

FIRE ALARM RISER DIAGRAM

SCALE: NONE

FA SYMBOL LIST MATRIX				
SYMBOL	DEVICE	MFR & CAT. N.	REMARKS	CSFM LISTING
SD	SMOKE DETECTOR	NOTIFIER FSP-851	PROVIDE BASE B210 LP ON 4"SQ. DEEP BOX	7272-0028:0206
AV	SPEAKER/STROBE	NOTIFIER SPSR	PROVIDE 4"SQ. DEEP BOX	7320-1653:201
SHMP	EXTERIOR HORN	NOTIFIER SPRK	PROVIDE MNB8 x16"	7320-1653:201
HD	HEAT DETECTOR (IN ATTIC SPACE)	NOTIFIER FST-851	PROVIDE BASE B210 LP ON 4"SQ. DEEP BOX	7270-0028:0196
■	(E) MAIN FIRE ALARM PANEL	NOTIFIER NFS2-640	EXISTING	7165-0028:0243
DPM	NAC POWER	NOTIFIER FCPS-2456	SURFACE MOUNT 7AH BATTERY	7315-0028:0225
DVC	DIGITAL VOICE COMMAND	NOTIFIER DVC-EM	EXISTING	7165-0028:0243
DAA	DIGITAL AUDIO AMP	NOTIFIER DAA-5025	EXISTING	7165-0028:0243
∞	END OF LINE RESISTOR			
—	FLP CABLE	WEST PENN AQ294 CABLE		7161-0859:0101
—	FLP CABLE	WEST PENN AQC294 CABLE		7161-0859:0101
—	FLP CABLE	WEST PENN 975 CABLE		7161-0859:0101
—	FLP CABLE	WEST PENN 998 CABLE		7161-0859:0101

FIRE ALARM SEQUENCE OF OPERATION					
	AREA SMOKE DETECTOR	AREA THERMAL DETECTOR	FULL STATION	AC POWER FAILURE	
INITIATION					
RESPONSE					
ANNUNCIATE AT FIRE CONTROL ROOM	YES	YES	YES	YES	(TROUBLE)
ALARM AND TROUBLE					
CENTRAL STATION MONITORING	YES	YES	YES	YES	
ACTIVATE AUDIO VISUAL THROUGHOUT FLOOR OF ALARM	YES	YES	YES	YES	
CENTRAL STATION MONITORING	YES	YES	YES	YES	
ACTIVE SPEAKERS	YES	YES	YES	NO	

FIRE WATCH, FIRE MARSHAL REQUIREMENTS:

REQUIREMENTS FOR DISABLING THE FIRE ALARM SYSTEM;

- As required by the 2013 CALIFORNIA FIRE CODE, Section 901.7, standby personnel or systems temporarily "OUT OF SERVICE". The local Fire Marshal is authorized to require the Contractor to provide standby personnel as set forth in these sections, until the system is restored to operation.
- Such individual shall be subject to the local Fire Marshal's order at all times when so employed and shall remain on duty during the time such places are open to the public or when such public activity is being conducted. Fire watch personnel shall be provided with at least one approved means for notification of the Fire Department.
- Such individuals shall keep a diligent watch for fires and be able to take prompt and appropriate action in the event of a fire. Such individuals shall not be required or permitted, while on duty, to perform any other duties than these herein specified.

Existing FIRE ALARM BATTERY CALCULATION-DISTRIBUTED POWER MODULE FCPS-2456						
EQUIPMENT DESCRIPTION	QUANTITY		SUPERVISORY CURRENT (AMPERES)		ALARM CURRENT (AMPERES)	
	EXISTING	NEW	EACH	SUB-TOTAL	EACH	SUB-TOTAL
DISTRIBUTED POWER MODULE	1	0	0.085	0.085	0.145	0.145
FCM-1	1	0	0.0003	0.0003	0.0003	0.0003
VISUALS	0	0	0	0	0.082	0
VISUALS	15 cd	0	0	0	0.086	0
VISUALS	15/75 cd	0	0	0	0.077	0
VISUALS	30 cd	0	0	0	0.094	0
VISUALS	75 cd	5	1	0	0.158	0.948
VISUALS	95 cd	0	0	0	0.202	0
SUB TOTAL AMPERES			0.0853 AMPS		1.0933 AMPS	
SUB TOTAL AMPERE-HOURS			x 24 HOURS		X 0.25 HOURS	
TOTAL REQUIRED AMPERE-HOURS FOR DISTRIBUTED POWER MODULE					1.840525 A.H.	
BATTERY NON-LINEAR DISCHARGE CHARACTERISTIC FACTOR					x 1.2	
TOTAL MINIMUM AMPERE HOURS REQUIRED					2.20863 A.H.	
PROVIDED BATTERY CAPACITY					7.00 A.H.	

NEW FIRE ALARM BATTERY CALCULATION-DISTRIBUTED POWER MODULE FCPS-2456						
EQUIPMENT DESCRIPTION	QUANTITY		SUPERVISORY CURRENT (AMPERES)		ALARM CURRENT (AMPERES)	
	EXISTING	NEW	EACH	SUB-TOTAL	EACH	SUB-TOTAL
DISTRIBUTED POWER MODULE	0	1	0.085	0.085	0.145	0.145
FCM-1	0	1	0.0003	0.0003	0.0003	0.0003
HORNS	0	0	0	0	0.082	0
VISUALS	15 cd	0	0	0	0.086	0
VISUALS	15/75 cd	0	0	0	0.077	0
VISUALS	30 cd	0	0	0	0.094	0
VISUALS	75 cd	0	2	0	0.158	0.316
VISUALS	95 cd	0	0	0	0.202	0
SUB TOTAL AMPERES			0.0853 AMPS		0.4813 AMPS	
SUB TOTAL AMPERE-HOURS			x 24 HOURS		X 0.25 HOURS	
TOTAL REQUIRED AMPERE-HOURS FOR DISTRIBUTED POWER MODULE					1.682525 A.H.	
BATTERY NON-LINEAR DISCHARGE CHARACTERISTIC FACTOR					x 1.2	
TOTAL MINIMUM AMPERE HOURS REQUIRED					2.01903 A.H.	
PROVIDED BATTERY CAPACITY					7.00 A.H.	

NEW VOICE PANEL BATTERY CALCULATION - DVC-EM						
EQUIPMENT DESCRIPTION	QUANTITY		SUPERVISORY CURRENT (AMPERES)		ALARM CURRENT (AMPERES)	
	EXISTING	NEW	EACH	SUB-TOTAL	EACH	SUB-TOTAL
DVC	1	0	0.44	0.44	0.44	0.44
DAA 5025	1	0	0.35	0.35	1.9	1.9
1/4 Watt Speaker	0	0	0	0	0.017	0
1 Watt Speaker	5	3	0	0	0.068	0.544
2 Watt Speaker	2	1	0	0	0.132	0.396
VISUALS	75 cd	0	0	0	0.158	0
VISUALS	30 cd	0	0	0	0.094	0
VISUALS	15 cd	0	0	0	0.066	0
SUB TOTAL AMPERES			0.79 AMPS		3.28 AMPS	
SUB TOTAL AMPERE-HOURS			x 24 HOURS		X 0.25 HOURS	
TOTAL REQUIRED AMPERE-HOURS FOR DISTRIBUTED POWER MODULE					19.78 A.H.	
BATTERY NON-LINEAR DISCHARGE CHARACTERISTIC FACTOR					x 1.2	
TOTAL MINIMUM AMPERE HOURS REQUIRED					23.736 A.H.	
Existing BATTERY CAPACITY					55.00 A.H.	

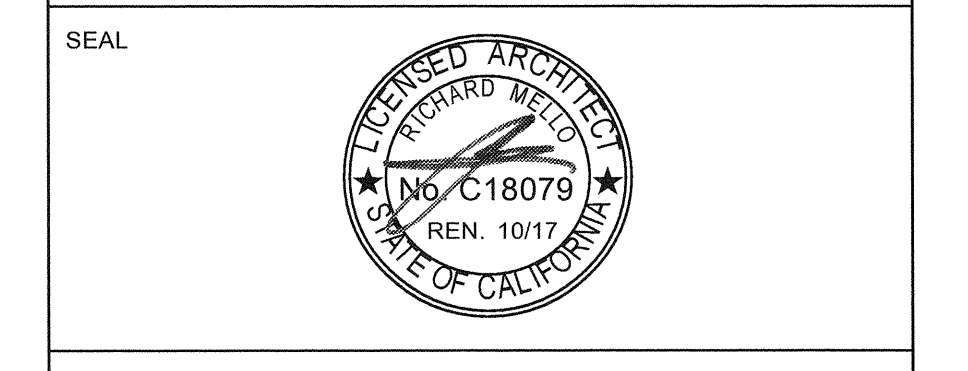
(E) FIRE ALARM BATTERY CALCULATION NFS2-640						
EQUIPMENT DESCRIPTION	QUANTITY		SUPERVISORY CURRENT (AMPERES)		ALARM CURRENT (AMPERES)	
	EXISTING	NEW	EACH	SUB-TOTAL	EACH	SUB-TOTAL
FIRE ALARM PANEL	1	0	0.1	0.1	0.1	0.1
DIGITAL ALARM COMMUNICATOR	1	0	0.02	0.02	0.02	0.02
SUPERVISED OUTPUT MODULE			0.00022	0	0.0003	0
SMOKE DETECTOR	15	6	0.00039	0.00956	0.00039	0.00819
HEAT DETECTOR	13	6	0.00035	0.0077	0.00035	0.00665
HORNS	8	0	0	0	0.062	0.496
AUDIBLE/VISUALS	75 cd	18	0	0	0.121	2.178
AUDIBLE/VISUALS	15 cd	21	0	0	0.052	1.092
SUB TOTAL AMPERES			0.13706 AMPS		3.9084 AMPS	
SUB TOTAL AMPERE-HOURS			x 24 HOURS		x 0.084 HOURS	
TOTAL REQUIRED AMPERE-HOURS FOR DISTRIBUTED POWER MODULE					3.61711 A.H.	
BATTERY NON-LINEAR DISCHARGE CHARACTERISTIC FACTOR					x 1.2	
TOTAL MINIMUM AMPERE HOURS REQUIRED					4.340533 A.H.	
BATTERY AH SUPPLIED					26.00 A.H.	

VOLTAGE DROP CALCULATIONS						
CIRCUIT	2x	LENGTH x	AMPS x	RESISTANCE x	= VOLTS	VOLTAGE DROP
N22	2	200	0.474	0.00205	0.389	1.62 %
N31	2	120	0.316	0.00205	0.155	0.65 %

PRIME CONSULTANT

IBI ARCHITECTURE PLANNING

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REVISIONS			
NO.	DATE	APPRD.	DESCRIPTION

CONSULTANT

JMPE
ELECTRICAL ENGINEERING
LIGHTING DESIGN
CA REGISTRATION NO. E13083

1621T

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AGENCY INFORMATION:

AGENCY TRACKING NO. 63321-243
FILE NO. 15-6

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES

03-117549
AC W FLS M SS TN
DATE OCT 11 2016

BAKERSFIELD CITY SCHOOL DISTRICT

CHIPMAN JR. HIGH NEW RELOCATABLES (3)

2905 EISSLER ST
BAKERSFIELD, CA 93306

OPSC or OSHPD PROJ. NO:	16166.000
PROJECT NO:	16166.000
DRAWN BY:	AC
CHKD BY:	KT
ISSUE DATE:	10/05/2016

SHEET TITLE

FIRE ALARM RISER CALCULATIONS

SHEET NUMBER

E-0.2