



J-SQUARED  
ENGINEERING

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

# The Village at Discovery Park Alura Apartments

## Building 1 - Type A

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

### GENERAL MEP SPECIFICATIONS

- GENERAL**
  - ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH LOCALLY ADOPTED CODES AND ORDINANCES. IT IS THE RESPONSIBILITY OF CONTRACTOR TO REVIEW AND UNDERSTAND ALL DRAWINGS AND SPECIFICATIONS IN CONTRACT DOCUMENTS. EACH CONTRACTOR IS RESPONSIBLE FOR ALL WORK ASSOCIATED WITH THEIR TRADE, REGARDLESS OF WHERE WORK IS DEPICTED IN PROJECT DRAWINGS OR SPECIFICATIONS.
  - LAYOUT OF SYSTEMS SHOWN ON PLANS ARE APPROXIMATE AND SCHEMATIC IN NATURE. ALL SYSTEMS WILL NEED TO BE FIELD-COORDINATED. CONTRACTOR SHALL INCLUDE THIS COORDINATION IN THEIR SCOPE AND INCLUDE ALL COSTS OF MODIFYING LAYOUT AS REQUIRED IN THEIR BID. PLANS ARE NOT INTENDED TO BE SHOP DRAWINGS FROM WHICH MATERIALS CAN BE ORDERED, FABRICATED, OR INSTALLED WITHOUT ADDITIONAL FIELD MEASUREMENTS AND COORDINATION.
  - NOT ALL SPECIFIC PIECES AND COMPONENTS OF EACH SYSTEM ARE DETAILED OR OUTLINED ON PLANS. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY PARTS AND LABOR TO PRODUCE A COMPLETE AND FULLY OPERATIONAL SYSTEM UNLESS STATED OTHERWISE ON PLANS. CONTRACTOR IS TO PROVIDE AND INCLUDE ALL EQUIPMENT AND MATERIAL NEEDED TO COMPLETE WORK ASSOCIATED WITH THEIR BID UNLESS ANY ITEMS ARE SPECIFICALLY NOTED ON PLANS AS PROVIDED BY OTHERS. ALL MATERIALS TO BE NEW, FIRST CLASS, AND INSTALLED PER MANUFACTURER'S PUBLISHED INSTRUCTIONS.
  - WHERE CONFLICTS EXIST BETWEEN MEP PLANS AND CIVIL, ARCHITECTURAL, OR STRUCTURAL PLANS, NOTIFY MEP ENGINEER OF DISCREPANCIES FOR CLARIFICATION PRIOR TO PERFORMING ANY WORK THAT MAY CONTRADICT INFORMATION ELSEWHERE IN THE PROJECT PLANS. THESE PLANS ARE NOT TO BE SCALED. SEE ARCHITECTURAL PLANS FOR DIMENSIONS. WHERE THERE IS A CONFLICT BETWEEN ARCHITECTURAL DIMENSIONS AND MEP DIMENSIONS, ARCHITECTURAL SHALL GOVERN.
  - CONTRACTOR IS TO INCLUDE IN THEIR SCOPE THE COST OF ALL PERMITS, INSPECTIONS, METERING, TAPS, ETC. ASSOCIATED WITH THEIR WORK.
  - CONTRACTOR IS RESPONSIBLE FOR ALL EXCAVATION, CUTTING, CORING, PATCHING, AND BACKFILL REQUIRED TO COMPLETE THEIR WORK, UNLESS NOTED OTHERWISE ON PLANS.
  - SPECIFIC EQUIPMENT MANUFACTURERS AND/OR MODEL NUMBERS LISTED ON PLANS ARE TO ESTABLISH A BASIS-OF-DESIGN FOR QUALITY AND PERFORMANCE. VERIFY THAT SUBSTITUTIONS WILL BE ACCEPTABLE PRIOR TO PURCHASE & INSTALLATION.
  - NOTIFY ENGINEER OF ANY MAJOR PLAN DISCREPANCIES OR CONFLICTS PRIOR TO PROVIDING BIDS OR COMPLETING ANY WORK.
  - SEE DISCIPLINE SHEETS FOR ADDITIONAL TRADE SPECIFIC SPECIFICATIONS.
  - WHERE SHUTDOWN OF ANY EXISTING UTILITY OR SERVICE TO BUILDING IS REQUIRED FOR COMPLETION OF WORK, COORDINATE OUTAGE WITH OWNER AS TO NOT DISRUPT TYPICAL OPERATIONS.
- WORKMANSHIP**
  - SYSTEMS SHALL BE INSTALLED IN A FIRST-CLASS MANNER USING BEST ACCEPTABLE METHODS AND PRACTICES.
  - ALL SYSTEMS SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BUILDING ORIENTATION. COMPONENTS SHALL BE INSTALLED LEVEL AND PLUMB WITH ATTENTION GIVEN TO OVERALL AESTHETICS.
  - CONTRACTOR IS RESPONSIBLE FOR COORDINATING EQUIPMENT LOCATIONS AND SYSTEM ROUTING WITH OTHER TRADES PRIOR TO INSTALLATION.
  - CONTRACTOR TO GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE THE COMPLETED PROJECT IS RELEASED TO THE OWNER, UNLESS NOTED OTHERWISE ON PLANS.
  - DURING INSTALLATION OF MATERIALS OR ACTIVITIES IN NEW WORK SCOPE, AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO REMAIN. ANY DAMAGE TO EXISTING SURFACES OR EQUIPMENT SHALL BE CORRECTED AT NO COST TO OWNER.

### DEFERRED SUBMITTAL NOTES

- FIRE ALARM SYSTEM**
  - FIRE ALARM CONTRACTOR SHALL PROVIDE DEFERRED SUBMITTAL PACKAGE FOR FIRE ALARM SYSTEM. SUBMITTAL SHALL INCLUDE BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS, EQUIPMENT SPECIFICATIONS FOR DEVICES AND PANELS, ETC. DESIGN SHALL BE SEALED BY A QUALIFIED DESIGN PROFESSIONAL LICENSED BY THE STATE.
  - FIRE ALARM SYSTEM COMPONENTS SHOWN (IF APPLICABLE) ARE GENERAL AND SCHEMATIC IN NATURE, SHOWN FOR APPROXIMATE ROUGH-IN LOCATIONS AND QUANTITIES ONLY. CONTRACTOR TO VERIFY EXACT DEVICE LOCATIONS AND REQUIREMENTS WITH FIRE ALARM SYSTEM DESIGNER OF RECORD PRIOR TO ROUGH-IN.
- FIRE SPRINKLER SYSTEM**
  - FIRE SPRINKLER CONTRACTOR TO PROVIDE DEFERRED SUBMITTAL PACKAGE FOR FIRE SPRINKLER SYSTEM. SUBMITTAL SHALL INCLUDE HYDRAULIC CALCULATIONS AND SPRINKLER SYSTEM DRAWINGS SEALED BY A QUALIFIED DESIGN PROFESSIONAL LICENSED BY THE STATE.
  - WHERE COMBINED FIRE & DOMESTIC WATER SUPPLY LINES ARE SHOWN ON PLANS, INSTALLING CONTRACTOR SHALL VERIFY WITH FIRE SPRINKLER CONTRACTOR THAT INCOMING LINE SIZE IS ADEQUATE FOR FIRE SUPPRESSION SYSTEM.

### REFERENCED CODES IN EFFECT

PROJECT HAS BEEN DESIGNED IN COMPLIANCE WITH THE FOLLOWING CODES LISTED BELOW, BUT THIS IS NOT AN EXHAUSTIVE LIST. PROJECT SHALL COMPLY WITH ALL APPLICABLE CODES, STANDARDS, AND LOCAL REQUIREMENTS.

- 2018 INTERNATIONAL MECHANICAL CODE
- 2018 INTERNATIONAL PLUMBING CODE
- 2018 INTERNATIONAL FUEL GAS CODE
- 2018 INTERNATIONAL FIRE CODE
- 2017 NATIONAL ELECTRIC CODE

### FIRE RATED PENETRATION NOTES

- THIS BUILDING CONTAINS FIRE RATED ASSEMBLIES. SEE ARCHITECTURAL PLANS FOR LOCATIONS AND DETAILS.
- A UL-LISTED FIRESTOP SYSTEM SHALL BE INSTALLED AT EACH PENETRATION OF A HORIZONTAL OR VERTICAL RATED ASSEMBLY IN ACCORDANCE WITH ASTM E814 OR UL 1479.
- EACH CONTRACTOR IS RESPONSIBLE FOR PROVIDING PROTECTION FOR THEIR PENETRATIONS THRU RATED ASSEMBLIES.
- GENERAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING A CATALOG OF ALL UL LISTED FIRESTOP ASSEMBLIES, AND KEEPING A PHYSICAL COPY OF DETAILS FOR EACH USED FIRESTOP ASSEMBLY ON SITE FOR REFERENCE.

### SHEET LIST TABLE

SHEET #	SHEET TITLE
MEP1	MECHANICAL ELECTRICAL PLUMBING COVER SHEET
MEP2	SITE UTILITIES PLAN
MEP3	SITE LIGHTING PLAN
MEP4	SITE LIGHTING PLAN
M101	HVAC PLAN - FIRST & SECOND FLOORS
M102	HVAC PLAN - THIRD & FOURTH FLOORS
M501	HVAC DETAILS & SCHEDULES
EP101	POWER PLAN - FIRST & SECOND FLOORS
EP102	POWER PLAN - THIRD & FOURTH FLOORS
EL101	LIGHTING PLAN - FIRST & SECOND FLOORS
EL102	LIGHTING PLAN - THIRD & FOURTH FLOORS
E501	ELECTRICAL DETAILS
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FA101	FIRE PROTECTION PLAN - FIRST & SECOND FLOORS
FA102	FIRE PROTECTION PLAN - THIRD & FOURTH FLOORS
PS101	SANITARY SEWER PLAN - FIRST & SECOND FLOORS
PS102	SANITARY SEWER PLAN - THIRD & FOURTH FLOORS
PW101	WATER PLAN - FIRST & SECOND FLOOR
PW102	WATER PLAN - THIRD & FOURTH FLOORS
P501	PLUMBING DETAILS & SCHEDULES
UMEP1.2	ANSI-B - 1 BR - TYPE A - UNIT MEP PLAN
UMEP1.4	ANSI B - 1 BR - TYPE B - UNIT MEP PLAN
UMEP1.5	ANSI B - 1 BR - TYPE C - UNIT MEP PLAN
UMEP2.3.1	ANSI B - 2 BR - TYPE A - UNIT HVAC & WATER PLAN
UMEP2.3.2	ANSI B - 2 BR - TYPE A - UNIT POWER & LIGHTING PLAN
UMEP2.4.1	ANSI B - 2 BR - TYPE B - UNIT HVAC & WATER PLAN
UMEP2.4.2	ANSI B - 2 BR - TYPE B - UNIT POWER & LIGHTING PLAN

STATE OF MISSOURI

JAMES P. WATSON

NUMBER

PE-2015017071

PROFESSIONAL ENGINEER

James Watson, P.E.  
PE-2015017071  
MO Certificate of Authority # 2018029680

April 15, 2025

J-SQUARED

ENGINEERING

2400 Bluff Creek Drive, Suite 101  
Columbia, Missouri 65201  
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www.j-squaredeng.com

J2 PROJECT No:	J21357
J2 DESIGN:	ACW
ISSUE TITLE	DATE
PERMIT SET	04 - 15 - 2025

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery Park Alura Apartments

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

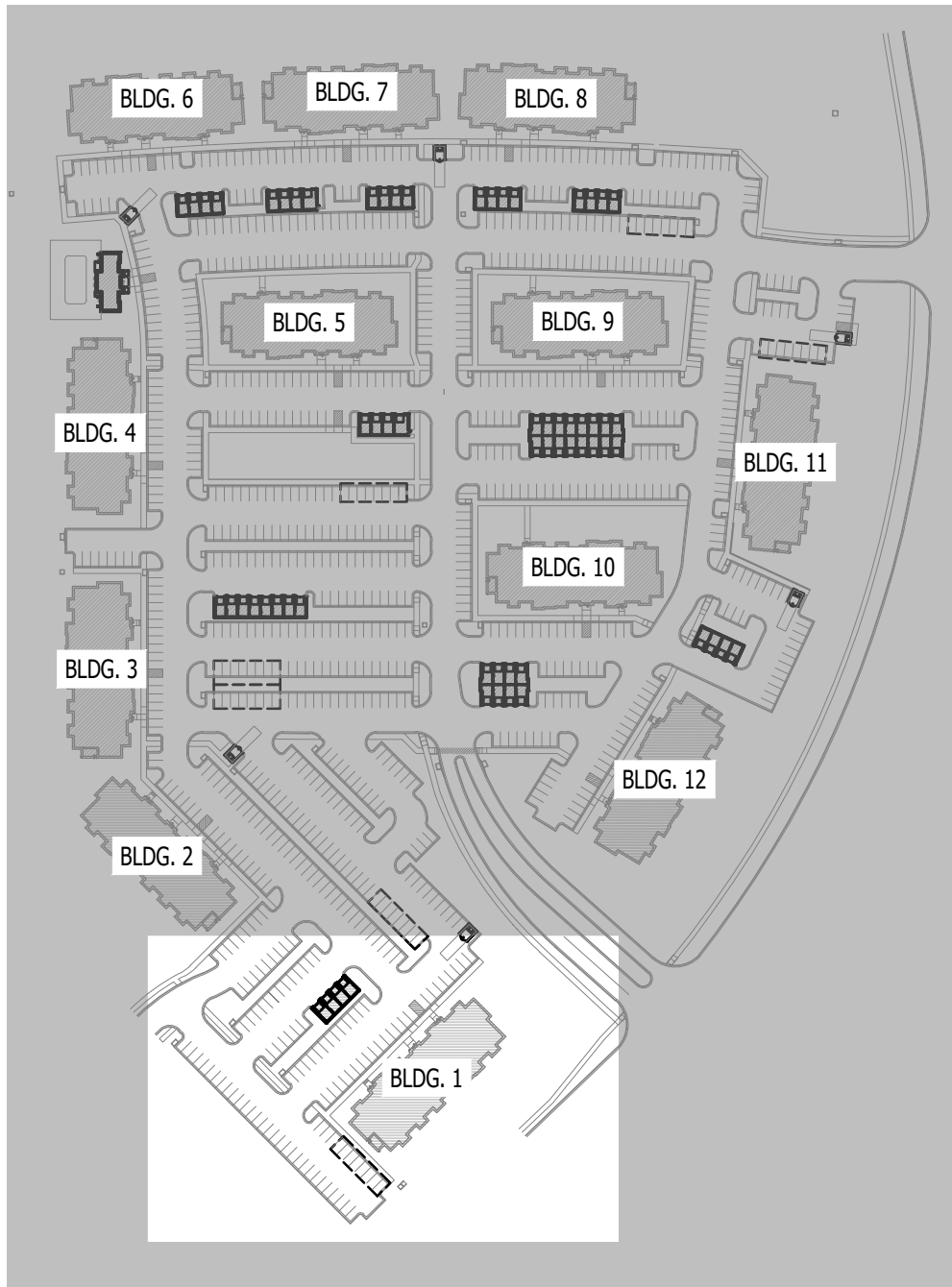
AHJ APPROVAL STAMP

SHEET TITLE

MECHANICAL  
ELECTRICAL  
PLUMBING  
COVER SHEET

SHEET NUMBER

MEP1



**SITE KEY PLAN**  
SCALE: 1" = 200 ft

**SITE UTILITIES PLAN SYMBOL LEGEND**

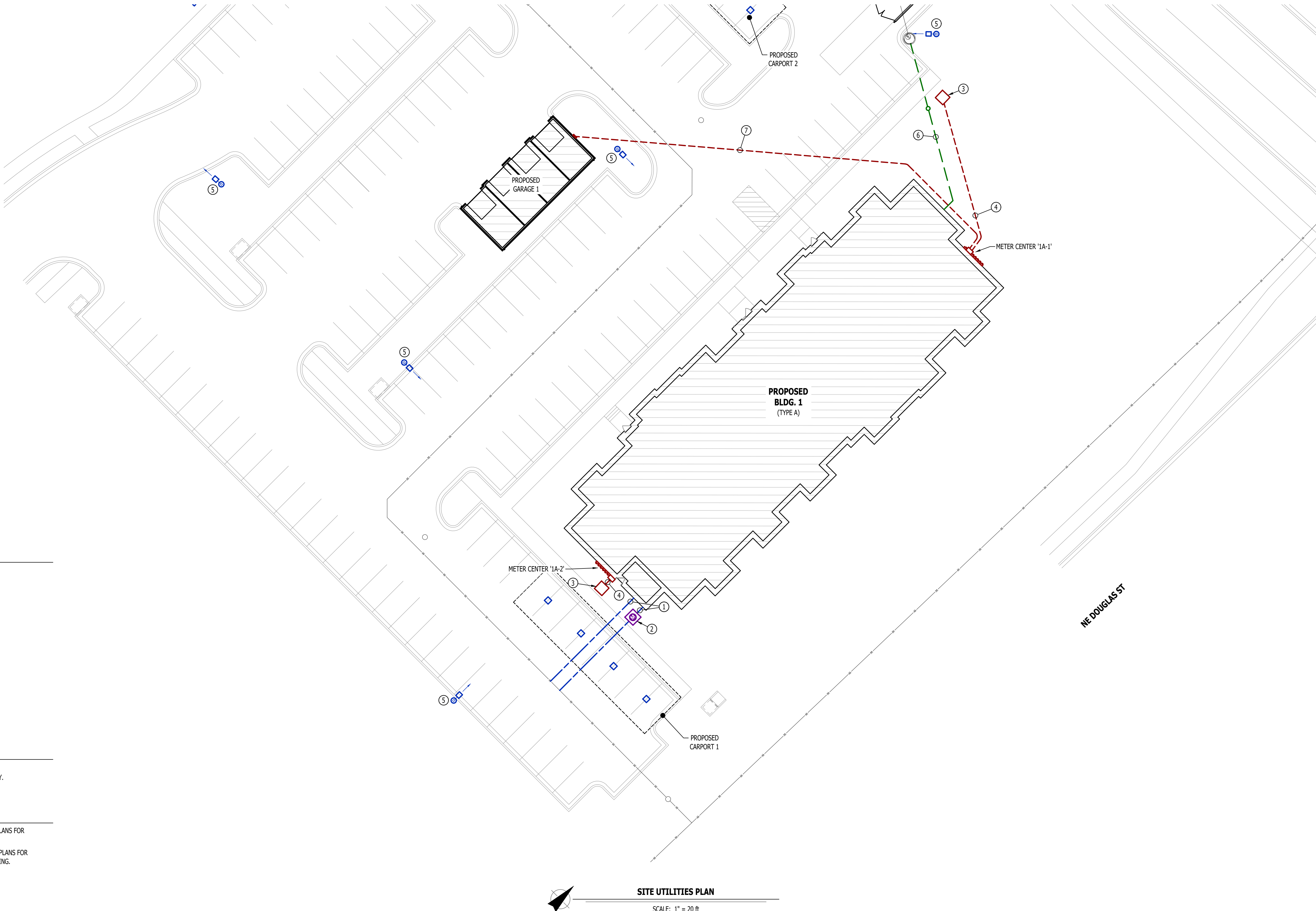
- SANITARY SEWER PIPING
- COLD WATER LINE
- WATER METER
- VALVE
- GAS LINE
- GAS METER
- TIE INTO EXISTING
- ELECTRIC

**SITE UTILITIES PLAN GENERAL NOTES:**

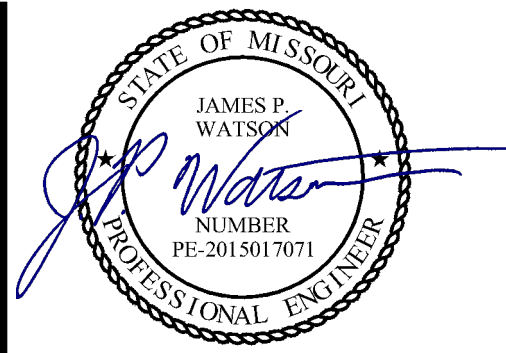
- REFER TO CIVIL PLANS FOR EXACT UTILITY LOCATIONS, CONNECTIONS, DETAILS, ETC.
- COORDINATE EXACT LOCATIONS OF ALL ELECTRICAL CONDUITS & EQUIPMENT WITH EVERGY.

**SITE UTILITIES PLAN KEY NOTES:**

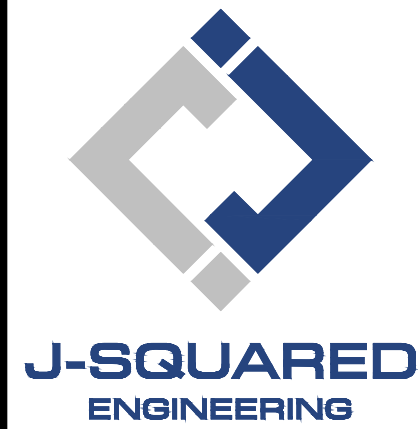
- 6" UN-METERED SPRINKLER LINE & 3" CW DOMESTIC LINE TO RISER ROOM (SEE PLUMBING PLANS FOR CONTINUATION).
- (2) PARALLEL 2" CW LINES TO (2) PARALLEL 2" DOMESTIC METERS IN VAULT (SEE PLUMBING PLANS FOR DETAILS). (2) 2" CW LINES COMBIND DOWNSTREAM OF METERS TO (1) 3" CW LINE TO BUILDING.
- PROPOSED PAD-MOUNTED TRANSFORMER (SEE POWER RISER FOR DETAILS).
- UNDERGROUND SECONDARY CONDUIT/CONDUCTORS (SEE POWER RISER FOR DETAILS).
- POLE LIGHT (SEE SITE LIGHTING PLANS FOR DETAILS).
- 6" SAN (SEE PLUMBING PLANS FOR DETAILS).
- UNDERGROUND CONDUIT/CONDUCTORS FROM APARTMENT METER CENTER TO GARAGE (SEE GARAGE PLANS & POWER RISERS FOR DETAILS).



**SITE UTILITIES PLAN**  
SCALE: 1" = 20 ft



James Watson, P.E. April 15, 2025  
PE-2015017071  
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J2 PROJECT No: J21357

J2 DESIGN: ACW

ISSUE TITLE DATE

PERMIT SET 04 - 15 - 2025

**The Village at Discovery Park Alura Apartments**

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE

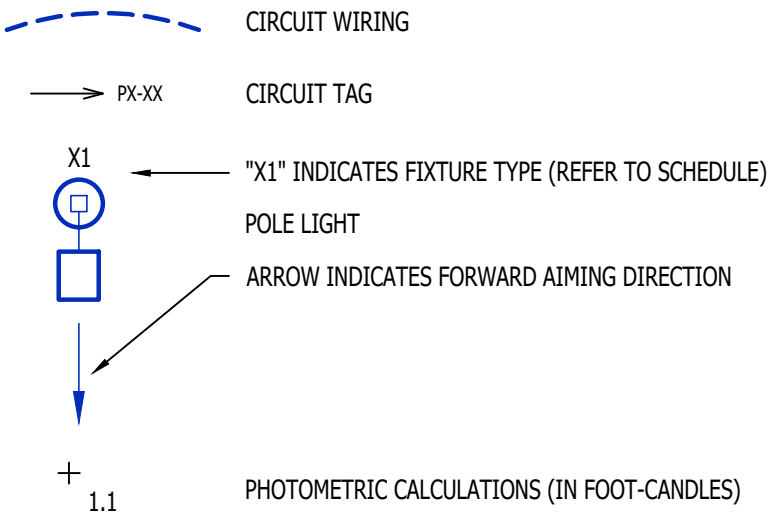
**SITE UTILITIES  
PLAN**

SHEET NUMBER

**MEP2**



SITE LIGHTING PLAN SYMBOL LEGEND

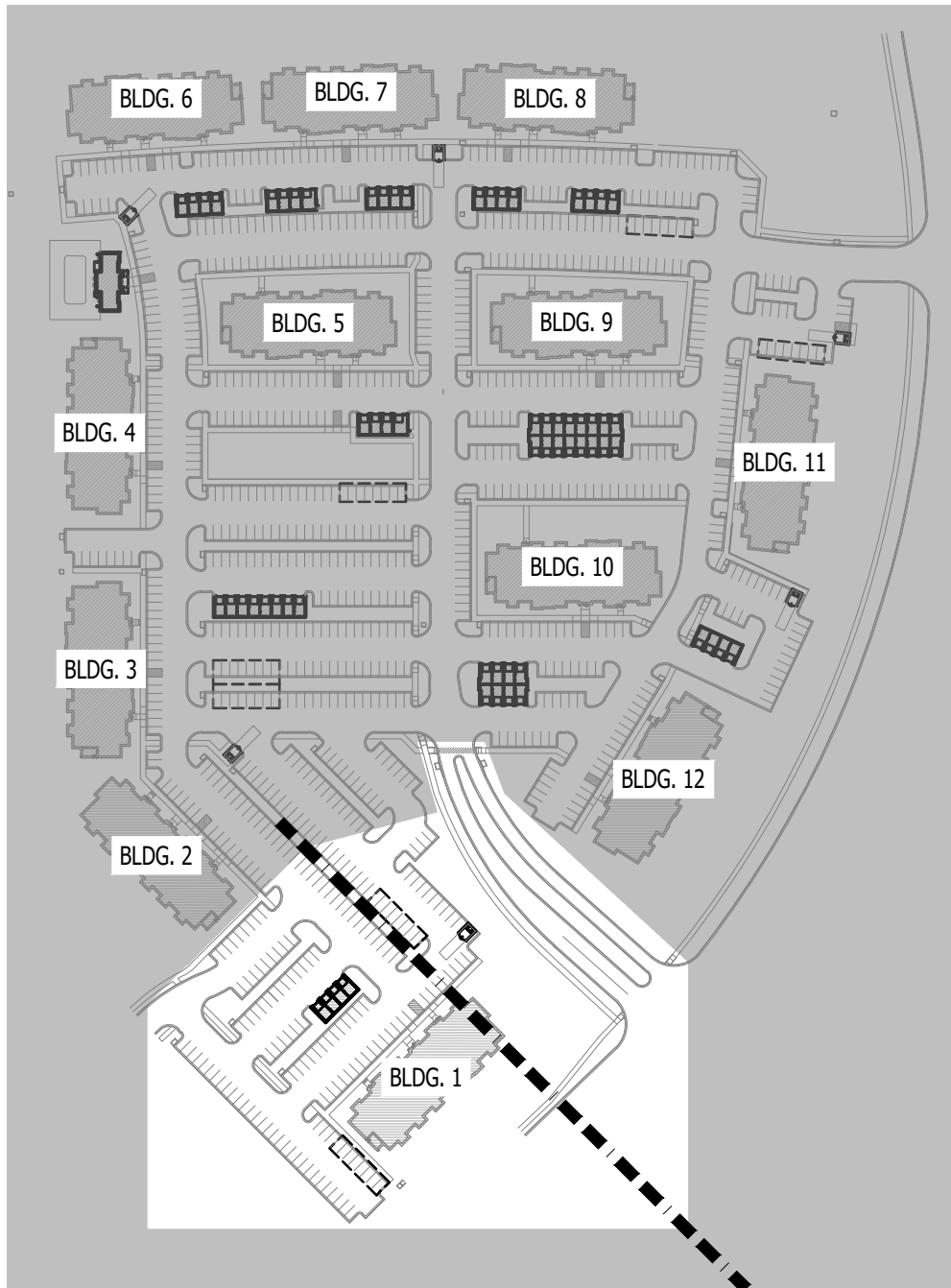


SITE LIGHTING PLAN GENERAL NOTES:

1. SITE PHOTOMETRIC VALUES SHOWN HAVE BEEN CALCULATED PER SPECIFIED LIGHT FIXTURES AT INDICATED MOUNTING HEIGHTS. ANY CHANGES OR ALTERATIONS TO LIGHTING LAYOUT SHOWN WILL REQUIRE RECALCULATING SITE PHOTOMETRICS AND WILL THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR / EQUIPMENT SUPPLIER.
2. PHOTOMETRIC CALCULATIONS SHOWN DO NOT INCLUDE EXISTING LIGHT FIXTURE(S), ONLY NEW POLE LIGHT FIXTURE(S) SHOWN. CALCULATIONS ALSO INCLUDE NEW POLE LIGHT FIXTURES ON ADJACENT LOTS AS PART OF THIS DEVELOPMENT. REFER TO ADJACENT BUILDING SITE LIGHTING AND MASTER SITE LIGHTING PLANS FOR DETAILS & CALCULATIONS SUMMARIES.
3. PHOTOMETRIC CALCULATIONS DO NOT INCLUDE CARPORT LIGHTING.
4. SEE SHEET MEP4 FOR LIGHT FIXTURE SCHEDULE.

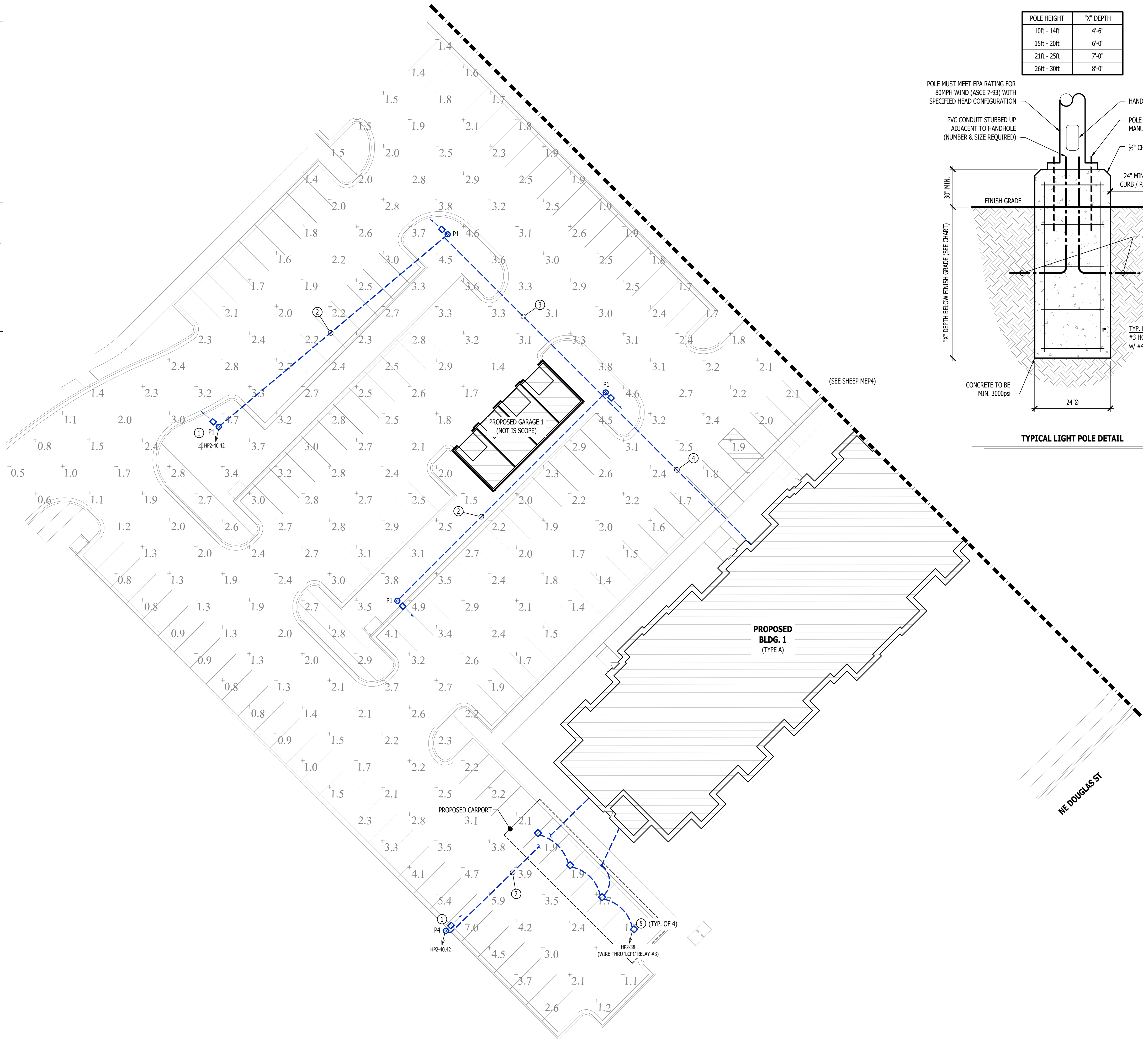
SITE LIGHTING PLAN KEY NOTES:

- ① WIRE THRU 'LCP1' RELAYS #1 & #2
- ② 1" CONDUIT WITH (2) #10 CU. & (1) #10 CU. EQ. GRD.
- ③ 1" CONDUIT WITH (2) #8 CU. & (1) #8 CU. EQ. GRD.
- ④ 1" CONDUIT WITH (2) #6 CU. & (1) #6 CU. EQ. GRD.
- ⑤ CARPORT LIGHTING FIXTURE EQUAL TO METALLUX #CLCS175; COORDINATE MOUNTING & DETAILS WITH CARPORT SUPPLIER/INSTALLER.



SITE KEY PLAN

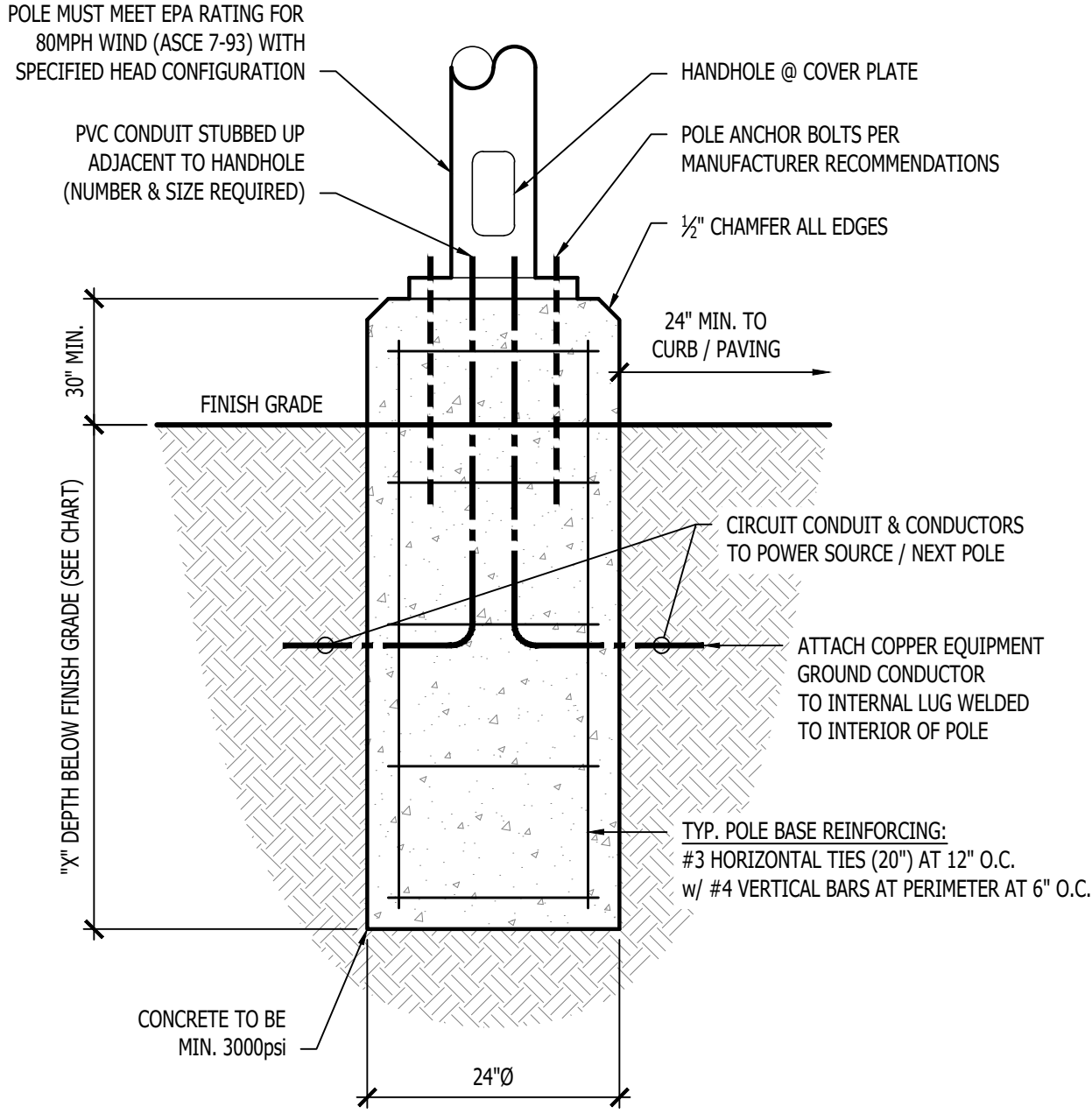
SCALE: 1" = 200 ft



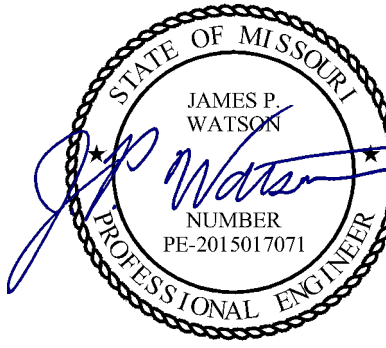
SITE LIGHTING PLAN

SCALE: 1" = 20 ft

POLE HEIGHT	"X" DEPTH
10ft - 14ft	4'-6"
15ft - 20ft	6'-0"
21ft - 25ft	7'-0"
26ft - 30ft	8'-0"



TYPICAL LIGHT POLE DETAIL



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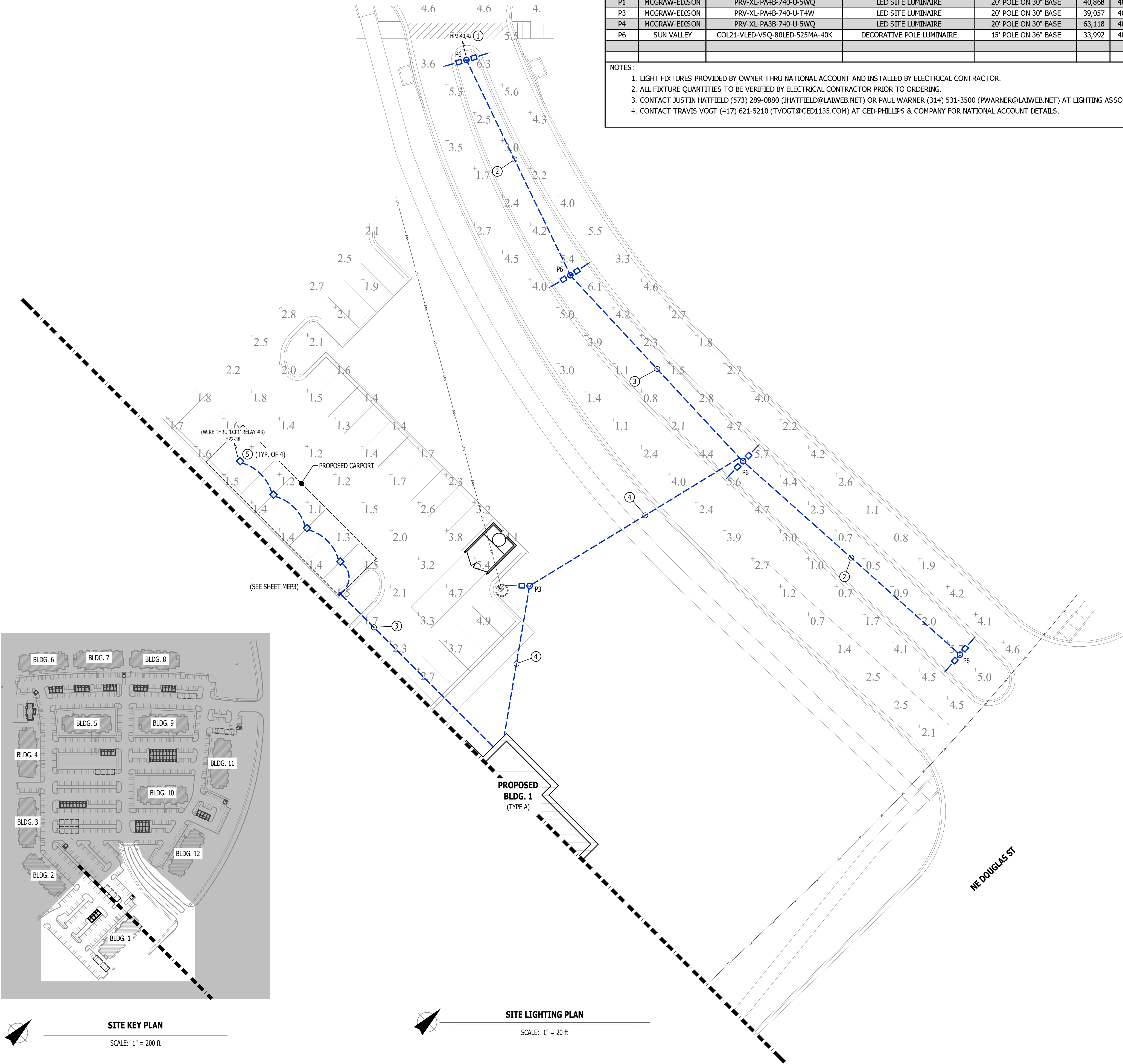
SHEET TITLE

SITE LIGHTING PLAN

SHEET NUMBER

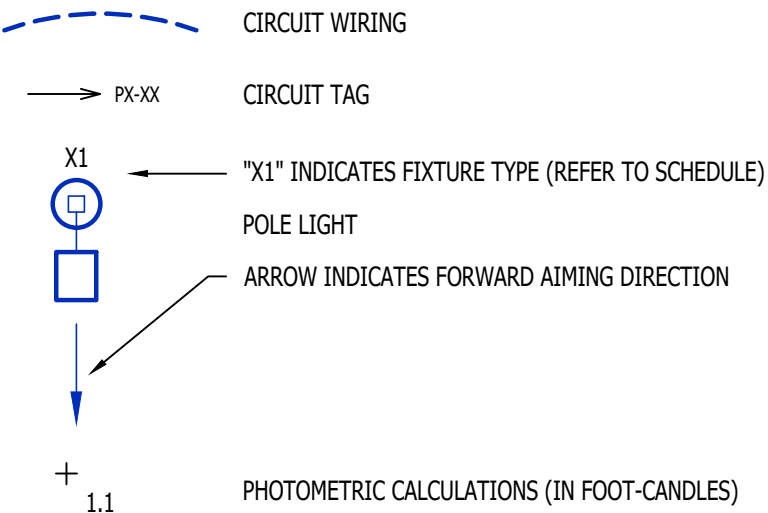
MEP3





SITE LIGHTING FIXTURE SCHEDULE - BUILDING 1											
TAG	MANUFACTURER (OR EQUAL)	MODEL NUMBER (OR EQUAL)	DESCRIPTION	MOUNTING	LUMEN OUTPUT	CCT (°K)	CRI	VOLTS	WATTS	NOTES	
P1	MCGRAW-EDISON	PRV-XL-PA4B-740-U-SWQ	LED SITE LUMINAIRE	20' POLE ON 30" BASE	40,868	4000	70	UNV	303	WITH #MS/DIM-L40 MOTION SENSING DIMMING	
P3	MCGRAW-EDISON	PRV-XL-PA4B-740-U-T4W	LED SITE LUMINAIRE	20' POLE ON 30" BASE	39,057	4000	70	UNV	303	WITH #MS/DIM-L40 MOTION SENSING DIMMING	
P4	MCGRAW-EDISON	PRV-XL-PA3B-740-U-SWQ	LED SITE LUMINAIRE	20' POLE ON 30" BASE	63,118	4000	70	UNV	234	(2) FIXTURES POLE-MOUNTED BACK-TO-BACK; WITH #MS/DIM-L40 MOTION SENSING DIMMING	
P6	SUN VALLEY	COL21-VLED-VSQ-80LED-525MA-40K	DECORATIVE POLE LUMINAIRE	15' POLE ON 36" BASE	33,992	4000	70	208	252	(2) FIXTURES POLE-MOUNTED BACK-TO-BACK	
NOTES: 1. LIGHT FIXTURES PROVIDED BY OWNER THRU NATIONAL ACCOUNT AND INSTALLED BY ELECTRICAL CONTRACTOR. 2. ALL FIXTURE QUANTITIES TO BE VERIFIED BY ELECTRICAL CONTRACTOR PRIOR TO ORDERING. 3. CONTACT JUSTIN HATFIELD (573) 289-0880 (JHATFIELD@LAIWEB.NET) OR PAUL WARNER (314) 531-3500 (PWARNER@LAIWEB.NET) AT LIGHTING ASSOCIATES FOR NATIONAL ACCOUNT DETAILS. 4. CONTACT TRAVIS VOGT (417) 621-5210 (TVOGT@CED1135.COM) AT CED-PHILLIPS & COMPANY FOR NATIONAL ACCOUNT DETAILS.											

SITE LIGHTING PLAN SYMBOL LEGEND

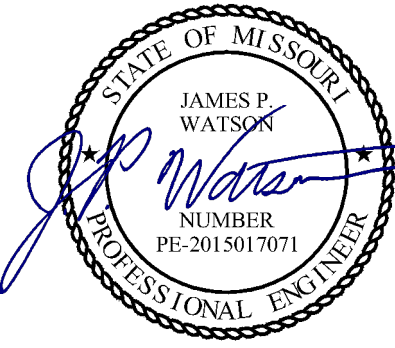


SITE LIGHTING PLAN GENERAL NOTES:

- SITE PHOTOMETRIC VALUES SHOWN HAVE BEEN CALCULATED PER SPECIFIED LIGHT FIXTURES AT INDICATED MOUNTING HEIGHTS. ANY CHANGES OR ALTERATIONS TO LIGHTING LAYOUT SHOWN WILL REQUIRE RECALCULATING SITE PHOTOMETRICS AND WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR / EQUIPMENT SUPPLIER.
- PHOTOMETRIC CALCULATIONS SHOWN DO NOT INCLUDE EXISTING LIGHT FIXTURE(S), ONLY NEW POLE LIGHT FIXTURE(S) SHOWN. CALCULATIONS ALSO INCLUDE NEW POLE LIGHT FIXTURES ON ADJACENT LOTS AS PART OF THIS DEVELOPMENT. REFER TO ADJACENT BUILDING SITE LIGHTING AND MASTER SITE LIGHTING PLANS FOR DETAILS & CALCULATIONS SUMMARIES.
- PHOTOMETRIC CALCULATIONS DO NOT INCLUDE CARPORT LIGHTING.

SITE LIGHTING PLAN KEY NOTES:

- WIRE THRU 'LCP1' RELAYS #1 & #2
- 1" CONDUIT WITH (2) #10 CU. & (1) #10 CU. EQ. GRD.
- 1" CONDUIT WITH (2) #8 CU. & (1) #8 CU. EQ. GRD.
- 1" CONDUIT WITH (2) #6 CU. & (1) #6 CU. EQ. GRD.
- CARPORT LIGHTING FIXTURE EQUAL TO METALLUX #CLCS175; COORDINATE MOUNTING & DETAILS WITH CARPORT SUPPLIER/INSTALLER.



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SHEET TITLE

SITE LIGHTING  
PLAN

SHEET NUMBER

MEP4



HVAC PLAN SYMBOL LEGEND

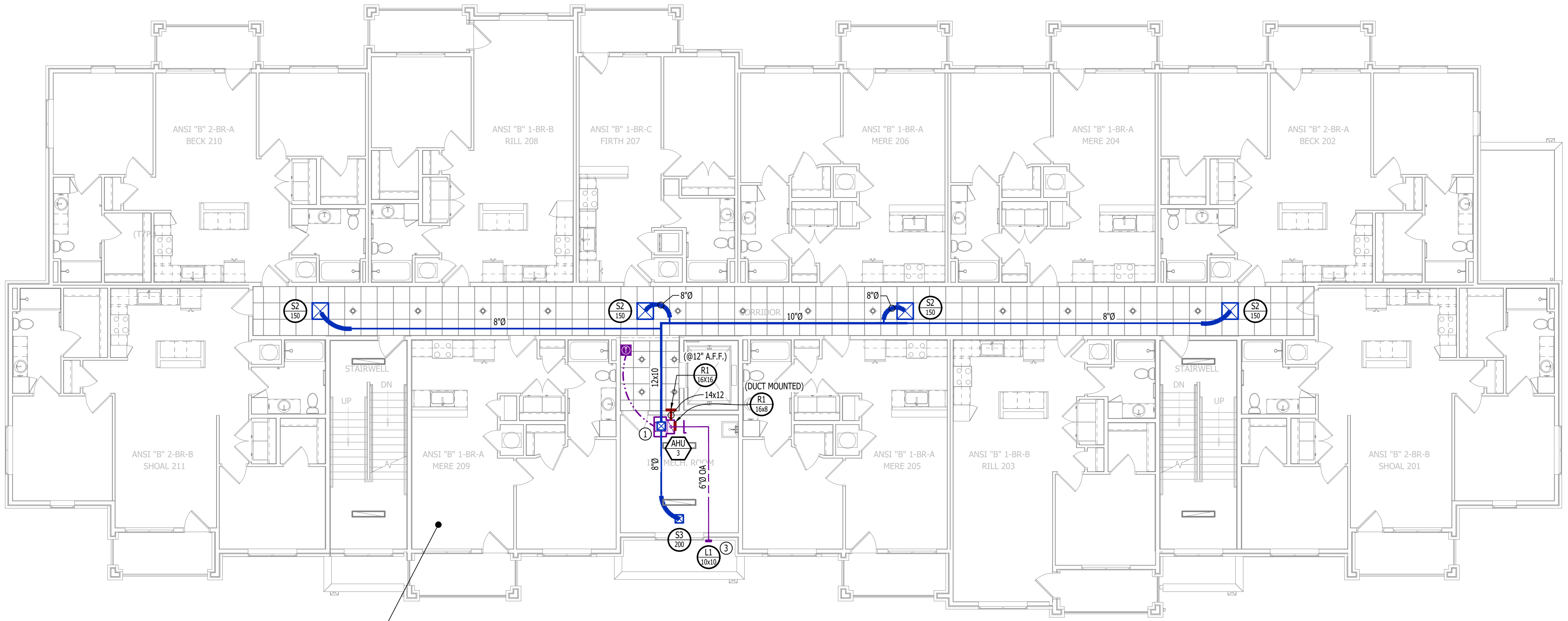
- EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)  
— EQUIPMENT REFERENCE NUMBER  
— DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)  
— CUBIC FEET PER MINUTE (CFM) / FACE SIZE
- SUPPLY DUCTWORK  
— RETURN DUCTWORK  
— EXHAUST DUCTWORK  
— OUTSIDE AIR DUCTWORK  
— FLEX DUCT  
— CONDENSATION LINE
- ✕ TIE INTO EXISTING  
☒ SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")  
☒ RETURN DIFFUSER  
— BALANCE DAMPER  
— MOTORIZED DAMPER  
— CEILING RADIATION DAMPER  
— FIRE RATED DAMPER  
— SMOKE DAMPER  
② THERMOSTAT

HVAC PLAN GENERAL NOTES:

- REFER TO M500 AND/OR M600 SERIES SHEETS FOR ADDITIONAL HVAC NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
- HVAC CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL EQUIPMENT, DUCTWORK, REFRIGERANT PIPING, CONDENSATE PIPING, HANGERS / SUPPORTS, ETC. WITH PLUMBING AND ELECTRICAL TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.
- ALL REFRIGERANT PIPING SHALL ROUTE WITHIN WALL CAVITIES AND ABOVE FINISHED CEILINGS TO REMAIN CONCEALED WHERE POSSIBLE. INSTALL PER MANUFACTURER'S SPECIFICATIONS.

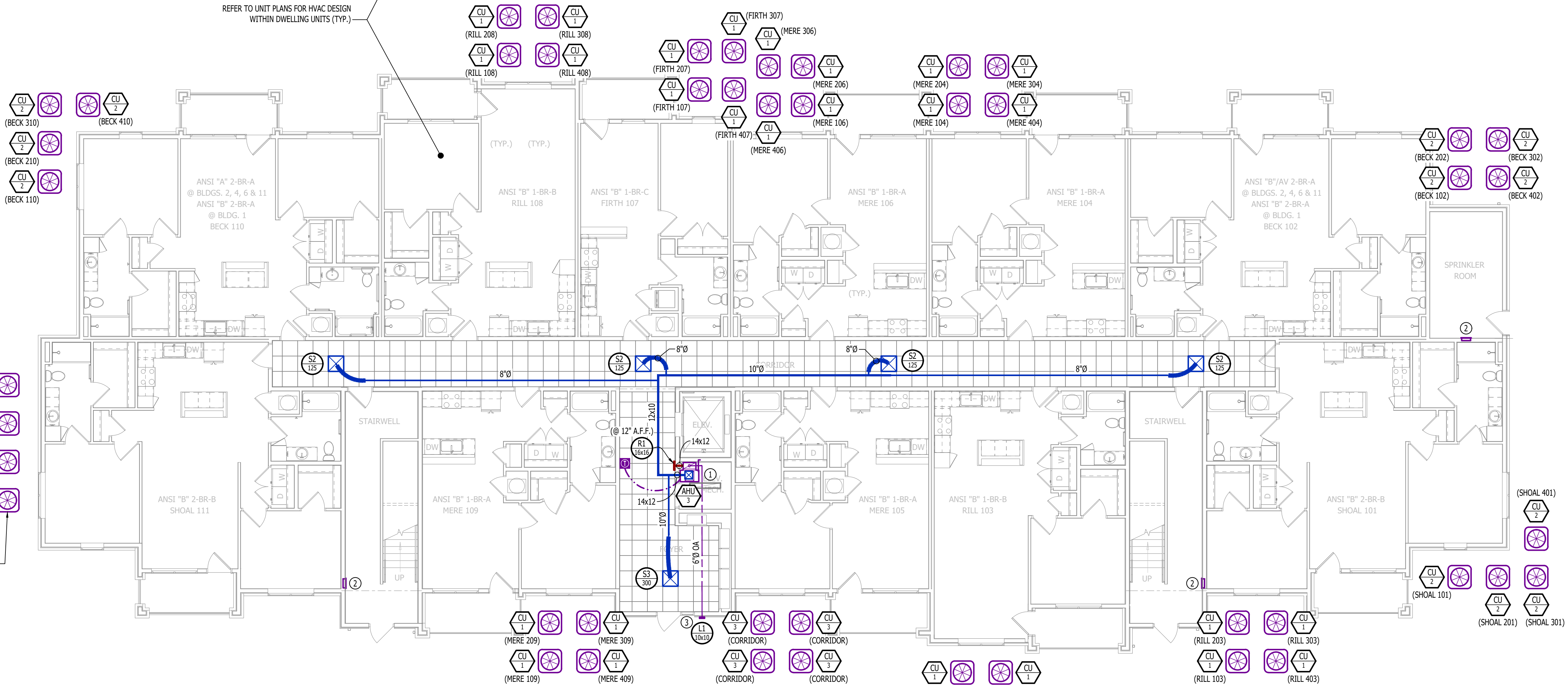
HVAC PLAN KEY NOTES:

- CONDENSATE DRAIN TO INDIRECT DISCHARGE TO FLOOR DRAIN WITHIN ROOM.
- WALL HEATER PROVIDED & INSTALLED BY ELECTRICIAN.
- MAINTAIN 10' MINIMUM SEPARATION BETWEEN ALL MECHANICAL FRESH AIR INTAKES AND EXHAUST LOUVERS (TYP.).



HVAC PLAN - SECOND FLOOR

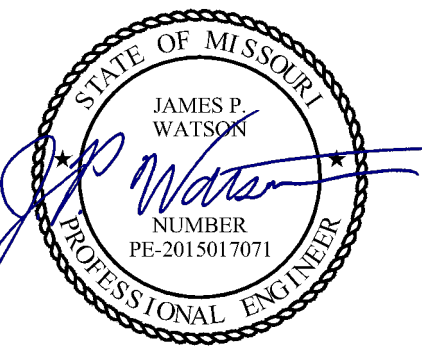
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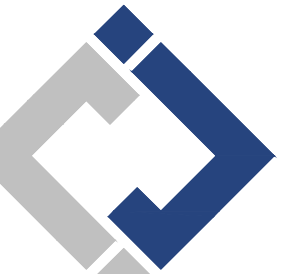
HVAC PLAN - FIRST FLOOR

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

FIELD COORDINATE EXACT LOCATION(S)  
OF ALL CONDENSING UNITS WITH G.C.  
PRIOR TO INSTALLATION (TYP.).



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SHEET TITLE

HVAC PLAN - FIRST  
& SECOND FLOORS

SHEET NUMBER

M101



HVAC PLAN SYMBOL LEGEND

- X

F

→
- EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)

X

F

→

X

F

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X

F

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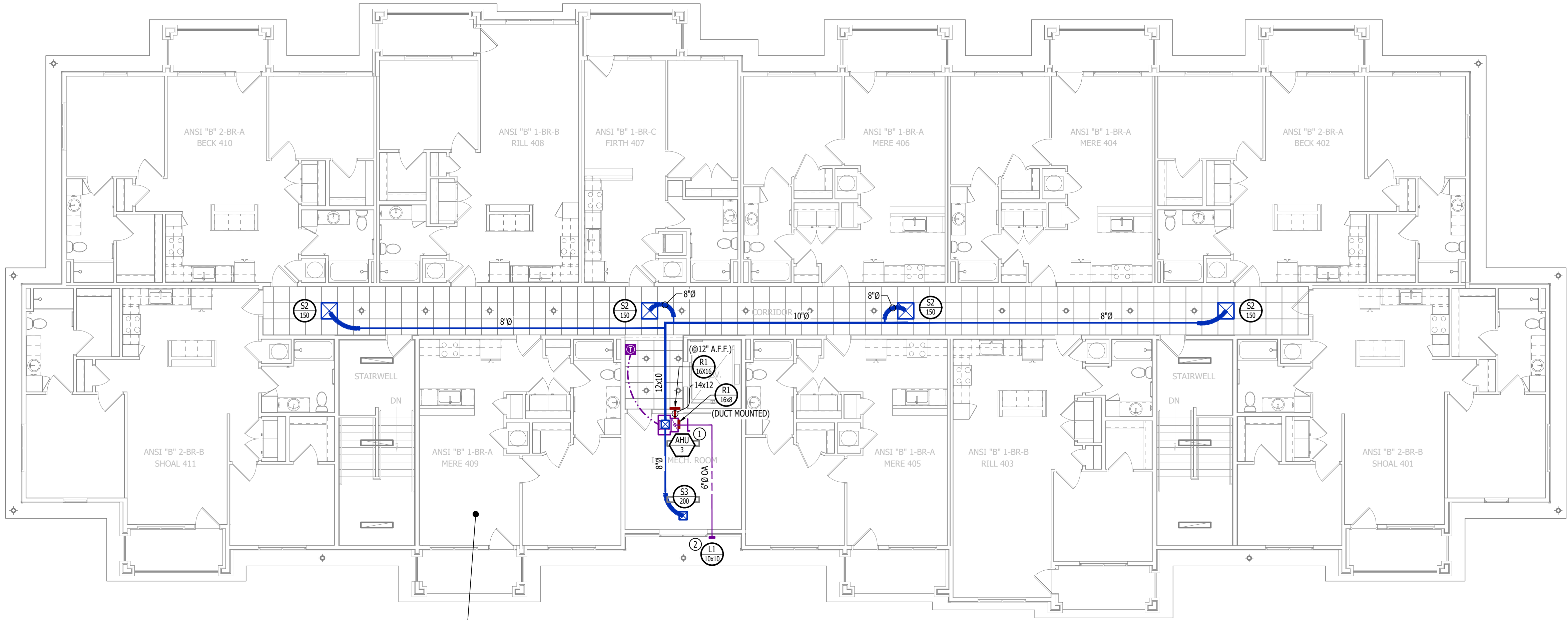
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HVAC PLAN GENERAL NOTES:

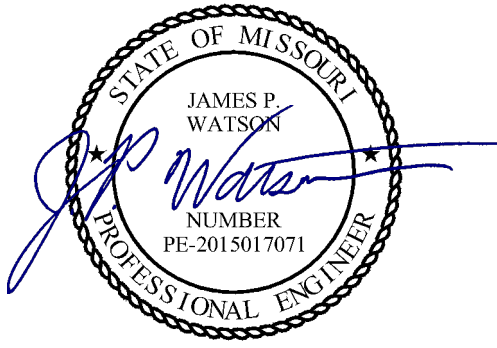
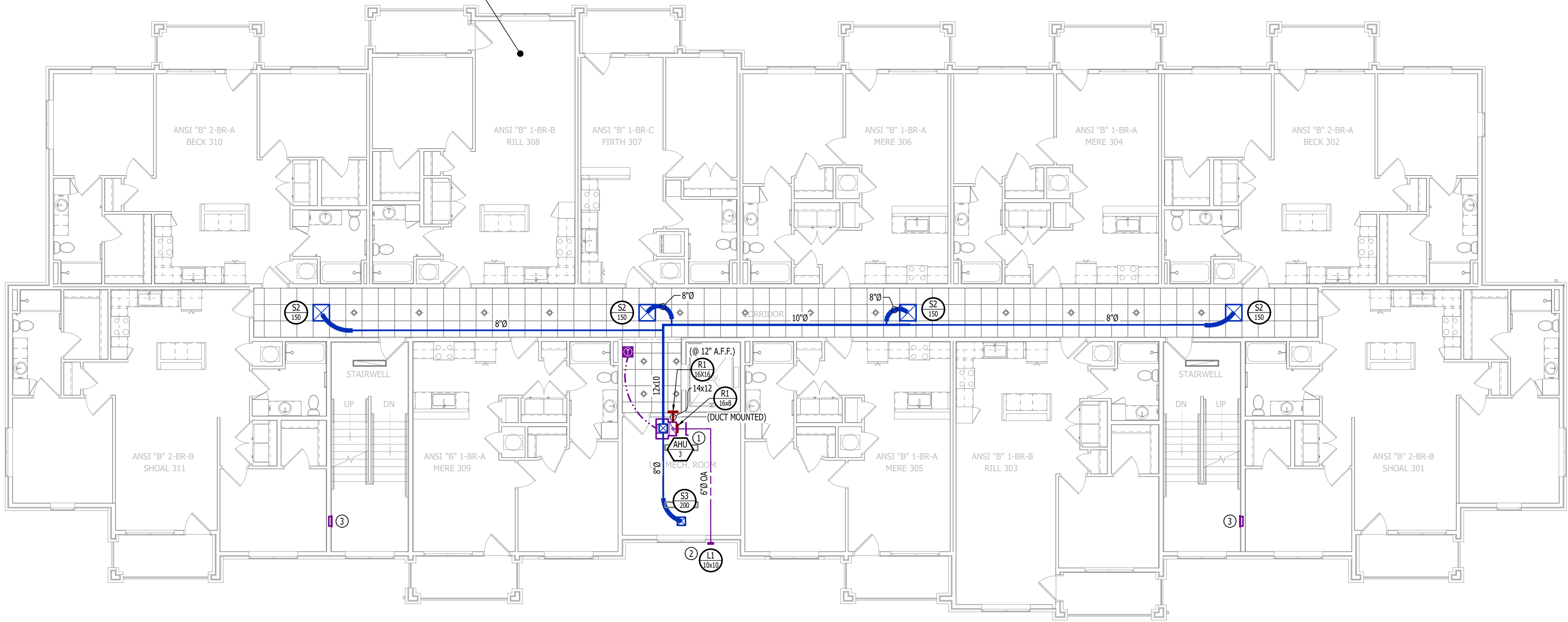
1. REFER TO M500 AND/OR M600 SERIES SHEETS FOR ADDITIONAL HVAC NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
2. HVAC CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL EQUIPMENT, DUCTWORK, REFRIGERANT PIPING, CONDENSATE PIPING, HANGERS / SUPPORTS, ETC. WITH PLUMBING AND ELECTRICAL TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

HVAC PLAN KEY NOTES:

- ① CONDENSATE DRAIN TO INDIRECT DISCHARGE TO FLOOR DRAIN WITHIN ROOM.
- ② MAINTAIN 10" MINIMUM SEPARATION BETWEEN ALL MECHANICAL FRESH AIR INTAKES AND EXHAUST LOUVERS (TYP.).
- ③ WALL HEATER PROVIDED & INSTALLED BY ELECTRICIAN.



REFER TO UNIT PLANS FOR HVAC DESIGN  
WITHIN DWELLING UNITS (TYP.)



James Watson, P.E. April 15, 2025  
PE-2015017071  
MO Certificate of Authority # 2018029680



**J-SQUARED**  
ENGINEERING

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Columbia, Missouri 65201  
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J2 PROJECT No: J21357

J2 DESIGN: ACW

ISSUE TITLE DATE

PERMIT SET 04 - 15 - 2025

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

## The Village at Discovery Park Alura Apartments

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE

HVAC PLAN -  
THIRD & FOURTH  
FLOORS

SHEET NUMBER

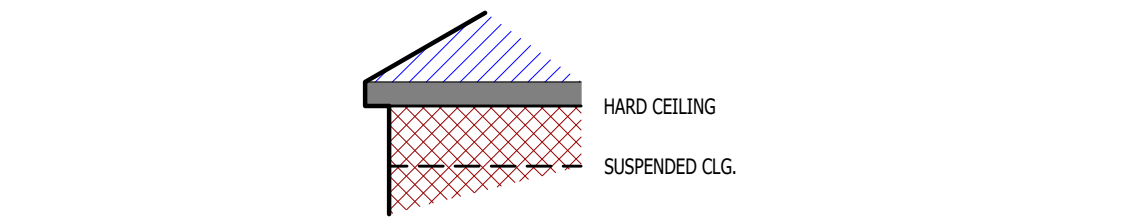
**M102**



HVAC SPECIFICATIONS

1. GENERAL
- 1.1. REFER TO GENERAL MEP SPECIFICATIONS SECTION FOR ADDITIONAL REQUIREMENTS.
2. WORKMANSHIP
- 2.1. COORDINATE WITH ALL OTHER TRADES SO THAT HVAC EQUIPMENT AND DUCT WORK DOES NOT BLOCK REQUIRED ACCESS OR CLEARANCE TO ANY EQUIPMENT, ACCESS PANELS, ELECTRICAL JUNCTION BOXES, ELECTRICAL PANELS, ETC.
- 2.2. ALL HVAC EQUIPMENT IS TO BE INSTALLED PER MANUFACTURER'S PUBLISHED RECOMMENDATIONS AND/OR INSTALLATION INSTRUCTIONS.
- 2.3. ALL EQUIPMENT TO BE INSTALLED LEVEL AND PLUMB, PARALLEL OR PERPENDICULAR TO BUILDING ORIENTATION WHERE POSSIBLE.
- 2.4. ROOFTOP MOUNTED RTU'S & EXHAUST FANS SHALL BE INSTALLED ON CURBS PER MANUFACTURER'S INSTRUCTIONS. CURB HEIGHT SHALL PROVIDE A MINIMUM OF 12" BETWEEN EQUIPMENT AND TOP OF ROOF IN ALL LOCATIONS.
- 2.5. GRADE MOUNTED RTUS, CONDENSING UNITS, AND HEAT PUMPS TO BE INSTALLED ON 4" REINFORCED CONCRETE PAD EXTENDING 4" BEYOND EACH EDGE OF THE EQUIPMENT, OR A MANUFACTURER APPROVED PRE-MANUFACTURED BASE.
- 2.6. APPROPRIATE ATTENTION SHALL BE GIVEN TO INDOOR AIR QUALITY THROUGHOUT CONSTRUCTION; PROTECT INSIDE OF NEW DUCTWORK & AIR-HANDLING EQUIPMENT FROM DUST, DIRT, DEBRIS, PAINT, MOISTURE, ETC. INSULATION SHALL BE REPLACED IF EXPOSED TO MOISTURE. AN INDEPENDENT, PROFESSIONAL DUCT CLEANING COMPANY SHALL CLEAN ALL NEW DUCTWORK IF EQUIPMENT WAS USED DURING CONSTRUCTION, AND EQUIPMENT/COILS SHALL ALSO BE THOROUGHLY CLEANED.
- 2.7. FIELD COORDINATE LOCATIONS OF ALL DIFFUSERS, GRILLES, REGISTERS, ETC. WITH LIGHT FIXTURE LOCATIONS AND ADJUST AS NECESSARY.
3. EQUIPMENT
- 3.1. ALL EQUIPMENT SHOWN ON MECHANICAL PLANS SHALL BE PROVIDED & INSTALLED BY MECHANICAL CONTRACTOR UNLESS NOTED OTHERWISE.
- 3.2. ALL EQUIPMENT MUST PROVIDE PERFORMANCE AS SPECIFIED ON PLANS. WHERE SPECIFIC MANUFACTURERS AND/OR MODELS ARE INDICATED ON PLANS, CONTRACTOR TO PROVIDE MODEL INDICATED OR APPROVED EQUAL. VERIFY SUBSTITUTION APPROVAL PRIOR TO PURCHASE OR INSTALLATION OF EQUIPMENT.
- 3.3. CONTRACTOR TO SUPPLY SUBMITTALS FOR ALL EQUIPMENT FOR REVIEW BY ARCHITECT AND ENGINEER. FORMAL APPROVAL SHALL BE RECEIVED BY CONTRACTOR PRIOR TO EQUIPMENT PURCHASE.
- 3.4. CONTRACTOR TO SHARE APPROVED EQUIPMENT SUBMITTALS WITH ANY PERTINENT ELECTRICAL OR PLUMBING REQUIREMENTS WITH RESPECTIVE CONTRACTORS WITHIN TWO WEEKS OF RECEIVING APPROVED SUBMITTALS FROM ARCHITECT/ENGINEER.
- 3.5. ALL EQUIPMENT SHOWN ON PLANS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS WITH ADEQUATE ACCESS AND CLEARANCE FOR SERVICING OR REPLACEMENT.
- 3.6. ALL HORIZONTAL FURNACES WITH AC COILS SHALL BE EQUIPPED WITH CORROSION RESISTANT DRAIN PAIN. DRAIN PAN TO DISCHARGE TO SANITARY WASTE VIA INDIRECT CONNECTION WITH AIR GAP. DRAIN PAN TO PROVIDE SECONDARY OVERFLOW OR FLOAT SWITCH INTERLOCKED WITH UNIT TO SHUT DOWN UNIT ON HIGH WATER SIGNAL.
- 3.7. ALL EXTERIOR REFRIGERANT COILS TO BE PROTECTED BY FACTORY EQUIPPED HAIL GUARDS.
- 3.8. REFRIGERANT PIPING TO BE ACK COPPER OR TYPE L COPPER.
- 3.9. ALL AIR HANDLING EQUIPMENT SHALL BE REPLACED IF EQUIPPED WITH MERV-8 FILTRATION AT RETURN OPENING UNLESS OTHERWISE NOTED.
- 3.10. ALL AIR FILTERS SHALL BE SIZED FOR A MAXIMUM FACE VELOCITY OF 500FPM.
- 3.11. PROVIDE & INSTALL ALL EQUIPMENT FLUES/VENTS PER MANUFACTURER'S SPECIFICATIONS. TERMINATIONS SHALL BE AT LEAST 10' FROM ANY FRESH AIR INTAKE.
- 3.12. PROVIDE NEW AIR FILTERS IN ALL EQUIPMENT PRIOR TO TESTING & BALANCING AND BEFORE TURNING OVER SYSTEM(S) TO OWNERSHIP.
- 3.13. IF ANY EXISTING EQUIPMENT IS TO BE REUSED, CLEAN AND INSPECT EQUIPMENT PRIOR TO BEGINNING WORK. VERIFY THAT EQUIPMENT IS IN GOOD WORKING CONDITION, REPORT ANY DEFICIENCIES TO ENGINEER.
4. DUCTWORK
- 4.1. DUCTWORK TO BE GALVANIZED STEEL, SEAL CLASS B, CONSTRUCTED PER SMACNA STANDARDS.
- 4.2. DUCTWORK THICKNESS:
- 4.2.1. 26 GA. MINIMUM UP TO 16" DUCT
- 4.2.2. 24 GA. UP TO 20"
- 4.2.3. 22 GA. UP TO 24"
- 4.2.4. 20 GA. UP TO 28"
- 4.2.5. 18 GA. UP TO 36"
- 4.3. TURNING VANES SHALL BE PROVIDED AND INSTALLED AT ALL 90° BENDS AND TEES.
- 4.4. ALL DUCT DIMENSIONS LISTED ARE TO INTERIOR OF DUCT LINER UNLESS NOTED OTHERWISE ON PLANS.
- 4.5. BALANCE DAMPERS MUST BE PROVIDED TO ALLOW ADJUSTMENT AT EACH AIR TERMINAL.
- 4.5.1. WHERE BRANCH TAKEOFF IS ACCESSIBLE (ABOVE LAY-IN CEILING OR EXPOSED DUCT), BALANCE DAMPER IS TO BE INSTALLED AT TAKEOFF.
- 4.5.2. WHERE TAKEOFF IS INACCESSIBLE (IN ATTIC OR SOFFIT), BALANCE DAMPER IS TO BE LOCATED SUCH THAT IT IS ACCESSIBLE FROM FACE OF AIR DEVICE.
- 4.6. HVAC CONTRACTOR RESPONSIBLE FOR ALL DUCTWORK TRANSITIONS AND FITTINGS AS REQUIRED FOR FINAL CONNECTIONS TO HVAC EQUIPMENT.
- 4.7. UNLESS NOTED OTHERWISE ON PLANS, FLEXIBLE DUCT CONNECTIONS MAY USED FROM BRANCH DUCTS TO FINAL AIR DEVICES, BUT SHALL NOT EXCEED 8'-0" IN LENGTH. FLEXIBLE DUCT CONNECTORS MUST BE SUPPORTED PER PLAN DETAILS.
5. INSULATION
- 5.1. DUCTWORK
- 5.1.1. SEE "TYPICAL DUCT INSULATION DIAGRAM" FOR INSTALLATION SPECIFIC REQUIREMENTS.
- 5.1.2. INTERNAL DUCT LINER TO BE EQUAL TO 'JOHNS MANVILLE LINACOUSTIC R-300'.
- 5.1.3. EXTERNAL DUCT WRAP TO INCLUDE VAPOR BARRIER. EQUAL TO 'JOHNS MANVILLE MICROLITE' WITH FSK JACKET.
- 5.1.4. WHERE INSULATION IS REQUIRED IN "TYPICAL DUCT INSULATION DIAGRAM", INCLUDE INSULATION ON ALL FITTINGS, INCLUDING CANVAS FLEX CONNECTION FITTINGS.
- 5.2. REFRIGERANT PIPING
- 5.2.1. SPLIT SYSTEM (SUCTION LINE ONLY) - 1" CLOSED CELL ELASTOMERIC FOAM (EQUAL TO 'ARMARFLEX AP').
- 5.3. VRV/VRF SYSTEMS (BOTH SUCTION AND HOT GAS LINES) 1½" EPDM (EQUAL TO 'AEROFLEX AEROCCEL AC') WITHIN CONDITIONED SPACES & 2" EPDM (EQUAL TO 'AEROFLEX AEROCCEL AC') IN UNCONDITIONED SPACES, AND WITH BANDED ALUMINUM SHIELDING IN EXTERIOR SPACES.
- 5.4. CONDENSATE PIPING
- 5.4.1. SPLIT SYSTEMS - WHERE CONDENSATE PIPING IS LOCATED IN UNCONDITIONED SPACE, INSULATE WITH ½" ELASTOMERIC. NO INSULATION REQUIRED WITHIN CONDITIONED SPACES.
- 5.4.2. VRV/VRF - INSULATE WITH ½" ELASTOMERIC.
6. TESTING AND BALANCING
- 6.1. ALL SYSTEMS MUST BE BALANCED TO WITHIN 10% OF VALUES INDICATED ON PLAN.
- 6.2. HVAC CONTRACTOR TO PROVIDE WRITTEN BALANCE REPORT INCLUDING FLOW VALUES INDICATED ON PLANS, INITIAL MEASURED FLOW VALUES, AND FINAL MEASURED VALUES.
- 6.3. THIRD PARTY CERTIFIED TEST AND BALANCE NOT REQUIRED UNLESS OTHERWISE NOTED ON PLANS OR WITHIN PROJECT MANUAL.

| SPLIT SYSTEM SCHEDULE                                                                                         |                       |             |             |             |                     |                            |                                   |                                      |              |                 |            |     |     |       |
|---------------------------------------------------------------------------------------------------------------|-----------------------|-------------|-------------|-------------|---------------------|----------------------------|-----------------------------------|--------------------------------------|--------------|-----------------|------------|-----|-----|-------|
| TAG                                                                                                           | EQUIPMENT DESCRIPTION | AREA SERVED | SIZE (TONS) | ORIENTATION | TOTAL AIRFLOW (CFM) | OA AIRFLOW MAX / MIN (CFM) | HEATING ELECTRIC (KW) 240V (208V) | COOLING (TA: 80 DB/67 WB, OA: 95 DB) |              |                 | ELECTRICAL |     |     | NOTES |
|                                                                                                               |                       |             |             |             |                     |                            |                                   | SENSIBLE (KBTU)                      | TOTAL (KBTU) | MIN EFF. (SEER) | VOLTS/PH   | MCA | OCP |       |
| AHU-1                                                                                                         | AIR HANDLER           | APARTMENTS  | 1.5         | UPFLOW      | 600                 | -                          | 8 (6)                             | -                                    | -            | -               | 208/1      | 44  | 45  | 1, 2  |
| AHU-2                                                                                                         | AIR HANDLER           | APARTMENTS  | 2.0         | UPFLOW      | 800                 | -                          | 10 (7.2)                          | -                                    | -            | -               | 208/1      | 51  | 60  | 1, 2  |
| AHU-3                                                                                                         | AIR HANDLER           | CORRIDORS   | 2.0         | UPFLOW      | 800                 | 60 / 60                    | 10 (7.2)                          | -                                    | -            | -               | 208/1      | 51  | 60  | 1, 2  |
| CU-1                                                                                                          | CONDENSING UNIT       | APARTMENTS  | 1.5         | -           | -                   | -                          | -                                 | 13.2                                 | 17.8         | 13              | 208/1      | 12  | 20  | 3, 4  |
| CU-2                                                                                                          | CONDENSING UNIT       | APARTMENTS  | 2.0         | -           | -                   | -                          | -                                 | 17.2                                 | 23.0         | 13              | 208/1      | 18  | 30  | 3, 4  |
| CU-3                                                                                                          | CONDENSING UNIT       | CORRIDORS   | 2.0         | -           | -                   | -                          | -                                 | 17.2                                 | 23.0         | 13              | 208/1      | 18  | 30  | 3, 4  |
|                                                                                                               |                       |             |             |             |                     |                            |                                   |                                      |              |                 |            |     |     |       |
|                                                                                                               |                       |             |             |             |                     |                            |                                   |                                      |              |                 |            |     |     |       |
| NOTES:                                                                                                        |                       |             |             |             |                     |                            |                                   |                                      |              |                 |            |     |     |       |
| 1. PROVIDE AND INSTALL 7 DAY PROGRAMABLE HONEYWELL THERMOSTAT. COORDINATE EXACT MOUNTING LOCATION WITH OWNER. |                       |             |             |             |                     |                            |                                   |                                      |              |                 |            |     |     |       |
| 2. INCLUDE CORROSION RESISTANT DRAIN PAN WITH OVERFLOW SWITCH WIRED TO SHUT DOWN UNIT.                        |                       |             |             |             |                     |                            |                                   |                                      |              |                 |            |     |     |       |
| 3. WITH FACTORY HAIL GUARD.                                                                                   |                       |             |             |             |                     |                            |                                   |                                      |              |                 |            |     |     |       |
| 4. LOW AMBIENT PACKAGE FOR OPERATION TO 0° F.                                                                 |                       |             |             |             |                     |                            |                                   |                                      |              |                 |            |     |     |       |



DUCT INSIDE THERMAL ENVELOPE INSULATION REQUIREMENTS

- RECTANGULAR
- SUPPLY = 1" LINER
  - RETURN = 1" LINER
  - EXHAUST = NONE
  - OUTSIDE AIR = 2" WRAP

- ROUND
- SUPPLY = 1½" WRAP
  - RETURN = NONE
  - EXHAUST = NONE
  - OUTSIDE AIR = 2" WRAP

- SPIRAL
- SUPPLY = NONE
  - RETURN = NONE
  - EXHAUST = NONE
  - OUTSIDE AIR = 2" WRAP

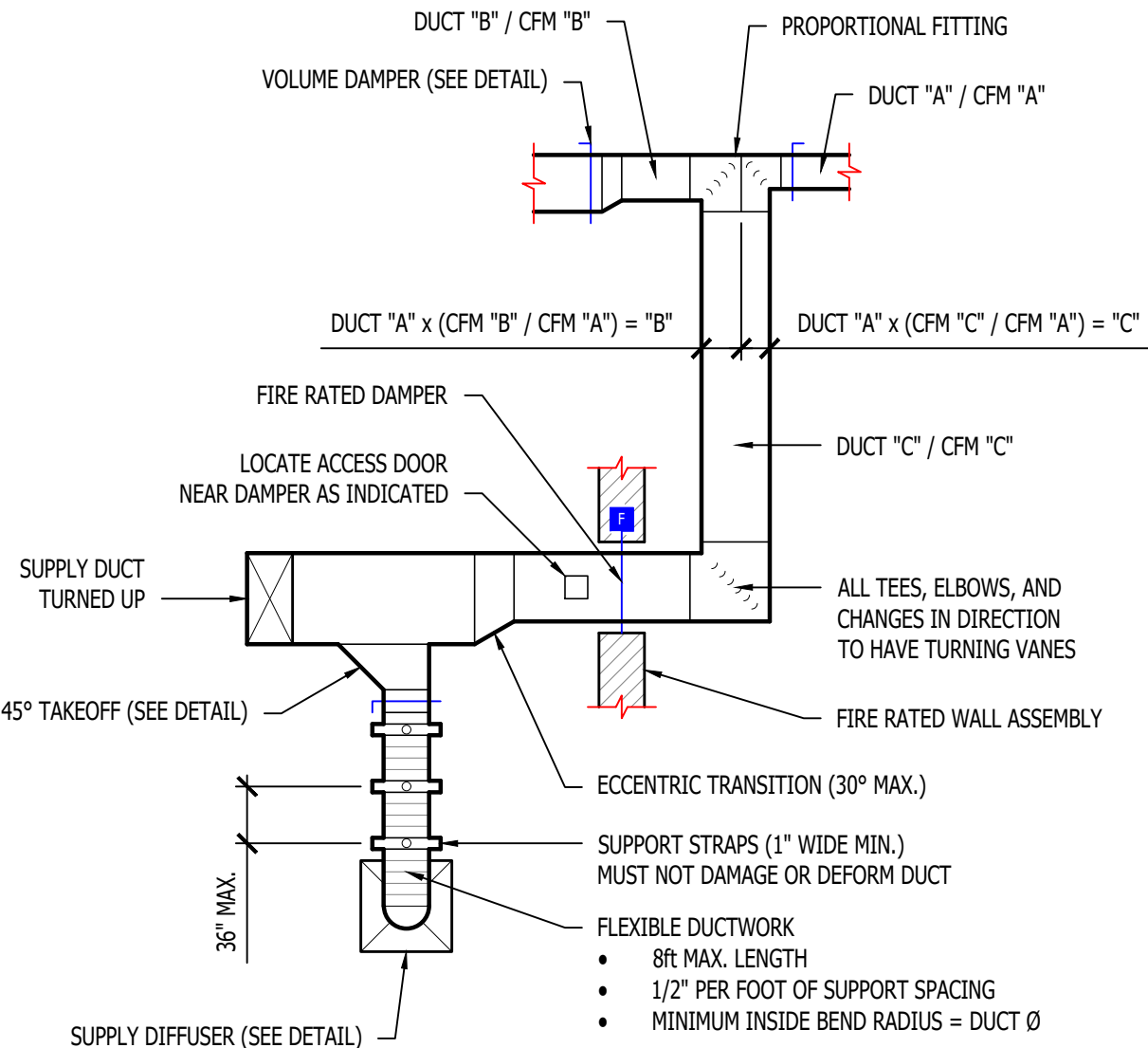
DUCT OUTSIDE THERMAL ENVELOPE INSULATION REQUIREMENTS

- RECTANGULAR
- SUPPLY = 1" LINER & 1½" WRAP
  - RETURN = 1" LINER & 1½" WRAP
  - EXHAUST = 1½" WRAP
  - OUTSIDE AIR = NONE

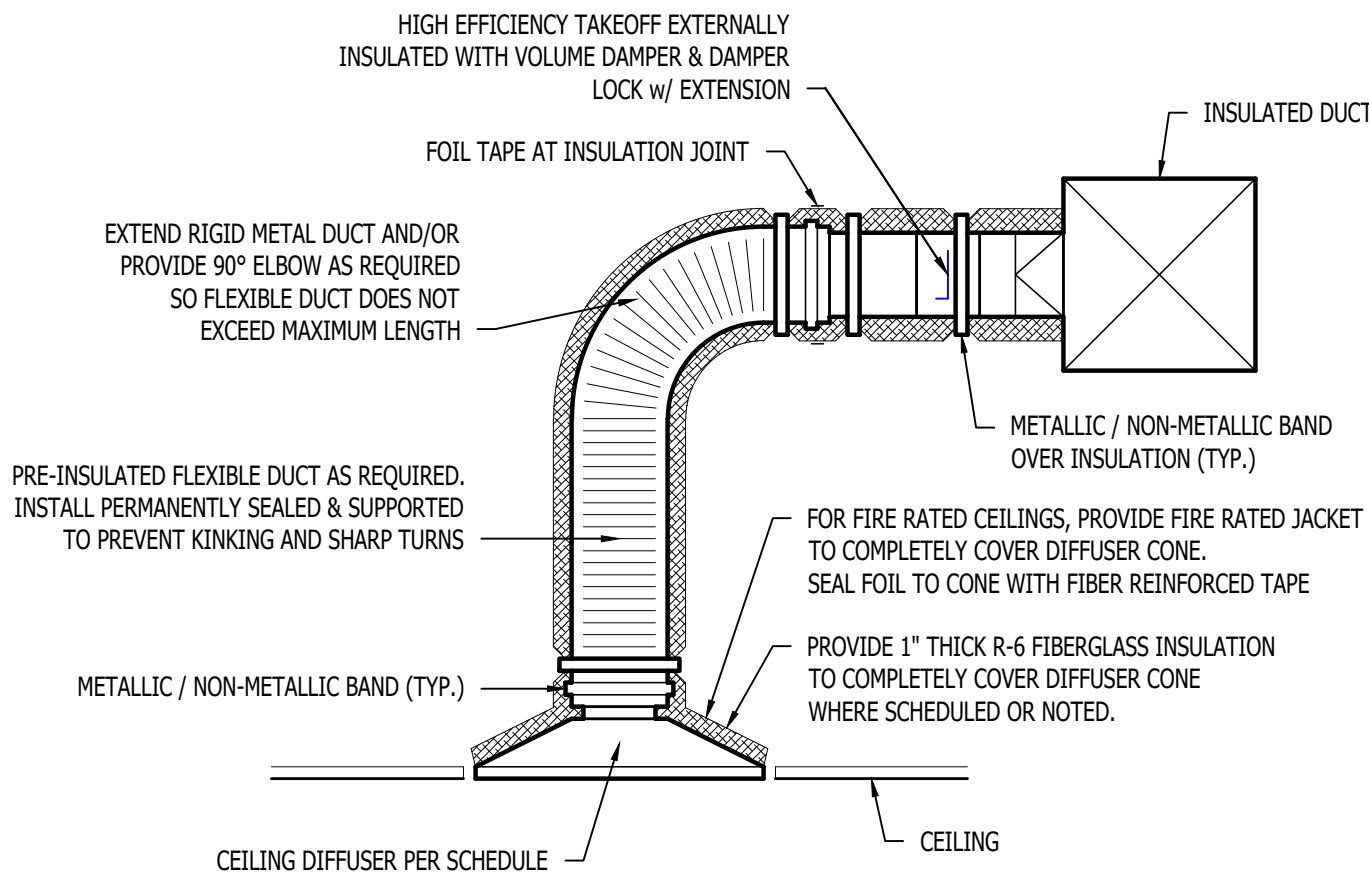
- ROUND
- SUPPLY = 2" WRAP
  - RETURN = 2" WRAP
  - EXHAUST = 1½" WRAP
  - OUTSIDE AIR = NONE

- SPIRAL
- SUPPLY = 2" WRAP
  - RETURN = 2" WRAP
  - EXHAUST = 1½" WRAP
  - OUTSIDE AIR = NONE

TYPICAL BUILDING INTERIOR DUCT INSULATION DIAGRAM

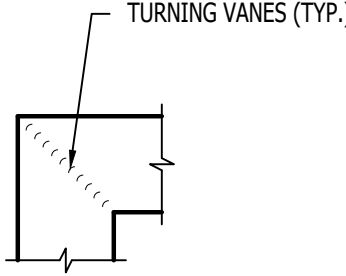


TYPICAL DUCTWORK DETAIL

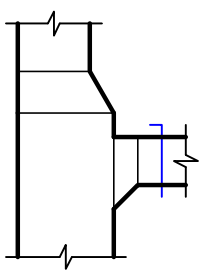


TYPICAL LAY-IN DIFFUSER DETAIL

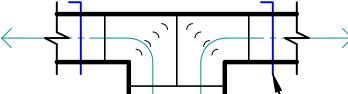
90° ELBOW (SUPPLY / RETURN)



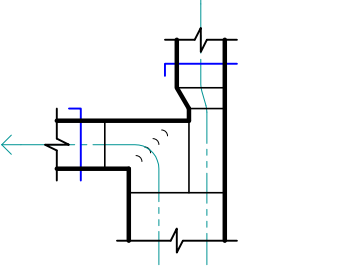
"T" BRANCH (SUPPLY / RETURN)



"T" BRANCH (SUPPLY)



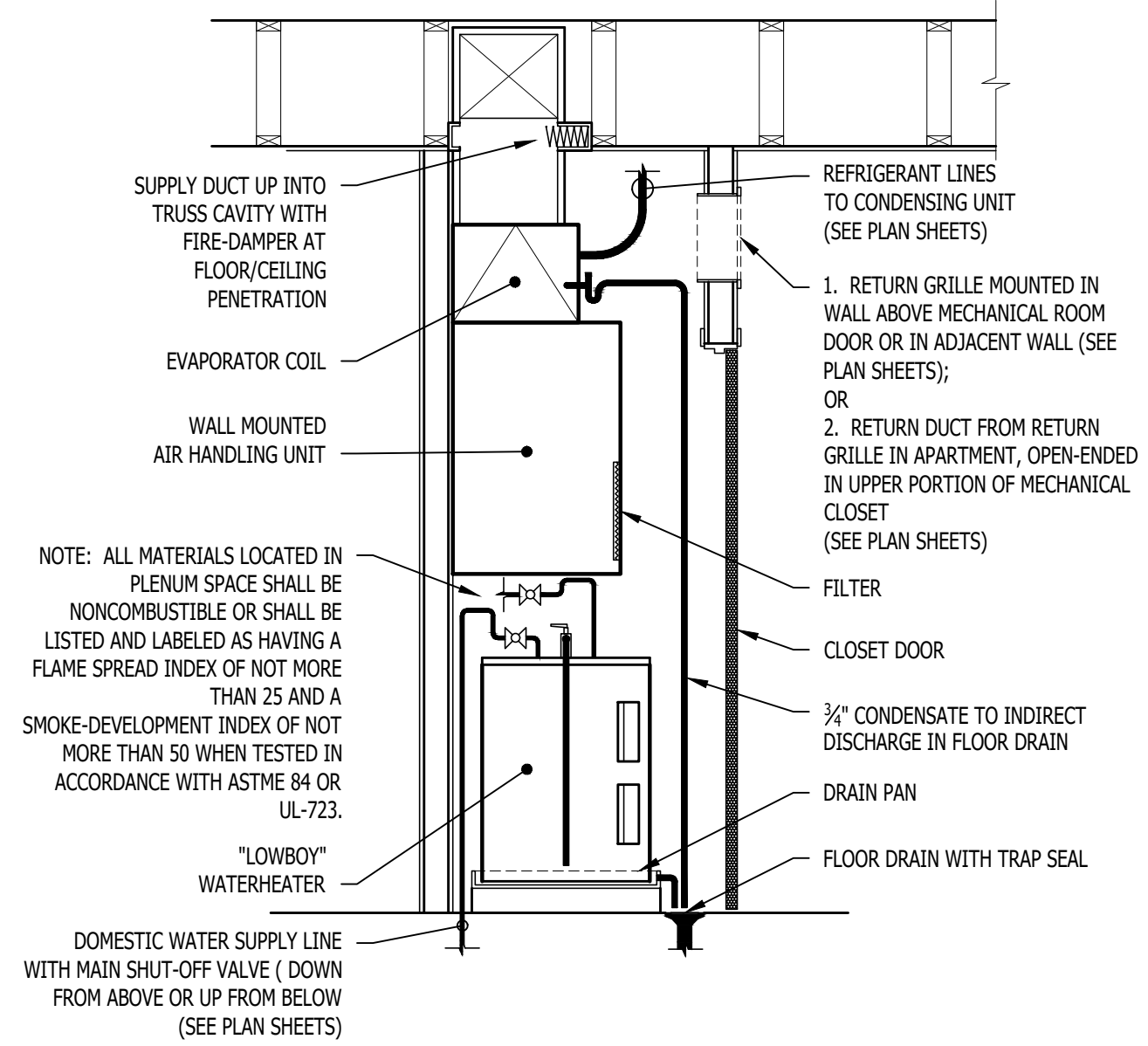
"T" BRANCH (SUPPLY)



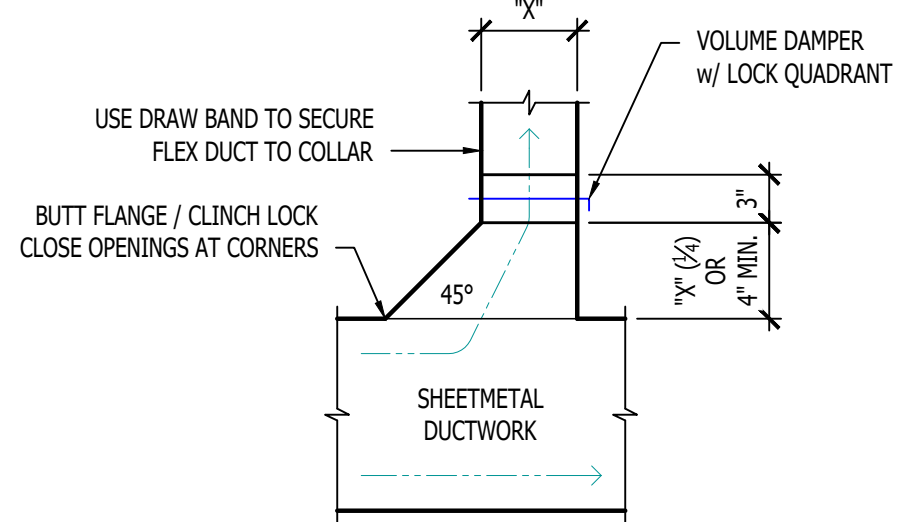
TYPICAL DUCTWORK FITTINGS DETAIL

| AIR DEVICE SCHEDULE                                                      |          |                         |                  |              |                |                               |
|--------------------------------------------------------------------------|----------|-------------------------|------------------|--------------|----------------|-------------------------------|
| TAG                                                                      | SERVICE  | MANUFACTURER (OR EQUAL) | MODEL (OR EQUAL) | SIZE         | COLOR / FINISH | NOTES                         |
| L1                                                                       | OA / EXH | POTTORFF                | EFD              | AS INDICATED | PRIMED         | PAINT TO MATCH EXTERIOR       |
| R1                                                                       | RETURN   | PRICE                   | 530              | AS INDICATED | WHITE          |                               |
| S1                                                                       | SUPPLY   | PRICE                   | 520              | 12x6         | WHITE          | WITH CEILING RADIATION DAMPER |
| S2                                                                       | SUPPLY   | PRICE                   | SPD              | 24x24        | WHITE          |                               |
| S3                                                                       | SUPPLY   | PRICE                   | SPD              | 12x12        | WHITE          | WITH DRYWALL MOUNTING KIT     |
| NOTES:                                                                   |          |                         |                  |              |                |                               |
| 1. VERIFY AIR DEVICE FINISHES WITH OWNER/ARCHITECT PRIOR TO INSTALLATION |          |                         |                  |              |                |                               |

| EXHAUST FAN SCHEDULE |                     |      |      |            |     |     |       |
|----------------------|---------------------|------|------|------------|-----|-----|-------|
| TAG                  | MODEL<br>(OR EQUAL) | FLOW |      | ELECTRICAL |     |     | NOTES |
|                      |                     | CFM  | S.P. | VOLT/PH    | MCA | OCP |       |
| EF                   | AE50                | 50   | 1/8" | 120        | 1   | 20  | 1, 2  |
|                      |                     |      |      |            |     |     |       |
|                      |                     |      |      |            |     |     |       |
|                      |                     |      |      |            |     |     |       |
|                      |                     |      |      |            |     |     |       |



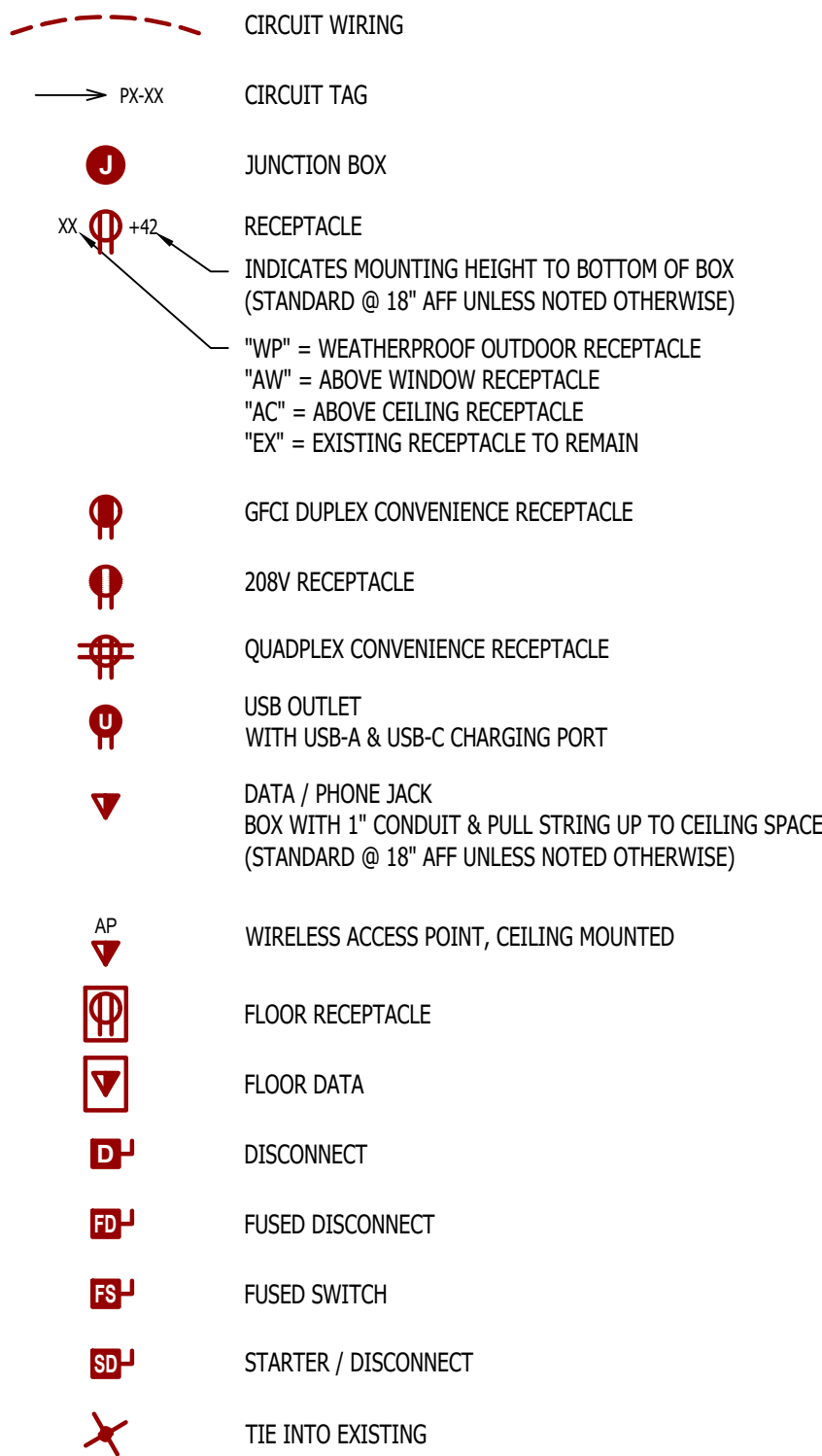
STACKED WATER HEATER / AHU DETAIL



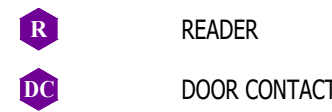
TYPICAL 45° TAKEOFF DETAIL



POWER PLAN SYMBOL LEGEND



SECURITY PLAN SYMBOL LEGEND

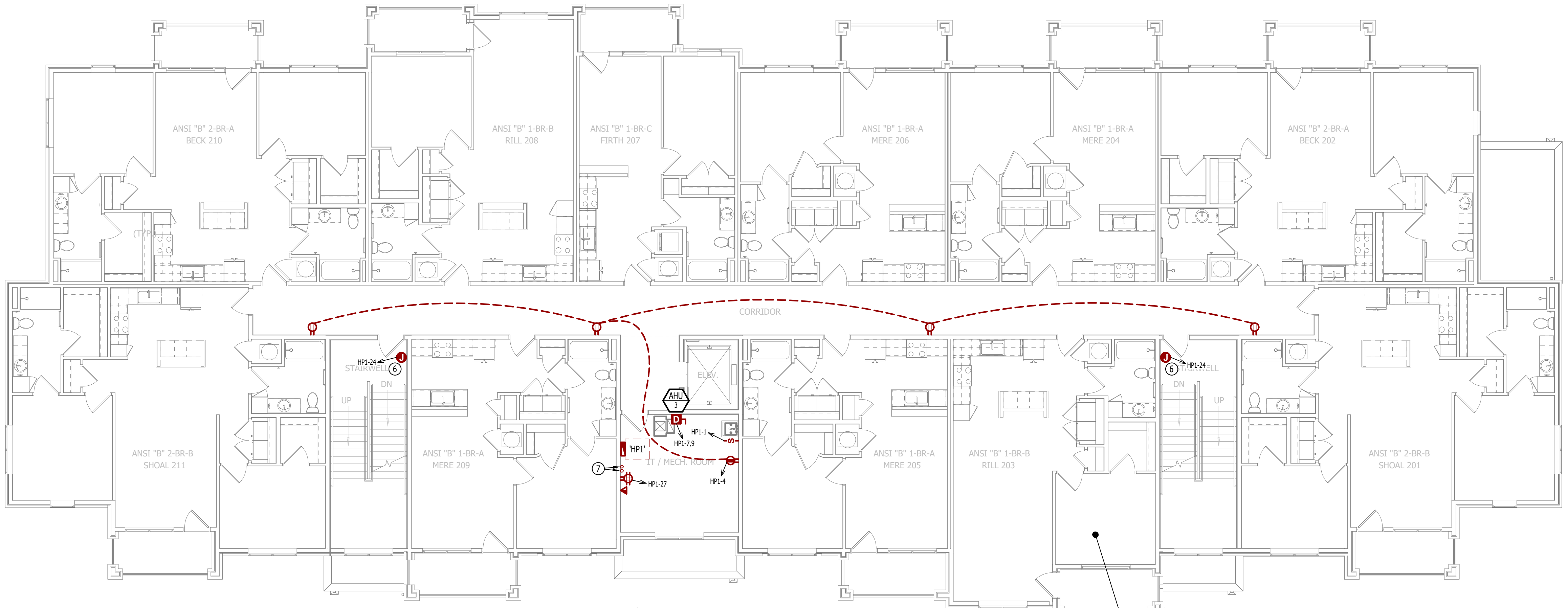


POWER PLAN GENERAL NOTES:

1. REFER TO E500 AND/OR E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
2. ELECTRICAL CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL ELECTRICAL EQUIPMENT, WIRING, HANGERS / SUPPORTS, ETC. WITH HVAC AND PLUMBING TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

POWER PLAN KEY NOTES:

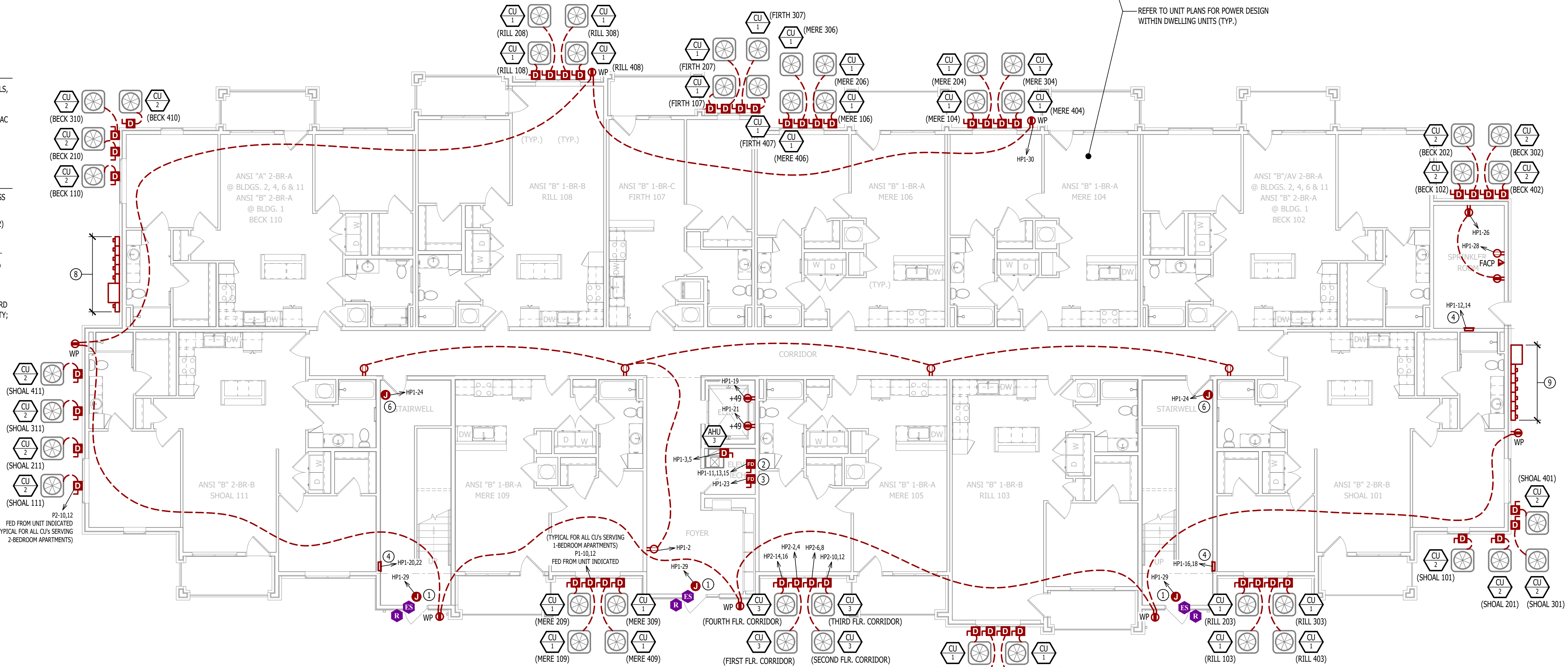
- ① 1-BOX ABOVE CEILING FOR POWER TO ACCESS CONTROLS. COORDINATE LOCATION ACCESS CONTROLS INSTALLER.
- ② 'DS1' - 208V, 3-PH 60A FUSED DISCONNECT FOR ELEVATOR. FUSE AT 60 AMPS. PROVIDE (2) NORMALLY OPEN CONTACTS & (2) NORMALLY CLOSED CONTACTS.
- ③ 'DS2' - 208V, 1-PH 30A FUSED DISCONNECT FOR ELEVATOR CAB LIGHTS. FUSE AT 15 AMPS.
- ④ RECESSED WALL HEATER (EQUAL TO MARLEY #VFK404FC) WITH BACK BOX FOR RECESSED INSTALL.
- ⑤ POWER FOR MAG HOLD. WIRE THRU FIRE ALARM.
- ⑥ (1) 3" CONDUIT TO I.T. CLOSET ON FIRST FLOOR, (1) 3" CONDUIT TO I.T. CLOSET ON THIRD FLOOR & (1) 3" CONDUIT TO I.T. CLOSET ON THE FOURTH FLOOR FOR INTERCONNECTIVITY; COORDINATE WITH G.C.
- ⑦ METER CENTER #1 (SEE POWER RISER FOR DETAILS)
- ⑧ METER CENTER #2 (SEE POWER RISER FOR DETAILS)



POWER PLAN - SECOND FLOOR

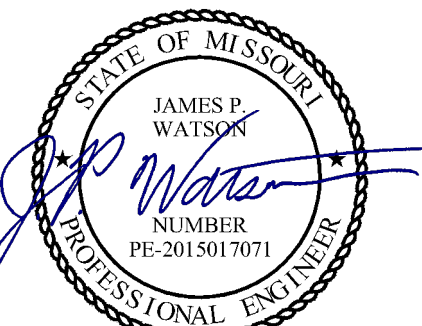
SCALE: 1/8" = 1'-0"

REFER TO UNIT PLANS FOR POWER DESIGN WITHIN DWELLING UNITS (TYP.)



POWER PLAN - FIRST FLOOR

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



James Watson, P.E. April 15, 2025  
PE-2015017071  
MO Certificate of Authority # 2018029680



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J2 PROJECT No: J21357

J2 DESIGN: ACW

ISSUE TITLE DATE

PERMIT SET 04 - 15 - 2025

The Village at Discovery Park Alura Apartments

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE

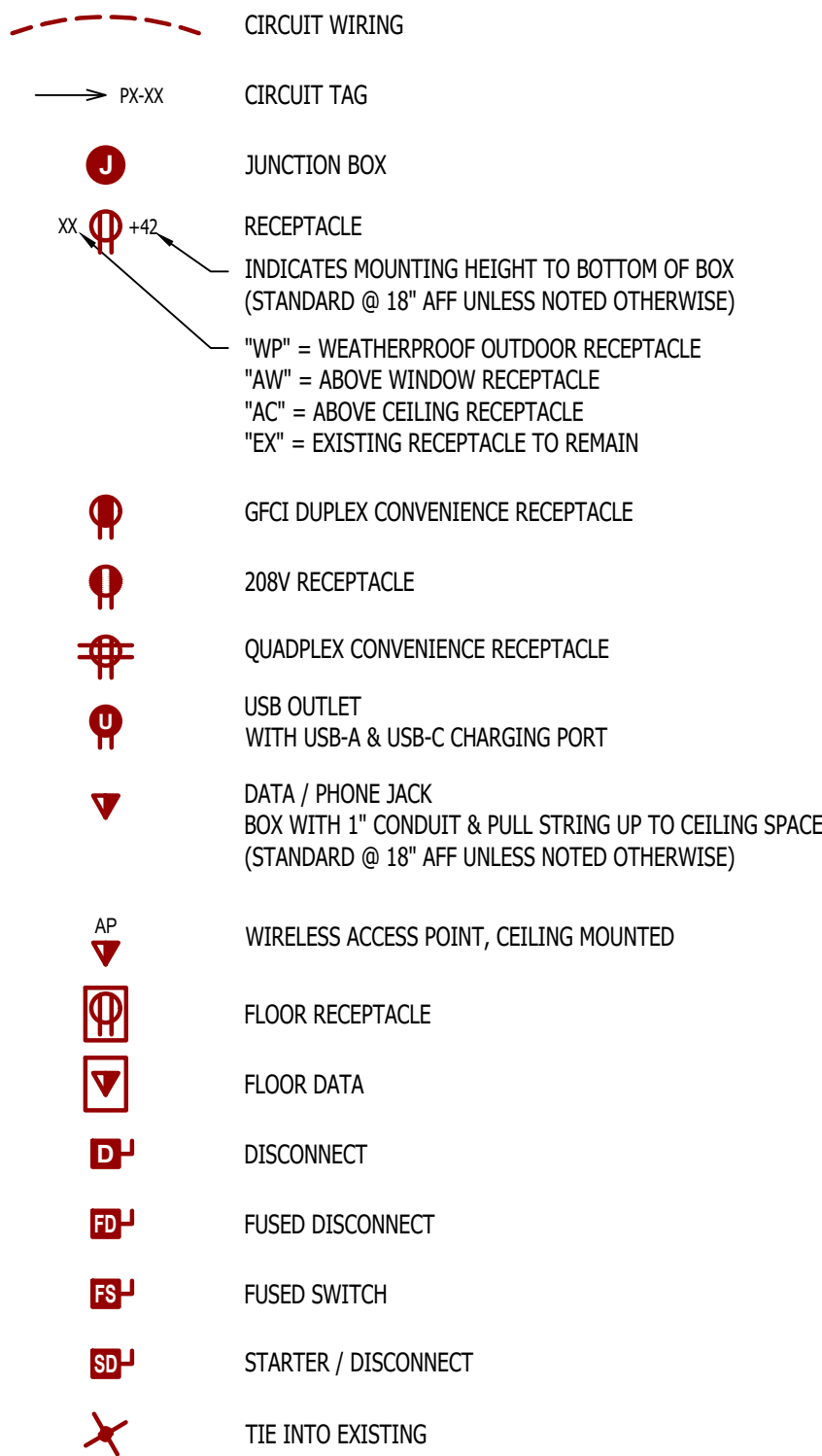
**POWER PLAN - FIRST & SECOND FLOORS**

SHEET NUMBER

**EP101**



POWER PLAN SYMBOL LEGEND

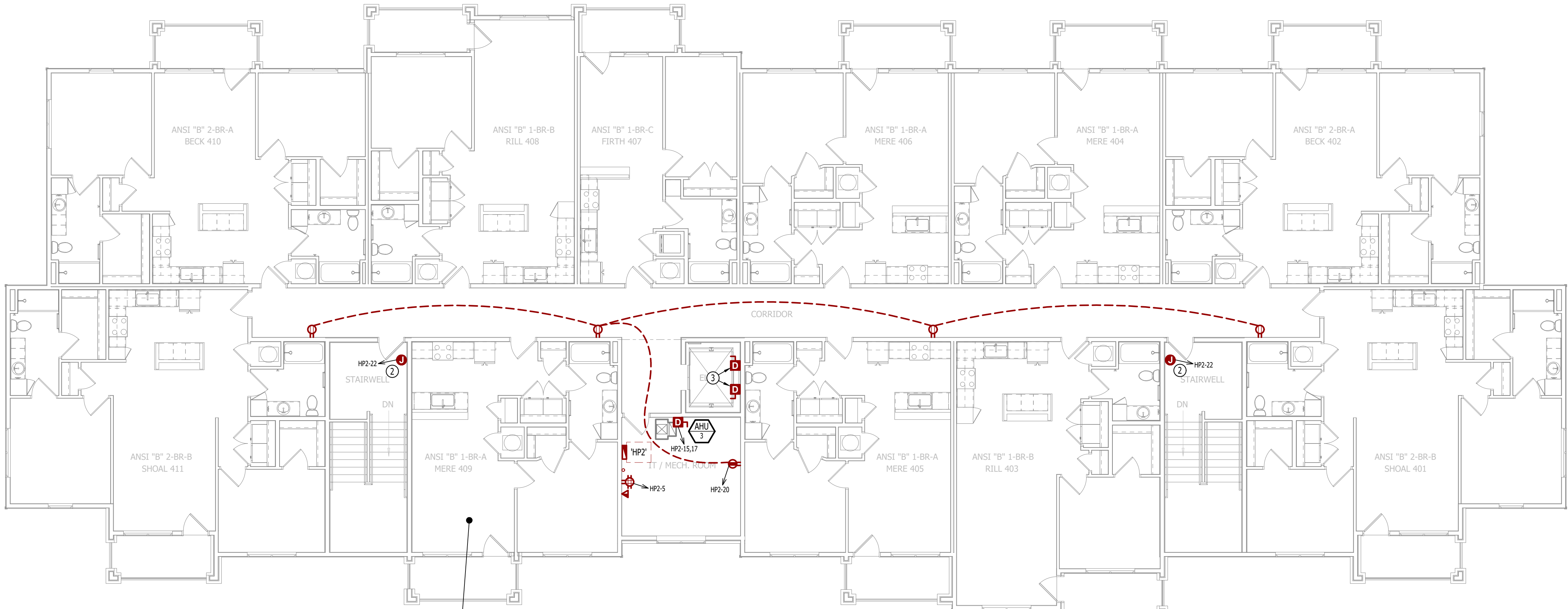


POWER PLAN GENERAL NOTES:

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2. ELECTRICAL CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL ELECTRICAL EQUIPMENT, WIRING, HANGERS / SUPPORTS, ETC. WITH HVAC AND PLUMBING TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

POWER PLAN KEY NOTES:

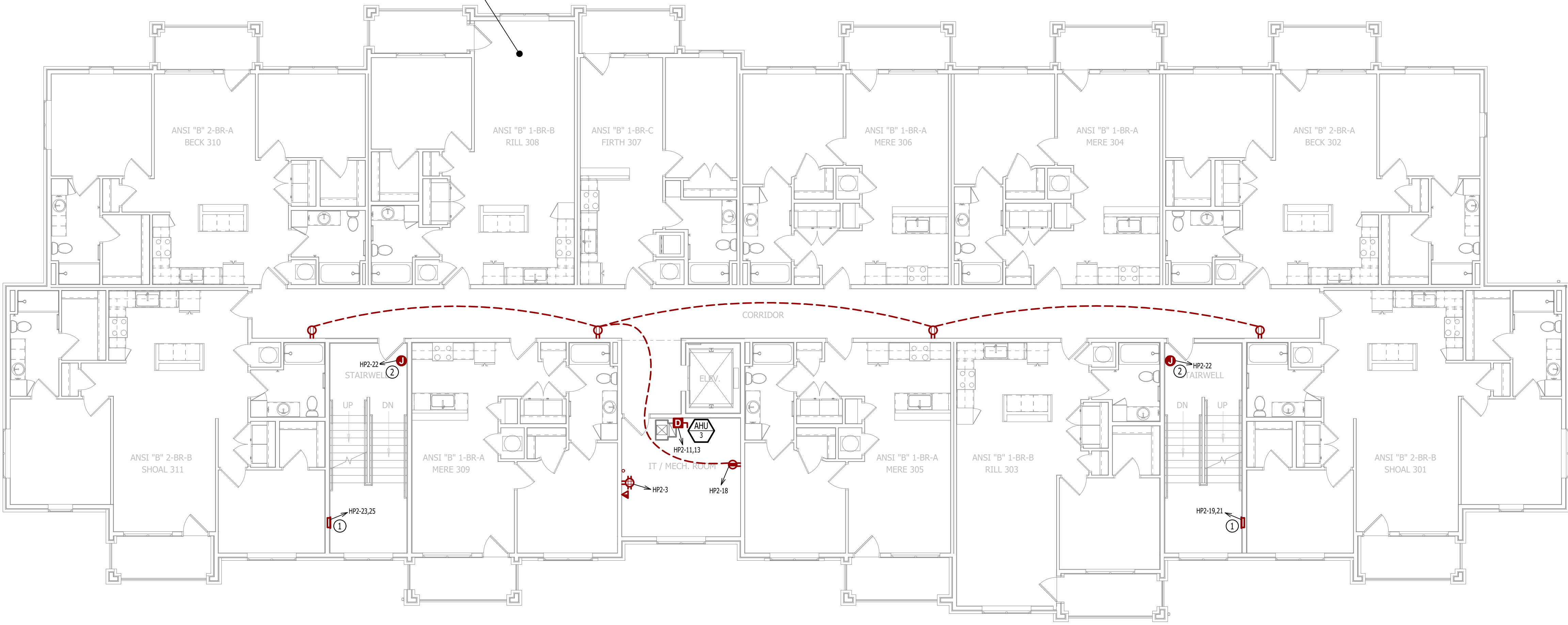
- ① RECESSED WALL HEATER (EQUAL TO MARLEY #VFK404FC) WITH BACK BOX FOR RECESSED INSTALL.
- ② POWER FOR MAG HOLD. WIRE THRU FIRE ALARM.
- ③ ELEVATOR SERVICE DISCONNECTS. WIRE THRU 'DS1' & 'DS2' IN FIRST FLOOR ELEVATOR EQUIPMENT ROOM (SEE SHEET EP101) COORDINATE EXACT LOCATION & REQUIREMENTS WITH ELEVATOR SUPPLIER.



REFER TO UNIT PLANS FOR POWER DESIGN WITHIN DWELLING UNITS (TYP.)

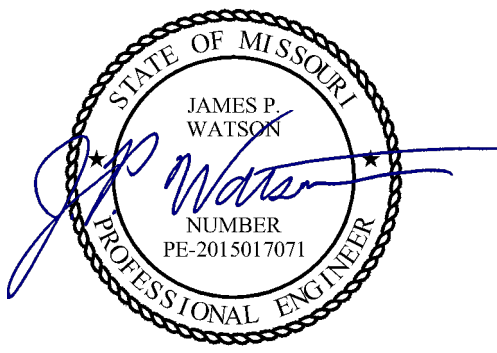
POWER PLAN - FOURTH FLOOR

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



POWER PLAN - THIRD FLOOR

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



James Watson, P.E. April 15, 2025  
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J2 PROJECT No: J21357

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ISSUE TITLE DATE

PERMIT SET 04 - 15 - 2025

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

## The Village at Discovery Park Alura Apartments

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE

**POWER PLAN -  
THIRD & FOURTH  
FLOORS**

SHEET NUMBER

**EP102**



LIGHTING PLAN SYMBOL LEGEND

- X1

← "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)
- ← "EM" INDICATES EMERGENCY BATTERY BACKUP
- ← "NL" INDICATES UN-SWITCHED NIGHT LIGHT
- ↗

← EXIT LIGHT
- ↗

← INDICATES REQUIRED REMOTE HEAD
- ↗

← EMERGENCY EGRESS LIGHT
- Ⓢ

← SWITCH (WALL MOUNTED)

SWITCH TYPE:
  - 3 = 3-WAY
  - 4 = 4-WAY
  - OP = PASSIVE INFRARED OCCUPANCY SENSOR
  - OU = ULTRASONIC OCCUPANCY SENSOR
  - OT = DUAL-TECHNOLOGY OCCUPANCY SENSOR
  - VP = PASSIVE INFRARED VACANCY SENSOR
  - VU = ULTRASONIC VACANCY SENSOR
  - VT = DUAL-TECHNOLOGY VACANCY SENSOR
  - M = MOMENTARY SWITCH
  - SS = SCENE SWITCH
- Ⓢ

← DIMMER SWITCH (WALL MOUNTED)

SWITCH TYPE:
  - SEE "SWITCH (WALL MOUNTED)" FOR TYPE DESIGNATIONS
- Ⓢ

← SWITCH (CEILING MOUNTED)

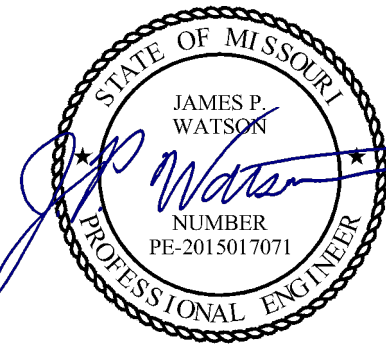
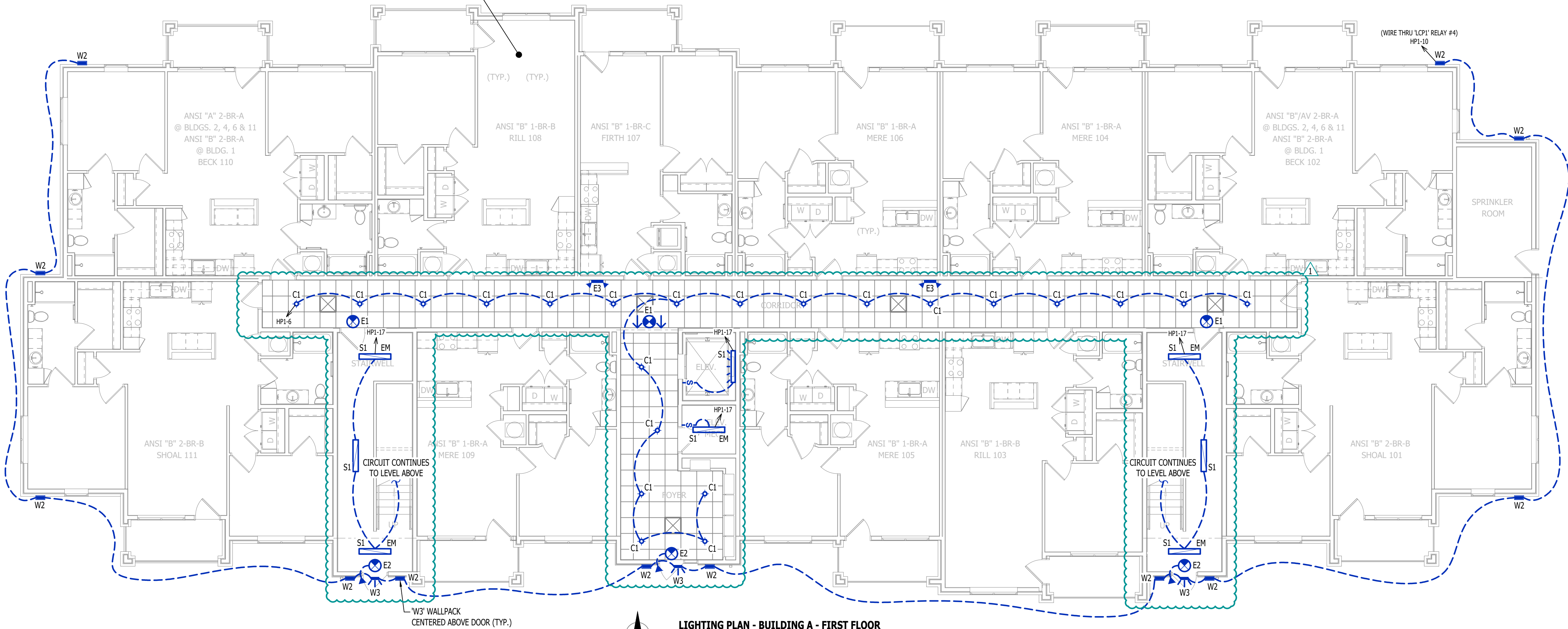
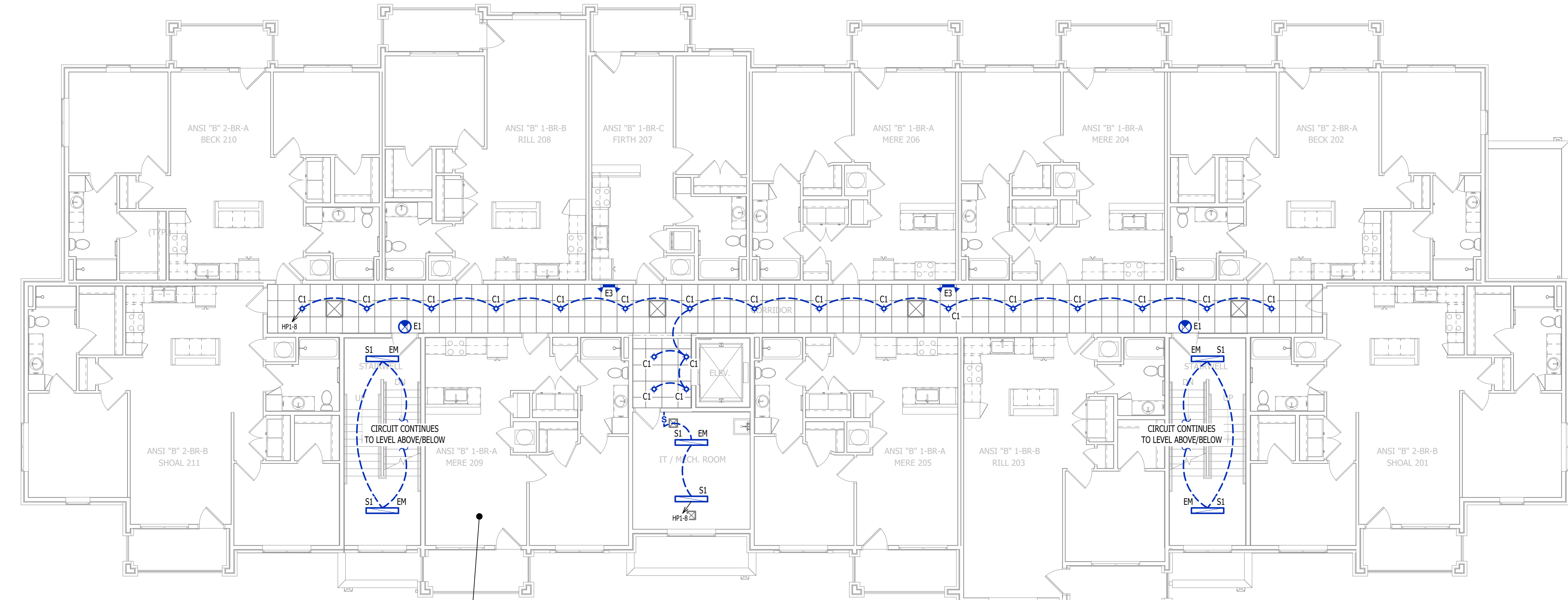
SWITCH TYPE:
  - SEE "SWITCH (WALL MOUNTED)" FOR TYPE DESIGNATIONS
- OCCUPANCY SENSOR

  - AUTO FULL-ON (OR 50% IF NOTED)
  - AUTOMATICALLY TURN OFF LIGHTING AFTER 20 MINUTES WITHOUT OCCUPANT DETECTION
  - WITH MANUAL OVERRIDE CONTROL (IF NOTED)
- VACANCY SENSOR

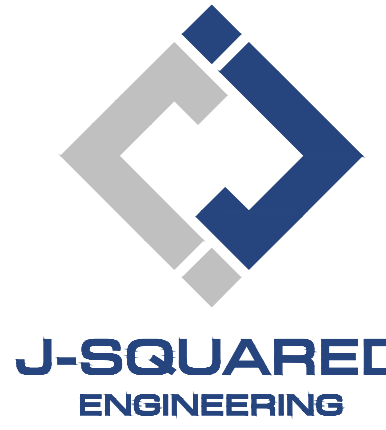
  - MANUAL FULL-ON
  - AUTOMATICALLY TURN OFF LIGHTING AFTER 20 MINUTES WITHOUT OCCUPANT DETECTION
  - WITH MANUAL OVERRIDE CONTROL (IF NOTED)

LIGHTING PLAN GENERAL NOTES:

- REFER TO E500 AND/OR E600 SERIES SHEETS FOR ADDITIONAL LIGHTING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
- OCCUPANCY/VACANCY SENSOR QUANTITIES AND GENERAL LOCATIONS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO PROVIDE & INSTALL SENSOR WITH SPACING PER MANUFACTURER'S SPECIFICATIONS AND INCLUDE ADDITIONAL SENSORS IF NECESSARY. CEILING-MOUNTED SENSORS SHALL BE INSTALLED WITHIN MANUFACTURER'S ACCEPTABLE MOUNTING HEIGHT RANGE.
- ELECTRICAL CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL FIXTURES, WIRING, HANGERS / SUPPORTS, ETC. WITH HVAC AND PLUMBING TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.



James Watson, P.E. April 15, 2025  
PE-2015017071  
MO Certificate of Authority # 2018029680



2400 Bluff Creek Drive, Suite 101  
Columbia, Missouri 65201  
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www.j-squaredeng.com

J2 PROJECT No: J21357

J2 DESIGN: ACW

ISSUE TITLE DATE

PERMIT SET 04 - 15 - 2025

ADDENDUM 1 05 - 16 - 2025

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

# The Village at Discovery Park Alura Apartments

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET NUMBER

LIGHTING PLAN -  
FIRST & SECOND  
FLOORS

SHEET NUMBER

EL101



LIGHTING PLAN SYMBOL LEGEND

- X1

EM

NL
- ←

←

←
- "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)

LIGHTING FIXTURE

"EM" INDICATES EMERGENCY BATTERY BACKUP

"NL" INDICATES UN-SWITCHED NIGHT LIGHT
- ↗
- EXIT LIGHT
- 
- INDICATES REQUIRED REMOTE HEAD
- ↗
- EMERGENCY EGRESS LIGHT
- ↗
- SWITCH (WALL MOUNTED)
- SWITCH TYPE:

• 3 = 3-WAY

• 4 = 4-WAY

• OP = PASSIVE INFRARED OCCUPANCY SENSOR

• OU = ULTRASONIC OCCUPANCY SENSOR

• OT = DUAL-TECHNOLOGY OCCUPANCY SENSOR

• VP = PASSIVE INFRARED VACANCY SENSOR

• VU = ULTRASONIC VACANCY SENSOR

• VT = DUAL-TECHNOLOGY VACANCY SENSOR

• M = MOMENTARY SWITCH

• SS = SCENE SWITCH
- ↗
- DIMMER SWITCH (WALL MOUNTED)
- SWITCH TYPE:

• SEE "SWITCH (WALL MOUNTED)" FOR TYPE DESIGNATIONS
- ↗
- SWITCH (CEILING MOUNTED)
- SWITCH TYPE:

• SEE "SWITCH (WALL MOUNTED)" FOR TYPE DESIGNATIONS
- OCCUPANCY SENSOR

• AUTO FULL-ON (OR 50% IF NOTED)

• AUTOMATICALLY TURN OFF LIGHTING AFTER 20 MINUTES WITHOUT OCCUPANT DETECTION

• WITH MANUAL OVERRIDE CONTROL (IF NOTED)
- VACANCY SENSOR

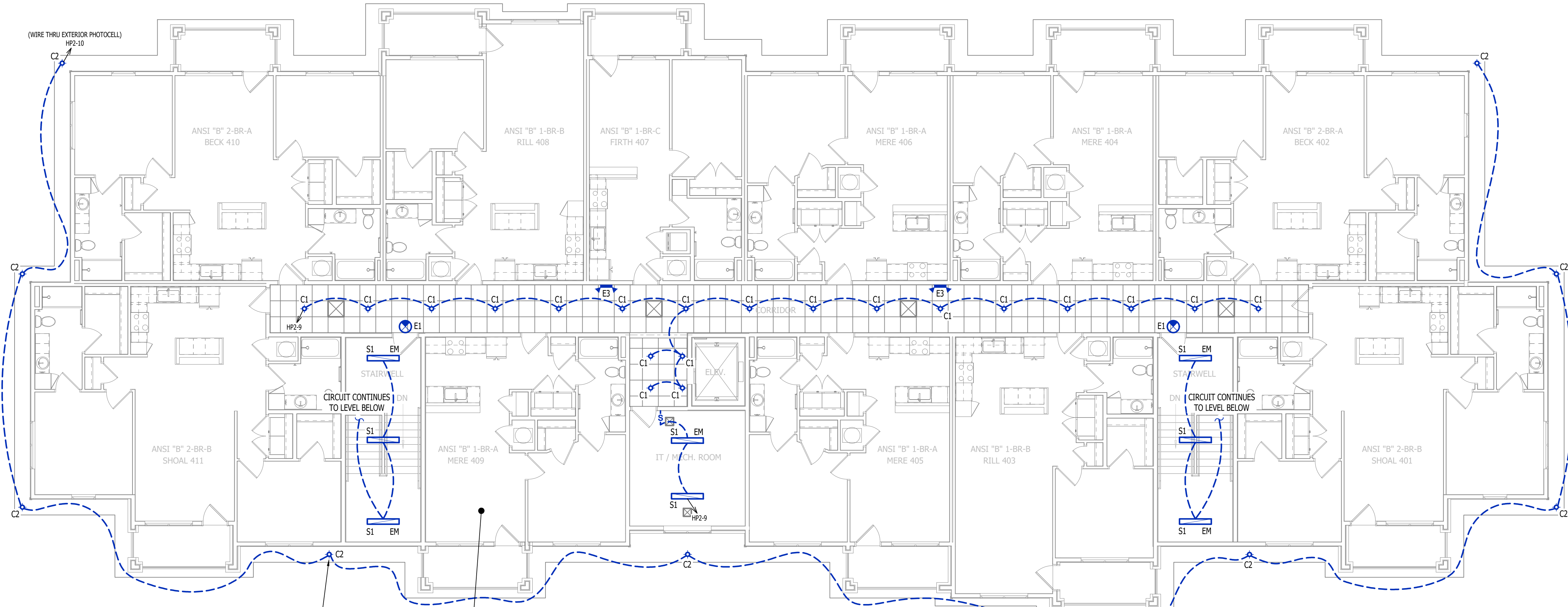
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• AUTOMATICALLY TURN OFF LIGHTING AFTER 20 MINUTES WITHOUT OCCUPANT DETECTION

• WITH MANUAL OVERRIDE CONTROL (IF NOTED)

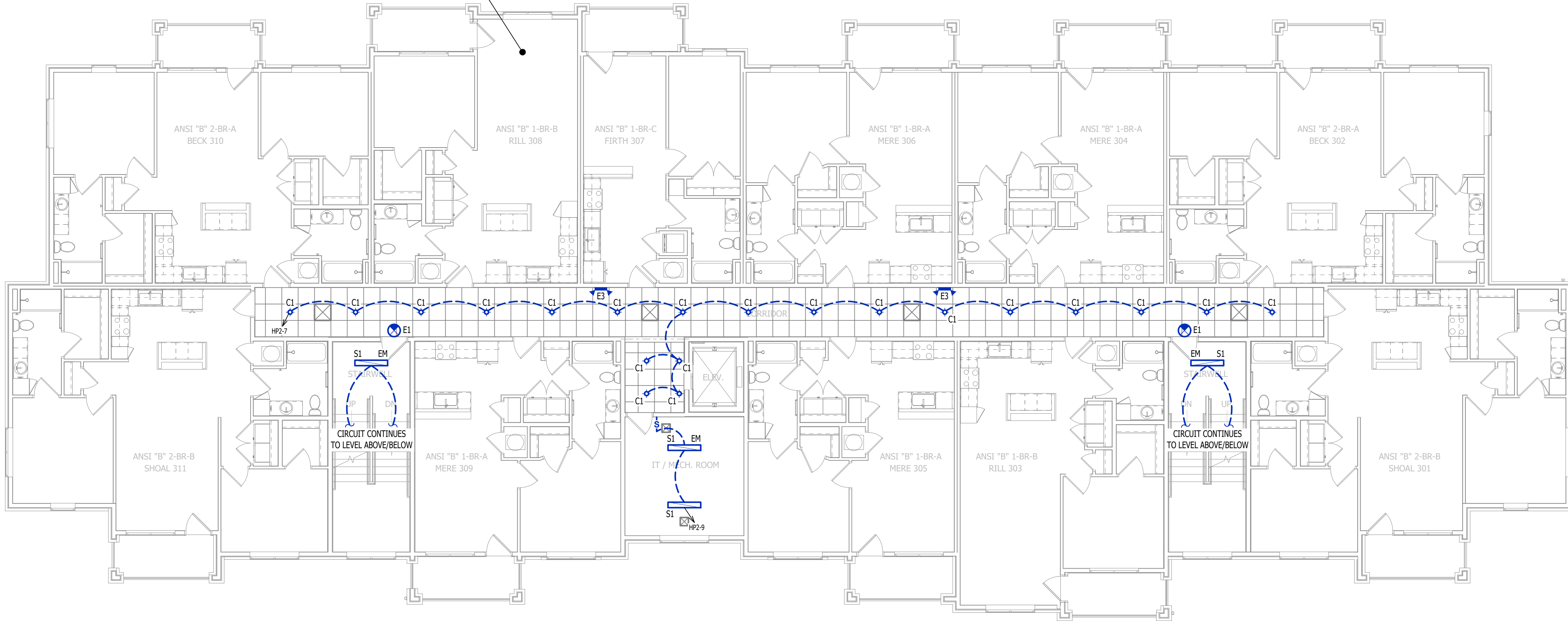
LIGHTING PLAN GENERAL NOTES:

1. REFER TO E500 AND/OR E600 SERIES SHEETS FOR ADDITIONAL LIGHTING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
2. OCCUPANCY/VACANCY SENSOR QUANTITIES AND GENERAL LOCATIONS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO PROVIDE & INSTALL SENSOR WITH SPACING PER MANUFACTURER'S SPECIFICATIONS AND INCLUDE ADDITIONAL SENSORS IF NECESSARY. CEILING-MOUNTED SENSORS SHALL BE INSTALLED WITHIN MANUFACTURER'S ACCEPTABLE MOUNTING HEIGHT RANGE.
3. ELECTRICAL CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL FIXTURES, WIRING, HANGERS / SUPPORTS, ETC. WITH HVAC AND PLUMBING TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.



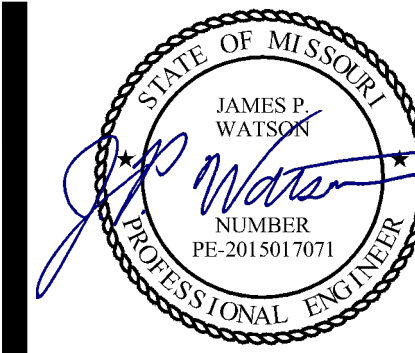
LIGHTING PLAN - BUILDING A - FOURTH FLOOR

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

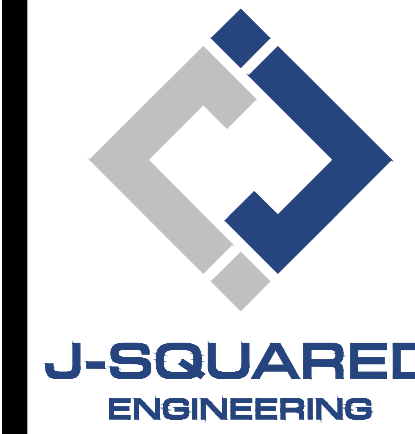


LIGHTING PLAN - BUILDING A - THIRD FLOOR

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



James Watson, P.E. April 15, 2025  
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J2 PROJECT No: J21357

J2 DESIGN: ACW

ISSUE TITLE DATE

PERMIT SET 04 - 15 - 2025

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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

The Village at Discovery Park Alura Apartments

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE

LIGHTING PLAN -  
THIRD & FOURTH  
FLOORS

SHEET NUMBER

EL102

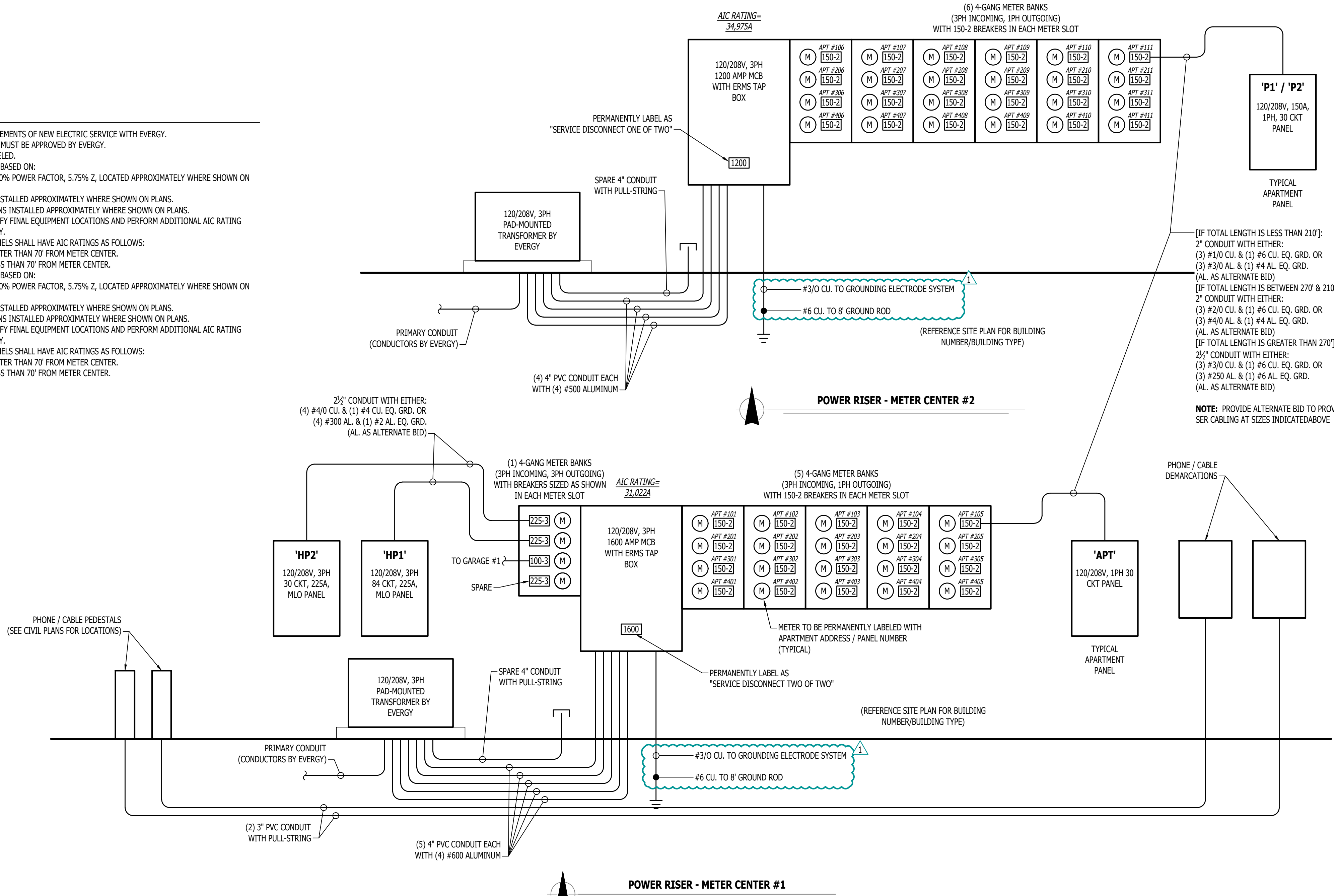


ELECTRICAL SPECIFICATIONS

- 1. GENERAL**
- 1.1. CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL NECESSARY PIECES AND COMPONENTS TO PROVIDE A COMPLETE AND COMPLIANT ELECTRICAL SYSTEM UNLESS OTHERWISE NOTED ON PLANS.
- 1.2. THE ENTIRE ELECTRICAL SYSTEM SHALL BE CONTINUOUSLY GROUNDED. EVERY BRANCH CONDUIT SHALL INCLUDE A GREEN GROUND CONDUCTOR SIZED PER NEC.
- 1.3. ARC-FAULT CIRCUITS SHALL BE RUN WITH A DEDICATED NEUTRAL AS REQUIRED BY MANUFACTURER.
- 1.4. PROVIDE PERMANENT ARC-FLASH LABEL AFFIXED TO EVERY DISCONNECT AND PANEL.
- 1.5. PROVIDE TYPE WRITTEN PANEL SCHEDULE FOR EACH PANEL.
- 2. WORKMANSHIP**
- 2.1. ALL ELECTRICAL SYSTEM COMPONENTS SHALL BE INSTALLED LEVEL, PLUMB, AND PARALLEL/PERPENDICULAR TO BUILDING ORIENTATION WHERE POSSIBLE.
- 2.2. ALL ELECTRICAL DEVICES AND LIGHT FIXTURES SHALL BE INSTALLED IN A SAFE, FIRST-CLASS MANNER WITH ATTENTION GIVEN TO OVERALL AESTHETICS.
- CARE SHOULD BE TAKEN TO ALLOW FOR FUTURE REPLACEMENT AND ACCESS FOR SERVICE.
- 3. MATERIALS**
- 3.1. CONDUIT & CONDUCTORS
- 3.1.1. ALL CONDUCTORS SIZES INDICATED ARE COPPER UNLESS NOTED OTHERWISE ON PLANS.
- 3.1.2. ABOVE GRADE CONDUCTORS SHALL BE TYPE THHN.
- 3.1.3. BELOW GRADE CONDUCTORS SHALL BE TYPE XHHW-2.
- 3.1.4. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG UNLESS NOTED OTHERWISE. 120-VOLT, 20-AMP CIRCUITS WITH CONDUCTOR LENGTHS GREATER THAN 100' SHALL BE #10 AWG MINIMUM.
- 3.1.5. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR MEASURING ACTUAL CONDUCTOR LENGTH AND INCREASING CONDUCTOR SIZE TO COMPENSATE FOR VOLTAGE DROP AS REQUIRED BY NEC.
- 3.1.6. RIGID GALVANIZED OR SCHEDULE 40 PVC CONDUIT SHALL BE USED FOR SERVICE WIRING, BELOW GRADE INSTALLATIONS, OR WHERE EXPOSED TO WEATHER.
- 3.1.7. IN APPLICATIONS OTHER THAN THOSE LISTED IN 3.1.4, EMT OR MC CABLE IS ACCEPTABLE.
- 3.1.8. WHERE CONDUCTORS ARE PROTECTED FROM DAMAGE, ENCLOSED IN BUILDING MATERIALS, AND CONSTRUCTION IS OF A PERMITTED TYPE, NM CABLE MAY BE USED.
- 3.1.9. FOR CAST-IN-PLACE CONCRETE, TILT-UP WALL CONSTRUCTION, OR PRE-MANUFACTURED WALL SYSTEMS, COORDINATE EXACT LOCATIONS OF ALL DEVICES WITHIN WALLS WITH WALL SUPPLIER.
- 3.1.10. CONDUIT EMBEDDED IN WALLS SHALL BE SCHEDULE 80 PVC OR LFMC, OR OTHER SYSTEM APPROVED BY WALL MANUFACTURER.
- 3.1.11. EXPOSED CONDUIT SHALL BE PAINTED TO MATCH ADJACENT SURFACES, VERIFY COLOR WITH ARCHITECT/OWNER.
- 3.2. DEVICES
- 3.2.1. CONTRACTOR TO PROVIDE J-BOXES, COVER PLATES, AND ANY ACCESSORIES REQUIRED TO PROVIDE A COMPLETE SYSTEM. SEE ARCHITECTURAL PLANS FOR DEVICE COLORS.
- 3.2.2. DUPLEX RECEPTACLES SHALL BE TAMPER RESISTANT, 20-AMP, EQUAL TO LEVITON #TBR-20.
- 3.2.3. SINGLE POLE TOGGLE WALL SWITCHES SHALL BE EQUAL TO LEVITON CS120-2.
- 3.2.4. THREE-WAY TOGGLE WALL SWITCHES SHALL BE EQUAL TO LEVITON CS320-2.
- 3.2.5. DIMMER SWITCHES SHALL BE TESTED WITH FIXTURES AND LAMPS FOR COMPATIBILITY. SEE LIGHTING PLANS FOR DETAILS.
- 3.2.6. WHERE GFCI PROTECTION IS SHOWN ON PLANS AND UNLESS OTHERWISE NOTED, PROVIDE A LISTED GFCI-PROTECTED RECEPTACLE WHERE THE RECEPTACLE IS ACCESSIBLE ON PLANS. IF THE RECEPTACLE LOCATION IS NOT ACCESSIBLE AS DEFINED BY NEC, PROVIDE GFCI PROTECTION AT CIRCUIT BREAKER.
- 3.2.7. DO NOT INSTALL OCCUPANCY/VACANCY SENSORS WITHIN 48" OF HVAC DIFFUSERS/GRILLES OR SIMILAR OBSTRUCTION THAT MAY AFFECT SENSOR FUNCTIONALITY. ALL SENSORS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
- 3.2.8. ALL APPLICABLE SWITCHES, RECEPTACLES, CONTROLS, ETC. SHALL BE MOUNTED AT ADA-ACCESSIBLE HEIGHTS.
- 3.2.9. WIRING DEVICES SHOWN ON PLANS NEXT TO ONE ANOTHER SHALL UTILIZE A SINGLE COVER PLATE UNLESS NOTED OTHERWISE.
- 3.3. WIRING DEVICES SHOWN BACK-TO-BACK ON EACH SIDE OF A WALL SHALL BE OFFSET TO REDUCE SOUND TRANSMISSION.
- 3.4. EACH RECEPTACLE COVER SHALL BE NEATLY AND LEGIBLY LABELED WITH CORRESPONDING PANEL AND CIRCUIT NUMBER FOR CIRCUIT IDENTIFICATION.
- 4. EMERGENCY LIGHTING**
- 4.1. BRANCH CIRCUIT FEEDING EMERGENCY FIXTURE(S) SHALL BE SAME BRANCH CIRCUIT AS THAT SERVING NORMAL LIGHTING IN SAME AREA AND CONNECTED AHEAD OF ANY LOCAL SWITCHES.
- 4.2. EMERGENCY LIGHTING SYSTEM SHALL PROVIDE 1FC AVERAGE AND 0.1FC MINIMUM ALONG EGRESS PATHS. ADJUST ANY EMERGENCY FIXTURES AS NECESSARY TO PROVIDE PROPER ILLUMINATION WITHOUT OBSTRUCTION FROM FURNITURE OR OBSTACLES.

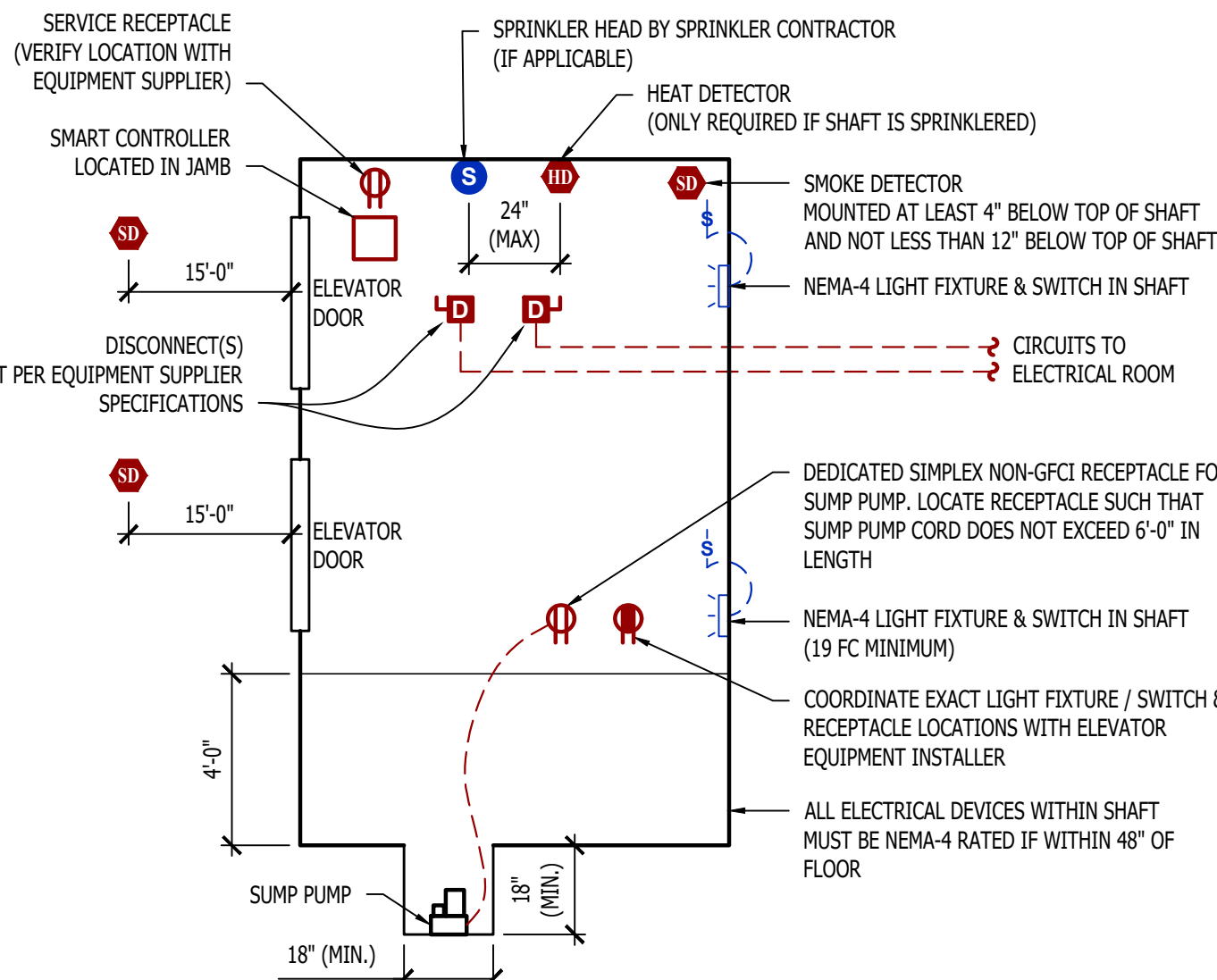
POWER RISER NOTES:

1. COORDINATE DETAILS & REQUIREMENTS OF NEW ELECTRIC SERVICE WITH EVERY.
2. ALL NEW METERING EQUIPMENT MUST BE APPROVED BY EVERY.
3. EACH METER PERMANENTLY LABELED.
4. METER CENTER #1 AIC-RATINGS BASED ON:
- 4.1. TRANSFORMER: 750 kVA, 100% POWER FACTOR, 5.75% Z, LOCATED APPROXIMATELY WHERE SHOWN ON PLANS.
- 4.2. METER CENTER LOCATION INSTALLED APPROXIMATELY WHERE SHOWN ON PLANS.
- 4.3. ELECTRICAL PANEL LOCATIONS INSTALLED APPROXIMATELY WHERE SHOWN ON PLANS.
- 4.4. CONTRACTOR TO FIELD VERIFY FINAL EQUIPMENT LOCATIONS AND PERFORM ADDITIONAL AIC RATING CALCULATIONS IF NECESSARY.
- 4.5. APARTMENT ELECTRICAL PANELS SHALL HAVE AIC RATINGS AS FOLLOWS:
- 4.5.1. 10,000 IF LOCATED GREATER THAN 70' FROM METER CENTER.
- 4.5.2. 22,000 A IF LOCATED LESS THAN 70' FROM METER CENTER.
5. METER CENTER #2 AIC-RATINGS BASED ON:
- 5.1. TRANSFORMER: 750 kVA, 100% POWER FACTOR, 5.75% Z, LOCATED APPROXIMATELY WHERE SHOWN ON PLANS.
- 5.2. METER CENTER LOCATION INSTALLED APPROXIMATELY WHERE SHOWN ON PLANS.
- 5.3. ELECTRICAL PANEL LOCATIONS INSTALLED APPROXIMATELY WHERE SHOWN ON PLANS.
- 5.4. CONTRACTOR TO FIELD VERIFY FINAL EQUIPMENT LOCATIONS AND PERFORM ADDITIONAL AIC RATING CALCULATIONS IF NECESSARY.
- 5.5. APARTMENT ELECTRICAL PANELS SHALL HAVE AIC RATINGS AS FOLLOWS:
- 5.5.1. 10,000 IF LOCATED GREATER THAN 70' FROM METER CENTER.
- 5.5.2. 22,000 A IF LOCATED LESS THAN 70' FROM METER CENTER.

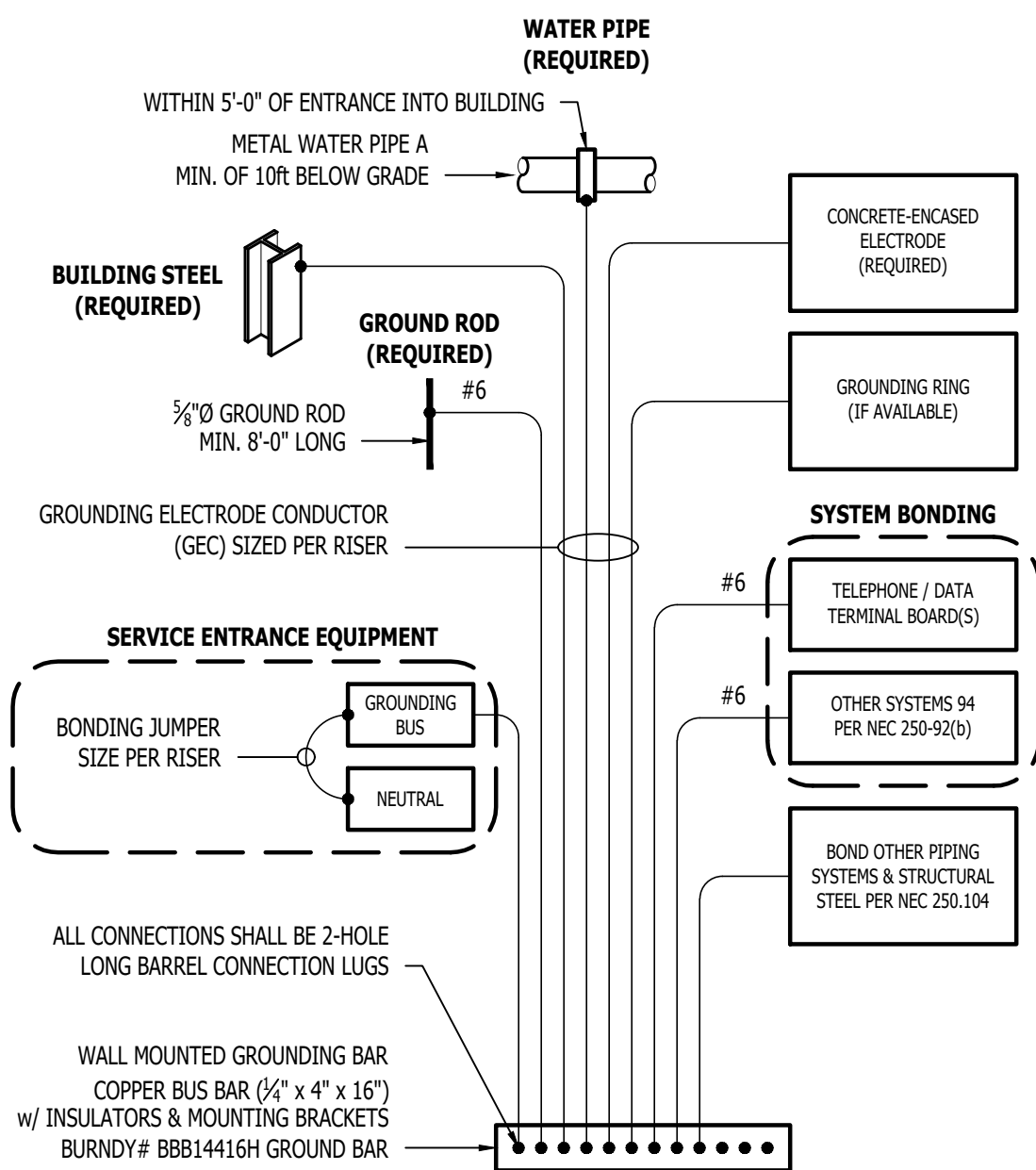


NOTES:

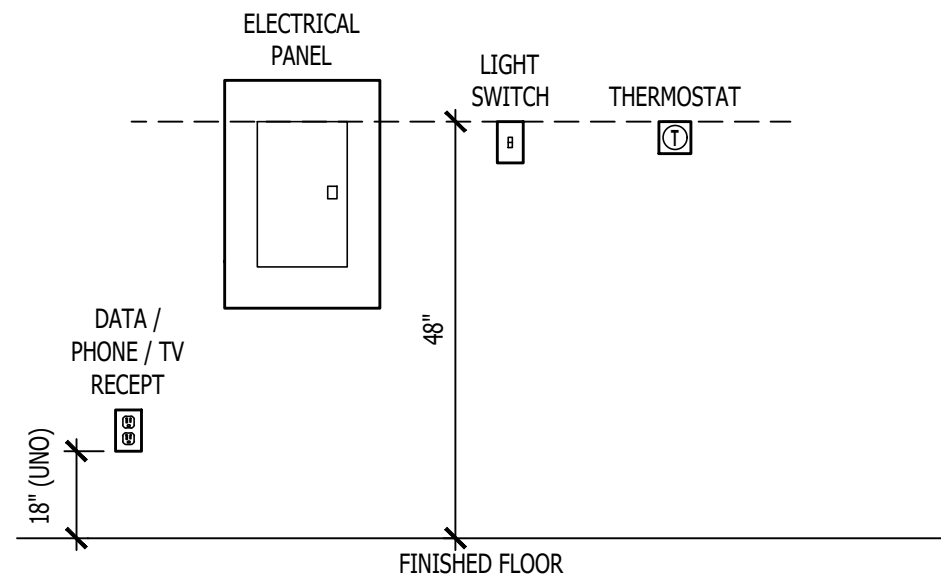
1. ALL ELECTRICAL CONDUCTORS WITHIN ELEVATOR PIT MUST COMPLY WITH NEC 620.21.
2. SUMP PUMP RECEPTACLE, SHAFT / PIT RECEPTACLES, & SHAFT LIGHTING TO ALL BE ON EMERGENCY POWER IF ELEVATOR IS ON EMERGENCY POWER.
3. ADDITIONAL SMOKE DETECTOR REQUIRED IN ELEVATOR MACHINE ROOM (IF APPLICABLE).
4. IN CASES WHERE ELEVATOR IS NOT SHUNT-TRIP PROTECTED, A LABELED SPRINKLER SHUT-OFF MUST BE LOCATED OUTSIDE THE ELEVATOR HOISTWAY AND/OR EQUIPMENT ROOM.
5. PERMANENTLY LABEL ALL CIRCUITS AND FEEDERS.
6. SUMP PUMP DISCHARGE LINE SHALL BE HARD PIPED (NO PVC).



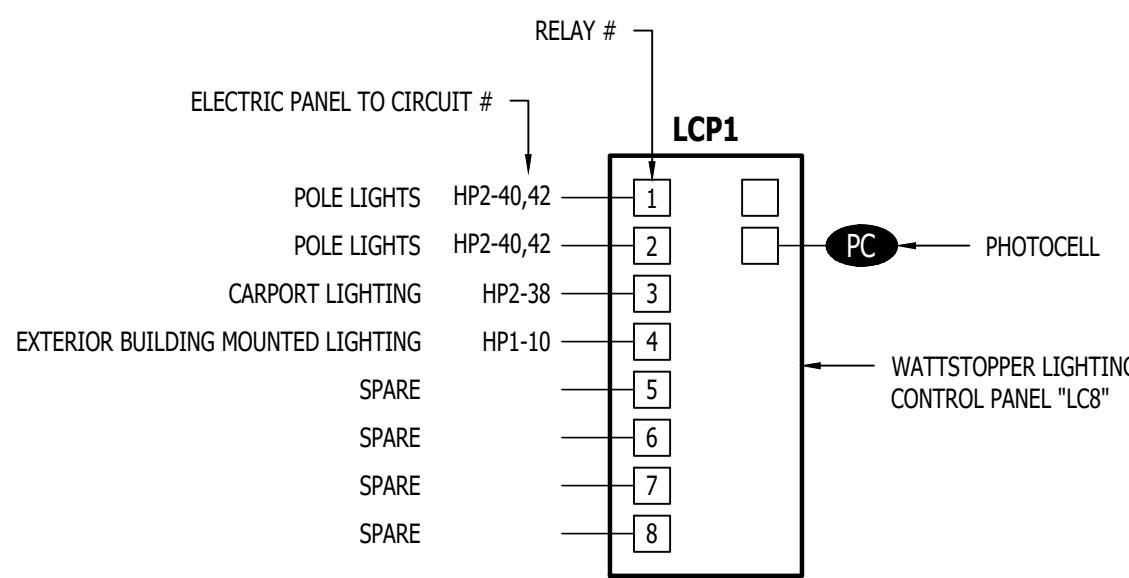
MACHINE - ROOM - LESS ELEVATOR DETAIL



TYPICAL GROUNDING & BONDING DETAIL



TYPICAL ADA MOUNTING HEIGHTS DETAIL



LIGHTING CONTROL PANEL SCHEDULE

| RELAY # | OVERRIDE SWITCH | OPERATIONAL SCHEDULE                    |
|---------|-----------------|-----------------------------------------|
| 1       | NO              | ON DURING NIGHT HOURS (PHOTOCELL INPUT) |
| 2       | NO              | ON DURING NIGHT HOURS (PHOTOCELL INPUT) |
| 3       | NO              | ON DURING NIGHT HOURS (PHOTOCELL INPUT) |
| 4       | NO              | ON DURING NIGHT HOURS (PHOTOCELL INPUT) |
| 5       | -               | -                                       |
| 6       | -               | -                                       |
| 7       | -               | -                                       |
| 8       | -               | -                                       |

LIGHTING CONTROL PANEL

|                |                |
|----------------|----------------|
| J2 PROJECT No: | J21357         |
| J2 DESIGN:     | ACW            |
| ISSUE TITLE    | DATE           |
| PERMIT SET     | 04 - 15 - 2025 |
| ADDENDUM 1     | 05 - 16 - 2025 |
|                |                |
|                |                |
|                |                |
|                |                |

AHJ APPROVAL STAMP

SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

E501



| LIGHT FIXTURE SCHEDULE                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                            |                                 |                                                  |                   |                 |             |     |       |       |                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------|--------------------------------------------------|-------------------|-----------------|-------------|-----|-------|-------|-------------------------------------------------------|
| TAG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | MANUFACTURER<br>(OR EQUAL) | MODEL NUMBER<br>(OR EQUAL)      | DESCRIPTION                                      | MOUNTING          | LUMEN<br>OUTPUT | CCT<br>(°K) | CRI | VOLTS | WATTS | NOTES                                                 |
| C1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | HALO                       | HLCE6129F51E                    | 6" LED SURFACE CAN                               | SURFACE / CEILING | 1,200           | 3000        | 90  | 120   | 15    |                                                       |
| E1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SURE LITES                 | APC7RG                          | INTERIOR EXIT LIGHT WITH HEADS                   | WALL / CEILING    | -               | -           | -   | 120   | 1     | WITH RED LETTERS                                      |
| E2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SURE LITES                 | APCH7RG WITH APWR2              | INTERIOR EXIT LIGHT WITH EXTERIOR<br>REMOTE HEAD | CEILING           | -               | -           | -   | 120   | 1     | WITH RED LETTERS                                      |
| E3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SURE LITES                 | SELS0                           | EMERGENCY EGRESS LIGHT                           | INTERIOR WALL     | -               | -           | -   | 120   | 1     |                                                       |
| F1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ROYAL PACIFIC              | 1057-BN-WT-L                    | CEILING FAN W/ LED LIGHT KIT                     | SURFACE / CEILING | 1,050           | 3000        | 80  | 120   | 14    | WITH LIGHT KIT                                        |
| P1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ROYAL PACIFIC              | 4430-BN                         | LED PENDANT                                      | SURFACE / CEILING | 600             | 3000        | 80  | 120   | 8     |                                                       |
| S1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | METALUX                    | 45NX-SL3-LW-UNV-CC83-CD-1-FKO-U | 4" LED STRIP                                     | SURFACE / CEILING | 4,511           | 4000        | 70  | 120   | 38    | WITH 'EL14W' EMERGENCY BATTERY BACKUP WHERE INDICATED |
| V1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ROYAL PACIFIC              | 4904-BN-4                       | LED VANITY                                       | SURFACE / WALL    | 2,110           | 3000        | 80  | 120   | 30    |                                                       |
| W1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | HALO                       | FE12S40FDB                      | LED PATIO SCONCE                                 | EXTERIOR WALL     | 1,272           | 4000        | 83  | 120   | 11    |                                                       |
| W2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | TECH LIGHTING              | 7000WVEX9404ZUNV                | UP / DOWN WALL SCONCE                            | EXTERIOR WALL     | 554             | 4000        | 90  | 120   | 19    |                                                       |
| W3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | LUMARK                     | XTOR4B-W                        | LED WALLPACK                                     | EXTERIOR WALL     | 3,995           | 4000        | 70  | 120   | 38    |                                                       |
| W4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | LUMARK                     | AXCS1A-MSP/DIM-L12              | LED WALLPACK                                     | EXTERIOR WALL     | 1,806           | 4000        | 70  | 120   | 14    |                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                            |                                 |                                                  |                   |                 |             |     |       |       |                                                       |
| NOTES:<br>1. LIGHT FIXTURES PROVIDED BY OWNER THRU NATIONAL ACCOUNT AND INSTALLED BY ELECTRICAL CONTRACTOR.<br>2. ALL FIXTURE QUANTITIES TO BE VERIFIED BY ELECTRICAL CONTRACTOR PRIOR TO ORDERING.<br>3. CONTACT JUSTIN HATFIELD (573) 289-0880 (JHATFIELD@LAIWEB.NET) OR PAUL WARNER (314) 531-3500 (PWARNER@LAIWEB.NET) AT LIGHTING ASSOCIATES FOR NATIONAL ACCOUNT DETAILS.<br>4. CONTACT TRAVIS VOGT (417) 621-5210 (TVOGT@CED1135.COM) AT CED-PHILLIPS & COMPANY FOR NATIONAL ACCOUNT DETAILS. |                            |                                 |                                                  |                   |                 |             |     |       |       |                                                       |

| PANEL 'HP1' SCHEDULE                                                                                                           |                                            |              |                         |       |      |              |                            |                |  |  |
|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--------------|-------------------------|-------|------|--------------|----------------------------|----------------|--|--|
| PANEL SPECIFICATIONS                                                                                                           |                                            |              |                         |       |      |              | TOTAL CONNECTED LOAD       |                |  |  |
| VOLTAGE: 120/208V 3-PH                                                                                                         |                                            |              | NEMA RATING: 1          |       |      |              | PHASE "A" LOAD: 161 AMPS   |                |  |  |
| AMPA CITY: 225A MLO                                                                                                            |                                            |              | PANEL MOUNTING: SURFACE |       |      |              | PHASE "B" LOAD: 197 AMPS   |                |  |  |
| AIC-RATING: 22KA                                                                                                               |                                            |              |                         |       |      |              | PHASE "C" LOAD: 155 AMPS   |                |  |  |
| CIRCUIT NUMBER                                                                                                                 | DESCRIPTION                                | BREAKER SIZE | AMPS                    | PHASE | AMPS | BREAKER SIZE | DESCRIPTION                | CIRCUIT NUMBER |  |  |
| 1                                                                                                                              | WATER HEATER (WH2)                         | 20-1         | 12.5                    | A     | 9    | 20-1         | 1st FLR CORRIDOR RECEPTS.  | 2              |  |  |
| 3                                                                                                                              | 1st FLR CORRIDOR AIR HANDLING UNIT (AHU-3) | 60-2         | 51                      | B     | 7.5  | 20-1         | 2nd FLR CORRIDOR RECEPTS.  | 4              |  |  |
| 5                                                                                                                              | -                                          | -            | 51                      | C     | 4    | 20-1         | 1st FLR CORRIDOR LIGHTING  | 6              |  |  |
| 7                                                                                                                              | 2nd FLR CORRIDOR AIR HANDLING UNIT (AHU-3) | 60-2         | 51                      | A     | 3    | 20-1         | 2nd FLR CORRIDOR LIGHTING  | 8              |  |  |
| 9                                                                                                                              | -                                          | -            | 51                      | B     | 2    | 20-1         | EXTERIOR BUILDING LIGHTING | 10             |  |  |
| 11                                                                                                                             | ELEVATOR (DS1)                             | 60-3         | 42                      | C     | 19   | 25-2         | SPRINKLER ROOM WALL HEATER | 12             |  |  |
| 13                                                                                                                             | -                                          | -            | 42                      | A     | 19   | -            | -                          | 14             |  |  |
| 15                                                                                                                             | -                                          | -            | 42                      | B     | 19   | 25-2         | STAIRWELL WALL HEATER      | 16             |  |  |
| 17                                                                                                                             | STAIRWELL LIGHTING                         | 20-1         | 5                       | C     | 19   | -            | -                          | 18             |  |  |
| 19                                                                                                                             | ELEVATOR PIT RECEPT.                       | 20-1         | 1.5                     | A     | 19   | 25-2         | STAIRWELL WALL HEATER      | 20             |  |  |
| 21                                                                                                                             | ELEVATOR PIT SUMP PUMP                     | 20-1         | 1                       | B     | 19   | -            | -                          | 22             |  |  |
| 23                                                                                                                             | ELEVATOR CAB LIGHTS                        | 20-2         | 1                       | C     | 1    | 20-1         | MAG HOLDS                  | 24             |  |  |
| 25                                                                                                                             | -                                          | -            | 1                       | A     | 3    | 20-1         | SPRINKLER ROOM RECEPTS.    | 26             |  |  |
| 27                                                                                                                             | 2nd FLR IT/MECH ROOM RECEPT.               | 20-1         | 3                       | B     | 1.5  | 20-1         | FACP RECEPT.               | 28             |  |  |
| 29                                                                                                                             | ACCESS CONTROLS                            | 20-1         | 1                       | C     | 12   | 20-1         | EXTERIOR RECEPTS.          | 30             |  |  |
| 31                                                                                                                             | SPARE                                      | 20-1         |                         | A     |      |              | OPEN                       | 32             |  |  |
| 33                                                                                                                             | SPARE                                      | 20-1         |                         | B     |      |              | OPEN                       | 34             |  |  |
| 35                                                                                                                             | SPARE                                      | 20-1         |                         | C     |      |              | OPEN                       | 36             |  |  |
| 37                                                                                                                             | SPARE                                      | 20-1         |                         | A     |      |              | OPEN                       | 38             |  |  |
| 39                                                                                                                             | SPARE                                      | 20-1         |                         | B     |      |              | OPEN                       | 40             |  |  |
| 41                                                                                                                             | SPARE                                      | 20-1         |                         | C     |      |              | OPEN                       | 42             |  |  |
| NOTES:                                                                                                                         |                                            |              |                         |       |      |              |                            |                |  |  |
| A: PANEL SHALL BE EQUAL TO SQUARE D MODEL "QO"                                                                                 |                                            |              |                         |       |      |              |                            |                |  |  |
| B: ELECTRICIAN SHALL VERIFY EXACT EQUIPMENT OVERCURRENT PROTECTION REQUIREMENTS PRIOR TO PURCHASE & INSTALLATION OF EQUIPMENT. |                                            |              |                         |       |      |              |                            |                |  |  |
| C: AFTER COMPLETION OF WORK, ELECTRICIAN SHALL PROVIDE A TYPE WRITTEN PANEL DIRECTORY IN NEW PANEL.                            |                                            |              |                         |       |      |              |                            |                |  |  |

| PANEL 'HP2' SCHEDULE                                                                                                           |                                            |              |                         |       |      |                            |                                         |                |  |  |
|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--------------|-------------------------|-------|------|----------------------------|-----------------------------------------|----------------|--|--|
| PANEL SPECIFICATIONS                                                                                                           |                                            |              |                         |       |      | TOTAL CONNECTED LOAD       |                                         |                |  |  |
| VOLTAGE: 120/208V 3-PH                                                                                                         |                                            |              | NEMA RATING: 1          |       |      | PHASE "A" LOAD: 152.5 AMPS |                                         |                |  |  |
| AMPACITY: 225A MLO                                                                                                             |                                            |              | PANEL MOUNTING: SURFACE |       |      | PHASE "B" LOAD: 141 AMPS   |                                         |                |  |  |
| AIC-RATING: 22KA                                                                                                               |                                            |              |                         |       |      | PHASE "C" LOAD: 178.5 AMPS |                                         |                |  |  |
| CIRCUIT NUMBER                                                                                                                 | DESCRIPTION                                | BREAKER SIZE | AMPS                    | PHASE | AMPS | BREAKER SIZE               | DESCRIPTION                             | CIRCUIT NUMBER |  |  |
| 1                                                                                                                              | SPARE                                      | 20-1         |                         | A     | 17   | 25-2                       | 1st FLR CORRIDOR CONDENSING UNIT (CU-1) | 2              |  |  |
| 3                                                                                                                              | 3rd FLR IT/MECH ROOM RECEPT.               | 20-1         | 3                       | B     | 17   | -                          | -                                       | 4              |  |  |
| 5                                                                                                                              | 4th FLR IT/MECH ROOM RECEPT.               | 20-1         | 3                       | C     | 17   | 25-2                       | 2nd FLR CORRIDOR CONDENSING UNIT (CU-2) | 6              |  |  |
| 7                                                                                                                              | 3rd FLR CORRIDOR LIGHTING                  | 20-1         | 3                       | A     | 17   | -                          | -                                       | 8              |  |  |
| 9                                                                                                                              | 4th FLR CORRIDOR LIGHTING                  | 20-1         | 3                       | B     | 17   | 25-2                       | 3rd FLR CORRIDOR CONDENSING UNIT (CU-3) | 10             |  |  |
| 11                                                                                                                             | 3rd FLR CORRIDOR AIR HANDLING UNIT (AHU-3) | 60-2         | 51                      | C     | 17   | -                          | -                                       | 12             |  |  |
| 13                                                                                                                             | -                                          | -            | 51                      | A     | 17   | 25-2                       | 4th FLR CORRIDOR CONDENSING UNIT (CU-4) | 14             |  |  |
| 15                                                                                                                             | 4th FLR CORRIDOR AIR HANDLING UNIT (AHU-3) | 60-2         | 51                      | B     | 17   | -                          | -                                       | 16             |  |  |
| 17                                                                                                                             | -                                          | -            | 51                      | C     | 7.5  | 20-1                       | 3rd FLR CORRIDOR RECEPTS.               | 18             |  |  |
| 19                                                                                                                             | STAIRWELL WALL HEATER                      | 25-2         | 19                      | A     | 7.5  | 20-1                       | 4th FLR CORRIDOR RECEPTS.               | 20             |  |  |
| 21                                                                                                                             | -                                          | -            | 19                      | B     | 1    | 20-1                       | MAG HOLDS                               | 22             |  |  |
| 23                                                                                                                             | STAIRWELL WALL HEATER                      | 25-2         | 19                      | C     |      | 20-1                       | SPARE                                   | 24             |  |  |
| 25                                                                                                                             | -                                          | -            | 19                      | A     |      | 20-1                       | SPARE                                   | 26             |  |  |
| 27                                                                                                                             | SPARE                                      | 20-1         |                         | B     |      | 20-1                       | SPARE                                   | 28             |  |  |
| 29                                                                                                                             | SPARE                                      | 20-1         |                         | C     |      |                            | OPEN                                    | 30             |  |  |
| 31                                                                                                                             | SPARE                                      | 20-1         |                         | A     |      |                            | OPEN                                    | 32             |  |  |
| 33                                                                                                                             | SPARE                                      | 20-1         |                         | B     |      |                            | OPEN                                    | 34             |  |  |
| 35                                                                                                                             | SPARE                                      | 20-1         |                         | C     |      |                            | OPEN                                    | 36             |  |  |
| 37                                                                                                                             | SPARE                                      | 20-1         |                         | A     | 2    | 20-1                       | CARPORT LIGHTING                        | 38             |  |  |
| 39                                                                                                                             | SPARE                                      | 20-1         |                         | B     | 13   | 20-2                       | POLE LIGHTS                             | 40             |  |  |
| 41                                                                                                                             | SPARE                                      | 20-1         |                         | C     | 13   | -                          | -                                       | 42             |  |  |
| NOTES:                                                                                                                         |                                            |              |                         |       |      |                            |                                         |                |  |  |
| A: PANEL SHALL BE EQUAL TO SQUARE D MODEL "QO"                                                                                 |                                            |              |                         |       |      |                            |                                         |                |  |  |
| B: ELECTRICIAN SHALL VERIFY EXACT EQUIPMENT OVERCURRENT PROTECTION REQUIREMENTS PRIOR TO PURCHASE & INSTALLATION OF EQUIPMENT. |                                            |              |                         |       |      |                            |                                         |                |  |  |
| C: AFTER COMPLETION OF WORK, ELECTRICIAN SHALL PROVIDE A TYPE WRITTEN PANEL DIRECTORY IN NEW PANEL.                            |                                            |              |                         |       |      |                            |                                         |                |  |  |

| TYPICAL APARTMENT PANEL 'P1' SCHEDULE                                                                                                 |                        |              |      |          |      |              |                 |                |       |
|---------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------|------|----------|------|--------------|-----------------|----------------|-------|
| VOLTAGE                                                                                                                               |                        | PANEL SIZE   |      | MOUNTING |      | AIC RATING   |                 |                |       |
| 120/208V 1-PH                                                                                                                         |                        | 150A MLO     |      | RECESSED |      | SEE RISER    |                 | PHASE "A" LOAD | 167.5 |
| NEMA RATING: 1                                                                                                                        |                        |              |      |          |      |              |                 | PHASE "B" LOAD | 164.5 |
| CIRCUIT NUMBER                                                                                                                        | DESCRIPTION            | BREAKER SIZE | AMPS | PHASE    | AMPS | BREAKER SIZE | DESCRIPTION     | CIRCUIT NUMBER |       |
| 1                                                                                                                                     | REFRIGERATOR           | 20-1         | 8    | A        | 44   | 45-2         | AHU-1           | 2              |       |
| 3                                                                                                                                     | STOVE                  | 50-2         | 30   | B        | 44   | -            | -               | 4              |       |
| 5                                                                                                                                     | -                      | -            | 30   | A        | 22   | 30-2         | WATER HEATER    | 6              |       |
| 7                                                                                                                                     | RANGE HOOD / MICROWAVE | 20-1         | 8    | B        | 22   | -            | -               | 8              |       |
| 9                                                                                                                                     | KITCHEN RECEPTS.       | 20-1         | 4.5  | A        | 12   | 20-2         | CU-1            | 10             |       |
| 11                                                                                                                                    | DISHWASHER             | 20-1         | 8    | B        | 12   | -            | -               | 12             |       |
| 13                                                                                                                                    | KITCHEN RECEPTS.       | 20-1         | 4.5  | A        |      | 20-1         | SPARE           | 14             |       |
| 15                                                                                                                                    | LIVING ROOM RECEPTS.   | 15-1         | 12   | B        | 6    | 15-1         | LIGHTING        | 16             |       |
| 17                                                                                                                                    | BEDROOM RECEPTS.       | 15-1         | 9    | A        | 4    | 20-1         | DISPOSAL        | 18             |       |
| 19                                                                                                                                    | BATHROOM RECEPT.       | 20-1         | 1.5  | B        |      |              | OPEN            | 20             |       |
| 21                                                                                                                                    | SPARE                  | 15-1         |      | A        |      |              | OPEN            | 22             |       |
| 23                                                                                                                                    | SPARE                  | 20-1         |      | B        |      |              | OPEN            | 24             |       |
| 25                                                                                                                                    | WASHING MACHINE        | 20-1         | 8    | A        | 1.5  | 20-1         | MEDIA PANEL     | 26             |       |
| 27                                                                                                                                    | DRYER                  | 30-2         | 20   | B        | 1    | 15-1         | SMOKE DETECTORS | 28             |       |
| 29                                                                                                                                    | -                      | -            | 20   | A        |      |              | OPEN            | 30             |       |
| NOTES:                                                                                                                                |                        |              |      |          |      |              |                 |                |       |
| A: PANEL SHALL BE EQUAL TO SQUARE D MODEL "HOMELINE"                                                                                  |                        |              |      |          |      |              |                 |                |       |
| B: ELECTRICIAN SHALL VERIFY BREAKER WITH EQUIPMENT PRIOR TO PURCHASE & INSTALL.                                                       |                        |              |      |          |      |              |                 |                |       |
| C: AFTER COMPLETION OF WORK, ELECTRICIAN SHALL PROVIDE A TYPE WRITTEN PANEL DIRECTORY IN NEW PANEL.                                   |                        |              |      |          |      |              |                 |                |       |
| D: CIRCUIT BREAKERS SHOWN ABOVE IN <b><u>BOLD UNDERLINED</u></b> TEXT SHALL BE ARC-FAULT CIRCUIT INTERRUPTER (AFCI) PER NEC 210.12.   |                        |              |      |          |      |              |                 |                |       |
| E: TOTAL SIMULTANEOUS PHASE LOADS SHOWN MAY EXCEED PANEL AMPACITY AS SERVICE LOADS HAVE BEEN CALCULATED IN ACCORDANCE WITH NEC 220.82 |                        |              |      |          |      |              |                 |                |       |

| TYPICAL APARTMENT PANEL 'P2' SCHEDULE                                                                                                 |                        |              |      |          |      |              |                 |                |       |
|---------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------|------|----------|------|--------------|-----------------|----------------|-------|
| VOLTAGE                                                                                                                               |                        | PANEL SIZE   |      | MOUNTING |      | AIC RATING   |                 |                |       |
| 120/208V 1-PH                                                                                                                         |                        | 150A MLO     |      | RECESSED |      | SEE RISER    |                 | PHASE "A" LOAD | 188.5 |
| NEMA RATING: 1                                                                                                                        |                        |              |      |          |      |              |                 | PHASE "B" LOAD | 178   |
| CIRCUIT NUMBER                                                                                                                        | DESCRIPTION            | BREAKER SIZE | AMPS | PHASE    | AMPS | BREAKER SIZE | DESCRIPTION     | CIRCUIT NUMBER |       |
| 1                                                                                                                                     | REFRIGERATOR           | 20-1         | 8    | A        | 51   | 60-2         | AHU-5           | 2              |       |
| 3                                                                                                                                     | STOVE                  | 50-2         | 30   | B        | 51   | -            | -               | 4              |       |
| 5                                                                                                                                     | -                      | -            | 30   | A        | 22   | 30-2         | WATER HEATER    | 6              |       |
| 7                                                                                                                                     | RANGE HOOD / MICROWAVE | 20-1         | 8    | B        | 22   | -            | -               | 8              |       |
| 9                                                                                                                                     | KITCHEN RECEPTS.       | 20-1         | 4.5  | A        | 17   | 25-2         | CU-5            | 10             |       |
| 11                                                                                                                                    | DISHWASHER             | 20-1         | 8    | B        | 17   | -            | -               | 12             |       |
| 13                                                                                                                                    | KITCHEN RECEPTS.       | 20-1         | 4.5  | A        |      | 20-1         | SPARE           | 14             |       |
| 15                                                                                                                                    | LIVING ROOM RECEPTS.   | 15-1         | 12   | B        | 6    | 15-1         | LIGHTING        | 16             |       |
| 17                                                                                                                                    | BEDROOM RECEPTS.       | 15-1         | 9    | A        | 4    | 20-1         | DISPOSAL        | 18             |       |
| 19                                                                                                                                    | BATHROOM RECEPT.       | 20-1         | 1.5  | B        |      |              | OPEN            | 20             |       |
| 21                                                                                                                                    | BEDROOM RECEPTS.       | 15-1         | 9    | A        |      |              | OPEN            | 22             |       |
| 23                                                                                                                                    | BATHROOM RECEPT.       | 20-1         | 1.5  | B        |      |              | OPEN            | 24             |       |
| 25                                                                                                                                    | WASHING MACHINE        | 20-1         | 8    | A        | 1.5  | 20-1         | MEDIA PANEL     | 26             |       |
| 27                                                                                                                                    | DRYER                  | 30-2         | 20   | B        | 1    | 15-1         | SMOKE DETECTORS | 28             |       |
| 29                                                                                                                                    | -                      | -            | 20   | A        |      |              | OPEN            | 30             |       |
| NOTES:                                                                                                                                |                        |              |      |          |      |              |                 |                |       |
| A: PANEL SHALL BE EQUAL TO SQUARE D MODEL "HOMELINE"                                                                                  |                        |              |      |          |      |              |                 |                |       |
| B: ELECTRICIAN SHALL VERIFY BREAKER WITH EQUIPMENT PRIOR TO PURCHASE & INSTALL.                                                       |                        |              |      |          |      |              |                 |                |       |
| C: AFTER COMPLETION OF WORK, ELECTRICIAN SHALL PROVIDE A TYPE WRITTEN PANEL DIRECTORY IN NEW PANEL.                                   |                        |              |      |          |      |              |                 |                |       |
| D: CIRCUIT BREAKERS SHOWN ABOVE IN <b><u>BOLD UNDERLINED</u></b> TEXT SHALL BE ARC-FAULT CIRCUIT INTERRUPTER (AFCI) PER NEC 210.12.   |                        |              |      |          |      |              |                 |                |       |
| E: TOTAL SIMULTANEOUS PHASE LOADS SHOWN MAY EXCEED PANEL AMPACITY AS SERVICE LOADS HAVE BEEN CALCULATED IN ACCORDANCE WITH NEC 220.82 |                        |              |      |          |      |              |                 |                |       |

| FEEDER CONDUCTOR SCHEDULE                                                                                               |           |                  |            |          |          |                  |          |                                      |  |
|-------------------------------------------------------------------------------------------------------------------------|-----------|------------------|------------|----------|----------|------------------|----------|--------------------------------------|--|
| AMPACITY                                                                                                                | # OF SETS | CONDUCTORS       |            |          |          | EQUIPMENT GROUND |          | MINIMUM<br>CONDUIT SIZE<br>(PER SET) |  |
|                                                                                                                         |           | QUANTITY PER SET |            | AWG SIZE |          | AWG SIZE         |          |                                      |  |
|                                                                                                                         |           | 3Ø 'WYE'         | 1Ø OR 3Ø Δ | COPPER   | ALUMINUM | COPPER           | ALUMINUM |                                      |  |
| 30                                                                                                                      | 1         | 4                | 3          | 10       | 8        | 10               | 8        | 3/4"                                 |  |
| 40                                                                                                                      | 1         | 4                | 3          | 8        | 8        | 8                | 8        | 1"                                   |  |
| 45                                                                                                                      | 1         | 4                | 3          | 8        | 6        | 8                | 8        | 1"                                   |  |
| 50                                                                                                                      | 1         | 4                | 3          | 8        | 6        | 10               | 8        | 1"                                   |  |
| 60                                                                                                                      | 1         | 4                | 3          | 6        | 4        | 10               | 6        | 1"                                   |  |
| 70                                                                                                                      | 1         | 4                | 3          | 4        | 2        | 8                | 6        | 1-1/4"                               |  |
| 80                                                                                                                      | 1         | 4                | 3          | 4        | 2        | 8                | 6        | 1-1/4"                               |  |
| 90                                                                                                                      | 1         | 4                | 3          | 3        | 2        | 8                | 6        | 1-1/4"                               |  |
| 100                                                                                                                     | 1         | 4                | 3          | 3        | 1        | 8                | 6        | 1-1/4"                               |  |
| 110                                                                                                                     | 1         | 4                | 3          | 2        | 1/0      | 6                | 4        | 1-1/4"                               |  |
| 125                                                                                                                     | 1         | 4                | 3          | 1        | 2/0      | 6                | 4        | 2"                                   |  |
| 150                                                                                                                     | 1         | 4                | 3          | 1/0      | 3/0      | 6                | 4        | 2"                                   |  |
| 175                                                                                                                     | 1         | 4                | 3          | 2/0      | 4/0      | 6                | 4        | 2"                                   |  |
| 200                                                                                                                     | 1         | 4                | 3          | 3/0      | 250      | 6                | 4        | 2-1/2"                               |  |
| 225                                                                                                                     | 1         | 4                | 3          | 4/0      | 300      | 4                | 2        | 2-1/2"                               |  |
| 250                                                                                                                     | 1         | 4                | 3          | 250      | 350      | 4                | 2        | 3"                                   |  |
| 300                                                                                                                     | 1         | 4                | 3          | 350      | 500      | 4                | 2        | 4"                                   |  |
| 350                                                                                                                     | 1         | 4                | 3          | 400      | 600      | 3                | 1        | 4"                                   |  |
| 400                                                                                                                     | 1         | 4                | 3          | 500      | 750      | 3                | 1        | 4"                                   |  |
| 500                                                                                                                     | 2         | 4                | 3          | 250      | 350      | 2                | 1/0      | 4"                                   |  |
| 600                                                                                                                     | 2         | 4                | 3          | 350      | 500      | 1                | 2/0      | 4"                                   |  |
| 800                                                                                                                     | 2         | 4                | 3          | 500      | 750      | 1/0              | 3/0      | 4"                                   |  |
| 1000                                                                                                                    | 3         | 4                | 3          | 400      | 350      | 2/0              | 4/0      | 4"                                   |  |
| 1200                                                                                                                    | 4         | 4                | 3          | 350      | 500      | 3/0              | 250      | 4"                                   |  |
| 1600                                                                                                                    | 5         | 4                | 3          | 400      | 750      | 4/0              | 350      | 4"                                   |  |
| 2000                                                                                                                    | 6         | 4                | 3          | 400      | 750      | 250              | 400      | 4"                                   |  |
| NOTES:                                                                                                                  |           |                  |            |          |          |                  |          |                                      |  |
| 1. ALL WIRE SIZES SHOWN ARE BASED ON CONDUCTOR TEMPERATURE RATING OF 75°C & AMBIENT TEMPERATURE RATING OF 30°C PER NEC. |           |                  |            |          |          |                  |          |                                      |  |
| 2. MAXIMUM ALLOWABLE VOLTAGE DROP FOR FEEDER CONDUCTORS SHALL BE 2%.                                                    |           |                  |            |          |          |                  |          |                                      |  |
| 3. ELECTRICAL CONTRACTOR TO ADJUST CONDUCTOR SIZES FOR LONG CIRCUIT LENGTHS & AMBIENT TEMPERATURES HIGHER THAN 30°C.    |           |                  |            |          |          |                  |          |                                      |  |



DEFERRED SUBMITTAL NOTES

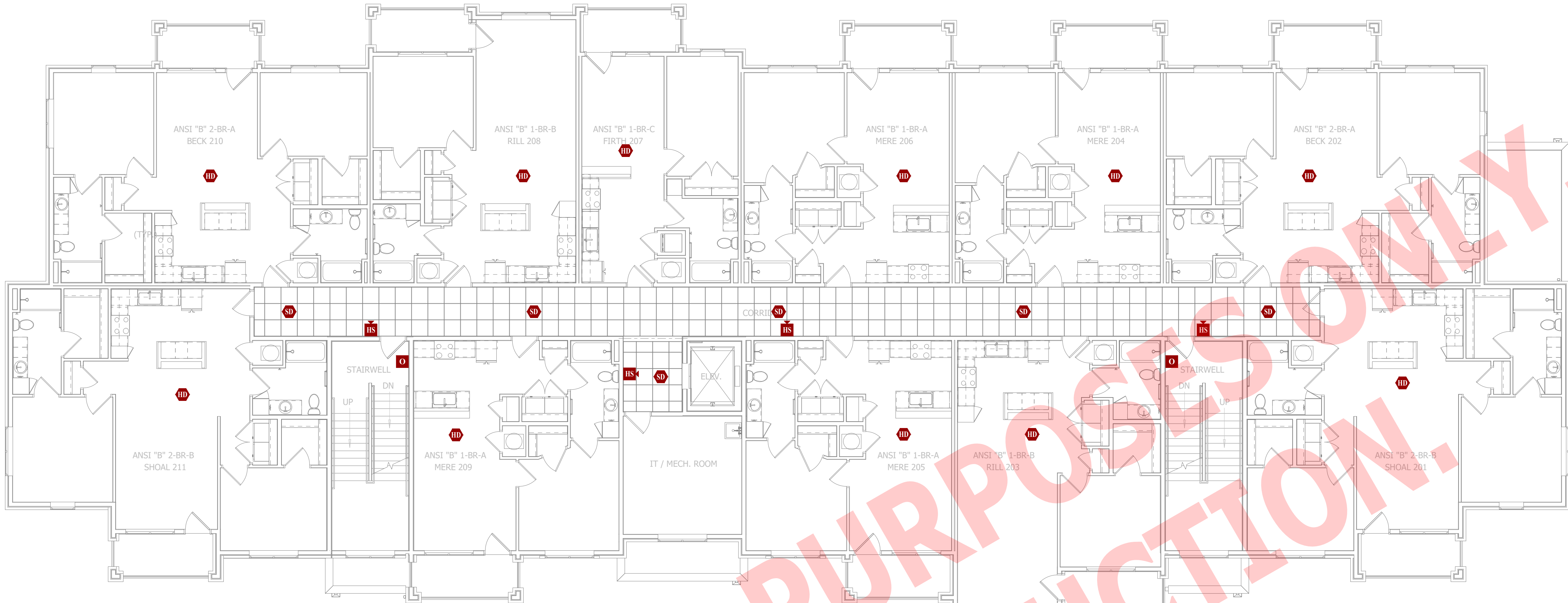
1. FIRE ALARM CONTRACTOR SHALL PROVIDE DEFERRED SUBMITTAL PACKAGE FOR FIRE ALARM SYSTEM. SUBMITTAL SHALL INCLUDE BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS, EQUIPMENT SPECIFICATIONS FOR DEVICES AND PANELS, ETC. DESIGN SHALL BE SEALED BY A QUALIFIED DESIGN PROFESSIONAL LICENSED BY THE STATE.
2. FIRE ALARM SYSTEM COMPONENTS SHOWN (IF APPLICABLE) ARE GENERAL AND SCHEMATIC IN NATURE, SHOWN FOR APPROXIMATE ROUGH-IN LOCATIONS AND QUANTITIES ONLY. CONTRACTOR TO VERIFY EXACT DEVICE LOCATIONS AND REQUIREMENTS WITH FIRE ALARM SYSTEM DESIGNER OF RECORD PRIOR TO ROUGH-IN.

FIRE ALARM SYSTEM SPECIFICATIONS

1. FIRE ALARM SYSTEM SHALL BE AN ADDRESSABLE SYSTEM THAT IS NONCODED, UL-LISTED, WITH MULTIPLEX SIGNAL TRANSMISSION AND HORN/STROBE EVACUATION.
2. EVERY FIRE ALARM SYSTEM COMPONENT SHALL BE UL-LISTED AND UL-CERTIFIED, TESTED BY MANUFACTURERS AS A COMPLETE SYSTEM, AND MEET ALL APPLICABLE REQUIREMENTS OF NFPA 72.
3. ALL FIRE ALARM WIRING TO BE PLENUM RATED.
4. ALL INITIATING DEVICES INSTALLED IN UNCONDITIONED SPACES SHALL BE CONVENTIONAL DEVICES SUITABLE FOR USE IN EXTREME HIGH AND LOW TEMPERATURES AND HIGH HUMIDITY. SUCH DEVICES SHALL BE SUPERVISED BY ADDRESSABLE MONITOR MODULES LOCATED IN CONDITIONED SPACES.
5. QUANTITIES, TYPES, AND LOCATIONS OF INITIATING DEVICES AND OUTPUT MODULES FOR INTERCONNECTION WITH FIRE SUPPRESSION MUST BE COORDINATED WITH CONTRACTORS THAT ARE RESPONSIBLE FOR THOSE SYSTEMS.

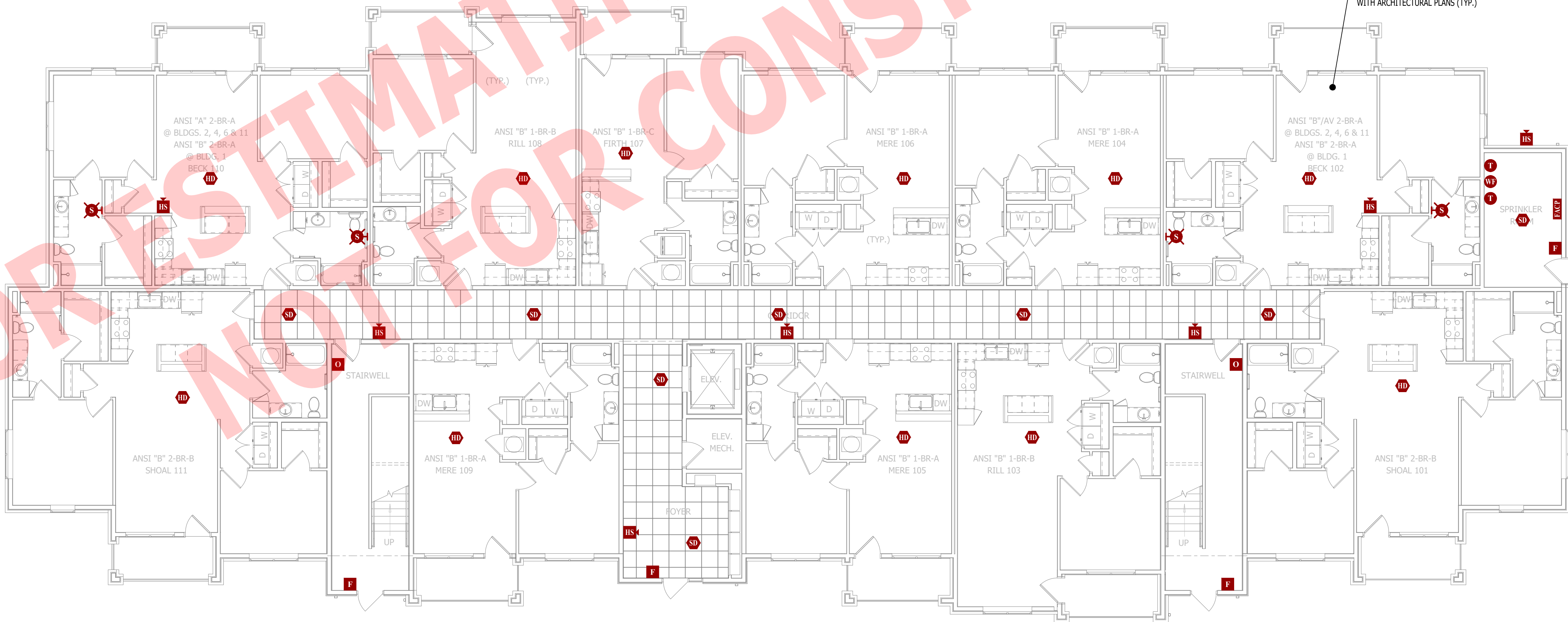
FIRE ALARM PLAN SYMBOL LEGEND

- F** MANUAL PULL STATION
- M** MODULE
- O** OUTPUT MODULE
- SD** SMOKE DETECTOR
- HD** HEAT DETECTOR
- CO** CARBON MONOXIDE DETECTOR
- S** STROBE - CEILING MOUNT
- WS** STROBE - WALL MOUNT
- HS** HORN STROBE - WALL MOUNT
- CS** HORN STROBE - CEILING MOUNT
- SS** SPEAKER STROBE - WALL MOUNT
- CS** SPEAKER STROBE - CEILING MOUNT
- T** TAMPER SWITCH
- WF** WATER FLOW SWITCH
- FACP** FIRE ALARM CONTROL PANEL
- ANN** FIRE ALARM ANNUNCIATOR



FIRE PROTECTION PLAN - SECOND FLOOR

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

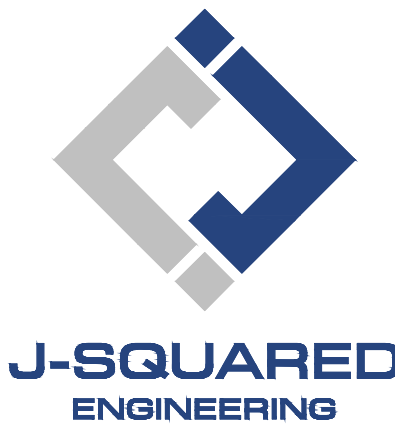


FIRE PROTECTION PLAN - FIRST FLOOR

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

FOR ESTIMATING PURPOSES ONLY.  
NOT FOR CONSTRUCTION.

James Watson, P.E. April 15, 2025  
PE-2015017071  
MO Certificate of Authority # 2018029680



2400 Bluff Creek Drive, Suite 101  
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J2 PROJECT No: J21357

J2 DESIGN: ACW

ISSUE TITLE DATE

PERMIT SET 04 - 15 - 2025

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

## The Village at Discovery Park Alura Apartments

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE

FIRE PROTECTION PLAN  
- FIRST & SECOND  
FLOORS

SHEET NUMBER

FA101



















DEFERRED SUBMITTAL NOTES

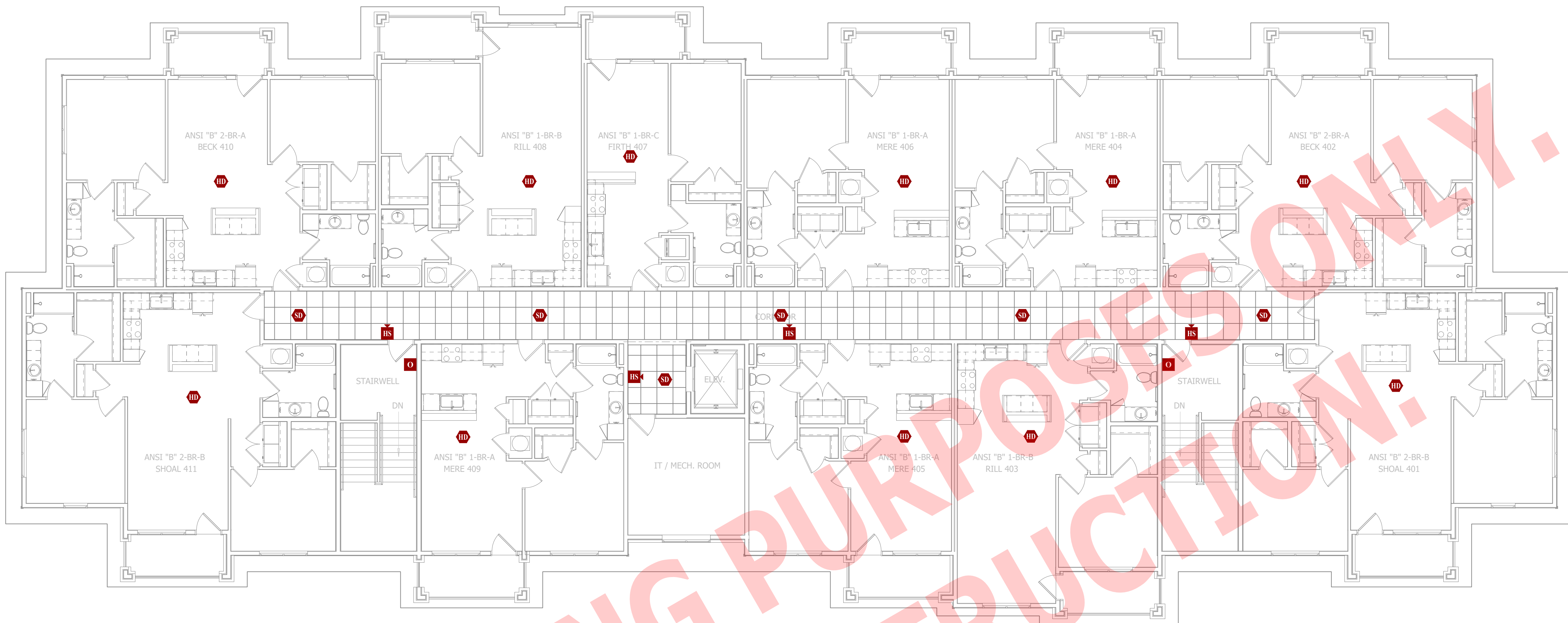
1. FIRE ALARM CONTRACTOR SHALL PROVIDE DEFERRED SUBMITTAL PACKAGE FOR FIRE ALARM SYSTEM. SUBMITTAL SHALL INCLUDE BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS, EQUIPMENT SPECIFICATIONS FOR DEVICES AND PANELS, ETC. DESIGN SHALL BE SEALED BY A QUALIFIED DESIGN PROFESSIONAL LICENSED BY THE STATE.
2. FIRE ALARM SYSTEM COMPONENTS SHOWN (IF APPLICABLE) ARE GENERAL AND SCHEMATIC IN NATURE, SHOWN FOR APPROXIMATE ROUGH-IN LOCATIONS AND QUANTITIES ONLY. CONTRACTOR TO VERIFY EXACT DEVICE LOCATIONS AND REQUIREMENTS WITH FIRE ALARM SYSTEM DESIGNER OF RECORD PRIOR TO ROUGH-IN.

FIRE ALARM SYSTEM SPECIFICATIONS

1. FIRE ALARM SYSTEM SHALL BE AN ADDRESSABLE SYSTEM THAT IS NONCODED, UL-LISTED, WITH MULTIPLEX SIGNAL TRANSMISSION AND HORN/STROBE EVACUATION.
2. EVERY FIRE ALARM SYSTEM COMPONENT SHALL BE UL-LISTED AND UL-CERTIFIED, TESTED BY MANUFACTURERS AS A COMPLETE SYSTEM, AND MEET ALL APPLICABLE REQUIREMENTS OF NFPA 72.
3. ALL FIRE ALARM WIRING TO BE PLENUM RATED.
4. ALL INITIATING DEVICES INSTALLED IN UNCONDITIONED SPACES SHALL BE CONVENTIONAL DEVICES SUITABLE FOR USE IN EXTREME HIGH AND LOW TEMPERATURES AND HIGH HUMIDITY. SUCH DEVICES SHALL BE SUPERVISED BY ADDRESSABLE MONITOR MODULES LOCATED IN CONDITIONED SPACES.
5. QUANTITIES, TYPES, AND LOCATIONS OF INITIATING DEVICES AND OUTPUT MODULES FOR INTERCONNECTION WITH FIRE SUPPRESSION MUST BE COORDINATED WITH CONTRACTORS THAT ARE RESPONSIBLE FOR THOSE SYSTEMS.

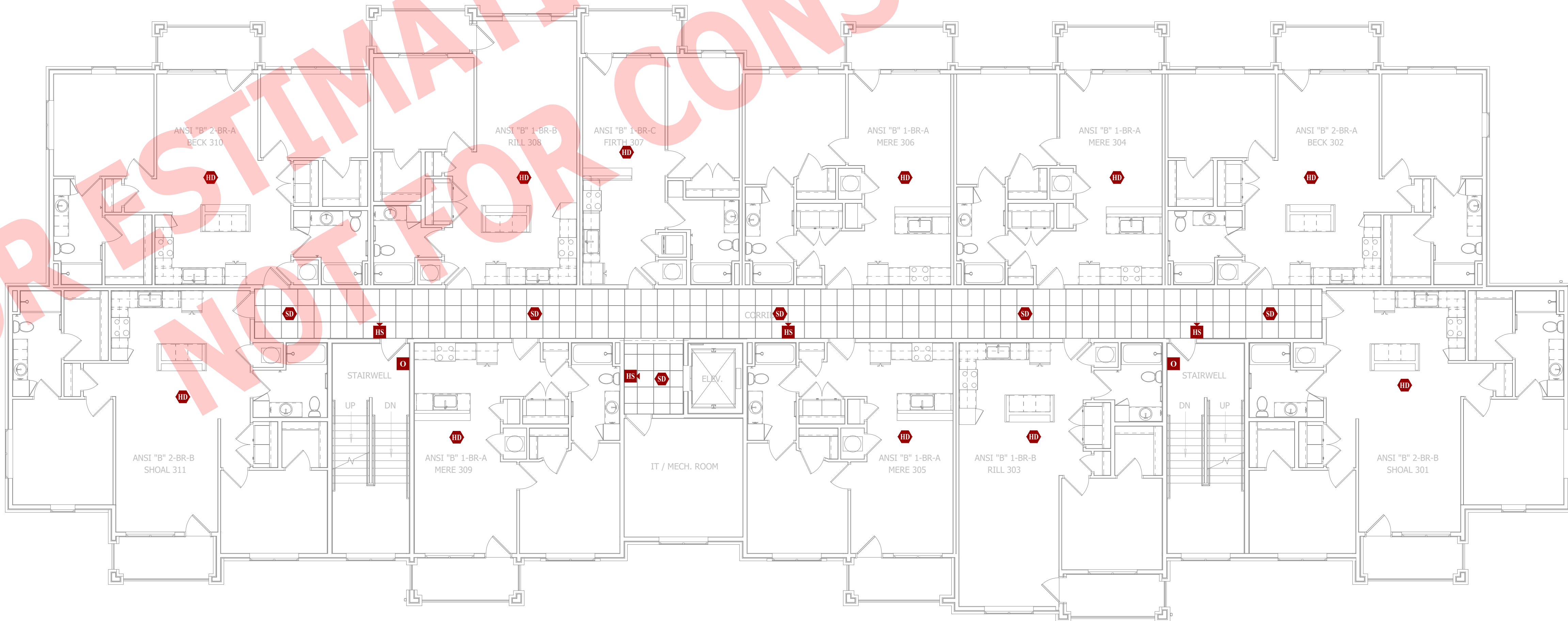
FIRE ALARM PLAN SYMBOL LEGEND

|                                                                                     |                                |
|-------------------------------------------------------------------------------------|--------------------------------|
|    | MANUAL PULL STATION            |
|    | MODULE                         |
|    | OUTPUT MODULE                  |
|    | SMOKE DETECTOR                 |
|    | HEAT DETECTOR                  |
|    | CARBON MONOXIDE DETECTOR       |
|    | STROBE - CEILING MOUNT         |
|    | STROBE - WALL MOUNT            |
|    | HORN STROBE - WALL MOUNT       |
|    | HORN STROBE - CEILING MOUNT    |
|    | SPEAKER STROBE - WALL MOUNT    |
|    | SPEAKER STROBE - CEILING MOUNT |
|    | TAMPER SWITCH                  |
|  | WATER FLOW SWITCH              |
|  | FIRE ALARM CONTROL PANEL       |
|  | FIRE ALARM ANNUNCIATOR         |



FIRE PROTECTION PLAN - FOURTH FLOOR

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

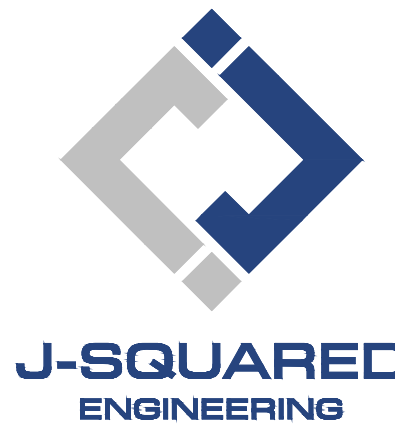


FIRE PROTECTION PLAN - THIRD FLOOR

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

FOR ESTIMATING PURPOSES ONLY!  
NOT FOR CONSTRUCTION.

James Watson, P.E. April 15, 2025  
PE-2015017071  
MO Certificate of Authority # 2018029680



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J2 PROJECT No: J21357

J2 DESIGN: ACW

ISSUE TITLE DATE

PERMIT SET 04 - 15 - 2025

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

## The Village at Discovery Park Alura Apartments

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE

FIRE PROTECTION PLAN  
- THIRD & FOURTH  
FLOORS

SHEET NUMBER

FA102





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ADDENDUM 1 05 - 16 - 2025



# The Village at Discovery Park Alura Apartments

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE

**SANITARY  
SEWER PLAN -  
FIRST & SECOND  
FLOORS**

SHEET NUMBER

**PS101**

## SANITARY SEWER PLAN SYMBOL LEGEND

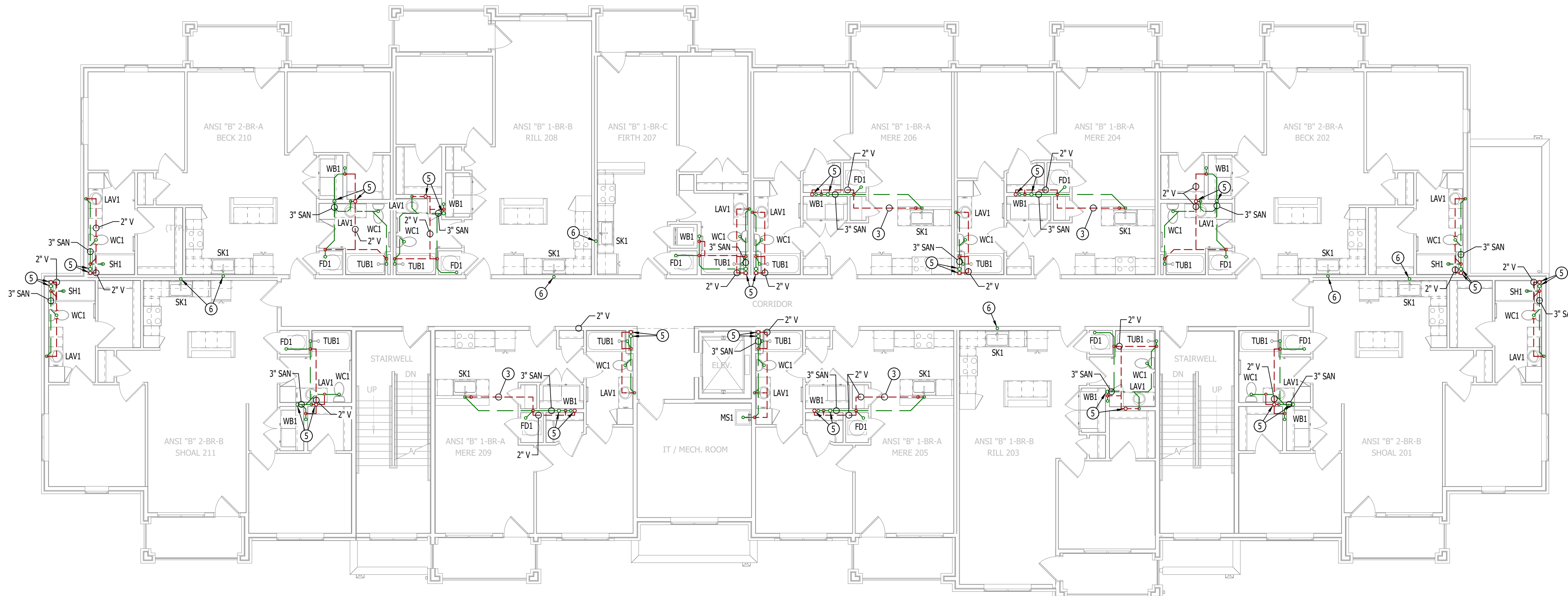
- SANITARY SEWER PIPING
- VENT PIPING
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

## SANITARY SEWER PLAN GENERAL NOTES:

- REFER TO P500 AND/OR P600 SERIES SHEETS FOR ADDITIONAL PLUMBING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
- PLUMBING CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL EQUIPMENT, PIPING, HANGERS / SUPPORTS, ETC. WITH HVAC AND ELECTRICAL TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

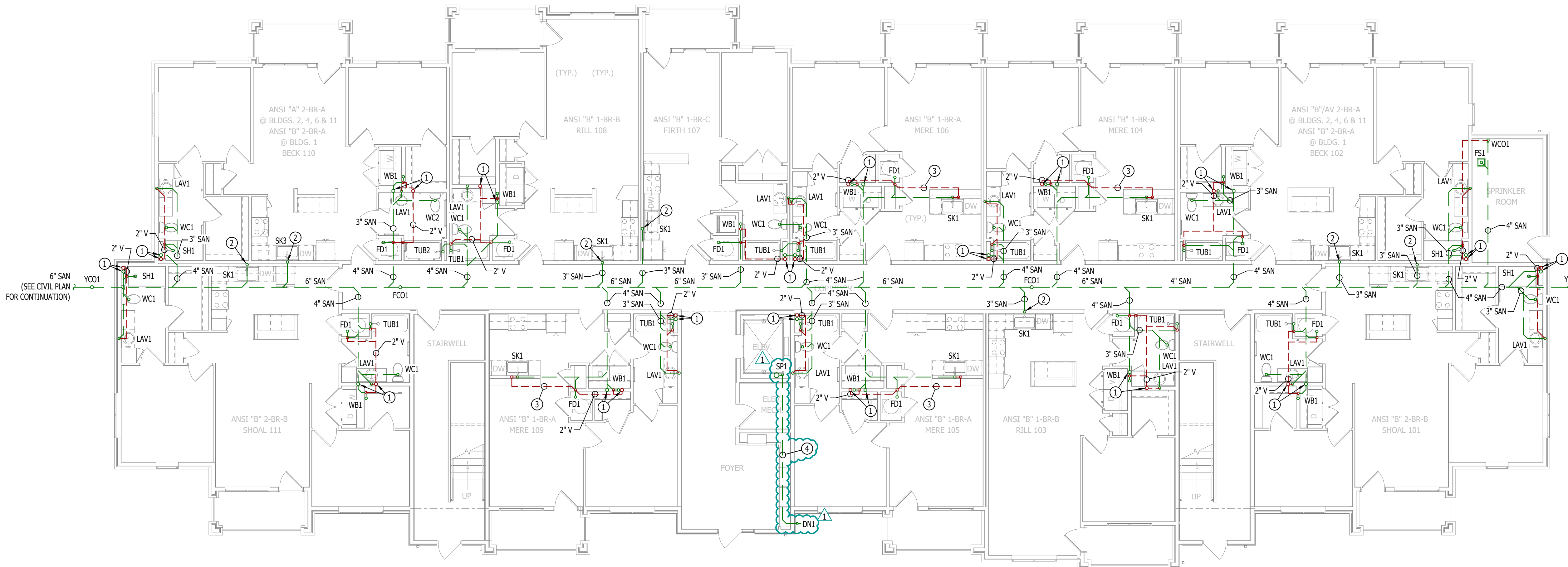
## SANITARY SEWER PLAN KEY NOTES:

- 4" SANITARY STACK DOWN FROM LEVEL ABOVE / 4" VENT UP TO LEVEL ABOVE.
- 3" WASTE STACK VENT STACK DOWN FROM SECOND FLOOR.
- ISLAND SINK VENT BELOW FLOOR PER 2018 IPC SECTION 916.
- 2" SUMP PUMP DISCHARGE PIPING ROUTED IN TRUSS SPACE & DOWN TO DAYLIGHT WITH DOWNSPOUT NOZZLE EQUAL TO ZURN #2199.
- 4" SANITARY STACK DOWN FROM THIRD FLOOR; CONTINUES DOWN TO FIRST FLOOR. 4" VENT UP FROM FIRST FLOOR; CONTINUES UP TO THIRD FLOOR.
- 3" WASTE STACK VENT DOWN FROM THIRD FLOOR; 3" CONTINUES DOWN TO FIRST FLOOR.



## SANITARY SEWER PLAN - SECOND FLOOR

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



## SANITARY SEWER PLAN - FIRST FLOOR

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





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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE

**SANITARY  
SEWER PLAN -  
THIRD & FOURTH  
FLOORS**

SHEET NUMBER

**PS102**

## SANITARY SEWER PLAN SYMBOL LEGEND

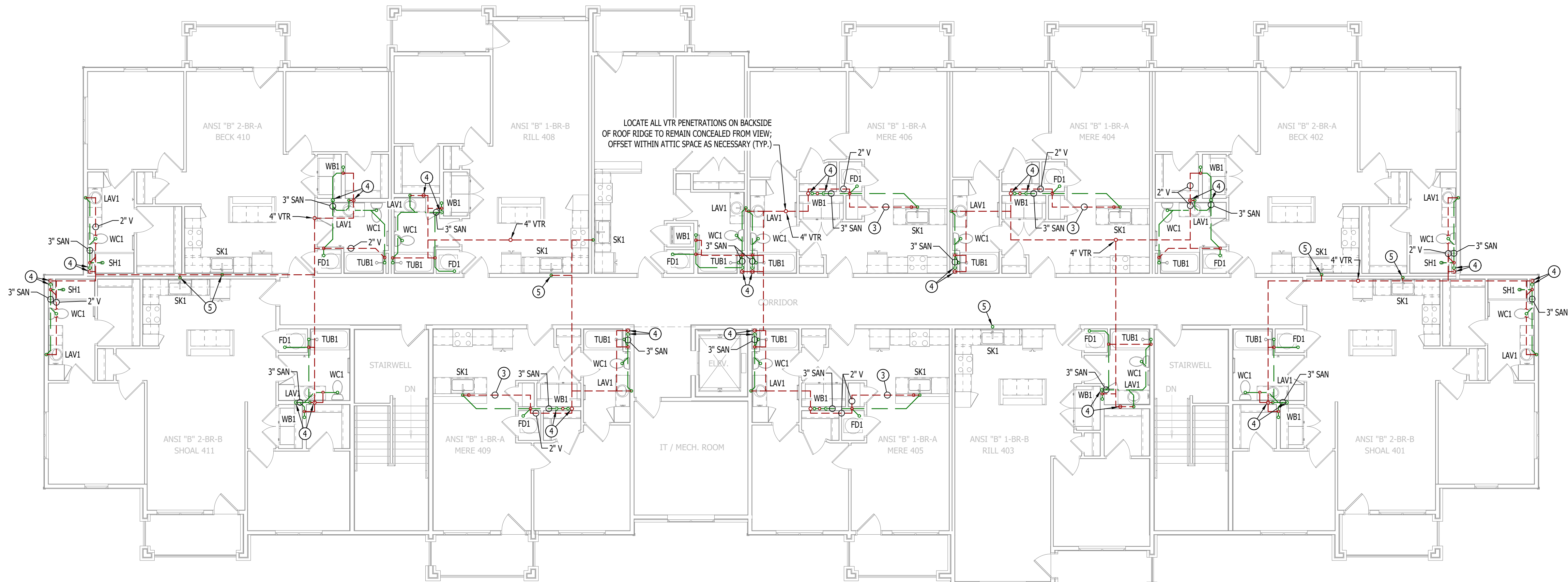
- SANITARY SEWER PIPING
- VENT PIPING
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

## SANITARY SEWER PLAN GENERAL NOTES:

- REFER TO P500 AND/OR P600 SERIES SHEETS FOR ADDITIONAL PLUMBING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
- PLUMBING CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL EQUIPMENT, PIPING, HANGERS / SUPPORTS, ETC. WITH HVAC AND ELECTRICAL TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

## SANITARY SEWER PLAN KEY NOTES:

- 4" SANITARY STACK DOWN FROM FOURTH FLOOR; CONTINUES DOWN TO FIRST FLOOR. 4" VENT UP FROM FIRST FLOOR; CONTINUES UP TO FOURTH FLOOR.
- 3" WASTE STACK VENT DOWN FROM FOURTH FLOOR; 3" CONTINUES DOWN TO FIRST FLOOR.
- ISLAND SINK VENT BELOW FLOOR PER 2018 IPC SECTION 916.
- 4" SANITARY STACK DOWN / 4" VENT UP FROM BELOW TO VENT THRU ROOF.
- 3" WASTE STACK VENT DOWN / 3" VENT UP TO VENT THRU ROOF.



## SANITARY SEWER PLAN - FOURTH FLOOR

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



## SANITARY SEWER PLAN - THIRD FLOOR

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



WATER & GAS PLAN SYMBOL LEGEND

- COLD WATER LINE  
--- HOT WATER LINE  
M WATER METER  
X VALVE  
P PUMP  
--- PIPING TURNED DOWN / TURNED UP  
X TIE INTO EXISTING

WATER & GAS PLAN GENERAL NOTES:

- REFER TO P500 AND/OR P600 SERIES SHEETS FOR ADDITIONAL PLUMBING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
- PLUMBING CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL EQUIPMENT, PIPING, HANGERS / SUPPORTS, ETC. WITH HVAC AND ELECTRICAL TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

WATER & GAS PLAN KEY NOTES:

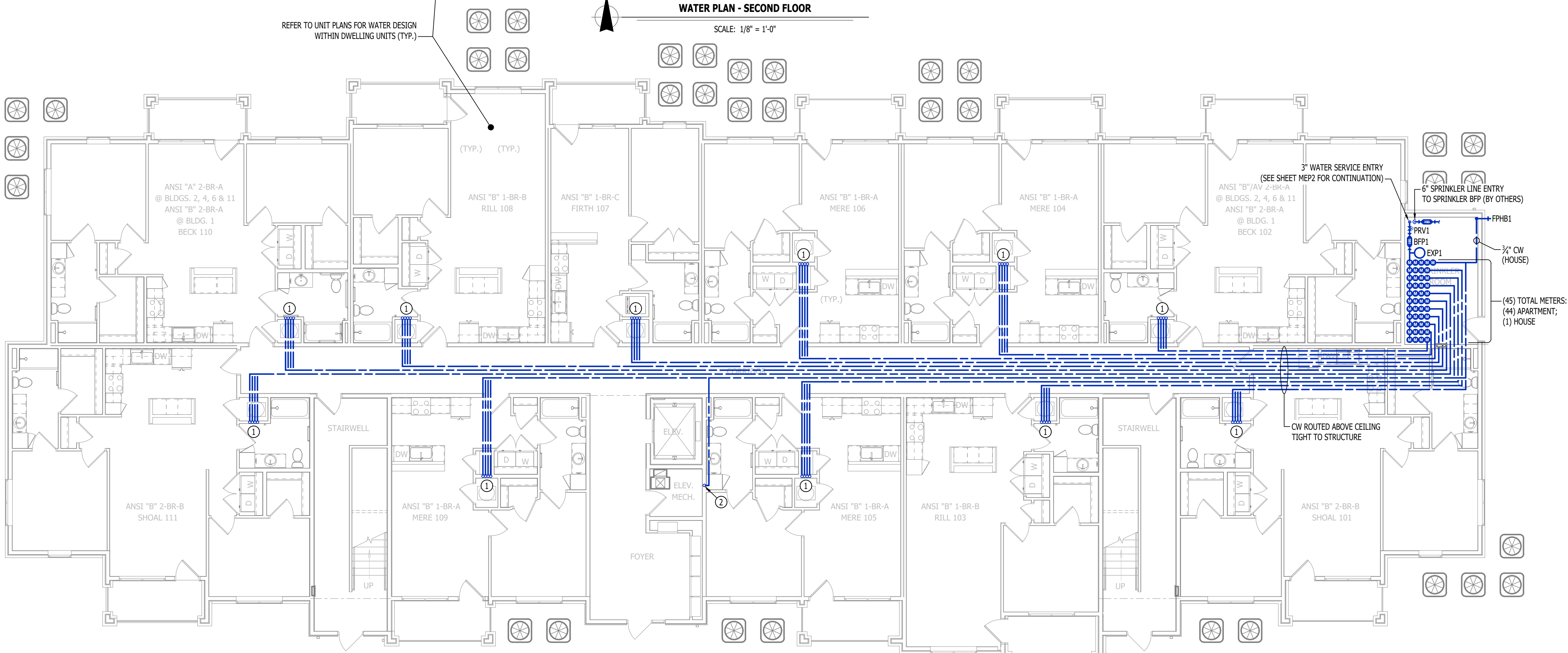
- (4) 1" CW - (1) 1" CW TO SERVE APARTMENT ON THIS FLOOR & (3) 1" CW CONTINUE UP TO SECOND FLOOR.
- 1" CW (HOUSE) UP TO MOP SINK ON SECOND FLOOR.
- (3) 1" CW UP IN WALL FROM FIRST FLOOR - (1) 1" CW TO SERVE APARTMENT ON THIS FLOOR & (2) 1" CW CONTINUE UP TO THIRD FLOOR.



WATER PLAN - SECOND FLOOR

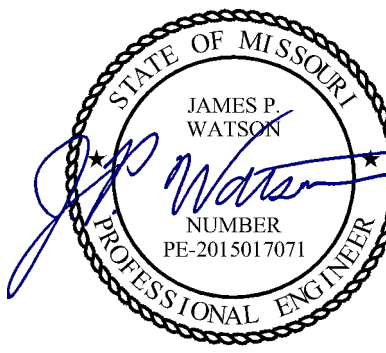
SCALE: 1/8" = 1'-0"

REFER TO UNIT PLANS FOR WATER DESIGN WITHIN DWELLING UNITS (TYP.)



WATER PLAN - FIRST FLOOR

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



James Watson, P.E. April 15, 2025  
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## The Village at Discovery Park Alura Apartments

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE

WATER PLAN - FIRST &  
SECOND FLOOR

SHEET NUMBER

**PW101**



WATER & GAS PLAN SYMBOL LEGEND

- — — COLD WATER LINE  
— — — HOT WATER LINE  
M WATER METER  
X VALVE  
P PUMP  
— • — PIPING TURNED DOWN / TURNED UP  
✕ TIE INTO EXISTING

WATER & GAS PLAN GENERAL NOTES:

- REFER TO P500 AND/OR P600 SERIES SHEETS FOR ADDITIONAL PLUMBING NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
- PLUMBING CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL EQUIPMENT, PIPING, HANGERS / SUPPORTS, ETC. WITH HVAC AND ELECTRICAL TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.

WATER & GAS PLAN KEY NOTES:

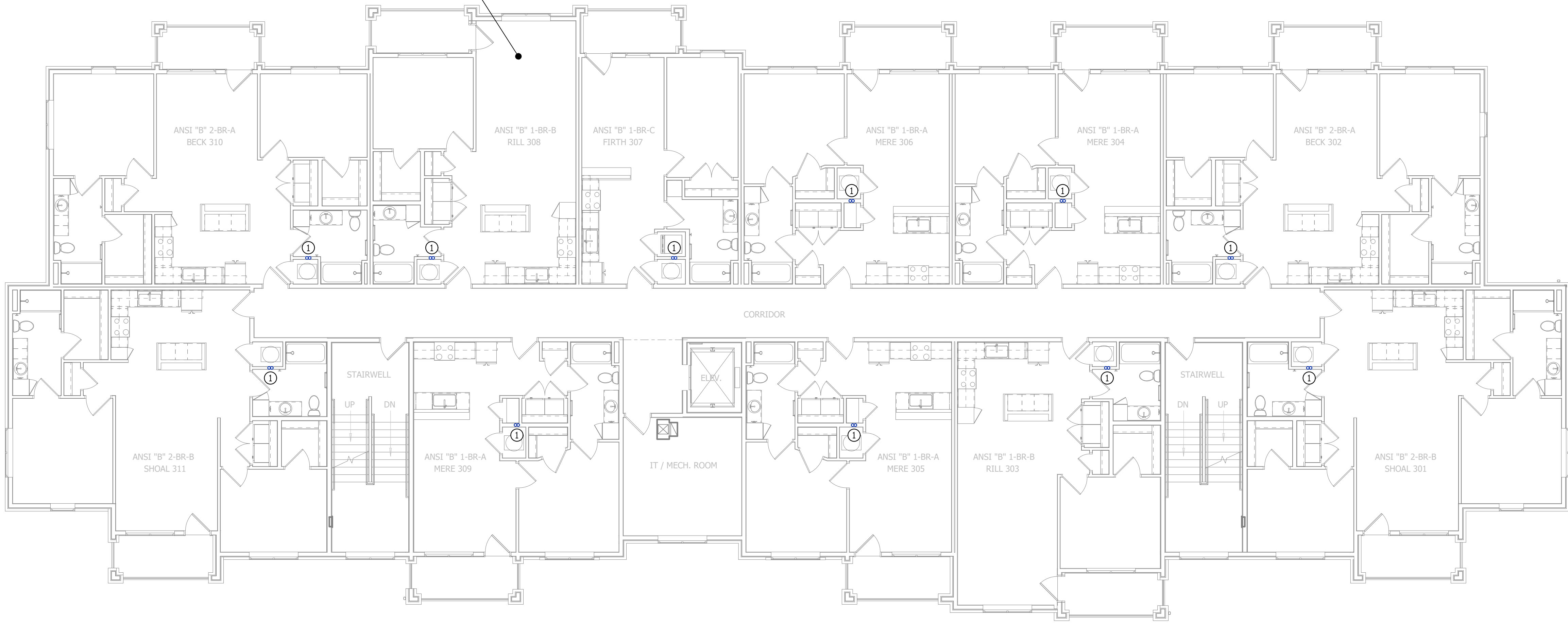
- ① (2) 1" CW UP FROM SECOND FLOOR - (1) TO SERVE APARTMENT ON THIRD AND (1) CONTINUES UP TO FOURTH FLOOR.  
② (1) 1" CW UP FROM THIRD FLOOR TO SERVE APARTMENT ON FOURTH FLOOR.



REFER TO UNIT PLANS FOR WATER DESIGN  
WITHIN DWELLING UNITS (TYP.)

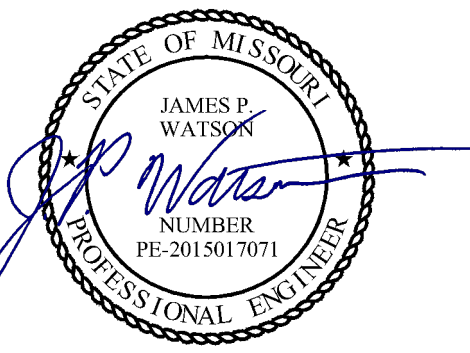
WATER PLAN - FOURTH FLOOR

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



WATER PLAN - THIRD FLOOR

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



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**The Village at Discovery Park Alura Apartments**

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE

**WATER PLAN - THIRD &  
FOUTH FLOORS**

SHEET NUMBER

**PW102**

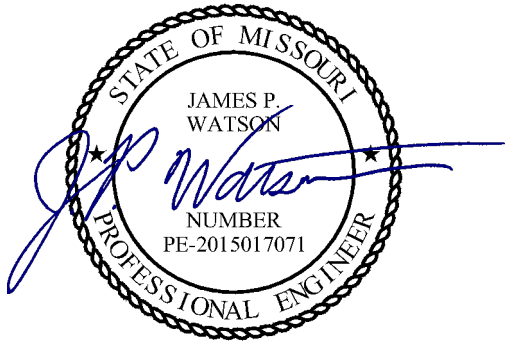
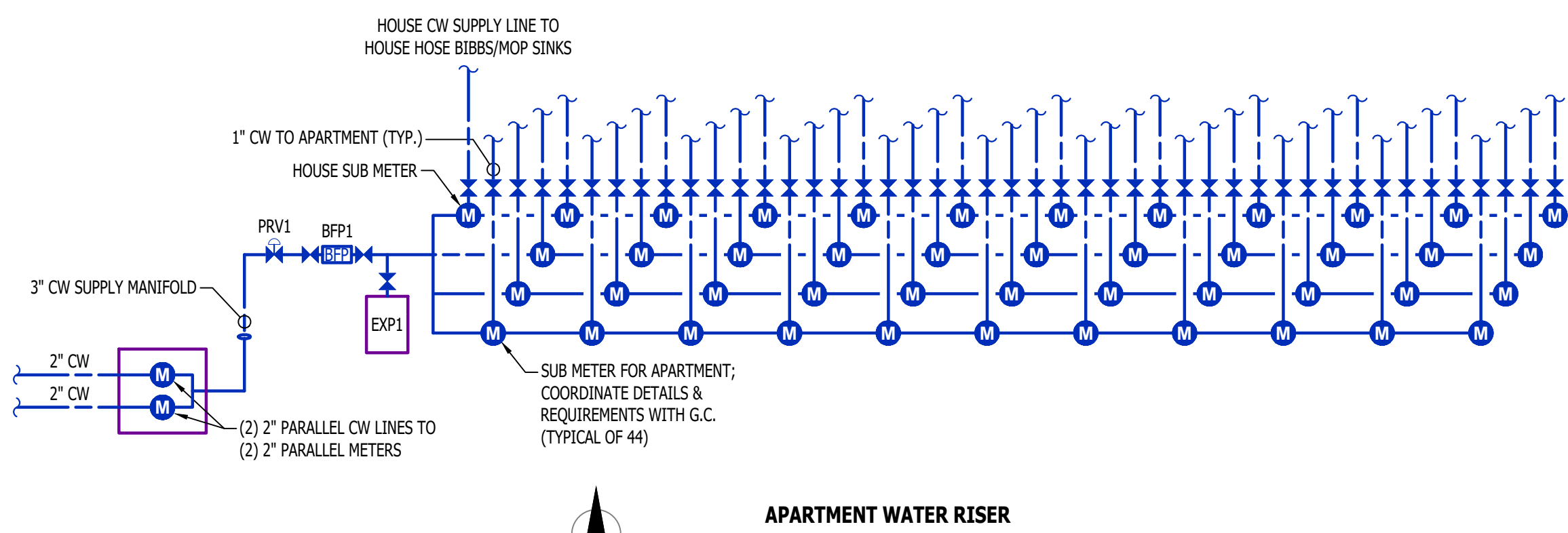
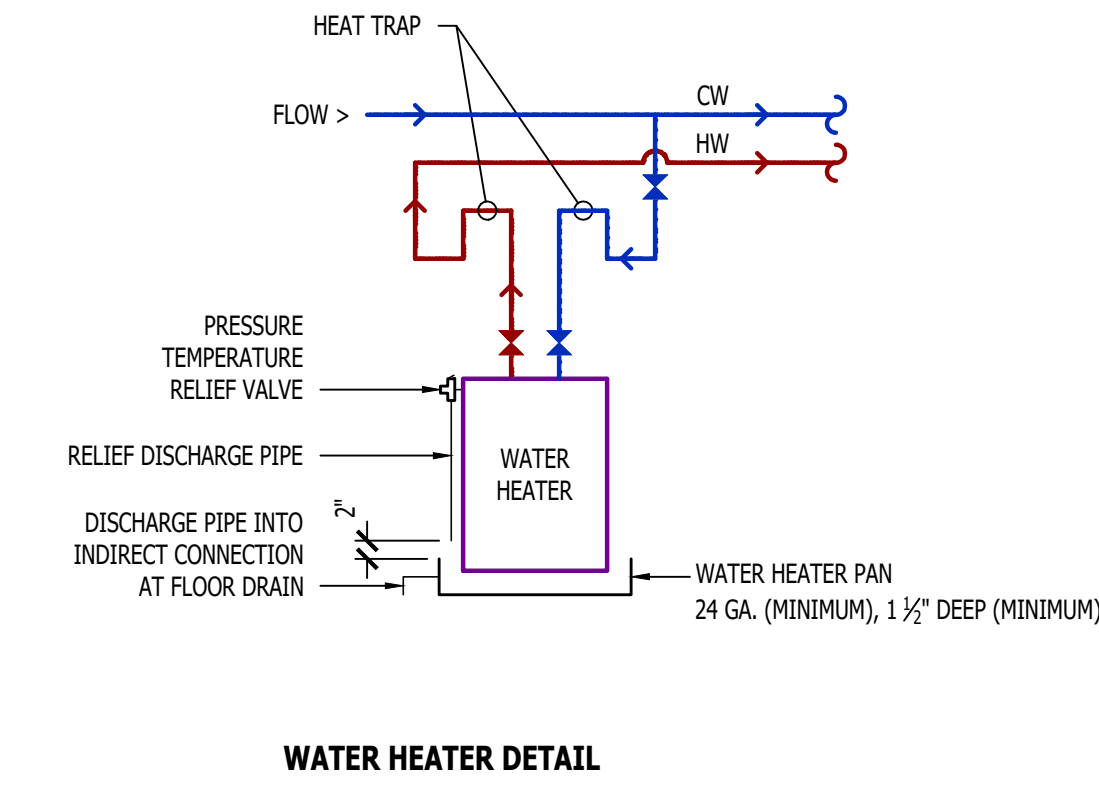
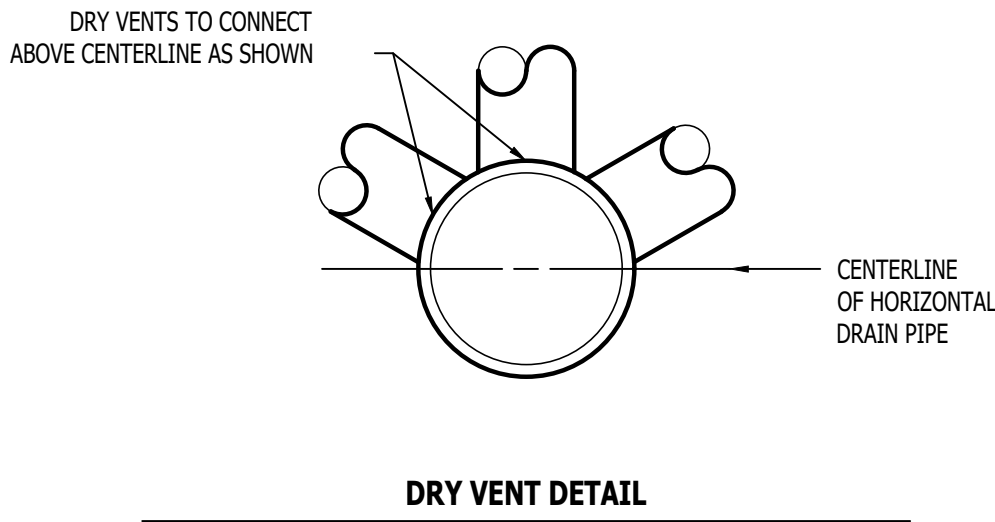
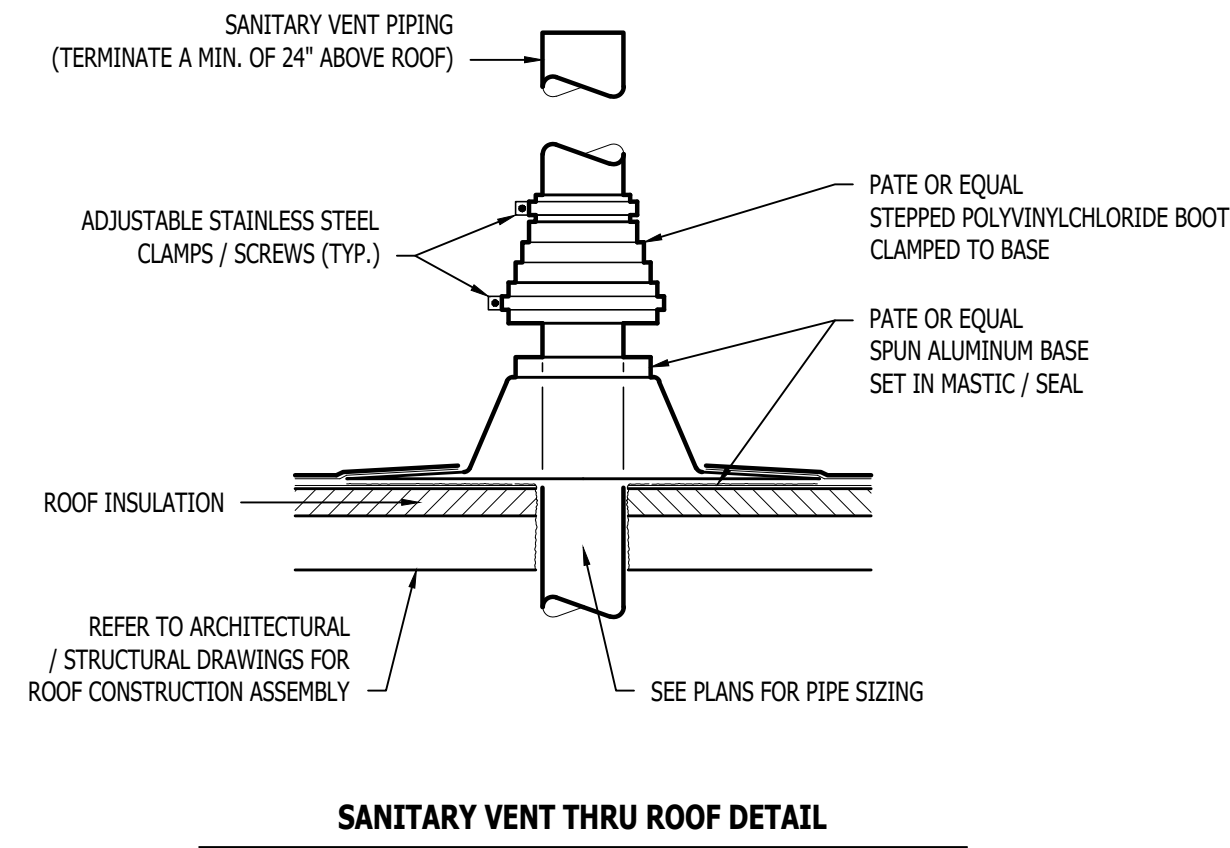


PLUMBING SPECIFICATIONS


1. **GENERAL**
- 1.1. PLUMBING CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL ESCUTCHEONS, ¼ TURN STOPS, P-TRAPS, AND SUPPLY LINES TO PROVIDE A COMPLETE SYSTEM AT EACH FIXTURE INDICATED ON PLANS UNLESS NOTED OTHERWISE.
- 1.2. ALL PLUMBING SYSTEMS SHALL BE INSTALLED LEVEL, PLUMB, AND PARALLEL/PERPENDICULAR TO BUILDING ORIENTATION WHERE POSSIBLE.
- 1.3. COORDINATE ALL PIPING INSTALLATIONS WITH STRUCTURAL GRADE BEAMS, FOOTINGS, COLUMN PIERS, ETC. SLEEVE PIPING THRU STRUCTURAL ELEMENTS AS NECESSARY, VERIFY WITH STRUCTURAL ENGINEER.
- 1.4. VERIFY ALL UTILITY CONNECTION POINTS WITH PROPOSED PLUMBING LAYOUTS PRIOR TO BEGINNING WORK.
- 1.5. CLEAN ALL PLUMBING FIXTURES AND CHANGE FAUCET AERATORS AND SINK STRAINERS AT PROJECT COMPLETION PRIOR TO TURNING OVER TO OWNERSHIP.
2. **EQUIPMENT / FIXTURES**
- 2.1. ALL EQUIPMENT AND/OR FIXTURES MUST MEET OR EXCEED THE PERFORMANCE, FUNCTIONAL INTENT, AND AESTHETICS AS MODELS SPECIFIED ON PLANS. WHERE SPECIFIC MANUFACTURERS AND/OR MODELS ARE INDICATED ON PLANS OR WITHIN SCHEDULES, CONTRACTOR TO PROVIDE MODEL INDICATED OR APPROVED EQUAL. VERIFY SUBSTITUTION APPROVAL PRIOR TO PURCHASE OR INSTALLATION OF EQUIPMENT.
- 2.2. CONTRACTOR TO SUPPLY SUBMITTALS FOR ALL EQUIPMENT FOR REVIEW BY ARCHITECT AND ENGINEER. FORMAL APPROVAL SHALL BE RECEIVED BY CONTRACTOR PRIOR TO EQUIPMENT PURCHASE.
- 2.3. CONTRACTOR TO SHARE APPROVED EQUIPMENT SUBMITTALS WITH ANY PERTINENT ELECTRICAL REQUIREMENTS WITH ELECTRICAL CONTRACTORS WITHIN TWO WEEKS OF RECEIVING APPROVED SUBMITTALS FROM ARCHITECT/ENGINEER.
3. **SANITARY**
- 3.1. BELOW AND ABOVE GRADE WASTE AND VENT PIPING IN BUILDING TO BE SOLID CORE SCHEDULE 40 PVC LISTED FOR DWV APPLICATIONS.
- 3.2. NO WASTE OR VENT PIPING INSTALLED BELOW GRADE SHALL BE SMALLER THAN 2".
- 3.3. MINIMUM SLOPES FOR WASTE PIPING (UNLESS NOTED OTHERWISE ON PLANS):
- 3.3.1. 2 ½" OR LESS DIAMETER: ¼" PER FOOT
- 3.3.2. 3" TO 6" DIAMETER: ¼" PER FOOT
- 3.3.3. 8" OR LARGER DIAMETER: ⅛" PER FOOT
- 3.4. ACCESSIBLE FULL PIPE SIZE CLEANOUTS SHALL BE PROVIDED & INSTALLED ON BUILDING SANITARY LINES AT LOCATIONS SHOWN ON PLANS, AT INTERVALS OF NO MORE THAN 100', AT EVERY CHANGE IN DIRECTION GREATER THAN 45°, AND AT THE BASE OF EACH WASTE STACK.
- 3.5. WASTE AND VENT PIPING IN PLENUMS SHALL BE CAST IRON, PLENUM-RATED CPVC, OR PVC WITH AN INSULATION WRAP LISTED FOR USE AS SUCH AN ASSEMBLY.
- 3.6. ALL VENT PIPE TERMINATIONS SHALL BE LOCATED EITHER 10' HORIZONTALLY OR 3' ABOVE MECHANICAL AIR INTAKE LOCATIONS. TERMINATIONS SHALL NOT BE INSTALLED UNDER ANY OPERABLE BUILDING OPENING OR OPERABLE ADJACENT BUILDING OPENING. CONTRACTOR TO OFFSET VENT PIPING AS NECESSARY TO MEET THESE REQUIREMENTS.
4. **DOMESTIC WATER**
- 4.1. ALL DOMESTIC WATER PIPING TO BE EITHER COPPER OR PEX, SHALL CONFORM TO NSF 61 AND BE LISTED FOR USE IN POTABLE WATER SYSTEMS.
- 4.1.1. WHERE PEX PIPING IS USED, IT SHALL BE INCREASED ONE PIPE SIZE FROM WHAT IS INDICATED ON PLANS FOR ALL PORTIONS OF DISTRIBUTION SYSTEM.
- 4.1.2. PEX-A MAY BE INSTALLED AT SIZES INDICATED ON PLANS ONLY IF AN ENGINEERED PLAN IS SUBMITTED SHOWING ACCEPTABLE PRESSURE DROPS AND FLUID VELOCITIES, APPROVAL MUST BE GRANTED PRIOR TO PURCHASE AND INSTALLATION.
- 4.1.3. COPPER WATER PIPING BELOW GRADE SHALL BE TYPE "K". BELOW GRADE JOINTS SHALL BE SILVER SOLDERED. THERE SHALL BE NO JOINTS IN WATER PIPING LOCATED BENEATH BUILDING SLAB.
- 4.1.4. COPPER WATER PIPING ABOVE GRADE SHALL BE TYPE "L".
- 4.2. PROVIDE WATER HAMMER ARRESTORS AT ALL QUICK-CLOSE VALVES. FIXTURES REQUIRING WATER HAMMER ARRESTORS INCLUDE BUT ARE NOT LIMITED TO PLUSH VALVES, SENSOR FAUCETS, AND WASHING MACHINE BOXES. AIR CHAMBERS SHALL NOT BE PERMITTED.
- 4.3. ALL DOMESTIC WATER PIPING SHALL BE ROUTED WITHIN BUILDING THERMAL ENVELOPE AND WITHIN WALL CAVITIES, ABOVE FINISHED CEILINGS, OR BELOW SLAB TO REMAIN CONCEALED UNLESS OTHERWISE NOTED. NOTIFY ENGINEER OF ANY NECESSARY ADJUSTMENTS THAT REQUIRE PIPING TO BE EXPOSED.
- 4.4. DOMESTIC WATER PIPING INSULATION
- 4.4.1. ALL HW PIPING, WHETHER COPPER OR PEX, SHALL BE INSULATED WITH PLENUM RATED CLOSED CELL ELASTOMERIC INSULATION.
- 4.4.1.1. FOR PIPING LESS THAN 1½", INSULATION THICKNESS TO BE 1".
- 4.4.1.2. FOR PIPING 1½" OR GREATER, INSULATION THICKNESS SHALL BE 1½".
- 4.4.2. CW COPPER PIPING TO INSULATED WITH ½" PLENUM RATED CLOSED CELL ELASTOMERIC INSULATION. CW PEX NEED NOT BE INSULATED UNLESS NOTED OTHERWISE ON PLANS.
5. **GAS PIPING**
- 5.1. GAS PIPING SHALL BE INSTALLED LEVEL, PLUMB, AND PARALLEL OR PERPENDICULAR TO BUILDING ORIENTATION WHERE POSSIBLE.
- 5.2. QUARTER-TURN FULL-PORT SHUTOFF VALVES SHALL BE INCLUDED AT EACH APPLIANCE CONNECTION, AS WELL AS AN IN-LINE REGULATOR FROM DELIVERY PRESSURE TO APPLIANCE OPERATING PRESSURE IF REQUIRED. INCLUDE SEDIMENT TRAPS PER IFGC REQUIREMENTS.
- 5.1. NATURAL GAS AND LIQUID PROPANE (LP) PIPING TO SHALL BE SCHEDULE 40 BLACK STEEL.
- 5.2. PIPE JOINTS SHALL BE THREADED WITH CLASS 150 FITTINGS, OR WELDED. NOTIFY OWNER/GC OF ANY NECESSARY HOT-WORK ASSOCIATED WITH WELDED CONNECTIONS.
- 5.3. WHERE PIPING IS EXPOSED ON EXTERIOR FACE OF BUILDING, PAINT TO MATCH BUILDING. PAINT YELLOW IN ALL OTHER LOCATIONS.
- 5.4. ON ROOFTOPS, INSTALL GAS PIPE WITH "ROOFTOP BLOK" PER MANUFACTURER'S INSTRUCTION.
6. **STORM DRAIN PIPING**
- 6.1. ABOVE AND BELOW GRADE STORM PIPING SHALL BE SOLID CORE SCHEDULE 40 PVC.
- 6.2. ALL PRIMARY & SECONDARY STORM DRAIN PIPING & FITTINGS SHALL BE INSULATED WITH ½" FIBERGLASS INSULATION WITH ASJ JACKET.
- 6.3. STORM DRAIN PIPING IN PLENUMS SHALL BE CAST IRON, PLENUM-RATED CPVC, OR PVC WITH AN INSULATION WRAP LISTED FOR USE AS SUCH AN ASSEMBLY.

| PLUMBING FIXTURE SCHEDULE                                                               |                                        |                         |                  |                                                                                        |
|-----------------------------------------------------------------------------------------|----------------------------------------|-------------------------|------------------|----------------------------------------------------------------------------------------|
| TAG                                                                                     | DESCRIPTION                            | MANUFACTURER (OR EQUAL) | MODEL (OR EQUAL) | NOTES                                                                                  |
| BFP1                                                                                    | BACKFLOW PREVENTER (APARTMENTS)        | WILKINS                 | 975XL2           | RPZ - 2-1/2"                                                                           |
| EXP1                                                                                    | EXPANSION TANK (APARTMENTS)            | WATTS                   | DETA-100         |                                                                                        |
| FCO1                                                                                    | FLOOR CLEAN OUT                        | ZURN                    | Z1400            |                                                                                        |
| FD1                                                                                     | FLOOR DRAIN                            | ZURN                    | Z415-BZ          | WITH Z1072 TRAP SEAL                                                                   |
| FPHB1                                                                                   | FROST PROOF HOSE BIB                   | WOODFORD                | MODEL 67         |                                                                                        |
| FS1                                                                                     | FLOOR SINK                             | ZURN                    | FD2370           |                                                                                        |
| HB1                                                                                     | HOSE BIB                               | JR SMITH                | 5670-H           | INTERIOR HOSE BIB WITH VACUUM BREAKER                                                  |
| LAV1                                                                                    | LAVATORY - INTEGRAL BOWL               | -                       | -                | WITH PFISTER #G142-8000 CHROME FAUCET                                                  |
| LAV2                                                                                    | LAVATORY (DROP-IN W/ MANUAL FAUCET)    | AMERICAN STANDARD       | 0475.028         | WITH ZURN Z81104-XL FAUCET, 1/4 TURN STOPS, BRAIDED STAINLESS STEEL SUPPLIES, & 'TMV1' |
| MS1                                                                                     | MOP SINK                               | FIAT                    | MSB2424          | WITH ZURN Z843M1 FAUCET WITH WALL HOOK                                                 |
| PRV1                                                                                    | PRESSURE REDUCING VALVE                | ZURN                    | 500XL3           | 3" INLET / 3" OUTLET                                                                   |
| REF1                                                                                    | REFRIGERATOR BOX                       | SIOUX CHIEF             | 696-G1000        |                                                                                        |
| SK1                                                                                     | KITCHEN SINK                           | DAYTON                  | DSESR12722       | WITH PFISTER #F-529-CRS FAUCET,ISE DISPOSAL #BADGER-1 & STS-00 AIR SWITCH              |
| SK3                                                                                     | SINGLE COMPARTMENT ADA SINK            | ELKAY                   | LRAD221965       | WITH PFISTER #F-529-CRS FAUCET,ISE DISPOSAL #BADGER-1 & STS-00 AIR SWITCH              |
| SP1                                                                                     | SUMP PUMP                              | ZOELLER                 | 153-0002         | 120V, 1/2 HP WITH "OIL MINDER" CONTROLS                                                |
| TUB1                                                                                    | TUB / SHOWER                           | AQUARIUS                | G6030TS          | WITH PFISTER R89-0300 SHOWER TRIM KIT                                                  |
| TUB2                                                                                    | ADA TUB / SHOWER                       | AQUATIC                 | 26035MTE         | WITH GRAB BARS & ADA HANDHELD SHOWER ASSEMBLY                                          |
| WB1                                                                                     | WASHER BOX                             | SIOUX CHIEF             | 696-G2303        |                                                                                        |
| WC1                                                                                     | WATER CLOSET - STANDARD HEIGHT - TANK  | AMERICAN STANDARD       | 215CA.004        | WITH CHURCH 7200SLEC SEAT AND COVER, STAINLESS BRAIDED SUPPLY, AND 1/4 TURN SHUT-OFF.  |
| WC2                                                                                     | WATER CLOSET - ADA HEIGHT - TANK       | AMERICAN STANDARD       | 215AA.004        | WITH CHURCH 7200SLEC SEAT AND COVER, STAINLESS BRAIDED SUPPLY, AND 1/4 TURN SHUT-OFF.  |
| WH1                                                                                     | WATER HEATER - ELECTRIC - LOWBOY       | AO SMITH                | ECLB-40          | 38 GALLON, 208V 1PH, 4500W; WITH 'EXP1'                                                |
| WH2                                                                                     | WATER HEATER - ELECTRIC - POINT OF USE | AO SMITH                | EGSP6            | 6 GALLON, 120V, 1500W WITH HOLDRITE #40-SWHP-W WALL HUNG PLATFORM; WITH 'EXP1'         |
| YCO1                                                                                    | YARD CLEAN OUT                         | ZURN                    | Z1400            |                                                                                        |
| YH1                                                                                     | YARD HYDRANT                           | WOODFORD                | Y34              | FREEZELESS                                                                             |
| NOTES:                                                                                  |                                        |                         |                  |                                                                                        |
| 1. VERIFY NECESSARY FIXTURES MEET ADA REQUIREMENTS WITH ARCHITECT PRIOR TO INSTALLATION |                                        |                         |                  |                                                                                        |

| PLUMBING CONNECTION SIZING SCHEDULE                              |                      |                  |                 |                       |                      |
|------------------------------------------------------------------|----------------------|------------------|-----------------|-----------------------|----------------------|
| FIXTURE                                                          |                      | SANITARY PIPING  |                 | SUPPLY PIPING         |                      |
| TYPE                                                             | TYPICAL ABBREVIATION | WASTE CONNECTION | VENT CONNECTION | COLD WATER CONNECTION | HOT WATER CONNECTION |
| DRINKING FOUNTAIN                                                | DF                   | 1-1/2"           | 1-1/4"          | 1/2"                  | -                    |
| FLOOR DRAIN                                                      | FD                   | 3"               | 2"              | -                     | -                    |
| HAND / HAIR SINK                                                 | HS / SK              | 2"               | 1-1/4"          | 1/2"                  | 1/2"                 |
| HOSE BIBB                                                        | HB                   | -                | -               | 3/4"                  | -                    |
| LAVATORY                                                         | LAV                  | 1-1/2"           | 1-1/4"          | 1/2"                  | 1/2"                 |
| MOP SINK                                                         | MS                   | 3"               | 1-1/2"          | 1/2"                  | 1/2"                 |
| ICE MAKER OUTLET BOX                                             | REF                  | -                | -               | 1/2"                  | -                    |
| SHOWER                                                           | SH                   | 3"               | 1-1/2"          | 1/2"                  | 1/2"                 |
| URINAL                                                           | UR                   | 2"               | 1-1/4"          | 3/4"                  | -                    |
| WATER CLOSET (FLUSH TANK)                                        | WC                   | 3"               | 2"              | 1/2"                  | -                    |
| WATER CLOSET (FLUSH VALVE)                                       | WC                   | 3"               | 2"              | 1"                    | -                    |
| NOTES:                                                           |                      |                  |                 |                       |                      |
| 1. SIZES SHOWN ABOVE ARE TYPICAL UNLESS NOTED OTHERWISE ON PLANS |                      |                  |                 |                       |                      |



James Watson, P.E. April 15, 2025  
PE-2015017071  
MO Certificate of Authority # 2018029680



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J2 PROJECT No: J21357

J2 DESIGN: ACW

ISSUE TITLE DATE

PERMIT SET 04 - 15 - 2025

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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

**The Village at Discovery Park Alura Apartments**

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE

PLUMBING DETAILS &  
SCHEDULES

SHEET NUMBER



HVAC PLAN SYMBOL LEGEND

- EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)  
— EQUIPMENT REFERENCE NUMBER  
— DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)  
— CUBIC FEET PER MINUTE (CFM) / FACE SIZE

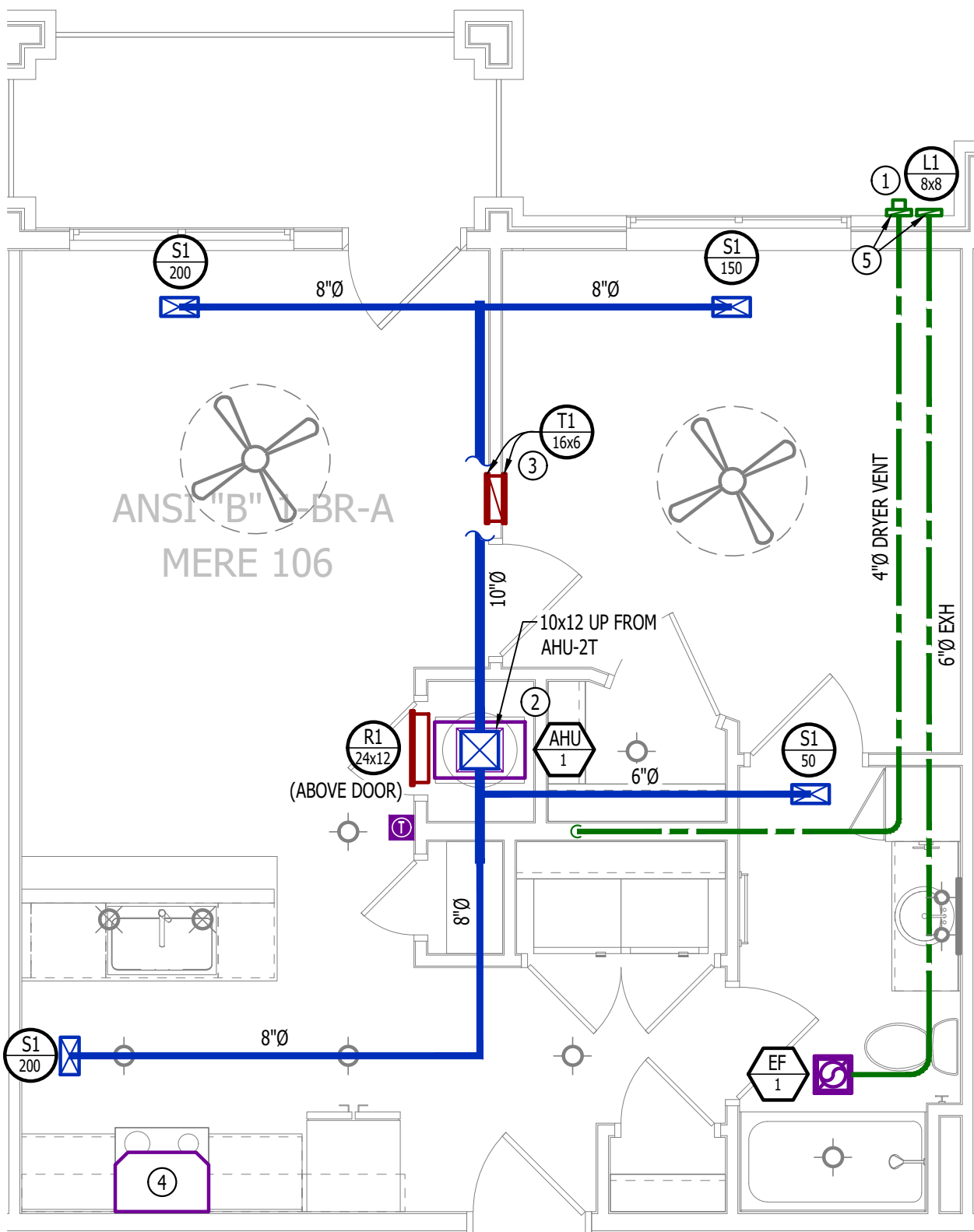
- SUPPLY DUCTWORK  
— RETURN DUCTWORK  
— EXHAUST DUCTWORK  
— FLEX DUCT  
— SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")  
— RETURN DIFFUSER  
— BALANCE DAMPER  
— MOTORIZED DAMPER  
— CEILING RADIATION DAMPER  
— BACK DRAFT DAMPER  
— THERMOSTAT

HVAC PLAN GENERAL NOTES:

- SEE M500 & M600 SERIES SHEETS FOR HVAC SCHEDULES, DETAILS, REQUIREMENTS, ETC.
- SEE M100 SERIES SHEETS FOR CONDENSING UNIT LOCATIONS. REFRIGERANT PIPING SHALL ROUTE IN SPACES ABOVE FINISHED CEILINGS AND WITHIN WALL CAVITIES TO REMAIN CONCEALED.
- SUPPLY DUCTWORK FROM AHU AT FLOOR/CEILING PENETRATION SHALL BE PROTECTED BY A FIRE DAMPER. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
- WRAP ALL DRYER DUCTS WITH FIREMASTER (OR EQUAL) DUCT WRAP.
- TOTAL DEVELOPED LENGTH OF EXHAUST DUCT SHALL BE INDICATED ON A PERMANENT LABEL WITHIN 6' OF DRYER VENT CONNECTION. DRYER DUCT ROUTING SHOWN IS FOR REFERENCE ONLY. OVERALL DUCT LENGTH SHALL BE CALCULATED BY HVAC CONTRACTOR PER 2018 IMC 504.8.4.
- LOCATE ALL EXHAUST / DRYER VENT TERMINATIONS AT LEAST 36" FROM OPERABLE OPENINGS INTO APARTMENTS (WINDOWS, DOORS, ETC.).
- ALL DUCTWORK SHOWN SHALL ROUTE IN SPACE BETWEEN / THRU TRUSSES UNLESS NOTED OTHERWISE. SEE STRUCTURAL DRAWINGS FOR DETAILS.

HVAC PLAN KEY NOTES:

- TERMINATE 4" DRYER EXHAUST WITH VENT EQUAL TO DRYER WALL VENT #DWV4.
- AHU WALL MOUNTED ABOVE WATER HEATER, COORDINATE WITH PLUMBING CONTRACTOR. CONDENSATE TO DISCHARGE IN FLOOR DRAIN WITHIN CLOSET.
- H/L TRANSFER GRILLE (12" A.F.F. ON BEDROOM SIDE OF WALL; 84" A.F.F. ON OPPOSITE SIDE OF WALL).
- RESIDENTIAL RECIRCULATION HOOD TO BE SUPPLIED & INSTALLED BY GC.
- ON FOURTH FLOOR ONLY, BATHROOM EXHAUST / DYER VENT TO TERMINATE AT LOUVER / VENT MOUNTED IN SOFFIT.



HVAC PLAN

SCALE: 1/4" = 1'-0"

PLUMBING PLAN SYMBOL LEGEND

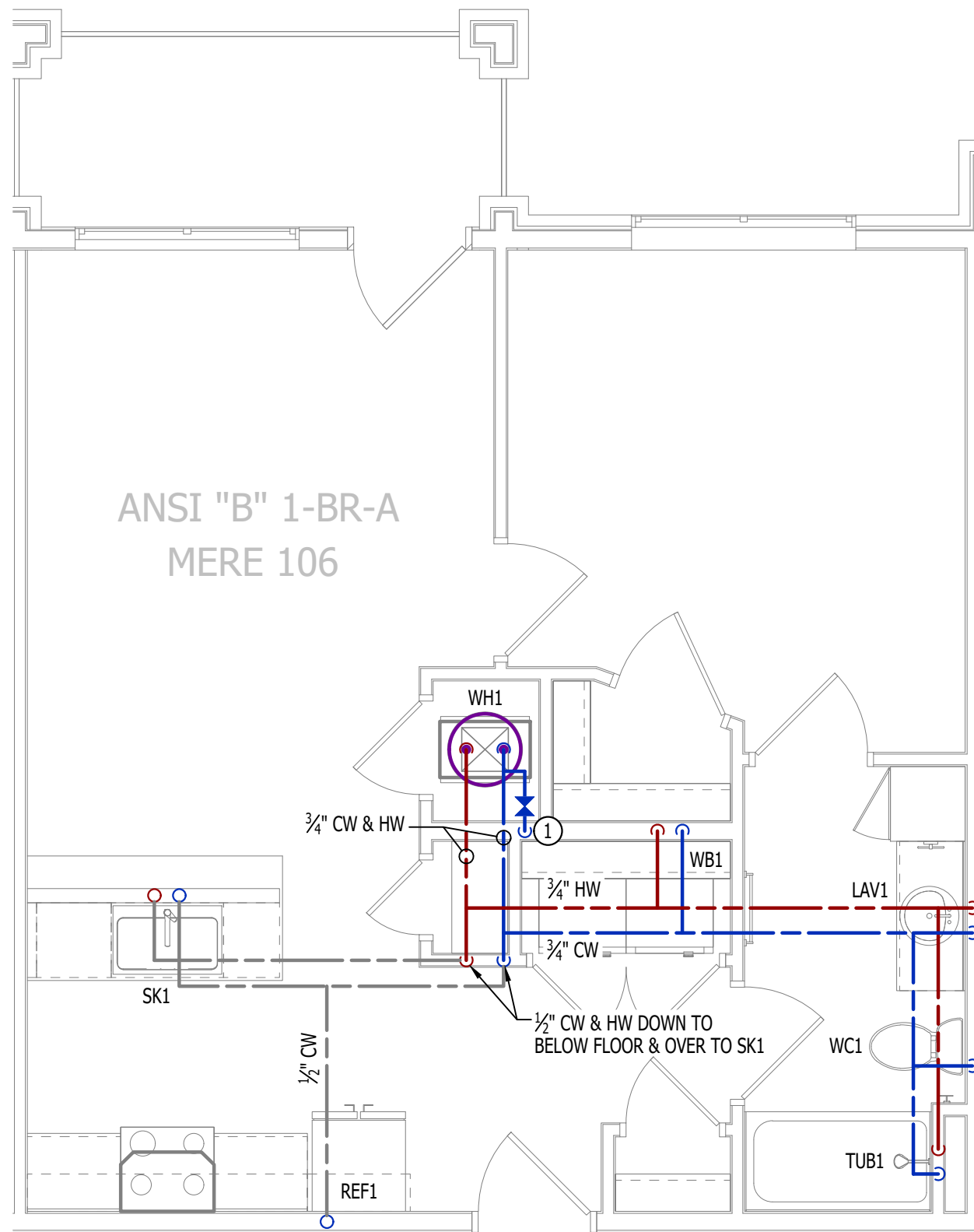
- COLD WATER LINE  
— HOT WATER LINE  
— VALVE  
— PIPING TURNED DOWN / TURNED UP

WATER PLAN GENERAL NOTES:

- SEE P500 &/OR P600 SERIES SHEETS FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.
- ALL PLUMBING LOCATED ON EXTERIOR WALLS SHALL ROUTE WITHIN INSULATION BARRIER.
- ALL DOMESTIC SUPPLY LINES SERVING MORE THAN (1) FIXTURE SHALL BE 3/4" UNLESS NOTED OTHERWISE.

WATER PLAN KEY NOTES:

- 1" CW PIPE UP FROM BELOW WITH SHUT-OFF VALVE IN ACCESSIBLE LOCATION. SEE OVERALL PLUMBING PLANS FOR DETAILS.



WATER PLAN

SCALE: 1/4" = 1'-0"

POWER PLAN SYMBOL LEGEND

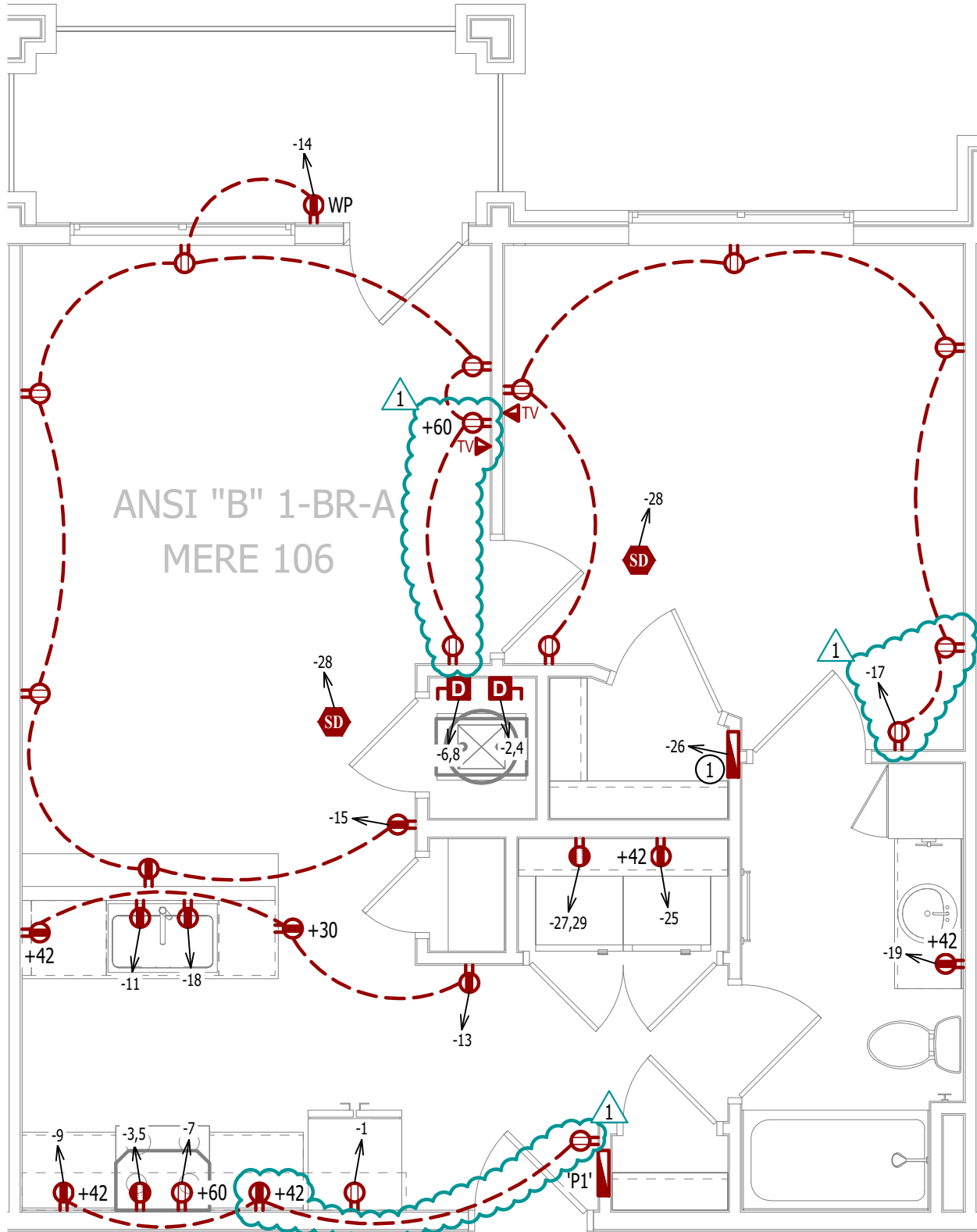
- CIRCUIT WIRING  
— PK-XX CIRCUIT TAG  
— JUNCTION BOX  
— RECEPTACLE  
— INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)  
— "WP" = WEATHERPROOF OUTDOOR RECEPTACLE  
— GFCI DUPLEX CONVENIENCE RECEPTACLE  
— 208V RECEPTACLE  
— QUADPLEX CONVENIENCE RECEPTACLE  
— DATA / PHONE JACK; BOX WITH 1" CONDUIT & CAT6 CABLE BACK TO MEDIA PANEL LOCATION (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)  
— DISCONNECT  
— 120V IONIZATION SMOKE 520Hz LOW FREQUENCY ALARM WITH SILENCING CAPABILITIES & LOW-VOLTAGE CONTACTS WIRED TO SHUT DOWN AHU UPON FIRE DETECTION. COORDINATE WITH HVAC CONTRACTOR. SMOKE DETECTOR MUST BE LOCATED AT LEAST 3" FROM CEILING FAN BLADES AND AT LEAST 10" FROM ANY COOKING APPLIANCE (FIELD-COORDINATE)

POWER PLAN GENERAL NOTES:

- SEE E500 & E600 SERIES SHEETS FOR POWER SCHEDULES, DETAILS, REQUIREMENTS, ETC.
- SEE M100 & EP100 SERIES SHEETS FOR CONDENSING UNIT LOCATIONS.
- VERIFY EACH DATA/RECEPTACLE LOCATION WITH OWNER PRIOR TO INSTALLATION.
- REFER TO "TYPICAL ADA MOUNTING HEIGHTS DETAIL", SHEET E501, FOR MOUNTING HEIGHTS OF DEVICES IN "ANSI A" UNITS.

POWER PLAN KEY NOTES:

- MEDIA PANEL LOCATION; DATA/TV WIRING TO TERMINATE AT THIS LOCATION. DETERMINE EXACT LOCATION & DETAILS WITH OWNER PRIOR TO INSTALLATION.



POWER PLAN

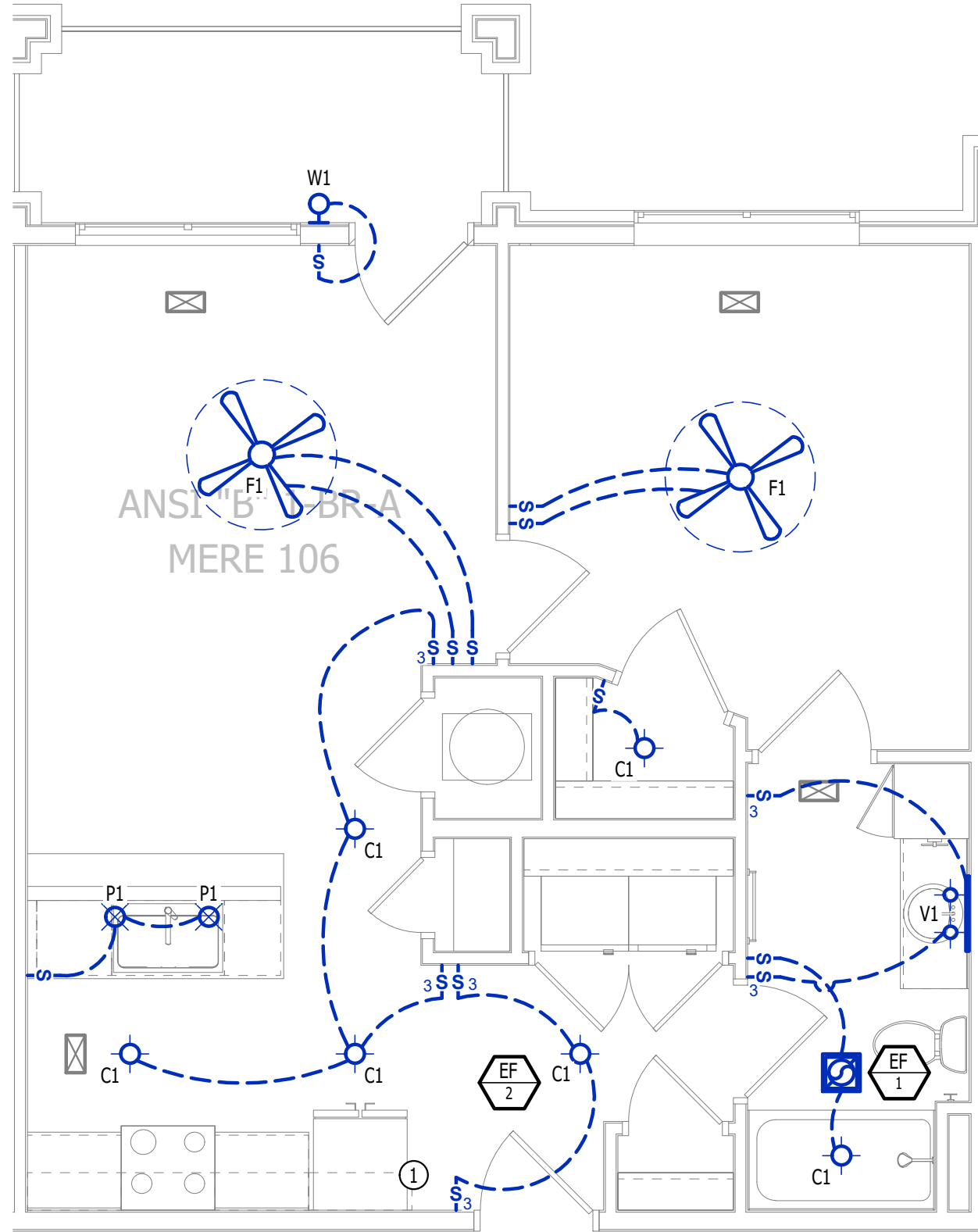
SCALE: 1/4" = 1'-0"

LIGHTING PLAN SYMBOL LEGEND

- LIGHTING FIXTURE  
— "X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)  
— TOGGLE SWITCH  
— SWITCH TYPE  
— DIMMER SWITCH

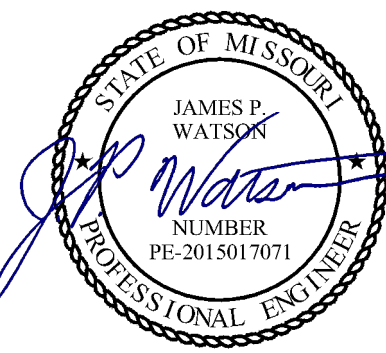
LIGHTING PLAN GENERAL NOTES:

- SEE E500 & E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.
- ALL LIGHTING SHOWN SHALL BE ON CIRCUIT -16 UNLESS NOTED OTHERWISE.



LIGHTING PLAN

SCALE: 1/4" = 1'-0"



James Watson, P.E. April 16, 2025  
PE-2015017071  
MO Certificate of Authority # 2018029680



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J2 PROJECT No: J21357

J2 DESIGN: ACW

ISSUE TITLE DATE

PERMIT SET 04 - 15 - 2025

ADDENDUM 1 05 - 16 - 2025

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

**The Village at Discovery Park Alura Apartments**

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE

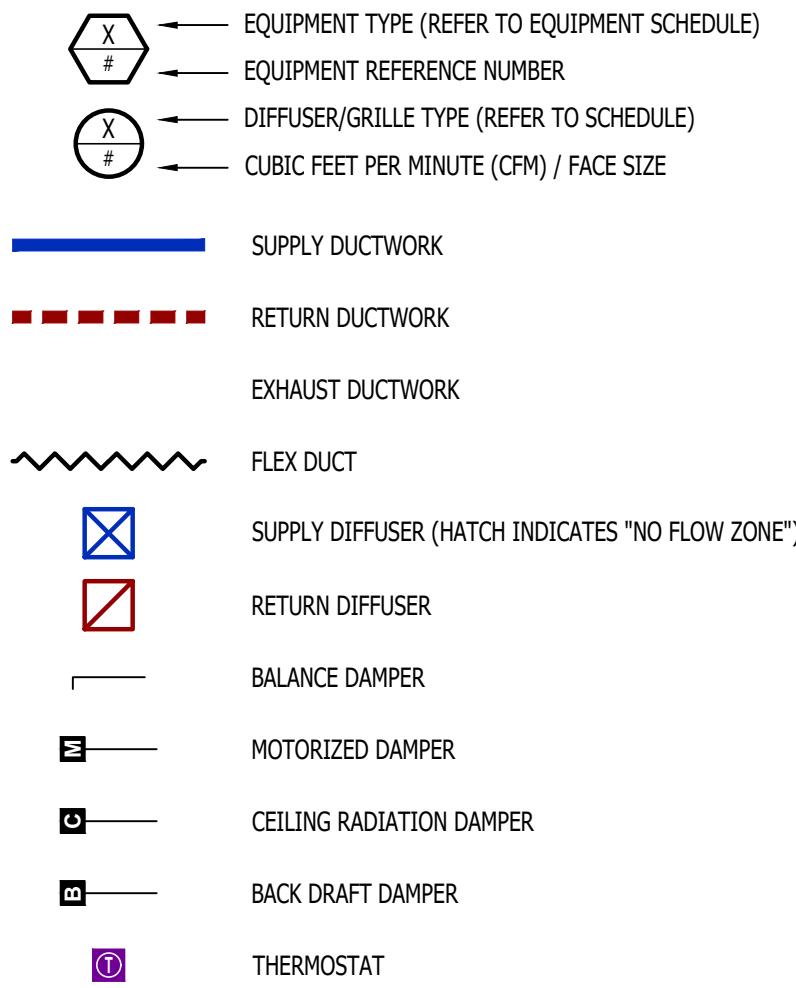
**ANSI-B - 1 BR - TYPE A -  
UNIT MEP PLAN**

SHEET NUMBER

**UMEP1.2**



HVAC PLAN SYMBOL LEGEND

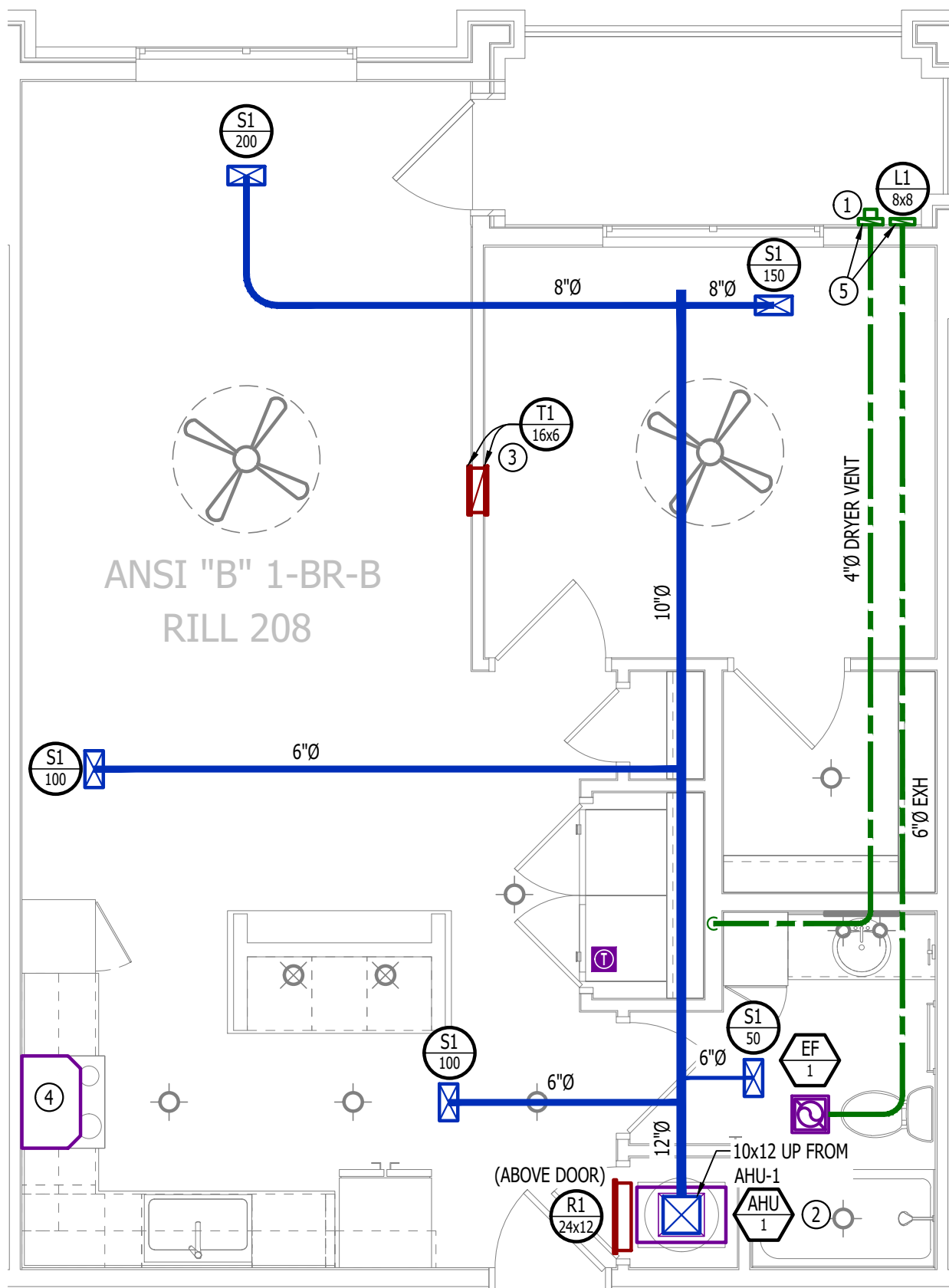


HVAC PLAN GENERAL NOTES:

- SEE M500 & M600 SERIES SHEETS FOR HVAC SCHEDULES, DETAILS, REQUIREMENTS, ETC.
- SEE M100 SERIES SHEETS FOR CONDENSING UNIT LOCATIONS. REFRIGERANT PIPING SHALL ROUTE IN SPACES ABOVE FINISHED CEILINGS AND WITHIN WALL CAVITIES TO REMAIN CONCEALED.
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- WRAP ALL DRYER DUCTS WITH FIREMASTER (OR EQUAL) DUCT WRAP.
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HVAC PLAN KEY NOTES:

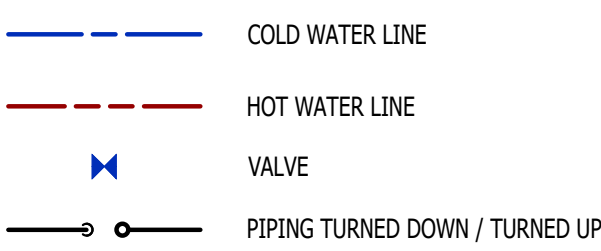
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- H/L/W TRANSFER GRILLE (12" A.F.F. ON BEDROOM SIDE OF WALL; 84" A.F.F. ON OPPOSITE SIDE OF WALL).
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- ON FOURTH FLOOR ONLY, BATHROOM EXHAUST / DYER VENT TO TERMINATE AT LOUVER / VENT MOUNTED IN SOFFIT.



HVAC PLAN

SCALE: 1/4" = 1'-0"

PLUMBING PLAN SYMBOL LEGEND

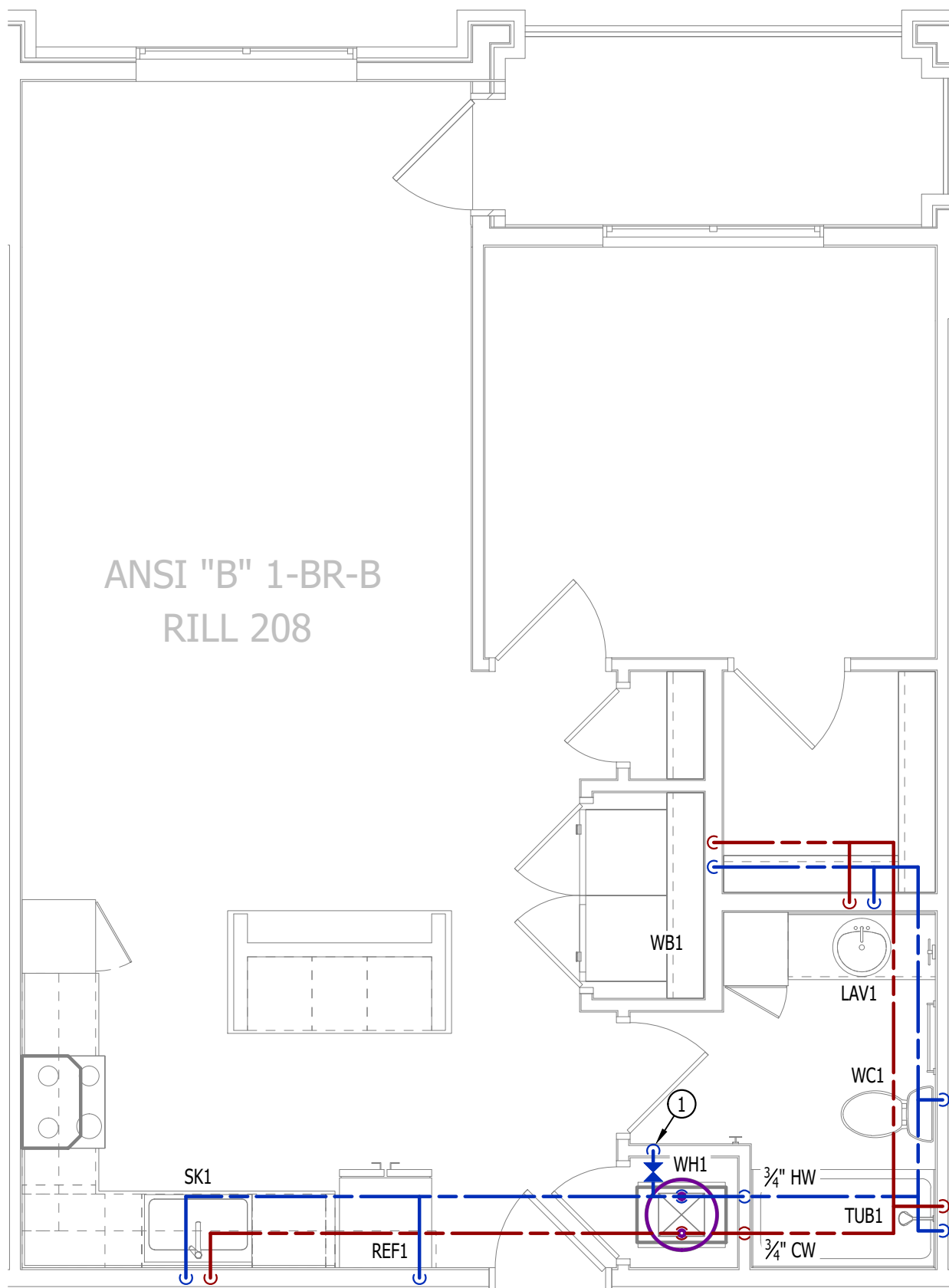


WATER PLAN GENERAL NOTES:

- SEE P500 &/OR P600 SERIES SHEETS FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.
- ALL PLUMBING LOCATED ON EXTERIOR WALLS SHALL ROUTE WITHIN INSULATION BARRIER.
- ALL DOMESTIC SUPPLY LINES SERVING MORE THAN (1) FIXTURE SHALL BE 3/4" UNLESS NOTED OTHERWISE.

WATER PLAN KEY NOTES:

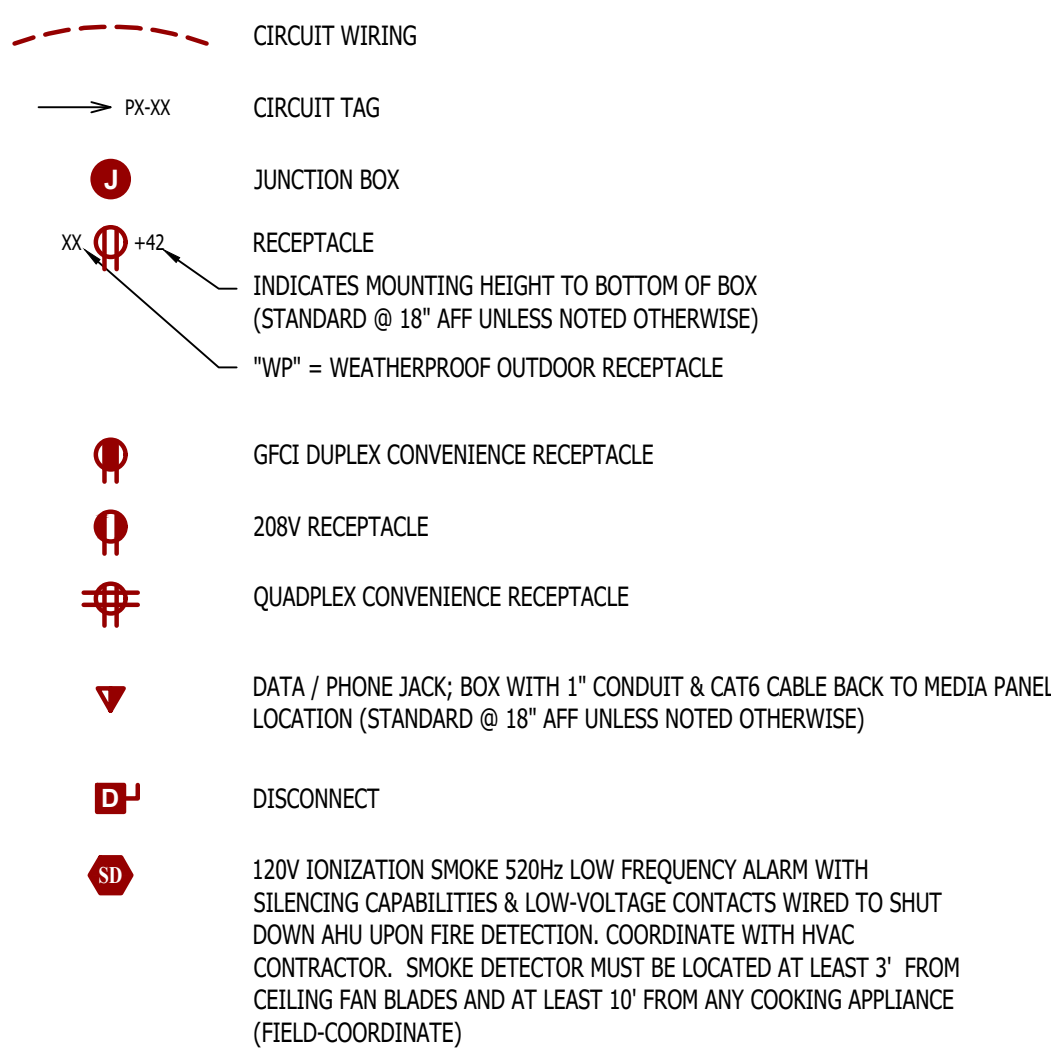
- 1" CW PIPE UP FROM BELOW WITH SHUT-OFF VALVE IN ACCESSIBLE LOCATION. SEE OVERALL PLUMBING PLANS FOR DETAILS.



WATER PLAN

SCALE: 1/4" = 1'-0"

POWER PLAN SYMBOL LEGEND

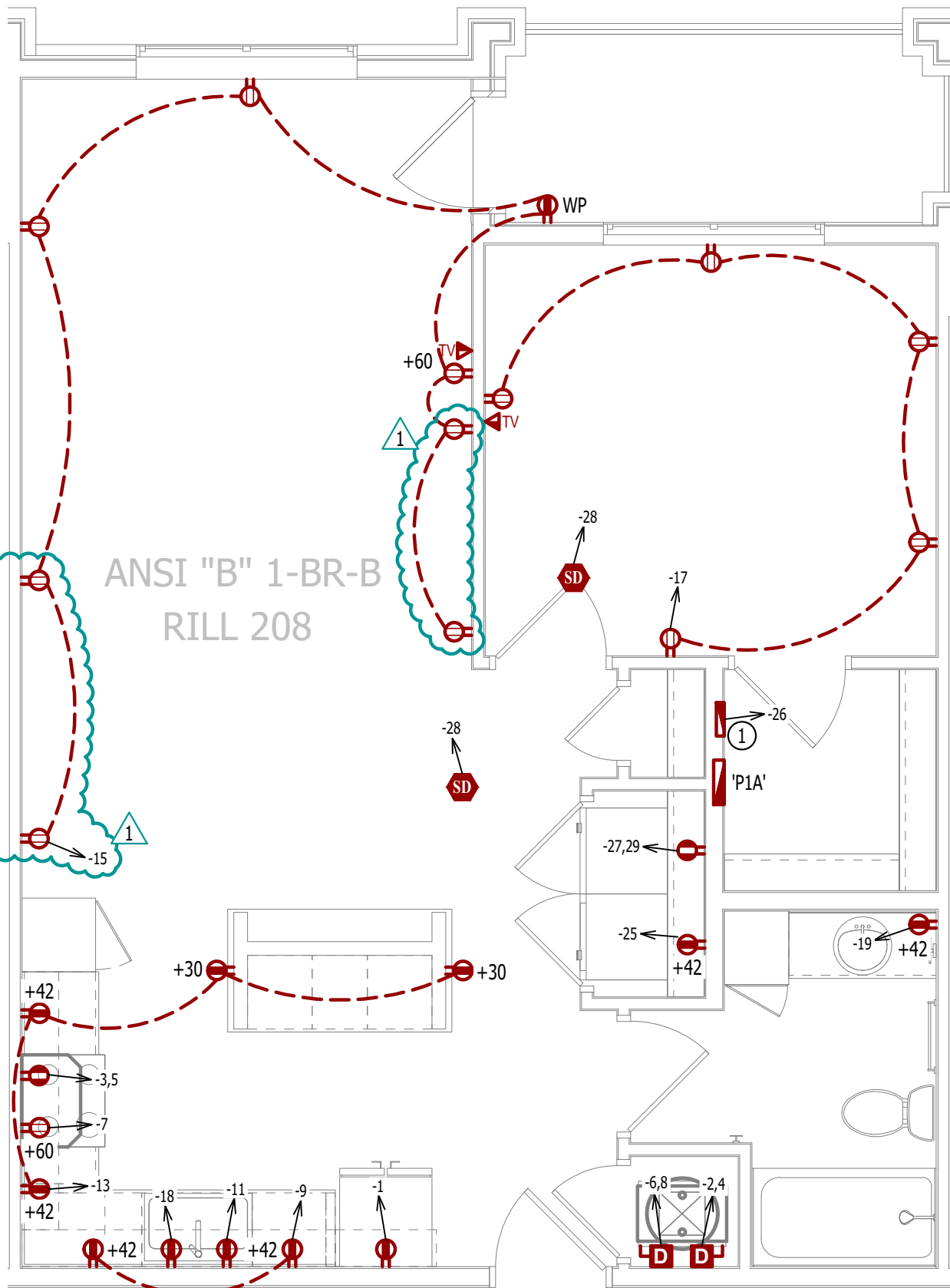


POWER PLAN GENERAL NOTES:

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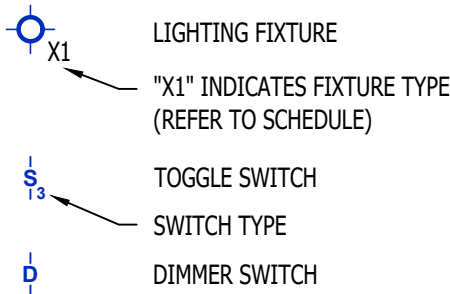
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POWER PLAN

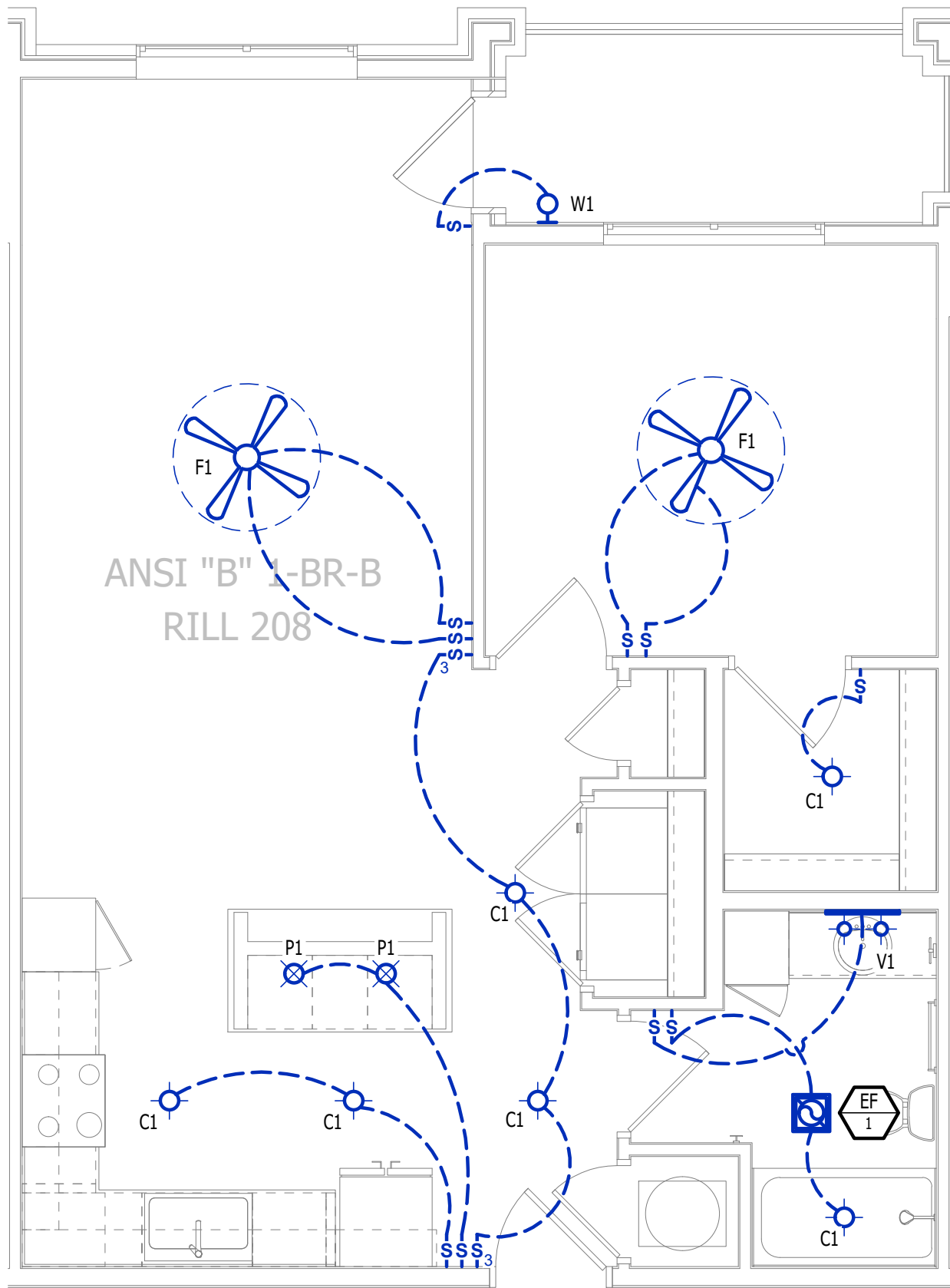
SCALE: 1/4" = 1'-0"

LIGHTING PLAN SYMBOL LEGEND



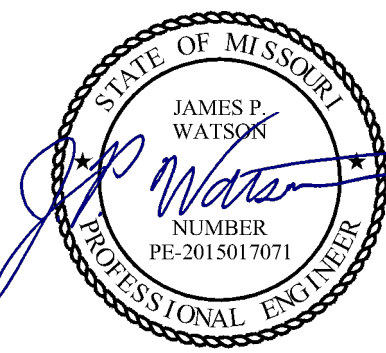
LIGHTING PLAN GENERAL NOTES:

- SEE E500 & E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.
- ALL LIGHTING SHOWN SHALL BE ON CIRCUIT -16 UNLESS NOTED OTHERWISE.



LIGHTING PLAN

SCALE: 1/4" = 1'-0"



James Watson, P.E. April 16, 2025  
PE-2015017071  
MO Certificate of Authority # 2018029680



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J2 DESIGN: ACW

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ADDENDUM 1 05 - 16 - 2025

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

# The Village at Discovery Park Alura Apartments

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE

ANSI B - 1 BR - TYPE B -  
UNIT MEP PLAN

SHEET NUMBER

UMEP1.4



HVAC PLAN SYMBOL LEGEND

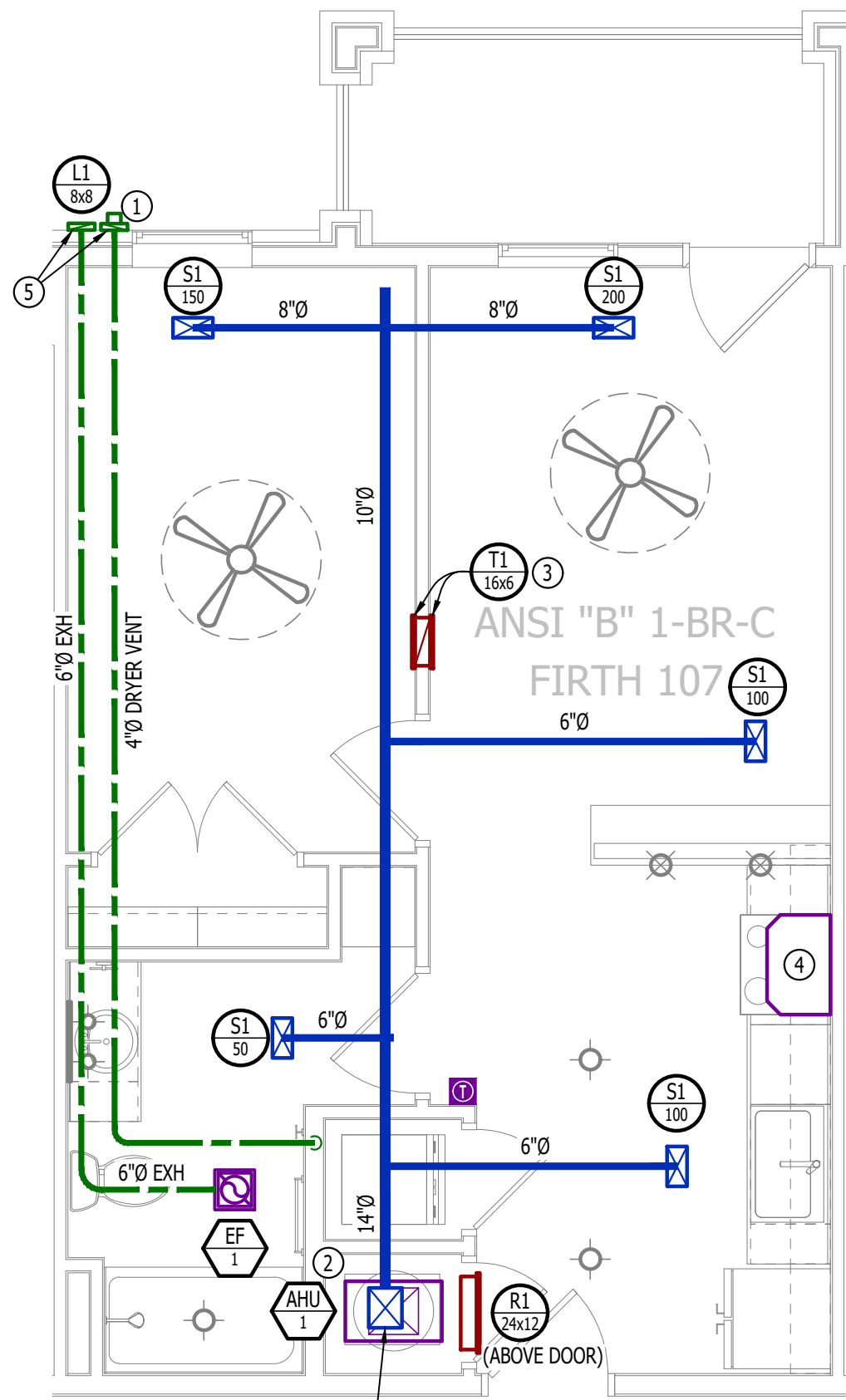
- EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)  
— EQUIPMENT REFERENCE NUMBER  
— DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)  
— CUBIC FEET PER MINUTE (CFM) / FACE SIZE
- SUPPLY DUCTWORK  
RETURN DUCTWORK  
EXHAUST DUCTWORK  
FLEX DUCT
- SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")  
RETURN DIFFUSER  
BALANCE DAMPER  
MOTORIZED DAMPER  
CEILING RADIATION DAMPER  
BACK DRAFT DAMPER  
THERMOSTAT

HVAC PLAN GENERAL NOTES:

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HVAC PLAN

SCALE: 1/4" = 1'-0"

PLUMBING PLAN SYMBOL LEGEND

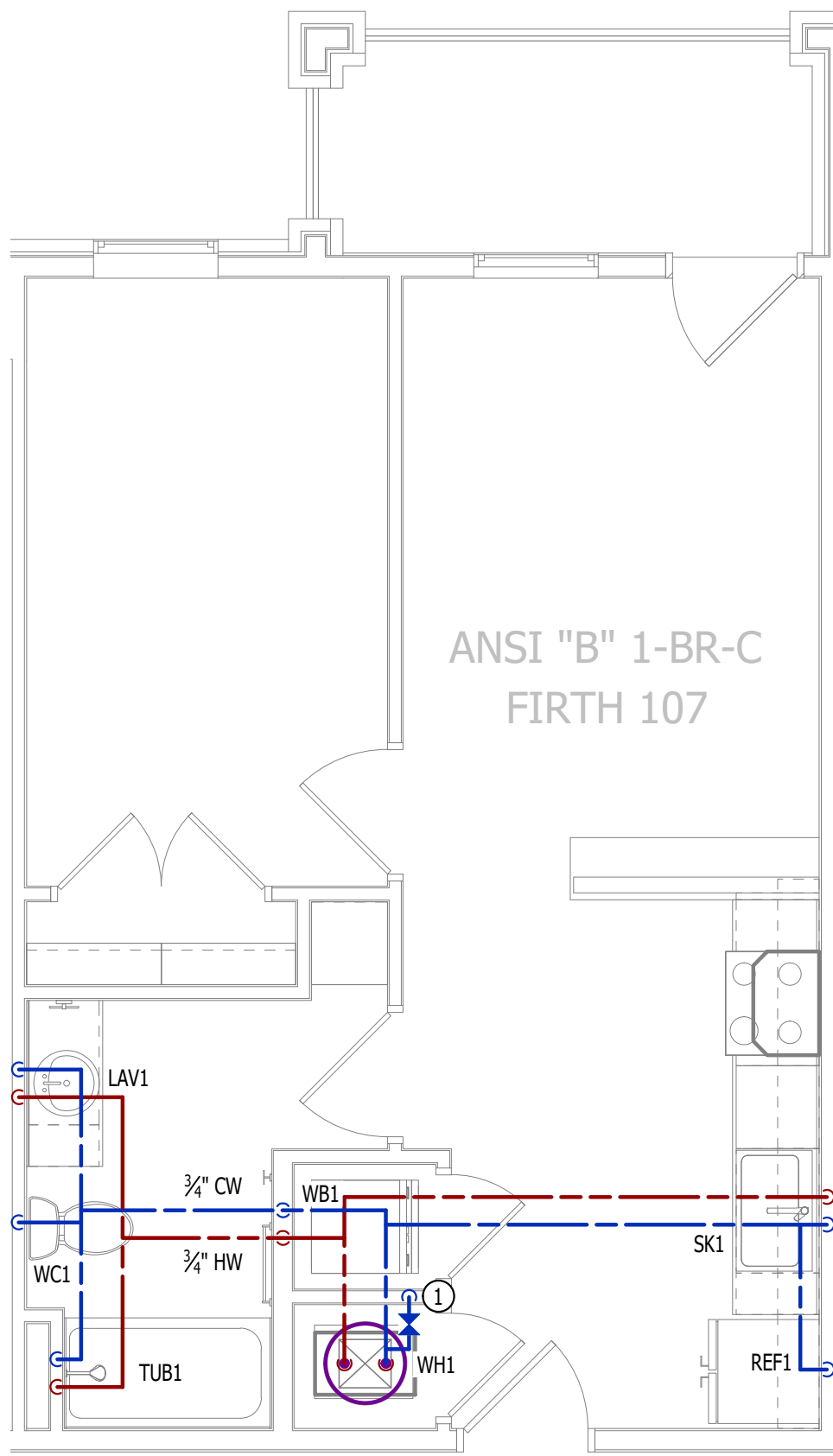
- COLD WATER LINE  
HOT WATER LINE  
VALVE  
PIPING TURNED DOWN / TURNED UP

WATER PLAN GENERAL NOTES:

- SEE P500 &/OR P600 SERIES SHEETS FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.
- ALL PLUMBING LOCATED ON EXTERIOR WALLS SHALL ROUTE WITHIN INSULATION BARRIER.
- ALL DOMESTIC SUPPLY LINES SERVING MORE THAN (1) FIXTURE SHALL BE 3/4" UNLESS NOTED OTHERWISE.

WATER PLAN KEY NOTES:

- 1" CW PIPE UP FROM BELOW WITH SHUT-OFF VALVE IN ACCESSIBLE LOCATION. SEE OVERALL PLUMBING PLANS FOR DETAILS.



WATER PLAN

SCALE: 1/4" = 1'-0"

POWER PLAN SYMBOL LEGEND

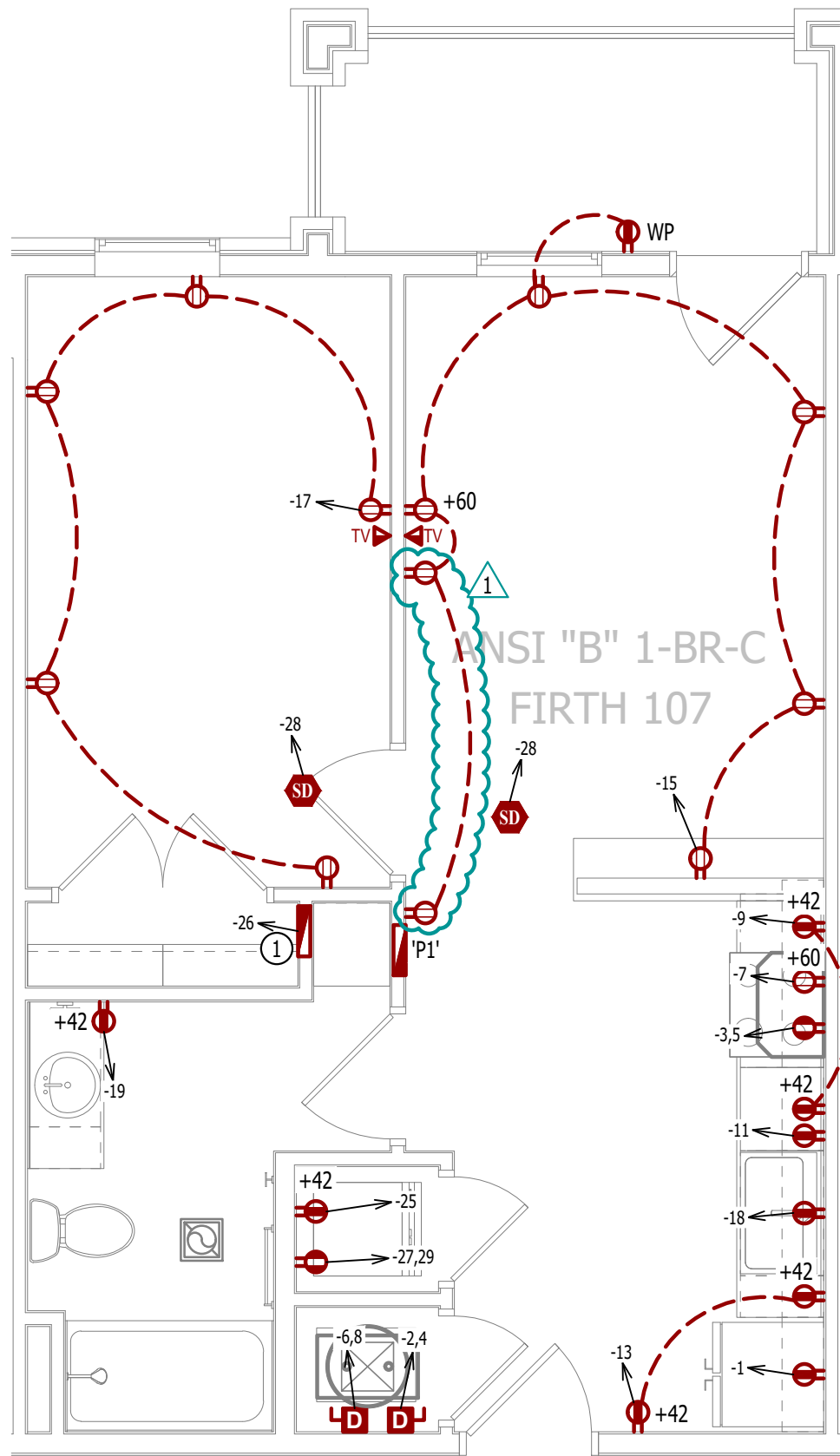
- CIRCUIT WIRING  
CIRCUIT TAG  
JUNCTION BOX  
RECEPTACLE  
INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)  
"WP" = WEATHERPROOF OUTDOOR RECEPTACLE
- GFCI DUPLEX CONVENIENCE RECEPTACLE  
208V RECEPTACLE  
QUADPLEX CONVENIENCE RECEPTACLE  
DATA / PHONE JACK; BOX WITH 1" CONDUIT & CAT6 CABLE BACK TO MEDIA PANEL LOCATION (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)  
DISCONNECT  
120V IONIZATION SMOKE 520Hz LOW FREQUENCY ALARM WITH SILENCING CAPABILITIES & LOW-VOLTAGE CONTACTS WIRED TO SHUT DOWN AHU UPON FIRE DETECTION. COORDINATE WITH HVAC CONTRACTOR. SMOKE DETECTOR MUST BE LOCATED AT LEAST 3' FROM CEILING FAN BLADES AND AT LEAST 10' FROM ANY COOKING APPLIANCE (FIELD-COORDINATE)

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POWER PLAN

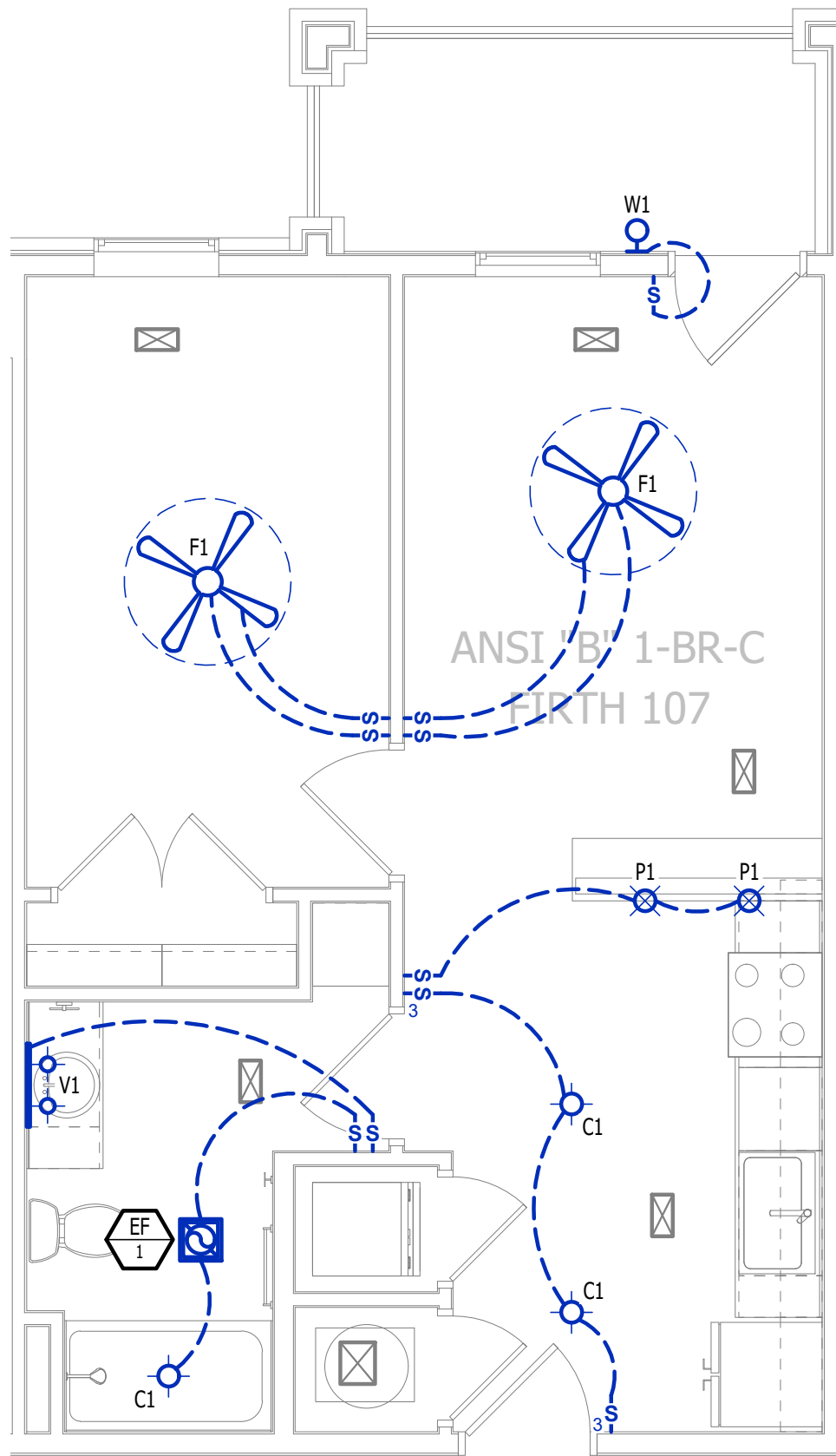
SCALE: 1/4" = 1'-0"

LIGHTING PLAN SYMBOL LEGEND

- LIGHTING FIXTURE  
"X1" INDICATES FIXTURE TYPE (REFER TO SCHEDULE)  
TOGGLE SWITCH  
SWITCH TYPE  
DIMMER SWITCH

LIGHTING PLAN GENERAL NOTES:

- SEE E500 & E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.
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LIGHTING PLAN

SCALE: 1/4" = 1'-0"



HVAC PLAN SYMBOL LEGEND

- X

#

←

EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)
- X

#

←

EQUIPMENT REFERENCE NUMBER
- X

#

←

DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)
- X

#

←

CUBIC FEET PER MINUTE (CFM) / FACE SIZE
- ←

SUPPLY DUCTWORK
- ←

RETURN DUCTWORK
- ←

EXHAUST DUCTWORK
- ←

FLEX DUCT
- ←

SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")
- ←

RETURN DIFFUSER
- ←

BALANCE DAMPER
- ←

MOTORIZED DAMPER
- ←

CEILING RADIATION DAMPER
- ←

BACK DRAFT DAMPER
- ←

THERMOSTAT

HVAC PLAN GENERAL NOTES:

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2. SEE M100 SERIES SHEETS FOR CONDENSING UNIT LOCATIONS. REFRIGERANT PIPING SHALL ROUTE IN SPACES ABOVE FINISHED CEILINGS AND WITHIN WALL CAVITIES TO REMAIN CONCEALED.
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5. TOTAL DEVELOPED LENGTH OF EXHAUST DUCT SHALL BE INDICATED ON A PERMANENT LABEL WITHIN 6' OF DRYER VENT CONNECTION. DRYER DUCT ROUTING SHOWN IS FOR REFERENCE ONLY. OVERALL DUCT LENGTH SHALL BE CALCULATED BY HVAC CONTRACTOR PER 2018 IMC 504.8.4.
6. LOCATE ALL EXHAUST / DRYER VENT TERMINATIONS AT LEAST 36" FROM OPERABLE OPENINGS INTO APARTMENTS (WINDOWS, DOORS, ETC.).
7. ALL DUCTWORK SHOWN SHALL ROUTE IN SPACE BETWEEN / THRU TRUSSES UNLESS NOTED OTHERWISE. SEE STRUCTURAL DRAWINGS FOR DETAILS.

HVAC PLAN KEY NOTES:

- ① TERMINATE 4" DRYER EXHAUST WITH VENT EQUAL TO DRYER WALL VENT #DWV4.
- ② AHU WALL MOUNTED ABOVE WATER HEATER, COORDINATE WITH PLUMBING CONTRACTOR. CONDENSATE TO DISCHARGE IN FLOOR DRAIN WITHIN CLOSET.
- ③ HI/LOW TRANSFER GRILLE (12" A.F.F. ON BEDROOM SIDE OF WALL; 84" A.F.F. ON OPPOSITE SIDE OF WALL).
- ④ RESIDENTIAL RECIRCULATION HOOD TO BE SUPPLIED & INSTALLED BY GC.
- ⑤ ON FOURTH FLOOR ONLY, BATHROOM EXHAUST / DYER VENT TO TERMINATE AT LOUVER / VENT MOUNTED IN SOFFIT.

PLUMBING PLAN SYMBOL LEGEND

- ←

COLD WATER LINE
- ←

HOT WATER LINE
- ←

VALVE
- ←

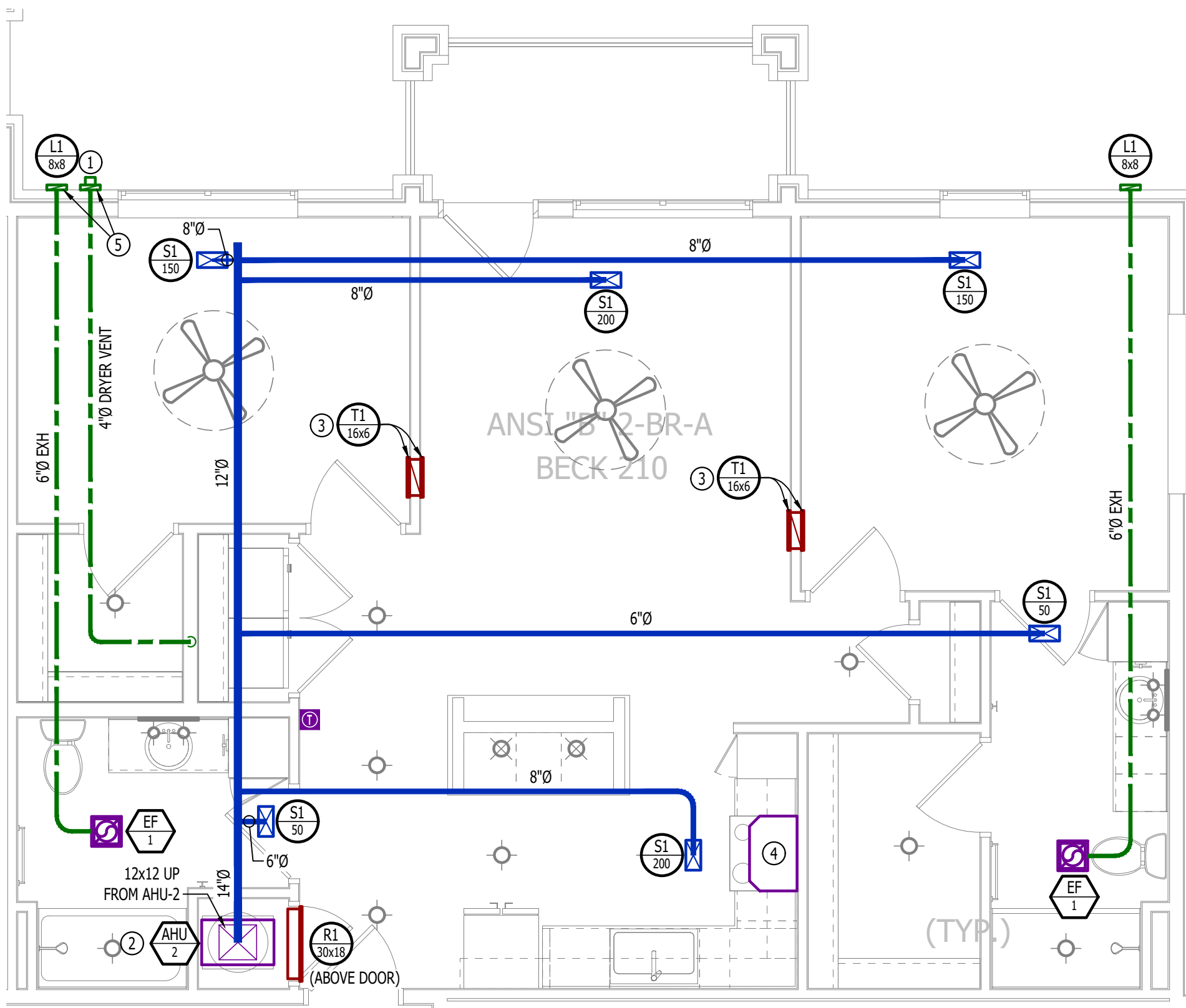
PIPING TURNED DOWN / TURNED UP

WATER PLAN GENERAL NOTES:

1. SEE P500 &/OR P600 SERIES SHEETS FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.
2. ALL PLUMBING LOCATED ON EXTERIOR WALLS SHALL ROUTE WITHIN INSULATION BARRIER.
3. ALL DOMESTIC SUPPLY LINES SERVING MORE THAN (1) FIXTURE SHALL BE ¾" UNLESS NOTED OTHERWISE.

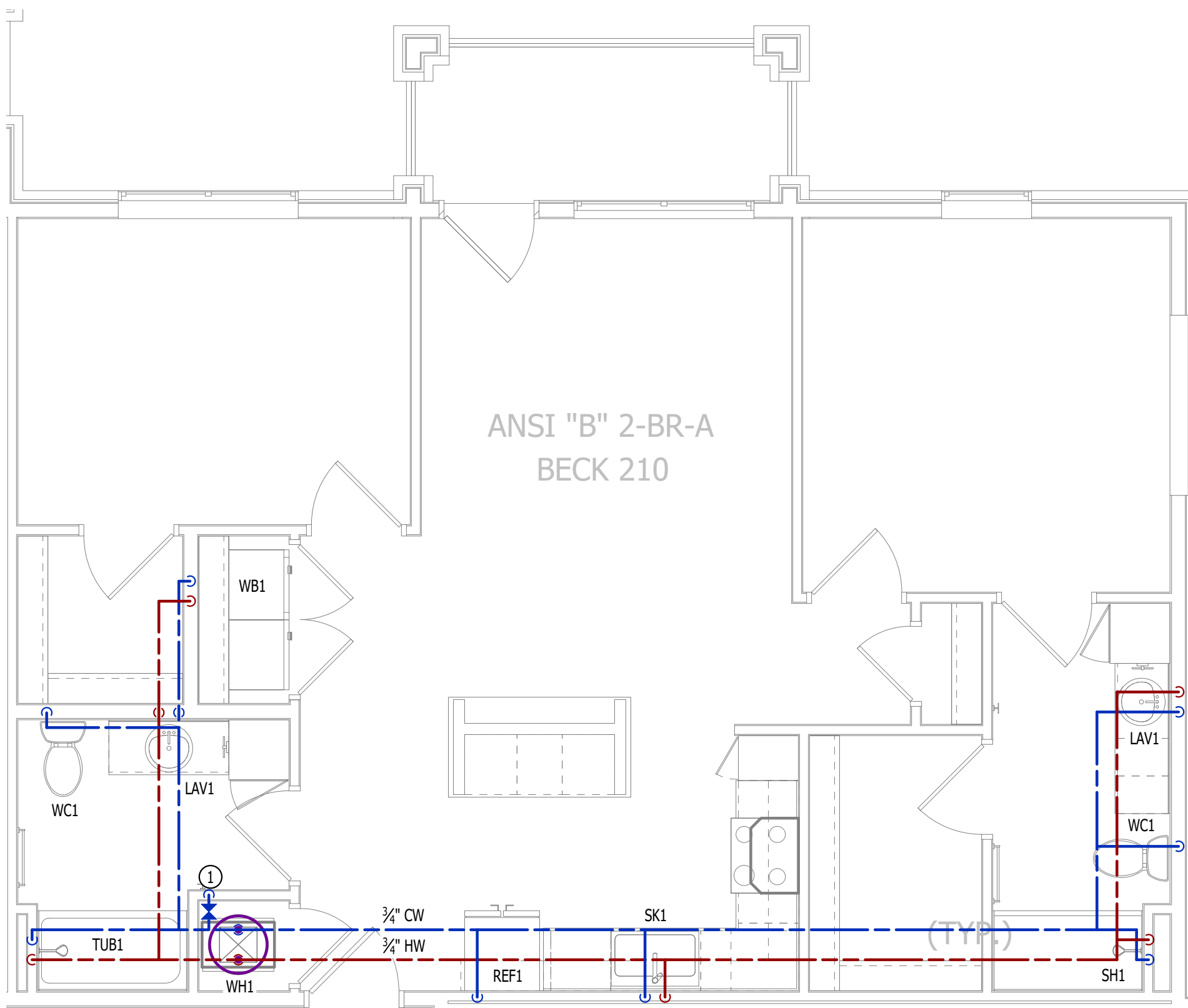
WATER PLAN KEY NOTES:

- ① 1" CW PIPE UP FROM BELOW WITH SHUT-OFF VALVE IN ACCESSIBLE LOCATION. SEE OVERALL PLUMBING PLANS FOR DETAILS.



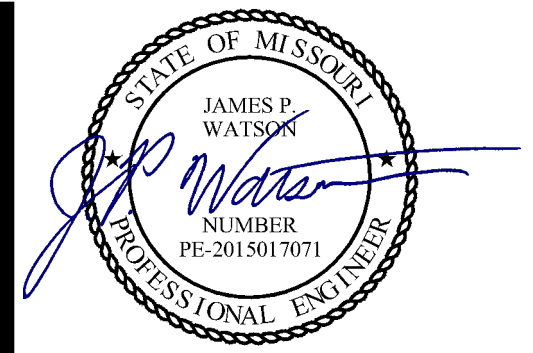
HVAC PLAN

SCALE: 1/4" = 1'-0"

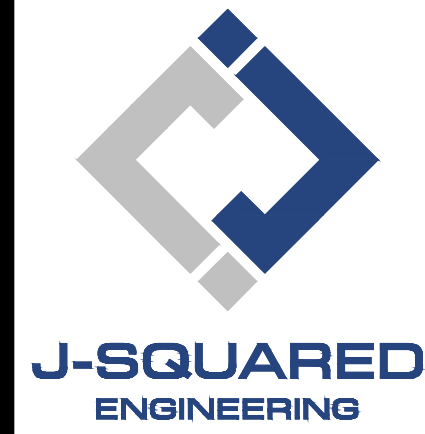


WATER PLAN

SCALE: 1/4" = 1'-0"



James Watson, P.E. April 15, 2025  
PE-2015017071  
MO Certificate of Authority # 2018029680



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J2 PROJECT No: J21357

J2 DESIGN: ACW

ISSUE TITLE DATE

PERMIT SET 04 - 15 - 2025

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MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:  
**The Village at Discovery Park Alura Apartments**  
Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE


ANSI B - 2 BR - TYPE A -  
UNIT HVAC & WATER PLAN

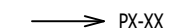
SHEET NUMBER


UMEP2.3.1




POWER PLAN SYMBOL LEGEND

- 


CIRCUIT WIRING
- 


CIRCUIT TAG
- 


JUNCTION BOX
- 


RECEPTACLE


INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX  
(STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)


"WP" = WEATHERPROOF OUTDOOR RECEPTACLE
- 

GFCI DUPLEX CONVENIENCE RECEPTACLE
- 

208V RECEPTACLE
- 

QUADPLEX CONVENIENCE RECEPTACLE
- 

DATA / PHONE JACK; BOX WITH 1" CONDUIT & CAT6 CABLE BACK TO MEDIA PANEL  
LOCATION (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
- 

DISCONNECT
- 

120V IONIZATION SMOKE 520Hz LOW FREQUENCY ALARM WITH  
SILENCING CAPABILITIES & LOW-VOLTAGE CONTACTS WIRED TO SHUT  
DOWN AHJ UPON FIRE DETECTION. COORDINATE WITH HVAC  
CONTRACTOR. SMOKE DETECTOR MUST BE LOCATED AT LEAST 3' FROM  
CEILING FAN BLADES AND AT LEAST 10' FROM ANY COOKING APPLIANCE  
(FIELD-COORDINATE)

POWER PLAN GENERAL NOTES:

1.

SEE E500 & E600 SERIES SHEETS FOR POWER SCHEDULES, DETAILS, REQUIREMENTS, ETC.
2.

SEE M100 & EP100 SERIES SHEETS FOR CONDENSING UNIT LOCATIONS.
3.

VERIFY EACH DATA/RECEPTACLE LOCATION WITH OWNER PRIOR TO INSTALLATION.
4.

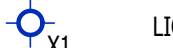
REFER TO "TYPICAL ADA MOUNTING HEIGHTS DETAIL", SHEET E501, FOR MOUNTING HEIGHTS OF DEVICES IN "ANSI A" UNITS.

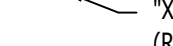
POWER PLAN KEY NOTES:


- ①


MEDIA PANEL LOCATION; DATA/TV WIRING TO TERMINATE AT THIS LOCATION. DETERMINE EXACT LOCATION & DETAILS WITH OWNER PRIOR TO INSTALLATION.


LIGHTING PLAN SYMBOL LEGEND

- 

LIGHTING FIXTURE
- 

"X1" INDICATES FIXTURE TYPE  
(REFER TO SCHEDULE)
- 

TOGGLE SWITCH
- 

SWITCH TYPE
- 

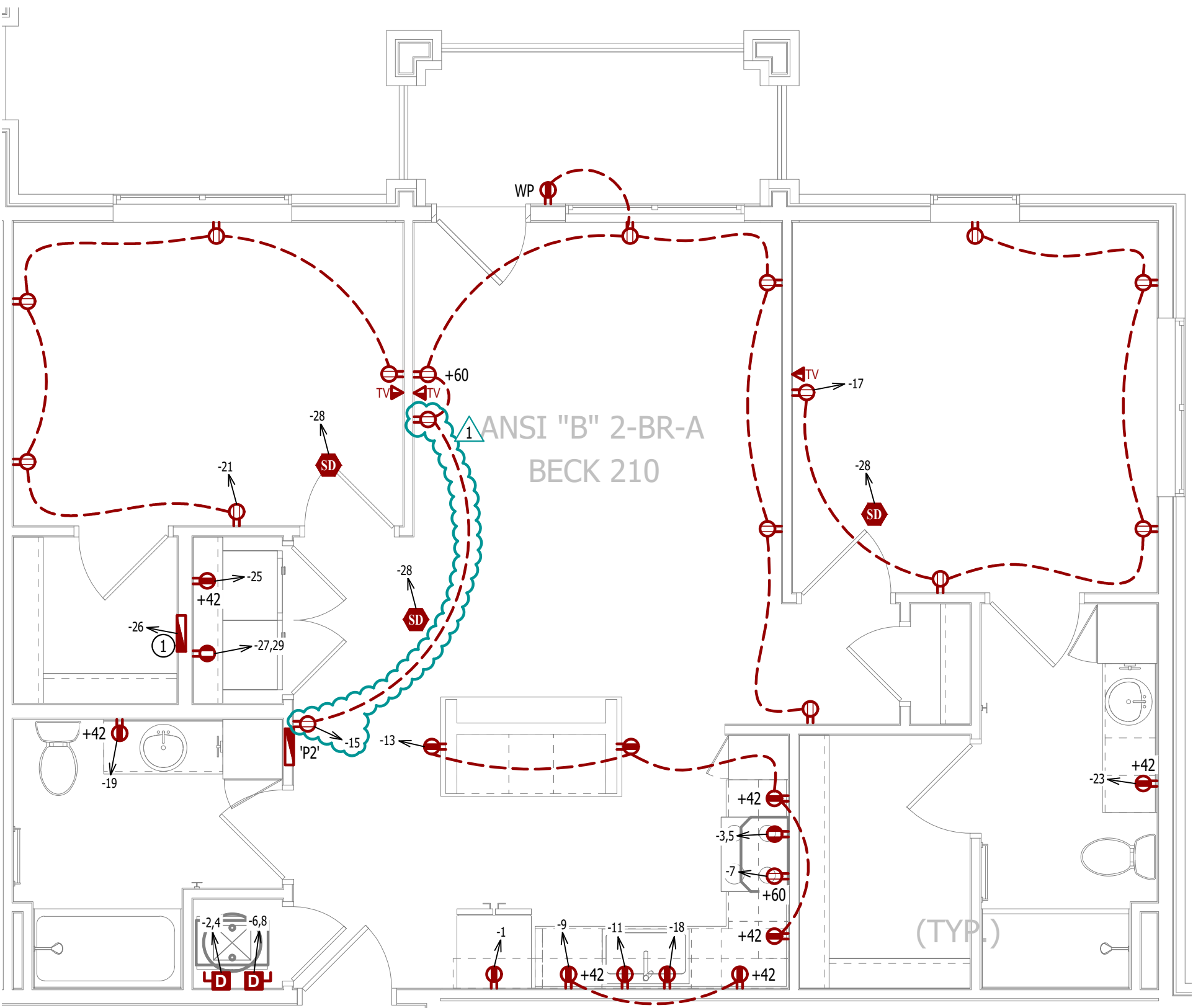
DIMMER SWITCH

LIGHTING PLAN GENERAL NOTES:

1.

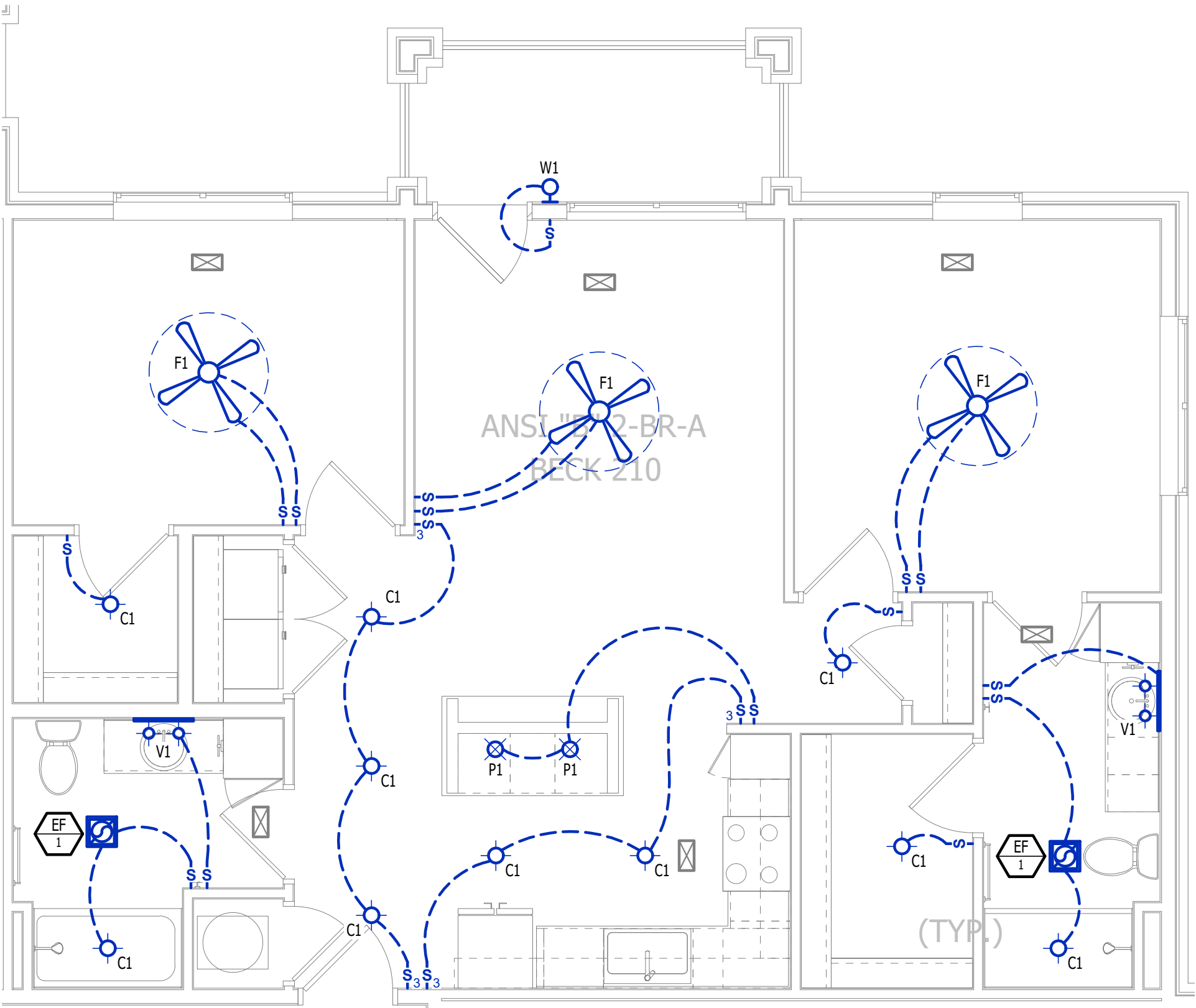
SEE E500 & E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, & SCHEDULES.
2.

ALL LIGHTING SHOWN SHALL BE ON CIRCUIT -16 UNLESS NOTED OTHERWISE.



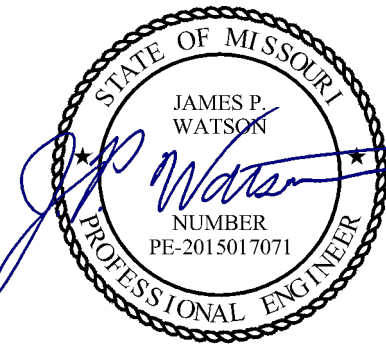
POWER PLAN

SCALE: 1/4" = 1'-0"

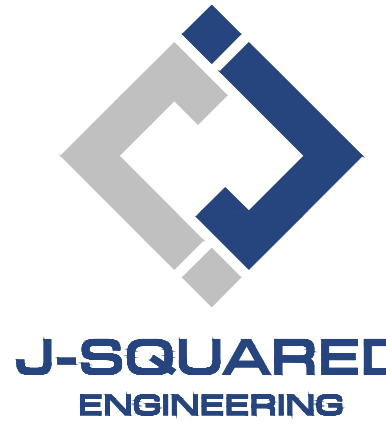


LIGHTING PLAN

SCALE: 1/4" = 1'-0"



James Watson, P.E. April 16, 2025  
PE-2015017071  
MO Certificate of Authority # 2018029680



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J2 PROJECT No: J21357

J2 DESIGN: ACW

ISSUE TITLE DATE

PERMIT SET 04 - 15 - 2025

ADDENDUM 1 05 - 16 - 2025

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:  
**The Village at Discovery Park Alura Apartments**

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE

ASNI B - 2 BR - TYPE A -  
UNIT POWER & LIGHTING  
PLAN

SHEET NUMBER

UMEP2.3.2



HVAC PLAN SYMBOL LEGEND

- ⬅️ X # EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)  
⬅️ X # EQUIPMENT REFERENCE NUMBER  
⬅️ X # DIFFUSER/GRILLE TYPE (REFER TO SCHEDULE)  
⬅️ X # CUBIC FEET PER MINUTE (CFM) / FACE SIZE
- SUPPLY DUCTWORK  
- - - RETURN DUCTWORK  
- - - EXHAUST DUCTWORK  
~ ~ ~ FLEX DUCT
- ⊠ SUPPLY DIFFUSER (HATCH INDICATES "NO FLOW ZONE")  
⊠ RETURN DIFFUSER  
— BALANCE DAMPER  
— MOTORIZED DAMPER  
— CEILING RADIATION DAMPER  
— BACK DRAFT DAMPER  
T THERMOSTAT

HVAC PLAN GENERAL NOTES:

- SEE M500 & M600 SERIES SHEETS FOR HVAC SCHEDULES, DETAILS, REQUIREMENTS, ETC.
- SEE M100 SERIES SHEETS FOR CONDENSING UNIT LOCATIONS. REFRIGERANT PIPING SHALL ROUTE IN SPACES ABOVE FINISHED CEILINGS AND WITHIN WALL CAVITIES TO REMAIN CONCEALED.
- SUPPLY DUCTWORK FROM AHU AT FLOOR/CEILING PENETRATION SHALL BE PROTECTED BY A FIRE DAMPER. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
- WRAP ALL DRYER DUCTS WITH FIREMASTER (OR EQUAL) DUCT WRAP.
- TOTAL DEVELOPED LENGTH OF EXHAUST DUCT SHALL BE INDICATED ON A PERMANENT LABEL WITHIN 6' OF DRYER VENT CONNECTION. DRYER DUCT ROUTING SHOWN IS FOR REFERENCE ONLY. OVERALL DUCT LENGTH SHALL BE CALCULATED BY HVAC CONTRACTOR PER 2018 IMC 504.8.4.
- LOCATE ALL EXHAUST / DRYER VENT TERMINATIONS AT LEAST 36" FROM OPERABLE OPENINGS INTO APARTMENTS (WINDOWS, DOORS, ETC.).
- ALL DUCTWORK SHOWN SHALL ROUTE IN SPACE BETWEEN / THRU TRUSSES UNLESS NOTED OTHERWISE. SEE STRUCTURAL DRAWINGS FOR DETAILS.

HVAC PLAN KEY NOTES:

- TERMINATE 4" DRYER EXHAUST WITH VENT EQUAL TO DRYER WALL VENT #DWV4.
- AHU WALL MOUNTED ABOVE WATER HEATER, COORDINATE WITH PLUMBING CONTRACTOR. CONDENSATE TO DISCHARGE IN FLOOR DRAIN WITHIN CLOSET.
- H/L/OW TRANSFER GRILLE (12" A.F.F. ON BEDROOM SIDE OF WALL; 84" A.F.F. ON OPPOSITE SIDE OF WALL).
- RESIDENTIAL RECIRCULATION HOOD TO BE SUPPLIED & INSTALLED BY GC.
- ON FOURTH FLOOR ONLY, BATHROOM EXHAUST / DYER VENT TO TERMINATE AT LOUVER / VENT MOUNTED IN SOFFIT.

PLUMBING PLAN SYMBOL LEGEND

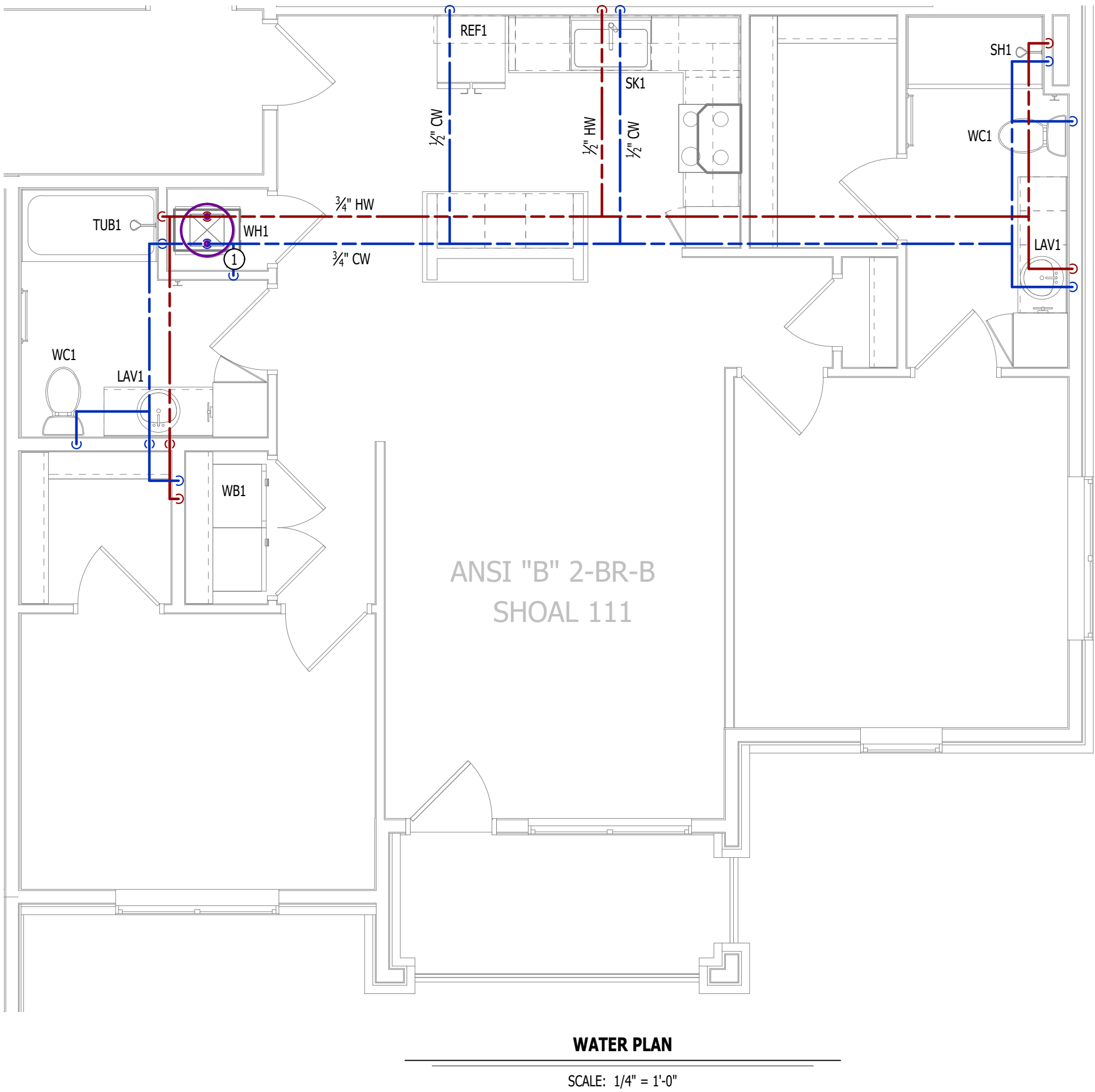
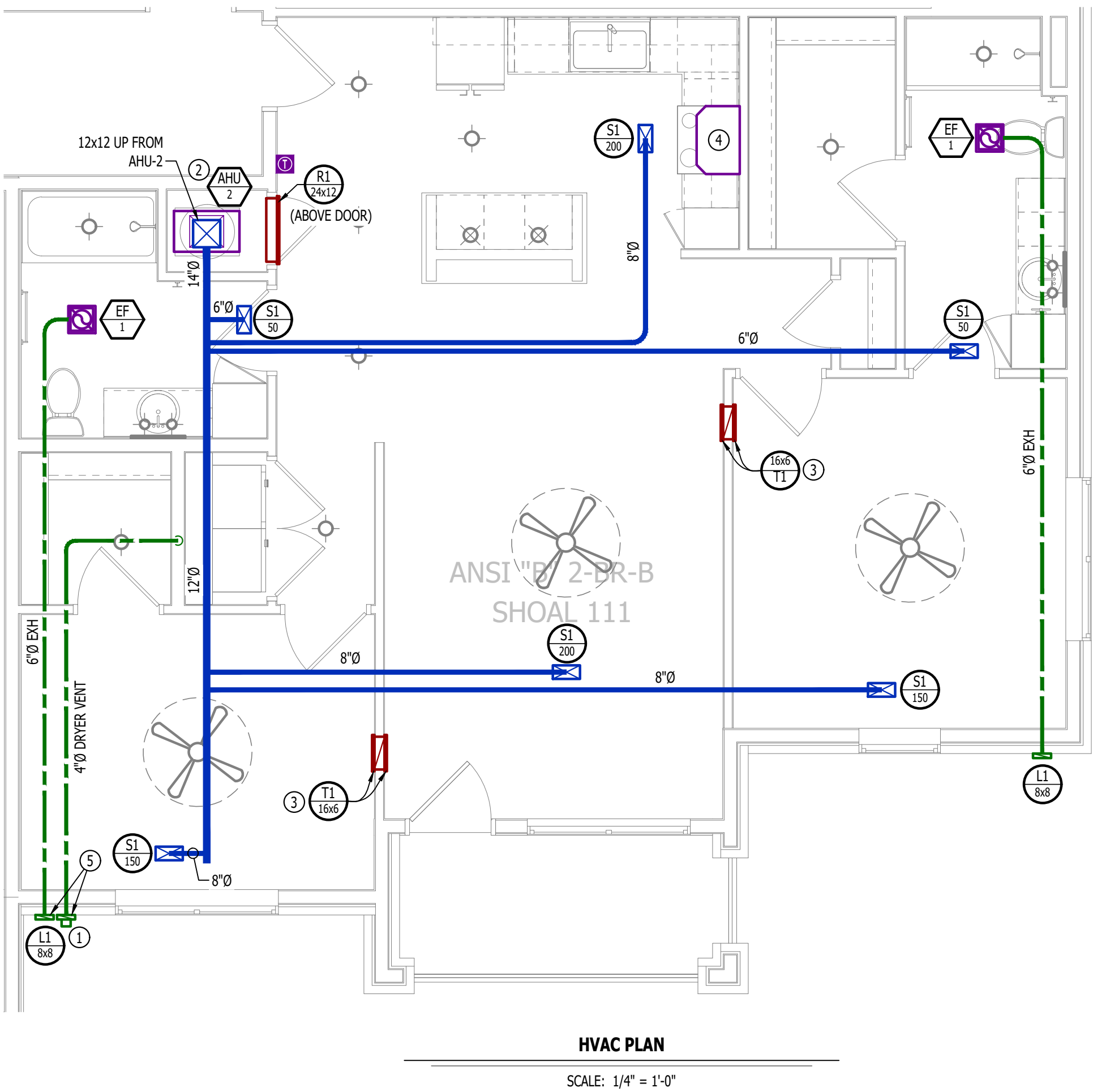
- COLD WATER LINE  
— HOT WATER LINE  
⋈ VALVE  
— PIPING TURNED DOWN / TURNED UP

WATER PLAN GENERAL NOTES:

- SEE P500 &/OR P600 SERIES SHEETS FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.
- ALL PLUMBING LOCATED ON EXTERIOR WALLS SHALL ROUTE WITHIN INSULATION BARRIER.
- ALL DOMESTIC SUPPLY LINES SERVING MORE THAN (1) FIXTURE SHALL BE ¾" UNLESS NOTED OTHERWISE.

WATER PLAN KEY NOTES:

- 1" CW PIPE UP FROM BELOW WITH SHUT-OFF VALVE IN ACCESSIBLE LOCATION. SEE OVERALL PLUMBING PLANS FOR DETAILS.





POWER PLAN SYMBOL LEGEND

- CIRCUIT WIRING
- CIRCUIT TAG
- JUNCTION BOX
- RECEPTACLE

INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX  
(STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)

"WP" = WEATHERPROOF OUTDOOR RECEPTACLE
- GFCI DUPLEX CONVENIENCE RECEPTACLE
- 208V RECEPTACLE
- QUADPLEX CONVENIENCE RECEPTACLE
- DATA / PHONE JACK; BOX WITH 1" CONDUIT & CAT6 CABLE BACK TO MEDIA PANEL  
LOCATION (STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)
- DISCONNECT
- 120V IONIZATION SMOKE 520Hz LOW FREQUENCY ALARM WITH  
SILENCING CAPABILITIES & LOW-VOLTAGE CONTACTS WIRED TO SHUT  
DOWN AHU UPON FIRE DETECTION. COORDINATE WITH HVAC  
CONTRACTOR. SMOKE DETECTOR MUST BE LOCATED AT LEAST 3' FROM  
CEILING FAN BLADES AND AT LEAST 10' FROM ANY COOKING APPLIANCE  
(FIELD-COORDINATE)

POWER PLAN GENERAL NOTES:

1.

SEE E500 & E600 SERIES SHEETS FOR POWER SCHEDULES, DETAILS, REQUIREMENTS, ETC.
2.

SEE M100 & EP100 SERIES SHEETS FOR CONDENSING UNIT LOCATIONS.
3.

VERIFY EACH DATA/RECEPTACLE LOCATION WITH OWNER PRIOR TO INSTALLATION.
4.

REFER TO "TYPICAL ADA MOUNTING HEIGHTS DETAIL", SHEET E501, FOR MOUNTING HEIGHTS OF DEVICES IN "ANSI A" UNITS.

POWER PLAN KEY NOTES:

- ①

MEDIA PANEL LOCATION; DATA/TV WIRING TO TERMINATE AT THIS LOCATION. DETERMINE EXACT LOCATION & DETAILS WITH OWNER PRIOR TO INSTALLATION.

LIGHTING PLAN SYMBOL LEGEND

- LIGHTING FIXTURE

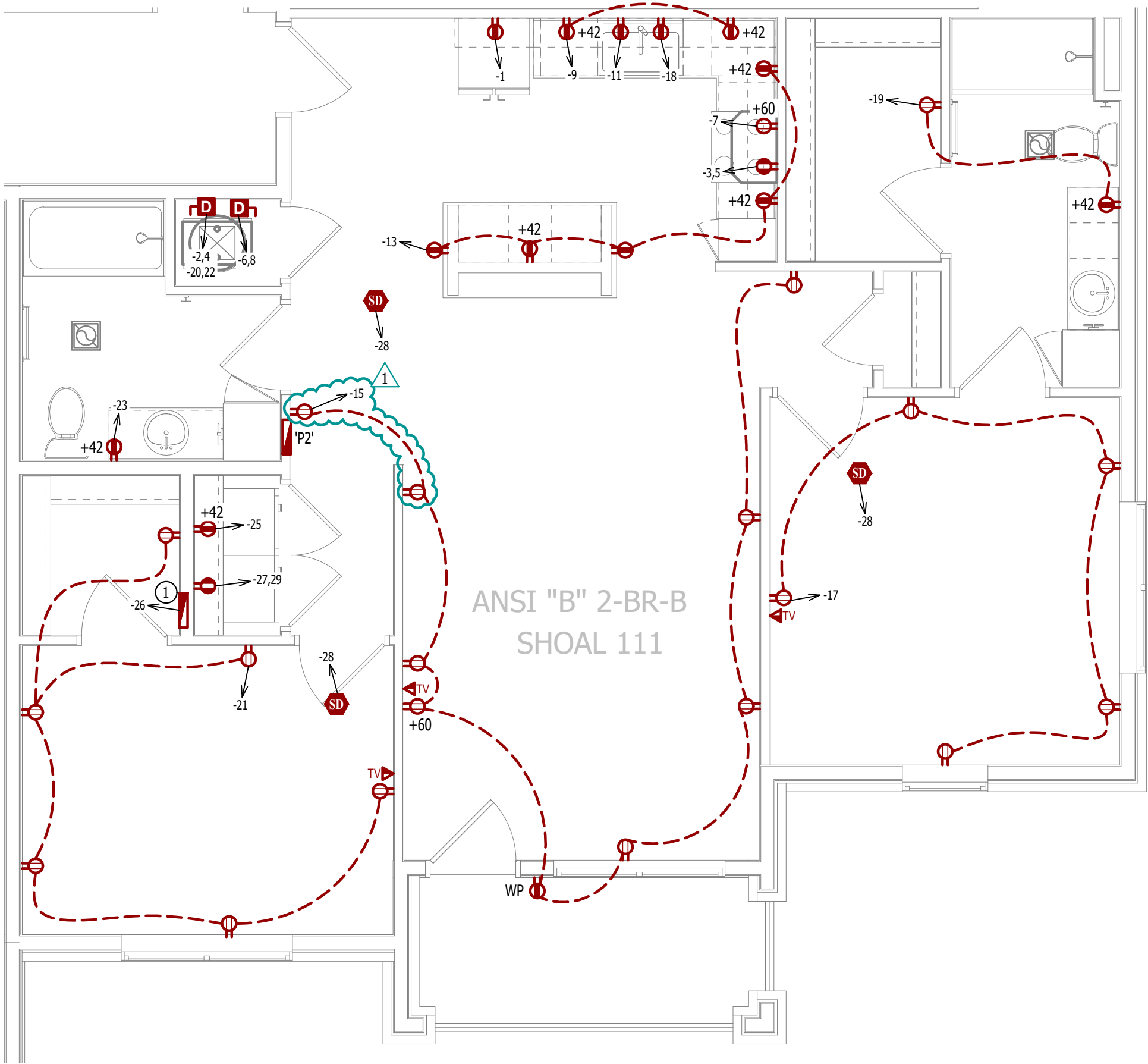
"X1" INDICATES FIXTURE TYPE  
(REFER TO SCHEDULE)
- TOGGLE SWITCH
- SWITCH TYPE
- DIMMER SWITCH

LIGHTING PLAN GENERAL NOTES:

1.

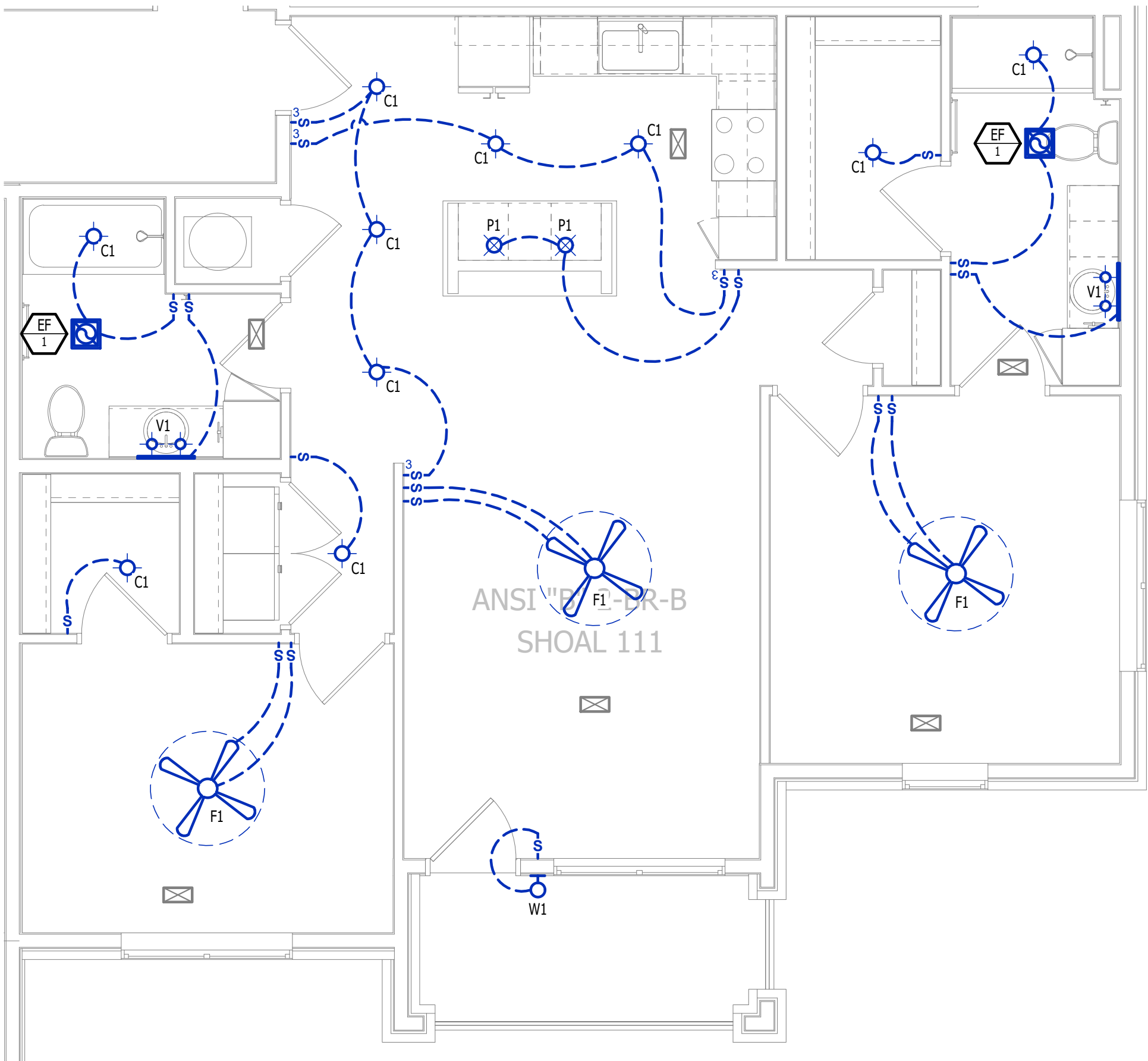
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2.

ALL LIGHTING SHOWN SHALL BE ON CIRCUIT -16 UNLESS NOTED OTHERWISE.



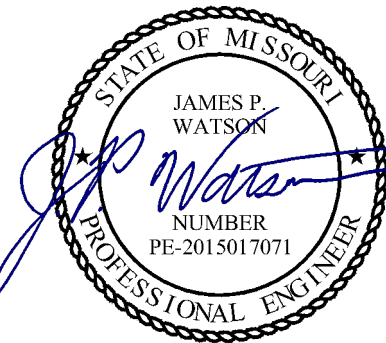
POWER PLAN

SCALE: 1/4" = 1'-0"

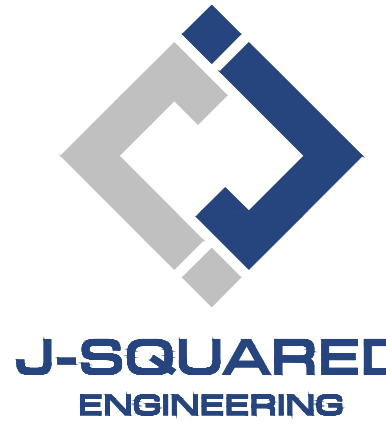


LIGHTING PLAN

SCALE: 1/4" = 1'-0"



James Watson, P.E.      April 16, 2025  
PE-2015017071  
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J2 DESIGN:                              ACW

ISSUE TITLE                              DATE

PERMIT SET                              04 - 15 - 2025

ADDENDUM 1                              05 - 16 - 2025

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:  
**The Village at Discovery Park Alura Apartments**

Northeast Douglas Street  
Lee's Summit, Jackson County, Missouri

AHJ APPROVAL STAMP

SHEET TITLE

**ANSI B - 2 BR - TYPE B -  
UNIT POWER & LIGHTING  
PLAN**

SHEET NUMBER

**UMEP2.4.2**