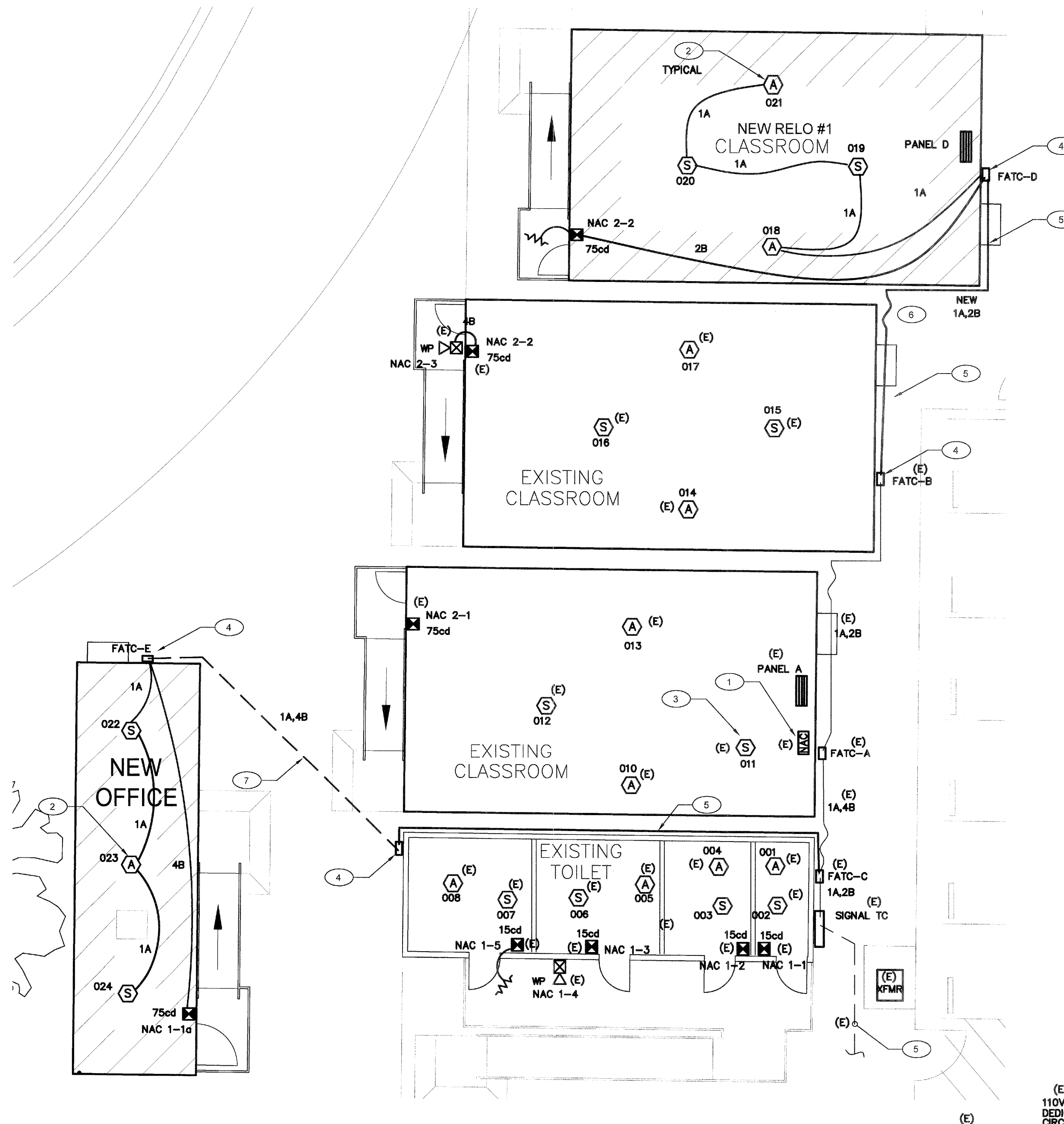


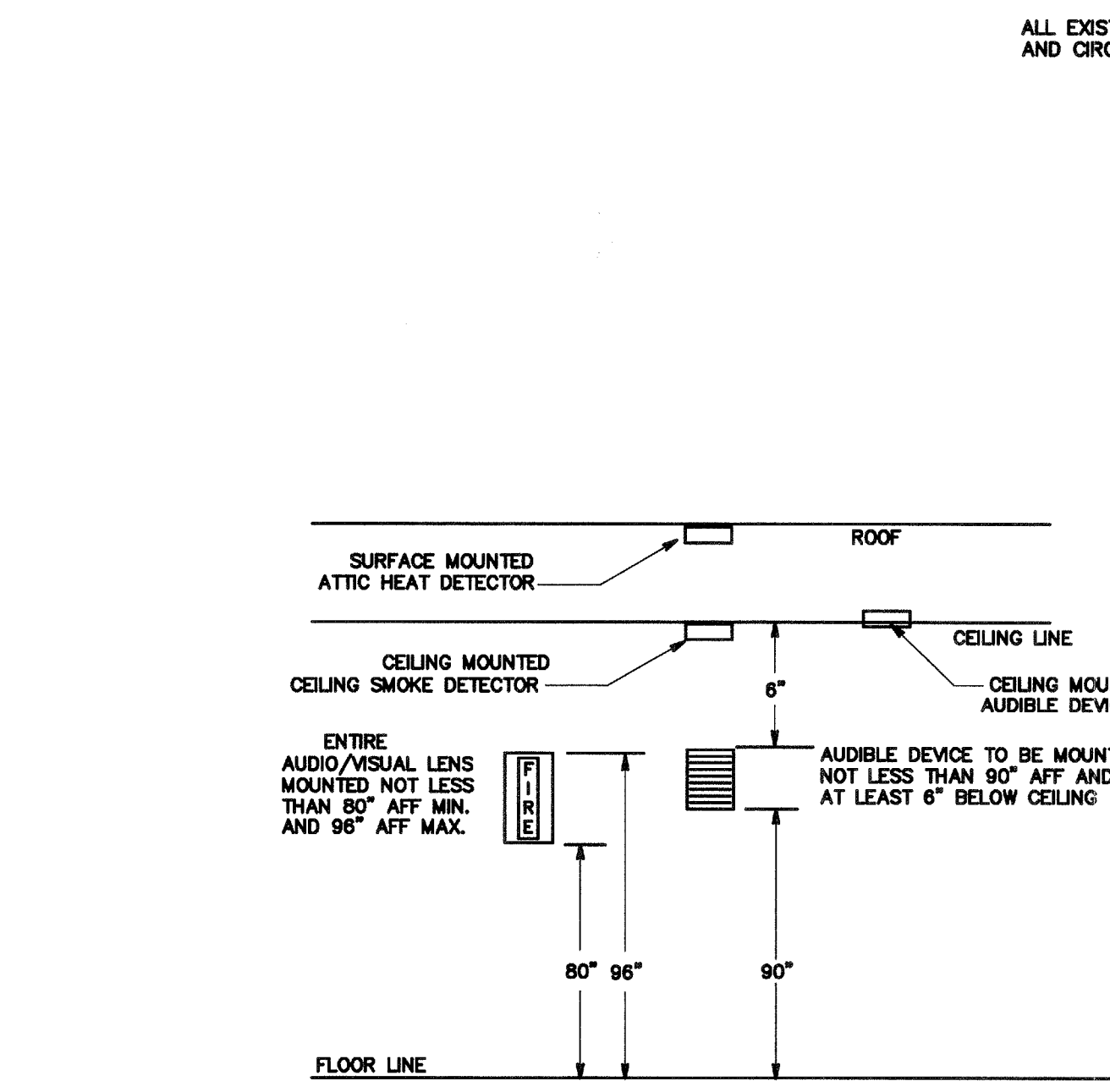
1" = 40'-0"
1" = 30'-0"
1" = 20'-0"
1" = 1'-0"
1/8" = 1'-0"



FIRE ALARM PLAN

3 RELOCATABLE CLASSROOMS

SCALE: 1/8" = 1' - 0"



2 TYPICAL FIRE ALARM DEVICES MT'D DETAIL
N.T.S.

BATTERY POWER CALCULATIONS

EXISTING FIRE ALARM CONTROL PANEL (FACP)

DEVICE	NO. OF DEVICES	CURRENT PER DEVICE	STANDBY CURRENT	LED CURRENT
EXISTING UNIT	1		0.175A	0.5A
SMOKE DETECTOR	4	0.0003A	0.0065A	0.0012A
HEAT DETECTOR	3	0.0003A	0.0065A	0.0009A
SUB-TOTAL				0.1771A
24 HOUR STANDBY CURRENT				4.250AH
5 MINUTE LED CURRENT (0.083 HR)				0.045AH
SUBTOTAL				4.295AH
20% SAFETY FACTOR				0.858AH
TOTAL NEW AMPS-HRS REQUIRED				5.154AH

EXISTING FACP (2)12AH BATTERIES TO REMAIN

FA CABLE SCHEDULE

TYPE	DESCRIPTION
A	INITIATING CIRCUIT CABLE 2#16 AWG SOLID COPPER PVC JACKET POWER LIMITED FPLR CABLE, FOR INDOOR VIA J-HOOK AND OUTDOOR VIA MIN. 3/4" CONDUIT INSTALLATION. WEST PENN #D990 OR EQUAL. CSFM# 7161-0859:0101
B	NAC SIGNAL CIRCUIT CABLE 2#12 AWG SOLID COPPER PVC JACKET POWER LIMITED FPLR CABLE, FOR INDOOR VIA J-HOOK AND OUTDOOR VIA MIN. 1" CONDUIT INSTALLATION. WEST PENN #AQ227 OR EQUAL. CSFM# 7161-0859:0101

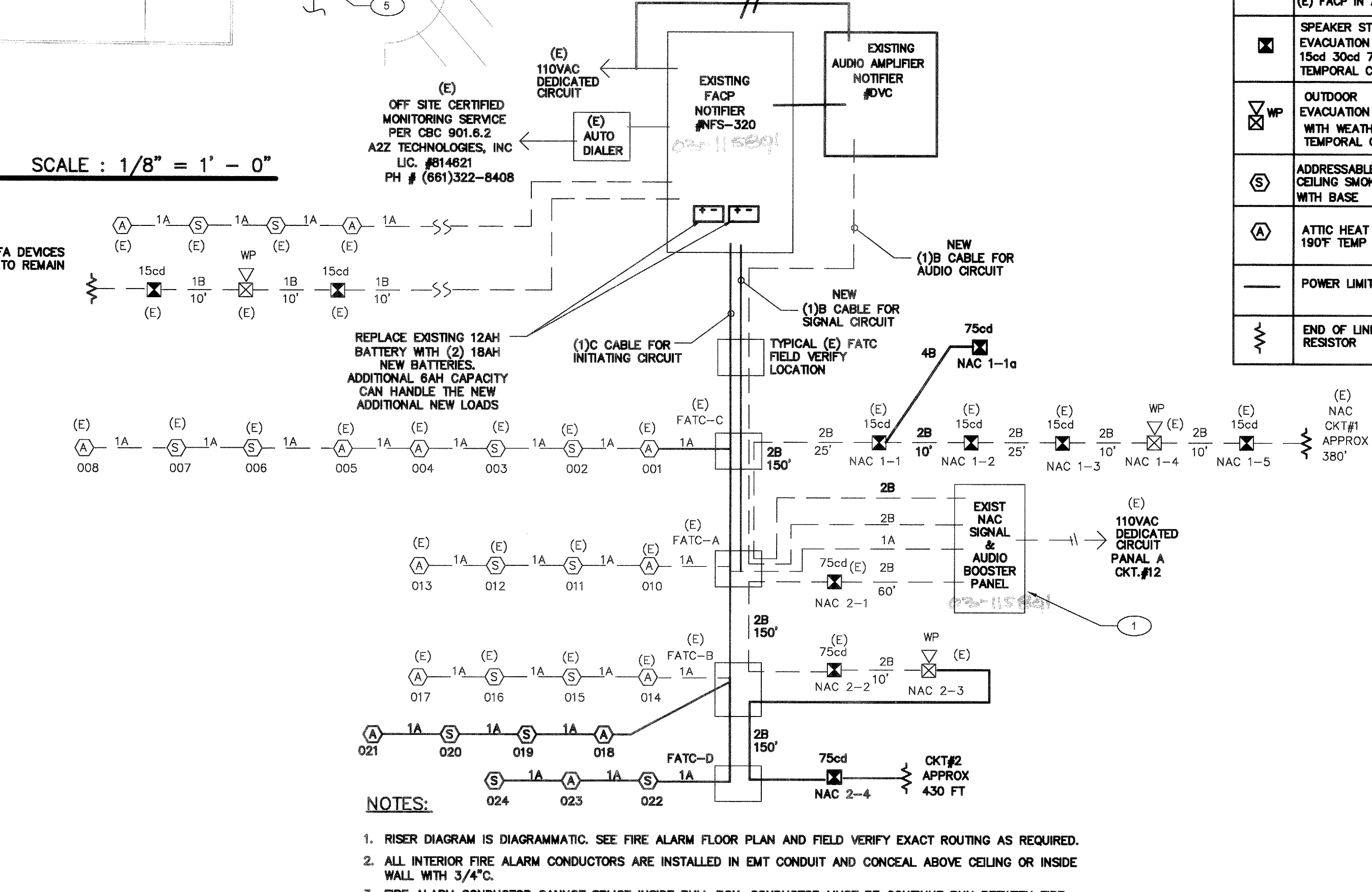
SIGNAL CIRCUIT LOAD SUMMARY

SIGNAL NO.	OUTDOOR HORN	NSUAL	NSUAL 15cd	AUDIO/VISUAL 15cd	AUDIO/VISUAL 30cd	AUDIO/VISUAL 75cd	AUDIO/VISUAL 110cd	NEW 1/4 W SPEAKER	SYNC MODULE	TOTAL
OKT. #1	1	0	4	0	1	0	0	0	0	0.597A
OKT. #2	2	0	0	0	4	0	0	0	0	0.746A

SOURCE OF POWER HAS BEEN INVESTIGATED AND IS ADEQUATE FOR THE ADDITIONAL LOAD

SITE INSPECTOR IS TO WITNESS AND VERIFY GROUNDING TEST

CONTRACTOR TO MONITOR EXISTING FIRE ALARM SYSTEM IF IT IS INTERRUPTED OR DISCONNECTED



1 FIRE ALARM RISER DIAGRAM
N.T.S.

BATTERY POWER CALCULATIONS

EXISTING NAC SIGNAL & AUDIO BOOSTER PANEL

DEVICE	NO. OF DEVICES	CURRENT PER DEVICE	STANDBY CURRENT	ALARM CURRENT
UNIT	1	0.120A	9A	0.120A
OUTDOOR HORN	2(E)	---	0.050A	---
MINI HORN	0	---	0.025A	---
VISUAL 15cd	0	---	0.041A	---
AUDIO/VISUAL 15cd	4(E)	---	0.093A	---
AUDIO/VISUAL 30cd	0	---	0.114A	---
AUDIO/VISUAL 75cd	2(E)	---	0.157A	---
AUDIO/VISUAL 110cd	0	---	0.197A	---
SYNC MODULES	0	---	0.035A	---
1/4 W SPEAKER	6(E) 2(N)	---	0.010A	---
SUB-TOTAL				0.120A
24 HOUR STANDBY CURRENT				2.880AH
5 MINUTE ALARM CURRENT (0.083 HR)				0.858AH
SUBTOTAL				3.738AH
20% SAFETY FACTOR				0.750AH
TOTAL AMPS-HRS REQUIRED				4.488AH

EXISTING (2) NEW 6AH BATTERY TO REMAIN

VOLTAGE DROP CALCULATION

WORST CASE VOLTAGE DROP AT THE LAST DEVICE

SIGNAL	CKT	AMPERES	APPROX LENGTH	RESISTIVITY DIM	WIRE AWG	AREA CM	VOLTS DROPPED	% VOLTS DROP
OKT. A	0.597A	380'	21.6	12	6530	0.750V	3.1%	
OKT. A	0.746A	430'	21.6	12	6530	1.061V	4.4%	

FIRE ALARM SYMBOLS AND SCHEDULE

ITEM	DESCRIPTION	MODEL NUMBER	CSFM NUMBER	MOUNT	BACK BOX
FACP	(E) FACP FOR REFERENCE ONLY	NOTIFIER #NFS-320	7165-0028:0243	+80"	EQUIPMENT CABINET
NAC	EXISTING NAC SIGNAL AND AUDIO BOOSTER PANEL	WHEELOCK #SPB-80/4	6911-0785:0157	+80"	EQUIPMENT CABINET
DVOC	EXISTING DIGITAL VOICE COMMAND CENTER INTERCONNECT WITH (E) FACP IN ADMIN OFFICE	NOTIFIER #DVC-EM	7165-0028:0243	+80"	EQUIPMENT CABINET
WP	SPEAKER STROBE WITH EVACUATION SPEAKER 15cd 30cd 75cd 110cd TEMPORAL CODE 3	NOTIFIER #SPSV WR	7320-1653:0201	+80"	4"SQ X 2 1/2"
WP	OUTDOOR EVACUATION SPEAKER WITH WEATHERPROOF BOX TEMPORAL CODE 3	NOTIFIER #SPRK MWBB	7320-1653:0201	+80"	4"SQ X 2 1/2"
S	ADDRESSABLE CEILING SMOKE DETECTOR WITH BASE	NOTIFIER #ST-851/B710P	7272-0028:0206	CEILING	4"SQ X 2 1/2"
A	ATTIC HEAT DETECTOR 190F TEMP WITH BASE	NOTIFIER #ST-851H/B710P	7270-0028:0198	ATTIC	4"SQ X 2 1/2"
	POWER LIMITED CABLE	WEST PENN #AQ SERIES	7161-0859:0101		
	END OF LINE RESISTOR	N/A	N/A	LAST DEVICE	4"SQ X 2 1/2"

SEISMIC ANCHORAGE

- TO COMPLY WITH 2013 CBC, TITLE 24, SECTION 1632.2A.
- WHERE ANCHORAGE DETAILS ARE NOT SHOWN ON THE DRAWINGS, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE ELECTRICAL ENGINEER AND THE ARCHITECT.

COMPLETE AUTOMATIC FIRE ALARM PLAN SUBMITTAL

- THE FIRE ALARM SYSTEM SHOWN ON THESE PLANS HAS BEEN SUBMITTED AND APPROVED BY DIVISION OF THE STATE ARCHITECT. ANY SUBSTITUTION OF THE FIRE ALARM SYSTEM SHALL BE RESUBMITTED TO THE ARCHITECT FOR REVIEW AND APPROVAL. THE CONTRACTOR SHALL PAY ANY ADDITIONAL FEES THAT ARE INCURRED DUE TO THIS SUBSTITUTION.
- THE AUTOMATIC FIRE ALARM SYSTEM SHALL COVER ALL ROOMS AND AREAS AND UPON ACTIVATION OF AN INITIATING DEVICE ALERT ALL OCCUPANTS AND TRANSMIT THE ALARM, SUPERVISORY, AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION. (EXCEPTION: SMOKE DETECTORS ARE NOT REQUIRED IN NON-ACCESSIBLE AREAS AS DEFINED IN EMERGENCY EXPRESS TERMS OF PROPOSED S.F.M. AMENDMENTS TO 2013 C.F.C. SECTION 210 (C.F.C. SECTIONS 1006.2.4.2.2.1.1 AND 1006.2.4.2.2.1.5)

SHEET NOTES

- EXISTING FIRE ALARM SIGNAL AND AUDIO BOOSTER PANEL AND CONNECT TO (E) FACP PER RISER DIAGRAM. EXISTING DEDICATED CIRCUIT FROM PANEL A-12. UPDATE FIRE ZONE MAP, MEASURE ACTUAL LOAD CURRENT AND VOLTAGE DROP FOR EACH NAC SIGNAL CIRCUIT, AND STANDBY CURRENT AND ALARM CURRENT. SEND THE REPORT TO OWNER AND ENGINEER FOR REVIEW, AND PLASTIC LAMINATED ONE COPY INSIDE CABINET DOOR. SEE FA RISER DIAGRAM FOR DETAIL.
- LOCATE HEAT DETECTOR IN ATTIC AND SURFACE MOUNT ON THE BOTTOM OF RAFTER. DETECTOR COVERAGE WILL BE DERATED 50% ACROSS THE RAFTER. FIELD VERIFY LOCATION WITH GENERAL CONTRACTOR AND PROVIDE ATTIC HEAT DETECTOR IN EACH BAY OF STRUCTURAL.
- EXISTING CEILING SMOKE DETECTOR 5 FEET FROM EXISTING NAC SIGNAL EXPANDER PANEL. SEE DSA APP#03-115601 FA DRAWINGS.
- NEW FACP ON BUILDING EXTERIOR WALL WITH 3/4" STUB INTO BUILDING ATIC CMTY. EXTEND NEW FA CONDUIT AND WIRING TO NEW BUILDINGS PER PLANS.
- NEW 3/4" FA CONDUIT AND WIRING SURFACE MOUNTED ON EXTERIOR WALL PER PLANS.
- PROVIDED 3/4" WEATHERPROOF FLEX CONDUIT BETWEEN BUILDING.
- NEW 1" UG CONDUIT FOR FIRE ALARM WIRING RACEWAY, FIELD VERIFY LOCATION.

F.A SYSTEM SCOPE OF WORK

- PROVIDE AUTOMATIC FIRE ALARM SYSTEM WITH VOICE EVACUATION SPEAKERS FOR THE NEW CLASSROOM BUILDINGS PER PLANS.
- EXISTING FACP IS 24VDC ADDRESSABLE, AND CLASS B WIRING SYSTEM, AND WITH OFF SITE MONITORING SERVICE VIA AUTO DUAL LINE DIALER AND TELEPHONE LINES.
- DURING THE FINAL TESTING, MEASURE ALL FIRE ALARM CURRENTS, VOLTAGE DROP FOR EACH SIGNAL CIRCUIT. SEND OWNER AND ENGINEER ONE COPY RECORD FOR REVIEW, AND PLASTIC LAMINATED ONE COPY INSIDE FACP CABINET DOOR.
- COMPLETE FIRE ALARM DRAWING SUBMITTAL IS PROVIDED.

FIRE ALARM NOTES

- THE SYSTEMS SHALL CONFORM TO CALIFORNIA ELECTRICAL CODES ARTICLE 760, CALIFORNIA FIRE CODE ARTICLE 10 AND CALIFORNIA BUILDING CODE, SECTION 303.9.
- FIRE ALARM CIRCUITS SHALL BE RUN IN EMT CONDUIT PER SPECIFICATIONS.
- UPON COMPLETION OF THE INSTALLATION OF THE FIRE ALARM SYSTEM, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF THE ENFORCING AGENCY.
- NO SPLICE SHALL BE PERMITTED IN PULLBOXES. ALL WIRE SHALL BE RUN CONTINUOUS BETWEEN TERMINAL CABINETS.
- ALL PENETRATIONS IN FIRE-RATED ASSEMBLIES SHALL BE SEALED IN COMPLIANCE WITH CHAPTER 7, C.B.C.
- AUDIBLE SIGNALS INTENDED FOR OPERATION IN THE PRIVATE MODE SHALL HAVE A SOUND LEVEL OF NOT LESS THAN 45 dBA AT 10 FT OR MORE THAN 130dBA AT THE MINIMUM HEARING DISTANCE FROM THE AUDIBLE APPLIANCE. AN AVERAGE SOUND LEVEL GREATER THAN 115 dBA REQUIRES THE USE OF A VISIBLE SIGNAL APPLIANCE. IF AUDIBILITY LEVEL DOES NOT MEET THE REQUIREMENT AT THE TIME OF TESTING, NEW AUDIBLES AND REVISED PLANS WILL BE REQUIRED.
- NEW FIRE ALARM AUDIBLES SHALL BE TAMPO CODE 3.
- A CERTIFICATE OF COMPLETION SHALL BE PROVIDED TO THE OWNER PER NFPA 72 AND THE CALIFORNIA FIRE CODE.
- AN APPROVED FIRE ALARM SYSTEM SHALL BE INSTALLED AS SET FORTH IN THE CALIFORNIA FIRE CODE IN GROUP, DIVISION 1, 2, AND 2.1 OCCUPANCIES. (303.9, CBC)
- THE ALARM SYSTEM SHALL BE INSTALLED, TESTED, AND MAINTAINED IN ACCORDANCE WITH THE STATE FIRE MARSHAL'S REGULATIONS.
- THE FIRE ALARM SYSTEM SHALL CONFORM TO CALIFORNIA ELECTRICAL CODE AND ARTICLE 91. INSTALLATION OF THE SYSTEM SHALL NOT BEGIN UNTIL DETAILED PLANS AND SPECIFICATIONS, INCLUDING SFM LISTING NUMBERS FOR EACH COMPONENT HAVE BEEN APPROVED BY DSA. UPON COMPLETION OF THE INSTALLATION, A TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF THE INSPECTOR OF RECORD.
- ALARM INDICATING DEVICES OF A FIRE ALARM SYSTEM INTENDED TO ALERT ALL OCCUPANTS SHALL CAUSE A LEVEL OF AUDIBILITY OF NOT LESS THAN 15 dBA ABOVE THE AVERAGE AMBIENT NOISE MEASURE @ 10' BUT NOT LESS THAN 110dBA IN TOTAL THROUGHOUT. AMBIENT NOISE LEVELS MEANS THE LEVEL WHICH CAN NORMALLY BE EXPECTED WHEN THE FACILITY, BUILDING, ROOM OR AREA IS FUNCTIONING UNDER NORMAL OPERATING OR WORKING CONDITIONS.
- THE ALARMS SYSTEM SHALL ACTIVATE A MEANS OF WARNING THE HEARING IMPAIRED. FLASHING VISUAL WARNINGS SHALL HAVE A FLASH RATE NOT EXCEEDING TWO FLASHES PER SECOND (2 HZ) NOR BE LESS THAN ONE FLASH EVERY SECOND (1 HZ). STROBE SIGNALING DEVICES FOR THE HEARING IMPAIRED SHALL BE STATE FIRE MARSHAL APPROVED AND LISTED.

F.A. MONITORING NOTES

- THE AUTOMATIC FIRE ALARM SYSTEMS SHALL TRANSMIT THE ALARM, SUPERVISORY AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION AS REQUIRED BY NFPA 72 AND AMENDED EITHER UIUFX OR UIJUS BY UNDERWRITERS OF FACTORY MUTUAL RESEARCH APPROVAL STANDARD 301. SUPERVISION OF SYSTEM AND LEASED TELEPHONE LINES SHALL BY ARRANGED BY OWNER.

CONSULTING ENGINEERS

John Chong Engineering

JOHN CHONG ENGINEERING

1071 E DELGATER AVE, FRESNO CA 93720
(559) 215-2266 • FAX 251-2401
jchong@ceal.com

PROFESSIONAL ENGINEER

JOHN S. CHONG
E 14419
Exp. 8/30/2016
ELECTRICAL

Job No: **5170**

Sheet No: **E-3**

Release:

Ownership of Documents

This document, the ideas and designs incorporated herein, as an instrument of Professional Service is the property of Integrated Designs by SOMAM Inc. and is not to be used, in whole or in part for any other project without written authorization. © COPYRIGHT 2013

integrated designs by SOMAM, Inc.

ARCHITECTURE · ENGINEERING · INTERIOR DESIGN · CONSTRUCTION MANAGEMENT

8011 N. Fresno, Suite 130 - Fresno, California 93710
Phone (559) 438-0887 E-Mail: design@somam.com
www.integrateddesigns.com

Revision: _____
Revision Description: _____
Rev. Date: _____

WAYSIDE ELEMENTARY SCHOOL

1 RELOCATABLE CLASSROOM

BAKERSFIELD CITY SCHOOL DISTRICT
1000 MING AVE., BAKERSFIELD, CA

Project Name & Address:

Designer: **J. CHONG**
DRE: **J. CHONG**
P.C.: **CUM**

Issue Date: 00/00/14
Date: 05/27/14

Agency Approval Stamp:

IDENTIFICATION STAMP

DIV. OF THE STATE ARCHITECT

APPROX 116975

AC: FLS 116975

DATE: MAY 24 2015