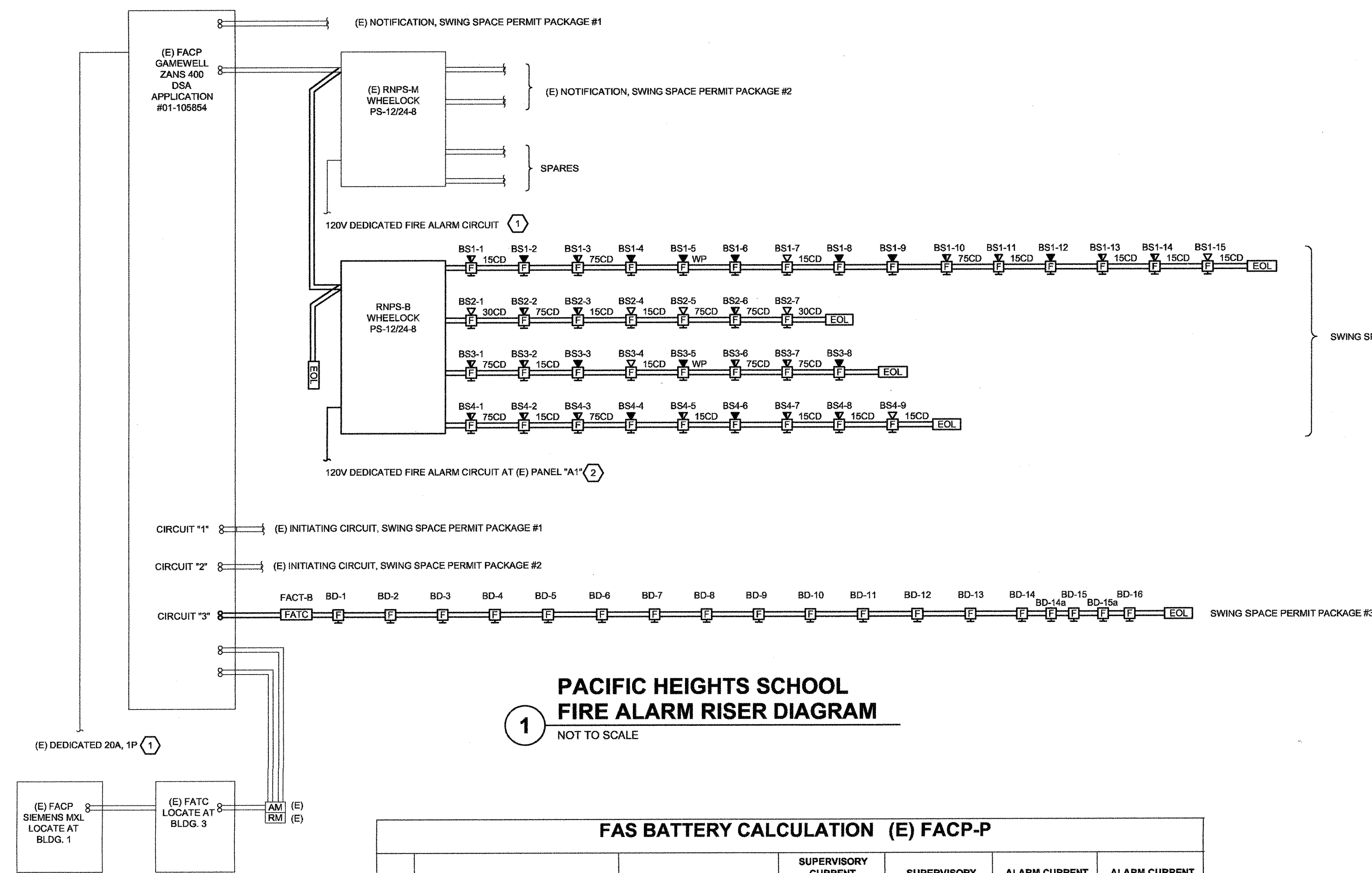


FILE LOCATION: P:\2163.002\Permit Pkg 3\CAD\Arch\SKYLINE PK#3 CONFORM SET Elea03054F40.dwg
 LAST SAVED ON: 9/10/04 at 4:19pm, PLOTTED ON: 9/13/04 at 2:09pm



1
**PACIFIC HEIGHTS SCHOOL
 FIRE ALARM RISER DIAGRAM**
 NOT TO SCALE

FAS BATTERY CALCULATION (E) FACP-P

QTY	MODEL NUMBER	DEVICE TYPE	SUPERVISORY CURRENT (PER DEVICE)	SUPERVISORY CURRENT (TOTAL)	ALARM CURRENT (PER DEVICE)	ALARM CURRENT (TOTAL)
1	(E) GAMEWELL ZANS400	(E) FACP	0.11000	0.11000	0.02000	0.02000
2	(E) SMOKE DETECTOR	(E) SMOKE DETECTOR	0.00005	0.00009	0.05200	0.10400
19	(E) GAMEWELL 60-55000-350	(E) SMOKE DETECTOR	0.00005	0.00095	0.05200	0.98800
SYSTEM SUPERVISORY			0.11005	0.11005	SYSTEM ALARM CURRENT	1.21200

MAXIMUM SUPERVISORY CURRENT: 0.11095
 STANDBY PERIOD (24 HOURS): 24.00000
 REQUIRED SUPERVISORY RESERVE: 2.66268
 MAXIMUM ALARM CURRENT: 1.21200
 ALARM PERIOD (5 MINUTES): 0.08300
 REQUIRED ALARM RESERVE: 0.10060
 TOTAL RESERVE AMP HOURS: 2.78328
 20% SPARE CAPACITY: 0.55266
 TOTAL REQUIRED AMP HOURS: 3.31593
 (E) BATTERY AMP HOURS: 12.0

FAS BATTERY CALCULATION RNPS-B

QTY	MODEL NUMBER	DEVICE TYPE	SUPERVISORY CURRENT (PER DEVICE)	SUPERVISORY CURRENT (TOTAL)	ALARM CURRENT (PER DEVICE)	ALARM CURRENT (TOTAL)
1	WHEELLOCK PS-1224-8	REMOTE POWER SUPPLY	0.06000	0.06000	0.10000	0.10000
5	WHEELLOCK RSS-24MCW-FR	STROBE (15CD)	0.00000	0.00000	0.04100	0.20500
2	WHEELLOCK RSS-24MCW-FR	STROBE (30CD)	0.00000	0.00000	0.08500	0.17000
1	WHEELLOCK RSS-24MCW-FR	STROBE (75CD)	0.00000	0.00000	0.11600	0.11600
10	WHEELLOCK AS-24MCW-FR	HORN/STROBE (15CD)	0.00000	0.00000	0.09300	0.93000
9	WHEELLOCK AS-24MCW-FR	HORN/STROBE (75CD)	0.00000	0.00000	0.15700	1.41300
10	WHEELLOCK AH-24-R	HORN	0.00000	0.00000	0.26000	2.60000
2	WHEELLOCK AH-24WP-R	HORN (WEATHERPROOF)	0.00000	0.00000	0.05000	0.10000
SYSTEM SUPERVISORY			0.06000	0.06000	SYSTEM ALARM CURRENT	3.25400

MAXIMUM SUPERVISORY CURRENT: 0.06000
 STANDBY PERIOD (24 HOURS): 24.00000
 REQUIRED SUPERVISORY RESERVE: 1.44000
 MAXIMUM ALARM CURRENT: 3.25400
 ALARM PERIOD (5 MINUTES): 0.08300
 REQUIRED ALARM RESERVE: 0.27008
 TOTAL RESERVE AMP HOURS: 1.71008
 20% SPARE CAPACITY: 0.34202
 TOTAL REQUIRED AMP HOURS: 2.05210
 SELECTED BATTERY AMP HOURS: 12.0

FAS VOLTAGE DROP (VD) CALCULATION BS1

DEVICE NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14
WIRE GAUGE	12	12	12	12	12	12	12	12	12	12	12	12	12	12
DISTANCE (FT)	110	12	38	37	67	79	36	12	27	52	27	39	30	
AMPS AT DEVICE	0.093	0.026	0.157	0.026	0.041	0.026	0.041	0.026	0.026	0.157	0.093	0.026	0.093	0.093
AMPS DEVELOPED	0.965	0.372	0.846	0.689	0.683	0.622	0.598	0.555	0.533	0.346	0.253	0.227	0.134	
VOLTAGE DROP	0.376	0.037	0.114	0.090	0.157	0.174	0.078	0.024	0.061	0.093	0.015	0.024	0.031	0.014

TOTAL CIRCUIT VOLTAGE DROP: 1.277
 CIRCUIT VOLTAGE: 24.000
 VOLTAGE AT FINAL DEVICE: 22.723
 % VOLTAGE DROP: 5.321%
 MAXIMUM ALLOWED % VOLTAGE DROP: 10%

WIRE SIZE	OHMS/1000 FT	CIRC. MILS.
12	1.77	6530
14	2.82	4110
16	4.48	2580
18	7.14	1620
20	11.34	1020
22	18.08	640
24	28.84	404

FORMULA: VOLTAGE DROP = AMPS X FT X OHMS/FT

FAS VOLTAGE DROP (VD) CALCULATION BS2

DEVICE NUMBER	1	2	3	4	5	6	7
WIRE GAUGE	12	12	12	12	12	12	12
DISTANCE (FT)	78	32	30	12	37	42	111
AMPS AT DEVICE	0.085	0.157	0.093	0.041	0.116	0.157	0.065
AMPS DEVELOPED	0.694	0.629	0.472	0.379	0.338	0.222	0.065
VOLTAGE DROP	0.187	0.071	0.150	0.016	0.044	0.033	0.026

TOTAL CIRCUIT VOLTAGE DROP: 0.527
 CIRCUIT VOLTAGE: 24.000
 VOLTAGE AT FINAL DEVICE: 23.473
 % VOLTAGE DROP: 2.197%
 MAXIMUM ALLOWED % VOLTAGE DROP: 10%

WIRE SIZE	OHMS/1000 FT	CIRC. MILS.
12	1.77	6530
14	2.82	4110
16	4.48	2580
18	7.14	1620
20	11.34	1020
22	18.08	640
24	28.84	404

FORMULA: VOLTAGE DROP = AMPS X FT X OHMS/FT

FAS VOLTAGE DROP (VD) CALCULATION BS3

DEVICE NUMBER	1	2	3	4	5	6	7	8
WIRE GAUGE	12	12	12	12	12	12	12	12
DISTANCE (FT)	164	12	27	52	37	57	37	55
AMPS AT DEVICE	0.157	0.093	0.026	0.041	0.041	0.157	0.157	0.026
AMPS DEVELOPED	0.898	0.541	0.448	0.422	0.381	0.340	0.183	0.026
VOLTAGE DROP	0.405	0.023	0.043	0.078	0.050	0.099	0.024	0.005

TOTAL CIRCUIT VOLTAGE DROP: 0.896
 CIRCUIT VOLTAGE: 24.000
 VOLTAGE AT FINAL DEVICE: 23.304
 % VOLTAGE DROP: 2.901%
 MAXIMUM ALLOWED % VOLTAGE DROP: 10%

WIRE SIZE	OHMS/1000 FT	CIRC. MILS.
12	1.77	6530
14	2.82	4110
16	4.48	2580
18	7.14	1620
20	11.34	1020
22	18.08	640
24	28.84	404

FORMULA: VOLTAGE DROP = AMPS X FT X OHMS/FT

FAS VOLTAGE DROP (VD) CALCULATION BS4

DEVICE NUMBER	1	2	3	4	5	6	7	8	9
WIRE GAUGE	12	12	12	12	12	12	12	12	12
DISTANCE (FT)	280	22	12	51	18	54	41	28	12
AMPS AT DEVICE	0.157	0.093	0.157	0.026	0.093	0.026	0.093	0.093	0.041
AMPS DEVELOPED	0.779	0.622	0.529	0.372	0.346	0.253	0.227	0.134	0.041
VOLTAGE DROP	0.772	0.048	0.022	0.067	0.020	0.030	0.033	0.013	0.002

TOTAL CIRCUIT VOLTAGE DROP: 1.008
 CIRCUIT VOLTAGE: 24.000
 VOLTAGE AT FINAL DEVICE: 22.992
 % VOLTAGE DROP: 4.201%
 MAXIMUM ALLOWED % VOLTAGE DROP: 10%

WIRE SIZE	OHMS/1000 FT	CIRC. MILS.
12	1.77	6530
14	2.82	4110
16	4.48	2580
18	7.14	1620
20	11.34	1020
22	18.08	640
24	28.84	404

FORMULA: VOLTAGE DROP = AMPS X FT X OHMS/FT

GENERAL NOTES

- ALL CABLES CONNECTING REMOTE NOTIFICATION POWER SUPPLY WITH FIRE ALARM CONTROL PANEL SHALL BE (2) TWO #12 AWG, UNLESS OTHERWISE NOTED.
- ALL DETECTION CIRCUITS SHALL USE (2) TWO #14 AWG CABLES, UNLESS OTHERWISE NOTED. SEE VOLTAGE DROP CALCULATIONS FOR NOTIFICATION CIRCUIT CABLE SIZE.

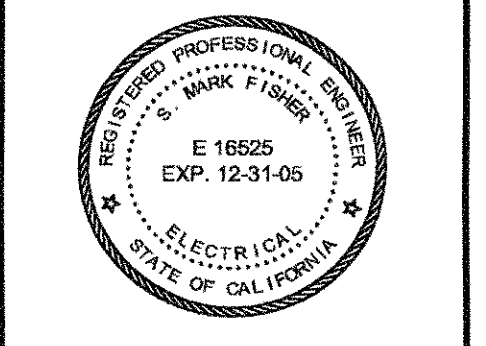
SHEET NOTES

- CIRCUIT BREAKER SHALL BE MARKED AND IDENTIFIED PER NFPA 72.
- PROVIDE ONE (1) UNSWITCHED 120 VOLT, 20 AMP, 1 POLE DEDICATED CIRCUIT AND CIRCUIT BREAKER IN LOCAL PANELBOARD. CIRCUIT BREAKER SHALL BE MARKED AND IDENTIFIED PER NFPA 72.

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DSA SUBMITTAL - 02.13.04

**PACIFIC HEIGHTS SCHOOL -
 RISER DIAGRAM AND SCHEDULES
 SKYLINE COLLEGE SWING SPACE
 PERMIT PACKAGE #3
 SKYLINE COLLEGE
 3300 COLLEGE DRIVE
 SAN BRUNO, CA. 94066**

REVISIONS

NO.	ITEM	DATE
1	CONSTRUCTION ISSUE	6/10/04

CLIENT APPROVAL:
 DRAWN BY: RCS
 CHECKED BY: SMF
 JOB NO: 2163.002
 DATE: 5 FEB. 2004

F4.0
 OF 8# SHEETS