BATTERY CALCULATIONS
FAP-001-62B

ITEM	DESCRIPTION	QTY	STANDBY CURRENT PER ITEM (AMPS)	TOTAL STANDBY CURRENT PER ITEM	ALARM CURRENT PER ITEM (AMPS)	TOTAL ALARM CURRENT PER ITEM
CP-35	FACP w/2ZN'S + AUD	1	0.1750	0.1750	0.5010	0.5010
PS-35	POWER SUPPLY	1	0.0000	0.0000	0.0000	0.0000
BC-35	BATTERY CHARGER	1	0.0450	0.0450	0.0300	0.0300
HC-35	RELEASE MODULE	1	0.0530	0.0530	0.1060	0.1060
PM-32	MATRIX MODULE	1	0.0000	0.0000	0.0000	0.0000
RM-30U	RELEASE MODULE	1	0.0050	0.0050	1.5000	1.5000
SM-30	SWITCH MODULE	1	0.0000	0.0000	0.0450	0.0450
SR-35	8 RELAY MODULE	1	0.0000	0.0000	0.0210	0.0210
ZN-34US	SUPERVISORY MODULE	2	0.0100	0.0200	0.1100	0.2200
ZU-35	ZONE MODULE	1	0.0090	0.0090	0.1100	0.1100
MOI	TRANSMITTER	1	0.1200	0.1200	0.1750	0.1750
MID	INPUT BOARD	2	0.0020	0.0040	0.0000	0.0000
PS-5A	POWER SUPPLY	1	0.0380	0.0380	0.0000	0.0000
TOTAL NOTIFICATION APPLIANCES CURRENT						0.7970
	TOTAL SYSTEM CURRENT		STANDBY	0.4735	ALARM	3.5050

MIN. BATTERY CAPACITY = {(TOT. STANDBY CURRENT X STANDBY TIME) + (TOT. ALARM CURRENT X ALARM TIME)} X 1.25

MIN. BATTERY CAPACITY = {(0.4735 A X 24 HR) + (3.505 A X 0.083 HR)} X 1.25

MIN. BATTERY CAPACITY = {11.364 AHr + 0.2909 AHr} X 1.25 = 14.5686 AHr

NOTIFICATION APPLIANCE CIRCUIT
VOLTAGE DROP & POWER REQUIREMENTS

CKT AV1: 62B DESCRIPTION	QTY	CURRENT PER ITEM (AMPS)	TOTAL CURRENT PER ITEM
WHEELOCK STROBE 15 cd	–	0.5010	0.0000
WHEELOCK HORN/STROBE 15cd	–	0.0000	0.0000
WHEELOCK STROBE 30 cd	–	0.0300	0.0000
WHEELOCK HORN/STROBE 30 cd	–	0.0450	0.0000
WHEELOCK STROBE 75 cd	2	0.1650	0.3300
WHEELOCK HORN/STROBE 75 cd	1	0.2520	0.2520
WHEELOCK STROBE 110 cd	–	0.1100	0.0000
WHEELOCK HORN/STROBE 110 cd	–	0.1750	0.0000
WHEELOCK HORN	–	0.0000	0.0000
AUTOCALL BELL	–	0.0000	0.0000
AUTOCALL BELL/STROBE 75cd	1	0.2150	0.2150
TOTAL NOTIFICATION APPLIANCES CURRENT			0.7970

VOLTAGE DROP (VD) CALCULATIONS

VD = {(I) (D) (21.6)}/CM

WHERE: I = CIRCUIT CURRENT

D = CONDUCTOR LENGTH (FT) ONE WAY

21.6 = A CONSTANT

CM = CIRCULAR MILS

VD = {(0.797A) (50FT) (21.64)}/4110 = 0.209

%VD = {0.209V / 24V} X 100 = 0.873%

REMAINING VOLTS = 23.791

WIRE SIZE	CIRCULAR MILS
12AWG	6530
14AWG	4110
16AWG	2580
18AWG	1620
20AWG	1020

FIRE ALARM SYSTEM FUNCTION CHART

SYSTEM EVENT / RESPONSE	ANNUNCIATE AT FACU	FIRE SIGNAL TO RECEIVER	TROUBLE SIGNAL TO LBNL RECEIVER	SUPERVISORY SIGNAL TO LBNL RECEIVER	OPERATE 62B NOTIFICATION APPLIANCES	HALON HORN	HALON 1ST ALARM STROBE	HALON 2ND ALARM STROBE	HALON RELEASE	AHU SHUTDOWN	CLOSE DAMPERS	POWER SHUTDOWN	VENTILATION FAN	DRY PIPE VALVE OPEN
FIRE CALL BOXES	●	●			●									
HEAT DETECTORS	●	●			●									
SMOKE DETECTORS	●	●			●									
FIRE SPRINKLER WATERFLOW SWITCHES	●	●			●									
FIRE SPRINKLER VALVE SUPERVISORY SWITCHES	●			●										
HALON 1ST ALARM LEVEL	●	●			●	●	●							
HALON 2ND ALARM LEVEL	●	●			●	●	●	●		●	●	●	●	
HALON RELEASE 20 SEC. DELAY	●	●							●					●
HALON MANUAL RELEASE	●		●		●	●		●	●	●	●	●	●	●
HALON PANEL TROUBLE	●		●											
AC POWER FAILURE	●		●											
SYSTEM FAULT	●		●											

	AS BUILT – – 09/25/13	–	LDD	LDD	MCD	09/25/13	AS BUILT
PROFESSIONAL SEAL (IF REVISION, APPLIES ONLY TO REVISED WORK)	ISSUE (PROGRESS, ESTIMATE, BID, CONSTRUCTION, CONFORMED, REVISION, RECORD)	REVISION NUMBER	DRAWN BY	CHECKED BY	APPR'D BY	DATE	REMARKS

BLDG 62B FIRE ALARM
FUNCTION CHART & CALCULATIONS
–

UNIVERSITY OF CALIFORNIA
LAWRENCE BERKELEY NATIONAL LABORATORY
FACILITIES DIVISION

DRAWN BY LDD	DATE 09/25/2013	
CHECKED BY LDD	09/25/2013	
APPROVED BY MCD	09/25/2013	
SCALE AS NOTED		
DRAWING NO. 4B62BE012_	SHEET 1 OF 1	
PROJECT NO. 000000		