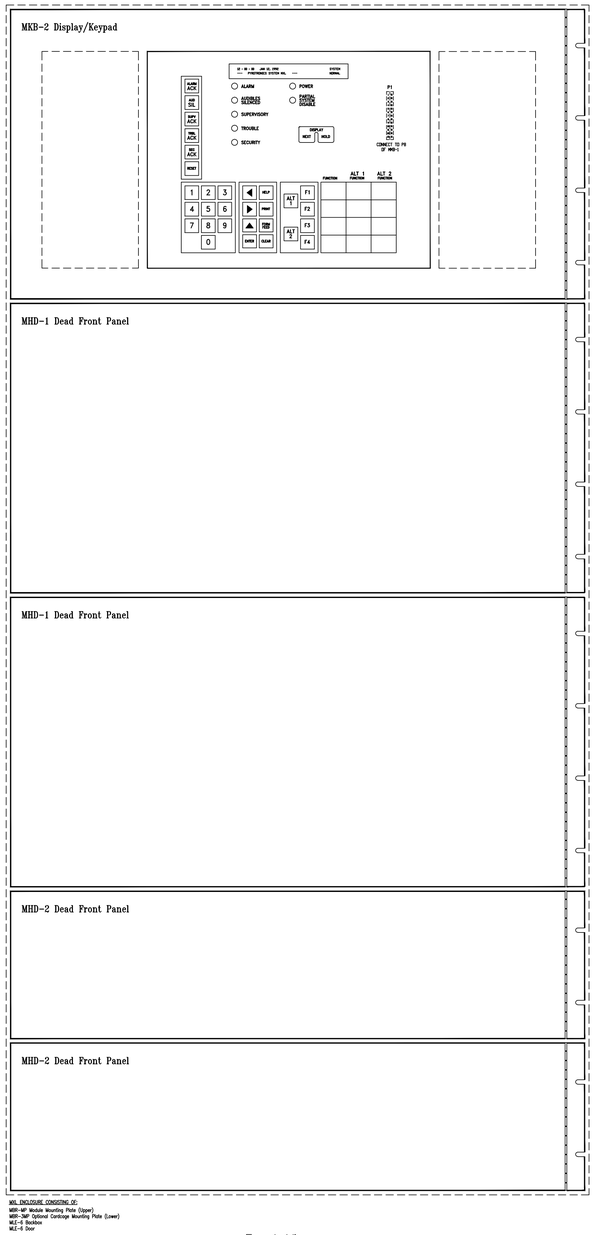
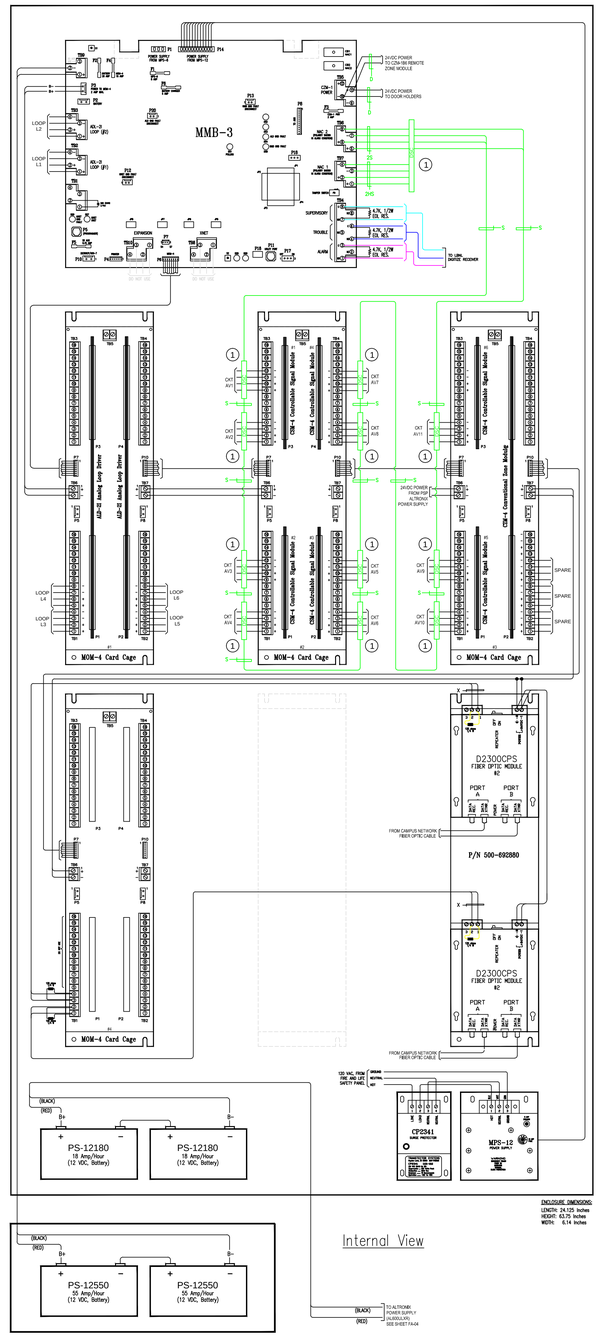
MXL-FIRE ALARM CONTROL PANEL
LOCATED AT FLOOR 1 ELECTRICAL ROOM 118A



Front View



Internal View

BB-55 Battery Cabinet

MXL FACP - LOOP SCHEDULE

LOOP NUMBER	PANEL	LOOP DESCRIPTION	LOCATION
L1	MXL (MMB-3)	INITIATING DEVICES	FLOOR 1
L2	MXL (MMB-3)	INITIATING DEVICES	FLOOR 2
L3	ALD-2I	INITIATING DEVICES	FLOOR 3 & ROOF
L4	ALD-2I	INITIATING DEVICES	FLOOR 4
L5	ALD-2I	INITIATING DEVICES	FLOOR 3

MXL BATTERY CALCULATION

SUPERVISORY CURRENT

DESCRIPTION	Quantity	Standby 24 VDC Module /Card Current	Load Current Per Circuit: End of Line Device	Load Current Per Circuit: Device Current	Total Standby 24VDC Module Current
ALD-2I ANALOG LOOP DRIVER	2	0.105			0.210
1.1mA per device (2 loops per card)	4			0.066	0.264
CSM-4 CONTROLLABLE SIGNAL MODULE	4	0.010			0.040
12mA per NAC circuit (2 ckt. per card)	8		0.012		0.096
CZM-1B6 CONVENTIONAL ZONE MODULE	10	0.050			0.500
MKB-2 ANNUNCIATOR/KEYBOARD	1	0.005			0.005
MMB-3 MAIN CONTROL BOARD	1	0.280			0.280
1.1mA per device - Analog Loop	2			0.066	0.132
12mA per NAC circuit	2		0.012		0.024
TOTAL SUPERVISORY CURRENT					1.551

MXL NOTIFICATION CIRCUITS

			TOTAL CKT CURRENT LOAD
MPS-12	8.996	CIRCUIT AV1	0.979
		CIRCUIT AV2	1.108
		CIRCUIT AV3	0.929
		CIRCUIT AV4	1.107
		CIRCUIT AV5	1.071
		CIRCUIT AV6	1.26
		CIRCUIT AV7	1.168
		CIRCUIT AV8	1.334
		CIRCUIT DH	0.04
		TOTAL ALARM CURRENT (AMPS)	8.996

SUMMARY

A = TOTAL SUPERVISORY CURRENT
x SUPERVISORY TIME REQUIRED
1.551 AMPS x 24 HR
= **37.224** (AMP-HR)

B = TOTAL ALARM CURRENT
x ALARM TIME REQUIRED
8.996 AMPS x .083 HR
= **0.747** (AMP-HR)

C = A + B
= **37.971** (AMP-HR)

SUPERVISORY TIME REQUIRED———24 HR
ALARM TIME REQUIRED——5 MINS. or .083 HR

BATTERY PROVIDED..... **PS-12550 (2)**
BATTERY SIZE..... **55** (AMP-HR)

TOTAL SYSTEM REQUIRED (A/H)
= **37.971 AMP/HOUR**
BATTERY RESERVE AFTER
24 HOURS SUPERVISORY
& 5 MINUTES ALARM (AMP-HOUR)
= **17.029 AMP-HOUR**

MXL FACP - NAC SCHEDULE

CKT DESIGNATION	PANEL/CARD	CKT DESCRIPTION	LOCATION
HS	MXL (MMB-3)	HORN SILENCE	MXL
S	MXL (MMB-3)	DSC SYCHRONIZATION	MXL
AV1	CSM-4 #1	NAC DEVICES	FLOOR 1
AV2	CSM-4 #1	NAC DEVICES	FLOOR 1
AV3	CSM-4 #2	NAC DEVICES	FLOOR 1
AV4	CSM-4 #2	NAC DEVICES	FLOOR 2
AV5	CSM-4 #3	NAC DEVICES	FLOOR 2
AV6	CSM-4 #3	NAC DEVICES	FLOOR 2
AV7	CSM-4 #4	NAC DEVICES	FLOOR 2
AV8	CSM-4 #4	NAC DEVICES	FLOOR 3
AV9	CSM-4 #5	NAC DEVICES	FLOOR 3
AV10	CSM-4 #6	NAC DEVICES	FLOOR 3
AV11	CSM-4 #6	NAC DEVICES	FLOOR 3 & ROOF

SHEET NOTE:

1. ELECTRICAL CONTRACTOR TO PROVIDE 4" SQUARE BOX FOR THE DUAL SYNCHRONIZATION CONTROL MODULE.
FOR DUAL SYNCHRONIZATION MODULE POINT TO POINT WIRING DETAILS SEE SHEET FA-05.

MXL PANEL ACTUAL VOLTAGE DROP CALCULATIONS
WIRE SIZE USED: #14 AWG DROP: 5 FEET

CKT	DISTANCE (ft.)	CURRENT LOAD (amps)	VOLTAGE DROP	REMAINING VOLTAGE
AV1	300	0.979	1.544	22.456
AV2	385	1.108	2.242	21.758
AV3	470	0.929	2.295	21.705
AV4	350	1.107	2.036	21.964
AV5	475	1.071	2.674	21.326
AV6	500	1.26	3.311	20.689
AV7	580	1.168	3.560	20.440
AV8	400	1.334	2.804	21.196

{(I) (D) (21.6)}/CM
WHERE: I = CIRCUIT POWER LOAD 21.6 = CONSTANT
D = CONDUCTOR ONE WAY DISTANCE CM = CROSS SECTION AREA OF WIRE (4110 FOR AWG#14)

NAC AV1: {(0.979 AMP)(300 FT)(21.6)}/4110 VOLTAGE DROP: 1.544 VOLTS REMAINING VOLTAGE: 22.456 VOLTS

NAC AV2: {(1.108 AMP)(385 FT)(21.6)}/4110 VOLTAGE DROP: 2.242 VOLTS REMAINING VOLTAGE: 21.758 VOLTS

NAC AV3: {(0.929 AMP)(470 FT)(21.6)}/4110 VOLTAGE DROP: 2.295 VOLTS REMAINING VOLTAGE: 21.705 VOLTS

NAC AV4: {(1.107 AMP)(350 FT)(21.6)}/4110 VOLTAGE DROP: 2.036 VOLTS REMAINING VOLTAGE: 21.964 VOLTS

NAC AV5: {(1.071 AMP)(475 FT)(21.6)}/4110 VOLTAGE DROP: 2.674 VOLTS REMAINING VOLTAGE: 21.326 VOLTS

NAC AV6: {(1.260 AMP)(500 FT)(21.6)}/4110 VOLTAGE DROP: 3.311 VOLTS REMAINING VOLTAGE: 20.689 VOLTS

NAC AV7: {(1.168 AMP)(580 FT)(21.6)}/4110 VOLTAGE DROP: 3.560 VOLTS REMAINING VOLTAGE: 20.440 VOLTS

NAC AV8: {(1.334 AMP)(400 FT)(21.6)}/4110 VOLTAGE DROP: 2.804 VOLTS REMAINING VOLTAGE: 21.196 VOLTS

THE CIRCUITS' AVAILABLE VOLTAGE IS ABOVE THE MINIMUM LISTED VOLTAGE FOR THE APPLIANCES.

NOTIFICATION APPLIANCE CIRCUIT POWER REQUIREMENTS & VOLTAGE DROP CALCULATIONS

DESCRIPTION	CURRENT PER APPLIANCE	# OF APPLIANCES: CIRCUIT AV1	CIRCUIT AV2	CIRCUIT AV3	CIRCUIT AV4	CIRCUIT AV5	CIRCUIT AV6	CIRCUIT AV7	CIRCUIT AV8
SIEMENS ZR WALL STROBE 15 cd	0.064	0	0	0	0	2	0	1	2
SIEMENS ZR WALL STROBE 30 cd	0.098	1	1	2	0	0	1	2	2
SIEMENS ZR WALL STROBE 75 cd	0.175	0	0	0	1	0	0	1	0
SIEMENS ZR WALL STROBE 110 cd	0.233	0	0	0	0	0	0	0	0
SIEMENS ZH WALL HORN/STROBE 15 cd	0.078	3	4	4	3	4	2	4	4
SIEMENS ZH WALL HORN/STROBE 30 cd	0.113	4	1	2	1	1	2	2	1
SIEMENS ZH WALL HORN/STROBE 75 cd	0.195	1	1	1	3	0	4	1	3
SIEMENS ZH WALL HORN/STROBE 110 cd	0.259	0	1	0	0	2	0	0	0
SIEMENS ZH CEILING HORN/STROBE 15 cd	0.078	0	0	0	0	0	0	0	0
SIEMENS ZH CEILING HORN/STROBE 30 cd	0.113	0	1	0	0	0	0	0	0
SIEMENS ZH CEILING HORN/STROBE 75 cd	0.195	0	0	0	0	0	0	0	0
SIEMENS ZH CEILING HORN/STROBE 95 cd	0.259	0	0	0	0	0	0	0	0
TOTAL CIRCUIT CURRENT		0.979	1.108	0.929	1.107	1.071	1.260	1.168	1.334

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REVISIONS

No.	Revision	By	Date	Appr.
5	BULLETIN 5	JPM	9/20/10	KW
5A	RESPONSE TO HYT BULLETIN 5 REVIEW COMMENTS	JPM	10/19/10	KW
6	REVISED PER LBNL FIRE MARSHALS' COMMENTS	JPM	10/25/10	KW
	AS-BUILT	JPM	9/20/12	KW

AS-BUILT

HYT Corporation
Fire Protection Engineers and Consultants
3498 Clayton Road - Suite 101 Concord, California 94519
Phone: (925) 681-2731 FAX: (925) 681-2733

INSTALLATION CONTRACTORS NAME & ADDRESS:

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90 Hill Road,
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PRODUCT MANUFACTURER

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California State C10 License No. 758796
U.L. Certificate ID No. 324787-001

JOB NAME & LOCATION (STREET ADDRESS)

UNIVERSITY OF CALIFORNIA
LAWRENCE BERKELEY NATIONAL LABORATORY
FACILITIES DIVISION

BUILDING 74
FIRE ALARM

LBNL SEISMIC
PHASE 2

One Cyclotron Road,
Berkeley, California 94720

SHEET CONTENTS

MXL - FIRE ALARM CONTROL PANEL

INSTALLATION TYPE

- ☐ NEW INSTALLATION
- ☐ DESIGN/BUILD
- ☐ PER CONTRACT DOCUMENT
- ☐ EXISTING BASE JOB # N/A
- ☐ OTHERS

SYSTEM SALES REP.: Kevin Waxman
PROJECT MANAGER: Mark Millard
DRAWN BY: JPM
CAD FILENAME: FA-03
SCALE: Not Applicable
DATE DRAWN: March 15, 2010
PLOT DATE: March 27, 2014
DRAWING NO.: 6N74E324
SHEET: FA-03
JOB NUMBER: 44OP-069681

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