Plaza Robles HS Fire Alarm Upgrade

9434 Thornton Rd, Stockton, CA 95209

PROJECT DESCRIPTION

CAMPUSWIDE FIRE ALARM UPGRADE

PROJECT TEAM

OWNER: LODI UNIFIED SCHOOL DISTRICT
1305 East Vine St.
Lodi, CA 95240-3148

ELECTRICAL ENGINEER: THE ENGINEERING ENTERPRISE
1125 High Street
Auburn, CA 95603

CODE INFORMATION

LIST OF APPLICABLE CODES
2022 California Administrative Code (CAC), Part 1, Title 24 CCR
2022 California Building Code (CBC), Part 2, Title 24 CCR
2022 California Electrical Code (CEC), Part 3, Title 24 CCR
2022 California Mechanical Code (CMC), Part 4, Title 24 CCR
2022 California Plumbing Code (CPC), Part 5, Title 24 CCR
2022 California Energy Code, Part 6, Title 24 CCR
2022 California Fire Code (CFC), Part 9, Title 24 CCR
2022 California Existing Building Code (CEBC), Part 10, Title 24 CCR
2022 California Green Building Standards Code (CALGreen), Part 11, Title 24 CCR
2022 California Referenced Standards Code, Part 12, Title 24 CCR
Title 19 CCR, Public Safety, State Fire Marshal Regulations

PARTIAL LIST OF APPLICABLE STANDARDS
2022 NFPA 13 Standard for the Installation of Sprinkler Systems
2019 NFPA 14 Standard for the Installation of Standpipe and Hose Systems
2021 NFPA 17 Standard for Dry Chemical Extinguishing Systems
2021 NFPA 17A Standard for Wet Chemical Extinguishing Systems
2019 NFPA 20 Standard for the Installation of Stationary Pumps for Fire Protection
2013 NFPA 22 Standard for Water Tanks for Private Fire Protection
2019 NFPA 24 Standard for the Installation of Private Fire Service Mains and Their Appurtenances
2019 NFPA 25 Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems with California Amendments
2022 NFPA 72 National Fire Alarm and Signaling Code
2019 NFPA 80 Fire Doors and Other Opening Protectives
2018 NFPA 92 Standard for Smoke Control Systems
2019 NFPA 253 Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using Radiant Heat Energy Source
2019 NFPA 2001 Standard on Clean Agent Fire Extinguishing Systems
2017 ICC 300 ICC Standard on Bleachers, Folding and Telescoping Seating and Grandstands
2010 UL 300 Standard for Fire Testing of Fire Extinguishing Systems for Protection of Commercial Cooking Equipment
2003 UL 464 Audible Signal Appliances
1999 UL 521 Heat Detectors for Fire Protective Signaling Systems
2002 UL 1971 Standard for Signaling Devices for the Hearing Impaired

SHEET INDEX

ELECTRICAL SHEET INDEX

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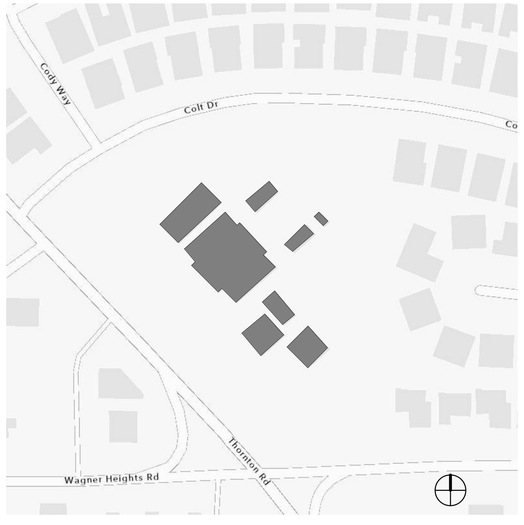
FA0.2	FIRE ALARM MATRIX, SCHEDULES AND NOTES	•
FA0.3	FIRE ALARM RISER DIAGRAM	•
FA0.4	FIRE ALARM BATTERY CALCULATIONS	•
FA1.0	SITE PLAN	•
FA2.1	FIRE ALARM PLAN - UNIT A	•
FA2.2	FIRE ALARM PLAN - UNITS B & C	•
FA2.3	FIRE ALARM PLAN - UNITS D-G	•

TOTAL SHEET COUNT: 9

VICINITY MAP



DSA NOTES

1. ALL WORK SHALL CONFORM TO 2022 EDITION TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR)
2. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY A CONSTRUCTION CHANGE DOCUMENT (CCD) APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338, PART I, TITLE 24, CCR
3. SUBSTITIONS AFFECTING DSA REGULATED ITEMS SHALL BE CONSIDERED AS A CONSTRUCTION CHANGE DOCUMENT OR ADDENDUM AND SHALL BE APPROVED BY DSA PRIOR TO FABRICATION AND INSTALLATION PER DSA IR A-6 AND SECTION 338 (c) PART 1, TITLE 24, CCR
4. A PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-32, PART 1, TITLE 24, CCR; CLASS 3
5. A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE DISTRICT (OWNER) SHALL CONDUCT ALL THE REQUIRED TESTS AND INSPECTIONS FOR THE PROJECT.
6. THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IN THAT THE WORK OF THE ALTERATION REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CCR. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CCR, A CONSTRUCTION CHANGE DOCUMENT (CCD), OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE WORK. (SECTION 4-317(C), PART 1, TITLE 24, CCR)
7. GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.

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REGISTERED PROFESSIONAL ENGINEER
E20154
Exp. 12-31-25
SCOTT WHEELER
ELECTRICAL
STATE OF CALIFORNIA

Plaza Robles HS Fire Alarm Upgrade

9434 Thornton Rd, Stockton, CA 95209

REVISIONS

#	DESCRIPTION	DATE
1	DSA SUBMISSION	2025-03-05

DESIGNER: PB

SCALE: 12" = 1'-0"

DATE: 2025.03.05

DSA APP. #: 02-123150

TITLE:

COVERSHEET

DRAWING NO.

G0.0

SYMBOLS LIST

CONVENTIONS

1	NUMBERED NOTE, APPLIES TO ALL DRAWINGS.
1	NUMBERED SHEET NOTE, APPLIES TO DRAWING CONTAINING NOTES ONLY.
EQ ##	EQUIPMENT IDENTIFICATION TAG: ITEM FURNISHED AND INSTALLED UNDER ANOTHER DIVISION AND WIRED UNDER THIS DIVISION.
1 E-801	DETAIL REFERENCE: DETAIL DESIGNATION SHEET NUMBER
7S4	UNDERGROUND CONDUIT DESIGNATION: CONDUIT SIZE IN INCHES CONDUIT SYSTEM DESIGNATION P: PRIMARY POWER S: SECONDARY POWER T: TELECOMMUNCATIONS QUANTITY OF CONDUITS

RACEWAYS

	CONDUIT RUN EXPOSED ON WALL OR CEILING.
	CONDUIT RUN CONCEALED IN SLAB, UNDER SLAB OR UNDERGROUND.
	CONDUIT RUN CONCEALED IN WALL OR ABOVE CEILING.
	CONDUIT HOMERUN. CONTINUOUS RUN TO PANEL OR EQUIPMENT CABINET. HOMERUN CAN OCCUR ON ANY OF THE ABOVE ROUTING CONDITIONS.
	CONDUIT TURNED UP, CAN OCCUR ON ANY OF THE ABOVE ROUTING CONDITIONS.
	CONDUIT TURNED DOWN, CAN OCCUR ON ANY OF THE ABOVE ROUTING CONDITIONS.
	CONDUIT CAPPED OR STUBBED WITH INSULATED BUSHINGS, CAN OCCUR ON ANY OF THE ABOVE ROUTING CONDITIONS.
	CONDUIT SLEEVE, WITH INSULATING BUSHINGS.
	FLEXIBLE METALLIC CONDUIT, EQUIPMENT CONNECTION.
	CROSSMARKS ON BRANCH CIRCUIT CONDUIT RUNS INDICATE THE QUANTITY OF CONDUCTORS AS FOLLOWS (GROUND CONDUCTORS ARE NOT NOTED, BUT SHOULD BE INCLUDED IN EVERY CONDUIT WITH POWER CONDUCTORS): 1. NO CROSSMARKS INDICATES TWO #12 AWG CONDUCTORS, UON. 2. THREE TO SIX CROSSMARKS INDICATES THE QUANTITY OF #12 AWG CONDUCTORS, UON. 3. SEVEN OR MORE CROSSMARKS INDICATES THE QUANTITY OF #10 AWG CONDUCTORS, UON.
	SURFACE RACEWAY; TYPE, DEVICE SPACING AND MOUNTING AS NOTED ON PLANS.
	CABLE TRAYS; SIZE, TYPE, ANDMOUNTING AS NOTED ON PLANS.

LINESTYLES

	EXISTING TO REMAIN
	EXISTING TO BE REMOVED (R) OR RELOCATED (RR)
	NEW CONSTRUCTION
	FUTURE CONSTRUCTION

FIRE ALARM

C	SMOKE DETECTOR INITIATING DEVICE, CEILING MOUNTED IN FLUSH OR SURFACE JUNCTION BOX. "C" DENOTES MULTI-CRITERIA CARBON MONOXIDE AND SMOKE DETECTOR.
	SMOKE DETECTOR INITIATING DEVICE, WALL MOUNTED IN FLUSH JUNCTION BOX, MAXIMUM 6" BELOW CEILING.
	SMOKE DETECTOR INITIATING DEVICE, MOUNTED TO STRUCTURE ABOVE SUSPENDED CEILING IN SURFACE JUNCTION BOX OR SUSPENDED IN JUNCTION BOX.
	SMOKE DETECTOR INITIATING DEVICE, DUCT-MOUNTED TYPE WITH SAMPLING TUBE.
	SMOKE DETECTOR INITIATING DEVICE, IN-DUCT MOUNTED TYPE.
	PROJECTED BEAM SMOKE DETECTOR INITIATING DEVICES TO INCLUDE TRANSMITTER, RECEIVER AND REMOTE INDICATOR STATION, WALL MOUNTED IN FLUSH JUNCTION BOX BELOW BEAM DETECTOR AT +42" AFF. BEAM DETECTORS ARE EITHER CEILING OR WALL MOUNTED 6" BELOW CEILING.
	HEAT DETECTOR INITIATING DEVICE, CEILING MOUNTED IN FLUSH OR SURFACE JUNCTION BOX.
	HEAT DETECTOR INITIATING DEVICE, WALL MOUNTED IN FLUSH JUNCTION BOX, MAXIMUM 6" BELOW CEILING.
	HEAT DETECTOR INITIATING DEVICE, MOUNTED TO STRUCTURE ABOVE SUSPENDED CEILING IN SURFACE JUNCTION BOX.
F	MANUAL PULL STATION INITIATING DEVICE, WALL MOUNTED AT +48" UON.
	SPRINKLER SYSTEM WATER FLOW SWITCH, NIEC. SYMBOL DENOTES INTERFACE FOR MONITORING CONNECTION FROM FIRE ALARM SYSTEM.
	SPRINKLER SYSTEM TAMPER SWITCH, NIEC. SYMBOL DENOTES INTERFACE FOR MONITORING CONNECTION FROM FIRE ALARM SYSTEM.
	SPRINKLER SYSTEM POST INDICATING VALVE 'PIV', NIEC. SYMBOL DENOTES INTERFACE FOR MONITORING CONNECTION FROM FIRE ALARM SYSTEM. INCLUDE A REMOTE MOUNTED ADDRESSABLE MONITORING MODULE AT PIV.
SM	REMOTE MOUNTED SINGLE INPUT, ADDRESSABLE, MONITORING MODULE FOR INITIATING CIRCUIT CONNECTION.
DM	REMOTE MOUNTED DUAL INPUT, ADDRESSABLE, MONITORING MODULE FOR INITIATING CIRCUIT CONNECTION.
CR	REMOTE MOUNTED PROGRAMMABLE CONTROL RELAY MODULE FOR ADDRESSABLE CONTROL.
DPS	DIFFERENTIAL PRESSURE SWITCH, NIEC. SYMBOLS DENOTES INTERFACE FOR MONITORING CONNECTION FROM FIRE ALARM SYSTEM TO ANNUNCIATE FAN OPERATION. INCLUDE A REMOTE MOUNTED ADDRESSABLE MONITORING MODULE AT EACH LOCATION.
EOL	END-OF-LINE RESISTOR.
CT	CURRENT TRANSFORMER FOR MONITORING AVAILABLE POWER.
FRAP	FIREMANS REMOTE ANNUNCIATOR PANEL FRAP, FLUSH WALL MOUNTED, +42" UON.
	MAGNETIC TYPE DOOR HOLD OPEN/RELEASE DEVICE, WALL MOUNTED, NIEC. SYMBOL DENOTES INTERFACE FOR POWER AND CONTROL CONNECTIONS FROM FIRE ALARM SYSTEM.
	DOOR HOLD OPEN/RELEASE DEVICE INTEGRATED IN DOOR HARDWARE CLOSURE EQUIPMENT, NIEC. SYMBOL DENOTES INTERFACE FOR POWER AND CONTROL CONNECTIONS FROM FIRE ALARM SYSTEM.
	AUDIBLE NOTIFICATION APPLIANCE, WALL MOUNTED, 6" BELOW CEILING OR +80" AFF, WHICHEVER IS LOWER.
	VISIBLE NOTIFICATION APPLIANCE, WALL MOUNTED, 6" BELOW CEILING OR +80" AFF, WHICHEVER IS LOWER. NUMBER ASSOCIATED WITH 'cd' REPRESENTS CANDELA RATING OF STROBE.
	AUDIBLE/VISIBLE NOTIFICATION APPLIANCE, WALL MOUNTED, 6" BELOW CEILING OR +80" AFF, WHICHEVER IS LOWER. NUMBER ASSOCIATED WITH 'cd' REPRESENTS CANDELA RATING OF STROBE.
	AUDIBLE NOTIFICATION APPLIANCE, CEILING MOUNTED IN FLUSH BACK BOX.
	VISIBLE NOTIFICATION APPLIANCE, CEILING MOUNTED IN FLUSH BACK BOX. NUMBER ASSOCIATED WITH 'cd' REPRESENTS CANDELA RATING OF STROBE.
	AUDIBLE/VISIBLE NOTIFICATION APPLIANCE, CEILING MOUNTED IN FLUSH BACK BOX. NUMBER ASSOCIATED WITH 'cd' REPRESENTS CANDELA RATING OF STROBE.
D 2	MOTOR OPERATED FIRE/SMOKE DAMPER "FSD", NIEC. SYMBOL DENOTES FIRE ALARM INTERFACE WITH PROGRAMMABLE CONTROL RELAY FOR FSD CONTROL AND DUAL INPUT ADDRESSABLE MONITORING MODULE FOR POSITION MONITORING VIA END SWITCHES.
	FIRE ALARM BELL FOR SPRINKLER FLOW ANNUNCIATOR, NIEC, POWERED AND INSTALLED BY ELECTRICAL, WALL MOUNTED ON EXTERIOR OF BUILDING.
	THERMISTOR SENSOR DEVICE IN FSAE LOBBIES FOR TEMPERATURE MONITORING, WALL MOUNTED 6" BELOW CEILING.
	SMOKE ALARM FOR RESIDENTIAL DWELLING UNITS, NON-ADDRESSABLE, 120V DEVICE WITH BATTERY BACK-UP, CEILING MOUNTED IN FLUSH OR SURFACE JUNCTION BOX.
	SMOKE ALARM FOR RESIDENTIAL DWELLING UNITS, NON-ADDRESSABLE, 120V DEVICE WITH BATTERY BACK-UP, WALL MOUNTED MAXIMUM 6" BELOW CEILING IN FLUSH JUNCTION BOX.
C	COMBINATION SMOKE AND CARBON MONOXIDE ALARM FOR RESIDENTIAL DWELLING UNITS, NON-ADDRESSABLE, 120V DEVICE WITH BATTERY BACK-UP, CEILING MOUNTED IN FLUSH OR SURFACE JUNCTION BOX.
C	COMBINATION SMOKE AND CARBON MONOXIDE ALARM FOR RESIDENTIAL DWELLING UNITS, NON-ADDRESSABLE, 120V DEVICE WITH BATTERY BACK-UP, WALL MOUNTED MAXIMUM 6" BELOW CEILING IN FLUSH JUNCTION BOX.
CS	REMOTE 2-WAY COMMUNICATION STATION, WALL MOUNTED, +42" AFF.
BS	2-WAY COMMUNICATION BASE STATION, WALL MOUNTED, +42" AFF.

ABBREVIATIONS

A	AMPERES	KO	CONDUIT KNOCKOUT
AFI	ARC FAULT CIRCUIT INTERRUPTER	LCP	LIGHTING CONTROL PANEL
AF	AMPERE OVERCURRENT FRAME SIZE (WHEN APPLIED TO CIRCUIT BREAKERS) OR AMPERE FUSE SIZE (WHEN APPLIED TO FUSES)	MBGB	MAIN BUILDING GROUND BUS
		MCB	MAIN CIRCUIT BREAKER
		MCC	MOTOR CONTROL CENTER
AFF	ABOVE FINISHED FLOOR	MDF	MAIN DISTRIBUTION FRAME
AIC	ASYMMETRIC INTERRUPTING CURRENT	MLO	MAIN LUGS ONLY
AL	ALUMINUM	MTC	EMPTY CONDUIT
AT	AMPERE OVERCURRENT TRIP (WHEN APPLIED TO CIRCUIT BREAKERS)	MTS	MANUAL TRANSFER SWITCH
AV	AUDIO / VIDEO	(N)	NEW
ATS	AUTOMATIC TRANSFER SWITCH	NC	NORMALLY CLOSED
BAS	BUILDING AUTOMATION SYSTEM	NF	NON-FUSED
BPS	BOLTED PRESSURE CONTACT SWITCH	NIEC	NOT IN ELECTRICAL CONTRACT
C	CONDUIT	NL	NIGHT LIGHT, UNSWITCHED
CCTV	CLOSED CIRCUIT TELEVISION	NO	NORMALLY OPEN
CEC	CALIFORNIA ELECTRICAL CODE	NTS	NOT TO SCALE
CL	CURRENT LIMITING CIRCUIT BREAKER OR FUSE	OC	ON CENTER
		OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
CP	CIRCULATION PUMP	PA	PUBLIC ADDRESS
CT	CURRENT TRANSFORMER	PDZ	PRIMARY DAYLIGHT ZONE
CU	COPPER	PNL	PANEL
DF	DRINKING FOUNTAIN	PQM	POWER QUALITY METER
(E)	EXISTING TO REMAIN	PT	POTENTIAL TRANSFORMER
EC	ELECTRICAL CONTRACTOR	PVC	POLYVINYL CHLORIDE
EF	EXHAUST FAN	(R)	EXISTING TO BE REMOVED
EP	EXPLOSION PROOF	(RR)	REMOVE AND RELOCATE
EPO	EMERGENCY POWER OFF	SAD	SEE ARCHITECTURAL DRAWINGS
EMT	ELECTRICAL METALLIC TUBING	TC	TIME CLOCK
EWH	ELECTRIC WATER HEATER	TP	TWISTED-PAIR
F	FUSED	SDZ	SECONDARY DAYLIGHT ZONE
(F)	FUTURE	SPD	SURGE PROTECTION DEVICE
FACP	FIRE ALARM CONTROL PANEL	TX	TRANSFORMER
FFCP	FIREMAN'S FAN CONTROL PANEL	TYP	TYPICAL
FLA	FULL LOAD AMPERES	UON	UNLESS OTHERWISE NOTED
FMC	FLEXIBLE METAL CONDUIT	UPS	UNINTERRUPTIBLE POWER SUPPLY
FSD	FIRE/SMOKE DAMPER	V	VOLTS
FRAP	FIREMAN'S REMOTE ANNUNCIATOR PANEL	VA	VOLTS-AMPS
		VFD	VARIABLE FREQUENCY DRIVE
G	GROUND	VM	VENDING MACHINE
GB	GROUND BUS	WAP	WIRELESS ACCESS POINT
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	WP	WEATHERPROOF
GND	GROUND	2SP	TWO SPEED
GRAP	GENERATOR REMOTE ANNUNCIATOR PANEL	1Ø	1-PHASE
GRC	GALVANIZED RIGID CONDUIT	3Ø	3-PHASE
HNC	HOME NETWORK CABINET	1P	1-POLE
HPC	HIGH PRESSURE CONTACT SWITCH	2P	2-POLE
IDF	INTERMEDIATE DISTRIBUTION FRAME	3P	3-POLE
IG	ISOLATED GROUND	3W	3-WIRE
INV	INVERTER	4W	4-WIRE
IMC	INTERMEDIATE METAL CONDUIT		

APPLIANCES

DO	DOUBLE OVEN	MW	MICROWAVE
DW	DISHWASHER	RF	REFRIGERATOR
ED	ELECTRIC DRYER	RH	RANGE HOOD
EO	ELECTRIC OVEN/RANGE	UR	UNDERCOUNTER REFRIGERATOR
GD	GARBAGE DISPOSER	WC	WINE COOLER
GR	GAS RANGE	WM	WASHING MACHINE

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REGISTERED PROFESSIONAL ENGINEER
#E015431
Exp. 06-30-25
SCOTT WHEELER
ELECTRICAL
STATE OF CALIFORNIA

Plaza Robles HS Fire Alarm Upgrade

9434 Thornton Rd, Stockton, CA 95209

REVISIONS

#	DESCRIPTION	DATE
1	DSA SUBMISSION	2025-03-05

DESIGNER: PB

SCALE:

DATE: 2025.03.05

DSA APP. #: 02-123150

TITLE:

SYMBOLS, NOTES AND ABBREVIATIONS

DRAWING NO.

FA0.1

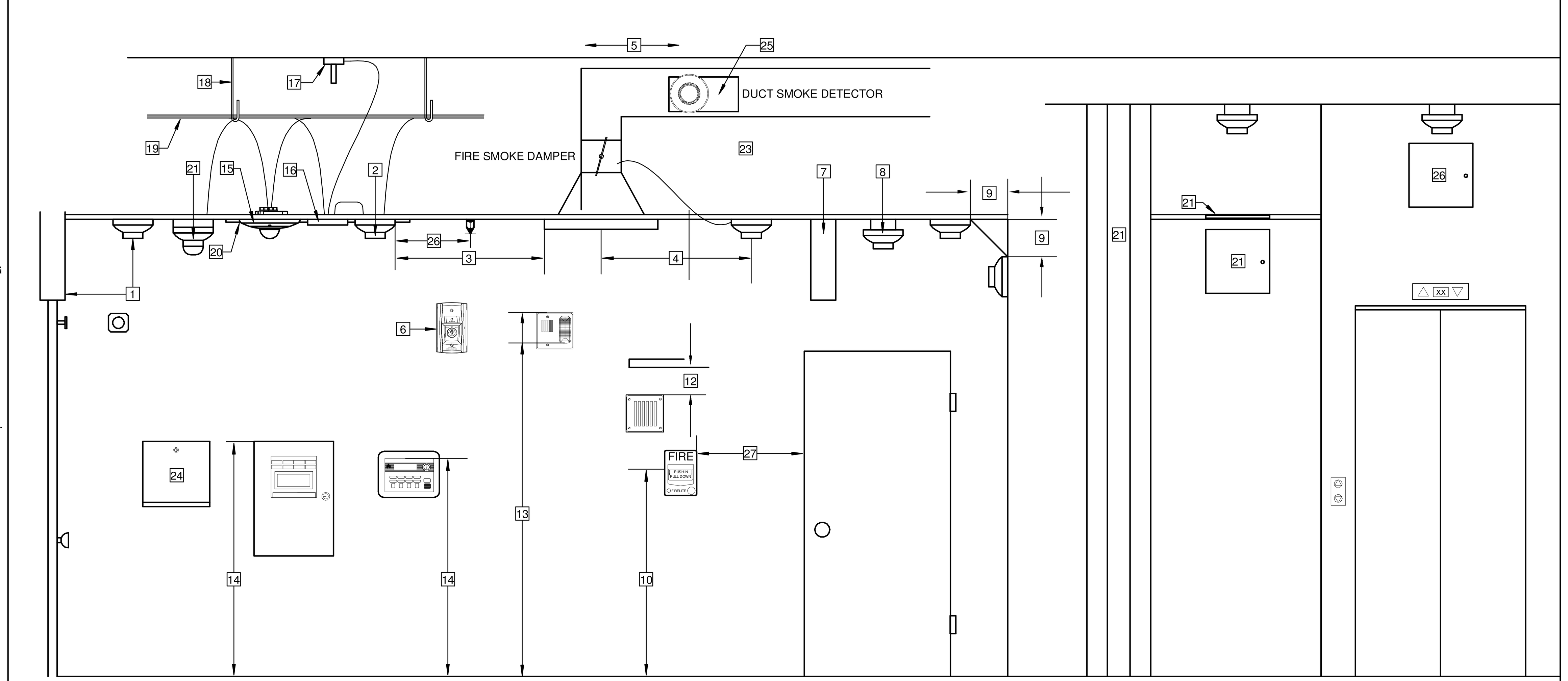
FIRE ALARM SYSTEM MATRIX

	MANUAL PULL STATION	SMOKE DETECTOR	HEAT DETECTOR	OPEN/SHORT CIRCUIT	GROUND FAULT	AC LOSS	BATTERY TROUBLE	SYSTEM SILENCE	SYSTEM RESET	
ALARM AT FACP & REMOTE ANNUNCIATOR(S)	●	●	●							
SUPERVISORY AT FACP & REMOTE ANNUNCIATOR(S)										
TROUBLE AT FACP & REMOTE ANNUNCIATOR(S)				●	●	●	●			
REPORT EVENT TO OFFSITE SUPERVISING STATION	●	●	●	●	●	●	●			
ACTIVATE EVACUATION SIGNALS	●	●	●							
DEACTIVATE EVACUATION SIGNALS								●		
SYSTEM NORMAL								●	●	

FIRE ALARM DEVICE MOUNTING DETAIL NOTES

#

1. MOUNT DOOR HOLDER SMOKE DETECTOR MAXIMUM 3' FROM DOOR AND A MINIMUM OF 1' FROM DOOR.
2. ON SMOOTH CEILINGS, SPACING FOR SPOT-TYPE SMOKE DETECTORS SHALL BE IN ACCORDANCE WITH NFPA 17.7.4.2.3.1 THROUGH 17.7.4.2.3.4.
3. NFPA 72 17.7.5.1 IN SPACES SERVED BY AIR-HANDLING SYSTEMS, DETECTORS SHALL NOT BE LOCATED WHERE AIRFLOW PREVENTS OPERATION OF THE DETECTORS.
4. MOUNT SMOKE DETECTOR FOR FIRE SMOKE DAMPER (FSD) WITHIN 3' OF SUPPLY VENT.
5. DUCT SMOKE DETECTOR SHALL BE MOUNTED 6 TO 10 TIMES THE DIAMETER OF DUCT FROM BEND OR OBSTRUCTION.
6. DETECTORS INSTALLED IN CONCEALED LOCATIONS WHERE THE SPECIFIC DETECTOR ALARM OR SUPERVISORY SIGNAL IS INDICATED AT THE CONTROL UNIT (AND ON THE DRAWINGS WITH ITS SPECIFIC LOCATION AND FUNCTIONS) SHALL NOT BE REQUIRED TO BE PROVIDED WITH REMOTE ALARM INDICATORS AS SPECIFIED IN NFPA 17.4.7.
7. NFPA 72 17.7.4.2.4.2 FOR LEVEL CEILINGS, THE FOLLOWING SHALL APPLY:
(1) FOR CEILINGS WITH BEAM DEPTHS OF LESS THAN 10 PERCENT OF THE CEILING HEIGHT (0.1 H), THE FOLLOWING SHALL APPLY: (A) SMOOTH CEILING SPACING SHALL BE PERMITTED.
8. NFPA 17.6.3.3.1.1 A CEILING SHALL BE TREATED AS A SMOOTH CEILING IF THE BEAMS PROJECT NO MORE THAN 4 IN. (100 MM) BELOW THE CEILING.
9. UNLESS OTHERWISE MODIFIED BY NFPA 17.6.3.2.2, NFPA 17.6.3.3.2, OR NFPA 17.6.3.7, SPOT-TYPE HEAT-SENSING FIRE DETECTORS SHALL BE LOCATED ON THE CEILING NOT LESS THAN 4 IN. (100 MM) FROM THE SIDEWALL OR ON THE SIDEWALLS BETWEEN 4 IN. AND 12 IN. (100 MM AND 300 MM) FROM THE CEILING.
10. NFPA 72 17.14.5 THE OPERABLE PART OF A MANUALLY ACTUATED ALARM-INITIATING DEVICE SHALL NOT BE LESS THAN 42" AFF AND NOT MORE THAN 48" AFF. NFPA 72 17.14.8.4 MANUAL FIRE ALARM BOXES SHALL BE LOCATED WITHIN 5' OF EACH EXIT DOORWAY ON EACH FLOOR.
11. NFPA 72 18.4.8.1 MOUNT EXTERIOR HORN AT 90" MINIMUM AND 100" MAXIMUM TO THE TOP OF THE DEVICE.
12. IF CEILING HEIGHTS ALLOW, AND UNLESS OTHERWISE PERMITTED BY NFPA 18.4.9.2 THROUGH NFPA 18.4.9.5, WALL-MOUNTED APPLIANCES SHALL HAVE THEIR TOPS ABOVE THE FINISHED FLOORS AT HEIGHTS OF NOT LESS THAN 90 IN. (2.29 M) AND BELOW THE FINISHED CEILINGS AT DISTANCES OF NOT LESS THAN 6 IN. (150 MM).
13. WALL-MOUNTED APPLIANCES SHALL BE MOUNTED SUCH THAT THE ENTIRE LENS IS NOT LESS THAN 80 IN. (2.03 M) AND NOT GREATER THAN 96 IN. (2.44 M) ABOVE THE FINISHED FLOOR OR AT THE MOUNTING HEIGHT SPECIFIED USING THE PERFORMANCE-BASED ALTERNATIVE OF NFPA 18.5.5.9.
14. NFPA 72 10.4.4 (3) MOUNT FIRE ALARM CONTROL PANELS AND ANNUNCIATORS AT A MAXIMUM OF 48" TO THE TOP OF THE CONTROL PANEL OR KEY BOARDS.
15. CEILING MOUNTED HORN / SPEAKER STROBE
16. MONITOR MODULE
17. RATE OF RISE HEAT DETECTOR, MOUNTED IN ABOVE CEILING / ATTIC SPACE.
18. APPROVED WIRE MANAGEMENT, i.e. J-HOOK OR D-RING.
19. ABOVE CEILING CIRCUITS ROUTING IN AN ACCESSIBLE ATTIC SPACE.
20. NON-ACCESSIBLE CEILINGS MUST USE EITHER EMT OR APPROVED WIREMOLD RACEWAY, AS SHOWN ON PLANS.
21. MULTI-CRITERIA PHOTOELECTRIC SMOKE / CO DETECTOR WITH SOUNDER BASE. MOUNT IN AREAS WHERE FOSSIL FUEL IS USED.
23. NFPA 72 17.5.3.1.4 WHERE CONCEALED ACCESSIBLE SPACES ABOVE SUSPENDED CEILINGS ARE USED AS A RETURN AIR PLENUM MEETING THE REQUIREMENTS OF NFPA 90A DETECTION SHALL BE PROVIDED IN ONE OF THE FOLLOWING MEANS:
1. SMOKE DETECTION SHALL BE PROVIDED IN ACCORDANCE WITH 17.7.5.2, OR
2. SMOKE DETECTION SHALL BE PROVIDED AT EACH CONNECTION FROM THE RETURN AIR PLENUM TO THE CENTRAL AIR-HANDLING SYSTEM.
24. NFPA 72 7.7.2.1 WITH EVERY NEW SYSTEM, A DOCUMENTATION CABINET SHALL BE INSTALLED AT THE SYSTEM CONTROL UNIT OR AT ANOTHER APPROVED LOCATION AT THE PROTECTED PREMISES.
25. NFPA 72 17.7.6.4.2.1 WHERE THE DETECTION OF SMOKE IN THE SUPPLY AIR SYSTEM IS REQUIRED BY OTHER NFPA STANDARDS, A DETECTOR(S) LISTED FOR THE AIR VELOCITY PRESENT SHALL BE INSTALLED IN THE SUPPLY AIR DUCT DOWNSTREAM OF BOTH THE FAN AND THE FILTERS.
26. SMOKE DETECTORS SHALL NOT BE CLOSER THAN 1' FROM SPRINKLERS.
27. NFPA 72 17.14.6 MANUAL FIRE ALARM BOXES SHALL BE LOCATED WITHIN 60" OF THE EXIT DOORWAY OPENING.



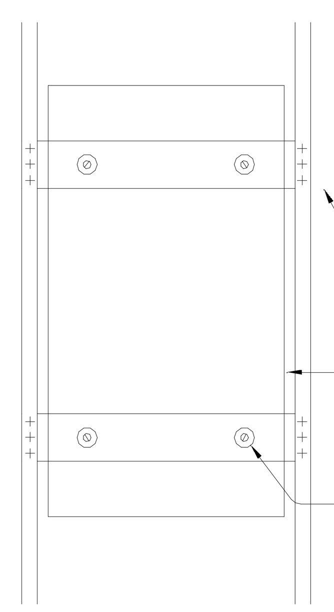
FIRE ALARM SYSTEM COMPONENT SCHEDULE

SYMBOL	EQUIPMENT DESCRIPTION	MODEL NO.	MANUFACTURER	CSFM LISTING
FACP	FIRE ALARM CONTROL PANEL	E3	GAMEWELL-FCI	7165-1703:0176
AMP	SPEAKER AMPLIFIER PANEL	AM-50	GAMEWELL-FCI	7165-1703:0125
BPS	NOTIFICATION BOOSTER PANEL	HPF24S8	HONEYWELL	7315-1637:0102
IM	ISOLATOR MODULE	M500X	SYSTEM SENSOR	7300-1653:0103
SM	SINGLE INPUT MONITOR MODULE	AMM-2F	GAMEWELL-FCI	7300-1703:0102
F	MANUAL PULL STATION	MS-7	GAMEWELL-FCI	7150-1703:0109
	ADDRESSABLE SMOKE DETECTOR	ASD-PL3	GAMEWELL-FCI	7272-1703:0501
	ADDRESSABLE HEAT DETECTOR	ATD-L3	GAMEWELL-FCI	7270-1703:0502
AH	CONVENTIONAL HEAT DETECTOR AH = ATTIC HEAT (ie. ABOVE CEILING)	5604	SYSTEM SENSOR	7270-1653:0167
cd 15/30/75/110	CEILING MOUNTED STROBE	SCRL	SYSTEM SENSOR	7125-1653:0504
cd 15/30/75/110	CEILING MOUNTED SPEAKER/STROBE	SPSCRL	SYSTEM SENSOR	7320-1653:0505
WP	WEATHERPROOF WALL MOUNTED SPEAKER	SPRK	SYSTEM SENSOR	7320-1653:0201

NOTE: CONTRACTOR IS RESPONSIBLE FOR REPLACEMENT OF COMPONENTS SHOWN ON THE FLOOR PLANS. REFER TO SPECIFICATION FOR SPARE DEVICE QUANTITY REQUIREMENTS

FIRE ALARM SYSTEM CABLE SCHEDULE

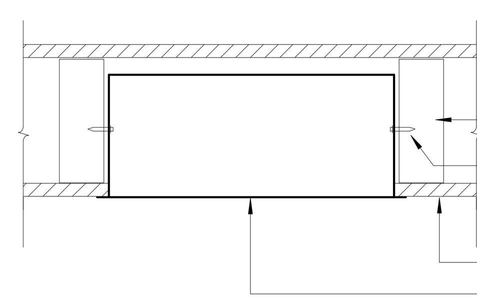
CABLE TAG	CIRCUIT DESCRIPTION	CABLE TYPE	GAUGE	CONDUCTORS	COLOR
A	SIGNAL LINE CIRCUIT (SLC)	FPL	#18	2	RED JACKET
B	NOTIFICATION APPLIANCE CIRCUIT (NAC)	FPL	#12	2	RED JACKET
F	UNDERGROUND SLC	WATER TIGHT	#14	2	BLACK JACKET
S	SPEAKER CIRCUIT	FPL OVERALL SHIELDED	#14	2	RED JACKET



NOTES:

1. USE FENDER WASHERS ON ALL SCREWS.
2. WEIGHT- 250LBS. MAXIMUM

SURFACE MOUNTED PANEL, WOOD FRAMING - ELEVATION VIEW



NOTES:

1. USE FENDER WASHERS ON ALL SCREWS.
2. WEIGHT- 250LBS. MAXIMUM

RECESSED PANEL IN WOOD FRAMED WALL - PLAN VIEW

1 SURFACE OR RECESSED PANELBOARD

SCALE:NTS

FIRE ALARM NOTES

1. WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE REGULATIONS,INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
   STATE CALIFORNIA CODE OF REGULATIONS (CCR) 2022 TITLE 24 CALIFORNIA BUILDING CODE
   PART 2, 2022 CALIFORNIA BUILDING CODE (CBC)
   PART 3, 2022 CALIFORNIA ELECTRICAL CODE (CEC), 2020 NEC.
   PART 4, 2022 CALIFORNIA MECHANICAL CODE (CMC)
   PART 5, 2022 CALIFORNIA PLUMBING CODE (CPC)
   PART 9, 2022 CALIFORNIA FIRE CODE (CFC)
   2022 NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 13 AND 72
   2021 NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 90A, 99 AND 101
   2019 NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 80
2. INSTALLATION OF THE SYSTEMS SHALL NOT BE STARTED UNTIL DETAILED DESIGN DOCUMENTATION AND SPECIFICATION, INCLUDING STATE FIRE MARSHALL LISTING SHEETS FOR EACH COMPONENT OF THE SYSTEM HAS BEEN APPROVED BY DSA.
3. UPON COMPLETION OF INSTALLATION OF THE SYSTEMS, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF A DSA PROJECT INSPECTOR.
4. A STAMPED SET OF APPROVED FIRE ALARM DESIGN DOCUMENTS SHALL BE ON THE JOB SITE AND USED FOR INSTALLATION.
5. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE CODE OR RECOGNIZED STANDARDS SHALL BE BROUGHT TO THE ATTENTION OF DSA AND THE ARCHITECT/ENGINEER OF RECORD.
6. DSA, ARCHITECT/ENGINEER AND OWNER SHALL BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO THE FINAL INSPECTION AND/ OR TESTING.
7. ALL PENETRATIONS THROUGH RATED ASSEMBLIES, REQUIRING OPENING PROTECTION SHALL BE PROVIDED WITHIN THE SPECIFICATION WITHIN THE FIRE ALARM SECTION.
8. AUDIBLE DEVICES SHALL PROVIDE A SOUND PRESSURE LEVEL OF 15 DECIBLES (Dba) ABOVE THE AVERAGE AMBIENT SOUND LEVEL OR 5 Dba ABOVE THE MAXIMUM SOUND LEVEL HAVING A DURATION AT LEAST 60 SECONDS, WHICHEVER IS GREATER, IN EVERY OCCUPIED SPACE WITHIN THE BUILDING.
9. FIRE ALARM EVACUATION SIGNAL SHALL SOUND A THREE-PULSE TEMPORAL PATTERN (NFPA 72, 18.4.2.1)
10. THE CONTRACTOR SHALL ADJUST/INSTALL DEVICES TO MAXIMIZE PERFORMANCE AND TO MINIMIZE FALSE ALARMS.
11. VISUAL DEVICES SHOULD NOT EXCEED 2 FLASHES PER SECOND AND SHOULD NOT BE SLOWER THAN 1 FLASH EVERY SECOND. THE DEVICE SHALL HAVE A PULSING LIGHT SOURCE NOT LESS THAN 15 CANDELA. VISUAL DEVICES WITHIN 55' FROM EACH OTHER SHALL BE SYNCHRONIZED.
12. UNDERGROUND AND EXTERIOR CONDUIT SHALL HAVE WATERTIGHT FITTINGS AND WIRE TO BE APPROVED FOR WET LOCATIONS.
13. ALL FIRE ALARM WIRING SHALL BE FPL (FIRE POWER LIMITED) OR FPLP (FIRE POWER LIMITED PLENUM) AS REQUIRED FOR APPLICATION. WIRING IN CONDUIT ABOVE GROUND MAY BE THHN OR THWN.
14. PER CEC STANDARDS, ALL WIRING IS TO BE PULLED THROUGH EACH JUNCTION BOX AND CONNECTED DIRECTLY TO EACH FIRE DEVICE. DO NOT SPLICE THE WIRE. ALL BOXES TO BE SIZED PER CEC.
15. IN AREA OF CONSTRUCTION OR POSSIBLE DAMAGE/CONTAMINATION OF NEWLY INSTALLED FIRE ALARM DEVICES SHALL BE COVERED UNTIL AREA IS READY TO BE TURNED OVER TO THE OWNER.
16. ALL FIRE ALARM CIRCUITS ARE TO BE IN CONDUIT, SURFACE RACEWAY OR OPEN RUN ABOVE THE CEILINGS, UNDER FLOORS AND IN WALLS IN A NEAT AND PROTECTED MANOR AS INDICATED ON THE DESIGN DOCUMENTS. EXPOSED CIRCUITS ARE ONLY PERMITTED WHEN NOTED AS EXPOSED ON DESIGN DOCUMENTS.
17. FIRE ALARM PANEL, REMOTES, AND COMPONENTS SHALL BE SECURED TO MOUNTING SURFACES PER MANUFACTURERS SPECIFICATIONS. NO DEVICE SHALL EXCEED THE WEIGHT OF 20 LBS. WITHOUT SPECIAL MOUNTING DETAILS.
18. A DEDICATED BRANCH CIRCUIT SHALL BE PROVIDED FOR FIRE ALARM EQUIPMENT. THIS CIRCUIT SHALL BE ENERGIZED FROM A COMMON USE AREA PANEL AND SHALL HAVE NO OTHER OUTLETS. THE BREAKER SHALL HAVE A RED LOCKING DEVICE TO BLOCK THE HANDLE IN THE "ON" POSITION. THE CIRCUIT BREAKER SHALL BE LABELED "FIRE ALARM CIRCUIT CONTROL". CIRCUIT ID TO BE LABELED AT FIRE PANEL/EXPANDERS.
19. THE INSTALLER CONTRACTOR SHALL PROVIDE A RECORD OF COMPLETION PER NFPA 72, FIGURE 7.8.2(a).
20. NFPA 72 10.4.4 CONTROL PANELS, REMOTE ANNUNCIATORS SHALL BE MOUNTED WITH THE TOP OF THE CONTROL DEVICE OR KEYPAD TO BE A MAXIMUM OF 48".
21. THE INSTALLING CONTRACTOR SHALL PROVIDE SYSTEM PROGRAMMING FOR SUPERVISORY MONITORING PER CBC SECTION 901.6.
22. SUPERVISORY MONITORING SHALL BE TESTED AND VERIFIED AS SENDING CORRECT SIGNALS IN CONJUNCTION WITH FINAL ACCEPTANCE TEST.
23. OWNER SHALL BE RESPONSIBLE FOR ESTABLISHING A FIRE SYSTEM MONITORING CONTRACT OR PROVISIONS.
24. THE FIRE ALARM SYSTEM SHALL CONFORM TO 2022 CALIFORNIA ELECTRICAL CODE (CEC) ARTICLE 760 AND 2022 CALIFORNIA FIRE CODE (CFC) SECTION 907.
25. BEFORE REQUESTING FINAL APPROVAL OF THE INSTALLATION THE INSTALLING CONTRACTOR SHALL FURNISH A WRITTEN STATEMENT TO THE DSA PROJECT INSPECTOR TO THE EFFECT THAT THE SYSTEM HAS BEEN INSTALLED AND TESTED IN ACCORDANCE WITH THE 2022 NFPA 72 SECTION 14.4.1
26. UPON COMPLETION OF THE INSTALLATION OF THE FIRE ALARM SYSTEM, A SATISFACTORY TEST OF THE SYSTEM SHALL BE MADE IN THE PRESENCE OF THE DSA PROJECT INSPECTOR.
27. PROVIDE A RECORD OF COMPLETION PER NFPA 72 CHAPTER 7.5.6.
28. AUTOMATIC FIRE ALARM SYSTEM SHALL TRANSMIT THE ALARM, SUPERVISORY AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION AS REQUIRED BY NFPA 72 AND CBC 907.6.6. THE SUPERVISING STATION SHALL BE LISTED AS EITHER UUFX OR UUIS BY UL OR SHALL MEET THE REQUIREMENTS OF FM STANDARDS 3011.
29. TEST, INSPECTION AND MAINTENANCE SHALL COMPLY WITH NFPA 72 CHAPTER 14 REQUIREMENTS.
30. EACH BUILDING TO BE A SEPARATE SPEAKER ZONE. (CFC 907.6.4).
31. CARBON MONOXIDE ALARM SIGNAL SHALL SOUND A FOUR-PULSE TEMPORAL PATTERN (NFPA 72, 18.4.3.2)
32. MICROPHONE ACCESSIBLITY SHALL COMPLY WITH CBC 11B-305 AND 11B-308.
33. ALL CONSTRUCTION AND DEMOLITION SHALL BE IN ACCORDANCE WITH CHAPTER 33 OF THE CBS AND CFC, AND WRITTEN SITE FIRE SAFETY PLAN.

FIRE ALARM SYSTEM DESCRIPTION

SCOPE OF THIS PROJECT IS TO REPLACE THE EXISTING FIRE ALARM SYSTEM WITH A NEW GAMEWELL VOICE EVACUATION SYSTEM. ALL EXISTING PATHWAY, AND DEVICE BOXES SHALL BE REUSED WHERE POSSIBLE. CONTRACTOR SHALL PROVIDE NEW PATHWAY IN AREAS WHERE CABLE CAN NOT BE CONCEALED ABOVE CEILING. CABLE ABOVE CEILING WHEN NOT IN EXISTING CONDUIT WILL BE FREE AIR. CONTRACTOR SHALL PROVIDE NEW DEVICE BOXES WHERE THE EXISTING BACK BOXES CAN NOT BE RE-USED OR ARE NOT LOCATED IN THE PROPER LOCATION OF THE NEW DEVICE. ALL SPEAKER CABLE AND COMPONENTS WILL BE NEW.

FIRE ALARM SYSTEM: CLASS B
IDC: CLASS B
SLC CIRCUIT: CLASS B
NOTIFICATION CIRCUIT: CLASS B

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REGISTERED PROFESSIONAL ENGINEER
#E015491
Exp. 06/30/25
SCOTT WHEELER
ELECTRICAL
STATE OF CALIFORNIA

Plaza Robles HS Fire Alarm Upgrade

9434 Thornton Rd, Stockton, CA 95209

REVISIONS

#	DESCRIPTION	DATE
1	DSA SUBMISSION	2025-03-05

DESIGNER: Designer

SCALE: As indicated

DATE:2025.03.05

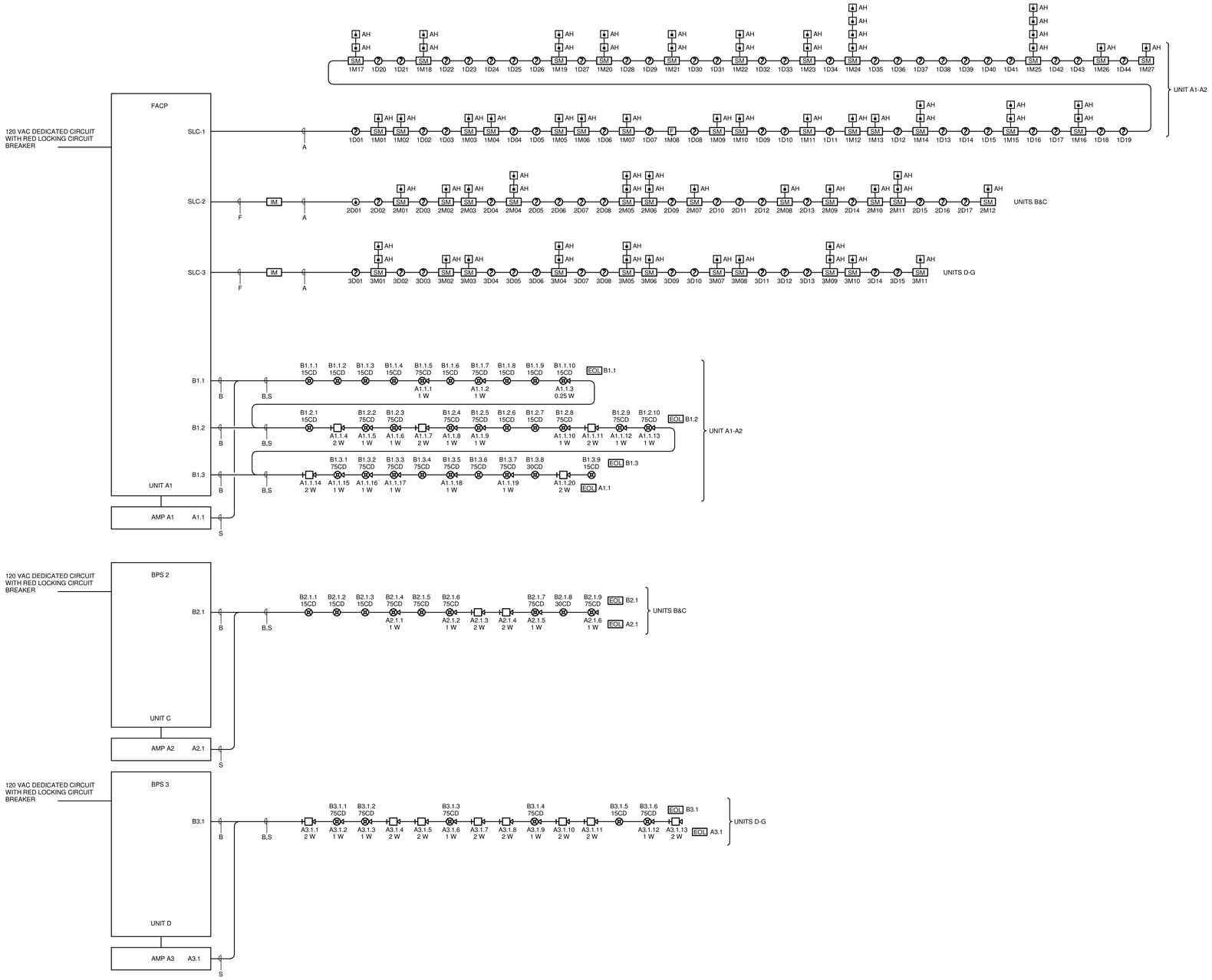
DSA APP. #: 02-123150

TITLE:

FIRE ALARM MATRIX, SCHEDULES AND NOTES

DRAWING NO.

FA0.2



1 FIRE ALARM RISER DIAGRAM

SCALE:NTS

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Plaza Robles HS Fire Alarm Upgrade

9434 Thornton Rd, Stockton, CA 95209

REVISIONS

#	DESCRIPTION	DATE
1	DSA SUBMISSION	2025-03-05

DESIGNER: Designer

SCALE: NTS

DATE: 2025.03.05

DSA APP. #: 02-123150

TITLE:

FIRE ALARM RISER DIAGRAM

DRAWING NO.

FA0.3

FACP CALCULATIONS

Signaling Line Circuit Loading		DEVICE		SUBTOTAL	
Qty	Device	Standby	Alarm	Standby	Alarm
1	FACP	0.275000	0.440000	0.275000	0.440000
1	PULL STATION	0.000300	0.000900	0.000300	0.000900
73	SMOKE DETECTOR	0.000300	0.009000	0.021900	0.657000
1	HEAT DETECTOR	0.000300	0.002400	0.000300	0.002400
49	SINGLE INPUT MODULE	0.000750	0.002050	0.036750	0.100450
2	ISOLATION MODULE	0.000300	0.002400	0.000600	0.004800
			Signaling Line Circuit Load:	0.334850	1.205550

Notification Circuit Loading									
DEVICE	CD	DRAW (EA)	B1.1	B1.2	B1.3	B1.4	NAC5	NAC6	TOTAL
SPEAKER STROBE	15	0.008	1						0.008
SPEAKER STROBE	30	0.010		2					0.019
SPEAKER STROBE	75	0.030	6	6					0.360
SPEAKER STROBE	110	0.045							
STROBE	15	0.008	5	1					0.048
STROBE	30	0.010		3					0.030
STROBE	75	0.030							
STROBE	110	0.045							
Notification Appliance Circuit Loading:			0.228	0.237					0.465

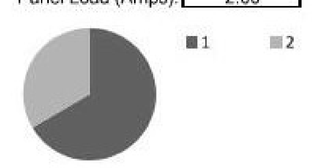
Notification Circuit Voltage Drop					
CIRCUIT ID	TOTAL A	LENGTH FT.	AWG	%VD	VD
B1.1	0.228	225	12	0.97%	0.20
B1.2	0.237	230	12	1.03%	0.21
B1.3			12		
B1.4			12		
NAC5			12		
NAC6			12		

Battery Calculation	Standby	Alarm
Totals Panel Current:	0.335	1.670
Hours in Standby:	24	
Standby Ah:	8.04	
Minutes in Alarm:		15
Alarm Ah		0.42
Spare/Future Capacity - 25%:		2.11
Minumum Battery Capacity Required - Ah:		10.57

Provide next largest capacity battery

Panel Loading

Panel Capacity (Amps): 6.00
Panel Load (Amps): 2.00



ALL LOADS ARE EXPRESSED IN AMPS

Fire Alarm Booster Calculations

Location: BUILDING F

Signaling Line Circuit Loading		DEVICE		SUBTOTAL	
Qty	Device	Standby	Alarm	Standby	Alarm
1	HPF24S8	0.091000	0.145000	0.091000	0.145000
			Panel Load:	0.091000	0.145000

Notification Circuit Loading									
DEVICE	CD	DRAW (EA)	B2.1	B2.2	B2.3	B2.4			TOTAL
SPEAKER STROBE	15	0.041							
SPEAKER STROBE	30	0.063							
SPEAKER STROBE	75	0.112	4						0.448
SPEAKER STROBE	110	0.195							
STROBE	15	0.071	4						0.284
STROBE	30	0.074							
STROBE	75	0.153	1						0.153
STROBE	110	0.195							
Notification Appliance Circuit Loading:			0.885						0.885

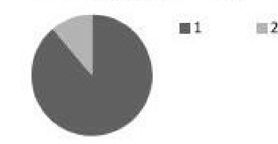
Notification Circuit Voltage Drop					
CIRCUIT ID	TOTAL A	LENGTH FT.	AWG	%VD	VD
B2.1	0.885		12		
B2.2			12		
B2.3			12		
B2.4			12		
			12		
			12		

Battery Calculation	Standby	Alarm
Totals Panel Current:	0.091	1.030
Hours in Standby:	24	
Standby Ah:	2.18	
Minutes in Alarm:		15
Alarm Ah		0.26
Spare/Future Capacity - 25%:		0.61
Minumum Battery Capacity Required - Ah:		7.00

Provide next largest capacity battery

Panel Loading

Panel Capacity (Amps): 10.00
Panel Load (Amps): 1.12



ALL LOADS ARE EXPRESSED IN AMPS

Fire Alarm Booster Calculations

Location: BUILDING G

Signaling Line Circuit Loading		DEVICE		SUBTOTAL	
Qty	Device	Standby	Alarm	Standby	Alarm
1	HPF24S8	0.091000	0.145000	0.091000	0.145000
			Panel Load:	0.091000	0.145000

Notification Circuit Loading									
DEVICE	CD	DRAW (EA)	B3.1	B3.2	B3.3	B3.4			TOTAL
SPEAKER STROBE	15	0.041							
SPEAKER STROBE	30	0.063							
SPEAKER STROBE	75	0.112	5						0.560
SPEAKER STROBE	110	0.195							
STROBE	15	0.071							
STROBE	30	0.074							
STROBE	75	0.153							
STROBE	110	0.195							
Notification Appliance Circuit Loading:			0.560						0.560

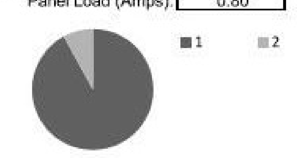
Notification Circuit Voltage Drop					
CIRCUIT ID	TOTAL A	LENGTH FT.	AWG	%VD	VD
B3.1	0.560	285	12	3.02%	0.62
B3.2			12		
B3.3			12		
B3.4			12		
			12		
			12		

Battery Calculation	Standby	Alarm
Totals Panel Current:	0.091	0.705
Hours in Standby:	24	
Standby Ah:	2.18	
Minutes in Alarm:		15
Alarm Ah		0.18
Spare/Future Capacity - 25%:		0.59
Minumum Battery Capacity Required - Ah:		7.00

Provide next largest capacity battery

Panel Loading

Panel Capacity (Amps): 10.00
Panel Load (Amps): 0.80



ALL LOADS ARE EXPRESSED IN AMPS

AMP A1 CALCULATIONS

		Standby Current (amps)					Alarm Current (amps)				
Device Type	QTY	Watts		Current Draw		Total	Qty		Current Draw		Total
1. System											
AM-50	1	50	X	0.0860	=	0.0860	0	X	2.2060	=	2.2060
			X		=		0	X		=	0.0000
			X		=		0	X		=	0.0000
2. Speakers											
Total Speaker Watts @ 25Vrms		24.25							0.9700	=	0.9700
Total Speaker Watts @ 70.7Vrms									0.0000	=	0.0000
				Total Standby Load		**0.0860**	**Total Alarm Load**				**3.1760**

0

		Required Standby Time in Hours			
Standby Load Current (Amps)	**0.0860 Amps**	X	24	=	2.064 AH
		Required Alarm Time in Hours			
Alarm Load Current (Amps)	**3.1760 Amps**	X	15	=	0.794 AH
			Total Current Load		**2.86 AH**
			*Multiply by the Derating Factor	=	x 1.25
			Total Ampere Hours Required		**3.57 AH**
	Recommended Batteries:	**7AH BATTERIES**			

*Derating Factor required to compensate for the non-linear discharge characteristic of a battery.

AMP A2 CALCULATIONS

		Standby Current (amps)					Alarm Current (amps)				
Device Type	QTY	Watts		Current Draw		Total	Qty		Current Draw		Total
1. System											
AM-50	1	50	X	0.0860	=	0.0860	0	X	2.2060	=	2.2060
			X		=		0	X		=	0.0000
			X		=		0	X		=	0.0000
2. Speakers											
Total Speaker Watts @ 25Vrms		4							0.1600	=	0.1600
Total Speaker Watts @ 70.7Vrms									0.0000	=	0.0000
				Total Standby Load		**0.0860**	**Total Alarm Load**				**2.3660**

0

		Required Standby Time in Hours			
Standby Load Current (Amps)	**0.0860 Amps**	X	24	=	2.064 AH
		Required Alarm Time in Hours			
Alarm Load Current (Amps)	**2.3660 Amps**	X	15	=	0.592 AH
			Total Current Load		**2.66 AH**
			*Multiply by the Derating Factor	=	x 1.25
			Total Ampere Hours Required		**3.32 AH**
	Recommended Batteries:	**7AH BATTERIES**			

*Derating Factor required to compensate for the non-linear discharge characteristic of a battery.

AMP A3 CALCULATIONS

		Standby Current (amps)					Alarm Current (amps)				
Device Type	QTY	Watts		Current Draw		Total	Qty		Current Draw		Total
1. System											
AM-50	1	50	X	0.0860	=	0.0860	0	X	2.2060	=	2.2060
			X		=		0	X		=	0.0000
			X		=		0	X		=	0.0000
2. Speakers											
Total Speaker Watts @ 25Vrms		5							0.2000	=	0.2000
Total Speaker Watts @ 70.7Vrms									0.0000	=	0.0000
				Total Standby Load		**0.0860**	**Total Alarm Load**				**2.4060**

0

		Required Standby Time in Hours			
Standby Load Current (Amps)	**0.0860 Amps**	X	24	=	2.064 AH
		Required Alarm Time in Hours			
Alarm Load Current (Amps)	**2.4060 Amps**	X	15	=	0.602 AH
			Total Current Load		**2.67 AH**
			*Multiply by the Derating Factor	=	x 1.25
			Total Ampere Hours Required		**3.33 AH**
	Recommended Batteries:	**7AH BATTERIES**			

*Derating Factor required to compensate for the non-linear discharge characteristic of a battery.

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Exp. 06/30/25
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Plaza Robles HS Fire Alarm Upgrade

9434 Thornton Rd, Stockton, CA 95209

REVISIONS

#	DESCRIPTION	DATE
1	DSA SUBMISSION	2025-03-05

DESIGNER: Designer

SCALE:

DATE: 2025.03.05

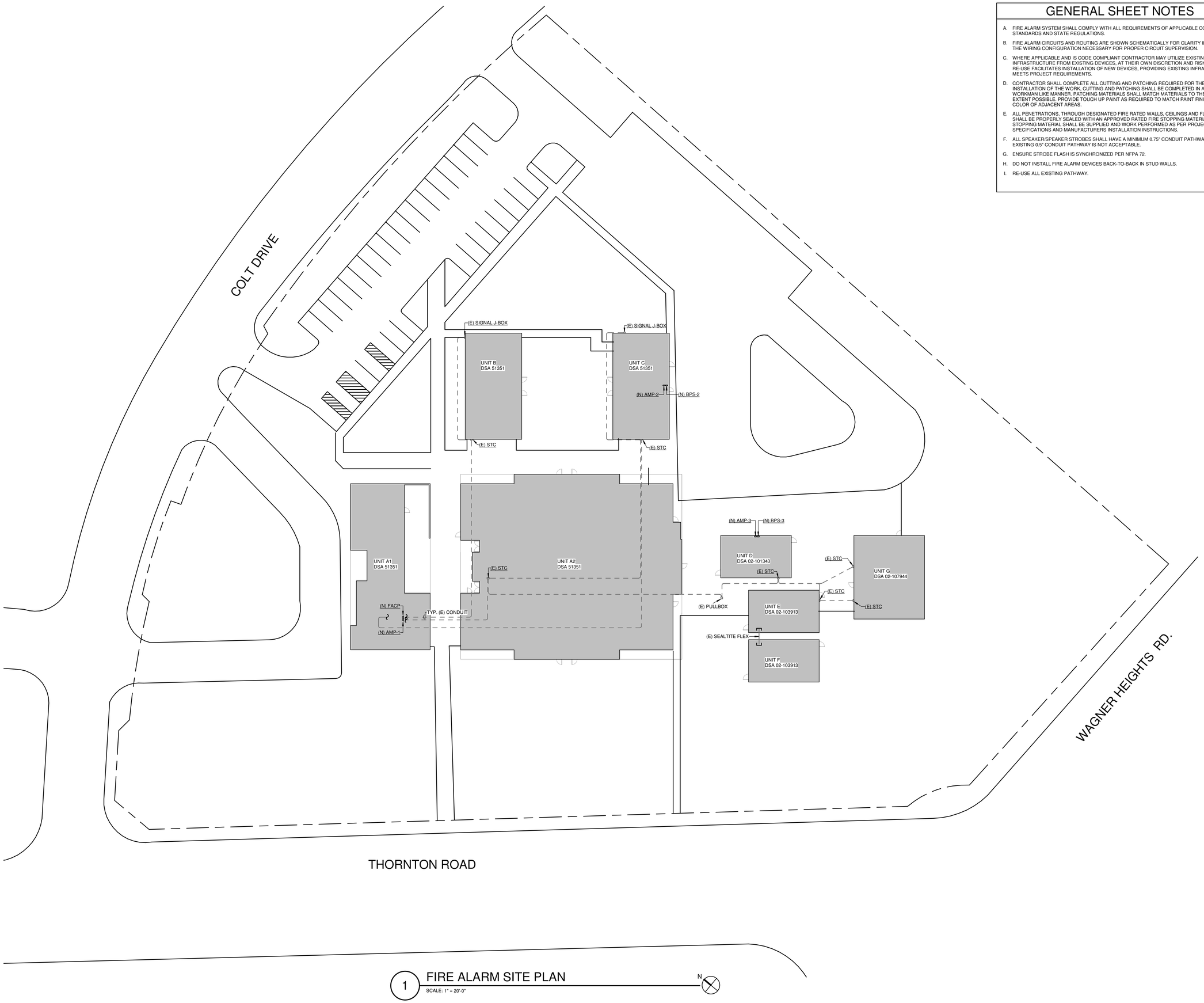
DSA APP. #: 02-123150

TITLE:

FIRE ALARM BATTERY CALCULATIONS

DRAWING NO.

FA0.4



1 FIRE ALARM SITE PLAN

SCALE: 1" = 20'-0"

GENERAL SHEET NOTES

A. FIRE ALARM SYSTEM SHALL COMPLY WITH ALL REQUIREMENTS OF APPLICABLE CODES, STANDARDS AND STATE REGULATIONS.

B. FIRE ALARM CIRCUITS AND ROUTING ARE SHOWN SCHEMATICALLY FOR CLARITY ILLUSTRATING THE WIRING CONFIGURATION NECESSARY FOR PROPER CIRCUIT SUPERVISION.

C. WHERE APPLICABLE AND IS CODE COMPLIANT CONTRACTOR MAY UTILIZE EXISTING INFRASTRUCTURE FROM EXISTING DEVICES, AT THEIR OWN DISCRETION AND RISK WHERE RE-USE FACILITATES INSTALLATION OF NEW DEVICES, PROVIDING EXISTING INFRASTRUCTURE MEETS PROJECT REQUIREMENTS.

D. CONTRACTOR SHALL COMPLETE ALL CUTTING AND PATCHING REQUIRED FOR THE INSTALLATION OF THE WORK. CUTTING AND PATCHING SHALL BE COMPLETED IN A NEAT AND WORKMAN LIKE MANNER. PATCHING MATERIALS SHALL MATCH MATERIALS TO THE GREATEST EXTENT POSSIBLE. PROVIDE TOUCH UP PAINT AS REQUIRED TO MATCH PAINT FINISH AND COLOR OF ADJACENT AREAS.

E. ALL PENETRATIONS, THROUGH DESIGNATED FIRE RATED WALLS, CEILINGS AND FLOOR SLABS SHALL BE PROPERLY SEALED WITH AN APPROVED RATED FIRE STOPPING MATERIAL. ALL FIRE STOPPING MATERIAL SHALL BE SUPPLIED AND WORK PERFORMED AS PER PROJECT SPECIFICATIONS AND MANUFACTURERS INSTALLATION INSTRUCTIONS.

F. ALL SPEAKER/SPEAKER STROBES SHALL HAVE A MINIMUM 0.75" CONDUIT PATHWAY. USE OF EXISTING 0.5" CONDUIT PATHWAY IS NOT ACCEPTABLE.

G. ENSURE STROBE FLASH IS SYNCHRONIZED PER NFPA 72.

H. DO NOT INSTALL FIRE ALARM DEVICES BACK-TO-BACK IN STUD WALLS.

I. RE-USE ALL EXISTING PATHWAY.

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REVISIONS

#	DESCRIPTION	DATE
1	DSA SUBMISSION	2025-03-05

DESIGNER: Designer

SCALE: 1" = 20'-0"

DATE: 2025.03.05

DSA APP. #: 02-123150

TITLE:

SITE PLAN

DRAWING NO.

FA1.0

GENERAL SHEET NOTES

A. FIRE ALARM SYSTEM SHALL COMPLY WITH ALL REQUIREMENTS OF APPLICABLE CODES, STANDARDS AND STATE REGULATIONS.

B. FIRE ALARM CIRCUITS AND ROUTING ARE SHOWN SCHEMATICALLY FOR CLARITY ILLUSTRATING THE WIRING CONFIGURATION NECESSARY FOR PROPER CIRCUIT SUPERVISION.

C. WHERE APPLICABLE AND IS CODE COMPLIANT CONTRACTOR MAY UTILIZE EXISTING INFRASTRUCTURE FROM EXISTING DEVICES, AT THEIR OWN DISCRETION AND RISK WHERE RE-USE FACILITATES INSTALLATION OF NEW DEVICES, PROVIDING EXISTING INFRASTRUCTURE MEETS PROJECT REQUIREMENTS.

D. CONTRACTOR SHALL COMPLETE ALL CUTTING AND PATCHING REQUIRED FOR THE INSTALLATION OF THE WORK. CUTTING AND PATCHING SHALL BE COMPLETED IN A NEAT AND WORKMAN LIKE MANNER. PATCHING MATERIALS SHALL MATCH MATERIALS TO THE GREATEST EXTENT POSSIBLE. PROVIDE TOUCH UP PAINT AS REQUIRED TO MATCH PAINT FINISH AND COLOR OF ADJACENT AREAS.

E. ALL PENETRATIONS, THROUGH DESIGNATED FIRE RATED WALLS, CEILINGS AND FLOOR SLABS SHALL BE PROPERLY SEALED WITH AN APPROVED RATED FIRE STOPPING MATERIAL. ALL FIRE STOPPING MATERIAL SHALL BE SUPPLIED AND WORK PERFORMED AS PER PROJECT SPECIFICATIONS AND MANUFACTURERS INSTALLATION INSTRUCTIONS.

F. ALL SPEAKER/SPEAKER STROBES SHALL HAVE A MINIMUM 0.75" CONDUIT PATHWAY. USE OF EXISTING 0.5" CONDUIT PATHWAY IS NOT ACCEPTABLE.

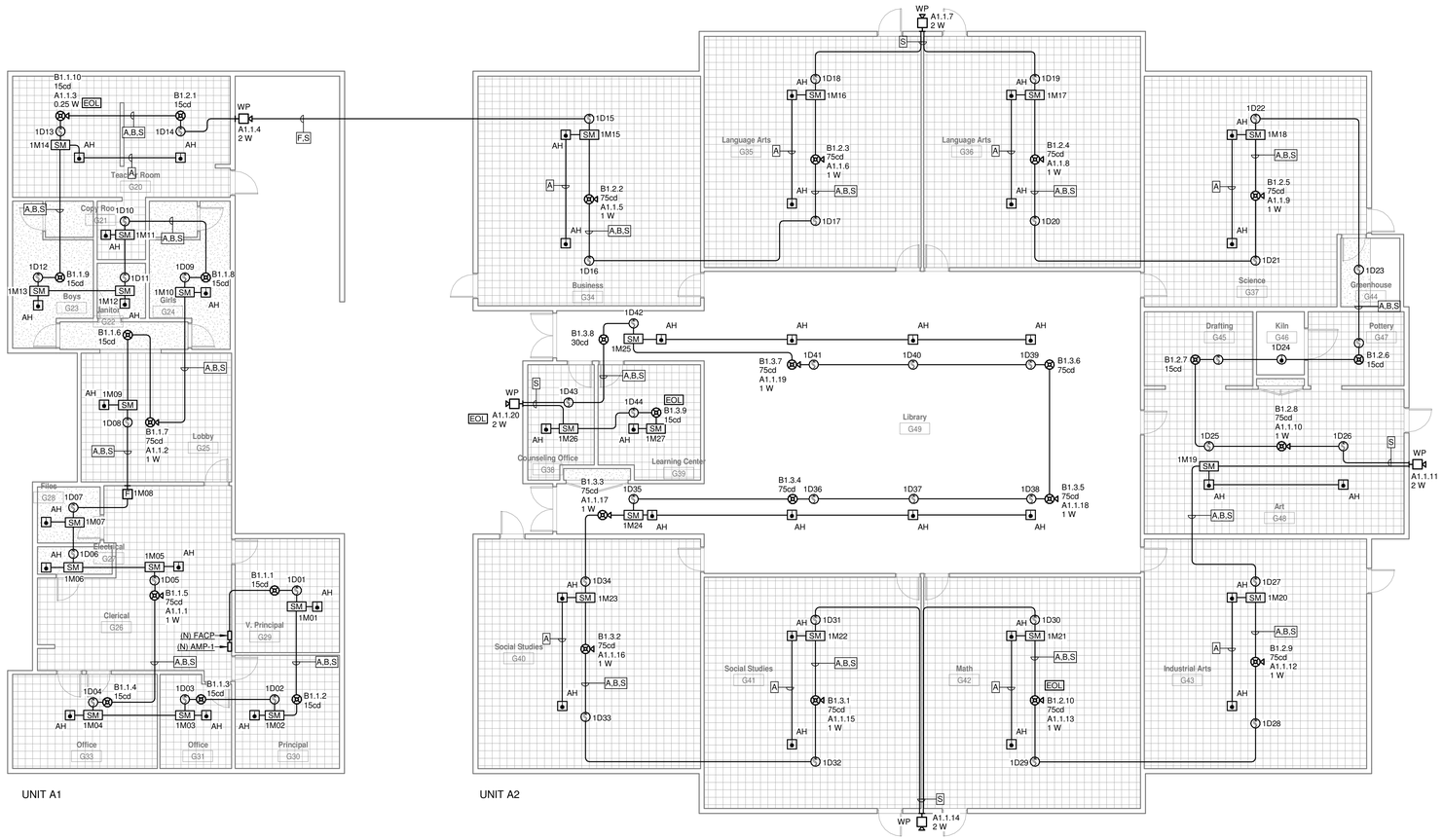
G. ENSURE STROBE FLASH IS SYNCHRONIZED PER NFPA 72.

H. DO NOT INSTALL FIRE ALARM DEVICES BACK-TO-BACK IN STUD WALLS.

I. RE-USE ALL EXISTING PATHWAY.

CEILING LEGEND

	ACOUSTIC DROP CEILING
	ACOUSTIC DROP CEILING
	HARD LID CEILING
	OPEN TO STRUCTURE



1 FIRE ALARM PLAN - UNIT A1-A2

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

N

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REGISTERED PROFESSIONAL ENGINEER #E035480 SCOTT WHEELER ELECTRICAL STATE OF CALIFORNIA

Plaza Robles HS Fire Alarm Upgrade

9434 Thornton Rd, Stockton, CA 95209

REVISIONS

#	DESCRIPTION	DATE
1	DSA SUBMISSION	2025-03-05

DESIGNER: Designer

SCALE: As indicated

DATE: 2025.03.05

DSA APP. #: 02-123150

TITLE:

FIRE ALARM PLAN - UNIT A

DRAWING NO.

FA2.1

GENERAL SHEET NOTES

A. FIRE ALARM SYSTEM SHALL COMPLY WITH ALL REQUIREMENTS OF APPLICABLE CODES, STANDARDS AND STATE REGULATIONS.

B. FIRE ALARM CIRCUITS AND ROUTING ARE SHOWN SCHEMATICALLY FOR CLARITY ILLUSTRATING THE WIRING CONFIGURATION NECESSARY FOR PROPER CIRCUIT SUPERVISION.

C. WHERE APPLICABLE AND IS CODE COMPLIANT CONTRACTOR MAY UTILIZE EXISTING INFRASTRUCTURE FROM EXISTING DEVICES, AT THEIR OWN DISCRETION AND RISK WHERE RE-USE FACILITATES INSTALLATION OF NEW DEVICES, PROVIDING EXISTING INFRASTRUCTURE MEETS PROJECT REQUIREMENTS.

D. CONTRACTOR SHALL COMPLETE ALL CUTTING AND PATCHING REQUIRED FOR THE INSTALLATION OF THE WORK. CUTTING AND PATCHING SHALL BE COMPLETED IN A NEAT AND WORKMAN LIKE MANNER. PATCHING MATERIALS SHALL MATCH MATERIALS TO THE GREATEST EXTENT POSSIBLE. PROVIDE TOUCH UP PAINT AS REQUIRED TO MATCH PAINT FINISH AND COLOR OF ADJACENT AREAS.

E. ALL PENETRATIONS, THROUGH DESIGNATED FIRE RATED WALLS, CEILINGS AND FLOOR SLABS SHALL BE PROPERLY SEALED WITH AN APPROVED RATED FIRE STOPPING MATERIAL. ALL FIRE STOPPING MATERIAL SHALL BE SUPPLIED AND WORK PERFORMED AS PER PROJECT SPECIFICATIONS AND MANUFACTURERS INSTALLATION INSTRUCTIONS.

F. ALL SPEAKER/SPEAKER STROBES SHALL HAVE A MINIMUM 0.75" CONDUIT PATHWAY. USE OF EXISTING 0.5" CONDUIT PATHWAY IS NOT ACCEPTABLE.

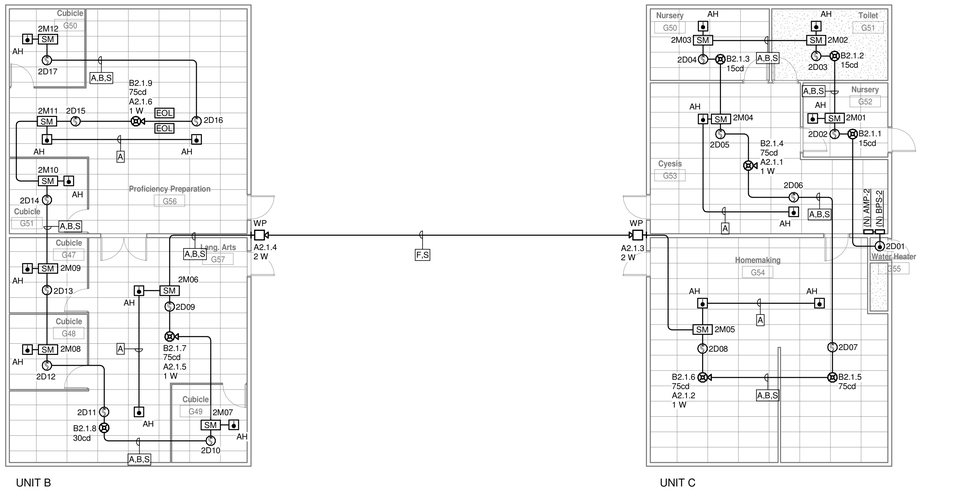
G. ENSURE STROBE FLASH IS SYNCHRONIZED PER NFPA 72.

H. DO NOT INSTALL FIRE ALARM DEVICES BACK-TO-BACK IN STUD WALLS.

I. RE-USE ALL EXISTING PATHWAY.

CEILING LEGEND

	ACOUSTIC DROP CEILING
	ACOUSTIC DROP CEILING
	HARD LID CEILING
	OPEN TO STRUCTURE



1 FIRE ALARM PLAN - UNIT B & C

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

N

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REGISTERED PROFESSIONAL ENGINEER
#E035480
EXP. 12-31-25
SCOTT WHEELER
ELECTRICAL
STATE OF CALIFORNIA

Plaza Robles HS Fire Alarm Upgrade

9434 Thornton Rd, Stockton, CA 95209

REVISIONS

#	DESCRIPTION	DATE
1	DSA SUBMISSION	2025-03-05

DESIGNER: Designer

SCALE: As indicated

DATE: 2025.03.05

DSA APP. #: 02-123150

TITLE:

FIRE ALARM PLAN - UNITS B & C

DRAWING NO.

FA2.2

GENERAL SHEET NOTES

A. FIRE ALARM SYSTEM SHALL COMPLY WITH ALL REQUIREMENTS OF APPLICABLE CODES, STANDARDS AND STATE REGULATIONS.

B. FIRE ALARM CIRCUITS AND ROUTING ARE SHOWN SCHEMATICALLY FOR CLARITY ILLUSTRATING THE WIRING CONFIGURATION NECESSARY FOR PROPER CIRCUIT SUPERVISION.

C. WHERE APPLICABLE AND IS CODE COMPLIANT CONTRACTOR MAY UTILIZE EXISTING INFRASTRUCTURE FROM EXISTING DEVICES, AT THEIR OWN DISCRETION AND RISK WHERE RE-USE FACILITATES INSTALLATION OF NEW DEVICES, PROVIDING EXISTING INFRASTRUCTURE MEETS PROJECT REQUIREMENTS.

D. CONTRACTOR SHALL COMPLETE ALL CUTTING AND PATCHING REQUIRED FOR THE INSTALLATION OF THE WORK. CUTTING AND PATCHING SHALL BE COMPLETED IN A NEAT AND WORKMAN LIKE MANNER. PATCHING MATERIALS SHALL MATCH MATERIALS TO THE GREATEST EXTENT POSSIBLE. PROVIDE TOUCH UP PAINT AS REQUIRED TO MATCH PAINT FINISH AND COLOR OF ADJACENT AREAS.

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CEILING LEGEND	
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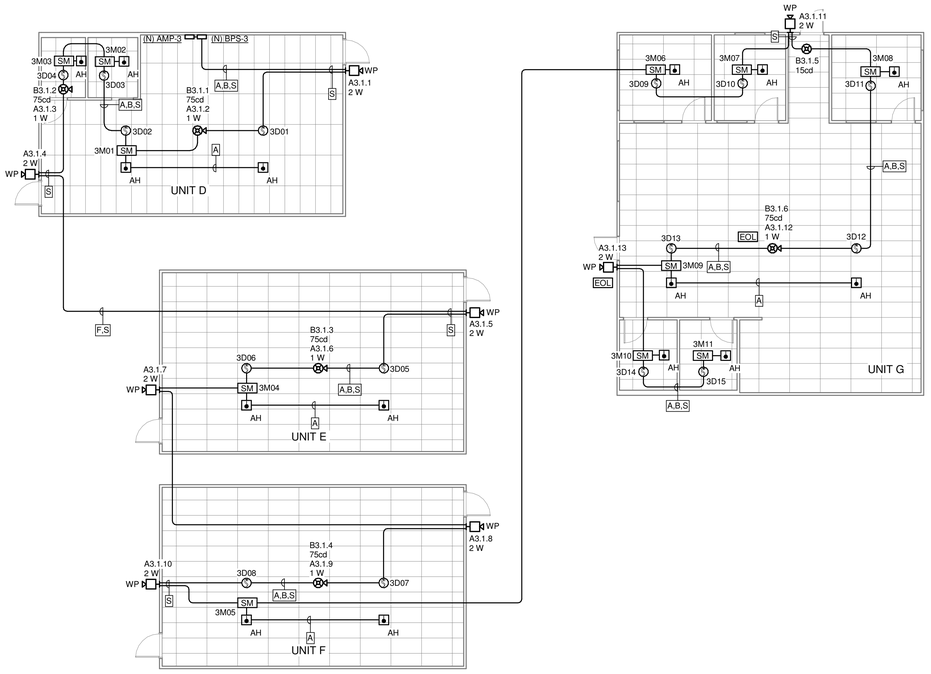
	ACOUSTIC DROP CEILING
	HARD LID CEILING
	OPEN TO STRUCTURE



1 FIRE ALARM PLAN - UNITS D-G

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

N

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REVISIONS

#	DESCRIPTION	DATE
1	DSA SUBMISSION	2025-03-05

DESIGNER: Designer

SCALE: As indicated

DATE: 2025.03.05

DSA APP. #: 02-123150

TITLE:

FIRE ALARM PLAN - UNITS D-G

DRAWING NO.

FA2.3