K&B APARTMENTS

LOGAN, UT

06/23/2025

CARTWRIGHT PROJECT # 123021

PROJECT DATA

DESIGN CRITERIA
APPLICABLE CODES

ACCESSIBILITY CODE	ICC/ANSI A117.1-2017
INTERNATIONAL BUILDING CODE	2021 EDITION
INTERNATIONAL ENERGY CONSERVATION CODE	2021 EDITION
INTERNATIONAL FIRE CODE	2021 EDITION
INTERNATIONAL MECHANICAL CODE	2021 EDITION
INTERNATIONAL PLUMBING CODE	2021 EDITION
INTERNATIONAL ELECTRICAL CODE	2020 EDITION
INTERNATIONAL ENERGY CONSERVATION CODE	2021 EDITION

OTHER CRITERIA

DEFERRED SUBMITTALS
- FIRE SPRINKLERS
- ROOF TRUSS DESIGN
- PRECAST CONCRETE BEAMS

OWNER
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CIVIL ENGINEER
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PHONE:

VICINITY MAP

SHEET LIST

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- G003 MAIN LEVEL LIFE SAFETY PLAN
- G004 SECOND LEVEL LIFE SAFETY PLAN
- G005 THIRD LEVEL LIFE SAFETY PLAN

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PROFESSIONAL STAMP

AGENCY APPROVAL

K&B APARTMENTS

LOGAN, UT

CARTWRIGHT PROJECT #	123021
DATE:	06/23/2025

REVISIONS

	DATE	DESCRIPTION

COVER SHEET

G001

BUILDING CODE ANALYSIS

PROJECT NAME: KB APARTMENTS
CARTWRIGHT PROJECT NUMBER: 123021

NO.	ITEM	CODE DATA	REFERENCE
1.	**DESCRIPTION:**	THREE LEVELS OF WOOD-FRAMED APARTMENTS OVER PARTIAL SUBTERRANEAN CONCRETE PARKING STRUCTURE	
2.	**PROJECT ADDRESS:**	LOGAN, UTAH	
3.	**JURISDICTION:**	CITY OF LOGAN BUILDING DEPARTMENT	
4.	**APPLICABLE CODE:**	2021 INTERNATIONAL BUILDING CODE (IBC)	
5.	**OCCUPANCY GROUPS:**	R-2 UPPER LEVEL APARTMENTS S-2 MAIN LEVEL PARKING GARAGE	IBC SECTION 310.3 IBC SECTION 312
6.	**TYPE OF CONSTRUCTION:**	TYPE V-B: APARTMENTS (LEVELS 2-4) TYPE IA: PARKING STRUCTURE (LEVEL 1)	IBC SECTION 606.5 IBC SECTION 602.2
7.	**FIRE SPRINKLERS:**	REQUIRED	IBC SECTION 903.2.8
8.	**FIRE ALARM SYSTEM AND SMOKE ALARMS:**	FIRE ALARM SYSTEM: NOT REQUIRED: NO DWELLING UNITS ARE LOCATED THREE OR MORE STORIES ABOVE OR MORE THAN ONE STORY BELOW THE LOWEST LEVEL OF EXIT DISCHARGE SMOKE ALARMS: ON CEILING OR WALL OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF BEDROOMS IN EACH ROOM USED FOR SLEEPING PURPOSES NOT LESS THAN 3 FEET HORIZONTALLY FROM THE DOOR OR OPENING OF A BATHROOM THAT CONTAINS A BATHTUB OR SHOWER	IBC SECTION 907.2.9.1 IBC SECTION 907.2.11.2
9.	**LOCATION ON PROPERTY:**		
	W:	THE DISTANCE FROM THE BUILDING FACE TO THE CLOSEST INTERIOR LOT LINE; THE ENTIRE WIDTH OF A STREET, ALLEY, OR PUBLIC WAY; OR THE EXTERIOR FACE OF AN ADJACENT BUILDING ON THE SAME PROPERTY	IBC SECTION 506.3.2
	FIRE SEPARATION DISTANCE (FSD):	THE DISTANCE MEASURED FROM THE BUILDING FACE TO THE CLOSEST INTERIOR LOT LINE; TO THE CENTERLINE OF A STREET, AN ALLEY OR PUBLIC WAY; OR TO AN IMAGINARY LINE BETWEEN TWO BUILDINGS ON THE SAME LOT (FEET)	IBC SECTION 202

BUILDING LOCATION IN RELATION TO INTERIOR LOT LINE, PUBLIC WAY OR ADJACENT BUILDING ON THE SAME PROPERTY

NORTH:	W:	32.58 FEET	NORTH EXTERIOR WALL OF BUILDING TO SOUTH R.O.W. LINE OF EAST 700 NORTH
	FSD:		
EAST:	W:	73.58 FEET	EAST EXTERIOR WALL OF BUILDING TO EAST PROPERTY LINE
	FSD:		
SOUTH:	W:	10 FEET	SOUTH EXTERIOR WALL OF BUILDING TO SOUTH PROPERTY LINE
	FSD:		
WEST:	W:	15.08 FEET	WEST EXTERIOR WALL OF BUILDING TO EAST R.O.W. LINE OF HILLSIDE CIRCLE
	FSD:		

10.	**ALLOWABLE FLOOR AREA AND BUILDING HEIGHT:**		
	ALLOWABLE AREA FACTOR (A_t):	21,000 SF R-2 OCCUPANCY (TYPE VB CONSTRUCTION, MULTI-STORY, WITH FIRE SPRINKLERS) UNLIMITED S-2 OCCUPANCY (TYPE IA CONSTRUCTION 1 STORY, WITH FIRE SPRINKLERS)	IBC TABLE 506.2
	SPECIAL PROVISIONS:	A BUILDING SHALL BE CONSIDERED AS SEPARATE AND DISTINCT BUILDINGS FOR THE PURPOSE OF DETERMINING AREA LIMITATIONS, CONTINUITY OF FIRE WALLS, LIMITATION OF NUMBER OF STORIES AND TYPE OF CONSTRUCTION WHERE ALL OF THE FOLLOWING CONDITIONS ARE MET: THE BUILDINGS ARE SEPARATED WITH A HORIZONTAL ASSEMBLY HAVING A FIRE-RESISTANCE RATING OF NOT LESS THAN 3 HOURS. THE BUILDING BELOW, INCLUDING THE HORIZONTAL ASSEMBLY, IS OF TYPE IA CONSTRUCTION. THE BUILDING ABOVE THE HORIZONTAL ASSEMBLY SHALL BE PERMITTED TO HAVE R OCCUPANCIES.	IBC SECTION 510.2

BUILDING CODE ANALYSIS

PROJECT NAME: KB APARTMENTS
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NO.	ITEM	CODE DATA	REFERENCE
		THE BUILDING BELOW THE HORIZONTAL ASSEMBLY SHALL BE PROTECTED THROUGHOUT BY AN APPROVED AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1, AND SHALL BE PERMITTED TO BE ANY OCCUPANCY ALLOWED BY THIS CODE EXCEPT GROUP H. THE MAXIMUM BUILDING HEIGHT IN FEET SHALL NOT EXCEED THE LIMITS SET FORTH IN SECTION 504.3 FOR THE BUILDING HAVING THE SMALLER ALLOWABLE HEIGHT AS MEASURED FROM THE GRADE PLANE.	
		S-2 PARKING STRUCTURE BELOW 3-HOUR HORIZONTAL SEPARATION: ALLOWABLE FLOOR AREA: UNLIMITED ACTUAL TOTAL FLOOR AREA: 3,564 SF ALLOWABLE BUILDING HEIGHT: UNLIMITED ACTUAL BUILDING HEIGHT: 14 FEET ALLOWABLE NUMBER OF STORIES: UNLIMITED ACTUAL NUMBER OF STORIES: 1 STORY	IBC TABLE 506.2 IBC TABLE 504.3 IBC TABLE 504.4
		R-2 APARTMENTS ABOVE 3-HOUR HORIZONTAL SEPARATION: ALLOWABLE FLOOR AREA: 21,000 SF LEVEL 2: 3,360 SF LEVEL 3: 3,360 SF LEVEL 4: 3,360 SF ACTUAL TOTAL FLOOR AREA: 10,080 SF ALLOWABLE BUILDING HEIGHT ABOVE GRADE PLANE: 60 FEET ACTUAL BUILDING HEIGHT ABOVE GRADE PLANE: 47.17 FEET ALLOWABLE NUMBER OF STORIES: 3 STORIES ACTUAL NUMBER OF STORIES: 3 STORIES	IBC TABLE 506.2 IBC TABLE 504.3 IBC TABLE 504.4
11.	**FIRE-RESISTANCE RATINGS OF BUILDING ELEMENTS (HOURS):**		
	PRIMARY STRUCTURAL FRAME:	0 HOUR	IBC TABLE 601
	BEARING WALLS:	EXTERIOR (ALL FSD ≥ 10 FEET): 0 HOUR INTERIOR: 0 HOUR	IBC TABLE 705.5 IBC TABLE 601
	NONBEARING WALLS AND PARTITIONS	EXTERIOR (ALL FSD ≥ 10 FEET): 0 HOUR INTERIOR: 0 HOUR	IBC TABLE 705.5 IBC TABLE 601
	FLOOR CONSTRUCTION AND ASSOCIATED SECONDARY MEMBERS:	0 HOUR	IBC TABLE 601
	ROOF CONSTRUCTION AND ASSOCIATED SECONDARY MEMBERS:	0 HOUR	IBC TABLE 601
	WALLS SEPARATING DWELLING UNITS, AND WALLS SEPARATING DWELLING UNITS FROM CORRIDORS:	FIRE PARTITIONS: 1 HOUR	IBC SECTION 708.3
	FLOOR ASSEMBLIES SEPARATING DWELLING UNITS:	1 HOUR	IBC SECTION 711.2.4.3
	EXTERIOR EXIT STAIRWAYS:	EXTERIOR EXIT STAIRWAYS SEPARATION FROM THE INTERIOR OF THE BUILDING: 1 HOUR	IBC SECTIONS 1027.6, 1023.2 & 1023.7
	HORIZONTAL SEPARATION BETWEEN TYPE IA PARKING STRUCTURE AND TYPE VB APARTMENTS	3 HOURS	IBC SECTION 510.2
12.	**EXTERIOR WALL OPENINGS:**	BUILDINGS WHOSE EXTERIOR BEARING WALLS, EXTERIOR NON-BEARING WALLS AND EXTERIOR PRIMARY STRUCTURAL FRAME ARE NOT REQUIRED TO BE FIRE-RESISTANCE RATED SHALL BE PERMITTED TO HAVE UNLIMITED UNPROTECTED OPENINGS.	IBC SECTION 705.8.1, EXCEPTION 2

BUILDING CODE ANALYSIS

PROJECT NAME: KB APARTMENTS
CARTWRIGHT PROJECT NUMBER: 123021

NO.	ITEM	CODE DATA	REFERENCE
13.	**MEANS OF EGRESS:**		
	MAXIMUM FLOOR AREA ALLOWANCE PER OCCUPANT:	FUNCTION OF SPACE — OCCUPANT LOAD FACTOR (SF PER OCCUPANT) PARKING GARAGES: 200 GROSS RESIDENTIAL: 200 GROSS	IBC TABLE 1004.1.2
	MAIN LEVEL PARKING STRUCTURE:	3,318 SF / 200 = 17 OCCUPANTS	
	EGRESS REQUIREMENTS:	REQUIRED NUMBER OF EXITS: 1 EXITS PROVIDED: 1	IBC TABLE 1006.2.1
		REQUIRED EXIT WIDTH: 17 OCCUPANTS X 0.2 INCHES PER OCCUPANT = 3.4 INCHES (32 INCHES MINIMUM WHEN SINGLE DOOR IS OPENED 90 DEGREES) ACTUAL EXIT WIDTH: 1 SINGLE DOOR @ 32 INCHES = 32 INCHES	IBC SECTION 1005.3.2
	UPPER LEVELS APARTMENTS (EACH LEVEL):	3,300 SF / 200 = 17 OCCUPANTS	
	EGRESS REQUIREMENTS:	REQUIRED NUMBER OF EXITS: 1 EXITS PROVIDED: 1	
		REQUIRED EXIT WIDTH: 17 OCCUPANTS X 0.3 INCHES PER OCCUPANT = 5.1 INCHES (36 INCHES MINIMUM STAIR WIDTH SERVING AN OCCUPANT LOAD LESS THAN 50) ACTUAL EXIT WIDTH: 1 STAIR @ 42 INCHES WIDTH = 42 INCHES	IBC SECTION 1005.3.1 IBC SECTION 1011.2, EXCEPTION 1.
14.	**PLUMBING FIXTURES**	WATER CLOSETS (1 PETR DWELLING UNIT): PROVIDE: 2 PER DWELLING UNIT LAVATORIES (1 PER (1 PER DWELLING UNIT): PROVIDE: 3 PER DWELLING UNIT BATHTUB OR SHOWER (1 PER DWELLING UNIT): PROVIDE: 2 PER DWELLING UNIT KITCHEN SINK (1 PER DWELLING UNIT): PROVIDE: 1 PER DWELLING UNIT AUTOMATIC CLOTHES WASHER CONNECTION (1 PER 20 DWELLING UNITS): PROVIDE: 1 PER DWELLING UNIT	IBC TABLE 2902.1
15.	**SOUND TRANSMISSION:**	WALLS, PARTITIONS AND FLOOR-CEILING ASSEMBLIES THAT SEPARATE DWELLING UNITS FROM EACH OTHER OR BETWEEN DWELLING UNITS AND PUBLIC OR SERVICE AREAS: STC 50 (MINIMUM)	IBC SECTION 1206.2
		FLOOR-CEILING ASSEMBLIES THAT SEPARATE DWELLING UNITS FROM EACH OTHER OR BETWEEN DWELLING UNITS AND PUBLIC OR SERVICE AREAS: IIC 50 (MINIMUM)	IBC SECTION 1206.3
16.	**ACCESSIBILITY**	TYPE B UNITS: WHERE THERE ARE FOUR OR MORE DWELLING UNITS INTENDED TO BE OCCUPIED AS A RESIDENCE IN A STRUCTURE, EVERY DWELLING UNIT INTENDED TO BE OCCUPIED AS A RESIDENCE SHALL BE A TYPE B UNIT. EXCEPTION: THE NUMBER OF TYPE B UNITS IS PERMITTED TO BE REDUCED IN ACCORDANCE WITH SECTION 1108.7.	IBC SECTION 1108.6.2.2 IBC SECTION 1108.6.2.2.1
		WHERE ELEVATOR SERVICE IS NOT PROVIDED IN A STRUCTURE, ONLY THE DWELLING UNITS THAT ARE LOCATED ON STORIES INDICATED BY SECTION 1108.7.1.1 ARE REQUIRED TO BE TYPE B UNITS.	IBC SECTION 1108.7.1
		AT LEAST ONE STORY CONTAINING DWELLING UNITS INTENDED TO BE OCCUPIED AS A RESIDENCE SHALL BE PROVIDED WITH AN ACCESSIBLE ENTRANCE FROM THE EXTERIOR OF THE STRUCTURE AND ALL UNITS TO BE OCCUPIIED AS A RESIDENCE ON THAT STORY SHALL BE TYPE B UNITS. THE TWO SECOND LEVEL UNITS ONLY SHALL BE TYPE B UNITS.	IBC SECTION 1108.7.1.1

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PROFESSIONAL STAMP

STATE OF UTAH
JUSTIN MICHAEL CAMPBELL
6/23/25
No.8539712-02301
LICENSED ARCHITECT

AGENCY APPROVAL

K&B APARTMENTS
LOGAN, UT

CARTWRIGHT PROJECT # 123021
DATE: 06/23/2025

REVISIONS
DATE DESCRIPTION

CODE REVIEW

G002

PERMIT DOCUMENTS

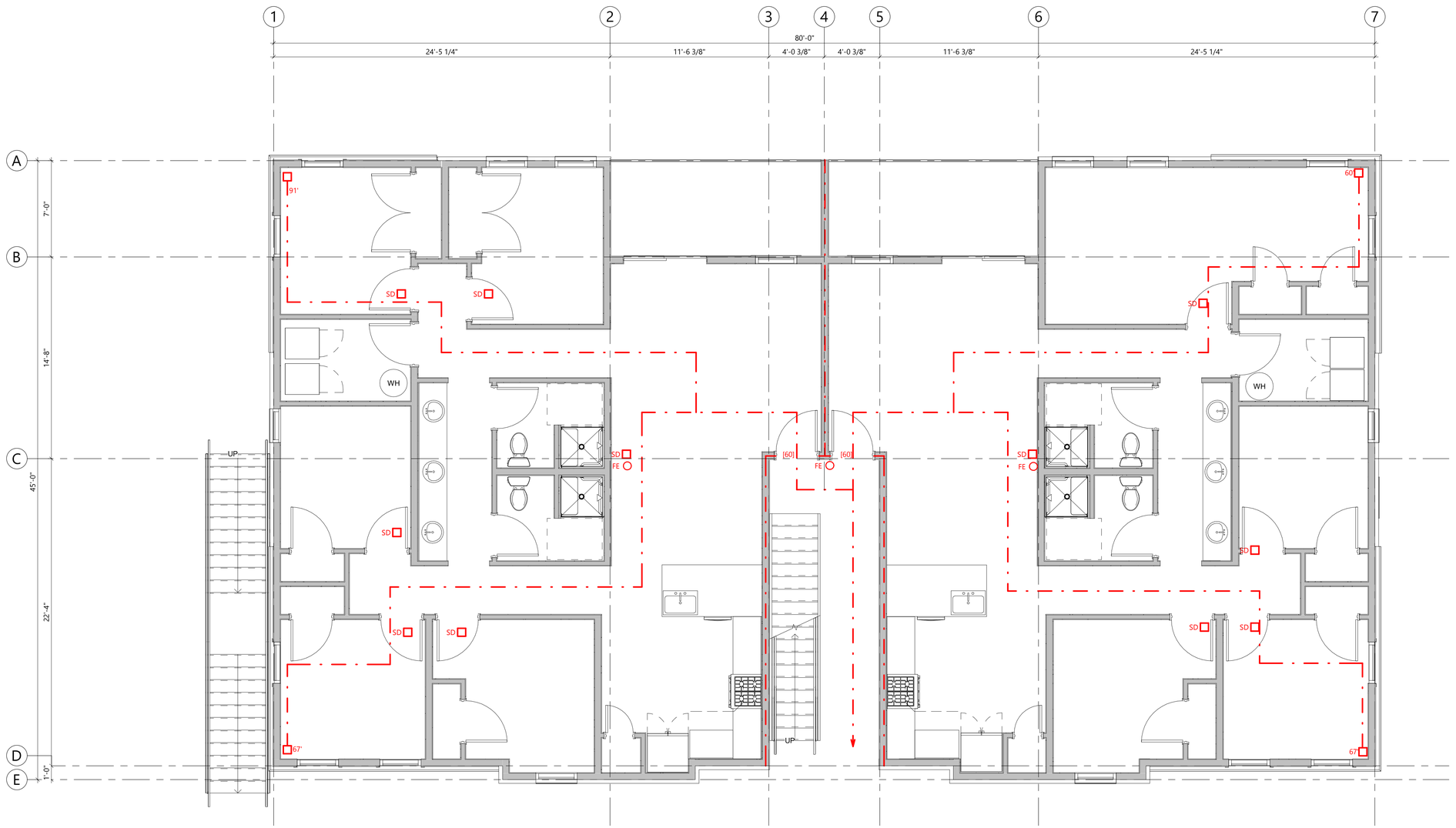
LIFE SAFETY LEGEND

- 60' → EXIT ACCESS PATH OF TRAVEL AND TRAVEL DISTANCE - MAXIMUM 250 FEET (IBC TABLE 1017.2
- SD — SMOKE DETECTOR/ALARM
- FE — 2-A:10-B:C FIRE EXTINGUISHER
- [60] — MINIMUM 60 MINUTE RATED DOOR
- 1-HOUR FIRE-RATED WALL

SHEET NOTES

MAIN LEVEL UNITS' EXIT ACCESS TRAVEL DISTANCE TO EXIT DISCHARGE

TYPE B 4 BEDROOM (1 UNIT): 67'
TYPE B 5 BEDROOM (1 UNIT): 91'



A3 MAIN LEVEL LIFE SAFETY PLAN
SCALE: 1/4" = 1'-0"

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MAIN LEVEL LIFE SAFETY PLAN

G003

PERMIT DOCUMENTS

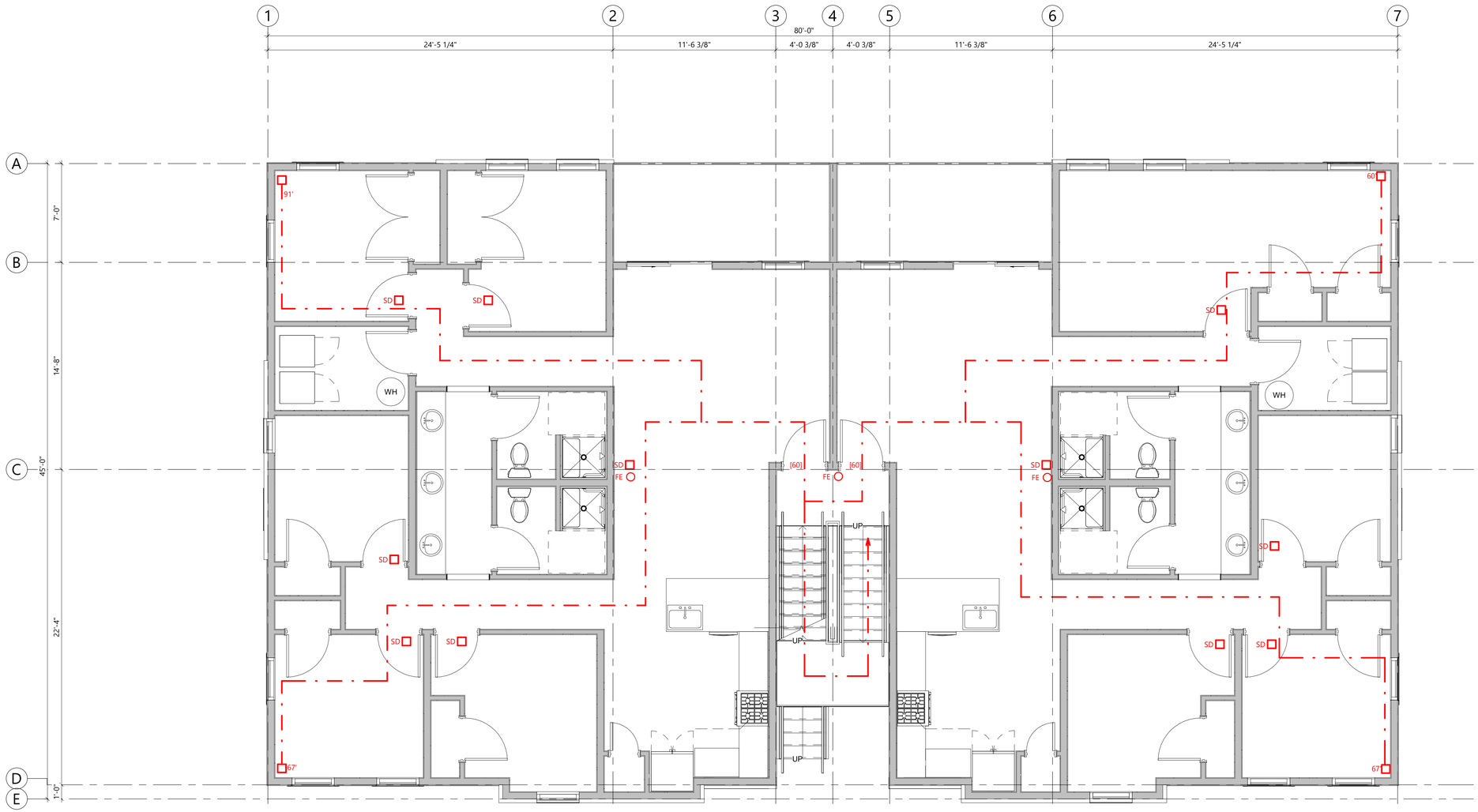
LIFE SAFETY LEGEND

- 60' → EXIT ACCESS PATH OF TRAVEL AND TRAVEL DISTANCE - MAXIMUM 250 FEET (IBC TABLE 1017.2
- SD □ SMOKE DETECTOR/ALARM
- FE ○ 2-A:10-B:C FIRE EXTINGUISHER
- [60] MINIMUM 60 MINUTE RATED DOOR
- 1-HOUR FIRE-RATED WALL

SHEET NOTES

SECOND LEVEL UNITS' EXIT ACCESS TRAVEL DISTANCE TO EXIT DISCHARGE

TYPE B 4 BEDROOM (1 UNIT): 67'
TYPE B 5 BEDROOM (1 UNIT): 91'



A3 SECOND LEVEL FLOOR PLAN
SCALE: 1/4" = 1'-0"

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LOGAN, UT

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DATE DESCRIPTION

SECOND LEVEL
LIFE SAFETY PLAN

G004

PERMIT DOCUMENTS

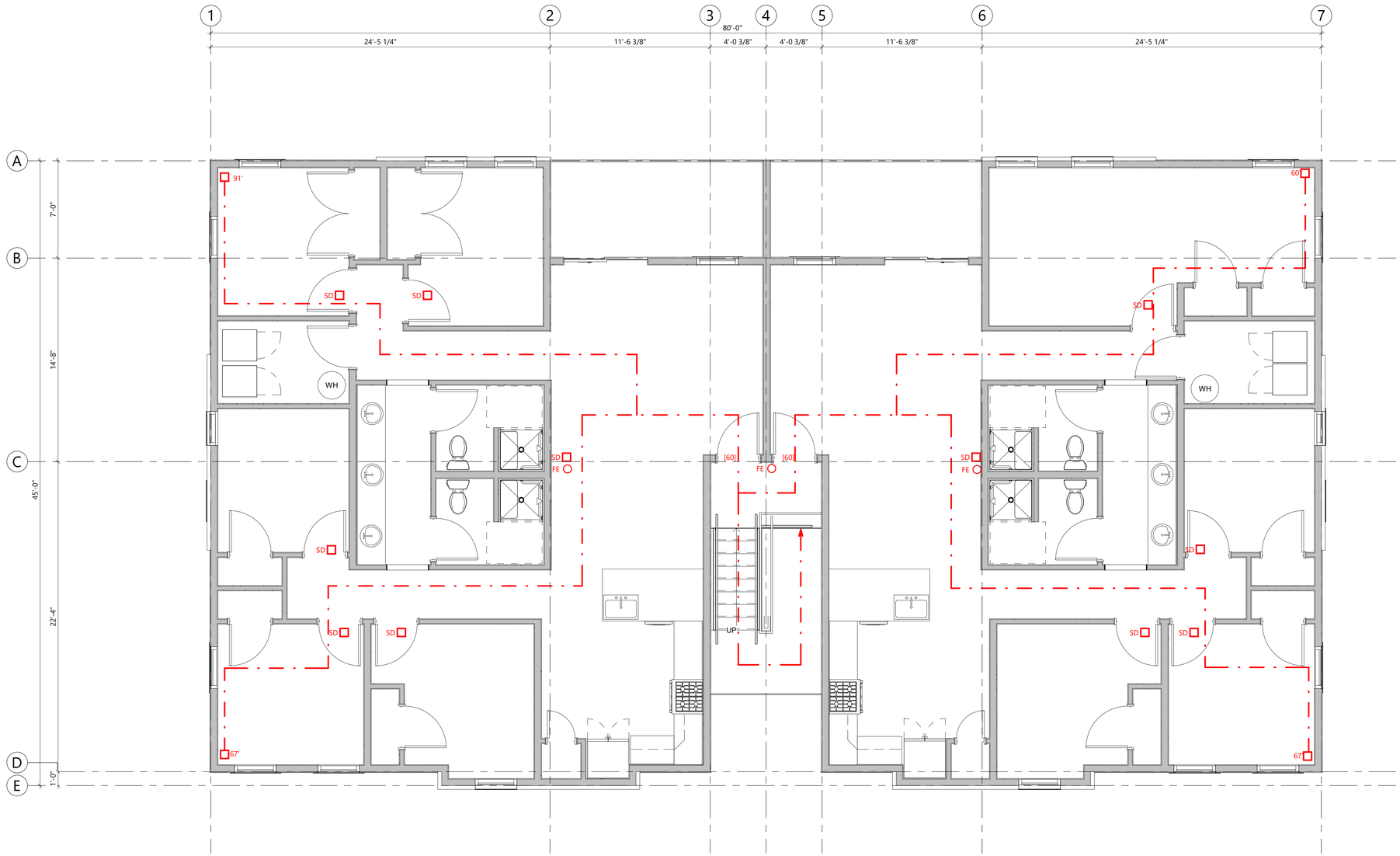
LIFE SAFETY LEGEND

- 60' → EXIT ACCESS PATH OF TRAVEL AND TRAVEL DISTANCE - MAXIMUM 250 FEET (IBC TABLE 1017.2
- SD — SMOKE DETECTOR/ALARM
- FE — 2-A:10-B:C FIRE EXTINGUISHER
- [60] — MINIMUM 60 MINUTE RATED DOOR
- 1-HOUR FIRE-RATED WALL

SHEET NOTES

THIRD LEVEL UNITS' EXIT ACCESS TRAVEL DISTANCE TO EXIT DISCHARGE

TYPE B 4 BEDROOM (1 UNIT): 67'
TYPE B 5 BEDROOM (1 UNIT): 91'



A3 THIRD LEVEL LIFE SAFETY PLAN
SCALE: 1/4" = 1'-0"

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LOGAN, UT

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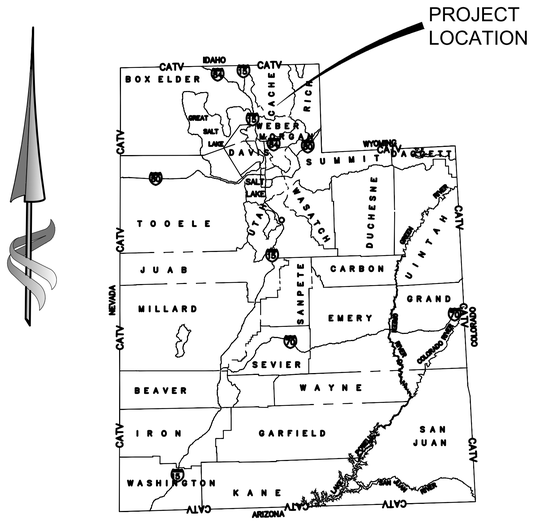
THIRD LEVEL LIFE SAFETY PLAN

G005

PERMIT DOCUMENTS



KEY MAP OF UTAH

LOGAN CITY

684 E 700 N
LOGAN CITY, UTAH 84123

PLANS FOR PROPOSED

K&B APRTMENTS

CACHE COUNTY

INDEX TO SHEETS	
SHEET	DESCRIPTION
COVER	COVER SHEET
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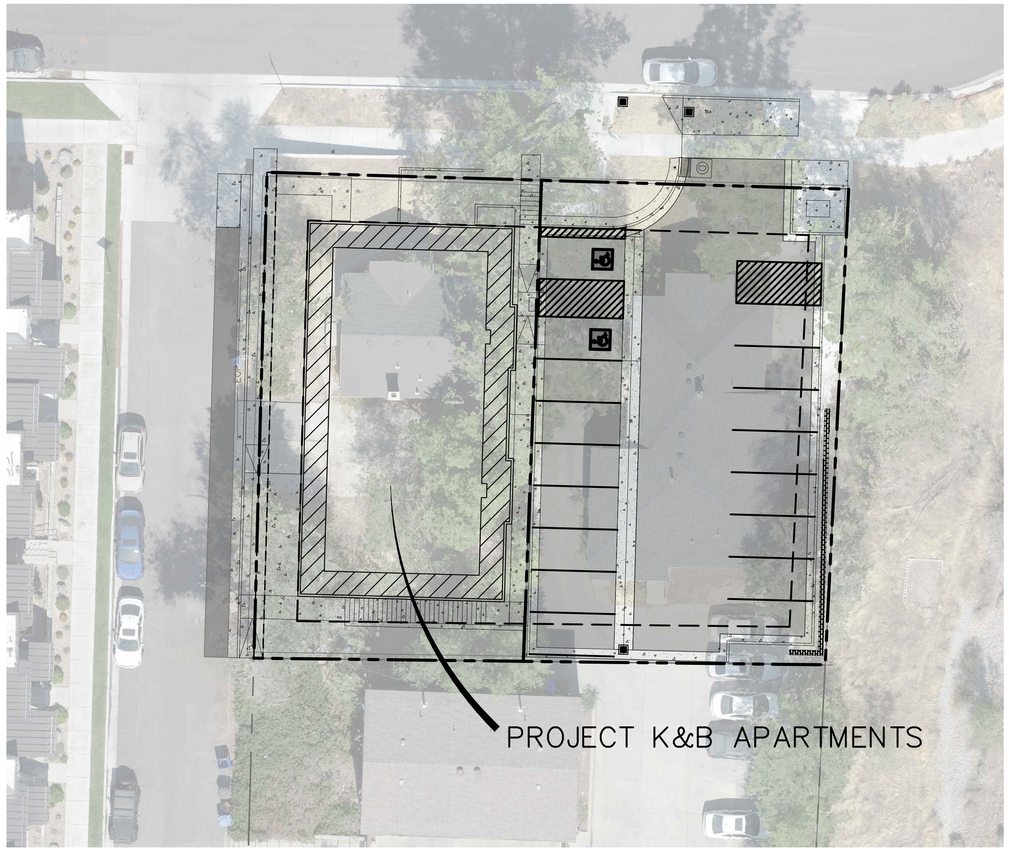
C1.1	DEMO PLAN
C1.2	SITE PLAN
C1.3	UTILITY PLAN
C1.4	GRADING AND DRAINAGE PLAN
C1.5	EROSION CONTROL PLAN
D1.0	DETAILS
D1.1	DETAILS
D1.2	DETAILS
D1.3	EROSION CONTROL DETAILS



PROJECT VICINITY MAP

NOT TO SCALE

CITY NAME CITY COUNCIL

MAYOR:	HOLLY H. DAINES
CITY MANAGER:	TERESA HARRIS
COUNCIL MEMBERS:	ERNESTO LOPEZ
	AMY Z. ANDERSON
	MIKE JOHNSON
	JEANNIE F. SIMMONDS
	MARK A. ANDERSON
PLANNING & ZONING.	RUSS HOLLEY

epic

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HEBER CITY, UTAH 84032
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GENERAL NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
2. UNLESS DETAILED, SPECIFIED, OR OTHERWISE INDICATED ON THE DRAWINGS, CONSTRUCTION SHALL BE AS INDICATED IN THE APPLICABLE DETAILS AND GENERAL NOTES. DETAILS ARE MEANT TO APPLY EVEN THOUGH NOT REFERENCED AT SPECIFIC LOCATIONS ON DRAWINGS.
3. WHERE NO CONSTRUCTION DETAILS ARE SHOWN OR NOTED FOR ANY PART OF WORK, DETAILS SHALL BE THE SAME AS FOR OTHER SIMILAR WORK.
4. ALL UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING BLUE STAKES FOR LOCATION OF ALL UTILITIES. 48 HOURS BEFORE DIGGING.
5. CONTRACTOR IS RESPONSIBLE FOR PROVIDING AS-BUILT DRAWINGS.
6. PRESERVE OR RESTORE ALL EXISTING FENCES, ROADS, UTILITIES AND DITCHES.
7. ALL TRACER WIRE TO BE INSTALLED PER DETAIL 1 ON PAGE D1.0.
8. MAINTAIN A 10 FT. MINIMUM HORIZONTAL DISTANCE FROM SEWER FOR ALL CULINARY WATER LINES.
9. MAINTAIN 18 INCHES VERTICAL DISTANCE ABOVE SEWER FOR ALL CULINARY WATER LINES.
10. MINIMUM COVER FROM TOP OF PIPE SHALL BE 4 FEET FOR CULINARY UNLESS SHOWN OTHERWISE.
11. EXISTING PIPES TO BE POT-HOLED PRIOR TO INSTALLATION OF PIPE WITH SUFFICIENT DISTANCE TO ADJUST GRADE OF PIPE BEING INSTALLED.
12. CONTRACTOR SHALL TAKE PICTURES/VIDEO EXISTING CONDITIONS PRIOR TO BEGINNING WORK.
13. CONTRACTOR SHALL NOTIFY THE RESIDENTS A MINIMUM OF 48 HOURS IN ADVANCE OF ALL PLANNED WATER OR ROAD SHUT DOWNS/INTERRUPTIONS OF SERVICE.
14. CONTRACTOR SHALL NOTIFY LOGAN CITY PUBLIC WORKS 4 BUSINESS DAYS IN ADVANCE OF PLANNED WATER SHUTOFFS FOR A LIST OF ADDRESSES THAT WILL BE IMPACTED. ONLY CITY EMPLOYEES MAY OPERATE WATER VALVES.
15. MECHANICAL JOINTS RESTRAINTS (I.E. MEGALUG OR EQ.) AND THRUST BLOCKS WILL BE REQUIRED AT ALL BENDS, TEES, FITTINGS, APPURTENANCES, OR WHERE NEEDED UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
16. LATERAL LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE. ACTUAL LOCATIONS SHALL BE FIELD DETERMINED.
17. CONTRACTOR SHALL PROVIDE A MAINTENANCE OF TRAFFIC (MOT) SHEET FOR TRAFFIC CONTROL DURING CONSTRUCTION.
18. CONTRACTOR SHALL PROVIDE A TRAFFIC CONTROL PLAN IN ACCORDANCE WITH UTAH DOT 2024 STANDARD DRAWINGS AND SPECIFICATIONS AND MUTCD STANDARDS.
19. INSTALL MANHOLE RIMS, GRATES, AND VALVE BOXES 1/8" BELOW PAVEMENT OR ADJUST AS REQUIRED IN FIELD.
20. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
21. NO PRODUCTS WILL BE FURNISHED BY THE OWNER UNLESS SPECIFICALLY STATED OTHERWISE.
22. CHIPS AND/OR PEA GRAVEL WILL NOT BE ALLOWED AS A PIPE ZONE MATERIAL OR AS AN IMPORT BACKFILL MATERIAL.
23. SAFE CONSTRUCTION PROCEDURES AND WORKING CLEARANCE ARE TO BE MAINTAINED AT ALL TIMES WHILE WORKING NEAR POWER LINES. CONTRACTOR TO FOLLOW ALL APPLICABLE OSHA STANDARDS.
24. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THESE CONTRACT DOCUMENTS: THE MOST CURRENT EDITION OF LOGAN CITY STANDARD SPECIFICATIONS AND DRAWINGS, AND THE MOST CURRENT EDITION OF THE AMERICAN PUBLIC WORKS ASSOCIATION MANUAL OF STANDARD SPECIFICATION AND PLANS.
25. MARK ALL SAW CUT LINES, CONCRETE REMOVAL, AND TRENCH PATCHING LIMITS, GET ENGINEER APPROVAL PRIOR TO REMOVAL.
26. COORDINATE ANY SOFT SPOT REPAIR WITH ENGINEER PRIOR TO REMOVAL.
27. CONTRACTOR RESPONSIBLE TO SURVEY ALL EXISTING VALVES/MANHOLES, ETC. AND VERIFY WITH ENGINEER PRIOR TO RAISING EXISTING VALVES/MANHOLES TO GRADE.
28. CONTRACTOR SHALL PROVIDE A STORMWATER POLLUTION PREVENTION BMP PLAN. NO SWPPP OR NOI IS REQUIRED.
29. TRENCH BACKFILL SHOULD BE PLACED IN 4 TO 6 INCH LIFTS IF HAND COMPACTED OR NO MORE THAN 8 INCH LIFTS IF POWER COMPACTED.
30. CLOSE TRENCHES DURING NIGHTTIME CONDITIONS THROUGH THE USE OF BACKFILL, TRENCH PLATES, BARRICADES AND/ OR OTHER APPROVED PROTECTION METHODS.
31. CONTRACTOR SHALL MAINTAIN THE CONSTRUCTION SITE CLEAN AT ALL TIMES. CONTRACTOR SHALL PROVIDE PROGRESS CLEANING ON A DAILY BASIS.
32. CONTRACTOR MAY PLACE AND TEMPORARILY STOCKPILE EXCAVATED MATERIAL OR IMPORTED MATERIAL ON PAVED ROADWAY & PARKING LOT, WHEN THE ASPHALT IS TO BE REMOVED, PROVIDED THE CONTRACTOR PREVENTS MIGRATION OF THE STOCKPILED MATERIAL FROM THE WORK SITE, PROVIDED THE CONTRACTOR FOLLOWS THE REQUIREMENTS OF THEIR STORM WATER POLLUTION PREVENTION PLAN, AND PROVIDED THE CONTRACTOR PREVENTS DAMAGE TO THE EXISTING ASPHALT PAVEMENT FROM EQUIPMENT SCRAPING OR CONSTRUCTION PROCEDURES. ENGINEER MAY IMPOSE RESTRICTIONS ON TEMPORARY STOCKPILES OR REQUIRE RESTITUTION BY CONTRACTOR IF THESE REQUIREMENTS ARE NOT FOLLOWED. ANY DAMAGES INCURRED MUST BE REPAIRED TO EXISTING OR BETTER CONDITION AT THE CONTRACTOR'S EXPENSE.
33. PARTS OF ABANDONED GAS LINE CONTAIN ASBESTOS WRAPPED LINES. IF ENCOUNTERED AND REMOVAL IS REQUIRED CONTACT GAS COMPANY FOR PROPER REMOVAL OF ASBESTOS WARPED LINES.
34. CONTRACTOR SHALL PROVIDE A MINIMUM 18 INCHES HORIZONAL SEPARATION BETWEEN SERVICES (I.E. WATERS SERVICE AND IRRIGATION SERVICE).
35. AERIAL UTILITIES ARE NOT ILLUSTRATED IN THE DRAWINGS. ELECTRICAL, CATV, AND TELEPHONE LINES ARE AERIAL. CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE RESPECTIVE UTILITIES IF NECESSARY.
36. ANY ABANDONED INFRASTRUCTURE THAT OBSTRUCTS WATER PIPE ALIGNMENT SHALL BE REMOVED AND DISPOSED OF AT NO EXPENSE TO THE OWNER. ANY VOIDS CAUSED BY REMOVAL OF INFRASTRUCTURE MUST BE BACKFILLED.

ABBREVIATIONS:

@	AT
AC	ASBESTOS CEMENT
ADA	AMERICANS WITH DISABILITIES ACT
ADJ	ADJUSTABLE, ADJACENT
AGGR	AGGREGATE
AP	AERIAL POWER
APPROX	APPROXIMATE, APPROXIMATELY
APVD	APPROVED
ARCH	ARCHITECT. ARCHITECTURAL
ARV	AIR RELEASE VALVE
AT	AERIAL TELEPHONE
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS
AUTO	AUTOMATIC
AUX	AUXILIARY
AVRV	AIR & VACUUM RELEASE VALVE
BF	BLIND FLANGE, BOTTOM FACE
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BENCH MARK, BEAM
BTWN	BETWEEN
°C	DEGREE CELSIUS
C TO C	CENTER TO CENTER
CATV	CABLE TELEVISION
C&G	CURB AND GUTTER
CB	CATCH BASIN
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CI	CAST IRON PIPE
CLR	CLEAR
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
COORD	COORDINATE
CORR	CORRIDOR
CPLG	COUPLING
CTR	CENTER
CU	COPPER
CU FT	CUBIC FEET
CU IN	CUBIC INCH
DBL	DOUBLE
DET	DETAIL
DI	DUCTILE IRON PIPE, DROP INLET
DI	DUCTILE IRON PIPE
DIA, 0	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIST	DISTANCE
DN	DOWN
DWG	DRAWING
EA	EACH
ECC	ECCENTRIC
EL, ELEV	ELEVATION
ENGR	ENGINEER
ELB	ELBOW
ELEC	ELECTRIC, ELECTRICAL
EOP, EP	EDGE OF PAVEMENT
EQ	EQUIVALENT, EQUATION
EQPT	EQUIPMENT
EX	EXISTING
EXT	EXTERIOR
FC	FLEXIBLE COUPLING
FCA	FLANGED COUPLING ADAPTER
FH	FIRE HYDRANT
FHA	FIRE HYDRANT ASSEMBLY
FIG	FIGURE
FLG	FLANGE
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FOOT, FEET
FTG	FOOTING
°F	DEGREE FAHRENHEIT
G	GAS, GRILLE
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GND	GROUND
GP	GUARD POST
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE
GVL	GRAVEL
HAS	HEADED ANCHOR STUD
HB	HOSE BIB
HC	HOLLOW CORE
HGT, HT	HEIGHT
HORIZ, HOR.	HORIZONTAL
HP	HORSEPOWER
HWL	HIGH WATER LEVEL
HWY	HIGHWAY
I&C	INSTRUMENTATION & CONTROL
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCH
K	RATE OF VERTICAL CURVATURE
KW	KILOWATT
L	LENGTH, LONG
LBS	POUNDS
LB/CU FT	POUNDS PER CUBIC FOOT
Lr	LINEAR FEET
LH	LEFT HAND
LOC	LOCATION
LONG	LONGITUDINAL
MAIL.	MAT MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MG/L	MILLIGRAMS PER LITER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MTL	METAL
(N)	NEW
NIC	NOT IN CONTRACT
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OHE	OVERHEAD ELECTRIC
OPNG, OPG	OPENING
OPP	OPPOSITE
PB	PULL BOX
PC	POINT OF CURVE
PCF	POUNDS PER CUBIC FOOT
PE	PLAIN END
PEP	POLYETHYLENE PIPE
PEPP	POLYETHYLENE PRESSURE PIPE
PERF	PERFORATED
PERIM	PERIMETER
PI	POINT OF INTERSECTION
PLF	POUNDS PER LINEAL FOOT
PLYWD	PLYWOOD
PP	POWER POLE
PRCST	PRECAST
PRESS	PRESSURE
PRI	PRIMARY
PROP	PROPERTY
PRV	PRESSURE REDUCING VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH, GAUGE
PSV	PRESSURE SUSTAINING VALVE
PTD	PAINTED
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
R&R, R/R	REMOVE AND REPLACE
R.	RAD RADIUS, RISER, REGISTER
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN. ROAD
REBAR	REINFORCING BAR
RED	REDUCER
REF, RE	REFER. REFERENCE
REINF	REINFORCING. REINFORCE
REQO	REQUIRED
RH	RIGHT HAND
RND	ROUND
ROW, R/W	RIGHT OF WAY
RPP	REINFORCED POLYPROPYLENE
RST	REINFORCING STEEL
S	SEWER, SLOPE
SL	SLOPE
SCHED.	SCH SCHEDULE
SH, SHT	SHEET
SIM	SIMILAR
SPEC	SPECIFICATIONS
SPEC'O	SPECIFIED
SQ,	SQUARE
SO FT, SF	SQUARE FOOT
SQ IN	SQUARE INCH
SS	STAINLESS STEEL
STA	STATION
STD	STANDARD
STL	STEEL
STRUCT	STRUCTURE, STRUCTURAL
SYMM	SYMMETRICAL
T	TREAD, TOP, TELEPHONE
TB	THRUST BLOCK
T&B	TOP AND BOTTOM
TAN	TANGENT
TBM	TEMPORARY BENCH MARK
TECH	TECHNICAL
TEL	TELEPHONE
TEMP	TEMPERATURE
THK	THICK (NESS)
TOC	TOP OF CURB, CONCRETE
TOP	TOP OF PIPE
TOPO	TOPOGRAPHY
TW	TRACER WIRE
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
UD	UNDERDRAIN
UE.	UGE UNDERGROUND ELECTRIC
UNK	UNKNOWN
UNO	UNLESS NOTED OTHERWISE
UP	UNDERGROUND POWER
UT	UNDERGROUND TELEPHONE
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
W/O	WITHOUT
W	WIDE, WATER
WS	WATER STOP
WT	WEIGHT
YD	YARD

LEGEND

	MONUMENT
100	GRADING POINT MARKER
	REACH FLOW LINE
	BASE LINE
	LIMITS OF CONSTRUCTION
	TOP OF SLOPE
	EDGE OF ROAD
	PROPERTY LINE
5530	EXISTING MAJOR CONTOUR
5531	EXISTING MINOR CONTOUR
5530	MAJOR CONTOUR
5531	MINOR CONTOUR
	FENCE WITH BARB
	EXISTING FENCE
[X]	FENCE DEMO
	CHAINLINK FENCE
	EROSION CONTROL SILT FENCE
	SEDIMENT BARRIER
	GRADE CHANGE
	EXISTING RAILROAD TRACK
G	NATURAL GAS
G	EXISTING NATURAL GAS
[G]	NATURAL GAS ABANDON
SS	SANITARY SEWER
SS	EXISTING SANITARY SEWER
[SS]	SANITARY SEWER DEMO
FM	SANITARY FORCE MAIN
FM	EXISTING SANITARY FORCE MAIN
[FM]	SANITARY FORCE MAIN DEMO
SD	STORM SEWER
SD	EXISTING STORM SEWER
[SD]	STORM SEWER DEMO
UD	UNDERDRAIN
UD	EXISTING UNDERDRAIN
[UD]	UNDERDRAIN DEMO
W	WATER
W	EXISTING WATER
[W]	WATER DEMO
IRR	IRRIGATION
IRR	EXISTING IRRIGATION
[IRR]	IRRIGATION DEMO
FW	FIRE WATER
FW	EXISTING FIRE WATER
[FW]	FIRE WATER DEMO
E	ELECTRICAL
E	EXISTING ELECTRICAL
[E]	ELECTRICAL DEMO
OHP	OVERHEAD POWER
OHP	EXISTING OVERHEAD POWER
[OHP]	OVERHEAD POWER DEMO
UGP	UNDERGROUND POWER
UGP	EXISTING UNDERGROUND POWER
[UGP]	UNDERGROUND POWER DEMO
COM	COMMUNICATIONS LINE
COM	EXISTING COMMUNICATIONS LINE
[COM]	COMMUNICATIONS LINE DEMO
T	TELEPHONE
T	EXISTING TELEPHONE
[T]	TELEPHONE DEMO
UGT	UNDERGROUND TELEPHONE
UGT	EXISTING UNDERGROUND TELEPHONE
[UGT]	UNDERGROUND TELEPHONE DEMO
OHT	OVERHEAD TELEPHONE
OHT	EXISTING OVERHEAD TELEPHONE
[OHT]	OVERHEAD TELEPHONE DEMO
OHTV	OVERHEAD CABLE
OHTV	EXISTING OVERHEAD CABLE
[OHTV]	OVERHEAD CABLE DEMO
UGTV	UNDERGROUND CABLE
UGTV	EXISTING UNDERGROUND CABLE
[UGTV]	UNDERGROUND CABLE ABANDON

CONSTRUCTION NOTES

MARCH 2025
ISSUE DATE

epic ENGINEERING

REVISIONS

REV #	BY	DATE	DESCRIPTION

DRAWN: EH
DESIGNER: EH
REVIEWED: KCW

PROJECT # 25MS5271.17

STATE OF UTAH — 03/21/25 — NO. 204423 — Korey C. Walker — PROFESSIONAL STRUCTURAL ENGINEER

SCALES

HORIZ: 1" = 10'
VERT: (24" x 36" SHEET)

0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST FOR A HALF SIZE SHEET.

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
GENERAL NOTES

PLAN SET: CIVIL
SHEET C1.0

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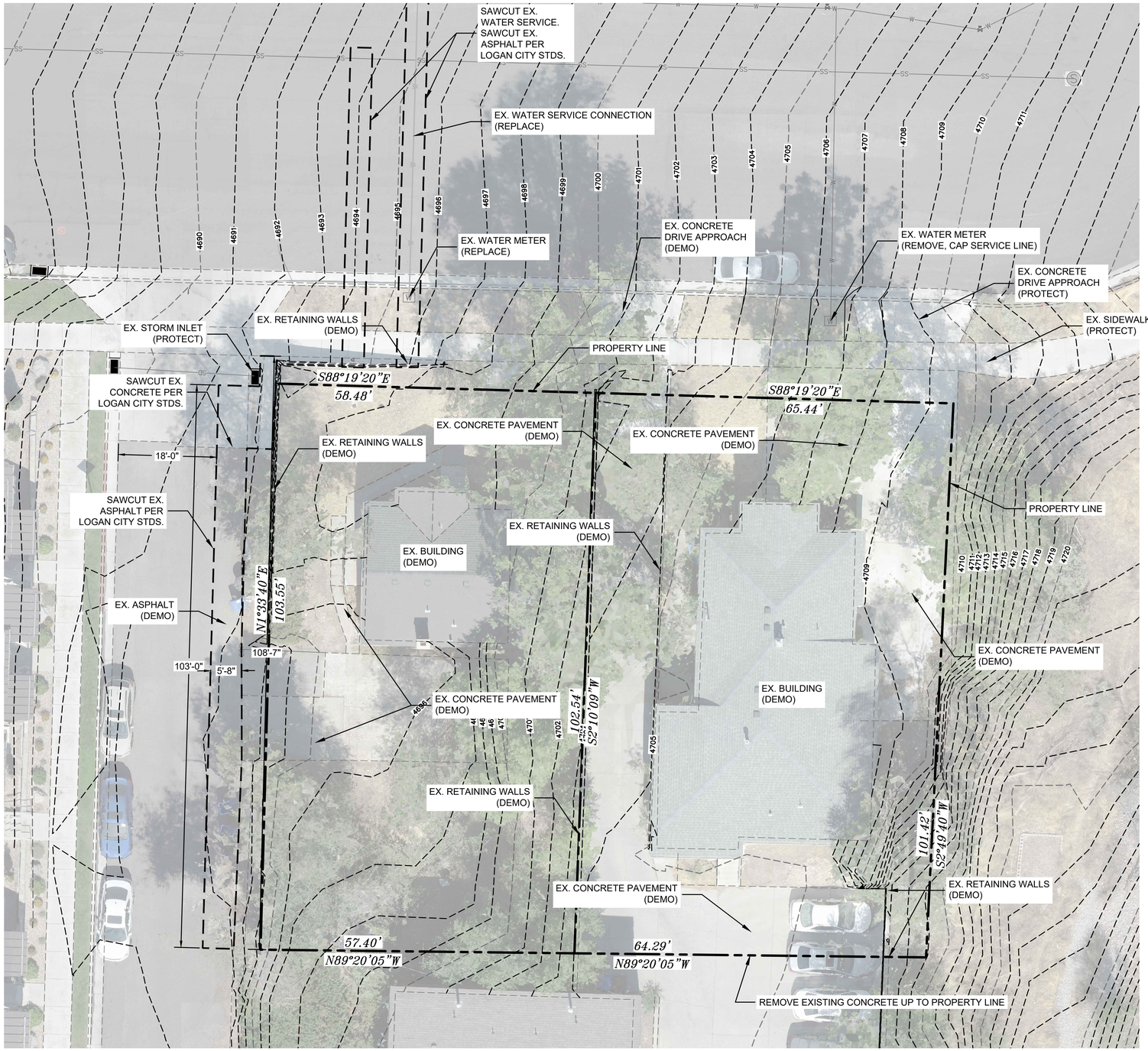

GRAPHIC SCALE

10' 5' 5' 10' 20'

(IN FEET)
1 inch = 10' ft.

NOTE:

CONTRACTOR TO CAP & ABANDON EXISTING SEWER LATERALS

CONSTRUCTION NOTES

MARCH 2025
ISSUE DATE

epic ENGINEERING

REVISIONS

REV #	BY	DATE	DESCRIPTION

DRAWN: EH
DESIGNER: EH
REVIEWED: KCW

PROJECT # 25MS5271.17

STATE OF UTAH 03/2025 NO. 204428 Korey C. Walker PROFESSIONAL STRUCTURAL ENGINEER

SCALES

HORIZ: 1" = 10'
VERT:
(24" x 36" SHEET)

0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST FOR A HALF SIZE SHEET.

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
DEMO PLAN

PLAN SET: CIVIL
SHEET C1.1

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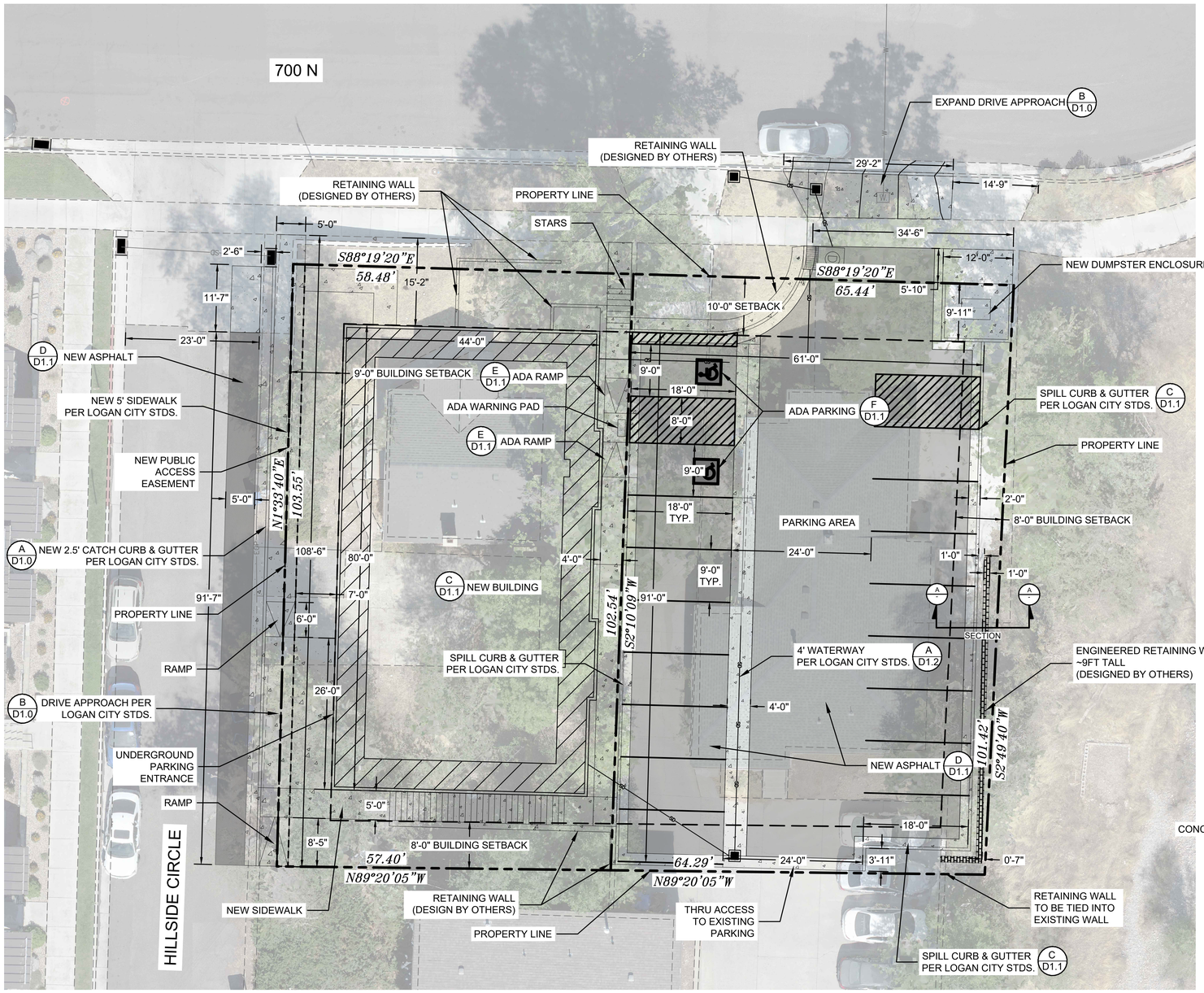
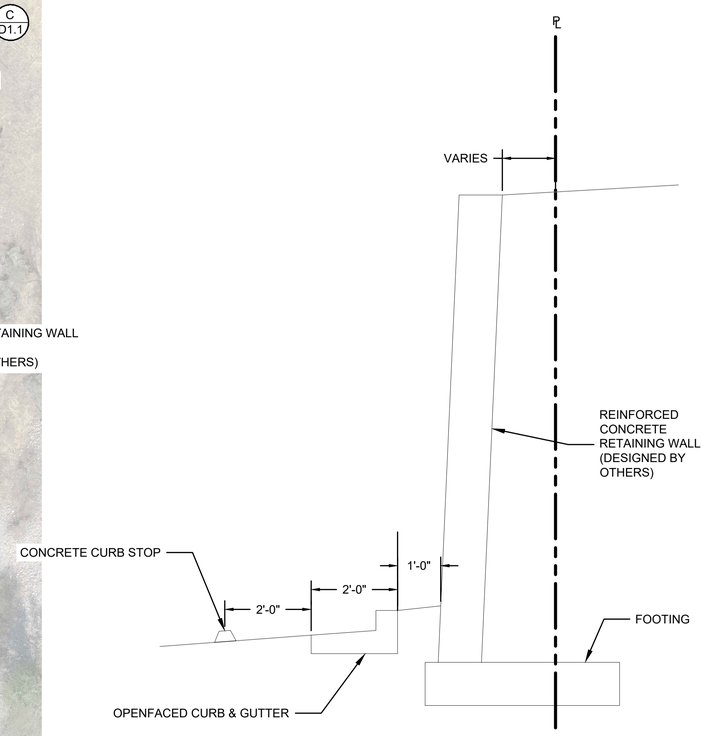


GRAPHIC SCALE

10' 0 5' 5' 10' 20'

(IN FEET)
1 inch = 10' ft.

PROVIDED PARKING	
QUANTITY	TYPE
15	REGULAR
2	ADA



A CROSS SECTION A–A
SCALE: NTS

CONSTRUCTION NOTES

MARCH 2025
ISSUE DATE

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REVISIONS

REV #	BY	DATE	DESCRIPTION

DRAWN: EH
DESIGNER: EH
REVIEWED: KCW

PROJECT #
25MS5271.17

STATE OF UTAH — NO. 204425 — Korey C. Walker — PROFESSIONAL STRUCTURAL ENGINEER

SCALES
HORIZ: 1" = 10'
VERT:
(24" x 36" SHEET)
0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST FOR A HALF SIZE SHEET.

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH LOGAN, UT

SHEET TITLE:
SITE PLAN

PLAN SET: CIVIL
SHEET C1.2

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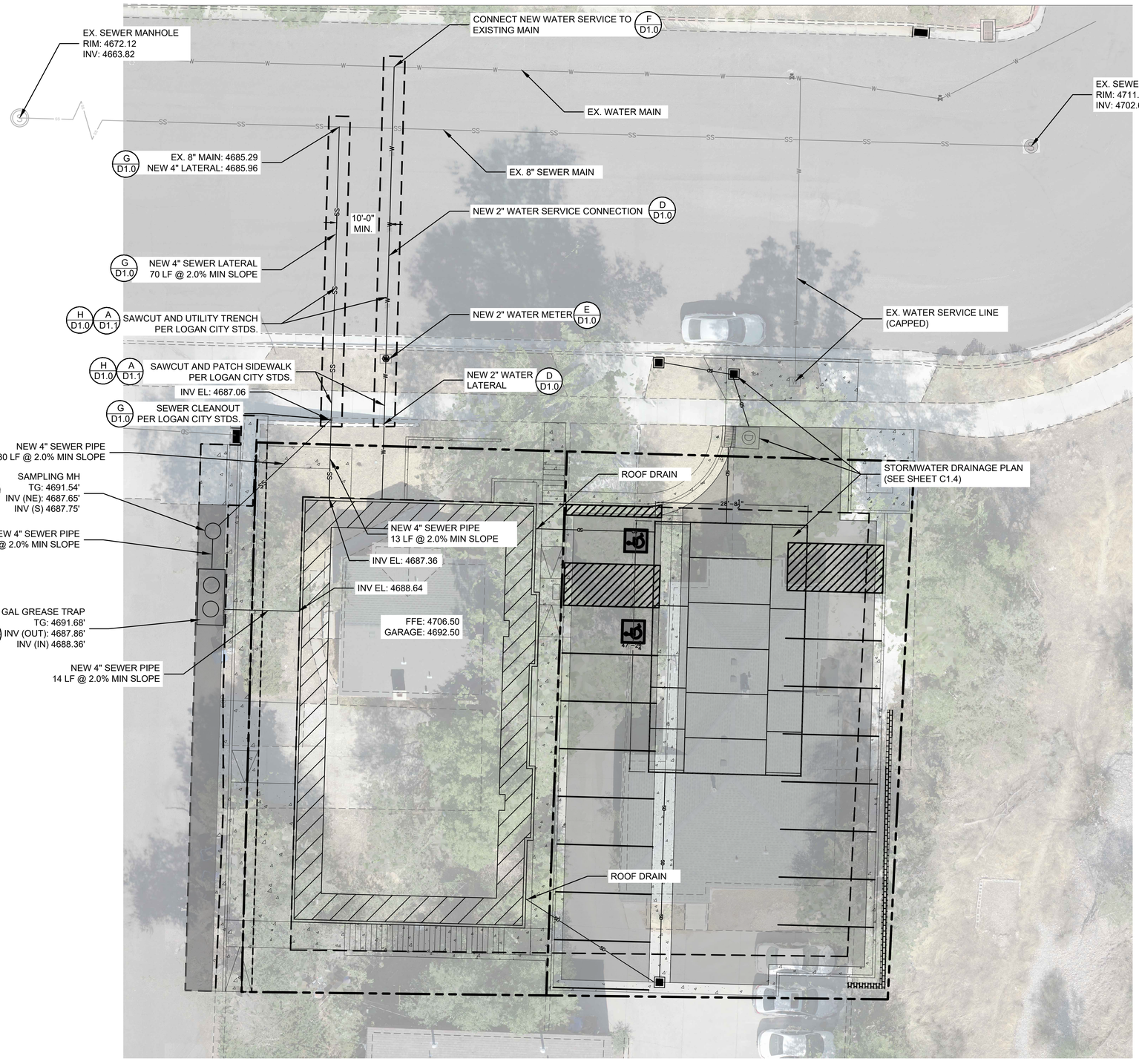

GRAPHIC SCALE

10' 0' 5' 10' 20'

(IN FEET)
1 inch = 10' ft.

CONSTRUCTION NOTES

MARCH 2025
ISSUE DATE

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REVISIONS

REV #	BY	DATE	DESCRIPTION

DRAWN: EH
DESIGNER: EH
REVIEWED: KCW

PROJECT #
25MS5271.17

STATE OF UTAH
LICENSED
NO. 204425
Korey C. Walker
PROFESSIONAL STRUCTURAL ENGINEER

SCALES

HORIZ: 1" = 10'
VERT:
(24" x 36" SHEET)

0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST FOR A HALF SIZE SHEET.

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
UTILITY PLAN

PLAN SET: CIVIL
SHEET C1.3

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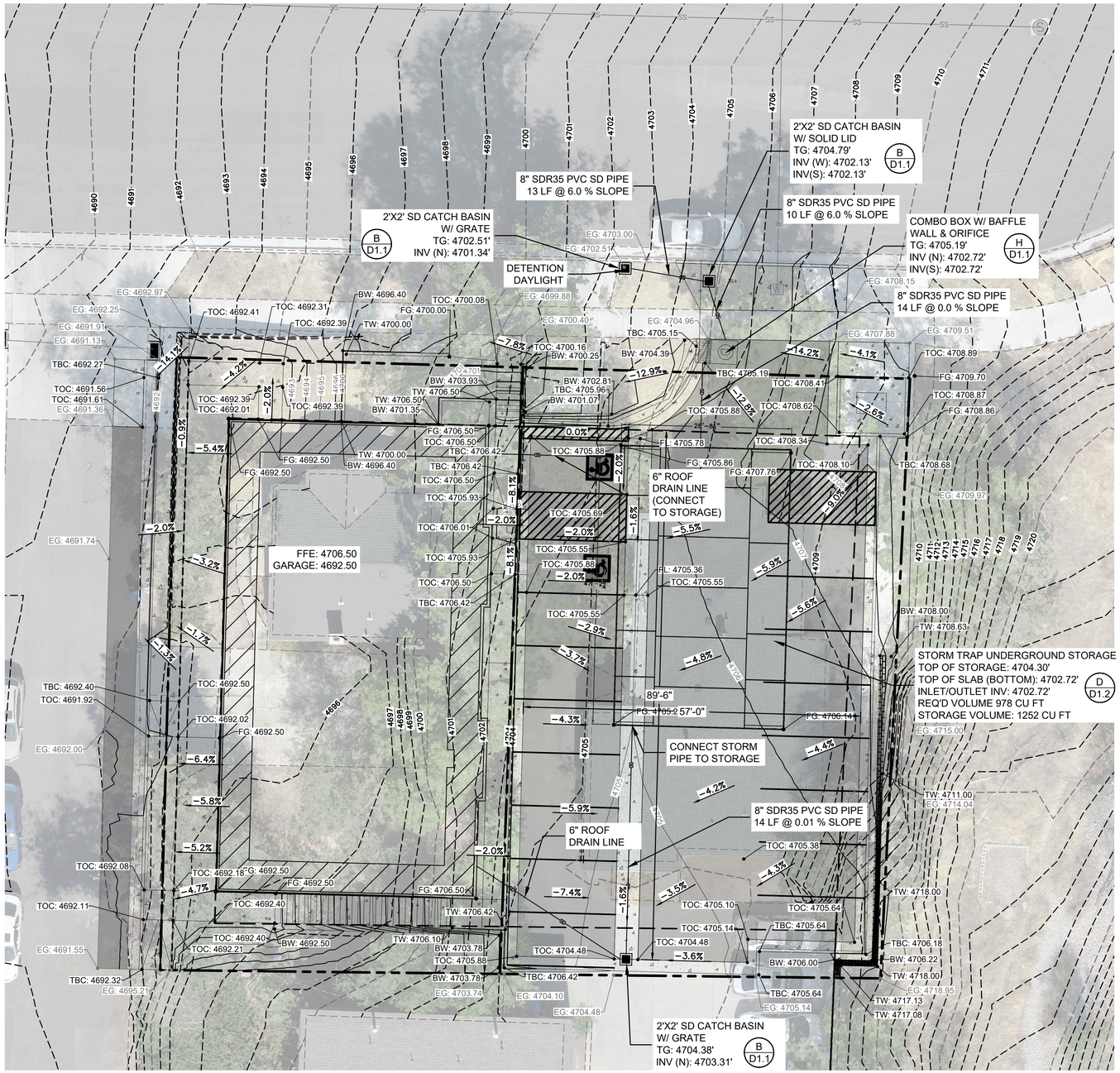

GRAPHIC SCALE

10' 5' 5' 10' 20'

(IN FEET)
1 inch = 10' ft.

Project Name: K & B Apartments

Location: Logan UT

Date 3/13/2025

Design Return Period, Year	100
Storm Event, Hr	24

Description of Area	Runoff Coefficient	Sub-Area, sq ft
Asphalt & Concrete pavement	0.95	7092
Lawns on sandy soils (2 to 7% slope)	0.15	1843
Roofs	0.95	3550
None		
None		
Composite runoff coefficient	0.83	
Total Area, sq ft	12484.7969	
Total Area, acre	0.2866	

Discharge Rate

Allowable Discharge Rate, cfs/acre	0.2
Max Discharge, cfs	0.057

Storm Retention Basin Sizing Calculations: Rational Method

Duration Hour	Intensity in/hr	Area Acre	C	Flow cfs	Volume in ft^3	Volume out ft^3	Detention ft^3
0.083	5.25	0.2866	0.83	1.25	374	17	357
0.17	4.02	0.2866	0.83	0.96	587	35	552
0.25	3.32	0.2866	0.83	0.79	712	52	661
0.5	2.24	0.2866	0.83	0.53	961	103	858
1	1.38	0.2866	0.83	0.33	1185	206	978
2	0.799	0.2866	0.83	0.19	1372	413	959
3	0.568	0.2866	0.83	0.14	1463	619	844
6	0.347	0.2866	0.83	0.08	1787	1238	549
12	0.213	0.2866	0.83	0.05	2194	2476	-282
24	0.129	0.2866	0.83	0.03	2657	4953	-2295

Minimum Retention Volume, ft^3 978

ORIFICE SIZING

Max Flow, Q	0.2	ft3/s
Coefficent of discharge	0.61	
Gravity	32.2	ft/s2
Max Height of water	3.06	ft
Area	0.023	ft^2
Required Diameter	**2.07**	**in**
	Use 2 in. Orifice	

CONSTRUCTION NOTES

TOC	TOP OF CONCRETE
FL	FLOW LINE
FFE	FINISH FLOOR ELEV.
FG	FINISH GROUND
EG	EXISTING GROUND
TW	TOP OF WALL
BW	BOTTOM OF WALL

MARCH 2025
ISSUE DATE

epic ENGINEERING

REVISIONS

REV #	BY	DATE	DESCRIPTION

DRAWN: EH
DESIGNER: EH
REVIEWED: KCW

PROJECT # 25MS5271.17

STATE OF UTAH — REGISTERED — NO. 204425 — Korey C. Walker — PROFESSIONAL ENGINEER

SCALES

HORIZ: 1" = 10'
VERT:
(24" x 36" SHEET)

0 1"
BAR SCALE MEASURES 1". ON A FULL SIZE SHEET, ADJUST FOR A HALF SIZE SHEET.

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
GRADING & DRAINAGE PLAN

PLAN SET: CIVIL

SHEET C1.4

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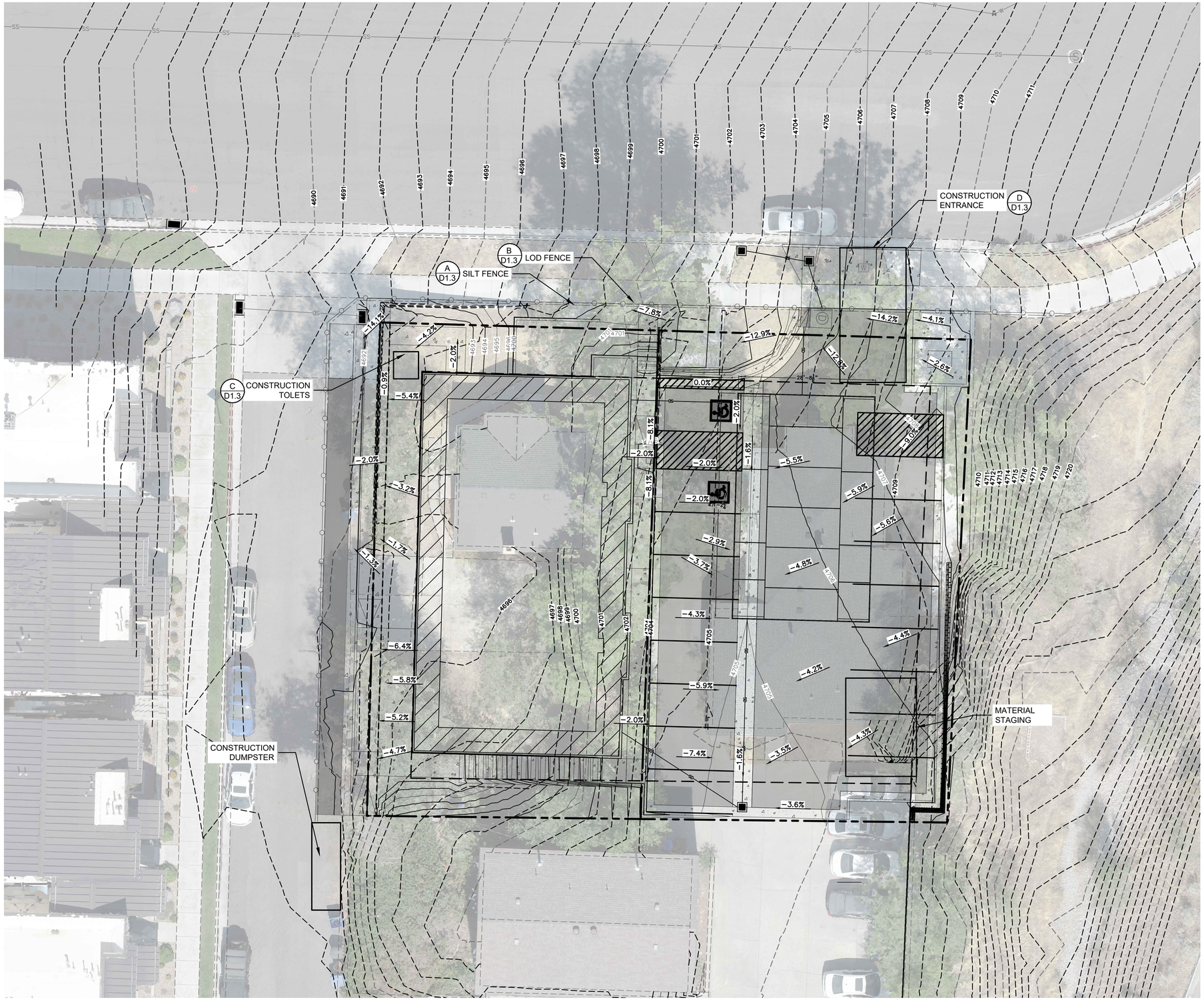

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CONSTRUCTION NOTES

MARCH 2025
ISSUE DATE

epic ENGINEERING

REVISIONS

REV #	BY	DATE	DESCRIPTION

DRAWN: EH
DESIGNER: EH
REVIEWED: KCW

PROJECT # 25MS5271.17

STATE OF UTAH — NO. 204425 — Korey C. Walker — PROFESSIONAL ENGINEER

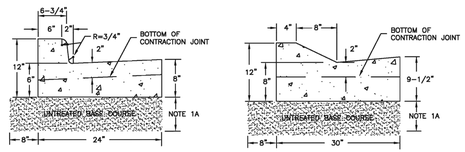
SCALES
HORIZ: 1" = 10'
VERT:
(24" x 36" SHEET)
0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST FOR A HALF SIZE SHEET.

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH LOGAN, UT

SHEET TITLE:
EROSION CONTROL PLAN

PLAN SET: CIVIL
SHEET C1.5

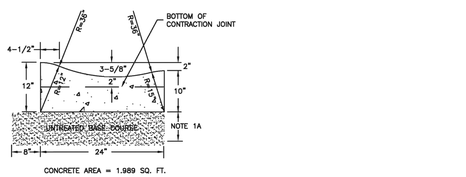


CONCRETE AREA = 1.347 SQ. FT.

TYPE E

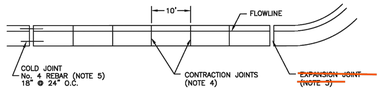
CONCRETE AREA = 1.539 SQ. FT.

TYPE F

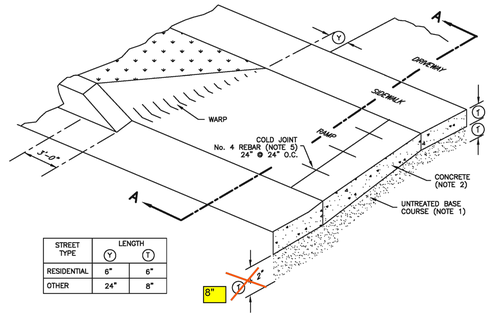


CONCRETE AREA = 1.989 SQ. FT.

TYPE G

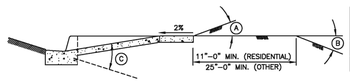


CURB AND GUTTER JOINT DETAIL



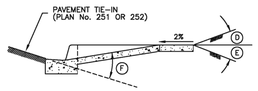
STREET TYPE	LENGTH (Y)	LENGTH (T)
RESIDENTIAL	6"	6"
OTHER	24"	8"

OBLIQUE



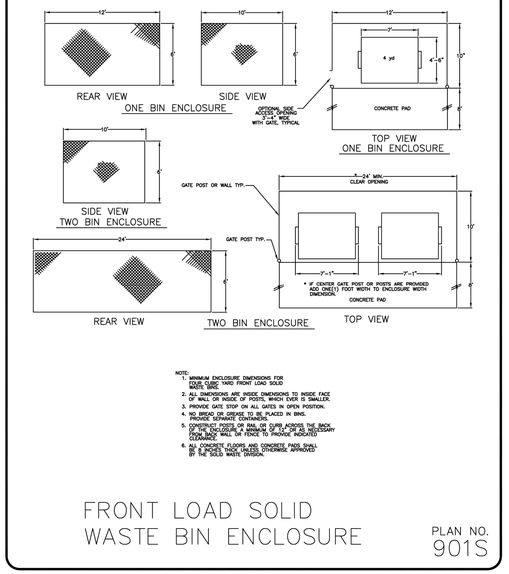
STREET TYPE	BREAKOVER ANGLE (MAXIMUM) (A)	(B)	(C)
RESIDENTIAL	16%	12%	16%
OTHER	6%	8%	10%

SECTION A–A – APPROACH REQUIRING SERVICE TRUCK ACCESS



STREET TYPE	BREAKOVER ANGLE (MAXIMUM) (D)	(E)	(F)
RESIDENTIAL	16%	12%	16%
OTHER	6%	8%	10%

SECTION A–A – TYPICAL DRIVEWAY APPROACH



NOTE:
1. MINIMUM ENCLOSURE DIMENSIONS FOR FOUR CUBIC YARD FRONT LOAD SOLID WASTE BINS.
2. ALL DIMENSIONS ARE INSIDE DIMENSIONS TO INSIDE FACE OF WALL OR INSIDE OF POSTS, WHICH EVER IS SMALLER.
3. PROVIDE GATE STOP ON ALL GATES IN OPEN POSITION.
4. NO BRICK OR CREVICE TO BE PLACED IN BINS. PROVIDE SEPARATE CONTAINERS.
5. CONSTRUCT POSTS OR RAIL OR CURB ACROSS THE BACK OF THE ENCLOSURE A MINIMUM OF 12" OR AS NECESSARY FROM THE WALL OR FENCE TO PROVIDE RECESSED CLEARANCE.
6. ALL CONCRETE FLOORS AND CONCRETE PADS SHALL BE FREE OF DRAINS UNLESS OTHERWISE APPROVED BY THE SOLID WASTE DIVISION.

FRONT LOAD SOLID
WASTE BIN ENCLOSURE

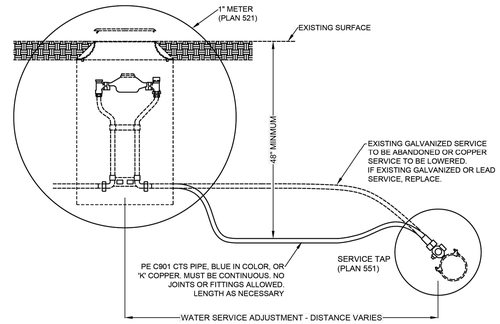
PLAN NO.
901S

Water Service Line

1. GENERAL
A. Before backfilling, secure inspection of installation by ENGINEER.

2. PRODUCTS
A. FITTINGS: Provide brass fittings and nipples. Do not use galvanized materials.
B. BACKFILL: Common fill, APWA Section 31 05 13. Maximum particle size 2-inches.

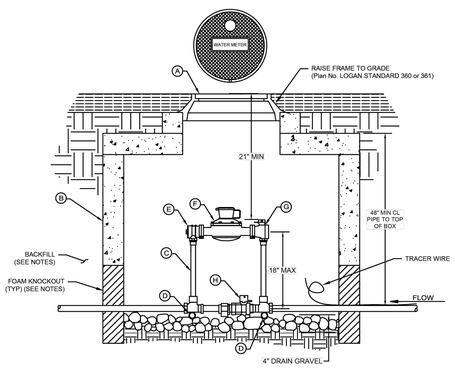
3. EXECUTION
A. BACKFILL: Maximum lift thickness is 8-inches before compaction. Compaction is 95 percent or greater relative to a modified proctor density, APWA Section 31 23 26.



* See the City Approved Materials List

LOGAN CITY UNITED IN SERVICE – PUBLIC WORKS DEPARTMENT	STANDARD DETAIL	WATER SERVICE LINE REVISION DATE: 2/22/2024	DETAIL NO. 541

2" Meter with Bypass

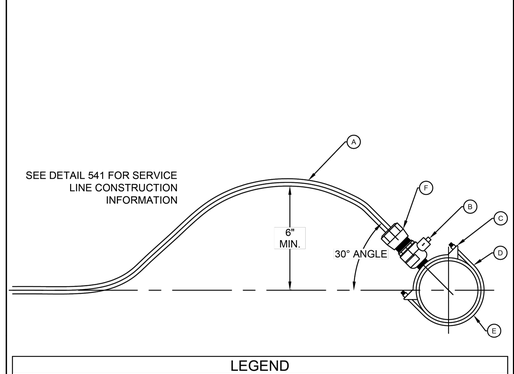


LEGEND		
No.	ITEM	DESCRIPTION
A	27" FRAME & COVER (D&L SUPPLY A1180-101)	LOGAN CITY STANDARD PLAN No. 502
B	CONCRETE BOX	LOGAN CITY STANDARD PLAN No. 505
C	COPPER SETTER WITH BYPASS	
D	CONTINUOUS NON-CORRODING STABILIZING PIPE	18" MINIMUM LENGTH
E	DUAL CHECK BACKFLOW PREVENTOR	ASSE 1024
F	2" WATER METER	NEPTUNE T-10
G	ANGLE BALL METER VALVE	
H	BYPASS BALL VALVE	

* See the City Approved Materials List

LOGAN CITY UNITED IN SERVICE – PUBLIC WORKS DEPARTMENT	STANDARD DETAIL	2" METER WITH BYPASS REVISION DATE: 2/22/2024	DETAIL NO. 522

1" & 2" Service Tap

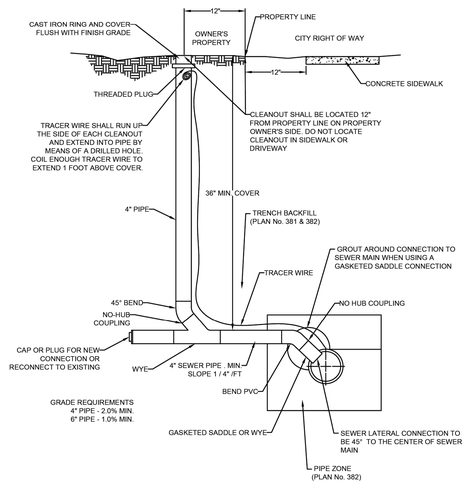


LEGEND		
No.	ITEM	DESCRIPTION
A	COPPER OR POLY PIPE	TYPE K - SOFT
B	CORPORATION STOP	BRASS (BALL TYPE)
C	SERVICE SADDLE CLAMP	STAINLESS STEEL, BRASS
D	SERVICE SADDLE STRAPS	STAINLESS STEEL
E	WATER MAIN PIPE	
F	COMPRESSION FITTING (W / STIFFENER)	FLARED FITTING NOT ALLOWED

* See the City Approved Materials List

LOGAN CITY UNITED IN SERVICE – PUBLIC WORKS DEPARTMENT	STANDARD DETAIL	1" & 2" SERVICE TAP REVISION DATE: 2/22/2024	DETAIL NO. 551

Sewer Lateral Connection

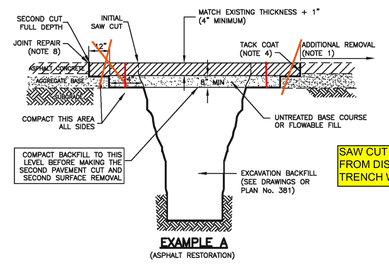


* See the City Approved Materials List

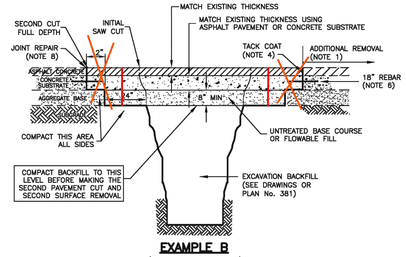
LOGAN CITY UNITED IN SERVICE – PUBLIC WORKS DEPARTMENT	STANDARD DETAIL	SEWER LATERAL CONNECTION REVISION DATE: 2/22/2024	DETAIL NO. 431

DEEP EXCAVATION

(MORE THAN 48 INCHES FROM PAVEMENT SURFACE TO BOTTOM OF EXCAVATION)



EXAMPLE A
(ASPHALT RESTORATION)



EXAMPLE B
(COMPOSITE RESTORATION)

A CURB AND GUTTER – NTS

B DRIVE APPROACH – NTS

C TRASH ENCLOSURE – NTS

D WATER SERVICE LINE – NTS

E WATER SERVICE LINE – NTS

F WATER SERVICE TAP – NTS

G SEWER LATERAL AND CONNECTION – NTS

H T PATCH – NTS

CONSTRUCTION NOTES

MARCH 2025
ISSUE DATE

epic ENGINEERING

REVISIONS			
REV #	BY	DATE	DESCRIPTION

DRAWN: EH
DESIGNER: EH
REVIEWED: KCW

PROJECT # 25MS5271.17

STATE OF UTAH – 12521725 – NO. 204423 – Korey C. Walker – PROFESSIONAL STRUCTURAL ENGINEER

SCALES
HORIZ: 1" = 10'
VERT:
(24" x 36" SHEET)
0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST FOR A HALF SIZE SHEET.

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
DETAILS

PLAN SET: CIVIL
SHEET D1.0

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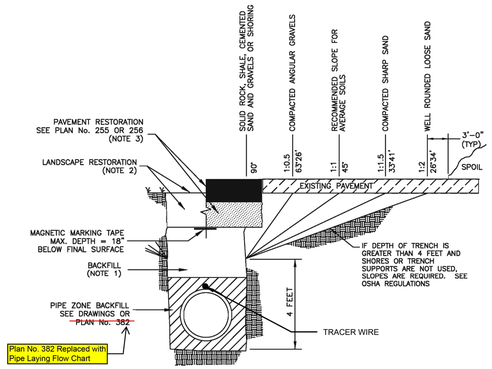
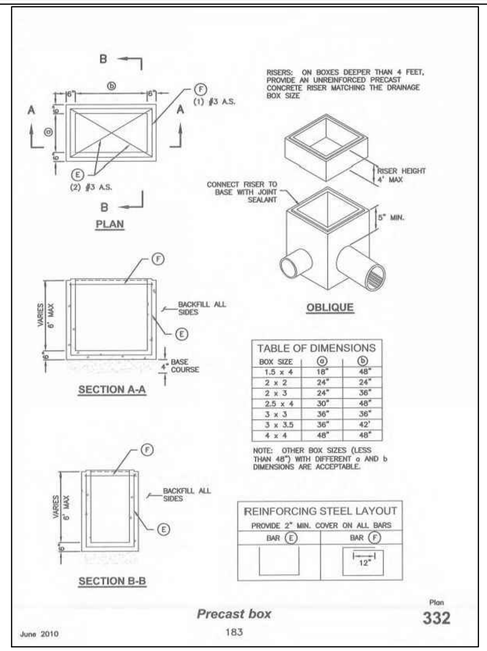


SECTION

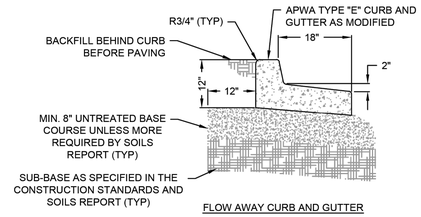
Trench backfill

May 2006 — 179 — Plan No. **381**

A — TRENCH BACKFILL
- — NTS

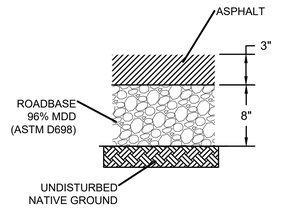


B — PRECAST STORM BOX
- — NTS



FLOW AWAY CURB AND GUTTER

C — SPILL CURB AND GUTTER
- — NTS

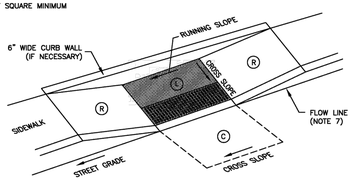


D — ASPHALT SECTION
- — NTS

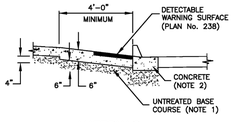
LANDING AT STREET LEVEL

NARRATIVE:
- SITE CONDITIONS WILL VARY. CONFIGURATION OF RAMP AND LANDING MAY BE CHANGED, BUT THEY MUST MEET DIMENSIONS AND SLOPES SHOWN HERE.
- GRADE BREAKS MUST BE PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAVEL.
- USE OF FLARES, CURB WALLS, ETC., ARE AT ENGINEER'S DISCRETION.
- LENGTH OF ANY RAMP NOT REQUIRED TO EXCEED 15 FEET.

(L) = 4 FEET SQUARE MINIMUM
(R) = 4 FEET WIDE MINIMUM
(C) = 4 FEET SQUARE MINIMUM



EXAMPLE 5



MATERIALS

		RUNNING SLOPE	CROSS SLOPE
LANDING	(L)	STREET GRADE	1:48 (2%)
RAMP	(R)	1:12 (8.33%)	1:48 (2%)
CLEAR SPACE	(C)	1:20 (5%)	STREET GRADE

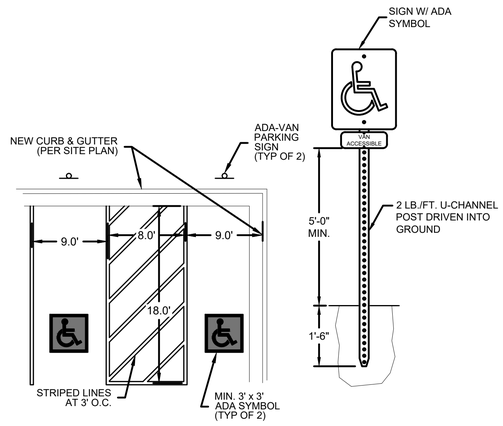
CROSS SLOPE IS PERPENDICULAR TO DIRECTION OF PEDESTRIAN TRAVEL. RUNNING SLOPE IS IN THE DIRECTION OF PEDESTRIAN TRAVEL.

MAXIMUM SLOPES

Tangent curb cut assembly

August 2006 — 65 — Plan No. **236** — Drawing 3 of 3

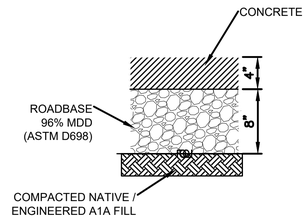
E — TANGENT CURB CUT
- — NTS



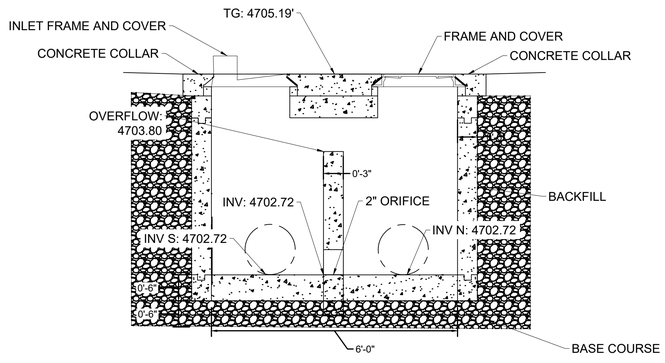
PARKING STALLS — **PARKING SIGN**

NOTES:
1. FINISHED STALL & AISLE SURFACE SHALL BE PAVING SLOPED AT 2% MAX.

F — ADA PARKING STALL & SIGN
- — NTS



G — CONCRETE SECTION
- — NTS



H — COMBO BOX W/ BAFFLE WALL & ORIFICE
- — NTS

CONSTRUCTION NOTES

MARCH 2025
ISSUE DATE

epic ENGINEERING

REVISIONS

REV #	BY	DATE	DESCRIPTION

DRAWN: EH
DESIGNER: EH
REVIEWED: KCW

PROJECT # 25MS5271.17

STATE OF UTAH — 12/31/25 — NO. 204425 — Korey C. Walker — PROFESSIONAL STRUCTURAL ENGINEER

SCALES
HORIZ: 1" = 10'
VERT:
(24" x 36" SHEET)
0 — 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST FOR A HALF SIZE SHEET.

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH LOGAN, UT

SHEET TITLE:
DETAILS

PLAN SET: CIVIL
SHEET D1.1

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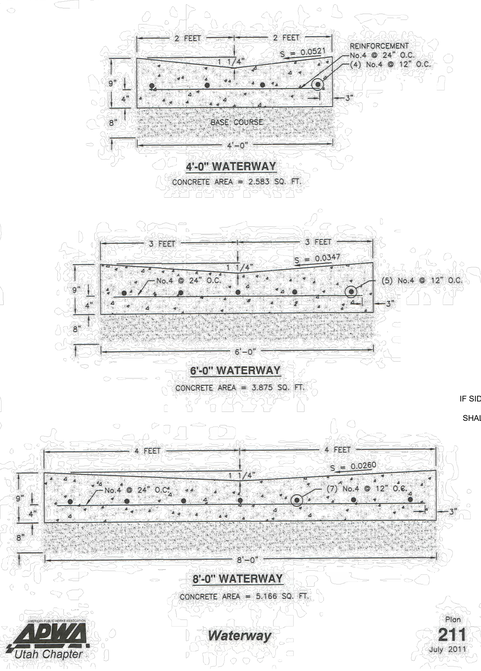
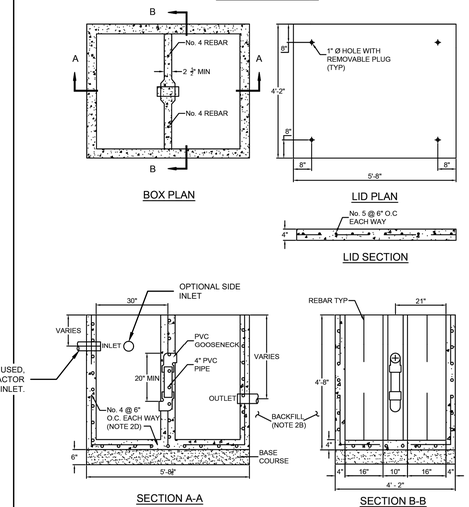


ADWA Utah Chapter

Waterway

Plan 211 July 2011

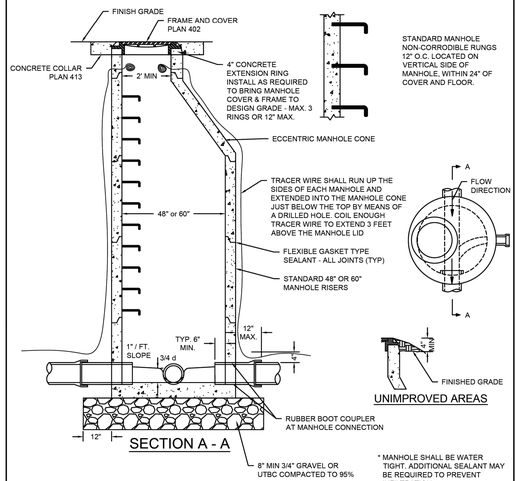
Grease Trap



* See the City Approved Materials List

LOGAN CITY UNITED IN SERVICE — PUBLIC WORKS DEPARTMENT	STANDARD DETAIL	GREASE TRAP REVISION DATE: 2/22/2024	DETAIL NO. 441

Sanity Sewer Manhole



* MANHOLE SHALL BE WATER TIGHT. ADDITIONAL SEALANT MAY BE REQUIRED TO PREVENT INFILTRATION.

* See the City Approved Materials List

LOGAN CITY UNITED IN SERVICE — PUBLIC WORKS DEPARTMENT	STANDARD DETAIL	SANITARY SEWER MANHOLE REVISION DATE: 2/22/2024	DETAIL NO. 411

A - WATERWAY
NTS

B - GREASE TRAP
NTS

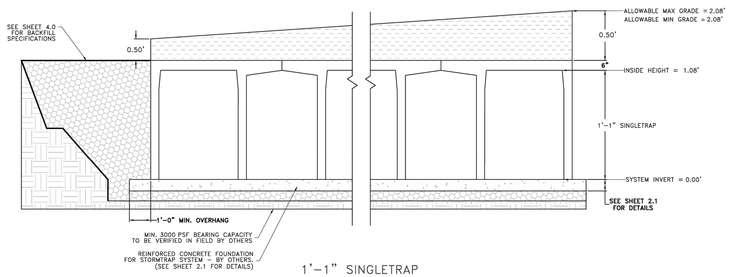
C - SEWER MANHOLE
NTS

STRUCTURAL DESIGN LOADING CRITERIA	
LIVE LOADING:	AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE:	BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE:	3000 PSF
SOIL DENSITY:	120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE:	35 PSF / FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE:	80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES:	ASTM C857 ACI-318
BACKFILL TYPE:	SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION		
UNIT HEADROOM:	1'-1" SINGLETRAP	
TOTAL STORAGE PROV:	1251.52	CUBIC FEET

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 0.50" MAX. 0.50" CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
5. SYSTEM DESIGN MAY ALLOW FOR INCIDENTAL LEAKAGE AND WILL NOT BE SUBJECT TO LEAKAGE TESTING.



1'-1" SINGLETRAP

D - STORMTRAP STORAGE
NTS

StormTrap
PATENTS LISTED AT: [HTTPS://STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Epic Engineering - Heber City, UT
Logan,

PROJECT INFORMATION:
K&B APT
Logan,

CURRENT ISSUE DATE:
03/13/2025

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	03/13/2025	PRELIMINARY	SJ

SCALE:
NTS

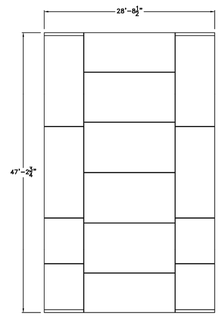
SHEET TITLE:
SINGLETRAP DESIGN CRITERIA

SHEET NUMBER:
1.1

BILL OF MATERIALS			
QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
4	I	1'-1" SINGLETRAP	12079
0	II	1'-1" SINGLETRAP	0
6	III	1'-1" SINGLETRAP	9947
0	IV	1'-1" SINGLETRAP	0
0	VII	1'-1" SINGLETRAP	0
0	VII-1	1'-1" SINGLETRAP	0
0	VII-2	1'-1" SINGLETRAP	0
0	VII-3	1'-1" SINGLETRAP	0
0	VII-4	1'-1" SINGLETRAP	0
4	SPIII	1'-1" SINGLETRAP	VARIES
0	SPIV	1'-1" SINGLETRAP	VARIES
0	T2 PANEL	6" THICK PANEL	0
4	T4 PANEL	6" THICK PANEL	787
0	T7 PANEL	6" THICK PANEL	0
3	JOINTWRAP	150' PER ROLL	
16	JOINTTAPE	14.5' PER ROLL	
TOTAL PIECES = 14			
TOTAL PANELS = 4			
HEAVIEST PICK WEIGHT = 12079			

DESIGN CRITERIA
ALLOWABLE MAX GRADE = 2.08'
ALLOWABLE MIN GRADE = 2.08'
INSIDE HEIGHT ELEVATION = 1.08'
SYSTEM INVERT =0.00'

NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP - INDICATES A MODULE WITH MODIFICATIONS.
5. P - INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. IN ORDER FOR STORMTRAP TO GENERATE APPROVAL DRAWINGS, CIVIL ENGINEERING DRAWINGS MUST BE PROVIDED TO STORMTRAP AND SHALL INCLUDE ALL PIPE SIZES, PIPE MATERIAL, PIPE INVERT ELEVATIONS, ACCESS OPENING SIZE AND SHAPE. IN ADDITION, FINAL GRADING PLANS SHALL ALSO INCLUDE MINIMUM AND MAXIMUM GRADES OVER THE TOP OF THE STORMTRAP SYSTEM.



N

StormTrap
PATENTS LISTED AT: [HTTPS://STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Epic Engineering - Heber City, UT
Logan,

PROJECT INFORMATION:
K&B APT
Logan,

CURRENT ISSUE DATE:
03/13/2025

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	03/13/2025	PRELIMINARY	SJ

SCALE:
NTS

SHEET TITLE:
SINGLETRAP SYSTEM LAYOUT

SHEET NUMBER:
2.0

CONSTRUCTION NOTES

MARCH 2025
ISSUE DATE

epic ENGINEERING

REVISIONS			
REV #	BY	DATE	DESCRIPTION

DRAWN: EH
DESIGNER: EH
REVIEWED: KCW

PROJECT # 25MS5271.17

STATE OF UTAH — 03/21/25 — NO. 204425 — Korey C. Walker — PROFESSIONAL STRUCTURAL ENGINEER

SCALES
HORIZ: 1" = 10'
VERT:
(24" x 36" SHEET)
0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST FOR A HALF SIZE SHEET.

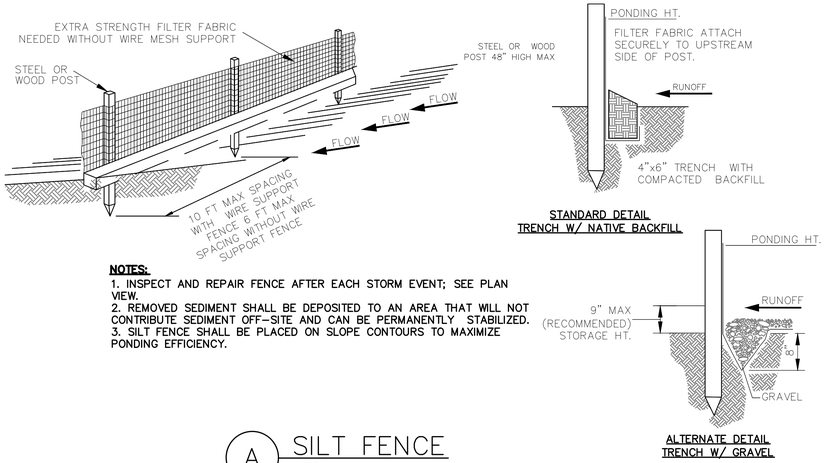
PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
DETAILS

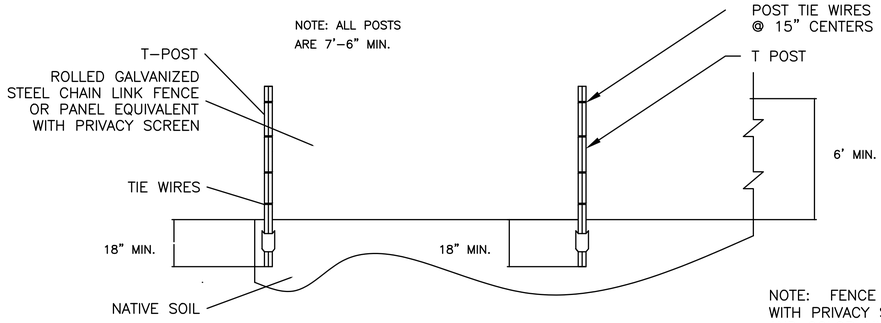
PLAN SET: CIVIL
SHEET: D1.2

S:\Projects\25MS5271.17 K&B Apartments - Logan, UT\Drawings\CIVIL\K&B APT_Design Book.dwg



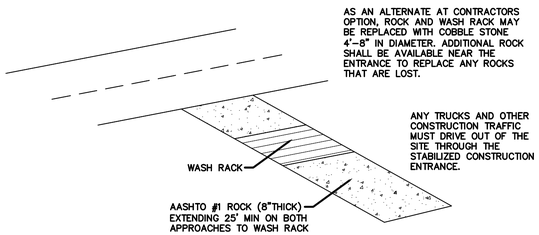
NOTES:
1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT; SEE PLAN VIEW.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

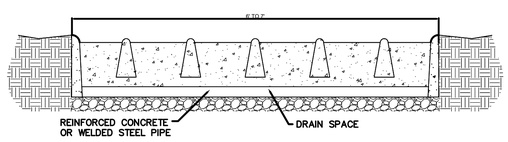
A SILT FENCE
NTS



NOTE: FENCE MUST BE 6' MIN. WITH PRIVACY SCREEN, MATERIAL AND COLOR MUST BE APPROVED BY ARC.

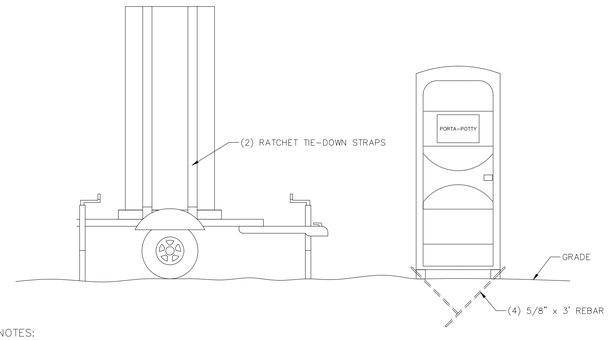
B LOD FENCE WITH PRIVACY SCREEN
NTS





MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCK PILE OF ROCK MATERIAL SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. DRAIN SPACE UNDER WASH RACK SHALL BE KEPT OPEN AT ALL TIME. DAMAGE TO THE WASH RACK SHALL BE REPAIRED PRIOR TO FURTHER USE OF THE RACK. AT THE END OF EACH CONSTRUCTION DAY, ANY SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE.

D REINFORCED CONSTRUCTION ENTRANCE
NTS



NOTES:
1. SECURE IN SUCH A MANNER THAT THE UNIT WILL NOT TIP OR MOVE AS A RESULT OF HIGH WINDS OR OTHER SITE CONDITIONS.
2. PRIOR TO WASHING CLOSETS, REMOVE TRASH AND DISCARD INTO A GARBAGE CONTAINER.
3. PUMP-OUT SERVICE FOR PORTABLE TOILETS SHALL BE CONDUCTED IN A MANNER THAT PREVENTS THE RELEASE OF SEWAGE TO THE STORMWATER CONVEYANCE SYSTEM OR RECEIVING WATERS.
4. WASTEWATER SHALL BE DISPOSED TO THE SANITARY SEWER AT THE JOB SITE OR TO A HOLDING TANK. CONTENTS OF THE HOLDING TANK SHALL BE DISPOSED TO THE SEWER AT THE BUSINESS'S COMPANY HEADQUARTERS OR AT AN APPROVED LOCATION.
5. RINSE WATER FROM CLEANING PORTABLE TOILET CLOSETS THAT CANNOT BE DISPOSED TO THE SANITARY SEWER AT THE JOB SITE SHALL BE CONTAINED FOR DISPOSAL AT THE SERVICE FACILITY HEADQUARTERS OR OTHER APPROVED FACILITY.
6. PLACE PORTABLE TOILET CLOSETS AWAY FROM STORM DRAINS, WATERWAYS, AND AREAS WITH HIGH VEHICLE TRAFFIC.
7. POST SIGNS WITH COMPANY CONTACT INFORMATION FOR REPORTING THE NEED FOR CLEANING OR REPAIR.
8. MAINTAIN HOSES, COUPLINGS, TANKS, ETC., IN GOOD CONDITION TO PREVENT LEAKS OR SPILLS.
9. PLACE TOILET CLOSETS ON A TRAY OR PAN FOR SECONDARY CONTAINMENT.
10. KEEP WASH AREA SURFACES CLEAN AND IN GOOD CONDITION.

C PORTABLE TOILET
NTS

CONSTRUCTION NOTES

MARCH 2025
ISSUE DATE

epic ENGINEERING

REVISIONS

REV #	BY	DATE	DESCRIPTION

DRAWN: EH
DESIGNER: EH
REVIEWED: KCW

PROJECT # 25MS5271.17

STATE OF UTAH — 12/31/25 — NO. 204425 — Korey C. Walker — PROFESSIONAL STRUCTURAL ENGINEER

SCALES

HORIZ: 1" = 10'
VERT:
(24" x 36" SHEET)

0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST FOR A HALF SIZE SHEET.

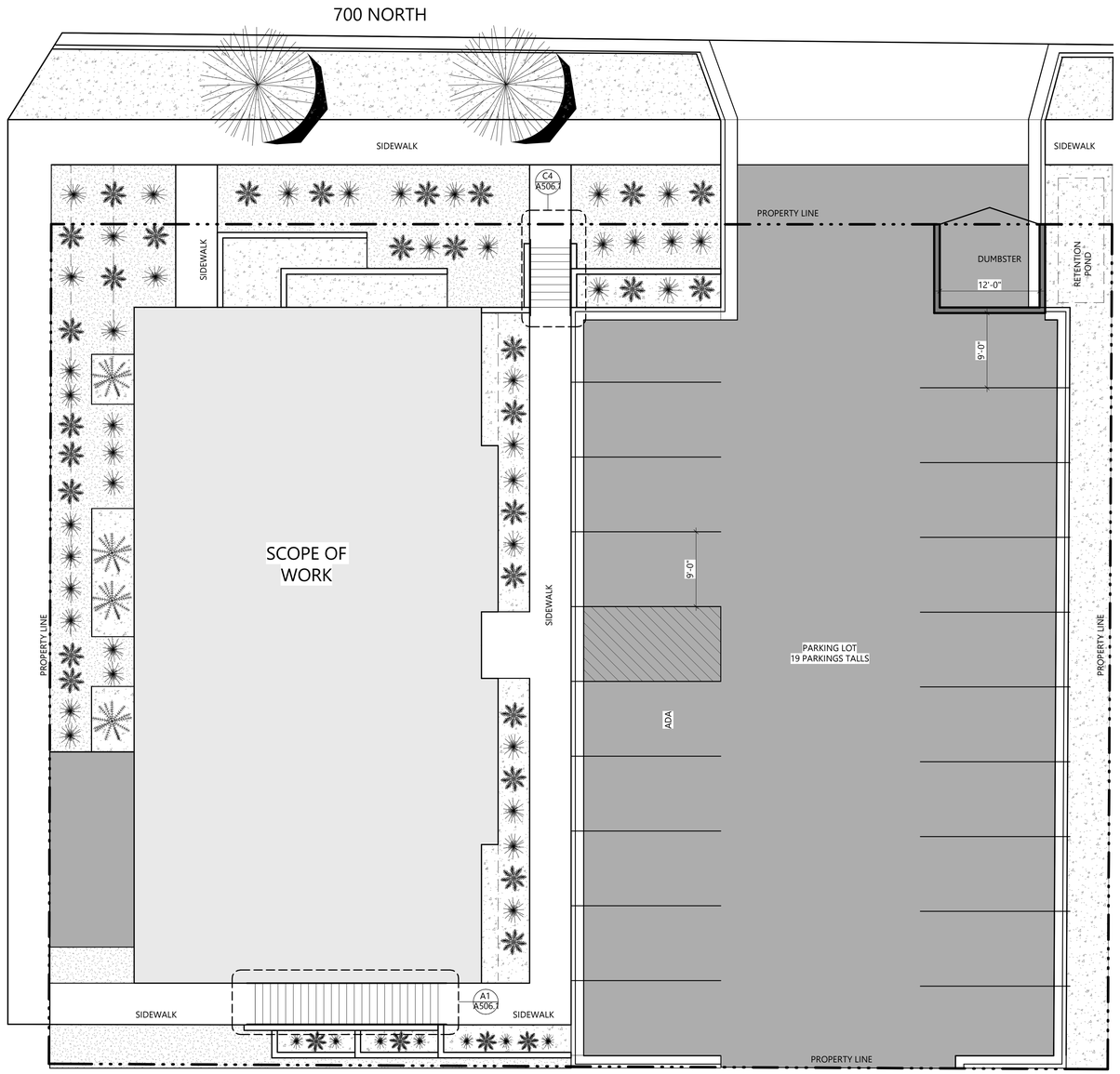
PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH LOGAN, UT

SHEET TITLE:
EROSION CONTROL DETAILS

PLAN SET: CIVIL
SHEET D1.3

S:\Projects\25MS5271.17 K&B Apartments - Logan, UT\Drawings\CIVIL\K&B_APT_Design Base.dwg



A3 LANDSCAPE PLAN
SCALE: 1/8" = 1'-0"

LANDSCAPE LEGEND

- GROUND COVER
- WASHED LANDSCAPE ROCK
- CONCRETE
- ASPHALT
- BUILDING FOOTPRINT
- GRASS
- FLOWERING CRAB TREE
- LIMEGLOW JUNIPER BUSH
- ORNAMENTAL FLOWERS/GRASSES
- NORWAY SPRUCE TREE - PICEA ABIES 'CUPRESSINA'

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PROFESSIONAL STAMP

STATE OF UTAH
JUSTIN MICHAEL CAMPBELL
6/23/25
No.8539712-0301
LICENSED ARCHITECT

AGENCY APPROVAL

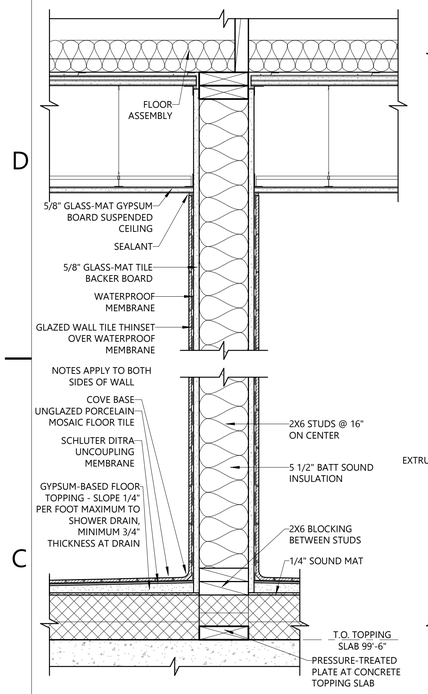
K&B APARTMENTS
LOGAN, UT

CARTWRIGHT PROJECT # 123021
DATE: 06/23/2025

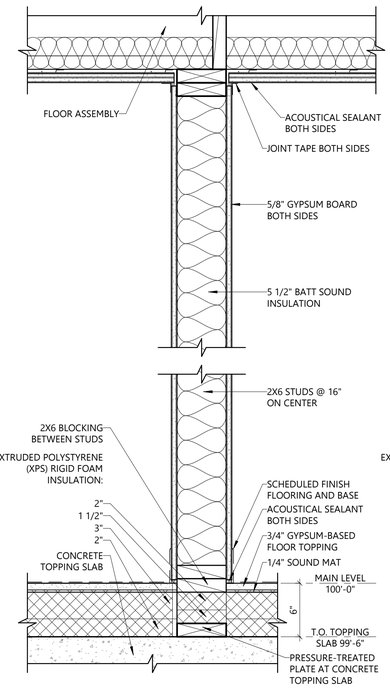
REVISIONS
DATE DESCRIPTION

LANDSCAPE PLAN
L101

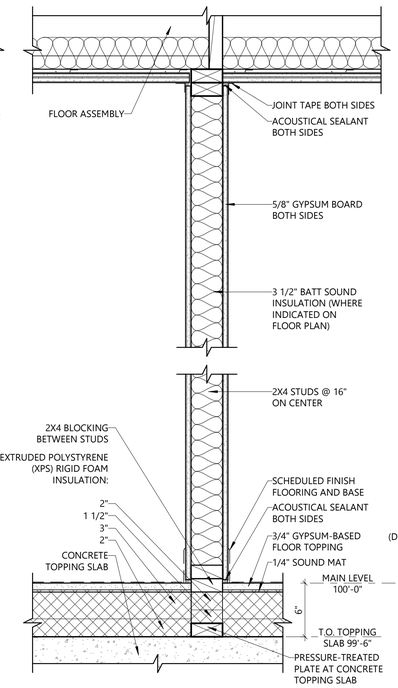
PERMIT DOCUMENTS



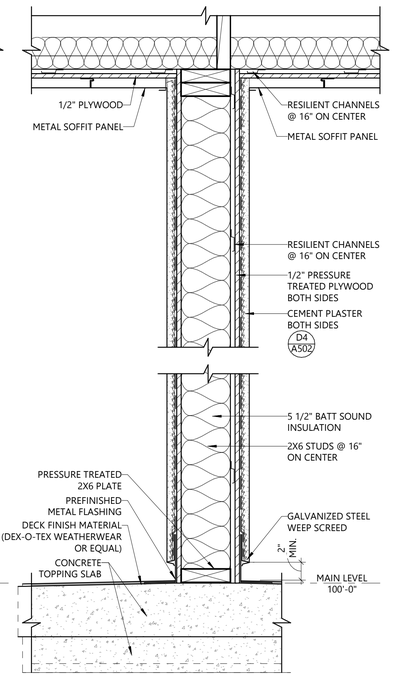
WALL TYPE W5 - MAIN LEVEL WALL BETWEEN SHOWERS



WALL TYPE W4 - MAIN LEVEL PLUMBING WALL

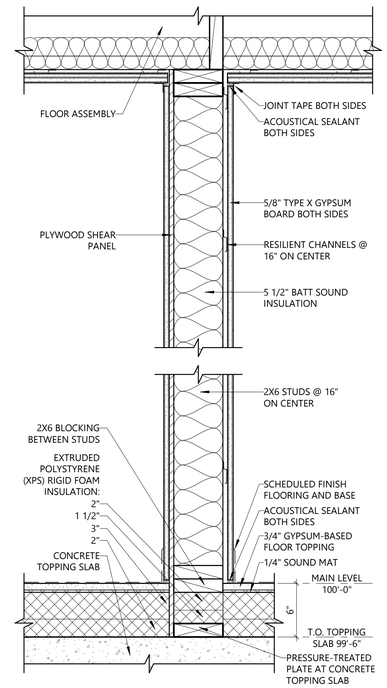


WALL TYPE W3 - MAIN LEVEL BEARING AND NON-BEARING WALLS IN UNITS



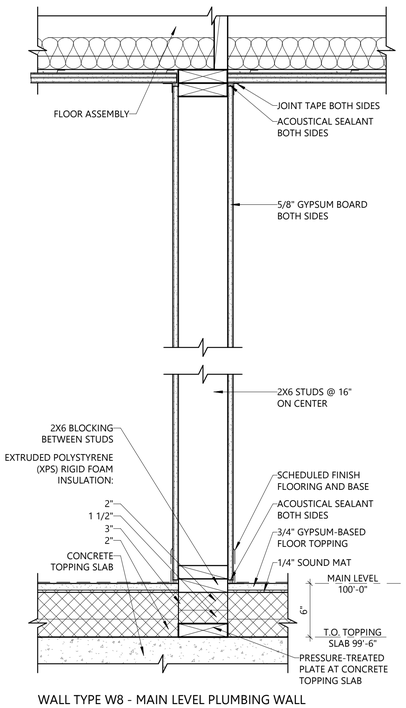
WALL TYPE W2 - MAIN LEVEL EXTERIOR WALL BETWEEN UNIT BALCONIES

FIRE RATING: 1-HOUR IBC TABLE 721.1(2) , ITEM 15-1.2

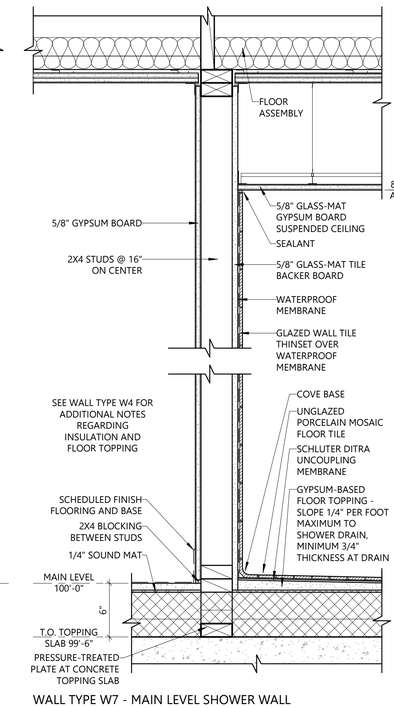


WALL TYPE W1 - MAIN LEVEL BEARING/SHEAR WALL AND WALL BETWEEN UNITS

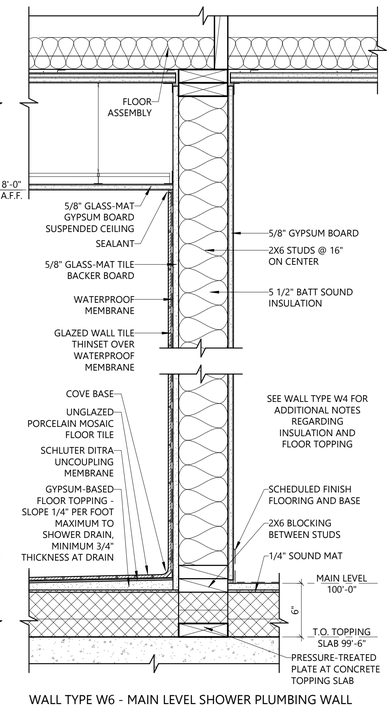
FIRE RATING: 1-HOUR UL DESIGN NO. U305 SOUND: STC 57



WALL TYPE W8 - MAIN LEVEL PLUMBING WALL



WALL TYPE W7 - MAIN LEVEL SHOWER WALL



WALL TYPE W6 - MAIN LEVEL SHOWER PLUMBING WALL

SHEET NOTES

1. 2021 INTERNATIONAL ENERGY CONSERVATION CODE, TABLE C402.1.3, CLIMATE ZONE 5, GROUP R OCCUPANCY: MASS FLOOR SHALL HAVE MINIMUM R-16.7 CONTINUOUS INSULATION.
2. PROVIDE HIGH-DENSITY EXTRUDED POLYSTYRENE (XPS) RIGID FOAM INSULATION, MINIMUM R-VALUE R-5 PER INCH OF THICKNESS, COMPRESIVE STRENGTH 100 PSI, ABOVE CONCRETE TOPPING SLAB. R16.7 / R-5 PER INCH = 3.34" MINIMUM INSULATION THICKNESS. PROVIDE INSULATION IN LAYERS AS NOTED ON WALL TYPE DRAWINGS TO PROVIDE MINIMUM R-16.7 CONTINUOUS INSULATION.
3. PROVIDE 1/4" SOUND MAT AND 3/4" GYPSUM-BASED FLOOR TOPPING (GYP-CRETE OR EQUAL) ABOVE RIGID INSULATION.

IECC 2021

PRESCRIPTIVE ENERGY COMPLIANCE		
BUILDING TYPE: COMMERCIAL - CLIMATE ZONE 5B		
BUILDING ENVELOPE		
	REQUIRED	**PROVIDE**
ROOFS		
ATTIC	R-49 MINIMUM	R-49 MINIMUM
WALLS ABOVE GRADE		
WOOD FRAMED	R-20 + R3.8 CI MINIMUM	R-20 + R3.8 CI MINIMUM
WALLS BELOW GRADE		
BELOW-GRADE WALL	R-7.5 CI MINIMUM	R-7.5 CI MINIMUM
SLAB ON GRADE FLOORS		
UNHEATED SLABS	R-20 CI MINIMUM FOR 24" BELOW SLAB	R-20 CI MINIMUM FOR 24" BELOW SLAB
OPAQUE DOORS		
NON SWINGING	U-0.31 MAXIMUM	U-0.31 MAXIMUM
SWINGING DOOR	U-0.37 MAXIMUM	U-0.37 MAXIMUM

BUILDING ENVELOPE VERTICAL FENESTRATION (COMPLETE ASSEMBLY, INCLUDING FRAME AND GLAZING)		
FIXED FENESTRATION	U-0.36 MAXIMUM	U-0.36 MAXIMUM
OPERABLE FENESTRATION	U-0.45 MAXIMUM	U-0.45 MAXIMUM

SOLAR HEAT GAIN COEFFICIENT				
ORIENTATION	SEW	N	SEW	N
PF < 0.2	0.38 MAX	0.38 MAX	0.38 MAX	0.38 MAX

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PROFESSIONAL STAMP

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AGENCY APPROVAL

K&B APARTMENTS

LOGAN, UT

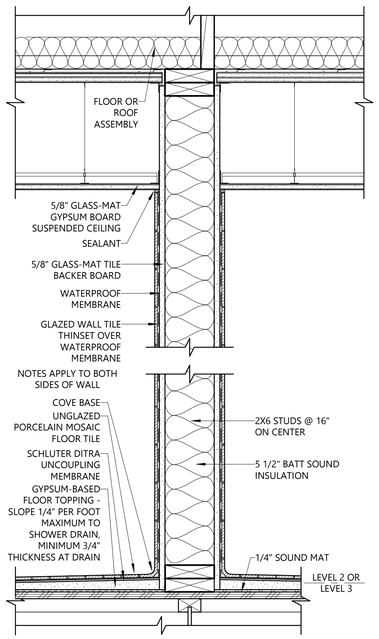
CARTWRIGHT PROJECT # 123021
DATE: 06/23/2025

REVISIONS
DATE DESCRIPTION

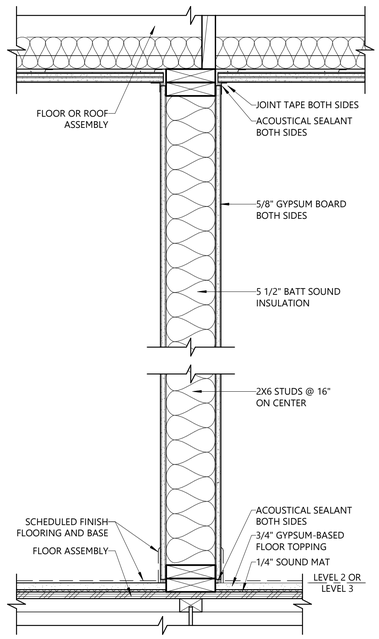
MAIN LEVEL WALL TYPES

A001

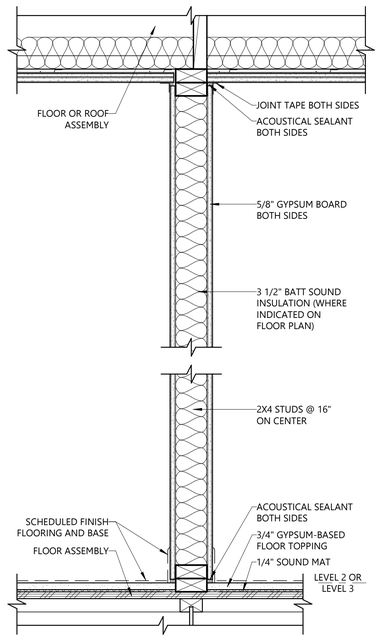
PERMIT DOCUMENTS



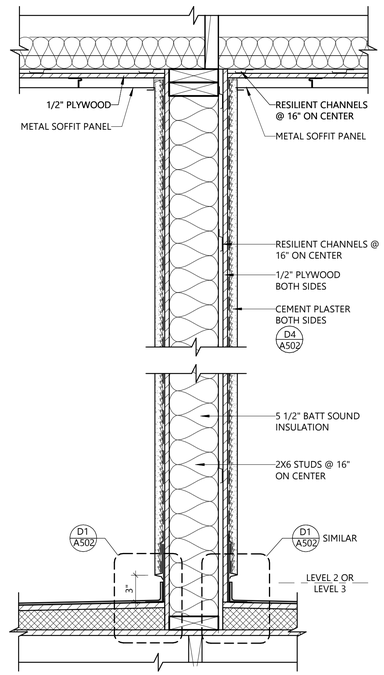
WALL TYPE W15 - 2ND AND 3RD LEVEL WALL BETWEEN SHOWERS



WALL TYPE W14 - 2ND AND 3RD LEVEL PLUMBING WALL

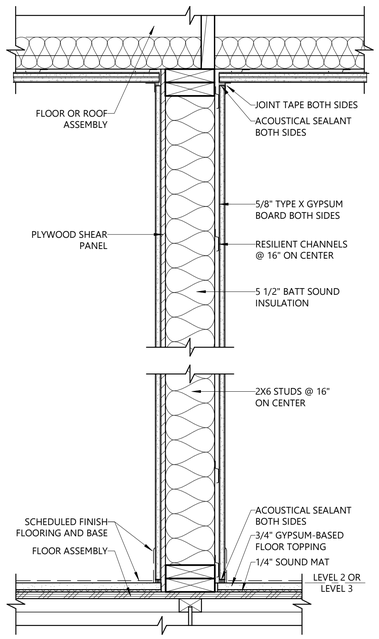


WALL TYPE W13 - 2ND AND 3RD LEVEL BEARING AND NON-BEARING WALLS IN UNITS



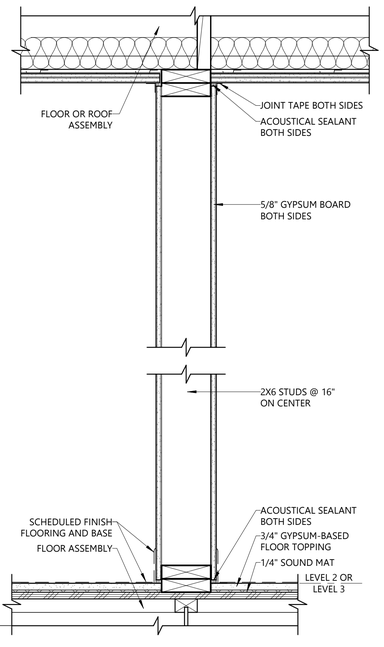
WALL TYPE W12 - 2ND AND 3RD LEVEL EXTERIOR SHEAR WALL AND WALL BETWEEN UNIT BALCONIES

FIRE RATING: 1-HOUR IBC TABLE 721.1(2) , ITEM 15-1.2

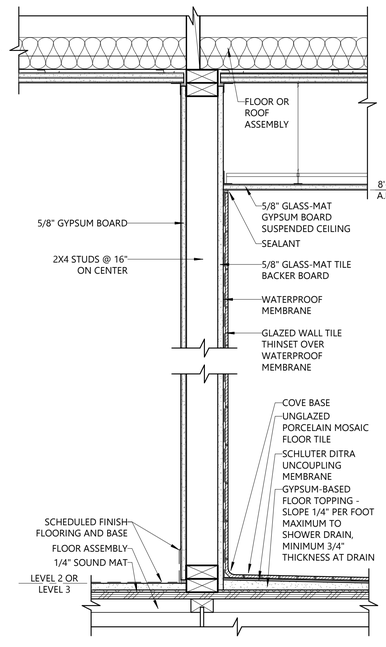


WALL TYPE W11 - 2ND & 3RD LEVELS BEARING/SHEAR WALL AND WALL BETWEEN UNITS

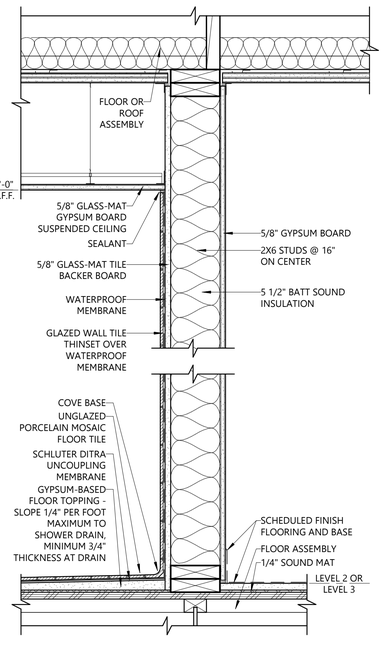
FIRE RATING: 1-HOUR UL DESIGN NO. U305 SOUND: STC 57



WALL TYPE W18 - 2ND AND 3RD LEVEL PLUMBING WALL



WALL TYPE W17 - 2ND AND 3RD LEVEL SHOWER WALL



WALL TYPE W16 - 2ND AND 3RD LEVEL SHOWER PLUMBING WALL

IECC 2021

PRESCRIPTIVE ENERGY COMPLIANCE

BUILDING TYPE: COMMERCIAL - CLIMATE ZONE 5B

BUILDING ENVELOPE		
	REQUIRED	PROVIDE
ROOFS		
ATTIC	R-49 MINIMUM	R-49 MINIMUM
WALLS ABOVE GRADE		
WOOD FRAMED	R-20 + R3.8 CI MINIMUM	R-20 + R3.8 CI MINIMUM
WALLS BELOW GRADE		
BELOW-GRADE WALL	R-7.5 CI MINIMUM	R-7.5 CI MINIMUM
SLAB ON GRADE FLOORS		
UNHEATED SLABS	R-20 CI MINIMUM FOR 24" BELOW SLAB	R-20 CI MINIMUM FOR 24" BELOW SLAB
OPAQUE DOORS		
NON SWINGING	U-0.31 MAXIMUM	U-0.31 MAXIMUM
SWINGING DOOR	U-0.37 MAXIMUM	U-0.37 MAXIMUM

BUILDING ENVELOPE VERTICAL FENESTRATION (COMPLETE ASSEMBLY, INCLUDING FRAME AND GLAZING)		
FIXED FENESTRATION	U-0.36 MAXIMUM	U-0.36 MAXIMUM
OPERABLE FENESTRATION	U-0.45 MAXIMUM	U-0.45 MAXIMUM

SOLAR HEAT GAIN COEFFICIENT				
ORIENTATION	SEW	N	SEW	N
PF < 0.2	0.38 MAX	0.38 MAX	0.38 MAX	0.38 MAX

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PROFESSIONAL STAMP

AGENCY APPROVAL

K&B APARTMENTS

LOGAN, UT

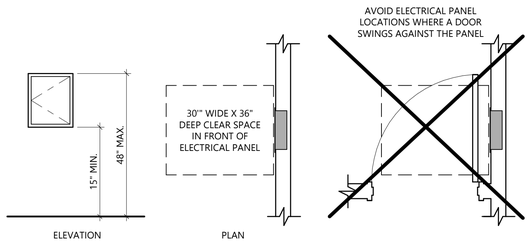
CARTWRIGHT PROJECT # 123021
DATE: 06/23/2025

REVISIONS
DATE DESCRIPTION

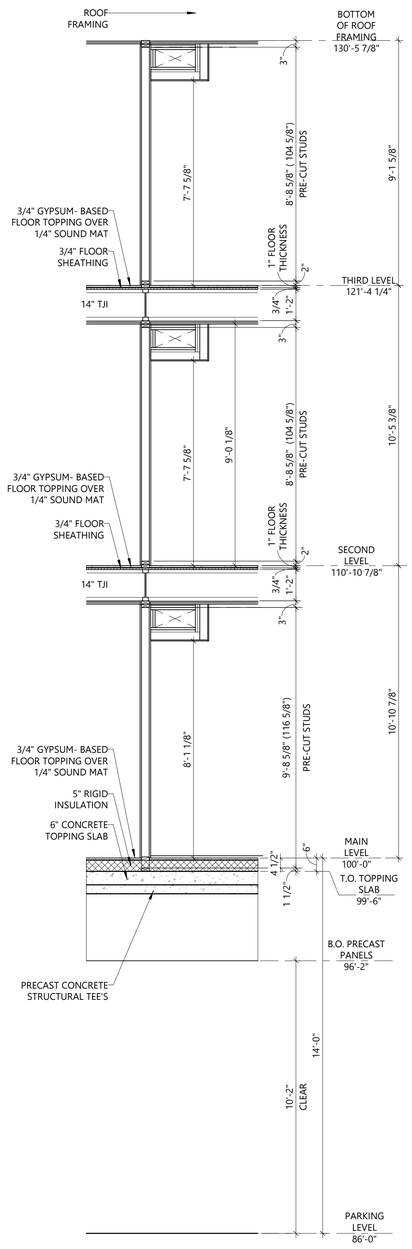
LEVELS 2 AND 3 WALL TYPES

A002

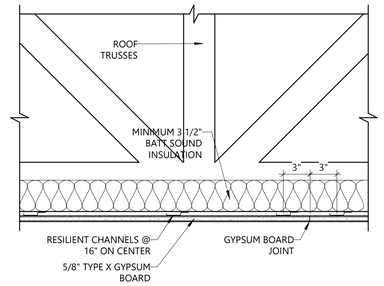
PERMIT DOCUMENTS



D1 ELECTRICAL PANELBOARD(S)
SCALE: 1/2" = 1'-0"

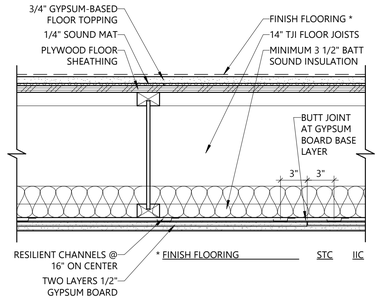


A3 FLOOR LEVELS
SCALE: 3/8" = 1'-0"



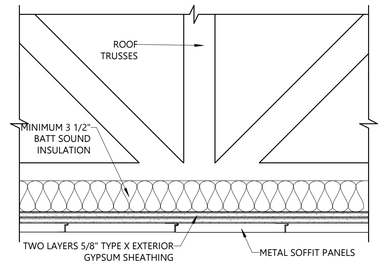
FIRE RATING: 1-HOUR UL DESIGN NO. P522

D4 UNIT ROOF/CEILING ASSEMBLY
SCALE: 1 1/2" = 1'-0"



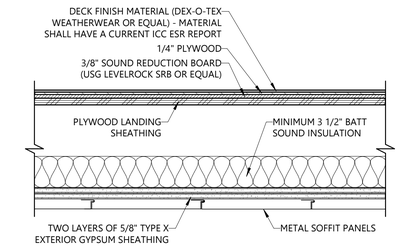
FIRE RATING: 1-HOUR UL DESIGN NO. M546

D5 UNIT FLOOR/CEILING ASSEMBLY
SCALE: 1 1/2" = 1'-0"



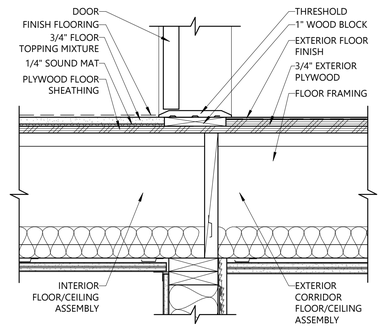
FIRE RATING: 1-HOUR 2021 IBC TABLE 721.1(3), ITEM 21-1.1
NOTE: THE TWO LAYERS OF 5/8" TYPE X EXTERIOR GYPSUM SHEATHING PROVIDE THE 1-HOUR FIRE RATING. THE METAL SOFFIT PANELS PROVIDE THE EXTERIOR FINISH.

C4 EXTERIOR ROOF/CEILING ASSEMBLY
SCALE: 1 1/2" = 1'-0"

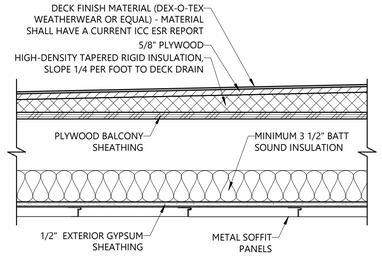


FIRE RATING: 1-HOUR 2021 IBC TABLE 721.1(3), ITEM 21-1.1
NOTE: THE TWO LAYERS OF 5/8" TYPE X EXTERIOR GYPSUM SHEATHING PROVIDE THE 1-HOUR FIRE RATING. THE METAL SOFFIT PANELS PROVIDE THE EXTERIOR FINISH.

C5 EXTERIOR STAIR LANDING ASSEMBLY
SCALE: 1 1/2" = 1'-0"

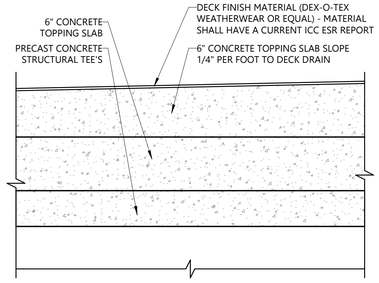


B4 ENTRANCE DOOR THRESHOLD
SCALE: 1 1/2" = 1'-0"



LEVELS 2 & 3

B5 EXTERIOR BALCONY ASSEMBLY
SCALE: 1 1/2" = 1'-0"



A5 EXTERIOR BALCONY ASSEMBLY
SCALE: 1 1/2" = 1'-0"

IECC 2021

PRESCRIPTIVE ENERGY COMPLIANCE

BUILDING TYPE: COMMERCIAL - CLIMATE ZONE 5B

BUILDING ENVELOPE

	REQUIRED	PROVIDE
ROOFS		
ATTIC	R-49 MINIMUM	R-49 MINIMUM
WALLS ABOVE GRADE		
WOOD FRAMED	R-20 + R3.8 CI MINIMUM	R-20 + R3.8 CI MINIMUM
WALLS BELOW GRADE		
BELOW-GRADE WALL	R-7.5 CI MINIMUM	R-7.5 CI MINIMUM
SLAB ON GRADE FLOORS		
UNHEATED SLABS	R-20 CI MINIMUM FOR 24" BELOW SLAB	R-20 CI MINIMUM FOR 24" BELOW SLAB
OPAQUE DOORS		
NON SWINGING	U-0.31 MAXIMUM	U-0.31 MAXIMUM
SWINGING DOOR	U-0.37 MAXIMUM	U-0.37 MAXIMUM
BUILDING ENVELOPE VERTICAL FENESTRATION (COMPLETE ASSEMBLY, INCLUDING FRAME AND GLAZING)		
FIXED FENESTRATION	U-0.36 MAXIMUM	U-0.36 MAXIMUM
OPERABLE FENESTRATION	U-0.45 MAXIMUM	U-0.45 MAXIMUM

SOLAR HEAT GAIN COEFFICIENT

ORIENTATION	SEW	N	SEW	N
PF < 0.2	0.38 MAX	0.38 MAX	0.38 MAX	0.38 MAX

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AGENCY APPROVAL

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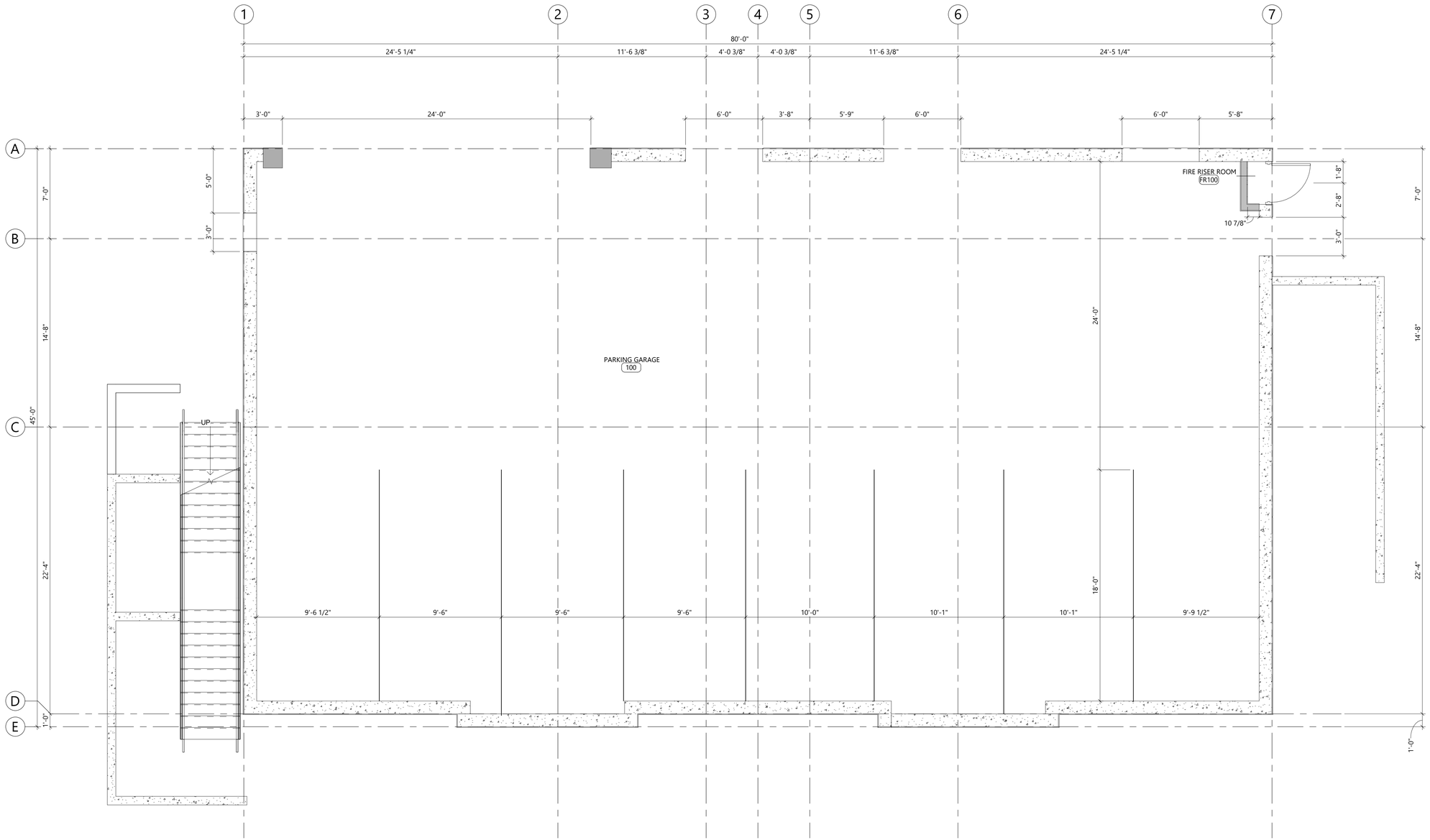
FLOOR AND WALL DETAILS

A003

PERMIT DOCUMENTS



A3 PARKING GARAGE
SCALE: 1/4" = 1'-0"

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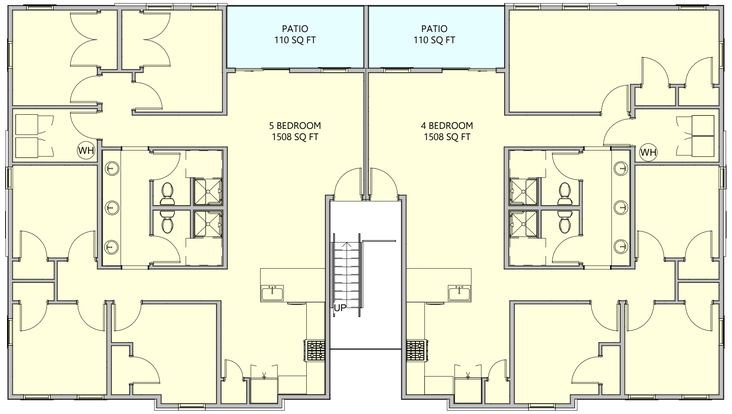
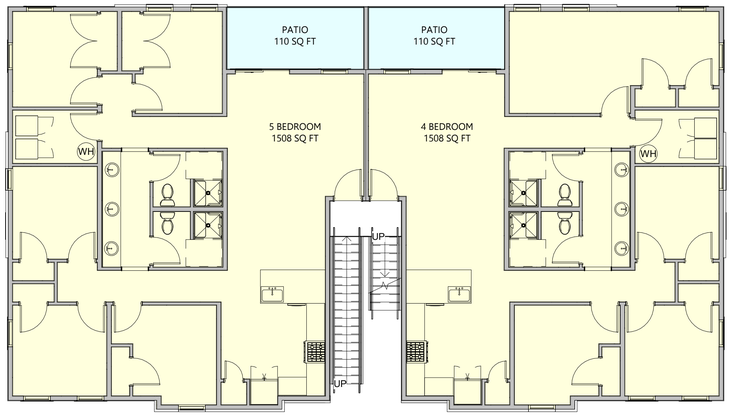
PARKING GARAGE

A100



C3 THIRD LEVEL FLOOR PLAN
SCALE: 1/8" = 1'-0"



B3 SECOND LEVEL FLOOR PLAN
SCALE: 1/8" = 1'-0"

A3 MAIN LEVEL UNIT MIX
SCALE: 1/8" = 1'-0"

UNIT MIX

- PATIO - 110 SQ FT
- TYPE B UNIT - 1508 SQ FT
- 4&5 BED UNIT - 1508 SQ FT

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UNIT MIX

A100.1

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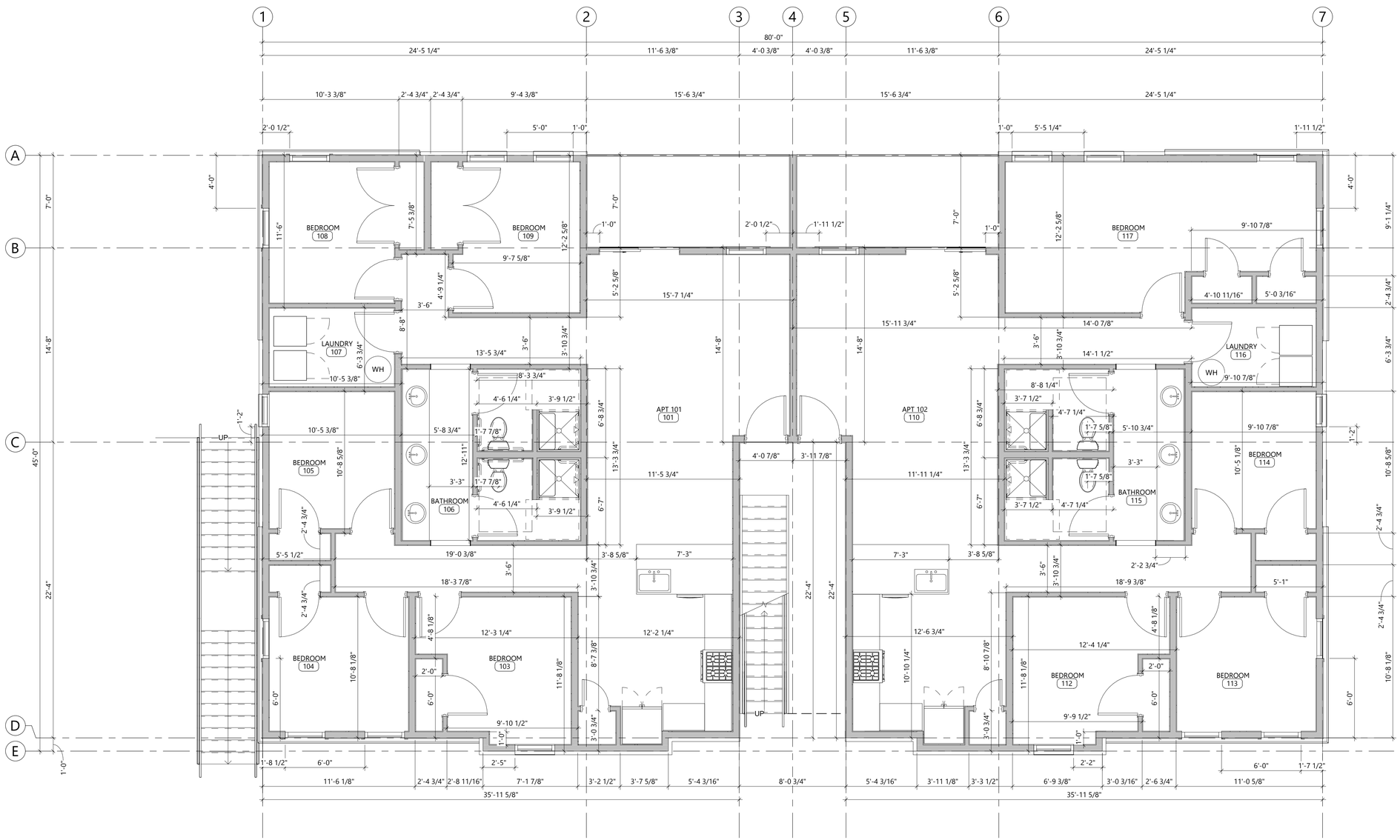

A3 MAIN LEVEL FLOOR PLAN
SCALE: 1/4" = 1'-0"

IECC 2021

PRESCRIPTIVE ENERGY COMPLIANCE

BUILDING TYPE: COMMERCIAL - CLIMATE ZONE 5B

BUILDING ENVELOPE	REQUIRED	PROVIDE
ROOFS		
ATTIC	R-49 MINIMUM	R-49 MINIMUM
WALLS ABOVE GRADE		
WOOD FRAMED	R-20 + R3.8 CI MINIMUM	R-20 + R3.8 CI MINIMUM
WALLS BELOW GRADE		
BELOW-GRADE WALL	R-7.5 CI MINIMUM	R-7.5 CI MINIMUM
SLAB ON GRADE FLOORS		
UNHEATED SLABS	R-20 CI MINIMUM FOR 24" BELOW SLAB	R-20 CI MINIMUM FOR 24" BELOW SLAB
OPAQUE DOORS		
NON SWINGING	U-0.31 MAXIMUM	U-0.31 MAXIMUM
SWINGING DOOR	U-0.37 MAXIMUM	U-0.37 MAXIMUM

BUILDING ENVELOPE VERTICAL FENESTRATION (COMPLETE ASSEMBLY, INCLUDING FRAME AND GLAZING)		
FIXED FENESTRATION	U-0.36 MAXIMUM	U-0.36 MAXIMUM
OPERABLE FENESTRATION	U-0.45 MAXIMUM	U-0.45 MAXIMUM

SOLAR HEAT GAIN COEFFICIENT				
ORIENTATION	SEW	N	SEW	N
PF < 0.2	0.38 MAX	0.38 MAX	0.38 MAX	0.38 MAX

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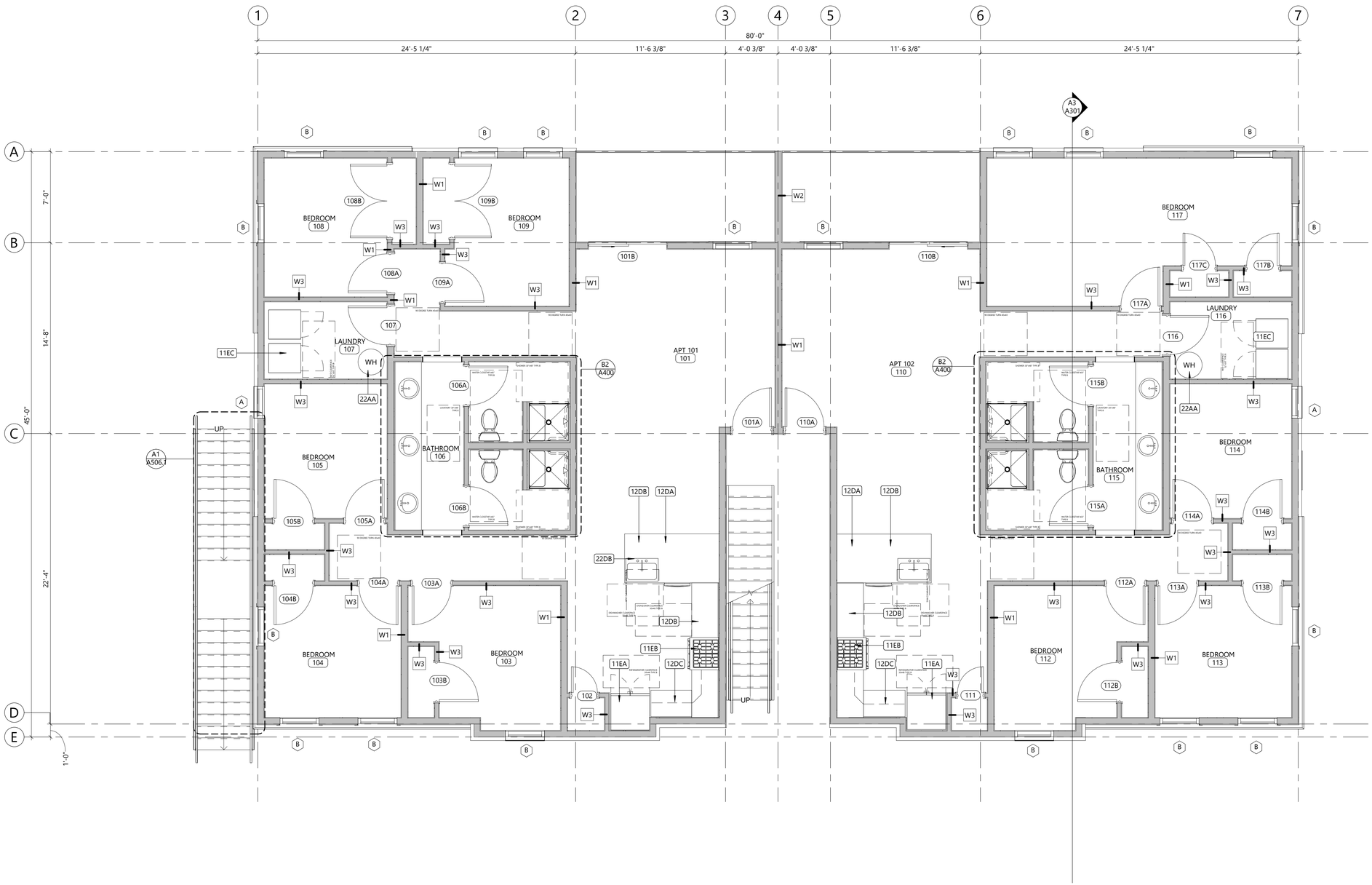
DATE DESCRIPTION

MAIN LEVEL FLOOR PLAN
A101

PERMIT DOCUMENTS



A3 MAIN LEVEL FLOOR PLAN
SCALE: 1/4" = 1'-0"

KEYNOTES

MO	DESCRIPTION
11EA	ADA COMPLIANT REFRIDGERATOR
11EB	ADA COMPLIANT RANGE
11EC	ADA COMPLIANT WASHER AND DRYER
12DA	COUNTER TOP - PLASTIC LAMINATE
12DB	BASE CABINETS
12DC	UPPER CABINETS
22AA	WATER HEATER
22DB	SINK - SEE PLUMBING DRAWINGS

IECC 2021

PRESCRIPTIVE ENERGY COMPLIANCE

BUILDING TYPE: COMMERCIAL - CLIMATE ZONE 5B

BUILDING ENVELOPE

	REQUIRED	PROVIDE
ROOFS		
ATTIC	R-49 MINIMUM	R-49 MINIMUM
WALLS ABOVE GRADE		
WOOD FRAMED	R-20 + R3.8 CI MINIMUM	R-20 + R3.8 CI MINIMUM
WALLS BELOW GRADE		
BELOW-GRADE WALL	R-7.5 CI MINIMUM	R-7.5 CI MINIMUM
SLAB ON GRADE FLOORS		
UNHEATED SLABS	R-20 CI MINIMUM FOR 24" BELOW SLAB	R-20 CI MINIMUM FOR 24" BELOW SLAB
OPAQUE DOORS		
NON SWINGING	U-0.31 MAXIMUM	U-0.31 MAXIMUM
SWINGING DOOR	U-0.37 MAXIMUM	U-0.37 MAXIMUM

BUILDING ENVELOPE VERTICAL FENESTRATION (COMPLETE ASSEMBLY, INCLUDING FRAME AND GLAZING)

FIXED FENESTRATION	U-0.36 MAXIMUM	U-0.36 MAXIMUM
OPERABLE FENESTRATION	U-0.45 MAXIMUM	U-0.45 MAXIMUM

SOLAR HEAT GAIN COEFFICIENT

ORIENTATION	SEW	N	SEW	N
PF < 0.2	0.38 MAX	0.38 MAX	0.38 MAX	0.38 MAX

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MAIN LEVEL ANNOTATION PLAN

A101.1

PERMIT DOCUMENTS

A3 MAIN LEVEL FLOOR PLAN
SCALE: 1/4" = 1'-0"

FINISH LEGEND

- LVP - LAMINATE VINYL PLANKS
- 12x12 TILE

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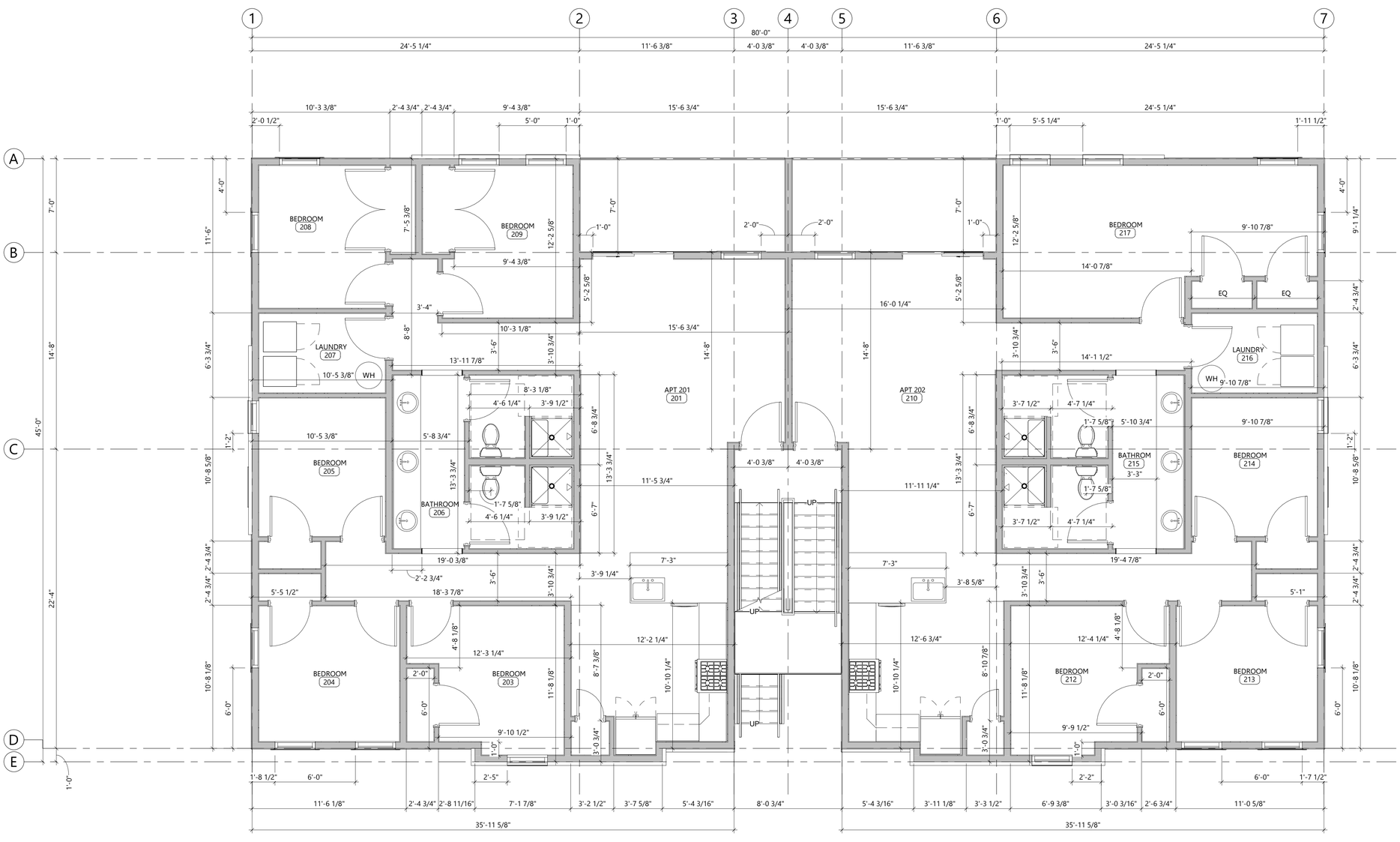
FIRST LEVEL - FINISH FLOOR PLAN

A101.2

PERMIT DOCUMENTS



A3 SECOND LEVEL FLOOR PLAN
SCALE: 1/4" = 1'-0"

IECC 2021

PRESCRIPTIVE ENERGY COMPLIANCE

BUILDING TYPE: COMMERCIAL - CLIMATE ZONE 5B

BUILDING ENVELOPE	REQUIRED	PROVIDE
ROOFS		
ATTIC	R-49 MINIMUM	R-49 MINIMUM
WALLS ABOVE GRADE		
WOOD FRAMED	R-20 + R3.8 CI MINIMUM	R-20 + R3.8 CI MINIMUM
WALLS BELOW GRADE		
BELOW-GRADE WALL	R-7.5 CI MINIMUM	R-7.5 CI MINIMUM
SLAB ON GRADE FLOORS		
UNHEATED SLABS	R-20 CI MINIMUM FOR 24" BELOW SLAB	R-20 CI MINIMUM FOR 24" BELOW SLAB
OPAQUE DOORS		
NON SWINGING	U-0.31 MAXIMUM	U-0.31 MAXIMUM
SWINGING DOOR	U-0.37 MAXIMUM	U-0.37 MAXIMUM

BUILDING ENVELOPE VERTICAL FENESTRATION (COMPLETE ASSEMBLY, INCLUDING FRAME AND GLAZING)		
FIXED FENESTRATION	U-0.36 MAXIMUM	U-0.36 MAXIMUM
OPERABLE FENESTRATION	U-0.45 MAXIMUM	U-0.45 MAXIMUM

SOLAR HEAT GAIN COEFFICIENT				
ORIENTATION	SEW	N	SEW	N
PF < 0.2	0.38 MAX	0.38 MAX	0.38 MAX	0.38 MAX

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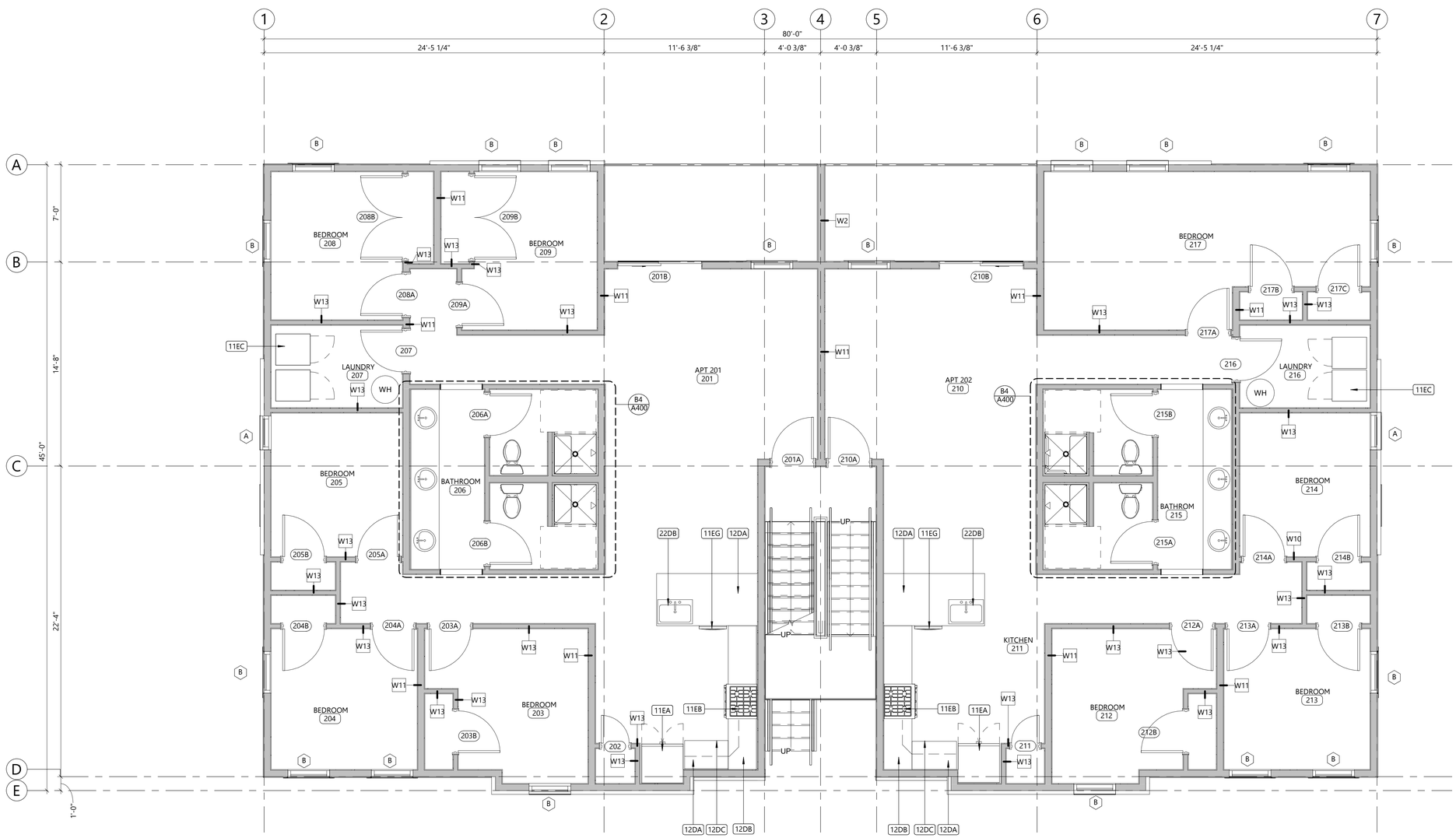
DATE DESCRIPTION

SECOND LEVEL FLOOR PLAN

A102

PERMIT DOCUMENTS



A3 SECOND LEVEL FLOOR PLAN
SCALE: 1/4" = 1'-0"

KEYNOTES

MO	DESCRIPTION
11EA	ADA COMPLIANT REFRIDGERATOR
11EB	ADA COMPLIANT RANGE
11EC	ADA COMPLIANT WASHER AND DRYER
11EG	ADA COMPLIANT DISHWASHER
12DA	COUNTER TOP - PLASTIC LAMINATE
12DB	BASE CABINETS
12DC	UPPER CABINETS
22DB	SINK - SEE PLUMBING DRAWINGS

IECC 2021

PRESCRIPTIVE ENERGY COMPLIANCE

BUILDING TYPE: COMMERCIAL - CLIMATE ZONE 5B

BUILDING ENVELOPE	REQUIRED	PROVIDE
ROOFS		
ATTIC	R-49 MINIMUM	R-49 MINIMUM
WALLS ABOVE GRADE		
WOOD FRAMED	R-20 + R3.8 CI MINIMUM	R-20 + R3.8 CI MINIMUM
WALLS BELOW GRADE		
BELOW-GRADE WALL	R-7.5 CI MINIMUM	R-7.5 CI MINIMUM
SLAB ON GRADE FLOORS		
UNHEATED SLABS	R-20 CI MINIMUM FOR 24" BELOW SLAB	R-20 CI MINIMUM FOR 24" BELOW SLAB
OPAQUE DOORS		
NON SWINGING	U-0.31 MAXIMUM	U-0.31 MAXIMUM
SWINGING DOOR	U-0.37 MAXIMUM	U-0.37 MAXIMUM

BUILDING ENVELOPE VERTICAL FENESTRATION (COMPLETE ASSEMBLY, INCLUDING FRAME AND GLAZING)		
FIXED FENESTRATION	U-0.36 MAXIMUM	U-0.36 MAXIMUM
OPERABLE FENESTRATION	U-0.45 MAXIMUM	U-0.45 MAXIMUM

SOLAR HEAT GAIN COEFFICIENT				
ORIENTATION	SEW	N	SEW	N
PF < 0.2	0.38 MAX	0.38 MAX	0.38 MAX	0.38 MAX

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DATE DESCRIPTION

SECOND LEVEL ANNOTATION PLAN

A102.1

PERMIT DOCUMENTS

A3 SECOND LEVEL FLOOR PLAN
SCALE: 1/4" = 1'-0"

FINISH LEGEND

- LVP - LAMINATE VINYL PLANKS
- 12x12 TILE

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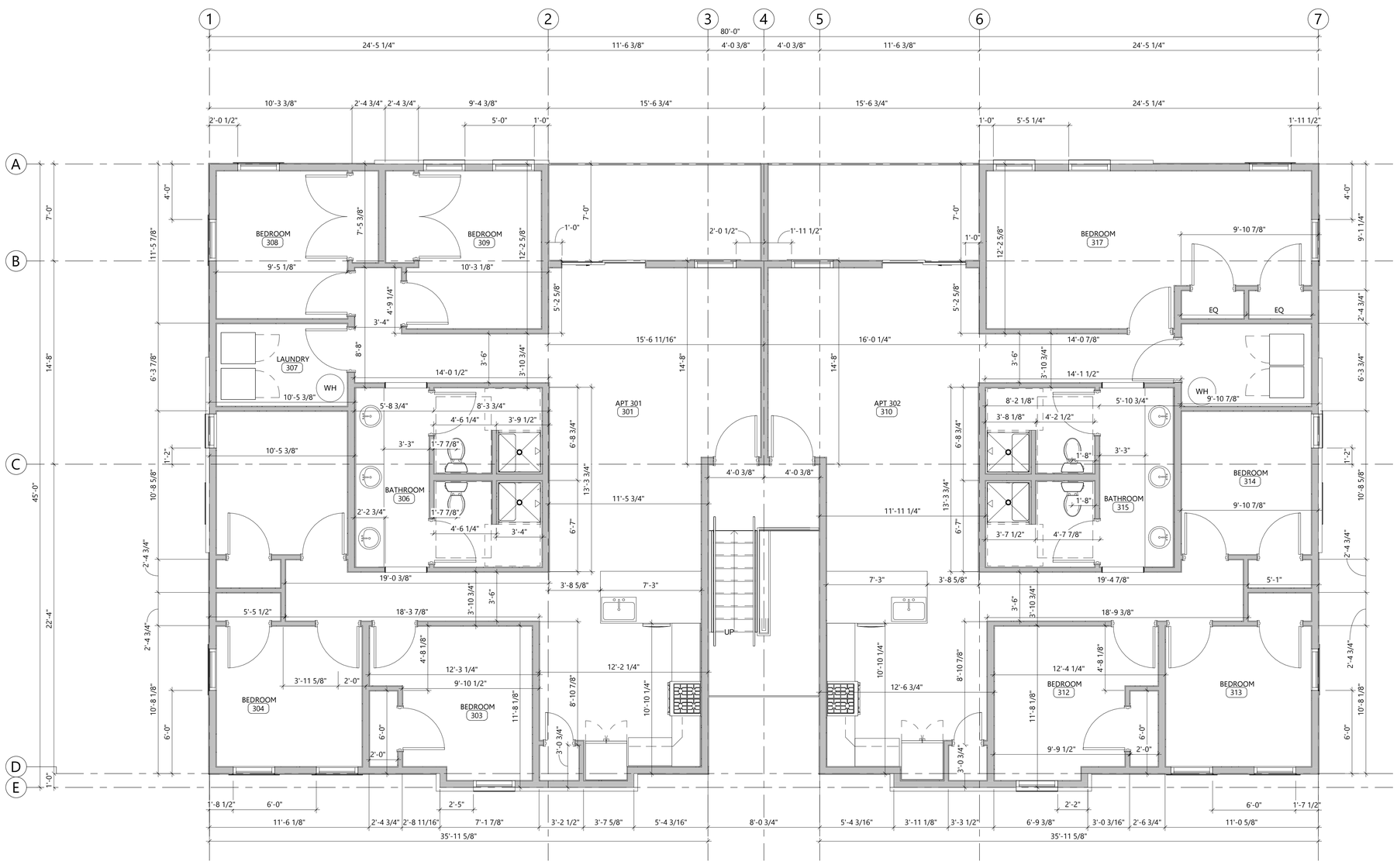
SECOND LEVEL - FINISH FLOOR PLAN

A102.2

PERMIT DOCUMENTS



A3 THIRD LEVEL FLOOR PLAN
SCALE: 1/4" = 1'-0"

IECC 2021

PRESCRIPTIVE ENERGY COMPLIANCE

BUILDING TYPE: COMMERCIAL - CLIMATE ZONE 5B

BUILDING ENVELOPE

	REQUIRED	PROVIDE
ROOFS		
ATTIC	R-49 MINIMUM	R-49 MINIMUM
WALLS ABOVE GRADE		
WOOD FRAMED	R-20 + R3.8 CI MINIMUM	R-20 + R3.8 CI MINIMUM
WALLS BELOW GRADE		
BELOW-GRADE WALL	R-7.5 CI MINIMUM	R-7.5 CI MINIMUM
SLAB ON GRADE FLOORS		
UNHEATED SLABS	R-20 CI MINIMUM FOR 24" BELOW SLAB	R-20 CI MINIMUM FOR 24" BELOW SLAB
OPAQUE DOORS		
NON SWINGING	U-0.31 MAXIMUM	U-0.31 MAXIMUM
SWINGING DOOR	U-0.37 MAXIMUM	U-0.37 MAXIMUM
BUILDING ENVELOPE VERTICAL FENESTRATION (COMPLETE ASSEMBLY, INCLUDING FRAME AND GLAZING)		
FIXED FENESTRATION	U-0.36 MAXIMUM	U-0.36 MAXIMUM
OPERABLE FENESTRATION	U-0.45 MAXIMUM	U-0.45 MAXIMUM

SOLAR HEAT GAIN COEFFICIENT				
ORIENTATION	SEW	N	SEW	N
PF < 0.2	0.38 MAX	0.38 MAX	0.38 MAX	0.38 MAX

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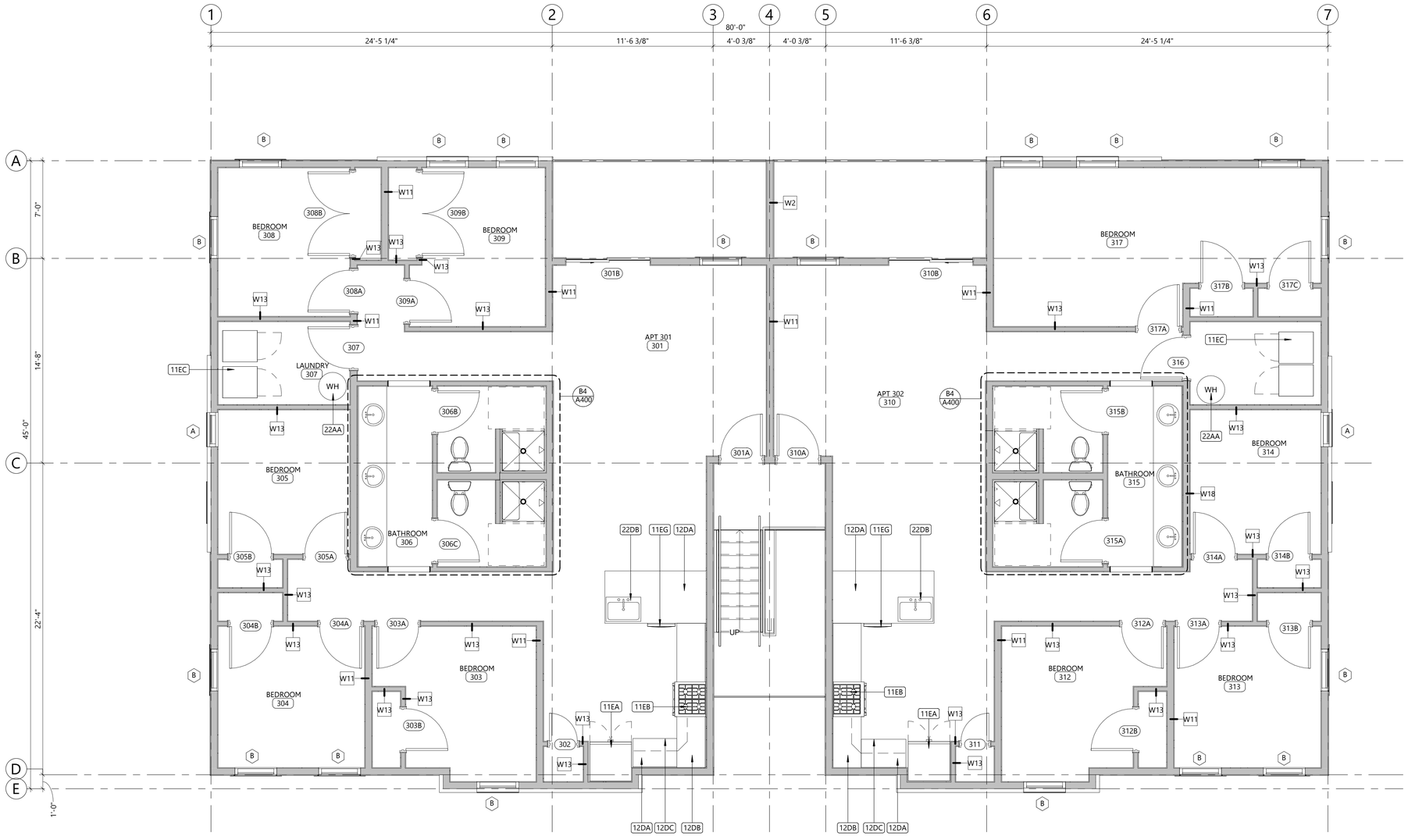
THIRD LEVEL FLOOR PLAN

A103

PERMIT DOCUMENTS



A3 THIRD LEVEL FLOOR PLAN
SCALE: 1/4" = 1'-0"

KEYNOTES

MO	DESCRIPTION
11EA	ADA COMPLIANT REFRIDGERATOR
11EB	ADA COMPLIANT RANGE
11EC	ADA COMPLIANT WASHER AND DRYER
11EG	ADA COMPLIANT DISHWASHER
12DA	COUNTER TOP - PLASTIC LAMINATE
12DB	BASE CABINETS
12DC	UPPER CABINETS
22AA	WATER HEATER
22DB	SINK - SEE PLUMBING DRAWINGS

IECC 2021

PRESCRIPTIVE ENERGY COMPLIANCE

BUILDING TYPE: COMMERCIAL - CLIMATE ZONE 5B

BUILDING ENVELOPE	REQUIRED	PROVIDE
ROOFS		
ATTIC	R-49 MINIMUM	R-49 MINIMUM
WALLS ABOVE GRADE		
WOOD FRAMED	R-20 + R3.8 CI MINIMUM	R-20 + R3.8 CI MINIMUM
WALLS BELOW GRADE		
BELOW-GRADE WALL	R-7.5 CI MINIMUM	R-7.5 CI MINIMUM
SLAB ON GRADE FLOORS		
UNHEATED SLABS	R-20 CI MINIMUM FOR 24" BELOW SLAB	R-20 CI MINIMUM FOR 24" BELOW SLAB
OPAQUE DOORS		
NON SWINGING	U-0.31 MAXIMUM	U-0.31 MAXIMUM
SWINGING DOOR	U-0.37 MAXIMUM	U-0.37 MAXIMUM

BUILDING ENVELOPE VERTICAL FENESTRATION (COMPLETE ASSEMBLY, INCLUDING FRAME AND GLAZING)		
FIXED FENESTRATION	U-0.36 MAXIMUM	U-0.36 MAXIMUM
OPERABLE FENESTRATION	U-0.45 MAXIMUM	U-0.45 MAXIMUM

SOLAR HEAT GAIN COEFFICIENT				
ORIENTATION	SEW	N	SEW	N
PF < 0.2	0.38 MAX	0.38 MAX	0.38 MAX	0.38 MAX

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THIRD LEVEL ANNOTATION PLAN

A103.1

PERMIT DOCUMENTS

A3 THIRD LEVEL FINISH FLOOR PLAN
SCALE: 1/4" = 1'-0"

FINISH LEGEND

- LVP - LAMINATE VINYL PLANKS
- 12x12 TILE

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THIRD LEVEL - FINISH PLAN

A103.2

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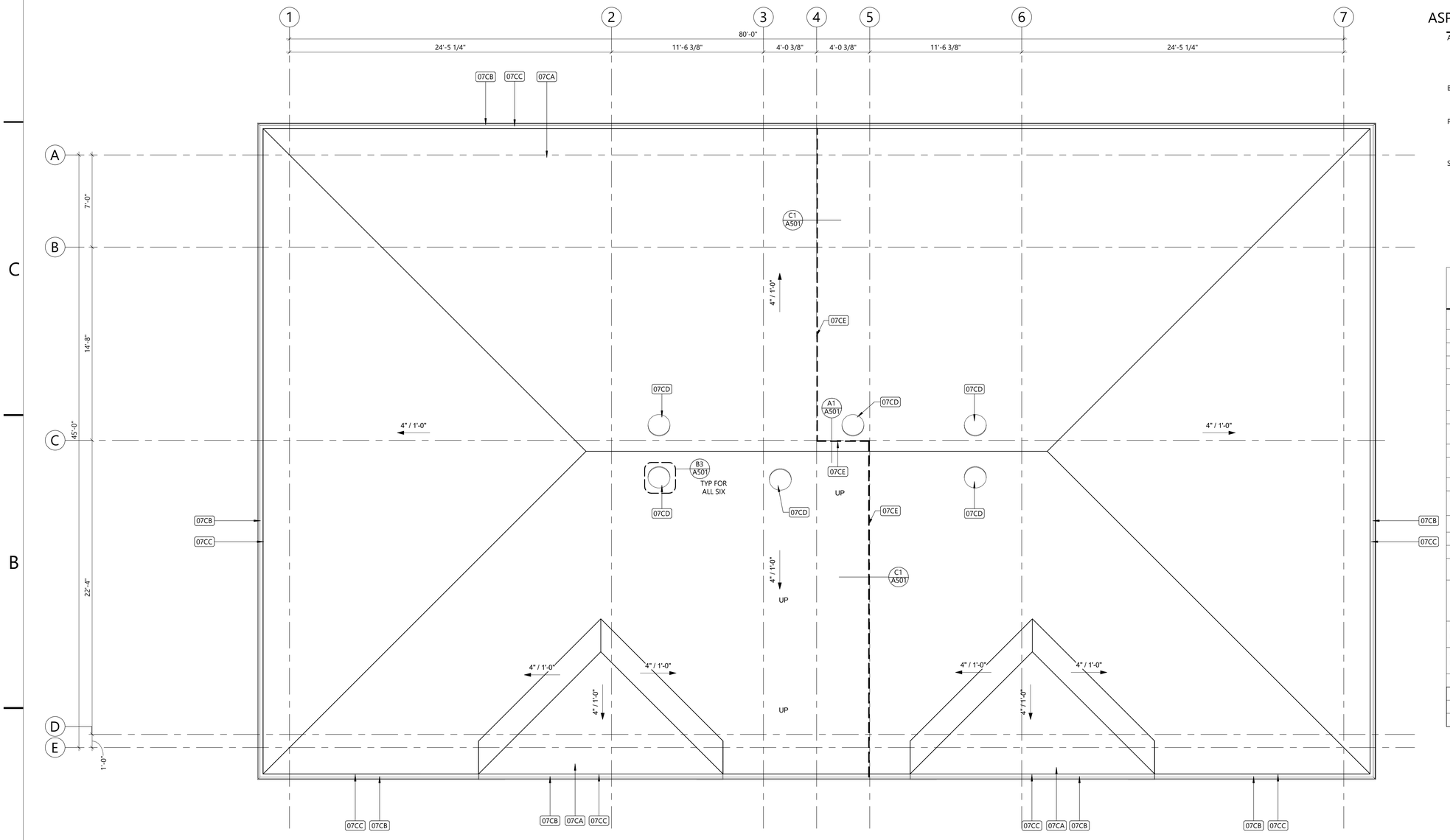

A3 ROOF PLAN VIEW
SCALE: 1/4" = 1'-0"

KEYNOTES

MO	DESCRIPTION
07CA	ASPHALT SHINGLE ROOF SYSTEM
07CB	RAIN GUTTER
07CC	METAL FASCIA
07CD	STATIC ROOF EXHAUST VENT
07CE	ATTIC DRAFT STOP

SHEET NOTES

ATTIC AREA: 49'-0" X 84'-0" = 4,116 SF
4,116 SF / 300 = 13.72 SF X 144 SQ. IN./SF = 1,976 SQ. IN. OF VENTILATION REQUIRED.
VENTILATION AT UPPER PART OF ROOF (40% MINIMUM - 50% MAXIMUM); 790 SQ. IN. MINIMUM; 988 SQ. IN. MAXIMUM
SIX AIR VENT INC. AIRHAWK B-144 STATIC ROOF EXHAUST VENT @ 144 SQ. IN. NFA = 864 SQ. IN
VENTILATION AT EAVES:
1,976 SQ. IN. - 864 SQ. IN. AT UPPER ROOF = 1,112 SQ. IN. REQUIRED AT EAVES.
PERIMETER OF EAVES: 49' + 49' + 84' + 84' = 266 LF
1,112 SQ. IN. / 266 LF = 4.18 SQ. IN. OF VENTILATION PER LINEAL FOOT. PROVIDE PERFORATED METAL SOFFIT PANELS OR LOUVERS IN METAL SOFFIT PANELS. TO PROVIDE 4.18 SQ. IN. NFA OF VENTILATION PER LINEAL FOOT OF EAVES

ASPHALT SHINGLES ROOF SYSTEM

ASPHALT SHINGLES:
LAMINATED-STRIP ASPHALT SHINGLES: ASTM D3462/D3462M, LAMINATED, MULTI-PLY OVERLAY CONSTRUCTION; GLASS FIBER REINFORCED, MINERAL-GRANULE SURFACED, AND SELF-SEALING.
BASIS OF DESIGN:
CERTAINEED LANDMARK, COLOR: "WEATHER WOOD"; EQUAL APPROVED BY ARCHITECT.

PRIMARY UNDERLAYMENT:
GLASS-REINFORCED FELT: ASTM D6757/D6757M, ASPHALT-SATURATED, GLASS-REINFORCED ORGANIC FELT OR INORGANIC FIBER-BASED FELT.

SECONDARY UNDERLAYMENT (ICE AND WATER SHIELD):
SELF-ADHERING, POLYMER-MODIFIED BITUMEN SHEET: ASTM D1970/D1970M, MINIMUM 50-MIL-THICK SHEET; GLASS-FIBER-MAT-REINFORCED, POLYMER-MODIFIED ASPHALT; WITH SLIP-RESISTANT TOP SURFACE AND RELEASE BACKING; COLD APPLIED

IECC 2021

PRESCRIPTIVE ENERGY COMPLIANCE

BUILDING TYPE: COMMERCIAL - CLIMATE ZONE 5B

BUILDING ENVELOPE	REQUIRED	PROVIDE
ROOFS		
ATTIC	R-49 MINIMUM	R-49 MINIMUM
WALLS ABOVE GRADE		
WOOD FRAMED	R-20 + R3.8 CI MINIMUM	R-20 + R3.8 CI MINIMUM
WALLS BELOW GRADE		
BELOW-GRADE WALL	R-7.5 CI MINIMUM	R-7.5 CI MINIMUM
SLAB ON GRADE FLOORS		
UNHEATED SLABS	R-20 CI MINIMUM FOR 24" BELOW SLAB	R-20 CI MINIMUM FOR 24" BELOW SLAB
OPAQUE DOORS		
NON SWINGING	U-0.31 MAXIMUM	U-0.31 MAXIMUM
SWINGING DOOR	U-0.37 MAXIMUM	U-0.37 MAXIMUM
BUILDING ENVELOPE VERTICAL FENESTRATION (COMPLETE ASSEMBLY, INCLUDING FRAME AND GLAZING)		
FIXED FENESTRATION	U-0.36 MAXIMUM	U-0.36 MAXIMUM
OPERABLE FENESTRATION	U-0.45 MAXIMUM	U-0.45 MAXIMUM

SOLAR HEAT GAIN COEFFICIENT				
ORIENTATION	SEW	N	SEW	N
PF < 0.2	0.38 MAX	0.38 MAX	0.38 MAX	0.38 MAX

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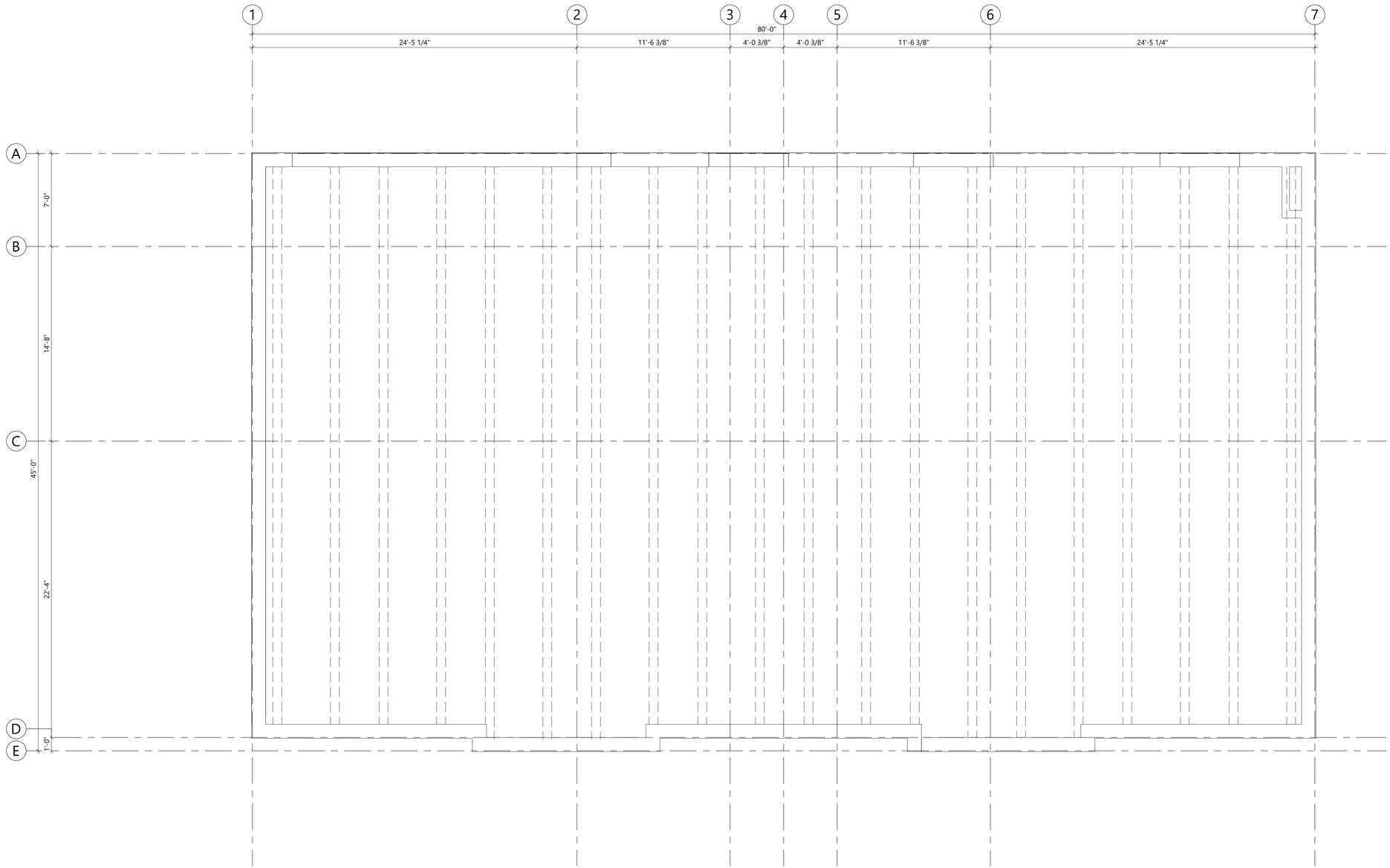
DATE DESCRIPTION

ROOF PLAN
A111

PERMIT DOCUMENTS

SHEET NOTES

SEE STRUCTURAL DRAWINGS



A3 PARKING GARAGE REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-0"

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REFLECTED CEILING PLAN - PARKING GARAGE

A121

PERMIT DOCUMENTS

CEILNG LEGEND

CL-01 PAINTED GYPSUM BOARD ATTACHED TO BOTTOM OF STRUCTURE

CL-02 DROP CEILING PLUS HEIGHT WITH SUPPLY REGISTERS AND DUCTWORK

NOTE: COORDINATE CEILING HEIGHTS WITH SUPPLY REGISTERS AND DUCTWORK

A3 MAIN LEVEL REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-0"

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REFLECTED CEILING PLAN - MAIN LEVEL

A122

PERMIT DOCUMENTS

CEILNG LEGEND

CL-01 PAINTED GYPSUM BOARD ATTACHED TO BOTTOM OF STRUCTURE

CL-02 DROP CEILING PLUS HEIGHT WITH SUPPLY REGISTERS AND DUCTWORK

NOTE: COORDINATE CEILING HEIGHTS WITH SUPPLY REGISTERS AND DUCTWORK

A3 SECOND LEVEL REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-0"

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REVISIONS

	DATE	DESCRIPTION

REFLECTED CEILING PLAN - SECOND LEVEL

A123

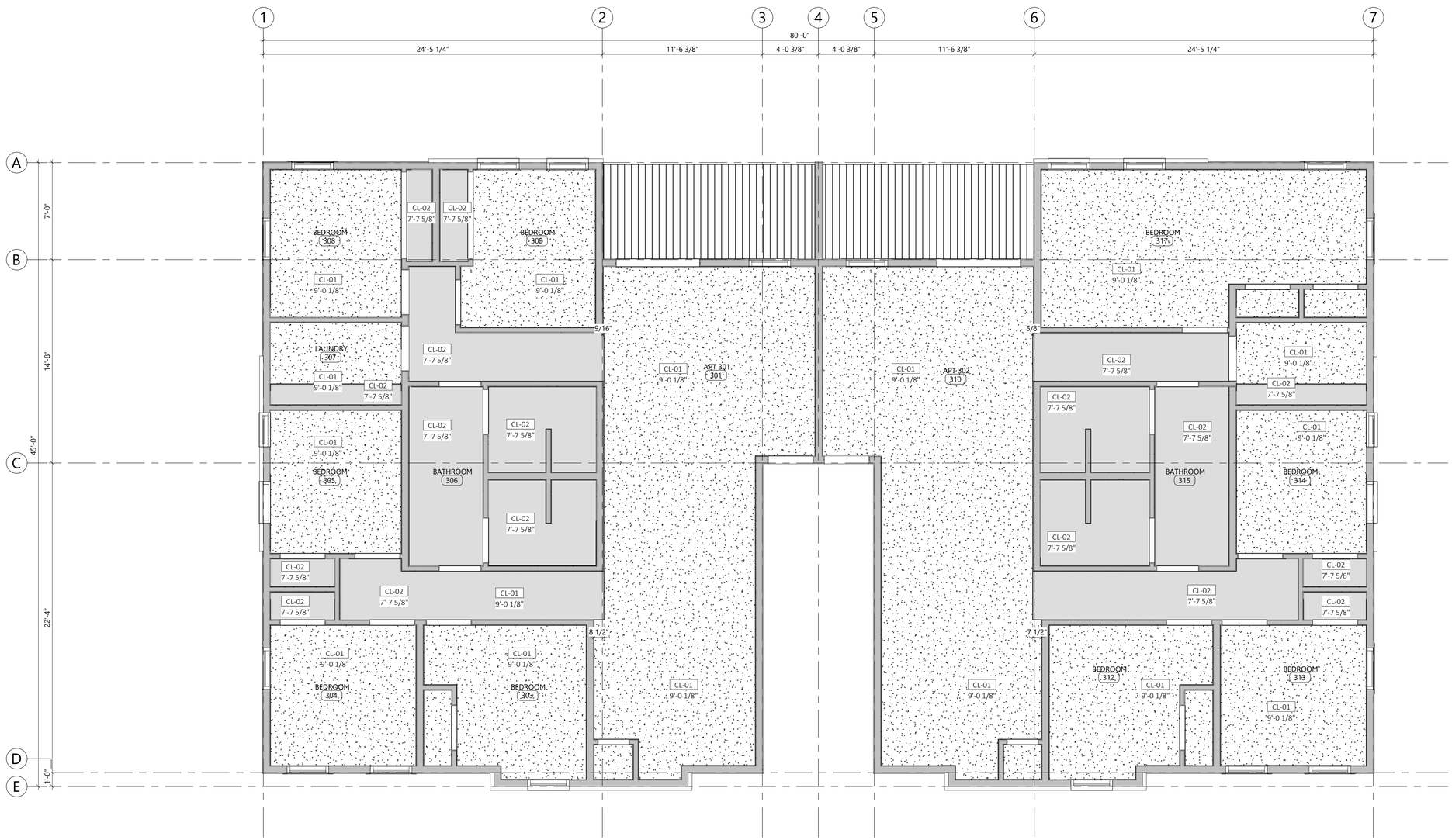
PERMIT DOCUMENTS

CEILNG LEGEND

CL-01 PAINTED GYPSUM BOARD ATTACHED TO BOTTOM OF STRUCTURE

CL-02 DROP CEILING PLUS HEIGHT WITH SUPPLY REGISTERS AND DUCTWORK

NOTE: COORDINATE CEILING HEIGHTS WITH SUPPLY REGISTERS AND DUCTWORK



A3 THIRD LEVEL REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-0"

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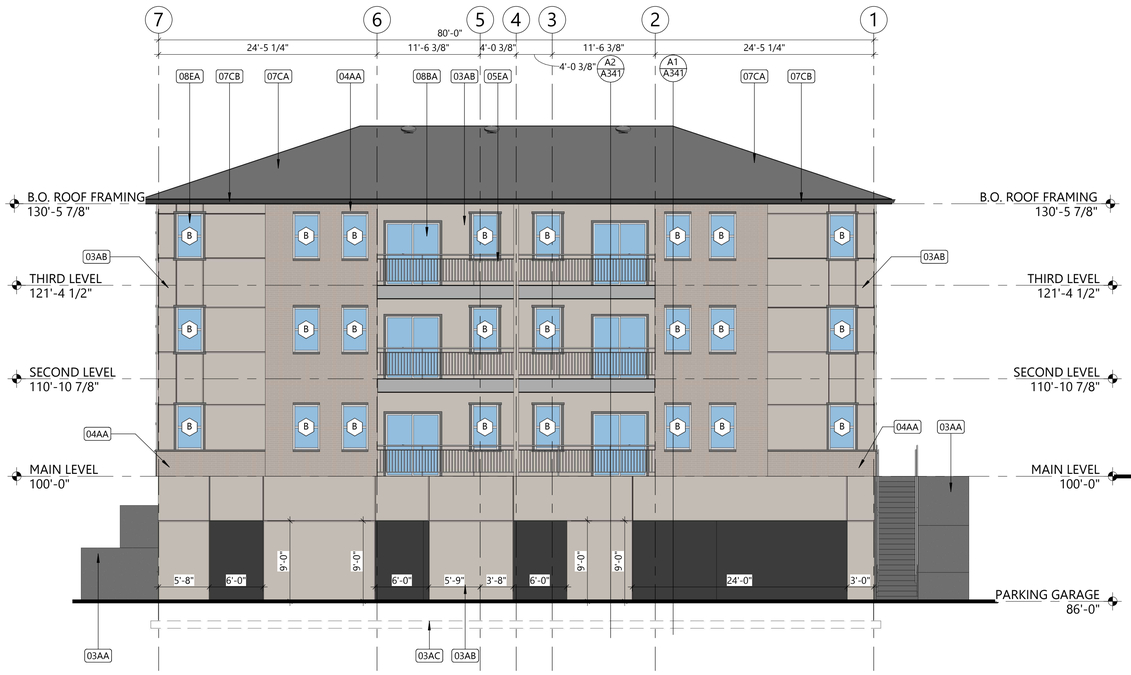
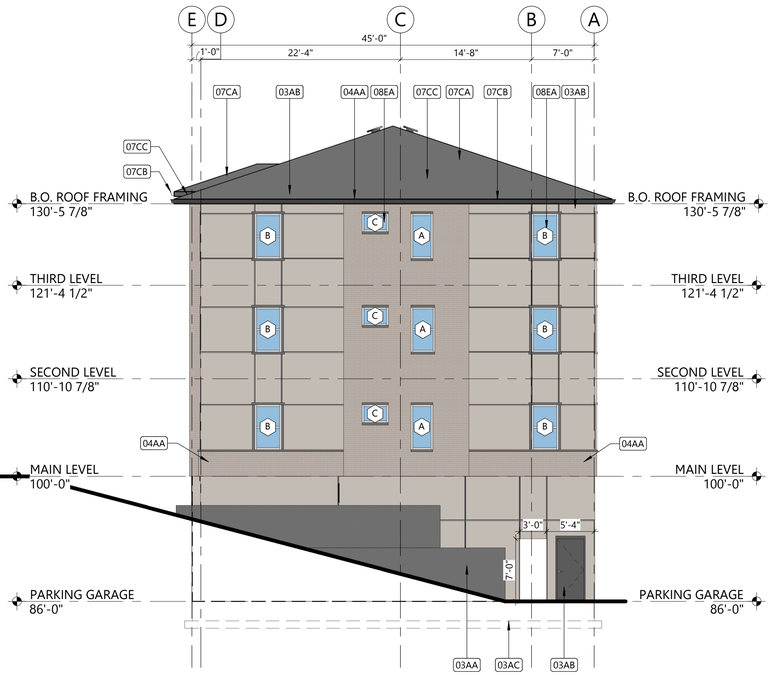
REFLECTED CEILING PLAN - THIRD LEVEL

A124

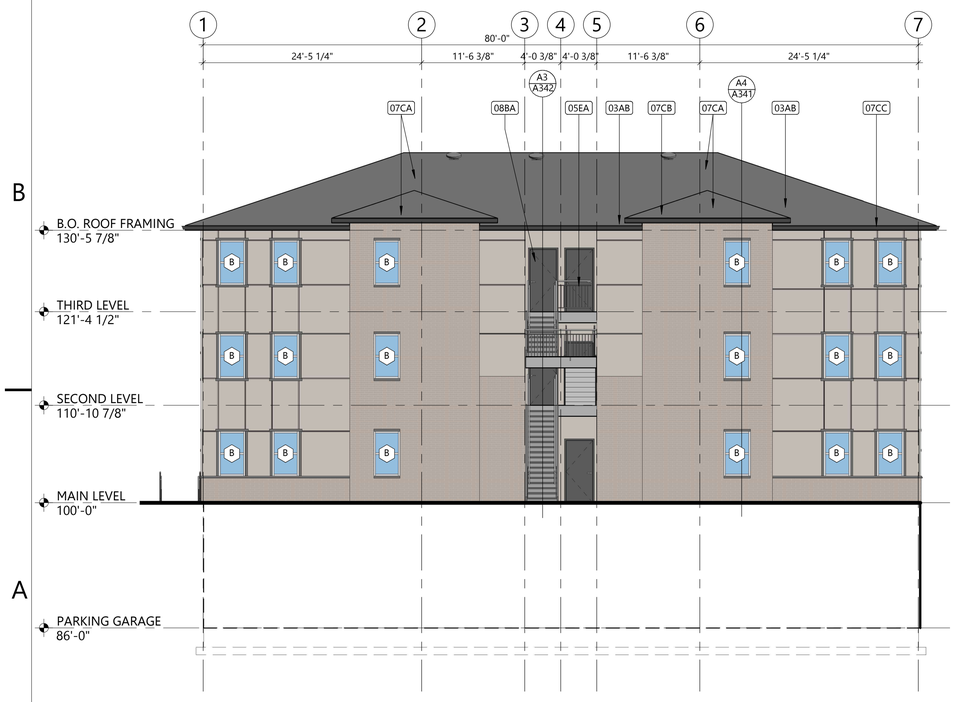
PERMIT DOCUMENTS



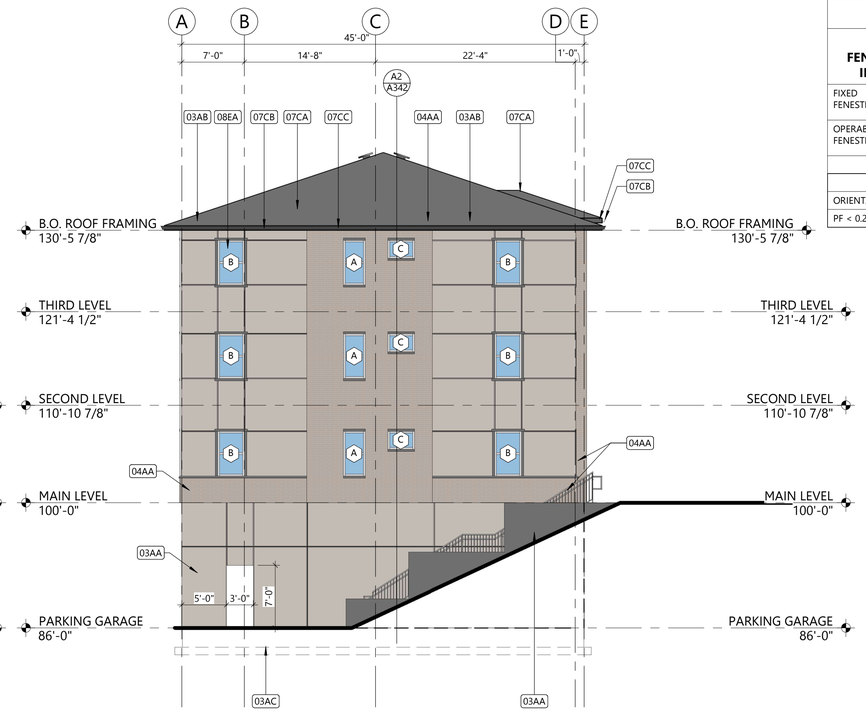
C2 NORTH ELEVATION
SCALE: 1/8" = 1'-0"



C5 EAST ELEVATION
SCALE: 1/8" = 1'-0"



A2 SOUTH ELEVATION
SCALE: 1/8" = 1'-0"



A4 WEST ELEVATION
SCALE: 1/8" = 1'-0"

KEYNOTES

MO	DESCRIPTION
03AA	CONCRETE WALL - SEE STRUCTURAL DRAWINGS
03AB	3-COAT CEMENT PLASTER
03AC	LINE OF CONCRETE FOUNDATION WALL
04AA	THIN BRICK VENEER
05EA	GUARDRAIL - SEE GUARDRAIL DETAILS
07CA	ASPHALT SHINGLE ROOF SYSTEM
07CB	RAIN GUTTER
07CC	METAL FASCIA
08BA	DOOR - SEE DOOR SCHEDULE
08EA	WINDOW - SEE WINDOW SCHEDULE

IECC 2021

PRESCRIPTIVE ENERGY COMPLIANCE

BUILDING TYPE: COMMERCIAL - CLIMATE ZONE 5B

BUILDING ENVELOPE	REQUIRED	PROVIDE
ROOFS		
ATTIC	R-49 MINIMUM	R-49 MINIMUM
WALLS ABOVE GRADE		
WOOD FRAMED	R-20 + R3.8 CI MINIMUM	R-20 + R3.8 CI MINIMUM
WALLS BELOW GRADE		
BELOW-GRADE WALL	R-7.5 CI MINIMUM	R-7.5 CI MINIMUM
SLAB ON GRADE FLOORS		
UNHEATED SLABS	R-20 CI MINIMUM FOR 24" BELOW SLAB	R-20 CI MINIMUM FOR 24" BELOW SLAB
OPAQUE DOORS		
NON SWINGING	U-0.31 MAXIMUM	U-0.31 MAXIMUM
SWINGING DOOR	U-0.37 MAXIMUM	U-0.37 MAXIMUM

BUILDING ENVELOPE VERTICAL FENESTRATION (COMPLETE ASSEMBLY, INCLUDING FRAME AND GLAZING)		
FIXED FENESTRATION	U-0.36 MAXIMUM	U-0.36 MAXIMUM
OPERABLE FENESTRATION	U-0.45 MAXIMUM	U-0.45 MAXIMUM

SOLAR HEAT GAIN COEFFICIENT				
ORIENTATION	SEW	N	SEW	N
PF < 0.2	0.38 MAX	0.38 MAX	0.38 MAX	0.38 MAX

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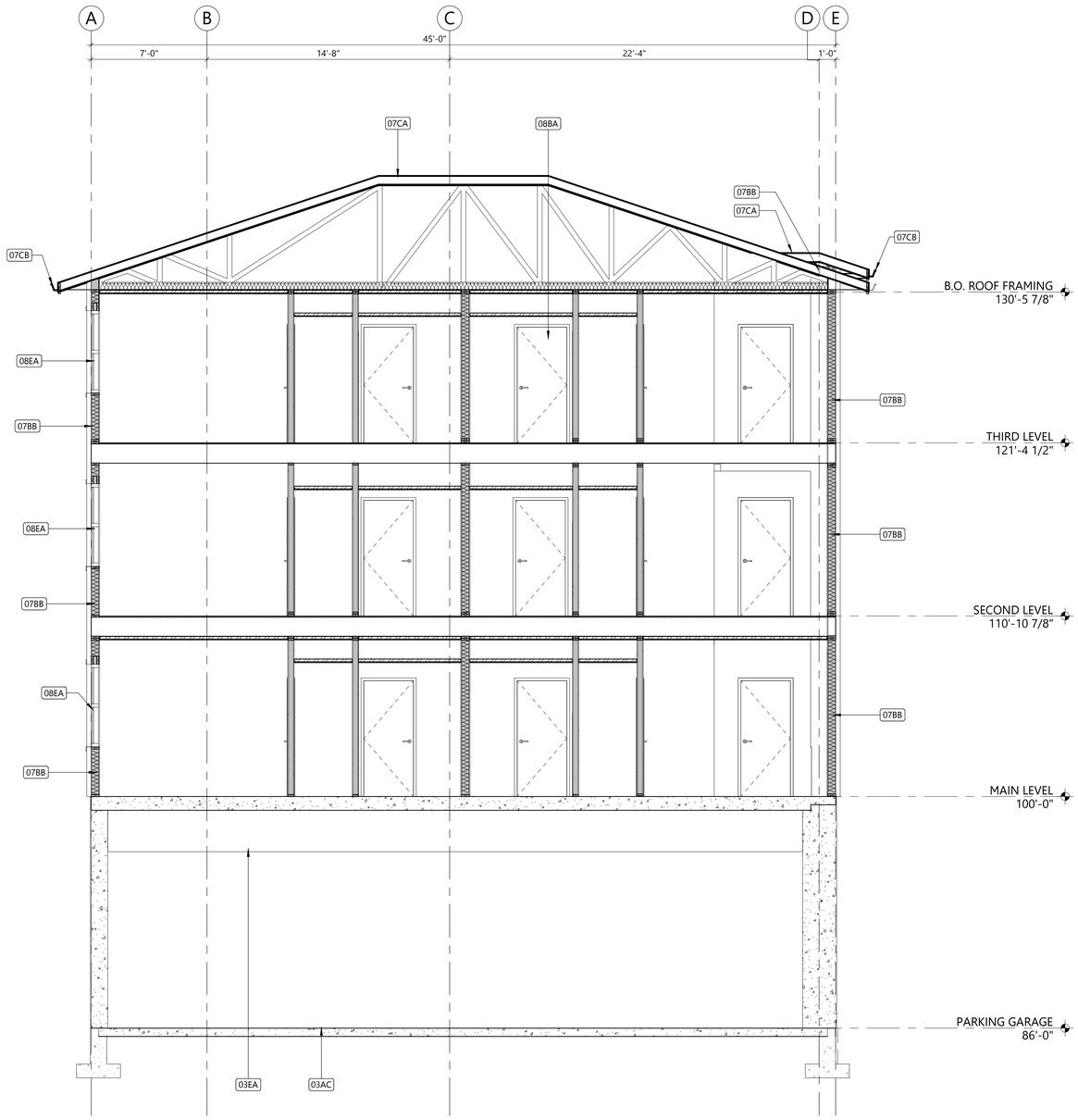
ARCHITECTURAL ELEVATIONS

A201

PERMIT DOCUMENTS



A3 BUILDING SECTION
SCALE: 1/4" = 1'-0"

KEYNOTES

MO	DESCRIPTION
03AC	LINE OF CONCRETE FOUNDATION WALL
03EA	PRECAST CONCRETE STRUCTURAL TEE'S
07BB	INSULATION
07CA	ASPHALT SHINGLE ROOF SYSTEM
07CB	RAIN GUTTER
08BA	DOOR - SEE DOOR SCHEDULE
08EA	WINDOW - SEE WINDOW SCHEDULE

IECC 2021

PRESCRIPTIVE ENERGY COMPLIANCE

BUILDING TYPE: COMMERCIAL - CLIMATE ZONE 5B

BUILDING ENVELOPE

	REQUIRED	PROVIDE
ROOFS		
ATTIC	R-49 MINIMUM	R-49 MINIMUM
WALLS ABOVE GRADE		
WOOD FRAMED	R-20 + R3.8 CI MINIMUM	R-20 + R3.8 CI MINIMUM
WALLS BELOW GRADE		
BELOW-GRADE WALL	R-7.5 CI MINIMUM	R-7.5 CI MINIMUM
SLAB ON GRADE FLOORS		
UNHEATED SLABS	R-20 CI MINIMUM FOR 24" BELOW SLAB	R-20 CI MINIMUM FOR 24" BELOW SLAB
OPAQUE DOORS		
NON SWINGING	U-0.31 MAXIMUM	U-0.31 MAXIMUM
SWINGING DOOR	U-0.37 MAXIMUM	U-0.37 MAXIMUM

BUILDING ENVELOPE VERTICAL FENESTRATION (COMPLETE ASSEMBLY, INCLUDING FRAME AND GLAZING)

FIXED FENESTRATION	U-0.36 MAXIMUM	U-0.36 MAXIMUM
OPERABLE FENESTRATION	U-0.45 MAXIMUM	U-0.45 MAXIMUM

SOLAR HEAT GAIN COEFFICIENT

ORIENTATION	SEW	N	SEW	N
PF < 0.2	0.38 MAX	0.38 MAX	0.38 MAX	0.38 MAX

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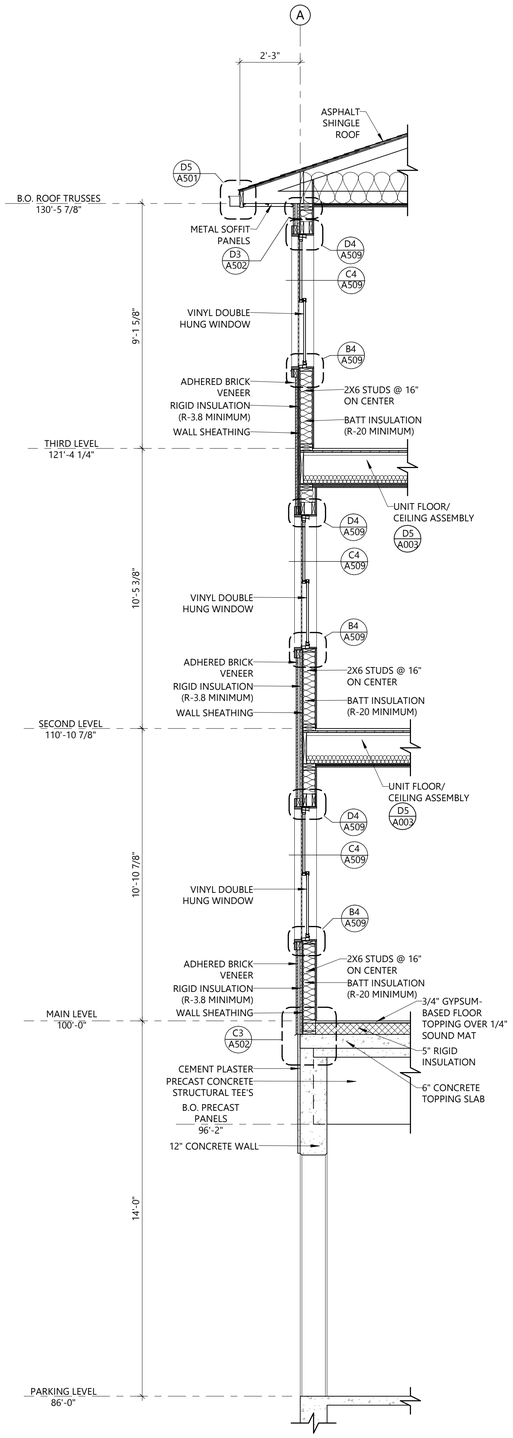
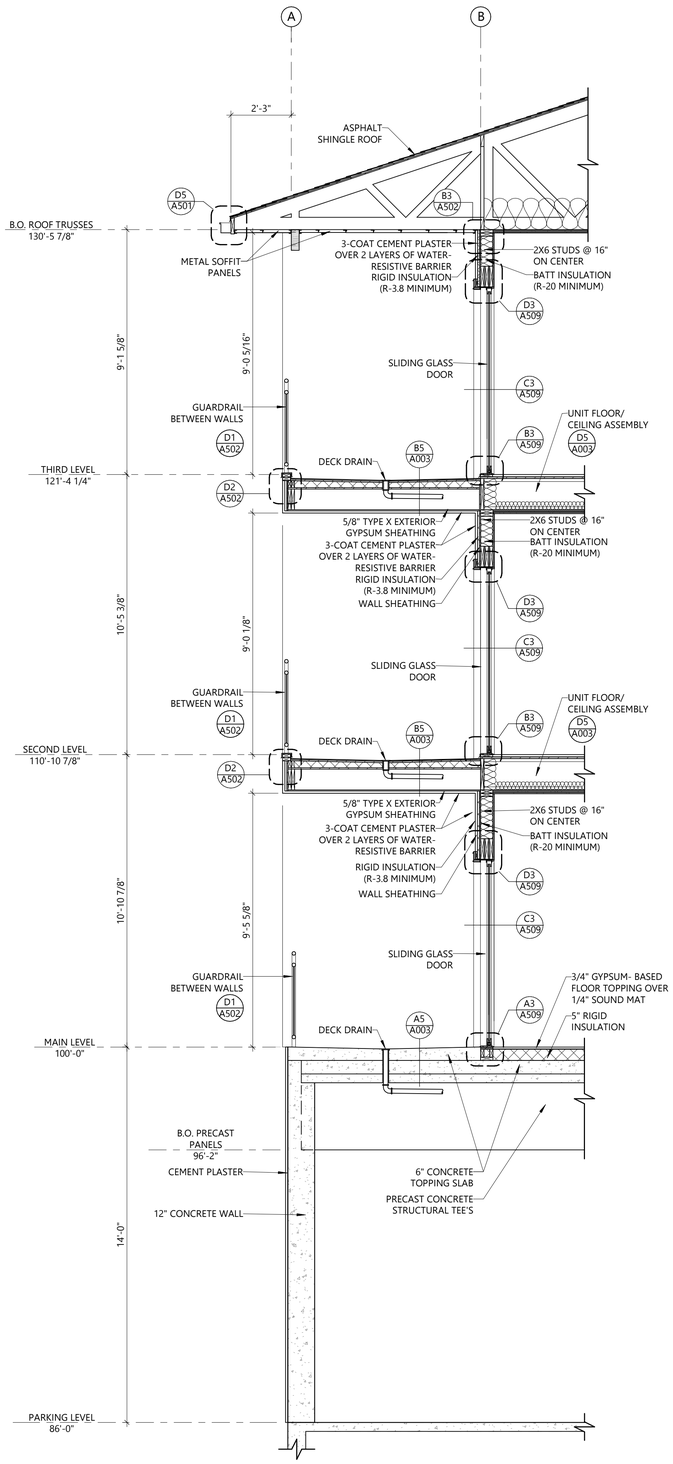
BUILDING SECTIONS

A301

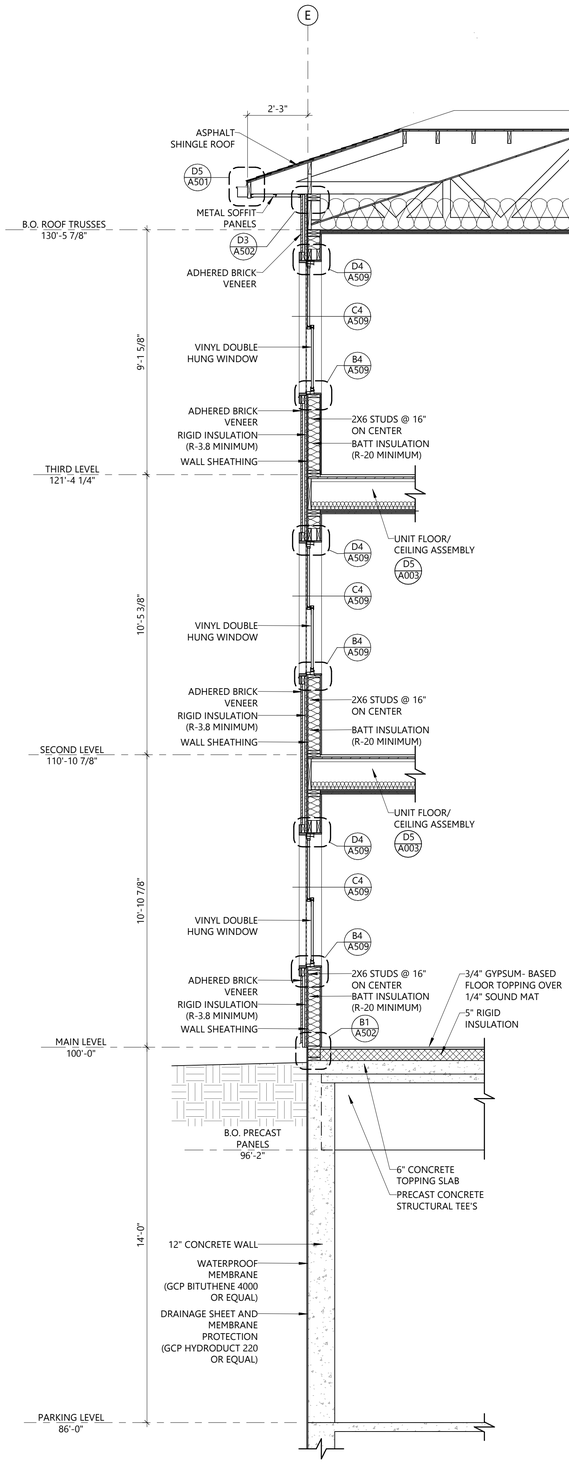
PERMIT DOCUMENTS



A1 EXTERIOR WALL SECTION
SCALE: 3/8" = 1'-0"



A2 EXTERIOR WALL SECTION
SCALE: 3/8" = 1'-0"



A4 EXTERIOR WALL SECTION
SCALE: 3/8" = 1'-0"

IECC 2021

PRESCRIPTIVE ENERGY COMPLIANCE

BUILDING TYPE: COMMERCIAL - CLIMATE ZONE 5B

BUILDING ENVELOPE

	REQUIRED	PROVIDE
ROOFS		
ATTIC	R-49 MINIMUM	R-49 MINIMUM
WALLS ABOVE GRADE		
WOOD FRAMED	R-20 + R3.8 CI MINIMUM	R-20 + R3.8 CI MINIMUM
WALLS BELOW GRADE		
BELOW-GRADE WALL	R-7.5 CI MINIMUM	R-7.5 CI MINIMUM
SLAB ON GRADE FLOORS		
UNHEATED SLABS	R-20 CI MINIMUM FOR 24" BELOW SLAB	R-20 CI MINIMUM FOR 24" BELOW SLAB
OPAQUE DOORS		
NON SWINGING	U-0.31 MAXIMUM	U-0.31 MAXIMUM
SWINGING DOOR	U-0.37 MAXIMUM	U-0.37 MAXIMUM

BUILDING ENVELOPE VERTICAL FENESTRATION (COMPLETE ASSEMBLY, INCLUDING FRAME AND GLAZING)

FIXED FENESTRATION	U-0.36 MAXIMUM	U-0.36 MAXIMUM
OPERABLE FENESTRATION	U-0.45 MAXIMUM	U-0.45 MAXIMUM

SOLAR HEAT GAIN COEFFICIENT

ORIENTATION	SEW	N	SEW	N
PF < 0.2	0.38 MAX	0.38 MAX	0.38 MAX	0.38 MAX

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EXTERIOR WALL SECTIONS

A341

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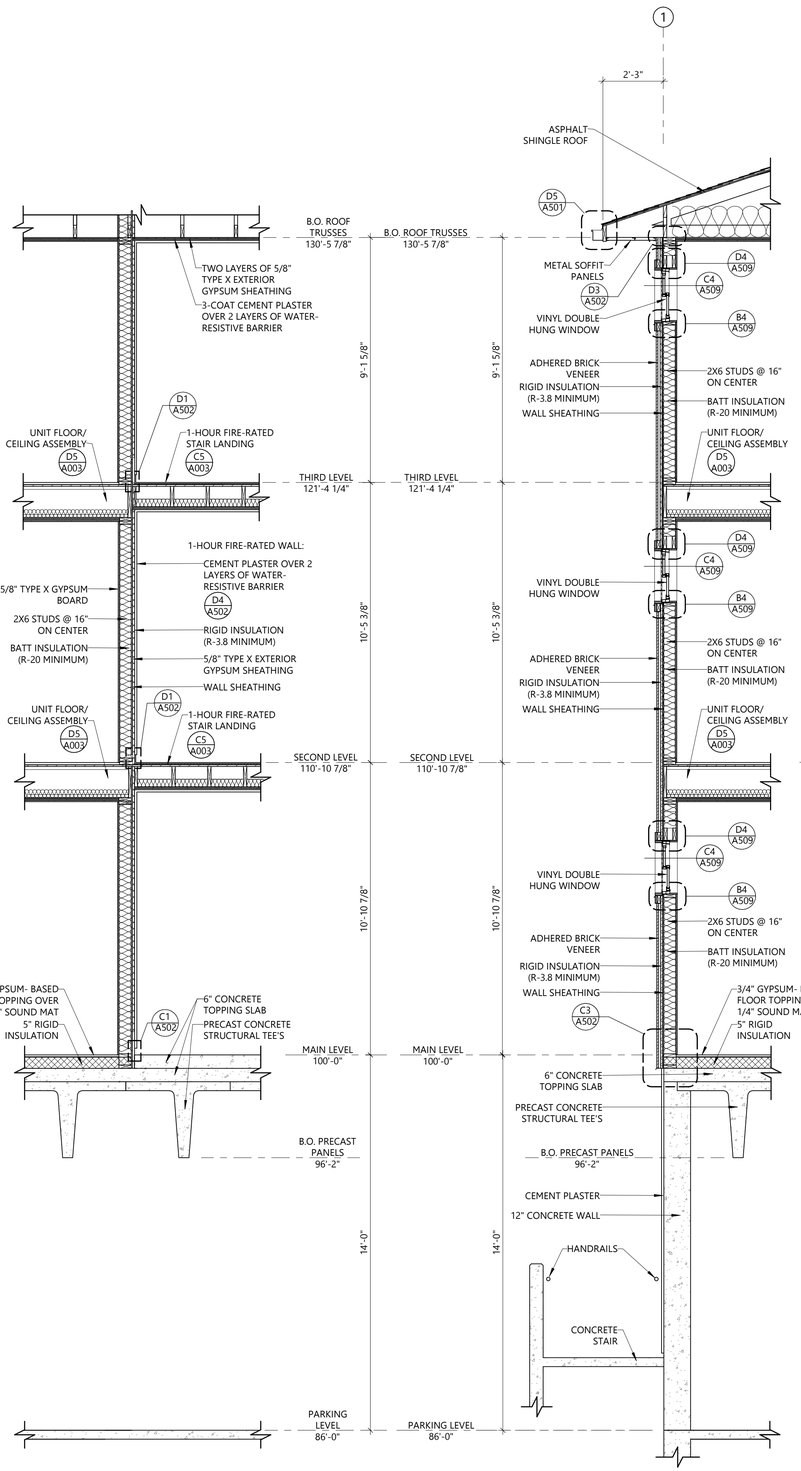
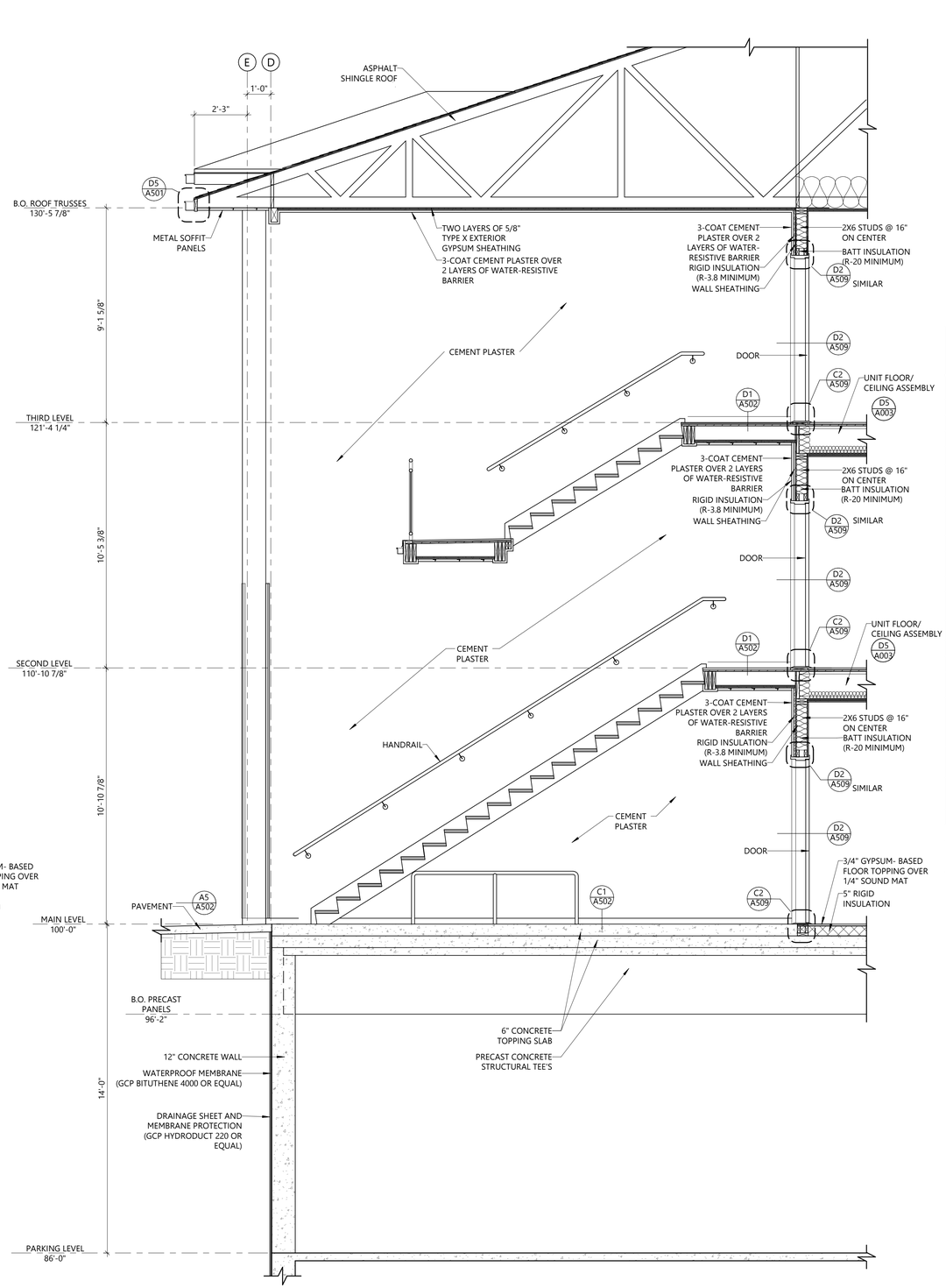


A1 EXTERIOR WALL SECTION
SCALE: 3/8" = 1'-0"

A2 EXTERIOR WALL SECTION
SCALE: 3/8" = 1'-0"



A3 EXTERIOR WALL SECTION
SCALE: 3/8" = 1'-0"

IECC 2021

PRESCRIPTIVE ENERGY COMPLIANCE

BUILDING TYPE: COMMERCIAL - CLIMATE ZONE 5B

BUILDING ENVELOPE

	REQUIRED	PROVIDE
ROOFS		
ATTIC	R-49 MINIMUM	R-49 MINIMUM
WALLS ABOVE GRADE		
WOOD FRAMED	R-20 + R3.8 CI MINIMUM	R-20 + R3.8 CI MINIMUM
WALLS BELOW GRADE		
BELOW-GRADE WALL	R-7.5 CI MINIMUM	R-7.5 CI MINIMUM
SLAB ON GRADE FLOORS		
UNHEATED SLABS	R-20 CI MINIMUM FOR 24" BELOW SLAB	R-20 CI MINIMUM FOR 24" BELOW SLAB
OPAQUE DOORS		
NON SWINGING	U-0.31 MAXIMUM	U-0.31 MAXIMUM
SWINGING DOOR	U-0.37 MAXIMUM	U-0.37 MAXIMUM

BUILDING ENVELOPE VERTICAL FENESTRATION (COMPLETE ASSEMBLY, INCLUDING FRAME AND GLAZING)

FIXED FENESTRATION	U-0.36 MAXIMUM	U-0.36 MAXIMUM
OPERABLE FENESTRATION	U-0.45 MAXIMUM	U-0.45 MAXIMUM

SOLAR HEAT GAIN COEFFICIENT

ORIENTATION	SEW	N	SEW	N
PF < 0.2	0.38 MAX	0.38 MAX	0.38 MAX	0.38 MAX

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EXTERIOR WALL SECTIONS
A342

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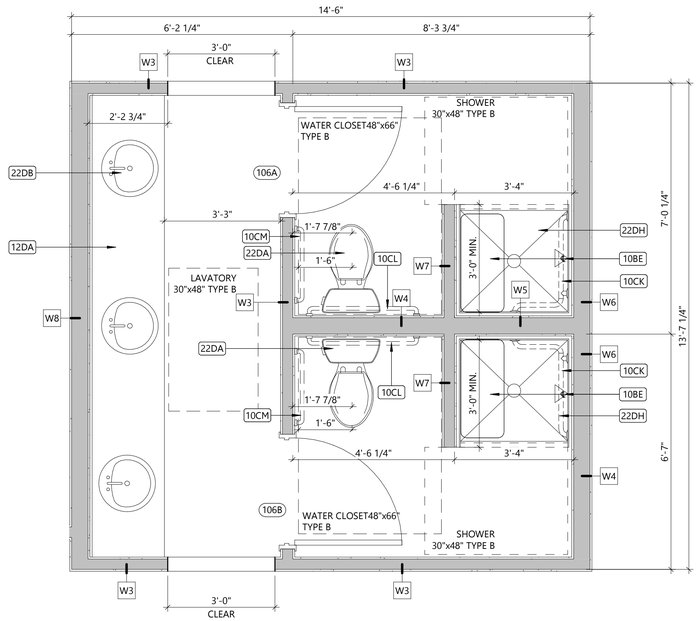
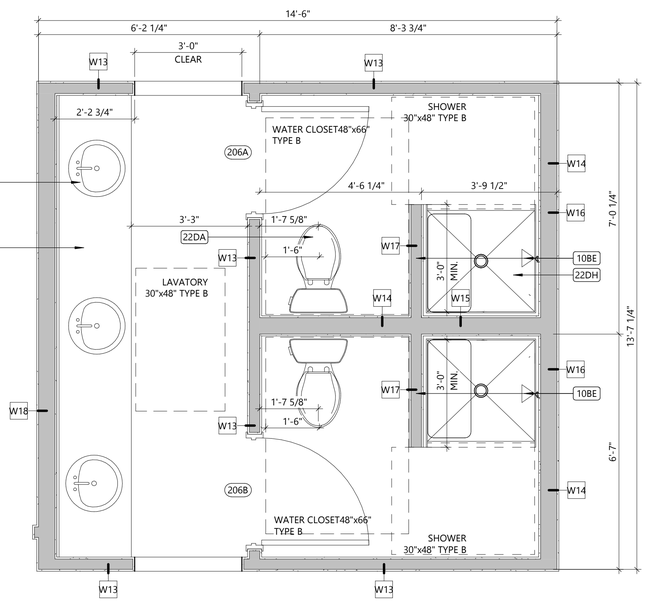


B2 ENLARGED MAIN LEVEL BATHROOM PLAN
SCALE: 1/2" = 1'-0"



B4 SECOND AND THIRD LEVEL ENLARGED BATHROOM PLAN
SCALE: 1/2" = 1'-0"

KEYNOTES

MO	DESCRIPTION
10BE	CENTER SHOWER SEAT AND SHOWER CONTROLS
10CK	PROVIDE BACKING IN WALLS FOR FUTURE INSTALLATION OF GRAB BARS AT SHOWERS. SEE NOTES ON SHEET A504
10CL	PROVIDE BACKING IN WALL FOR FUTURE INSTALLATION OF 36" LONG GRAB BAR AT REAR WALL OF WATER CLOSET. SEE NOTES ON SHEET A504
10CM	PROVIDE BACKING IN WALL FOR FUTURE INSTALLATION OF MINIMUM 24" LONG GRAB BAR AT SIDE WALL OF WATER CLOSET. SEE NOTES ON SHEET A504
12DA	COUNTER TOP - PLASTIC LAMINATE
22DA	ADA TOILET - SEE GENERAL DETAILS
22DB	SINK - SEE PLUMBING DRAWINGS
22DH	SHOWER - SEE GENERAL DETAILS

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ENLARGED BATHROOM PLANS

A400

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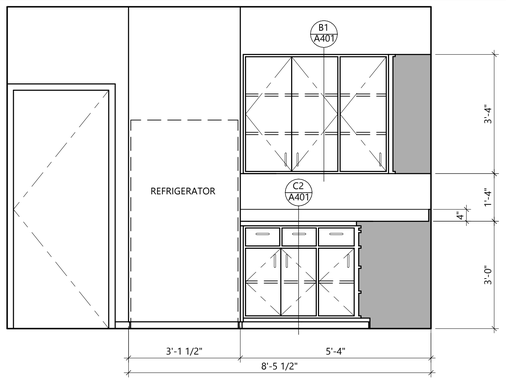
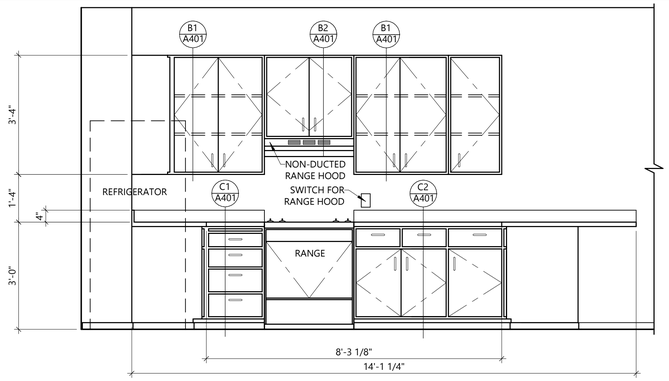
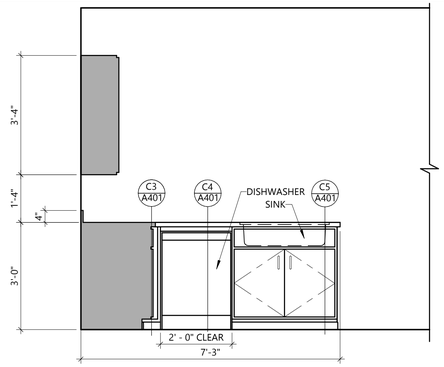


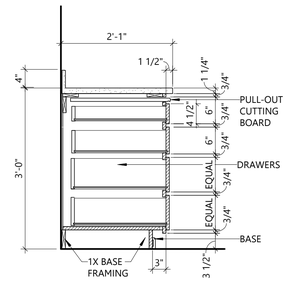
D1 KITCHEN INTERIOR ELEVATION
SCALE: 1/2" = 1'-0"



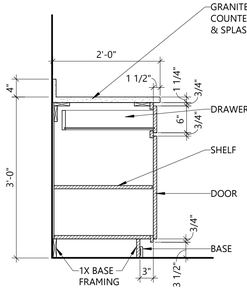
D2 KITCHEN INTERIOR ELEVATION
SCALE: 1/2" = 1'-0"



D4 KITCHEN INTERIOR ELEVATION
SCALE: 1/2" = 1'-0"



C1 KITCHEN BASE CABINET SECTION
SCALE: 3/4" = 1'-0"



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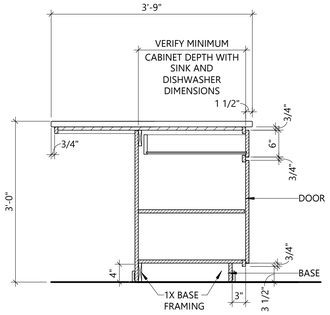

C3 KITCHEN BASE CABINET SECTION
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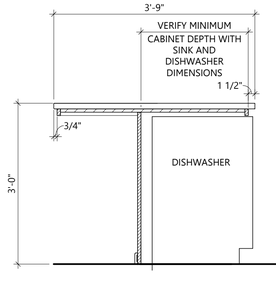

C4 KITCHEN BASE CABINET SECTION
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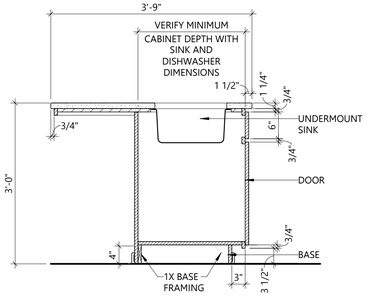
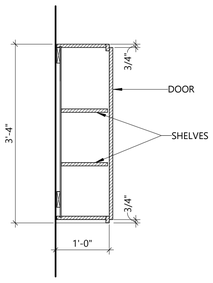
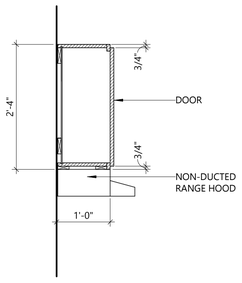


C5 KITCHEN BASE CABINET SECTION
SCALE: 3/4" = 1'-0"



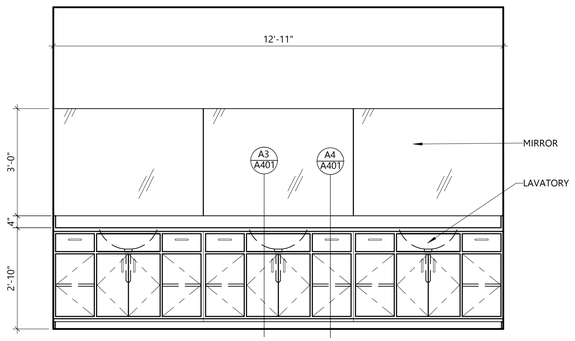
C1 KITCHEN BASE CABINET SECTION
SCALE: 3/4" = 1'-0"



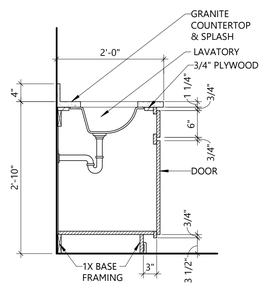
C2 KITCHEN BASE CABINET SECTION
SCALE: 3/4" = 1'-0"

B1 KITCHEN UPPER CABINET SECTION
SCALE: 3/4" = 1'-0"

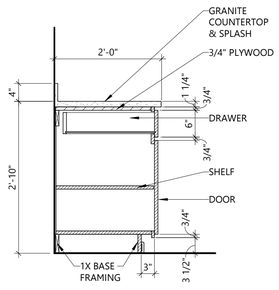
B2 KITCHEN UPPER CABINET SECTION
SCALE: 3/4" = 1'-0"



A1 BATHROOM VANITY INTERIOR ELEVATION
SCALE: 1/2" = 1'-0"



A3 BATHROOM VANITY SECTION
SCALE: 3/4" = 1'-0"



A4 BATHROOM VANITY SECTION
SCALE: 3/4" = 1'-0"

VERIFY ALL MILLWORK DIMENSIONS BY FIELD MEASUREMENTS PRIOR TO FABRICATION OF MILLWORK.

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STATE OF UTAH
JUSTIN MICHAEL CAMPBELL
6/23/25
No.8539712-0301
LICENSED ARCHITECT

AGENCY APPROVAL

K&B APARTMENTS
LOGAN, UT

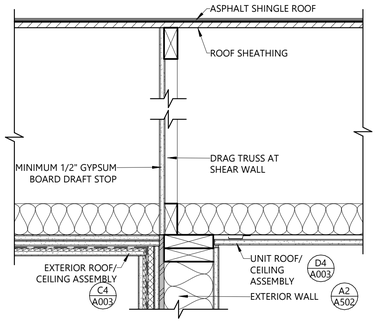
CARTWRIGHT PROJECT # 123021
DATE: 06/23/2025

REVISIONS
DATE DESCRIPTION

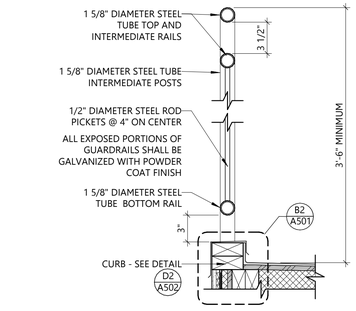
INTERIOR ELEVATIONS AND CABINET SECTIONS

A401

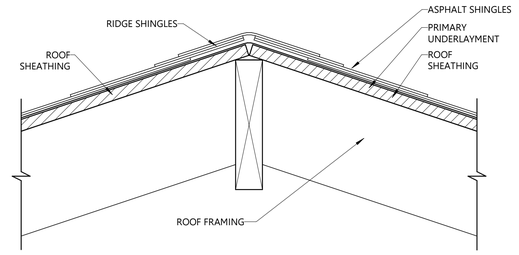
PERMIT DOCUMENTS



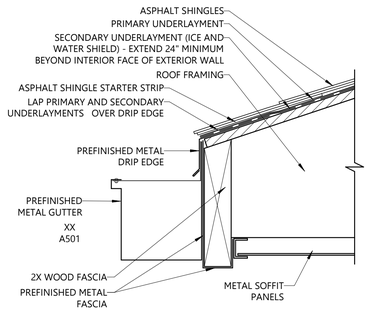
D1 ATTIC DRAFT STOP DETAIL
SCALE: 1 1/2" = 1'-0"



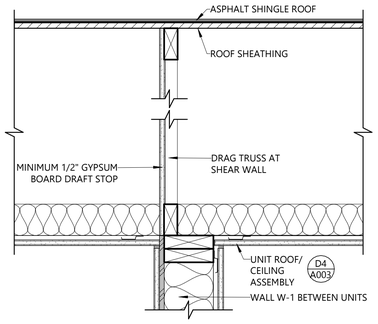
D2 BALCONY GUARDRAIL DETAIL
SCALE: 1 1/2" = 1'-0"



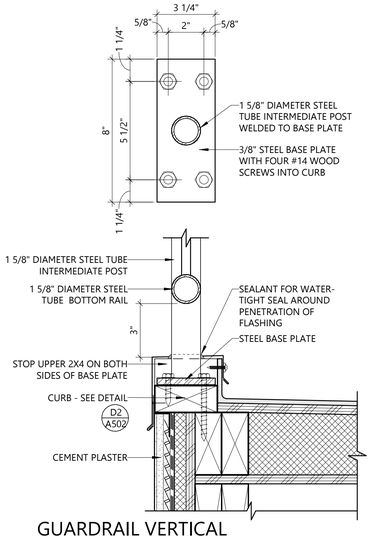
D3 ROOF RIDGE DETAIL
SCALE: 3" = 1'-0"



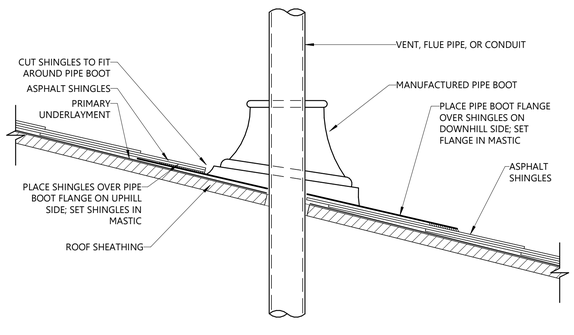
D5 EAVE DETAIL
SCALE: 3" = 1'-0"



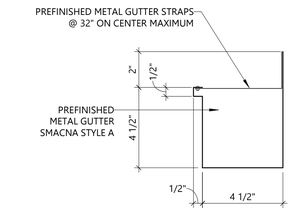
C1 ATTIC DRAFT STOP DETAIL
SCALE: 1 1/2" = 1'-0"



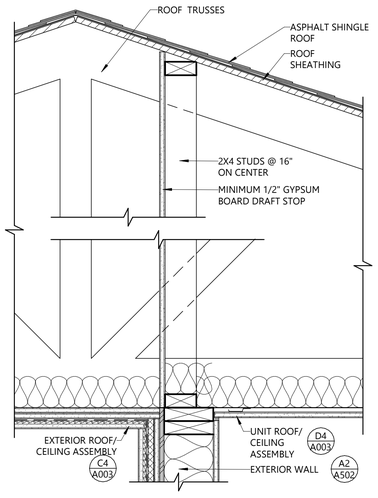
GUARDRAIL VERTICAL POST ATTACHMENT
B2 SCALE: 3" = 1'-0"



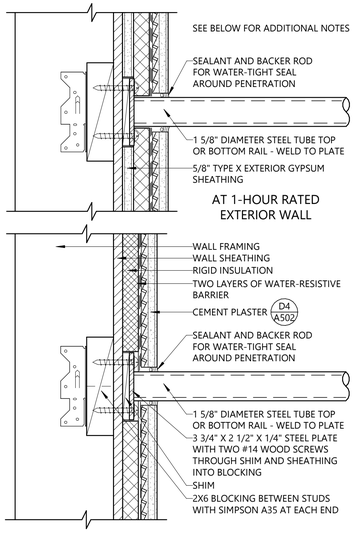
C3 PIPE VENT DETAIL
SCALE: 3" = 1'-0"



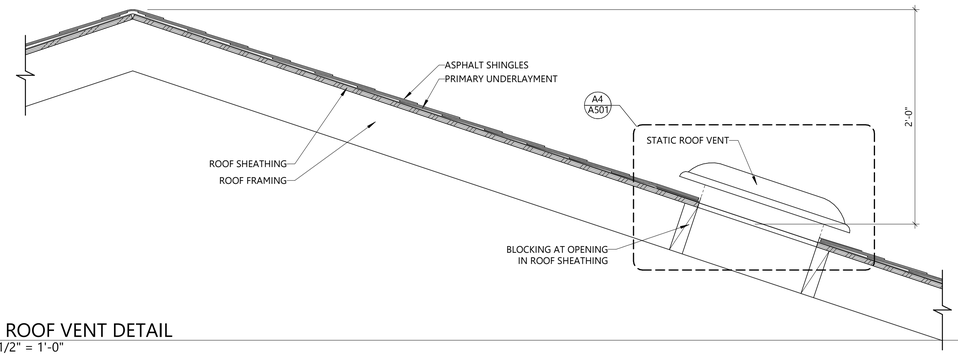
C5 GUTTER DETAIL
SCALE: 3" = 1'-0"



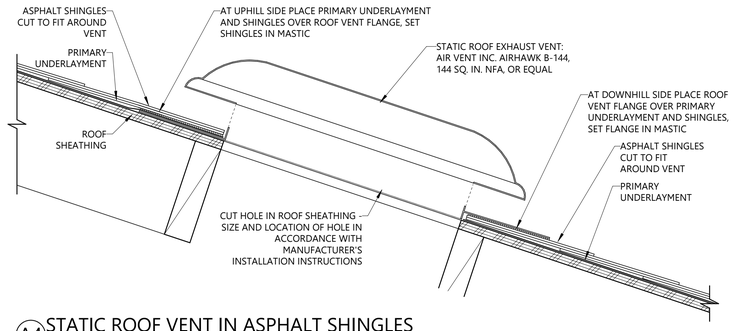
A1 ATTIC DRAFT STOP DETAIL
SCALE: 1 1/2" = 1'-0"



A2 GUARDRAIL ATTACHMENT TO WALL
SCALE: 3" = 1'-0"



B3 STATIC ROOF VENT DETAIL
SCALE: 1 1/2" = 1'-0"



A4 STATIC ROOF VENT IN ASPHALT SHINGLES
SCALE: 3" = 1'-0"

IECC 2021

PRESCRIPTIVE ENERGY COMPLIANCE

BUILDING TYPE: COMMERCIAL - CLIMATE ZONE 5B

BUILDING ENVELOPE

	REQUIRED	PROVIDE
ROOFS		
ATTIC	R-49 MINIMUM	R-49 MINIMUM
WALLS ABOVE GRADE		
WOOD FRAMED	R-20 + R3.8 CI MINIMUM	R-20 + R3.8 CI MINIMUM
WALLS BELOW GRADE		
BELOW-GRADE WALL	R-7.5 CI MINIMUM	R-7.5 CI MINIMUM
SLAB ON GRADE FLOORS		
UNHEATED SLABS	R-20 CI MINIMUM FOR 24" BELOW SLAB	R-20 CI MINIMUM FOR 24" BELOW SLAB
OPAQUE DOORS		
NON SWINGING	U-0.31 MAXIMUM	U-0.31 MAXIMUM
SWINGING DOOR	U-0.37 MAXIMUM	U-0.37 MAXIMUM

BUILDING ENVELOPE VERTICAL FENESTRATION (COMPLETE ASSEMBLY, INCLUDING FRAME AND GLAZING)

FIXED FENESTRATION	U-0.36 MAXIMUM	U-0.36 MAXIMUM
OPERABLE FENESTRATION	U-0.45 MAXIMUM	U-0.45 MAXIMUM

SOLAR HEAT GAIN COEFFICIENT

ORIENTATION	SEW	N	SEW	N
PF < 0.2	0.38 MAX	0.38 MAX	0.38 MAX	0.38 MAX

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AGENCY APPROVAL

K&B APARTMENTS

LOGAN, UT

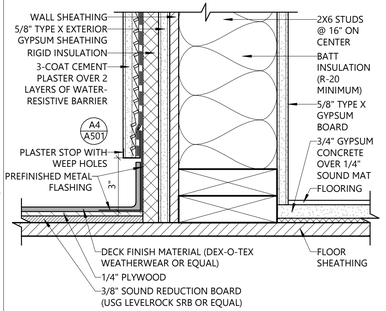
CARTWRIGHT PROJECT # 123021
DATE: 06/23/2025

REVISIONS
DATE DESCRIPTION

ARCHITECTURAL DETAILS

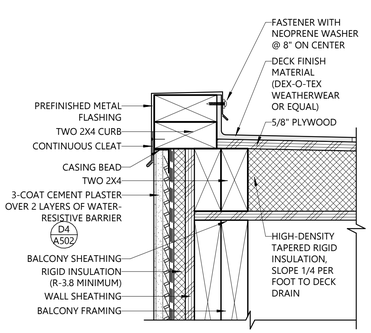
A501

PERMIT DOCUMENTS

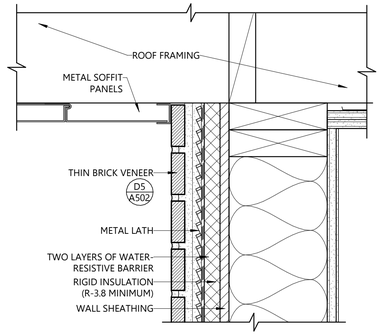


D1 STAIR LANDING WALL BASE
SCALE: 3" = 1'-0"

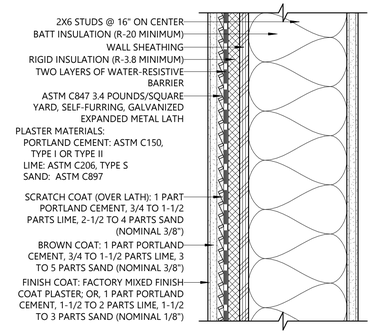
UPPER LEVELS



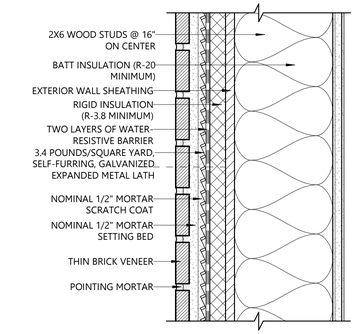
D2 BALCONY EDGE DETAIL
SCALE: 3" = 1'-0"



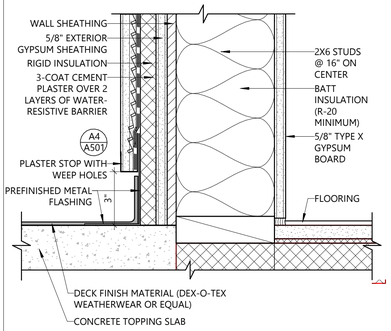
D3 BRICK VENEER TOP OF WALL
SCALE: 3" = 1'-0"



D4 3-COAT CEMENT PLASTER
SCALE: 3" = 1'-0"

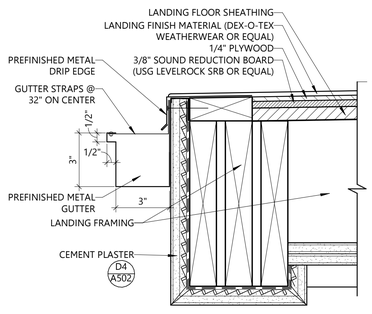


D5 ADHERED THIN BRICK VENEER
SCALE: 3" = 1'-0"

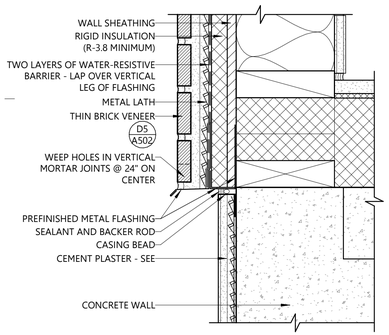


C1 STAIR LANDING WALL BASE
SCALE: 3" = 1'-0"

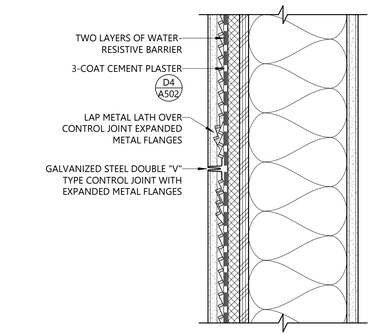
MAIN LEVEL



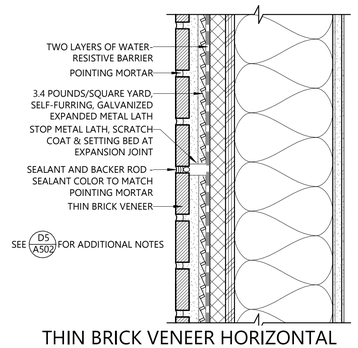
C2 STAIR LANDING EDGE
SCALE: 3" = 1'-0"



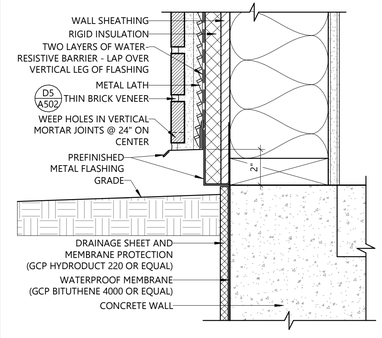
C3 BRICK VENEER BOTTOM OF WALL
SCALE: 3" = 1'-0"



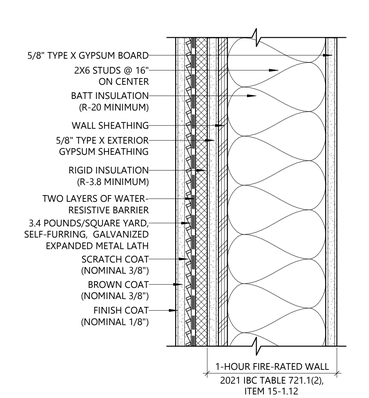
C4 CEMENT PLASTER CONTROL JOINT
SCALE: 3" = 1'-0"



C5 THIN BRICK VENEER HORIZONTAL EXPANSION JOINT
SCALE: 3" = 1'-0"



B1 BRICK VENEER WALL BASE AT GRADE
SCALE: 3" = 1'-0"



2021 INTERNATIONAL BUILDING CODE
TABLE 721.1(2), ITEM 15-1.12:

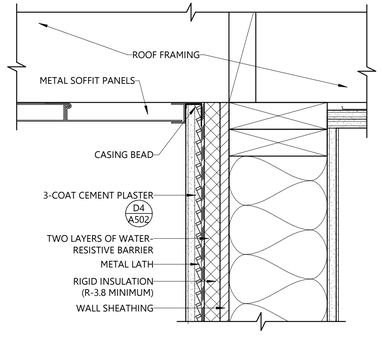
2" × 6" WOOD STUDS AT 16" WITH DOUBLE TOP PLATES, SINGLE BOTTOM PLATE; INTERIOR AND EXTERIOR SIDES COVERED WITH 5/8" TYPE X GYPSUM WALLBOARD, 4' WIDE, APPLIED HORIZONTALLY OR VERTICALLY WITH VERTICAL JOINTS OVER STUDS, AND FASTENED WITH 2 1/4" TYPE S DRYWALL SCREWS, SPACED 12" ON CENTER. CAVITY TO BE FILLED WITH 5 1/2" MINERAL WOOL INSULATION.

FOOTNOTE l to TABLE 721.1(2):

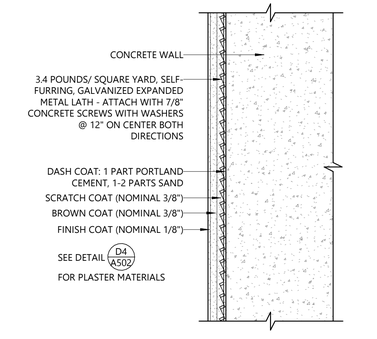
WOOD STRUCTURAL PANELS SHALL BE PERMITTED TO BE INSTALLED BETWEEN THE FIRE PROTECTION AND THE WOOD STUDS ON EITHER THE INTERIOR OR EXTERIOR SIDE OF THE WOOD FRAME ASSEMBLIES IN THIS TABLE, PROVIDED THAT THE LENGTH OF THE FASTENERS USED TO ATTACH THE FIRE PROTECTION IS INCREASED BY AN AMOUNT NOT LESS THAN THE THICKNESS OF THE WOOD STRUCTURAL PANEL.

PROVIDE MINIMUM 2 3/4" TYPE S DRYWALL SCREWS, SPACED 12" ON CENTER, FOR APPLICATION OF 5/8" EXTERIOR GYPSUM SHEATHING OVER PLYWOOD WALL SHEATHING.

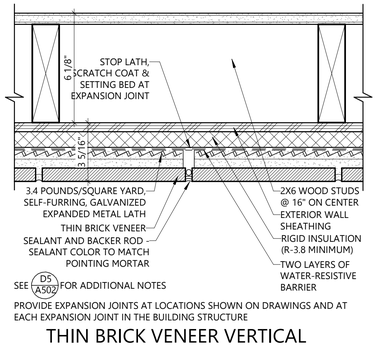
B2 1-HOUR RATED EXTERIOR WALL
SCALE: 3" = 1'-0"



B3 CEMENT PLASTER TOP OF WALL
SCALE: 3" = 1'-0"

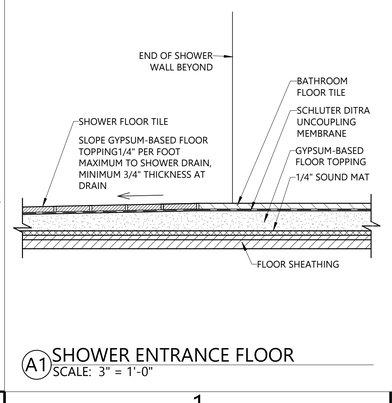


B4 CEMENT PLASTER OVER CONCRETE
SCALE: 3" = 1'-0"



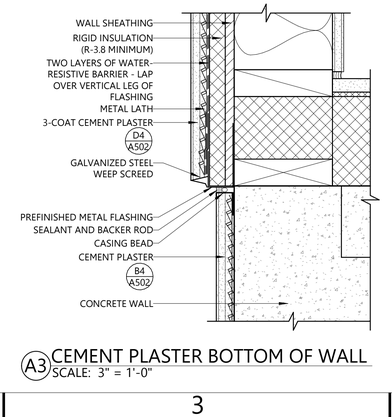
PROVIDE EXPANSION JOINTS AT LOCATIONS SHOWN ON DRAWINGS AND AT EACH EXPANSION JOINT IN THE BUILDING STRUCTURE

B5 THIN BRICK VENEER VERTICAL EXPANSION JOINT
SCALE: 3" = 1'-0"

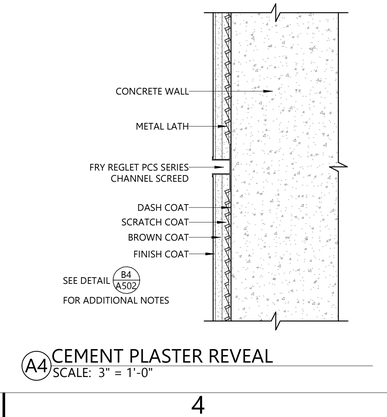


A1 SHOWER ENTRANCE FLOOR
SCALE: 3" = 1'-0"

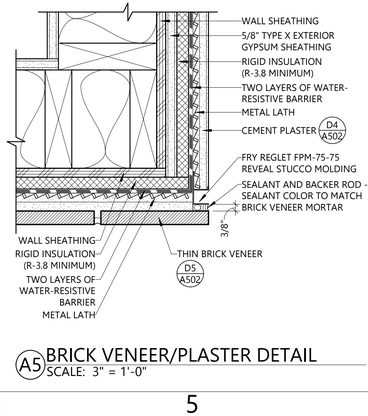
A2 1-HOUR RATED EXTERIOR WALL
SCALE: 3" = 1'-0"



A3 CEMENT PLASTER BOTTOM OF WALL
SCALE: 3" = 1'-0"



A4 CEMENT PLASTER REVEAL
SCALE: 3" = 1'-0"



A5 BRICK VENEER/PLASTER DETAIL
SCALE: 3" = 1'-0"

IECC 2021

PRESCRIPTIVE ENERGY COMPLIANCE

BUILDING TYPE: COMMERCIAL - CLIMATE ZONE 5B

BUILDING ENVELOPE

	REQUIRED	PROVIDE
ROOFS		
ATTIC	R-49 MINIMUM	R-49 MINIMUM
WALLS ABOVE GRADE		
WOOD FRAMED	R-20 + R3.8 CI MINIMUM	R-20 + R3.8 CI MINIMUM
WALLS BELOW GRADE		
BELOW-GRADE WALL	R-7.5 CI MINIMUM	R-7.5 CI MINIMUM
SLAB ON GRADE FLOORS		
UNHEATED SLABS	R-20 CI MINIMUM FOR 24" BELOW SLAB	R-20 CI MINIMUM FOR 24" BELOW SLAB
OPAQUE DOORS		
NON SWINGING	U-0.31 MAXIMUM	U-0.31 MAXIMUM
SWINGING DOOR	U-0.37 MAXIMUM	U-0.37 MAXIMUM

BUILDING ENVELOPE VERTICAL FENESTRATION (COMPLETE ASSEMBLY, INCLUDING FRAME AND GLAZING)

FIXED FENESTRATION	U-0.36 MAXIMUM	U-0.36 MAXIMUM
OPERABLE FENESTRATION	U-0.45 MAXIMUM	U-0.45 MAXIMUM

SOLAR HEAT GAIN COEFFICIENT

ORIENTATION	SEW	N	SEW	N
PF < 0.2	0.38 MAX	0.38 MAX	0.38 MAX	0.38 MAX

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AGENCY APPROVAL

K&B APARTMENTS
LOGAN, UT

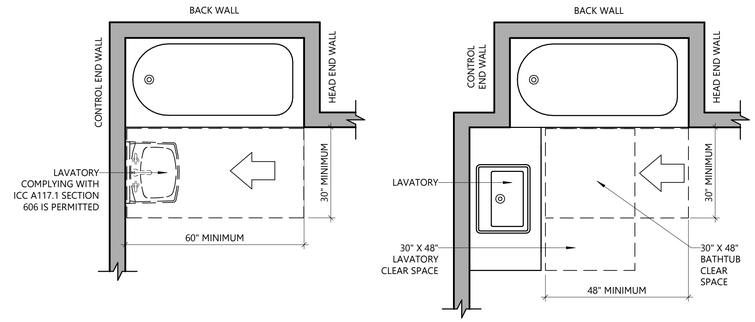
CARTWRIGHT PROJECT # 123021
DATE: 06/23/2025

REVISIONS
	DATE	DESCRIPTION

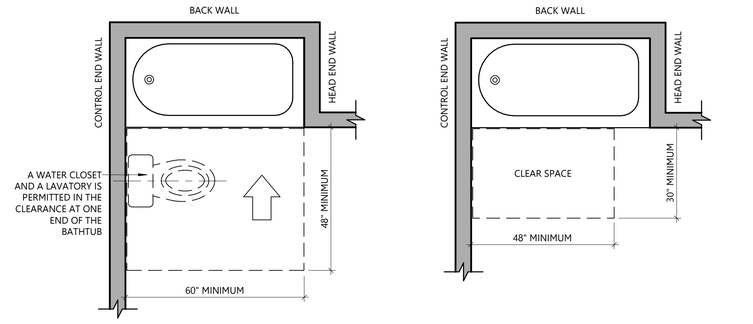
ARCHITECTURAL DETAILS

A502

PERMIT DOCUMENTS

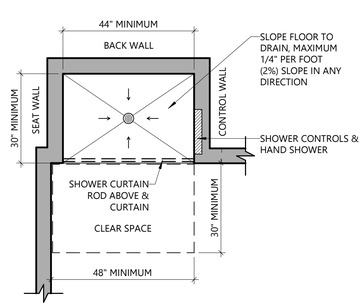


D1 OPTION A BATHTUBS - PARALLEL APPROACH
SCALE: 1/2" = 1'-0"

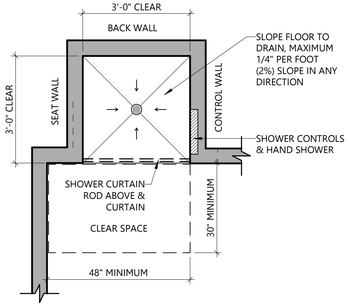


C1 OPTION A BATHTUBS - FORWARD APPROACH
SCALE: 1/2" = 1'-0"

C2 OPTION B BATHTUBS
SCALE: 1/2" = 1'-0"



B1 TRANSFER TYPE SHOWER - EXCEPTION
SCALE: 1/2" = 1'-0"



B2 TRANSFER TYPE SHOWER
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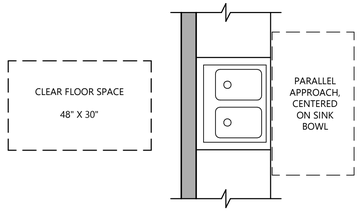
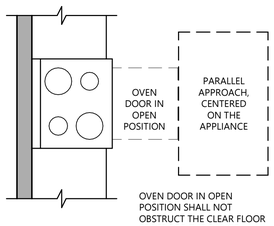
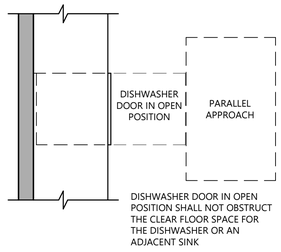


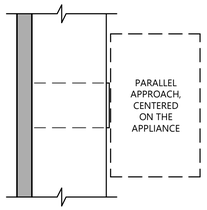
KITCHEN SINK



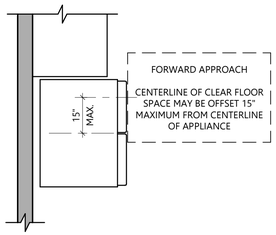
RANGE



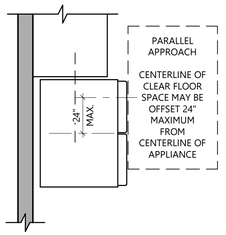
DISHWASHER



TRASH COMPACTOR

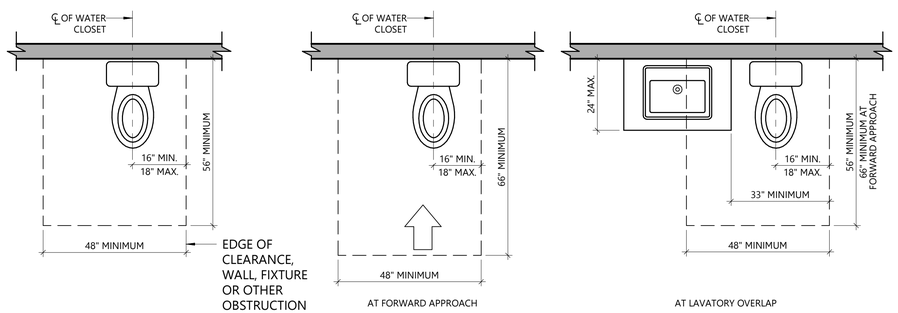


REFRIGERATOR/FREEZER - FORWARD APPROACH

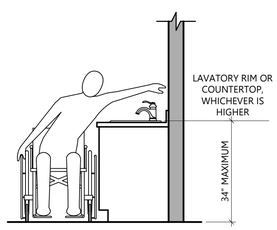


REFRIGERATOR/FREEZER - PARALLEL APPROACH

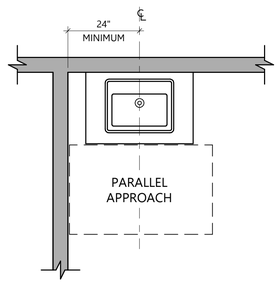
B3 TYPE B UNIT KITCHENS CLEAR FLOOR SPACES
SCALE: 1/2" = 1'-0"



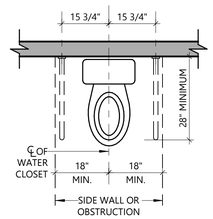
A1 WATER CLOSET CLEARANCES - OPTION A AND OPTION B BATHROOMS
SCALE: 1/2" = 1'-0"



A3 OPTION B BATHROOM LAVATORY
SCALE: 1/2" = 1'-0"



A4 OPTION A BATHROOM LAVATORY
SCALE: 1/2" = 1'-0"



A5 SWING-UP GRAB BARS FOR WATER CLOSETS
SCALE: 1/2" = 1'-0"

TYPE B UNIT NOTES

THIS STANDARD SHEET PROVIDES THE BASIC REQUIREMENTS FOR TOILET AND BATHING FACILITIES AND KITCHENS IN TYPE B MULTI-FAMILY HOUSING UNITS. IT IS NOT INTENDED AS A COMPREHENSIVE LIST OF ALL REQUIREMENTS, BUT RATHER AS A GENERAL RESOURCE. DESIGNERS AND DRAFTERS SHOULD ALWAYS REFER TO THE REQUIREMENTS IN ICC A117.1-2017 FOR DETAILED INFORMATION.

REFERENCES: ICC A117.1-2017 SECTIONS AS NOTED

TOILET AND BATHING FACILITIES

SECTION 1104.11.1 - GRAB BAR AND SHOWER SEAT REINFORCEMENT
REINFORCEMENT SHALL BE PROVIDED FOR THE FUTURE INSTALLATION OF GRAB BARS COMPLYING WITH SECTION 604.5 AT WATER CLOSETS; GRAB BARS COMPLYING WITH SECTION 607.4 AT BATHTUBS; AND FOR GRAB BARS AND SHOWER SEATS COMPLYING WITH SECTIONS 608.3, 608.2.1.3, 608.2.2.3 AND 608.2.3.2 AT SHOWER COMPARTMENTS.
EXCEPTIONS:
1. IN A ROOM CONTAINING ONLY A LAVATORY AND A WATER CLOSET, REINFORCEMENT IS NOT REQUIRED PROVIDED THE ROOM DOES NOT CONTAIN THE ONLY LAVATORY OR WATER CLOSET ON THE ACCESSIBLE LEVEL.
2. AT WATER CLOSETS REINFORCEMENT FOR THE SIDE WALL VERTICAL GRAB BAR COMPONENT IS NOT REQUIRED.
3. AT WATER CLOSETS WHERE WALL SPACE WILL NOT PERMIT A GRAB BAR COMPLYOING WITH SECTION 604.5.2, REINFORCEMENT FOR A REAR WALL GRAB BAR 24 INCHES MINIMUM IN LENGTH, CENTERED ON THE WATER CLOSET SHALL BE PROVIDED.
4. AT WATER CLOSETS WHERE A SIDE WALL IS NOT AVAILABLE FOR A 42 INCH GRAB BAR COMPLYING WITH SECTION 604.5.1, REINFORCEMENT FOR A SIDEWALL GRAB BAR 24 INCHES MINIMUM IN LENGTH, LOCATED 12 INCHES MAXIMUM FROM THE REAR WALL, SHALL BE PROVIDED.
5. AT WATER CLOSETS WHERE A SIDE WALL IS NOT AVAILABLE FOR A 42 INCH GRAB BAR COMPLYING WITH SECTION 604.5.1, REINFORCEMENT FOR A SWING-UP GRAB BAR COMPLYING WITH SECTION 1104.11.1 SHALL BE PERMITTED.
6. AT WATER CLOSETS WHERE A SIDE WALL IS NOT AVAILABLE FOR A 42 INCH GRAB BAR COMPLYING WITH SECTION 604.5.1, REINFORCEMENT FOR TWO SWING-UP GRAB BARS COMPLYING WITH SECTION 1104.11.1.1 SHALL BE PERMITTED TO BE INSTALLED IN LIEU OF REINFORCEMENT FOR REAR WALL AND SIDE WALL GRAB BARS.
7. IN SHOWER COMPARTMENTS LARGER THAN 36 INCHES IN WIDTH AND 36 INCHES IN DEPTH REINFORCEMENT FOR A SHOWER SEAT IS NOT REQUIRED.
(SEE DETAIL C1/A5RA FOR REINFORCEMENT OF WATER CLOSET GRAB BARS. SEE DETAILS B2, B5, C3 AND C5/A5RC FPR REINFORCEMENT OF SHOWER AND BATHTUB GRAB BARS.)

1104.11.1.1 - SWING-UP GRAB BARS
A CLEARANCE OF 18 INCHES MINIMUM FROM THE CENTERLINE OF THE WATER CLOSET TO ANY SIDE WALL OR OBSTRUCTION SHALL BE PROVIDED WHERE REINFORCEMENT FOR SWING-UP GRAB BARS IS PROVIDED.
WHEN THE APPROACH TO THE WATER CLOSET IS FROM THE
SIDE, THE 18 INCHES MINIMUM SHALL BE ON THE SIDE OPPOSITE THE DIRECTION OF APPROACH.REINFORCEMENT SHALL ACCOMMODATE A SWING-UP GRAB BAR CENTERED 15 3/4 INCHES FROM THE CENTERLINE OF THE WATER CLOSET AND 28 INCHES MINIMUM IN LENGTH, MEASURED FROM THE WALL T THE END OF THE HORIZONTAL PORTION OF THE GRAB BAR. REINFORCEMENT SHALL ACCOMMODATE A SWING-UP GRAB BAR WITH A HEIGHT IN THE DOWN POSITION OF 33 INCHES MINIMUM AND 36 INCHES MAXIMUM. REINFORCEMENT SHALL BE ADEQUATE TO RESIST FORCES IN ACCORDANCE WITH SECTION 609.8.
(SEE DETAIL A5/A5RB)

SECTION 1104.11.2 - CLEAR FLOOR SPACE
CLEAR FLOOR SPACES REQUIRED BY SECTIONS 1104.11.3.1 (OPTION A) OR 1104.11.3.2 (OPTION B) SHALL COMPLY WITH SECTIONS 1104.11.2 AND 1104.1.1.

1104.11.2.1 - DOORS
DOORS SHALL NOT SWING INTO THE CLEAR FLOOR SPACE OR CLEARANCE FOR ANY FIXTURE. EXCEPTION: WHERE A CLEAR FLOOR SPACE IS PROVIDED WITHIN THE ROOM BEYOND THE ARC OF THE DOOR SWING.

1104.11.2.2 - KNEE AND TOE CLEARANCE
CLEAR FLOOR SPACE AT FIXTURES SHALL BE PERMITTED TO INCLUDE KNEE AND TOE CLEARANCES COMPLYING WITH SECTION 306.

1104.11.3 - TOILET AND BATHING AREAS
EITHER ALL TOILET AND BATHING AREAS PROVIDED SHALL COMPLY WITH SECTION 1104.11.3.1 (OPTION A), OR ONE TOILET AND BATHING AREA SHALL COMPLY WITH SECTION 1104.11.3.2 (OPTION B).

1104.11.3.1 - OPTION A
EACH FIXTURE PROVIDED SHALL COMPLY WITH SECTION 1104.11.3.1.
EXCEPTIONS:
1. WHERE MULTIPLE LAVATORIES ARE PROVIDED IN A SINGLE TOILET AND BATHING AREA SUCH THAT TRAVEL BETWEEN FIXTURES DOES NOT REQUIRE TRAVEL THROUGH OTHER PARTS OF THE UNIT, NOT MORE THAN ONE LAVATORY IS REQUIRED TO COMPLY WITH SECTION 1104.11.3.1.
2. A LAVATORY AND AND A WATER CLOSET IN A ROOM CONTAINING ONLY A LAVATORY AND A WATER CLOSET, PROVIDED THE ROOM DOES NOT CONTAIN THE ONLY LAVATORY OR WATER CLOSET ON THE ACCESSIBLE LEVEL.

1104.11.3.1.1 - LAVATORY
A CLEAR SPACE POSITIONED FOR A PARALLEL APPROACH SHALL BE PROVIDED AT A LAVATORY. THE CLEAR FLOOR SPACE SHALL BE CENTERED ON THE LAVATORY.
EXCEPTION: A LAVATORY COMPLYING WITH SECTIONS 606.3, 606.4 AND 1104.1.1 SHALL BE PERMITTED. CABINETRY SHALL BE PERMITTED UNDER THE LAVATORY PROVIDED THE FOLLOWING CRITERIA ARE MET:
1. THE CABINETRY CAN BE REMOVED WITHOUT REMOVAL OR REPLACEMENT OF THE LAVATORY; AND
2. THE FLOOR FINISH EXTENDS UNDER THE CABINETRY; AND
3. THE WALLS BEHIND AND SURROUNDING THE CABINETRY ARE FINISHED.

1104.11.3.1.2 - WATER CLOSET
WATER CLOSETS SHALL COMPLY WITH SECTION 1104.11.3.1.2.
(SEE DETAIL A1 FOR WATER CLOSET REQUIREMENTS)

1104.11.3.1.3 - BATHING FIXTURES
WHERE PROVIDED, A BATHTUB SHALL COMPLY WITH SECTION 1104.11.3.1.3.1 OR 1104.11.3.1.3.2 AND A SHOWER COMPARTMENT SHALL COMPLY WITH SECTION 1104.11.3.1.3.3.

1104.11.3.1.3.1 - PARALLEL APPROACH BATHTUBS
(SEE DETAIL D1)

1104.11.3.1.3.2 - FORWARD APPROACH BATHTUBS
(SEE DETAIL C1)

1104.11.3.1.3.3 - SHOWER COMPARTMENT
IF A SHOWER COMPARTMENT IS THE ONLY BATHING FACILITY, THE SHOWER COMPARTMENT SHALL HAVE DIMENSIONS OF 36 INCHES MINIMUM WIDTH AND 36 INCHES MINIMUM IN DEPTH. A CLEARANCE OF 48 INCHES MINIMUM IN LENGTH, MEASURED PERPENDICULAR FROM THE CONTROL WALL, AND 30 INCHES MINIMUM IN DEPTH, MEASURED FROM THE FACE OF THE SHOWER COMPARTMENT, SHALL BE PROVIDED.
(SEE DETAIL B2)
EXCEPTIONS:
1. A SHOWER COMPARTMENT WITH DIMENSIONS OF 30 INCHES MINIMUM IN DEPTH AND 44 INCHES MINIMUM IN WIDTH SHALL BE PERMITTED.
(SEE DETAIL B1)
2. A SHOWER DOOR ASSEMBLY SHALL BE PERMITTED WHERE THE ASSEMBLY CAN BE REMOVED WITHOUT REMOVAL OR REPLACEMENT OF THE SURROUNDING WALLS AND FLOOR TO WHICH IT IS AFFIXED.

1104.11.3.2 - OPTION B
ONE OF EACH TYPE OF FIXTURE PROVIDED SHALL COMPLY WITH SECTION 1104.11.3.2. THESE FIXTURES SHALL BE IN A SINGLE TOILET/BATHING AREA, SUCH THAT TRAVEL BETWEEN FIXTURES DOES NOT REQUIRE TRAVEL THROUGH OTHER PARTS OF THE UNIT.

1104.11.3.2.1 - LAVATORY
LAVATORIES SHALL COMPLY WITH SECTIONS 1104.11.3.1.1 AND 1104.11.3.2.1.1.

1104.11.2.2.1.1 - HEIGHT
THE FRONT OF THE LAVATORY SHALL BE 34 INCHES MAXIMUM ABOVE THE FLOOR, MEASURED TO THE HIGHER OF THE RIM OR COUNTER SURFACE.

1104.11.3.2.2 - WATER CLOSET
THE WATER CLOSET SHALL COMPLY WITH SECTION 1104.3.1.2.
(SEE DETAIL A1 FOR WATER CLOSET REQUIREMENTS)

1104.11.3.2.3 - BATHING FIXTURES
THE BATHING FIXTURE SHALL BE A BATHTUB COMPLYING WITH SECTION 1104.11.3.2.3.1 *(SEE DETAIL C2)* OR A SHOWER COMPARTMENT COMPLYING WITH SECTION 1104.11.3.2.3.2.

1104.11.3.2.3.2 - SHOWER COMPARTMENT
A SHOWER COMPARTMENT SHALL COMPLY WITH SECTION 1104.11.3.1.3.3.

KITCHENS

1103.12 - KITCHENS
KITCHENS SHALL COMPLY WITH SECTION 1104.12.
(SEE TYPE A UNIT KITCHEN CLEARANCES [DETAIL D3] ON STANDARD SHEET A5RA. [KITCHEN CLEARANCES ARE THE SAME FOR TYPE A AND TYPE B UNITS.]

1104.12.2 - CLEAR FLOOR SPACE
(SEE DETAIL B3 FOR CLEAR FLOOR SPACES.)

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K&B APARTMENTS
LOGAN, UT

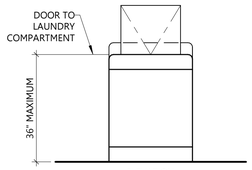
CARTWRIGHT PROJECT #	123021
DATE:	06/23/2025

REVISIONS
#	DATE	DESCRIPTION

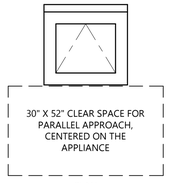
TYPE B UNIT STANDARDS

A504

PERMIT DOCUMENTS

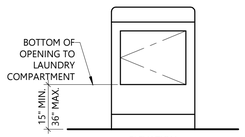


ELEVATION

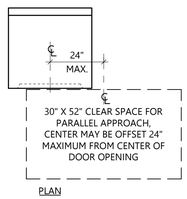


PLAN

TOP LOADING APPLIANCES



ELEVATION



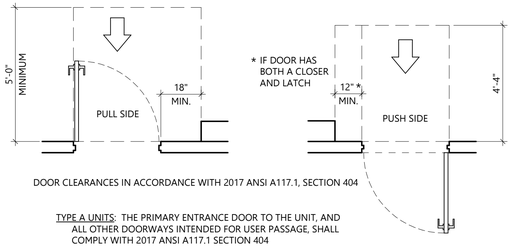
PLAN

FRONT LOADING APPLIANCES

OPERABLE PARTS, INCLUDING APPLICANCE CONTROLS, DOORS, LINT SCREENS, AND DETERGENT AND BLEACH COMPARTMENTS, SHALL BE LOCATED WITHIN THE REACH RANGES SHOWN IN DETAIL A1/A5RC

EXCEPTION: THE HEIGHT OF THE OBSTRUCTION AT OBSTRUCTED HIGH SIDE REACH IS PERMITTED TO BE 36" MAXIMUM ABOVE THE FLOOR

B1 LAUNDRY EQUIPMENT
SCALE: 1/2" = 1'-0"



DOOR CLEARANCES IN ACCORDANCE WITH 2017 ANSI A117.1, SECTION 404

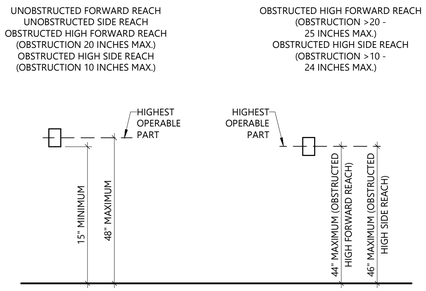
TYPE A UNITS: THE PRIMARY ENTRANCE DOOR TO THE UNIT, AND ALL OTHER DOORWAYS INTENDED FOR USER PASSAGE, SHALL COMPLY WITH 2017 ANSI A117.1 SECTION 404

TYPE B UNITS: THE PRIMARY ENTRANCE DOOR TO THE UNIT SHALL COMPLY WITH 2017 ANSI A117.1 SECTION 404
DOORS INTENDED FOR USER PASSAGE SHALL HAVE A CLEAR OPENING WIDTH OF 31-3/4" MINIMUM

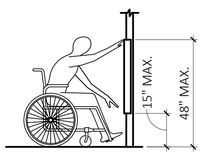
D2 TYPE A AND TYPE B UNIT DOOR CLEARANCES
SCALE: 3/8" = 1'-0"

TYPE A UNITS OPERABLE PARTS:
LIGHTING CONTROLS, ELECTRICAL PANELBOARDS, ELECTRICAL SWITCHES AND RECEPTACLE OUTLETS, ENVIRONMENTAL CONTROLS, APPLICANCE CONTROLS, PLUMBING FIXTURE CONTROLS, AND USER CONTROLS FOR SECURITY OR INTERCOM SYSTEMS

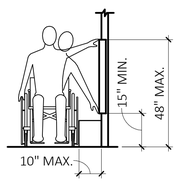
TYPE B UNITS OPERABLE PARTS:
LIGHTING CONTROLS, ELECTRICAL SWITCHES AND RECEPTACLE OUTLETS, ENVIRONMENTAL CONTROLS, APPLICANCE CONTROLS, ELECTRICAL PANELBOARDS, AND USER CONTROLS FOR SECURITY OR INTERCOM SYSTEMS



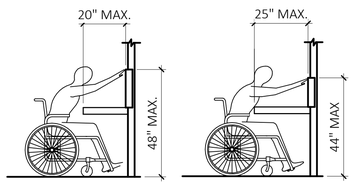
B2 OPERABLE PARTS MOUNTING HEIGHTS
SCALE: 1/2" = 1'-0"



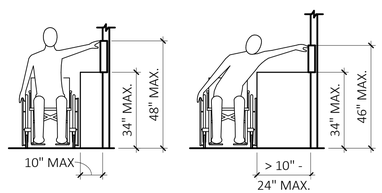
UNOBSTRUCTED FORWARD REACH



UNOBSTRUCTED SIDE REACH

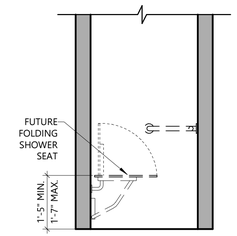


OBSTRUCTED HIGH FORWARD REACH

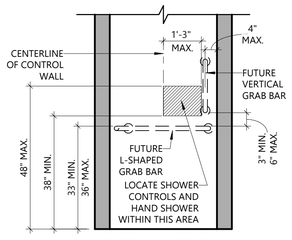


OBSTRUCTED HIGH SIDE REACH

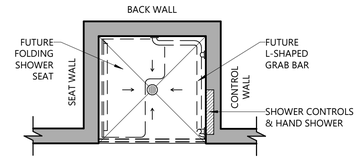
A1 REACH RANGES
SCALE: 3/8" = 1'-0"



BACK WALL ELEVATION



CONTROL WALL ELEVATION

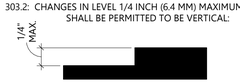


PLAN

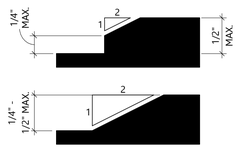
C3 GRAB BAR REINFORCEMENT AT TRANSFER TYPE SHOWERS
SCALE: 1/2" = 1'-0"

ANSI A117.1-2017, SECTION 303 CHANGES IN LEVEL

303.2: CHANGES IN LEVEL 1/4 INCH (6.4 MM) MAXIMUM IN HEIGHT SHALL BE PERMITTED TO BE VERTICAL:

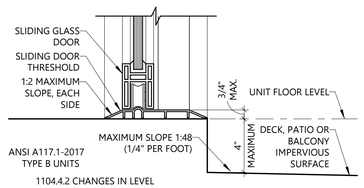


CHANGES IN LEVEL GREATER THAN 1/4 INCH (6.4 MM) IN HEIGHT AND NOT MORE THAN 1/2 INCH (13 MM) MAXIMUM IN HEIGHT SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2:



A3 FLOOR SURFACE CHANGES IN LEVEL
SCALE: 12" = 1'-0"

TYPE B UNITS

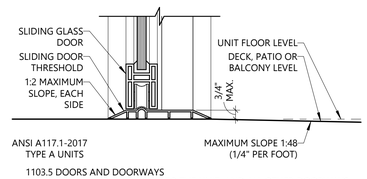


1104.4.2 CHANGES IN LEVEL
CHANGES IN LEVEL SHALL COMPLY WITH SECTION 303.
EXCEPTION: WHERE EXTERIOR DECK, PATIO OR BALCONY SURFACE MATERIALS ARE IMPERVIOUS, THE FINISHED EXTERIOR IMPERVIOUS SURFACE SHALL BE 4 INCHES (100 MM) MAXIMUM BELOW THE FLOOR LEVEL OF THE ADJACENT INTERIOR SPACES OF THE UNIT.

1104.5.2 THRESHOLDS
THRESHOLDS SHALL COMPLY WITH SECTION 303.
EXCEPTION: THRESHOLDS AT EXTERIOR SLIDING DOORS SHALL BE PERMITTED TO BE 3/4 INCH MAXIMUM IN HEIGHT, PROVIDED THEY ARE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2.

A4 SLIDING DOOR THRESHOLD
SCALE: 3" = 1'-0"

TYPE A UNITS



1103.5 DOORS AND DOORWAYS
THE PRIMARY ENTRANCE DOOR TO THE UNIT, AND ALL OTHER DOORWAYS INTENDED FOR USER PASSAGE, SHALL COMPLY WITH SECTION 404.
EXCEPTIONS:
1. THRESHOLDS AT EXTERIOR SLIDING DOORS SHALL BE PERMITTED TO BE 3/4 INCH (19 MM) MAXIMUM IN HEIGHT, PROVIDED THEY ARE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2.
6. AT OTHER THAN PRIMARY ENTRANCE DOOR, WHERE EXTERIOR SPACE DIMENSIONS OF BALCONIES ARE LESS THAN THE REQUIRED MANUEVERING CLEARANCE, DOOR MANEURVERING CLEARANCE IS NOT REQUIRED ON THE EXTERIR SIDE OF THE DOOR.

A5 SLIDING DOOR THRESHOLD
SCALE: 3" = 1'-0"

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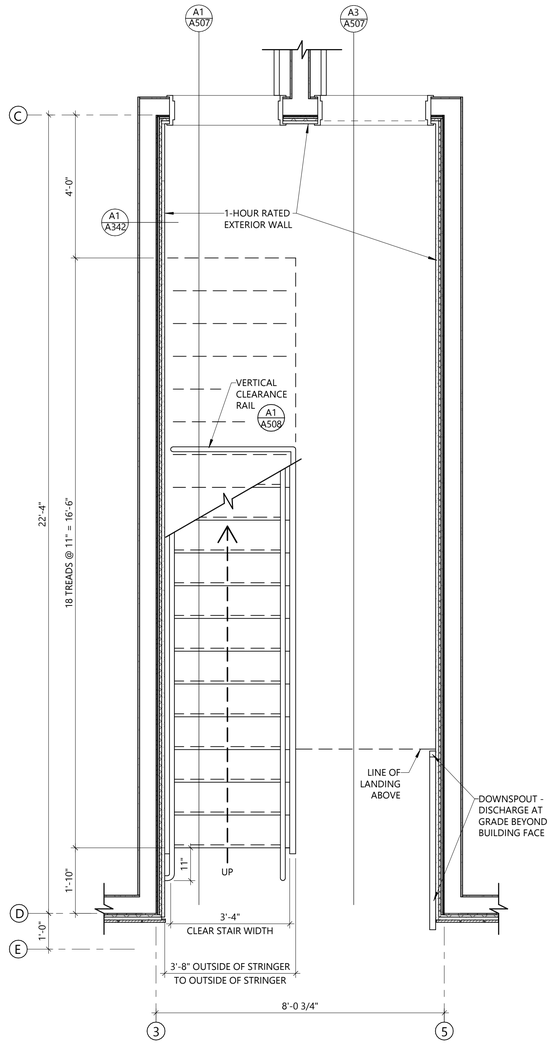
DATE DESCRIPTION

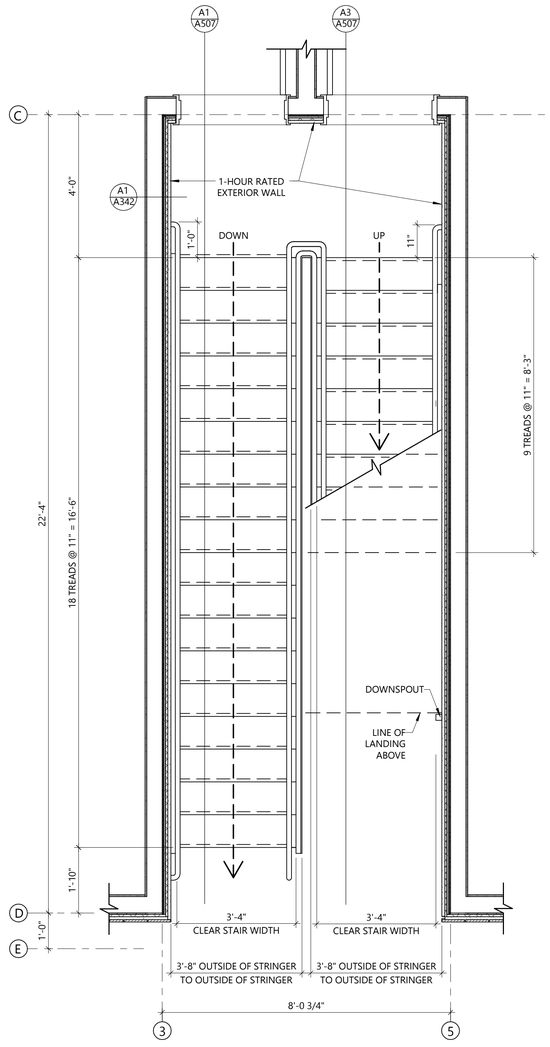
TYPE B UNIT STANDARDS

A505

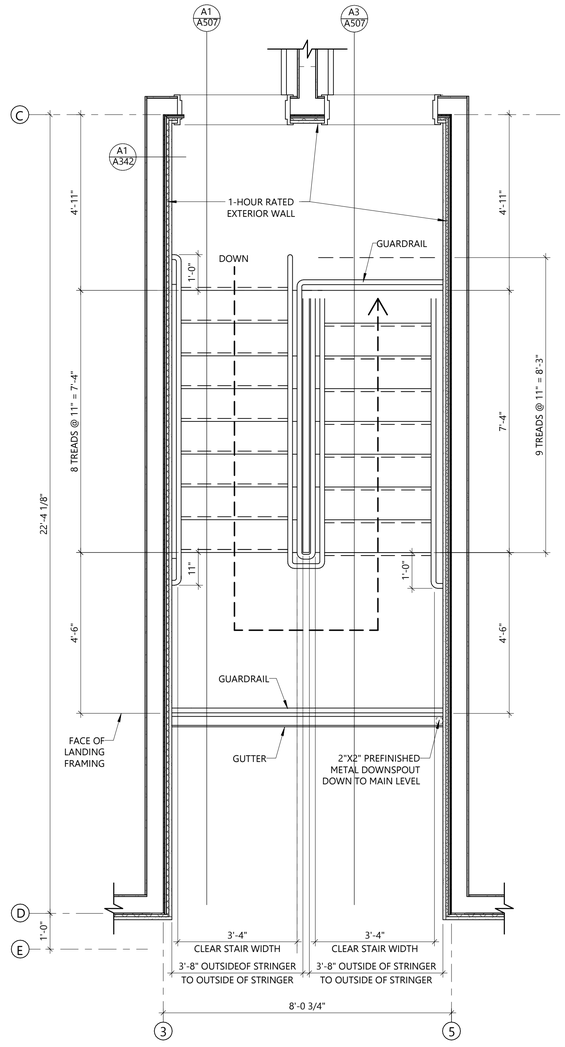
PERMIT DOCUMENTS



MAIN LEVEL



SECOND LEVEL



THIRD LEVEL

A1 STAIR PLANS
SCALE: 1/2" = 1'-0"

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LICENSED ARCHITECT

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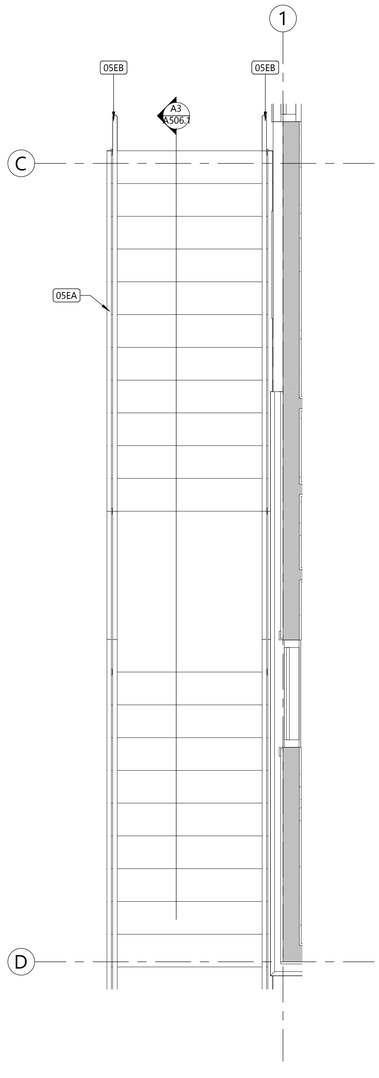
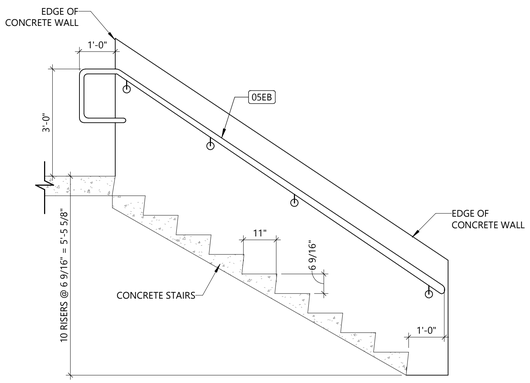
DATE DESCRIPTION

STAIR PLANS
A506

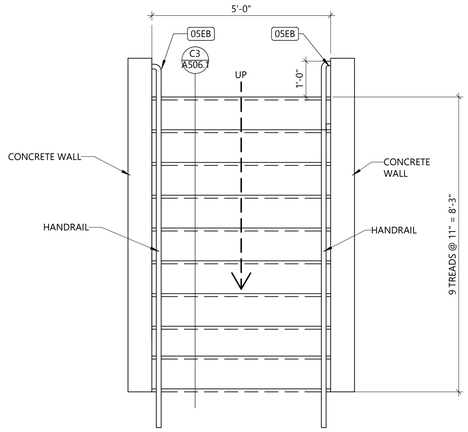
PERMIT DOCUMENTS



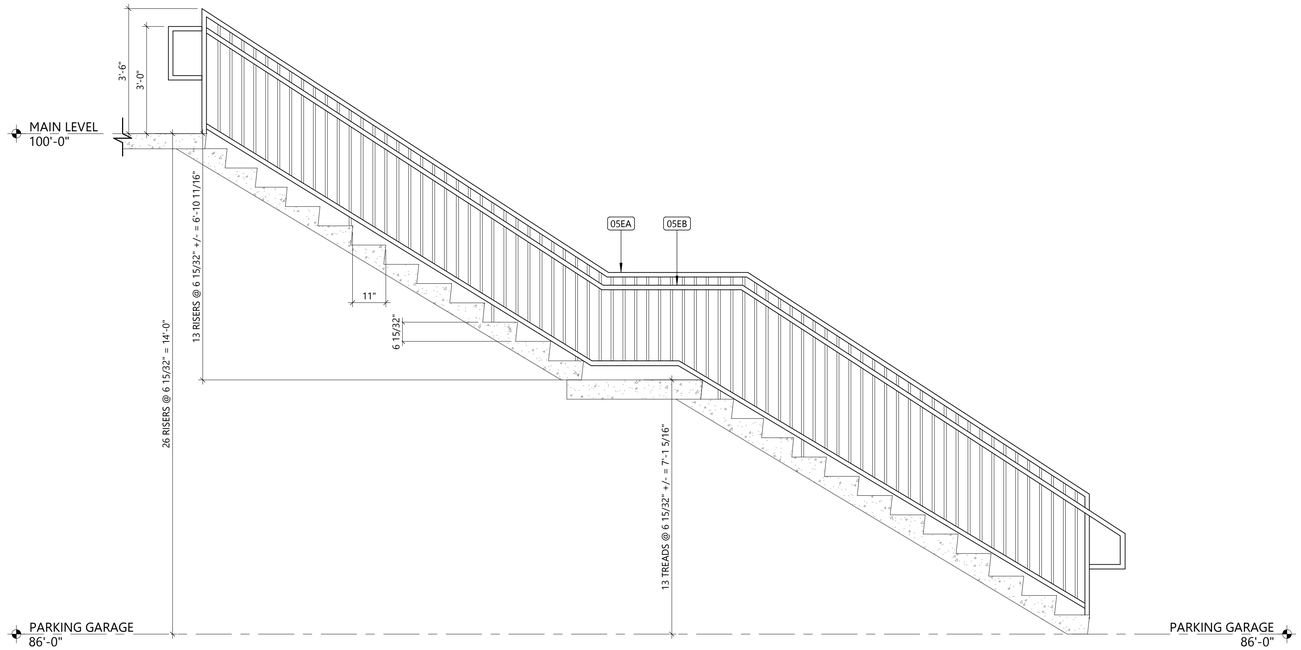
A1 ENLARGED STAIRS
SCALE: 1/2" = 1'-0"



C3 NORTH EXTERIOR STAIRS
SCALE: 1/2" = 1'-0"



C4 NORTH EXTERIOR STAIRS 1
SCALE: 1/2" = 1'-0"



A3 ENLARGED STAIRS
SCALE: 1/2" = 1'-0"

KEYNOTES

MO	DESCRIPTION
05EA	GUARDRAIL - SEE GUARDRAIL DETAILS
05EB	HANDRAIL - SEE HANDRAIL DETAILS

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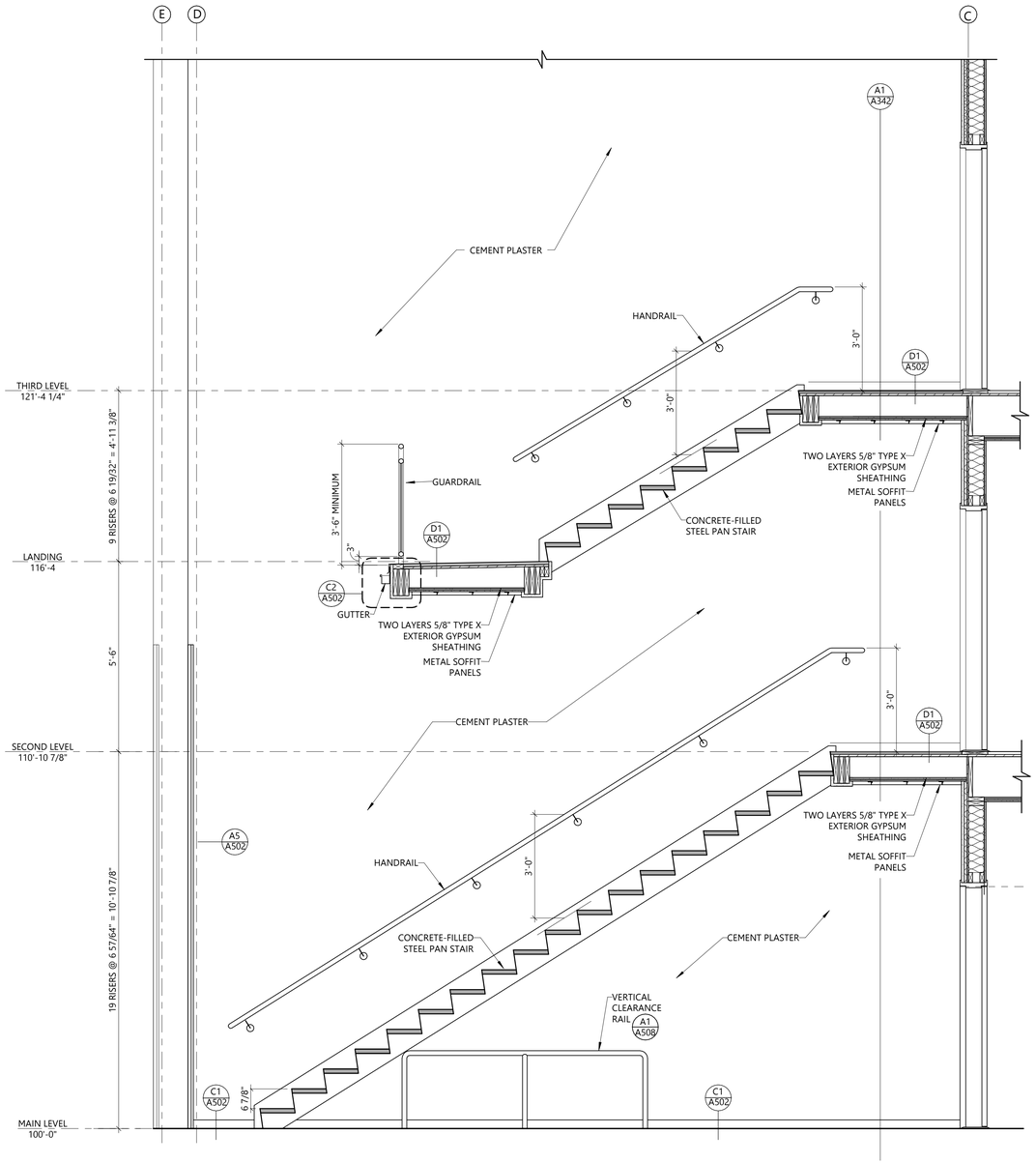
STAIR PLANS

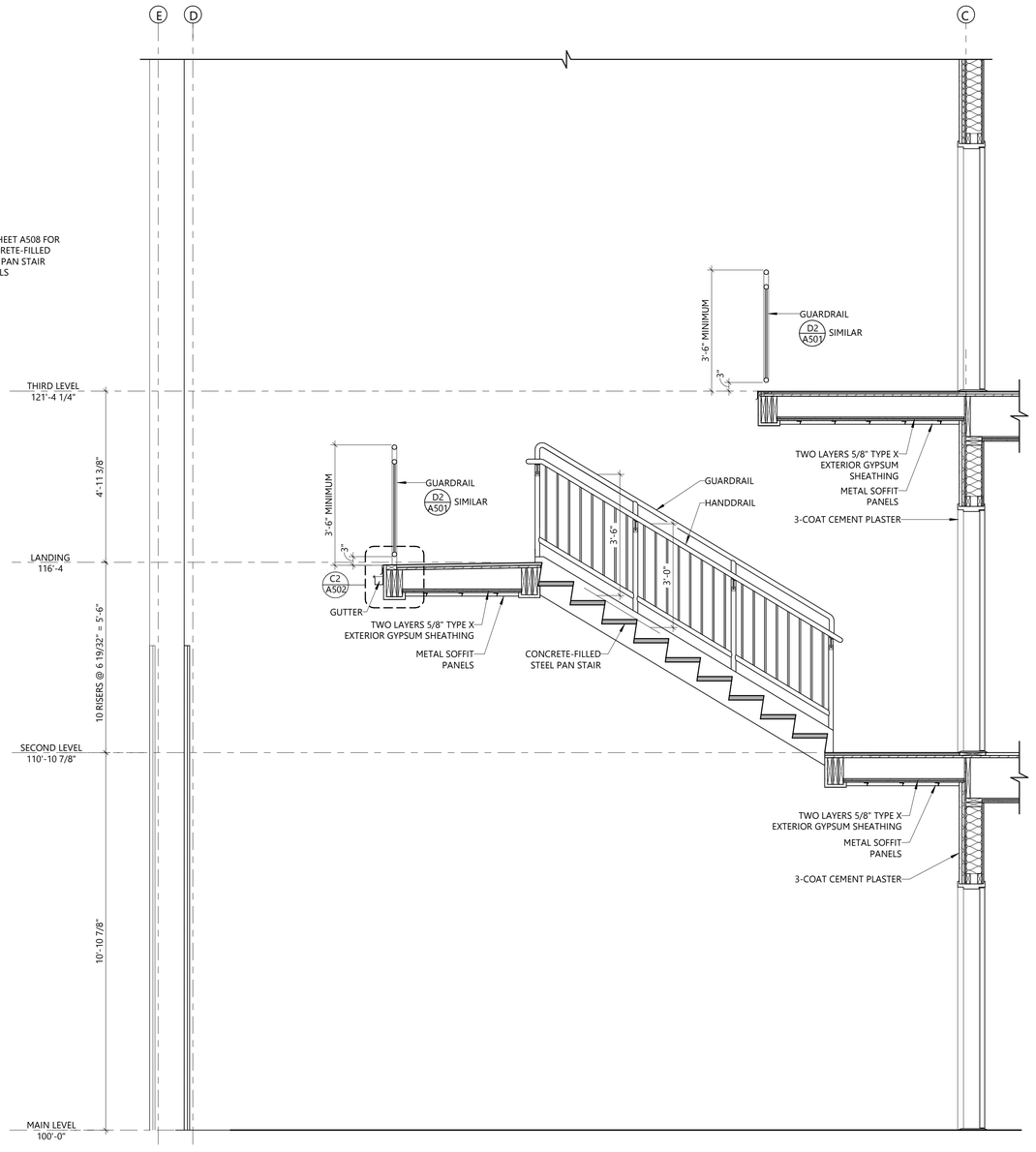
A506.1

PERMIT DOCUMENTS



A1 STAIR SECTION
SCALE: 1/2" = 1'-0"

SEE SHEET A508 FOR CONCRETE-FILLED STEEL PAN STAIR DETAILS



A3 STAIR SECTION
SCALE: 1/2" = 1'-0"

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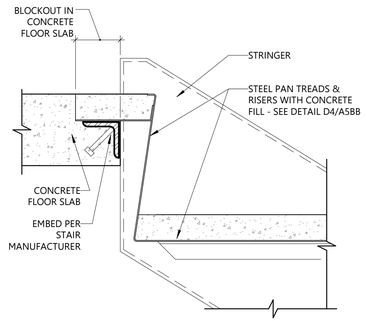
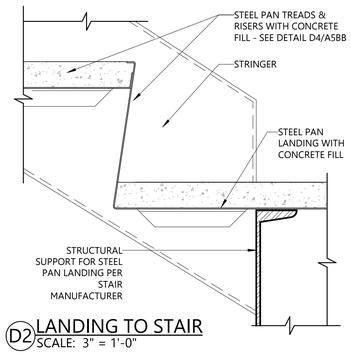
STAIR SECTIONS

A507

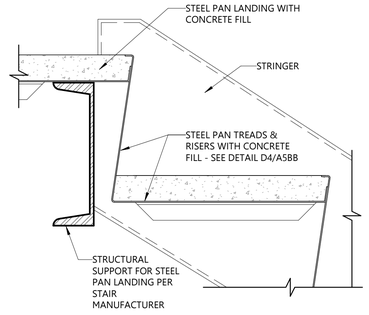
PERMIT DOCUMENTS



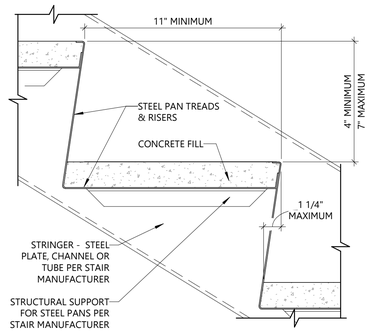
D1 STAIR TO CONCRETE FLOOR SLAB
SCALE: 3" = 1'-0"



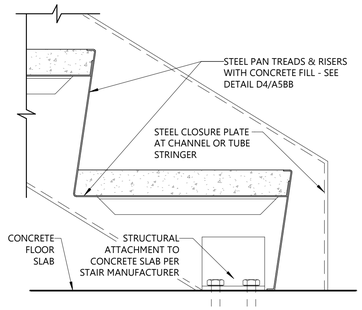
D2 LANDING TO STAIR
SCALE: 3" = 1'-0"



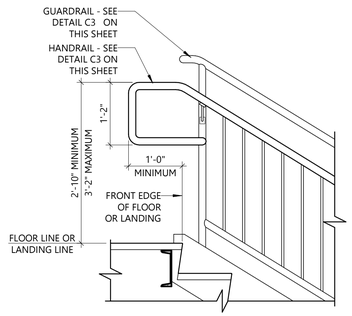
D3 STAIR TO LANDING
SCALE: 3" = 1'-0"



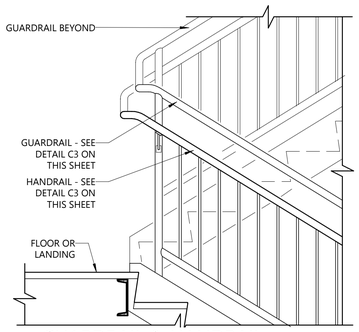
D4 STAIR TREADS AND RISERS
SCALE: 3" = 1'-0"



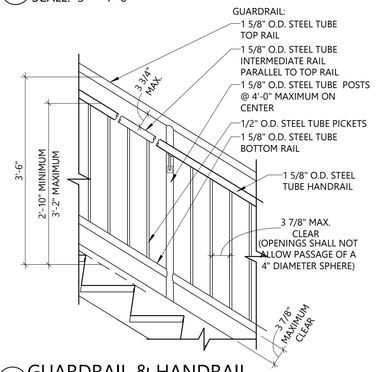
D5 STAIR AT FLOOR SLAB
SCALE: 3" = 1'-0"



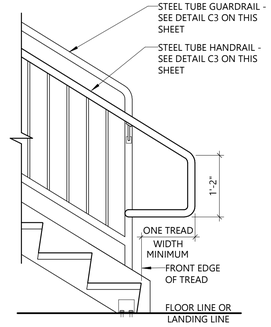
C1 GUARDRAIL & HANDRAIL AT TOP OF STAIR
SCALE: 3/4" = 1'-0"



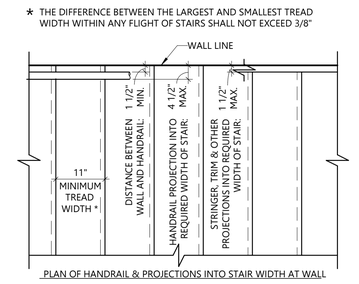
C2 GUARDRAIL & HANDRAIL AT LANDING OR FLOOR
SCALE: 3/4" = 1'-0"



C3 GUARDRAIL & HANDRAIL
SCALE: 3/4" = 1'-0"

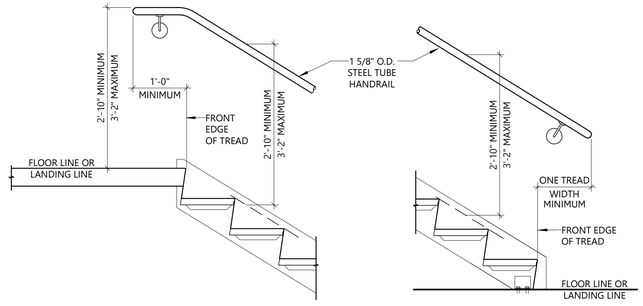


C4 GUARDRAIL & HANDRAIL AT BOTTOM OF STAIR
SCALE: 3/4" = 1'-0"

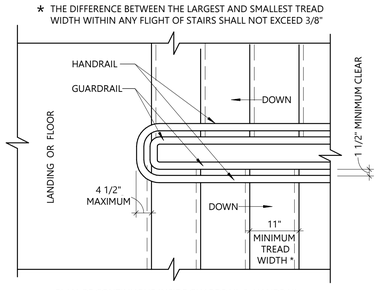


PLAN OF HANDRAIL & PROJECTIONS INTO STAIR WIDTH AT WALL

C5 STAIR DIMENSIONS - WALL
SCALE: 3/4" = 1'-0"



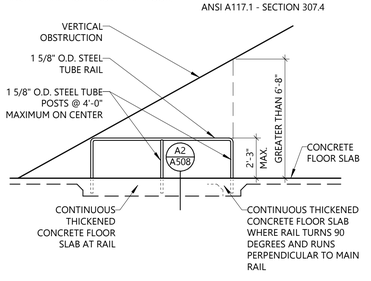
B3 WALL-MOUNTED HANDRAIL
SCALE: 3/4" = 1'-0"



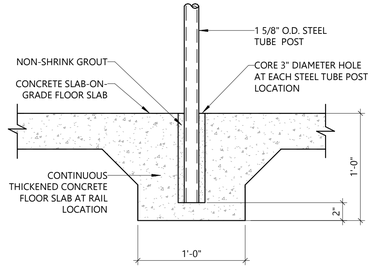
PLAN OF CONTINUOUS INSIDE GUARDRAIL & HANDRAIL AT LANDING OR FLOOR

B5 STAIR DIMENSIONS - FLOOR/LANDING
SCALE: 3/4" = 1'-0"

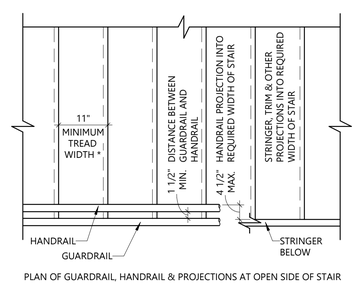
307.4 VERTICAL CLEARANCE SHALL BE 80 INCHES MINIMUM. RAILS OR OTHER BARRIERS SHALL BE PROVIDED WHERE THE VERTICAL CLEARANCE IS LESS THAN 80 INCHES. THE LEADING EDGE OF SUCH RAIL OR BARRIER SHALL BE LOCATED 27 INCHES MAXIMUM ABOVE THE FLOOR.



A1 VERTICAL CLEARANCE RAIL
SCALE: 1/4" = 1'-0"



A2 STEEL TUBE POST DETAIL
SCALE: 1 1/2" = 1'-0"



PLAN OF GUARDRAIL, HANDRAIL & PROJECTIONS AT OPEN SIDE OF STAIR

A5 STAIR DIMENSIONS - OPEN SIDE
SCALE: 3/4" = 1'-0"

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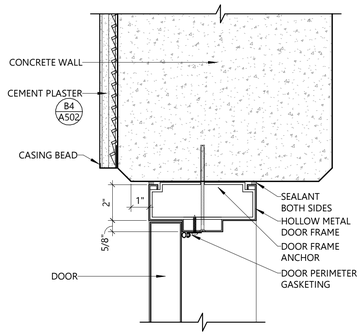
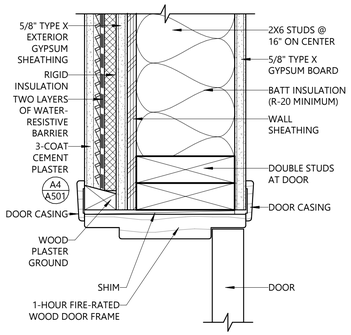
CONCRETE-FILLED STEEL PAN STAIR DETAILS

A508

PERMIT DOCUMENTS

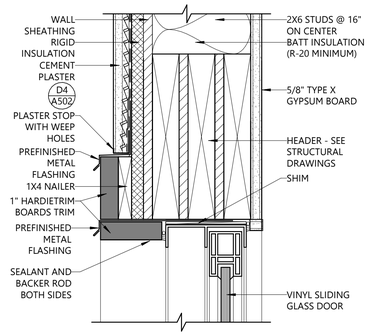


D1 PARKING LEVEL DOOR JAMB
SCALE: 3" = 1'-0"

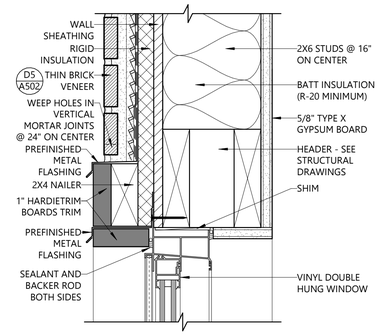


D2 UNIT ENTRANCE DOOR JAMB
SCALE: 3" = 1'-0"

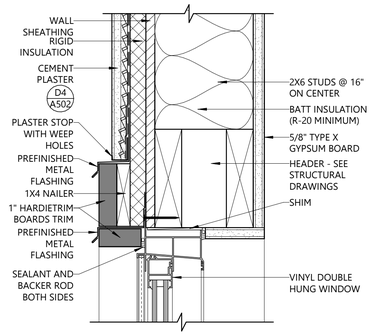
HEAD SIMILAR



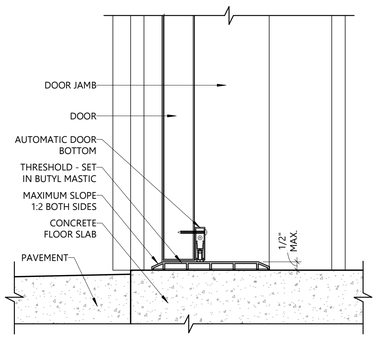
D3 SLIDING DOOR HEAD
SCALE: 3" = 1'-0"



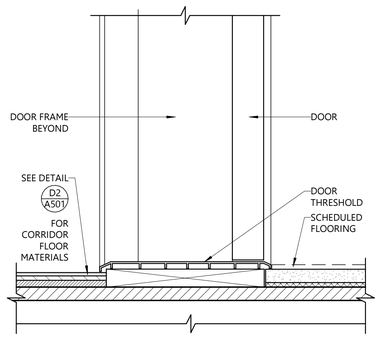
D4 WINDOW HEAD AT BRICK VENEER
SCALE: 3" = 1'-0"



D5 WINDOW HEAD AT PLASTER
SCALE: 3" = 1'-0"

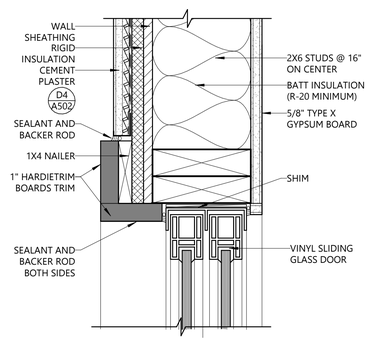


C1 PARKING LEVEL DOOR SILL
SCALE: 3" = 1'-0"

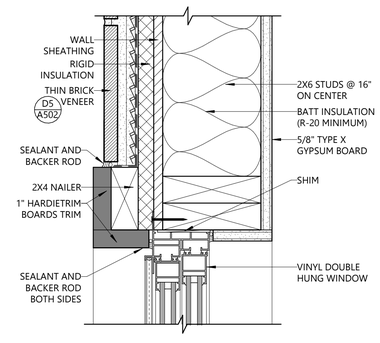


C2 UNIT ENTRANCE DOOR SILL
SCALE: 3" = 1'-0"

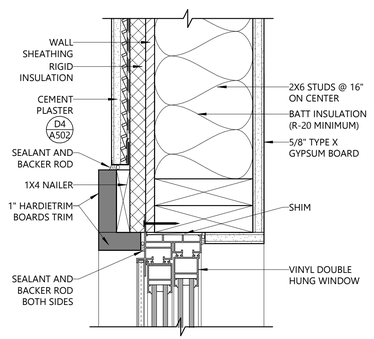
LEVELS 2 & 3



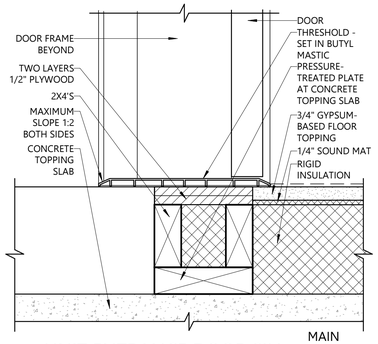
C3 SLIDING DOOR JAMB
SCALE: 3" = 1'-0"



C4 WINDOW JAMB AT BRICK VENEER
SCALE: 3" = 1'-0"

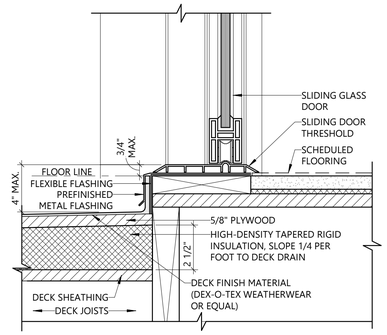


C5 WINDOW JAMB AT PLASTER
SCALE: 3" = 1'-0"



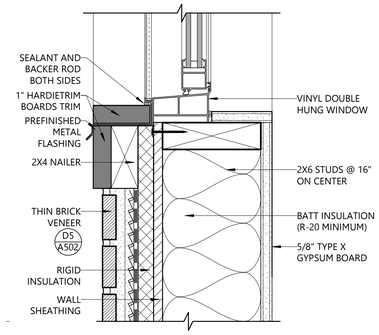
B2 UNIT ENTRANCE DOOR SILL
SCALE: 3" = 1'-0"

MAIN LEVEL

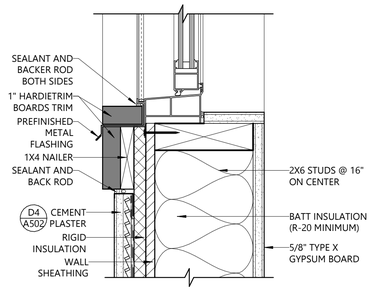


B3 SLIDING DOOR SILL
SCALE: 3" = 1'-0"

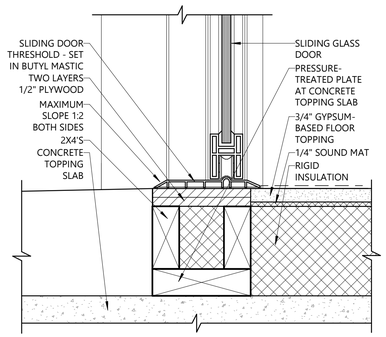
LEVELS 2 & 3



B4 WINDOW SILL AT BRICK VENEER
SCALE: 3" = 1'-0"



B5 WINDOW SILL AT PLASTER
SCALE: 3" = 1'-0"



A3 SLIDING DOOR SILL
SCALE: 3" = 1'-0"

MAIN LEVEL

IECC 2021

PRESCRIPTIVE ENERGY COMPLIANCE

BUILDING TYPE: COMMERCIAL - CLIMATE ZONE 5B

BUILDING ENVELOPE	REQUIRED	PROVIDE
ROOFS		
ATTIC	R-49 MINIMUM	R-49 MINIMUM
WALLS ABOVE GRADE		
WOOD FRAMED	R-20 + R3.8 CI MINIMUM	R-20 + R3.8 CI MINIMUM
WALLS BELOW GRADE		
BELOW-GRADE WALL	R-7.5 CI MINIMUM	R-7.5 CI MINIMUM
SLAB ON GRADE FLOORS		
UNHEATED SLABS	R-20 CI MINIMUM FOR 24" BELOW SLAB	R-20 CI MINIMUM FOR 24" BELOW SLAB
OPAQUE DOORS		
NON SWINGING	U-0.31 MAXIMUM	U-0.31 MAXIMUM
SWINGING DOOR	U-0.37 MAXIMUM	U-0.37 MAXIMUM

BUILDING ENVELOPE VERTICAL FENESTRATION (COMPLETE ASSEMBLY, INCLUDING FRAME AND GLAZING)		
FIXED FENESTRATION	U-0.36 MAXIMUM	U-0.36 MAXIMUM
OPERABLE FENESTRATION	U-0.45 MAXIMUM	U-0.45 MAXIMUM

SOLAR HEAT GAIN COEFFICIENT				
ORIENTATION	SEW	N	SEW	N
PF < 0.2	0.38 MAX	0.38 MAX	0.38 MAX	0.38 MAX

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ARCHITECTS & ENGINEERS
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PROFESSIONAL STAMP

JUSTIN MICHAEL CAMPBELL
6/23/25
No.8539712-0301
LICENSED ARCHITECT
STATE OF UTAH

AGENCY APPROVAL

K&B APARTMENTS
LOGAN, UT

CARTWRIGHT PROJECT # 123021
DATE: 06/23/2025

REVISIONS
DATE DESCRIPTION

DOOR AND WINDOW DETAILS

A509

PERMIT DOCUMENTS

DOOR SCHEDULE

DOOR								FRAME					
MARK	WIDTH	HEIGHT	THICKNESS	TYPE	MATERIAL	FINISH	GLAZING	TYPE	MATERIAL	FINISH	FIRE RATING	HARDWARE GROUP	NOTES
101A	3'-0"	7'-0"	1 3/4"	F	INSULATED HOLLOW METAL DOOR	PAINTED	N/A	HM	HOLLOW METAL	PAINTED	60 MIN	HW-01	
101B	6'-0"	7'-0"	1 3/4"	SG	SLIDING GLASS DOOR	VINYL	TEMPERED	N/A	N/A	N/A	N/A	HW-06	
102	2'-0"	6'-8"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-08	
103A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
103B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
104A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
104B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
105A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
105B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
106A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-05	
106B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-05	
107	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
108A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
108B	5'-8"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-04	
109A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
109B	5'-8"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-04	
110A	3'-0"	7'-0"	1 3/4"	F	INSULATED HOLLOW METAL DOOR	PAINTED	N/A	HM	HOLLOW METAL	PAINTED	60 MIN	HW-01	
110B	6'-0"	7'-0"	1 3/4"	SG	SLIDING GLASS DOOR	VINYL	TEMPERED	N/A	N/A	N/A	N/A	HW-06	
111	2'-0"	6'-8"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-08	
112A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
112B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
113A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
113B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
114A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
114B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
115A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-05	
115B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-05	
116	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
117A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
117B	2'-6"	6'-8"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
117C	2'-6"	6'-8"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
201A	3'-0"	7'-0"	1 3/4"	F	INSULATED HOLLOW METAL DOOR	PAINTED	N/A	HM	HOLLOW METAL	PAINTED	60 MIN	HW-01	
201B	6'-0"	7'-0"	1 3/4"	SG	SLIDING GLASS DOOR	VINYL	TEMPERED	N/A	N/A	N/A	N/A	HW-06	
202	2'-0"	6'-8"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-08	
203A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
203B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
204A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
204B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
205A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
205B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
206A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-05	
206B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-05	
207	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
208A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
208B	6'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-04	
209A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
209B	6'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-04	
210A	3'-0"	7'-0"	1 3/4"	F	INSULATED HOLLOW METAL DOOR	PAINTED	N/A	HM	HOLLOW METAL	PAINTED	60 MIN	HW-01	
210B	6'-0"	7'-0"	1 3/4"	SG	SLIDING GLASS DOOR	VINYL	TEMPERED	N/A	N/A	N/A	N/A	HW-06	
211	2'-0"	6'-8"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-08	
212A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
212B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
213A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
213B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
214A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
214B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
215A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-05	
215B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-05	
216	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
217A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
217B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
217C	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
301A	3'-0"	7'-0"	1 3/4"	F	INSULATED HOLLOW METAL DOOR	PAINTED	N/A	HM	HOLLOW METAL	PAINTED	60 MIN	HW-01	
301B	6'-0"	7'-0"	1 3/4"	SG	SLIDING GLASS DOOR	VINYL	TEMPERED	N/A	N/A	N/A	N/A	HW-06	
302	2'-0"	6'-8"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-08	
303A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
303B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
304A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
304B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
305A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
305B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
306B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-05	
306C	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-05	
307	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
308A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
308B	6'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-04	
309A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
309B	6'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-04	
310A	3'-0"	7'-0"	1 3/4"	F	INSULATED HOLLOW METAL DOOR	PAINTED	N/A	HM	HOLLOW METAL	PAINTED	60 MIN	HW-01	
310B	6'-0"	7'-0"	1 3/4"	SG	SLIDING GLASS DOOR	VINYL	TEMPERED	N/A	N/A	N/A	N/A	HW-06	
311	2'-0"	6'-8"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-08	
312A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
312B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
313A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
313B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
314A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
314B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
315A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-05	
315B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-05	
316	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
317A	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-02	
317B	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
317C	3'-0"	7'-0"	1 3/4"	F	PREHUNG HOLLOW CORE WOOD DOOR W/ CASING	PAINTED	N/A	WC	WOOD	PAINTED	N/A	HW-03	
FR100	3'-0"	7'-0"	1 3/4"	F	INSULATED HOLLOW METAL DOOR	PAINTED	N/A	HM	HOLLOW METAL	PAINTED	N/A	HW-07	FIRE RISER LABEL ON DOOR PER FIRE CODE LETTERING

K&B APARTMENTS
HARDWARE SCHEDULE

HW-01 3'-0" X 7'-0"; UNIT ENTRANCE DOOR; INSULATED HOLLOW METAL DOOR; WOOD DOOR FRAME; 60-MINUTE RATED; EACH DOOR SHALL HAVE:

QUANTITY	ITEM	DESCRIPTION	FINISH
3	FULL MORTISE HINGES	4-1/2" X 4-1/2"	
1	ENTRANCE LOCKSET	SURE-LOC ALDER LEVER AND SURE-LOC GRADE 2 RESIDENTIAL DEADBOLT	
1 SET	PERITMETER GASKET	WEATHER SEAL	
1	AUTOMATIC DOOR BOTTOM	WEATHER SEAL	
1	FLOOR STOP		

HW-02 3'-0" X 7'-0"; BEDROOM DOOR; HOLLOW CORE WOOD DOOR; WOOD DOOR FRAME; EACH DOOR SHALL HAVE:

QUANTITY	ITEM	DESCRIPTION	FINISH
3	FULL MORTISE HINGES	4-1/2" X 4-1/2"	
1	ENTRANCE LOCKSET		
1	FLOOR STOP		

HW-03 3'-0" X 7'-0"; BEDROOM CLOSET DOOR; LAUNDRY ROOM DOOR; HOLLOW CORE WOOD DOOR; WOOD DOOR FRAME; EACH DOOR SHALL HAVE:

QUANTITY	ITEM	DESCRIPTION	FINISH
3	FULL MORTISE HINGES	4-1/2" X 4-1/2"	
1	PASSAGE LATCHSET		
1	FLOOR STOP		

HW-04 5'-8" X 7'-0"; BEDROOM CLOSET PAIR OF DOORS; HOLLOW CORE WOOD DOORS; WOOD DOOR FRAME; EACH DOOR SHALL HAVE:

QUANTITY	ITEM	DESCRIPTION	FINISH
6	FULL MORTISE HINGES	4-1/2" X 4-1/2"	
2	PULL HANDLE		
2	ROLLER CATCH	AT TOPS OF DOORS	
2	FLOOR STOP		

HW-05 3'-0" X 7'-0"; BATHROOM DOOR; HOLLOW CORE WOOD DOOR; WOOD DOOR FRAME; EACH DOOR SHALL HAVE:

QUANTITY	ITEM	DESCRIPTION	FINISH
3	FULL MORTISE HINGES	4-1/2" X 4-1/2"	
1	PRIVACY LOCKSET	ANSI FUNCTION F76	
1	FLOOR STOP		

HW-06 6'-0" X 7'-0"; SLIDING BALCONY DOOR; EACH DOOR SHALL HAVE: VINYL AND GLASS DOOR; VINYL FRAME; EACH DOOR SHALL HAVE:
DOOR, FRAME AND HARDWARE BY SLIDING DOOR MANUFACTURER, WITH:

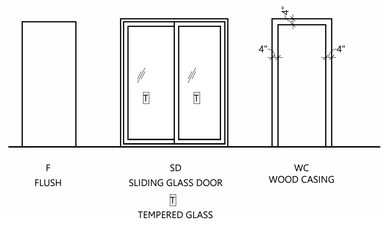
QUANTITY	ITEM	DESCRIPTION	FINISH
1	LOCK CYLINDER	KEYED SAME AS UNIT ENTRANCE LOCK	

HW-07 3'-0" X 7'-0"; PARKING GARAGE FIRE RISER ROOM DOOR; HOLLOW METAL DOOR; HOLLOW METAL DOOR FRAME EACH DOOR SHALL HAVE:

QUANTITY	ITEM	DESCRIPTION	FINISH
3	FULL MORTISE HINGES	4-1/2" X 4-1/2"	
1	STOREROOM LOCKSET	ANSI FUNCTION F86	
1 SET	PERITMETER GASKET	WEATHER SEAL	
1	AUTOMATIC DOOR BOTTOM	WEATHER SEAL	
1	THRESHOLD		
1	FLOOR STOP		
1	KNOX BOX		

HW-08 2'-8" X 7'-0"; PANTRY DOOR; HOLLOW CORE WOOD DOOR; WOOD DOOR FRAME; EACH DOOR SHALL HAVE:

QUANTITY	ITEM	DESCRIPTION	FINISH
3	FULL MORTISE HINGES	4-1/2" X 4-1/2"	
1	PASSAGE LATCHSET		
1	FLOOR STOP		



DOOR AND FRAME TYPES

IECC 2021

PRESCRIPTIVE ENERGY COMPLIANCE

BUILDING TYPE: COMMERCIAL - CLIMATE ZONE 5B

BUILDING ENVELOPE

	REQUIRED	PROVIDE
ROOFS		
ATTIC	R-49 MINIMUM	R-49 MINIMUM
WALLS ABOVE GRADE		
WOOD FRAMED	R-20 + R3.8 CI MINIMUM	R-20 + R3.8 CI MINIMUM
WALLS BELOW GRADE		
BELOW-GRADE WALL	R-7.5 CI MINIMUM	R-7.5 CI MINIMUM
SLAB ON GRADE FLOORS		
UNHEATED SLABS	R-20 CI MINIMUM FOR 24" BELOW SLAB	R-20 CI MINIMUM FOR 24" BELOW SLAB
OPAQUE DOORS		
NON SWINGING	U-0.31 MAXIMUM	U-0.31 MAXIMUM
SWINGING DOOR	U-0.37 MAXIMUM	U-0.37 MAXIMUM

BUILDING ENVELOPE VERTICAL FENESTRATION (COMPLETE ASSEMBLY, INCLUDING FRAME AND GLAZING)

FIXED FENESTRATION	U-0.36 MAXIMUM	U-0.36 MAXIMUM
OPERABLE FENESTRATION	U-0.45 MAXIMUM	U-0.45 MAXIMUM

SOLAR HEAT GAIN COEFFICIENT

ORIENTATION	SEW	N	SEW	N
PF < 0.2	0.38 MAX	0.38 MAX	0.38 MAX	0.38 MAX

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PROFESSIONAL STAMP

AGENCY APPROVAL

K&B APARTMENTS

LOGAN, UT

CARTWRIGHT PROJECT # 123021
DATE: 06/23/2025

REVISIONS
DATE DESCRIPTION

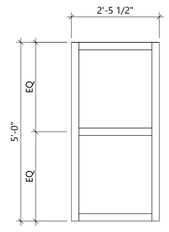
ARCHITECTURAL SCHEDULES

A601

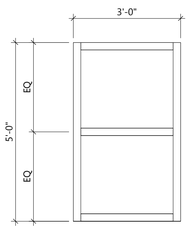
PERMIT DOCUMENTS

FINISH SCHEDULE

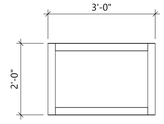
NUMBER	ROOM NAME	FLOOR FINISH	WALL FINISH	BASE	CEILING TYPE	Notes
101	APT 101	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
103	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
104	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
105	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
106	BATHROOM	TILE	PAINTED GYPSUM BOARD/TILE IN SHOWER	4" WOOD BASE	SEE CEILING PLAN	
107	LAUNDRY	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
108	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
109	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
110	APT 102	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
112	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
113	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
114	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
115	BATHROOM	TILE	PAINTED GYPSUM BOARD/TILE IN SHOWER	4" WOOD BASE	SEE CEILING PLAN	
116	LAUNDRY	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
117	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
201	APT 201	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
203	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
204	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
205	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
206	BATHROOM	TILE	PAINTED GYPSUM BOARD/TILE IN SHOWER	4" WOOD BASE	SEE CEILING PLAN	
207	LAUNDRY	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
208	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
209	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
210	APT 202	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
212	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
213	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
214	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
215	BATHROM	TILE	PAINTED GYPSUM BOARD/TILE IN SHOWER	4" WOOD BASE	SEE CEILING PLAN	
216	LAUNDRY	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
217	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
301	APT 301	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
303	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
304	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
305	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
306	BATHROOM	TILE	PAINTED GYPSUM BOARD/TILE IN SHOWER	4" WOOD BASE	SEE CEILING PLAN	
307	LAUNDRY	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
308	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
309	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
310	APT 302	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
312	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
313	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
314	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
315	BATHROOM	TILE	PAINTED GYPSUM BOARD/TILE IN SHOWER	4" WOOD BASE	SEE CEILING PLAN	
317	BEDROOM	LVP	PAINTED GYPSUM BOARD	4" WOOD BASE	SEE CEILING PLAN	
FR100	FIRE RISER ROOM					



WINDOW A



WINDOW B



WINDOW C

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PROFESSIONAL STAMP

STATE OF UTAH
JUSTIN MICHAEL CAMPBELL
6/23/25
No.8539712-0301
LICENSED ARCHITECT

AGENCY APPROVAL

K&B APARTMENTS

LOGAN, UT

CARTWRIGHT PROJECT # 123021
DATE: 06/23/2025

REVISIONS
DATE DESCRIPTION

ARCHITECTURAL SCHEDULES

A602

PERMIT DOCUMENTS

DESIGN CRITERIA

GOVERNING CODE: 2021 INTERNATIONAL BUILDING CODE

DEAD LOADS
- ROOF – 18 PSF
- FLOOR - 35 PSF

LIVE LOADS
- ROOF – 20 PSF
- GROUND SNOW LOAD - 46 PSF
- ADJUSTMENT FACTORS - CE=Ct=CS=IS=1.0
- FLAT ROOF SNOW LOAD - 32 PSF
- FLOOR - 40 PSF

WIND DESIGN DATA
- DESIGN WIND SPEED, V (3-SEC. GUST) – 103 MPH
- RISK CATEGORY - II
- EXPOSURE – C
- INTERNAL PRESSURE COEFFICIENT – 0.18 (+/-)
- COMPONENTS AND CLADDING –SEE ASCE 7-16

EARTHQUAKE DESIGN DATA
- RISK CATEGORY - II
- IMPORTANCE FACTOR, IE – 1.0
- SHORT PERIOD SPECTRAL ACCELERATION, SS – 1.045 g
- 1 SEC. PERIOD SPECTRAL ACCELERATION, S1 – 0.349 g
- SITE CLASS – E
- SHORT PERIOD DESIGN SPECTRAL ACCELERATION, SDS – 0.836 g
- 1 SEC. PERIOD DESIGN SPECTRAL ACCELERATION, SD1 – 0.606 g
- SEISMIC DESIGN CATEGORY - D
- BASIC SEISMIC FORCE–RESISTING SYSTEM – WOOD SHEAR WALLS
- SEISMIC RESPONSE COEFFICIENT, CS – 0.129
- RESPONSE MODIFICATION COEFFICIENT, R – 6.5
- BASIC SEISMIC FORCE-RESISTING SYSTEM - SPECIAL REINFORCED CONCRETE SHEAR WALLS
- SEISMIC RESPONSE COEFFICIENT, CS - 0.167
- RESPONSE MODIFICATION COEFFICIENT, R - 5.0
- ANALYSIS PROCEDURE – EQUIVALENT LATERAL FORCE

GEOTECHNICAL INFORMATION

GEOTECHNICAL INVESTIGATION REPORT:
- CMT TECHNICAL SERVICES
- PROJECT NO.: 21794
- DATE: 05/05/2024
- ALLOWABLE BEARING PRESSURE - MINIMUM ALLOWABLE RAMMED AGGREGATE PIERS BEARING PRESSURE: 4,000 PSI
- FROST DEPTH - 30 IN.

ABBREVIATIONS

@	AT	IN.	INCH
A.B.	ANCHOR BOLT		
ABC	AGGREGATE BASE COURSE	JT.	JOINT
ABV.	ABOVE		
ALT.	ALTERNATE	K/KIP	1,000 POUNDS
APPROX.	APPROXIMATE	KLF	KIPS PER LINEAL FOOT
ARCH.	ARCHITECT	L	ANGLE
		LBS	POUNDS
BLDG.	BUILDING	L.F.	LINEAL FOOT
B.N.	BOUNDARY NAILING	LLV	LONG LEG VERTICAL
BTM.	BOTTOM	LVL	LAMINATED VENEER LUMBER
BRG.	BEARING		
BTWN.	BETWEEN	MAX.	MAXIMUM
		MECH.	MECHANICAL
C.J.	CONTROL/CONSTRUCTION JOINT	MIN.	MINIMUN
		MISC.	MISCELLANEOUS
C.L.	CENTER LINE	MTL.	METAL
CLR.	CLEAR		
CMU	CONCRETE MASONRY UNIT	N.I.C.	NOT IN CONTRACT
COL.	COLUMN	N.S.	NEAR SIDE
CONC.	CONCRETE	N.T.S.	NOT TO SCALE
CONST.	CONSTRUCTION		
CONT.	CONTINUOUS	O.A.E.	OR APPROVED EQUAL
		o.c.	ON CENTER
DBA	DEFORMED BAR ANCHOR	O.F.	OUTSIDE FACE
DBL.	DOUBLE	OPP.	OPPOSITE HAND
DTL	DETAIL		
DIA.	DIAMETER	PCC	PRECAST CONCRETE
DIM.	DIMENSION	PL.	PLATE
DWGS.	DRAWINGS	PSF	POUNDS PER SQUARE FOOT
		PSI	POUNDS PER SQUARE INCH
EA.	EACH		
E.F.	EACH FACE		
E.J.	EXPANSION JOINT	R.D.	ROOF DRAIN
ELEV.	ELEVATION	REINF.	REINFORCING
E.N.	EDGE NAILING	REQ'D	REQUIRED
EOR	ENGINEER OF RECORD		
EQ.	EQUAL	S.A.D.	SEE ARCHITECTURAL DRAWINGS
EXIST.	EXISTING	SDS	SELF DRILLING SCREWS
		SIM.	SIMILAR
F.D.	FLOOR DRAIN	SLV	SHORT LEG VERTICAL
F.F.E.	FINISHED FLOOR ELEVATION	SQ.	SQUARE
		STD.	STANDARD
F.G.	FINISHED GRADE	STL.	STEEL
FND.	FOUNDATION	STRUCT.	STRUCTURAL
F.N.	FIELD NAILING		
F.P.	FULL PENETRATION	T&B	TOP AND BOTTOM
FRP	FIBER REINFORCED POLYMER	T.O.	TOP OF (ELEVATION)
		T.o.c.	TOP OF CONCRETE
F.S.	FAR SIDE	T.O.D.	TOP OF DECK
FTG.	FOOTING	T.O.F.	TOP OF FOOTING
		T.O.S.	TOP OF STEEL
GA.	GAUGE	T.O.P.	TOP OF PARAPET
GALV.	GALVANIZED	T.O.W.	TOP OF WALL
GSN	GENERAL STRUCTURAL NOTES	TYP.	TYPICAL
		U.N.O.	UNLESS NOTED OTHERWISE
H.B.	HORIZONTAL BRIDGING		
HORIZ.	HORIZONTAL	VERT.	VERTICAL
HAS	HEADED STUD ANCHOR		
HT.	HEIGHT	W/	WITH
		W.W.F.	WELDED WIRE FABRIC
I.F.	INSIDE FACE		
		X.B.	CROSS BRACING

L — LATERAL ELEMENT SEE SPECIAL INSPECTION

FOUNDATION

1. GEOTECHNICAL INFORMATION: SEE DESIGN CRITERIA NOTES.
2. CLEAR EXCAVATIONS OF DEBRIS AND LOOSE SOILS PRIOR TO PLACING FOOTINGS. ALL FOOTINGS SHALL BEAR ON ENGINEERED COMPACTED FILL AS DIRECTED BY A QUALIFIED GEOTECHNICAL ENGINEER.
3. TOP OF FOOTING ELEVATIONS ARE BASED ON PRELIMINARY GRADING INFORMATION. VERIFY PRIOR TO CONSTRUCTION. FOOTING STEPS SHOWN ON PLAN ARE APPROXIMATE LOCATIONS.
4. UNLESS NOTED OTHERWISE, ALL FOOTINGS ARE CENTERED UNDER WALLS AND COLUMNS.
5. VERTICAL FOUNDATION REINFORCEMENT TO BE CENTERED IN FOUNDATION WALL U.N.O.
6. PLACE ALL FOOTING REINFORCING IN BOTTOM OF FOOTING WITH 3" CLEAR CONCRETE COVER, UNLESS NOTED OTHERWISE.

GENERAL

DRAWINGS:
1. THE STRUCTURAL NOTES AND DRAWINGS ARE INTENDED TO COMPLEMENT THE PROJECT SPECIFICATIONS (IF APPLICABLE) WHICH ARE PART OF THE CONSTRUCTION DOCUMENTS.
2. THE ARCHITECTURAL DOCUMENTS (IF APPLICABLE) ARE THE PRIME CONSTRUCTION DOCUMENTS. THE STRUCTURAL DOCUMENTS ARE SUPPLEMENTARY TO, AND USED IN CONJUNCTION WITH, THE ARCHITECTURAL DOCUMENTS AND OTHER CONSULTANTS DOCUMENTS.
3. THESE CONSTRUCTION DOCUMENTS HAVE BEEN PREPARED UNDER THE SUPERVISION OF A LICENSED ENGINEER TO MEET OR EXCEED INDUSTRY STANDARDS; HOWEVER, THESE CONSTRUCTION DOCUMENTS ARE BASED ON LIMITED INFORMATION, VARIABLE SITE CONDITIONS, ETC. ALL SITUATIONS, ELEMENTS AND CONDITIONS MAY NOT BE EXPLICITLY DEPICTED IN THESE DRAWINGS.
4. GIVEN THE LIMITED INFORMATION PROVIDED, VARIED CIRCUMSTANCES AND SITE CONDITIONS, IT IS NECESSARY THAT THE WORK DEPICTED BE PERFORMED BY A QUALIFIED AND EXPERIENCED CONTRACTOR. INCLUDING CONTRACTOR'S EMPLOYEES OR SUB-CONTRACTORS, WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE BUILDING CODE REQUIREMENTS, INDUSTRY-STANDARD PRACTICES, AND HIGH QUALITY OF WORKMANSHIP.
5. ALL OMISSIONS OR CONFLICTS BETWEEN THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER PRIOR TO PROCEEDING WITH ANY WORK INVOLVED. IN CASE OF CONFLICT, THE MOST STRINGENT REQUIREMENT SHOULD BE FOLLOWED AS SPECIFICALLY DIRECTED BY THE ARCHITECT/ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
6. SPECIFIC NOTES AND DETAILS ON THE CONSTRUCTION DOCUMENTS SHALL GOVERN OVER THE STRUCTURAL NOTES AND TYPICAL DETAILS. TYPICAL DETAILS AND SECTIONS SHALL APPLY WHERE SPECIFIC DETAILS ARE NOT SHOWN. TYPICAL OR SIMILAR DETAILS REFER TO GENERAL CONDITIONS BEING ADDRESSED AND ARE NOT NECESSARILY DETAILS LABELED "TYPICAL" OR "SIMILAR" IN THE PLANS AND DOCUMENTS.
7. DRAWINGS AND DETAILS HAVE BEEN PREPARED WITH THE INTENT TO VISUALLY REPRESENT INFORMATION PROVIDED IN SCALED FORM; HOWEVER CONTRACTOR/SUPPLIERS SHOULD NOT SCALE PLANS OR DETAILS FOR DIMENSIONAL INFORMATION.
8. DETAILS MAY SHOW ONLY ONE VIEW OF AN ELEMENT(S) AND/OR MAY OMIT INFORMATION/ITEMS FOR CLARITY.
9. WHERE REFERENCE IS MADE TO VARIOUS MATERIAL STANDARDS, SUCH STANDARDS SHALL BE THE EDITION REFERENCED IN THE GOVERNING BUILDING CODE.
10. NOTICE OF COPYRIGHT: THESE STRUCTURAL DOCUMENTS, INCLUDING ANY DRAWING OR DETAIL, ARE HEREBY COPYRIGHTED BY CARTWRIGHT ENGINEERS, ALL RIGHTS RESERVED. THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE FOR ONE USE ONLY. REPRODUCTION AND DISTRIBUTION OF THESE DRAWINGS IS ONLY ALLOWED AS REQUIRED FOR REGULATORY AGENCIES AND FOR CONVEYANCE OF INFORMATION TO CONTRACTED PARTIES IN THE CONSTRUCTION OF THIS PROJECT. THESE DOCUMENTS SHALL NOT BE REPRODUCED OR COPIED, IN PART OR WHOLE BY ANY PARTY FOR USE IN PREPARATION OF SHOP DRAWINGS OR OTHER SUBMITTALS.

CONTRACTOR RESPONSIBILITIES:
1. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS AND DIMENSIONS. IF ACTUAL CONDITIONS DIFFER FROM THOSE SHOWN IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER / ARCHITECT PRIOR TO PROCEEDING WITH THE FABRICATION OR CONSTRUCTION OF ANY AFFECTED ELEMENTS.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH ALL TRADES TO ESTABLISH AND VERIFY ANY ITEMS THAT ARE TO BE INTEGRATED INTO THE STRUCTURAL SYSTEM SUCH AS OPENINGS, PENETRATIONS, INSERTS, MECHANICAL AND PLUMBING EQUIPMENT, ETC. SIZES AND LOCATIONS OF MECHANICAL AND OTHER EQUIPMENT OR ANY OF THE ITEMS PREVIOUSLY LISTED, THAT DIFFER FROM THOSE SHOWN ON THE CONTRACT DOCUMENTS SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT/ENGINEER. ANY INTERFERENCES OR CONFLICTS OF ANY ITEM WITH A STRUCTURAL ELEMENT SHALL ALSO BE REPORTED IMMEDIATELY TO THE ARCHITECT.
3. THE CONTRACTOR SHALL SUBMIT A WRITTEN REQUEST TO MODIFY THE CONTRACT DOCUMENTS. CHANGES, MODIFICATIONS OR SUBSTITUTIONS MAY BE MADE ONLY BY AN AUTHORIZED REPRESENTATIVE OF CARTWRIGHT ENGINEERS. CARTWRIGHT ENGINEERS SHALL NOT BE LIABLE FOR ANY CLAIMS ARISING DIRECTLY OR INDIRECTLY FROM CHANGES MADE WITHOUT WRITTEN AUTHORIZATION BY AN AUTHORIZED REPRESENTATIVE OF CARTWRIGHT ENGINEERS. ANY SUCH WORK DONE BY THE CONTRACTOR BEFORE RECEIVING WRITTEN APPROVAL WILL BE AT THE CONTRACTOR'S RISK.
4. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR ACTIVITIES UNDER CONTROL OF THE CONTRACTOR. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR FABRICATION, ERECTION AND CONSTRUCTION REQUIREMENTS AS PRESCRIBED BY OSHA OR OTHER REGULATORY AGENCIES REGARDLESS OF INDICATIONS IN THESE DOCUMENTS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND CONSTRUCTION SITE SAFETY IN ORDER TO COMPLY WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND BRACING AS REQUIRED FOR THE CHOSEN METHOD OF ERECTION AND FOR THE SAFETY OF LIFE AND PROPERTY. SHORING AND BRACING SHALL REMAIN IN PLACE UNTIL THE ENTIRE STRUCTURAL SYSTEM HAS BEEN COMPLETED. DESIGN OF ALL SHORING AND BRACING IS BY OTHERS AT NO ADDITIONAL COST TO THE OWNER.
6. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING APPROPRIATE PROTECTION FOR ALL STRUCTURAL ITEMS FROM CORROSION DUE TO MOLD, CONDENSATION, RUST, CHEMICAL REACTIONS, ETC. THE CONTRACTOR SHALL ENSURE THAT CONSTRUCTION MATERIALS OR EQUIPMENT PLACED ON THE STRUCTURE IN QUANTITIES OR MASSES DO NOT EXCEED THE DESIGN LOADS STATED HEREIN OR THE DESIGN LOAD BEARING CAPACITY OF SHORING PROVIDED BY THE CONTRACT.

PRECAST CONCRETE

1. THE TOP DECK OF THE PARKING STRUCTURE CONTRACT DRAWINGS ARE BASED ON PERFORMANCE TYPE DESIGN FOR PRECAST CONCRETE DOUBLE TEES. AN INTEGRAL PART OF THIS PROJECT IS PREPARATION OF FINAL DESIGN DRAWINGS, DESIGN CALCULATIONS AND SHOP DRAWINGS NECESSARY FOR FABRICATION AND CONSTRUCTION OF ALL PCC PIECES AND REQUIRED ACCESSORIES IN ACCODANCE WITH ALL CODE AND DESIGN REQUIREMENTS.
2. SUBMIT COMPLETE ERECTION, FABRICATION DRAWINGS, SECTIONS FOR INSTALLATION, AND CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THIS PROJECT IS BUILT WHICH ADDRESSES THE DESIGN FOR ALL PRECAST DOUBLE TEE PANELS.
3. PRECAST DESIGNER SHALL SUBMIT DETAILED DRAWINGS DEPICTING ALL CONNECTIONS OF DOUBLE TEES AT CONCRETE FOUNDATION WALLS.
4. SEE FRAMING PLANS AND LOADING KEY PLANS AND DIAGRAMS FOR ALL FORCES DUE TO GRAVITY, WIND AND SEISMIC TO BE CONSIDERED IN THE DESIGN OF THE PANELS.
5. PRECAST MANUFACTURER SHALL BEAR THE RESPONSIBILITY TO PREPARE ALL SHOP DRAWINGS FOR CONSTRUCTION OF THIS STRUCTURE.
6. PROVIDE ALL OPENINGS, INSERTS, ETC. CAST INTO PCC ACCORDING TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS IN ADDITION TO THE REQUIREMENTS PROVIDED IN THESE STRUCTURAL DRAWINGS.
7. PCC EMBED SHOP DRAWINGS MUST BE APPROVED AND EMBEDDED ITEMS INSTALLED WHERE REQUIRED PRIOR TO PLACING CONCRETE. SEE DRAWINGS FOR PROTECTION OF EMBEDDED ITEMS.
8. THE STRUCTURE IS DESIGN FOR ITS FINAL SERVICE CONDITION. PCC MANUFACTURER AND CONTRACTOR SHALL BE RESPONSIBLE FOR PIECE DESIGN TO WITHSTAND HANDLING AND ERECTION FORCES, ERECTION SEQUENCE, GUYING, STAYING, AND SHORING AS REQUIRED TO ASSURE STRUCTURAL STABILITY DURING CONSTRUCTION.
9. FLOOR DRAINAGE LAYOUT IS BASED ON A MAXIMUM DOUBLE TEE CAMBER OF 1.8 IN. DESIGN OF PCC DOUBLE TEES SHALL BE SUCH THAT FINAL IN-SERVICE CAMBER DOES NOT EXCEED THIS VALUE. PCC CONTRACTOR SHALL REVIEW FLOOR DRAINAGE LAYOUT AND NOTIFY ENGINEER OF ANY DISCREPANCIES OR CONSTRUCTABILITY ISSUES PRIOR TO FABRICATION.

WOOD

LUMBER TABLE

DIMENSION LUMBER	BEAMS/ COLUMNS/ POSTS	DOUG FIR #1
	SILL PLATES	SO. PINE, DOUG FIR, HEM FIR #2 OR BETTER
TRUSSES &TRUSS BLOCKING	CHORDS	DOUG FIR #1
	WEBS	DOUG FIR #2 SPF #2
BEARING WALLS	ALL SIZES	DOUG FIR #1
INTERIOR NON-BEARING PARTITIONS	ALL SIZES	SO. PINE, DOUG FIR, HEM FIR #2 OR BETTER

NAILING SCHEDULE

CONN.	FASTENING	LOCATION
1x	(3) 16d ((2) 8d If 6" Or lESS nOmInAl)	FACE NAIL
2x	(2) 16d	FACE NAIL
SOLE/ SIlL PL	16d @ 16" o.c. OR 3", 14gA. STAPLE @ 12" o.c.	FACE NAIL
DbLStUdS	16d @ 24" o.c. OR 3", 14gA. STAPLE @ 8" o.c.	FACE NAIL
Dbl. TOp PL'S	16d @ 16" o.c. OR 3", 14gA. STAPLE @ 12" o.c.	FACE NAIL
2 PIEcE HEAdEr	16d @ 16" o.c. OR 3", 14gA. STAPLE @ 12" o.c.	ALONG EA. EDGE
COrnEr StUdS	16d @ 24" o.c. OR 3", 14gA. STAPLE @ 16" o.c.	FACE NAIL
GIrdEr BEAm	20d @ 32" o.c. OR 3", 14gA. STAPLE @ 12" o.c.	FACE NAIL

* FOR NAILING NOT SHOWN IN THIS SCHEDULE, SEE IBC TABLE 2304.9.1

CONCRETE

1. MATERIALS, UNLESS NOTED OTHERWISE:
   - A. NORMAL WEIGHT AGGREGATES — ASTM C 33
   - B. LIGHT WEIGHT AGGREGATES — ASTM C 330
   - C. LIGHT WEIGHT CONCRETE SHALL NOT EXCEED 100 (± 3) POUNDS PER CUBIC FOOT.
   - D. FLY ASH, CLASS F POZZOLAN — ASTM C618
   - E. REINFORCING STEEL — ASTM 615
   - F. GRADE 60 (FY = 60 KSI)
   - G. DEFORMED BAR ANCHORS (DBA) — ASTM A496
   - H. HEADED STUD ANCHORS (HSA) — ASTM A108
   - I. ANCHOR BOLTS — ASTM F1554 GR. 36
   - J. ADMIXTURES: AIR-ENTRAINING ADMIXTURES SHALL COMPLY WITH ASTM C 260 (WHEN USED). CALCIUM CHLORIDE SHALL NOT BE ADDED TO THE CONCRETE MIX. UNREINFORCED CONCRETE SLABS ON GRADE MAY HAVE CALCIUM CHLORIDE NOT EXCEEDING ONE PERCENT.
   - K. TYPE I/II CEMENT COMPLYING WITH ASTM C-150 SHALL BE USED FOR ALL CONCRETE.
   - L. THE WATER/CEMENT RATIO FOR CONCRETE 4000 PSI AND GREATER SHALL NOT EXCEED 0.50 (GROUT MIXES ARE EXCLUDED).
   - M. THE SLUMP OF ALL CONCRETE SHALL BE LIMITED TO 4" UNLESS PLASTICIZERS ARE USED.
   - N. PROVIDE AIR ENTRAINING AS RECOMMENDED BY ACI 318.
   - O. AIR ENTRAINMENT SHALL BE ADJUSTED FOR THE USE OF ADMIXTURES AND FLY ASH.
   - P. FLY ASH SHALL BE A MAXIMUM OF 20% OF THE CEMENTITIOUS MATERIAL.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, DETAILING, CARE, PLACEMENT AND REMOVAL OF ALL FORM WORK AND SHORES.
   - A. SUPPORTING FORMS AND SHORING SHALL NOT BE REMOVED UNTIL STRUCTURAL MEMBERS HAVE ACQUIRED SUFFICIENT STRENGTH TO SAFELY SUPPORT THEIR OWN WEIGHT AND ANY CONSTRUCTION LOAD TO WHICH THEY MAY BE SUBJECTED. IN NO CASE, HOWEVER, SHALL FORMS AND SHORING BE REMOVED IN LESS THAN 24 HOURS AFTER CONCRETE PLACEMENT.
3. REINFORCEMENT SHALL HAVE THE FOLLOWING CONCRETE COVER.
   - A. CAST-IN-PLACE CONCRETE: CLEAR COVER
     - a. CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.....3"
   - B. FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
     - a. #6 THRU #18 BARS.....2"
     - b. #5 AND SMALLER BARS.....1-1/2"
   - C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
     - a. SLABS, WALLS, JOISTS; #11 BARS AND SMALLER.....3/4"
4. CONSTRUCTION JOINTS AND CONTROL JOINTS;
   - A. PROVIDE A BEVELED 2x4 INTERMEDIATE KEYWAY THAT SHALL BE INSTALLED IN ALL HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS INCLUDING BETWEEN TOP OF FOOTING AND FOUNDATION WALLS. IN ADDITION, ALL JOINTS SHALL BE INTENTIONALLY ROUGHENED TO FULL AMPLITUDE OF APPROXIMATELY ¼ INCH.
   - B. CONTROL JOINTS SHALL BE INSTALLED IN SLABS ON GRADE SO THE LENGTH TO WIDTH RATIO OF THE SLAB IS NO MORE THAN 1.25:1. CONTROL JOINTS SHALL BE COMPLETED WITHIN 12 HOURS OF CONCRETE PLACEMENT.
   - C. CONTROL JOINTS MAY BE INSTALLED BY:
   - D. SAW CUT A DEPTH OF ¼ THE THICKNESS OF THE SLAB.
   - E. TOOLED JOINTS A DEPTH OF ¼ THE THICKNESS OF THE SLAB.
   - F. INSTALL CONSTRUCTION OR CONTROL JOINTS IN SLABS ON GRADE AT A SPACING NOT TO EXCEED 30 TIMES THE SLAB THICKNESS IN ANY DIRECTION, UNLESS NOTED OTHERWISE.
5. CONSTRUCTION
   - A. USE CHAIRS OR OTHER SUPPORT DEVICES RECOMMENDED BY THE CRSI TO SUPPORT BAR AND TIE REINFORCEMENT BARS AND W.W.F PRIOR TO PLACING CONCRETE. W.W.F SHALL BE CONTINUOUSLY SUPPORTED AT 36" o.c. MAXIMUM. REINFORCING STEEL FOR SLABS ON GRADE SHALL BE ADEQUATELY SUPPORTED ON PRECAST CONCRETE UNITS. LIFTING THE REINFORCING OFF THE GRADE DURING PLACEMENT OF CONCRETE IS NOT PERMITTED.
   - B. CONTRACTOR SHALL COORDINATE PLACEMENT OF ALL OPENINGS, CURBS, DOWELS, SLEEVES, CONDUITS, BOLTS, INSERTS AND OTHER EMBEDDED ITEMS PRIOR TO CONCRETE PLACEMENT.
   - C. ALL EMBEDS AND DOWELS SHALL BE SECURELY TIED TO FORM WORK OR TO ADJACENT REINFORCING PRIOR TO THE PLACEMENT OF CONCRETE.
   - D. NO PIPES, DUCTS, SLEEVES, ETC. SHALL BE PLACED IN STRUCTURAL CONCRETE UNLESS SPECIFICALLY DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER. PENETRATIONS THROUGH WALLS WHEN APPROVED SHALL BE BUILT INTO THE WALL PRIOR TO CONCRETE PLACEMENT. PENETRATIONS WILL NOT BE ALLOWED IN FOOTINGS OR GRADE BEAMS UNLESS DETAILED. PIPING SHALL BE ROUTED AROUND THESE ELEMENTS AND FOOTINGS STEPPED TO AVOID PIPING.
   - E. REINFORCING BARS SHALL NOT BE WELDED. DO NOT SUBSTITUTE REINFORCING BARS FOR DBA'S OR HSA'S, U.N.O.
6. DETAILING:
   - A. LAP LENGTHS SEE SCHEDULE ON S601
   - B. DO NOT SPLICE STIRRUPS AND TIES.
   - C. AT JOINTS PROVIDE REINFORCING DOWELS TO MATCH THE MEMBER REINFORCING, UNLESS NOTED OTHERWISE.
   - D. AT ALL DISCONTINUOUS CONTROL OR CONSTRUCTIONS SLAB ON GRADE JOINTS, PROVIDE (2) #4 X CONT.
   - E. PROVIDE CORNER BARS AT INTERSECTING WALL CORNERS USING THE SAME BAR SIZE AND SPACING AS THE HORIZONTAL WALL REINFORCING.
   - F. ALL VERTICAL REINFORCING SHALL BE DOWELED TO FOOTINGS, OR TO THE STRUCTURE BELOW WITH THE SAME SIZE AND SPACING AS THE VERTICAL REINFORCING FOR THE ELEMENT ABOVE. DOWELS EXTENDING INTO FOOTINGS SHALL TERMINATE WITH A 90 DEGREE STANDARD HOOK AND SHALL EXTEND TO WITHIN 4" OF THE BOTTOM OF THE FOOTING U.N.O. FOOTING DOWELS (#8 BARS AND SMALLER) WITH HOOKS NEED NOT EXTEND MORE THAN 20" INTO FOOTINGS U.N.O.
7. CONCRETE SLAB SHALL BE REINFORCED WITH W1.6XW1.6 WIRE MESH 6"X6" = W1.4XW1.4
8. PROVIDE (2) #5 BARS AROUND CONCRETE OPENING IN FLOOR DECKING

CONCRETE COMPRESSIVE STRENGTHS AND EXPOSURE

ELEMENT	COMPRESSIVE STRENGTH AT 28 DAYS (f'c)	EXPOSURE CLASSIFICATION (ACI 318-19 TABLE 19.3.1.1)
FOOTINGS	4,500 PSI	F2
FOUNDATION WALLS	4,500 PSI	F2
GARAGE SLAB ON GRADE	5,000 PSI	F3
2ND FLOOR TOPPING SLAB	3,000 PSI	F0

PRE-FABRICATED WOOD TRUSS NOTES

PRE-FABRICATED TRUSSES TO BE DESIGNED BY THESE MINIMUM REQUIREMENTS:
MINIMUM MEMBER SIZE
TOP CHORD SIZE - 2x6 DFL #1
BOTTOM CHORD SIZE - 2x4 DFL #1
WEB SIZE - 2x4 DFL #2
LOADING
SNOW LOAD - 32 PSF
TOP CHORD DEAD LOAD - 12 PSF
BOTTOM CHORD DEAD LOAD - 6 PSF
METAL TRUSS PLATES
MINIMUM METAL TRUSS PLATE SIZE = 3"x5". SIZE PLATES FOR 135% OF MEMBER FORCES. NO INCREASES IN PLATE VALUES FOR DURATION OF LOADING, REPETITIVE USE, OR OTHER FACTORS WILL BE ALLOWED. PRESS PLATES INTO MEMBERS TO OBTAIN FULL PENETRATION WITHOUT CRUSHING OUTER SURFACE OF WOOD. PLATE EMBEDMENT IS ACCEPTABLE IF OPENING BETWEEN PLATE & WOOD SURFACE IS LESS THAN 1/32 INCH. PLATES ARE NOT TO BE APPLIED AFTER SHOP FABRICATION

ANCHOR BOLTS / EMBEDDED BOLTS

1. ALL ANCHOR BOLTS SHALL HAVE ASTM A-563 HEAVY HEX NUT AND ASTM F-436 WASHERS AT STANDARD OR OVERSIZED HOLES PER AISC SPECIFICATION TABLE J3.3. WHERE HOLE SIZES DO NOT COMPLY WITH THE LIMITATIONS FOR OVERSIZED HOLES THE STRUCTURAL ENGINEER SHALL BE NOTIFIED TO DETERMINE STEEL PLATE WASHER REQUIREMENTS. ANCHOR BOLTS SHALL COMPLY WITH THE FOLLOWING:
   - A. ALL ANCHOR BOLTS (UNLESS NOTED OTHERWISE) - ASTM F1554 GRADE 36 HEADED BOLTS. (ASTM A36 THREADED ROD MAY BE USED WITH DOUBLE NUT AND WASHER.)
2. SEE TYPICAL ANCHOR BOLT DETAIL FOR DEFINITIONS OF EMBEDMENT LENGTH, ETC.
3. FURNISH TEMPLATES AND OTHER DEVICES AS NECESSARY FOR PRESETTING ALL BOLTS PRIOR TO PLACING CONCRETE AND/OR GROUT.
4. IF THREADED RODS ARE USED AS PERMITTED ABOVE, THEY SHALL BE CLEAR OF SOIL AND DIRT.
5. WHERE REQUIRED FOR ERECTION, HOLES LARGER THAN OVERSIZED MAY BE PERMITTED WITH THE USE OF STEEL PLATE WASHERS AT THE DISCRETION OF THE STRUCTURAL ENGINEER.

EARTH WORK

1. IT IS RECOMMENDED THAT ALL EARTH WORK BE DONE UNDER THE GUIDANCE AND DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER.

DEFERRED SUBMITTALS

1. A DEFERRED SUBMITTAL IS A PART OR PORTION OF THE PROJECT THAT WAS NOT DESIGNED OR ENGINEERED BY THE PROJECT ENGINEER OF RECORD. IT HAS BEEN DELEGATED TO THE CONTRACTOR TO COORDINATE THE DESIGN ELEMENTS WITH THE SPECIFIC MANUFACTURERS AND SUPPLIERS USED. ON ALL DEFERRED ITEMS, AN INDEPENDENT DESIGN MUST BE COMPLETED AND COORDINATED WITH THE ORIGINAL CONSTRUCTION DRAWINGS. THE COMPLETE SUBMITTAL MUST BE REVIEWED BY THE E.O.R. PRIOR TO ANY CONSTRUCTION OR FABRICATION OF ANY PORTION OF THE DEFERRED ITEM (SEE SHOP DRAWING NOTES AND SPECIFICATIONS (IF APPLICABLE) FOR ADDITIONAL CLARIFICATIONS AND REQUIREMENTS ON DEFERRED SUBMITTALS.)
2. THE DESIGN AND DETAILING OF PRE-FABRICATED STRUCTURAL ITEMS (INCLUDED, BUT NOT LIMITED TO FLOOR TRUSSES, ROOF TRUSSES, STEEL STAIRS AND OTHER DEFERRED SUBMITTAL ITEMS) ARE NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS AND SHALL BE DONE BY OTHERS UNLESS SPECIFICALLY NOTED OTHERWISE.
3. ANY ENGINEERED DRAWINGS OR STRUCTURAL CALCULATIONS ON DEFERRED STRUCTURAL ITEMS SUBMITTED TO CARTWRIGHT ENGINEERS FOR REVIEW SHALL BE STAMPED AND SIGNED BY A STRUCTURAL ENGINEER OR PROFESSIONAL ENGINEER, IF APPLICABLE) LICENSED IN THE APPLICABLE STATE. CARTWRIGHT ENGINEERS SHALL NOT BE HELD RESPONSIBLE FOR THE CORRECTNESS OR COMPLETENESS OF ENGINEERED DRAWINGS OR STRUCTURAL CALCULATIONS PERFORMED BY OTHERS.
4. ALL ITEMS LISTED AS DEFERRED STRUCTURAL SUBMITTALS REQUIRE SHOP DRAWING SUBMITTALS. REQUIRED DEFERRED STRUCTURAL SUBMITTALS SPECIFICALLY INCLUDE THE FOLLOWING:
   - A. PRE-FABRICATED WOOD TRUSSES
   - B. PRECAST CONCRETE DOUBLE TEES

SHOP DRAWINGS

1. SEE SPECIFICATIONS AND THIS SECTION FOR REQUIRED SUBMITTALS.
2. REVIEW OF SUBMITTALS BY CARTWRIGHT ENGINEERS IS FOR GENERAL COMPLIANCE WITH THE STRUCTURAL CONSTRUCTION DOCUMENTS ONLY AND IS NOT INTENDED AS DESIGN APPROVAL. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL SIZES, DIMENSIONS, AND ELEVATIONS ON SUBMITTALS AS RELATED TO CONSTRUCTION DOCUMENTS. PREPARATION OF SHOP DRAWINGS FOR STRUCTURAL ELEMENTS MAY REQUIRE INFORMATION NOT FOUND IN THE STRUCTURAL CONSTRUCTION DOCUMENTS. COORDINATION BETWEEN THE ARCHITECTURAL (IF APPLICABLE) AND OTHER CONSULTANT DOCUMENTS MAY BE REQUIRED. THE SHOP DRAWING REVIEW SHALL NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY OF COMPLETING THE PROJECT ACCORDING TO THE CONSTRUCTION DOCUMENTS.
3. SUBMITTALS SHALL BE MADE IN A TIMELY MANNER (AS STATED IN THE SPECIFICATIONS).
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CORRECTNESS AND COMPLETENESS OF SHOP DRAWINGS.
5. ANY DEVIATIONS ON THE SHOP DRAWINGS FROM THE CONSTRUCTION DOCUMENTS SHALL BE CLOUDED ON THE SHOP DRAWINGS PRIOR TO REVIEW BY THE ENGINEER.
6. SHOP DRAWINGS MADE FROM REPRODUCTIONS OF THE STRUCTURAL CONSTRUCTION DOCUMENTS WILL BE REJECTED. STRUCTURAL PLANS MAY BE AVAILABLE FOR USE IN SHOP DRAWING PREPARATION (EITHER HARD COPY OR ELECTRONIC) AT THE DISCRETION OF THE STRUCTURAL ENGINEER WITH PRIOR CONSENT, SIGNED RELEASE AGREEMENT, ETC.
7. THE CONTRACTOR SHALL ALLOW A MINIMU

GENERAL STATEMENT OF SPECIAL INSPECTIONS (2021 IBC)

1. WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED UNDER IBC 2021 SECTION 1704. THESE INSPECTIONS ARE IN ADDITION TO THOSE IDENTIFIED IN SECTION 110.
2. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR THE INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION. THE SPECIAL INSPECTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO THE BUILDING OFFICIAL DEMONSTRATING HIS OR HER COMPETENCE AND RELEVANT EXPERIENCE OR TRAINING. EXPERIENCE OR TRAINING SHALL BE CONSIDERED RELEVANT WHEN THE DOCUMENTED EXPERIENCE OR TRAINING IS RELATED IN COMPLEXITY TO THE SAME TYPE OF SPECIAL INSPECTION ACTIVITIES FOR PROJECTS OF SIMILAR COMPLEXITY AND MATERIAL QUALITIES. THE SPECIAL INSPECTION AGENCY SHALL ALSO COMPLY WITH IBC 1703.1.
3. ALL MATERIALS INSPECTIONS & TESTS IDENTIFIED IN THE SPECIAL INSPECTION TABLES AND GENERAL STRUCTURAL NOTES ARE TO COMPLY WITH THE REFERENCES AND STANDARDS LISTED IN THE TABLES IN IBC 2021, CHAPTERS 17, 35 & ELSEWHERE IN THIS CODE.
4. THE TYPE AND EXTENT OF SPECIAL INSPECTIONS ARE AS SPECIFIED IN THE INDIVIDUAL SPECIAL INSPECTION TABLES AND PROJECT SPECIFICATIONS.
5. SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE ARE REQUIRED FOR THE FOLLOWING (SEE PLAN FOR SEISMIC DESIGN CATEGORY):
   A. THE SEISMIC-FORCE-RESISTING SYSTEMS IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY C, D, E OR F.
   B. DESIGNATED SEISMIC SYSTEMS IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY D, E OR F.
   C. ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL COMPONENTS IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY C, D, E OR F AS STATED IN IBC SECTIONS 1705.12
6. REPORTS OF FINDINGS OR DISCREPANCIES SHALL BE NOTED AND FORWARDED TO THE CONTRACTOR, ARCHITECT, ENGINEERS, AND BUILDING OFFICIAL IN A TIMELY MANNER.
7. STRUCTURAL OBSERVATION VISITS SHALL BE PERFORMED BY A REPRESENTATIVE OF CARTWRIGHT ENGINEERS IN ACCORDANCE WITH THE CONTRACT AS NEEDED TO OBSERVE THE CONSTRUCTION OF CRITICAL BUILDING ELEMENTS (I.E. FOOTINGS, BRACED FRAMES, MOMENT FRAMES, DRAG STRUTS AND THEIR CONNECTIONS, COLLECTORS, AND ROOF AND FLOOR DIAPHRAGMS, ETC.). STRUCTURAL OBSERVATION REPORTS FOR EACH VISIT SHALL BE SENT DIRECTLY TO THE ARCHITECT OR DISTRIBUTED TO THE CONTRACTOR AND BUILDING OFFICIAL. STRUCTURAL OBSERVATION VISITS ARE TO VERIFY THAT WORK IS IN GENERAL CONFORMANCE WITH CONTRACT DOCUMENTS AND SHALL NEITHER BE CONSTRUED AS SPECIAL INSPECTION, INSPECTION BY A BUILDING OFFICIAL, NOR APPROVAL OF COMPLETED CONSTRUCTION.
8. ITEMS THAT ARE LISTED AS DEFERRED STRUCTURAL SUBMITTALS MAY REQUIRE SPECIAL INSPECTIONS IN ADDITION TO THOSE FOUND IN THESE CONSTRUCTION DOCUMENT. SEE GENERAL STRUCTURAL NOTES (SHOP DRAWINGS / DEFERRED SUBMITTALS) FOR ADDITIONAL INFORMATION. PERIODIC INSPECTION U.N.O. IS DEFINED AS COMPLETE INSPECTION OF EACH ELEMENT DURING THE CONSTRUCTION PHASE. CONTRACTOR TO COORDINATE AND COOPERATE WITH SPECIAL INSPECTION REQUIREMENTS.
9. EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN WIND- OR SEISMIC-FORCE-RESISTING SYSTEM, DESIGNATED SEISMIC SYSTEM OR A WIND- OR SEISMIC-RESISTING COMPONENT LISTED IN THE STATEMENT OF SPECIAL INSPECTIONS SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL CONTAIN ACKNOWLEDGEMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE STATEMENT OF *SPECIAL INSPECTIONS*
10. INSPECTION OF LABELED MATERIALS SHALL BE PER IBC 2021 SECTION 1703.
11. INSPECTION OF ARCHITECTURAL, ELECTRICAL, MECHANICAL EQUIPMENT, SHALL BE PER IBC 2021 SECTION 1705.12.
12. TESTING OF NON-STRUCTURAL ITEMS SHALL BE PER IBC 2021 SECTION 1705.13.2.
13. SPECIAL INSPECTION REQUIREMENTS FOR *THE SEISMIC/WIND-FORCE-RESISTING SYSTEMS* IN ACCORDANCE WITH IBC 2021 SECTION 1705 ARE IN ADDITION TO THE REQUIREMENTS OUTLINED IN THE SPECIAL INSPECTION TABLES IN THESE DOCUMENTS AND IN IBC 2021. ALL OTHER ITEMS REQUIRING SPECIAL INSPECTION ARE IDENTIFIED IN THE SPECIAL INSPECTION SCHEDULE(S). IN CASE OF CONFLICT, THE MOST STRINGENT SPECIAL INSPECTION REQUIREMENTS SHOULD BE PERFORMED. SEISMIC/WIND-FORCE-RESISTING SYSTEMS AND ALL OTHER SYSTEMS, COMPONENTS THAT ARE SUBJECT TO SPECIAL INSPECTIONS ARE IDENTIFIED ON THESE DOCUMENTS WITH A BOXED **L**. SEE REQUIRED VERIFICATION AND INSPECTION OF WOOD ELEMENTS FOR EXCEPTIONS.

QUALIFICATION OF SPECIAL INSPECTOR

1. THE INSPECTION AGENCY SHALL SUBMIT QUALIFICATIONS AND / OR CERTIFICATIONS TO THE BUILDING OFFICIAL, OWNER, AND/OR OWNERS REPRESENTATIVE TO DETERMINE THAT THE AGENCY MEETS THE APPLICABLE REQUIREMENTS AND IS QUALIFIED TO PERFORM THE TESTS AND INSPECTIONS.
   A. THE AGENCY SHALL BE OBJECTIVE AND COMPETENT.
   B. THE AGENCY SHALL ALSO DISCLOSE POSSIBLE CONFLICTS OF INTEREST SO THAT OBJECTIVITY CAN BE CONFIRMED AND SHALL BE INDEPENDENT OF THE CONTRACTOR.
   C. THE AGENCY SHALL HAVE ADEQUATE EQUIPMENT TO PERFORM REQUIRED TESTS.
   D. THE EQUIPMENT SHALL BE PERIODICALLY CALIBRATED.
   E. THE AGENCY SHALL EMPLOY EXPERIENCED PERSONNEL EDUCATED IN CONDUCTING, SUPERVISING AND EVALUATING TESTS AND INSPECTIONS.
   F. THE SPECIAL INSPECTOR SHALL KEEP RECORDS OF INSPECTIONS.
   G. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE ARCHITECT, ENGINEER, CONTRACTOR AND BUILDING OFFICIAL. ANY DISCREPANCIES THAT OCCUR SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT, ENGINEER, CONTRACTOR AND BUILDING OFFICIAL PRIOR TO THE COMPLETION OF THAT PHASE OF WORK.
   H. WELDING INSPECTOR QUALIFICATION SHALL BE PER IBC 2021 SECTION 1704.2.1

REQUIRED VERIFICATION AND INSPECTION OF POST-INSTALLED ANCHORS

1. SPECIAL INSPECTIONS SHALL BE PERFORMED FOR ALL POST-INSTALLED ANCHORS IN ACCORDANCE W/ THE CURRENT ICC-ESR. AS APPLICABLE, THE INSPECTION PROGRAM SHALL VERIFY THE FOLLOWING ALONG WITH ALL OTHER MANUFACTURER REQUIREMENTS: ANCHOR TYPE AND LOCATION, EMBEDMENT, TIGHTENING TORQUE, DIMENSIONS, HOLE DEPTH AND DIAMETER, HOLE CLEANOUT, ADHESIVE MIXING AND PLACEMENT PROCEDURES.
2. THE DURATION OF INSPECTION (CONTINUOUS OR PERIODIC) SHALL BE IN ACCORDANCE WITH THE CURRENT ICC-ESR, U.N.O. IN THESE SPECIAL INSPECTION NOTES.
3. CONTINUOUS INSPECTION SHALL BE PROVIDED FOR SIMPSON SET-3G EPOXY, AS APPLICABLE.

INSPECTION OF FABRICATORS (PRECAST CONCRETE AND STRUCTURAL STEEL)

1. THE SPECIAL INSPECTOR SHALL VERIFY THAT THE FABRICATOR MAINTAINS DETAILED FABRICATION AND QUALITY CONTROL PROCEDURES.
2. THE INSPECTOR SHALL REVIEW THE PROCEDURES FOR COMPLETENESS AND ADEQUACY RELATIVE TO THE CODES, STANDARDS, AND APPROVED CONSTRUCTION DOCUMENTS.
3. SPECIAL INSPECTIONS OF THE FABRICATOR ARE NOT REQUIRED WHERE THE WORK IS DONE BY A FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION.
4. APPROVAL SHALL BE BASED ON REVIEW OF THE FABRICATOR'S WRITTEN PROCEDURAL AND QUALITY CONTROL MANUALS AND PERIODIC AUDITING OF FABRICATION PRACTICES BY AN APPROVED SPECIAL INSPECTION AGENCY.
5. AT COMPLETION OF FABRICATION, THE FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE BUILDING OFFICIAL STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.

REQUIRED VERIFICATION & INSPECTION OF SOILS

VERIFICATION & INSPECTION	CONT.	PERIODIC	COMMENTS
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	——	●	
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	——	●	
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	——	●	
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	●	——	
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	——	●	

NOTES:
1. SPECIAL INSPECTIONS FOR EXISTING SITE SOIL CONDITIONS, FILL PLACEMENT AND LOAD-BEARING REQUIREMENTS SHALL BE AS REQUIRED BY IBC 1705.6 AND TABLE 1705.6. THE APPROVED GEOTECHNICAL REPORT (IF APPLICABLE), AND THE CONSTRUCTION DOCUMENTS SHALL BE USED TO DETERMINE COMPLIANCE. DURING FILL PLACEMENT, THE SPECIAL INSPECTOR SHALL DETERMINE THAT PROPER MATERIALS AND PROCEDURES ARE USED IN ACCORDANCE WITH THE PROVISIONS OF THE APPROVED GEOTECHNICAL REPORT.
2. WHERE IBC SECTION 1803 DOES NOT REQUIRE REPORTING OF MATERIALS AND PROCEDURES FOR FILL PLACEMENT, OR WHERE A GEOTECHNICAL REPOT IS NOT AVAILABLE, THE SPECIAL INSPECTOR SHALL VERIFY THAT THE IN-PLACE DRY DENSITY OF THE COMPACTED FILL IS NOT LESS THAN 90 PERCENT OF THE MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT DETERMINED IN ACCORDANCE WITH ASTM D 1557.

REQUIRED VERIFICATION & INSPECTION OF CONCRETE CONSTRUCTION

VERIFICATION & INSPECTION	CONT.	PERIODIC	COMMENTS
1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.	——	●	
2. REINFORCING BAR WELDING:			
A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706	——	●	
B. INSPECT SINGLE-PASS FILLET WELDS, MAIMUM 5/16", AND	——	●	
C. INSPECT ALL OTHER WELDS	●	——	
3. INSPECT ANCHORS CAST IN CONCRETE	——	●	
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS. b			
A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATION TO RESIST SUSTAINED TENSION LOADS.	●	——	
B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.A.	——	●	
5. VERIFYING USE OF REQUIRED DESIGN MIX.	——	●	
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	●	——	
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	●	——	
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	——	●	
9. INSPECT PRESTRESSED CONCRETE FOR:			
A. APPLICATION OF PRESTRESSING FORCES.	●	——	
B. GROUTING OF BONDED PRESTRESSING TENDONS.	●	——	
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	——	●	
11. FOR PRECAST CONCRETE DIAPHRAGM CONNECTION OR REINFORCEMENT AT JOINTS CLASSIFIED AS MODERATE OR HIGH DEFORMABILITY ELEMENTS IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY C, D, E OR F, INSPECT SUCH CONNECTIONS AND REINFORCEMENTS IN THE FIRLD FOR:			
A. INSTALLATION OF THE EMBEDDED PARTS	●		
B. COMPLETION OF THE CONTINUITY OF REINFORCEMENT ACROSS JOINTS	●		
C. COMPLETION OF CONNECTIONS IN THE FIELD	●		
12. INSPECT INSTALLATION TOLERANCES OF PRECAST CONCRETE DIAPHRAM CONNECTIONS FOR COMPLIANCE WITH ACI 550.5		●	
13. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETEND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	——	●	
14. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	——	●	

NOTES:
1. THE SPECIAL INSPECTIONS AND VERIFICATIONS FOR CONCRETE CONSTRUCTION SHALL BE AS REQUIRED BY SECTION 1705.3 AND TABLE 1705.3.
2. WHERE APPLICABLE, SEE ALSO SECTION 1705.13, SPECIAL INSPECTION FOR SEISMIC RESISTANCE.

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#	DATE	DESCRIPTION

SPECIAL INSPECTIONS

S002

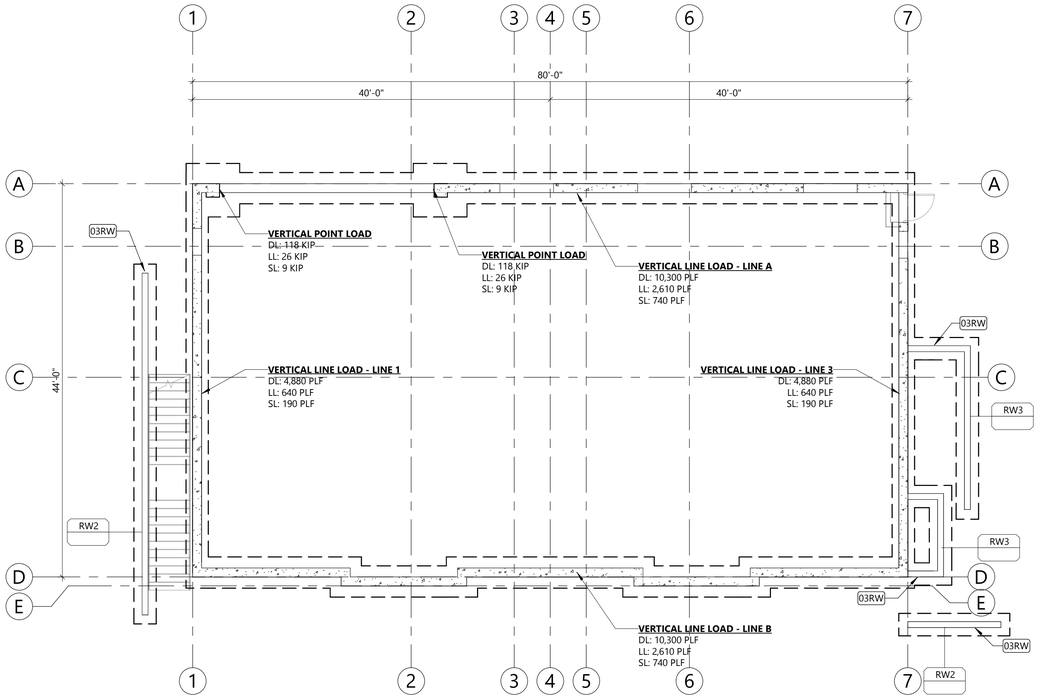
PERMIT SET

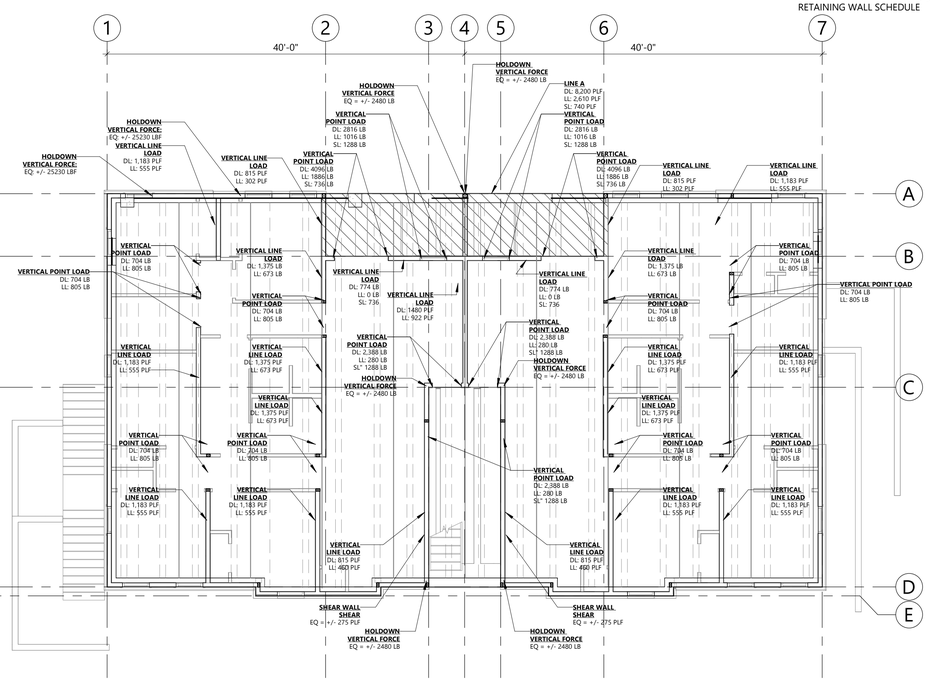
SHEET NOTES

1. COORDINATE AND VERIFY THIS DRAWING WITH ALL OTHER DRAWINGS INCLUDING ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS.
2. FOR ALL DIMENSIONS NOT SHOWN, REFER TO THE ARCHITECTURAL DRAWINGS.
3. ALL VERTICAL LOADS ARE UNFACTORED LOADS.
4. SHEAR WALL SHEAR AND HOLDOWN FORCES ARE SEISMIC
5. HOLDOWN FORCES ARE REVERSIBLE VERTICAL POINT LOADS.
6. APPLICABLE LIVE LOADS HAVE BEEN REDUCED BY LIVE LOAD REDUCTION PER IBC

KEYNOTES

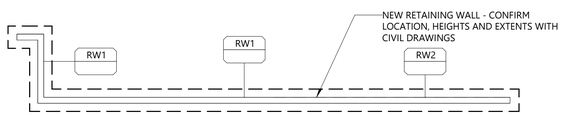
#	DESCRIPTION
03RW	NEW RETAINING WALL -CONFIRM LOCATION, HEIGHTS AND EXTENTS WITH CIVIL DRAWINGS. SEE S003 FOR KEY PLAN AND S601 FOR THE RETAINING WALL SCHEDULE





TYPICAL SUPERIMPOSED AREA LOADS
DL = 100 PSF
LL = 40 PSF
HEAVY SUPERIMPOSED AREA LOAD ZONE

DL = 175 PSF



A2 FOUNDATION LOADING & RETAINING WALL KEY PLAN
SCALE: 1/8" = 1'-0"

A4 PRECAST LOADING KEY PLAN
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE: 1/8" = 1'-0"
0 4' 8' 16'

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LOADING AND RETAINING KEY PLANS

S003

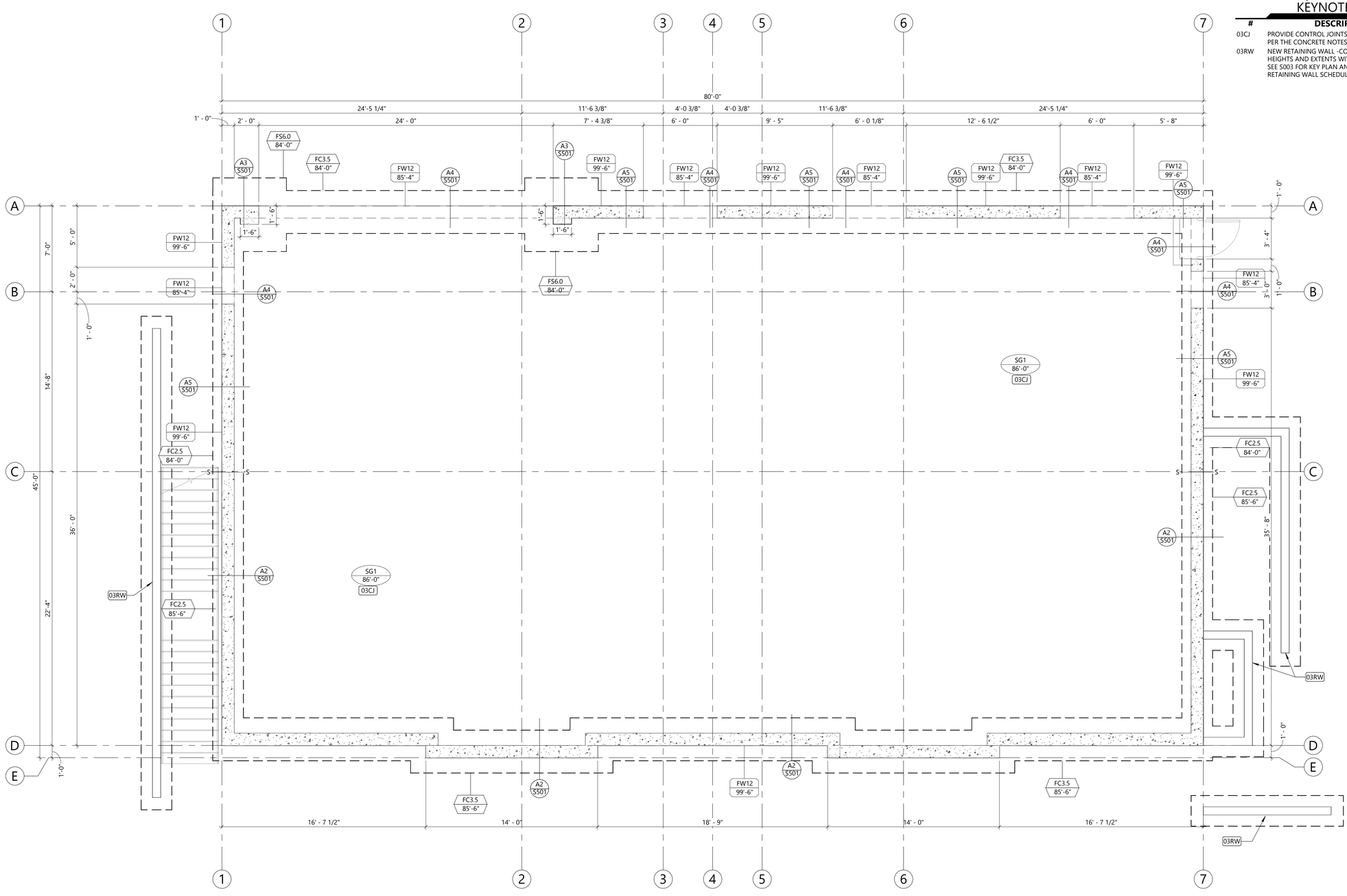
PERMIT SET

SHEET NOTES

1. COORDINATE AND VERIFY THIS DRAWING WITH ALL OTHER DRAWINGS INCLUDING ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS.
2. FOR ALL DIMENSIONS NOT SHOWN, REFER TO THE ARCHITECTURAL DRAWINGS.
3. REFER TO THE GENERAL STRUCTURAL NOTES, DRAWING S001 FOR OTHER REQUIREMENTS.

KEYNOTES

#	DESCRIPTION
03CJ	PROVIDE CONTROL JOINTS IN SLAB ON GRADE PER THE CONCRETE NOTES ON S001
03RW	NEW RETAINING WALL -CONFIRM LOCATION, HEIGHTS AND EXTENTS WITH CIVIL DRAWINGS. SEE S003 FOR KEY PLAN AND S601 FOR THE RETAINING WALL SCHEDULE



A3 FOUNDATION PLAN
SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4"= 1'-0"
0 2' 4' 8'

PERMIT SET

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FOUNDATION PLAN

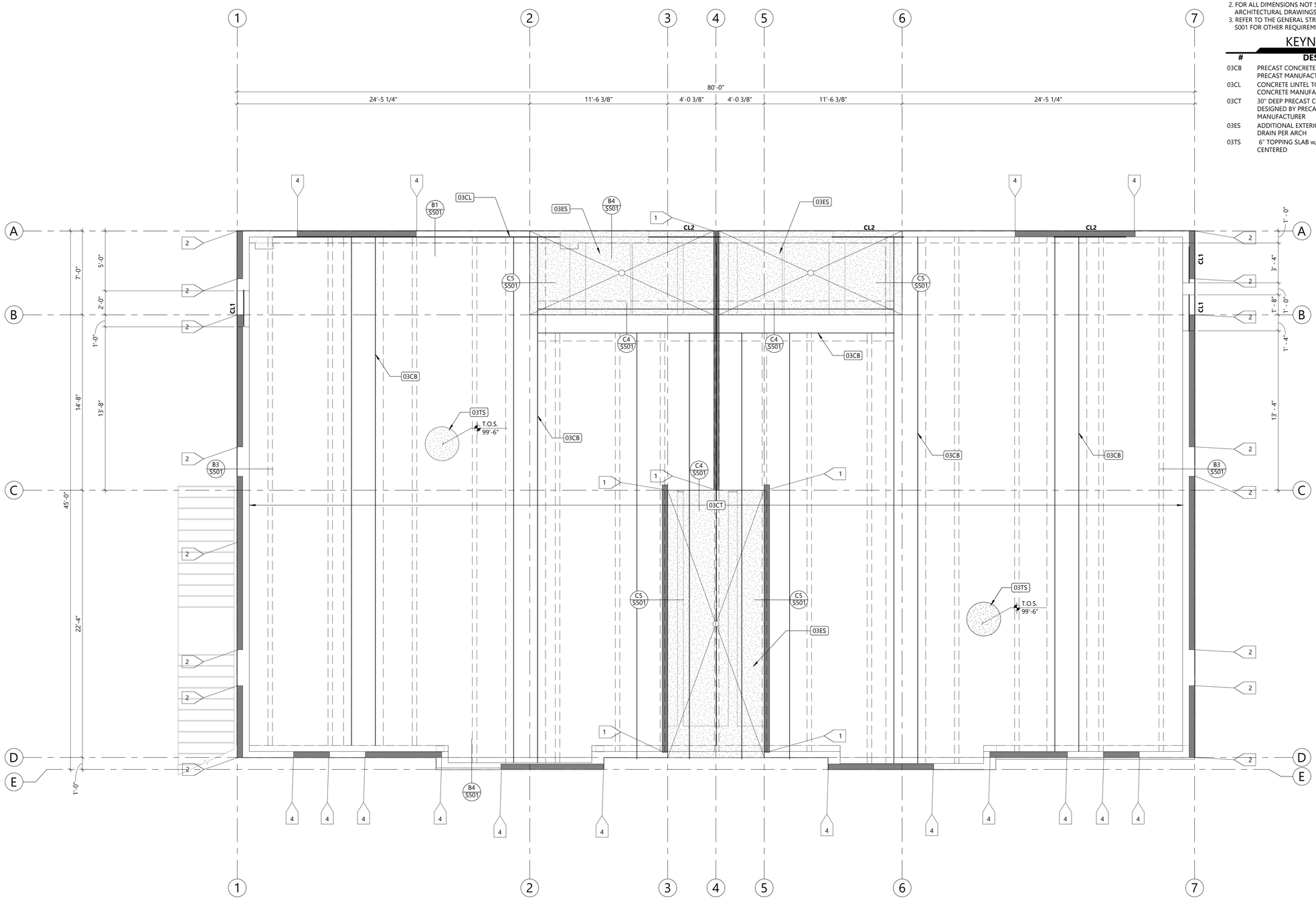
S100

SHEET NOTES

1. COORDINATE AND VERIFY THIS DRAWING WITH ALL OTHER DRAWINGS INCLUDING ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS.
2. FOR ALL DIMENSIONS NOT SHOWN, REFER TO THE ARCHITECTURAL DRAWINGS.
3. REFER TO THE GENERAL STRUCTURAL NOTES, DRAWING S001 FOR OTHER REQUIREMENTS.

KEYNOTES

#	DESCRIPTION
03CB	PRECAST CONCRETE BEAM TO BE DESIGNED BY PRECAST MANUFACTURER
03CL	CONCRETE LINTEL TO BE DESIGNED BY PRECAST CONCRETE MANUFACTURER
03CT	30" DEEP PRECAST CONCRETE DOUBLE TEES TO BE DESIGNED BY PRECAST CONCRETE MANUFACTURER
03ES	ADDITIONAL EXTERIOR TOPPING SLAB - SLOPE TO DRAIN PER ARCH
03TS	6" TOPPING SLAB w/ #5 @ 12" o.c. EACH WAY - CENTERED



A3 MAIN LEVEL FRAMING PLAN
SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4"= 1'-0"
0 2' 4' 8'

PERMIT SET

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MAIN LEVEL FRAMING PLAN

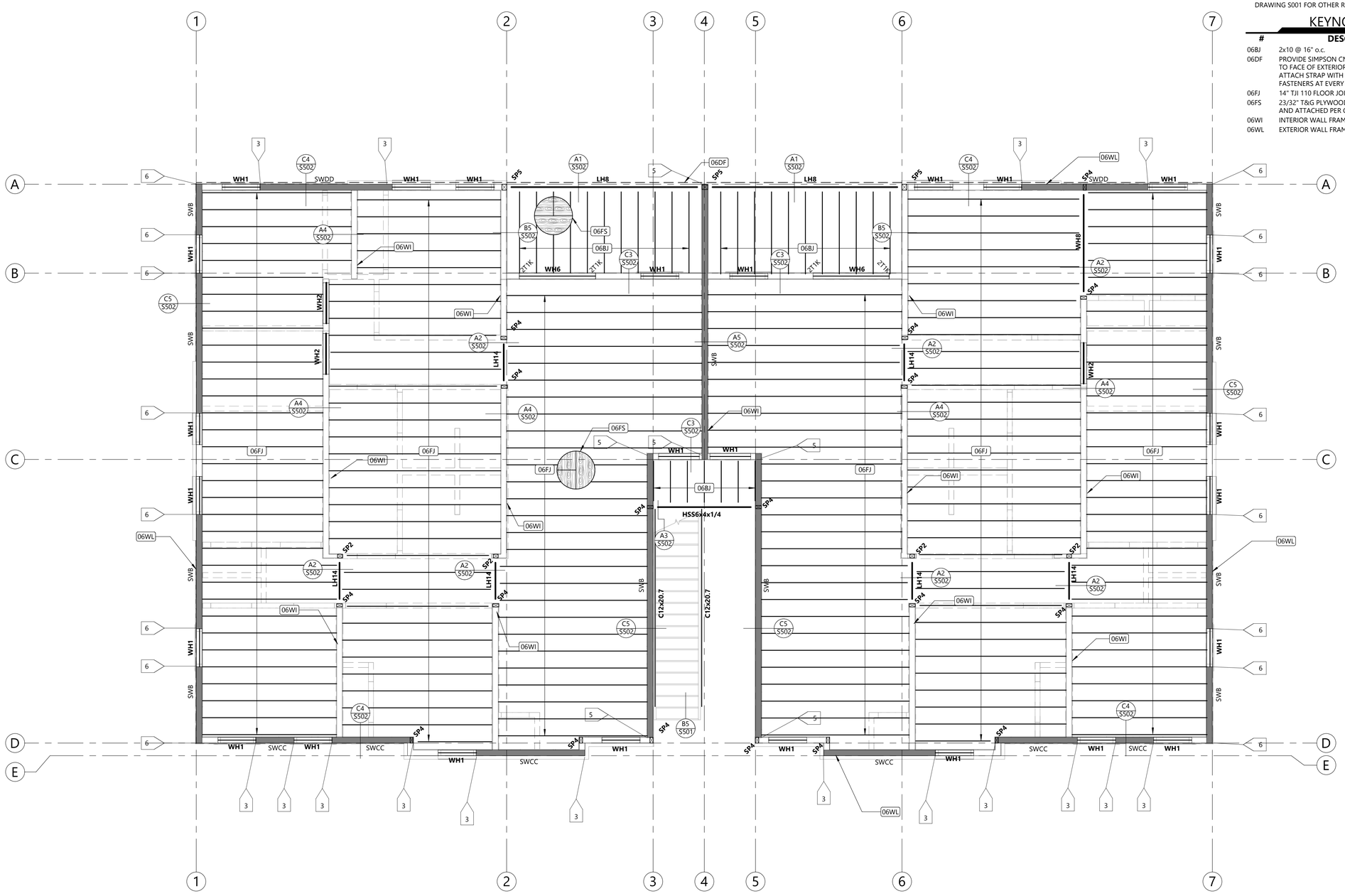
S101

SHEET NOTES

1. COORDINATE AND VERIFY THIS DRAWING WITH ALL OTHER DRAWINGS INCLUDING ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS.
2. FOR ALL DIMENSIONS NOT SHOWN, REFER TO THE ARCHITECTURAL DRAWINGS.
3. "#T#K" EQUALS NUMBER OF TRIMMER STUDS AND KING STUDS REQUIRED ADJACENT TO OPENINGS IN BEARING WALLS. PROVIDE 1T1K MINIMUM AT ALL OPENINGS IN EXTERIOR WALLS AND INTERIOR BEARING WALLS, U.N.O.
4. REFER TO THE GENERAL STRUCTURAL NOTES, DRAWING S001 FOR OTHER REQUIREMENTS.

KEYNOTES

#	DESCRIPTION
06BJ	2x10 @ 16" o.c.
06DF	PROVIDE SIMPSON CMST14 DRAG STRAP NAILED TO FACE OF EXTERIOR BEAMS AND RIM BOARDS. ATTACH STRAP WITH MANUFACTURER'S SPECIFIED FASTENERS AT EVERY OTHER HOLE
06FJ	14" TJI 110 FLOOR JOIST AT 16" o.c.
06FS	23/32" T&G PLYWOOD FLOOR SHEATHING GLUED AND ATTACHED PER GSN
06WI	INTERIOR WALL FRAMING = 2x6 STUDS @ 16" o.c.
06WL	EXTERIOR WALL FRAMING = 2x6 STUDS @ 16" o.c.



A3 SECOND LEVEL FRAMING PLAN
SCALE: 1/4" = 1'-0"

NORTH

GRAPHIC SCALE: 1/4"= 1'-0"
0 2" 4" 8"

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SECOND LEVEL FRAMING PLAN

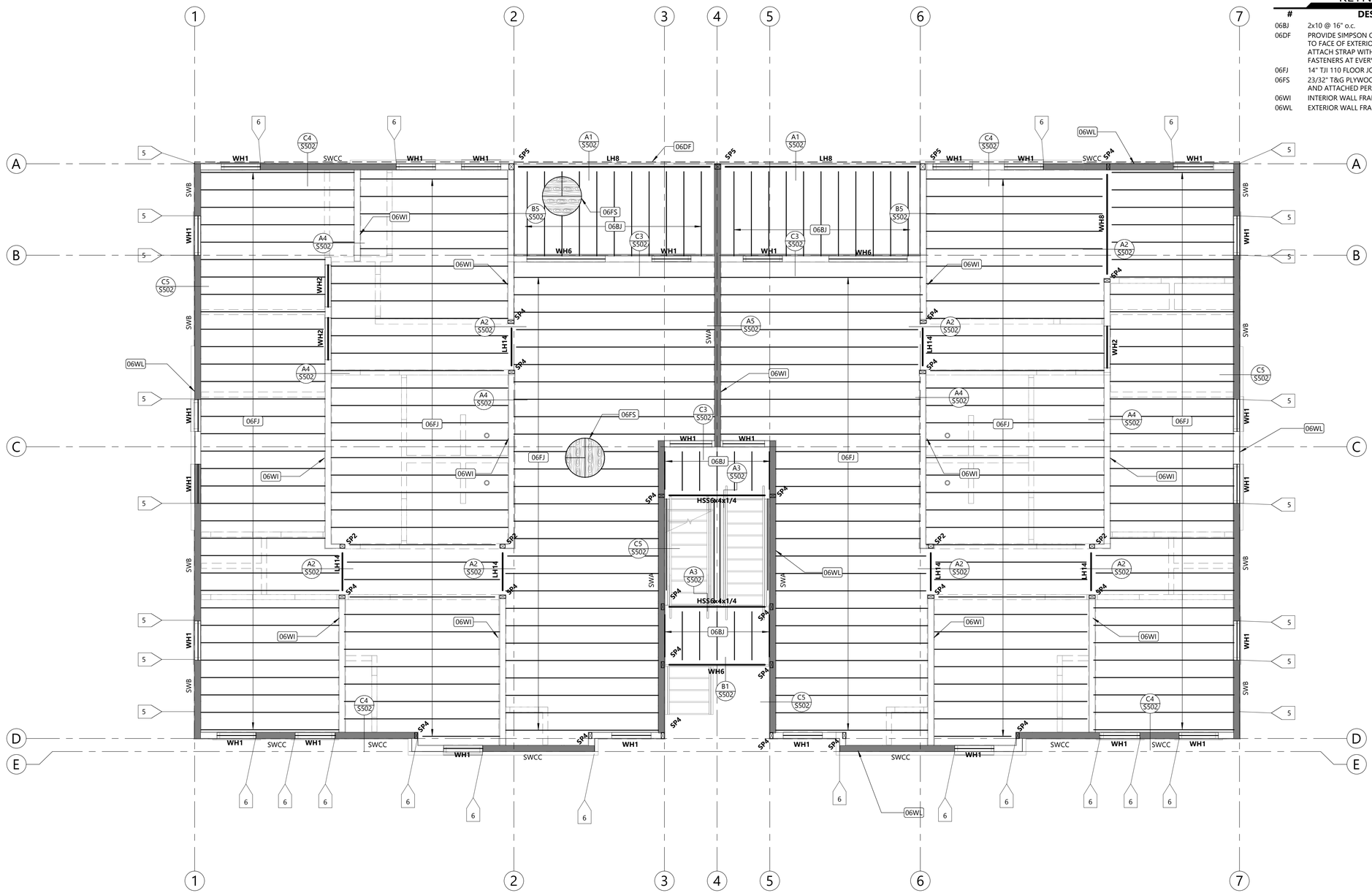
S102

SHEET NOTES

1. COORDINATE AND VERIFY THIS DRAWING WITH ALL OTHER DRAWINGS INCLUDING ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS.
2. FOR ALL DIMENSIONS NOT SHOWN, REFER TO THE ARCHITECTURAL DRAWINGS.
3. "#T#K" EQUALS NUMBER OF TRIMMER STUDS AND KING STUDS REQUIRED ADJACENT TO OPENINGS IN BEARING WALLS. PROVIDE 1T1K MINIMUM AT ALL OPENINGS IN EXTERIOR WALLS AND INTERIOR BEARING WALLS, U.N.O.
4. REFER TO THE GENERAL STRUCTURAL NOTES, DRAWING S001 FOR OTHER REQUIREMENTS.

KEYNOTES

#	DESCRIPTION
06BJ	2x10 @ 16" o.c.
06DF	PROVIDE SIMPSON CMST14 DRAG STRAP NAILED TO FACE OF EXTERIOR BEAMS AND RIM BOARDS. ATTACH STRAP WITH MANUFACTURER'S SPECIFIED FASTENERS AT EVERY OTHER HOLE
06FJ	14" TJI 110 FLOOR JOIST AT 16" o.c.
06FS	23/32" T&G PLYWOOD FLOOR SHEATHING GLUED AND ATTACHED PER GSN
06WI	INTERIOR WALL FRAMING = 2x6 STUDS @ 16" o.c.
06WL	EXTERIOR WALL FRAMING = 2x6 STUDS @ 16" o.c.



A3 THIRD LEVEL FRAMING PLAN
SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4"= 1'-0"
0 2' 4' 8'

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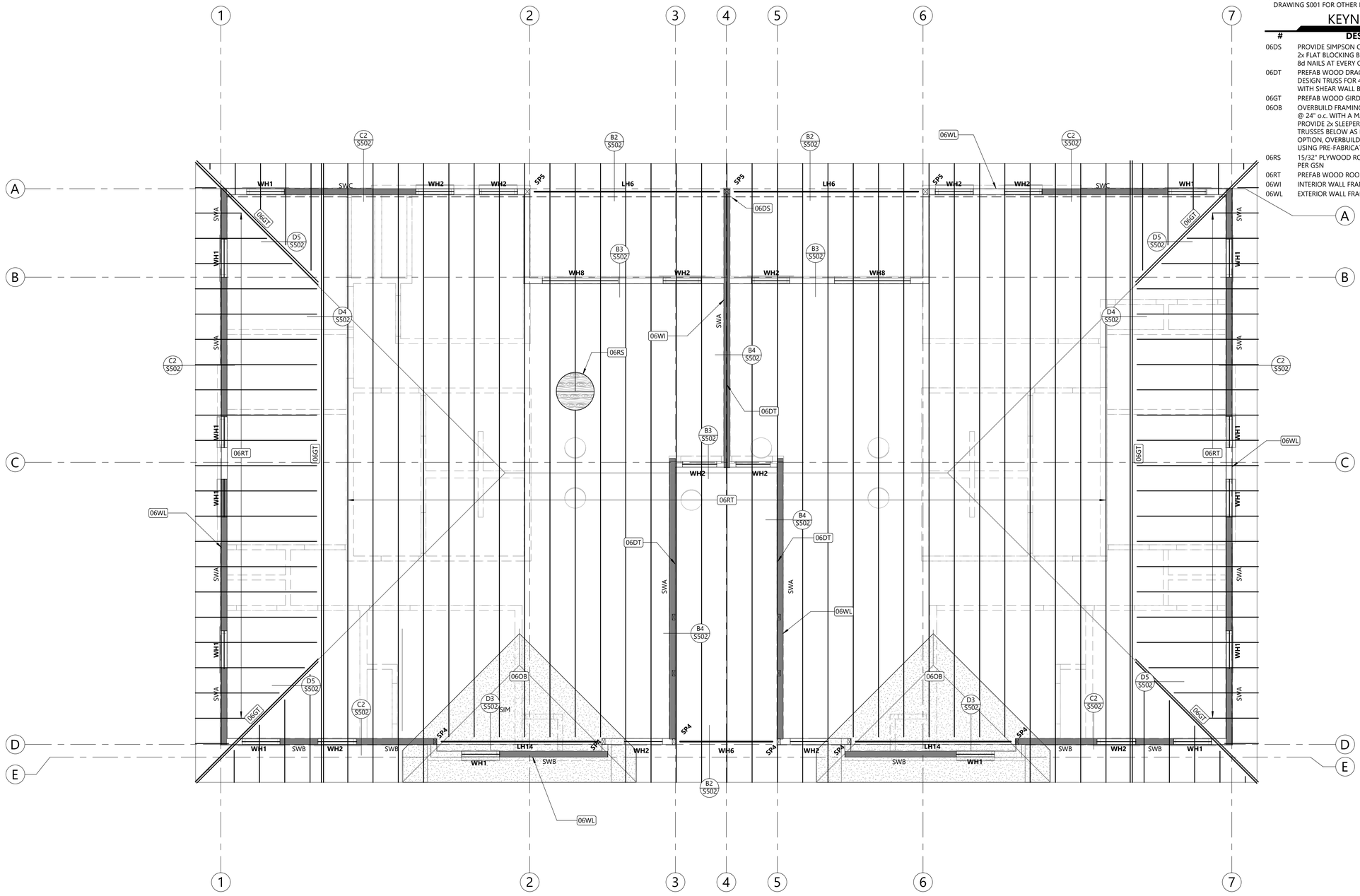
THIRD LEVEL FRAMING PLAN

S103



A3 ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"

SHEET NOTES

1. COORDINATE AND VERIFY THIS DRAWING WITH ALL OTHER DRAWINGS INCLUDING ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS.
2. FOR ALL DIMENSIONS NOT SHOWN, REFER TO THE ARCHITECTURAL DRAWINGS.
3. "#T#K" EQUALS NUMBER OF TRIMMER STUDS AND KING STUDS REQUIRED ADJACENT TO OPENINGS IN BEARING WALLS. PROVIDE 1T1K MINIMUM AT ALL OPENINGS IN EXTERIOR WALLS AND INTERIOR BEARING WALLS, U.N.O.
4. REFER TO THE GENERAL STRUCTURAL NOTES, DRAWING S001 FOR OTHER REQUIREMENTS.

KEYNOTES

#	DESCRIPTION
06DS	PROVIDE SIMPSON CS16 DRAG STRAP NAILED TO 2x FLAT BLOCKING BELOW. ATTACH STRAP WITH 8d NAILS AT EVERY OTHER HOLE
06DT	PREFAB WOOD DRAG TRUSS. TRUSS DESIGNER TO DESIGN TRUSS FOR 4,500 LB DRAG FORCE. ALIGN WITH SHEAR WALL BELOW
06GT	PREFAB WOOD GIRDER TRUSS
06OB	OVERBUILD FRAMING IN SHADED AREAS TO BE 2x6 @ 24" o.c. WITH A MAXIMUM SPAN OF 8'-0". PROVIDE 2x SLEEPER SUPPORT ACROSS EXISTING TRUSSES BELOW AS NEEDED. AT CONTRACTOR'S OPTION, OVERBUILD FRAMING MAY BE FRAMED USING PRE-FABRICATED TRUSSES
06RS	15/32" PLYWOOD ROOF SHEATHING ATTACHED PER GSN
06RT	PREFAB WOOD ROOF TRUSSES @ 24" o.c.
06WI	INTERIOR WALL FRAMING = 2x6 STUDS @ 16" o.c.
06WL	EXTERIOR WALL FRAMING = 2x6 STUDS @ 16" o.c.

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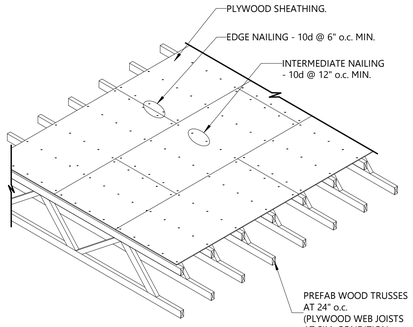
GRAPHIC SCALE: 1/4" = 1'-0"
0 2' 4' 8'

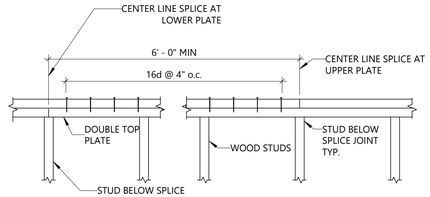
PERMIT SET

ROOF FRAMING PLAN

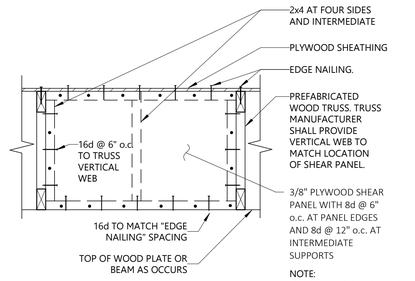
S111



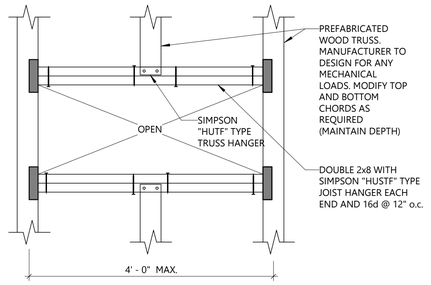
D3 TYP.WOOD SHEATHING AT TRUSS
SCALE: 3/4" = 1'-0"



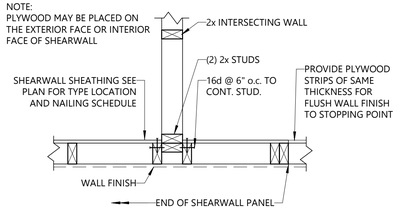
D5 TYP. SPLICE OF TOP PLATES
SCALE: 1" = 1'-0"



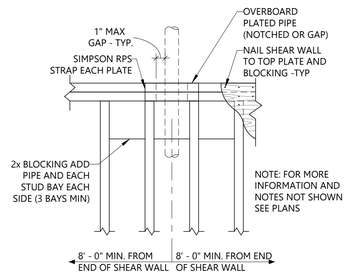
D6 TYP. PLYWOOD SHEAR PANEL
SCALE: 1" = 1'-0"



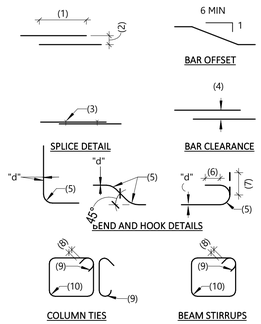
C4 TYP. ROOF OPENING
SCALE: 1" = 1'-0"



C5 SHEARWALL AT PARTITION
SCALE: 1" = 1'-0"

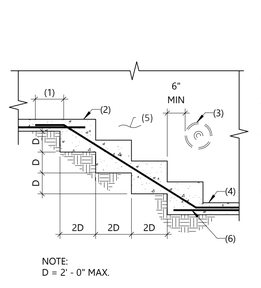


C6 TYP PIPE IN SHEARWALL
SCALE: 1 1/2" = 1'-0"



NOTES:
1. LAP, SEE G.S.N.
2. MAXIMUM 1/5 LAP BUT NOT MORE THAN 6"
3. WIRE TIES
4. 1d (1" MINIMUM)
5. RADIUS = 3d FOR BARS NOT OVER #8; 4d FOR #9, #10, AND #11 BARS; 5d FOR #14 AND #18 BARS. 5d FOR ALL GRADE 40 BARS BARS WITH 180 DEGREE HOOK
6. 4d (4" MINIMUM)
7. 12d (90 DEGREE HOOK)
8. 6d (4" MINIMUM)
9. 135 DEGREE BEND
10. BEND AROUND 1 1/2" PIN FOR #3 BARS. BEND AROUND 2" PIN FOR #4 BARS. BEND AROUND 2 1/2" PIN FOR #5 BARS

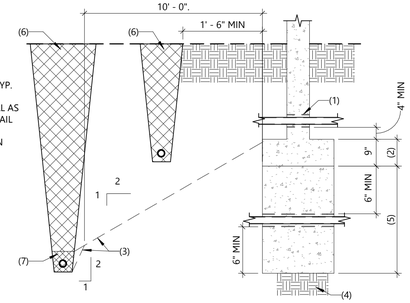
B2 TYP. CONCRETE REINF. BAR DETAILS
SCALE: 1/2" = 1'-0"



NOTES:
1. LAP PER G.S.N. (24" MIN) TYP.
2. TOP OF WALL FOOTING
3. PIPE THROUGH STEM WALL AS OCCURS. SEE TYPICAL DETAIL
4. RETURN TO FOOTING THICKNESS AS SHOWN ON PLAN
5. STEM WALL. SEE OTHER DETAILS
6. CONTINUOUS FOOTING REINFORCING

NOTE:
D = 2' - 0" MAX.

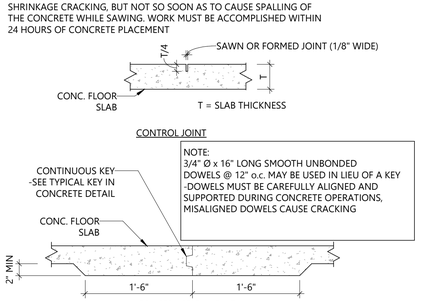
B3 TYP. STEP IN CONCRETE FOOTING
SCALE: 1/2" = 1'-0"



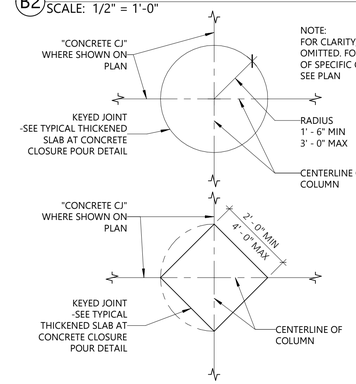
NOTES:
1. C.I. SLEEVE 2" LARGER THAN PIPE
2. NO SLEEVES PERMITTED
3. EXCAVATION BELOW THESE LINES ARE NOT PERMITTED
4. CONCRETE FILL PIPE TRENCH. EXTEND 2' - 0" EACH SIDE OF SLEEVE.
5. 3' - 0" MAXIMUM. STEP FOOTING IF NECESSARY IN ORDER TO MAINTAIN 3' - 0" MAX. HEIGHT
6. BACK FILL PER SPECS.
7. 90% DENSITY - (ASTM D-698)

NOTE:
PIPES LOCATED GREATER THAN 3' - 0" BELOW FOOTING BASE MAY BE BACKFILLED WITH COMPACTED FILL PER SPECIFICATIONS

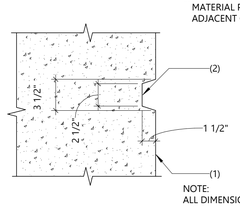
B4 TYP. PIPE THROUGH FOOTING AND TRENCH
SCALE: 1/2" = 1'-0"



B6 TYP. CONTROL JOINTS ON SLAB
SCALE: 1" = 1'-0"



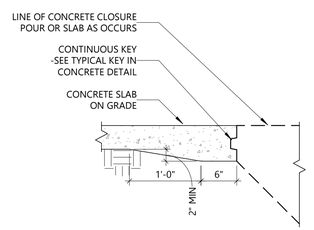
A2 TYP. COL CLOSURE POUR AT SLAB
SCALE: 1/2" = 1'-0"



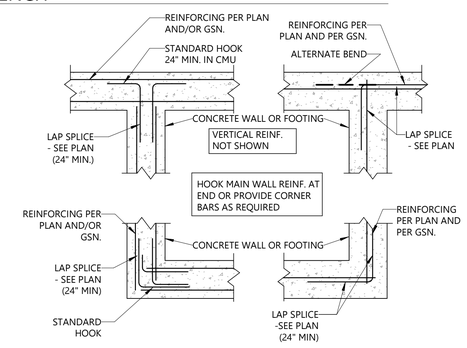
NOTES:
1. CONCRETE
2. KEYED JOINT. REMOVE FORM MATERIAL PRIOR TO PLACING ADJACENT CONCRETE

NOTE:
ALL DIMENSIONS ARE ± 1/2"

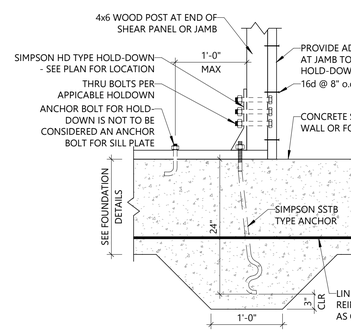
A3 TYP. KEY IN CONCRETE
SCALE: 1 1/2" = 1'-0"



A4 TYP THICKENED SLAB AT CONC. POUR
SCALE: 1" = 1'-0"



A5 TYP. CORNER REINF. IN CONCRETE FOOTING
SCALE: 1" = 1'-0"



A6 TYPICAL SIMPSON HD TYPE HOLD-DOWN
SCALE: 1" = 1'-0"

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5/30/2025
No.7717774-2203
STEVEN W. THEURER
STATE OF UTAH
LICENSED PROFESSIONAL STRUCTURAL ENGINEER

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684 EAST 700 NORTH
LOGAN, UT 84321

CARTWRIGHT PROJECT #	123021
DATE:	5/29/2025
DRAWN BY:	FWP
CHECKED BY:	JPF
APPROVED BY:	SWT

REVISIONS
DATE DESCRIPTION

TYPICAL STRUCTURAL DETAILS

S500

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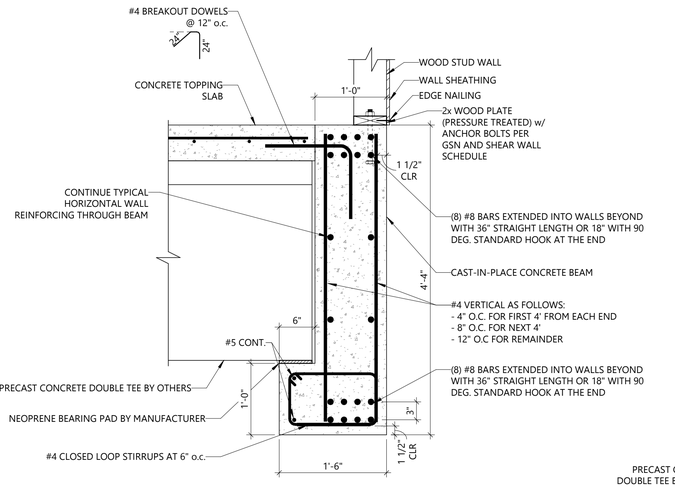
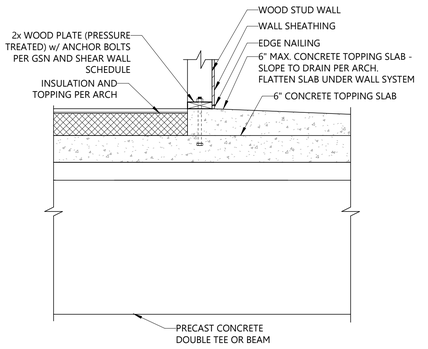
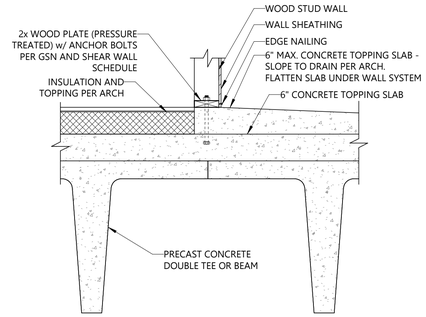


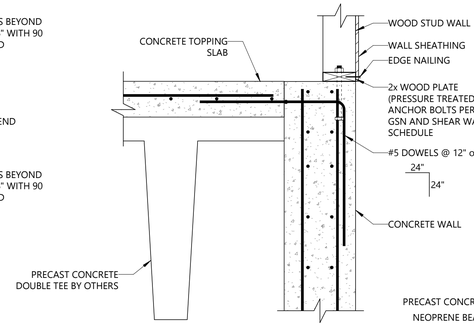
B1 DOUBLE TEE AT CONCRETE BEAM
SCALE: 1" = 1'-0"



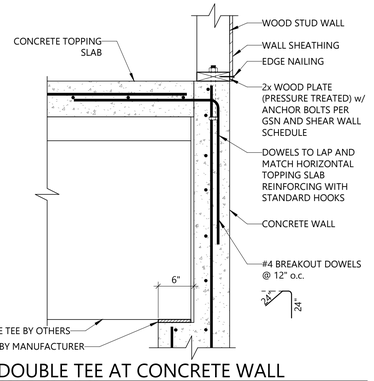
C4 EXT. WOOD WALL AT DOUBLE TEE
SCALE: 3/4" = 1'-0"



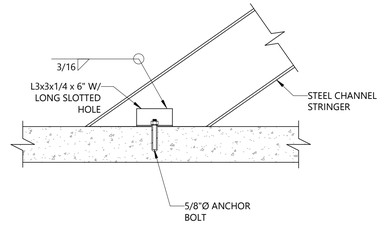
C5 EXT. WOOD WALL AT DOUBLE TEE
SCALE: 3/4" = 1'-0"



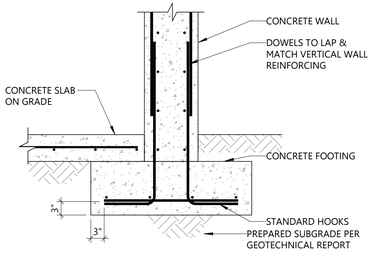
B3 DOUBLE TEE AT FOUNDATION WALL
SCALE: 1" = 1'-0"



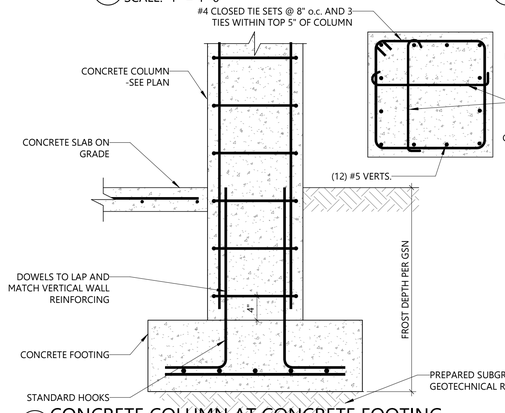
B4 DOUBLE TEE AT CONCRETE WALL
SCALE: 1" = 1'-0"



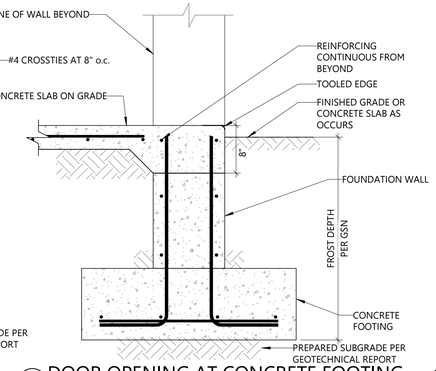
B5 STRINGER AT SLAB
SCALE: 1" = 1'-0"



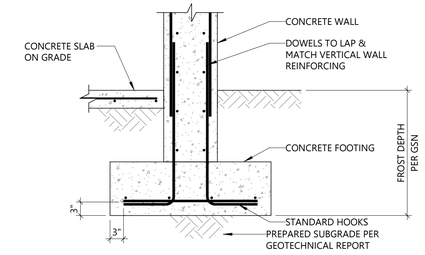
A2 BASEMENT WALL AT CONCRETE FOOTING
SCALE: 3/4" = 1'-0"



A3 CONCRETE COLUMN AT CONCRETE FOOTING
SCALE: 1" = 1'-0"



A4 DOOR OPENING AT CONCRETE FOOTING
SCALE: 1" = 1'-0"



A5 BASEMENT WALL AT CONCRETE FOOTING
SCALE: 3/4" = 1'-0"

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S501

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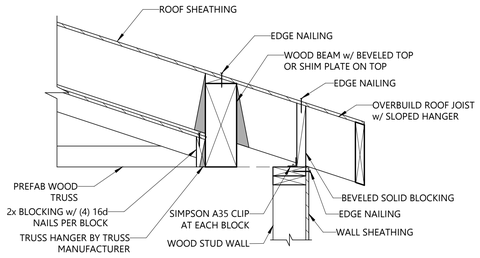
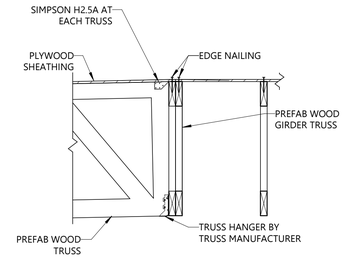
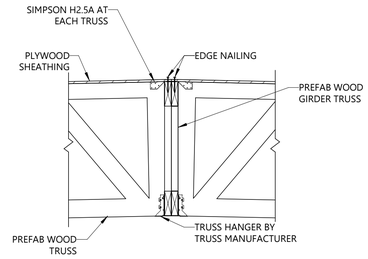


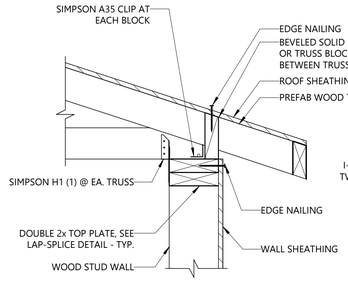
D3 PREFAB WOOD TRUSS AT WOOD BEAM
SCALE: 1" = 1'-0"



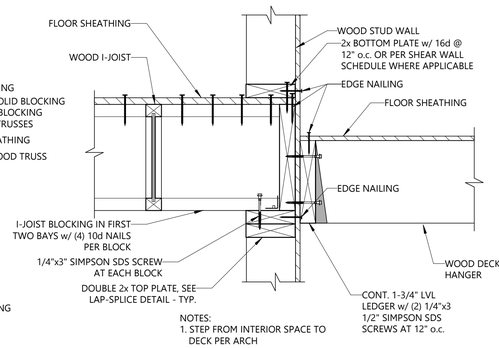
D4 PREFAB TRUSS AT GIRDER TRUSS
SCALE: 3/4" = 1'-0"



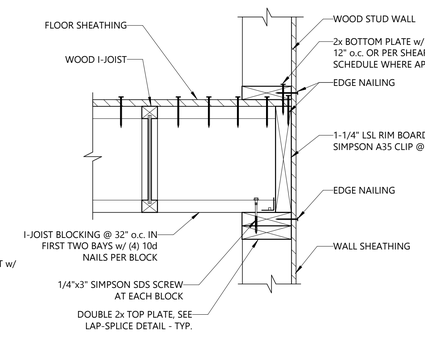
D5 PREFAB TRUSS AT GIRDER TRUSS
SCALE: 3/4" = 1'-0"



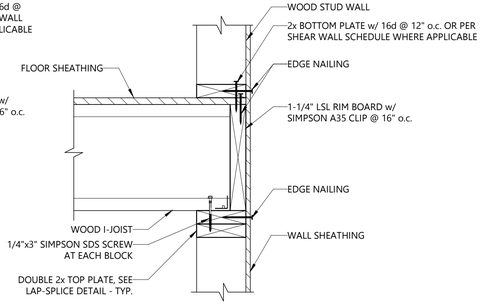
C2 WOOD TRUSS AT WOOD STUD WALL
SCALE: 1 1/2" = 1'-0"



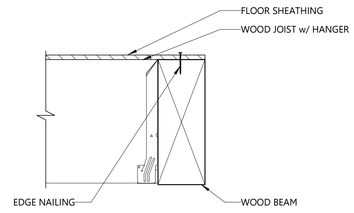
C3 WOOD JOIST AT WOOD STUD WALL
SCALE: 1 1/2" = 1'-0"



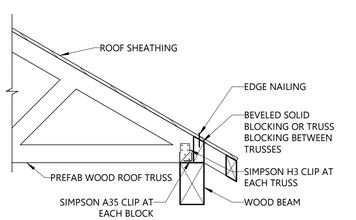
C4 WOOD JOIST AT WOOD WALL
SCALE: 1 1/2" = 1'-0"



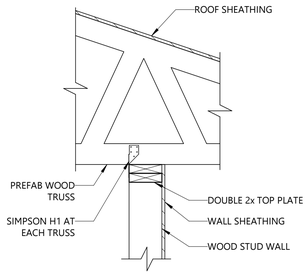
C5 WOOD JOIST AT WOOD WALL
SCALE: 1 1/2" = 1'-0"



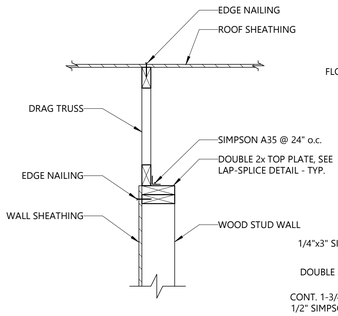
B1 WOOD JOIST AT WOOD BEAM
SCALE: 1 1/2" = 1'-0"



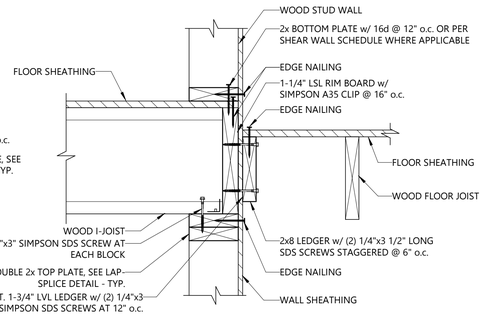
B2 PREFAB WOOD TRUSS AT WOOD BEAM
SCALE: 1" = 1'-0"



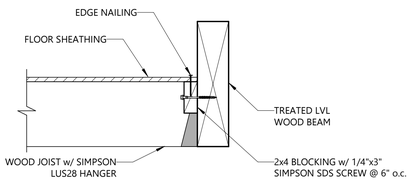
B3 PREFAB WOOD TRUSS AT WOOD STUD WALL
SCALE: 1" = 1'-0"



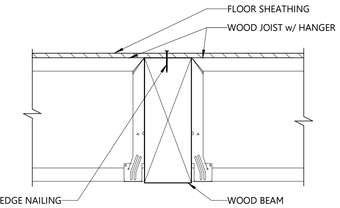
B4 DRAG TRUSS AT SHEAR WALL
SCALE: 1" = 1'-0"



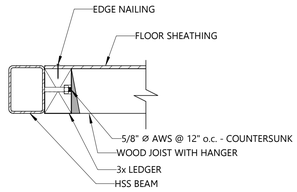
B5 WOOD JOIST AT WOOD WALL
SCALE: 1 1/2" = 1'-0"



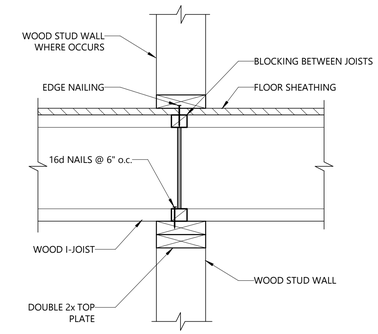
A1 WOOD JOIST AT WOOD BEAM
SCALE: 1 1/2" = 1'-0"



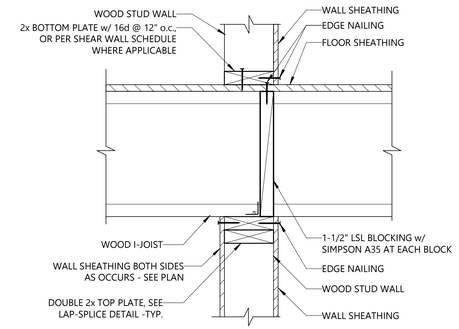
A2 WOOD JOIST AT WOOD BEAM
SCALE: 1 1/2" = 1'-0"



A3 WOOD JOIST AT STEEL BEAM
SCALE: 1" = 1'-0"



A4 WOOD JOIST AT WOOD WALL
SCALE: 1 1/2" = 1'-0"



A5 WOOD JOIST AT WOOD WALL
SCALE: 1 1/2" = 1'-0"

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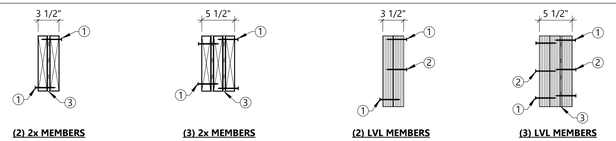
WOOD POST SCHEDULE

MARK	SIZE		MARK	SIZE		MARK	SIZE	
SP1	(2) 2x4		WP1	4x4		EP1	3-1/2x3-1/2 PSL	
SP2	(3) 2x4		WP2	4x6		EP2	3-1/2x5-1/4 PSL	
SP3	(4) 2x4		WP3	4x8		EP3	3-1/2x7 PSL	
SP4	(2) 2x6		WP4	6x6		EP4	5-1/4x5-1/4 PSL	
SP5	(3) 2x6		WP5	6x8		EP5	5-1/4x7 PSL	
SP6	(4) 2x6		WP6	8x8		EP6	7x7 PSL	

WOOD BEAM AND HEADER SCHEDULE



(2) 2x MEMBERS | (3) 2x MEMBERS | (2) LVL MEMBERS | (3) LVL MEMBERS

KEYNOTES:
1. 16d NAILS STAGGERED AT 8" o.c. AS SHOWN
2. (3) ROWS OF 16d NAILS AT 8" o.c. AT 14" MEMBERS OR DEEPER AS SHOWN
3. PLYWOOD SPACER - 3" WIDE BY BEAM DEPTH (MIN.)

MARK	SIZE		MARK	SIZE		MARK	SIZE	
WH1	(2) 2x6		LH1	(2) 1-3/4x5-1/2 LVL		GH1	3-1/8x9 GL	
WH2	(3) 2x6		LH2	(3) 1-3/4x5-1/2 LVL		GH2	5-1/8x9 GL	
WH3	(2) 2x8		LH3	(2) 1-3/4x7-1/4 LVL		GH3	3-1/8x10-1/2 GL	
WH4	(3) 2x8		LH4	(3) 1-3/4x7-1/4 LVL		GH4	5-1/8x10-1/2 GL	
WH5	(2) 2x10		LH5	(2) 1-3/4x9-1/4 LVL		GH5	3-1/8x12 GL	
WH6	(3) 2x10		LH6	(3) 1-3/4x9-1/4 LVL		GH6	5-1/8x12 GL	
WH7	(2) 2x12		LH7	(2) 1-3/4x9-1/2 LVL		GH7	3-1/8x13-1/2 GL	
WH8	(3) 2x12		LH8	(3) 1-3/4x9-1/2 LVL		GH8	5-1/8x13-1/2 GL	
WH9	4x8		LH9	(2) 1-3/4x11-1/4 LVL				
WH10	6x8		LH10	(3) 1-3/4x11-1/4 LVL				
			LH11	(2) 1-3/4x11-7/8 LVL				
			LH12	(3) 1-3/4x11-7/8 LVL				
			LH13	(2) 1-3/4x14 LVL				
			LH14	(3) 1-3/4x14 LVL				
			LH15	(2) 1-3/4x16 LVL				
			LH16	(3) 1-3/4x16 LVL				
			LH17	(3) 1-3/4x18 LVL				

HOLDOWN SCHEDULE

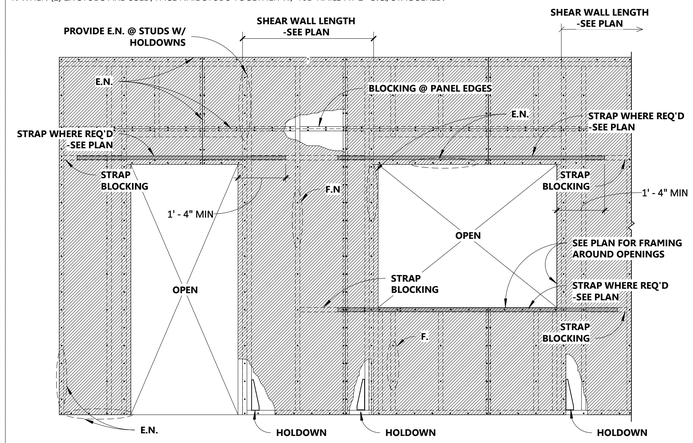
MARK	DESCRIPTION	COMMENTS
1	SIMPSON DTT2Z	SEE NOTE 4 FOR ANCHOR
2	SIMPSON HDU8	SEE NOTE 5 FOR ANCHOR
3	SIMPSON HDU14	6x6 POST, SEE NOTE 6 FOR ANCHOR
4	SIMPSON HD19	6x6 DF #1 POST, SEE NOTE 7 FOR ANCHOR
5	SIMPSON CS16	CENTER STRAP VERTICALLY ON FLOOR w/ 15" END LENGTH PAST EDGE OF FLOOR FRAMING EACH DIRECTION
6	SIMPSON CMSTC16	CENTER STRAP VERTICALLY ON FLOOR w/ 25" END LENGTH PAST EDGE OF FLOOR FRAMING EACH DIRECTION

NOTES
1. INSTALL ALL HARDWARE AS PER MANUFACTURERS RECOMMENDATIONS.
2. HOLDOWNS AT CORNERS TO BE ATTACHED TO COMMON STUDS TO CORNER WALLS
3. ATTACH HOLDOWNS TO (2) 2X STUDS UNO
4. CAST-IN-PLACE: SIMPSON SSTB24 ANCHOR BOLT. POST-INSTALLED: PROVIDE 5/8" Ø THREADED ROD AND EPOXY INTO CLEAN DRY HOLE WITH SIMPSON SET-XP EPOXY (ICC REPORT # 2508) OR EQUAL. PROVIDE 12" MINIMUM EMBEDMENT.
5. CAST-IN-PLACE: SIMPSON SSTB28 ANCHOR BOLT. POST-INSTALLED: PROVIDE 7/8" Ø THREADED ROD AND EPOXY INTO CLEAN DRY HOLE WITH SIMPSON SET-XP EPOXY (ICC REPORT # 2508) OR EQUAL PROVIDE 15" MINIMUM EMBEDMENT
6. CAST-IN-PLACE: 1"X18" LONG HEAVY-HEX ANCHOR BOLT WITH HEAD EMBEDDED AT BOTTOM. POST-INSTALLED: PROVIDE 1" Ø THREADED ROD AND EPOXY INTO CLEAN DRY HOLE WITH SIMPSON SET-XP EPOXY (ICC REPORT # 2508) OR EQUAL PROVIDE 15" MINIMUM EMBEDMENT
7. CAST-IN-PACE: SIMPSON PAB10 ANCHOR BOLT. POST-INSTALLED: PROVIDE 1/4"Ø THREADED ROD AND EPOXY INTO CLEAN DRY HOLE WITH SIMPSON SET-XP EPOXY (ICC REPORT #2508) OR EQUAL PROVIDE 15" MINIMUM EMBEDMENT.

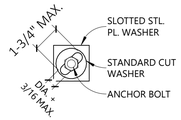
WOOD SHEAR WALL SCHEDULE

MARK	SHEATHING ATTACHMENT: SHEATHING THICKNESS	WALL SIDES SHEATHED	FRAMING THICKNESS AT PANEL EDGES	EDGE NAILING (E.N.)	FIELD NAILING (F.N.)	BOTTOM PLATE ATTACHMENT: NOMINAL SILL PLATE THICKNESS	ANCHOR BOLTS TO CONCRETE	NAILS/SCREWS TO WOOD	COMMENTS
SWA	7/16" PLYWOOD	1	2x	8d @ 6" o.c.	8d @ 12" o.c.	2x	5/8" Ø @ 48" o.c.	16d STAGGERED AT 5" o.c.	BLOCKED
SWB	7/16" PLYWOOD	1	2x	8d @ 4" o.c.	8d @ 12" o.c.	2x	5/8" Ø @ 32" o.c.	16d STAGGERED AT 4" o.c.	BLOCKED
SWC	7/16" PLYWOOD	1	2x	8d @ 3" o.c.	8d @ 12" o.c.	2x	5/8" Ø @ 24" o.c.	16d STAGGERED AT 3" o.c.	BLOCKED
SWD	7/16" PLYWOOD	1	3x OR (2)2x	8d @ 2" o.c.	8d @ 12" o.c.	2x	5/8" Ø @ 18" o.c.	16d STAGGERED AT 2" o.c.	BLOCKED
SWCC	7/16" PLYWOOD	2	3x OR (2)2x	8d @ 3" o.c.	8d @ 12" o.c.	3x	5/8" Ø @ 16" o.c.	1/4"x4 1/2" SDS SCREW STAGGERED AT 4" o.c.	BLOCKED
SWDD	7/16" PLYWOOD	2	3x OR (2)2x	8d @ 2" o.c.	8d @ 12" o.c.	3x	5/8" Ø @ 12" o.c.	1/4"x4 1/2" SDS SCREW STAGGERED AT 3" o.c.	BLOCKED

NOTES
1. WALL STUDS SUPPORTING SHEATHING SHALL BE SPACED AT 16" O.C. MAX.
2. PROVIDE BLOCKING AT ALL PANEL EDGES AT PLYWOOD SHEATHING.
3. ANCHOR BOLTS SHALL BE EMBEDDED 7 INCHES MIN. INTO CONCRETE.
4. PROVIDE 2 ANCHOR BOLTS MINIMUM PER SILL PLATE PIECE, EACH WITHIN 12 INCHES AND NO CLOSER THAN 4 INCHES OF EACH END.
5. PROVIDE 2 FULL HEIGHT STUDS MIN. AT EACH END OF EACH SHEAR WALL U.N.O.
6. ALL ANCHOR BOLTS SHALL HAVE A NUT AND MIN. 3"X3"X.229" STEEL PLATE WASHER.
7. WHEN (2) 2X STUDS ARE USED, FACE NAIL STUDS TOGETHER W/ 16D NAILS AT 2" O.C., STAGGERED.



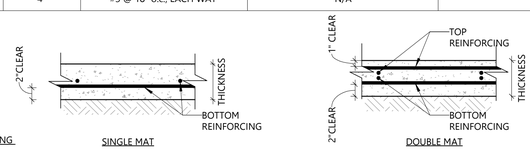
SHEAR WALL ELEVATION VIEW



ALTERNATE SLOTTED PL. WASHER

SLAB ON GRADE SCHEDULE

MARK	THICKNESS	BOTTOM REINFORCING	TOP REINFORCING	COMMENTS
SG1	4"	#3 @ 18" o.c., EACH WAY	N/A	

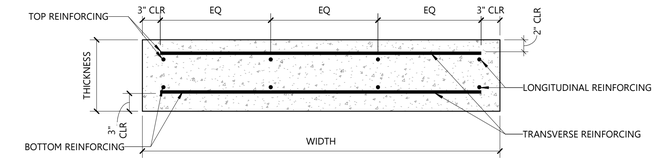


REINFORCING MATS: SINGLE MAT | DOUBLE MAT

NOTES:
1. PLACE SLAB ON GRADE OVER PREPARED AND COMPACTED SUBGRADE PER THE GEOTECHNICAL REPORT

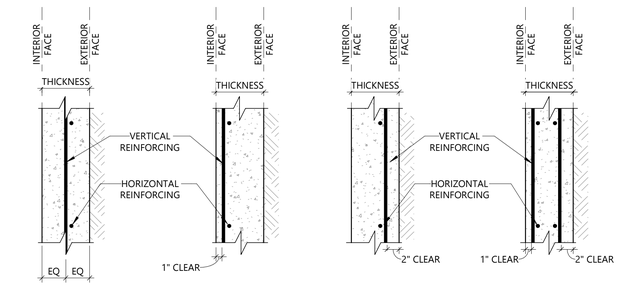
FOOTING SCHEDULE

MARK	WIDTH	LENGTH	THICKNESS	LONGITUDINAL REINFORCING	TRANSVERSE REINFORCING
FC2.5	2'-6"	CONT.	1'-0"	(3) #5, BOTTOM	#3 @ 18" o.c.
FC3.5	3'-6"	CONT.	1'-0"	(3) #5, BOTTOM	#3 @ 18" o.c.
FS6.0	6'-0"	6'-0"	1'-6"	(8) #5, TOP & BOTTOM	(8) #5, TOP & BOTTOM



FOUNDATION WALL SCHEDULE

MARK	THICKNESS	VERTICAL REINFORCING	HORIZONTAL REINFORCING	REINFORCING LOCATION
FW12	12"	#5 @ 10" o.c.	#5 @ 12" o.c.	EACH FACE



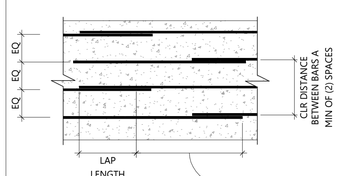
REINFORCING LOCATION: CENTERED | INTERIOR FACE | EXTERIOR FACE | EACH FACE

NOTES:
1. FOR WALLS THAT ARE CAST DIRECTLY AGAINST EARTH, REINFORCING PLACED ON EXTERIOR FACE SHALL HAVE 3" CLEAR COVER.
2. PROVIDE MINIMUM OF (1) #4 HORIZONTAL BAR WITHIN 12" OF TOP AND BOTTOM OF EACH WALL.

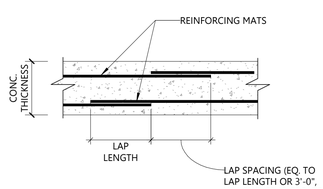
CONCRETE REINFORCING BAR LAP SPLICE SCHEDULE

BAR SIZE	f ' c = 3,000psI				f ' c = 4,000psI				f ' c = 5,000psI				f ' c = 6,000psI			
	REGULAR CLASS		TOP CLASS		REGULAR CLASS		TOP CLASS		REGULAR CLASS		TOP CLASS		REGULAR CLASS		TOP CLASS	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
#3	13"	17"	17"	21"	12"	16"	16"	21"	12"	16"	16"	21"	12"	16"	16"	21"
#4	17"	22"	22"	28"	15"	19"	19"	25"	13"	17"	17"	22"	12"	16"	16"	21"
#5	21"	27"	27"	35"	18"	24"	24"	31"	16"	21"	21"	27"	15"	19"	19"	25"
#6	27"	36"	36"	46"	24"	31"	31"	40"	21"	28"	28"	36"	20"	25"	25"	33"
#7	37"	48"	48"	63"	32"	42"	42"	54"	29"	38"	38"	49"	27"	34"	34"	44"
#8	49"	64"	64"	82"	42"	55"	55"	71"	38"	49"	49"	64"	35"	45"	45"	58"
#9	62"	80"	80"	104"	54"	70"	70"	90"	48"	62"	62"	81"	44"	57"	57"	74"
#10	78"	102"	102"	132"	68"	88"	88"	115"	61"	79"	79"	102"	56"	72"	72"	94"
#11	96"	125"	125"	162"	83"	108"	108"	141"	76"	97"	97"	126"	68"	88"	88"	115"

NOTES:
1. THIS SCHEDULE SHALL BE USED FOR ALL BAR SPLICES IN CONCRETE WALLS AND SLABS, U.N.O.
2. CLASS "A" SPLICES MAY BE USED ONLY IN CASES WHERE 50% OR LESS OF THE BARS ARE SPLICED WITHIN THE LAP SPLICE LENGTH, SEE DETAILS BELOW.
3. CLASS "B" SPLICES SHALL BE USED FOR ALL SPLICES UNLESS THE REQUIREMENTS CLASS "A" SPLICES ARE MET.
4. TIES AND STIRRUPS SHALL NOT BE SPLICED.
5. SPLICES FOR BUNDLED BARS:
   A. FOR BUNDLED BARS OF THREE OR LESS, LAP SPLICE LENGTHS SHALL BE MULTIPLIED BY 1.2.
   B. FOR BUNDLED BARS OF FOUR OR MORE, LAP SPLICE LENGTHS SHALL BE MULTIPLIED BY 1.33.
   C. INDIVIDUAL BAR SPLICES WITHIN A BUNDLE SHALL NOT OVERLAP.
   D. ENTIRE BUNDLES SHALL NOT BE LAP SPLICED.
6. FOR ALL LIGHTWEIGHT CONCRETE, LAP LENGTHS SHALL BE MULTIPLIED BY 1.3.
7. FOR ALL EPOXY COATED BARS, LAP LENGTHS SHALL BE MULTIPLIED BY 1.5.
8. TOP BARS ARE DEFINED AS HORIZONTAL BARS WHERE 12", OR MORE, OF FRESH CONCRETE IS CAST BELOW THE REINFORCING BAR.
9. SEE GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.



CLASS "A" SPLICES IN MULTIPLE MATS



CLASS "A" SPLICES IN PLANE OF MAT

CARTWRIGHT
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2120 NORTH MAIN STREET
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5/30/2025
No.7717774-2203
STEVEN W. THEURER

K&B APARTMENTS
684 EAST 700 NORTH
LOGAN, UT 84321

CARTWRIGHT PROJECT #	123021
DATE:	5/29/2025
DRAWN BY:	FWP
CHECKED BY:	JPF
APPROVED BY:	SWT

REVISIONS
DATE DESCRIPTION

STRUCTURAL SCHEDULES

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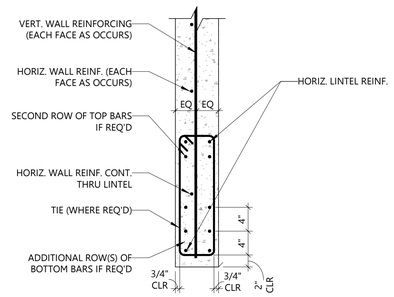
CONCRETE LINTEL SCHEDULE

LINTEL MARK	LINTEL DEPTH	REINFORCING			COMMENTS
		HORIZONTAL	LOCATION	TIES	
CL1	18"	(2) #6	BOTTOM	#3 TIES @ 12" o.c.	TYP. U.N.O.
CL2	18"	(2) ROWS OF (2) #5 (4 BARS TOTAL)	BOTTOM	#3 TIES @ 12" o.c.	---

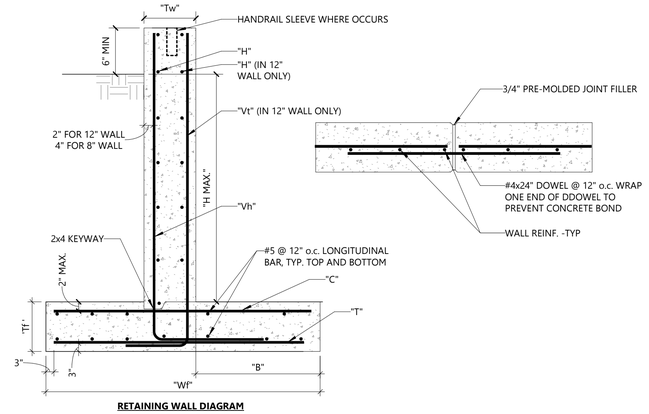
NOTES
1. EXTEND LINTEL REINFORCING BEYOND EDGE OF THE OPENING 4'-0" MINIMUM. WHERE NOT POSSIBLE, EXTEND TO THE EDGE OF WALL AND TERMINATE WITH A STANDARD 90° HOOK, OR, HEADED BAR. FOR MULTIPLE OPENINGS, RUN LINTEL REINFORCING CONTINUOUS.
2. SEE ARCHITECTURAL FOR WALL ELEVATIONS AND OPENING LOCATIONS.
3. SEE DETAILS ON THIS SHEET FOR REINFORCING PLACEMENT DIAGRAMS (WALL, LINTEL, AND JAMB REINFORCING).



RETAINING WALL SCHEDULE

MARK	DIMENSIONS					REINFORCEMENT									
	H MAX.	Tw	Wf	B	Tf	Vt		Vh		H		T		C	
						SIZE	SPACE	SIZE	SPACE	SIZE	SPACE	SIZE	SPACE	SIZE	SPACE
RW1	12'-6"	12"	9'-0"	3'-6"	18"	#5	@ 8" o.c.	#5	@ 8" o.c.	#5	@ 12" o.c.	#5	@ 8" o.c.	#5	@ 12" o.c.
RW2	6'-6"	8"	4'-6"	1'-10"	12"	N/A	N/A	#5	@ 12" o.c.	#5	@ 12" o.c.	#5	@ 12" o.c.	#5	@ 12" o.c.
RW3	3'-6"	8"	2'-6"	10"	12"	N/A	N/A	#5	@ 18" o.c.	#5	@ 12" o.c.	#5	@ 12" o.c.	#5	@ 12" o.c.

NOTES:
1. PROVIDE 3/4" DEEP VERT. CONTROL JOINT @ 15'-0" o.c. (MAX. SPACING). MAINTAIN HORIZ. REINF. CONTINUOUS THROUGH JOINT
2. PROVIDE VERT. EXPANSION JOINTS @ 48'-0" o.c. (MAX. SPACING). SEE SECTION A-A
3. CONCRETE TO REACH 100% DESIGN STRENGTH PRIOR TO BACK FILLING.
4. FILTER FABRIC TO BE FREE-DRAINING W/O ALLOWING INFILTRATION OF FINE SOILS.
5. CONTRACTOR TO CONFIRM LOCATION, HEIGHTS AND EXTENTS OF RETAINING WALLS WITH CIVIL DRAWINGS



RETAINING WALL DIAGRAM

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SECTION 01 00 00 – GENERAL REQUIREMENTS

1. DRAWINGS ARE DIAGRAMMATIC AND SHOULD NOT BE SCALED FOR EXACT DIMENSIONS; EXACT DIMENSIONS AND LOCATIONS SHALL BE DETERMINED BY MEASUREMENTS IN THE FIELD AND SHALL BE SUBJECT TO APPROVAL BY THE ARCHITECT/ENGINEER. THE CONTRACTOR SHALL VERIFY DIMENSION PRIOR TO ORDERING EQUIPMENT AND MATERIAL.
2. BEFORE SUBMITTING A BID, IT WILL BE NECESSARY FOR EACH CONTRACTOR TO VISIT THE SITE AND ASCERTAIN FOR HIMSELF/HERSELF THE CONDITIONS TO BE MET IN INSTALLING THE WORK AND MAKE PROVISIONS FOR THE CONDITIONS IN THE FINAL PRICE. FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL NOT BE CONSIDERED JUSTIFICATION FOR THE OMISSION OR FAULTY INSTALLATION OF ANY WORK. BY SUBMITTING A BID, THE CONTRACTOR IS STATING THAT THE BID COVERS ALL WORK NECESSARY TO PROPERLY INSTALL THE SYSTEM INDICATED.
3. IN CASE OF DISAGREEMENT BETWEEN THE DRAWINGS AND SPECIFICATIONS, OR WITHIN THE DRAWINGS OR SPECIFICATIONS, THE BID SHALL INCLUDE THE GREATER AMOUNT OF WORK AND THE MATTER SHALL BE REFERRED TO THE ARCHITECT/ENGINEER.
4. THE CONTRACTOR SHALL SECURE AND PAY ALL FEES ASSOCIATED WITH ANY AND ALL NECESSARY PERMITS, LICENSES, AND INSPECTIONS REQUIRED FOR THE WORK.
5. ALL WORK SHALL COMPLY WITH ALL PERTINENT NATIONAL, STATE AND LOCAL ORDINANCES AND CODES, AND ALL AMERICAN DISABILITIES ACT (ADA) REQUIREMENTS, AND ANY AMENDMENTS. NOTHING WITHIN THE DRAWINGS OR SPECIFICATIONS SHALL BE CONSTRUED AS WAIVING ANY OF THE RULES, REGULATIONS, OR REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION. IN THE EVENT OF A CONFLICT, THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION SHALL GOVERN. THE CONFLICT SHALL BE REPORTED TO THE ARCHITECT/ENGINEER IMMEDIATELY, AND NECESSARY MODIFICATION SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER OR ARCHITECT/ENGINEER.
6. IF THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS ARE IN EXCESS OF THOSE REQUIRED BY CODE, THE PROVISIONS OF THE CONSTRUCTION DOCUMENTS SHALL TAKE PRECEDENCE.
7. ALL EQUIPMENT AND MATERIALS FOR WHICH APPROVAL STANDARDS HAVE BEEN ESTABLISHED BY UNDERWRITERS' LABORATORIES, INC (UL), FACTORY MUTUAL (FM), AND AMERICAN STANDARD CODES SHALL BE SO APPROVED AND SHALL BEAR APPROVAL LABELS.
8. ALL WORK SHALL BE IN COMPLIANCE WITH ALL APPLICABLE SAFETY REGULATIONS.
9. SHOULD ANY DOUBT ARISE AS TO THE TRUE MEANING OF THE DRAWINGS OR SPECIFICATIONS, REFERENCE SHALL BE MADE TO THE ARCHITECT/ ENGINEER, WHOSE DECISION SHALL BE FINAL. THE ARCHITECT/ ENGINEER WILL RESPOND WITHIN 10 BUSINESS DAYS AFTER RECEIPT OF REQUEST FOR INFORMATION. THE CONTRACTOR SHALL CONFORM TO THESE RESPONSES AS PART OF THE CONTRACT WITH NO ADDITIONAL COST TO THE OWNER OR ARCHITECT/ ENGINEER. NO ALLEGED STATEMENT BY THE ARCHITECT/ ENGINEER IS ACCEPTABLE EXCUSE FOR INFERIOR WORK.
10. THE LISTING OF PRODUCT MANUFACTURERS, MATERIALS AND METHODS IS INTENDED TO ESTABLISH A STANDARD OF QUALITY. PRODUCTS BY OTHER MANUFACTURERS MAY BE ACCEPTED PROVIDED THEY HAVE THE EQUIVALENT CAPACITY, CONSTRUCTION, AND PERFORMANCE. THE ARCHITECT/ ENGINEER SHALL BE THE SOLE JUDGE OF QUALITY AND EQUIVALENCE OF EQUIPMENT, MATERIALS, AND METHODS. HOWEVER, UNDER NO CIRCUMSTANCES SHALL ANY SUBSTITUTION BE MADE WITHOUT WRITTEN APPROVAL OF THE ARCHITECT/ ENGINEER PRIOR TO BIDDING.
11. EQUIPMENT HAS BEEN CHOSEN TO FIT WITHIN THE AVAILABLE SPACE. WHERE SUBSTITUTED OR ALTERNATIVE EQUIPMENT IS PROPOSED, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE EQUIPMENT WILL FIT WITHIN THE SPACE AVAILABLE, INCLUDING ALL REQUIRED CODE AND MAINTENANCE CLEARANCES, AND TO COORDINATE ALL EQUIPMENT REQUIREMENTS WITH OTHER CONTRACTORS.
12. OBTAIN ALL EQUIPMENT OR MATERIAL OF EACH TYPE THROUGH ONE SOURCE, LOCALLY WHEN POSSIBLE, FROM A SINGLE MANUFACTURER.
13. SUBSTITUTIONS: PRODUCTS OF EQUAL PERFORMANCE CHARACTERISTICS MAY BE CONSIDERED. CONTRACTORS WISHING TO SUBSTITUTE A PRODUCT OR MATERIAL SHALL SUBMIT EACH REQUEST TO THE ARCHITECT/ ENGINEER IN WRITING AT LEAST 7 DAYS PRIOR TO BIDS BEING DUE. REQUESTS SHALL NOT BE CONSIDERED AFTER THAT TIME. THE ARCHITECT/ ENGINEER SHALL REVIEW THE REQUEST AND IF ACCEPTABLE WILL ISSUE A LETTER ALLOWING THE SUBSTITUTION. ANY ANTICIPATED USE OF A NON-SPECIFIED PRODUCT WITHOUT WRITTEN APPROVAL IS STRICTLY THE RISK OF THE CONTRACTOR. IF A REQUEST IS REJECTED, THE CONTRACTOR SHALL FURNISH THE SPECIFIED PRODUCT OR MATERIAL. EACH CONTRACTOR IS RESPONSIBLE FOR COSTS INCURRED BY OTHER TRADES AS A RESULT OF ANY SUBSTITUTION MADE BY THE CONTRACTOR.
14. SUBMITTALS: SUBMIT THE FOLLOWING IN ACCORDANCE WITH DIVISION 1 SPECIFICATIONS AND THE REQUIREMENTS OF THIS SECTION FOR EACH PIECE OF EQUIPMENT AND EACH TYPE OF COMPONENT AND MATERIAL.
    1. SUBMIT PRODUCT DATA FOR EACH TYPE OF PRODUCT SPECIFIED.
    2. SUBMIT SHOP/COORDINATION DRAWINGS AT A MINIMUM SCALE OF 1/4"= 1'-0" DETAILING ALL MAJOR EQUIPMENT, COMPONENT, AND SYSTEMS IN RELATION TO WORK OF OTHER TRADES, INDICATING INSTALLATION, CODE, AND WORKING CLEARANCES AND ACCESS FOR ALL EQUIPMENT AND COMPONENTS.
    3. SUBMIT SAMPLES OF COLOR, LETTERING, AND GRAPHICS FOR EACH IDENTIFICATION PRODUCT.
    4. CONTRACTOR SHALL SEPARATE SUBMITTALS TO CONTAIN NO MORE THAN ONE SPECIFICATION SECTION.
    5. WITHIN 30 DAYS AFTER AWARD OF CONTRACT, THE CONTRACTOR SHALL SUBMIT A MINIMUM OF FOUR (4) COPIES OF EACH SUBMITTAL WITH COVERSHEET TO THE ARCHITECT/ ENGINEER. IF ACCEPTABLE TO THE ARCHITECT/ OWNER, AN ELECTRONIC VERSION CONTAINING THE COVERSHEET AND ALL SUBMITTAL DATA WITHIN ONE FILE MAY BE SUBMITTED IN LIEU OF THE 4 COPIES.
    6. EACH SUBMITTAL SHALL INCLUDE THE FOLLOWING INFORMATION. SUBMITTALS THAT DO NOT COMPLY WITH THE FOLLOWING REQUIREMENTS WILL BE MARKED "REJECTED" AND RETURNED.
        1. COVERSHEET: INDICATING THE NAMES AND ADDRESS OF THE PROJECT, ARCHITECT, ENGINEER, AND CONTRACTOR, AND THE SUBMITTAL NAME AND NUMBER. NUMBER SHALL BE BASED ON THE SPECIFICATION SECTION, SUBMITTAL SEQUENCE NUMBER, AND A REVISION SEQUENCE NUMBER IS APPLICABLE. EX: 262726-02-R1 IS THE 1ST VERSION TO THE 2ND SUBMITTAL FOR SECTION 26 27 26.
        2. LIST OF VARIATIONS: THIS PAGE SHALL LIST ALL VARIATIONS INCLUDING FURNISHED/UNFURNISHED OPTIONS AND FEATURES BETWEEN THE SUBMITTED ITEM AND THE SCHEDULED/SPECIFIED ITEM. IF THERE ARE NOT VARIATIONS, THE PAGE SHALL STATE "NO VARIATIONS."
        3. PRODUCT INFORMATION: CLEARLY INDICATE MANUFACTURER'S NAME, DESIGNATION, SIZE, PERFORMANCE AND CAPACITY DATA, DIMENSIONAL DATA, SUFFICIENT PICTORIAL AND DIAGRAMMATIC DATA TO SHOW CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS. APPLICABLE INFORMATION SHALL BE CLEARLY INDICATED AND NON-APPLICABLE INFORMATION SHALL BE STRUCK-OUT.
        4. WARRANTY INFORMATION: MANUFACTURER'S WARRANTY CERTIFICATE THAT MEETS OR EXCEED THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS.
        5. CERTIFICATION BY THE GENERAL AND SUB-CONTRACTOR THAT MATERIAL SUBMITTED IS IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS, SIGNED AND DATED.
    7. SUBMITTAL REVIEW TIME IN THE ARCHITECTS/ ENGINEER'S OFFICE WILL BE A MINIMUM OF 10 WORKING DAYS PER REVIEW. THE CONTRACTOR SHALL CONSIDER THIS REVIEW TIME WHEN SCHEDULING WORK.
    8. EACH SUBMITTAL WILL BE MARKED WITH ONE OF THE FOLLOWING:
        1. NO EXCEPTIONS TAKEN – SUBMITTAL WAS REVIEWED AND NO DEVIATIONS WERE FOUND.
        2. EXCEPTIONS NOTED, SUBMIT RESPONSE – SUBMITTAL WAS REVIEWED AND FOUND TO HAVE MINOR DEVIATIONS OR MISSING INFORMATION. A RE-SUBMITTAL IS NOT REQUIRED; HOWEVER, A WRITTEN RESPONSE TO ALL REVIEW COMMENTS SHALL BE SUBMITTED.
        3. EXCEPTIONS NOTED, RESUBMIT – SUBMITTAL WAS REVIEWED AND MAJOR DEVIATIONS WERE NOTED. THE SUBMITTAL SHALL BE REVISED TO ADDRESS THE NOTED DEVIATIONS AND RESUBMITTED.
        4. REJECTED – SUBMITTAL WAS REVIEWED AND IS NOT IN CONFORMANCE OR IS NOT IN THE CORRECT FORMAT. A REVISED SUBMITTAL THAT IS IN CONFORMANCE SHALL BE RESUBMITTED.
    9. INADEQUATE OR INCOMPLETE SUBMITTALS WILL NOT BE REVIEWED AND WILL BE RETURNED MARKED "REJECTED."
    10. THE ARCHITECT'S/ ENGINEER'S REVIEW OF A SUBMITTAL SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF ERRORS, OMISSIONS, OVERSIGHTS, OR DEVIATIONS THAT MAY BE CONTAINED WITHIN THE SUBMITTAL. IF THE CONTRACTOR PROCEEDS BASED ON UNDETECTED ERRORS, OMISSIONS, OVERSIGHTS, OR DEVIATIONS, IT IS AT HIS/HER SOLE RESPONSIBILITY. REGARDLESS OF ANY INFORMATION CONTAINED IN THE SUBMITTAL OR THE ARCHITECT'S/ ENGINEER'S REVIEW THEREOF, THE CONTRACT DOCUMENTS SHALL GOVERN THE WORK AND NEITHER WAIVED NOR SUSPENDED BY THE SUBMITTAL REVIEW.
    11. EQUIPMENT AND MATERIAL PURCHASED WITHOUT A "NO EXCEPTIONS TAKEN" SUBMITTAL REVIEW IS AT THE RISK OF THE CONTRACTOR. THE COST OF REMOVAL AND REPLACEMENT OF SUCH ITEMS WHICH IS JUDGED UNSATISFACTORY BY THE ARCHITECT/ ENGINEER FOR ANY REASON SHALL BE AT THE CONTRACTOR'S EXPENSE.
15. OPERATIONS AND MAINTENANCE REQUIREMENTS (PER ENERGY CODE): CONSTRUCTION DOCUMENTS SHALL REQUIRE THAT WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE RECORD DRAWINGS OF THE ACTUAL INSTALLATION BE PROVIDED TO THE BUILDING OWNER OR THE DESIGNATED REPRESENTATIVE OF THE BUILDING OWNER. RECORD DRAWING SHALL INCLUDE AS A MINIMUM THE LOCATION AND PERFORMANCE DATA ON EACH PIECE OF EQUIPMENT, GENERAL CONFIGURATION OF DUCT AND PIPE DISTRIBUTION SYSTEM INCLUDING SIZES, AND THE TERMINAL AIR OR WATER DESIGN FLOW RATES.
16. MANUALS. CONSTRUCTION DOCUMENTS SHALL REQUIRE THAT AN OPERATING MANUAL AND A MAINTENANCE MANUAL BE PROVIDED TO THE BUILDING OWNER OR THE DESIGNATED REPRESENTATIVE OF THE BUILDING OWNER WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE. THESE MANUALS SHALL BE IN ACCORDANCE WITH INDUSTRY-ACCEPTED STANDARDS AND SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING:
    1. SUBMITTAL DATA STATING EQUIPMENT SIZE AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE.
    2. OPERATIONS MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE, EXCEPT EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT. REQUIRED MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED.
    3. NAMES AND ADDRESSES OF AT LEAST ONE SERVICE AGENCY.
    4. HVAC CONTROLS SYSTEM MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SEQUENCE DESCRIPTIONS. DESIRED OR FIELD-DETERMINED SET-POINTS SHALL BE PERMANENTLY RECORDED ON CONTROL DRAWINGS AT CONTROL DEVICES OR, FOR DIGITAL CONTROL SYSTEMS, IN PROGRAMMING COMMENTS.
    5. A COMPLETE NARRATIVE OF HOW EACH SYSTEM IS INTENDED TO OPERATE, INCLUDING SUGGESTED SET-POINTS.
17. RECORD DRAWINGS: THE CONTRACTOR SHALL MAINTAIN A SET OF CLEARLY MARKED RECORD DRAWING PRINTS AT THE SITE, WHICH INDICATE ALL ALTERATIONS AND CHANGES. WITHIN 30 DAYS AFTER COMPLETION OF WORK, THE CONTRACTOR SHALL PROVIDE A REPRODUCIBLE SET IN OWNER'S REQUESTED FORMAT (PLOTS, CAD, PDF, ETC.) WITH THE ARCHITECT'S/ ENGINEER'S SEAL STRUCK-OUT AND EACH DRAWING MARKED WITH THE GENERAL AND ASSOCIATED SUB-CONTRACTORS' NAMES AND DATE.
18. ALL EQUIPMENT AND MATERIAL SHALL BE INSTALLED, CONNECTED, AND ADJUSTED PER THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND RECOMMENDATIONS.
19. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR COORDINATING WITH ALL OTHER TRADES PRIOR TO SYSTEM INSTALLATION. THE CONTRACTOR SHALL REFER TO OTHER TRADE PLANS FOR OTHER WORK THAT MAY IMPACT HIS/HER WORK.
20. WHERE SPACE REQUIREMENTS CONFLICT, THE FOLLOWING ORDER OF PRECEDENCE SHALL BE USED.
    1. BUILDING LINES AND STRUCTURAL MEMBERS.
    2. SOIL, DRAIN, AND CONDENSATE PIPING.
    3. GREASE – RATED DUCTWORK.
    4. REFRIGERANT AND VENT PIPING.
    5. HVAC DUCTWORK.
    6. HVAC AND DOMESTIC WATER PIPING.
    7. FIRE PROTECTION (SPRINKLER & STANDPIPE) PIPING.
    8. ELECTRICAL CONDUIT.
21. THE CONTRACTOR SHALL TAKE CARE DURING WORK TO AVOID DAMAGE TO WORK BY OTHER TRADES.
22. THE CONTRACTOR SHALL KEEP THE PREMISES FREE OF DEBRIS AND RUBBISH CAUSED BY HIS/HER WORK ON A DAILY BASIS. THIS DEBRIS AND RUBBISH SHALL BE REMOVED FROM THE BUILDING AND SITE.
23. GUARANTEE. THE CONTRACTOR SHALL GUARANTEE THE ENTIRE INSTALLATION TO BE IN PROPER WORKING ORDER FOR A PERIOD OF ONE (1) YEAR, UNLESS NOTED OTHERWISE, AFTER FINAL ACCEPTANCE AND SHALL FURNISH FREE OF CHARGE ALL MATERIALS AND LABOR NECESSARY TO COMPLY WITH THIS GUARANTEE.
24. DEMOLITION: WHERE ACCESSIBLE WORK IS TO BE DEMOLISHED, IT SHALL BE REMOVED IN ITS ENTIRETY TO A POINT OF PERMANENT CONCEALMENT. WHERE WORK TO BE DEMOLISHED IS NOT ACCESSIBLE, REMOVE SYSTEM TO 2' BELOW THE SURFACE, CAP, AND PATCH SURFACE TO MATCH EXISTING. WHERE WORK TO REMAIN IS DAMAGED, REMOVE THE DAMAGED PORTIONS AND INSTALL NEW OF EQUAL CAPACITY, QUALITY, AND FUNCTION
25. WORK WITHIN EXISTING BUILDING: CONSTRUCTION SHALL BE ARRANGED TO MINIMIZE THE HAZARD AND INTERRUPTION TO THE OCCUPANTS. DO NOT INTERRUPT SERVICES TO THE OCCUPANTS WITHOUT WRITTEN PERMISSION FROM THE ARCHITECT/ OWNER/ TENANT, A MINIMUM OF 5 WORKING DAYS PRIOR TO THE INTERRUPTION. WHERE DISRUPTION OF A SERVICE BECOMES NECESSARY, PROVISIONS SHALL BE MADE TO PROVIDE TEMPORARY SERVICE THROUGHOUT THE INTERRUPTION OF THE PRIMARY SERVICE.

SECTION 26 00 00 - GENERAL REQUIREMENTS FOR ELECTRICAL SYSTEMS

1. ALL ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
2. PRODUCT SELECTION FOR RESTRICTED SPACE: DRAWINGS INDICATE DIMENSIONS OF SELECTED EQUIPMENT AND ACCESSORIES INCLUDING CLEARANCES BETWEEN EQUIPMENT, ADJACENT SURFACES AND OTHER ITEMS. THE CONTRACTOR IS RESPONSIBLE TO VERIFY FIELD DIMENSIONS AND NOTIFY THE ARCHITECT/ENGINEER IF REQUIRED CLEARANCES CANNOT BE MAINTAINED.
3. DO NOT DELIVER OR INSTALL EQUIPMENT AND DEVICES UNTIL SPACES ARE ENCLOSED AND WEATHERTIGHT, WORK IN SPACES IS COMPLETE AND DRY, AND WORK ABOVE EQUIPMENT IS COMPLETE.
4. INTERRUPTION OF EXISTING ELECTRIC SERVICE: DO NOT INTERRUPT ELECTRIC SERVICE TO FACILITIES OCCUPIED BY OWNER OR OTHERS UNLESS PERMITTED UNDER THE FOLLOWING CONDITIONS AND THEN ONLY AFTER ARRANGING TO PROVIDE TEMPORARY ELECTRIC SERVICE ACCORDING TO REQUIREMENTS INDICATED:
    1. NOTIFY ARCHITECT AND OWNER NO FEWER THAN FIVE BUSINESS DAYS IN ADVANCE OF PROPOSED INTERRUPTION OF ELECTRIC SERVICE.
    2. DO NOT PROCEED WITH INTERRUPTION OF ELECTRIC SERVICE WITHOUT ARCHITECT'S OR OWNER'S WRITTEN PERMISSION.
    3. COMPLY WITH NFPA 70E.
5. STORE EQUIPMENT, COMPONENTS, AND MATERIALS IN A CLEAN, DRY LOCATION WHICH PROVIDES PROTECTION AGAINST THE WEATHER. ITEMS WHICH BECOME DAMAGED DUE TO WEATHER OR EXPOSURE SHALL BE REPLACED PRIOR TO INSTALLATION.
6. PROVIDE ALL TEMPORARY FACILITIES REQUIRED TO SUPPLY CONSTRUCTION POWER AND LIGHTING. INSTALL AND MAINTAIN FACILITIES IN A MANNER THAT WILL PROTECT THE PUBLIC AND WORKMEN THAT COMPLIES WITH ALL APPLICABLE LAWS AND REGULATIONS. IN GENERAL, PROVIDE ONE (1) 150W INCANDESCENT LIGHT FIXTURE AND ONE (1) DUPLEX RECEPTACLE FOR EVERY 400-SQUARE FEET OF AREA (MINIMUM OF ONE EACH PER ROOM.) UPON COMPLETION OF THE WORK, REMOVE ALL TEMPORARY FACILITIES FROM THE SITE.
7. TEST ALL WIRING AND CONNECTIONS FOR PROPER CONFIGURATION PRIOR TO ENERGIZING ANY CIRCUIT.
8. VACUUM DIRT AND DEBRIS FROM WITHIN ENCLOSURES; DO NOT USE COMPRESSED AIR TO ASSIST IN CLEANING.
9. AT COMPLETION OF INSTALLATION, INSPECT EXPOSED FINISHES. REMOVE BURRS, DIRT AND CONSTRUCTION DEBRIS AND REPAIR DAMAGED FINISH, INCLUDING CHIPS, SCRATCHES, AND ABRASIONS BACK TO THE ORIGINAL FINISH.

SECTION 26 05 19 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

1. CONDUCTORS AND CABLES: COPPER SHALL BE SOFT-DRAWN, ANNEALED WITH 98% CONDUCTIVITY OR ALUMINUM WITH THHN/THWN INSULATION.
2. MULTI-CONDUCTOR CABLE: METAL-CLAD CABLE, TYPE MC ONLY. ALL MULTI-CONDUCTOR CABLES SHALL BE PROVIDED WITH AN INTERNAL EQUIPMENT GROUNDING CONDUCTOR. THE CABLE SHEATHING SHALL NOT BE USED FOR AS AN EQUIPMENT GROUND.
3. CONNECTORS AND SPLICES: UL-LISTED, FACTORY-FABRICATED CONNECTORS AND SPLICES OF SIZE, AMPACITY RATING, MATERIAL, TYPE, AND CLASS FOR APPLICATION AND SERVICE INDICATED.
4. CONDUCTOR MATERIAL APPLICATIONS:
    1. FEEDERS: COPPER FOR FEEDERS SMALLER THAN #4 AWG; COPPER OR ALUMINUM FOR FEEDER'S #4 AWG AND LARGER. SOLID FOR #10 AWG AND SMALLER; STRANDED FOR #6 AWG AND LARGER. CONDUCTOR SIZES INDICATED ON DRAWINGS ARE COPPER UNLESS NOTED OTHERWISE.
    2. BRANCH CIRCUITS: COPPER. SOLID FOR #10 AWG AND SMALLER; STRANDED FOR # 8 AWG AND LARGER.
5. CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS:
    1. FEEDERS (EXPOSED AND CONCEALED) & BRANCH CIRCUIT (EXPOSED): TYPE THHN/THWN, SINGLE CONDUCTORS IN RACEWAY.
    2. BRANCH CIRCUITS - INTERIOR, CONCEALED IN CEILINGS, WALLS, AND PARTITIONS: TYPE THHN/THWN, SINGLE CONDUCTORS IN RACEWAY OR METAL-CLAD CABLE, TYPE MC.
        1. TYPE MC CABLE MAY BE INSTALLED ONLY IN THE FOLLOWING INSTALLATIONS.
            1. SINGLE-PHASE CIRCUITS ONLY.
            2. CONNECTION TO RECESSED LIGHTING FIXTURES WITH A MAXIMUM LENGTH OF 6'.
            3. CONNECTION TO NEMA 5-15R AND 5-20R RECEPTACLES WITH A MAXIMUM LENGTH OF THE DISTANCE BETWEEN THE RECEPTACLE AND THE FINISH CEILING PLUS 8'.
    3. CLASS 1 CONTROL CIRCUITS: TYPE THHN/THWN, IN RACEWAY.
    4. CLASS 2 CONTROL CIRCUITS: TYPE THHN/THWN, IN RACEWAY OR POWER-LIMITED CABLE, CONCEALED IN BUILDING FINISHES OR POWER-LIMITED TRAY CABLE, IN CABLE TRAY.
6. CONCEAL CABLES IN FINISHED WALLS, CEILINGS, AND FLOORS, UNLESS OTHERWISE INDICATED.
7. CONDUCTORS MAY BE RUN IN PARALLEL ON SIZE #1/0 THROUGH 750 KCMIL INCLUSIVE, PROVIDED ALL PARALLEL CONDUCTORS ARE THE SAME SIZE, LENGTH, AND TYPE OF INSULATION, AND THEY SHALL BE SO ARRANGED AND TERMINATED AS TO ENSURE EQUAL DIVISION OF THE TOTAL CURRENT BETWEEN ALL PARALLEL CONDUCTORS INVOLVED.
8. CONDUCTOR SIZES INDICATED IN THE CONSTRUCTION DRAWINGS ARE MINIMUM SIZES. CONTRACTOR SHALL INCREASE CONDUCTOR SIZES ABOVE THOSE INDICATED TO LIMIT THE DROP IN VOLTAGE FROM THE POTENTIAL FROM THE FARTHEST LUMINAIRE/OUTLET ON THE CIRCUIT FROM EXCEEDING 3% AT MAXIMUM LOAD FOR ALL LIGHTING AND POWER BRANCH CIRCUITS.
9. INSTALL A SEPARATE GROUNDED (NEUTRAL) CONDUCTOR FOR ALL BRANCH CIRCUITS AS INDICATED BY THE NEC.
10. KEEP CONNECTIONS AND SPLICES TO A MINIMUM. SPLICES ARE NOT PERMITTED IN FEEDER CONDUCTORS UNLESS SPECIFICALLY INDICATED ON PLAN.
11. ALL CONNECTIONS AND SPLICES SHALL OCCUR WITHIN OUTLET BOXES, JUNCTION BOXES, SPLICE BOXES, OR OTHER DEVICES APPROVED FOR THIS PURPOSE.
12. MAKE SPLICES AND TAPS THAT ARE COMPATIBLE WITH CONDUCTOR MATERIAL AND THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH, CURRENT-CARRYING, AND INSULATION RATINGS THAN UNSPLICED CONDUCTORS. USE OXIDE INHIBITOR IN EACH SPLICE AND TAP CONDUCTOR FOR ALUMINUM CONDUCTORS.

SECTION 26 05 26 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

1. INSULATED CONDUCTORS: COPPER OR TINNED-COPPER WIRE OR CABLE INSULATED FOR 600V UNLESS OTHERWISE REQUIRED BY APPLICABLE CODE. INSTALL SOLID CONDUCTOR FOR #8 AWG AND SMALLER, AND STRANDED CONDUCTORS FOR #6 AWG AND LARGER, UNLESS OTHERWISE INDICATED.
2. BARE COPPER BONDING CABLE: 28 KCMIL, 14 STRANDS OF #17 AWG CONDUCTORS, 1/4" IN DIAMETER.
3. BARE COPPER BONDING CONDUCTOR: #4 OR #6 AWG, STRANDED CONDUCTOR.
4. BOLTED CONNECTORS FOR CONDUCTORS AND PIPES: COPPER OR COPPER ALLOY, BOLTED PRESSURE-TYPE, WITH AT LEAST TWO BOLTS, SIZE FOR CONDUCTOR AND MATERIAL/PIPE THICKNESS.
5. INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTORS WITH OIL FEEDERS AND BRANCH CIRCUITS.
6. HVAC AND PLUMBING EQUIPMENT: INSTALL A SEPARATE INSULATED EQUIPMENT GROUNDING CONDUCTOR TO EACH PIECE OF EQUIPMENT OPERATING AT 120 *V* AND MORE, INCLUDING AIR CLEANERS, HEATERS, DAMPERS, HUMIDIFIERS, WATER HEATERS, PUMPS, ETC. BOND CONDUCTOR TO EACH UNIT AND TO DUCT AND/OR CONNECTED METALLIC PIPING. INSTALL BONDING JUMPER TO BOND ACROSS FLEXIBLE CONNECTIONS TO ACHIEVE CONTINUITY.
7. ROUTE GROUNDING CONDUCTORS ALONG SHORTEST AND STRAIGHTEST PATHS POSSIBLE, UNLESS OTHERWISE INDICATED OR REQUIRED BY CODE. AVOID OBSTRUCTING ACCESS OR PLACING CONDUCTORS WHERE THEY MAY BE SUBJECTED TO STRAIN, IMPACT, OR DAMAGE.
8. BONDING STRAPS AND JUMPERS: COPPER OR TINNED-COPPER TAPE, BRAIDED CONDUCTORS, TERMINATED WITH COPPER FERRULES; 1-5/8" WIDE AND 1/16" THICK, INSTALLED IN LOCATIONS ACCESSIBLE FOR INSPECTION AND MAINTENANCE, EXCEPT WHERE ROUTED THROUGH SHORT LENGTHS OF CONDUIT.
    1. BONDING TO STRUCTURE: BOND STRAPS DIRECTLY TO BASIC STRUCTURE, TAKING CARE NOT TO PENETRATE ANY ADJACENT PARTS.
    2. BONDING TO EQUIPMENT MOUNTED ON VIBRATION ISOLATION HANGERS AND SUPPORTS: INSTALL SO VIBRATION IS NOT TRANSMITTED TO RIGIDLY MOUNTED EQUIPMENT
11. MOUNTING AND ANCHORAGE OF SURFACE-MOUNTED EQUIPMENT AND COMPONENTS: ANCHOR AND FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTS TO BUILDING STRUCTURAL ELEMENTS BY THE FOLLOWING METHODS UNLESS OTHERWISE INDICATED BY CODE:
    1. TO WOOD: FASTEN WITH LAG SCREWS OR THROUGH BOLTS.
    2. TO EXISTING CONCRETE: EXPANSION ANCHOR FASTENERS OR POWDER-ACTUATED DRIVEN THREADED STUDS PROVIDED WITH LOCK WASHERS AND NUTS MAY BE USED IN EXISTING STANDARD-WEIGHT CONCRETE 4" THICK OR GREATER. DRILL HOLES FOR EXPANSION ANCHORS IN CONCRETE AT LOCATIONS AND TO DEPTHS THAT AVOID REINFORCING BARS.
    3. TO STRUCTURAL STEEL: BEAM CLAMPS COMPLYING WITH MSS SP-69.
    4. TO LIGHT STEEL: SHEET METAL SCREWS.
    5. ITEMS MOUNTED ON HOLLOW WALLS AND NONSTRUCTURAL BUILDING SURFACES: MOUNT EQUIPMENT AND ENCLOSURES ON SLOTTED-CHANNEL RACKS ATTACHED TO SUBSTRATE.
12. CONSTRUCT CONCRETE BASES WITH 3000-PSI, 28-DAY COMPRESSIVE-STRENGTH CONCRETE WITH DIMENSIONS INDICATED BUT NOT LESS THAN 4" LARGER IN BOTH DIRECTIONS THAN SUPPORTED UNIT.

SECTION 26 05 33 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

1. INDOORS, UNLESS OTHERWISE INDICATED:
    1. EXPOSED, NOT SUBJECT TO PHYSICAL DAMAGE: RIGID STEEL CONDUIT OR EMT.
    2. EXPOSED AND SUBJECT TO PHYSICAL DAMAGE: RIGID STEEL CONDUIT OR EMT. INCLUDES RACEWAYS IN AREAS WITH HEAVY TRAFFIC AND MECHANICAL ROOMS.
    3. CONCEALED IN CEILINGS AND INTERIOR WALLS AND PARTITIONS: RIGID STEEL, IMC, OR EMT. RNC MAY BE USED IN NON-ENVIRONMENTAL AIR PLENUMS.
    4. CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID OR MOTOR-DRIVEN EQUIPMENT): FMC, EXCEPT USE LFMC IN DAMP OR WET LOCATIONS.
    5. DAMP OR WET LOCATIONS: RIGID STEEL CONDUIT OR IMC.
    6. BOXES: SHEET-METAL, TYPE 1, EXCEPT USE CAST-METAL, TYPE 4, IN DAMP OR WET LOCATIONS.
    7. TYPE "NM" AND "NMC" IS ACCEPTABLE WHERE INSTALLED IN ACCORDANCE WITH NEC ARTICLE 334 AND AS PERMITTED BY THE LOCAL AHJ.
2. MINIMUM RACEWAY SIZE: RACEWAY SIZE SHALL BE AS FOLLOWS UNLESS OTHERWISE INDICATED:
    1. UNDER SLAB AND UNDERGROUND: 1"
    2. HOMERUNS TO PANELBOARDS: 3/4".
    3. ALL OTHER RACEWAY: 1 /2".
3. METAL WIREWAYS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS INCLUDE, BUT ARE NOT LIMITED TO; COOPER B-LINE AND HOFFMAN.
    1. DESCRIPTION: SHEET METAL WITH STANDARD ENAMEL FINISH, SIZED AND SHAPED AS INDICATED, TYPE 1 (INTERIOR) OR 3R (EXTERIOR), UNLESS OTHERWISE INDICATED.
    2. FITTINGS AND ACCESSORIES: INCLUDE COUPLINGS, ELBOWS, ADAPTERS, END CAPS, AND OTHER FITTINGS THAT MATCH WIREWAYS AS REQUIRED FOR COMPLETE SYSTEM.
    3. WIREWAY COVERS: SCREW-COVER TYPE, UNLESS OTHERWISE INDICATED.
4. RACEWAY FITTINGS: COMPATIBLE WITH RACEWAYS AND SUITABLE FOR USE AND LOCATION.
    1. RIGID AND INTERMEDIATE STEEL CONDUIT: USE THREADED RIGID STEEL CONDUIT FITTINGS, UNLESS OTHERWISE INDICATED.
    2. PVC EXTERNALLY COATED, RIGID STEEL CONDUITS: USE ONLY FITTINGS LISTED FOR USE WITH THAT MATERIAL. PATCH AND SEAL ALL JOINTS, NICKS, AND SCRAPES IN PVC COATING AFTER INSTALLING CONDUITS AND FITTINGS.
    3. EMT CONDUITS: SET-SCREW TYPE EXCEPT IN DAMP AND WET LOCATIONS, COMPRESSION TYPE.
5. INSTALL RACEWAY LEVEL AND SQUARE AND AT PROPER ELEVATION TO PROVIDE ADEQUATE HEADROOM. KEEP RACEWAYS AT LEAST 6" AWAY FROM PARALLEL RUNS OF FLUES AND STEAM OR HOT-WATER

SECTION 26 22 00 - LOW-VOLTAGE TRANSFORMERS

1. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS INCLUDE, BUT ARE NOT LIMITED TO; ACME ELECTRIC, EATON CUTLER-HAMMER, GE, SIEMENS, AND SQUARE D.
2. GENERAL TRANSFORMER REQUIREMENTS: FACTORY-ASSEMBLED AND -TESTED, AIR-COOLED UNITS FOR 60-HZ SERVICE, WITH ONE RAIN-ORIENTED, NON-AGING SILICON STEEL CORE PER LEG AND CONTINUOUS WINDINGS WITHOUT SPLICES EXCEPT FOR TAPS. CORES AND COILS SHALL BE ENCAPSULATED WITHIN RESIN COMPOUND, SEALING OUT MOISTURE AND AIR. ENCLOSURE SHALL BE VENTILATED, NEMA TYPE 2, EXCEPT FOR EXTERIOR INSTALLATION SHALL BE TYPE 3R.
3. GENERAL PURPOSE DISTRIBUTION TRANSFORMERS
   1. WINDINGS: ONE COIL PER PHASE IN PRIMARY AND SECONDARY.
   2. TAPS FOR TRANSFORMERS 7.5 TO 24 KVA: ONE 5 PERCENT TAP ABOVE AND ONE 5 PERCENT TAP BELOW NORMAL FULL CAPACITY.
   3. TAPS FOR TRANSFORMERS 25 KVA AND LARGER: TWO 2.5 PERCENT TAPS ABOVE AND TWO 2.5 PERCENT TAPS BELOW NORMAL FULL CAPACITY.
   4. INSULATION CLASS: 220 DEG C, UL -COMPONENT-RECOGNIZED INSULATION SYSTEM WITH A MAXIMUM OF 150 DEG C RISE ABOVE 40 DEG C AMBIENT TEMPERATURE.
   5. TRANSFORMERS SHALL HAVE AN EFFICIENCY RATING IN COMPLIANCE WITH NEMA TP1, CLASS 1 EFFICIENCY LEVELS.
4. DRAWINGS INDICATE DIMENSIONS FOR SELECTED PANEL BOARDS INCLUDING CLEARANCES. COORDINATE LAYOUT AND INSTALLATION OF TRANSFORMERS WITH OTHER CONSTRUCTION THAT PENETRATES WALLS OR IS SUPPORTED BY THEM. MAINTAIN REQUIRED WORKSPACE CLEARANCES AND REQUIRED CLEARANCES FOR EQUIPMENT ACCESS DOORS AND PANELS.
5. INSTALL FLOOR-MOUNTED TRANSFORMER ON CONCRETE HOUSEKEEPING PAD WITH VIBRATION ISOLATION PADS TO PREVENT TRANSMISSION OF TRANSFORMER VIBRATION.
6. INCOMING AND OUTGOING RACEWAY SHALL BE FLEXIBLE TO PREVENT TRANSMISSION OF TRANSFORMER VIBRATION. INSTALL BONDING JUMPER ON EXTERIOR OF THE FLEXIBLE RACEWAY.
7. GROUND EQUIPMENT ACCORDING TO NFPA 70 FOR A SEPARATELY DERIVED SYSTEM AND DIVISION 26 SECTION "GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS."
8. RECORD TRANSFORMER SECONDARY VOLTAGE AT EACH UNIT FOR AT LEAST 48 HOURS OF TYPICAL OCCUPANCY PERIOD. ADJUST TRANSFORMER TAPS TO PROVIDE OPTIMUM VOLTAGE CONDITIONS AT SECONDARY TERMINALS. OPTIMUM IS DEFINED AS NOT EXCEEDING NAMEPLATE VOLTAGE PLUS 10 PERCENT AND NOT BEING LOWER THAN NAMEPLATE VOLTAGE MINUS 3 PERCENT AT MAXIMUM LOAD CONDITIONS. SUBMIT RECORDING AND TAP SETTINGS AS TEST RESULTS.

SECTION 26 05 53 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

1. VERIFY IDENTITY OF EACH ITEM BEFORE INSTALLING IDENTIFICATION PRODUCTS.
2. APPLY IDENTIFICATION DEVICES TO SURFACES THAT REQUIRE FINISH OR CLEANING AFTER COMPLETING WORK.
3. ATTACH SIGNS AND PLASTIC LABELS WITH MECHANICAL FASTENERS APPROPRIATE TO THE LOCATION AND SUBSTRATE.
4. IDENTIFY CONDUCTORS IN ENCLOSURES AND BOXES, USING COLOR-CODING TO IDENTIFY THE PHASE, FACTORY APPLIED OR FIELD APPLIED CONDUCTOR TAPE OR CABLE TIES FOR SIZES LARGER THAN #8 AWG. LOCATE BANDS OF TAPE OR TIES WITHIN 6" FROM TERMINATION AND AVOID OBSCURING FACTORY CABLE MARKINGS.
   1. COLORS FOR 208/120V CIRCUITS:
      1. PHASE A: BLACK.
      2. PHASE B: RED.
      3. PHASE C: BLUE.
      4. NEUTRAL: WHITE.
      5. GROUND: GREEN
   2. COLORS FOR 480/277V CIRCUITS:
      1. PHASE A: BROWN.
      2. PHASE B: PURPLE.
      3. PHASE C: YELLOW.
      4. NEUTRAL: GRAY.
      5. GROUND: GREEN
5. APPLY SELF-ADHESIVE FACTORY PRINT CIRCUIT NUMBER FOR CIRCUIT DESIGNATION AT EACH ENCLOSURE, BOX, AND DEVICE.
6. IDENTIFY THE COVERS OF EACH JUNCTION AND PULL BOX OF THE FOLLOWING SYSTEMS WITH FIELD-APPLIED PAINT. AFTER PAINT HAS BEEN APPLIED, PROVIDE PERMANENT WRITTEN IDENTIFICATION OF THE SOURCE AND CIRCUIT NUMBER, SIZES OF LETTERS SHALL BE APPROPRIATE FOR VIEWING FROM THE FLOOR. SYSTEM COLOR LEGENDS SHALL BE AS FOLLOWS:
   1. GENERAL POWER: NO COLOR
   2. FIRE ALARM AND PROTECTION: RED.
   3. SECURITY SYSTEM: BLUE.
   4. TELECOMMUNICATION: ORANGE.
7. ATTACH MARKER TAPE TO CONDUCTORS TO BE EXTENDED IN THE FUTURE AND LIST THEIR USEAGE.
8. INSTALL 2" WIDE PRESSURE-SENSITIVE VINYL FLOOR MARKING TAPE WITH BLACK AND YELLOW' STRIPES TO SHOW WORKING CLEARANCES IN THE DIRECTION OF ACCESS TO LIVE PARTS. WORKSPACE SHALL BE AS REQUIRED BY NFPA 70 AND 29 CFR 1926.403. INSTALL WARNING LABEL ON EQUIPMENT WHICH READS "WARNING - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES." DISTANCE INDICATED SHALL BE AS DEFINED IN NFPA 70. DO NOT INSTALL FLOOR MARKINGS OR WARNING SIGNS IN FINISHED SPACES.
9. INSTALL UNDERGROUND-LINE WARNING TAPE AS RECOMMENDED BY MANUFACTURER FOR THE METHOD OF INSTALLATION AND SUITABLE TO IDENTIFY AND LOCATE UNDERGROUND POWER AND COMMUNICATIONS UTILITY LINES. USE RED-COLOR TAPES FOR ELECTRICAL WITH INSCRIPTION OF "ELECTRICAL LINE - HIGH VOLTAGE" AND ORANGE-COLORED TAPES FOR COMMUNICATION WITH INSCRIPTION OF "TELEPHONE CABLE, CAW CABLE, OR COMMUNICATION CABLE." DURING BACKFILLING OF TRENCHES INSTALL CONTINUOUS UNDERGROUND-LINE WARNING TAPE DIRECTY ABOVE LINE AT 6"-8" BELOW FINISHED GRADE.
10. INSTALL UNIQUE DESIGNATION ENGRAVED, LAMINATED ACRYLIC OR MELAMINE LABEL WITH STAINLESS-STEEL MACHINE SCREWS WITH NUTS ON EACH PIECE OF EQUIPMENT. PROVIDE A SINGLE LINE OF TEXT WITH 1/2" HIGH LETTERS ON 1-1/2" HIGH LABEL; WHERE TWO LINES OF TEXT ARE REQUIRED, USE LABELS 2" HIGH. FOR ELEVATED COMPONENTS, INCREASE SIZES OF LABELS AND LETTERS TO THOSE APPROPRIATE FOR VIEWING FROM THE FLOOR. LABEL SHALL INDICATE EQUIPMENT OR ITEM NAME/DESIGNATION, SERVICE VOLTAGE, SOURCE OF SERVICE, AND FOR SEPARATELY DERIVED SYSTEM, EQUIPMENT SUPPLIED BY SYSTEM. LABEL THE FOLLOWING EQUIPMENT:
    1. SWITCHBOARDS, SWITCHGEAR, MOTOR CONTROL CENTERS, PANELBOARDS, AND OVERCURRENT PROTECTION DEVICES WITHIN THEM.
    2. CONTACTORS, PUSH-BUTTONS, ENCLOSURES, CABINETS, ENCLOSED SWITCHES AND CONTROLLERS.
    3. TRANSFORMERS
    4. MONITORING AND CONTROL EQUIPMENT.

SECTION 26 24 16 - PANELBOARDS

1. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS INCLUDE, BUT ARE NOT LIMITED TO; EATON CUTLER-HAMMER, GE, SIEMENS, AND SQUARE D.
2. ENCLOSURES: SURFACE-MOUNTED CABINETS, RATED FOR ENVIRONMENTAL CONDITIONS AT INSTALLED LOCATION. BACK BOX AND TRIM/DOOR SHALL BE GALVANIZED STEEL, WITH MANUFACTURER'S STANDARD BAKED-ON FINISH APPLIED TO THE TRIM/DOOR.
3. TRIM/DOOR: PROVIDE TRIM WITH ENTIRE FRONT TRIM HINGED TO BOX AND WITH STANDARD DOOR WITHIN HINGED TRIM COVER. DOOR SHALL SECURE WITH VAULT-TYPE LATCH WITH TUMBLER LOCK, ALL KEYED ALIKE. PROVIDE METAL FRAMED DIRECTORY CARD WITH TRANSPARENT PROTECTIVE COVER ON INSIDE OF DOOR.
4. BUSSING: HARD-DRAWN, 98% CONDUCTIVITY COPPER OF CAPACITY INDICATED. WHERE INDICATED PROVIDE OVERSIZED NEUTRAL BUSSING. PROVIDE EQUIPMENT GROUND BUS OF ADEQUATE SIZE FOR ALL CONDUCTOR TERMINATIONS, BONDED TO BOX. WHERE INDICATED, PROVIDE ISOLATED GROUND BUS OF ADEQUATE SIZE FOR ALL CONDUCTOR TERMINATIONS, INSULATED FROM BOX. ALUMINUM BUSSING IS ACCEPTABLE FOR MULTI-FAMILY RESIDENTIAL UNIT PANELS
5. MAINS: CIRCUIT BREAKER OR LUGS ONLY, AS INDICATED. CONDUCTOR CONNECTIONS SHALL BE COMPRESSION TYPE, SUITABLE FOR USE WITH CONDUCTOR MATERIAL AND SIZES. PROVIDE FEED-THROUGH LUGS AT THE OPPOSITE END OF BUS FROM INCOMING MAINS, WHERE INDICATED.
6. INSTALL SERVICE EQUIPMENT LABEL FOR PANELBOARDS WITH ONE OR MORE MAIN SERVICE DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES.
7. PANEL BOARD SHORT-CIRCUIT CURRENT RATING: RATED FOR SERIES-CONNECTED SYSTEM WITH INTEGRAL OR REMOTE UPSTREAM OVERCURRENT PROTECTIVE DEVICES.
8. BRANCH OVERCURRENT PROTECTIVE DEVICES: BOLT-ON MOLDED-CASE CIRCUIT BREAKERS. PANELBOARD SHALL HAVE MOUNTING BRACKETS, BUS CONNECTIONS, FILLER PLATES, AND NECESSARY APPURTENANCES REQUIRED FOR FUTURE INSTALLATION OF DEVICES WITHOUT DISRUPTING EXISTING DEVICES. SNAP-IN TYPE CIRCUIT BREAKERS ARE ACCEPTABLE FOR BRANCH CIRCUITS FROM ALL NON-DISTRIBUTION TYPE PANELBOARDS.
9. MOLDED-CASE CIRCUIT BREAKER (MCCB): WITH INTERRUPTING CAPACITY TO MEET AVAILABLE FAULT CURRENTS AND APPLICATION LISTED FOR CONNECTED LOAD.
   1. MCCB NOT LARGER THAN 400A: THERMAL-MAGNETIC CIRCUIT BREAKER, INVERSE TIME-CURRENT ELEMENT FOR LOW-LEVEL OVERLOADS, AND INSTANTANEOUS MAGNETIC TRIP ELEMENT FOR SHORT CIRCUITS, ADJUSTABLE MAGNETIC TRIP SETTING FOR CIRCUIT-BREAKER FRAME SIZES 250A AND LARGER.
   2. MCCB 400A AND LARGER: ELECTRONIC TRIP CIRCUIT BREAKER WITH RMS SENSING, FIELD-REPLACEABLE RATING PLUG OR FIELD-REPLICABLE ELECTRONIC TRIP, AND THE FOLLOWING FIELD-ADJUSTABLE INSTANTANEOUS TRIP, LONG- AND SHORT-TIME PICKUP LEVELS, LONG- AND SHORT-TIME TIME ADJUSTMENTS, GROUND-FAULT PICKUP LEVEL, TIME DELAY, AND 12T RESPONSE.
   3. LUGS: MECHANICAL STYLE, SUITABLE FOR NUMBER, SIZE, TRIP RATINGS, AND CONDUCTOR MATERIALS.
   4. MULTI-POLE UNITS ENCLOSED HAVE A SINGLE HOUSING.
   5. GROUND-FAULT CIRCUIT INTERRUPTION (GFI): WHERE INDICATED OR REQUIRED, CLASS A GROUND-FAULT PROTECTION (6-MA TRIP) INTEGRALLY MOUNTED RELAY AND TRIP UNIT WITH ADJUSTABLE PICKUP AND TIME DELAY SETTINGS, PUSH-TO-TEST FEATURE, AND GROUND-FAULT INDICATOR.
   6. SHUNT TRIP: WHERE INDICATED, 120V TRIP COIL ENERGIZED FROM SEPARATE CIRCUIT, SET TO TRIP AT 75% OF RATED VOLTAGE.
   7. KEY INTERLOCK: WHERE INDICATED, EXTERNALLY MOUNTED TO PROHIBIT CIRCUIT-BREAKER OPERATION; KEY SHALL BE REMOVABLE ONLY WHEN CIRCUIT BREAKER IS IN OFF POSITION.
   8. SET FIELD-ADJUSTABLE CIRCUIT-BREAKER TRIP RANGES AS INDICATED.
10. MOUNT PANELBOARD CABINET PLUMB AND RIGID WITHOUT DISTORTION OF BOX WITH TOP OF TRIM 72" AFF.
11. DRAWINGS INDICATE DIMENSIONS FOR SELECTED PANELBOARDS INCLUDING CLEARANCES. COORDINATE LAYOUT AND INSTALLATION OF PANELBOARDS AND COMPONENTS WITH OTHER CONSTRUCTION THAT PENETRATES WALLS OR IS SUPPORTED BY THEM. MAINTAIN REQUIRED WORKSPACE CLEARANCES AND REQUIRED CLEARANCES FOR EQUIPMENT ACCESS DOORS AND PANELS.
12. SURFACE-MOUNTED PANELBOARDS: INSTALL ENCLOSURE WITH 1/4" MINIMUM GAP BETWEEN ENCLOSURE AND WALL SURFACE.
13. INSTALL FILLER PLATES IN UNUSED SPACES.
14. WHEN ADDING NEW OVERCURRENT PROTECTION DEVICES TO EXISTING PANELBOARDS, INSTALL DEVICES OF THE SAME INTERRUPTING RATING, STYLE AND FROM THE SOME MANUFACTURER AS THE REMAINDER OF THE PANELBOARD. CREATE A DIRECTORY TO INDICATE INSTALLED CIRCUIT LOADS AFTER BALANCING PANELBOARD LOADS; INCORPORATE FINAL ROOM DESIGNATIONS. USE A COMPUTER OR TYPEWRITER TO CREATE DIRECTORY.
15.
16. LOAD BALANCING: AFTER SUBSTANTIAL COMPLETION, BUT NOT MORE THAN 60 DAYS AFTER FINAL ACCEPTANCE, MEASURE LOAD BALANCING AND MAKE CIRCUIT CHANGES TO BALANCE PHASE LOADS TO LESS THAN 20% PHASE IMBALANCE. MEASURE DURING PERIOD OF NORMAL SYSTEM LOADING. HOWEVER, PERFORM LOAD-BALANCING CIRCUIT CHANGES OUTSIDE NORMAL OCCUPANCY/WORKING SCHEDULE AT TIME DIRECTED. AFTER CIRCUIT CHANGES, RECHECK LOADS DURING NORMAL LOAD PERIOD AND RE-BALANCE AS NEEDED. RECORD ALL LOAD READINGS BEFORE AND AFTER CHANGES AND SUBMIT TEST RECORDS.

SECTION 26 27 26 - WIRING DEVICES

1. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS INCLUDE, BUT ARE NOT LIMITED TO; COOPER, HUBBELL, LEVITON, LUTRON, AND PASS & SEYMOUR. THE FOLLOWING MODEL NUMBERS FOR PASS & SEYMOUR ARE FOR REFERENCE. DEVICES SHALL MATCH EXISTING BUILDING STANDARD, IF APPLICABLE. IF DEVICE STYLE IS NOT INDICATED BY THE ARCHITECT, THEY SHALL BE "DECORA" STYLE AS INDICATED BELOW. RECEPTACLE TYPE REQUIRED FOR CODE COMPLIANCE (GFCI, TR, ETC.) SHALL BE PROVIDED WHETHER OR NOT INDICATED ON PLANS.
2. CONVENIENCE RECEPTACLES, 125V, 20A: NEMA 5-20R, P&S #26361 (SINGLE), P&S #26352 (DUPLEX).
3. TAMPER RESISTANT RECEPTACLES, 125V, 20A, NEMA 5-20R, P&S #TR26352-W.
4. GFI RECEPTACLES, 125V, 20A: NEMA 5-20R, P&S #2094. STRAIGHT BLADE, NON-FEED-THROUGH TYPE, INCLUDING INDICATOR LIGHT THAT IS LIGHTED WHEN DEVICE IS TRIPPED.
5. SNAP SWITCHES, 120/277V, 20A: P&S #2621 (SINGLE POLE), P&S 2622 (TWO POLE), P&S 2623 (THREE WAY), P&S 2624 (FOUR WAY).
6. OCCUPANCY SENSORS
   1. WALL-SWITCH SENSORS: HUBBELL #LHMTS1, ADAPTIVE-, DUAL TECHNOLOGY TYPE, 120/277 V, ADJUSTABLE TIME DELAY UP TO 30 MINUTES, 180-DEGREE FIELD OF VIEW, WITH A MINIMUM COVERAGE AREA OF 1000 SQ. FT.
   2. CEILING-MOUNTED SENSORS: HUBBELL #OMNI-DT, ADAPTIVE-, DUAL TECHNOLOGY TYPE, SELF-ADJUSTING TIME DELAY UP TO 30 MINUTES, 360-DEGREE FIELD OF VIEW, WITH A MINIMUM COVERAGE OF 2000 SQ. FT. PROVIDE HUBBELL #UPI UNIVERSAL VOLTAGE POWER SWITCH PACK TO POWER SENSORS AND CONTROL LIGHTING CIRCUIT. CONNECT MULTIPLE SENSORS TO SINGLE POWER SWITCH PACK AS INDICATED.
6. WALL PLATES: SINGLE AND COMBINATION TYPES TO MATCH CORRESPONDING WIRING DEVICES. DO NOT USE OVERSIZED OR EXTRA-DEEP PLATES. REPAIR WALL FINISHES AND REMOUNT OUTLET BOXES WHEN STANDARD DEVICE PLATES DO NOT FIT FLUSH OR DO NOT COVER ROUGH WALL OPENING.
   1. PLATE-SECURING SCREWS: METAL WITH HEAD COLOR TO MATCH PLATE FINISH.
   2. FINISHED SPACES: SMOOTH, HIGH-IMPACT THERMOPLASTIC.
   3. UNFINISHED SPACES: GALVANIZED STEEL.
   4. DAMP AND WET LOCATIONS: CAST ALUMINUM WITH SPRING-LOADED LIFT COVER, AND LISTED AND LABELED FOR USE IN "WET LOCATIONS."
7. DEVICE COLOR: WIRING DEVICE CATALOG NUMBERS IN SECTION TEXT DO NOT DESIGNATE DEVICE COLOR. UNLESS INDICATED OTHERWISE ON ARCHITECTURAL DRAWINGS, PROVIDE THE FOLLOWING COLORS.
   1. DEVICES CONNECTED TO NORMAL POWER: MATCH EXISTING OR WHITE, UNLESS OTHERWISE INDICATED OR REQUIRED BY NFPA 70.
   2. DEDICATED DEVICE CONNECTED TO NORMAL POWER: ORANGE.
8. MOUNTING HEIGHT: UNLESS INDICATED OTHERWISE, INSTALL DEVICES AT THE FOLLOWING HEIGHTS ABOVE FINISH FLOOR TO THE CENTER OF THE BOX. (VERIFY HEIGHTS WITH ARCHITECT PRIOR TO INSTALL.)
   1. GENERAL RECEPTACLES: 18".
   2. LIGHTING SWITCHES AND DIMMERS: 42".
   3. ABOVE-COUNTER RECEPTACLES: 42" OR 6" ABOVE COUNTER HEIGHT, WHICHEVER IS HIGHER.
9. PROTECTION: KEEP OUTLET BOXES FREE OF PLASTER, DRYWALL JOINT COMPOUND, MORTAR, CEMENT, CONCRETE, DUST, PAINT, AND OTHER MATERIAL THAT MAY CONTAMINATE THE RACEWAY SYSTEM, CONDUCTORS, AND CABLES. INSTALL WIRING DEVICES AFTER ALL WALL PREPARATION, INCLUDING PAINTING, IS COMPLETE.
10. REPLACE ALL DEVICES THAT HAVE BEEN IN TEMPORARY USE DURING CONSTRUCTION OR THAT SHOW SIGNS THAT THEY WERE INSTALLED BEFORE BUILDING FINISHING OPERATIONS WERE COMPLETE.
11. WHEN CONDUCTORS LARGER THAN #12 AWG ARE INSTALLED ON 15A OR 20A CIRCUITS, SPLICE #12 AWG PIGTAILS FOR DEVICE CONNECTIONS.
12. WHEN MOUNTING INTO METAL BOXES, REMOVE THE FIBER OR PLASTIC WASHERS USED TO HOLD DEVICE MOUNTING SCREWS IN YOKES, ALLOWING METAL-TO-METAL CONTACT.
13. INSTALL GROUNDING-TYPE RECEPTACLES MOUNTED RECEPTACLES UP, AND ON HORIZONTALLY MOUNTED RECEPTACLES TO THE LEFT.
14. DEVICE PLATES: DO NOT USE OVERSIZED OR EXTRA-DEEP PLATES. REPAIR WALL FINISHES AND REMOUNT OUTLET BOXES WHEN STANDARD DEVICE PLATES DO NOT FIT FLUSH OR DO NOT COVER ROUGH WALL OPENING.
15. ARRANGEMENT OF DEVICES: GROUP ADJACENT SWITCHES UNDER SINGLE, MULTIGANG WALL PLATES.
16. IDENTIFY PANELBOARD AND CIRCUIT NUMBER FROM WHICH SERVED. USE DURABLE WIRE MARKERS OR TAGS INSIDE OUTLET BOXES.
17. TEST CONVENIENCE RECEPTACLES WITH DIGITAL WIRING ANALYZER WITH DIGITAL OR LED INDICATORS.
    1. LINE VOLTAGE: ACCEPTABLE RANGE IS 105V TO 132V.
    2. PERCENT VOLTAGE DROP UNDER 15A LOAD: A VALUE OF 6% OR HIGHER IS NOT ACCEPTABLE.
    3. GFI TRIP: TEST FOR TRIPPING VALUES SPECIFIED IN UL 1436 AND UL 943.
    4. USING THE TEST PLUG, VERIFY THAT THE DEVICE AND ITS OUTLET BOX ARE SECURELY MOUNTED.

SECTION 26 28 13 - FUSES

1. SUBMITTAL: IN ADDITION TO THE REQUIREMENTS OF DIVISION 1 PROVIDE CURRENT-LIMITATION CURVES, TIME-CURRENT COORDINATION CURVES (AVERAGE MELT), CURRENT-LIMITATION CURVES (INSTANTANEOUS PEAK LET-THROUGH CURRENT), AND COORDINATION CHARTS AND TABLES FOR EACH TYPE AND RATING OF FUSE.
2. EXTRA MATERIALS: FURNISH EXTRA FUSES; AT LEAST 10% OF QUANTITY INSTALLED FOR EACH TYPE AND SIZE, BUT NOT LESS THAN 3 OF EACH; THAT MATCH PRODUCTS INSTALLED.
3. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS INCLUDE, BUT ARE NOT LIMITED TO; BUSSMANN AND LITTELFUSE.
4. CARTRIDGE FUSES: NONRENEWABLE CARTRIDGE FUSES WITH VOLTAGE RATINGS CONSISTENT WITH CIRCUIT VOLTAGES.
   1. SERVICE ENTRANCE: CLASS T, FAST ACTING.
   2. FEEDERS: CLASS RK1, FAST ACTING.
   3. MOTOR BRANCH CIRCUITS: CLASS RK1, TIME DELAY.
   4. OTHER BRANCH CIRCUITS: CLASS RK5, TIME DELAY.
   5. CONTROL CIRCUITS: CLASS CC, FAST ACTING.
5. EXAMINE EQUIPMENT, FUSES, AND HOLDERS BEFORE INSTALLATION FOR CHARACTERISTICS, TOLERANCES, AND DAMAGE. REPLACE FUSES THAT ARE MOISTURE DAMAGED OR PHYSICALLY DAMAGED. INSTALL FUSES OF SIZES AND WITH CHARACTERISTICS APPROPRIATE FOR EACH PIECE OF EQUIPMENT.
6. INSTALL FUSES IN FUSIBLE DEVICES. ARRANGE FUSES SO RATING INFORMATION IS READABLE WITHOUT REMOVING FUSE.
7. INSTALL LABELS INDICATING FUSE REPLACEMENT INFORMATION ON INSIDE DOOR OF EACH FUSED SWITCH AND ADJACENT TO EACH FUSE BLOCK, SOCKET, AND HOLDER.
8. SPARE-FUSE CABINET: WALL-MOUNTED STEEL UNIT WITH FULL-LENGTH, RECESSED PIANO-HINGED DOOR AND KEY-CODED CAM LOCK AND PULL SIZED FOR ADEQUATE STORAGE OF SPARE FUSES SPECIFIED WITH 15% SPARE CAPACITY MINIMUM. PROVIDE 2 FUSE PULLERS FOR EACH SIZE OF FUSE FROM FUSE MANUFACTURER.

SECTION 26 28 16 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

1. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS INCLUDE, BUT ARE NOT LIMITED TO; EATON CUTLER-HAMMER, GE, SIEMENS, AND SQUARE D.
2. FUSIBLE / NON-FUSIBLE SWITCHES
   1. FUSIBLE SWITCH - HEAVY DUTY, SINGLE THROW, 600V: UL 98 AND NEMA KS 1, HORSEPOWER RATED, WITH CLIPS OR BOLT PADS TO ACCOMODATE SPECIFIED FUSES, LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT THREE PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION. DISCONNECT FOR MULTI-FAMILY USE, CAN BE STANDARD IF VOLTAGE IS BELOW 250V.
   2. NON-FUSIBLE SWITCH - HEAVY DUTY, SINGLE THROW, 600V: UL 98 AND NEMA KS 1, HORSEPOWER RATED, LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT THREE PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION.DISCONNECT FOR MULTI-FAMILY USE, CAN BE STANDARD IF VOLTAGE IS BELOW 250V.
   3. EQUIPMENT GROUND KIT: INTERNALLY MOUNTED AND LABELED FOR COPPER AND ALUMINUM GROUND CONDUCTORS.
   4. NEUTRAL KIT: INTERNALLY MOUNTED, INSULATED, CAPABLE OF BEING GROUNDED AND BONDED; LABELED FOR COPPER AND ALUMINUM NEUTRAL CONDUCTORS.
3. SERVICE-RATED SWITCHES: WHERE APPLICABLE, LABELED FOR USE AS SERVICE EQUIPMENT.
4. DRAWINGS INDICATE DIMENSIONS FOR SELECTED PANELBOARDS INCLUDING CLEARANCES. COORDINATE LAYOUT AND INSTALLATION OF SWITCHES AND BREAKERS WITH OTHER CONSTRUCTION THAT PENETRATES WALLS OR IS SUPPORTED BY THEM. MAINTAIN REQUIRED WORKSPACE CLEARANCES AND REQUIRED CLEARANCES FOR EQUIPMENT ACCESS DOORS AND PANELS
5. INSTALL INDIVIDUAL WALL-MOUNTED SWITCHES AND CIRCUIT BREAKERS WITH TOPS AT UNIFORM HEIGHT UNLESS OTHERWISE INDICATED.
6. INSTALL FUSES IN FUSIBLE DEVICES.

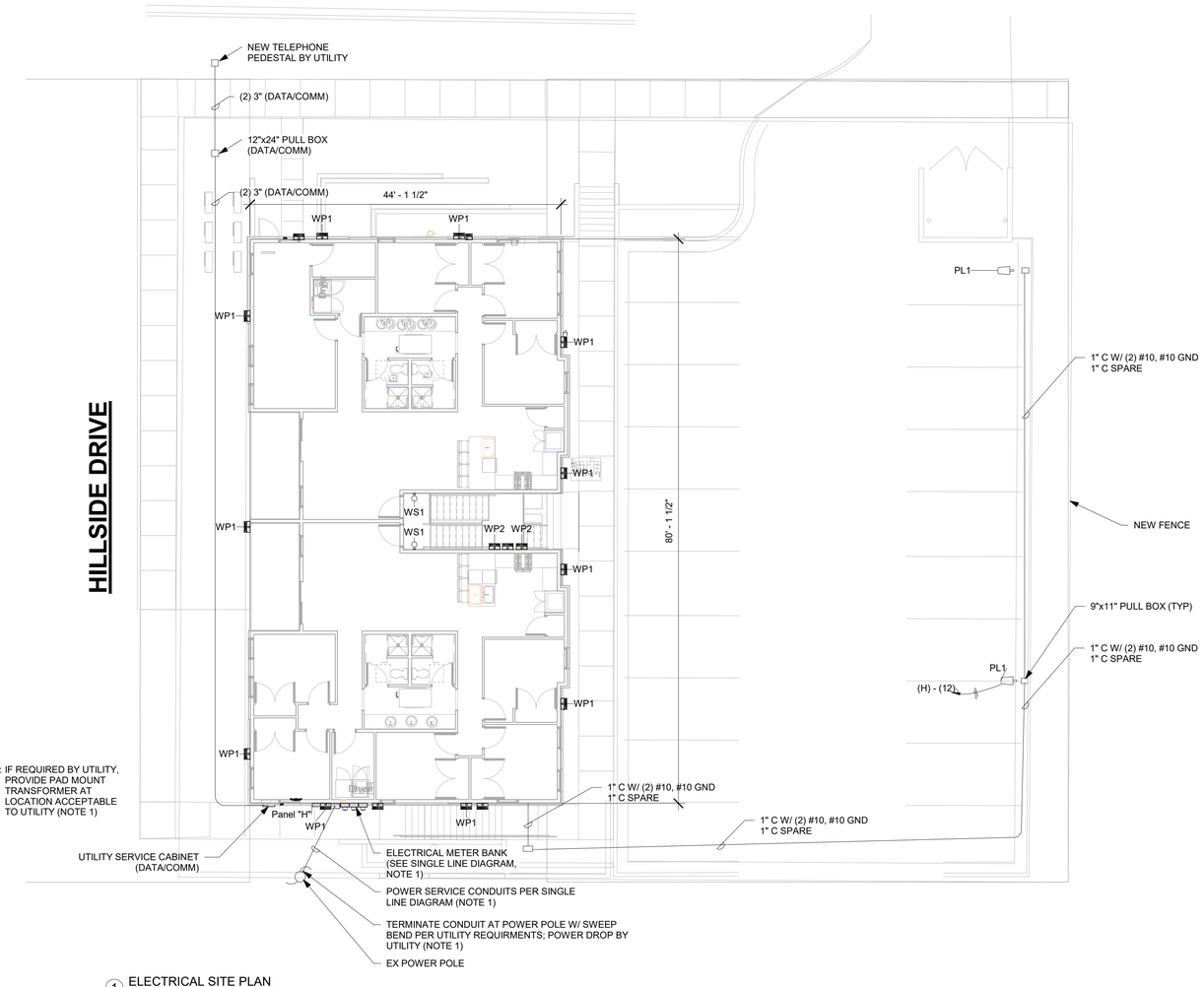
SECTION 26 51 00 - INTERIOR LIGHTING

1. SUBMITTAL: IN ADDITION TO THE REQUIREMENTS OF DIVISION 1 PROVIDE FOR EACH TYPE OF LIGHTING FIXTURE, ARRANGED IN ORDER OF FIXTURE DESIGNATION, THE FOLLOWING:
   1. EMERGENCY LIGHTING UNITS INCLUDING BATTERY AND CHARGER.
   2. BALLAST, INCLUDING BF.
   3. LIFE, OUTPUT (LUMENS, CCT, AND CRI), AND ENERGY-EFFICIENCY DATA FOR LAMPS.
   4. PHOTOMETRIC DATA BASED ON LABORATORY TESTS OF EACH LIGHTING FIXTURE TYPE, BY A CERTIFIED MANUFACTURER'S LABORATORY.
   5. SPECIAL WARRANTY.
2. SPECIAL WARRANTY PERIODS: 10 YEARS FOR EMERGENCY LIGHTING UNIT BATTERIES AND 7 YEARS FOR EMERGENCY FLUORESCENT BALLAST AND SELF-POWERED EXIT SIGN BATTERIES. WARRANTIES SHALL BE FROM DATE OF FINAL ACCEPTANCE. FULL WARRANTY SHALL APPLY FOR FIRST YEAR, AND PRORATED WARRANTY FOR THE REMAINING YEARS.
3. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, PRODUCT(S) INDICATED ON THE LIGHTING FIXTURE SCHEDULE.
4. DIFFUSERS, LENSES AND GLOBES: ACRYLIC SHALL BE 1/8" MINIMUM. 100 % VIRGIN UV STABILIZED ACRYLIC PLASTIC WITH A HIGH RESISTANCE TO YELLOWING AND OTHER CHANGES DUE TO AGING, EXPOSURE TO HEAT, AND UV RADIATION. GLASS SHALL BE ANNEALED CRYSTAL GLASS UNLESS OTHERWISE INDICATED.
5. FACTORY-APPLIED LABELS: INDICATE RECOMMENDED LAMPS AND BALLASTS, INCLUDING LAMP TYPE AND WATTAGE AND BALLAST TYPE. LABELS SHALL BE LOCATED WHERE THEY WILL BE READILY VISIBLE TO SERVICE PERSONNEL, BUT NOT SEEN FROM NORMAL VIEWING ANGLES WHEN LAMPS ARE IN PLACE.
6. EMERGENCY POWER UNIT: INTERNAL, SELF-CONTAINED, MODULAR, BATTERY-INVERTER UNIT, FACTORY INTEGRATED WITH LIGHTING FIXTURE BODY AND COMPATIBLE WITH BALLAST. NIGHTLIGHT / EMERGENCY OPERATION SHALL BE ONE LAMP CONTINUOUSLY AT A MINIMUM OUTPUT OF 1100 LUMENS. CONNECT UNSWITCHED CIRCUIT TO BATTERY-INVERTER UNIT AND SWITCHED CIRCUIT TO FIXTURE BALLAST. PROVIDE TEST BUTTON AND INDICATOR LIGHT WHERE VISIBLE AND ACCESSIBLE WITHOUT OPENING FIXTURE OR ENTERING CEILING SPACE. TEST BUTTON SHALL SIMULATE LOSS OF NORMAL POWER AND DEMONSTRATE UNIT OPERABILITY. INDICATOR LIGHT SHALL BE LED AND SHALL INDICATE NORMAL POWER "ON." 90 MINUTE BATTERY SHALL BE SEALED, MAINTENANCE-FREE, NICKEL-CADMIUM TYPE WITH FULLY AUTOMATIC, SOLID STATE, CONSTANT-CURRENT TYPE CHARGER WITH SEALED POWER TRANSFER RELAY. PROVIDE FACTORY-INSTALLED INTEGRAL SELF-TEST DEVICE TO AUTOMATICALLY INITIATE CODE-REQUIRED TEST OF UNIT EMERGENCY OPERATION OT REQUIRED INTERVALS. TEST FAILURE IS ANNUNCIATED BY AN INTEGRAL AUDIBLE ALARM AND A FLASHING RED LED. BALLAST SHALL AUTOMATICALLY ENERGIZE LAMP FROM BATTERY WHEN CIRCUIT VOLTAGE DROPS TO 80% OF NOMINAL VOLTAGE OR BELOW. WHEN NORMAL VOLTAGE IS RESTORED, BATTERY IS AUTOMATICALLY RECHARGED AND FLOATED ON CHARGER.
7. EXIT SIGNS: SELF-POWERED (BATTERY TYPE) SIGN WITH 50,000 HOURS LAMP LIFE LED SOURCE, AND INTEGRAL AUTOMATIC CHARGER IN A SELF-CONTAINED POWER PACK. 90 MINUTE BATTERY SHALL BE SEALED, MAINTENANCE-FREE, NICKEL-CADMIUM TYPE WITH FULLY AUTOMATIC, SOLID STATE, CONSTANT-CURRENT TYPE CHARGER WITH SEALED POWER TRANSFER RELAY. PROVIDE FACTORY-INSTALLED INTEGRAL SELF-TEST DEVICE TO AUTOMATICALLY INITIATE CODE-REQUIRED TEST OF UNIT EMERGENCY OPERATION AT REQUIRED INTERVALS. TEST FAILURE IS ANNUNCIATED BY AN INTEGRAL AUDIBLE ALARM AND A FLASHING RED LED. SIGN SHALL AUTOMATICALLY ENERGIZE LAMPS FROM BATTERY WHEN CIRCUIT VOLTAGE DROPS TO 80% OF NOMINAL VOLTAGE OR BELOW. WHEN NORMAL VOLTAGE IS RESTORED, BATTERY IS AUTOMATICALLY RECHARGED AND FLOATED ON CHARGER.
8. LAMPS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE GE, PHILIPS, AND OSRAM-SYLVANIA. PROVIDE LAMPS OF MAKES INDICATED AND OF WATTAGES GIVEN IN THE LIGHTING FIXTURE SCHEDULE. LAMP COLOR, BEAM ANGLE, WATTAGE AND OTHER PERFORMANCE CHARACTERISTIC SHALL BE CONFIRMED WITH BUILDING STANDARDS AND EXISTING FIXTURES IN THE AREA.
9. SET LUMINAIRES LEVEL, PLUMB, AND SQUARE WITH CEILINGS AND WALLS UNLESS OTHERWISE INDICATED AND INSTALL LAMPS ONCE LUMINAIRE INSTALLATION IS COMPLETE.
10. LAY-IN CEILING FIXTURES MAY USE THE GRID AS A SUPPORT ELEMENT. ADDITIONALLY, INSTALL CEILING SUPPORT SYSTEM RODS OR WIRES, INDEPENDENT OF THE CEILING SUSPENSION SYSTEM, AT EACH FIXTURE CORNER. LOCATE NOT MORE THAN 6" FROM LIGHTING FIXTURE CORNERS.
11. FIXTURES OF SIZES LESS THAN CEILING GRID: INSTALL AS INDICATED ON REFLECTED CEILING PLANS OR CENTER IN ACOUSTICAL PANEL, AND SUPPORT FIXTURES INDEPENDENTLY.
12. TEMPORARY LIGHTING: IF IT IS NECESSARY, AND APPROVED BY ARCHITECT, TO USE PERMANENT LUMINAIRES FOR TEMPORARY LIGHTING, INSTALL AND ENERGIZE THE MINIMUM NUMBER OF LUMINAIRES NECESSARY. WHEN CONSTRUCTION IS SUFFICIENTLY COMPLETE, REMOVE THE TEMPORARY LUMINAIRES, DISASSEMBLE, CLEAN THOROUGH

LIGHTING FIXTURE SCHEDULE					
Mark	Manufacturer	Model	Description	Wattage (MAX)	Lamp
EM2	Lithonia	AFN 120V	EXTERIOR EMERGENCY LIGHT	12 W	LED
EX1	Lithonia	ECG LED M6 - 120V	EXIT SIGN (EXTERIOR)	3 W	LED
PL1	Lithonia	DSX0-LED-P4-40K-TFTM_92W	Full cut-off pole light, H=18'	92 W	LED
WP1	Lithonia	DSXW1 LED 10C 530 MVOLT	WALL PACK - H=18FT MAX	50 W	LED
WP2	Lithonia	DSXW1 LED 10C 350 MVOLT	WALL PACK - H=10FT	13 W	LED
WS1	Cooper Lighting	LSRWM8B	WALL MOUNT SCONCE	11 W	LED

NOTE:
1. CONTRACTOR TO CONFIRM ALL LIGHTING, COLOR, FINISH, SECTIONS, ELEVATIONS, FIXTURE HEIGHTS, & QUANTITY W/ OWNER, INTERIOR DESIGNER, & ARCHITECT

700 NORTH



1 ELECTRICAL SITE PLAN
1" = 10'-0"

N

CONSTRUCTION NOTES

1. COORDINATE WITH UTILITLY TO CONFIRM LOCATION, SIZES, & INSTALLATION REQUIREMENTS

DATE

SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: MB
DESIGNER: KDC
REVIEWED: DIO

PROJECT # 24SM5271.17

REGISTERED PROFESSIONAL ENGINEER — NO. 169278 — DON L. OLSEN — STATE OF UTAH — 9/17/25

SCALES

1" = 10'-0"

0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST IF ON A REDUCED SHEET.

PROJECT NAME:

K&B APARTMENTS

PROJECT LOCATION:

684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:

ELECTRICAL SITE PLAN

PLAN SET: PERMIT

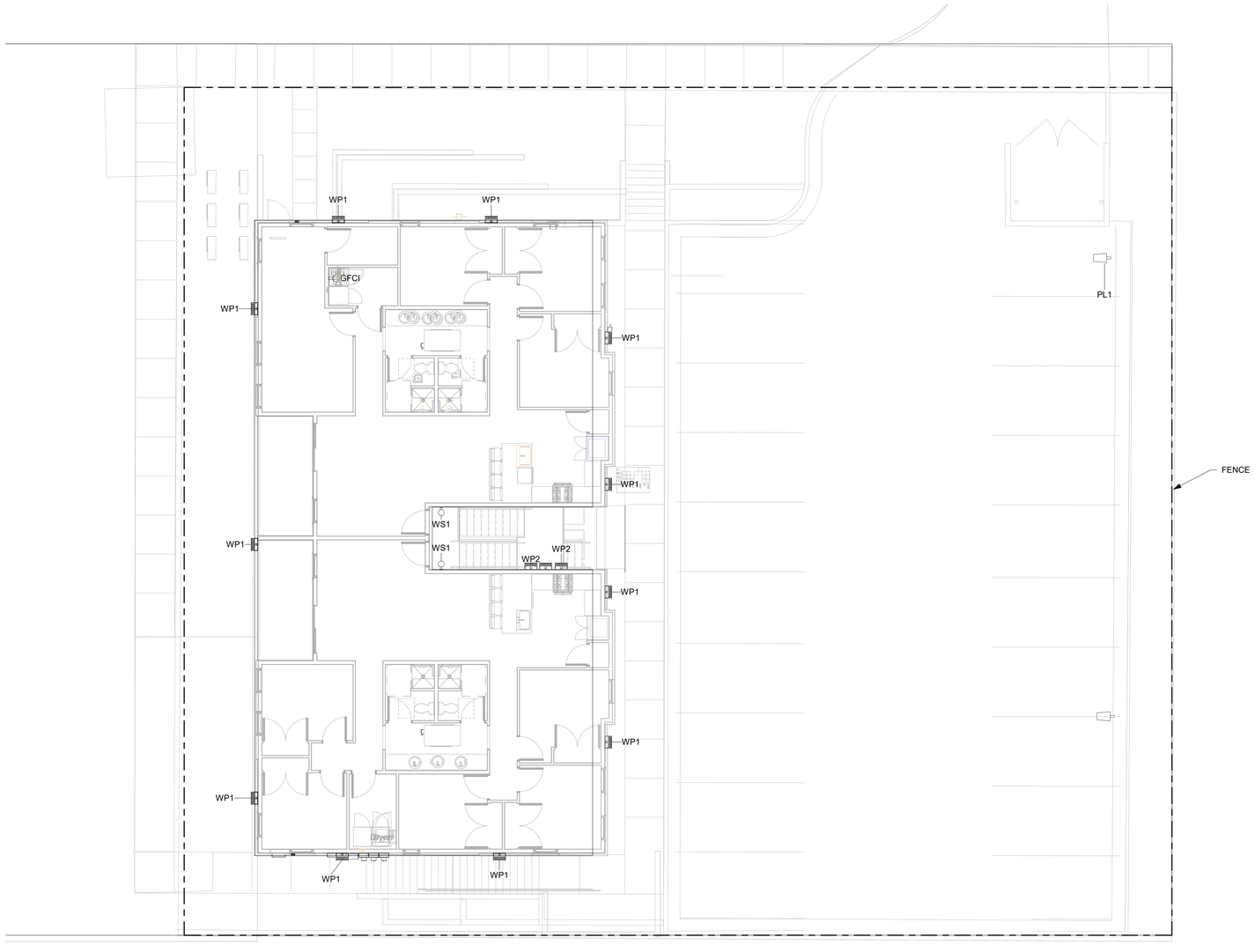
SHEET E0.3

Autodesk Docs://KB Apartments/K&B APARTMENTS MEP.rvt

LIGHTING FIXTURE SCHEDULE

Mark	Manufacturer	Model	Description	Wattage (MAX)	Lamp
EM2	Lithonia	AFN 120V	EXTERIOR EMERGENCY LIGHT	12 W	LED
PL1	Lithonia	DSX0-LED-P4-40K-TFTM_92W	Full cut-off pole light, H=18'	92 W	LED
WP1	Lithonia	DSXW1 LED 10C 530 MVOLT	WALL PACK - H=18FT MAX	50 W	LED
WP2	Lithonia	DSXW1 LED 10C 350 MVOLT	WALL PACK - H=10FT	13 W	LED
WS1	Cooper Lighting	LSRWM8B	WALL MOUNT SCONCE	11 W	LED

NOTE:
1. CONTRACTOR TO CONFIRM ALL LIGHTING, COLOR, FINISH, SECTIONS, ELEVATIONS, FIXTURE HEIGHTS, & QUANTITY W/ OWNER, INTERIOR DESIGNER, & ARCHITECT



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

N

CONSTRUCTION NOTES

1. GRID VALUES SHOWN ARE FOOT CANDLES AT GRADE

DATE
SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: MB
DESIGNER: KDC
REVIEWED: DIO

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER NO. 169278 DONALD C. OLSEN STATE OF UTAH

SCALES
1/8" = 1'-0"
0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST ACCORDINGLY

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

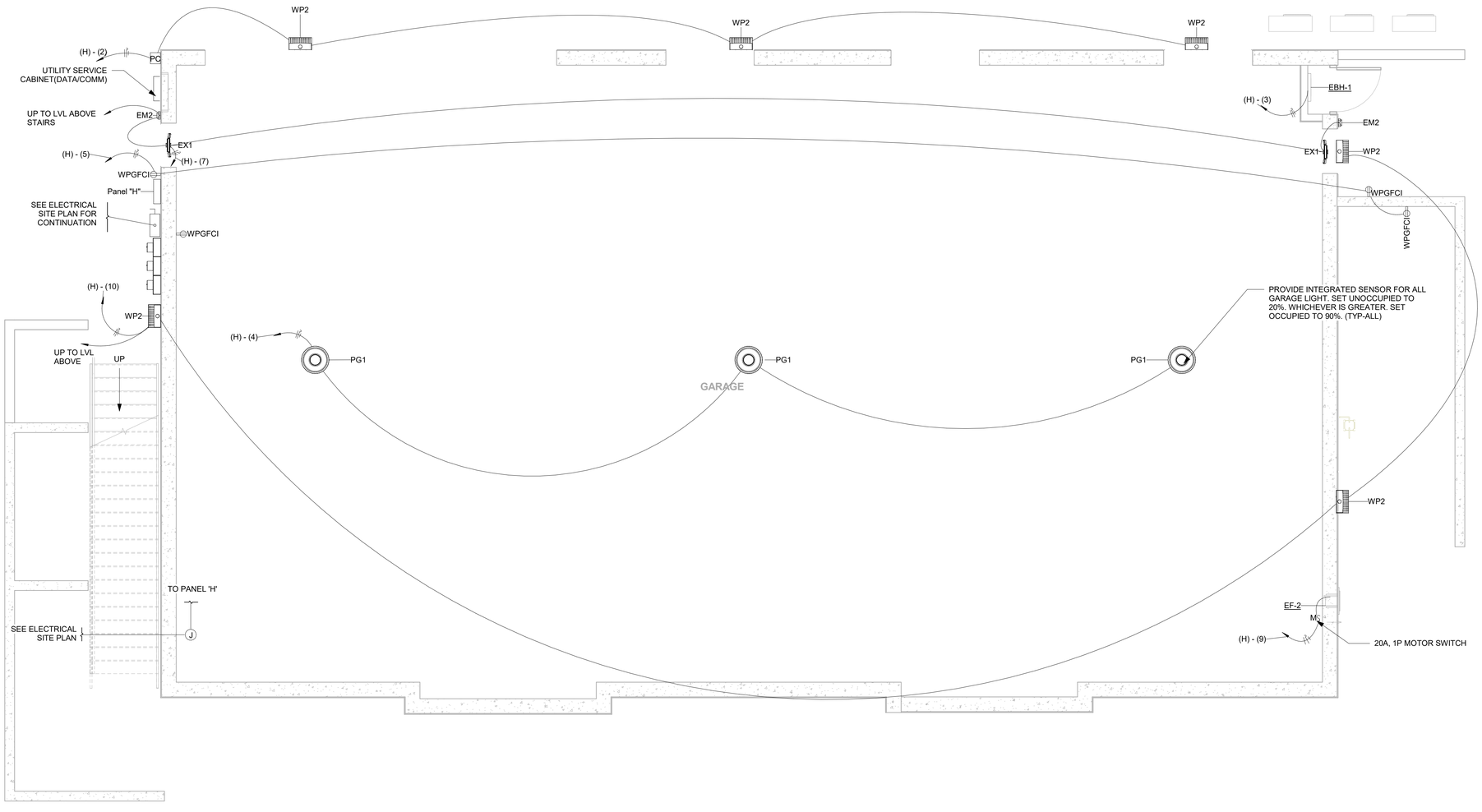
SHEET TITLE:
PHOTOMETRIC PLAN

PLAN SET: PERMIT
SHEET E0.4

Autodesk Docs://KB Apartments/KB APARTMENTS MEP.rvt

LIGHTING FIXTURE SCHEDULE					
Mark	Manufacturer	Model	Description	Wattage (MAX)	Lamp
EM2	Lithonia	AFN 120V	EXTERIOR EMERGENCY LIGHT	12 W	LED
EX1	Lithonia	ECG LED M6 - 120V	EXIT SIGN (EXTERIOR)	3 W	LED
PG1	Lithonia	JHBL 12000LM 35K MVOLT	PARKING GARAGE SURFACE MOUNT	100 W	LED
WP2	Lithonia	DSXW1 LED 10C 350 MVOLT	WALL PACK - H=10FT	13 W	LED

NOTE:
1. CONTRACTOR TO CONFIRM ALL LIGHTING, COLOR, FINISH, SECTIONS, ELEVATIONS, FIXTURE HEIGHTS, & QUANTITY W/ OWNER, INTERIOR DESIGNER, & ARCHITECT



1 BASEMENT ELECTRICAL PLAN
1/4" = 1'-0"

CONSTRUCTION NOTES

1. FIRE ALARM SYSTEM SHALL BE DESIGN-BUILD BY CONTRACTOR AND EQUIPMENT SUPPLIER.
2. LOW VOLTAGE SYSTEMS SHALL BE DESIGN-BUILD BY CONTRACTOR. CONFIRM ALL FIXTURE LOCATIONS SHOWN WITH OWNER.
3. A LIGHTING CONTROL PANEL OR TIMER SHALL BE PROVIDED FOR ALL LIGHTING CIRCUITS NOT CONTROLLED BY OCCUPANCY SENSORS WHERE AUTOMATIC SHUT-OFF WOULD NOT POSE DANGER TO PERSONNEL.
4. WALL OCCUPANCY SENSORS SHALL HAVE SELECTABLE MODES FOR AUTOMATIC AND MANUAL ON.
5. PROVIDE PHOTO SENSOR WITH AUTOMATIC DIMMING IN DAYLIGHT AREAS.
6. HARD WIRE SECURITY LIGHT FIXTURE TO REMAIN ON CONTINUOUSLY.
7. PROVIDE BATTERY BACK-UP FOR A MINIMUM OF 1100 LUMENS FOR 90 MIN.
8. CEILING OCCUPANCY SENSORS SHOWN IN AREAS WITH MANUAL SWITCHES SHALL BE WIRED TO OVERRIDE MANUAL SWITCHES WITH AUTOMATIC SHUT-OFF. SEE LV LIGHTING SCHEMATIC ON ELECTRICAL DETAIL SHEET.
9. ROUTE ALL EXTERIOR LIGHT CIRCUITS THROUGH LIGHTING CONTROL PANEL FOR ADDITIONAL CONTROL CAPABILITY AS REQ'D BY THE IECC. A MASTER PHOTOCELL MAY BE PROVIDED IN LIEU OF SEPARATE PHOTOCELLS FOR EACH CIRCUIT SHOWN.

DATE
SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: MB
DESIGNER: KDC
REVIEWED: DIO

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER
No. 169278
11/7/25
DON I. OLSEN
STATE OF UTAH

SCALES
1/4" = 1'-0"
0" 1" 2"
BAR IS 2" WHEN PLOTTED AT A FULL 24"x36" SHEET. ADJUST FOR SMALLER SHEET SIZES

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
BASEMENT ELECTRICAL & LIGHTING PLAN

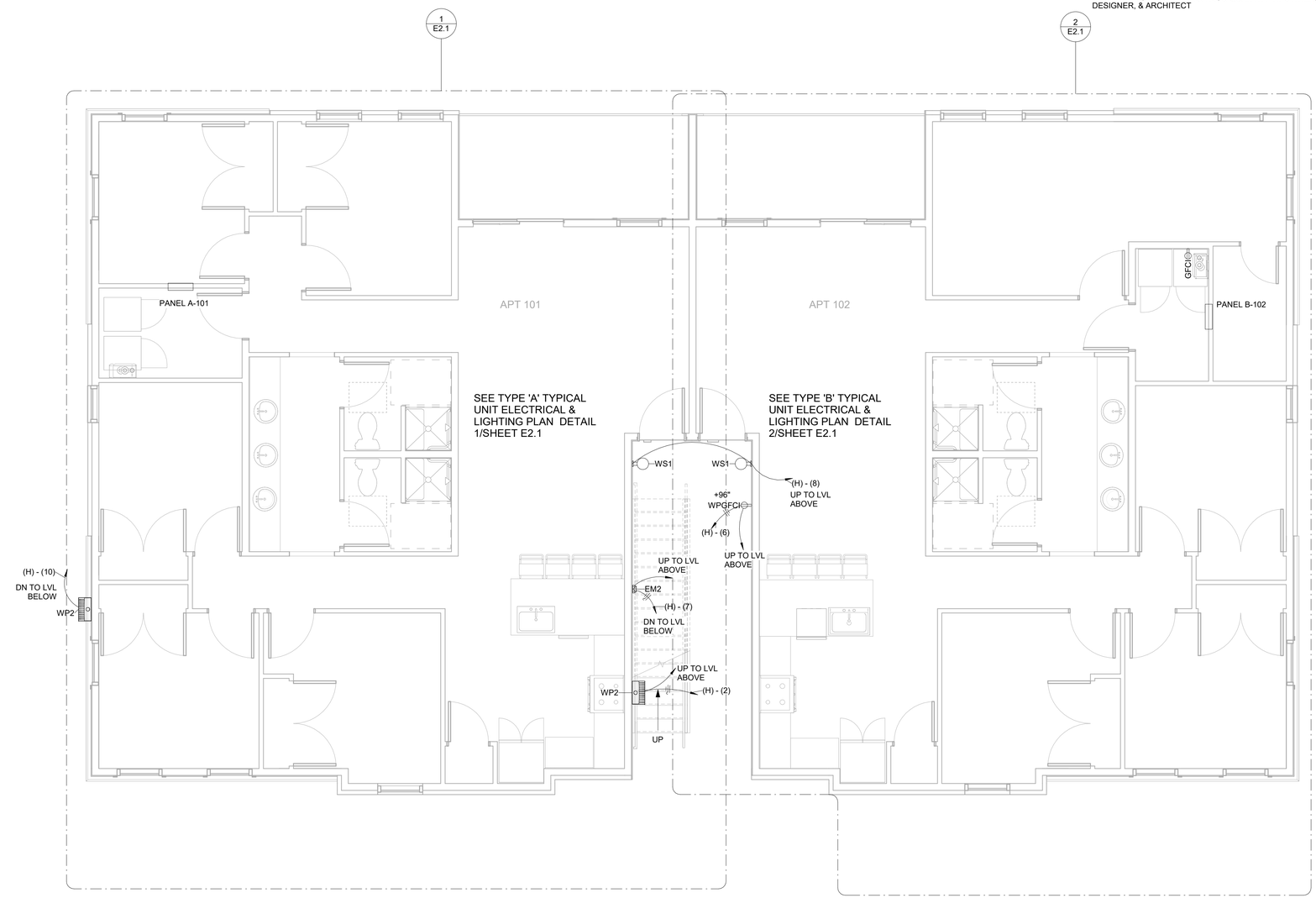
PLAN SET: PERMIT
SHEET E1.1

Autodesk Docs://KB Apartments/K&B APARTMENTS MEP.rvt

LIGHTING FIXTURE SCHEDULE

Mark	Manufacturer	Model	Description	Wattage (MAX)	Lamp
EM2	Lithonia	AFN 120V	EXTERIOR EMERGENCY LIGHT	12 W	LED
WP2	Lithonia	DSXW1 LED 10C 350 MVOLT	WALL PACK - H=10FT	13 W	LED
WS1	Cooper Lighting	LSRWM8B	WALL MOUNT SCONCE	11 W	LED

NOTE:
1. CONTRACTOR TO CONFIRM ALL LIGHTING, COLOR, FINISH, SECTIONS, ELEVATIONS, FIXTURE HEIGHTS, & QUANTITY W/ OWNER, INTERIOR DESIGNER, & ARCHITECT



1 FIRST LEVEL ELECTRICAL PLAN
1/4" = 1'-0"

N

CONSTRUCTION NOTES

1. FIRE ALARM SYSTEM SHALL BE DESIGN-BUILD BY CONTRACTOR AND EQUIPMENT SUPPLIER.
2. LOW VOLTAGE SYSTEMS SHALL BE DESIGN-BUILD BY CONTRACTOR. CONFIRM ALL FIXTURE LOCATIONS SHOWN WITH OWNER.
3. A LIGHTING CONTROL PANEL OR TIMER SHALL BE PROVIDED FOR ALL LIGHTING CIRCUITS NOT CONTROLLED BY OCCUPANCY SENSORS WHERE AUTOMATIC SHUT-OFF WOULD NOT POSE DANGER TO PERSONNEL.
4. WALL OCCUPANCY SENSORS SHALL HAVE SELECTABLE MODES FOR AUTOMATIC AND MANUAL ON.
5. PROVIDE PHOTO SENSOR WITH AUTOMATIC DIMMING IN DAYLIGHT AREAS.
6. HARD WIRE SECURITY LIGHT FIXTURE TO REMAIN ON CONTINUOUSLY.
7. PROVIDE BATTERY BACK-UP FOR A MINIMUM OF 1100 LUMENS FOR 90 MIN.
8. CEILING OCCUPANCY SENSORS SHOWN IN AREAS WITH MANUAL SWITCHES SHALL BE WIRED TO OVERRIDE MANUAL SWITCHES WITH AUTOMATIC SHUT-OFF. SEE LV LIGHTING SCHEMATIC ON ELECTRICAL DETAIL SHEET.
9. ROUTE ALL EXTERIOR LIGHT CIRCUITS THROUGH LIGHTING CONTROL PANEL FOR ADDITIONAL CONTROL CAPABILITY AS REQ'D BY THE IECC. A MASTER PHOTOCELL MAY BE PROVIDED IN LIEU OF SEPARATE PHOTOCELLS FOR EACH CIRCUIT SHOWN.

DATE
SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: MB
DESIGNER: KDC
REVIEWED: DIO

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER — NO. 169278 — DON L. OLSEN — STATE OF UTAH — 4/17/25

SCALES
1/4" = 1'-0"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST PRINT ACCORDINGLY

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
FIRST LEVEL ELECTRICAL & LIGHTING PLAN

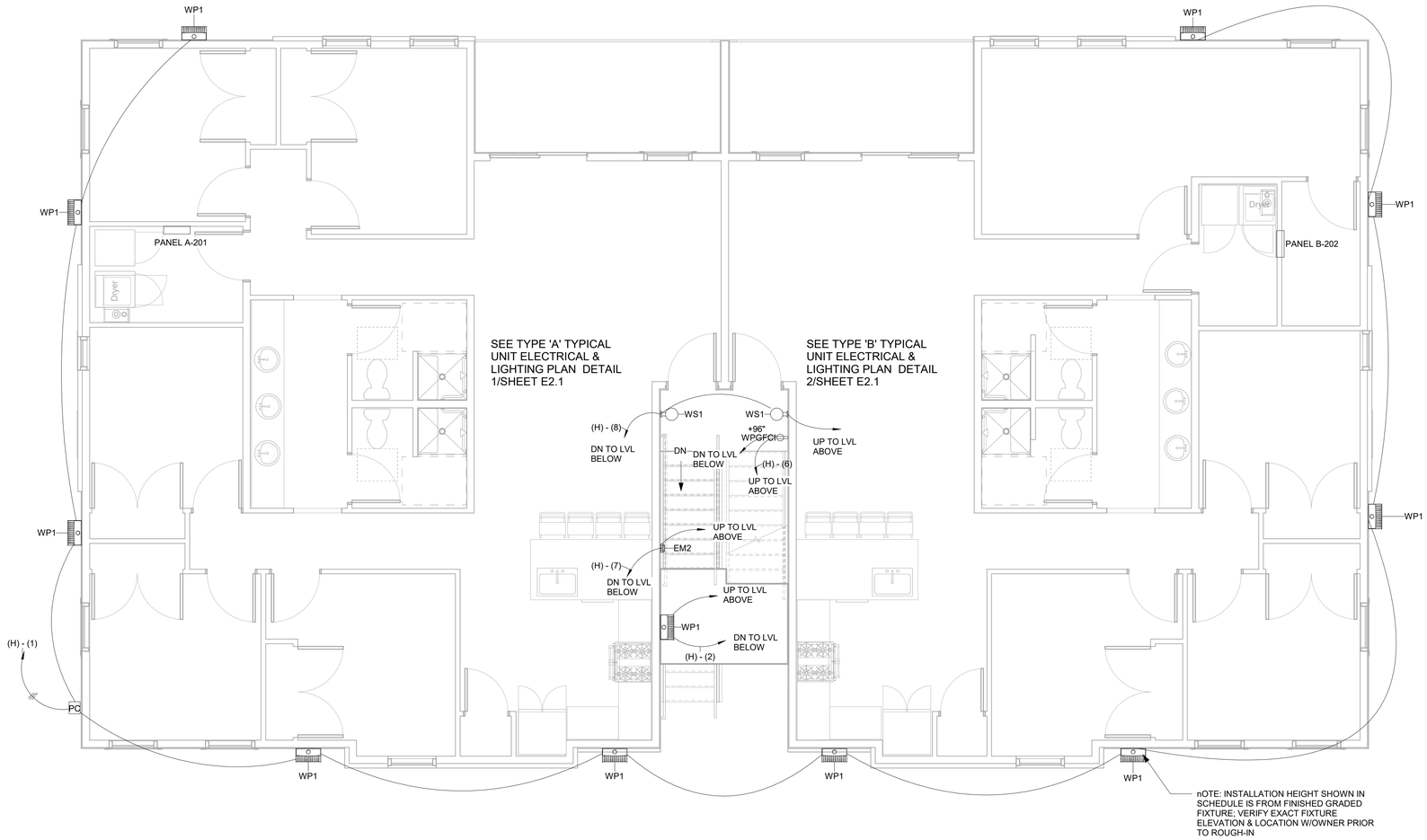
PLAN SET: PERMIT
SHEET E1.2

Autodesk Docs://KB Apartments/K&B APARTMENTS MEP.rvt

LIGHTING FIXTURE SCHEDULE

Mark	Manufacturer	Model	Description	Wattage (MAX)	Lamp
EM2	Lithonia	AFN 120V	EXTERIOR EMERGENCY LIGHT	12 W	LED
WP1	Lithonia	DSXW1 LED 10C 530 MVOLT	WALL PACK - H=18FT MAX	50 W	LED
WS1	Cooper Lighting	LSRWM8B	WALL MOUNT SCONCE	11 W	LED

NOTE:
1. CONTRACTOR TO CONFIRM ALL LIGHTING, COLOR, FINISH, SECTIONS, ELEVATIONS, FIXTURE HEIGHTS, & QUANTITY W/ OWNER, INTERIOR DESIGNER, & ARCHITECT



1 SECOND LEVEL ELECTRICAL PLAN
1/4" = 1'-0"

N

CONSTRUCTION NOTES

1. FIRE ALARM SYSTEM SHALL BE DESIGN-BUILD BY CONTRACTOR AND EQUIPMENT SUPPLIER.
2. LOW VOLTAGE SYSTEMS SHALL BE DESIGN-BUILD BY CONTRACTOR. CONFIRM ALL FIXTURE LOCATIONS SHOWN WITH OWNER.
3. A LIGHTING CONTROL PANEL OR TIMER SHALL BE PROVIDED FOR ALL LIGHTING CIRCUITS NOT CONTROLLED BY OCCUPANCY SENSORS WHERE AUTOMATIC SHUT-OFF WOULD NOT POSE DANGER TO PERSONNEL.
4. WALL OCCUPANCY SENSORS SHALL HAVE SELECTABLE MODES FOR AUTOMATIC AND MANUAL ON.
5. PROVIDE PHOTO SENSOR WITH AUTOMATIC DIMMING IN DAYLIGHT AREAS.
6. HARD WIRE SECURITY LIGHT FIXTURE TO REMAIN ON CONTINUOUSLY.
7. PROVIDE BATTERY BACK-UP FOR A MINIMUM OF 1100 LUMENS FOR 90 MIN.
8. CEILING OCCUPANCY SENSORS SHOWN IN AREAS WITH MANUAL SWITCHES SHALL BE WIRED TO OVERRIDE MANUAL SWITCHES WITH AUTOMATIC SHUT-OFF. SEE LV LIGHTING SCHEMATIC ON ELECTRICAL DETAIL SHEET.
9. ROUTE ALL EXTERIOR LIGHT CIRCUITS THROUGH LIGHTING CONTROL PANEL FOR ADDITIONAL CONTROL CAPABILITY AS REQ'D BY THE IECC. A MASTER PHOTOCELL MAY BE PROVIDED IN LIEU OF SEPARATE PHOTOCELLS FOR EACH CIRCUIT SHOWN.

DATE
SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: MB
DESIGNER: KDC
REVIEWED: DIO

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER
9/17/24
NO. 189278
DON L. OLSEN
STATE OF UTAH

SCALES
1/4" = 1'-0"
0 1"
IF THIS SCALE MEASURE IS NOT A FULL SIZE ENTITY, ADJUST FOR A SMALLER PLOT

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

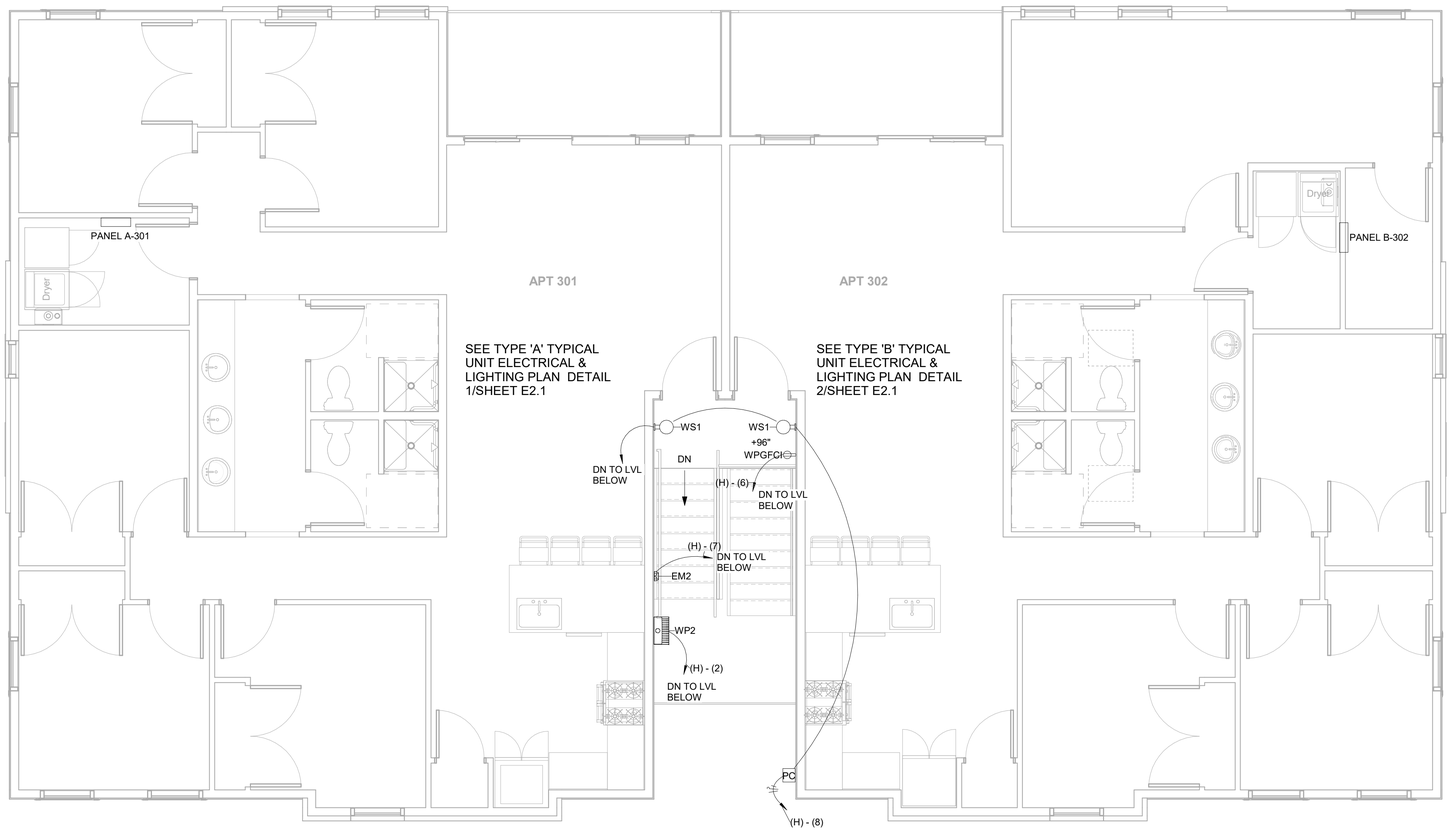
SHEET TITLE:
SECOND LEVEL ELECTRICAL & LIGHTING PLAN

PLAN SET: PERMIT
SHEET E1.3

Autodesk Docs://KB Apartments/KB APARTMENTS MEP.rvt

LIGHTING FIXTURE SCHEDULE					
Mark	Manufacturer	Model	Description	Wattage (MAX)	Lamp
EM2	Lithonia	AFN 120V	EXTERIOR EMERGENCY LIGHT	12 W	LED
WP2	Lithonia	DSXW1 LED 10C 350 MVOLT	WALL PACK - H=10FT	13 W	LED
WS1	Cooper Lighting	LSRWM8B	WALL MOUNT SCONCE	11 W	LED

NOTE:
1. CONTRACTOR TO CONFIRM ALL LIGHTING, COLOR, FINISH, SECTIONS, ELEVATIONS, FIXTURE HEIGHTS, & QUANTITY W/ OWNER, INTERIOR DESIGNER, & ARCHITECT



N

1 THIRD LEVEL ELECTRICAL & LIGHTING PLAN
1/4" = 1'-0"

CONSTRUCTION NOTES

1. FIRE ALARM SYSTEM SHALL BE DESIGN-BUILD BY CONTRACTOR AND EQUIPMENT SUPPLIER.
2. LOW VOLTAGE SYSTEMS SHALL BE DESIGN-BUILD BY CONTRACTOR. CONFIRM ALL FIXTURE LOCATIONS SHOWN WITH OWNER.
3. A LIGHTING CONTROL PANEL OR TIMER SHALL BE PROVIDED FOR ALL LIGHTING CIRCUITS NOT CONTROLLED BY OCCUPANCY SENSORS WHERE AUTOMATIC SHUT-OFF WOULD NOT POSE DANGER TO PERSONNEL.
4. WALL OCCUPANCY SENSORS SHALL HAVE SELECTABLE MODES FOR AUTOMATIC AND MANUAL ON.
5. PROVIDE PHOTO SENSOR WITH AUTOMATIC DIMMING IN DAYLIGHT AREAS.
6. HARD WIRE SECURITY LIGHT FIXTURE TO REMAIN ON CONTINUOUSLY.
7. PROVIDE BATTERY BACK-UP FOR A MINIMUM OF 1100 LUMENS FOR 90 MIN.
8. CEILING OCCUPANCY SENSORS SHOWN IN AREAS WITH MANUAL SWITCHES SHALL BE WIRED TO OVERRIDE MANUAL SWITCHES WITH AUTOMATIC SHUT-OFF. SEE LV LIGHTING SCHEMATIC ON ELECTRICAL DETAIL SHEET.
9. ROUTE ALL EXTERIOR LIGHT CIRCUITS THROUGH LIGHTING CONTROL PANEL FOR ADDITIONAL CONTROL CAPABILITY AS REQ'D BY THE IECC. A MASTER PHOTOCELL MAY BE PROVIDED IN LIEU OF SEPARATE PHOTOCELLS FOR EACH CIRCUIT SHOWN.

DATE
SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: MB
DESIGNER: KDC
REVIEWED: DIO

PROJECT # 24SM5271.17

REGISTERED PROFESSIONAL ENGINEER — NO. 169278 — DONALD I. OLSEN — STATE OF UTAH — 4/17/25

SCALES
1/4" = 1'-0"
0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST SCALE ACCORDINGLY

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
THIRD LEVEL ELECTRICAL & LIGHTING PLAN

PLAN SET: PERMIT
SHEET E1.4

Autodesk Docs://KB Apartments/K&B APARTMENTS MEP.rvt

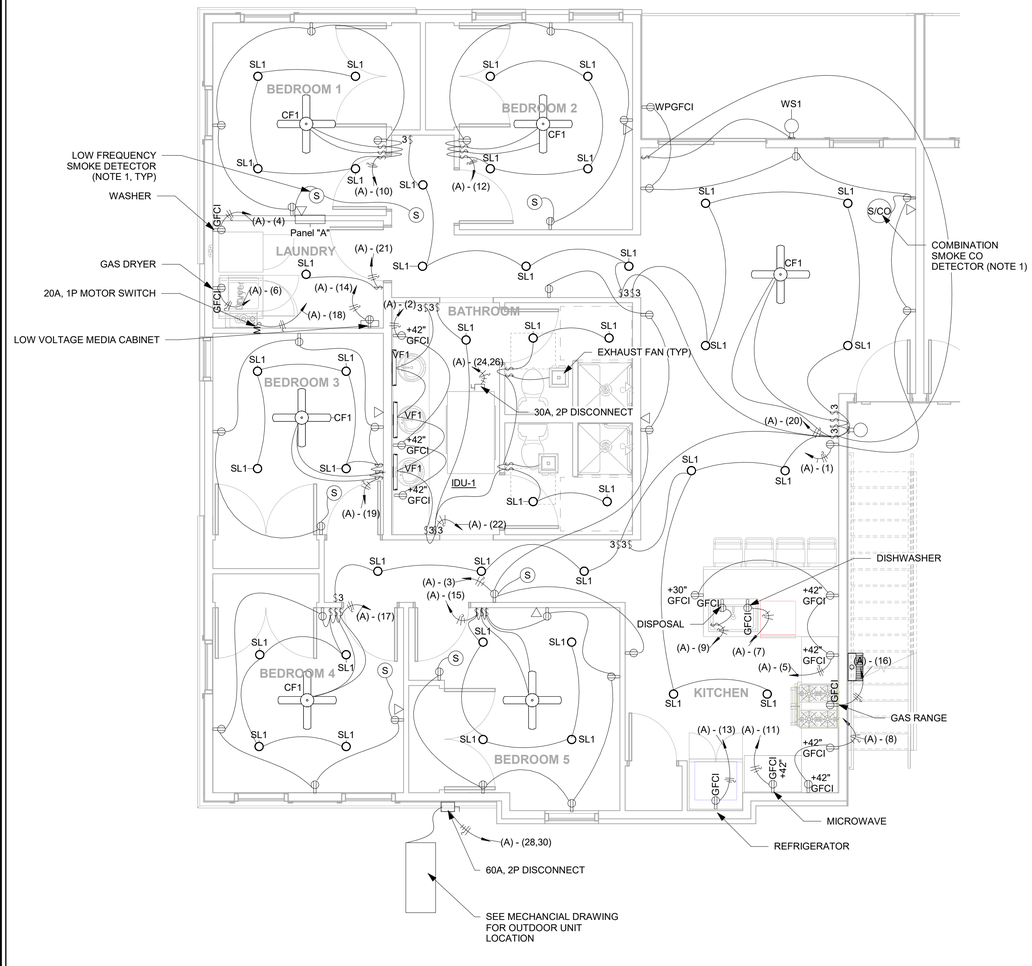
LIGHTING FIXTURE SCHEDULE

Mark	Manufacturer	Model	Description	Wattage (MAX)	Lamp
CF1	BY OWNER	CEILING FAN	CEILING FAN	64 W	LED
SL1	BY OWNER	BY OWNER	6" SLIM LIGHT	21 W	LED
VF1	Lithonia	FMVCCL 12IN 30K MVOLT	VANITYLIGHT	10 W	LED
WP1	Lithonia	DSXW1 LED 10C 530 MVOLT	WALL PACK - H=18FT MAX	50 W	LED
WP2	Lithonia	DSXW1 LED 10C 350 MVOLT	WALL PACK - H=10FT	13 W	LED
WS1	Cooper Lighting	LSRWM8B	WALL MOUNT SCONCE	11 W	LED

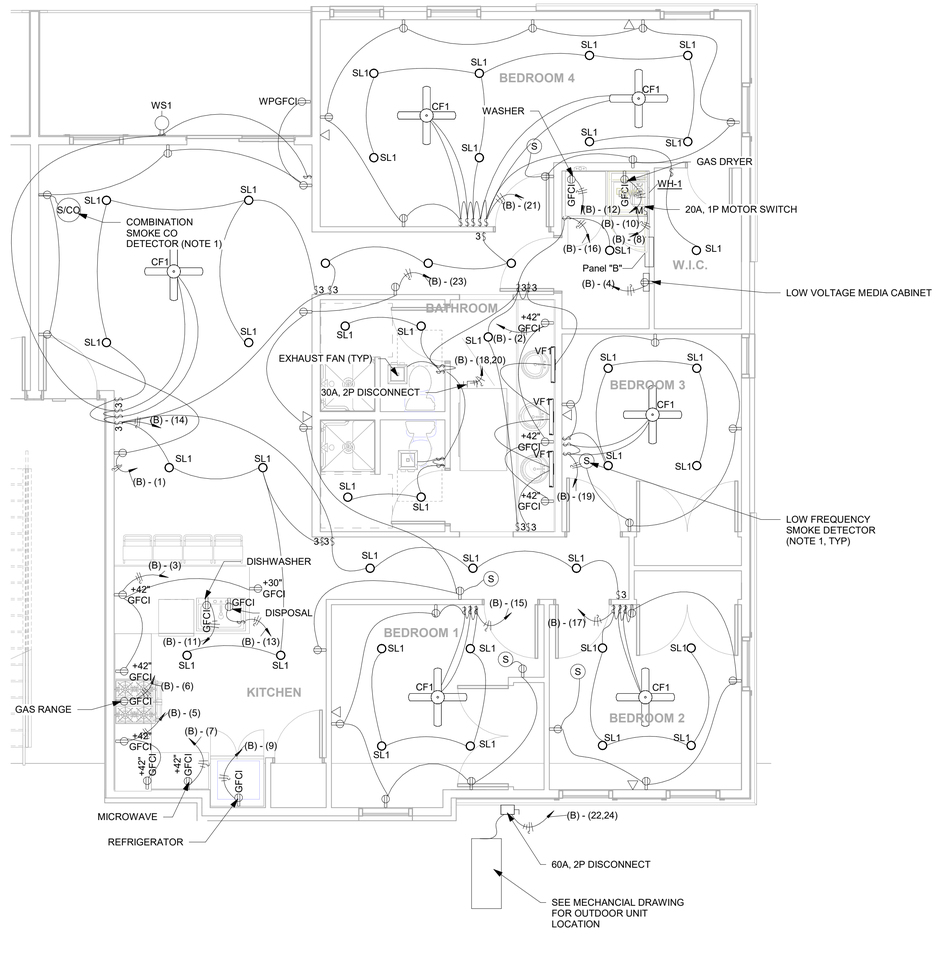
NOTE:
1. CONTRACTOR TO CONFIRM ALL LIGHTING, COLOR, FINISH, SECTIONS, ELEVATIONS, FIXTURE HEIGHTS, & QUANTITY W/ OWNER, INTERIOR DESIGNER, & ARCHITECT

ELECTRICAL GENERAL NOTES:

1. FIRE ALARM SYSTEM SHALL BE DESIGN-BUILD TO MEET ALL LOCAL CODE REQUIREMENTS. SMOKE ALARMS SHALL BE POWERED FROM FIRE ALARM PANEL W/ BACK-UP BATTERIES IN EACH ALARM. THE COMPLETE FIRE ALARM SYSTEM DESIGN SHALL BE A DEFERRED SUBMITTAL TO BE APPROVED AFTER THE BUILDING PERMIT IS ISSUED. AC PRIMARY POWER SHALL BE SUPPLIED BY THE UNSWITCHED PORTION OF A BRANCH CIRCUIT ALSO USED FOR POWER & LIGHTING. SMOKE ALARMS OR SMOKE DETECTORS SHALL BE INSTALLED A MINIMUM OF 20 FEET HORIZONTAL DISTANCE FROM PERMANENTLY INSTALLED COOKING APPLIANCE.
2. ALL ELECTRICAL DEVICES IN ADA UNITS SHALL BE MOUNTED IN COMPLIANCE W/ ADA REGULATIONS. THESE INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
   a. UNOBSTRUCTED DEVICES SHALL BE 48" TO TOP MAX & 15" TO BOTTOM MIN
   b. DEVICES OVER OBSTRUCTIONS (36" MAX OBSTR. HEIGHT & 27" MIN KNEE CLEARANCE) SHALL HAVE 48" TO TOP MAX FOR 20" OR LESS DEEP OBSTRUCTION AND 44" TO TOP MAX FOR 20" TO 25" DEEP OBSTRUCTION
   c. DEVICES OVER SIDE OBSTRUCTIONS (24" WIDE X 36" HIGH MAX) SHALL HAVE 46" TO TOP MAX AND 36" MINIMUM HORIZONTAL CLEARANCES FROM CORNERS
3. EQUIPMENT INSTALLATION & WIRING SHALL BE PER MANUFACTURER'S REQUIREMENTS.
4. A MINIMUM OF 50% OF INTERIOR LIGHT FIXTURES IN RESIDENTIAL UNITS SHALL BE HIGH EFFICIENCY IN ACCORDANCE WITH IECC 404.1.
5. SCONCE ON HOUSE CONTROLS & POWER
6. ALL POWER AND DATA OUTLETS SHALL BE AT THE HEIGHT OF 18" UNLESS NOTED OTHERWISE.
7. CENTER CEILING FAN IN ROOM. COORDINATE W/ MECHANICAL PLANS
8. SEE ROOF PLAN FOR ODU CIRCUITING
9. AFCI RECEPTACLE SHALL BE INSTALLED IN KITCHEN, LIVING, BEDROOM, & HALLWAY AREAS PER NEC # 210.12 (NOTE: NEC 210.12 IS DELETED BY THE UTAH STATEWIDE AMENDMENTS; PROVIDE AFCI PROTECTION ONLY IF REQUIRED BY LOCAL AHJ)
10. TAMPER RESISTANT RECEPACLES SHALL BE INSTALLED IN DWELLING UNITS PER NEC #406.12
11. PROVIDE OUTLETS ALONG WALL WITHIN 6' OF DOORS OR OPENINGS AND 12' MAX APART.
12. GFCI PROTECTION SHALL BE PROVIDED WHERE REQUIRED WHETHER INDICATED OR NOT. GFCI PROTECTION IS NOT REQUIRED FOR RECEPTACLES WITH A VOLTAGE ABOVE 125V PER THE UTAH STATEWIDE AMENDMENTS TO THE NEC UNLESS SPECIFICALLY REQUIRED BY THE LOCAL AHJ. GFCI PROTECTION SHALL BE FROM A RECEPTACLE OR BREAKER; BOTH ARE NOT REQUIRED. GFCI TYPE BREAKER SHALL BE PROVIDED WHERE RECEPTACLE ACCESS IS LIMITED (BEHIND) STACKABLE WASHER/ DRYER, ETC.



1 TYPICAL UNIT TYPE A ELECTRICAL & LIGHTING PLAN
1/4" = 1'-0"



2 TYPICAL UNIT TYPE B ELECTRICAL & LIGHTING PLAN
1/4" = 1'-0"

CONSTRUCTION NOTES

DATE
SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: MB
DESIGNER: KDC
REVIEWED: DIO

PROJECT # 24SM5271.17

REGISTERED PROFESSIONAL ENGINEER — No. 189278 — DONAL O'NEIL WILSEN — STATE OF UTAH — 4/17/25

SCALES
1/4" = 1'-0"
0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE PAPER PRINT

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
TYPICAL UNIT ELECTRICAL & LIGHTING PLAN

PLAN SET: PERMIT
SHEET E2.1

Autodesk Docs://KB Apartments/K&B APARTMENTS MEP.rvt

Branch Panel: A UNIT TYPE 'A' TYPICAL

Location: LAUNDRY 106 | **Volts:** 120/208 Single | **A.I.C. Rating:** 22,000 A *
Supply From: | **Phases:** 1 | **Mains Type:** MLO
Mounting: Recessed | **Wires:** 3 | **Mains Rating:** 125 A
Enclosure: Type 1

Notes:

CKT	Circuit Description	Trip	Wire Size	Poles	A		B		Poles	Wire Size	Trip	Circuit Description	CKT
1	RECEPT - LIVING	15 A	1-#14, 1-#14, 1-#14	1	1,080 VA	540 VA			1	1-#12, 1-#12, 1-#12	20 A	RECEPT - BATHROOM	2
3	RECEPT - LIVING/HALL	15 A	1-#14, 1-#14, 1-#14	1			900 VA	1,176 VA	1	1-#12, 1-#12, 1-#12	20 A	WASHER	4
5	RECEPT - KITCHEN	20 A	1-#12, 1-#12, 1-#12	1	540 VA	1,500 VA			1	1-#12, 1-#12, 1-#12	20 A	GAS DRYER	6
7	DISHWASHER	20 A	1-#12, 1-#12, 1-#12	1			1,000 VA	360 VA	1	1-#12, 1-#12, 1-#12	20 A	RECEPT - KITCHEN #2	8
9	DISPOSAL	20 A	1-#12, 1-#12, 1-#12	1	1,500 VA	868 VA			1	1-#14, 1-#14, 1-#14	15 A	BEDROOM 1	10
11	MICROWAVE	20 A	1-#12, 1-#12, 1-#12	1			1,000 VA	868 VA	1	1-#14, 1-#14, 1-#14	15 A	BEDROOM 2	12
13	REFRIGERATOR	20 A	1-#12, 1-#12, 1-#12	1	800 VA	180 VA			1	1-#14, 1-#14, 1-#14	15 A	MEDIA CABINET	14
15	BEDROOM 5	15 A	1-#14, 1-#14, 1-#14	1			1,048 VA	180 VA	1	1-#12, 1-#12, 1-#12	20 A	GAS RANGE	16
17	BEDROOM 4	15 A	1-#14, 1-#14, 1-#14	1	868 VA	500 VA			1	1-#12, 1-#12, 1-#12	20 A	WATER HEATER	18
19	BEDROOM 3	15 A	1-#14, 1-#14, 1-#14	1			868 VA	389 VA	1	1-#14, 1-#14, 1-#14	15 A	LIGHTING - LIVING/HALL	20
21	LIGHT - LAUNDRY	20 A	1-#12, 1-#12, 1-#12	1	21 VA	145 VA			1	1-#14, 1-#14, 1-#14	15 A	LIGHT - BATHROOM	22
23	Spare	20 A	--	1			0 VA	423 VA	2	2-#14, 1-#14, 1-#14	15 A	IDU-1	24
25	Spare	20 A	--	1	0 VA	423 VA							26
27	Spare	20 A	--	1			0 VA	3,492 VA	2	2-#8, 1-#8, 1-#10	35 A	ODU-1	28
29	Spare	20 A	--	1	0 VA	3,492 VA							30
			Total Load:		12457 VA		11704 VA						
			Total Amps:		119 A		113 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	500 VA	100.00%	500 VA		
Lighting	1284 VA	100.00%	1284 VA	**Total Conn. Load:**	24161 VA
HVAC	7841 VA	100.00%	7841 VA	**Total Est. Demand:**	24161 VA
Receptacle	9060 VA	100.00%	9060 VA	**Total Conn. Current:**	116 A
Appliance	5476 VA	100.00%	5476 VA	**Total Est. Demand Current:**	116 A

Notes:
LOWER AIC RATING MAY BE PROVIDED WHERE AVALABLE FAULT CURRENT IS LESS THAN AIC RATING OF PANEL;
SEE AVAILABLE FAULT CURRENT CALCULATIONS ON SHEET E4.2

Branch Panel: B UNIT TYPE 'B' TYPICAL

Location: LAUNDRY 116 | **Volts:** 120/208 Single | **A.I.C. Rating:** 22,000 A *
Supply From: | **Phases:** 1 | **Mains Type:** MLO
Mounting: Recessed | **Wires:** 3 | **Mains Rating:** 125 A
Enclosure: Type 1

Notes:

CKT	Circuit Description	Trip	Wire Size	Poles	A		B		Poles	Wire Size	Trip	Circuit Description	CKT
1	RECEPT - LIVING	15 A	1-#14, 1-#14, 1-#14	1	1,080 VA	540 VA			1	1-#12, 1-#12, 1-#12	20 A	RECEPT - BATH	2
3	RECEPT - KITCHEN	20 A	1-#12, 1-#12, 1-#12	1			540 VA	180 VA	1	1-#12, 1-#12, 1-#12	20 A	MEDIA CABINET	4
5	RECEPT - KITCHEN	20 A	1-#12, 1-#12, 1-#12	1	360 VA	180 VA			1	1-#12, 1-#12, 1-#12	20 A	GAS RANGE	6
7	MICROWAVE	20 A	1-#12, 1-#12, 1-#12	1			1,000 VA	500 VA	1	1-#12, 1-#12, 1-#12	20 A	WATER HEATER	8
9	REFRIGERATOR	20 A	1-#12, 1-#12, 1-#12	1	800 VA	1,500 VA			1	1-#12, 1-#12, 1-#12	20 A	GAS DRYER	10
11	DISHWASHER	20 A	1-#12, 1-#12, 1-#12	1			1,000 VA	1,176 VA	1	1-#12, 1-#12, 1-#12	20 A	WASHER	12
13	DISPOSAL	20 A	1-#12, 1-#12, 1-#12	1	1,500 VA	368 VA			1	1-#14, 1-#14, 1-#14	15 A	LIGHT - LIVING	14
15	BEDROOM 1	15 A	1-#14, 1-#14, 1-#14	1			1,048 VA	166 VA	1	1-#14, 1-#14, 1-#14	15 A	LIGHT - BATHROOM/LAUNDRY	16
17	BEDROOM 2	15 A	1-#14, 1-#14, 1-#14	1	868 VA	423 VA			2	2-#14, 1-#14, 1-#14	15 A	IDU-1	18
19	BEDROOM 3	15 A	1-#14, 1-#14, 1-#14	1			868 VA	423 VA					20
21	BEDROOM 4	20 A	1-#12, 1-#12, 1-#12	1	1,757 VA	3,492 VA			2	2-#8, 1-#8, 1-#10	35 A	ODU-1	22
23	RECEPT - HALL	20 A	1-#12, 1-#12, 1-#12	1			900 VA	3,492 VA					24
25	Space	--	--	1	--	0 VA			1	--	20 A	Spare	26
27	Space	--	--	1			--	--	1	--	--	Space	28
29	Space	--	--	1	--	--			1	--	--	Space	30
			Total Load:		12868 VA		11293 VA						
			Total Amps:		122 A		109 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	500 VA	100.00%	500 VA		
Lighting	1284 VA	100.00%	1284 VA	**Total Conn. Load:**	24161 VA
HVAC	7841 VA	100.00%	7841 VA	**Total Est. Demand:**	24161 VA
Receptacle	9060 VA	100.00%	9060 VA	**Total Conn. Current:**	116 A
Appliance	5476 VA	100.00%	5476 VA	**Total Est. Demand Current:**	116 A

Notes:
LOWER AIC RATING MAY BE PROVIDED WHERE AVALABLE FAULT CURRENT IS LESS THAN AIC RATING OF PANEL;
SEE AVAILABLE FAULT CURRENT CALCULATIONS ON SHEET E4.2

Branch Panel: H

Location: | **Volts:** 120/208 Single | **A.I.C. Rating:** 22,000 A
Supply From: | **Phases:** 1 | **Mains Type:** MAINS
Mounting: Surface | **Wires:** 3 | **Mains Rating:** 100 A
Enclosure: NEMA 3R

Notes:

CKT	Circuit Description	Trip	Wire Size	Poles	A		B		Poles	Wire Size	Trip	Circuit Description	CKT
1	LIGHT - EXTERIOR UPPER	20 A	1-#12, 1-#12, 1-#12	1	500 VA	115 VA			1	1-#12, 1-#12, 1-#12	20 A	LIGHT - EXTERIOR BASEMENT	2
3	EBH-1	20 A	1-#12, 1-#12, 1-#12	1			300 VA	300 VA	1	1-#12, 1-#12, 1-#12	20 A	LIGHT - PARKING GARAGE	4
5	RECEPT - GARAGE	20 A	1-#12, 1-#12, 1-#12	1	540 VA	540 VA			1	1-#12, 1-#12, 1-#12	20 A	RECEPT - EXTERIOR	6
7	LIGHT - EM/EXIT	20 A	1-#12, 1-#12, 1-#12	1			66 VA	66 VA	1	1-#12, 1-#12, 1-#12	20 A	LIGHT - SCONCE	8
9	EF-2 - GARAGE	20 A	1-#12, 1-#12, 1-#12	1	1,200 VA	52 VA			1	1-#12, 1-#12, 1-#12	20 A	LIGHT - EXTERIOR WALL...	10
11	Spare	20 A	--	1			0 VA	184 VA	1	1-#12, 1-#12, 1-#12	20 A	Lighting	12
13	Spare	20 A	--	1	0 VA	0 VA			1	--	20 A	Spare	14
15	Spare	20 A	--	1			0 VA	0 VA	1	--	20 A	Spare	16
17	Spare	20 A	--	1	0 VA	0 VA			1	--	20 A	Spare	18
19	Space	--	--	1			--	0 VA	1	--	20 A	Spare	20
21	Space	--	--	1	--	--			1	--	--	Space	22
23	Space	--	--	1			--	--	1	--	--	Space	24
25	Space	--	--	1	--	--			1	--	--	Space	26
27	Space	--	--	1			--	--	1	--	--	Space	28
29	Space	--	--	1	--	--			1	--	--	Space	30
			Total Load:		2947 VA		898 VA						
			Total Amps:		26 A		9 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	1200 VA	100.00%	1200 VA		
Lighting	1263 VA	100.00%	1263 VA	**Total Conn. Load:**	3840 VA
HVAC	300 VA	100.00%	300 VA	**Total Est. Demand:**	3840 VA
Receptacle	1080 VA	100.00%	1080 VA	**Total Conn. Current:**	18 A
				Total Est. Demand Current:	18 A

Notes:

K&B- Electrical Demand Load Calculations - Total for Building

Dwelling Unit Loads

	Unit Type	A	B		Total for Units
	Square Footage	1,500 sqft	1,500 sqft		
	# small appliance circuits (1500 VA)	2	2		
	# laundry circuits (1500 VA)	1	1		
	# of units	3	3		6
A	Lighting Load (3 VA/sf)	4,500 VA	4,500 VA		27,000 VA
B	Small Appliance circuits Load (1500 VA/ appl. load)	3,000 VA	3,000 VA		18,000 VA
C	Laundry Circuits Load (1500 VA/ circ.)	1,500 VA	1,500 VA		9,000 VA
	Total of Rows A, B, and C	9,000 VA	9,000 VA		
	First 3000 VA	3,000 VA	3,000 VA		
	3001 to 120000 @ 35%	2,100 VA	2,100 VA		
	Over 120000 @ 25%	0 VA	0 VA		
E	HVAC Load	8,000 VA	8,000 VA		48,000 VA
F	Gas Clothes Dryer Load	1,500 VA	1,500 VA		9,000 VA
G	Gas Range/ Oven Load	1,500 VA	1,500 VA		9,000 VA
H	Electric Water Heater	4,500 VA	4,500 VA		27,000 VA
	Individual Unit Demand Load/ Total Connected Load (overall)	20,600 VA	20,600 VA		147,000 VA
		86 A	86 A		613 A

Demand Load for Dwelling Units

Article 220, Part 3 Feeder/Service Load	Load (VA)	D.F.	Demand load
Table 220.42 (loads A, B & C)			
First 3000 VA @ 100%	3,000 VA	100%	3,000 VA
3001 VA to 120,000 VA @ 35%	51,000 VA	35%	17,850 VA
120,001 VA and above @ 25%	0 VA	25%	0 VA
HVAC (load E)	48,000 VA	100%	48,000 VA
Table 220.54 (load F)			
6 dryers - 75%	9,000 VA	75.0%	6,750 VA
Table 220.55 (load G)			
6 ranges - 43%	9,000 VA	43.0%	3,870 VA
Electric Water Heaters (load H) - 75% for 4 or more	27,000 VA	75%	20,250 VA
Total Demand Load for Dwelling Units			99,720 VA
Demand Current (120/240 V, 1 ph, 60 hz)			416 A

SERVICE DEMAND LOAD

	House Panel Load (Panel 'H')	2,366 VA
I	Residential Panel Loads	99,720 VA
K	**Total Demand Load (K = I + J)**	**102,086 VA**
	Demand Current (120/240 V, 1 ph, 60 hz)	**425 A**

CONSTRUCTION NOTES

DATE
SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: MB
DESIGNER: KDC
REVIEWED: DIO
PROJECT # 24SM5271.17

REGISTERED PROFESSIONAL ENGINEER — NO. 189278 — DON I. OLSEN — STATE OF UTAH

SCALES
0 1"
FOR SCALE VERIFICATION OF A FULL SIZE SHEET, ADJUST THE SCALE ACCORDINGLY

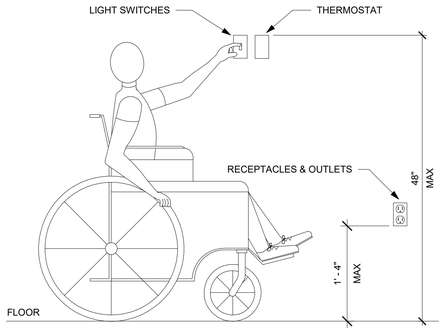
PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

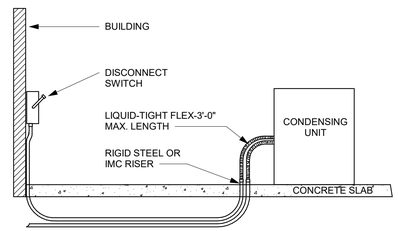
SHEET TITLE:
PANEL SCHEDULES

PLAN SET: PERMIT
SHEET E3.1

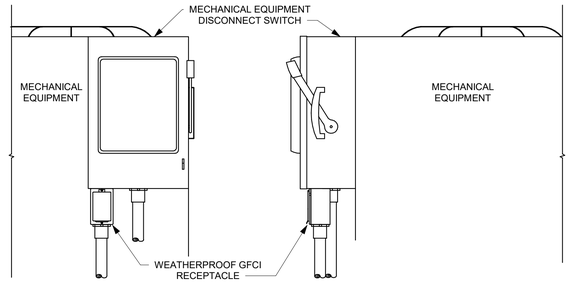
Autodesk Docs://KB Apartments/K&B APARTMENTS MEP.rvt



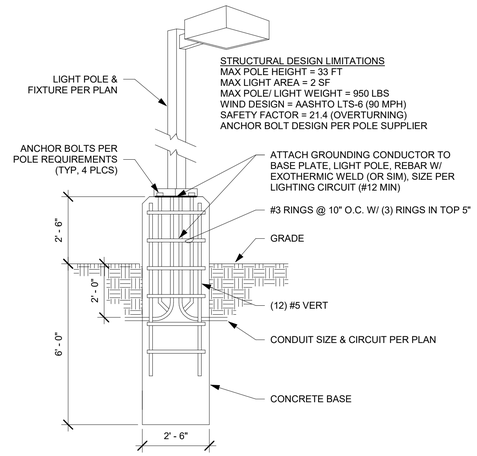
1 MOUNTING HEIGHTS DETAIL
N.T.S.



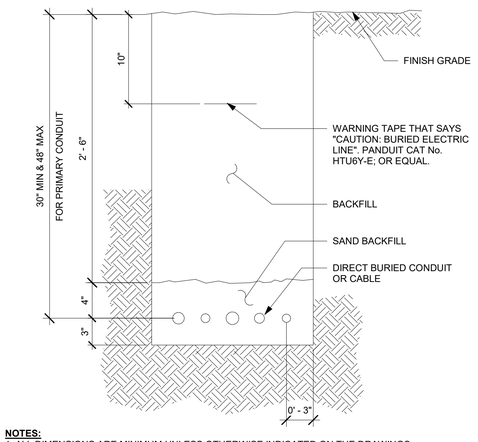
2 CONDENSING UNIT CONDUIT DETAIL
N.T.S.



3 WEATHER PROOF RECEPTACLE MOUNTING DETAIL
N.T.S.



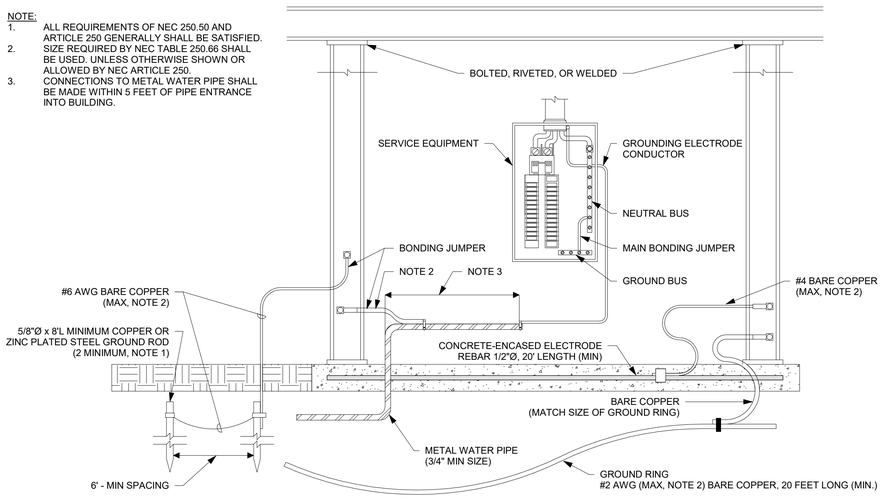
4 LIGHT POLE BASE DETAIL
N.T.S.



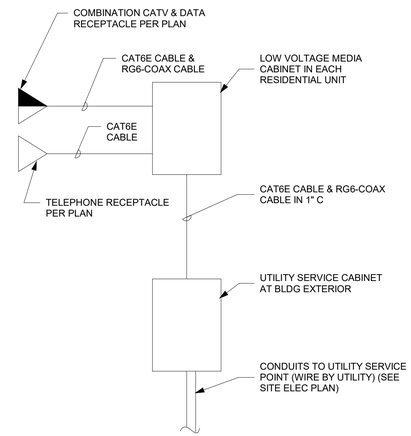
NOTES:
1. ALL DIMENSIONS ARE MINIMUM UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

5 DIRECT BURY CONDUIT DETAIL
N.T.S.

NOTE:
1. ALL REQUIREMENTS OF NEC 250.50 AND ARTICLE 250 GENERALLY SHALL BE SATISFIED.
2. SIZE REQUIRED BY NEC TABLE 250.66 SHALL BE USED. UNLESS OTHERWISE SHOWN OR ALLOWED BY NEC ARTICLE 250.
3. CONNECTIONS TO METAL WATER PIPE SHALL BE MADE WITHIN 5 FEET OF PIPE ENTRANCE INTO BUILDING.

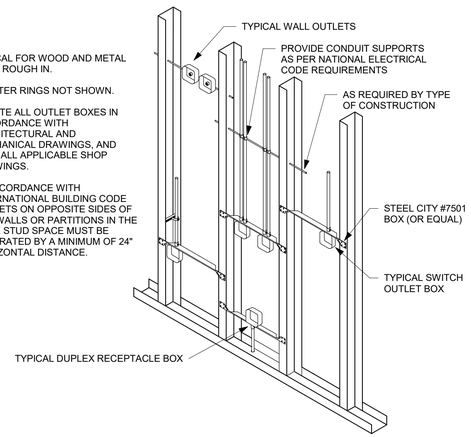


6 GROUNDING ELECTRODE CONDUCTOR
N.T.S.



7 DATA/COMM RISER DETAIL - MULTIFAMIY
N.T.S.

NOTES:
1. TYPICAL FOR WOOD AND METAL STUD ROUGH IN.
2. PLASTER RINGS NOT SHOWN.
3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS, AND WITH ALL APPLICABLE SHOP DRAWINGS.
4. IN ACCORDANCE WITH INTERNATIONAL BUILDING CODE OUTLETS ON OPPOSITE SIDES OF THE WALLS OR PARTITIONS IN THE SAME STUD SPACE MUST BE SEPERATED BY A MINIMUM OF 24" HORIZONTAL DISTANCE.



9 TYPICAL ROUGH-IN REQUIREMENTS DETAIL
N.T.S.

CONSTRUCTION NOTES

DATE
SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: MB
DESIGNER: KDC
REVIEWED: DIO
PROJECT # 24SM5271.17

REGISTERED PROFESSIONAL ENGINEER — NO. 169278 — DON J. OLSEN — STATE OF UTAH — 9/17/25

SCALES
As indicated
0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST FOR A HALF SIZE SHEET.

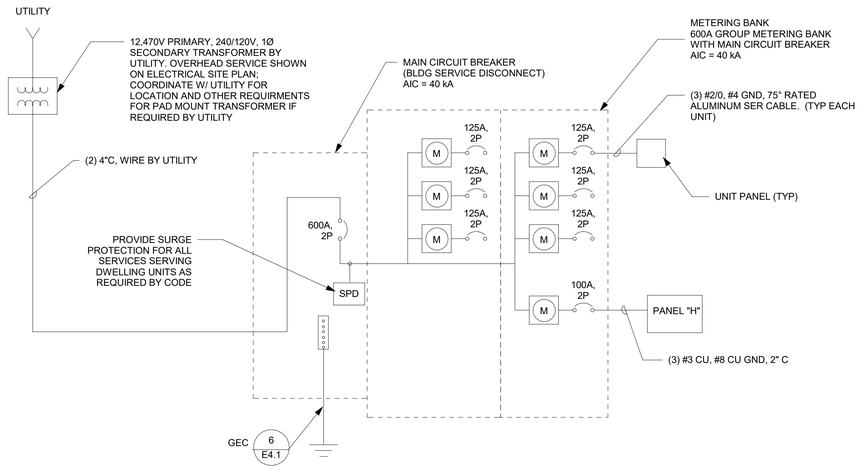
PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
ELECTRICAL DETAILS

PLAN SET: PERMIT
SHEET E4.1

Autodesk Docs://KB Apartments/KAB APARTMENTS MEP.rvt



1 SINGLE LINE DIAGRAM

N.T.S.

NOTES:

1. ALL OVERCURRENT PROTECTION DEVICES SHALL HAVE THE SAME FAULT CURRENT RATING AS THAT OF THE PANEL OR SWITCHGEAR THEY ARE LOCATED WITHIN.
2. AVAILABLE FAULT CURRENT SHALL BE FIELD MARKED ON ALL SERVICE EQUIPMENT IN ACCORDANCE WITH NEC 110.24.
3. ALL WIRING SHALL BE 90° RATED CU, SUITABLE FOR THE LOCATION INSTALLED, UNLESS OTHERWISE NOTED.

ESTIMATED FAULT CALCS.

Power	Transformer kVA	%Z	I_{f-L}
120/240 1Ø	100	2.00%	20,833 A

Name	Source	Length	Size	Conduit	Wire Material	n	I_{f-L}
METER	Transformer	50 ft	350	EMT	CU	2	17,073 A
PANEL 101	METER	25 ft	2/0	EMT	AL	1	11,421 A
PANEL 102	METER	90 ft	2/0	EMT	AL	1	6,138 A
PANEL 201	METER	35 ft	2/0	EMT	AL	1	10,085 A
PANEL 202	METER	100 ft	2/0	EMT	AL	1	5,730 A
PANEL 301	METER	45 ft	2/0	EMT	AL	1	9,029 A
PANEL 302	METER	110 ft	2/0	EMT	AL	1	5,373 A
PANEL H	METER	10 ft	3	EMT	AL	1	11,520 A

CONSTRUCTION NOTES

DATE

SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: MB
DESIGNER: KDC
REVIEWED: DIO

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER
NO. 169278
DON J. OLSEN
STATE OF UTAH
9/17/24

SCALES

1" = 10'-0"

0 1"
PAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST AS NEEDED

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
ELECTRICAL SINGLE LINE AND CALCS

PLAN SET: PERMIT

SHEET E4.2

Autodesk Docs://KB Apartments/KB APARTMENTS MEP.rvt

Part 1 – General

1. The mechanical contractor shall be an experienced firm regularly engaged in the installation of commercial mechanical systems in accordance with local codes. The owner's representative may reject any proposed contractor who cannot show evidence of such qualifications
2. Visit the jobsite prior to bidding, prior to material fabrication and prior to equipment procurement to become familiar with the existing conditions, interferences and any discrepancies.
3. The mechanical contractor shall proved all labor, material, equipment, equipment supports, diffusers and grilles for the HVAC systems finish as required to ensure a complete and operable HVAC system. Furnish all paint, labor, equipment, appliances and materials, and perform all operations in connection with the installation of the heating, ventilation, and air conditioning systems in strict accordance with the drawings. Successful, trouble-free operation of vibration-free system is a perquisite.
4. The mechanical contractor shall schedule all work so as not to interfere and/or disrupt the daily activities and/or operating hours or nearby buildings. Coordinate as required with the general contractor and the owner's representative.
5. The mechanical contractor shall obtain and pay for all fees and permits relating to his work.
6. The new HVAC systems shall be installed in accordance with state and local codes, OSHA, NFPA, SMACNA and ASHRAE guidelines.

Part 2 – Ductwork

1. All duct shall be fabricated from galvanized steel in accordance with SMANCA standards and requirements. Nonmetallic ductwork shall not be used. Concealed supply and return ductwork shall be galvanized steel.
2. Provide flexible contractors between ductwork and HVAC equipment (air handling equipment).
3. All new rectangular supply and return air ductwork shall have 1" thick acoustic duct liner insulation. Duct dimensions shown on the drawings represent inside duct size.
4. Manual balancing dampers shall be opposed blade type, galvanized steel, and shall have locking quadrant operators or extended concealed ceiling operators where access is limited and/or at gypsum board ceilings.
5. Provide turning vanes in all new rectangular supply and return air ductwork elbows. Proved volume dampers with locking quadrants at each new supply air branch take-off, seal all duct joints. Where the volume damper is not accessible, provide young No. 817A or 617B, consisting of an 3/8" square shaft, and a 3/8" regulator (length as required) for operating the volume damper from suspended ceiling.
6. The new duct lining shall be one inch thick fiberglass, 1-1/2 pounds per cubic foot density, noise attenuation factor of NRC = 0.70 with air stream surface faced with a black coated matte.
7. The required fire hazard classification is: flame spread not over 25, fuel contributed not over 50, smoke developed not over 50 when tested in accordance with ASTM E84

Duct Size:	Gauge:	Support:	Spacing:
12" and under	26 GA.	(2) 1"X 22 GA. Straps	Every 10 Ft.
13" to 30"	24 GA.	(2) 1"X 18GA. Straps	Every 10 Ft.
31" to 40"	22 GA.	(2) 1"X 18GA. Straps	Every 10 Ft.
40" and over	20 GA.	(2) 1"X 18GA. Straps	Every 10 Ft.

Part 3- Ductwork Insulation

1. All rectangular supply and return ductwork in the ceiling space shall have acoustic duct liner insulation. All round rigid metal take-off ductwork in the ceiling space shall have 1" thick external duct-wrap insulation with vapor barrier.
2. The finish duct lining shall be one inch thick fiberglass, 1-1/2 pounds per cubic foot density, noise attenuation factor of NRC =0.10 with the air stream surface faced with a black coated matte.
3. The duct-wrap insulation shall be one inch thick fiberglass 1-1/2 pounds per cubic foot density, noise attenuation facto of NRC =0.70.
4. The duct-wrap insulation shall have a thermal conductance of 0.24 BTUH per square foot per degree F. at a mean temperature of 50 degrees f.
5. The required fire hazard classification is: flame spread not over 25, fuel contributed not over 50, smoke developed not over 50 when tested in accordance with ASTM E84.
6. Insulated flexible ductwork meeting class 1 requirements of NFPA 90A and U.L. labeled may be used only at the ceiling diffuser connections in the concealed ceiling space areas and shall be insulated with 1" thick fiberglass insulation with vapor barrier with a flame spread rating of 25 or less and a smoke developed rating of 50 or less when tested in accordance with ASTM E84, and shall be limited to 5-feet in length.
7. Approved acoustic duct liner manufacturers are:
   a. Owens Corning QuietR Rotary Duct Liner
8. Approved external insulation manufacturers are:
   a. Manville Microlite FSK
   b. CSG Type IV Standard Duct Insulation
   c. Owens Corning FRK
   d. Knauf (Duct Wrap FSK)
9. Install insulation in a neat and workmanlike manner with no fishtails. Finish shall be smooth with all joints properly taped, insulation shall be full thickness uncompressed except where required to pass structural interferences.

Part 4 – Line Voltage Wiring

1. Line voltage wiring and conduit is by the electrical contractor shall furnish and disconnect switches that are not provided with the mechanical equipment as required for the HVAC equipment. Coordinate as required with the electrical contractor and the general contractor.

Part 5 – Temperature Controls and Wiring

1. Automatic temperature controls and associated conduit and control wiring shall be by the mechanical contractor provide all devices, components, conduit, control wiring as required to ensure complete operable automatic temperature control systems. New furnace unit shall have new programmable thermostats with automatic changeover and night set-back control. New unit heaters shall have heating thermostats with summer fan switch control.
2. Verify thermostat rough-in locations as shown on the mechanical plan drawing with the owner's representative prior to rough-in installation.
3. All temperature controls are to be tested, adjusted and calibrated for proper operation
4. Refer to the mechanical equipment schedule for additional temperature control requirements.

Part 6 – Installation

1. Coordinate the new HVAC equipment locations with the building structure, the owner's representative, architect, structural engineer, and the general contractor as required prior to installation
2. Coordinate the equipment, controls and cutwork installations with the other trades, plumbing piping, conduit, etc., coordinate the ceiling diffuser return air grilles and exhaust grille locations, with the electrical drawings and the architectural reflected ceiling plan. Route the ductwork so as not to interfere with the structure or the removing and services of light fixtures. Changes required as a result of neglect to coordinate interferences will be made at the mechanical contractor's expense.
3. Run all new ductwork as tight as possible to the bottom of the structure in the dropped ceiling space in order to maintain the finished ceiling heights as schedules on the architectural drawings. Verify the duct height dimensions with available ceiling space and modify the duct sizes if necessary (keeping the same duct area as shown on the mechanical drawings – duct height dimension shall not be less that 8") to accommodate any interferences. Coordinate the new ductwork in the space with conduit and piping. Field verify the routing of ductwork and equipment and piping.
4. Locate all exhaust air outlets and flue vents 10'-0' minimum distance from mechanical equipment outside air intakes.
5. It is understood that while drawings are to be followed as closely as circumstances permit. The mechanical contractor will be held responsible for installation of systems according to the true intent and meaning of contract documents. Anything not clear or in conflict will be explained by making application to architect. Should condition arise where certain changes would be advisable secure approval of those changes before proceeding with work.
6. Arrange ducts and equipment to permit ready access to valves, unions, traps, starters, motors, control components, and to clear opening of doors and access panels.
7. Furnish and install hangers and supports required by the mechanical contractor unless otherwise noted. Furnish sleeves, supports, and equipment that are integral part of other contractor's work in sufficient time to be built into construction as the work proceeds. Locate these items and see that they are properly installed. Expense resulting from improper location or installation of items above shall be borne by the mechanical contractor.
8. Adjust the location of the finish ducts, equipment, etc., to eliminate interference anticipated and encountered. Determine exact route and location of ductwork prior to fabrications. Make offsets, transitions, and changes in direction of ducts as required to maintain proper clearances whether or not indicated on the drawings. Furnish and install fittings as required to effect these offsets, transitions, and changes in direction.
9. Ensure the new HVAC equipment to be furnished along with the ductwork fit in space available. Make necessary field measurements to ascertain and space requirements including those for connections and furnish and install equipment of size and shape so that final installation reflects true intent and meaning of contract documents.
10. Follow manufacturer's direction in delivery, storage, protection, and installation of equipment and materials. Promptly notify architect and/or owner's representative in writing of conflicts between requirements of contract documents and manufacturer's directions and obtain architect's and/or owner's representative written instruction before proceeding with work. Bear expenses for correcting deficiencies of work that do not comply with manufacturer's directions or written instructions.
11. Deliver equipment and material to site and tightly cover and protect against dirt, water, and chemical or mechanical injury. Equipment and material shall be readily accessible for inspection. Store items subject to moisture damage (such as controls) in a dry heated space.
12. All mechanical equipment shall be isolated from the structure with either vibration isolation pads or spring type isolators as applicable to the installation, whether motor is internally isolated or not.
13. Contractor to verify and provide mechanical piping for heating and cooling systems to be thermally insulated per IECC C403.2.10. Mechanical Contractor to verify maximum and minimum temperatures of the mechanical piping so minimum insulations requirements can be met.

Part 7 – Submittals

1. By description, catalog number and specific designation, standards are established for manufactured items such as specialties, fixtures and equipment which the contractor shall furnish as required by this section. Prior to approval is required for substitution of equipment and materials prior to bid. Substitution of products shown shall be submitted to the architect, the owner's representative or engineer for written approval.
   a. Acceptable HVAC equipment manufacturers are: York, Carrier, Lennox and Trane.
2. Shop drawings and up-to-date engineering data sheets and catalog information shall be furnished on the following items of equipment. Provide (6) copies for review.
   1) HVAC equipment
   2) Automatic temperature controls.
   3) All diffusers, grilles, etc.
   4) Ductwork fabrication methods.
   5) Exhaust fans.

Part 8 – Filters

1. Install throw-away filters at the new furnace heating and cooling unit after system start-up. Install 30% efficient 2-inch thick pleated filters – size and quality shall be in accordance with the equipment manufacturer's written instructions.

Part 9 – Cutting and Patching

1. The general contractor shall be responsible for required cutting, and patching incident to work for this division the cost of which shall be paid for by the mechanical contractor. The general contractor shall make required repairs afterwards to satisfaction of architect and/or owner's representative. Cut carefully to minimize necessity for repairs to existing work. Do no cut beams, columns or trusses. Patch and repair walls, floors, ceiling, and roofs with materials of same quality and appearance as adjacent surfaces unless otherwise shown. Surface finishes shall exactly match existing finishes of same materials.
2. The mechanical contractor shall bear expense of cutting, patching, repairing, and replacing of work of other contractors required because of its fault, error, tardiness, or because of damage done by mechanical contractor.

Part 10 – Fire Assembly Penetrations

1. Coordinate requirements with the electrical contractor, general contractor, architect, the owner's representative and the local authorities having jurisdiction.
2. Provide U.L. fire penetration system number WL1002, FC1002, FC2008, FC3001 or FC1001 for combustible construction or system number WL1002, WL2002, FA5001, or FA8001 for non-combustible construction of the U.L. building materials directory and as required by the authorities having jurisdiction.
3. All penetrations through fire rated assemblies shall comply with U.L. fire resistance directory, latest adopted edition.
4. Provide U.L. listed fire dampers with fusible links constructed to U.L. Standard 33 and U.L. listed fire/smoke dampers with smoke detectors conforming to NFPA 90A and meeting UL555 requirements as required y state and local codes, including any additional fire dampers and/or fire/smoke dampers with smoke detectors that may be required, even if not shown on the mechanical drawings. Provide firestop system as required by local codes and ordinances.
5. Provide smoke detectors and wiring control as required for operation of fire/smoke dampers.

Part 11 – Seismic Bracing

1. The mechanical contractor shall furnish and install required seismic bracing, restraints, equipment isolators, etc. for his installed equipment. All of which shall comply with PPIC and SMACNA guidelines for the local seismic zone requirements and in accordance with the authorities having jurisdiction.

Part 12 – As-Built Drawings

1. The mechanical contractor shall keep a record set of drawings neatly marked with all changes from the original design and drawings. These drawings shall be delivered to the architect and/or owner's representative at the completion of the project and prior to receiving final payment.

Part 13 – Check, Test and Start-Up

1. The Mechanical contractor shall provide material and labor required to perform start-up of each respective item of equipment and system prior to the beginning of test, adjust and balance procedures. Submit start-up report to the architect and/or owner's representative.

Part 14 – Testing, Adjusting and Balancing.

1. The Mechanical contractors shall pay for the services of an independent air balancing contractor who is certified and approved by the architect and/or the owner's representative prior to bidding to perform testing adjusting and balancing of new HVAC systems Submit air balance report and AABC standards for field measurement & instruction, latest adopted edition.
2. The mechanical contractor shall make changes to pulleys, belts and dampers as recommended by the balancing contactor.

Part 15 – Equipment Identification

1. Equipment identification: Signs made of laminated plastic with 1/8" or larger engraved letters. Signs shall e securely attached by rust proof screws or some other permanent means.
2. All HVAC equipment shall have equipment identification. Information on the signs shall include: mechanical equipment schedule symbol, name of equipment, rating, electrical characteristics and any other important data.

Part 16 – Operation and Maintenance Manuals

1. Provide three (3) sets of bound operation and maintenance manuals covering all new HVAC equipment for the owner's use. O&M manuals shall have the following format:
   a. Size: 8-1/2"X 11"
   b. Paper: Manufacturer's printed data, or neatly type written.
   c. Provide reinforced punched binder tab, bind in with text.
   d. Provide fly-leaf for each separate product, or each piece of operating equipment. Provide typed description of product, and major component parts of equipment, provide indexed tabs.
   e. Cover: Identify each volume with typed or printed title: "Operation and Maintenance instruction". List title of project, identity of general subject matter covered in the manual.
   f. Binders: Commercial quality three-ring binders with durable and cleanable plastic covers.
   g. Provide neatly typewritten table of contents, list contractor name, address and phone number. List each product by product name and other identifying symbols as set forth in contract documents.
   h. Include copy of each warranty, bond and service chart with maintenance schedule, temperature control diagrams, sequence of operation and provide logical sequence of instruction for each procedure.

Part 17 – Instructions

1. Prior to final inspection or acceptance, fully instruct the owner's designated operation and maintenance personnel in the operation, adjustment and maintenance of products, equipment and systems. (Minimum 2-hours instruction required or more if requested by the owner's representative).

Part 18 – Warranty and Guarantee

1. The mechanical contractor shall provide one (1) year parts and labor warranty for his installed work and HVAC equipment after equipment start-up and the owner's representatives acceptance. Should any trouble develop during this period due to defective materials or faulty workmanship the contractor shall furnish all necessary labor and materials to correct the trouble without any additional cost. Any materials found to be defective during the guarantee period shall be corrected immediately to the entire satisfaction of the owner.

MECHANICAL SYMBOLS

- SD# / ### — SUPPLY DIFFUSER, SD#, ### CFM ARROWS INDICATE DIRECTION OF THROUGH
- SD# / ### — SUPPLY DIFFUSER (4-WAY)
- RG# / ### — RETURN OR EXHAUST REGISTER TYPE 'RG#' ### CFM
- EG# / ### — EXHAUST REGISTER TYPE 'EG#' ### CFM
- ### / ### — SIDEWALL SUPPLY, RETURN, OR EXHAUST REGISTER TYPE ### , ### CFM
- SUPPLY DUCT UP
- SUPPLY DUCT DOWN
- RETURN DUCT UP
- RETURN DUCT DOWN
- EXHAUST DUCT UP
- EXHAUST DUCT DOWN
- AIRFLOW / SA — SUPPLY AIR BRANCH CONNECTION WITH VOLUME DAMPER
- AIRFLOW / SA/RA — RETURN AIR/EXHAUST AIR BRANCH CONNECTION WITH VOLUME DAMPER
- HORIZONTAL FIRE DAMPER
- VERTICAL FIRE DAMPER
- FS — COMBINATION FIRE/SMOKE HORIZONTAL FIRE DAMPER
- FS — COMBINATION FIRE/SMOKE VERTICAL FIRE DAMPER

MECHANICAL PHASING

(SINGLE LINES SHOWN SIMILAR FOR DOUBLE LINED WORK)

- MECHANICAL PROPOSED
- MECHANICAL EXISTING TO REMAIN
- MECHANICAL FOR DEMOLITION
- POINT OF CONNECTION BETWEEN NEW AND EXISTING
- EXTENT OF DEMOLITION

MECH. ABREVIATIONS

EXISTING	(E)
ABOVE FINISHED FLOOR	AFF
AIR HANDLING UNIT	AHU
BRITISH THERMAL UNIT	BTU
COMBUSTION AIR	CA
CUBIT FEET PER MINUTE	CFM
CONDENSING UNIT	CU
CABINET UNIT HEATER	CUH
DOWN	DN
EXHAUST AIR	EA
EXHAUST VENTILATOR	EV
FAN COIL UNIT	FCU
HORSE POWER	HP
KILOWATT	KW
1,000 BTU'S	MBH
NATURAL GAS	NG
OUTSIDE AIR	OA
PACKAGED TERMINAL AIR CONDITIONER	PTAC
RETURN AIR	RA
REFRIGERANT	REF
RETURN GRILLE	RG
RADIANT HEATER	RH
ROOF TOP UNIT	RTU
SUPPLY AIR	SA
SUPPLY DIFFUSER	SD
SUPPLY GRILLE	SG
TRANSFER GRILLE	TG
12,000 BTU'S	TON
TYPICAL	TYP
UNIT HEATER	UH
WATTS	W

CONSTRUCTION NOTES

DATE

SEPT 2024

epic ENGINEERING

REVISIONS		
MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT # 24SM5271.17

REGISTERED PROFESSIONAL ENGINEER — 4/17/25 — NO. 169278 — DON L. OLSEN — STATE OF UTAH

SCALES

12" = 1'-0"

0 1"
THIS SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST SCALE ACCORDINGLY

PROJECT NAME:

K&B APARTMENTS

PROJECT LOCATION:

684 EAST 700 NORTH
LOGAN, UT

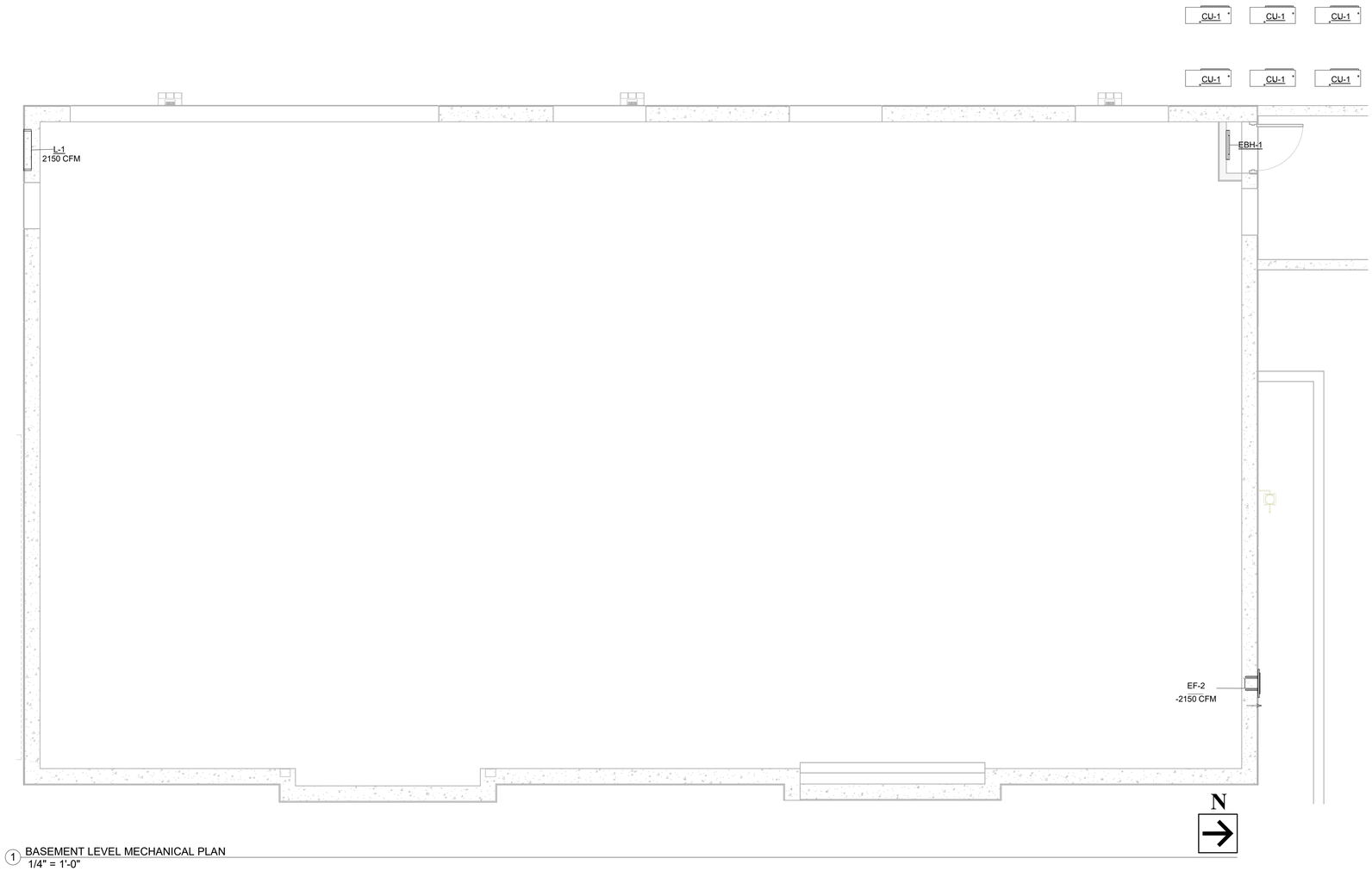
SHEET TITLE:

MECHANICAL GENERAL NOTES

PLAN SET: PERMIT

SHEET M0.1

Autodesk Docs://KB Apartments/KAB APARTMENTS MEP.rvt



1 BASEMENT LEVEL MECHANICAL PLAN
1/4" = 1'-0"

MECHANICAL GENERAL NOTES

1. ALL DRAWINGS SHALL BE CONSIDERED PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL ASPECTS OF THE CONTRACT DOCUMENTS PRIOR TO SUBMITTING PRICING. ANY AND ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO AN INSTALLATION SUCH THAT CLARIFICATIONS CAN BE ISSUED.
2. ANY WORK PERFORMED OR MATERIAL USED WHICH IS SHOWN TO BE IN CONFLICT WITH THE CONTRACT DRAWINGS, SPECIFICATIONS OR ANY APPLICABLE CODE OR GOVERNING REGULATION SHALL BE REMOVED AND REPLACED OR CORRECTED AT THE CONTRACTOR'S EXPENSE.
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13. ALL BRANCH DUCTWORK SHALL MATCH CONNECTION SIZE OF DIFFUSERS UNLESS NOTED OTHERWISE.
14. ROUTE EXPOSED SPIRAL DUCTWORK AS HIGH AS POSSIBLE TO BOTTOM OF STRUCTURE.

GARAGE EXHAUST FAN CALCULATION

AREA: 3,302 SQ. FT.
FOLLOW PER IMC 401.1: 0.75 CFM/SQ.FT.
STANDBY PER IMC 404.1: 0.05 CFM/SQ.FT.
FOLLOW PER CFM: 3,302 x 0.75 = 2,477 CFM
STANDBY PER CFM: 3,302 x 0.05 = 1,651 CFM

CONSTRUCTION NOTES

DATE
SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER
NO. 169278
DON L. OLSEN
STATE OF UTAH
9/17/25

SCALES
As indicated
0 1"
HAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST ACCORDINGLY

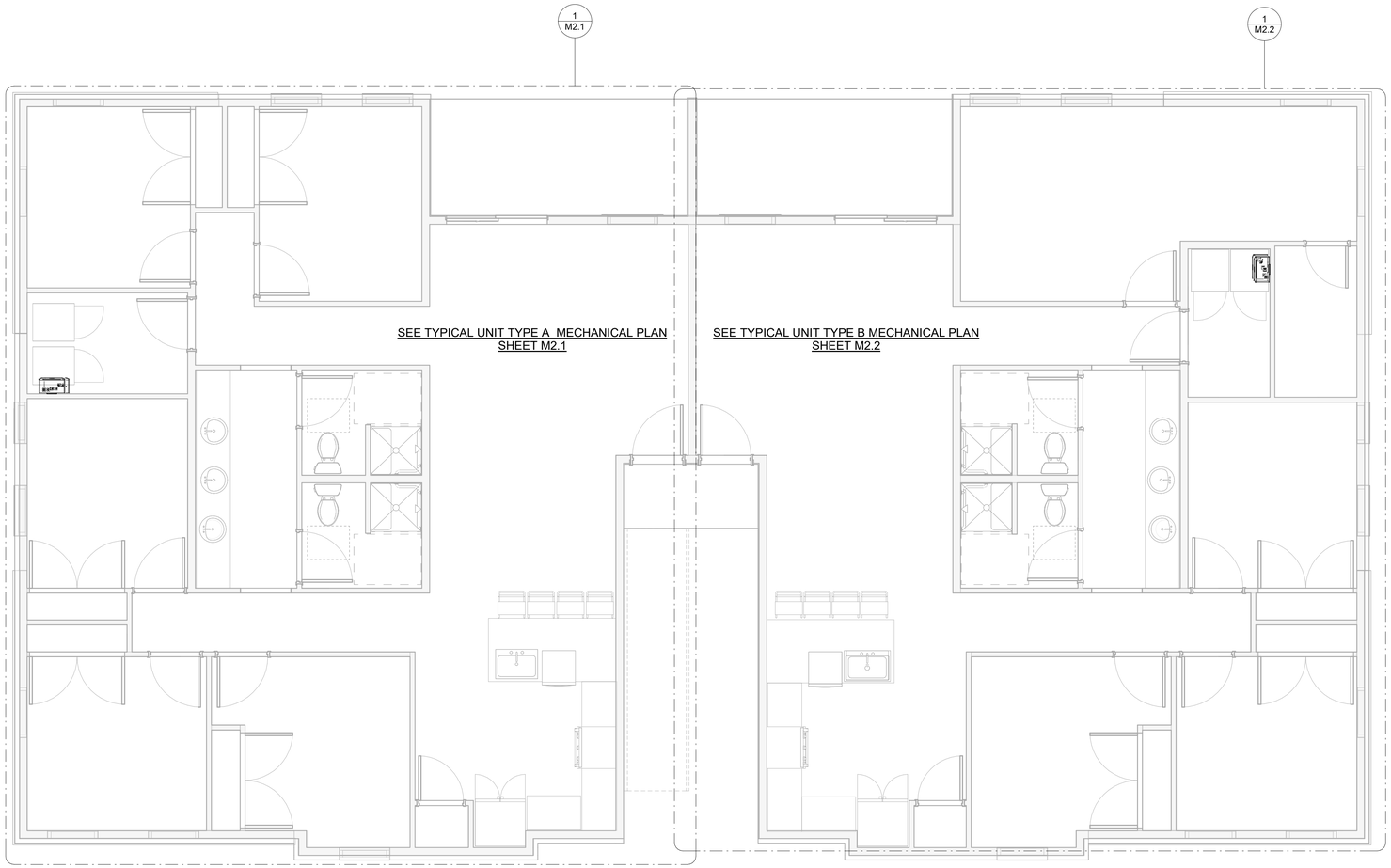
PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
BASEMENT LEVEL MECHANICAL PLAN

PLAN SET: PERMIT
SHEET M1.1

Autodesk Docs://KB Apartments/KB APARTMENTS MEP.rvt



1 FIRST LEVEL MECHANICAL PLAN
1/4" = 1'-0"

MECHANICAL GENERAL NOTES

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CONSTRUCTION NOTES

DATE
SEPT 2024

epic ENGINEERING

REVISIONS		
MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER
NO. 169278
DONALD OLSEN
STATE OF UTAH

SCALES
As indicated
0 1"
BAR IS ALE WHEN PLOTTED AT A FULL SIZE SHEET. ADJUST ACCORDINGLY IF SMALLER

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
FIRST LEVEL
MECHANICAL PLAN

PLAN SET: PERMIT
SHEET M1.2

Autodesk Docs://KB Apartments/K&B APARTMENTS MEP.rvt

1 SECOND LEVEL MECHANICAL PLAN
1/4" = 1'-0"

MECHANICAL GENERAL NOTES

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CONSTRUCTION NOTES

DATE

SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER
NO. 189278
DONALD OLSEN
STATE OF UTAH
7/17/25

SCALES

As indicated

0 1"
BAR SCALE MEASURE ONE INCH ON ORIGINAL DRAWING. IF NOT A FULL SIZE DRAWING, ADJUST FOR A LARGE OR SMALL PRINT

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH LOGAN, UT

SHEET TITLE:
SECOND LEVEL MECHANICAL PLAN

PLAN SET: PERMIT

SHEET M1.3

Autodesk Docs://K6 Apartments/K&B APARTMENTS MEP.rvt

1 THIRD LEVEL MECHANICAL PLAN
1/4" = 1'-0"

MECHANICAL GENERAL NOTES

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CONSTRUCTION NOTES

DATE
SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER
NO. 169278
DON L. OLSEN
STATE OF UTAH
9/17/25

SCALES
As indicated
0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST FOR A HALF SIZE SHEET

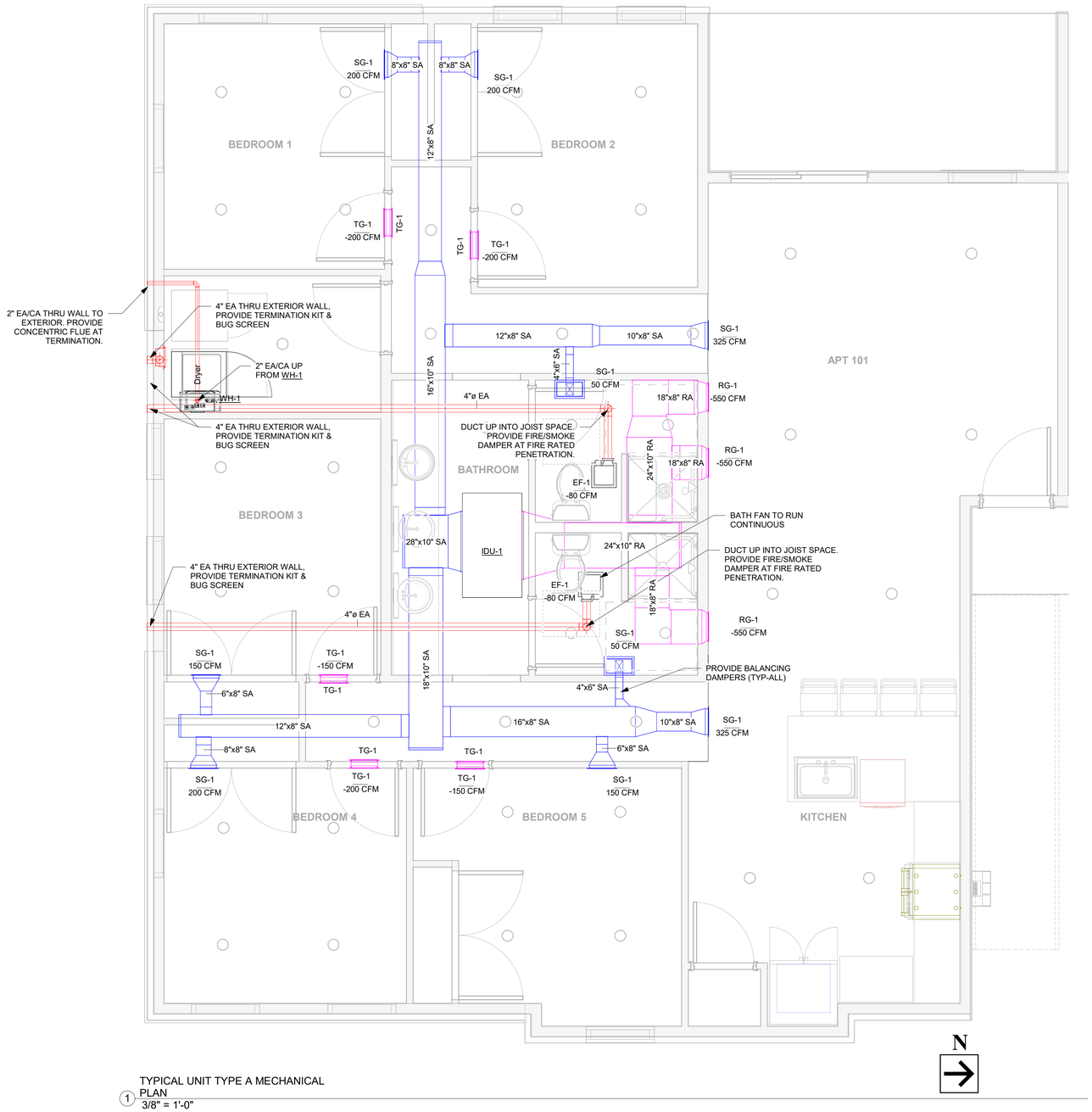
PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
THIRD LEVEL MECHANICAL PLAN

PLAN SET: PERMIT
SHEET M1.4

Autodesk Docs://KB Apartments/KAB APARTMENTS MEP.rvt



1 TYPICAL UNIT TYPE A MECHANICAL PLAN
3/8" = 1'-0"

MECHANICAL GENERAL NOTES

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CONSTRUCTION NOTES

DATE
SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT # 24SM5271.17

REGISTERED PROFESSIONAL ENGINEER No. 169278 DON L. OLSEN STATE OF UTAH 11/7/25

SCALES
As indicated
1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY

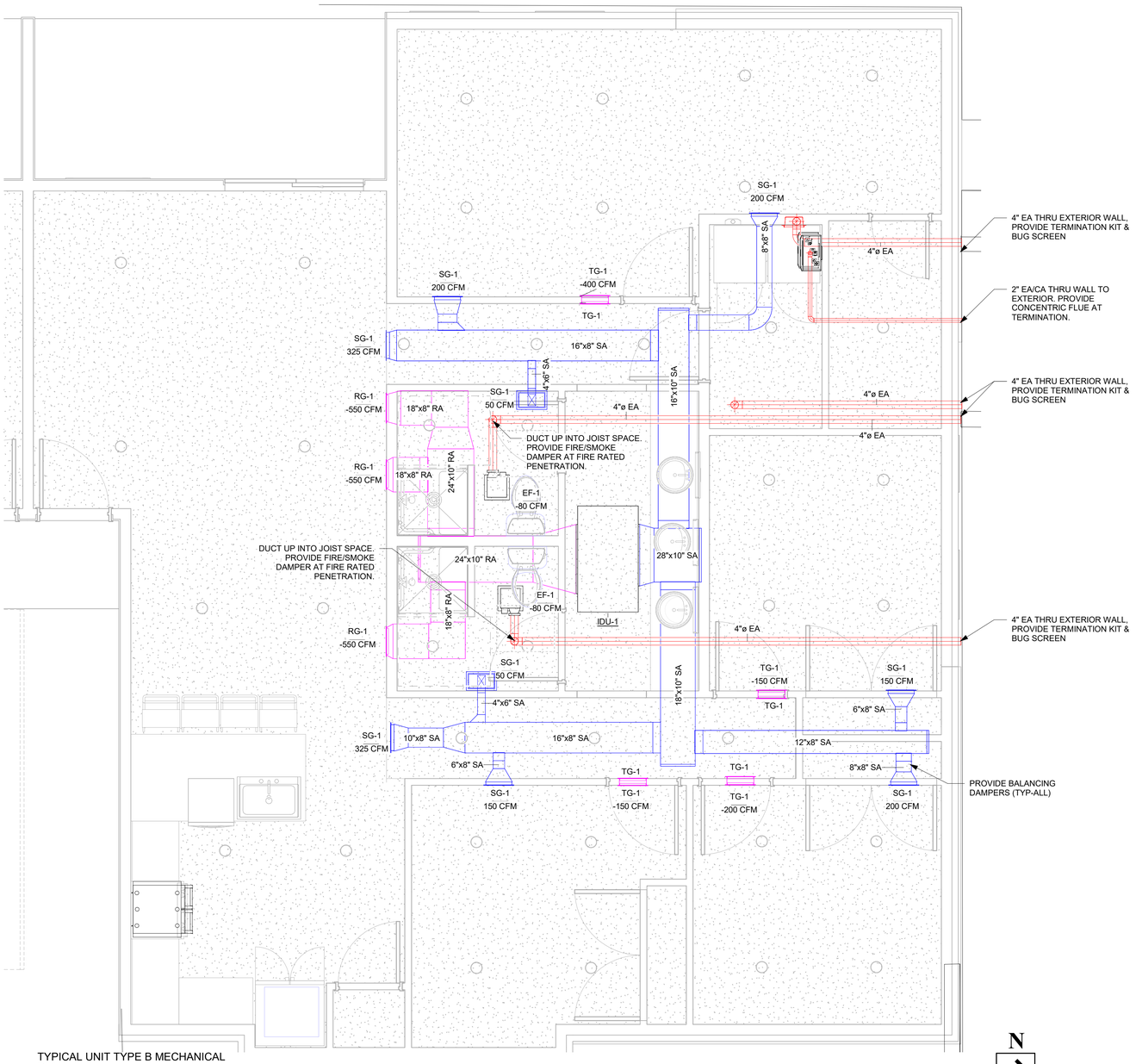
PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
TYPICAL UNIT TYPE A MECHANICAL PLAN

PLAN SET: PERMIT
SHEET M2.1

Autodesk Docs://KB Apartments/K&B APARTMENTS MEP.rvt



1 TYPICAL UNIT TYPE B MECHANICAL PLAN
3/8" = 1'-0"

MECHANICAL GENERAL NOTES

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CONSTRUCTION NOTES

DATE
SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER
No. 189278
DONALD M. OLSEN
STATE OF UTAH

SCALES
As indicated
0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST ACCORDINGLY.

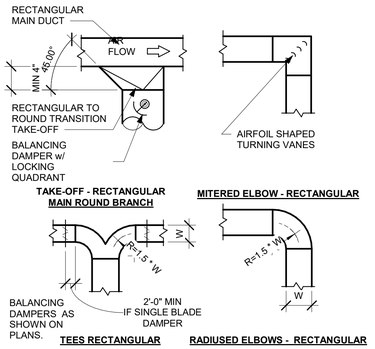
PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
TYPICAL UNIT TYPE B MECHANICAL PLAN

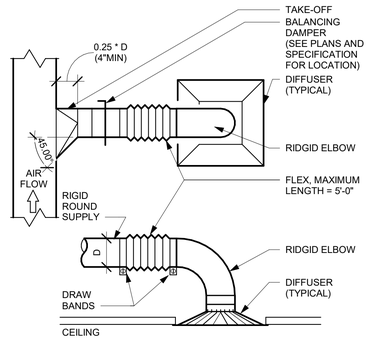
PLAN SET: PERMIT
SHEET M2.2

Autodesk Docs://KB Apartments/KB APARTMENTS MEP.rvt



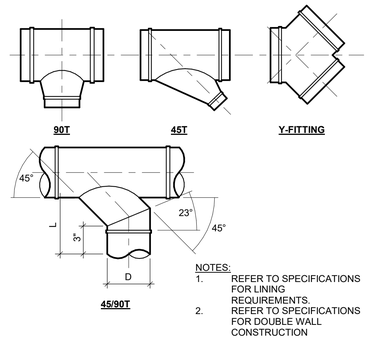
1 LOW PRESSURE RETANGULAR DUCT FITTINGS

N.T.S.



2 TYPICAL DUCT TAKE-OFF DETAIL

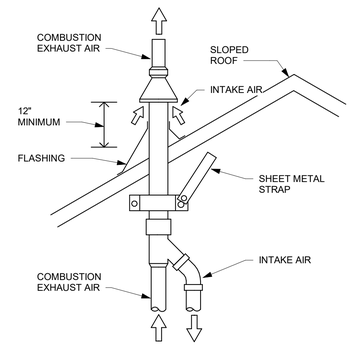
N.T.S.



NOTES:
1. REFER TO SPECIFICATIONS FOR LINING REQUIREMENTS.
2. REFER TO SPECIFICATIONS FOR DOUBLE WALL CONSTRUCTION

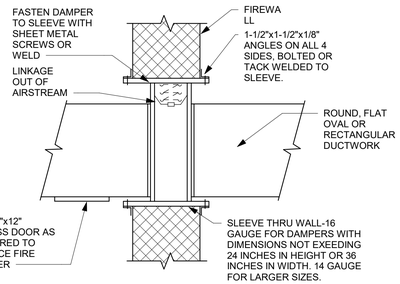
3 TYPICAL SPIRAL DUCT FITTINGS

N.T.S.



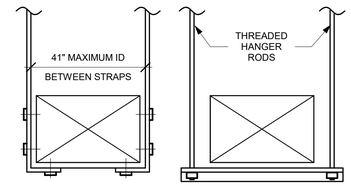
4 CONCENTRIC FLUE DETAIL (SLOPED ROOF)

N.T.S.



5 FIRE DAMPER IN WALL DETAIL

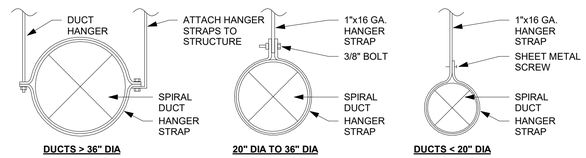
N.T.S.



NOTE:
POP RIVETS ARE NOT ALLOWED, USE SELF-TAPPING SHEETMETAL SCREWS ONLY (TYP)

6 DUCTWORK SUPPORT DETAIL

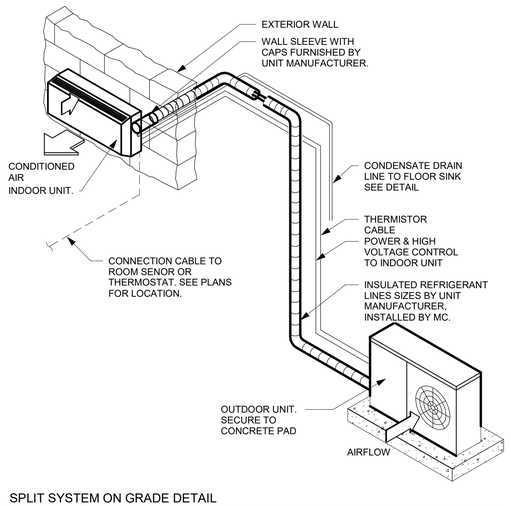
N.T.S.



NOTES:
1. POP RIVETS ARE NOT ALLOWED, USE SELF-TAPPING SHEETMETAL SCREWS ONLY (TYP)
2. HANGERS SHALL NOT DEFORM DUCT SHAPE.
3. MAXIMUM HANGER SPACING OF 10'-0" O.C.

7 ROUND DUCTWORK SUPPORT DETAIL

N.T.S.



8 SPLIT SYSTEM ON GRADE DETAIL

N.T.S.

LOUVER SCHEDULE					
MARK	MANUFACTURER	MODEL	HEIGHT	WIDTH	NOTES
L-1	Greenheck Fan Corp.	EAD-635	2' - 8"	2' - 8"	

DAIKIN CONDENSING UNIT SCHEDULE									
1. PROVIDE MANUFACTURER EQUIPMENT PAD.									
2. PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCES ON ALL SIDES.									
TAG	MANUFACTURER	MODEL	NOMINAL COOLING	NOMINAL HEATING	SEER	MCA	MOP	VOLTAGE	NOTES
CU-1	Daikin	RZQ48TBVJUA	48000.0 Btu/h	47000.0 Btu/h		29 A	35 A	230/1/60	

GRILLE AND DIFFUSER SCHEDULE									
TAG	MANUFACTURER	MODEL	TYPE	FACE SIZE	NECK SIZE	MOUNTING	COLOR	MATERIAL	NOTES
RG-1	TITUS	350RL	RETURN GRILLE	15 3/4" x 9 3/4"	8"x14"	WALL	WHITE	Steel	
SG-1	TITUS	300RS	SUPPLY GRILLE	15 3/4" x 9 3/4"	14"x8"	CEILING	WHITE	Steel	
TG-1	TITUS	350RL	TRANSFER GRILLE	15 3/4" x 9 3/4"	8"x14"	WALL	WHITE	Steel	

DAIKIN IDU SCHEDULE							
TAG	MANUFACTURER	MODEL	NOMINAL TONAGE	COOLING	HEATING	VOLTAGE	NOTES
IDU-1	Daikin	FBQ48TBVJU	4	46500.0 Btu/h	54000.0 Btu/h	240/1/60	

EXHAUST FAN SCHEDULE										
1. CONTROL FAN ON BATHROOM LIGHT SWITCH.										
TAG	MANUFACTURER	MODEL	DUCT SIZE	MOUNTING	AIR FLOW	RPM	E.S.P.	WATTS	VOLTAGE	NOTES
EF-1	Panasonic	FV-11-15VK1	4"	CEILING	80 CFM	814	0.50 in-wg	6 W	120/1/60	
EF-2	GREENHECK	SE1-16-428-A		WALL	2150 CFM	1,750	0.50 in-wg	1200 W	120/1/60	

CONSTRUCTION NOTES

DATE

SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER — NO. 189278 — DONALD WILSEN — STATE OF UTAH

SCALES

12" = 1'-0"

0 1"

BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST AS NECESSARY FOR REDUCED SHEETS

PROJECT NAME:

K&B APARTMENTS

PROJECT LOCATION:

684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:

MECHANICAL DETAILS

PLAN SET:

PERMIT

SHEET

M5.1

Autodesk Docs://KB Apartments/KB APARTMENTS MEP.rvt

Part 1 – General

1. The plumbing system shall be installed in strict accordance with local, state, and regional plumbing codes, state and local health department regulations, and OSHA regulations.
2. It shall be the responsibility of the plumbing contractor to pay for all fees and permits relating to his work.
   a. The plumbing contractor shall coordinate with the local gas company and shall arrange for the installation of the new gas meters. The new gas piping supplying the gas-fired HVAC equipment is sized for 4 ounce gas pressure.
   b. The plumbing contractor shall be an experienced firm regularly engaged in the installation of commercial plumbing systems in accordance with local codes. The owner's representative may reject any proposed contractor who cannot show evidence of such qualifications
   c. Visit the jobsite prior to bidding the project to become familiar with the existing conditions and any interference. Should a condition arise where a change would be advisable, secure approval of change before proceeding with work.

Part 2 – Piping Materials and Valves

1. Piping materials and fittings shall be as follows:
   a. New domestic water piping shall be ASTM B88 Type L hard drawn copper with ANSI B16.22 wrought copper fittings and 95-5 solder aboveground, and Type K soft copper belowground.
   b. New waste and vent piping 1-1/2" and smaller shall be ASTM A120 Grade A schedule galvanized steel pipe with threaded cast iron drainage fittings, 2" and larger shall be cast iron, ASTM A-888 'no-hub' with ASTM C-1277 standard neoprene gaskets and type 304 stainless steel connector bands aboveground or FM 1680 Class I heavy duty type 304 stainless steel connector bands capable of withstanding 125 in-lbs of torque belowground.
   c. Alternate waste and vent piping shall be either ASTM D2661 or ASTM D2665 PVC piping or fitting. The installation shall comply with IAPMO IS9. Underground ABS or PVC piping shall be laid in 6-inch deep bed of sand.
   d. New gas piping shall be ASTM A53 schedule 40 black steel pipe with ANSI 16 .3 150 lb. malleable iron fittings aboveground and polyethylene as approved by the local gas utility company for below ground installation.
2. Valves:
   All valves must be accessible. Valves located above a hard ceiling or in a wall shall have and approved access door. Valve stems shall be installed horizontal or higher than the valve. All valves shall be of the same manufacturer.
   a. Ball valves: 2" and smaller shall be rated for 125 PSIG WOG at 220 degree F., bronze construction conforming to ASTM B62, solder ends, bubble tight Teflon seat (at 100 PSIG under water), with a hard chrome plated brass or stainless steel ball. The valve shall operate with flow in either direction and shall be suitable for throttling and tight shut off. Provide watts B-6001.

Part 3 – Fixtures, Equipment, Drains and Trim

1. Approved manufacturers for fixtures and trim:
   a. Fixtures: American Standard, Kohler, Eljer, and Elkay
   b. Carriers, etc,: J.R. Smith, Josam, Wade, and Zurn.
   c. Trim: American Standard, Chicago Faucets, Elkay, Kohler and T&S Brass
   d. Flush Valves: Sloan, Delaney, and Zurn Z6000 Series.
2. All water faucets shall meet N.S.F Standard Section 9 for drinking water faucets and shallbe certified by underwriters laboratory. The product shall be manufactured from brass construction, brass components which contact within the faucet shall be from brass which contains no more than 3% lead by dry weight.
3. Water heaters shall be shown on the plumbing drawings.

Part 4 – Piping Insulation

1. Piping insulation shall conform to the current energy code as adopted by the state. No insulation shall be applied until all pressure tests are complete, leaks repaired, and the system is successfully retested. Insulation shall be ASTM C547, Class 1 Fiberglass one-piece preformed pipe insulation with an ASTM C921 all purpose (FASJ) fire retardant jacket. In lieu of fiberglass insulation, ASTM 3552, Type II, Class 2 Foam Glass or ASTM C534, Type 1 Thermacell or expanded polyurethane may be used. Fire and smoke hazard for the complete insulation system shall not exceed: Flame spread – 25, fuel contribution – 50, smoke development – 450 in accordance with ASTM E84 test methods.
2. Piping insulation thickness for new piping shall be as follows:

	Pipe Sizes	
Pipe Type Branch	Up to 2"	2-1/2" & up
Dom. Hot --	1.0"	1.5"
Dom. Cold--	0.5"	0.5"

3. Insulation protection shields equal to Grinnell figure 167 shall be installed on all insulated pipe 1" and larger. Hangers shall not contact the pipe where insulation is specified. Insert insulation shall be the same thickness as the adjoining pipe insulation.

Part 5 – Installation

1. New horizontal waste pipe shall be given a grade of ¼" per foot. 1/8" per foot slope must be approved by the authority having jurisdiction. Roof drain piping shall be given a grade of 1/8" per foot.
2. Vent inlets on the floor drains and floor sinks shall be above the weir of the traps they serve.
3. All plumbing fixture supplies with stops, p-traps, and trap arms shall be chrome plated.
4. Verify the locations and sizes of the existing domestic water, gas, and waste and make necessary new connections as required. Refer to the civil engineering drawings and coordinate with the general contractor the owner's representative.
5. The plumbing contractor shall periodically remove all debris and waste related to his work in order to maintain safe working and operating conditions, and shall dispose of the same in a approved manner at the completion of work, he shall remove all his rubbish, tools, and surplus material from and about the site, leaving his work clean and the area ready for occupancy.
6. Cleanouts shall be the same size as the pipe. Where cleanouts in connection with threaded pipe are accessible, they shall be cast iron drainage T-patter 90 degree branch fitting with extra heavy brass screw plugs of the same size as the pipe (4" cleanout maximum).
7. All cleanouts shall be flush with wall or color complete with stainless steel cover plate for wall cleanouts and nickel bronze for floor cleanouts.
8. Arrange new piping to permit ready access to valves, unions, traps, and to clear opening of doors and access panels.
9. Adjust location of pipes, etc., to accommodate work from interference anticipated and encountered. Determine exact route and location of each pipe prior to fabrication. Make offsets, transition, and changes in direction of pipes as required to maintain proper head room and pitch of sloping lines whether or not indicated on drawings.
10. Insure that items to be furnished fit in space available. Make necessary field measurements to ascertain space requirements including those for connections and furnish and install equipment of size and shape so final installation shall suit true intent and meaning of contract documents.
11. Follow manufacturer's directions in delivery, storage, protection, and installation of materials. Promptly notify architect in writing of conflicts between requirements of contract documents and manufacturer's directions and obtain architects written instruction before proceeding with work. Bear expenses arising from correcting deficiencies of work that to do not comply with manufacturer's direction or such written instruction from architect and/or owner's representative.
12. Deliver material to site and tightly cover and protect against dirt, water, and chemical or mechanical injury but have readily accessible for inspection. Store items subject to moisture damage in a dry heated space.
13. Vertical piping shall be secured at sufficiently close intervals to keep pipe alignment and carry the weight of the pipe and contents. Stacks shall be supported at their bases with approved metal clamps or hangers.
14. Support horizontal piping at sufficiently close intervals to maintain alignment and preventsagging or grade reversals in accordance with local plumbing code. Support each length of pipe by an approved hanger located not more than 18" from the joint. Approved manufacturers are ITT Grinnell fee & Mason MFG. Co., B-Line, or Kin-Line, Inc.
15. Support terminal ends of all horizontal runs or branches and each change of direction or alignment by an approved hanger.
16. All exterior gas piping exposed to weather shall be painted with a gray color enamel paint with rust inhibitor.
17. Changes in direction of horizontal waste and vent shall be made with the appropriate use 45 degree wyes, half wyes, long sweep 1/4/ bends, 1/6, 1/8, or 1/16 bends, except that sanitary tees may be used on waste lines where change in direction of flow is from the horizontal to the vertical.
18. Complete the installation of each plumbing fixture including chrome-plated trap and accessories with accessible chrome-plate trap and accessories with accessible chrome-plated stop or control valve in each hot and a cold water branch supply line. Make joint between water closet and floor flange tight with approved fixture setting compound or gasket. Interior exposed pipe, valves, and completion of project. Caulk between fixtures and wall and compound, point all edges. Install fixture as per local codes and manufacturer's instructions. Do not use flexible water piping.
19. Access panels shall be provided in walls or GWB ceilings where required to access valves or concealed equipment access doors shall be hinged and constructed of metal with a screwdriver latch. All access panels shall be 18" x 18", unless otherwise noted on the drawings. Fire-rated access panels shall be installed in fire-rated assemblies. Installation shall be in neat in final appearance.

Part 6 – Submittals

1. By description, catalog number and specific designation, standards are established for manufactured items which the contractor shall furnish as required by this section. Substitutions must be submitted and approved by the architect and/or owner's representative of products prior to bid for consideration. Substitutions of products shown shall be submitted to the architect, the owner's representative or engineer for written approval.
2. Shop drawings and up-to-date engineering data sheets and catalog information shall be furnished on the following items of equipment. Provide (6) copies for review.
   a. Fixtures and trim
   b. Water heater
   c. Plumbing equipment and specialties
   d. Valves, strainers, etc.

Part 7 – Cutting and Patching

1. Cutting and patching of floors, roof and walls to facilitate the plumbing system installation shall be by the general contractor, the cost of which shall be paid for by the plumbing contractor the plumbing contractor shall coordinate all cutting and patching with the general contractor and owner's representative.
2. The plumbing contractor shall be responsible for required digging, backfilling and compaction.
3. The general contractor shall be perform the required cutting, and patching incident to this work, and make required repairs afterward to satisfaction of architect and the owner's representative. Cut carefully to minimize necessity for repairs to existing work. Do not cut beams, columns, or trusses. Patch and repair walls, floors, ceiling and roofs with materials of same quality and appearance as adjacent surfaces unless otherwise shown. Surface finishes shall exactly match existing finishes of same materials. The plumbing contractor shall bear expense of cutting, patching, repairing, and replacing of work of other contractors required because of his fault, error, tardiness, or because of damage done by the plumbing.
4. Schedule all work so as not to interfere and/or disrupt the daily activities and/or operating hours of nearby buildings or operations. Coordinate as required with general contractor and the owner's representative.

Part 8 – Fire Assembly Penetrations

1. Coordinate the requirements with other trades, general contractor, architect, the owner's representative and the local authorities having jurisdiction
2. Provide sleeve at all floor piping penetrations. Provide U.L. Fire Penetration System Number FC1002, FC2008, FC3007, FC7001, WL002 or WL2002 for combustible construction or system number FA5001, FA8001, WL1002 or WL2002 for non-combustible construction of the U.L. building materials directory and as required by authorities having jurisdiction.
3. All penetrations through fire rated assemblies shall comply with U.L. Fire Resistance Directory, latest edition.
4. Access panels shall be provided in walls or GWB ceilings where required to access dampers or concealed equipment. Access doors shall be hinged and constructed of metal with a screwdriver latch. All access panels shall be minimum of 18" x 18" unless otherwise noted on drawings, or larger if required for the removal of equipment. Fire-rated access panels shall be installed in fire-rated assemblies. Installation shall be neat in final appearance.

Part 9 - Seismic Bracing

1. The plumbing contractors shall furnish and install required seismic bracing, restraints, equipment isolators, etc. for his installed equipment, piping, etc. all of which shall comply with PPIC and SMACNA guidelines for the local seismic zone requirements and in accordance with authorities having jurisdiction.

Part 10 - As-Built Drawings

1. The plumbing contractor shall keep a record set of drawings neatly marked with changes from the original design and drawings. These drawings shall be delivered to the architect and/or owner's representative at the completion of the project and prior to receiving final payment.

Part 11 – Check, Test and Start-Up

1. All new, altered, extended or replaced plumbing shall be left uncovered and unconcealed until it has been tested or approved. Where such work has been covered or concealed before it is tested and approved, it shall be exposed at the plumbing contractor's expense for testing and approval.
2. Each system shall be adjusted to insure proper functioning and shall be left in first class operating condition. Contractor shall perform all tests in the presence of the owner's representative.
   a. Hydrostatically test the new waste and vent system indoors to hold not less than 5 PSIG or 10 feet of head pressure for 2 hours with no decrease in pressure.
   b. Test the new domestic water systems to hold not less than 100 PSIG (or 1-1/2 times the working pressure in the pipe, whichever is greater) air pressure (or hydrostatic) for 4 hours with no decrease in pressure.
   c. Gas piping shall be test at 60 PSIG for no less than 30 minutes in accordance with the local gas company's good practices. All tests shall be maintained without leaks or pressure loss for the specified time, with allowance for the temperature changes. Repair all leaks and repeat tests where required.
3. The plumbing contractor shall provide material and labor required to perform start-up of each respective item of equipment, fixtures and systems. Submit test and start-up report to the architect and/or the owner's representative as applicable.
4. Clean all piping, equipment, etc. remove all grease, dirt and stains that have accumulated during the construction period.

Part 12 – Sterilization

1. Sterilize domestic water system with solution containing 250 parts per million minimum of available chlorine. Introduce chlorinating material into system a manner approved by the architect and local department of health. Allow sterilization solution to remain for 24 hours and open and close valves and faucets several times during that time. After sterilization, flush solution from system with clean water until residual chlorine content is less than 0.2 parts per million. Water system will not be accepted until negative bacteriological test is made on water taken from system. Repeat dosing as necessary until such negative test is accomplished and is acceptable to the local department of health. Provide report to owner's representative for approval.

Part 13 – Operation and Maintenance Manuals

1. Provide three (3) sets of O& M Manuals covering all new valves, equipment and appurtenances for the owner's use as applicable. The format shall be as follows:
   a. Size: 8 1/2x11 inches
   b. Paper: Manufacturer's printed data, or neatly type-written
   c. Provide reinforced punched binder tabs, bound in with text.
   d. Provide fly-leaf for each separate product, or each piece of operating equipment. Provide typed description of product, and major component parts of equipment. Provide indexed tabs.
   e. Cover: Identify each volume with typed or printed title: "Operation and Maintenance instruction". List title of project, identity of general subject matter cover in the manual.
   f. Binders: Commercial quality three-ring binders with durable and cleanable plastic covers
   g. Provide neatly type written table of contents. List product by product name and other indentifying symbols as set for in contract documents.
   h. Include copy of each warranty, bond and service contract issued. Include parts lists, lubrication chart with maintenance schedule.

Part 14 – Instructions

1. Prior to final inspection or acceptance, fully instruct the owner's designated operation and maintenance personnel in the operation, adjustment and maintenance of products, equipment and systems. (Minimum 2-hours instruction period required or more if requested by the owner's representative).

Part 15 – Warranty and Guarantee

1. The plumbing contractor shall be responsible for the complete new plumbing systems installation and shall provide a one (1) year parts and labor warranty for his performed work after equipment start-up and the owner's representative's acceptance. Should any trouble develop during this period due to defective materials or faulty workmanship, the contractor shall furnish all necessary labor and materials to correct the trouble without any cost to the owner. Any materials found to be defective during the guarantee period shall be corrected immediately to the entire satisfaction of the owner.
2. The contract shall be responsible for all damage to any part of the premises cause by leak or breaks in pipe or equipment furnished and/or installed by this contractor for a period of (1) year from the date of acceptance of the work by the owner. The contractor shall make all necessary repairs to the owner's representative's satisfaction and at no additional cost.

PLUMBING SYMBOLS

- PRESSURE REDUCING VALVE
- BALL VALVE
- REDUCER
- GATE VALVE
- GLOBE VALVE
- 2 WAY CONTROL VALVE
- 3 WAY CONTROL VALVE
- CHECK VALVE
- SOLENOID VALVE
- BALANCE VALVE
- GAS COCK
- BUTTERFLY VALVE
- OS & Y VALVE
- STRAINER
- SAFETY RELIEF VALVE
- VALVE IN VERTICAL
- FLOOR SINK
- FLOOR DRAIN
- GRADE CLEANOUT
- FLOOR CLEANOUT
- WALL CLEANOUT
- VENT THROUGH ROOF
- PIPE DOWN
- PIPE UP
- UNION
- CAP
- DOUBLE CHECK BACKFLOW PREVENTER
- REDUCED PRESSURE BACKFLOW PREVENTER
- POINT OF CONNECTION

PLUMBING ABREVIATIONS

EXISTING	(E)
AIR ADMITTANCE VALVE	A.A.V.
ABOVE FINISHED FLOOR	A.F.F.
CONDENSATE	COND
COLD WATER	CW
DOWN	DN
DOMESTIC	DOM
FLOOR CLEAN OUT	FCO
HOT WATER	HW
HOT WATER RETURN	HWR
NATURAL GAS	NG
REFRIGERANT	REF
SANITARY	SAN
TEMPERED WATER	TW
VENT	V
VENT THROUGH ROOF	VTR
WALL CLEAN OUT	WCO

CONSTRUCTION NOTES

DATE

SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT # 24SM5271.17

REGISTERED PROFESSIONAL ENGINEER NO. 189278 DONALD J. OLSEN STATE OF UTAH 4/17/25

SCALES

1 1/2" = 1'-0"

0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST SCALE ACCORDINGLY

PROJECT NAME:

K&B APARTMENTS

PROJECT LOCATION:

684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:

PLUMBING GENERAL NOTES

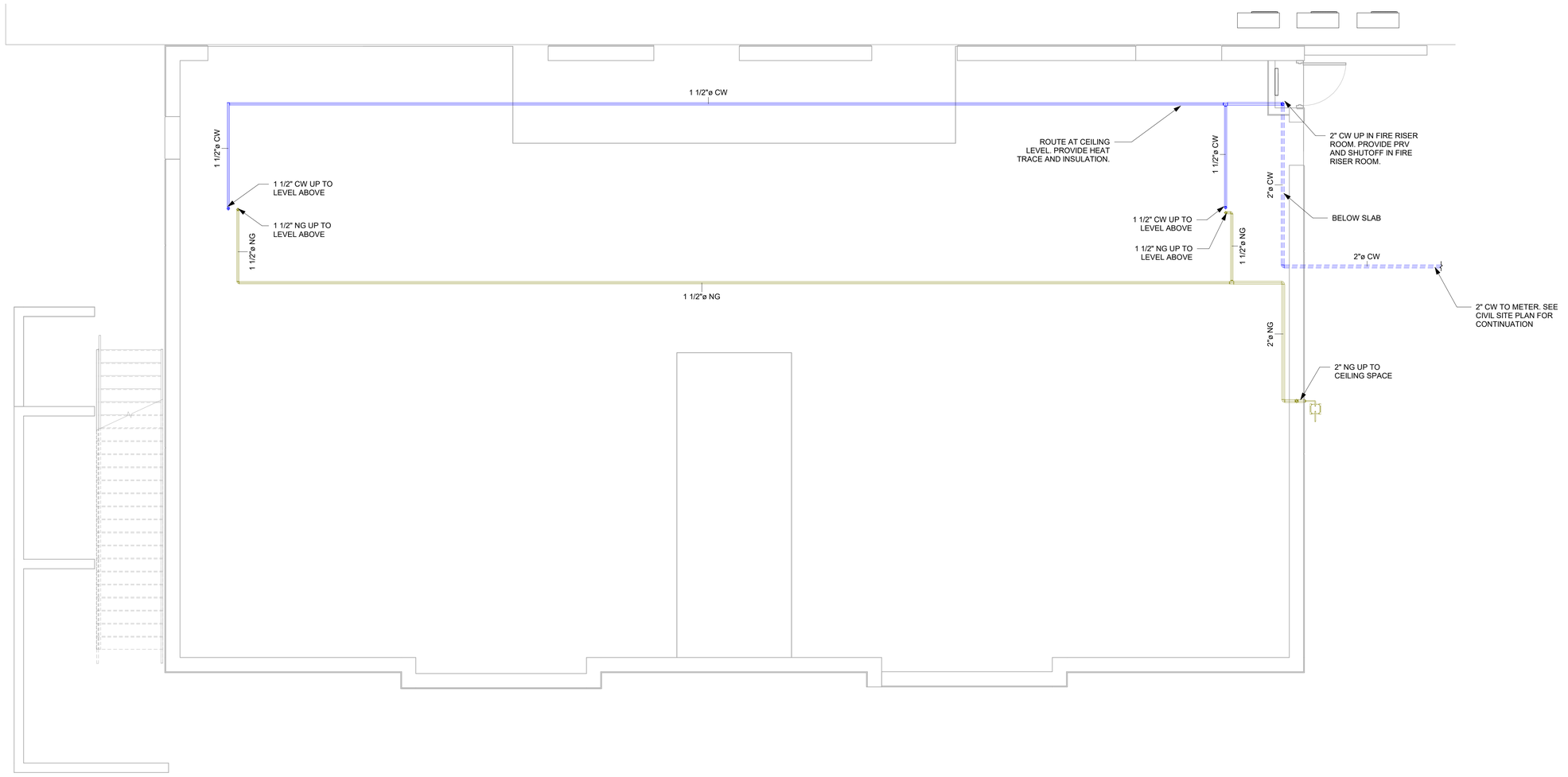
PLAN SET: PERMIT

SHEET P0.1

Autodesk Docs://KB Apartments/KB APARTMENTS MEP.rvt

PLUMBING GENERAL NOTES

1. VERIFY EXISTING SIZES AND LOCATIONS OF ALL PIPING BEFORE BEGINING CONSTRUCTION. NOTIFY OWNER/ENGINEER OF ANY DISCREPANCIES.
2. ALL HORIZONTAL SANITARY PIPING SHOWN IS LOCATED BELOW FLOOR OF ASSOCIATED LEVEL UNLESS NOTED OTHERWISE.
3. ALL HORIZONTAL DOMESTIC, GAS, REFRIGERANT, AND VENT PIPING SHOWN IS LOCATED IN CEILING SPACE OF ASSOCIATED LEVEL UNLESS NOTED OTHERWISE.
4. BRANCH PIPE SIZE SHALL MATCH FIXTURE CONNECTION SIZE UNLESS NOTED OTHERWISE. SEE PLUMBING FIXTURE SCHEDULE FOR DETAIL.
5. PROVIDE ISOLATION VALVES ON ALL PLUMBING FIXTURES AND EQUIPMENT FOR SERVICE.
6. PROVIDE GAS REGULATOR AT ALL NATURAL GAS EQUIPMENT UNLESS EQUIPMENT IS RATED FOR GAS SERVICE PRESSURE.



1 BASEMENT PLUMBING PLAN
1/4" = 1'-0"

CONSTRUCTION NOTES

DATE
SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER — NO. 189278 — DON L. OLSEN — STATE OF UTAH

SCALES
As indicated
0 1"
PLOT TO FULL SCALE FOR A FULL SIZE SHEET, ADJUST FOR A HALF SIZE SHEET

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
BASEMENT LEVEL PLUMBING PLAN

PLAN SET: PERMIT
SHEET P1.1

Autodesk Docs://KB Apartments/KAB APARTMENTS MEP.rvt

PLUMBING GENERAL NOTES

1. VERIFY EXISTING SIZES AND LOCATIONS OF ALL PIPING BEFORE BEGINING CONSTRUCTION. NOTIFY OWNER/ENGINEER OF ANY DISCREPANCIES.
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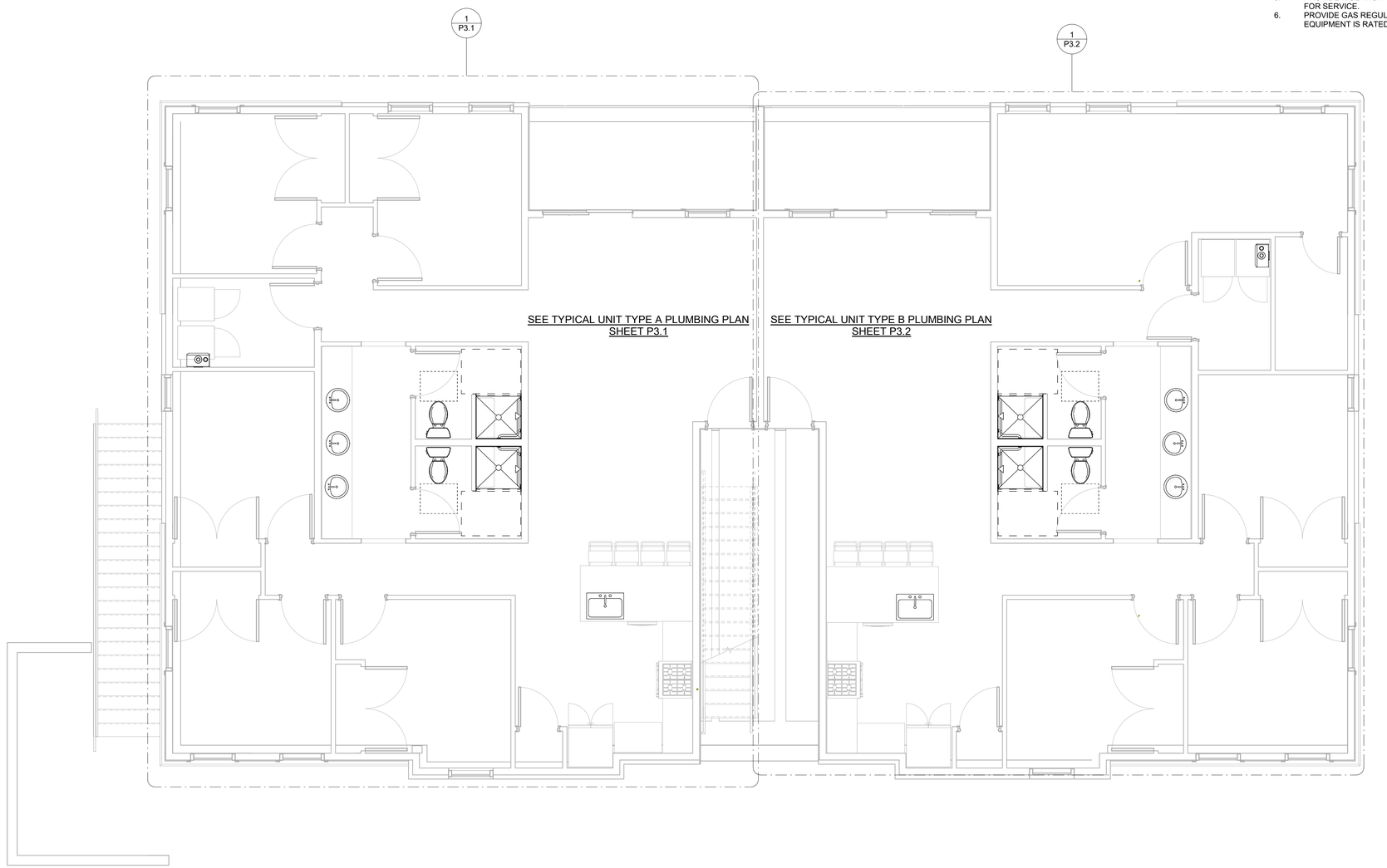

1 FIRST LEVEL PLUMBING PLAN
1/4" = 1'-0"

N

CONSTRUCTION NOTES

DATE

SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER
NO. 169278
DONALD OLSEN
STATE OF UTAH
4/17/24

SCALES

As indicated

0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST FOR A HALF SIZE SHEET.

PROJECT NAME:

K&B APARTMENTS

PROJECT LOCATION:

684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:

FIRST LEVEL PLUMBING PLAN

PLAN SET: PERMIT

SHEET P1.2

Autodesk Docs://KB Apartments/K&B APARTMENTS MEP.rvt

PLUMBING GENERAL NOTES

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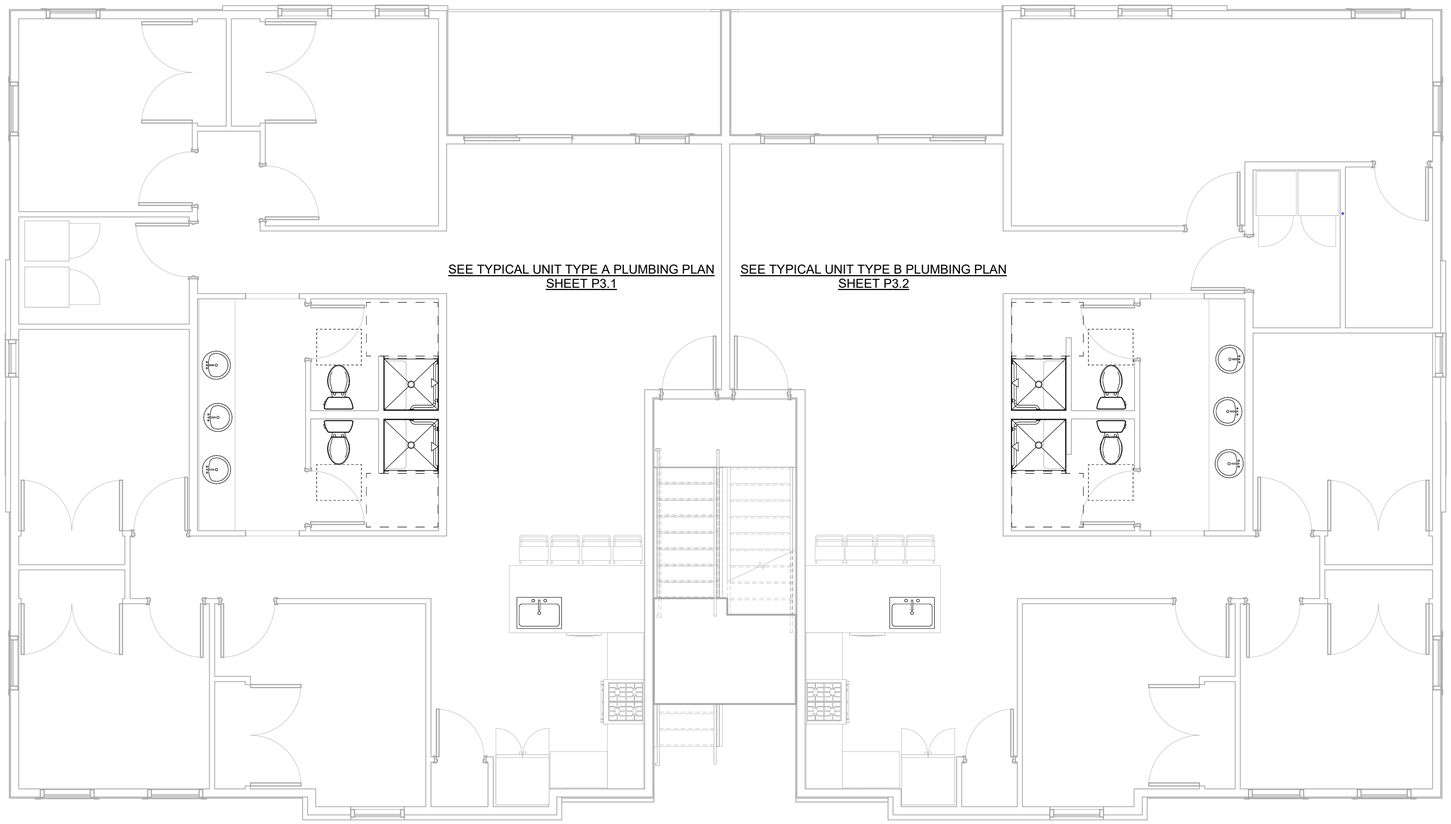


1 SECOND LEVEL PLUMBING PLAN
1/4" = 1'-0"

N

CONSTRUCTION NOTES

DATE

SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER
No. 189278
DONALD W. OLSEN
STATE OF UTAH
7/17/25

SCALES

As indicated

0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST AS APPROPRIATE FOR REDUCED SHEETS

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
SECOND LEVEL PLUMBING PLAN

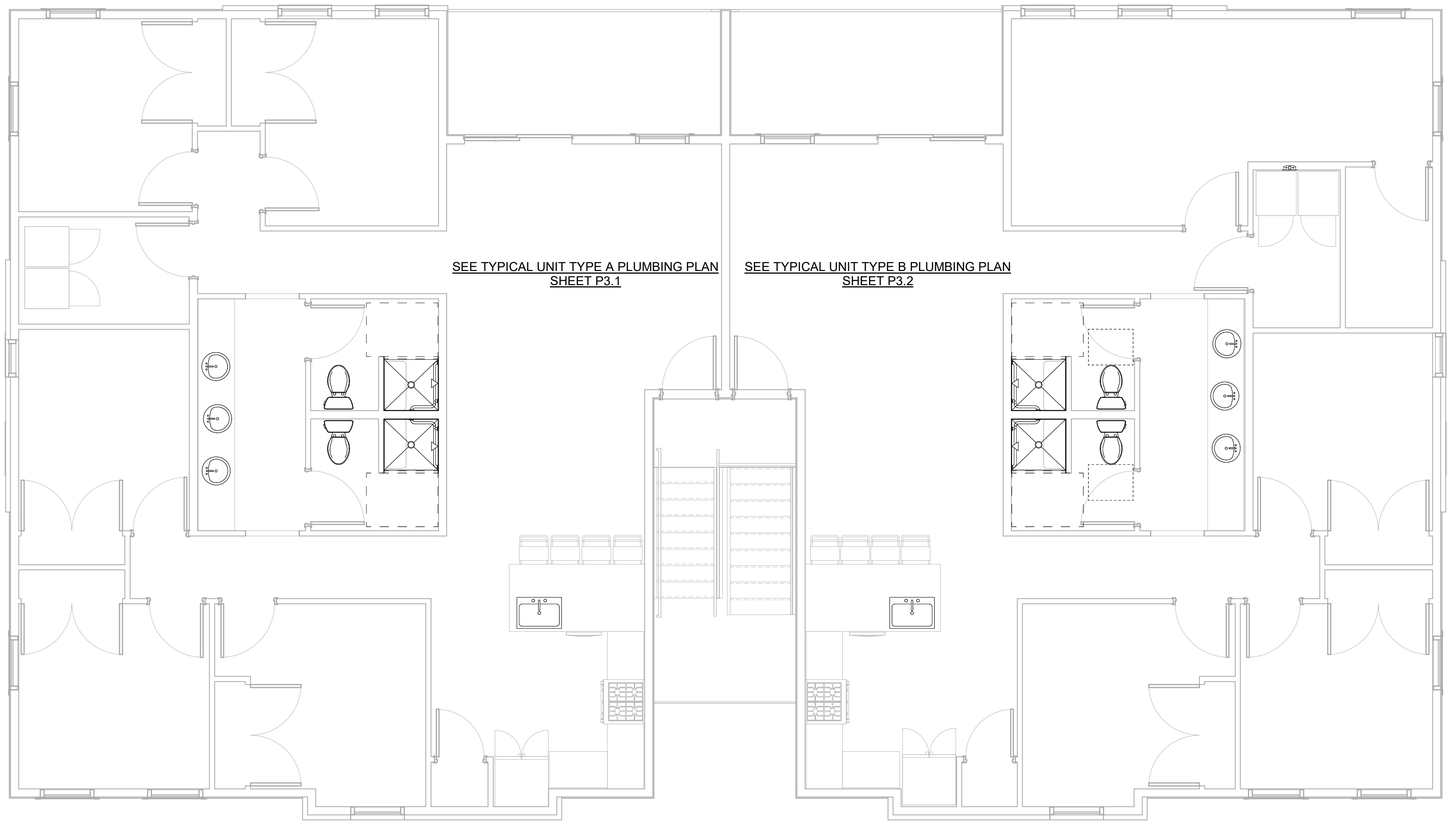
PLAN SET: PERMIT

SHEET P1.3

Autodesk Docs://KB Apartments/KB APARTMENTS MEP.rvt

PLUMBING GENERAL NOTES

1. VERIFY EXISTING SIZES AND LOCATIONS OF ALL PIPING BEFORE BEGINING CONSTRUCTION. NOTIFY OWNER/ENGINEER OF ANY DISCREPANCIES.
2. ALL HORIZONTAL SANITARY PIPING SHOWN IS LOCATED BELOW FLOOR OF ASSOCIATED LEVEL UNLESS NOTED OTHERWISE.
3. ALL HORIZONTAL DOMESTIC, GAS, REFRIGERANT, AND VENT PIPING SHOWN IS LOCATED IN CEILING SPACE OF ASSOCIATED LEVEL UNLESS NOTED OTHERWISE.
4. BRANCH PIPE SIZE SHALL MATCH FIXTURE CONNECTION SIZE UNLESS NOTED OTHERWISE. SEE PLUMBING FIXTURE SCHEDULE FOR DETAIL.
5. PROVIDE ISOLATION VALVES ON ALL PLUMBING FIXTURES AND EQUIPMENT FOR SERVICE.
6. PROVIDE GAS REGULATOR AT ALL NATURAL GAS EQUIPMENT UNLESS EQUIPMENT IS RATED FOR GAS SERVICE PRESSURE.



1 THIRD LEVEL PLUMBING PLAN
1/4" = 1'-0"

N

CONSTRUCTION NOTES

DATE
SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER
NO. 189278
DONALD W. OLSEN
STATE OF UTAH

SCALES
As indicated
0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST AS NECESSARY FOR REDUCED SHEETS

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
THIRD LEVEL
PLUMBING PLAN

PLAN SET: PERMIT
SHEET P1.4

Autodesk Docs://KB Apartments/KB APARTMENTS MEP.rvt

PLUMBING GENERAL NOTES

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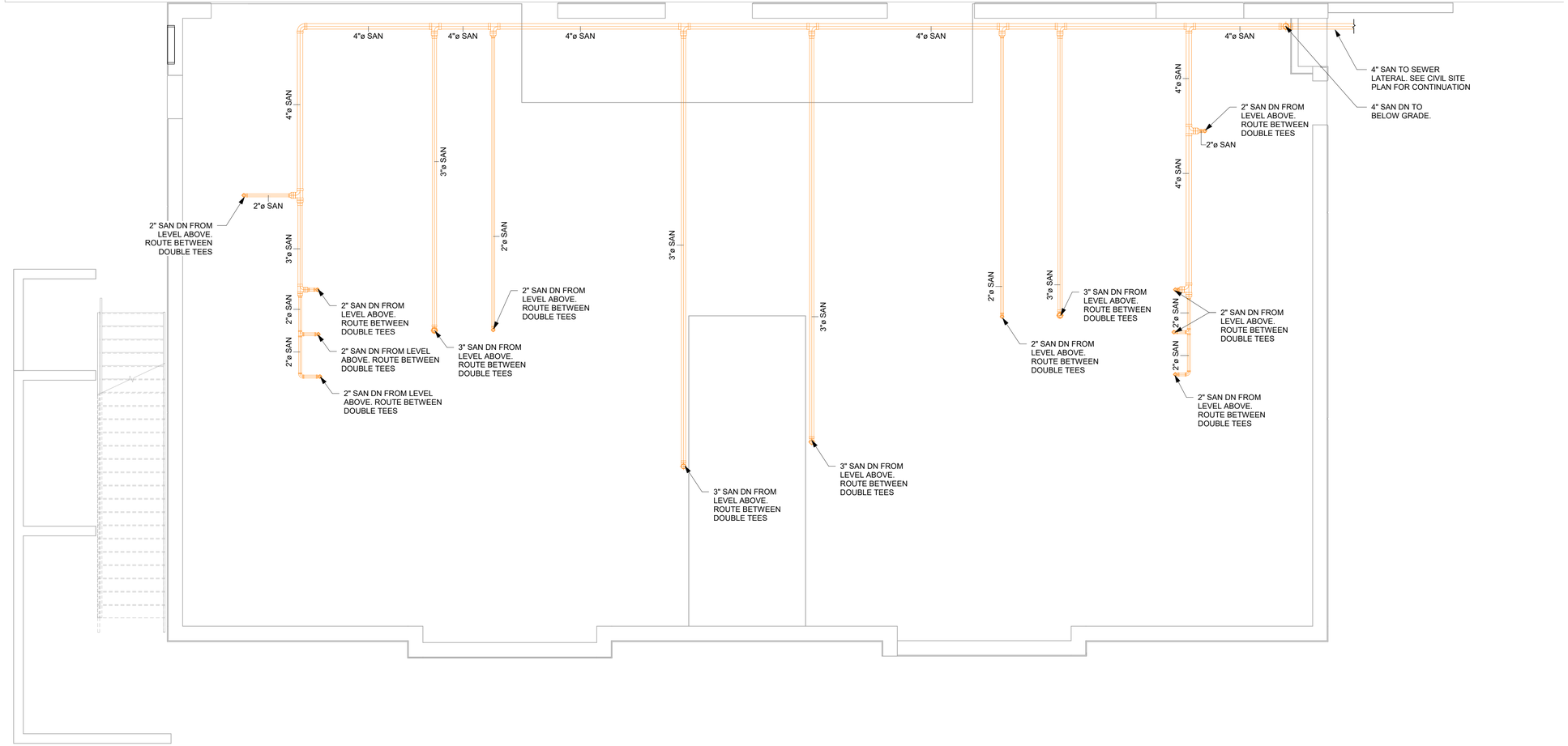

1 BASEMENT SANITARY PLAN
1/4" = 1'-0"

CONSTRUCTION NOTES

DATE
SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER
NO. 189279
DONIL V. OLSEN
STATE OF UTAH
7/17/25

SCALES
As indicated

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
BASEMENT SANITARY PLAN

PLAN SET: PERMIT
SHEET P2.1

Autodesk Docs://KB Apartments/K&B APARTMENTS MEP.rvt

PLUMBING GENERAL NOTES

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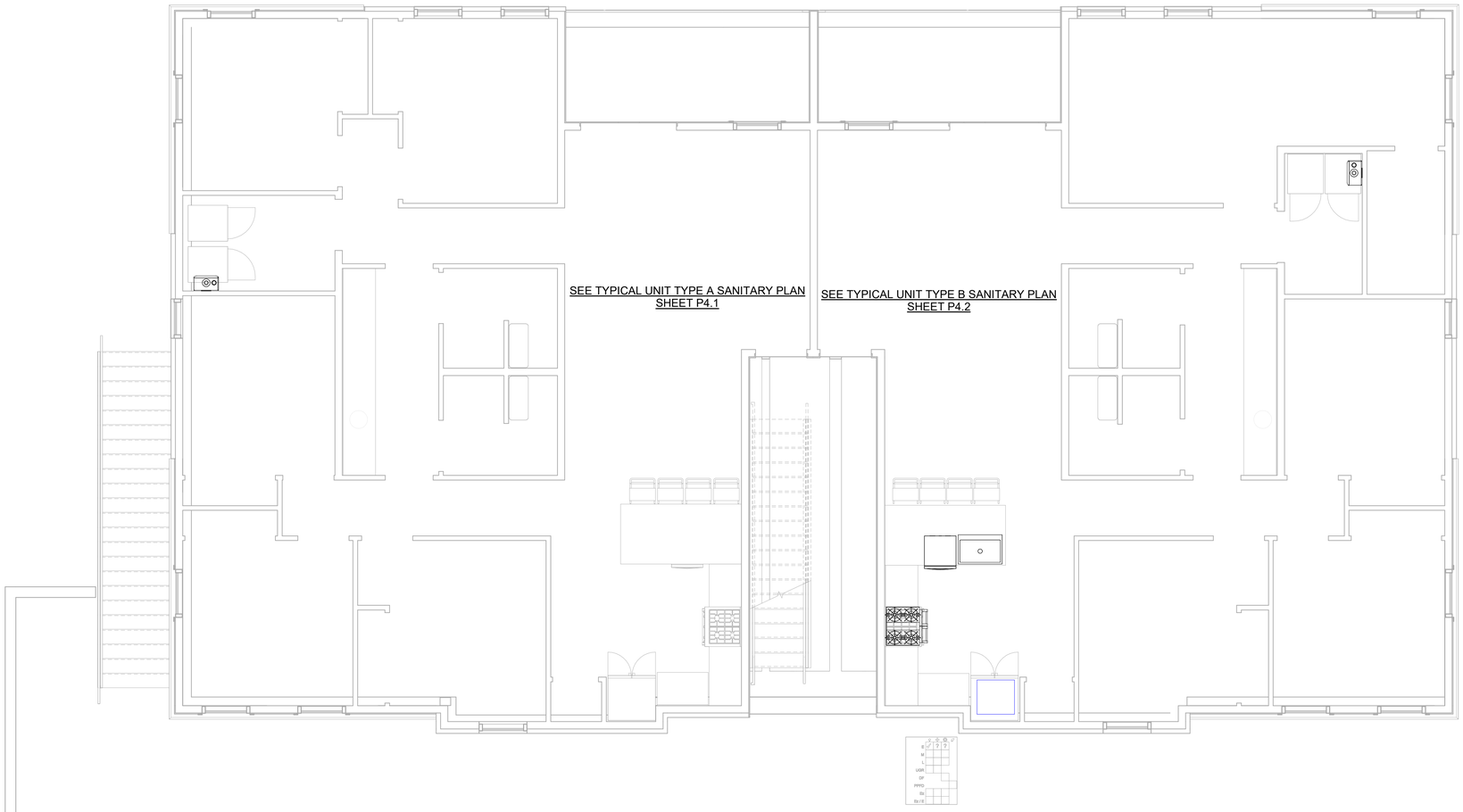

1 FIRST LEVEL SANITARY PLAN
1/4" = 1'-0"

N

CONSTRUCTION NOTES

DATE

SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER
NO. 189278
DONALD M. OLSEN
STATE OF UTAH

SCALES

As indicated

0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST SCALE ACCORDINGLY

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
FIRST LEVEL SANITARY PLAN

PLAN SET: PERMIT

SHEET P2.2

Autodesk Docs://KB Apartments/KB APARTMENTS MEP.rvt

PLUMBING GENERAL NOTES

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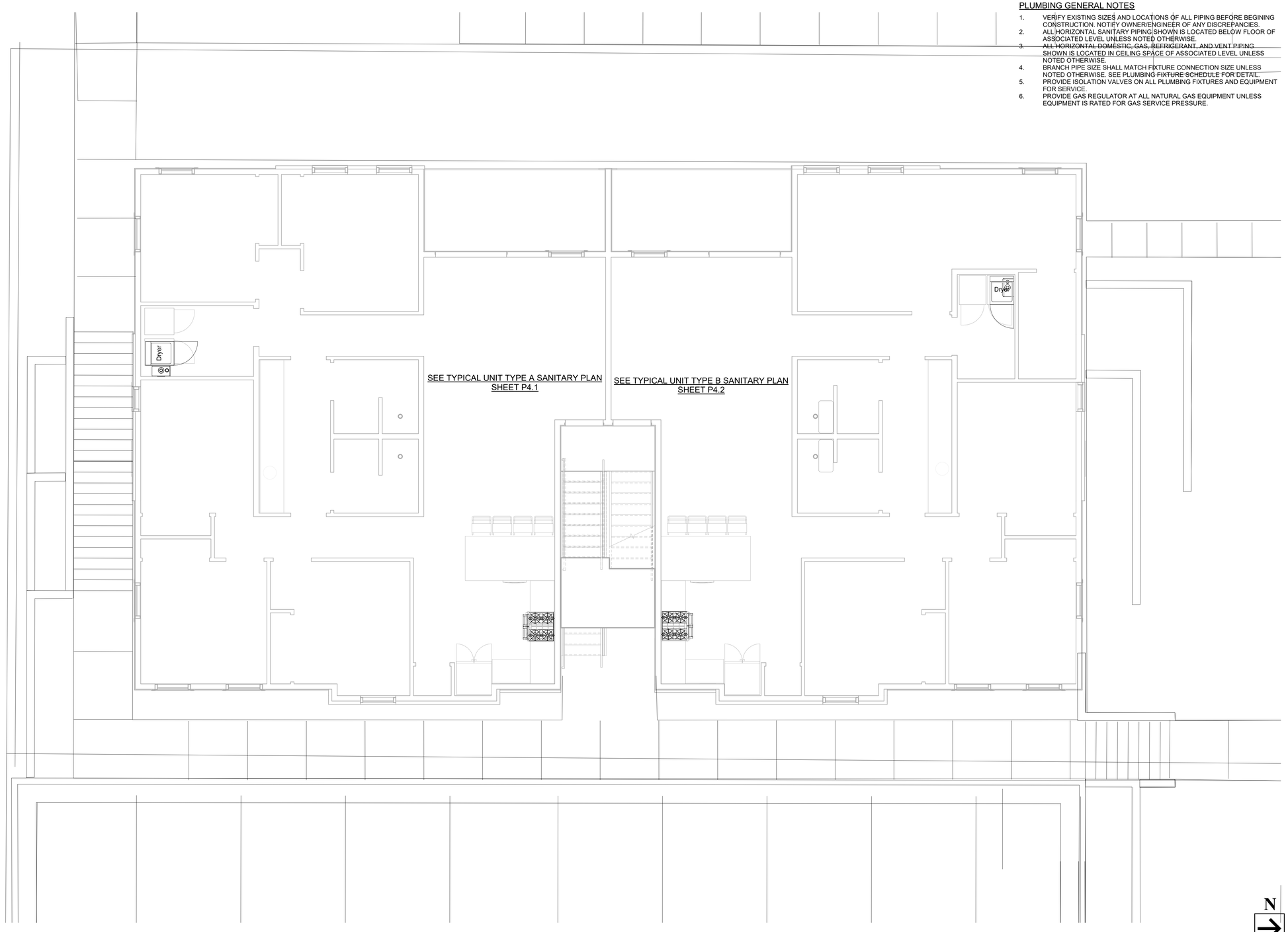

1 SECOND LEVEL SANITARY PLAN
1/4" = 1'-0"

CONSTRUCTION NOTES

DATE
SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER
NO. 169278
DONALD OLSEN
STATE OF UTAH

SCALES
As indicated
0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST FOR A HALF SIZE SHEET

PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
SECOND LEVEL SANITARY PLAN

PLAN SET: PERMIT
SHEET P2.3

Autodesk Docs://KB Apartments/KB APARTMENTS MEP.rvt

PLUMBING GENERAL NOTES

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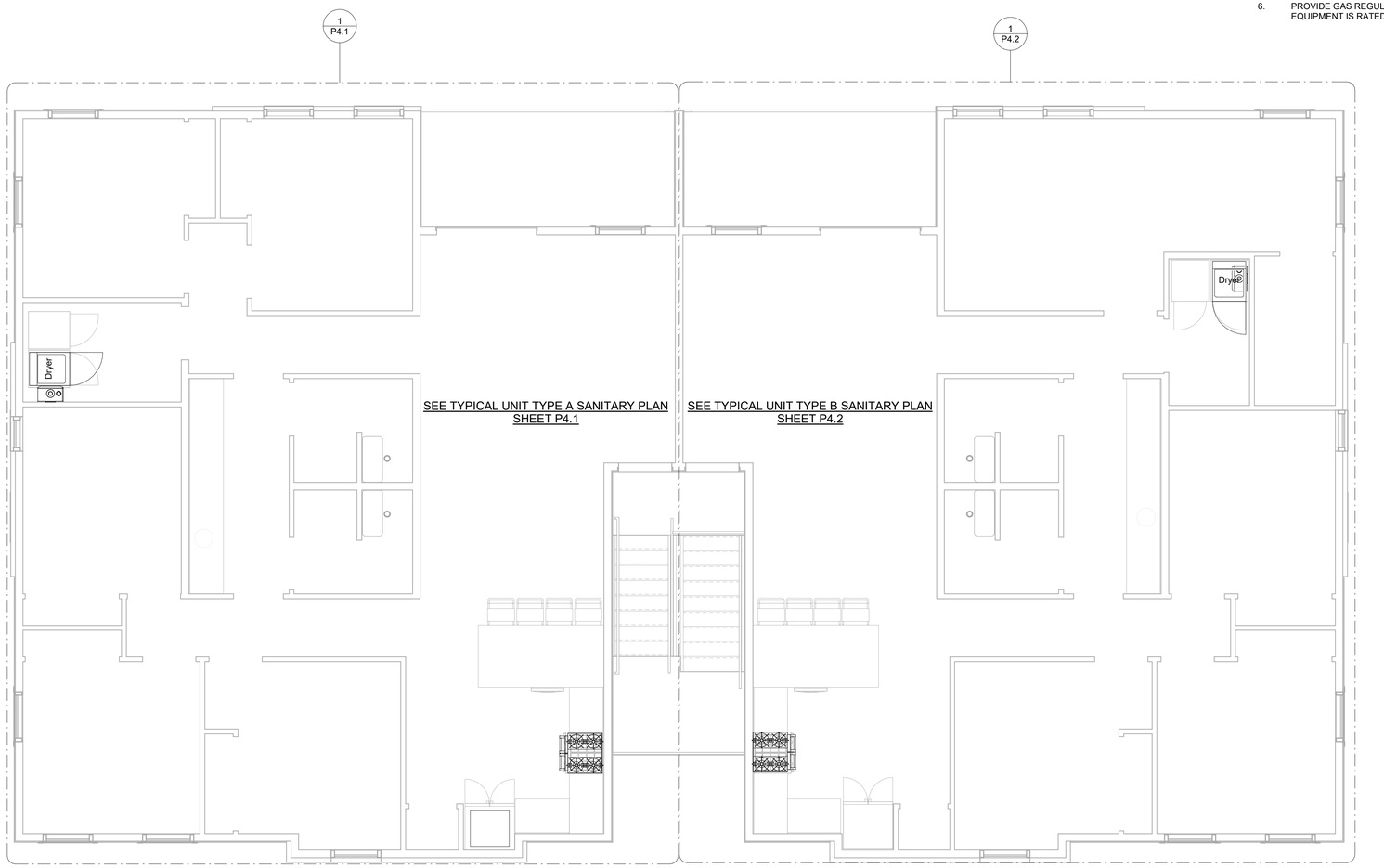


1 THIRD LEVEL SANITARY PLAN
1/4" = 1'-0"

N

CONSTRUCTION NOTES

DATE
SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER
NO. 189278
DON L. OLSEN
STATE OF UTAH

SCALES
As indicated
0 1"
1:48 SCALE MEANS 1" ON A FULL SIZE SHEET, HALF IF A HALF SIZE SHEET

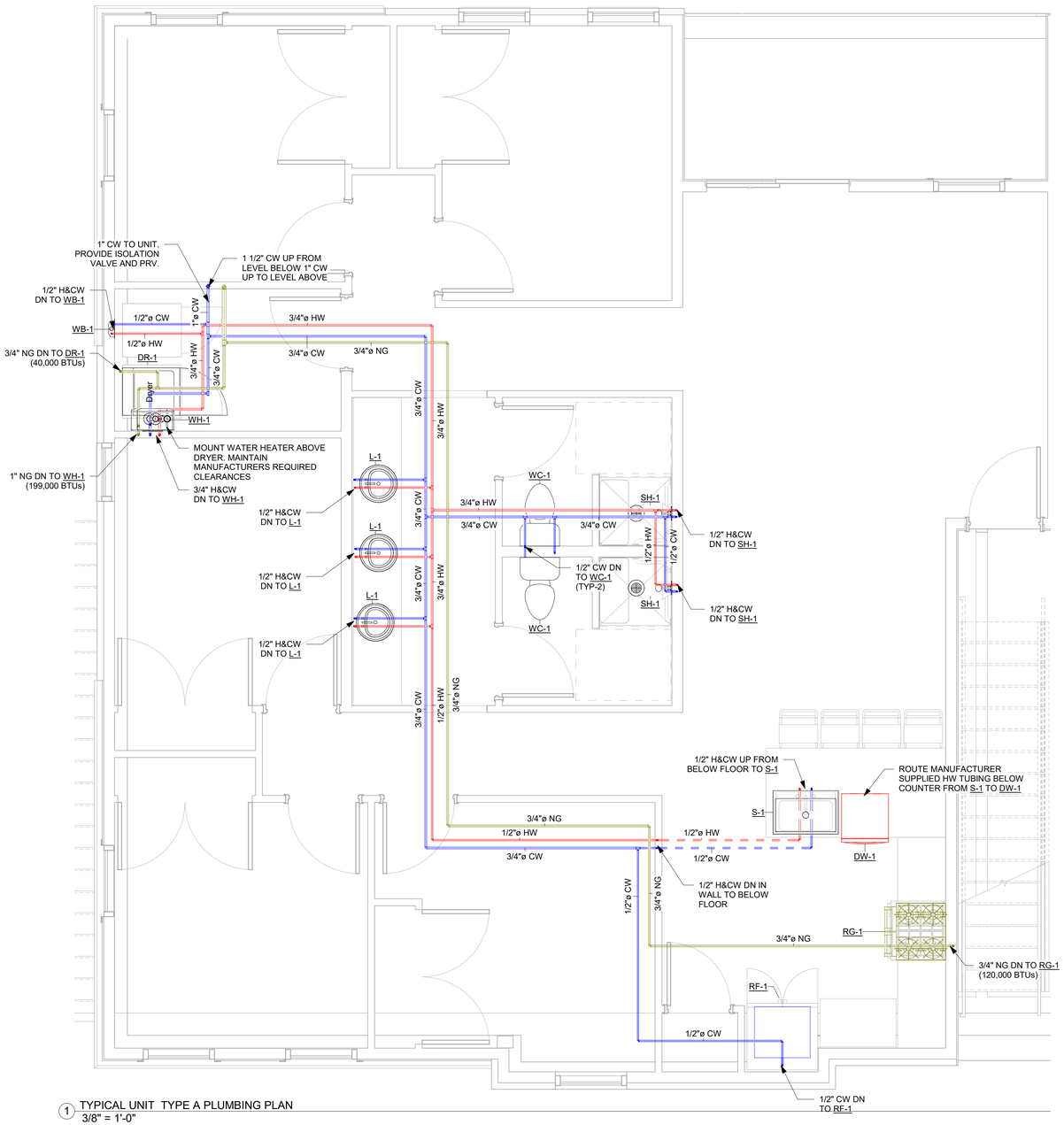
PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
THIRD LEVEL SANITARY PLAN

PLAN SET: PERMIT
SHEET P2.4

Autodesk Docs://KB Apartments/KB APARTMENTS MEP.rvt



1 TYPICAL UNIT TYPE A PLUMBING PLAN
3/8" = 1'-0"

PLUMBING GENERAL NOTES

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CONSTRUCTION NOTES

DATE
SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT # 24SM5271.17

REGISTERED PROFESSIONAL ENGINEER — No. 169279 — DONALD J. OLSEN — STATE OF UTAH — 4/17/25

SCALES
As indicated
0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST AS NEEDED FOR OTHER SIZES

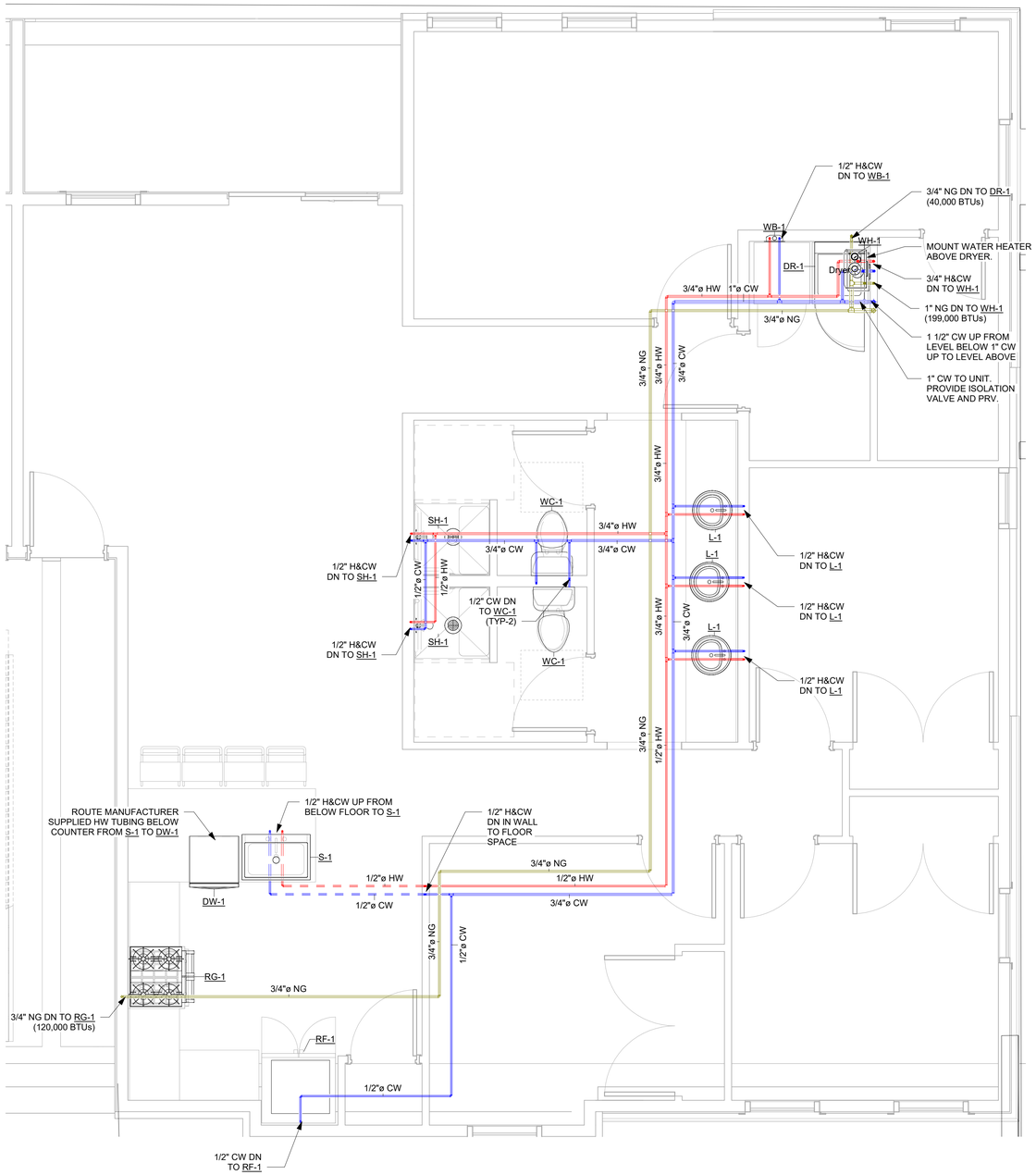
PROJECT NAME:
K&B APARTMENTS

PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
TYPICAL UNIT TYPE A PLUMBING PLAN

PLAN SET: PERMIT
SHEET P3.1

Autodesk Docs://KB Apartments/KB APARTMENTS MEP.rvt



1 TYPICAL UNIT PLUMBING PLAN1
3/8" = 1'-0"

PLUMBING GENERAL NOTES

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CONSTRUCTION NOTES

DATE

SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER
NO. 169278
DON L. OLSEN
STATE OF UTAH
4/17/25

SCALES

As indicated

0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST FOR A HALF SIZE SHEET.

PROJECT NAME:
K&B APARTMENTS

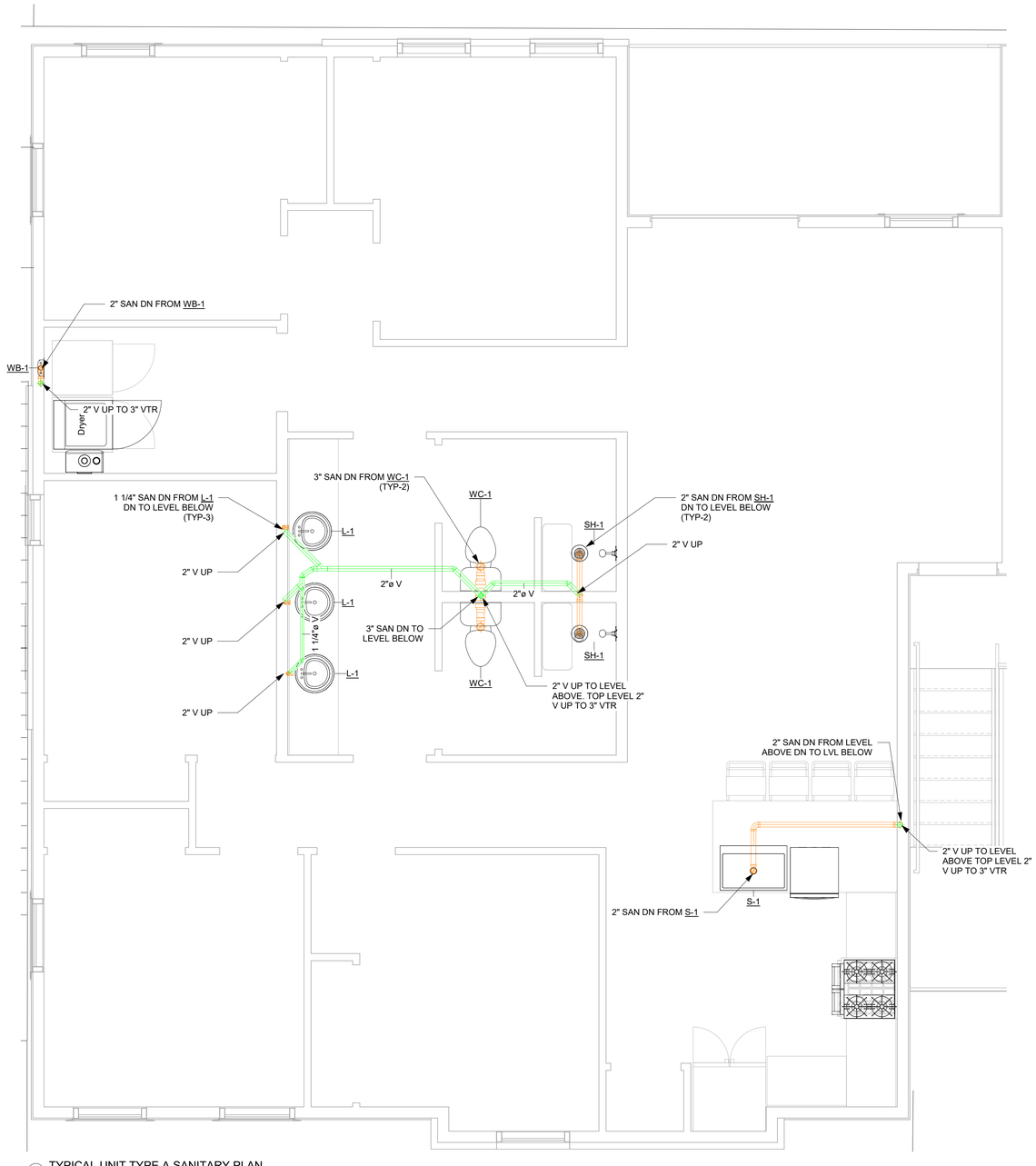
PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
TYPICAL UNIT TYPE B
PLUMBING PLAN

PLAN SET: PERMIT

SHEET P3.2

Autodesk Docs://KB Apartments/KB APARTMENTS MEP.rvt



1 TYPICAL UNIT TYPE A SANITARY PLAN
3/8" = 1'-0"

PLUMBING GENERAL NOTES

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CONSTRUCTION NOTES

DATE

SEPT 2024

epic ENGINEERING

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MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER
No. 169278
DON L. OLSEN
STATE OF UTAH
4/17/25

SCALES

As indicated

0 1"
BAR SCALE MEASURE 1" ON A FULL SIZE SHEET, ADJUST FOR A HALF SIZE SHEET

PROJECT NAME:

K&B APARTMENTS

PROJECT LOCATION:

684 EAST 700 NORTH
LOGAN, UT

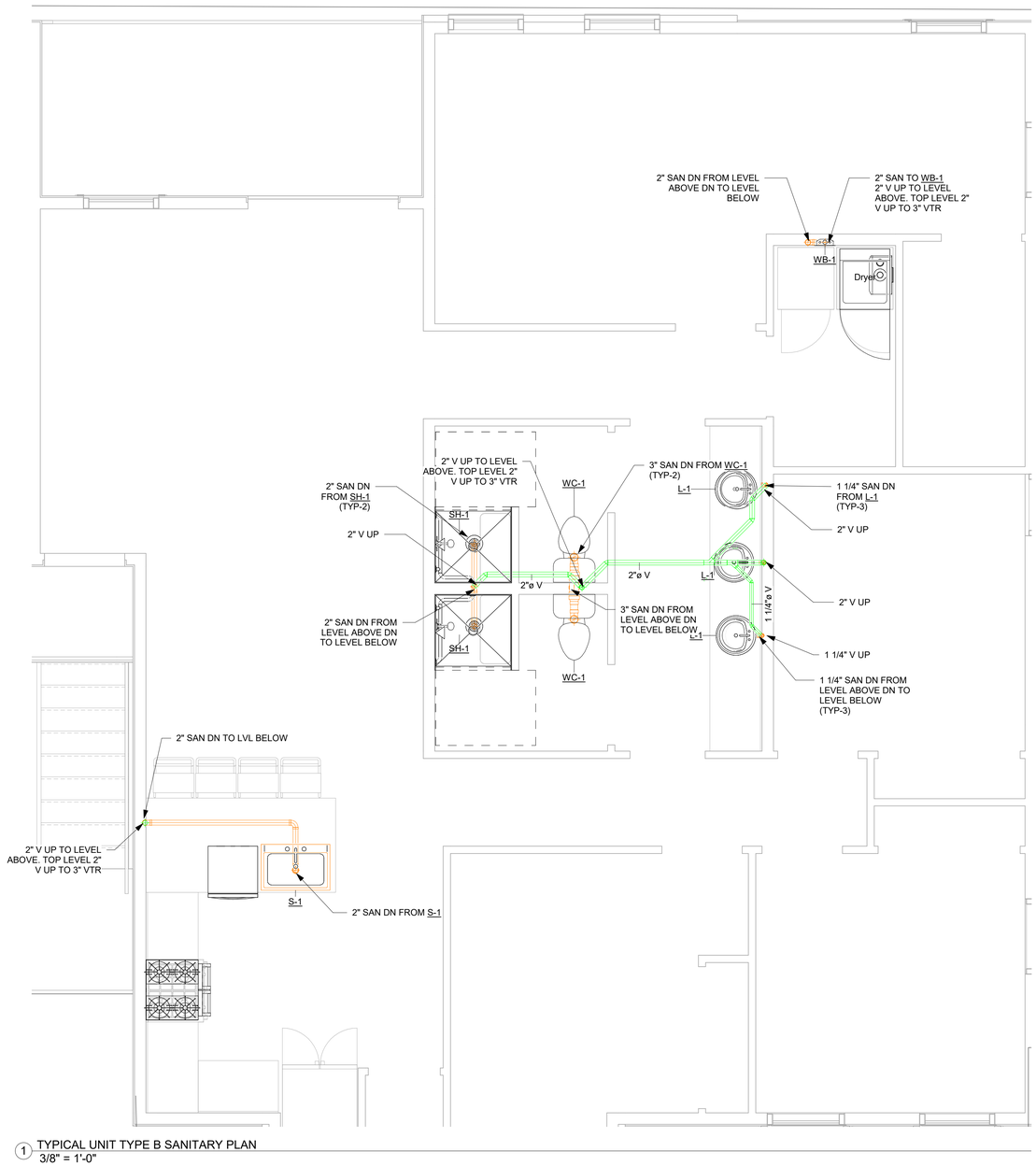
SHEET TITLE:

TYPICAL UNIT TYPE A SANITARY PLAN

PLAN SET: PERMIT

SHEET P4.1

Autodesk Docs://KB Apartments/KAB APARTMENTS MEP.rvt



1 TYPICAL UNIT TYPE B SANITARY PLAN
3/8" = 1'-0"

PLUMBING GENERAL NOTES

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CONSTRUCTION NOTES

DATE

SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT #
24SM5271.17

REGISTERED PROFESSIONAL ENGINEER
4/17/25
NO. 189279
DONIL OLSEN
STATE OF UTAH

SCALES

As indicated

0 1"
BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST SCALES ACCORDINGLY

PROJECT NAME:
K&B APARTMENTS

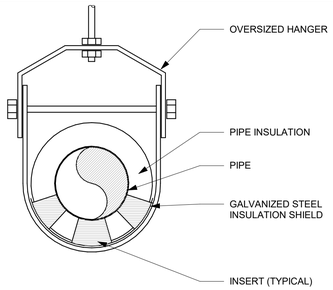
PROJECT LOCATION:
684 EAST 700 NORTH
LOGAN, UT

SHEET TITLE:
TYPICAL UNIT TYPE B SANITARY PLAN

PLAN SET: PERMIT

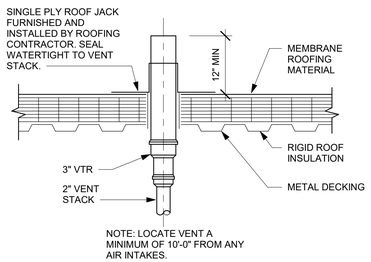
SHEET P4.2

Autodesk Docs://KB Apartments/K&B APARTMENTS MEP.rvt



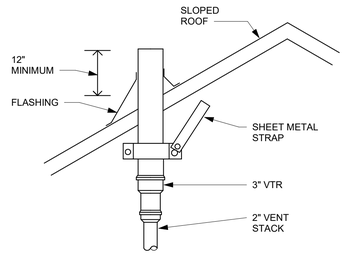
1 PIPE HANGER DETAIL

N.T.S.



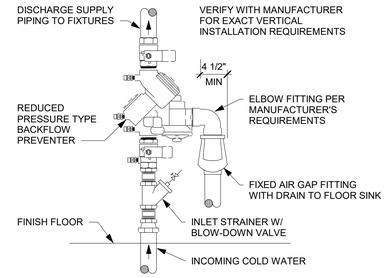
2 VENT THROUGH ROOF DETAIL

N.T.S.



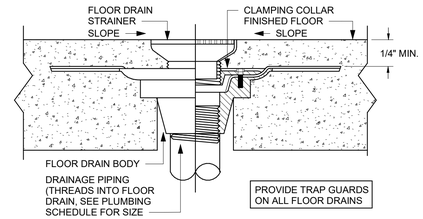
3 VENT THROUGH SLOPED ROOF DETAIL

N.T.S.



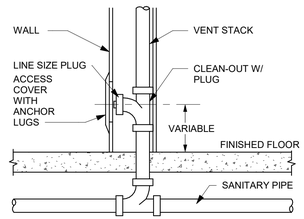
4 REDUCED PRESSURE BACKFLOW PREVENTER

N.T.S.



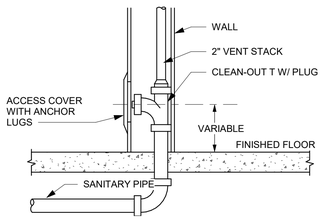
5 FLOOR DRAIN DETAIL

N.T.S.



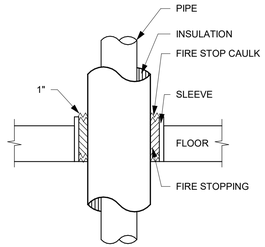
6 WALL CLEAN-OUT DETAIL (MID LINE)

N.T.S.



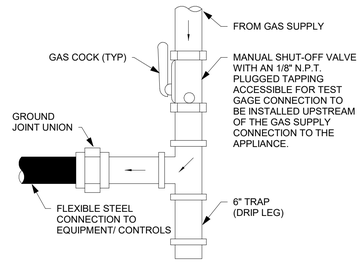
7 WALL CLEAN-OUT DETAIL (END LINE)

N.T.S.



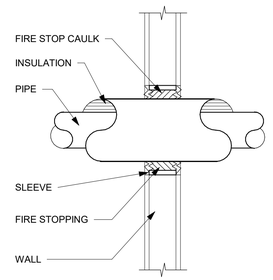
8 PIPE FLOOR PENTRATION DETAIL

N.T.S.



9 GAS CONNECTION

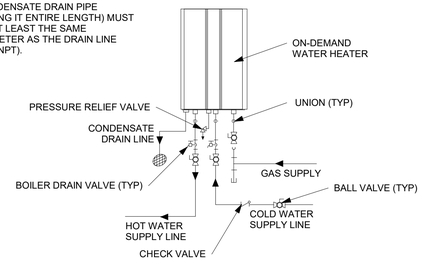
N.T.S.



10 PIPE WALL PENTRATION DETAIL

N.T.S.

NOTE:
CONDENSATE DRAIN PIPE (ALONG IT ENTIRE LENGTH) MUST BE AT LEAST THE SAME DIAMETER AS THE DRAIN LINE (1/2" NPT).



11 ON-DEMAND GAS WATER HEATER DETAIL

N.T.S.

GAS SCHEDULE

GAS PIPING SIZED IN ACCORDANCE WITH 2021 IFGC TABLE 402.4(7) WITH THE FOLLOWING CRITERIA:

DEVELOPED LENGTH: 300 FT

INLET PRESSURE: 2 PSI

PRESSURE DROP: 1.0" W.C.

SPECIFIC GRAVITY: 0.60

TAG	BTU INPUT	BTU INPUT
DR-1	40,000 Btu/h	240,000 Btu/h
RG-1	120,000 Btu/h	720,000 Btu/h
WH-1	199,000 Btu/h	1,194,000 Btu/h
		2,154,000 Btu/h

PLUMBING FIXTURE SCHEDULE

GENERAL FIXTURE NOTES:

1. THE PLUMBING CONTRACTOR SHALL VERIFY THE REQUIREMENTS OF ALL PLUMBING EQUIPMENT AND THE RELATED ROUGH IN LOCATIONS WITH THE MECHANICAL AND ARCHITECTURAL PLANS AND SPECIFICATIONS. PROVIDE ALL ACCESSORIES AND OPTIONS REQUIRED TO PROVIDE THE OWNER A COMPLETELY FUNCTIONAL PLUMBING SYSTEM.
2. ALL WALL HUNG PLUMBING FIXTURES SHALL BE SUPPORTED BY FLOOR MOUNTED CARRIERS BY WADE, SMITH, JOSHAM, MIFAB, OR WATTS. CARRIERS SHALL BE CONSTRUCTED UTILIZING ALL METAL COMPONENTS WITH SUPPORT FEET SECURELY ANCHORED TO THE FLOOR STRUCTURE FIXTURES ARMS SHALL SUPPORT FIXTURE INDEPENDENT FROM WALL STRUCTURE.
3. EACH INDIVIDUAL FIXTURE SUPPLY SHALL BE PROVIDED WITH A CHROME-PLATED QUARTER TURN STOP VALVE BRASSCRAFT MODEL KTCR OR ENGINEER APPROVED EQUAL.
4. FIXTURES AND ACCESSORIES SHALL BE AS SCHEDULED. EACH ITEM SHALL BE COMPLETE WITH CHROME-PLATED BRASS TRIM.
5. ADA COMPLIANT FIXTURES SHALL BE INSTALLED WITH PRE-FORMED INSULATION AND PROTECTIVE COVERS ON P-TRAPS AND STOPS, COVERS TO BE MANUFACTURED BY BUCKAROOS OR TRUEBRO.
6. CAULK ALL FIXTURES TO THE WALL OR FLOOR WITH APPLICABLE SILICONE COMPOUND. UTILIZE MULTIPLE BEADS TO FILL GAPS AND FINISH TO SMOOTH, FILLETED EDGE. USE APPROPRIATE TOOLS TO PROVIDE PROFESSIONAL APPEARANCE.
7. ALL PLUMBING SHALL BE INSTALLED TO CONFORM TO THE LATEST ADOPTED EDITION OF THE INTERNATIONAL PLUMBING CODE INCLUDING LOCAL AMENDMENTS. CONSULT AUTHORITIES HAVING JURISDICTION.
8. PROVIDE TEMPORARY TOILET FACILITIES DURING CONSTRUCTION PER IPC SECTION 311.1 AND ANSI Z4.3.
9. ALL LAVATORIES TO BE PROVIDED WITH WATER-TEMPERATURE LIMITING DEVICE IN COMPLIANCE WITH ASSE 1070
10. WATER HAMMER ARRESTORS ARE TO BE PROVIDED AT ALL QUICK CLOSING VALVES AND FLUSHOMETERS PER IPC 604.9

TAG	CW	HW	SAN	VENT	MANUFACTURER	MODEL	DESCRIPTION
DW-1					BY OWNER	BY OWNER	Dishwasher
L-1	1/2"	1/2"	1 1/4"	1 1/4"	BY OWNER	BY OWNER	LAVATORY
RF-1					BY OWNER	BY OWNER	REFRIGERATOR
S-1	1/2"	1/2"	2"	2"	BY OWNER	BY OWNER	KITCHEN SINK
SH-1	1/2"	1/2"	2"	2"	BY OWNER	BY OWNER	SHOWER
WB-1	1/2"	1/2"	2"	2"	BY OWNER	BY OWNER	WASHER BOX
WC-1	1/2"		3"	2"	BY OWNER	BY OWNER	WATER CLOSET

GAS FIRED WATER HEATER SCHEDULE

TAG	MANUFACTURER	MODEL	TYPE	BTU INPUT	CW	HW	CONDENSATE	VOLTAGE	NOTES
WH-1	Rinnai America Corporation	RX199iN	ON DEMAND	199,000 Btu/h	3/4"	3/4"	1/2"	120/1/60	

CONSTRUCTION NOTES

DATE

SEPT 2024

epic ENGINEERING

REVISIONS

MARK	DATE	DESCRIPTION

DRAWN: Author
DESIGNER Designer
REVIEWED Checker

PROJECT # 24SM5271.17

REGISTERED PROFESSIONAL ENGINEER No. 189278 DONALD WILSEN STATE OF UTAH 7/17/25

SCALES

As indicated

0 1"

BAR SCALE MEASURES 1" ON A FULL SIZE SHEET. ADJUST FOR ALTERNATE SHEET SIZES

PROJECT NAME:

K&B APARTMENTS

PROJECT LOCATION:

684 EAST 700 NORTH LOGAN, UT

SHEET TITLE:

PLUMBING DETAILS AND SCHEDULES

PLAN SET: PERMIT

SHEET P5.2

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