

ELECTRICAL ABBREVIATIONS

AMPERE _____ A/(AMP)
ABOVE _____ ABV
ABOVE FINISHED FLOOR _____ AFF
ABOVE FINISHED GRADE _____ AFG
AIR CONDITIONING _____ A/C
ALUMINUM _____ AL
APPROXIMATELY _____ APPROX.
ARCHITECT(URAL) _____ ARCH('L)
AUTHORITY HAVING _____ AHJ
JURISDICTION _____

BELOW _____ BLW
BREAKER _____ BKR
BUILDING _____ BLDG.

CARD READER _____ CR
CEILING _____ CLG
CIRCUIT _____ CKT
CIRCUIT CONTINUED _____ CONT.
CONCRETE MASONRY UNIT _____ CMU
CONDENSATE DRAIN _____ COND.
COPPER _____ CU
CONDUIT _____ C
COUNTER _____ CTR
CURRENT TRANSFORMER _____ CT

DEMOLISH(TION) _____ DEMO.
DEPARTMENT _____ DEPT.
DETAIL _____ DET.
DISCONNECT _____ DISC.
DIVISION _____ DIV.
DRAWING(S) _____ DWG(S)

EACH _____ EA
ELECTRICAL CONTRACTOR _____ EC
ELECTRIC(AL) _____ ELEC.
ELECTRIC WATER COOLER _____ EWC
ELEVATOR _____ ELEV.
EMERGENCY _____ EM,EMER
ENGINEER _____ ENGR.
EQUIPMENT _____ EQPT.
ETCETERA _____ ETC.
EXHAUST FAN _____ EF
EXISTING _____ EXIST.,(E)
EXISTING RELOCATED _____ ER
EXISTING TO REMAIN _____ ETR

FIRE ALARM _____ F/A
FIRE ALARM CONTROL PANEL _____ FACP
FIRE ALARM ANNUNCIATOR _____ FAAP
PANEL _____
FIRE / SMOKE DAMPER _____ F/S
FOOT/FEET _____ FT.

GALVANIZED _____ GALV.
GENERAL CONTRACTOR _____ GC
GROUND _____ GND,G
GROUNDING ELEC. CONDUCTOR _____ GEC
GROUND FAULT CIRCUIT _____ GFCI,GF
INTERRUPTER _____

HEATING, VENTILATION & AIR _____ HVAC
CONDITIONING _____

INFORMATION _____ INFO
INTERIOR _____ INT.
ISOLATED GROUND _____ IG

JUNCTION BOX _____ JB,(J-BOX)

KILOAMPERE INTERRUPTING _____ KAIC
CAPACITY _____
KILOVOLT-AMPS _____ kVA

LIGHTING CONTROL PANEL _____ LCP

MAIN CIRCUIT BREAKER _____ MCB
MAIN LUG ONLY _____ MLO
NOTE: NOT ALL ABBREVIATIONS ON THIS LIST ARE APPLICABLE TO THIS PROJECT.

MANUFACTURE(R) _____ MFR.
MAXIMUM _____ MAX
MAXIMUM OVERCURRENT _____ MOC
PROTECTION _____
MECHANICAL _____ MECH.
MINIMUM _____ MIN.
MINIMUM CURRENT AMPACITY _____ MCA
MISCELLANEOUS _____ MISC.
MOUNTING HEIGHT TO CENTER _____ +(#)"
LINE OF DEVICE AFF OR AFG _____

NATIONAL ELECTRICAL CODE _____ NEC
NEMA 1, NEMA 3R, NEMA _____ N1,N3R,N_
RATING (AS NOTED) _____
NIGHT LIGHT _____ NL
NOMINAL _____ NOM.
NON-FUSED _____ NF
NOT APPLICABLE _____ N/A
NOT IN CONTRACT _____ N.I.C.
NOT TO SCALE _____ N.T.S.
NUMBER _____ NO,#

PANEL _____ PNL
PARTIAL _____ PART.
PHASE _____ PH,Ø
POLE _____ P
POLYVINYL CHLORIDE _____ PVC
POWER POLE _____ PP

QUANTITY _____ QTY

RECEPTACLE _____ RECEPT.
REFER TO / REFERENCE _____ REF.
REQUIRE(D) _____ REQ,(D)
RIGID GALVANIZED STEEL _____ RGS
ROOM _____ RM

SERVICE DISTRIBUTION _____ SDE
ENCLOSURE _____
SPECIFICATION(S) _____ SPEC.(S)
SQUARE _____ SQ.
SQUARE FEET _____ SF
SURGE PROTECTIVE DEVICE _____ SPD
SWITCH _____ SW.

TELEPHONE / DATA COMBO _____ TELEDATA
TELEPHONE _____ TEL.
TELEPHONE MOUNTING BOARD _____ TMB
TELEVISION _____ TV
TEXAS _____ TX
THROUGH _____ THRU
TRANSFORMER _____ XFMR
TYPICAL _____ TYP

UNDERGROUND _____ UG
UNDERWRITER LABORATORIES _____ UL
INC.
UNINTERRUPTIBLE POWER _____ UPS
SUPPLY _____
UNLESS NOTED OTHERWISE _____ UNO
UTILITY _____ UTIL

VOLT-AMPS _____ VA
VOLTAGE / VOLTS _____ V

WEATHER PROOF _____ WP
WEATHER RESISTANT _____ WR
WITH _____ W/
WITHOUT _____ W/O

ELECTRICAL LEGEND		NOTES: MOUNTING HEIGHTS LISTED BELOW INDICATE HEIGHT TO CENTER OF DEVICE. ALL SYMBOLS SHOWN ON LEGEND ARE NOT NECESSARILY USED.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	1X4 LINEAR FIXTURE W/ DESIGNATION		PANELBOARD OR LOAD CENTER - SURFACE MOUNT, RECESSED MOUNT
	2X2 LINEAR FIXTURE W/ DESIGNATION		TRANSFORMER
	2X4 LINEAR FIXTURE W/ DESIGNATION		DISCONNECT SWITCHES - NON-FUSED, FUSED. FUSE SIZES NOTED ON DRAWINGS WITH "AF".
	EMERGENCY LIGHT FIXTURE (HALF-SHADED FOR ANY FIXTURE)		MAGNETIC MOTOR STARTER
	LINEAR 6" OR SLOT FIXTURE W/ DESIGNATION		COMBINATION STARTER AND DISCONNECT
	RECESSED DOWNLIGHT FIXTURE W/ DESIGNATION		VARIABLE FREQUENCY DRIVE (VFD), COMBINATION VFD AND DISCONNECT
	SURFACE DOWNLIGHT FIXTURE W/ DESIGNATION		MOTOR
	PENDANT FIXTURE W/ DESIGNATION		PUSHBUTTON - SINGLE, MUSHROOM HEAD
	WALL WASH FIXTURE W/ DESIGNATION, DIRECTION INDICATED BY TRIANGLE		METER - PLAN VIEW, ONE-LINE DIAGRAM
	WALL MOUNT LINEAR FLUORESCENT FIXTURE W/ DESIGNATION		METER BANK
	WALL MOUNT FIXTURE W/ DESIGNATION		UNISTRUT RACK
	SPOTLIGHT	LIGHTING CONTROLS	
	OCCUPANCY SENSOR, VACANCY SENSOR - CEILING MOUNTED		OCCUPANCY SENSOR, VACANCY SENSOR - MOUNTED HIGH ON WALL
	EMERGENCY BATTERY FIXTURE		PHOTOELECTRIC CELL
	CEILING FAN		LIGHTING CONTACTOR
	POLE LIGHT (ARM MOUNT, POST-TOP MOUNT)		TIMECLOCK
	BOLLARD FIXTURE		LIGHTING CONTROL PANEL
	SINGLE 20A RECEPTACLE AT 18" UNLESS NOTED		DAYLIGHT ZONE SENSOR
	20A DUPLEX RECEPTACLE AT 18" UNLESS NOTED		LIGHT SWITCH AT 48" UNLESS NOTED
	20A GFI DUPLEX RECEPTACLE AT 18" UNLESS NOTED		DIMMER SWITCH AT 48" UNLESS NOTED
	DOUBLE 20A DUPLEX RECEPTACLE AT 18" UNLESS NOTED		LOW-VOLTAGE SMART LIGHT SWITCH AT 48" UNLESS NOTED
	20A DUPLEX RECEPTACLE 6" ABOVE COUNTER UNLESS NOTED	SUBSCRIPTS	
	20A DUPLEX RECEPTACLE SPECIAL MOUNT (FLOOR, CLG)	3	3-WAY SWITCH
	20A ISOLATED GROUND RECEPTACLE	4	4-WAY SWITCH
	20A RECEPTACLE WITH WEATHERPROOF "EXTRA DUTY" COVER AND WEATHER-RESISTANT GFCI RECEPTACLE	F	SINGLE POLE CEILING FAN & LIGHT SWITCH WITH 3-SPEED FAN CONTROL TO ALLOW CONTROL OF FAN INDEPENDENT OF LIGHT KIT
	COMBINATION DUAL USB WITH DUPLEX RECEPTACLE	K	KEY-OPERATED SWITCH
	SPECIAL RECEPTACLE (RATING NOTED)	M	MOTOR-RATED SWITCH
	COMBINATION TELEPHONE/DATA (TELE-DATA) OUTLET (18" ON WALL, 6" ABOVE COUNTER)	O	OCCUPANCY SENSOR SWITCH
	COMBINATION TELEPHONE/DATA (TELE-DATA) OUTLET SPECIAL MOUNT (FLOOR, CLG)	P	SWITCH WITH PILOT LIGHT
	TELEPHONE OUTLET, DATA OUTLET	R	RED EMERGENCY BRANCH SWITCH
	TELEVISION CABLE CONNECTION AT 58" A.F.F. UNLESS OTHERWISE NOTED.	T	TIMER SWITCH
	LOW-VOLTAGE OUTLET INTENDED FOR SPECIFIC PURPOSE (CARD READER SHOWN)	v	VACANCY SENSOR SWITCH (AUTO OFF, MANUAL ON)
	J-BOX (CEILING/WALL, FLOOR)	a	LOWER CASE LETTER AT FIXTURES AND SWITCHES (a, b, ETC.) INDICATES SWITCHING CONTROL.
	SECURITY CAMERA	FIRE ALARM SYSTEM	
	SPEAKER - CEILING MOUNTED, WALL MOUNTED		FIRE ALARM CONTROL PANEL
	CONDUIT RUN EXPOSED OR CONCEALED		FIRE ALARM ANNUNCIATOR PANEL
	CONDUIT RUN BELOW FLOOR OR GRADE		MANUAL PULL STATION DOUBLE ACTION
	ITEM TO BE REMOVED		GENERAL ALARM COMBINATION HORN/STROBE (AUDIO/VISUAL) (WALL, CLG)
	SWITCHLEG		FIRE ALARM STROBE (VISUAL DEVICE) (WALL, CLG)
	CIRCUIT HOMERUN, #12, THWN/THHN & QTY AS REQ'D, W/GND, 3/4"C., UNLESS NOTED		SMOKE/IONIZATION DETECTOR
	CIRCUIT HOMERUN CONTAINING 3 HOTS, NEUTRAL, GROUND, AND ISOLATED GROUND		HEAT DETECTOR
	CONDUIT STUB-UP - CAP & MARK		DUCT DETECTOR
	CONDUIT OR CIRCUIT BREAK/CONTINUATION (DIAGRAMMATIC ONLY)		COMBINATION SMOKE / CARBON MONOXIDE DETECTOR
	GROUND		BEAM DETECTOR
	BUILDING STEEL GROUND		SPRINKLER SYSTEM FLOW SWITCH
	COLD WATER GROUND		SPRINKLER SYSTEM TAMPER SWITCH
	CONCRETE ENCASED ELECTRODE GROUND		ELECTRIC DOOR HOLDER
	STRUCTURED MEDIA CENTER (21")		

VOLTAGE DROP TABLE (20A CIRCUITS ONLY)		
	240V, 1Ø	120V, 1Ø
#12 AWG	0 - 90 FT.	0 - 50 FT.
#10 AWG	91 - 150 FT.	51 - 90 FT.
#8 AWG	151 - 250 FT.	91 - 140 FT.
#6 AWG	251 - 390 FT.	141 - 225 FT.
#4 AWG	391 - 630 FT.	226 - 300 FT.
(VERIFY MINIMUM VOLTAGE DROP AND CONDUIT SIZE, PER N.E.C.)		

APPLICABLE CODES
2018 IBC
2018 IMC
2018 IPC
2018 IECC
2017 NEC
LOCAL CODES AND ORDINANCES

ELECTRICAL GENERAL NOTES

- EXISTENCE AND LOCATION OF DEVICES, FIXTURES, EQUIPMENT, CIRCUITING, ETC. THAT ARE SHOWN TO BE EXISTING WAS TAKEN FROM EXISTING DRAWINGS AND/OR VISUAL INSPECTION AND SHOULD BE VERIFIED IN FIELD PRIOR TO ANY PRICING OR WORK.
- COORDINATE LOCATION AND MOUNTING HEIGHT OF ALL LIGHTING FIXTURES WITH ARCHITECTURAL DRAWINGS, REFLECTED CEILING PLANS, AND ELEVATIONS.
- ELECTRICAL CONTRACTOR SHALL VISIT SITE AND SHALL BECOME FAMILIAR WITH SITE CONDITIONS AND VERIFY DIMENSIONS AND WORK TO BE INSTALLED PRIOR TO SUBMITTING A BID. BY SUBMITTING A BID, CONTRACTOR CERTIFIES FAMILIARITY WITH EXISTING JOBSITE CONDITIONS PRIOR TO COMMENCEMENT OF WORK; FAILURE TO DO SO WILL NOT BE CAUSE FOR EXTRA WORK COMPENSATION.
- ALL MATERIAL SHALL BE NEW AND SHALL BE LISTED OR LABELED BY U.L. OR OTHER RECOGNIZED TESTING FACILITY.
- FURNISH ALL MATERIAL, LABOR, EQUIPMENT AND PERMITS TO PROVIDE A COMPLETE, OPERATIONAL ELECTRICAL SYSTEM CONSISTENT WITH THE INTENT OF THE DRAWINGS. WHERE THE WORD "PROVIDE" IS USED, IT SHALL MEAN, "FURNISH AND INSTALL COMPLETE AND READY FOR USE".
- INSTALLATIONS FOUND NOT COMPLYING WITH SPECIFIED WORKMANSHIP PRACTICES SHALL BE REVISED TO COMPLY AT NO ADDITIONAL COST TO THE OWNER.
- ELECTRICAL CONTRACTOR SHALL PERFORM WORK IN A SAFE MANNER AND MAINTAIN ADEQUATE PROTECTION OF WORK, THE OWNER'S PROPERTY AND ALL PERSONS ON SITE FROM INJURY, DAMAGE OR LOSS.
- FIELD-COORDINATE LOCATION OF PANELS, CONDUITS AND DEVICES WITH STRUCTURAL MEMBERS AND EQUIPMENT FROM OTHER TRADES. CAREFULLY COORDINATE INSTALLATION SCHEDULES WITH OTHER TRADES AND GENERAL CONTRACTOR. VERIFY EXACT LOCATION OF EQUIPMENT TO BE FURNISHED BY OTHERS PRIOR TO ROUGH-IN. COORDINATE LOCATION AND INSTALLATION OF OWNER-FURNISHED ITEMS AFFECTING THIS TRADE.
- FEEDER CONDUCTORS, PANEL BUSS AND GROUND BUSS SHALL BE ALUMINUM, UNLESS NOTED OTHERWISE.
- BRANCH CIRCUIT WIRING SHALL BE COPPER.
- WIRING DEVICES THAT OCCUR TOGETHER SHALL BE GANGED UNDER A COMMON WALL PLATE, UNLESS NOTED OTHERWISE.
- ELECTRICAL DISTRIBUTION EQUIPMENT SHALL BE GENERAL ELECTRIC, SQUARE D OR SIEMENS.
- ELECTRICAL CONTRACTOR SHALL ASSIGN CIRCUITS IN FIELD ON ALL LOAD CENTER TO MAKE LOADS ON EACH PHASE AS BALANCED AS POSSIBLE.
- ELECTRICAL CONTRACTOR SHALL ASSEMBLE AND PROVIDE TO THE OWNER AS PART OF CLOSE-OUT SUBMISSION REQUIREMENTS, ORGANIZED BINDER WITH TECHNICAL DATA, CUT SHEETS, MAINTENANCE REQUIREMENTS, ADJUSTMENT PROCEDURES, TEST REPORTS, APPROVALS, WARRANTIES, PHONE NUMBERS OF SERVICE PERSONNEL, SOURCES OF REPLACEMENT PARTS AND OTHER PERTINENT INFORMATION.
- BEFORE BEGINNING EXCAVATIONS OF ANY NATURE WHATSOEVER, CONTRACTOR SHALL LOCATE ALL SERVICES AND UTILITIES OCCURRING WITHIN THE BOUNDS OF THE PROJECT. THE CONTRACTOR SHALL THEN PROCEED WITH CAUTION IN HIS WORK SO THAT NO UTILITY OR LINE SERVING AREAS THAT ARE TO REMAIN BE DAMAGED WITH A RESULTANT LOSS OF SERVICE. VERIFY THE SOURCE AND SERVICE OF EACH AND EVERY LINE ENCOUNTERED AND RECORD SERVICE, SIZE AND LOCATION ON RECORD DRAWINGS.
- COORDINATE EACH AND EVERY INTERRUPTION OF SERVICES AND UTILITIES WITH THE OWNER AND UTILITY COMPANIES TO ENSURE MINIMUM SHUT-DOWN TIMES ARE ACCEPTABLE.
- FOR EACH EQUIPMENT CONNECTION SHOWN, PROVIDE THE DEVICE, OUTLET, DISCONNECT SWITCH, OR JUNCTION BOX REQUIRED TO CONNECT THE EQUIPMENT.
- NO SINGLE CONDUIT SHALL CONTAIN MORE THAN 6 CURRENT CARRYING CONDUCTORS, UNLESS NOTED OTHERWISE AND PROPERLY DERATED.
- WHERE FIXTURES CONTAINING BATTERY PACKS ARE SWITCHED (BY TOGGLE SWITCH, OCCUPANCY SENSOR, TIMECLOCK/LIGHTING CONTROL PANEL, ETC.), SUPPLY TO BATTERY PACKS SHALL BE UNSWITCHED. EXIT LIGHTS SHOWN ON A SWITCHED CIRCUIT SHALL BE POWERED BY AN UNSWITCHED LINE ON THAT CIRCUIT.
- LIGHT SWITCHES SHOWN IN ROOM CONTROL ALL LIGHTS IN THAT ROOM UNLESS NOTED OTHERWISE. WALL SWITCHES SHOWN IN ROOMS WITH CEILING OCCUPANCY SENSOR SWITCHES SHALL OVERRIDE OCCUPANCY SENSOR CONTROL.
- LAMPS THAT HAVE BEEN USED FOR MORE THAN 1/3 OF THEIR RATED LIFE OR THAT HAVE BLACKENED ENDS, SHALL BE REPLACED BY NEW LAMPS JUST BEFORE FINAL INSPECTION.
- DOCUMENTS CERTIFYING THAT THE INSTALLED LIGHTING CONTROLS MEET DOCUMENTED PERFORMANCE CRITERIA OF IECC SECTION C405 SHALL BE PROVIDED TO THE BUILDING OWNER WITHIN 90 DAYS FROM THE DATE OF RECEIPT OF THE CERTIFICATE OF OCCUPANCY PER IECC C408.3.2.
- REVIEW ARCHITECTURAL, STRUCTURAL, CIVIL, MECHANICAL, PLUMBING, AND OTHER DRAWINGS PRIOR TO BID.
- INSTALL ALL MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ANY DEVIATIONS SHALL BE BROUGHT TO THE ARCHITECT/ENGINEER'S ATTENTION PRIOR TO INSTALLATION.
- PROTECT ALL RECEPTACLES SHOWN AS GFCI-PROTECTED IN LOCATIONS THAT ARE NOT "READILY ACCESSIBLE" (PER THE NEC) WITH GFCI-TYPE CIRCUIT BREAKERS IN LIEU OF GFCI-TYPE RECEPTACLE.
- VERIFY EXACT LOCATIONS OF EXISTING AND NEW UNDERGROUND UTILITIES, PIPING, AND RACEWAY SYSTEMS PRIOR TO TRENCHING. PROVIDE NECESSARY TRENCHING, BACKFILL, EXCAVATION, SUPPORTS, SERVICE FEEDERS (CONDUIT AND/OR WIRE), PULLBOXES, TRANSFORMER PADS, SAWCUTTING AND PATCHING, CONCRETE/PAVING, ETC. REQUIRED. BACKFILL TRENCHES TO 90% COMPACTION AND PATCH TO MATCH EXISTING. CONTRACTOR SHALL OBTAIN AND VERIFY EXACT UTILITY COMPANY DRAWINGS AND REQUIREMENTS.
- FOR EACH TELEPHONE, DATA, FIRE ALARM DEVICE, AND T.V. OUTLET, PROVIDE OUTLET BOX AND 3/4" CONDUIT (UNLESS NOTED OTHERWISE) WITH PULL STRING ROUTED UP IN WALL TO ABOVE ACCESSIBLE CEILING. FOR COMBINATION DEVICES (I.E. TELEPHONE/DATA) PROVIDE 1" CONDUIT (UNLESS NOTED OTHERWISE). TERMINATE WITH PLASTIC BUSHING. ALL EXPOSED CABLES, REGARDLESS OF HEIGHT, SHALL BE ENCLOSED IN CONDUIT.
- FIELD LOCATE FIXTURES IN MECHANICAL/ELECTRICAL ROOMS SO EQUIPMENT DOES NOT OBSTRUCT LIGHTING OR EQUIPMENT ACCESS. COORDINATE WITH MECHANICAL AND OTHER TRADES AS NEEDED.
- SEE PLUMBING AND MECHANICAL DRAWINGS FOR ALL DIVISION 22 AND 23 EQUIPMENT LOCATIONS AND ELECTRICAL LOAD REQUIREMENTS.

SHEET INDEX:

E000 ELECTRICAL GENERAL NOTES, LEGENDS & ABBREVIATIONS
E001 ELECTRICAL SPECIFICATIONS
E002 ELECTRICAL SPECIFICATIONS
E003 ELECTRICAL SITE PLAN
E004 ELECTRICAL PHOTOMETRIC
E101 ELECTRICAL BUILDING Ia - LEVEL 1
E102 ELECTRICAL BUILDING Ib - LEVEL 1
E103 ELECTRICAL BUILDING Ic - LEVEL 1
E104 ELECTRICAL BUILDING Id - LEVEL 1
E105 ELECTRICAL BUILDING Ie - LEVEL 1
E106 ELECTRICAL BUILDING If - LEVEL 2
E107 ELECTRICAL BUILDING Ib - LEVEL 2
E108 ELECTRICAL BUILDING Ic - LEVEL 2
E109 ELECTRICAL BUILDING Id - LEVEL 2
E110 ELECTRICAL BUILDING Ie - LEVEL 2
E111 ELECTRICAL BUILDING Ia - LEVEL 3
E112 ELECTRICAL BUILDING Ib - LEVEL 3
E113 ELECTRICAL BUILDING Ic - LEVEL 3
E114 ELECTRICAL BUILDING Id - LEVEL 3
E115 ELECTRICAL BUILDING Ie - LEVEL 3
E116 ELECTRICAL BUILDING Ia - LEVEL 4
E117 ELECTRICAL BUILDING Ib - LEVEL 4
E118 ELECTRICAL BUILDING Ic - LEVEL 4
E119 ELECTRICAL BUILDING Id - LEVEL 4
E120 ELECTRICAL BUILDING Ie - LEVEL 4
E121 ELECTRICAL BUILDING Ia - ROOF
E122 ELECTRICAL BUILDING Ib - ROOF
E123 ELECTRICAL BUILDING Ic - ROOF
E124 ELECTRICAL BUILDING Id - ROOF
E125 ELECTRICAL BUILDING Ie - ROOF
E126 ELECTRICAL BUILDING II (#2 & #3) - LEVEL 1
E127 ELECTRICAL BUILDING II (#4 & #5) - LEVEL 1
E128 ELECTRICAL BUILDING II (#2, #3 & #5) - LEVEL 2
E129 ELECTRICAL BUILDING II (#4) - LEVEL 2
E130 ELECTRICAL BUILDING II (#2, #3 & #5) - LEVEL 3
E131 ELECTRICAL BUILDING II (#4) - LEVEL 3
E132 ELECTRICAL BUILDING II (#4 & #5) - ROOF
E133 ELECTRICAL BUILDING II (#4) - ROOF
E201 ELECTRICAL UNIT A1 & A2
E202 ELECTRICAL UNIT A2-ALT-1, A3 & A4
E203 ELECTRICAL UNIT A5 & A6
E204 ELECTRICAL UNIT A7
E205 ELECTRICAL UNIT B1 & B2
E206 ELECTRICAL UNIT B3, B4 & B5
E207 ELECTRICAL UNIT B6 & C1
E301 ELECTRICAL LIGHTING COMMUNITY CENTER - LEVEL 1
E302 ELECTRICAL LIGHTING COMMUNITY CENTER - LEVEL 2
E303 ELECTRICAL POWER COMMUNITY CENTER - LEVEL 1
E304 ELECTRICAL POWER COMMUNITY CENTER - LEVEL 2
E305 ELECTRICAL IDF, MAINTENANCE, POOL RESTROOM, TRASH COMPACTOR & CARPORT
E401 ELECTRICAL UNIT CALCULATIONS
E402 ELECTRICAL UNIT CALCULATIONS
E403 ELECTRICAL UNIT CALCULATIONS
E404 ELECTRICAL BUILDING CALCULATIONS - Ia & Ib
E405 ELECTRICAL BUILDING CALCULATIONS - Ic & Id
E406 ELECTRICAL BUILDING CALCULATIONS - Ie
E407 ELECTRICAL BUILDING CALCULATIONS - TYPE II & RISER DIAGRAMS
E408 ELECTRICAL HOUSE PANELS
E409 ELECTRICAL HOUSE PANELS
E410 ELECTRICAL COMMUNITY CENTER & MAINTENANCE PANELS
E411 ELECTRICAL GROUNDING, FEEDER & BRANCH WIRE SIZING TABLES
E412 ELECTRICAL UNITS, BUILDING & SITE LIGHT FIXTURE SCHEDULE
E413 ELECTRICAL CLUBHOUSE LIGHT FIXTURE SCHEDULE
E501 ELECTRICAL DETAILS



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ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



01/28/2019

a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL GENERAL NOTES, LEGENDS & ABBREVIATIONS

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E000



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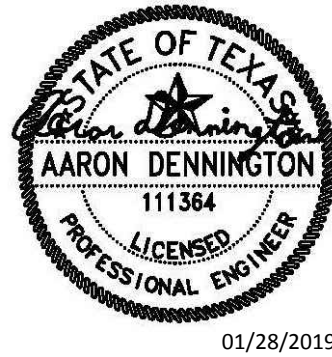
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ELECTRICAL
SPECIFICATIONS

Project Number	18054
Date	01/14/2018
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E001

GENERAL ELECTRICAL REQUIREMENTS

1.1 SCOPE

A. FURNISH ALL LABOR, TESTING, SUPPLIES AND MATERIALS AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN INCLUDING, BUT NOT LIMITED TO, INSTALLATION OF LIGHT FIXTURES, CUTTING AND CHASING, COORDINATION WITH OTHER TRADES ON THE JOB, ETC., NECESSARY FOR THE INSTALLATION OF COMPLETE ELECTRICAL SYSTEMS. INCLUDES EMPTY CONDUIT AS REQUIRED FOR THE TELEPHONE SYSTEMS. INCLUDE POWER FOR ANY EQUIPMENT AS SHOWN ON THE DRAWINGS. INCLUDE TEMPORARY ELECTRICAL POWER AND LIGHTING TO SATISFY OSHA REQUIREMENTS. VERIFY ALL CONDITIONS AND MEASUREMENTS AT SITE.

B. THE WORK OF DIVISION 26 CONSISTS OF PROVIDING LABOR, MATERIALS, PRODUCTS, AND IN PERFORMING ALL OPERATIONS REQUIRED FOR THE COMPLETE OPERATING INSTALLATION OF ALL ELECTRICAL SYSTEMS IN ACCORDANCE WITH SPECIFICATIONS, APPLICABLE DRAWINGS, TERMS, CONDITIONS OF THE CONTRACT AND ALL APPLICABLE CODES AND ORDINANCES GOVERNING THE INSTALLATION OF THE VARIOUS ELECTRICAL SYSTEMS. ALL WORK SHALL BE FULLY CORRELATED WITH THE WORK OF OTHER TRADES.

C. EACH CONTRACTOR SHALL STUDY THE CONTRACT DOCUMENTS TO DETERMINE THE EXTENT OF WORK PROVIDED UNDER THIS CONTRACT, AS WELL AS TO ASCERTAIN THE DIFFICULTY TO BE ENCOUNTERED IN PERFORMING THE WORK ON THE DRAWINGS AND OUTLINED HEREINAFTER AND IN MAKING CONNECTIONS TO EXISTING UTILITIES, INSTALLING NEW EQUIPMENT AND SYSTEMS AND COORDINATING THE WORK WITH THE OTHER TRADES.

D. EXAMINATION OF SITE: THE CONTRACTOR SHALL THOROUGHLY EXAMINE SITE AND SATISFY HIMSELF AS TO THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. THE CONTRACTOR SHALL VERIFY, AT THE SITE, ALL MEASUREMENTS AFFECTING HIS WORK AND SHALL BE RESPONSIBLE FOR THE CORRECTNESS OF SAME. NO EXTRA COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR EXPENSES DUE TO HIS NEGLECT TO EXAMINE OR FAILURE TO DISCOVER CONDITIONS WHICH AFFECT HIS WORK. NO EXTRA COMPENSATION WILL BE ALLOWED ON ACCOUNT OF DIFFERENCES BETWEEN ACTUAL DIMENSIONS AND THOSE INDICATED ON THE DRAWINGS.

1.2 CODES, PERMITS AND INSPECTIONS

A. CODES: THE INSTALLATIONS SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, OCCUPATIONAL SAFETY AND HEALTH ACT, AND ANY OTHER AUTHORITIES HAVING JURISDICTION OVER THE WORK. WHERE, IN ANY SPECIFIC CASE, DIFFERENT SECTIONS OF ANY OF THE AFOREMENTIONED CODES FOR THESE PLANS AND SPECIFICATIONS SPECIFY DIFFERENT MATERIALS, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE SHALL GOVERN.

B. PERMITS & INSPECTIONS: PROVIDE ALL PERMITS REQUIRED AND OBTAIN FINAL INSPECTION AND APPROVAL FROM THE INSPECTION DEPARTMENT HAVING JURISDICTION.

1.3 STANDARDS

A. ALL MATERIAL USED IN THIS WORK SHALL BE NEW AND SHALL BE LISTED AND LABELED BY THE UNDERWRITER'S LABORATORIES, INC., AS CONFORMING TO ITS STANDARDS, WHERE SUCH A STANDARD HAS BEEN ESTABLISHED FOR THE PARTICULAR TYPE OF MATERIAL IN QUESTION. ALL WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER, AND SHALL PRESENT A NEAT AND MECHANICAL APPEARANCE WHEN COMPLETED.

1.4 DRAWINGS AND SPECIFICATIONS

A. THE WIRING LAYOUTS ARE SCHEMATIC AND ARE NOT NECESSARILY INTENDED TO SHOW THE EXACT LOCATION OF RACEWAYS, OUTLETS, ETC. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS AND DETAILS FOR DIMENSIONS AND SHALL REFER TO THE ARCHITECTURAL PLANS AND DETAILS OF BUILDING CONSTRUCTION.

B. DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY, EACH TO THE OTHER; WHAT IS SHOWN ON ONE IS AS BINDING AS IF CALLED FOR IN BOTH.

C. SHOULD THE DRAWINGS DISAGREE IN THEMSELVES, OR WITH THE SPECIFICATIONS, THE BETTER QUALITY OR GREATER QUANTITY OF WORK OR MATERIALS SHALL BE USED.

1.5 SUBMITTALS

A. SUBMITTALS: PROVIDE SUBMITTALS FOR ALL PRODUCTS AND SYSTEMS DESCRIBED AS SHOWN ON THE DRAWINGS TO DEMONSTRATE COMPLIANCE. FIELD VERIFY AND CONFIRM DIMENSIONS AND SPACE REQUIREMENTS.

B. SUBMITTAL REVIEW IS FOR GENERAL DESIGN AND ARRANGEMENT ONLY AND DOES NOT RELIEVE THE CONTRACTOR FROM ANY OF THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. SUBMITTALS WILL NOT BE CHECKED FOR QUANTITY, DIMENSION, FIT OR PROPER TECHNICAL DESIGN OF MANUFACTURED EQUIPMENT. WHERE DEVIATIONS OR SUBSTITUTE PRODUCT OR SYSTEM PERFORMANCE HAVE NOT BEEN SPECIFICALLY NOTED IN THE SUBMITTAL BY THE CONTRACTOR, PROVISION OF COMPLETE AND SATISFACTORY WORKING INSTALLATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

1.6 CUTTING AND PATCHING

A. CUT AND REPAIR ALL NEW WALLS, FLOORS, AND CEILING NECESSARY FOR THE INSTALLATION OF THE ELECTRICAL WORK. NO CUTTING OF WORK OF OTHER CONTRACTORS WILL BE PERMITTED WITHOUT THE CONSENT OF THE ARCHITECT OR HIS REPRESENTATIVE.

1.7 COOPERATION

A. THE CONTRACTOR SHALL SCHEDULE HIS WORK, AND IN EVERY WAY POSSIBLE, COOPERATE WITH ALL OTHER TRADES IN THE JOB TO AVOID DELAYS, INTERFERENCES AND UNNECESSARY WORK. HE SHALL COOPERATE WITH THEM IN PROVIDING FOR THE INSTALLATION OF THIS WORK AND COORDINATE WITH WORK OF OTHER TRADES TO ASSURE PROPER CLEARANCE OR PIPING, DUCTWORK, CONDUIT, ETC., WHEN SUCH IS REQUIRED.

1.8 SITE INSPECTION

A. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE CONDITIONS UNDER WHICH THIS IS TO BE DONE. NO COMPENSATION OR ALLOWANCES WILL BE MADE IN HIS BEHALF BECAUSE OF ANY ERROR ON HIS PART OF HIS LACK OF KNOWLEDGE OF EXISTING CONDITIONS. THE SUBMISSION OF BIDS SHALL BE DEEMED AS EVIDENCE OF SUCH VISITS AND EXAMINATIONS. THE LACK OF SPECIFIC INFORMATION ON THE DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY.

1.9 WIRING WORKMANSHIP

A. WIRINGS: WIRING IN ALL BRANCH CIRCUIT, DISTRIBUTION PANELS, AND TERMINAL CABINETS SHALL RUN PARALLEL OR AT RIGHT ANGLES TO THE SIDES OR TOP OF THE EQUIPMENT HOUSING.

B. CONDUCTORS: CONDUCTORS SHALL BE GROUPED AND HARNESSSED TOGETHER USING LOCKING TYPE CABLE TIES. CABLE TIES SHALL BE AS MANUFACTURED BY THOMAS AND BETTS.

1.10 MOTOR HORSEPOWER

A. THE HORSEPOWER OF MOTORS INDICATED ON THE MECHANICAL PLANS IS THE ESTIMATED HORSEPOWER REQUIREMENTS OF EQUIPMENT FURNISHED UNDER OTHER SECTIONS OF THE SPECIFICATIONS. ALL WIRING, FEEDER PROTECTION DEVICES, STARTERS AND DISCONNECT DEVICES SHALL BE OF THE SIZE AND AMPACITY FOR THE HORSEPOWER OF THE RESPECTIVE MOTOR ACTUALLY INSTALLED. THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES, AND PROVIDE SUITABLE EQUIPMENT SO THAT THE AFOREMENTIONED REQUIREMENTS SHALL BE MET.

1.11 DEVIATIONS

A. SHOULD THE CONTRACTOR FIND, AT ANY TIME, DURING THE PROGRESS OF THE WORK, THAT IN HIS JUDGEMENT, EXISTING CONDITIONS MAKE DESIRABLE A MODIFICATION IN REQUIREMENTS COVERING ANY PARTICULAR ITEM OR ITEMS, HE SHALL REPORT SUCH ITEMS PROMPTLY TO THE PROJECT MANAGER FOR COORDINATION.

1.12 WARRANTY

A. GUARANTEE ALL WORK UNDER THIS SECTION FOR WORKMANSHIP. LABOR AND MATERIALS FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER OR HIS AUTHORIZED REPRESENTATIVE.

BASIC ELECTRICAL MATERIALS & METHODS

1.1 REGULATORY REQUIREMENTS

A. CONFORM TO REQUIREMENTS OF ANSI/NFPA 70.

B. FURNISH PRODUCTS LISTED BY UNDERWRITERS LABORATORIES, INC.

1.2 COORDINATION

A. OBTAIN AND REVIEW SHOP DRAWINGS, PRODUCT DATA, AND MANUFACTURER'S INSTRUCTIONS FOR EQUIPMENT FURNISHED UNDER OTHER SECTIONS TO DETERMINE CONNECTION LOCATIONS AND REQUIREMENTS.

B. SEQUENCE ROUGH-IN OF ELECTRICAL CONNECTIONS TO COORDINATE WITH INSTALLATION AND START-UP OF EQUIPMENT FURNISHED UNDER OTHER SECTIONS.

1.3 GROUNDING

A. THE ELECTRICAL SERVICE NEUTRAL, THE IDENTIFIED NEUTRAL OF THE INTERIOR WIRING SYSTEM AND ALL INTERIOR RACEWAYS AND EQUIPMENT SHALL BE GROUNDED TO THE GROUND BUS IN THE SERVICE DISCONNECTING MEANS. THE SERVICE DISCONNECTING MEANS SHALL BE GROUNDED TO A GROUNDING ELECTRODE. CONTRACTOR SHALL VERIFY THE GROUNDING PATH IS CONTINUOUS AND UNINTERRUPTED BY DIELECTRIC DEVICES AND ANY OTHER DEVICE CAPABLE OF INTERFERING WITH THE GROUNDING PATH.

B. METAL RACEWAYS, METAL ENCLOSURES OF ELECTRICAL DEVICES, LIGHTING FIXTURES, MOTOR FRAMES, PANELS, CABLE SUPPORTS, ETC. AND NON-CURRENT CARRYING METALLIC PARTS OF ALL EQUIPMENT SHALL BE SECURELY GROUNDED THROUGH THE EQUIPMENT GROUNDING CONDUCTOR.

2.1 GROUNDING MATERIALS

A. GROUND ROD: COPPER 3/4 INCH (19MM) DIAMETER X 10 FEET (3M) LENGTH.

B. MECHANICAL CONNECTORS: BRONZE.

3.1 INSTALLATION

A. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. INSTALL GROUND ELECTRODES AT LOCATIONS AS PER LOCAL ELECTRIC UTILITY COMPANY REQUIREMENTS AND PER NATIONAL ELECTRIC CODE. INSTALL ADDITIONAL ROD ELECTRODES AS REQUIRED TO MEET REGULATORY REQUIREMENTS.

C. PROVIDE GROUNDING ELECTRODE CONDUCTOR AND CONNECT TO REINFORCING STEEL IN FOUNDATION FOOTING.

D. PROVIDE BONDING TO MEET REGULATORY REQUIREMENTS.

E. MAKE ELECTRICAL CONNECTIONS TO UTILIZATION EQUIPMENT IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S INSTRUCTIONS.

- VERIFY THAT WIRING AND OUTLET ROUGH-IN WORK IS COMPLETE AND THAT UTILIZATION EQUIPMENT IS READY FOR ELECTRICAL CONNECTION, WIRING, AND ENERGIZATION.
- MAKE WIRING CONNECTIONS IN CONTROL PANEL OR IN WIRING COMPARTMENT OF PRE-WIRED EQUIPMENT. PROVIDE INTERCONNECTING WIRING WHERE INDICATED.
- INSTALL AND CONNECT DISCONNECT SWITCHES, CONTROLLERS, CONTROL STATIONS, AND CONTROL DEVICES AS INDICATED.
- MAKE CONDUIT CONNECTIONS TO EQUIPMENT USING FLEXIBLE CONDUIT. USE LIQUIDTIGHT FLEXIBLE CONDUIT IN DAMP OR WET LOCATIONS.

F. INSTALL SUPPORT SYSTEMS SIZED AND FASTENED TO ACCOMMODATE WEIGHT OF EQUIPMENT AND CONDUIT, INCLUDING WIRING, WHICH THEY CARRY.

- FASTEN HANGER RODS, CONDUIT CLAMPS, AND OUTLET AND JUNCTION BOXES TO BUILDING STRUCTURE USING BEAM CLAMPS.
- USE TOGGLE BOLTS OR HOLLOW WALL FASTENERS IN HOLLOW MASONRY, PLASTER, OR GYPSUM BOARD PARTITIONS AND WALLS; EXPANSION ANCHORS OR PRESET INSERTS IN SOLID MASONRY WALLS; SELF-DRILLING ANCHORS OR EXPANSION ANCHOR ON CONCRETE SURFACES; SHEET METAL SCREWS IN SHEET METAL STUDS; AND WOOD SCREWS IN WOOD CONSTRUCTION.
- DO NOT FASTEN SUPPORTS TO PIPING, CEILING SUPPORT WIRES, DUCTWORK, MECHANICAL EQUIPMENT, OR CONDUIT.
- DO NOT DRILL STRUCTURAL STEEL MEMBERS.
- FABRICATE SUPPORTS FROM STRUCTURAL STEEL OR STEEL CHANNEL.
- INSTALL FREE-STANDING ELECTRICAL EQUIPMENT ON CONCRETE PADS.
- INSTALL SURFACE-MOUNTED CABINETS WITH MINIMUM OF FOUR ANCHORS.
- PROVIDE STEEL CHANNEL SUPPORTS TO STAND CABINETS 1 INCH (25 MM) OFF WALL IN WET LOCATIONS.
- BRIDGE STUDS TOP AND BOTTOM WITH CHANNELS TO SUPPORT FLUSH-MOUNTED CABINETS LOAD CENTERS IN STUD WALLS.
- IDENTIFY ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT, AND LOADS SERVED, TO MEET REGULATORY REQUIREMENTS AND AS SCHEDULED.

- DEGREASE AND CLEAN SURFACES TO RECEIVE NAMEPLATES AND TAPE LABELS.
- SECURE NAMEPLATES TO EQUIPMENT FRONTS USING SCREWS, OR RIVETS, WITH EDGES PARALLEL TO EQUIPMENT LINES. SECURE NAMEPLATE TO INSIDE FACE OF RECESSED PANELBOARD DOORS IN FINISHED LOCATIONS.
- USE NAMEPLATES WITH 1/8 INCH (3 MM) LETTERING TO IDENTIFY INDIVIDUAL SWITCHES AND CIRCUIT BREAKERS, WALL SWITCHES, RECEPTACLE CIRCUITS, AND LOADS SERVED.
- USE NAMEPLATES WITH 1/4 INCH LETTERS (6 MM) TO IDENTIFY DISTRIBUTION AND CONTROL EQUIPMENT.

A. GROUNDING INSTALLATION:

- THE METHOD OF GROUNDING AND SIZE OF THE GROUNDING CONDUCTORS SHALL BE SELECTED IN ACCORDANCE WITH THE LATEST PUBLISHED RULES OF THE NATIONAL ELECTRIC CODE, NFPA 70 ARTICLE 250. AN EQUIPMENT GROUNDING CONDUCTOR WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH TABLE 250.122, SHALL BE INSTALLED IN ALL FEEDERS INCLUDING MOTOR FEEDERS.
- RUN A GREEN EQUIPMENT GROUND WIRE WITH ALL BRANCH CIRCUIT AND FEEDER CONDUCTORS THROUGHOUT THE BUILDING.
- EQUIPMENT GROUNDING LUGS SHALL BE PROVIDED FOR ALL FEEDERS AND SUBFEEDERS AT ALL PULLBOXES AND EQUIPMENT CABINETS.
- GROUND CABLE SHALL BE CONTINUOUS WHEN POSSIBLE WITHOUT JOINTS OR SPLICES THROUGHOUT ITS LENGTH. IF BARE GROUND CONDUCTORS ARE RUN THROUGH METALLIC CONDUIT, THEY SHALL BE SECURELY BONDED TO EACH CONDUIT AT THE ENTRANCE AND EXIT. ALL CONNECTIONS TO EQUIPMENT FOR CONDUIT SHALL BE MADE WITH SOLDERLESS CONNECTORS, AND THE SAME SHALL BE THOROUGHLY CLEANED AND BRIGHT BEFORE CONNECTION IS MADE SO AS TO INSURE A GOOD METAL CONTACT.
- ASSURE ELECTRICAL CONTINUITY OF METALLIC RACEWAY SYSTEM. PROVIDE BONDING JUMPERS WHEREVER EXPANSION JOINT OCCURS.
- AN INSULATED GREEN GROUND SHALL BE PROVIDED IN ALL FLEXIBLE METALLIC TUBING.
- THE GROUND RESISTANCE OF THE GROUNDING SYSTEM SHALL NOT EXCEED FIVE (5) OHMS.
- INSTALL WIRE MARKERS ON EACH CONDUCTOR IN PANELBOARD GUTTERS, PULL BOXES, OUTLET AND JUNCTION BOXES, AND AT LOAD CONNECTIONS.
 - USE BRANCH CIRCUIT OR FEEDER NUMBER TO IDENTIFY POWER AND LIGHTING CIRCUITS.
 - USE CONTROL WIRE NUMBER AS INDICATED ON SCHEMATIC AND INTERCONNECTION DIAGRAMS TO IDENTIFY CONTROL WIRING.

RACEWAYS

1.1 PRODUCT REQUIREMENTS

A. USE ONLY SPECIFIED RACEWAY IN THE FOLLOWING LOCATIONS:

- UNDERGROUND INSTALLATIONS MORE THAN FIVE FEET (1.5 M) FROM FOUNDATION WALL: PLASTIC CONDUIT.
- INSTALLATIONS IN OR UNDER CONCRETE SLAB, OR UNDERGROUND WITHIN FIVE FEET (1.5 M) FROM FOUNDATION WALL: PLASTIC CONDUIT.
- IN SLAB ABOVE GRADE: RIGID STEEL CONDUIT.
- EXPOSED OUTDOOR LOCATIONS: RIGID STEEL CONDUIT. USE THREADED OR RAINIGHT FITTINGS.
- WET INTERIOR LOCATIONS: RIGID STEEL CONDUIT. USE THREADED OR RAINIGHT FITTINGS FOR METAL CONDUIT.
- CONCEALED DRY INTERIOR LOCATIONS: ELECTRICAL METALLIC TUBING. FLEXIBLE METALLIC TUBING IS ONLY ALLOWED FOR HORIZONTAL RUNS WITHIN ENCLOSED WALLS. NM CABLE MAY BE RUN WITHOUT CONDUIT FOR DWELLING UNIT BRANCH CIRCUITS.
- EXPOSED DRY INTERIOR LOCATIONS: RIGID STEEL CONDUIT.
- SIZE RACEWAYS FOR CONDUCTOR TYPE INSTALLED.
 - MINIMUM SIZE CONDUIT: 3/4 INCH (19 MM).
 - MINIMUM SIZE CONDUIT IN SLABS ABOVE GRADE: 3/4 INCH (19 MM).

1.2 CONDUIT AND FITTINGS

A. CONDUIT:

- METAL CONDUIT AND TUBING: GALVANIZED STEEL, MANUFACTURED BY ALLIED, TRIANGLE, WHEATLAND, PITTSBURG, STEELDUCT, OR APPROVED EQUIVALENT.
- FLEXIBLE CONDUIT: STEEL.
- LIQUIDTIGHT FLEXIBLE CONDUIT: FLEXIBLE CONDUIT WITH PVC JACKET.
- PLASTIC CONDUIT AND TUBING: NEMA TC 2; PVC. USE SCHEDULE 40 CONDUIT. USE PVC COATED RIGID STEEL ELLS FOR ALL BENDS AND WHEN EMERGING FROM GRADE.
- CONDUIT FITTINGS:
 - METAL FITTINGS AND CONDUIT BODIES: NEMA FB 1.
 - PLASTIC FITTINGS AND CONDUIT BODIES: NEMA TC 3.

1.3 WIREWAY AND AUXILIARY GUTTERS

A. WIREWAY: RAINIGHT TYPE WIREWAY, WITH KNOCKOUTS.

- SIZE: AS PER N.E.C. REQUIREMENTS.
- COVER: SCREW COVER WITH FULL GASKET.
- FITTINGS: LAY-IN TYPE WITH REMOVABLE TOP, BOTTOM, AND SIDE; CAPTIVE SCREWS.
- FINISH: RUST INHIBITING PRIMER COATING WITH GRAY ENAMEL FINISH.
- FOR SERVICE: BUSSED WIREWAY RATED FOR SERVICE SIZE SHOWN ON RISER DIAGRAM.

1.4 ELECTRICAL BOXES

A. BOXES:

- SHEET METAL: NEMA OS 1; GALVANIZED STEEL.
- HINGED COVER ENCLOSURES: NEMA 250, TYPE 1 OR 3R AS REQUIRED. STEEL ENCLOSURE WITH MANUFACTURER'S STANDARD ENAMEL FINISH AND CONTINUOUS HINGE COVER, HELD CLOSED BY FLUSH LATCH OPERABLE BY SCREWDRIVER.

2.1 EXAMINATION AND PREPARATION

- VERIFY THAT SUPPORTING SURFACES ARE READY TO RECEIVE WORK.
- ELECTRICAL BOXES ARE SHOWN ON DRAWINGS, IN APPROXIMATE LOCATIONS, UNLESS DIMENSIONED. OBTAIN VERIFICATION FROM ARCHITECT FOR FLOOR BOX LOCATIONS, AND LOCATIONS OF OUTLETS IN OFFICES AND WORK AREAS, PRIOR TO ROUGH-IN.

2.2 INSTALLATION

- ARRANGE CONDUIT TO MAINTAIN HEADROOM AND TO PRESENT NEAT APPEARANCE.
- ROUTE EXPOSED RACEWAY PARALLEL AND PERPENDICULAR TO WALLS AND ADJACENT PIPING.
- MAINTAIN MINIMUM 6 INCH (150 MM) CLEARANCE TO PIPING AND 12 INCH (305 MM) CLEARANCE TO HEAT SURFACES SUCH AS HEATING APPLIANCES.
- MAINTAIN REQUIRED FIRE, ACOUSTIC, AND VAPOR BARRIER RATING WHEN PENETRATING WALLS, FLOORS, AND CEILINGS. USE NELSON "FLAMESEAL" FIRESTOP PUTTY OR CAULK TO RETAIN THE INTEGRITY OF THE FIRE AND SMOKE PARTITIONS.
- ROUTE CONDUIT THROUGH ROOF OPENINGS FOR PIPING AND DUCTWORK WHERE POSSIBLE; OTHERWISE, ROUTE THROUGH ROOF JACK WITH PITCH POCKET.
- GROUP IN PARALLEL RUNS WHERE PRACTICAL. USE RACK CONSTRUCTED OF STEEL CHANNEL. MAINTAIN SPACING BETWEEN RACEWAYS OR DERATE CIRCUIT AMPACITIES TO NFPA 70 REQUIREMENTS.
- USE CONDUIT HANGERS AND CLAMPS; DO NOT FASTEN WITH WIRE OR PERFORATED PIPE STRAPS.
- USE CONDUIT BODIES TO MAKE SHARP CHANGES IN DIRECTION.
- TERMINATE CONDUIT STUBS WITH INSULATED BUSHINGS.
- USE SUITABLE CAPS TO PROTECT INSTALLED RACEWAY AGAINST ENTRANCE OF DIRT AND MOISTURE.
- PROVIDE NO. 12 AWG INSULATED CONDUCTOR OR SUITABLE PULL STRING IN EMPTY RACEWAYS, EXCEPT SLEEVES AND NIPPLES.
- INSTALL EXPANSION JOINTS WHERE RACEWAY CROSSES BUILDING EXPANSION JOINTS.
- INSTALL PLASTIC CONDUIT AND TUBING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- INSTALL AUXILIARY GUTTER AND WIREWAY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- INSTALL ELECTRICAL BOXES AS SHOWN ON THE DRAWINGS, AND AS REQUIRED FOR SPLICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS AND REGULATORY REQUIREMENTS.

- USE CAST OUTLET BOX IN EXTERIOR LOCATIONS EXPOSED TO WEATHER AND WET LOCATIONS.
- USE HINGED COVER ENCLOSURE FOR INTERIOR PULL AND JUNCTION BOX LARGER THAN 12 INCHES (300 MM) IN ANY DIMENSION.
- LOCATE AND INSTALL ELECTRICAL BOXES TO ALLOW ACCESS. PROVIDE ACCESS PANELS IF REQUIRED.
- LOCATE AND INSTALL ELECTRICAL BOXES TO MAINTAIN HEADROOM AND TO PRESENT NEAT MECHANICAL APPEARANCE.
- INSTALL PULL BOXES AND JUNCTION BOXES ABOVE ACCESSIBLE CEILINGS OR IN UNFINISHED AREAS.
- PROVIDE KNOCKOUT CLOSURES FOR UNUSED OPENINGS.
- ALIGN WALL-MOUNTED OUTLET BOXES FOR SWITCHES, THERMOSTATS, AND SIMILAR DEVICES.
- COORDINATE MOUNTING HEIGHTS AND LOCATIONS OF OUTLETS ABOVE COUNTERS, ETC. WITH THE ARCHITECT.
- USE RECESSED OUTLET BOXES IN FINISHED AREAS AND WHERE INDICATED.
- SECURE BOXES TO INTERIOR WALL AND PARTITION STUDS, ACCURATELY POSITIONING TO ALLOW FOR SURFACE FINISH THICKNESS.
- USE STAMPED STEEL STUD BRIDGES FOR FLUSH OUTLETS IN HOLLOW STUD WALL, AND ADJUSTABLE STEEL CHANNEL FASTENERS FOR FLUSH CEILING OUTLET BOXES.
- LOCATE BOXES IN MASONRY WALLS TO REQUIRE CUTTING CORNER ONLY. COORDINATE MASONRY CUTTING TO ACHIEVE NEAT OPENINGS FOR BOXES.
- DO NOT INSTALL BOXES BACK-TO-BACK IN WALLS; PROVIDE 6 INCHES (150 MM) SEPARATION, MINIMUM; EXCEPT PROVIDE 24 INCHES (600 MM) SEPARATION, MINIMUM IN ACOUSTIC-RATED WALLS.
- DO NOT DAMAGE INSULATION.
- INSTALL SERVICE FITTINGS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- DRILL FLOOR OPENING AND INSTALL POKE-THROUGH FITTINGS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

WIRES AND CABLES

1.1 QUALITY ASSURANCE

A. PERFORM WORK IN ACCORDANCE WITH NECA STANDARD OF INSTALLATION.

1.2 REGULATORY REQUIREMENTS

- CONFORM TO REQUIREMENTS OF NFPA 70.
- FURNISH PRODUCTS LISTED BY UL.

2.1 WIRING METHODS

- CONCEALED INTERIOR LOCATIONS: BUILDING WIRE IN RACEWAY. NM CABLE MAY BE RUN WITHOUT RACEWAY FOR DWELLING UNIT BRANCH CIRCUITS.
- EXPOSED INTERIOR LOCATIONS: BUILDING WIRE IN RACEWAY.
- ABOVE ACCESSIBLE CEILINGS: BUILDING WIRE IN RACEWAY.
- WET OR DAMP INTERIOR LOCATIONS: BUILDING WIRE IN RACEWAY.
- EXTERIOR LOCATIONS: BUILDING WIRE IN RACEWAYS.
- UNDERGROUND LOCATIONS: BUILDING WIRE IN RACEWAY.
- USE NO WIRE SMALLER THAN 12 AWG FOR POWER AND LIGHTING CIRCUITS, AND NO SMALLER THAN 14 AWG FOR LINE VOLTAGE CONTROL WIRING. USE MINIMUM 18 GAUGE WIRE FOR LOW-VOLTAGE (LESS THAN 30 VAC) CONTROL WIRING. USE 10 AWG CONDUCTOR FOR 20 AMPERE, 120 VOLT BRANCH CIRCUIT HOME RUNS LONGER THAN 50 FEET. VERIFY MINIMUM VOLTAGE DROP PER N.E.C.

2.2 WIRE AND CABLE

A. MANUFACTURERS:

- TRIANGLE, SOUTHWIRE, OR CABLEC.

Structural Engineer:

VIEWTECH INC.
4205 Bellway Dr. Addison, TX 75001
Victor Lisjak III
972.661.8187

MEP Engineer:

ENCOTECH
8500 Bluffstone Cove, Austin, TX. 78759
Tessa Roberts
512.345.1101

Civil Engineer:

MBC & Associates, Inc
1035 Central Pkwy N, San Antonio, TX 78732
David Allen
210.443.1122

Landscape Architect:

LEE & Associates, Inc.
9020 N Capital of Texas Hwy, Austin, TX. 78759
Amber Rothwell
512.345.8477

Interior Designer:

SJL Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS		
<div><div><div>STATE OF TEXAS</div><div>AARON DENNINGTON</div><div>111384</div><div>LICENSED PROFESSIONAL ENGINEER</div></div><div>01/28/2019</div></div>		

a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
SPECIFICATIONS

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E002

SERVICE AND DISTRIBUTION

1.1 ACCEPTABLE MANUFACTURERS

A. EATON (NO SUBSTITUTION)

- IT IS EMPHASIZED THAT THIS ACCEPTANCE IS FOR THE MANUFACTURER ONLY, AND NOT FOR ANY SPECIFIC PIECES OF EQUIPMENT. SUCH ACCEPTANCE DOES NOT RELIEVE THE CONTRACTOR FROM MEETING OR EXCEEDING ALL ELEMENTS OF THE DESIGN AND SPECIFICATION INTENT, INCLUDING APPEARANCE FOR THOSE ITEMS IN SPACES VISIBLE TO THE GENERAL PUBLIC. NOR DOES IT RELIEVE THE CONTRACTOR FROM VERIFYING ALL DIMENSIONS AND OTHER INSTALLATION REQUIREMENTS PRIOR TO PURCHASE.
- IT SHOULD ALSO BE NOTED THAT SUBMITTALS MUST CLEARLY ILLUSTRATE ALL PERFORMANCE DATA, NOISE DATA, ACCESSORIES, OPTIONS, ELECTRICAL CHARACTERISTICS (AS APPLICABLE), AND OTHER RELATED INFORMATION. ANY DEVIATIONS FROM SCHEDULED OR SPECIFIED EQUIPMENT OR OPTIONS MUST ALSO BE CLEARLY LISTED.

1.2 BRANCH CIRCUIT LOAD CENTERS

- A. LOAD CENTERS SHALL BE EQUIPPED WITH THE NUMBER OF PLUG-IN SINGLE POLE AND MULTIPLE POLE CIRCUIT BREAKERS SHOWN BY THE SCHEDULES ON THE DRAWINGS AND OF THE AMPERE RATINGS INDICATED.PROVIDE CIRCUIT BREAKERS U.L. LISTED AS TYPE HACR FOR BRANCH CIRCUITS SERVING AIR CONDITIONING EQUIPMENT.
- B. AS INDICATED BY THE SCHEDULES ON THE DRAWINGS, LOAD CENTERS SHALL HAVE EITHER MAIN LUGS ONLY OR MAIN CIRCUIT BREAKERS. BUSSES SHALL BE SIZED AS INDICATED ON THE SCHEDULES AND SHALL BE MADE OF COPPER. THE LOAD CENTER SHALL BE BUSSED FOR SINGLE PHASE THREE WIRE SERVICE AND EQUIPPED WITH COPPER GROUND BUS BONDED TO THE CABINET AND WITH NO. 2 INCOMING LINE LUG. THEY SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST RULES OF THE NATIONAL ELECTRIC CODE AND SHALL BEAR THE STAMPED APPROVAL OF THE UNDERWRITERS' LABORATORIES, INC. AN ENGRAVED MICARTA LABEL SHALL IDENTIFY EACH LOAD CENTER.
- C. LOAD CENTERS AND CIRCUIT BREAKER RATINGS

1. MINIMUM A.I.C. FAULT CURRENT RATING OF LOAD CENTERS AND ENCLOSED CIRCUIT BREAKERS, BUSES, ETC., SHALL BE 22,000 AMPERES, UNLESS OTHERWISE NOTED.
- D. CABINET DOORS SHALL BE PROVIDED WITH HEAVY NON-SNAP LOCKS WITH KEYS, AND ALL LOCKS SHALL BE KEYS ALIKE. TRIMS AND CABINETS SHALL BE FINISHED WITH TWO COATS OF TRAY LACQUER. A TYPEWRITTEN CIRCUIT DIRECTORY IDENTIFYING ALL BRANCHES SHALL BE PROVIDED IN A STEEL FRAME ON THE BACK OF THE DOOR OF EACH CABINET. THE DIRECTORY SHALL HAVE A NEATLY TYPED LIST OF WHAT EACH INDIVIDUAL CIRCUIT BREAKER IS SERVING AND WHAT ROOMS THAT BREAKER IS SERVING. THE LOAD CENTERS SHALL BE MOUNTED AT A HEIGHT OF 54" FROM THE CENTER LINE TO THE BOARD OF THE FINISHED FLOOR (A.F.F.). TOP OF PANELS SHALL NOT EXCEED 6'0" A.F.F.
- E. CONTRACTOR SHALL STUB ABOVE THE FINISHED CEILING AT EACH FLUSH MOUNTED BRANCH CIRCUIT LOAD CENTER ONE 3/4" SPARE CONDUIT FOR EACH SPARE CIRCUIT BREAKER IN EACH LOAD CENTER.

1.3 SAFETY SWITCHES

- A. SAFETY SWITCHES SHALL BE U.L. APPROVED, DESIGNED FOR QUICK-MAKE, QUICK-BREAK USE AND EQUIPPED WITH ARC-QUENCHING DEVICES. THE SWITCHES SHALL BE OF THE SIZES INDICATED ON THE DRAWINGS AND WHERE USED TO SERVE MOTORS SHALL BEAR THE HORSEPOWER RATING EQUAL TO OR EXCEEDING THAT OF THE MOTOR WHICH THEY SERVE, REGARDLESS OF THE SIZE OR TYPE SPECIFIED ON THE DRAWINGS.
- B. IF THE SWITCHES ARE TO BE MOUNTED WHERE WEATHERPROOF UNITS ARE REQUIRED BY CODE, THEY SHALL BE SO FURNISHED BY THE CONTRACTOR.
- 3.1 INSTALLATION
- A. IN ANY SPACE ASSIGNED FOR THE INSTALLATION OF LOAD CENTERS, CONTRACTOR SHALL VERIFY DIMENSIONS OF THE EQUIPMENT TO BE INSTALLED. SHOP DRAWING DATA SUBMITTED SHALL INCLUDE A DIMENSIONED DRAWING SHOWING PLACEMENT OF THE EQUIPMENT WITHIN THE ROOM (MAIN ELECTRICAL ROOM ONLY).
- B. SAFETY SWITCHES SHALL BE MOUNTED SEPARATELY FROM THE EQUIPMENT. PROVIDE DUPLEX OUTLET FOR SERVICING SUCH EQUIPMENT.

LIGHTING

1.1 SUBMITTALS

- A. PRODUCT DATA: PROVIDE PRODUCT DATA FOR EACH LUMINAIRE AND LIGHTING UNIT.
- B. OPERATING AND MAINTENANCE INSTRUCTIONS: PROVIDE MAINTENANCE AND OPERATING INSTRUCTIONS FOR BATTERY POWERED LIGHTING UNITS.

1.2 REGULATORY REQUIREMENTS

- A. CONFORM TO REQUIREMENTS OF ANSI/NFPA 70.
- B. CONFORM TO REQUIREMENTS OF NFPA 101.
- C. FURNISH PRODUCTS LISTED BY UNDERWRITERS LABORATORIES, INC. OR OTHER TESTING FIRM ACCEPTABLE TO AUTHORITY HAVING JURISDICTION.

2.1 EXAMINATION AND PREPARATION

- A. EXAMINE ADJACENT SURFACES TO DETERMINE THAT SURFACES ARE READY TO RECEIVE WORK.

2.2 INSTALLATION

- A. INSTALL LUMINAIRES AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
1. PROVIDE PENDANT ACCESSORY TO MOUNT SUSPENDED LUMINAIRES AT HEIGHT INDICATED.
2. INSTALL RECESSED LUMINAIRES TO PERMIT REMOVAL FROM BELOW. INSTALL GRID CLIPS.
3. INSTALL LAMPS IN LUMINAIRES AND LAMPHOLDERS.

2.3 ADJUSTING AND CLEANING

- A. ALIGN LUMINAIRES AND CLEAN LENSES AND DIFFUSERS AT COMPLETION OF WORK.
- B. AIM ADJUSTABLE LUMINAIRES AND LAMPHOLDERS AS INDICATED OR AS DIRECTED.
- C. CLEAN PAINT SPLATTERS, DIRT AND DEBRIS FROM INSTALLED LUMINAIRES .
- D. TOUCH UP LUMINAIRES FINISH AT COMPLETION OF WORK.
- E. RELAMP LUMINAIRES WHICH HAVE FAILED LAMPS AT COMPLETION OF WORK.

FIRE ALARM

PART 1 - GENERAL

1.1 SCOPE

- A. CONTRACTOR SHALL DESIGN AND INSTALL A COMPLETE FIRE ALARM AND SMOKE DETECTION SYSTEM. COORDINATE WITH LOCAL REGULATORY AGENCIES AND FIRE MARSHALL. THE FINISHED SYSTEM SHALL INCLUDE ALL ITEMS AS REQUIRED BY THE FIRE MARSHALL AND ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS.
- B. FIRE ALARM SYSTEM SHALL CONSIST OF ALL THE NECESSARY EQUIPMENT TO PERFORM FIRE ALARM DETECTION AND ANNUNCIATION OPERATIONS FOR THE BUILDING.

1.2 SUBMITTALS

- A. PRODUCT DATA: EACH FIRE ALARM AND SMOKE DETECTION COMPONENT.
- B. MAINTENANCE AND OPERATING INSTRUCTIONS: FIRE ALARM AND SMOKE DETECTION SYSTEM.
- C. SUBMIT DRAWINGS APPROVED BY STATE FIRE MARSHALL. INCLUDE COORDINATING RISER AND CONNECTION DIAGRAMS, SCHEDULES SHOWING LOCATIONS AND FUNCTION OF EACH DEVICE, AND SPECIFICATION DATA SHEETS.
- D. FURNISH THREE (3) SETS OF AS-BUILT DRAWINGS, LITERATURE, AND WIRING DIAGRAMS, INCLUDING WIRE TAG DESIGNATING CONDUCTOR COUNTS AND SIZE, TO OWNER AFTER JOB HAS BEEN COMPLETED.

1.3 REGULATORY REQUIREMENTS

- A. CONFORM TO REQUIREMENTS OF NFPA 70.
- B. FURNISH PRODUCTS LISTED BY UNDERWRITERS LABORATORIES, INC. OR OTHER TESTING FIRM ACCEPTABLE TO AUTHORITY HAVING JURISDICTION.
- C. INTERNATIONAL BUILDING CODE.
- D. NFPA 101, LIFE SAFETY CODE.
- E. NFPA 72, FIRE ALARM CODE.
- F. LOCAL FIRE CODES AND STATE FIRE MARSHAL.

1.4 QUALITY ASSURANCE

- A. SYSTEM SUPPLIER SHALL HAVE OFFICE WITHIN 100 MILES OF SITE AND SHALL PROVIDE SERVICE WITHIN 24 HOURS FROM NOTICE THAT FAULT WITH SYSTEM DOES EXIST.
- B. INSTALLER SHALL BE AUTHORIZED BY SYSTEM MANUFACTURER TO INSTALL AND SERVICE SYSTEM. SUBMIT PROOF OF SUCH AUTHORIZATION.
- C. INSTALLER SHALL HAVE AT LEAST 5 YEARS OF SUCCESSFUL INSTALLATION EXPERIENCE ON SIMILAR PROJECTS AND BE LICENSED AND REGISTERED BY THE STATE FIRE MARSHALL TO SELL, INSTALL, AND SERVICE FIRE DETECTION AND ALARM SYSTEMS.
- D. SYSTEM SHALL BE INSTALLED COMPLETE IN EVERY RESPECT BY EXPERIENCED, QUALIFIED AND COMPETENT TECHNICIANS UNDER THE SUPERVISION OF LICENSED INSTALLATION SUPERINTENDENT.

1.5 MAINTENANCE

- A. PROVIDE TWO SPARE FIRE ALARM STATION GLASS RODS.

PART 2 - PRODUCTS

2.1 FIRE ALARM SYSTEM

A. MANUFACTURERS:

1. NOTIFIER, AUTO CALL, FIRELITE, PYROTRONICS OR APPROVED EQUAL.

B. FIRE ALARM AND SMOKE DETECTION SYSTEM:

1. DESIGN TO NFPA 72. MEET REQUIREMENTS FOR AUTOMATIC FIRE ALARM SYSTEM.
2. PROVIDE SMOKE DETECTION SYSTEM PERFORMANCE TO NFPA 72E.
3. SYSTEM SUPERVISION: ELECTRICALLY-SUPERVISED ALARM INITIATING AND ALARM SIGNALING CIRCUITS.
4. ENCLOSURE SHALL HAVE LOCKABLE DOOR WITH FRAMED WINDOWS SO THAT INDICATING LAMPS AND SYSTEM CONTROL SWITCHES ARE ACCESSIBLE WITHOUT OPENING THE DOOR. PROVIDE TUMBLE LOCK WITH THREE KEYS.
5. ZONING: SIX ZONES - VERIFY WITH STATE FIRE MARSHALL'S REQUIREMENTS AND OWNER'S REQUIREMENTS.

C. COMPONENTS:

1. CONTROL PANEL: MODULAR CONTROL PANEL IN FLUSH WALL MOUNTED ENCLOSURE.
2. POWER SUPPLY: INCLUDE BATTERY-OPERATED EMERGENCY POWER SUPPLY FOR OPERATION OF SYSTEM UNDER NORMAL AND ALARM CONDITIONS WITH POWER FAILURE LED LAMP.
3. AUXILIARY RELAYS: PROVIDE SUFFICIENT AUXILIARY RELAY CONTACTS TO PROVIDE ACCESSORY FUNCTIONS SPECIFIED AND INDICATED.
4. MANUAL STATION: PROVIDE NONCODED SINGLE ACTION HIGH IMPACT RED LEXAN STATIONS WITH RECESSED LEVER PULL. BREAKGLASS OPERATION IS NOT ACCEPTABLE. OPERATING INSTRUCTIONS ON PULL SHALL BE RAISED LETTERS PAINTED WHITE. PROVIDE CONTACTS IN PULL STATIONS TO PERFORM AS PER SYSTEM OPERATION DESCRIBED. PROVIDE LEXAN, TAMPER-RESISTANT COVER FOR EACH STATION. STATIONS SHALL BE FLUSH MOUNTED, 48" A.F.F. WITH RECESSED WALL FLANGE.
5. CEILING MOUNTED SMOKE DETECTOR: DETECTORS SHALL BE PHOTOELECTRIC SOLID-STATE TYPE WITH PULSED LED POWER SUPERVISOR INDICATOR. DETECTORS SHALL HAVE SENSITIVITY ADJUSTMENTS WITHIN U.L. LISTING LIMITS.
6. DUCT MOUNTED SMOKE DETECTOR: DUCT SMOKE DETECTORS SHALL BE OF SOLID STATE PHOTOELECTRIC TYPE. DETECTORS SHALL BE DESIGNED TO IGNORE INVISIBLE AIRBORNE PARTICLES OR SMOKE DENSITIES THAT ARE BELOW FACTORY SET ALARM POINT. NO RADIOACTIVE MATERIALS SHALL BE USED. DETECTOR CONSTRUCTION SHALL BE OF SPLIT TYPE, THAT IS, MOUNTING BASE WITH TWIST-LOCK DETECTING HEAD. REMOVAL OF DETECTOR HEAD SHALL INTERRUPT SUPERVISORY CIRCUIT OF THE FIRE ALARM DETECTION LOOP AND CAUSE A TROUBLE SIGNAL AT CONTROL PANEL. DUCT HOUSING COUPLINGS SHALL BE SLOTTED TO INSURE PROPER ALIGNMENT OF SAMPLING AND EXHAUST TUBES. DETECTOR SHALL HAVE VISIBLE ALARM LED, PROVIDE REMOTE INDICATOR LAMP WHERE DETECTOR IS IN CONCEALED SPACE. DETECTORS SHALL OBTAIN THEIR OPERATING POWER FROM SUPERVISED CURRENT IN THE FIRE ALARM LOOP.
7. COMBINATION AUDIO/VISUAL UNITS: FLASHING LAMP ASSEMBLY SHALL INCLUDE BUILT- IN REFLECTOR AND WHITE LEXAN LENS WITH THE WORD "FIRE" IN RAISED RED LETTERING ON SIDES. UNITS SHALL FLASH AT SUCH A RATE TO BE IN ACCORDANCE WITH THE U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE SAFETY GUIDELINES FOR PERSONS WHO MAY BE SEIZURE PRONE TO PHOTSENSITIVE EPILEPSY. UNITS TO BE FLUSH MOUNTED, 84" A.F.F.
8. FIRE ALARM AND SMOKE DETECTION SYSTEM CABLE: AS REQUIRED BY SYSTEM MANUFACTURER.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. INSTALL FIRE ALARM SYSTEMS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS:
1. INSTALL MANUAL STATION WITH OPERATING HANDLE 48" ABOVE FLOOR. INSTALL AUDIBLE AND VISUAL SIGNAL DEVICES 84 INCHES ABOVE FLOOR.
2. MOUNT END-OF-LINE DEVICE IN BOX WITH LAST DEVICE OR SEPARATE BOX ADJACENT TO LAST DEVICE IN CIRCUIT.
3. MAKE CONDUIT AND WIRING CONNECTIONS TO DOOR RELEASE DEVICES, SPRINKLER FLOW SWITCHES, SPRINKLER VALVE TAMPER SWITCHES, FIRE SUPPRESSION SYSTEM CONTROL PANELS, DUCT SMOKE DETECTORS AND FIRE/SMOKE DAMPERS (IF ANY).
4. INTERFACE INSTALLATION OF DOOR HOLDERS WITH DOORS AND FRAMES TO ACHIEVE PROPER OPERATION AND AVOID INTERFERENCE.
5. INTERFACE INSTALLATION OF FIRE ALARM WITH FIRE PROTECTION SYSTEM.

3.2 FIELD QUALITY CONTROL

- A. PERFORM FIELD INSPECTION AND TESTING OF FIRE ALARM AND SMOKE DETECTION SYSTEM UNDER PROVISIONS OF DIVISION 01.
1. INSPECT AND TEST TO NFPA 72H AND LOCAL FIRE SERVICE REQUIREMENTS.
2. INCLUDE DESCRIPTION OF TESTING AND RESULTS IN TEST REPORT.

TRANSFORMER SCHEDULE								
XFMR NUMBER	BLDG #	BLDG TYPE	BLDG SECTION	LENGTH OF SECONDARY	AMPS	PHASE	SHEET (RISER)	VOLTAGE
T1	1	I	1a/CLUB	38	1600	1 Ø	E404	120/240V
T2	1	I	1b	69	1600	1 Ø	E404	120/240V
T3	1	I	1b	69	1200	1 Ø	E404	120/240V
T4	1	I	1c	73	1600	1 Ø	E405	120/240V
T5	1	I	1d	8	1600	1 Ø	E405	120/240V
T6	1	I	1d	8	1600	1 Ø	E405	120/240V
T7	1	I	1e	30	1600	1 Ø	E406	120/240V
T8	1	I	1e	32	1200	1 Ø	E406	120/240V
T9	2	II		20	1600	1 Ø	E407	120/240V
T10	3	II		27	1600	1 Ø	E407	120/240V
T11	4	II		21	1600	1 Ø	E407	120/240V
T12	5	II		7	1600	1 Ø	E407	120/240V
T13	MAIN/TC	-		93	200	1 Ø	E410	120/240V

- KEYED NOTES
1. MODULAR METERING SYSTEM IN NEMA 3R ENCLOSURE. REFER TO E404 THRU E407 FOR RISER DIAGRAM. SYSTEM INCLUDES MAIN DISCONNECT AND METER STACKS OF 5 METERS.

2. SECONDARY UNDERGROUND LATERAL CONDUIT FROM METER TO TRANSFORMER. REFER TO ELECTRICAL RISER DIAGRAMS FOR WIRE AND CONDUIT SIZES.

3. 120/240V, 1Ø PAD-MOUNTED TRANSFORMER. PROVIDED BY CPS ENERGY. CONCRETE PAD PROVIDED BY OWNER.

4. PROVIDE JUNCTION BOX FOR SECURITY CAMERA. SECURITY SYSTEM DESIGNED BY OTHERS.

5. PROVIDE JUNCTION BOX AT GRADE FOR MONUMENT SIGN LIGHT. ROUTE CONDUIT TO BUILDING 2 TIME CLOCK. REFER TO SHEET E310 FOR LIGHT FIXTURE SCHEDULE.

6. PROVIDE JUNCTION BOX FOR 115V, 1/2 HP SLIDING ENTRY GATE WITH 24VDC BATTERY. CIRCUIT TO NEAREST LOAD CENTER.

7. ALL COURTYARD LIGHTING SHALL BE CIRCUITED TO HP-1a-21. CIRCUIT THRU TIME CLOCK TO PHOTOCELL.

8. 120/240V, 1Ø, 200 A DISCONNECT AND METER FOR MAINTENANCE BUILDING IN NEMA 3R ENCLOSURE.

9. 120/240V, 1Ø, 600 A DISCONNECT AND METER FOR COMMUNITY CENTER IN NEMA 1 ENCLOSURE.

10. 120/240, 1Ø, 100 A DISCONNECT AND METER FOR TRASH COMPACTOR IN NEMA 3R ENCLOSURE.

11. PROVIDE JUNCTION BOX AT CANOPY FOR BUILDING SIGNAGE. ROUTE CONDUIT TO "CP" LOAD CENTER THRU TIME CLOCK

- GENERAL NOTES
- A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.

B. REFER TO LIFE SAFETY PLANS FOR FIRE WALL INDICATION AND ARCHITECTURAL PLANS, SHEETS A-200 AND A-401 FOR 2-HOUR FIRE RATED DOORS.
- EXTERIOR LIGHTING NOTES
- a. ALL EXTERIOR LIGHTING SHALL BE FULLY SHIELDED AND FULL-CUTOFF PER DARK SKY REQUIREMENTS.

b. ALL EXTERIOR LIGHTING TO BE CONTROLLED BY PHOTOCELL AND TIMER CLOCK.

c. CONTROL SHALL BE AS FOLLOWS:

TIME CLOCK SHALL ENERGIZE LIGHT FIXTURE CIRCUITS AT PRESCRIBED TIME, AS PER OWNER.

SOME FIXTURES MAY BE DESIGNATED AS SECURITY LIGHTING TO OPERATE FROM PHOTOCELL. COORDINATE WITH OWNER FOR EXACT REQUIREMENTS.

d. REFER TO ELECTRICAL BUILDING PLANS FOR WALL PACK CIRCUITING.

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Cassie Farley
214.443.9090

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS		



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
SITE PLAN

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E003



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REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

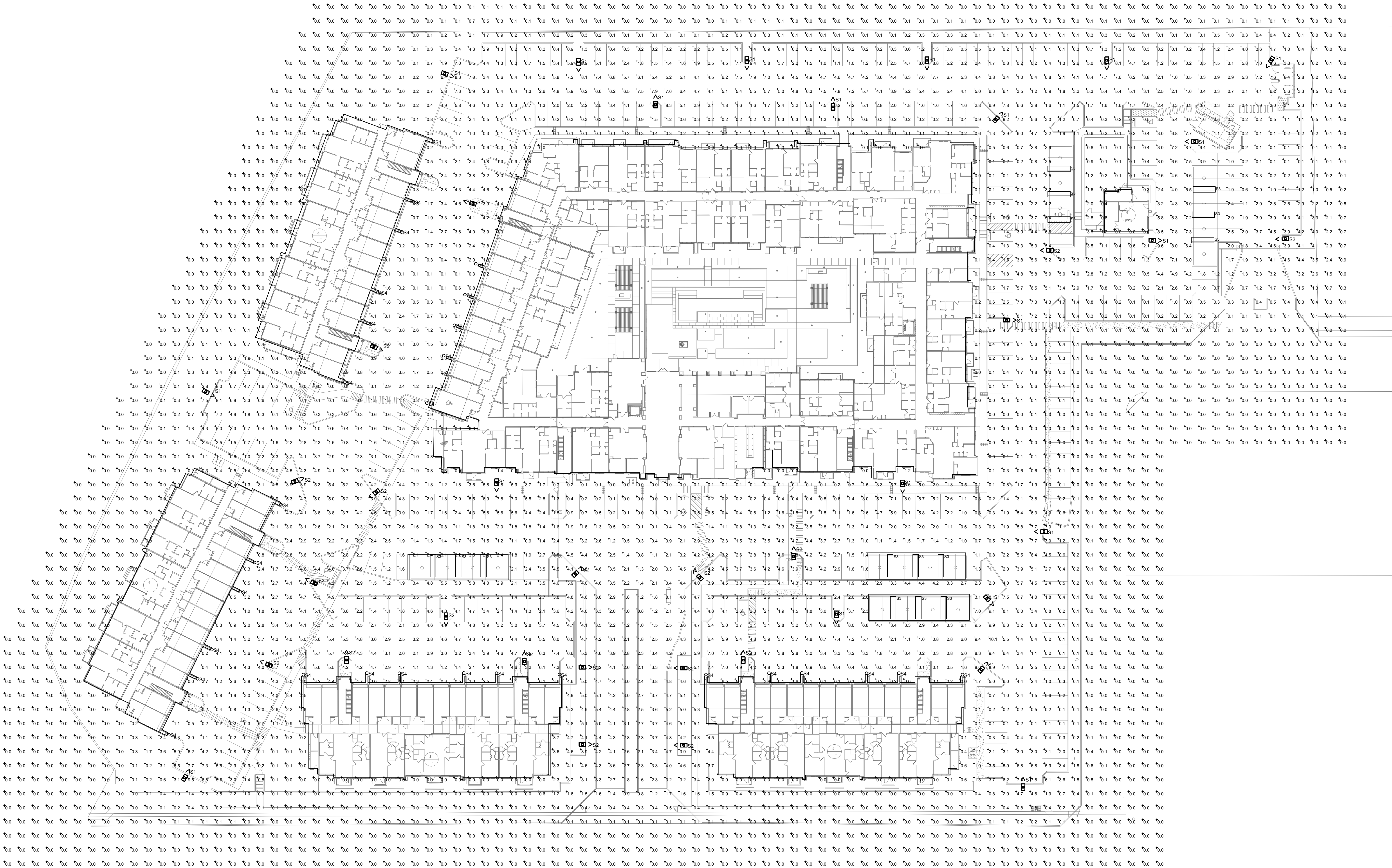
ELECTRICAL
PHOTOMETRIC

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E004

Statistics							
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	
Calc Zone #1	+	1.5 fc	10.1 fc	0.0 fc	NA	N/A	

Schedule											
Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
	S1	21	Lithonia Lighting	DSX1 LED 40C 1000 40K T3S MVOLT HS	DSX1 LED with 40 LEDs @ 1000 mA , 4000K , TYPE 3 SHORT OPTICS WITH HOUSE-SIDE SHIELD	LED	1	DSX1_LED_40C_1000_40K_T3S_MVOLT_HS.kes	12569	1	138
	S2	19	Lithonia Lighting	DSX1 LED 40C 1000 40K T5M MVOLT	DSX1 LED with 40 LEDs @ 1000 mA , 4000K , TYPE 5 MEDIUM OPTICS	LED	1	DSX1_LED_40C_1000_40K_T5M_MVOLT.kes	15845	1	138
	S3	15	Lithonia Lighting	DSXSC LED 10C 700 30K T5R MVOLT	DSX SURFACE CANOPY FIXTURE WITH 1 LIGHT ENGINE, 700MA DRIVER, 3000K LEDs, T5R OPTIC.	LED	1	DSXSC_LED_10C_700_30K_T5R_MVOLT.kes	2701	1	26
	S4	30	Lithonia Lighting	OLLWD	OUTDOOR LED WALL DOWNLIGHT CYLINDER WITH 400K LEDs AND POLYCARBONATE LENSES	LED	1	OLLWD.kes	264	1	8.6



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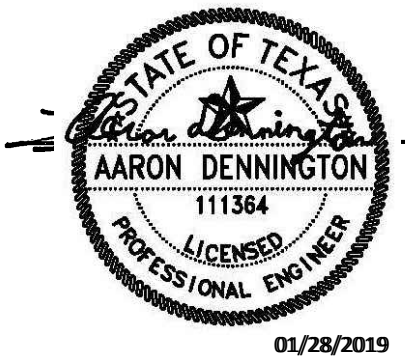
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ISSUANCES

01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
BUILDING 1a
LEVEL 1

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

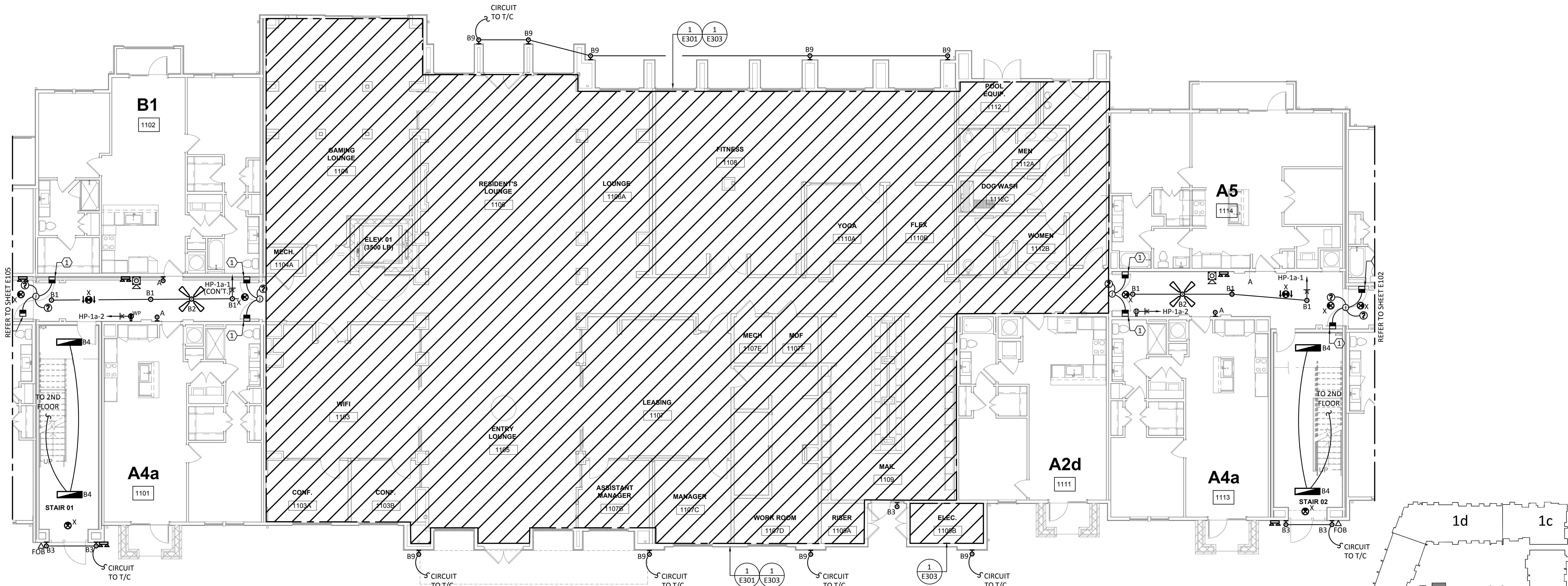
E101

GENERAL NOTES:

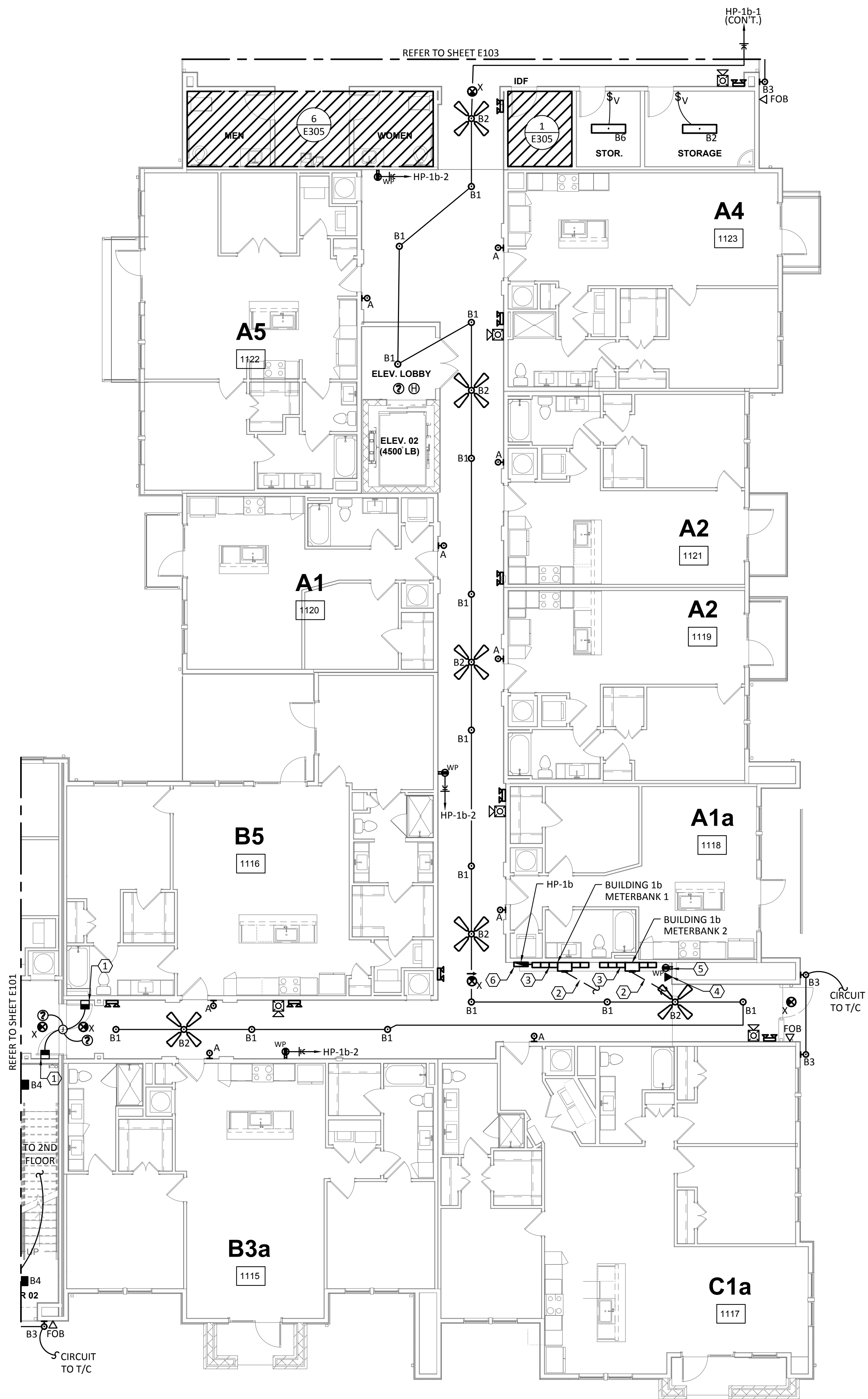
- REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
- ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-16.
- REFER TO ELECTRICAL SITE PLAN FOR EXACT LOCATION OF ELECTRICAL METER SERVICE LOCATION.
- ALL EXTERIOR LIGHTING SHALL BE CIRCUITED THRU TIME CLOCK TO PHOTOCELL.
- ALL BREEZEWAY LIGHTING (B1), CEILING FANS (B2) AND STAIRWELL LIGHTS (B4) SHALL BE SWITCHED AT CIRCUIT BREAKER.
- ALL UNIT ENTRY LIGHTING (A) SHALL BE CIRCUITED TO TENANT LOAD CENTER AND UNSWITCHED.

KEYED NOTES:

- PROVIDE MAGNETIC DOOR OPEN HOLDERS WITH J-BOX INTERLOCKED WITH SMOKE DETECTORS.



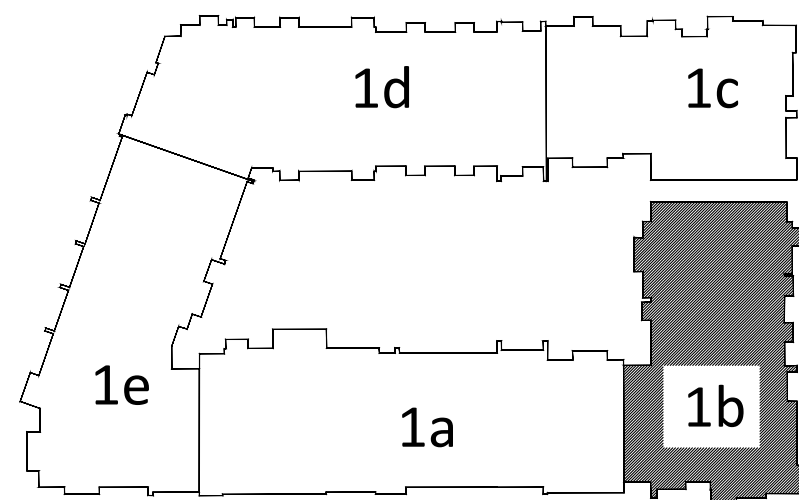
1 ELECTRICAL - BUILDING 1a - LEVEL 1
SCALE: 1/8"=1'-0"



1 ELECTRICAL - BUILDING 1b - LEVEL 1
SCALE: 1/8"=1'-0"

- GENERAL NOTES:**
- A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
 - B. ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-16.
 - C. REFER TO ELECTRICAL SITE PLAN FOR EXACT LOCATION OF ELECTRICAL METER SERVICE LOCATION.
 - D. ALL EXTERIOR LIGHTING SHALL BE CIRCUITED THRU TIME CLOCK TO PHOTOCELL.
 - E. ALL BREEZEWAY LIGHTING (B1), CEILING FANS (B2) AND STAIRWELL LIGHTS (B4) SHALL BE SWITCHED AT CIRCUIT BREAKER.
 - F. ALL UNIT ENTRY LIGHTING (A) SHALL BE CIRCUITED TO TENANT LOAD CENTER AND UNSWITCHED.

- KEYED NOTES:**
1. PROVIDE MAGNETIC DOOR OPEN HOLDERS WITH J-BOX INTERLOCKED WITH SMOKE DETECTORS.
 2. ROUTE SECONDARY LATERALS TO 120/240 V, 1Ø PAD MOUNT TRANSFORMER (PROVIDED BY CPS ENERGY). ALL LATERALS SHALL BE SIZED BY CPS ENERGY. REFER TO SHEET E003.
 3. MODULAR METERING SYSTEM. MOUNT ON EXTERIOR WALL IN NEMA 3R ENCLOSURE. REFER TO CPS ENERGY DESIGN CRITERIA MANUAL FOR MAXIMUM/MINIMUM MOUNTING HEIGHT LIMITS TO CENTER OF THE METER.
 4. ALL MODULAR METER AREAS REQUIRE A FUNCTIONAL TELEPHONE LINE TO BE INSTALLED ADJACENT TO METERING EQUIPMENT TO PROVIDE DIAL IN/OUT SERVICE PER CPS ENERGY DESIGN CRITERIA MANUAL, SECTION 1810.1.
 5. PROVIDE RECEPTACLE WITHIN 50' OF ELECTRICAL SERVICE PER N.E.C. REQUIREMENTS.
 6. 120/240 V, 1Ø 100 AMP LOAD CENTER IN NEMA 3R ENCLOSURE. MAINTAIN A MINIMUM OF 6" BETWEEN MODULAR METERING SYSTEM AND LOAD CENTER.



KEY PLAN
N.T.S.



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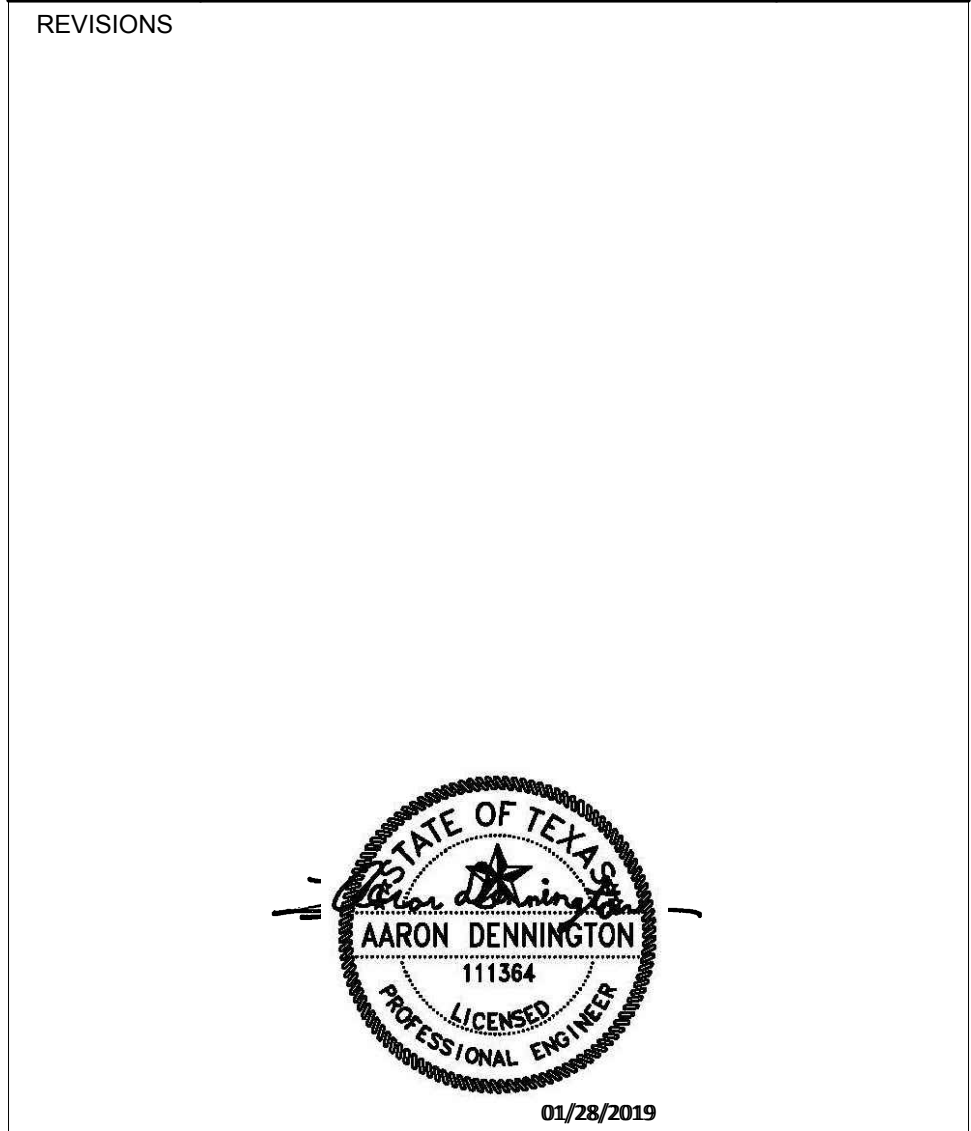
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ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL BUILDING 1b LEVEL 1

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E102

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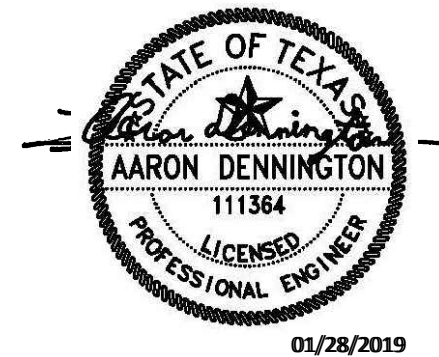
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ISSUANCES

01	SCHEMATIC DESIGN	09.10.18
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REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
BUILDING 1c
LEVEL 1

Project Number	18054
Date	01/14/2018
Drawn By	TLR
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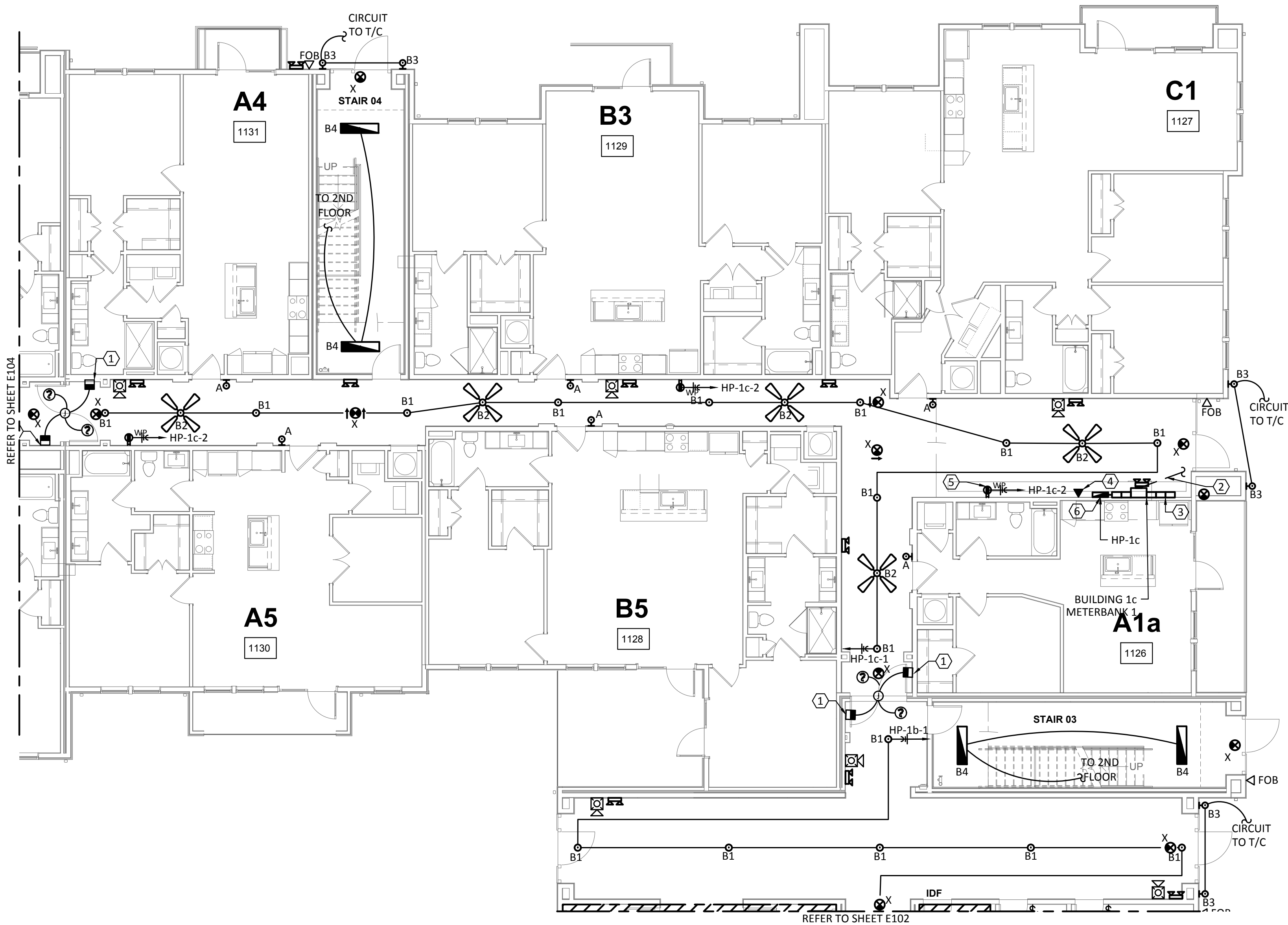
E103

GENERAL NOTES:

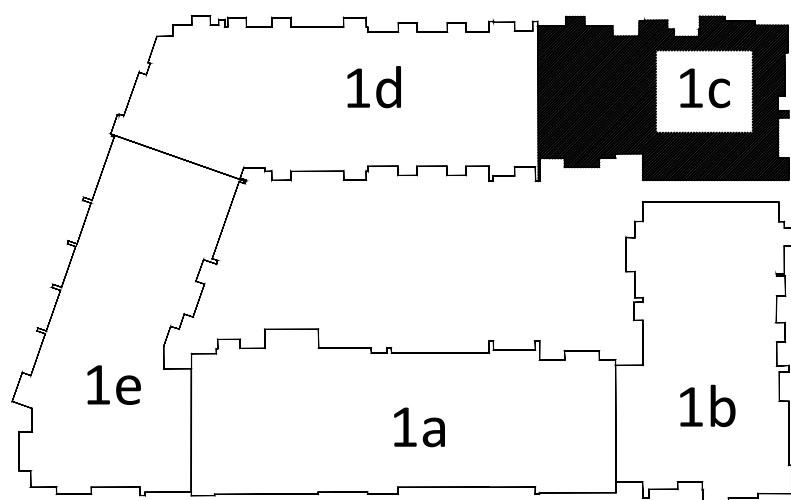
- REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
- ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-28.
- REFER TO ELECTRICAL SITE PLAN FOR EXACT LOCATION OF ELECTRICAL METER SERVICE LOCATION.
- ALL EXTERIOR LIGHTING SHALL BE CIRCUITED THRU TIME CLOCK TO PHOTOCELL.
- ALL BREEZEWAY LIGHTING (B1), CEILING FANS (B2) AND STAIRWELL LIGHTS (B4) SHALL BE SWITCHED AT CIRCUIT BREAKER.
- ALL UNIT ENTRY LIGHTING (A) SHALL BE CIRCUITED TO TENANT LOAD CENTER AND UNSWITCHED.

KEYED NOTES:

- PROVIDE MAGNETIC DOOR OPEN HOLDERS WITH J-BOX INTERLOCKED WITH SMOKE DETECTORS.
- ROUTE SECONDARY LATERALS TO 120/240 V. 1Ø PAD MOUNT TRANSFORMER (PROVIDED BY CPS ENERGY). ALL LATERALS SHALL BE SIZED BY CPS ENERGY. REFER TO SHEET E003.
- MODULAR METERING SYSTEM. MOUNT ON EXTERIOR WALL IN NEMA 3R ENCLOSURE. REFER TO CPS ENERGY DESIGN CRITERIA MANUAL FOR MAXIMUM/MINIMUM MOUNTING HEIGHT LIMITS TO CENTER OF THE METER.
- ALL MODULAR METER AREAS REQUIRE A FUNCTIONAL TELEPHONE LINE TO BE INSTALLED ADJACENT TO METERING EQUIPMENT TO PROVIDE DIAL IN/OUT SERVICE PER CPS ENERGY DESIGN CRITERIA MANUAL, SECTION 1810.1.
- PROVIDE RECEPTACLE WITHIN 50' OF ELECTRICAL SERVICE PER N.E.C. REQUIREMENTS.
- 120/240 V., 1Ø 100 AMP LOAD CENTER IN NEMA 3R ENCLOSURE. MAINTAIN A MINIMUM OF 6" BETWEEN MODULAR METERING SYSTEM AND LOAD CENTER.



1 ELECTRICAL - BUILDING 1c - LEVEL 1
SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

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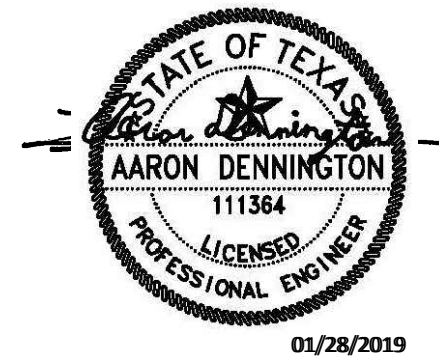
Interior Designer:

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ISSUANCES

01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
BUILDING 1d
LEVEL 1

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

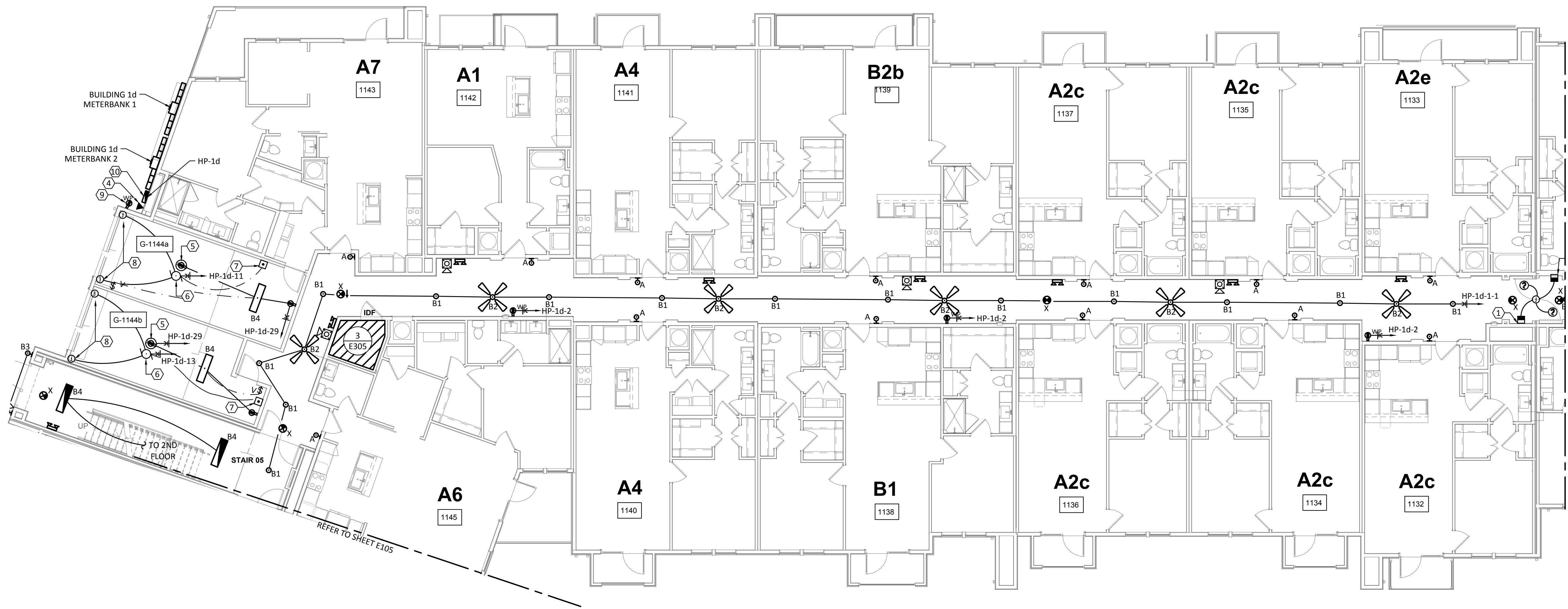
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GENERAL NOTES:

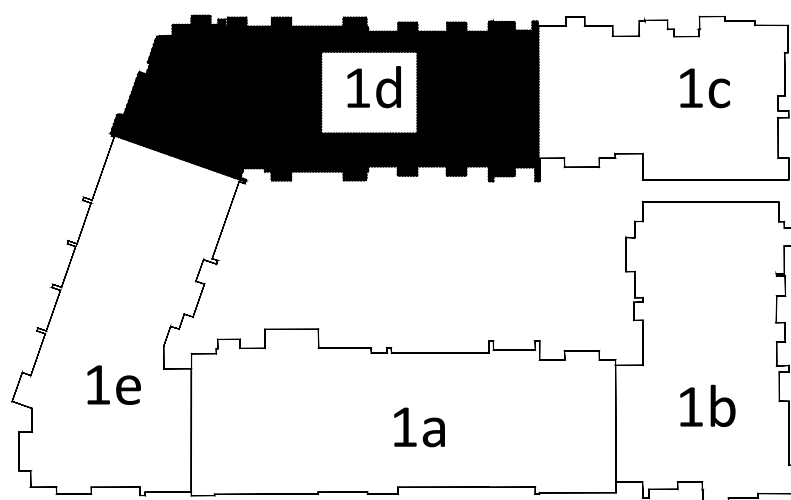
- REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
- ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-35.
- REFER TO ELECTRICAL SITE PLAN FOR EXACT LOCATION OF ELECTRICAL METER SERVICE LOCATION.
- ALL EXTERIOR LIGHTING SHALL BE CIRCUITED THRU TIME CLOCK TO PHOTOCELL.
- ALL BREEZEWAY LIGHTING (B1), CEILING FANS (B2) AND STAIRWELL LIGHTS (B4) SHALL BE SWITCHED AT CIRCUIT BREAKER.
- ALL UNIT ENTRY LIGHTING (A) SHALL BE CIRCUITED TO TENANT LOAD CENTER AND UNSWITCHED.

KEYED NOTES:

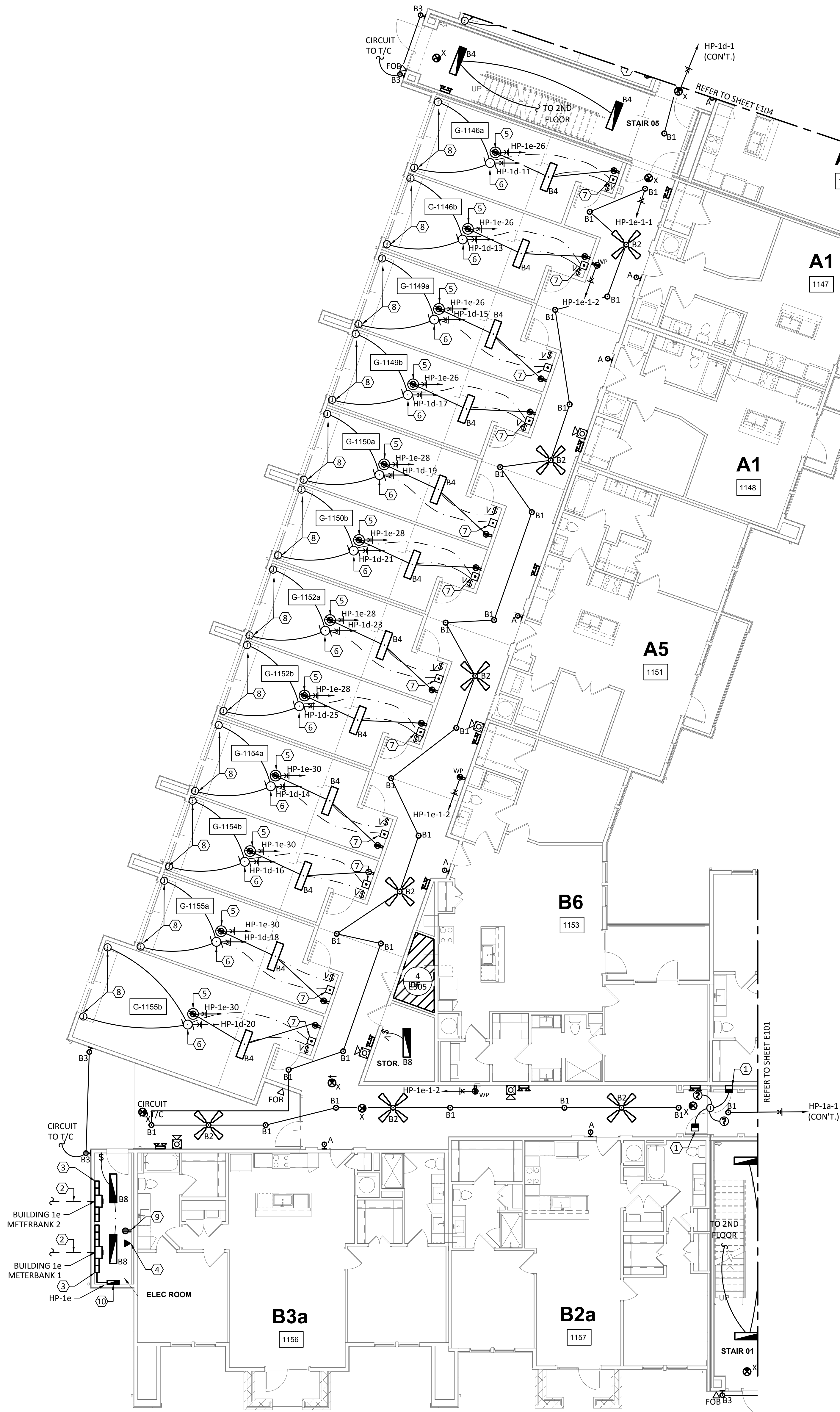
- PROVIDE MAGNETIC DOOR OPEN HOLDERS WITH J-BOX INTERLOCKED WITH SMOKE DETECTORS.
- ROUTE SECONDARY LATERALS TO 120/240 V. 1Ø PAD MOUNT TRANSFORMER (PROVIDED BY CPS ENERGY). ALL LATERALS SHALL BE SIZED BY CPS ENERGY. REFER TO SHEET E003.
- MODULAR METERING SYSTEM. MOUNT ON EXTERIOR WALL IN NEMA 3R ENCLOSURE. REFER TO CPS ENERGY DESIGN CRITERIA MANUAL FOR MAXIMUM/MINIMUM MOUNTING HEIGHT LIMITS TO CENTER OF THE METER.
- ALL MODULAR METER AREAS REQUIRE A FUNCTIONAL TELEPHONE LINE TO BE INSTALLED ADJACENT TO METERING EQUIPMENT TO PROVIDE DIAL IN/OUT SERVICE PER CPS ENERGY DESIGN CRITERIA MANUAL, SECTION 1810.1.
- PROVIDE DUPLEX OUTLET AT CEILING OF GARAGE ADJACENT TO GARAGE DOOR OPENER.
- PROVIDE AND INSTALL 120V, 1 PHASE, 20 AMP GARAGE DOOR OPENER. INSTALL PER MANUFACTURER'S INSTRUCTIONS. CIRCUIT TO LOAD CENTER.
- PROVIDE GARAGE DOOR OPENER BUTTON AT GARAGE ENTRY DOOR. MOUNT AT 44" A.F.F.
- INSTALL JUNCTION BOX AT BASE OF GARAGE DOOR RAILING. JUNCTION BOX SHALL BE "WEATHER TITE" TYPE.
- PROVIDE RECEPTACLE WITHIN 50' OF ELECTRICAL SERVICE PER N.E.C. REQUIREMENTS.
- 120/240 V., 1Ø 100 AMP LOAD CENTER IN NEMA 3R ENCLOSURE. MAINTAIN A MINIMUM OF 6" BETWEEN MODULAR METERING SYSTEM AND LOAD CENTER.



1 ELECTRICAL - BUILDING 1d - LEVEL 1
SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

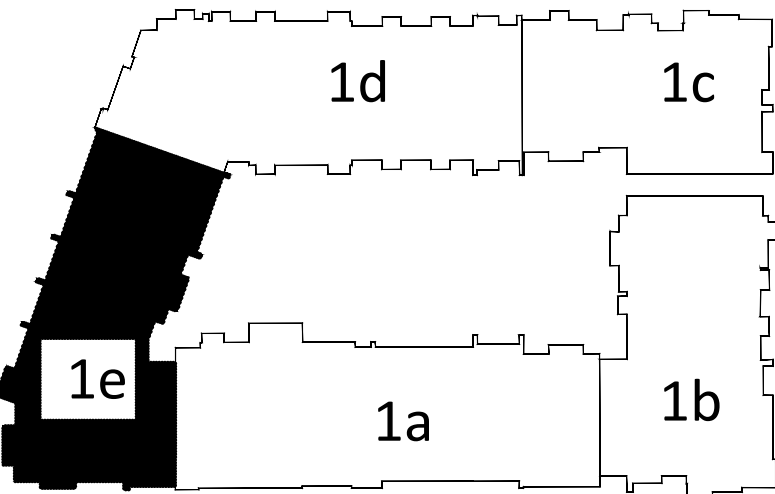


1 ELECTRICAL - BUILDING 1e - LEVEL 1
SCALE: 1/8"=1'-0"



- GENERAL NOTES:**
- A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
 - B. ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-35.
 - C. REFER TO ELECTRICAL SITE PLAN FOR EXACT LOCATION OF ELECTRICAL METER SERVICE LOCATION.
 - D. ALL EXTERIOR LIGHTING SHALL BE CIRCUITED THRU TIME CLOCK TO PHOTOCELL.
 - E. ALL BREEZEWAY LIGHTING (B1), CEILING FANS (B2) AND STAIRWELL LIGHTS (B4) SHALL BE SWITCHED AT CIRCUIT BREAKER.
 - F. ALL UNIT ENTRY LIGHTING (A) SHALL BE CIRCUITED TO TENANT LOAD CENTER AND UNSWITCHED.

- KEYED NOTES:**
1. PROVIDE MAGNETIC DOOR OPEN HOLDERS WITH J-BOX INTERLOCKED WITH SMOKE DETECTORS.
 2. ROUTE SECONDARY LATERALS TO 120/240 V. 1Ø PAD MOUNT TRANSFORMER (PROVIDED BY CPS ENERGY). ALL LATERALS SHALL BE SIZED BY CPS ENERGY. REFER TO SHEET E003.
 3. MODULAR METERING SYSTEM. MOUNT ON EXTERIOR WALL IN NEMA 3R ENCLOSURE. REFER TO CPS ENERGY DESIGN CRITERIA MANUAL FOR MAXIMUM/MINIMUM MOUNTING HEIGHT LIMITS TO CENTER OF THE METER.
 4. ALL MODULAR METER AREAS REQUIRE A FUNCTIONAL TELEPHONE LINE TO BE INSTALLED ADJACENT TO METERING EQUIPMENT TO PROVIDE DIAL IN/OUT SERVICE PER CPS ENERGY DESIGN CRITERIA MANUAL, SECTION 1810.1.
 5. PROVIDE DUPLEX OUTLET AT CEILING OF GARAGE ADJACENT TO GARAGE DOOR OPENER.
 6. PROVIDE AND INSTALL 120V, 1 PHASE, 20 AMP GARAGE DOOR OPENER. INSTALL PER MANUFACTURER'S INSTRUCTIONS. CIRCUIT TO LOAD CENTER.
 7. PROVIDE GARAGE DOOR OPENER BUTTON AT GARAGE ENTRY DOOR. MOUNT AT 44" A.F.F.
 8. INSTALL JUNCTION BOX AT BASE OF GARAGE DOOR RAILING. JUNCTION BOX SHALL BE "WEATHER TITE" TYPE.
 9. PROVIDE RECEPTACLE WITHIN 50' OF ELECTRICAL SERVICE PER N.E.C. REQUIREMENTS.
 10. 120/240 V., 1Ø 100 AMP LOAD CENTER IN NEMA 3R ENCLOSURE. MAINTAIN A MINIMUM OF 6" BETWEEN MODULAR METERING SYSTEM AND LOAD CENTER.



KEY PLAN
N.T.S.

Structural Engineer:

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4205 Beltway Dr. Addison, TX 75001
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MEP Engineer:

ENCOTECH
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Tessa Roberts
512.338.1101

Civil Engineer:

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David Allen
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Landscape Architect:

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Amber Rothwell
512.345.8477

Interior Designer:

S.J.L. Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

**ELECTRICAL
BUILDING 1e
LEVEL 1**

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E105

Structural Engineer:

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Landscape Architect:

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512.345.8477

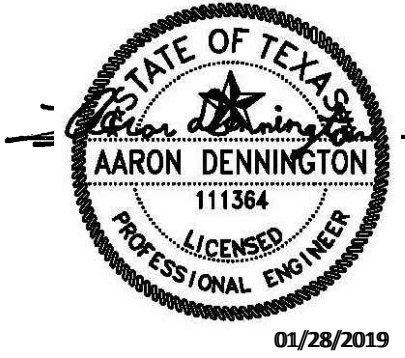
Interior Designer:

SJL Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES

01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
BUILDING 1a
LEVEL 2

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

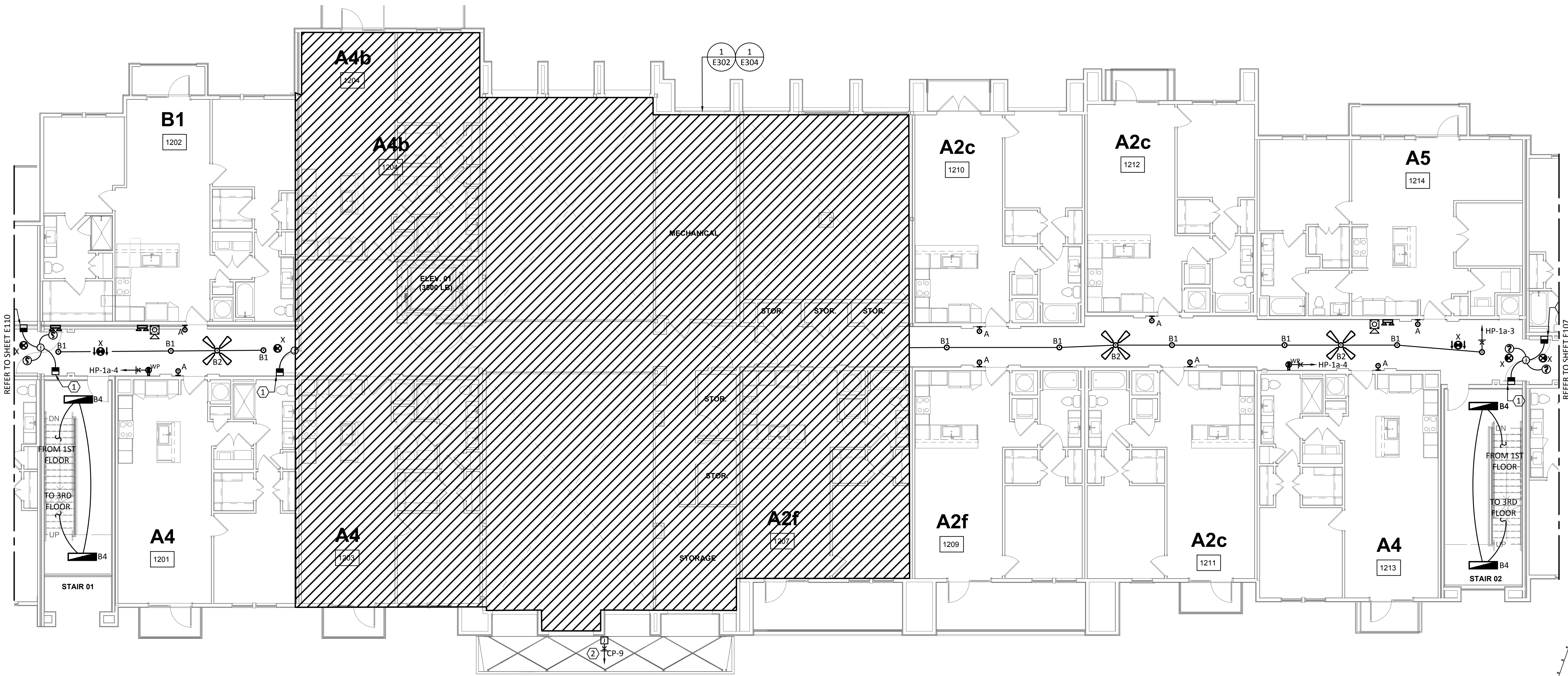
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GENERAL NOTES:

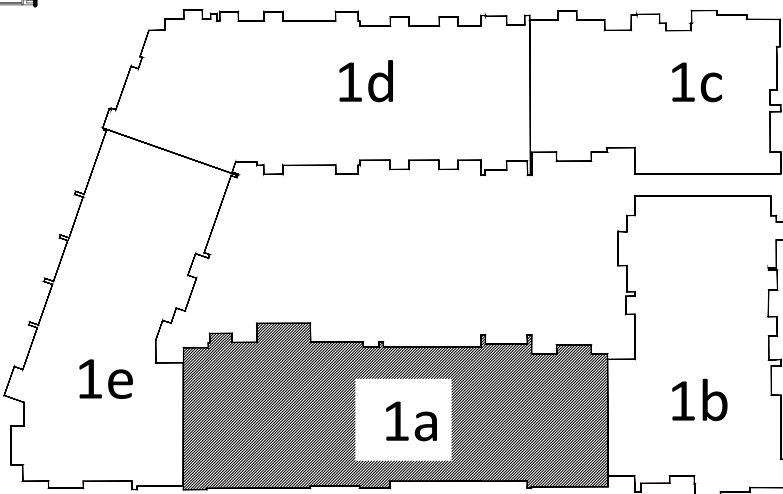
- REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
- ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-7.
- ALL EXTERIOR LIGHTING SHALL BE CIRCUITED THRU TIME CLOCK TO PHOTOCELL. TIME CLOCK SHALL BE CIRCUITED TO HOUSE PANEL.
- ALL BREEZEWAY LIGHTING (B1) AND CEILING FANS (B2) SHALL BE SWITCHED AT CIRCUIT BREAKER.
- ALL UNIT ENTRY LIGHTING (A) SHALL BE CIRCUITED TO TENANT LOAD CENTER AND UNSWITCHED.

KEYED NOTES:

- PROVIDE MAGNETIC DOOR OPEN HOLDERS WITH J-BOX INTERLOCKED WITH SMOKE DETECTORS.
- PROVIDE JUNCTION BOX AT CANOPY FOR BUILDING SIGNAGE. ROUTE CONDUIT TO "CP" LOAD CENTER THRU TIME CLOCK



1 ELECTRICAL - BUILDING 1a - LEVEL 2
SCALE: 1/8"=1'-0"



KEY PLAN

N.T.S.

Structural Engineer:

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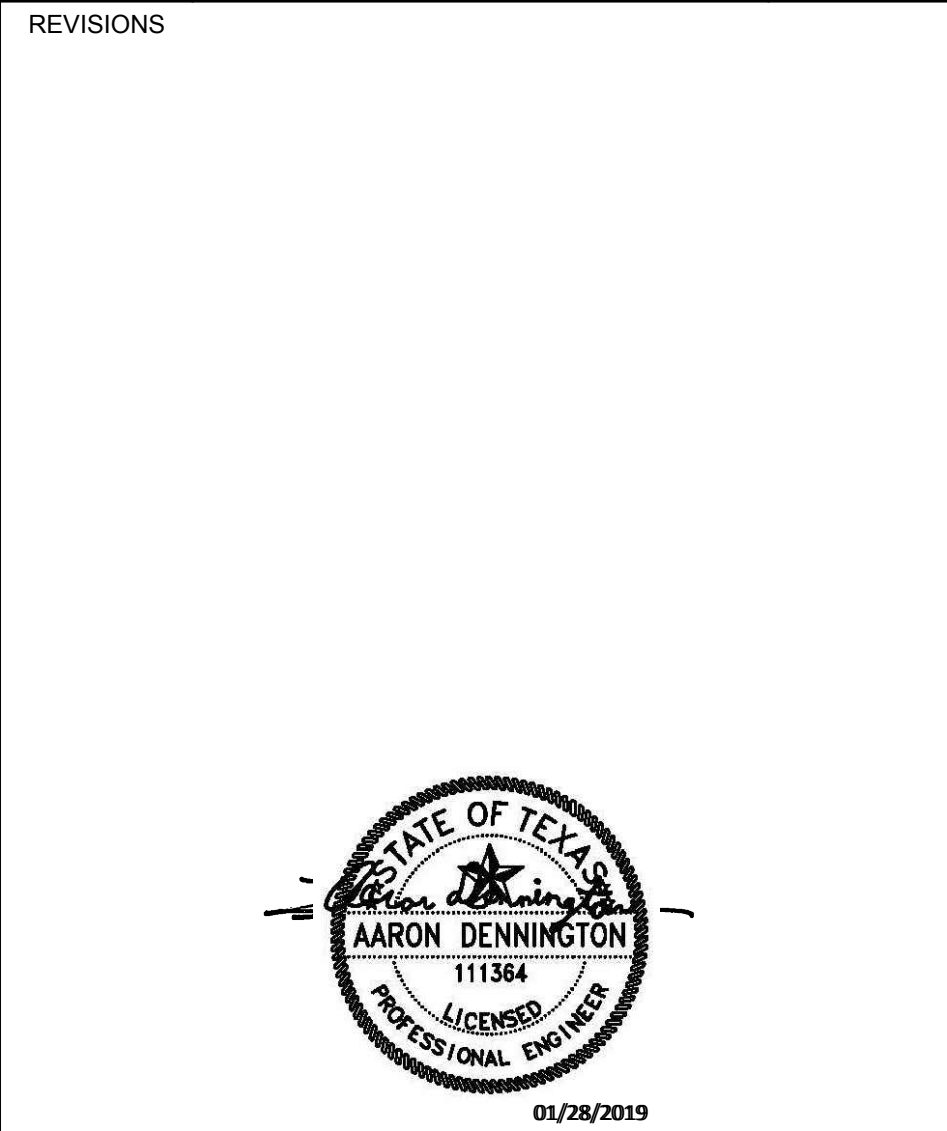
Landscape Architect:

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Amber Rothwell
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Interior Designer:

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ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
BUILDING 1b
LEVEL 2

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

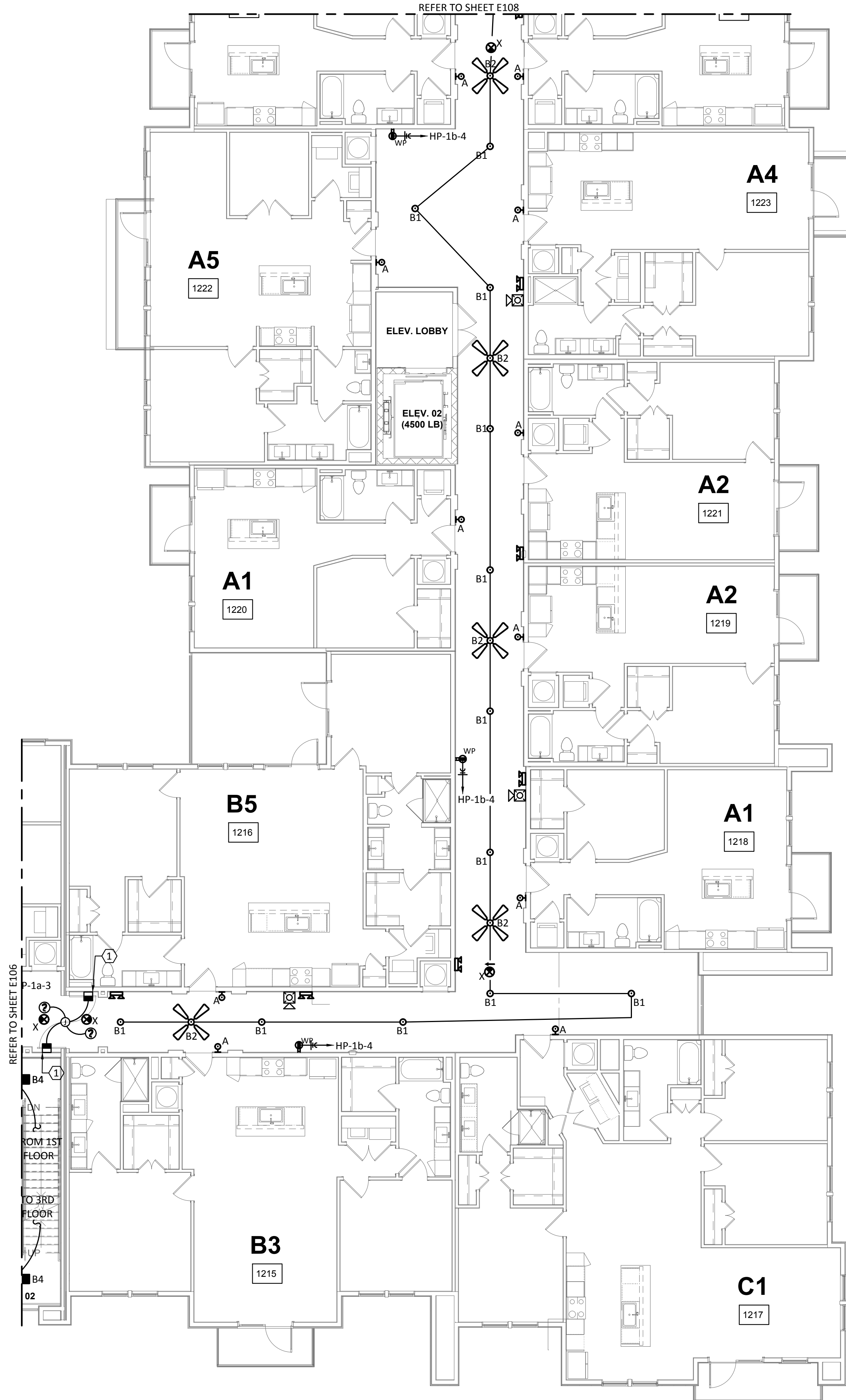
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GENERAL NOTES:

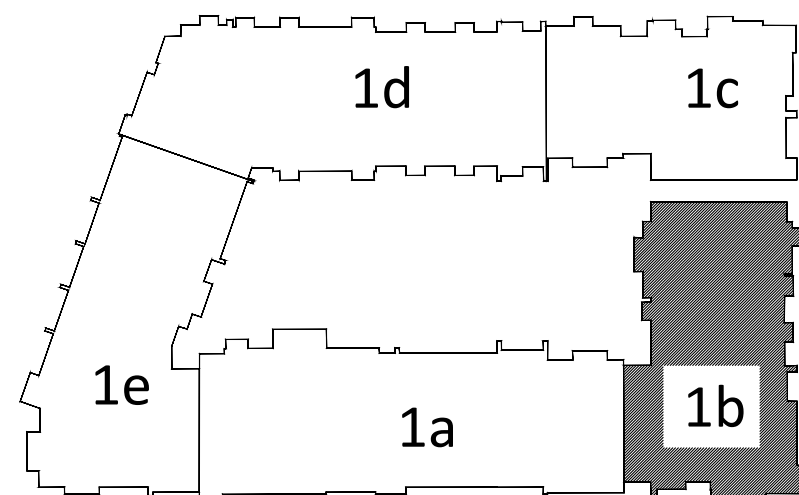
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- ALL BREEZEWAY LIGHTING (B1) AND CEILING FANS (B2) SHALL BE SWITCHED AT CIRCUIT BREAKER.
- ALL UNIT ENTRY LIGHTING (A) SHALL BE CIRCUITED TO TENANT LOAD CENTER AND UNSWITCHED.

KEYED NOTES:

- PROVIDE MAGNETIC DOOR OPEN HOLDERS WITH J-BOX INTERLOCKED WITH SMOKE DETECTORS.



1 ELECTRICAL - BUILDING 1b - LEVEL 2
SCALE: 1/8"=1'-0"



KEY PLAN

N.T.S.

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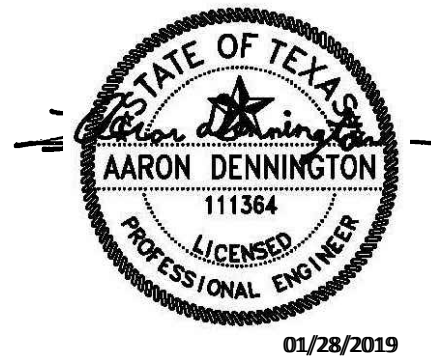
Interior Designer:

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Cassie Farley
214.443.9090

ISSUANCES

01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

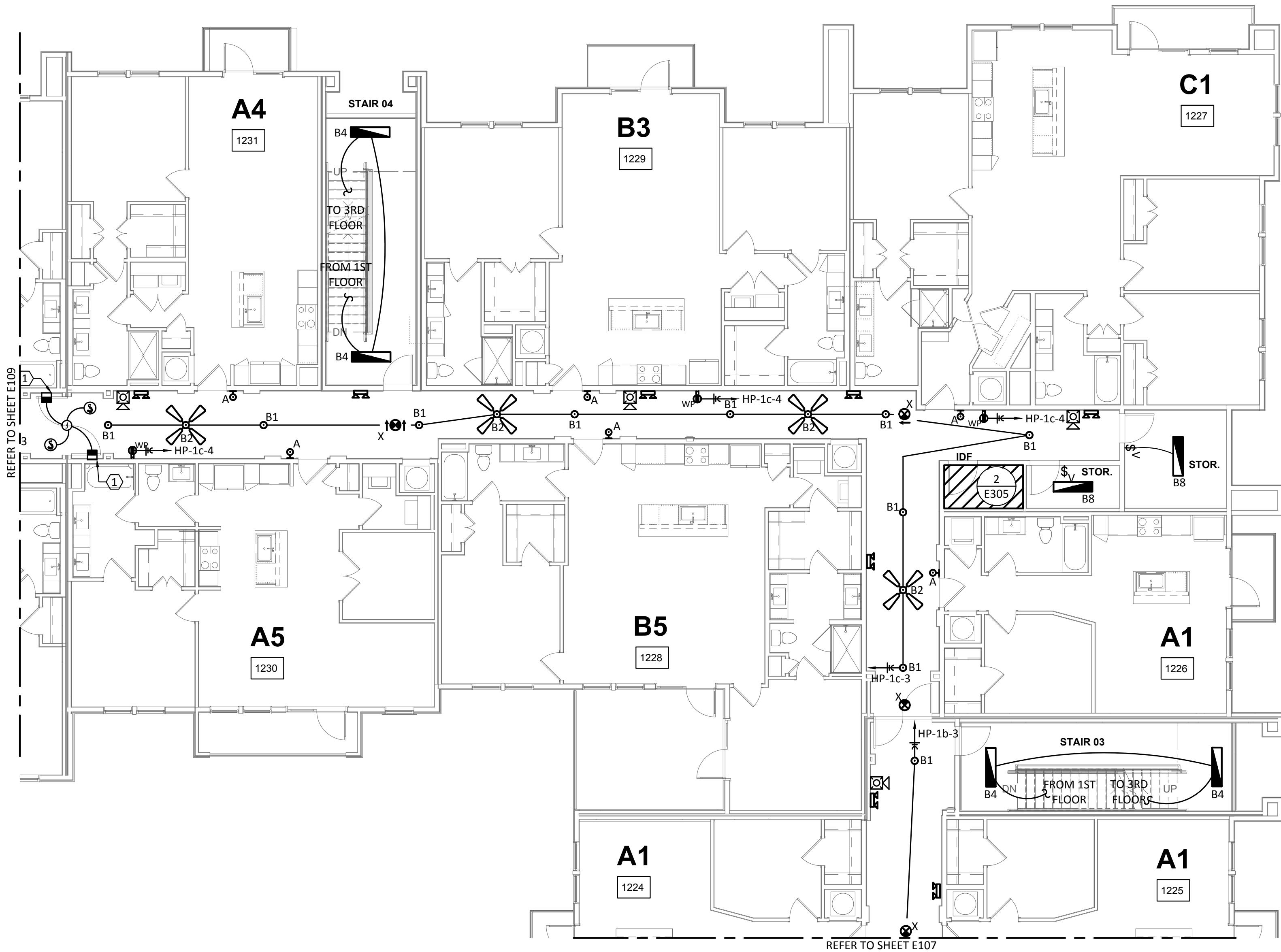
ELECTRICAL
BUILDING 1c
LEVEL 2

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E108

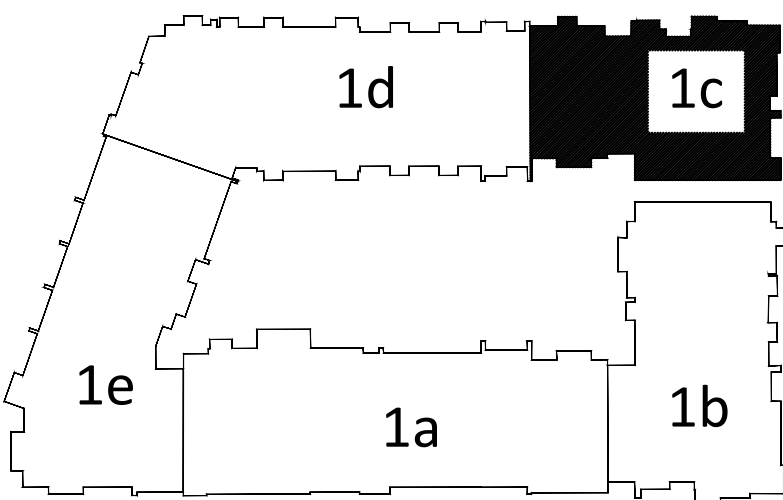
GENERAL NOTES:
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E. ALL UNIT ENTRY LIGHTING (A) SHALL BE CIRCUITED TO TENANT LOAD CENTER AND UNSWITCHED.

KEYED NOTES:
1. PROVIDE MAGNETIC DOOR OPEN HOLDERS WITH J-BOX INTERLOCKED WITH SMOKE DETECTORS.



1 ELECTRICAL - BUILDING 1c - LEVEL 2

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



KEY PLAN

N.T.S.

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Landscape Architect:

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Amber Rothwell
512.345.8477

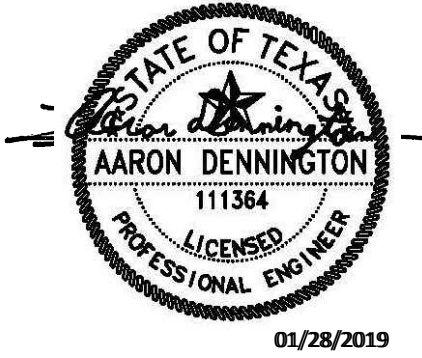
Interior Designer:

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921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES

01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
BUILDING 1d
LEVEL 2

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

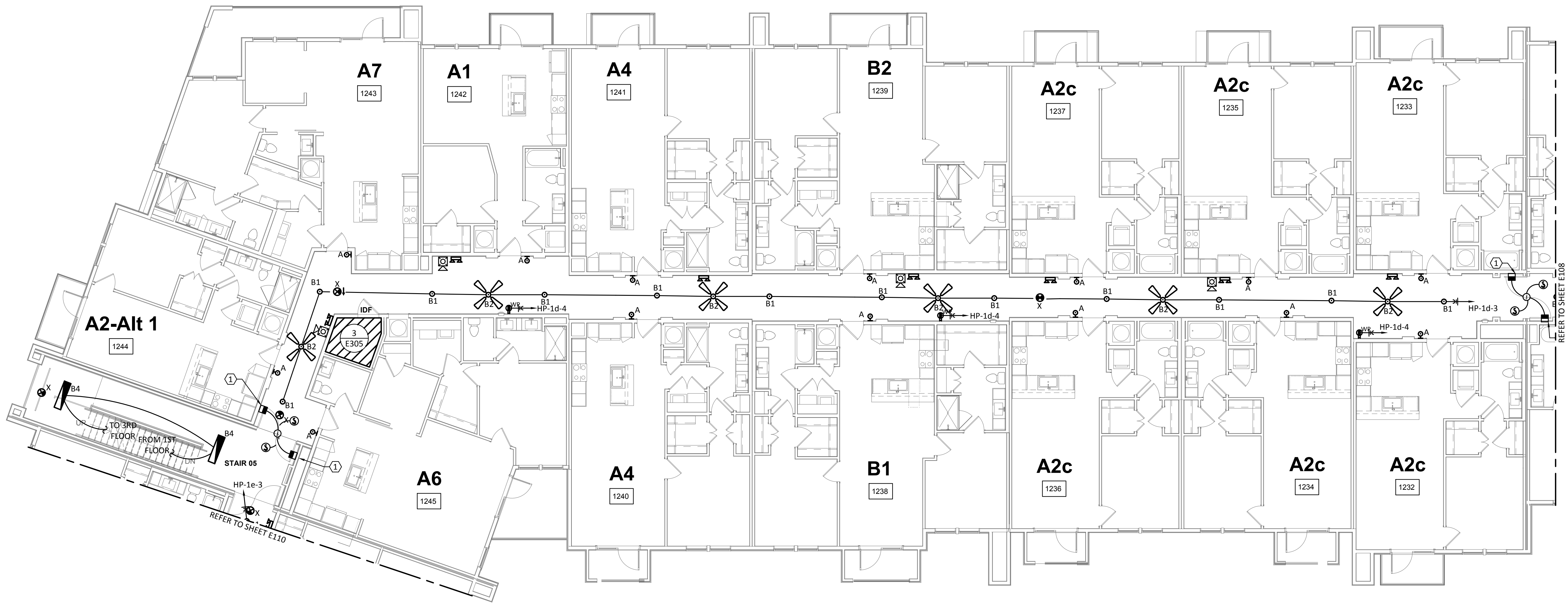
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GENERAL NOTES:

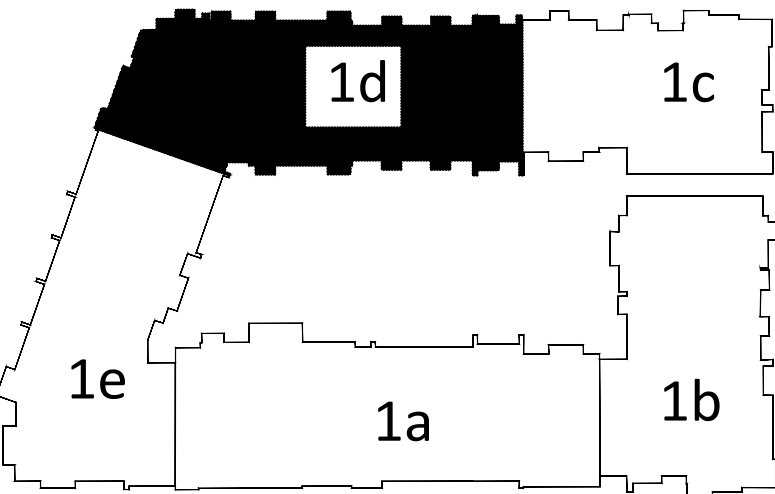
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- ALL UNIT ENTRY LIGHTING (A) SHALL BE CIRCUITED TO TENANT LOAD CENTER AND UNSWITCHED.

KEYED NOTES:

- PROVIDE MAGNETIC DOOR OPEN HOLDERS WITH J-BOX INTERLOCKED WITH SMOKE DETECTORS.

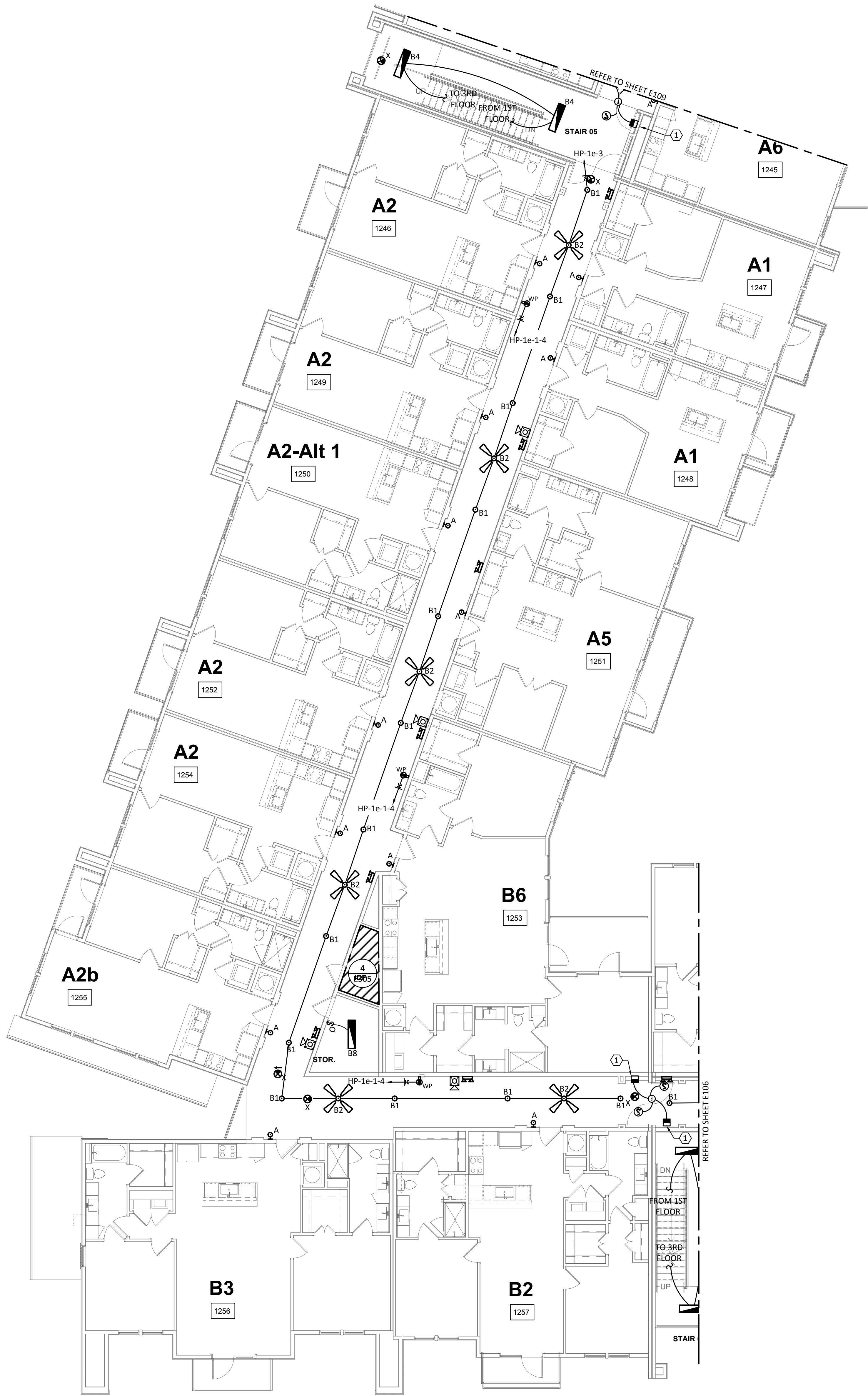


1 ELECTRICAL - BUILDING 1d - LEVEL 2
SCALE: 1/8"=1'-0"



KEY PLAN

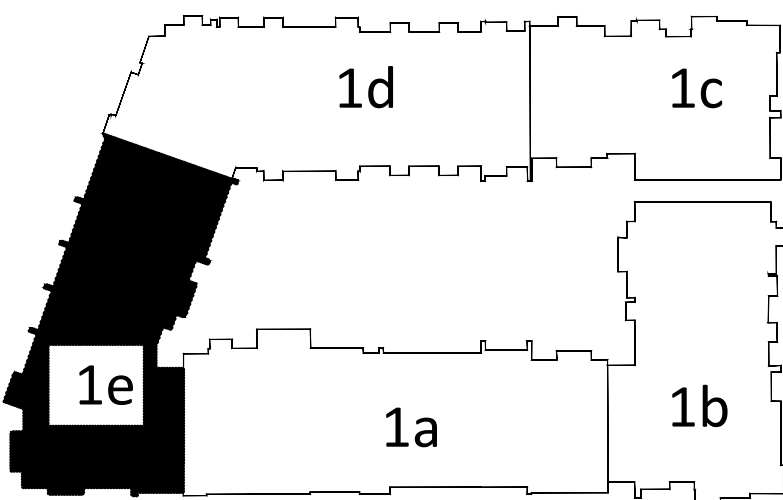
N.T.S.



1 ELECTRICAL - BUILDING 1e - LEVEL 2
SCALE: 1/8"=1'-0"

- GENERAL NOTES:**
- A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
 - B. ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-7.
 - C. ALL EXTERIOR LIGHTING SHALL BE CIRCUITED THRU TIME CLOCK TO PHOTOCELL. TIME CLOCK SHALL BE CIRCUITED TO HOUSE PANEL.
 - D. ALL BREEZEWAY LIGHTING (B1) AND CEILING FANS (B2) SHALL BE SWITCHED AT CIRCUIT BREAKER.
 - E. ALL UNIT ENTRY LIGHTING (A) SHALL BE CIRCUITED TO TENANT LOAD CENTER AND UNSWITCHED.

- KEYED NOTES:**
1. PROVIDE MAGNETIC DOOR OPEN HOLDERS WITH J-BOX INTERLOCKED WITH SMOKE DETECTORS.



KEY PLAN
N.T.S.



Structural Engineer:

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MEP Engineer:

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Civil Engineer:

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Landscape Architect:

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Amber Rothwell
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Interior Designer:

S.J.L. Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL BUILDING 1e LEVEL 2

Project Number 18054
Date 01/14/2018
Drawn By TLR
Checked By EEC

E110

Structural Engineer:

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Landscape Architect:

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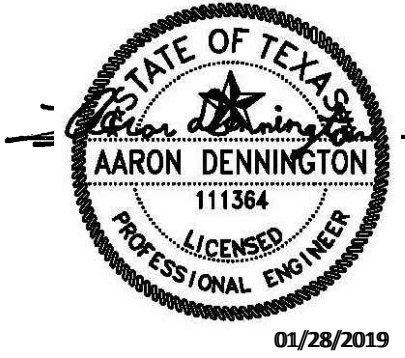
Interior Designer:

S.J.L. Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES

01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
BUILDING 1a
LEVEL 3

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

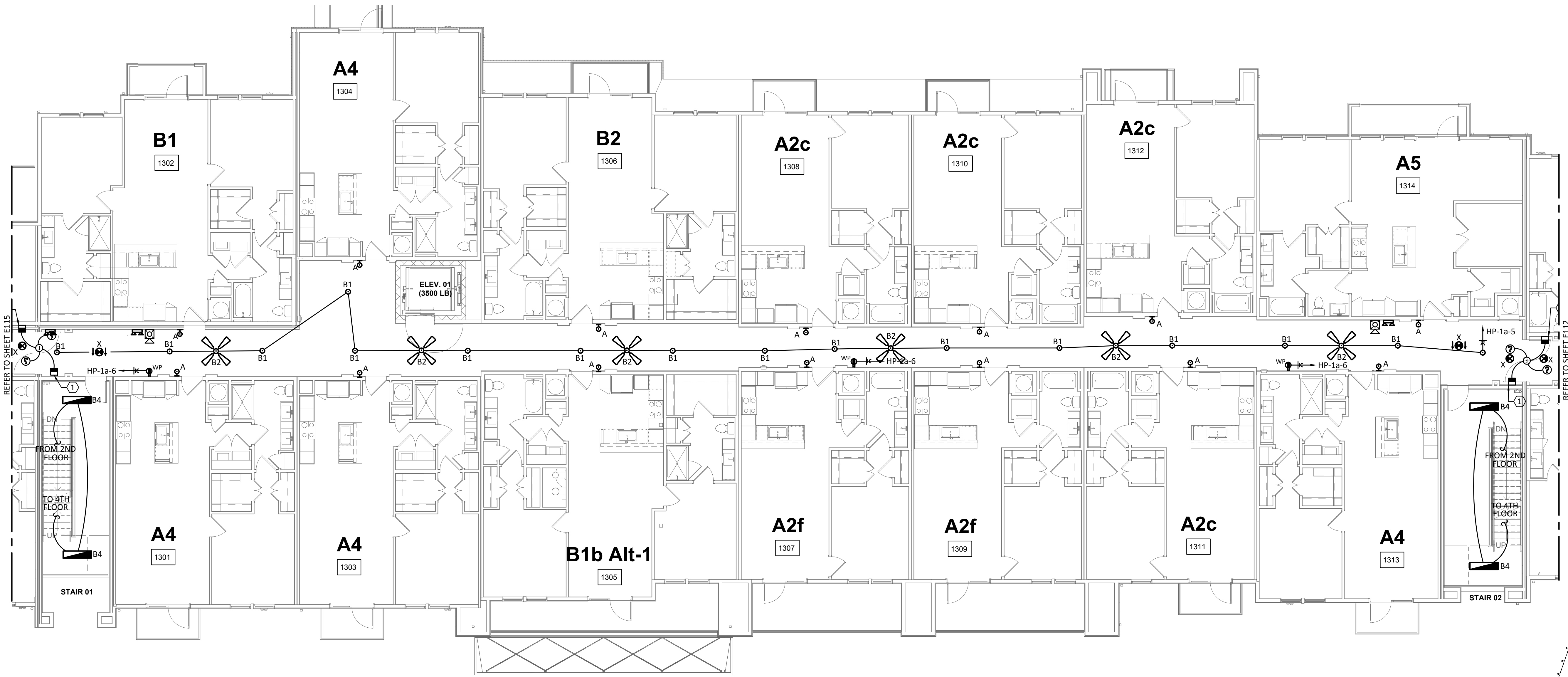
E111

GENERAL NOTES:

- REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
- ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-7.
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- ALL BREEZEWAY LIGHTING (B1) AND CEILING FANS (B2) SHALL BE SWITCHED AT CIRCUIT BREAKER.
- ALL UNIT ENTRY LIGHTING (A) SHALL BE CIRCUITED TO TENANT LOAD CENTER AND UNSWITCHED.

KEYED NOTES:

- PROVIDE MAGNETIC DOOR OPEN HOLDERS WITH J-BOX INTERLOCKED WITH SMOKE DETECTORS.



1 ELECTRICAL - BUILDING 1a - LEVEL 3
SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

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Tessa Roberts
512.338.1101

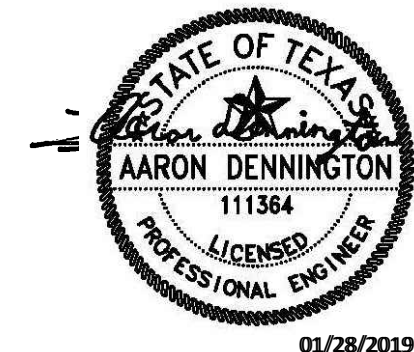
MBC & Associates, Inc
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David Allen
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LEE & Associates, Inc.
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Amber Rothwell
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SJL Design Group
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Cassie Farley
214 443 9090

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

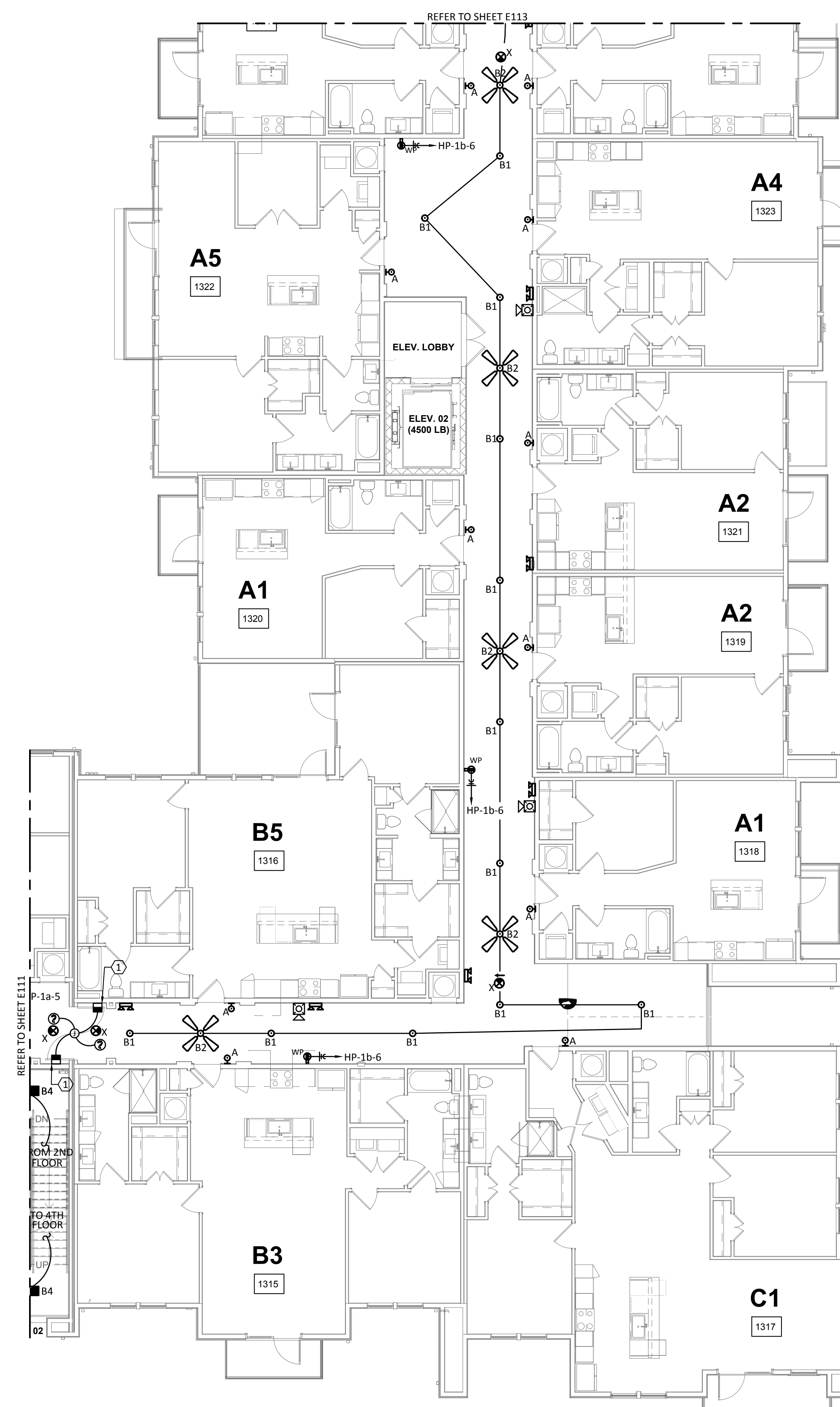
West Cevallos

San Antonio, Texas

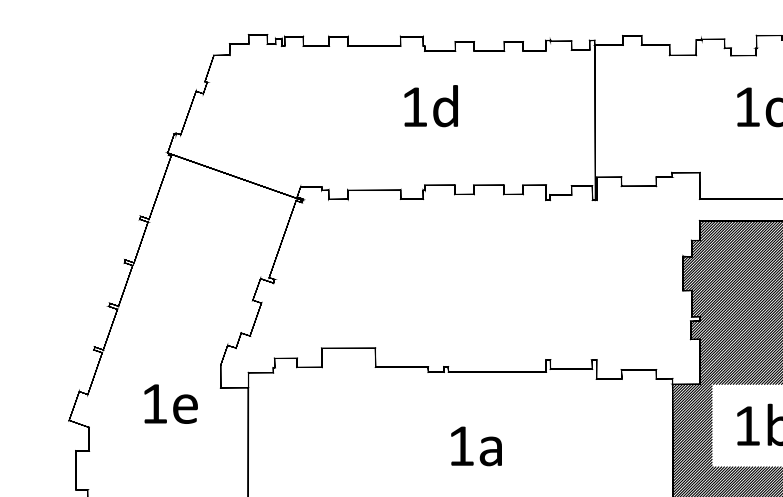
ELECTRICAL
BUILDING 1b
LEVEL 3

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

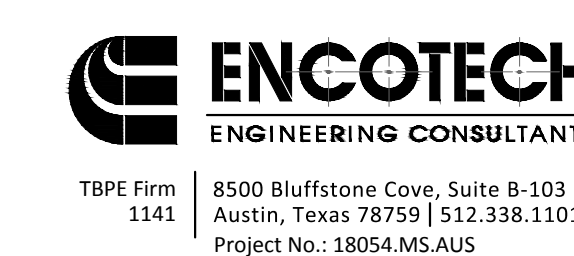
E112



1 ELECTRICAL - BUILDING 1b - LEVEL 3
SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.



Structural Engineer:

VIEWTECH INC.
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MEP Engineer:

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Tessa Roberts
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Civil Engineer:

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David Allen
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Landscape Architect:

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Amber Rothwell
512.345.8477

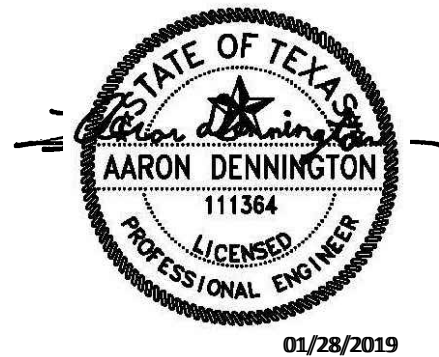
Interior Designer:

S.J.L. Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES

01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
BUILDING 1c
LEVEL 3

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

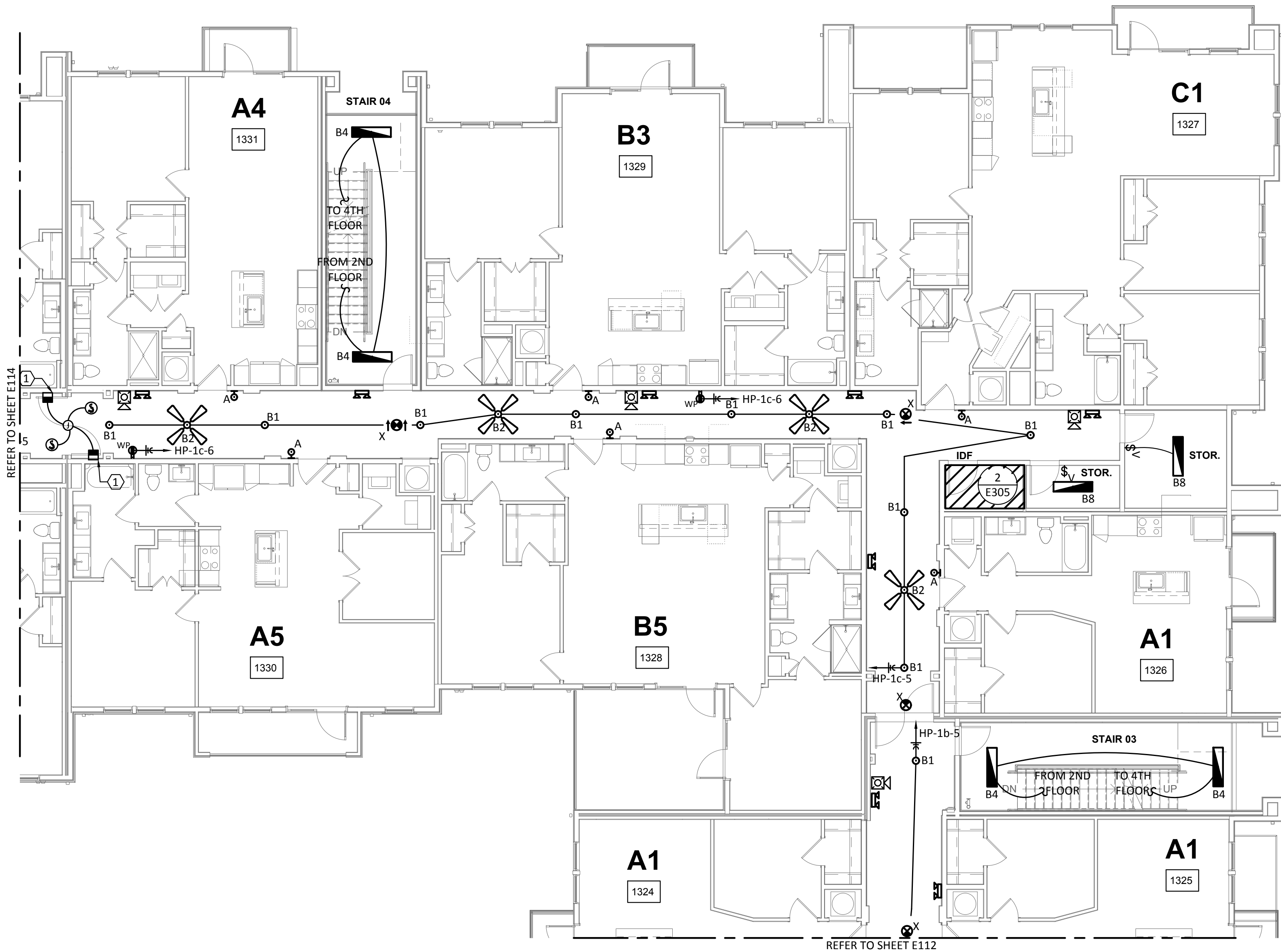
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GENERAL NOTES:

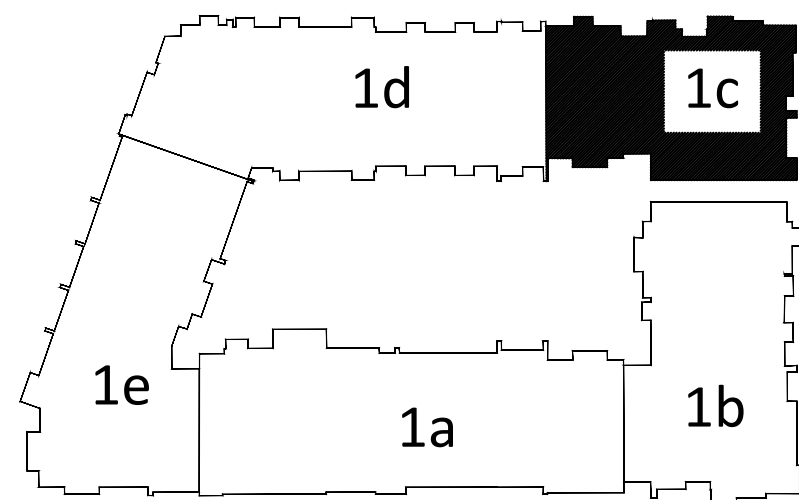
- REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
- ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-7.
- ALL EXTERIOR LIGHTING SHALL BE CIRCUITED THRU TIME CLOCK TO PHOTOCELL. TIME CLOCK SHALL BE CIRCUITED TO HOUSE PANEL.
- ALL BREEZEWAY LIGHTING (B1) AND CEILING FANS (B2) SHALL BE SWITCHED AT CIRCUIT BREAKER.
- ALL UNIT ENTRY LIGHTING (A) SHALL BE CIRCUITED TO TENANT LOAD CENTER AND UNSWITCHED.

KEYED NOTES:

- PROVIDE MAGNETIC DOOR OPEN HOLDERS WITH J-BOX INTERLOCKED WITH SMOKE DETECTORS.



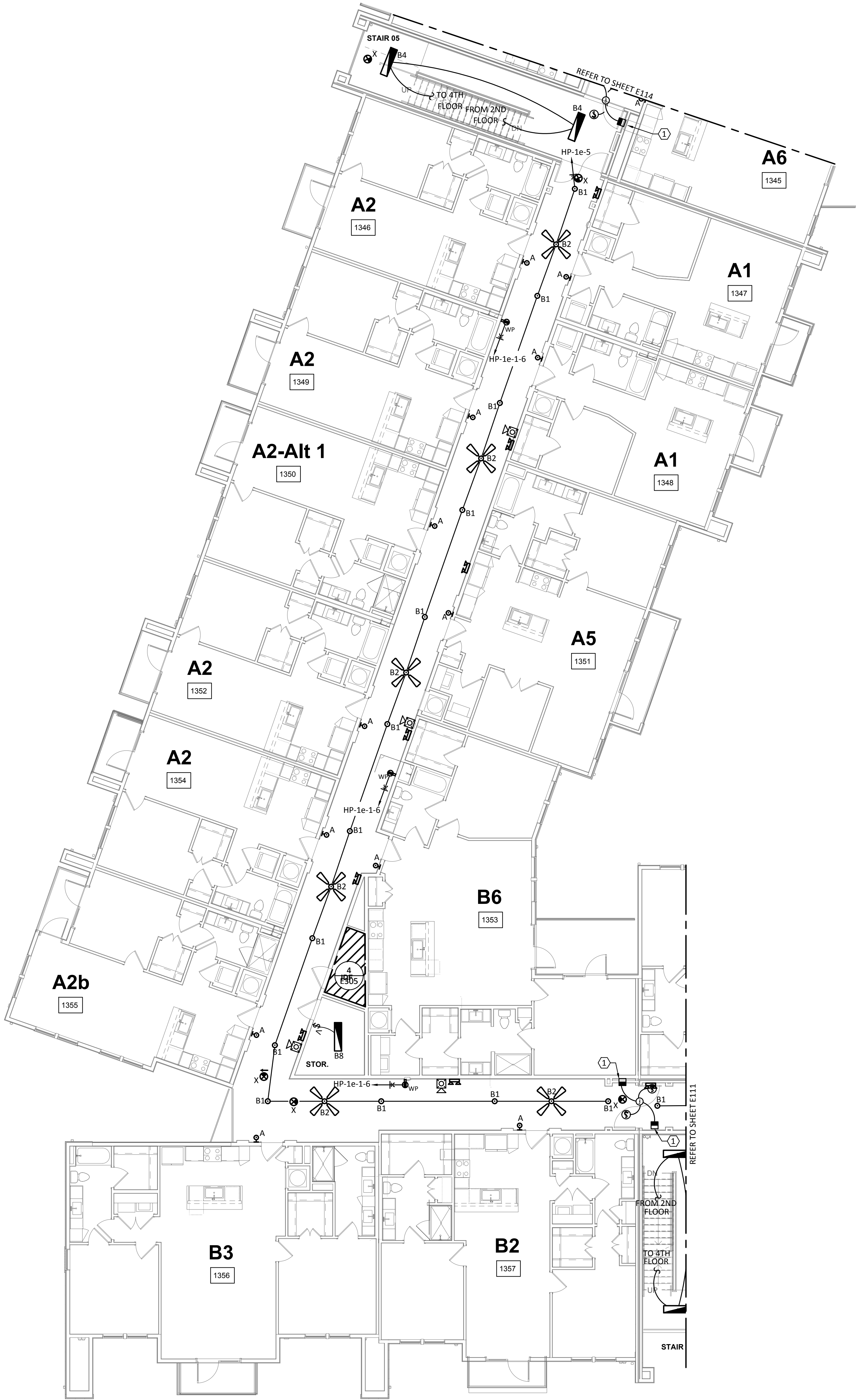
1 ELECTRICAL - BUILDING 1c - LEVEL 3
SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

ENCOTECH
ENGINEERING CONSULTANTS

1141 | 8500 Bluffstone Cove, Suite B-103
Austin, Texas 78759 | 512.338.1101
Project No.: 18054.MS.AUS

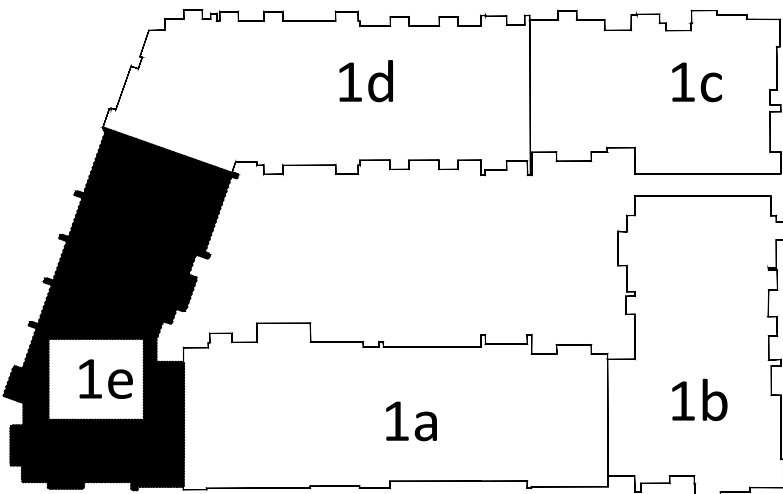


1 ELECTRICAL - BUILDING 1e - LEVEL 3
SCALE: 1/8"=1'-0"



- GENERAL NOTES:**
- A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
 - B. ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-7.
 - C. ALL EXTERIOR LIGHTING SHALL BE CIRCUITED THRU TIME CLOCK TO PHOTOCELL. TIME CLOCK SHALL BE CIRCUITED TO HOUSE PANEL.
 - D. ALL BREEZEWAY LIGHTING (B1) AND CEILING FANS (B2) SHALL BE SWITCHED AT CIRCUIT BREAKER.
 - E. ALL UNIT ENTRY LIGHTING (A) SHALL BE CIRCUITED TO TENANT LOAD CENTER AND UNSWITCHED.

- KEYED NOTES:**
- 1. PROVIDE MAGNETIC DOOR OPEN HOLDERS WITH J-BOX INTERLOCKED WITH SMOKE DETECTORS.



KEY PLAN
N.T.S.



- Structural Engineer:**
- VIEWTECH INC.
4205 Beltway Dr. Addison, TX 75001
Victor Lisiak III
972.661.8187
- MEP Engineer:**
- ENCOTECH
8500 Bluffstone Cove, Austin, TX. 78759
Tessa Roberts
512.338.1101
- Civil Engineer:**
- MBC & Associates, Inc
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David Allen
210.545.1122
- Landscape Architect:**
- LEE & Associates, Inc.
9020 N Capital of Texas Hwy, Austin, TX. 78759
Amber Rothwell
512.345.8477
- Interior Designer:**
- S.J.L. Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL BUILDING 1e LEVEL 3

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E115



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Cassie Farley
214 443 9090

01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

01/28/2019



West Cevallos

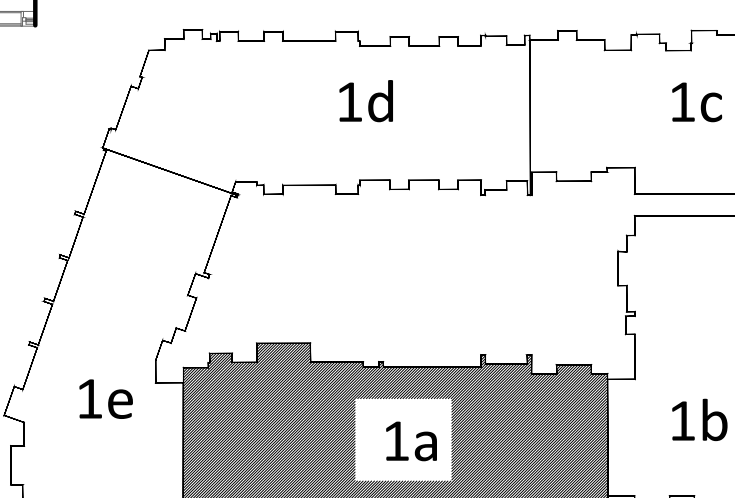
San Antonio, Texas

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

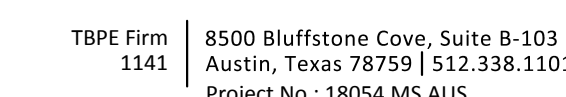
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- A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
- B. ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-7.
- C. ALL EXTERIOR LIGHTING SHALL BE CIRCUITED THRU TIME CLOCK TO PHOCEL. TIME CLOCK SHALL BE CIRCUITED TO HOUSE PANEL, CIRCUIT #HP-11.
- D. ALL BREEZEWAY LIGHTING (B1) AND CEILING FANS (B2) SHALL BE SWITCHED AT CIRCUIT BREAKER.
- E. ALL UNIT ENTRY LIGHTING (A) SHALL BE CIRCUITED TO TENANT LOAD CENTER AND UNWITCHED.

1. PROVIDE MAGNETIC DOOR OPEN HOLDERS WITH J-BOX INTERLOCKED WITH SMOKE DETECTORS.



KEY PLAN
N.T.S.



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1141 | Austin, Texas 78759 | 512.338.1101
Project No.: 18054 MS AHS

Structural Engineer:

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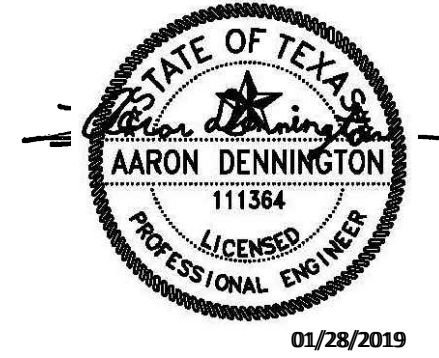
Interior Designer:

S.J.L. Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES

01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
BUILDING 1b
LEVEL 4

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

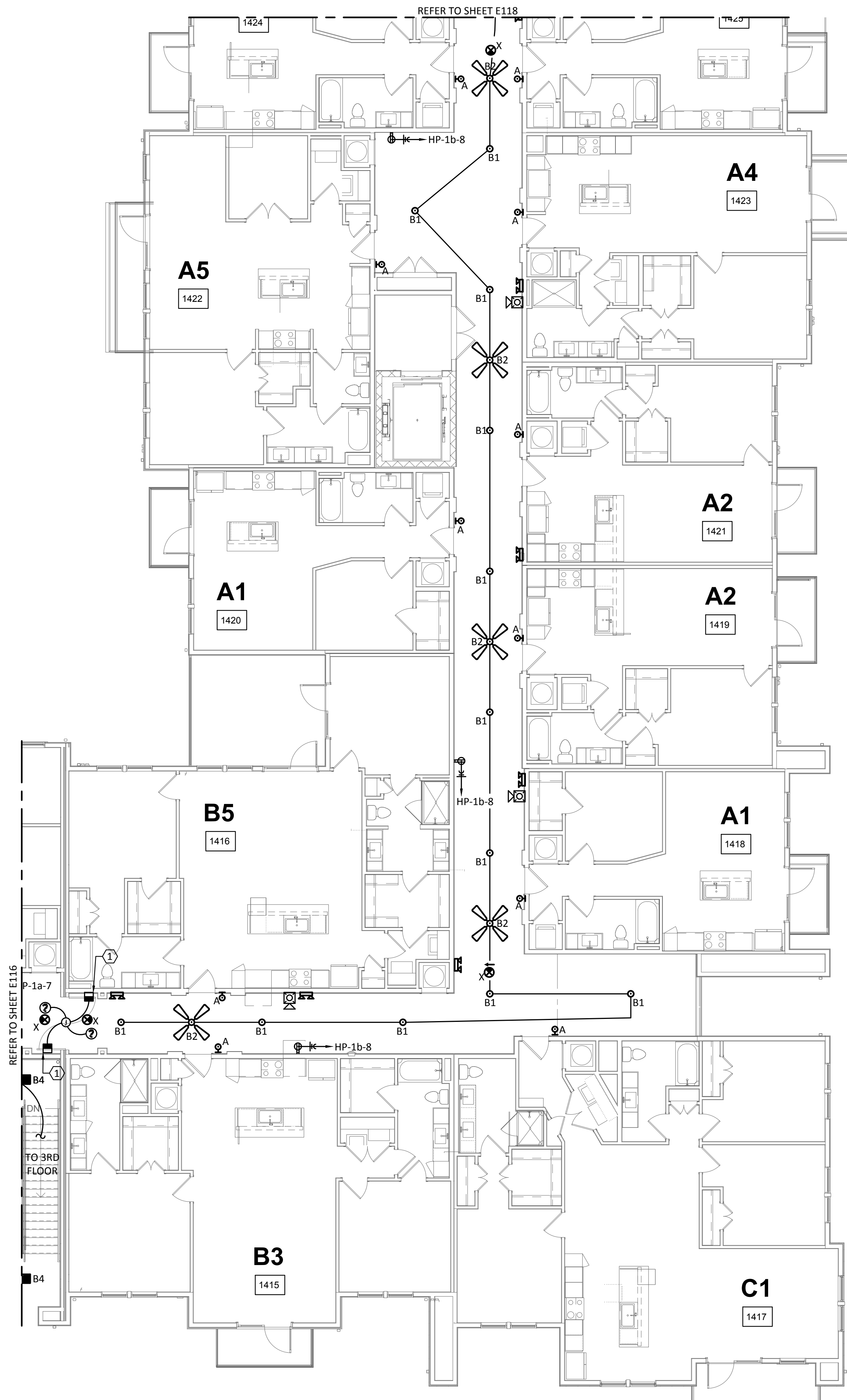
E117

GENERAL NOTES:

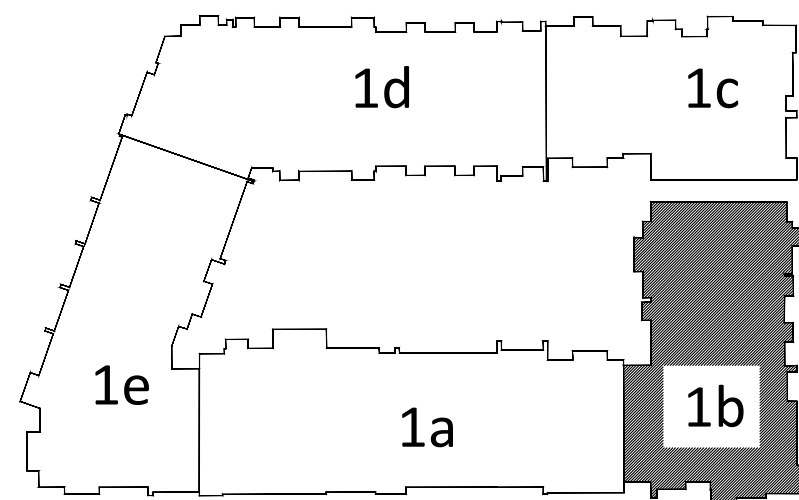
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KEYED NOTES:

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1 ELECTRICAL - BUILDING 1b - LEVEL 4
SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

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MEP Engineer:

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Amber Rothwell
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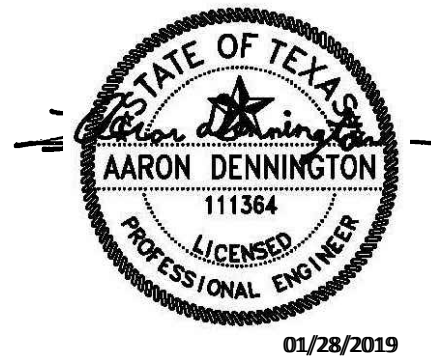
Interior Designer:

S.J.L. Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES

01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

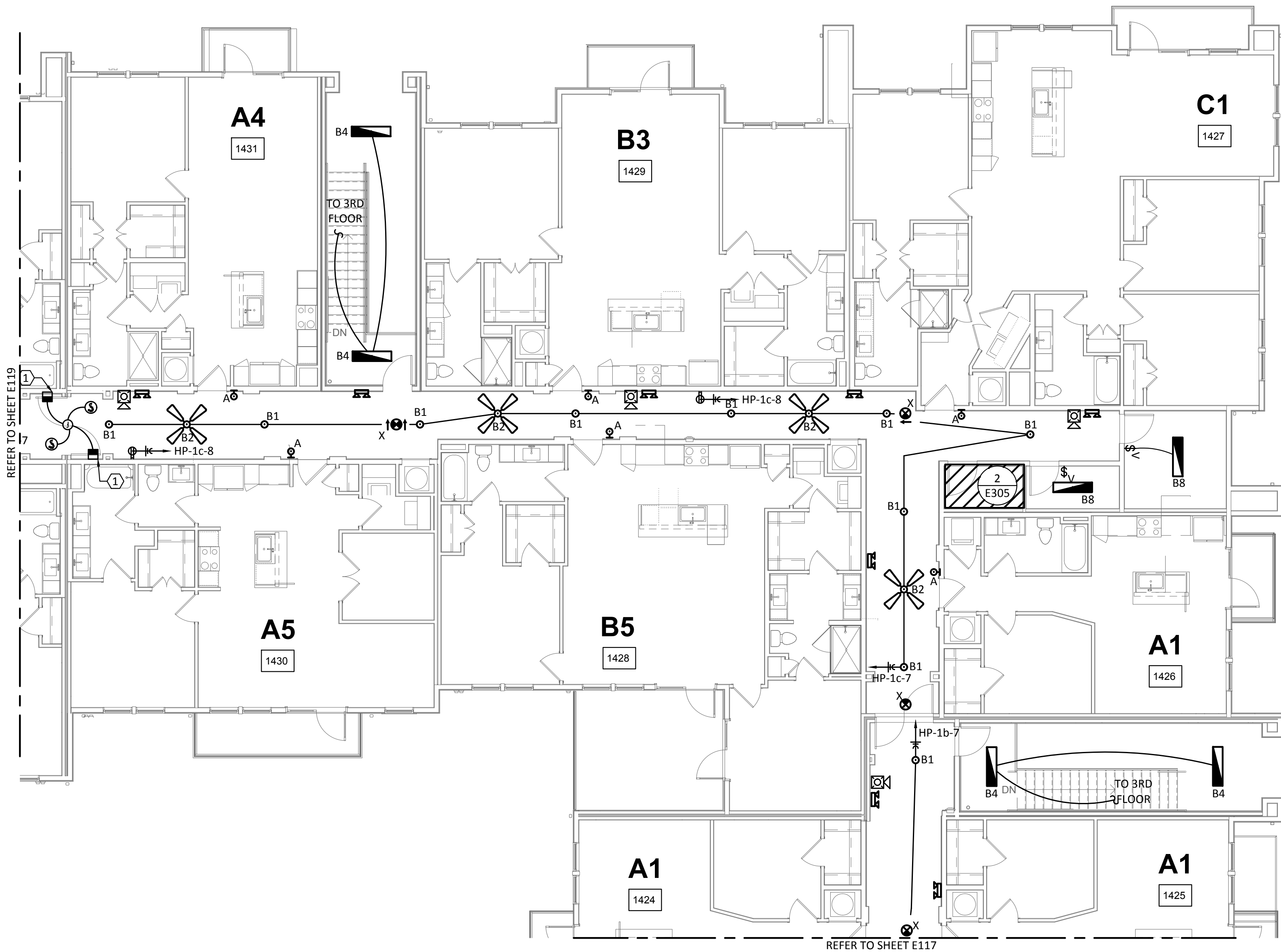
ELECTRICAL
BUILDING 1c
LEVEL 4

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

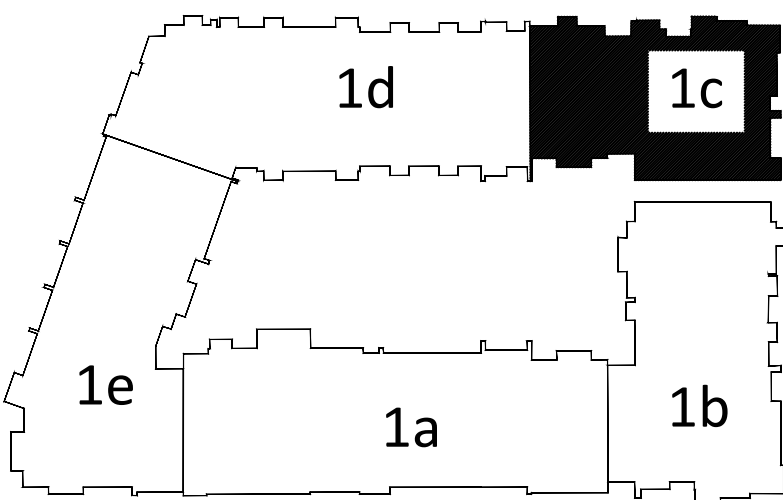
E118

GENERAL NOTES:
A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
B. ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-7.
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KEYED NOTES:
1. PROVIDE MAGNETIC DOOR OPEN HOLDERS WITH J-BOX INTERLOCKED WITH SMOKE DETECTORS.



1 ELECTRICAL - BUILDING 1c - LEVEL 4
SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

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Civil Engineer:

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David Allen
210.545.1122

Landscape Architect:

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Amber Rothwell
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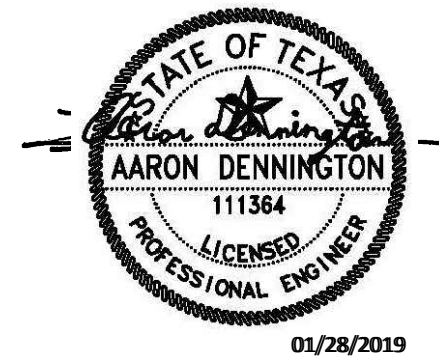
Interior Designer:

S.J.L. Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES

01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
BUILDING 1d
LEVEL 4

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

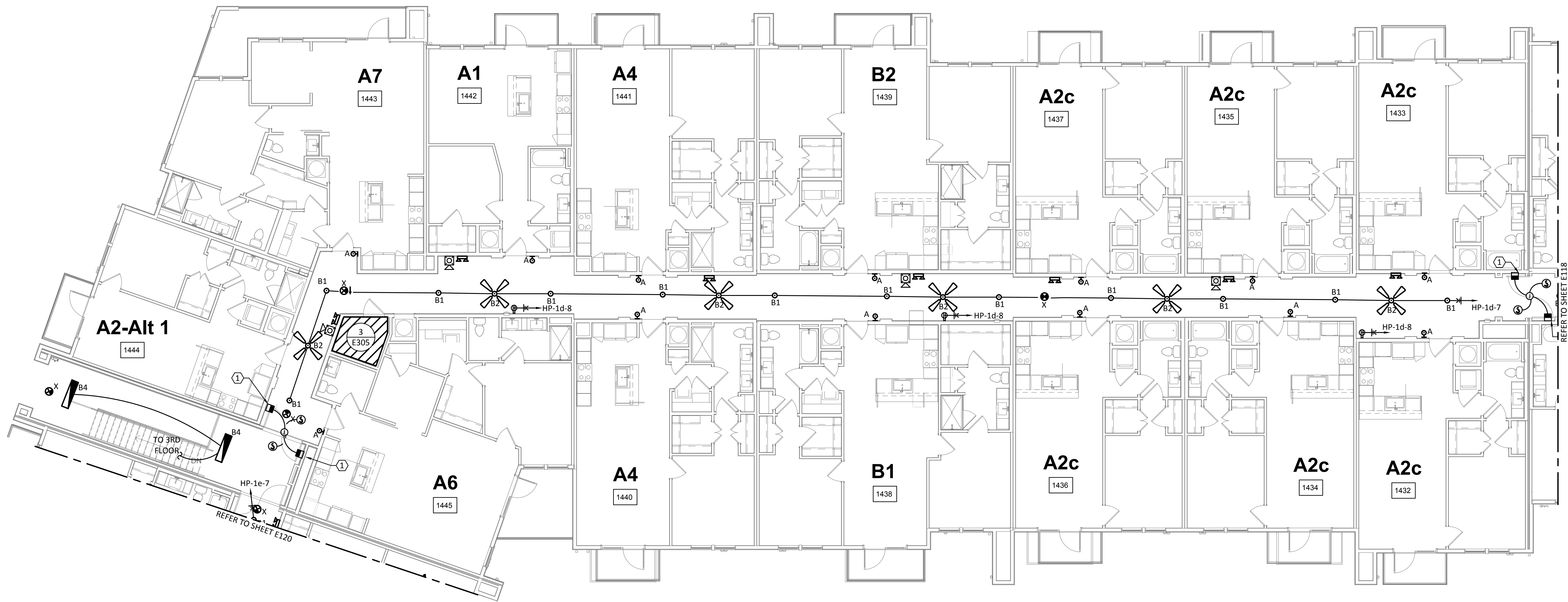
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GENERAL NOTES:

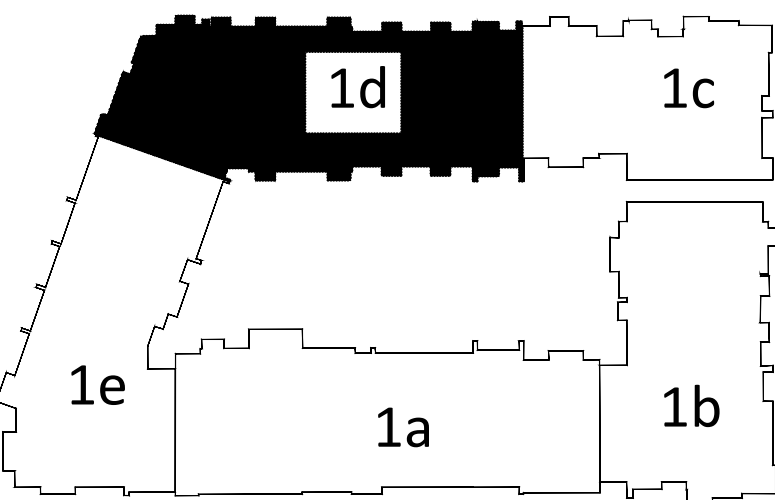
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- ALL UNIT ENTRY LIGHTING (A) SHALL BE CIRCUITED TO TENANT LOAD CENTER AND UNSWITCHED.

KEYED NOTES:

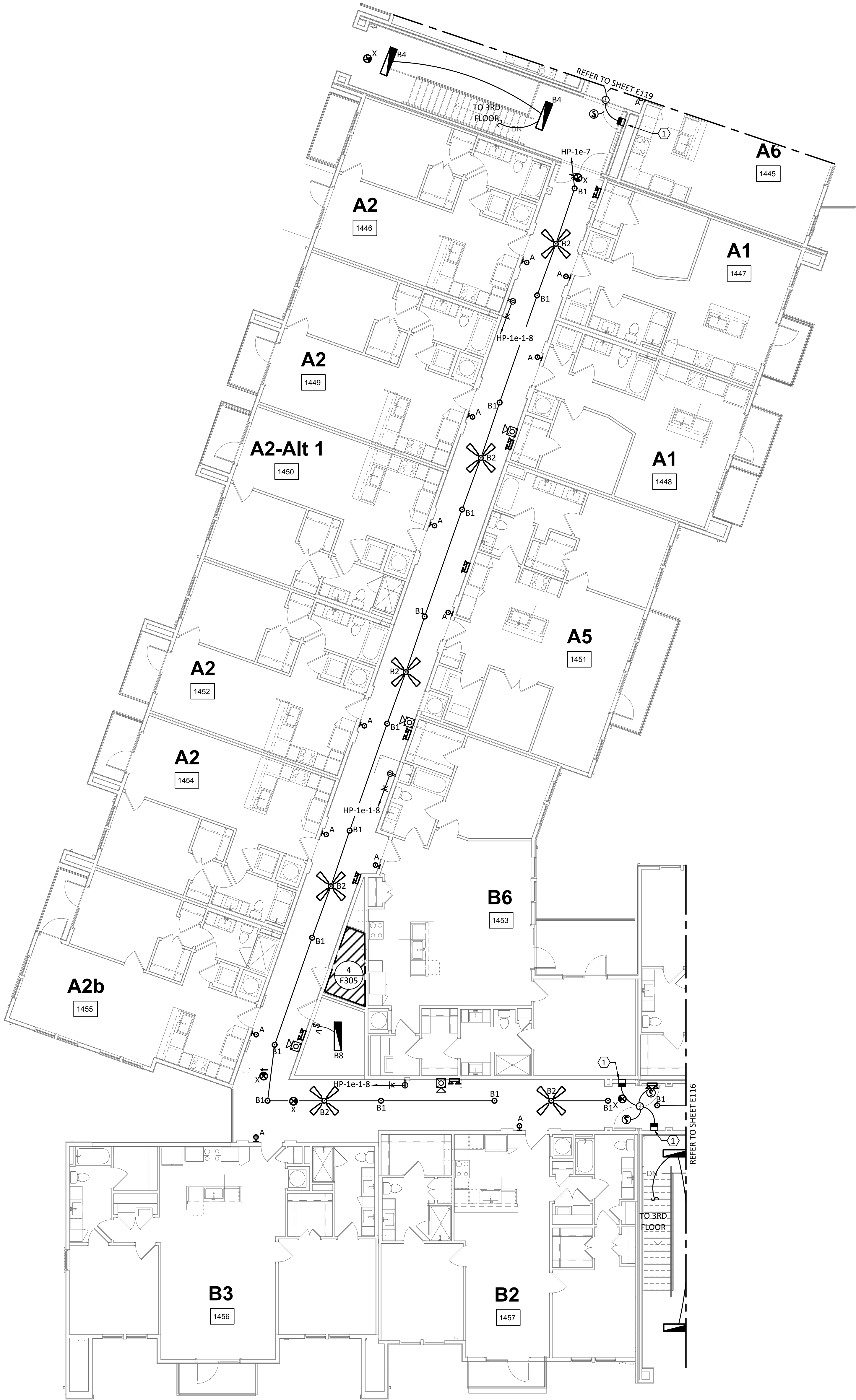
- PROVIDE MAGNETIC DOOR OPEN HOLDERS WITH J-BOX INTERLOCKED WITH SMOKE DETECTORS.



1 ELECTRICAL - BUILDING 1d - LEVEL 4
SCALE: 1/8"=1'-0"



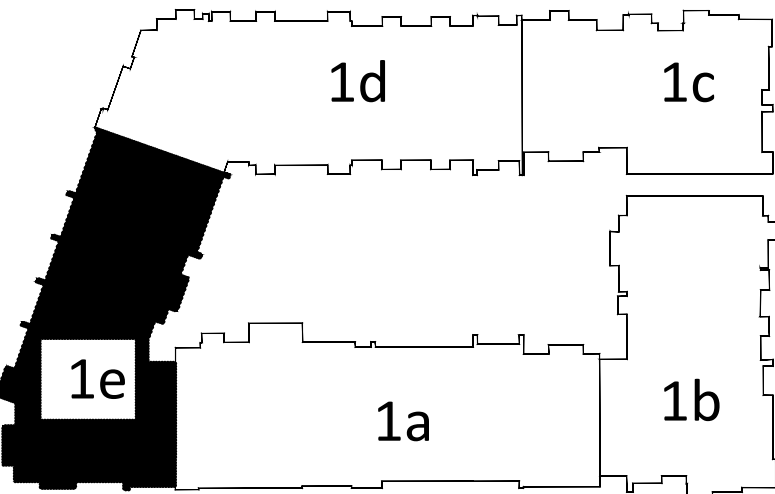
KEY PLAN
N.T.S.



1 ELECTRICAL - BUILDING 1e - LEVEL 4
SCALE: 1/8"=1'-0"

- GENERAL NOTES:**
- A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
 - B. ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-7.
 - C. ALL EXTERIOR LIGHTING SHALL BE CIRCUITED THRU TIME CLOCK TO PHOTOCELL. TIME CLOCK SHALL BE CIRCUITED TO HOUSE PANEL, CIRCUIT #HP-11.
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 - E. ALL UNIT ENTRY LIGHTING (A) SHALL BE CIRCUITED TO TENANT LOAD CENTER AND UNSWITCHED.

- KEYED NOTES:**
- 1. PROVIDE MAGNETIC DOOR OPEN HOLDERS WITH J-BOX INTERLOCKED WITH SMOKE DETECTORS.



KEY PLAN
N.T.S.

ENCOTECH
ENGINEERING CONSULTANTS
TBPE Firm 1141 | 8500 Bluffstone Cove, Suite B-103
Austin, Texas 78759 | 512.338.1101
Project No.: 18054.M5.AUS

Structural Engineer:
VIEWTECH INC.
4205 Beltway Dr. Addison, TX 75001
Victor Lisiak III
972.661.8187

MEP Engineer:
ENCOTECH
8500 Bluffstone Cove, Austin, TX. 78759
Tessa Roberts
512.338.1101

Civil Engineer:
MBC & Associates, Inc
1035 Central Pkwy N, San Antonio, TX 78732
David Allen
210.545.1122

Landscape Architect:
LEE & Associates, Inc.
9020 N Capital of Texas Hwy, Austin, TX. 78759
Amber Rothwell
512.345.8477

Interior Designer:
S.J.L. Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL BUILDING 1e LEVEL 4

Project Number 18054
Date 01/14/2018
Drawn By TLR
Checked By EEC

E120

- GENERAL NOTES:
- A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
- KEYED NOTES:
1. PROVIDE 240V, 30A/2P/NF/N3R DISCONNECT FOR EACH DWELLING UNIT CONDENSING UNIT. MOUNT DISCONNECTS SPACED VERTICALLY IN ROWS OF 2 OR 3 ON PARAPET WALL. CIRCUIT TO RESPECTIVE DWELLING UNIT LOAD CENTER. MAINTAIN A MINIMUM OF 3'-0" CLEAR WORKING SPACE IN FRONT OF ALL ELECTRICAL EQUIPMENT. REFER TO DETAIL 5/ES01. CIRCUIT TO RESPECTIVE DWELLING UNIT LOAD CENTER. REFER TO E401 FOR UNIT CALCULATIONS. ROUTE CONDUIT ON 4"x4", WOLMANIZED, PRESSURE-TREATED WOOD ROOF SUPPORTS BETWEEN CONDENSING UNIT AND DISCONNECT SWITCH.
2. PROVIDE WEATHERPROOF DUPLEX RECEPTACLE WITHIN 25' OF FARTHEST CONDENSING UNIT. CIRCUIT TO THIS BUILDING HOUSE PANEL.

Structural Engineer:

VIEWTECH INC.
4205 Beltway Dr. Addison, TX 75001
Victor Lisiak III
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MEP Engineer:

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ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



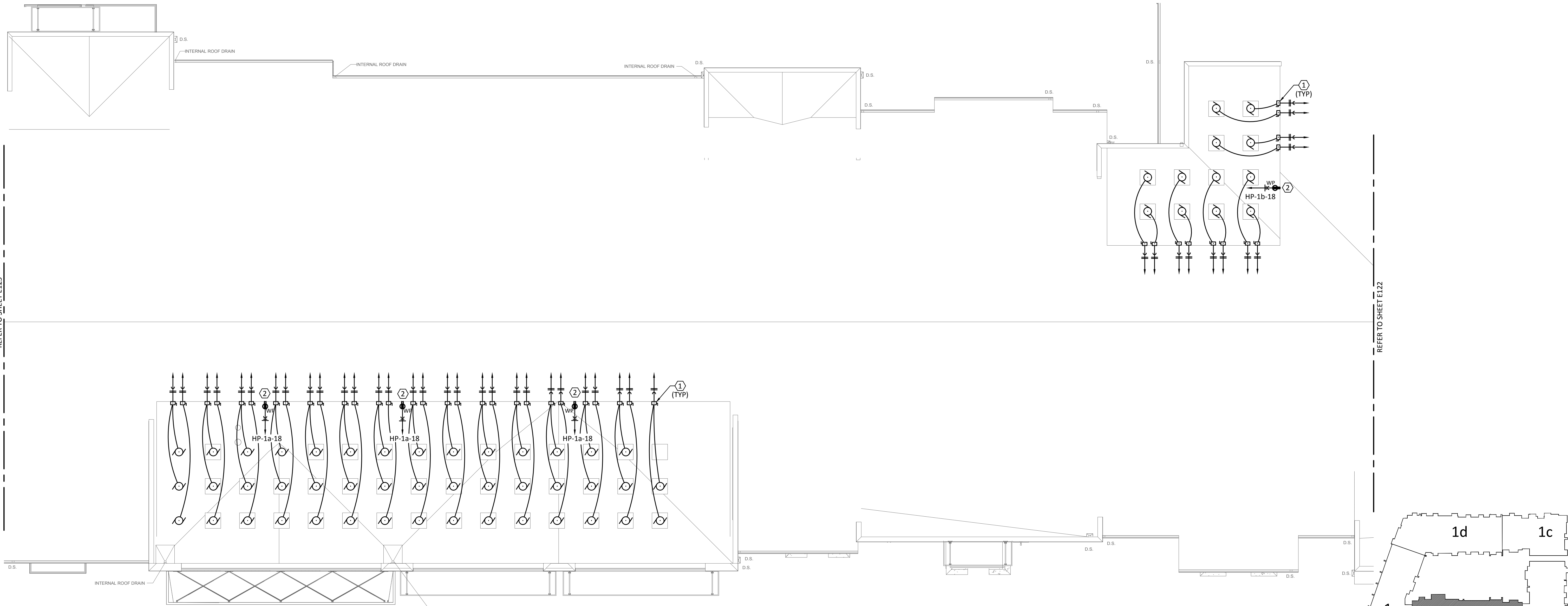
a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

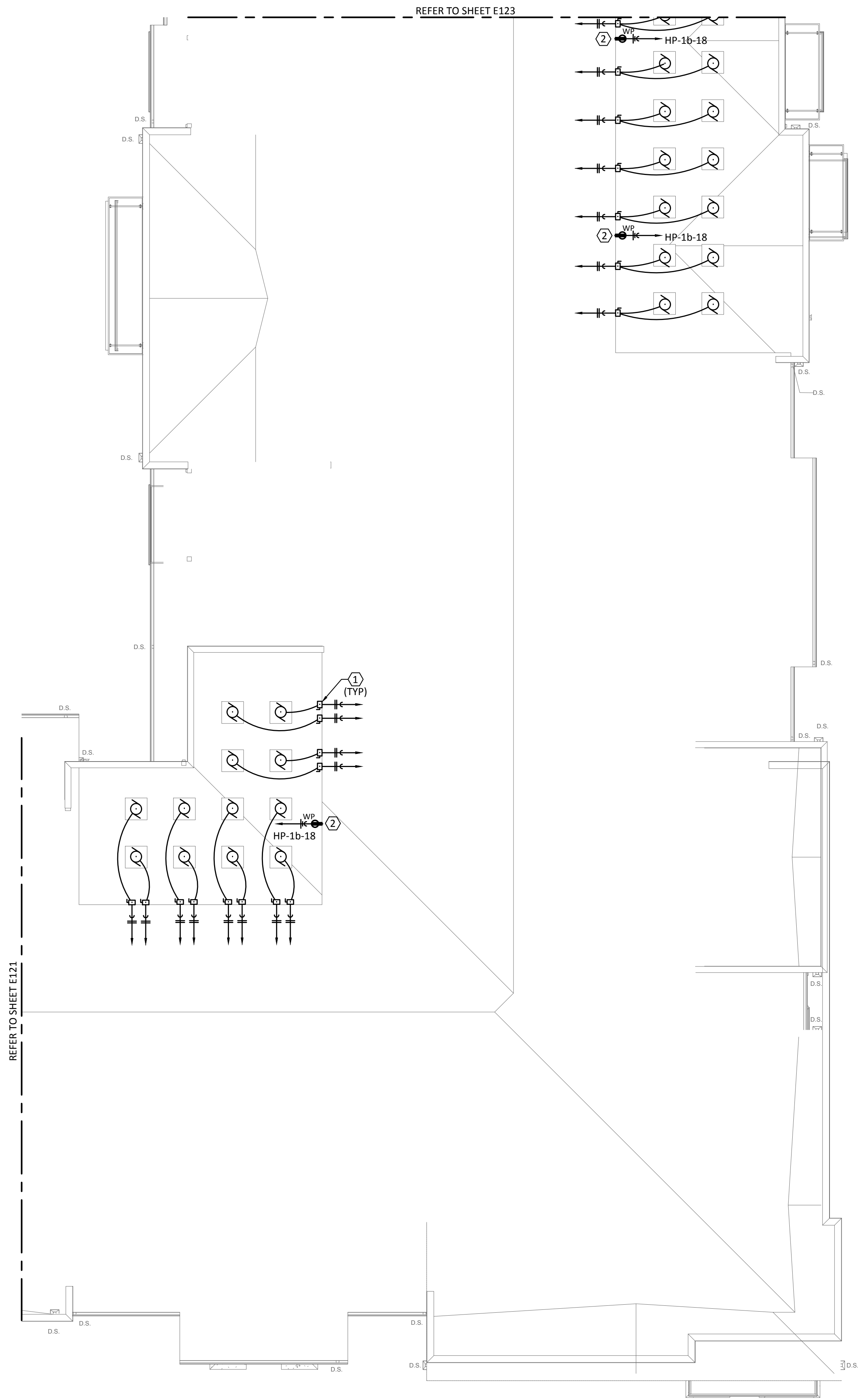
ELECTRICAL
BUILDING 1a
ROOF

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E121

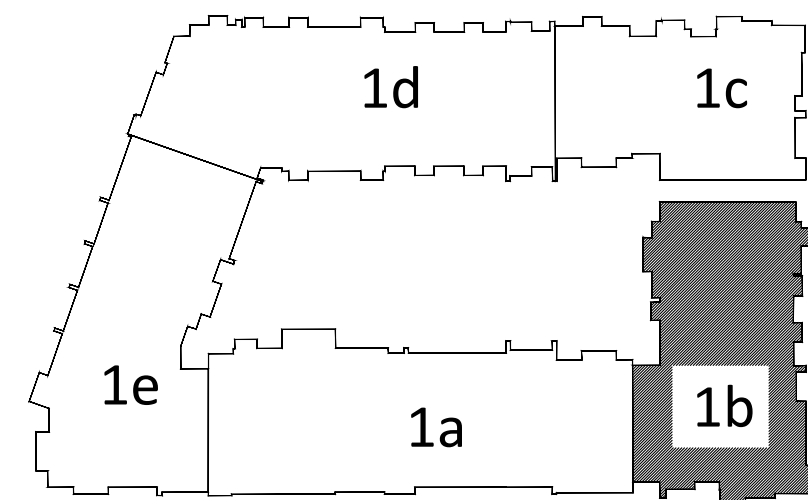


1 ELECTRICAL - BUILDING 1a - ROOF
SCALE: 1/8"=1'-0"



1 ELECTRICAL - BUILDING 1b - ROOF
SCALE: 1/8"=1'-0"

- GENERAL NOTES:**
- A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
- KEYED NOTES:**
1. PROVIDE 240V, 30A/2P/NF/N3R DISCONNECT FOR EACH DWELLING UNIT CONDENSING UNIT. MOUNT DISCONNECTS SPACED VERTICALLY IN ROWS OF 2 OR 3 ON PARAPET WALL. CIRCUIT TO RESPECTIVE DWELLING UNIT LOAD CENTER. MAINTAIN A MINIMUM OF 3'-0" CLEAR WORKING SPACE IN FRONT OF ALL ELECTRICAL EQUIPMENT. REFER TO DETAIL 5/ES01. CIRCUIT TO RESPECTIVE DWELLING UNIT LOAD CENTER. REFER TO E401 FOR UNIT CALCULATIONS. ROUTE CONDUIT ON 4"x4", WOLMANIZED, PRESSURE-TREATED WOOD ROOF SUPPORTS BETWEEN CONDENSING UNIT AND DISCONNECT SWITCH.
 2. PROVIDE WEATHERPROOF DUPLEX RECEPTACLE WITHIN 25' OF FARTHEST CONDENSING UNIT. CIRCUIT TO THIS BUILDING HOUSE PANEL.

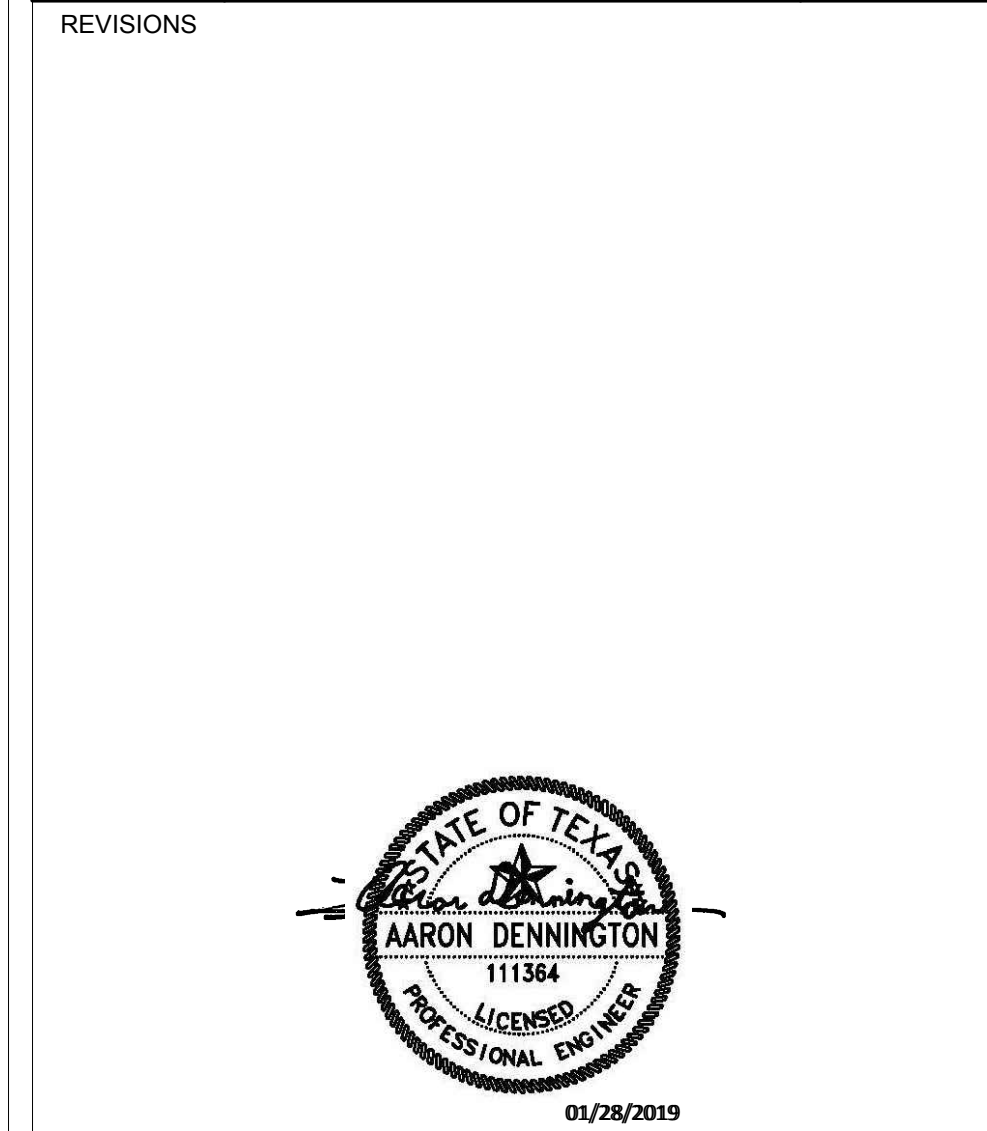


KEY PLAN
N.T.S.



- Structural Engineer:**
- VIEWTECH INC.
4205 Beltway Dr. Addison, TX 75001
Victor Lisiak III
972.661.8187
- MEP Engineer:**
- ENCOTECH
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- Civil Engineer:**
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David Allen
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- Landscape Architect:**
- LEE & Associates, Inc.
9020 N Capital of Texas Hwy, Austin, TX. 78759
Amber Rothwell
512.345.8477
- Interior Designer:**
- S.J.L. Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL BUILDING 1b ROOF

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E122

GENERAL NOTES:

A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.

KEYED NOTES:

1. PROVIDE 240V, 30A/2P/NF/N3R DISCONNECT FOR EACH DWELLING UNIT CONDENSING UNIT. MOUNT DISCONNECTS SPACED VERTICALLY IN ROWS OF 2 OR 3 ON PARAPET WALL. CIRCUIT TO RESPECTIVE DWELLING UNIT LOAD CENTER. MAINTAIN A MINIMUM OF 3'-0" CLEAR WORKING SPACE IN FRONT OF ALL ELECTRICAL EQUIPMENT. REFER TO DETAIL 5/ES01. CIRCUIT TO RESPECTIVE DWELLING UNIT LOAD CENTER. REFER TO E401 FOR UNIT CALCULATIONS. ROUTE CONDUIT ON 4"x4", WOLMANIZED, PRESSURE-TREATED WOOD ROOF SUPPORTS BETWEEN CONDENSING UNIT AND DISCONNECT SWITCH.

2. PROVIDE WEATHERPROOF DUPLEX RECEPTACLE WITHIN 25' OF FARTHEST CONDENSING UNIT. CIRCUIT TO THIS BUILDING HOUSE PANEL.

Structural Engineer:

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4205 Beltway Dr. Addison, TX 75001
Victor Lisiak III
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Tessa Roberts
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David Allen
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Landscape Architect:

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Amber Rothwell
512.345.8477

Interior Designer:

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921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS

a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
BUILDING 1c
ROOF

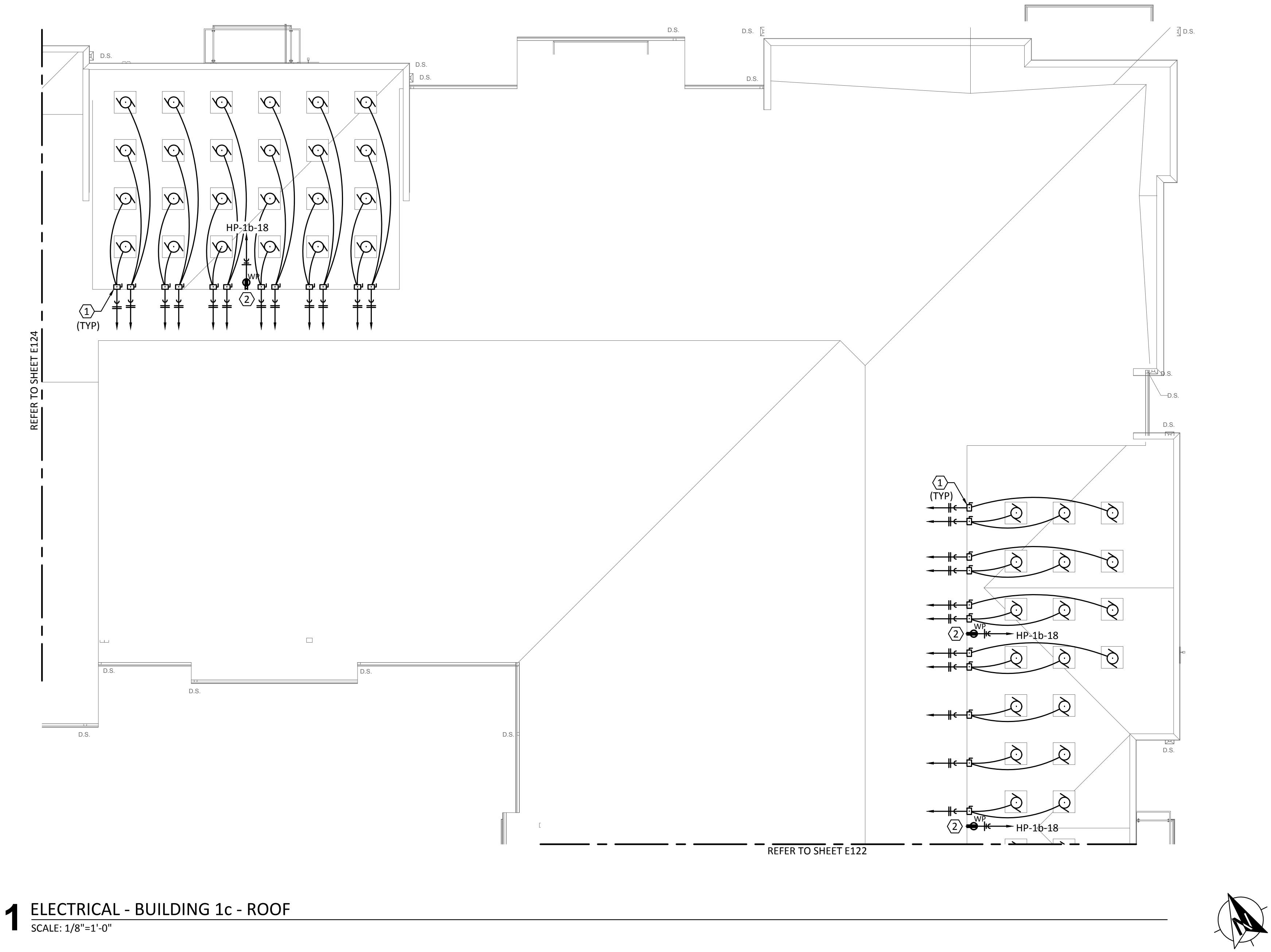
Project Number18054

Date01/14/2018

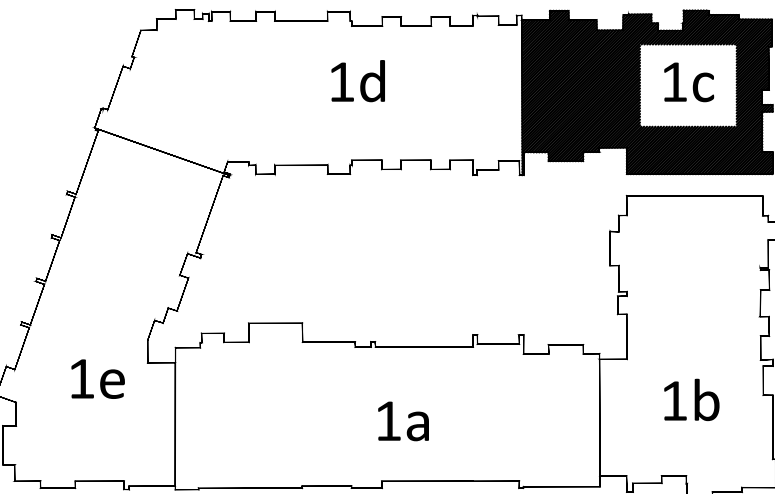
Drawn ByTLR

Checked ByEEC

E123



1 ELECTRICAL - BUILDING 1c - ROOF
SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

GENERAL NOTES:

A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.

KEYED NOTES:

1. PROVIDE 240V, 30A/2P/NF/N3R DISCONNECT FOR EACH DWELLING UNIT CONDENSING UNIT. MOUNT DISCONNECTS SPACED VERTICALLY IN ROWS OF 2 OR 3 ON PARAPET WALL. CIRCUIT TO RESPECTIVE DWELLING UNIT LOAD CENTER. MAINTAIN A MINIMUM OF 3'-0" CLEAR WORKING SPACE IN FRONT OF ALL ELECTRICAL EQUIPMENT. REFER TO DETAIL 5/E501. CIRCUIT TO RESPECTIVE DWELLING UNIT LOAD CENTER. REFER TO E401 FOR UNIT CALCULATIONS. ROUTE CONDUIT ON 4"x4", WOLMANIZED, PRESSURE-TREATED WOOD ROOF SUPPORTS BETWEEN CONDENSING UNIT AND DISCONNECT SWITCH.

2. PROVIDE WEATHERPROOF DUPLEX RECEPTACLE WITHIN 25' OF FARTHEST CONDENSING UNIT. CIRCUIT TO THIS BUILDING HOUSE PANEL.

3. INSTALL PHOTOCELL ON ROOF ON NORTH-FACING SIDE OF BUILDING. ALL EXTERIOR LIGHTS SHALL BE CIRCUITED THRU TIME CLOCK AND PHOTOCELL. REFER TO DETAIL 6/E501.

Structural Engineer:

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4205 Beltway Dr. Addison, TX 75001
Victor Lisiak III
972.661.8187

MEP Engineer:

ENCOTECH
8500 Bluffstone Cove, Austin, TX. 78759
Tessa Roberts
512.338.1101

Civil Engineer:

MBC & Associates, Inc.
1035 Central Pkwy N, San Antonio, TX 78732
David Allen
210.545.1122

Landscape Architect:

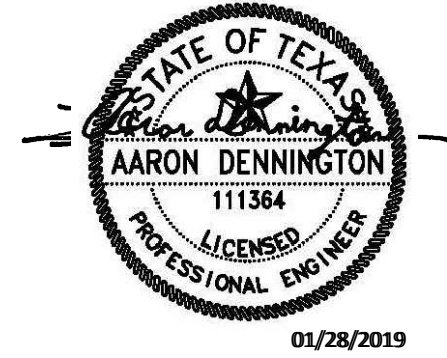
LEE & Associates, Inc.
9020 N Capital of Texas Hwy, Austin, TX. 78759
Amber Rothwell
512.345.8477

Interior Designer:

S.J.L. Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
BUILDING 1d
ROOF

Project Number18054

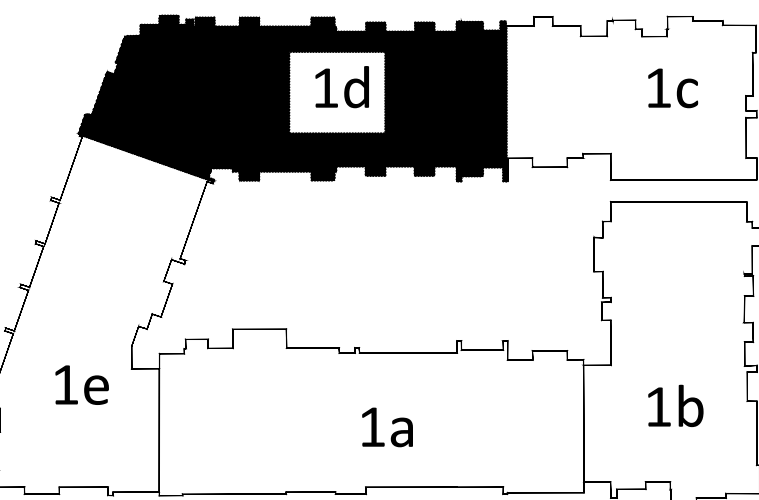
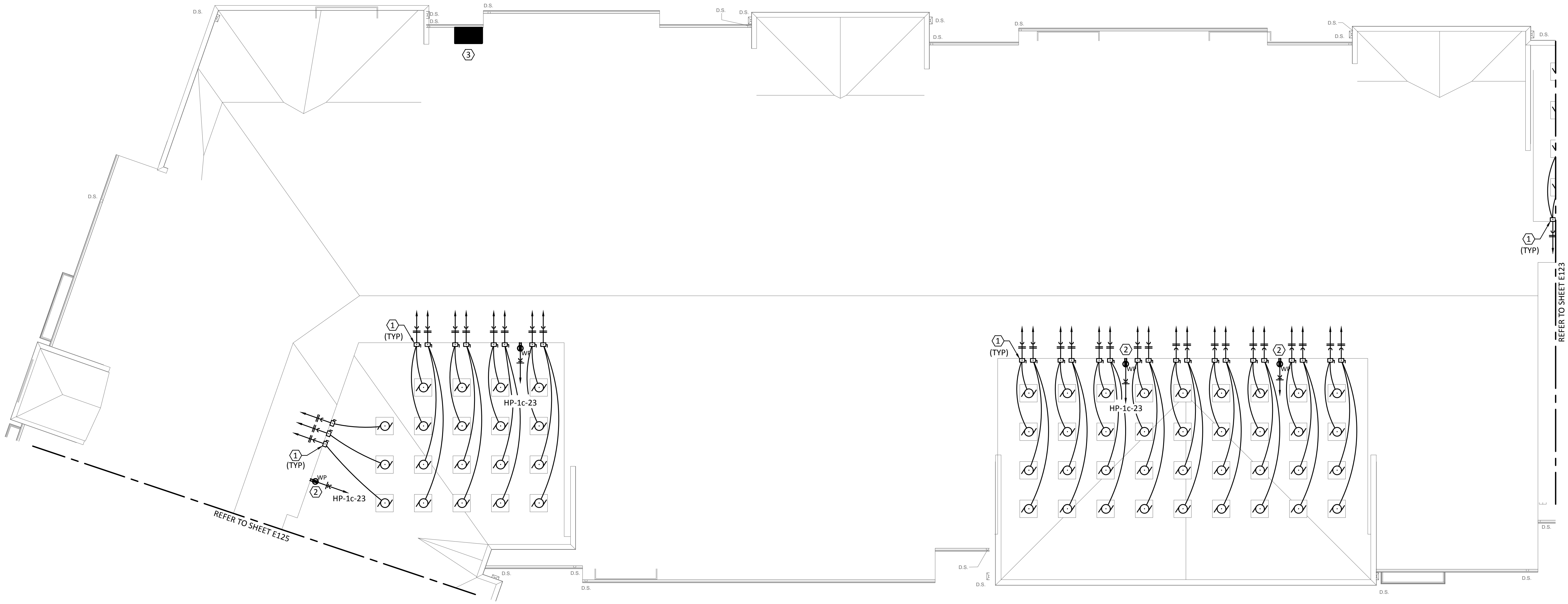
Date01/14/2018

Drawn ByTLR

Checked ByEEC

E124

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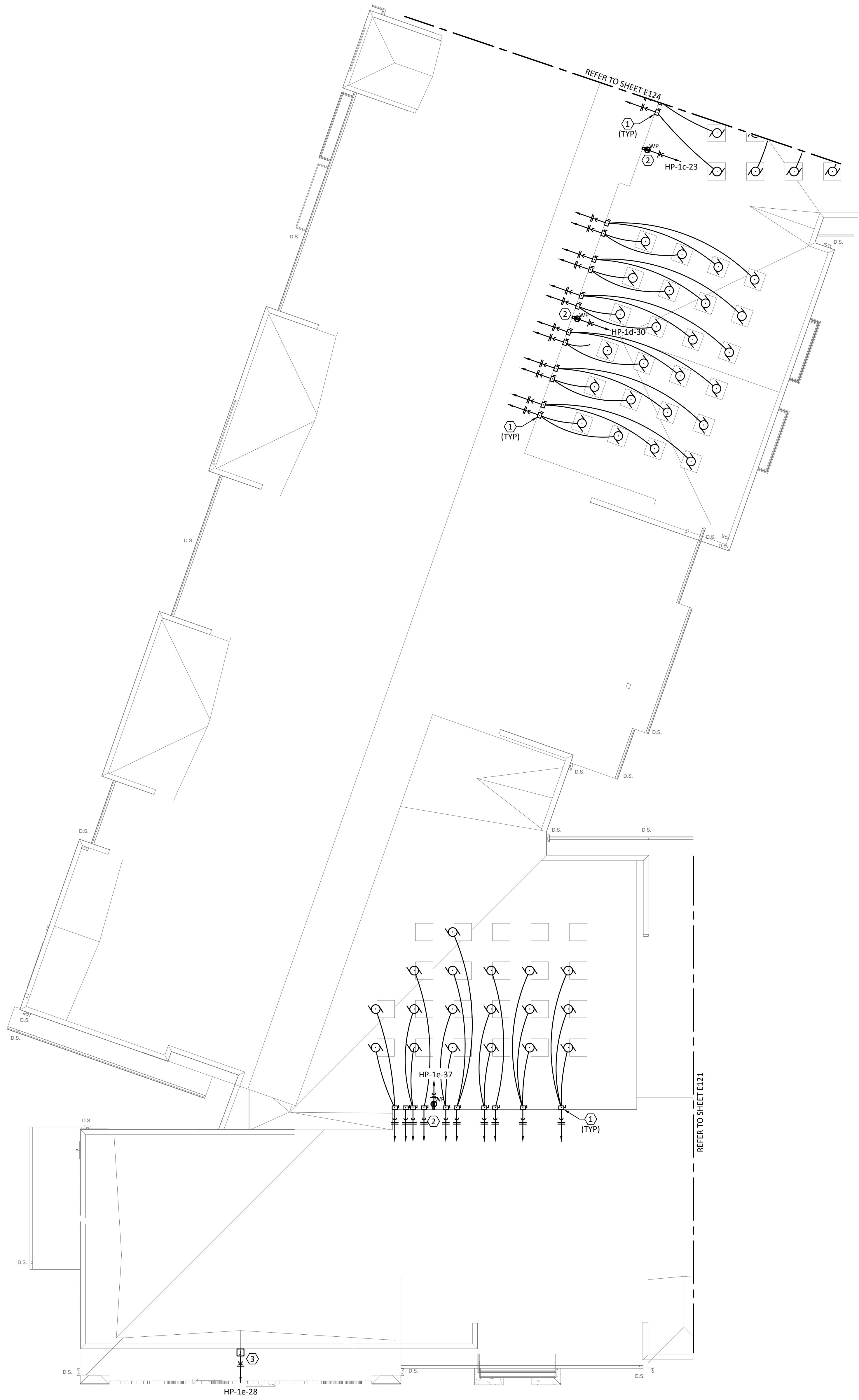


KEY PLAN
N.T.S.

ENCOTECHENGINEERING CONSULTANTS

TBPE Firm 11418500 Bluffstone Cove, Suite B-103Austin, Texas 78759 | 512.338.1101Project No.: 18054.M5.AUS

1 ELECTRICAL - BUILDING 1d - ROOF
SCALE: 1/8"=1'-0"

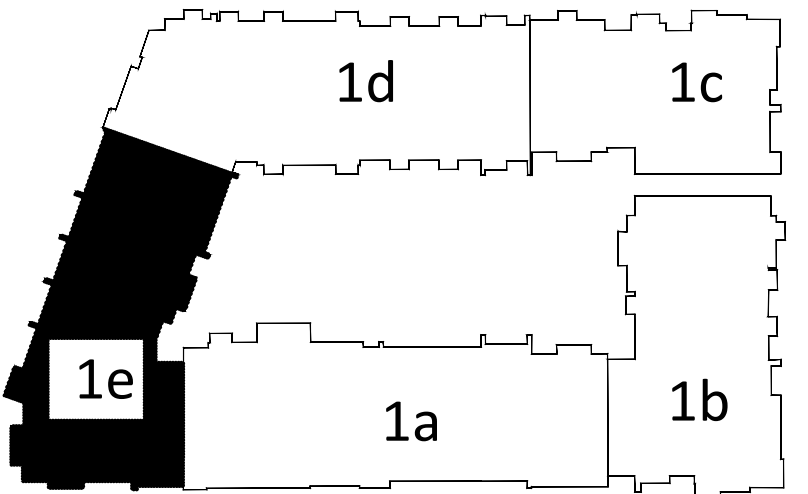


1 ELECTRICAL - BUILDING 1e - ROOF
SCALE: 1/8"=1'-0"

- GENERAL NOTES:
- A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
- KEYED NOTES:
1. PROVIDE 240V, 30A/2P/NF/N3R DISCONNECT FOR EACH DWELLING UNIT CONDENSING UNIT. MOUNT DISCONNECTS SPACED VERTICALLY IN ROWS OF 2 OR 3 ON PARAPET WALL. CIRCUIT TO RESPECTIVE DWELLING UNIT LOAD CENTER. MAINTAIN A MINIMUM OF 3'-0" CLEAR WORKING SPACE IN FRONT OF ALL ELECTRICAL EQUIPMENT. REFER TO DETAIL 5/E501. CIRCUIT TO RESPECTIVE DWELLING UNIT LOAD CENTER. REFER TO E401 FOR UNIT CALCULATIONS. ROUTE CONDUIT ON 4"x4", WOLMANIZED, PRESSURE-TREATED WOOD ROOF SUPPORTS BETWEEN CONDENSING UNIT AND DISCONNECT SWITCH.

2. PROVIDE WEATHERPROOF DUPLEX RECEPTACLE WITHIN 25' OF FARTHEST CONDENSING UNIT. CIRCUIT TO THIS BUILDING HOUSE PANEL.

3. PROVIDE JUNCTION BOX FOR ROOF SIGNAGE.



KEY PLAN
N.T.S.

ENCOTECH

ENGINEERING CONSULTANTS

TBPE Firm 1141 | 8500 Bluffstone Cove, Suite B-103 Austin, Texas 78759 | 512.338.1101 Project No.: 18054.M5.AUS

DAVIES

COLLABORATIVE

3607 S Lamar Blvd, Suite 103 Austin, Texas 78704 512.852.4310

Structural Engineer:

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MEP Engineer:

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Tessa Roberts
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Civil Engineer:

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Landscape Architect:

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512.345.8477

Interior Designer:

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Cassie Farley
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ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS

a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
BUILDING 1e
ROOF

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E125

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Structural Engineer:

VIEWTECH INC.
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Victor Lisiak III
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MEP Engineer:

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Tessa Roberts
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Civil Engineer:

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David Allen
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Landscape Architect:

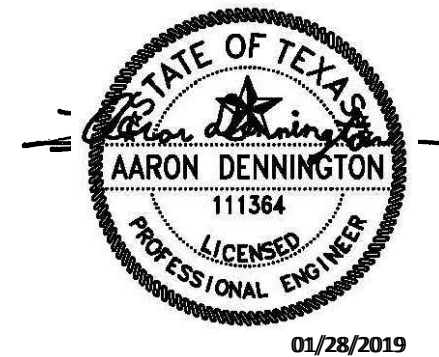
LEE & Associates, Inc.
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Amber Rotwell
512.345.8477

Interior Designer:

S.J.L Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
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ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

**ELECTRICAL
BUILDING II (#2 & #3)
LEVEL 1**

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

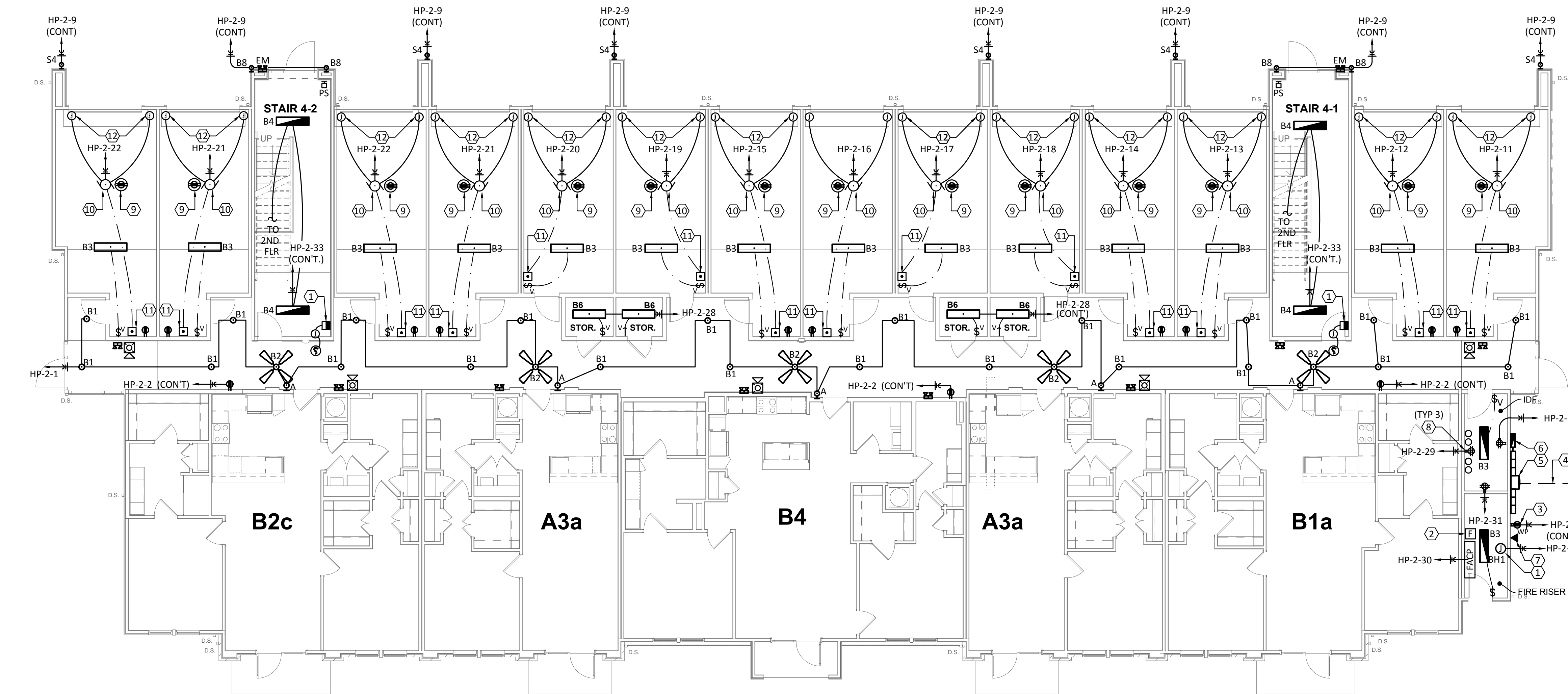
E126

GENERAL NOTES:

- REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
- REFER TO SHEETS E404 THRU E407, ELECTRICAL CALCULATIONS AND RISER DIAGRAMS FOR ADDITIONAL INFORMATION.
- ALL CORRIDOR, UNIT ENTRY AND STAIRWELL LIGHTING SHALL BE UNSWITCHED AND CONTROLLED AT THE CIRCUIT BREAKER IN HOUSE PANEL.
- ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-7.
- REFER TO ELECTRICAL SITE PLAN FOR EXACT LOCATION OF ELECTRICAL METER SERVICE LOCATION.
- ALL EXTERIOR LIGHTING SHALL BE CIRCUITED THRU TIME CLOCK TO PHOTOCELL. TIME CLOCK SHALL BE CIRCUITED TO HOUSE PANEL.

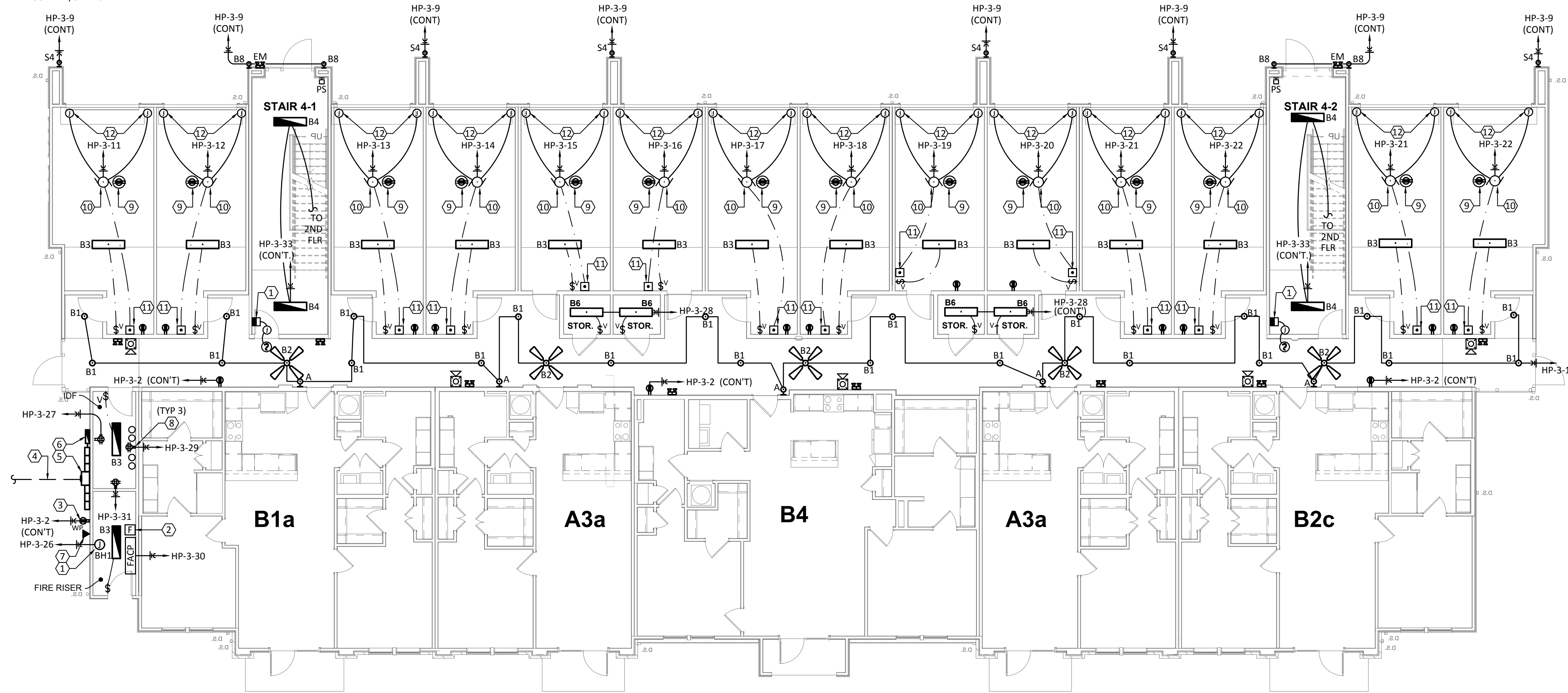
KEYED NOTES:

- PROVIDE AND INSTALL ELECTRIC BASEBOARD HEATER IN SPRINKLER CLOSET. FINAL CONNECTION SHALL BE PERFORMED BY ELECTRICIAN. 120V, 1 PHASE, 20 AMP-6-20 CORD SET. THERMOSTAT WILL BE PROVIDED WITH HEATER AND SHALL BE SET TO OPERATE WHEN BELOW 40 DEGREES FAHRENHEIT.
- PROVIDE PULL STATION IN FIRE RISER ROOM ADJACENT TO FIRE ALARM CONTROL PANEL.
- PROVIDE WEATHERPROOF DUPLEX RECEPTACLE WITHIN 50' OF ELECTRICAL EQUIPMENT PER N.E.C. REQUIREMENTS. CIRCUIT TO NEAREST HOUSE PANEL.
- ROUTE SECONDARY LATERALS TO 120/240 V, 1Ø PAD MOUNT TRANSFORMER (PROVIDED BY CPS ENERGY). ALL LATERALS SHALL BE SIZED BY CPS ENERGY. REFER TO SHEET E003.
- MODULAR METERING SYSTEM. MOUNT ON EXTERIOR WALL IN NEMA 3R ENCLOSURE. REFER TO CPS ENERGY DESIGN CRITERIA MANUAL FOR MAXIMUM/MINIMUM MOUNTING HEIGHT LIMITS TO CENTER OF THE METER. REFER TO RISER ON SHEET E407.
- 120/240 V, 1Ø 200 AMP LOAD CENTER MOUNTED ON ON EXTERIOR WALL IN NEMA 3R ENCLOSURE. MAINTAIN A MINIMUM OF 6" BETWEEN MODULAR METERING SYSTEM AND LOAD CENTER.
- ALL MODULAR METER AREAS REQUIRE A FUNCTIONAL TELEPHONE LINE TO BE INSTALLED ADJACENT TO METERING EQUIPMENT TO PROVIDE DIAL IN/OUT SERVICE PER CPS ENERGY DESIGN CRITERIA MANUAL, SECTION 1810.1.
- PROVIDE DEDICATED QUADRUPEX RECEPTACLES FOR TELECOMMUNICATIONS EQUIPMENT. INSTALL 4-4" EMPTY CONDUITS. PROVIDE GROUNDING EQUIPMENT PER N.E.C. REQUIREMENTS.
- PROVIDE DUPLEX OUTLET AT CEILING OF GARAGE ADJACENT TO GARAGE DOOR OPENER.
- PROVIDE AND INSTALL 120V, 1 PHASE, 20 AMP GARAGE DOOR OPENER. INSTALL PER MANUFACTURER'S INSTRUCTIONS. CIRCUIT TO LOAD CENTER.
- PROVIDE GARAGE DOOR OPENER BUTTON AT GARAGE ENTRY DOOR. MOUNT AT 33" A.F.F.
- INSTALL JUNCTION BOX AT BASE OF GARAGE DOOR RAILING. JUNCTION BOX SHALL BE "WEATHER TITE" TYPE.
- PROVIDE MAGNETIC DOOR-OPEN HOLDERS WITH JUNCTION BOX INTERLOCKED WITH SMOKE DETECTOR.



1 ELECTRICAL - BUILDING II (#2) - LEVEL 1

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



2 ELECTRICAL - BUILDING II (#3) - LEVEL 1

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



TBPE Firm
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Austin, Texas 78759 | 512.338.1101
Project No.: 18054.MS.AUS

Structural Engineer:

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Victor Lisjak III
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MEP Engineer:

ENCOTECH
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Tessa Roberts
512.338.1101

Civil Engineer:

MBC & Associates, Inc
1035 Central Pkwy N, San Antonio, TX 78732
David Allen
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Landscape Architect:

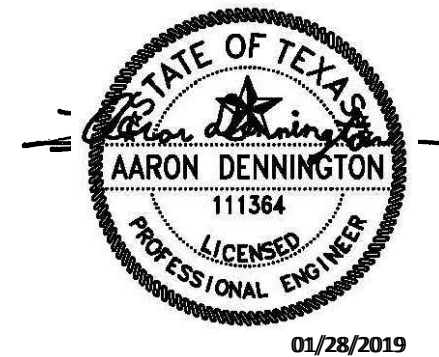
LEE & Associates, Inc.
9020 N Capital of Texas Hwy, Austin, TX. 78759
Amber Rotwell
512.345.8477

Interior Designer:

SJL Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

**ELECTRICAL
BUILDING II (#4 & #5)
LEVEL 1**

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

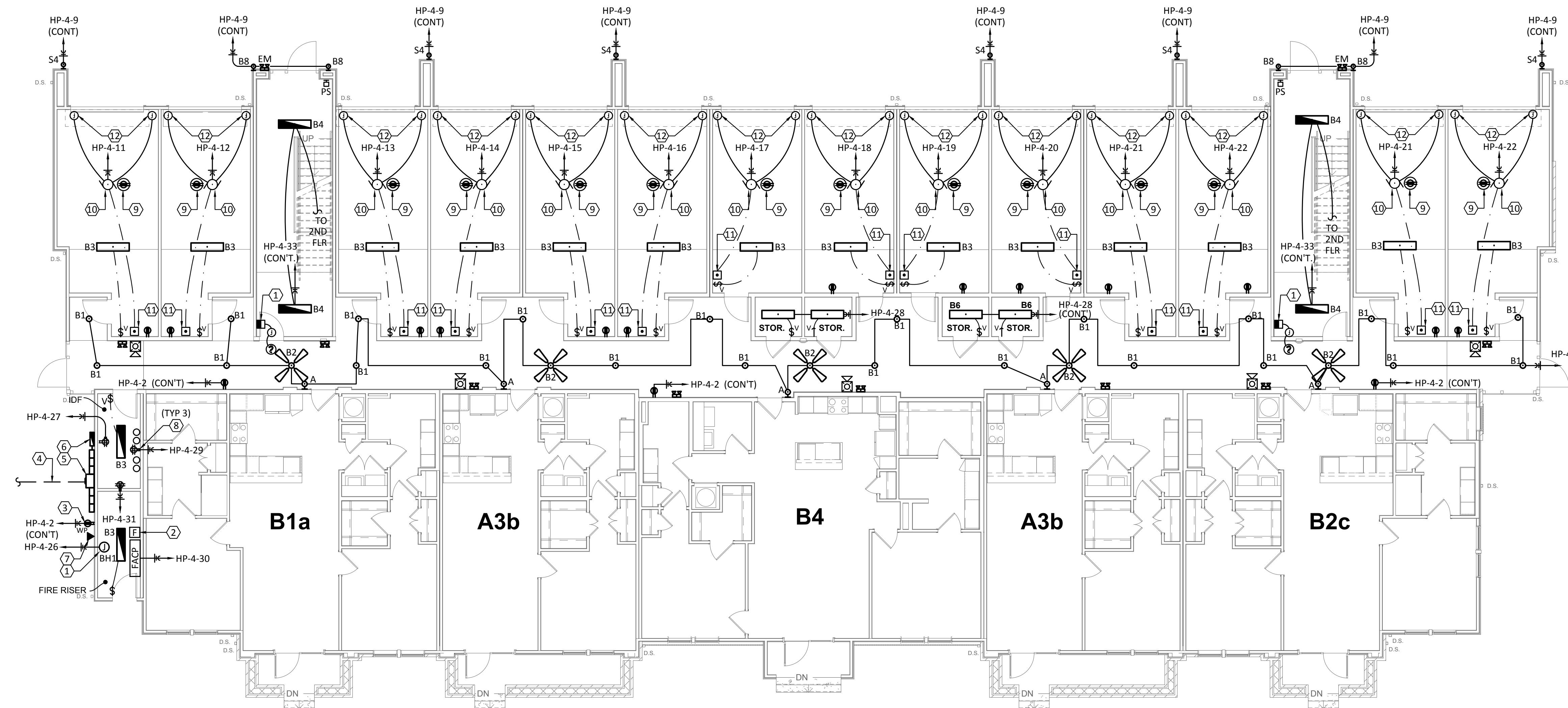
E127

GENERAL NOTES:

- REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
- REFER TO SHEETS E404 THRU E407, ELECTRICAL CALCULATIONS AND RISER DIAGRAMS FOR ADDITIONAL INFORMATION.
- ALL CORRIDOR, UNIT ENTRY AND STAIRWELL LIGHTING SHALL BE UNSWITCHED AND CONTROLLED AT THE CIRCUIT BREAKER IN HOUSE PANEL.
- ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-7.
- REFER TO ELECTRICAL SITE PLAN FOR EXACT LOCATION OF ELECTRICAL METER SERVICE LOCATION.
- ALL EXTERIOR LIGHTING SHALL BE CIRCUITED THRU TIME CLOCK TO PHOTOCELL. TIME CLOCK SHALL BE CIRCUITED TO HOUSE PANEL.

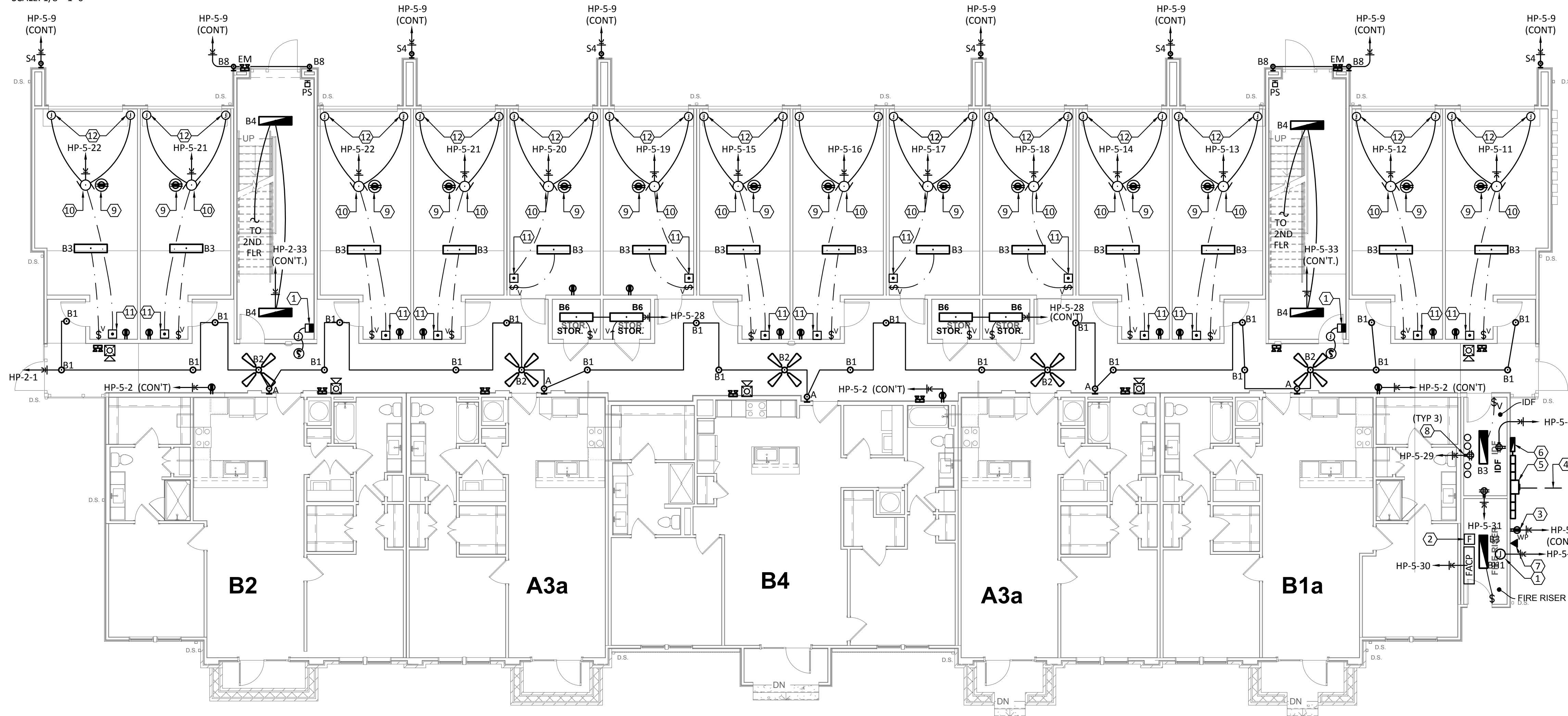
KEYED NOTES:

- PROVIDE AND INSTALL ELECTRIC BASEBOARD HEATER IN SPRINKLER CLOSET. FINAL CONNECTION SHALL BE PERFORMED BY ELECTRICIAN. 120V, 1 PHASE, 20 AMP-6-20 CORD SET. THERMOSTAT WILL BE PROVIDED WITH HEATER AND SHALL BE SET TO OPERATE WHEN BELOW 40 DEGREES FAHRENHEIT.
- PROVIDE PULL STATION IN FIRE RISER ROOM ADJACENT TO FIRE ALARM CONTROL PANEL.
- PROVIDE WEATHERPROOF DUPLEX RECEPTACLE WITHIN 50' OF ELECTRICAL EQUIPMENT PER N.E.C. REQUIREMENTS. CIRCUIT TO NEAREST HOUSE PANEL.
- ROUTE SECONDARY LATERALS TO: TO 120/240 V. 1Ø PAD MOUNT TRANSFORMER (PROVIDED BY CPS ENERGY). ALL LATERALS SHALL BE SIZED BY CPS ENERGY. REFER TO SHEET E003.
- MODULAR METERING SYSTEM. MOUNT ON EXTERIOR WALL IN NEMA 3R ENCLOSURE. REFER TO CPS ENERGY DESIGN CRITERIA MANUAL FOR MAXIMUM/MINIMUM MOUNTING HEIGHT LIMITS TO CENTER OF THE METER. REFER TO RISER ON SHEET E407.
- 120/240 V., 1Ø 200 AMP LOAD CENTER MOUNTED ON ON EXTERIOR WALL IN NEMA 3R ENCLOSURE. MAINTAIN A MINIMUM OF 6" BETWEEN MODULAR METERING SYSTEM AND LOAD CENTER.
- ALL MODULAR METER AREAS REQUIRE A FUNCTIONAL TELEPHONE LINE TO BE INSTALLED ADJACENT TO METERING EQUIPMENT TO PROVIDE DIAL IN/OUT SERVICE PER CPS ENERGY DESIGN CRITERIA MANUAL, SECTION 1810.1.
- PROVIDE DEDICATED QUADRUPEX RECEPTACLES FOR TELECOMMUNICATIONS EQUIPMENT. INSTALL 4-4" EMPTY CONDUITS. PROVIDE GROUNDING EQUIPMENT PER N.E.C. REQUIREMENTS.
- PROVIDE DUPLEX OUTLET AT CEILING OF GARAGE ADJACENT TO GARAGE DOOR OPENER.
- PROVIDE AND INSTALL 120V, 1 PHASE, 20 AMP GARAGE DOOR OPENER. INSTALL PER MANUFACTURER'S INSTRUCTIONS. CIRCUIT TO LOAD CENTER.
- PROVIDE GARAGE DOOR OPENER BUTTON AT GARAGE ENTRY DOOR. MOUNT AT 33" A.F.F.
- INSTALL JUNCTION BOX AT BASE OF GARAGE DOOR RAILING. JUNCTION BOX SHALL BE "WEATHER TITE" TYPE.
- PROVIDE MAGNETIC DOOR-OPEN HOLDERS WITH JUNCTION BOX INTERLOCKED WITH SMOKE DETECTOR.



1 ELECTRICAL - BUILDING II (#4) - LEVEL 1

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

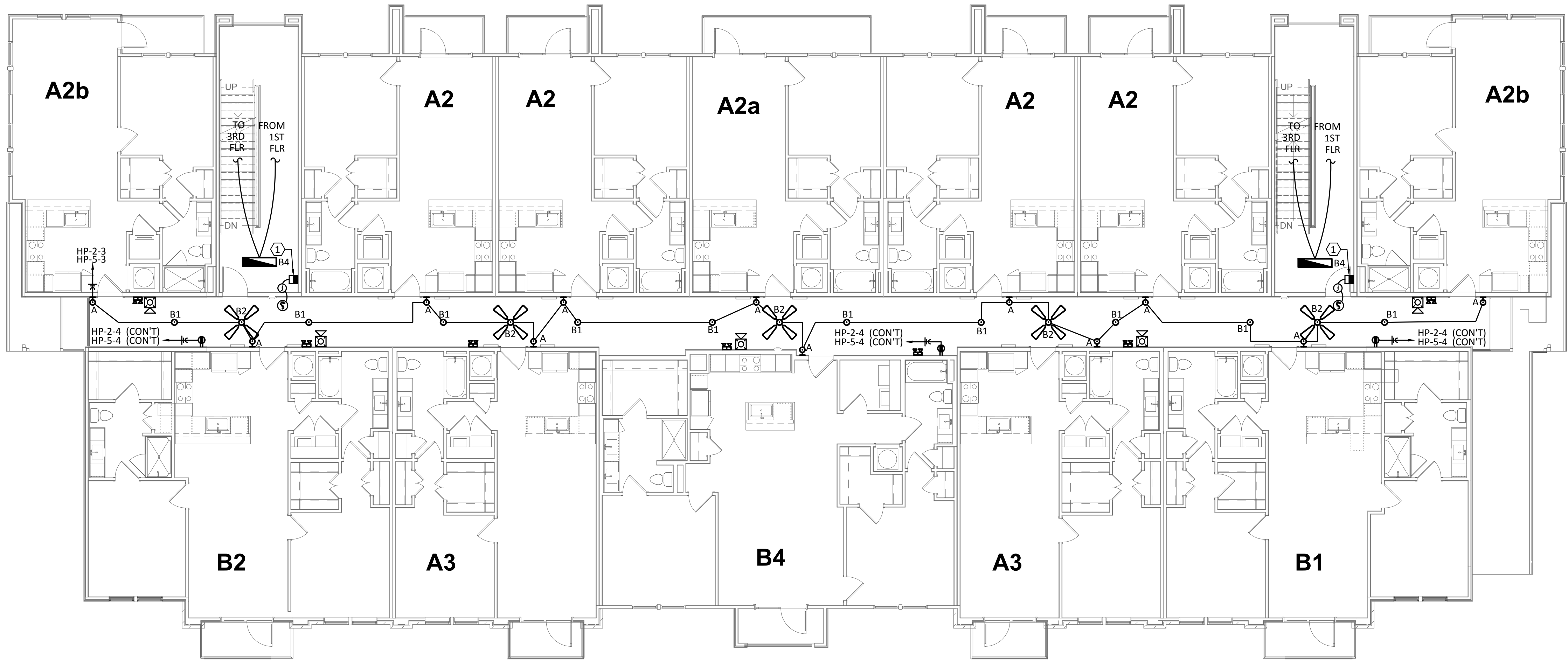


1 ELECTRICAL - BUILDING II (#5) - LEVEL 1

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



TBPE Firm
1141 8500 Bluffstone Cove, Suite B-103
Austin, Texas 78759 | 512.338.1101
Project No.: 18054.M5.AUS

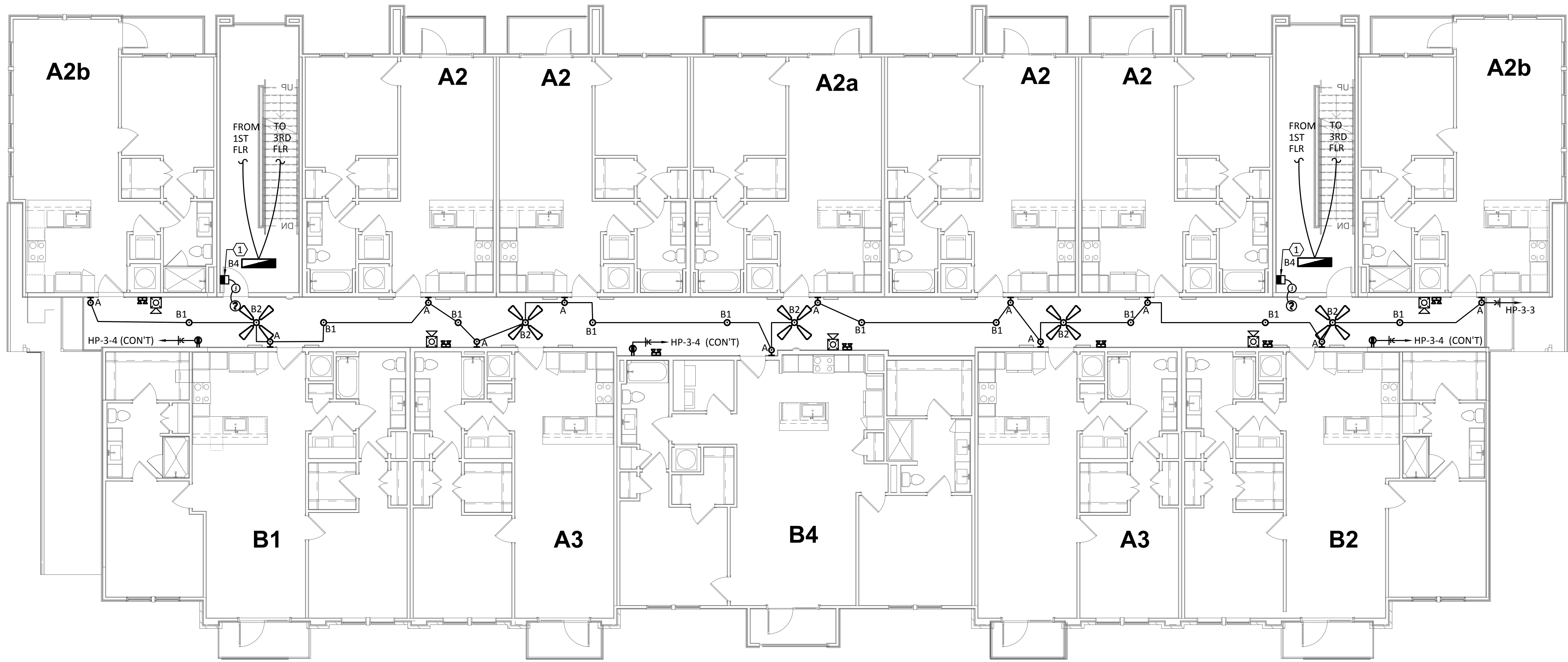


- GENERAL NOTES:**
- REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
 - REFER TO SHEETS E404 THRU E407, ELECTRICAL CALCULATIONS AND RISER DIAGRAMS FOR ADDITIONAL INFORMATION.
 - ALL CORRIDOR, UNIT ENTRY AND STAIRWELL LIGHTING SHALL BE UNSWITCHED AND CONTROLLED AT THE CIRCUIT BREAKER IN HOUSE PANEL.
 - ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-7.
 - REFER TO ELECTRICAL SITE PLAN FOR EXACT LOCATION OF ELECTRICAL METER SERVICE LOCATION.
 - ALL EXTERIOR LIGHTING SHALL BE CIRCUITED THRU TIME CLOCK TO PHOTOCELL. TIME CLOCK SHALL BE CIRCUITED TO HOUSE PANEL.

- KEYED NOTES:**
- MAGNETIC DOOR HOLD OPENER INTERLOCKED WITH SMOKE DETECTORS.

1 ELECTRICAL - BUILDING II (#2 & #5) - LEVEL 2

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



2 ELECTRICAL - BUILDING II (#3) - LEVEL 2

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

Structural Engineer:

VIEWTECH INC.
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Landscape Architect:

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Amber Rothwell
512.345.8477

Interior Designer:

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Cassie Farley
214.443.9090

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL BUILDING II (#2, #3 & #5) LEVEL 2

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E128

Structural Engineer:

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Landscape Architect:

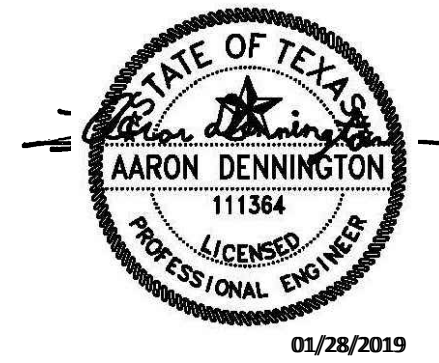
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Amber Rothwell
512.345.8477

Interior Designer:

S.J.L. Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
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ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
BUILDING II (#4)
LEVEL 2

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

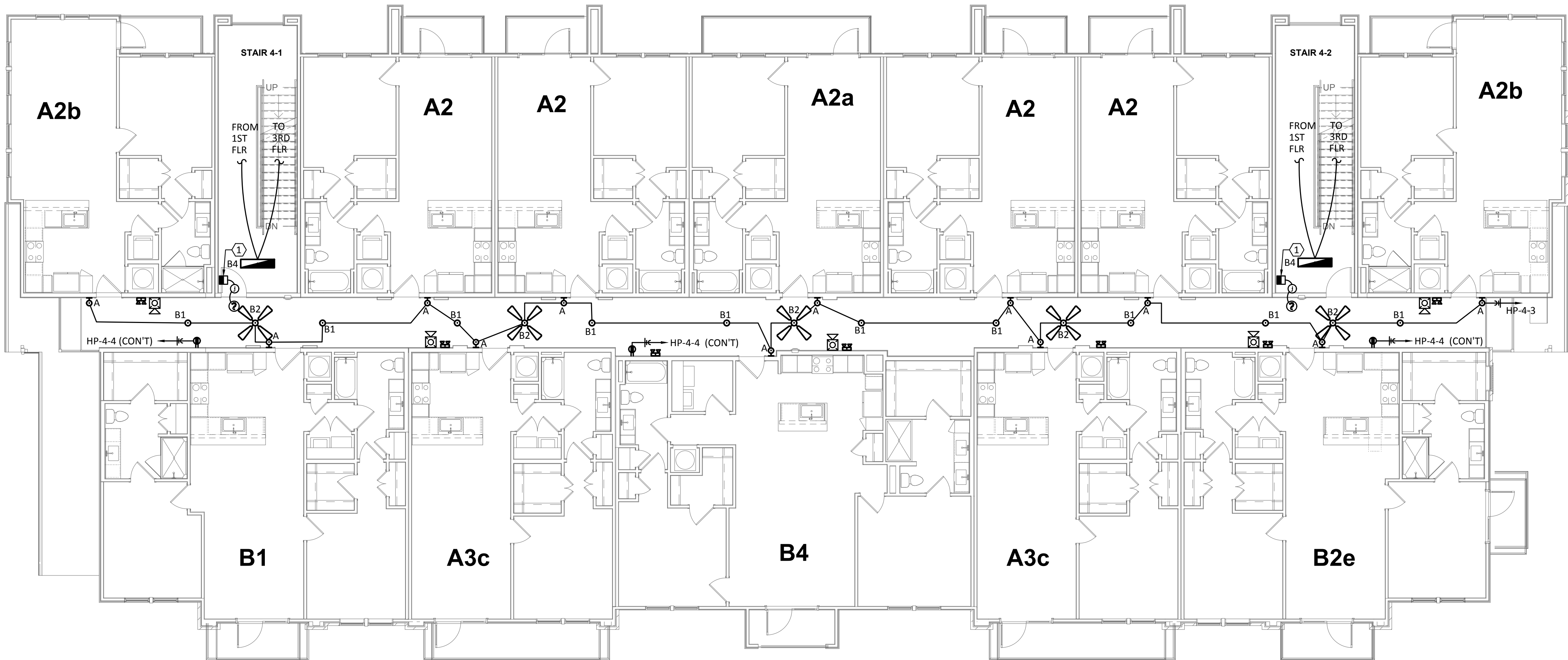
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GENERAL NOTES:

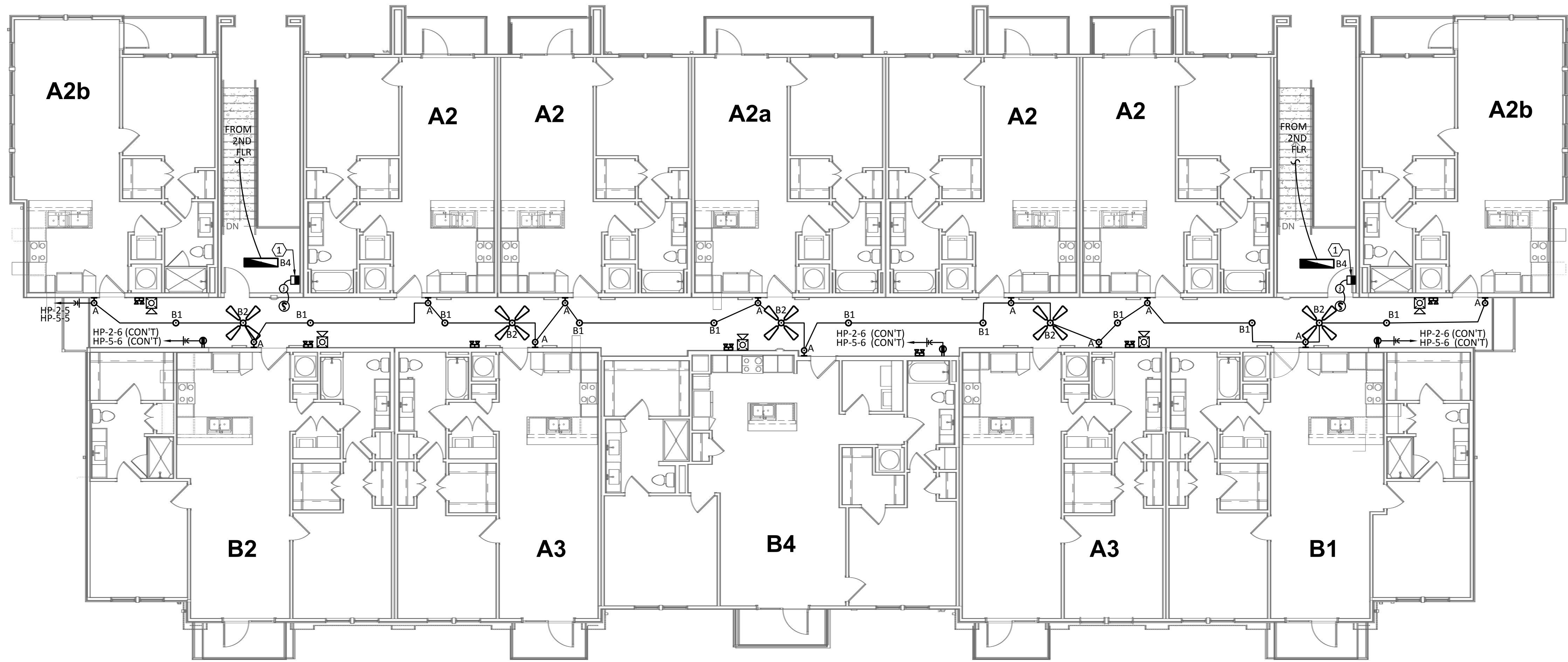
- REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
- REFER TO SHEETS E404 THRU E407, ELECTRICAL CALCULATIONS AND RISER DIAGRAMS FOR ADDITIONAL INFORMATION.
- ALL CORRIDOR, UNIT ENTRY AND STAIRWELL LIGHTING SHALL BE UNSWITCHED AND CONTROLLED AT THE CIRCUIT BREAKER IN HOUSE PANEL.
- ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-7.
- REFER TO ELECTRICAL SITE PLAN FOR EXACT LOCATION OF ELECTRICAL METER SERVICE LOCATION.
- ALL EXTERIOR LIGHTING SHALL BE CIRCUITED THRU TIME CLOCK TO PHOTOCELL. TIME CLOCK SHALL BE CIRCUITED TO HOUSE PANEL.

KEYED NOTES:

- MAGNETIC DOOR HOLD OPENER INTERLOCKED WITH SMOKE DETECTORS.



2 ELECTRICAL - BUILDING II (#4) - LEVEL 2
SCALE: 1/8"=1'-0"

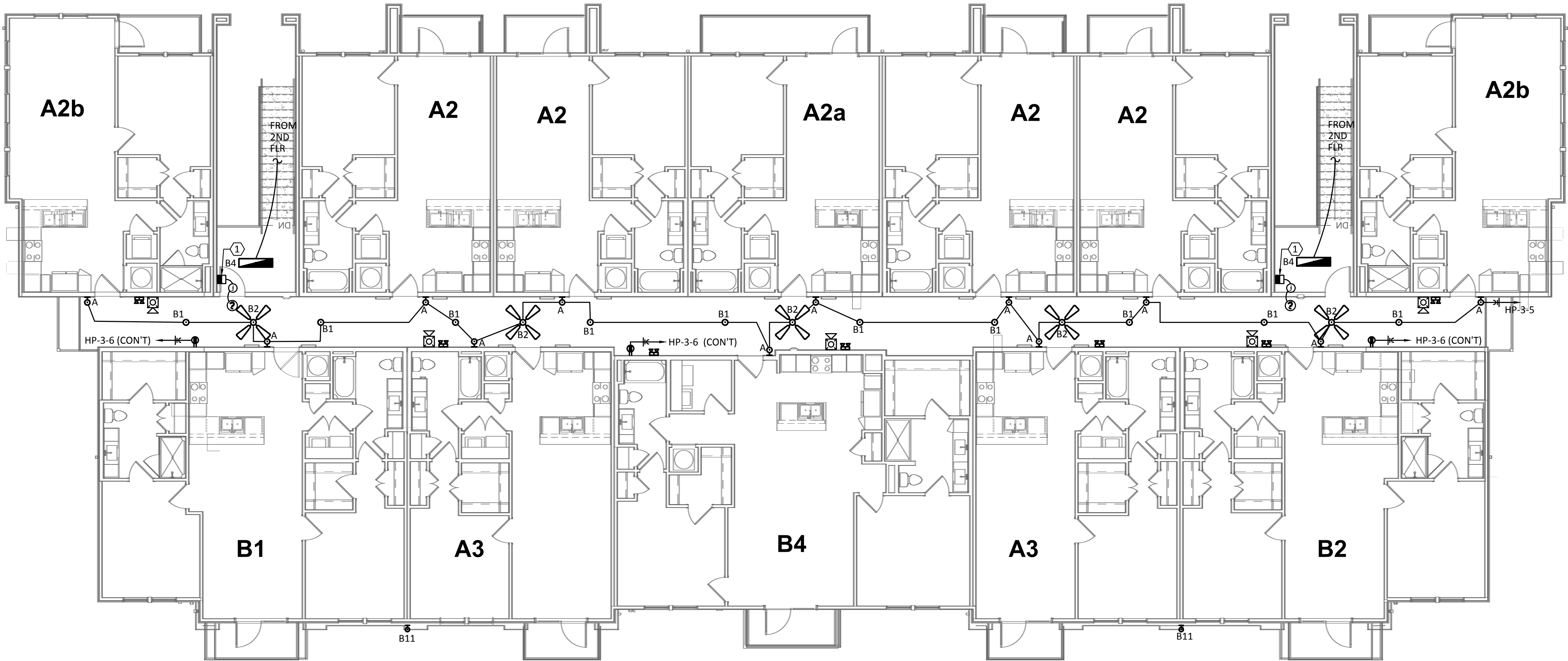


- GENERAL NOTES:**
- A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
 - B. REFER TO SHEETS E404 THRU E407, ELECTRICAL CALCULATIONS AND RISER DIAGRAMS FOR ADDITIONAL INFORMATION.
 - C. ALL CORRIDOR, UNIT ENTRY AND STAIRWELL LIGHTING SHALL BE UNSWITCHED AND CONTROLLED AT THE CIRCUIT BREAKER IN HOUSE PANEL.
 - D. ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-7.
 - E. REFER TO ELECTRICAL SITE PLAN FOR EXACT LOCATION OF ELECTRICAL METER SERVICE LOCATION.
 - F. ALL EXTERIOR LIGHTING SHALL BE CIRCUITED THRU TIME CLOCK TO PHOTOCELL. TIME CLOCK SHALL BE CIRCUITED TO HOUSE PANEL, CIRCUIT #HP-11.

- KEYED NOTES:**
- 1. MAGNETIC DOOR HOLD OPENER INTERLOCKED WITH SMOKE DETECTORS.

1 ELECTRICAL - BUILDING II (#2 & #5) - LEVEL 3

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



2 ELECTRICAL - BUILDING II (#3) - LEVEL 3

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

Structural Engineer:

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MEP Engineer:

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Tessa Roberts
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Civil Engineer:

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Landscape Architect:

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Interior Designer:

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Cassie Farley
214.443.9090

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

**ELECTRICAL
BUILDING II (#2, #3 &
#5) LEVEL 3**

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E130

Structural Engineer:

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Civil Engineer:

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David Allen
210.545.1122

Landscape Architect:

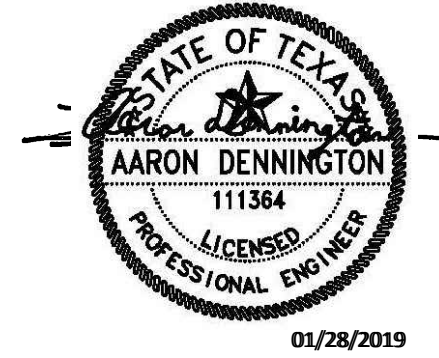
LEE & Associates, Inc.
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Amber Rothwell
512.345.8477

Interior Designer:

S.J.L. Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
BUILDING II (#4)
LEVEL 3

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

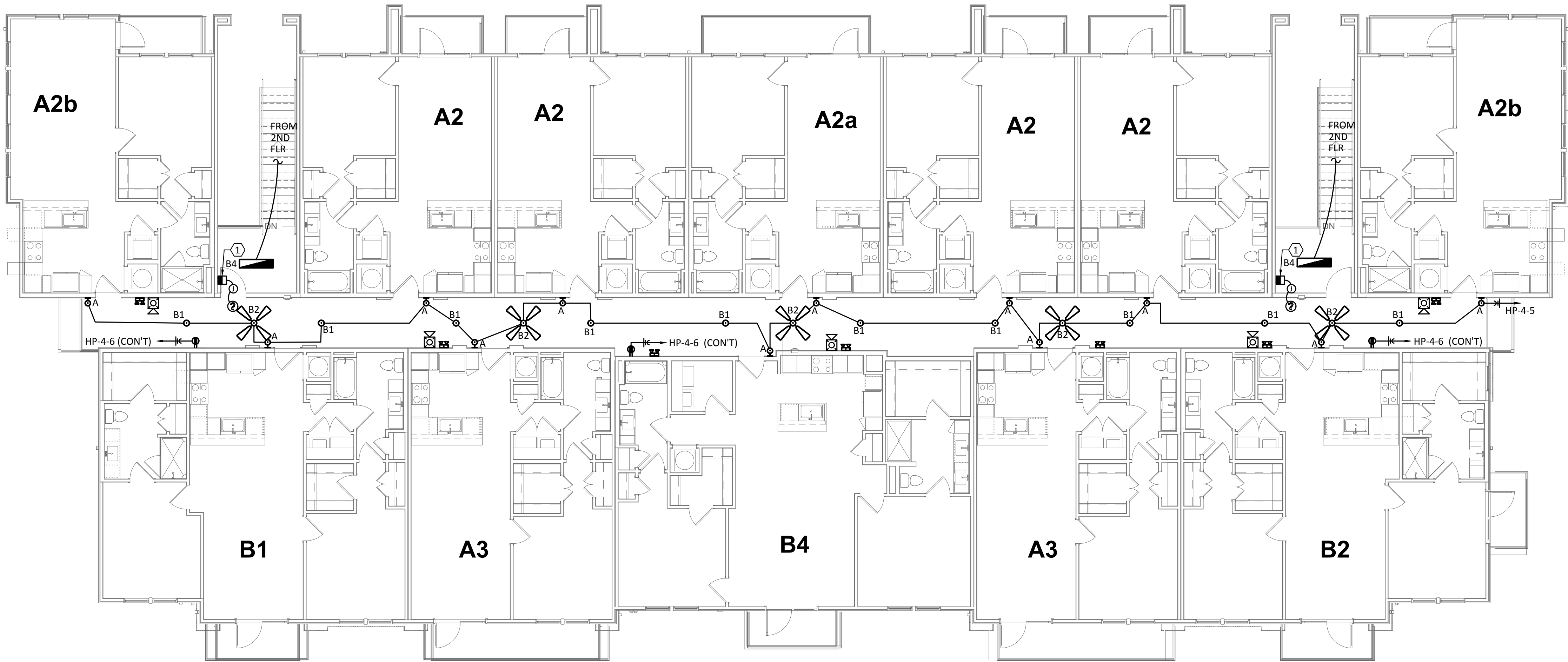
E131

GENERAL NOTES:

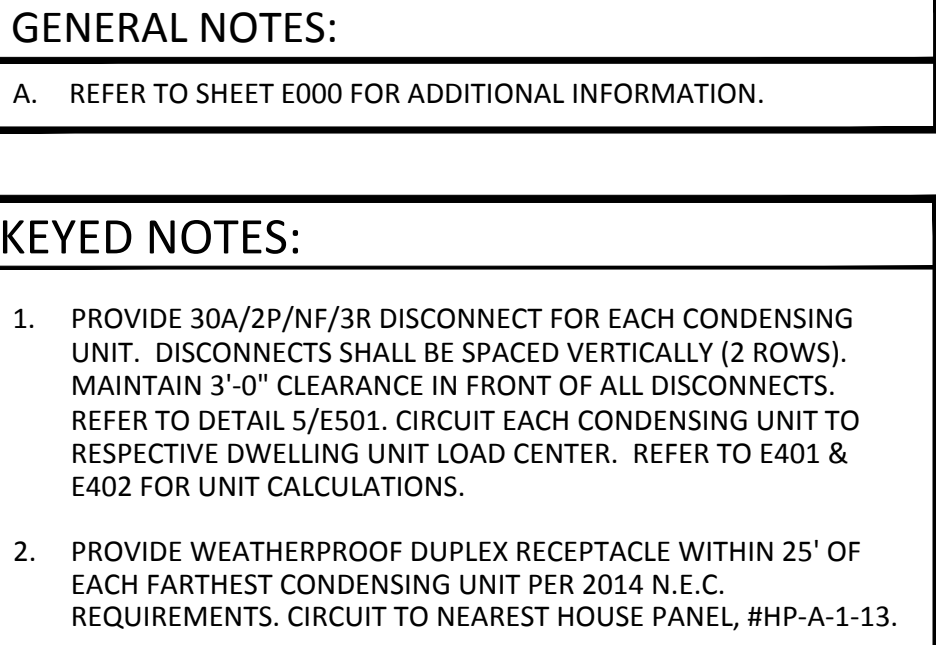
- REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
- REFER TO SHEETS E404 THRU E407, ELECTRICAL CALCULATIONS AND RISER DIAGRAMS FOR ADDITIONAL INFORMATION.
- ALL CORRIDOR, UNIT ENTRY AND STAIRWELL LIGHTING SHALL BE UNSWITCHED AND CONTROLLED AT THE CIRCUIT BREAKER IN HOUSE PANEL.
- ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE CIRCUITED TO DEDICATED BREAKER ON HOUSE PANEL, CIRCUIT #HP-7.
- REFER TO ELECTRICAL SITE PLAN FOR EXACT LOCATION OF ELECTRICAL METER SERVICE LOCATION.
- ALL EXTERIOR LIGHTING SHALL BE CIRCUITED THRU TIME CLOCK TO PHOTOCELL. TIME CLOCK SHALL BE CIRCUITED TO HOUSE PANEL, CIRCUIT #HP-11.

KEYED NOTES:

- MAGNETIC DOOR HOLD OPENER INTERLOCKED WITH SMOKE DETECTORS.



1 ELECTRICAL - BUILDING II (#4) - LEVEL 3
SCALE: 1/8"=1'-0"



Structural Engineer:

VIEWTECH INC.
4205 Beltway Dr. Addison, TX 75001
Victor Lisiak III
972.661.8187

MEP Engineer:

ENCOTECH
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Tessa Roberts
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Civil Engineer:

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Cassie Farley
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ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS

Architectural floor plan of a large hall with a central stage area. The stage features a series of 16 HP-4-8 (CONT.) speakers arranged in two rows of eight. The plan includes dimensions for various sections and details of the stage layout.

ENCOTECH
ENGINEERING CONSULTANTS

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Austin, Texas 78759 | 512.338.1101
Project No.: 18054.MS.AUS

West Cevallos

San Antonio, Texas

ELECTRICAL BUILDING II (#2, #3 & #5) ROOF

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E132

GENERAL NOTES:
A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.

- KEYED NOTES:
1. PROVIDE 30A/2P/NF/3R DISCONNECT FOR EACH CONDENSING UNIT. DISCONNECTS SHALL BE SPACED VERTICALLY (2 ROWS). MAINTAIN 3'-0" CLEARANCE IN FRONT OF ALL DISCONNECTS. REFER TO DETAIL 5/E501. CIRCUIT EACH CONDENSING UNIT TO RESPECTIVE DWELLING UNIT LOAD CENTER. REFER TO E401 & E402 FOR UNIT CALCULATIONS.
 2. PROVIDE WEATHERPROOF DUPLEX RECEPTACLE WITHIN 25' OF EACH FARTHEST CONDENSING UNIT PER 2014 N.E.C. REQUIREMENTS. CIRCUIT TO NEAREST HOUSE PANEL, #HP-A-1-13.

Structural Engineer:
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214.443.9090

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



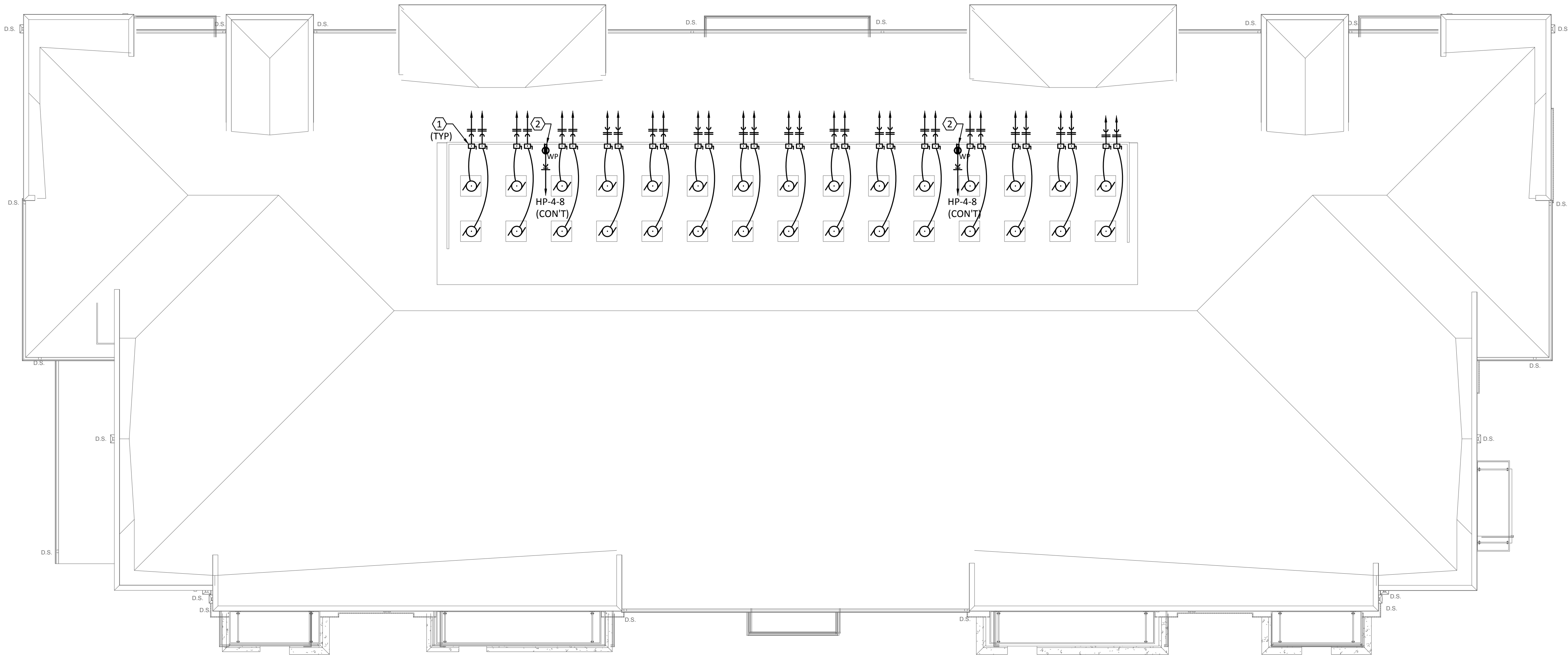
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NRP Group

West Cevallos
San Antonio, Texas

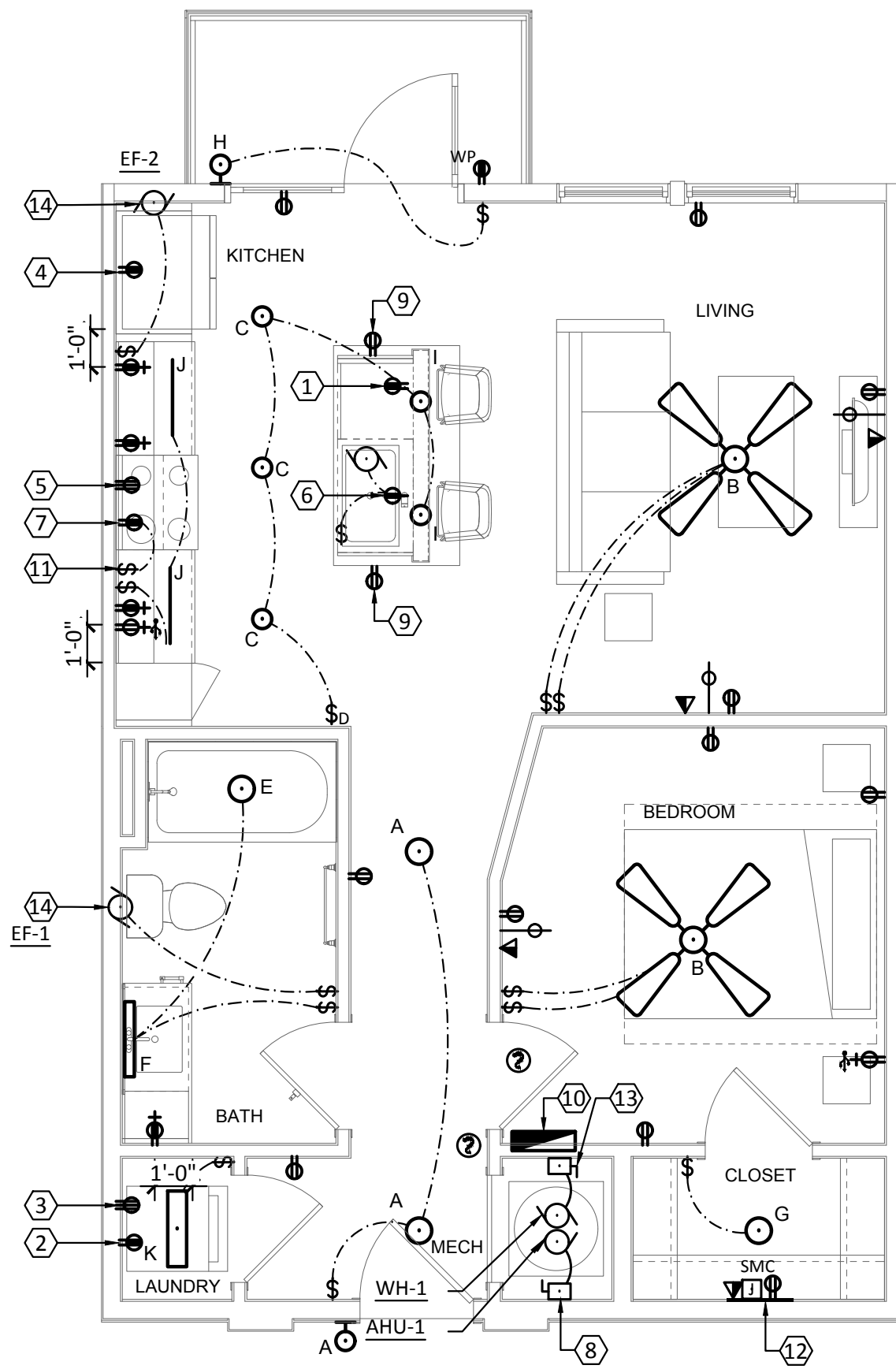
ELECTRICAL BUILDING II (#4) ROOF

Project Number	18054
Date	01/14/2018
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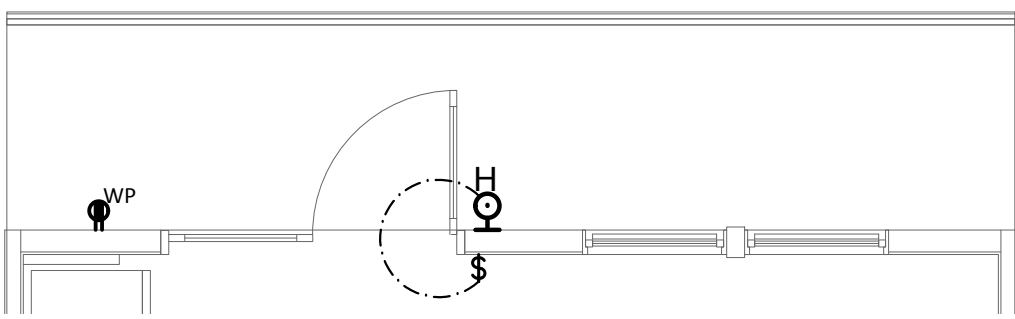
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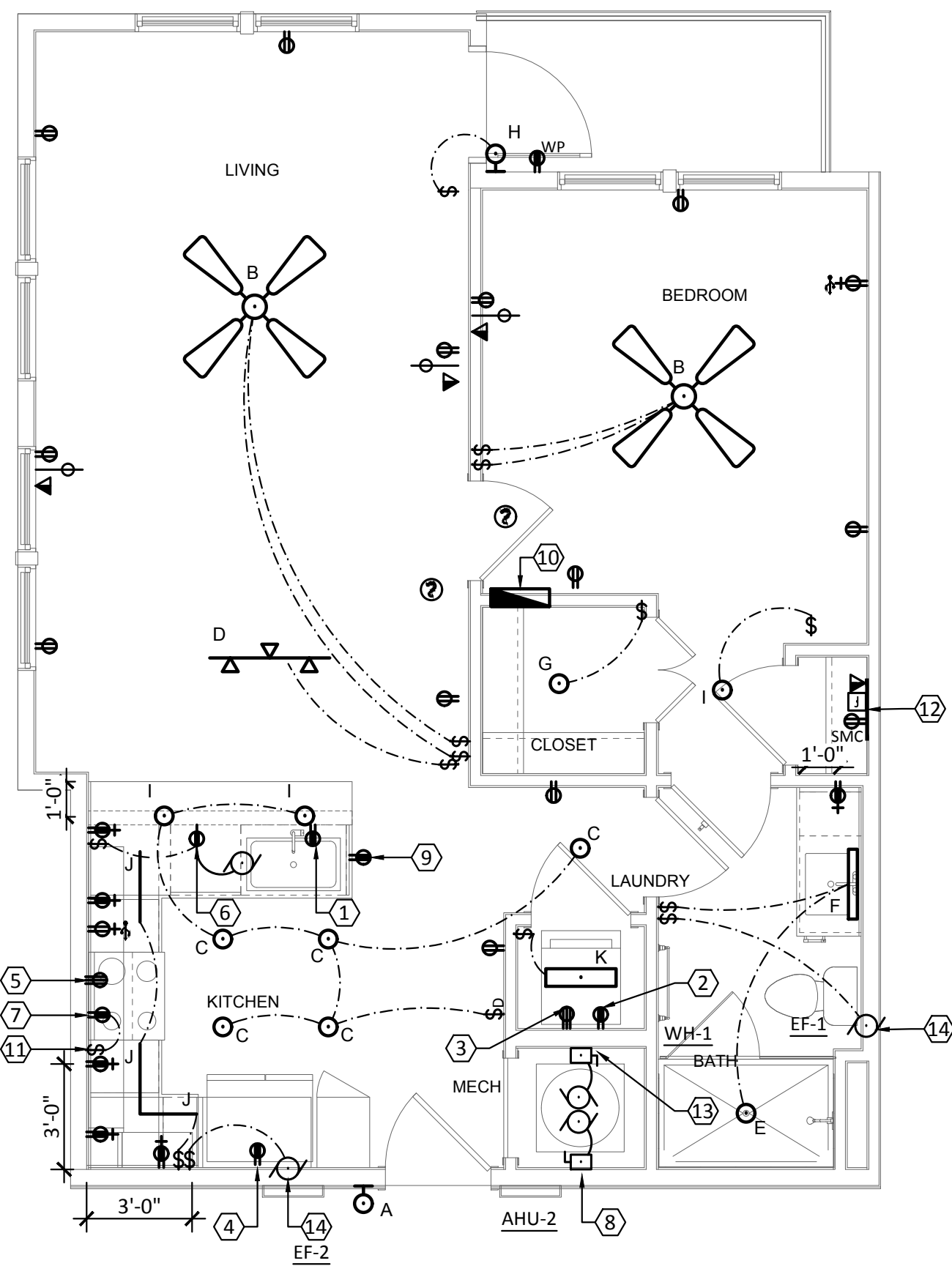
1 ELECTRICAL - BUILDING II (#4) - ROOF
SCALE: 1/8"=1'-0"



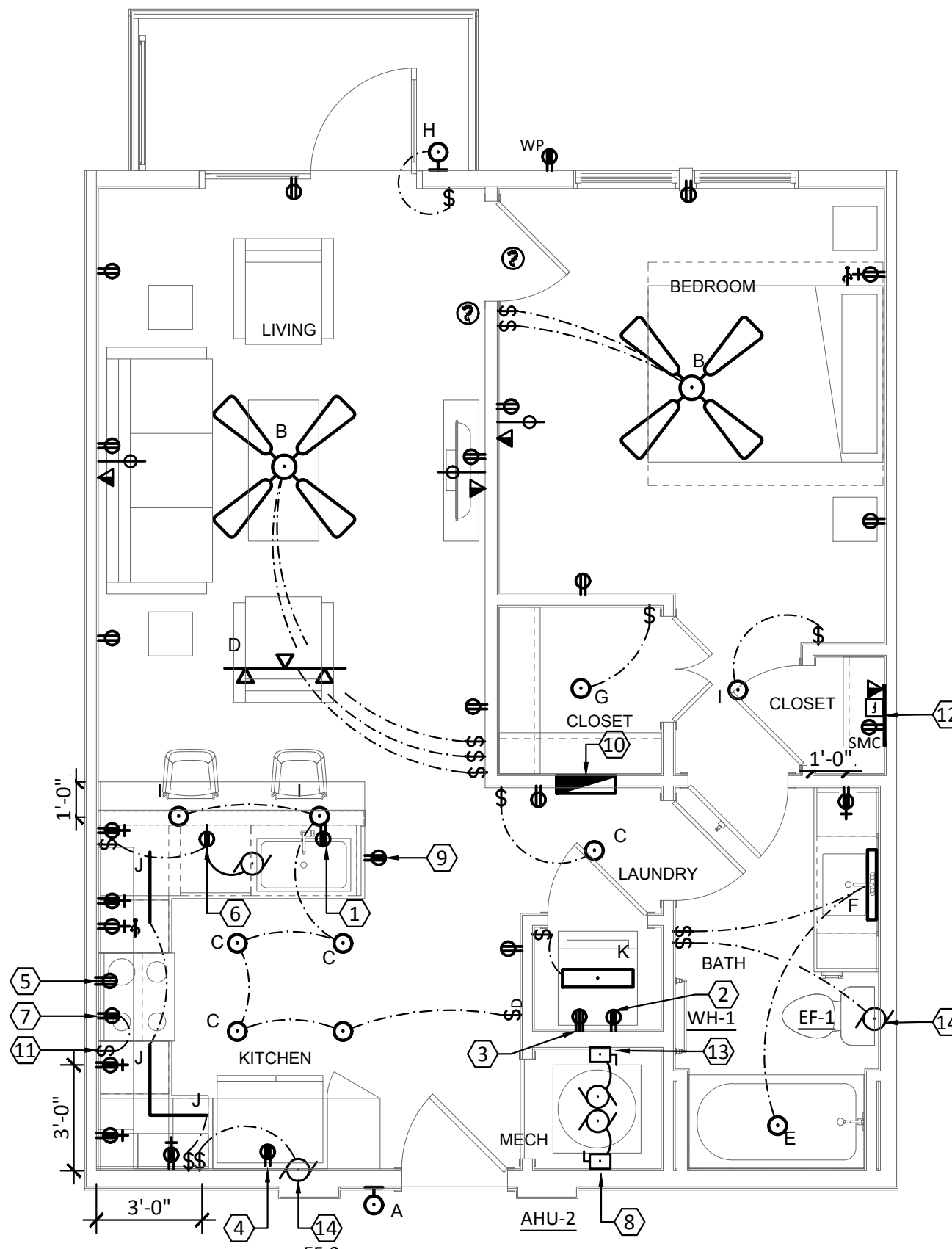
1 ELECTRICAL - UNIT TYPE A1
SCALE: 1/4"=1'-0"



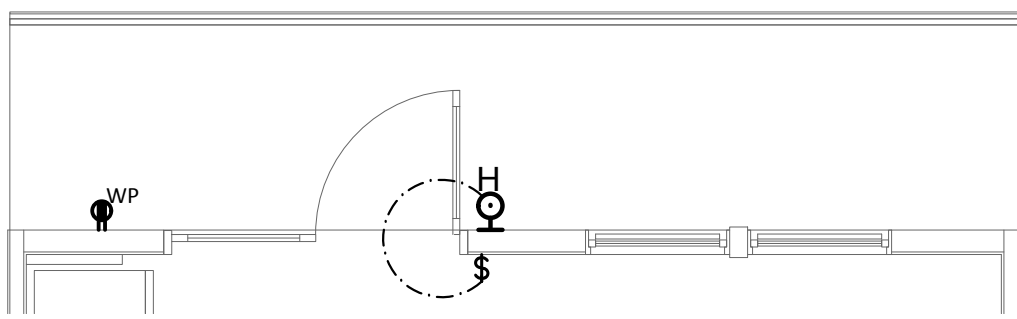
3 ELECTRICAL - UNIT TYPE A1a
SCALE: 1/4"=1'-0"



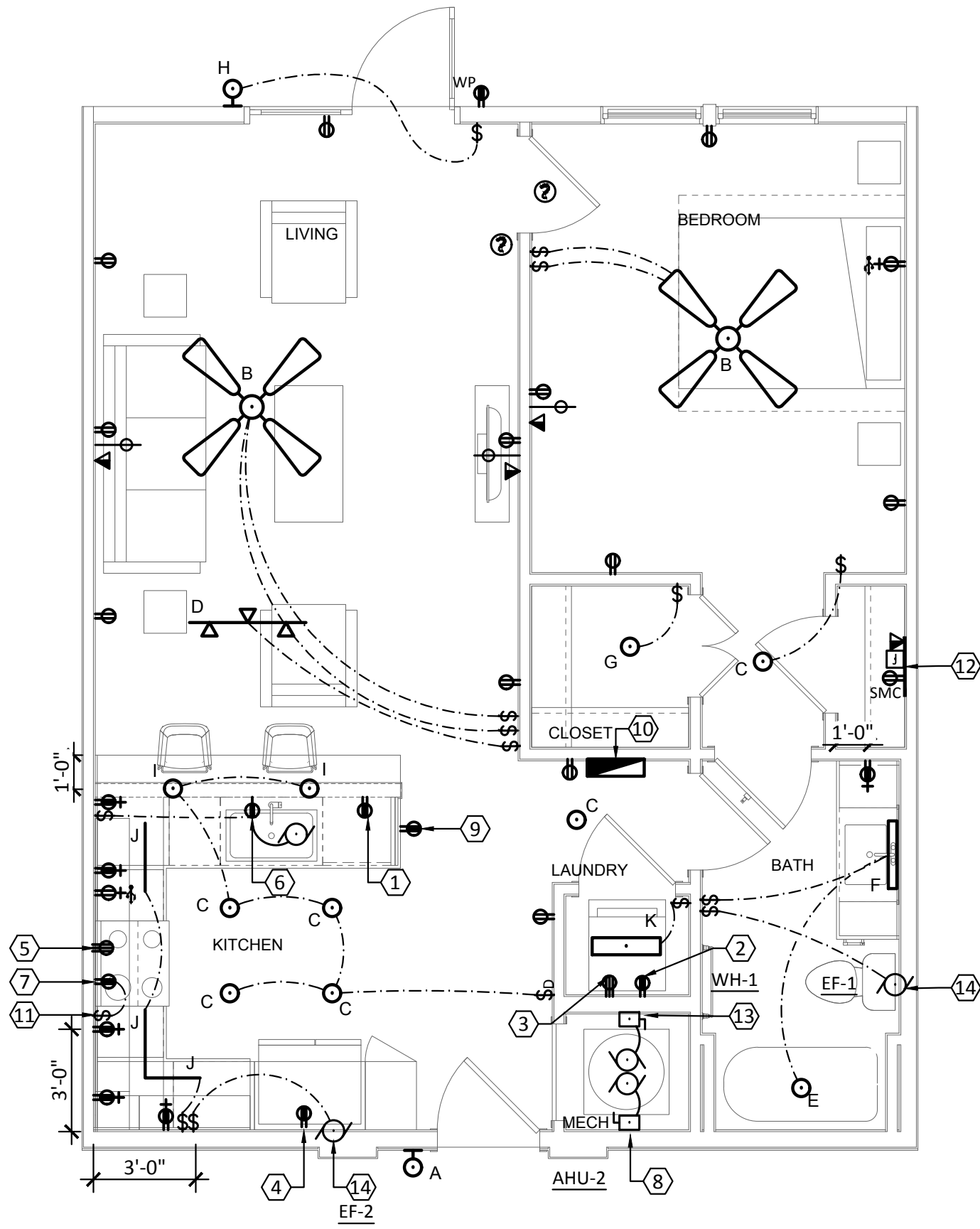
5 ELECTRICAL - UNIT TYPE A2b
SCALE: 1/4"=1'-0"



2 ELECTRICAL - UNIT TYPE A2
SCALE: 1/4"=1'-0"



4 ELECTRICAL - UNIT TYPE A2a
SCALE: 1/4"=1'-0"



6 ELECTRICAL - UNIT TYPE A2c, A2d, A2e & A2f
SCALE: 1/4"=1'-0"

- GENERAL NOTES:**
- REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
 - ALL UNIT ENTRY LIGHTS ("A") SHALL BE CIRCUITED WITH CORRIDOR LIGHT AND SHALL BE SWITCHED AT HOUSE PANEL CIRCUIT BREAKER.
 - REFER TO ARCHITECTURAL PLANS FOR MOUNTING HEIGHT AND LOCATION FOR BALCONY LIGHTS.
 - REFER TO DETAIL 1/E501 FOR ALL KITCHEN AND BATHROOM COUNTERTOP RECEPTACLE HEIGHTS.
 - ALL RECEPTACLES THAT ARE NOT ACCESSIBLE MUST BE GFCI PROTECTED AT CIRCUIT BREAKER.
 - DO NOT ROUTE ANY DUCT OR PIPING ABOVE ELECTRICAL PANELS.
 - ALL CONDUIT SHALL BE CONCEALED IN WALL OR ABOVE CEILING.
 - UNDER-CABINET LIGHTING ("J") SHALL BE CENTERED IN CABINetry. SHOWN IN LOCATION FOR CLARITY ONLY.
 - PROVIDE AND INSTALL COMBINATION SMOKE AND CARBON MONOXIDE DETECTORS ONLY IN 2ND FLOOR DWELLING UNITS LOCATED DIRECTLY ABOVE A GARAGE.

- KEYED NOTES:**
- 20A GFCI RECEPTACLE BELOW COUNTERTOP FOR DISHWASHER. PROTECT WITH GFCI-TYPE CIRCUIT BREAKER.
 - 120 V. GFCI RECEPTACLE FOR WASHER. PROTECTED WITH GFCI-TYPE CIRCUIT BREAKER
 - 30A RECEPTACLE FOR DRYER.
 - 20A RECEPTACLE FOR REFRIGERATOR.
 - 50A RECEPTACLE FOR RANGE.
 - PROVIDE AND CONNECT 120 V. 20A/3P SWITCHED GFCI RECEPTACLE FOR KITCHEN SINK GARBAGE DISPOSAL. FOR ISLAND KITCHEN SINKS, SWITCH WILL BE INSTALLED UNDER KITCHEN SINK IN CABINET.
 - 20A RECEPTACLE FOR MICROWAVE.
 - PROVIDE AND INSTALL 60A/2P/NF/N1 DISCONNECT FOR VERTICAL AIR HANDLER UNIT. COORDINATE WITH MECHANICAL CONTRACTOR.
 - PROVIDE AND INSTALL 20A GFCI RECEPTACLE AT 6" BELOW COUNTERTOP.
 - 120/240V, 1Ø, 100A, NEMA 1, MLO LOAD CENTER MOUNTED RECESSED IN THE WALL.
 - PROVIDE SWITCH FOR VENT HOOD AT 42" A.F.F. IN ADA UNITS ONLY.
 - PROVIDE J-BOX FOR 21" STRUCTURED MEDIA CENTER (SMC) TO BE LOCATED 52" TO THE TOP OF THE PANEL IN THE CLOSET WITH POWER OUTLET AND DATA INSIDE AT BOTTOM. ADA/ANSI UNIT DISTRIBUTION PANELS NEED TO BE MOUNTED AT 44" TO TOP OF PANEL. SYSTEM DESIGNED BY OTHERS.
 - PROVIDE AND INSTALL 30A/2P/NF/N1 DISCONNECT FOR WATER HEATER. COORDINATE WITH PLUMBING CONTRACTOR.
 - PROVIDE JUNCTION BOX FOR CEILING MOUNTED EXHAUST FAN. MOUNT SWITCH TO STRUCTURE.

- SPECIAL NOTES:**
- RECEPTACLES IN DWELLING UNITS ARE REQUIRED TO BE TAMPER-RESISTANT. REFERENCE NEC, ARTICLE 406.12.
 - ALL 120V, SINGLE PHASE, 15- AND 20- AMPERE BRANCH CIRCUITS SUPPLYING OUTLETS OR DEVICES INSTALLED IN DWELLING FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, KITCHEN, LAUNDRY AREAS OR SIMILAR ROOMS SHALL BE PROTECTED BY A LISTED ARC FAULT CIRCUIT INTERRUPTER, PER NEC 210.12(A) - IN THE APARTMENT LOAD CENTER.
 - ELECTRICAL CONTRACTOR SHALL REFER TO ARCHITECT FOR EXACT LOCATION OF HANDICAPPED UNITS. CONTRACTOR SHALL FURNISH AND INSTALL ALL HANDICAP DEVICES PER NATIONAL AND LOCAL CODES.
 - ALL RECEPTACLES MOUNTED IN BACKSPLASH AND KITCHEN ISLANDS OR PENINSULA ARE TO BE MOUNTED VERTICAL. MATCH RECEPTACLES TO TILE LAYOUT.
 - ALL RECEPTACLES MOUNTED OVER COUNTERTOPS SHALL COMPLY WITH FHA GUIDELINES.
 - ALL APARTMENT SMOKE ALARMS SHALL BE HARD-WIRED, AND INTERCONNECTED WITH BATTERY BACKUP, NOT CONNECTED TO BUILDING FIRE SYSTEM.
 - ALL COMBINATION TELEPHONE/DATA OUTLETS SHALL BE WIRED SUCH THAT TWO INDEPENDENT NETWORKS ARE PROVIDED AND TERMINATED AT LOCATIONS DESIGNATED ON PLANS.
 - NO BATH GFI RECEPTACLES SHALL BE LOCATED IN MIRROR. SEE INTERIOR DESIGN DRAWINGS FOR RECEPTACLE LOCATIONS.
 - SINGLE LAVATORY LIGHTS TO BE COORDINATED WITH PLUMBING CONTRACTOR FOR VENT PIPING LOCATION. ALL LIGHTS SHALL BE CENTERED OVER CABINET (NOT NECESSARILY THE LAVATORY).
 - PROVIDE WALL SWITCH CONTROLS FOR ALL CEILING FANS AND LIGHT KITS IN HANDICAP DWELLING UNITS.
 - ALL BRANCH CIRCUITS TO BE TYPE NM COPPER CABLE (ROMEX) #12 GAUGE MINIMUM, UNLESS OTHERWISE NOTED.
 - INSTALL TELEPHONE OUTLET IN EACH UNIT FOR SUBMETERING.
 - PROVIDE GANGED SWITCHES WHERE 2 OR 3 SWITCHES ARE LOCATED ADJACENT TO EACH OTHER.
 - ALL CABLING SHALL BE A MINIMUM OF CAT6.
 - ALL TV LOCATIONS SHOULD BE BOXED AT 58" TO THE CENTER OF THE TV.
 - BEDROOMS SHALL HAVE 1-CAT6, 1-RG6 OUTLET ON ONE WALL OPPOSITE THE BED AT STANDARD OUTLET HEIGHT IN SAME BOX.
 - EACH BEDROOM TO HAVE ONE USB AT NIGHT STAND LOCATED CLOSEST TO THE BEDROOM DOOR.
 - LIVING ROOMS TO HAVE 1-CAT6 ON TV WALL AND 1-CAT6 ON OPPOSITE WALL.

Structural Engineer:

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ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

**ELECTRICAL
UNIT A1 & A2**

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E201

Structural Engineer:

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ISSUANCES

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02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



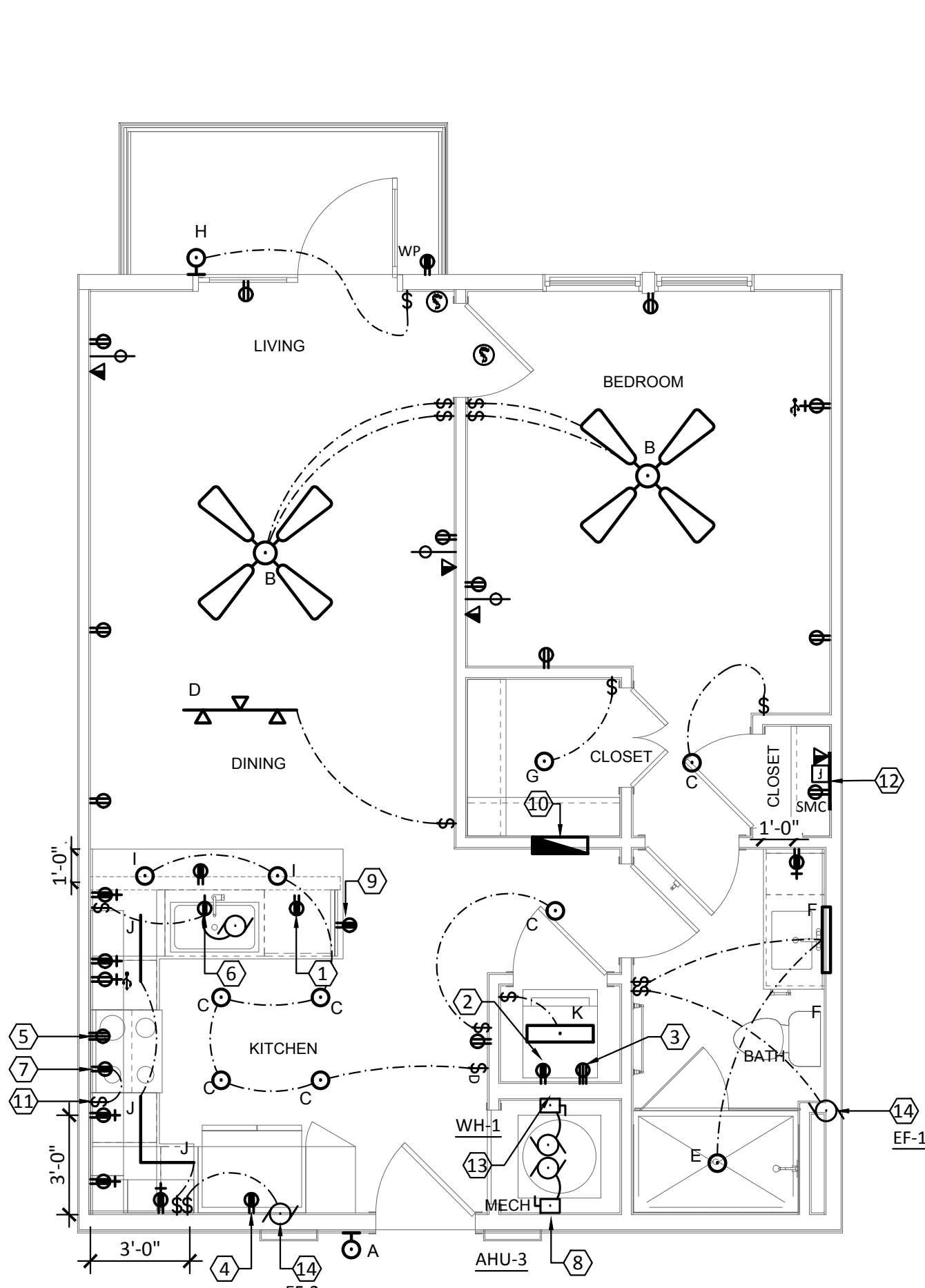
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NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
UNIT A2-ALT-1, A3 & A4

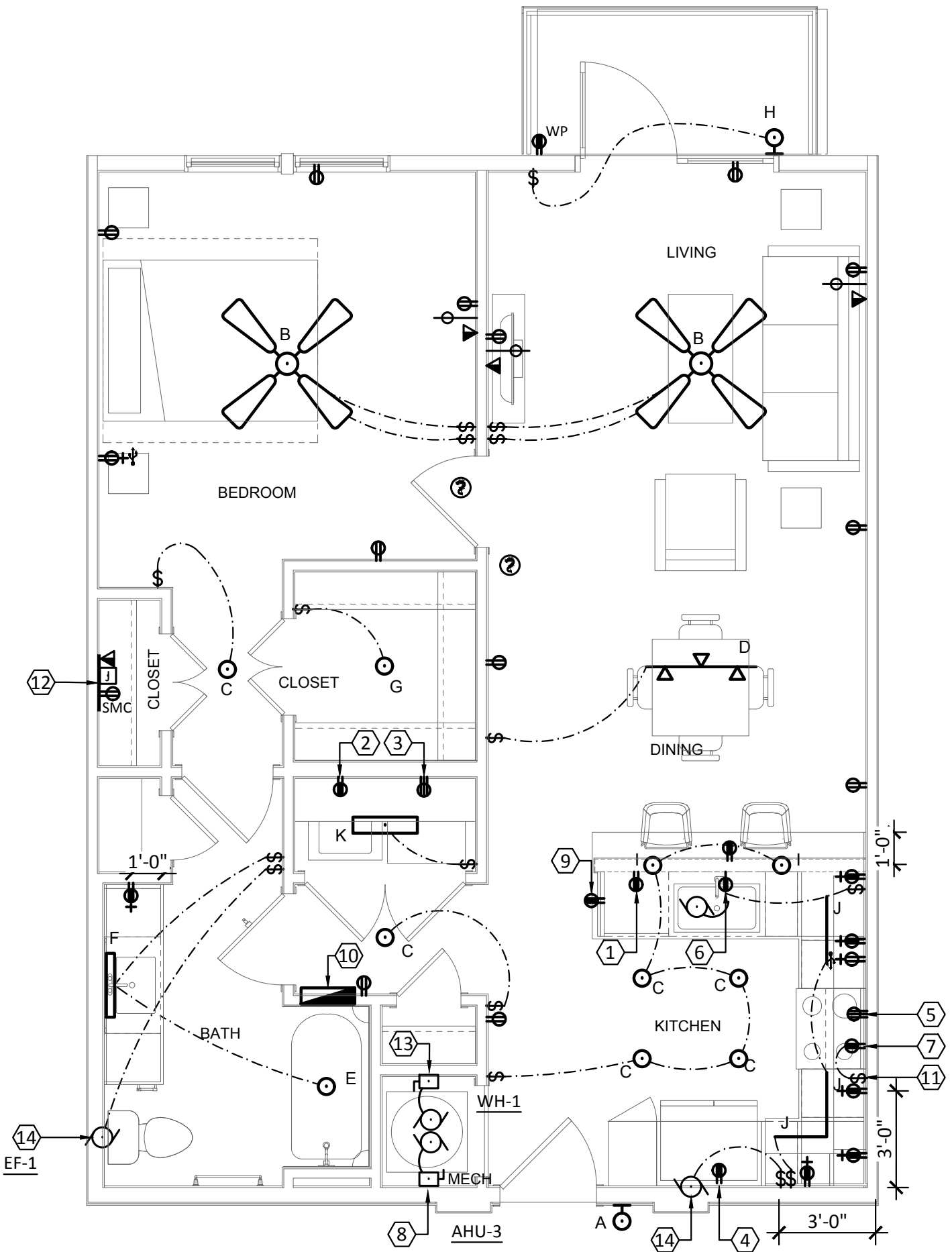
Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E202



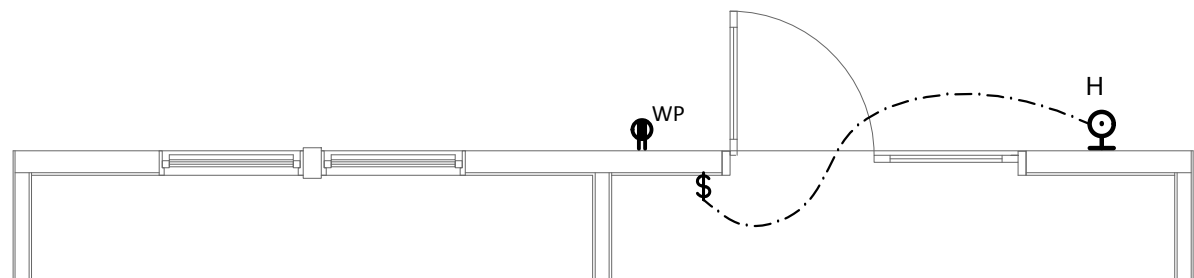
1 ELECTRICAL - UNIT TYPE A2-ALT-1

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



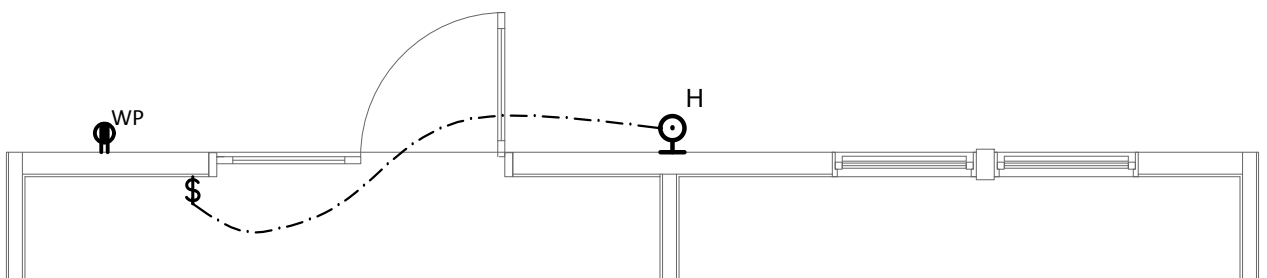
2 ELECTRICAL - UNIT TYPE A3

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



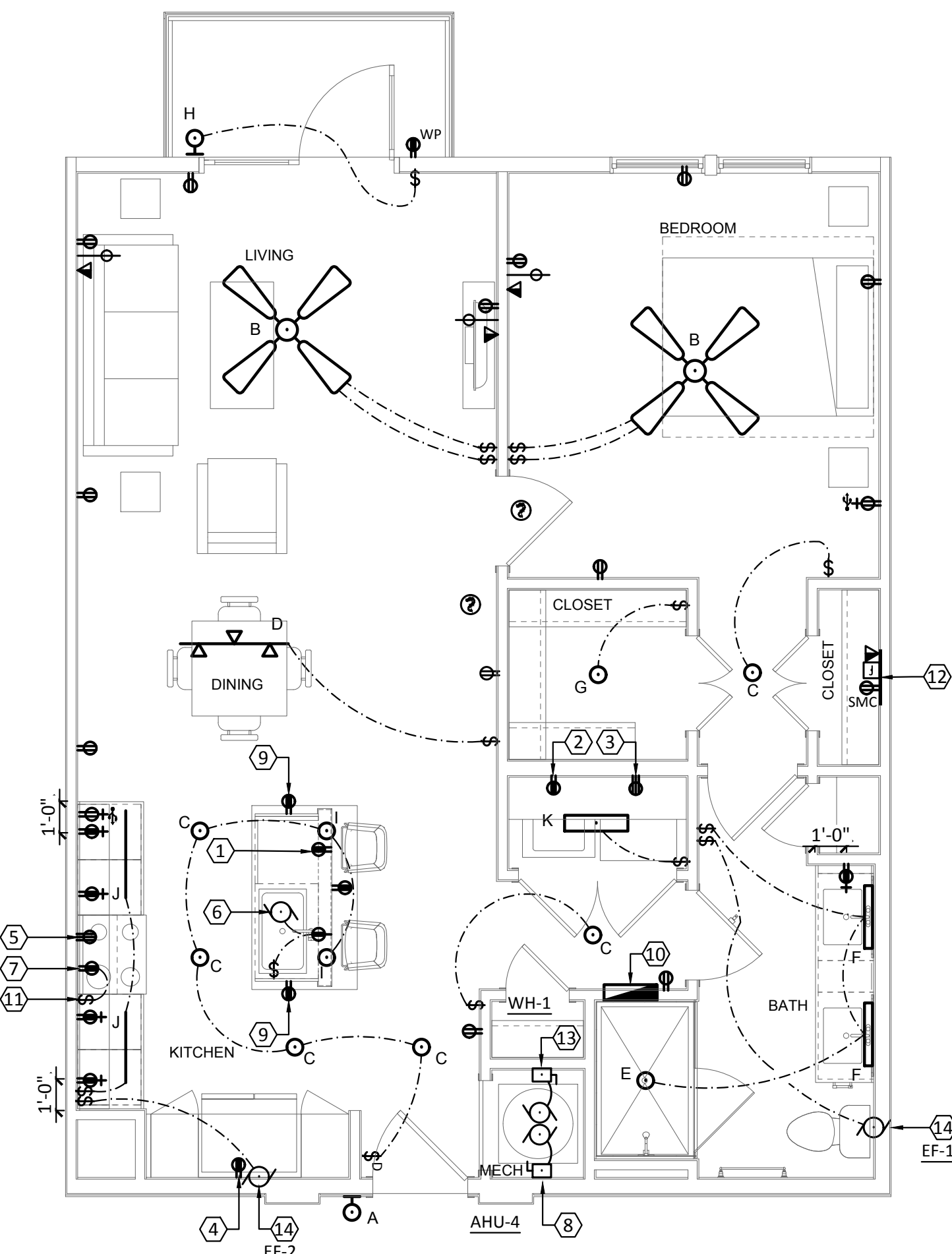
3 ELECTRICAL - UNIT TYPE A3a, A3b & A3c

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



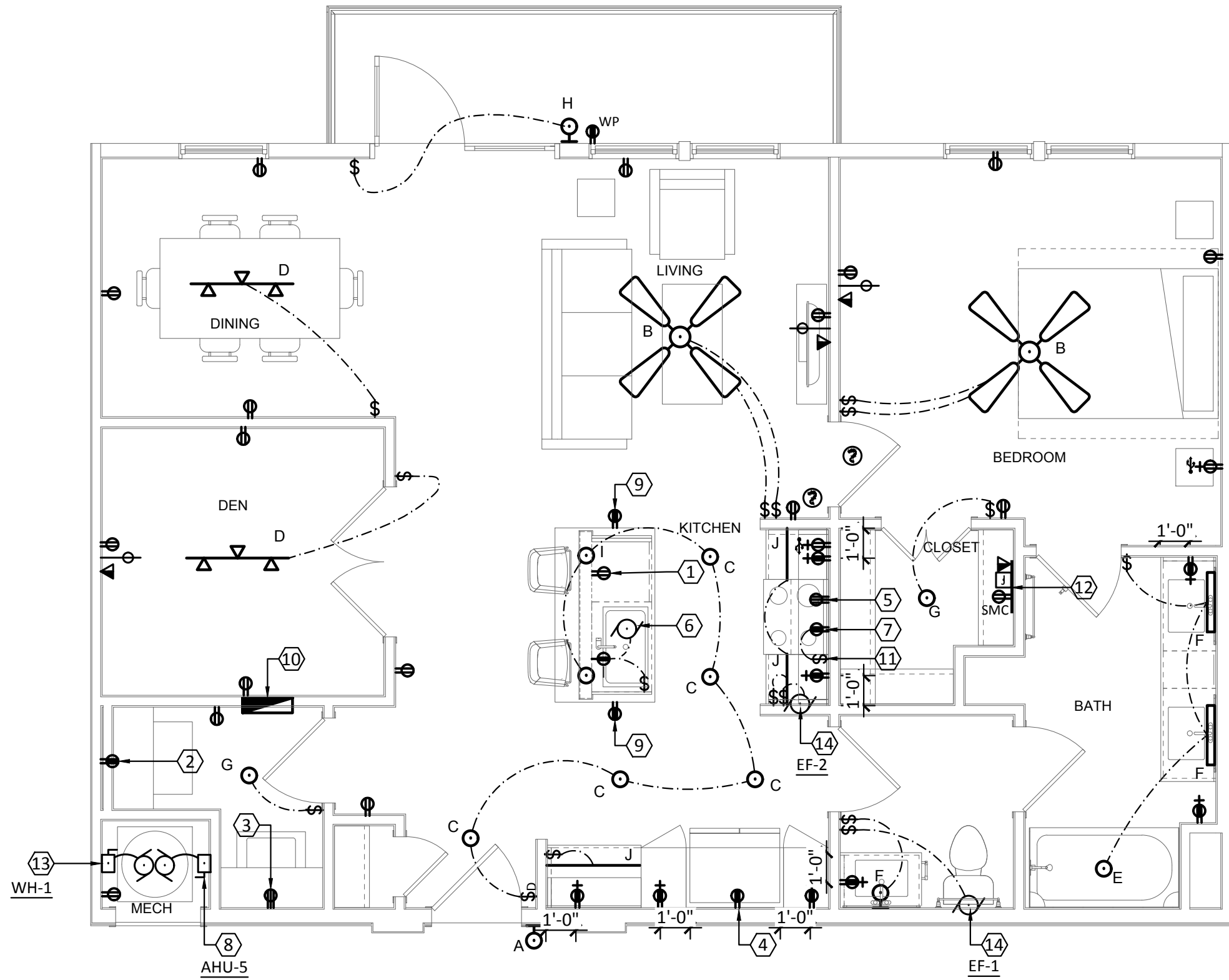
4 ELECTRICAL - UNIT TYPE A4a & A4b

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

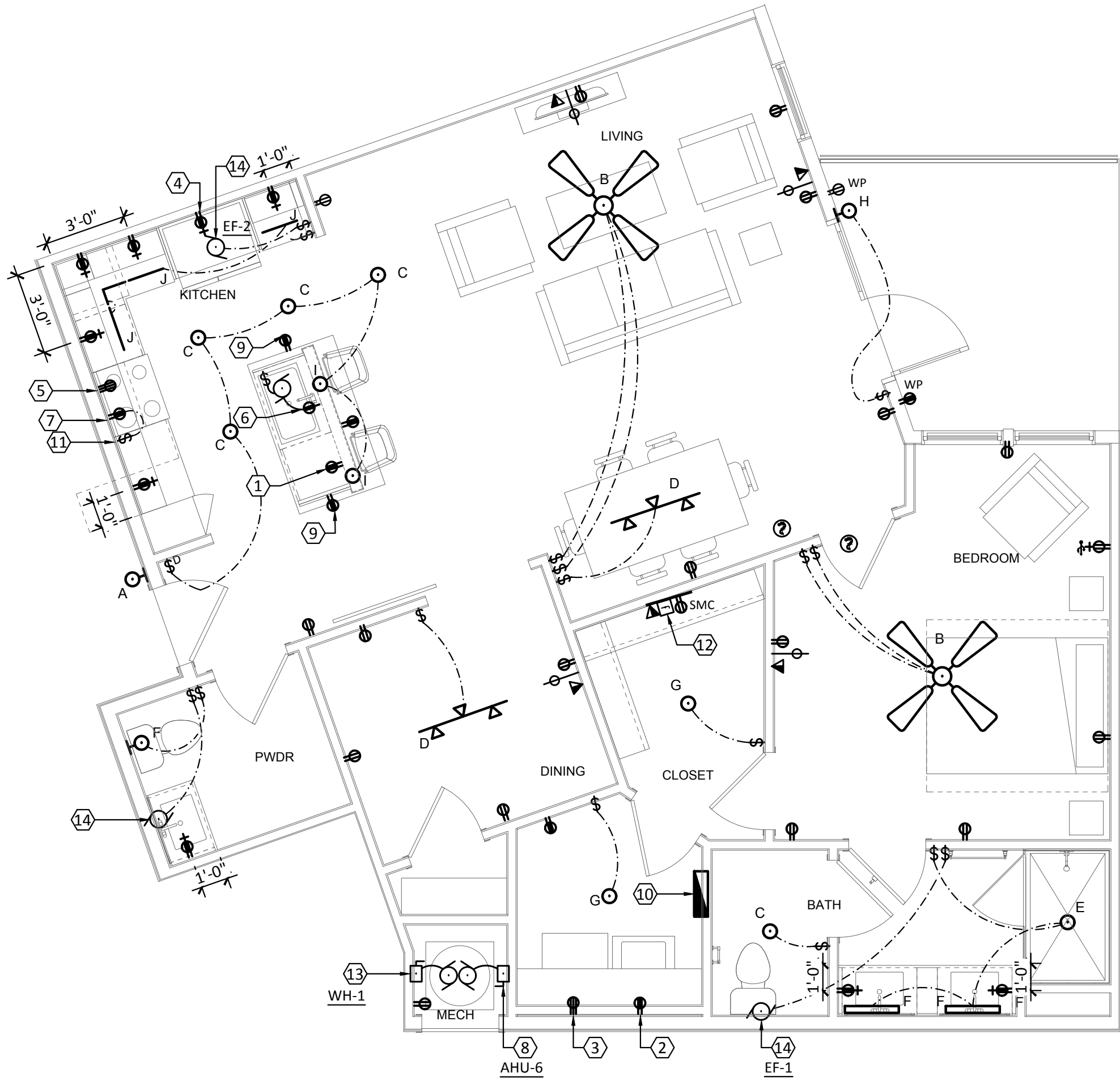


5 ELECTRICAL - UNIT TYPE A4

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



1 ELECTRICAL - UNIT TYPE A5
SCALE: 1/4"=1'-0"



1 ELECTRICAL - UNIT TYPE A6
SCALE: 1/4"=1'-0"

- GENERAL NOTES:**
- A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
 - B. ALL UNIT ENTRY LIGHTS ("A") SHALL BE CIRCUITED WITH CORRIDOR LIGHT AND SHALL BE SWITCHED AT HOUSE PANEL CIRCUIT BREAKER.
 - C. REFER TO ARCHITECTURAL PLANS FOR MOUNTING HEIGHT AND LOCATION FOR BALCONY LIGHTS.
 - D. REFER TO DETAIL 1/E501 FOR ALL KITCHEN AND BATHROOM COUNTERTOP RECEPTACLE HEIGHTS.
 - E. ALL RECEPTACLES THAT ARE NOT ACCESSIBLE MUST BE GFCI PROTECTED AT CIRCUIT BREAKER.
 - F. DO NOT ROUTE ANY DUCT OR PIPING ABOVE ELECTRICAL PANELS.
 - G. ALL CONDUIT SHALL BE CONCEALED IN WALL OR ABOVE CEILING.
 - H. UNDER-CABINET LIGHTING ("J") SHALL BE CENTERED IN CABINetry. SHOWN IN LOCATION FOR CLARITY ONLY.
 - I. PROVIDE AND INSTALL COMBINATION SMOKE AND CARBON MONOXIDE DETECTORS ONLY IN 2ND FLOOR DWELLING UNITS LOCATED DIRECTLY ABOVE A GARAGE.

- KEYED NOTES:**
- 1. 20A GFCI RECEPTACLE BELOW COUNTERTOP FOR DISHWASHER. PROTECT WITH GFCI-TYPE CIRCUIT BREAKER.
 - 2. 120 V. GFCI RECEPTACLE FOR WASHER. PROTECTED WITH GFCI-TYPE CIRCUIT BREAKER
 - 3. 30A RECEPTACLE FOR DRYER.
 - 4. 20A RECEPTACLE FOR REFRIGERATOR.
 - 5. 50A RECEPTACLE FOR RANGE.
 - 6. PROVIDE AND CONNECT 120 V. 20A/3P SWITCHED GFCI RECEPTACLE FOR KITCHEN SINK GARBAGE DISPOSAL. FOR ISLAND KITCHEN SINKS, SWITCH WILL BE INSTALLED UNDER KITCHEN SINK IN CABINET.
 - 7. 20A RECEPTACLE FOR MICROWAVE.
 - 8. PROVIDE AND INSTALL 60A/2P/NF/N1 DISCONNECT FOR VERTICAL AIR HANDLER UNIT. COORDINATE WITH MECHANICAL CONTRACTOR.
 - 9. PROVIDE AND INSTALL 20A GFCI RECEPTACLE AT 6" BELOW COUNTERTOP.
 - 10. 120/240V, 1Ø, 100A, NEMA 1, MLO LOAD CENTER MOUNTED RECESSED IN THE WALL.
 - 11. PROVIDE SWITCH FOR VENT HOOD AT 42" A.F.F. IN ADA UNITS ONLY.
 - 12. PROVIDE J-BOX FOR 21" STRUCTURED MEDIA CENTER (SMC) TO BE LOCATED 52" TO THE TOP OF THE PANEL IN THE CLOSET WITH POWER OUTLET AND DATA INSIDE AT BOTTOM. ADA/ANSI UNIT DISTRIBUTION PANELS NEED TO BE MOUNTED AT 44" TO TOP OF PANEL. SYSTEM DESIGNED BY OTHERS.
 - 13. PROVIDE AND INSTALL 30A/2P/NF/N1 DISCONNECT FOR WATER HEATER. COORDINATE WITH PLUMBING CONTRACTOR.
 - 14. PROVIDE JUNCTION BOX FOR CEILING MOUNTED EXHAUST FAN. MOUNT SWITCH TO STRUCTURE.

- SPECIAL NOTES:**
- a. RECEPTACLES IN DWELLING UNITS ARE REQUIRED TO BE TAMPER-RESISTANT. REFERENCE NEC, ARTICLE 406.12.
 - b. ALL 120V, SINGLE PHASE, 15- AND 20- AMPERE BRANCH CIRCUITS SUPPLYING OUTLETS OR DEVICES INSTALLED IN DWELLING FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, KITCHEN, LAUNDRY AREAS OR SIMILAR ROOMS SHALL BE PROTECTED BY A LISTED ARC FAULT CIRCUIT INTERRUPTER, PER NEC 210.12(A) - IN THE APARTMENT LOAD CENTER.
 - c. ELECTRICAL CONTRACTOR SHALL REFER TO ARCHITECT FOR EXACT LOCATION OF HANDICAPPED UNITS. CONTRACTOR SHALL FURNISH AND INSTALL ALL HANDICAP DEVICES PER NATIONAL AND LOCAL CODES.
 - d. ALL RECEPTACLES MOUNTED IN BACKSPASH AND KITCHEN ISLANDS OR PENINSULA ARE TO BE MOUNTED VERTICAL. MATCH RECEPTACLES TO TILE LAYOUT.
 - e. ALL RECEPTACLES MOUNTED OVER COUNTERTOPS SHALL COMPLY WITH FHA GUIDELINES.
 - f. ALL APARTMENT SMOKE ALARMS SHALL BE HARD-WIRED, AND INTERCONNECTED WITH BATTERY BACKUP, NOT CONNECTED TO BUILDING FIRE SYSTEM.
 - g. ALL COMBINATION TELEPHONE/DATA OUTLETS SHALL BE WIRED SUCH THAT TWO INDEPENDENT NETWORKS ARE PROVIDED AND TERMINATED AT LOCATIONS DESIGNATED ON PLANS.
 - h. NO BATH GFI RECEPTACLES SHALL BE LOCATED IN MIRROR. SEE INTERIOR DESIGN DRAWINGS FOR RECEPTACLE LOCATIONS.
 - i. SINGLE LAVATORY LIGHTS TO BE COORDINATED WITH PLUMBING CONTRACTOR FOR VENT PIPING LOCATION. ALL LIGHTS SHALL BE CENTERED OVER CABINET (NOT NECESSARILY THE LAVATORY).
 - j. PROVIDE WALL SWITCH CONTROLS FOR ALL CEILING FANS AND LIGHT KITS IN HANDICAP DWELLING UNITS.
 - k. ALL BRANCH CIRCUITS TO BE TYPE NM COPPER CABLE (ROMEX) #12 GAUGE MINIMUM, UNLESS OTHERWISE NOTED.
 - l. INSTALL TELEPHONE OUTLET IN EACH UNIT FOR SUBMETERING.
 - m. PROVIDE GANGED SWITCHES WHERE 2 OR 3 SWITCHES ARE LOCATED ADJACENT TO EACH OTHER.
 - n. ALL CABLING SHALL BE A MINIMUM OF CAT6.
 - o. ALL TV LOCATIONS SHOULD BE BOXED AT 58" TO THE CENTER OF THE TV.
 - p. BEDROOMS SHALL HAVE 1-CAT6, 1-RG6 OUTLET ON ONE WALL OPPOSITE THE BED AT STANDARD OUTLET HEIGHT IN SAME BOX.
 - q. EACH BEDROOM TO HAVE ONE USB AT NIGHT STAND LOCATED CLOSEST TO THE BEDROOM DOOR.
 - r. LIVING ROOMS TO HAVE 1-CAT6 ON TV WALL AND 1-CAT6 ON OPPOSITE WALL.

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ISSUANCES		
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REVISIONS



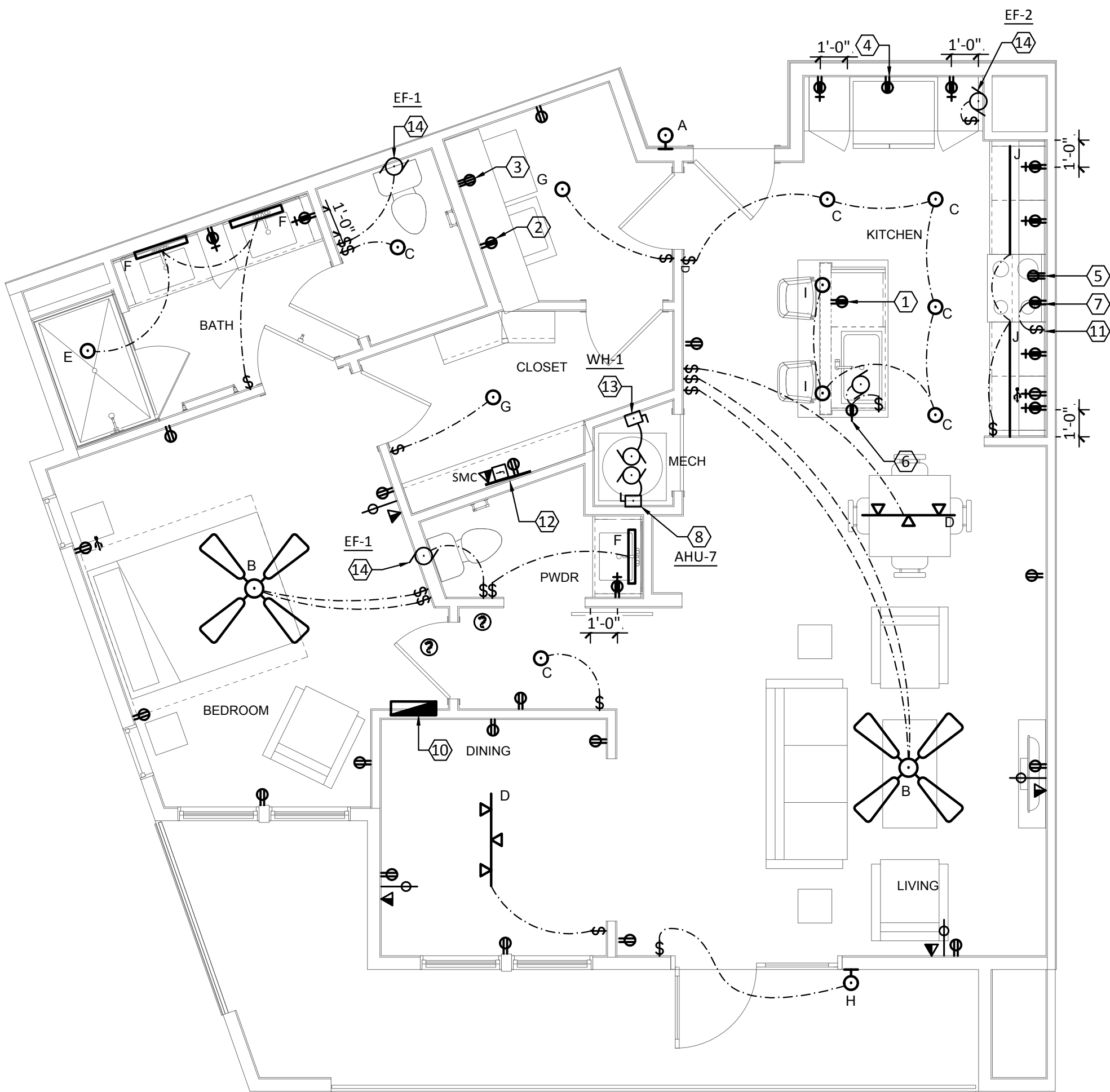
a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

**ELECTRICAL
UNIT A5 & A6**

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E203



1 ELECTRICAL - UNIT TYPE A7
SCALE: 1/4"=1'-0"

- GENERAL NOTES:**
- A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
 - B. ALL UNIT ENTRY LIGHTS ("A") SHALL BE CIRCUITED WITH CORRIDOR LIGHT AND SHALL BE SWITCHED AT HOUSE PANEL CIRCUIT BREAKER.
 - C. REFER TO ARCHITECTURAL PLANS FOR MOUNTING HEIGHT AND LOCATION FOR BALCONY LIGHTS.
 - D. REFER TO DETAIL 1/E501 FOR ALL KITCHEN AND BATHROOM COUNTERTOP RECEPTACLE HEIGHTS.
 - E. ALL RECEPTACLES THAT ARE NOT ACCESSIBLE MUST BE GFCI PROTECTED AT CIRCUIT BREAKER.
 - F. DO NOT ROUTE ANY DUCT OR PIPING ABOVE ELECTRICAL PANELS.
 - G. ALL CONDUIT SHALL BE CONCEALED IN WALL OR ABOVE CEILING.
 - H. UNDER-CABINET LIGHTING ("J") SHALL BE CENTERED IN CABINetry. SHOWIN IN LOCATION FOR CLARITY ONLY.
 - I. PROVIDE AND INSTALL COMBINATION SMOKE AND CARBON MONOXIDE DETECTORS ONLY IN 2ND FLOOR DWELLING UNITS LOCATED DIRECTLY ABOVE A GARAGE.

- KEYED NOTES:**
- 1. 20A GFCI RECEPTACLE BELOW COUNTERTOP FOR DISHWASHER. PROTECT WITH GFCI-TYPE CIRCUIT BREAKER.
 - 2. 120 V. GFCI RECEPTACLE FOR WASHER. PROTECTED WITH GFCI-TYPE CIRCUIT BREAKER
 - 3. 30A RECEPTACLE FOR DRYER.
 - 4. 20A RECEPTACLE FOR REFRIGERATOR.
 - 5. 50A RECEPTACLE FOR RANGE.
 - 6. PROVIDE AND CONNECT 120 V. 20A/3P SWITCHED GFCI RECEPTACLE FOR KITCHEN SINK GARBAGE DISPOSAL. FOR ISLAND KITCHEN SINKS, SWITCH WILL BE INSTALLED UNDER KITCHEN SINK IN CABINET.
 - 7. 20A RECEPTACLE FOR MICROWAVE.
 - 8. PROVIDE AND INSTALL 60A/2P/NF/N1 DISCONNECT FOR VERTICAL AIR HANDLER UNIT. COORDINATE WITH MECHANICAL CONTRACTOR.
 - 9. PROVIDE AND INSTALL 20A GFCI RECEPTACLE AT 6" BELOW COUNTERTOP.
 - 10. 120/240V, 1Ø, 100A, NEMA 1, MLO LOAD CENTER MOUNTED RECESSED IN THE WALL.
 - 11. PROVIDE SWITCH FOR VENT HOOD AT 42" A.F.F. IN ADA UNITS ONLY.
 - 12. PROVIDE J-BOX FOR 21" STRUCTURED MEDIA CENTER (SMC) TO BE LOCATED 52" TO THE TOP OF THE PANEL IN THE CLOSET WITH POWER OUTLET AND DATA INSIDE AT BOTTOM. ADA/ANSI UNIT DISTRIBUTION PANELS NEED TO BE MOUNTED AT 44" TO TOP OF PANEL. SYSTEM DESIGNED BY OTHERS.
 - 13. PROVIDE AND INSTALL 30A/2P/NF/N1 DISCONNECT FOR WATER HEATER. COORDINATE WITH PLUMBING CONTRACTOR.
 - 14. PROVIDE JUNCTION BOX FOR CEILING MOUNTED EXHAUST FAN. MOUNT SWITCH TO STRUCTURE.

- SPECIAL NOTES:**
- a. RECEPTACLES IN DWELLING UNITS ARE REQUIRED TO BE TAMPER-RESISTANT. REFERENCE NEC, ARTICLE 406.12.
 - b. ALL 120V, SINGLE PHASE, 15- AND 20- AMPERE BRANCH CIRCUITS SUPPLYING OUTLETS OR DEVICES INSTALLED IN DWELLING FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, KITCHEN, LAUNDRY AREAS OR SIMILAR ROOMS SHALL BE PROTECTED BY A LISTED ARC FAULT CIRCUIT INTERRUPTER, PER NEC 210.12(A)- IN THE APARTMENT LOAD CENTER.
 - c. ELECTRICAL CONTRACTOR SHALL REFER TO ARCHITECT FOR EXACT LOCATION OF HANDICAPPED UNITS. CONTRACTOR SHALL FURNISH AND INSTALL ALL HANDICAP DEVICES PER NATIONAL AND LOCAL CODES.
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 - e. ALL RECEPTACLES MOUNTED OVER COUNTERTOPS SHALL COMPLY WITH FHA GUIDELINES.
 - f. ALL APARTMENT SMOKE ALARMS SHALL BE HARD-WIRED, AND INTERCONNECTED WITH BATTERY BACKUP, NOT CONNECTED TO BUILDING FIRE SYSTEM.
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 - k. ALL BRANCH CIRCUITS TO BE TYPE NM COPPER CABLE (ROMEX) #12 GAUGE MINIMUM, UNLESS OTHERWISE NOTED.
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ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



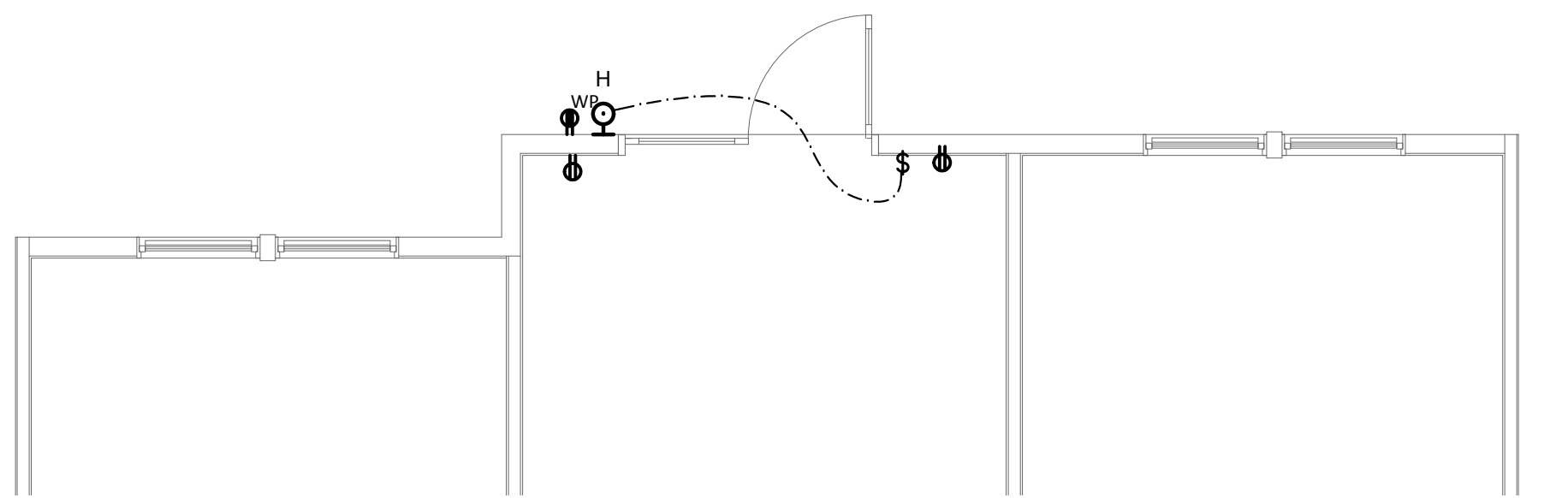
a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

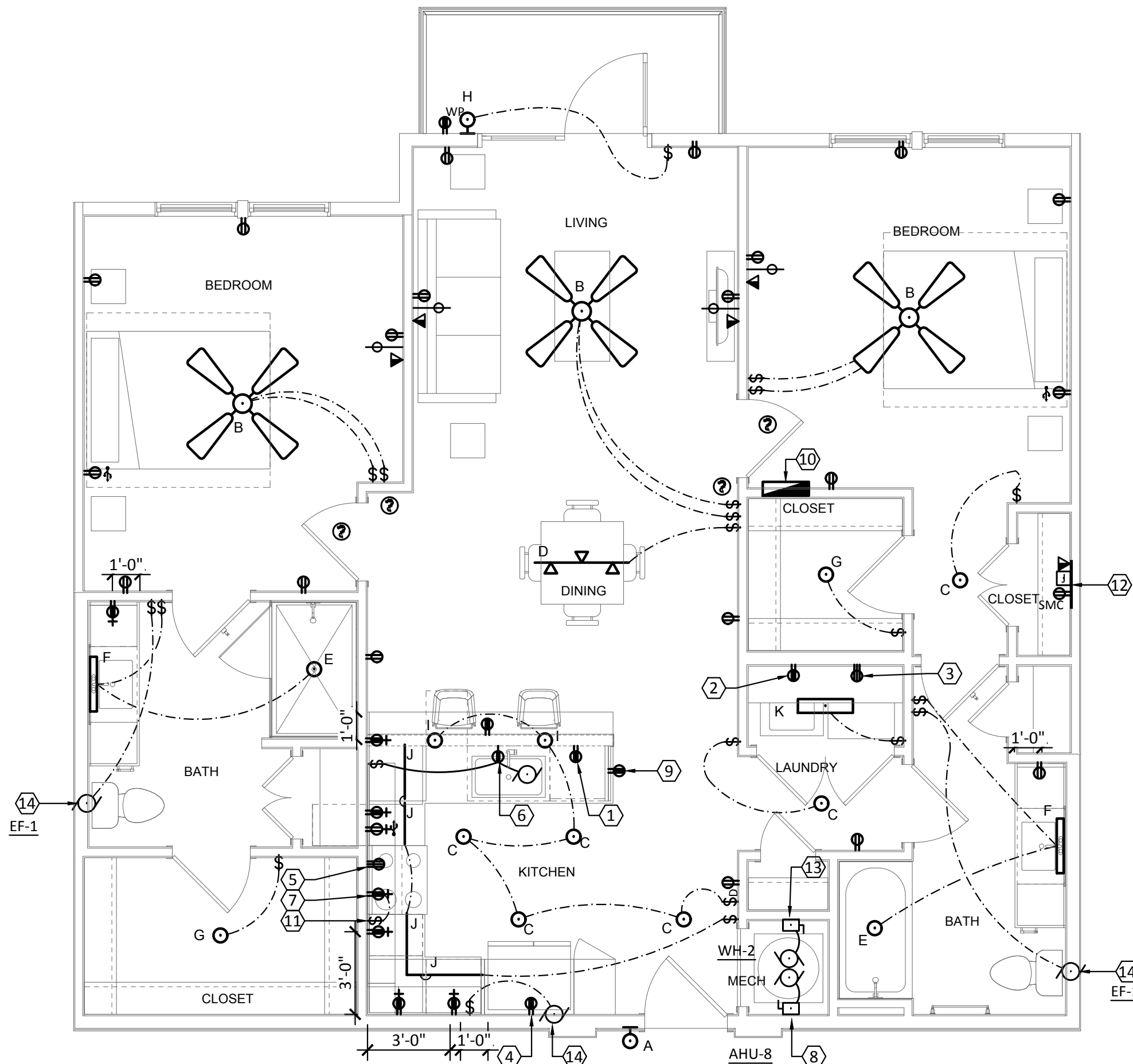
ELECTRICAL
UNIT A7

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

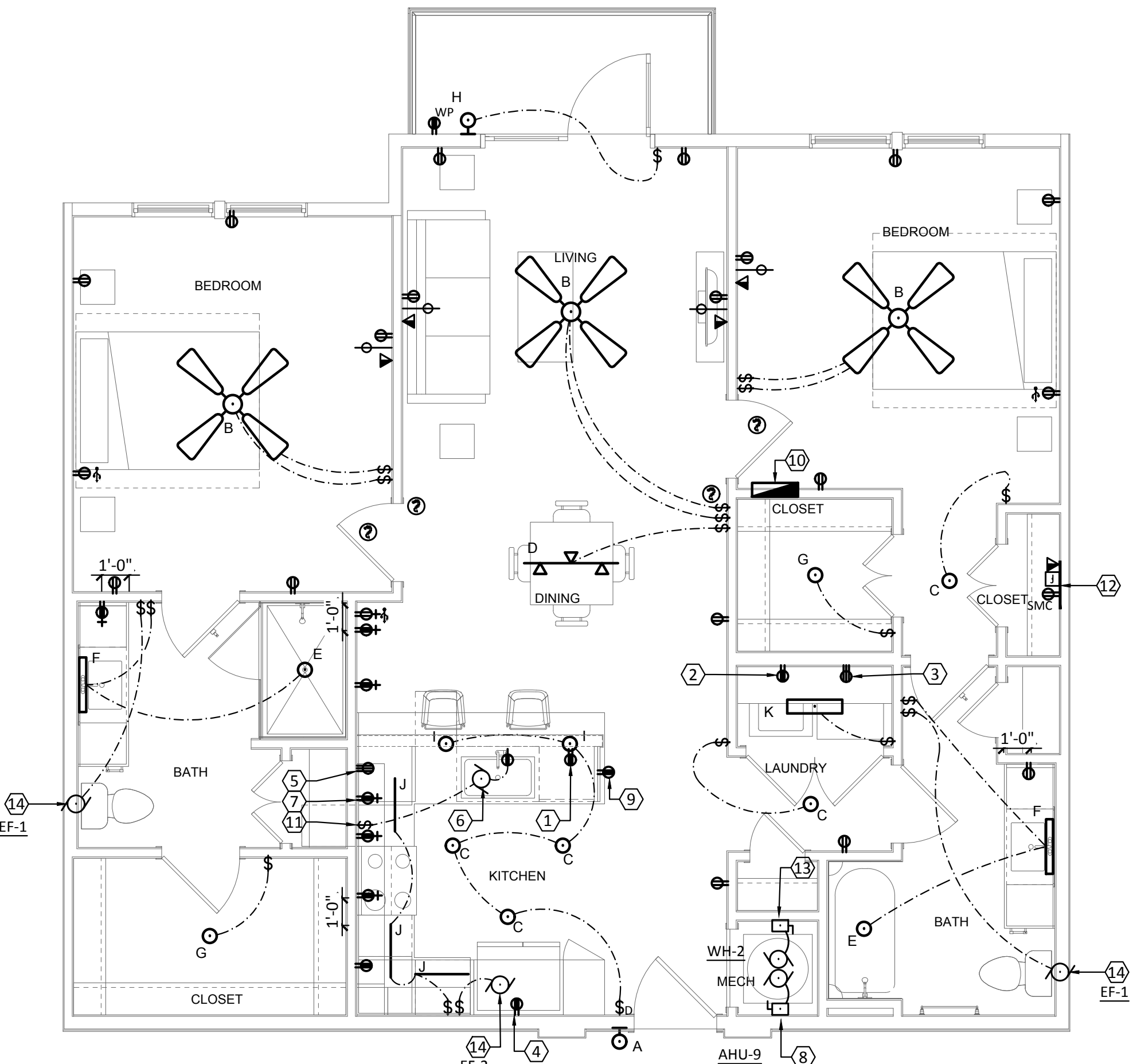
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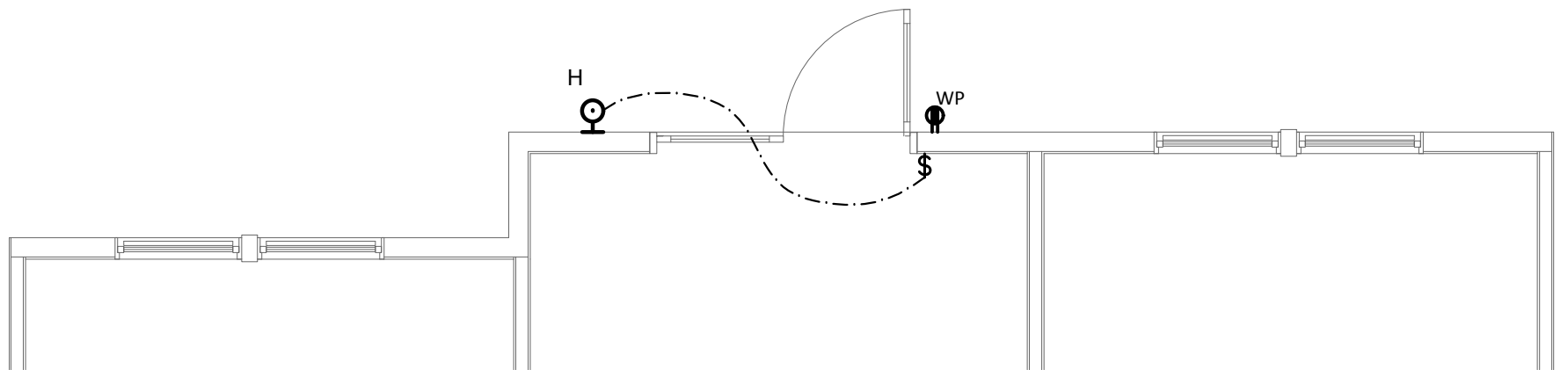
1 ELECTRICAL - UNIT TYPE B1a & B1b
SCALE: 1/4"=1'-0"



2 ELECTRICAL - UNIT TYPE B1
SCALE: 1/4"=1'-0"



4 ELECTRICAL - UNIT TYPE B2
SCALE: 1/4"=1'-0"



3 ELECTRICAL - UNIT TYPE B2a, B2b, B2c, B2d & B2e
SCALE: 1/4"=1'-0"

GENERAL NOTES:

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- REFER TO ARCHITECTURAL PLANS FOR MOUNTING HEIGHT AND LOCATION FOR BALCONY LIGHTS.
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David Allen
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Landscape Architect:

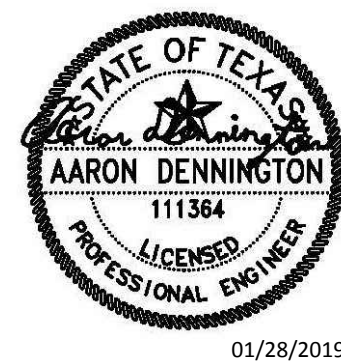
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Interior Designer:

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Cassie Farley
214.443.9090

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

**ELECTRICAL
UNIT B1 & B2**

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E205

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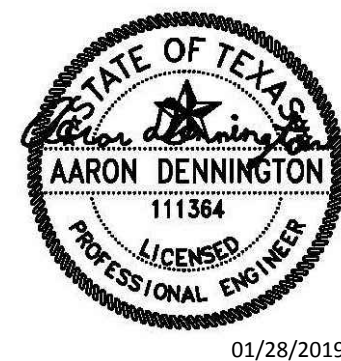
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REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

**ELECTRICAL
UNIT B3, B4 & B5**

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E206

GENERAL NOTES:

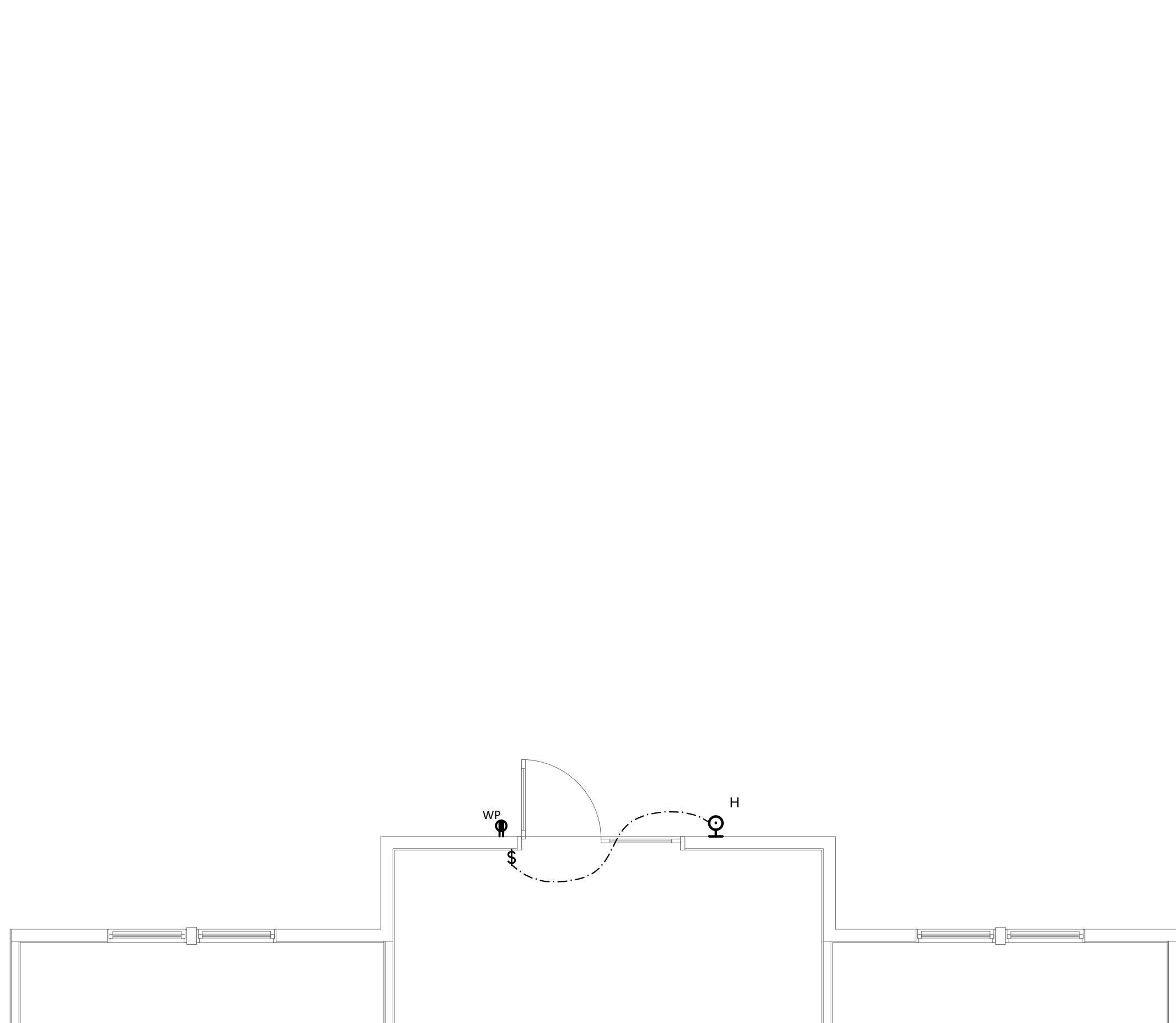
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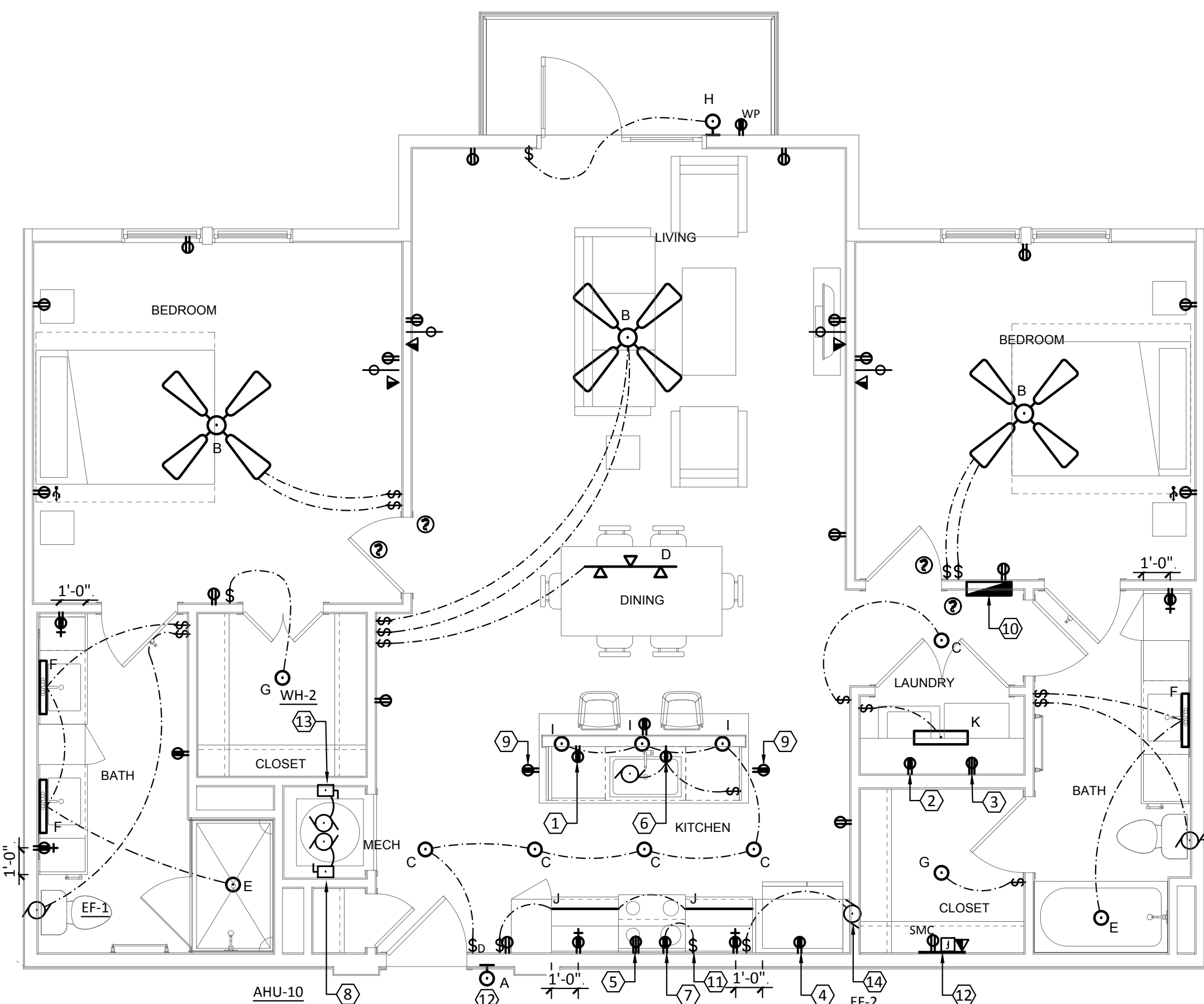
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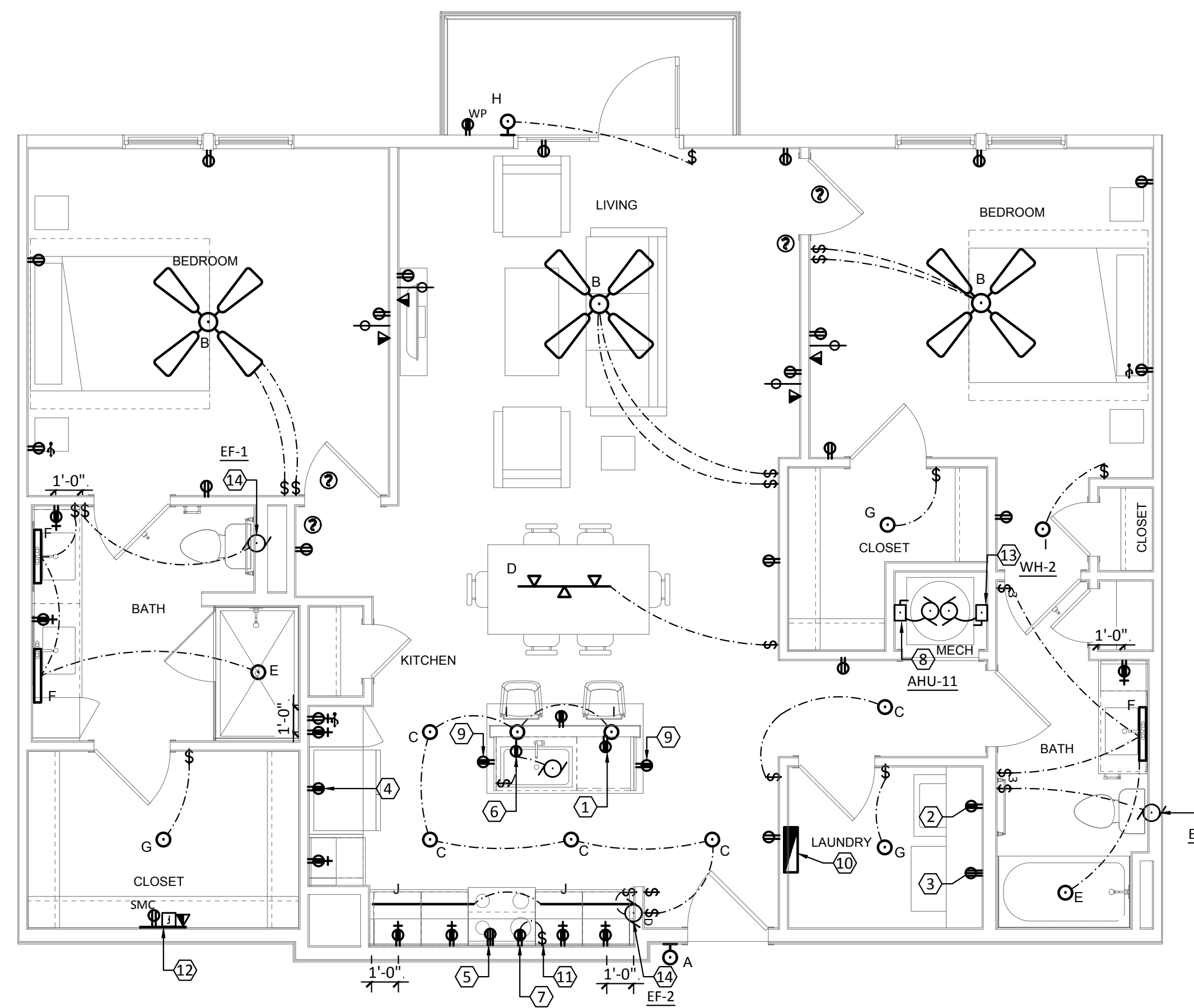
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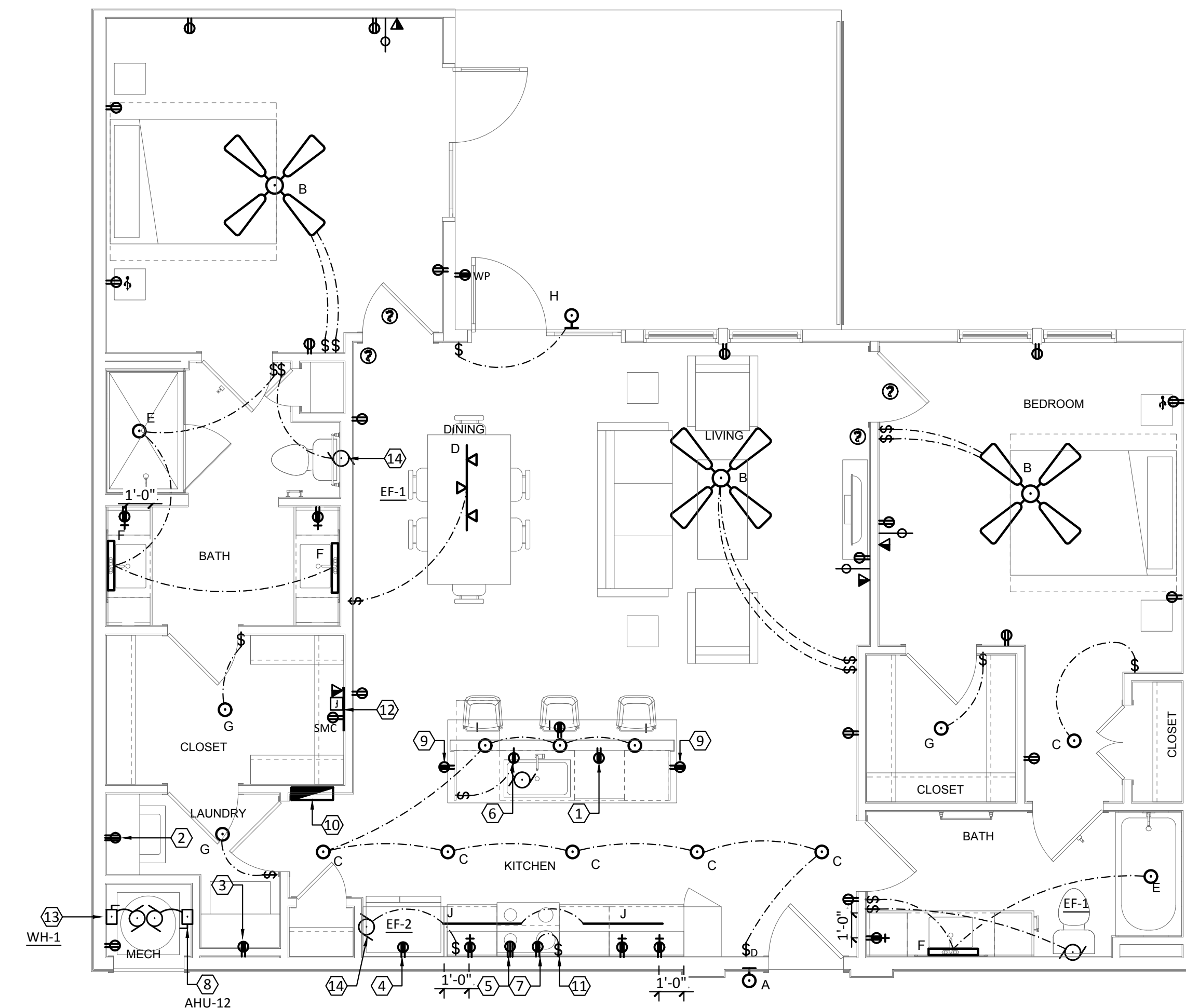
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SCALE: 1/4"=1'-0"



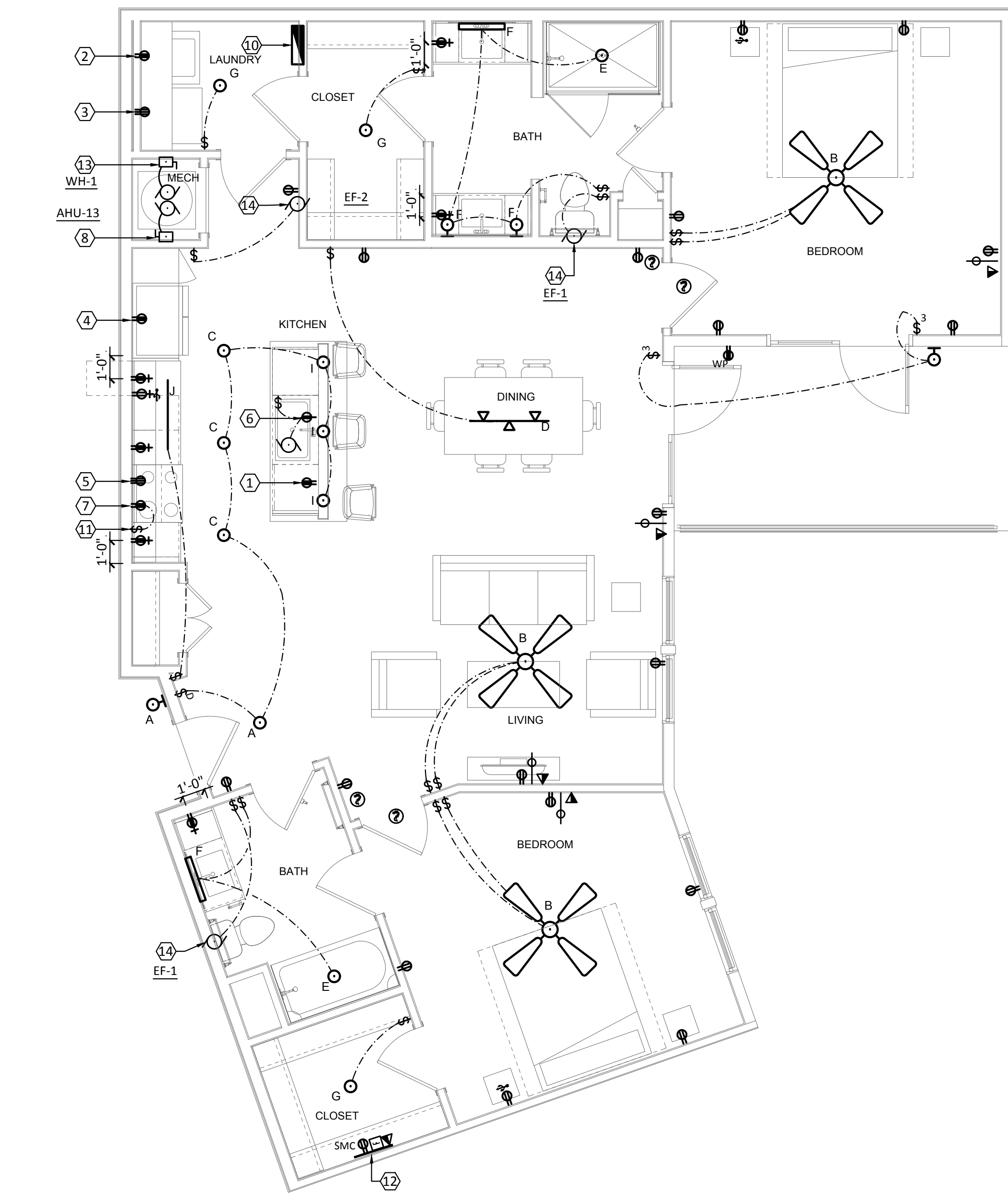
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SCALE: 1/4"=1'-0"



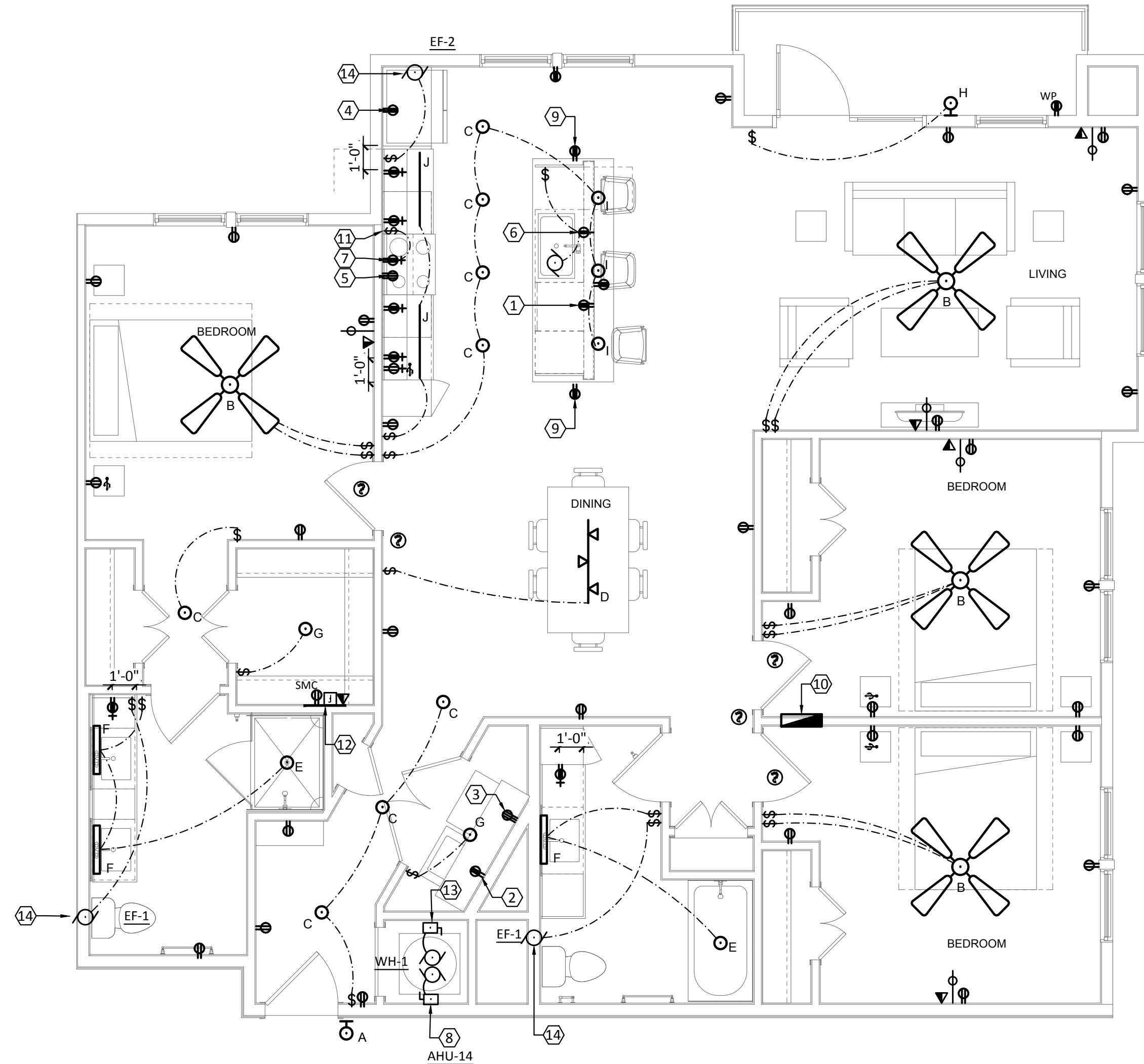
3 ELECTRICAL - UNIT TYPE B4
SCALE: 1/4"=1'-0"



4 ELECTRICAL - UNIT TYPE B5
SCALE: 1/4"=1'-0"



1 ELECTRICAL - UNIT TYPE B6
SCALE: 1/4"=1'-0"



2 ELECTRICAL - UNIT TYPE C1
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- ALL APARTMENT SMOKE ALARMS SHALL BE HARD-WIRED, AND INTERCONNECTED WITH BATTERY BACKUP, NOT CONNECTED TO BUILDING FIRE SYSTEM.
- ALL COMBINATION TELEPHONE/DATA OUTLETS SHALL BE WIRED SUCH THAT TWO INDEPENDENT NETWORKS ARE PROVIDED AND TERMINATED AT LOCATIONS DESIGNATED ON PLANS.
- NO BATH GFI RECEPTACLES SHALL BE LOCATED IN MIRROR. SEE INTERIOR DESIGN DRAWINGS FOR RECEPTACLE LOCATIONS.
- SINGLE LAVATORY LIGHTS TO BE COORDINATED WITH PLUMBING CONTRACTOR FOR VENT PIPING LOCATION. ALL LIGHTS SHALL BE CENTERED OVER CABINET (NOT NECESSARILY THE LAVATORY).
- PROVIDE WALL SWITCH CONTROLS FOR ALL CEILING FANS AND LIGHT KITS IN HANDICAP DWELLING UNITS.
- ALL BRANCH CIRCUITS TO BE TYPE NM COPPER CABLE (ROMEX) #12 GAUGE MINIMUM, UNLESS OTHERWISE NOTED.
- INSTALL TELEPHONE OUTLET IN EACH UNIT FOR SUBMETERING.
- PROVIDE GANGED SWITCHES WHERE 2 OR 3 SWITCHES ARE LOCATED ADJACENT TO EACH OTHER.
- ALL CABLING SHALL BE A MINIMUM OF CAT6.
- ALL TV LOCATIONS SHOULD BE BOXED AT 58" TO THE CENTER OF THE TV.
- BEDROOMS SHALL HAVE 1-CAT6, 1-RG6 OUTLET ON ONE WALL OPPOSITE THE BED AT STANDARD OUTLET HEIGHT IN SAME BOX.
- EACH BEDROOM TO HAVE ONE USB AT NIGHT STAND LOCATED CLOSEST TO THE BEDROOM DOOR.
- LIVING ROOMS TO HAVE 1-CAT6 ON TV WALL AND 1-CAT6 ON OPPOSITE WALL.

Structural Engineer:

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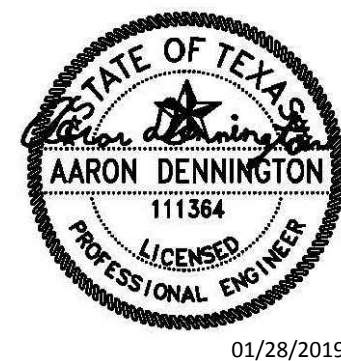
Interior Designer:

SJL Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES

01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
UNIT B6 & C1

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

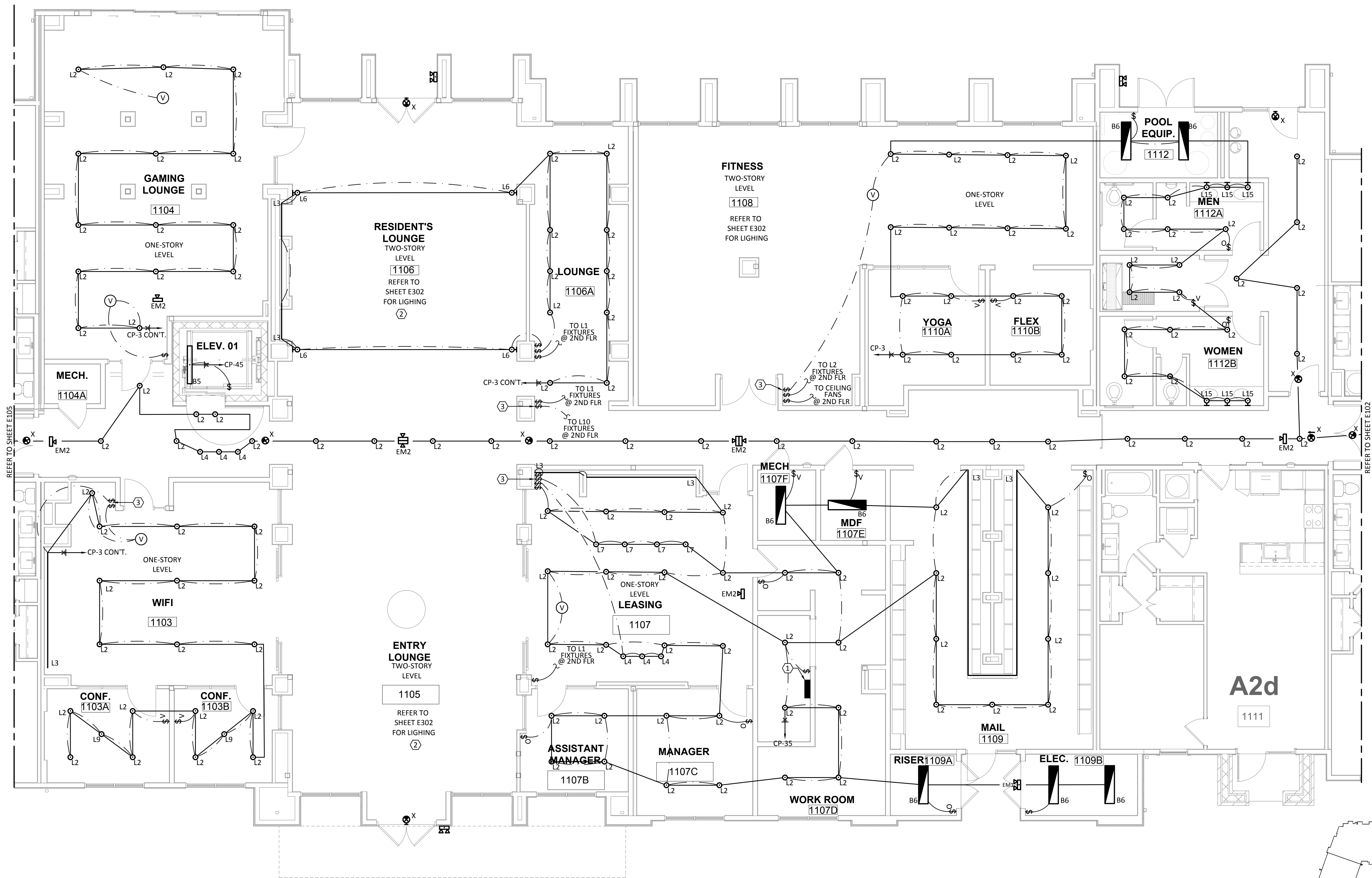
E207

GENERAL NOTES:

- A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
- B. ALL CORRIDOR AND STAIRWELL LIGHTING SHALL BE UNSWITCHED AND CONTROLLED AT THE CIRCUIT BREAKER IN HOUSE PANEL.
- C. ALL EMERGENCY LIGHTS IN AMENITY AREA SHALL BE DROP-DOWN TYPE "EM2" LIGHT FIXTURE. REFER TO LIGHT FIXTURE SCHEDULE FOR ADDITIONAL INFORMATION.

KEYED NOTES:

1. PROVIDE EXITRONIX #TUCM-300-120-120-90 MINI INVERTER. CONNECT TO ALL EMERGENCY LIGHTS. REFER TO MANUFACTURER REQUIREMENTS FOR ADDITIONAL INFORMATION.
2. PROVIDE CEILING MOUNTED DAYLIGHT ZONE CONTROLS. CONTROLS SHALL BE SET TO DIM LIGHTS IN DAYLIGHT ZONE CONTINUOUSLY FROM FULL LIGHT OUTPUT TO 15 PERCENT OF FULL LIGHT OUTPUT OR LOWER.
3. PROVIDE LEVITON #5634W DECORA COMBINATION, DOUBLE ROCKER, 15 AMP, 120V, SINGLE POLE LIGHT SWITCH. INSTALL ALL LIGHT SWITCHES WITH APPROPRIATE GANG PLATE SIZE.
4. PROVIDE DIMMER PANEL.



1 ELECTRICAL - LIGHTING COMMUNITY CENTER - LEVEL 1
SCALE: 3/16"=1'-0"



KEY PLAN
N.T.S.

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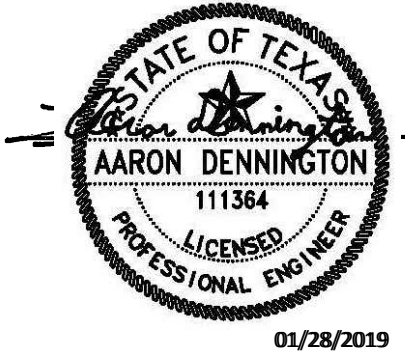
Interior Designer:

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ISSUANCES

NO.	DESCRIPTION	DATE
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL LIGHTING
COMMUNITY CENTER
LEVEL 1

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

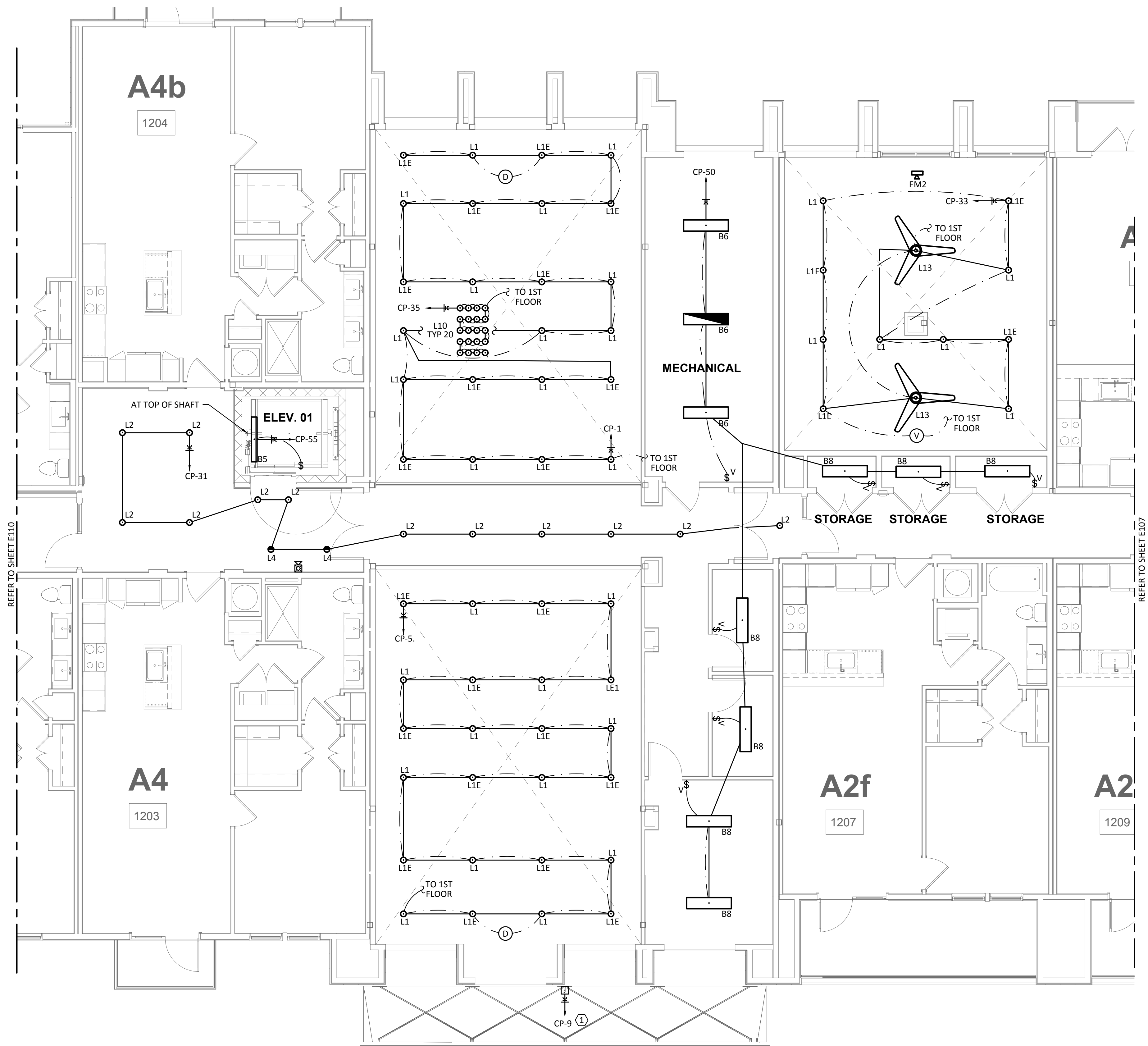
E301

GENERAL NOTES:

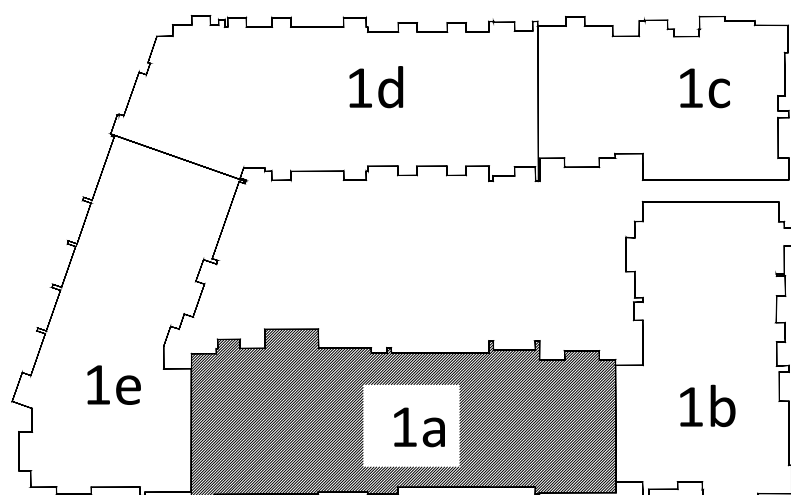
- A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
B. ALL CORRIDOR AND STAIRWELL LIGHTING SHALL BE UNSWITCHED AND CONTROLLED AT THE CIRCUIT BREAKER IN HOUSE PANEL.

KEYED NOTES:

1. PROVIDE JUNCTION BOX FOR BUILDING SIGNAGE. CIRCUIT THRU TIME CLOCK. REFER TO SIGNAGE MANUFACTURER FOR ADDITIONAL INFORMATION.



1 ELECTRICAL - LIGHTING COMMUNITY CENTER - 2ND FLOOR
SCALE: 3/16"=1'-0"



KEY PLAN
N.T.S.

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ENGINEERING CONSULTANTS
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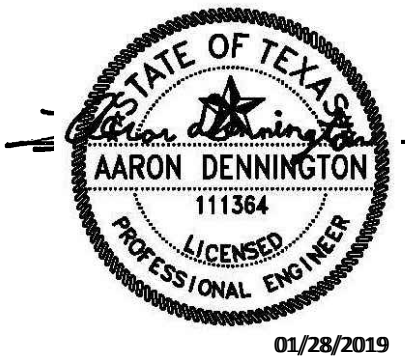
Interior Designer:

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ISSUANCES

01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL LIGHTING
COMMUNITY CENTER
LEVEL 2

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

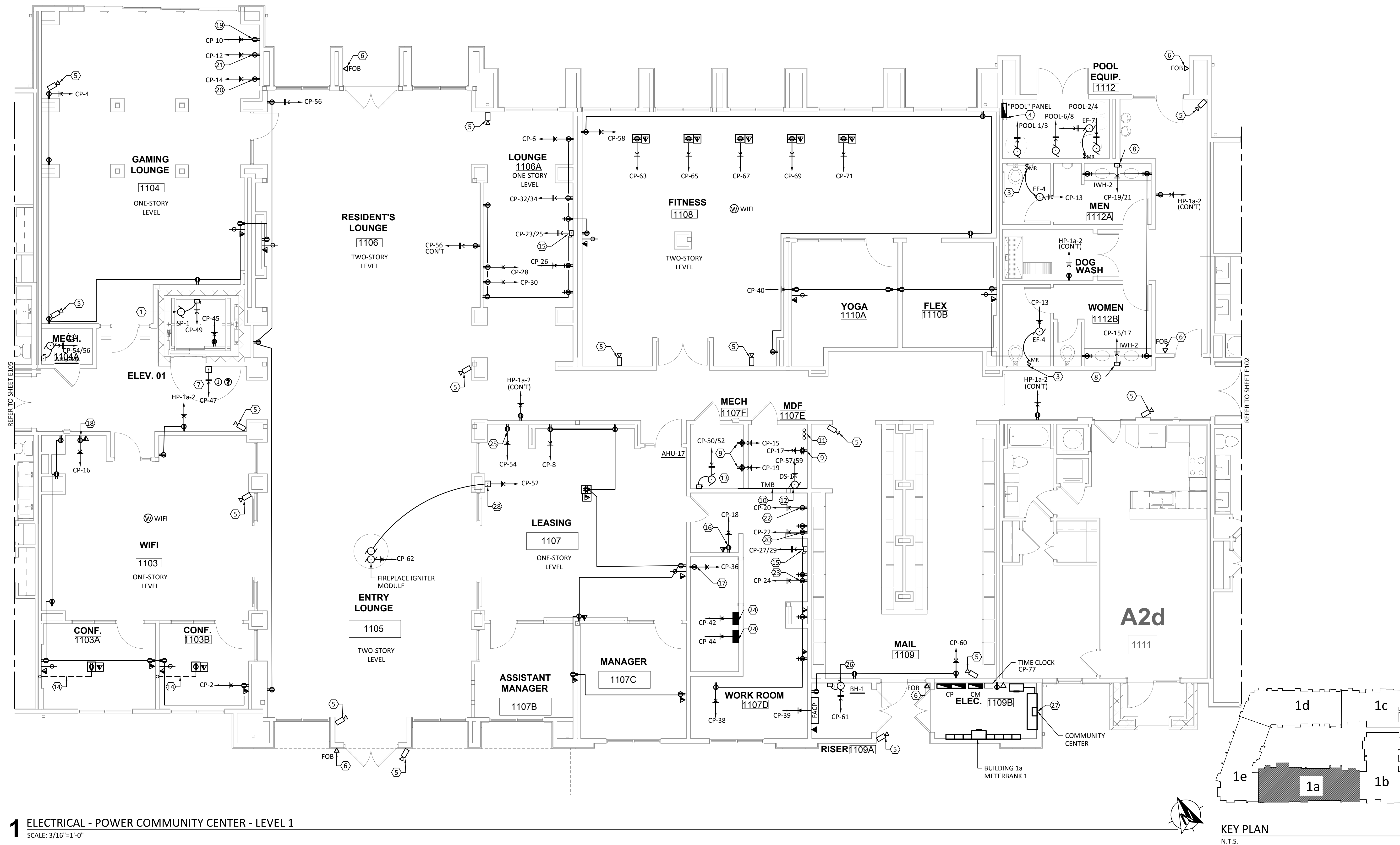
E302

GENERAL NOTES:

- A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
B. REFER TO SHEETS E404 THRU E407, ELECTRICAL CALCULATIONS AND RISERDIAGRAMS FOR ADDITIONAL INFORMATION.

KEYED NOTES:

1. PROVIDE 30A/2P/NF/N1 DISCONNECT FOR ELEVATOR SUMP PUMP.
2. PROVIDE 30A/NF/2P/N1 DISCONNECT FOR DUCTLESS SPLIT SYSTEM.
3. PROVIDE MOTOR-RATED SWITCH FOR CEILING MOUNTED EXHAUST FAN MOUNTED TO STRUCTURE.
4. PROVIDE 120/240V, 1Ø, 100A LOAD CENTER FOR FUTURE POOL EQUIPMENT.
5. PROVIDE JUNCTION BOX AND CONDUIT WITH PULL STRING TO ABOVE NEAREST ACCESSIBLE CEILING FOR SECURITY CAMERA. SECURITY SYSTEM DESIGNED BY OTHERS.
6. PROVIDE JUNCTION BOX AND CONDUIT FOR KEY FOB SECURITY DEVICE AT BUILDING ENTRANCES. SECURITY SYSTEM DESIGNED BY OTHERS.
7. PROVIDE JUNCTION BOX MOUNTED HIGH ON WALL FOR ELEVATOR SMOKE CURTAIN AND CEILING MOUNTED SMOKE DETECTOR. CONNECT TO FIRE ALARM SYSTEM.
8. PROVIDE 30A/2P/NF/N1 DISCONNECT FOR WATER HEATER "WH-2".
9. PROVIDE DEDICATED QUAD RECEPTACLE IN TELECOM ROOMS FOR EACH SERVER RACK. REFER TO LOW VOLTAGE CONSULTANT PLANS FOR ADDITIONAL INFORMATION.
10. PROVIDE 3/4" X 4" X 8" PLYWOOD TELEPHONE MOUNTING BOARD WITH #6 (CU) GROUND AND DEDICATED DUPLEX CONVENIENCE OUTLET. FURNISH ACCORDING TO SERVICE PROVIDER REQUIREMENTS.
11. PROVIDE 3/4" EMPTY CONDUIT WITH PULL STRING IN MDF ROOM FROM SERVICE PROVIDER. PROVIDE (2) CAT6 CABLING FROM MDF TO EACH IDF ROOM. REFER TO SERVICE PROVIDER FOR ADDITIONAL INFORMATION. PROVIDE #6 AWG GROUNDING CONDUCTOR WIRE FROM IDF ROOM CONNECTED TO SERVICE ENTRANCE GROUND FOR TELECOM EQUIPMENT GROUNDING.
12. PROVIDE 30A/2P/NF/N1 DISCONNECT FOR DUCTLESS SYSTEM "DS-1" MOUNTED ON STRUCTURE.
13. PROVIDE 30A/2P/NF/N1 DISCONNECT FOR AIR HANDLER UNIT. MOUNT TO STRUCTURE.
14. PROVIDE 2-CAT6 TO IDF CLOSET AND 1-HDMI TO TV FROM MDF ROOM.
15. PROVIDE 30/2P/NF/N1 DISCONNECT FOR WATER HEATER.
16. PROVIDE 30/2P/NF/N1 DISCONNECT FOR COPIER.
17. PROVIDE DEDICATED RECEPTACLE FOR FOOD STORAGE.
18. PROVIDE DEDICATED RECEPTACLE FOR PRINTER.
19. PROVIDE DEDICATED RECEPTACLE FOR UNDERCOUNTER REFRIGERATOR.
20. PROVIDE DEDICATED RECEPTACLE FOR UNDERCOUNTER MICROWAVE.
21. PROVIDE DEDICATED RECEPTACLE FOR UNDERCOUNTER ICE MACHINE.
22. PROVIDE DEDICATED RECEPTACLE FOR REFRIGERATOR.
23. PROVIDE DEDICATED RECEPTACLE FOR DISHWASHER.
24. PROVIDE EXITRONIX #TUCM-300-120-120-90 MINI INVERTER. REFER TO MANUFACTURER REQUIREMENTS FOR ADDITIONAL INFORMATION.
25. PROVIDE DEDICATED RECEPTACLE FOR COFFEE MAKER.
26. PROVIDE 20/1P/NF/N1 DISCONNECT FOR BASEBOARD HEATER IN RISER ROOM.
27. PROVIDE 600A, 1Ø, CURRENT TRANSFORMER, METER & DISCONNECT FOR COMMUNITY CENTER.
28. PROVIDE JUNCTION BOX FOR 120V, 1Ø GAS FIREPLACE CONTROL BOARD (ACUCRAFT #CIRCULAR4), THE CONTROL SHALL BE CONNECTED TO THE FAN, APPLIANCE AND DAMPER. REFER TO MANUFACTURER'S SPECIFICATIONS FOR ADDITIONAL INFORMATION.



1 ELECTRICAL - POWER COMMUNITY CENTER - LEVEL 1
SCALE: 3/16"=1'-0"

KEY PLAN
N.T.S.

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Austin, Texas 78759 | 512.338.1101
Project No.: 18054.M5.AUS

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COLLABORATIVE
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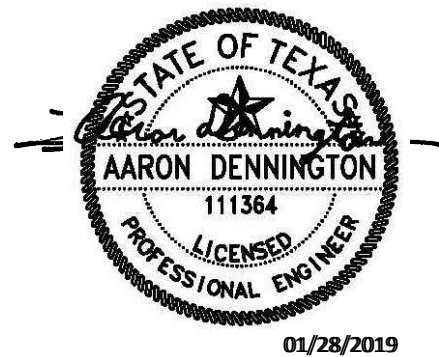
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Interior Designer:

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ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL POWER COMMUNITY CENTER LEVEL 1

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

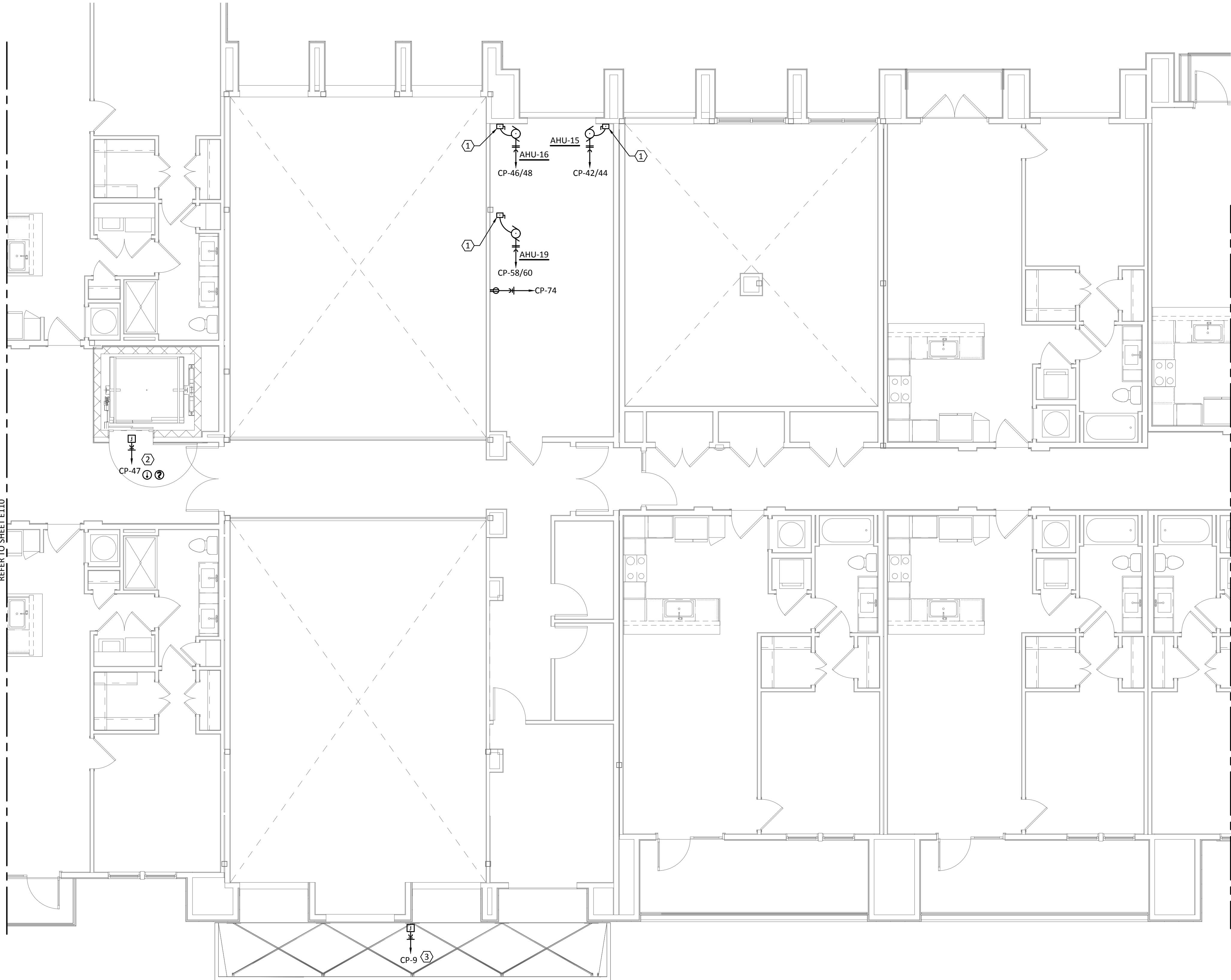
E303

GENERAL NOTES:

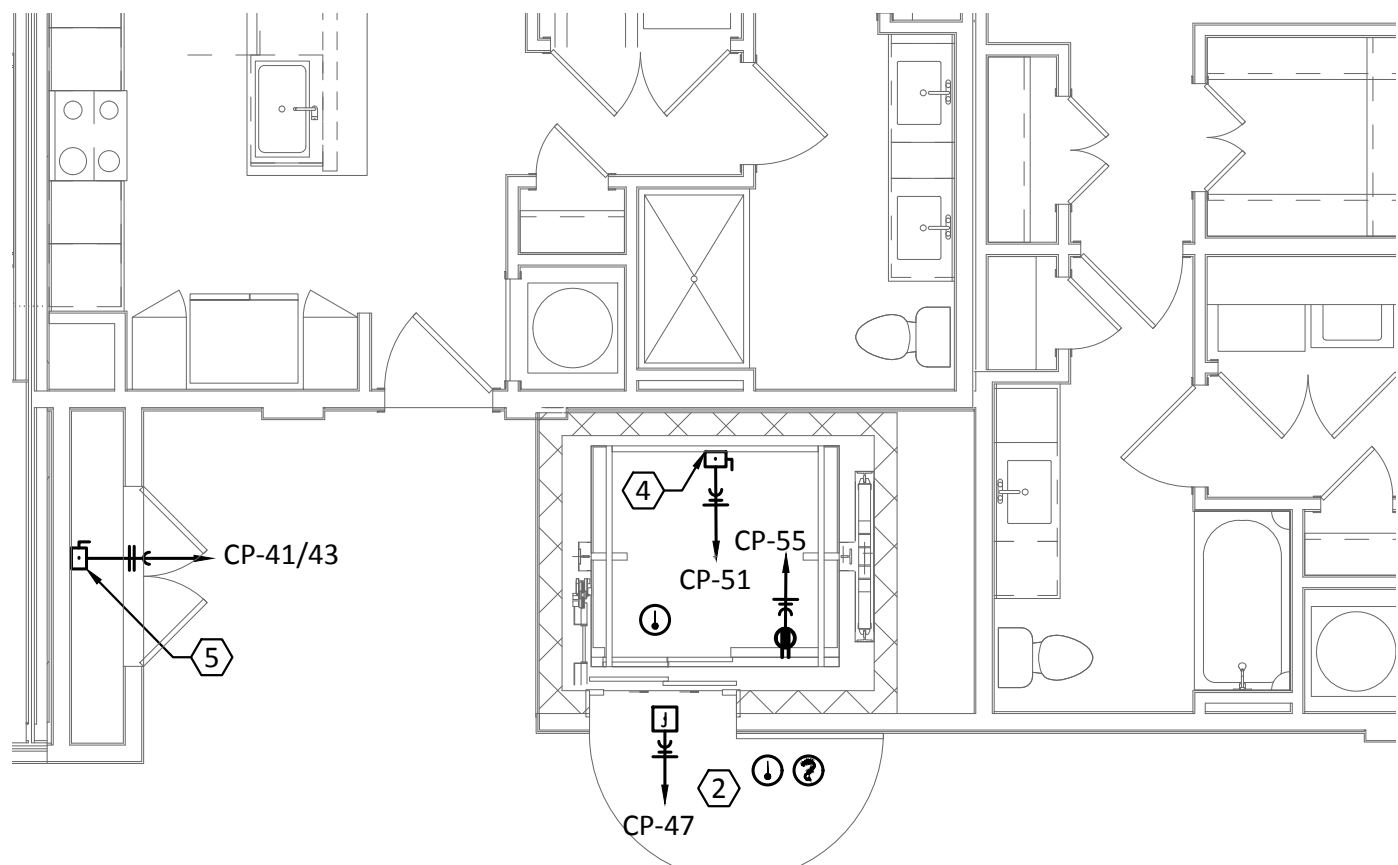
- A. REFER TO SHEET E000 FOR ADDITIONAL INFORMATION.
- B. REFER TO SHEETS E404 THRU E407, ELECTRICAL CALCULATIONS AND RISER DIAGRAMMS FOR ADDITIONAL INFORMATION.
- C. ALL CORRIDOR, UNIT ENTRY AND STAIRWELL LIGHTING SHALL BE UNSWITCHED AND CONTROLLED AT THE CIRCUIT BREAKER IN HOUSE PANEL.

KEYED NOTES:

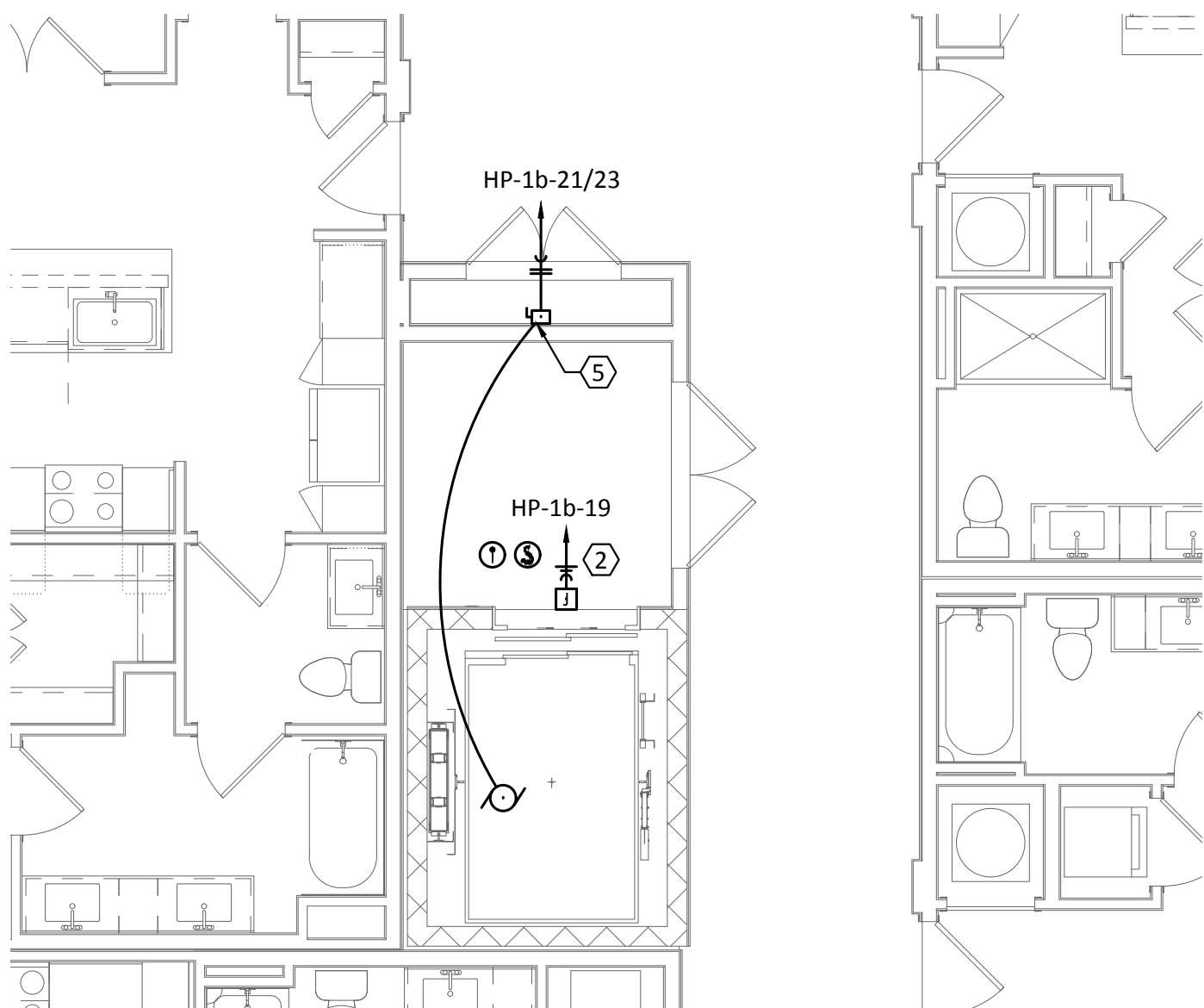
1. PROVIDE 30A/2P/NF/N1 DISCONNECT FOR AIR HANDLER.
2. PROVIDE JUNCTION BOX MOUNTED HIGH ON WALL FOR ELEVATOR SMOKE CURTAIN AND CEILING MOUNTED SMOKE DETECTOR. CONNECT TO FIRE ALARM SYSTEM.
3. PROVIDE JUNCTION BOX FOR BUILDING SIGNAGE AT CANOPY. ROUTE CONDUIT TO "CP" LOAD CENTER.
4. PROVIDE 30A/2P/NF/N1 LOCKABLE DISCONNECT FOR ELEVATOR CAB AND LIGHT. MOUNT IN TOP OF ELEVATOR SHAFT.
5. 100A/F(100A)/3P/N1 LOCKABLE DISCONNECT FOR ELEVATOR #1 & #2. CONNECT TO ELEVATOR MOTOR LOCATED AT TOP OF HOISTWAY.



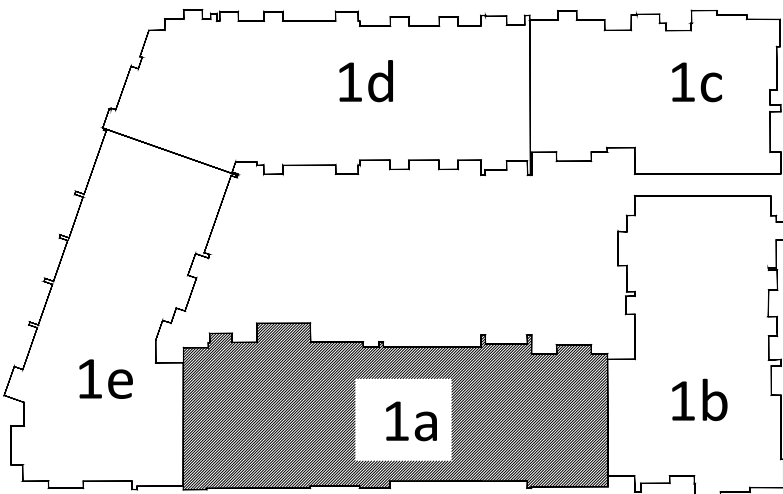
1 ELECTRICAL - POWER COMMUNITY CENTER - LEVEL 2
SCALE: 3/16"=1'-0"



2 ELECTRICAL ELEVATOR (SECTION 1a) - LEVEL 4
SCALE: 3/16"=1'-0"



3 ELECTRICAL ELEVATOR (SECTION 1b) - LEVEL 4
SCALE: 3/16"=1'-0"



KEY PLAN
N.T.S.

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ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
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03	PERMIT SET	01.28.19

REVISIONS



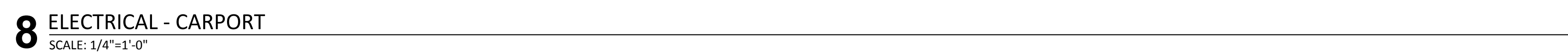
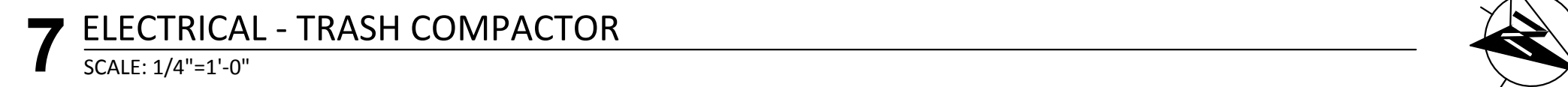
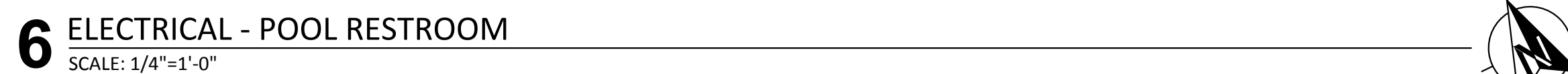
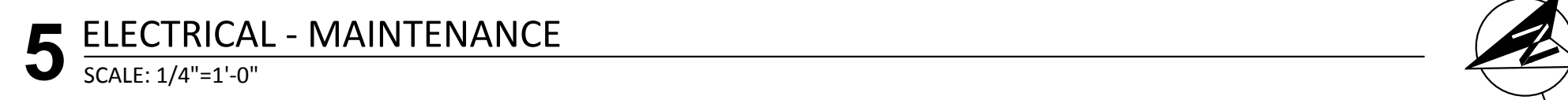
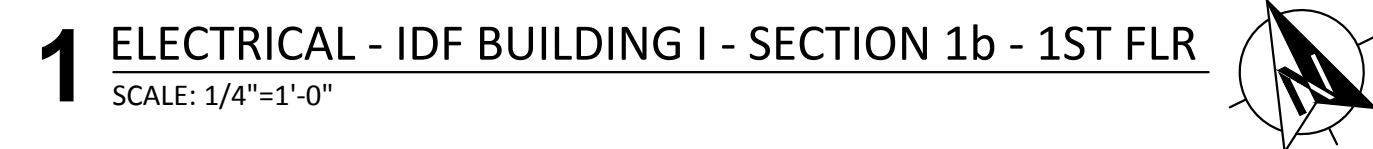
a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

**ELECTRICAL POWER
COMMUNITY CENTER
LEVEL 2**

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

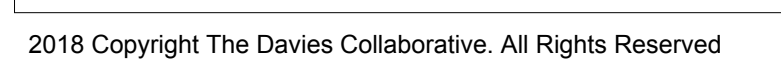
E304



KEYED NOTES:

1. 200V, 1Ø, "MARATHON"® RSI-250-SC, 34 YARD CAPACITY, SELF-CONTAINED TRASH COMPACTOR. PROVIDE 100A, 1Ø HP/1Ø DISCONNECT IN NEMA 3R ENCLOSURE. COORDINATE WITH MANUFACTURERS REQUIREMENTS FOR SIZE AND ADDITIONAL REQUIREMENTS.
2. 120/240V, 1Ø, 100A, MLO LOAD CENTER, UTILITY METER, AND DISCONNECT IN NEMA 3R ENCLOSURE FOR TRASH COMPACTOR.
3. MOTOR RATED SWITCH FOR CEILING MOUNTED EXHAUST FAN. INSTALL ABOVE CEILING WITH ACCESS PANEL. MOUNT SWITCH TO STRUCTURE.
4. 120/240V, 1Ø, 200 A, MLO MAINTENANCE LOAD CENTER IN NEMA 3 ENCLOSURE.
5. INSTALL CEILING MOUNTED RECEPTACLE ADJACENT TO GARAGE DOOR OPENER.
6. PROVIDE AND INSTALL 120V, 1Ø, 20A GARAGE DOOR OPENER. INSTALL PER MANUFACTURER REQUIREMENTS.
7. PROVIDE JUNCTION BOX AT BASE OF GARAGE DOOR RAILING FOR LOW VOLTAGE WIRING TO GARAGE DOOR OPENER AND MUST BE "WEATHER-TITE" TYPE.
8. INSTALL GARAGE DOOR OPENER ON LEFT SIDE OF DOOR AT 44" AFF.
9. PROVIDE JUNCTION BOX AND CONDUIT WITH PULL STRING ON WALL FOR SECURITY CAMERA. SECURITY SYSTEM DESIGNED BY OTHERS.
10. PROVIDE JUNCTION BOX AND CONDUIT WITH PULL STRING TO CEILING FOR KEY FOB SECURITY DEVICE AT BUILDING ENTRANCE. SECURITY SYSTEM DESIGNED BY OTHERS.
11. PROVIDE RECEPTACLE FOR GOLF CART CHARGER.
12. PROVIDE DEDICATED QUAD RECEPTACLE IN TELECOM ROOMS FOR EACH SERVER RACK. REFER TO LOW VOLTAGE CONSULTANT PLANS FOR ADDITIONAL INFORMATION.
13. PROVIDE 4-4" EMPTY CONDUIT WITH PULL STRING IN IDF ROOM FROM SERVICE PROVIDER. PROVIDE (2) CAT5 CABLING FROM IDF TO EACH IDF ROOM. REFER TO SERVICE PROVIDER FOR ADDITIONAL INFORMATION. PROVIDE #6 AWG GROUNDING CONDUCTOR WIRE FROM IDF ROOM CONNECTED TO SERVICE ENTRANCE GROUND FOR TELECOM EQUIPMENT GROUNDING.
14. PROVIDE 120/240V, 1Ø, CURRENT TRANSFORMER, METER AND 200A DISCONNECT FOR MAINTENANCE BUILDING.
15. PROVIDE 30A/2P/NF/N1 DISCONNECT FOR DUCTLESS AIR HANDLER.
16. PROVIDE 30A/2P/NF/N3R DISCONNECT FOR CONDENSING UNIT.
17. PROVIDE 30A/2P/NF/N1 DISCONNECT FOR INSTANTANEOUS WATER HEATER MOUNTED BELOW LAVATORY.

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19



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ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
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REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
UNIT CALCULATIONS

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E401

ELECTRICAL CALCULATIONS - UNIT TYPE A1										
N.E.C OPTION SECTION 220-82					WATTS	WATTS	AMPS			
P										
O	A/C	1 X	1460 +	219						
W	HEAT	0.65 X	5000 +	1 X	219					
E						3392				
R	O	GENERAL LIGHTING 3 X	630	SQ FT		1890				
T		SMALL APPLIANCES - 2 CCTS				3000				
C	H	DISHWASHER				1500				
A	E	DISPOSAL, 1/3 HP, 115V.				830				
L	R	REFRIGERATOR				1500				
C		RANGE (OVEN & SURFACE)				8000				
U	L	WASHER/DRYER				6500				
L	O	WATER HEATER				4500				
A	A	MICROWAVE/HOOD				1500				
T	D	TOTAL ALL OTHER LOADS				29220				
I	S	ALL OTHER LOADS @ 100%					10000			
O		40% OF REMAINDER					7688			
N	TOTAL CALCULATED POWER LOAD						21080	87.8		
UNIT FEEDER: COMPLY WITH LOCAL ORDINANCES										
3 - #4 (THW) CU. OR 3 - #2 (THW) AL. SERVICE FEEDER										
UNIT PANEL 100 AMP, MLO, 1-PHASE, 3-WIRE, 120/240 V.										
					BREAKER					
					WATTS / VOLTS	AMPS	QTY	SIZE	POLE WIRE	
RANGE					8000 / 240	33.3	1	50	2	50-3
CONDENSING UNIT (ALL)					1460 / 240	6.1	1	20	2	20-2
BATH CONVENIENCE OUTLET					180 / 115	1.6	1	20	1	
EXHAUST FAN					400 / 115	3.5	1	20	1	
FAN COIL (ALL)					5219 / 240	21.7	1	30	2	40-2
REFRIGERATOR					1500 / 115	13.0	1	20	1	
GENERAL LIGHTING					1890 / 115	16.4	4	20	1	
SMALL APPLIANCES					3000 / 115	26.1	2	20	1	
DISHWASHER					1500 / 115	13.0	1	20 **	1	
DISPOSAL					830 / 115	7.2	1	20	1	
WASHER					1500 / 115	13.0	1	20	1	
DRYER					5000 / 240	20.8	1	30	2	20-3
WATER HEATER					4500 / 240	18.8	1	30	2	30-2
MICROWAVE/HOOD					1500 / 115	13.0	1	20	1	
* UNIT LOAD CENTERS SHALL BE RATED FOR 10,000 AIC										
** PROVIDE GFCI-TYPE BREAKER										

ELECTRICAL CALCULATIONS - UNIT TYPE A4										
N.E.C OPTION SECTION 220-82					WATTS	WATTS	AMPS			
P										
O	A/C	1 X	1460 +	219						
W	HEAT	0.65 X	5000 +	1 X	219		3392			
E										
R	O	GENERAL LIGHTING 3 X	852	SQ FT		2556				
T		SMALL APPLIANCES - 2 CCTS				3000				
C	H	DISHWASHER				1500				
A	E	DISPOSAL, 1/3 HP, 115V.				830				
L	R	REFRIGERATOR				1500				
C		RANGE (OVEN & SURFACE)				8000				
U	L	WASHER/DRYER				6500				
L	O	WATER HEATER				4500				
A	A	MICROWAVE/HOOD				1500				
T	D	TOTAL ALL OTHER LOADS				29886				
I	S	ALL OTHER LOADS @ 100%					10000			
O		40% OF REMAINDER					7954.4			
N	TOTAL CALCULATED POWER LOAD						21347	88.9		
UNIT FEEDER: COMPLY WITH LOCAL ORDINANCES										
3 - #4 (THW) CU. OR 3 - #2 (THW) AL. SERVICE FEEDER										
UNIT PANEL 100 AMP MLO, 1-PHASE, 3-WIRE, 120/240 V.										
					BREAKER					
					WATTS / VOLTS	AMPS	QTY	SIZE	POLE WIRE	
RANGE					8000 / 240	33.3	1	50	2	50-3
CONDENSING UNIT (ALL)					1460 / 240	6.1	1	20	2	20-2
BATH CONVENIENCE OUTLET					180 / 115	1.6	1	20	1	
EXHAUST FAN					400 / 115	3.5	1	20	1	
FAN COIL (ALL)					5219 / 240	21.7	1	30	2	30-2
REFRIGERATOR					1500 / 115	13.0	1	20	1	
GENERAL LIGHTING					2556 / 115	22.2	4	20	1	
SMALL APPLIANCES					3000 / 115	26.1	2	20	1	
DISHWASHER					1500 / 115	13.0	1	20 **	1	
DISPOSAL					830 / 115	7.2	1	20	1	
WASHER					1500 / 115	13.0	1	20	1	
DRYER					5000 / 240	20.8	1	30	2	30-3
WATER HEATER					4500 / 240	18.8	1	30	2	30-2
MICROWAVE/HOOD					1500 / 115	13.0	1	20	1	
* UNIT LOAD CENTERS SHALL BE RATED FOR 10,000 AIC										
** PROVIDE GFCI-TYPE BREAKER										

ELECTRICAL CALCULATIONS - UNIT TYPE A2										
N.E.C OPTION SECTION 220-82					WATTS	WATTS	AMPS			
P										
O	A/C	1 X	1460 +	219						
W	HEAT	0.65 X	5000 +	1 X	219		3392			
E										
R	O	GENERAL LIGHTING 3 X	663	SQ FT		1989				
T		SMALL APPLIANCES - 2 CCTS				3000				
C	H	DISHWASHER				1500				
A	E	DISPOSAL, 1/3 HP, 115V.				830				
L	R	REFRIGERATOR				1500				
C		RANGE (OVEN & SURFACE)				8000				
U	L	WASHER/DRYER				6500				
L	O	WATER HEATER				4500				
A	A	MICROWAVE/HOOD				1500				
T	D	TOTAL ALL OTHER LOADS				29319				
I	S	ALL OTHER LOADS @ 100%					10000			
O		40% OF REMAINDER					7727.6			
N	TOTAL CALCULATED POWER LOAD						21120	88.0		
UNIT FEEDER: COMPLY WITH LOCAL ORDINANCES										
3 - #4 (THW) CU. OR 3 - #2 (THW) AL. SERVICE FEEDER										
UNIT PANEL 100 AMP MLO, 1-PHASE, 3-WIRE, 120/240V.										
					BREAKER					
					WATTS / VOLTS	AMPS	QTY	SIZE	POLE WIRE	
RANGE					8000 / 240	33.3	1	50	2	50-3
CONDENSING UNIT (ALL)					1460 / 240	6.1	1	20	2	20-2
BATH CONVENIENCE OUTLET					180 / 115	1.6	1	20	1	
EXHAUST FAN					400 / 115	3.5	1	20	1	
FAN COIL (ALL)					5219 / 240	21.7	1	30	2	40-2
REFRIGERATOR					1500 / 115	13.0	1	20	1	
GENERAL LIGHTING					1989 / 115	17.3	4	20	1	
SMALL APPLIANCES					3000 / 115	26.1	2	20	1	
DISHWASHER					1500 / 115	13.0	1	20 **	1	
DISPOSAL					830 / 115	7.2	1	20	1	
WASHER					1500 / 115	13.0	1	20	1	
DRYER					5000 / 240	20.8	1	30	2	30-3
WATER HEATER					4500 / 240	18.8	1	30	2	30-2
MICROWAVE/HOOD					1500 / 115	13.0	1	20	1	
* UNIT LOAD CENTERS SHALL BE RATED FOR 10,000 AIC										
** PROVIDE GFCI-TYPE BREAKER										

ELECTRICAL CALCULATIONS - UNIT TYPE A5									
N.E.C OPTION SECTION 220-82					WATTS	WATTS	AMPS		
P									
O	A/C	1 X	1460 +	219					
W	HEAT	0.65 X	5000 +	1 X	219				
E						3392			
R	O	GENERAL LIGHTING 3 X	988	SQ FT		2964			
T		SMALL APPLIANCES - 2 CCTS				3000			
C	H	DISHWASHER				1500			
A	E	DISPOSAL, 1/3 HP, 115V.				830			
L	R	REFRIGERATOR				1500			
C		RANGE (OVEN & SURFACE)				8000			
U	L	WASHER/DRYER				6500			
L	O	WATER HEATER				4500			

Structural Engineer:

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4205 Bellway Dr. Addison, TX 75001
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MEP Engineer:

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Amber Rothwell
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Cassie Farley
214.443.9090

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
UNIT CALCULATIONS

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E402

ELECTRICAL CALCULATIONS - UNIT TYPE A7									
N.E.C OPTION SECTION 220-82					WATTS	WATTS	AMPS		
P									
O	A/C	1 X	1480 +			219			
W	HEAT	0.65 X	5000 +	1 X	219				
E						3392			
R	O	GENERAL LIGHTING 3 X	1073	SQ FT		3219			
T		SMALL APPLIANCES - 2 CCTS				3000			
C	H	DISHWASHER				1500			
A	E	DISPOSAL, 1/3 HP, 115V.				830			
L	R	REFRIGERATOR				1500			
C		RANGE (OVEN & SURFACE)				8000			
U	L	WASHER/DRYER				6500			
L	O	WATER HEATER				4500			
A	A	MICROWAVE/HOOD				1500			
T	D	TOTAL ALL OTHER LOADS				30549			
I	S	ALL OTHER LOADS @ 100%					10000		
O		40% OF REMAINDER					8219.6		
N		TOTAL CALCULATED POWER LOAD					21612	90.0	
UNIT FEEDER: COMPLY WITH LOCAL ORDINANCES									
3 - #4 (THW) CU OR 3 - #2 (THW) AL SERVICE FEEDER									
UNIT PANEL 100 AMP, MLO, 1-PHASE, 3-WIRE, 120/240 V.									
		WATTS / VOLTS	AMPS	QTY	SIZE	POLE	WIRE		
	RANGE	8000 / 240	33.3	1	50	2	50-3		
	CONDENSING UNIT (ALL)	1460 / 240	6.1	1	20	2	20-2		
	BATH CONVENIENCE OUTLET	180 / 115	1.6	1	20	1			
	EXHAUST FAN	400 / 115	3.5	1	20	1			
	FAN COIL (ALL)	5219 / 240	21.7	1	30	2			30-2
	REFRIGERATOR	1500 / 115	13.0	1	20	1			
	GENERAL LIGHTING	3219 / 115	28.0	5	20	1			
	SMALL APPLIANCES	3000 / 115	26.1	2	20	1			
	DISHWASHER	1500 / 115	13.0	1	20 **	1			
	DISPOSAL	830 / 115	7.2	1	20	1			
	WASHER	1500 / 115	13.0	1	20	1			
	DRYER	5000 / 240	20.8	1	30	2			30-3
	WATER HEATER	4500 / 240	18.8	1	30	2			30-2
	MICROWAVE/HOOD	1500 / 115	13.0	1	20	1			
* UNIT LOAD CENTERS SHALL BE RATED FOR 10,000 AIC									
** PROVIDE GFCI-TYPE BREAKER									

ELECTRICAL CALCULATIONS - UNIT TYPE A8									
N.E.C OPTION SECTION 220-82					WATTS	WATTS	AMPS		
P									
O	A/C	1 X	1480 +			219			
W	HEAT	0.65 X	5000 +	1 X	219				
E						3392			
R	O	GENERAL LIGHTING 3 X	1073	SQ FT		3219			
T		SMALL APPLIANCES - 2 CCTS				3000			
C	H	DISHWASHER				1500			
A	E	DISPOSAL, 1/3 HP, 115V.				830			
L	R	REFRIGERATOR				1500			
C		RANGE (OVEN & SURFACE)				8000			
U	L	WASHER/DRYER				6500			
L	O	WATER HEATER				4500			
A	A	MICROWAVE/HOOD				1500			
T	D	TOTAL ALL OTHER LOADS				30549			
I	S	ALL OTHER LOADS @ 100%					10000		
O		40% OF REMAINDER					8219.6		
N		TOTAL CALCULATED POWER LOAD					21612	90.0	
UNIT FEEDER: COMPLY WITH LOCAL ORDINANCES									
3 - #4 (THW) CU OR 3 - #2 (THW) AL SERVICE FEEDER									
UNIT PANEL 100 AMP, MLO, 1-PHASE, 3-WIRE, 120/208 V.									
		WATTS / VOLTS	AMPS	QTY	SIZE	POLE	WIRE		
	RANGE	8000 / 240	33.3	1	50	2	50-3		
	CONDENSING UNIT (ALL)	1460 / 240	6.1	1	20	2	20-2		
	BATH CONVENIENCE OUTLET	180 / 115	1.6	1	20	1			
	EXHAUST FAN	400 / 115	3.5	1	20	1			
	FAN COIL (ALL)	5219 / 240	21.7	1	30	2			30-2
	REFRIGERATOR	1500 / 115	13.0	1	20	1			
	GENERAL LIGHTING	3219 / 115	28.0	5	20	1			
	SMALL APPLIANCES	3000 / 115	26.1	2	20	1			
	DISHWASHER	1500 / 115	13.0	1	20 **	1			
	DISPOSAL	830 / 115	7.2	1	20	1			
	WASHER	1500 / 115	13.0	1	20	1			
	DRYER	5000 / 240	20.8	1	30	2			30-3
	WATER HEATER	4500 / 240	18.8	1	30	2			30-2
	MICROWAVE/HOOD	1500 / 115	13.0	1	20	1			
* UNIT LOAD CENTERS SHALL BE RATED FOR 10,000 AIC									
** PROVIDE GFCI-TYPE BREAKER									

ELECTRICAL CALCULATIONS - UNIT TYPE B1									
N.E.C OPTION SECTION 220-82					WATTS	WATTS	AMPS		
P									
O	A/C	1 X	2043 +			345			
W	HEAT	0.65 X	8000 +	1 X	345				
E						5424			
R	O	GENERAL LIGHTING 3 X	1157	SQ FT		3471			
T		SMALL APPLIANCES - 2 CCTS				3000			
C	H	DISHWASHER				1500			
A	E	DISPOSAL, 1/3 HP, 115V.				830			
L	R	REFRIGERATOR				1500			
C		RANGE (OVEN & SURFACE)				8000			
U	L	WASHER/DRYER				6500			
L	O	WATER HEATER				4500			
A	A	MICROWAVE/HOOD				1500			
T	D	TOTAL ALL OTHER LOADS				30801			
I	S	ALL OTHER LOADS @ 100%					10000		
O		40% OF REMAINDER					8320.4		
N		TOTAL CALCULATED POWER LOAD					23745	98.9	
UNIT FEEDER: COMPLY WITH LOCAL ORDINANCES									
3 - #4 (THW) CU OR 3 - #2 (THW) AL SERVICE FEEDER									
UNIT PANEL 100 AMP, MLO, 1-PHASE, 3-WIRE, 120/208 V.									
		WATTS / VOLTS	AMPS	QTY	SIZE	POLE	WIRE		
	RANGE	8000 / 240	33.3	1	50	2	50-3		
	CONDENSING UNIT (ALL)	2043 / 240	8.5	1	20	2	20-2		
	BATH CONVENIENCE OUTLET	360 / 115	3.1	1	20	1			
	EXHAUST FAN	800 / 115	7.0	1	20	1			
	FAN COIL (ALL)	8345 / 240	34.8	1	50	2			50-2
	REFRIGERATOR	1500 / 115	13.0	1	20	1			
	GENERAL LIGHTING	3471 / 115	30.2	5	20	1			
	SMALL APPLIANCES	3000 / 115	26.1	2	20	1			
	DISHWASHER	1500 / 115	13.0	1	20 **	1			
	DISPOSAL	830 / 115	7.2	1	20	1			
	WASHER	1500 / 115	13.0	1	20	1			
	DRYER	5000 / 240	20.8	1	30	2			30-3
	WATER HEATER	4500 / 240	18.8	1	30	2			30-2
	MICROWAVE/HOOD	1500 / 115	13.0	1	20	1			
* UNIT LOAD CENTERS SHALL BE RATED FOR 10,000 AIC									
** PROVIDE GFCI-TYPE BREAKER									

ELECTRICAL CALCULATIONS - UNIT TYPE B2									
N.E.C OPTION SECTION 220-82					WATTS	WATTS	AMPS		
P									
O	A/C	1 X	2043 +		345				
W	HEAT	0.65 X	8000 +	1 X	345		5424		
E									
R	O	GENERAL LIGHTING 3 X	1157	SQ FT		3471			
T		SMALL APPLIANCES - 2 CCTS				3000			
C	H	DISHWASHER				1500			
A	E	DISPOSAL, 1/3 HP, 115V.				830			
L	R	REFRIGERATOR				1500			
C		RANGE (OVEN & SURFACE)				8000			
U	L	WASHER/DRYER				6500			
L	O	WATER HEATER				4500			
A	A	MICROWAVE/HOOD				1500			
T	D	TOTAL ALL OTHER LOADS				30801			
I	S	ALL OTHER LOADS @ 100%					10000		
O		40% OF REMAINDER					8320.4		
N		TOTAL CALCULATED POWER LOAD					23745	98.9	
UNIT FEEDER: COMPLY WITH LOCAL ORDINANCES									
3 - #4 (THW) CU OR 3 - #2 (THW) AL SERVICE FEEDER									
UNIT PANEL 100 AMP, MLO, 1-PHASE, 3-WIRE, 120/240 V.									
					BREAKER				
		WATTS / VOLTS	AMPS	QTY	SIZE	POLE	WIRE		
	RANGE	8000 / 240	33.3	1	50	2	50-3		
	CONDENSING UNIT (ALL)	2043 / 240	8.5	1	20	2	20-2		
	BATH CONVENIENCE OUTLET	360 / 115	3.1	1	20	1			
	EXHAUST FAN	800 / 115	7.0	1	20	1			
	FAN COIL (ALL)	8345 / 240	34.8	1	50	2	50-2		
	REFRIGERATOR	1500 / 115	13.0	1	20	1			
	GENERAL LIGHTING	3471 / 115	30.2	5	20	1			
	SMALL APPLIANCES	3000 / 115	26.1	2	20	1			
	DISHWASHER	1500 / 115	13.0	1	20 **	1			
	DISPOSAL	830 / 115	7.2	1	20	1			
	WASHER	1500 / 115	13.0	1	20	1			
	DRYER	5000 / 240	20.8	1	30	2	30-3		
	WATER HEATER	4500 / 240	18.8	1	30	2	30-2		
	MICROWAVE/HOOD	1500 / 115	13.0	1	20	1			
* UNIT LOAD CENTERS SHALL BE RATED FOR 10,000 A/C									
** PROVIDE GFCI-TYPE BREAKER									

ELECTRICAL CALCULATIONS - UNIT TYPE B5											
N.E.C OPTION SECTION 220-82						WATTS	WATTS	AMPS			
P											
O		A/C	1 X	2043 +		345					
W		HEAT	0.65 X	8000 +	1 X	345		5424			
E											
R	O	GENERAL LIGHTING 3 X	1315	SQ FT		3945					
T		SMALL APPLIANCES - 2 CCTS				3000					
C	H	DISHWASHER				1500					
A	E	DISPOSAL, 1/3 HP, 115V.				830					
L	R	REFRIGERATOR				1500					
C		RANGE (OVEN & SURFACE)				8000					
U	L	WASHER/DRYER				6500					
L	O	WATER HEATER				4500					
A	A	MICROWAVE/HOOD				1500					
T	D	TOTAL ALL OTHER LOADS				31275					
I	S	ALL OTHER LOADS @ 100%					10000				
O		40% OF REMAINDER					8510				
N		TOTAL CALCULATED POWER LOAD					23934	99.7			
UNIT FEEDER: COMPLY WITH LOCAL ORDINANCES											
3 - #4 (THW) CU. OR 3 - #2 (THW) AL. SERVICE FEEDER											
UNIT PANEL	100	AMP, MLO, 1-PHASE, 3-WIRE, 120/240 V.									
			WATTS	/	VOLTS	AMPS	QTY	SIZE	POLE	WIRE	
		RANGE	8000 / 240		33.3	1	50	2	50-3		
		CONDENSING UNIT (ALL)	2043 / 240		8.5	1	20	2	20-2		
		BATH CONVENIENCE OUTLET	360 / 115		3.1	1	20	1			
		EXHAUST FAN	800 / 115		7.0	1	20	1			
		FAN COIL (ALL)	8345 / 240		34.8	1	50	2	50-2		
		REFRIGERATOR	1500 / 115		13.0	1	20	1			
		GENERAL LIGHTING	3945 / 115		34.3	5	20	1			
		SMALL APPLIANCES	3000 / 115		26.1	2	20	1			
		DISHWASHER	1500 / 115		13.0	1	20 **	1			
		DISPOSAL	830 / 115		7.2	1	20	1			
		WASHER	1500 / 115		13.0	1	20	1			
		DRYER	5000 / 240		20.8	1	30	2	30-3		
		WATER HEATER	4500 / 240		18.8	1	30	2	30-2		
		MICROWAVE/HOOD	1500 / 115		13.0	1	20	1			
* UNIT LOAD CENTERS SHALL BE RATED FOR 10,000 AIC											
** PROVIDE GFCI-TYPE BREAKER											

ELECTRICAL CALCULATIONS - UNIT TYPE B6											
N.E.C OPTION SECTION 220-82						WATTS	WATTS	AMPS			
P											
O		A/C	1 X	2043 +		345					
W		HEAT	0.65 X	8000 +	1 X	345		5424			
E											
R	O	GENERAL LIGHTING 3 X	1318	SQ FT		3954					
T		SMALL APPLIANCES - 2 CCTS				3000					
C	H	DISHWASHER				1500					
A	E	DISPOSAL, 1/3 HP, 115V.				830					
L	R	REFRIGERATOR				1500					
C		RANGE (OVEN & SURFACE)				8000					
U	L	WASHER/DRYER				6500					
L	O	WATER HEATER				4500					
A	A	MICROWAVE/HOOD				1500					
T	D	TOTAL ALL OTHER LOADS				31284					
I	S	ALL OTHER LOADS @ 100%					10000				
O		40% OF REMAINDER					8513.6				
N		TOTAL CALCULATED POWER LOAD					23938	99.7			
UNIT FEEDER: COMPLY WITH LOCAL ORDINANCES											
3 - #4 (THW) CU. OR 3 - #2 (THW) AL. SERVICE FEEDER											
UNIT PANEL	100	AMP, MLO, 1-PHASE, 3-WIRE, 120/240 V.									
			WATTS	/	VOLTS	AMPS	QTY	SIZE	POLE	WIRE	
		RANGE	8000 / 240		33.3	1	50	2	50-3		
		CONDENSING UNIT (ALL)	2043 / 240		8.5	1	20	2	20-02		
		BATH CONVENIENCE OUTLET	360 / 115		3.1	1	20	1			
		EXHAUST FAN	800 / 115		7.0	1	20	1			
		FAN COIL (ALL)	8345 / 240		34.8	1	50	2	50-2		
		REFRIGERATOR	1500 / 115		13.0	1	20	1			
		GENERAL LIGHTING	3954 / 115		34.4	5	20	1			
		SMALL APPLIANCES	3000 / 115		26.1	2	20	1			
		DISHWASHER	1500 / 115		13.0	1	20 **	1			
		DISPOSAL	830 / 115		7.2	1	20	1			
		WASHER	1500 / 115		13.0	1	20	1			
		DRYER	5000 / 240		20.8	1	30	2	30-3		
		WATER HEATER	4500 / 240		18.8	1	30	2	30-2		
		MICROWAVE/HOOD	1500 / 115		13.0	1	20	1			
* UNIT LOAD CENTERS SHALL BE RATED FOR 10,000 AIC											
** PROVIDE GFCI-TYPE BREAKER											

ELECTRICAL CALCULATIONS - UNIT TYPE C1											
N.E.C OPTION SECTION 220-82						WATTS	WATTS	AMPS			
P											
O		A/C	1 X	2591 +		414					
W		HEAT	0.65 X	8000 +	1 X	414		5469			
E											
R	O	GENERAL LIGHTING 3 X	1507	SQ FT		4521					
T		SMALL APPLIANCES - 2 CCTS				3000					
C	H	DISHWASHER				1500					
A	E	DISPOSAL, 1/3 HP, 115V.				830					
L	R	REFRIGERATOR				1500					
C		RANGE (OVEN & SURFACE)				8000					
U	L	WASHER/DRYER				6500					
L	O	WATER HEATER				4500					
A	A	MICROWAVE/HOOD				1500					
T	D	TOTAL ALL OTHER LOADS				31851					
I	S	ALL OTHER LOADS @ 100%					10000				
O		40% OF REMAINDER					8740.4				
N		TOTAL CALCULATED POWER LOAD					24210	100.9			
UNIT FEEDER: COMPLY WITH LOCAL ORDINANCES											
3 - #2 (THW) CU. OR 3 - #1 (THW) AL. SERVICE FEEDER											
UNIT PANEL	125	AMP, MLO, 1-PHASE, 3-WIRE, 120/240 V.									
			WATTS	/	VOLTS	AMPS	QTY	SIZE	POLE	WIRE	
		RANGE	8000 / 240		33.3	1	50	2	50-3		
		CONDENSING UNIT (ALL)	2591 / 240		10.8	1	20	2	20-2		
		BATH CONVENIENCE OUTLET	360 / 115		3.1	1	20	1			
		EXHAUST FAN	800 / 115		7.0	1	20	1			
		FAN COIL (ALL)	8414 / 240		35.1	1	50	2	50-2		
		REFRIGERATOR	1500 / 115		13.0	1	20	1			
		GENERAL LIGHTING	4521 / 115		39.3	6	20	1			
		SMALL APPLIANCES	3000 / 115		26.1	2	20	1			
		DISHWASHER	1500 / 115		13.0	1	20 **	1			
		DISPOSAL	830 / 115		7.2	1	20	1			
		WASHER	1500 / 115		13.0	1	20	1			
		DRYER	5000 / 240		20.8	1	30	2	30-3		
		WATER HEATER	4500 / 240		18.8	1	30	2	30-2		
		MICROWAVE/HOOD	1500 / 115		13.0	1	20	1			
* UNIT LOAD CENTERS SHALL BE RATED FOR 10,000 AIC											
** PROVIDE GFCI-TYPE BREAKER											

LOAD CENTERS:

A. UNIT LOAD CENTERS SHALL BE INSTALLED AT 57" TO TOP OF BOX.



Structural Engineer:

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David Allen
210.545.1122

Landscape Architect:

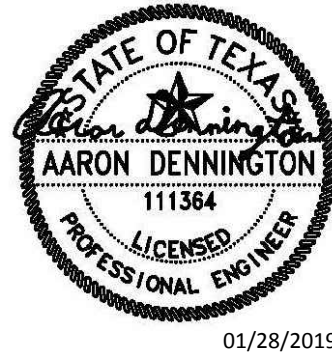
LEE & Associates, Inc.
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Amber Rothwell
512.345.8477

Interior Designer:

SJL Design Group
921 N. Riverfront Blvd. Suite 100, Dallas, TX 75207
Cassie Farley
214.443.9090

ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
UNIT CALCULATIONS

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E403



Structural Engineer:

VIEWTECH INC.
4205 Beltway Dr. Addison, TX 75001
Victor Lisiak III
972.661.8187

MEP Engineer:

ENCOTECH
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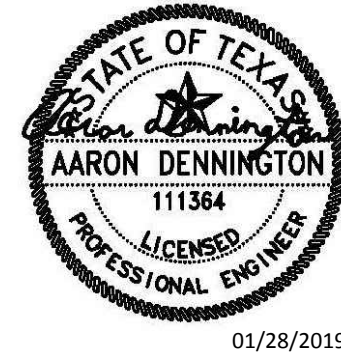
Interior Designer:

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ISSUANCES

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REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL CALCULATIONS
BUILDING 1c & 1d

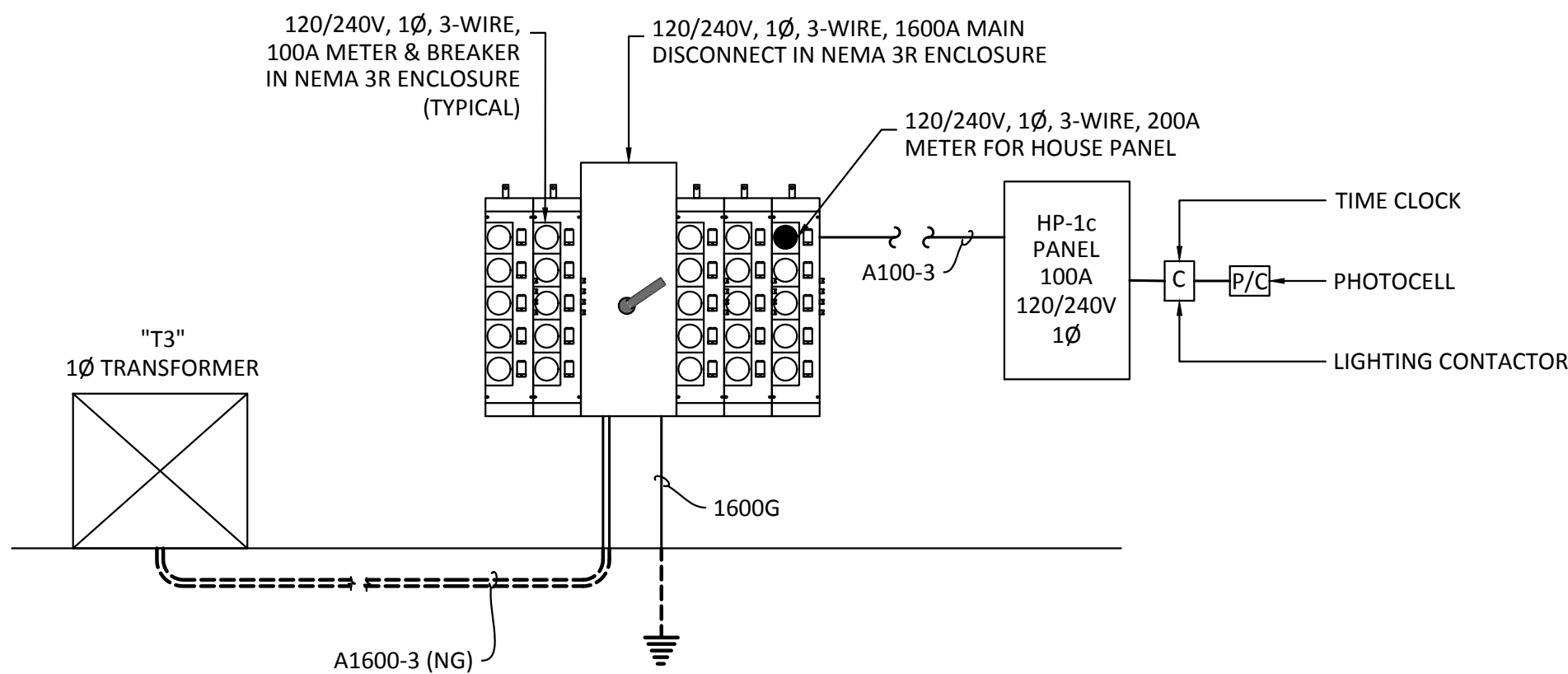
Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E405

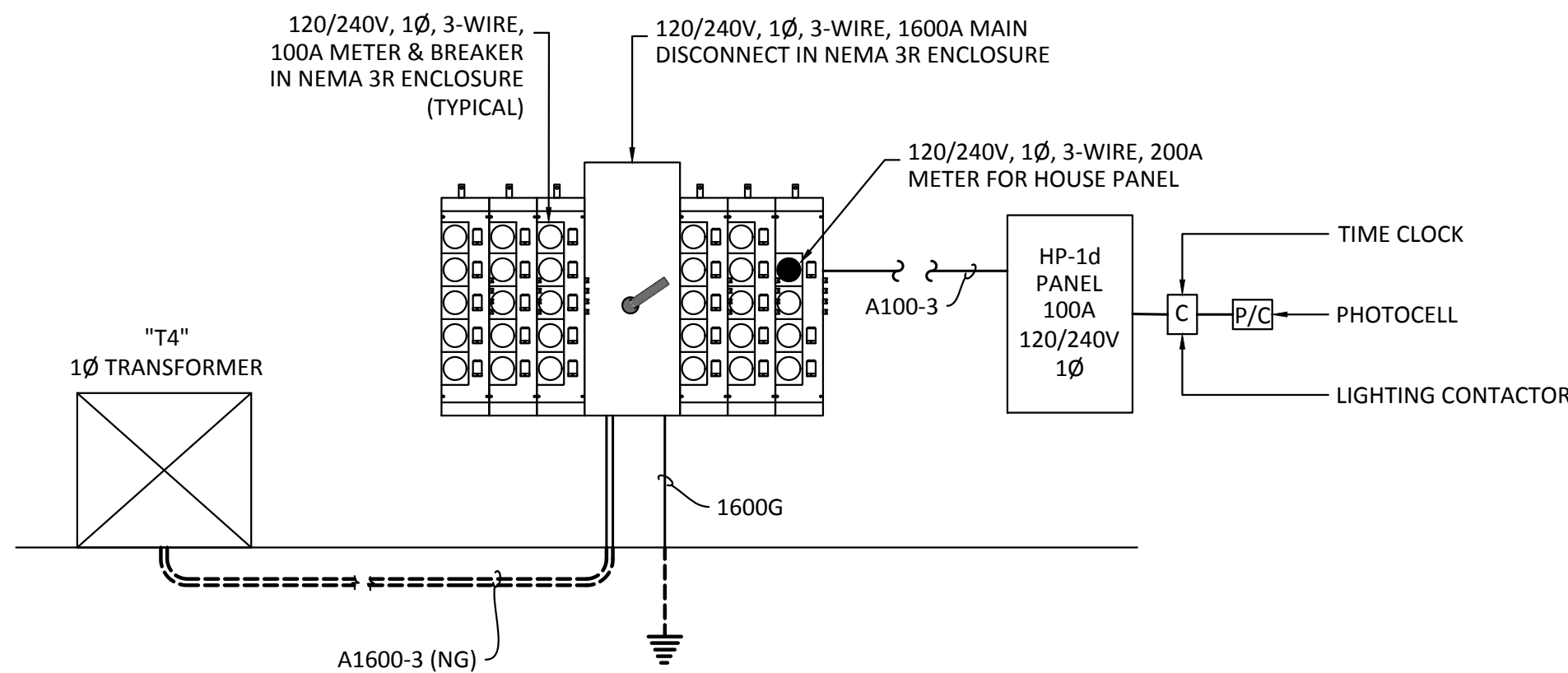
ELECTRICAL CALCULATION FOR BUILDINGS						
BUILDING TYPE 1c						
UNIT TABULATION						
UNIT TYPE	QUANTITY					
A1	4					
A4	4					
A6	4					
B3	4					
B5	4					
C1	4					
Total Unit Count	24					
Service Voltage/Phase	240 V., 1Ø					
MAIN POWER CALCULATION (PER NEC 220.84)						
	A1	A4	A6	B3	B5	C1
GENERAL LIGHTING	7500	10224	12696	13884	15780	18084
MICROHOOD	6000	6000	6000	6000	6000	6000
SM APPL., D/W, DISP., REF	27320	27320	27320	27320	27320	27320
RANGE	32000	32000	32000	32000	32000	32000
WASHER	6000	6000	6000	6000	6000	6000
DRYER	20000	20000	20000	20000	20000	20000
WATER HEATER	18000	18000	18000	18000	18000	18000
HEATING LOAD	13568	13568	13568	21696	21696	21876
TOTAL CONNECTED WATTAGE	130448	133112	135584	144900	146796	149280
DEMAND FACTOR	0.35	0.35	0.35	0.35	0.35	0.35
DEMAND WATTAGE	45657	46589	47454	50715	51379	52248
ADDITIONAL HOUSE WATTAGE	0	0	0	0	0	19519
TOTAL DEMAND WATTAGE	45657	46589	47454	50715	51379	71866
TOTAL DEMAND AMPS (PER UNIT TYPE)	190.2	194.1	197.7	211.3	214.1	299.4
TOTAL DEMAND AMPS (PER BUILDING TYPE)						1306.9
POWER CENTER (AMP)						1600
QUANTITY PER BUILDING						1

ELECTRICAL CALCULATION FOR BUILDINGS							
BUILDING TYPE 1d (METERBANK 1)							
UNIT TABULATION							
UNIT TYPE	QUANTITY						
A1	2						
A2	2						
A4	14						
A5	4						
A7	2						
B1	2						
B2	2						
Total Unit Count	28						
Service Voltage/Phase	240 V., 1Ø						
MAIN POWER CALCULATION							
	A1	A2	A4	A5	A7	B1	B2
GENERAL LIGHTING	3780	3978	35784	11856	6438	6942	6942
MICROHOOD	3000	3000	21000	6000	3000	3000	3000
SM APPL, D/W, DISP, REF	13660	13660	95620	27320	13660	13660	13660
RANGE	16000	16000	112000	32000	16000	16000	16000
WASHER	3000	3000	21000	6000	3000	3000	3000
DRYER	10000	10000	70000	20000	10000	10000	10000
WATER HEATER	9000	9000	63000	18000	9000	9000	9000
HEATING LOAD	6784	6784	47488	13568	6784	10848	10848
TOTAL CONNECTED WATTAGE	65224	65422	465892	134744	67882	72450	72450
DEMAND FACTOR	0.33	0.33	0.33	0.33	0.33	0.33	0.33
DEMAND WATTAGE	21524	21589	153744	44466	22401	23909	23909
ADDITIONAL HOUSE WATTAGE	0	0	0	0	0	0	15680
TOTAL DEMAND WATTAGE	21524	21589	153744	44466	22401	23909	39589
TOTAL DEMAND AMPS (PER UNIT TYPE)	89.7	90.0	640.6	185.3	93.3	99.6	165.0
TOTAL DEMAND AMPS (PER BUILDING TYPE)							1363.4
POWER CENTER (AMP)							1600
QUANTITY PER BUILDING							1

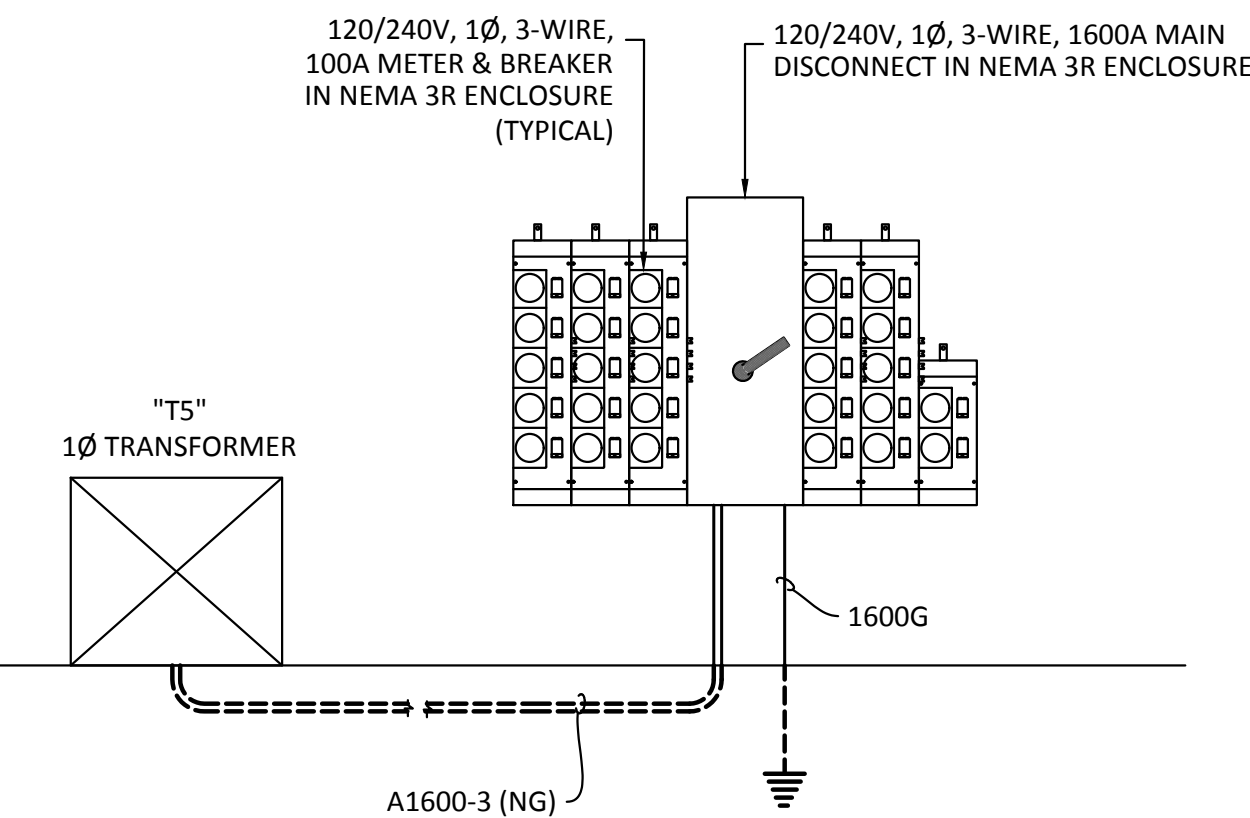
ELECTRICAL CALCULATION FOR BUILDINGS							
BUILDING TYPE 1d (METERBANK 2)							
UNIT TABULATION							
UNIT TYPE	QUANTITY						
A1	2						
A2	2						
A4	13						
A5	4						
A7	2						
B1	2						
B2	2						
Total Unit Count	27						
Service Voltage/Phase	240 V., 1ϕ						
MAIN POWER CALCULATION (PER NEC 220.84)							
	A1	A2	A4	A5	A7	B1	B2
GENERAL LIGHTING	3780	3978	33228	11856	6438	6942	6942
MICROHOOD	3000	3000	19500	6000	3000	3000	3000
SM APPL, D/W, DISP, REF	13660	13660	88790	27320	13660	13660	13660
RANGE	16000	16000	104000	32000	16000	16000	16000
WASHER	3000	3000	19500	6000	3000	3000	3000
DRYER	10000	10000	65000	20000	10000	10000	10000
WATER HEATER	9000	9000	58500	18000	9000	9000	9000
HEATING LOAD	6784	6784	44096	13568	6784	10848	10848
TOTAL CONNECTED WATTAGE	65224	65422	432614	134744	67882	72450	72450
DEMAND FACTOR	0.34	0.34	0.34	0.34	0.34	0.34	0.34
DEMAND WATTAGE	22176	22243	147089	45813	23080	24633	24633
ADDITIONAL HOUSE WATTAGE	0	0	0	0	0	0	15000
TOTAL DEMAND WATTAGE	22176	22243	147089	45813	23080	24633	39633
TOTAL DEMAND AMPS (PER UNIT TYPE)	92.4	92.7	612.9	190.9	96.2	102.6	165.1
TOTAL DEMAND AMPS (PER BUILDING TYPE)							1352.8
POWER CENTER (AMP)							1600
QUANTITY PER BUILDING							1



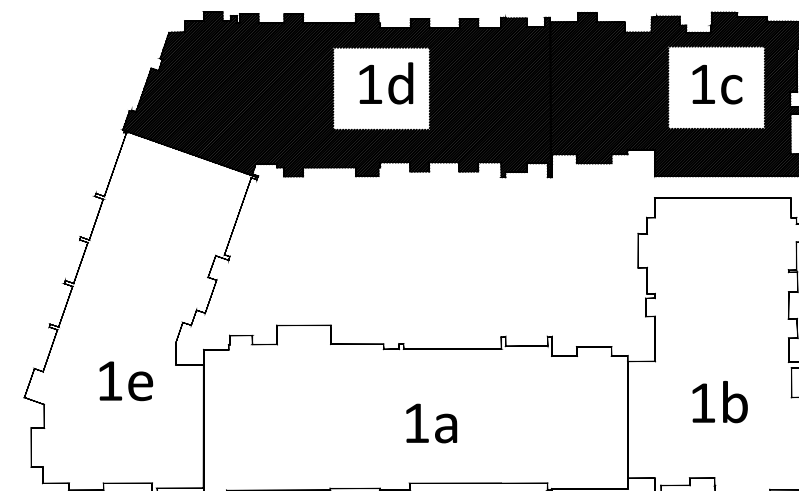
1 BUILDING TYPE 1c (24+1)
N.T.S.



2 BUILDING TYPE 1d (METERBANK 1) (28+1)
N.T.S.



3 BUILDING TYPE 1d (METERBANK 2) (27)
N.T.S.



KEY PLAN
N.T.S.

SPECIAL NOTE

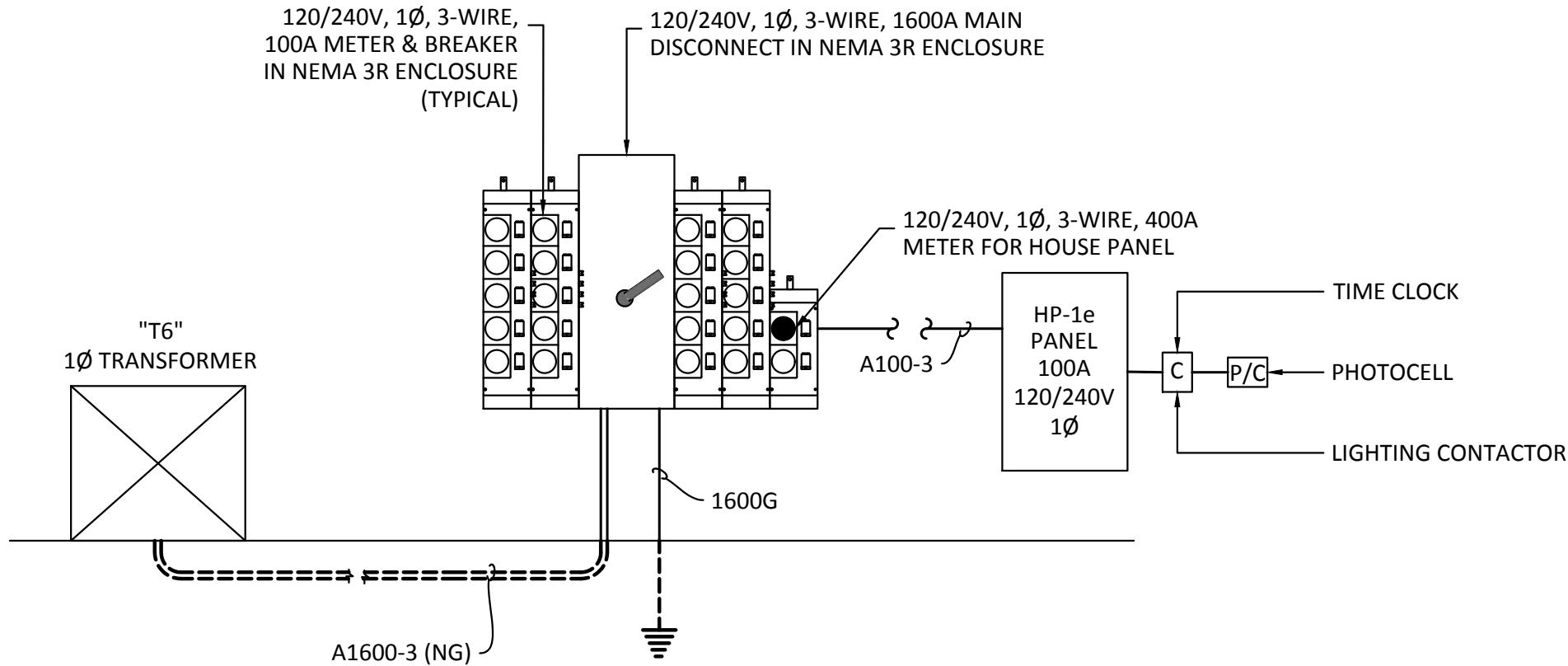
A. REFER TO SHEET E411 FOR GROUNDING ELECTRODE CONDUCTOR WIRE SIZE TABLE AND FEEDER WIRE SIZING TABLES.

SPECIAL NOTE

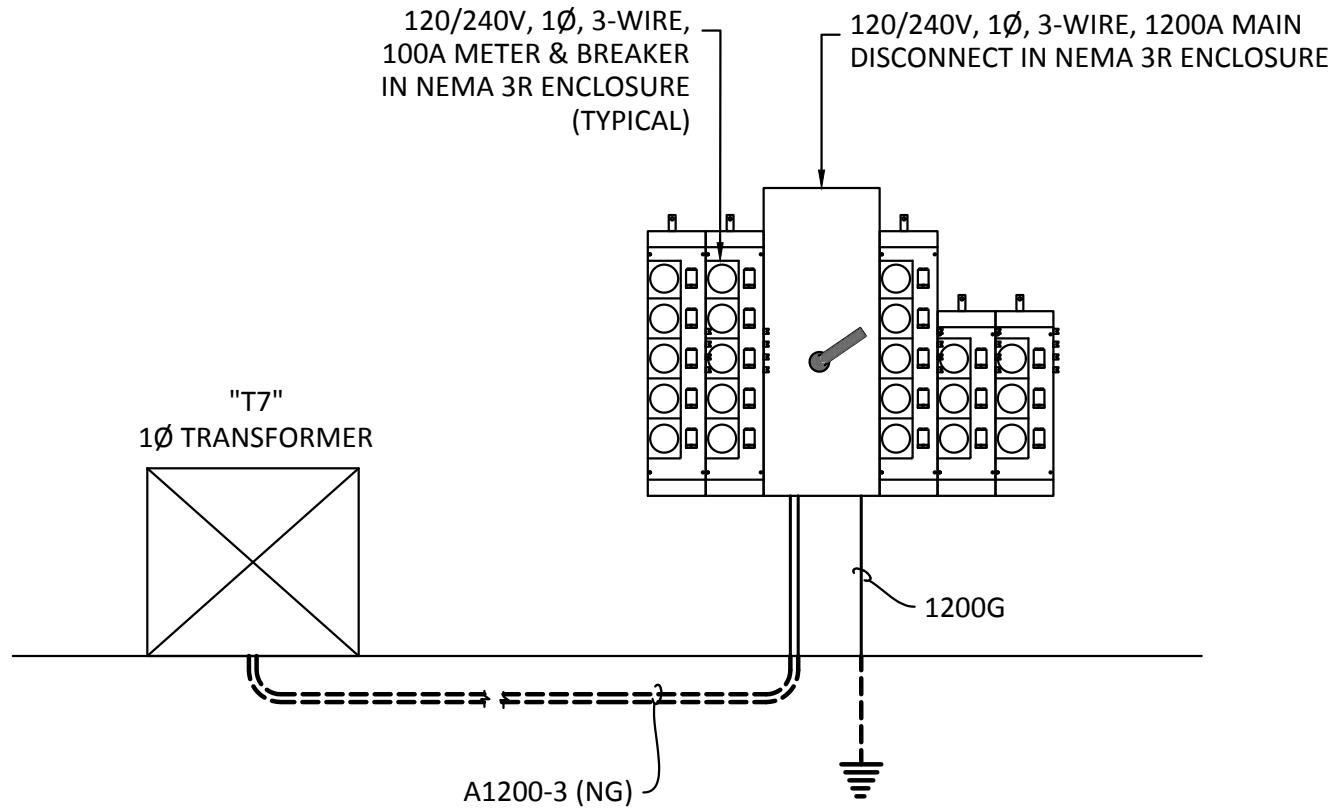
A. PROVIDE A PLACARD AT EACH DISCONNECT STATING THERE ARE MULTIPLE DISCONNECTS FOR EACH FIREWALL SECTION.

ELECTRICAL CALCULATION FOR BUILDINGS						
BUILDING TYPE 1e (METERBANK 1)						
UNIT TABULATION						
UNIT TYPE	QUANTITY					
A1	4					
A2	9					
A5	2					
B2	2					
B3	2					
B6	2					
Total Unit Count	21					
Service Voltage/Phase		240 V., 1Φ				
MAIN POWER CALCULATION (PER NEC 220.84)						
	A1	A2	A5	B2	B3	B6
GENERAL LIGHTING	7560	23004	5928	6942	7620	7908
MICROHOOD	6000	13500	3000	3000	3000	3000
SM APPL., D/W, DISP., REF	27320	61470	13660	13660	13660	13660
RANGE	32000	72000	16000	16000	16000	16000
WASHER	6000	13500	3000	3000	3000	3000
DRYER	20000	45000	10000	10000	10000	10000
WATER HEATER	18000	40500	9000	9000	9000	9000
HEATING LOAD	13568	30528	6784	10848	10848	10938
TOTAL CONNECTED WATTAGE	130448	299502	67372	72450	73128	73506
DEMAND FACTOR	0.37	0.37	0.37	0.37	0.37	0.37
DEMAND WATTAGE	48266	110816	24928	26807	27057	27197
ADDITIONAL HOUSE WATTAGE	0	0	0	0	0	33732
TOTAL DEMAND WATTAGE	48266	110816	24928	26807	27057	60929
TOTAL DEMAND AMPS (PER UNIT TYPE)	201.1	461.7	103.9	111.7	112.7	253.9
TOTAL DEMAND AMPS (PER BUILDING TYPE)						1245.0
POWER CENTER (AMP)						1600
QUANTITY PER BUILDING						1

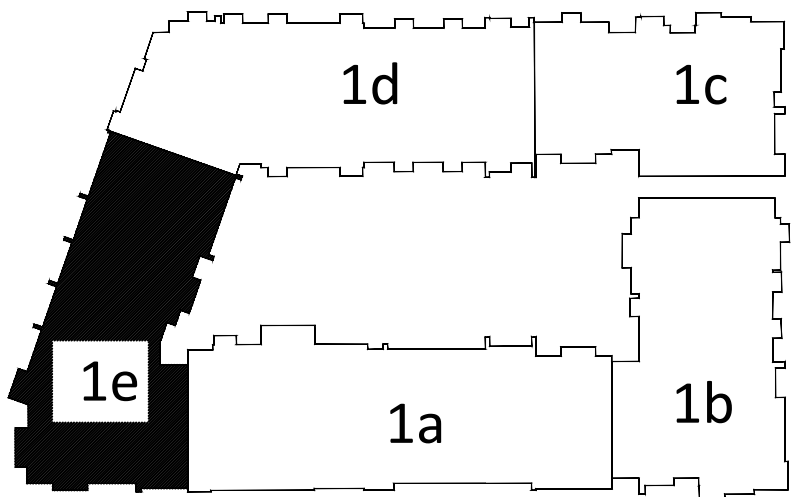
ELECTRICAL CALCULATION FOR BUILDINGS						
BUILDING TYPE 1e (METERBANK 2)						
UNIT TABULATION						
UNIT TYPE	QUANTITY					
A1	4					
A2	9					
A5	2					
B2	2					
B3	2					
B6	2					
Total Unit Count	21					
Service Voltage/Phase		240 V, 1Ø				
MAIN POWER CALCULATION (PER NEC 220.84)						
	A1	A2	A5	B2	B3	B6
GENERAL LIGHTING	7560	23004	5928	6942	7620	7908
MICROHOOD	6000	13500	3000	3000	3000	3000
SM APPL. D/W, DISP, REF	27320	61470	13660	13660	13660	13660
RANGE	32000	72000	16000	16000	16000	16000
WASHER	6000	13500	3000	3000	3000	3000
DRYER	20000	45000	10000	10000	10000	10000
WATER HEATER	18000	40500	9000	9000	9000	9000
HEATING LOAD	13568	30528	6784	10848	10848	10938
TOTAL CONNECTED WATTAGE	130448	299502	67372	72450	73128	73506
DEMAND FACTOR	0.37	0.37	0.37	0.37	0.37	0.37
DEMAND WATTAGE	48266	110816	24928	26807	27057	27197
ADDITIONAL HOUSE WATTAGE	0	0	0	0	0	6000
TOTAL DEMAND WATTAGE	48266	110816	24928	26807	27057	33197
TOTAL DEMAND AMPS (PER UNIT TYPE)	201.1	461.7	103.9	111.7	112.7	138.3
TOTAL DEMAND AMPS (PER BUILDING TYPE)						1129.5
POWER CENTER (AMP)						1200
QUANTITY PER BUILDING						1



1 BUILDING TYPE 1e (METERBANK 1) (21+1)
N.T.S.



2 BUILDING TYPE 1e (METER BANK 2) (21)
N.T.S.



KEY PLAN
N.T.S.

SPECIAL NOTE
A. REFER TO SHEET E411 FOR GROUNDING ELECTRODE CONDUCTOR WIRE SIZE TABLE AND FEEDER WIRE SIZING TABLES.

SPECIAL NOTE
A. PROVIDE A PLACARD AT EACH DISCONNECT STATING THERE ARE MULTIPLE DISCONNECTS FOR EACH FIREWALL SECTION.

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REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL CALCULATIONS
BUILDING 1e

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E406

LOAD CENTER SCHEDULE					HP-1a		LOCATION: BUILDING 1, SECTION 3 C.B. RATING: 225 A.I.C.				
WIRE SIZE	TYP E	VOLTAGE	PHASE	WIRE	MOUNTING		SIZE	LOG	TYPE	TYP E	WIRE SIZE
		240/120V	1	3	SURFACE		200	MLO	NEMA 1		
		USE and/or AREA SERVED		CIR	100%	CIR	2/3 POLE	USE and/or AREA SERVED			
	⑤	CORRIDOR LIGHTING LVL 1	20/1	3	60	60	2	20/1	CORRIDOR RECEPT. LVL 1		
	⑤	CORRIDOR LIGHTING LVL 2	20/1	3	540		3	20/1	CORRIDOR RECEPT. LVL 2		
	⑤	CORRIDOR LIGHTING LVL 3	20/1	5	330		4	20/1	CORRIDOR RECEPT. LVL 3		
	⑤	CORRIDOR LIGHTING LVL 4	20/1	7	720		6	20/1	CORRIDOR RECEPT. LVL 4		
		BUILDING EXTERIOR LIGHTING	20/1	9	550		8	20/1	SITE LIGHTING		
		TELECOM QUAD OUTLETS	20/1	11	848		10	20/1	SITE LIGHTING		
		TELECOM QUAD OUTLETS	20/1	13	720		12	20/1	STAIRWELL LIGHTING	⑤	
		TELECOM QUAD OUTLETS	20/1	15	1008		14	20/1	EMERGENCY & EXIT LIGHTS		
		ENTRY GATE	20/1	17	1050		18	20/1	RECEPTACLE ROOF		
		ENTRY GATE	20/1	19	860		20	20/1	POOL LIGHTS		
		POOL COURTYARD LIGHTING	20/1	21	1000		22	20/1	FACP		
		FOUNTAIN PUMP	20/2	23	1000		24	20/1	TIME CLOCK		
			20/2	25	900		26	20/1	SPARE		
			20/2	27	1000		28	20/1	SPARE		
		POOL PUMP (1.5 HP)	20/2	29	1380		30	20/1	SPARE		
			20/2	31	1000		32	20/1	SPARE		
		POOL PUMP (1.5 HP)	20/2	33	1380		34	20/1	SPARE		
			20/2	35	1000		36	20/1	SPARE		
		DUAL CAR CHARGER	40/2	37	3840		38				
			20/1	39			40				
		SPARE	20/1	39			40				
TOTAL LOAD PER PHASE					18197	18914	18914 VA / 120 V = 158 A				
① GFCI ② AFCI ③ AFCI/GFCI ④ SHUNT TRIP ⑤ SMD ⑥ HACR ⑦ LOCKABLE											
OPTIONS: NONE - REFER TO SPECIFICATIONS											

FEEDER OCPD AND CONDUCTOR CALCULATION						
LOAD DESCRIPTION (LOAD CENTER)	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	AMPACITY FACTOR	FEEDER AMPACITY	NOTES
INTERIOR LIGHTING	3.34	1.00	3.34	1.25	4.18	
EXTERIOR LIGHTING	4.83	1.00	4.83	1.25	6.04	
RECEPTACLES	5.14	*	5.14	1.50	5.14	*FIRST 30 KVA AT 100%, REST AT 50%
HVAC	0.00	1.00	0.00	1.00	0.00	
EQUIPMENT	17.80	1.00	17.80	1.00	17.80	
KITCHEN EQUIPMENT	0.00	1.00	0.00	1.00	0.00	
LARGEST MOTOR	0.00	1.00	0.00	0.25	0.59	
SPARE	6.00	1.00	6.00	1.00	6.00	
TOTAL KVA	37.11	-	37.11	-	39.75	
TOTAL AMPS	155 A	-	155 A	-	166 A	

LOAD CENTER SCHEDULE							HP-1b		LOCATION: BUILDING 1, SECTION D C.B. RATING: 22 KVA, C.					
WIRE SIZE	T Y P E	VOLTAGE		PHASE	WIRE	MOUNTING SURFACE		SIZE		LUG MLO	TYPE MEMA 3R	T Y P E	WIRE SIZE	
		240/120V				C/B POLE	CIR	400	CIR					C/B POLE
		USE and/or AREA SERVED												
	⑤	CORRIDOR LIGHTING LVL 1		20/1	1	60	590	2	20/1					
	⑤	CORRIDOR LIGHTING LVL 2		20/1	1	636	540	4	20/1					
	⑤	CORRIDOR LIGHTING LVL 3		20/1	1	636	540	4	20/1					
	⑤	CORRIDOR LIGHTING LVL 4		20/1	1	636	540	8	20/1					
		BUILDING EXTERIOR LIGHTING		20/1	9	500	798	10	20/1					
		TELECOM QUAD OUTLETS		20/1	13	720	500	12	20/1					
		TELECOM QUAD OUTLETS		20/1	13	720	1008	14	20/1			⑤		
		TELECOM QUAD OUTLETS		20/1	13	1000	1000	16	20/1					
		TIME CLOCK		20/1	17	1000	600	18	20/1					
		ELEVATOR SMOKE CURTAIN		20/1	19	800	600	20	20/2					
A200-2	④	ELEVATOR (30 HP)		200/2	23	16620	600	22						
		LIGHT/RECEPTACLE TOP OF SHAFT		20/1	25	266	1000	26	20/2					
		POOL RESTROOM EXHAUST FAN		20/1	27	800	1000	28	20/1					
		POOL RESTROOM BASEBOARD HTR		20/1	29	600	1000	30	20/1					
		POOL RESTROOM BASEBOARD HTR		20/1	31	600	1000	32	20/1					
		POOL RESTROOM LIGHT/RECEPT		20/1	33	500	1000	34	20/1					
		SPARE		20/1	35	1000	1000	36	20/1					
					37			38						
					39			40						
TOTAL LOAD PER PHASE						28862	29572	29572 VA / 120 V = 246 A						
① GFCI ② AFCI ③ AFCI/GFCI ④ SHUNT TRIP ⑤ SWD ⑥ HACR ⑦ LOCKABLE										OPTIONS: NONE - REFER TO SPECIFICATIONS				
FEEDER OCPD AND CONDUCTOR CALCULATION														
LOAD DESCRIPTION (LOAD IN VA)		CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	AMPACITY FACTOR	FEEDER AMPACITY	NOTES							
INTERIOR LIGHTING		4.55	1.00	4.55	1.25	5.69								
EXTERIOR LIGHTING		1.77	1.00	1.77	1.25	2.21								
RECEPTACLES		6.24	*	6.24	1.00	6.24								
HVAC		2.03	1.00	2.03	1.00	2.03								
EQUIPMENT		37.84	1.00	37.84	1.00	37.84								
KITCHEN EQUIPMENT		0.00	1.00	0.00	1.00	0.00								
LARGEST MOTOR					0.25	7.92								
SPARE		6.00	1.00	6.00	1.00	6.00								
TOTAL KVA		58.43	-	58.43	-	67.93								
TOTAL AMPS		243 A	-	243 A	-	283 A								

[illegible]

LOAD CENTER SCHEDULE							HP-1d		LOCATION: BUILDING 1, SECTION 4 C.B. RATING: 22E & I.C.			
WIRE SIZE	T Y P E	VOLTAGE	PHASE	WIRE			MOUNTING SURFACE		SIZE	LUG	TYPE	WIRE SIZE
				C/B NO.	CIR	KCMIL	CIR	C/B NO.				
	⑤	CORRIDOR LIGHTING LVL 1	20/1	2	66	2	20/1	2	20/1	CORRIDOR RECEPT. LV 1		
	⑤	CORRIDOR LIGHTING LVL 2	20/1	3	540	3	20/1	3	20/1	CORRIDOR RECEPT. LV 2		
	⑤	CORRIDOR LIGHTING LVL 3	20/1	5	636	5	20/1	5	20/1	CORRIDOR RECEPT. LV 3		
	⑤	CORRIDOR LIGHTING LVL 4	20/1	7	540	7	20/1	7	20/1	CORRIDOR RECEPT. LV 4		
		BUILDING EXTERIOR LIGHTING	20/1	9	590	9	20/1	9	20/1	CORRIDOR RECEPT. LV 4		
		GARAGE DOOR OPENER	20/1	11	552	11	20/1	11	20/1	CORRIDOR RECEPT. LV 4		
		GARAGE DOOR OPENER	20/1	13	1098	13	20/1	13	20/1	CORRIDOR RECEPT. LV 4		
		TELECOM - 1ST FLOOR	20/1	15	720	15	20/1	15	20/1	CORRIDOR RECEPT. LV 4		
		TELECOM - 1ST FLOOR	20/1	17	720	17	20/1	17	20/1	CORRIDOR RECEPT. LV 4		
		TELECOM - 1ST FLOOR	20/1	19	720	19	20/1	19	20/1	CORRIDOR RECEPT. LV 4		
		TELECOM - 2ND FLOOR	20/1	21	720	21	20/1	21	20/1	CORRIDOR RECEPT. LV 4		
		TELECOM - 2ND FLOOR	20/1	23	720	23	20/1	23	20/1	CORRIDOR RECEPT. LV 4		
		TELECOM - 2ND FLOOR	20/1	25	720	25	20/1	25	20/1	CORRIDOR RECEPT. LV 4		
		TELECOM - 2ND FLOOR	20/1	27	720	27	20/1	27	20/1	CORRIDOR RECEPT. LV 4		
	⑤	STAIRWELL LIGHTING	20/1	29	848	29	20/1	29	20/1	CORRIDOR RECEPT. LV 4		
		GARAGE RECEPT./LIGHT	20/1	31	1090	31	20/1	31	20/1	CORRIDOR RECEPT. LV 4		
		TIME CLOCK	20/1	33	1090	33	20/1	33	20/1	CORRIDOR RECEPT. LV 4		
		SPARE	20/1	35	1090	35	20/1	35	20/1	CORRIDOR RECEPT. LV 4		
		EMERGENCY & EXIT LIGHTING	20/1	37	1090	37	20/1	37	20/1	CORRIDOR RECEPT. LV 4		
		SPARE	20/1	39	1090	39	20/1	39	20/1	CORRIDOR RECEPT. LV 4		
		SPARE	20/1	41	1090	41	20/1	41	20/1	CORRIDOR RECEPT. LV 4		
TOTAL LOAD PER PHASE					15330		15680	15680 VA / 120 V = 131 A				
① GFCI ② AFCI ③ AFCI/GFCI ④ SHUNT TRIP ⑤ SWD ⑥ HACR ⑦ LOCKABLE								OPTIONS: NONE - REFER TO SPECIFICATIONS				
FEEDER OCPD AND CONDUCTOR CALCULATION												
LOAD DESCRIPTION (LOAD IN VA)		CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	AMPACITY FACTOR	FEEDER AMPACITY	NOTES					
INTERIOR LIGHTING		4.26	1.00	4.26	1.25	5.33						
EXTERIOR LIGHTING		2.05	1.00	2.05	1.25	2.57						
RECEPTABLES		12.01	*	11.00	1.00	11.00	*FIRST 10 KVA AT 100%, REST AT 50%					
HVAC		1.67	1.00	1.67	1.00	1.67						
EQUIPMENT		3.02	1.00	3.02	1.00	3.02						
KITCHEN EQUIPMENT		0.00	1.00	0.00	1.00	0.00						
LARGEST MOTOR		-	-	-	0.25	0.00						
SPARE		8.00	1.00	8.00	1.00	8.00						
TOTAL KVA		31.01	-	30.01	-	31.59						
TOTAL AMPS		129 A	-	125 A	-	132 A						

LOAD CENTER SCHEDULE					HP-1e-1		LOCATION: UNKNOWN C.B. RATING: 22 kA I.C.			
WIRE SIZE	T Y P E	VOLTAGE 240/120V	PHASE 1	WIRE 3	MOUNTING SURFACE	SIZE 400	LUG MLO	TYPE NEMA 1	T Y P E	WIRE SIZE
		USE AND/OR AREA SERVED	C/B POLE	CIR	LOAD	C/B POLE		USE AND/OR AREA SERVED		
		⑤ CORRIDOR LIGHTING LVL 1	20/1	1	651 540	2	20/1	CORRIDOR RECEPT. LVL 1		
	⑤	CORRIDOR LIGHTING LVL 2	20/1	3	651 540	4	20/1	CORRIDOR RECEPT. LVL 2		
	⑤	CORRIDOR LIGHTING LVL 3	20/1	5	651 540	6	20/1	CORRIDOR RECEPT. LVL 3		
	⑤	CORRIDOR LIGHTING LVL 4	20/1	7	651 540	8	20/1	CORRIDOR RECEPT. LVL 4		
		BUILDING EXTERIOR LIGHTING	20/1	9	1088	10	20/1	SITE LIGHTING		
		GARAGE DOOR OPENER	20/1	11	1008	12	20/1	SITE LIGHTING		
		GARAGE DOOR OPENER	20/1	13	1008	14	20/1	GARAGE DOOR OPENER		
		GARAGE DOOR OPENER	20/1	15	1008	16	20/1	GARAGE DOOR OPENER		
		GARAGE DOOR OPENER	20/1	17	1008	18	20/1	GARAGE DOOR OPENER		
		GARAGE DOOR OPENER	20/1	19	1008	20	20/1	GARAGE DOOR OPENER		
		GARAGE DOOR OPENER	20/1	21	1008 750	22	20/1	BUILDING SIGNAGE		
		GARAGE DOOR OPENER	20/1	23	1008	24	20/1	RECEPTACLE ROOF		
		GARAGE DOOR OPENER	20/1	25	1008 1696	26	20/1	GARAGE RECEPT/LIGHT		
		TELECOM QUAD OUTLETS	20/1	27	720 1696	28	20/1	GARAGE RECEPT/LIGHT		
		TELECOM QUAD OUTLETS	20/1	29	720 1696	30	20/1	GARAGE RECEPT/LIGHT		
		TELECOM QUAD OUTLETS	20/1	31	720 3840	32	40/2	DUAL CAR CHARGER		
	⑤	STAIRWELL LIGHTING	20/1	33	1000 3840	34				
		EMERGENCY & EXIT LIGHTS	20/1	35	1000 3840	36	40/2	DUAL CAR CHARGER		
		ROOF RECEPTACLES	20/1	37	360 3840	38				
		TIME CLOCK	20/1	39	1000 1000	40	20/1	SPARE		
SEE SECTION 2 FOR LOAD ANALYSIS										
① GFCI ② AFCI ③ AFCI/GFCI ④ SHUNT TRIP ⑤ SWD ⑥ HACR ⑦ LOCKABLE OPTIONS: NONE - REFER TO SPECIFICATIONS										

LOAD CENTER SCHEDULE					HP-1e-2		LOCATION: UNKNOWN C.B. RATING: 22 K.A.I.C.			
WIRE SIZE	TYP E	VOLTAGE	PHASE	WIRE	MOUNTING	SIZE	LUG	TYPE	TYP E	WIRE SIZE
		240/120V	1	3	SURFACE	400	MLO	NEMA 1		
		USE and/or AREA SERVED	C/B POLE	CIR	LOAD	CIR	C/B POLE	USE and/or AREA SERVED		
		TELECOM - 1ST FLOOR	20/1	43	720	42	20/1	TELECOM - 3RD FLOOR		
		TELECOM - 1ST FLOOR	20/1	43	720	44	20/1	TELECOM - 3RD FLOOR		
		TELECOM - 1ST FLOOR	20/1	45	720	46	20/1	TELECOM - 3RD FLOOR		
		TELECOM - 2ND FLOOR	20/1	47	720	48	20/1	TELECOM - 4TH FLOOR		
		TELECOM - 2ND FLOOR	20/1	49	720	50	20/1	TELECOM - 4TH FLOOR		
		TELECOM - 2ND FLOOR	20/1	51	720	52	20/1	TELECOM - 4TH FLOOR		
		SPARE	20/1	53	1000	54	20/1	SPARE		
		SPARE	20/1	55	1000	56	20/1	SPARE		
		SPARE	20/1	57	1000	58	20/1	SPARE		
		SPARE	20/1	59	1000	60	20/1	SPARE		
		SPARE	20/1	61	1000	62	20/1	SPARE		
		-	-	63	-	64	-	-		
		-	-	65	-	66	-	-		
		-	-	67	-	68	-	-		
		-	-	69	-	70	-	-		
		-	-	71	-	72	-	-		
		-	-	73	-	74	-	-		
		-	-	75	-	76	-	-		
		-	-	77	-	78	-	-		
		-	-	79	-	80	-	-		
TOTAL LOAD PER PHASE					33732	31286	33732 VA / 120 V = 281 A			
① GFCI ② AFCI ③ AFCI/GFCI ④ SHUNT TRIP ⑤ SWD ⑥ HACR ⑦ LOCKABLE							OPTIONS: NONE - REFER TO SPECIFICATIONS			
FEEDER OCPD AND CONDUCTOR CALCULATION										
LOAD DESCRIPTION (LOAD IN KVA)		CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	AMPACTY FACTOR	FEEDER AMPACTY	NOTES			
INTERIOR LIGHTING		4.60	1.00	4.60	1.25	5.76	*FIRST 10 KVA AT 100%, REST AT 50%			
EXTERIOR LIGHTING		1.08	1.00	1.08	1.25	1.35				
RECEPTABLES		19.13	*	14.56	1.00	14.56				
HVAC		0.00	1.00	0.00	1.00	0.00				
EQUIPMENT		29.21	1.00	29.21	1.00	29.21				
KITCHEN EQUIPMENT		0.00	1.00	0.00	1.00	0.00				
LARGEST MOTOR		NONE	-	-	0.25	0.00				
SPARE		11.00	1.00	11.00	1.00	11.00				
TOTAL KVA		65.02	-	60.45	-	61.88				
TOTAL AMPS		271 A	-	252 A	-	258 A				



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MEP Engineer:

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Tessa Roberts
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Civil Engineer:

MBC & Associates, Inc
 1035 Central Pkwy N, San Antonio, TX 78732
 David Allen
 210.545.1122

Landscape Architect:

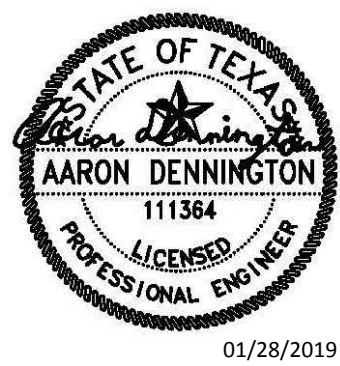
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ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS	
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01/28/2019

a multifamily project for
NRP Group

West Cevallos

San Antonio, Texas

ELECTRICAL HOUSE PANELS

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E408



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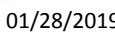
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01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



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 Project No.: 18054.MS.AUS

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ISSUANCES

01	SCHEMATIC DESIGN	09.10.18
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03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

**ELECTRICAL
COMMUNITY CENTER &
MAINTENANCE PANELS**

Project Number 18054
Date 01/14/2018
Drawn By TLR
Checked By EEC

E410

LOAD CENTER SCHEDULE										MP		LOCATION: C.B. RATING: 22 K.A.I.C.		MAINTENANCE		LUG		TYPE		WIRE SIZE	
WIRE SIZE	TYP E	VOLTAGE		PHASE	WIRE	MOUNTING		SIZE	LUG	TYPE	WIRE SIZE	TYP E	WIRE SIZE	TYP E	WIRE SIZE	LUG	TYPE	WIRE SIZE	TYP E	WIRE SIZE	
		240/120V				SURFACE															200
		USE and/or AREA SERVED		C/B POLE		LOAD		CIR		USE and/or AREA SERVED		C/B POLE		LOAD		CIR		USE and/or AREA SERVED		C/B POLE	
		LIGHTING		20/1		1		125		20/2		2		1500		4		WATER HEATER		20-2	
		RECEPTACLES		20/1		3		1500		25/2		6		2400		8		AIR HANDLER/CONDENSING UNIT		30-2	
		SERVICE RECEPTACLES		20/1		5		180		20/1		9		360		10		EF-3 RESTROOM			
		GARAGE DOOR OPENER		20/1		7		2400		20/1		11		360		12		EF-5 MAINTENANCE ROOM			
		RECEPTACLES		20/1		9		360		20/1		13		360		14		GARAGE DOOR RECEPTACLE			
		RECEPTACLES		20/1		11		360		20/1		15		360		16		SITE LIGHTING			
		SITE LIGHTING		20/1		13		360		20/1		17		1000		18		RECEPTACLES			
		SPARE		20/1		15		360		20/1		19		720		20		GOLF CART CHARGER			
		SPARE		20/1		17		1000		20/2		21		720		22		SPARE			
		RECEPTACLES		20/1		19		720		20/1		23		1000		24		SPARE			
		RECEPTACLES		20/1		21		720		20/1		25		1000		26		SPARE			
		RECEPTACLES		20/1		23		1000		20/1		27		1000		28		SPARE			
		RECEPTACLES		20/1		25		1000		20/1		29		1000		30		SPARE			
		SPARE		20/1		27		1000		20/1		31		1000		32		SPARE			
		SPARE		20/1		29		1000		20/1		33		1000		34		SPARE			
		SPARE		20/1		31		1000		20/1		35		1000		36		SPARE			
		SPARE		20/1		33		1000		20/1		37		1000		38		SPARE			
		SPARE		20/1		35		1000		20/1		39		1000		40		SPARE			
		SPARE		20/1		37		1000		20/1		41		1000		42		SPARE			
		SPARE		20/1		39		1000		20/1		43		1000		44		SPARE			
		SPARE		20/1		41		1000		20/1		45		1000		46		SPARE			
		SPARE		20/1		43		1000		20/1		47		1000		48		SPARE			
		SPARE		20/1		45		1000		20/1		49		1000		50		SPARE			
		SPARE		20/1		47		1000		20/1		51		1000		52		SPARE			
		SPARE		20/1		49		1000		20/1		53		1000		54		SPARE			
		SPARE		20/1		51		1000		20/1		55		1000		56		SPARE			
		SPARE		20/1		53		1000		20/1		57		1000		58		SPARE			
		SPARE		20/1		55		1000		20/1		59		1000		60		SPARE			
		SPARE		20/1		57		1000		20/1		61		1000		62		SPARE			
		SPARE		20/1		59		1000		20/1		63		1000		64		SPARE			
		SPARE		20/1		61		1000		20/1		65		1000		66		SPARE			
		SPARE		20/1		63		1000		20/1		67		1000		68		SPARE			
		SPARE		20/1		65		1000		20/1		69		1000		70		SPARE			
		SPARE		20/1		67		1000		20/1		71		1000		72		SPARE			
		SPARE		20/1		69		1000		20/1		73		1000		74		SPARE			
		SPARE		20/1		71		1000		20/1		75		1000		76		SPARE			
		SPARE		20/1		73		1000		20/1		77		1000		78		SPARE			
		SPARE		20/1		75		1000		20/1		79		1000		80		SPARE			
		SPARE		20/1		77		1000		20/1		81		1000		82		SPARE			
		SPARE		20/1		79		1000		20/1		83		1000		84		SPARE			
		SPARE		20/1		81		1000		20/1		85		1000		86		SPARE			
		SPARE		20/1		83		1000		20/1		87		1000		88		SPARE			
		SPARE		20/1		85		1000		20/1		89		1000		90		SPARE			
		SPARE		20/1		87		1000		20/1		91		1000		92		SPARE			
		SPARE		20/1		89		1000		20/1		93		1000		94		SPARE			
		SPARE		20/1		91		1000		20/1		95		1000		96		SPARE			
		SPARE		20/1		93		1000		20/1		97		1000		98		SPARE			
		SPARE		20/1		95		1000		20/1		99		1000		100		SPARE			
		SPARE		20/1		97		1000		20/1		101		1000		102		SPARE			
		SPARE		20/1		99		1000		20/1		103		1000		104		SPARE			
		SPARE		20/1		101		1000		20/1		105		1000		106		SPARE			
		SPARE		20/1		103		1000		20/1		107		1000		108		SPARE			
		SPARE		20/1		105		1000		20/1		109		1000		110		SPARE			
		SPARE		20/1		107		1000		20/1		111		1000		112		SPARE			
		SPARE		20/1		109		1000		20/1		113		1000		114		SPARE			
		SPARE		20/1		111		1000		20/1		115		1000		116		SPARE			
		SPARE		20/1		113		1000		20/1		117		1000		118		SPARE			
		SPARE		20/1		115		1000		20/1		119		1000		120		SPARE			
		SPARE		20/1		117		1000		20/1		121		1000		122		SPARE			
		SPARE		20/1		119		1000		20/1		123		1000		124		SPARE			
		SPARE		20/1		121		1000		20/1		125		1000		126		SPARE			
		SPARE		20/1		123		1000		20/1		127		1000		128		SPARE			
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		SPARE		20/1		127		1000		20/1		131		1000		132		SPARE			
		SPARE		20/1		129		1000		20/1		133		1000		134		SPARE			
		SPARE		20/1		131		1000		20/1		135		1000		136		SPARE			
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		SPARE		20/1		135		1000		20/1		139		1000		140		SPARE			
		SPARE		20/1		137		1000		20/1		141		1000		142		SPARE			
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		SPARE		20/1		141		1000		20/1		145		1000		146		SPARE			
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		SPARE		20/1		149		1000		20/1		153		1000		154		SPARE			
		SPARE		20/1		151		1000		20/1		155		1000		156		SPARE			
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		SPARE		20/1		157		1000		20/1		161		1000		162		SPARE			
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		SPARE		20/1		161		1000		20/1		165		1000		166		SPARE			
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		SPARE		20/1		171		1000		20/1		175		1000		176		SPARE			
		SPARE		20/1		173		1000		20/1		177		1000		178		SPARE			
		SPARE		20/1		175		1000		20/1		179		1000		180		SPARE			
		SPARE		20/1		177		1000		20/1		181		1000		182		SPARE			
		SPARE		20/1		179		1000		20/1		183		1000		184		SPARE			
		SPARE		20/1		181		1000		20/1		185		1000		186		SPARE			
		SPARE		20/1		183		1000		20/1		187		1000		188		SPARE			
		SPARE		20/1		185		1000		20/1		189		1000		190		SPARE			
		SPARE		20/1		187		1000		20/1		191		1000		192		SPARE			
		SPARE		20/1		189		1000		20/1		193		1000		194		SPARE			
		SPARE		20/1		191		1000		20/1		195		1000		196		SPARE			
		SPARE		20/1		193		1000		20/1		197		1000		198		SPARE			
		SPARE		20/1		195		1000		20/1		199		1000		200		SPARE			
		SPARE		20/1		197		1000		20/1		201		1000		202		SPARE			
		SPARE		20/1		199		1000		20/1		203		1000		204		SPARE			

FEEDER OCPD AND CONDUCTOR CALCULATION									
LOAD DESCRIPTION (LOAD IN KVA)									
CONNECTED LOAD									
DEMAND FACTOR									
DEMAND LOAD									
AMPACTY FACTOR									
FEEDER AMPACITY									
NOTES									
INTERIOR LIGHTING									
EXTERIOR LIGHTING									
RECEPTACLES									
HVAC									
EQUIPMENT									
KITCHEN EQUIPMENT									
LARGEST MOTOR									
SPARE									
TOTAL KVA									
TOTAL AMPS									

LOAD CENTER SCHEDULE										TC		LOCATION: C.B. RATING:		TRASH COMPACTOR 22 K.A.I.C.							
WIRE SIZE	T Y P E	VOLTAGE		PHASE 1	WIRE	MOUNTING		SIZE	LUG	TYPE	WIRE SIZE	T Y P E	WIRE SIZE	USE and/or AREA SERVED		WIRE SIZE	T Y P E	WIRE SIZE			
		240/120V				SURFACE								100					MLO		NEMA 3R
		USE and/or AREA SERVED		C/B POLE	CIR	VA	WIR	CIR	C/B POLE	USE and/or AREA SERVED											
20-2		TRASH COMPACTOR (10 HP)		20/2	-	1	2000	-	2	20/1	LIGHTING										
		SERVICE RECEPTACLE		20/1	3	250	-	5	20/1	SPARE											
				20/1	5	180	-	6	20/1	SPARE											
				20/2	7	1000	-	8	-												
				20/2	9	-	-	8	-												
		SPACE		20/2	11	-	-	10	-	SPACE											
				20/2	11	-	-	12	-												
TOTAL LOAD PER PHASE						7430		7000		7430 VA / 120 V = 62 A											
① GFCI ② AFCI ③ AFCI/GFCI ④ SHUNT TRIP ⑤ SWD ⑥ HACR ⑦ LOCKABLE										OPTIONS: NONE - REFER TO SPECIFICATIONS											
FEEDER OCPD AND CONDUCTOR CALCULATION																					
LOAD DESCRIPTION (INTERIOR IN KVA)				CONNECTED LOAD		DEMAND FACTOR		DEMAND LOAD		AMPACTY FACTOR		FEEDER AMPACTY		NOTES							
INTERIOR LIGHTING				0.00		1.00		0.00		1.25		0.00		*FIRST 10 KVA AT 100%, REST AT 50%							
EXTERIOR LIGHTING				0.25		1.00		0.25		1.25		0.31									
RECEPTACLES				0.18		*		0.18		1.00		0.18									
HVAC				0.00		1.00		0.00		1.00		0.00									
EQUIPMENT				12.00		1.00		12.00		1.00		12.00									
KITCHEN EQUIPMENT				0.00		1.00		0.00		1.00		0.00									
LARGEST MOTOR				10 HP		-		-		0.25		2.77									
SPARE				2.00		1.00		2.00		1.00		2.00									
TOTAL KVA				14.43		-		14.43		-		17.26									
TOTAL AMPS				60 A		-		60 A		-		72 A									

LOAD CENTER SCHEDULE		
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ISSUANCES

01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
GROUNDING FEEDER &
BRANCH SIZING TABLES

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E411

BRANCH CIRCUIT SCHEDULE							NOTES: A. BRANCH CIRCUIT SCHEDULE IS BASED ON NEC TABLE 310.15(B)(16) AND TABLE 250.122. B. ALL NEUTRAL CONDUCTORS SHALL MATCH THE SIZE OF THE PHASE CONDUCTORS UNLESS OTHERWISE NOTED. C. BRANCH CIRCUIT MARK LEGEND CIRCUIT MARK SEE BRANCH CIRCUIT SCHEDULE FOR CONDUCTOR AND CONDUIT SIZE
MARK	# OF SETS	PHASE & NEU. CONDUCTORS (CU)	EQUIP. GRND CONDUCTOR (CU)	3PH / 4W CONDUIT SIZE	1 OR 3PH / 3W CONDUIT SIZE	1PH / 2W CONDUIT SIZE	
20	1	#12	#12	3/4"	3/4"	3/4"	100 - 4 (NG, IF SHOWN = NO GND) NUMBER OF PHASE CONDUCTORS 4 = 3 PH / 4 WIRE 3 = 1 OR 3 PH / 3 WIRE 2 = 1 PH / 2 WIRE
25	1	#10	#10	3/4"	3/4"	3/4"	
30	1	#10	#10	3/4"	3/4"	3/4"	
35	1	#8	#10	3/4"	3/4"	3/4"	
40	1	#8	#10	1"	3/4"	3/4"	
45	1	#8	#10	1"	1"	3/4"	
50	1	#8	#10	1"	1"	3/4"	
55	1	#6	#10	1-1/2"	1-1/2"	1"	
60	1	#6	#10	1-1/2"	1-1/2"	1"	
70	1	#4	#8	1-1/2"	1-1/2"	1"	
80	1	#4	#8	1-1/2"	1-1/2"	1"	
90	1	#3	#8	1-1/2"	1-1/2"	1"	
100	1	#3	#8	2"	1-1/2"	1-1/2"	
125	1	#1	#6	1-1/2"	1-1/2"	1-1/2"	
150	1	#1/0	#6	2"	1-1/2"	N/A	
175	1	#2/0	#6	2"	2"	N/A	
200	1	#3/0	#6	2-1/2"	2"	N/A	
225	1	#4/0	#4	2-1/2"	2"	N/A	
250	1	250 KCMIL	#4	3"	2-1/2"	N/A	

DESIGNATION RANGE (ID)	GROUNDING ELECTRODE CONDUCTOR CU WIRE SIZE FOR:		
	GROUND ROD	CONCRETE-ENCASED ELECTRODE	STRUCTURAL STEEL AND METAL WATER PIPING (IF ANY)
20G-100G	#8	#8	#8
125G-150G	#6	#6	#6
175G-200G	#6	#4	#4
225G-300G	#6	#4	#2
350G-500G	#6	#4	#1/0
600G-800G	#6	#4	#2/0
1000G+	#6	#4	#3/0
NOTES:	1. DESIGNATIONS REFER TO AMPERAGE FOLLOWED BY A "G." FOR EXAMPLE, 30G WOULD FALL WITHIN THE 20G-100G RANGE. 2. CONNECTION TO FIRST ELECTRODE IN SYSTEM SHALL BE FULL-SIZED AND SIZED ACCORDING TO NEC TABLE 250.66. 3. GROUNDING ELECTRODE SYSTEMS SHALL CONSIST OF ALL AVAILABLE GROUNDING ELECTRODES. 4. THIS TABLE IS BASED ON ARTICLE 250.66 OF THE NEC.		

VOLTAGE DROP TABLE: MAXIMUM LENGTH OF CONDUCTORS (FT.)																			
VOLTAGE:		120		PHASE:		1		WIRE MATERIAL:											
								Al											
C/B	#12	#10	#8	#6	#4	#3	#2	#1	#1/0	#2/0	#3/0	#4/0	250 MCM	300 MCM	350 MCM	400 MCM	500 MCM	600 MCM	750 MCM
15	62	96	156	248	394	496	627	791	995	1258	1587	2000	2361	2829	3077	3781	4717	5666	7092
20	46	74	117	186	295	372	470	593	746	943	1190	1500	1771	2122	2308	2836	3538	4249	5319
25	-	59	94	149	236	298	376	474	597	755	952	1200	1417	1697	1846	2268	2830	3399	4255
30	-	49	78	124	197	248	313	395	498	629	794	1000	1181	1414	1538	1890	2358	2833	3300
40	-	-	59	93	148	186	235	296	373	472	595	750	885	1061	1154	1418	1769	2125	2475
50	-	-	-	74	118	149	188	237	299	377	476	600	708	849	923	1134	1415	1700	1980
60	-	-	-	-	98	124	157	198	249	314	397	500	590	707	769	945	1179	1416	1650
75	-	-	-	-	-	99	125	158	199	252	317	400	472	566	615	756	943	1133	1320
100	-	-	-	-	-	-	119	149	189	238	300	354	424	462	567	708	850	990	1064
125	-	-	-	-	-	-	-	151	190	240	283	339	369	454	566	680	792	851	851
150	-	-	-	-	-	-	-	-	159	200	236	283	308	378	472	567	660	660	709
NOTES:																			

VOLTAGE DROP TABLE: MAXIMUM LENGTH OF CONDUCTORS (FT.)																			
VOLTAGE:		120		PHASE:		1		WIRE MATERIAL:											
								Cu											
C/B	#12	#10	#8	#6	#4	#3	#2	#1	#1/0	#2/0	#3/0	#4/0	250 MCM	300 MCM	350 MCM	400 MCM	500 MCM	600 MCM	750 MCM
15	101	161	257	407	649	816	1031	1299	1639	2068	2611	3289	3883	4662	5450	6231	7752	9346	10870
20	76	121	193	305	487	612	773	974	1230	1551	1958	2467	2913	3497	4087	4673	5814	7009	8152
25	61	97	154	244	390	490	619	779	984	1241	1567	1974	2330	2797	3270	3738	4651	5607	6522
30	-	81	129	204	325	408	515	649	820	1034	1295	1645	1942	2331	2725	3115	3876	4673	5435
40	-	-	96	153	244	306	387	487	615	776	979	1234	1456	1748	2044	2336	2907	3505	4076
50	-	-	77	122	195	245	309	390	492	620	783	987	1165	1399	1635	1869	2326	2804	3261
60	-	-	-	102	162	204	258	325	410	517	653	822	971	1166	1362	1558	1938	2336	2717
75	-	-	-	-	130	163	206	260	328	414	522	658	777	932	1090	1246	1550	1869	2174
100	-	-	-	-	-	122	155	195	246	310	392	493	583	699	817	935	1163	1402	1630
125	-	-	-	-	-	-	-	156	197	248	313	395	466	559	654	748	930	1121	1304
150	-	-	-	-	-	-	-	-	164	207	261	329	388	466	545	623	775	935	1087
NOTES:																			

FEEDER AND BRANCH CIRCUIT SCHEDULE							NOTES: A. FEEDER AND BRANCH CIRCUIT SCHEDULE IS BASED ON NEC TABLE 310.15(B)(16) AND TABLE 250.122. B. ALL NEUTRAL CONDUCTORS SHALL MATCH THE SIZE OF THE PHASE CONDUCTORS UNLESS OTHERWISE NOTED. C. FEEDER AND BRANCH CIRCUIT SCHEDULE IS NOT TO BE USED FOR SIZING SERVICE FEEDERS BEFORE MAIN OVERCURRENT PROTECTION EQUIPMENT. D. FEEDER AND BRANCH CIRCUIT MARK LEGEND CIRCUIT MARK SEE FEEDER AND BRANCH CIRCUIT SCHEDULE FOR CONDUCTOR AND CONDUIT SIZE
MARK	# OF SETS	PHASE & NEU. CONDUCTORS (CU)	EQUIP. GRND CONDUCTOR (CU)	3PH / 4W CONDUIT SIZE	1 OR 3PH / 3W CONDUIT SIZE	1PH / 2W CONDUIT SIZE	
20	1	#12	#12	3/4"	3/4"	3/4"	100 - 4 (NG, IF SHOWN = NO GND) NUMBER OF PHASE CONDUCTORS 4 = 3 PH / 4 WIRE 3 = 1 OR 3 PH / 3 WIRE 2 = 1 PH / 2 WIRE
25	1	#10	#10	3/4"	3/4"	3/4"	
30	1	#10	#10	3/4"	3/4"	3/4"	
35	1	#8	#10	3/4"	3/4"	3/4"	
40	1	#8	#10	1"	3/4"	3/4"	
45	1	#8	#10	1"	3/4"	3/4"	
50	1	#8	#10	1"	1"	3/4"	
55	1	#6	#10	1-1/2"	1-1/2"	1"	
60	1	#6	#10	1-1/2"	1-1/2"	1"	
70	1	#4	#8	1-1/2"	1-1/2"	1"	
80	1	#4	#8	1-1/2"	1-1/2"	1"	
90	1	#3	#8	1-1/2"	1-1/2"	1"	
100	1	#3	#8	2"	1-1/2"	1-1/2"	
125	1	#1	#6	1-1/2"	1-1/2"	N/A	
150	1	#1/0	#6	2"	1-1/2"	N/A	
175	1	#2/0	#6	2"	2"	N/A	
200	1	#3/0	#6	2-1/2"	2"	N/A	
225	1	#4/0	#4	2-1/2"	2"	N/A	
250	1	250 KCMIL	#4	3"	2-1/2"	N/A	
300	1	350 KCMIL	#4	3"	3"	N/A	
350	2	#2/0	#3	2"	2"	N/A	
400	2	#3/0	#3	2-1/2"	2"	N/A	
500	2	250 KCMIL	#2	3"	2-1/2"	N/A	
600	2	350 KCMIL	#1	3"	3"	N/A	
800	3	300 KCMIL	#1/0	2-1/2"	2-1/2"	N/A	
1000	3	400 KCMIL	#2/0	4"	3"	N/A	
1200	4	350 KCMIL	#3/0	3"	3"	N/A	
1600	5	400 KCMIL	#4/0	4"	4"	N/A	
2000	6	400 KCMIL	250 KCMIL	4"	N/A	N/A	
2500	7	500 KCMIL	400 KCMIL	4"	N/A	N/A	
3000	8	500 KCMIL	400 KCMIL	4"	N/A	N/A	
3500	10	500 KCMIL	500 KCMIL	4"	N/A	N/A	
4000	10	600 KCMIL	500 KCMIL	4"	N/A	N/A	

FEEDER CIRCUIT SCHEDULE						
MARK	# OF SETS	PHASE & NEU. CONDUCTORS (AL)	EQUIP. GRND CONDUCTOR (CU)	3PH / 4W CONDUIT SIZE	1 OR 3PH / 3W CONDUIT SIZE	1PH / 2W CONDUIT SIZE
A60	1	#4	#10	1"	1"	1"
A70	1	#3	#8	1-1/2"	1-1/2"	1"
A80	1	#2	#8	1-1/2"	1-1/2"	1"
A90	1	#2	#8	1-1/2"	1-1/2"	1"
A100	1	#1	#8	1-1/2"	1-1/2"	1-1/2"
A125	1	#2/0	#6	2"	2"	N/A
A150	1	#3/0	#6	2"	2"	N/A
A175	1	#4/0	#6	2"	2"	N/A
A200	1	250 KCMIL	#6	2-1/2"	2-1/2"	N/A
A225	1	300 KCMIL	#4	2-1/2"	2-1/2"	N/A
A250	2	#2/0	#4	2"	2"	N/A
A300	2	#3/0	#4	2"	2"	N/A
A350	2	#4/0	#3	2"	2"	N/A
A400	2	250 KCMIL	#3	2-1/2"	2-1/2"	N/A
A500	2	350 KCMIL	#2	2-1/2"	2-1/2"	N/A
A600	2	500 KCMIL	#1	3"	3"	N/A
A800	3	400 KCMIL	#1/0	2-1/2"	2-1/2"	N/A
A1000	4	350 KCMIL	#2/0	2-1/2"	2-1/2"	N/A
A1200	4	500 KCMIL	#3/0	3"	3"	N/A
A1600	6	400 KCMIL	#4/0	4"	4"	N/A
A2000	7	500 KCMIL	250 KCMIL	4"	N/A	N/A
A2500	9	500 KCMIL	400 KCMIL	4"	N/A	N/A
A3000	10	500 KCMIL	400 KCMIL	4"	N/A	N/A
A3500	10	750 KCMIL	500 KCMIL	4"	N/A	N/A
A4000	11	750 KCMIL	500 KCMIL	4"	N/A	N/A

NOTES:

A. FEEDER CIRCUIT SCHEDULE IS BASED ON NEC TABLE 310.15(B)(16) AND TABLE 250.122.

B. ALL NEUTRAL CONDUCTORS SHALL MATCH THE SIZE OF THE PHASE CONDUCTORS UNLESS OTHERWISE NOTED.

C. FEEDER CIRCUIT SCHEDULE IS NOT TO BE USED FOR SIZING SERVICE FEEDERS BEFORE MAIN OVERCURRENT PROTECTION EQUIPMENT.

D. FEEDER CIRCUIT MARK LEGEND

CIRCUIT MARK
SEE FEEDER CIRCUIT
SCHEDULE FOR
CONDUCTOR AND
CONDUIT SIZE

A100 - 4 (NG, IF SHOWN = NO GND)

NUMBER OF PHASE
CONDUCTORS
4 = 3 PH / 4 WIRE
3 = 1 OR 3 PH / 3 WIRE
2 = 1 PH / 2 WIRE

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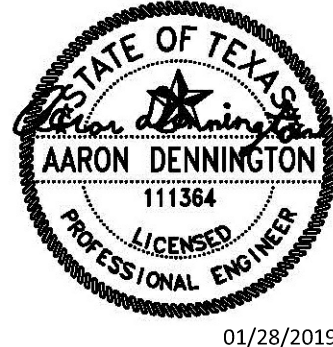
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ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS		
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a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
UNITS, BUILDING & SITE
LIGHT FIXTURE SCHEDULE

Project Number	18054
Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E412

SITE LIGHTING FIXTURE SCHEDULE								
MARK	MANUFACTURER	MODEL	VOLT	PHYSICAL			DESCRIPTION	
				WATTAGE	TYPE	TEMP		
S1	LITHONIA	DSK1-LED-40C-1000-40K-T3S-MVOLT-HS	120	138	LED	3000	POLE	POLE LIGHT @ 15' AFG, FORWARD OPTICS, 40 LEDS FOUR ENGINES, 1000 DRIVE CURRENT, 4000K, TYPE III, MEDIUM, 70 CRI, 12,569 LUMENS, BUG RATING 2/0/2
S2	LITHONIA	DSK1-LED-40C-1000-40K-T5M-MVOLT-HS	120	138	LED	3000	POLE	POLE LIGHT @ 15' AFG, FORWARD OPTICS, 40 LEDS FOUR ENGINES, 1000 DRIVE CURRENT, 4000K, TYPE V, MEDIUM, 70 CRI, 15,845 LUMENS, BUG RATING 3/0/2
S3	LITHONIA	DSKSC-LED-10C-700-40K-T5R-MVOLT	120	26	LED	3000	SURFACE (CARPORT)	CANOPY LIGHT, 1 LIGHT ENGINE, 700 Ma driver, 4000K, TYPE III, MEDIUM, 2,701 LUMENS, CRI 80, BUG RATING 2/0/2
S4	LITHONIA	OLLWD	120	8.6	LED	3000	WALL (GARAGE)	OUTDOOR LED WALL DOWNLIGHT CYLINDER, 4000K, POLYCARBONATE LENS, 263.6 LUMENS, CRI 80, TYPE I, SHORT
S5	SYNERGY	WLED-HO-96	120	205	LED	4000	GROUND	MONUMENT SIGN LIGHT, GROUND MOUNTED, 96" LENGTH, ALUMINUM IP67 DAMP LOCATION APPROVED, 23,800 LUMENS
S6	FX LUMINAIRE	MP-20-FB	120	20	LED	3000	UPLIGHT	ALUMINUM LED UPLIGHT IN FLAT BLACK FINISH, 45-DEGREE SHROUD.
S7	FX LUMINAIRE	TMLDFA-FB-A-12RA	120	20	LED	3000	PATH	ALUMINUM LED PATH LIGHT IN FLAT BLACK FINISH, 12" RISER HEIGHT
S8	HESS AMERICA	PA935	120	8	LED	3000	BOLLARD	ALUMINUM LED PADUA BOLLARD, 36.8" HEIGHT
S9	SLV LIGHTING	229110	120	4	LED	3000	WALL	BRICK MESH OUTDOOR RECESSED LED WALL LIGHT, STAINLESS STEEL.
S10	VISTA PROFESSIONAL	FL-4015-B-MR	120	12	LED	3000	COUNTER	GRILL LIGHT MOUNTED TO COUNTER TOP, 12 VOLT, 16 LED
S11	PABLO DESIGNS		120		LED	3000	PENDANT	SWELL WIDE OUTDOOR LED PENDANT IN WHITE, HUNG FROM ARBOR
NOTES: 1. COORDINATE ALL INSTALLATION HEIGHTS WITH ARCHITECT & INTERIOR DESIGNER.								

CLUBHOUSE LIGHTING FIXTURE SCHEDULE								
MARK	MANUFACTURER	MODEL	VOLT	PHYSICAL		TYPE	LOCATION	DESCRIPTION
				WATTAGE	TEMP			
L1	ROYAL PACIFIC	8162H-50-3K FRAME 8656WH TRIM	120	50	3000K	LED	HIGHER CEILINGS THROUGHOUT	COMMERCIAL RECESSED LED DOWNLIGHT, AZE REFLECTOR WITH WHITE BAFFLE, 6" DIA., CRI 90, 3468 LUMENS
L1E	ROYAL PACIFIC	8162H-50-3K FRAME 8656WH TRIM	120	50	3000K	LED	HIGHER CEILINGS THROUGHOUT	COMMERCIAL RECESSED LED DOWNLIGHT, AZE REFLECTOR WITH WHITE BAFFLE, 6" DIA., CRI 90, 3468 LUMENS. CONNECT TO MINI INVERTER.
L2	ROYAL PACIFIC	8122H-14-3K FRAME 8651WH TRIM	120	14	3000K	LED	LOWER CEILINGS THROUGHOUT	COMMERCIAL RECESSED LED DOWNLIGHT, AZE REFLECTOR WITH WHITE BAFFLE, 6" DIA., CRI 90, 3468 LUMENS
L2E	ROYAL PACIFIC	8122H-14-3K FRAME 8651WH TRIM	120	14	3000K	LED	LOWER CEILINGS THROUGHOUT	COMMERCIAL RECESSED LED DOWNLIGHT, AZE REFLECTOR WITH WHITE BAFFLE, 6" DIA., CRI 90, 3468 LUMENS. CONNECT TO MINI INVERTER.
L3	LUMILUM	LUM-12050S-3000K	120	4/FT	3000	LED	COVE LIGHTING THROUGHOUT	LED STRIP LIGHT, WHITE STRIP, WARM WHITE
L4	COOPER INDUSTRIES	H750T HOUSING RAS606930NFWLWH-LED RETROFIT	120	60	3000K	LED	CORRIDOR & LEASING LOUNGE	HALO LED 6"NC NON-IC AIRTITE RECESSED WALL WASHER, WHITE TRIM.
L6	CERNO	03-180-LW-35-P1	120	14	3000K	LED	RM-1105, RM-1106, ENTRY LOUNGE, RESIDENTS LOUNGE	CAPIO WALL SCONCE, WALNUT (CM-001) WITH FROSTED POLYMER (CM-024), 28.5"hg"Wx4"D, MOUNTED AT 80" AFF., CRI 90, 2000 LUMENS
L7	BESA LIGHTING	1JT-DANOSMNA-LED-BR T1180BR SLEEVE	120	9	3000K	LED	RM-1107 & CONCIERGE	DANO LED MINI PENDANT, SMOKE GLASS SHADE WITH NATURAL INNER WOOD DIFFUSER, BRONZE SLEEVE, 13"H x 8"D, FLAT CANOPY, 5"DIA x 0.625"H, 10" CORD WITH SLEEVE, CRI 90, 800 LUMENS
L8	RESTORATION HARDWARE	1000716 BR	120	14	3000K	LED	CORRIDOR	CANNELE PICTURE LIGHT, BRONZE, UL LISTED DRY, 24"Wx7-1/2"Dx-1/2"H, BACKPLATE 4-1/2"DIAx-3/4"D, HORIZONTAL INSTALLATION,
L9	LIGHTS UP	9444BN-EWD	120	200	3000K	LED	RM-1103A, RM-1103B, CONFERENCE ROOM 1, CONFERENCE ROOM 2	WOODY DRUM PENDANT LIGHT, EBONY OUTER SHADE, 2- E26 BULB RETROFIT LED, 24" DIAx13"H, CANOPY 5"DIA, CORD 96"L
L10	K.LIGHT	CA-KLCH-001/SM CA-KLCH-002/SM CA-KLCH-004/SM	120	60	3000K	LED	RM-1106A, RESIDENTS LOUNGE	MIX OF GLASS PENDANTS (BELL JAR/LANTERN/CYLINDER), SMOKE/AMBER GLASS PENDANT, 30 CMHx24CM DIA, SHADE X, 10CM DIA BASE
L11	JOHN BLACK STEEL	1JT-JBSL-LTNBS	120	50	3000K	LED	RM-1104 GAMING LOUNGE	LIGHT THREE, 2 POINT HANGING NATURAL BLACK, 48"Lx10"Wx45"D, CANOPY 5"DIA, CABLE 72"L
L13	HAIKU BY BIG ASS FANS	S3150-A2-AB-04-02-C-01-F528	120	-	-	LED	RM-1108 FITNESS CENTER	3-BLADE CEILING FAN, HAIKU-I SERIES, LOW PROFILE MOUNT, 258 BLACK, NO LAMP, 84"DIAx12.3"H
L14	TBD BY INTERIOR DESIGNER	TBD BY INTERIOR DESIGNER	120	-	-	NEON	RM-1108 FITNESS CENTER	NEON LETTER LIGHTS, CUSTOM TEXT WITH OPEN TUBE NEON LIGHTING, WHITE, HARDWIRED
L15	BOCCI	BOC-14SP-LED-AMB-WET	120	1.5	3000K	LED	RM-1112A/B MEN/WOMENS RESTROOM	STANDARD WALL SCONCE, AMBER GLASS, 4.5"DIAx2"D
L16	MODERN FORMS	WS-3127-BZ	120	38	3000K	LED	UNISEX POOL RESTROOMS	VANITY WALL SCONCE, VOGUE BATH VANITY LIGHT, BRONZE, 3"Lx27"Wx3"D, BACKPLATE 5"H
EM2	LITHONIA	VEL-1240-H3512 - DOUBLE DOOR VELS-1250-H3512 - SINGLE DOOR	120	2/40 1/50	HALOGEN	CEILING	EMERGENCY LIGHT	EMERGENCY DEVICE, DOUBLE DOORS-2 MR16 HALOGEN OUTPUT 40W LAMPS, SINGLE DOOR 1-MR16 HALOGEN OUTPUT 50W LAMP, ALL EMERGENCY LIGHTS IN AMENITY AREA SHALL BE CIRCUITED TO MINI INVERTER EXITRONIX "TUCM-300-120-120-ECM320

DWELLING UNIT LIGHTING FIXTURE SCHEDULE - STANDARD UNITS								
MARK	MANUFACTURER	MODEL	VOLT	PHYSICAL		TYPE	LOCATION	DESCRIPTION
				WATTAGE	TYPE			
A	BILTMORE	B951LED24-BZ-30K	120	15	LED	SURFACE	UNIT ENTRY	9" UP/DOWN ENTRY LIGHT, LED, - WET LISTED, 600 LUMENS, CRI 90 BRONZE, FROSTED GLASS
B	BILTMORE	C998LED-15-WH-WH-30K	120	33	LED	CEILING FAN	LIVING/BEDROOM	3-BLADE CEILING FAN, WHITE BLADES, WHITE ACRYLIC GLASS, (1) 15 W LED LAMPS, LAMPS INCLUDED
C	BILTMORE	LED5M5SDL-WH-30K	120	10	LED	SURFACE	KITCHEN/HALLWAY	5.5" LOW PROFILE LED PANCAKE, - WET LISTED, WHITE, 660 LUMENS, CRI 82
D	BILTMORE	TH105LED15-WH-30K	120	16	LED	TRACK	DINING ROOM	LED 4-HEAD TRACK LIGHT, 4" L, WHITE, 3000K, (1) FLOATING POWER FEED
E	BILTMORE	LED5M5SDL-WH-30K	120	15	LED	SURFACE	BATH CEILING	5.5" LOW PROFILE LED PANCAKE, - WET LISTED, WHITE, 660 LUMENS, CRI 82
F1	BILTMORE	B77618-15.5LED-BN-30K	120	15.5	LED	VANITY	BATH VANITY	18" OVER MIRROR LINEAR SCONCE, 3000K, 1000 LUMENS, CRI 90, BRUSHED NICKEL, DAMP LOCATION APPROVED
F2	BILTMORE	B77618-20.5LED-BN-30K	120	20.5	LED	VANITY	BATH VANITY	24" OVER MIRROR LINEAR SCONCE, 1000 LUMENS, 3000K, CRI 90, BRUSHED NICKEL
F3	BILTMORE	B77618-30LED-BN-30K	120	30	LED	VANITY	BATH VANITY	36" OVER MIRROR LINEAR SCONCE 3000K, 1000 LUMENS, CRI 90, BRUSHED NICKEL
G	BILTMORE	LED5M5SDL-WH-30K	120	15	LED	SURFACE	CLOSET/STORAGE	5.5" LOW PROFILE LED PANCAKE, - WET LISTED, WHITE, 660 LUMENS, CRI 82
H	BILTMORE	B954LED10-BZ-30K	120	20	LED	WALL	PATIO	EXTERIOR SCONCE, RECTANGULAR, ALUMINUM, CLEAR WITH INSIDE ETCHED GLASS, 3000K, 720 LUMENS, CRI 90, WET LOCATION APPROVED
I	BILTMORE	B953LED17-BR-30K (STANDARD UNITS) B5741-MB (SIGNATURE UNITS)	120	17	LED	PENDANT	KITCHEN ISLAND	CYLINDRICAL PENDANT, BRUSHED ALUMINUM, 3000K, 550 LUMENS, CRI 80, DAMP LOCATION APPROVED
J	BILTMORE	LED-UC12-WH-30K	120	7	LED	SURFACE	KITCHEN UNDERCOUTNER	UNDERCOUNTER LIGHTING, 12" W X 3.5" H X 1" EXTENSION, 3000K, WHITE, FROSTED SHADE
K	DEVINE LIGHTING	4805SL-WH-117ER-CP	120	32	T8	CEILING	LAUNDRY	120V, (1) T8-27K, B1-OIN, WHITE
NOTES: 1. COORDINATE ALL INSTALLATION HEIGHTS WITH ARCHITECT & INTERIOR DESIGNER. 2. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL FIXTURES.								

BUILDING LIGHT FIXTURE SCHEDULE								
MARK	MANUFACTURER	MODEL	VOLT	PHYSICAL		LOCATION	DESCRIPTION	
				WATTAGE	TYPE			
B1	ALL AROUND LIGHTING	SM6-15W-30K-W-D-WHT	120	15	LED	SURFACE MOUNT	CORRIDOR/ ELEVATOR LOBBY	7" PUCK LIGHT, 7.4" ROUND LED DISC LIGHT, WHITE, 3000K, LED 850 LUMENS
B2	ROYAL PACIFIC	1071 (Aldea)	120	-	-	CEILING FAN	CORRIDOR	5-42"-BLADE CEILING FAN BRUSHED PEWTER WET LOCATION LISTED UN-SWITCHED, ON 24 HOURS A DAY
B3	WAC	WP-LED-219-30	120	19	LED	WALL MOUNT	BUILDING ENTRY @ STAIRS	LED WALL SCONCE DAMP LOCATION APPROVED, 3000K, CRI 80, ENERGY STAR RATED
B4	LITHONIA	BLTX4-30L-SDSM-120-LP830 P5750DL LED EMERGENCY BATTERY BACKUP	120	24	LED	SURFACE MOUNT	STAIRWELL/GARAGE	1'X4' LED LINEAR LIGHT, 3000K, 5148 LUMENS, CRI 82, WET LOCATION APPROVED, 90-MINUTE BATTERY BACKUP
B5	LITHONIA	VDS-2-32-120-GE810IS-EL140W	120	64	FLUOR	SURFACE MOUNT	ELEVATOR PIT	6'X4' LINEAR WALL MOUNTED LIGHT, (2) 32W T8 LAMPS, UL LISTED FOR WET LOCATION, ELECTRONIC BALLAST, WITH EMERGENCY BACKUP BATTERY
B6	LITHONIA	STL4-48L-D40-LP835-EL7L	120	45.2	LED	SURFACE MOUNT	MAINTENANCE, RMF, POOL, ELECTRICAL, STORAGE	1'X4' LED LINEAR LIGHT, 3500K 4850 LUMENS, CRI 82, WET LOCATION APPROVED, 90-MINUTE BATTERY BACKUP
B7	LITHONIA	ZL2N-L24-3000LM-250-MVOLT-40K-80CRI-B5L722-WH	120	12	LED	SURFACE MOUNT	RESIDENTIAL STORAGE, IDF CLOSETS	1'X2' LENSED STRIP LIGHT, MOUNT CENTERED ABOVE DOOR, PROVIDE EMERGENCY BACKUP, CRI 80, 2,249 LUMENS
B8	LITHONIA	AL8-T8-1-32-120	120	32	FLUOR	STRIP	SPRINKLER CLOSET	1'X4' FLUORESCENT STRIP LIGHT, PROVIDE 90-MINUTE BATTERY BACKUP
B9	DEVINE	UD10**,-DB-LED40-40K-PC-W	120	40	LED	WALL MOUNT	AMENITY EXTERIOR	CUSTOM EXTERIOR CYLINDRICAL WALL SCONCE, 34" H X 10" WIDE, 4000K, 4,000 LUMENS, CRI 90, CLEAR GLASS LENS, PROVIDE WITH PHOTOCELL, DAMP LOCATION APPROVED.
EM1	EXITRONIX	LED52-WH-G2	120	2	LED	WALL MOUNT	EMERGENCY LIGHT	EMERGENCY DEVICE, HIGH OUTPUT LED, WHITE, WITH 90 MINUTE BATTERY BACKUP.
X	EXITRONIX	S900U-WB-SR-RM-BA	120	4.2	LED	WALL & CEILING MOUNT	EXT SIGNS	EXIT LIGHT, ALUMINUM HOUSING, DAMP LOCATION RATED, COORDINATE FINISH AND LETTER COLOR WITH ARCHITECT, CONNECT TO EMERGENCY CIRCUIT.
NOTES: 1. COORDINATE ALL INSTALLATION HEIGHTS WITH ARCHITECT & INTERIOR DESIGNER. 2. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL FIXTURES.								

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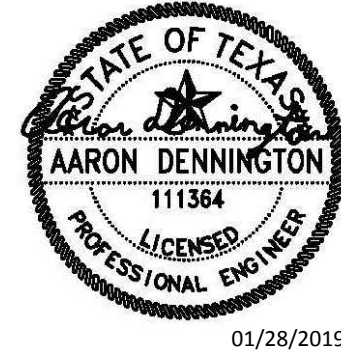
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ISSUANCES		
01	SCHEMATIC DESIGN	09.10.18
02	DEVELOPMENT DESIGN	11.09.18
03	PERMIT SET	01.28.19

REVISIONS



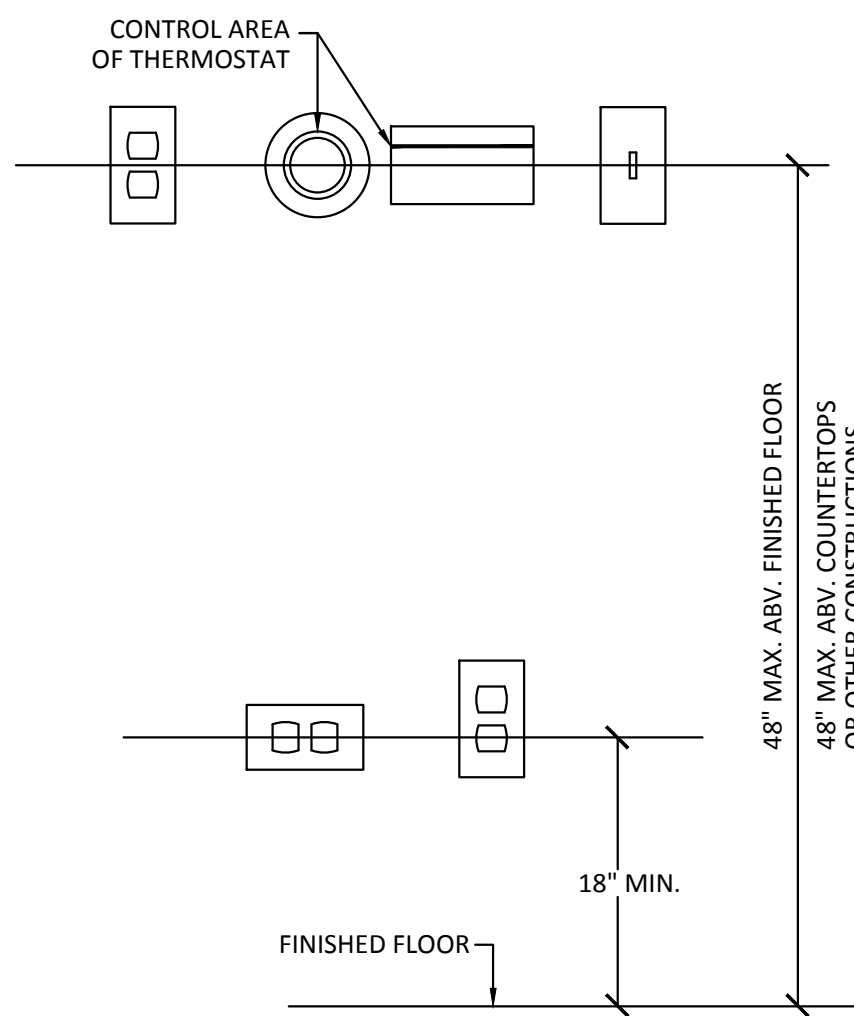
a multifamily project for
NRP Group

West Cevallos
San Antonio, Texas

ELECTRICAL
DETAILS

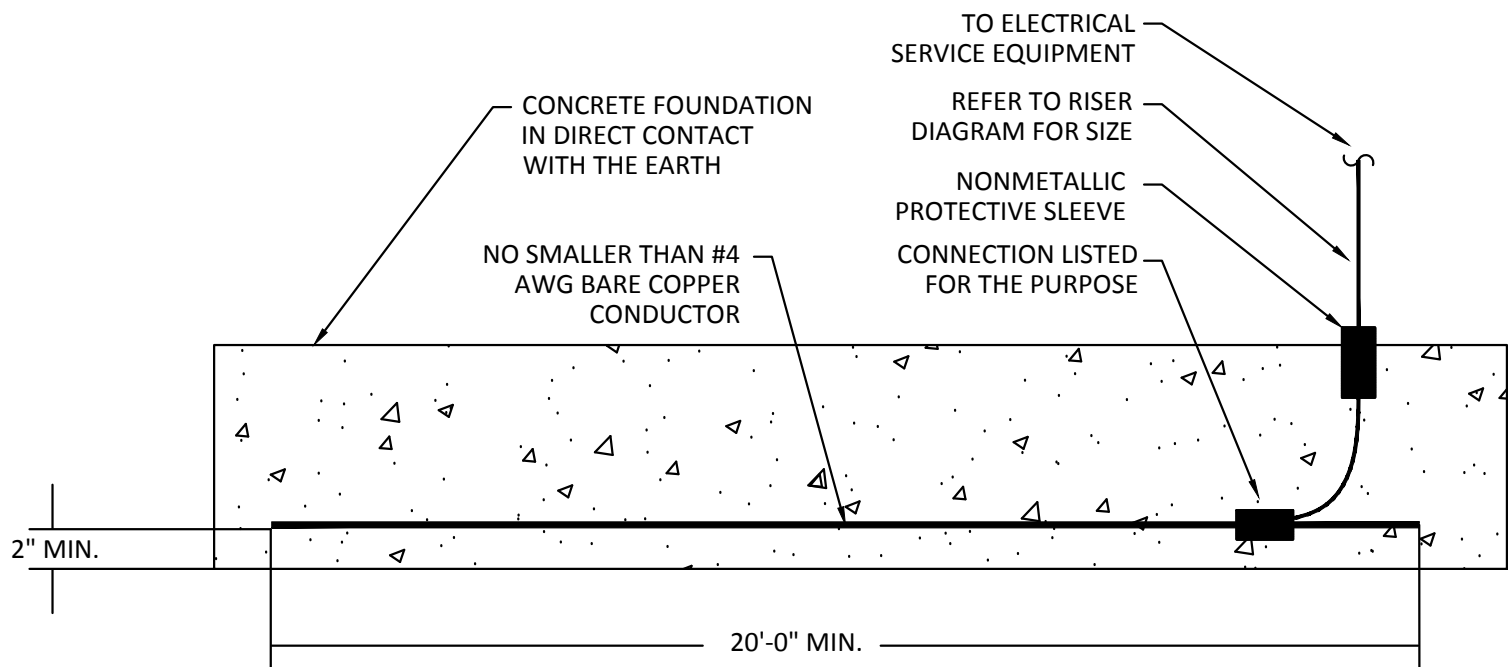
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Date	01/14/2018
Drawn By	TLR
Checked By	EEC

E501



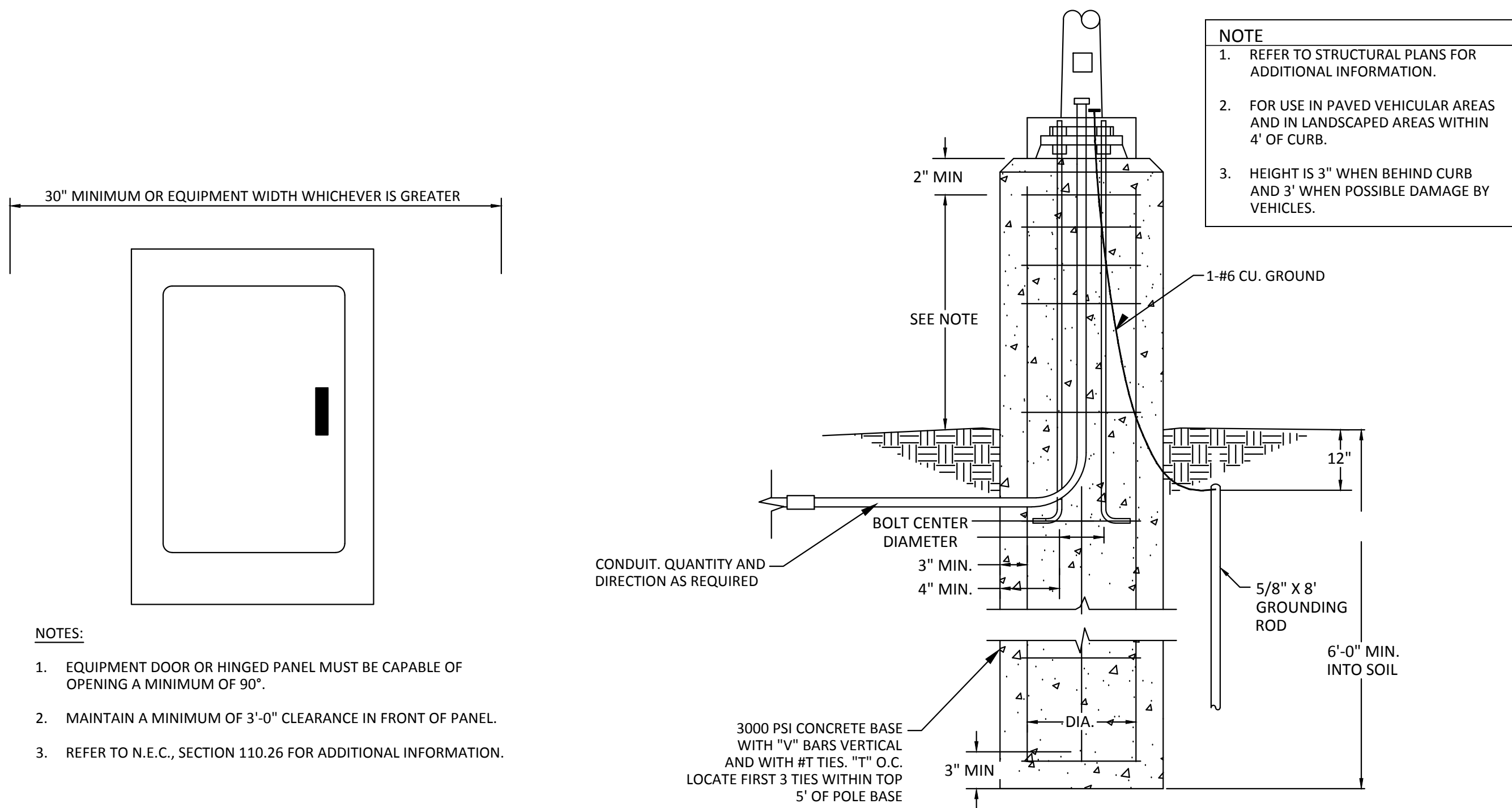
1 DEVICE LOCATION DETAIL

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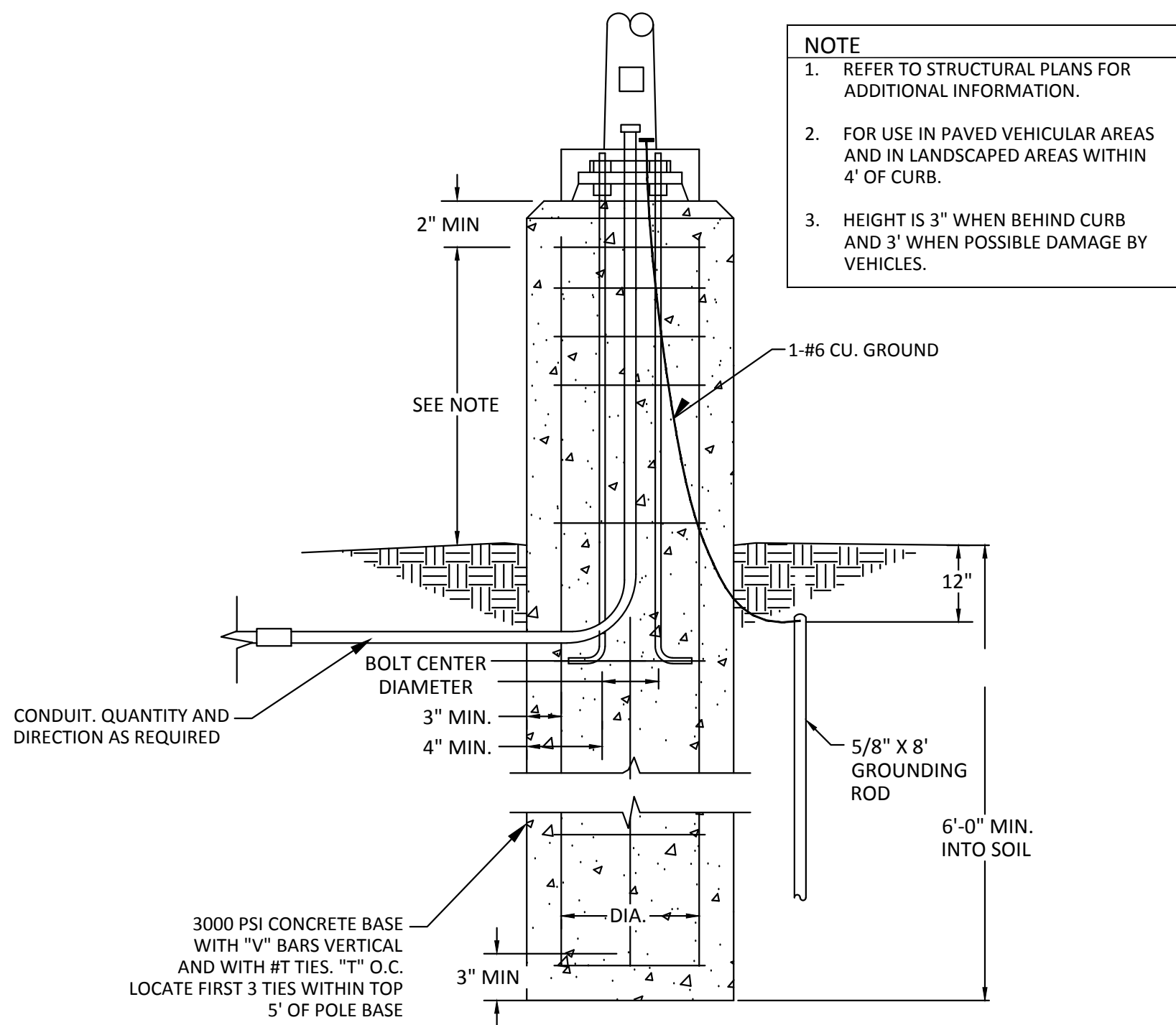
2 CONCRETE ENCASED ELECTRODE

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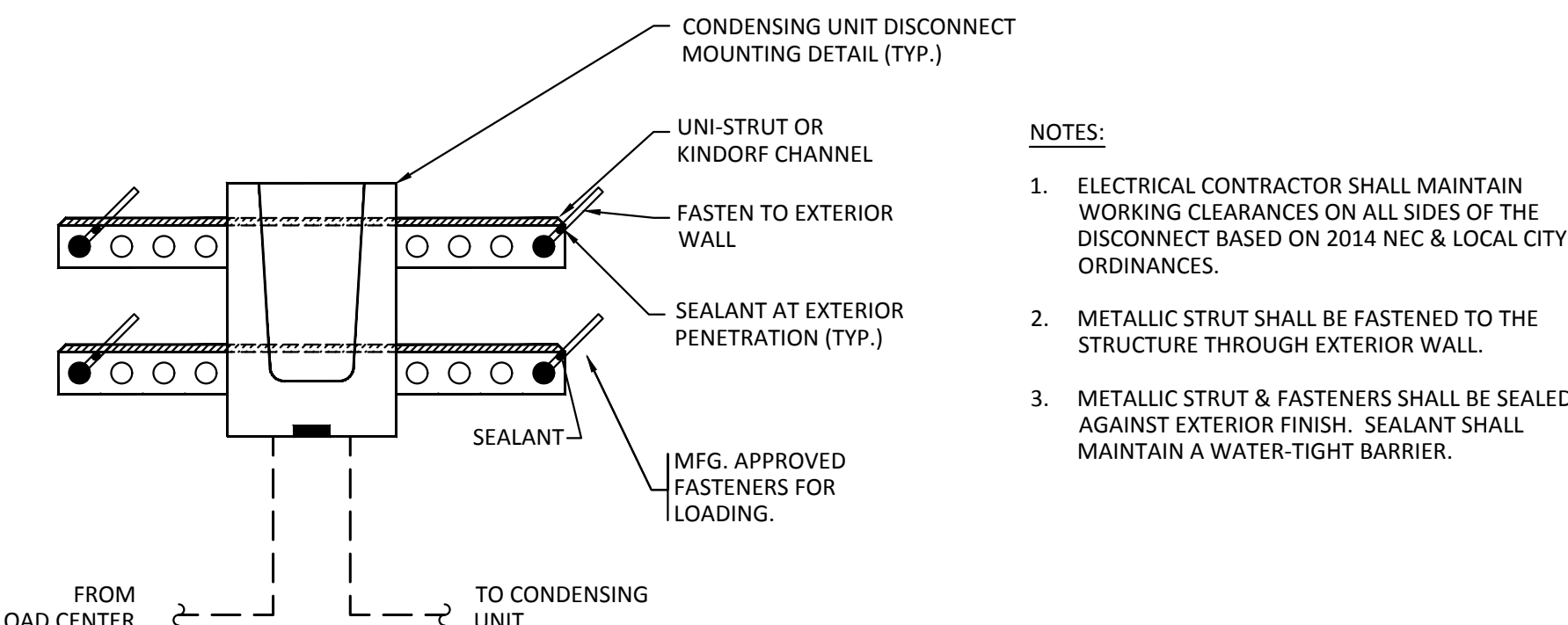
3 PANEL CLEARANCE DETAIL

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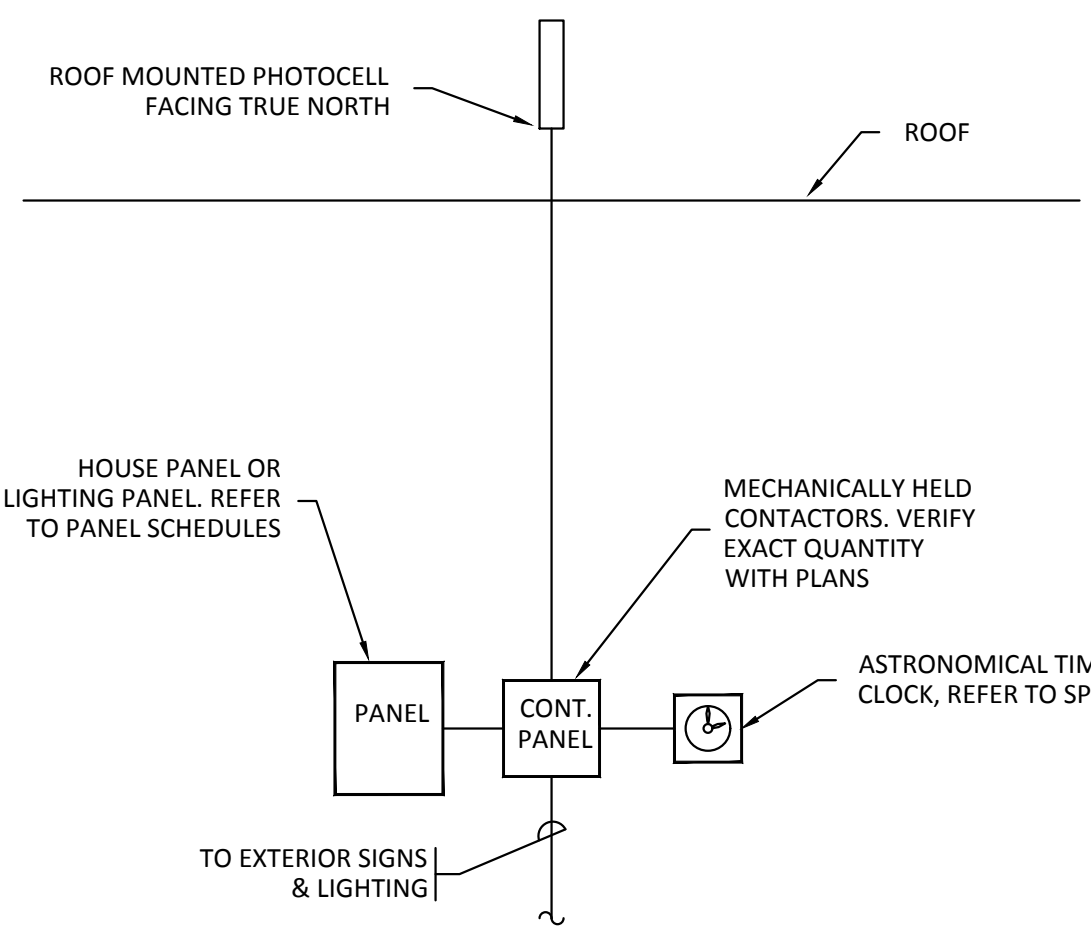
4 POLE LIGHT BASE DETAIL

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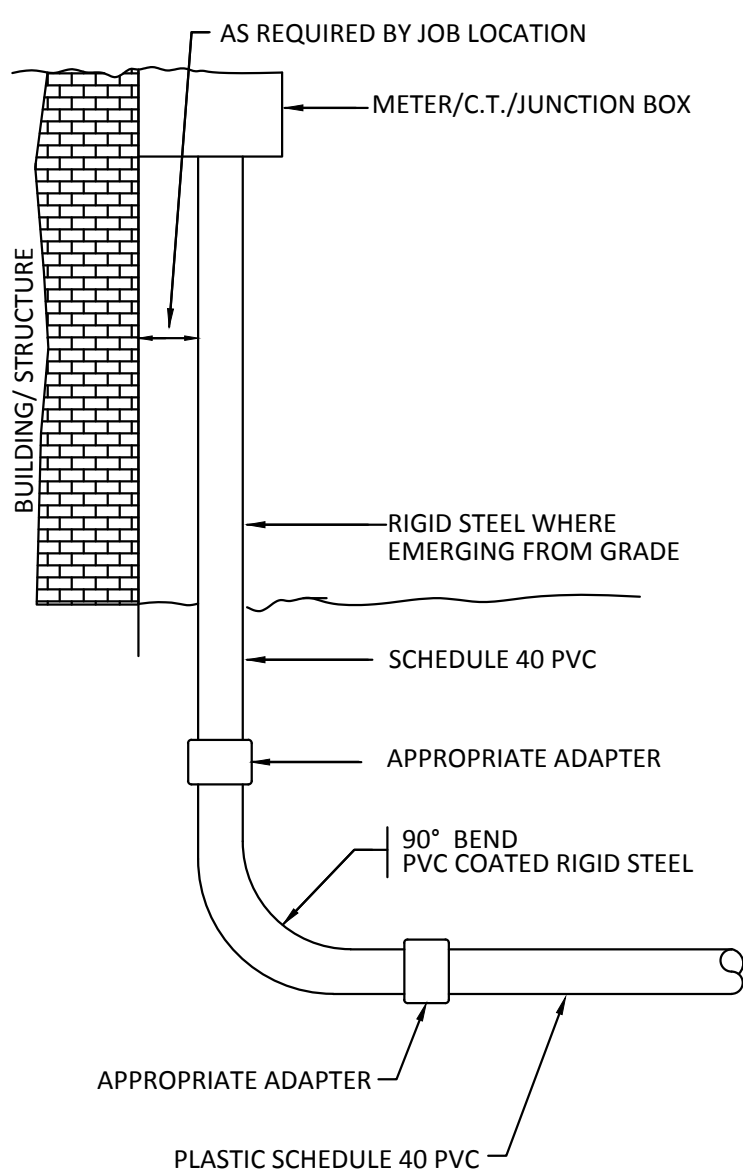
5 CONDENSING UNIT DISCONNECT SWITCH

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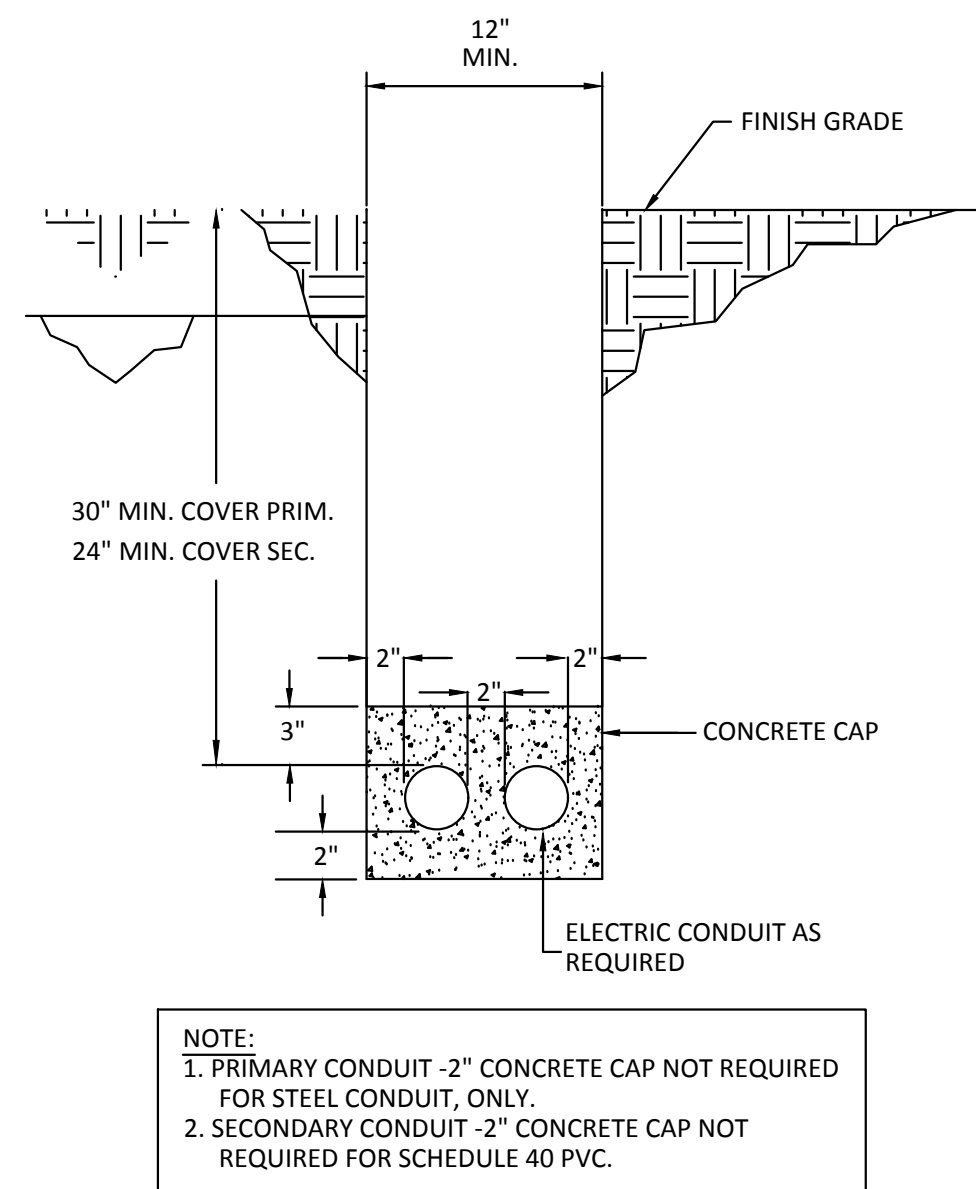
6 TYPICAL EXTERIOR LIGHTING CONTROL

N.T.S.



7 BUILDING RISER DETAILS

N.T.S.



8 TRENCH DETAIL

N.T.S.