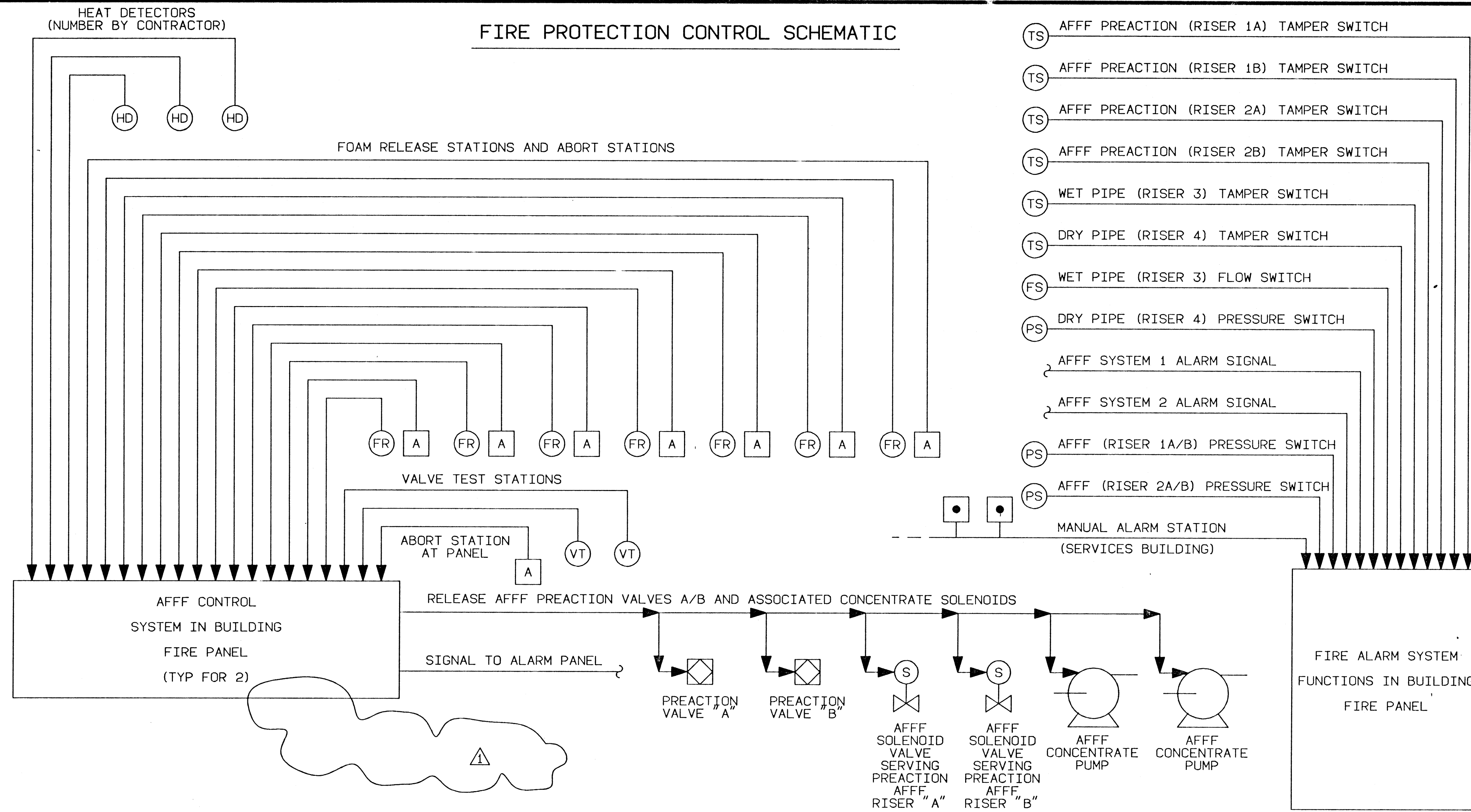


# FUNCTIONAL ANALYSIS - VE PAYS

2

## FIRE PROTECTION CONTROL SCHEMATIC



NOTE: CONTROL SYSTEMS FOR BOTH AFFF SYSTEMS AND ALARM SYSTEMS SHALL BE INTEGRATED INTO ONE PANEL.

- HEAT DETECTION SYSTEM WILL NOT BE CROSSED-ZONE PER RFI #60
- SEE SHTS M4, M6, M7, M12 FOR SMOKE DETECTOR/FA SYS. TIE-IN RFP 10, P00013, RFI-19
- SEE SHT E22 FOR RFI 92 REGARDING EXISTING BLDG 692 FA PANEL NOT PROVIDING ENOUGH SPACE FOR NEW WORK. ALSO RFP #40 P00032

BASE WIDE RADIO TRANSMITTER (MONACO BT2-4)

- FIRE DEPARTMENT NOTIFICATION (CODE SIGNAL)
- SERVICE BUILDING ALARM
- PAINT CELL 1 ALARMS
- PAINT CELL 2 ALARM
- PAINT CELL 1 FIRE DETECTION STATUS TO HVAC CONTROLS
- PAINT CELL 2 FIRE DETECTION STATUS TO HVAC CONTROLS
- SERVICE BUILDING FIRE DETECTION STATUS TO HVAC CONTROLS
- HVAC CONTROL INPUT #710
- HVAC CONTROL INPUT #720
- HVAC CONTROL INPUT #730

## SYMBOLS & ABBREVIATIONS

(S)	SOLENOID VALVE	OS&Y	OUTSIDE AND YOLK GATE VALVE
(X)	OS&Y GATE VALVE	INT	INTERMEDIATE
-FW-	FIRE WATER PIPING	FT	FOOT OR FEET
(X)	PREACTION VALVE	( )	DRY PIPE VALVE
(A)	WET PIPE VALVE	(◇)	DELUGE VALVE
(X)	POST INDICATOR VALVE	(Z)	CHECK VALVE
(X)	AFFF PROPORTIONER FITTING	(X)	PRESSURE RELIEF VALVE
(X)	FIRE HOSE STATION (FOAM)	(X)	PRESSURE CONTROL VALVE
(X)	FIRE HOSE STATION (CABINET TYPE)	TYP	TYPICAL
(FE)	FIRE EXTINGUISHING CABINET	GPM	GALLONS PER MINUTE
AFFF	AQUEOUS FILM FORMING FOAM	SQ	SQUARE
(HD)	HEAT DETECTOR	SFT	SQUARE FOOT
(PS)	PRESSURE SWITCH	HVAC	HEATING, VENTILATING AND AIR-CONDITIONING
(FS)	FLOW SWITCH	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
(VT)	VALVE TEST STATION		
(FR)	FOAM RELEASE STATION (MANUAL)		
(A)	ABORT STATION (MANUAL)		
(TS)	TAMPER SWITCH		
(X)	HORN WITH STROBE LIGHT		
(X)	MANUAL ALARM BOX (PULL STATION & PULL BOX)		
(X)	FIRE SPRINKLER RISER		
(X)	Y-STRAINER		
(X)	BASKET STRAINER		
BLD	BUILDING		
(P)	PUMP		
(G)	PRESSURE GAGE		

## AFFF PREACTION SYSTEMS CONTROL SEQUENCE

THE TWO PAINT CELLS SHALL BE PROTECTED BY AFFF PREACTION SYSTEMS. EACH OF THE CELLS (1 & 2) SHALL BE SERVED BY A SET OF PREACTION RISERS (A & B). RISER "A" SUPPLIES AFFF/WATER SOLUTION TO THE "BAY A SIDE" OF THE CELL AND RISER "B" SUPPLIES THE "BAY B SIDE" OF THE CELL. THE AFFF CONTROL SYSTEM SHALL MONITOR THE STATUS OF FIRE DETECTION, MANUAL RELEASE, ABORT AND MANUAL TEST DEVICES. THE AFFF CONTROL SYSTEM SHALL PROVIDE SIGNALS TO RELEASE PREACTION VALVES, OPEN SOLENOID VALVES AND NOTIFY THE BUILDING ALARM SYSTEM.

THE CELLS SHALL BE MONITORED FOR FIRE BY CEILING MOUNTED RATE COMPENSATING HEAT DETECTORS. THIS DETECTION SYSTEM SHALL BE IMMUNE TO FALSE SIGNALS INITIATED BY THE USE OF THE 125°F DRYING CYCLE & TEMPERATURE RAMP TO AND OFF OF THE DRYING CYCLE. THE CELLS SHALL BE ADDITIONALLY SERVED BY FOAM RELEASE STATIONS AND ABORT STATIONS (MANUAL) LOCATED NEAR PAINT CELL EXITS AND THE HOSE STATIONS INSIDE THE CELLS.

WHEN FIRE IS DETECTED IN EITHER BAY OF A CELL OR IN THE ADJACENT SPACES PROTECTED BY THE SAME RISERS SERVING THE CELL, A SIGNAL SHALL BE SENT FROM THE AFFF CONTROL SYSTEM TO THE BUILDING FIRE ALARM SYSTEM. IF TEN SECONDS PASS AND AN ABORT SWITCH IS NOT ACTIVATED, THE PREACTION VALVE AND AFFF SOLENOID VALVES SHALL BE RELEASED AND THE AFFF CONCENTRATE PUMPS ACTIVATED BY A SIGNAL FROM THE AFFF CONTROL SYSTEM. IF AN ABORT SWITCH IS PRESSED, THE SYSTEM SHALL NOT ACTIVATE AS LONG AS THE ABORT SWITCH IS NOT RELEASED (DEAD MAN TYPE SWITCH). WHEN THE ABORT SWITCH IS RELEASED, THE CLOCK SHALL BE RESET AND THE AFFF CONTROL SYSTEM SHALL RELEASE THE PREACTION VALVES AND SOLENOIDS AND POWER THE PUMPS AFTER A TEN SECOND DELAY (UNLESS A DEAD MAN SWITCH IS AGAIN USED TO REPEAT THE ABOVE SEQUENCE). THE ABORT SWITCH LOCATED ADJACENT THE FIRE CONTROL PANEL WILL SERVE BOTH AFFF SYSTEMS IN BOTH CELLS.

THE VALVE TEST STATION SHALL PROVIDE A SIGNAL TO THE AFFF CONTROL SYSTEM FOR SYSTEM TESTING.

DETECTION OF FIRE OR MANUAL ACTIVATION OF A RELEASE STATION AT ANY LOCATION SERVED BY THE AFFF CONTROL SYSTEM SHALL INITIATE BOTH RISERS SERVING THE CELL.

THE AFFF CONTROL SYSTEM OPERATIONAL STATUS SHALL BE INDICATED AT THE PANEL BY LIGHTED INDICATORS AND AUDIBLE TROUBLE ALARMS.

## FIRE ALARM CONTROL SEQUENCE

THE FIRE ALARM SYSTEM SHALL MONITOR ALL FIRE SYSTEM TAMPER SWITCHES, WET PIPE FLOW SWITCHES, DRY PIPE, AND AFFF SYSTEM PRESSURE SWITCHES AND ALARM SIGNALS FROM THE TWO AFFF CONTROL SYSTEMS.

THE FIRE ALARM SYSTEM OPERATIONAL STATUS SHALL BE INDICATED BY LIGHTED INDICATORS AND AUDIBLE TROUBLE ALARMS.

A SIGNAL FROM A TAMPER SWITCH SHALL INITIATE A TROUBLE CONDITION WITH PANEL AUDIBLE TROUBLE ALARM AND LIGHTED INDICATOR.

ACTIVATION OF A WET PIPE FLOW SWITCH SHALL INITIATE A PANEL TROUBLE ALARM, LIGHTED INDICATOR AND AN AUDIBLE EVACUATION ALARM IN THE PROTECTED AREAS.

ACTIVATION OF A MANUAL ALARM STATION (SUPPORT BUILDING) SHALL INITIATE A PANEL TROUBLE ALARM, LIGHTED SIGNAL AND SERVICE BUILDING AUDIBLE EVACUATION ALARM.

ACTIVATION OF THE DRY PIPE PRESSURE SWITCH SHALL INITIATE A PANEL TROUBLE ALARM, LIGHTED INDICATOR AND AN AUDIBLE EVACUATION ALARM THROUGHOUT THE PAINT BUILDING AND THE ASSOCIATED SERVICE BUILDING. ALARMS IN THE PAINT CELLS SHALL BE BOTH AUDIBLE AND VISUAL (STROBE).

A SIGNAL FROM ONE OF THE AFFF CONTROL SYSTEMS SHALL INITIATE A PANEL TROUBLE ALARM, A LIGHTED INDICATOR, AN AUDIBLE EVACUATION ALARM AND STROBE IN THE PROTECTED AREA.

THE SIGNAL SENT TO AND THROUGH THE BASE WIDE RADIO TRANSMITTER SHALL BE CODED TO INDICATE TYPE OF SIGNAL (TROUBLE, ALARM CELL 1, ALARM CELL 2, ALARM SERVICE BUILDING). CODED SIGNAL SHALL BE COORDINATED WITH EXISTING BASE FIRE DEPARTMENT SYSTEM. SIGNALS SHALL BE SENT TO THE BASE FIRE DEPARTMENT FOR ACTIVATED TAMPER SWITCHES, ACTIVATED FLOW SWITCHES, ACTIVATED MANUAL ALARM STATIONS, ACTIVATION OF PRESSURE SWITCHES OR A FIRE DETECTED CONDITION FROM AN AFFF CONTROL SYSTEM. ACTIVATION OF THE NEW AFFF SYSTEM INCORPORATED INTO BLD 692 SHALL BE CONTROLLED THROUGH INTERCONNECTION TO THE EXISTING ALARM/CONTROL SYSTEM SERVING THE EXISTING WATER DELUGE SYSTEM. SEE FOR MODIFICATION TO EXISTING BLD 692 FIRE PROTECTION PIPING.

ALARM & TROUBLE RELAY OUTPUTS SHALL BE FORM "C". PANEL WILL INCLUDE ZONE DISCONNECT SWITCHES TO DISABLE ALARMS FROM EACH INDIVIDUAL ZONE.

FP-1 FP-4

## SYSTEM OUTPUTS

## SYSTEM INPUTS

## FIRE ALARMS

	A	B	C	D	E	F	G	H	M	N	O	P	R	S	T	U	V	W
1	MANUAL FIRE ALARM STATIONS	X			X			X			X			X	X	X		
2	RATE-COMPENSATED TYPE HEAT DETECTORS ON HANGER CEILING	X			X			X	X				X	X	X		X	
3	WATERFLOW SWITCHES-WET OR DRY-PIPE SPRINKLER SYSTEMS	X			X						X			X	X	X		
4	WATERFLOW SWITCHES-PRE-ACTION SPRINKLER SYSTEMS	X			X						X			X	X		X	

## SUPERVISORY SIGNALS

	A	B	C	D	E	F	G	H	M	N	O	P	R	S	T	U	V	W
5	VALVE SUPERVISORY SWITCH-WET OR DRY-PIPE SPRINKLERS	X			X					X								
6	VALVE SUPERVISORY SWITCH-PRE ACTION SPRINKLERS	X			X					X								
7	VALVE SUPERVISORY SWITCH-WATER SUPPLY ENTRANCE	X			X					X								
8	HI-LO AIR PRESSURE SWITCHES DRY-PIPE SPRINKLERS	X			X					X								
9	HI-LO PRESSURE SWITCHES PRE-ACTION SPRINKLERS	X			X					X								
10	CONTROL COMPONENT COMMON TROUBLE CONDITION				X					X								
11	REMOTE SIGNALLING MODULE DISCONNECT SWITCH ACTIVATED		X			X				X								

## TROUBLE CONDITIONS

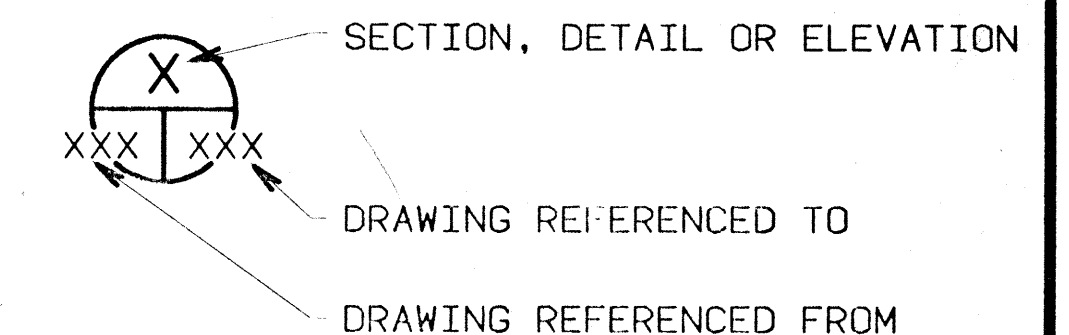
	A	B	C	D	E	F	G	H	M	N	O	P	R	S	T	U	V	W
12	LOW BATTERY VOLTAGE			X		X			X									
13	CIRCUIT FAULT		X	X		X			X									
14	SUPERVISE COMPONENT FAILURE			X		X			X									
15	AC POWER FAILURE			X		X			X									
16	AFFF PUMP FAILURE			X														

## NOTES:

- FIRE ALARM SIGNALS AND SUPERVISORY ALARM SIGNALS SHALL BE CLEARLY DIFFERENTIATED AT THE FIRE CONTROL PANEL (S).
- ONLY ONE CATEGORY OF EVACUATION SIGNALS SHALL SOUND AT A TIME. AFFF PRE-DISCHARGE OR AFFF DISCHARGE SIGNALS SHALL OVERRIDE LOCAL FIRE ALARM SIGNALS. AFFF DISCHARGE SIGNALS SHALL OVERRIDE AFFF PRE-DISCHARGE SIGNALS. EVACUATION SIGNALS SHALL CONTINUE TO SOUND UNTIL THEY ARE RESET FROM THE FIRE ALARM PANEL.
- GENERAL AREA MEANS THE SPECIFIC BAY, OFFICE AREA, MECHANICAL AREA, ETC. SYSTEM ZONING SHALL BE SUFFICIENT TO DIRECT RESPONDING FIREFIGHTERS DIRECTLY TO THE FIRE AREA.
- "WATER FLOW" SWITCHES SHALL BE FLOW OR PRESSURE SWITCHES AS INDICATED.

## NOTES

- ELEVATIONS NOT REFERENCED FROM A DATUM (EXAMPLE FINISHED FLOOR GRADE) ARE REFERENCED TO A 0'-0" DATUM AT 63'-6" ABOVE THE GEODETIC DATUM OF 1929.
- CROSS REFERENCES ARE INDICATED AS BELOW

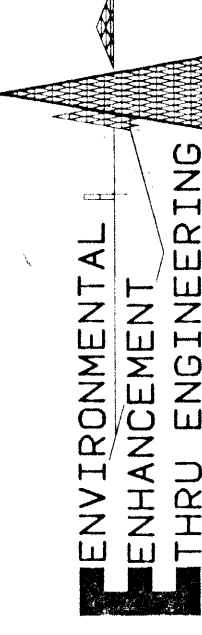


- PROVIDE DIELECTRIC INSULATING FITTINGS TO ALL UNDERGROUND METALLIC PIPING, BOTH AT TRANSITIONS TO ABOVE GROUND AND AT CONNECTIONS TO EXISTING PIPING.
- FIRE WATER HYDRAULIC TEST DATA: SEE DRAWING C-7

REVISION	DATE	DESCRIPTION	BY	BY
11/25/92		MISCELLANEOUS REVISION		
NORMAN ENGINEERING CO.			DEPARTMENT OF THE ARMY	
CONSULTING ENGINEERS LOS ANGELES, CALIFORNIA			SACRAMENTO DISTRICT, CORPS OF ENGINEERS	
SACRAMENTO, CALIFORNIA			SACRAMENTO, CALIFORNIA	
DESIGNED BY	E. ABRAMIAN		MCCLELLAN AIR FORCE BASE CALIFORNIA	
DRAWN BY	D. MARTINOLI		ADAL DEPOT CORROSION CONTROL FACILITY	
CHECKED BY	K. GOODWIN		NEW AIRCRAFT PAINT FACILITY	
			FIRE PROTECTION SCHEMATIC, SCHEDULE & SYMBOLS	
SUBMITTED	DATE APPROVED	SCALE	SHEET	FILE NO.
		1" = 1'-0"	FP-1	100-25-2051
	9/30/92		69 OF 95	

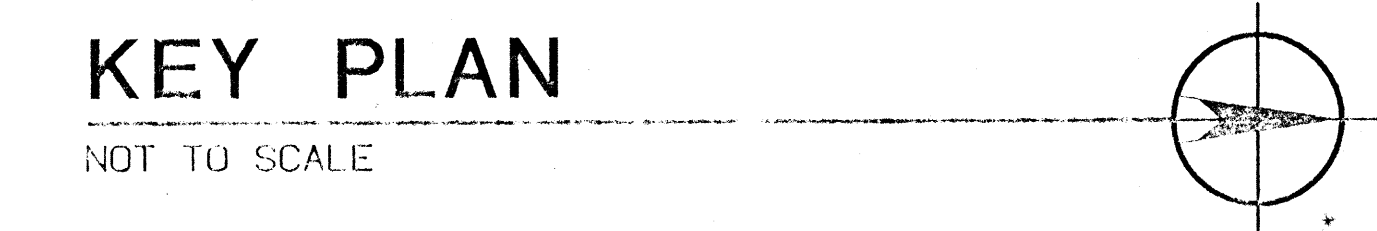




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1. HYDRAULIC CALCULATIONS TO PAINT CELL 1 SHALL ASSUME SPRINKLERS OVER AN AREA OF 18000 SQ FT ARE ACTIVATED.
2. HYDRAULIC CALCULATIONS TO THE SUPPORT BUILDING SHALL ASSUME 3,900 SQ FT OF SPRINKLERS ARE ACTIVATED.
3. SPACE HEAT DETECTORS USED IN CELL 1 BAY A AND BAY B ON 12 FEET ON CENTER MAXIMUM AND IN COMPLIANCE WITH NFPA 72.
4. CONNECT TO STATIONARY WIRING SYSTEM VIA FESTOON CABLE.

~~Drawing Sheets FP-2 and FP-3:~~ *Addendum No 0006*  
Add the following: Outside hose stream shall be 500 gpm and is indicated on Sheet C-7 to be fed from the domestic water system. But for the AFFP system, no fire hydrants are to be assumed. Simultaneous operation of the AFFP system and the other systems is not to be assumed. For information only: the 500 gpm hose stream mentioned above will serve as the hostream for the AFFP system.

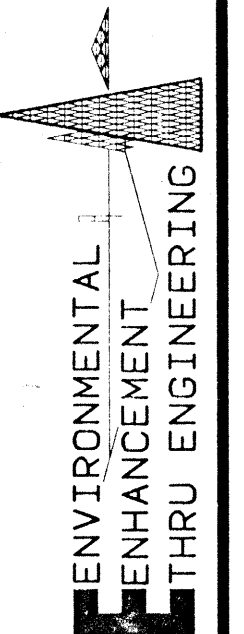


 DIVISION	11/25/92	MISCELLANEOUS REVISIONS	RT	
	DATE	DESCRIPTION	BY	BY
NORMAN ENGINEERING CO. CONSULTING ENGINEERS LOS ANGELES, CALIFORNIA			DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA	
DESIGNED:	MCCLELLAN AIR FORCE BASE		CALIFORNIA	
DRAWN:  D. LOPEZ	ADAL DEPOT CORROSION CONTROL FACILITY			
CHECKED:  K. GOODWIN	NEW AIRCRAFT PAINT FACILITY			
FIRE PROTECTION PLAN-SOUTH SIDE				
SUBMITTED:	DATE APPROVAL:	SCALE:	SHEET NO.	SPEC. NO.
	9/30/92	1" = 1'-0" CORNERS FP-2 70 x 95	FILE NO.	8529
		100-25-2051		

Am-2 BF

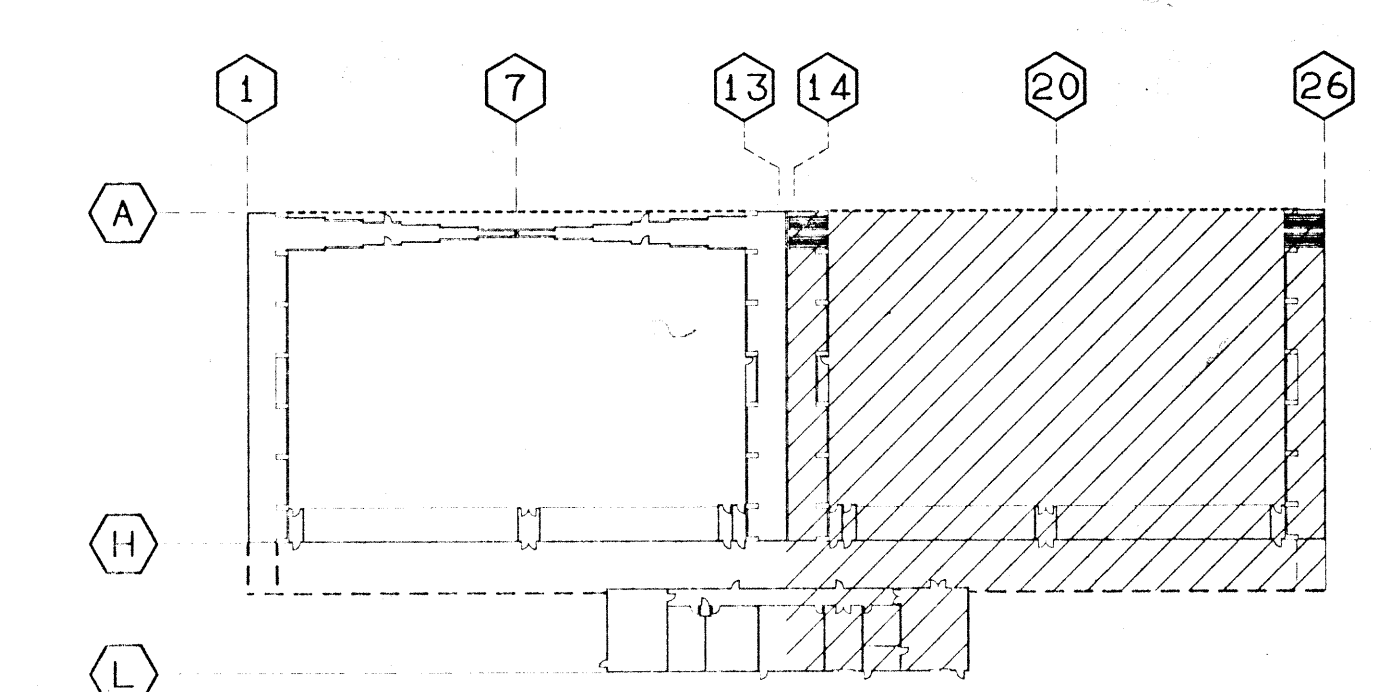


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- 

THIS "HATCHED"  
AREA IS SUBJECT  
TO FREEZING



NOT TO SCALE

PAYS

Am-2 BF







## FUNCTIONAL ANALYSIS - VE PAYS

## ELECTRICAL SYMBOLS LIST

## PLAN SYMBOLS

## SINGLE LINE DIAGRAM SYMBOLS

(XXX)	CONDUIT NUMBER, SEE CONDUIT AND CABLE SCHEDULE	⊙	WALL MOUNTED LIGHT FIXTURE (TYPE AS NOTED)
LPA1-1,3,5	HOME RUN TO PANEL W/CIRCUITS AND SIZE INDICATED. 1, 3 & 5 W/12 CONDUCTORS. SLASHES INDICATE CONDUCTOR FILL. LONGER SLASH INDICATES NEUTRAL AND CURVE SLASH INDICATES GROUND WIRE. NO SLASH INDICATES 2#12 & #12 GND. OR CONDUCTORS AS NOTED. ALL CONDUITS SHALL CARRY A GROUND.	⊠	POLE MOUNTED FIXTURE
---	CONDUIT	⊗	EMERGENCY EXIT SIGN, CEILING MOUNTED
---	CONDUIT UNDERGROUND	⊗	EMERGENCY EXIT SIGN, WALL MOUNTED
~	FLEXIBLE METAL OR LIQUIDTIGHT FLEX METAL CONDUIT	S <sub>0</sub>	SWITCH, SINGLE POLE, 20A, 277V, 4-6" AFS UNLESS NOTED OTHERWISE. LOWER-CASE LETTER IDENTIFIES CONTROLLED FIXTURES, TWO OR MORE LETTERS INDICATES TWO OR MORE SWITCHES IN THE SAME LOCATION.
—●—	CONDUIT TURNING UP OR TOWARD OBSERVER	S <sub>3</sub>	SAME AS ABOVE EXCEPT 3-WAY
—○—	CONDUIT TURNING DOWN OR AWAY FROM OBSERVER	S <sub>P</sub>	SAME AS ABOVE EXCEPT W/PILOT LIGHT
—■—	CONDUIT WITH SEAL FITTING (HAZARDOUS AREAS)	S <sub>T</sub>	TIMER SWITCH, MECHANICAL TYPE
—E—	EMERGENCY CIRCUIT	S <sub>X</sub>	EXPLOSION PROOF SWITCH, SINGLE POLE, 20A, 277V UNLESS NOTED OTHERWISE.
—T—	TELEPHONE	(PC)	PHOTO-ELECTRIC CONTROL
—FA—	FIRE ALARM	⊠	TELEPHONE PANEL
—S—	SECURITY	⊠	TELEPHONE OUTLET
⊙	GROUND ROD	△	LOCAL AREA NETWORK (LAN) OUTLET
⊗	GROUND RECEPTACLE	⊠	FIRE ALARM PANEL
—G—	GROUND WIRE	D	DURESS SWITCH (FOOT OPERATED)
—G+—	GROUND WIRE WITH EXOTHERMIC WELD CONNECTION	⊠	GLASS BREAK SENSOR
⊠	SWITCHBOARD, DISTRIBUTION PANELBOARD OR MOTOR CONTROL CENTER	⊠	BALANCED MAGNETIC SWITCH
⊠	POWER OR LIGHTING PANEL AS NOTED	LS	MECHANICAL LIMIT SWITCH
⊠	TRANSFORMER	MDK	MOTION DETECTOR (PASSIVE INFRARED)
⊠	MANHOLE	XXX XXX	SECTION OR IDENTIFICATION LETTER OR NUMBER
⊙	JUNCTION BOX, FIELD SIZED.	---	OVERHEAD LINES
⊠	JUNCTION BOX, SPECIAL (SIZE AS NOTED)		
⊠	PULL BOX (SIZE AS NOTED)		
⊠	120V, 10, 60Hz, 20A, DUPLEX, 2 POLE, 3 WIRE PARALLEL BLADE NEMA 5-20R. ALL RECEPTACLES SHALL BE MOUNTED 18" AFS UNO.		
⊠	120V, 10, 60Hz, 20A, 2 POLE EXPLOSION PROOF RECEPTACLE MTD 18" AFS UNO		
⊠	4-PLEX RECEPTACLE, 120V, 20A, 2 POLE, 3 WIRE STRAIGHT BLADE, 18" AFS, NEMA 5-20R		
⊠	SAME AS 4-PLEX, EXCEPT FLOOR MOUNTED.		
⊠	60A, 480V, 3 POLE, 4 WIRE GROUNDING RECEPTACLE		
⊠	LIGHTING FIXTURE DESIGNATION: LETTER INDICATES TYPE, NUMBER INDICATES TOTAL FIXTURE WATTAGE		
⊠	RECESSED FLUORESCENT (TYPE AS NOTED)		
⊠	SURFACE MOUNTED FLUORESCENT (TYPE AS NOTED)		
⊠	INDUSTRIAL FLUORESCENT (TYPE AS NOTED)		
⊠	FLUORESCENT FIXTURE W/90 MINUTE EMERGENCY BATTERY PACK (TYPE AS NOTED) OR ON EMERGENCY CIRCUIT.		
⊠	HID FIXTURE (TYPE AS NOTED)		
⊠	HID FIXTURE W/QUARTZ BACKUP		
⊠	INCANDESCENT FIXTURE (TYPE AS NOTED)		

5KV	LOAD INTERRUPTER SWITCH, NUMBER INDICATES VOLTAGE RATING	100AF 40AT	MOLDED CASE CIRCUIT BREAKER, NUMBERS INDICATE AMPERE FRAME SIZE AND THERMAL/MAGNETIC TRIP RATING
150E	FUSE, NUMBER INDICATES RATING	30A MCP	COMBINATION MOTOR CONTROLLER WITH MOTOR CIRCUIT PROTECTOR, NUMBERS INDICATE AMPERE RATING AND STARTER SIZE. WITH MANUAL, OFF, AUTOMATIC SELECTOR IN STARTER COMPARTMENT UNLESS NOTED OTHERWISE.
⊠	CIRCUIT BREAKER, M.V., DRAW OUT	10	MOTOR, NUMBER INDICATES HORSEPOWER
⊠	SEPARABLE CONNECTOR	3.4	MOTOR WITH COMBINATION MAGNETIC MOTOR STARTER AND CONTROL AS A PACKAGE UNIT, NUMBER INDICATES HORSEPOWER
⊠	POWER TRANSFORMER, DELTA PRIMARY AND WYE SECONDARY WITH LINE TO LINE AND LINE TO GROUND VOLTAGES AS NOTED.	3	SAME AS ABOVE EXCEPT COMPLETE WITH DISCONNECT SWITCH
12. KV 480/277		⊠	TRANSFORMER, POTENTIAL
⊠	VOLTMETER	⊠	CAPACITOR
⊠	VOLTMETER SWITCH	⊠	GROUND
⊠	WATT-HOUR DEMAND METER	⊠	DISCONNECT SWITCH
⊠	AMMETER SWITCH	⊠	STATION TYPE LIGHTNING ARRESTOR, CLASS AS SPECIFIED.
⊠	AMMETER		
⊠	GROUND FAULT TRIPPING		
⊠	CONDUIT NUMBER, SEE CONDUIT AND CABLE SCHEDULE		
(3) 2500/5	CURRENT TRANSFORMER, FIRST NUMBER INDICATES QUANTITY, SECOND SET OF NUMBERS INDICATES RATIO		

## ABBREVIATIONS

A	AMPERE, AMP	FLEX	FLEXIBLE	P	POLE
AC	ALTERNATING CURRENT	FUT	FUTURE	(P)	POWER
AF	AMP FRAME	FVNR	FULL VOLTAGE NON-REVERSING	PB	PUSHBUTTON
AFS	ABOVE FINISH SURFACE	FVR	FULL VOLTAGE REVERSING	PC	PROGRAMMABLE CONTROLLER
AH	AIR HANDLER	G	GREEN, GROUND	PF	POWER FACTOR
AL	ALUMINUM	GBS	GLASS BREAK SENSOR	PNL	PANEL
AMP	AMPERE	GEN	GENERATOR	PP	POWER PANEL
AS	AMMETER SWITCH	GF	GROUND FAULT	PPCS	PROGRAMMABLE PROCESS CONTROL SYSTEM
AUTO	AUTOMATIC	GFI	GROUND FAULT CIRCUIT INTERRUPTER	PRI	PRIMARY
AT	AMP. TRIP	GND	GROUND, GROUNDING	PT	POTENTIAL TRANSFORMER
AWG	AMERICAN WIRE GAUGE	HTD	HIGH INTENSITY DISCHARGE	PTT	PUSH TO TEST
&	AND	HDA	HAND-OFF-AUTOMATIC	PVC	POLY VINYL CHLORIDE
BATT	BATTERY	HP	HORSEPOWER	Φ	PHASE
BLDG	BUILDING	HPF	HIGH POWER FACTOR	QTY	QUANTITY
BKR	BREAKER	HS	HAND STATION	RECP	RECEPTACLE
BMS	BALANCED MAGNETIC SWITCH	HVAC	HEATING-VENTILATION-AIR CONDITIONING	REQ'D	REQUIRED
BOF	BOTTOM OF FIXTURE (ABOVE FINISHED SURFACE)	Hz	HERTZ (CYCLE PER SECOND)	RGS	RIGID GALVANIZED STEEL
BUSH	BUSHING	IDS	INTRUSION DETECTION SYSTEM	RM	ROOM
C	CONDUIT	IMC	INTERMEDIATE METAL CONDUIT	R	RESISTANCE
(C)	CONTROL	IR	INFRARED	SEC	SECONDARY
CAB	CABINET	KV	KILO VOLT	SHT	SHEET
CAT	CATALOG	KVA	KILO VOLT AMPERE	SOL	SOLENOID
CB	CIRCUIT BREAKER	KW	KILO WATT	SP	SPARE
CKT	CIRCUIT	KWH	KILO WATT HOUR	SPD	SPEED
CO	CONDUIT ONLY	LT	LIGHTING	STA	STATION
CPG	COUPLING	LTG	LIGHTING	STR ST	STRUCTURAL STEEL
CPT	CONTROL POWER TRANSFORMER	M	MOTOR	SWB	SWITCHBOARD
CT	CURRENT TRANSFORMER	MAX	MAXIMUM	SWGR	SWITCHGEAR
CU	COPPER	MCC	MOTOR CONTROL CENTER	SW	SWITCH
DB	DISTRIBUTION BOARD	MCM	THOUSAND CIRCULAR MILS	SYM	SYMMETRICAL
DC	DIRECT CURRENT	MCP	MOTOR CIRCUIT PROTECTOR	TBD	TO BE DETERMINED
DISC	DISCONNECT	MD	MOTION DETECTOR	TEL	TELEPHONE
DIST	DISTRIBUTION	MFG	MANUFACTURER	TEMP	TEMPERATURE
DP	DOUBLE POLE	MLO	MAIN LUG ONLY	UG	UNDERGROUND
DPDT	DOUBLE POLE DOUBLE THROW	MH	MANHOLE, METAL HALIDE	UL	UNDERWRITERS LABORATORY
DPST	DOUBLE POLE SINGLE THROW	M.H.	MOUNTING HEIGHT	UNO	UNLESS NOTED OTHERWISE
DS	DURESS SWITCH	MIN	MINIMUM	WHD	WATT-HOUR DEMAND
DTC	DATA TERMINATION CABINET	MTD	MOUNTED	WT	WATERTIGHT
DWG	DRAWING	NC	NORMALLY CLOSED	W/	WITH
(E)	EXISTING	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION	WP	WEATHERPROOF
EF	EXHAUST FAN	NIC	NOT IN CONTRACT	W	WATT, WIRE
EFF	EFFICIENCY	NL	NIGHT LIGHT, UNSWITCHED	XFMR	TRANSFORMER
EL	ELEVATION	NO	NORMALLY OPEN		
ELEC	ELECTRIC	#	NUMBER		
EMCS	ENERGY MONITORING & CONTROL SYSTEM				
EMT	ELECTRICAL METALLIC TUBING				
ENCL	ENCLOSURE				
EQUIP	EQUIPMENT				
EXIST	EXISTING				
EXP	EXPLOSION PROOF				
FACP	FIRE ALARM CONTROL PANEL				
FLA	FULL LOAD AMP				

## GENERAL NOTES

- ALL CONSTRUCTION SHALL COMPLY WITH THE REQUIREMENTS OF THESE DRAWINGS AND SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AFFECTING THE WORK AT THE JOBSITE.
- ALL OMISSIONS OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER PRIOR TO INSTALLATION OF ELECTRICAL SYSTEM.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH OTHER DISCIPLINES, REGARDING INTERFERENCES AND OBSTRUCTIONS TO ELECTRICAL CONDUIT ROUTING AND ELECTRICAL EQUIPMENT INSTALLATION.
- PROTECT ELECTRICAL DEVICES AGAINST PHYSICAL DAMAGE WITH APPROPRIATE BARRIERS, WHERE APPLICABLE.
- CONDUCTOR SIZES SHOWN ARE BASED ON 75°C INSULATION AND COPPER CONDUCTORS. IF 60°C INSULATION OR ALUMINUM CONDUCTORS ARE PROVIDED, INCREASE THE CONDUCTOR SIZE TO MAINTAIN THE DESIGNED AMPACITY.
- CONDUIT SIZES SHOWN ARE BASED ON TYPE THHN/THWN INSULATION. IF THICKER INSULATION IS PROVIDED, OR CONDUCTOR SIZES ARE INCREASED, INCREASE CONDUIT SIZE TO MAINTAIN NEC FILL.
- FOR FIRE ALARM SYSTEM AND AFFF SYSTEM SEE MECHANICAL DRAWINGS AND SPECIFICATIONS.

## LIGHTING FIXTURE SCHEDULE

CONTRACT DRAWING FIXTURE MARK	DWG. NO. 40-06-04		LAMP			FIXTURE VOLTAGE	ZONAL CAVITY METHOD RCR=1				SPACING TO MTG. HGT. RATIO	NOTE NO.
	TYPE	SHEET NO.	TYPE	NO.	WATTS		EFFECTIVE REFLECTANCE			COEF. OF UTIL.		
							CLG.	WALL	FLOOR			
A1	206B-1	20	FLUOR	3	34	277	80%	50%	20%	.60		
A2	206B-1-A	20	FLUOR	3	34	277	80%	50%	20%	.60		1
B1	226A	34	FLUOR	1	34	277	80%	50%	20%	.68		
B2	226A-1	34	FLUOR	1	34	277	80%	50%	20%	.68		2
C1	213B-3	25	FLUOR	2	34	277	80%	50%	20%	.68		
C2	213B-3-A	25	FLUOR	2	34	277	80%	50%	20%	.68		2
D1	230A-1	36	FLUOR	2	34	277	50%	50%	20%	.82		
D2	230A-1	36	FLUOR	2	34	277	50%	50%	20%	.82		2
E1	709A-1	71	FLUOR	2	34	277	50%	50%	20%	.65		
F1	604A-2	66	FLUOR	2	10	277						
F2	604B-2	66	FLUOR	2	10	277						
F3			INCAND	2	25	120VDC						3
G1	220A	31	FLUOR	1	34	277	50%	50%	20%	.75		
H1			COATED MH	1	1000	277	70%	50%	20%	.75		4
H2			COATED MH	1	1000	277	70%	50%	20%	.75		4,5
I1	232	38	FLUOR	2	34	277	80%	50%	20%	.71		
J1	501-B	56	HPS	1	70	277						
J2	503-C	57	HPS	1	250	277						
K1	401-C-1	51	HPS	1	70	277						6
L1	712A-2	73	"MH	1	175	277	50%	30%	20%	.56		7
M1	107A	3	INCAND	1	60	120	80%	50%	20%	.65		

## NOTES:

- W/90 MIN. EMERGENCY BATTERY TYPE 200 (SHEET NO. 17) CONNECTED TO MIDDLE LAMP.
- W/90 MIN. EMERGENCY BATTERY TYPE 200 (SHEET NO. 17) CONNECTED TO ONE LAMP.
- FIXTURE SHALL CONFORM TO UL844 AND NFPA 101. FIXTURE SHALL BE SUITABLE FOR CLASS I, DIVISION 1 LOCATIONS. FIXTURE SHALL BE PROVIDED W/ 2-25W INCANDESCENT LAMPS FOR DC OPERATION AND PROVIDED W/RELAMING TOOL. LETTERS SHALL BE 6" HIGH W/ 3" STROKE. MOUNTING HARDWARE SHALL BE PROVIDED AND THE FIXTURE SHALL BE PREWIRED. SEE DETAIL 3, DWG E-17.
- THE FIXTURE CONSISTS OF A PENDANT MOUNTED LUMINAIRE WITH A POWER HOOK CORD ASSEMBLY AND A REMOTE BALLAST. THE REFLECTOR SHALL BE CONSTRUCTED OF ALUMINUM AND CONTOURED OR FORMED TO PROVIDE HIGH LIGHTING EFFICIENCY. THE EXTERIOR OF THE REFLECTOR SHALL HAVE A CLEAR ACRYLIC LACQUER PROTECTIVE COATING. THE INTERIOR OF THE REFLECTOR SHALL BE THE MANUFACTURER'S STANDARD COMMERCIAL PRODUCT FINISH SUITABLE FOR LIGHT SOURCE PROVIDED. THE FIXTURE SHALL HAVE A MOGUL BASED GLAZED PORCELAIN LAMPHOLDER ADJUSTABLE FOR VARYING THE SPACING TO MOUNTING HEIGHT RATIO IN THE FIELD. THE FIXTURE SHALL BE PREWIRED. THE REMOTE BALLAST SHALL BE A LEAD-PEAKED AUTOTRANSFORMER, HIGH POWER FACTOR TYPE. BALLAST SHALL START AND OPERATE THE LAMP IN AN AMBIENT TEMPERATURE RANGE OF 20°F TO 105°F. SEE DETAIL 2, DWG E-19. FIXTURES TO BE MOUNTED ABOVE HIGH BAY CEILING. APPROXIMATE MOUNTING HEIGHT AT BOTTOM OF FIXTURES 28'-9" AFS. SEE DRAWINGS A-8 AND A-20, DETAIL 14. A 250 W QUARTZ LAMP (CAT. NO. Q 250 Q4/DC) IS ACCEPTABLE PER RPT #127.
- SAME AS "H1" EXCEPT W/ 300W QUARTZ BACKUP LAMP.
- FIXTURE MOUNTED ON SQUARE ALUMINUM POLE 2" x 20'-0", SEE DETAIL E-1 E-18
- W/ 150W QUARTZ BACKUP LAMP. NOT CONNECTED TO THE EMERGENCY LIGHTING CIRCUIT PER RPT #51.

MOUNTING HT. IS ADE-  
QUATE TO PROVIDE  
NON-HAZARDOUS SPACE  
ON TOP OF GLASS  
AND MEETS NEC  
E16-3 (C)(5)

GENERAL NOTES	
1.	ALL CONSTRUCTION SHALL COMPLY WITH THE REQUIREMENTS OF THESE DRAWINGS AND SPECIFICATIONS.
2.	CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AFFECTING THE WORK AT THE JOBSITE.
3.	ALL OMISSIONS OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER PRIOR TO INSTALLATION OF ELECTRICAL SYSTEM.
4.	CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH OTHER DISCIPLINES, REGARDING INTERFERENCES AND OBSTRUCTIONS TO ELECTRICAL CONDUIT ROUTING AND ELECTRICAL EQUIPMENT INSTALLATION.
5.	PROTECT ELECTRICAL DEVICES AGAINST PHYSICAL DAMAGE WITH APPROPRIATE BARRIERS, WHERE APPLICABLE.
6.	CONDUCTOR SIZES SHOWN ARE BASED ON 75°C INSULATION AND COPPER CONDUCTORS. IF 60°C INSULATION OR ALUMINUM CONDUCTORS ARE PROVIDED, INCREASE THE CONDUCTOR SIZE TO MAINTAIN THE DESIGNED AMPACITY.
7.	CONDUIT SIZES SHOWN ARE BASED ON TYPE THHN/THWN INSULATION. IF THICKER INSULATION IS PROVIDED, OR CONDUCTOR SIZES ARE INCREASED, INCREASE CONDUIT SIZE TO MAINTAIN NEC FILL.
8.	FOR FIRE ALARM SYSTEM AND AFFF SYSTEM SEE MECHANICAL DRAWINGS AND SPECIFICATIONS.

End 3 to Amend 10/006

DATE OF SUBMITTAL FOR 1000 ENCL.	DATE
10/30/92	10/30/92
BY: L. MYERS	FOR: 100-25-2051

NORMAN ENGINEERING CO.		DEPARTMENT OF THE ARMY	
SACRAMENTO DISTRICT, CORPS OF ENGINEERS		SACRAMENTO, CALIFORNIA	
DESIGNED BY: R. SHEPARD	MCCLELLAN AIR FORCE BASE, CALIFORNIA		
DESIGNED BY: R. TAGAYUN	ADAL DEPOT CORROSION CONTROL FACILITY		
DESIGNED BY: L. MYERS	ELECTRICAL SYMBOLS, ABBREVIATIONS AND LIGHTING FIXTURE SCHEDULE		
SUBMITTED: 9/30/92	DATE APPROVED: 9/30/92	SCALE: NONE	SHEET NO. 8529
FILE NO. 100-25-2051		73 OF 95	



# GENERAL NOTES:

1. SEAL ALL THRU WALL AND CEILING PENETRATIONS TIGHT WITH SILICONE GROUT.
2. ALL CONDUIT, WIRING, AND EQUIPMENT IN HAZARDOUS AREAS SHALL BE RATED FOR SUCH AREAS AND INSTALLED IN CONFORMANCE WITH NEC ARTICLE 501 (1993 EDITION).
3. WHERE CONDUITS PENETRATE FIRE RATED BARRIERS, SEAL PENETRATIONS WITH FIRE RATED COMPOUND TO MATCH OR EXCEED BARRIER RATING.
4. EXISTING FIRE ALARM CONTROL PANEL IS PYROTRONICS MODEL CP-35.

# ELECTRICAL SYMBOLS LIST:

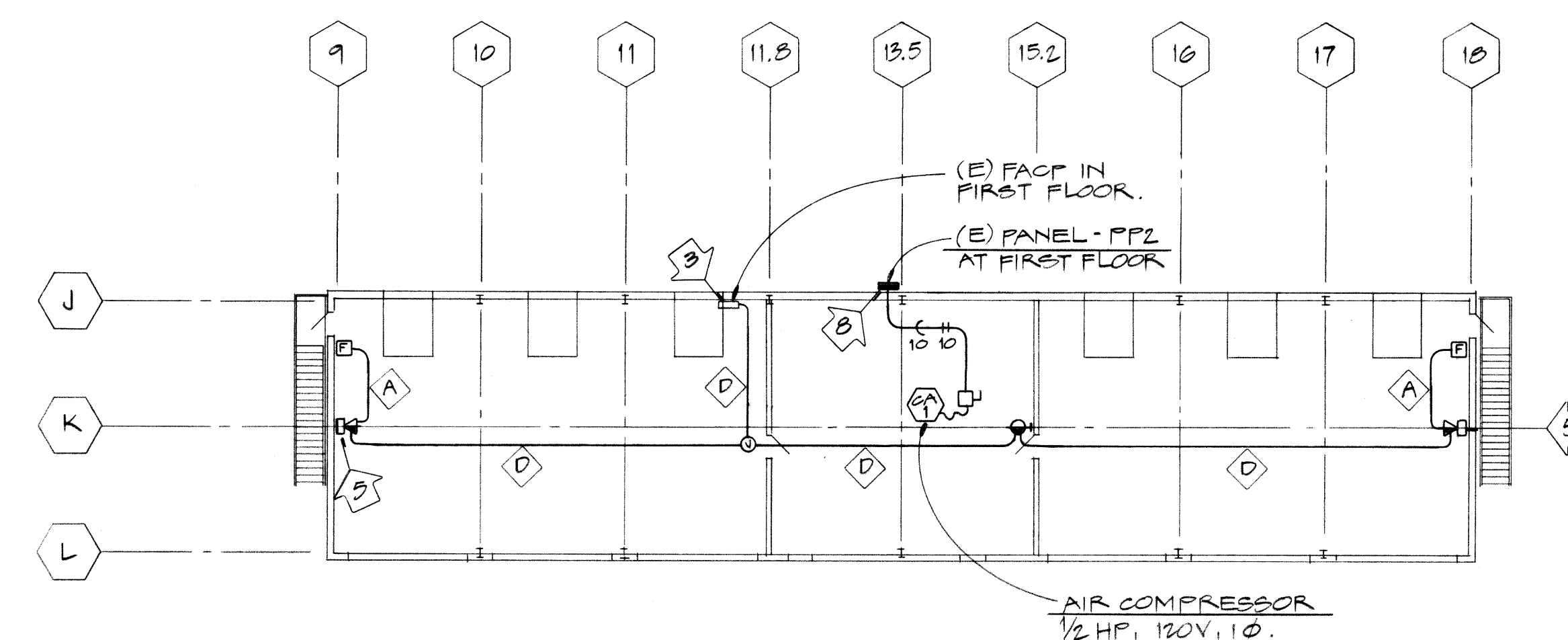
- JUNCTION BOX - SIZE AND TYPE AS REQUIRED
  - TERMINAL CABINET.
  - FUSED DISCONNECT SWITCH, SIZE AS REQUIRED, PROVIDE FUSES AS RECOMMENDED BY EQUIPMENT MANUFACTURER.
  - EQUIPMENT IDENTIFICATION TAG - N.I.E.S. CONNECT AS REQUIRED.
  - SUPERVISORY SWITCH - NOTIFIER # PIV2. SECURE TO EXISTING PIV.
  - FIRE ALARM MANUAL PULL STATION - PYROTRONICS # M5501 WITH BACKBOX SURFACE.
  - FIRE ALARM HORN / STROBE - PYROTRONICS # EHM-E WITH BACKBOX SURFACE.
  - FIRE ALARM STROBE - PYROTRONICS # SVM3T-50 W/ BACKBOX SURFACE.
  - FIRE ALARM EXPOSITION PROOF STROBE - KILLARK # BSKR127-483A, CLASS 1, D.W.I.
  - EXISTING HORN.
  - EXISTING EXPOSITION PROOF STROBE.
  - CONDUIT CONCEALED IN CEILING OR EQUAL.
  - CONDUIT CONCEALED BELOW FLOOR OR GRADE.
  - INDICATES 1 #12 (GREEN) GROUND WIRE, OTHER SIZES AS INDICATED.
  - EXISTING CONDUIT RUN TO REMAIN.
- NOTE: BRANCH CIRCUIT WITHOUT FURTHER DESIGNATION IS A 2 #12 WIRE CIRCUIT, FOR MORE THAN 2 #12 WIRES AS FOLLOWS: 3 #12, 4 #12 ETC. FOR OTHER SIZES AS FOLLOWS: 3 #10, 4 #6, ETC.
- WP ABBREY. FOR WEATHERPROOF.
  - (E) EXISTING
  - (N) NEW
  - PIV POST INDICATOR VALVE.
  - EXISTING PANELBOARD
  - PULL BOX - A: 10" x 17" x 10" D CONCRETE BOX, CHRISTIAN BOX W/ WAT LID WITH HOLD-DOWN BOLTS, LABEL LID "FIRE ALARM".

# CONSTRUCTION NOTES:

1. EXISTING FIRE ALARM CONTROL PANEL IN FIRST FLOOR.
2. EXISTING FIRE ALARM WIRING GUTTER. EXTEND PIV MONITORING CIRCUIT.
3. EXISTING FIRE ALARM CONTROL PANEL IN FIRST FLOOR. EXTEND SERVICE BUILDING MANUAL PULL STATION CIRCUIT AND HORN / STROBE CIRCUIT.
4. EXTEND CIRCUIT FROM EXISTING JUNCTION BOX.
5. INSTALL ON FACE OF I-BEAM.
6. NOT USED
7. INSTALL CONDUIT ON TOP OF I-BEAM SUPPORT.
8. FURNISH AND INSTALL (1) 30/1 BREAKER IN (E) SPACE WITH ALL NECESSARY HARDWARE. CONNECT TO COMPRESSOR CIRCUIT. EXTEND CIRCUIT FROM (E) PANEL-PP2 AS SHOWN.
9. CUT AC PAVING, PATCH TO MATCH EXISTING PER BASE STANDARDS.

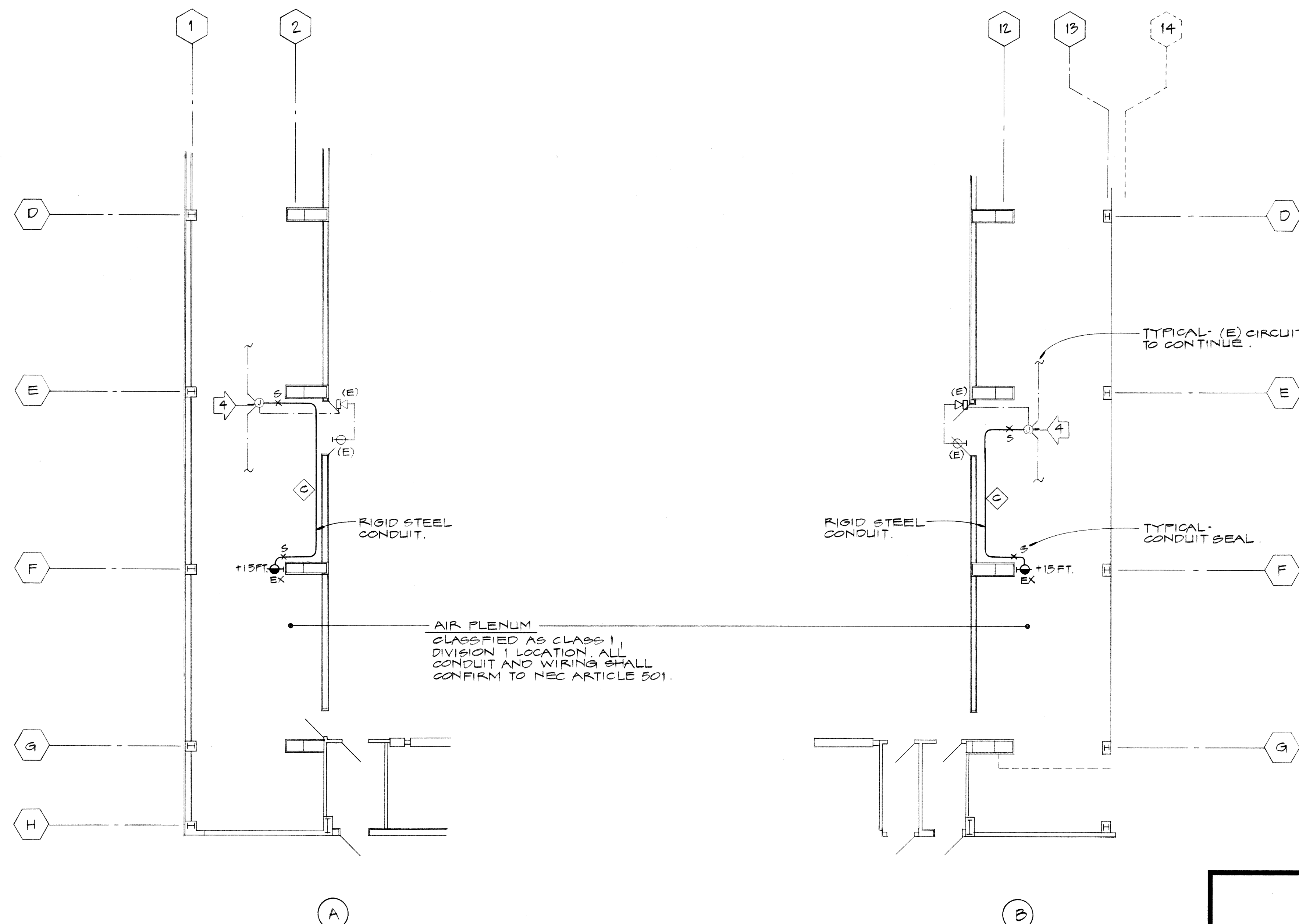
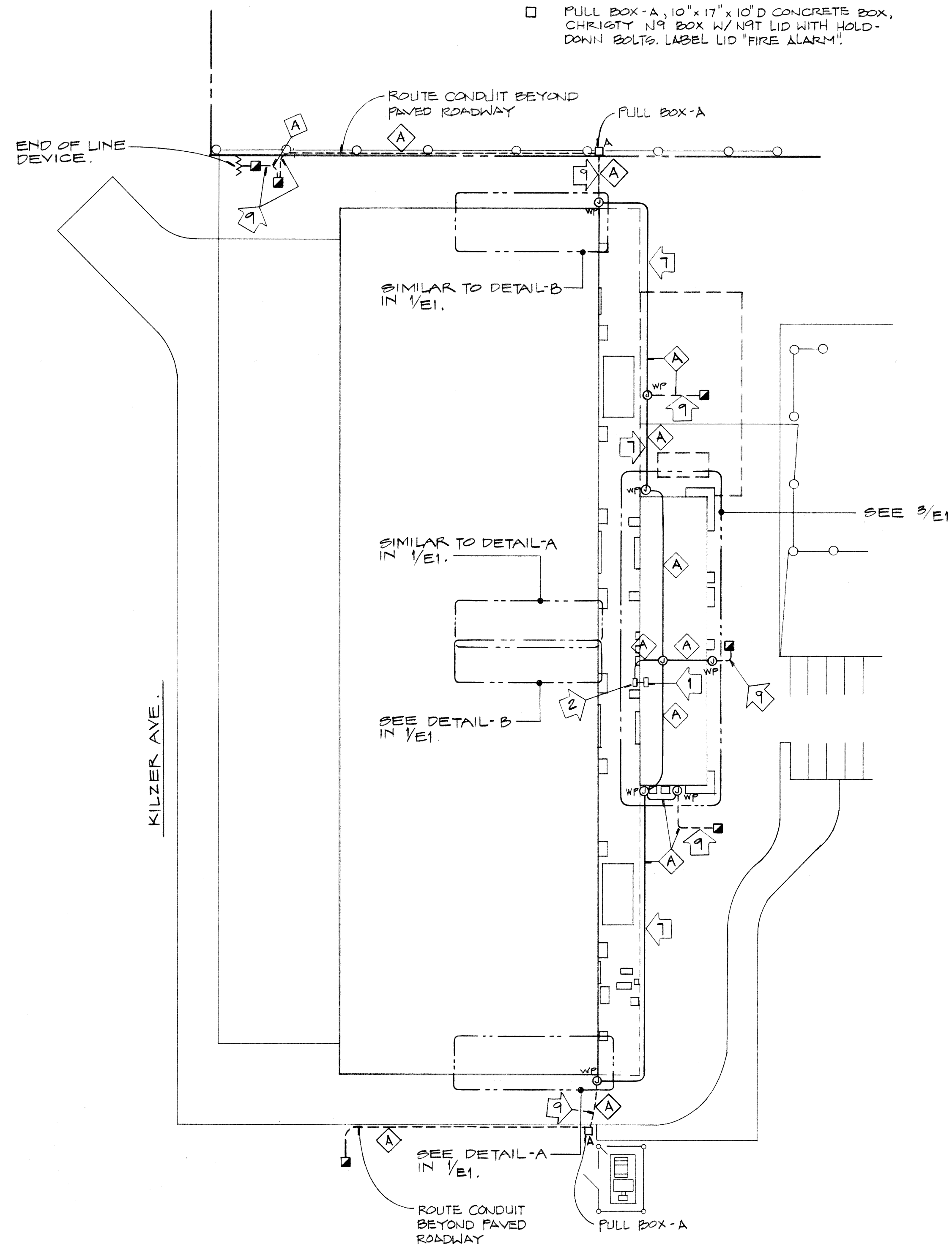
# SIGNAL CIRCUIT SCHEDULE

- A 3/4" - 4 #14 THWN, (INITIATION)
- B 3/4" - 2 #14 THWN, (INITIATION)
- C 3/4" - 4 #12 THHN, (SIGNAL STROBE)
- D 1" - 4 #14 THHN, (INITIATION)
- E 4 #12 THHN, (SIGNAL STROBE)
- F 4 #12 THHN, (SIGNAL HORN)



# SERVICE BUILDING SECOND FLOOR ELECTRICAL PLAN

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



# ELECTRICAL SITE PLAN

SCALE: 1" = 10'-0"



# ENLARGED AIR PLENUM ELECTRICAL PLAN

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

REVISION		DATE	DESCRIPTION	BY	BY
<div style="display: flex; justify-content: space-between;"> <div> <p><b>CAPITAL ENGINEERING CONSULTANTS, INC.</b> 7300 Folsom Boulevard, Suite 100 Sacramento, CA 95826 (916) 386-8888</p> </div> <div> <p>DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA</p> </div> </div>					
DESIGNED:		<p><b>McCLELLAN AFB</b> <b>ADAL CORROSION CONTROL FACILITY</b> <b>FIRE DEPARTMENT CORRECTIONS</b></p>			
DRAWN:		<p>SCALE: AS NOTED SHEET: E-1 OF 1 FILE NO: 100-25-2051 SPEC. No: 0529A</p>			
CHECKED:		<p>DATE APPROVED: _____</p>			
SUBMITTED:		<p>_____</p>			



ELECTRICAL SPECIFICATIONS

CODES:

Work and material shall be in full accordance with the latest rules and regulations of the National Electric Code, Uniform Building Code, Title 8 of the California Code of Regulations, and all applicable local codes.

PRODUCTS, MATERIALS, FABRICATION AND INSTALLATION:

CONDUIT

Rigid Steel Conduit: Standard weight, mild steel pipe, zinc coated on inside and outside of conduit and finished with a protective coating. Fittings such as couplings, elbows, bends, etc., shall be threaded type subject to same requirements as for rigid steel conduit.

Electrical Metallic Tubing (EMT): Cold rolled steel tubing with zinc coating on outside and a protective enamel coating on inside. Fittings shall meet same requirements for finish and material as EMT (steel set screw type for indoor use, compression type for damp locations and outdoor use).

Flexible Conduit: Liquid-tight.

PVC Conduit: Type 40 and 80, 90°C, UL rated, composed of Polyvinyl Chloride, UL listed, conforming to NEMA Standards.

All conduits shall be rigid except that EMT may be used at the following locations:

1. In dry location in furred spaces, except in hazardous location.
2. In partitions other than concrete or solid masonry.

All conduit, wiring, and devices in hazardous Class 1, Division 1 locations as shown on the drawings shall conform with NEC Article 501 requirements.

Conduits installed in contact with ground shall be PVC conduit.

1. Install PVC conduit in a 2" sand or fine earth envelope below ground. Provide a minimum of 2" of sand or fine earth at the bottom of the trench before laying conduits. Risers, including elbows, shall be PVC Schedule 80 conduit.
2. When installing underground conduits to specified depth, depth shall be taken from the top of the conduit to the finished grade level. Unless otherwise specified, underground conduits shall be installed with top side not less than 24" below finished grade.
3. The minimum size of conduits outside the foundation line shall be 1", 3/4" inside the foundation line.
4. Excavate and backfill as required for installation of electrical work. Restore all surfaces, roadways, sod, walks, curbs, walls, existing underground installation, etc., cut by installations to original condition in an acceptable manner. Maintain all warning signs, barricades, flares and lanterns as required by the Safety Orders and local ordinances.
5. Excavation: Dig trenches straight and true to line and grade, with bottom clear of any rock points. Support conduit for entire length on undisturbed original earth. Minimum conduit depth of pipe crown shall be 2 feet below finished grade.
6. Backfill: All backfill material shall be local material free of rubble, rubbish or vegetation. Trenches shall be backfilled and compacted to 90% of maximum dry density at optimum moisture content in layers not to exceed 6" when compacted.

Run conduit concealed in areas having finished ceilings and in furred walls.

Provide flexible connections of short length to equipment subject to vibration or movement and to all motors. Provide a separate ground conductor in all flexible connections.

OUTLET BOXES

Outlet boxes shall be galvanized pressed steel type. Boxes shall not be less than 4 inches square.

Locate outlets at the following heights above floor unless otherwise noted on Drawings or required per job conditions or approved.

WIRE

Wire shall be copper; manufactured by General Cable Co., General Electric Co., or equal. Wire shall have type THWN, THHN, TW or THW insulation.

Wire splices and joints for #10 AWG or smaller shall be twisted together, electrically and mechanically strong, and insulated with approved type insulated electrical spring connectors; Scotchlok, Ideal or equal. Threaded type wire nuts are not acceptable.

#12 AWG wire shall be minimum size wire used for power circuits. Motor control circuits may be #14 AWG except as marked on Drawings. Wires run in conduit shall conform to Code regulations as to number of wires and conduit size.

SWITCHES

Type "HD" Heavy Duty safety switches with externally operated handle. Switches shall be manufactured by Westinghouse, General Electric, Square D, Bull Dog or approved equal. Switches shall be rated 250 and 600 volts, A.C., of size and poles as shown on Drawings. Disconnects used outdoor shall be in NEMA-3R lockable enclosure. Provide fused switches with proper sized fuses where required by equipment manufacturer. All switches shall have cover interlock.

GROUNDING

Ground Fittings shall be of approved manufactured type installed and connected to conform with Code requirements.

Neutral conductors and noncurrent-carrying parts of equipment at each installation shall be grounded in accordance with applicable Code.

Ground conductor shall be copper having a current carrying capacity in accordance with the CEC.

All equipment cases, motor frames, etc., shall be completely grounded to satisfy requirements of NEC. Install bond wire in flexible conduit.

TESTS

Test all wiring and connections for continuity and grounds. Repair and retest all defects. Balance loads at panelboards.

CLEANING

Brush and clean work prior to concealing, painting and acceptance. Performed in stages if directed.

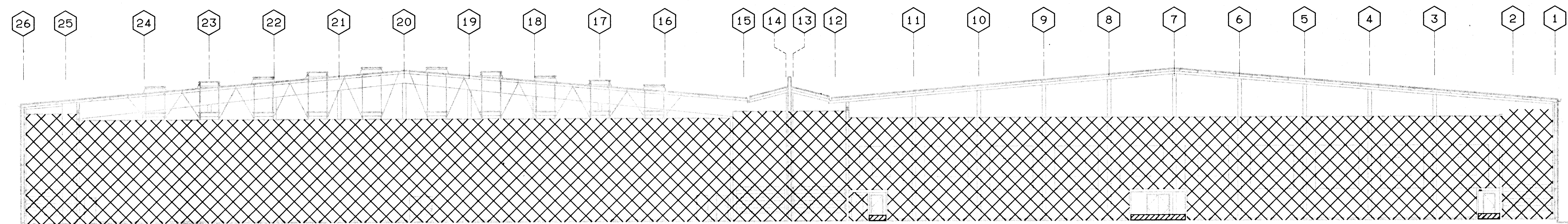
Clean and repair soiled or damaged painted exposed work and match adjoining work before final acceptance.

Remove debris from inside and outside of material, equipment and structures.

REVISION	DATE	DESCRIPTION			BY
		CAPITAL ENGINEERING CONSULTANTS, INC. 7300 Folsom Boulevard Suite 100 Sacramento, CA 95826 (916) 386-8888			DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA
DESIGNED: TOM YU		MCCLELLAN AFB CALIFORNIA			
DRAWN: BP		ADAL CORROSION CONTROL FACILITY FIRE DEPARTMENT CORRECTIONS			
CHECKED:					
SUBMITTED: 		DATE APPROVED:	SCALE:	SPEC. No. 8529A	
		SHEET E-2 OF	FILE No. 100-25-2051		

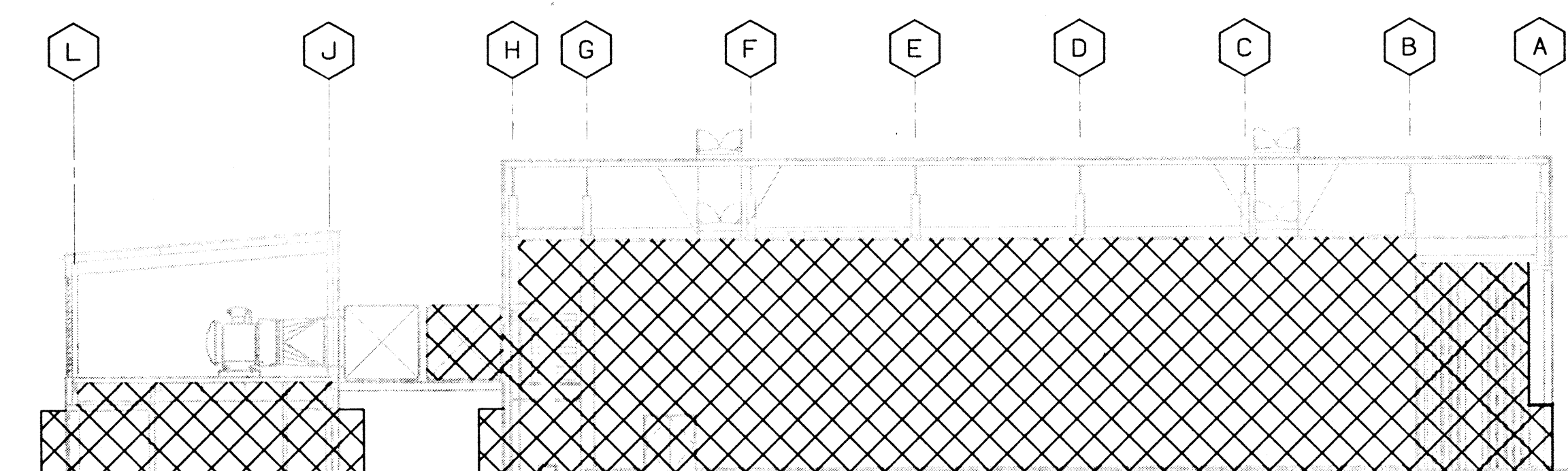
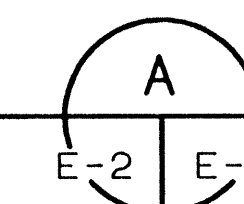


# FUNCTIONAL ANALYSIS - VE PAYS



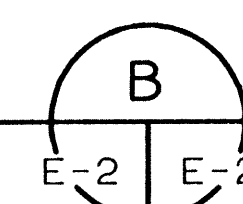
SECTION

SCALE:  $\frac{1}{16}'' = 1'-0''$

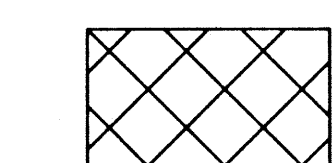


SECTION

SCALE:  $\frac{1}{16}'' = 1'-0''$

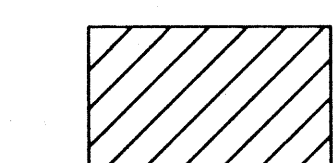


## LEGEND:



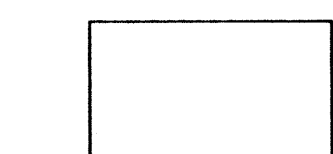
INDICATES CLASS I, DIVISION 1, GROUP D, TEMPERATURE T2A CLASSIFICATION. ALL WIRING AND EQUIPMENT WITHIN THESE AREAS TO BE PER NEC ART 501:

- A - ENTIRE PAINT CELLS
- B - THE ENTIRE VOLUME OF ALL EXHAUST AND SUPPLY PLENUMS AND EXHAUST DUCTS.
- C - THE ENTIRE VOLUME OF ALL PAINT MIXING AND STORAGE AREAS.
- D - AREAS WITHIN 3' OF ALL DOORS ADJOINING CLASS I, DIVISION 1 AREAS.



INDICATES CLASS I, DIVISION 2, GROUP D, TEMPERATURE T2A CLASSIFICATION. ALL WIRING AND EQUIPMENT WITHIN THESE AREAS TO BE PER NEC ART 501:

- A - UP TO 18" ABOVE FLOOR IN ALL AREAS ADJACENT TO PAINT CELL ACCESSIBLE BY DOORS.



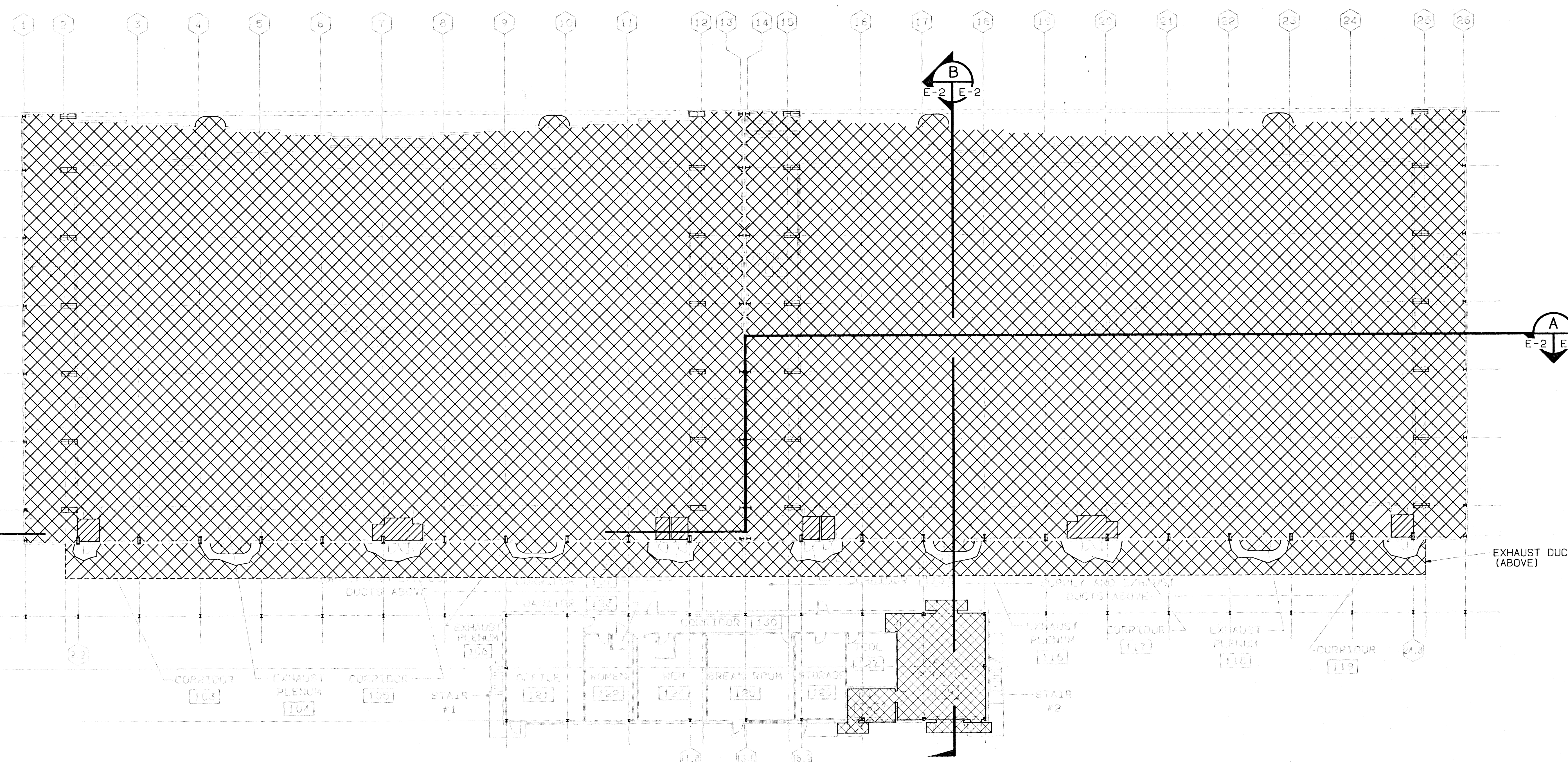
INDICATES NON-RATED AREAS.

## NOTE:

1. INTERIOR OF LIFT STATION PIT IS CLASSIFIED CLASS I, DIVISION 1, GROUP D PER CALIFORNIA TITLE 8.

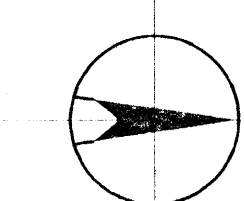
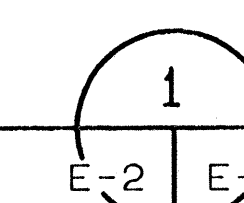
Reference your RFI #72, dated January 19, 1994, regarding the branch circuit conductors running underground in the Class 1 Division 1 hazardous area, as defined by the contract drawing sheet E-2. A review of your attached drawing produced the following comments:

- a. The seal-off located at the conduit stub-up shall be relocated to immediately outside the classified boundary. The seal-off can be located at the adapter between the rigid steel and rigid non-metallic conduit, but there shall be no fittings between the boundary and the seal-off. Reference NEC article 501-5(a)(4).
- b. All conduit seal-offs shall remain accessible. Reference NEC article 501-5(c)(1).
- c. Seal-offs will be required within 18 inches of each electrical device that is not factory sealed. Reference NEC article 501-5(d)(1).
- d. Steel conduit in contact with earth shall be protected against corrosion. Reference specification section 14415 paragraph 3.2.2.1.
- e. Conduit installed within the slab on grade shall comply with specification section 14415 paragraph 3.2.2.2.
- f. Conduit crossing a structural joint shall be installed to comply with section 14415 paragraph 3.2.2.



HAZARDOUS AREAS

SCALE:  $\frac{1}{16}'' = 1'-0''$



16' 0 16' 32'

SCALE:  $\frac{1}{16}'' = 1'-0''$

EXHAUST DUCT (ABOVE)

REVISION	DATE	DESCRIPTION	BY	BY
1	11/25/92	ADDED NOTE	RT	
DESIGNED BY		DEPARTMENT OF THE ARMY		
DRAWN BY		SACRAMENTO DISTRICT, CORPS OF ENGINEERS		
CHECKED BY		SACRAMENTO, CALIFORNIA		
L. MYERS		MCCLELLAN AIR FORCE BASE		
R. TAGAYUN		ADAL DEPOT CORROSION CONTROL FACILITY		
R. SHEPARD		NEW AIRCRAFT PAINT FACILITY		
L. MYERS		HAZARDOUS AREAS - PLAN & SECTIONS		
SUBMITTED	DATE APPROVED	SCALE: $\frac{1}{16}'' = 1'-0''$	SPEC No.	8529
11/25/92	9/30/92	SHEET E-2	FILE No.	100-25-2051

SAFETY PAYS



PROPOSED BELL SUBSTATION SOUTH RELAY SETTINGS

Note 1 - 87L Relay Settings  
 3 $\phi$  Pickup Tap = 4.0  
 $\phi$ - $\phi$  Pickup Tap = C  
 $\phi$ -Grd Pickup Tap = G  
 Restraint Tap = High  
 D.C. Control Voltage = 125V Tap  
 Target Seal-in as required for proper operation



NOTES:

1. ALL MOTORS 5HP AND LARGER SHALL BE EQUIPPED WITH CAPACITORS TO CORRECT POWER FACTOR TO 95%.
2. SEE DWG. E-14 FOR CONDUIT AND CABLE SCHEDULE.
3. SEE DWGS. E-15 & E-16 FOR PANEL AND EQUIPMENT SCHEDULES.
4. THE MCP DESIGNATION IDENTIFIES THE STANDARD FRAME SIZE OF AN ADJUSTABLE MAGNETIC TRIP MOTOR CIRCUIT PROTECTOR TO BE SET AS REQUIRED BY NEC ARTICLE 430-52(a), BASED ON MOTOR NAMEPLATE RATINGS. IF A THERMAL MAGNETIC (INVERSE TIME) CIRCUIT BREAKER IS PROVIDED INSTEAD, THE TRIP RATING SHALL BE IN ACCORDANCE WITH NEC 430-52(a).
5. SHORT CIRCUIT RATINGS OF ASSEMBLED MOTOR CONTROL CENTERS AND DISTRIBUTION PANEL SHALL BE IN ACCORDANCE WITH U.L. STANDARDS AND EXCEED AVAILABLE SHORT CIRCUIT CURRENTS AS INDICATED ON THIS DRAWING.
6. ALL MOTORS ON THIS DRAWING ARE THREE PHASE.
7. ALL CIRCUIT BREAKERS ARE 3 POLE UNLESS NOTED OTHERWISE.

NOTE:  
SEPARATE NEUTRAL NEEDED BETWEEN  
LOAD CENTER A AND DPI. ~~PER REF 14~~  
DISTRIBUTION PANEL DP




600A BUS @ 480/277V-3Ø-4W AVAILABLE FAULT CURRENT = 24KA, RMS SYM.

MOTOR CONTROL CENTER MCC2

AVAILABLE FAULT CURRENT = 45KA, RMS SYM.

85 TO EXIT SIGNS  
(800 W)

CENTRAL BATTERY  
EMERGENCY POWER  
SYSTEM CRPS

 		11/25/92		MISCELLANEOUS REVISION		RT	
REVISION		DATE		DESCRIPTION		BY	
<b>NORMAN ENGINEERING CO.</b> CONSULTING ENGINEERS LOS ANGELES, CALIFORNIA				DEPARTMENT OF THE ARMY SACRAMENTO DISTRICT, CORPS OF ENGINEERS SACRAMENTO, CALIFORNIA			
DESIGNED BY:		MCCLELLAN AIR FORCE BASE				CALIFORNIA	
R. TAGAYUN		ADAL DEPOT CORROSION CONTROL FACILITY					
DRAWN BY:		NEW AIRCRAFT PAINT FACILITY					
R. SHEPARD		12.4KV - 480/277V					
CHECKED BY:		SINGLE LINE DIAGRAM					
L. MYERS							
SUBMITTED:		DATE AS-ORDERED:		SHEET NO.		SPEC. No.	
		9/30/92		NONE		8529	
		9/30/92		SHEET OF 3 75-9		FILE No. 100-25-2051	

Am-2 BF



8

