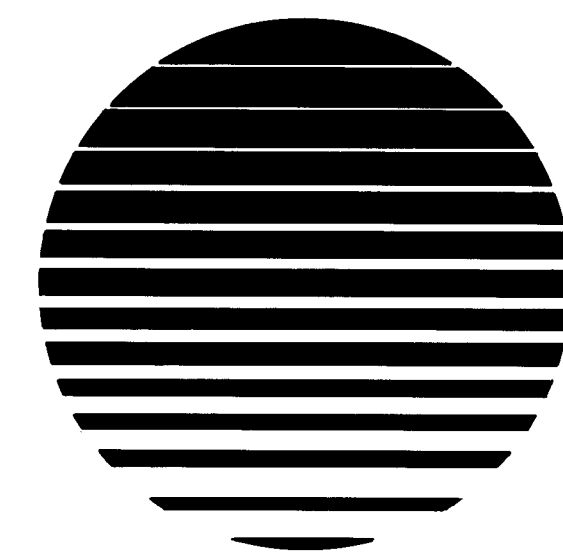


ALBUQUERQUE POLICE DEPARTMENT

EMERGENCY ENGINE GENERATOR SYSTEM



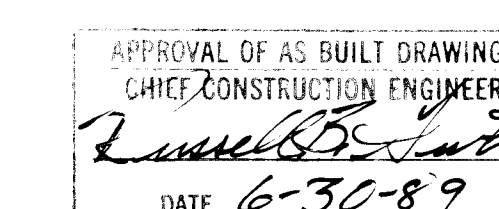
Tierra del Sol Engineering, Inc.

4600-C Montgomery N.E.

Albuquerque, New Mexico

LIST OF DRAWINGS

- E-1 PARTIAL POWER PLANS - BASEMENT & PENTHOUSE
E-2 POWER Riser DIAGRAM, DETAILS & SCHEDULES

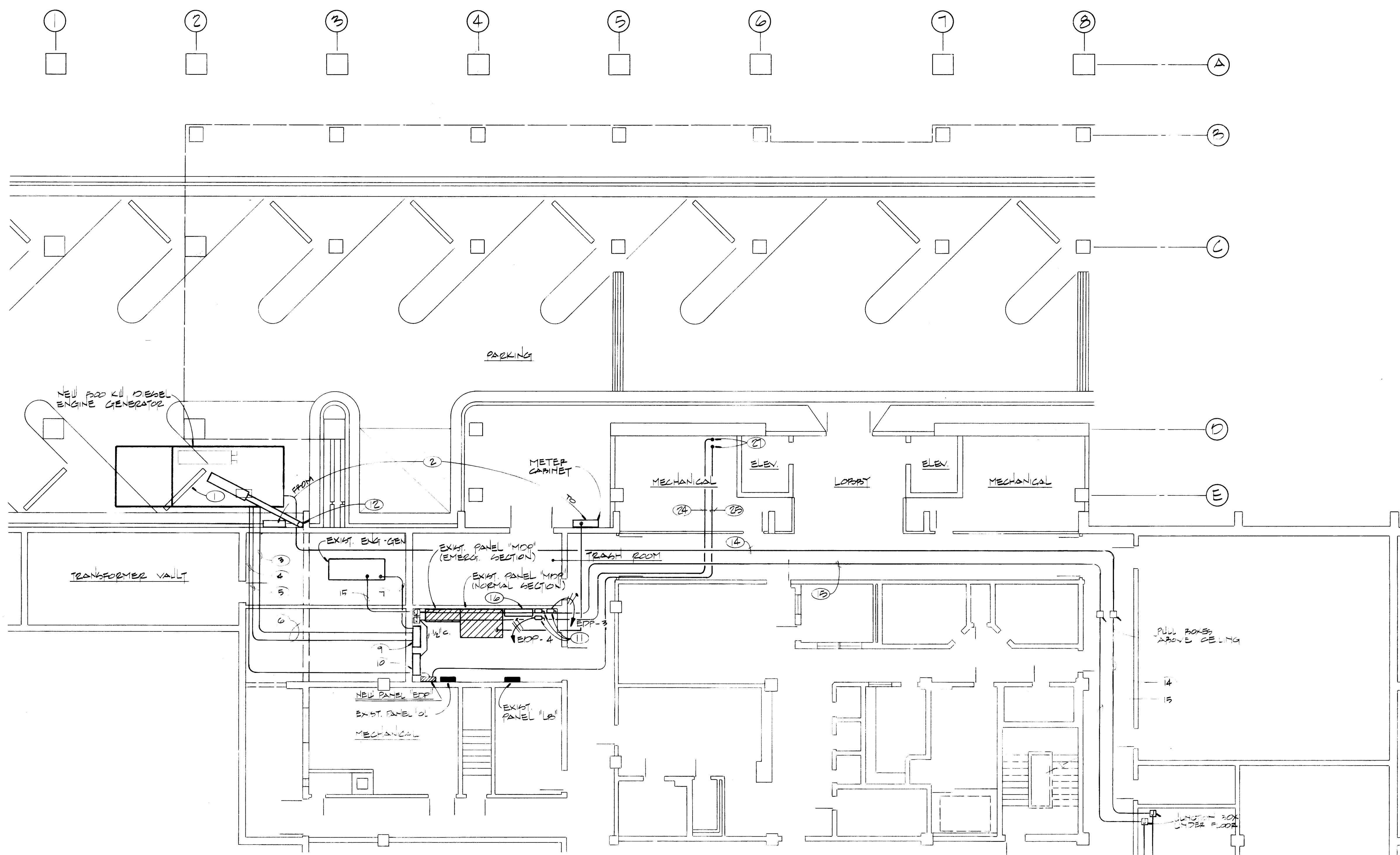


PROJECT 3592
CONTRACTOR: *Gambin Rodgers Electrical Contractors*
CITY INSPECTOR: *D. Herrera 5/11/89*

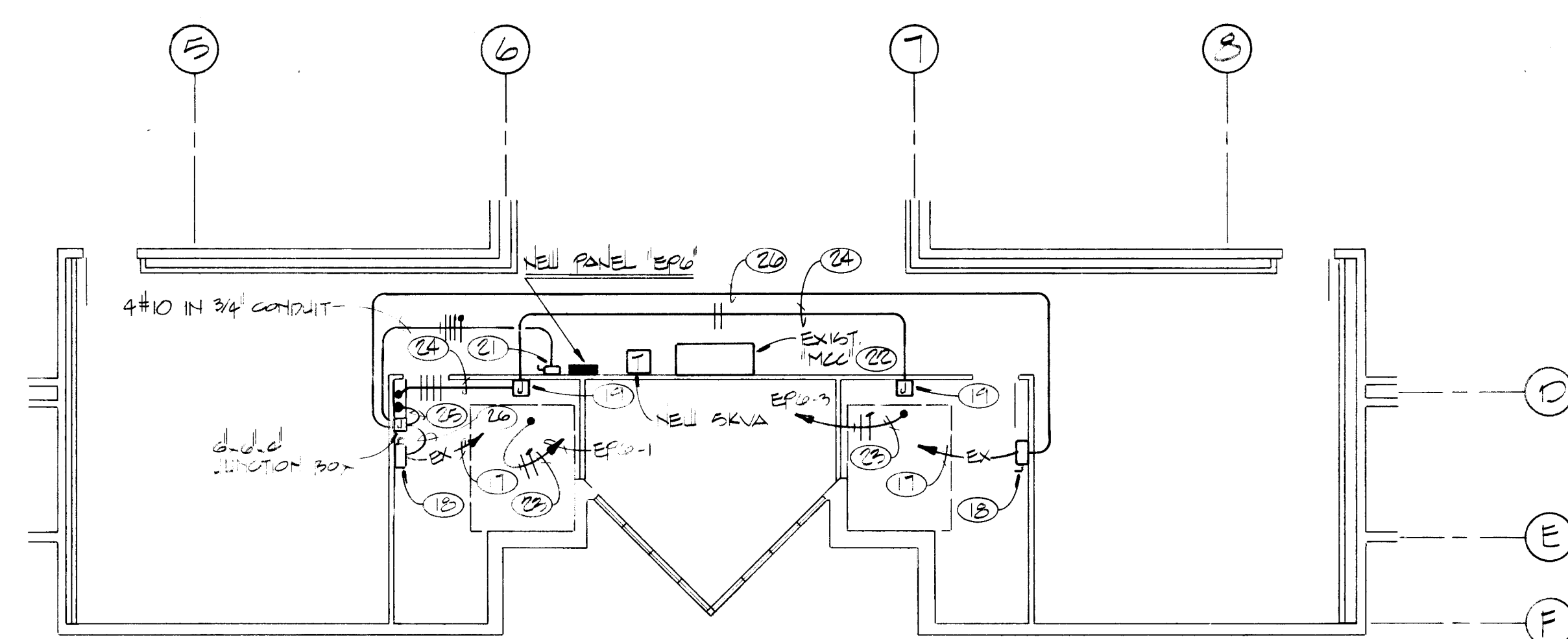
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RECORD DRAWING



PARTIAL POWER PLAN - BASEMENT



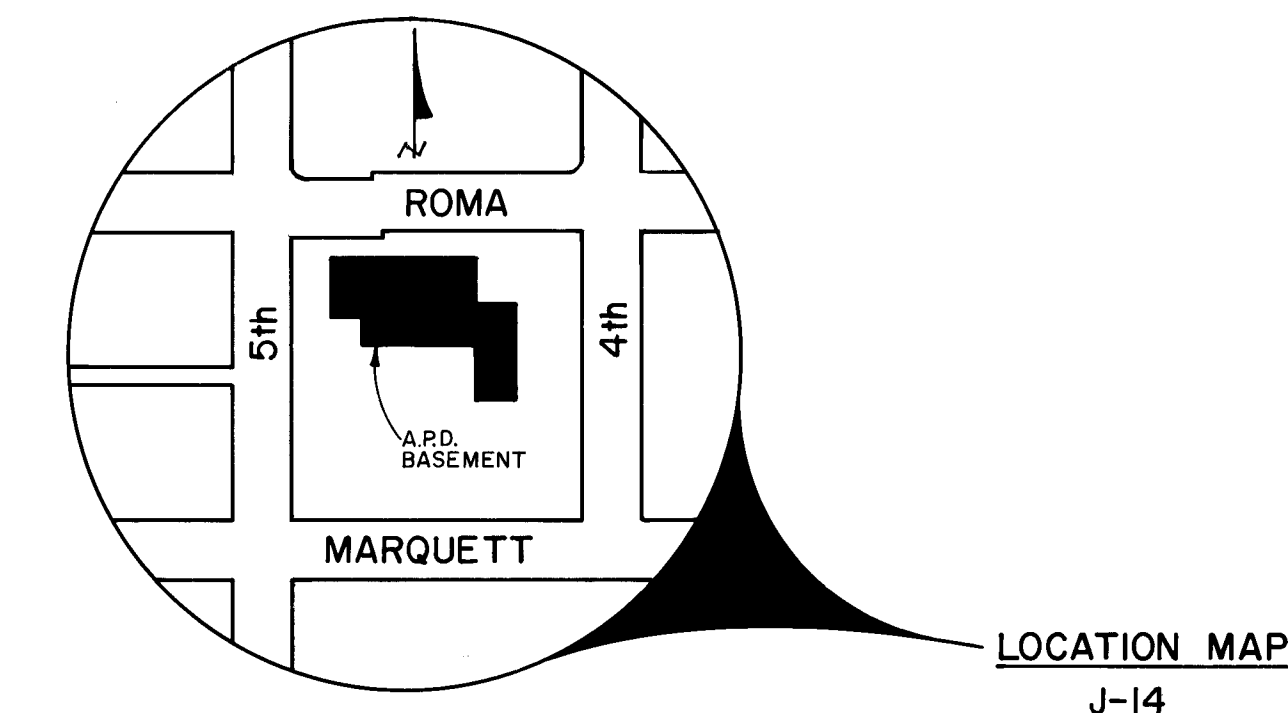
PARTIAL POWER PLAN - PENTHOUSE

KEYED NOTES

- 1 REMOVE EXISTING CONCRETE WHEEL STOP AND SALVAGE TO OWNER.
- 2 RELOCATE EXISTING E.T. CABINET TO NEW LOCATION SHOWN. EXTEND NEW CONDUIT AND WIRE AS REQUIRED. COORDINATE WITH PM.
- 3 INSTALL A 1" CONDUIT WITH REQUIRED CONTROL CONDUCTORS FROM ENGINE GENERATOR TO AUTOMATIC TRANSFER SWITCH.
- 4 INSTALL 1/6 THW AND 1/10 THW GROUND IN 1 1/2" CONDUIT. EXTEND FROM ENGINE GENERATOR CONTROL PANELBOARD TO NEW PANEL "EDP" AND CONNECT.
- 5 INSTALL TWO PARALLEL 4" CONDUITS WITH EACH CONDUIT CONTAINING 4-500 MCM THHN AND 1/10 THW GROUND.
- 6 INSTALL ALL CONDUITS INDICATED SURFACE MOUNTED ON WALL ABOVE ROOM OPENINGS.
- 7 INSTALL 4-350 MCM THHN AND 1/2 THW GROUND IN 3 1/2" CONDUIT. INSTALL CONDUIT SURFACE MOUNTED ON CEILING.
- 8 NOTE DELETED.
- 9 LOCATION OF ENGINE GENERATOR CIRCUIT BREAKERS. REFER TO POWER RISER DIAGRAM.
- 10 LOCATION OF AUTOMATIC TRANSFER SWITCH. REFER TO POWER RISER DIAGRAM. REMOVE EXISTING PLUGMOLD COMPLETE PRIOR TO INSTALLATION.
- 11 REMOVE EXISTING CONDUIT AND WIRE FEEDING FIRE ALARM AND EXIT LIGHT DISCONNECT SWITCHES. REFEED SWITCHES FROM PANEL "EDP" UTILIZING 3/4" CONDUIT AND AMOUNT OF #10 CONDUCTORS INDICATED. THE LOWER DISCONNECT SWITCH AND FEEDER TO REMAIN. INSTALL NEW #10 THW GROUND WIRE FROM EACH DISCONNECT SWITCH.
- 12 NEW EXHAUST PIPING TO BE EXTENDED UP EXTERIOR FACE OF NEW BUILDING. REFER TO ELEVATION AND MOUNTING DETAILS FOR ADDITIONAL REQUIREMENTS.
- 13 INSTALL NEW FLUSH MOUNTED ENGINE GENERATOR REMOTE ANNUNCIATOR PANELS, ONE FOR EACH GENERATOR. PANEL FOR THE 175 KW ENGINE GENERATOR SHALL BE SUPPLIED AND INSTALLED UNDER ADDITIVE ALTERNATE NO. 1. FINAL LOCATION TO BE VERIFIED WITH OWNER PRIOR TO ANY ROUGH-IN.
- 14 INSTALL A 1" CONDUIT WITH REQUIRED CONTROL CONDUCTORS. CONDUIT SHALL BE CONCEALED IN CEILING.
- 15 INSTALL A 1" CONDUIT WITH PULLWIRE. CONTROL CONDUCTORS SHALL BE INSTALLED UNDER ADDITIVE ALTERNATE NO. 1. CONDUIT SHALL BE CONCEALED IN CEILING.
- 16 EXISTING AUTOMATIC TRANSFER SWITCH AND ASSOCIATED FEEDERS TO BE REMOVED AND SALVAGED TO OWNER. REFER TO SEQUENCE OF INSTALLATION, SHEET E-2, FOR ADDITIONAL REQUIREMENTS.
- 17 REMOVE EXISTING POWER CONDUCTORS FROM EXISTING ELEVATOR DISCONNECT SWITCH TO EXISTING "MCC". REMOVE ALL SURFACE MOUNTED CONDUIT. REMOVE ALL CONTROL POWER CONDUCTORS FROM ELEVATOR CONTROL PANEL TO PANEL "P6".
- 18 EXISTING ELEVATOR DISCONNECT SWITCH TO REMAIN.
- 19 INSTALL A 4" x 4" x 1/4" SCREW COVER PULLBOX, SURFACE MOUNTED ON WALL, 72" ABOVE FINISH FLOOR. COIL 36" OF EXCESS CONDUCTORS FOR FUTURE CONNECTION.
- 20 EXTEND CONDUITS DOWN THRU ELECTRICAL ROOMS INTO BASEMENT. ALL CONDUCTORS INSIDE CONDUITS SHALL BE SUPPORTED WITH STRESS RELIEF DEVICES AS REQUIRED.
- 21 INSTALL A 30 AMP, 600 VOLT, 3 POLE, NEMA 1 FUSIBLE DISCONNECT SWITCH FOR CONNECTION TO PRIMARY SIDE OF 15 KVA DRY TYPE TRANSFORMER. FUSE SWITCH WITH 30 AMP BUSSMAN FUSETRONS.
- 22 REMOVE NAMEPLATES AND FUSES FROM THE TWO ELEVATOR SWITCHES VACATED BY REMOVALS. SALVAGE TO OWNER. INSTALL NEW NAMEPLATES READING "SPARE".
- 23 EXTEND 3/12 THW IN 1/2" CONDUIT FROM ELEVATOR CONTROL PANEL TO NEW CIRCUIT INDICATED FOR ELEVATOR CONTROL POWER.
- 24 1/2" CONDUIT WITH CONTROL CONDUCTORS INDICATED.
- 25 3/2 THW AND 1/6 THW GROUND IN 1 1/2" CONDUIT.
- 26 3/6 THW AND 1/10 THW GROUND IN 1 1/4" CONDUIT.
- 27 EXTEND CONDUITS UP THRU ELECTRICAL ROOMS INTO PENTHOUSE. ALL CONDUCTORS INSIDE CONDUITS SHALL BE SUPPORTED WITH STRESS RELIEF DEVICES AS REQUIRED. ALL CONDUITS AT THIS LEVEL SHALL BE CONCEALED ABOVE CEILING.
- 28 CONDUITS ARE TO BE CONCEALED ABOVE CEILING SPACE TO WALL, EXTENDED DOWN INSIDE WALL, THEN UNDER COMPUTER FLOOR AND UP INTO CONSOLE. CONTRACTOR SHALL CLOSELY COORDINATE INSTALLATION WITH OWNER TO PREVENT NO DISRUPTION OF ANY SYSTEM.

GENERAL NOTES

1. ANY AND ALL DESTRUCTION OF EXISTING WALLS AND/OR CEILINGS DUE TO INSTALLATION OF NEW ELECTRICAL GEAR AND CONDUITS SHALL BE RESTORED TO ITS ORIGINAL CONDITION.
2. ALL CONDUITS EXTENDING FROM BOTH ENGINE-GENERATORS SHALL BE INTERMEDIATE METAL CONDUIT.
3. AT ALL CONDUIT PENETRATIONS OF ANY FLOOR SLABS OR FIRE WALLS, SEAL WITH 3M FIRE PROOFING MATERIAL.
4. ALL EXHAUST PIPING AND MOUNTING BRACKETS SHALL BE PAINTED WITH HEAT RESISTANT PAINT TO MATCH SURROUNDING SURFACE.



PROJECT 3592
SHEET 2

26 35920189

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



LIST OF ADDITIVE ALTERNATES

PANEL SCHEDULES				
PANEL "EDP" 277/480V, 3Ø, 4W, 800A MLO, TOP FEED, DOOR-IN-DOOR CONSTRUCTION, U.L. LISTED FOR SERVICE ENTRANCE, 65,000 AIC, CIRCUIT BREAKER TO BE CURRENT LIMITING TYPE.				
CIRCUIT NO.	WIR. SIZE	WIRE SIZE	LOAD	
1,2	20A/3P	---	SPARES	
3	30A/1P	#10	EXIT LIGHTS	
4	30A/2P	#10	FIRE ALARM	
5	40A/3P	# 8	EXISTING PANEL "OL1"	
5A	50A/3P	# 8	GENERATOR CONTROL PANEL	
6	100A/3P	#2	PENTHOUSE ELEVATOR AND PANEL "EP6"	
7	225A/3P	SEE POWER RYSER	PANEL "EP1"	
8	400A/3P	SEE POWER RYSER	PANEL "MD1" -EMERGENCY SECTION	
9,10,11	100A/3P	---	SPACES	
12	225A/3P	---	SPACE	
13	400A/3P	---	SPACE	
PANEL "EP6" 120/208V, 3Ø, 4W, 225A MLO, TOP FEED, DOOR-IN-DOOR CONSTRUCTION, 65,000 AIC, COORDINATED SERIES RATING, ADDITIVE ALTERNATE NO. 2.				
1-12	20A/1P	---	SPARES	
13-33	1POLE	---	SPACES	
34	30A/2P	---		
35	30A/1P	---		
PANEL "EP6" 120/208V, 3Ø, 4W, 100A MAINS, 60A/5P 5:1N BREAKER, SURFACE MOUNT, BOTTOM FEED, 12 CIRCUIT, 10,000 AIC.				
1-3	20A/1P	#12	ELEVATOR CONTROLS	
2,4-8	20A/1P	---	SPARE	
9-12	1 POLE	---	SPACE	

1. INSTALL 500 KW ENGINE-GENERATOR INCLUDING CONCRETE PAD AND EXHAUST SYSTEM.
2. INSTALL NEW 800 AMP CIRCUIT BREAKER IN PANEL "HOP" (NORMAL SECTION).
3. INSTALL NEW AUTOMATIC TRANSFER SWITCH. (ATS).
4. INSTALL NEW CIRCUIT BREAKERS WITH MECHANICAL INTERLOCK.
5. INSTALL NEW PANELBOARD "EDP".
6. INSTALL THE FOLLOWING FEEDERS AND MAKE CONNECTIONS:
 - A. BETWEEN PANEL "HOP" (NORMAL SECTION) AND ATS.
 - B. BETWEEN PANEL "EDP" AND ATS.
 - C. BETWEEN ATS AND 800 AMP CIRCUIT BREAKER WITH INTERLOCK.
 - D. BETWEEN 800 AMP CIRCUIT BREAKER WITH INTERLOCK AND 300 AMP CIRCUIT BREAKER WITH INTERLOCK.
 - E. BETWEEN 800 AMP CIRCUIT BREAKER WITH INTERLOCK AND 500 KW ENGINE-GENERATOR.
 - F. BETWEEN 300 AMP CIRCUIT BREAKER WITH INTERLOCK AND EXISTING 175 KW ENGINE-GENERATOR. DO NOT MAKE CONNECTION TO ENGINE-GENERATOR AT THIS TIME.
 - G. BETWEEN PANEL "EDP" AND EXISTING PANEL "HOP" (EMERGENCY SECTION). DO NOT MAKE CONNECTION TO "HOP" AT THIS TIME.
 - H. BETWEEN PANEL "EDP" AND EXISTING ELEVATORS. DO NOT MAKE CONNECTION TO DISCONNECT SWITCH AT THIS TIME.
7. INSTALL ENGINE-GENERATOR REMOTE ANNUNCIATOR PANELS.
8. NEW 500 KW ENGINE-GENERATOR IS TO BE TESTED AND FULLY OPERATIONAL.
9. EXTEND FEEDER SERVING 4TH FLOOR PANEL OF RECENT ADDITION AT PANEL "HOP" TO NEW PANEL "EDP".
10. DISCONNECT EXISTING FEEDER TO PANEL "HOP" (EMERGENCY SECTION) AND CONNECT NEW FEEDER.
11. CONNECT EXISTING ELEVATORS TO NEW FEEDERS.
12. CONNECT NEW FEEDER TO EXISTING 175 KW ENGINE-GENERATOR.
13. REMOVE EXISTING AUTOMATIC TRANSFER SWITCH AND ASSOCIATED FEEDERS.
14. INSTALL NEW PANELBOARD "EDI".

EXHAUST PIPING ROUTING - WEST ELEVATION
SCALE: 1/8"=1'-0"



1	2	3	4	5	6	7	8	9	10	11	12
26			35	9	20	28	9				

1. INSTALL TWO PARALLEL 4" CONDUITS WITH EACH CONDUIT CONTAINING 4-500 MC THHN AND 1ø 1/2" THIN GROUND.
2. INSTALL 4-350 MC THHN AND 1ø 1/2" THIN GROUND IN 3" CONDUIT.
3. INSTALL AN 800 AMP, 600 VOLT AUTOMATIC TRANSFER SWITCH. REFER TO SPECIFICATIONS FOR TYPE AND SHEET E-1 FOR LOCATION. A1=100,000.
4. INSTALL A NEW 800 AMP, 3 POLE, 600 VOLT FUSIBLE DISCONNECT SWITCH AT EAST END OF EXISTING REAR.
5. REMOVE EXISTING FEEDER FROM PANEL "MDP", EMERGENCY SECTION EXTENDING TO PANEL "D.L.". EXTEND NEW CONDUIT AND WIRE AS REQUIRED TO NEW PANEL "PDP", REFEED EXISTING PANEL "VOL". EXISTING 40 AMP BREAKER IN EXISTING MD EMERGENCY SECTION TO REMAIN FEEDING 4TH FLOOR EMERGENCY PANEL.
6. INSTALL A NEW 800 AMP, 3 POLE, 600 VOLT CIRCUIT BREAKER IN A NEMA 1 ENCLOSURE. LABEL BREAKER "450 KW ENGINE GENERATOR". SEE SHEET E-1 FOR LOCATION OF CIRCUIT BREAKER. A1=100,000.
7. INSTALL A NEW 300 AMP, 3 POLE, 600 VOLT CIRCUIT BREAKER IN A NEMA 1 ENCLOSURE. LABEL BREAKER "175 KW ENGINE GENERATOR". SEE SHEET E-1 FOR LOCATION OF CIRCUIT BREAKER. A1=100,000.
8. PANEL "G 1/2" CIRCUIT BREAKERS ARE TO BE MECHANICALLY INTERLOCKED.
9. NOTE DELETED.
10. INSTALL NEW 8" ENGINE-GENERATOR EXHAUST PIPING UP VERTICAL FACE OF BUILDING, PIPING TO BE INSTALLED ON FACE OF BUILDING AS PER DETAIL ON THIS SHEET. PIPING SHALL BE SCHEDULE 20 PIPE, WELDED AT ALL CONNECTIONS, PAINT WITH HIGH TEMPERATURE PAINT, COLOR BY OWNER.
11. THIS PORTION OF PIPING TO BE FULLY INSULATED AS PER MANUFACTURERS REQUIREMENTS. INSULATION TYPE SHALL BE A MINIMUM 2" CALCIUM SILICATE WITH STAINLESS STEEL COVERING.
12. TRANSITION FROM VERTICAL TO HORIZONTAL AND FROM HORIZONTAL TO VERTICAL UTILIZING THREE 90° ELBOWS. LENGTH OF HORIZONTAL REGRESS IS APPROXIMATELY 36 FEET.
13. CIRCUIT BREAKERS TO FEED EXIT LIGHTS AND FIRE ALARM AS SCHEDULED.
14. SPARES AND SPACES AS SCHEDULED.
15. NOTE DELETED.

- 16 ATTACH GROUND CONDUCTOR TO EXISTING PANELBOARD ENCLOSURE AND GROUND BUS.
- 17 INSTALL NEW 3/4" x 10'-0" COPPER CLAD GROUNDING ROD, TOP OF ROD SHALL EXCEED TOP EXISTING EXISTING CONCRETE DRIVEWAY, EXTEND 14/0 GROUNDING CONDUCTOR TO NEW PAD REBAR FROM ROD AND ATTACH UTILIZING CABLED.
- 18 NOTE DELETED.
- 19 NOTE DELETED.
- 20 INSTALL A NEW CONCRETE PAD FOR ENGINE-GENERATOR. PAD SHALL EXCEED THE OUTSIDE GENERATOR SET DIMENSIONS BY 12". PAD SHALL BE A MINIMUM OF 6" AT THE WEST AND NORTH ENDS, TO THE WALL AT THE SOUTH AND EAST ENDS AND BE COMPLETELY LEVEL. REINFORCE PAD WITH #6 REBARS. PAD CURBS RUN HORIZONTALLY. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 1000 PSI. CUT AND REMOVE EXISTING ASPHALT PAVING, CONCRETE CURBS AND GUTTERS DIRECTLY UNDER PAD. PAD SHALL BE INSTALLED DIRECTLY ON GRADE.
- 21 3/2 THW AND 1/6 THW GROUND IN 1 1/2" CONDUIT.
- 22 3/4 THW AND 1/10 THW GROUND IN 1 1/4" CONDUIT.
- 23 3/10 THW AND 1/10 THW GROUND IN 3/4" CONDUIT.
- 24 4/6 THW AND 1/10 THW GROUND IN 1 1/4" CONDUIT.
- 25 INSTALL A 30 AMP, 600 VOLTS, 3 POLE, NEMA 1 FUSIBLE DISCONNECT SWITCH. FUSE SWITCH WITH 30 AMP BUSSMAN FUSELUGS.
- 26 DRY TYPE TRANSFORMER SHALL BE 180 VOLTS PRIMARY TO 208Y/120 VOLTS SECONDARY, THREE PHASE, FOUR WIRE. TAPS 2-2.5% ABOVE, 4+2.5% BELOW. REFER TO SPECIFICATIONS.
- 27 NOTE DELETED.
- 28 THREE MOUNTING POINTS ARE REQUIRED FOR HORIZONTAL RUN OF PIPE. AT THESE THREE LOCATIONS, BASEPLATE IS TO BE 14" SQUARE. SPACE EVENLY AND BEAR ON CONCRETE WING WALLS.
- 29 PROVIDE LAMINATED SCREW-ON NAMEPLATES FOR ALL EXISTING CIRCUIT BREAKERS IN PANEL "MDP" (NORMAL SECTION), PANEL "MDP" (EMERGENCY SECTION) AND PANEL "EDP". SUBMIT NAMEPLATE SAMPLE TO ENGINEER FOR APPROVAL. PROVIDE AND INSTALL TYPE INSTRUCTIONAL CHART, MOUNTED IN FRAME WITH PLEXIGLASS COVER. CHART SHALL PROVIDE INSTRUCTIONS AND SEQUENCE OF OPERATIONS FOR OPERATING EMERGENCY SYSTEMS INCLUDING THE MANUAL ENGINE GENERATOR TRANSFER. MANUAL TRANSFER SWITCH INSTRUCTIONS SHALL BE THE NEW 500 WVA DISCONNECT SWITCH. PROVIDE THE EMERGENCY POWER REQUIRED. SUBMIT CHART TO ENGINEER FOR APPROVAL.
- 30 INSTALL BIRD SCREEN INSIDE ENGINE GENERATOR EXHAUST PIPE. INSTALL AS PER MANUFACTURERS RECOMMENDATIONS.

SCALE: AS NOTED