EACH END WITH DOUBLE LOOPS OF 16 GA WIRE - TYP.

SPLICE MAIN RUNNERS BY LAPPING AND INTERLOCKING FLANGES 12" MIN. AND TYING EACH END WITH DOUBLE LOOPS OF 16 GA WIRE - TYP.

MAIN RUNNERS - TYP.@4'-0" O.C.
1 1/2" COLD ROLLED CHANNEL (0.475 LB/FT),
CROSS RUNNERS - TYP @2'-0" O.C.
3/4" FURRING CHANNELS (HAT CHANNELS)
END CONNECTION DETAIL **X/X.X**

SUSPENDED GYPSUM BOARD CEILING GRID 1 1/2"= 1'-0" 4 A13.1



1/4 OF THE LENGTH OF THE END RUNNER OR 8" WHICH EVER IS LESS

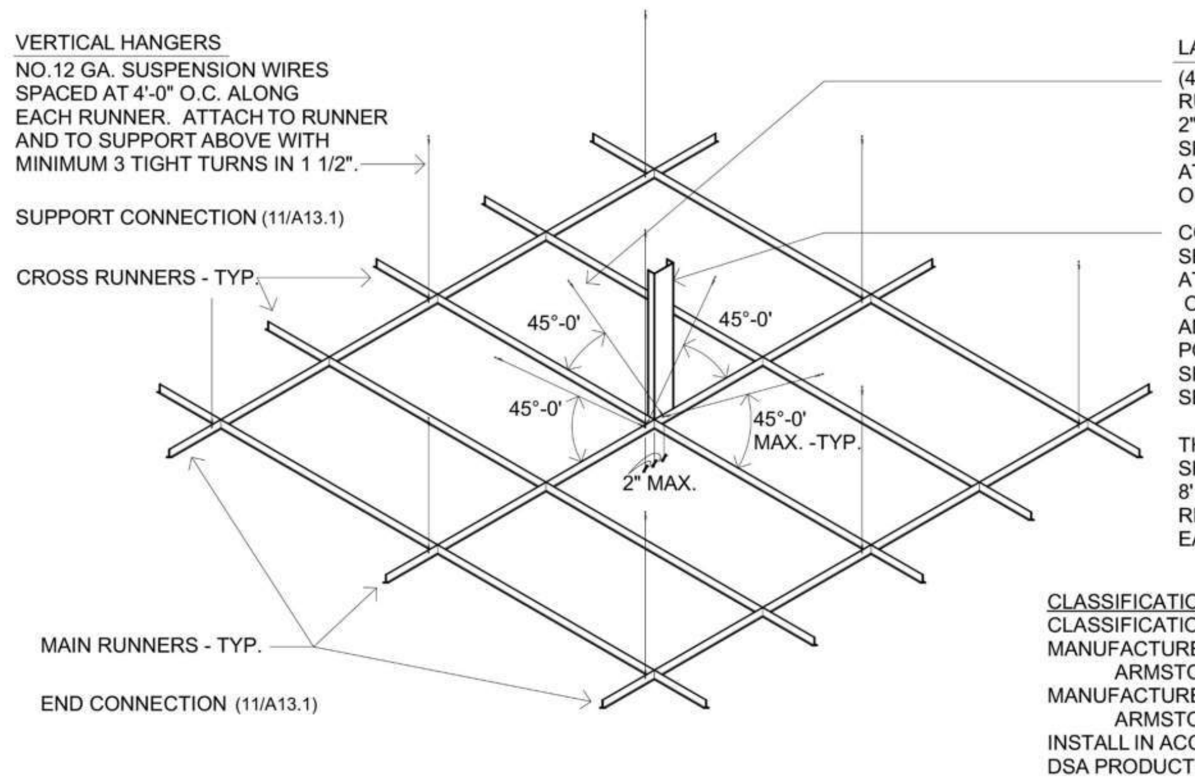
SPACERS MAY BE SLOTTED ANGLES OR CHANNELS WITH 'DIAMOND POINTS' OF SPRING STEEL WHICH SNAP TIGHT TO PREVENT MOVEMENT OF STRUT

NOTE : CEILING GRID MEMBERS MAY BE ATTACHED TO NOT MORE THAN TWO ADJACENT WALLS

WALL ANGLE ATTACHED TO STRUCTURAL ELEMENT & RIVETED TO MAIN RUNNERS AT NOT MORE THAN TWO ADJACENT WALLS L 2X2X20 GA ANGLE W/1/14" DIA, 2" LONG LEG SCREW TO EACH WALL STUD, CENTERED ON ANGLE LEG.

SLOTTED ANGLE SPACER WITH HORIZONTAL 6d RINGSHANK NAIL.
NAILS AT ENDS OF HORIZONTAL STRUTS ARE TO BE PLACED WITH NAIL HEAD TO CENTERLINE OF SPAN OF STRUT. NOTCHING PERMIITTED ONLY AT RUNNERS
NOTE : ALTERNATIVE LOCATION WITHOUT NAILS

SUSPENDED LAY-IN CEILING - CONNECTION DETAIL 3" = 1'-0" 11 A13.1



VERTICAL HANGERS
NO.12 GA. SUSPENSION WIRES SPACED AT 4'-0" O.C. ALONG EACH RUNNER. ATTACH TO RUNNER AND TO SUPPORT ABOVE WITH MINIMUM 3 TIGHT TURNS IN 1 1/2".

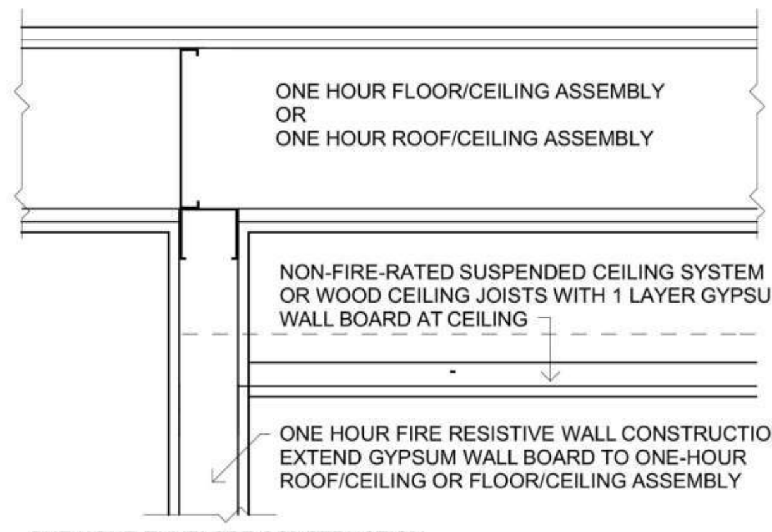
LATERAL FORCE BRACING
(4) NO.12 GAGE WIRES SECURED TO MAIN RUNNER W/ 4 TIGHT TURNS IN 1 1/2", WITHIN 2" OF CROSS RUNNER INTERSECTION AND SPLAYED 90 DEGREES FROM EACH OTHER AT MAX. 45 DEGREE ANGLE FROM PLANE OF CEILING.

COMPRESSION STRUT SHALL BE STEEL SECTION WITH L/R RATIO OF 200 MAX. ATTACH TO MAIN RUNNERS AT CONVERGENCE OF SPLAYED WIRES WITH 1/4" MACHINE BOLT AND TO STRUCTURE WITH 3/16" DIAMETER POWER-DRIVEN STUD. COMPRESSION STRUT SHALL NOT REPLACE HANGER WIRE. SEE DETAIL X/X.X

THESE HORIZONTAL RESTRAINT POINTS SHALL NOT BE PLACED MORE THAN 8' X 12' O.C. AND THE FIRST SET ARE REQUIRED NOT MORE THAN 4'-0" FROM EACH WALL FOR SNF BUILDINGS.

CLASSIFICATION OF ACCOUSTICAL CEILING GRID:
CLASSIFICATION OF CEILING GRID IS HEAVY DUTY
MANUFACTURER'S CATALOG NO. - MAIN RUNNER:
ARMSTONG - HEAVY DUTY: 144" = 7301
MANUFACTURER'S CATALOG NO. - CROSS RUNNER:
ARMSTONG: 24" = XL-7328, 48" = XL-7348
INSTALL IN ACCORDANCE WITH PROJECT SPECIFICATIONS
DSA PRODUCT ACCEPTANCE: PER IR A-5 AND ICC ESR-1308

SUSPENDED LAY-IN CEILING GRID 1 1/2"= 1'-0" 3 A13.1

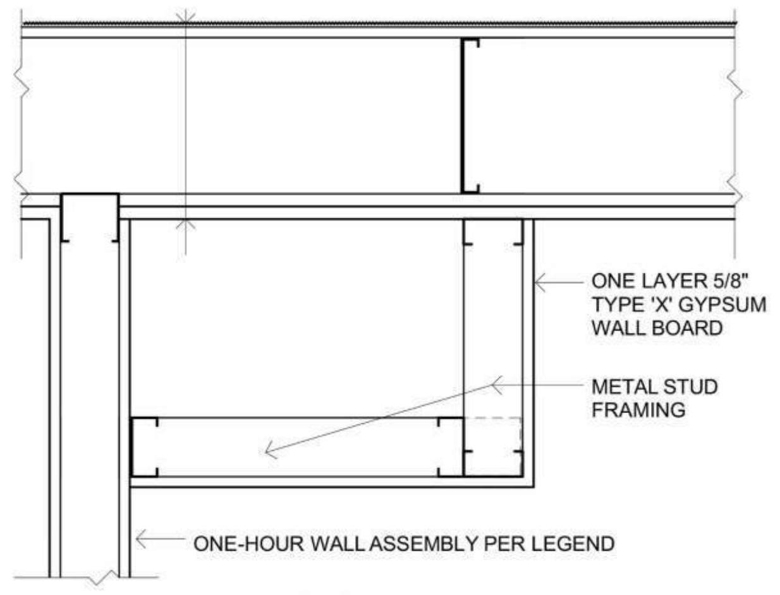

ONE HOUR FLOOR/CEILING ASSEMBLY OR ONE HOUR ROOF/CEILING ASSEMBLY
NON-FIRE-RATED SUSPENDED CEILING SYSTEM OR WOOD CEILING JOISTS WITH 1 LAYER GYPSUM WALL BOARD AT CEILING
ONE HOUR FIRE RESISTIVE WALL CONSTRUCTION EXTEND GYPSUM WALL BOARD TO ONE-HOUR ROOF/CEILING OR FLOOR/CEILING ASSEMBLY

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

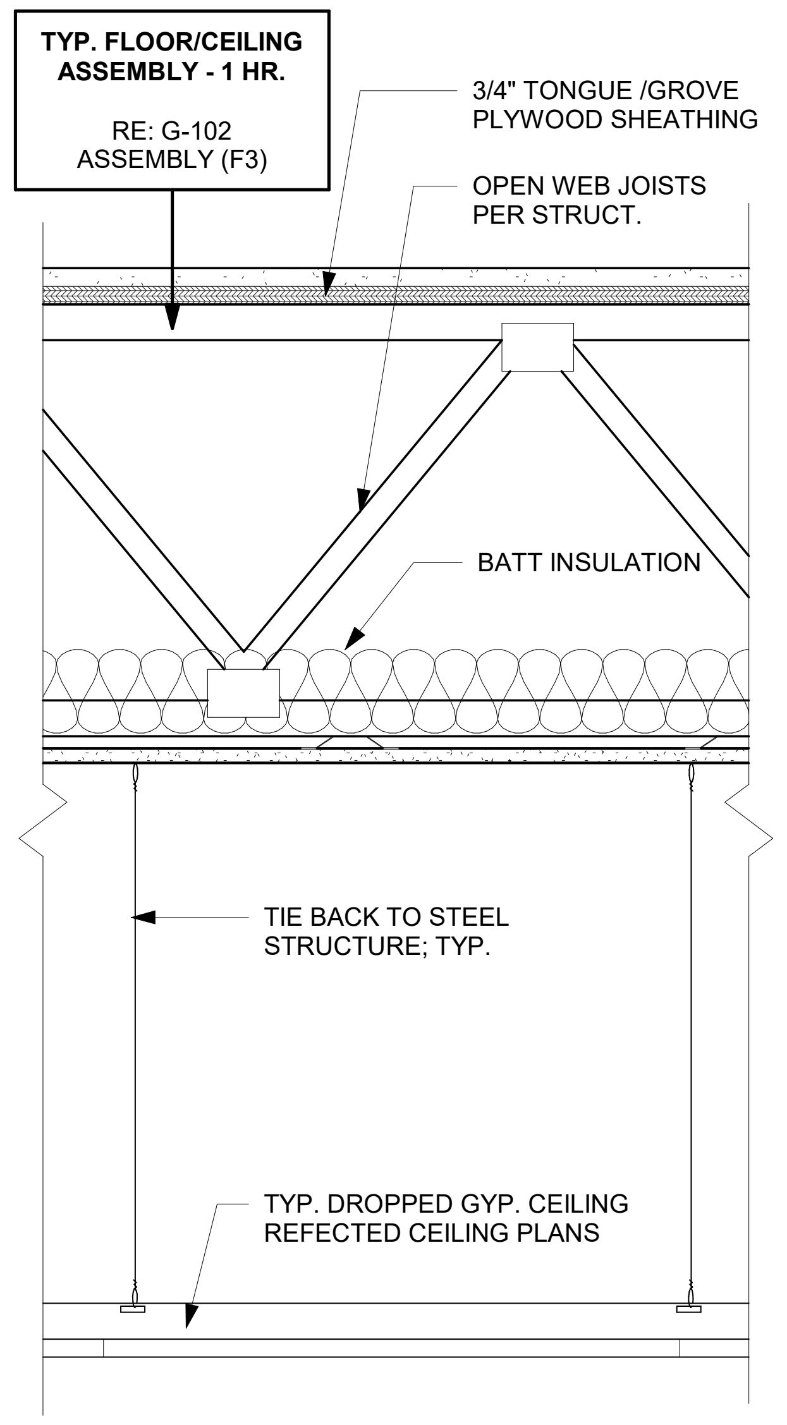
CORRIDOR CONSTRUCTION 1 1/2"= 1'-0" 14 A13.1


ONE LAYER 5/8" TYPE 'X' GYPSUM WALL BOARD
METAL STUD FRAMING
ONE-HOUR WALL ASSEMBLY PER LEGEND

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


TYP. FLOOR/CEILING ASSEMBLY - 1 HR.
RE: G-102 ASSEMBLY (F3)
3/4" TONGUE /GROVE PLYWOOD SHEATHING
OPEN WEB JOISTS PER STRUCT.
BATT INSULATION
TIE BACK TO STEEL STRUCTURE; TYP.
TYP. DROPPED GYP. CEILING REFECTED CEILING PLANS

SUSPENDED CEILING AT WOOD FRAMING 1 1/2"= 1'-0" 9 A13.1

PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:

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DAVID EUGENE HENDRIKSE
NUMBER A-7395
10/30/23

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
SUSPENDED CEILING DETAILS

PROJECT NUMBER: 23034

SHEET NUMBER:
A-503

FINISH LEGEND

CARPET:
CPT-1 MOHAWK GROUP: UNCHARTED RESTORE TILE, 359 ECOACTIVE, BRICK ASHLAR PATTERN
CPT-2 MOHAWK GROUP: UNCHARTED SOLVE II TILE, 359 ECOACTIVE, BRICK ASHLAR PATTERN
CP-1 MOWHAWK GROUP: BROADLOOM, BIGLOW NEW BASICS II, 26OZ, # 7928 MAJOLICA TIN
WOM-1 SHAW: PATH TILE - 5T034, PORTABELLA #34761, QUARTER TURN

LUXURY VINYL PLANK:
LVP-1 MOHAWK REXFORD COLLECTION: 12MIL, RP811, #890 STURDY BROWN

SHEET VINYL:
SV-1 MOHAWK PORTICO COLLECTION: #592 COOL SANDS

PORCELAIN TILE:
POR-1 DALTILE: ARTICULO, AR09 COLUMN GRAY, 18" X 18"; GROUT 1/8" MAPEI #93 WARM GRAY
POR-2 DALTILE: ARTICULO, AR09 COLUMN GRAY, 12" X 24"; GROUT 1/8" MAPEI #93 WARM GRAY, RUNNING BOND 33% OVERLAP
POR-3 DALTILE: ARTICULO, AR09 COLUMN GRAY, 6" X 24"; GROUT 1/8" MAPEI #93 WARM GRAY, RUNNING BOND 33% OVERLAP

FRP WALL PANEL:
FRP-1 MARLITE ARTIZAN VISUAL WALL PANELS, VERIFY COLOR WITH OWNER

BASE:
WB-1 WOOD BASE, FJ623, 9/16" X 3.25" COLONIAL, PT3; WOOD SHOE MOLD, FJ129, 7/16" X 11/16" COLONIAL, PT3
RB-1 RUBBER BASE, STYLE AND COLOR BY OWNERSHIP

PAINT:
PT-1 SHERWIN WILLIAMS, SW 7044 AMAZING GRAY, EGGSHELL
PT-2 SHERWIN WILLIAMS, SW 7042 SHOJI WHITE, FLAT
PT-3 SHERWIN WILLIAMS, SW 7042 SHOJI WHITE, SEMI-GLOSS
PT-4 SHERWIN WILLIAMS, SW 7069 IRON ORE, SEMI-GLOSS
PT-5 SHERWIN WILLIAMS, SW 7015 REPOSE GRAY, EGGSHELL
PT-6 SHERWIN WILLIAMS, SW 7017 DORIAN GRAY, EGGSHELL
PT-7 SHERWIN WILLIAMS, SW 7633 TAUPE TONE, EGGSHELL
PT-8 SHERWIN WILLIAMS, SW 7046 ANONYMOUS, EGGSHELL
PT-9 SHERWIN WILLIAMS, SW 9143 CADET, EGGSHELL
PT-10 SHERWIN WILLIAMS, SW 9127 AT EASE SOLDIER, EGGSHELL
PT-11 SHERWIN WILLIAMS, SW 9168 ELEPHANT EAR, EGGSHELL
PT-12 SHERWIN WILLIAMS, SW 7048 URBANE BRONZE, EGGSHELL
PT-13 SHERWIN WILLIAMS, SW 7048 URBANE BRONZE, SEMI-GLOSS

FINISH ABBREVIATIONS:
BCR BELOW CHAIR RAIL, VERIFY WITH PLANS AND OWNER
ACR ABOVE CHAIR RAIL, VERIFY WITH PLANS AND OWNER

WINDOW COMMENTS:
1. GLAZING DEEMED TO BE IN A HAZARDOUS LOCATION PER 2406.4 IBC 2018 SHALL BE TEMPERED/SAFETY GLAZING.

2. EACH PANE OF SAFETY GLAZING INSTALLED IN HAZARDOUS LOCATIONS SHALL BE IDENTIFIED BY MANUFACTURER'S DESIGNATION PER 2406 IBC 2018.

3. CONFIRM OPERATION OF SASH LOCKS AT TYPE 'A' UNITS WILL BE WITHIN 48" REQUIRED REACH RANGE. RE: A117.1-2009 SECTION 1003.9 & 1004.5.

4. ALL WINDOWS IN PUBLIC SPACES RECEIVE TRIM; RE: SPECS FOR TRIM PROFILE.

5. REFERENCE EXTERIOR ELEVATIONS FOR EXTERIOR WINDOW TRIM.

6. REFER TO CODE SHEET G-100 FOR ALL FIRE RATINGS

7. WINDOWS ON AND ABOVE SECOND FLOOR MUST HAVE WINDOW OPENING CONTROL DEVICES THAT COMPLY WITH ASTM F 2090.

8. WINDOW LOCATIONS PER A-400S UNO.

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.

5

PUBLIC ROOM FINISH COMMENTS:
1. PAINT BULKHEADS
2. GLUE DOWN CARPET; NO PAD TO MEET ACCESSIBILITY.

GENERAL NOTES:
1. BASE FINISH
    A. RB-1 = VINYL TOED/TOELESS - STANDARD COLOR; EXTEND BASE 4" MIN.

PUBLIC DOOR COMMENTS:
1. FINAL HARDWARE SCHEDULE AND FINAL GROUPS TO BE DETERMINED BY DOOR SUB-CONTRACTOR. VERIFY FINAL HARDWARE INSTALLATION WITH CLIENT AND ARCHITECT.

2. DOOR BEING USED FOR EGRESS SHALL BE IN ACCORDANCE WITH IBC 2018 SECT. 1008 AND SHALL NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING, OR TWISTING OF THE WRIST TO OPERATE.

3. ALL FRAMES TO BE 2" UNLESS OTHERWISE NOTED.

4. PAINT / STAIN ALL DOORS AND FRAMES.

5. VERIFY KEYING SCHEDULE WITH OWNER. ALL KEYS TO BE GIVEN TO OWNER AT SUBSTANTIAL COMPLETION.

6. DOOR SIGHTS AT UNIT ENTRY DOORS. RE: G-300 FOR HI/VI DOOR SIGHT

7. MT (TIMELY) FRAMES TO RECEIVE FIELD INSTALLED WOOD TRIM, TYP. ALL LOCATIONS.

8. ALL DOOR HARDWARE TO BE LEVER TYPE HARDWARE, UNLESS OTHERWISE NOTED.

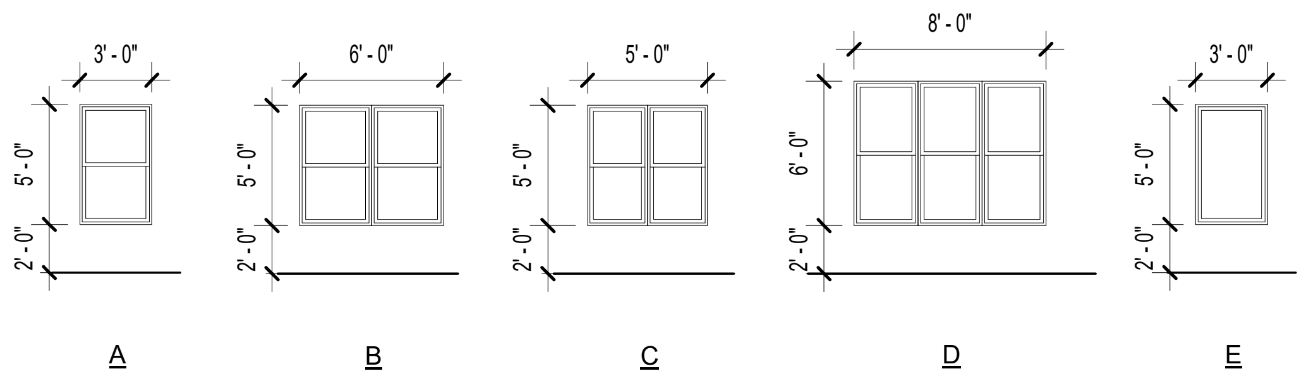
9. ALL COMMON AREA RATED DOORS TO HAVE **SMOKE SEALS (GASKETS), CLOSURES AND LATCH** HARDWARE.

10. UNIT DOORS TO HAVE SPRING HINGES & LATCH TYP UNO.

11. ALL DOORS TO HAVE 32 CLEAR WIDTH PER SECTION 404.2.2 (ICC A117.1-2009).

REFERENCE A-500s FOR DOOR AND WINDOW DETAILS

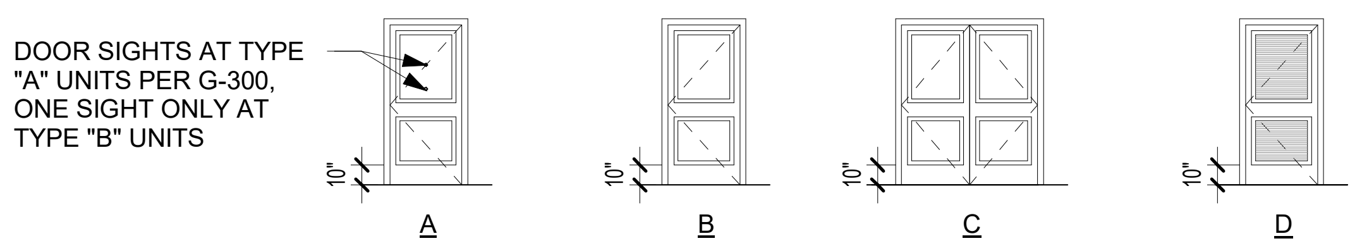
WINDOW TYPES



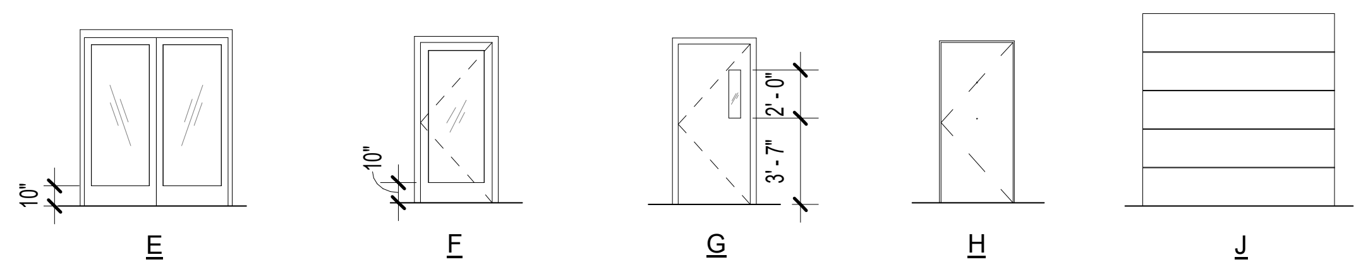
A SINGLE SINGLE-HUNG
B DOUBLE SINGLE-HUNG
C DOUBLE SINGLE-HUNG
D TRIPLE SINGLE-HUNG
E FIXED INTERIOR SINGLE TEMPERED

WINDOW SCHEDULE			
Type Mark	Width	Height	Comments
A	3' - 0"	5' - 0"	
B	6' - 0"	5' - 0"	
C	5' - 0"	5' - 0"	
D	8' - 0"	6' - 0"	
E	3' - 0"	5' - 0"	

DOOR TYPES


DOOR SIGHTS AT TYPE "A" UNITS PER G-300, ONE SIGHT ONLY AT TYPE "B" UNITS
10"
10"
10"
10"
A
B
C
D

A 2 PANEL SWING DOOR - UNIT ENTRY
B 2 PANEL SWING DOOR
C DOUBLE 2 PANEL SWING DOORS
D 2 PANEL LOUVERED SWING DOOR



E DOUBLE GLASS PANEL SWING DOOR
F SINGLE GLASS PANEL SWING DOOR
G SINGLE SWING DOOR WITH LITE
H SINGLE FLUSH SWING DOOR
J SINGLE SWING DOOR WITH LITE

PRINTS ISSUED
10/30/23 PERMIT SUBMITTAL

REVISIONS:

1	12/15/23	Addendum 1 - Response to City Comments
3	04/19/24	Addendum 3 - Response to City Comments #2
5	10/04/24	ASI 001

PUBLIC ROOM FINISH SCHEDULE						
Number	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
1000	VESTIBULE	WOM-1	WB-1	TBD BY OWNER	PT-2	
1001	LOBBY/MAIL	CPT-1	WB-1	PT-6 BCR / PT-5 ACR	PT-2	
1002	OFFICE	CPT-1	WB-1	PT-6 BCR / PT-5 ACR	PT-2	
1002.1	FILE	CPT-1	WB-1	PT-1	PT-2	
1003	SPRINKLER	SV-1	RB-1	--	PT-2	
1004	MECH.	SV-1	WB-1	--	PT-2	
1005	COMMUNITY	LVP-1	WB-1	PT-6 BCR / PT-5 ACR	PT-2	POR-3 AT FIREPLACE SURROUND, CABS. W/ PL COUNTER W/ SPLASH
1006	UTILITY	SV-1	WB-1	--	PT-2	PROVIDE F.R.P. WALL PROTECTION WITHIN 2 FT. OF SERVICE SINKS, URINALS, AND WATER CLOSETS TO A HEIGHT OF 4 FT. A.F.F.
1007	RR	LVP-1	RB-1	TBD BY OWNER	PT-2	CABS. W/ PL COUNTER W/ SPLASH; PROVIDE F.R.P. WALL PROTECTION WITHIN 2 FT. OF SERVICE SINKS, URINALS, AND WATER CLOSETS TO A HEIGHT OF 4 FT. A.F.F.
1008	ELEV. EQUIP.	SV-1	RB-1	--	PT-2	
2001	MULTI-PURPOSE	LVP-1	WB-1	PT-6 BCR / PT-5 ACR	PT-2	CABS. W/ PL COUNTER W/ SPLASH
2002	RR	LVP-1	RB-1	TBD BY OWNER	PT-2	CABS. W/ PL COUNTER W/ SPLASH; PROVIDE F.R.P. WALL PROTECTION WITHIN 2 FT. OF SERVICE SINKS, URINALS, AND WATER CLOSETS TO A HEIGHT OF 4 FT. A.F.F.
3001	MEETING	CPT-1	WB-1	PT-6 BCR / PT-5 ACR	PT-2	
3002	FITNESS	CPT-1	WB-1	PT-6 BCR / PT-5 ACR	PT-2	
3003	RR	LVP-1	RB-1	TBD BY OWNER	PT-2	CABS. W/ PL COUNTER W/ SPLASH; PROVIDE F.R.P. WALL PROTECTION WITHIN 2 FT. OF SERVICE SINKS, URINALS, AND WATER CLOSETS TO A HEIGHT OF 4 FT. A.F.F.
C1-1	CORRIDOR	CPT-2	WB-1	PT-6 BCR / PT-5 ACR	PT-2	
C1-2	CORRIDOR	CPT-2	WB-1	PT-6 BCR / PT-5 ACR	PT-2	
C1-3	CORRIDOR	CPT-2	WB-1	PT-6 BCR / PT-5 ACR	PT-2	
C2-1	CORRIDOR	CPT-2	WB-1	PT-6 BCR / PT-5 ACR	PT-2	
C2-2	CORRIDOR	CPT-2	WB-1	PT-6 BCR / PT-5 ACR	PT-2	
C2-3	CORRIDOR	CPT-2	WB-1	PT-6 BCR / PT-5 ACR	PT-2	
E1-1	ELEV.	POR-2	--	--	PT-2	
E1-2	ELEV.	POR-2	--	--	PT-2	
E1-3	ELEV.	POR-2	--	--	PT-2	
S1-1	STAIR 1	CP-1	WB-1	PT-5	PT-2	
S1-2	STAIR 1	CP-1	WB-1	PT-5	PT-2	
S1-3	STAIR 1	CP-1	WB-1	PT-5	PT-2	
S2-1	STAIR 2	CP-1	WB-1	PT-5	PT-2	
S2-2	STAIR 2	CP-1	WB-1	PT-5	PT-2	
S2-3	STAIR 2	CP-1	WB-1	PT-5	PT-2	

5

DOOR SCHEDULE - PUBLIC											
Mark	Width	Height	Thickness	Type Mark	Door Material	Door Finish	Frame Material	Frame Finish	Fire Rating	Comments	Hardware Group
1000	6' - 0"	7' - 0"	0' - 1 3/4"	E	ALUM.	PRE-FINISH	ALUM. MT-1	PRE-FINISH		CLOSER, ACCESSIBLE CONTROLS, PUSH PULL BARS, WEATHER GASKET, TEMPERED, RAIN DRIP, THRESHOLD	3
1001	6' - 0"	6' - 8"	0' - 1 3/4"	E	ALUM.	PRE-FINISH	ALUM. MT-1	PRE-FINISH		CLOSER, ACCESSIBLE CONTROLS, PUSH PULL BARS, WEATHER GASKET, TEMPERED, KEY FOB OPERATION, MOTION SENSORS, EMERGENCY REQUEST TO EXIT BUTTON	4
1002	3' - 0"	6' - 8"	0' - 1 3/4"	F	HM	PT	HM MT-1	PT	20 MIN.	CLOSER, SMOKE SEALS, SWEEPS, LATCH HARDWARE, TEMPERED	11
1002.1	3' - 0"	6' - 8"	0' - 1 3/4"	B	WD H.C.	PT	HM MT-1	PT		LATCH HARDWARE	7
1003	3' - 0"	6' - 8"	0' - 1 3/4"	B	HM	PT	HM MT-1	PT	45 MIN.	CLOSER, SMOKE SEALS, SWEEPS, LATCH HARDWARE	9
1003.0	3' - 0"	6' - 8"	0' - 1 3/4"	B	INSUL. MTL.	PT	INSUL. MTL.	PT		CLOSER, WEATHER GASKET, THRESHOLD, RAIN DRIP, LATCH HARDWARE	8
1004	3' - 0"	6' - 8"	0' - 1 3/4"	B	HM	PT	HM MT-1	PT	45 MIN.	LATCH HARDWARE	12
1005	6' - 0"	6' - 8"	0' - 1 3/4"	E	HM	PT	HM MT-1	PT	20 MIN.	SPRING HINGES, SMOKE SEALS, SWEEPS, LATCH HARDWARE, TEMPERED	13
1005.0	3' - 0"	7' - 0"	0' - 1 3/4"	F	ALUM.	PRE-FINISH	ALUM. MT-1	PRE-FINISH		CLOSER, ACCESSIBLE CONTROLS, PUSH PULL BARS, WEATHER GASKET, TEMPERED, RAIN DRIP, THRESHOLD	14
1006	3' - 0"	6' - 8"	0' - 1 3/4"	B	HM	PT	HM MT-1	PT	45 MIN.	SPRING HINGES, SMOKE SEALS, SWEEPS, LATCH HARDWARE	16
1007	3' - 0"	6' - 8"	0' - 1 3/4"	B	WD S.C.	PT	HM MT-1	PT	20 MIN.	SPRING HINGES, SMOKE SEALS, SWEEPS, LATCH HARDWARE	6
1008	3' - 0"	6' - 8"	0' - 1 3/4"	B	HM	PT	HM MT-1	PT	45 MIN.	CLOSER, SMOKE SEALS, SWEEPS, LATCH HARDWARE	9
2002	3' - 0"	6' - 8"	0' - 1 3/4"	B	WD S.C.	PT	HM MT-1	PT	20 MIN.	SPRING HINGES, SMOKE SEALS, SWEEPS, LATCH HARDWARE	6
3001	6' - 0"	6' - 8"	0' - 1 3/4"	E	HM	PT	HM MT-1	PT	20 MIN.	SPRING HINGES, SMOKE SEALS, SWEEPS, LATCH HARDWARE, TEMPERED	10
3002	3' - 0"	6' - 8"	0' - 1 3/4"	F	HM	PT	HM MT-1	PT	20 MIN.	SPRING HINGES, SMOKE SEALS, SWEEPS, LATCH HARDWARE, TEMPERED	15
3003	3' - 0"	6' - 8"	0' - 1 3/4"	B	WD S.C.	PT	HM MT-1	PT	20 MIN.	SPRING HINGES, SMOKE SEALS, SWEEPS, LATCH HARDWARE	6
C1-1	3' - 0"	7' - 0"	0' - 1 3/4"	F	ALUM.	PRE-FINISH	ALUM. MT-1	PRE-FINISH		CLOSER, ACCESSIBLE CONTROLS, PUSH PULL BARS, WEATHER GASKET, TEMPERED, RAIN DRIP, THRESHOLD, PANIC HARDWARE, LATCH HARDWARE	2
C2-1	3' - 0"	7' - 0"	0' - 1 3/4"	F	ALUM.	PRE-FINISH	ALUM. MT-1	PRE-FINISH		CLOSER, ACCESSIBLE CONTROLS, PUSH PULL BARS, WEATHER GASKET, TEMPERED, RAIN DRIP, THRESHOLD, PANIC HARDWARE, LATCH HARDWARE	2
M1	3' - 0"	6' - 8"	0' - 1 3/4"	H	HM	PT	HM MT-1	PT		CLOSER, SMOKE SEALS, SWEEPS, LATCH HARDWARE	9
M2	8' - 0"	8' - 0"	0' - 1 3/4"	J	HM	PT	HM MT-1	PRE-FINISH			
S1-1	3' - 0"	6' - 8"	0' - 1 3/4"	G	HM	PRE-FINISH	HM MT-1	PT	60 MIN.	PANIC HARDWARE, CLOSER, SMOKE SEALS, SWEEPS, LATCH HARDWARE, PANIC HARDWARE, KICK PLATE, MAG HOLD	5
S1-1.0	3' - 0"	7' - 0"	0' - 1 3/4"	F	INSUL. MTL.	PT	INSUL. MTL.	PT		CLOSER, KEY FOB OPERATION, WEATHER GASKET, TEMPERED, LATCH HARDWARE, PANIC HARDWARE	1
S1-2	3' - 0"	6' - 8"	0' - 1 3/4"	G	HM	PT	HM MT-1	PT	60 MIN.	PANIC HARDWARE, CLOSER, SMOKE SEALS, SWEEPS, LATCH HARDWARE, PANIC HARDWARE, KICK PLATE, MAG HOLD	5
S1-3	3' - 0"	6' - 8"	0' - 1 3/4"	G	HM	PT	HM MT-1	PT	60 MIN.	PANIC HARDWARE, CLOSER, SMOKE SEALS, SWEEPS, LATCH HARDWARE, PANIC HARDWARE, KICK PLATE, MAG HOLD	5
S2-1	3' - 0"	6' - 8"	0' - 1 3/4"	G	HM	PT	HM MT-1	PT	60 MIN.	PANIC HARDWARE, CLOSER, SMOKE SEALS, SWEEPS, LATCH HARDWARE, PANIC HARDWARE, KICK PLATE, MAG HOLD	5
S2-1.0	3' - 0"	7' - 0"	0' - 1 3/4"	F	INSUL. MTL.	PT	INSUL. MTL.	PT		CLOSER, KEY FOB OPERATION, WEATHER GASKET, TEMPERED, LATCH HARDWARE, PANIC HARDWARE	1
S2-2	3' - 0"	6' - 8"	0' - 1 3/4"	G	HM	PT	HM MT-1	PT	60 MIN.	PANIC HARDWARE, CLOSER, SMOKE SEALS, SWEEPS, LATCH HARDWARE, PANIC HARDWARE, KICK PLATE, MAG HOLD	5
S2-3	3' - 0"	6' - 8"	0' - 1 3/4"	G	HM	PT	HM MT-1	PT	60 MIN.	PANIC HARDWARE, CLOSER, SMOKE SEALS, SWEEPS, LATCH HARDWARE, PANIC HARDWARE, KICK PLATE, MAG HOLD	5

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DAVID EUGENE HENDRIKSE
NUMBER A-7395
10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
WINDOW / DOOR / FINISH SCHEDULES

PROJECT NUMBER: 23034

SHEET NUMBER:

A-600

10/3/2024 11:53:11 AM
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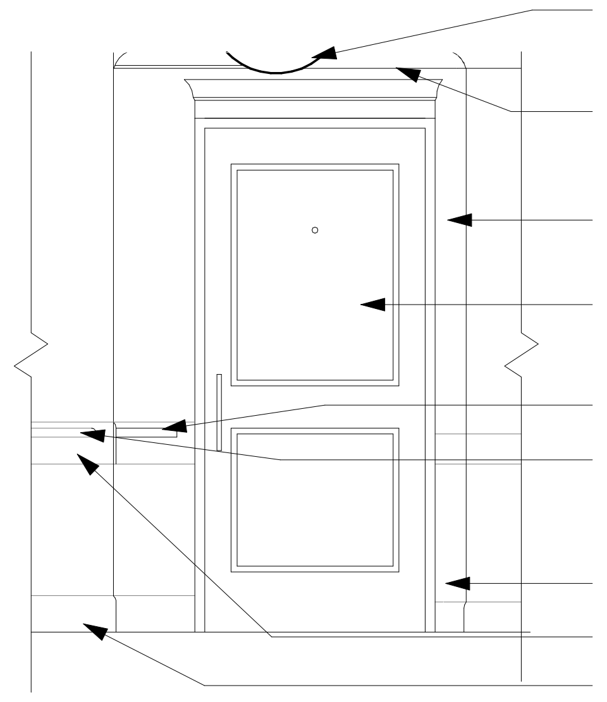
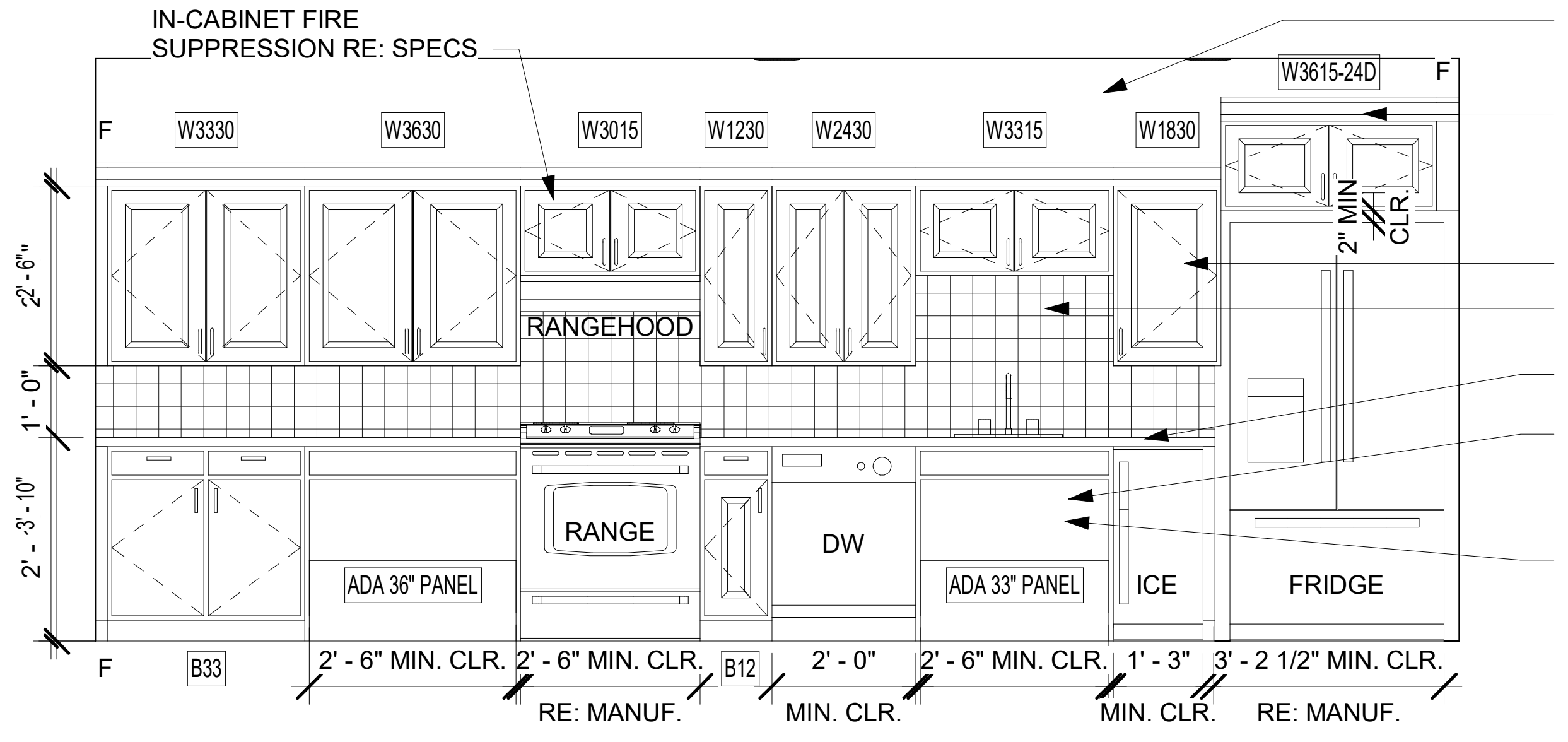
REFERENCE G-003 FOR GENERAL NOTES



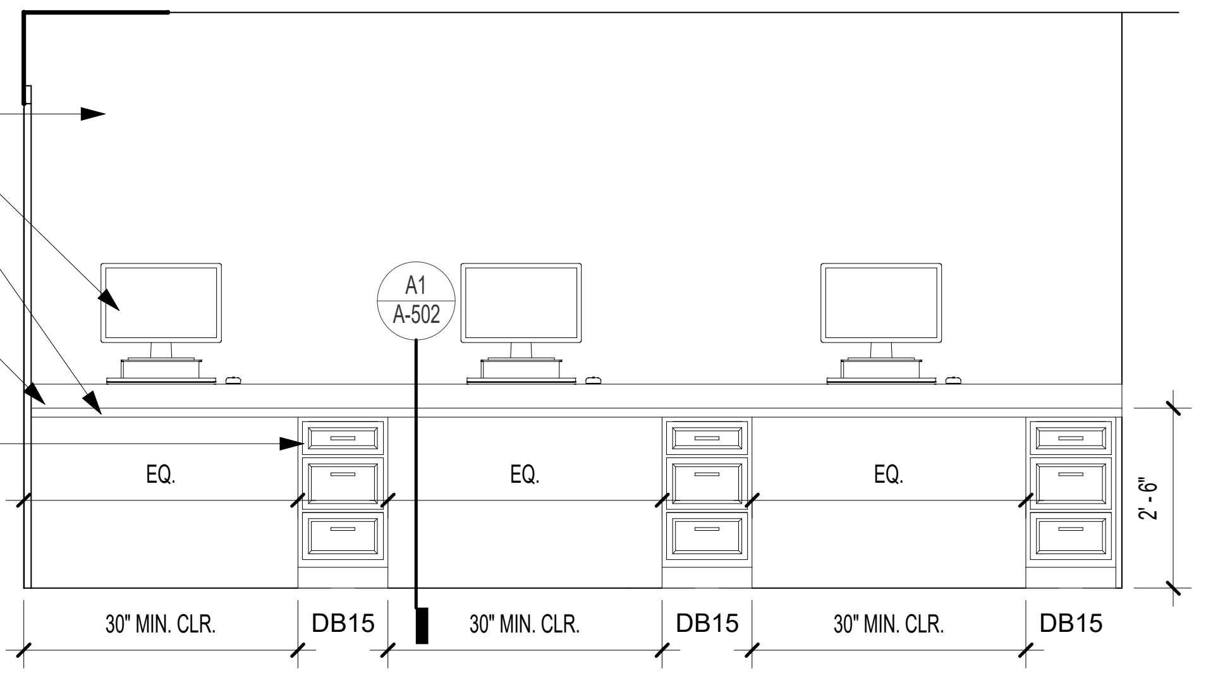
DECORATIVE LIGHT RE: ELECTRICAL
GYP CEILING RE: RCPS
PAINTED GYP, TYP.
DOOR AND FRAME RE: SCHED.
PURSE SHELF
HAND RAIL; RE: PLANS FOR LOCATIONS
PAINTED GYP, TYP.
CHAIR RAIL
CONT. PTD. WOOD BASE; 5" COLONIAL, TYP.

C2 TYP. UNIT ENTRY
3/8" = 1'-0"



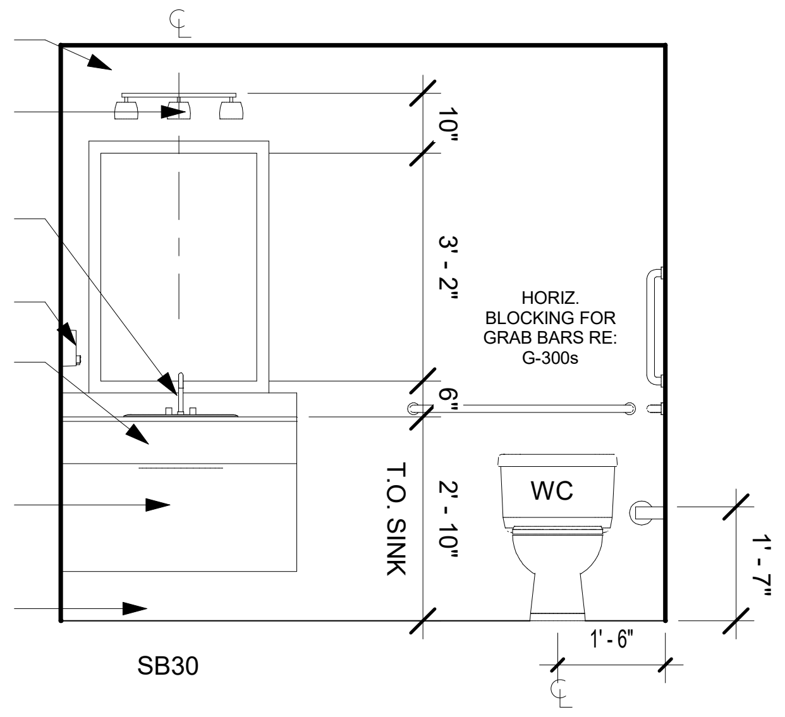
IN-CABINET FIRE SUPPRESSION RE: SPECS
PAINTED GYP., (TYP.)
MOLDING, (TYP.)
WALL CABINET, (TYP.)
TILE PER SPEC
COUNTERTOP
SKIRT @ 45 DEG MOVEABLE PANEL; PAINT GYP BEHIND RE: G-303
INSULATE H.C. WATER & WASTE

C1 MULTI-PURPOSE KITCHEN ELEVATION
3/8" = 1'-0"



PAINTED GYP., TYP.
EQUIPMENT BY OWNER
INCLUDE GROMMETS AS REQ'D.
COUNTER AND BACKSPLASH, TYP.
BASE CABINET, TYP.

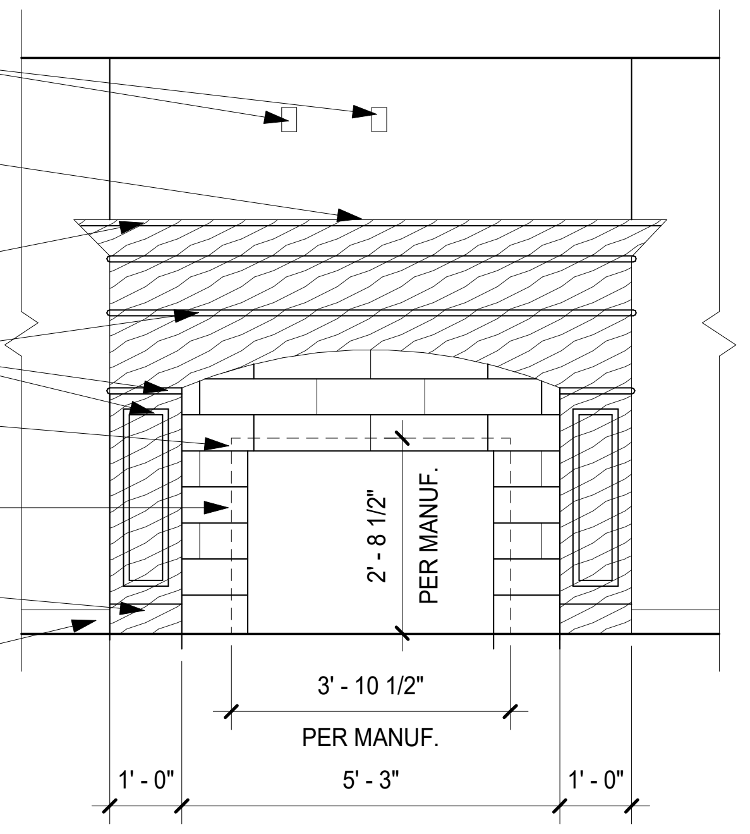
B3 COMPUTER ELEVATION
3/8" = 1'-0"



PAINTED GYP.
LIGHT, CENTERED ABOVE MIRROR: RE: ELECT.
SINK/FAUCET RE: PLUMBING
SOAP DISPENSER
SKIRT @ 45 DEG MOVEABLE PANEL; PAINT GYP BEHIND RE: G-301
INSULATE H.C. WATER & WASTE BEHIND MOVEABLE PANEL
WOOD BASE TYP.

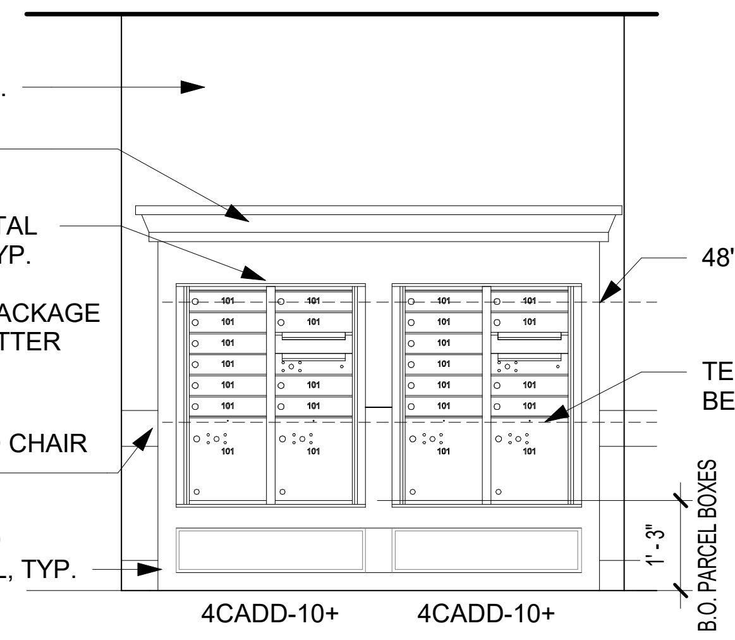
NOTE: 3' - 4" MAX B.O. PAPER TOWEL DISPENSER & B.O. REFLECTIVE SURFACE

B2 PUBLIC RESTROOM ELEVATION
3/8" = 1'-0"



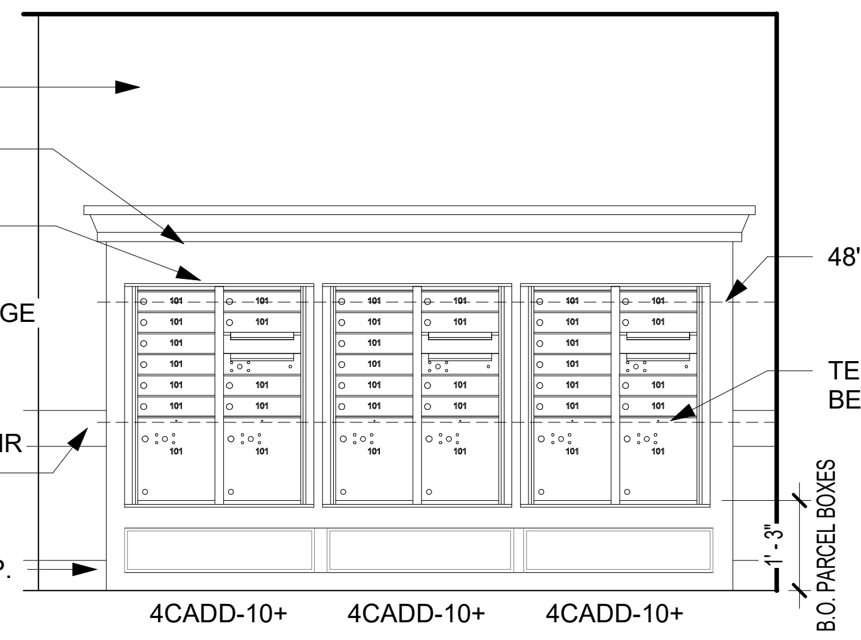
DATA & ELEC. OUTLET ABOVE
ELEC. OUTLET
5
WPCR514 CROWN; PAINT TO MATCH CABINETS
WPDB117 DECO; PAINT TO MATCH CABINETS
TILE PER SPECS
FIREPLACE PER SPECS
WPCBS414 BASE PAINT TO MATCH CABINETS
CONT. PTD. WD BASE; 5" COLONIAL, TYP.

B1 TYP. FIREPLACE ELEVATION
3/8" = 1'-0"



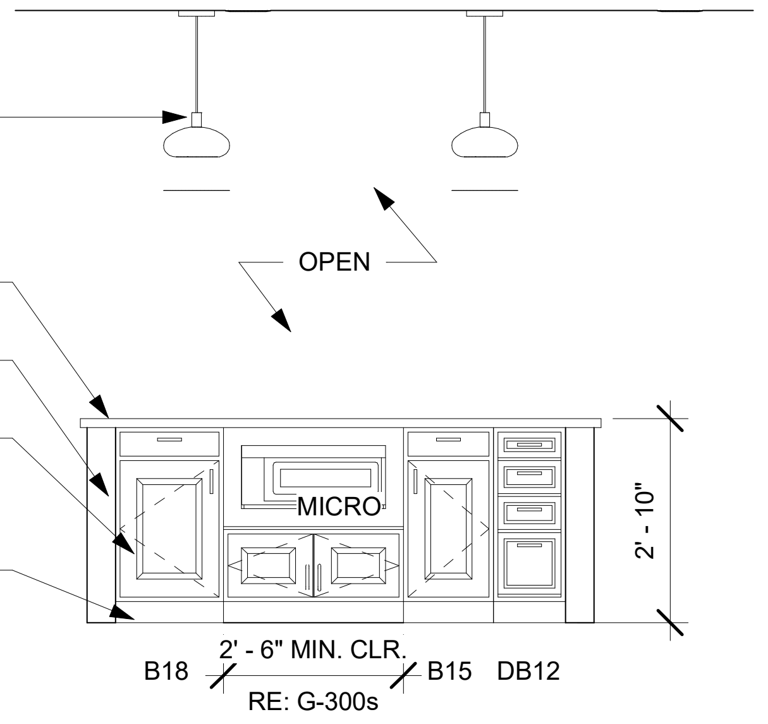
PAINTED GYP, TYP.
TRIM, PTD.
PRE-FINISHED METAL MAILBOX UNITS; TYP. MAINTAIN USPS STANDARD OF 2 PACKAGE MAILBOX TO 10 LETTER BOXES
CONT. PTD. WOOD CHAIR RAIL
CONT. PTD. WOOD BASE; 5" COLONIAL, TYP.
48" MAX ADA REACH
TENANT DOORS TO BE MIN. 28" AFF

A4 MAILBOX ELEVATION 2
3/8" = 1'-0"



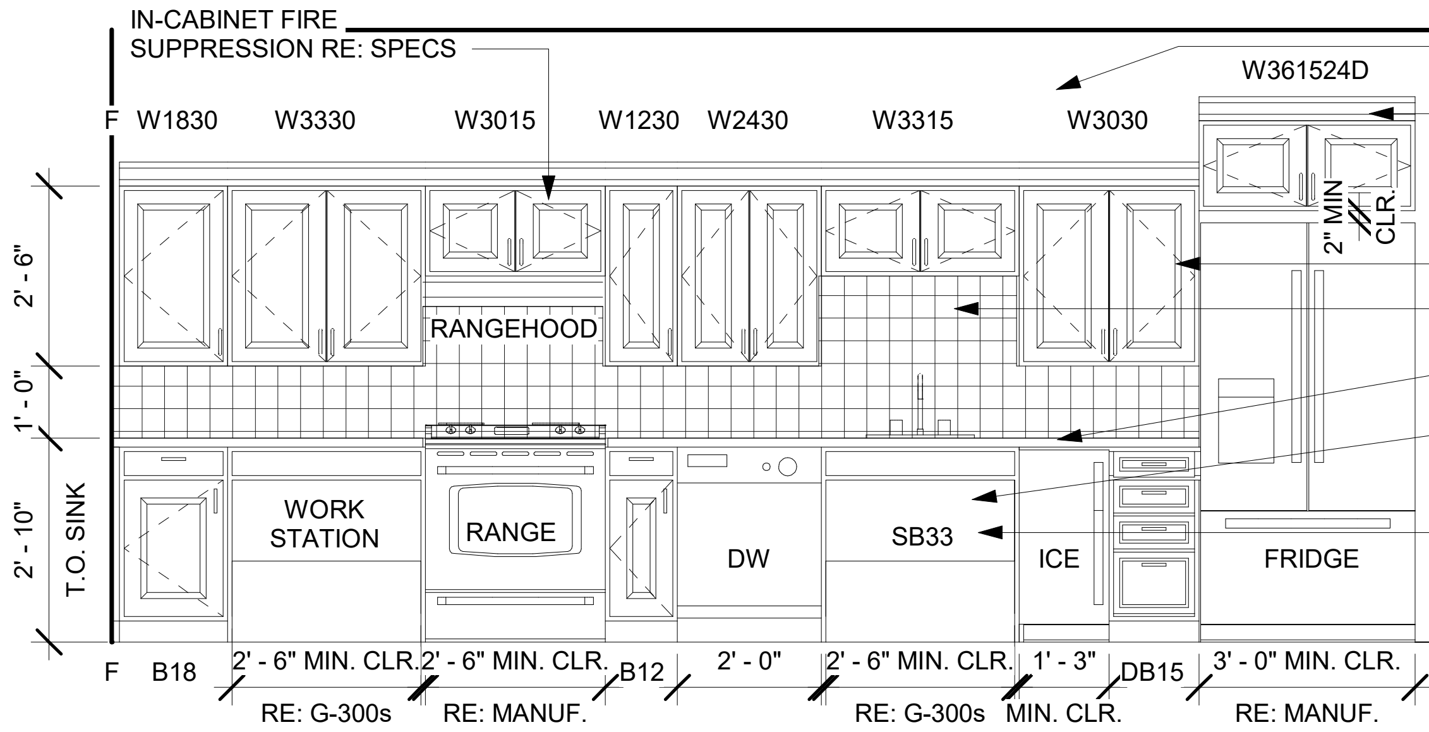
PAINTED GYP, TYP.
TRIM, PTD.
PRE-FINISHED METAL MAILBOX UNITS; TYP. MAINTAIN USPS STANDARD OF 2 PACKAGE MAILBOX TO 10 LETTER BOXES
CONT. PTD. WOOD CHAIR RAIL
CONT. PTD. WOOD BASE; 5" COLONIAL, TYP.
48" MAX ADA REACH
TENANT DOORS TO BE MIN. 28" AFF

A3 MAILBOX ELEVATION 1
3/8" = 1'-0"



PENDANT LIGHTING, CENTER ABOVE ISLAND RE: ELEC
COUNTERTOP
PAINTED GYP, TYP.
BASE CABINET, TYP.
WOOD BASE, TYP.

A2 COMMUNITY KITCHEN ELEVATION 2
3/8" = 1'-0"



IN-CABINET FIRE SUPPRESSION RE: SPECS
PAINTED GYP., (TYP.)
MOLDING, (TYP.)
WALL CABINET, (TYP.)
TILE PER SPEC
COUNTERTOP
SKIRT @ 45 DEG MOVEABLE PANEL; PAINT GYP BEHIND RE: G-300s
INSULATE H.C. WATER & WASTE

A1 COMMUNITY KITCHEN ELEVATION 1
3/8" = 1'-0"

PRINTS ISSUED

10/30/23 PERMIT SUBMITTAL

REVISIONS:

1	12/15/23	Addendum 1 - Response to City Comments
5	10/04/24	ASI 001

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

10/09/24

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI
MHDC Project No. #22-057 MT

SHEET TITLE
INTERIOR ELEVATIONS

PROJECT NUMBER: 23034

SHEET NUMBER:

A-700

10/3/2024 11:53:16 AM
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ELECTRICAL SYMBOL LEGEND

SOME SYMBOLS AND ABBREVIATIONS ON THIS LEGEND MAY NOT BE USED

CIRCUITING

	HOME RUN (2#12 1#12G UNO)
	INDICATES 2 PHASE, 1 N, & 1 GRD CONDUCTOR
	HOME RUN: INDICATES SHARED CIRCUIT
	HOME RUN: INDICATES #10 CONDUCTORS ENTIRELY

UTILITIES

---- UGE ---	UNDERGROUND ELECTRICAL
—— OHE ——	OVERHEAD ELECTRICAL
—— TELE ——	TELECOMMUNICATIONS CONDUIT
---- UGT ---	UNDERGROUND TELECOMMUNICATIONS CONDUIT

LIGHTING

	FLUORESCENT LIGHT FIXTURE
	FLUORESCENT STRIP FIXTURE
	SURFACE/RECESSED LIGHT FIXTURE
	WALL-MOUNTED LIGHT FIXTURE
	POLE-MOUNTED LIGHT FIXTURE
⊗	EXIT LIGHT
	BATTERY-OPERATED EMERGENCY LIGHT (WALL MTD)
	BATTERY-OPERATED EMERGENCY LIGHT (CEILING MTD)
	WALL-MOUNTED COMBINATION EXIT LIGHT/ BATTERY-OPERATED EMERGENCY LIGHT
$	LIGHT SWITCH – SINGLE POLE
$_3	LIGHT SWITCH – 3-WAY
$_4	LIGHT SWITCH – 4-WAY
$_K	LIGHT SWITCH – KEY
$_D	LIGHT SWITCH – DIMMER
$_PL	LIGHT SWITCH – PILOT LIGHT
$_2P	LIGHT SWITCH – 2 POLE
$^D_3	LIGHT SWITCH – 3-WAY DIMMER
$_M	WALL-MOUNTED MOTION SWITCH
M	CEILING-MOUNTED MOTION SWITCH
FD1	DIMMER BOARD
RCS-1	REMOTE CONTROL SWITCH AS SCHEDULED
TC	TIMECLOCK – REFER TO PLANS / DETAILS

EQUIPMENT

	DISCONNECT SWITCH. RE: PLANS FOR INFORMATION.
☒	MAGNETIC MOTOR STARTER
	COMBINATION DISCONNECT SWITCH / MOTOR STARTER
$	TOGGLE-TYPE DISCONNECT. FURNISH WITH THERMAL MOTOR PROTECTION WHERE SERVING FANS/PUMPS.
▨	SURFACE PANELBOARD
▨	RECESSED PANELBOARD

GENERAL SYMBOLS

	INDICATES CONNECT TO EXISTING
⊕	INDICATES ELEVATION

POWER DEVICES

	DUPLEX RECEPTACLE.
	LINE THRU DEVICE INDICATES ABOVE COUNTER
GFI	SPECIAL DUPLEX RECEPTACLE (GFCI, ISOLATED GROUND, ETC.)
	QUADPLEX RECEPTACLE
5-50R	SIMPLEX RECEPTACLE W/NEMA CONFIG AS NOTED
5-50R	MULTI-POLE RECEPTACLE W/NEMA CONFIG AS NOTED
	CEILING MOUNTED RECEPTACLE
	RECEPTACLE/DEVICE MOUNTED IN "TOMBSTONE"
⊙	POKE-THRU WITH POWER
	POKE-THRU WITH TELECOMMUNICATIONS
	POKE-THRU W/POWER AND TELECOM
1G	SINGLE GANG FLOOR BOX (2, 3, 4 GANG SIMILAR)
	PLUG MOLD / WIRE MOLD AS SPECIFIED
J	JUNCTION BOX
T E	THERMOSTAT – ELECTRIC
	PUSH BUTTON
	MOTOR

TELEPHONE/DATA

◁	TELEPHONE OUTLET
	LINE THRU DEVICE INDICATES ABOVE COUNTER
◀	DATA OUTLET
	TELEPHONE/DATA OUTLET
◁ 1V	PHONE OUTLET WITH NUMBER OF PHONE JACKS AS INDICATED – SEE DETAILS FOR ADD'L INFO.
◀ 1D	DATA OUTLET WITH NUMBER OF PHONE JACKS AS INDICATED – SEE DETAILS FOR ADD'L INFO.
1D/1V	PHONE/DATA OUTLET WITH NUMBER OF PHONE/DATA JACKS AS INDICATED – SEE DETAILS FOR ADD'L INFO.
W	WALL-MOUNTED WIRELESS INTERNET TRANSMITTER
W	CEILING-MOUNTED WIRELESS INTERNET TRANSMITTER

AUDIO/VISUAL

TV	TELEVISION OUTLET
S	WALL SPEAKER
S	CEILING SPEAKER
S	WALL SPEAKER – HORN TYPE
S	CEILING SPEAKER – HORN TYPE
S SUB	CEILING SPEAKER – SUBWOOFER
S SS	CEILING SPEAKER – SOUND SYSTEM
V	VOLUME CONTROL
I	INTERCOM CALL STATION
	INTERCOM HANDSET
	SOUND SYSTEM AUDIO JACK
RM	REMOTE MICROPHONE CONTROL
PAS	PUBLIC ADDRESS SYSTEM AMPLIFIER
IMS	INTERCOM MASTER STATION

FIRE ALARM

F	MANUAL PULL STATION
D	CEILING SMOKE DETECTOR
D	DUCT SMOKE DETECTOR
H	HEAT DETECTOR
■ WF	WATERFLOW SWITCH
■ TS	TAMPER SWITCH
☒ 75	VISIBLE NOTIFICATION DEVICE WITH CANDELA RATING. 15cd RATING UNLESS OTHERWISE NOTED ON PLANS.
30	AUDIBLE/VISIBLE NOTIFICATION DEVICE WITH CANDELA RATING. 15cd UNLESS OTHERWISE NOTED ON PLANS.
	HORN
75	CEILING-MOUNTED STROBE LIGHT WITH CANDELA RATING. MINIMUM OF 15cd RATING.
30	CEILING-MOUNTED COMBINATION HORN/STROBE WITH CANDELA RATING. MIN. OF 15cd RATING.
	CEILING-MOUNTED HORN
	CEILING-MOUNTED SPEAKER
R	RELAY
FACP	FIRE ALARM CONTROL PANEL
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FARA	REMOTE ANNUNCIATOR PANEL
FAEC	FIRE ALARM EXTENDER CABINET
DH	DOOR HOLDER
D 120V	SINGLE / MULTI-STATION 120V SMOKE ALARM
ZAM	ZONE ADDRESSABLE MODULE
IAM	INDIVIDUAL ADDRESSABLE MODULE
HFSS	KITCHEN HOOD FIRE SUPPRESSION SYSTEM PANEL
H	KITCHEN HOOD REMOTE PULL STATION
ARA	AREA OF RESCUE ASSISTANCE STATION
ARAM	AREA OF RESCUE ASSISTANCE MASTER STATION

MECHANICAL AND PLUMBING SYMBOL LEGEND

SOME SYMBOLS AND ABBREVIATIONS ON THIS LEGEND MAY NOT BE USED

SHEET METAL

	HIGH EFFICIENCY ROUND DUCT TAKEOFF (WITH & WITHOUT MANUAL DAMPER)
	SPIN-IN ROUND DUCT TAKEOFF (WITH & WITHOUT MANUAL DAMPER)
	CONICAL BELLMOUTH ROUND TAKEOFF
	ROUND DUCT RUNOUT WITH FLEX DUCT
	DUCTWORK ELBOW (WITH & WITHOUT TURNING VANES)
XD	FD:FIRE DAMPER FS:FIRE/SMOKE DAMPER SD:SMOKE DAMPER BD:BACKDRAFT DAMPER (GRAVITY)
MD	AUTOMATIC MOTORIZED DAMPER
8"ø A 225	SUPPLY DIFFUSER AND DIFFUSER CALLOUT (NECK SIZE, TYPE AND CFM)
	LINEAR/SLOT DIFFUSER
	RETURN GRILLE OR EXHAUST REGISTER
←	SUPPLY AIR FLOW INDICATOR
→	RETURN AND EXHAUST AIR FLOW INDICATOR
	THERMOSTAT
	TEMPERATURE SENSOR
H	HUMIDISTAT
	CONTROL WIRING

GENERAL SYMBOLS

	INDICATES CONNECT TO EXISTING
⊕	INDICATES ELEVATION

MECHANICAL PIPING

—— RL ——	REFRIGERANT LIQUID
—— RS ——	REFRIGERANT SUCTION
—— D ——	DRAIN (CONDENSATE)
—— CA ——	COMPRESSED AIR

PLUMBING PIPING

—— · ——	DOMESTIC COLD WATER
—— ·· ——	DOMESTIC HOT WATER
—— ··· ——	RECIRCULATING DOMESTIC HOT WATER
—— SAN ——	WASTE ABOVE GRADE OR FLOOR
— — SAN — —	WASTE BELOW GRADE OR FLOOR
—— ST ——	STORM ABOVE GRADE OR FLOOR
— — ST — —	STORM BELOW GRADE OR FLOOR
—— ST/O ——	STORM OVERFLOW ABOVE GRADE OR FLOOR
— — ST/O — —	STORM OVERFLOW BELOW GRADE OR FLOOR
—— V ——	PLUMBING VENT
—— W ——	WATER SERVICE
—— G ——	GAS (NATURAL)
—— PD ——	FROM SUMP PUMP DISCHARGE
—— CA ——	COMPRESSED AIR
—— LP ——	PROPANE
—— SCW ——	SOFT DOMESTIC COLD WATER
—— SHW ——	SOFT DOMESTIC HOT WATER
—— SRW ——	SOFT RECIRCULATING HOT WATER

FIRE SPRINKLER

—— F ——	FIRE PROTECTION PIPING
	SPRINKLER HEAD
	SIDEWALL SPRINKLER HEAD
	FIRE PROTECTION SIAMESE CONNECTION
	POST INDICATOR VALVE

PIPING SYMBOLS

	SHUTOFF VALVE
	SHUTOFF VALVE IN RISER
	BALANCING VALVE
	PLUG VALVE
	AUTO FLOW CONTROL VALVE
	PIPING ELBOW UP
	PIPING ELBOW DOWN
	PIPING TEE
	PIPING ELBOW
	PIPING TEE UP
	PIPING TEE DOWN
	INCREASER / REDUCER
	UNION
	CAP
	PIPE FLEX
	STRAINER
	CHECK VALVE
	INLINE STRAINER
T	TEST PLUG
	GUIDE
×	ANCHOR
	TRIPLE DUTY VALVE
	AUTOMATIC 2-WAY CONTROL VALVE
	AUTOMATIC 3-WAY CONTROL VALVE
S	SOLENOID VALVE

PIPING SPECIALTIES

P T	PRESS/ TEMP GAUGE WITH COCK
	THERMOMETER.
HI LOW	PRESSURE REDUCING VALVE
	RELIEF VALVE
	WATER HAMMER ARRESTER

PLUMBING FIXTURES/EQUIPMENT

HB	HOSE BIBB
WH	WALL HYDRANT
	CLEAN OUT
RPZ	REDUCED PRESSURE BACKFLOW PREVENTER
DCBP	DOUBLE CHECK BACKFLOW PREVENTER
WC-1 S-1	PLUMBING FIXTURE AND CALLOUT
FD-1	FD: FLOOR DRAIN, AD: AREA DRAIN, FS: FLOOR SINK
RD-1	RD: ROOF DRAIN ORD: OVERFLOW ROOF DRAIN

SHEET INDEX

MEP000	MEP COVER SHEET
MEP101	MEP SITE PLAN
MEP200	MEP PENETRATION DETAILS
MEP201	MEP PENETRATION DETAILS
M101	FIRST FLOOR HVAC PLAN
M102	SECOND FLOOR HVAC PLAN
M103	THIRD FLOOR HVAC PLAN
M201	ENLARGED UNIT PLANS - HVAC
M301	MECHANICAL SCHEDULES
M401	MECHANICAL DETAILS
P101	FIRST FLOOR PLUMBING PLAN
P102	SECOND FLOOR PLUMBING PLAN
P103	THIRD FLOOR PLUMBING PLAN
P201	ENLARGED UNIT PLANS - PLUMBING
P301	PLUMBING SCHEDULES
P302	PLUMBING DETAILS
E101	FIRST FLOOR LIGHTING PLAN
E102	SECOND FLOOR LIGHTING PLAN
E103	THIRD FLOOR LIGHTING PLAN
E111	ENLARGED UNIT PLANS - LIGHTING
E201	FIRST FLOOR POWER PLAN
E202	SECOND FLOOR POWER PLAN
E203	THIRD FLOOR POWER PLAN
E211	ENLARGED UNIT PLANS - POWER
E301	ELECTRICAL RISER DIAGRAMS
E302	ELECTRICAL SCHEDULES
E303	ELECTRICAL SCHEDULES
E401	ELECTRICAL SCHEDULES/DETAILS
E402	ELECTRICAL DETAILS
SL100	SITE PHOTOMETRICS

GEN. MECHANICAL NOTES

1. COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED VERSION OF THE INTERNATIONAL MECHANICAL CODE, LOCAL AND STATE CODES, AND REQUIREMENTS OF THE AHJ.
2. ANY POWER FOR CONTROL SYSTEMS TO BE PROVIDED BY E/C IS INDICATED ON ELECTRICAL PLANS. ANY ADDITIONAL LINE VOLTAGE OR LOW VOLTAGE POWER REQUIRED BY THE M/C OR SUBCONTRACTORS TO HAVE A FULLY FUNCTIONING SYSTEM SHALL BE PROVIDED BY THE M/C CONTRACTOR OR SUBS.
3. ALL EQUIPMENT SHALL BE ADEQUATELY AND PROPERLY SUPPORTED AND FASTENED FROM STRUCTURE.
4. ALL EQUIPMENT AND ACCESSORIES INSTALLED IN CONCEALED SPACES REQUIRING ACCESS SHALL BE PROVIDED WITH ACCESS DOORS MEETING ANY FIRE REQUIREMENTS OF THE WALL/CEILING THEY ARE INSTALLED.
5. EACH AIR HANDLING UNIT OVER 2000CFM SHALL BE PROVIDED WITH A SMOKE DETECTOR TO SHUT DOWN THE UNIT PER IMC 606 AS REQUIRED BY AHJ. COORDINATE WITH OTHER TRADES.
6. START UP AND ADJUST ALL EQUIPMENT AND VERIFY ALL MECHANICAL SYSTEMS IN OPERATE IN ACCORDANCE WITH THEIR INTENDED PURPOSES. SUBMIT BALANCE AND START UP REPORTS TO THE A/E. REFER TO SPECIFICATIONS FOR ANY ADDITIONAL REQUIREMENTS.

COORDINATION NOTES

1. COORDINATE REQUIREMENTS FOR INSTALLATION OF SYSTEMS AND EQUIPMENT WITH ALL OTHER TRADES.
2. THE CONTRACTOR SHALL COORDINATE THE ROUTING AND PATH OF ALL SYSTEMS, CONDUITS, PIPES, DUCTS, ETC WITH THE POSITION AND LAYOUT OF THE STRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING NECESSARY OFFSETS, TURNS, RISES AND DROPS FOR SYSTEMS AND COMPONENTS AS NEEDED TO INSTALL THE MEP SYSTEMS TO CLEAR STRUCTURE, CEILINGS, ETC AND OTHER SYSTEMS IN POTENTIAL CONFLICT WITH ROUTING.
3. COORDINATE WORK WITH OTHER TRADES TO INSTALL SYSTEMS ABOVE CEILING HEIGHTS INDICATED ON ARCHITECTURAL PLANS.
4. CHECK SPACE REQUIREMENTS WITH OTHER TRADES AND STRUCTURE/CONSTRUCTION TO ENSURE THAT ALL MATERIALS AND EQUIPMENT CAN BE INSTALLED IN THE SPACE ALLOTTED INCLUDING FINISHED SUSPENDED CEILINGS AND OTHER SPACES, CHASES, ETC WITHIN THE BUILDING. MAKE MODIFICATIONS THERETO AS REQUIRED AND APPROVED.
5. TRANSMIT TO OTHER TRADES ALL INFORMATION REQUIRED FOR WORK TO BE PROVIDED UNDER THEIR RESPECTIVE SECTIONS IN AMPLE TIME FOR INSTALLATION.
6. WHEREVER WORK INTERCONNECTS WITH WORK OF OTHER TRADES, COORDINATE WITH THOSE TRADES TO ENSURE THAT ALL SUBCONTRACTORS HAVE THE INFORMATION NECESSARY SO THAT THEY MAY PROPERLY INSTALL ALL CONNECTIONS AND EQUIPMENT. IDENTIFY ALL ITEMS OF WORK THAT REQUIRE ACCESS SO THAT THE CEILING TRADE WILL KNOW WHERE TO INSTALL ACCESS DOORS AND PANELS.
7. COORDINATE, PROJECT AND SCHEDULE WORK WITH OTHER TRADES IN ACCORDANCE WITH THE CONSTRUCTION SEQUENCE.
8. DRAWINGS SHOW THE GENERAL RUNS OF CONDUITS, PIPING AND DUCTWORK AND APPROXIMATE LOCATION OF OUTLETS. ANY SIGNIFICANT CHANGES IN LOCATION OF ITEMS NECESSARY IN ORDER TO MEET FIELD CONDITIONS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT/ENGINEER AND RECEIVE HIS APPROVAL BEFORE SUCH ALTERATIONS ARE MADE. ALL SUCH MODIFICATIONS SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION AND REPAIR OF SURFACES, AREAS AND PROPERTY THAT MAY BE DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITIES.
10. ADJUST LOCATION OF PIPING, DUCTWORK, ETC. TO PREVENT INTERFERENCES, BOTH ANTICIPATED AND ENCOUNTERED. DETERMINE THE EXACT ROUTE AND LOCATION OF EACH ITEM PRIOR TO FABRICATION. MAKE OFFSETS, TRANSITIONS AND CHANGES IN DIRECTION IN SYSTEMS AS REQUIRED TO MAINTAIN ADEQUATE CLEARANCES AND HEADROOM.
11. WHEREVER THE WORK IS OF SUFFICIENT COMPLEXITY, PREPARE ADDITIONAL COORDINATION DRAWINGS AND ORGANIZE ON-SITE MEETINGS WITH ALL RELATED SUBCONTRACTORS TO COORDINATE THE WORK BETWEEN TRADES . DRAWINGS SHALL CLEARLY SHOW THE WORK AND ITS RELATION TO THE WORK OF OTHER TRADES, AND BE SUBMITTED FOR REVIEW PRIOR TO COMMENCING SHOP FABRICATION OR ERECTION IN THE FIELD.
12. COORDINATE WITH LOCAL UTILITY PROVIDERS FOR THEIR REQUIREMENTS FOR SERVICE CONNECTIONS AND PROVIDE ALL NECESSARY PAYMENTS, MATERIALS, LABOR AND TESTING TO ACCOMPLISH THE WORK.

GENERAL NOTES

1. SOME ROOM NAMES MAY NOT BE SHOWN FOR PURPOSE OF CLARIFYING PLAN. REFER TO ARCHITECTURAL PLANS FOR REFERENCE TO ROOM NAMES NOT SHOWN.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN AND KEEP AT THE JOB SITE, AN UP TO DATE SET OF "RECORD DRAWINGS" SHOWING ALL CHANGES FROM THE ORIGINAL PLANS. THE CONTRACTOR SHALL DELIVER THE "RECORD DRAWINGS" TO THE ENGINEER AT THE CONCLUSION OF THE PROJECT ELECTRONICALLY.
3. THESE DRAWINGS ARE DIAGRAMMATIC. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS (NEW AND EXISTING), DIMENSIONS, AND CLEARANCES PRIOR TO THE COMMENCEMENT OF WORK AND SHALL INCLUDE ALL COSTS, EQUIPMENT, MATERIAL, ACCESSORIES, ETC. REQUIRED FOR A FULLY COMPLETE, FUNCTIONAL AND CODE COMPLIANT INSTALLATION.
4. FINAL LOCATIONS OF ALL DEVICES, LIGHT FIXTURES, EQUIPMENT ETC SHALL BE INDICATED ON THE ARCHITECTURAL DRAWINGS. ALL DIMENSIONAL INFORMATION SHALL BE OBTAINED FROM ARCHITECTURAL PLANS. NO DIMENSIONAL INFORMATION SHALL BE OBTAINED FROM MEP DRAWINGS.
5. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS, APPROVALS, LICENSES, ETC. AS NEEDED FOR THE COMPLETE INSTALLATION AND PROJECT. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR ALL FEES AND DATA NEEDED FOR THIS.

ABBREVIATIONS

A/E	ARCHITECT / ENGINEER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AG	ABOVE GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
ARCH	ARCHITECT
BFP	BACKFLOW PREVENTER
BG	BELOW GRADE
BLDG	BUILDING
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CD	CANDELA
CD	COLD DECK
CLG	COOLING
CM	COORDINATE MOUNTING HEIGHT
CO	CLEAN OUT
CTE	CONNECT TO EXISTING
DCVA	DOUBLE CHECK VALVE ASSEMBLY
DCW	DOMESTIC COLD WATER
DDC	DIRECT DIGITAL CONTROLS
DF	DRINKING FOUNTAIN
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RETURN
DIA	DIAMETER
DN	DOWN
E/C	ELECTRICAL CONTRACTOR
EA	EXHAUST AIR
EDF	ELECTRIC DRINKING FOUNTAIN
ELEV	ELEVATION
EM	EMERGENCY FIXTURE/DEVICE
EWT	ENTERING WATER TEMPERATURE
EX	EXISTING ITEM
FFA	FROM FLOOR ABOVE
FFB	FROM FLOOR BELOW
FFCO	FINISHED FLOOR CLEAN OUT
FGCO	FLUSH GRADE CLEAN OUT
FL	FLOW LINE
FLR	FLOOR
FP	FIRE PROTECTION
FPM	FEET PER MINUTE
FWCO	FLUSH WALL CLEAN OUT
G	GROUND / GANG
G/C	GENERAL CONTRACTOR
GFCI	GROUND FAULT CIRCUIT INTERUPTER
GPM	GALLONS PER MINUTE
HD	HOT DECK
HTG	HEATING
IG	ISOLATED GROUND
JB	JUNCTION BOX
LED	LIGHT EMITTING DIODE
LWT	LEAVING WATER TEMPERATURE
M/C	MECHANICAL CONTRACTOR
MA	MIXED AIR
MAU	MAKE UP AIR UNIT
MCB	MAIN CIRCUIT BREAKER
MECH	MECHANICAL
MH	MANHOLE
MLO	MAIN LUGS ONLY
NFA	NET FREE AREA
NL	NIGHT LIGHT
OA	OUTSIDE AIR
ORD	OVERFLOW ROOF DRAIN
P/C	PLUMBING CONTRACTOR
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYLCHLORIDE
RA	RETURN AIR
RE/REF	REFER / REFERENCE
RF	RELIEF FAN
RL	RELOCATED ITEM
RPZ	REDUCED PRESSURE ZONE
RR	RESTROOM
SA	SUPPLY AIR
SPD	SURGE PROTECTIVE DEVICE
ST	SHUNT TRIP
TA	TRANSFER AIR
TFA	TO FLOOR ABOVE
TFB	TO FLOOR BELOW
TP	TAMPERPROOF
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VRF	VARIABLE REFRIGERANT FLOW
VTR	VENT THROUGH ROOF
WCO	WALL CLEANOUT
WG	WIRE GUARD
WP	WEATHERPROOF

FIRE SEALING NOTES

1. COORDINATE CONSTRUCTION OF OPENINGS AND PENETRATING ITEMS TO ENSURE THAT THROUGH-PENETRATION FIRESTOP SYSTEMS ARE INSTALLED ACCORDING TO SPECIFIED AND APPLICABLE UL REQUIREMENTS.
2. COORDINATE SIZING OF SLEEVES, OPENINGS, CORE-DRILLED HOLES, OR CUT OPENINGS TO ACCOMMODATE THROUGH-PENETRATION FIRESTOP SYSTEMS.
3. DO NOT COVER UP THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATIONS UNTIL EXAMINED BY INSPECTOR, IF REQUIRED BY AUTHORITIES HAVING JURISDICTION.
4. COMPATIBILITY: PROVIDE THROUGH-PENETRATION FIRESTOP SYSTEMS THAT ARE COMPATIBLE WITH ONE ANOTHER; WITH THE SUBSTRATES FORMING OPENINGS; AND WITH THE ITEMS, IF ANY, PENETRATING THROUGH-PENETRATION FIRESTOP SYSTEMS, UNDER CONDITIONS OF SERVICE AND APPLICATION, AS DEMONSTRATED BY THROUGH-PENETRATION FIRESTOP SYSTEM MANUFACTURER BASED ON TESTING AND FIELD EXPERIENCE.
5. PROVIDE COMPONENTS FOR EACH THROUGH-PENETRATION FIRESTOP SYSTEM THAT ARE NEEDED TO INSTALL FILL MATERIALS. USE ONLY COMPONENTS SPECIFIED BY THROUGH-PENETRATION FIRESTOP SYSTEM MANUFACTURER AND APPROVED BY QUALIFIED TESTING AND INSPECTING AGENCY FOR FIRESTOP SYSTEMS INDICATED.
6. PROVIDE SLEEVES THROUGH ALL FIRE-RATED WALLS AND FILL VOIDS SURROUNDING SLEEVES AND INTERIOR TO SLEEVES AROUND PIPING WITH FIRE STOP PUTTY WITH U.L. LISTED 3 HOUR RATING INSTALLED AS PER MANUFACTURERS RECOMMENDATIONS.
7. FIRE SEAL ALL PIPING, CONDUIT, CABLE, ETC PENETRATIONS ROUTED THROUGH FIRE RATED WALLS.
8. PROVIDE FIRE RATED ENCLOSURES OR WRAPS ON LIGHT FIXTURES AND OTHER ITEMS PENETRATING FIRE RATED CEILINGS, FLOOR/CEILING/ CEILING/ROOF ASSEMBLIES TO MAINTAIN UL LISTING FOR CONSTRUCTION.

GENERAL PLUMBING NOTES

1. COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED VERSION OF THE INTERNATIONAL PLUMBING CODE, LOCAL AND STATE CODES, AND REQUIREMENTS OF THE AHJ.
2. NO PIPING SHALL BE INSTALLED WHERE IT WILL SUBJECT TO FREEZING TEMPERATURES. PIPING IN EXTERIOR WALLS SHALL BE INSTALLED ON THE WARM SIDE OF BUILDING INSULATION, INSULATED AND THE CHASE SHALL BE VENTILATED WITH GRILLES ALLOWING INDOOR AMBIENT CONDITIONS TO CIRCULATE THROUGH THE CHASE.
3. PROVIDE CLEANOUTS IN THE FOLLOWING LOCATIONS:
   - 3.1. IN ALL HORIZONTAL DRAINS (WITHIN THE BUILDING) NOT MORE THAN 100 FEET APART.
   - 3.2. IN BUILDING SEWERS LOCATED NO MORE THAN 100 FEET APART MEASURED FROM THE UPSTREAM ENTRANCE OF THE CLEANOUT.
   - 3.3. EACH CHANGE OF DIRECTION OF THE BUILDING DRAIN OR HORIZONTAL WASTE OR SOIL LINES GREATER THAN 45 DEGREES. WHERE MORE THAN ONE CHANGE OF DIRECTION OCCURS IN A RUN OF PIPING, ONLY ONE CLEANOUT SHALL BE REQUIRED FOR EACH 40 FEET OF DEVELOPED LENGTH OF THE DRAINAGE PIPING.
   - 3.4. AT THE BASE OF EACH WASTE OR SOIL STACK.
   - 3.5. NEAR THE JUNCTION OF THE BUILDING DRAIN AND BUILDING SEWER.

GENERAL ELECTRICAL NOTES

1. COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED VERSION OF THE NATIONAL ELECTRICAL CODE, LOCAL AND STATE CODES, AND REQUIREMENTS OF THE AHJ.
2. COORDINATE LOCATIONS OF RECEPTACLES, SWITCHES, ETC. WITH ARCHITECTURAL CASEWORK AND ELEVATIONS.
3. REFER TO MOUNTING HEIGHTS DETAIL FOR MOUNTING HEIGHTS OF ALL DEVICES NOT INDICATED OTHERWISE.
4. PROVIDE ALL EMPTY CONDUITS WITH PULL STRINGS AND BUSHED ENDS.
5. CONTRACTOR SHALL CONCEAL ALL CONDUIT, FITTINGS, AND DEVICES FROM VIEW WHERE REASONABLY POSSIBLE.

PRINTS ISSUED
10/30/2023 - PERMIT SUBMITTAL

REVISIONS:

23.161

pkmr ENGINEERS

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10/30/23
Michael D. Raaf - Engineer
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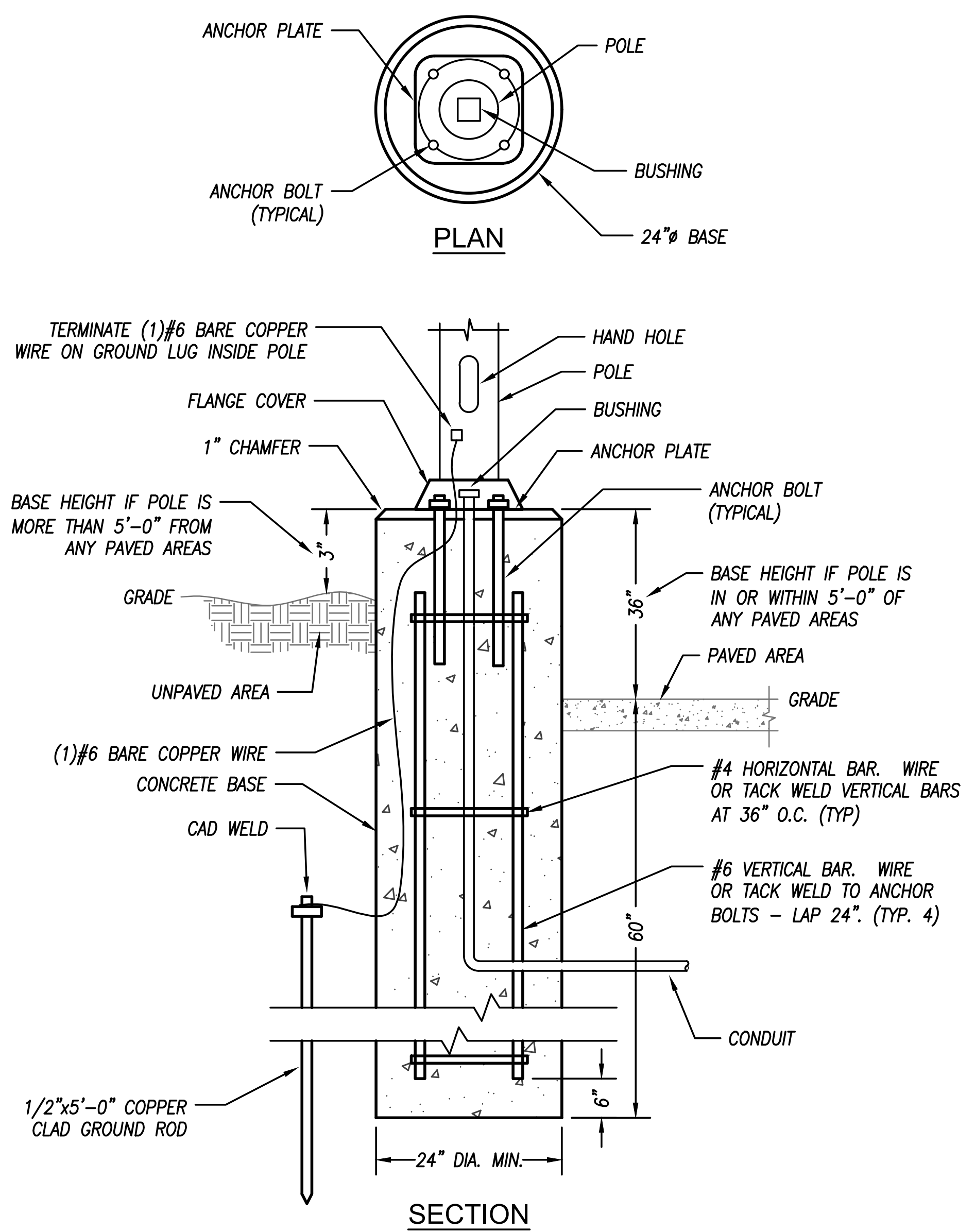
WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
MEP COVER SHEET

PROJECT NUMBER: 23.161

SHEET NUMBER:

MEP000

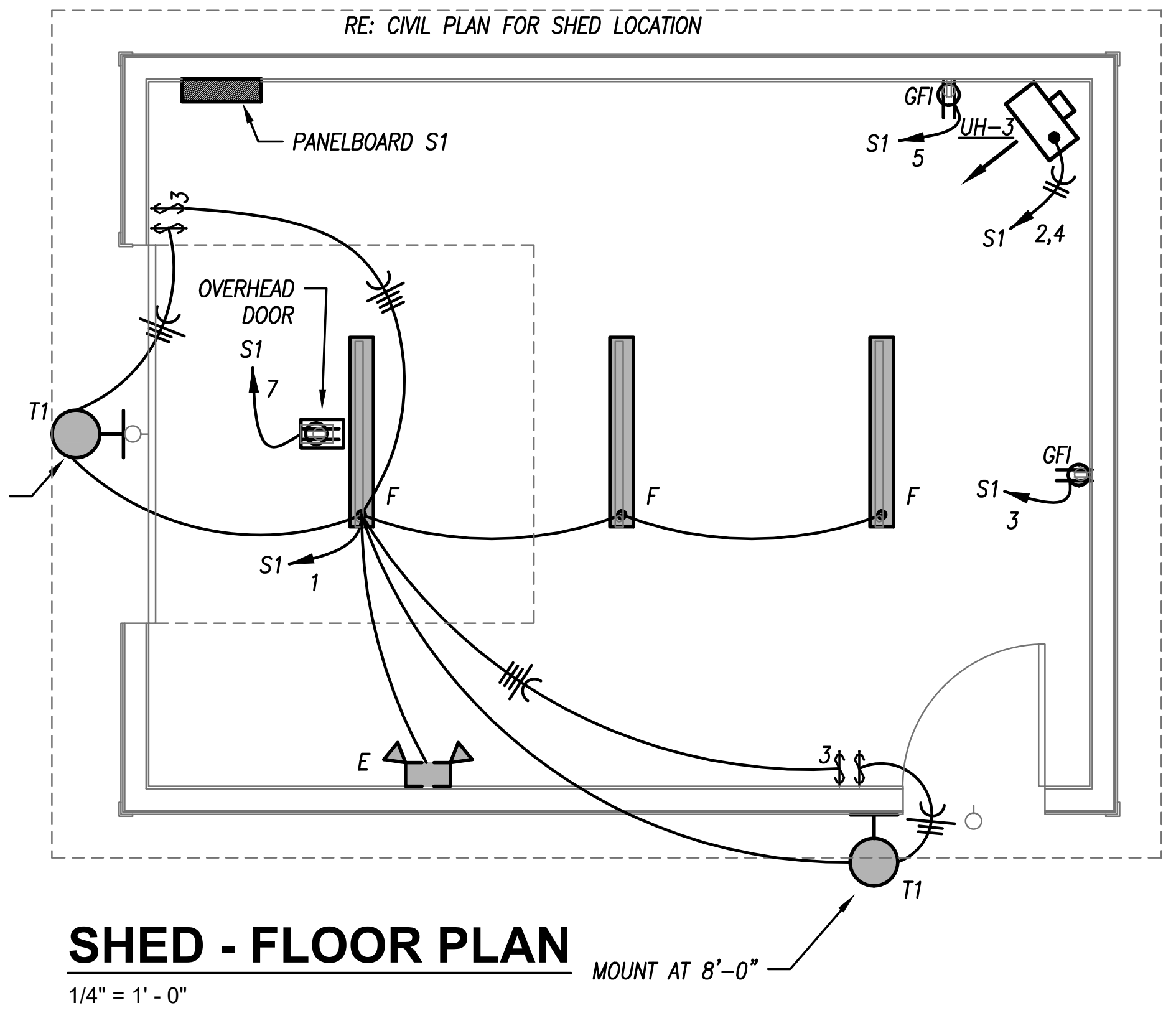

ANCHOR PLATE
POLE
BUSHING
ANCHOR BOLT (TYPICAL)
24"ø BASE
TERMINATE (1)#6 BARE COPPER WIRE ON GROUND LUG INSIDE POLE
HAND HOLE
POLE
FLANGE COVER
BUSHING
1" CHAMFER
ANCHOR PLATE
BASE HEIGHT IF POLE IS MORE THAN 5'-0" FROM ANY PAVED AREAS
ANCHOR BOLT (TYPICAL)
3"
36"
BASE HEIGHT IF POLE IS IN OR WITHIN 5'-0" OF ANY PAVED AREAS
GRADE
PAVED AREA
UNPAVED AREA
GRADE
(1)#6 BARE COPPER WIRE
CONCRETE BASE
#4 HORIZONTAL BAR. WIRE OR TACK WELD VERTICAL BARS AT 36" O.C. (TYP)
CAD WELD
#6 VERTICAL BAR. WIRE OR TACK WELD TO ANCHOR BOLTS - LAP 24". (TYP. 4)
60"
CONDUIT
6"
1/2"x5'-0" COPPER CLAD GROUND ROD
24" DIA. MIN.

PLAN

SECTION

POLE BASE DETAIL

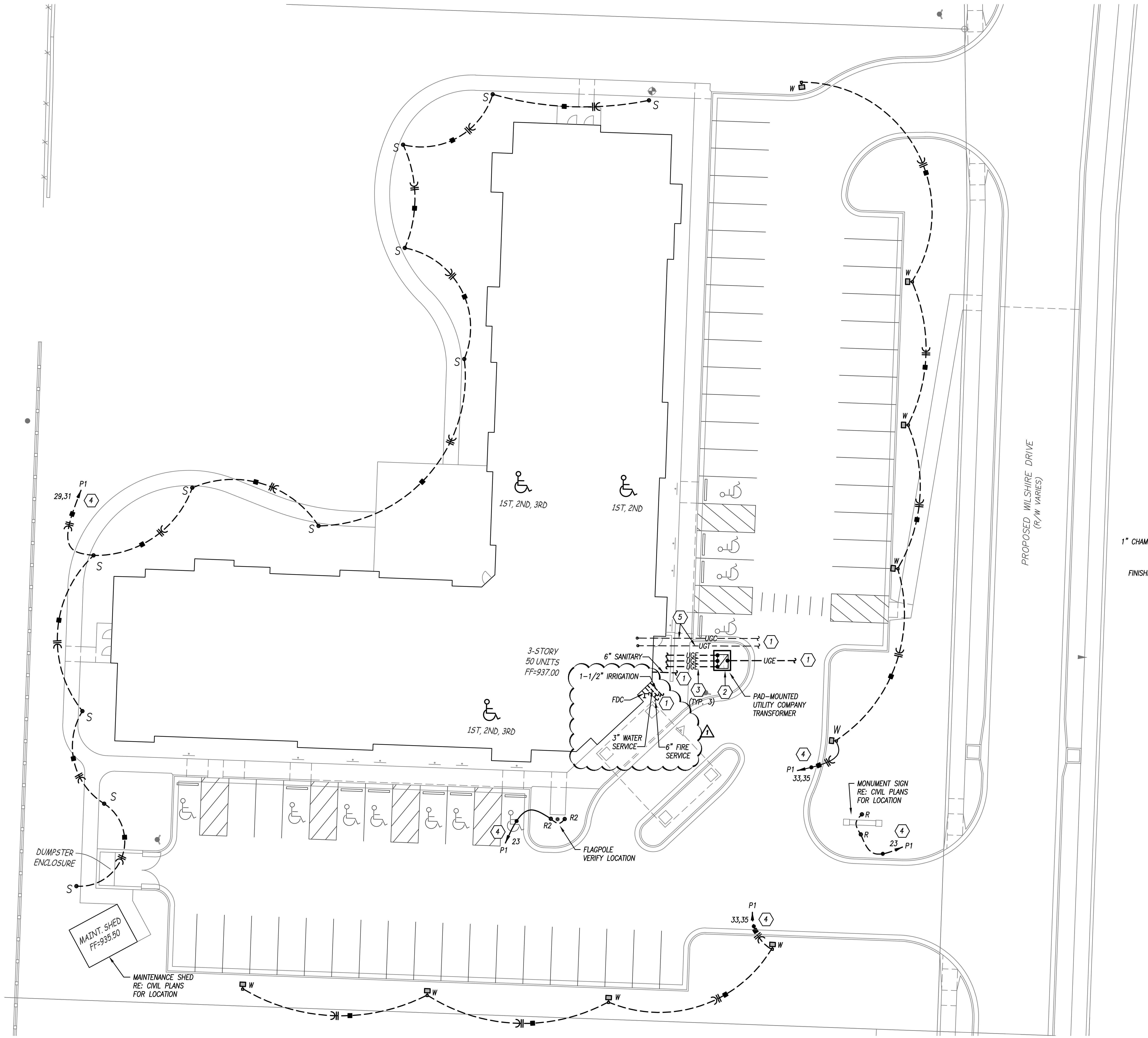
NOT TO SCALE



SHED - FLOOR PLAN

1/4" = 1' - 0"

MOUNT AT 8'-0"



SITE PLAN - MECHANICAL / ELECTRICAL

1"=20'-0"

GENERAL SITE PLAN NOTES

1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.

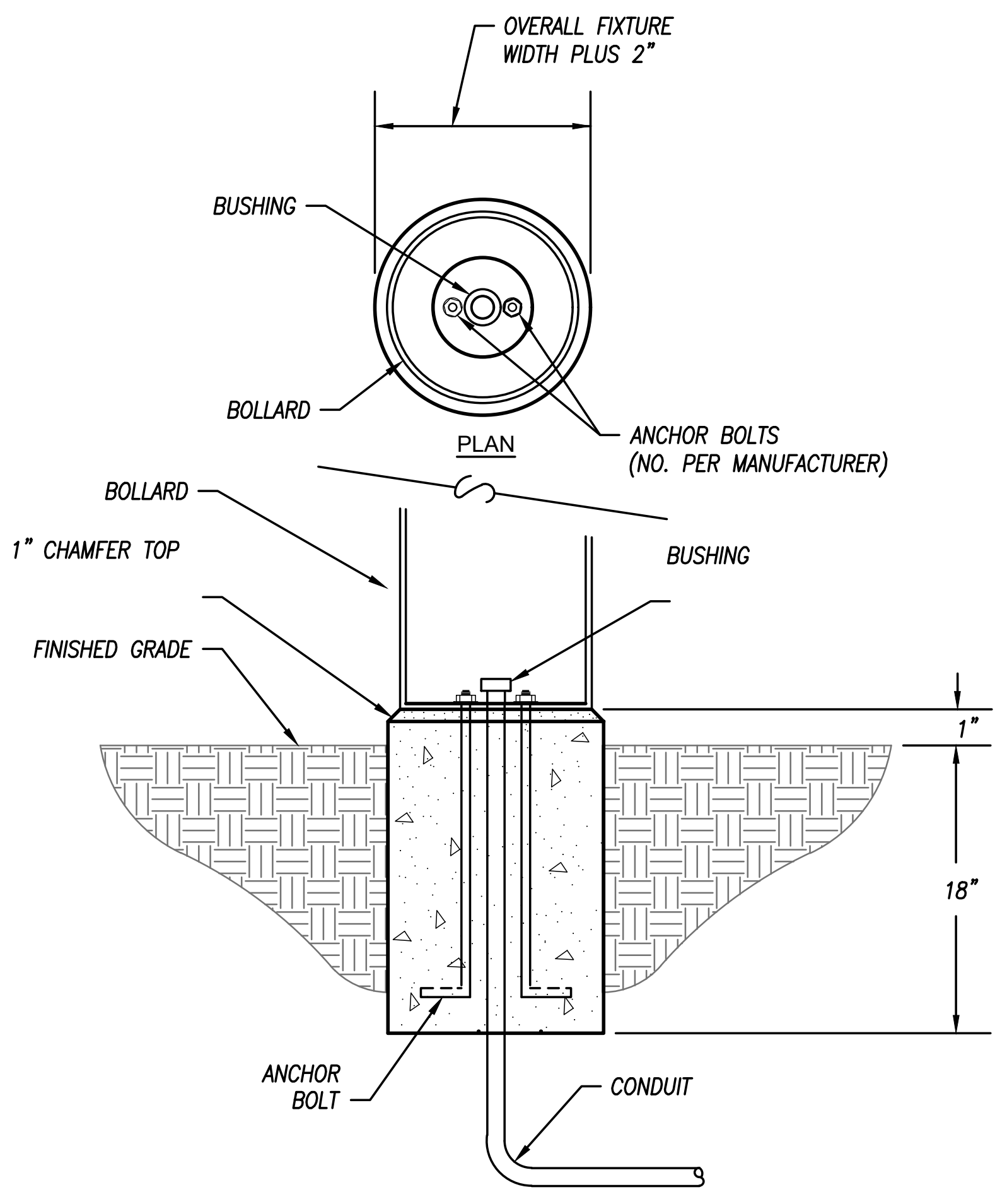
2. REFER TO CIVIL PLANS FOR CONTINUATION OF SERVICES BEYOND 5'-0" FROM BUILDING UNLESS OTHERWISE SHOWN.

3. REFER TO RESPECTIVE FLOOR PLANS FOR CONTINUATION OF SERVICES INSIDE BUILDING AND/OR EXACT LOCATIONS OF EQUIPMENT.

4. CONTACT UTILITY LOCATING SERVICE TO LOCATE EXACT LOCATION OF ALL EXISTING UTILITIES BELOW GRADE.

SITE PLAN KEYED NOTES

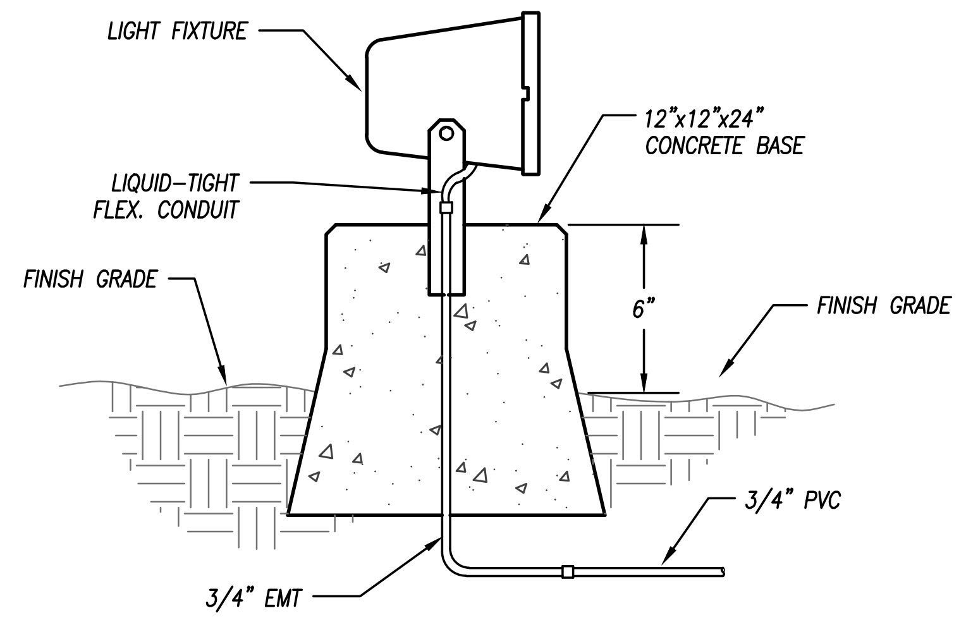
1. REFER TO CIVIL PLANS FOR CONTINUATION OF SERVICES.
2. PAD-MOUNTED UTILITY COMPANY TRANSFORMER. COORDINATE EXACT LOCATION IN FIELD WITH UTILITY CO. STUB OUT ONE (1) 4" PVC CONDUIT FOR FUTURE EXTENSION. CAP AND FLAG SAME.
3. REFER TO RISER DIAGRAM FOR NUMBER AND SIZE OF WIRE AND/OR CONDUIT REQUIRED.
4. ROUTE THROUGH REMOTE CONTROL SWITCH RCS-1, THEN HOMERUN. RE: SCHEDULES ON SHEET E401.
5. ONE (1) 4" EMPTY PVC CONDUIT FOR CABLE TELEVISION AND ONE (1) 4" EMPTY PVC CONDUIT FOR TELEPHONE. PROVIDE EACH WITH PULLSTRING AND TURN UP AT BACKBOARD LOCATION INSIDE BUILDING.



PLAN

BOLLARD BASE

NOT TO SCALE



FLOOD LIGHT DETAIL

NOT TO SCALE

PRINTS ISSUED
10/30/2023 - PERMIT SUBMITTAL

REVISIONS:
1 12/15/2023 - CITY COMMENTS

23.161

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PE-2005028097
12/15/23
Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III

LEE'S SUMMIT, MISSOURI

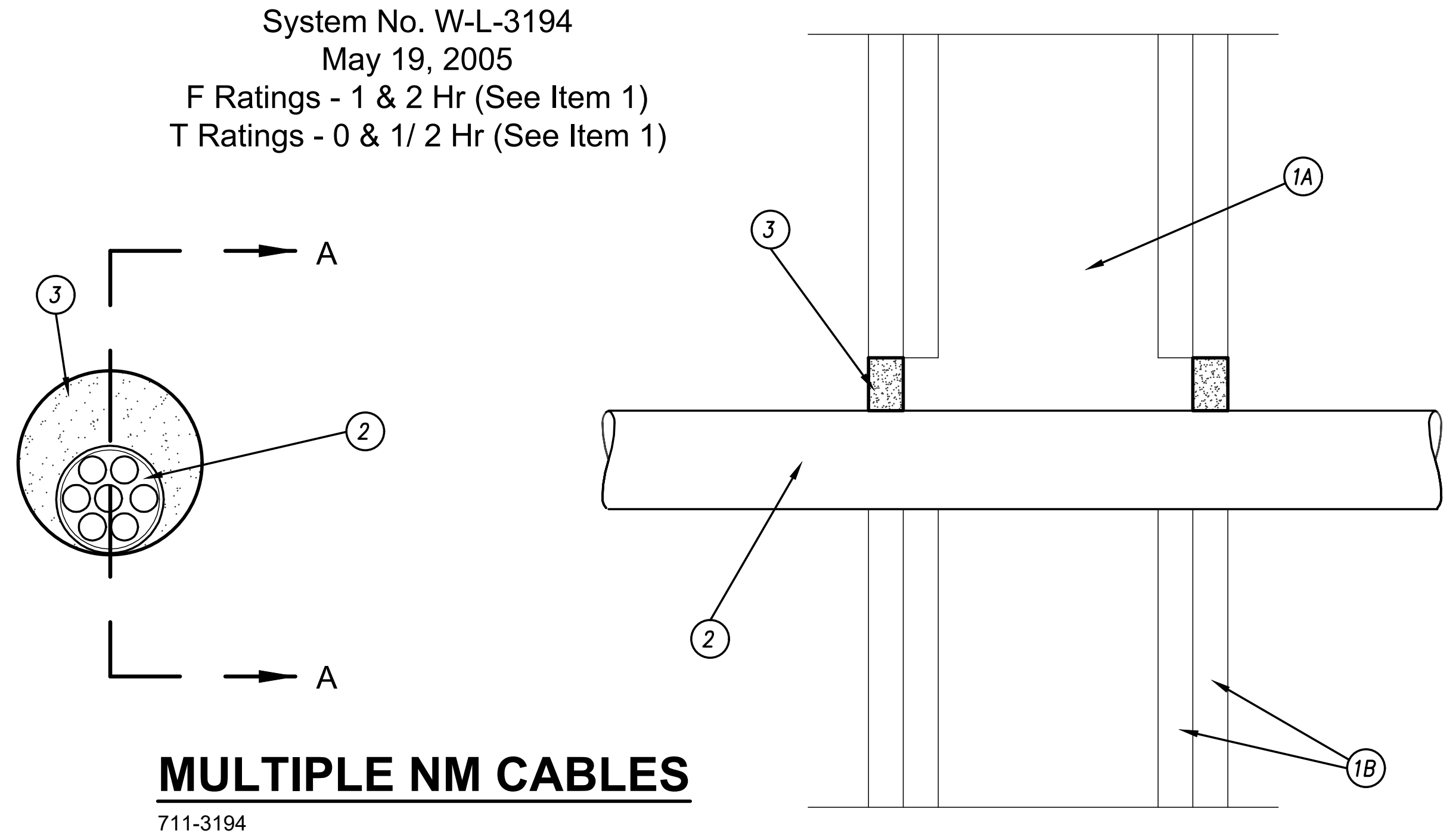
SHEET TITLE
MEP SITE PLAN

PROJECT NUMBER: 23.161

SHEET NUMBER:

MEP101

System No. W-L-3194
May 19, 2005
F Ratings - 1 & 2 Hr (See Item 1)
T Ratings - 0 & 1/ 2 Hr (See Item 1)



MULTIPLE NM CABLES

711-3194

SECTION A-A

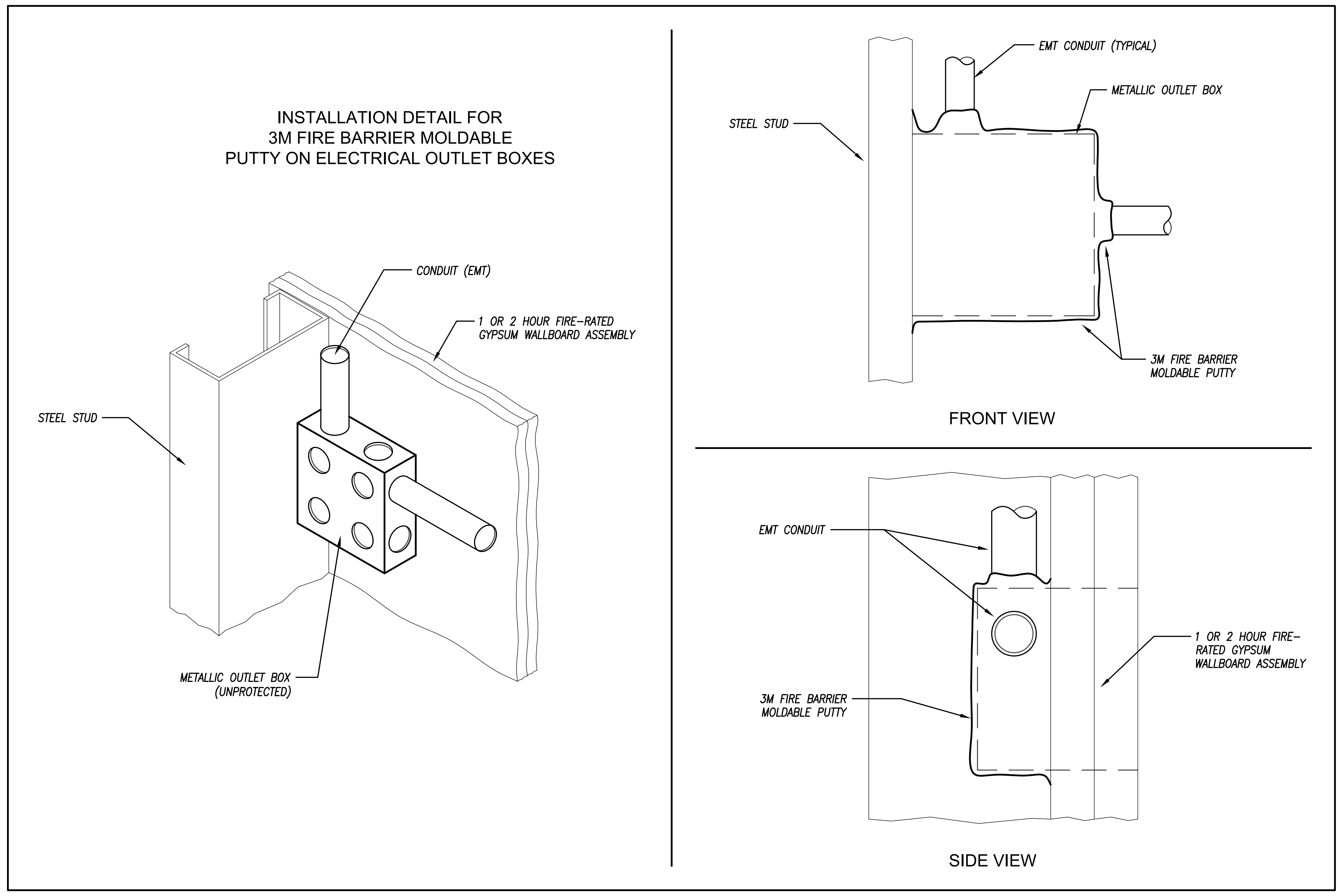
1. WALL ASSEMBLY – THE 1 OR 2 HR FIRE RATED GYPSUM BOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300, U400 OR V400 SERIES WALL OR PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
   A. STUDS – WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 IN. BY 4 IN. (51 MM BY 102 MM) LUMBER SPACED 16 IN. (406 MM) OC. STEEL STUDS TO BE MIN 3–1/2 IN. (89 MM) WIDE SPACED MAX 24 IN. (610 MM) OC.
   B. GYPSUM BOARD* – THE GYPSUM BOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 2–1/2 IN. (64 MM).
   THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.
   THE HOURLY T RATING IS 0 AND 1/2 HR FOR 1 AND 2 HR RATED ASSEMBLIES, RESPECTIVELY.

2. CABLE – ONE CABLE INSTALLED ECCENTRICALLY OR CONCENTRICALLY WITHIN OPENING. ANNULAR SPACE BETWEEN CABLE AND PERIPHERY OF OPENING TO BE MIN 0 IN. (POINT CONTACT) TO MAX 1 IN. (0 MM TO MAX 25 MM). CABLE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE WALL. THE FOLLOWING TYPES AND SIZES OF CABLE MAY BE USED:
   A. MAX 200 PAIR NO. 22 AWG (OR SMALLER) COPPER CONDUCTOR WITH POLYVINYL CHLORIDE (PVC) INSULATION AND JACKETING MATERIAL.
   B. MAX 1/C NO. 350 KCMIL (OR SMALLER) COPPER CONDUCTOR CABLE WITH CROSS–LINKED POLYETHYLENE (XLPE) OR PVC JACKET.
   C. MAX 7/C NO. 12 AWG (OR SMALLER) COPPER CONDUCTOR POWER AND CONTROL CABLES WITH XLPE OR PVC INSULATION WITH XLPE OR PVC JACKET.
   D. MAX 3/C NO. 2/0 AWG (OR SMALLER) COPPER OR ALUMINUM CONDUCTOR SER CABLES WITH XLPE OR PVC INSULATION AND JACKET.
   E. MAX 4/C NO. 2/0 AWG (OR SMALLER) COPPER CONDUCTOR, ALUMINUM CLAD OR STEEL CLAD TECK 90 CABLE WITH OR WITHOUT PVC JACKETED.
   F. MAX 110/125 FIBER OPTIC (F.O.) CABLE WITH PVC INSULATION AND JACKET.
   G. MAX 3/C WITH GROUND NO. 8 AWG (OR SMALLER) COPPER CONDUCTOR NM CABLE WITH PVC INSULATION AND JACKET.
   H. MAX RG/U COAXIAL CABLE WITH FLUORINATED ETHYLENE INSULATION AND JACKET.
   I. MAX 4 PAIR NO. 24 AWG (OR SMALLER) COPPER CONDUCTOR DATA CABLE WITH HYLAR JACKET AND INSULATION.
   J. THROUGH PENETRATING PRODUCT* – ANY CABLES, ARMORED CABLE+ OR METAL CLAD CABLE+ CURRENTLY CLASSIFIED UNDER THE THROUGH PENETRATING PRODUCT CATEGORY.
   SEE THROUGH PENETRATING PRODUCT (XHLY) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS

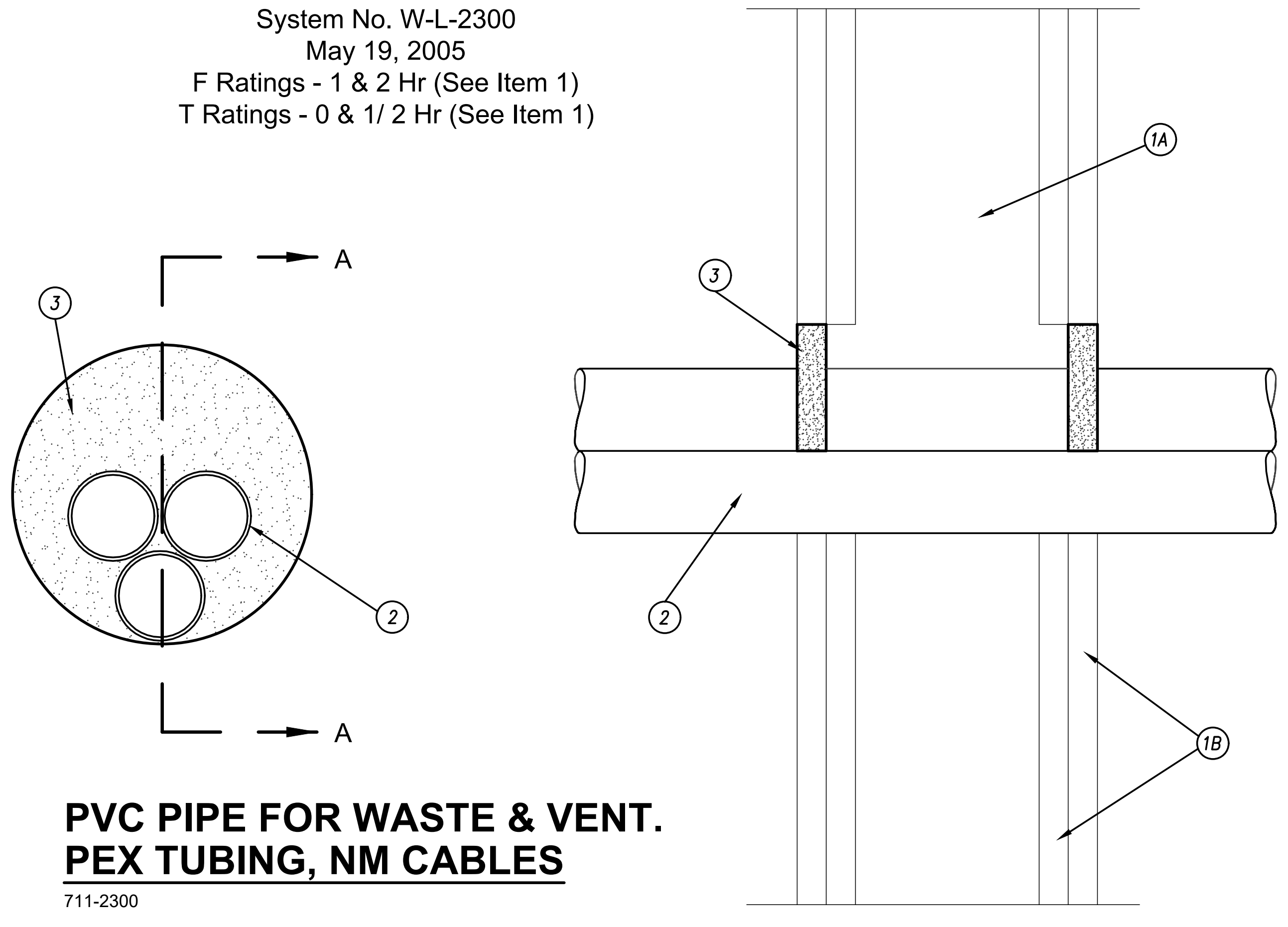
3. FILL, VOID OR CAVITY MATERIAL* – CAULK OR SEALANT – MIN 5/8 IN. (16 MM) THICKNESS OF CAULK APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. MIN 1/4 IN. (6 MM) DIAM BEAD OF CAULK APPLIED TO GYPSUM BOARD/CABLE INTERFACE AT POINT CONTACT LOCATION ON BOTH SIDES OF WALL.
   3M COMPANY – IC 15WB+, CP 25WB+ CAULK OR FB–3000 WT SEALANT

*BEARING THE UL CLASSIFICATION MARKING

INSTALLATION DETAIL FOR 3M FIRE BARRIER MOLDABLE PUTTY ON ELECTRICAL OUTLET BOXES


CONDUIT (EMT)
1 OR 2 HOUR FIRE–RATED GYPSUM WALLBOARD ASSEMBLY
STEEL STUD
METALLIC OUTLET BOX (UNPROTECTED)
EMT CONDUIT (TYPICAL)
METALLIC OUTLET BOX
STEEL STUD
3M FIRE BARRIER MOLDABLE PUTTY
FRONT VIEW
EMT CONDUIT
1 OR 2 HOUR FIRE–RATED GYPSUM WALLBOARD ASSEMBLY
3M FIRE BARRIER MOLDABLE PUTTY
SIDE VIEW

System No. W-L-2300
May 19, 2005
F Ratings - 1 & 2 Hr (See Item 1)
T Ratings - 0 & 1/ 2 Hr (See Item 1)



PVC PIPE FOR WASTE & VENT. PEX TUBING, NM CABLES

711-2300

SECTION A-A

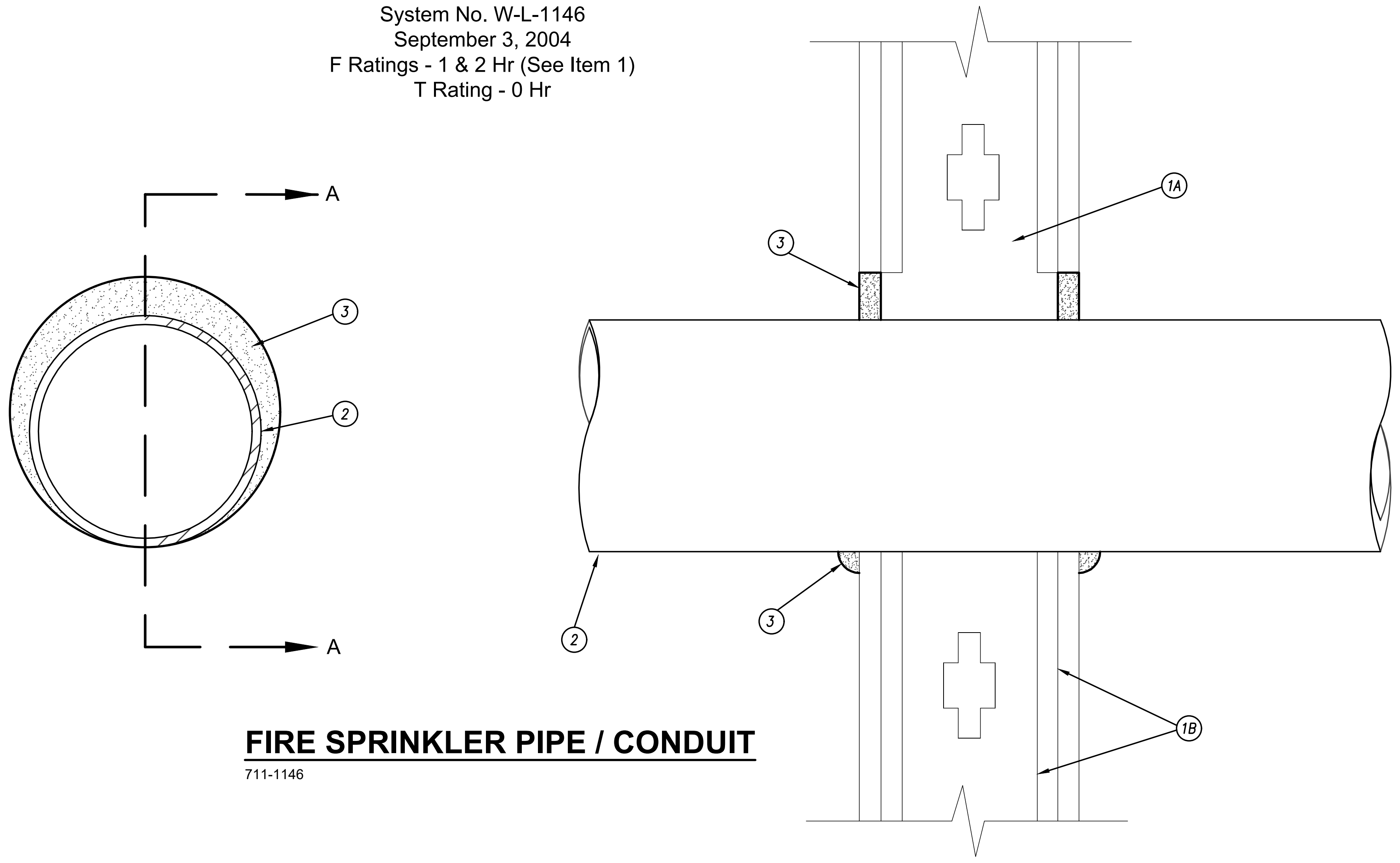
1. WALL ASSEMBLY – THE 1 OR 2 HR FIRE RATED GYPSUM BOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300, U400 OR V400 SERIES WALL OR PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
   A. STUDS – WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 IN. BY 4 IN. (51 MM BY 102 MM) LUMBER SPACED 16 IN. (406 MM) OC. STEEL STUDS TO BE MIN 3–1/2 IN. (89 MM) WIDE SPACED MAX 24 IN. (610 MM) OC.
   B. GYPSUM BOARD* – THE GYPSUM BOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 4 IN. (102 MM).
   THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.
   THE HOURLY T RATING IS 0 AND 1/2 HR FOR 1 AND 2 HR RATED ASSEMBLIES, RESPECTIVELY.

2. THROUGH PENETRANTS – ONE OR MORE NONMETALLIC PIPES, CONDUITS OR TUBES INSTALLED CONCENTRICALLY OR ECCENTRICALLY WITHIN OPENING. ANNULAR SPACE BETWEEN PENETRANTS AND PERIPHERY OF OPENING TO BE MIN 0 IN. (POINT CONTACT) TO MAX 1 IN. (0 MM TO MAX 25 MM). SPACE BETWEEN PENETRANTS SHALL BE MIN 0 IN. (POINT CONTACT) TO MAX 1 IN. (0 MM TO MAX 25 MM). PENETRANTS TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL. THE FOLLOWING TYPES AND SIZES OF PENETRANTS MAY BE USED:
   A. POLYVINYL CHLORIDE (PVC) PIPE – NOM 1–1/2 IN. (38 MM) DIAM (OR SMALLER) SCHEDULE 40 SOLID OR CELLULAR CORE PVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
   B. RIGID NONMETALLIC CONDUIT++ – NOM 1–1/2 IN. (38 MM) DIAM (OR SMALLER) SCHEDULE 40 PVC CONDUIT INSTALLED IN ACCORDANCE WITH ARTICLE 347 OF THE NATIONAL ELECTRICAL CODE (NFPA NO. 70).
   C. CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE – NOM 1–1/2 IN. (38 MM) DIAM (OR SMALLER) SDR13.5 CPVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS.
   D. CROSSLINKED POLYETHYLENE (PEX) TUBING – NOM 1 IN. (25 MM) DIAM (OR SMALLER) SDR 9 PEX TUBING FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.

3. FILL, VOID OR CAVITY MATERIAL* – CAULK OR SEALANT – MIN 5/8 IN. (16 MM) THICKNESS OF CAULK APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. MIN 1/4 IN. (6 MM) DIAM BEAD OF CAULK APPLIED TO GYPSUM BOARD/PENETRANT INTERFACE AT POINT CONTACT LOCATION ON BOTH SIDES OF WALL.
   3M COMPANY – IC 15WB+, CP 25WB+ CAULK OR FB–3000 WT SEALANT
   (NOTE: CP 25WB+ NOT SUITABLE FOR USE WITH CPVC PIPES.)

*BEARING THE UL CLASSIFICATION MARKING

System No. W-L-1146
September 3, 2004
F Ratings - 1 & 2 Hr (See Item 1)
T Rating - 0 Hr



FIRE SPRINKLER PIPE / CONDUIT

711-1146

SECTION A-A

1. WALL ASSEMBLY – THE 1 OR 2 HR FIRE RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 OR U400 SERIES WALL OR PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
   A. STUDS – WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 IN. BY 4 IN. (51 MM BY 102 MM) LUMBER SPACED 16 IN. (406 MM) OC. STEEL STUDS TO BE MIN 3–1/2 IN. (89 MM) WIDE AND SPACED MAX 24 IN. (610 MM) OC. WHEN STEEL STUDS ARE USED AND THE DIAM OF OPENING EXCEEDS THE WIDTH OF STUD CAVITY, THE OPENING SHALL BE FRAMED ON ALL SIDES USING LENGTHS OF STEEL STUD INSTALLED BETWEEN THE VERTICAL STUDS AND SCREW–ATTACHED TO THE STEEL STUDS AT EACH END. THE FRAMED OPENING IN THE WALL SHALL BE 4 IN. TO 6 IN. (102 TO 152 MM) WIDER AND 4 IN. TO 6 IN. (102 TO 152 MM) HIGHER THAN THE DIAM OF THE PENETRATING ITEM SUCH THAT, WHEN THE PENETRATING ITEM IS CENTERED IN THE OPENING, A 2 IN. TO 3 IN. (51 MM TO 76 MM) CLEARANCE IS PRESENT BETWEEN THE PENETRATING ITEM AND THE FRAMING IN ALL FOUR SIDES.
   B. GYPSUM BOARD* – THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 26 IN. (660 MM) FOR STEEL STUD WALLS. MAX DIAM OF OPENING IS 14–1/2 IN. (368 MM) FOR WOOD STUD WALLS.
   THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.

2. THROUGH PENETRANT – ONE METALLIC PIPE, CONDUIT OR TUBING INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPE, CONDUIT OR TUBING AND PERIPHERY OF OPENING SHALL BE MIN OF 0 IN. (POINT CONTACT) TO MAX 2 IN. (0 MM TO 51 MM). PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
   A. STEEL PIPE – NOM 24 IN. (610 MM) DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
   B. IRON PIPE – NOM 24 IN. (610 MM) DIAM (OR SMALLER) SERVICE WEIGHT (OR HEAVIER) CAST IRON SOIL PIPE, NOM 12 IN (305 MM) DIAM (OR SMALLER) OR CLASS 50 (OR HEAVIER) DUCTILE IRON PRESSURE PIPE.
   C. CONDUIT – NOM 6 IN. (152 MM) DIAM (OR SMALLER) STEEL CONDUIT OR NOM 4 IN (102 MM) DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING
   D. COPPER TUBING – NOM 6 IN. (152 MM) DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING
   E. COPPER PIPE – NOM 6 IN. (152 MM) DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

3. FILL, VOID OR CAVITY MATERIALS* – CAULK OR SEALANT – MIN 5/8 IN. (16 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. MIN 1/2 IN. (13 MM) DIAM BEAD OF CAULK APPLIED TO THE PENETRANT/WALLBOARD INTERFACE AT THE POINT CONTACT LOCATION ON BOTH SIDES OF WALL.
   3M COMPANY – CP 25WB+ CAULK OR FB–3000 WT SEALANT.

*BEARING THE UL CLASSIFICATION MARK

PRINTS ISSUED
10/30/2023 - PERMIT SUBMITTAL

REVISIONS:

23.161

pkmr ENGINEERS

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MICHAEL D. RAAF
NUMBER PE-2005028097
10/30/23
Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

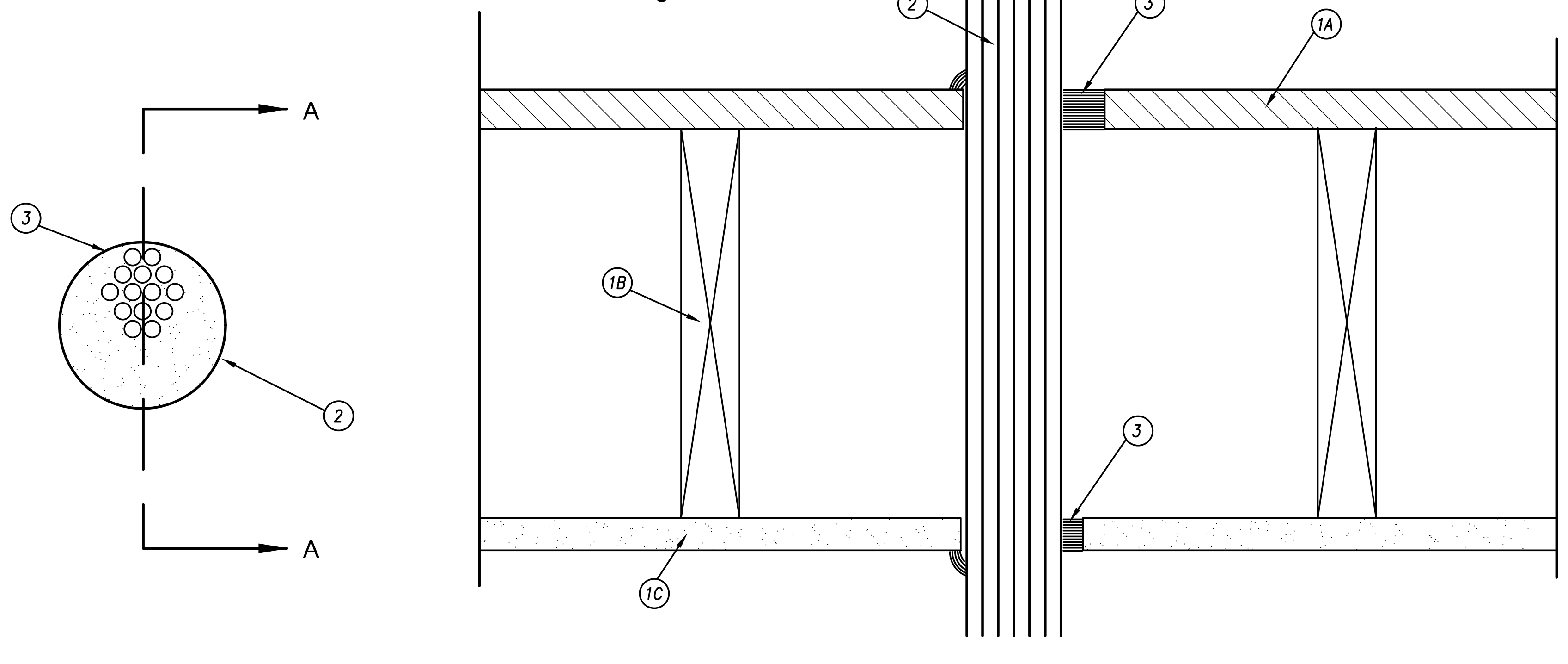
SHEET TITLE
MEP PENETRATION DETAILS

PROJECT NUMBER: 23.161

SHEET NUMBER:

MEP200

System No. F-C-3070
May 19, 2005
F Rating - 1 Hr
T Rating - 1 Hr



SECTION A-A

1. FLOOR-CEILING ASSEMBLY – THE 1 HR FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE GENERAL CONSTRUCTION DETAILS OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW:
   A. FLOORING SYSTEM – LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAX DIAM OF OPENING IS 3 IN. (76 MM).
   B. WOOD JOISTS – NOM 10 IN. (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR STRUCTURAL WOOD MEMBERS* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED.
   C. GYPSUM BOARD* – NOM 4 FT (122 CM) WIDE BY 5/8 IN. (16 MM) THICK AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAX DIAM OF OPENING IS 3 IN. (76 MM).

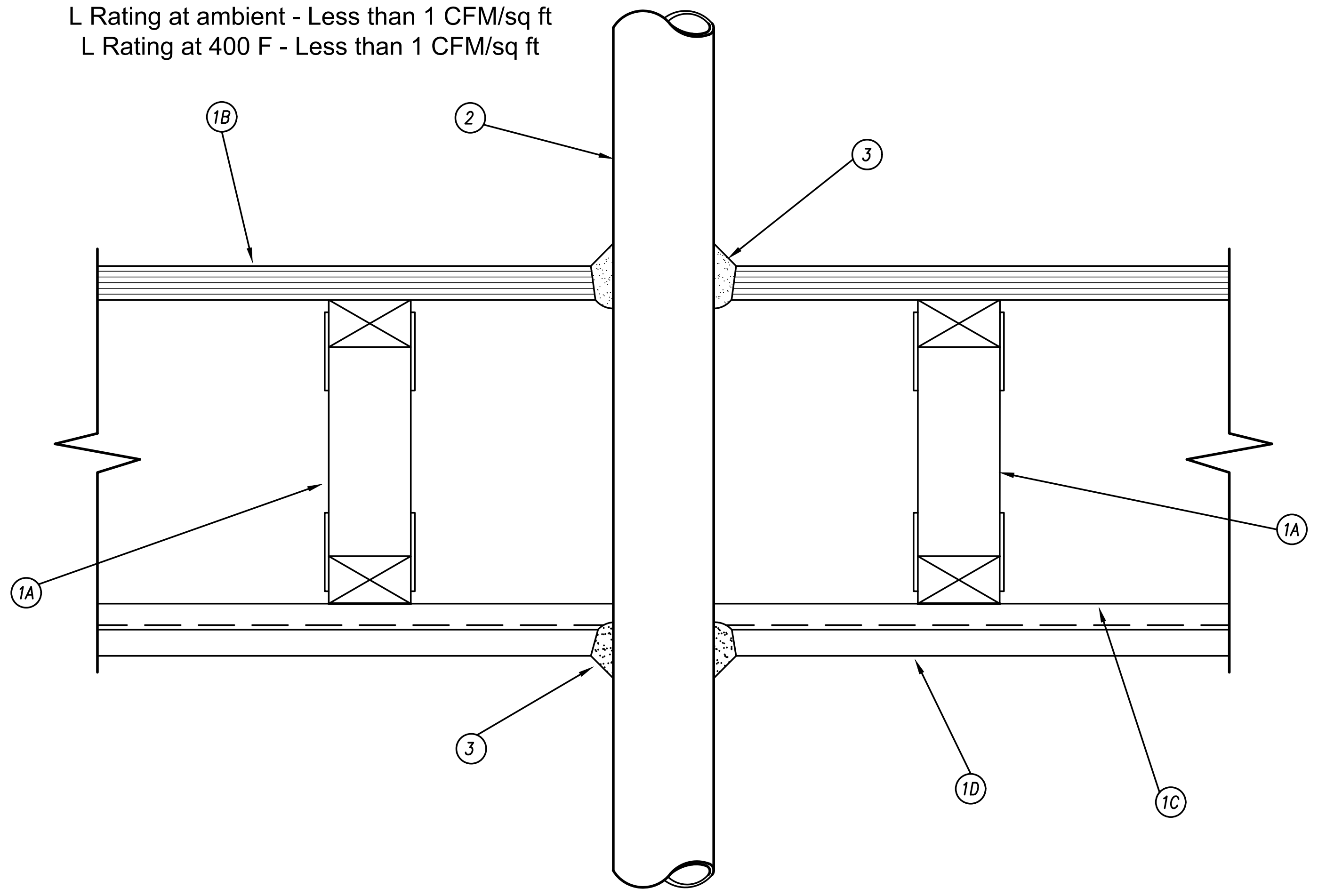
1.1 CHASE WALL (OPTIONAL, NOT. SHOWN) – THE THROUGH PENETRANTS (ITEM NO. 2) MAY BE ROUTED THROUGH A FIRE-RATED SINGLE, DOUBLE OR STAGGERED WOOD STUD/GYPSUM BOARD CHASE WALL HAVING A FIRE RATING CONSISTENT WITH THAT OF THE FLOOR-CEILING ASSEMBLY. THE CHASE WALL SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
   A. STUDS – NOM 2 IN. BY 6 IN. (51 MM BY 152 MM) OR DOUBLE NOM 2 IN. BY 4 IN. (51 MM BY 102 MM) LUMBER STUDS.
   B. SOLE PLATE – NOM 2 IN. BY 6 IN. (51 MM BY 152 MM) OR PARALLEL 2 IN. BY 4 IN. (51 MM BY 102 MM) LUMBER PLATES, TIGHTLY BUTTED. MAX DIAM OF OPENING IS 3 IN. (76 MM).
   C. TOP PLATE – THE DOUBLE TOP PLATE SHALL CONSIST OF TWO NOM 2 IN. BY 6 IN. (51 MM BY 152 MM) OR TWO SETS OF PARALLEL 2 IN. BY 4 IN. (51 MM BY 102 MM) LUMBER PLATES, TIGHTLY BUTTED. MAX DIAM OF OPENING IS 3 IN. (76 MM).
   D. GYPSUM BOARD* – THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN INDIVIDUAL WALL AND PARTITION DESIGN.

2. CABLES – MAX 2 IN. DIAM CABLE BUNDLE INSTALLED ECCENTRICALLY OR CONCENTRICALLY WITHIN OPENING. ANNULAR SPACE BETWEEN CABLE BUNDLE AND PERIPHERY OF OPENING TO BE MIN 0 IN. (POINT CONTACT) TO MAX 1 IN. (0 MM TO 25 MM). CABLE BUNDLE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL. THE FOLLOWING TYPES AND SIZES OF CABLES MAY BE USED:
   A. MAX 200 PAIR NO. 22 AWG (OR SMALLER) COPPER CONDUCTOR WITH POLYVINYL CHLORIDE (PVC) INSULATION AND JACKETING MATERIAL.
   B. MAX 1/C NO. 350 KCMIL (OR SMALLER) COPPER CONDUCTOR CABLE WITH CROSS-LINKED POLYETHYLENE (XLPE) OR PVC JACKET.
   C. MAX 7/C NO. 12 AWG (OR SMALLER) COPPER CONDUCTOR POWER AND CONTROL CABLES WITH XLPE OR PVC INSULATION WITH XLPE OR PVC JACKET.
   D. MAX 3/C NO. 2/0 AWG (OR SMALLER) COPPER OR ALUMINUM CONDUCTOR SER CABLES WITH XLPE OR PVC INSULATION AND JACKET.
   E. MAX 4/C NO. 2/0 AWG (OR SMALLER) COPPER CONDUCTOR, ALUMINUM CLAD OR STEEL CLAD TECK 90 CABLE WITH OR WITHOUT PVC JACKETED.
   F. MAX 110/125 FIBER OPTIC (F.O.) CABLE WITH PVC INSULATION AND JACKET.
   G. MAX 3/C WITH GROUND NO. 8 AWG (OR SMALLER) COPPER CONDUCTOR NM CABLE WITH PVC INSULATION AND JACKET.
   H. MAX RG/U COAXIAL CABLE WITH FLUORINATED ETHYLENE INSULATION AND JACKET.
   I. MAX 4 PAIR NO. 24 AWG (OR SMALLER) COPPER CONDUCTOR DATA CABLE WITH HYLAR JACKET AND INSULATION.
   J. THROUGH PENETRATING PRODUCT* – ANY CABLES, ARMORED CABLE+ OR METAL CLAD CABLE+ CURRENTLY CLASSIFIED UNDER THE THROUGH PENETRATING PRODUCT CATEGORY.
   SEE THROUGH PENETRATING PRODUCT (XHLY) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS

3. FILL, VOID OR CAVITY MATERIALS* – CAULK OR SEALANT – MIN 3/4 IN. (19 MM) THICKNESS OF CAULK APPLIED WITHIN ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR SOLE PLATE. MIN 5/8 IN. (16 MM) THICKNESS OF CAULK APPLIED WITHIN ANNULUS, FLUSH WITH BOTTOM SURFACE OF CEILING OR TOP PLATE. MIN 1/4 IN. (6 MM) DIAM BEAD OF CAULK APPLIED AT POINT CONTACT LOCATIONS AT CABLE BUNDLE/FLOOR OR SOLE PLATE INTERFACE ON TOP SURFACE OF FLOOR OR SOLE PLATE AND AT CABLE BUNDLE/CEILING OR TOP PLATE INTERFACE.
   3M COMPANY – CP 25WB+, IC 15WB+ CAULK OR FB-3000 WT SEALANT

*BEARING THE UL CLASSIFICATION MARKING

System No. F-C-1006
April 03, 2007
F Rating - 1 Hr
T Ratings - 0 and 1 Hr (see item 2)
L Rating at ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft



1. FLOOR-CEILING ASSEMBLY – THE 1 HR FIRE RATED WOOD JOIST, WOOD TRUSS OR COMBINATION WOOD AND STEEL TRUSS FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL L500-SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY, AS SUMMARIZED BELOW:
   A. JOISTS OR TRUSSES – NOM 2 BY 10 IN. (51 BY 254 MM) LUMBER JOISTS, MIN 12 IN. (305 MM) DEEP PARALLEL CHORD TRUSSES FABRICATED FROM NOM 2 BY 4 IN. (51 BY 102 MM) LUMBER IN CONJUNCTION WITH GALV STEEL TRUSS PLATES OR STRUCTURAL WOOD MEMBERS* WITH BRIDGING AS REQUIRED.
   B. FLOORING – NOM 3/4 IN. (19 MM) THICK PLYWOOD FLOORING WITH OR WITHOUT FLOOR TOPPING MIXTURE*. DIAM OF CIRCULAR CUTOUTS IS 1/4 TO 1/2 IN. (6 TO 13 MM) LARGER THAN OUTSIDE DIAM OF THE PIPE.
   C. FURRING CHANNELS – RIGID OR RESILIENT GALV STEEL FURRING CHANNELS INSTALLED PERPENDICULAR TO BOTTOM CHORD OF TRUSSES.
   D. GYPSUM BOARD* – NOM 4 FT (1.2 M) WIDE BY 5/8 IN. (16 MM) THICK, SCREW-ATTACHED TO FURRING CHANNELS. DIAM OF CIRCULAR CUTOUTS IS 1/4 TO 1/2 IN. (6 TO 13 MM) LARGER THAN OUTSIDE DIAM OF THE PIPE.

1.1 CHASE WALL (OPTIONAL, NOW SHOWN) – THE THROUGH PENETRANTS (ITEM NO. 2) MAY BE ROUTED THROUGH A 1 HR FIRE-RATED SINGLE, DOUBLE OR STAGGERED WOOD STUD/GYPSUM WALLBOARD CHASE WALL CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
   A. STUDS – NOM 2 BY 6 IN. (51 BY 152 MM) OR DOUBLE NOM 2 BY 4 IN. (51 BY 102 MM) LUMBER STUDS.
   B. SOLE PLATE – NOM 2 BY 6 IN. (51 BY 152 MM) OR PARALLEL 2 BY 4 IN. (51 BY 102 MM) LUMBER PLATES, TIGHTLY BUTTED. DIAM OF CIRCULAR CUTOUTS IS 1/4 TO 1/2 IN. (6 TO 13 MM) LARGER THAN OUTSIDE DIAM OF THE PIPE.
   C. TOP PLATE – THE DOUBLE TOP PLATE SHALL CONSIST OF TWO NOM 2 BY 6 IN. (51 BY 152 MM) OR TWO SETS OF PARALLEL 2 BY 4 IN. (51 BY 102 MM) LUMBER PLATES, TIGHTLY BUTTED. DIAM OF CIRCULAR CUTOUTS IS 1/4 TO 1/2 IN. (6 TO 13 MM) LARGER THAN OUTSIDE DIAM OF THE PIPE.
   D. GYPSUM BOARD* – THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN INDIVIDUAL WALL AND PARTITION DESIGN.

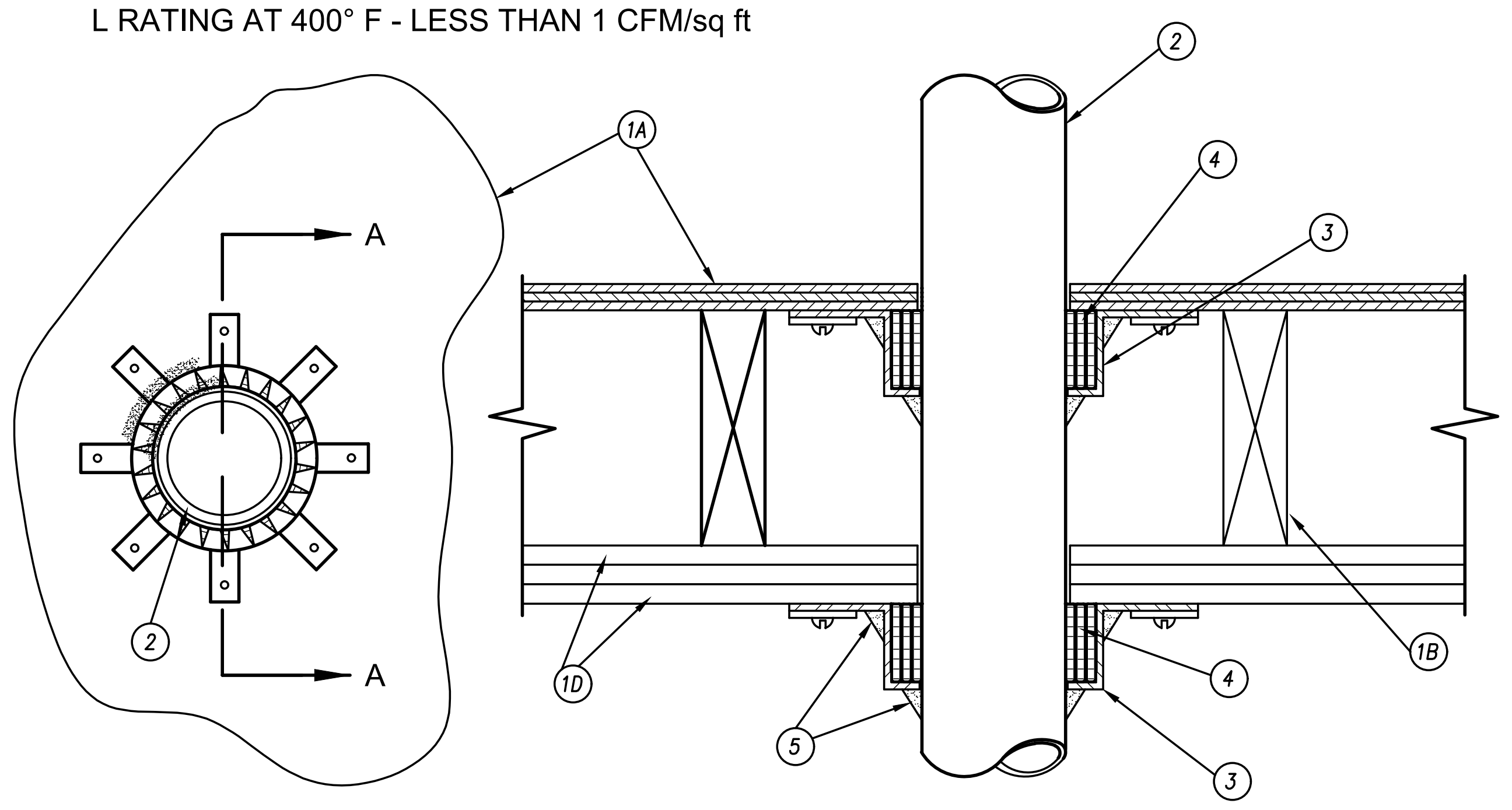
2. THROUGH PENETRANT – NOM 10 IN. (254 MM) DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE OR CAST IRON PIPE, NOM 4 IN. (102 MM) DIAM (OR SMALLER) STEEL CONDUIT OR STEEL EMT OR NOM 3 IN. (76 MM) DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING. PIPE TO BE INSTALLED APPROX MIDWAY BETWEEN JOISTS OR TRUSSES AND CENTERED IN CIRCULAR CUTOUTS. ANNULAR SPACE BETWEEN PENETRANT AND PERIPHERY OF OPENING SHALL BE MIN 1/8 IN. (3 MM) TO MAX 1/4 IN. (6 MM). PIPE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR-CEILING ASSEMBLY. T RATING IS 1 HR FOR NOM 4 IN. (102 MM) DIAM (OR SMALLER) PENETRANTS. T RATING IS 0 HR FOR ALL PENETRANTS GREATER THAN NOM 4 IN. (102 MM) DIAM.

3. FILL, VOID OR CAVITY MATERIALS* – CAULK OR SEALANT – MIN 3/4 IN. (19 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR SOLE PLATE. MIN 5/8 IN. (16 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTTOM SURFACE OF CEILING OR TOP PLATE. AN ADDITIONAL MIN 1/4 IN. (6 MM) CROWN OF FILL MATERIAL APPLIED TO PERIMETER OF PENETRANT AT ITS EGRESS FROM THE TOP OF FLOORING AND UNDERSIDE OF CEILING OR FROM TOP OF SOLE PLATE AND UNDERSIDE OF TOP PLATE.

   3M COMPANY – CP 25WB+ OR FB-3000 WT

*BEARING THE UL CLASSIFICATION MARKING

SYSTEM NO. F-C-2002
May 18, 2005
F RATING - 2 HR
T RATING - 2 HR
L RATING AT AMBIENT- 7 CFM/sq ft
L RATING AT 400° F - LESS THAN 1 CFM/sq ft



SECTION A-A

1. FLOOR-CEILING ASSEMBLY – THE FIRE-RATED WOOD JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN DESIGN NO. L505, L511 OR L536 IN THE UL FIRE RESISTANCE DIRECTORY, AS SUMMARIZED BELOW:
   A. FLOORING SYSTEM – LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAX DIAM OF OPENING IN FLOORING IS 4-3/4 IN. (121 MM).
   B. WOOD JOISTS – NOM 2 IN. BY 10 IN. (51 MM BY 254 MM) LUMBER JOISTS SPACED 16 IN. OC WITH NOM 1 IN. BY 3 IN. (25 MM BY 76 MM) LUMBER BRIDGING AND WITH ENDS FIRESTOPPED.
   C. FURRING CHANNELS (NOT SHOWN) – RESILIENT GALV STEEL FURRING CHANNELS INSTALLED PERPENDICULAR TO WOOD JOISTS BETWEEN FIRST AND SECOND LAYERS OF WALLBOARD (ITEM 1D) AND SPACED MAX 24 IN (610 MM) OC.
   D. GYPSUM BOARD* – NOM 4 FT (122 CM) WIDE BY 5/8 IN. (16 MM) THICK AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. FIRST LAYER OF WALLBOARD NAILED TO WOOD JOISTS. SECOND LAYER OF WALLBOARD SCREW-ATTACHED TO FURRING CHANNELS. THE SECONDARY FIRESTOP SYSTEM (ITEMS 3, 4 AND 5) MUST BE INSTALLED IN THE JOIST CAVITY PRIOR TO INSTALLATION OF THE GYPSUM WALLBOARD CEILING.

2. NONMETALLIC PIPE – NOM 4 IN. DIAM (OR SMALLER) SCHEDULE 40 SOLID CORE POLYVINYL CHLORIDE (PVC) PIPE OR SCHEDULE 40 CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE, VENT) PIPING SYSTEMS. DIAM OF CIRCULAR OPENINGS HOLE-SAWED THROUGH FLOORING SYSTEM AND THROUGH TWO-LAYER GYPSUM WALLBOARD CEILING TO BE NO GREATER THAN 1/8 IN. (3.2 MM) LARGER THAN OUTSIDE DIAM OF PIPE. PIPE TO BE INSTALLED APPROX MIDWAY BETWEEN WOOD JOISTS AND CENTERED IN CIRCULAR OPENINGS.

3. FILL, VOID, OR CAVITY MATERIALS* – WRAP STRIP – NOM 1/4 IN. (6 MM) THICK INTUMESCENT ELASTOMERIC MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL, SUPPLIED IN 2 IN. (51 MM) WIDE STRIPS. NOM 2 IN. (51 MM) WIDE STRIPS TIGHTLY WRAPPED AROUND NONMETALLIC PIPE (FOIL SIDE EXPOSED) WITH THE EDGES BUTTED AGAINST THE UNDERSIDE OF THE SUBFLOOR (SECONDARY FIRESTOP SYSTEM) AND AGAINST THE FINISHED GYPSUM WALLBOARD CEILING (PRIMARY FIRESTOP SYSTEM). WRAP STRIPS FOR PRIMARY AND SECONDARY FIRESTOP SYSTEMS TO BE INSTALLED IDENTICALLY. FOR NOM 1/2 IN. TO NOM 2 IN. (13 MM TO NOM 51 MM) DIAM PIPES, A MIN OF ONE LAYER OF WRAP STRIP IS REQUIRED. FOR NOM 2-1/2 IN. AND NOM 3 IN. (64 MM AND NOM 76 MM) DIAM PIPES, A MIN OF TWO LAYERS OF WRAP STRIP IS REQUIRED. FOR NOM 3-1/2 IN. AND NOM 4 IN. (89 MM AND NOM 102 MM) DIAM PIPES, A MIN OF THREE LAYERS OF WRAP STRIP IS REQUIRED. EACH LAYER OF WRAP STRIP TO BE INSTALLED WITH BUTTED SEAM, WITH BUTTED SEAMS IN SUCCESSIVE LAYERS STAGGERED. WRAP STRIP LAYER(S) TEMPORARILY HELD IN POSITION USING ALUMINUM FOIL TAPE, STEEL WIRE TIE, OR EQUIVALENT.
   3M COMPANY – FS-195+

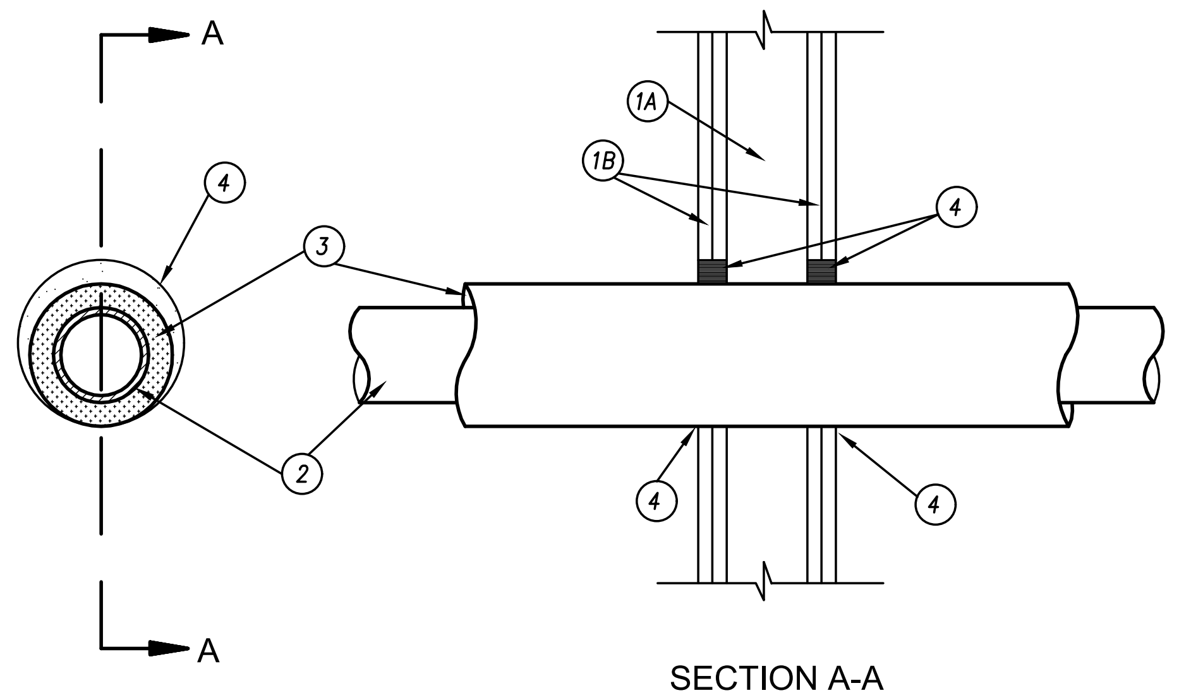
4. STEEL COLLAR – NOM 2 IN. (51 MM) DEEP COLLAR WITH 1-1/4 IN. (32 MM) WIDE BY 2 IN. (51 MM) LONG ANCHOR TABS AND MIN 3/4 IN. (19 MM) LONG TABS TO RETAIN WRAP STRIP LAYERS. COILS OF PRECUT 0.016 IN. (0.41 MM) THICK (30 GAUGE) GALV SHEET STEEL AVAILABLE FROM WRAP STRIP MANUFACTURER. AS AN ALTERNATE, COLLAR MAY BE FIELD-FABRICATED FROM MIN 0.016 IN. (0.41 MM) THICK (30 GAUGE) GALV SHEET STEEL IN ACCORDANCE WITH INSTRUCTION SHEET SUPPLIED BY WRAP STRIP MANUFACTURER. STEEL COLLAR, WITH ANCHOR TABS BENT OUTWARD 90 DEG, WRAPPED TIGHTLY AROUND WRAP STRIP LAYERS WITH MIN 1 IN. (25 MM) OVERLAP AT THE SEAM. WITH STEEL ANCHOR TABS PRESSED TIGHTLY AGAINST THE SUBFLOOR (SECONDARY FIRESTOP SYSTEM) OR THE FINISHED GYPSUM WALLBOARD CEILING (PRIMARY FIRESTOP SYSTEM), COMPRESS COLLAR AROUND WRAP STRIP LAYERS USING A MIN 1/2 IN. (13 MM) WIDE BY 0.028 IN. (0.71 MM) THICK STAINLESS STEEL BAND CLAMP WITH WORM DRIVE TIGHTENING MECHANISM AT THE COLLAR MIDHEIGHT. AS AN ALTERNATE TO THE BAND CLAMPS, COLLARS MAY BE SECURED BY A MEANS NO 10 IN. BY 1/2 IN. (13 MM) LONG SHEET METAL SCREWS INSTALLED IN THE VERTICAL AXIS AT THE CENTER OF THE 1 IN. (25 MM) OVERLAP ALONG THE PERIMETER JOINT OF THE COLLAR. A MIN OF THREE SCREWS IS REQUIRED. SECURE COLLAR TO SUBFLOOR (SECONDARY FIRESTOP SYSTEM) USING MIN 3/4 IN. (19 MM) LONG STEEL SCREWS IN CONJUNCTION WITH 1-1/4 IN. (32 MM) DIAM STEEL FENDER WASHERS. SECURE COLLAR TO FINISHED GYPSUM WALLBOARD CEILING (PRIMARY FIRESTOP SYSTEM) USING 3/16 IN. (5 MM) DIAM STEEL TOGGLE BOLTS (1-7/8 IN. (48 MM) GRIP) IN CONJUNCTION WITH 1-1/4 IN. (32 MM) DIAM STEEL FENDER WASHERS. MIN OF THREE FASTENERS, SYMMETRICALLY LOCATED, REQUIRED FOR NOM 1/2 IN. TO NOM 3 IN. (13 MM AND NOM 76 MM) DIAM PIPES. MIN OF FOUR FASTENERS, SYMMETRICALLY LOCATED, REQUIRED FOR NOM 3-1/2 IN. AND NOM 4 IN. (89 MM AND NOM 102 MM) AND NOM 4 IN. DIAM PIPES. AS A FINAL STEP, BEND WRAP STRIP RETAINER TABS 90 DEG TOWARD PIPE TO LOCK WRAP STRIP LAYERS IN POSITION.

5. FILL, VOID OR CAVITY MATERIALS* – CAULK OR SEALANT – GENEROUS BEAD OF CAULK TO BE APPLIED AROUND THE PERIMETER OF THE STEEL COLLAR (ITEM 4) AT ITS INTERFACE WITH THE SUBFLOOR (SECONDARY FIRESTOP SYSTEM) AND GYPSUM WALLBOARD CEILING (PRIMARY FIRESTOP SYSTEM). A NOM 1/4 IN. (6 MM) DIAM BEAD OF CAULK SHALL BE APPLIED AROUND THE PERIMETER OF THE NONMETALLIC PIPE AT ITS INTERFACE WITH THE WRAP STRIP LAYERS.
   3M COMPANY – CP 25WB+, IC 15WB+, FIREDAM 150+ CAULK OR FB-3000 WT SEALANT
   (NOTE: CP 25WB+ NOT SUITABLE FOR USE WITH CPVC PIPES.)

6. FIRESTOP DEVICE* (NOT SHOWN) – AS AN ALTERNATE TO ITEMS 3 AND 4 FOR NOM 1-1/2 IN., 2 IN., 3 IN. OR 4 IN. (38 MM, 51 MM, 76 MM OR 102 MM) MM) DIAM NONMETALLIC PIPES, A FIRESTOP DEVICE CONSISTING OF A SHEET-STEEL SPLIT COLLAR LINED WITH INTUMESCENT MATERIAL AND PROVIDED WITH STEEL CLIPS FOR ATTACHMENT MAY BE USED. FIRESTOP DEVICE TO BE INSTALLED ON UNDERSIDE OF SUBFLOOR AND AGAINST THE FINISHED GYPSUM WALLBOARD CEILING IN ACCORDANCE WITH THE ACCOMPANYING INSTALLATION INSTRUCTIONS.
   3M COMPANY – PPD 150, PPD 200, PPD 300, PPD 400

*BEARING THE UL CLASSIFICATION MARKING

System No. W-L-5040
September 7, 2004
F Ratings - 1 and 2 HR (See Item 1)
T Ratings - 1/4, 1/2 and 3/4 HR (See Item 2)



SECTION A-A

1. WALL ASSEMBLY – THE 1 OR 2 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL OR PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
   A. STUDS – WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC. STEEL STUDS TO BE MIN 3-5/8 IN. WIDE AND SPACED MAX 24 IN. OC.
   B. GYPSUM BOARD* – NOM 5/8 IN. THICK, 4 FT WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAX DIAM OF OPENING IN WALLBOARD LAYERS IS 7 IN.
   THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS 1 HR WHEN INSTALLED IN A 1 HR FIRE RATED WALL AND 2 HR WHEN INSTALLED IN A 2 HR FIRE RATED WALL.

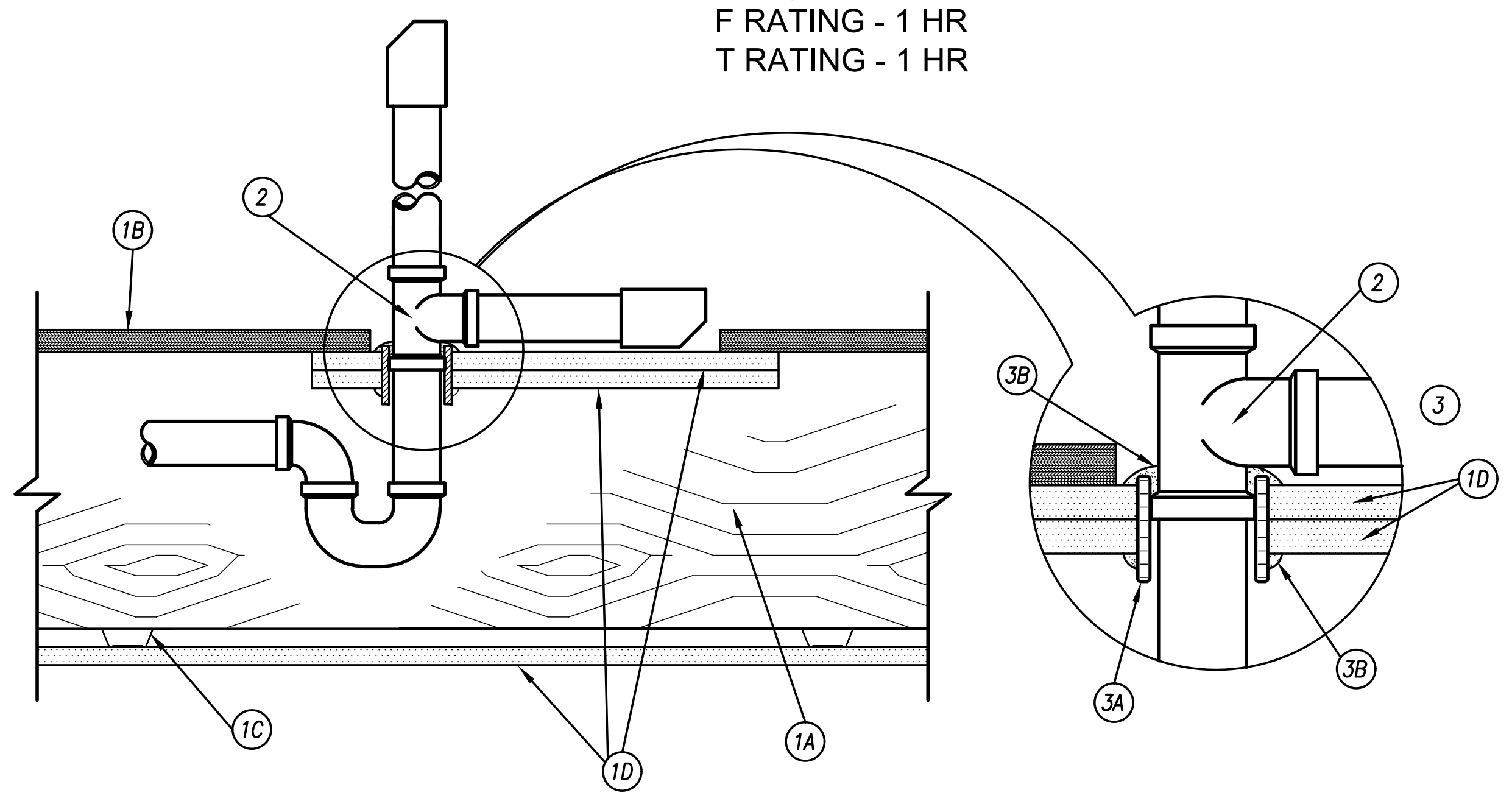
2. THROUGH PENETRANTS – ONE METALLIC PIPE OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. PIPE OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR TUBING MAY BE USED:
   A. STEEL PIPE – NOM 4 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE. WHEN STEEL PIPE IS USED, T RATING IS 3/4 HR.
   B. COPPER TUBING – NOM 4 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING. T RATING IS 3/4 HR FOR COPPER TUBING OF NOM 2 IN. DIAM AND SMALLER. FOR COPPER TUBING GREATER THAN NOM 2 IN. DIAM, T RATING IS 1/4 AND 1/2 HR WHEN INSTALLED IN 1 AND 2 HR RATED WALLS, RESPECTIVELY.
   C. COPPER PIPE – NOM 4 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE. T RATING IS 3/4 HR FOR COPPER PIPE OF NOM 2 IN. DIAM AND SMALLER. FOR COPPER PIPE GREATER THAN NOM 2 IN. DIAM, T RATING IS 1/4 AND 1/2 HR WHEN INSTALLED IN 1 AND 2 HR RATED WALL RESPECTIVELY.

3. PIPE INSULATION – PLASTICS# – NOM 3/4 IN. THICK ACRYLONITRILE BUTADIENE/POLYVINYL CHLORIDE (AB/PVC) FLEXIBLE FOAM FURNISHED IN THE FORM OF TUBING. THE ANNULAR SPACE BETWEEN THE INSULATED PIPE AND THE EDGE OF THE THROUGH OPENING SHALL BE MIN ZERO IN. (POINT CONTACT) TO MAX 1-1/4 IN.
   SEE PLASTICS# (QMFZ2) CATEGORY IN THE RECOGNIZED COMPONENT DIRECTORY FOR NAMES OF MANUFACTURERS. ANY RECOGNIZED COMPONENT TUBE INSULATION MATERIAL MEETING THE ABOVE SPECIFICATIONS AND HAVING A UL94 FLAMMABILITY CLASSIFICATION OF 94-5VA MAY BE USED.

4. FILL, VOID OR CAVITY MATERIALS* – CAULK OR SEALANT – MIN 5/8 IN. THICKNESS OF CAULK APPLIED WITHIN THE ANNULAR SPACE, FLUSH WITH EACH SURFACE OF WALL. A MIN 1/2 IN. DIAM BEAD OF CAULK SHALL BE APPLIED TO THE PIPE INSULATION/ WALLBOARD INTERFACE AT THE POINT CONTACT LOCATION ON BOTH SIDES OF WALL.
   3M COMPANY – CP 25WB+ CAULK OR FB-3000 WT SEALANT

*BEARING THE UL CLASSIFICATION MARKING

SYSTEM NO. F-C-2026
May 18, 2005
F RATING - 1 HR
T RATING - 1 HR



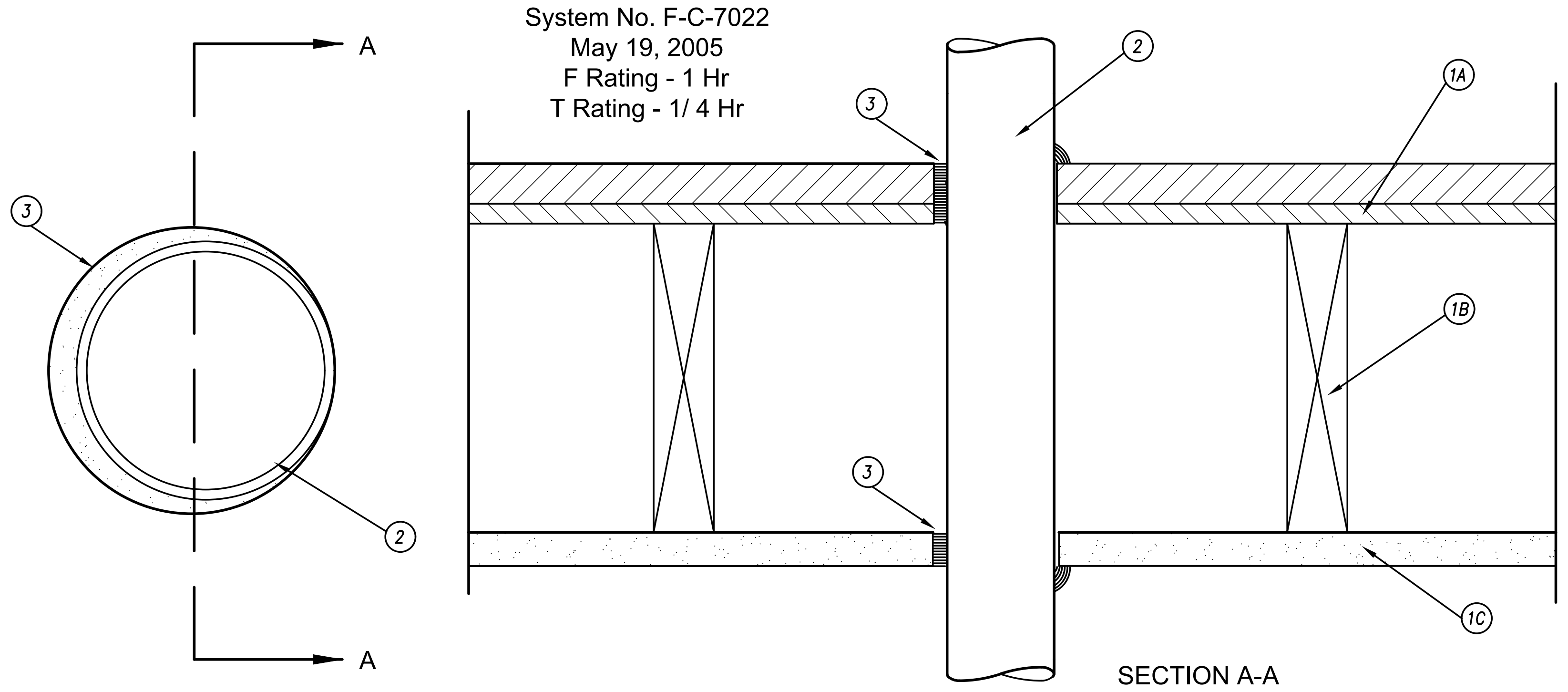
1. FLOOR-CEILING ASSEMBLY – THE FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
   A. JOISTS – NOM 10 IN. (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR STRUCTURAL WOOD MEMBERS* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED.
   B. FLOORING SYSTEM – LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. RECTANGULAR CUTOUT IN FLOORING TO ACCOMMODATE THE BATHTUB DRAIN PIPING (ITEM 2) TO BE MAX 8 BY 12 IN. (203 MM BY 305 MM).
   C. FURRING CHANNELS – RIGID OR RESILIENT GALV STEEL FURRING CHANNELS INSTALLED PERPENDICULAR TO JOISTS.
   D. GYPSUM BOARD* – NOM 4 FT (122 CM) WIDE BY 5/8 IN. (16 MM) THICK. WALLBOARD SCREW-ATTACHED TO FURRING CHANNELS AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. TWO PIECES OF GYPSUM WALLBOARD, EACH MIN 4 IN. (102 MM) LONGER AND WIDER THAN THE CUTOUT IN THE FLOORING, SCREW-ATTACHED TO BOTTOM OF FLOORING CONCENTRIC WITH CUTOUT. DIAM OF OPENING HOLE-SAWED THROUGH BOTH LAYERS OF THE GYPSUM WALLBOARD PATCH TO BE 1/2 IN. TO 5/8 IN. (13 MM TO 16 MM) LARGER THAN OUTSIDE DIAM OF BATHTUB DRAIN PIPING (ITEM 2).

2. DRAIN PIPING – NOM 1-1/2 IN. (38 MM) DIAM SCHEDULE 40 PVC PIPE AND DRAIN FITTINGS CEMENTED TOGETHER AND PROVIDED WITH PVC BATHTUB WASTE/OVERFLOW FITTING.

3. FIRESTOP SYSTEM – THE DETAILS OF THE FIRESTOP SYSTEM SHALL BE AS FOLLOWS:
   A. FILL, VOID OR CAVITY MATERIALS* – WRAP STRIP – NOM 1/4 IN. (6 MM) THICK INTUMESCENT ELASTOMERIC MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL, SUPPLIED IN 2 IN. (51 MM) WIDE STRIPS. NOM 2 IN. (51 MM) WIDE STRIP TIGHTLY-WRAPPED AROUND PVC DRAIN PIPING (FOIL SIDE EXPOSED), SECURED WITH TWO STEEL WIRE TIES, AND SLID INTO HOLE-SAWED OPENING IN GYPSUM WALLBOARD PATCH (ITEM 1D). BOTTOM EDGE OF WRAP STRIP TO PROJECT APPROX 1/2 IN. (13 MM) BELOW BOTTOM SURFACE OF GYPSUM WALLBOARD PATCH.
      3M COMPANY – FS-195+
   B. FILL, VOID OR CAVITY MATERIALS* – CAULK OR SEALANT – NOM 1/4 IN. (6 MM) DIAM BEAD OF CAULK TO BE APPLIED TO PERIMETER OF WRAP STRIP AT ITS EGRESS FROM THE UNDERSIDE OF THE GYPSUM WALLBOARD PATCH. NOM 1/4 IN. (6 MM) THICKNESS OF CAULK TO BE APPLIED TO THE EXPOSED EDGE OF THE WRAP STRIP LAYER AND TO FILL ALL GAPS BETWEEN THE WRAP STRIP LAYER AND THE TEE OF THE DRAIN FITTING ON THE TOP SURFACE OF THE GYPSUM WALLBOARD PATCH.
      3M COMPANY – CP 25WB+, IC 15 WB+, FIREDAM 150+ CAULK OR FB-3000 WT SEALANT

*BEARING THE UL CLASSIFICATION MARKING

System No. F-C-7022
May 19, 2005
F Rating - 1 Hr
T Rating - 1/ 4 Hr



SECTION A-A

1. FLOOR-CEILING ASSEMBLY – THE 1 HR FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE GENERAL CONSTRUCTION DETAILS OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW:
   A. FLOORING SYSTEM – LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAX DIAM OF OPENING IS 11 IN. (279 MM).
   B. WOOD JOISTS – NOM 10 IN. (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR STRUCTURAL WOOD MEMBERS* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED.
   C. GYPSUM BOARD* – NOM 4 FT. (122 CM) WIDE BY 5/8 IN. (16 MM) THICK AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAX DIAM OF OPENING IS 11 IN. (279 MM).

2. STEEL DUCT – NOM 10 IN. (254 MM) (OR SMALLER) NO. 28 GAUGE (OR HEAVIER) STEEL DUCT OR NOM 5 IN. (127 MM) (OR SMALLER) NO. 30 GAUGE (OR HEAVIER) STEEL DUCT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN OPENING. THE ANNULAR SPACE BETWEEN DUCT AND PERIPHERY OF OPENING SHALL BE MIN 0 IN. (POINT CONTACT) TO MAX 1 IN. (0 MM TO MAX 25 MM). DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR ASSEMBLY.

3. FILL, VOID OR CAVITY MATERIALS* – CAULK OR SEALANT – MIN 3/4 IN. (19 MM) THICKNESS OF CAULK APPLIED WITHIN ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR. MIN 5/8 IN. (16 MM) THICKNESS OF CAULK APPLIED WITHIN ANNULUS, FLUSH WITH BOTTOM SURFACE OF CEILING. MIN 1/4 IN. (6 MM) DIAM BEAD OF CAULK APPLIED AT POINT CONTACT LOCATIONS AT DUCT/FLOOR INTERFACE ON TOP SURFACE OF FLOOR AND AT DUCT/CEILING INTERFACE.
   3M COMPANY – CP 25WB+, IC 15WB+ CAULK OR FB-3000 WT SEALANT

*BEARING THE UL CLASSIFICATION MARKING

PRINTS ISSUED
10/30/2023 - PERMIT SUBMITTAL

REVISIONS:

23.161

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MICHAEL D. RAAF
NUMBER PE-2005028097
10/30/23
Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
MEP PENETRATION DETAILS

PROJECT NUMBER: 23.161

SHEET NUMBER:
MEP201

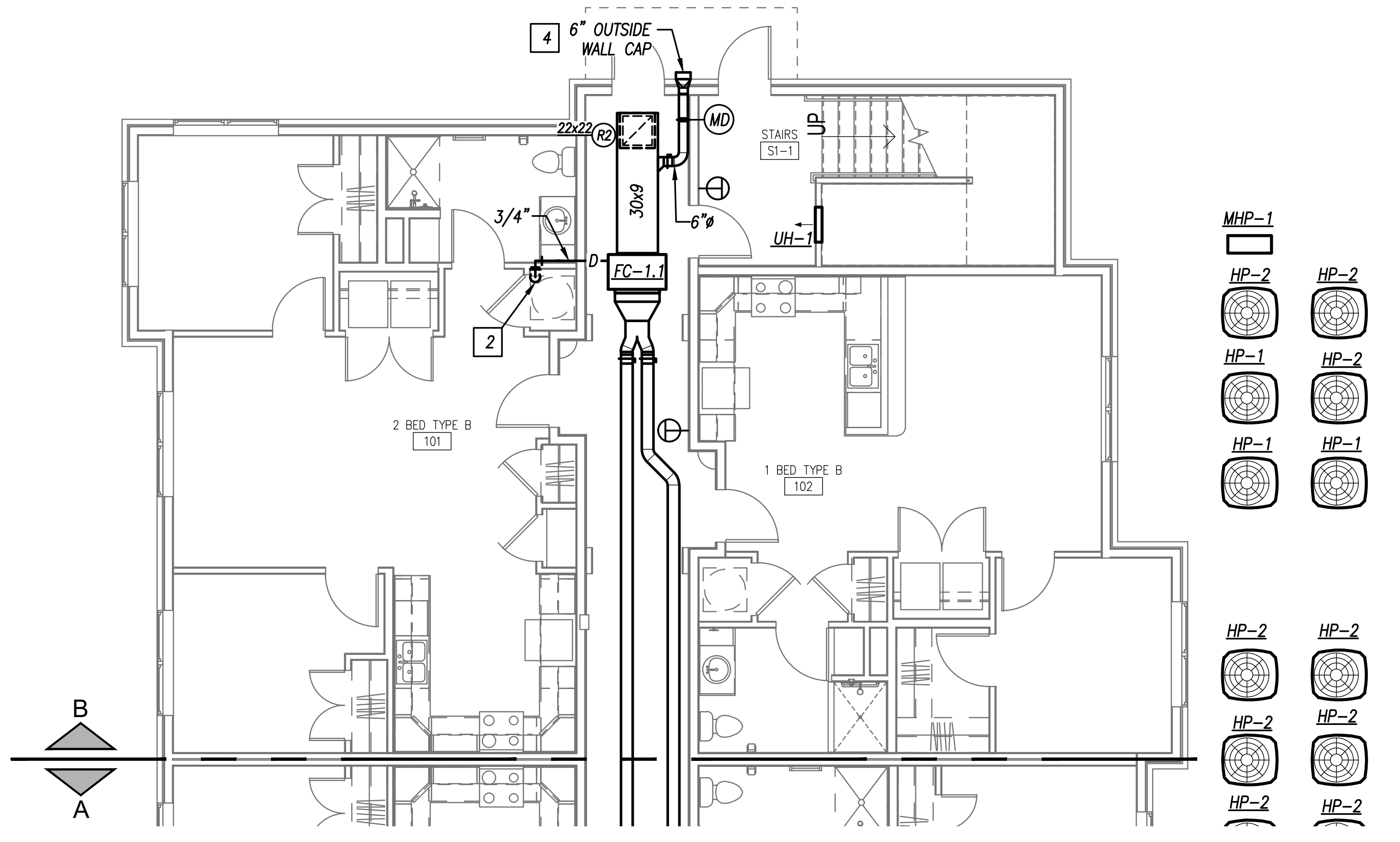
GENERAL HVAC NOTES

1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
2. ROUND BRANCH DUCT RUNOUTS AND FLEXIBLE DUCT SHALL BE THE SAME SIZE AS THE DIFFUSER NECK UNLESS NOTED OTHERWISE.
3. MAXIMUM FLEXIBLE DUCT LENGTH SHALL BE 5'–0".
4. ALL AIR DISTRIBUTION DEVICES SHALL HAVE LOCKABLE VOLUME CONTROL DEVICES.
5. ALL 90 DEGREE TURNING ELBOWS SHALL BE SMOOTH ROUND OR SQUARE WITH TURNING VANES.
6. DUCT SIZES SHOWN ON PLANS ARE INSIDE FREE AREA.
7. PROVIDE ACCESS DOORS IN DUCTS AHEAD OF ALL AUTOMATIC, FIRE, AND SMOKE DAMPERS.
8. FOR BALANCING THE OUTSIDE AIRFLOW QUANTITIES, REFER TO HVAC SCHEDULES.

HVAC PLAN KEYED NOTES

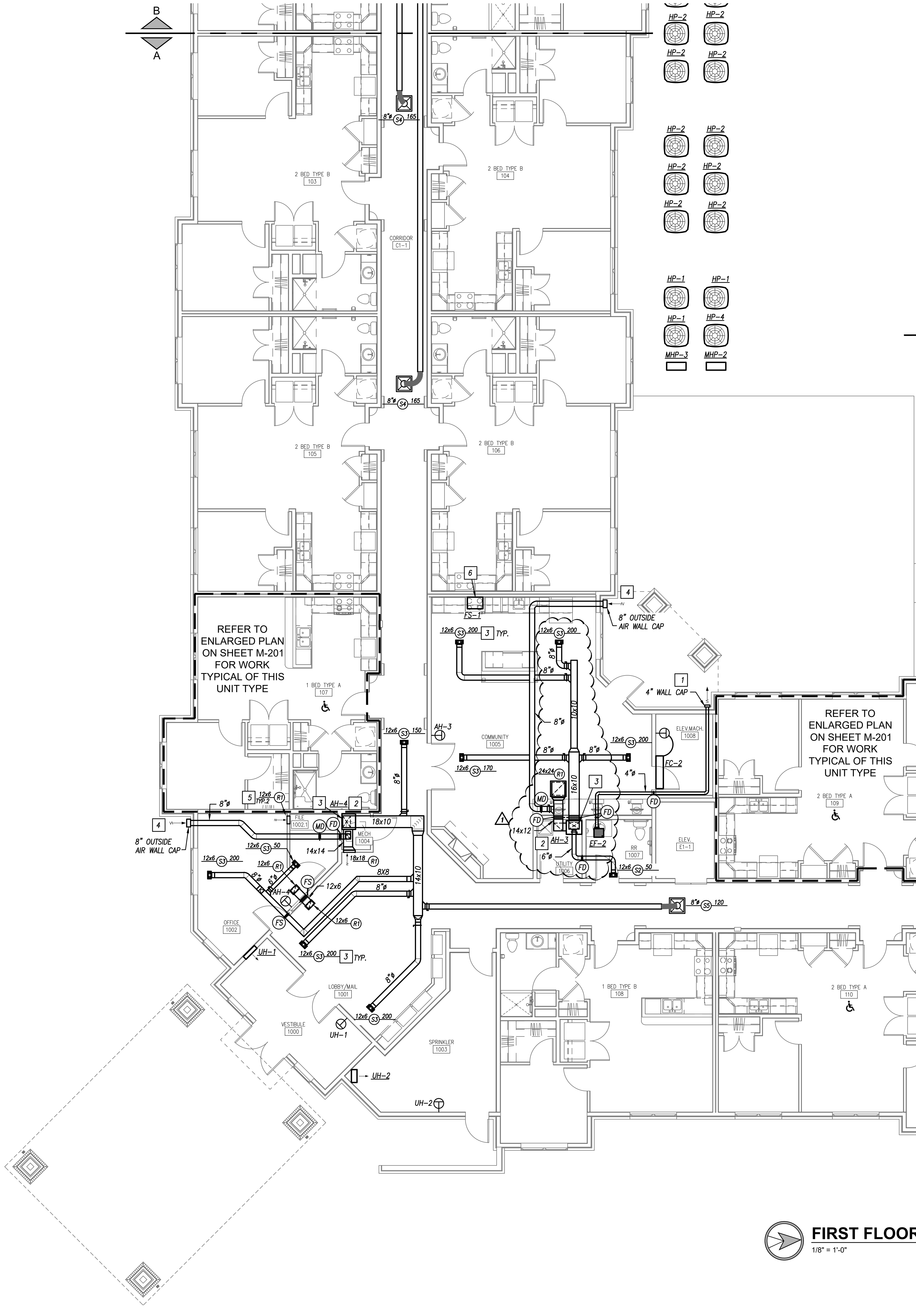
1	TERMINATE EXHAUST DUCT WITH WALL CAP.
2	TERMINATE CONDENSATE AT FLOOR DRAIN.
3	PROVIDE FIRE DAMPER AT ALL RATED CEILING PENETRATIONS.
4	TERMINATE INTAKE DUCT WITH WALL CAP. MAINTAIN 10' CLEARANCE FROM ALL EXHAUST OUTLETS.
5	HI/LOW RETURN TRANSFER GRILLE. MOUNT HI GRILLE 12" BELOW CEILING AND LOW GRILLE 12" A.F.F.
6	30" FIRE READY RANGE HOOD.

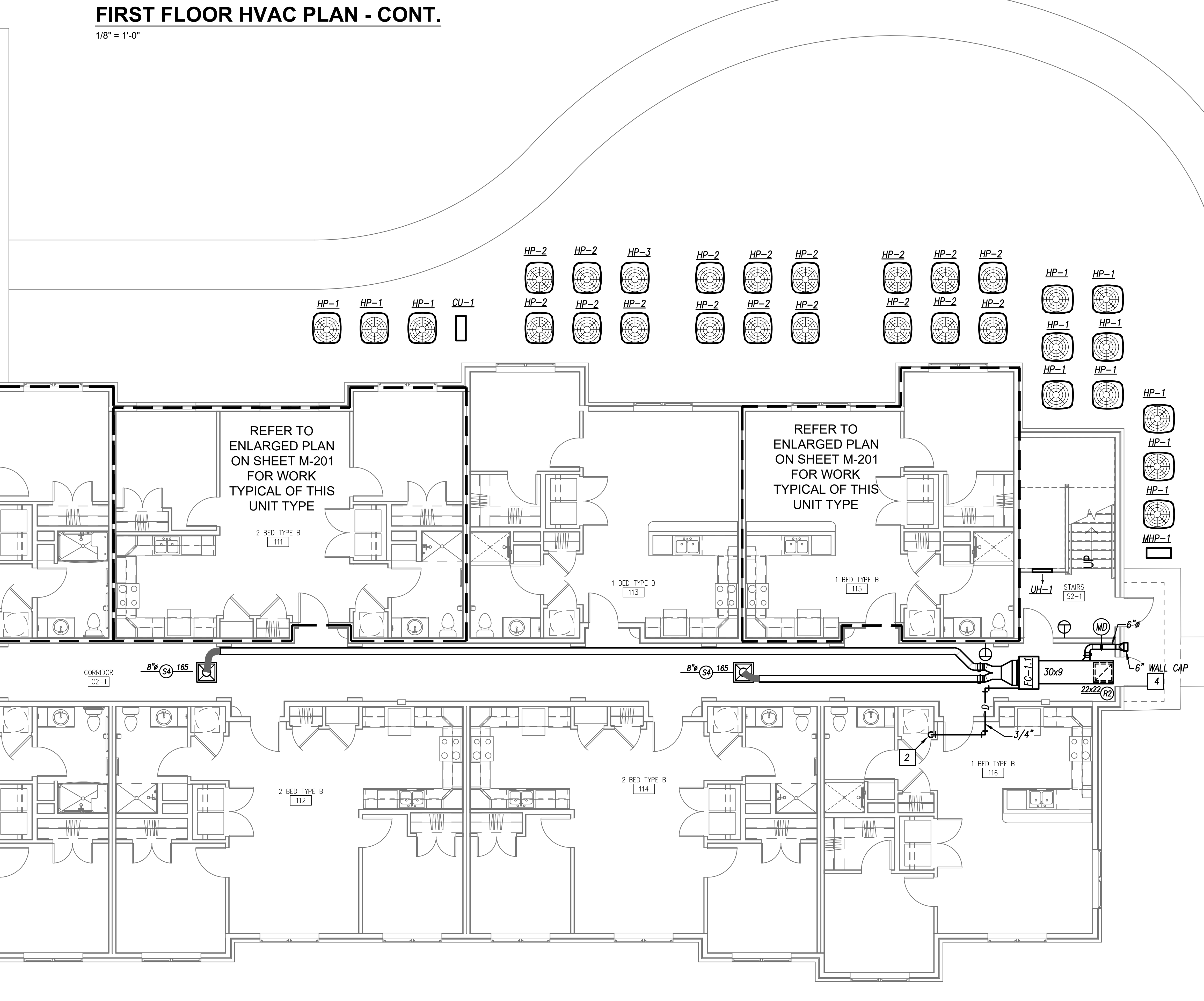
1



FIRST FLOOR HVAC PLAN - CONT.

1/8" = 1'-0"





FIRST FLOOR HVAC PLAN

1/8" = 1'-0"

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10/30/2023 - PERMIT SUBMITTAL

REVISIONS:
1 12/15/2023 - CITY COMMENTS

23.161

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NUMBER PE-2005028097
12/15/23
Michael D. Raaf - Engineer
MO# PE-2005028097

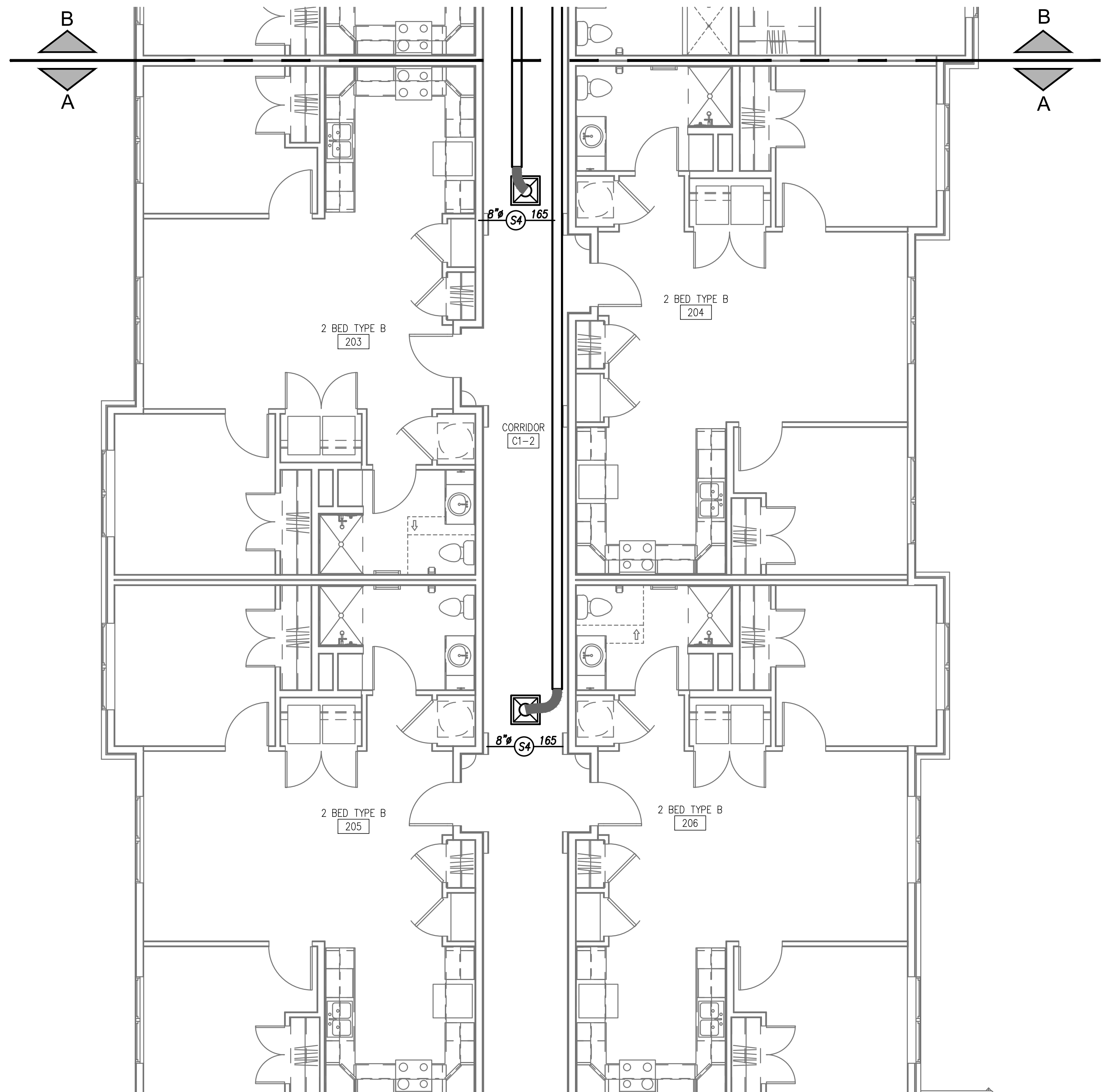
WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

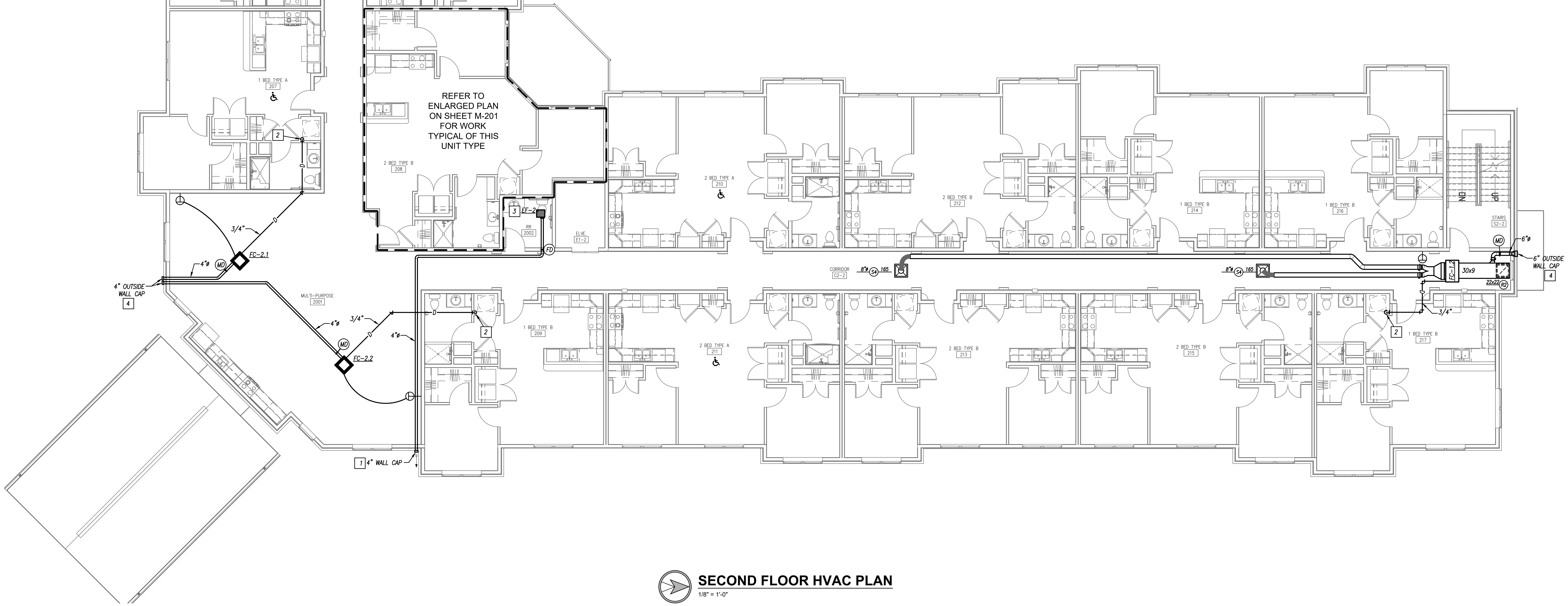
SHEET TITLE
FIRST FLOOR HVAC PLAN

PROJECT NUMBER: 23.161

SHEET NUMBER:

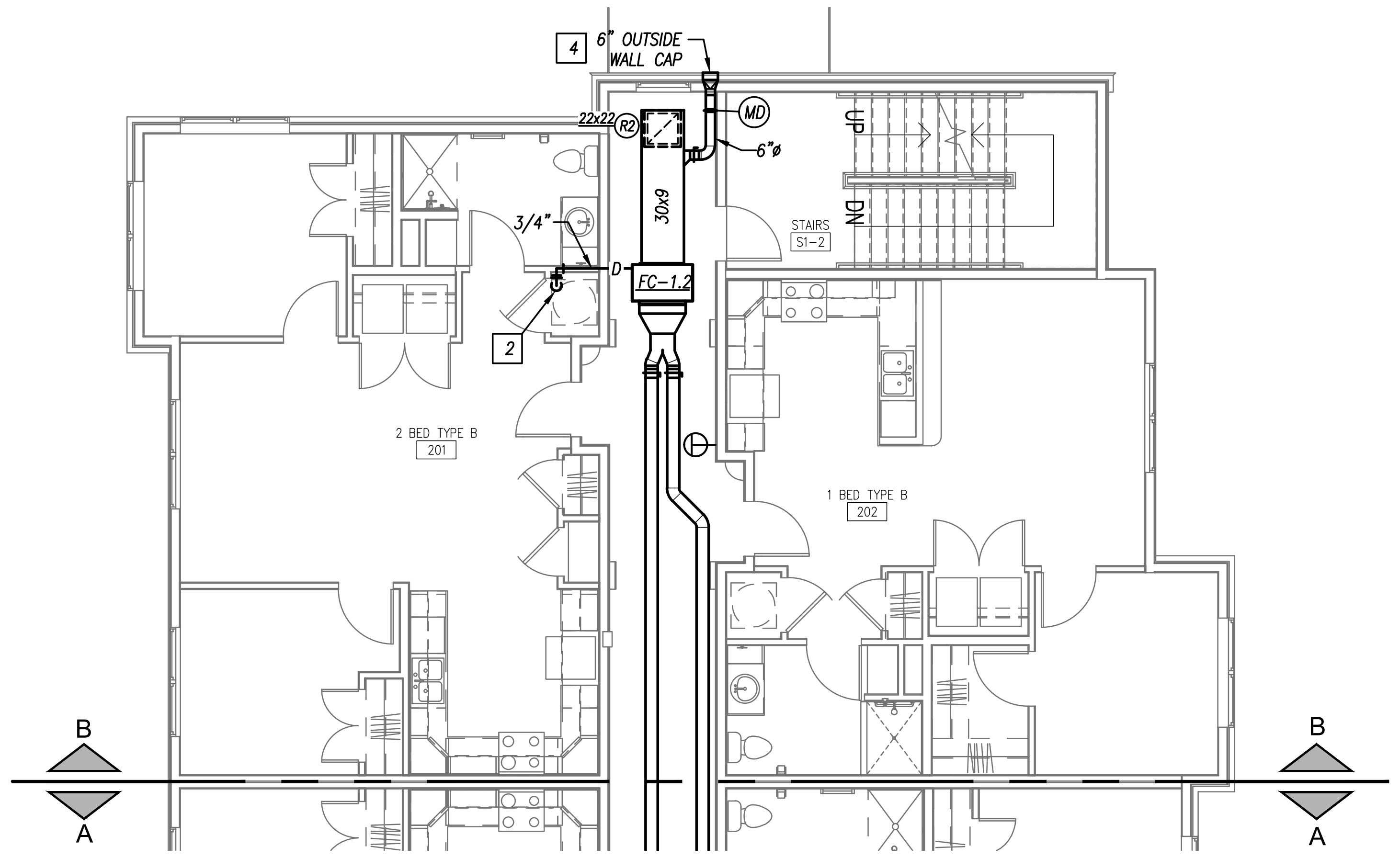
M101





SECOND FLOOR HVAC PLAN

1/8" = 1'-0"



SECOND FLOOR HVAC PLAN - CONT.

1/8" = 1'-0"

GENERAL HVAC NOTES

1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
2. ROUND BRANCH DUCT RUNOUTS AND FLEXIBLE DUCT SHALL BE THE SAME SIZE AS THE DIFFUSER NECK UNLESS NOTED OTHERWISE.
3. MAXIMUM FLEXIBLE DUCT LENGTH SHALL BE 5'-0".
4. ALL AIR DISTRIBUTION DEVICES SHALL HAVE LOCKABLE VOLUME CONTROL DEVICES.
5. ALL 90 DEGREE TURNING ELBOWS SHALL BE SMOOTH ROUND OR SQUARE WITH TURNING VANES.
6. DUCT SIZES SHOWN ON PLANS ARE INSIDE FREE AREA.
7. PROVIDE ACCESS DOORS IN DUCTS AHEAD OF ALL AUTOMATIC, FIRE, AND SMOKE DAMPERS.
8. FOR BALANCING THE OUTSIDE AIRFLOW QUANTITIES, REFER TO HVAC SCHEDULES.

HVAC PLAN KEYED NOTES

1	TERMINATE EXHAUST DUCT WITH WALL CAP.
2	TERMINATE CONDENSATE AT FLOOR DRAIN.
3	PROVIDE FIRE DAMPER AT ALL RATED CEILING PENETRATIONS.
4	TERMINATE INTAKE DUCT WITH WALL CAP. MAINTAIN 10' CLEARANCE FROM ALL EXHAUST OUTLETS.

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NUMBER PE-2005028097
10/30/23
Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
SECOND FLOOR HVAC PLAN

PROJECT NUMBER: 23.161

SHEET NUMBER:

M102

THIRD FLOOR HVAC PLAN - CONT.

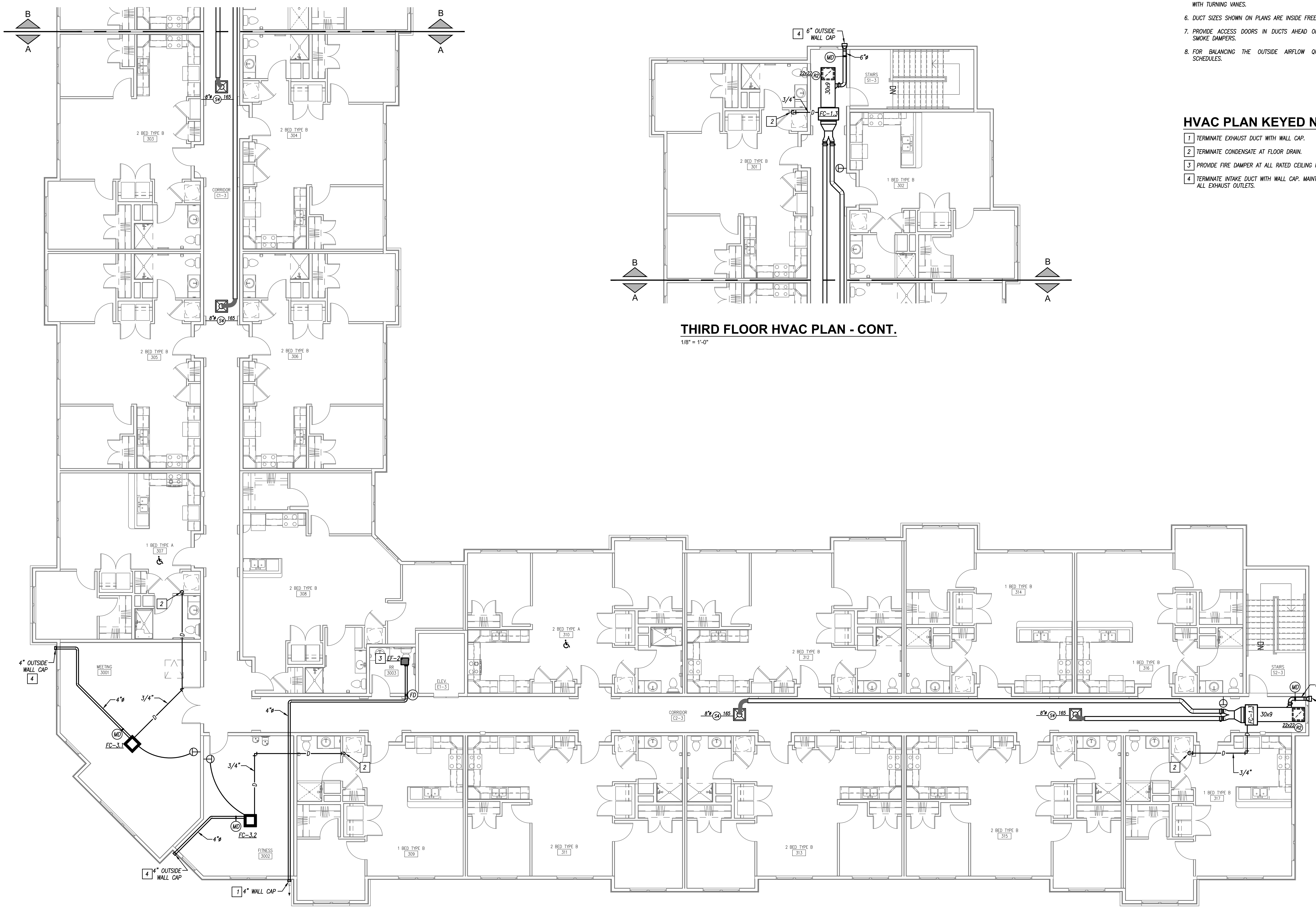
1/8" = 1'-0"

GENERAL HVAC NOTES

1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
2. ROUND BRANCH DUCT RUNOUTS AND FLEXIBLE DUCT SHALL BE THE SAME SIZE AS THE DIFFUSER NECK UNLESS NOTED OTHERWISE.
3. MAXIMUM FLEXIBLE DUCT LENGTH SHALL BE 5'–0".
4. ALL AIR DISTRIBUTION DEVICES SHALL HAVE LOCKABLE VOLUME CONTROL DEVICES.
5. ALL 90 DEGREE TURNING ELBOWS SHALL BE SMOOTH ROUND OR SQUARE WITH TURNING VANES.
6. DUCT SIZES SHOWN ON PLANS ARE INSIDE FREE AREA.
7. PROVIDE ACCESS DOORS IN DUCTS AHEAD OF ALL AUTOMATIC, FIRE, AND SMOKE DAMPERS.
8. FOR BALANCING THE OUTSIDE AIRFLOW QUANTITIES, REFER TO HVAC SCHEDULES.

HVAC PLAN KEYED NOTES

1 TERMINATE EXHAUST DUCT WITH WALL CAP.
2 TERMINATE CONDENSATE AT FLOOR DRAIN.
3 PROVIDE FIRE DAMPER AT ALL RATED CEILING PENETRATIONS.
4 TERMINATE INTAKE DUCT WITH WALL CAP. MAINTAIN 10' CLEARANCE FROM ALL EXHAUST OUTLETS.



THIRD FLOOR HVAC PLAN

1/8" = 1'-0"

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Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III

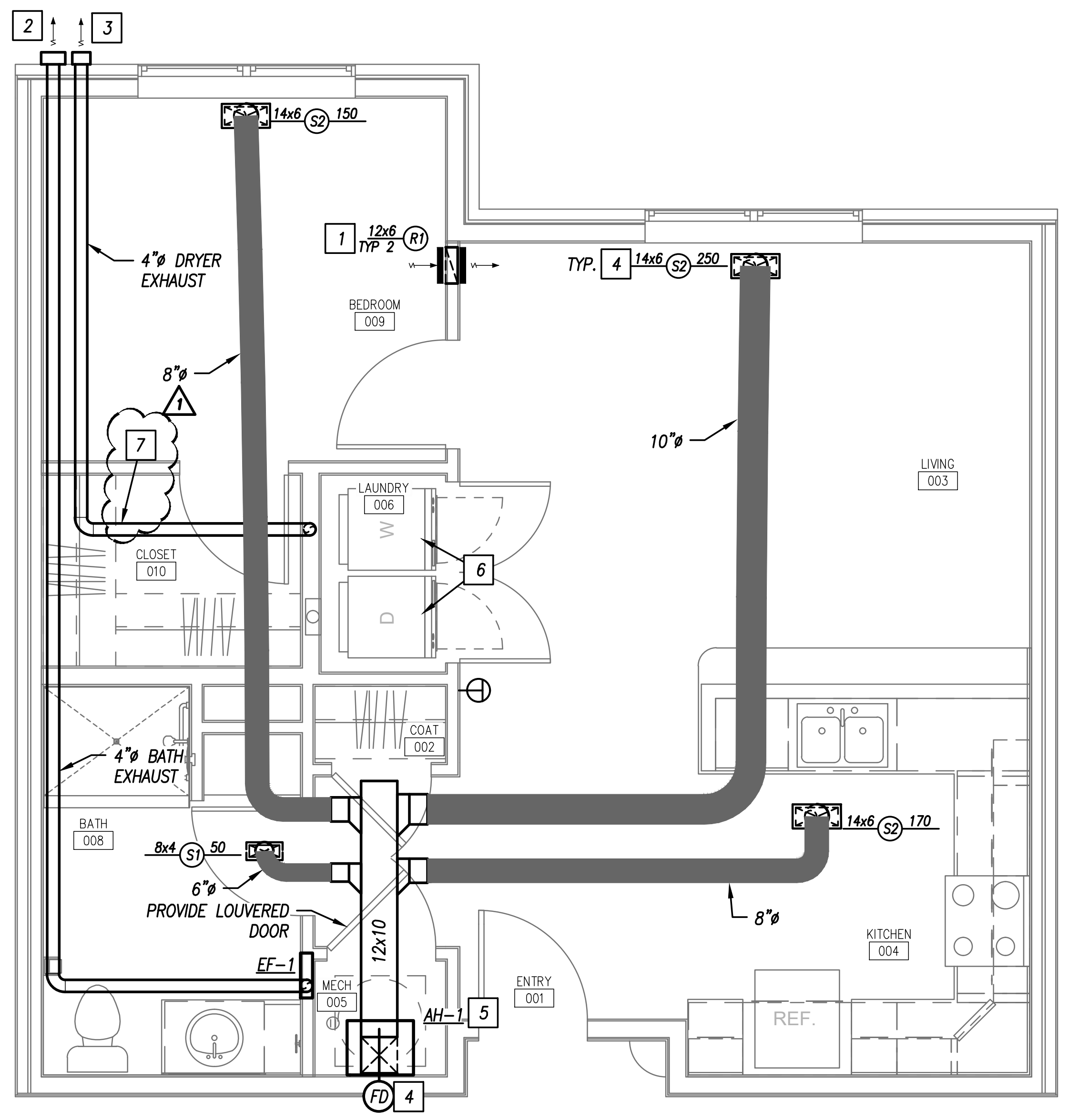
LEE'S SUMMIT, MISSOURI

SHEET TITLE
THIRD FLOOR HVAC PLAN

PROJECT NUMBER: 23.161

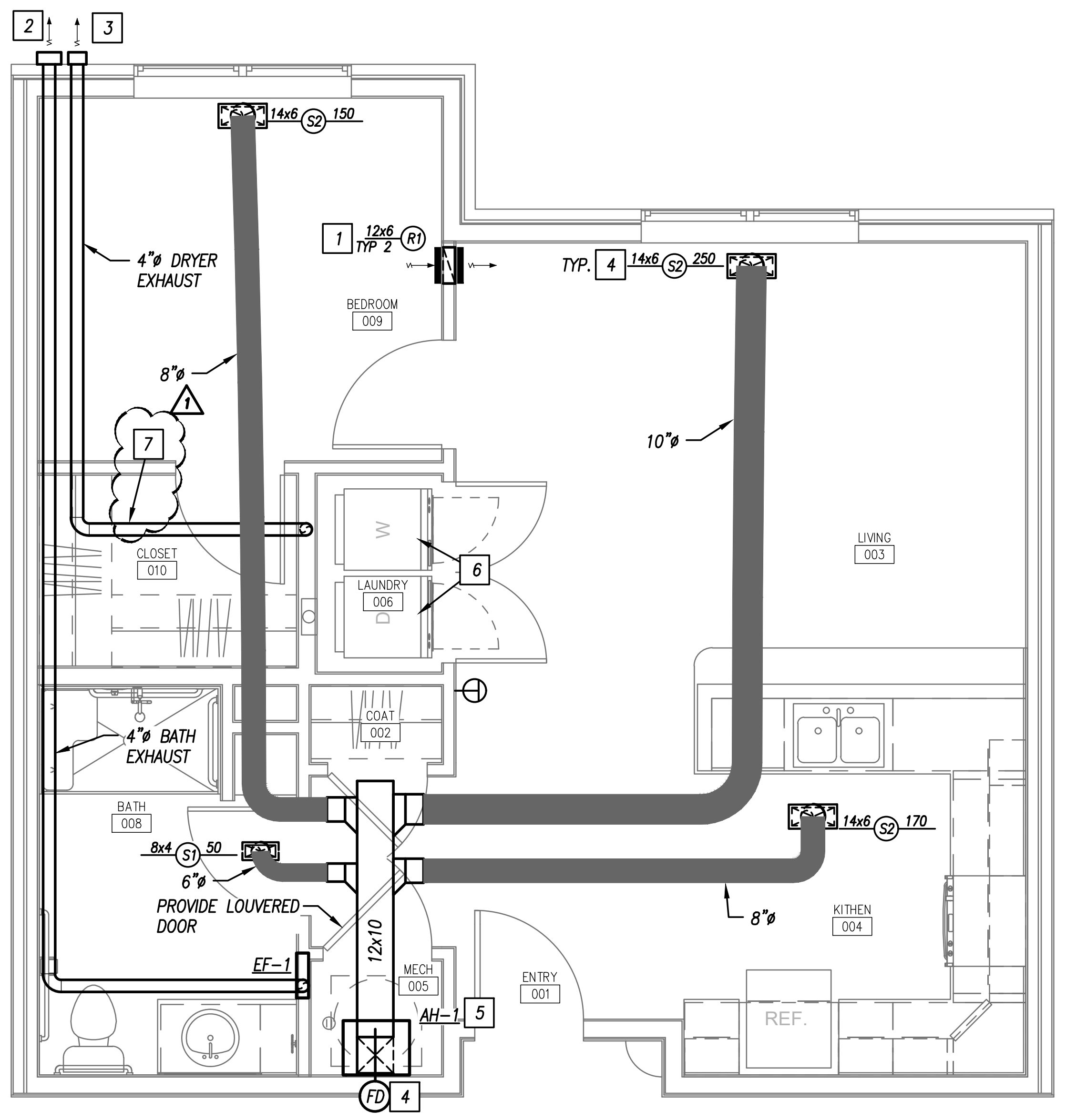
SHEET NUMBER:

M103



TYPE B - ONE BEDROOM
TYPICAL UNIT FLOOR PLAN - HVAC

1/4" = 1'-0"



TYPE A - ONE BEDROOM
TYPICAL UNIT FLOOR PLAN - HVAC

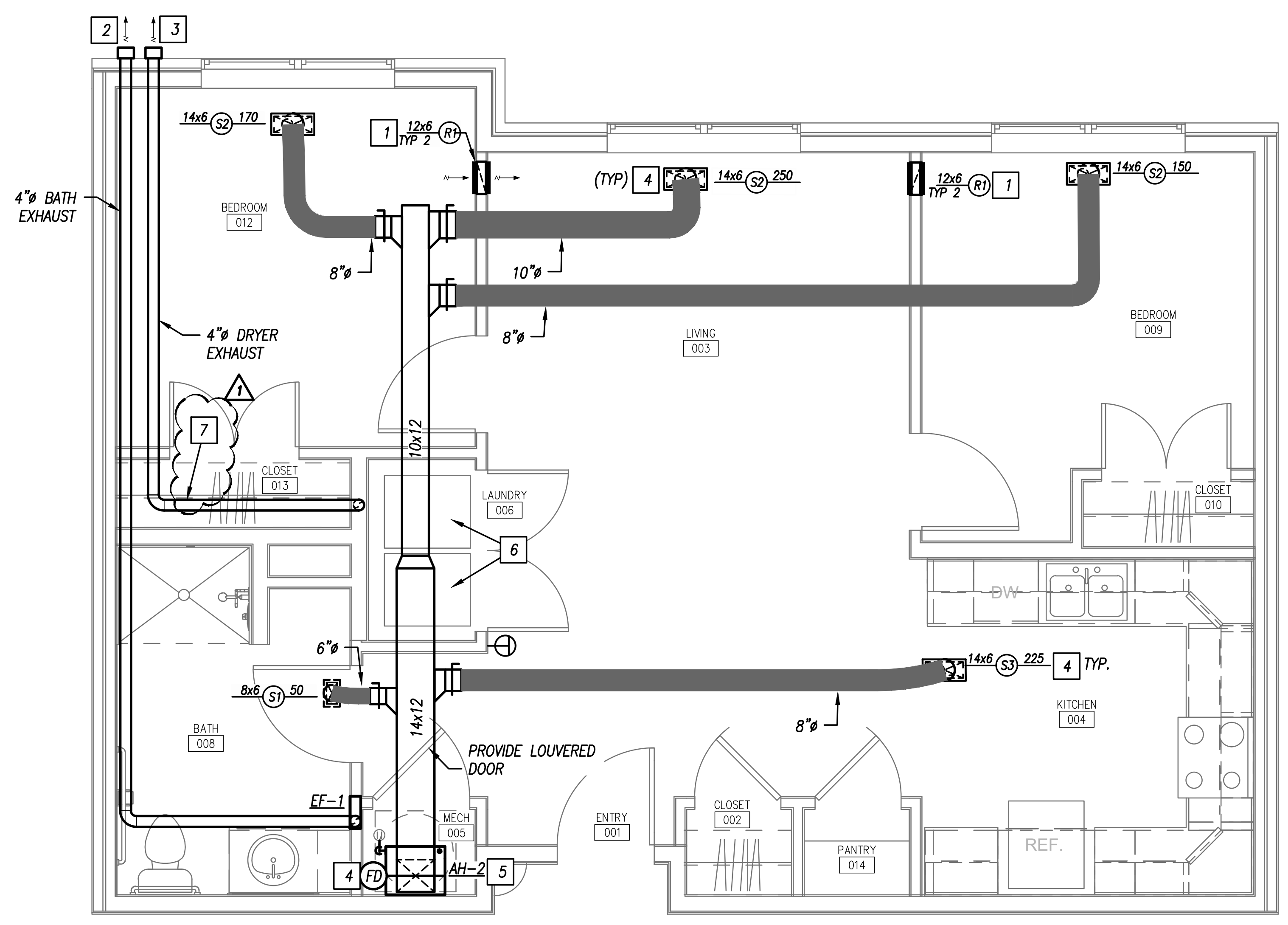
1/4" = 1'-0"

GENERAL HVAC NOTES

1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
2. ROUND BRANCH DUCT RUNOUTS AND FLEXIBLE DUCT SHALL BE THE SAME SIZE AS THE DIFFUSER NECK UNLESS NOTED OTHERWISE.
3. ALL RUNOUTS TO TERMINAL BOXES SHALL BE ONE SIZE LARGER THAN BOX INLETS UNLESS NOTED OTHERWISE.
4. ALL AIR DISTRIBUTION DEVICES SHALL HAVE LOCKABLE VOLUME CONTROL DEVICES.
5. ALL 90 DEGREE TURNING ELBOWS SHALL BE SMOOTH ROUND OR SQUARE WITH TURNING VANES.
6. DUCT SIZES SHOWN ON PLANS ARE INSIDE FREE AREA.
7. PROVIDE ACCESS DOORS IN DUCTS AHEAD OF ALL AUTOMATIC, FIRE, AND SMOKE DAMPERS.
8. FOR BALANCING THE OUTSIDE AIRFLOW QUANTITIES, REFER TO HVAC SCHEDULES.
9. INSTALL RIGID DUCT WORK OR PULL ALL FLEX DUCTS WITH NO PINCHES AND SUPPORT AT INTERVALS OF 4' OR LESS.

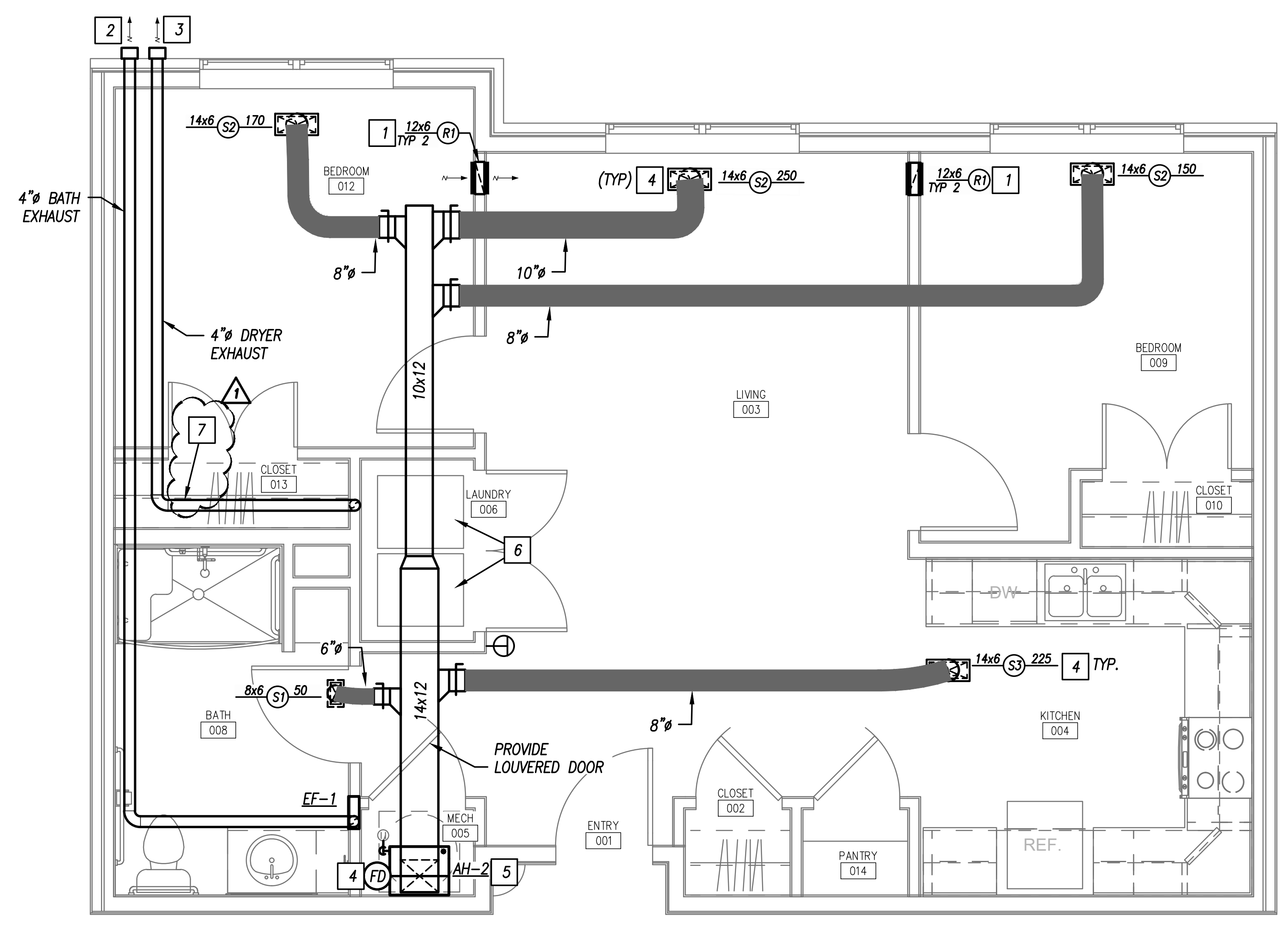
HVAC PLAN KEYED NOTES

1 PROVIDE HIGH/LOW TRANSFER GRILLE.
2 4" BATH EXHAUST DUCT TERMINATED WITH WALL CAP WITH BACKDRAFT DAMPER AND BUG SCREEN.
3 4" DRYER EXHAUST DUCT TERMINATED WITH DRYER EXHAUST CAP.
4 PROVIDE FIRE DAMPER AT ALL RATED CEILING PENETRATIONS.
5 ROUTE CONDENSATE DRAIN LINE TO FLOOR DRAIN IN MECHANICAL CLOSET.
6 WASHER TO BE INSTALLED TO THE LEFT OF DRYER WHEN FACING DRYER.
1 7 WHERE EXHAUST DUCT EQUIVALENT LENGTH EXCEEDS 35 FEET, THE EQUIVALENT LENGTH OF THE EXHAUST DUCT SHALL BE IDENTIFIED ON A PERMANENT LABEL OR TAG LOCATED WITHIN 6 FEET OF THE EXHAUST DUCT CONNECTION.



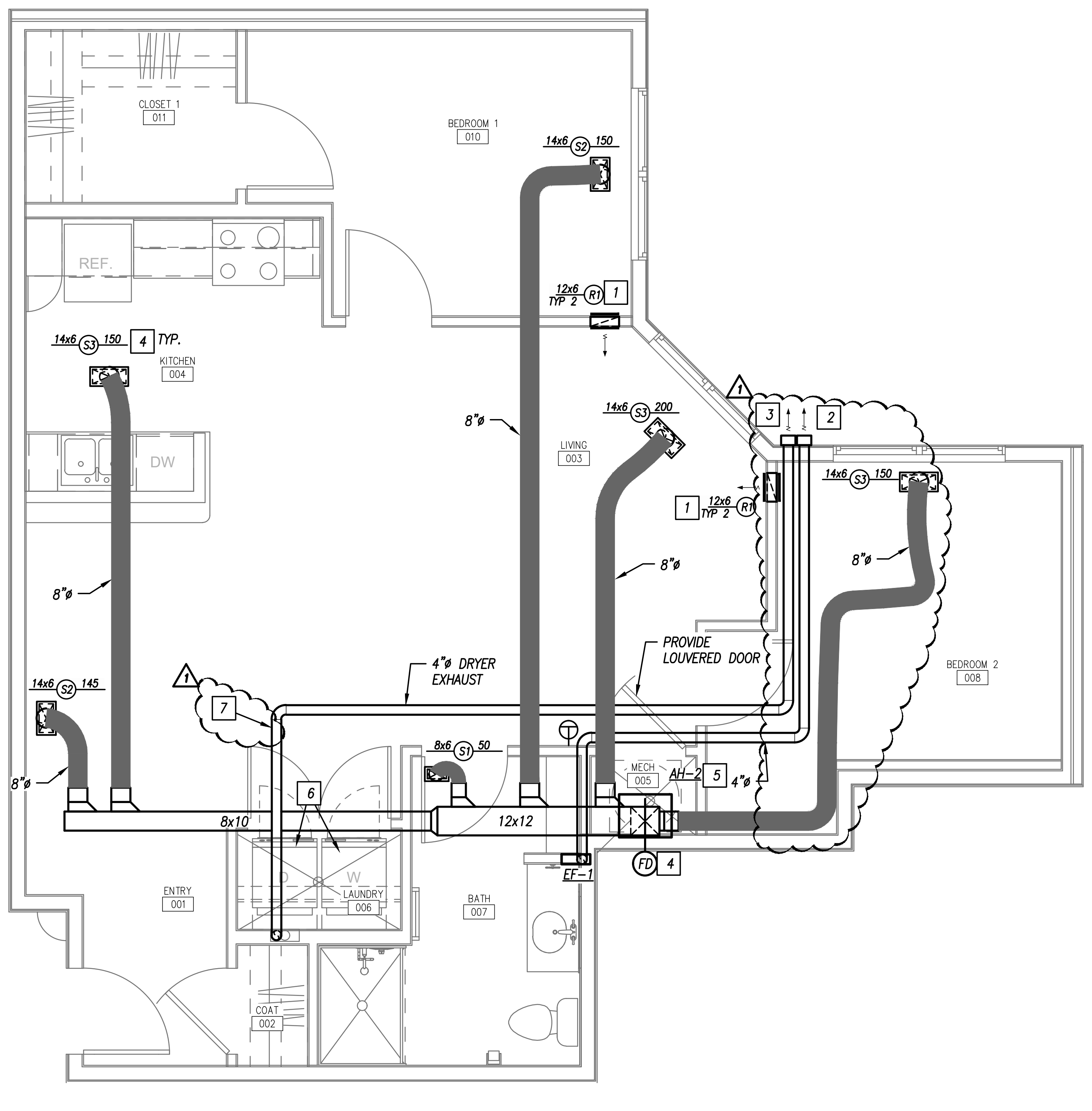
TYPE B - TWO BEDROOM
TYPICAL UNIT FLOOR PLAN - HVAC

1/4" = 1'-0"



TYPE A - TWO BEDROOM
TYPICAL UNIT FLOOR PLAN - HVAC

1/4" = 1'-0"



TYPE B - TWO BEDROOM - (CORNER)
TYPICAL UNIT FLOOR PLAN - HVAC

1/4" = 1'-0"

PRINTS ISSUED
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REVISIONS:
1 12/15/2023 - CITY COMMENTS

pkmr ENGINEERS
23.161

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NUMBER PE-2005028097
12/15/23
Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
ENLARGED UNIT PLANS - HVAC

PROJECT NUMBER: 23.161

SHEET NUMBER:

M201

QUAD-ZONE MULTI-SPLIT HEAT PUMP SYSTEM

PLAN MARK	MANUFACTURER	OUTDOOR HEAT PUMP UNIT											INDOOR FAN COIL UNITS							REMARKS
		MODEL	COOLING CAPACITY (MBH)	HEATING CAPACITY (MBH)	AMBIENT	REF.	MCA	MOCP	SEER	HSPF	VOLTAGE	WEIGHT (LBS.)	MARK	MODEL	CFM	CAPACITY (MBH)	AMPS	VOLTAGE	WEIGHT (LBS.)	
MHP-1	DAIKIN	4MXS36RMVJUA	36.0	36.0	105°	R410A	23.9	25	14.00	8.20	208V / 1PH	139	FC-1.1	FDXS12LVJU	330	12.0	0.25	208V / 1PH	47	ALL
													FC-1.2	FDXS12LVJU	330	12.0	0.25	208V / 1PH	47	
													FC-1.3	FDXS12LVJU	330	12.0	0.25	208V / 1PH	47	
													---	---	---	--	---	---	---	
MHP-2	DAIKIN	4MXS36RMVJUA	36.0	36.0	105°	R410A	23.9	25	14.00	8.20	208V / 1PH	139	FC-2.1	FFQ18Q2VJU	378	18.0	0.52	208V / 1PH	39	ALL
													FC-2.2	FFQ18Q2VJU	378	18.0	0.52	208V / 1PH	39	
													---	---	---	--	---	---	---	
													---	---	---	--	---	---	---	
MHP-3	DAIKIN	4MXS36RMVJUA	36.0	36.0	105°	R410A	23.9	25	14.00	8.20	208V / 1PH	139	FC-3.1	FFQ18Q2VJU	378	18.0	0.52	208V / 1PH	39	ALL
													FC-3.2	FFQ18Q2VJU	378	18.0	0.52	208V / 1PH	39	
													---	---	---	--	---	---	---	
													---	---	---	--	---	---	---	

REMARKS:

1. PROVIDE WITH WIRED WALL CONTROL.
2. PROVIDE INTEGRAL DISCONNECT SWITCH FOR INDOOR AND OUTDOOR UNITS.
3. PROVIDE WITH INSULATED REFRIGERANT LINE-SETS AND REFRIGERANT.
4. PROVIDE WITH CONDENSATE PUMP. PROVIDE DRAIN PAN UNDER FAN COIL UNITS WITH OVERFLOW SHUTOFF FLOAT SWITCH.

HVAC PIPING MATERIAL SCHEDULE

PIPING				ACCEPTABLE FITTINGS	FIELD TEST PRESSURE/TIME	ALLOWABLE IN PLENUMS	INSULATION	
SYSTEM	SIZE	TYPE/SCHED	MATERIAL				TYPE	THICKNESS
CONDENSATE DRAIN ON ROOF	3/4" - 2"	SCH. 40	PVC	SOLVENT JOINED	10 FT - 1/2HR	NO	-	-
CONDENSATE DRAIN INTERIOR	3/4" - 2"	SCH. 40	CPVC	SOLVENT JOINED	10 FT - 1/2HR	YES	FIBERGLASS W/ ASJ	1/2" (PLENUM ONLY)
CONDENSATE DRAIN INTERIOR	1/2" - 2"	L	COPPER	SOLDER, PRO-PRESS	10 FT - 1/2HR	YES	FIBERGLASS W/ ASJ	1/2" (PLENUM ONLY)
REFRIGERANT LINES	1/2" - 2"	ACR	COPPER	BRAZED		YES	ELASTOMERIC	3/4"

NOTES:

1. ALL PIPING AND MATERIALS IN PLENUMS MUST MEET ASTM E84 FLAME/SMOKE RATING OF 25/50.
2. ALL INSULATION THICKNESSES SHALL MEET ASHRAE 90.1 - 2007 REQUIREMENTS AT A MINIMUM.
3. REFER TO SPECIFICATIONS FOR MORE DETAILED INFORMATION.

ELECTRIC HEATER SCHEDULE

PLAN MARK	MANUFACTURER	MODEL NUMBER	TYPE	CFM	KW	VOLTAGE	REMARKS
UH-1	QMARK	AWH SERIES	WALL HEATER	100	4.0	208V / 1PH	1
UH-2	QMARK	MUH SERIES	UNIT HEATER	350	3.0	208V / 1PH	1

REMARKS:

1. PROVIDE WITH REMOTE THERMOSTAT AND DISCONNECT.

1

RESIDENTIAL RANGE FIRE SUPRESSION SYSTEM SCHEDULE

PLAN MARK	MANUFACTURER	MODEL NUMBER	RANGE SIZE (WIDTH x DEPTH, IN.)	REMARKS
FS-1	GUARDIAN	G300B	36"x24"	ALL

REMARKS:

1. PROVIDE WITH FUEL SHUTOFF; ELECTRIC 4PRONG OPTION. COORDINATE CORRECT PLUG TYPE WITH APPLIANCE VENDOR.
2.PROVIDE WITH FIRE ALARM INTERFACE MODULE. INTERLOCK SUPPRESSION SYSTEM WITH BUILDING FIRE ALARM PANEL.

MINI-SPLIT SYSTEMS

PLAN MARK	AREA SERVED	MANUFACTURER	MODEL	STYLE	NOM. TON.	SUPPLY FAN						OUTDOOR HEAT PUMP UNIT							REMARKS
						CFM	FLA	EAT/LAT	CAP. (MBH)	TYPE	VOLTAGE	MARK	MODEL	AMBIENT	REF.	MCA	MOCP	VOLTAGE	
FC-2	ELEVATOR EQUIPMENT	DAIKIN	FTKN24NMVJU	WALL MOUNTED	1	300	0.35	75° / 55°	24.0	DX	24V	CU-2	RKN24NMVJU	0°F /95°F	R-410A	18.3	20	208V / 1PH	ALL

REMARKS:

1. PROVIDE WIRED WITH WALL MOUNTED THERMOSTAT / CONTROLLER.
2. PROVIDE INTEGRAL DISCONNECT FOR INDOOR EVAPORATOR AND CONDENSING UNIT. PROVIDE WIRING BETWEEN INDOOR AND OUTDOOR UNIT. COORDINATE WITH EC.
3. UNIT SHALL OPERATE DOWN TO 0°F IN COOLING MODE. PROVIDE ACCESSORIES AS REQUIRED.

GRILLE, REGISTER & DIFFUSER SCHEDULE

PLAN MARK	MANUFACTURER	MODEL NUMBER	STYLE	DESCRIPTION	SERVICE	NECK SIZE (IN)	FACE SIZE (IN)	VOLUME DAMPER	MATERIAL	FINISH COLOR	REMARKS
S1	HART AND COOLEY	682	CEILING / SIDEWALL	2-WAY DEFLECTION	SUPPLY	AS INDICATED	NECK + 1-3/4"	YES	STEEL	WHITE	3
S2	HART AND COOLEY	683	CEILING / SIDEWALL	3-WAY DEFLECTION	SUPPLY	AS INDICATED	NECK + 1-3/4"	YES	STEEL	WHITE	3
S3	HART AND COOLEY	684	CEILING / SIDEWALL	4-WAY DEFLECTION	SUPPLY	AS INDICATED	NECK + 1-3/4"	YES	STEEL	WHITE	3
S4	HART AND COOLEY	SRE	LAY - IN CEILING	STEEL LOUVERED CONCENTRIC CORE	SUPPLY	AS INDICATED	24"x24"	YES	STEEL	WHITE	1
S5	HART AND COOLEY	SRE	HARD CEILING	STEEL LOUVERED CONCENTRIC CORE	SUPPLY	AS INDICATED	18"x18"	YES	STEEL	WHITE	-
R1	HART AND COOLEY	650	CEILING / SIDEWALL	20 DEG LOUVERED RETURN 1/3" BLADE SPACING	RETURN	AS INDICATED	NECK + 1-3/4"	NO	STEEL	WHITE	-

REMARKS:

1. PROVIDE WITHOUT SCREW HOLES WHERE USED IN GRID CEILING.
2. PROVIDE WITH 20x20x1 DISPOSABLE FILTER.
3. PROVIDE UL555C CEILING RADIATION DAMPER ON BACKSIDE OF DEVICE.

EXHAUST FAN SCHEDULE

PLAN MARK	MANUFACTURER	MODEL NUMBER	TYPE	SERVICE	FAN DATA						ELECTRICAL	CONTROL	REMARKS
					CFM	E.S.P. (IN)	HP	DRIVE	SONES	RPM			
EF-1	BROAN	LP50100DC	WALL	BATHROOM	50	0.300	4W	DIRECT	6	1,334	120V / 1PH	SWITCH	-
EF-2	BROAN	XB80	CEILING CABINET	BATHROOM	80	0.250	12W	DIRECT	0.3	---	120V / 1PH	SWITCH	1

REMARKS:

1. UNIT SHALL BE PROVIDED WITH CEILING RADIATION DAMPER WHEN INSTALLED IN RATED CEILING.

DUCTWORK INSULATION SCHEDULE

DUCT			INSULATION			NOTES
PURPOSE	LOCATION	STYLE	MATERIAL	APPLICATION	THICKNESS	
SUPPLY	CONCEALED	RECTANGULAR	FIBERGLASS	LINED	1/2"	---
	CONCEALED	ROUND	MINERAL FIBER	WRAPPED	1-1/2"	---
	UNCONDITIONED ATTICS	ALL	MINERAL FIBER	WRAPPED	1-1/2"	1
RETURN	CONCEALED	RECTANGULAR	FIBERGLASS	LINED	1/2"	---
	CONCEALED	ROUND	MINERAL FIBER	WRAPPED	1-1/2"	---
	RETURN/TRANSFER BOOTS	RECTANGULAR	FIBERGLASS	LINED	1/2"	---
	UNCONDITIONED ATTICS	ALL	MINERAL FIBER	WRAPPED	1-1/2"	1
	EXTERIOR	ALL	FLEXIBLE ELASTOMERIC	WRAPPED	2"	---
EXHAUST	CONCEALED	RECTANGULAR	---	---	---	---
	CONCEALED	ROUND	---	---	---	---
	DRYER EXHAUST WITHIN RATED ASSEMBLY	ROUND	UL LISTED FIRE RATED WRAP SYSTEM			---
OUTSIDE AIR	CONCEALED OR MECH. SPACE	RECTANGULAR	MINERAL FIBER	WRAPPED	1-1/2"	---
	CONCEALED OR MECH. SPACE	ROUND	MINERAL FIBER	WRAPPED	1-1/2"	---

NOTES:

1. IN ADDITION TO OTHER SCHEDULED INSULATION.

GENERAL REMARKS (APPLICABLE TO ALL TYPES):

1) ALL DUCTWORK, INSULATION AND MATERIALS IN PLENUMS MUST MEET ASTM E84 FLAME/SMOKE RATING OF 25/50.
2) ALL INSULATION THICKNESSES SHALL MEET ASHRAE 90.1 - 2010 REQUIREMENTS AT A MINIMUM.
3) REFER TO SPECIFICATIONS FOR MORE DETAILED INFORMATION FOR INSULATION PRODUCTS AND SYSTEMS.

AIR HANDLER SCHEDULE

PLAN MARK	MANUFACTURER	MODEL NUMBER	CFM	O.A. CFM	E.S.P. (IN. W.C.)	FAN HP	TOTAL COOLING CAPACITY (MBH)	HEATING		ELECTRICAL			REMARKS
								COIL KW	ΔT	VOLTAGE	MCA	MOCP	
AH-1	DAIKIN	AWUF 310516A	620	-	0.5"	1/2	17.2	5.0	19.1	208V / 1PH	27.0	30	1,2,4,5
AH-2	DAIKIN	AWUF 310816A	845	-	0.5"	1/3	24.0	5.0	23.7	208V / 1PH	27.0	30	1,2,4,5
AH-3	DAIKIN	ASPT33C14B	820	80	0.5"	3/4	23.4	8.0	23.1	208V / 1PH	41.0	45	1,2,3,4,5
AH-4	DAIKIN	ASPT35B14A	920	100	0.5"	3/4	27.2	10.0	25.8	208V / 1PH	49.0	50	1,2,3,4,5

REMARKS:

1. HEATING CAPACITIES ARE BASED ON 240V RATED VALUE AND WILL BE DERATED FOR 208V.
2. PROVIDE WITH INTEGRAL CIRCUIT BREAKER DISCONNECT.
3. PROVIDE WITH OUTSIDE AIR DUCT TO OUTDOORS WITH MOTORIZED DAMPER, BALANCING DAMPER, AND VENTILATION CONTROLLER (Honeywell Y8150 Fresh Air Ventilation System, W8150 Fresh Air Ventilation Control).
4. PROVIDE WITH DAIKIN D4271C AUTO-CHANGEOVER THERMOSTAT AND REMOTE OUTDOOR TEMPERATURE SENSOR.
5. ACCEPTABLE ALTERNATE MANUFACTURERS: AMERICAN STANDARD, CARRIER, GOODMAN, LENNOX, OXBOX, TRANE, YORK, OR OTHER APPROVED EQUAL.

HEAT PUMP UNIT SCHEDULE

PLAN MARK	MANUFACTURER	MODEL NUMBER	COOLING CAPACITY (MBH)	HEATING CAPACITY (MBH)	MINIMUM SEER	AMBIENT TEMP. (°F)	ELECTRICAL			REMARKS
							VOLTS / PH	M.C.A.	M.O.C.P.	
HP-1	DAIKIN	DZ14SA	18.0	17.6 / 9.6	14.0	105°	208V / 1PH	12.2	20	ALL
HP-2	DAIKIN	DZ14SA	24.0	23.0 / 13.4	14.0	105°	208V / 1PH	14.6	25	ALL
HP-3	DAIKIN	DZ14SA	24.0	23.0 / 13.4	14.0	105°	208V / 1PH	14.6	25	ALL
HP-4	DAIKIN	DZ14SA	30.0	28.4 / 16.2	14.0	105°	208V / 1PH	17.8	30	ALL

REMARKS:

1. COOLING CAPACITY BASED ON A SUCTION TEMPERATURE OF 49°F.
2. HEATING CAPACITIES LISTED ARE AT 47°F AND 17°F.
3. PROVIDE 4" CONCRETE HOUSEKEEPING PAD.
4. ACCEPTABLE ALTERNATE MANUFACTURERS: AMERICAN STANDARD, CARRIER, GOODMAN, LENNOX, OXBOX, TRANE, YORK, OR OTHER APPROVED EQUAL.

PRINTS ISSUED
10/30/2023 - PERMIT SUBMITTAL

REVISIONS:
1 12/15/2023 - CITY COMMENTS

pkmr ENGINEERS
23.161
PEARSON KENT MCKINLEY RAAF ENGINEERS LLC
13300 W 98TH STREET LENEXA, KS 66215
913.492.2400 WWW.PKMRENG.COM
MO State Certificate of Authority #E-2002020886

MICHAEL D. RAAF
NUMBER PE-2005028097
12/15/23
Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III

LEE'S SUMMIT, MISSOURI

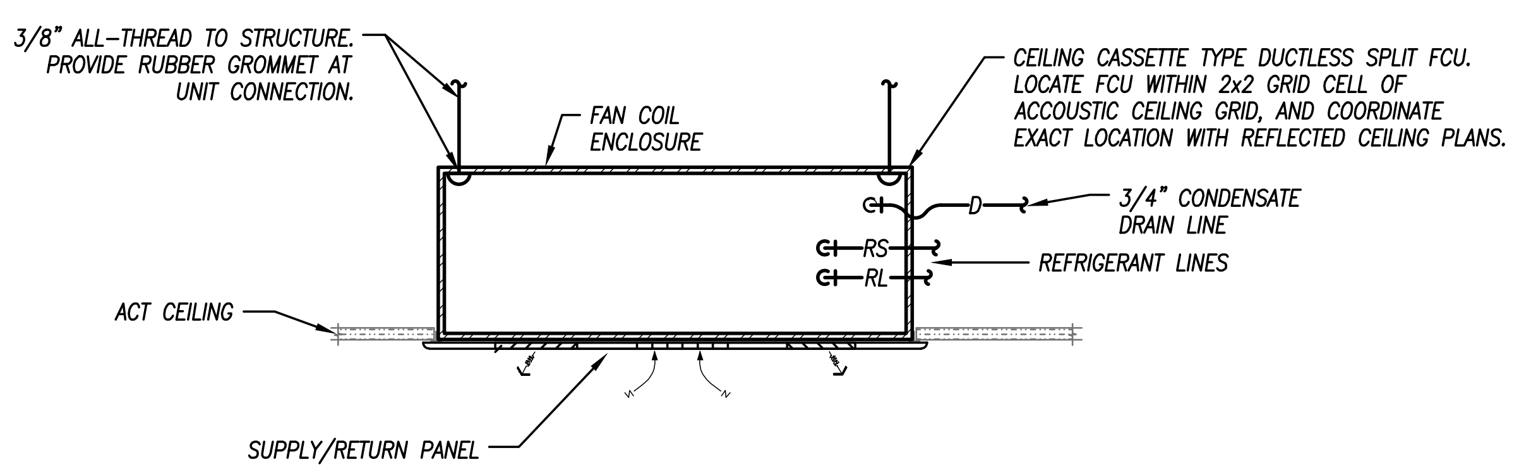
SHEET TITLE
MECHANICAL SCHEDULES

PROJECT NUMBER: 23.161

SHEET NUMBER:

M301

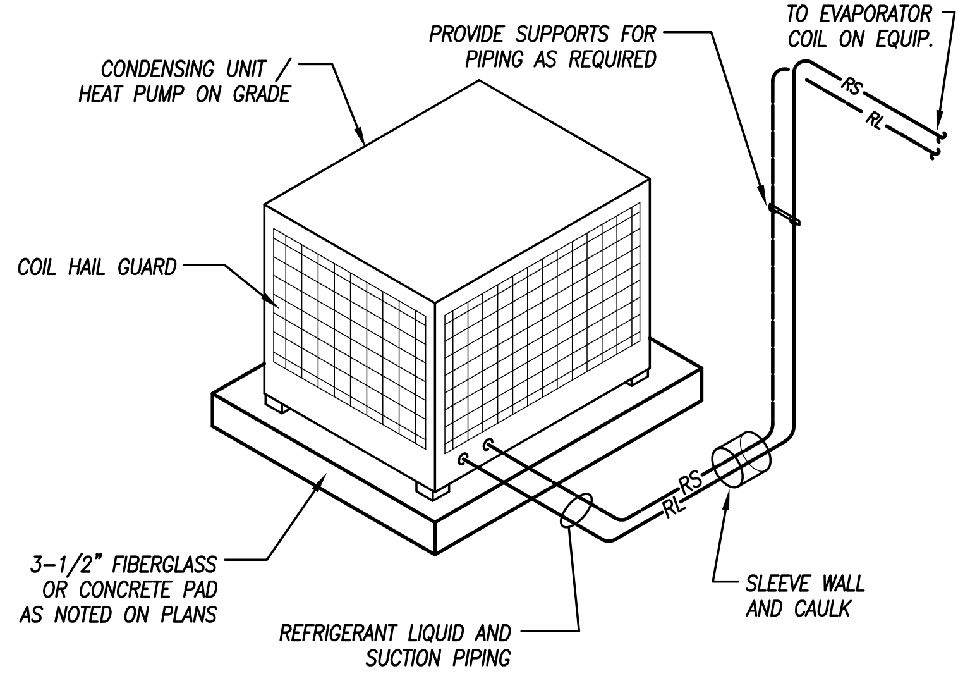
NOTES:
1. INSTALL ALL COMPONENTS PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. FAN COILS SHALL HAVE AN OVERFLOW DRAIN PAN INTERLOCK SWITCH.
3. REFRIGERANT LINES AND CONDENSATE DRAINS SHALL BE INSULATED AS SCHEDULED.
4. COORDINATE EXACT LOCATION WITH LIGHT FIXTURES, CEILING GRID, ETC.


3/8" ALL-THREAD TO STRUCTURE. PROVIDE RUBBER GROMMET AT UNIT CONNECTION.
FAN COIL ENCLOSURE
CEILING CASSETTE TYPE DUCTLESS SPLIT FCU. LOCATE FCU WITHIN 2x2 GRID CELL OF ACCOUSTIC CEILING GRID, AND COORDINATE EXACT LOCATION WITH REFLECTED CEILING PLANS.
D
3/4" CONDENSATE DRAIN LINE
RS
RL
REFRIGERANT LINES
ACT CEILING
SUPPLY/RETURN PANEL

CEILING CASSETTE DUCTLESS FAN COIL DETAIL

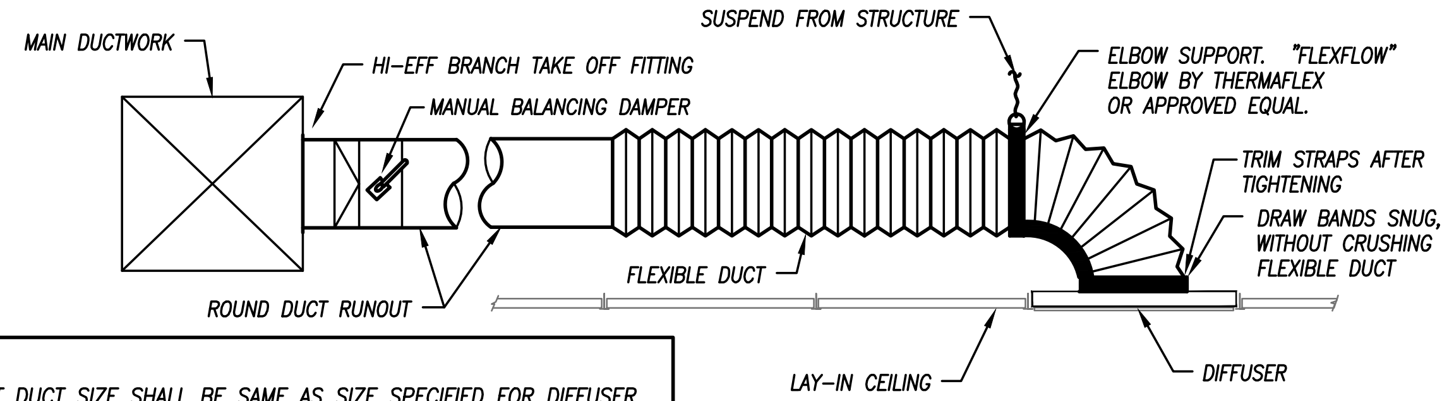
NOT TO SCALE

NOTES:
1. CONDENSING UNIT MANUFACTURER TO SIZE ALL REFRIGERANT LINES AND PROVIDE ALL ACCESSORIES FOR VERTICAL RUNS AS REQUIRED.
2. INSULATE REFRIGERANT SUCTION LINES – REFER TO SPECIFICATIONS.


TO EVAPORATOR COIL ON EQUIP.
PROVIDE SUPPORTS FOR PIPING AS REQUIRED
CONDENSING UNIT / HEAT PUMP ON GRADE
RS
RL
COIL HAIL GUARD
3-1/2" FIBERGLASS OR CONCRETE PAD AS NOTED ON PLANS
REFRIGERANT LIQUID AND SUCTION PIPING
SLEEVE WALL AND CAULK

CONDENSING UNIT / HEAT PUMP DETAIL

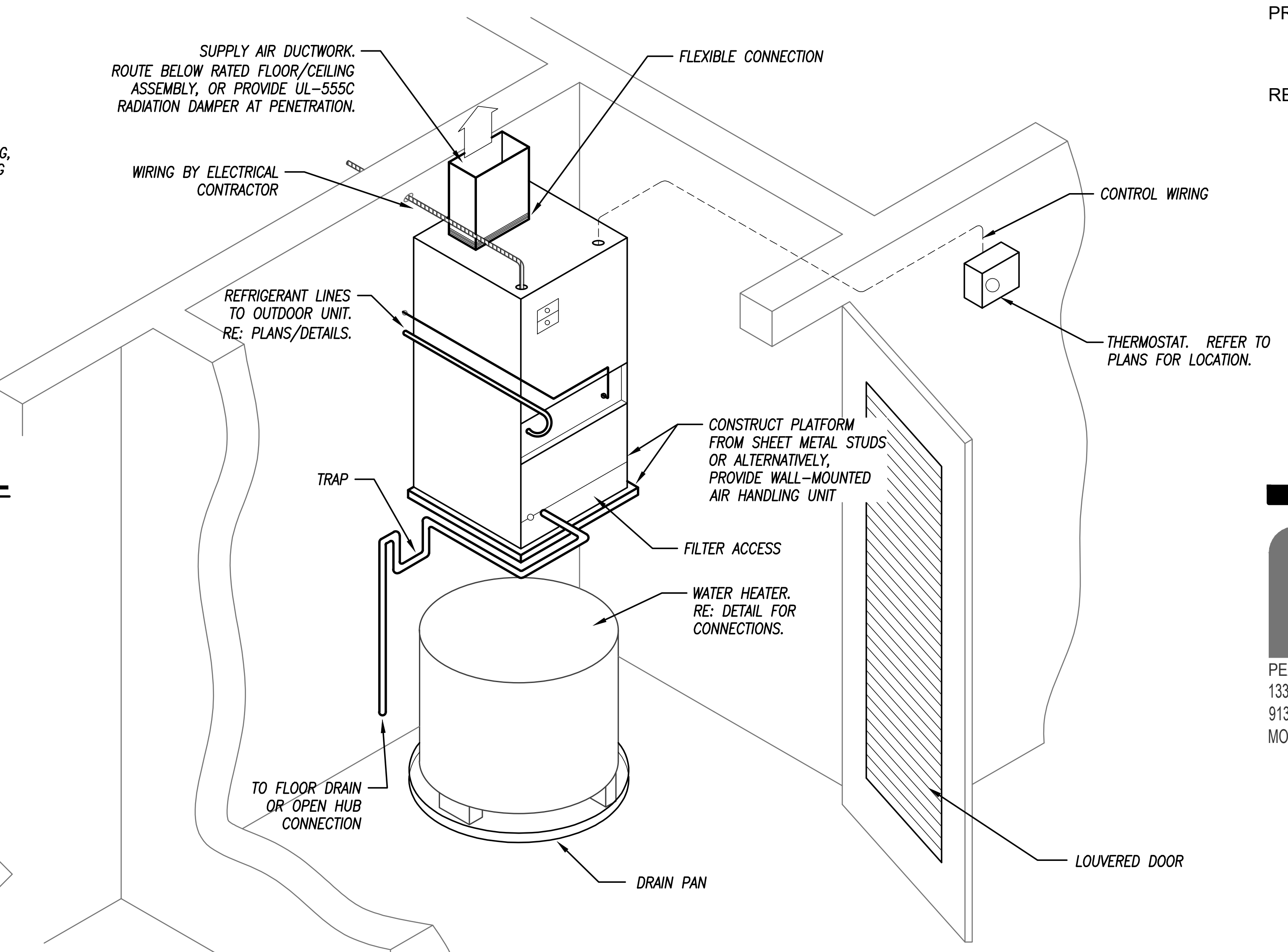
NOT TO SCALE


MAIN DUCTWORK
HI-EFF BRANCH TAKE OFF FITTING
MANUAL BALANCING DAMPER
SUSPEND FROM STRUCTURE
ELBOW SUPPORT. "FLEXFLOW" ELBOW BY THERMAFLEX OR APPROVED EQUAL.
TRIM STRAPS AFTER TIGHTENING
DRAW BANDS SNUG, WITHOUT CRUSHING FLEXIBLE DUCT
FLEXIBLE DUCT
ROUND DUCT RUNOUT
LAY-IN CEILING
DIFFUSER

NOTES:
1. RUN-OUT DUCT SIZE SHALL BE SAME AS SIZE SPECIFIED FOR DIFFUSER INLET. INCREASE RUN-OUT DUCT SIZE 2" WHEN LENGTH OF RUN-OUT DUCT EXCEEDS 20'-0'' AND PROVIDE TRANSITION AT THE DIFFUSER.
2. MAXIMUM FLEXIBLE DUCTWORK LENGTH IS 6'-0" UNLESS OTHERWISE NOTED ON DRAWINGS.
3. FLEXIBLE DUCTWORK MUST BE FULLY EXTENDED AND NOT IN CONTACT WITH PIPES AND/OR CONDUITS.
4. INSTALL FLEXIBLE DUCTWORK SUPPORTS AT ALL ROUND NECK OUTLETS/INLETS UNLESS OTHERWISE NOTED ON DRAWINGS.
5. FLEXIBLE DUCTWORK IS NOT TO BE USED IN UNACCESSIBLE LOCATIONS. (ABOVE GYP. BOARD CEILINGS, ETC.)

DUCT CONNECTION TO LAY-IN DIFFUSER DETAIL

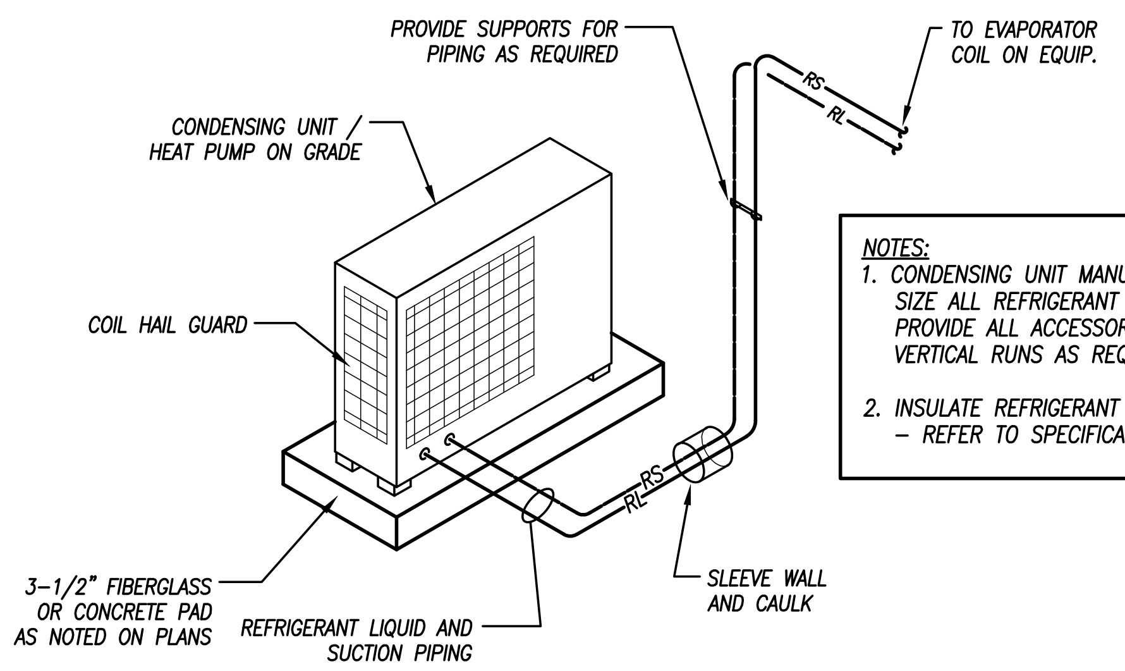
NOT TO SCALE


SUPPLY AIR DUCTWORK. ROUTE BELOW RATED FLOOR/CEILING ASSEMBLY, OR PROVIDE UL-555C RADIATION DAMPER AT PENETRATION.
FLEXIBLE CONNECTION
WIRING BY ELECTRICAL CONTRACTOR
CONTROL WIRING
REFRIGERANT LINES TO OUTDOOR UNIT. RE: PLANS/DETAILS.
THERMOSTAT. REFER TO PLANS FOR LOCATION.
CONSTRUCT PLATFORM FROM SHEET METAL STUDS OR ALTERNATIVELY, PROVIDE WALL-MOUNTED AIR HANDLING UNIT
TRAP
FILTER ACCESS
WATER HEATER. RE: DETAIL FOR CONNECTIONS.
TO FLOOR DRAIN OR OPEN HUB CONNECTION
LOUVERED DOOR
DRAIN PAN

NOTES:
1. NO COMBUSTIBLE MATERIALS ARE ALLOWED WITHIN RETURN AIR PATHWAY OR AIR HANDLER CLOSET.
2. ANY PVC/CPVC PIPING IN CLOSET SHALL BE INSULATED WITH 3/4" RUBBER PIPE INSULATION EQUAL TO "ARMAFLEX" WITH 25/50 JACKET IN ACCORDANCE WITH NFPA 90A.

AIR HANDLING UNIT IN CLOSET DETAIL

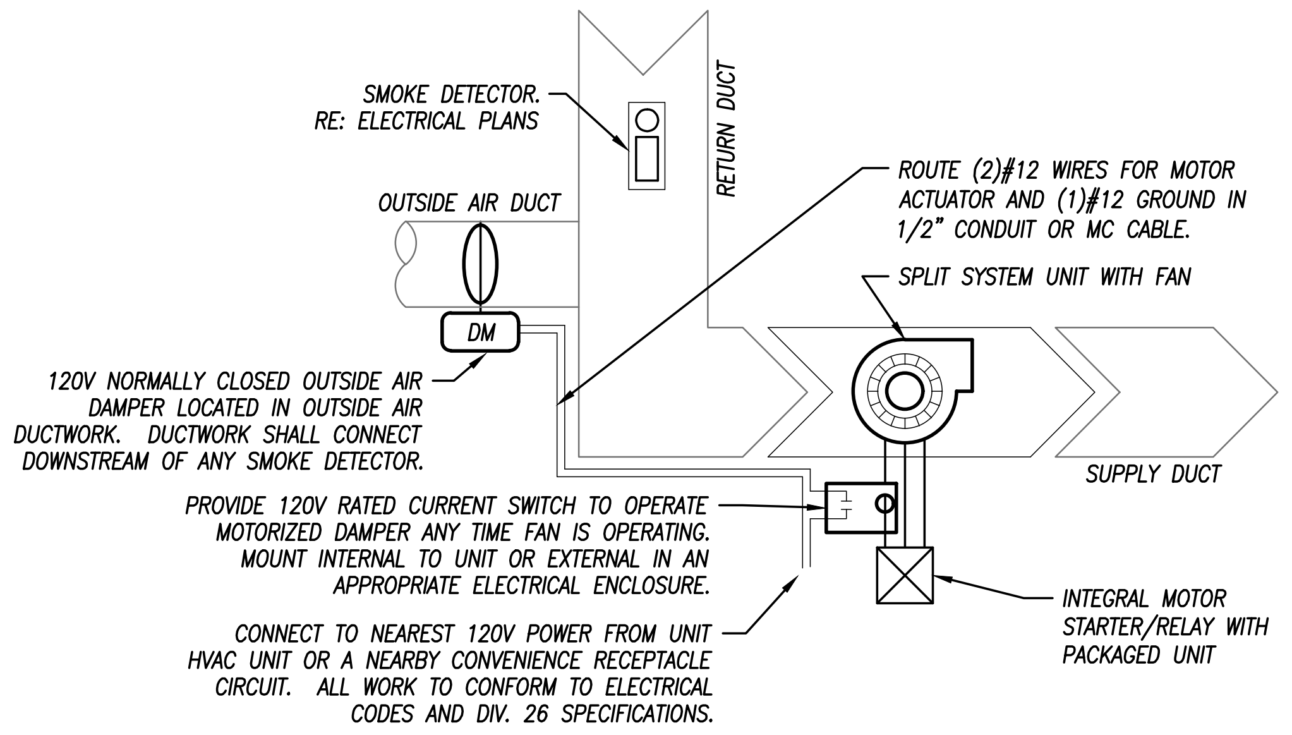
NOT TO SCALE


PROVIDE SUPPORTS FOR PIPING AS REQUIRED
TO EVAPORATOR COIL ON EQUIP.
CONDENSING UNIT / HEAT PUMP ON GRADE
RS
RL
COIL HAIL GUARD
3-1/2" FIBERGLASS OR CONCRETE PAD AS NOTED ON PLANS
REFRIGERANT LIQUID AND SUCTION PIPING
SLEEVE WALL AND CAULK

NOTES:
1. CONDENSING UNIT MANUFACTURER TO SIZE ALL REFRIGERANT LINES AND PROVIDE ALL ACCESSORIES FOR VERTICAL RUNS AS REQUIRED.
2. INSULATE REFRIGERANT SUCTION LINES – REFER TO SPECIFICATIONS.

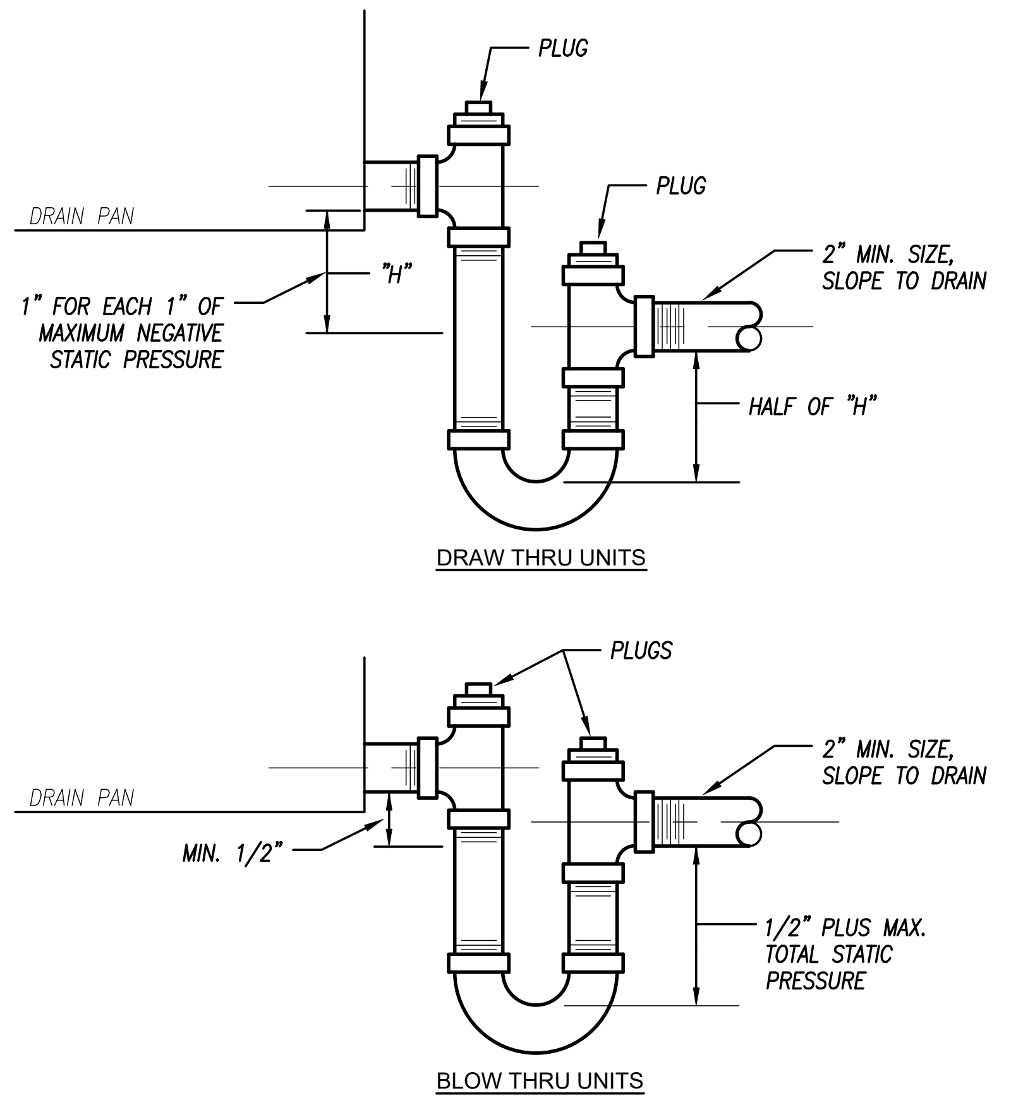
MINI SPLIT CONDENSING UNIT / HEAT PUMP DETAIL

NOT TO SCALE


SMOKE DETECTOR. RE: ELECTRICAL PLANS
RETURN DUCT
OUTSIDE AIR DUCT
ROUTE (2)#12 WIRES FOR MOTOR ACTUATOR AND (1)#12 GROUND IN 1/2" CONDUIT OR MC CABLE.
SPLIT SYSTEM UNIT WITH FAN
DM
120V NORMALLY CLOSED OUTSIDE AIR DAMPER LOCATED IN OUTSIDE AIR DUCTWORK. DUCTWORK SHALL CONNECT DOWNSTREAM OF ANY SMOKE DETECTOR.
SUPPLY DUCT
PROVIDE 120V RATED CURRENT SWITCH TO OPERATE MOTORIZED DAMPER ANY TIME FAN IS OPERATING. MOUNT INTERNAL TO UNIT OR EXTERNAL IN AN APPROPRIATE ELECTRICAL ENCLOSURE.
INTEGRAL MOTOR STARTER/RELAY WITH PACKAGED UNIT
CONNECT TO NEAREST 120V POWER FROM UNIT HVAC UNIT OR A NEARBY CONVENIENCE RECEPTACLE CIRCUIT. ALL WORK TO CONFORM TO ELECTRICAL CODES AND DIV. 26 SPECIFICATIONS.

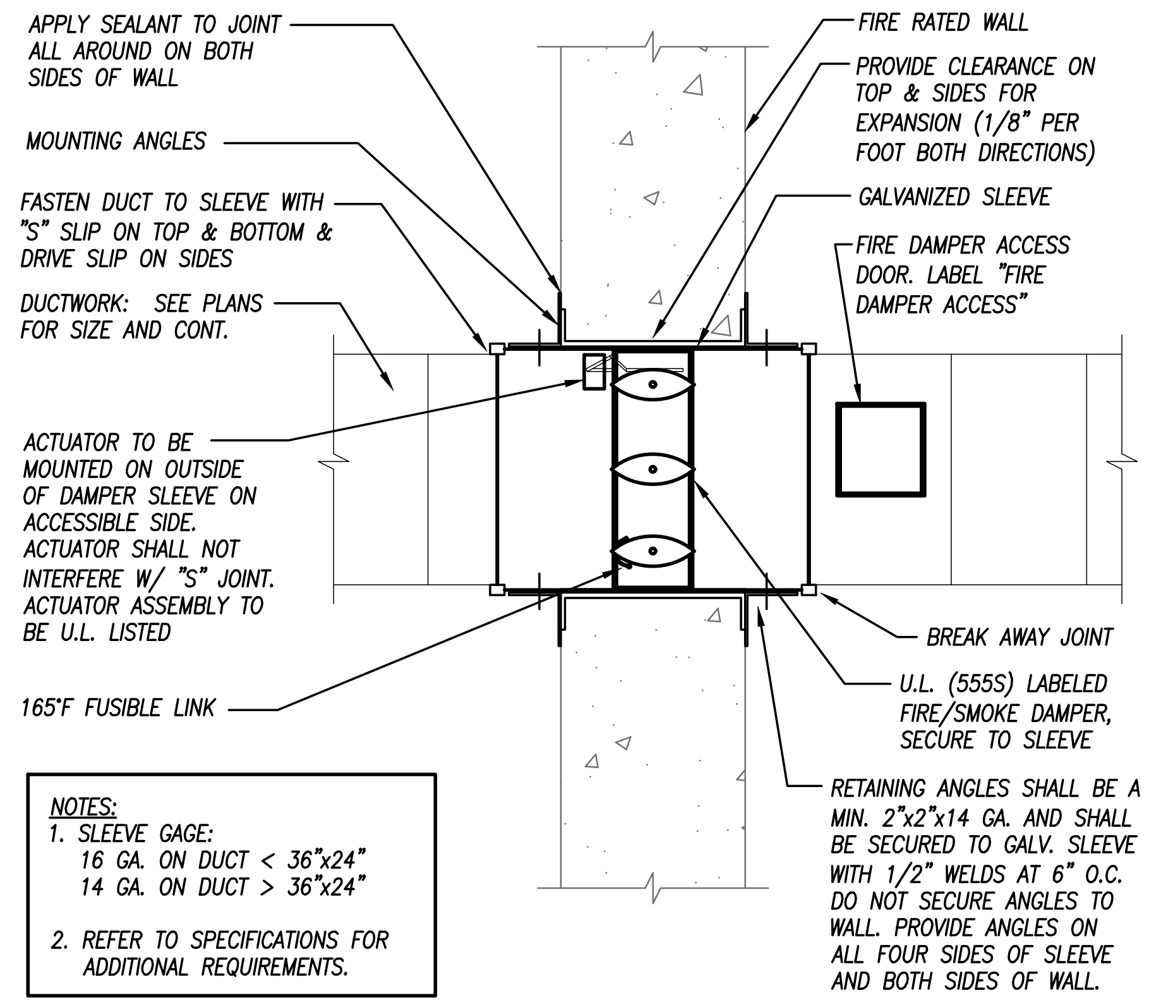
OUTSIDE AIR DAMPER WIRING SCHEMATIC

NOT TO SCALE


PLUG
PLUG
DRAIN PAN
"H"
2" MIN. SIZE, SLOPE TO DRAIN
1" FOR EACH 1" OF MAXIMUM NEGATIVE STATIC PRESSURE
HALF OF "H"
DRAW THRU UNITS
PLUGS
DRAIN PAN
2" MIN. SIZE, SLOPE TO DRAIN
MIN. 1/2"
1/2" PLUS MAX. TOTAL STATIC PRESSURE
BLOW THRU UNITS

CONDENSATE TRAP DETAIL

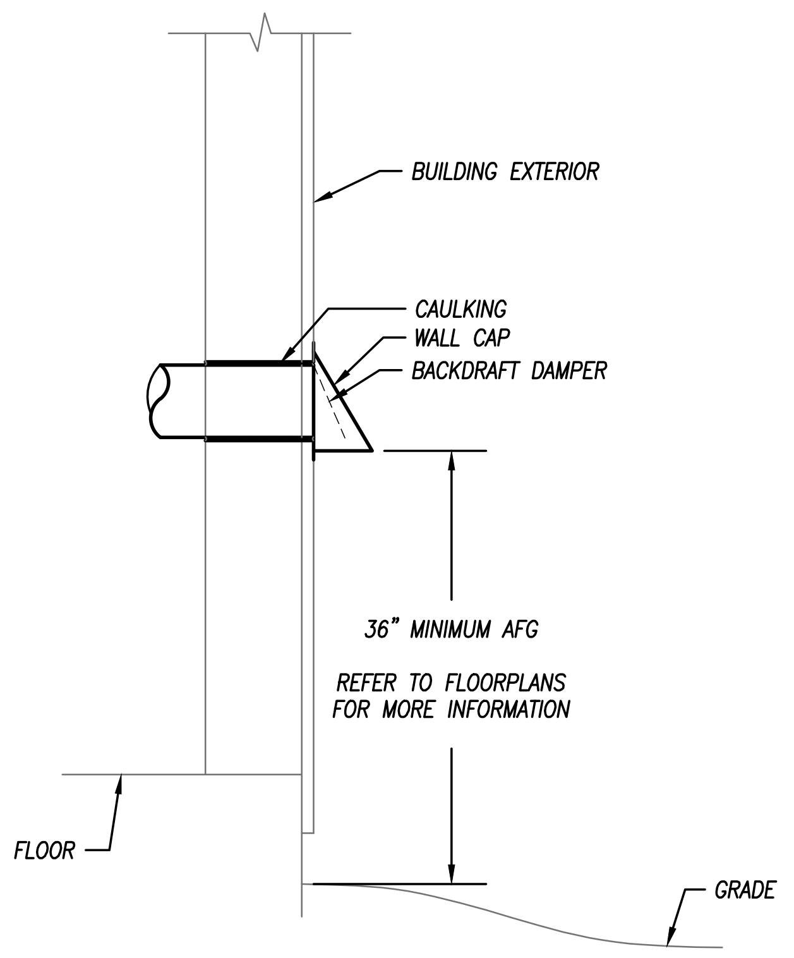
NOT TO SCALE


APPLY SEALANT TO JOINT ALL AROUND ON BOTH SIDES OF WALL
FIRE RATED WALL
PROVIDE CLEARANCE ON TOP & SIDES FOR EXPANSION (1/8" PER FOOT BOTH DIRECTIONS)
MOUNTING ANGLES
GALVANIZED SLEEVE
FASTEN DUCT TO SLEEVE WITH "S" SLIP ON TOP & BOTTOM & DRIVE SLIP ON SIDES
FIRE DAMPER ACCESS DOOR. LABEL "FIRE DAMPER ACCESS"
DUCTWORK: SEE PLANS FOR SIZE AND CONT.
ACTUATOR TO BE MOUNTED ON OUTSIDE OF DAMPER SLEEVE ON ACCESSIBLE SIDE. ACTUATOR SHALL NOT INTERFERE W/ "S" JOINT. ACTUATOR ASSEMBLY TO BE U.L. LISTED
BREAK AWAY JOINT
U.L. (555S) LABELED FIRE/SMOKE DAMPER, SECURE TO SLEEVE
165°F FUSIBLE LINK
RETAINING ANGLES SHALL BE A MIN. 2"x2"x14 GA. AND SHALL BE SECURED TO GALV. SLEEVE WITH 1/2" WELDS AT 6" O.C. DO NOT SECURE ANGLES TO WALL. PROVIDE ANGLES ON ALL FOUR SIDES OF SLEEVE AND BOTH SIDES OF WALL.

NOTES:
1. SLEEVE GAGE:
   16 GA. ON DUCT < 36"x24"
   14 GA. ON DUCT > 36"x24"
2. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

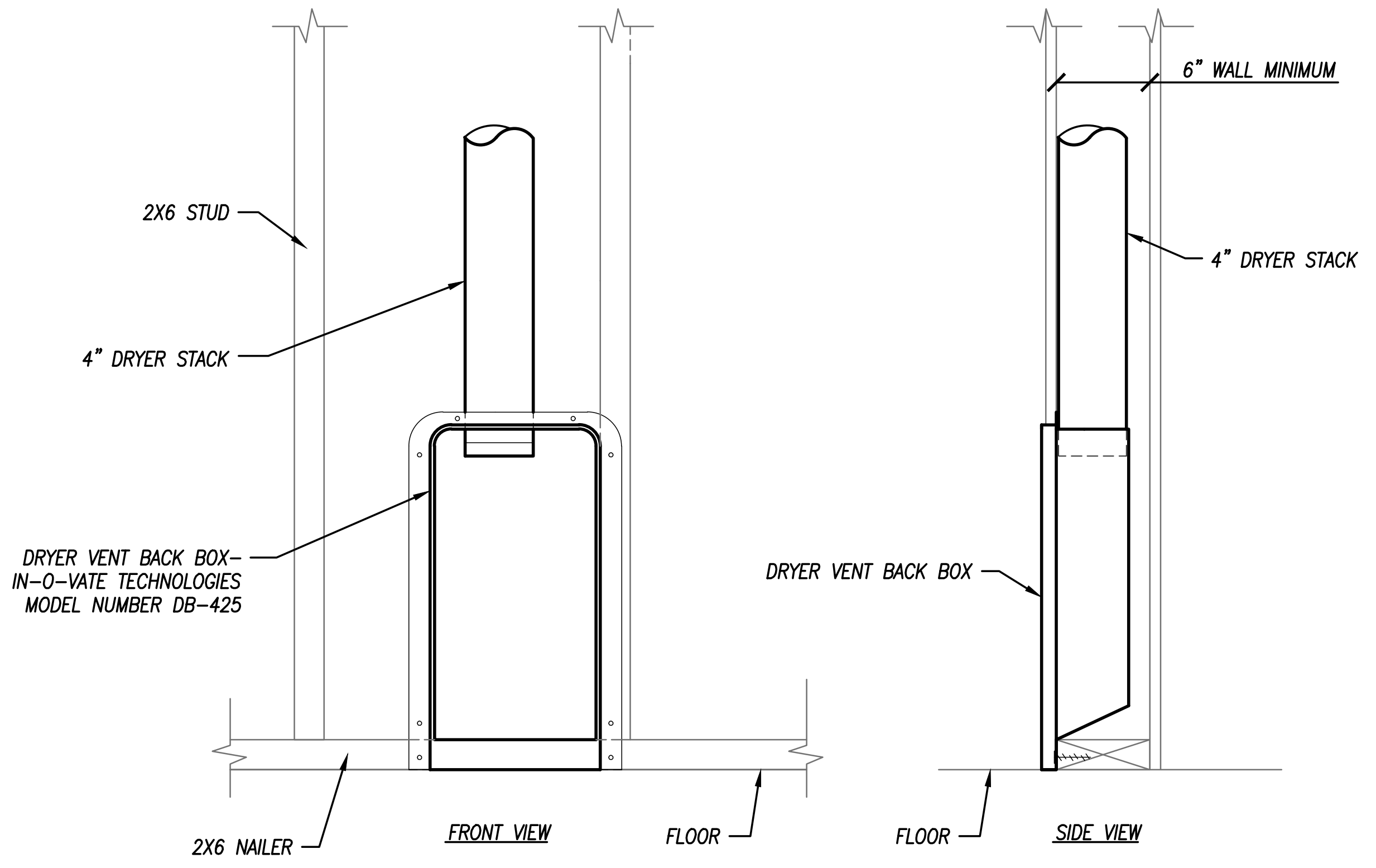
FIRE/SMOKE DAMPER DETAIL

NOT TO SCALE



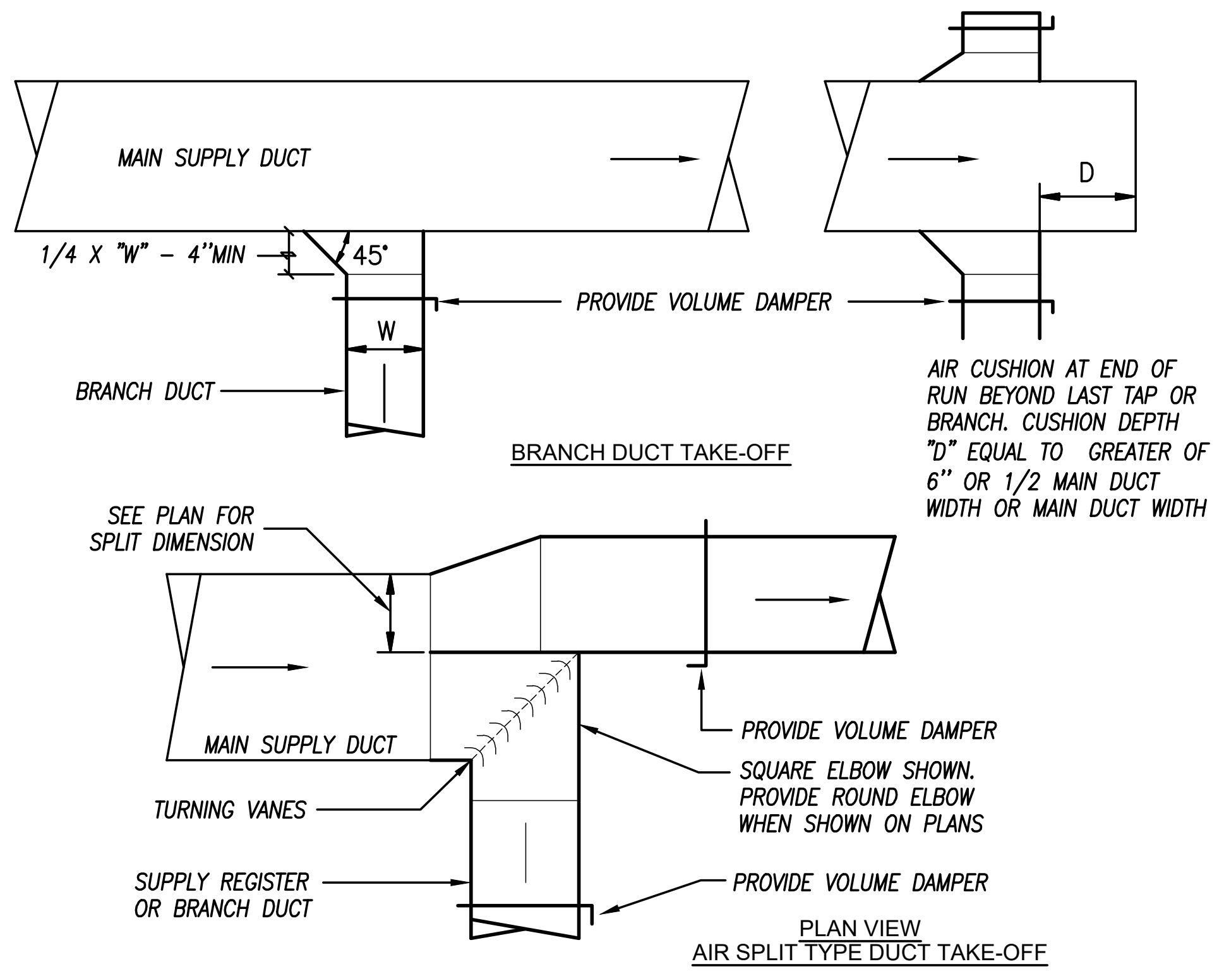
EXHAUST/VENT CAP AT EXTERIOR WALL

NOT TO SCALE



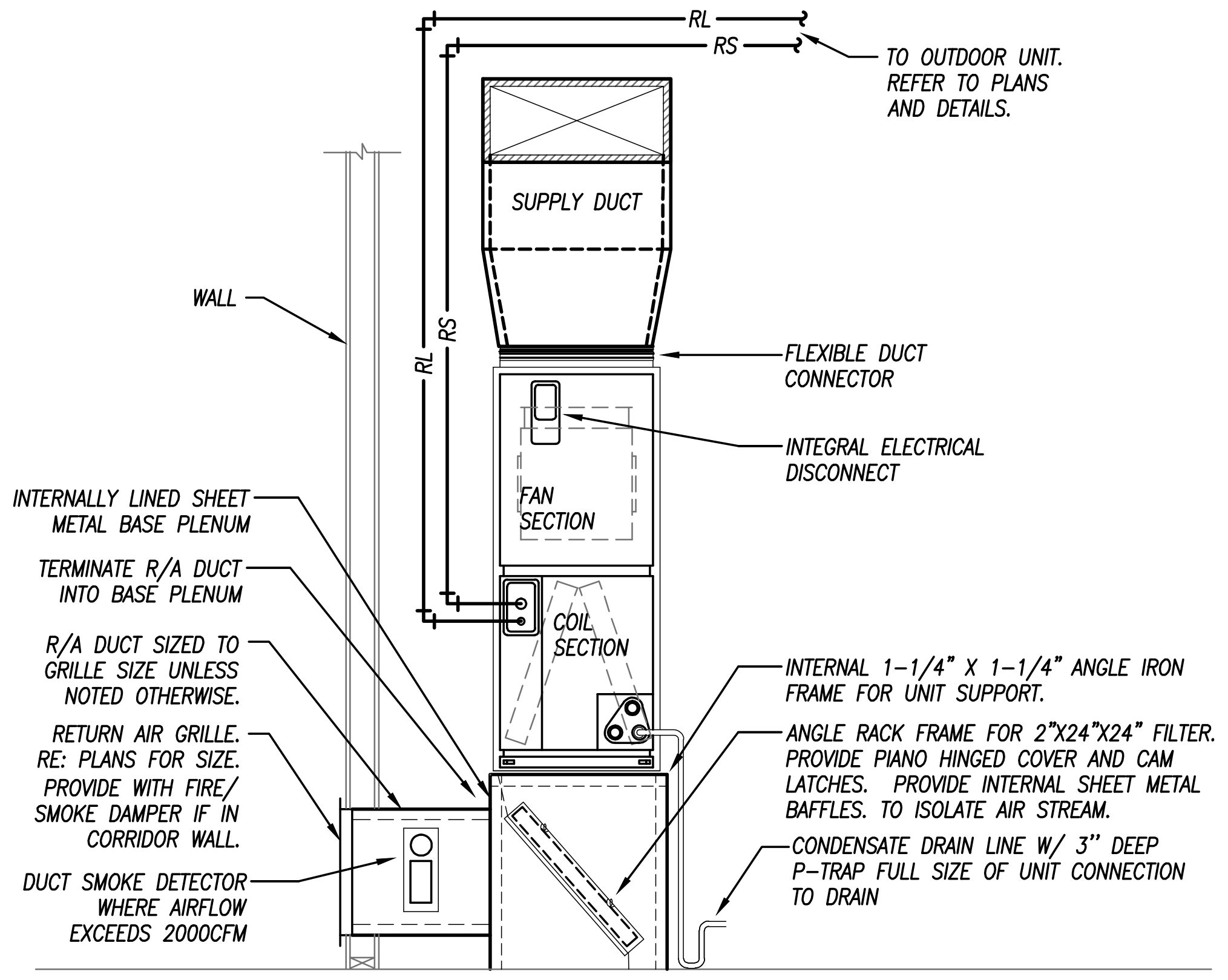
DRYER BOX DETAIL

NOT TO SCALE


MAIN SUPPLY DUCT
D
1/4 X "W" – 4''MIN
45°
PROVIDE VOLUME DAMPER
W
BRANCH DUCT
AIR CUSHION AT END OF RUN BEYOND LAST TAP OR BRANCH. CUSHION DEPTH "D" EQUAL TO GREATER OF 6'' OR 1/2 MAIN DUCT WIDTH OR MAIN DUCT WIDTH
BRANCH DUCT TAKE-OFF
SEE PLAN FOR SPLIT DIMENSION
MAIN SUPPLY DUCT
PROVIDE VOLUME DAMPER
TURNING VANES
SQUARE ELBOW SHOWN. PROVIDE ROUND ELBOW WHEN SHOWN ON PLANS
SUPPLY REGISTER OR BRANCH DUCT
PROVIDE VOLUME DAMPER
PLAN VIEW
AIR SPLIT TYPE DUCT TAKE-OFF

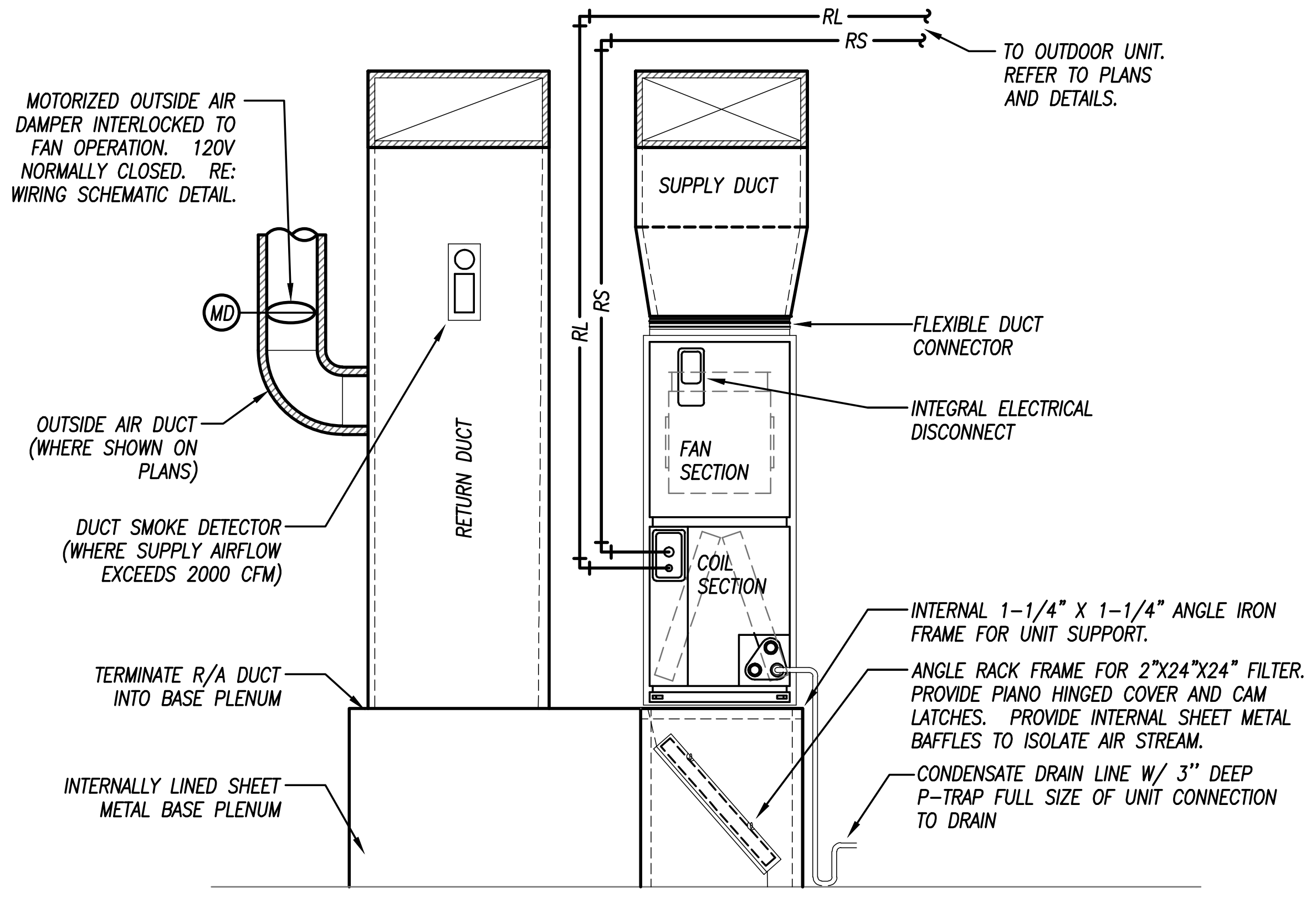
DUCTWORK TAKEOFFS

NOT TO SCALE


RL
RS
TO OUTDOOR UNIT. REFER TO PLANS AND DETAILS.
SUPPLY DUCT
WALL
RS
RL
FLEXIBLE DUCT CONNECTOR
INTEGRAL ELECTRICAL DISCONNECT
FAN SECTION
INTERNALLY LINED SHEET METAL BASE PLENUM
TERMINATE R/A DUCT INTO BASE PLENUM
COIL SECTION
R/A DUCT SIZED TO GRILLE SIZE UNLESS NOTED OTHERWISE.
INTERNAL 1-1/4" X 1-1/4" ANGLE IRON FRAME FOR UNIT SUPPORT.
RETURN AIR GRILLE. RE: PLANS FOR SIZE. PROVIDE WITH FIRE/ SMOKE DAMPER IF IN CORRIDOR WALL.
ANGLE RACK FRAME FOR 2"X24"X24" FILTER. PROVIDE PIANO HINGED COVER AND CAM LATCHES. PROVIDE INTERNAL SHEET METAL BAFFLES. TO ISOLATE AIR STREAM.
DUCT SMOKE DETECTOR WHERE AIRFLOW EXCEEDS 2000CFM
CONDENSATE DRAIN LINE W/ 3'' DEEP P-TRAP FULL SIZE OF UNIT CONNECTION TO DRAIN

AIR HANDLING UNIT DETAIL

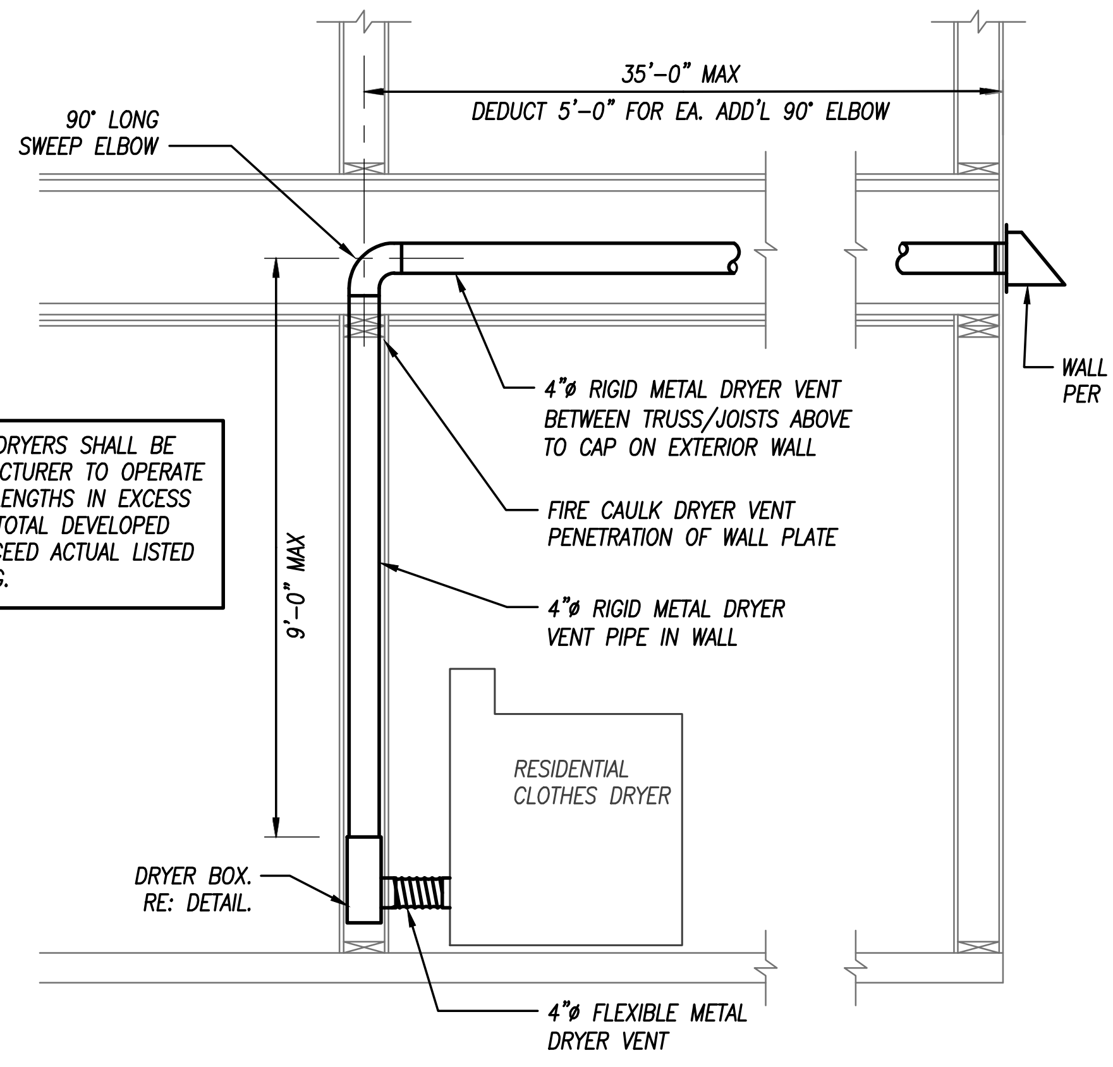
NOT TO SCALE


RL
RS
TO OUTDOOR UNIT. REFER TO PLANS AND DETAILS.
MOTORIZED OUTSIDE AIR DAMPER INTERLOCKED TO FAN OPERATION. 120V NORMALLY CLOSED. RE: WIRING SCHEMATIC DETAIL.
SUPPLY DUCT
MD
RS
RL
RETURN DUCT
FLEXIBLE DUCT CONNECTOR
INTEGRAL ELECTRICAL DISCONNECT
OUTSIDE AIR DUCT (WHERE SHOWN ON PLANS)
FAN SECTION
DUCT SMOKE DETECTOR (WHERE SUPPLY AIRFLOW EXCEEDS 2000 CFM)
COIL SECTION
INTERNAL 1-1/4" X 1-1/4" ANGLE IRON FRAME FOR UNIT SUPPORT.
TERMINATE R/A DUCT INTO BASE PLENUM
ANGLE RACK FRAME FOR 2"X24"X24" FILTER. PROVIDE PIANO HINGED COVER AND CAM LATCHES. PROVIDE INTERNAL SHEET METAL BAFFLES TO ISOLATE AIR STREAM.
INTERNALLY LINED SHEET METAL BASE PLENUM
CONDENSATE DRAIN LINE W/ 3'' DEEP P-TRAP FULL SIZE OF UNIT CONNECTION TO DRAIN

AIR HANDLING UNIT DETAIL

NOT TO SCALE

RESIDENTIAL CLOTHES DRYERS SHALL BE RATED BY THE MANUFACTURER TO OPERATE WITH EXTENDED VENT LENGTHS IN EXCESS OF 35 FEET. VERIFY TOTAL DEVELOPED LENGTH DOES NOT EXCEED ACTUAL LISTED CLOTHES DRYER RATING.


35'-0" MAX
DEDUCT 5'-0" FOR EA. ADD'L 90° ELBOW
90° LONG SWEEP ELBOW
WALL CAP PER DETAIL
4"ø RIGID METAL DRYER VENT BETWEEN TRUSS/JOISTS ABOVE TO CAP ON EXTERIOR WALL
FIRE CAULK DRYER VENT PENETRATION OF WALL PLATE
9'-0" MAX
4"ø RIGID METAL DRYER VENT PIPE IN WALL
RESIDENTIAL CLOTHES DRYER
DRYER BOX. RE: DETAIL.
4"ø FLEXIBLE METAL DRYER VENT

CLOTHES DRYER VENT DETAIL

NOT TO SCALE

PRINTS ISSUED
10/30/2023 - PERMIT SUBMITTAL

REVISIONS:

pkmr ENGINEERS

23.161

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MICHAEL D. RAAF
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10/30/23
Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III

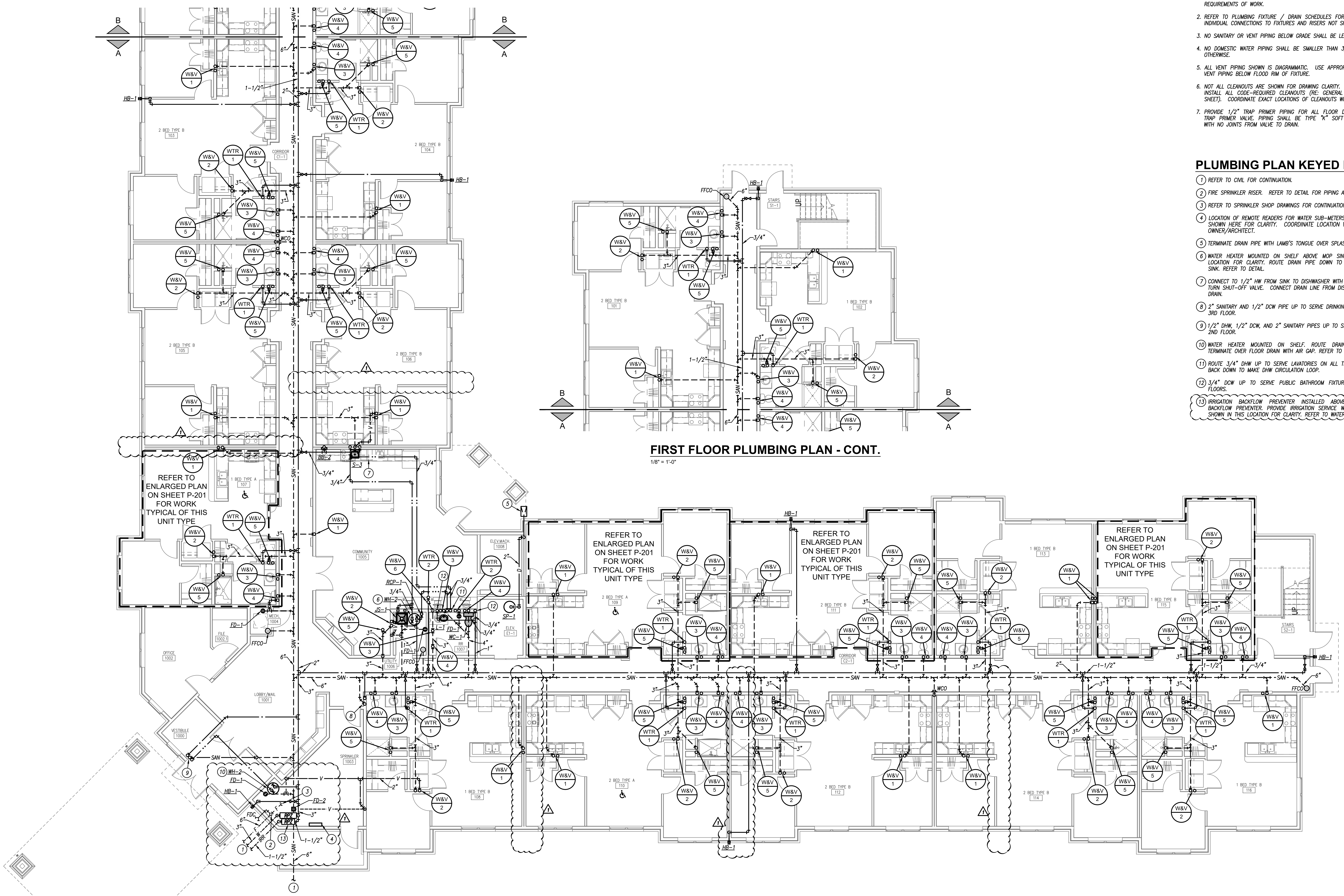
LEE'S SUMMIT, MISSOURI

SHEET TITLE
MECHANICAL DETALS

PROJECT NUMBER: 23.161

SHEET NUMBER:

M401



FIRST FLOOR PLUMBING PLAN - CONT.

1/8" = 1'-0"

FIRST FLOOR PLUMBING PLAN

1/8" = 1'-0"

GENERAL PLUMBING NOTES

1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
2. REFER TO PLUMBING FIXTURE / DRAIN SCHEDULES FOR PIPING SIZES FOR INDIVIDUAL CONNECTIONS TO FIXTURES AND RISERS NOT SHOWN ON PLANS.
3. NO SANITARY OR VENT PIPING BELOW GRADE SHALL BE LESS THAN 2".
4. NO DOMESTIC WATER PIPING SHALL BE SMALLER THAN 3/4" UNLESS NOTED OTHERWISE.
5. ALL VENT PIPING SHOWN IS DIAGRAMMATIC. USE APPROPRIATE FITTINGS FOR VENT PIPING BELOW FLOOD RIM OF FIXTURE.
6. NOT ALL CLEANOUTS ARE SHOWN FOR DRAWING CLARITY. CONTRACTOR SHALL INSTALL ALL CODE-REQUIRED CLEANOUTS (RE: GENERAL NOTES ON COVER SHEET). COORDINATE EXACT LOCATIONS OF CLEANOUTS WITH ARCHITECT.
7. PROVIDE 1/2" TRAP PRIMER PIPING FOR ALL FLOOR DRAINS TO NEAREST TRAP PRIMER VALVE. PIPING SHALL BE TYPE "K" SOFT COPPER SEAMLESS WITH NO JOINTS FROM VALVE TO DRAIN.

PLUMBING PLAN KEYED NOTES

① REFER TO CIVIL FOR CONTINUATION.

② FIRE SPRINKLER RISER. REFER TO DETAIL FOR PIPING ARRANGEMENT.

③ REFER TO SPRINKLER SHOP DRAWINGS FOR CONTINUATION.

④ LOCATION OF REMOTE READERS FOR WATER SUB-METERS IN LIVING UNITS. SHOWN HERE FOR CLARITY. COORDINATE LOCATION WITH OWNER/ARCHITECT.

⑤ TERMINATE DRAIN PIPE WITH LAMB'S TONGUE OVER SPLASH BLOCK.

⑥ WATER HEATER MOUNTED ON SHELF ABOVE MOP SINK. SHOWN IN THIS LOCATION FOR CLARITY. ROUTE DRAIN PIPE DOWN TO TERMINATE IN MOP SINK. REFER TO DETAIL.

⑦ CONNECT TO 1/2" HW FROM SINK TO DISHWASHER WITH ACCESSIBLE 1/4 TURN SHUT-OFF VALVE. CONNECT DRAIN LINE FROM DISHWASHER TO SINK DRAIN.

⑧ 2" SANITARY AND 1/2" DCW PIPE UP TO SERVE DRINKING FOUNTAIN ON 3RD FLOOR.

⑨ 1/2" DHW, 1/2" DCW, AND 2" SANITARY PIPES UP TO SERVE SINK ON 2ND FLOOR.

⑩ WATER HEATER MOUNTED ON SHELF. ROUTE DRAIN PIPE DOWN TO TERMINATE OVER FLOOR DRAIN WITH AIR GAP. REFER TO DETAIL.

⑪ ROUTE 3/4" DHW UP TO SERVE LAVATORIES ON ALL THREE FLOORS, THEN BACK DOWN TO MAKE DHW CIRCULATION LOOP.

⑫ 3/4" DCW UP TO SERVE PUBLIC BATHROOM FIXTURES ON ALL THREE FLOORS.

⑬ IRRIGATION BACKFLOW PREVENTER INSTALLED ABOVE WATER SERVICE BACKFLOW PREVENTER. PROVIDE IRRIGATION SERVICE WITH DEDUCT METER. SHOWN IN THIS LOCATION FOR CLARITY. REFER TO WATER SERVICE DETAIL. 1

PRINTS ISSUED
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REVISIONS:
1 12/15/2023 - CITY COMMENTS

pkmr ENGINEERS
23.161

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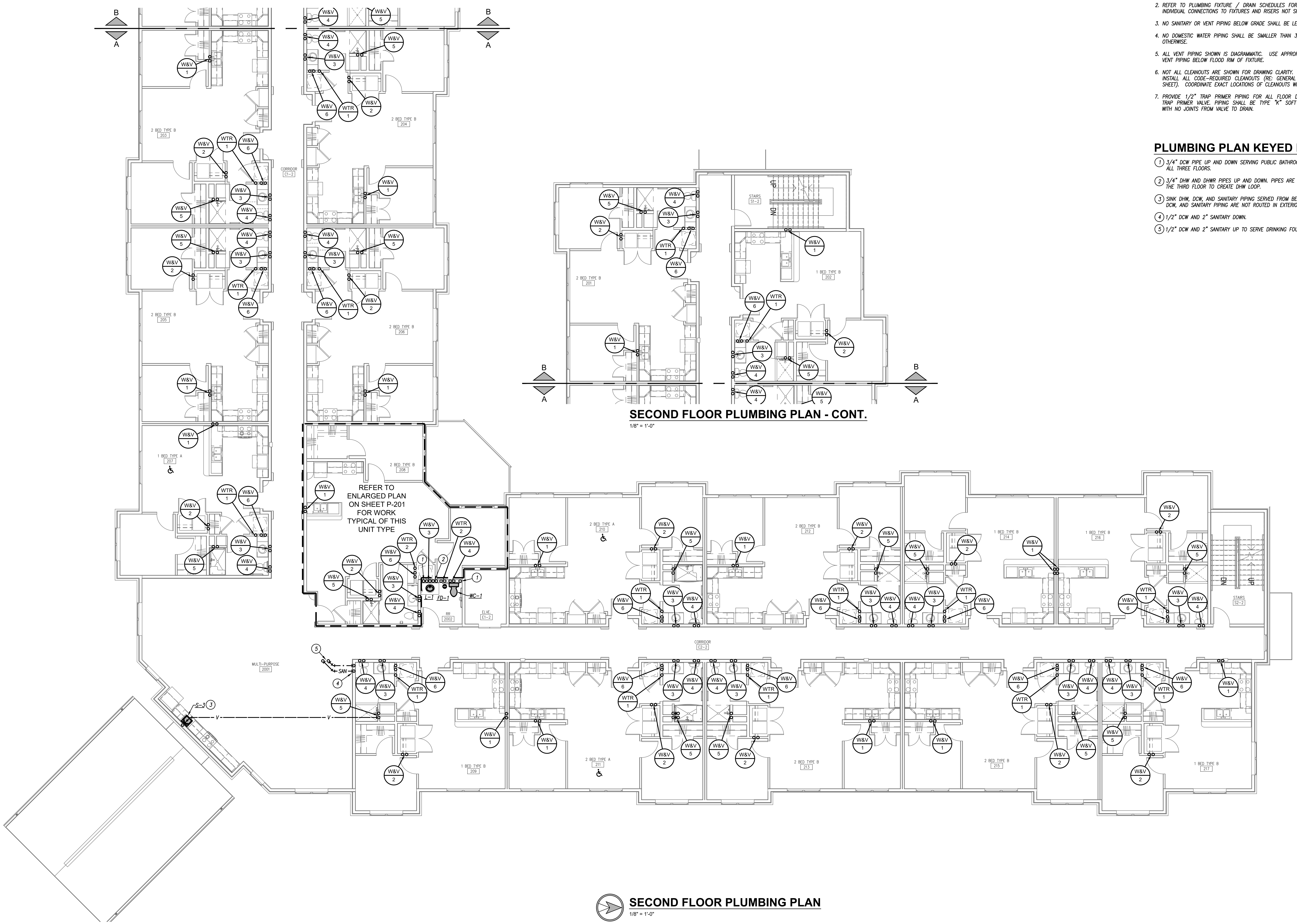
12/15/23
Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
FIRST FLOOR PLUMBING PLAN

PROJECT NUMBER: 23.161

SHEET NUMBER:
P101



SECOND FLOOR PLUMBING PLAN - CONT.

1/8" = 1'-0"

SECOND FLOOR PLUMBING PLAN

1/8" = 1'-0"

GENERAL PLUMBING NOTES

1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
2. REFER TO PLUMBING FIXTURE / DRAIN SCHEDULES FOR PIPING SIZES FOR INDIVIDUAL CONNECTIONS TO FIXTURES AND RISERS NOT SHOWN ON PLANS.
3. NO SANITARY OR VENT PIPING BELOW GRADE SHALL BE LESS THAN 2".
4. NO DOMESTIC WATER PIPING SHALL BE SMALLER THAN 3/4" UNLESS NOTED OTHERWISE.
5. ALL VENT PIPING SHOWN IS DIAGRAMMATIC. USE APPROPRIATE FITTINGS FOR VENT PIPING BELOW FLOOD RIM OF FIXTURE.
6. NOT ALL CLEANOUTS ARE SHOWN FOR DRAWING CLARITY. CONTRACTOR SHALL INSTALL ALL CODE-REQUIRED CLEANOUTS (RE: GENERAL NOTES ON COVER SHEET). COORDINATE EXACT LOCATIONS OF CLEANOUTS WITH ARCHITECT.
7. PROVIDE 1/2" TRAP PRIMER PIPING FOR ALL FLOOR DRAINS TO NEAREST TRAP PRIMER VALVE. PIPING SHALL BE TYPE "K" SOFT COPPER SEAMLESS WITH NO JOINTS FROM VALVE TO DRAIN.

PLUMBING PLAN KEYED NOTES

① 3/4" DCW PIPE UP AND DOWN SERVING PUBLIC BATHROOM FIXTURES ON ALL THREE FLOORS.

② 3/4" DHW AND DHWR PIPES UP AND DOWN. PIPES ARE CONNECTED ON THE THIRD FLOOR TO CREATE DHW LOOP.

③ SINK DHW, DCW, AND SANITARY PIPING SERVED FROM BELOW. ENSURE DHW, DCW, AND SANITARY PIPING ARE NOT ROUTED IN EXTERIOR WALL.

④ 1/2" DCW AND 2" SANITARY DOWN.

⑤ 1/2" DCW AND 2" SANITARY UP TO SERVE DRINKING FOUNTAIN.

PRINTS ISSUED
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REVISIONS:

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10/30/23
Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III

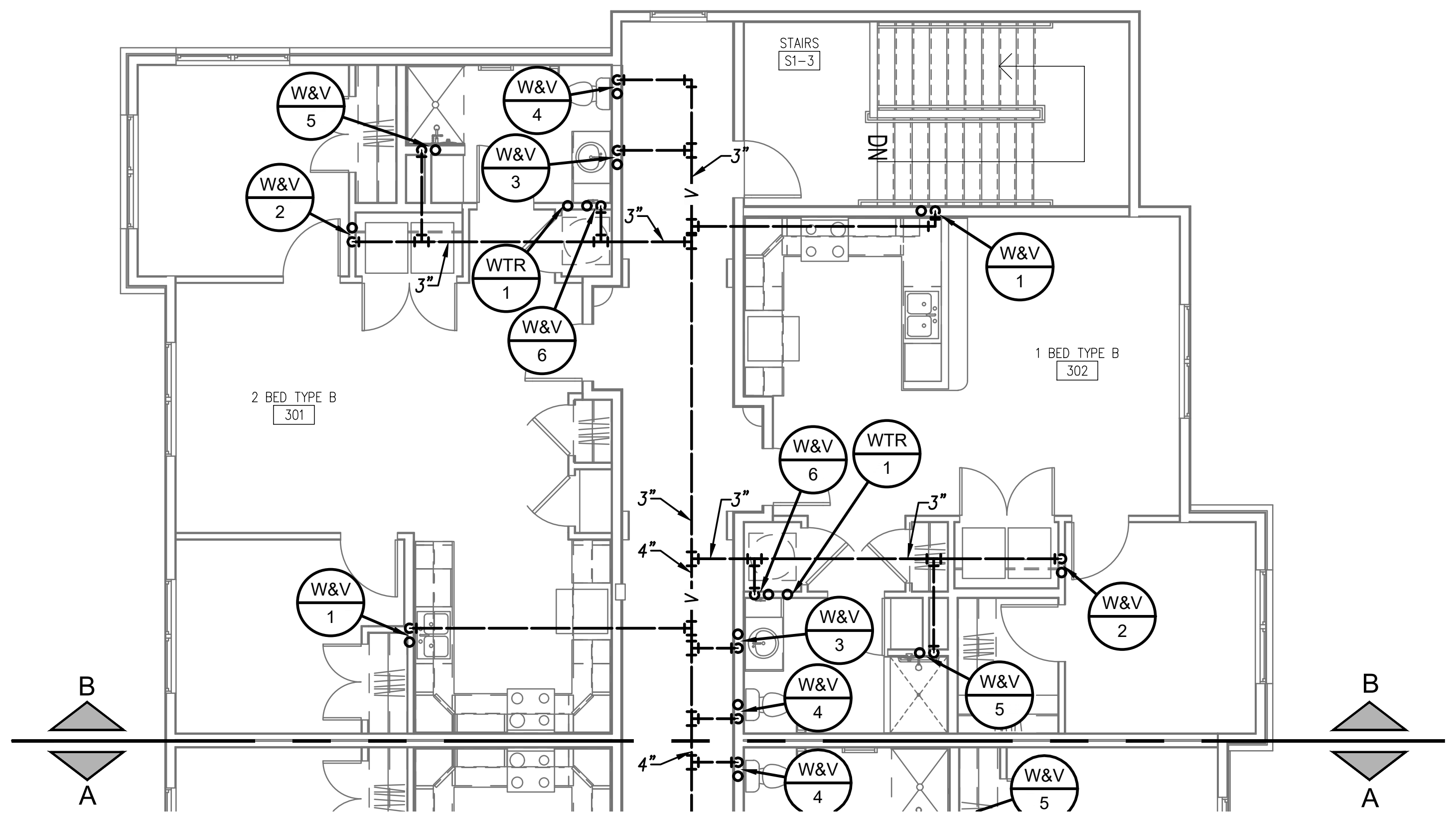
LEE'S SUMMIT, MISSOURI

SHEET TITLE
SECOND FLOOR PLUMBING PLAN

PROJECT NUMBER: 23.161

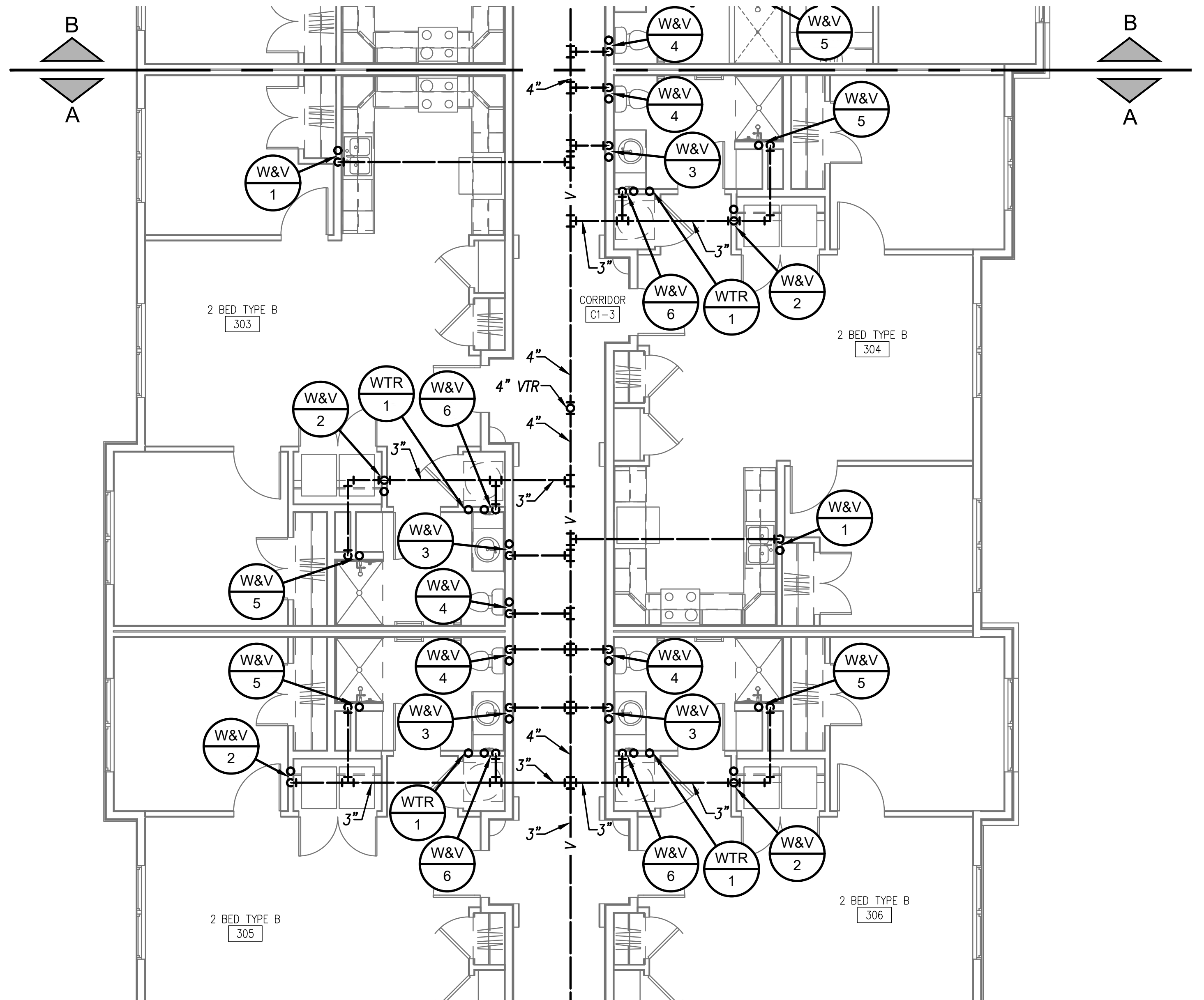
SHEET NUMBER:

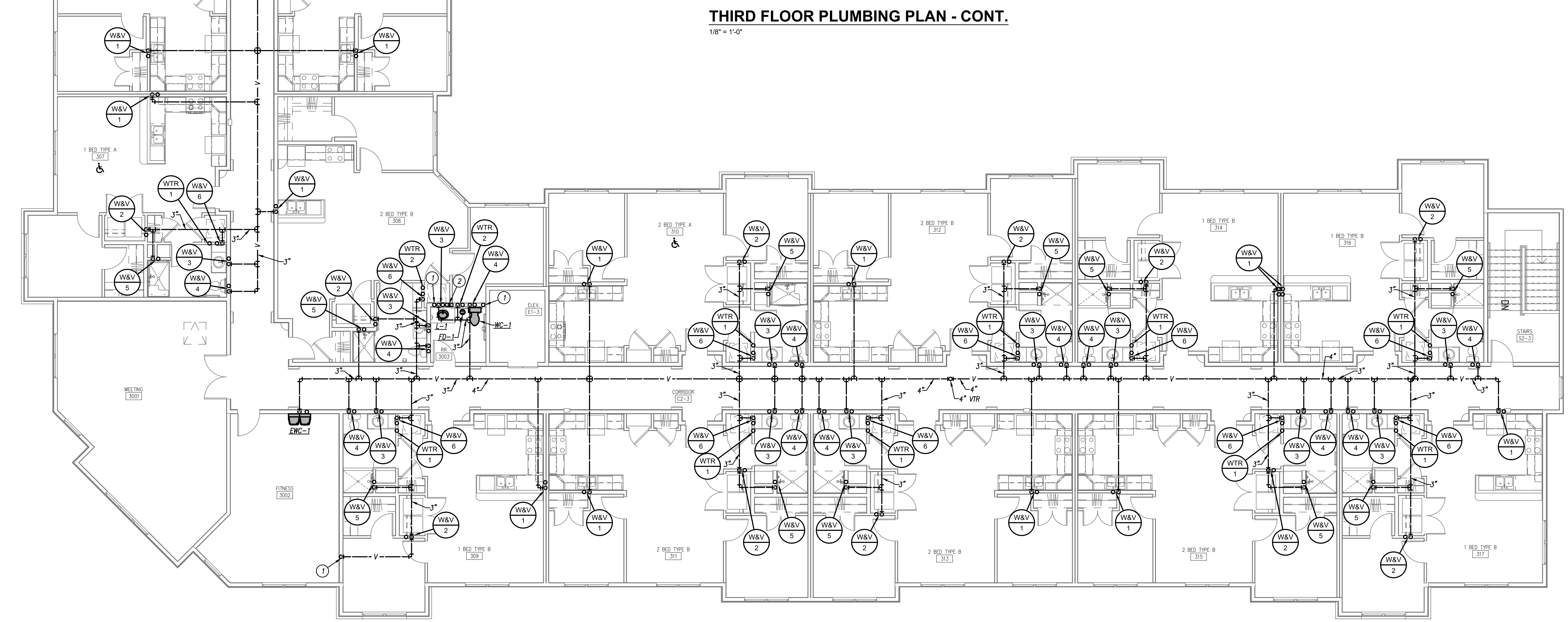
P102



THIRD FLOOR PLUMBING PLAN - CONT.

1/8" = 1'-0"





THIRD FLOOR PLUMBING PLAN

1/8" = 1'-0"

GENERAL PLUMBING NOTES

1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
2. REFER TO PLUMBING FIXTURE / DRAIN SCHEDULES FOR PIPING SIZES FOR INDIVIDUAL CONNECTIONS TO FIXTURES AND RISERS NOT SHOWN ON PLANS.
3. NO SANITARY OR VENT PIPING BELOW GRADE SHALL BE LESS THAN 2".
4. NO DOMESTIC WATER PIPING SHALL BE SMALLER THAN 3/4" UNLESS NOTED OTHERWISE.
5. ALL VENT PIPING SHOWN IS DIAGRAMMATIC. USE APPROPRIATE FITTINGS FOR VENT PIPING BELOW FLOOD RIM OF FIXTURE.
6. NOT ALL CLEANOUTS ARE SHOWN FOR DRAWING CLARITY. CONTRACTOR SHALL INSTALL ALL CODE-REQUIRED CLEANOUTS (RE: GENERAL NOTES ON COVER SHEET). COORDINATE EXACT LOCATIONS OF CLEANOUTS WITH ARCHITECT.
7. PROVIDE 1/2" TRAP PRIMER PIPING FOR ALL FLOOR DRAINS TO NEAREST TRAP PRIMER VALVE. PIPING SHALL BE TYPE "K" SOFT COPPER SEAMLESS WITH NO JOINTS FROM VALVE TO DRAIN.

PLUMBING PLAN KEYED NOTES

① 3/4" DCW PIPE DOWN SERVING PUBLIC BATHROOM FIXTURES ON ALL THREE FLOORS.

② 3/4" DHW AND DHWR PIPES DOWN, CONNECTED AT THE TOP TO CREATE DHW LOOP.

PRINTS ISSUED
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REVISIONS:

23.161

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10/30/23
Michael D. Raaf - Engineer
MO# PE-2005028097

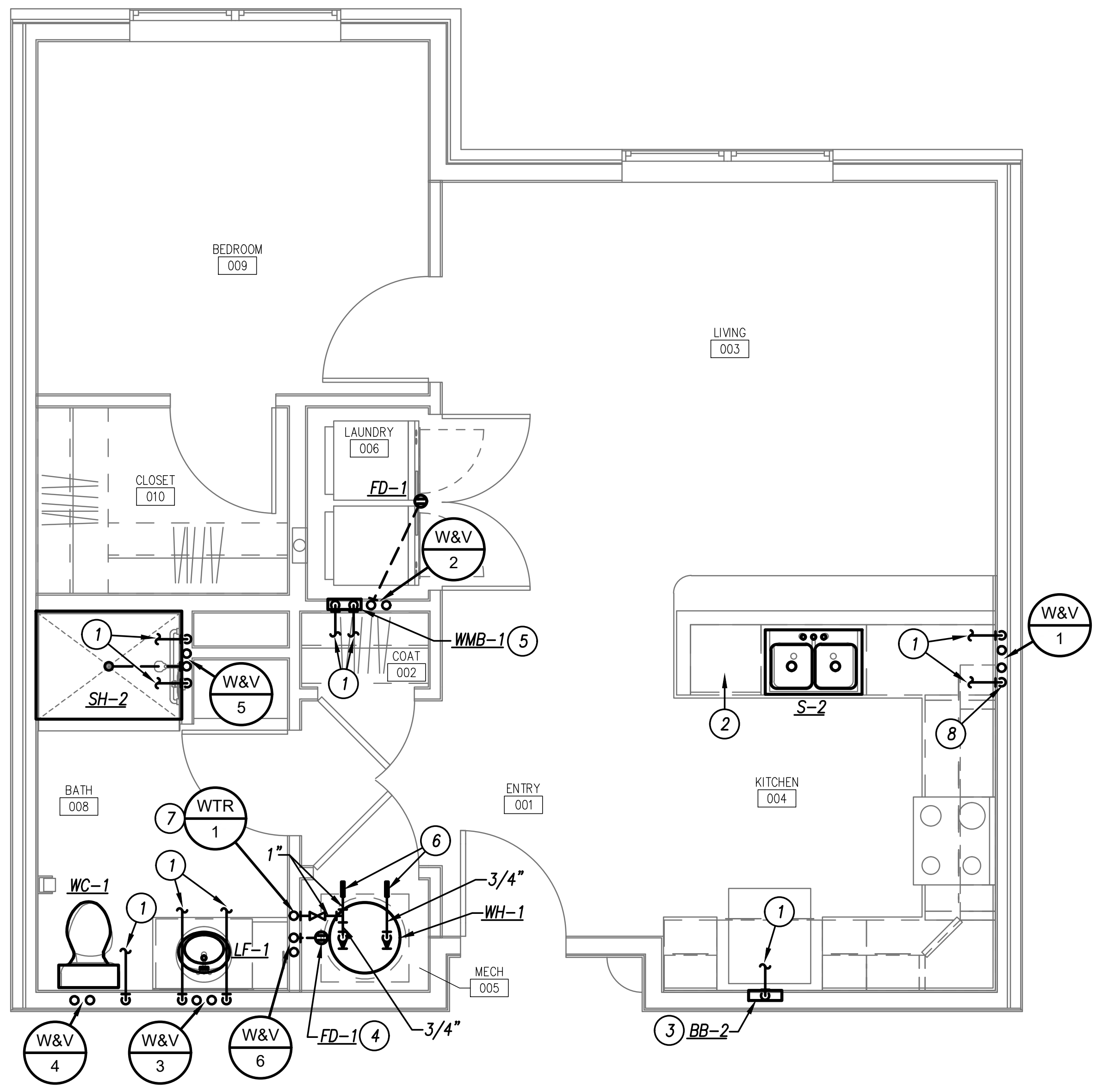
WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
THIRD FLOOR PLUMBING PLAN

PROJECT NUMBER: 23.161

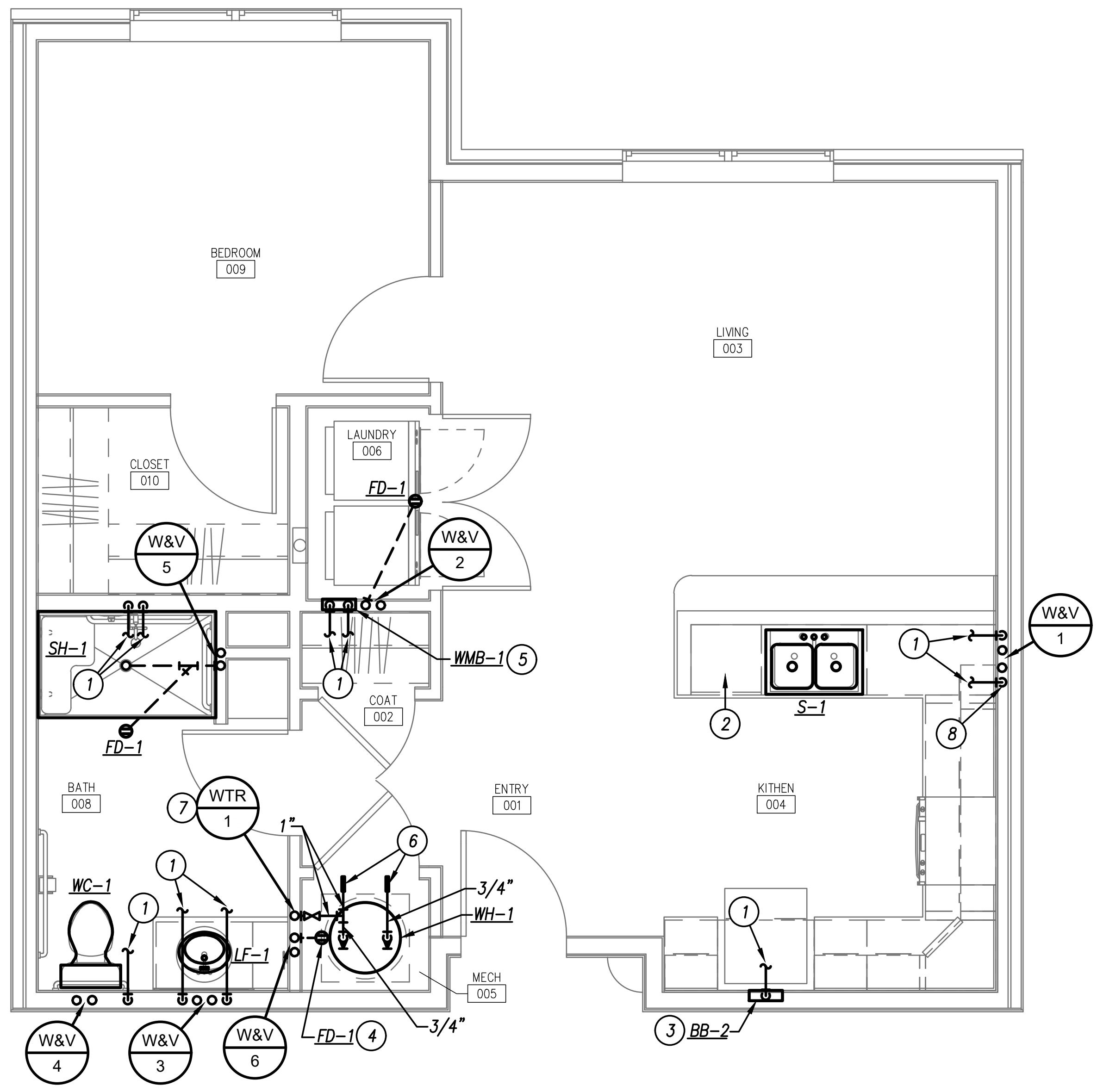
SHEET NUMBER:

P103



TYPE B - ONE BEDROOM TYPICAL UNIT FLOOR PLAN - PLUMBING

1/4" = 1'-0"



TYPE A - ONE BEDROOM TYPICAL UNIT FLOOR PLAN - PLUMBING

1/4" = 1'-0"

GENERAL PLUMBING NOTES

1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
2. REFER TO PLUMBING FIXTURE / DRAIN SCHEDULES FOR PIPING SIZES FOR INDIVIDUAL CONNECTIONS TO FIXTURES AND RISERS NOT SHOWN ON PLANS.
3. NO SANITARY OR VENT PIPING BELOW GRADE SHALL BE LESS THAN 2".
4. NO DOMESTIC WATER PIPING SHALL BE SMALLER THAN 3/4" UNLESS NOTED OTHERWISE.
5. ALL VENT PIPING SHOWN IS DIAGRAMMATIC. USE APPROPRIATE FITTINGS FOR VENT PIPING BELOW FLOOD RIM OF FIXTURE.
6. NOT ALL CLEANOUTS ARE SHOWN FOR DRAWING CLARITY. CONTRACTOR SHALL INSTALL ALL CODE-REQUIRED CLEANOUTS (RE: GENERAL NOTES ON COVER SHEET). COORDINATE EXACT LOCATIONS OF CLEANOUTS WITH ARCHITECT.
7. PROVIDE 1/2" TRAP PRIMER PIPING FOR ALL FLOOR DRAINS TO NEAREST TRAP PRIMER VALVE. PIPING SHALL BE TYPE "K" SOFT COPPER SEAMLESS WITH NO JOINTS FROM VALVE TO DRAIN.

PLUMBING PLAN KEYED NOTES

① 1/2" DOMESTIC WATER PEX LINE BACK TO PEX HEADER.

② ROUTE 1/2" DHW CONNECTION FROM SINK TO STOP VALVE FOR DISHWASHER. CONNECT DISHWASHER TO SINK WASTE WITH FLEX HOSE. REFER TO DETAIL.

③ 1/2" DCW CONNECTION TO STOP VALVE FOR ICEMAKER. PROVIDE FIRE RATED BACK BOXES IN FIRE RATED WALLS. REFER TO ARCHITECTURAL PLANS.

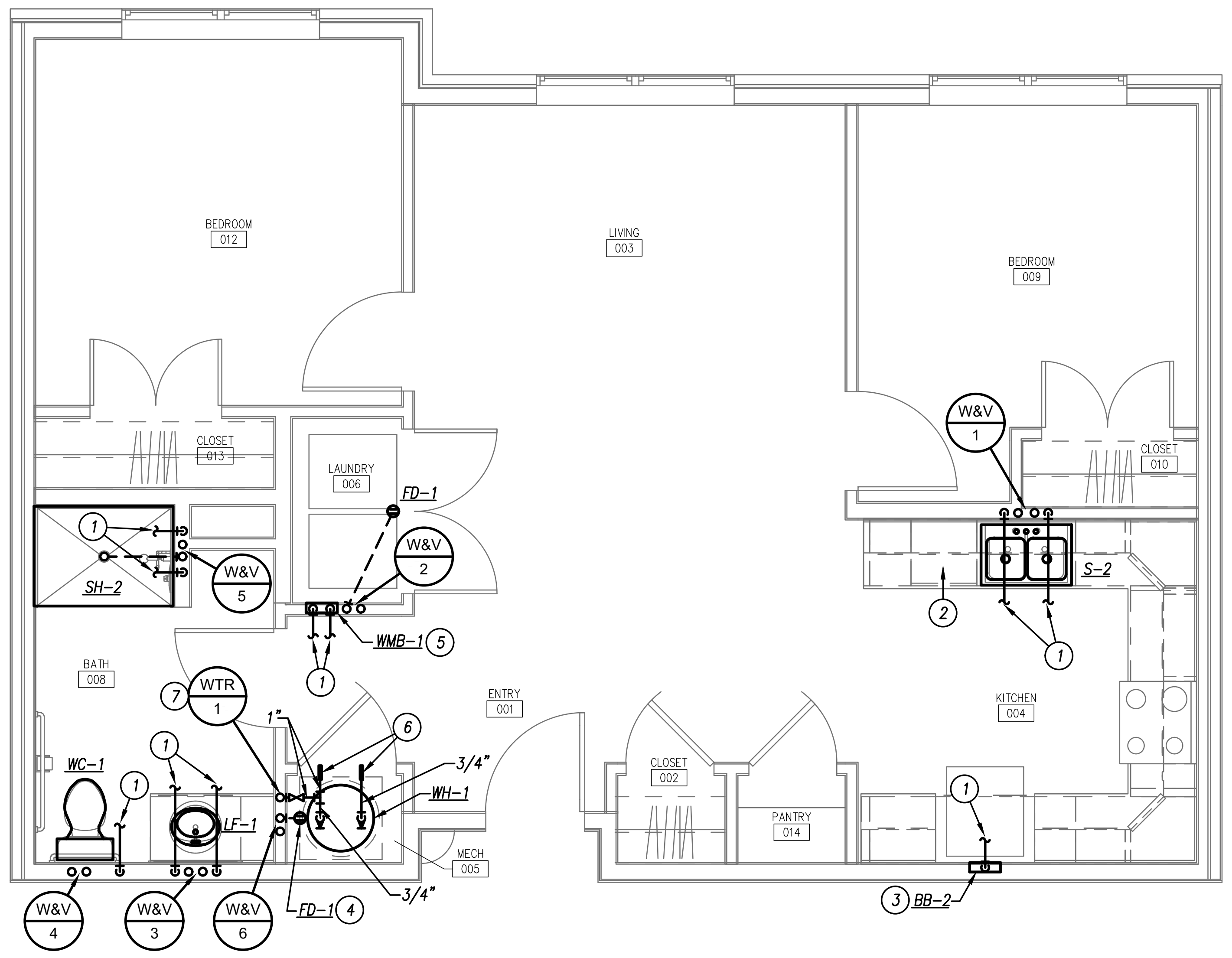
④ EXTEND 3/4" AIR HANDLER CONDENSATE DRAIN LINE AND WATER HEATER T&P TO 2" FLOOR DRAIN.

⑤ WASHING MACHINE SHALL ALWAYS BE LOCATED TO THE LEFT OF THE DRYER.

⑥ PROVIDE PEX MANIFOLD FOR 1" DCW LINE AND 3/4" DHW LINE. ROUTE 1/2" DCW PEX LINE TO EACH PLUMBING FIXTURE. ROUTE 1/2" DHW PEX LINE TO SINK, LAVATORY, WASHER BOX, AND SHOWER.

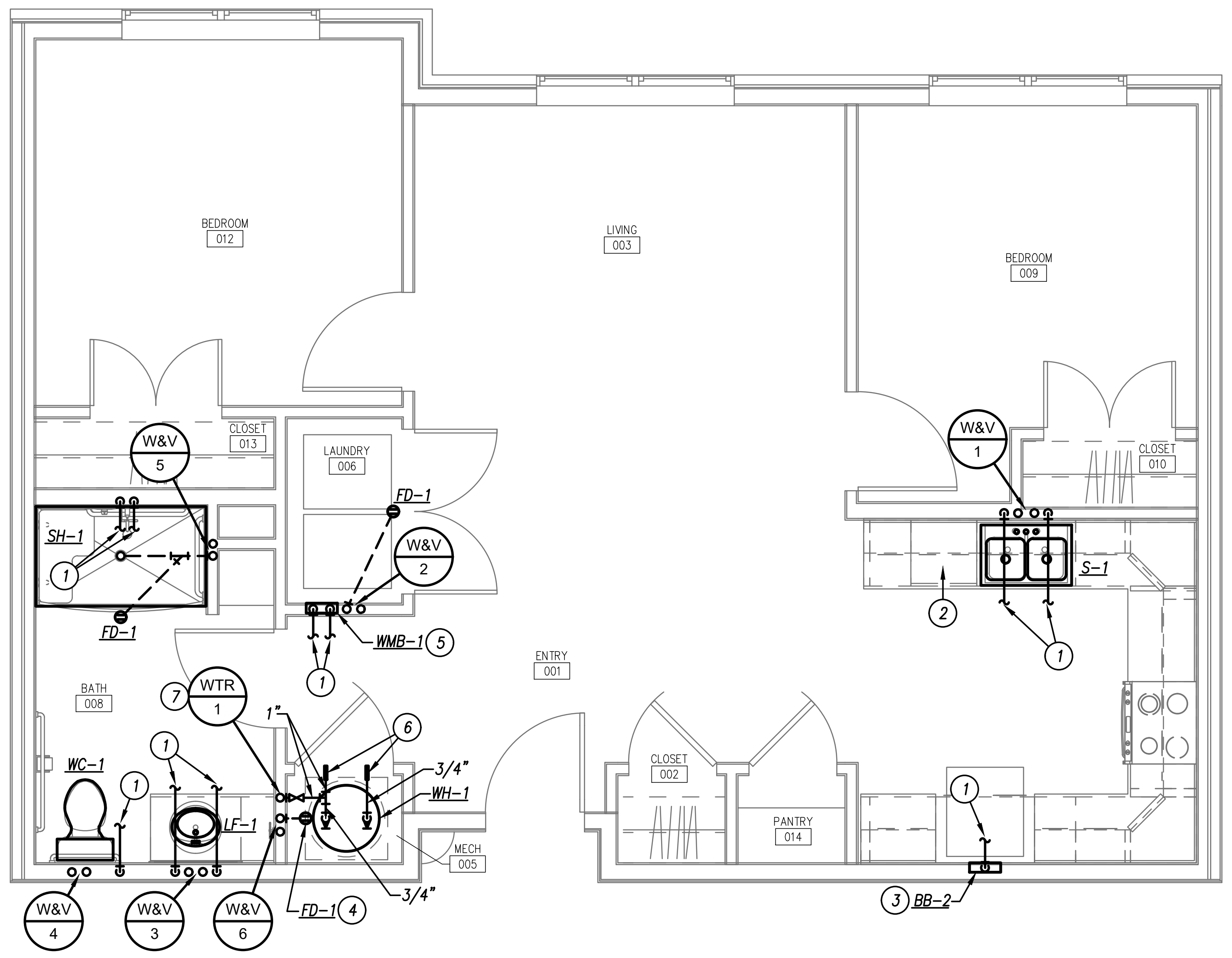
⑦ PROVIDE SHUTOFF VALVE AND ACCESS PANEL. PROVIDE MJ20 WATER SUB-METER WITH REMOTE READING CAPABILITY AFTER SHUT-OFF VALVE. REFER TO BUILDING PLAN FOR LOCATION OF REMOTE READERS.

⑧ ROUTE DHW, DCW, WASTE, AND VENT PIPING DOWN IN WALL, THEN THROUGH CABINETRY TO CONNECT TO SINK AND DISHWASHER.



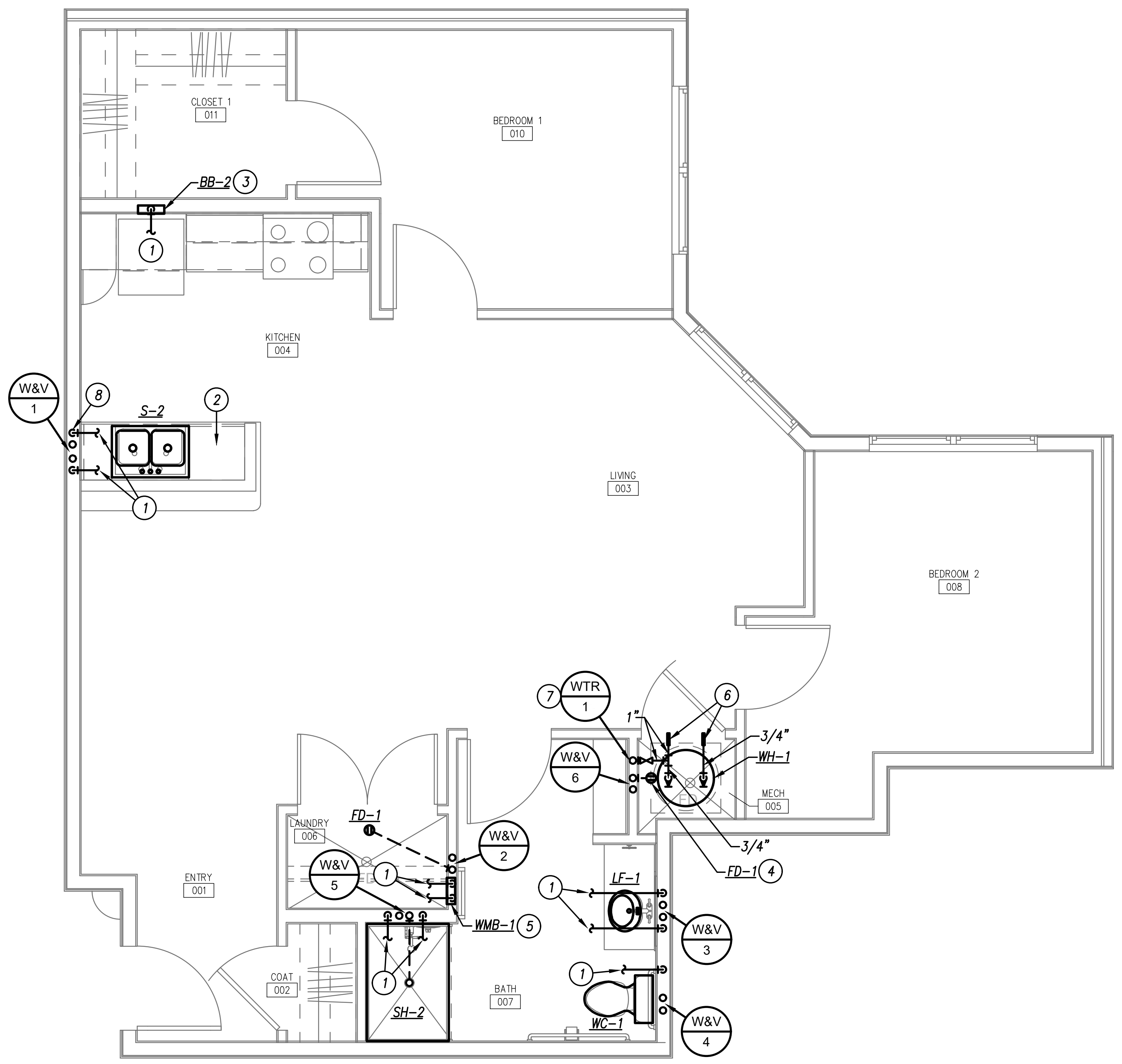
TYPE B - TWO BEDROOM TYPICAL UNIT FLOOR PLAN - PLUMBING

1/4" = 1'-0"



TYPE A - TWO BEDROOM TYPICAL UNIT FLOOR PLAN - PLUMBING

1/4" = 1'-0"



TYPE B - TWO BEDROOM - (CORNER) TYPICAL UNIT FLOOR PLAN - PLUMBING

1/4" = 1'-0"

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REVISIONS:

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10/30/23
Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
ENLARGED UNIT PLANS - PLUMBING

PROJECT NUMBER: 23.161

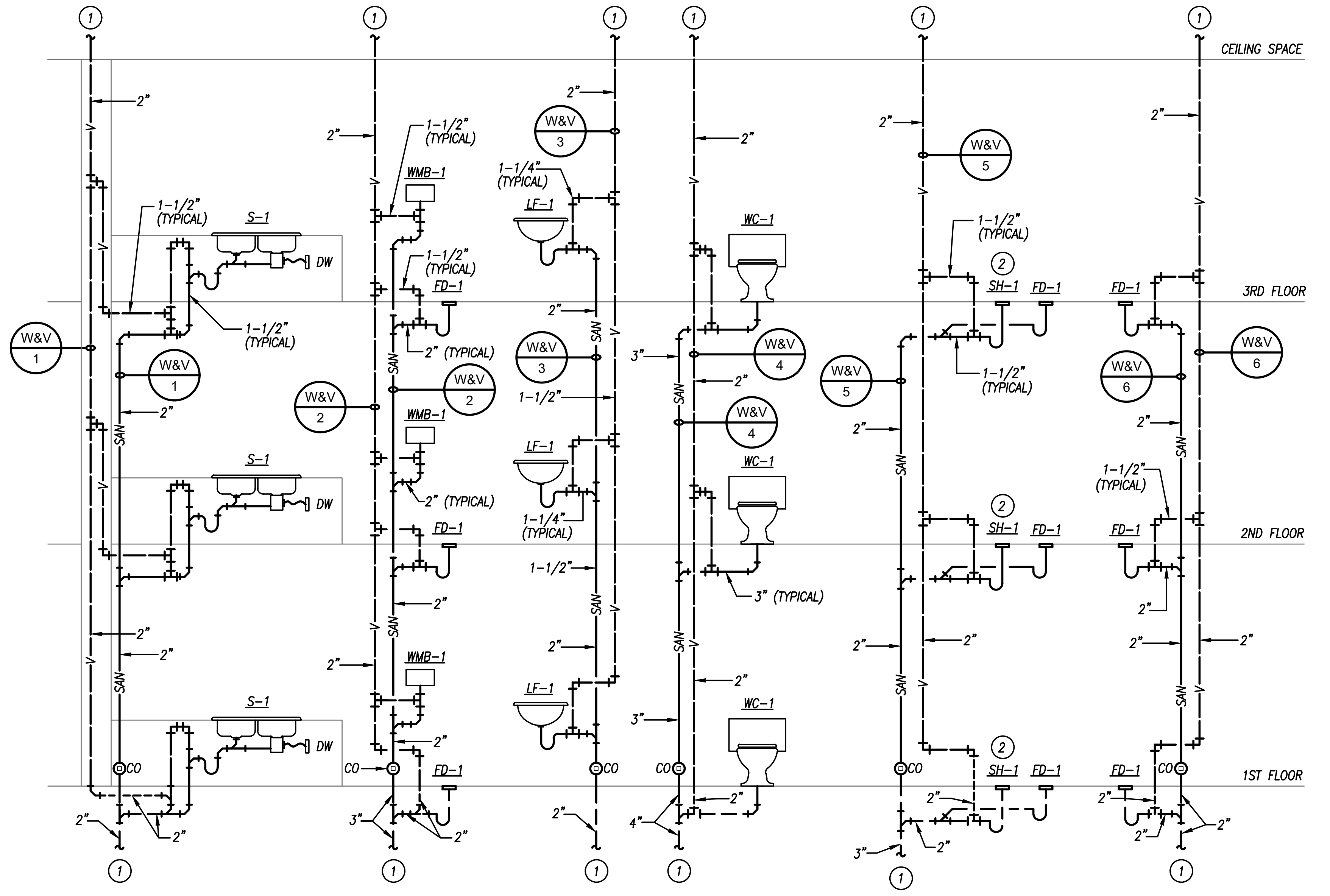
SHEET NUMBER:

P201

PIPING MATERIAL SCHEDULE

PIPING SYSTEM	SIZE	TYPE/SCHED	MATERIAL	ACCEPTABLE FITTINGS	FIELD TEST PRESSURE/TIME	ALLOWABLE IN PLENUMS	INSULATION TYPE	INSULATION THICKNESS
DOMESTIC COLD WATER	1/2"-2-1/2"	L	COPPER	SOLDER, PRO-PRESS	130 PSI - 1/2HR	YES	FIBERGLASS W/ ASJ	1/2"
DOMESTIC COLD WATER	1-1/4" - 2"	SDR-11 (CTS)	CPVC	SOLVENT JOINED	131 PSI - 1/2HR	YES	---	---
DOMESTIC COLD WATER	1/2" - 2"	PEX-a OR b	PEX	PRO-PRESS / COLD EXPANSION - BRASS OR POLY	130 PSI - 1/2HR	YES	ELASTOMERIC	1/2"
DOMESTIC HOT WATER & HW RETURN	1/2" - 2"	PEX-a OR b	PEX	PRO-PRESS / COLD EXPANSION - BRASS OR POLY	130 PSI - 1/2HR	YES	ELASTOMERIC	1"
DOMESTIC COLD WATER	2-1/2"-6"	L	COPPER	SOLDER, PRO-PRESS	130 PSI - 1/2HR	YES	FIBERGLASS W/ ASJ	1/2"
DOM. HOT & COLD BELOW GRADE	1/2"-2"	PEX-a OR PEX-b	PEX	PRO-PRESS / COLD EXPANSION - BRASS OR POLY	130 PSI - 1/2HR	YES	ELASTOMERIC	3/4" (HOT ONLY)
SOIL & WASTE ABOVE GRADE	1-1/2"-6"	NO HUB / SERVICE WT.	CAST IRON	NO HUB	10 FT - 1/2HR	YES	-	-
SOIL & WASTE ABOVE GRADE	2"-8"	SCH. 40	PVC	SOLVENT JOINED	10 FT - 1/2HR	NO	-	-
SOIL & WASTE BELOW GRADE	2"-8"	SCH. 40	PVC	SOLVENT JOINED	10 FT - 1/2HR	NO	-	-
FIRE SERVICE BELOW GRADE	4"-8"	AWWA C151	DUCTILE IRON	AWWA C111. MECH JOINTS	130 PSI - 1/2HR	YES	-	-
DOM. WATER SERVICE BELOW GRADE	1"-3"	K	COPPER	CONTINUOUS TUBING, BRAZED	130 PSI - 1/2HR	YES	-	-
CONDENSATE DRAIN INTERIOR	3/4"-2"	SCH. 40	CPVC	SOLVENT JOINED	10 FT - 1/2HR	YES	FIBERGLASS W/ ASJ	1/2" (PLENUM ONLY)

NOTES
1. ALL PIPING AND MATERIALS IN PLENUMS MUST MEET ASTM E84 FLAME/SMOKE RATING OF 25/50.
2. ALL INSULATION THICKNESSES SHALL MEET ASHRAE 90.1 - 2007 REQUIREMENTS AT A MINIMUM.
3. REFER TO SPECIFICATIONS FOR MORE DETAILED INFORMATION.



SANITARY & VENT RISER DIAGRAMS

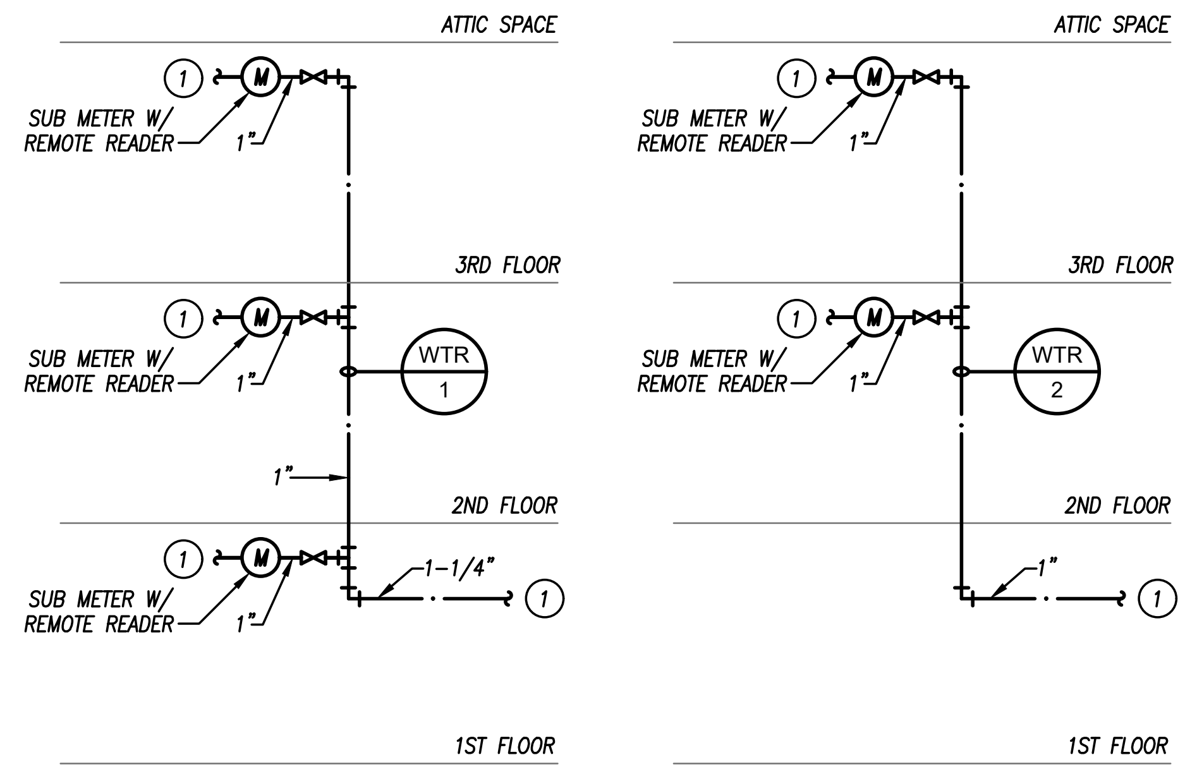
NOT TO SCALE

RISER GENERAL NOTES:
1. PLUMBING RISER IS DIAGRAMMATIC - REFER TO THE FLOOR PLAN TO COORDINATE EXACT ROUTING OF PLUMBING SERVICES.
2. REFER TO PLUMBING FIXTURE SCHEDULE FOR INDIVIDUAL CONNECTION SIZES AND TRAP REQUIREMENTS.
3. PROVIDE TRAP SEALS FOR ALL FLOOR DRAINS.

RISER KEYED NOTES

① REFER TO OVER ALL PLANS FOR CONTINUATION.

② NOT ALL ROOMS HAVE SHOWER AND FLOOR DRAIN ON SAME STACK. REFER TO PLAN LAYOUT EXACT LAYOUT.



COLD WATER RISER DIAGRAMS

NOT TO SCALE

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE MODEL	FIXTURE DESCRIPTION	FITTINGS AND TRIM FITTINGS MODEL	FITTINGS AND TRIM FITTINGS AND DESCRIPTION	REMARKS	PLUMBING FIXTURE PIPE SIZES WASTE	VENT	DCW	DHW
WC-1	BRIGGS 4834	ADA-COMPLIANT, 1.28 GPF, FLUSH TANK WATER CLOSET. WHITE VITREOUS CHINA ELONGATED BOWL AND TANK. 17" HIGH. TWO PIECE, 12" ROUGH-IN. FURNISH WITH FLUSH ACTUATOR ON WIDE SIDE OF STALL.	CHURCH 7200SLEC	WHITE, SOLID PLASTIC, CLOSED-FRONT SEAT FOR ELONGATED BOWL. INTEGRAL BUMPERS. EASY CLOSE, NON-CORROSIVE BOLTS AND WING NUTS.	3,6	4"	2"	1/2"	---
LF-1	CFG CA40712 (COMMUNITIY/UNIT)	LAVATORY FAUCET: SINGLE HANDLE CAST BRASS MIXING FAUCET, 4" CENTERS, 4-3/4" SPOUT, 1.5GPM VANDAL PROOF AERATOR, 4-5/8" METAL LEVER HANDLE. CERAMIC VOLUME CONTROL & HOT WATER LIMIT STOP CARTRIDGE. WITH POP UP. CHROME. 1.2 GPM MAX			1,2,7	2"	2"	1/2"	1/2"
S-1	DAYTON GE23322 (UNIT) IN-SINK-ERATOR BADGER 5	ADA DOUBLE COMPARTMENT SINK. SEAMLESS #22 GAUGE, TYPE 300 SERIES STAINLESS STEEL. SATIN FINISH, BOTTOM ONLY UNDERCOATED, 5.375" BOWL DEPTH. 1-3/4" RADIUS COVED CORNERS. SELF RIMMING. 3 HOLE CONFIGURATION 4" ON CTR. GARBAGE DISPOSAL. 1/2 HP MOTOR, STAINLESS STEEL GALVANIZED STEEL CONSTRUCTION AND GRINDING ELEMENTS, PERMANENTLY LUBRICATED BEARINGS. PROVIDE WITH STAINLESS STEEL SINK FLANGE AND STOPPER.	CFG/MOEN CA40512	SINGLE HANDLE KITCHEN SINK FAUCET. 1.5 GPM AERATOR, CHROME FINISH. PROVIDE WITH OFFSET DRAIN.	2,3,5,8	2"	2"	1/2"	1/2"
S-2	DAYTON K23322 (UNIT) IN-SINK-ERATOR BADGER 5	DOUBLE COMPARTMENT SINK. SEAMLESS #20 GAUGE, TYPE 300 SERIES STAINLESS STEEL. SATIN FINISH, BOTTOM ONLY UNDERCOATED, HOLES AT 4" O.C. 6" BOWL DEPTH. 1-3/4" RADIUS COVED CORNERS. SELF RIMMING. 3 HOLE CONFIGURATION 4" ON CTR. GARBAGE DISPOSAL. 1/2 HP MOTOR, STAINLESS STEEL GALVANIZED STEEL CONSTRUCTION AND GRINDING ELEMENTS, PERMANENTLY LUBRICATED BEARINGS. PROVIDE WITH STAINLESS STEEL SINK FLANGE AND STOPPER.	CFG/MOEN CA40512	SINGLE HANDLE KITCHEN SINK FAUCET. 1.5 GPM AERATOR, CHROME FINISH.	2,3,5,8	2"	2"	1/2"	1/2"
S-3	DAYTON D12522 (COMMUNITY KITCHEN SINK) IN-SINK-ERATOR BADGER 5	ADA-COMPLIANT SINGLE COMPARTMENT SINK. OFFSET DRAIN, SEAMLESS HEAVY GAUGE, NICKEL BEARING STAINLESS STEEL, BOWL DEPTH 6-9/16", COVED CORNERS RAISED FAUCET DECK, UNDERSIDE FULLY SOUND DEADEND, SELF RIMMING, 3-1/2" DRAIN OPENING, HOLES AT 4" O.C. OTHERWISE NOTED SINK FURNISHEDW/ (3) FAUCET HOLES. GARBAGE DISPOSAL. 1/2 HP MOTOR, STAINLESS STEEL GALVANIZED STEEL CONSTRUCTION AND GRINDING ELEMENTS, PERMANENTLY LUBRICATED BEARINGS. PROVIDE WITH STAINLESS STEEL SINK FLANGE AND STOPPER.	MOEN CAMERIST 7545	SINGLE HANDLE KITCHEN SINK FAUCET WITH. PROVIDE ESCUTCHEON PLATE, 1.5 GPM AERATOR, CLASSIIC STAINLESS FINISH. PROVIDE WITH OFFSET DRAIN.	2,3,5,8	2"	2"	1/2"	1/2"
SH-1	AQUATIC 1603 BFSD	ADA COMPLIANT GELCOAT SHOWER WITH SEAT AND L-SHAPED GRAB BAR. 60"W x 34"D x 75.625"H INSIDE DIMENSIONS. GRAB BARS, CURTAIN ROD, L-SHPAED FOLD-UP CUSHIONED SEAT. FITTINGS TO REMAIN AS SHOWN ON PLANS. PROVIDE IN WHITE WITH TILE LOOK.	CFG 40316C-SHOWER ONLY TRIM CFG 45320 CFG 40124 CHROME	ADA COMPLIANT SHOWER VALVE: PRESSURE BALANCE SHOWER VALVE, CERAMIC DISC VALVE CARTRIDGE WITH AN ADJUSTABLE HOT LIMIT SAFETY STOP, LOW LEAD FORGED BRASS BODY, ALL METAL LEVER HANDLE AND WALL ESCUTCHEON. 32" SLIDE BAR, PERSONAL HAND SHOWER, 59" LONG SHOWERHOSE, WALL SUPPLY, AND 1/2" NPT IN-LINE VACUUM BREAKER. 2.0 GPM.	---	1-1/2"	1-1/2"	1/2"	1/2"
SH-2	AQUATIC 1483TSTH	SHOWER WITH VERTICAL GRAB BAR. 48"W x 34.25"D x 73"H INSIDE DIMENSIONS. FACTORY INSTALLED GRAB BARS AND SEAT. PROVIDE WITH 18" GRAB BAR MOUNTED ON BACK WALL HORIZONTALLY. CURTAIN ROD. FITTINGS TO REMIAN AS SHOWN ON PLANS. PROVIDE IN WHITE WITH TILE LOOK. PROVIDE THRESHOLD.	CFG 40315C-SHOWER ONLY TRIM CFG 45320	SHOWER VALVE : PRESSURE BALANCE SHOWER VALVE WITH ROTATING LEVER, METAL ESCUTCHEON,. 2.0 GPM.	---	1-1/2"	1-1/2"	1/2"	1/2"
EWC-1	HALSEY-TAYLOR HTHB-HAC8BLWF	ADA-COMPLIANT, DUAL-HEIGHT, BARRIER-FREE, ELECTRIC WATER COOLER. PROVIDES 8.0 GPM OF 50°F WATER AT 90°F AMBIENT. ADA-COMPLIANT FRONT AND SIDE PUSHBARS. LEAD FREE. INTEGRAL FILTER. MOUNT WITH MIN. 27" KNEE CLEARANCE AND SPOUT AT NO MORE THAN 36" A.F.F.	HALSEY-TAYLOR HTHB-HACDBLWF	BOTTLE FILLER SHALL INCLUDE ELECTRONIC SENSOR FOR NO-TOUCH ACTIVATION WITH AUTOMATIC 20-SECOND SHUT-OFF. SHALL PROVIDE 1.1 GPM LAMINAR FLOW. ANTI-MICROBIAL PROTECTED PLASTIC COMPONENTS.	4	2"	2"	1/2"	
BB-1	OATEY 12K	ICE MAKER BACK BOX. PROVIDE WITH STOP VALVE.	---	---	---	---	---	1/2"	---
BB-2	OATEY 38486	FIRE RATED ICE MAKER BACK BOX. PROVIDE WITH STOP VALVE.	---	---	---	---	---	1/2"	---
WMB-1	OATEY 38530	WASHING MACHINE SUPPLY AND DRAIN BACK BOX. PROVIDE WITH DRAIN AND DRAIN FITTINGS.	---	---	---	2"	2"	1/2"	1/2"
WMB-2	OATEY 38470	FIRE RATED WASHING MACHINE SUPPLY AND DRAIN BACK BOX. PROVIDE WITH DRAIN AND DRAIN FITTINGS.	---	---	---	2"	2"	1/2"	1/2"
HB-1	ZURN Z1310	EXPOSED, AUTOMATIC DRAINING, NON-FREEZE, ANIT-SIPHON WALL HYDRANT COMPLETE WITH INTEGRAL BACKFLOW PREVENTER. BRASS CASING, ALL-BRONZE INTERIOR PARTS. NON-TURNING OPERATING ROD WITH FREE-FLOATING COMPRESSION CLOSURE VALVE. REPLACEABLE BRONZE SEAT AND SEAT WASHER. COMBINATION 3/4" FEMALE AND 1" MALE IP INLET CONNECTION STANDARD. INCLUDES OPERATING KEY.	---	---	---	---	---	3/4"	---
JS-1	FIAT TSB-100	JANITORS SINK: 24"x24"x12" PRECAST TERRAZO FLOOR SERVICE SINK. STAINLESS STEEL CAP AND 2 SIDE WALL TILING FLANGE. 3" STAINLESS STEEL CAST DRAIN AND STAINLESS STEEL STRAINER PLATE. PROVIDE STAINLESS STEEL WALL GUARDS, MOP BRACKETS, HOSE RACK.	CHICAGO FAUCET 897-CP	C.P. SERVICE SINK FITTING WITH VACUUM BREAKER, 3/4" HOSE THREAD ON SPOUT, ADJUSTABLE WALL BRACE, PAIL HOOK, AND 1/2" FLANGED FEMALE ADJUSTABLE ARMS WITH INTEGRAL STOPS. CAULK BETWEEN WALL AND FLANGE WITH GE SILICONE SEALANT. 3" C.I. "P" TRAP.	---	3"	2"	1/2"	1/2"

REMARKS:
1. PROVIDE CHROME-PLATED BRASS TAILPIECE AND GRID DRAIN.
2. PROVIDE CHROME-PLATED BRASS P-TRAP.
3. PROVIDE LOOSE KEY STOPS AND FLEXIBLE RISERS.
4. PROVIDE CONCEALED ARM TYPE CARRIER WITH SQUARE, TUBULAR STEEL UP-RIGHTS AND BLOCK TYPE BASES.
5. INSULATE EXPOSED TAILPIECE, P-TRAP, AND WATER RISERS. REFER TO SPECIFICATIONS FOR INSULATION METHODS.
6. PROVIDE FLUSH VALVE HANDLE ON WIDE SIDE OF STALL.
7. PROVIDE HANDLE STOPS AND FLEXIBLE RISERS.
8. PROVIDE CHROME-PLATED BRASS TAILPIECE AND BASKET STRAINER.

GENERAL NOTES (APPLICABLE TO ALL FIXTURES):
1) ALL PUBLIC LAVATORIES AND SINKS SHALL BE PROVIDED WITH ANTI-SCALD ASSE 1016 LISTED VALVE ON HOT WATER SUPPLY.

FLOOR DRAIN SCHEDULE

PLAN MARK	MANUFACTURER	MODEL NUMBER	SERVICE	TOP/GRATE SIZE	WASTE SIZE	REMARKS
FD-1	WADE	1100	FLOOR DRAIN	6"Ø	2"	1
FD-2	WADE	2340	FLOOR DRAIN	12"x12"	4"	1

REMARKS:
1. PROVIDE WITH NICKEL BRONZE TOP AND TRAP SEAL.

SUMP PUMP SCHEDULE

PLAN MARK	MANUFACTURER	MODEL NUMBER	GPM	HEAD (FT. WC)	HP	MAX. RPM	ELECTRICAL	DUTY	NOTES
SP-1	WEIL	1411	50.0	20.0	1/2	1,750	120V / 1 PH	ELEVATOR SUMP (HYDRO)	1,2,3,4

REMARKS:
1. PUMP SHALL BE PROVIDE WITH ACCESSORY OIL SENSORS/CONTROLLER CAPABLE OF SENSING OIL, DISABLING OPERATION UPON SENSING AND GENERATING AN ALARM.
2. PROVIDE CONTROL/ALARM PANEL WITH TETHERED LEVEL SWITCH CONTROL AND REMOTE ALARM LIGHT.
3. PROVIDE SPLIT DESIGN FLOOR PLATE AND 24"DIA. X 30" DEEP FIBERGLASS BASIN.
4. COORDINATE ANY REQUIRED AREA DRAIN OR SUBSOIL CONNECTIONS TO BASIN. EXTEND DEPTH OF BASIN AS REQD.

PLUMBING FIXTURE BRANCH CONNECTION SCHEDULE

FIXTURE TYPE	TRAP	PLUMBING FIXTURE PIPE SIZES WASTE	VENT	DCW	DHW
WATER CLOSET (FLUSH VALVE)	INTEGRAL	4"	2"	1"	---
URINAL (FLUSH VALVE)	INTEGRAL	2"	2"	3/4"	---
FLUSH TANK WATER CLOSET	INTEGRAL	4"	2"	1/2"	---
LAVATORY	PROVIDE TRAP	2"	1-1/2"	1/2"	1/2"
SINK	PROVIDE TRAP	4"	2"	1/2"	1/2"
MOP SINK	PROVIDE DEEP SEAL TRAP	3"	2"	1/2"	1/2"
FLOOR DRAIN	PROVIDE DEEP SEAL TRAP	AS SCHEDULED	1-1/2"	---	---
FLOOR SINK	PROVIDE TRAP	AS SCHEDULED	1-1/2"	---	---
DRINKING FOUNTAINS/EWC'S	PROVIDE TRAP	1-1/2"	1-1/2"	1/2"	---
SHOWERS/TUBS	PROVIDE TRAP	2"	1-1/2"	1/2"	1/2"
SHOWERS	PROVIDE TRAP	2"	1-1/2"	1/2"	1/2"
ICE MACHINE HOOKUP BOX	---	---	---	1/2"	---
WASHER HOOKUP BOXES	PROVIDE TRAP	2"	1-1/2"	1/2"	1/2"

BACKFLOW PREVENTION DEVICE SCHEDULE

FIXTURE TYPE	CONNECTION SIZE	BACKFLOW TYPE	SIMILAR TO	LISTING	REMARKS
DOMESTIC WATER SERVICE	1/2" - 3"	REDUCED PRESSURE ZONE	WATTS LF009 or LF909	ASSE 1013	1
DOMESTIC WATER SERVICE	2-1/2" - 6"	REDUCED PRESSURE ZONE	WATTS LF909	ASSE 1013	1
FIRE SPRINKLER SERVICE	ALL	DOUBLE CHECK	WATTS 709DCDA	ASSE 1014	2,3

REMARKS:
1. LEAD-FREE DEVICE.
2. MAY BE MOUNTED HORIZONTALLY OR VERTICALLY.
3. DETECTOR ASSEMBLY. MODEL WITHOUT DETECTOR MAY BE FURNISHED IF ALLOWED BY LOCAL AHJ.

GENERAL COMMENTS (APPLICABLE TO ALL BACKFLOW DEVICES)
1. ALL BACKFLOW PREVENTERS SHALL BE ON THE LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES AS PUBLISHED BY THE USC FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.
2. ALL BACKFLOW PREVENTERS SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION. RPZS SHALL BE INSTALLED AT A MINIMUM OF 12" A.F.F. AND A MAXIMUM OF 60" A.F.F.
3. VERIFY ALL REQUIREMENTS AND APPROPRIATE DEVICE TYPE FOR BACKFLOW PREVENTION WITH AHJ AND/OR STATE CROSS CONNECTION REQUIREMENTS.

DOMESTIC RECIRCULATION PUMP SCHEDULE

PLAN MARK	MANUFACTURER	MODEL NUMBER	GPM	HEAD (FT. WC)	HP	MAX. RPM	ELECTRICAL	NOTES
RCP-1	BELL & GOSSETT	ECOCIRC 20-18	3.0	15.0	70W	VARI	120V / 1 PH	1,2,3

REMARKS:
1. ENSURE PUMP IS NSF-61 CERTIFIED FOR POTABLE WATER SYSTEMS.
2. MOUNT PUMP AND ACCESSORIES NEAR WATER HEATER AND NO HIGHER THAN 6' AFF.
3. ECM MOTOR WITH INTEGRAL SPEED CONTROL AND TEMPERATURE SWITCH AND DISCONNECT.

WATER HEATER SCHEDULE - ELECTRIC

PLAN MARK	MANUFACTURER	MODEL NUMBER	GALLONS	WATTS	VOLTAGE/ PHASE	REMARKS
WH-1	A.O. SMITH	ENL-40	38.0	4,500	208V / 1PH	1
WH-2	A.O. SMITH	ENL-30	28.0	4,500	208V / 1PH	1,2,3

REMARKS:
1. "LOWBOY"-TYPE WATER HEATER.
2. MOUNT ON WALL.
3. ROUTE DRAIN TO MOP SINK/'FLOOR DRAIN.

PRINTS ISSUED
10/30/2023 - PERMIT SUBMITTAL

REVISIONS:

23.161

PEARSON KENT MCKINLEY RAAF ENGINEERS LLC
13300 W 98TH STREET LENEXA, KS 66215
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MO State Certificate of Authority #E-2002020886

MICHAEL D. RAAF
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10/30/23
Michael D. Raaf - Engineer
MO# PE-2005028097

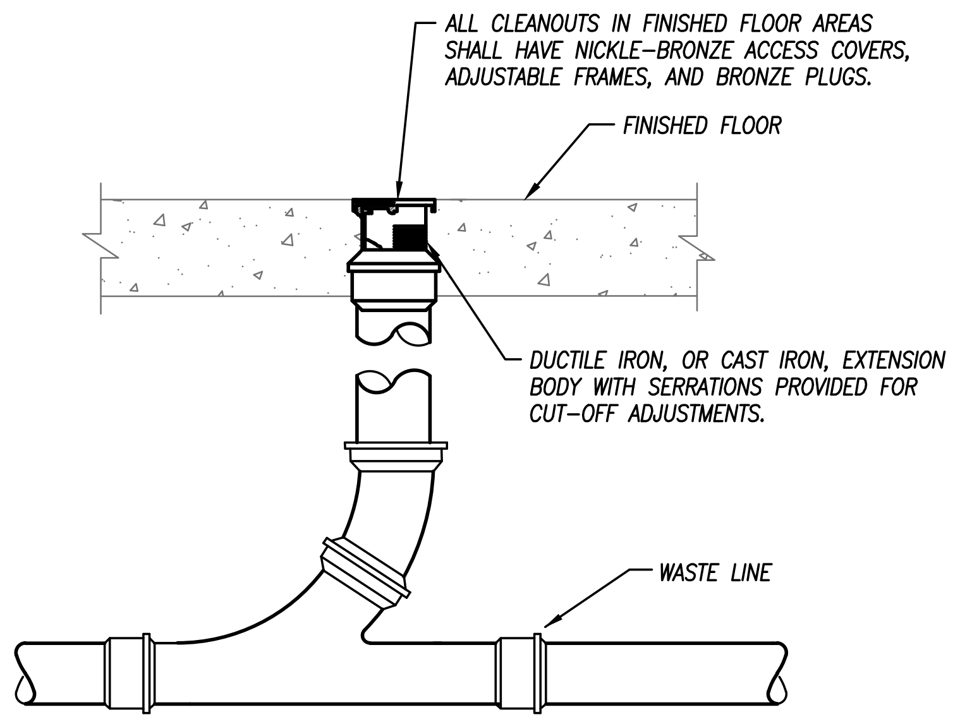
WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
PLUMBING SCHEDULES

PROJECT NUMBER: 23.161

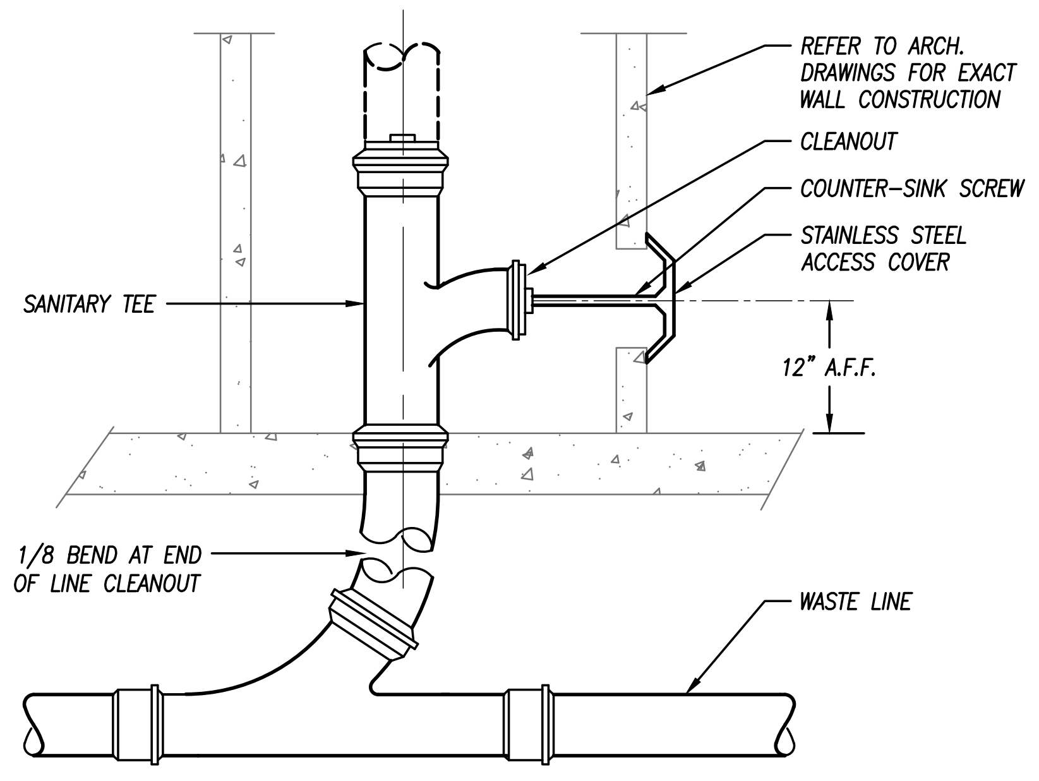
SHEET NUMBER:

P301


ALL CLEANOUTS IN FINISHED FLOOR AREAS SHALL HAVE NICKLE-BRONZE ACCESS COVERS, ADJUSTABLE FRAMES, AND BRONZE PLUGS.
FINISHED FLOOR
DUCTILE IRON, OR CAST IRON, EXTENSION BODY WITH SERRATIONS PROVIDED FOR CUT-OFF ADJUSTMENTS.
WASTE LINE

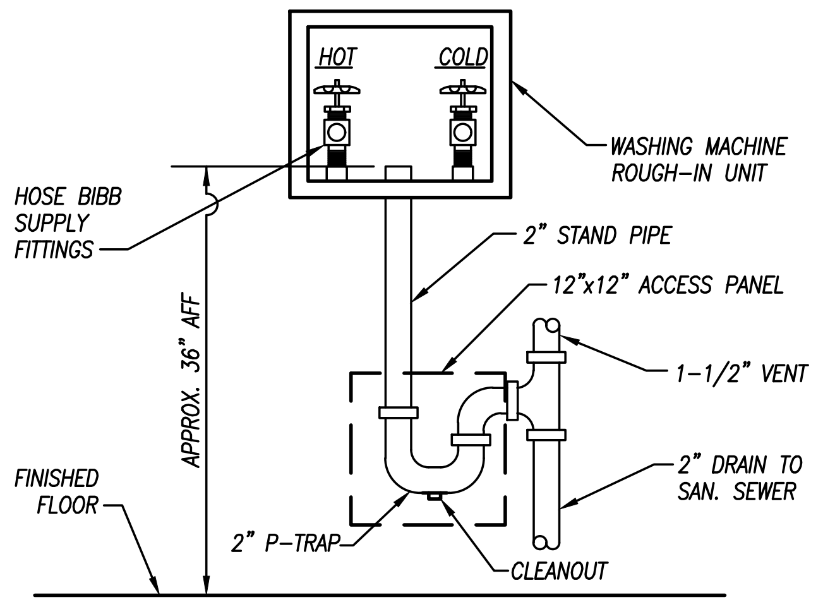
FLOOR CLEANOUT DETAIL

NOT TO SCALE


REFER TO ARCH. DRAWINGS FOR EXACT WALL CONSTRUCTION
CLEANOUT
COUNTER-SINK SCREW
STAINLESS STEEL ACCESS COVER
SANITARY TEE
12" A.F.F.
1/8 BEND AT END OF LINE CLEANOUT
WASTE LINE

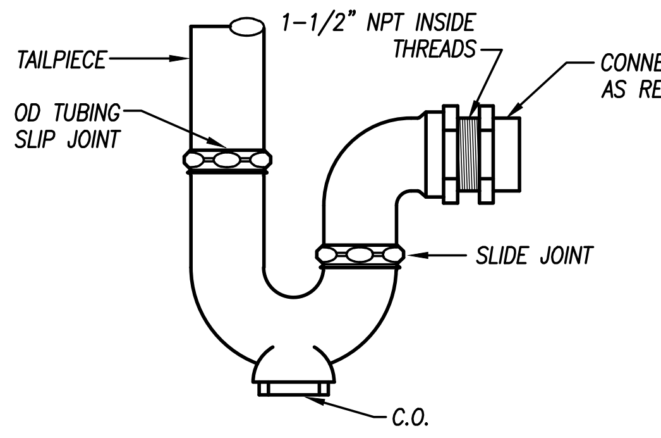
WALL CLEANOUT DETAIL

NOT TO SCALE



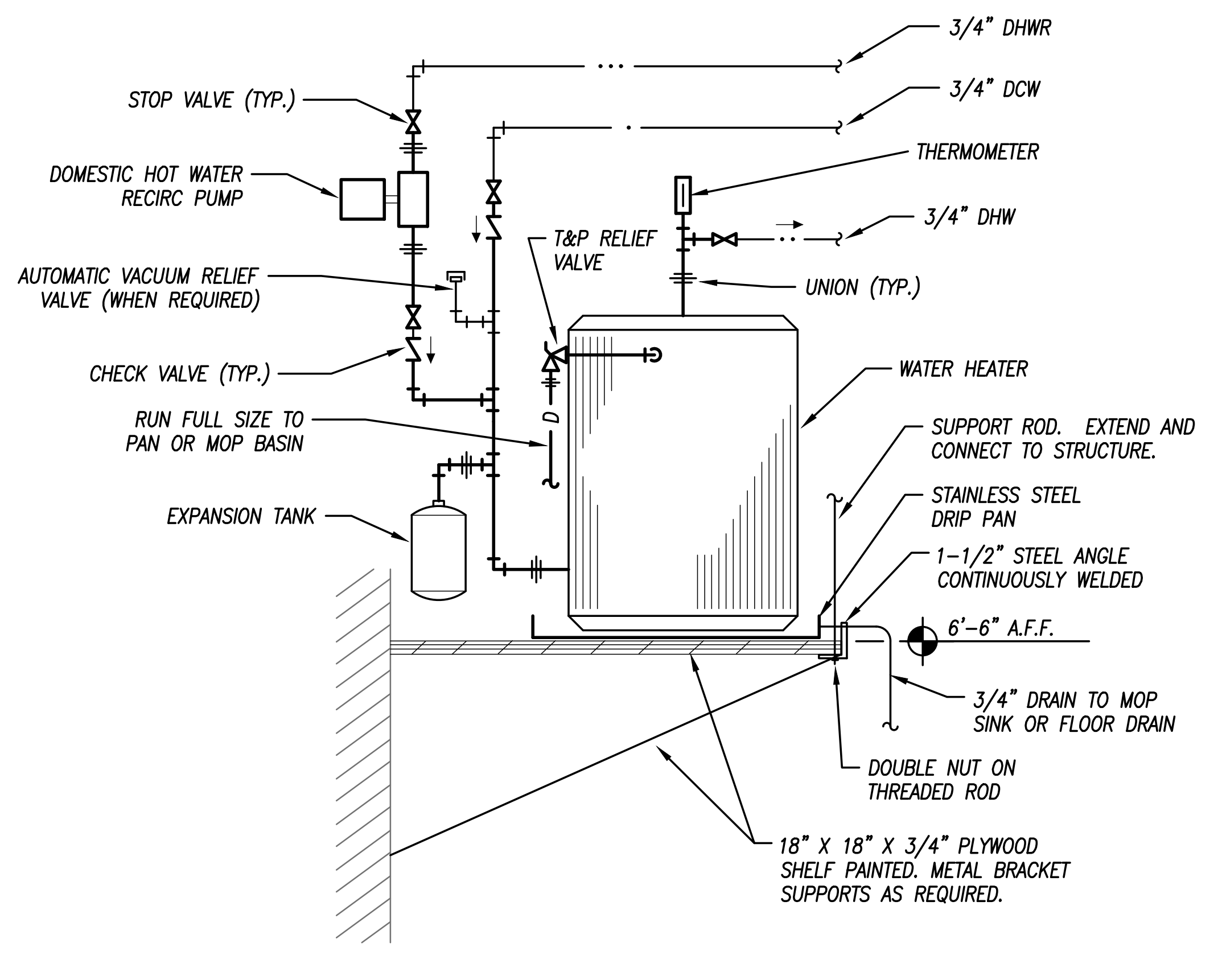
WASHING MACHINE HOOK-UP DETAIL

NOT TO SCALE



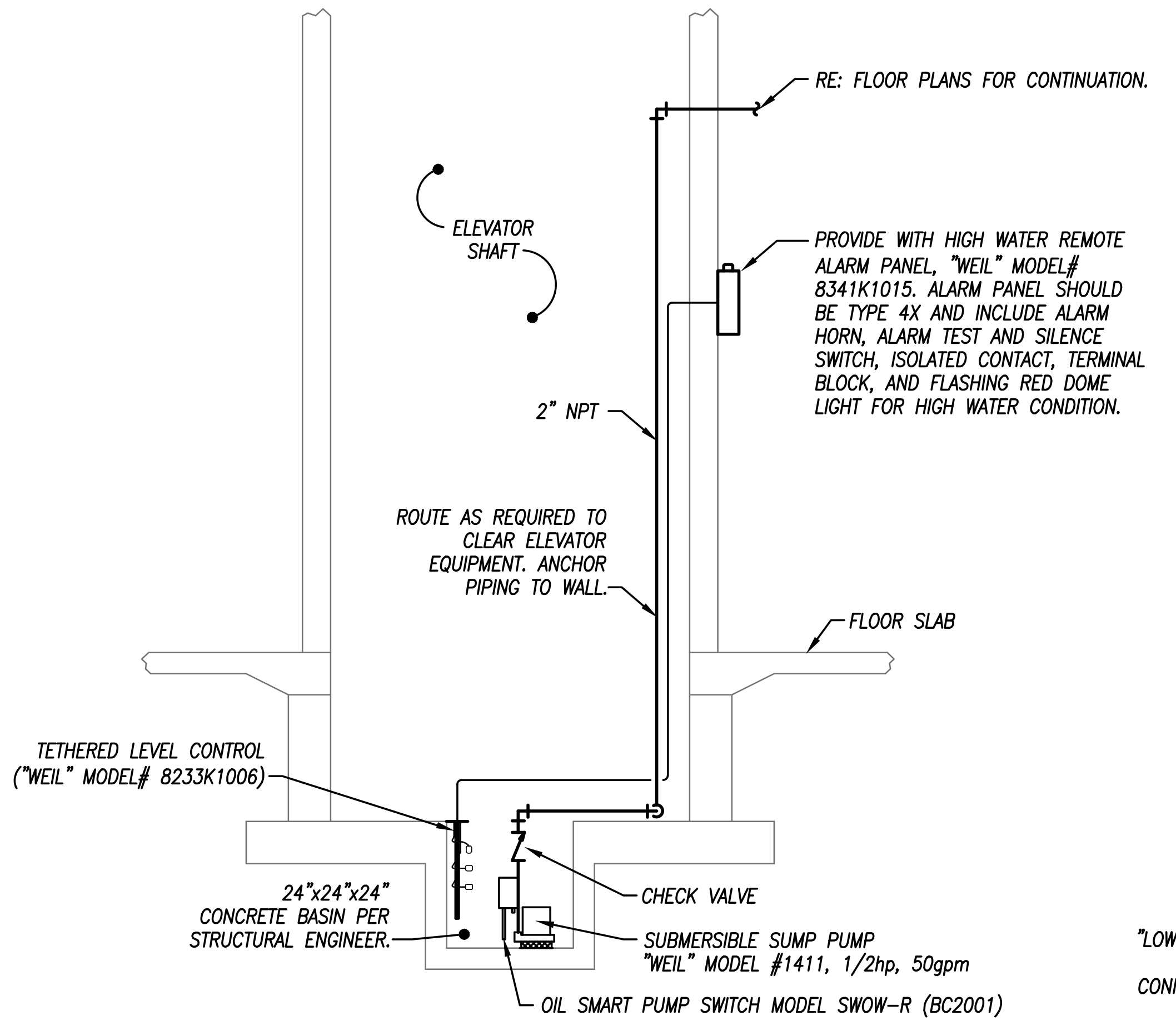
P-TRAP DETAIL

NOT TO SCALE


3/4" DHWR
3/4" DCW
STOP VALVE (TYP.)
DOMESTIC HOT WATER RECIRC PUMP
THERMOMETER
3/4" DHW
T&P RELIEF VALVE
UNION (TYP.)
AUTOMATIC VACUUM RELIEF VALVE (WHEN REQUIRED)
CHECK VALVE (TYP.)
WATER HEATER
RUN FULL SIZE TO PAN OR MOP BASIN
D
SUPPORT ROD. EXTEND AND CONNECT TO STRUCTURE.
STAINLESS STEEL DRIP PAN
EXPANSION TANK
1-1/2" STEEL ANGLE CONTINUOUSLY WELDED
6'-6" A.F.F.
3/4" DRAIN TO MOP SINK OR FLOOR DRAIN
DOUBLE NUT ON THREADED ROD
18" X 18" X 3/4" PLYWOOD SHELF PAINTED. METAL BRACKET SUPPORTS AS REQUIRED.

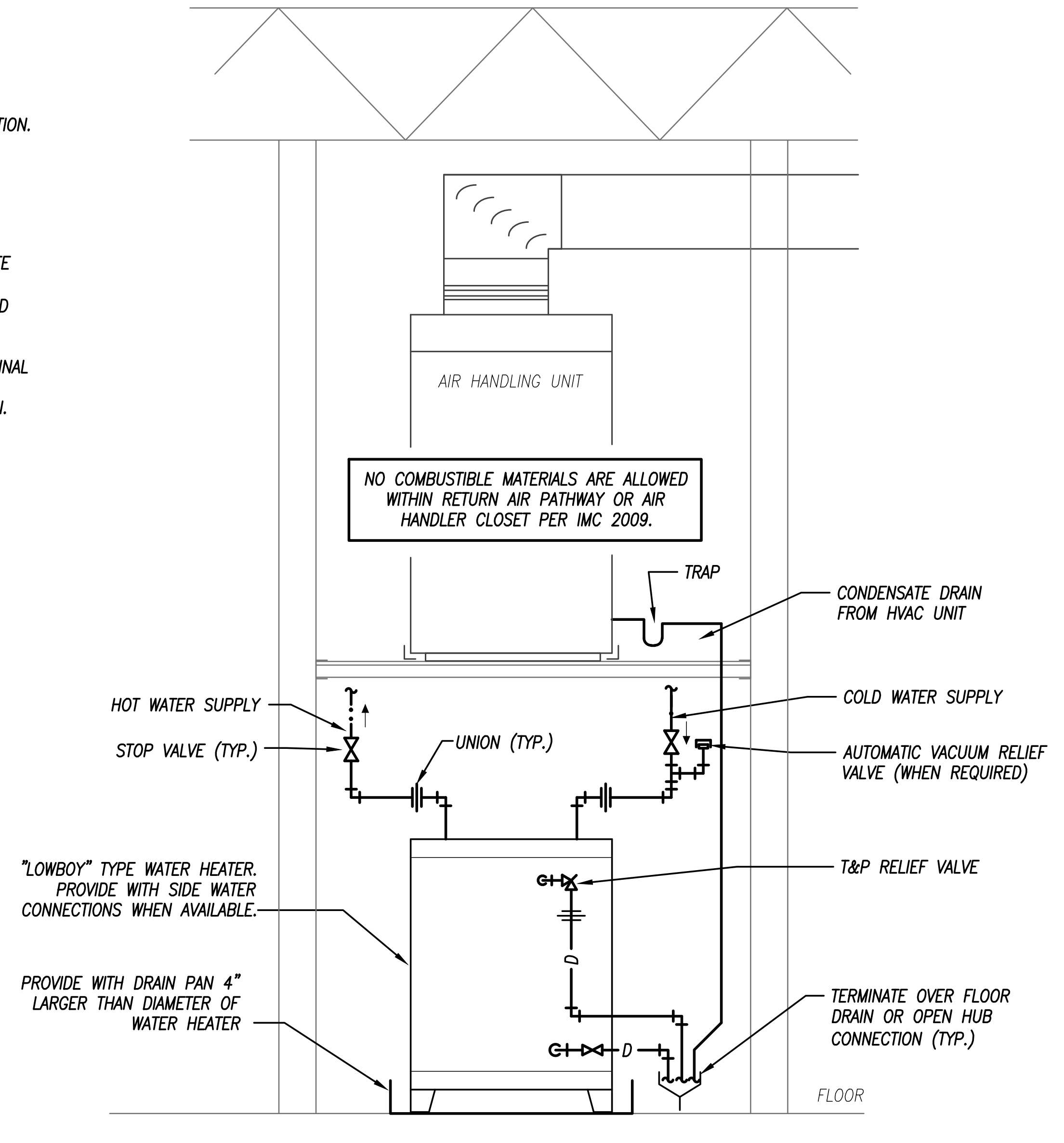
WATER HEATER ON SHELF DETAIL

NOT TO SCALE


RE: FLOOR PLANS FOR CONTINUATION.
ELEVATOR SHAFT
PROVIDE WITH HIGH WATER REMOTE ALARM PANEL, "WEIL" MODEL# 8341K1015. ALARM PANEL SHOULD BE TYPE 4X AND INCLUDE ALARM HORN, ALARM TEST AND SILENCE SWITCH, ISOLATED CONTACT, TERMINAL BLOCK, AND FLASHING RED DOME LIGHT FOR HIGH WATER CONDITION.
2" NPT
ROUTE AS REQUIRED TO CLEAR ELEVATOR EQUIPMENT. ANCHOR PIPING TO WALL.
FLOOR SLAB
TETHERED LEVEL CONTROL ("WEIL" MODEL# 8233K1006)
CHECK VALVE
24"x24"x24" CONCRETE BASIN PER STRUCTURAL ENGINEER.
SUBMERSIBLE SUMP PUMP "WEIL" MODEL #1411, 1/2hp, 50gpm
OIL SMART PUMP SWITCH MODEL SWOW-R (BC2001)

ELEVATOR SUMP PUMP DETAIL

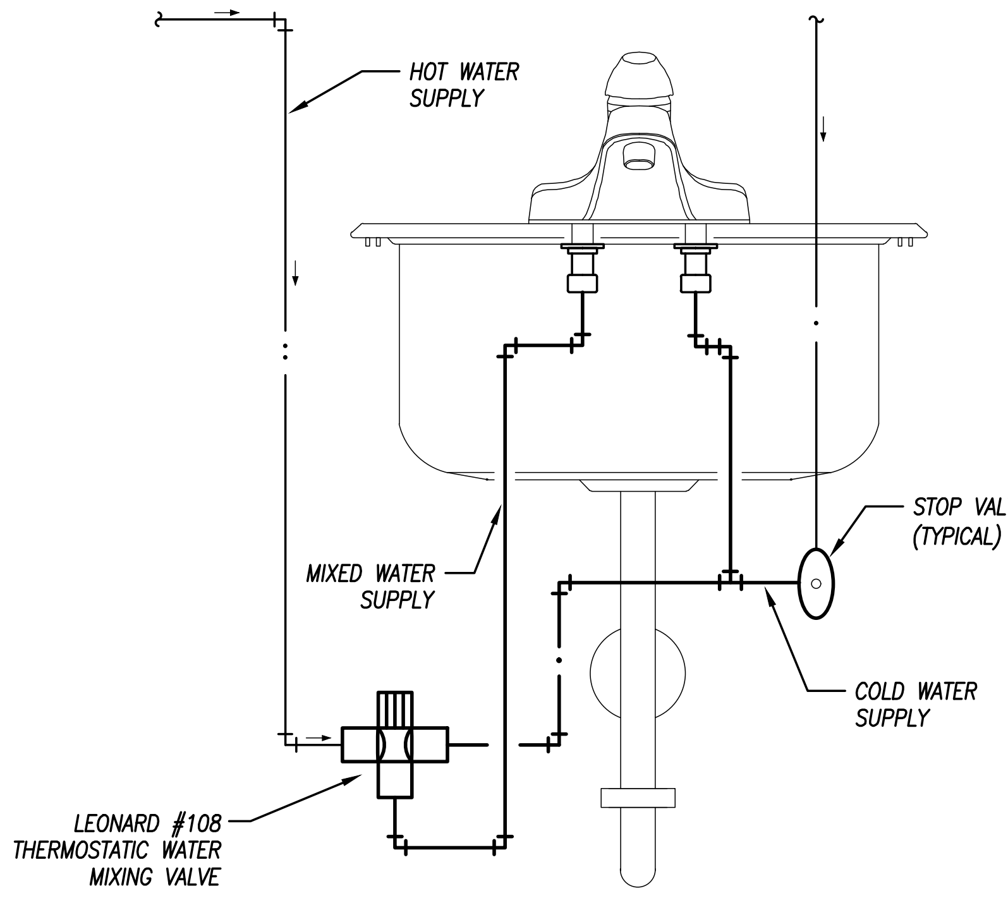
NOT TO SCALE


AIR HANDLING UNIT
TRAP
CONDENSATE DRAIN FROM HVAC UNIT
HOT WATER SUPPLY
COLD WATER SUPPLY
STOP VALVE (TYP.)
UNION (TYP.)
AUTOMATIC VACUUM RELIEF VALVE (WHEN REQUIRED)
"LOWBOY" TYPE WATER HEATER. PROVIDE WITH SIDE WATER CONNECTIONS WHEN AVAILABLE.
T&P RELIEF VALVE
D
PROVIDE WITH DRAIN PAN 4" LARGER THAN DIAMETER OF WATER HEATER
TERMINATE OVER FLOOR DRAIN OR OPEN HUB CONNECTION (TYP.)
FLOOR

NO COMBUSTIBLE MATERIALS ARE ALLOWED WITHIN RETURN AIR PATHWAY OR AIR HANDLER CLOSET PER IMC 2009.

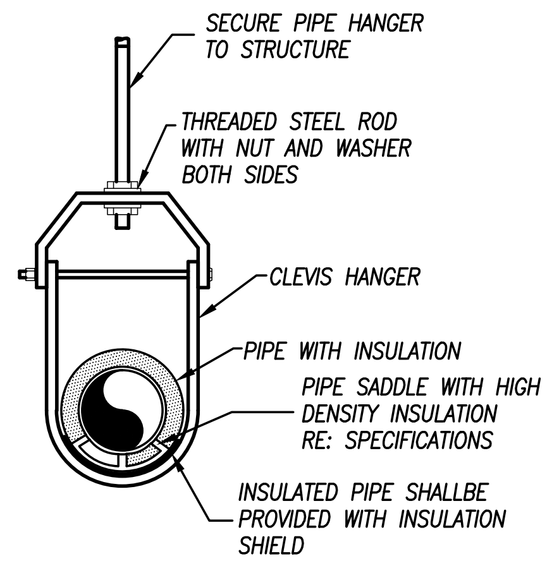
WATER HEATER BELOW FURNACE

NOT TO SCALE



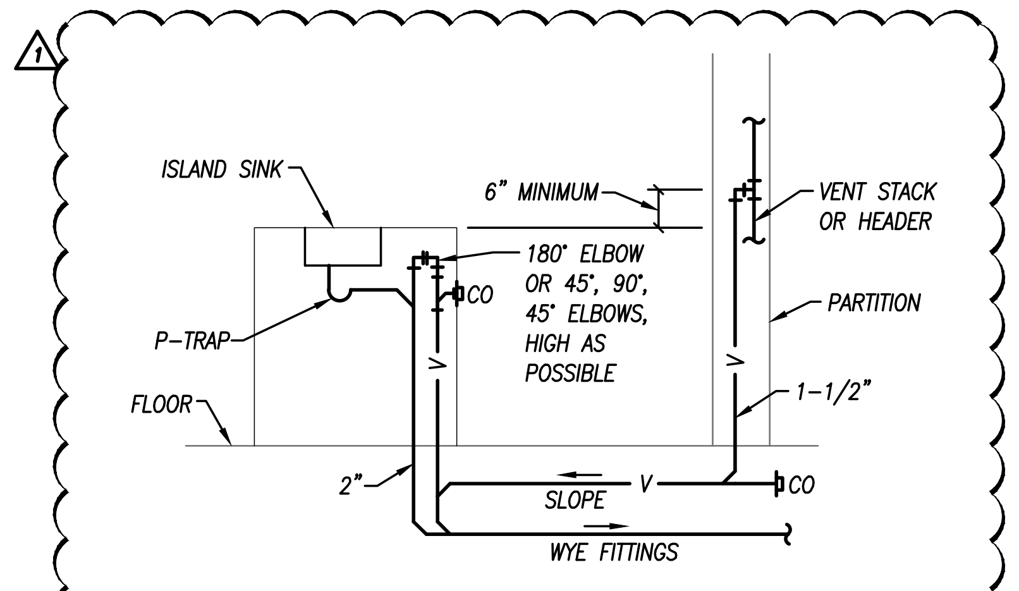
HAND WASHING SINK/LAVATORY TEMPERED WATER SCHEMATIC

NOT TO SCALE


SECURE PIPE HANGER TO STRUCTURE
THREADED STEEL ROD WITH NUT AND WASHER BOTH SIDES
CLEVIS HANGER
PIPE WITH INSULATION
PIPE SADDLE WITH HIGH DENSITY INSULATION RE: SPECIFICATIONS
INSULATED PIPE SHALLBE PROVIDED WITH INSULATION SHIELD

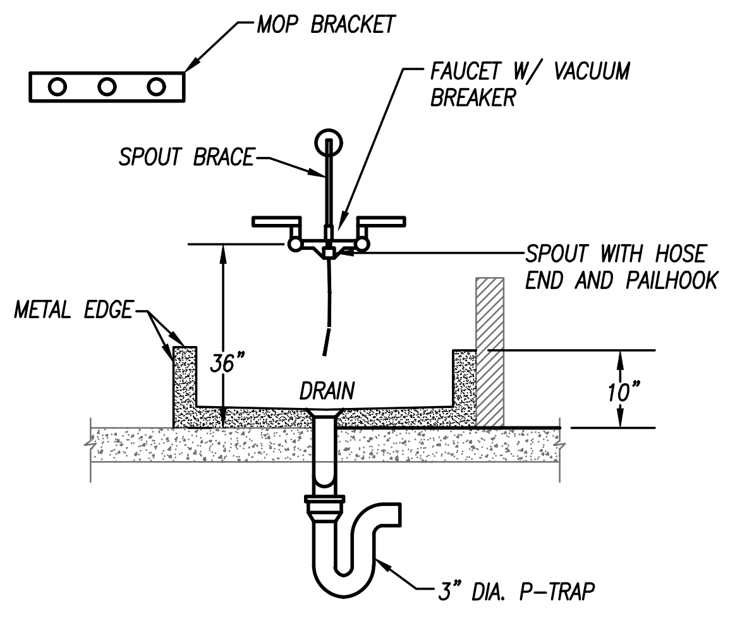
PIPE HANGER DETAIL

NOT TO SCALE



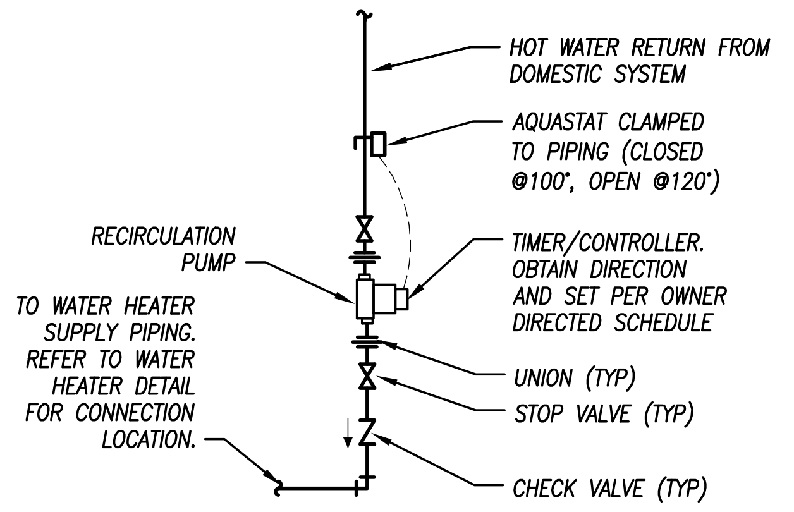
ISLAND SINK VENTING DETAIL

NOT TO SCALE



MOP SINK DETAIL

NOT TO SCALE


HOT WATER RETURN FROM DOMESTIC SYSTEM
AQUASTAT CLAMPED TO PIPING (CLOSED @100°, OPEN @120°)
RECIRCULATION PUMP
TIMER/CONTROLLER. OBTAIN DIRECTION AND SET PER OWNER DIRECTED SCHEDULE
TO WATER HEATER SUPPLY PIPING. REFER TO WATER HEATER DETAIL FOR CONNECTION LOCATION.
UNION (TYP)
STOP VALVE (TYP)
CHECK VALVE (TYP)

RECIRCULTING PUMP DETAIL

NOT TO SCALE

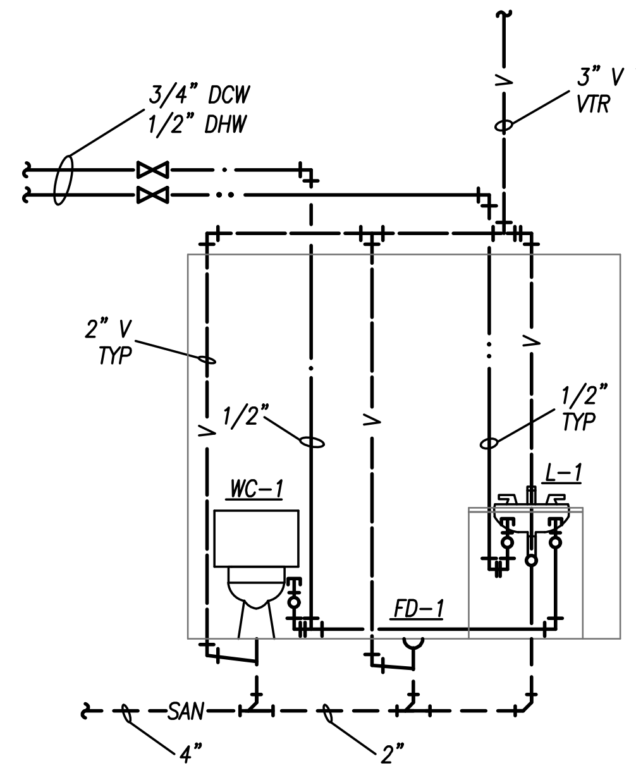
FIRE SPRINKLER SCOPE

A FULLY ENGINEERED SYSTEM SHALL BE PROVIDED BY THE CONTRACTOR AND SUBMITTED TO PROPER REGULATORY AGENCIES AND DIVISIONS.

PROVIDE AN NFPA 13R SYSTEM THROUGHOUT THE ENTIRE FACILITY. REFER TO ARCHITECTURAL PLANS FOR CEILING CONSTRUCTION.

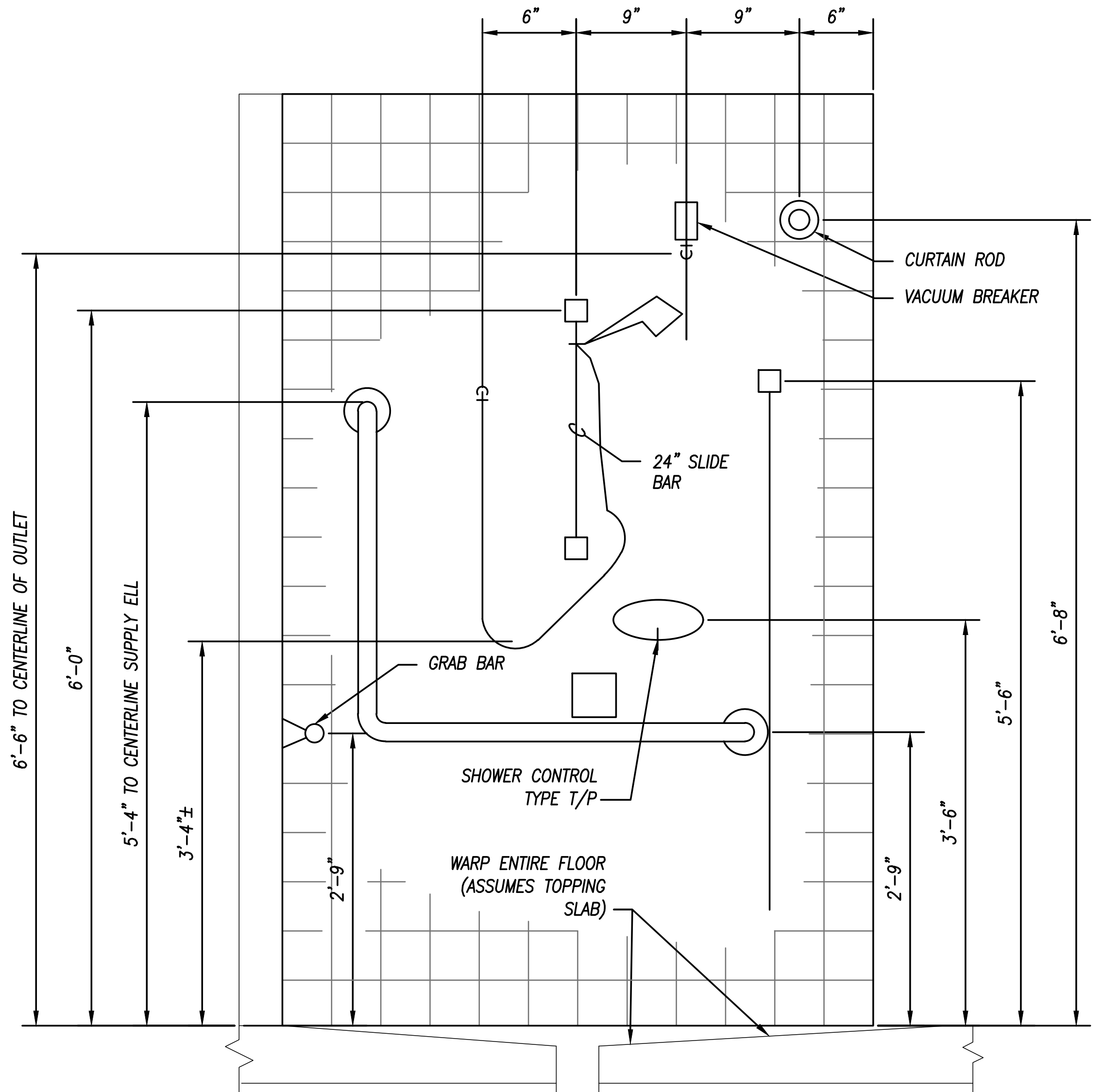
BACKFLOW PREVENTER MAY BE INSTALLED HORIZONTALLY OR VERTICALLY IF APPROVED BY THE AUTHORITY HAVING JURISDICTION. INSTALLATION MUST ALLOW VALVES TO BE SERVICED WHILE STANDING ON THE FLOOR.

INTERIOR SPACES
PROVIDE WET SPRINKLER SYSTEM IN ALL AREAS WITH DROP CEILINGS AND ALL RESIDENT ROOMS. RESIDENT ROOMS SHALL BE SERVED BY ROUTING MAINS THROUGH HALLWAYS THEN ROUTING LATERALS THROUGH WALLS INTO EACH SPACE. ALL WET PIPING SHALL BE LOCATED IN CONDITIONED SPACES THAT ARE NOT SUBJECT TO FREEZING.



TYPICAL COMMON RESTROOM PLUMBING RISER

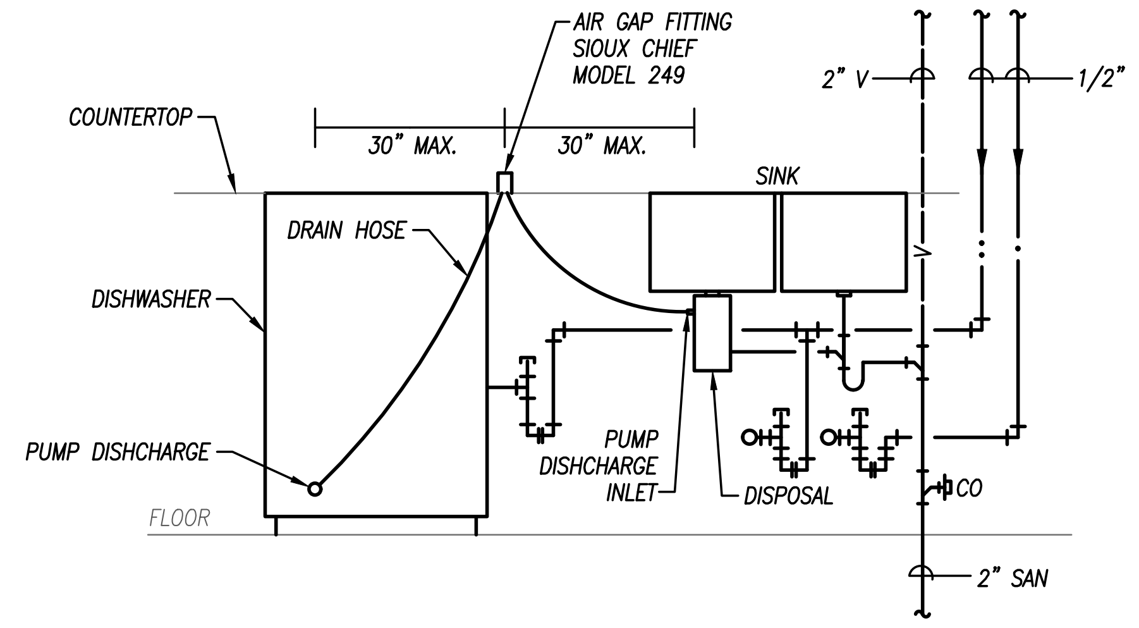
NOT TO SCALE



NOTE:
INSTALLATION SHALL COMPLY WITH ANSI A117.1

ADA COMPLIANT SHOWER

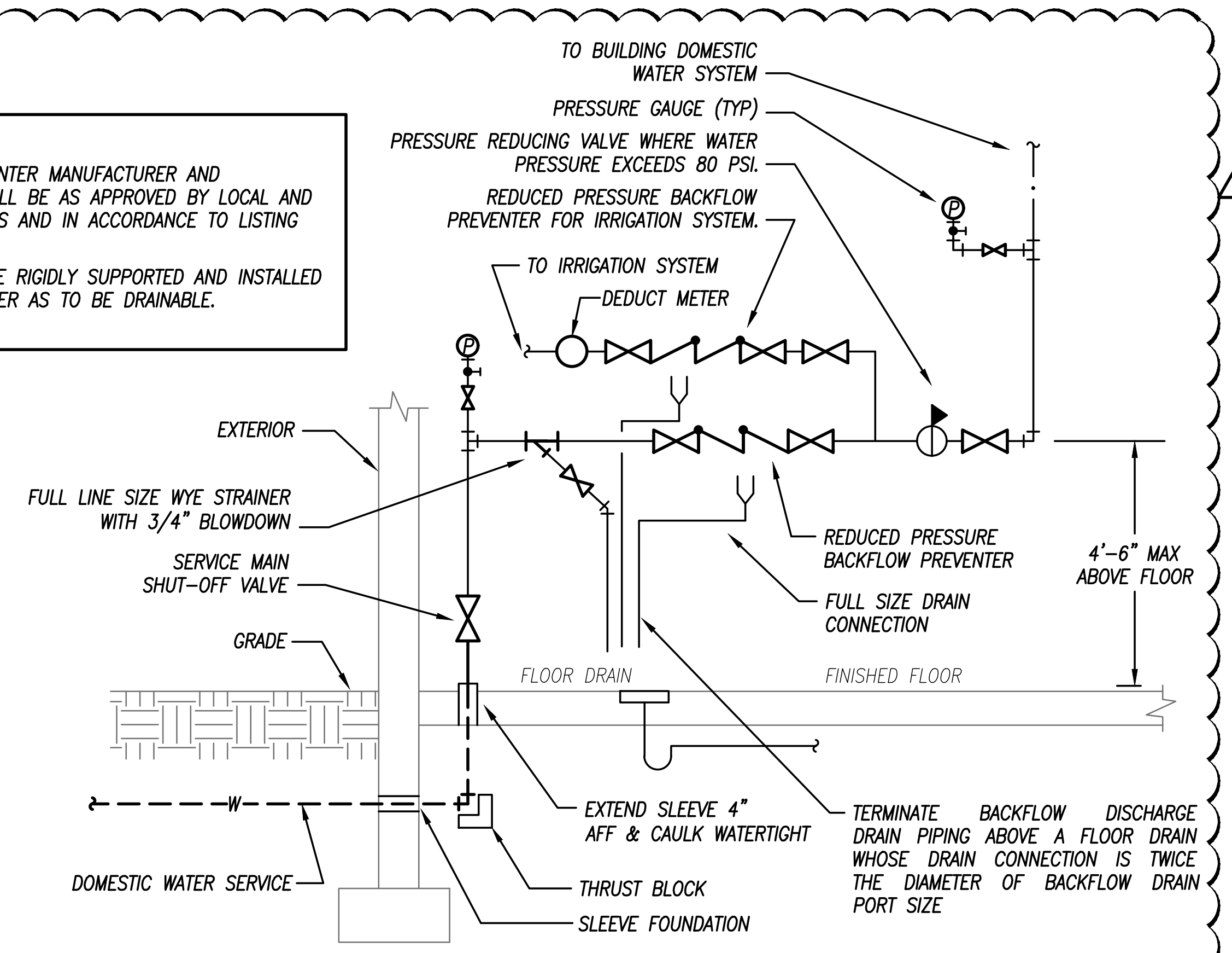
NOT TO SCALE



DISHWASHER/DISPOSAL/SINK PLUMBING

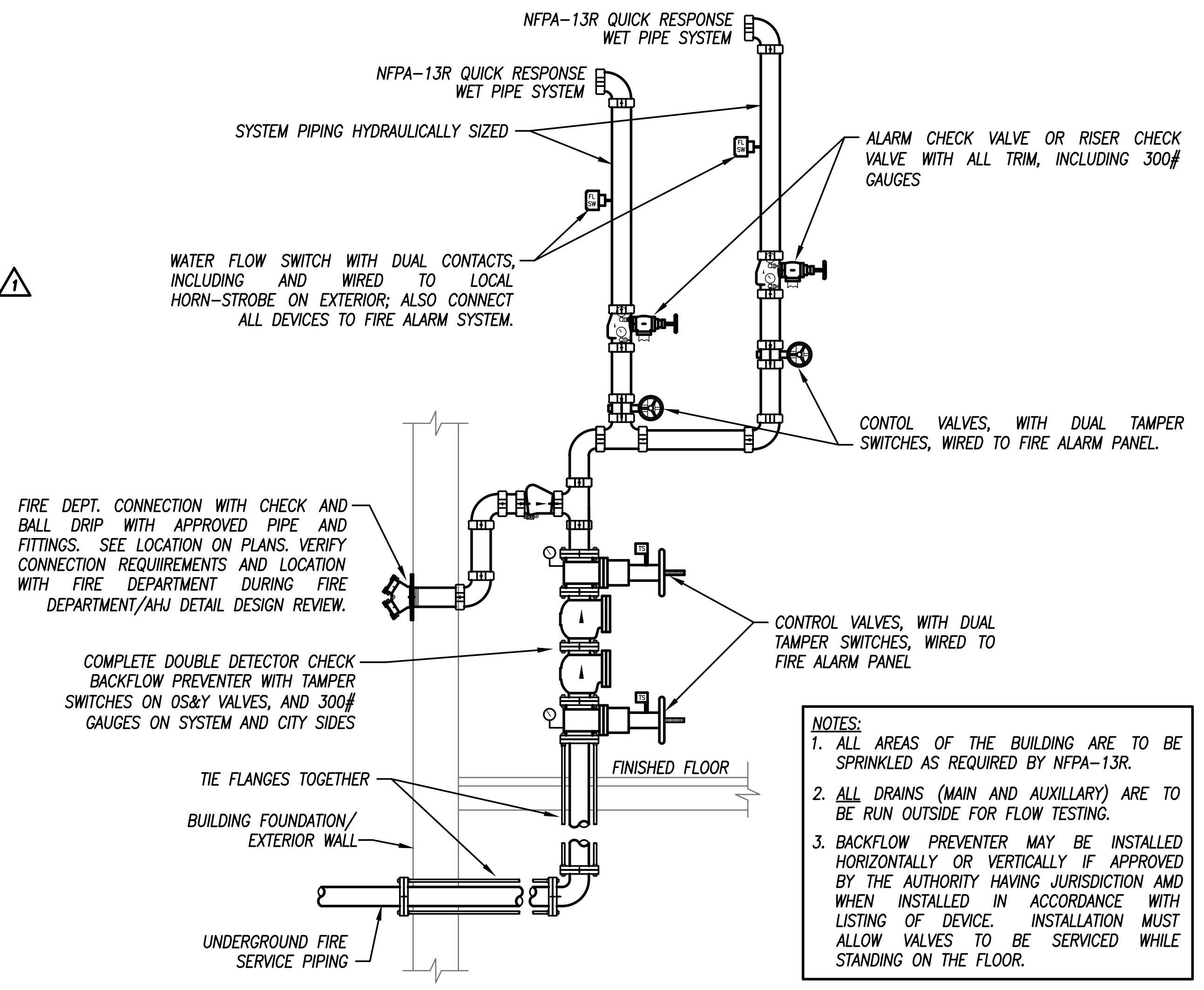
NOT TO SCALE

NOTES:
1. BACKLFOW PREVENTER MANUFACTURER AND INSTALLATION SHALL BE AS APPROVED BY LOCAL AND STATE AUTHORITIES AND IN ACCORDANCE TO LISTING OF DEVICE.
2. ALL PIPING TO BE RIGIDLY SUPPORTED AND INSTALLED IN SUCH A MANNER AS TO BE DRAINABLE.


TO BUILDING DOMESTIC WATER SYSTEM
PRESSURE GAUGE (TYP)
PRESSURE REDUCING VALVE WHERE WATER PRESSURE EXCEEDS 80 PSI.
REDUCED PRESSURE BACKFLOW PREVENTER FOR IRRIGATION SYSTEM.
TO IRRIGATION SYSTEM
DEDUCT METER
EXTERIOR
FULL LINE SIZE WYE STRAINER WITH 3/4" BLOWDOWN
SERVICE MAIN SHUT-OFF VALVE
GRADE
REDUCED PRESSURE BACKFLOW PREVENTER
FULL SIZE DRAIN CONNECTION
4'-6" MAX ABOVE FLOOR
FLOOR DRAIN
FINISHED FLOOR
W
EXTEND SLEEVE 4" AFF & CAULK WATERTIGHT
TERMINATE BACKFLOW DISCHARGE DRAIN PIPING ABOVE A FLOOR DRAIN WHOSE DRAIN CONNECTION IS TWICE THE DIAMETER OF BACKFLOW DRAIN PORT SIZE
DOMESTIC WATER SERVICE
THRUST BLOCK
SLEEVE FOUNDATION
1

WATER SERVICE W/ IRRIGATION REDUCED PRESSURE BACKFLOW PREVENTER DETAIL

NOT TO SCALE


NFPA-13R QUICK RESPONSE WET PIPE SYSTEM
NFPA-13R QUICK RESPONSE WET PIPE SYSTEM
SYSTEM PIPING HYDRAULICALLY SIZED
ALARM CHECK VALVE OR RISER CHECK VALVE WITH ALL TRIM, INCLUDING 300# GAUGES
WATER FLOW SWITCH WITH DUAL CONTACTS, INCLUDING AND WIRED TO LOCAL HORN-STROBE ON EXTERIOR; ALSO CONNECT ALL DEVICES TO FIRE ALARM SYSTEM.
FL SW
CONTOL VALVES, WITH DUAL TAMPER SWITCHES, WIRED TO FIRE ALARM PANEL.
FIRE DEPT. CONNECTION WITH CHECK AND BALL DRIP WITH APPROVED PIPE AND FITTINGS. SEE LOCATION ON PLANS. VERIFY CONNECTION REQUIIREMENTS AND LOCATION WITH FIRE DEPARTMENT DURING FIRE DEPARTMENT/AHJ DETAIL DESIGN REVIEW.
TS
CONTROL VALVES, WITH DUAL TAMPER SWITCHES, WIRED TO FIRE ALARM PANEL
COMPLETE DOUBLE DETECTOR CHECK BACKFLOW PREVENTER WITH TAMPER SWITCHES ON OS&Y VALVES, AND 300# GAUGES ON SYSTEM AND CITY SIDES
FINISHED FLOOR
TIE FLANGES TOGETHER
BUILDING FOUNDATION/ EXTERIOR WALL
UNDERGROUND FIRE SERVICE PIPING
1

NOTES:
1. ALL AREAS OF THE BUILDING ARE TO BE SPRINKLED AS REQUIRED BY NFPA-13R.
2. ALL DRAINS (MAIN AND AUXILLARY) ARE TO BE RUN OUTSIDE FOR FLOW TESTING.
3. BACKFLOW PREVENTER MAY BE INSTALLED HORIZONTALLY OR VERTICALLY IF APPROVED BY THE AUTHORITY HAVING JURISDICTION AMD WHEN INSTALLED IN ACCORDANCE WITH LISTING OF DEVICE. INSTALLATION MUST ALLOW VALVES TO BE SERVICED WHILE STANDING ON THE FLOOR.

FIRE SPRINKLER RISER DETAIL

NOT TO SCALE

PRINTS ISSUED
10/30/2023 - PERMIT SUBMITTAL

REVISIONS:
1 12/15/2023 - CITY COMMENTS

23.161

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MO State Certificate of Authority #E-2002020886

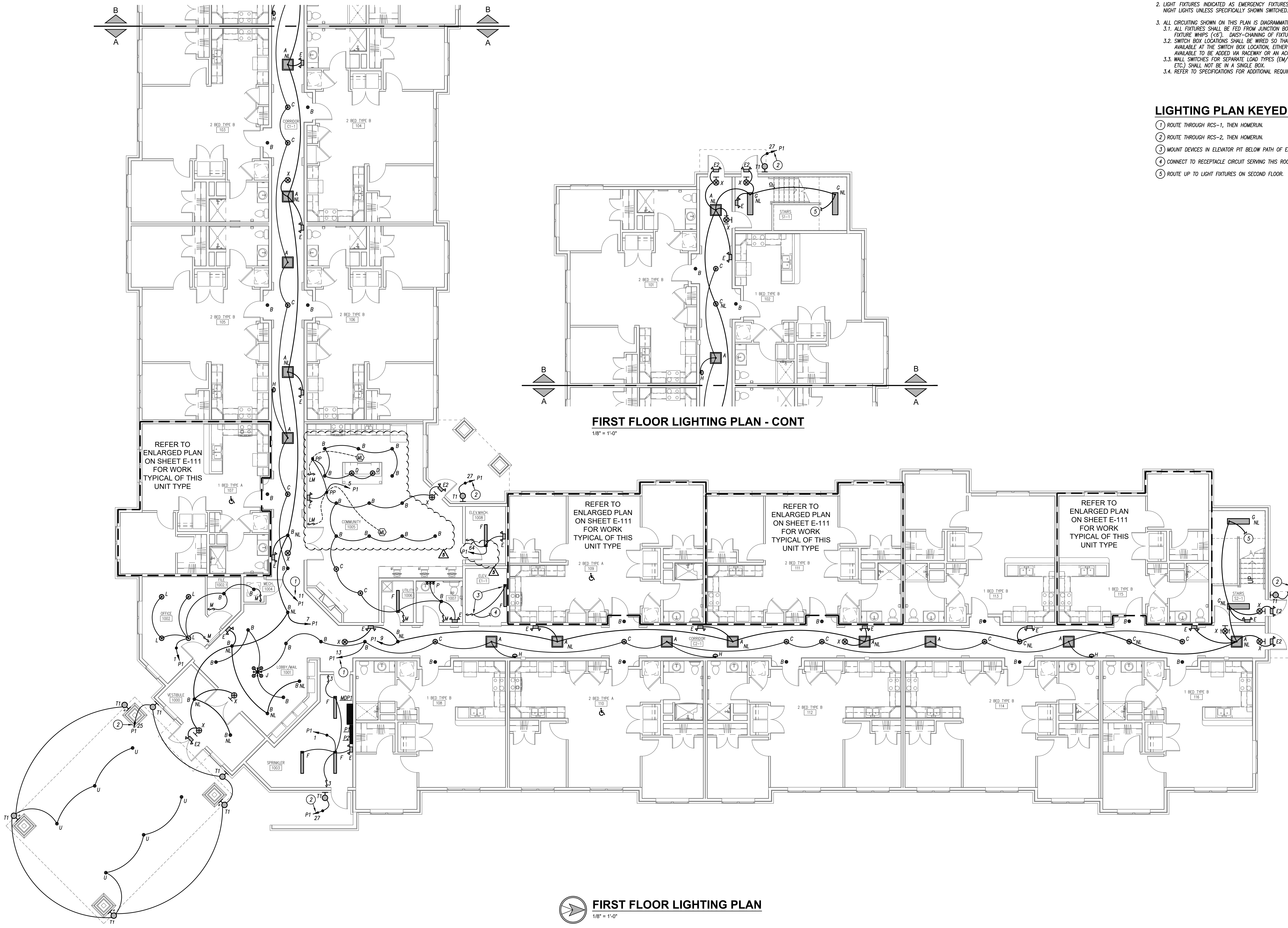
MICHAEL D. RAAF
NUMBER PE-2005028097
12/15/23
Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
PLUMBING DETAILS

PROJECT NUMBER: 23.161

SHEET NUMBER:
P302



REFER TO ENLARGED PLAN ON SHEET E-111 FOR WORK TYPICAL OF THIS UNIT TYPE

REFER TO ENLARGED PLAN ON SHEET E-111 FOR WORK TYPICAL OF THIS UNIT TYPE

REFER TO ENLARGED PLAN ON SHEET E-111 FOR WORK TYPICAL OF THIS UNIT TYPE

REFER TO ENLARGED PLAN ON SHEET E-111 FOR WORK TYPICAL OF THIS UNIT TYPE

FIRST FLOOR LIGHTING PLAN - CONT

1/8" = 1'-0"

FIRST FLOOR LIGHTING PLAN

1/8" = 1'-0"

GENERAL LIGHTING NOTES

1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
2. LIGHT FIXTURES INDICATED AS EMERGENCY FIXTURES ARE TO FUNCTION AS NIGHT LIGHTS UNLESS SPECIFICALLY SHOWN SWITCHED.
3. ALL CIRCUITING SHOWN ON THIS PLAN IS DIAGRAMMATIC.
   3.1. ALL FIXTURES SHALL BE FED FROM JUNCTION BOXES WITH LIGHT FIXTURE WHIPS (<6'). DAISY-CHAINING OF FIXTURES IS NOT ALLOWED.
   3.2. SWITCH BOX LOCATIONS SHALL BE WIRED SO THAT A NEUTRAL WIRE IS AVAILABLE AT THE SWITCH BOX LOCATION, EITHER IN THE BOX OR AVAILABLE TO BE ADDED VIA RACEWAY OR AN ACCESSIBLE WALL CAVITY.
   3.3. WALL SWITCHES FOR SEPARATE LOAD TYPES (EM/NORMAL, 120/277V, ETC.) SHALL NOT BE IN A SINGLE BOX.
   3.4. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

LIGHTING PLAN KEYED NOTES

① ROUTE THROUGH RCS-1, THEN HOMERUN.

② ROUTE THROUGH RCS-2, THEN HOMERUN.

③ MOUNT DEVICES IN ELEVATOR PIT BELOW PATH OF ELEVATOR TRAVEL.

④ CONNECT TO RECEPTACLE CIRCUIT SERVING THIS ROOM/AREA.

⑤ ROUTE UP TO LIGHT FIXTURES ON SECOND FLOOR.

PRINTS ISSUED
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REVISIONS:
5 10/04/2024 - ASI 001

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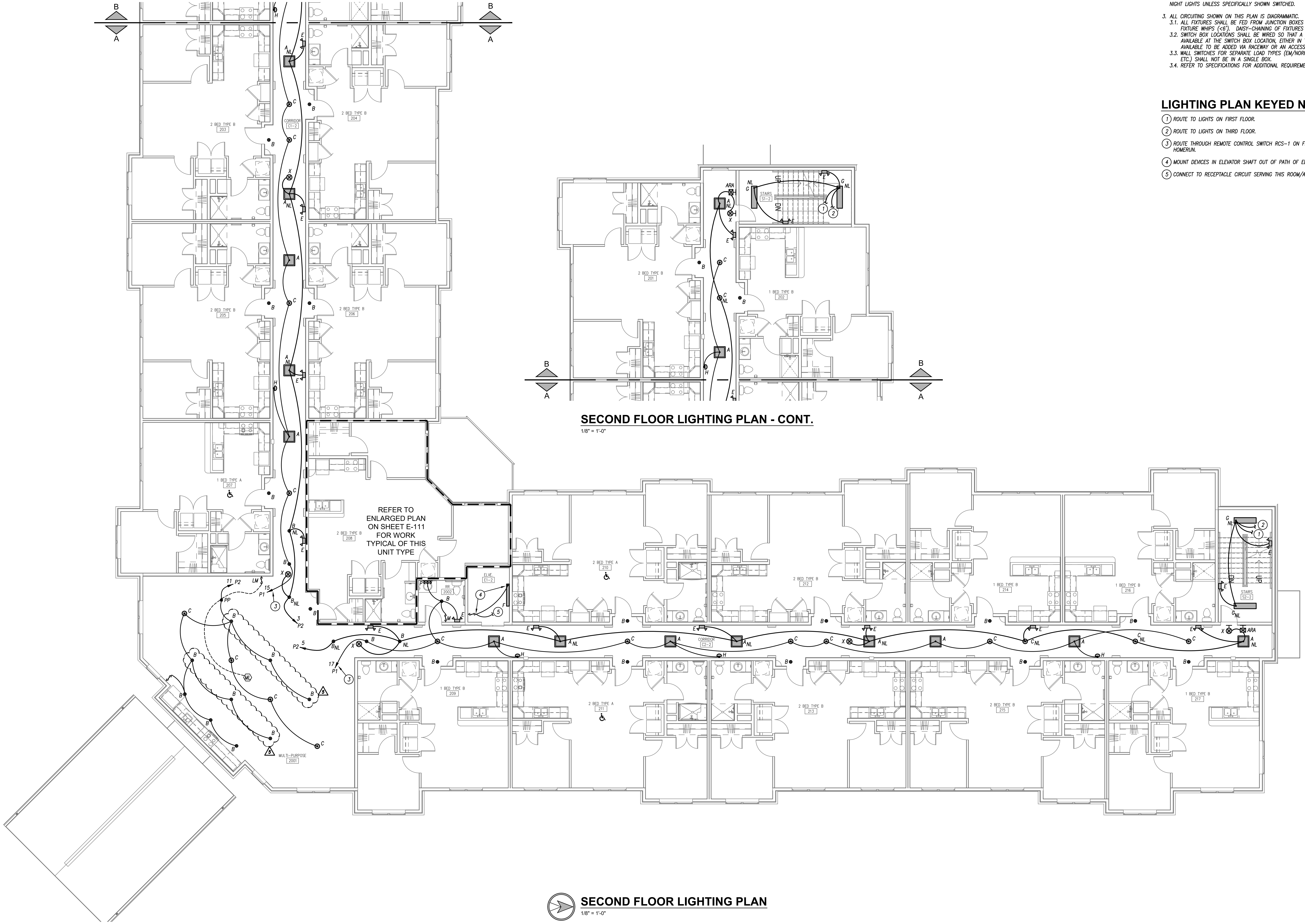
MICHAEL D. RAAF
NUMBER PE-2005028097
10/4/24
Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
FIRST FLOOR LIGHTING PLAN

PROJECT NUMBER: 23.161

SHEET NUMBER:
E101



SECOND FLOOR LIGHTING PLAN - CONT.

1/8" = 1'-0"

SECOND FLOOR LIGHTING PLAN

1/8" = 1'-0"

GENERAL LIGHTING NOTES

1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
2. LIGHT FIXTURES INDICATED AS EMERGENCY FIXTURES ARE TO FUNCTION AS NIGHT LIGHTS UNLESS SPECIFICALLY SHOWN SWITCHED.
3. ALL CIRCUITING SHOWN ON THIS PLAN IS DIAGRAMMATIC.
   - 3.1. ALL FIXTURES SHALL BE FED FROM JUNCTION BOXES WITH LIGHT FIXTURE WHIPS (<6'). DAISY-CHAINING OF FIXTURES IS NOT ALLOWED.
   - 3.2. SWITCH BOX LOCATIONS SHALL BE WIRED SO THAT A NEUTRAL WIRE IS AVAILABLE AT THE SWITCH BOX LOCATION, EITHER IN THE BOX OR AVAILABLE TO BE ADDED VIA RACEWAY OR AN ACCESSIBLE WALL CAVITY.
   - 3.3. WALL SWITCHES FOR SEPARATE LOAD TYPES (EM/NORMAL, 120/277V, ETC.) SHALL NOT BE IN A SINGLE BOX.
   - 3.4. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

LIGHTING PLAN KEYED NOTES

① ROUTE TO LIGHTS ON FIRST FLOOR.

② ROUTE TO LIGHTS ON THIRD FLOOR.

③ ROUTE THROUGH REMOTE CONTROL SWITCH RCS-1 ON FIRST FLOOR, THEN HOMERUN.

④ MOUNT DEVICES IN ELEVATOR SHAFT OUT OF PATH OF ELEVATOR TRAVEL.

⑤ CONNECT TO RECEPTACLE CIRCUIT SERVING THIS ROOM/AREA.

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REVISIONS:
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NUMBER PE-2005028097
10/4/24
Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
SECOND FLOOR LIGHTING PLAN

PROJECT NUMBER: 23.161

SHEET NUMBER:

E102

GENERAL LIGHTING NOTES

1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
2. LIGHT FIXTURES INDICATED AS EMERGENCY FIXTURES ARE TO FUNCTION AS NIGHT LIGHTS UNLESS SPECIFICALLY SHOWN SWITCHED.
3. ALL CIRCUITING SHOWN ON THIS PLAN IS DIAGRAMMATIC.
   - 3.1. ALL FIXTURES SHALL BE FED FROM JUNCTION BOXES WITH LIGHT FIXTURE WHIPS (<6'). DAISY-CHAINING OF FIXTURES IS NOT ALLOWED.
   - 3.2. SWITCH BOX LOCATIONS SHALL BE WIRED SO THAT A NEUTRAL WIRE IS AVAILABLE AT THE SWITCH BOX LOCATION, EITHER IN THE BOX OR AVAILABLE TO BE ADDED VIA RACEWAY OR AN ACCESSIBLE WALL CAVITY.
   - 3.3. WALL SWITCHES FOR SEPARATE LOAD TYPES (EM/NORMAL, 120/277V, ETC.) SHALL NOT BE IN A SINGLE BOX.
   - 3.4. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

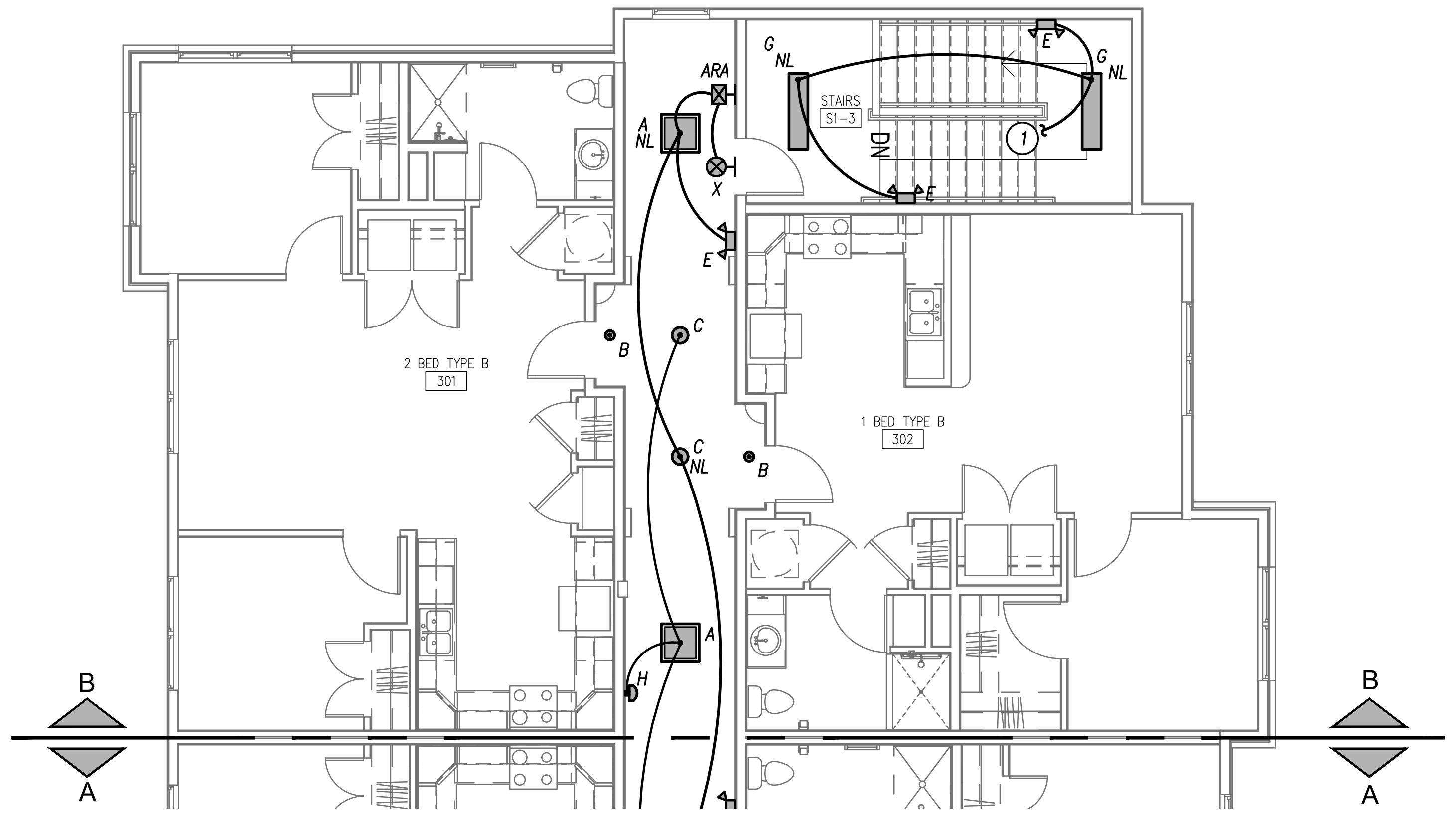
LIGHTING PLAN KEYED NOTES

① ROUTE TO LIGHTS ON SECOND FLOOR.

② ROUTE THROUGH REMOTE CONTROL SWITCH RCS-1 ON FIRST FLOOR, THEN HOMERUN.

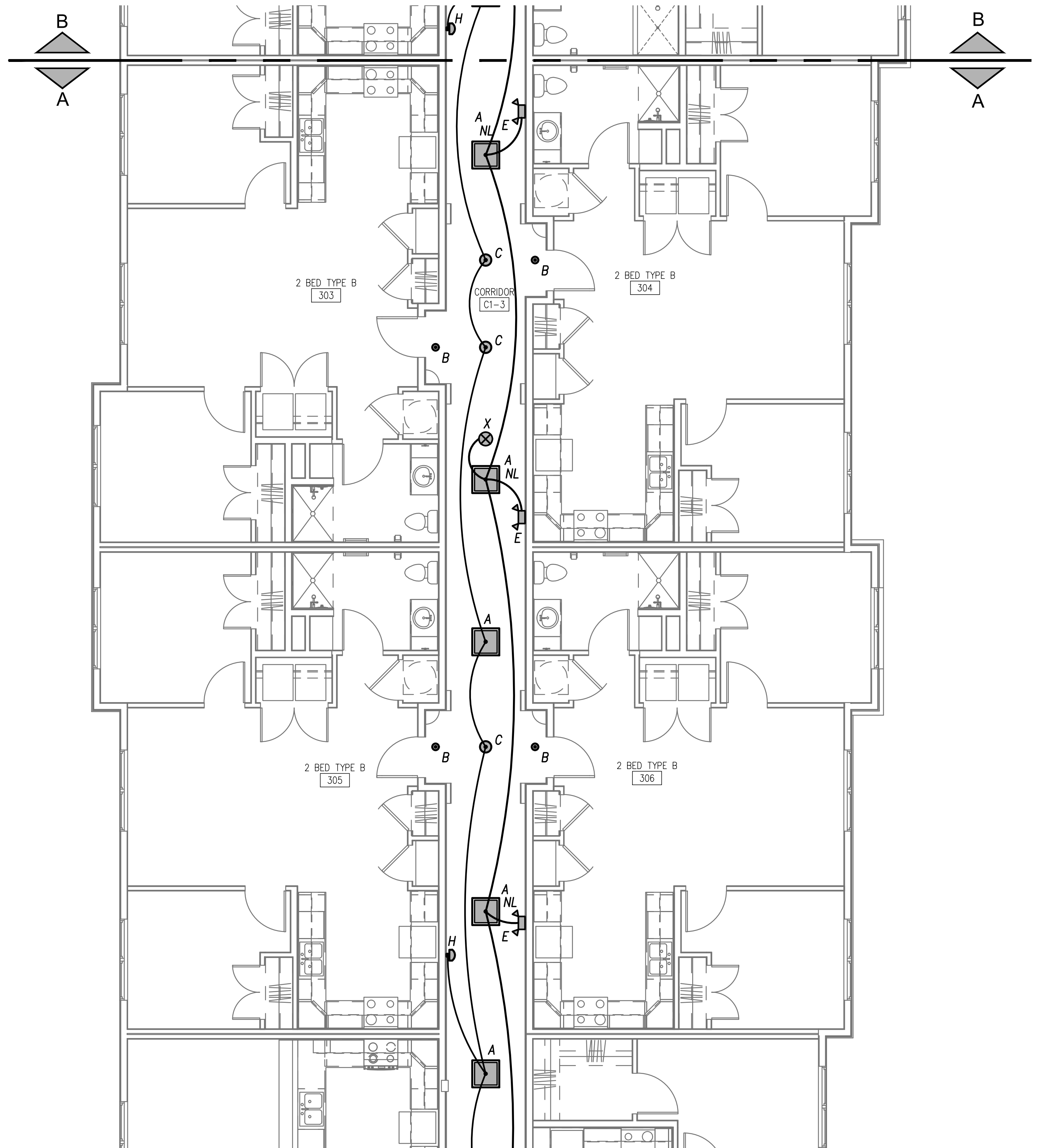
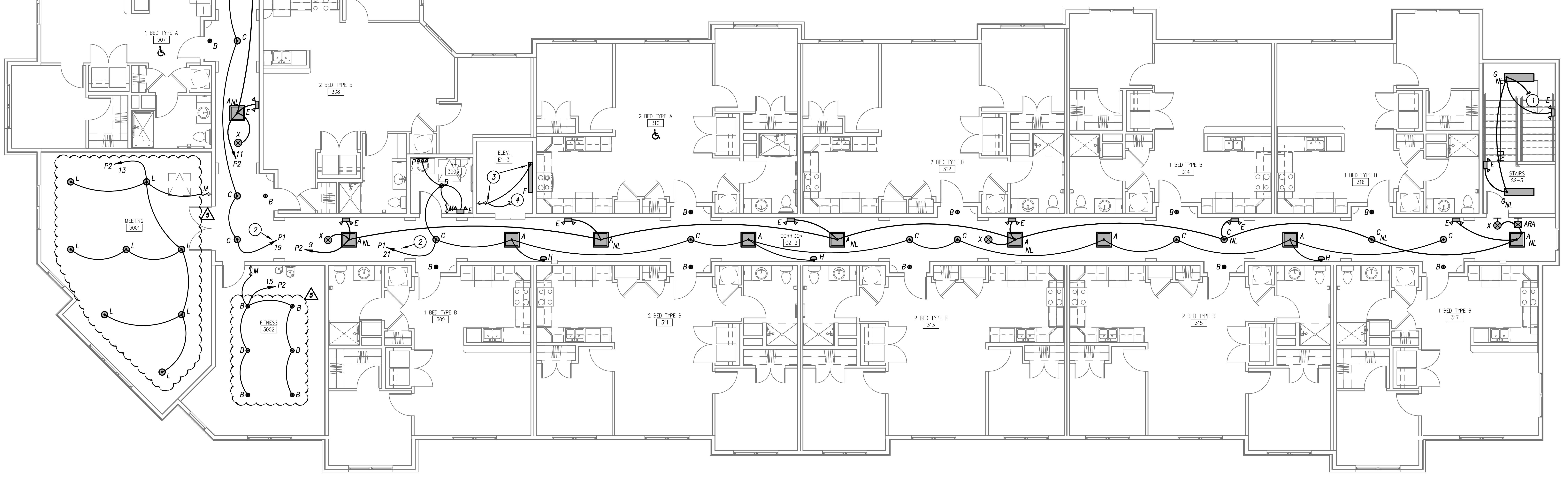
③ MOUNT DEVICES IN ELEVATOR SHAFT OUT OF PATH OF ELEVATOR TRAVEL.

④ CONNECT TO RECEPTACLE CIRCUIT SERVING THIS ROOM/AREA.



THIRD FLOOR LIGHTING PLAN - CONT.

1/8" = 1'-0"

THIRD FLOOR LIGHTING PLAN

1/8" = 1'-0"

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10/4/24
Michael D. Raaf - Engineer
MO# PE-2005028097

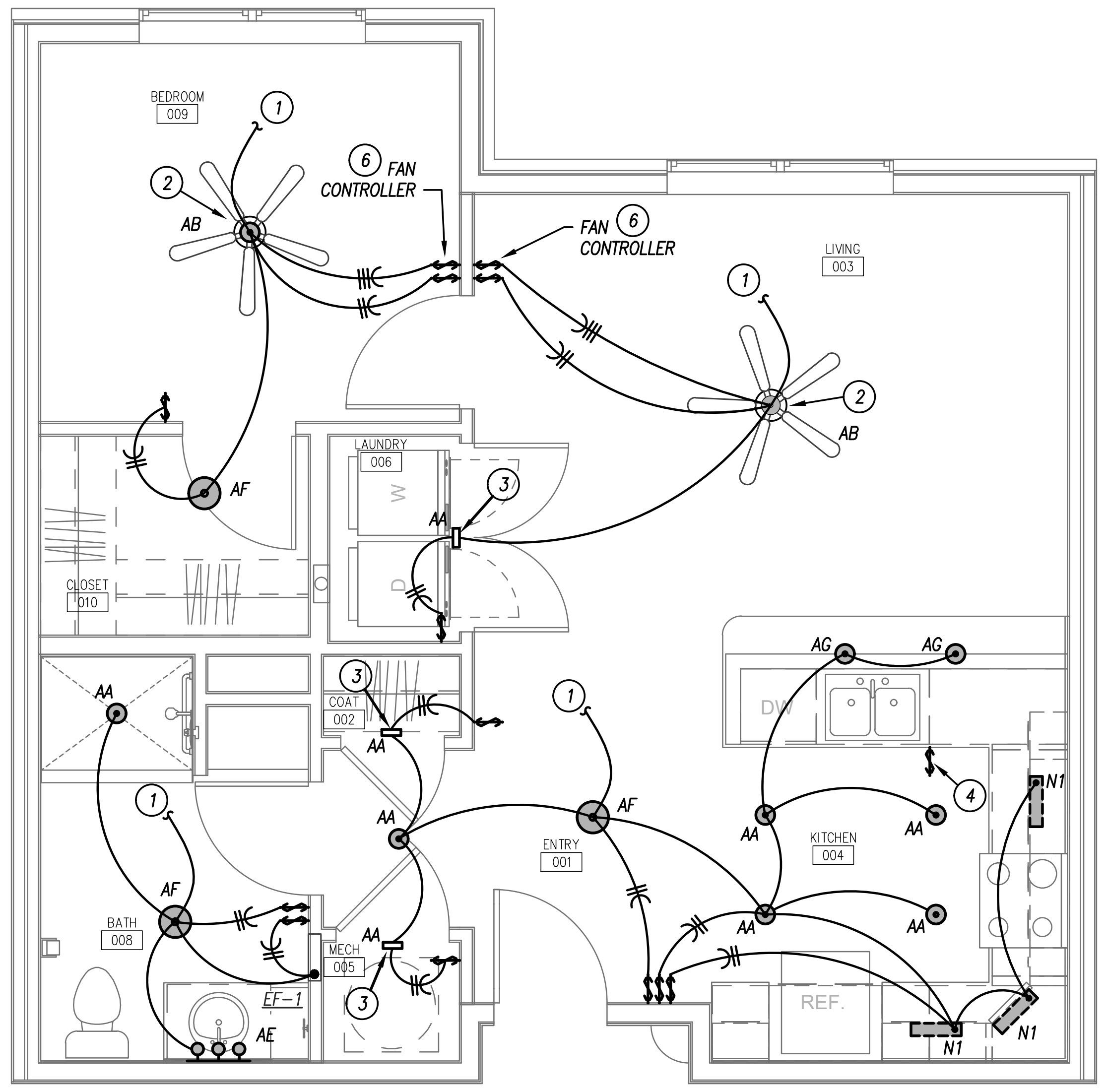
WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
THIRD FLOOR LIGHTING PLAN

PROJECT NUMBER: 23.161

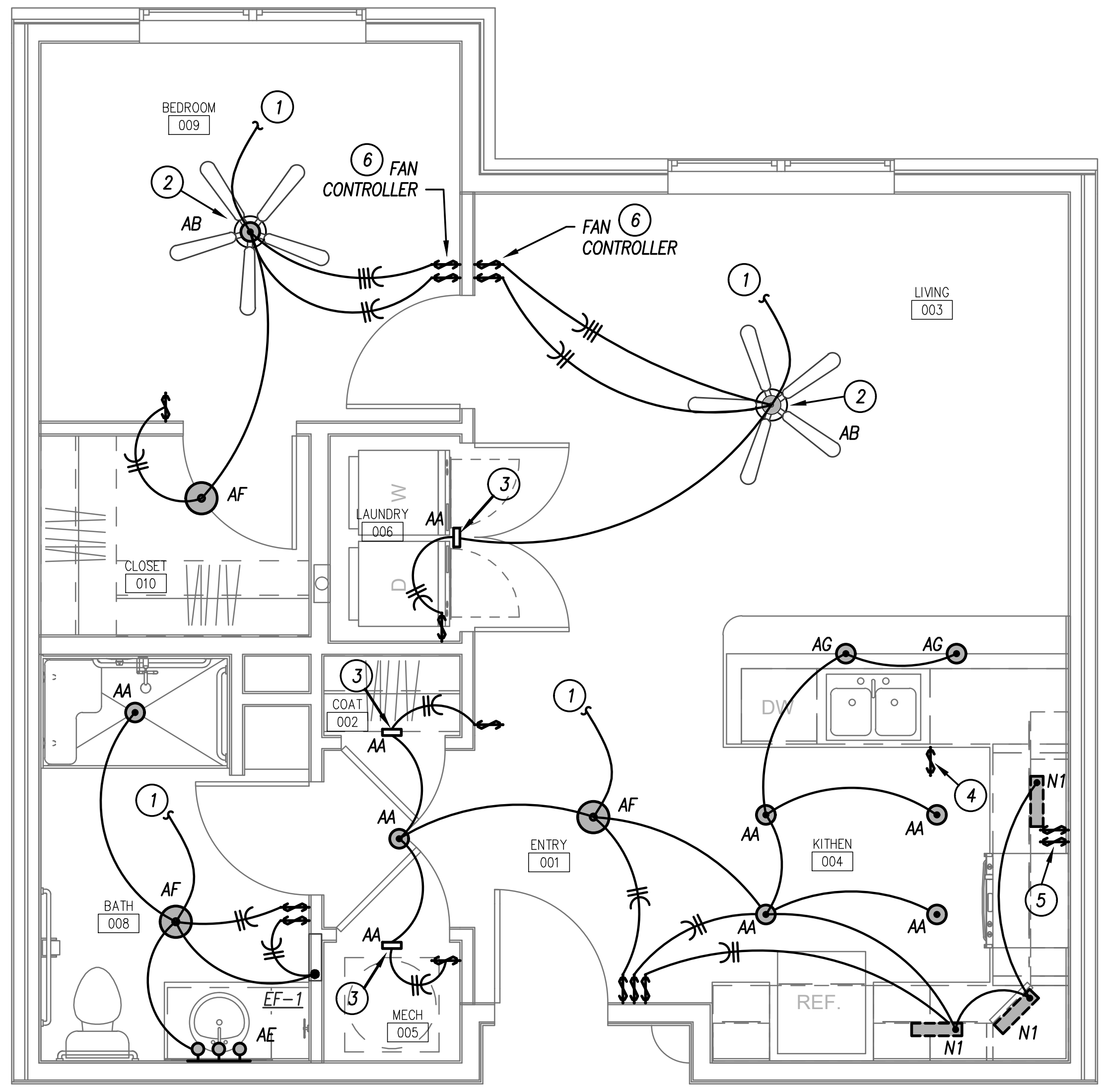
SHEET NUMBER:

E103



TYPE B - ONE BEDROOM
TYPICAL UNIT FLOOR PLAN - LIGHTING

1/4" = 1'-0"



TYPE A - ONE BEDROOM
TYPICAL UNIT FLOOR PLAN - LIGHTING

1/4" = 1'-0"

GENERAL LIGHTING NOTES

1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
2. LIGHT FIXTURES INDICATED AS EMERGENCY FIXTURES ARE TO FUNCTION AS NIGHT LIGHTS UNLESS SPECIFICALLY SHOWN SWITCHED.
3. ALL CIRCUITING SHOWN ON THIS PLAN IS DIAGRAMMATIC.
   - 3.1. ALL FIXTURES SHALL BE FED FROM JUNCTION BOXES WITH LIGHT FIXTURE WHIPS (<6'). DAISY-CHAINING OF FIXTURES IS NOT ALLOWED.
   - 3.2. SWITCH BOX LOCATIONS SHALL BE WIRED SO THAT A NEUTRAL WIRE IS AVAILABLE AT THE SWITCH BOX LOCATION, EITHER IN THE BOX OR AVAILABLE TO BE ADDED VIA RACEWAY OR AN ACCESSIBLE WALL CAVITY.
   - 3.3. WALL SWITCHES FOR SEPARATE LOAD TYPES (EM/NORMAL, 120/277V, ETC.) SHALL NOT BE IN A SINGLE BOX.
   - 3.4. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

LIGHTING PLAN KEYED NOTES

① CONNECT TO CIRCUIT SERVING RECEPTACLES THIS ROOM.

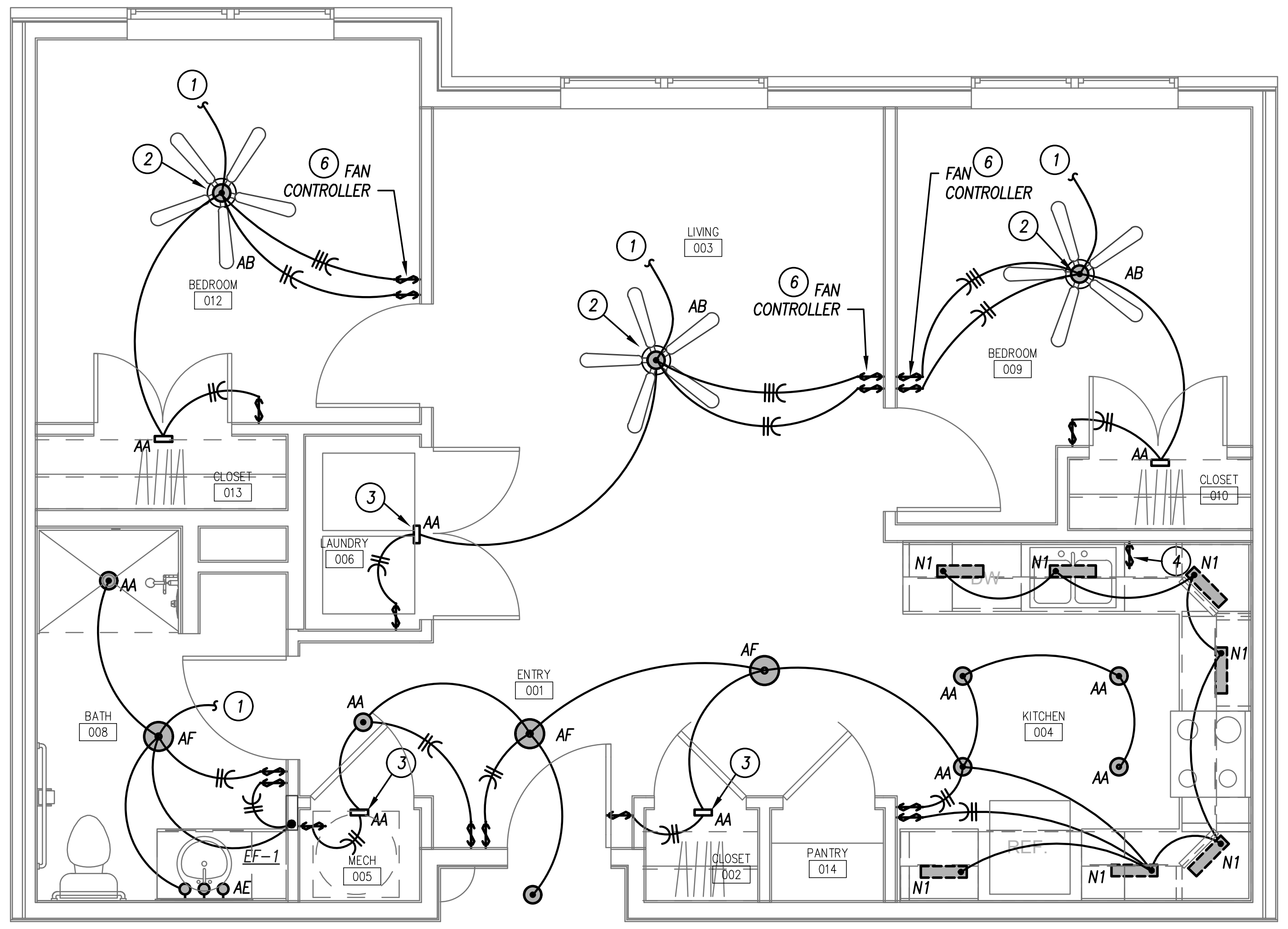
② SWITCH FAN AND LIGHT SEPARATELY.

③ MOUNT FIXTURE VERTICALLY ON WALL ABOVE DOOR.

④ DISPOSAL SWITCH. SEE POWER PLAN.

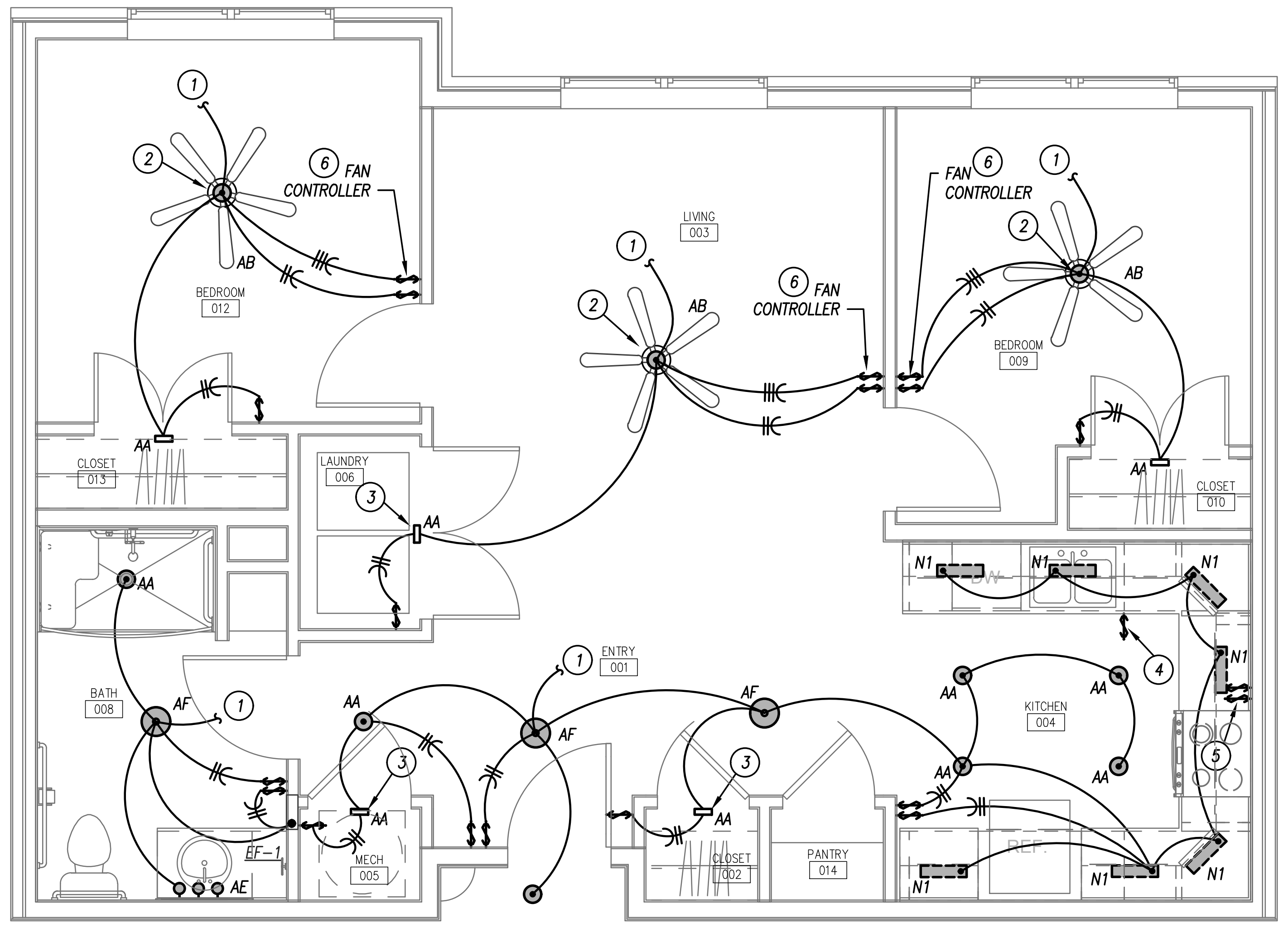
⑤ ACCESSIBLE SWITCHES FOR HOOD FAN AND LIGHT. SEE POWER PLAN.

⑥ PROVIDE 3-SPEED TO OFF FAN SPEED CONTROLLER COMPATIBLE WITH CEILING FAN PROVIDED.



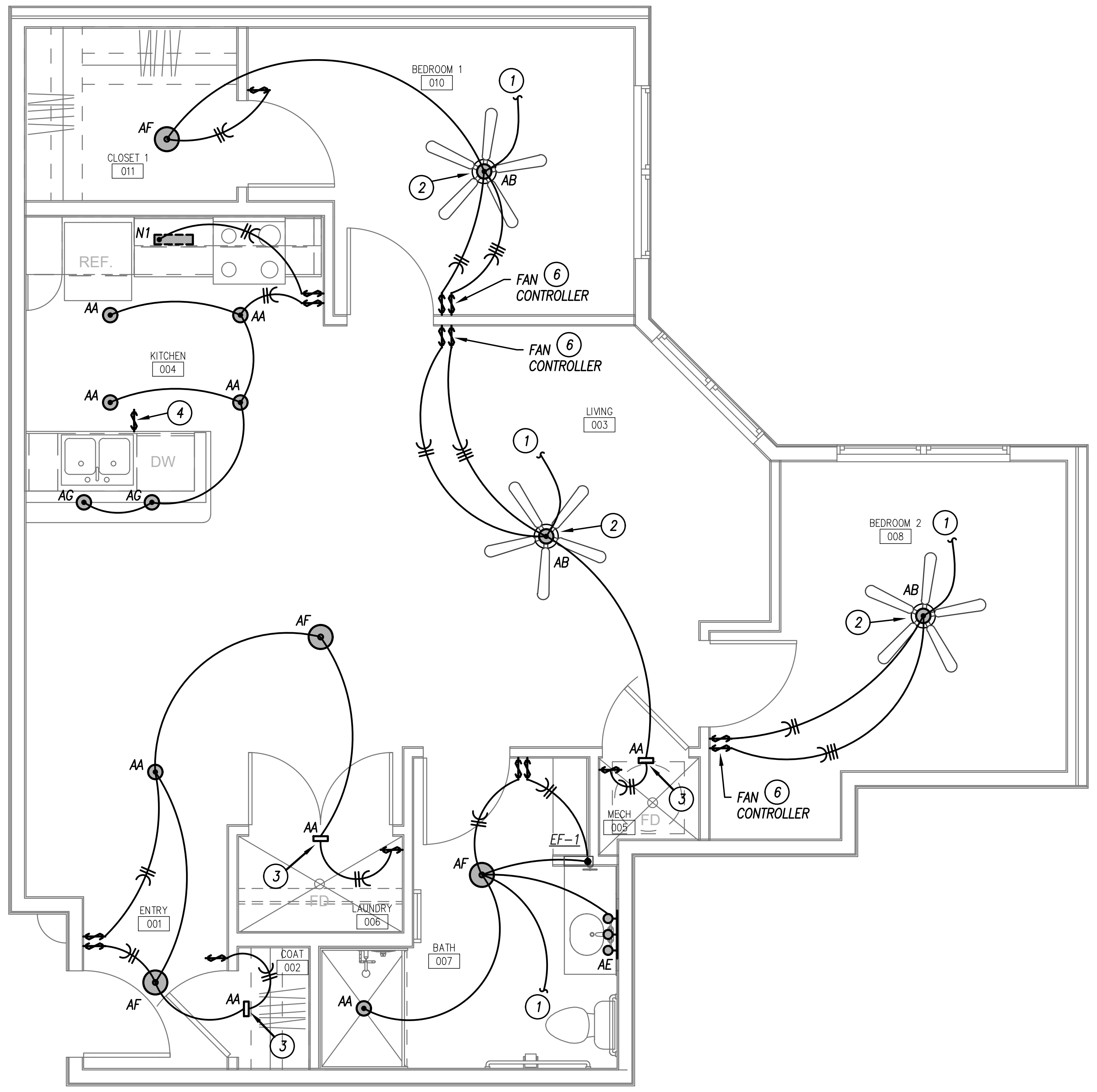
TYPE B - TWO BEDROOM
TYPICAL UNIT FLOOR PLAN - LIGHTINIG

1/4" = 1'-0"



TYPE A - TWO BEDROOM
TYPICAL UNIT FLOOR PLAN - LIGHTING

1/4" = 1'-0"



TYPE B - TWO BEDROOM - (CORNER)
TYPICAL UNIT FLOOR PLAN - LIGHTING

1/4" = 1'-0"

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NUMBER PE-2005028097
10/30/23
Michael D. Raaf - Engineer
MO# PE-2005028097

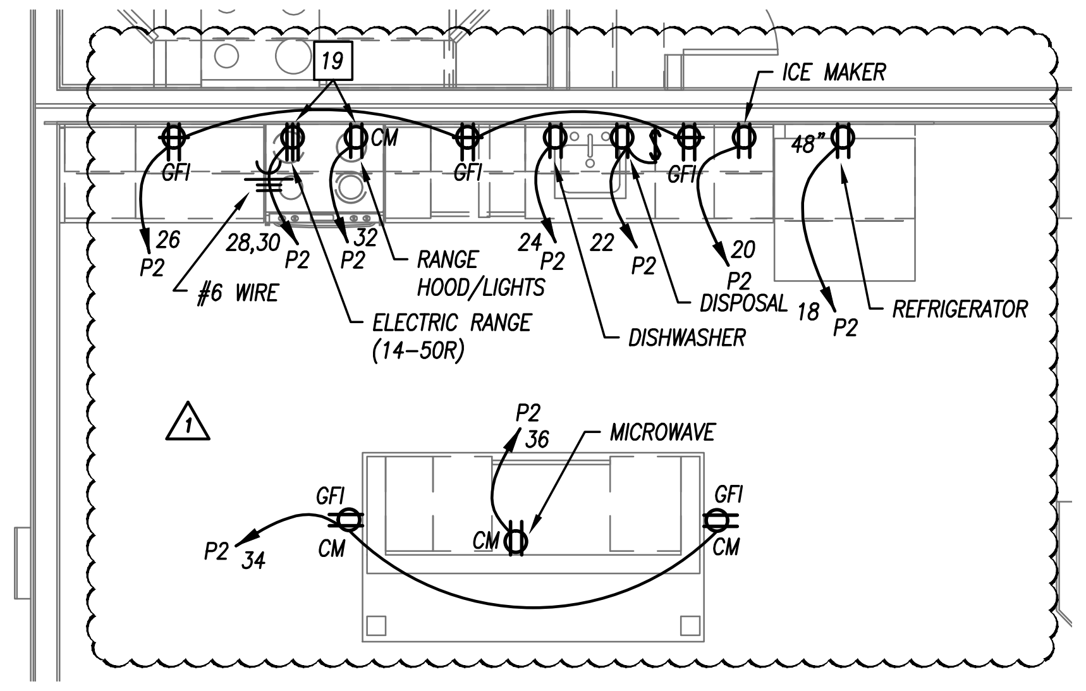
WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
ENLARGED UNIT PLANS - LIGHTING

PROJECT NUMBER: 23.161

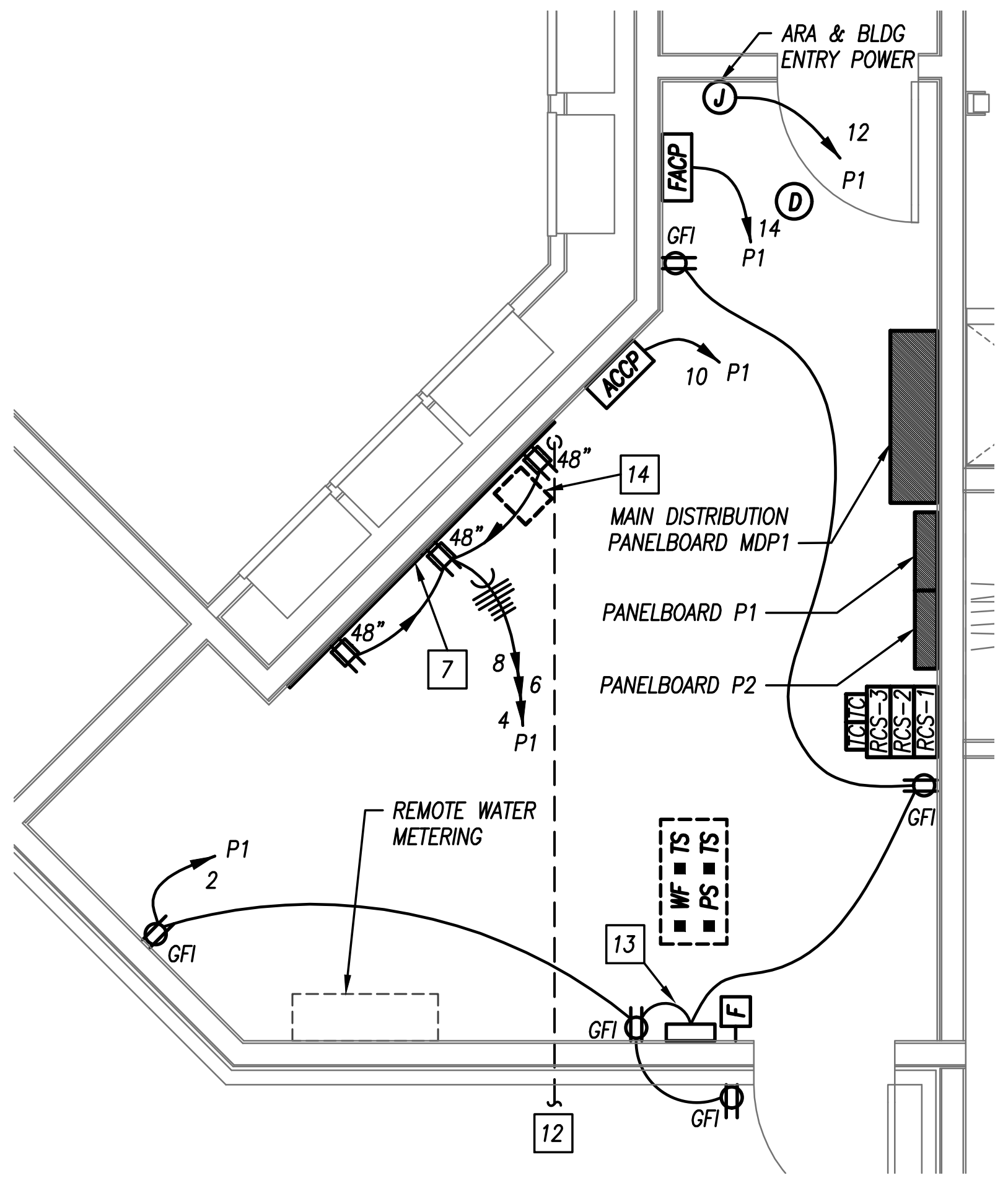
SHEET NUMBER:

E111



COMMUNITY KITCHEN - ENLARGED PLAN

1/4" = 1'-0"



SPRINKLER ROOM - ENLARGED PLAN

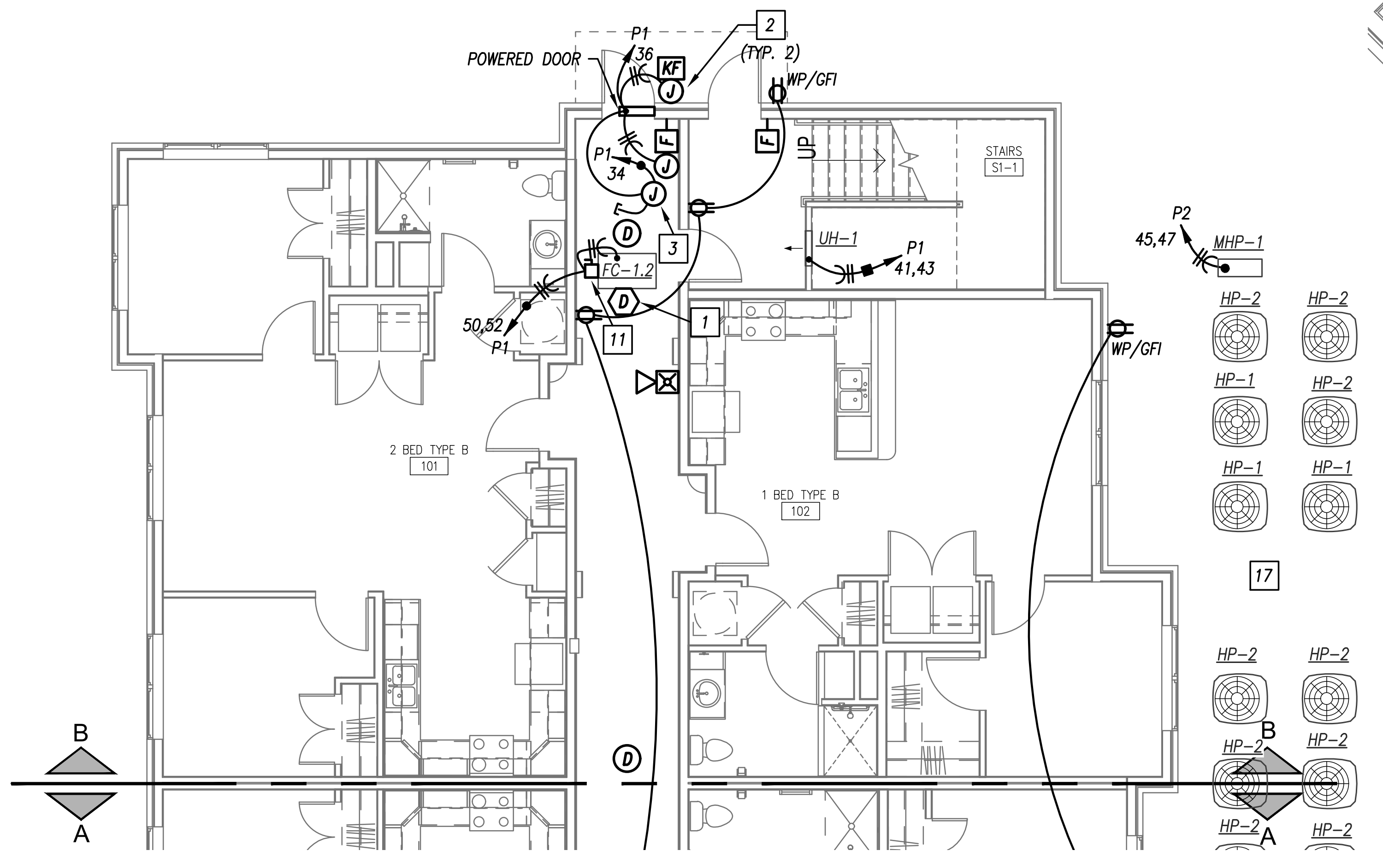
1/4" = 1'-0"

ELEVATOR RECALL AND SHUTDOWN

THE SEQUENCE OF OPERATION FOR ELEVATOR RECALL AND SHUTDOWN SHALL BE AS FOLLOWS:

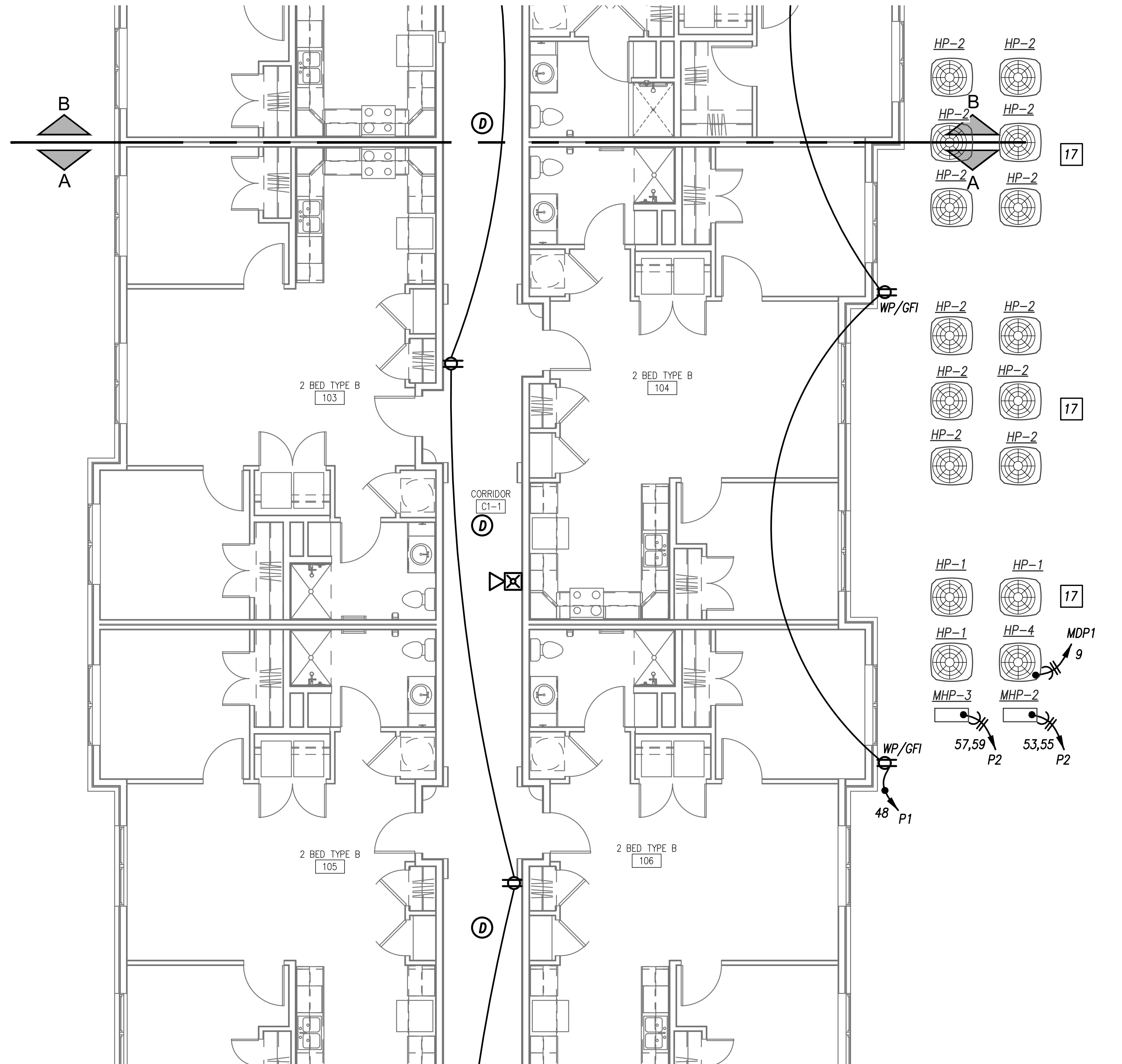
THE ACTIVATION OF SMOKE DETECTORS WITH THE ELEVATOR EQUIPMENT ROOM, ELEVATOR SHAFT OR THE ELEVATOR LOBBIES SHALL INITIATE ELEVATOR RECALL.

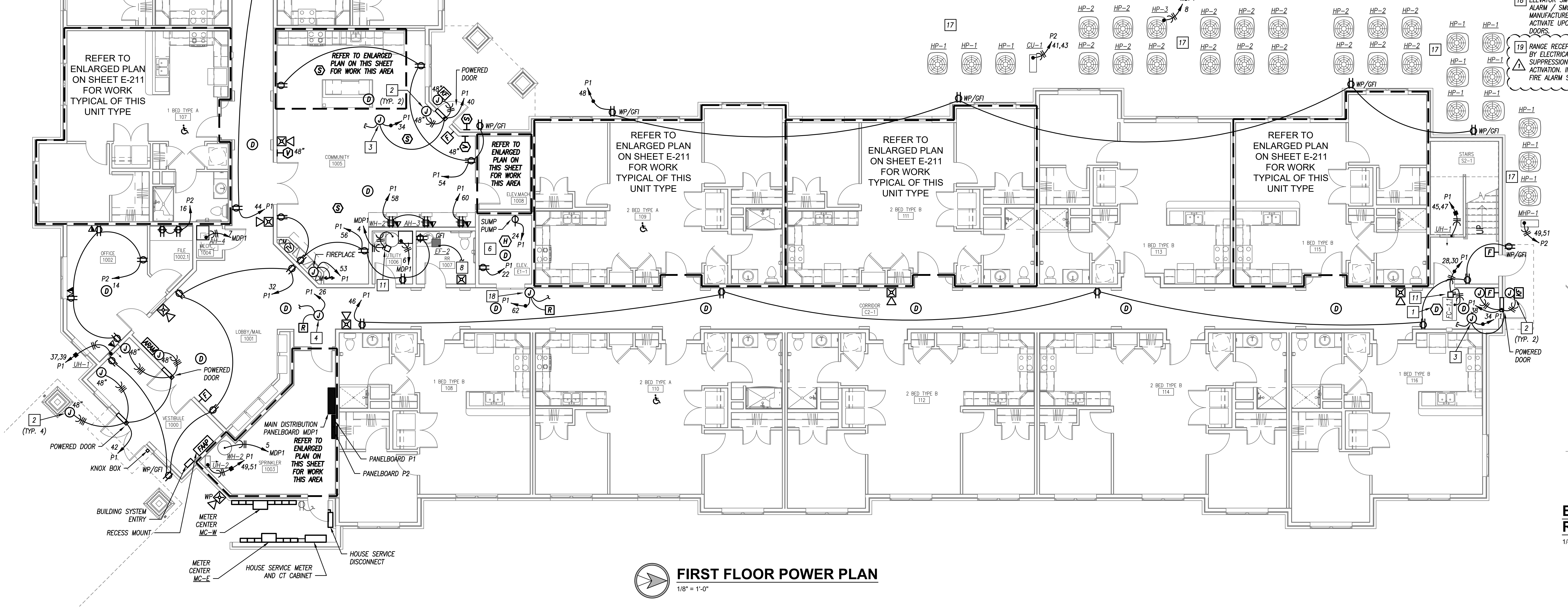
THE ACTIVATION OF THE HEAT DETECTOR WITHIN THE ELEVATOR EQUIPMENT ROOM OR SHAFT SHALL SIGNAL THE SHUNT TRIP CIRCUIT BREAKERS SERVING THE ELEVATOR TO OPEN. THE CONTRACTOR SHALL FURNISH AND INSTALL ANY RELAYS AND ASSOCIATED CONDUIT AND WIRE AS REQUIRED TO ACTIVATE THE COIL IN THE SHUNT TRIP CIRCUIT BREAKER SERVING THE ELEVATOR CONTROLLER.



FIST FLOOR POWER PLAN - CONT.

1/8" = 1'-0"





FIRST FLOOR POWER PLAN

1/8" = 1'-0"

GENERAL POWER NOTES

1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
2. COORDINATE EXACT NEMA CONFIGURATIONS OF RECEPTACLES SERVING EQUIPMENT WITH EXACT EQUIPMENT BEING FURNISHED.
3. EXACT MECHANICAL EQUIPMENT LOCATIONS MAY NOT BE SHOWN FOR CLARITY. COORDINATE EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT, DUCT DETECTORS, ETC. WITH MECHANICAL DRAWINGS AND CONTRACTOR.
4. COORDINATE EXACT LOCATIONS OF SMOKE DETECTORS WITH CEILING FANS, HVAC DIFFUSERS, SPRINKLER HEADS, ETC. PER NFPA REQUIREMENTS.
5. REFER TO SHEETS G-300 AND G-301 FOR MOUNTING HEIGHTS OF DEVICES AND CONTROLS.

POWER PLAN KEYED NOTES

1 MOUNT DUCT DETECTOR IN RETURN AIR DUCTWORK. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR. REFER TO DETAIL ON SHEET E402 FOR WIRING.

2 ROUGH-IN FOR POWERED DOOR PUSHBUTTON PER MANUFACTURER'S RECOMMENDATIONS. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION.

3 PROVIDE JUNCTION BOXES AND CONDUIT AT ±42" A.F.F. FOR KEY FOB AND 80" A.F.F. FOR DOOR LOCK/ACCESS CONTROL WIRING. REFER TO DETAIL ON SHEET E-502.

4 WIRE TO FIRE/SMOKE DAMPERS THIS FLOOR. REFER TO MECHANICAL PLANS FOR LOCATIONS AND NUMBERS OF FIRE/SMOKE DAMPERS.

5 TELEPHONE CONNECTION TO THE ELEVATOR CONTROLLER. COORDINATE WITH THE ELEVATOR MANUFACTURER.

6 INSTALL DEVICES IN ELEVATOR PIT BELOW ELEVATOR TRAVEL. LIGHT SWITCH TO BE INSTALLED 48" A.F.F. AT LOWEST LANDING.

7 4'x8'x3/4" FIRE-RATED PLYWOOD TELECOMMUNICATIONS BACKBOARD. MOUNT AT 6" A.F.F.

8 WIRE TO AND SWITCH WITH LIGHT FIXTURE(S) THIS ROOM/AREA.

9 400 AMP RATED BUSSMAN QUIK-SPEC ELEVATOR POWER MODULE DISCONNECT, FUSED AT 250 AMP. POWER MODULE INCLUDES SHUNT TRIP RELAYS AND FIRE ALARM RELAYS FOR INTEGRATION INTO FIRE ALARM SYSTEM. COORDINATE WITH ELEVATOR MANUFACTURER. COORDINATE EXACT WIRE SIZE, SWITCH SIZE, AND FUSE SIZE WITH ELEVATOR MANUFACTURER SHOP DRAWINGS PRIOR TO WORK.

10 SPST 30A DISCONNECT SWITCH FUSED AT 20A, ARRANGED TO BE LOCKED IN THE OPEN POSITION FOR ELEVATOR LIGHTS, RECEPTACLE, AUXILIARY LIGHTING POWER SURFACE AND VENTILATION. MAKE ALL CONNECTIONS FOR A COMPLETE WORKING SYSTEM.

11 30 AMP, 2-POLE, NON-FUSED, HEAVY DUTY DISCONNECT SWITCH IN NEMA 1 ENCLOSURE. MOUNT AT UNIT WITH SUITABLE STEEL SUPPORTS.

12 TWO (2) 4" CONDUITS WITH PULLSTRINGS FOR COMMUNICATIONS CABLING. STUB UP AT TELEPHONE BACKBOARD LOCATION AND FURNISH CONDUIT WITH BUSHED ENDS. EXTEND OUTSIDE BUILDING TO PROPERTY LINE AS DIRECTED BY SERVICE PROVIDER(S).

13 IRRIGATION SYSTEM CONTROLLER. COORDINATE MOUNTING LOCATION WITH SYSTEM PROVIDER.

14 TELECOMMUNICATION AND SPEAKER SYSTEM HEADEND EQUIPMENT RACK.

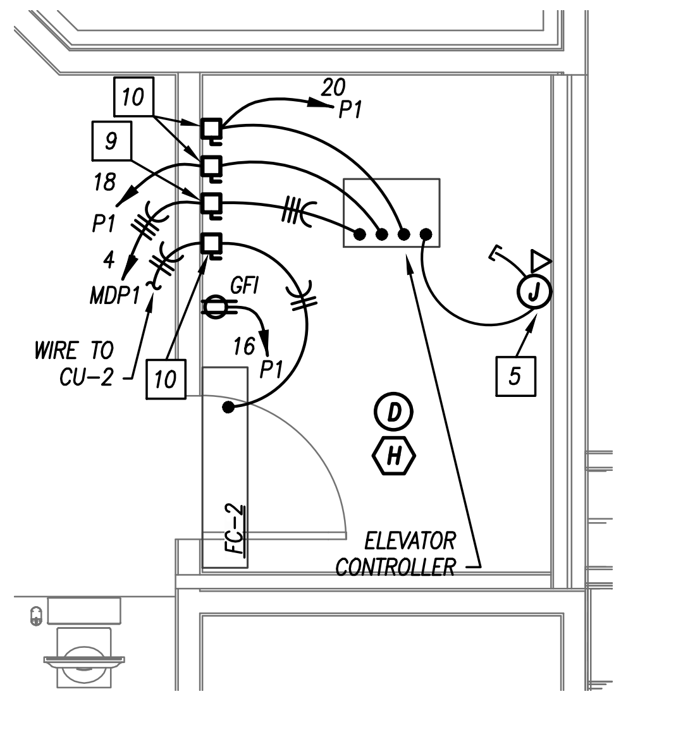
15 WIRE TO LIGHT FIXTURE(S) THIS ROOM/AREA. REFER TO EXHAUST FAN SCHEDULE FOR CONTROL.

16 30 AMP, 1-POLE DISCONNECT SWITCH IN NEMA 1 ENCLOSURE. FUSE WITH 20 AMP FUSES.

17 REFER TO DETAIL ON SHEET E202 FOR HEAT PUMP AND CONDENSING UNIT WIRING.

18 ELEVATOR SMOKE CURTAIN. MAKE ALL POWER CONNECTIONS AND FIRE ALARM / SMOKE DETECTOR CONNECTIONS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. ALL SMOKE CURTAINS TO ACTIVATE UPON INITIATION OF ANY SMOKE DETECTOR NEAREST TO ELEVATOR DOORS.

19 △1 RANGE RECEPTACLE PROVIDED WITH FIRE SUPPRESSION SYSTEM, INSTALLED BY ELECTRICAL CONTRACTOR. MAKE ALL CONNECTIONS TO FIRE SUPPRESSION SYSTEM FOR AUTOMATIC SHUTOFF OF RANGE UPON SYSTEM ACTIVATION. INTERFACE FIRE SUPPRESSION SYSTEM STATUS WITH BUILDING FIRE ALARM SYSTEM FOR MONITORING.



ELEVATOR EQUIPMENT ROOM - ENLARGED PLAN

1/4" = 1'-0"

PRINTS ISSUED

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REVISIONS:

△1 12/15/2023 - CITY COMMENTS

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NUMBER PE-2005028097
12/15/23

Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III

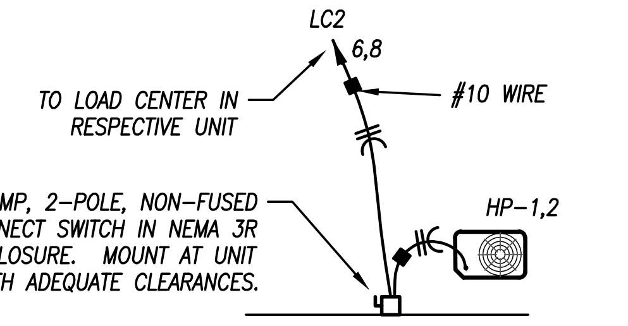
LEE'S SUMMIT, MISSOURI

SHEET TITLE
FIRST FLOOR POWER PLAN

PROJECT NUMBER: 23.161

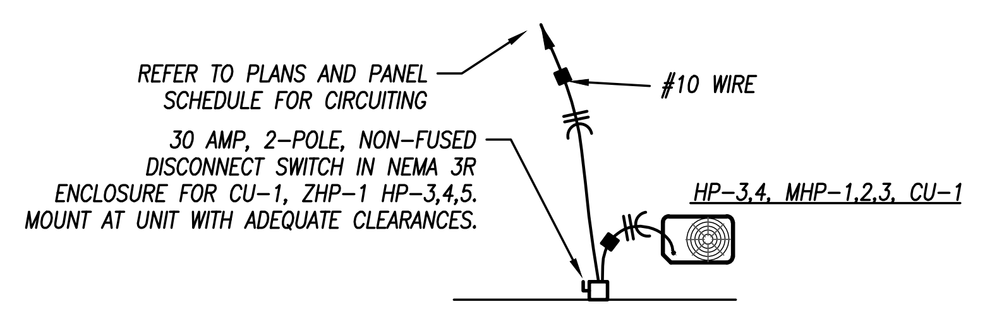
SHEET NUMBER:

E201


LC2
6,8
TO LOAD CENTER IN RESPECTIVE UNIT
#10 WIRE
30 AMP, 2-POLE, NON-FUSED DISCONNECT SWITCH IN NEMA 3R ENCLOSURE. MOUNT AT UNIT WITH ADEQUATE CLEARANCES.
HP-1,2

HEAT PUMP WIRING DIAGRAM TYPICAL FOR DWELLING UNITS ONLY

NOT TO SCALE


REFER TO PLANS AND PANEL SCHEDULE FOR CIRCUITING
#10 WIRE
30 AMP, 2-POLE, NON-FUSED DISCONNECT SWITCH IN NEMA 3R ENCLOSURE FOR CU-1, ZHP-1 HP-3,4,5. MOUNT AT UNIT WITH ADEQUATE CLEARANCES.
HP-3,4, MHP-1,2,3, CU-1

HEAT PUMP WIRING DIAGRAM TYPICAL FOR COMMON AREA UNITS

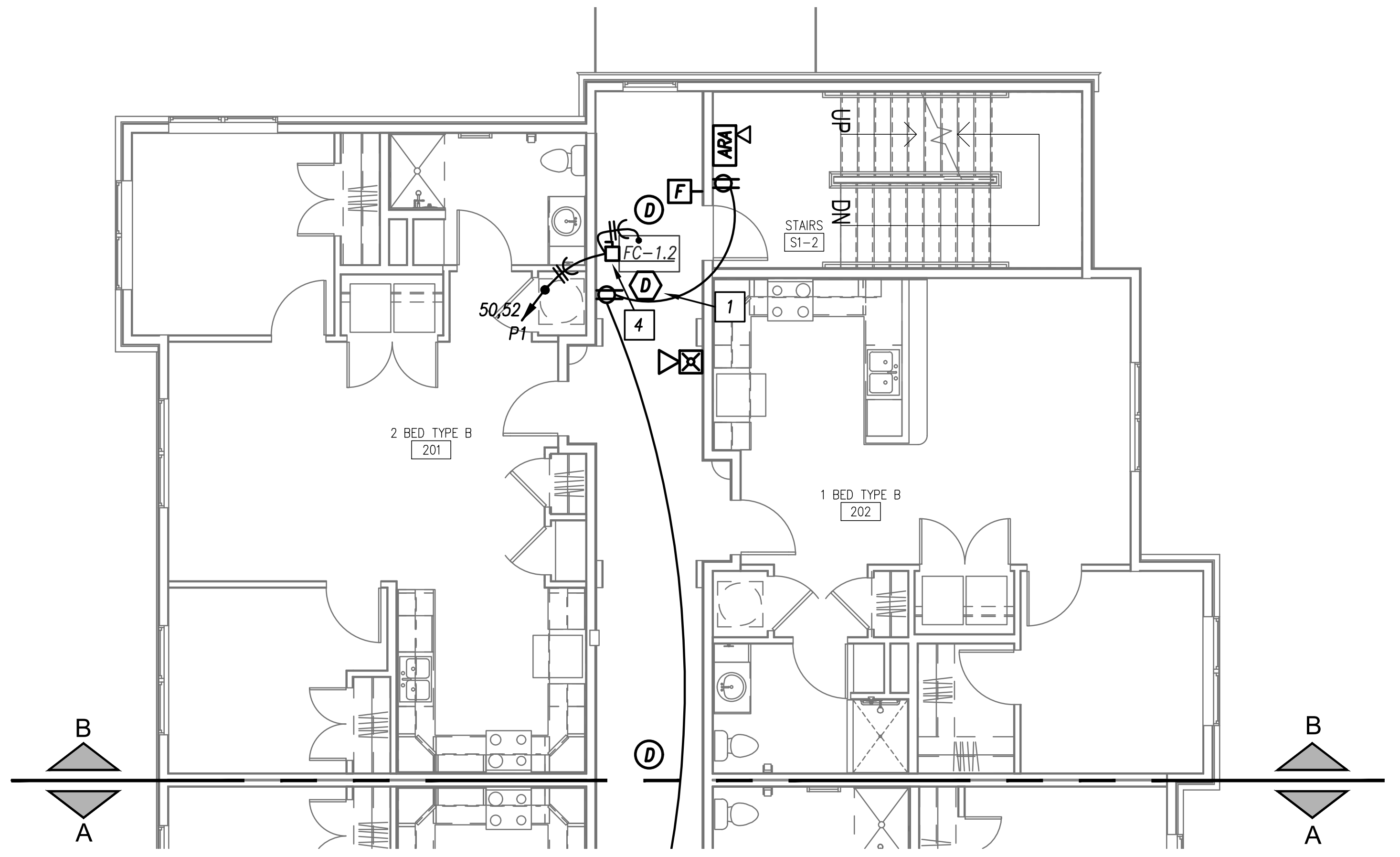
NOT TO SCALE

GENERAL POWER NOTES

1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
2. COORDINATE EXACT NEMA CONFIGURATIONS OF RECEPTACLES SERVING EQUIPMENT WITH EXACT EQUIPMENT BEING FURNISHED.
3. EXACT MECHANICAL EQUIPMENT LOCATIONS MAY NOT BE SHOWN FOR CLARITY. COORDINATE EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT, DUCT DETECTORS, ETC. WITH MECHANICAL DRAWINGS AND CONTRACTOR.
4. COORDINATE EXACT LOCATIONS OF SMOKE DETECTORS WITH CEILING FANS, HVAC DIFFUSERS, SPRINKLER HEADS, ETC. PER NFPA REQUIREMENTS.

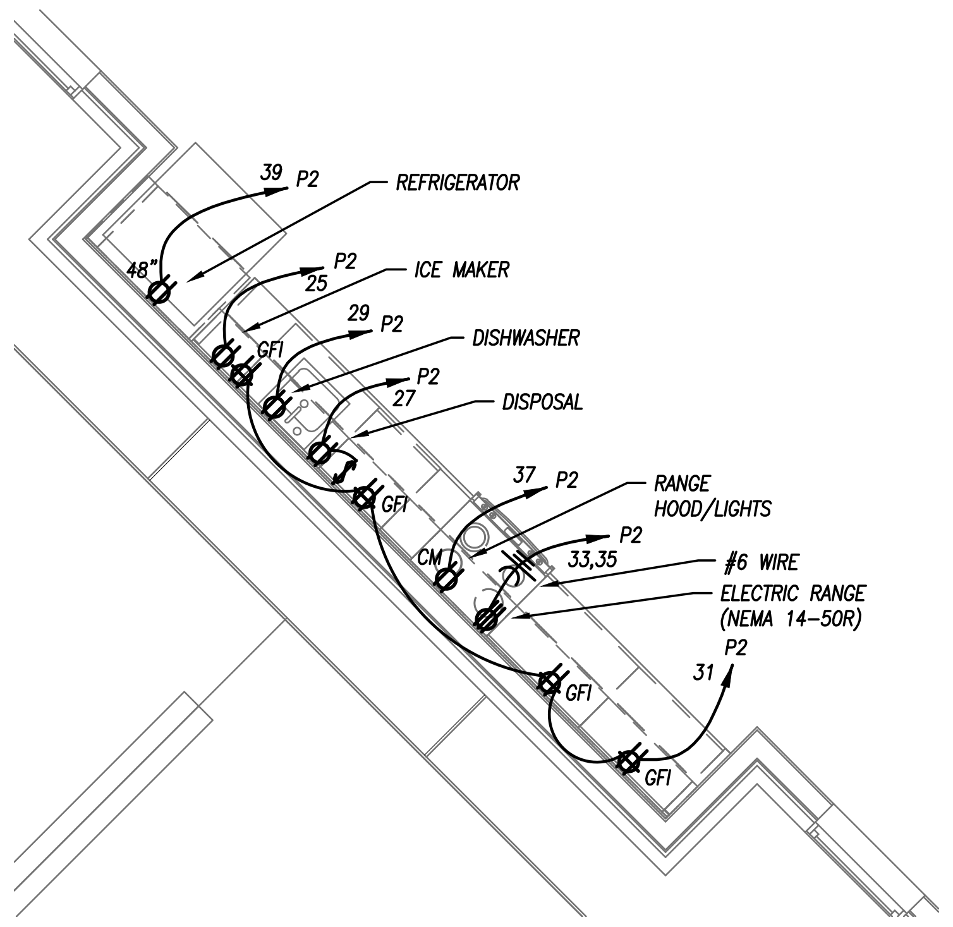
POWER PLAN KEYED NOTES

1	MOUNT DUCT DETECTOR IN RETURN AIR DUCTWORK. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR. REFER TO DETAIL ON SHEET E402 FOR WIRING.
2	WIRE TO FIRE/SMOKE DAMPERS THIS FLOOR. REFER TO MECHANICAL PLANS FOR LOCATIONS AND NUMBERS OF FIRE/SMOKE DAMPERS.
3	WIRE TO AND SWITCH WITH LIGHT FIXTURE(S) THIS ROOM/AREA.
4	30 AMP, 2-POLE, NON-FUSED, HEAVY DUTY DISCONNECT SWITCH IN NEMA 1 ENCLOSURE. MOUNT AT UNIT WITH SUITABLE STEEL SUPPORTS.
5	MOUNT DEVICES IN HOISTWAY ABOVE PATH OF ELEVATOR TRAVEL.
6	(2)#6 WIRE AND (1)#10 GROUND IN 3/4" CONDUIT.
7	ELEVATOR SMOKE CURTAIN. MAKE ALL POWER CONNECTIONS AND FIRE ALARM / SMOKE DETECTOR CONNECTIONS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. ALL SMOKE CURTAINS TO ACTIVATE UPON INITIATION OF ANY SMOKE DETECTOR NEAREST TO ELEVATOR DOORS.



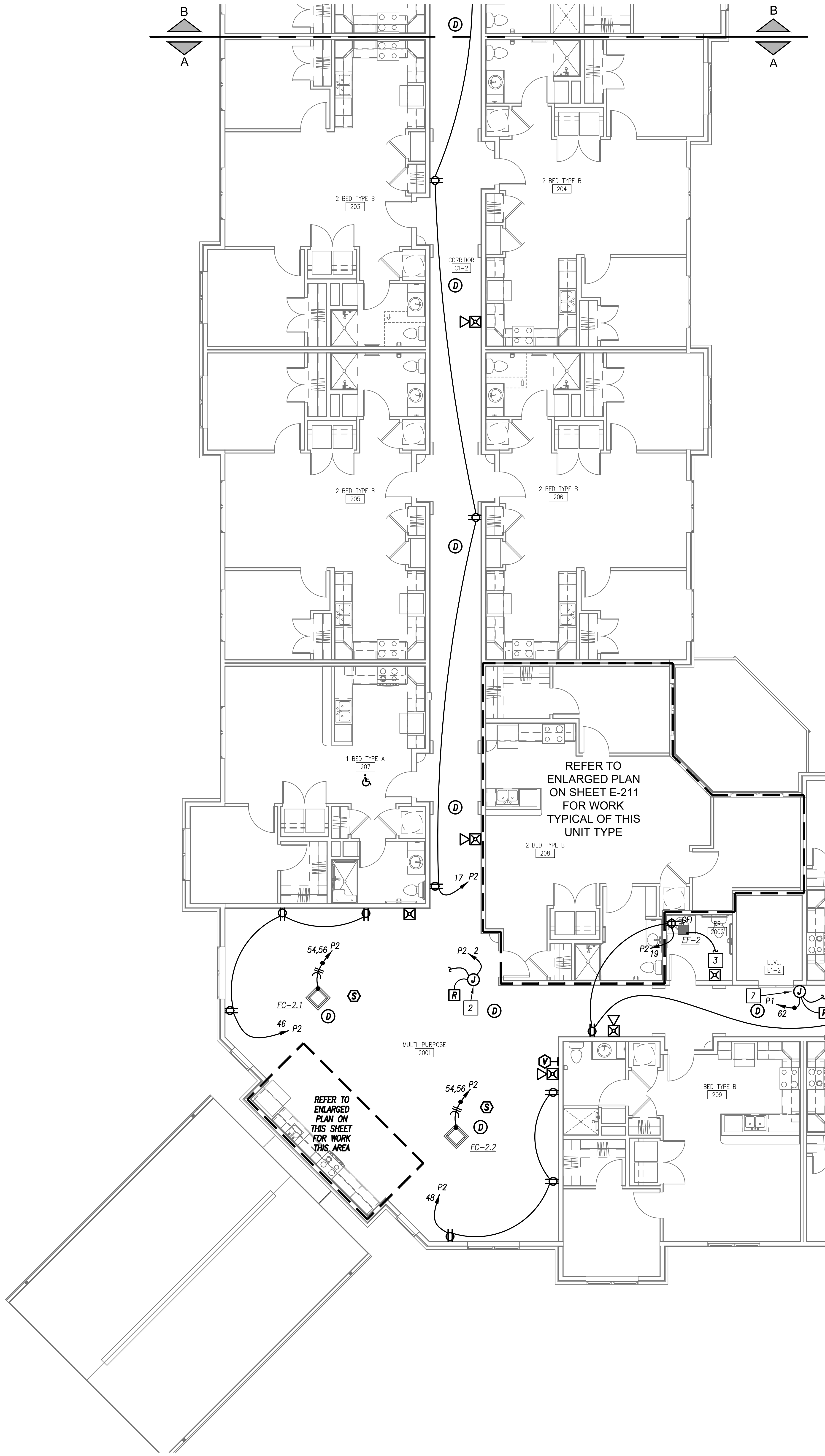
SECOND FLOOR POWER PLAN - CONT.

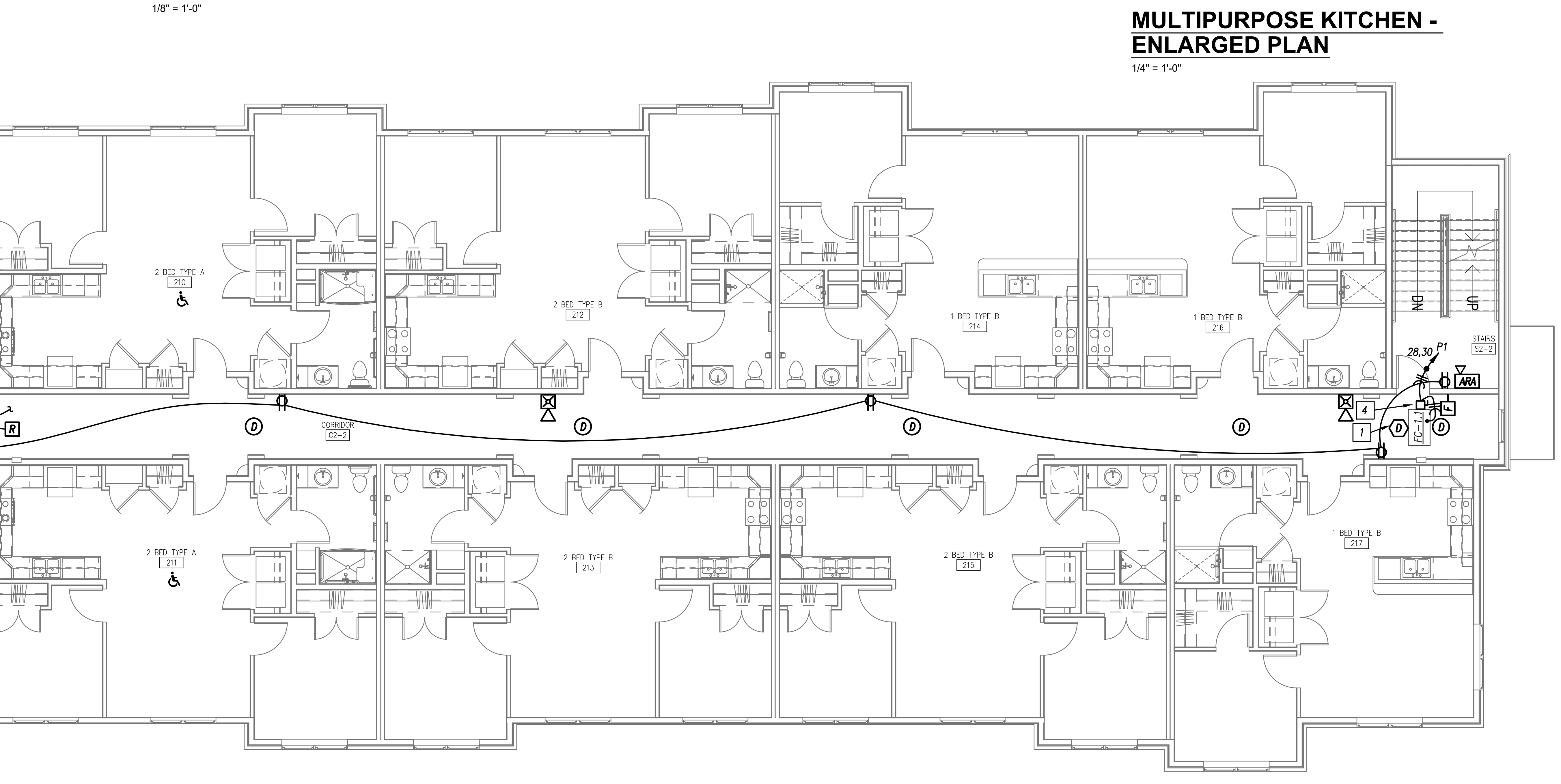
1/8" = 1'-0"



MULTIPURPOSE KITCHEN - ENLARGED PLAN

1/4" = 1'-0"





SECOND FLOOR POWER PLAN

1/8" = 1'-0"

PRINTS ISSUED
10/30/2023 - PERMIT SUBMITTAL

REVISIONS:

23.161

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MICHAEL D. RAAF
NUMBER
PE-2005028097
10/30/23
Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III

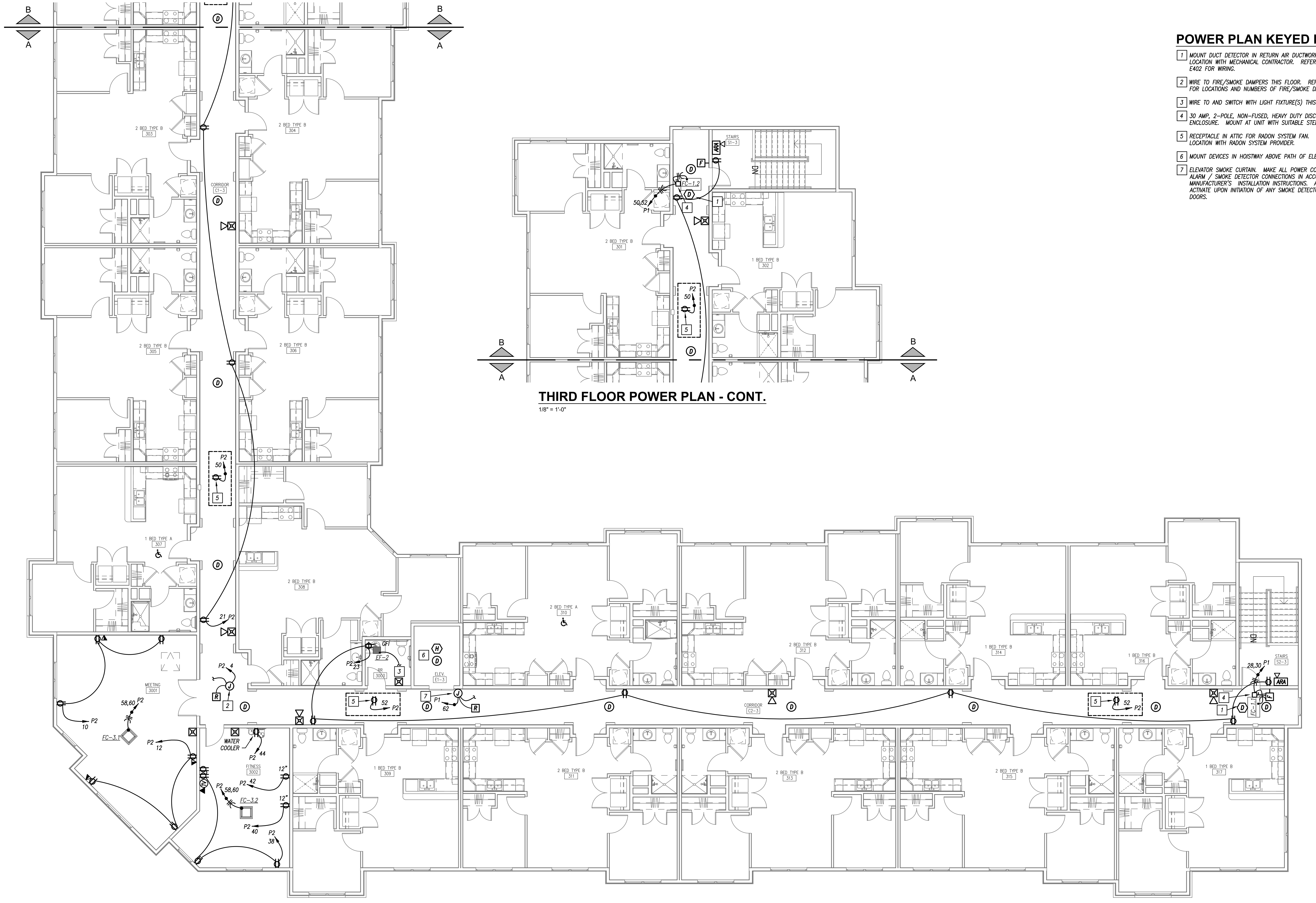
LEE'S SUMMIT, MISSOURI

SHEET TITLE
SECOND FLOOR POWER PLAN

PROJECT NUMBER: 23.161

SHEET NUMBER:

E202



THIRD FLOOR POWER PLAN - CONT.

1/8" = 1'-0"

THIRD FLOOR POWER PLAN

1/8" = 1'-0"

GENERAL POWER NOTES

1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
2. COORDINATE EXACT NEMA CONFIGURATIONS OF RECEPTACLES SERVING EQUIPMENT WITH EXACT EQUIPMENT BEING FURNISHED.
3. EXACT MECHANICAL EQUIPMENT LOCATIONS MAY NOT BE SHOWN FOR CLARITY. COORDINATE EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT, DUCT DETECTORS, ETC. WITH MECHANICAL DRAWINGS AND CONTRACTOR.
4. COORDINATE EXACT LOCATIONS OF SMOKE DETECTORS WITH CEILING FANS, HVAC DIFFUSERS, SPRINKLER HEADS, ETC. PER NFPA REQUIREMENTS.

POWER PLAN KEYED NOTES

1 MOUNT DUCT DETECTOR IN RETURN AIR DUCTWORK. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR. REFER TO DETAIL ON SHEET E402 FOR WIRING.

2 WIRE TO FIRE/SMOKE DAMPERS THIS FLOOR. REFER TO MECHANICAL PLANS FOR LOCATIONS AND NUMBERS OF FIRE/SMOKE DAMPERS.

3 WIRE TO AND SWITCH WITH LIGHT FIXTURE(S) THIS ROOM/AREA.

4 30 AMP, 2-POLE, NON-FUSED, HEAVY DUTY DISCONNECT SWITCH IN NEMA 1 ENCLOSURE. MOUNT AT UNIT WITH SUITABLE STEEL SUPPORTS.

5 RECEPTACLE IN ATTIC FOR RADON SYSTEM FAN. COORDINATE EXACT LOCATION WITH RADON SYSTEM PROVIDER.

6 MOUNT DEVICES IN HOISTWAY ABOVE PATH OF ELEVATOR TRAVEL.

7 ELEVATOR SMOKE CURTAIN. MAKE ALL POWER CONNECTIONS AND FIRE ALARM / SMOKE DETECTOR CONNECTIONS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. ALL SMOKE CURTAINS TO ACTIVATE UPON INITIATION OF ANY SMOKE DETECTOR NEAREST TO ELEVATOR DOORS.

PRINTS ISSUED
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REVISIONS:

23.161

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Michael D. Raaf - Engineer
MO# PE-2005028097

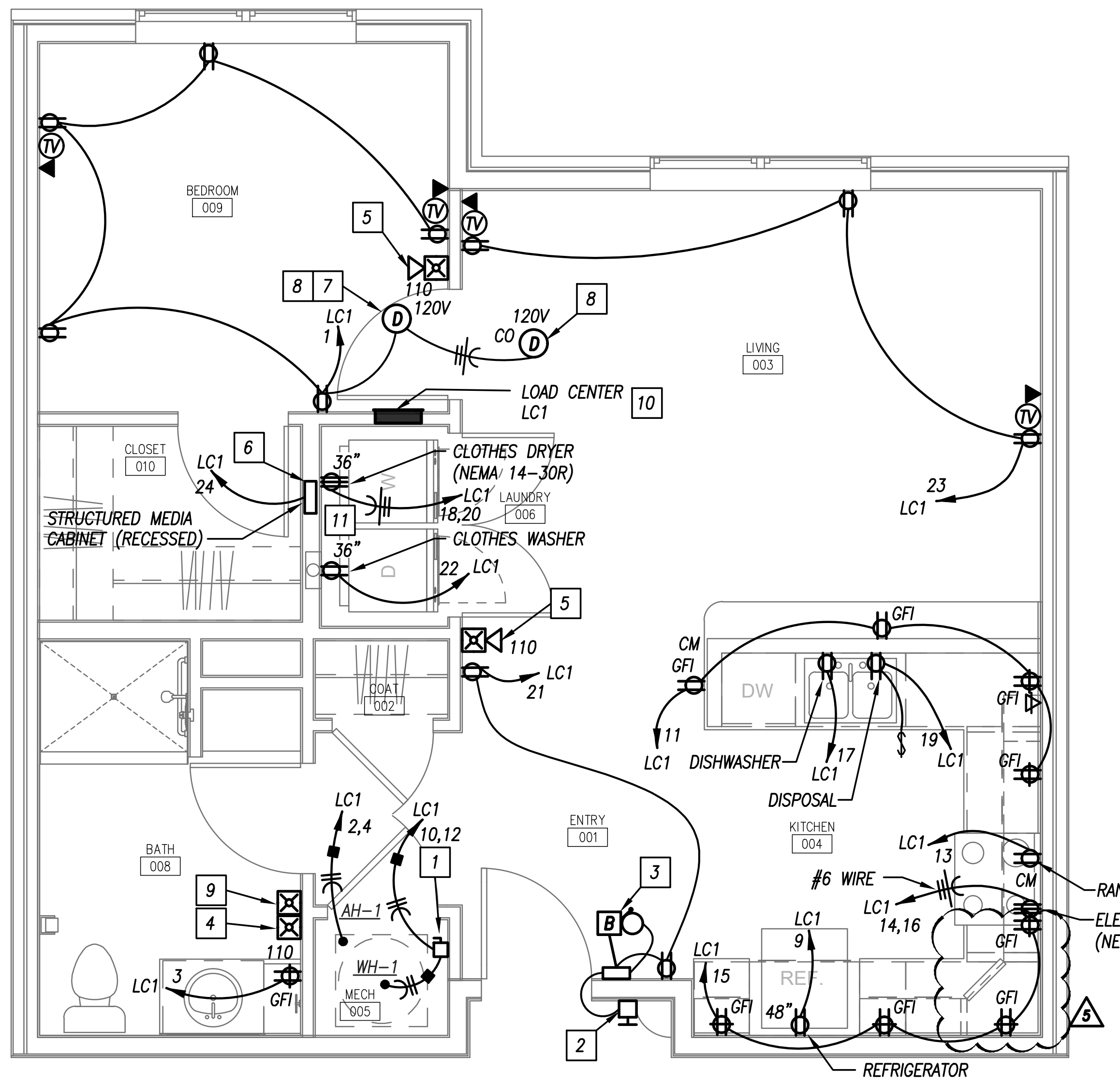
WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
THIRD FLOOR POWER PLAN

PROJECT NUMBER: 23.161

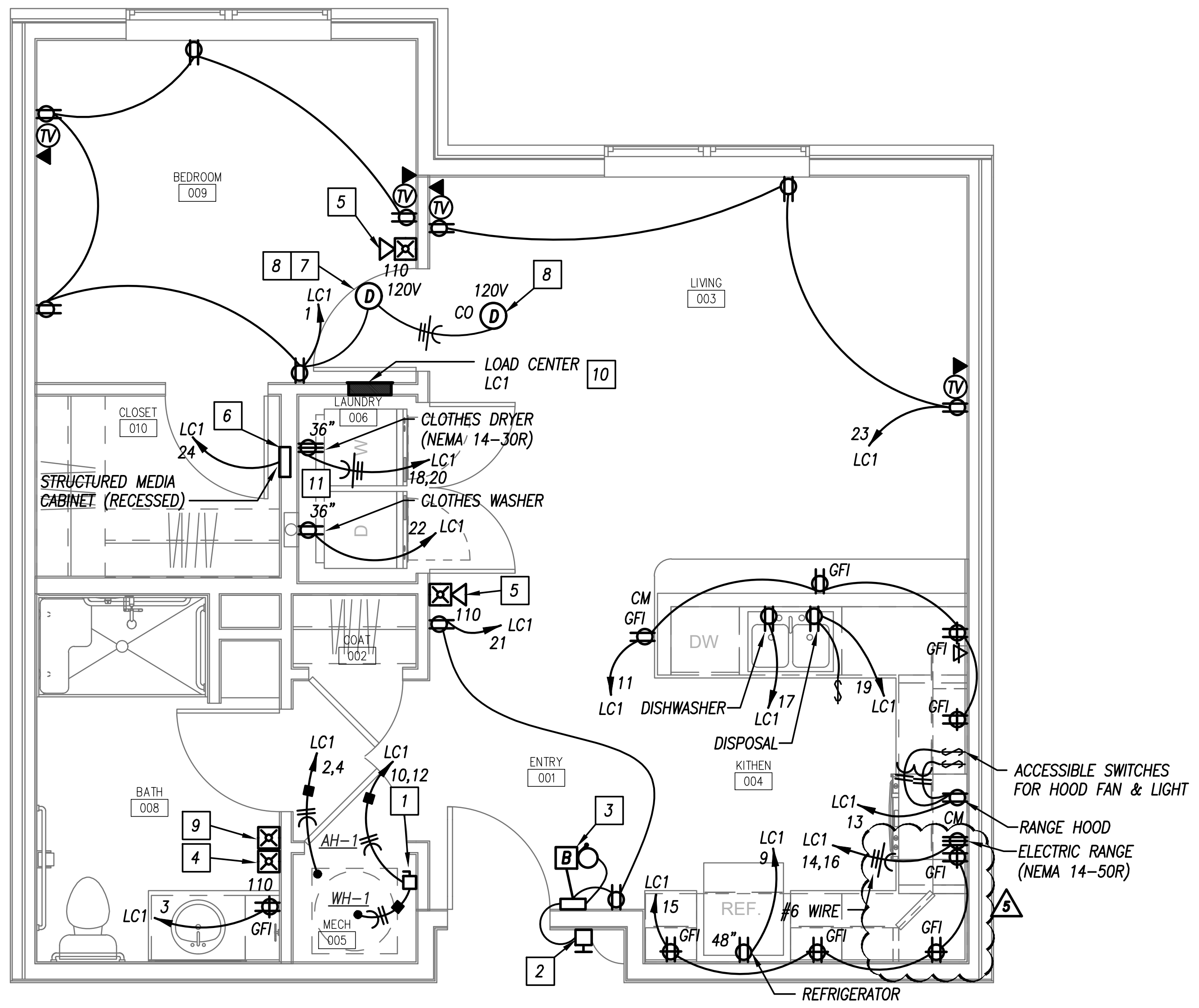
SHEET NUMBER:

E203



TYPE B - ONE BEDROOM
TYPICAL UNIT FLOOR PLAN - POWER

1/4" = 1'-0"



TYPE A - ONE BEDROOM
TYPICAL UNIT FLOOR PLAN - POWER

1/4" = 1'-0"

GENERAL POWER NOTES

1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
2. COORDINATE EXACT NEMA CONFIGURATIONS OF RECEPTACLES SERVING EQUIPMENT WITH EXACT EQUIPMENT BEING FURNISHED.
3. EXACT MECHANICAL EQUIPMENT LOCATIONS MAY NOT BE SHOWN FOR CLARITY. COORDINATE EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT, DUCT DETECTORS, ETC. WITH MECHANICAL DRAWINGS AND CONTRACTOR.
4. COORDINATE EXACT LOCATIONS OF SMOKE DETECTORS WITH CEILING FANS, HVAC DIFFUSERS, SPRINKLER HEADS, ETC. PER NFPA REQUIREMENTS.

POWER PLAN KEYED NOTES

1	30 AMP, 2-POLE, NON-FUSED DISCONNECT SWITCH IN NEMA 1 ENCLOSURE. MOUNT AT UNIT WITH ADEQUATE CLEARANCES.
2	DOORBELL AND DOORBELL POWER SUPPLY. HEATH-ZENITH 57/M SERIES OR SIMILAR HARD-WIRED DOORBELL AND CHIME.
3	FOR HEARING/VISUALLY-IMPAIRED UNIT(S) ONLY, PROVIDE DOORBELL SIGNALER WITH INTEGRAL STROBE AND CHIME IN LIEU OF CHIME ONLY.
4	PROVIDE DEVICE IN HEARING AND VISUALLY IMPAIRED UNIT ONLY. PROVIDE ROUGH-IN AND WIRING FOR FUTURE DEVICE IN ALL OTHER LIVING UNITS.
5	PROVIDE 110cd HORN/STROBE IN HEARING AND VISUALLY-IMPAIRED LIVING UNITS. PROVIDE MINI-HORN IN ALL OTHER UNITS.
6	RECESSED STRUCTURED MEDIA CABINET. MOUNT HIGH ON WALL.
7	COMBINATION SMOKE ALARM AND CARBON MONOXIDE DETECTOR.
8	PROVIDE MULTI-STATION 120 VOLT SMOKE ALARM WITH BATTERY BACK-UP IN NON-HEARING IMPAIRED UNITS. PROVIDE MULTI-STATION 120V SMOKE ALARM WITH 177 CANDELA INTEGRAL VISUAL ALARM AND BATTERY BACK-UP IN HEARING IMPAIRED UNITS. REFER TO ARCHITECTURAL PLANS FOR UNIT TYPES.
9	PROVIDE 120 VOLT 110 CANDELA STROBE IN HEARING IMPAIRED UNITS ONLY. WIRE TO SMOKE DETECTORS IN UNIT. REFER TO ARCHITECTURAL PLANS FOR UNIT TYPES.
10	INSTALL LOAD CENTER SUCH THAT TOP BREAKER IS AT 48" AFF.
11	WASHER AND DRYER SHALL ALWAYS BE ORIENTED WITH WASHER ON LEFT AND DRYER ON RIGHT.

PRINTS ISSUED
10/30/2023 - PERMIT SUBMITTAL

REVISIONS:
5 10/04/2024 - ASI 001

23.161

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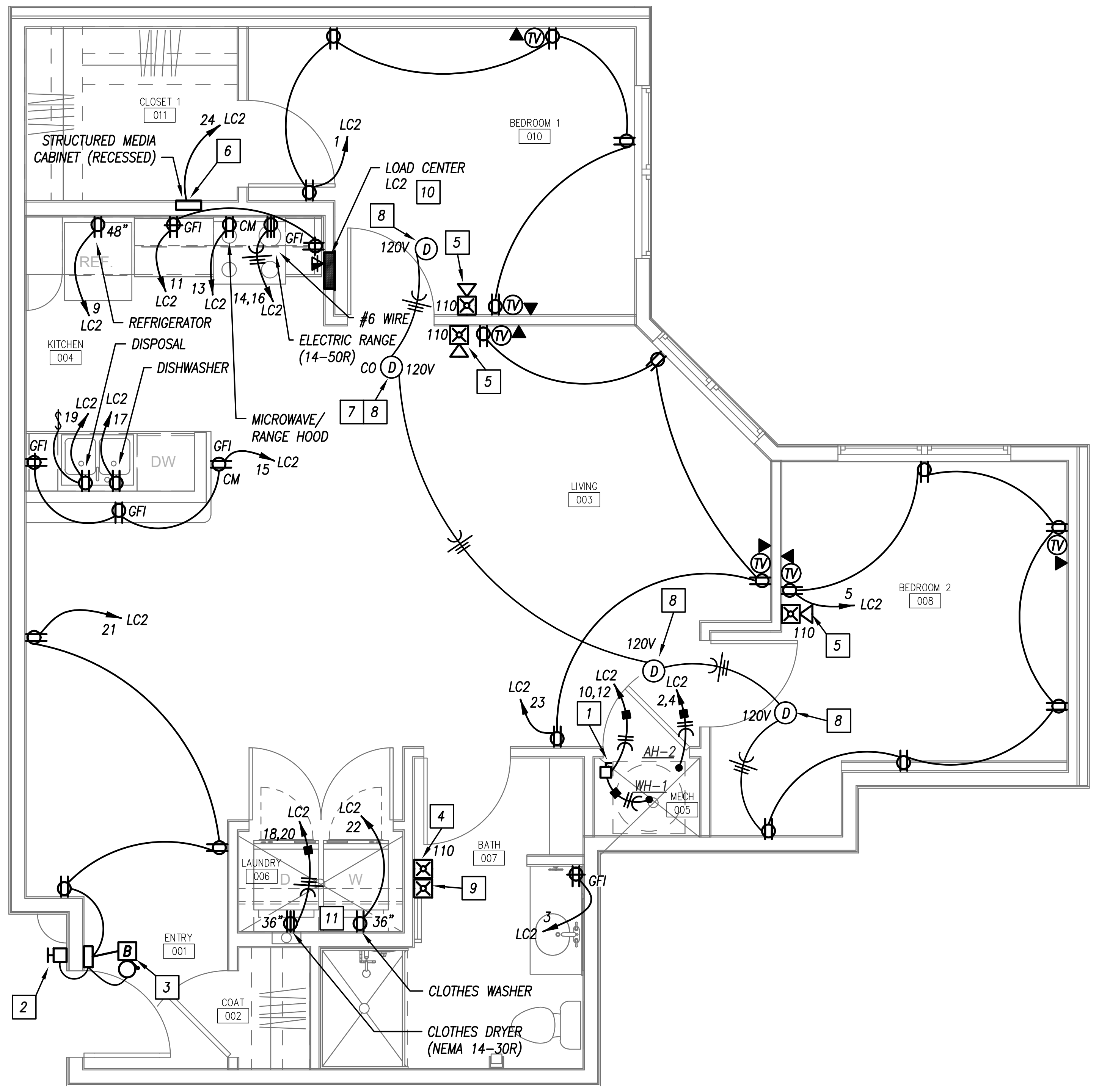
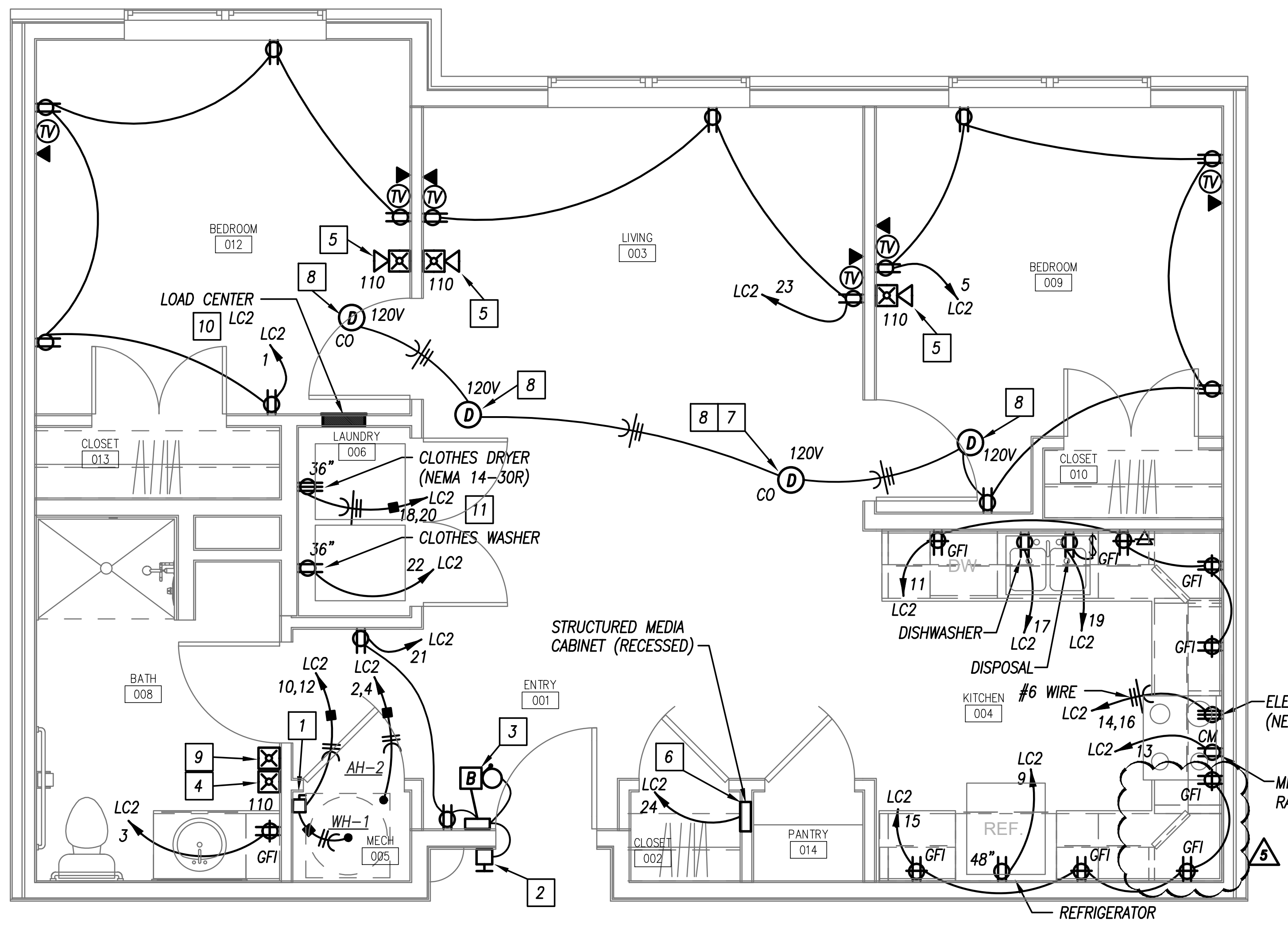
MO# PE-2005028097

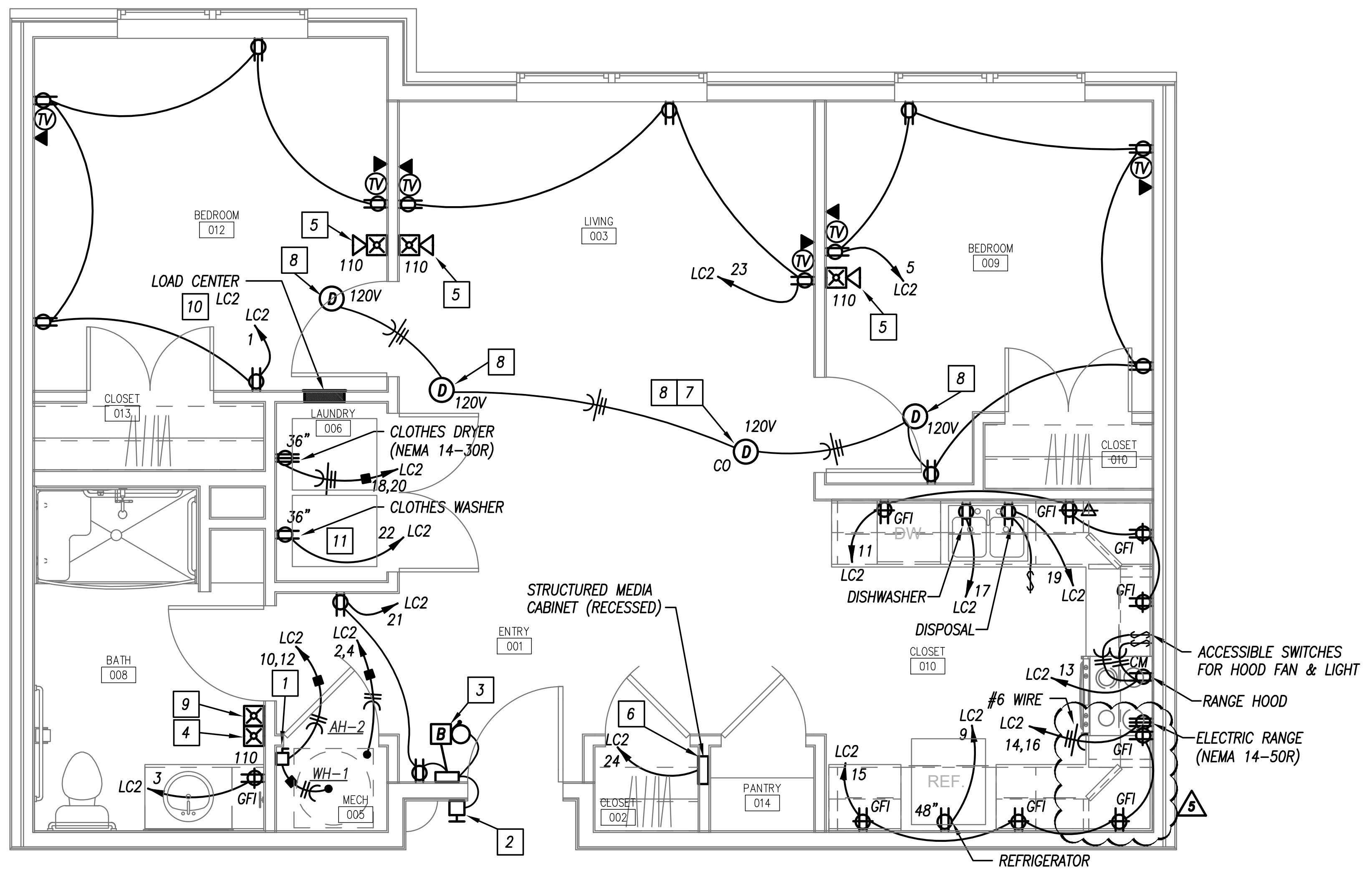


WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI



TYPE B - TWO BEDROOM
TYPICAL UNIT FLOOR PLAN - POWER

1/4" = 1'-0"



TYPE A - TWO BEDROOM
TYPICAL UNIT FLOOR PLAN - POWER

1/4" = 1'-0"

TYPE B - TWO BEDROOM - (CORNER)
TYPICAL UNIT FLOOR PLAN - POWER

1/4" = 1'-0"

SHEET TITLE
ENLARGED UNIT PLANS - POWER

PROJECT NUMBER: 23.161

SHEET NUMBER:

E211

Optional Method Load Calculation for Multi-Family Dwellings

EQUIPMENT DESIGNATION: **MC-W**	**SERVICE/BUILDING/AREA:** **SERVICE #1**	**VOLTAGE:** 208V **PHASE/WIRE:** 3PH/4W **# OF UNITS:** 24	

Line	Item	Calculation	Line	Value
1	General Lighting and Receptacle Loads 220.84(C)(1) Do not include open porches, garages, and unused or unfinished spaces not adaptable for future use.	3 x 18,270 (total sq. ft. of all units) =	1	54,810
2	Small Appliance Branch–Circuits 220.84(C)(2)	1,500 x 2 (avg. # per unit) x 24 (number of units) =	2	72,000
3	Laundry Branch Circuit 220.84(C)(2)	1,500 x 1 (avg. # per unit) x 24 (number of units) =	3	36,000
4 through 11	Appliances and Motors 220.84(C)(3) and (4) Use the nameplate rating of ALL appliances (fastened–in place, permanently connected, or connected to a specific circuit), ranges, wall–mounted ovens, counter–mounted cooking units, motors, water heaters, and clothes dryers. Number of units indicates only those units containing the respective appliance. Load values for appliances are the average value per unit for the building or area.	Microwave / 1,200 (volt–amperes each) x 24 (number) =	4	28,800
		Dishwasher / 1,000 (volt–amperes each) x 24 (number) =	5	24,000
		Disposal / 800 (volt–amperes each) x 24 (number) =	6	19,200
		Water Heater / 4,500 (volt–amperes each) x 24 (number) =	7	108,000
		Electric Range / 10,000 (volt–amperes each) x 24 (number) =	8	240,000
		Clothes Dryer / 5,000 (volt–amperes each) x 24 (number) =	9	120,000
		– / – (volt–amperes each) x – (number) =	10	0
11	Heating or Air–Conditioning System (Compare the heat and A/C, and omit the smaller.) 220.84(C)(5) Include the air handler when using either one. For heat pumps, include the compressor and the maximum amount of electric heat that can be energized while the compressor is running.		11	187,027
12	Total Volt–Ampere Demand Load: Multiply total VA by Table 220.84 demand factor percent.	889,837 (total volt–amperes from lines 1 through 11) x 35% (Table 220.84) =	12	311,443
13	House Load 220.84(B) (If present, other wise skip to line 14) Compute in accordance with Article 220, Part III. Do not include in Table 220.84 Demand Factors.		13	0
14	Total Volt–Ampere Demand Load: Add lines 12 and 13 to find the minimum required volt–amperes.		14	311,443
15	Minimum Amperes Divide the total volt–amperes by the voltage	311,443 (line x) / 208√3 (voltage) = 15: 864 (minimum amperes)		
16	Minimum Size Service and/or Feeder (240.6(A)		16	1,000

Optional Method Load Calculation for Multi-Family Dwellings

EQUIPMENT DESIGNATION: **MC-E**	**SERVICE/BUILDING/AREA:** **SERVICE #2**	**VOLTAGE:** 208V **PHASE/WIRE:** 3PH/4W **# OF UNITS:** 26	

Line	Item	Calculation	Line	Value
1	General Lighting and Receptacle Loads 220.84(C)(1) Do not include open porches, garages, and unused or unfinished spaces not adaptable for future use.	3 x 20,140 (total sq. ft. of all units) =	1	60,420
2	Small Appliance Branch–Circuits 220.84(C)(2)	1,500 x 2 (avg. # per unit) x 26 (number of units) =	2	78,000
3	Laundry Branch Circuit 220.84(C)(2)	1,500 x 1 (avg. # per unit) x 26 (number of units) =	3	39,000
4 through 11	Appliances and Motors 220.84(C)(3) and (4) Use the nameplate rating of ALL appliances (fastened–in place, permanently connected, or connected to a specific circuit), ranges, wall–mounted ovens, counter–mounted cooking units, motors, water heaters, and clothes dryers. Number of units indicates only those units containing the respective appliance. Load values for appliances are the average value per unit for the building or area.	Microwave / 1,200 (volt–amperes each) x 26 (number) =	4	31,200
		Dishwasher / 1,000 (volt–amperes each) x 26 (number) =	5	26,000
		Disposal / 800 (volt–amperes each) x 26 (number) =	6	20,800
		Water Heater / 4,500 (volt–amperes each) x 26 (number) =	7	117,000
		Electric Range / 10,000 (volt–amperes each) x 26 (number) =	8	260,000
		Clothes Dryer / 5,000 (volt–amperes each) x 26 (number) =	9	130,000
		– / – (volt–amperes each) x – (number) =	10	0
11	Heating or Air–Conditioning System (Compare the heat and A/C, and omit the smaller.) 220.84(C)(5) Include the air handler when using either one. For heat pumps, include the compressor and the maximum amount of electric heat that can be energized while the compressor is running.		11	205,066
12	Total Volt–Ampere Demand Load: Multiply total VA by Table 220.84 demand factor percent.	967,486 (total volt–amperes from lines 1 through 11) x 34% (Table 220.84) =	12	328,945
13	House Load 220.84(B) (If present, other wise skip to line 14) Compute in accordance with Article 220, Part III. Do not include in Table 220.84 Demand Factors.		13	0
14	Total Volt–Ampere Demand Load: Add lines 12 and 13 to find the minimum required volt–amperes.		14	328,945
15	Minimum Amperes Divide the total volt–amperes by the voltage	328,945 (line x) / 208√3 (voltage) = 15: 913 (minimum amperes)		
16	Minimum Size Service and/or Feeder (240.6(A)		16	1,000

EQUIPMENT FEEDER SCHEDULE

FEEDER NO.	EQUIPMENT	LOAD (AMPS)	FEEDER					CONDUIT SIZE
			SETS	# OF WIRES	SIZE	GROUND	MATERIAL	
FH1	HOUSE SERVICE DISCONNECT	450.7	2	4	250 MCM	–	COPPER	2–1/2"
FH2	DISTRIBUTION PANELBOARD MDP1	450.7	2	4	250 MCM	#2	COPPER	2–1/2"
FW1	METER CENTER MC–W	864.5	3	4	400 MCM	–	COPPER	3"
FW2	TYPICAL LOAD CENTER	110.5	1	3	#2/0	#4	ALUMINUM	2"
FE1	METER CENTER MC–E	913.1	3	4	400 MCM	–	COPPER	3"
FE2	TYPICAL LOAD CENTER	110.5	1	3	#2/0	#4	ALUMINUM	2"

EQUIPMENT FAULT CURRENT RATING SCHEDULE

EQUIPMENT	SCA **	SCCR	NOTES
HOUSE SERVICE DISCONNECT	45,106	65,000	1
DISTRIBUTION PANELBOARD MDP1	38,522	42,000	1
PANELBOARD P1	32,654	35,000	1,2
PANELBOARD S1	1,882	10,000	1,2
PANELBOARD P2	34,819	35,000	1,2
METER CENTER MC–W	55,391	65,000	1
METER CENTER MC–E	55,391	65,000	1
TYP. LOAD CENTER < 60' FEEDER	10,169	22,000	1,2
TYP. LOAD CENTER > 60' FEEDER	9,521	10,000	1
ELEVATOR #1	15,662	22,000	1

NOTES:

1. RATING BASED ON AN ASSUMED FAULT AT UTILITY CO. TRANSFORMER OF 75,022A.
2. EQUIPMENT MAY BE SERIES RATED.

** CALCULATIONS PERFORMED USING BUSSMANN POINT–TO–POINT METHOD.

LOAD CENTER FEEDER ALTERNATE:
WHERE ALLOWABLE AND USE PERMITTED THE LOAD CENTER FEEDERS MAY BE ALUMINUM SER CABLE, 3–CONDUCTOR #2/0 WIRE WITH GROUND. INSTALLATION SHALL MEET ALL REQUIREMENTS OF NEC ARTICLE 338. FEEDERS TO BE INCREASED PROPORTIONAL FOR VOLTAGE DROP AS DESCRIBED BELOW.

VOLTAGE DROP

FEEDERS TO LOAD CENTERS SHALL BE ADJUSTED AS LISTED BELOW FOR GIVEN LENGTHS OF FEEDER RUNS:

FEEDER < 250' = (3)#2/0 AL WIRE WITH #4 GROUND

FEEDER > 250' = (3)#3/0 AL WIRE WITH #4 GROUND AND FURNISH LOAD CENTER RATED AT 150A TO ACCOMMODATE LUGS FOR #3/0 WIRE.

RISER DIAGRAM KEYED NOTES

1. TRANSFORMER PAD BY CIVIL. RE: CIVIL PLANS.
2. (1)#2/0 GROUNDING ELECTRODE CONDUCTOR IN 1" CONDUIT.
3. (1)#3/0 GROUNDING ELECTRODE CONDUCTOR IN 1" CONDUIT.
4. INSTALL ON SCREEN WALL PER UTILITY COMPANY STANDARDS.
5. 500 AMP, 3–POLE, CIRCUIT BREAKER DISCONNECT IN NEMA 3R ENCLOSURE WITH EXTERNALLY OPERABLE HANDLE. BREAKER SHALL BE SUITABLE FOR SERVICE ENTRANCE EQUIPMENT AND FURNISHED WITH GROUND BUS.
6. (1)#3/0 BONDING JUMPER IN 1" CONDUIT.
7. PROVIDE PERMANENT LABEL WITH AVAILABLE FAULT CURRENT FROM UTILITY CO. RE: SPECIFICATIONS FOR LABELING REQUIREMENTS.
8. (1)#8 GROUNDING ELECTRODE CONDUCTOR IN 1/2" CONDUIT.

METER CENTER SCHEDULE

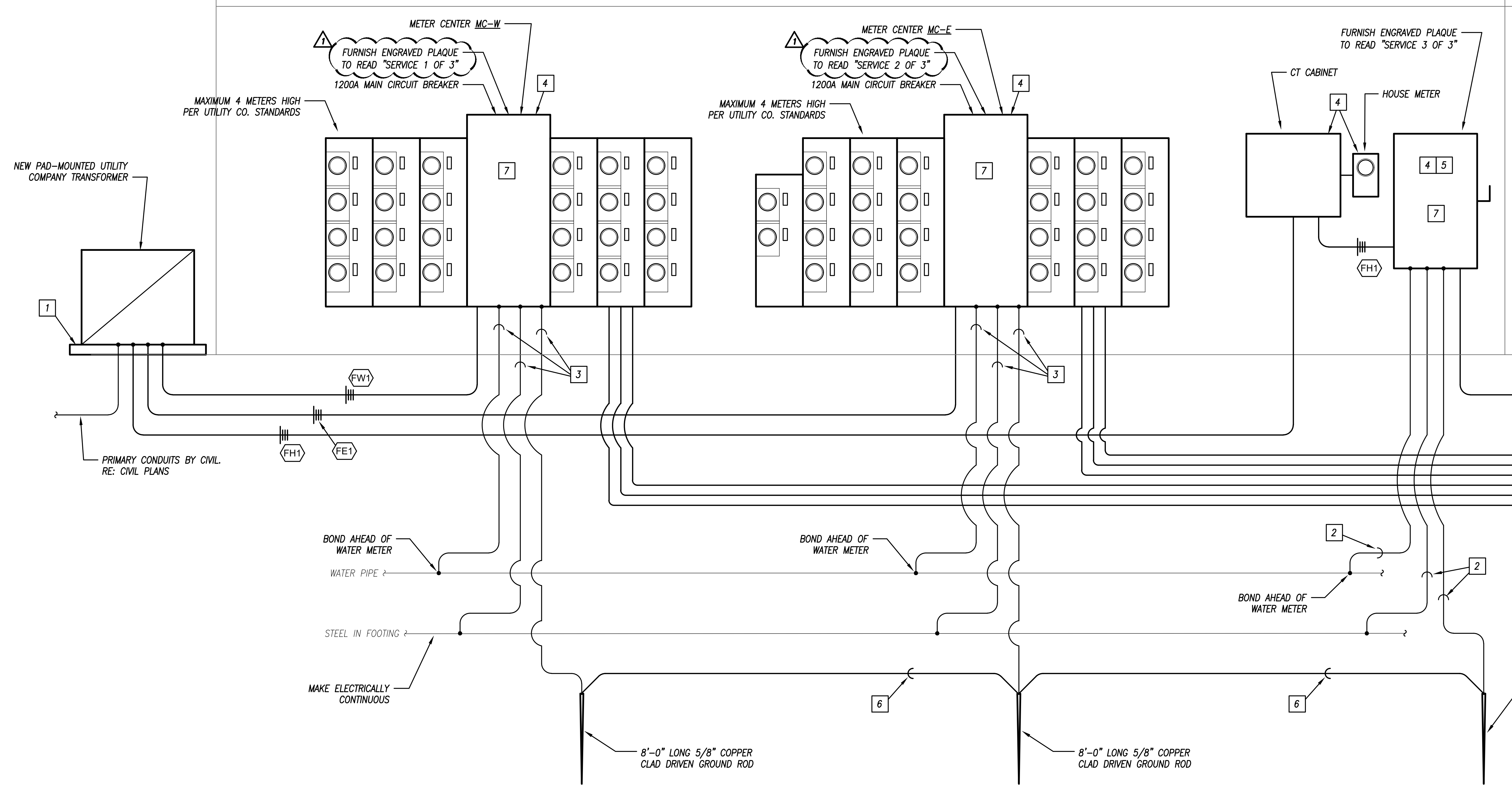
PLAN MARK	SERVICE	MANUFACTURER	VOLTAGE	MAIN SERVICE MODULE			METER STACKS			# OF METER STACKS				NOTES
				MODEL	LOAD (A)	RATING (A)	MODEL	METER SIZE	BUS RATING	2 METERS	3 METERS	4 METERS	5 METERS	
MC–W	SERVICE #1	CUTLER–HAMMER	208V	3MCB	864	1,000	1MM	125 AMPS	800 AMPS	–	–	6	–	1,2,3,4
MC–E	SERVICE #2	CUTLER–HAMMER	208V	3MCB	913	1,000	1MM	125 AMPS	800 AMPS	1	–	6	–	1,2,3,5

REMARKS:

1. NEMA 3R ENCLOSURE, COPPER BUS.
2. EACH UNIT METER MODULE TO HAVE 125A MAIN CIRCUIT BREAKER.
3. REFER TO LOAD CALCULATIONS THIS SHEET FOR SIZING OF EQUIPMENT.
4. DWELLING UNIT LOAD CENTERS ON NORTH PART OF BUILDING TO BE FED FROM THIS METER CENTER. (TOTAL OF 24).
5. DWELLING UNIT LOAD CENTERS ON SOUTH PART OF BUILDING TO BE FED FROM THIS METER CENTER. (TOTAL OF 26).

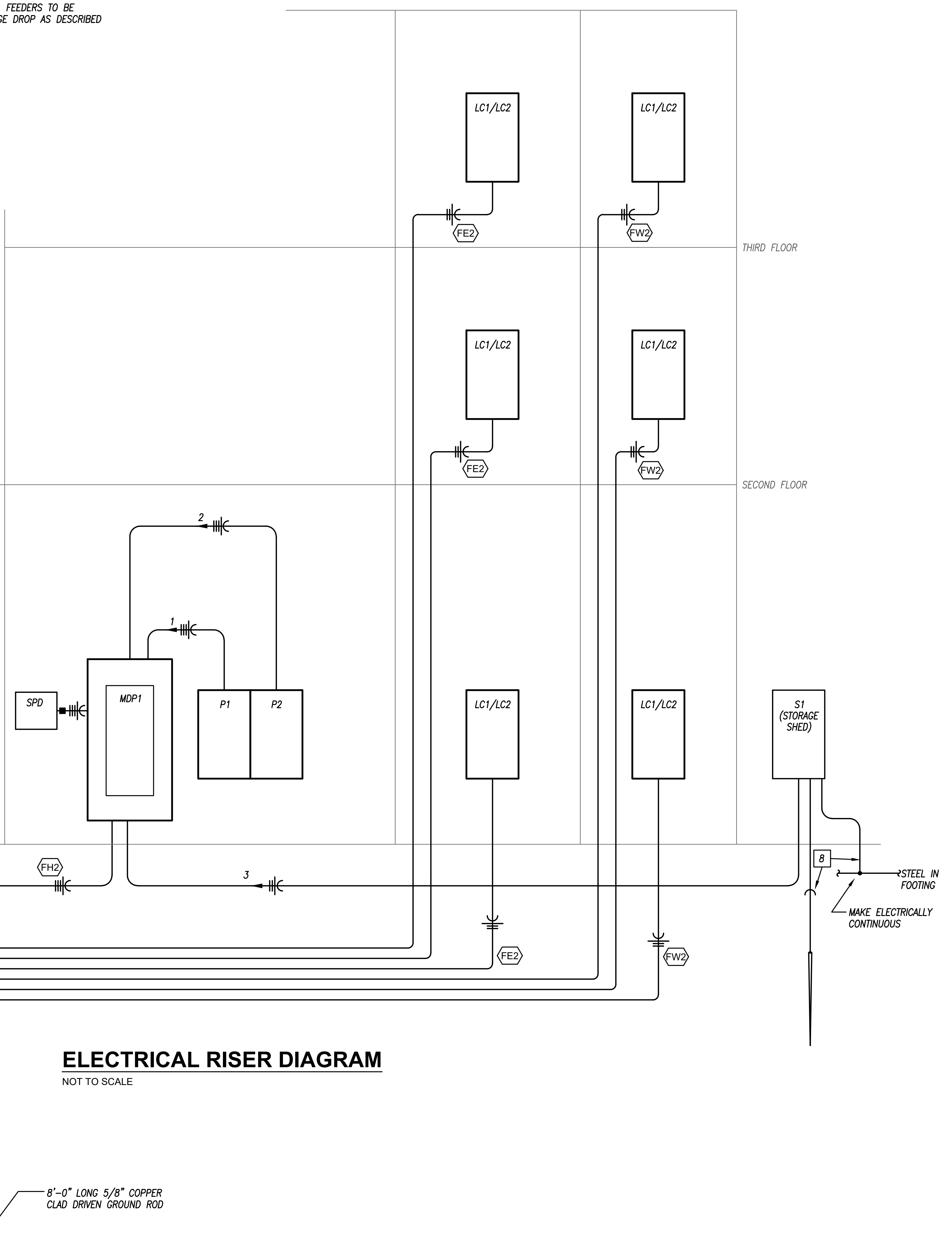
ELEVATION OF SERVICE ENTRANCE EQUIPMENT

REFER TO SITE AND POWER PLANS FOR EXACT LOCATION


METER CENTER MC–W
FURNISH ENGRAVED PLAQUE TO READ "SERVICE 1 OF 3"
1200A MAIN CIRCUIT BREAKER
MAXIMUM 4 METERS HIGH PER UTILITY CO. STANDARDS
NEW PAD–MOUNTED UTILITY COMPANY TRANSFORMER
METER CENTER MC–E
FURNISH ENGRAVED PLAQUE TO READ "SERVICE 2 OF 3"
CT CABINET
HOUSE METER
FURNISH ENGRAVED PLAQUE TO READ "SERVICE 3 OF 3"
SPD
1
3
4
5
6
7
FW1
FH1
FE1
PRIMARY CONDUITS BY CIVIL. RE: CIVIL PLANS
BOND AHEAD OF WATER METER
WATER PIPE
STEEL IN FOOTING
MAKE ELECTRICALLY CONTINUOUS
8'–0" LONG 5/8" COPPER CLAD DRIVEN GROUND ROD
2

ELECTRICAL RISER DIAGRAM

NOT TO SCALE



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REVISIONS:
⚠1 12/15/2023 - CITY COMMENTS

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Michael D. Raaf - Engineer
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WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
ELECTRICAL RISER DIAGRAM

PROJECT NUMBER: 23.161

SHEET NUMBER:
E301

DISTRIBUTION PANELBOARD SCHEDULE

PANEL DESIGNATION: **MDP1**
MAIN BUS AMPS: *600* VOLTAGE: *208/120* MOUNTING: *FLOOR*
MAIN BREAKER AMPS: *M.L.O.* PHASE/WIRE: *3Ø, 4W* LOCATION: *SPRINKLER 1003*

CIRCUIT NO.	CIRCUIT DESIGNATION	KVA	CIRCUIT BREAKER			FEEDER				
			POLE	FRAME	TRIP	SETS	# OF WIRES	SIZE	GROUND	CONDUIT
1	PANELBOARD P1	43.0	3	200	175	1	4	#2/0	#6	2"
2	PANELBOARD P2	64.0	3	200	200	1	4	#3/0	#6	2"
3	PANELBOARD S1	6.2	2	100	60	1	2	#4	#10	1"
4	ELEVATOR	43.2	3	400	250	1	3	250 MCM	250 MCM	2-1/2"
5	WATER HEATER WH-2	4.5	2	100	30	1	2	#10	#10	1/2"
6	WATER HEATER WH-2	4.5	2	100	30	1	2	#10	#10	1/2"
7	AIR HANDLING UNIT AH-3	8.0	2	100	45	1	2	#6	#10	3/4"
8	AIR HANDLING UNIT AH-4	10.0	2	100	50	1	2	#6	#10	3/4"
9	HEAT PUMP HP-3	2.7	2	200	25	1	2	#10	#10	1/2"
10	HEAT PUMP HP-4	3.3	2	200	30	1	2	#10	#10	1/2"
11	EXTERNAL SURGE SUPPRESSION	0.0	3	100	30	1	3	#10	#10	1/2"
12	PREPARED SPACE	0.0	–	200	–	–	–	–	–	–
13	PREPARED SPACE	0.0	–	200	–	–	–	–	–	–
14	PREPARED SPACE	0.0	–	100	–	–	–	–	–	–
15	PREPARED SPACE	0.0	–	100	–	–	–	–	–	–

PANELBOARD SIZING LOAD

LOAD DESCRIPTION	CONNECTED LOAD	DEMAND FACTOR	CODE MIN. (VA)
LIGHTS	12,409	1.25	15,512
RECEPTACLES	29,080	10KVA + 50% REST	19,540
MOTORS	48,278	1.25 x LARGEST + SUM OF REST	59,086
AIR CONDITIONING	21,674	0.00	0
SPACE HEATING	39,180	1.00	39,180
HEAT PUMP	6,065	0.00	0
CONTINUOUS	9,000	1.25	11,250
KITCHEN EQUIPMENT	0	1.00	0
NON-CONTINUOUS	26,664	1.00	26,664
TOTAL CONNECTED LOAD (VA):	192,351	SIZING LOAD (VA):	171,232
TOTAL CONNECTED LOAD (AMPS):	533.9	SIZING LOAD (AMPS):	475.3

REMARKS:
1. CUTLER HAMMER POW-R-LINE 4B PANELBOARD OR EQUAL.
2. 42" WIDE, SINGLE SECTION PANELBOARD.
3. FURNISH PANELBOARD WITH EXTERNAL SURGE PROTECTION DEVICE.

PANELBOARD BREAKER KEYED NOTES

G	FURNISH GFCI-PROTECTED BREAKER.
FA	BREAKER SHALL BE PAINTED OR FURNISHED RED AND PROVIDED WITH A LOCK-ON DEVICE.

SINGLE-PHASE PANELBOARD SCHEDULE

PANEL DESIGNATION: **S1**
MOUNTING: *SURFACE*
LOCATION: *MAINT. SHED*
MAIN LUG AMPS: *125*
MAIN BREAKER: *60*
VOLTAGE: *208/120*
PHASE/WIRE: *1Ø, 3W*

DESCRIPTION	PHASE		C/B		CIRCUIT #		C/B		PHASE		DESCRIPTION
	A	B	TRIP	POLE			POLE	TRIP	A	B	
LTS: SHED	302		20	1	1	2	2	30	2500		ELECTRIC HEATER UH-3
RECEPT: SHED		180	20	1	3	4				2500	
RECEPT: SHED	180		20	1	5	6	1	20	–		SPARE
RECEPT: OVERHEAD DOOR		500	20	1	7	8	1	20		–	SPARE
SPARE	–		20	1	9	10	1	20	–		SPARE
SPARE		–	20	1	11	12	1	20		–	SPARE
SPACE	–		–	1	13	14	1	–	–		SPACE
SPACE		–	–	1	15	16	1	–		–	SPACE
SPACE	–		–	1	17	18	1	–	–		SPACE
TOTALS	482	680							2500	2500	TOTALS

PANELBOARD SIZING LOAD

LOAD DESCRIPTION	CONNECTED	DEMAND	CODE MIN. (VA)
LIGHTS	302	1.25	378
RECEPTACLES	860	10KVA + 50% REST	860
MOTORS	0	1.25 x LARGEST + SUM OF REST	0
AIR CONDITIONING	0	0.00	0
SPACE HEATING	5,000	1.00	5,000
HEAT PUMP	0	1.00	0
CONTINUOUS	0	1.25	0
KITCHEN EQUIPMENT	0	1.00	0
NON-CONTINUOUS	0	1.00	0
		SIZING LOAD:	6,238
		SIZING LOAD (AMPS):	30

CONNECTED PHASE LOADS

PH.	VA	AMPS
A	2,982	24.9
B	3,180	26.5
TTL.	6,162	29.6

REMARKS:
1. CUTLER HAMMER POW-R-LINE 1A OR EQUAL.

SINGLE-SECTION PANELBOARD SCHEDULE

PANEL DESIGNATION: **P1**
MOUNTING: *SURFACE*
LOCATION: *SPRINKLER 1003*
MAIN LUG AMPS: *225* SCCR RATING (AIC): *35,000*
MAIN BREAKER: *M.L.O.*
VOLTAGE: *208/120*
PHASE/WIRE: *3Ø, 4W*

DESCRIPTION	PHASE			C/B		CIRCUIT #		C/B		PHASE			DESCRIPTION	
	A	B	C	TRIP	POLE			POLE	TRIP	A	B	C		
LTG: SPRINKLER, OFFICE	220			20	1	1	2	1	20	1080			REC: SPRINKLER 1005	
LTG: LOBBY CHANDELIERS		1000		20	1	3	4	1	20		360		REC: TELECOM. BACKBOARD	
LTG: COMMUNITY			836	20	1	5	6	1	20			360	REC: TELECOM. BACKBOARD	
LTG: EM/NL CORR C1 1F	402			20	1	7	8	1	20	360			REC: TELECOM. BACKBOARD	
LTG: EM/NL CORR C2 1F		365		20	1	9	10	1	20		500		ACCESS CONTROL PANEL	
LTG: CORRIDOR C1 1F			421	20	1	11	12	1	20			500	BUILDING ENTRY SYSTEM	
LTG: CORRIDOR C2 1F	679			20	1	13	14	1	20	500			FIRE ALARM CONTROL PANEL	FA
LTG: CORRIDOR C1 2F		421		20	1	15	16	1	20		244		REC/LTG: ELEVATOR RM	
LTG: CORRIDOR C2 2F			591	20	1	17	18	1	20			500	ELEVATOR CONTROLLER	
LTG: CORRIDOR C1 3F	516			20	1	19	20	1	20	200			ELEVATOR CAB LTG	
LTG: CORRIDOR C2 3F		524		20	1	21	22	1	20		191		REC/LTG: ELEVATOR PIT	
LTG: MONUMENT SIGN,FLAGPOLE			100	20	1	23	24	1	20			1176	SUMP PUMP	
LTG: EXT. CANOPY	983			20	1	25	26	1	20	500			FIRE/SMOKE DAMPERS	
LTG: EXT. WALL MOUNTED		480		20	1	27	28	2	15		208		FAN COIL UNITS FC-1.1	
LTG: EXT. BOLLARDS			387	20	2	29	30					208		
	387					31	32	1	20	900			REC: LOBBY	
LTG: PARKING LOT		702		20	2	33	34	1	20		500		DOOR ACCESS SYSTEM	
			702			35	36	1	20			500	POWERED DOOR C1	
ELEC HEAT UH-1; ENTRY	2000			25	2	37	38	1	20	500			POWERED DOOR C2	
		2000				39	40	1	20		500		POWERED DOOR DINING	
ELEC HEAT UH-1; STAIRS S1			2000	25	2	41	42	1	20			1000	POWERED DOOR ENTRY	
	2000					43	44	1	20	1080			REC: CORRIDOR C1 1F	
ELEC HEAT UH-1; STAIRS S2		2000		25	2	45	46	1	20		1080		REC: CORRIDOR C2 1F	
			2000			47	48	1	20			1080	REC: EXTERIOR	
ELEC HEAT UH-2; SPRINKLER	2000			25	2	49	50	2	15	208			FAN COIL UNITS FC-1.2	
		2000				51	52				208			
FIREPLACE			180	15	1	53	54	1	20			720	REC: COMMUNITY	
SPARE	–			20	1	55	56	1	20	900			REC: COMMUNITY	
SPARE		–		20	1	57	58	1	20		720		REC: COMPUTER	
SPARE			–	20	1	59	60	1	20			360	REC: COMPUTER	
SPARE	–			20	1	61	62	1	20	–			SPARE	
SPARE		–		20	1	63	64	1	20		–		SPARE	
SPARE			–	20	1	65	66	1	20			–	SPARE	
SPARE	–			20	1	67	68	1	20	–			SPARE	
SPARE		–		20	1	69	70	1	20		–		SPARE	
SPARE			–	20	1	71	72	1	20			–	SPARE	
SPACE	–			–	1	79	80	1	–	–			SPACE	
SPACE		–		–	1	81	82	1	–		–		SPACE	
SPACE			–	–	1	83	84	1	–			–	SPACE	
TOTALS	9187	9492	7217							6228	4511	6404	TOTALS	

PANELBOARD SIZING LOAD

LOAD DESCRIPTION	CONNECTED	DEMAND	CODE MIN. (VA)
LIGHTS	9,991	1.25	12,489
RECEPTACLES	9,360	10KVA + 50% REST	9,360
MOTORS	1,176	1.25 x LARGEST + SUM OF REST	1,470
AIR CONDITIONING	0	0.00	0
SPACE HEATING	16,180	1.00	16,180
HEAT PUMP	0	1.00	0
CONTINUOUS	0	1.25	0
NON-CONTINUOUS	6,332	1.00	6,332
MISC. LOADS 1	0	1.00	0
		SIZING LOAD:	45,831
		SIZING LOAD (AMPS):	127

CONNECTED PHASE LOADS

PHASE	VA	AMPS
A	15,415	128.4
B	14,003	116.6
C	13,621	113.4
TOTALS	43,039	119.5

REMARKS:
1. CUTLER HAMMER POW-R-LINE 2A OR EQUAL.
2. FURNISH WITH INTEGRAL SURGE PROTECTION.

SINGLE-SECTION PANELBOARD SCHEDULE

PANEL DESIGNATION: **P2**
MOUNTING: *SURFACE*
LOCATION: *SPRINKLER 1003*
MAIN LUG AMPS: *225*
MAIN BREAKER: *M.L.O.*
VOLTAGE: *208/120*
PHASE/WIRE: *3Ø, 4W*

	DESCRIPTION	PHASE			C/B		CIRCUIT #		C/B		PHASE			DESCRIPTION	
		A	B	C	TRIP	POLE			POLE	TRIP	A	B	C		
	SPARE	–			20	1	1	2	1	20	500			FIRE/SMOKE DAMPERS 2F	
	LTG: EM/NL CORR C1 2F		240		20	1	3	4	1	20		500		FIRE/SMOKE DAMPERS 3F	
	LTG: EM/NL CORR C2 2F			294	20	1	5	6	1	20			500	FIRE EXTEND. CABINET 3F	
	LTG: EM/NL CORR C1 3F	254			20	1	7	8	1	20	–			SPARE	
	LTG: EM/NL CORR C2 3F		308		20	1	9	10	1	20		540		REC: MEETING	
	LTG: MULTIPURPOSE			579	20	1	11	12	1	20			540	REC: MEETING	
	LTG: MEETING	117			20	1	13	14	1	20	720			REC: OFFICE	
	LTG: FITNESS		324		20	1	15	16	1	20		360		REC: FILE	
	REC: CORRIDOR C1 2F			900	20	1	17	18	1	20			500	REFRIGERATOR	G
	REC: CORRIDOR C2 2F	1080			20	1	19	20	1	20	500			ICE MAKER	G
	REC: CORRIDOR C1 3F		900		20	1	21	22	1	20		800		DISPOSAL	G
	REC: CORRIDOR C2 3F			900	20	1	23	24	1	20			1000	DISHWASHER	G
G	ICE MAKER	500			20	1	25	26	1	20	540			REC: KITCHEN CENTER	
G	DISPOSAL		800		20	1	27	28	2	50		4500		ELECTRIC RANGE	
G	DISHWASHER			1000	20	1	29	30					4500		
	REC: KITCHEN CENTER	720			20	1	31	32	1	15	500			RANGE HOOD	
	ELECTRIC RANGE		4500		50	2	33	34	1	20		360		REC: KITCHEN CENTER	
				4500			35	36	1	20			1000	MICROWAVE	
	RANGE HOOD	500			15	1	37	38	1	20	720			REC: FITNESS	
G	REFRIGERATOR		500		20	1	39	40	1	20		1000		REC: FITNESS EQUIPMENT	
	CONDENSING UNIT CU-1			894	15	2	41	42	1	20			1000	REC: FITNESS EQUIPMENT	
		894					43	44	1	20	180			WATER COOLER	G
	MHP-1		2486		25	2	45	46	1	20		540		REC: MUTLIPURPOSE	
				2486			47	48	1	20			540	REC: MULTIPURPOSE	
	MHP-1	2486			25	2	49	50	1	20	360			REC: RADON FANS	
			2486				51	52	1	20		360		REC: RADON FANS	
	MHP-2			2486	25	2	53	54	2	15			208	FAN COIL UNITS FC-2.1,2.2	
		2486					55	56			208				
	MHP-3		2486		25	2	57	58	2	15		208		FAN COIL UNITS FC-3.1,3.2	
				2486			59	60					208		
	SPARE	–			20	1	61	62	1	20	–			SPARE	
	SPARE		–		20	1	63	64	1	20		–		SPARE	
	SPARE			–	20	1	65	66	1	20			–	SPARE	
	SPARE	–			20	1	67	68	1	20	–			SPARE	
	SPARE		–		20	1	69	70	1	20		–		SPARE	
	SPARE			–	20	1	71	72	1	20			–	SPARE	
	SPACE	–			–	1	79	80	1	–	–			SPACE	
	SPACE		–		–	1	81	82	1	–		–		SPACE	
	SPACE			–	–	1	83	84	1	–			–	SPACE	
	TOTALS	9037	15029	16524							4228	9168	9996	TOTALS	

PANELBOARD SIZING LOAD

LOAD DESCRIPTION	CONNECTED	DEMAND	CODE MIN. (VA)
LIGHTS	2,116	1.25	2,645
RECEPTACLES	18,860	10KVA + 50% REST	14,430
MOTORS	1,000	1.25 x LARGEST + SUM OF REST	1,125
AIR CONDITIONING	21,674	1.00	21,674
SPACE HEATING	0	0.00	0
HEAT PUMP	0	1.00	0
CONTINUOUS	0	1.25	0
NON-CONTINUOUS	20,332	1.00	20,332
MISC. LOADS 1	0	1.00	0
		SIZING LOAD:	60,206
		SIZING LOAD (AMPS):	167

CONNECTED PHASE LOADS

PHASE	VA	AMPS
A	13,265	110.5
B	24,197	201.5
C	26,520	220.8
TOTALS	63,982	177.6

REMARKS:
1. CUTLER HAMMER POW-R-LINE 1A OR EQUAL.
2. FURNISH WITH INTEGRAL SURGE PROTECTION.

PRINTS ISSUED
10/30/2023 - PERMIT SUBMITTAL

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23.161
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MICHAEL D. RAAF
NUMBER PE-2005028097
10/30/23
Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
ELECTRICAL SCHEDULES

PROJECT NUMBER: 23.161

SHEET NUMBER:

E302

LOAD CENTER SCHEDULE

LOAD CENTER DESIGNATION: **LC1**
MOUNTING: RECESSED
LOCATION: LAUNDRY
MAIN LUG AMPS: 125
MAIN BREAKER M.L.O
VOLTAGE: 208/120V
PHASE/WIRE: 1PH/3W

	DESCRIPTION	C/B TRIP	C/B POLE	CIRCUIT NO.	CIRCUIT NO.	C/B POLE	C/B TRIP	DESCRIPTION	
A	BEDROOM 1	15	1	1	2	2	30	AIR HANDLING UNIT AH-1	
	BATHROOM	20	1	3	4				
B	REFRIGERATOR	15	1	5	6	2	20	HEAT PUMP HP-1	
A	KITCHEN RECEPTACLES	20	1	7	8				
A	MICROWAVE/RANGE HOOD	20	1	9	10	2	30	WATER HEATER WH-1	
A	KITCHEN RECEPTACLES	20	1	11	12				
B	DISHWASHER	15	1	13	14	2	40	ELECTRIC RANGE	
B	DISPOSAL	15	1	15	16				
A	ENTRY/HALL/DINING/KITCH LTS	15	1	17	18	2	30	CLOTHES DRYER	
A	LIVING ROOM	15	1	19	20				
A	SPARE	15	1	21	22	1	20	CLOTHES WASHER	A
A	SPARE	15	1	23	24	1	15	STRUCTURED MEDIA CABINET	A
A	SPARE	20	1	25	26	1	–	SPACE	
A	SPARE	20	1	27	28	1	–	SPACE	
	SPACE	–	1	29	30	1	–	SPACE	

REMARKS:

1. CUTLER HAMMER "CH" LOAD CENTER OR EQUAL.
2. THIS SCHEDULE TYPICAL FOR LOAD CENTERS IN 1 BEDROOM UNITS IN THE 3 STORY BUILDING.

A BREAKER SHALL BE ARC-FAULT PROTECTED.

B BREAKER SHALL BE COMBINATION ARC-FAULT / GFCI PROTECTED.

LOAD CENTER SCHEDULE

LOAD CENTER DESIGNATION: **LC2**
MOUNTING: RECESSED
LOCATION: MECHANICAL
MAIN LUG AMPS: 125
MAIN BREAKER M.L.O
VOLTAGE: 208/120V
PHASE/WIRE: 1PH/3W

	DESCRIPTION	C/B TRIP	C/B POLE	CIRCUIT NO.	CIRCUIT NO.	C/B POLE	C/B TRIP	DESCRIPTION	
A	BEDROOM 1	15	1	1	2	2	30	AIR HANDLING UNIT AH-2	
	BATHROOM	20	1	3	4				
A	BEDROOM 2	15	1	5	6	2	25	HEAT PUMP HP-2	
A	LAUNDRY	15	1	7	8				
B	REFRIG/KITCHEN RECEPT	15	1	9	10	2	30	WATER HEATER WH-1	
A	KITCHEN RECEPTACLES	20	1	11	12				
A	MICROWAVE/RANGE HOOD	20	1	13	14	2	40	ELECTRIC RANGE	
A	KITCHEN RECEPTACLES	20	1	15	16				
B	DISHWASHER	15	1	17	18	2	30	CLOTHES DRYER	
B	DISPOSAL	15	1	19	20				
A	ENTRY/HALL/DINING/KITCH LTS	15	1	21	22	1	20	CLOTHES WASHER	A
A	LIVING ROOM	15	1	23	24	1	15	STRUCTURED MEDIA CABINET	A
A	SPARE	15	1	25	26	1	20	SPARE	A
A	SPARE	15	1	27	28	1	20	SPARE	
	SPACE	–	1	29	30	1	–	SPACE	

REMARKS:

1. CUTLER HAMMER "CH" LOAD CENTER OR EQUAL.
2. THIS SCHEDULE TYPICAL FOR LOAD CENTERS IN 1 BEDROOM UNITS IN THE 3 STORY BUILDING.

A BREAKER SHALL BE ARC-FAULT PROTECTED.

B BREAKER SHALL BE COMBINATION ARC-FAULT / GFCI PROTECTED.

Optional Method Load Calculation for One-Family Dwellings

UNIT DESIGNATION: **UNIT 1 BED**
LOAD CENTER DESIGNATION: **LC1**
VOLTAGE: 208/120V
PHASE/WIRE: 1PH/3W
TOTAL AREA: 660

1 General Lighting and Receptacle Loads 220.82(B)(1)
Do not include open porches, garages, and unused or unfinished spaces not adaptable for future use.
3 x 660 (sq ft using outside dimensions) = **1** 1,980

2 Small Appliance Branch-Circuits 220.82(B)(2)
At least two small appliance branch-circuits must be included. 210.11(C)(1)
1,500 x 2 (minimum of two) = **2** 3,000

3 Laundry Branch Circuit 220.82(B)(2)
At least one laundry branch-circuit must be included. 210.11(C)(2)
1,500 x 1 (minimum of one) = **3** 1,500

4 Appliances 220.82(B)(3) and (4)
Use the nameplate rating of ALL appliances (fastened-in-place, permanently connected, or connected to a specific circuit), ranges, ovens, cook tops, motors, and clothes dryers.
Do not include any heating or air-conditioning equipment in this section
Total volt-amperes of all appliances LISTED BELOW **4** 22,500

Electric Range / 10,000	Clothes Dryer / 5,000	
Microwave / 1,200	– / –	
Dishwasher / 1,000	– / –	Water Heater / 4,500
Disposal / 800	– / –	– / –

5 Apply 220.82(B) demand factor to the total of lines 1 through 4
28,980 (total of lines 1 through 4) – 10,000 = 18,980 x 40% = 7,592 + 10,000 = **5** 17,592

6 Heating or Air-Conditioning System 220.82(C) Use the nameplate rating(s) in volt-amperes for all applicable systems in lines a through f

a) 100 percent of air-conditioning and cooling system(s)
2,779 x 100% = **a)** 2,779

b) 100 percent of heat pump system(s), where the heat pump is used without any supplemental heating
1,749 x 100% = **b)** 1,749

c) 100 percent of heat pump compressor(s) and 65 percent of the supplemental electric heating, where both can operate at the same time.
1,749 x 100% +
5,000 x 65% = **c)** –

d) Electric space-heating equipment, if less than four seperately controlled units:
5,000 x 65% = **d)** 3,250

e) Electric space-heating equipment, if four or more seperately controlled units:
– x 40% = **e)** –

f) Electric thermal storage and other heating systems where the usual load is expected to be continuous at full name plate value: Systems qualifying under this selection shall not be figured under any other selection in 220.82(C).
– x 100% = **f)** –

7 Total Volt-Ampere Demand Load: 3,250 (largest VA rating from line 6a through 6e) + 17,592 (line 5) = **7** 20,842

8 Minimum Amperes
Divide the total volt-amperes by the voltage 20,842 (line 15) / 208 (voltage) = **8** 100 (minimum amperes)

9 Minimum Size Service and/or Feeder (240.6(A) **9** 125

Optional Method Load Calculation for One-Family Dwellings

UNIT DESIGNATION: **UNIT 2-BED**
LOAD CENTER DESIGNATION: **LC2**
VOLTAGE: 208/120V
PHASE/WIRE: 1PH/3W
TOTAL AREA: 822

1 General Lighting and Receptacle Loads 220.82(B)(1)
Do not include open porches, garages, and unused or unfinished spaces not adaptable for future use.
3 x 822 (sq ft using outside dimensions) = **1** 2,466

2 Small Appliance Branch-Circuits 220.82(B)(2)
At least two small appliance branch-circuits must be included. 210.11(C)(1)
1,500 x 2 (minimum of two) = **2** 3,000

3 Laundry Branch Circuit 220.82(B)(2)
At least one laundry branch-circuit must be included. 210.11(C)(2)
1,500 x 1 (minimum of one) = **3** 1,500

4 Appliances 220.82(B)(3) and (4)
Use the nameplate rating of ALL appliances (fastened-in-place, permanently connected, or connected to a specific circuit), ranges, ovens, cook tops, motors, and clothes dryers.
Do not include any heating or air-conditioning equipment in this section
Total volt-amperes of all appliances LISTED BELOW **4** 22,500

Electric Range / 10,000	Clothes Dryer / 5,000	
Microwave / 1,200	– / –	
Dishwasher / 1,000	– / –	Water Heater / 4,500
Disposal / 800	– / –	– / –

5 Apply 220.82(B) demand factor to the total of lines 1 through 4
29,466 (total of lines 1 through 4) – 10,000 = 19,466 x 40% = 7,786 + 10,000 = **5** 17,786

6 Heating or Air-Conditioning System 220.82(C) Use the nameplate rating(s) in volt-amperes for all applicable systems in lines a through f

a) 100 percent of air-conditioning and cooling system(s)
3,449 x 100% = **a)** 3,449

b) 100 percent of heat pump system(s), where the heat pump is used without any supplemental heating
2,019 x 100% = **b)** 2,019

c) 100 percent of heat pump compressor(s) and 65 percent of the supplemental electric heating, where both can operate at the same time.
2,019 x 100% +
8,000 x 65% = **c)** –

d) Electric space-heating equipment, if less than four seperately controlled units:
8,000 x 65% = **d)** 5,200

e) Electric space-heating equipment, if four or more seperately controlled units:
– x 40% = **e)** –

f) Electric thermal storage and other heating systems where the usual load is expected to be continuous at full name plate value: Systems qualifying under this selection shall not be figured under any other selection in 220.82(C).
– x 100% = **f)** –

7 Total Volt-Ampere Demand Load: 5,200 (largest VA rating from line 6a through 6e) + 17,786 (line 5) = **7** 22,986

8 Minimum Amperes
Divide the total volt-amperes by the voltage 22,986 (line 15) / 208 (voltage) = **8** 111 (minimum amperes)

9 Minimum Size Service and/or Feeder (240.6(A) **9** 125

PRINTS ISSUED
10/30/2023 - PERMIT SUBMITTAL

REVISIONS:

pkmr ENGINEERS
23.161

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NUMBER PE-2005028097
10/30/23
Michael D. Raaf - Engineer
MO# PE-2005028097

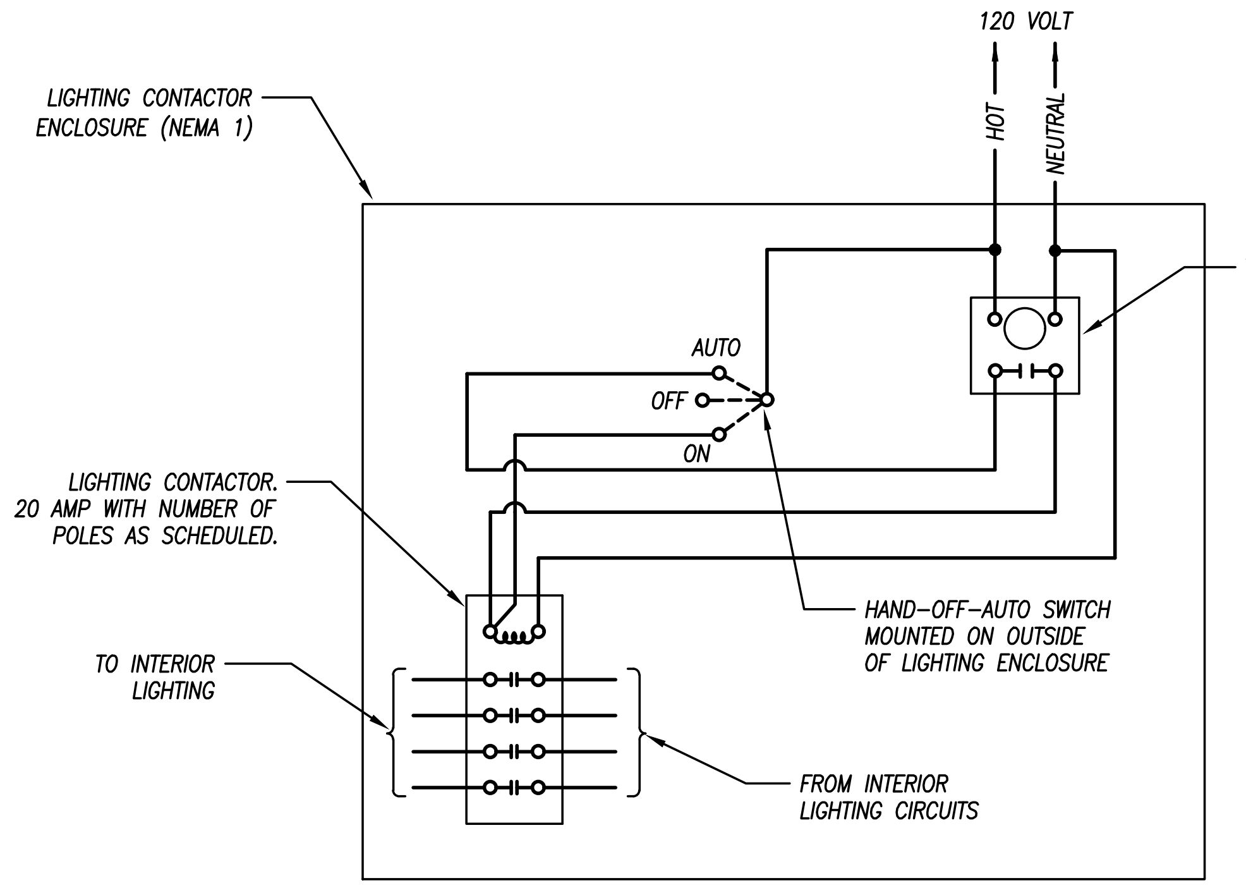
WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
ELECTRICAL SCHEDULES

PROJECT NUMBER: 23.161

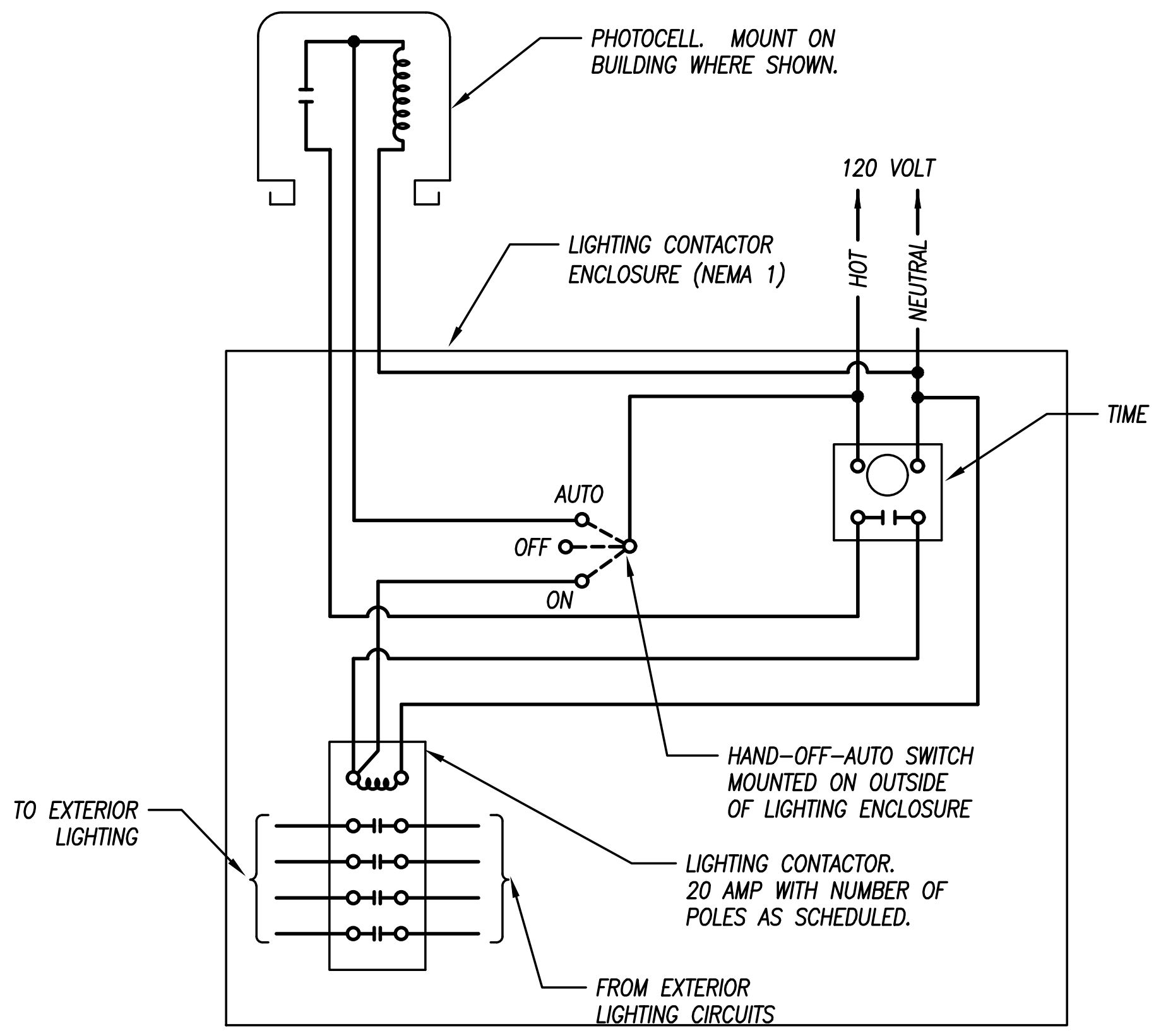
SHEET NUMBER:

E303


LIGHTING CONTACTOR ENCLOSURE (NEMA 1)
120 VOLT
HOT
NEUTRAL
TIME CLOCK
AUTO
OFF
ON
LIGHTING CONTACTOR. 20 AMP WITH NUMBER OF POLES AS SCHEDULED.
HAND-OFF-AUTO SWITCH MOUNTED ON OUTSIDE OF LIGHTING ENCLOSURE
TO INTERIOR LIGHTING
FROM INTERIOR LIGHTING CIRCUITS

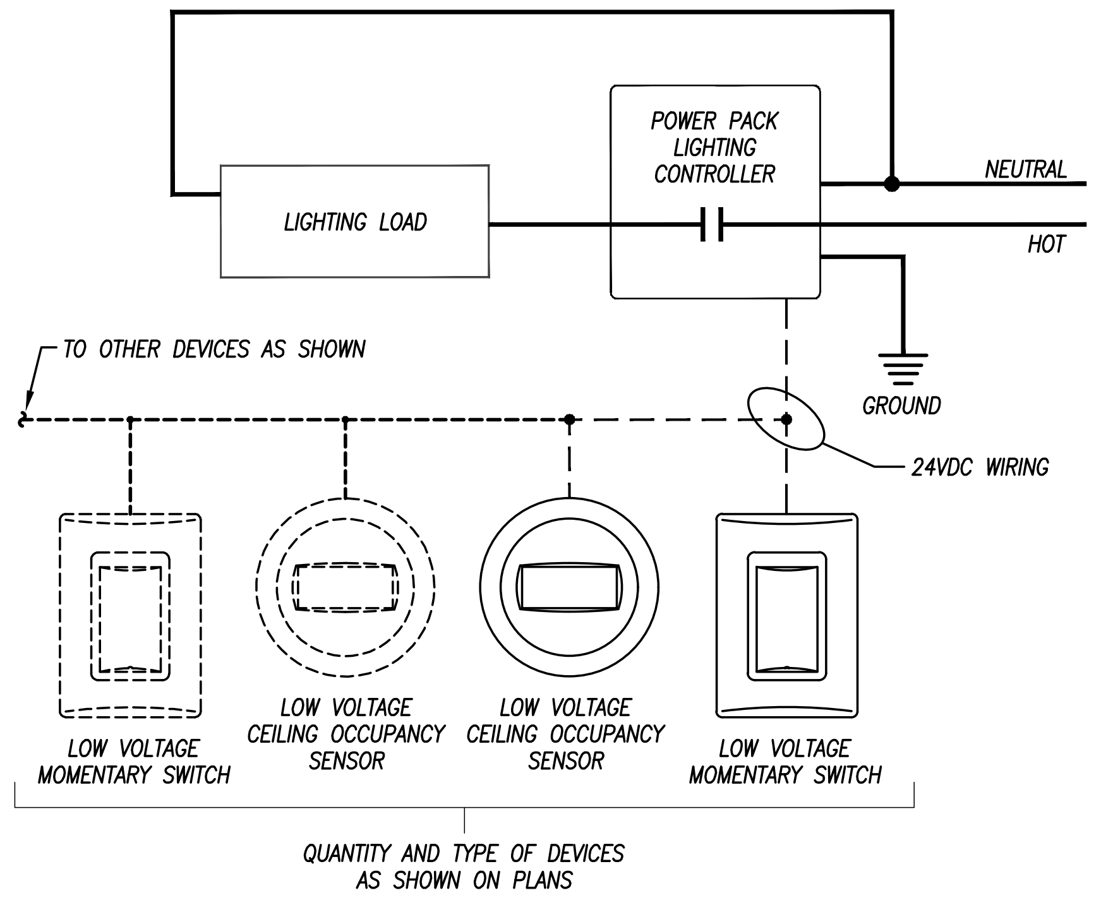
INTERIOR LIGHTING CONTROL

NOT TO SCALE


PHOTOCELL. MOUNT ON BUILDING WHERE SHOWN.
LIGHTING CONTACTOR ENCLOSURE (NEMA 1)
120 VOLT
HOT
NEUTRAL
TIME CLOCK
AUTO
OFF
ON
HAND-OFF-AUTO SWITCH MOUNTED ON OUTSIDE OF LIGHTING ENCLOSURE
TO EXTERIOR LIGHTING
LIGHTING CONTACTOR. 20 AMP WITH NUMBER OF POLES AS SCHEDULED.
FROM EXTERIOR LIGHTING CIRCUITS

EXTERIOR LIGHTING CONTROL

NOT TO SCALE


POWER PACK LIGHTING CONTROLLER
LIGHTING LOAD
NEUTRAL
HOT
GROUND
TO OTHER DEVICES AS SHOWN
24VDC WIRING
LOW VOLTAGE MOMENTARY SWITCH
LOW VOLTAGE CEILING OCCUPANCY SENSOR
LOW VOLTAGE CEILING OCCUPANCY SENSOR
LOW VOLTAGE MOMENTARY SWITCH
QUANTITY AND TYPE OF DEVICES AS SHOWN ON PLANS

TYPICAL LIGHTING CONTROL SCHEMATIC WIRING DIAGRAM

NOT TO SCALE

SCHEDULE OF REMOTE CONTROL SWITCHES

RCS NUMBER	NUMBER OF POLES	CONTROL DATA			LOAD DATA			CONTROL	NOTES
		VOLTAGE	CIRCUIT #	PANELBOARD	LOAD	VOLTAGE	PANEL & CIRCUITS CONTROLLED		
RCS-1	8	120	2	P1	CORRIDOR LTS	120	P1: 3,5,17,19,21,23,25,27	PHOTOCELL ON / PHOTOCELL OFF	1,2,3
RCS-2	4	120	2	P1	BUILDING EXTERIOR LTS	120	P1:31,33	PHOTOCELL ON / TIMECLOCK OFF	1,2,3
RCS-3	8	120	2	P1	SITE LIGHTS	208	P1:(35,37),(39,41)	PHOTOCELL ON / TIMECLOCK OFF	1,2,3

REMARKS:

1. INSTALL IN NEMA 1 ENCLOSURE WITH MANUAL HOA SWITCH IN HINGED FRONT COVER.
2. REFER TO DETAIL THIS.
3. LOCATED IN MECH. SPRINKLER ROOM 1005.

LIGHT FIXTURE SCHEDULE

FIXTURE TYPE	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	LAMP NUMBER / DESCRIPTION	VOLTAGE	REMARKS
A	RAB LIGHTING	EZPAN	2'x2' EDGE-LIT GRID TROFFER. LIGHTWEIGHT ALUMINUM HOUSING, STEEL PAN. FROSTED POLYSTYRENE LENS. INTEGRAL 0-10V DIMMING LED DRIVER.	ONE (1) 40 WATT, 4218 LUMENS, 3000K LED MODULE	120	1,3
B	SYLVANIA	ULTRA LIGHT DISK LED	RECESSED OR SURFACE MOUNT LED DOWNLIGHT, 900 LUMEN @ 13 WATT, 3000K, 82 CRI, SUITABLE FOR USE IN CLOSETS, COMPLIANT WITH NFPA 70, NEC SECTION 410.16 (A)(3) AND 410.16(C)(5), SUITABLE FOR DRY, DAMP AND WET LOCATIONS.	900 LUMENS, 13 WATTS, 3000K, 82 CRI	120	1,3
C	PROGRESS	P3569-09	SEMI-FLUSH MOUNTED FIXTURE. 19-3/8"Ø x 13-1/4" HIGH. BRUSHED NICKEL FINISH WITH GLASS BOWL.	THREE (3) 18 WATT LED REPLACEMENT LAMPS	120	1,3,4
D	PROGRESS LIGHTING	P5068-09	AVALON MINI-PENDANT, ALABASTER GLASS SHADE, BRUSHED NICKEL FINISH, ONE (1) 100 WATT MEDIUM BASE SOCKET, CEILING STEM MOUNT, TWO (2) 12" AND TWO (2) 15" SECTIONS OF MATCHING STEM INCLUDED TO ATTAIN VARIOUS DESIRED LENGTHS.	ONE (1) 100 WATT MEDIUM BASE LAMP	120	1,3,4
E	DUAL-LITE	EV SERIES	LOW-PROFILE EMERGENCY LIGHTING UNIT. FLAME-RATED, UV-STABLE THERMOPLASTIC HOUSING. TWO (2) SEMI-RECESSED, ADJUSTABLE "EYEBALL" HEADS WITH GLASS LENS. WHITE FINISH. MAINTENANCE-FREE BATTERY FOR 90 MINUTE OPERATION OF LAMPS. INTEGRAL TEST SWITCH AND AC-ON INDICATOR. FURNISH WITH 2 WATT LED HEADS FOR 33' SPACING AT 6' PATH WIDTH.	TWO (2) 2 WATT LED HEADS.	120	1
E2	DUAL-LITE	PG SERIES	EXTERIOR WALL-MOUNTED EMERGENCY LIGHTING FIXTURE. DIE-CAST HOUSING WITH ALUMINUM REFLECTOR AND ACRYLIC LENS. FURNISH WITH OPTIONAL BATTERY HEATER. UL-LISTED WET LOCATION. DARK BRONZE FINISH.	FOUR (4) HIGH-OUTPUT LEDS - TOTAL POWER CONSUMPTION = 15.2 WATTS.	120	1
F	WILLIAMS	SERIES 76	4'-0" LONG COMMERCIAL-GRADE STRIP FIXTURE. CHAIN MOUNT FROM CEILING AT 8-6" A.F.F. WHITE FINISH. INTEGRAL LED DRIVER PRE-WIRED FOR NON-DIMMING APPLICATIONS.	ONE (1) 44 WATT, 5500 LUMEN, L50 LED MODULE. 3500K CCT.	120	1
G	METALUX	SERIES 39	4'-0" LONG SURFACE MOUNTED WRAP-AROUND LED FIXTURE. STEEL HOUSING WITH CLEAR EXTRUDED ACRYLIC DIFFUSER. SQUARE WHITE END CAPS. WHITE POWDER COAT FINISH. INTEGRAL LED DRIVER.	ONE (1) 42.4 WATT, 4000 LUMEN, 40SL LED MODULE. 3000K CCT.	120	1
H	MINKA LAVERY	4460-84	ADA-COMPLIANT DECORATIVE WALL SCONCE. 4.25" x 15.25" HIGH. BRUSHED NICKEL FINISH WITH ETCHED OPAL GLASS SHADE.	ONE (1) 9 WATT T-10 TUBULAR LED REPLACEMENT LAMP	120	1,3,4
J	PROGRESS	P4328-09	LARGE PENDANT-MOUNTED FIXTURE. 23"Ø x 24-1/2" HIGH WITH CHAIN. ETCHED GLASS SHADES. BRUSHED NICKEL FINISH. FIVE-LAMP, SINGLE TIER FOYER FIXTURE.	FIVE (5) 18W A19 LED REPLACEMENT BULBS	120	1,3,4
L	PROGRESS	P7250-0930K9	FLUSH MOUNTED FIXTURE. 19-3/8" Ø. BRUSHED NICKEL FINISH WITH WHITE ACRYLIC DIFFUSER.	ONE (1) 31 WATT LED MODULE. 3000K CCT	120	1,3
M	WILLIAMS	SERIES 29	4'-0" LONG WALL-MOUNTED UP/DOWN LIGHT. STEEL HOUSING WITH CLEAR ACRYLIC PRISMATIC LENS. ALL PARTS PAINTED WHITE AFTER FABRICATION. ELECTRONIC BALLAST.	ONE (1) 42.2 WATT, 5400 LUMEN, L54 LED MODULE. 3500K CCT.	120	1
P	PROGRESS	P2010-09	21.5" WIDE, WALL-MOUNTED, DECORATIVE UPLIGHT VANITY FIXTURE. BRUSHED NICKEL FINISH.. ETCHED GLASS LAMP SHADES. DAMP LOCATION LISTED.	THREE (3) 18 WATT LED REPLACEMENT LAMPS	120	1,3,4
R	LUMARK	CROSSTOUR FLOODLIGHT KIT	EXTERIOR GROUND-MOUNTED RECTANGULAR WIDE FLOOD LED. FIXTURE. SWIVEL MOUNTING. FINISH AS DIRECTED BY ARCHITECT. U.L. LISTED WET LOCATION. FURNISH FIXTURE WITH STANCHION FOR MOUNTING ON GRADE. SET BASE IN CONCRETE AS DIRECTED BY FIXTURE MANUFACTURER - REFER TO DETAIL ON SITE PLAN FOR ADDITIONAL BASE WORK.	ONE (1) 26 WATT, 2804 LUMEN, LED MODULE. 3500K COLOR TEMPERATURE.	120	1
R2	RAB LIGHTING	LFLOOD	COMPACT BULLET STYLE LIGHT. SPOT DISTRIBUTION. DIE-CAST ALUMINUM HOUSING, HOOD, AND MOUNTING ARM WITH SET SCREW. CLEAR TEMPERED GLASS LENS AND ONE PIECE STAMPED SILICONE GASKET. COLD WEATHER RATED FOR -40°F STARTING. POWDER COAT BRONZE FINISH OR AS DIRECTED BY ARCHITECT. UL LISTED WET LOCATION.	ONE (1) 13 WATT LED, 3000K, 84 CRI	120	1
		MIGHTY POST	2-1/2" PVC MOUNTING POST WITH METAL CAP. CAST IN CONCRETE PER MANUFACTURER'S RECOMMENDATIONS. FINISH SAME AS FIXTURE HOUSING.			
S	SPAULDING	FN1 LED SERIES	6.75" SQUARE, 36" HIGH LIGHT BOLLARD. EXTRUDED ALUMINUM RISER WITH FLAT TOP. SEALED, ONE-PIECE ACRYLIC LENS. HEAVY CAST ALUMINUM ANCHOR BASE - REFER TO DETAIL ON SITE PLAN FOR ADDITIONAL BASE WORK. DARK BRONZE FINISH.	ONE (1) 31 WATT, LED MODULE. 3500K COLOR TEMPERATURE.	208	1
T	PROGRESS LIGHTING	P5673-108	DECORATIVE, WALL-MOUNTED LIGHT FIXTURE. 12" WIDE x 32-3/4" CAST ALUMINUM HOUSING WITH BEVELED GLASS LENS. OIL RUBBED BRONZE FINISH.	FOUR (4) 60 WATT CANDELABRA INCANDESCANT BULBS	120	1,3,5
T1	PROGRESS LIGHTING	P5671-108	DECORATIVE, WALL-MOUNTED LIGHT FIXTURE. 8-1/2" WIDE x 16-3/4" CAST ALUMINUM HOUSING WITH BEVELED GLASS LENS. OIL RUBBED BRONZE FINISH.	TWO (2) 60 WATT CANDELABRA INCANDESCANT BULBS	120	1,3,5
U	WILLIAMS	6DR SERIES	6" ROUND RECESSED DOWNLIGHT. DIE-FORMED STEEL PAN WITH FINNED, EXTRUDED ALUMINUM PASSIVE HEAT SINK. SELF-FLANGED, SEMI-SPECULAR LOW IRIDESCENT FINISH ALUMINUM REFLECTOR WITH MEDIUM BEAM ANGLE/DISTRIBUTION AND REGRESSED LENS. INTEGRAL LED DRIVER PRE-WIRED FOR 0-10V DIMMING APPLICATIONS. WET LOCATION LISTED UNDER COVERED CEILING.	ONE (1) 43.9 WATT, 5000 LUMEN, L50 LUMEN PACKAGE. 3500K CCT.	120	1
W	RAB LIGHTING	ALED	POLE-MOUNTED 78W LED AREA LIGHT. ARCHITECTURAL, ONE-PIECE DIE-CAST ALUMINUM HOUSING. DIE-CAST ALUMINUM DOOR. FULLY GASKETED, CLEAR, FLAT, TEMPERED GLASS LENS. IES TYPE III DISTRIBUTION. IESNA FULL CUTOFF LIGHTING CLASSIFICATION. LOW TEMP STARTING. DECORATIVE UPSWEPT DIE CAST ALUMINUM MOUNTING ARM. POWDER COAT FINISH IN COLOR AS DIRECTED BY ARCHITECT. PROVIDE WITH 20'-0" HIGH, STRAIGHT, SQUARE STEEL POLE.	SIX (6) MULTI-CHIP, HIGH-OUTPUT LED MODULE. 8,765 LUMENS. 3000K.	208	1
W2	RAB LIGHTING	ALED	POLE-MOUNTED AREA LIGHT WITH TWO HEADS @ 180 DEGREES APART. ARCHITECTURAL, ONE-PIECE DIE-CAST ALUMINUM HOUSING. DIE-CAST ALUMINUM DOOR. FULLY GASKETED, CLEAR, FLAT, TEMPERED GLASS LENS. IES TYPE II DISTRIBUTION. IESNA FULL CUTOFF LIGHTING CLASSIFICATION. LOW TEMP STARTING. DECORATIVE UPSWEPT DIE CAST ALUMINUM MOUNTING ARM. POWDER COAT FINISH IN COLOR AS DIRECTED BY ARCHITECT. PROVIDE WITH 20'-0" HIGH, STRAIGHT, SQUARE STEEL POLE.	PER HEAD - SIX (6) MULTI-CHIP, HIGH-OUTPUT LEDS. 8,765 LUMENS. 5000K.	208	1
X	DUAL-LITE	SEMPRA SERIES	COMPACT, LOW-PROFILE EXIT SIGN. CAST ALUMINUM CONSTRUCTION. FINISH BLACK WITH BRUSHED ALUMINUM FACE. RED LETTERS. END, TOP, OR WALL MOUNTED IN SINGLE/DOUBLE FACE CONFIGURATION WITH DIRECTIONAL ARROWS AS INDICATED ON PLANS. FURNISH WITH EMERGENCY OPTION FOR MAINTENANCE-FREE NICKEL-CADMIUM BATTERY FOR 2 HOUR OPERATION WITH INTEGRAL TEST SWITCH AND AC-ON LIGHT.	FOUR (4) HIGH-OUTPUT LEDS - TOTAL POWER CONSUMPTION = 3.8 WATTS.	120	1
ARA	DUAL-LITE	SEMPRA SERIES	COMPACT, LOW-PROFILE INDICATOR LIGHT. CAST ALUMINUM CONSTRUCTION. FINISH BLACK WITH BRUSHED ALUMINUM FACE. RED LETTERS. WALL MOUNTED. FURNISH WITH SPECIAL WORDING OPTION SW13 - SIGN TO READ "AREA OF RESCUE ASSISTANCE" WITH WHEELCHAIR SYMBOL. FURNISH WITH EMERGENCY OPTION FOR MAINTENANCE-FREE NICKEL-CADMIUM BATTERY FOR 2 HOUR OPERATION WITH INTEGRAL TEST SWITCH AND AC-ON LIGHT.	FOUR (4) HIGH-OUTPUT LEDS - TOTAL POWER CONSUMPTION = 3.8 WATTS.	120	1
AA	NORA LIGHTING	NLOPAC	5" SURFACE MOUNTED DOWNLIGHT. MOUNTS TO STANDARD JUNCTION BOX. INTEGRAL LINE VOLTAGE DIMMABLE LED DRIVER. UL-LISTED FOR WET CELING LOCATIONS. SUITABLE FOR USE IN CLOSETS.	ONE (1) 16.5 WATT, 1100 LUMEN, LED MODULE. 3000K CCT.	120	1
AB	PROGRESS LIGHTING	P2501-09	52" BUILDER AIR PRO ENERGY STAR CEILING FAN, BRUSHED NICKEL FINISH, FIVE (5) REVERSIBLE CHERRY/NATURAL CHERRY BLADES, REVERSIBLE, 12 DEGREE PITCH	-		1,3
	PROGRESS LIGHTING	P2612-09WB	LIGHT KIT. BRUSHED NICKEL FINISH, THREE (3) PORCELAIN CANDELABRA SOCKETS	TWO (2) 10 WATT LED LAMPS (INCLUDED)	120	1,3,4
AE	PROGRESS	P2010-09	3 LIGHT VANITY FIXTURE IN BRUSHED NICKEL FINISH WITH ETCHED GLASS FLUTED SHADES, 21-1/2" WIDE X 6-5/8" HIGH. FURNISH IN "DOWN" POSITION.	THREE (3) 100 WATT A19 INCANDESCENT.	120	1,2,3
AF	PROGRESS LIGHTING	P3925-09	FLUSHMOUNT 13 1/4" X 5-7/8", BRUSHED NICKEL FINISH, ALABASTER GLASS, WITH TWO (2) MEDIUM BASE 75 WATT MAX BULBS. SOLID TRIM AND DECORATIVE KNOBS. DAMP LOCATION LISTED.	TWO (2) 75 WATT MEDIUM BASE INCANDESCENT	120	1,3,4
AG	PROGRESS LIGHTING	P5068-09	AVALON MINI-PENDANT, ALABASTER GLASS SHADE, BRUSHED NICKEL FINISH, ONE (1) 100 WATT MEDIUM BASE SOCKET, CEILING STEM MOUNT, TWO (2) 12" AND TWO (2) 15" SECTIONS OF MATCHING STEM INCLUDED TO ATTAIN VARIOUS DESIRED LENGTHS.	ONE (1) 100 WATT MEDIUM BASE LAMP	120	1,3,4
N1	KICHLER	4U	22" LONG LOW-PROFILE UNDER-CABINET FIXTURE. FLAT, FROSTED DIFFUSE LENS. INTEGRAL LED DRIVER. WHITE FINISH. COORDINATE LENGTH WITH MILLWORK SHOP DRAWINGS.	ONE (1) 10 WATT, 551 LUMEN, LINEAR LED MODULE. 3000K CCT.	120	1,2

REMARKS:

1. FURNISH WITH AND INSTALL ALL NECESSARY HARDWARE AND MOUNTING BRACKETS.
2. FURNISH FIXTURE WITH WIRE GUARD.
3. FIXTURE HAS BEEN SELECTED BY OWNER. IN GENERAL, NO SUBSTITUTIONS WILL BE ALLOWED - COORDINATE SAME WITH OWNER.
4. FURNISH FIXTURE WITH CREE SCREW-IN BASE OMNIDIRECTIONAL LED LAMPS IN LIEU OF INCANDESCENT LAMPS. USE 9W LAMPS FOR 60W INCANDESCENT, 6W FOR 40W, 13.5W FOR 75W, AND 18W FOR 100W.
5. INSTALL FIXTURE SUCH THAT BOTTOM IS AT OR ABOVE 84" AFF FOR ADA CLEARANCE REQUIREMENTS.

GENERAL NOTES (APPLICABLE TO ALL FIXTURES):

1) REFER TO SPECIFICATIONS FOR APPROVED EQUAL FIXTURE MANUFACTURERS AND ADDITIONAL FIXTURE/DRIVER/BALLAST REQUIREMENTS.
2) ALL FIXTURES WITH PAINTED METAL PARTS SHALL BE PAINTED AFTER FABRICATION.
3) LUMENS LISTED FOR LED FIXTURES ARE GENERALLY DELIVERED LUMENS UNLESS NOTED OTHERWISE.
4) ALL EXTERIOR LED FIXTURES ARE FULL CUTOFF UNLESS NOTED OTHERWISE.
5) ALL FIXTURES SHALL BE IC RATED OR PROVIDED WITH INSULATION SHIELDS WHEN INSTALLED IN INSULATED AREAS OF THE TRUSS SPACE.
6) FOR ALL FIXTURES INSTALLED IN RATED ASSEMBLIES, FURNISH AND INSTALL APPROVED FIRE BARRIER (E.Z. BARRIER OR TENMAT FF109 SERIES) OVER FIXTURE TO MAINTAIN 1 HOUR CEILING ASSEMBLY RATING.

PRINTS ISSUED
10/30/2023 - PERMIT SUBMITTAL

REVISIONS:

23.161

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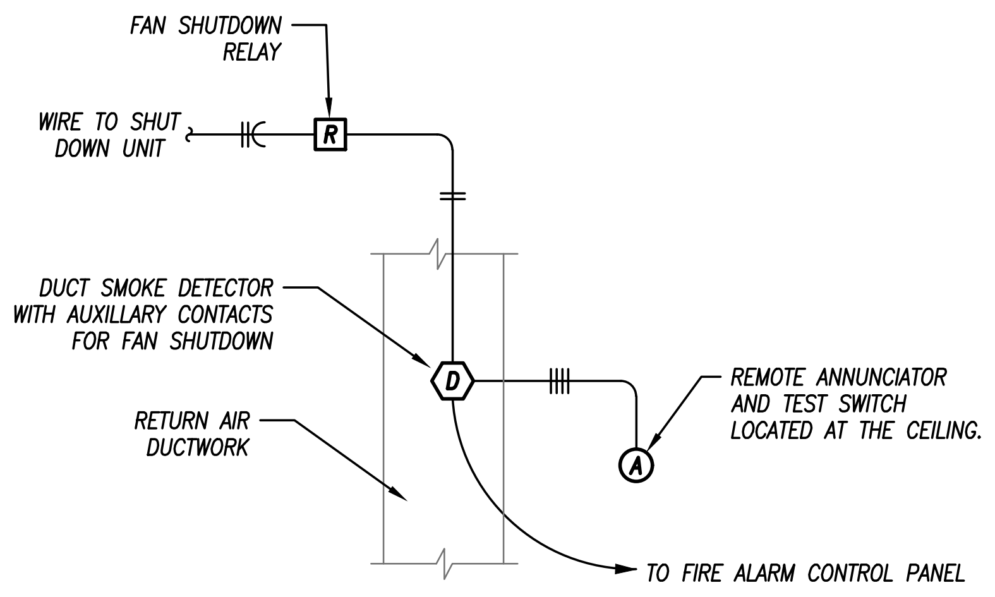
WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
ELECTRICAL SCHEDULES/DETAILS

PROJECT NUMBER: 23.161

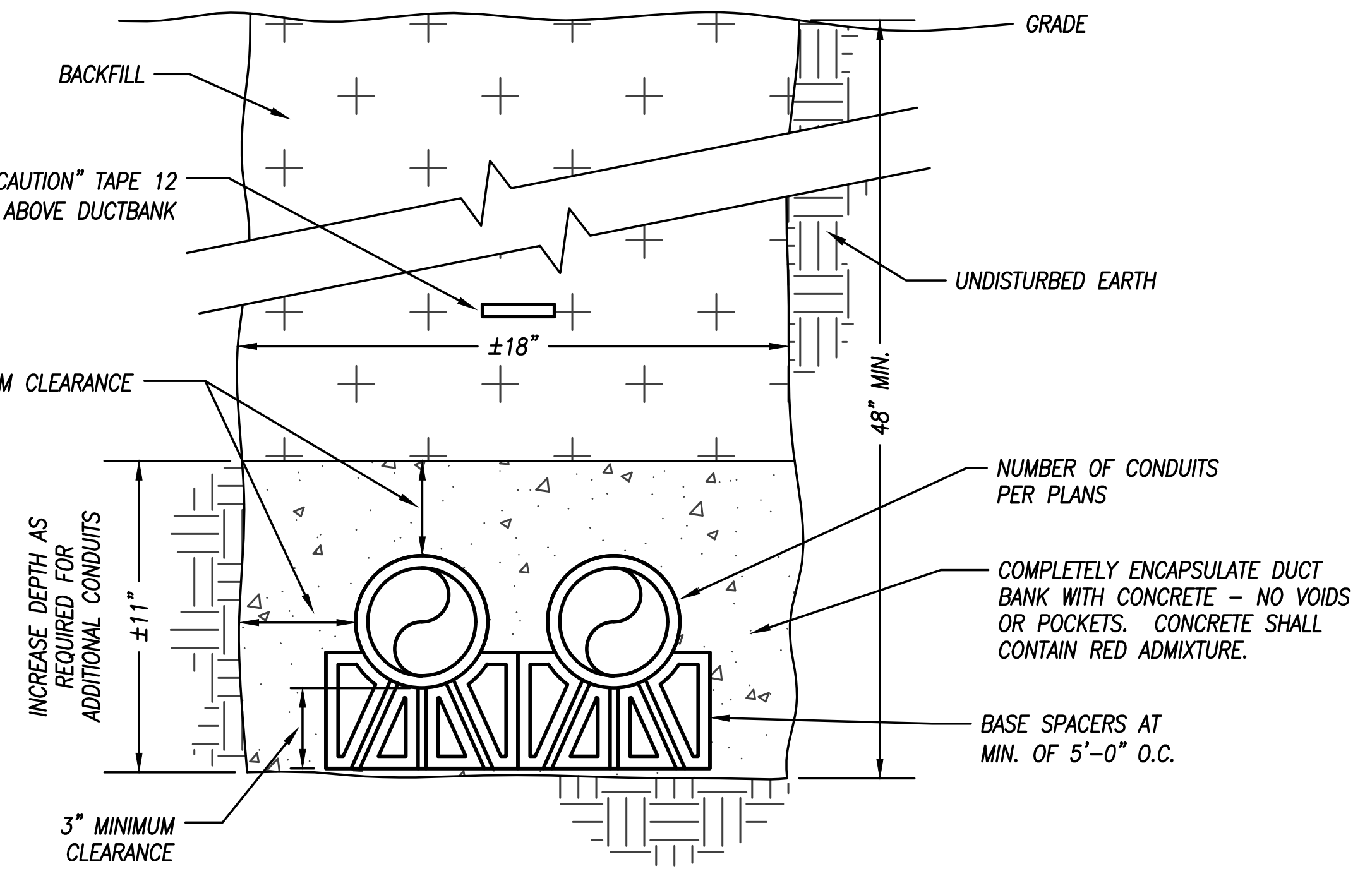
SHEET NUMBER:

E401


FAN SHUTDOWN RELAY
WIRE TO SHUT DOWN UNIT
R
DUCT SMOKE DETECTOR WITH AUXILLARY CONTACTS FOR FAN SHUTDOWN
D
RETURN AIR DUCTWORK
REMOTE ANNUNCIATOR AND TEST SWITCH LOCATED AT THE CEILING.
A
TO FIRE ALARM CONTROL PANEL

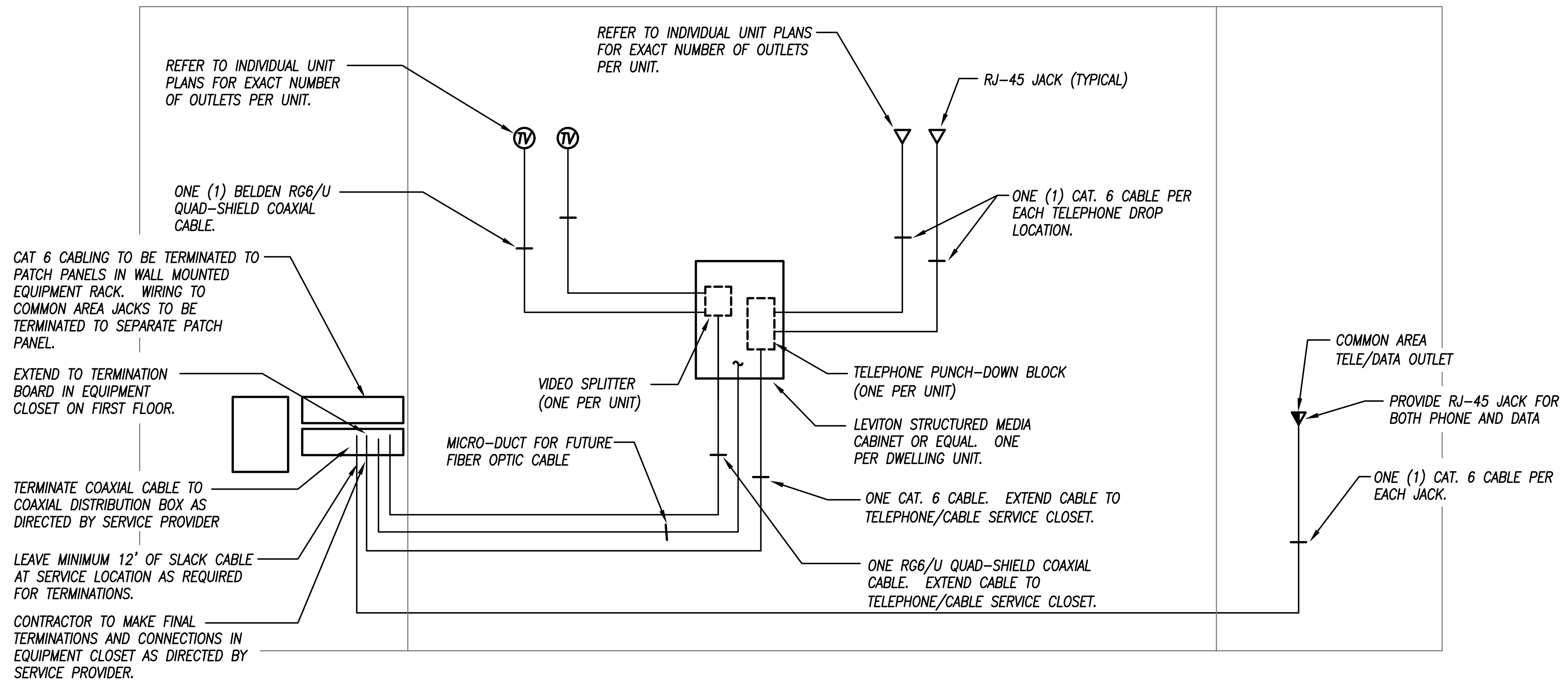
DUCT SMOKE DETECTOR DIAGRAM

NOT TO SCALE


GRADE
BACKFILL
YELLOW "CAUTION" TAPE 12 TO 18" ABOVE DUCTBANK
UNDISTURBED EARTH
±18"
3" MINIMUM CLEARANCE
48" MIN.
NUMBER OF CONDUITS PER PLANS
COMPLETELY ENCAPSULATE DUCT BANK WITH CONCRETE – NO VOIDS OR POCKETS. CONCRETE SHALL CONTAIN RED ADMIXTURE.
INCREASE DEPTH AS REQUIRED FOR ADDITIONAL CONDUITS
±11"
BASE SPACERS AT MIN. OF 5'-0" O.C.
3" MINIMUM CLEARANCE

UNDERGROUND ELECTRICAL DUCTBANK DETAIL

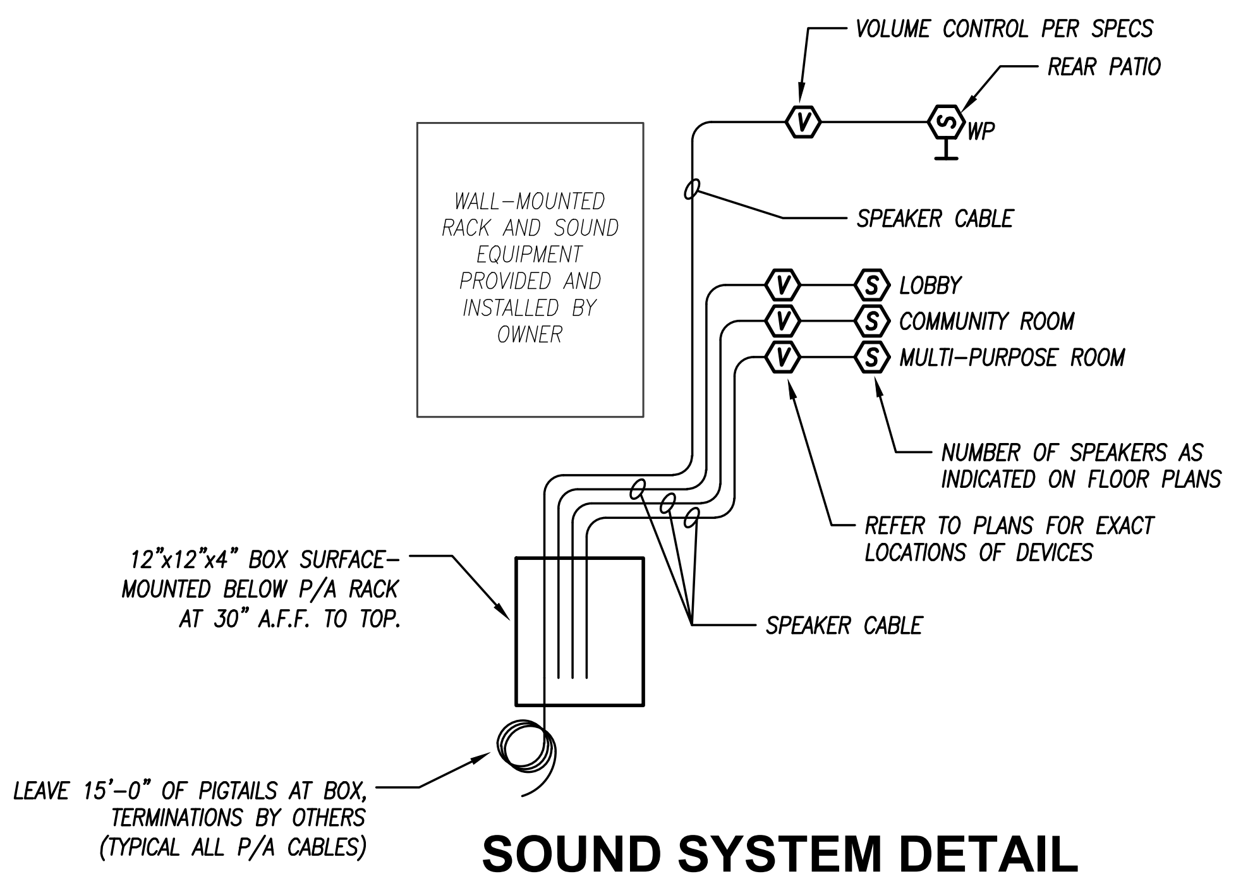
NOT TO SCALE


REFER TO INDIVIDUAL UNIT PLANS FOR EXACT NUMBER OF OUTLETS PER UNIT.
TV
TV
REFER TO INDIVIDUAL UNIT PLANS FOR EXACT NUMBER OF OUTLETS PER UNIT.
RJ-45 JACK (TYPICAL)
ONE (1) BELDEN RG6/U QUAD-SHIELD COAXIAL CABLE.
ONE (1) CAT. 6 CABLE PER EACH TELEPHONE DROP LOCATION.
CAT 6 CABLING TO BE TERMINATED TO PATCH PANELS IN WALL MOUNTED EQUIPMENT RACK. WIRING TO COMMON AREA JACKS TO BE TERMINATED TO SEPARATE PATCH PANEL.
EXTEND TO TERMINATION BOARD IN EQUIPMENT CLOSET ON FIRST FLOOR.
VIDEO SPLITTER (ONE PER UNIT)
TELEPHONE PUNCH-DOWN BLOCK (ONE PER UNIT)
LEVITON STRUCTURED MEDIA CABINET OR EQUAL. ONE PER DWELLING UNIT.
MICRO-DUCT FOR FUTURE FIBER OPTIC CABLE
COMMON AREA TELE/DATA OUTLET
PROVIDE RJ-45 JACK FOR BOTH PHONE AND DATA
ONE (1) CAT. 6 CABLE PER EACH JACK.
TERMINATE COAXIAL CABLE TO COAXIAL DISTRIBUTION BOX AS DIRECTED BY SERVICE PROVIDER
ONE CAT. 6 CABLE. EXTEND CABLE TO TELEPHONE/CABLE SERVICE CLOSET.
LEAVE MINIMUM 12' OF SLACK CABLE AT SERVICE LOCATION AS REQUIRED FOR TERMINATIONS.
ONE RG6/U QUAD-SHIELD COAXIAL CABLE. EXTEND CABLE TO TELEPHONE/CABLE SERVICE CLOSET.
CONTRACTOR TO MAKE FINAL TERMINATIONS AND CONNECTIONS IN EQUIPMENT CLOSET AS DIRECTED BY SERVICE PROVIDER.

TYPICAL LOW-VOLTAGE CABLING RISER

NOT TO SCALE

TYPICAL FOR EACH DWELLING UNIT


VOLUME CONTROL PER SPECS
REAR PATIO
V
S
WP
WALL-MOUNTED RACK AND SOUND EQUIPMENT PROVIDED AND INSTALLED BY OWNER
SPEAKER CABLE
V
S
LOBBY
V
S
COMMUNITY ROOM
V
S
MULTI-PURPOSE ROOM
NUMBER OF SPEAKERS AS INDICATED ON FLOOR PLANS
REFER TO PLANS FOR EXACT LOCATIONS OF DEVICES
12"x12"x4" BOX SURFACE-MOUNTED BELOW P/A RACK AT 30" A.F.F. TO TOP.
SPEAKER CABLE
LEAVE 15'-0" OF PIGTAILS AT BOX, TERMINATIONS BY OTHERS (TYPICAL ALL P/A CABLES)

SOUND SYSTEM DETAIL

NOT TO SCALE

SOUND SYSTEM SPECIFICATIONS:

SOUND SYSTEM CABLING: ALL INTERCOM SYSTEM CABLING SHALL BE PLENUM-RATED AND PER MANUFACTURER'S RECOMMENDATIONS. ROOM SPEAKER CIRCUIT CABLING SHALL BE (4)#22 FOIL SHIELD PLENUM CABLE (WESTPENN 25357 OR EQUAL). TERMINATE ALL ROOM SPEAKER CABLE RUNS ON SPLIT PUNCH BLOCKS (R66B3-50W OR EQUAL).

SPEAKERS SHALL BE DUKANE MODEL 5A606, OR EQUAL, WITH 710-3092 25/70V TRANSFORMERS HAVING TAPS AT 0.5, 1.0, 2.0 WATTS.

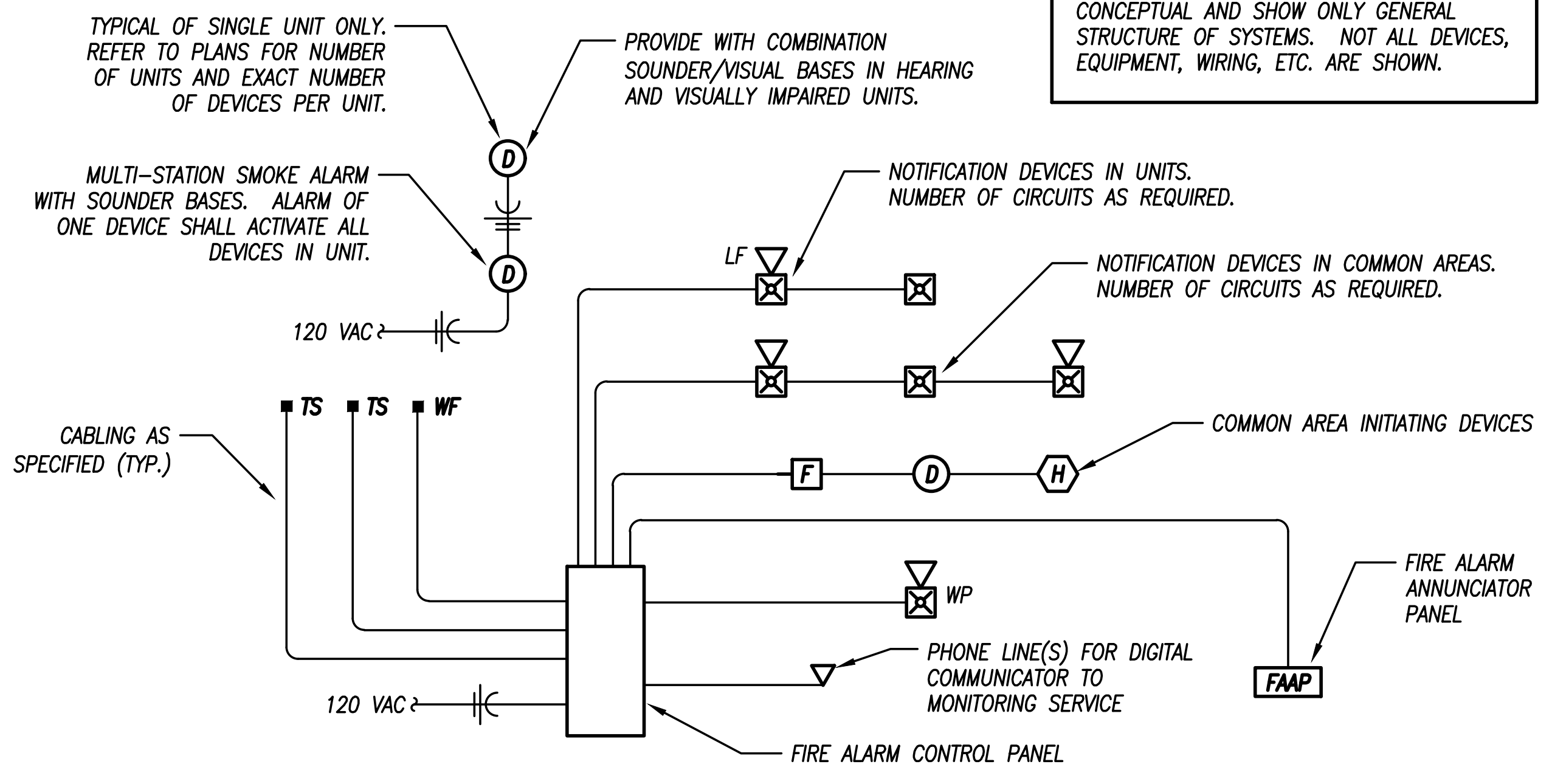
SPEAKERS SHALL BE ENCLOSED IN WALL OR CEILING MOUNTED FLUSH BAFFLES, DUKANE MODEL 6A633, OR EQUAL. GRILLES SHALL BE CONSTRUCTED OF STEEL, FINISHED IN FLAT WHITE PAINT. GRILLES MAY BE PAINTED TO MATCH ROOM DECOR. THE 8" SPEAKER SHALL BE MOUNTED ON A SEPARATE STEEL PLATE. SPEAKER BACK BOXES SHALL BE DUKANE MODEL 145-222, OR EQUAL. SPEAKERS MOUNTED IN SUSPENDED CEILING TILES SHALL INCLUDE WEIGHT SUPPORTING BRIDGES, DUKANE MODEL 677-67, OR EQUAL.

CORRIDOR SPEAKER BAFFLES SHALL BE BI-DIRECTIONAL ATLAS/SOUNDOLIER MODEL 512-8, OR EQUAL. CYLINDRICAL BAFFLES CONSTRUCTED OF SPUN ALUMINUM SHALL NOT BE ACCEPTABLE. THE ASSEMBLY SHALL MOUNT TO A 4-INCH, 2-GANG J-BOX. MINIMUM MOUNTING HEIGHT SHALL BE 80" AFF, OR AS INDICATED ON DRAWINGS.

SPEAKERS SHALL BE TAPPED AS FOLLOWS:
COMMUNITY ROOM AND FLOOR PARLOR: 0.5 WATTS
REAR PATIO AND POOL TABLE AREA: 1.0 WATTS

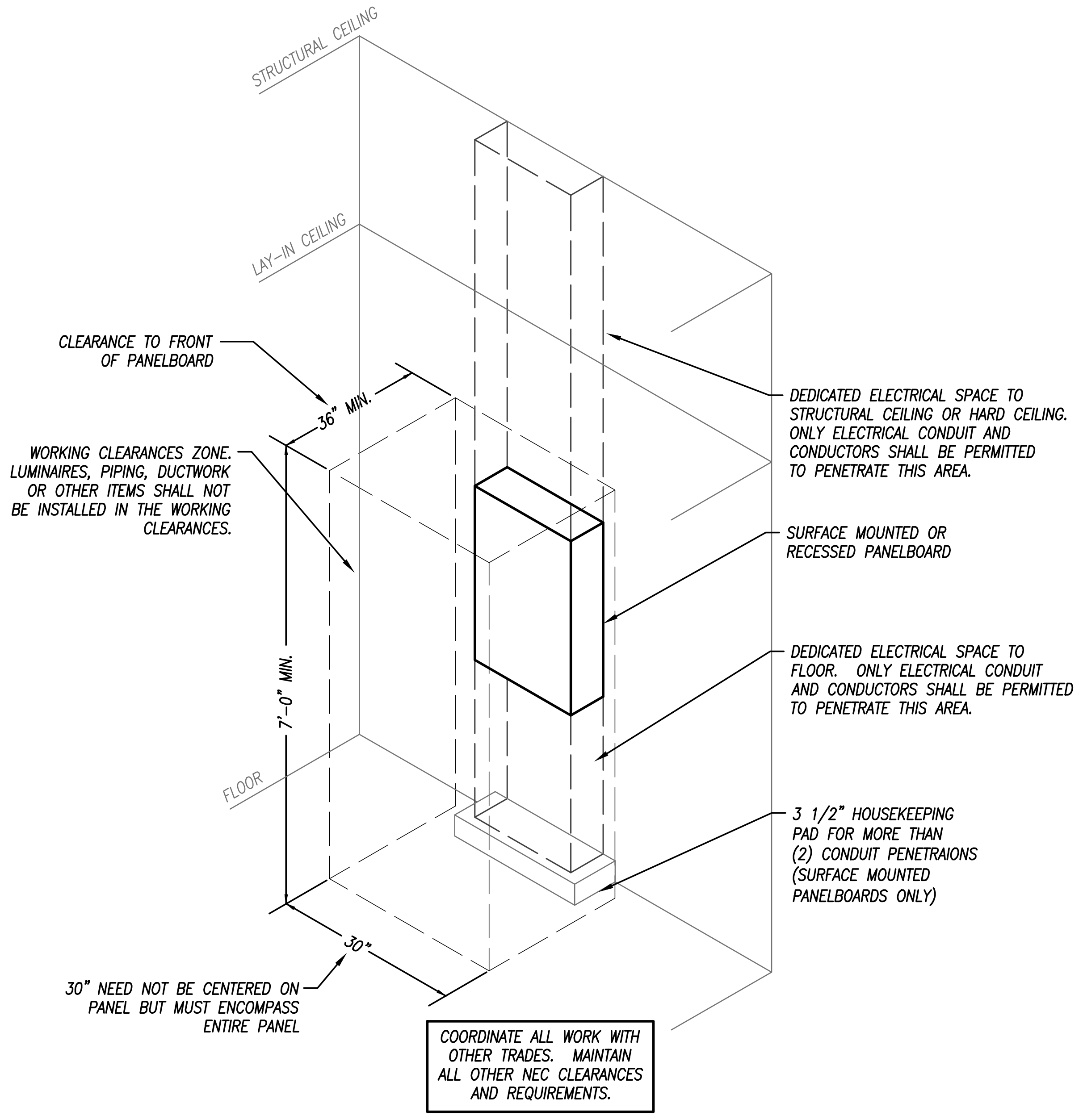
VOLUME CONTROLS: THE VOLUME CONTROLS SHALL BE DUKANE MODEL 9A1550A, OR EQUAL, AND WIRED INTO THE SPEAKER TRANSFORMER PRIMARY CIRCUITS. HEIGHT SHALL NOT EXCEED 48" A.F.F.

NOTE:
THE RISER DIAGRAMS ON THIS SHEET ARE CONCEPTUAL AND SHOW ONLY GENERAL STRUCTURE OF SYSTEMS. NOT ALL DEVICES, EQUIPMENT, WIRING, ETC. ARE SHOWN.


TYPICAL OF SINGLE UNIT ONLY. REFER TO PLANS FOR NUMBER OF UNITS AND EXACT NUMBER OF DEVICES PER UNIT.
PROVIDE WITH COMBINATION SOUNDER/VISUAL BASES IN HEARING AND VISUALLY IMPAIRED UNITS.
D
MULTI-STATION SMOKE ALARM WITH SOUNDER BASES. ALARM OF ONE DEVICE SHALL ACTIVATE ALL DEVICES IN UNIT.
D
NOTIFICATION DEVICES IN UNITS. NUMBER OF CIRCUITS AS REQUIRED.
LF
NOTIFICATION DEVICES IN COMMON AREAS. NUMBER OF CIRCUITS AS REQUIRED.
120 VAC
TS
TS
WF
CABLING AS SPECIFIED (TYP.)
COMMON AREA INITIATING DEVICES
F
D
H
FIRE ALARM ANNUNCIATOR PANEL
WP
PHONE LINE(S) FOR DIGITAL COMMUNICATOR TO MONITORING SERVICE
FAAP
120 VAC
FIRE ALARM CONTROL PANEL

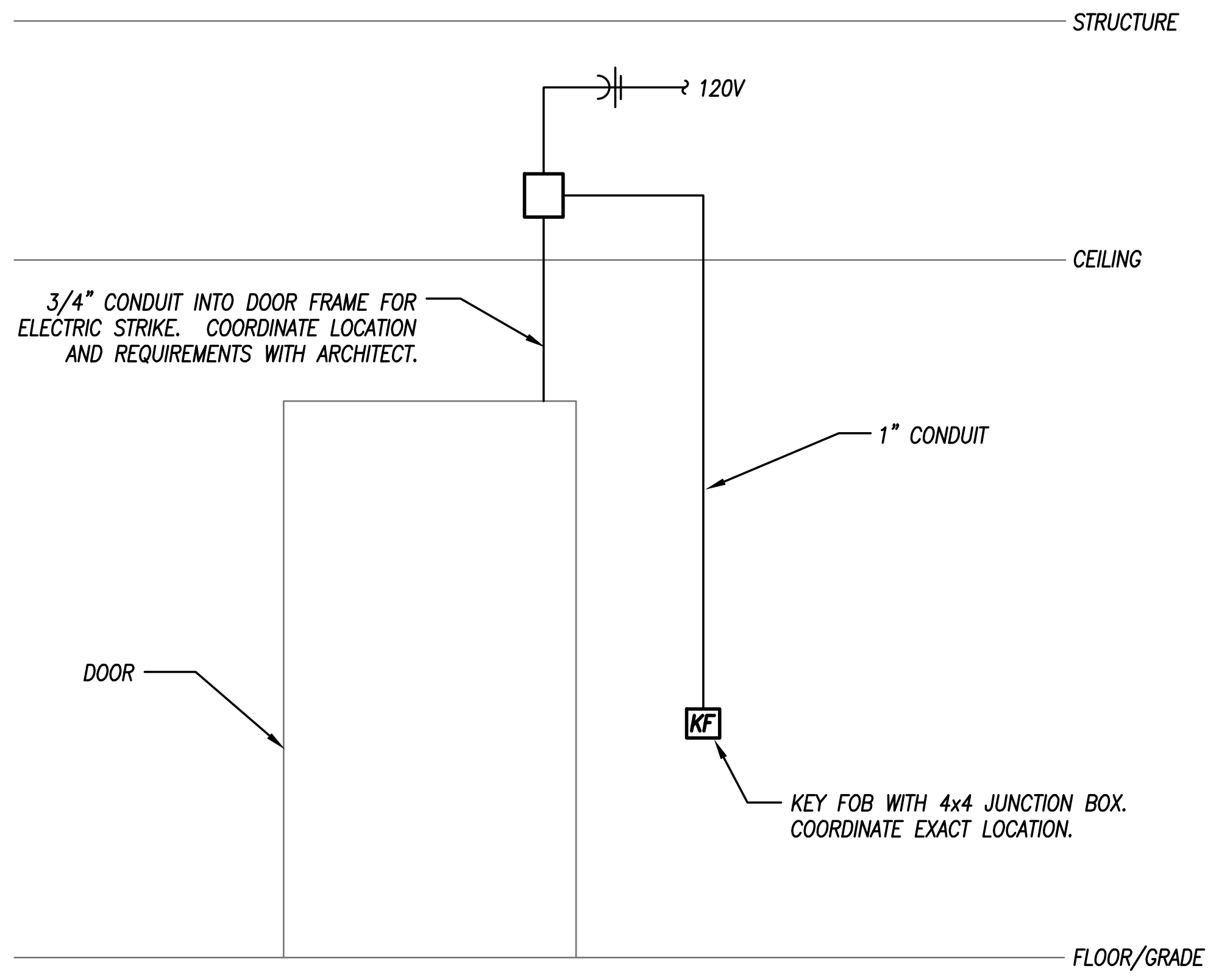
FIRE ALARM SYSTEM RISER DIAGRAM

NOT TO SCALE


STRUCTURAL CEILING
LAY-IN CEILING
CLEARANCE TO FRONT OF PANELBOARD
36" MIN.
DEDICATED ELECTRICAL SPACE TO STRUCTURAL CEILING OR HARD CEILING. ONLY ELECTRICAL CONDUIT AND CONDUCTORS SHALL BE PERMITTED TO PENETRATE THIS AREA.
WORKING CLEARANCES ZONE. LUMINAIRES, PIPING, DUCTWORK OR OTHER ITEMS SHALL NOT BE INSTALLED IN THE WORKING CLEARANCES.
SURFACE MOUNTED OR RECESSED PANELBOARD
7'-0" MIN.
DEDICATED ELECTRICAL SPACE TO FLOOR. ONLY ELECTRICAL CONDUIT AND CONDUCTORS SHALL BE PERMITTED TO PENETRATE THIS AREA.
FLOOR
3 1/2" HOUSEKEEPING PAD FOR MORE THAN (2) CONDUIT PENETRAIONS (SURFACE MOUNTED PANELBOARDS ONLY)
30"
30" NEED NOT BE CENTERED ON PANEL BUT MUST ENCOMPASS ENTIRE PANEL
COORDINATE ALL WORK WITH OTHER TRADES. MAINTAIN ALL OTHER NEC CLEARANCES AND REQUIREMENTS.

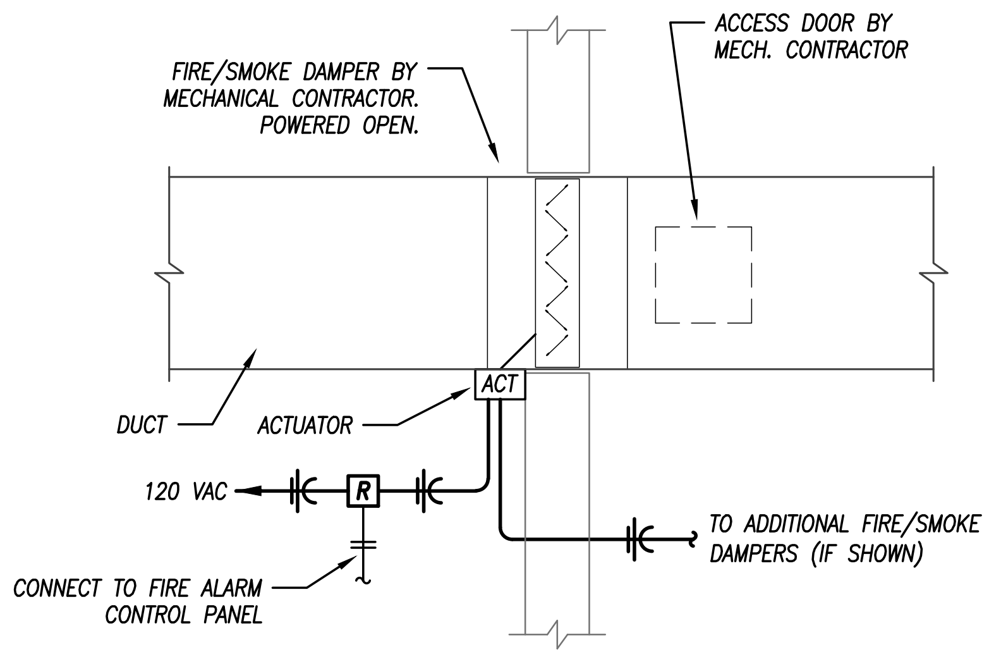
TYPICAL PANELBOARD INSTALLATION DETAIL

NOT TO SCALE


STRUCTURE
120V
CEILING
3/4" CONDUIT INTO DOOR FRAME FOR ELECTRIC STRIKE. COORDINATE LOCATION AND REQUIREMENTS WITH ARCHITECT.
1" CONDUIT
DOOR
KF
KEY FOB WITH 4x4 JUNCTION BOX. COORDINATE EXACT LOCATION.
FLOOR/GRADE

ACCESS CONTROL SYSTEM DETAIL

NOT TO SCALE


ACCESS DOOR BY MECH. CONTRACTOR
FIRE/SMOKE DAMPER BY MECHANICAL CONTRACTOR. POWERED OPEN.
ACT
DUCT
ACTUATOR
120 VAC
R
TO ADDITIONAL FIRE/SMOKE DAMPERS (IF SHOWN)
CONNECT TO FIRE ALARM CONTROL PANEL

FIRE/SMOKE DAMPER WIRING DIAGRAM

NOT TO SCALE

PRINTS ISSUED
10/30/2023 - PERMIT SUBMITTAL

REVISIONS:

PEARSON KENT MCKINLEY RAAF ENGINEERS LLC
13300 W 98TH STREET LENEXA, KS 66215
913.492.2400 WWW.PKMRENG.COM
MO State Certificate of Authority #E-2002020886

23.161

MICHAEL D. RAAF
NUMBER PE-2005028097
10/30/23
Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
ELECTRICAL DETAILS

PROJECT NUMBER: 23.161

SHEET NUMBER:

E402

ALED3T78Y USA

RAB

Color: Bronze

Weight: 23.1 lbs

Project:	Type:
Prepared By:	Date:

Driver Info

Type	Constant Current
120V	0.66A
208V	0.41A
240V	0.35A
277V	0.30A
Input Watts	76.8W

LED Info

Watts	78W
Color Temp	3000K (Warm)
Color Accuracy	70 CRI
L70 Lifespan	100,000 Hours
Lumens	8,765 lm
Efficacy	114.1 lm/W

Technical Specifications

Performance

Lifespan:

100,000-Hour LED lifespan based on IES LM-80 results and TM-21 calculations

Wattage Equivalency:

Equivalent to 250W Metal Halide

Compliance

DLC Listed:

This product is on the Design Lights Consortium (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities.
DLC Product Code: P0000179T

IP Rating:

Ingress protection rating of IP66 for dust and water

IESNA LM-79 & LM-80 Testing:

RAB LED luminaires and LED components have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80

UL Listed:

Suitable for wet locations as a downlight

Construction

IES Classification:

The Type III distribution is ideal for roadway, general parking and other area lighting applications where a larger pool of lighting is required. It is intended to be located near the side of the area, allowing the light to project outward and fill the area.

Ambient Temperature:

Suitable for use in up to 40°C (104°F)

Cold Weather Starting:

The minimum starting temperature is -40°C (-40°F)

Thermal Management:

Superior heat sinking with external Air-Flow fins

Lens:

Tempered glass lens

Housing:

Die-cast aluminum housing, lens frame and mounting arm

Mounting:

Universal mounting arm compatible for hole spacing patterns from 1" to 5 1/2" center to center. Round Pole Adaptor plate included as a standard. Easy slide and lock to mount fixture with ease. Round pole diameter must be >4" to mount fixtures at 90° orientation.

Reflector:

Specular vacuum-metallized polycarbonate

Gaskets:

High-temperature silicone gaskets

EPA:

1 Fixture: 0.75
2 Fixtures at 90°: 1.2
2 Fixtures at 180°: 2.4
3 Fixtures at 90°: 2.4
4 Fixtures at 90°: 1.8

Finish:

Formulated for high durability and long-lasting color

Green Technology:

Mercury and UV free. RoHS-compliant components.

LED Characteristics

LEDs:

Six (6) multi-chip, 13W, high-output, long-life LEDs

Color Consistency:

3-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color

Color Stability:

LED color temperature is warrantied to shift no more than 200K in color temperature over a 5-year period

Need help? Tech help line: **(888) 722-1000** Email: **sales@rablighting.com** Website: **www.rablighting.com**

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HUBBELL Outdoor Lighting

DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

FRESNO Series

BOLLARDS

FEATURES

- Two size options available
- Sealed one-piece, clear acrylic lens
- Specular, anodized aluminum optical systems
- 30w and 46w energy-efficient LED systems
- Extruded aluminum square or round housing, with tamper resistant hardware
- Flat top, or optional dome top for round FN2

RELATED PRODUCTS

Bristol Park Pavilion Family

SPECIFICATIONS

HOUSING
- Extruded aluminum 6061 alloy square or round housing, with tamper resistant hardware; flat top, for round FN2
- Single screw access for service and maintenance
- Sealed one-piece, clear acrylic lens; Specular, anodized aluminum optical systems
- Concealed, cast aluminum 360 alloy anchor base; four 1/2" x 10" anchor bolts
- Durable Lektrocote® TGIC themoset polyester powder coat paint finish assures long life and maintenance-free service

OPTICS
- Available in 5000K, 4000K, 3000K CCT and Monochromatic Amber
- Long Life >60,000 hour L90 rated at 25°C
- Optional continuous dimming to 10%
- Rotatable LED assembly adjustment for ideal placement and aiming of asymmetric light pattern

ELECTRICAL
- Universal voltage (120-277, 50/60Hz) drivers with +/- 10% tolerance, starting temperature rated at -20°F

CERTIFICATIONS
- Listed to UL1598 for use in wet locations

WARRANTY
- 5 year limited warranty
- See HLI Standard Warranty for additional information

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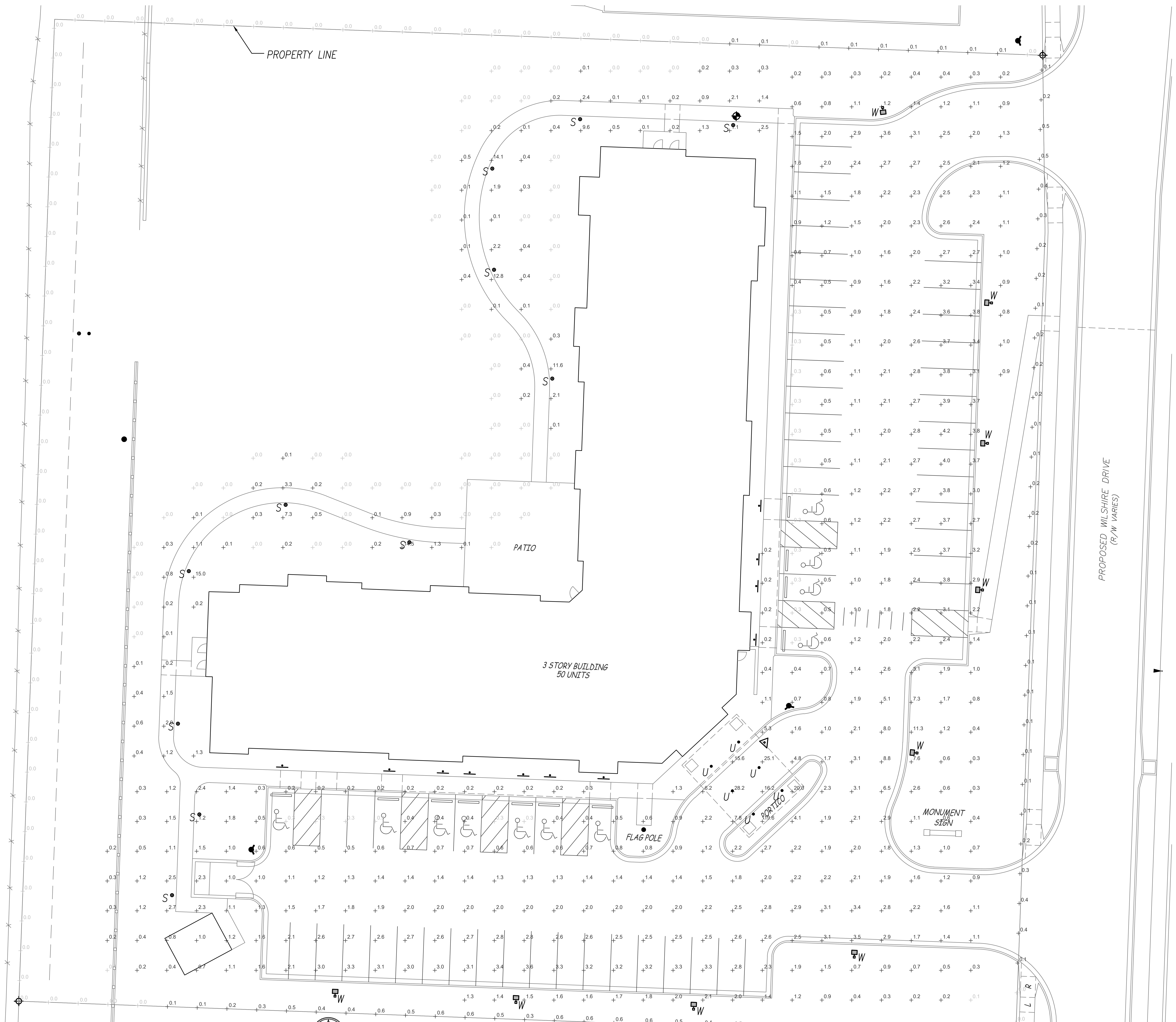
HUBBELL Lighting



SITE PLAN - PHOTOMETRICS

1"=20'-0"

PARKING LOT STATISTICS

DESCRIPTION	MAINTAINED LIGHTING LEVELS			UNIFORMITY	
	AVG. (F.C.)	MAX. (F.C.)	MIN. (F.C.)	MAX. / MIN.	AVG. / MIN.
PARKING LOT	1.8	4.2	0.3	14.0 : 1	6.0 : 1

NOTES:
1. NUMBERS INDICATE FOOTCANDLE LEVELS AT GRADE.
2. CALCULATIONS PERFORMED USING VISUAL 2020.
3. THERE SHALL BE NO DIRECT ILLUMINATION OF RESIDENTIAL PROPERTIES ADJACENT TO THIS PROPERTY OR ACROSS PUBLIC RIGHT-OF-WAY.

LIGHT FIXTURE SCHEDULE - SITE LIGHTING

FIXTURE TYPE	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	LAMP NUMBER / DESCRIPTION
S	SPAULDING	FN1 LED SERIES	6.75" SQUARE, 36" HIGH LIGHT BOLLARD. EXTRUDED ALUMINUM RISER WITH FLAT TOP. SEALED, ONE-PIECE ACRYLIC LENS. HEAVY CAST ALUMINUM ANCHOR BASE – REFER TO DETAIL ON SITE PLAN FOR ADDITIONAL BASE WORK. DARK BRONZE FINISH.	ONE (1) 31 WATT, LED MODULE. 3500K COLOR TEMPERATURE.
U	WILLIAMS	6DR SERIES	6" ROUND RECESSED DOWNLIGHT. DIE-FORMED STEEL PAN WITH FINNED, EXTRUDED ALUMINUM PASSIVE HEAT SINK. SELF-FLANGED, SEMI-SPECULAR LOW IRIDESCENT FINISH ALUMINUM REFLECTOR WITH MEDIUM BEAM ANGLE/DISTRIBUTION AND REGRESSED LENS. INTEGRAL LED DRIVER PRE-WIRED FOR 0-10V DIMMING APPLICATIONS. WET LOCATION LISTED UNDER COVERED CEILING.	ONE (1) 43.9 WATT, 5000 LUMEN, L50 LUMEN PACKAGE. 3500K CCT.
W	RAB LIGHTING	ALED	POLE-MOUNTED 78W LED AREA LIGHT. ARCHITECTURAL, ONE-PIECE DIE-CAST ALUMINUM HOUSING. DIE-CAST ALUMINUM DOOR. FULLY GASKETED, CLEAR, FLAT, TEMPERED GLASS LENS. IES TYPE III DISTRIBUTION. IESNA FULL CUTOFF LIGHTING CLASSIFICATION. LOW TEMP STARTING. DECORATIVE UPSWEPT DIE CAST ALUMINUM MOUNTING ARM. POWDER COAT FINISH IN COLOR AS DIRECTED BY ARCHITECT. PROVIDE WITH 20'-0" HIGH, STRAIGHT, SQUARE STEEL POLE.	SIX (6) MULTI-CHIP, HIGH-OUTPUT LED MODULE. 8,765 LUMENS. 3000K.

PRINTS ISSUED
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REVISIONS:

pkmr ENGINEERS 23.161

PEARSON KENT MCKINLEY RAAF ENGINEERS LLC
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913.492.2400 WWW.PKMRENG.COM
MO State Certificate of Authority #E-2002020886

MICHAEL D. RAAF
NUMBER PE-2005028097
10/30/23
Michael D. Raaf - Engineer
MO# PE-2005028097

WILSHIRE HILLS III
LEE'S SUMMIT, MISSOURI

SHEET TITLE
SITE PHOTOMETRICS

PROJECT NUMBER: 23.161

SHEET NUMBER:

SL100