



**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\"/>	

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

**FIRE WATCH, FIRE MARSHAL REQUIREMENTS:**

**REQUIREMENTS FOR DISABLING THE FIRE ALARM SYSTEM;**

- As required by the 2016 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-3456							
EQUIPMENT DESCRIPTION	QUANTITY	SUPERVISORY CURRENT (AMPERES)		ALARM CURRENT (AMPERES)			
		EXISTING	NEW	EACH	SUB-TOTAL		EACH
DISTRIBUTED POWER MODULE	1	0	0	0.085	0.085	0.145	0.145
FCM-1	1	0	0	0.0003	0.0003	0.0003	0.0003
VISUALS	15 cd	0	0	0	0	0.082	0
VISUALS	15/75 cd	0	0	0	0	0.088	0
VISUALS	30 cd	0	0	0	0	0.094	0
VISUALS	75 cd	5	1	0	0	0.158	0.348
VISUALS	95 cd	0	0	0	0	0.202	0
SUB TOTAL AMPERES				0.0853	0.0853	1.0633	1.0633
SUB TOTAL AMPERE-HOURS				x 24 HOURS	A.H.	0.273225	A.H.
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.

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
DISTRIBUTED POWER MODULE	1	0	0	0.085	0.085	0.145	0.145
FCM-1	1	0	0	0.0003	0.0003	0.0003	0.0003
HORNS	0	0	0	0	0	0.082	0
VISUALS	15 cd	0	0	0	0	0.088	0
VISUALS	15/75 cd	0	0	0	0	0.077	0
VISUALS	30 cd	0	0	0	0	0.094	0
VISUALS	75 cd	2	2	0	0	0.158	0.632
VISUALS	95 cd	0	0	0	0	0.202	0
SUB TOTAL AMPERES				0.0853	0.0853	0.7773	0.7773
SUB TOTAL AMPERE-HOURS				x 24 HOURS	A.H.	0.194325	A.H.
TOTAL REQUIRED AMPERE-HOURS FOR DISTRIBUTED POWER MODULE						1.761525	A.H.
BATTERY NON-LINEAR DISCHARGE CHARACTERISTIC FACTOR						x 1.2	
TOTAL MINIMUM AMPERE HOURS REQUIRED						2.11383	A.H.
PROVIDED BATTERY CAPACITY						7.00	A.H.

Existing VOICE PANEL BATTERY CALCULATION - DVC-EM							
EQUIPMENT DESCRIPTION	QUANTITY	SUPERVISORY CURRENT (AMPERES)		ALARM CURRENT (AMPERES)			
		EXISTING	NEW	EACH	SUB-TOTAL		EACH
DVC	1	0	0	0.44	0.44	0.44	0.44
DAA 5025	1	0	0	0.35	0.35	1.9	1.9
1/4 Watt Speaker	0	0	0	0	0	0.017	0
1 Watt Speaker	8	2	0	0	0	0.068	0.68
2 Watt Speaker	3	1	0	0	0	0.132	0.528
VISUALS	75 cd	0	0	0	0	0.158	0
VISUALS	30 cd	0	0	0	0	0.094	0
VISUALS	15 cd	0	0	0	0	0.066	0
SUB TOTAL AMPERES				0.79	0.79	3.548	3.548
SUB TOTAL AMPERE-HOURS				x 24 HOURS	A.H.	0.687	A.H.
TOTAL REQUIRED AMPERE-HOURS FOR DISTRIBUTED POWER MODULE						19.847	A.H.
BATTERY NON-LINEAR DISCHARGE CHARACTERISTIC FACTOR						x 1.2	
TOTAL MINIMUM AMPERE HOURS REQUIRED						23.8164	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
FIRE ALARM PANEL	1	0	0	0.1	0.1	0.1	0.1
DIGITAL ALARM COMMUNICATOR	1	0	0	0.02	0.02	0.02	0.02
SUPERVISED OUTPUT MODULE				0.00022	0	0.0003	0
SMOKE DETECTOR	21	4	0.00039	0.00936	0.00039	0.00975	0.00975
HEAT DETECTOR	19	4	0.00035	0.0077	0.00035	0.00805	0.00805
HORNS	8	0	0	0	0	0.062	0.496
AUDIBLE/VISUALS	75 cd	18	0	0	0	0.121	2.178
AUDIBLE/VISUALS	15 cd	21	0	0	0	0.052	1.092
SUB TOTAL AMPERES				0.13706	0.13706	3.9038	3.9038
SUB TOTAL AMPERE-HOURS				x 24 HOURS	A.H.	0.327919	A.H.
TOTAL REQUIRED AMPERE-HOURS FOR DISTRIBUTED POWER MODULE						3.617359	A.H.
BATTERY NON-LINEAR DISCHARGE CHARACTERISTIC FACTOR						x 1.2	
TOTAL MINIMUM AMPERE HOURS REQUIRED						4.340831	A.H.
BATTERY AH SUPPLIED						26.00	A.H.

VOLTAGE DROP CALCULATIONS						
CIRCUIT	2x	LENGTH x	AMPS x	RESISTANCE x	= VOLTS	VOLTAGE DROP
N31	2	350	0.632	0.00205	0.907	3.78 %

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REVISIONS			
NO.	DATE	APPRD.	DESCRIPTION

CONSULTANT  
**JMPE**  
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 LIGHTING DESIGN  
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AGENCY INFORMATION:  
 AGENCY TRACKING NO. 63321-267  
 FILE NO. 15-6  
 IDENTIFICATION STAMP  
 DIV. OF THE STATE ARCHITECT  
 OFFICE OF REGULATION SERVICES  
 03118235  
 AC  
 DATE JUL 11 2017

**BAKERSFIELD CITY SCHOOL DISTRICT**  
  
**CHIPMAN JR. HIGH, RELOCATABLES R13 & R14**  
 2905 ESSLER ST. BAKERSFIELD, CA 93306

OPSC or OSHPD PROJ. NO:	
PROJECT NO:	17150/109823
DRAWN BY:	AC
	KT
ISSUE DATE:	07/11/2017

**FIRE ALARM RISER CALCULATIONS**

SHEET NUMBER  
**E-0.2**