

ADMINISTRATIVE:

1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:

PC - PLUMBING CONTRACTOR,
EC - ELECTRICAL CONTRACTOR,
MC - MECHANICAL CONTRACTOR,
GC - GENERAL CONTRACTOR,
FASC - FIRE ALARM SYSTEM CONTRACTOR,
AHJ - AUTHORITY HAVING JURISDICTION,
SMC - CURRENT STATE MECHANICAL CODE (NORTH CAROLINA STATE BUILDING CODE: MECHANICAL CODE)
SBC - CURRENT STATE BUILDING CODE (NORTH CAROLINA STATE BUILDING CODE: BUILDING CODE)
SECC - CURRENT STATE ENERGY CONSERVATION CODE (NORTH CAROLINA STATE BUILDING CODE: ENERGY CONSERVATION CODE)

2. NFPA - NATIONAL FIRE PROTECTION ASSOCIATION

3. "PROVIDE" MEANS TO FURNISH AND INSTALL. MC SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND ENERGIZER CONTRACTOR AS SHOWN ON THE PLANS OR NECESSARY FOR A COMPLETE INSTALLATION.

4. THE MC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATING SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.

5. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE CONTRACTOR AT AN APPROVED LOCATION. THE MC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM DAMAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE MC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.

6. THE MC SHALL INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE SMC AND SBC AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE MC SHALL OBTAIN CLARIFICATION FROM THE ENGINEER OR IN THE EVENT ANY PART OF THE PLAN CONFLICTS WITH THE ABOVE REQUIREMENTS.

7. THE MC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.

8. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.

9. THE MC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE MC SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE MC SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.

10. ALL MECHANICAL MATERIALS SHALL BE NEW AND FREE OF DEFECT AND LISTED AND LABELED BY UL OR AN APPROVED THIRD-PARTY AGENCY. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED BY THE MC WITHOUT ADDITIONAL COST TO THE OWNER. WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN, THE CITED EXAMPLE IS INTENDED TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. SPECIAL REQUIREMENTS ARE USED TO CONVEY A GENERAL STYLE, TYPE, CHARACTER, AND QUALITY OF THE PRODUCT DESIRED; PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED.

11. THESE PLANS ARE DIAGRAMMATIC. THE MC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, DUCTS, REGISTERS, GRILLES, ETC. TO ACCOMMODATE PLANNED AND ENCOUNTERED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR PROPER INSTALLATION AND OPERATIONAL SYSTEM. THE MC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER.

12. EC SHALL BE RESPONSIBLE FOR ALL POWER CONNECTIONS TO THE MECHANICAL EQUIPMENT. MC SHALL BE RESPONSIBLE FOR ALL CONTROL WIRING.

13. IT IS THE MC'S RESPONSIBILITY TO VERIFY THAT ITEMS FURNISHED FOR THIS CONTRACT WILL FIT IN THE SPACE PROVIDED. THE MC SHALL TAKE ALL NECESSARY MEASUREMENTS AS NECESSARY TO DETERMINE SPACE REQUIREMENTS. IF THE MC MUST ALTER EQUIPMENT DUE TO SPACE CONSIDERATIONS, THE MC SHALL PROVIDE SIZES AND SHAPES THAT FIT THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS.

14. THE MC SHALL COORDINATE WITH THE EC REGARDING THE ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT BEING PROVIDED.

15. MAINTAIN CLEARANCES FOR ALL EQUIPMENT ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR SERVICEABILITY. ALL ROOFTOP EQUIPMENT MUST BE A MINIMUM OF 10 FEET FROM ROOF EDGE.

16. MC SHALL FURNISH A BOUND SET OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT TO THE OWNER UPON COMPLETION OF THE PROJECT. MC SHALL PROVIDE ALL DOCUMENTATION TO THE OWNER AS NECESSARY TO SUBMIT FOR FACTORY WARRANTIES.

17. CONTRACTOR SHALL PROTECT ALL HVAC EQUIPMENT FROM CONSTRUCTION AND SHEET ROCK DUST DURING CONSTRUCTION. ALL FILTERS SHALL BE REPLACED WITH NEW AT THE COMPLETION OF THE PROJECT.

18. ALL EQUIPMENT INSTALLED ON ROOF MUST BE WITHIN THE ROOF SCREEN.

19. IF A ROOF PENETRATION IS REQUIRED AND THE ROOF IS UNDER WARRANTY, USE THE AUTHORIZED ROOFER. PROVIDE DOCUMENTATION.

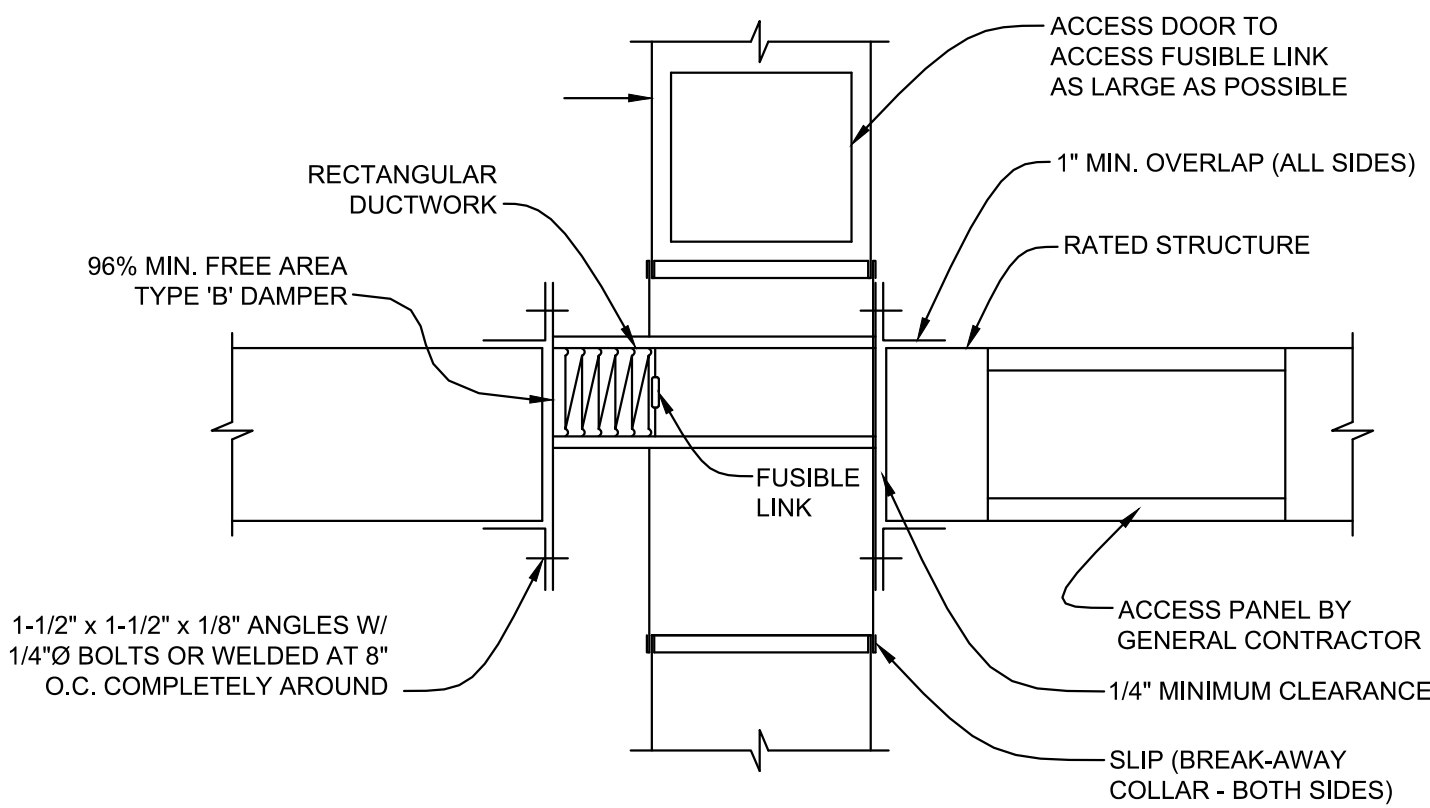
20. ALL PIPING, WIRING, CONDUIT, INSULATION, EQUIPMENT, SUPPORTS, ETC. SHALL BE SUITABLE FOR INSTALLATION IN A RETURN PLENUM AS NECESSARY. COORDINATE WITH OTHER TRADES ON LOCATIONS OF ALL PLENUMS.

21. MC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.

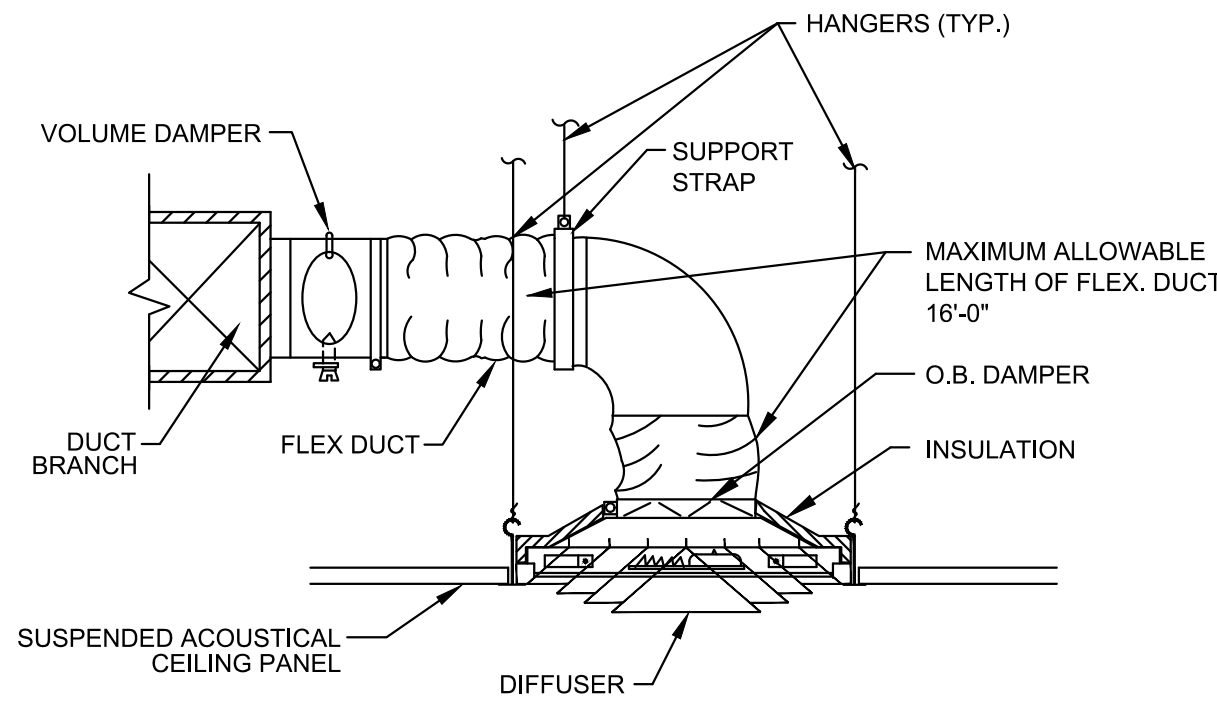
1. INSULATE DUCTWORK WITH FIBERGLASS DUCT WRAP; INSTALLED R-VALUE SHALL BE A MINIMUM R-6. COVERINGS AND LININGS, INCLUDING ADHESIVES WHEN USED, SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALL NEW DUCTWORK SHALL RECEIVE INSULATION OF THE SAME TYPE AND INSTALLATION AS EXISTING. INSULATION SHALL BE THIN ENOUGH THAT TAPE FLAP OVERLAPS INSULATION AND FACING OF ADJACENT PIECE OF DUCT WRAP. INSULATION SHALL BE TIGHTLY BUTTED. FOR RECTANGULAR DUCTS, INSTALL SO INSULATION IS NOT EXCESSIVELY COMPRESSED AT DUCT CORNERS. STAPLE SEAMS APPROXIMATELY 6 INCHES ON CENTER WITH OUTWARD CLINCHING STAPLES. SEAL SEAMS WITH PRESSURE SENSITIVE TAPE MATCHING THE FACING. FOR RECTANGULAR DUCTS 24 INCHES IN WIDTH OR GREATER, SECURE DUCT WRAP TO THE BOTTOM OF THE DUCT WITH MECHANICAL FASTENERS SPACED 18 INCHES ON CENTER TO PREVENT SAGGING OF INSULATION. ADJACENT SECTIONS OF DUCT WRAP SHALL BE TIGHTLY BUTTED WITH THE 2 INCH TAPE FLAP OVERLAPPING ALL JOISTS, PIPING, ETC. OF THE DUCT WRAP INSULATION SHALL BE SEALED WITH TAPE OR MASTIC TO PROVIDE A VAPOR TIGHT SYSTEM. INSULATION SHALL BE BY KNAUF INSULATION, OWENS CORNING CORP, OR CERTAINTED CORPORATION.
2. VERIFY THAT DUCTS HAVE BEEN TESTED BEFORE APPLYING INSULATION MATERIALS. VERIFY THAT DUCT SURFACES ARE CLEAN, DRY AND FREE OF FOREIGN MATERIAL PRIOR TO INSULATING. DUCT COVERINGS SHALL NOT PENETRATE A WALL OR FLOOR REQUIRED TO HAVE A FIRE-RESISTANCE RATING OR REQUIRED TO BE FIRE BLOCKED.
3. WHERE DUCTS ARE CONNECTED TO EXTERIOR WALL LOUVERS AND DUCT OUTLET IS SMALLER THAN LOUVER FRAME, PROVIDE A FIRE RESISTANT SEAL TO THE LOUVER AREA AROUND THE DUCT. USE SAME MATERIAL AS DUCT, PAINTED BLACK ON EXTERIOR SIDE. SEAL TO LOUVER FRAME AND DUCT.
4. PROVIDE DUCT ACCESS DOORS FOR INSPECTION AND CLEANING BEFORE AND AFTER FILTERS, COILS, FANS, AUTOMATIC DAMPERS, AIR FLOW DAMPERS, COMBINATION FIRE AND SMOKE DAMPERS.
5. CONSTRUCT T, BENDS, AND ELBOWS WITH RADIUS OF NOT LESS THAN 1-1/2 TIMES THE WIDTH OF THE DUCT ON CENTERLINE. WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS MUST BE USED, PROVIDE TURNING VANS.
6. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE; MAXIMUM OF 30 DEGREES DIVERGENCE UPSTREAM OF EQUIPMENT AND 45 DEGREES CONVERGENCE DOWNSTREAM.
7. IT SHALL BE THE RESPONSIBILITY OF THE MC TO SUSPEND AND SUPPORT ALL EQUIPMENT, DUCTWORK, DIFFUSERS, AND OTHER MATERIALS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALY ACCEPTED HANGERS AND SUSPENSION EQUIPMENT. ALL HVAC EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE REAR CHORD OF THE ROOF JOISTS (GIRDERS AND BEAMS) SHALL BE USED ONLY FOR SUPPORT OF AIR SUPPLY OR PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING.
8. DUCTS SHALL BE SUPPORTED IN ACCORDANCE WITH SMACNA AT INTERVALS NOT EXCEEDING 10 FEET. DUCTS 36 INCHES OR LARGER SHALL HAVE TRAPEZE TYPE HANGERS SUSPENDED WITH THREADED ROD. SUPPORT DUCTS FROM BAR JOISTS, GIRDERS, OR BEAMS.
9. CHECK LOCATIONS OF AIR OUTLETS AND INLETS AND MAKE NECESSARY ADJUSTMENTS IN POSITION TO CONFORM WITH ARCHITECTURAL FEATURES, SYMMETRY, AND LIGHTING ARRANGEMENT. COORDINATE WITH SPRINKLER CONTRACTOR IF APPLICABLE.
10. PROVIDE BALANCING DAMPERS AT POINTS ON SUPPLY WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS AS REQUIRED FOR AIR BALANCING. INSTALL MINIMUM 2 DUCT WIDTHS FROM DUCT TAKE-OFF. PROVIDE BALANCING DAMPERS ON DUCT TAKE-OFFS TO DIFFUSERS AND REGISTERS, REGARDLESS OF WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER OR REGISTER ASSEMBLY. ADJUST AIR HANDLING AND DISTRIBUTION SYSTEMS TO PROVIDE DESIGN SUPPLY, RETURN, AND EXHAUST AIR QUANTITIES AT SITE ALTITUDE.

11. MC SHALL INSTALL PROGRAMMABLE THERMOSTATS AS SHOWN ON THE PLANS. THERMOSTAT SHALL BE MOUNTED AT 48 INCHES AFF. THERMOSTATS SHALL MEET THE REQUIREMENTS FOR THERMOSTATIC CONTROLS IN SECTION C403 OF THE SECC.
12. FRESH AIR INTAKES SHALL BE INSTALLED ON ALL UNITS AS SHOWN ON DRAWINGS. MAINTAIN 10 FEET OF DISTANCE BETWEEN FRESH AIR INTAKES AND ALL EXHAUST TERMINATIONS AND PLUMBING VENT THE EXHAUST OUTSIDE THE BUILDING.
13. MC SHALL INSTALL ALL EXHAUST FANS AND VENT TO THE BUILDING'S EXTERIOR. EC SHALL SWITCH FANS WITH LIGHTS OR ON SEPARATE SWITCH AS SHOWN.
14. P-TRAPS MUST BE INSTALLED ON ALL UNITS. MC SHALL INSTALL AUXILIARY DRAIN PANS UNDER OVERHEAD AIR HANDLERS AND AN AUTOMATIC CUT-OFF FLOAT SWITCH FOR EACH. P-TRAPS AND CONDENSATE LINES SHALL BE 1 INCH. P-TRAPS AND CONDENSATE LINES MAY BE PVC WHERE NOT LOCATED IN PLENUMS; OTHERWISE, THEY SHALL BE TYPE M COPPER.
15. INSTALL BACKDRIFT DAMPERS ON FRESH AIR AND EXHAUST DUCTS WHERE THEY PENETRATE THE THERMAL ENVELOPE. SEE SECC C402.5.5.
16. MC SHALL INSTALL FIRE DAMPERS ON PENETRATION OF A RATED WALL AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. FIRE DAMPERS SHALL BE UL LABELED (UL 555), CURTAIN TYPE, WITH INTEGRAL FAVORITE SLEEVE AND BLADES LOCATED OUTSIDE THE AIR STREAM. INSTALLATION OF ALL FIRE DAMPERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SECTION 607 OF THE SMC. PROVIDE ACCESS PANELS FOR TESTING AND SERVICE AS NECESSARY. MC SHALL PROVIDE RADIATION DAMPERS AND THERMAL BLANKETS FOR ALL PENETRATIONS OF RATED WALLS. ASSEMBLY SHALL BE UL LABELED (UL 555C) AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFIC INSTALLATION INSTRUCTIONS. FIRE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, AND CEILING RADIATION DAMPERS SHALL BE BY RUSKIN, NAILOR, OR LLOYD INDUSTRIES.

1. THE MC SHALL PROVIDE ALL HEATING AND COOLING EQUIPMENT AS SCHEDULED ON THE DRAWINGS. ALTERNATES SHALL BE FROM MANUFACTURERS LISTED IN SCHEDULES. THE MC SHALL PROVIDE FACTORY AND FIELD INSTALLED ACCESSORIES AS SCHEDULED OR AS NECESSARY FOR A COMPLETE AND OPERATIONAL HVAC SYSTEM.
2. THE MC SHALL PROVIDE ALL EXHAUST AND SUPPLY FANS AS SCHEDULED OR BY EQUALS LISTED.
3. DUCTWORK IS SHOWN WITH FREE AREA DIMENSIONS. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT STANDARD 2 INCH S.P.
4. EXTERNAL DUCT INSULATION AND FACTORY-INSULATED FLEXIBLE DUCT SHALL BE LEGIBLY PRINTED OR IDENTIFIED AT INTERVALS NOT GREATER THAN 36 INCHES WITH THE NAME OF THE MANUFACTURER, THE THERMAL RESISTANCE R-VALUE AT THE SPECIFIED INSTALLED THICKNESS AND THE FLAME SPREAD AND SMOKE-DEVELOPED INDEXES OF THE COMPOSITE MATERIALS. ALL DUCT INSULATION PRODUCT R-VALUES SHALL BE BASED ON INSULATION ONLY, EXCLUDING AIR FILMS, VAPOR RETARDERS OR OTHER DUCT COMPONENTS, AND SHALL BE BASED ON TESTED C-VALUES AT 75°F MEAN TEMPERATURE AT THE INSTALLED THICKNESS, IN ACCORDANCE WITH RECOGNIZED INDUSTRY PROCEDURES. THE INSTALLED THICKNESS OF DUCT INSULATION USED TO DETERMINE ITS R-VALUES SHALL BE DETERMINED AS FOLLOWS:
 - 4.1. FOR DUCT BOARD, DUCT LINER AND FACTORY-MADE RIGID DUCTS NOT NORMALLY SUBJECT TO COMPRESSION, THE NOMINAL INSULATION THICKNESS SHALL BE USED.
 - 4.2. FOR DUCT WRAP, THE INSTALLED THICKNESS SHALL BE ASSUMED TO BE 75 PERCENT (75-PERCENT) COMPRESSION OF NOMINAL THICKNESS.
 - 4.3. FOR FACTORY-MADE FLEXIBLE DUCTS, THE INSTALLED THICKNESS SHALL BE DETERMINED BY DIVIDING THE DIFFERENCE BETWEEN THE ACTUAL OUTSIDE DIAMETER AND NOMINAL INSIDE DIAMETER BY TWO.
5. ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578. ALL INSULATION SHALL HAVE FORMALDEHYDE EMISSIONS NOT GREATER THAN 0.05 PPM. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE APPLICABLE CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
6. MASTIC USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A OR UL 181B MAINTAIN AMBIENT TEMPERATURES AND CONDITIONS REQUIRED BY MANUFACTURER OF ADHESIVES, MASTICS, AND INSULATION CEMENTS. DO NOT INSTALL DUCT SEALANT WHEN AMBIENT TEMPERATURES ARE LESS THAN THOSE RECOMMENDED BY THE SEALANT MANUFACTURER.
7. ALL ADHESIVES AND SEALANTS SHALL HAVE VOC CONTENT BELOW 20 GRAMS PER LITER AND WHICH MEET THE REQUIREMENTS OF THE MANUFACTURER OF THE PRODUCTS BEING ADHERED OR JOINED. ADHESIVES AND SEALANTS SHALL CONTAIN NO HEAVY METALS OR FORMALDEHYDE.
8. FACTORY-MADE AIR DUCTS AND CONNECTORS SHALL COMPLY WITH UL 181.
9. FLEXIBLE DUCT SHALL BE UL LISTED CLASS 0 OR CLASS 1, INSULATED, AND COMPLY WITH UL 181. FLEXIBLE DUCT SHALL BE FACTORY FORMED, COMPOSED OF SPIRAL WOUND CORROSION RESISTANT WIRE BONDED TO AN INNER FABRIC LINER. DUCT SHALL BE FACTORY INSULATED WITH A FOIL VAPOR BARRIER JACKET. CONNECT TO RIGID DUCT WITH SPIN-IN FITTING AND DAMPER. FLEXIBLE DUCTS AND AIR CONNECTORS SHALL NOT PASS THROUGH ANY FIRE RESISTANCE RATED ASSEMBLY.
10. THE MC SHALL PROVIDE ALL DIFFUSERS GRILLES, LOUVERS, AND OTHER AIR DISTRIBUTION OUTLETS AND INLETS WITH THE MANUFACTURER'S GRILLES. DIFFUSERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. FOR LAY-IN CEILING INSTALL SUPPORT FROM THE STRUCTURE FOR EACH DIFFUSER OR DAMPER. AIR DISTRIBUTION OUTLETS AND INLETS SHALL BE AS SCHEDULE OR ALTERNATES LISTED.



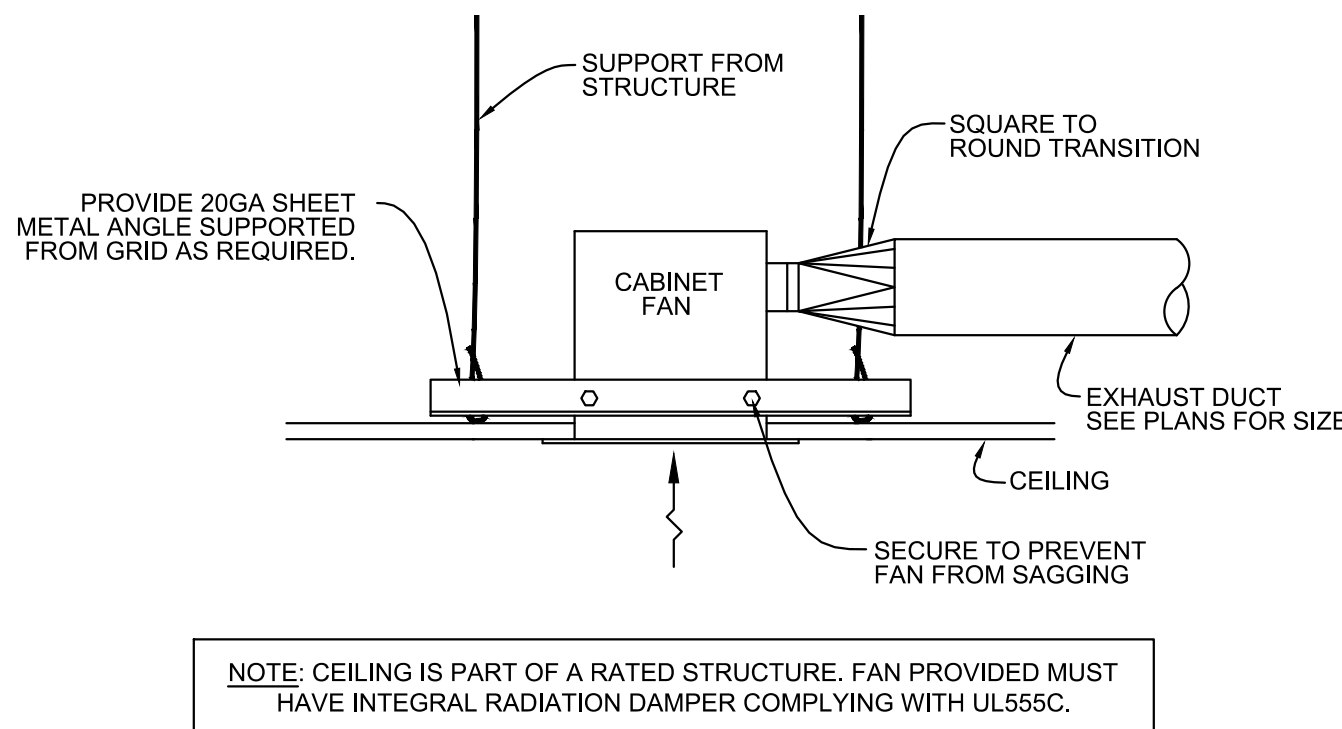
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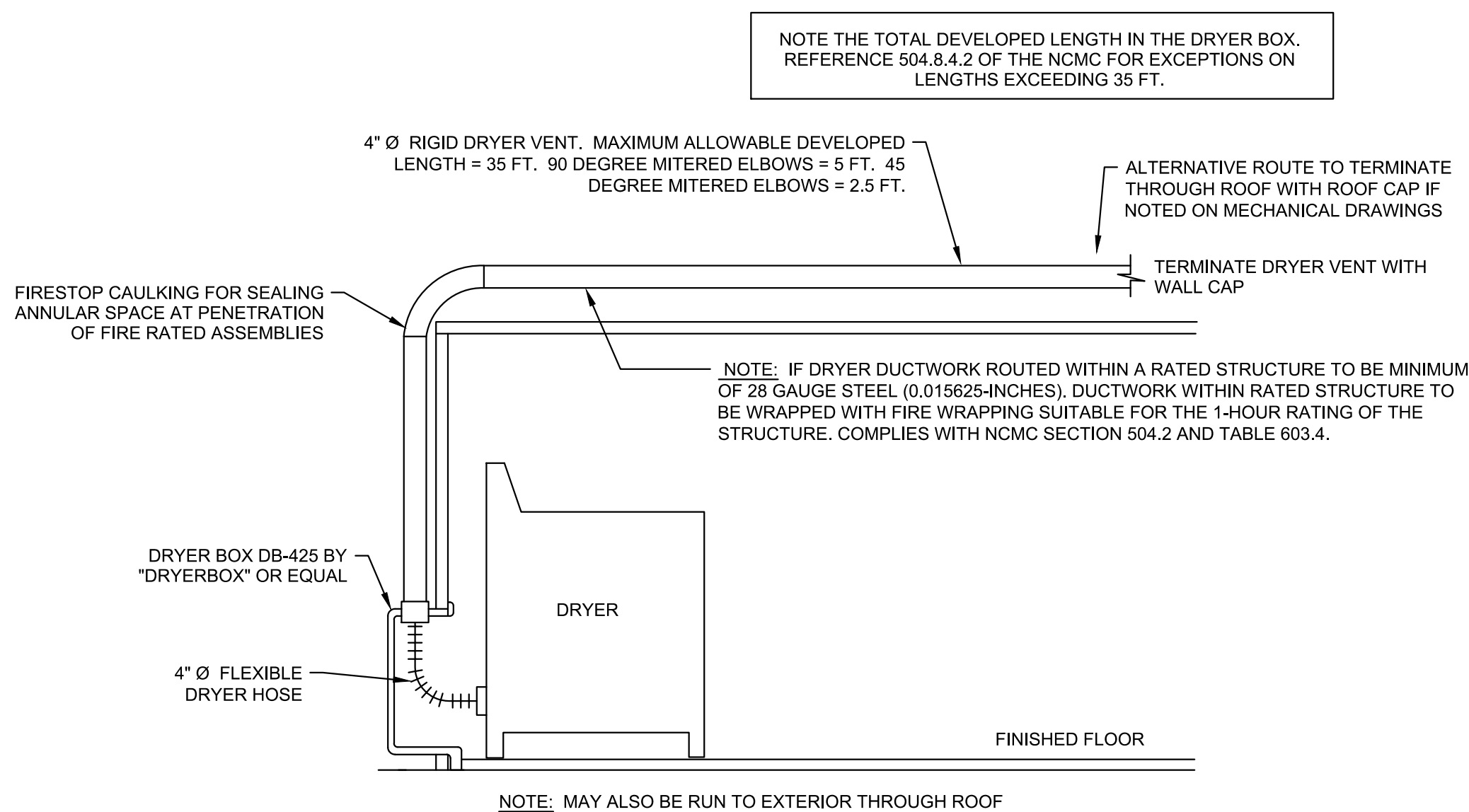
NOTE: PROVIDE RADIATION DAMPERS FOR ALL RATED PENETRATIONS
FOR ALL APPLICABLE DIFFUSERS, GRILLES, AND FANS.

NOTE: FLEX DUCT TO BE SAME SIZE AS DIFFUSER NECK.

Scale: None



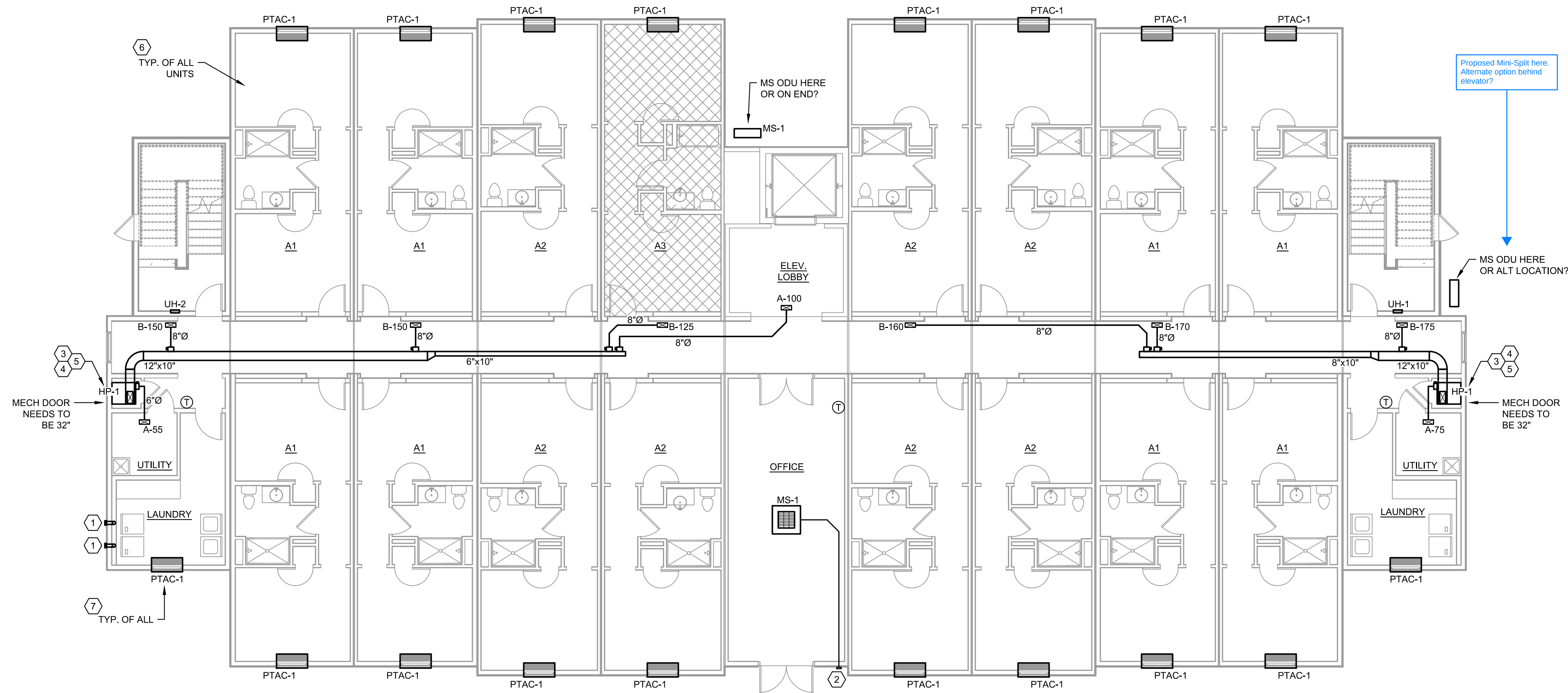
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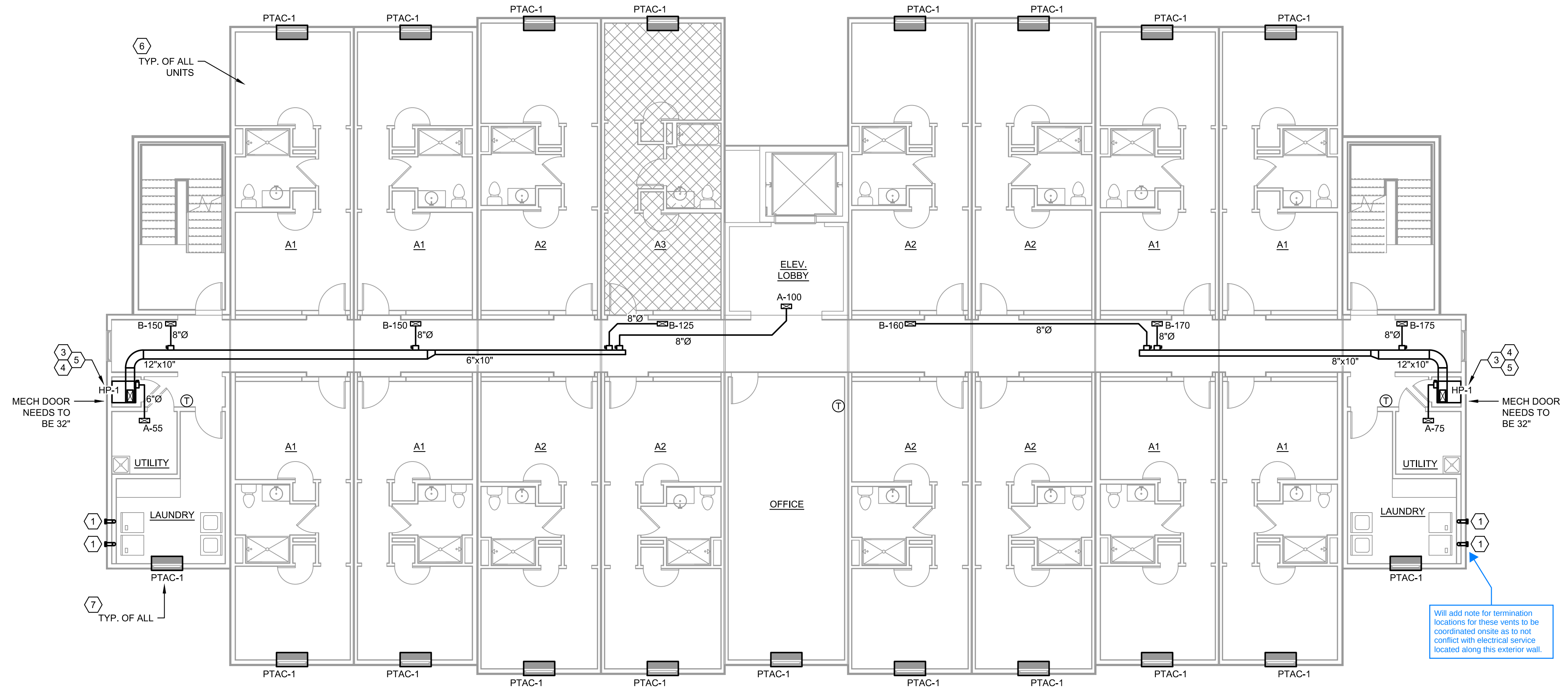
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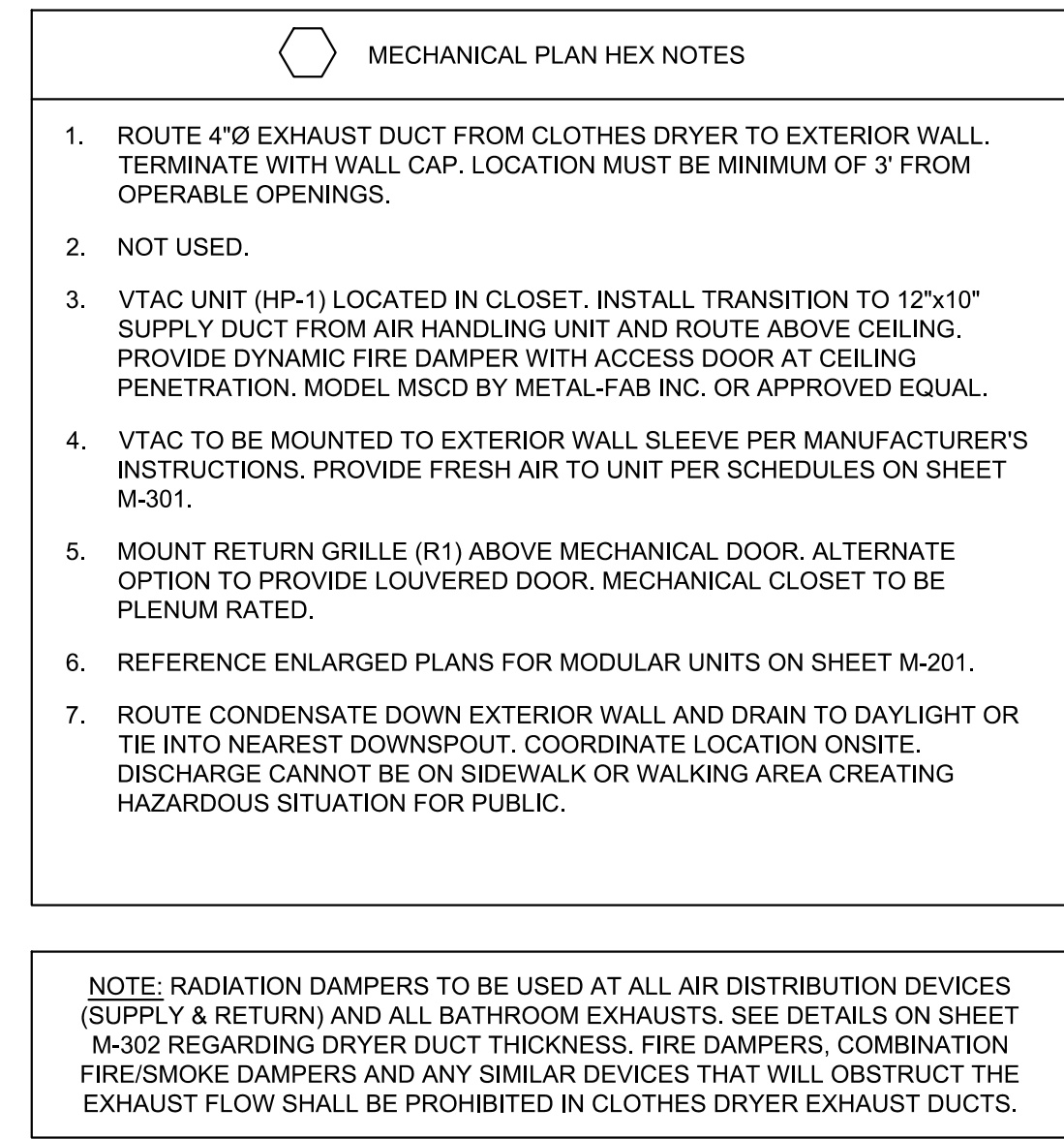


- MECHANICAL PLAN HEX NOTES
- ROUTE 4"Ø EXHAUST DUCT FROM CLOTHES DRYER TO EXTERIOR WALL. TERMINATE WITH WALL CAP. LOCATION MUST BE MINIMUM OF 3' FROM OPERABLE OPENINGS.
 - PROVIDE 4"Ø FRESH AIR CONNECTION TO INDOOR UNIT. TERMINATE WITH WALL CAP AND BACKDRAFT DAMPER.
 - VTAC UNIT (HP-1) LOCATED IN CLOSET. INSTALL TRANSITION TO 12"x10" SUPPLY DUCT FROM AIR HANDLING UNIT AND ROUTE ABOVE CEILING. PROVIDE DYNAMIC FIRE DAMPER WITH ACCESS DOOR AT CEILING PENETRATION. MODEL MSCD BY METAL-FAB INC. OR APPROVED EQUAL.
 - VTAC TO BE MOUNTED TO EXTERIOR WALL SLEEVE PER MANUFACTURER'S INSTRUCTIONS. PROVIDE FRESH AIR TO UNIT PER SCHEDULES ON SHEET M-301.
 - MOUNT RETURN GRILLE (R1) ABOVE MECHANICAL DOOR. ALTERNATE OPTION TO PROVIDE LOUVERED DOOR. MECHANICAL CLOSET TO BE PLENUM RATED.
 - REFERENCE ENLARGED PLANS FOR MODULAR UNITS ON SHEET M-201.
 - ROUTE CONDENSATE DOWN EXTERIOR WALL AND DRAIN TO DAYLIGHT OR TIE INTO NEAREST DOWNSPOUT. COORDINATE LOCATION ONSITE. DISCHARGE CANNOT BE ON SIDEWALK OR WALKING AREA CREATING HAZARDOUS SITUATION FOR PUBLIC.
- NOTE: RADIATION DAMPERS TO BE USED AT ALL AIR DISTRIBUTION DEVICES (SUPPLY & RETURN) AND ALL BATHROOM EXHAUSTS. SEE DETAILS ON SHEET M-302 REGARDING DRYER DUCT THICKNESS, FIRE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS AND ANY SIMILAR DEVICES THAT WILL OBSTRUCT THE EXHAUST FLOW SHALL BE PROHIBITED IN CLOTHES DRYER EXHAUST DUCTS.

1 LEVEL 1 - MECHANICAL PLAN
Scale: 1/8" = 1'-0"

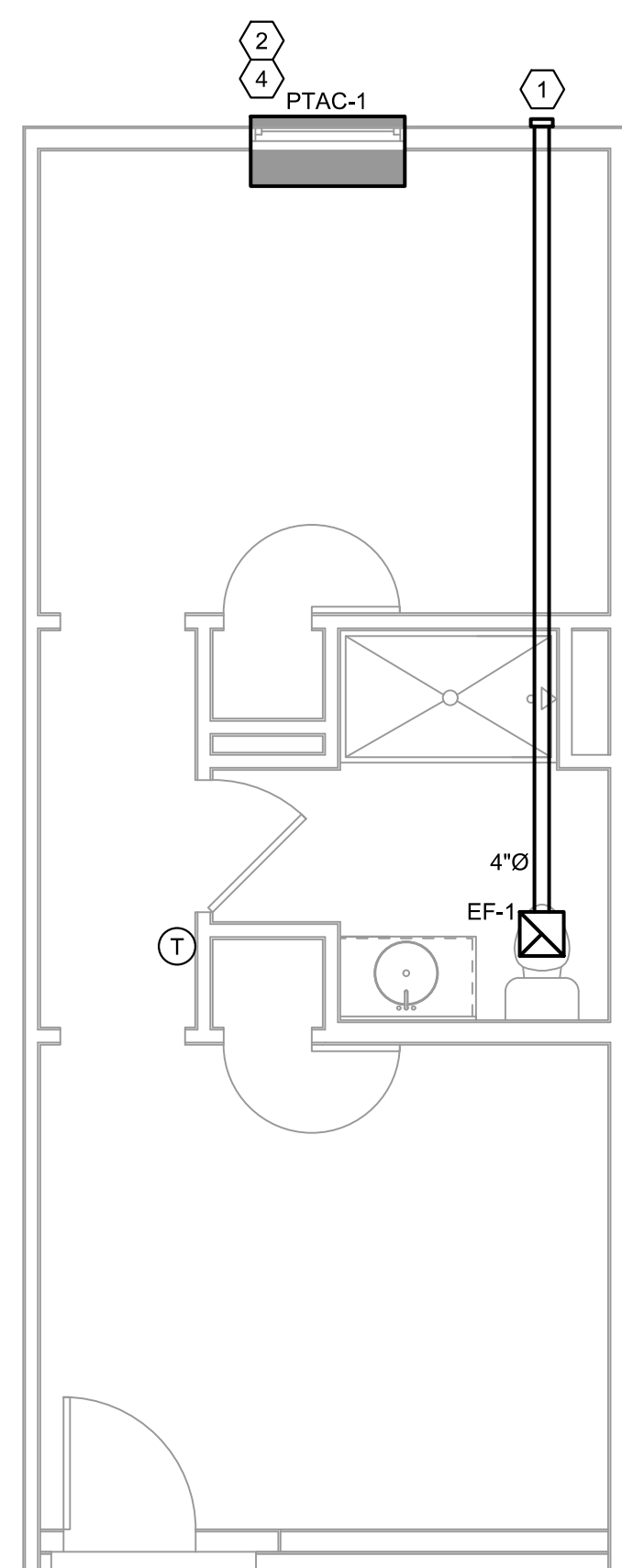


2 LEVEL 2 - MECHANICAL PLAN
Scale: 1/8" = 1'-0"

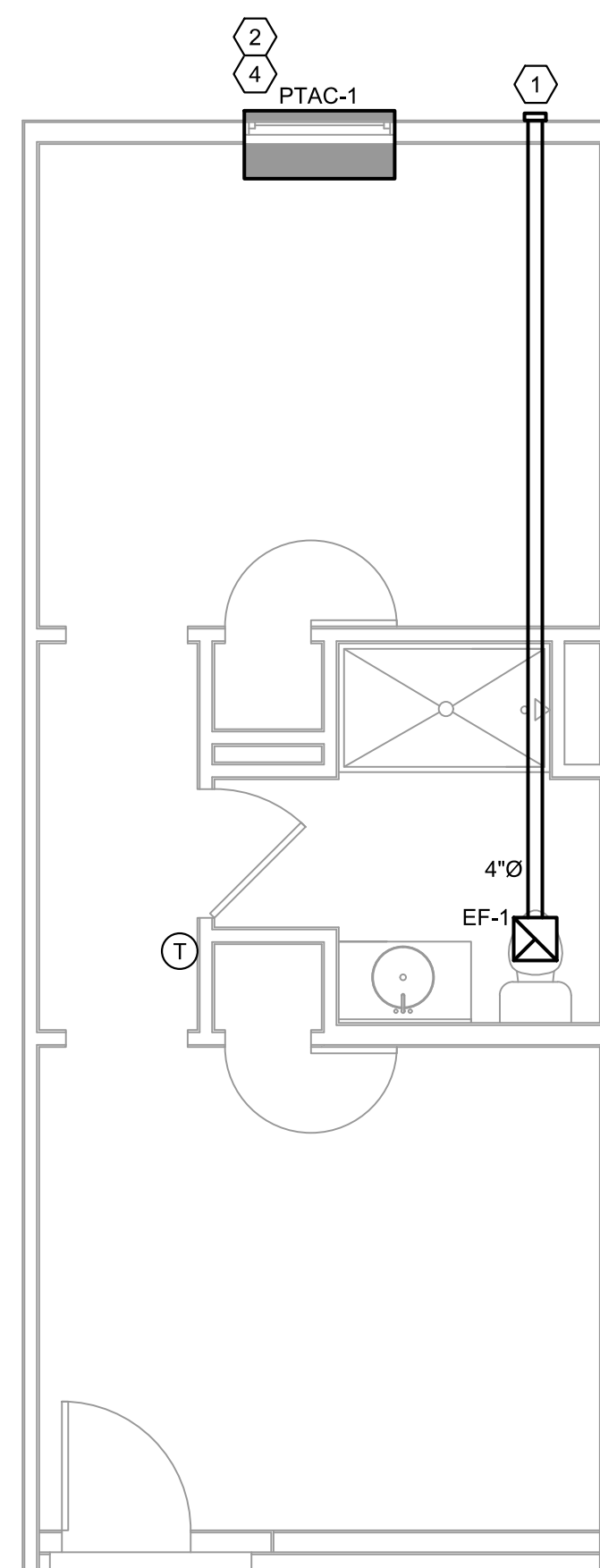


Scale: 1/8" = 1'-0"

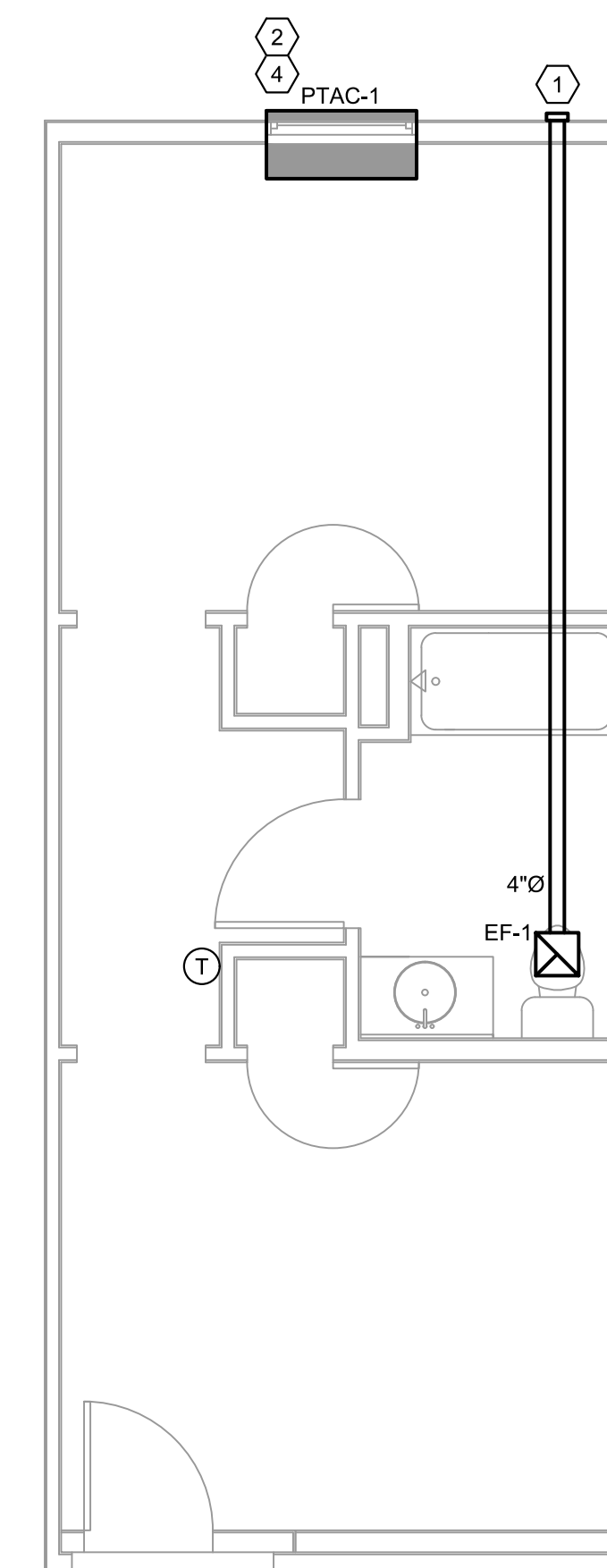
Scale: 1/8" = 1'-0"



1 UNIT A1 MECHANICAL PLAN
Scale: 1/4" = 1'-0"



2 UNIT A2 MECHANICAL PLAN



3 UNIT A3 MECHANICAL PLAN

- | | MECHANICAL PLAN HEX NOTES |
|--|--|
| | <ol style="list-style-type: none"> ROUTE 4"Ø EXHAUST DUCT FROM BATHROOM EXHAUST FAN TO EXTERIOR WALL. TERMINATE WITH WALL CAP. LOCATION MUST BE MINIMUM OF 3' FROM OPERABLE OPENINGS. PROVIDE 4"Ø FRESH AIR CONNECTION TO INDOOR UNIT. TERMINATE WITH WALL CAP AND BACKDRAFT DAMPER. PTAC TO BE MOUNTED TO EXTERIOR WALL SLEEVE PER MANUFACTURER'S INSTRUCTIONS. PROVIDE FRESH AIR TO UNIT PER SCHEDULES ON SHEET M-301. ROUTE CONDENSATE DOWN EXTERIOR WALL AND DRAIN TO DAYLIGHT OR TIE INTO NEAREST DOWNSPOUT. COORDINATE LOCATION ONSITE. DISCHARGE CANNOT BE ON SIDEWALK OR WALKING AREA CREATING HAZARDOUS SITUATION FOR PUBLIC. |

NOTE: RADIATION DAMPERS TO BE USED AT ALL AIR DISTRIBUTION DEVICES (SUPPLY & RETURN) AND ALL BATHROOM EXHAUSTS. SEE DETAILS ON SHEET M-302 REGARDING DRYER DUCT THICKNESS. FIRE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS AND ANY SIMILAR DEVICES THAT WILL OBSTRUCT THE EXHAUST FLOW SHALL BE PROHIBITED IN CLOTHES DRYER EXHAUST DUCTS.

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3

4

5

6

7

DATE

DESCRIPTION

ISSUED: --/----

ISSUED FOR PERMIT
DESCRIPTION

DRAWN BY: CRL
CHECKED BY: REW/KDC

SHEET:
MODULAR UNIT MECHANICAL PLANS

SHEET NO.

M-201

PROJECT NO:	2026-0809
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PRELIMINARY:
NOT FOR CONSTRUCTION!

NEW CONSTRUCTION FOR:
ABCCM WOMEN'S TRANSIT. BUILDING
ROCKY RIDGE RD.
ASHVILLE, NC

REVISION									

ISSUED: -/-/-

ISSUED FOR PERMIT
EXCEPTION:

DRAWN BY: CRL
CHECKED BY: REW/KDC

SHEET:
PENETRATION DETAIL TABLE

SHEET NO.

M-302

PROJECT NO: 2026-0809

Firestop Schedule of Through Penetration Systems. Basis of Design: Hilti, Inc.

TYPE OF PENETRANT	F-RATING (HR)	CONCRETE FLOORS	CONCRETE OR BLOCK WALLS	GYPSUM WALLS	WOOD FLOORS	WOOD FLOOR-CLG ASSEMBLY	Hilti Products
		BASIS OF DESIGN UL SYSTEM		BASIS OF DESIGN UL SYSTEM			
CIRCULAR BLANK OPENINGS	1	F-A-0006, C-AJ-0055, C-AJ-0090	C-AJ-0055, C-AJ-0090	--	--	--	CP 680, CP 618, FS-ONE MAX, CFS-BL
	2	F-A-0006, C-AJ-0055, C-AJ-0090	C-AJ-0055, C-AJ-0090	--	--	--	
	3	F-A-0006, C-AJ-0055, C-AJ-0086, F-A-0014	C-AJ-0055, C-AJ-0086	--	--	--	
METAL PIPES OR CONDUIT	1	C-AJ-1226, F-A-1028, F-A-1017	C-AJ-1226, W-J-1067, W-J-1020	W-L-1054, W-L-1058, W-L-1164, W-L-1506	F-C-1009, F-C-1059, F-C-1168	--	CP 680, FS-ONE MAX, CP 606, CFS-S SIL GG, CFS-D, Mineral Wool
	2	C-AJ-1226, F-A-1028, F-A-1017	C-AJ-1226, W-J-1067, W-J-1020, W-J-1248	W-L-1054, W-L-1058, W-L-1164, W-L-1506	F-C-1009, F-C-1059, F-C-1168	--	
	3	C-AJ-1226, F-A-1017	C-AJ-1226, W-J-1041, W-J-1068	--	--	--	
	4	C-BJ-1037, C-BJ-1034	C-BJ-1034, C-BJ-1037, W-J-1041, W-J-1042, W-J-1068	W-L-1110, W-L-1111, W-L-1165	--	--	
NON-METALLIC PIPE OR CONDUIT (I.E. PVC, CPVC, ABS, FRP, ENT)	1	F-A-2053, F-A-2025, C-AJ-2109, C-AJ-2098, C-AJ-2271, C-AJ-2167, C-BJ-2021, C-AJ-2342	C-AJ-2109, C-AJ-2098, C-AJ-2167, C-AJ-2371, C-AJ-2342	W-L-2078, W-L-2075, W-L-2128	F-C-2142, F-C-2232, F-C-2030, F-C-2160, F-C-2389	F-C-2270	CP 680, CP 643N, Mineral Wool, CP 644, FS-ONE MAX, CFS-S SIL SL, CFS-S SIL GG, CP 648
	2	F-A 2053, F-A 2025, C-AJ-2109, C-AJ-2098, C-AJ-2271, C-AJ-2167, C-BJ-2021, C-AJ-2371, C-AJ-2342	C-AJ-2109, C-AJ-2098, C-AJ-2167, C-AJ-2371, C-AJ-2342	W-L-2078, W-L-2075, W-L-2128	F-C-2029, F-C-2030, F-C-2128, F-C-2160	--	
	3	F-A-2054, C-AJ-2109, C-AJ-2098, C-AJ-2371, C-AJ-2342	C-AJ-2109, C-AJ-2098, C-AJ-2371, C-AJ-2342	--	--	--	
	4	C-BJ-2016, C-AJ-2017	W-J-2057, W-J-2091	W-L-2184, W-L-2245	--	--	
SINGLE OR BUNDLED CABLES	1	F-A-3007,C-AJ-3095,C-AJ-3180, C-AJ-3283	W-J-3036, C-AJ-3095, C-AJ-3180, W-J-3060, W-J-3167	W-L-3065, W-L-3111, W-L-3112, W-L-3334, W-L-3414, W-L-3396	F-C-3012, F-C-3110, F-C-3044	--	CP 680, CP 653, FS-ONE MAX, CP 618, CP 606, CFS-D, CFS-CC
	2	F-A-3007,C-AJ-3095,C-AJ-3334, F-A-3060	W-J-3036, C-AJ-3095, C-AJ-3180, W-J-3060, W-J-3167, W-J-3189	W-L-3065, W-L-3111, W-L-3112, W-L-3334, W-L-3414, W-L-3396	F-C-3012, F-C-3110	--	
	3	F-A-3007, C-AJ 3095, C-AJ-3285	C-AJ-3095, C-AJ-3180, W-J-3167	--	--	--	
	4	N/A**	W-J-3050	W-L-3139, W-L-3334	--	--	
CABLE TRAY	1	C-AJ-4034, C-AJ-4035	W-J-4027, C-AJ-4034, C-AJ-4035	W-L-4011, W-L-4019, W-L-4081	--	--	CFS-BL, FS-ONE MAX, CP 620, CP 618
	2	C-AJ-4034, C-AJ-4035	W-J-4027, C-AJ-4034, C-AJ-4035	W-L-4011, W-L-4019, W-L-4081	--	--	
	3	C-AJ-4034, C-AJ-4035	C-AJ-4034, C-AJ-4035	W-L-3385, W-L-3277	--	--	
	4	N/A**	W-J-8007	W-L 8014	--	--	
INSULATED PIPES	1	F-A 5015, F-A 5017, C-AJ-5090, C-AJ-5091, C-AJ-5090, C-AJ-5048	C-AJ-5090, C-AJ-5091, C-AJ 5061, W-J-5042	W-L-5028, W-L-5029, W-L-5047	F-C-5004, F-C-5037, F-C-5036	--	CP 680, FS-ONE MAX, Mineral Wool
	2	F-A 5015, F-A 5017, C-AJ-5090, C-AJ-5091, C-AJ-5090	C-AJ-5090, C-AJ-5091, C-AJ-5061, W-J-5042	W-L-5028, W-L-5029, W-L-5047	F-C-5004, F-C-5037	--	
	3	F-A 5016, C-AJ-5090, F-A-5018	C-AJ-5090, C-AJ-5061	--	--	--	
	4	C-BJ-5006	C-BJ-5006, W-J-5028	W-L-5073	--	--	
ELECTRICAL BUSWAY	1	C-AJ-6006, C-AJ-6017, F-A-6002, C-AJ-6036	C-AJ-6006, C-AJ-6017, C-AJ-6036	--	--	--	CP 637, FS-ONE MAX, CP 620, CFS-BL, Mineral Wool, CFS-S Sil GG CFS-S SIL SL
	2	C-AJ-6006, C-AJ-6017, F-A 6042, C-AJ-6036	C-AJ-6006, C-AJ-6017, C-AJ-6036	--	--	--	
	3	C-AJ-6006, C-AJ-6017	C-AJ-6006, C-AJ-6017	--	--	--	
MECHANICAL DUCTWORK WITHOUT DAMPERS (NON-INSULATED)	1	C-AJ-7046, C-AJ-7051, C-AJ-7084	C-AJ-7046, C-AJ-7051, W-J-7021, W-J-7022	W-L-7017, W-L-7040, W-L-7042, W-L-7155	F-C-7013	--	CFS-S SIL GG, CP 606, FS-ONE MAX
	2	C-AJ-7046, C-AJ-7051, C-AJ-7085	C-AJ-7046, C-AJ-7051, W-J-7021, W-J-7022	W-L-7040, W-L-7042, W-L-7155	--	--	
	3	C-AJ-7046, C-AJ-7051	C-AJ-7046, C-AJ-7051	--	--	--	
MECHANICAL DUCTWORK WITHOUT DAMPERS (INSULATED)	1	N/A**	W-J-7029, W-J-7124	W-L-7059, W-L-7153, W-L-7156, W-L-7151	N/A**	--	FS-ONE MAX, Mineral Wool
	2	N/A**	W-J-7091, W-J-7112, W-J-7124	W-L-7059, W-L-7153, W-L-7156, W-L-7151	N/A**	--	
MIXED PENETRANTS	1	C-AJ-8099, C-AJ-8056, C-AJ-8143	C-AJ-8099, C-AJ-8056, W-J-8007, C-AJ-8143	W-L-1095, W-L-8013	F-C-8009, F-C-8014, F-C-8026	--	FS-ONE MAX, CFS-BL, CP 620, CP 618
	2	C-AJ-8099, C-AJ-8056, C-AJ-8143, C-AJ-8252	C-AJ 8099, C-AJ-8056, W-J-8007, C-AJ-8143, C-AJ-8252	W-L-1095, W-L-8013	--	--	
	3	C-AJ-8099, C-AJ-8056	C-AJ-8041, C-AJ-8056, W-J-8007, C-AJ-8099	--	--	--	
	4	C-AJ-8095	C-AJ-8095, W-J-8007	W-L-8014	--	--	

**CONTACT HILTI FOR CURRENT UL-CLASSIFIED SYSTEM OR ENGINEERING JUDGMENT DRAWING: 800-879-6000

NOTES:

- Jobsite conditions of each through-penetration firestop system must meet ALL details of the UL-Classified System selected.
- If jobsite conditions do not match any UL-classified systems in the schedules above, contact Hilti for alternative systems or Engineer Judgment Drawings - 800-879-8000
- Where more than one applicable UL-Classified System is listed in the schedules, choose the UL System which is most economical for each. through-penetration firestop system.
- Coordinate work with other trades to assure that penetration opening sizes are appropriate for penetrant locations, and vice versa.
- Substitutions are permissible as complete assemblies and shall be submitted to the authority having jurisdiction and architect.
- Contractor is responsible for using latest detail.

GENERAL ELECTRICAL NOTES:

ADMINISTRATIVE:

1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
- PC - PLUMBING CONTRACTOR,
EC - ELECTRICAL CONTRACTOR,
MC - MECHANICAL CONTRACTOR,
GC - GENERAL CONTRACTOR,
FASC - FIRE ALARM SYSTEM CONTRACTOR,
AHJ - AUTHORITY HAVING JURISDICTION
NECA- NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION
NEC- NATIONAL ELECTRICAL CODE
SBC- CURRENT STATE BUILDING CODE (NORTH CAROLINA STATE BUILDING CODE: BUILDING CODE)
SFC- CURRENT STATE BUILDING CODE: FIRE CODE (NORTH CAROLINA STATE BUILDING CODE: FIRE PREVENTION CODE)
2. "PROVIDE" MEANS TO FURNISH AND INSTALL. THE EC SHALL ALSO INSTALL MATERIALS AND EQUIPMENT FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR AS REQUIRED.
3. EC SHALL PROVIDE LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY AND REASONABLY INCIDENTAL TO INSURE A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS, MINOR ITEMS, ACCESSORIES, AND DEVICES REASONABLY INFERRABLE AS NECESSARY FOR THE COMPLETION AND PROPER OPERATION OF ANY ELECTRICAL SYSTEM SHALL BE PROVIDED BY THE EC.
4. WORKMANSHIP SHALL BE IN ACCORDANCE WITH NECA 1 "STANDARD PRACTICE FOR GOOD WORKMANSHIP IN ELECTRICAL CONTRACTING."
5. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE EC AT AN APPROVED LOCATION. THE EC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE EC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
6. THE EC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
7. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
8. TRADE NAMES AND MANUFACTURERS ARE SPECIFIED TO ESTABLISH A QUALITY STANDARD. SUBSTITUTIONS SHALL BE PERMITTED IF APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ALL LISTED MODEL NUMBERS SHALL BE VERIFIED WITH THE MANUFACTURER FOR PROPER APPLICATION OF EQUIPMENT.
9. THE EC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE EC SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE EC SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
10. GROUNDING AND BONDING SHALL BE PER NEC ARTICLE 250. THE RACEWAY SYSTEM SHALL NOT BE RELIED UPON FOR GROUNDING CONTINUITY. A GREEN EQUIPMENT GROUNDING CONDUCTOR, SIZED PER NEC TABLE 250-122, SHALL BE RUN IN ALL POWER RACEWAYS. FOR NON-ISOLATED GROUND CIRCUITS PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. FOR ISOLATED GROUND CIRCUITS, PROVIDE ONE NEUTRAL AND ONE ISOLATED GROUND WIRE FOR EACH CIRCUIT. IN ADDITION, PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. MAIN BONDING JUMPERS AND SYSTEM BONDING JUMPERS SHALL BE INSTALLED IN ACCORDANCE WITH 250.28 OF THE NEC. FOR BUILDINGS OR STRUCTURES SUPPLIED BY FEEDERS OR BRANCH CIRCUITS, GROUNDING AND BONDING SHALL BE IN ACCORDANCE WITH NEC 250.32. SEPARATELY DERIVED AC SYSTEMS SHALL BE GROUNDED IN ACCORDANCE WITH NEC 250.30. RESISTANCE TO GROUND SHALL NOT EXCEED 25 OHMS; ADDITIONAL GROUNDING ELECTRODES SHALL BE INSTALLED PER 250.56 AS NECESSARY.
11. ALL MATERIALS AND EQUIPMENT SHALL COMPLY WITH THE UNDERWRITERS' LABORATORIES, INC. STANDARDS OR HAVE UL APPROVAL, OR BEAR UL RE-EXAMINATION LISTING WHERE SUCH APPROVAL HAS BEEN ESTABLISHED FOR THE TYPE OF DEVICE IN QUESTION.
12. CONDUCTORS, FUSES, CIRCUIT BREAKERS, AND DISCONNECT SWITCHES SHOWN ON THESE PLANS HAVE BEEN SIZED FOR THE SPECIFIED EQUIPMENT. BEFORE ORDERING ELECTRICAL EQUIPMENT, THE EC SHALL COORDINATE WITH OTHER CONTRACTORS ON THE SITE AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES SHOULD CONDUCTOR, CIRCUIT BREAKER, OR FUSE SIZES REQUIRE CHANGE.
13. THE EC SHALL COORDINATE WITH THE GC TO ENSURE THE FOLLOWING MATERIALS ARE RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT: LIGHT FIXTURES, INCLUDING PROPER DISPOSAL OF BALLASTS, FLUORESCENT LIGHT BULBS, AND TRANSFORMERS, WIRING AND ELECTRICAL EQUIPMENT, AND INSULATION. WASTE MATERIALS CONTAINING LEAD, ASBESTOS, PCBs (FLUORESCENT LAMP BALLASTS), OR OTHER HARMFUL SUBSTANCES SHALL BE HANDLED AND DISPOSED OF IN ACCORDANCE WITH FEDERAL AND STATE LAWS AND REQUIREMENTS CONCERNING HAZARDOUS WASTE.
14. ALL WORK SHALL CONFORM TO NEC, SBC, AND ALL APPLICABLE LOCAL CODES.
15. THE EC SHALL ALSO COORDINATE WITH THE GC REGARDING THE BONDING OF THE FOOTING REBAR, SO THAT IT WILL BE IN PLACE AND READY AT TIME OF FOOTING INSPECTION.

METHODS:

1. EC SHALL REVIEW THE MECHANICAL PLANS TO ESTABLISH POINTS OF CONNECTION AND THE EXTENT OF THE ELECTRICAL WORK TO BE PROVIDED IN THE CONTRACT.
2. ALL CIRCUIT BREAKERS FEEDING HVAC EQUIPMENT SHALL BE HACR BREAKERS. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE MINIMUM #12 AWG IN 3/4 in CONDUIT. EACH MULTI-WIRE BRANCH CIRCUIT SHALL BE PROVIDED WITH A MEANS TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE SOURCE PER NEC 210.4(B). GROUP ALL CONDUCTORS OF EACH MULTI-WIRE BRANCH CIRCUIT PER 210.4(D) WITH WIRE TIES OR SIMILAR MEANS. DO NOT EXCEED THREE HOMERUNS PER CONDUIT. DO NOT INSTALL ISOLATED GROUND AND NON-ISOLATED GROUND CIRCUITS IN THE SAME CONDUIT. INSTALL CONDUCTORS OF DIFFERENT VOLTAGES IN SEPARATE CONDUITS.
3. ALL LIGHT FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF THE SUSPENDED CEILING. COORDINATE LIGHTING LAYOUT WITH CEILING GRID. MECHANICAL EQUIPMENT, DUCTWORK AND SPRINKLER HEADS AS NECESSARY. SEE REFLECTED CEILING PLAN FOR DETAILS. FLUORESCENT FIXTURES UTILIZING DOUBLE-ENDED LAMPS MUST HAVE A DISCONNECTING MEANS COMPLYING WITH NEC 410.130(G).
4. MOUNT LIGHT SWITCHES AT 48 in AFF. MULTIPLE SWITCHES AT SAME LOCATION SHALL BE UNDER ONE WALL PLATE. VERIFY WALL PLATE COLOR AND MATERIAL WITH THE ARCHITECT/OWNER. INSTALL SWITCHES WITH OFF POSITION DOWN. ALL SWITCHES SHALL BE HEAVY DUTY, IVORY PLASTIC WITH TOGGLE HANDLE, RATED 120-277V AC, AND COMPLYING WITH NEMA WD 6 AND WD 1. SWITCHES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. PROVIDE BOX DEVICE PARTITION/DIVIDERS FOR MULTI-GANG BOXES FOR COMPLIANCE WITH NEC 404.8(B).
5. EC SHALL PROVIDE FIRE-STOPPING AT ALL ELECTRICAL PENETRATIONS OF RATED FLOORS AND WALLS TO PRESERVE OR RESTORE THE FIRE-RESISTANCE RATING. SEAL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THIS PROJECT.
6. EC SHALL PROVIDE GFCI RECEPTACLES IN KITCHENS, RESTROOMS, OUTDOORS, AND IN SHOP AREAS AS REQUIRED BY NEC. REFRIGERATORS AND WATER COOLERS MUST HAVE A DEDICATED GFCI BREAKER. EACH OUTDOOR HVAC UNIT MUST HAVE A GFCI RECEPTACLE WITHIN 25 FEET FOR SERVICING. GFCI RECEPTACLES SHALL CONFORM TO UL 943 CLASS A AND UL 498 STANDARDS. SHOW WINDOW RECEPTACLES SHALL BE PROVIDED IN ACCORDANCE WITH 210.62 OF THE NEC. RECEPTACLES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. ALL RECEPTACLES SHALL BE 125V RATED, HEAVY DUTY, AND COMPLY WITH NEMA WD 6 AND WD 1.
7. LOCATIONS AND HEIGHTS OF ALL WALL-MOUNTED DEVICES SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO INSTALLATION.
8. CONCEAL ALL CONDUIT EXCEPT IN MECHANICAL ROOMS OR UNFINISHED AREAS AS NOTED. USE EMT CONDUIT FOR ALL BRANCH CIRCUITS AND FEEDERS INSIDE THE BUILDING. TYPE MC CABLE AND TYPE AC CABLE MAY BE INSTALLED WITHIN WALLS IF ALL NEUTRAL WIRES, ISOLATED GROUND WIRES, AND EQUIPMENT GROUND WIRES AS LISTED ABOVE ARE CONTAINED IN THE CABLE. *** TYPE NM CABLE MAY BE USED FOR INTERIOR BRANCH CIRCUITS IN NORMALLY DRY LOCATIONS SUBJECT TO THE RESTRICTIONS OF NEC 334.10 AND 334.12. TYPE NM CABLE CONDUCTORS SHALL BE DERATED PER NEC 334.30. *** FLEXIBLE CONNECTIONS TO MOTORS AND OTHER EQUIPMENT SHALL BE MADE USING WEATHERPROOF FLEXIBLE CONDUIT. FOR LAY-IN LIGHT FIXTURES, USE MAXIMUM OF SIX (6) FEET OF FLEXIBLE MC CABLE (OR THE FLEXIBLE CONDUIT PROVIDED BY THE FIXTURE MANUFACTURER). SCHEDULE 40 PVC CONDUIT MAY BE USED FOR THE SECONDARY UNDERGROUND SERVICE, UNDERGROUND TELEPHONE SERVICE, AND BRANCH AND FEEDER CIRCUITS UNDER SLAB OR EXTERIOR TO THE BUILDING. EXPOSED EXTERIOR CONDUIT SHALL BE SCHEDULE 80 PVC. ALL UNDERGROUND RACEWAYS SHALL BE IDENTIFIED WITH UNDERGROUND LINE MARKING TAPE 6-8 in BELOW GRADE DIRECTLY ABOVE THE RACEWAY. PROVIDE PULL WIRE IN EMPTY CONDUITS. UPSIZE CONDUIT FROM MINIMUM SIZE AS NECESSARY FOR LONGER PULLS. UNDERGROUND RACEWAYS THAT STUB INTO THE BOTTOM OF SWITCHBOARDS, OUTDOOR TRANSFORMERS, GENERATORS, ETC., SHALL RISE AT LEAST 2 in ABOVE THE FINISHED SLAB TO PREVENT WATER FROM DRAINING INTO THE RACEWAYS. RACEWAYS THAT PENETRATE EXTERIOR WALLS OR INTERIOR PARTITIONS SEPARATING SPACES THAT WILL BE AT SIGNIFICANTLY DIFFERENT TEMPERATURES SHALL BE SEALED IN ACCORDANCE WITH ARTICLES 300.5(G), 300.7(A), AND 300.5(F) OF THE NEC. ROUTE CONDUIT IN AND UNDER SLAB FROM POINT-TO-POINT. ROUTE EXPOSED CONDUIT AND CONDUIT INSTALLED ABOVE ACCESSIBLE CEILINGS PARALLEL AND PERPENDICULAR TO WALLS. COMPLETELY AND THOROUGHLY SWAB ALL RACEWAYS BEFORE

- INSTALLING WIRE. PULL ALL CONDUCTORS INTO EACH RACEWAY AT ONE TIME. USE A SUITABLE WIRE PULLING LUBRICANT FOR BUILDING WIRE #4 AWG AND LARGER.
9. CABLES, RACEWAYS, OR BOXES, INSTALLED IN EXPOSED OR CONCEALED LOCATIONS UNDER METAL-CORRUGATED SHEET ROOF DECKING, SHALL BE INSTALLED AND SUPPORTED SO THERE IS NOT LESS THAN 1-1/2 in MEASURED FROM THE LOWEST SURFACE OF THE ROOF DECKING TO THE TOP OF THE CABLE, RACEWAY, OR BOX. A CABLE, RACEWAY, OR BOX SHALL NOT BE INSTALLED IN CONCEALED LOCATIONS IN METAL-CORRUGATED, SHEET DECKING-TYPE ROOF. SEE NEC 300.4(E)
10. THE EC SHALL PROVIDE ALL OUTLET, JUNCTION, PULL BOXES, FITTINGS, AND SUPPORTS. ALL OUTLET AND JUNCTION BOXES SHALL BE GALVANIZED STEEL TYPE BY APPLETON, STEEL CITY, OR RACO. EXTERIOR BOXES SHALL BE TYPE FS. VAPORTITE BOXES SHALL BE TYPE GS. WHERE SURFACE MOUNTED BOXES ARE USED, THOSE BOXES AND THEIR FACEPLATES SHALL HAVE ROUNDED CORNERS. BOXES INSTALLED IN FLOORS SHALL BE RATED FOR THE APPLICATION. MOUNT JUNCTION AND OUTLET BOXES FLUSH WITH FINISH SURFACES UNLESS OTHERWISE NOTED. WHERE MOUNTING HEIGHTS ARE GIVEN, THEY SHALL BE MEASURED FROM THE FINISHED FLOOR TO THE CENTER OF THE BOX. ALL BOXES SHALL BE SIZED PER NEC ARTICLE 314. ALL OUTLET AND JUNCTION BOXES SHALL HAVE A COVER PLATE, PROVIDED BY THE EC. OUTLET BOXES IN RATED WALLS SHALL BE INSTALLED IN ACCORDANCE WITH SBC 714.3.2 (MAXIMUM BOX SIZE IS 16 SQUARE in AND MAXIMUM OF SIX (6) BOXES PER 100 SQUARE FEET). INSTALL OUTLET BOXES IN RATED WALLS SUCH THAT OPENINGS OCCUR IN ONE SIDE ONLY WITHIN ANY GIVEN STUD SPACE. ALL CLEARANCES BETWEEN THE OUTLET BOX AND THE GYPSUM BOARD SHALL BE FILLED WITH JOINT COMPOUND OR OTHER APPROVED FIRE STOP MATERIAL. FLUSH MOUNTED JUNCTION BOXES IN ADJACENT ROOMS SHALL NOT BE MOUNTED BACK-TO-BACK. SURFACE MOUNTED FIXTURES SHALL BE FED THROUGH FLUSH MOUNTED 4X4 OCTAGONAL OR SQUARE BOXES.
11. ALL CONDUIT, BOXES, AND ELECTRICAL EQUIPMENT SHALL BE FIRE RATED AND SECURELY FASTENED TO OR SUPPORTED FROM THE BUILDING STRUCTURAL MEMBERS OR EMBEDDED IN CONCRETE OR MASONRY. ELECTRICAL SUPPORTS SHALL NOT BE ATTACHED TO DUCTWORK, PIPING, OR THEIR SUPPORTS. HANGERS SHALL BE CATALOG ITEMS COMPATIBLE WITH AND SUITABLE FOR THE INTENDED USE. FOR METAL ROOF DECK INSTALLATIONS, 1 in EMT CONDUIT MAXIMUM AND 4 in JUNCTION BOXES MAXIMUM MAY BE SUPPORTED BY DECKING. THE SUSPENDED CEILING SYSTEM SHALL NOT BE USED FOR THE SUPPORT OF ELECTRICAL RACEWAY SYSTEMS OR SUPPORT OF COMMUNICATIONS OR DATA SYSTEMS WIRING. CONTRACTOR SHALL COMPLY WITH 1613 OF THE SBC.
12. ALL TELEPHONE AND COMMUNICATIONS OUTLETS AND RACEWAYS ARE ROUGH-INS ONLY. EACH TELEPHONE AND COMMUNICATIONS OUTLET SHALL BE A 4 in SQUARE BY 2-1/8 in DEEP BOX WITH 3/4 in KNOCK-OUTS AND A 3/4 in CONDUIT STUBBED FROM THE OUTLET BOX TO ABOVE THE CEILING. PROVIDE A NON-METALLIC INSULATING BUSHING ON ALL CONDUITS STUBBED ABOVE THE CEILING. PROVIDE A BLANK COVER PLATE ON ALL OUTLET BOXES.
13. EC SHALL INSTALL, DISCONNECT SWITCHES IN SIGHT OF ALL HARDWIRED EQUIPMENT AND APPLIANCES OR PROVIDE BREAKERS CAPABLE OF BEING LOCKED IN THE OPEN POSITION PER NEC 422.31. FOR MOTOR DRIVEN APPLIANCES, PROVIDE A DISCONNECTING MEANS PER NEC 422.31 AND 430 PART IX. WHERE AN INDIVIDUAL DISCONNECT SWITCH, CIRCUIT BREAKER, STARTER, ETC. IS SHOWN ON THE PLANS ADJACENT TO ITS LOAD AND NOT LOCATED ON A WALL, PROVIDE NECESSARY MATERIALS AND LABOR TO SUPPORT THE DEVICE.
14. EC SHALL FIELD IDENTIFY ALL SWITCH BOARDS, PANEL BOARDS, CONTROL PANELS, METER SOCKETS, ETC., TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRICAL ARC FLASH HAZARDS PER 110.16 OF NEC.
15. EC SHALL PROVIDE NAMEPLATES FOR IDENTIFICATION OF ALL EQUIPMENT, SWITCHES, PANELS, ETC. THE NAMEPLATES SHALL BE LAMINATED PHENOLIC PLASTIC, BLACK FRONT, AND BACK WITH WHITE CORE. WHITE ENGRAVED LETTERS (1/4 in MINIMUM) ETCHED INTO THE WHITE CORE. EC SHALL PROVIDE A TYPE WRITTEN DIRECTORY CARD THAT ACCURATELY IDENTIFIES CIRCUITS INSIDE EACH PANEL. HANDWRITTEN LABELS ARE NOT ACCEPTABLE.
16. IN ACCORDANCE WITH SECTION 510 OF THE SFC, TESTING WILL BE REQUIRED TO DETERMINE SATISFACTORY FIRST RESPONDER RADIO SIGNAL STRENGTH INSIDE EACH BUILDINGS ON SITE. TESTING WILL NEED TO EITHER BE COMPLETED BY A COUNTY FIRE INSPECTOR (OBTAIN BY REQUESTING A COURTESY INSPECTION) OR A CERTIFIED 3RD PARTY. TESTING SHALL TAKE PLACE AT BOTH 80% PROJECT COMPLETION AND AGAIN AT 100% COMPLETION. IF UNACCEPTABLE SIGNAL DEGRADATION IS PRESENT AT EITHER 80% OR 100% INSPECTION, THEN AN ACCEPTABLE BOOSTER SYSTEM SHALL BE ADDED TO THE BUILDING DESIGN AT THAT TIME.
17. COLOR CODE CONDUCTORS PER NEC. FEEDERS SHALL BE IDENTIFIED IN ACCORDANCE WITH NEC 215.12. USE BLACK AND RED FOR PHASES A AND B RESPECTIVELY ON 120/240 VOLT SINGLE-PHASE SYSTEMS AND WHITE FOR THE NEUTRAL. USE BLACK, RED, AND BLUE FOR PHASES A, B, AND C RESPECTIVELY ON 208Y/120 VOLT THREE-PHASE Y SYSTEMS AND WHITE FOR THE NEUTRAL. ISOLATED GROUND WIRES SHALL BE GREEN WITH YELLOW BANDS OR STRIPES. USE BROWN, ORANGE, AND YELLOW FOR PHASES A, B, AND C RESPECTIVELY FOR 480Y/277 VOLT THREE-PHASE Y SYSTEMS AND GRAY FOR THE NEUTRAL. ON 4 WIRE DELTA CONNECTED SYSTEMS WHERE THE MIDPOINT OF ONE PHASE WINDING IS GROUNDED, THE PHASE CONDUCTOR HAVING THE HIGHER PHASE TO GROUND VOLTAGE SHALL BE PERMANENTLY IDENTIFIED WITH AN OUTER FINISH THAT IS ORANGE IN COLOR. THIS IDENTIFICATION SHALL BE MADE AT EACH POINT WHERE A CONNECTION IS MADE. COLORS SHALL BE FACTORY APPLIED OR CONDUCTORS #6 AWG AND SMALLER. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE GREEN IN COLOR AND MINIMUM #12 AWG. THE EC SHALL PROVIDE PLENUM RATED CABLE FOR ANY ELECTRICAL, TELEPHONE, COMMUNICATION, OR OTHER CABLE THAT ENTERS CEILING RETURN PLENUMS.
18. ABANDONED CONDUIT AND BOXES SHALL HAVE ALL ELECTRICAL WIRING REMOVED COMPLETELY AND NOT JUST "MADE SAFE." CONDUIT AND BOXES SHALL BE REMOVED WHERE PRACTICAL WITHOUT CREATING ADDITIONAL DEMOLITION/RESTITUTION WORK FOR OTHER TRADES.
19. WHERE CONDUCTORS ARE RUN IN PARALLEL, THE EC SHALL COMPLY WITH NEC 310.10(G).
20. ALL EQUIPMENT LOCATED UNDER KITCHEN HOODS SHALL BE WIRED FROM SHUNT TRIP BREAKERS. ISOLATED-GROUND TYPE RECEPTACLES SHALL BE INSTALLED IN ACCORDANCE WITH NEC 250.146(D). ISOLATED GROUND RECEPTACLES SHALL BE ORANGE IN COLOR.
22. ALL RECEPTACLES LOCATED WITHIN DWELLING UNITS SHALL HAVE AFCI PROTECTION IN ACCORDANCE WITH SECTION 210.12 OF THE NEC. RECEPTACLES IN DWELLING UNITS SHALL BE LISTED TAMPER-RESISTANT PER NEC 406.12.
23. PROVIDE AND INSTALL LISTED TAMPER PROOF RECEPTACLES IN CLASSROOMS.
24. IN PATIENT CARE AREAS, EQUIPMENT GROUNDING SHALL COMPLY WITH NEC 517.13 (THIS INCLUDES LIGHTS AND SWITCHES). THE METAL RACEWAY SYSTEM, METALLIC CABLE ARMOR, OR SHEATH ASSEMBLY SHALL ITSELF QUALIFY AS AN EQUIPMENT GROUNDING CONDUCTOR PER NEC 250.118.
25. IN ASSEMBLY AREAS EXCEEDING 100 PERSONS OCCUPANCY, WIRING METHODS SHALL COMPLY WITH NEC 518.
26. TRANSFER EQUIPMENT SHALL BE LISTED FOR THE PARTICULAR USE (I.E., "EMERGENCY" OR "STANDBY") AND SHALL BE APPROVED BY THE AUTHORITY HAVING JURISDICTION.
27. PROVIDE AN UNDERGROUND PVC CONDUIT SYSTEM FOR TELEPHONE SERVICE WITH PULL WIRES. EC SHALL COORDINATE WITH TELEPHONE UTILITY REGARDING ADDITIONAL FACILITIES REQUIRED FOR THE SERVICE INSTALLATION.
28. INSTALL ONE (1) 3/4 in FIRE RETARDANT TREATED PLYWOOD BACKBOARD WHERE INDICATED ON THE DRAWINGS FOR THE USE BY THE TELEPHONE SYSTEM. PROVIDE A 120 VOLT RECEPTACLE ADJACENT TO THE TELEPHONE BOARD. GROUND ALL TELEPHONE AND COMMUNICATIONS CIRCUITS PER NEC 800.

MATERIALS:

1. THE EC SHALL PROVIDE ALL NECESSARY DISCONNECTS, SWITCHES, RECEPTACLES, TERMINALS, ETC. UNDER THE ELECTRICAL BID AND SHALL INCLUDE ALL NECESSARY CIRCUITS AND CONNECTIONS TO THE EQUIPMENT PROVIDED BY ALL SUPPLIERS, UNLESS NOTED OTHERWISE BY OTHER DISCIPLINES.
2. EC SHALL PROVIDE ALL SERVICE ENTRANCE EQUIPMENT, SUB PANELS, AND OTHER ELECTRICAL DISTRIBUTION EQUIPMENT AS NECESSARY FOR A COMPLETE INSTALLATION. EC SHALL COORDINATE WITH UTILITY REGARDING SERVICE AND METERING DETAILS. *PRIOR TO ORDERING EQUIPMENT, THE EC SHALL OBTAIN THE AVAILABLE FAULT CURRENT OR TRANSFORMER SIZE AND IMPEDANCE FROM THE UTILITY AND CONTACT THE ENGINEER IF THE VALUE EXCEEDS THE EQUIPMENT SPECIFIED.* PANEL BOARDS AND SWITCH BOARDS SHALL BE SQUARE D, CUTLER-HAMMER, SIEMENS, OR GE. BUSES SHALL BE COPPER UNLESS OTHERWISE APPROVED BY THE ENGINEER. RECESSED PANEL BOARDS SHALL BE INSTALLED FLUSH WITH THE WALL FINISH. METER BASES SHALL COMPLY WITH THE UTILITY'S SPECIFICATIONS AND SHALL BE MOUNTED AT A HEIGHT APPROVED BY THE UTILITY. ALL EQUIPMENT IDENTIFIED FOR SERVICE ENTRANCE USE SHALL BE SO LABELED AND UL LISTED FOR SUCH USE. EC SHALL INSTALL ALL ELECTRICAL EQUIPMENT WITH CLEARANCES PER NEC 110.26. EC SHALL PERMANENTLY LABEL EQUIPMENT PER NEC 110.24.
3. ENCLOSED SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE BY SQUARE D, EATON, OR GE. ENCLOSED SWITCHES SHALL HAVE A HANDLE LOCKABLE IN THE OFF POSITION AND SHALL HAVE A HANDLE INTERLOCKED TO PREVENT OPENING THE FRONT COVER WHILE IN THE ON POSITION. ENCLOSED SWITCHES OF THE FUSIBLE TYPE SHALL BE FUSED IN ACCORDANCE WITH NAMEPLATE DATA WITH DUAL ELEMENT TYPE FUSES BY BUSSMAN, LITTELFUSE, OR MERSEN. OCCUPANCY SENSORS SHALL BE BY WATTSTOPPER, LUTRON, LEVITON, SENSOR SWITCH, HUBBELL, OR APPROVED EQUAL.
5. CIRCUIT BREAKERS SHALL BE MOLDED-CASE, THERMAL MAGNETIC TYPE WITH QUICK-MAKE, QUICK-BREAK MECHANISM, COMMON TRIP ON MULTI-POLE BREAKERS, AND UL LISTED FOR BOTH COPPER AND ALUMINUM CONDUCTORS. CIRCUIT BREAKERS IN PANELS SHALL BE SERIES RATED WITH THE MAIN BREAKER, FULLY RATED FOR THE SYSTEM, OR SERIES RATED WITH THE BREAKER FEEDING THE PANEL FROM THE FACTORY.

6. ALL WIRE, CONNECTORS, TERMINALS, AND LUGS SHALL BE PROVIDED BY THE EC. WHERE CONDUCTORS ARE RUN IN PARALLEL, LUGS SHALL BE LISTED FOR PARALLEL CONDUCTORS. PUSH WIRE CONNECTORS ARE NOT ALLOWED FOR BUILDING WIRE. PUSH CONNECTORS ARE ONLY ALLOWED, WHEN APPROVED, AS PART OF MANUFACTURED LISTED PRODUCTS. ALL WIRE SHALL BE INSTALLED IN CONDUIT UNLESS SPECIFICALLY NOTED OTHERWISE.
7. THE INSULATION TYPE FOR INTERIOR WIRING SHALL BE DUAL RATED THHN/THWN OR XHHW. ALL WIRING INSTALLED BELOW GRADE OR IN MOIST OR WET LOCATIONS SHALL HAVE TYPE THWN OR XHHW INSULATION. INSULATION VOLTAGE RATING SHALL BE 600 VOLTS AND A MINIMUM TEMPERATURE RATING OF 75°C. CONDUCTORS SHALL BE SOLID OR STRANDED COPPER FOR #10 AWG AND #12 AWG, AND STRANDED COPPER FOR #8 AWG AND LARGER SIZES. ALL WIRING AND CABLE SHALL BE UL LISTED. ALL TERMINATIONS AND DEVICES SHALL BE RATED FOR USE WITH 75°C CONDUCTORS. FINAL CONNECTIONS TO ALL MOTORS AND EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT SHALL BE MADE WITH STRANDED COPPER CONDUCTORS. CONDUCTORS SHALL BE BY CERRO WIRE, INC. INDUSTRIAL WIRE & CABLE, INC, ENCORE WIRE CORPORATION, OR SOUTHWIRE COMPANY.
8. JOINTS IN SOLID CONDUCTORS SHALL BE SPICED USING IDEAL "WIRE NUTS", 3M "SCOTCH LOCK", OR T&B "PIGGY" CONNECTORS IN JUNCTION BOXES, OUTLET BOXES, AND LIGHTING FIXTURES. JOINTS IN STRANDED CONDUCTORS SHALL BE SPICED BY APPROVED MECHANICAL CONNECTORS AND GUM RUBBER TAPE OR FRICTION TAPE. SOLDERLESS MECHANICAL CONNECTORS FOR SPLICES AND TAPS, PROVIDED WITH UL APPROVED INSULATING COVERS, MAY BE USED INSTEAD OF MECHANICAL CONNECTORS PLUS TAPE. IN ALL CASES, CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET AND NO SPLICING SHALL BE MADE EXCEPT WITHIN OUTLET OR JUNCTION BOXES, TROUGHS, OR GUTTERS, WHERE CONCENTRIC, ECCENTRIC, OR OVERSIZED KNOCKOUTS ARE ENCOUNTERED, A GROUNDING TYPE INSULATED BUSHING SHALL BE PROVIDED. ALL LUMINAIRES SHALL BE LISTED. LUMINAIRES IN WET OR DAMP LOCATIONS SHALL BE MARKED AS SUITABLE FOR THE RESPECTIVE USE. EMERGENCY LIGHTING SHALL BE INSTALLED AS SHOWN. FINAL LOCATIONS OF ALL EXIT AND EMERGENCY LIGHTS SHALL BE VERIFIED WITH THE BUILDING INSPECTOR PRIOR TO INSTALLATION. ALL FLUORESCENT FIXTURES SHALL HAVE ELECTRONIC BALLASTS MEETING ANSI C82.11 FOR ELECTRONIC BALLAST PERFORMANCE. ALL BALLASTS SHALL BE UL LISTED AND MEET FEDERAL AND STATE EFFICIENCY REQUIREMENTS.
10. ALL CONDUIT, FITTINGS, COUPLINGS, AND SUPPORTS SHALL BE PROVIDED BY THE EC. CONDUIT FITTINGS AND COUPLINGS SHALL BE BY APPLETON, RACO, OR O-Z/GEDNEY. COUPLINGS SHALL BE THREADED, SET-SCREW, OR COMPRESSION TYPE. INDENTER OR CRIMP TYPE ARE NOT PERMITTED. CONDUIT FITTINGS AT ALL ELECTRICAL BOXES INCLUDING PULL, JUNCTION, AND OUTLET BOXES, SHALL HAVE INSULATED THROATS TO PREVENT INSULATION SCORING. DIE CAST FITTINGS ARE NOT PERMITTED
11. EMT SHALL BE MANUFACTURED IN ACCORDANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE-AMERICAN NATIONAL STANDARD FOR STEEL ELECTRICAL METALLIC TUBING (EMT), ANSI C80.3 AND UL 797. RIGID METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI-AMERICAN NATIONAL STANDARD FOR ELECTRICAL RIGID STEEL CONDUIT (ERSC), ANSI C80.1 AND UL 6. INTERMEDIATE METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI-AMERICAN NATIONAL STANDARD FOR INTERMEDIATE METAL CONDUIT ANSI C80.6 AND UL 1242.
12. METAL CONDUIT SHALL BE BY ALLIED TUBING & CONDUIT, BECK MANUFACTURING, INC. OR WHEATLAND TUBE COMPANY. FLEXIBLE METAL CONDUIT, LIQUID-TIGHT FLEXIBLE METAL CONDUIT, AND NONMETALLIC CONDUIT SHALL BE BY AFC CABLE SYSTEMS, INC, ELECTRI-FLEX COMPANY, OR INTERNATIONAL METAL HOSE.



PRELIMINARY:
NOT FOR CONSTRUCTION!

NEW CONSTRUCTION FOR:
ABCCM WOMEN'S TRANSIT. BUILDING
ROCKY RIDGE RD.
ASHVILLE, NC

REVISION											

ISSUED: -/-/-

ISSUED FOR PERMIT
EXEMPTION

DRAWN BY: CRL
CHECKED BY: REW/KDC

SHEET:
ELECTRICAL NOTES

SHEET NO.

E-001

PROJECT NO: 2026-0809

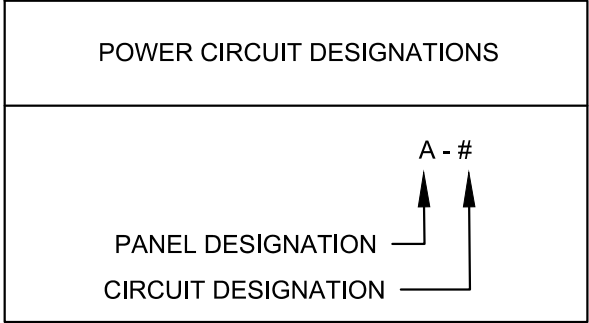
LIGHTING DEVICE LEGEND		
SYMBOL	DESCRIPTION	REMARKS
\$	SINGLE POLE WALL SWITCH	HEAVY DUTY, AC ONLY, COMMERCIAL GRADE GENERAL USE SNAP SWITCH COMPLYING WITH NEMA WD 6 AND WD 1, IVORY PLASTIC BODY WITH TOGGLE HANDLE. 120-277V, 20A. MEET FEDERAL SPECIFICATION W-S-896.
\$D	DIMMER SWITCH	COMMERCIAL GRADE, 120V, 1500W
\$W	WALL MOUNTED OCCUPANCY SENSOR	WATTSTOPPER DSW-301 LINE VOLTAGE OCCUPANCY SENSOR. ULTRA SONIC AND INFRARED.
\$LY	LOW VOLTAGE SWITCH	WATTSTOPPER LVSW-101 LOW VOLTAGE MOMENTARY CONTROL SWITCH.
\$S	3 WAY SWITCH	3-WAY TYPE SWITCH WITH SAME CHARACTERISTICS AS SINGLE POLE SWITCH ABOVE.
DT	CEILING OCCUPANCY SENSOR	WATTSTOPPER, UT-300-3 LOW VOLTAGE OCCUPANCY SENSOR. 360° ULTRA SONIC AND INFRARED.
P	POWER PACK	WATTSTOPPER, BZ-150 LOW VOLTAGE POWER PACK FOR CEILING PACK SENSORS.
J	JUNCTION BOX	GALVANIZED METAL BOX CONSTRUCTED IN ACCORDANCE WITH 314.40 OF THE NEC.
⊠	EXHAUST FAN	VENT FAN, 120V, CFM AS NOTED MC TO PROVIDE AND VENT, EC TO WIRE.

POWER DEVICE LEGEND		
SYMBOL	DESCRIPTION	REMARKS
▶	DATA AND TELEPHONE JACK	PHONE/DATA OUTLET. EC TO INSTALL 3/4" C WITH PULL-STRING FROM OUTLET BOX TO ABOVE CEILING FOR FUTURE USE. JACKS AND COMMUNICATION CABLING BY OTHERS.
⦿	DUPLEX RECEPTACLE	NEMA 5-20R, HEAVY DUTY, COMMERCIAL GRADE. 125V, 20A COMPLYING WITH NEMA WD 6 AND WD 1, GFCI OR AFCI IF NOTED. 'WP' DENOTES WEATHERPROOF COVER, 'CH' DENOTES COUNTER HEIGHT. LISTED TAMPERPROOF IF NOTED. MEET FEDERAL SPECIFICATION W-C-596.
⦿	QUAD RECEPTACLE	QUAD RECEPTACLE OF SAME CHARACTERISTICS AS DUPLEX TYPE ABOVE.
⦿	240V RECEPTACLE	240V RECEPTACLE WITH SAME CHARACTERISTICS AS DUPLEX TYPE ABOVE. VERIFY NEMA PLUG CONFIGURATION.
⏏	FUSIBLE DISCONNECT SWITCH	HEAVY DUTY TYPE. TYPE 1 ENCLOSURE IN INTERIOR APPLICATIONS, TYPE 3R ENCLOSURE IN EXTERIOR APPLICATIONS, FUSE ACCORDING TO NAMEPLATE DATA.
⏏	DISCONNECT SWITCH	HEAVY DUTY TYPE. TYPE 1 ENCLOSURE IN INTERIOR APPLICATIONS, TYPE 3R ENCLOSURE IN EXTERIOR APPLICATIONS.
J	JUNCTION BOX	GALVANIZED METAL BOX CONSTRUCTED IN ACCORDANCE WITH 314.40 OF THE NEC.

LIGHT FIXTURE SCHEDULE									
MARK	DESCRIPTION	LAMPS		VOLTAGE	INPUT WATTAGE	MOUNTING	REMARKS	MFG	MODEL
		TYPE	CCT						
A	6" LED SURFACE MOUNT CAN	LED	3000K	120	14	SURFACE	2,5,6	HALO	SMX6RLSFS010 - 1200LM
B	CEILING FAN W/ LED LAMP	LED	3000K	120	50W MAX	SURFACE	5,6	-	SELECTION BY AND INSTALLED BY VANTEM
C	6" LED RECESSED CAN	LED	3000K	120	15W MAX	SURFACE	3-6	-	SELECTION BY AND INSTALLED BY VANTEM
D	LED BATHROOM WALL MOUNT VANITY	LED	3000K	120	30W MAX	SURFACE	5,6	-	SELECTION BY AND INSTALLED BY VANTEM
E	4' LINEAR LED WALL MOUNT	LED	3000K	120	40	SURFACE	2,5-8	LITHONIA	WL4-40L-EZ1-LP830
EE	4' LINEAR LED WALL MOUNT W/ BATTERY BACKUP	LED	3000K	120	40	SURFACE	1,2,5-8	LITHONIA	WL4-40L-EZ1-LP830-E10W
EX	LED EXIT SIGN	LED	N/A	120	2	VARIES	1,2,6	EELP	XE2RW-EM-SD
EXH	LED EXIT/EMERGENCY COMBO	LED	N/A	120	2	VARIES	1,2,6	EELP	XC-LED-2-R-W-SD
EM	DUAL HEAD EMERGENCY FIXTURE	LED	N/A	120	2	VARIES	1,2,6	LITHONIA	ELM2L-SDRT
OE	EXTERIOR EMERGENCY FIXTURE	LED	N/A	120	2	VARIES	1,2,6	EELP	DEM-EM

1. FIXTURE SHALL HAVE BATTERY BACKUP FOR 90 MINUTE ILLUMINATION.
2. OR EQUAL BY COOPER, MOBERN, OR CURRENT BY GE LIGHTING.
3. FIXTURE TO BE RATED TO BE INSTALLED ABOVE SHOWER.
4. FIXTURE TO BE INSTALLED IN FIRE RATED JUNCTION BOX COMPLYING WITH IBC SECTION 714.4.2.
5. VERIFY FIXTURE OPTIONS, FINISHES, CCT, ETC. WITH OWNER PRIOR TO PURCHASE AND INSTALLATION.
6. PROVIDE ALL NECESSARY COMPONENTS / HARDWARE FOR INSTALLATION / OPERATION.
7. RATED FOR DAMP LOCATIONS.
8. PROVIDE WITH INTEGRAL OCCUPANCY SENSOR.

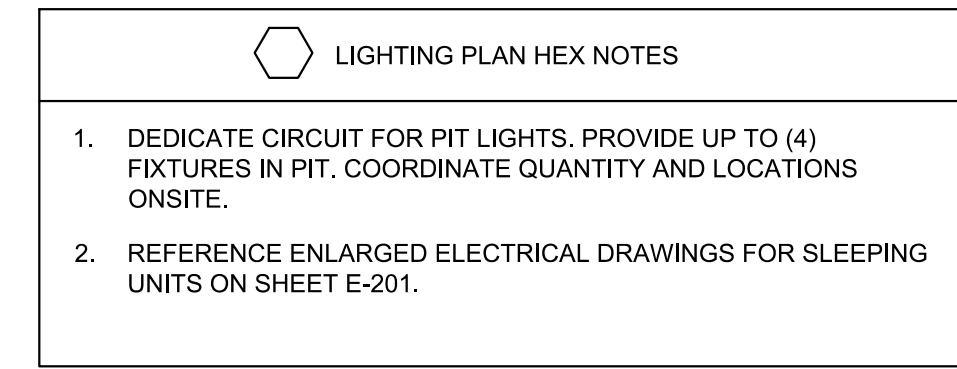
NOTES FOR EMERGENCY FIXTURES
1. FOR INTERIOR FIXTURES WITH EMERGENCY BATTERIES, WIRE THE BATTERY CHARGER ON THE SAME CIRCUIT AS THE FIXTURE BALLAST AHEAD OF ALL SWITCHES, SENSORS, ETC.
2. FOR EXTERIOR FIXTURES WITH EMERGENCY BATTERIES, WIRE THE BATTERY CHARGER ON THE SAME CIRCUIT AS THE NORMAL EXTERIOR LIGHTS OR AS SHOWN ON PLANS AHEAD OF ALL CONTACTORS, PHOTOCELLS, ETC.
3. IN BOTH CASES, EMERGENCY POWER SHOULD INITIATE ONLY IN THE EVENT OF THE LOSS OF NORMAL POWER. ALL BATTERIES SHALL BE RATED TO POWER EMERGENCY ILLUMINATION FOR 90 MINUTES MINIMUM.



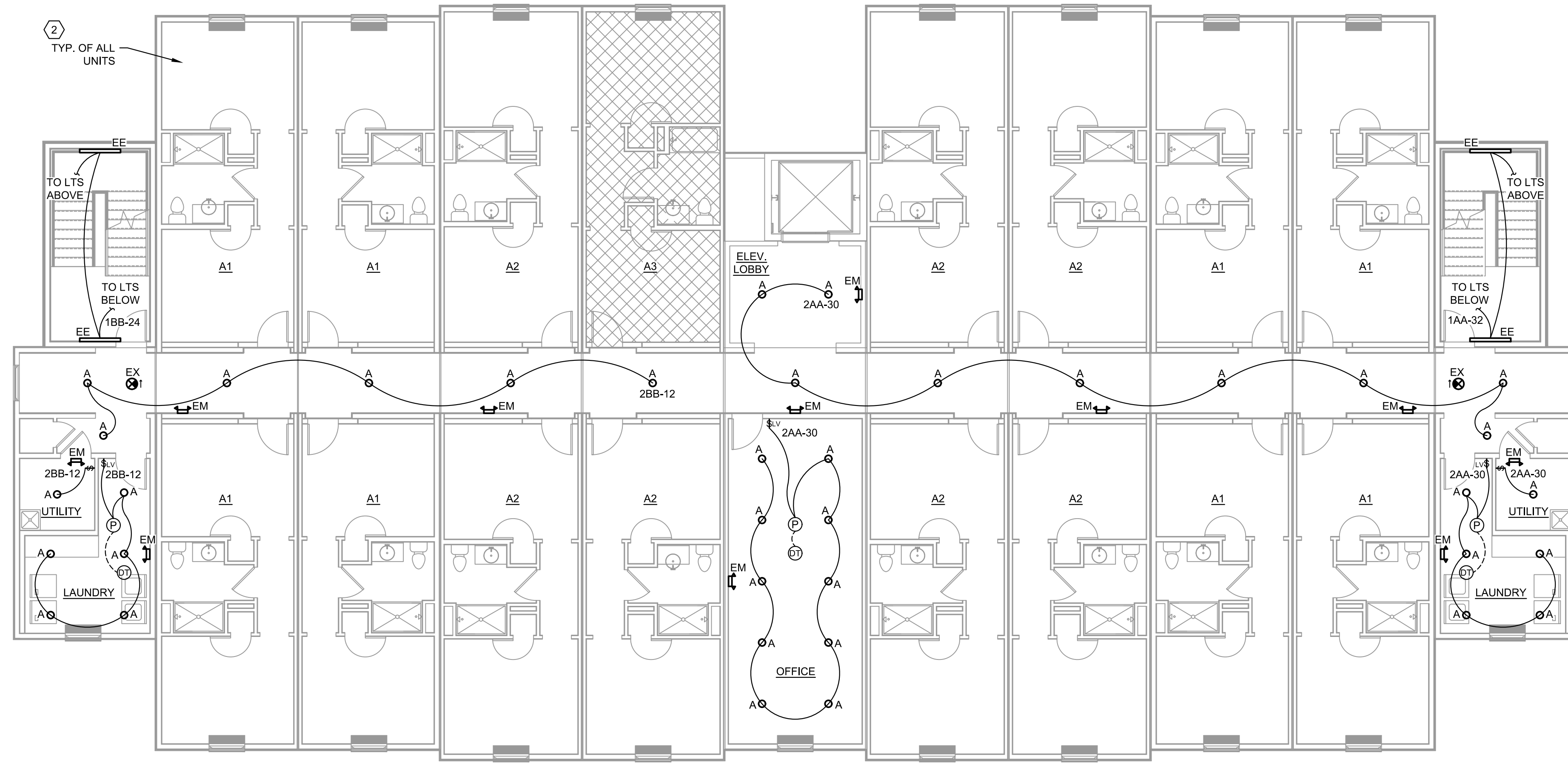
ELECTRICAL DESIGNER'S STATEMENT			
ELECTRICAL SYSTEM AND EQUIPMENT METHOD OF COMPLIANCE PERFORMANCE ____ ENERGY COST BUDGET ____			PRESCRIPTIVE _X_
LIGHTING SCHEDULE:			
LAMP TYPE REQUIRED IN FIXTURE:	SEE LIGHTING LEGEND		
NUMBER OF LAMPS PER FIXTURE:	SEE LIGHTING LEGEND		
BALLAST TYPE USED IN FIXTURE:	SEE LIGHTING LEGEND		
NUMBER OF BALLASTS IN FIXTURE:	SEE LIGHTING LEGEND		
TOTAL WATTAGE PER FIXTURE:	SEE LIGHTING LEGEND		
TOTAL INTERIOR WATTAGE SPECIFIED VS ALLOWED:	WATTS SPECIFIED	WATTS ALLOWED	
	15194	23108	
OCCUPANCY	AREA (sf)	ALLOWANCE (W/sf)	WATTAGE ALLOWED
DORMITORY	40540	0.57	23108
TOTAL	40540		23108
EQUIPMENT SCHEDULES WITH MOTORS (NOT USED FOR MECHANICAL SYSTEMS)			
MOTOR HORSEPOWER: N/A			
NUMBER OF PHASES: N/A			
MINIMUM EFFICIENCY: N/A			
MOTOR TYPE: N/A			
NUMBER OF POLES: N/A			
DESIGNER STATEMENT: TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.			
FOR THE ADDITIONAL PRESCRIPTIVE REQUIREMENT REQUIRED BY C406 OF 2018 NORTH CAROLINA ENERGY CONSERVATION CODE, WE ARE CHOOSING C406.3 - REDUCED LIGHTING POWER DENSITY.			
15,194 W SPECIFIED <= 20,797 W (23,108 W ALLOWED X 90%)			

BREAKER FEEDER SCHEDULE			
AMPS	WIRE SIZE	GROUND SIZE	CONDUIT SIZE
15A	#12	#12	1/2"
20A	#12	#12	1/2"
25A	#10	#10	3/4"
30A	#10	#10	3/4"
35A	#8	#10	1"
40A	#8	#10	1"
50A	#8	#10	1"
60A	#6	#10	1 1/4"
70A	#4	#8	1 1/4"
80A	#4	#8	1 1/4"
90A	#3	#8	1 1/2"
100A	#3	#8	1 1/2"
110A	#2	#6	2"
125A	#1	#6	2"
150A	1/0	#6	2 1/2"
175A	2/0	#6	2 1/2"
200A	3/0	#6	2 1/2"
225A	4/0	#4	2 1/2"
250A	250 MCM	#4	3"
300A	350 MCM	#4	3 1/2"
350A	500 MCM	#3	4"
400A	2 SETS- 3/0	#3	2 1/2"
500A	2 SETS- 250 MCM	#2	3"
600A	2 SETS- 350 MCM	#1	3 1/2"
700A	3 SETS- 250 MCM	1/0	3"
800A	3 SETS- 300 MCM	1/0	3 1/2"
1000A	3 SETS- 400 MCM	2/0	3 1/2"

1. CONDUCTOR PER POLE PLUS NEUTRAL PER SET. E.G. TO VERIFY NECESSITY OF NEUTRAL FOR EACH CIRCUIT. NEUTRAL MAY BE DELETED IF NOT REQUIRED FOR INDIVIDUAL PIECES.

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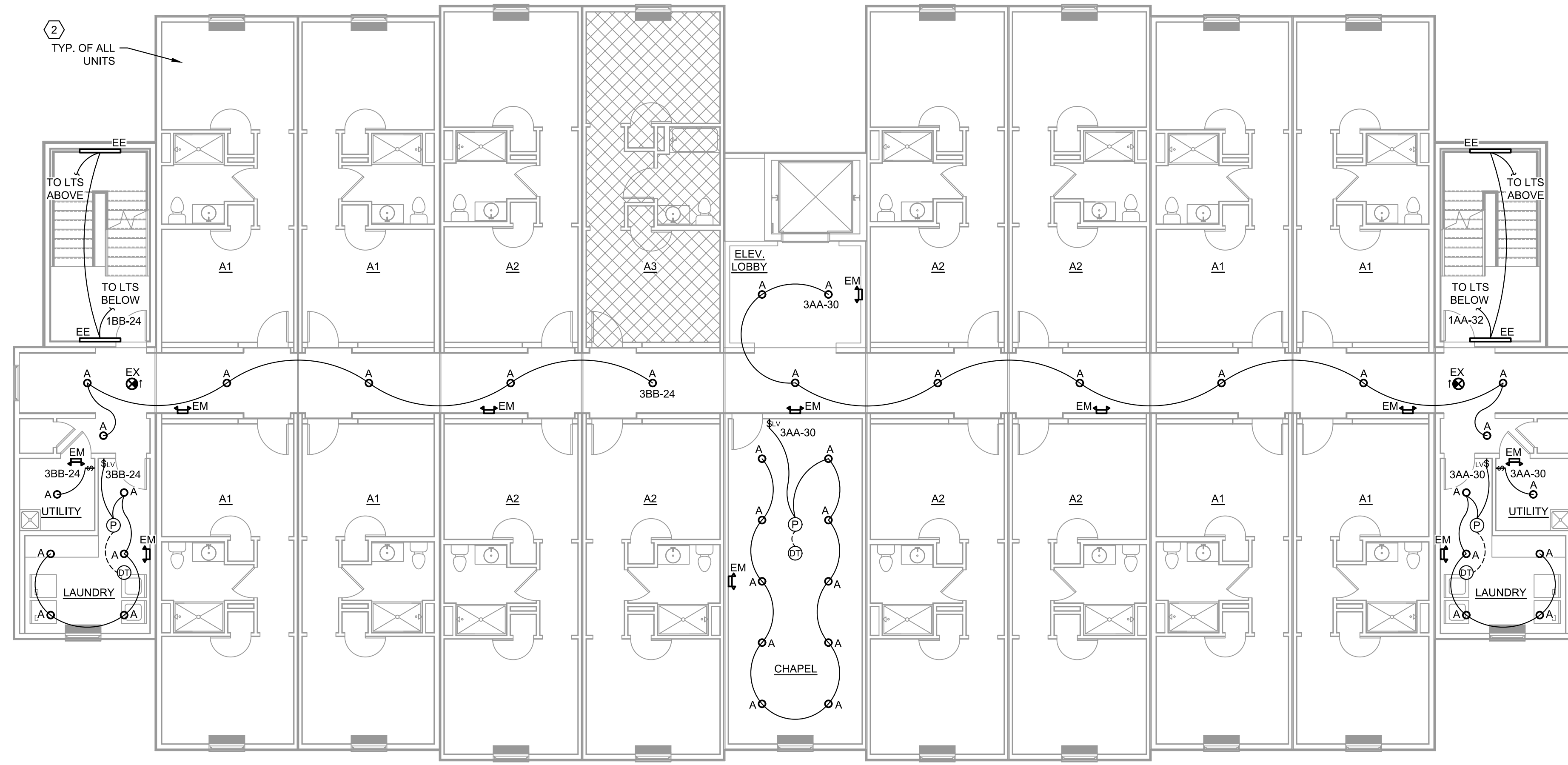
2 LEVEL 1 - POWER PLAN



1 LEVEL 2 - LIGHTING PLAN
Scale: 1/8" = 1'-0"



2 LEVEL 2 - POWER PLAN
Scale: 1/8" = 1'-0"



1 LEVEL 3 - LIGHTING PLAN
Scale: 1/8" = 1'-0"

- GENERAL CONSTRUCTION NOTES
- WHERE SMOKE ALARMS ARE SHOWN, PROVIDE TYPICAL UNIT SINGLE STATION SMOKE ALARM WITH AUDIBLE BASE AND BATTERY BACKUP. CONNECT IN TANDEM WHERE MORE THAN ONE DEVICE IS INSTALLED IN THE SAME UNIT. FOR DEVICES SHOWN IN AREAS WITH EXPOSED CEILINGS, INSTALL DEVICE ON WALL.
 - EMERGENCY FIXTURES TO BE ON LIGHTING CIRCUIT SERVING SAME AREA, WIRED AHEAD OF ALL SWITCHES.
 - CORRIDOR / STAIR LIGHTING TO BE OPERATIONAL 24/7 UNLESS NOTED OTHERWISE.
 - REFERENCE ARCHITECTURAL DRAWINGS FOR WALL LEGEND AND WALL/CEILING RATINGS.
 - ALL 120V, 1Ø, 15A AND 20A BRANCH CIRCUITS SUPPLYING OUTLETS OR DEVICES INSTALLED IN DWELLING UNIT FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, KITCHENS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, LAUNDRY AREAS, OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY ANY OF THE MEANS DESCRIBED IN SECTIONS 210.12(A)(1) THROUGH 210.12(A)(6) PER THE STATE ADOPTED NEC.

- LIGHTING PLAN HEX NOTES
- NOT USED.
 - REFERENCE ENLARGED ELECTRICAL DRAWINGS FOR SLEEPING UNITS ON SHEET E-201.



2 LEVEL 3 - POWER PLAN
Scale: 1/8" = 1'-0"

- POWER PLAN HEX NOTES
- 220V RECEPTACLE FOR CLOTHES DRYER. VERIFY PLUG TYPE WITH MANUFACTURER.
 - 120V GFCI RECEPTACLE FOR CLOTHES WASHER. VERIFY PLUG TYPE WITH MANUFACTURER.
 - 220V RECEPTACLE FOR PTAC UNIT. VERIFY PLUG TYPE AND MEANS OF CONNECTION. PTAC TO HAVE MEANS OF DISCONNECT.
 - JUNCTION BOX FOR UNIT HEATER. UNIT HEATER TO HAVE BUILT-IN MEANS OF DISCONNECT.
 - NOT USED.
 - NOT USED.
 - NOT USED.
 - NOT USED.
 - PROVIDE (3) 120V CIRCUITS AND (1) 208V CIRCUIT IN EACH DWELLING MODULAR. REFERENCE ENLARGED SHEETS FOR ADDITIONAL INFORMATION.
 - 60A DISCONNECT FOR WATER HEATER. 208V, 3Ø, NEMA 1. PROVIDE GFCI RECEPTACLE AT 42" AFF.
 - 30A FUSIBLE DISCONNECT FOR VTAC. 208V, 1Ø, NEMA 1, FUSED AT 30A.
 - JUNCTION BOX WITH MOTOR RATED SWITCH FOR HOT WATER RECIRC PUMP. COORDINATE LOCATION WITH PC.
 - REFERENCE ENLARGED ELECTRICAL DRAWINGS FOR SLEEPING UNITS ON SHEET E-201.

REVISION	
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ISSUED: -/-/-

ISSUED FOR PERMIT
EXCEPTION:

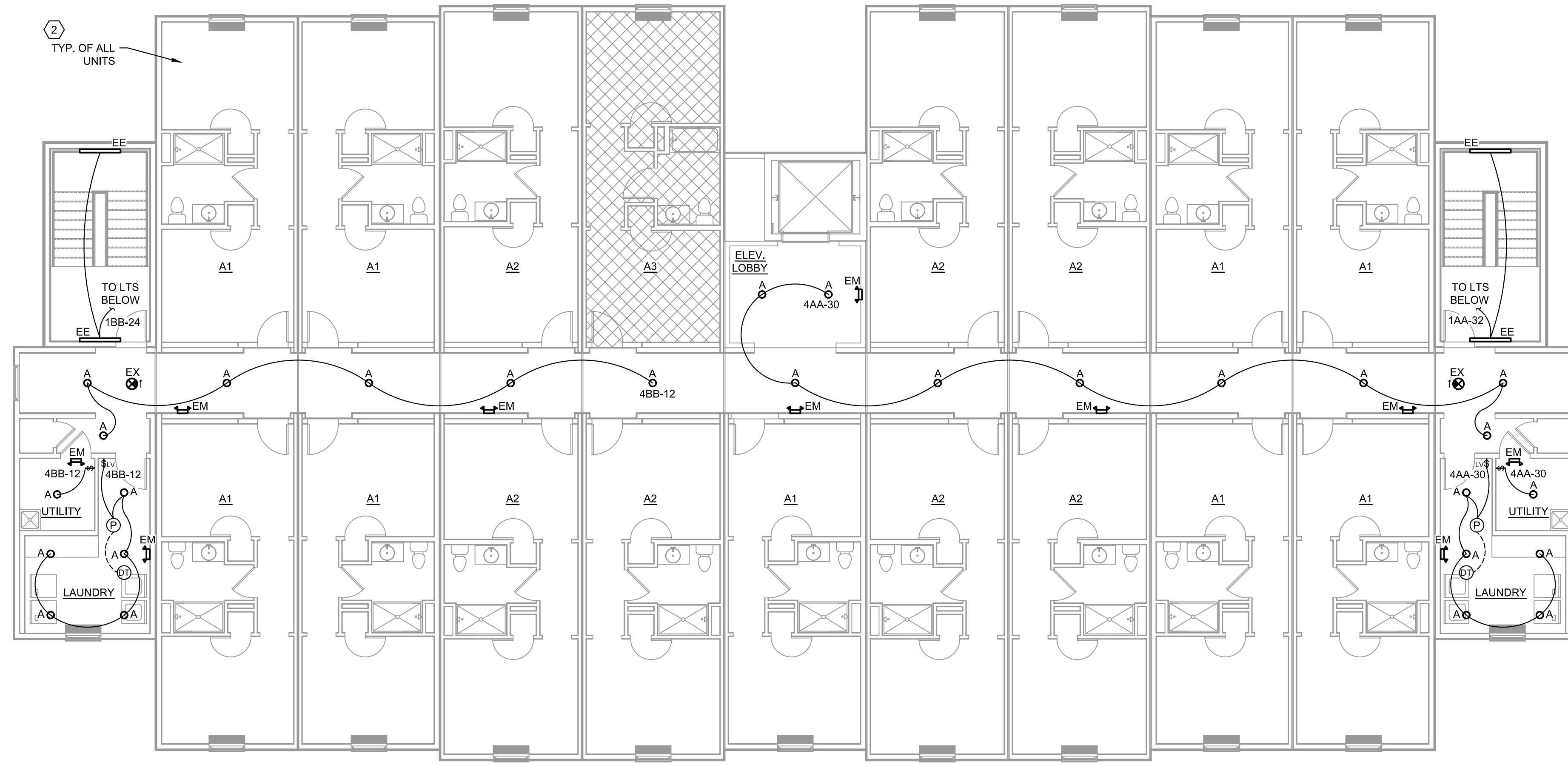
DRAWN BY: CRL
CHECKED BY: REW/KDC

SHEET:
LEVEL 3 ELECTRICAL PLANS

SHEET NO.

E-103

PROJECT NO: 2026-0809



1 LEVEL 4 - LIGHTING PLAN
Scale: 1/8" = 1'-0"

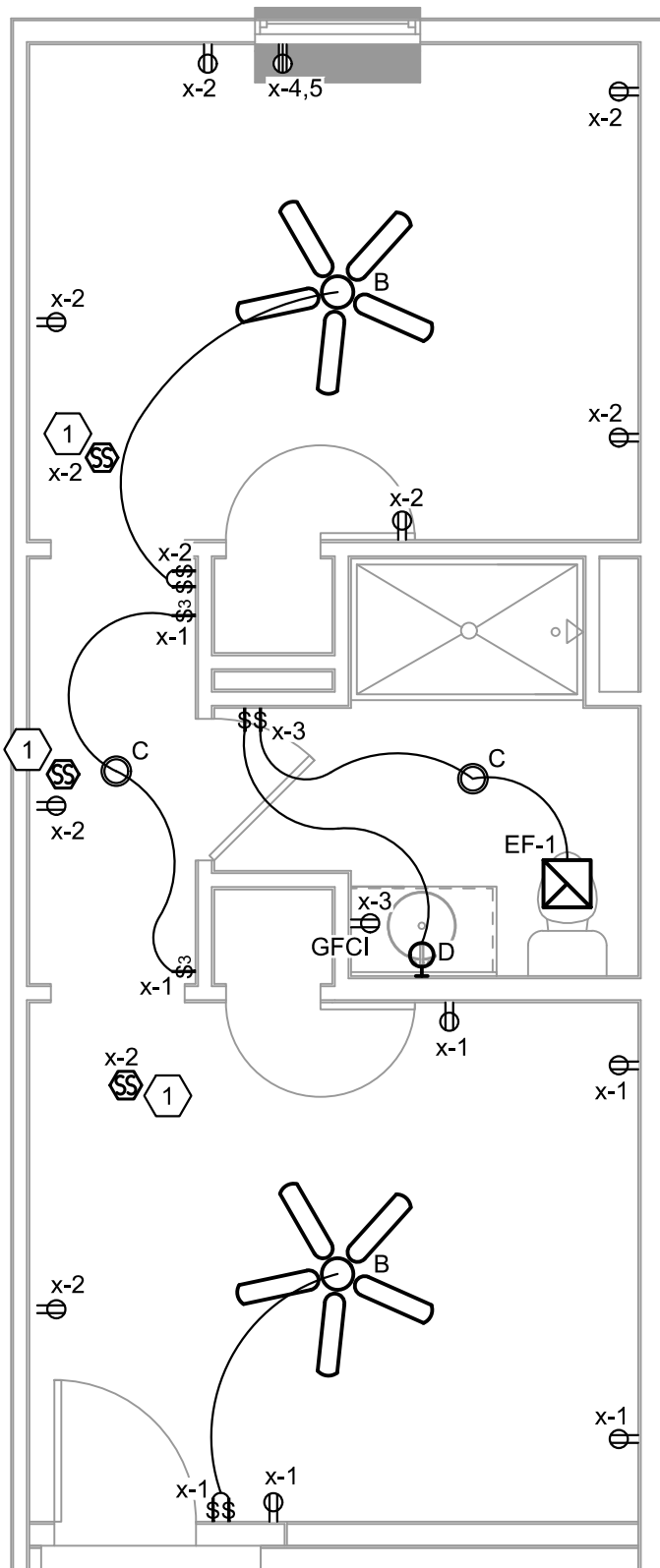
- GENERAL CONSTRUCTION NOTES
- WHERE SMOKE ALARMS ARE SHOWN, PROVIDE TYPICAL UNIT SINGLE STATION SMOKE ALARM WITH AUDIBLE BASE AND BATTERY BACKUP. CONNECT IN TANDEM WHERE MORE THAN ONE DEVICE IS INSTALLED IN THE SAME UNIT. FOR DEVICES SHOWN IN AREAS WITH EXPOSED CEILINGS, INSTALL DEVICE ON WALL.
 - EMERGENCY FIXTURES TO BE ON LIGHTING CIRCUIT SERVING SAME AREA, WIRED AHEAD OF ALL SWITCHES.
 - CORRIDOR / STAIR LIGHTING TO BE OPERATIONAL 24/7 UNLESS NOTED OTHERWISE.
 - REFERENCE ARCHITECTURAL DRAWINGS FOR WALL LEGEND AND WALL/CEILING RATINGS.
 - ALL 120V, 1Ø, 15A AND 20A BRANCH CIRCUITS SUPPLYING OUTLETS OR DEVICES INSTALLED IN DWELLING UNIT FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, KITCHENS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, LAUNDRY AREAS, OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY ANY OF THE MEANS DESCRIBED IN SECTIONS 210.12(A)(1) THROUGH 210.12(A)(6) PER THE STATE ADOPTED NEC.

- LIGHTING PLAN HEX NOTES
- NOT USED.
 - REFERENCE ENLARGED ELECTRICAL DRAWINGS FOR SLEEPING UNITS ON SHEET E-201.



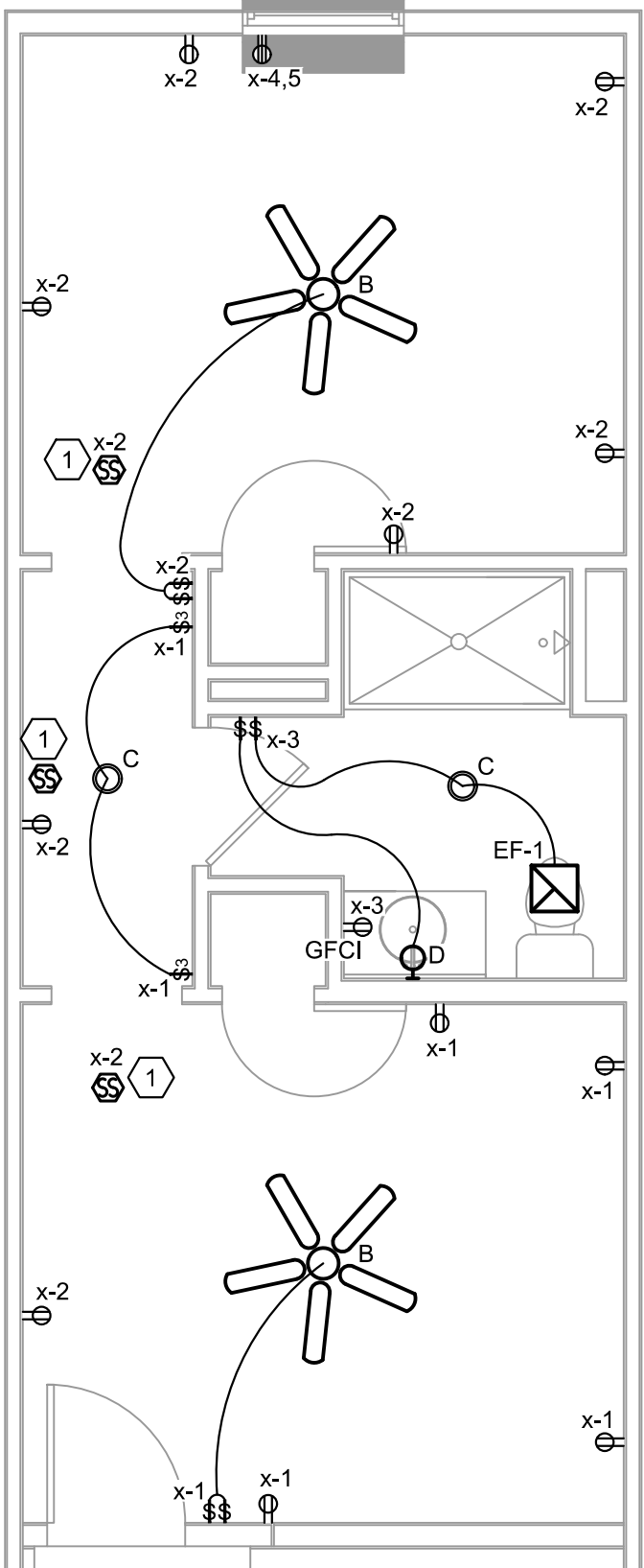
2 LEVEL 4 - POWER PLAN
Scale: 1/8" = 1'-0"

- POWER PLAN HEX NOTES
- 220V RECEPTACLE FOR CLOTHES DRYER. VERIFY PLUG TYPE WITH MANUFACTURER.
 - 120V GFCI RECEPTACLE FOR CLOTHES WASHER. VERIFY PLUG TYPE WITH MANUFACTURER.
 - 220V RECEPTACLE FOR PTAC UNIT. VERIFY PLUG TYPE AND MEANS OF CONNECTION. PTAC TO HAVE MEANS OF DISCONNECT.
 - NOT USED.
 - NOT USED.
 - NOT USED.
 - NOT USED.
 - NOT USED.
 - PROVIDE (3) 120V CIRCUITS AND (1) 208V CIRCUIT IN EACH DWELLING MODULAR. REFERENCE ENLARGED SHEETS FOR ADDITIONAL INFORMATION.
 - 60A DISCONNECT FOR WATER HEATER. 208V, 3Ø, NEMA 1. PROVIDE GFCI RECEPTACLE AT 42" AFF.
 - 30A FUSIBLE DISCONNECT FOR VTAC. 208V, 1Ø, NEMA 1, FUSED AT 30A.
 - JUNCTION BOX WITH MOTOR RATED SWITCH FOR HOT WATER RECIRC PUMP. COORDINATE LOCATION WITH PC.
 - REFERENCE ENLARGED ELECTRICAL DRAWINGS FOR SLEEPING UNITS ON SHEET E-201.



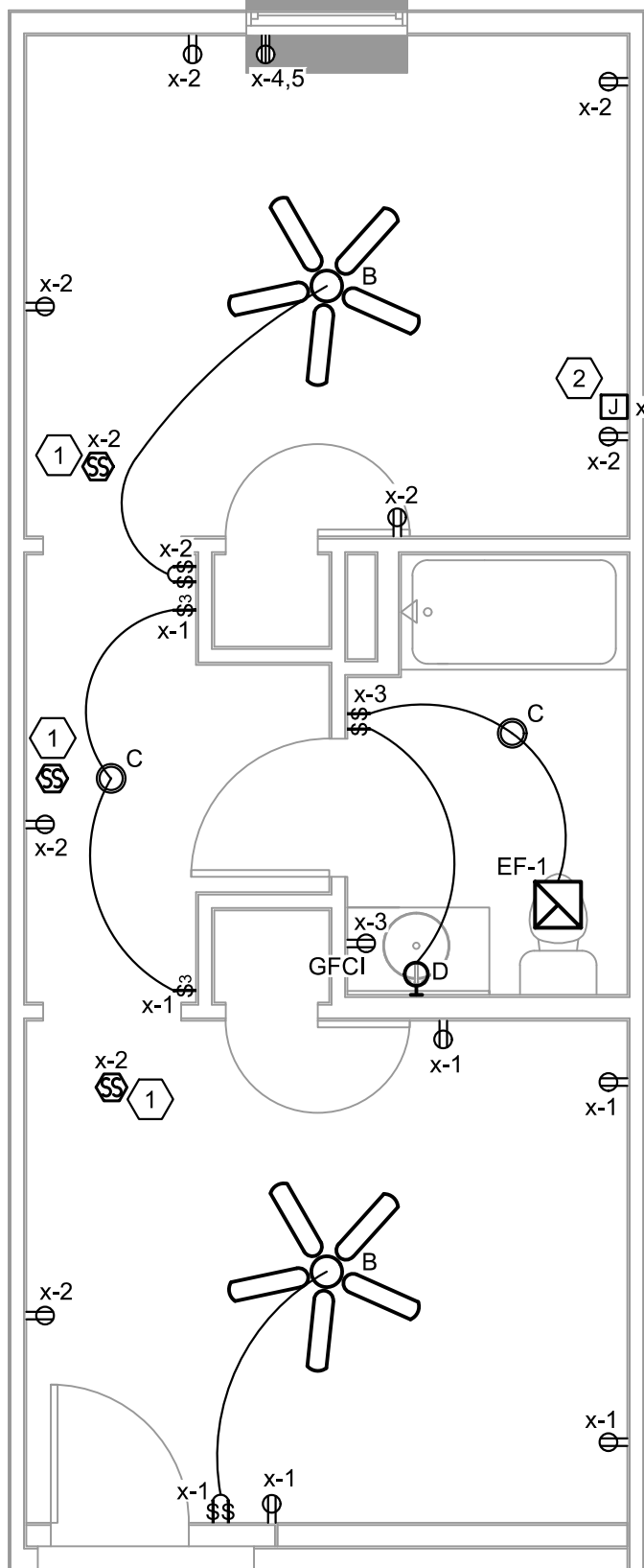
A1

1 UNIT A1 ELECTRICAL PLAN
Scale: 1/4" = 1'-0"



A2

2 UNIT A2 ELECTRICAL PLAN
Scale: 1/4" = 1'-0"



A3

3 UNIT A3 ELECTRICAL PLAN
Scale: 1/4" = 1'-0"

ELECTRICAL PLAN HEX NOTES

1. PHOTOELECTRIC TYPE COMBINATION SMOKE & CARBON MONOXIDE DETECTOR/SENSOR. CONNECT TO BEDROOM CIRCUIT ON AN ARC FAULT BREAKER PER NFPA 72, CHAPTER 29. ALARMS TO BE INTERCONNECTED SUCH THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT ONLY.
2. JUNCTION BOX FOR FIRE ALARM BED SHAKER AT 18" AFF IN ACCESSIBLE ROOMS. BED SHAKER TO BE INSTALLED BY FIRE ALARM CONTRACTOR ONSITE.

REVISION				
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PANEL A1								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	UNIT 1 LTS/RECS #1	20/1	0.98	A	0.98	20/1	UNIT 5 LTS/RECS #1	2
3	UNIT 1 LTS/RECS #2	20/1	1.14	B	1.14	20/1	UNIT 5 LTS/RECS #2	4
5	UNIT 1 BATH	20/1	0.26	C	0.26	20/1	UNIT 5 BATH	6
7	UNIT 1 PTAC	20/2	1.62	A	1.62	20/2	UNIT 5 PTAC	8
9			1.62	B	1.62			10
11	UNIT 2 LTS/RECS #1	20/1	0.98	C	0.98	20/1	UNIT 6 LTS/RECS #1	12
13	UNIT 2 LTS/RECS #2	20/1	1.14	A	1.14	20/1	UNIT 6 LTS/RECS #2	14
15	UNIT 2 BATH	20/1	0.26	B	0.26	20/1	UNIT 6 BATH	16
17	UNIT 2 PTAC	20/2	1.62	C	1.62	20/2	UNIT 6 PTAC	18
19			1.62	A	1.62			20
21	UNIT 3 LTS/RECS #1	20/1	0.98	B	0.98	20/1	UNIT 7 LTS/RECS #1	22
23	UNIT 3 LTS/RECS #2	20/1	1.14	C	1.14	20/1	UNIT 7 LTS/RECS #2	24
25	UNIT 3 BATH	20/1	0.26	A	0.26	20/1	UNIT 7 BATH	26
27	UNIT 3 PTAC	20/2	1.62	B	1.62	20/2	UNIT 7 PTAC	28
29			1.62	C	1.62			30
31	UNIT 4 LTS/RECS #1	20/1	0.98	A	6.25	60/3	WH-1	32
33	UNIT 4 LTS/RECS #2	20/1	1.14	B	6.25			34
35	UNIT 4 BATH	20/1	0.26	C	6.25			36
37	UNIT 4 PTAC	20/2	1.62	A	12.50	150/3	PANEL 1AA	38
39			1.62	B	13.30			40
41	SPARE	20/1	0.00	C	15.30			300/3
43	ELEVATOR	80/3	6.85	A	31.20	44		
45			6.85	B	29.70	46		
47			6.85	C	30.10	48		
49	SHUNT TRIP	-	0.00	A	0.00	50		
51			0.00	B	0.00			52
53			0.00	C	0.00			54
			kVA	PH	AMPS			
			70.6	A	589			
			70.1	B	584			
			70.0	C	583			
VOLTAGE/PHASE				208Y/120V,3P,4W				
BUS RATING				600A				
MAIN CIRCUIT BREAKER RATING				MLO				
AIC RATING				22K - EC TO VERIFY				
SERVICE ENTRANCE RATED				NO				
ENCLOSURE				NEMA 1				
MOUNTING				SURFACE				

PANEL 1B								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	UNIT 1 LTS/RECS #1	20/1	0.98	A	0.98	20/1	UNIT 5 LTS/RECS #1	2
3	UNIT 1 LTS/RECS #2	20/1	1.14	B	1.14	20/1	UNIT 5 LTS/RECS #2	4
5	UNIT 1 BATH	20/1	0.26	C	0.26	20/1	UNIT 5 BATH	6
7	UNIT 1 PTAC	20/2	1.62	A	1.62	20/2	UNIT 5 PTAC	8
9			1.62	B	1.62			10
11	UNIT 2 LTS/RECS #1	20/1	0.98	C	0.98	20/1	UNIT 6 LTS/RECS #1	12
13	UNIT 2 LTS/RECS #2	20/1	1.14	A	1.14	20/1	UNIT 6 LTS/RECS #2	14
15	UNIT 2 BATH	20/1	0.26	B	0.26	20/1	UNIT 6 BATH	16
17	UNIT 2 PTAC	20/2	1.62	C	1.62	20/2	UNIT 6 PTAC	18
19			1.62	A	1.62			20
21	UNIT 3 LTS/RECS #1	20/1	0.98	B	0.98	20/1	UNIT 7 LTS/RECS #1	22
23	UNIT 3 LTS/RECS #2	20/1	1.14	C	1.14	20/1	UNIT 7 LTS/RECS #2	24
25	UNIT 3 BATH	20/1	0.26	A	0.26	20/1	UNIT 7 BATH	26
27	UNIT 3 PTAC	20/2	1.62	B	1.62	20/2	UNIT 7 PTAC	28
29			1.62	C	1.62			30
31	UNIT 4 LTS/RECS #1	20/1	0.98	A	6.25	60/3	WH-1	32
33	UNIT 4 LTS/RECS #2	20/1	1.14	B	6.25			34
35	UNIT 4 BATH	20/1	0.26	C	6.25			36
37	UNIT 4 PTAC	20/2	1.62	A	11.10	125/3	PANEL 1BB	38
39			1.62	B	9.40			40
41	SPARE	20/1	0.00	C	12.30			
			kVA	PH	AMPS			
			31.2	A	260			
			29.7	B	247			
			30.1	C	250			
VOLTAGE/PHASE					208Y/120V,3P,4W			
BUS RATING					400A			
MAIN CIRCUIT BREAKER RATING					MLO			
AIC RATING					22K - EC TO VERIFY			
SERVICE ENTRANCE RATED					NO			
ENCLOSURE					NEMA 1			
MOUNTING					SURFACE			

PANEL 1AA								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	SVC / MISC RECS	20/1	1.08	A	0.98	20/1	UNIT 8 LTS/RECS #1	2
3	CLOTHES WASHER #1	20/1	1.88	B	1.14	20/1	UNIT 8 LTS/RECS #2	4
5	CLOTHES WASHER #2	20/1	1.88	C	0.26	20/1	UNIT 8 BATH	6
7	LAUNDRY PTAC	20/2	1.62	A	1.62	20/2	UNIT 8 PTAC	8
9			1.62	B	1.62			10
11	CLOTHES DRYER #1	30/2	2.50	C	1.12	20/2	STAIR UNIT HEATER	12
13			2.50	A	1.12			14
15	CLOTHES DRYER #2	30/2	2.50	B	0.00	20/1	SPARE	16
17			2.50	C	2.21			18
19	ELEV PIT LIGHTS	20/1	0.20	A	2.21	30/2	CORRIDOR VTAC	20
21	ELEV SUMP PUMP	20/1	1.50	B	1.77	25/2	OFFICE MINI-SPLIT	22
23	ELEV PIT GFCI RECEP	20/1	0.18	C	1.77			24
25	ELEV PIT RECEP	20/1	0.18	A	0.00	20/1	SPARE	26
27	ELEV DED CKT #1	20/1	0.60	B	0.00	20/1	SPARE	28
29	ELEV DED CKT #2	20/1	0.60	C	0.44	20/1	COMMON LIGHTING	30
31	ELEV DED CKT #3	20/1	0.60	A	0.40	20/1	STAIR LIGHTING	32
33	ELEV DED CKT #4	20/1	0.60	B	0.10	20/1	HW RECIRC PUMP	34
35	OFFICE RECS #1	20/1	0.90	C	0.90	20/1	OFFICE RECS #2	36
37			0.00	A	0.00			38
39			0.00	B	0.00			40
41			0.00	C	0.00			42
			kVA	PH	AMPS			
			12.5	A	104			
			13.3	B	111			
			15.3	C	127			
VOLTAGE/PHASE				208Y/120V,3P,4W				
BUS RATING				150A				
MAIN CIRCUIT BREAKER RATING				MLO				
AIC RATING				22K - EC TO VERIFY				
SERVICE ENTRANCE RATED				NO				
ENCLOSURE				NEMA 1				
MOUNTING				SURFACE				

PANEL 1BB								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	SVC / MISC RECS	20/1	0.90	A	0.98	20/1	UNIT 8 LTS/RECS #1	2
3	CLOTHES WASHER #1	20/1	1.88	B	1.14	20/1	UNIT 8 LTS/RECS #2	4
5	CLOTHES WASHER #2	20/1	1.88	C	0.26	20/1	UNIT 8 BATH	6
7	LAUNDRY PTAC	20/2	1.62	A	1.62	20/2	UNIT 8 PTAC	8
9			1.62	B	1.62			10
11	CLOTHES DRYER #1	30/2	2.50	C	1.12	20/2	STAIR UNIT HEATER	12
13			2.50	A	1.12			14
15	CLOTHES DRYER #2	30/2	2.50	B	0.00	20/1	SPARE	16
17			2.50	C	2.21			18
19	SPACE		0.00	A	2.21	30/2	CORRIDOR VTAC	20
21	SPACE		0.00	B	0.60	20/1	FACP	22
23	ADA UNIT BED SHAKER	20/1	1.20	C	0.61	20/1	GENERAL & STAIR LTS	24
25			0.00	A	0.10	20/1	HW RECIRC PUMP	26
27			0.00	B	0.00			28
29			0.00	C	0.00			30
31			0.00	A	0.00			32
33			0.00	B	0.00			34
35			0.00	C	0.00			36
37			0.00	A	0.00			38
39			0.00	B	0.00			40
41			0.00	C	0.00			42
			kVA	PH	AMPS			
			11.1	A	92			
			9.4	B	78			
			12.3	C	102			
VOLTAGE/PHASE					208Y/120V,3P,4W			
BUS RATING					125A			
MAIN CIRCUIT BREAKER RATING					MLO			
AIC RATING					22K - EC TO VERIFY			
SERVICE ENTRANCE RATED					NO			
ENCLOSURE					NEMA 1			
MOUNTING					SURFACE			

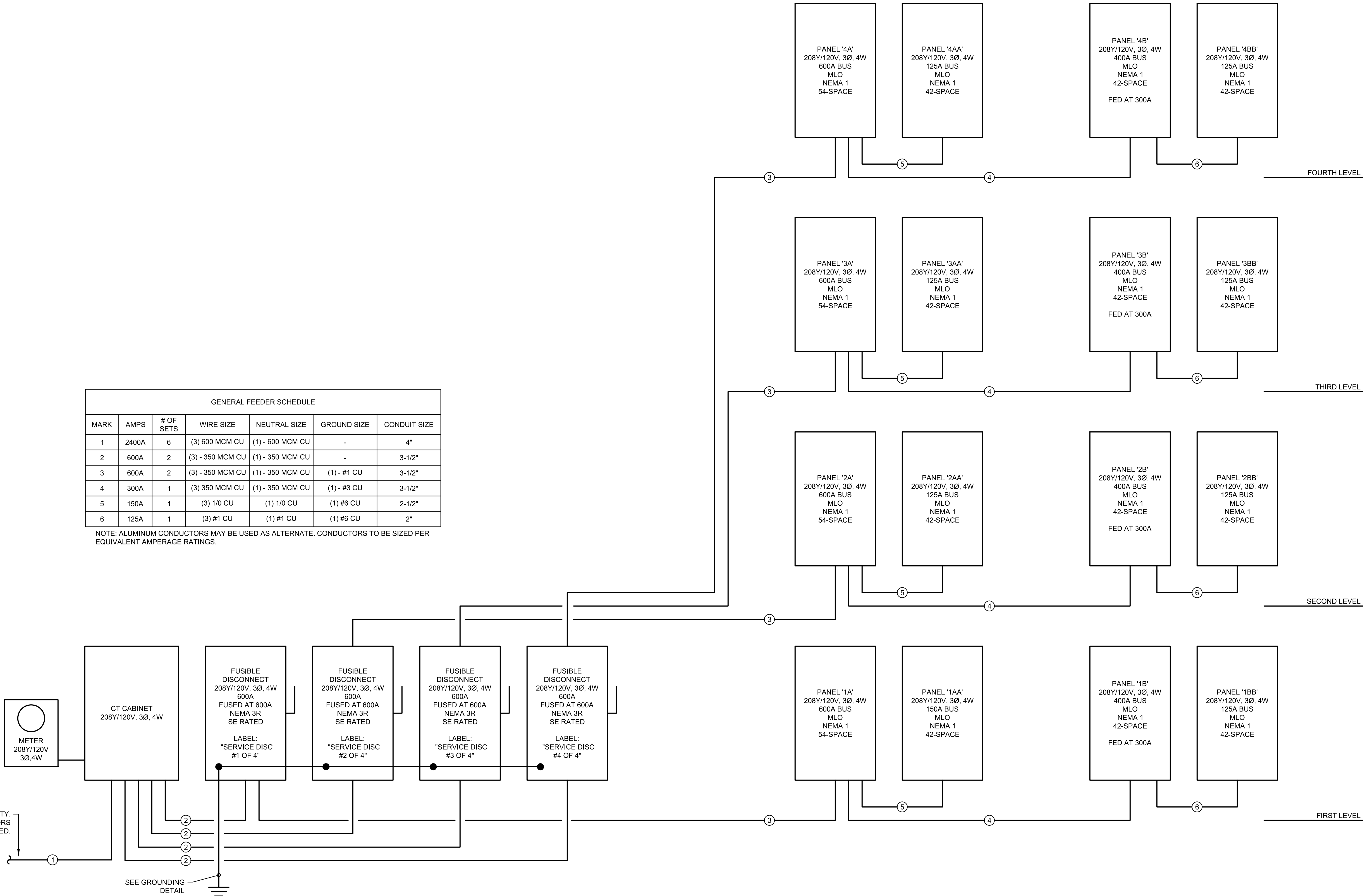
PANEL 3A								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	UNIT 1 LTS/RECS #1	20/1	0.98	A	0.98	20/1	UNIT 5 LTS/RECS #1	2
3	UNIT 1 LTS/RECS #2	20/1	1.14	B	1.14	20/1	UNIT 5 LTS/RECS #2	4
5	UNIT 1 BATH	20/1	0.26	C	0.26	20/1	UNIT 5 BATH	6
7	UNIT 1 PTAC	20/2	1.62	A	1.62	20/2	UNIT 5 PTAC	8
9			1.62	B	1.62			10
11	UNIT 2 LTS/RECS #1	20/1	0.98	C	0.98	20/1	UNIT 6 LTS/RECS #1	12
13	UNIT 2 LTS/RECS #2	20/1	1.14	A	1.14	20/1	UNIT 6 LTS/RECS #2	14
15	UNIT 2 BATH	20/1	0.26	B	0.26	20/1	UNIT 6 BATH	16
17	UNIT 2 PTAC	20/2	1.62	C	1.62	20/2	UNIT 6 PTAC	18
19			1.62	A	1.62			20
21	UNIT 3 LTS/RECS #1	20/1	0.98	B	0.98	20/1	UNIT 7 LTS/RECS #1	22
23	UNIT 3 LTS/RECS #2	20/1	1.14	C	1.14	20/1	UNIT 7 LTS/RECS #2	24
25	UNIT 3 BATH	20/1	0.26	A	0.26	20/1	UNIT 7 BATH	26
27	UNIT 3 PTAC	20/2	1.62	B	1.62	20/2	UNIT 7 PTAC	28
29			1.62	C	1.62			30
31	UNIT 4 LTS/RECS #1	20/1	0.98	A	6.25	60/3	WH-1	32
33	UNIT 4 LTS/RECS #2	20/1	1.14	B	6.25			34
35	UNIT 4 BATH	20/1	0.26	C	6.25			36
37	UNIT 4 PTAC	20/2	1.62	A	12.00	125/3	PANEL 3AA	38
39			1.62	B	11.80			40
41	SPARE	20/1	0.00	C	13.20			300/3
43			6.85	A	31.20	44		
45			6.85	B	29.10	46		
47			6.85	C	29.70	48		
49			0.00	A	0.00	50		
51			0.00	B	0.00			52
53			0.00	C	0.00			54
			kVA	PH	AMPS			
			70.1	A	585			
			68.0	B	567			
			67.5	C	563			
VOLTAGE/PHASE				208Y/120V,3P,4W				
BUS RATING				600A				
MAIN CIRCUIT BREAKER RATING				MLO				
AIC RATING				22K - EC TO VERIFY				
SERVICE ENTRANCE RATED				NO				
ENCLOSURE				NEMA 1				
MOUNTING				SURFACE				

PANEL 3B								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	UNIT 1 LTS/RECS #1	20/1	0.98	A	0.98	20/1	UNIT 5 LTS/RECS #1	2
3	UNIT 1 LTS/RECS #2	20/1	1.14	B	1.14	20/1	UNIT 5 LTS/RECS #2	4
5	UNIT 1 BATH	20/1	0.26	C	0.26	20/1	UNIT 5 BATH	6
7	UNIT 1 PTAC	20/2	1.62	A	1.62	20/2	UNIT 5 PTAC	8
9			1.62	B	1.62			10
11	UNIT 2 LTS/RECS #1	20/1	0.98	C	0.98	20/1	UNIT 6 LTS/RECS #1	12
13	UNIT 2 LTS/RECS #2	20/1	1.14	A	1.14	20/1	UNIT 6 LTS/RECS #2	14
15	UNIT 2 BATH	20/1	0.26	B	0.26	20/1	UNIT 6 BATH	16
17	UNIT 2 PTAC	20/2	1.62	C	1.62	20/2	UNIT 6 PTAC	18
19			1.62	A	1.62			20
21	UNIT 3 LTS/RECS #1	20/1	0.98	B	0.98	20/1	UNIT 7 LTS/RECS #1	22
23	UNIT 3 LTS/RECS #2	20/1	1.14	C	1.14	20/1	UNIT 7 LTS/RECS #2	24
25	UNIT 3 BATH	20/1	0.26	A	0.26	20/1	UNIT 7 BATH	26
27	UNIT 3 PTAC	20/2	1.62	B	1.62	20/2	UNIT 7 PTAC	28
29			1.62	C	1.62			30
31	UNIT 4 LTS/RECS #1	20/1	0.98	A	6.25	60/3	WH-1	32
33	UNIT 4 LTS/RECS #2	20/1	1.14	B	6.25			34
35	UNIT 4 BATH	20/1	0.26	C	6.25			36
37	UNIT 4 PTAC	20/2	1.62	A	11.10	125/3	PANEL 3BB	38
39			1.62	B	8.80			40
41	SPARE	20/1	0.00	C	11.90			
			kVA	PH	AMPS			
			31.2	A	260			
			29.1	B	242			
			29.7	C	247			
VOLTAGE/PHASE					208Y/120V,3P,4W			
BUS RATING					400A			
MAIN CIRCUIT BREAKER RATING					MLO			
AIC RATING					22K - EC TO VERIFY			
SERVICE ENTRANCE RATED					NO			
ENCLOSURE					NEMA 1			
MOUNTING					SURFACE			

PANEL 3AA								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	SVC / MISC RECS	20/1	0.90	A	0.98	20/1	UNIT 8 LTS/RECS #1	2
3	CLOTHES WASHER #1	20/1	1.88	B	1.14	20/1	UNIT 8 LTS/RECS #2	4
5	CLOTHES WASHER #2	20/1	1.88	C	0.26	20/1	UNIT 8 BATH	6
7	LAUNDRY PTAC	20/2	1.62	A	1.62	20/2	UNIT 8 PTAC	8
9			1.62	B	1.62			10
11	CLOTHES DRYER #1	30/2	2.50	C	1.12	20/2	STAIR UNIT HEATER	12
13			2.50	A	1.12			14
15	CLOTHES DRYER #2	30/2	2.50	B	0.00	20/1	SPARE	16
17			2.50	C	2.21			18
19			0.00	A	2.21	30/2	CORRIDOR VTAC	20
21			0.00	B	2.30			22
23			0.00	C	2.30	30/2	CHAPEL PTAC	24
25			0.00	A	0.90			20/1
27			0.00	B	0.72	20/1	OFFICE RECS #2	28
29			0.00	C	0.44	20/1	COMMON LIGHTING	30
31			0.00	A	0.10	20/1	HW RECIRC PUMP	32
33			0.00	B	0.00			34
35			0.00	C	0.00			36
37			0.00	A	0.00			38
39			0.00	B	0.00			40
41			0.00	C	0.00			42
			kVA	PH	AMPS			
			12.0	A	100			
			11.8	B	98			
			13.2	C	110			
VOLTAGE/PHASE					208Y/120V,3P,4W			
BUS RATING					125A			
MAIN CIRCUIT BREAKER RATING					MLO			
AIC RATING					22K - EC TO VERIFY			
SERVICE ENTRANCE RATED					NO			
ENCLOSURE					NEMA 1			
MOUNTING					SURFACE			

PANEL 3BB								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	SVC / MISC RECS	20/1	0.90	A	0.98	20/1	UNIT 8 LTS/RECS #1	2
3	CLOTHES WASHER #1	20/1	1.88	B	1.14	20/1	UNIT 8 LTS/RECS #2	4
5	CLOTHES WASHER #2	20/1	1.88	C	0.26	20/1	UNIT 8 BATH	6
7	LAUNDRY PTAC	20/2	1.62	A	1.62	20/2	UNIT 8 PTAC	8
9			1.62	B	1.62			10
11	CLOTHES DRYER #1	30/2	2.50	C	1.12	20/2	STAIR UNIT HEATER	12
13			2.50	A	1.12			14
15	CLOTHES DRYER #2	30/2	2.50	B	0.00	20/1	SPARE	16
17			2.50	C	2.21			18
19	SPACE		0.00	A	2.21	30/2	CORRIDOR VTAC	20
21	SPACE		0.00	B	0.00	20/1	SPARE	22
23	ADA UNIT BED SHAKER	20/1	1.20	C	0.21	20/1	GENERAL LTS	24
25			0.00	A	0.10	20/1	HW RECIRC PUMP	26
27			0.00	B	0.00			28
29			0.00	C	0.00			30
31			0.00	A	0.00			32
33			0.00	B	0.00			34
35			0.00	C	0.00			36
37			0.00	A	0.00			38
39			0.00	B	0.00			40
41			0.00	C	0.00			42
			kVA	PH	AMPS			
			11.1	A	92			
			8.8	B	73			
			11.9	C	99			
VOLTAGE/PHASE					208Y/120V,3P,4W			
BUS RATING					125A			
MAIN CIRCUIT BREAKER RATING					MLO			
AIC RATING					22K - EC TO VERIFY			
SERVICE ENTRANCE RATED					NO			
ENCLOSURE					NEMA 1			
MOUNTING					SURFACE			

COORDINATE P.O.D WITH LOCAL UTILITY.
PROVIDE CONDUITS/CONDUCTORS
NOTED IN SCHEDULE IF REQUIRED.



GENERAL FEEDER SCHEDULE						
MARK	AMPS	# OF SETS	WIRE SIZE	NEUTRAL SIZE	GROUND SIZE	CONDUIT SIZE
1	2400A	6	(3) 600 MCM CU	(1) - 600 MCM CU	-	4"
2	600A	2	(3) - 350 MCM CU	(1) - 350 MCM CU	-	3-1/2"
3	600A	2	(3) - 350 MCM CU	(1) - 350 MCM CU	(1) - #1 CU	3-1/2"
4	300A	1	(3) 350 MCM CU	(1) - 350 MCM CU	(1) - #3 CU	3-1/2"
5	150A	1	(3) 1/0 CU	(1) 1/0 CU	(1) #6 CU	2-1/2"
6	125A	1	(3) #1 CU	(1) #1 CU	(1) #6 CU	2"

NOTE: ALUMINUM CONDUCTORS MAY BE USED AS ALTERNATE. CONDUCTORS TO BE SIZED PER EQUIVALENT AMPERAGE RATINGS.



**CONTACT HILTI FOR CURRENT UL-Classified SYSTEM OR ENGINEERING JUDGMENT DRAWING: 800-879-6000
 NOTES:
 1. Jobite conditions of each through-penetration firestop system must meet ALL details of the UL-Classified System selected.
 2. If jobite conditions do not match any UL-Classified systems in the schedules above, contact HILTI for alternative systems or Engineer Judgment Drawings - 800-879-6000
 3. Where more than one applicable UL-Classified System is listed in the schedules, choose the UL System which is most economical for each through-penetration firestop system.
 4. Where work with other trades to assure that penetration opening sizes are appropriate for penetrant locations, and vice versa.
 5. Substitutions are permissible as complete assemblies and shall be submitted to the authority having jurisdiction and architect.
 6. Contractor is responsible for using latest detail.

ADMINISTRATIVE:

- THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
- PC - PLUMBING CONTRACTOR,
EC - ELECTRICAL CONTRACTOR,
MC - MECHANICAL CONTRACTOR,
GC - GENERAL CONTRACTOR,
FSC - FIRE ALARM SYSTEM CONTRACTOR.
- SPEC- CURRENT STATE PLUMBING CODE (NORTH CAROLINA STATE BUILDING CODE: PLUMBING CODE)
2. "PROVIDE" MEANS TO FURNISH AND INSTALL. THE PLUMBING CONTRACTOR SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR.
3. THE PC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATIONAL SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
4. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED AT AN APPROVED LOCATION. PC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL BE THE PROPERTY OF THE PC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
5. ALL MATERIALS USED SHALL BE NEW AND FREE OF DEFECTS. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED AT NO EXPENSE TO THE OWNER. ALL MATERIALS AND EQUIPMENT SHALL BEAR APPROVAL FROM UL OR AN APPROVED THIRD-PARTY AGENCY. WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN, IT IS TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED.
6. THE PLUMBING SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE SPC AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ENGINEER OR IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
7. THE PC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
8. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
9. THESE PLANS ARE DIAGRAMMATIC. THE PC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, FIXTURES, PIPING, ETC, TO ACCOMMODATE PLANNED AND ENCOUNTERED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE PC SHALL BE RESPONSIBLE FOR ADVANCING FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER.
10. THE PC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. TO AVOID POTENTIAL CONFLICTS, COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
11. ALL UNDERGROUND UTILITIES SHALL BE LOCATED PRIOR TO ANY DIGGING.
12. TRENCHING, EXCAVATION, AND BACKFILL SHALL BE BY PC AND SHALL BE IN ACCORDANCE WITH SECTION 306 OF THE SPC. UNDERGROUND LINES SHALL BE LOCATED SUCH THAT THEY DO NOT ENDANGER FOOTINGS OR FOUNDATION WALLS.
13. THE PC SHALL PROVIDE FIRESTOPPING AT ALL PENETRATIONS OF RATED FLOOR/CEILING ASSEMBLIES AND RATED WALL ASSEMBLIES TO PRESERVE OR RESTORE THE FIRE RESISTANCE RATING. SEAL ALL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THE PROJECT.
14. SYSTEM TESTING SHALL BE PERFORMED BY PLUMBING CONTRACTOR IN ACCORDANCE WITH SPC, SECTIONS 312.2, 312.3, AND 312.5.
15. PC SHALL DISINFECT THE ENTIRE DOMESTIC WATER PIPING SYSTEM IN ACCORDANCE WITH THE AMERICAN WATER WORKS ASSOCIATION'S SPECIFICATIONS AND LOCAL HEALTH DEPARTMENT REGULATIONS.
16. AT THE COMPLETION OF WORK AND PRIOR TO ACCEPTANCE BY OWNER, THE PC SHALL CLEAN ALL EXPOSED FIXTURES, MATERIALS, AND EQUIPMENT UNDER THIS CONTRACT.
17. PC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.
18. ALL PLUMBING SCOPE IS WITHIN FIVE (5) FEET OF EXTERIOR OF BUILDING OR AS SHOWN ON PLANS.

METHODS:

3. EXTEND DOMESTIC WATER PIPE AS INDICATED ON THE PLANS AND INSTALL DOMESTIC WATER DISTRIBUTION PIPING TO ALL FIXTURES AND EQUIPMENT REQUIRING THE SAME. WATER SERVICE PIPE AND THE BUILDING SEWER SHALL BE SEPARATED BY 5 FEET OF UNDISTURBED OR COMPACTED EARTH IN ACCORDANCE WITH 603.5 PC. PROVIDE A MINIMUM 12 INCHES OF UNDISTURBED OR COMPACTED EARTH ABOVE THE FINISHED GRADE. A COMPLETE INSTALLATION. ALL DOMESTIC WATER PIPING SHALL BE CONCEALED IN FINISHED AREAS. ANY OPEN ENDS SHALL BE PROTECTED UNTIL FINAL CONNECTIONS ARE MADE.
2. ABOVE GRADE DOMESTIC WATER PIPING SHALL BE SLOPED AT A MINIMUM OF 1/32 INCH PER FOOT AND ARRANGED TO DRAIN AT LOW POINTS. INSTALL PIPING TO ALLOW FOR THE REMOVAL OF AIR AND DEBRIS. PROVIDE SUFFICIENT SUPPORTS TO MAINTAIN THE EQUIPMENT. ROUTE PIPING IN AN ORDERLY MANNER-PARALLEL OR PERPENDICULAR TO WALLS WHEN POSSIBLE-AND MAINTAIN GRADIENT. EACH SUPPLY BRANCH LINE SERVING MORE THAN ONE FIXTURE SHALL HAVE A SHUTOFF VALVE INSTALLED TO ISOLATE ALL FIXTURES AND PIECES OF EQUIPMENT SUPPLIED BY THE BRANCH LINE. THE SHUTOFF VALVE SHALL BE LABELED AND LOCATED AS CLOSE TO THE CONNECTED EQUIPMENT AS PRACTICABLE. PROVIDE A SHUTOFF VALVE AT EACH FIXTURE. AT THE CONNECTION TO THE SUPPLY MAIN AND RISER AS POSSIBLE. PROVIDE A FULL-OPEN VALVE ON THE BASE OF EVERY WATER RISER PIPE AND ON THE TOP OF EVERY WATER DOWN-FEED PIPE. PROVIDE VALVE HANDLE EXTENSIONS AS NECESSARY FOR INSULATION.
3. IT SHALL BE THE RESPONSIBILITY OF THE PC TO SUSPEND AND SUPPORT ALL PIPING CONDUITS INCLUDING COLD WATER, HOT WATER, STEAM, GAS, AND VENT. A STANDARD, COMMERCIALY ACCEPTED PIPE HANGERS AND SUSPENSION EQUIPMENT, ALL FIXTURES, DEVICES, AND EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE FIXTURE OR EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. THE SUPPORT FROM TOP OF CHORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT AND PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING. USE STEEL HANGERS FOR STEEL AND PLASTIC PIPE AND COPPER OR COPPER-PLATED HANGERS FOR COPPER PIPE. PROVIDE PROTECTION FOR COPPER PIPING IN CONTACT WITH DISSIMILAR MATERIALS. PROVIDE PROTECTION FOR COPPER PIPING IN CONTACT WITH STEEL. PROVIDE A PERMANENT ELECTROLYTIC ISOLATION MATERIAL TO PREVENT CONTACT WITH OTHER METALS. IN GENERAL, HANGERS SHALL BE CLEVIS TYPE, STANDARD WEIGHT. FOR PIPING, HANGER SPACING SHALL BE IN ACCORDANCE WITH TABLE 308.5 OF THE SPC. HANGERS AND ACCESSORIES SHALL BE GRINNEL, MASON, OR B-LINE.
4. SLEEVE ALL PIPES PASSING THROUGH PARTITIONS, WALLS, AND FLOORS. SLEEVES IN PARTITIONS AND INTERIOR WALLS SHALL BE 2 INCHES ABOVE THE PARTITION OR WALL. FOR MASONRY SHALL BE SCHEDULE 40 STEEL PIPE, MACHINE CUT. SLEEVES IN GYPSUM BOARD WALLS SHALL BE 22 GAUGE, ROLLED GALVANIZED SHEET METAL. TACK WELD ON THE LONGITUDINAL SEAM. PROVIDE SLEEVES WHERE PIPES PASS THROUGH FLOORS AND WALLS ABOVE AND BELOW CEILINGS. PROVIDE SPLIT PIPE SLEEVES IN CONCRETE SLAB WALLS. PROVIDE SLEEVES IN CONCRETE WALLS. PROVIDE SLEEVES TOGETHER. SLEEVES IN WALLS SHALL BE INSTALLED FLUSH WITH THE WALL. SLEEVES IN FLOORS SHALL EXTEND 3/4 INCH ABOVE THE FLOOR-EXCEPT THEY SHALL BE FLUSH FOR 2 HOUR RATED FLOORS-AND SHALL BE FLUSH WITH THE STRUCTURE BELOW. EACH SLEEVE SHALL HAVE AN INSIDE DIAMETER 1 INCH LARGER THAN THE OUTSIDE DIAMETER OF THE COVERING OF EACH COVERED PIPE TO ALLOW CONTINUOUS INSULATION. BUT NOT LARGER THAN THE INSIDE DIAMETER OF THE UNCOVERED ANNULAR SPACES BETWEEN SLEEVES AND PIPES SHALL BE FILLED OR CAULKED IN AN APPROVED MANNER.
5. THE TOP OF WATER PIPES INSTALLED BELOW GRADE OUTSIDE THE BUILDING SHALL BE BELOW THE FRONT LINE OR A MINIMUM OF 12 INCHES BELOW FINISHED GRADE. WHICHEVER IS GREATER. WATER PIPING INSTALLED IN A WALL EXPOSED TO THE EXTERIOR SHALL BE INSTALLED AT LEAST 1/2 INCH ABOVE THE FINISHED GRADE. WATER PIPING INSTALLED IN AN UNCONDITIONED UTILITY ROOM OR UNCONDITIONED ATTIC SHALL BE INSTALLED TO A MINIMUM OF R6.5 DETERMINED IN ACCORDANCE WITH ASTM

C 177.

1. HOT WATER PROVIDED TO PUBLIC HAND-WASHING FACILITIES/LAVATORIES SHALL BE TEMPERED WATER DELIVERED THROUGH AN APPROVED WATER-TEMPERATURE LIMITING DEVICE THAT CONFORMS TO ASSE 1070 OR CSA B125.3.
2. INSURE ALL EXPOSED WASTE AND SUPPLY PIPING UNDER LAVATORIES, SINKS, AND ELECTRIC WATER COOLERS WITH THE HAND/LAV GUARD INSULATION KIT BY TRUEBRO OR EQUAL.
3. POTABLE WATER OUTLETS SHALL BE PROTECTED FROM BACKFLOW IN ACCORDANCE WITH 608.15 SPC. PRESSURE TYPE VACUUM BREAKERS SHALL CONFORM TO ASSE 1020 AND SPILPROOF VACUUM BREAKERS SHALL COMPLY WITH ASSE 1056. HOSE-CONNECTION VACUUM BREAKERS SHALL CONFORM TO ASSE 1011, ASSE 1019, ASSE 1035, OR ASSE 1052. CONNECTIONS TO BEVERAGE DISPENSERS, COFFEE MAKERS, AND NON-CARBONATED BEVERAGE DISPENSERS SHALL BE PROTECTED BY A BACKFLOW PREVENTER IN ACCORDANCE WITH ASSE 1022.
4. THE PC SHALL INSTALL WATER HAMMER ARRESTORS ON BRANCH LINES WITH QUICK CLOSING VALVES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. WATER HAMMER ARRESTORS SHALL CONFORM TO ASSE 1010.
5. THE PC SHALL PROVIDE CHECK VALVES AT ALL FIXTURES WITH THREADED OUTLETS AS REQUIRED BY CODE. TRAP PRIMERS SHALL BE PROVIDED AS SHOWN ON THE PLANS OR AS REQUIRED.
6. ADJUST STOPS AND VALVES FOR INTENDED FLOW RATE TO FIXTURES WITHOUT SLAPPING, NOISE, OR OVERFLOW.
7. BEFORE COMMENCING WORK, CHECK INVERT ELEVATIONS REQUIRED FOR SEWER CONNECTIONS. CONFIRM INVERTS, AND VERIFY THESE CAN BE PROPERLY CONNECTED TO WITH SLOPE FOR DRAINAGE AND COVER TO AVOID FREEZING. ONCE INVERTS AND FALL HAVE BEEN ESTABLISHED, EXTEND SANITARY SEWER AS SHOWN AND INSTALL ALL DRAINS, STACKS, VENTS, FLOOR DRAINS, AND CLEANOUTS NECESSARY FOR A COMPLETE INSTALLATION.
8. ALL SANITARY SEWER PIPING IS BELOW GRADE OR WITHIN WALLS UNLESS OTHERWISE NOTED. ALL SANITARY VENT PIPING IS ABOVE THE CEILING OR WITHIN WALLS UNLESS OTHERWISE NOTED. SOIL AND WASTE PIPING SHALL BE INSTALLED TO PROVIDE PROTECTION AGAINST FREEZING PER 305.4.1 SPC. WASTE AND SOIL LINES LEAVING THE BUILDING MUST HAVE A MINIMUM COVER OF 3 INCHES.
9. SOIL AND WASTE LINES 2-1/2 INCHES AND SMALLER SHALL BE SLOPED AT 1/4 INCH PER FOOT MINIMUM. SOIL AND WASTE LINES 3 INCHES TO 6 INCHES IN DIAMETER SHALL BE SLOPED AT 1/8 INCH PER FOOT MINIMUM.
10. FOR WATER CLOSET WASTE CONNECTIONS, A 4 INCH BY 3 INCH CLOSET BEND SHALL BE ACCEPTABLE. WHERE A 3 INCH BEND IS UTILIZED ON WATER CLOSETS, A 4 INCH BY 3 INCH FLANGE SHALL BE INSTALLED TO RECEIVE THE FIXTURE HORN.
11. FOR PLASTIC PIPE SIZES GREATER THAN 6 INCHES, AND OTHER PIPE SIZES GREATER THAN 4 INCHES, RESTRAINTS SHALL BE PROVIDED FOR DRAINPIPS AT ALL CHANGES IN DIRECTION AND AT ALL CHANGES IN DIAMETER GREATER THAN TWO PIPE SIZES. BRACES, BLOCKS, RODDING, BACKFILL, AND OTHER SUITABLE METHODS AS SPECIFIED SHALL BE USED TO FULLY SUPPORT THE PIPING.
12. BASES OF STACKS SHALL BE SUPPORTED BY THE BUILDING STRUCTURE, VIRGIN OR COMPACTED EARTH, OR OTHER SUITABLE MATERIAL TO SUPPORT THE WEIGHT OF THE PIPING.
13. HORIZONTAL DRAINPIPS SHALL HAVE CLEANOUTS IN ACCORDANCE WITH 708.1 SPC. EXTEND CLEANOUTS TO FINISHED FLOOR OR WALL SURFACE. LUBRICATE THREADED CLEANOUT PLUGS WITH A MIXTURE OF GRAPHITE AND LINSEED OIL. ENSURE CLEANOUTS AT ALL CHANGES IN DIAMETER AND IN THE FLOW SYSTEM. INSTALL FLOOR CLEANOUTS AT AN ELEVATION TO ACCOMMODATE FINISHED FLOOR. EVERY CLEANOUT SHALL BE INSTALLED TO ALLOW CLEANING IN THE DIRECTION OF FLOW OF THE DRAINAGE PIPE OR AT RIGHT ANGLES THERETO. CLEANOUTS ON 6 INCH AND SMALLER PIPES SHALL BE PROVIDED WITH A CLEARANCE OF NOT LESS THAN 18 INCHES FOR RODDING.
14. DRAINAGE PIPING FOR FUTURE FIXTURES SHALL TERMINATE WITH AN APPROVED CAP OR PLUG.
15. AIR ADMITTANCE VALVES SHALL BE INSTALLED AFTER THE DWT TESTING REQUIRED BY SECTIONS 312.2 AND 312.3 OF THE SPC. PROVIDE ACCESS TO ALL AIR ADMITTANCE VALVES PER CODE. INSTALLATION OF ALL AIR ADMITTANCE VALVES SHALL CONFORM TO SECTION 918 OF THE SPC. AIR ADMITTANCE VALVES SHALL CONFORM TO ASSE 1050 OR 1051.
16. INDIRECT WASTE PIPING THAT EXCEEDS 2 FEET IN DEVELOPED LENGTH MEASURED HORIZONTALLY, OR 4 FEET IN TOTAL DEPTH IN LENGTH, SHALL BE TRAPPED, THE TRAP BEING OF THE CHUTE AND STARTING WITHIN THE FLOOR OR FLOOR JOINT. THE WASTE RECEPTOR SHALL BE A MINIMUM OF TWICE THE EFFECTIVE OPENING OF THE INDIRECT WASTE PIPE.
17. THE PC SHALL PROVIDE UNIONS FOR DISASSEMBLY AND SERVICE OF ALL FIXTURES AND OTHER RELEVANT PLUMBING EQUIPMENT. UNIONS SHALL BE GROUND-JOINT WITH BRASS SEAT, PROVIDE INSULATING UNIONS AT EACH JOINTING OF DISMILAR MATERIALS.
18. THE PC SHALL ACCURATELY ROUGH-IN ALL FIXTURES ACCORDING TO MANUFACTURER'S INSTALLATION DIMENSIONS AND INSTRUCTIONS. OFFSET ADAPTERS AND FLEXIBLE CONNECTORS ARE NOT ACCEPTABLE. FLUSH HANDLES SHALL BE MOUNTED ON THE WIDE SIDE OF TOILET AREAS FOR ADA COMPLIANCE. INSTALL EACH FIXTURE WITH TRAP EASILY REMOVABLE FOR SERVICING AND CLEANING. SEAL FIXTURES TO WALL AND FLOOR SURFACES WITH SEALANT. SOLIDLY ATTACH WATER CLOSETS TO FLOOR WITH LAG SCREWS. SEAL ALL SELF-RIMMING LAVATORIES AND SINKS TO THE SUBFLOOR WITH AN ELASTIC SEALANT. USE A COUPLER OR RIM OF THE PLUMBER'S PUTTY OR ACRYLIC LATEX CAULK APPLIED TO THE UNDERSIDE OF THE FIXTURE RIM IN A GENEROUS ANGLE SUCH THAT WHEN FIXTURE IS SET, SEALANT SHALL OZZE OUT.
19. ALL VENT THRU THE ROOF (VTR) PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PC SHALL PROVIDE INSTALLATION MATERIAL REQUIRED FOR VTRS. JOINTS AT THE ROOF AND AROUND VENT PIPES SHALL BE MADE WATERTIGHT WITH A MINIMUM OF 2 INCHES OF GALVANIZED STEEL, AN IMBURN OR OTHER APPROVED FLASHINGS OR FLASHING MATERIAL. MAINTAIN MINIMUM 10 FEET FROM ALL OUTSIDE AIR INTAKES.
20. INSTALL FULL OPEN VALVES PER SPC 606.1 ON THE MAIN WATER LINE INTO THE BUILDING. INSTALL SHUTOFF VALVES PER SPC 606.2.

MATERIALS:

1. BALL VALVES SHALL HAVE BRASS BODY, FULL PORT, CHROME PLATED BALL, WITH TEFLLON SEALS, 150 PSI WSP, AND COMPLY WITH MSS SP-110. GATE VALVES SHALL HAVE BRONZE BODY, CLASS 150, AND COMPLY WITH MSS SP-80, TYPE 2 STANDARD. VALVE BODY SHALL BE ASTM B 62, BRONZE WITH INTEGRAL SEAT AND UNION RING BONNET. ENDS SHALL BE THREADED OR SOLDER WITH COPPER-SILICON BRONZE STEM AND SOLID-WEDGE BRONZE DISC. INSTALL VALVES IN LOCATIONS THAT PERMIT EASY ACCESS WITHOUT DAMAGE TO BUILDING OR FINISHED MATERIALS; PROVIDE ACCESS TO TOP OF VALVE BODY FOR INSPECTION AND MAINTENANCE BY REMOVAL OF HANDWHEEL. COLD WATER LINES SHALL BE INSULATED WITH 1/2 INCH THICK FIBROUS GLASS INSULATION WITH A FLAME DENSITY RATING LESS THAN 25 AND A SMOKE DENSITY RATING LESS THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. HOT WATER LINES UP TO 2 INCHES DIAMETER SHALL HAVE 1 INCH THICK INSULATION CONFORMING TO THE SAME STANDARD. PIPING LARGER THAN 2 INCHES SHALL RECEIVE 1-1/2 INCH THICK INSULATION. CLOSED CELL RUBBER INSULATION MEETING THE SMOKE AND FLAME RATINGS ABOVE MAY BE SUBSTITUTED FOR FIBROUS GLASS TYPE IF SO DESIRED. INSULATION INSTALLED ON PIPING OPERATING BELOW AMBIENT TEMPERATURES MUST HAVE A CONTINUOUS VAPOR RETARDER, ALL JOINTS, SEAMS AND HANGERS MUST BE SEALED. ON SYSTEMS OPERATING ABOVE AMBIENT, THE BUTT JOINTS SHOULD NOT BE SEALED. ON COLD SURFACES WHERE A VAPOR SEAL MUST BE MAINTAINED, INSULATION SHALL BE APPLIED WITH A CONTINUOUS, UNBROKEN MOISTURE AND VAPOR RETARDER, ALL HANGERS, SUPPORTS, ANCHORS, OR OTHER PROJECTIONS SECURED TO COLD SURFACES SHALL BE INSULATED AND VAPOR SEALED TO PREVENT CONDENSATION. ALL PIPE INSULATION SHALL BE CONTINUOUS THROUGH WALLS, CEILING OR FLOOR OPENINGS, OR SLEEVES EXCEPT WHERE FIRESTOP OR FIRESPACING MATERIALS ARE REQUIRED. INSULATION SHALL HAVE A SELF-SEALING ADHESIVE JOINT AND A SELF-SEALING LAP. WHITE-KRAFT PAPER BONDED TO ALUMINUM FOIL AND REINFORCED WITH GLASS FIBERS; CONFORMING TO ASTM C 1136 TYPE 1; VAPOR RETARDER; WITH A SELF-SEALING ADHESIVE. VERIFY THAT PIPING HAS BEEN TESTED, SURFACES ARE CLEAN AND DRY, AND ALL FOREIGN MATERIALS ARE REMOVED BEFORE APPLYING INSULATION MATERIALS. INSULATION SHALL BE BY KNAUF, ARMACELL, JOHNS-MANVILLE, OR OWENS-CORNING.
3. ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE BEANBOARD SHALL MEET OR EXCEED THE REQUIREMENTS OF ASTM C 534. INSULATION WITH NOT GREATER THAN 0.05 PPM FORMALDEHYDE EMISSIONS, THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.

- FAUCETS AND FIXTURE FITTINGS SHALL CONFORM TO ASME 112.18.1. FAUCETS AND FIXTURE FITTINGS THAT SUPPLY DRINKING WATER FOR HUMAN CONSUMPTION SHALL CONFORM TO THE REQUIREMENTS OF NSF 61, SECTION 9. FIXTURE FITTINGS, FAUCETS, AND DIVERSERS SHALL BE INSTALLED AND ADJUSTED SO THAT THE FLOW OF WATER FROM THE FITTINGS CORRESPONDS TO THE LEFT-HAND SIDE OF THE FITTING FITTING.
5. BACKFLOW PREVENTION SHALL BE IN ACCORDANCE WITH SECTION 608.13 OF THE SPC AND THE LOCAL AUTHORITY HAVING JURISDICTION. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTERS SHALL CONFORM TO ASSE 1015 OR AWWA C511. THE RELIEF OPENING SHALL DISCHARGE BY AIR GAP. AIR GAPS SHALL COMPLY WITH ASME 112.1.1.2.1. AIR GAP FIFTEEN INCHES WITH ASME 112.1.1.2.1.2. SUBMIT CHECK VALVE ASSEMBLIES SHALL CONFORM TO ASSE 1015 OR AWWA C510. ACCESS TO BACKFLOW PREVENTERS SHALL BE PROVIDED AS SPECIFIED BY THE INSTALLATION INSTRUCTIONS OF THE APPROVED MANUFACTURER.
6. FOR BELOW GRADE SANITARY WASTE PIPING, PC SHALL USE SERVICE WEIGHT CAST IRON PIPE WITH COMPRESSION JOINTS (ASTM A 74). USE MINIMUM 2" SIZE UNDERGROUND. SOLID WALL SCHEDULE 40 PVC (ASTM D 2685) WITH SCHEDULE 40 SOCKET TYPE PIPE FITTINGS (ASTM F 411) MAY ALSO BE USED. DO NOT USE PE PIPE FOR APPLICATIONS WHERE THE WASTEWATER TEMPERATURE EQUALS OR EXCEEDS 140°F OR IF THE BUILDING HEIGHT EXCEEDS 75 FEET.
7. FOR ABOVE GRADE SANITARY WASTE AND VENT PIPING, USE SERVICE WEIGHT CAST IRON NO-HUB TYPE WITH COUPLINGS (CISPI 301). SOLID WALL SCHEDULE 40 PVC (ASTM D 2685) WITH SCHEDULE 40 SOCKET TYPE FITTINGS (ASTM D 3311) MAY BE USED IF PERMITTED BY LOCAL CODE, EXCEPT IN BUILDINGS EXCEEDING 75 FEET IN HEIGHT. DO NOT USE PE, PV, OR PVDF PIPE. ALL PIPING SHALL BE GRADED TO DRAIN BACK TO THE DRAINAGE PIPE. BE SO GRADED AND CONNECTED TO DRAIN BACK TO THE DRAINAGE PIPE BY GRAVITY. BRANCH VENTS EXCEEDING 40 FEET IN DEVELOPED LENGTH SHALL BE INCREASED BY ONE NOMINAL SIZE FOR THE ENTIRE DEVELOPED LENGTH OF THE PIPE.
8. ALL OVERHEAD DOMESTIC WATER PIPING SHALL BE TYPE L COPPER WITH 95/5 LEAD FREE SOLDER, AND ALL BELOW GRADE WATER PIPING SHALL BE TYPE K COPPER WITH NO JOINTS. ALL PIPING SHALL HAVE MANUFACTURER'S NAME AND THE APPLICABLE STANDARD TO WHICH IT CONFORMS MARKED ON EACH LENGTH. MARKED ON EACH LENGTH. PIPING SHALL COMPLY WITH ASTM B-88. USE BRAZED JOINTS ON ALL COPPER PIPING 1-1/2 INCH AND LARGER. ALL PIPE AND PIPE FITTINGS, INCLUDING VALVES AND FAUCETS, USED IN THE WATER DISTRIBUTION SYSTEM SHALL HAVE A MAXIMUM LEAD CONTENT OF 0.25-PERCENT AND SHALL CONFORM TO NSF 61. HOT WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 100 PSI AT 73°F. COLD WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 160 PSI AT 73°F. DO NOT INSTALL PEX OR CPVC PIPING IN RETURN AIR PLENUMS.
- 8.1. PC MAY USE PEX (ASTM F 877) WITH APPROVED FITTINGS (ASTM F 1807) WITH OWNER'S APPROVAL. CPVC PIPING (ASTM D 2846 OR ASTM F 441) WITH APPROVED FITTINGS (ASTM D 2846, ASTM F 438, OR ASTM F 439) MAY ALSO BE USED WHERE NOT LISTED IN PLENUMS. ALL PLASTIC PIPE, FITTINGS, AND COMPONENTS SHALL BE THIRD-PARTY CERTIFIED AS CONFORMING TO NSF 14.
9. PC SHALL PROVIDE ALL WATER HEATERS (WATTAGE/INPUT AND CAPACITY AS NOTED IN SCHEDULE). ALL WATER HEATERS SHALL BE THIRD PARTY CERTIFIED; PROVIDE PANS FOR WATER HEATERS IN ACCORDANCE WITH 504.7 OF THE SPC. ELECTRICAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE ON ELECTRICAL CHARACTERISTICS OF THE EQUIPMENT PROVIDED.
10. ALL PUMPS SHALL BE RATED FOR TRANSPORT OF POTABLE WATER. PUMPS IN AN INDIVIDUAL WATER SUPPLY SYSTEM SHALL BE CONSTRUCTED AND INSTALLED SO AS TO PREVENT CONTAMINATION FROM ENTERING THE WATER SUPPLY SYSTEM.

DO NOT TAP WATER LINE AHEAD OF RP2

LINETYPE LEGEND

HOT WATER RETURN
COLD WATER SUPPLY
HOT WATER SUPPLY
SANITARY SEWER LINE
VENT LINE



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 CORPORATE LICENSE C-2277

PRELIMINARY:
NOT FOR CONSTRUCTION

NEW CONSTRUCTION FOR:
ABCCM WOMEN'S TRANSIT. BUILDING

NEW CONSTRUCTION FOR:

REVISION

ISSUED: --/--/---

ISSUED FOR PERMIT
DESCRIPTION

DRAWN BY: CRL
CHECKED BY: BEW/KDC

SHEET:
PLUMBING NOTES

SHEET NO.

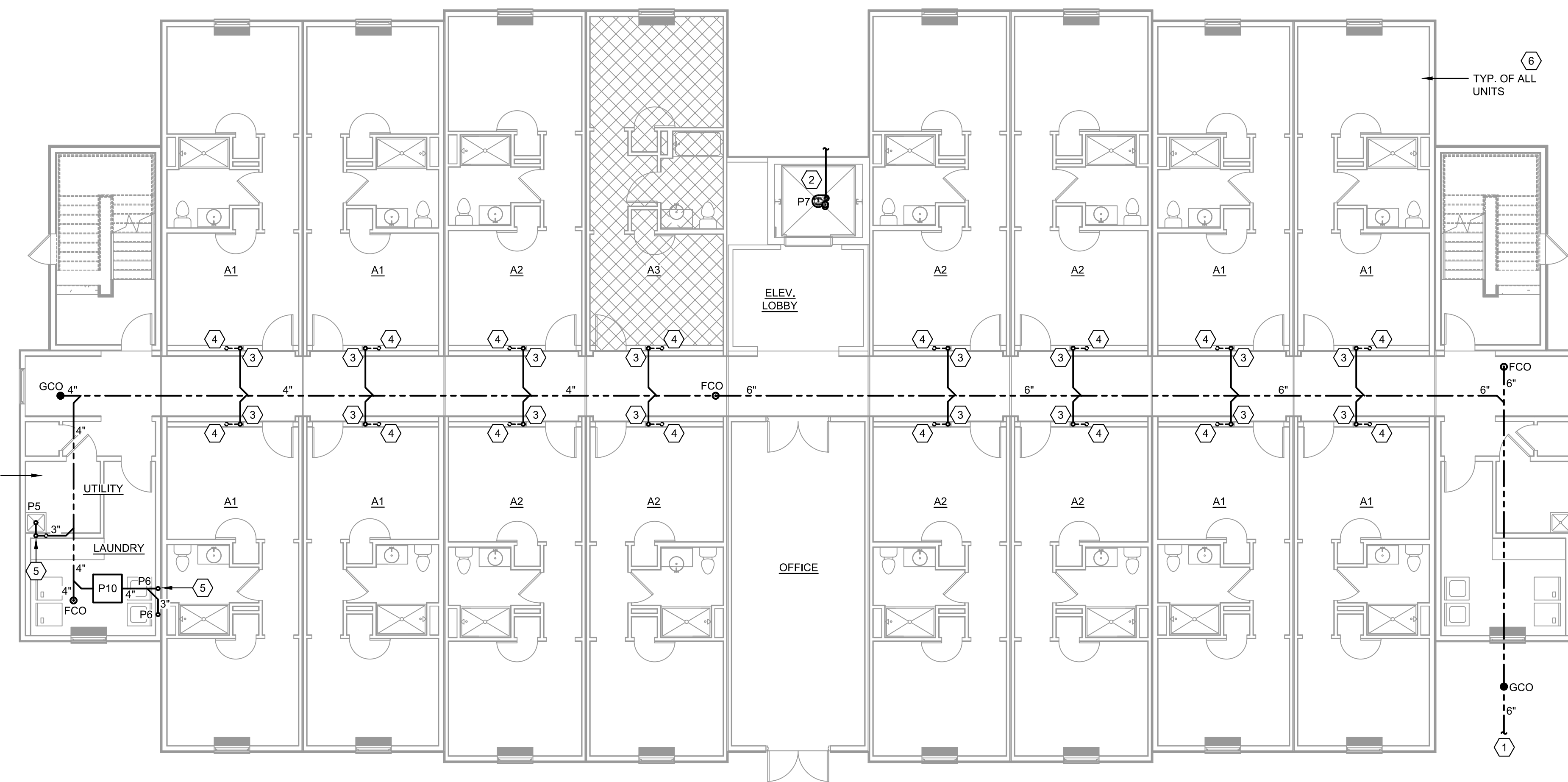
P-001

PROJECT NO: 2026-080

PRELIMINARY:
NOT FOR CONSTRUCTION

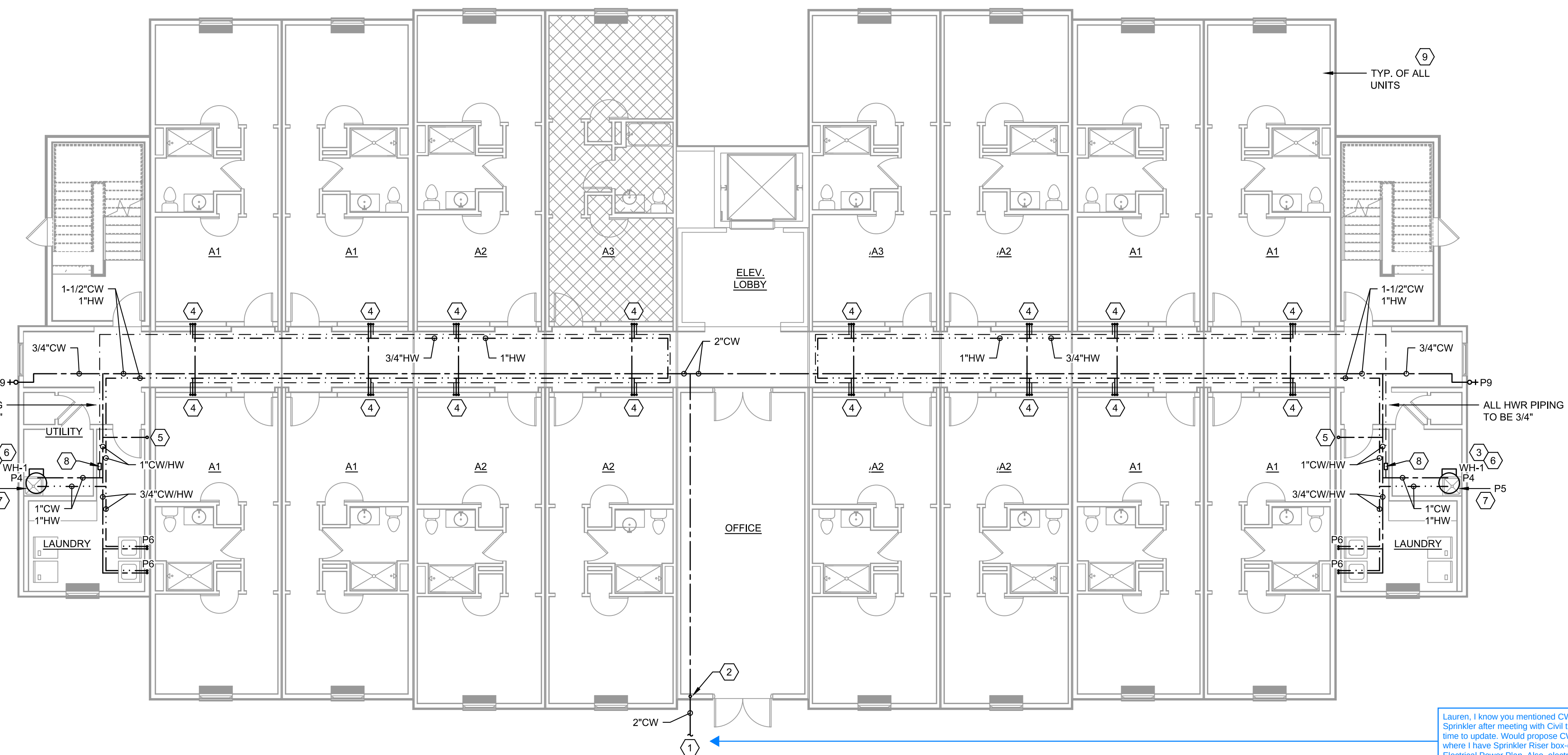
NEW CONSTRUCTION FOR:
ABCCM WOMEN'S TRANSIT. BUILDING
ROCKY RIDGE RD.
ASHVILLE, NC

REVISION	
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CHECKED BY: REW/KDC	
SHEET: LEVEL 1 PLUMBING PLANS	
SHEET NO. P-101	
PROJECT NO: 2026-0809	



1 LEVEL 1 - WASTE PLAN
Scale: 1/8" = 1'-0"

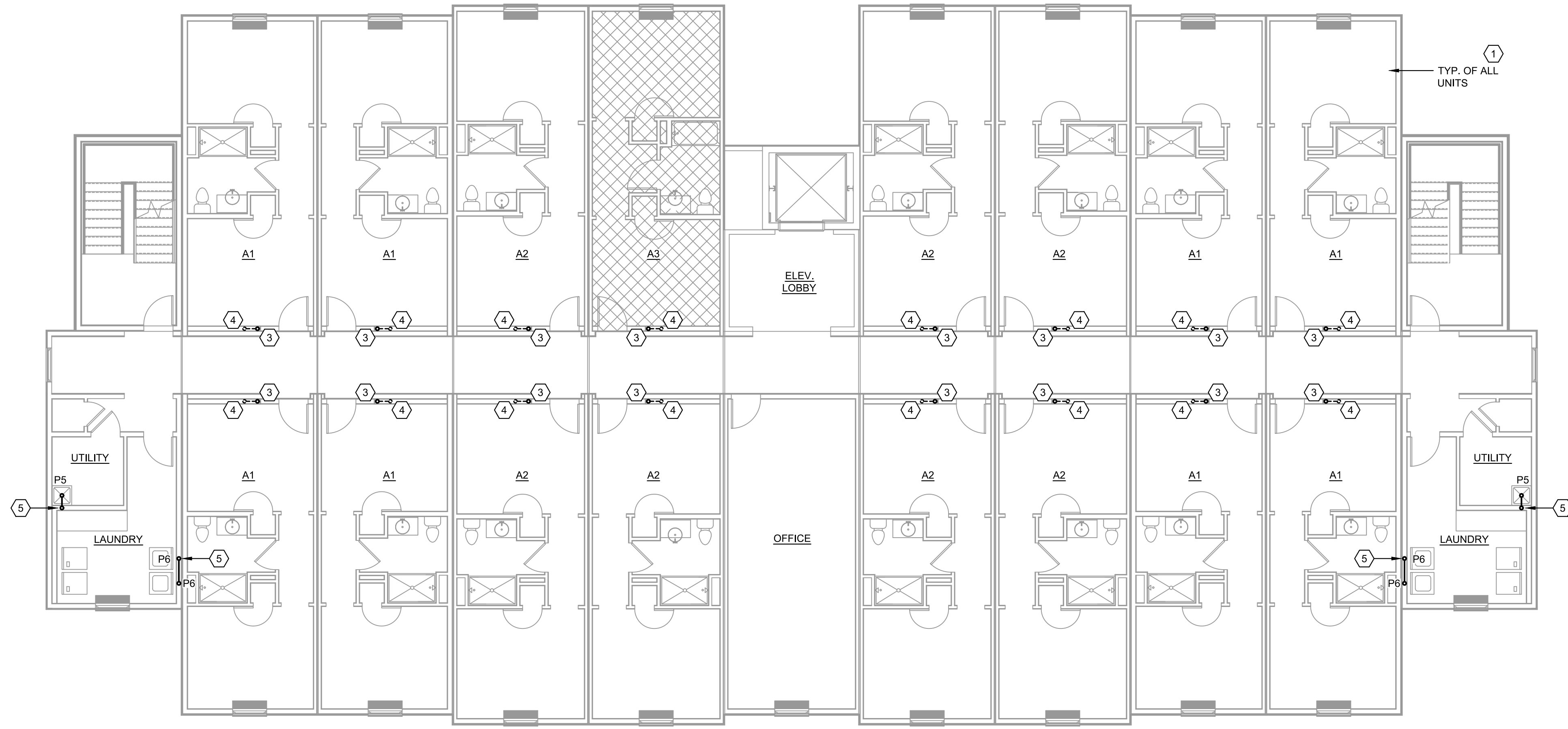
- SANITARY PLAN HEX NOTES**
1. REFERENCE SITE PLAN FOR CONTINUATION OF SANITARY SEWER.
 2. ROUTE 2" PIPE FROM SUMP PUMP TO DAY LIGHT. COORDINATE LOCATION ONSITE WITH LOCAL AHJ. PC SHALL INSPECT AND RODENT PROOF PIPE DISCHARGE PER PLUMBING CODE.
 3. 4" SANITARY STACK IN WALL. CONNECT 3" SANITARY FROM MODULAR UNIT AT EACH LEVEL.
 4. 3" VTR CIRCUIT VENT IN WALL. CONNECT 2" MODULAR VENT TO STACK AT EACH LEVEL. CONNECT 3" VENT TO SANITARY STACK BEFORE 1ST LEVEL BRANCH AND AFTER 4TH LEVEL BRANCH.
 5. 4" SANITARY STACK VENT IN WALL TO UPPER LEVELS. 3" VTR AT TOP OF STACK.
 6. REFERENCE ENLARGED PLUMBING DRAWINGS ON SHEETS P-201, 203, 203 FOR CONTINUATION INSIDE SLEEPING UNITS



2 LEVEL 1 - SUPPLY PLAN
Scale: 1/8" = 1'-0"

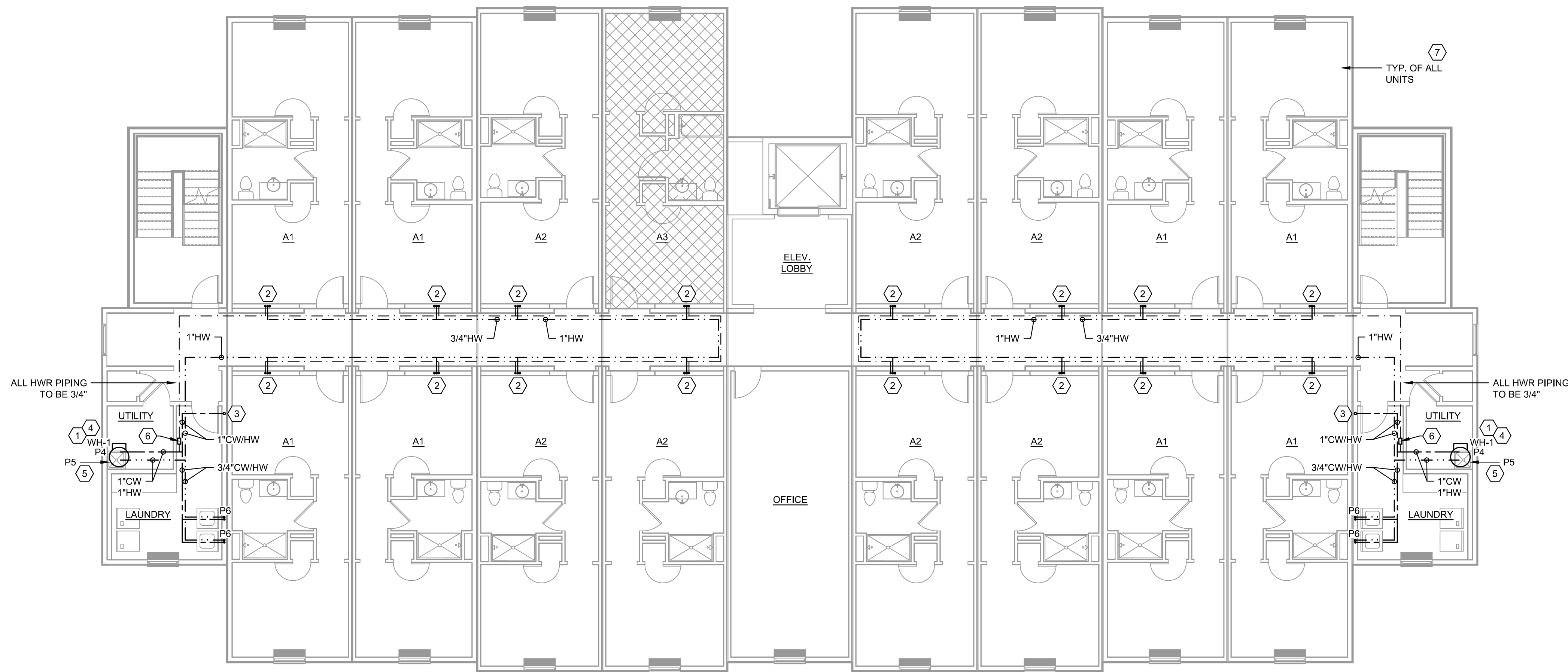
- DOMESTIC SUPPLY PLAN HEX NOTES**
1. REFERENCE SITE PLAN FOR CONTINUATION OF DOMESTIC SUPPLY AND BACKFLOW PREVENTION.
 2. ROUTE CWS UP IN WALL ABOVE CEILING. PROVIDE SHUTOFF VALVE IN ACCESSIBLE LOCATION.
 3. WATER HEATER WITH EXPANSION TANK AND HOT WATER RECIRC. LOOP. REFERENCE DETAIL ON SHEET P-302.
 4. 1" CW IN CHASE. MAKE 3/4" CW/HW/HWR CONNECTIONS AT EACH LEVEL. CONTINUE 1" CW UP TO LEVEL 3. REDUCE TO 3/4" CW AFTER LEVEL 3 CONNECTION AND CONTINUE 3/4" TO LEVEL 4 CONNECTION.
 5. 1-1/2" CW IN WALL UP TO LEVELS ABOVE. REDUCE TO 1" CW AFTER TAKEOFF ON LEVEL 3 AND CONTINUE 1" CW TO LEVEL 4. REFERENCE UPPER FLOOR SHEETS FOR CONTINUATION.
 6. ROUTE 1" CW/HW TO WATER HEATER.
 7. 1/2" CW/HW TO MOP SINK BELOW WATER HEATER.
 8. HW RECIRC PUMP LOCATED IN ACCESSIBLE LOCATION. COORDINATE ONSITE.
 9. REFERENCE ENLARGED PLUMBING DRAWINGS ON SHEETS P-201, 203, 203 FOR CONTINUATION INSIDE SLEEPING UNITS.

Lauren, I know you mentioned CWS out same side as Sprinkler after meeting with Civil this week. I did not have time to update. Would propose CWS enter on plan left side where I have Sprinkler Riser box-out shown on 1st floor Electrical Power Plan. Also, electrical is on plan right side, would like to keep them separate.



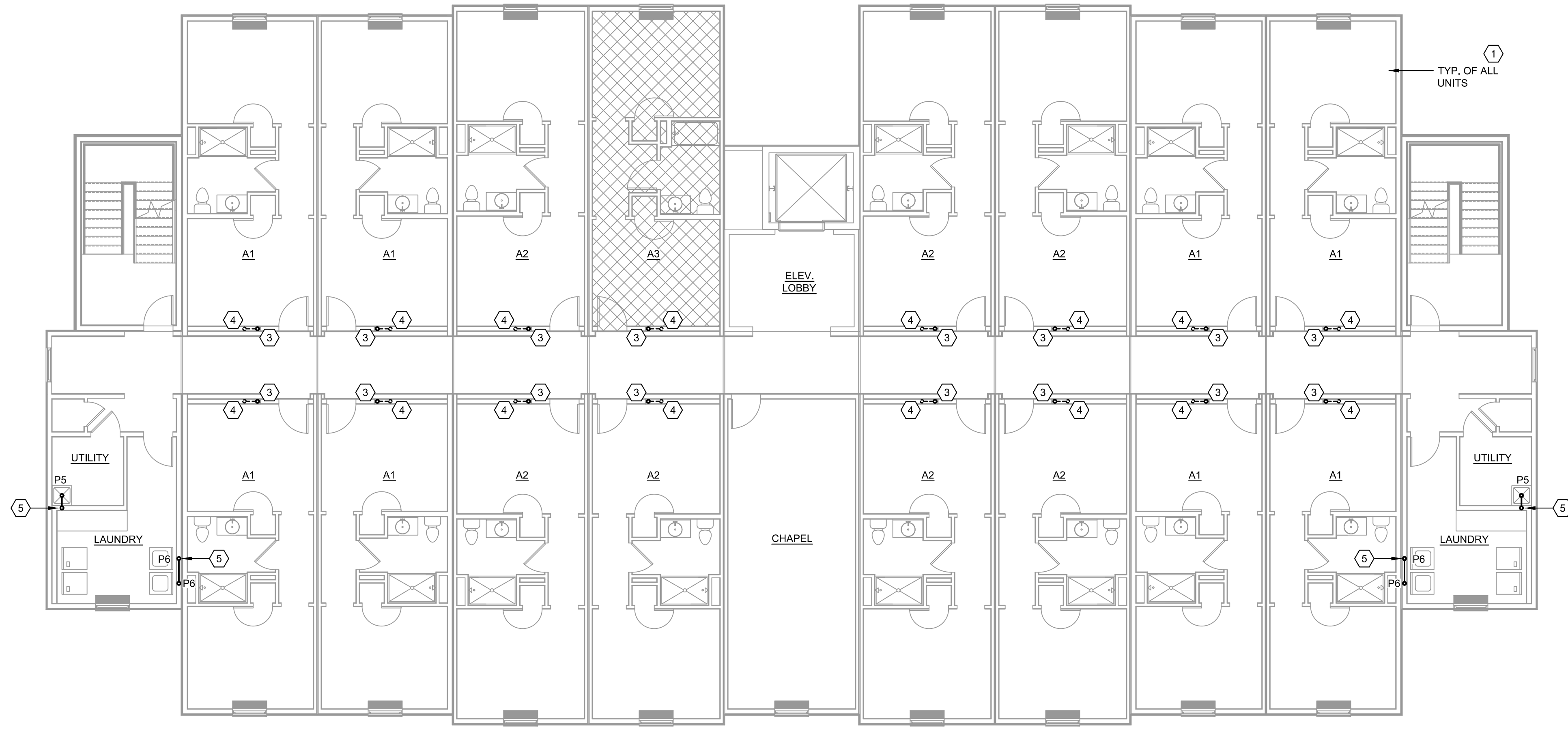
1 LEVEL 2 - WASTE PLAN
Scale: 1/8" = 1'-0"

- SANITARY PLAN HEX NOTES
1. REFERENCE ENLARGED PLUMBING DRAWINGS ON SHEETS P-201,203,203 FOR CONTINUATION INSIDE SLEEPING UNITS.
 2. NOT USED.
 3. 4" SANITARY STACK IN WALL. CONNECT 3" SANITARY FROM MODULAR UNIT AT EACH LEVEL.
 4. 3" VTR CIRCUIT VENT IN WALL. CONNECT 2" MODULAR VENT TO STACK AT EACH LEVEL. CONNECT 3" VENT TO SANITARY STACK BEFORE 1ST LEVEL BRANCH AND AFTER 4TH LEVEL BRANCH.
 5. 4" SANITARY STACK VENT IN WALL TO UPPER LEVELS. 3" VTR AT TOP OF STACK.



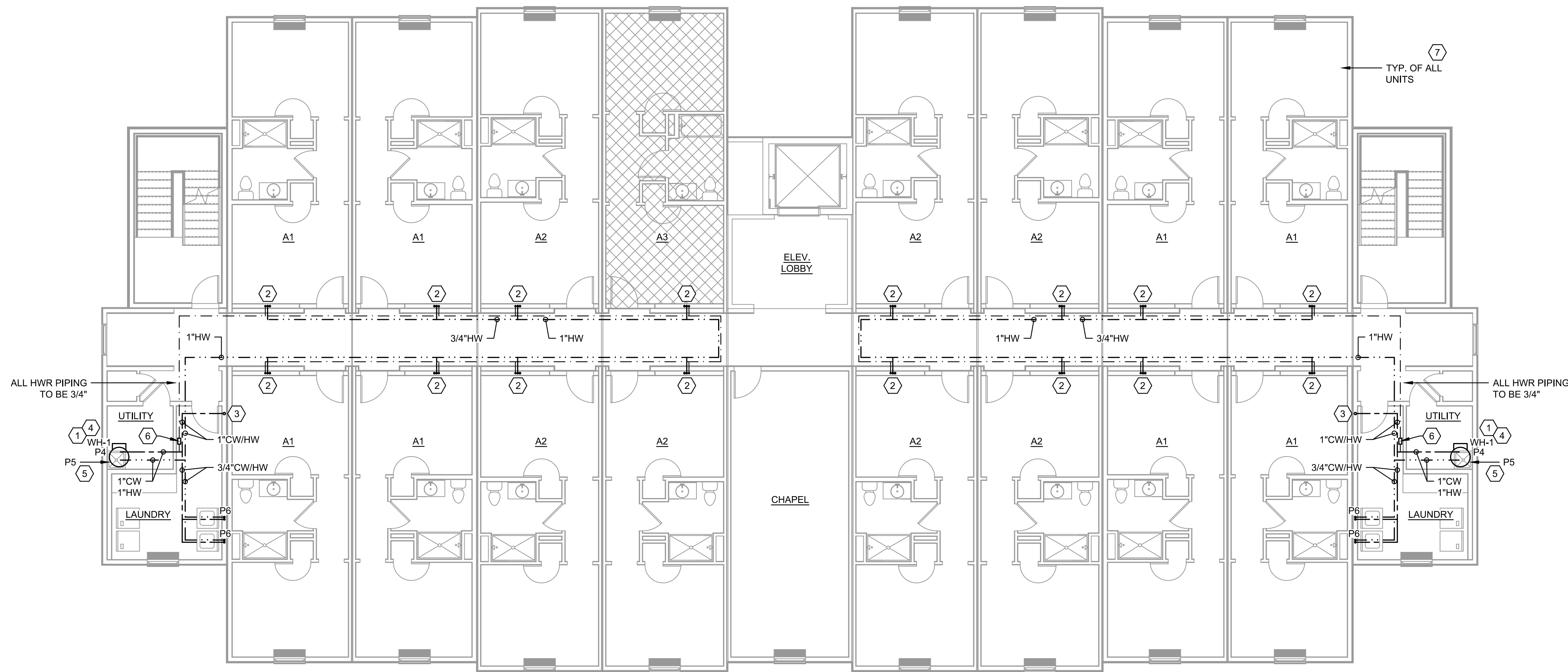
2 LEVEL 2 - SUPPLY PLAN
Scale: 1/8" = 1'-0"

- DOMESTIC SUPPLY PLAN HEX NOTES
1. WATER HEATER WITH EXPANSION TANK AND HOT WATER RECIRC. LOOP. REFERENCE DETAIL ON SHEET P-302.
 2. 1" CW IN CHASE. MAKE 3/4" CW/HW/HWR CONNECTIONS AT EACH LEVEL. CONTINUE 1" CW UP TO LEVEL 3. REDUCE TO 3/4" CW AFTER LEVEL 3 CONNECTION AND CONTINUE 3/4" TO LEVEL 4 CONNECTION.
 3. 1-1/2" CW IN WALL FROM LEVEL BELOW. CONTINUE TO LEVELS ABOVE. REFERENCE UPPER/LOWER FLOOR SHEETS FOR CONTINUATION.
 4. ROUTE 1" CW/HW TO WATER HEATER.
 5. 1/2" CW/HW TO MOP SINK BELOW WATER HEATER.
 6. HW RECIRC PUMP LOCATED IN ACCESSIBLE LOCATION. COORDINATE ONSITE.
 7. REFERENCE ENLARGED PLUMBING DRAWINGS ON SHEETS P-201,203,203 FOR CONTINUATION INSIDE SLEEPING UNITS.



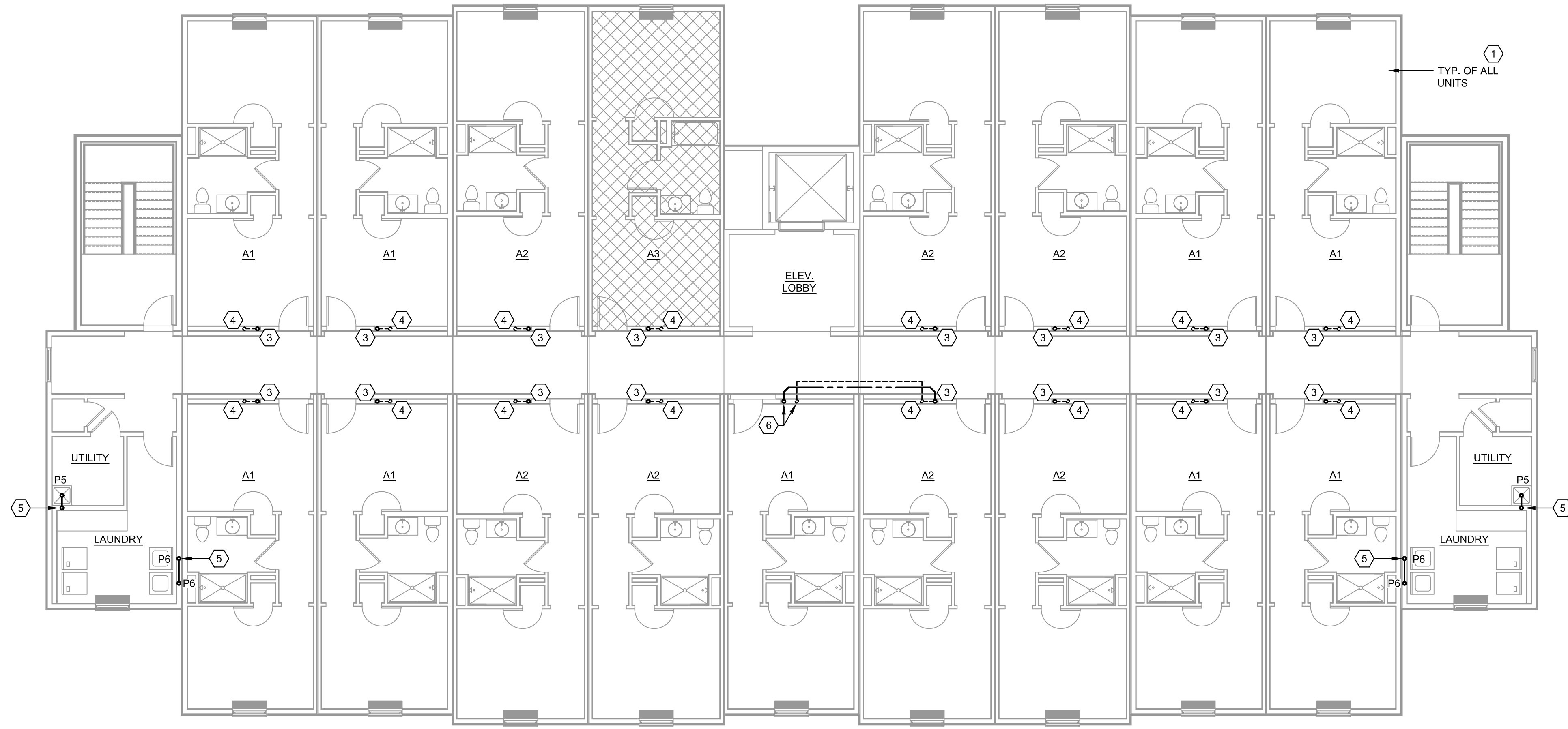
1 LEVEL 3 - WASTE PLAN
Scale: 1/8" = 1'-0"

- SANITARY PLAN HEX NOTES
1. REFERENCE ENLARGED PLUMBING DRAWINGS ON SHEETS P-201,203,203 FOR CONTINUATION INSIDE SLEEPING UNITS.
 2. NOT USED.
 3. 4" SANITARY STACK IN WALL. CONNECT 3" SANITARY FROM MODULAR UNIT AT EACH LEVEL.
 4. 3" VTR CIRCUIT VENT IN WALL. CONNECT 2" MODULAR VENT TO STACK AT EACH LEVEL. CONNECT 3" VENT TO SANITARY STACK BEFORE 1ST LEVEL BRANCH AND AFTER 4TH LEVEL BRANCH.
 5. 4" SANITARY STACK VENT IN WALL TO UPPER LEVELS. 3" VTR AT TOP OF STACK.



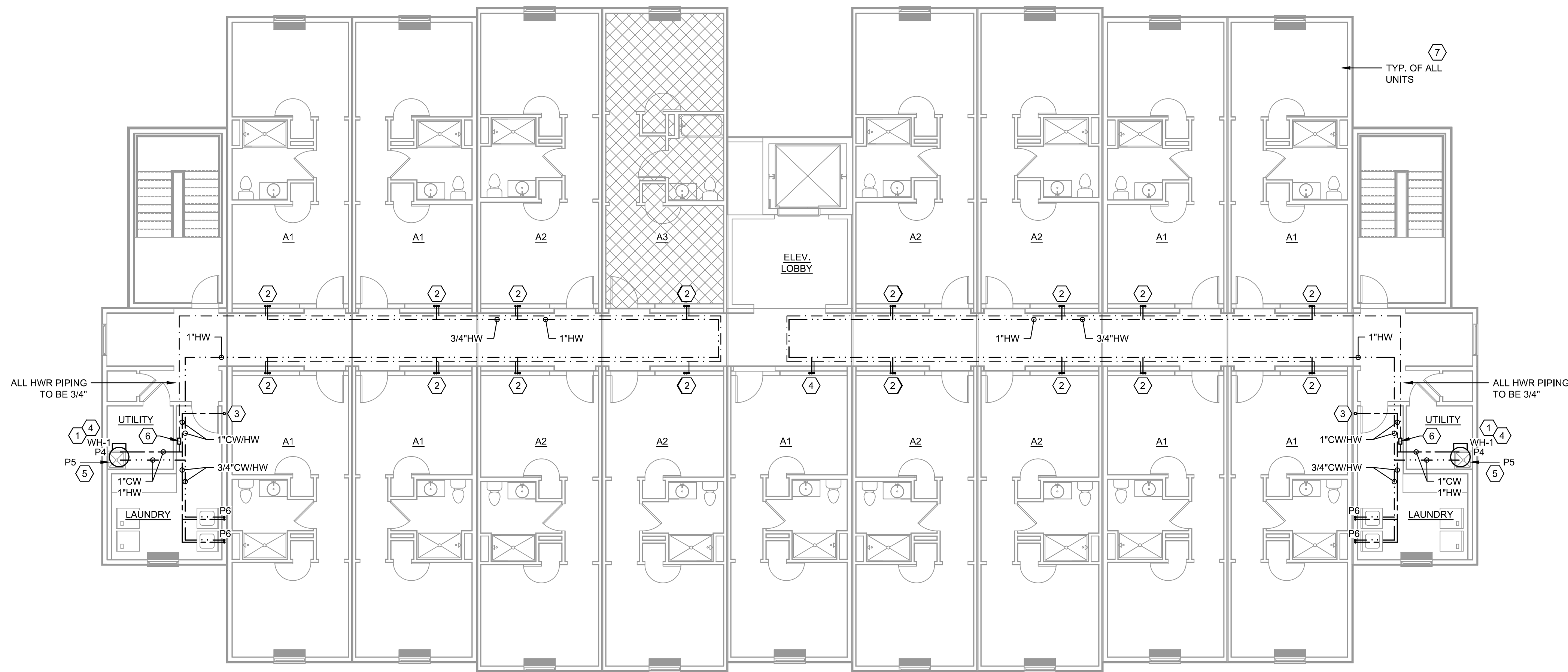
2 LEVEL 3 - SUPPLY PLAN
Scale: 1/8" = 1'-0"

- DOMESTIC SUPPLY PLAN HEX NOTES
1. WATER HEATER WITH EXPANSION TANK AND HOT WATER RECIRC. LOOP. REFERENCE DETAIL ON SHEET P-302.
 2. 1" CW IN CHASE. MAKE 3/4" CW/HW/HWR CONNECTIONS AT EACH LEVEL. CONTINUE 1" CW UP TO LEVEL 3. REDUCE TO 3/4" CW AFTER LEVEL 3 CONNECTION AND CONTINUE 3/4" TO LEVEL 4 CONNECTION.
 3. 1-1/2" CW IN WALL FROM LEVEL BELOW. REDUCE TO 1" CW AFTER TAKEOFF AND LEVEL 3. CONTINUE 1" CW UP TO LEVEL 4. REFERENCE UPPER/LOWER FLOOR SHEETS FOR CONTINUATION.
 4. ROUTE 1" CW/HW TO WATER HEATER.
 5. 1/2" CW/HW TO MOP SINK BELOW WATER HEATER.
 6. HW RECIRC PUMP LOCATED IN ACCESSIBLE LOCATION. COORDINATE ONSITE.
 7. REFERENCE ENLARGED PLUMBING DRAWINGS ON SHEETS P-201,203,203 FOR CONTINUATION INSIDE SLEEPING UNITS.



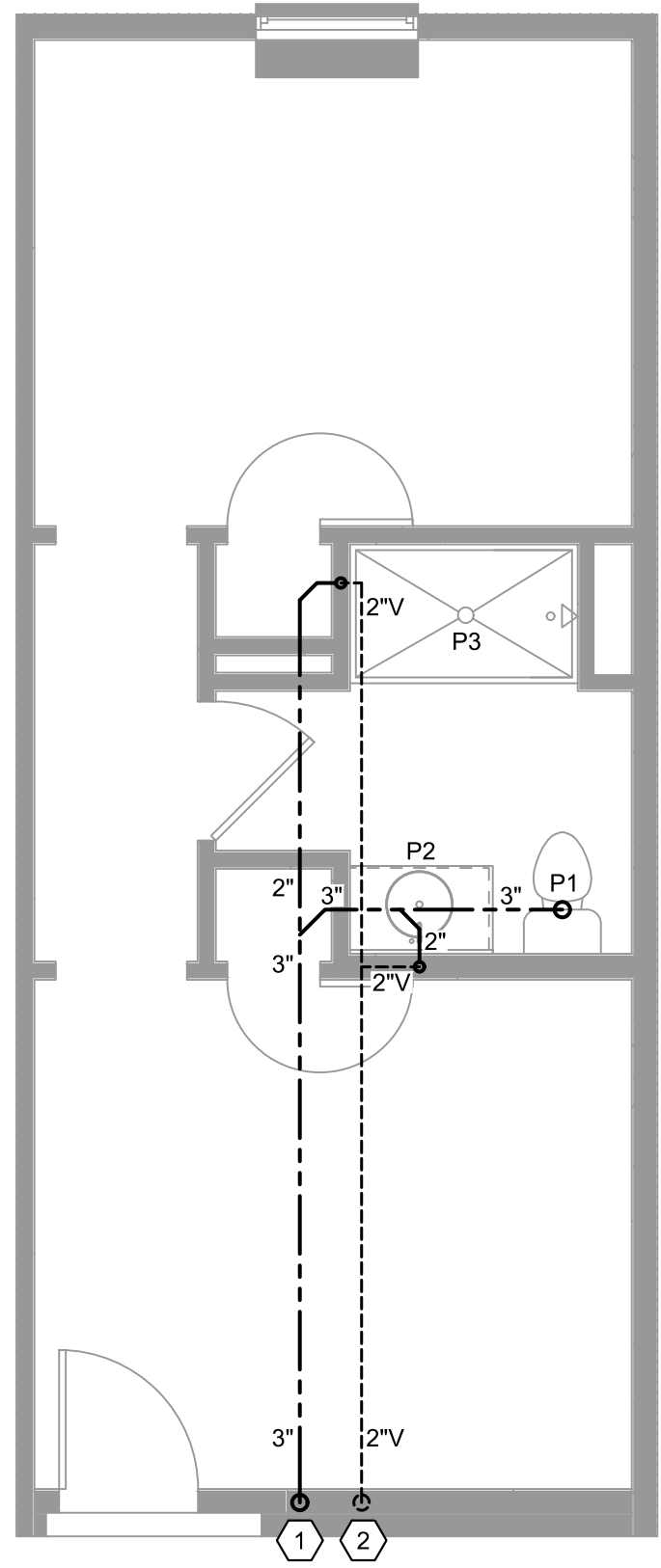
1 LEVEL 4 - WASTE PLAN
Scale: 1/8" = 1'-0"

- SANITARY PLAN HEX NOTES
1. REFERENCE ENLARGED PLUMBING DRAWINGS ON SHEETS P-201,203,203 FOR CONTINUATION INSIDE SLEEPING UNITS.
 2. NOT USED.
 3. 4" SANITARY STACK IN WALL. CONNECT 3" SANITARY FROM MODULAR UNIT AT EACH LEVEL.
 4. 3" VTR CIRCUIT VENT IN WALL. CONNECT 2" MODULAR VENT TO STACK AT EACH LEVEL. CONNECT 3" VENT TO SANITARY STACK BEFORE 1ST LEVEL BRANCH AND AFTER 4TH LEVEL BRANCH.
 5. 4" SANITARY STACK VENT IN WALL TO UPPER LEVELS. 3" VTR AT TOP OF STACK.
 6. ROUTE 3" SANITARY AND 2" VENT FROM MODULAR UNIT AND TIE INTO ADJACENT STACK.



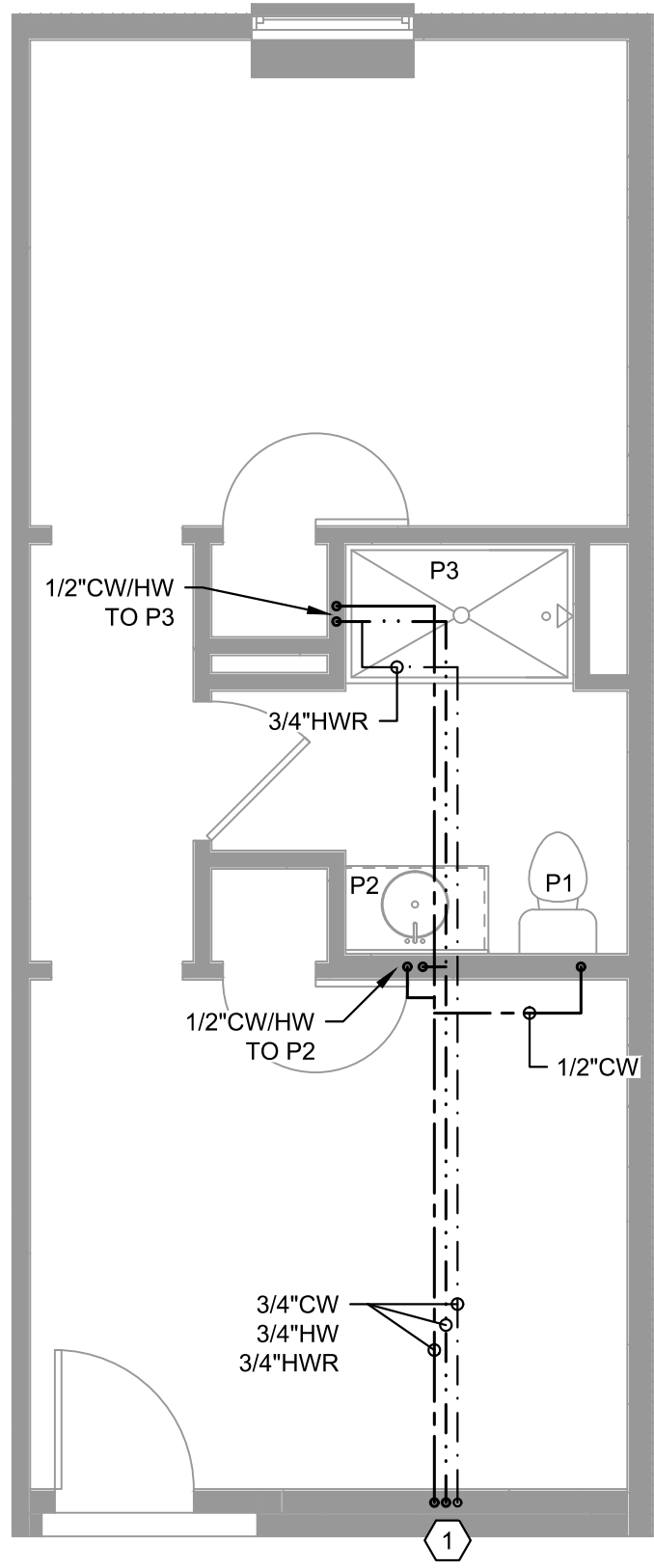
2 LEVEL 4 - SUPPLY PLAN
Scale: 1/8" = 1'-0"

- DOMESTIC SUPPLY PLAN HEX NOTES
1. WATER HEATER WITH EXPANSION TANK AND HOT WATER RECIRC. LOOP. REFERENCE DETAIL ON SHEET P-302.
 2. 1" CW IN CHASE. MAKE 3/4" CW/HW/HWR CONNECTIONS AT EACH LEVEL. CONTINUE 1" CW UP TO LEVEL 3. REDUCE TO 3/4" CW AFTER LEVEL 3 CONNECTION AND CONTINUE 3/4" TO LEVEL 4 CONNECTION.
 3. 1-1/2" CW IN WALL FROM LEVEL BELOW. CONTINUE TO LEVELS ABOVE. REFERENCE UPPER/LOWER FLOOR SHEETS FOR CONTINUATION.
 4. ROUTE 1" CW/HW TO WATER HEATER.
 5. 1/2" CW/HW TO MOP SINK BELOW WATER HEATER.
 6. HW RECIRC PUMP LOCATED IN ACCESSIBLE LOCATION. COORDINATE ONSITE.
 7. REFERENCE ENLARGED PLUMBING DRAWINGS ON SHEETS P-201,203,203 FOR CONTINUATION INSIDE SLEEPING UNITS.



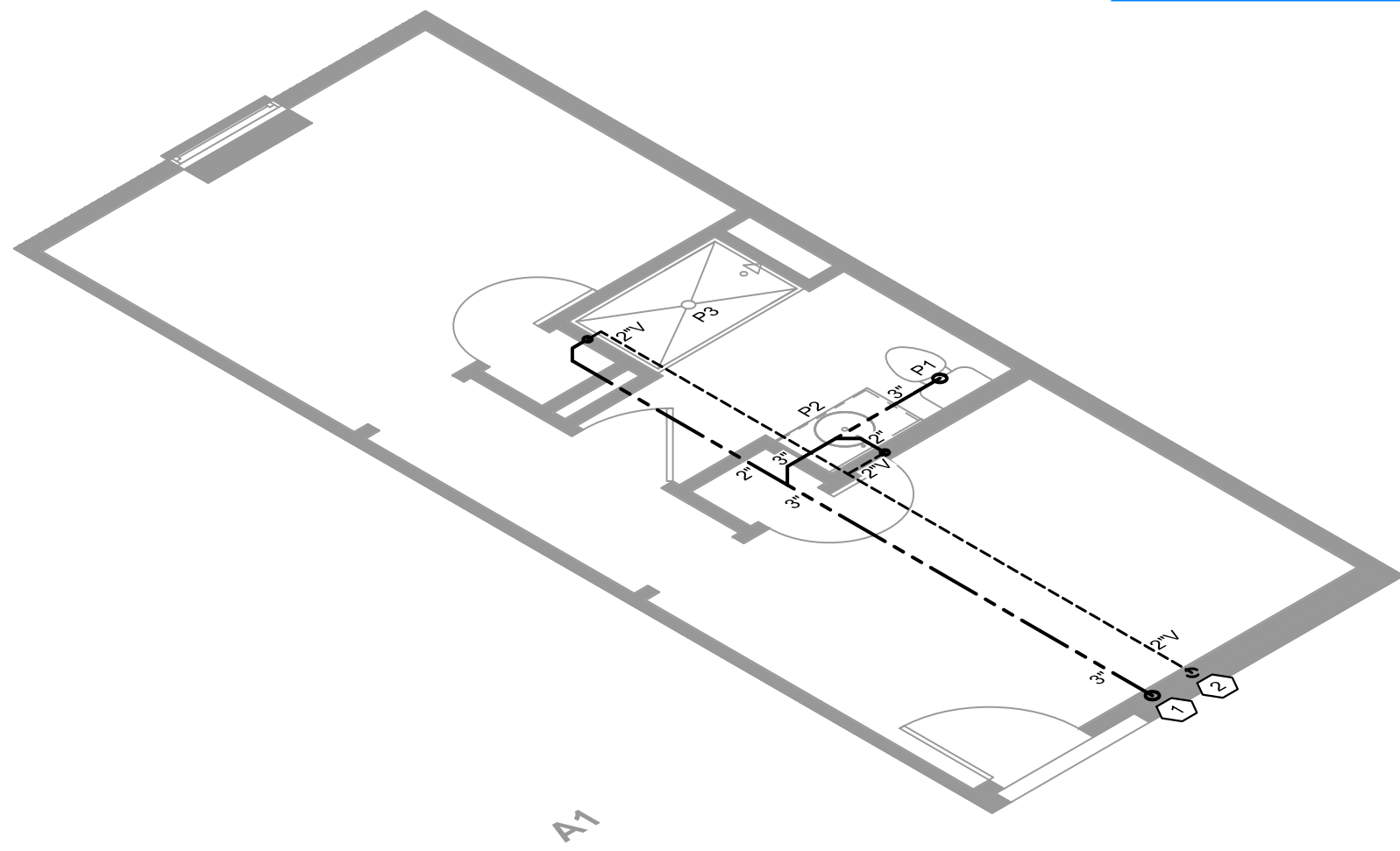
- SANITARY PLAN HEX NOTES
1. REFERENCE OVERALL BUILDING PLANS FOR CONTINUATION OF SANITARY PIPING PLANS.
 2. REFERENCE OVERALL BUILDING PLANS FOR CONTINUATION OF WASTE VENTING PLANS.

1 UNIT A1 WASTE PLAN
Scale: 1/4" = 1'-0"



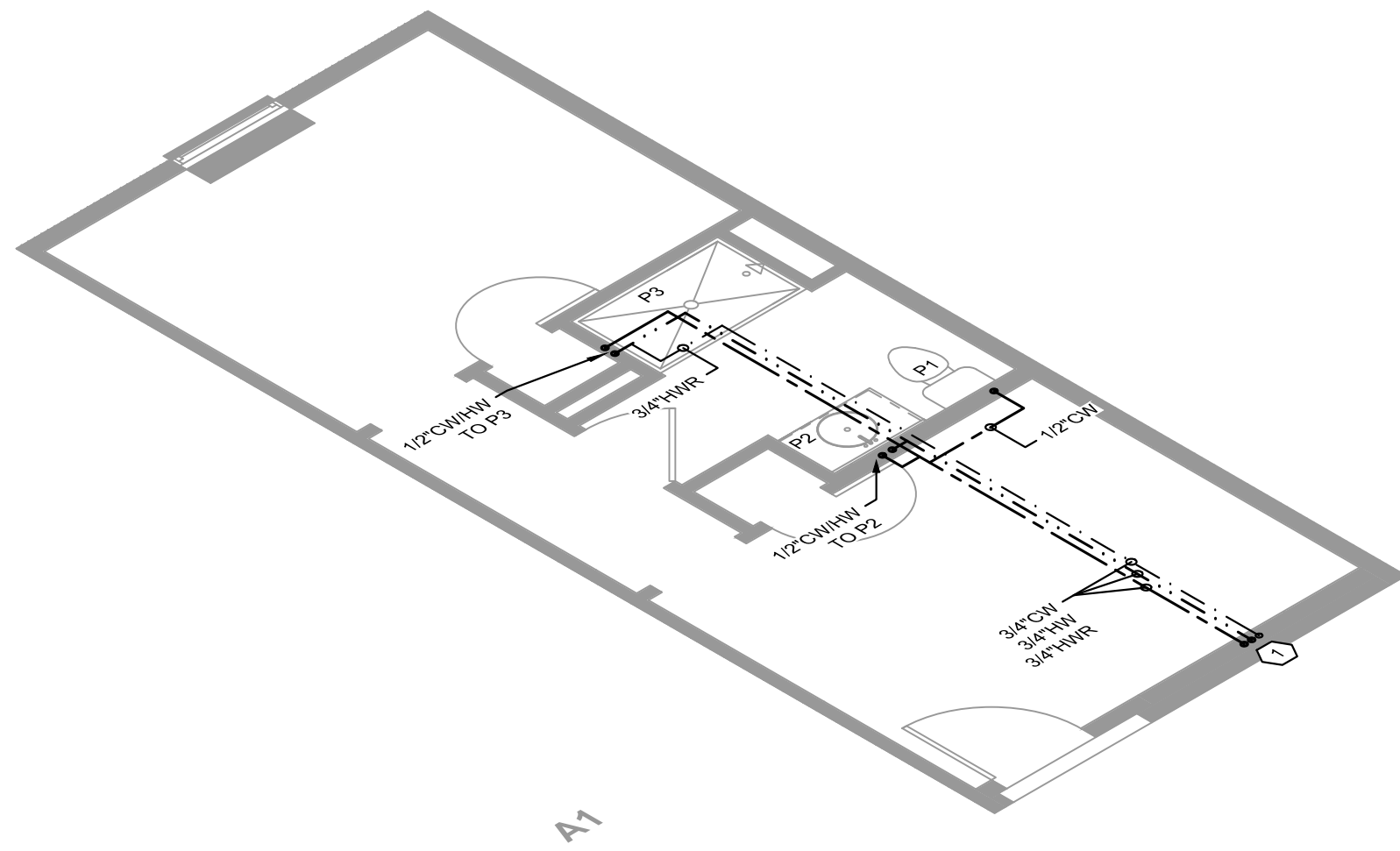
- DOMESTIC SUPPLY PLAN HEX NOTES
1. REFERENCE OVERALL BUILDING PLANS FOR CONTINUATION OF DOMESTIC SUPPLY PIPING.

2 UNIT A1 SUPPLY PLAN
Scale: 1/4" = 1'-0"

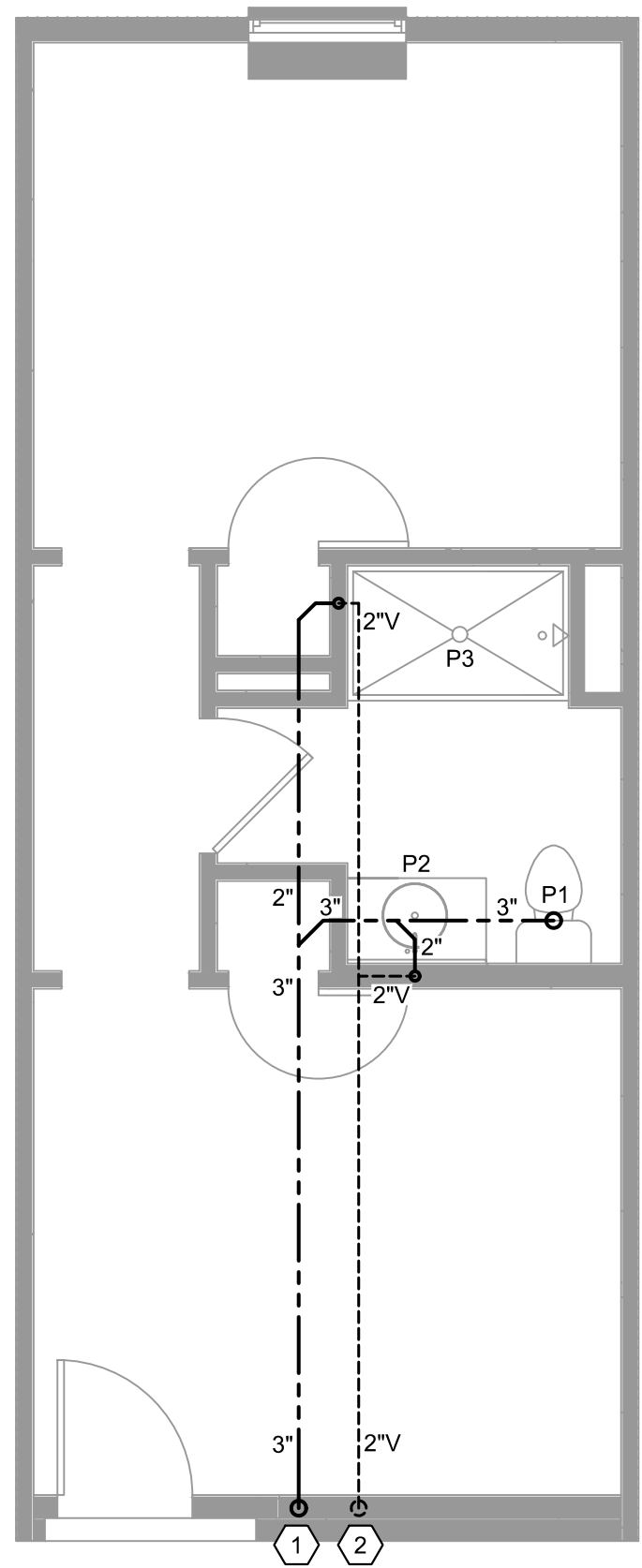


Plumbing Risers are not complete at this time.

3 UNIT A1 WASTE RISER
Scale: 1/4" = 1'-0"

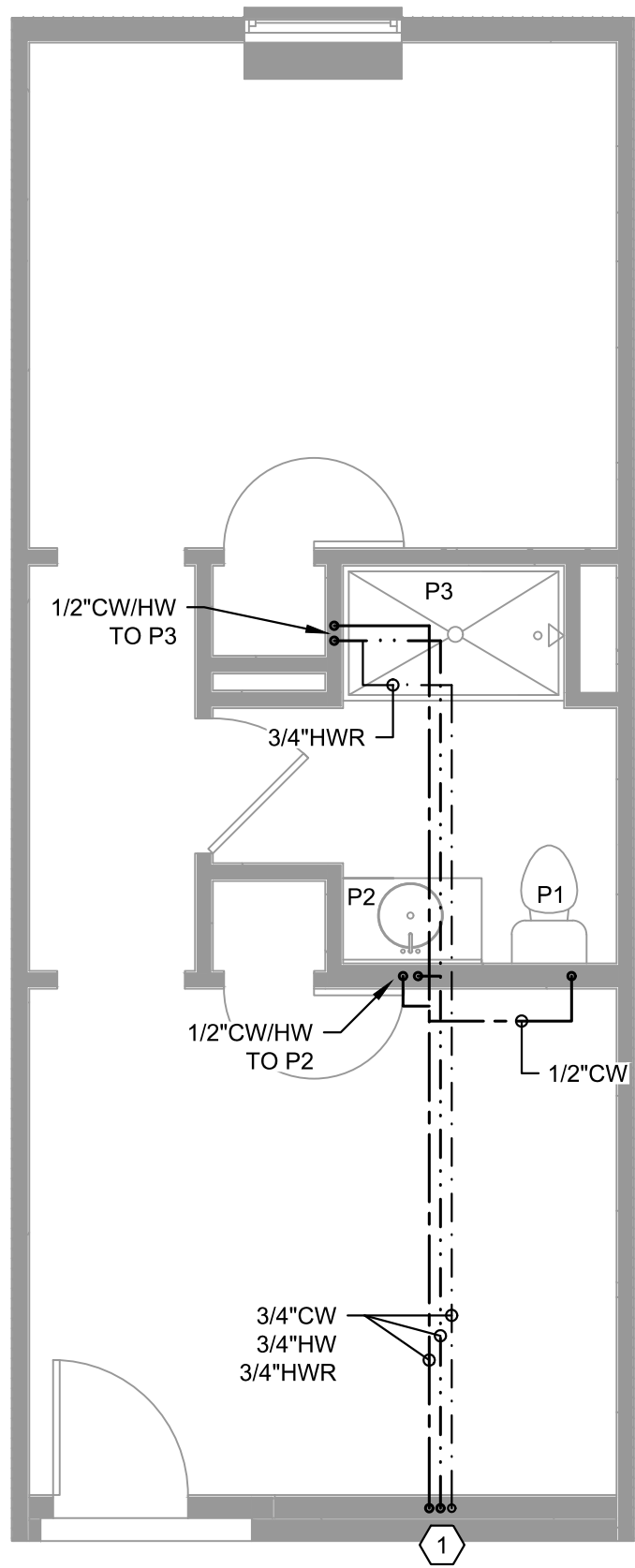


4 UNIT A1 SUPPLY RISER
Scale: 1/4" = 1'-0"



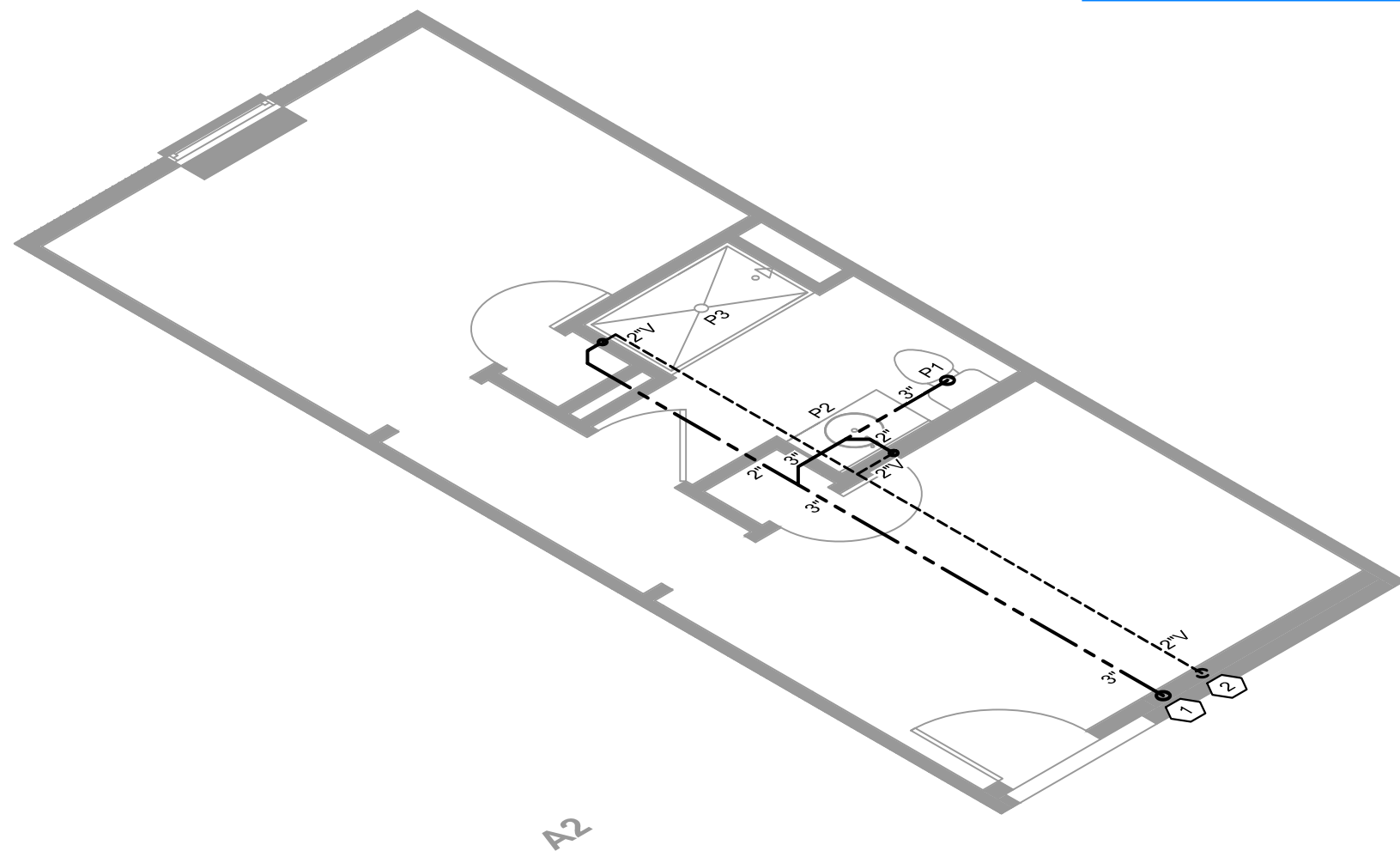
- SANITARY PLAN HEX NOTES
1. REFERENCE OVERALL BUILDING PLANS FOR CONTINUATION OF SANITARY PIPING PLANS.
 2. REFERENCE OVERALL BUILDING PLANS FOR CONTINUATION OF WASTE VENTING PLANS.

1 UNIT A2 WASTE PLAN
Scale: 1/4" = 1'-0"



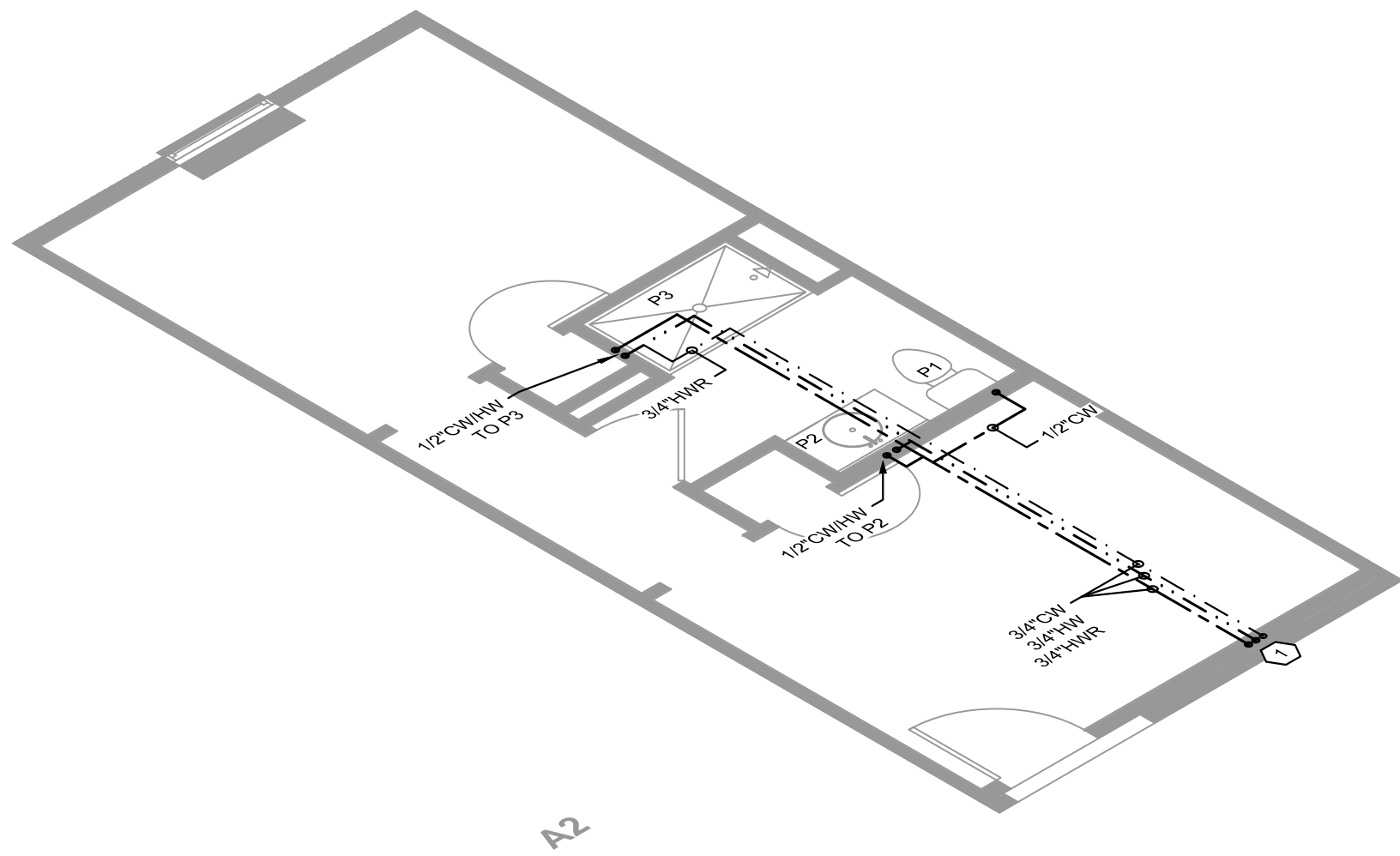
- DOMESTIC SUPPLY PLAN HEX NOTES
1. REFERENCE OVERALL BUILDING PLANS FOR CONTINUATION OF DOMESTIC SUPPLY PIPING.

2 UNIT A2 SUPPLY PLAN
Scale: 1/4" = 1'-0"



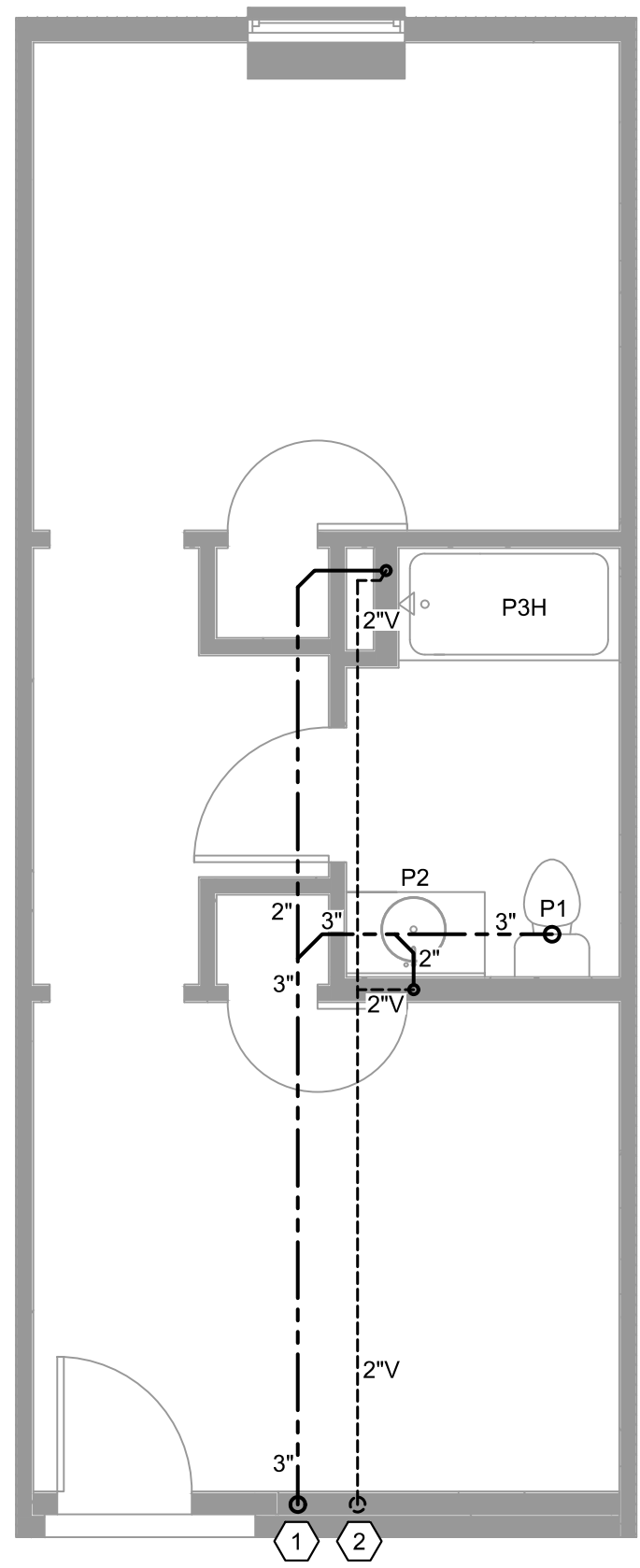
Plumbing Risers are not complete at this time.

3 UNIT A2 WASTE RISER
Scale: 1/4" = 1'-0"



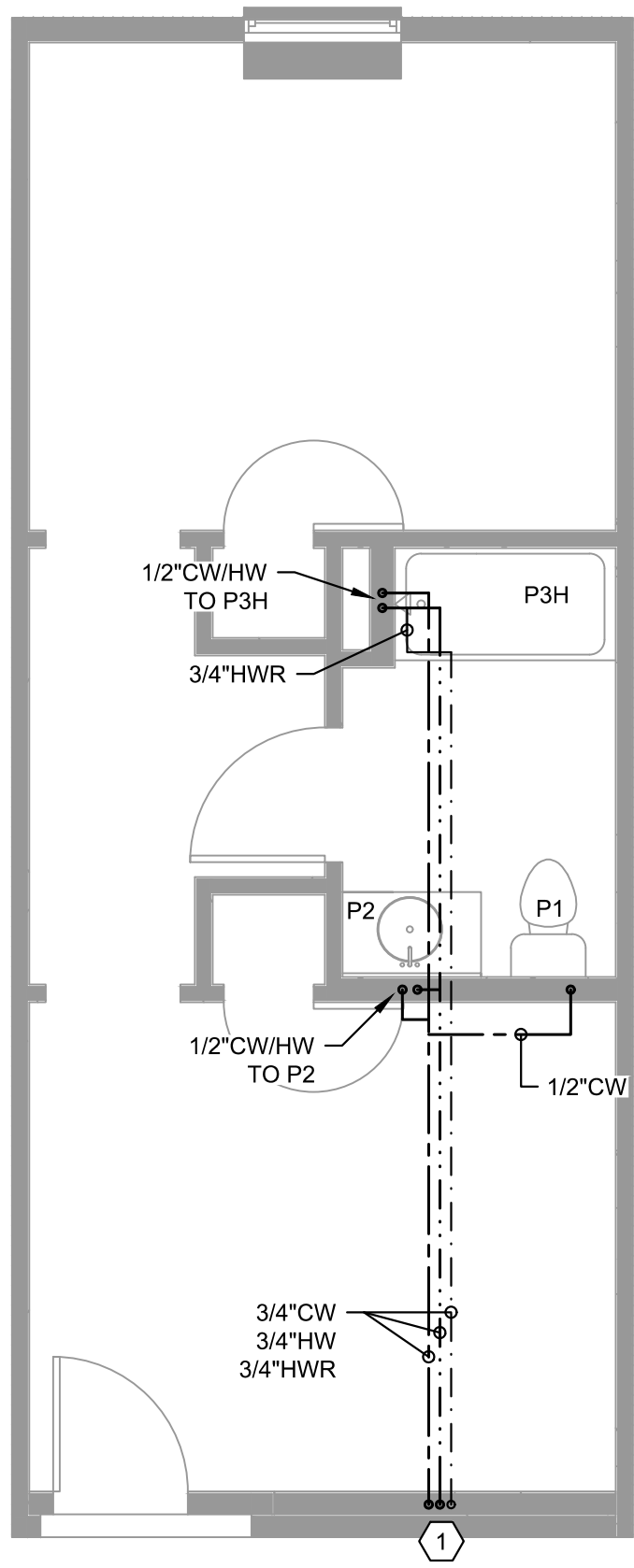
4 UNIT A2 SUPPLY RISER
Scale: 1/4" = 1'-0"

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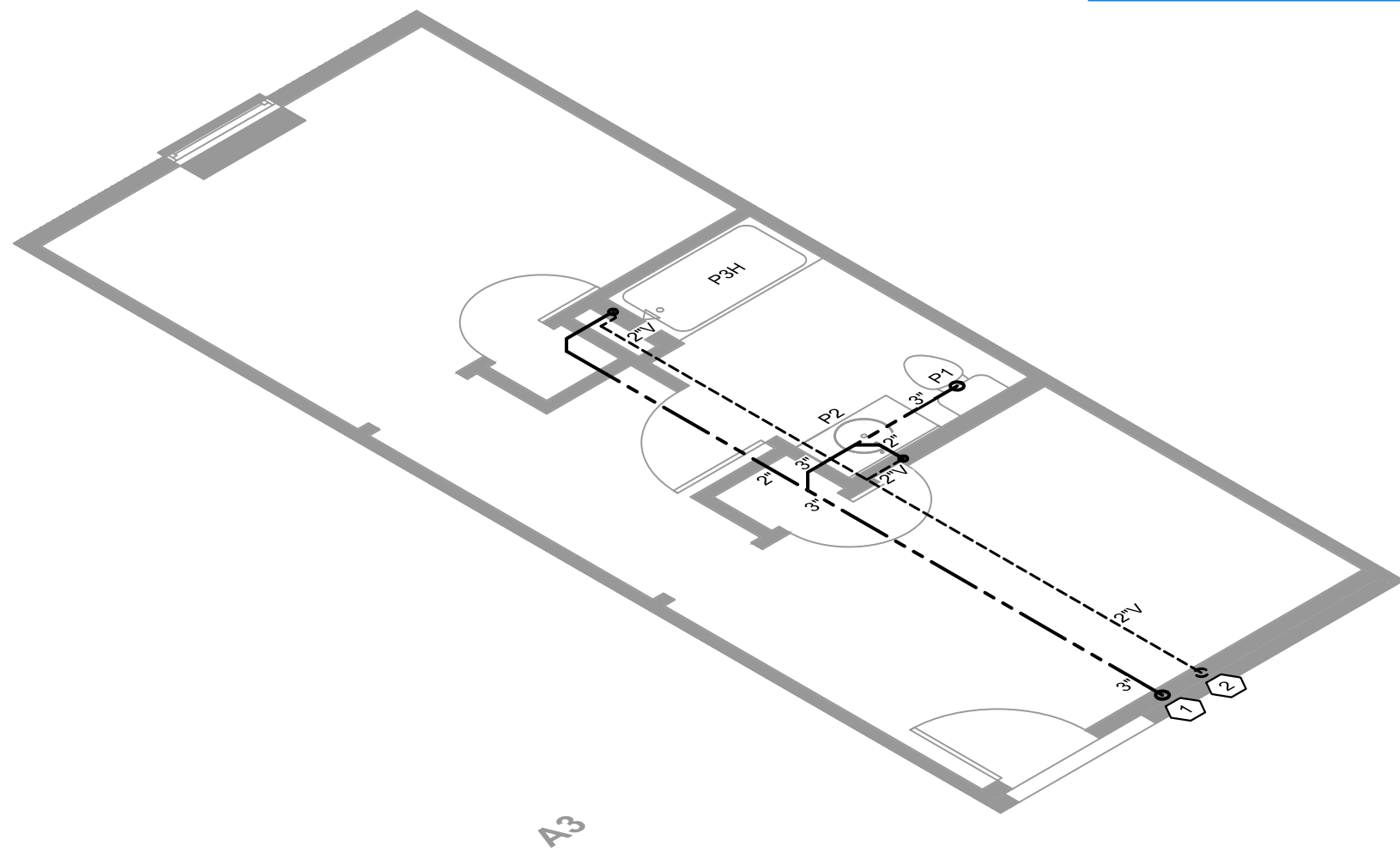
- SANITARY PLAN HEX NOTES
1. REFERENCE OVERALL BUILDING PLANS FOR CONTINUATION OF SANITARY PIPING PLANS.
 2. REFERENCE OVERALL BUILDING PLANS FOR CONTINUATION OF WASTE VENTING PLANS.

1 UNIT A3 WASTE PLAN
Scale: 1/4" = 1'-0"

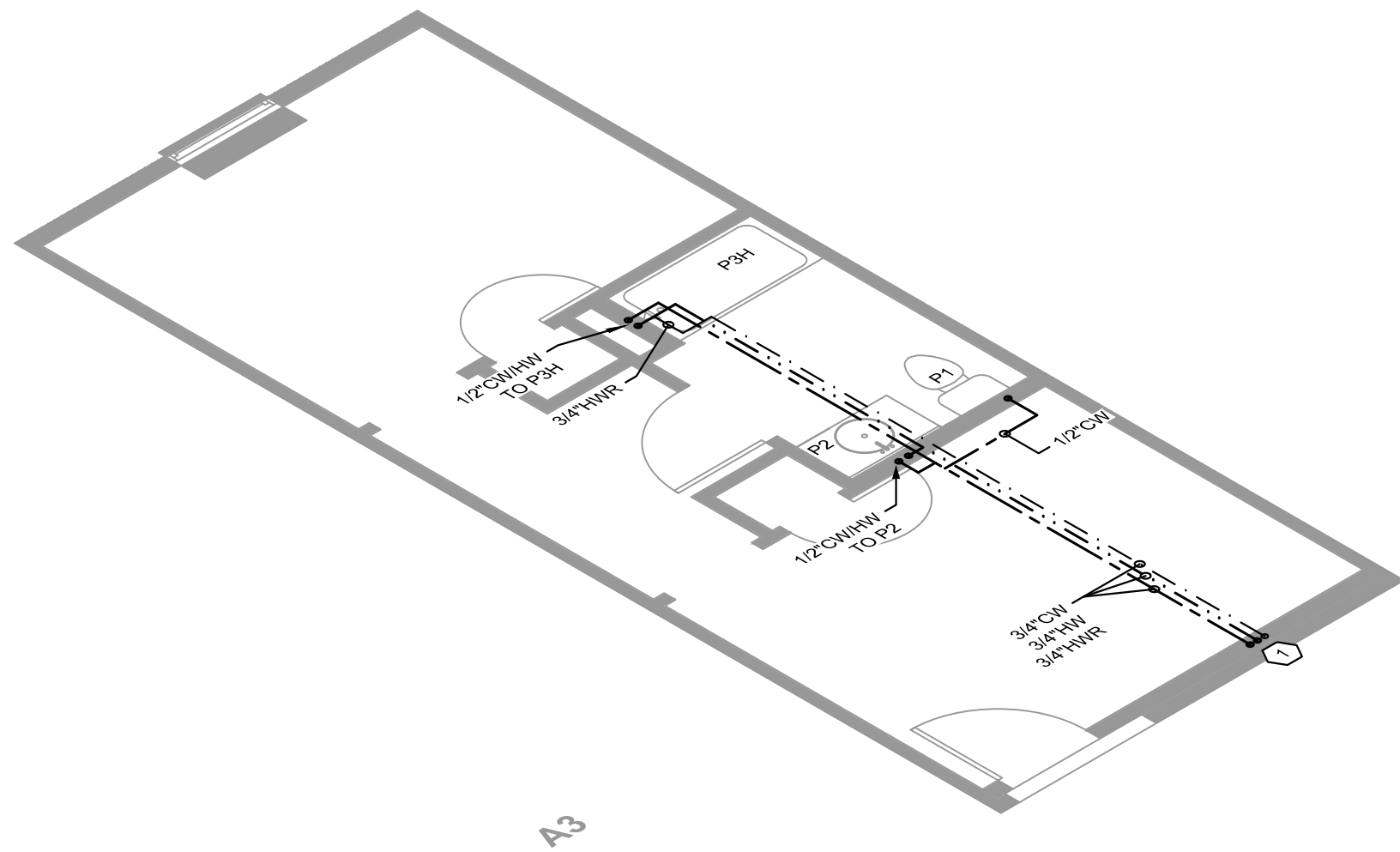


- DOMESTIC SUPPLY PLAN HEX NOTES
1. REFERENCE OVERALL BUILDING PLANS FOR CONTINUATION OF DOMESTIC SUPPLY PIPING.

2 UNIT A3 SUPPLY PLAN
Scale: 1/4" = 1'-0"



3 UNIT A3 WASTE RISER
Scale: 1/4" = 1'-0"



4 UNIT A3 SUPPLY RISER
Scale: 1/4" = 1'-0"

PLUMBING FIXTURE SCHEDULE						
SYMBOL	FIXTURE	MANUFACTURER	FITTING	HW	CW	WASTE (MINIMUM)
P1	TWO PIECE TANK TYPE WATER CLOSET	SELECTION BY VANTEM	VITREOUS CHINA TWO PIECE ELONGATED ADA BOWL 1.28 GPF SINGLE FLUSH 3" FLUSH VALVE S-TRAP 12" ROUGH-IN 18.5" HEIGHT.	-	1/2"	3"
P2	COUNTER MOUNT LAVATORY	SELECTION BY VANTEM	PROVIDE WITH FLOW REDUCING AERATORS FOR FLOW OF 1.2 GPM.	1/2"	1/2"	1-1/2"
P3	TUB/SHOWER	SELECTION BY VANTEM	SHOWER HEAD 2.2 GPM. PROVIDE WITH PRESSURE AND TEMPERATURE BALANCING VALVES.	1/2"	1/2"	1-1/2"
P3H	ADA SHOWER	SELECTION BY VANTEM	ADA COMPLAINT TRANSFER SHOWER. PROVIDE WITH GRAB BAR, FOLDING SEAT, MIXING VALVE, PRESSURE BALANCED, LEVER HANDLE, PREPLUMBED TREE TO SUPPLY ELBOW, SOAP DISH, PROVIDE SHOWER HEAD, SHOWER SPRAY HOSE, AND ALL OTHER ACCESSORIES FOR ADA COMPLIANCE	1/2"	1/2"	2"
P4	EXPANSION TANK	AMTROL ST-5	INSTALL ON COLD WATER LINE BETWEEN WATER HEATER AND RPZ	-	3/4"	-
P5	MOP SINK	FIAT MSB2424 OR EQUAL BY FLORESTONE OR STERN WILLIAMS	OUTSIDE DIMENSIONS OF 24 X24 X10. 10 INCH HIGH WALLS WITH NOT LESS THAN 1 INCH WIDE, STAINLESS STEEL DRAIN BODY DESIGNED TO PROVIDE FOR A CAULK CONNECTION OR ODC-3 JOINT TO A 3 INCH DRAIN PIPE. INCLUDE A COMBINATION DOME STRAINER AND LINT BASKET OF STAINLESS STEEL. PROVIDE 830-AA CHROME PLATED SERVICE FAUCET WITH VACUUM BREAKER, INTEGRAL STOPS, ADJUSTABLE WALL BRACE, PAIL HOOK AND 3/4 INCH HOSE THREAD ON SPOUT.	1/2"	1/2"	3"
P6*	WASHING MACHINE SHUTOFF BOX	VERIFY WITH VANTEM	SINGLE-HANDLE WASH MACHINE SHUTOFF VALVE. THE BALL-TYPE VALVE SHALL SIMULTANEOUSLY CONTROL THE FLOW OF BOTH HOT AND COLD WATER TO THE APPLIANCE AND BE FITTED IN A DECORATIVE RECESSED WALL BOX. THE DECORATIVE WALL BOX SHALL HAVE A PROVISION FOR 1-1/2 INCH AND 2 INCH DRAIN PIPING AND A DECORATIVE COVER, RATED FOR 150 PSI AND 180°F MAXIMUM.	1/2"	1/2"	2**
P7	ELEVATOR SUMP PUMP	STANCOR ESE/BM1151 SIMPLEX SYSTEM	1/2 HP 115V 8 FLA WITH 2" DISCHARGE AT 22' MAX HEAD FT. AT 50 GPM. PACKAGE COMES COMPLETE WITH SIMPLEX SYSTEM, JB-BOX, TEATERED FLOATS AND OIL MINDER CONTROL PANEL. UL CERTIFIED.	-	-	2"
P8	HOT WATER RE-CIRCULATION PUMP	TACO COMFORT SOLUTIONS MODEL 0013-JQBC7-IFC	10 GPM AT 26.9 FT. HEAD WITH LINE CORD, TIMER AND AQUASTAT AND CHECK VALVE.3/4" SWEAT CONNECTION, BRONZE CASING.	3/4"	3/4"	-
P9	FREEZEPROOF HOSE BIBB	WOODFORD MODEL 68 OR EQUAL BY ZURN OR MIFAB	THE MODEL 68 IS A ASSE 1053 LISTED HYDRANT, WITH A ASSE 1052 DOUBLE CHECK BACKFLOW PREVENTER, COMES WITH A CHROME PLATED BRASS HEAD WITH STAINLESS STEEL COVER. IT DRAINS AUTOMATICALLY EVEN WITH A ATTACHED HOSE. HAS A ONE PIECE PLUNGER WHICH CONTROL'S DRAIN AND FLOW FUNCTION. WORKS WITH PRESSURES UP TO 125 PSI, AND A MAX TEMPERATURE OF 120 DEGREES. TEE KEY FOR HYDRANT DOOR AND LOCK, EASIER TO INSTALL THAN STANDARD RECESSED BOX HYDRANT, WALL CLAMP IS INCLUDED, HEAD COVER FLIPS DOWN AND OUT OF THE WAY FOR UNOBSTRUCTED HYDRANT USE	-	3/4"	-
P10	LINT INTERCEPTOR	ZURN Z1185-10	ACID RESISTANT COATED INTERIOR AND EXTERIOR FABRICATED STEEL LINT INTERCEPTOR, NON-SKID SECURED COVER, ALUMINUM LINT INTERCEPTING SECONDARY SCREEN ASSEMBLY, AND PERMANENT PRIMARY STRAINING BAFFLE WITH 3/8" DIAMETER PERFORATED HOLES, 100 GPM FLOW RATE.			
AAV	AIR ADMITTANCE VALVE	SELECTION BY VANTEM	ANSI/ASSE 1051 LISTED, NSF STANDARD 14, PROVIDE PVC OR ABS CONNECTOR AS NECESSARY.CONNECT VALVE TO PIPING PER MANUFACTURER. INSTALL IN THE VERTICAL, UPRIGHT POSITION AFTER ROUGH-IN AND PRESSURE TESTING OF THE SYSTEM.PROVIDE WALL BOX IF NOT ABOVE CEILING OR OTHERWISE CONCEALED.	-	-	2"
FCO	FLOOR CLEANOUT	WATTS CO-200-RX	EPOXY COATED CAST IRON FLOOR CLEANOUT WITH ROUND ADJUSTABLE GASKETED NICKEL BRONZE TOP, REMOVABLE GAS TIGHT GASKETED BRASS CLEANOUT PLUG, AND NO HUB INLET.	-	-	4"

NOTE:
1. ALL FIXTURE SELECTIONS TO BE VERIFIED AND APPROVED BY VANTEM.
* FOR WASHING MACHINE BOX - 2" DRAIN TO THE LOCATION THAT THE DRAIN TURNS HORIZONTAL THEN 3" DRAIN TO THE POINT IT MEETS THE MAIN BUILDING DRAIN.

NOTE: INDIVIDUAL SHOWER AND TUB-SHOWER COMBINATION VALVES SHALL BE BALANCED-PRESSURE, THERMOSTATIC OR COMBINATION BALANCED-PRESSURE/THERMOSTATIC VALVES THAT CONFORM TO THE REQUIREMENTS OF ASSE-1016/ASME A112.1016/CSA B125.16 OR ASME-A112.18.1/CSA-B125.1 AND SHALL BE INSTALLED AT THE POINT OF USE.

DO NOT TAP WATER LINE AHEAD OF RPZ.

PLUMBING LINE SIZING TABLE								
FIXTURE TYPE	QTY	DRAINAGE FIXTURE UNITS		WATER SUPPLY FIXTURE UNITS				
		EACH	TOTAL	CW	HW	CW & HW	HW TOTAL	TOTAL
BATHROOM GROUP, PRIVATE, FLUSH TANK	65	5.0	325.0	2.7	1.5	3.6	97.5	234.0
WASHING MACHINE (8LB), PUBLIC	16	3.0	48.0	2.25	2.25	3.0	36.0	48.0
SERVICE SINK, OFFICES, ETC.	8	2.0	16.0	2.5	2.25	3.0	18.0	24.0
DEMAND FIXTURE	GPM	QTY	TOTAL GPM		TOTAL DFU		389.0	
HOSE BIBS	5	2	10		TOTAL WSFU		151.5	306.0
					GPM		55.1	86.2
					OTHER FIXTURES' GPM		0	10
					TOTAL GPM		55.1	96.2
MINIMUM BUILDING DRAIN SIZE	6"							
MINIMUM WATER LINE SIZE	2"							

ELECTRIC WATER HEATER SCHEDULE										
MARK	MFG	MODEL	TANK VOL	INPUT	RECOVERY	SET POINT	POWER		CONNECTIONS	
			GALS	kW	GPH @ 60°ΔT	°F	VOLTAGE	PHASE	HOT	COLD
WH-1	STATE	CSB-120	119	15	102	110	208	3	1-1/4"	1-1/4"

1. PROVIDE GALVANIZED STEEL SAFETY PAN
2. UL 174 LISTED
3. PROVIDE ASME LISTED TEMPERATURE AND PRESSURE RELIEF VALVE
4. MEET OR EXCEED ENERGY FACTOR REQUIREMENTS OF ASHRAE 90.1-2007
5. OR EQUAL BY A.O. SMITH, RHEEM, OR AMERICAN STANDARD

LINETYPE LEGEND	
COLD WATER SUPPLY	----
HOT WATER SUPPLY	-----
HOT WATER RETURN	-----
SANITARY SEWER LINE	-----
VENT LINE	-----

Kilian Engineering, Inc.

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CORPORATE LICENSE C-2271

PRELIMINARY:
NOT FOR CONSTRUCTION!

NEW CONSTRUCTION FOR:

ABCCM WOMEN'S TRANSIT. BUILDING

ROCKY RIDGE RD.
ASHVILLE, NC

REVISION

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ISSUED FOR PERMIT

DESCRIPTION

DRAWN BY: CRL
CHECKED BY: REW/KDC

SHEET:
PLUMBING SCHEDULES

SHEET NO.
P-301

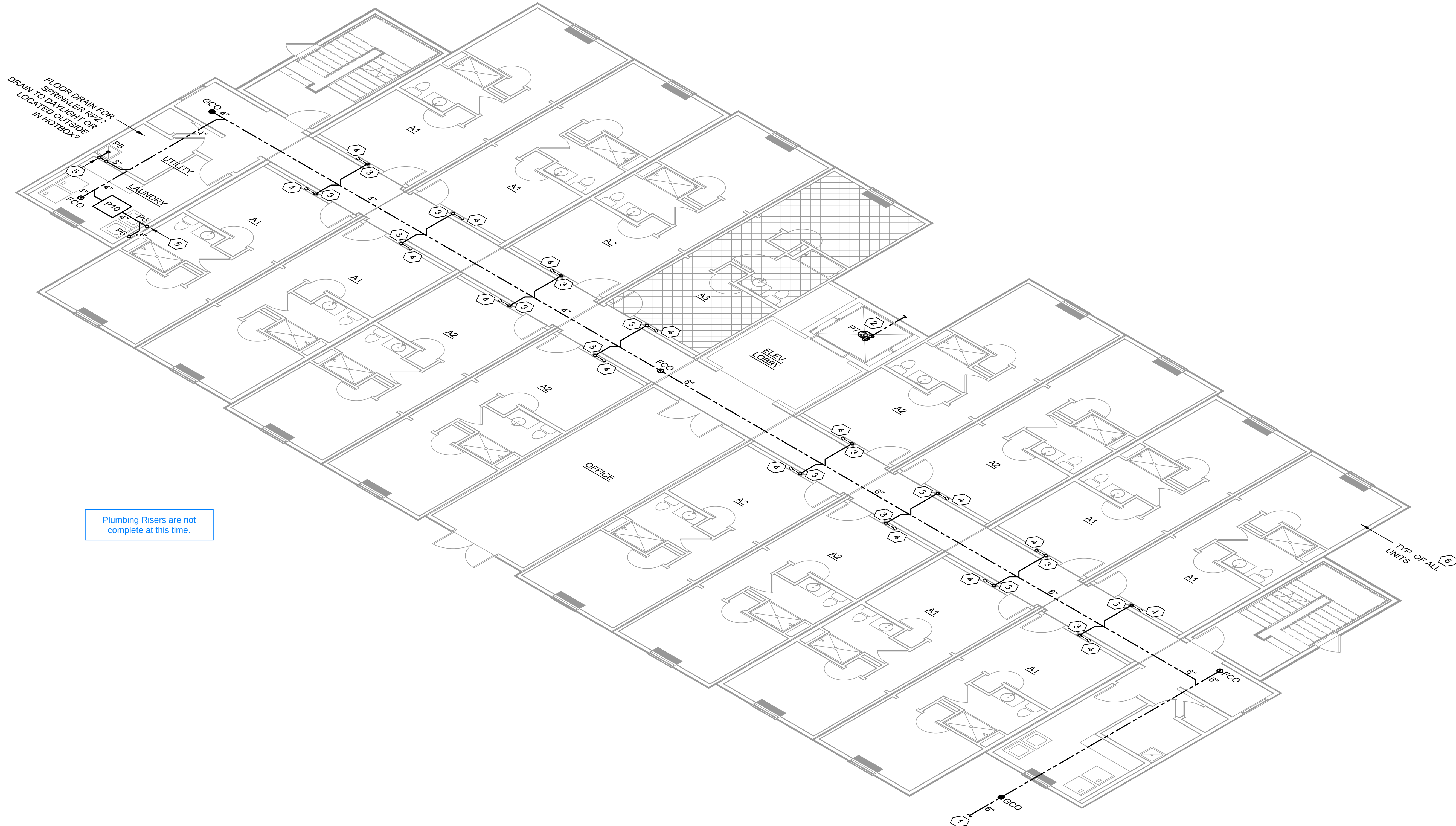
PROJECT NO: 2026-0809

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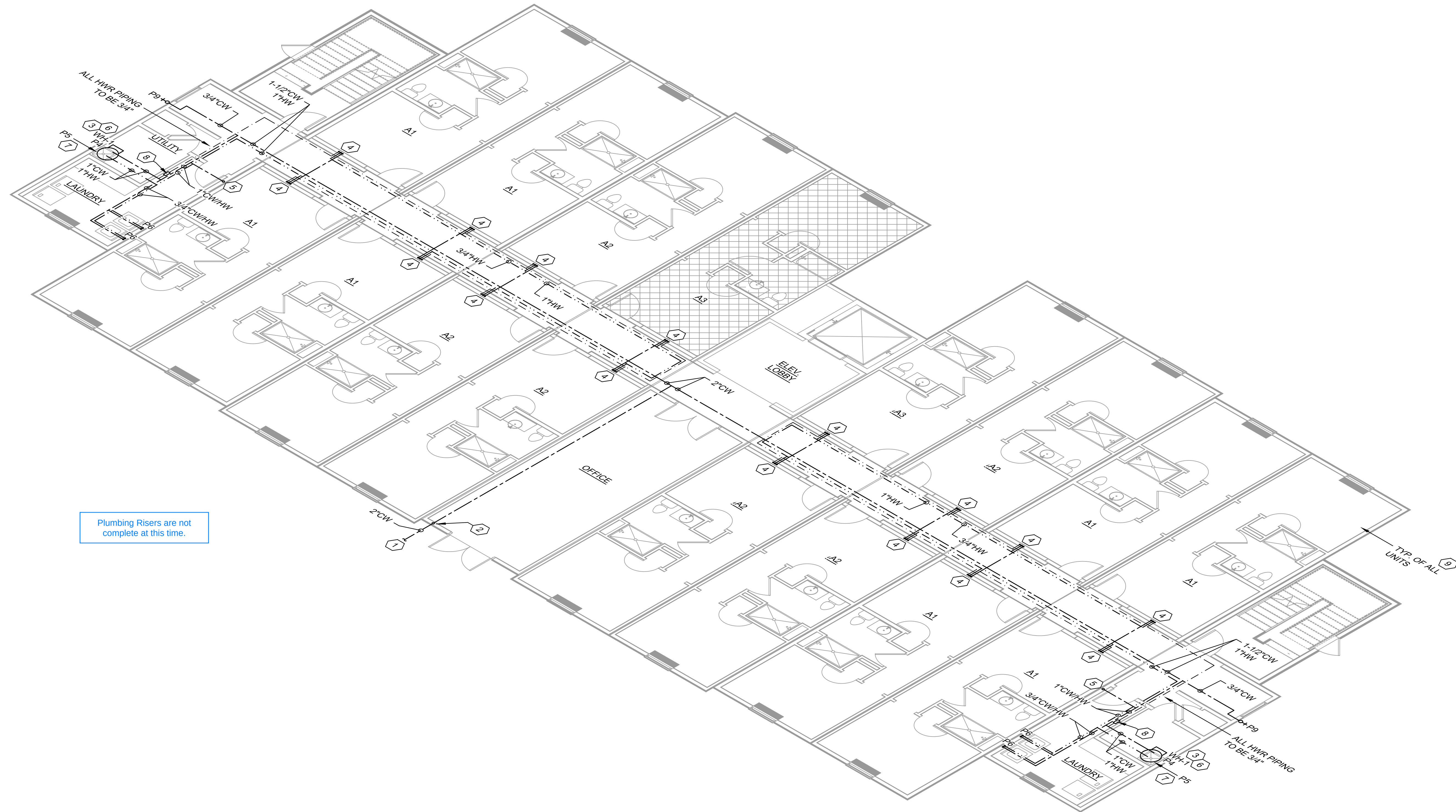
NEW CONSTRUCTION FOR:
ABCCM WOMEN'S TRANSIT. BUILDING
ROCKY RIDGE RD.,
ASHEVILLE, NC

REVISION	

ISSUED: -/-/-
ISSUED FOR PERMIT DESCRIPTION:
DRAWN BY: CRL CHECKED BY: REW/KDC
SHEET: SANITARY SEWER RISER
SHEET NO. P-401
PROJECT NO: 2026-0809



1 SANITARY RISERS
NTS



Plumbing Risers are not complete at this time.

1 SUPPLY RISERS
NTS

PRELIMINARY:
NOT FOR CONSTRUCTION

NEW CONSTRUCTION FOR:
ABCM WOMEN'S TRANSIT. BUILDING
ROCKY RIDGE RD.,
ASHEVILLE, NC

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ISSUED: -/-/-
ISSUED FOR PERMIT
DRAWN BY: CRL
CHECKED BY: REW/KDC
SHEET:
DOMESTIC SUPPLY RISER

SHEET NO.
P-402
PROJECT NO: 2026-0809

THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
PC - PLUMBING CONTRACTOR
EC - ELECTRICAL CONTRACTOR
MC - MECHANICAL CONTRACTOR
GC - GENERAL CONTRACTOR
FAC - FIRE ALARM SYSTEM CONTRACTOR
SFC - CURRENT STATE FIRE CODE (NORTH CAROLINA STATE BUILDING FIRE PREVENTION CODE)
NPPA - NATIONAL FIRE PROTECTION ASSOCIATION

2. "PROVIDE" MEANS TO FURNISH AND INSTALL.
3. THE FASC SHALL PROVIDE ALL MATERIALS, LABOR, ETC., AS NECESSARY FOR A COMPLETE AND OPERATIONAL FIRE ALARM SYSTEM.
4. THE DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL MINOR DETAILS AND EXACT LOCATIONS. THE FASC SHALL ALLOW FOR ADJUSTMENTS TO ACCOMMODATE INTERFERENCES BOTH PLANNED AND ENCOUNTERED AND SHALL INCLUDE SUCH CONTINGENCIES IN THEIR BID.
5. THE SUCCESSFUL FIRE ALARM BIDDER SHALL PROVIDE CONSTRUCTION DOCUMENTS TO THE AUTHORITY HAVING JURISDICTION FOR APPROVAL, INCLUDING ALARM CONTROLS AND TROUBLE SIGNALING EQUIPMENT, ANNUNCIATION, POWER CONNECTIONS, BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS, CONDUCTOR TYPES AND SIZES, LOCATIONS OF INITIATING AND NOTIFICATION APPLIANCES, AND MANUFACTURERS, MODEL NUMBERS, AND LISTING INFORMATION FOR ALL EQUIPMENT, DEVICES AND MATERIALS.
6. ALL WORK SHALL BE IN ACCORDANCE WITH NPPA 72 AND APPLICABLE SECTIONS OF NFPA 70 AND 13.
7. CONDUIT, CONDUCTORS, BOXES, AND HANGERS SHALL BE THE SAME AS THOSE SPECIFIED IN THE ELECTRICAL SYSTEM.
8. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BEAR UL LABEL OR EQUIVALENT WHERE APPLICABLE.
9. THE FIRE ALARM SYSTEM SHALL BE OF THE ADDRESSABLE TYPE WITH EACH INITIATING DEVICE REPORTING INDIVIDUALLY TO THE FIRE ALARM CONTROL PANEL. ONLY THE MANUFACTURER OR AN AUTHORIZED DISTRIBUTOR WHO STOCKS SPARE COMPONENTS FOR THE ENTIRE SYSTEM SHALL CONNECT, PROGRAM, OR TEST THE ADDRESSABLE FIRE ALARM SYSTEM. ALL TECHNICIANS PERFORMING SUCH WORK SHALL BE TRAINED AND INDIVIDUALLY CERTIFIED BY THE MANUFACTURER FOR THE MODEL OF SYSTEMS THEY HAVE INSTALLED. COPIES OF THEIR CERTIFICATION SHALL BE AVAILABLE UPON REQUEST. THE MANUFACTURER OR AUTHORIZED DISTRIBUTOR SHALL STORE THE COMPLETE PROGRAMMING FOR THE ADDRESSABLE SYSTEM ON A COMPUTER DISK OR DISKETTE OR OTHER MEDIA AND ARCHIVE APPROPRIATELY. A COPY OF THE PROGRAM SHALL BE MADE AVAILABLE TO THE OWNER WHEN THE SYSTEM IS COMMISSIONED. THE MANUFACTURER OR AUTHORIZED DISTRIBUTOR SHALL MAINTAIN SOFTWARE VERSION RECORDS ON THE SYSTEM INSTALLED AND PROVIDE FREE UPGRADES IF THE MANUFACTURER RELEASES A NEW VERSION OF THE SOFTWARE DURING THE WARRANTY PERIOD. PROVIDE A SYSTEM FUNCTION MATRIX THAT GIVES THE FIRE ALARM CONTROL PANEL RESPONSE FOR EACH INITIATING DEVICE.
10. THE SYSTEM SHALL BE NOMINAL 24VDC, NON-CODED, AND SUPERVISED (INCLUDING CONTROL CIRCUITS). ALL EQUIPMENT SUPPLIED MUST BE LISTED FOR ITS PARTICULAR USE AND INSTALLED IN ACCORDANCE WITH ANY INSTRUCTIONS APPLICABLE TO ITS LISTING.
11. THE SYSTEM SHALL BE ELECTRICALLY SUPERVISED FOR OPEN OR GROUND FAULT CONDITIONS IN DETECTION, ALARM, AND CONTROL CIRCUITS. THE REMOVAL OF ANY INITIATING DEVICE FROM THE SYSTEM SHALL DEACTIVATE THE SYSTEM MODULE OR STANDBY BATTERY CONNECTION SHALL ALSO ACTIVATE A TROUBLE SIGNAL. THE FIRE ALARM SIGNAL SHALL OVERRIDE TROUBLE SIGNALS, BUT THE PRE-ALARM TROUBLE SIGNAL SHALL REAPPEAR WHEN THE PANEL IS RESET.
12. PROVIDE EACH SIGNALING LINE CIRCUIT WITH A MINIMUM OF 20 PERCENT SPARE ADDRESSES FOR FUTURE USE.
13. THE SYSTEM SHALL ALLOW INDIVIDUAL ADDRESSABLE MODULES AND THEIR CONTACT TYPE INITIATING DEVICES MUST BE SUPERVISED.
14. THE FIRE ALARM CONTROL PANEL (FACP) POWER SUPPLY MUST HAVE A CONTINUOUS RATING ADEQUATE TO POWER ALL DEVICES AND FUNCTIONS IN FULL ALARM CONTINUOUSLY. BATTERIES MUST MEET THE APPROPRIATE NFPA 72 CAPACITY REQUIREMENTS. THE FACP SHALL INCLUDE AN ALARM SILENCE SWITCH AND SHALL BE EQUIPPED WITH A SILENCE/RESET/ALARM RESPONSE FEATURE. THE ALARM SILENCING AND RESET FEATURE SHALL NOT REVERSE AIR HANDLING UNITS SHUTDOWN. A SUPERVISED "HVAC SYSTEM SHUTDOWN" SWITCH MUST BE PROVIDED IN THE FACP WITH ITS "NORMAL" POSITION INDICATED.
15. ALL CONNECTIONS MADE AT THE FACP MUST BE BY THE MANUFACTURER'S AUTHORIZED FACP TRAINED PERSONNEL (NOT THE ELECTRICAL CONTRACTOR). PERMANENT WIRE MARKERS SHALL BE USED TO IDENTIFY ALL CONNECTIONS AND TERMINATIONS FOR EACH CIRCUIT. ALL FIRE ALARM JUNCTION BOXES SHALL BE SPRAYED RED AND LABELED "FIRE ALARM". TERMINAL BLOCKS SHALL BE PROVIDED IN ALL JUNCTION BOXES WHERE CONNECTIONS ARE MADE. IDENTIFICATION AT SPLICES SHALL INDICATE WHICH CONDUCTOR LEADS TO THE FACP.
16. THE FOLLOWING COLOR SCHEME SHALL BE USED FOR THE SYSTEM CONDUCTORS:
A. INITIATING CIRCUITS (OTHER THAN SMOKE) RED & WHITE
B. INITIATING CIRCUITS (SMOKE DETECTION) VIOLET & GRAY
C. NOTIFICATION APPLIANCE CIRCUITS BLUE & BLACK
D. AIR HANDLING SHUT DOWN CIRCUITS YELLOW
E. DOOR CONTROL CIRCUITS ORANGE
F. ELEVATOR CIRCUITS BROWN
17. LOW VOLTAGE WIRING SHALL NOT BE INSTALLED IN ANY RACEWAY CONTAINING POWER OR LINE VOLTAGE CONTROL WIRING. WITHIN THE FACP, ANY AC CONTROL WIRING SHALL BE PROPERLY SEPARATED FROM OTHER CIRCUITS AND THE ENCLOSURE SHALL BE LABELED TO ALERT SERVICE PERSONNEL TO THE HAZARD. DEVICES SHALL BE INSTALLED AS INDICATED ON THE PLANS AND AS DETAILED.
18. FOR EACH FIRE PROTECTION SYSTEM, THERE SHALL BE A CENTERED ON SPACES OR LOCATED ABOVE OTHER OUTLETS, SMOKE DETECTORS SHALL NOT BE LOCATED WITHIN THREE (3) FEET OF AN HVAC SUPPLY OR RETURN. INSTALL WALL MOUNTED SMOKE DETECTORS A MAXIMUM OF TWELVE (12) INCHES FROM CEILING.
19. PROVIDE A PERMANENT MARKER ON EACH DEVICE INSTALLED INDICATING THE DEVICE NUMBER AND ADDRESSABLE LOOP NUMBER. PROVIDE THE SAME INFORMATION INSIDE THE FACP FOR EACH DEVICE.
20. ALL HVAC EQUIPMENT, INCLUDING HVLS FANS, SHALL SHUTDOWN UPON ACTIVATION OF ANY FIRE ALARM DEVICE.
21. WATER FLOW SWITCHES, VALVE TAMPER SWITCHES, AND PRESSURE SWITCHES SHALL BE PROVIDED AND INSTALLED BY THE SPRINKLER CONTRACTOR, CONNECTED BY THE ELECTRICAL CONTRACTOR, AND SUPERVISED BY THE FACP.
22. THE FACP SHALL NOT BE USED AS A CONDUIT FOR THE ELECTRICAL SYSTEMS IN ADDITION TO TESTING AND CERTIFICATION BY THE FIRE ALARM SYSTEM SUPPLIER. PROVIDE INSTRUCTION MANUALS TO OWNER PERSONNEL.
23. FASC SHALL VERIFY THAT ALL VISIBLE NOTIFICATION DEVICES ARE SYNCHRONIZED PER NFPA 72.
24. VIBRABLE CABLE LEVELS ARE MINIMUM 60 DBA AND MAXIMUM 120 DBA THROUGHOUT THE ZONE. ADJUST DEVICES AS NECESSARY. MAINTAIN MINIMUM 100 DBA IN EQUIPMENT AND MECHANICAL ROOMS.
25. DEVICES MUST MEET SURVIVABILITY REQUIREMENTS OF NFPA 72 AS APPLICABLE.
26. THE AUDIBLE ALARM NOTIFICATION APPLIANCES SHALL PROVIDE A SOUND PRESSURE LEVEL OF 15 DECIBELS (dBA) ABOVE THE AVERAGE AMBIENT SOUND LEVEL, OR 5 dBA ABOVE THE MAXIMUM AMBIENT SOUND LEVEL, MEASURED AT BOTH 500 HZ AND 1000 HZ, WHICHEVER IS GREATER, IN EVERY OCCUPIABLE SPACE WITHIN THE BUILDING.
28. IN ACCORDANCE WITH SECTION 510 OF THE SFC, TESTING WILL BE REQUIRED TO DETERMINE SATISFACTORY FIRST RESPONDER COMMUNICATION COVERAGE INSIDE EACH BUILDINGS ON SITE. TESTING WILL NEED TO EITHER BE COMPLETED BY A COUNTY FIRE INSPECTOR (OBTAIN BY REQUESTING A COURTESY INSPECTION) OR A TESTING 3RD PARTY. TESTING SHALL BE COMPLETED AT 100% OF THE PROJECT COMPLETION AND AGAIN AT 100% COMPLETION, IF UNACCEPTABLE SIGNAL DEGRADATION IS PRESENT AT EITHER 80% OR 100% INSPECTION, THEN AN ACCEPTABLE BOOSTER SYSTEM SHALL BE ADDED TO THE BUILDING DESIGN AT THAT TIME.

No Scale

2 SYMBOL LEGEND

No Scale

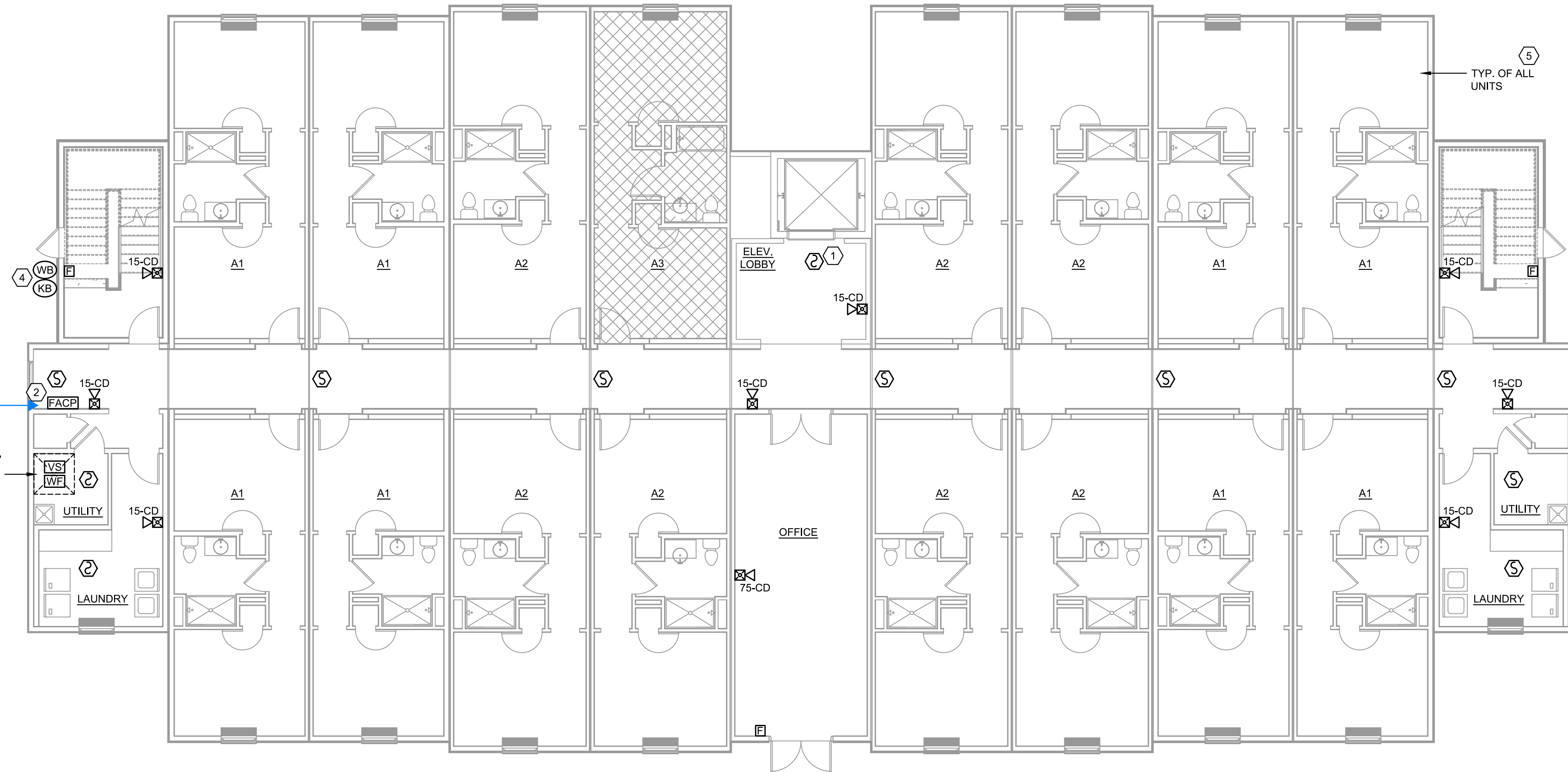


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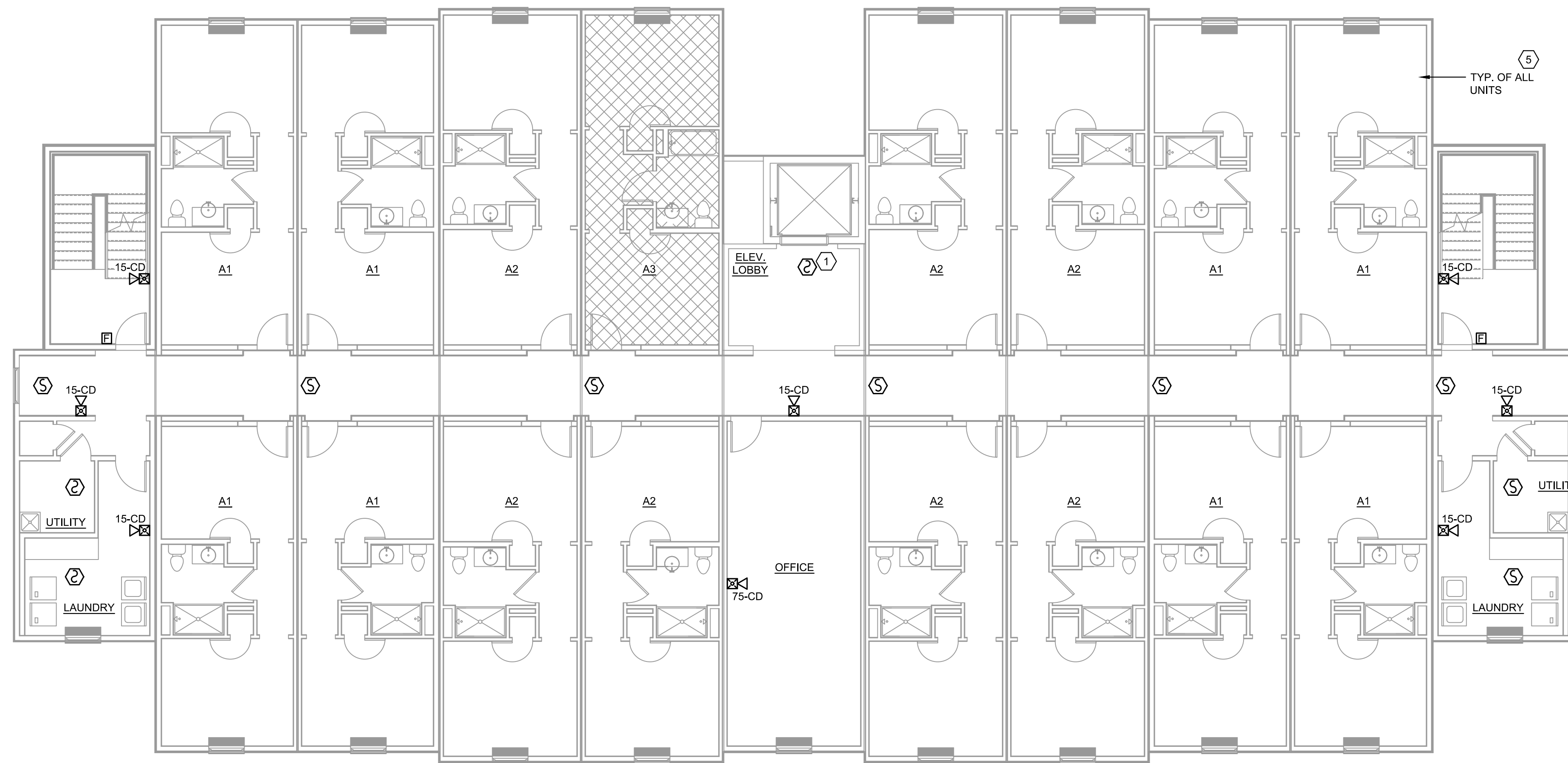
o Scale

Proposing FACP in hall here. Not sure if we will have space / clearances in Utility room. This would allow 1st responders to enter at Stair door where knob box is located and quickly access FACP and/or Riser.

4'x4' AREA FOR FIRE RISER



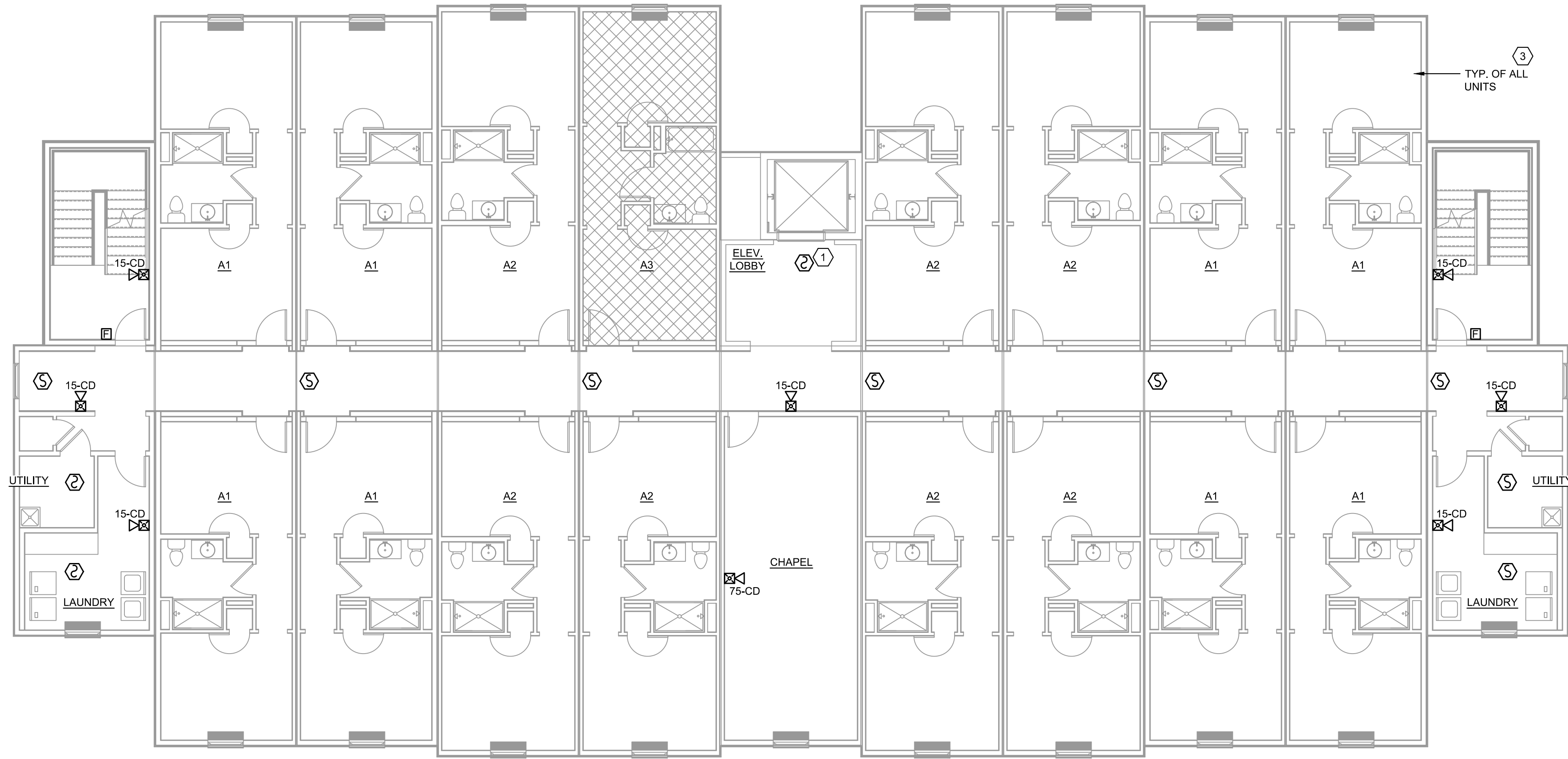
1 LEVEL 1 - FIRE ALARM PLAN
Scale: 1/8" = 1'-0"



2 LEVEL 2 - FIRE ALARM PLAN
Scale: 1/8" = 1'-0"

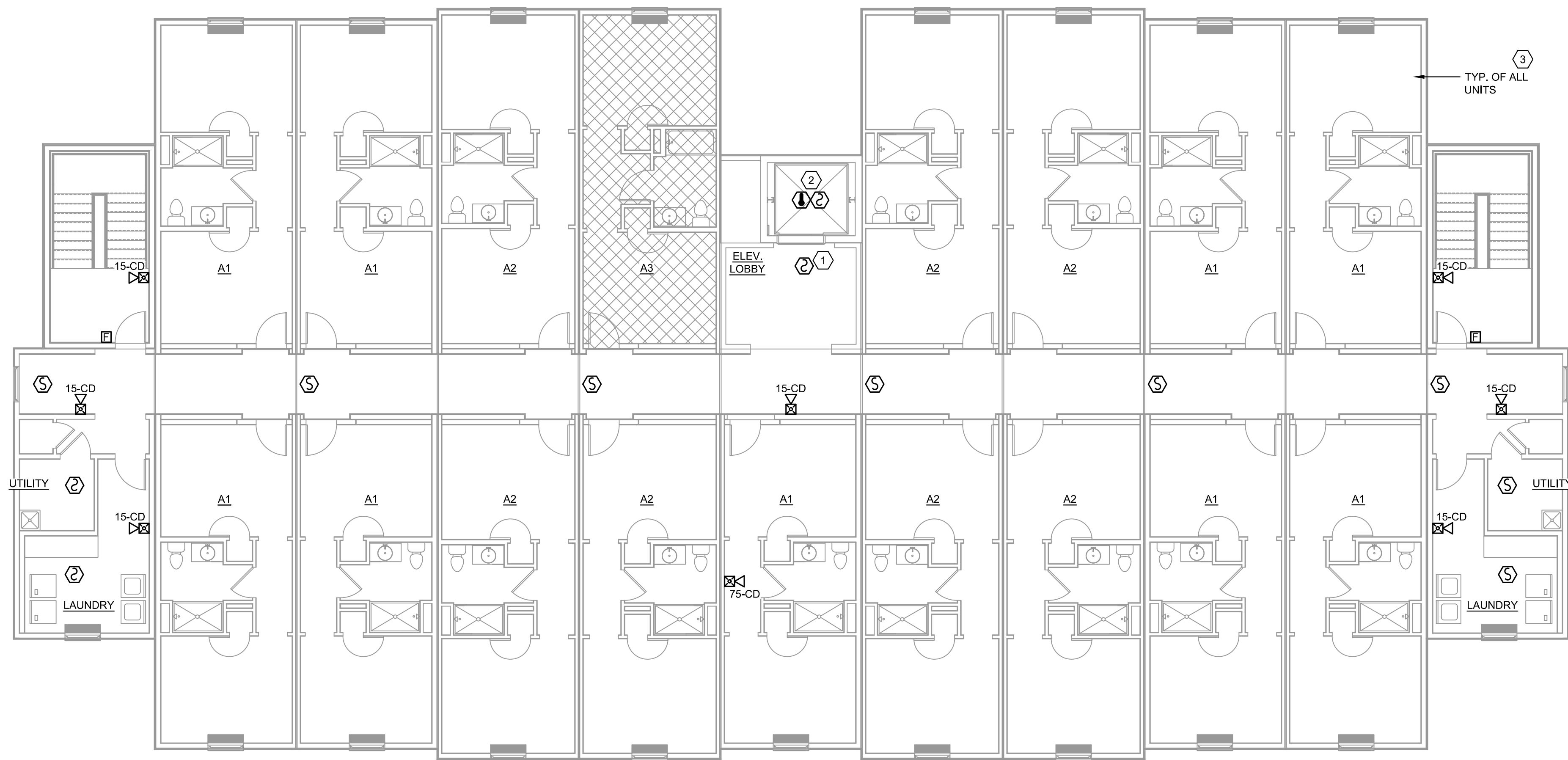
FIRE ALARM PLAN HEX NOTES

1. SMOKE DETECTOR OUTSIDE OF ELEVATOR TO HAVE ELEVATOR RECALL FUNCTION.
2. COORDINATE LOCATION OF FACP ONSITE TO AVOID CONFLICT WITH SPRINKLER AND/OR ELECTRICAL EQUIPMENT. MAINTAIN REQUIRED CLEARANCES IN FRONT OF FACP.
3. COORDINATE LOCATION OF TAMPER & FLOW SWITCHES WITH SPRINKLER CONTRACTOR.
4. COORDINATE LOCATION OF WEATHERPROOF BELL & KNOX BOX LOCATION WITH FIRE MARSHALL.
5. REFERENCE ENLARGED PLANS ON SHEET FA-201 FOR DEVICES IN SLEEPING AREAS.

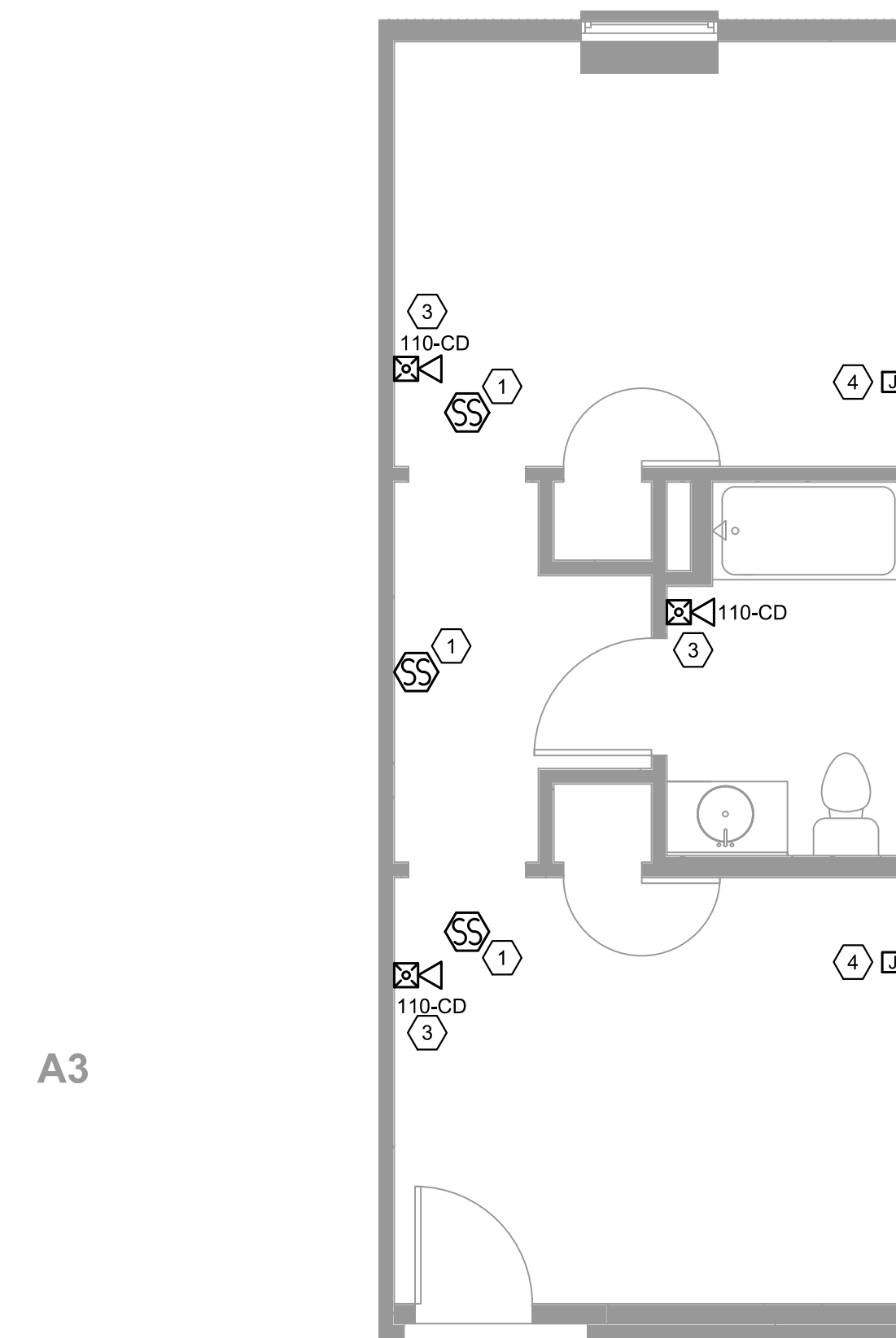
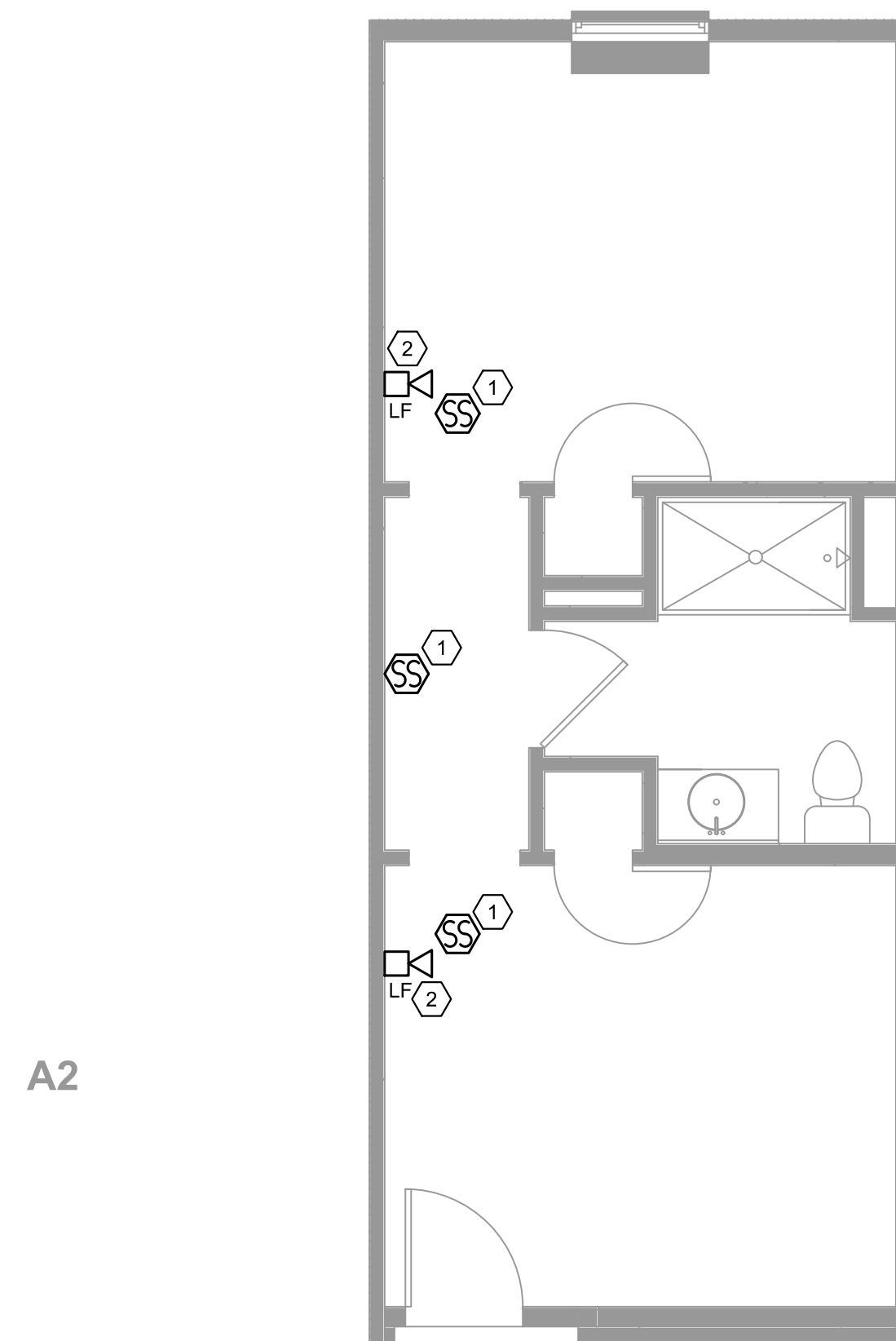
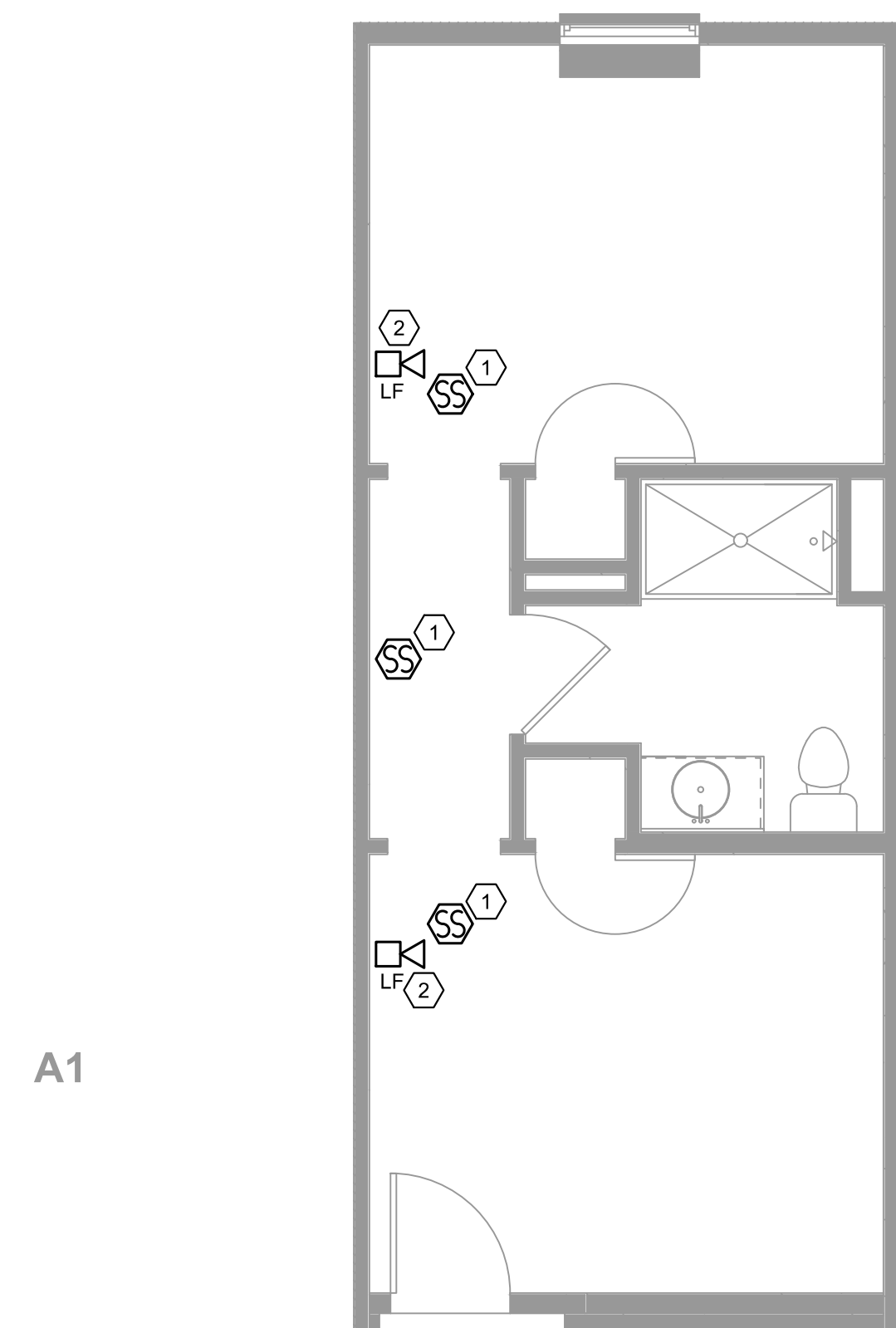


- FIRE ALARM PLAN HEX NOTES
1. SMOKE DETECTOR OUTSIDE OF ELEVATOR TO HAVE ELEVATOR RECALL FUNCTION.
 2. HEAT DETECTOR AND SMOKE DETECTOR INSTALLED IN TOP OF HOISTWAY. COORDINATE LOCATION WITH ELEVATOR INSTALLER PRIOR TO WORK.
 3. REFERENCE ENLARGED PLANS ON SHEET FA-201 FOR DEVICES IN SLEEPING AREAS.

1 LEVEL 3 - FIRE ALARM PLAN
Scale: 1/8" = 1'-0"



2 LEVEL 4 - FIRE ALARM PLAN
Scale: 1/8" = 1'-0"



-  FIRE ALARM PLAN HEX NOTES

 1. PHOTOELECTRIC TYPE COMBINATION SMOKE & CARBON MONOXIDE DETECTOR/SENSOR, CONNECT TO BEDROOM CIRCUIT ON AN ARC FAULT BREAKER PER NFPA 72, CHAPTER 29. ALARMS TO BE INTERCONNECTED SUCH THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT ONLY.
 2. INSTALL AT 80" AFF AND ROUTE CONDUIT TO CORRIDOR.
 3. INSTALL AT 24" BELOW CEILING AND ROUTE CONDUIT TO CORRIDOR. IF INSTALLED MORE THAN 24" BELOW CEILING, CD LEVELS TO BE 177-CD.
 4. JUNCTION BOX FOR FIRE ALARM BED SHAKER AT 18" AFF IN ACCESSIBLE ROOMS. BED SHAKER TO BE INSTALLED BY FIRE ALARM CONTRACTOR ONSITE.