

GENERAL ELECTRICAL NOTES: (UNUSED NOTE NUMBERS ARE "NOT USED")

1. ELECTRICAL CONTRACTOR SHALL VISIT SITE AND VERIFY EXISTING ELECTRICAL INSTALLATION AND NEW DESIGN PRIOR TO BID.
2. ELECTRICAL CONTRACTOR SHALL, AT NO ADDITIONAL COST TO THE OWNER, DISCONNECT AND RECONNECT ALL EXISTING ELECTRICAL INSTALLATIONS IN CONFLICT WITH NEW CONSTRUCTION.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
9. EXISTING CONDITION SHOWN ON DRAWINGS ARE TAKEN FROM PAST DESIGN DRAWINGS AND VISUAL FIELD INVESTIGATION. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS SHOWN. DEVIATIONS SHALL BE SHOWN ON AS-BUILT DRAWINGS.
- 10.
- 11.
12. REFINISH AND PATCH TO MATCH ALL EXISTING WALL AND CEILING SURFACES DAMAGED OR SCRATCHED BY ELECTRICAL REMOVAL AND INSTALLATION WORK. NEW TOUCH-UP PAINT WORK SHALL BLEND INTO AND MATCH EXISTING FINISH.
- 13.
- 14.
- 15.
16. THE TERM "WIRING" SHALL INCLUDE RACEWAY, CONDUCTORS, EQUIPMENT, AND WIRING.
17. THE TERM "PROVIDE" SHALL MEAN "FURNISH AND INSTALL".
- 18.
- 19.

ABBREVIATIONS LIST

A	AMPERES	DMR	DIMMER	MECH	MECHANICAL
A/C	AIR CONDITIONING	DMR SW	DIMMER SWITCH	MH	MANHOLE
AC	ALTERNATING CURRENT	DN	DOWN	MIN	MINIMUM
ACCU	AIR-COOLED CONDENSING UNIT	DPW	DEPARTMENT OF PUBLIC WORKS	MISC	MISCELLANEOUS
ADA	AMERICANS WITH DISABILITIES ACT	DS	DOWNSPOUT	MOC	MAXIMUM OVER-CURRENT PROTECTION DEVICE
ADMIN	ADMINISTRATION	EF	EXHAUST FAN	MTD	MOUNTED
ADJ	ADJACENT	EHH	ELECTRIC HANDHOLE	MTG	MOUNTING
AFC	ABOVE FINISHED COUNTER	ELEC	ELECTRIC	NEC	NATIONAL ELECTRICAL CODE
AFCI	ARC FAULT CIRCUIT INTERRUPTER	ELEV	ELEVATOR	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
AFF	ABOVE FINISH FLOOR	EMT	ELECTRICAL METALLIC TUBING	NFC	NATIONAL FIRE CODE
AFG	ABOVE FINISH GRADE	ENCL	ENCLOSURE	NL	NIGHT LIGHT
AFS	ABOVE FINISH SLAB	EPB	ELECTRIC PULLBOX	OC	ON CENTER
AHU	AIR HANDLING UNIT	EWC	ELECTRIC WATER COOLER	P	POLE
AIC	AMPERE INTERRUPTING CAPACITY	EWB	ELECTRIC WATER HEATER	PB	PULLBOX
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	EQ	EQUAL	PFB	PROVISION FOR FUTURE BREAKER
ARCH	ARCHITECT	EQUIP	EQUIPMENT	PH	PHASE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS	EXST	EXISTING	PL	PROPERTY LINE
AWG	AMERICAN WIRE GAUGE	FA	FIRE ALARM	PNL	PANEL
B.C.	BARE COPPER	FAAP	FIRE ALARM ANNUCIATOR PANEL	PREF	PREFERENCE
BLDG	BUILDING	FACP	FIRE ALARM CONTROL PANEL	PSI	POUND-FORCE PER SQUARE INCH
BKBD	BACKBOARD	FAPB	FIRE ALARM PULLBOX	PVC	POLYVINYL CHLORIDE
C	CONDUIT	FCU	FAN COIL UNIT	RECEP	RECEPTACLE
CATV	COMMUNITY ACCESS TELEVISION	FLR	FLOOR	RGS	RIGID GALVANIZED STEEL
CHH	COMMUNICATION HANDHOLE	FIN	FINISH	RM	ROOM
CHWP	CHILLED WATER PUMP	FIN FLR	FINISH FLOOR	SPEC	SPECIFICATION
CKT	CIRCUIT	FIN GR	FINISH GRADE	SQ	SQUARE
CKT BRKR	CIRCUIT BREAKERS	FT	FEET	STL	STEEL
CL	CENTER LINE	GAL	GALLON	SST	STAINLESS STEEL
CL	CURFEW LIGHTS	GALV	GALVANIZED	SW	SWITCH
CMU	CONCRETE MASONRY UNIT	GFCI	GROUND FAULT CIRCUIT INTERRUPTER	SWBD	SWITCHBOARD
CPB	COMMUNICATIONS PULLBOX	GRD	GROUND	SWBK	SWITCHBANK
COAX	COAXIAL CABLE	GRS	GALVANIZED RIGID STEEL	SWGR	SWITCHGEAR
COMM	COMMUNICATION	H	HIGH	TEL	TELEPHONE
CONC	CONCRETE	HDG	HOT-DIP GALVANIZED	TPB	TELEPHONE PULLBOX
CONT	CONTINUE	HHG	HANDHOLE GROUP	TYP	TYPICAL
CONTR	CONTRACTOR	HWRP	HOT WATER RETURN PUMP	UPS	UNINTERRUPTIBLE POWER SUPPLY
CTR	CENTER	JB	JUNCTION BOX	V	VOLTS
CTRL	CONTROL	K	KELVIN	VAV	VARIABLE AIR VOLUME
CTS	CURRENT TRANSFORMER	KW	KILOWATT	VFD	VARIABLE FREQUENCY DRIVE
CU	COPPER	KWH	KILOWATT HOUR	VDC	VOLTS-DIRECT CURRENT
D	DEEP	KV	KILO VOLT	W	WATT
DC	DIRECT CURRENT	KVA	KILO-VOLT AMPERE	W	WIDE
DEPT	DEPARTMENT	LTG	LIGHTING	W	WIRE
DIA	DIAMETER	LTS	LIGHTS	WSN	WIRE, SEPARATE NEUTRAL
DIAG	DIAGRAM	MAX	MAXIMUM	WP	WEATHERPROOF
DISC	DISCONNECT	MCA	MINIMUM CIRCUIT AMPACITY		
DISTR PNL	DISTRIBUTION PANEL	MCM	THOUSANDS OF CIRCULAR MILS		

ELECTRICAL SYMBOL LIST

EXISTING	NEW	DESCRIPTION
		LIGHT, CEILING SURFACE MOUNTED, RECESSED OUTLET BOX.
		LIGHT, CEILING SURFACE MOUNTED.
		LIGHT, CEILING SURFACE MOUNTED, ON EMERGENCY CIRCUIT.
		LIGHT, CEILING SURFACE MOUNTED.
		NIGHT LIGHT, CEILING SURFACE MOUNTED.
		OUTLET/JUNCTION BOX, CEILING MOUNTED, 2-GANG BOX, UNLESS OTHERWISE SPECIFIED.
		OUTLET/JUNCTION BOX, WALL MOUNTED, 2-GANG BOX, UNLESS OTHERWISE SPECIFIED.
		ELECTRIC PANEL.
		RACEWAY, CONCEALED, NUMBER OF HASHMARKS INDICATE NUMBER OF WIRES WITHIN. NO HASHMARKS INDICATES TWO WIRES WITHIN.
		RACEWAY, CONCEALED ABOVE FINISH FLOOR, NUMBER OF HASHMARKS INDICATE NUMBER OF WIRES WITHIN. NO HASHMARKS INDICATES TWO WIRES WITHIN.
		EXPOSED RACEWAY.
		ARROW, HOMERUN TO PANEL OR CABINET, NUMBER OF HASHMARKS INDICATE NUMBER OF WIRES WITHIN. NO HASHMARKS INDICATES TWO WIRES WITHIN.
		ELECTRICAL NOTE INDICATOR.
		FIXTURE INDICATOR UPPER HALF: FIXTURE TYPE. LOWER HALF: WATTS.
		DETAIL INDICATOR UPPER HALF: DETAIL NUMBER. LOWER HALF: SHEET NUMBER, DETAIL LOCATION.

ELECTRICAL SPECIFICATIONS (UNUSED SPECIFICATION NUMBERS/LETTERS ARE "NOT USED")

1. GENERAL REQUIREMENTS

Division One, "General Requirements", is hereby made a part of this section.

a. Intent of Specifications and Drawings:

- (1) Specifications and Drawings are prepared in abbreviated form and includes incomplete sentences. Omission of words or phrases such as "the contractor shall", "as shown on the drawings", "a", "an", and "the" are intentional. Omitted words and phrases shall be provided by inference to form complete sentences.
- (2) Specifications and Drawings complement each other and what is specified, scheduled or mentioned by one shall be binding as if called for by both. Specifications and Drawings are intended to specify nature, quantity, and quality of work.
- (3) Before bidding, contractor shall visit project site and carefully review Specifications and Drawings. Any error or omissions shall be reported to Architect at least 10 days before submission of bids for interpretation or clarification. If no report is received, the Contractor is presumed to be aware of the error or omission and will provide the necessary material and labor to satisfy the intent of this Contract.

b. Definitions:

- (1) "Provide" means "Furnish and install".
- (2) "Wiring" means "provide all raceways, conductors, devices, protective equipment, etc., for complete electric circuit or system."

2. SCOPE OF WORK

- a. Provide all articles, materials, equipment, operations and services specified herein or on Drawings, including all labor, taxes, fees, insurance and incidentals required to insure completion.
- b. Work shall include but shall not be limited to:
 - (1) Complete disconnecting and removal of existing electrical panel and feeder wires as shown on plans.
 - (2) Complete disconnecting and removal of existing circuit breaker as shown on plans.
 - (3) Complete new electrical panel, feeder wires, and circuit breaker as shown on plans.
- c. Test installation and remove, at no cost to Owner, all faulty equipment and workmanship. Guarantee for one year after final acceptance, all materials and workmanship.

3.

4. APPLICABLE CODES AND REGULATIONS

- a. Entire installation to be made in strict accordance with applicable provisions of 2020 edition of National Electrical Code, Local Ordinances, and rules and regulations of City and County of Honolulu.

5. MATERIALS

- a.
- b. Wires: 600 volts, No. 12 AWG minimum, copper conductored, THHN; No. 4 and larger THHN or XHHW. Manufacture and install according to NEC Article 300 and 310.
- c.
- d.
- e.
- f. Individual Circuit Breaker: Molded plastic case circuit breaker with toggle operated mechanism thermal-magnetic overload trips. Interchangeable trip shall be provided when available. Toggle positions "ON", "TRIPPED", and "OFF", engraved on body of toggle. Manufacture and install according to NEC Article 240. New circuit breaker shall be compatible to fit into existing panelboards.

g.

- h. Hardware, Support, Backing, etc.: Provide all hardware, supports, backing, and other accessories necessary to install electrical equipment.

6. GROUNDING

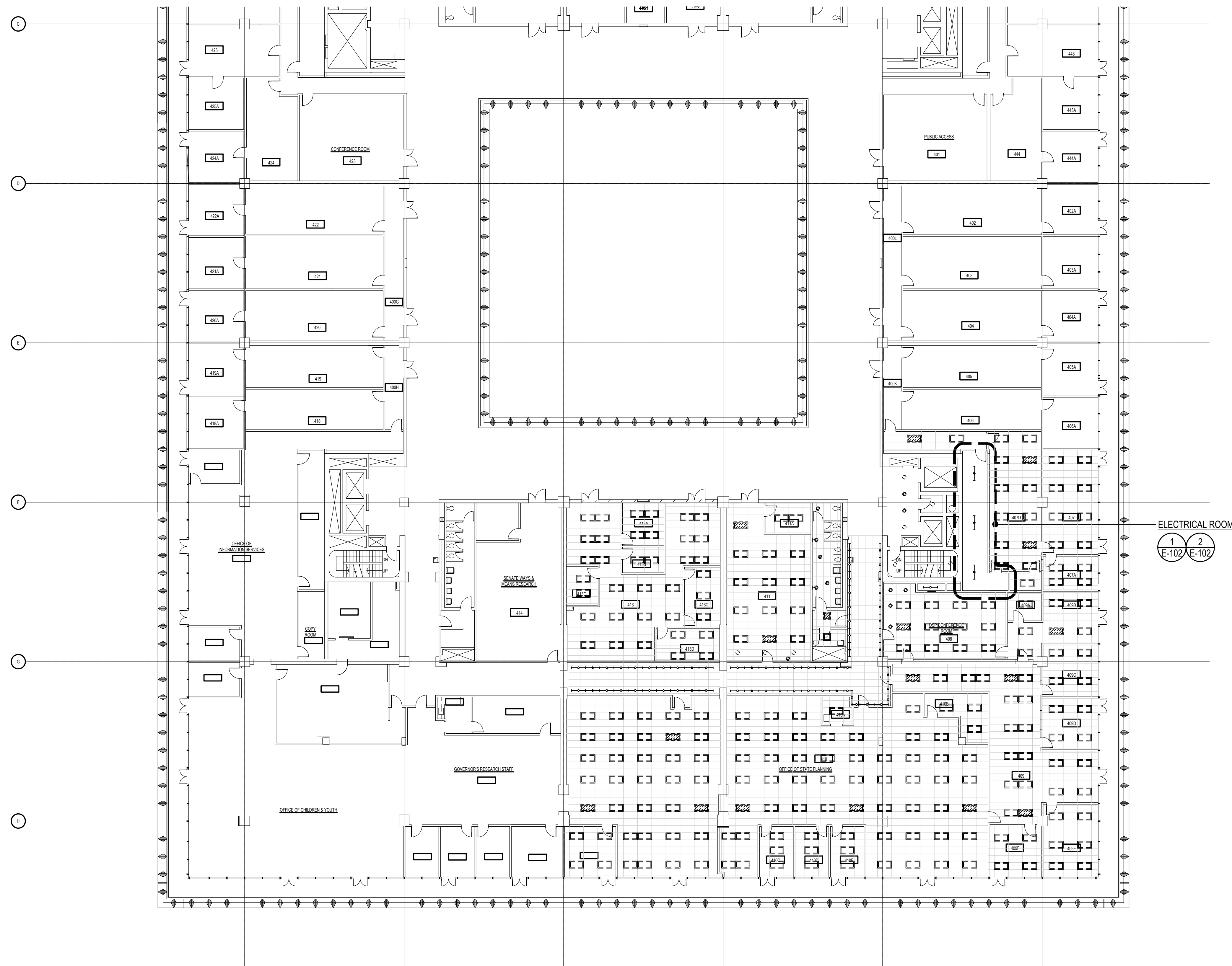
Motors, metallic enclosures, raceways and electrical equipment shall be grounded according to requirements of National Electrical Code, Article 250.

7. FINISHING

- a.
- b.
- c.
- d. Complete all panel directories with typewriter.
- e. Identify panelboards by nameplates on door, including voltage and designation. Stencil voltage rating on front of disconnect switches and junction boxes where wires are terminated for connection to equipment that is not part of contract.
- f. Nameplates: Laminated plastic, black/white, engraved with 3/16" high commercial letters to expose white. Screw mounted. Impression type adhesive tapes not acceptable.

8. WORKMANSHIP

- a. Conform to construction practices as recommended by the American Electricians Handbook by Croft (latest edition), Edison Electric Institute, regulations of Building Department, City and County of Honolulu and applicable instructions of manufacturers of equipment and materials supplied for this project.
- b. Workmanship shall be subject to the approval of Architect who shall be afforded every opportunity to determine skill and competency. Concealed work reopened at random during final inspection by Architect at no additional cost to Owner.
- c.
- d. Installation shall be complete in every detail and ready for use. Any item supplied by Contractor developing defects within one (1) year after final acceptance by Architect shall be replaced by such materials, apparatus or parts including installation labor to make such defective portion of complete system conform to true intent and meaning of drawings and specifications at no additional charge to Owner.



ELECTRICAL ROOM
 1 E-102 2 E-102

E-003

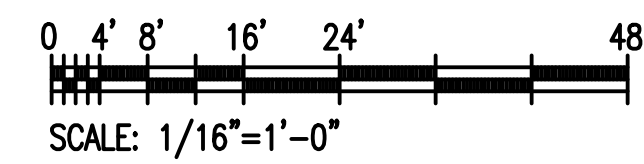


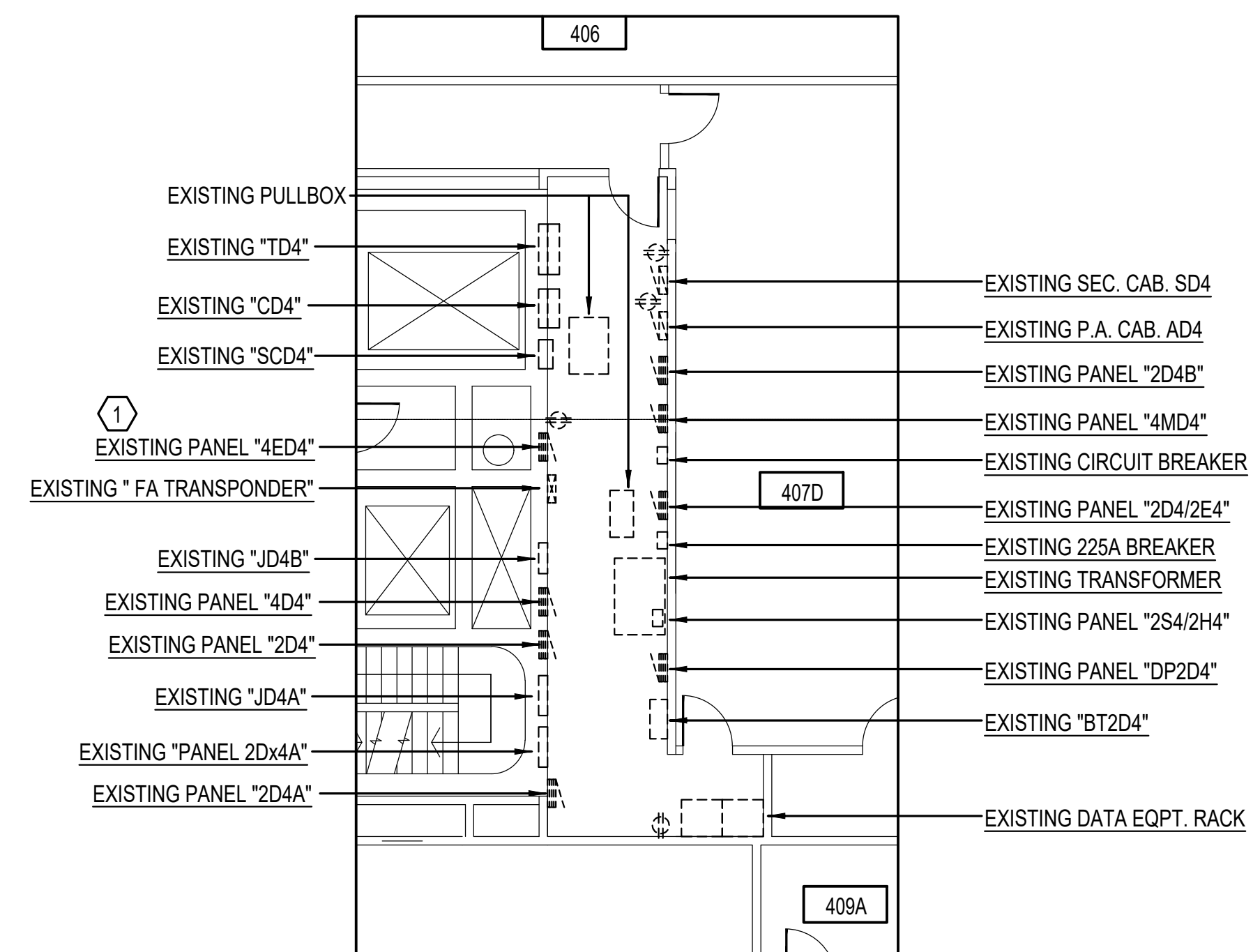
1
E-101

4TH FLOOR DEPARTMENTAL LEVEL SITE PLAN - WAIKIKI END

SCALE: 1/16" = 1' - 0"

GRAPHIC SCALE

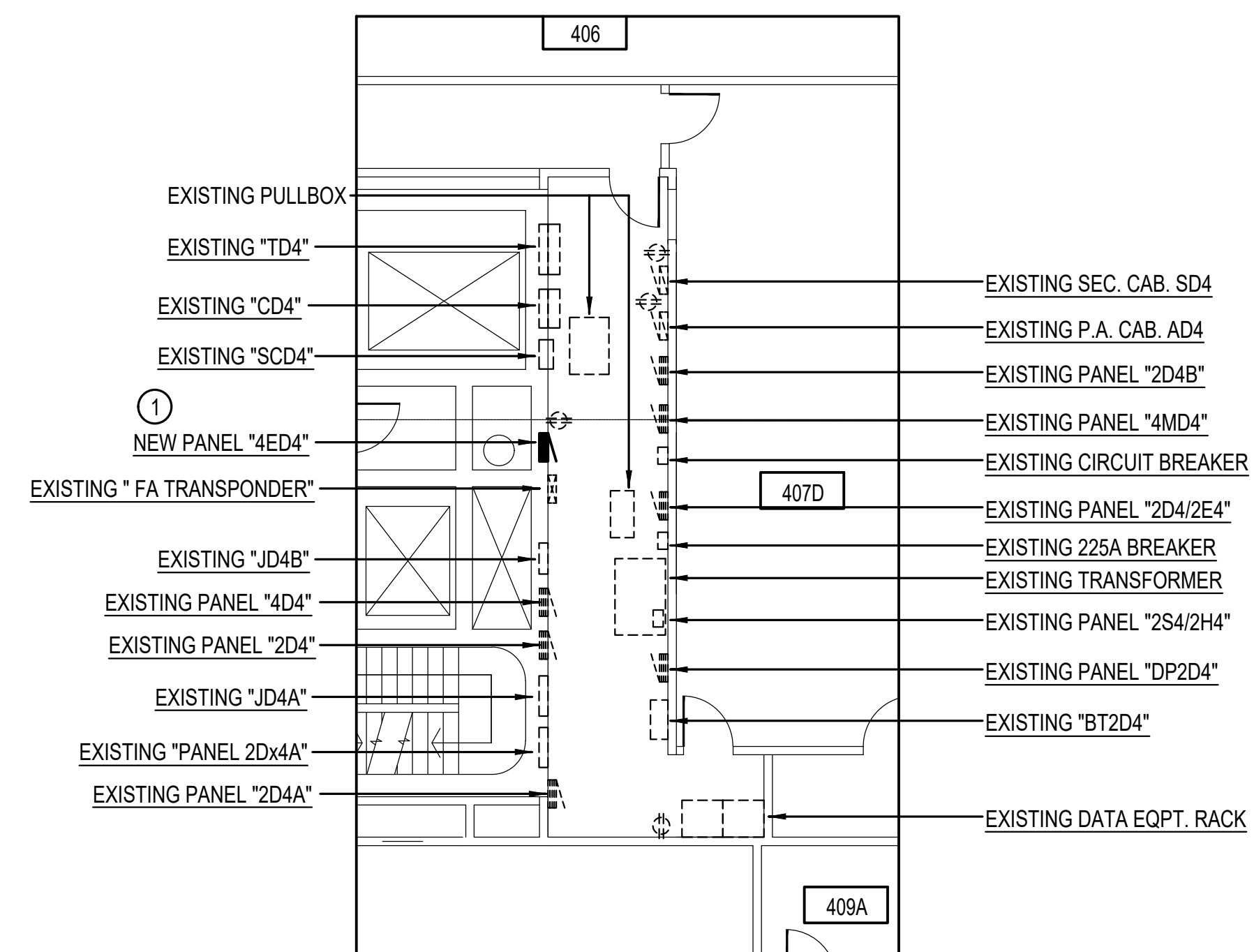
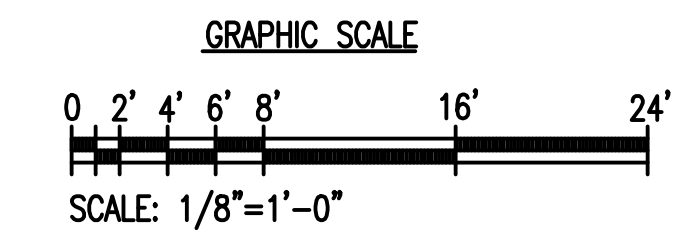




ELECTRICAL NOTES: EXISTING/REMOVAL WORK

- ① DISCONNECT AND REMOVE EXISTING ELECTRICAL PANEL. EXISTING BRANCH CIRCUIT WIRING TO REMAIN.

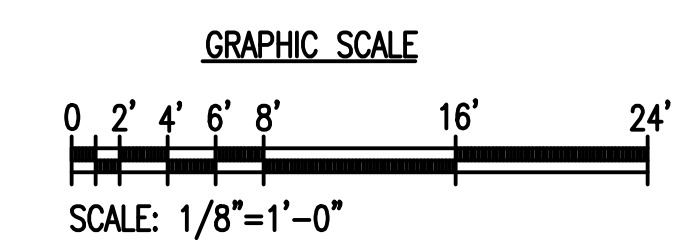
① 4TH FLOOR (DEPARTMENTAL)- EXISTING/REMOVAL WORK
E-201 SCALE: 1/8" = 1'-0"



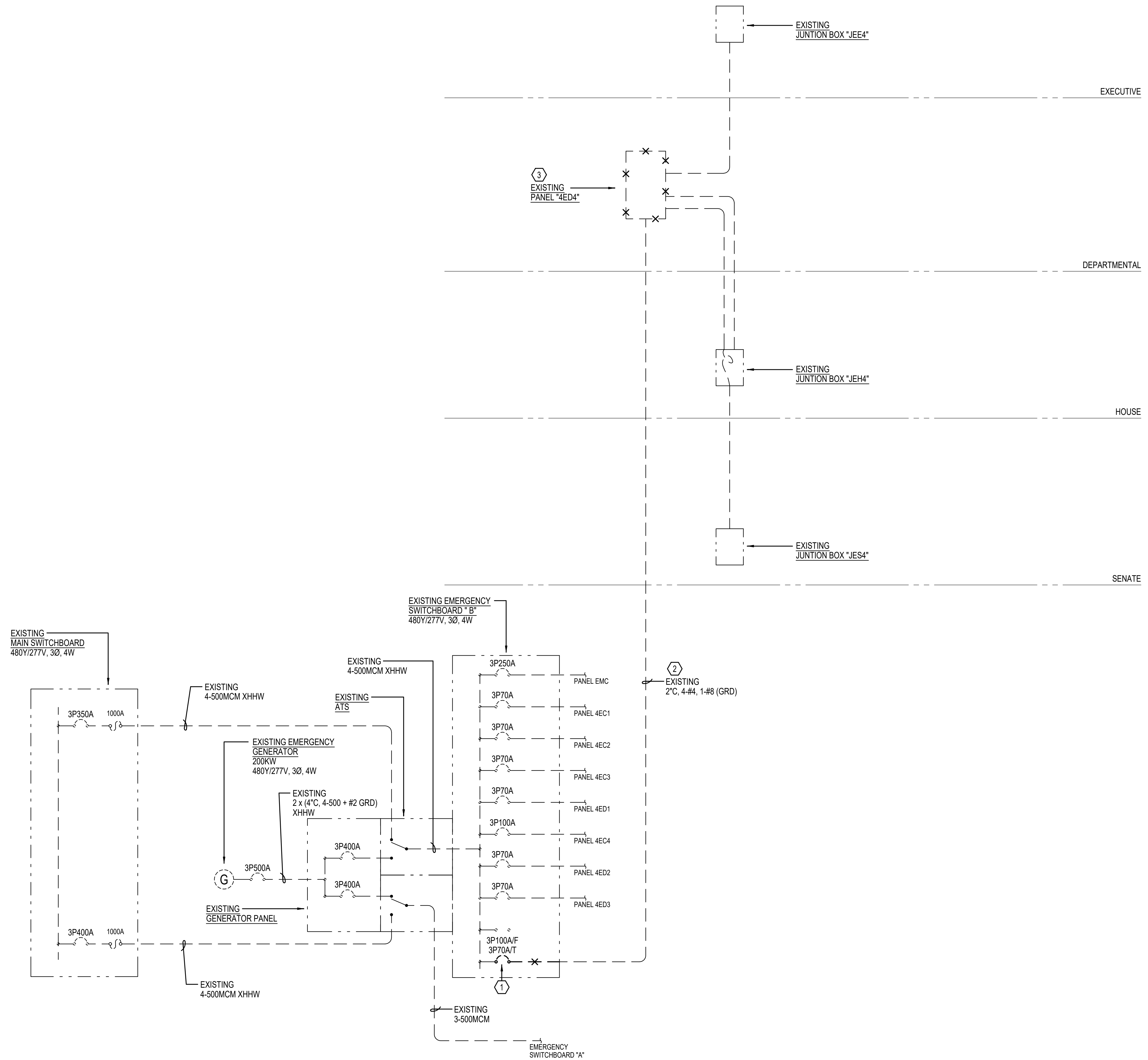
ELECTRICAL NOTES: EXISTING/NEW WORK

- ① CHIP EXISTING WALL AS REQUIRED TO INSTALL NEW ELECTRIC PANEL. CONNECT EXISTING BRANCH CIRCUIT WIRING TO NEW PANEL. PROVIDE ADDITIONAL WIRING AS REQUIRED. CONTRACTOR TO TRACE AND VERIFY EXISTING CIRCUITS. PATCH WALL TO MATCH EXISTING CONDITION. UPDATE PANEL SCHEDULE TO REFLECT AS-BUILT CONDITIONS.

② 4TH FLOOR (DEPARTMENTAL)- EXISTING/NEW WORK
E-201 SCALE: 1/8" = 1'-0"



E-004

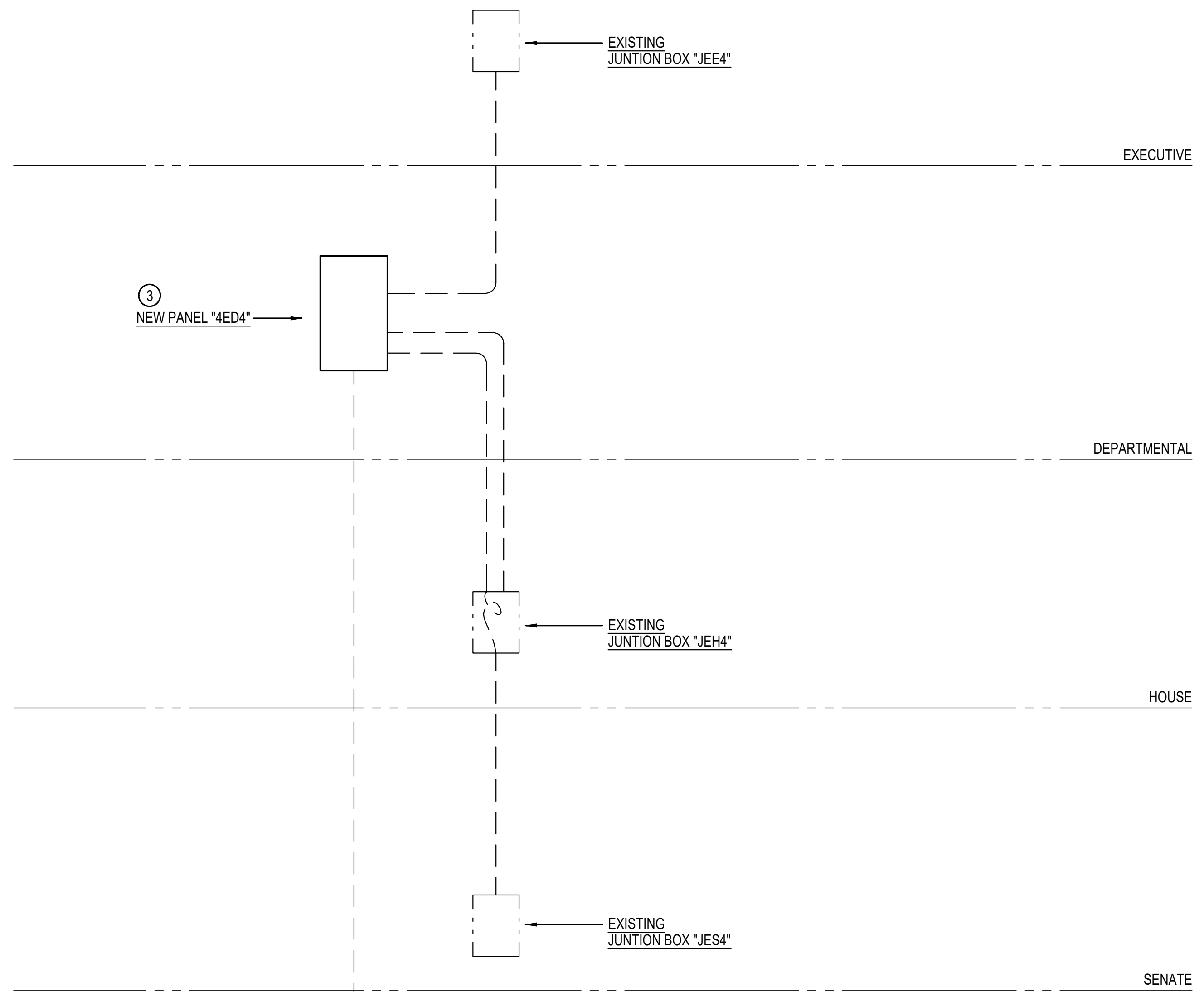


ELECTRICAL NOTES: EXISTING/REMOVAL WORK

- ① DISCONNECT AND REMOVE EXISTING CIRCUIT BREAKER.
- ② DISCONNECT AND REMOVE EXISTING WIRES IN EXISTING RACEWAY. EXISTING RACEWAY TO REMAIN AND BE RE-USED.
- ③ DISCONNECT AND REMOVE EXISTING ELECTRICAL PANEL. EXISTING BRANCH CIRCUIT WIRING TO REMAIN.

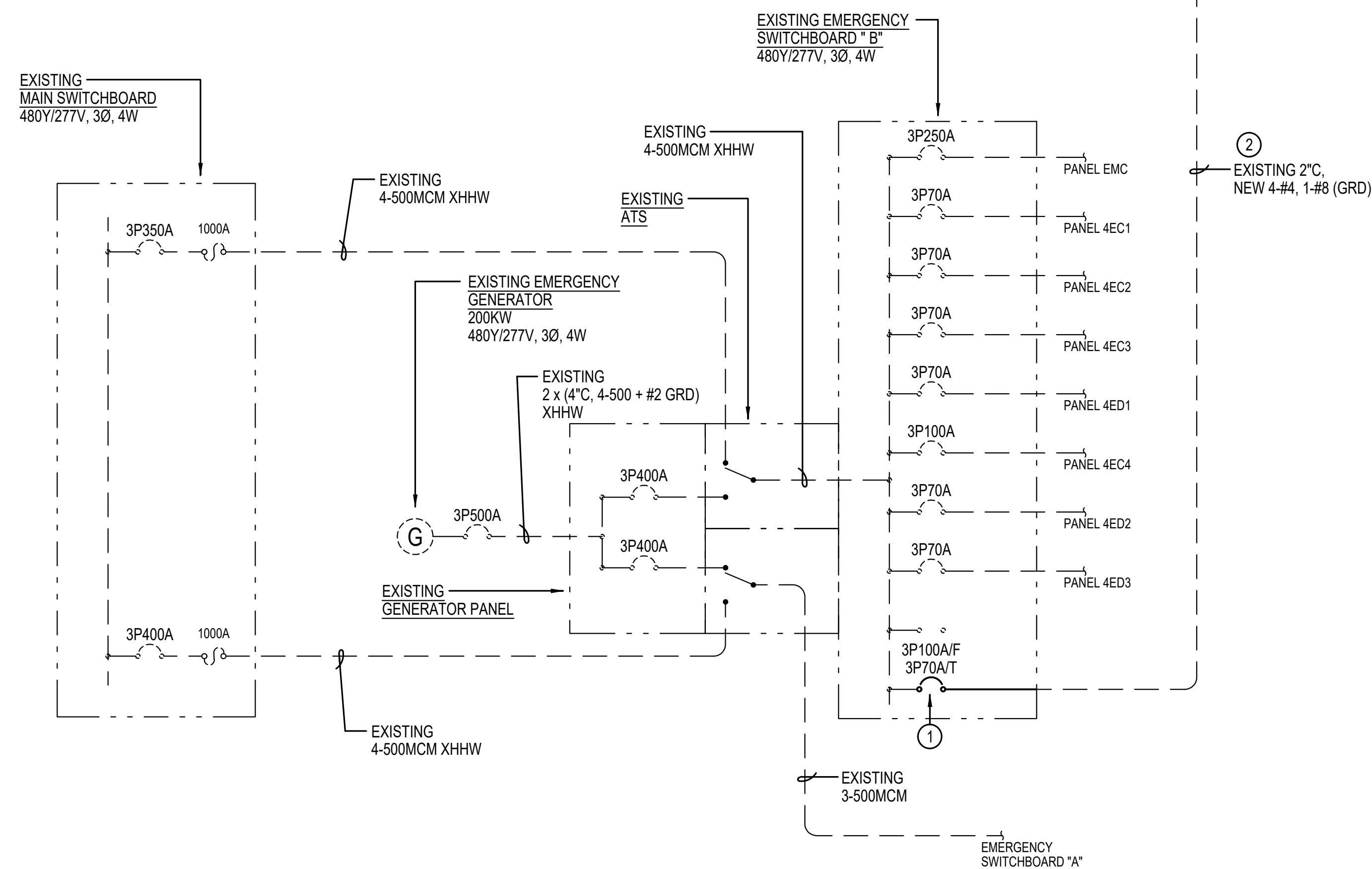
1 ONE LINE DIAGRAM - EXISTING/REMOVAL WORK
E-301 SCALE: NOT TO SCALE

E-005



ELECTRICAL NOTES: EXISTING/NEW WORK

- ① PROVIDE NEW CIRCUIT BREAKER IN EXISTING SPACE.
- ② PROVIDE NEW WIRES IN EXISTING RACEWAY.
- ③ PROVIDE NEW ELECTRIC PANEL. CONNECT EXISTING BRANCH CIRCUIT WIRING TO NEW PANEL. PROVIDE ADDITIONAL WIRING AS REQUIRED. CONTRACTOR TO TRACE AND VERIFY EXISTING CIRCUITS. UPDATE PANEL SCHEDULE TO REFLECT AS-BUILT CONDITIONS.



1 ONE LINE DIAGRAM - EXISTING/NEW WORK
E-302 SCALE: NOT TO SCALE

E-006

EXISTING PANEL "4ED4" SCHEDULE		480Y/277 VOLTS, 3 PHASES, 4 WSN BREAKER MIN. A.I.C. 10,000 FLUSH MTG. 225A MAIN LUGS ONLY					
CKT. NO.	USE	CIRCUIT BREAKER		CONNECTED LOAD (KVA)			WIRE SIZE
		POLES	AMPS	A	B	C	
1	LIGHTS - SEN CORR 4 AREA	1	20	2.8			12
2	LIGHTS - EXEC SEN HOUSE DEPT	1	20	2.8			12
3	LIGHTS - HOUSE CORR 4 AREA	1	20		2.8		12
4	LIGHTS - EXEC SEN HOUSE DEPT	1	20		2.8		12
5	LIGHTS - DEPT CORR 4 AREA	1	20			2.8	12
6	LIGHTS -	1	20			2.0	12
7	LIGHTS - EXEC CORR 4 AREA	1	20	2.8			12
8	PFB	1	---	---			---
9	PFB	1	---	---			---
10	PFB	1	---	---			---
11	PFB	1	---			---	---
12	PFB	1	---			---	---
PFB - PROVISION FOR FUTURE BREAKER		TOTAL LOAD/ PHASE		8.4	5.6	4.8	
		TOTAL LOAD		18.8	KVA		
		DEMAND FACTOR		1.0			
		DEMAND LOAD		18.8	KVA		

NEW PANEL "4ED4" SCHEDULE		480Y/277 VOLTS, 3 PHASES, 4 WSN BREAKER MIN. A.I.C. 10,000 FLUSH MTG. 225A MAIN LUGS ONLY					
CKT. NO.	USE	CIRCUIT BREAKER		CONNECTED LOAD (KVA)			WIRE SIZE
		POLES	AMPS	A	B	C	
1	LIGHTS - SEN CORR 4 AREA	1	20	2.8			12
2	LIGHTS - EXEC SEN HOUSE DEPT	1	20	2.8			12
3	LIGHTS - HOUSE CORR 4 AREA	1	20		2.8		12
4	LIGHTS - EXEC SEN HOUSE DEPT	1	20		2.8		12
5	LIGHTS - DEPT CORR 4 AREA	1	20			2.8	12
6	LIGHTS -	1	20			2.0	12
7	LIGHTS - EXEC CORR 4 AREA	1	20	2.8			12
8	PFB	1	---	---			---
9	PFB	1	---	---			---
10	PFB	1	---	---			---
11	PFB	1	---			---	---
12	PFB	1	---			---	---
PFB - PROVISION FOR FUTURE BREAKER		TOTAL LOAD/ PHASE		8.4	5.6	4.8	
		TOTAL LOAD		18.8	KVA		
		DEMAND FACTOR		1.0			
		DEMAND LOAD		18.8	KVA		

E-007