KEY NOTES

◇1 PROVIDE LABEL FOR BATTERIES INDICATING "DATE IN SERVICE".

WORST CASE VOLTAGE DROP CALCULATION FOR STROBES, STROBE/HORNS AND EXTERIOR HORNS

BUILDING	PANEL NO.	CIRCUIT NO.	15cd STROBE 0.055 AMPS		30cd STROBE 0.063 AMPS		75cd STROBE 0.112 AMPS		110cd STROBE 0.136 AMPS		15cd STROBE/HORN 0.055 AMPS STROBE 0.028 AMPS HORN 0.083 AMPS TOTAL		30cd STROBE/HORN 0.063 AMPS STROBE 0.028 AMPS HORN 0.091 AMPS TOTAL		75cd STROBE/HORN 0.112 AMPS STROBE 0.028 AMPS HORN 0.140 AMPS TOTAL		110cd STROBE/HORN 0.136 AMPS STROBE 0.028 AMPS HORN 0.164 AMPS TOTAL		HORN 0.080 AMPS		TOTAL CIRCUIT AMPS	WIRE SIZE (CU)		FEEDER LENGTH IN FT. (FROM PANEL TO EOL)	VOLTAGE DROP (%)	REMARKS
			NO.	AMPS	NO.	AMPS	NO.	AMPS	NO.	AMPS	NO.	AMPS	NO.	AMPS	NO.	AMPS	NO.	AMPS	NO.	AMPS		#	CIRC. MILLS			
BUILDING #1	FACP	AV1	2	0.110	–	–	–	–	–	–	6	0.498	1	0.091	–	–	–	–	2	0.160	0.859	12	6530	319'-0"	3.78	–
BUILDING #1	FACP	AV2	2	0.110	2	0.126	–	–	–	–	2	0.166	2	0.182	–	–	–	–	1	0.080	0.664	12	6530	279'-0"	2.55	–
BUILDING #2	RPS–2	AV3	1	0.055	1	0.063	1	0.112	–	–	–	–	–	–	2	0.280	1	0.164	2	0.160	0.834	12	6530	251'-0"	2.89	–
BUILDING #2	RPS–2	AV4	2	0.110	1	0.063	1	0.112	–	–	1	0.083	2	0.182	2	0.280	–	–	2	0.160	0.990	12	6530	389'-0"	5.31	–
BUILDING #2	RPS–2	AV5	2	0.110	–	–	–	–	–	–	–	–	–	–	4	0.560	–	–	1	0.080	0.750	12	6530	200'-0"	2.07	–
BUILDING #3	RPS–3	AV6	1	0.055	–	–	–	–	–	–	–	–	–	–	3	0.420	–	–	2	0.160	0.635	12	6530	186'-0"	1.63	–
BUILDING #3	RPS–3	AV7	4	0.220	–	–	–	–	–	–	–	–	–	–	1	0.140	–	–	1	0.080	0.440	12	6530	160'-0"	0.97	–
BUILDING #4	RPS–4	AV8	2	0.110	–	–	–	–	–	–	–	–	1	0.091	2	0.280	–	–	1	0.080	0.561	12	6530	319'-0"	2.47	–
BUILDING #4	RPS–4	AV9	–	–	2	0.126	–	–	–	–	–	–	1	0.091	–	–	1	0.164	1	0.080	0.461	12	6530	193'-0"	1.23	–
BUILDING #6	RPS–6	AV10	2	0.110	1	0.063	–	–	–	–	–	–	2	0.182	–	–	–	–	2	0.160	0.515	12	6530	190'-0"	1.35	–
BUILDING #6	RPS–6	AV11	–	–	1	0.063	–	–	–	–	–	–	–	–	3	0.420	–	–	1	0.080	0.563	12	6530	195'-0"	1.51	–
BUILDING #6	RPS–6	AV12	–	–	1	0.063	–	–	–	–	–	–	–	–	3	0.420	–	–	1	0.080	0.563	12	6530	280'-0"	2.17	–
BUILDING #7	RPS–7	AV13	4	0.220	–	–	–	–	–	–	–	–	3	0.273	2	0.280	–	–	2	0.160	0.933	12	6530	350'-0"	4.50	–
BUILDING #7	RPS–7	AV14	1	0.055	–	–	–	–	–	–	–	–	3	0.273	–	–	–	–	2	0.160	0.488	12	6530	235'-0"	1.58	–
BUILDING #5	RPS–5	AV15	–	–	–	–	–	–	–	–	–	–	–	–	4	0.560	–	–	2	0.160	0.720	12	6530	240'-0"	2.38	–
			–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	

BATTERY CALCULATION FOR FIRE ALARM CONTROL PANEL AND REMOTE POWER SUPPLIES

DESCRIPTION	(NEW) FACP QTY.	SUPERVISORY CURRENT UNIT	SUPERVISORY CURRENT TOTAL	ALARM CURRENT UNIT	ALARM CURRENT TOTAL	(NEW) RPS–2 QTY.	ALARM CURRENT UNIT	ALARM CURRENT TOTAL	(NEW) RPS–3 QTY.	ALARM CURRENT UNIT	ALARM CURRENT TOTAL	(NEW) RPS–4 QTY.	ALARM CURRENT UNIT	ALARM CURRENT TOTAL	(NEW) RPS–5 QTY.	ALARM CURRENT UNIT	ALARM CURRENT TOTAL	(NEW) RPS–6 QTY.	ALARM CURRENT UNIT	ALARM CURRENT TOTAL	(NEW) RPS–7 QTY.	ALARM CURRENT UNIT	ALARM CURRENT TOTAL
FIRE ALARM CONTROL PANEL	1	0.250	0.250	0.250	0.250	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
REMOTE POWER SUPPLY	–	–	–	–	–	1	0.145	0.145	1	0.145	0.145	1	0.145	0.145	1	0.145	0.145	1	0.145	0.145	1	0.145	0.145
REMOTE ANNUNCIATOR PANEL	1	0.0600	0.0600	0.0650	0.0650	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ADDRESSABLE MONITOR MODULE	2	0.0004	0.0008	0.0051	0.0102	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ADDRESSABLE CONTROL MODULE	115	0.0004	0.0460	0.0065	0.5865	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
SYNCHRONIZATION MODULE	0	0.0370	0	0.0370	0	0	0.0370	0	0	0.0370	0	0	0.0370	0	0	0.0370	0	0	0.0370	0	0	0.0370	0
ADDRESSABLE HEAT DETECTOR	0	0.0003	0	0.0065	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ADDRESSABLE SMOKE DETECTOR	180	0.0004	0.0720	0.0065	1.1700	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ADDRESSABLE DUCT SMOKE DETECTOR	3	0.0260	0.0780	0.0870	0.2610	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ATTIC HEAT DETECTOR WITH MONITOR MODULE	115	0.0004	0.0460	0.0065	0.7475	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ADDRESSABLE PULL STATION	5	0.0004	0.0020	0.0004	0.0020	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
STROBE (15cd)	4	–	–	0.220	0.385	5	0.055	0.275	5	0.055	0.275	2	0.055	0.110	0	0.055	0	2	0.055	0.110	5	0.055	0.275
STROBE (30cd)	0	–	–	0.063	0	2	0.063	0.126	0	0.063	0	2	0.063	0.126	0	0.063	0	3	0.063	0.189	0	0.063	0
STROBE (75cd)	0	–	–	0.112	0	2	0.112	0.224	0	0.112	0	0	0.112	0	0	0.112	0	0	0.112	0	0	0.112	0
STROBE (110cd)	0	–	–	0.136	0	0	0.136	0	0	0.136	0	0	0.136	0	0	0.136	0	0	0.136	0	0	0.136	0
MINI–HORN/STROBE COMBO (15cd)	8	–	–	0.083	0.664	1	0.083	0.083	0	0.083	0	0	0.083	0	0	0.083	0	0	0.083	0	0	0.083	0
MINI–HORN/STROBE COMBO (30cd)	3	–	–	0.091	0.273	2	0.091	0.182	0	0.091	0	2	0.091	0.182	0	0.091	0	2	0.091	0.182	6	0.091	0.546
MINI–HORN/STROBE COMBO (75cd)	0	–	–	0.140	0	8	0.140	1.120	4	0.140	0.560	2	0.140	0.280	4	0.140	0.560	6	0.140	0.840	2	0.140	0.280
MINI–HORN/STROBE COMBO (110cd)	0	–	–	0.164	0	1	0.164	0.164	0	0.164	0	1	0.164	0.164	0	0.164	0	0	0.164	0	0	0.164	0
HORN – WEATHERPROOF	3	–	–	0.080	0.240	5	0.080	0.400	3	0.080	0.240	2	0.080	0.160	1	0.080	0.080	4	0.080	0.320	4	0.080	0.320
TOTAL			0.5548		4.6542			2.719			1.220			1.167			0.785			1.786			1.566
STANDBY LOAD IN AMPERES 24 HOUR STANDBY MODE STANDBY AMPERE–HOUR REQUIRED	0.5548 A X 24 H 13.3152 AH					0.091 A X 24 H 2.184 AH			0.091 A X 24 H 2.184 AH			0.091 A X 24 H 2.184 AH			0.091 A X 24 H 2.184 AH			0.091 A X 24 H 2.184 AH			0.091 A X 24 H 2.184 AH		
ALARM LOAD IN AMPERES 5 MINUTE (.083HR) ALARM MODE ALARM AMPERE–HOUR REQUIRED	4.6542 A X 0.083 H 0.3863 AH					2.719 A X 0.083 H 0.2257 AH			1.220 A X 0.083 H 0.1013 AH			1.167 A X 0.083 H 0.0969 AH			0.785 A X 0.083 H 0.0652 AH			1.786 A X 0.083 H 0.1483 AH			1.566 A X 0.083 H 0.1300 AH		
TOTAL AMPERE–HOUR REQUIRED BATTERY SIZE IN AMPERE–HOUR SPARE CAPACITY IN AMPERE–HOUR	13.7015 AH 18 AH 4.2985 AH ◇1					2.4097 AH 7 AH 4.59 AH ◇1			2.2853 AH 7 AH 4.72 AH ◇1			2.2809 AH 7 AH 4.72 AH ◇1			2.2495 AH 7 AH 4.75 AH ◇1			2.3323 AH 7 AH 4.66 AH ◇1			2.314 AH 7 AH 4.69 AH ◇1		

COMPLETE FIRE SYSTEM DESIGN SUBMITTAL PER CBC 2007 907.2.3

THE FIRE ALARM DESIGN IS CONFIGURED TO FULLY AUTOMATIC SYSTEM

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LICENSED ARCHITECT
GUILLERMO AGUILAR
NO. C13165
REN.: MAY. 2011
STATE OF CALIFORNIA

Consultant and Seal

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Agency Approval

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
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	12/08/08	DSA SUBMITTAL
	02/11/09	DSA SUBMITTAL
	5/11/09	DSA BACKCHECK
	12/15/2011	BID SET

Project Name

MUIR FUNDAMENTAL SCHOOL MODERNIZATION
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SANTA ANA, CA 92707

Checked By: RA
Drawn By: JHC

Sheet Title

FIRE ALARM CALCULATIONS

Sheet Number

E5.6

Project Number: 10021–010
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